Harris & Associates

December 6, 2017

Fred Sobke and Jesus Monzon
Baja-Mex Insurance Services, Inc.
4575 Camino De La Plaza
San Ysidro, California 92173

Subject: Air Quality Study for the Virginia Avenue Parking Structure Project

Dear Mr. Sobke and Mr. Monzon:

This letter report has been prepared to analyze the potential air quality impacts resulting from the construction and operation of the Virginia Avenue Parking Structure Project in compliance with the California Environmental Quality Act (CEQA) requirements. The purpose of this letter report is to provide adequate information to make appropriate planning decisions and to make determinations regarding compliance with applicable regulations. This letter report provides an update to the *Air Quality/Greenhouse Gas Memo Virginia Ave Parking Structure Project* (Amec Foster Wheeler 2015) using the latest methodology and project information. Because the project complies with the City of San Diego Climate Action Plan (CAP) Checklist, no additional quantitative greenhouse gas emissions analysis is required for the proposed project.

Project Description

Baja-Mex Insurance Services, Inc. proposes to construct a 6-story parking structure with commercial/retail uses on the corner of Camino De La Plaza and Virginia Avenue to accommodate the existing parking needs from surrounding uses, including patrons of the Las Americas Premium Outlets and the International Border. The project is currently occupied by a one-story 2,400 square foot Baja-Mex Insurance retail building and paved parking spaces.

The project involves the demolition of an existing structure and the construction of a multi-level structure that would include retail on the ground floor and approximately 349 parking spaces on floors two through six. The commercial portion of the structure would include 13,210 square feet of retail space. The parking structure would be no taller than 70 feet in elevation and would be no more than six stories above grade. Access to the project site would be via a driveway from Camino De La Plaza. A left turn pocket would be added which would require the widening of the north side of Camino De La Plaza, west of Virginia Avenue. The driveway would allow left turns (westbound to southbound) into the site; however, the driveway would restrict vehicles exiting the site to right turns via a raised median.

Heavy equipment that could be used onsite for some or all of the demolition, grading and site preparation phases includes standard equipment such as dozers, graders, tractors, loaders, backhoes, and concrete saws. The construction and paving phases may involve use of cement mixers, cranes, forklifts, tractors, loaders, backhoes, rollers, pavers, and an air compressor. Construction is estimated to proceed for 9 months. Standard daytime operating hours would be used (7am-7pm) in accordance with the City of San Diego Noise Ordinance. Nighttime or late evening construction shall not be allowed near sensitive receptors. No noise-generating construction activities shall take place on Saturdays, Sundays and holidays.

Existing Setting

The project is located on an approximately 1-acre site that is currently a one-story Baja-Mex Insurance retail building. The site is predominantly flat at an elevation of 56 feet above mean sea leave (AMSL). Land uses immediately surrounding the project site include the Las Americas Premium Outlets to the west and north; a vacant dirt lot to the southwest; and parking lots to the south and east.

Climate and Meteorology

The project site is located in the San Diego Air Basin (SDAB), which is regulated by the San Diego Air Pollution Control District (SDAPCD). The climate in the proposed project area is classified as a Mediterranean climate, with warm, dry summers and mild, wet winters. Average annual precipitation is 10.18 inches. Most precipitation occurs between the months of October and April. The normal high temperature in January is 64.7 degrees Fahrenheit (°F) with a normal low of 48°F. In July, the normal high temperature is 74.8°F and the normal low is 64.4°F.

One of the main determinants of the climatology is a persistent high-pressure area (the Pacific High) in the eastern Pacific Ocean. In the summer, this pressure center is located well to the north, causing storm tracks to be directed north of San Diego. When the Pacific High moves southward during the winter, this pattern changes, and low-pressure storms are brought into the region, causing widespread precipitation. The semi-permanent high-pressure cell can also create temperature inversions, where a warmer mass of air sits above a cooler mass of air, which can result in decreased atmospheric dispersion often trapping pollutants close to the ground, and reducing the local air quality. The types of inversions include subsidence and radiation. A subsidence inversion generally occurs during warmer months as descending air associated with the high-pressure cell meets cool marine air. The radiation inversion occurs on cool winter nights when air close to the ground cools by heat radiation while the air above the ground retains its warmer temperature (Western Regional Climate Center 2017).

Existing Air Quality in the Project Area

Air quality laws and regulations have established two wide-ranging categories of air pollutants that include “criteria air pollutants” and “toxic air contaminants.” Criteria air pollutants are particle pollution, which are often referred to as particulate matter, carbon monoxide, sulfur oxides, nitrogen oxides, lead and ground level ozone. This set of common pollutants are regulated by both federal and state governments standards that are based on ambient air quality criteria in regards to both health and environmental effects.

Toxic air contaminants (TACs) are substances in which there are no ambient air quality standards. However, TACs are known to cause adverse health effects, including the risk of cancer upon exposer, or acute and/or chronic non-cancer health effects. Some examples of TACs include asbestos, certain metals and certain aromatic and chlorinated hydrocarbons. TACs are generated by a number of sources including both stationary sources such as gas stations and laboratories; and area sources such as landfills.

Table 1 presents an updated summary of both the National Ambient Air Quality Standards (NAAQS) and the California Ambient Air Quality Standards (CAAQS).

Table 1
California and National Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	Federal Standards	
		Concentration	Primary	Secondary
O_3	1-Hour	0.09 ppm (180 µg/m^3)	--	Same as Primary Standard
	8-Hour	0.070 ppm (137 µg/m^3)	0.070 ppm (137 µg/m^3)	
PM_{10}	24-Hour	50 µg/m^3	150 µg/m^3	Same as Primary Standard
	Annual Average	20 µg/m^3	--	
$PM_{2.5}$	24-Hour	--	35 µg/m^3	Same as Primary
	Annual Average	12 µg/m^3	12.0 µg/m^3	15.0 µg/m^3
CO	8-Hour	9.0 ppm (10 mg/m^3)	9.0 ppm (10 mg/m^3)	--
	1-Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	
NO_2	Annual Average	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)	Same as Primary Standard
	1-Hour	0.18 ppm (339 µg/m^3)	100 ppb (188 µg/m^3)	--
SO_2	1-Hour	0.25 ppm (665 µg/m^3)	75 ppb (196 µg/m^3)	--
	3-Hour	--	--	0.5 ppm (1300 µg/m^3)
	24 hour	0.04 ppm (105 µg/m^3)	0.14 ppm (for certain areas)	--
	Annual Average	--	0.030 ppm (for certain areas)	--
Pb	30-Day Average	1.5 µg/m^3	--	--
	Calendar Quarter	--	1.5 µg/m^3 (for certain areas)	Same as Primary Standard
	Rolling 3-Month Average	--	0.15 µg/m^3	Same as Primary Standard
Visibility Reducing Particles	8-Hour	Extinction coefficient of 0.23 per kilometer	--	
Sulfates	24 hour	25 µg/m^3	--	
H_2S	1 hour	0.03 ppm (42 µg/m^3)	--	
Vinyl Chloride	24-Hour	0.01 ppm (26 µg/m^3)	--	

Source: CARB 2016

Background Air Quality

The SDAPCD operates a network of ambient air monitoring stations throughout San Diego County. The purpose of the monitoring stations is to measure ambient concentrations of the pollutants and determine whether the ambient air quality meets the CAAQS and the NAAQS. Onsite ambient air quality data are available near the project site. The nearest ambient monitoring stations to the project location are: (1) the Otay Mesa-Donovan monitoring station, which is located approximately seven miles northeast of the project site and measures O_3, NO_2, and $PM_{2.5}$; and (2) the Chula Vista monitoring station which is located approximately six miles to the north of the project site and measures NO_2, O_3, PM_{10} and $PM_{2.5}$. Countywide data on ambient levels of CO and NO_2 are reported by the US Environmental Protection Agency (USEPA). Ambient pollutant concentrations from 2014-2016 from the monitoring stations nearest to the project site are listed in Table 2.

Table 2
Ambient Background Concentrations
(ppm unless otherwise specified)

Pollutant	Average Time	2014	2015	2016	Most Stringent Ambient Air Quality Standard	Monitoring Station
Ozone	8 hour	0.075	0.072	0.075	0.07	Otay Mesa – Donovan
	1 hour	0.082	0.087	0.092	0.09	Otay Mesa – Donovan
PM_{10}	Annual	23.4 µg/m^3	19.8 µg/m^3	21.8 µg/m^3	20 µg/m^3	Chula Vista
	24 Hour	58 µg/m^3	136 µg/m^3	79 µg/m^3	50 µg/m^3	Otay Mesa - Donovan
$PM_{2.5}$	Annual	9.2 µg/m^3	8.3 µg/m^3	8.7 µg/m^3	12 µg/m^3	Chula Vista
	24 Hour	26.5 µg/m^3	33.5 µg/m^3	23.9 µg/m^3	35 µg/m^3	Chula Vista
NO_2	Annual	0.020	0.017	0.017	0.030	San Diego County
	1 Hour	0.064	0.061	0.067	0.100	Otay Mesa – Donovan
CO	8 Hour	1.9	3.1	1.5	9.0	San Diego County
	1 Hour	3.5	1.9	2.1	20	San Diego County

Sources: CARB, www.arb.ca.gov; USEPA, www.epa.gov/outdoor-air-quality-data, for CO and Annual NO_2.

Regulatory Framework

Federal, state and local authorities have adopted rules and regulations requiring evaluation of the impact of a project on air quality and appropriate mitigation for air pollutant emissions. Air quality is determined by measured concentrations in ambient air of specific pollutants identified by the USEPA that impact public health and welfare.

Federal Regulations

The USEPA is responsible for enforcing the Federal Clean Air Act (CAA) of 1970, and its Amendments of 1977 and 1990. The CAA requires the USEPA to establish the NAAQS, which establish concentrations of "criteria pollutants" in the ambient air, which represent the maximum levels of background pollution considered to protect the public health and welfare with an adequate margin of safety. The CAA also specifies future dates for achieving compliance with the NAAQS. Primary and secondary NAAQS have been established for O_3, NO_2, CO, SO_2, PM_{10}, $PM_{2.5}$, and Pb. The NAAQS are shown, along with the CAAQS, in Table 1.

The 1990 amendments to the CAA identify specific emission reduction goals for areas not meeting the NAAQS. These amendments require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or to meet interim milestones.

In July 1997, the USEPA published additional standards for both particulate matter and O_3. The USEPA sought to refine the particulate standard by including a new standard for $PM_{2.5}$. The revised particulate standard added a new $PM_{2.5}$ 24-hour standard of 35 micrograms per cubic meter ($\mu g/m^3$) and annual standard of 12 $\mu g/m^3$. In addition to the new $PM_{2.5}$ standards, the USEPA retained the existing PM_{10} 24-hour standard of 150 $\mu g/m^3$. On October 1, 2015, a revised O_3 standard of 0.070 parts per million (ppm) was set by USEPA for the 8-hour standard.

The CAA also mandates that each state submit and implement a State Implementation Plan (SIP) for local areas not meeting these standards. These plans must include pollution control measures that demonstrate how the standards will be met. A SIP is a compilation of goals, strategies, schedules and enforcement actions that will lead the state (including the SDAB) into compliance with all federal air quality standards. Every change in a compliance schedule or plan must be incorporated into the SIP.

State Regulations

The CAA allows states to adopt ambient air quality standards and other regulations provided they are at least as stringent as federal standards. The California Air Resources Board (CARB) has established the more stringent CAAQS for the six criteria pollutants through the California Clean

Air Act of 1988, and has established CAAQS for additional pollutants, including sulfates, hydrogen sulfide, vinyl chloride and visibility-reducing particles. Areas that do not meet the NAAQS or the CAAQS for a particular pollutant are considered to be "nonattainment areas" for that pollutant. The CARB is the state regulatory agency with authority to enforce regulations to both achieve and maintain the NAAQS and CAAQS. The CARB is responsible for the development, adoption, and enforcement of the state's motor vehicle emissions program, as well as the adoption of the CAAQS. The CARB also reviews operations and programs of the local air districts, and requires each air district with jurisdiction over a nonattainment area to develop its own strategy for achieving the NAAQS and CAAQS. The local air district has the primary responsibility for the development and implementation of rules and regulations designed to attain the NAAQS and CAAQS, as well as the permitting of new or modified sources, development of air quality management plans, and adoption and enforcement of air pollution regulations.

Regional Regulations

The SDAPCD is the local agency responsible for the administration and enforcement of air quality regulations for San Diego County, which has the same boundaries as the SDAB. The SDAPCD, with input from the San Diego Association of Governments (SANDAG) is 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 1991, and is updated on a triennial basis. The RAQS was updated in 1995, 1998, 2001, 2004, 2009, and most recently in 2016. The RAQS outlines SDAPCD's plans and control measures designed to attain the state air quality standards for O_3. The SDAPCD has also developed the air basin's input to the SIP, which is required under the CAA for areas that are out of attainment of air quality standards. The SIP includes the SDAPCD's plans and control measures for attaining the O_3 NAAQS. The SIP is also updated on a triennial basis. The latest SIP update, which included an 8-hour O_3 attainment plan, was submitted by the CARB to the USEPA in 2016. The attainment schedule in the SIP called for the SDAB to attain the NAAQS for O_3 by 2018.

The RAQS relies on information from CARB and SANDAG, including mobile and area source emissions, as well as information regarding projected growth in the County, to project future emissions and then determine from that 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 18 cities within the San Diego region and 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 general plans and SANDAG's growth forecasts would be consistent with the RAQS and the SIP. In the event that a project would propose development that is less dense than anticipated within the general plan, the project would likewise be consistent with the RAQS. If a project proposes development that is greater than that anticipated in the general plan and

SANDAG's growth projections, the project might be in conflict with the RAQS and SIP, and might have a 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 the air basin. The SIP also includes rules and regulations that have been adopted by the SDAPCD to control emissions from stationary sources. These SIP-approved rules may be used as a guideline to determine whether a project's emissions would have the potential to conflict with the SIP and thereby hinder attainment of the NAAQS for O_3. The California Clean Air Act requires areas designated as nonattainment of state ambient air quality standards for O_3, CO, SO_2 and NO_2 to prepare and implement plans to attain the standards. There are currently no requirements to prepare an implementation plan under California state rules.

Thresholds of Significance

Significance criteria used to evaluate potential air quality impacts associated with the proposed project are established in the City of San Diego Initial Study Checklist (City of San Diego 2016). A project would have a significant environmental impact if it would:

1. Conflict or obstruct the implementation of the San Diego RAQS or applicable portions of the SIP
2. Violate any air quality standard or contribute substantially to an existing or projected air quality violation
3. Result in a cumulatively considerable net increase of any criteria pollutant for which the SDAB is in non-attainment of NAAQS or CAAQS
4. Expose sensitive receptors (including, but not limited to, residences, schools, hospitals, resident care facilities, or day-care centers) to substantial pollutant concentrations. A sensitive receptor is a person in the population who is particularly susceptible to health effects due to exposure to an air contaminant than is the population at large.
5. Create objectionable odors affecting a substantial number of people

To determine whether a project would (a) result in emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation; or (b) result in a cumulatively considerable net increase of PM_{10}, $PM_{2.5}$, or exceed quantitative thresholds for O_3 precursors, NO_X and VOCs, project emissions may be evaluated based on the quantitative emission thresholds established by the SDAPCD. As part of its air quality permitting process, the SDAPCD has established thresholds in Rule 20.2 for the preparation of Air Quality Impact Assessments (AQIA). In the event emissions exceed the thresholds, listed in Table 3, modeling would be required to demonstrate that the project's total air quality impacts result in ground-level concentrations that are below the State and Federal Ambient Air Quality Standards, including appropriate background levels. For nonattainment pollutants O_3, including O_3 precursors NO_x and VOCs, as well as PM_{10} and $PM_{2.5}$, if emissions exceed the screening-level thresholds shown in Table 3, the project could have the potential to result in a cumulatively considerable net increase in these pollutants and thus could have a significant impact on the ambient air quality. For CEQA purposes, these screening criteria can be used as numeric methods to demonstrate that a project's total emissions would not result in a significant impact to air quality.

The proposed project is tiering from the San Ysidro Community Plan Update (SYCPU) Final Program Environmental Impact Report (PEIR). Thus, the significance screening thresholds from the SYCPU Final PEIR, which are based on the SDAPCD thresholds, as well as screening thresholds used by the South Coast Air Quality Management District (SCAQMD), have been applied to this analysis.[1] The screening thresholds for the proposed project are included in Table 3.

Table 3
Screening Level Thresholds for Air Quality Impact Analysis

Construction Emissions (Pounds per Day)		
Pollutant	**Total Emissions**	
Respirable Particulate Matter (PM_{10})	100	
Fine Particulate Matter ($PM_{2.5}$)	55	
Oxides of Nitrogen (NO_x)	250	
Oxides of Sulfur (SO_x)	250	
Carbon Monoxide (CO)	550	
Volatile Organic Compounds (VOC)	75	
Operational Emissions		
	Pounds per Day	**Tons per Year**
Respirable Particulate Matter (PM_{10})	100	15
Fine Particulate Matter (PM2.5)	55	10
Oxides of Nitrogen (NO_x)	250	40
Oxides of Sulfur (SO_x)	250	40
Carbon Monoxide (CO)	550	100
Lead and Lead Compounds (Pb)	3.2	0.6
Volatile Organic Compounds (VOC)	75	13.7

Sources: City of San Diego 2016b; SDAPCD Rule 1501 20.2(d)(20; SCAQMD 2015.

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[1] This analysis relies upon the SYCPU Final PEIR Significance Thresholds (City of San Diego 2016b). Note that the SYCPU Final PEIR used a threshold for operational emissions of VOCs of 75 pounds per day and 13.7 tons per year. The SCAQMD thresholds, upon which the SYCPU Final PEIR partially relies, are more stringent. SCAQMD sets the screening threshold for operational VOC emissions at 55 pounds per day, which equates to 10 tons per year. This project is well under even the more stringent SCAQMD operational emissions threshold.

In addition to impacts from criteria pollutants, project impacts may include emissions of pollutants identified by the state and federal government as TACs. An impact would be considered significant if the implementation of the project:

- Increases the maximally exposed individual's cancer risk by more than 10 in one million; or
- Results in a ground-level concentration of non-carcinogenic TACs that would result in a hazard index greater than one for the maximally exposed individual.

Methodology

The impacts associated with the proposed project were evaluated for significance based on the thresholds listed above. The California Emissions Estimator Model (CalEEMod) version 2016.3.1 (CAPCOA 2016) was used to estimate emissions generated from construction and operational activities. CalEEMod uses basin-specific emission factors for San Diego County. For motor vehicle trip emissions, CalEEMod uses Emissions Factor Model (EMFAC) 2014, which is the most recent motor vehicle emission factor model of CARB.

Impacts

The proposed project would result in emissions of air pollutants from operational and construction activities. Construction emissions would result from fugitive dust, heavy construction equipment, construction workers commuting to and from the site, and construction material deliveries to the site. The emissions associated with construction would be short-term and temporary in nature, occurring over a 9-month period. The operational impacts associated with this project include impacts from criteria pollutant emissions from traffic and area sources such as landscaping and energy use from the retail facilities. Construction and operational emissions of criterial pollutants are described separately below.

Construction Impacts

Emissions of pollutants such as fugitive dust and heavy equipment exhaust would be generated during construction and would be concentrated in the immediate vicinity of the project site. Construction duration is estimated to be 9 months. Standard daytime operating hours would be used (7am-7pm) with equipment assumed to be operational for 5 to 8 hours per day. Heavy equipment that could be used onsite for some or all of the demolition, grading and site preparation phases includes standard equipment such as dozers, graders, tractors, loaders, backhoes, and concrete saws. The construction and paving phases may involve use of cement mixers, cranes, forklifts, tractors, loaders, backhoes, rollers, pavers, and air compressors. For the purposes of evaluating potential impacts from construction, the maximum daily construction requirements were used for the model calculations, resulting in a worst-case evaluation of the potential maximum daily emissions. This included worker and vendor trips to the site.

Table 4 shows the estimated emissions from construction activities over the 9-month construction period. As summarized in Table 4, project criteria pollutant emissions would all be below the daily thresholds of significance. Refer to Attachment A for detailed emissions calculations.

Table 4
Estimated Construction Emissions

Emission Source	VOC	NO_X	CO	SO_x	PM_{10}	$PM_{2.5}$
*Maximum Daily Emissions, lbs/day**						
Demolition	1	9	8	<1	1	1
Site Preparation	1	9	4	<1	1	<1
Grading	1	9	8	<1	1	1
Building Construction	1	13	10	<1	1	1
Paving	1	7	8	<1	1	<1
Architectural Coating	17	2	2	<1	<1	<1
Maximum Combined Daily Emissions	**17**	**13**	**10**	**<1**	**1**	**1**
Screening Level Threshold	*75*	*250*	*550*	*250*	*100*	*55*
Above Threshold?	No	No	No	No	No	No

Notes: * Daily emission rates were calculated using the worst-case scenario of each phase. Maximum of winter or summer day emissions, from CalEEMod. All emissions presented in this table have been rounded to the nearest whole number.
Source: CalEEMod, Version 2016.3.1. See Attachment A for model data.

Operational Impacts

Operational emissions associated with the proposed project would include emissions of criteria pollutants associated with traffic and area sources such as energy use and landscaping. The proposed project would attract and accommodate existing traffic from surrounding land uses, including the outlet malls and the International Border. Operational emissions, as shown in Table 5, are based on project-specific data received from Baja-Mex Insurance Services, Inc. for the construction schedule and equipment, the project-specific Traffic Impact Analysis (RCE 2017) for vehicle trip generation, the project-specific Landscape Calculations (JPBLA 2017) for outdoor water use, and CalEEMod version 2016.3.1 model defaults.

As summarized in Table 5, project criteria pollutant emissions are all below the daily thresholds of significance. Refer to Attachment A for detailed emissions calculations.

Table 5
Estimated Operational Emissions

Emission Source	VOC	NO_X	CO	SO_x	PM_{10}	$PM_{2.5}$
*Maximum Daily Operational Emissions, lbs/day**						
Area	<1	<1	<1	0	<1	<1
Energy	<1	<1	<1	<1	<1	<1
Mobile	4	16	41	<1	9	3
Maximum Combined Daily Emissions	**5**	**16**	**41**	**<1**	**9**	**3**
Screening-Level Threshold	*75*	*250*	*550*	*250*	*100*	*55*
Above Threshold?	No	No	No	No	No	No
Annual Operational Emissions, tons/year						
Area	1	<1	<1	0	0	0
Energy	<1	<1	<1	<1	<1	<1
Mobile	1	3	7	<1	2	1
Total Annual Emissions	**1**	**3**	**7**	**<1**	**2**	**1**
Screening-Level Threshold	*13.7*	*40*	*100*	*40*	*15*	*10*
Above Threshold?	No	No	No	No	No	No

Notes: * Maximum of winter and summer day emissions, from CalEEMod. All emissions presented in this table have been rounded to the nearest whole number.
Source: CalEEMod, Version 2016.3.1. See Attachment A for model data.

Conflict with the RAQS or SIP

As discussed above, the RAQS was prepared by the SDAPCD for CARB to be included as part of the SIP. The RAQS demonstrates how the SDAB would either maintain or strive to attain the NAAQS. The 2016 RAQS was developed based on growth assumptions, land use, and other planning information from SANDAG's San Diego Forward: The Regional Plan, which was adopted in 2015. The Regional Growth Forecast employed by SANDAG in San Diego Forward: The Regional Plan (the Series 13, 2050 Regional Growth Forecast) was based on population and vehicle use trends and land use plans developed as part of individual city and county general plans that had been adopted as of 2013 (SANDAG 2015). As such, projects that propose development consistent with, or less than, the growth projections anticipated by a general plan that was in place as of 2013 would be consistent with the RAQS and SIP.

The City of San Diego General Plan works together with 42 community plans, including the San Ysidro Community Plan, to guide growth and development. Site-specific recommendations for land use and zoning are deferred to the community plans. The 1990 San Ysidro Community Plan Update designated the project site for commercial use. Likewise, the 2016 San Ysidro Community Plan Update designated the project site for commercial use. The project is therefore consistent with both the current Community Plan land use designation, as well as the land use designation that was in place for the site in 2013. Therefore, the proposed project is consistent with the growth projections used by SANDAG and would not conflict with implementation of the RAQS and SIP.

Impacts to Sensitive Receptors

According to the City of San Diego CEQA Significance Determination Thresholds (City of San Diego 2016), proximity to localized CO sources and TACs are of particular concern for sensitive receptors.

Carbon Monoxide Hotspots

Carbon Monoxide is a product of incomplete combustion of fossil fuel and the primary source of this pollutant in the SDAB is mobile sources, mostly on-road passenger vehicles (City of San Diego 2016). Areas with high vehicle density, such as congested intersections and parking garages, have the potential to create high concentrations of CO, and are known as CO hotspots. An air quality impact is considered significant if carbon monoxide emissions create a hotspot where either the California 1-hour standard of 20 ppm or the federal and California eight-hour standard of 9.0 ppm is exceeded. This typically occurs at severely congested intersections (LOS E or worse) (Caltrans 2010).

As explained in the project-specific traffic impact analysis (RCE 2017), the Camino de la Plaza & Virginia Avenue intersection would operate at LOS E in the Near Term and Year 2035 scenarios during the evening peak commute hour, both without and with the proposed project. Because the intersection is expected to operate at LOS E regardless of implementation of the project, the traffic generated by the project is not considered to be of a substantial level that would cause the intersection level of service to drop to LOS E. Furthermore, as shown in Table 5, the maximum daily CO emissions from operation of the proposed project (41 lbs. per day) would be well below the threshold (550 lbs. per day). Therefore, project-related traffic would not cause a CO hotspot.

Toxic Air Contaminants

Diesel particulate matter (DPM) is the primary TAC of concern for typical land use projects that do not propose stationary sources of emissions regulated by SDAPCD. DPM is a mixture of many exhaust particles and gases that is produced when an engine burns diesel fuel. Compounds found in diesel exhaust are carcinogenic. Some short-term (acute) effects of diesel exhaust include eye, nose, throat, and lung irritation and exposure can cause headaches and dizziness. Long-term exposure is linked with increased risk of cardiovascular, cardiopulmonary and respiratory disease and lung cancer (OSHA 2013).

Based on the SCAQMD's "Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis" (SCAQMD 2003), projects that should be analyzed for DPM emissions include truck stops, distribution centers, and transit centers, which could be sources of DPM from heavy-duty diesel trucks. The proposed project includes commercial uses that typically do not include stationary sources of emissions regulated by the SDAPCD. As such, the primary source of DPM would be construction equipment.

The construction phase of the project would result in emissions of DPM from heavy construction equipment and vehicles accessing the site. However, due to the temporary nature of the project's construction phase, and because the project would not generate a significant amount of diesel emissions from construction equipment or vehicles in any single location, the project is not expected to result in a significant health risk. Further, particulate matter emissions from exhaust would make up less than one-half of total particulate matter emissions during the worst construction phase, grading (see Attachment A); most of the particulate matter emissions would come from fugitive dust. As such, construction is not expected to result in an increase in cancer risk or health hazards from DPM emissions.

Objectionable Odors

CARB's Air Quality and Land Use Handbook (CARB 2005) includes a list of the most common sources of odor complaints received by local air districts. Typical sources of odor complaints include facilities such as sewage treatment plants, landfills, recycling facilities, petroleum refineries, and livestock operations. Construction activities are not a typical source of odor complaints.

Operation of the proposed project would involve commercial operations that have not been identified as typical sources of odor complaints. Construction associated with the proposed project could result in minor amounts of odor compounds associated with diesel heavy equipment exhaust. However, diesel equipment would not all be operating at once, and construction near existing receptors would be temporary. In addition, construction emissions would disperse rapidly from the project site. Pollutant emissions would be well below thresholds for health concerns, as described above, and would not be expected to be emitted at a level that would induce a negative odor response. Odor impacts associated with construction would be less than significant.

Summary and Conclusions

In summary, the proposed project would result in emissions of air pollutants from the construction phase and operation of the project. Construction emissions would result from fugitive dust, heavy construction equipment, construction workers commuting to and from the site, and construction material deliveries to the site. The emissions associated with construction would be short-term and temporary in nature, occurring over a 9-month period. The operational impacts associated with this project include impacts from criteria pollutant emissions from traffic and area sources such as landscaping and energy use from the retail facilities. As shown in Tables 4 and 5, all of the project air pollutant emissions are estimated to be below screening-level thresholds established by the SDAPCD and the City. As such, impacts on sensitive receptors from exposure to CO hotspots and TACs are expected to be less than significant. Construction and operation of the project would not generate a significant level of objectionable odors. The project is consistent with long-range planning documents and would not conflict with implementation of the RAQS or SIP. Therefore, there would be a less than significant impact on air quality emissions as a result of the proposed project.

If you have any questions regarding this analysis, please do not hesitate to call at 619.236.1778 ext. 2557 or email at haley.johnson@weareharris.com.

Sincerely,

Haley Johnson

Haley Johnson
Environmental Analyst

Attachment A: CalEEMod Data Sheets

REFERENCES

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Western Regional Climate Center. 2017. Climate of California. Accessed November 28, 2017 at https://wrcc.dri.edu/Climate/narrative_ca.php.

Attachment A: CalEEMod Output

Baja Mex Virginia Avenue

San Diego Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	118.98	1000sqft	0.43	118,976.00	0
Strip Mall	13.21	1000sqft	0.30	13,210.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2020
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 - Construction schedule provided by applicant

Land Use - Gross site area=0.722 acres. Proposed building area per Oct 2, 2017 Site Plan.

Construction Phase - Applicant provided total construciton schedule

Demolition - Per August 2017 submittal

Grading - No import, export. Area disturbed: 31,450 sq ft. Per August 2017 grading plan

Vehicle Trips - Per Sept 2017 TIA

Energy Use -

Water And Wastewater - MAWA from August 7 2017 landscape plan for outdoor strip mall

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	5.00	24.00
tblConstructionPhase	NumDays	100.00	239.00
tblConstructionPhase	NumDays	2.00	10.00
tblConstructionPhase	NumDays	5.00	6.00
tblConstructionPhase	NumDays	1.00	5.00
tblGrading	AcresOfGrading	2.50	0.72
tblLandUse	BuildingSpaceSquareFeet	118,980.00	118,976.00
tblLandUse	LandUseSquareFeet	118,980.00	118,976.00
tblLandUse	LotAcreage	2.73	0.43
tblProjectCharacteristics	OperationalYear	2018	2020
tblVehicleTrips	CC_TTP	0.00	64.40
tblVehicleTrips	CNW_TTP	0.00	19.00
tblVehicleTrips	CW_TTP	0.00	16.60
tblVehicleTrips	DV_TP	0.00	40.00
tblVehicleTrips	PB_TP	0.00	15.00
tblVehicleTrips	PR_TP	0.00	45.00
tblVehicleTrips	ST_TR	0.00	12.68
tblVehicleTrips	ST_TR	42.04	99.32
tblVehicleTrips	SU_TR	0.00	12.68
tblVehicleTrips	SU_TR	20.43	99.32
tblVehicleTrips	WD_TR	0.00	12.68
tblVehicleTrips	WD_TR	44.32	99.32
tblWater	OutdoorWaterUseRate	599,724.59	24,092.00

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					
2019	0.1621	1.6143	1.2550	2.7400e-003	0.0747	0.0804	0.1550	0.0211	0.0742	0.0953	0.0000	251.3588	251.3588	0.0480	0.0000	252.5594
2020	0.2021	0.0597	0.0625	1.2000e-004	2.3600e-003	3.3300e-003	5.6900e-003	6.3000e-004	3.1800e-003	3.8200e-003	0.0000	10.1889	10.1889	1.6700e-003	0.0000	10.2306
Maximum	**0.2021**	**1.6143**	**1.2550**	**2.7400e-003**	**0.0747**	**0.0804**	**0.1550**	**0.0211**	**0.0742**	**0.0953**	**0.0000**	**251.3588**	**251.3588**	**0.0480**	**0.0000**	**252.5594**

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					
2019	0.1621	1.6143	1.2550	2.7400e-003	0.0747	0.0804	0.1550	0.0211	0.0742	0.0953	0.0000	251.3586	251.3586	0.0480	0.0000	252.5593
2020	0.2021	0.0597	0.0625	1.2000e-004	2.3600e-003	3.3300e-003	5.6900e-003	6.3000e-004	3.1800e-003	3.8200e-003	0.0000	10.1888	10.1888	1.6700e-003	0.0000	10.2306
Maximum	**0.2021**	**1.6143**	**1.2550**	**2.7400e-003**	**0.0747**	**0.0804**	**0.1550**	**0.0211**	**0.0742**	**0.0953**	**0.0000**	**251.3586**	**251.3586**	**0.0480**	**0.0000**	**252.5593**

	ROG	**NOx**	**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**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2019**	**3-31-2019**	0.3976	0.3976
2	**4-1-2019**	**6-30-2019**	0.4539	0.4539
3	**7-1-2019**	**9-30-2019**	0.4589	0.4589
4	**10-1-2019**	**12-31-2019**	0.4606	0.4606
5	**1-1-2020**	**3-31-2020**	0.2506	0.2506
		Highest	0.4606	0.4606

2.2 Overall Operational

<u>Unmitigated Operational</u>

	ROG	NOx	CO	SO2	Fugitive 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	0.0788	1.0000e-005	1.2200e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3600e-003	2.3600e-003	1.0000e-005	0.0000	2.5200e-003
Energy	1.6000e-004	1.4500e-003	1.2200e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	319.2944	319.2944	0.0128	2.6700e-003	320.4120
Mobile	0.7459	2.9731	7.2381	0.0206	1.6372	0.0213	1.6585	0.4385	0.0200	0.4585	0.0000	1,897.5440	1,897.5440	0.1152	0.0000	1,900.4246
Waste						0.0000	0.0000		0.0000	0.0000	2.8155	0.0000	2.8155	0.1664	0.0000	6.9752
Water						0.0000	0.0000		0.0000	0.0000	0.3104	4.2514	4.5618	0.0321	7.9000e-004	5.5981
Total	**0.8249**	**2.9746**	**7.2405**	**0.0206**	**1.6372**	**0.0214**	**1.6586**	**0.4385**	**0.0201**	**0.4586**	**3.1259**	**2,221.0921**	**2,224.2180**	**0.3265**	**3.4600e-003**	**2,233.4124**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0788	1.0000e-005	1.2200e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3600e-003	2.3600e-003	1.0000e-005	0.0000	2.5200e-003
Energy	1.6000e-004	1.4500e-003	1.2200e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	319.2944	319.2944	0.0128	2.6700e-003	320.4120
Mobile	0.7459	2.9731	7.2381	0.0206	1.6372	0.0213	1.6585	0.4385	0.0200	0.4585	0.0000	1,897.5440	1,897.5440	0.1152	0.0000	1,900.4246
Waste						0.0000	0.0000		0.0000	0.0000	2.8155	0.0000	2.8155	0.1664	0.0000	6.9752
Water						0.0000	0.0000		0.0000	0.0000	0.3104	4.2514	4.5618	0.0321	7.9000e-004	5.5981
Total	**0.8249**	**2.9746**	**7.2405**	**0.0206**	**1.6372**	**0.0214**	**1.6586**	**0.4385**	**0.0201**	**0.4586**	**3.1259**	**2,221.0921**	**2,224.2180**	**0.3265**	**3.4600e-003**	**2,233.4124**

	ROG	**NOx**	**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	1/1/2019	1/14/2019	5	10	
2	Site Preparation	Site Preparation	1/15/2019	1/21/2019	5	5	
3	Grading	Grading	1/22/2019	2/4/2019	5	10	
4	Building Construction	Building Construction	2/5/2019	1/3/2020	5	239	
5	Paving	Paving	1/4/2020	1/13/2020	5	6	
6	Architectural Coating	Architectural Coating	1/14/2020	2/14/2020	5	24	

Acres of Grading (Site Preparation Phase): 0.72

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.43

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 19,815; Non-Residential Outdoor: 6,605; Striped Parking Area: 7,139 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	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	4	10.00	0.00	11.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	54.00	22.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	11.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.2000e-003	0.0000	1.2000e-003	1.8000e-004	0.0000	1.8000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.7700e-003	0.0430	0.0385	6.0000e-005		2.6900e-003	2.6900e-003		2.5600e-003	2.5600e-003	0.0000	5.2601	5.2601	1.0000e-003	0.0000	5.2852
Total	**4.7700e-003**	**0.0430**	**0.0385**	**6.0000e-005**	**1.2000e-003**	**2.6900e-003**	**3.8900e-003**	**1.8000e-004**	**2.5600e-003**	**2.7400e-003**	**0.0000**	**5.2601**	**5.2601**	**1.0000e-003**	**0.0000**	**5.2852**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0000e-005	1.6900e-003	3.7000e-004	0.0000	9.0000e-005	1.0000e-005	1.0000e-004	3.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.4288	0.4288	4.0000e-005	0.0000	0.4298
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	2.0000e-004	1.5000e-004	1.4600e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3743	0.3743	1.0000e-005	0.0000	0.3746
Total	**2.5000e-004**	**1.8400e-003**	**1.8300e-003**	**0.0000**	**4.9000e-004**	**1.0000e-005**	**5.0000e-004**	**1.4000e-004**	**1.0000e-005**	**1.4000e-004**	**0.0000**	**0.8030**	**0.8030**	**5.0000e-005**	**0.0000**	**0.8043**

3.2 Demolition - 2019

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					1.2000e-003	0.0000	1.2000e-003	1.8000e-004	0.0000	1.8000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.7700e-003	0.0430	0.0385	6.0000e-005		2.6900e-003	2.6900e-003		2.5600e-003	2.5600e-003	0.0000	5.2601	5.2601	1.0000e-003	0.0000	5.2852
Total	**4.7700e-003**	**0.0430**	**0.0385**	**6.0000e-005**	**1.2000e-003**	**2.6900e-003**	**3.8900e-003**	**1.8000e-004**	**2.5600e-003**	**2.7400e-003**	**0.0000**	**5.2601**	**5.2601**	**1.0000e-003**	**0.0000**	**5.2852**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0000e-005	1.6900e-003	3.7000e-004	0.0000	9.0000e-005	1.0000e-005	1.0000e-004	3.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.4288	0.4288	4.0000e-005	0.0000	0.4298
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	2.0000e-004	1.5000e-004	1.4600e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3743	0.3743	1.0000e-005	0.0000	0.3746
Total	**2.5000e-004**	**1.8400e-003**	**1.8300e-003**	**0.0000**	**4.9000e-004**	**1.0000e-005**	**5.0000e-004**	**1.4000e-004**	**1.0000e-005**	**1.4000e-004**	**0.0000**	**0.8030**	**0.8030**	**5.0000e-005**	**0.0000**	**0.8043**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.8000e-004	0.0000	3.8000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8000e-003	0.0223	0.0104	2.0000e-005		9.2000e-004	9.2000e-004		8.4000e-004	8.4000e-004	0.0000	2.1890	2.1890	6.9000e-004	0.0000	2.2063
Total	**1.8000e-003**	**0.0223**	**0.0104**	**2.0000e-005**	**3.8000e-004**	**9.2000e-004**	**1.3000e-003**	**4.0000e-005**	**8.4000e-004**	**8.8000e-004**	**0.0000**	**2.1890**	**2.1890**	**6.9000e-004**	**0.0000**	**2.2063**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	4.0000e-005	3.7000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0936	0.0936	0.0000	0.0000	0.0936
Total	**5.0000e-005**	**4.0000e-005**	**3.7000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0936**	**0.0936**	**0.0000**	**0.0000**	**0.0936**

3.3 Site Preparation - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.8000e-004	0.0000	3.8000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8000e-003	0.0223	0.0104	2.0000e-005		9.2000e-004	9.2000e-004		8.4000e-004	8.4000e-004	0.0000	2.1890	2.1890	6.9000e-004	0.0000	2.2063
Total	**1.8000e-003**	**0.0223**	**0.0104**	**2.0000e-005**	**3.8000e-004**	**9.2000e-004**	**1.3000e-003**	**4.0000e-005**	**8.4000e-004**	**8.8000e-004**	**0.0000**	**2.1890**	**2.1890**	**6.9000e-004**	**0.0000**	**2.2063**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	4.0000e-005	3.7000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0936	0.0936	0.0000	0.0000	0.0936
Total	**5.0000e-005**	**4.0000e-005**	**3.7000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0936**	**0.0936**	**0.0000**	**0.0000**	**0.0936**

3.4 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.7600e-003	0.0000	3.7600e-003	2.0700e-003	0.0000	2.0700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.7700e-003	0.0430	0.0385	6.0000e-005		2.6900e-003	2.6900e-003		2.5600e-003	2.5600e-003	0.0000	5.2601	5.2601	1.0000e-003	0.0000	5.2852
Total	**4.7700e-003**	**0.0430**	**0.0385**	**6.0000e-005**	**3.7600e-003**	**2.6900e-003**	**6.4500e-003**	**2.0700e-003**	**2.5600e-003**	**4.6300e-003**	**0.0000**	**5.2601**	**5.2601**	**1.0000e-003**	**0.0000**	**5.2852**

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	2.0000e-004	1.5000e-004	1.4600e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3743	0.3743	1.0000e-005	0.0000	0.3746
Total	**2.0000e-004**	**1.5000e-004**	**1.4600e-003**	**0.0000**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3743**	**0.3743**	**1.0000e-005**	**0.0000**	**0.3746**

3.4 Grading - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.7600e-003	0.0000	3.7600e-003	2.0700e-003	0.0000	2.0700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.7700e-003	0.0430	0.0385	6.0000e-005		2.6900e-003	2.6900e-003		2.5600e-003	2.5600e-003	0.0000	5.2601	5.2601	1.0000e-003	0.0000	5.2852
Total	**4.7700e-003**	**0.0430**	**0.0385**	**6.0000e-005**	**3.7600e-003**	**2.6900e-003**	**6.4500e-003**	**2.0700e-003**	**2.5600e-003**	**4.6300e-003**	**0.0000**	**5.2601**	**5.2601**	**1.0000e-003**	**0.0000**	**5.2852**

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	2.0000e-004	1.5000e-004	1.4600e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3743	0.3743	1.0000e-005	0.0000	0.3746
Total	**2.0000e-004**	**1.5000e-004**	**1.4600e-003**	**0.0000**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3743**	**0.3743**	**1.0000e-005**	**0.0000**	**0.3746**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1130	1.1588	0.8901	1.3400e-003		0.0714	0.0714		0.0657	0.0657	0.0000	120.7146	120.7146	0.0382	0.0000	121.6694
Total	**0.1130**	**1.1588**	**0.8901**	**1.3400e-003**		**0.0714**	**0.0714**		**0.0657**	**0.0657**	**0.0000**	**120.7146**	**120.7146**	**0.0382**	**0.0000**	**121.6694**

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	0.0122	0.3258	0.0875	7.1000e-004	0.0172	2.2600e-003	0.0195	4.9700e-003	2.1600e-003	7.1300e-003	0.0000	68.9700	68.9700	5.5400e-003	0.0000	69.1084
Worker	0.0251	0.0193	0.1864	5.3000e-004	0.0511	3.7000e-004	0.0515	0.0136	3.4000e-004	0.0139	0.0000	47.6942	47.6942	1.5300e-003	0.0000	47.7325
Total	**0.0373**	**0.3451**	**0.2740**	**1.2400e-003**	**0.0683**	**2.6300e-003**	**0.0710**	**0.0186**	**2.5000e-003**	**0.0211**	**0.0000**	**116.6642**	**116.6642**	**7.0700e-003**	**0.0000**	**116.8409**

3.5 Building Construction - 2019

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	0.1130	1.1588	0.8901	1.3400e-003		0.0714	0.0714		0.0657	0.0657	0.0000	120.7144	120.7144	0.0382	0.0000	121.6692
Total	**0.1130**	**1.1588**	**0.8901**	**1.3400e-003**		**0.0714**	**0.0714**		**0.0657**	**0.0657**	**0.0000**	**120.7144**	**120.7144**	**0.0382**	**0.0000**	**121.6692**

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	0.0122	0.3258	0.0875	7.1000e-004	0.0172	2.2600e-003	0.0195	4.9700e-003	2.1600e-003	7.1300e-003	0.0000	68.9700	68.9700	5.5400e-003	0.0000	69.1084
Worker	0.0251	0.0193	0.1864	5.3000e-004	0.0511	3.7000e-004	0.0515	0.0136	3.4000e-004	0.0139	0.0000	47.6942	47.6942	1.5300e-003	0.0000	47.7325
Total	**0.0373**	**0.3451**	**0.2740**	**1.2400e-003**	**0.0683**	**2.6300e-003**	**0.0710**	**0.0186**	**2.5000e-003**	**0.0211**	**0.0000**	**116.6642**	**116.6642**	**7.0700e-003**	**0.0000**	**116.8409**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.2900e-003	0.0133	0.0111	2.0000e-005		7.8000e-004	7.8000e-004		7.2000e-004	7.2000e-004	0.0000	1.5009	1.5009	4.9000e-004	0.0000	1.5130
Total	**1.2900e-003**	**0.0133**	**0.0111**	**2.0000e-005**		**7.8000e-004**	**7.8000e-004**		**7.2000e-004**	**7.2000e-004**	**0.0000**	**1.5009**	**1.5009**	**4.9000e-004**	**0.0000**	**1.5130**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.3000e-004	3.7600e-003	1.0000e-003	1.0000e-005	2.2000e-004	2.0000e-005	2.4000e-004	6.0000e-005	2.0000e-005	8.0000e-005	0.0000	0.8707	0.8707	7.0000e-005	0.0000	0.8724
Worker	3.0000e-004	2.2000e-004	2.1700e-003	1.0000e-005	6.5000e-004	0.0000	6.5000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.5872	0.5872	2.0000e-005	0.0000	0.5876
Total	**4.3000e-004**	**3.9800e-003**	**3.1700e-003**	**2.0000e-005**	**8.7000e-004**	**2.0000e-005**	**8.9000e-004**	**2.3000e-004**	**2.0000e-005**	**2.6000e-004**	**0.0000**	**1.4579**	**1.4579**	**9.0000e-005**	**0.0000**	**1.4600**

3.5 Building Construction - 2020

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	1.2900e-003	0.0133	0.0111	2.0000e-005		7.8000e-004	7.8000e-004		7.2000e-004	7.2000e-004	0.0000	1.5009	1.5009	4.9000e-004	0.0000	1.5130
Total	**1.2900e-003**	**0.0133**	**0.0111**	**2.0000e-005**		**7.8000e-004**	**7.8000e-004**		**7.2000e-004**	**7.2000e-004**	**0.0000**	**1.5009**	**1.5009**	**4.9000e-004**	**0.0000**	**1.5130**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.3000e-004	3.7600e-003	1.0000e-003	1.0000e-005	2.2000e-004	2.0000e-005	2.4000e-004	6.0000e-005	2.0000e-005	8.0000e-005	0.0000	0.8707	0.8707	7.0000e-005	0.0000	0.8724
Worker	3.0000e-004	2.2000e-004	2.1700e-003	1.0000e-005	6.5000e-004	0.0000	6.5000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.5872	0.5872	2.0000e-005	0.0000	0.5876
Total	**4.3000e-004**	**3.9800e-003**	**3.1700e-003**	**2.0000e-005**	**8.7000e-004**	**2.0000e-005**	**8.9000e-004**	**2.3000e-004**	**2.0000e-005**	**2.6000e-004**	**0.0000**	**1.4579**	**1.4579**	**9.0000e-005**	**0.0000**	**1.4600**

3.6 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.3100e-003	0.0217	0.0213	3.0000e-005		1.1900e-003	1.1900e-003		1.1000e-003	1.1000e-003	0.0000	2.8179	2.8179	8.2000e-004	0.0000	2.8384
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.3100e-003**	**0.0217**	**0.0213**	**3.0000e-005**		**1.1900e-003**	**1.1900e-003**		**1.1000e-003**	**1.1000e-003**	**0.0000**	**2.8179**	**2.8179**	**8.2000e-004**	**0.0000**	**2.8384**

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	2.0000e-004	1.5000e-004	1.4400e-003	0.0000	4.3000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.3914	0.3914	1.0000e-005	0.0000	0.3917
Total	**2.0000e-004**	**1.5000e-004**	**1.4400e-003**	**0.0000**	**4.3000e-004**	**0.0000**	**4.4000e-004**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**0.3914**	**0.3914**	**1.0000e-005**	**0.0000**	**0.3917**

3.6 Paving - 2020

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	2.3100e-003	0.0217	0.0213	3.0000e-005		1.1900e-003	1.1900e-003		1.1000e-003	1.1000e-003	0.0000	2.8179	2.8179	8.2000e-004	0.0000	2.8384
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.3100e-003**	**0.0217**	**0.0213**	**3.0000e-005**		**1.1900e-003**	**1.1900e-003**		**1.1000e-003**	**1.1000e-003**	**0.0000**	**2.8179**	**2.8179**	**8.2000e-004**	**0.0000**	**2.8384**

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	2.0000e-004	1.5000e-004	1.4400e-003	0.0000	4.3000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.3914	0.3914	1.0000e-005	0.0000	0.3917
Total	**2.0000e-004**	**1.5000e-004**	**1.4400e-003**	**0.0000**	**4.3000e-004**	**0.0000**	**4.4000e-004**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**0.3914**	**0.3914**	**1.0000e-005**	**0.0000**	**0.3917**

3.7 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1944					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.9100e-003	0.0202	0.0220	4.0000e-005		1.3300e-003	1.3300e-003		1.3300e-003	1.3300e-003	0.0000	3.0639	3.0639	2.4000e-004	0.0000	3.0698
Total	**0.1973**	**0.0202**	**0.0220**	**4.0000e-005**		**1.3300e-003**	**1.3300e-003**		**1.3300e-003**	**1.3300e-003**	**0.0000**	**3.0639**	**3.0639**	**2.4000e-004**	**0.0000**	**3.0698**

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	4.9000e-004	3.6000e-004	3.5300e-003	1.0000e-005	1.0600e-003	1.0000e-005	1.0700e-003	2.8000e-004	1.0000e-005	2.9000e-004	0.0000	0.9568	0.9568	3.0000e-005	0.0000	0.9576
Total	**4.9000e-004**	**3.6000e-004**	**3.5300e-003**	**1.0000e-005**	**1.0600e-003**	**1.0000e-005**	**1.0700e-003**	**2.8000e-004**	**1.0000e-005**	**2.9000e-004**	**0.0000**	**0.9568**	**0.9568**	**3.0000e-005**	**0.0000**	**0.9576**

3.7 Architectural Coating - 2020

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	0.1944					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.9100e-003	0.0202	0.0220	4.0000e-005		1.3300e-003	1.3300e-003		1.3300e-003	1.3300e-003	0.0000	3.0639	3.0639	2.4000e-004	0.0000	3.0698
Total	**0.1973**	**0.0202**	**0.0220**	**4.0000e-005**		**1.3300e-003**	**1.3300e-003**		**1.3300e-003**	**1.3300e-003**	**0.0000**	**3.0639**	**3.0639**	**2.4000e-004**	**0.0000**	**3.0698**

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	4.9000e-004	3.6000e-004	3.5300e-003	1.0000e-005	1.0600e-003	1.0000e-005	1.0700e-003	2.8000e-004	1.0000e-005	2.9000e-004	0.0000	0.9568	0.9568	3.0000e-005	0.0000	0.9576
Total	**4.9000e-004**	**3.6000e-004**	**3.5300e-003**	**1.0000e-005**	**1.0600e-003**	**1.0000e-005**	**1.0700e-003**	**2.8000e-004**	**1.0000e-005**	**2.9000e-004**	**0.0000**	**0.9568**	**0.9568**	**3.0000e-005**	**0.0000**	**0.9576**

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	0.7459	2.9731	7.2381	0.0206	1.6372	0.0213	1.6585	0.4385	0.0200	0.4585	0.0000	1,897.5440	1,897.5440	0.1152	0.0000	1,900.4246
Unmitigated	0.7459	2.9731	7.2381	0.0206	1.6372	0.0213	1.6585	0.4385	0.0200	0.4585	0.0000	1,897.5440	1,897.5440	0.1152	0.0000	1,900.4246

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Enclosed Parking with Elevator	1,508.67	1,508.67	1508.67	2,323,396	2,323,396
Strip Mall	1,312.02	1,312.02	1312.02	2,020,550	2,020,550
Total	2,820.68	2,820.68	2,820.68	4,343,946	4,343,946

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
Enclosed Parking with Elevator	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Enclosed Parking with Elevator	0.588316	0.042913	0.184449	0.110793	0.017294	0.005558	0.015534	0.023021	0.001902	0.002024	0.006181	0.000745	0.001271
Strip Mall	0.588316	0.042913	0.184449	0.110793	0.017294	0.005558	0.015534	0.023021	0.001902	0.002024	0.006181	0.000745	0.001271

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	317.7154	317.7154	0.0128	2.6500e-003	318.8235
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	317.7154	317.7154	0.0128	2.6500e-003	318.8235
NaturalGas Mitigated	1.6000e-004	1.4500e-003	1.2200e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	1.5791	1.5791	3.0000e-005	3.0000e-005	1.5884
NaturalGas Unmitigated	1.6000e-004	1.4500e-003	1.2200e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	1.5791	1.5791	3.0000e-005	3.0000e-005	1.5884

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					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	29590.4	1.6000e-004	1.4500e-003	1.2200e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	1.5791	1.5791	3.0000e-005	3.0000e-005	1.5884
Total		**1.6000e-004**	**1.4500e-003**	**1.2200e-003**	**1.0000e-005**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**	**0.0000**	**1.5791**	**1.5791**	**3.0000e-005**	**3.0000e-005**	**1.5884**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	29590.4	1.6000e-004	1.4500e-003	1.2200e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	1.5791	1.5791	3.0000e-005	3.0000e-005	1.5884
Total		**1.6000e-004**	**1.4500e-003**	**1.2200e-003**	**1.0000e-005**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**	**0.0000**	**1.5791**	**1.5791**	**3.0000e-005**	**3.0000e-005**	**1.5884**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	801898	262.0674	0.0106	2.1800e-003	262.9814
Strip Mall	170277	55.6480	2.2400e-003	4.6000e-004	55.8421
Total		**317.7154**	**0.0128**	**2.6400e-003**	**318.8235**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	801898	262.0674	0.0106	2.1800e-003	262.9814
Strip Mall	170277	55.6480	2.2400e-003	4.6000e-004	55.8421
Total		**317.7154**	**0.0128**	**2.6400e-003**	**318.8235**

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	0.0788	1.0000e-005	1.2200e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3600e-003	2.3600e-003	1.0000e-005	0.0000	2.5200e-003
Unmitigated	0.0788	1.0000e-005	1.2200e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3600e-003	2.3600e-003	1.0000e-005	0.0000	2.5200e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0194					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0593					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.2000e-004	1.0000e-005	1.2200e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3600e-003	2.3600e-003	1.0000e-005	0.0000	2.5200e-003
Total	**0.0788**	**1.0000e-005**	**1.2200e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.3600e-003**	**2.3600e-003**	**1.0000e-005**	**0.0000**	**2.5200e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0194					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0593					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.2000e-004	1.0000e-005	1.2200e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3600e-003	2.3600e-003	1.0000e-005	0.0000	2.5200e-003
Total	**0.0788**	**1.0000e-005**	**1.2200e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.3600e-003**	**2.3600e-003**	**1.0000e-005**	**0.0000**	**2.5200e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	4.5618	0.0321	7.9000e-004	5.5981
Unmitigated	4.5618	0.0321	7.9000e-004	5.5981

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	0.978498 / 0.024092	4.5618	0.0321	7.9000e-004	5.5981
Total		**4.5618**	**0.0321**	**7.9000e-004**	**5.5981**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	0.978498 / 0.024092	4.5618	0.0321	7.9000e-004	5.5981
Total		**4.5618**	**0.0321**	**7.9000e-004**	**5.5981**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	2.8155	0.1664	0.0000	6.9752
Unmitigated	2.8155	0.1664	0.0000	6.9752

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	13.87	2.8155	0.1664	0.0000	6.9752
Total		**2.8155**	**0.1664**	**0.0000**	**6.9752**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	13.87	2.8155	0.1664	0.0000	6.9752
Total		**2.8155**	**0.1664**	**0.0000**	**6.9752**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Baja Mex Virginia Avenue

San Diego Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	118.98	1000sqft	0.43	118,976.00	0
Strip Mall	13.21	1000sqft	0.30	13,210.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2020
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 - Construction schedule provided by applicant

Land Use - Gross site area=0.722 acres. Proposed building area per Oct 2, 2017 Site Plan.

Construction Phase - Applicant provided total construciton schedule

Demolition - Per August 2017 submittal

Grading - No import, export. Area disturbed: 31,450 sq ft. Per August 2017 grading plan

Vehicle Trips - Per Sept 2017 TIA

Energy Use -

Water And Wastewater - MAWA from August 7 2017 landscape plan for outdoor strip mall

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	5.00	24.00
tblConstructionPhase	NumDays	100.00	239.00
tblConstructionPhase	NumDays	2.00	10.00
tblConstructionPhase	NumDays	5.00	6.00
tblConstructionPhase	NumDays	1.00	5.00
tblGrading	AcresOfGrading	2.50	0.72
tblLandUse	BuildingSpaceSquareFeet	118,980.00	118,976.00
tblLandUse	LandUseSquareFeet	118,980.00	118,976.00
tblLandUse	LotAcreage	2.73	0.43
tblProjectCharacteristics	OperationalYear	2018	2020
tblVehicleTrips	CC_TTP	0.00	64.40
tblVehicleTrips	CNW_TTP	0.00	19.00
tblVehicleTrips	CW_TTP	0.00	16.60
tblVehicleTrips	DV_TP	0.00	40.00
tblVehicleTrips	PB_TP	0.00	15.00
tblVehicleTrips	PR_TP	0.00	45.00
tblVehicleTrips	ST_TR	0.00	12.68
tblVehicleTrips	ST_TR	42.04	99.32
tblVehicleTrips	SU_TR	0.00	12.68
tblVehicleTrips	SU_TR	20.43	99.32
tblVehicleTrips	WD_TR	0.00	12.68
tblVehicleTrips	WD_TR	44.32	99.32
tblWater	OutdoorWaterUseRate	599,724.59	24,092.00

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					
2019	1.2708	12.6964	9.9182	0.0222	0.8349	0.6275	1.3726	0.4356	0.5780	0.9486	0.0000	2,248.8140	2,248.8140	0.4221	0.0000	2,259.3657
2020	16.4853	11.4665	9.5501	0.0220	0.5925	0.5376	1.1302	0.1605	0.4951	0.6556	0.0000	2,204.9497	2,204.9497	0.4180	0.0000	2,215.4005
Maximum	**16.4853**	**12.6964**	**9.9182**	**0.0222**	**0.8349**	**0.6275**	**1.3726**	**0.4356**	**0.5780**	**0.9486**	**0.0000**	**2,248.8140**	**2,248.8140**	**0.4221**	**0.0000**	**2,259.3657**

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					
2019	1.2708	12.6964	9.9182	0.0222	0.8349	0.6275	1.3726	0.4356	0.5780	0.9486	0.0000	2,248.8140	2,248.8140	0.4221	0.0000	2,259.3657
2020	16.4853	11.4665	9.5501	0.0220	0.5925	0.5376	1.1302	0.1605	0.4951	0.6556	0.0000	2,204.9497	2,204.9497	0.4180	0.0000	2,215.4005
Maximum	**16.4853**	**12.6964**	**9.9182**	**0.0222**	**0.8349**	**0.6275**	**1.3726**	**0.4356**	**0.5780**	**0.9486**	**0.0000**	**2,248.8140**	**2,248.8140**	**0.4221**	**0.0000**	**2,259.3657**

	ROG	**NOx**	**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**

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	0.4327	1.3000e-004	0.0136	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0289	0.0289	8.0000e-005		0.0309
Energy	8.7000e-004	7.9500e-003	6.6800e-003	5.0000e-005		6.0000e-004	6.0000e-004		6.0000e-004	6.0000e-004		9.5376	9.5376	1.8000e-004	1.7000e-004	9.5943
Mobile	4.3537	15.9474	39.6510	0.1183	9.2117	0.1167	9.3284	2.4622	0.1094	2.5716		12,005.2268	12,005.2268	0.6945		12,022.5903
Total	**4.7872**	**15.9555**	**39.6712**	**0.1183**	**9.2117**	**0.1173**	**9.3290**	**2.4622**	**0.1101**	**2.5723**		**12,014.7933**	**12,014.7933**	**0.6948**	**1.7000e-004**	**12,032.2155**

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	0.4327	1.3000e-004	0.0136	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0289	0.0289	8.0000e-005		0.0309
Energy	8.7000e-004	7.9500e-003	6.6800e-003	5.0000e-005		6.0000e-004	6.0000e-004		6.0000e-004	6.0000e-004		9.5376	9.5376	1.8000e-004	1.7000e-004	9.5943
Mobile	4.3537	15.9474	39.6510	0.1183	9.2117	0.1167	9.3284	2.4622	0.1094	2.5716		12,005.2268	12,005.2268	0.6945		12,022.5903
Total	**4.7872**	**15.9555**	**39.6712**	**0.1183**	**9.2117**	**0.1173**	**9.3290**	**2.4622**	**0.1101**	**2.5723**		**12,014.7933**	**12,014.7933**	**0.6948**	**1.7000e-004**	**12,032.2155**

	ROG	NOx	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	1/1/2019	1/14/2019	5	10	
2	Site Preparation	Site Preparation	1/15/2019	1/21/2019	5	5	
3	Grading	Grading	1/22/2019	2/4/2019	5	10	
4	Building Construction	Building Construction	2/5/2019	1/3/2020	5	239	
5	Paving	Paving	1/4/2020	1/13/2020	5	6	
6	Architectural Coating	Architectural Coating	1/14/2020	2/14/2020	5	24	

Acres of Grading (Site Preparation Phase): 0.72

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.43

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 19,815; Non-Residential Outdoor: 6,605; Striped Parking Area: 7,139 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	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	4	10.00	0.00	11.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	54.00	22.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	11.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2392	0.0000	0.2392	0.0362	0.0000	0.0362			0.0000			0.0000
Off-Road	0.9530	8.6039	7.6917	0.0120		0.5371	0.5371		0.5125	0.5125		1,159.6570	1,159.6570	0.2211		1,165.1847
Total	**0.9530**	**8.6039**	**7.6917**	**0.0120**	**0.2392**	**0.5371**	**0.7763**	**0.0362**	**0.5125**	**0.5487**		**1,159.6570**	**1,159.6570**	**0.2211**		**1,165.1847**

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	9.5500e-003	0.3304	0.0713	8.7000e-004	0.0192	1.2500e-003	0.0205	5.2700e-003	1.1900e-003	6.4600e-003		95.2020	95.2020	8.4200e-003		95.4126
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	0.0393	0.0274	0.3094	8.7000e-004	0.0822	5.9000e-004	0.0827	0.0218	5.4000e-004	0.0223		87.0200	87.0200	2.7800e-003		87.0894
Total	**0.0488**	**0.3578**	**0.3807**	**1.7400e-003**	**0.1014**	**1.8400e-003**	**0.1032**	**0.0271**	**1.7300e-003**	**0.0288**		**182.2220**	**182.2220**	**0.0112**		**182.5021**

3.2 Demolition - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2392	0.0000	0.2392	0.0362	0.0000	0.0362			0.0000			0.0000
Off-Road	0.9530	8.6039	7.6917	0.0120		0.5371	0.5371		0.5125	0.5125	0.0000	1,159.6570	1,159.6570	0.2211		1,165.1847
Total	**0.9530**	**8.6039**	**7.6917**	**0.0120**	**0.2392**	**0.5371**	**0.7763**	**0.0362**	**0.5125**	**0.5487**	**0.0000**	**1,159.6570**	**1,159.6570**	**0.2211**		**1,165.1847**

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	9.5500e-003	0.3304	0.0713	8.7000e-004	0.0192	1.2500e-003	0.0205	5.2700e-003	1.1900e-003	6.4600e-003		95.2020	95.2020	8.4200e-003		95.4126
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	0.0393	0.0274	0.3094	8.7000e-004	0.0822	5.9000e-004	0.0827	0.0218	5.4000e-004	0.0223		87.0200	87.0200	2.7800e-003		87.0894
Total	**0.0488**	**0.3578**	**0.3807**	**1.7400e-003**	**0.1014**	**1.8400e-003**	**0.1032**	**0.0271**	**1.7300e-003**	**0.0288**		**182.2220**	**182.2220**	**0.0112**		**182.5021**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1527	0.0000	0.1527	0.0165	0.0000	0.0165			0.0000			0.0000
Off-Road	0.7195	8.9170	4.1407	9.7500e-003		0.3672	0.3672		0.3378	0.3378		965.1690	965.1690	0.3054		972.8032
Total	**0.7195**	**8.9170**	**4.1407**	**9.7500e-003**	**0.1527**	**0.3672**	**0.5199**	**0.0165**	**0.3378**	**0.3543**		**965.1690**	**965.1690**	**0.3054**		**972.8032**

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	0.0196	0.0137	0.1547	4.4000e-004	0.0411	2.9000e-004	0.0414	0.0109	2.7000e-004	0.0112		43.5100	43.5100	1.3900e-003		43.5447
Total	**0.0196**	**0.0137**	**0.1547**	**4.4000e-004**	**0.0411**	**2.9000e-004**	**0.0414**	**0.0109**	**2.7000e-004**	**0.0112**		**43.5100**	**43.5100**	**1.3900e-003**		**43.5447**

3.3 Site Preparation - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1527	0.0000	0.1527	0.0165	0.0000	0.0165			0.0000			0.0000
Off-Road	0.7195	8.9170	4.1407	9.7500e-003		0.3672	0.3672		0.3378	0.3378	0.0000	965.1690	965.1690	0.3054		972.8032
Total	**0.7195**	**8.9170**	**4.1407**	**9.7500e-003**	**0.1527**	**0.3672**	**0.5199**	**0.0165**	**0.3378**	**0.3543**	**0.0000**	**965.1690**	**965.1690**	**0.3054**		**972.8032**

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	0.0196	0.0137	0.1547	4.4000e-004	0.0411	2.9000e-004	0.0414	0.0109	2.7000e-004	0.0112		43.5100	43.5100	1.3900e-003		43.5447
Total	**0.0196**	**0.0137**	**0.1547**	**4.4000e-004**	**0.0411**	**2.9000e-004**	**0.0414**	**0.0109**	**2.7000e-004**	**0.0112**		**43.5100**	**43.5100**	**1.3900e-003**		**43.5447**

3.4 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	0.9530	8.6039	7.6917	0.0120		0.5371	0.5371		0.5125	0.5125		1,159.6570	1,159.6570	0.2211		1,165.1847
Total	**0.9530**	**8.6039**	**7.6917**	**0.0120**	**0.7528**	**0.5371**	**1.2898**	**0.4138**	**0.5125**	**0.9263**		**1,159.6570**	**1,159.6570**	**0.2211**		**1,165.1847**

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	0.0393	0.0274	0.3094	8.7000e-004	0.0822	5.9000e-004	0.0827	0.0218	5.4000e-004	0.0223		87.0200	87.0200	2.7800e-003		87.0894
Total	**0.0393**	**0.0274**	**0.3094**	**8.7000e-004**	**0.0822**	**5.9000e-004**	**0.0827**	**0.0218**	**5.4000e-004**	**0.0223**		**87.0200**	**87.0200**	**2.7800e-003**		**87.0894**

3.4 Grading - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	0.9530	8.6039	7.6917	0.0120		0.5371	0.5371		0.5125	0.5125	0.0000	1,159.6570	1,159.6570	0.2211		1,165.1847
Total	**0.9530**	**8.6039**	**7.6917**	**0.0120**	**0.7528**	**0.5371**	**1.2898**	**0.4138**	**0.5125**	**0.9263**	**0.0000**	**1,159.6570**	**1,159.6570**	**0.2211**		**1,165.1847**

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	0.0393	0.0274	0.3094	8.7000e-004	0.0822	5.9000e-004	0.0827	0.0218	5.4000e-004	0.0223		87.0200	87.0200	2.7800e-003		87.0894
Total	**0.0393**	**0.0274**	**0.3094**	**8.7000e-004**	**0.0822**	**5.9000e-004**	**0.0827**	**0.0218**	**5.4000e-004**	**0.0223**		**87.0200**	**87.0200**	**2.7800e-003**		**87.0894**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9576	9.8207	7.5432	0.0114		0.6054	0.6054		0.5569	0.5569		1,127.6696	1,127.6696	0.3568		1,136.5892
Total	**0.9576**	**9.8207**	**7.5432**	**0.0114**		**0.6054**	**0.6054**		**0.5569**	**0.5569**		**1,127.6696**	**1,127.6696**	**0.3568**		**1,136.5892**

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	0.1013	2.7277	0.7042	6.0700e-003	0.1489	0.0190	0.1679	0.0429	0.0182	0.0610		651.2366	651.2366	0.0503		652.4936
Worker	0.2120	0.1480	1.6708	4.7200e-003	0.4436	3.1600e-003	0.4468	0.1177	2.9100e-003	0.1206		469.9078	469.9078	0.0150		470.2829
Total	**0.3133**	**2.8757**	**2.3750**	**0.0108**	**0.5925**	**0.0221**	**0.6147**	**0.1605**	**0.0211**	**0.1816**		**1,121.1444**	**1,121.1444**	**0.0653**		**1,122.7765**

3.5 Building Construction - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9576	9.8207	7.5432	0.0114		0.6054	0.6054		0.5569	0.5569	0.0000	1,127.6696	1,127.6696	0.3568		1,136.5892
Total	**0.9576**	**9.8207**	**7.5432**	**0.0114**		**0.6054**	**0.6054**		**0.5569**	**0.5569**	**0.0000**	**1,127.6696**	**1,127.6696**	**0.3568**		**1,136.5892**

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	0.1013	2.7277	0.7042	6.0700e-003	0.1489	0.0190	0.1679	0.0429	0.0182	0.0610		651.2366	651.2366	0.0503		652.4936
Worker	0.2120	0.1480	1.6708	4.7200e-003	0.4436	3.1600e-003	0.4468	0.1177	2.9100e-003	0.1206		469.9078	469.9078	0.0150		470.2829
Total	**0.3133**	**2.8757**	**2.3750**	**0.0108**	**0.5925**	**0.0221**	**0.6147**	**0.1605**	**0.0211**	**0.1816**		**1,121.1444**	**1,121.1444**	**0.0653**		**1,122.7765**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category						lb/day								lb/day		
Off-Road	0.8617	8.8523	7.3875	0.0114		0.5224	0.5224		0.4806	0.4806		1,102.9781	1,102.9781	0.3567		1,111.8962
Total	**0.8617**	**8.8523**	**7.3875**	**0.0114**		**0.5224**	**0.5224**		**0.4806**	**0.4806**		**1,102.9781**	**1,102.9781**	**0.3567**		**1,111.8962**

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	0.0822	2.4807	0.6320	6.0200e-003	0.1489	0.0121	0.1611	0.0429	0.0116	0.0545		646.8882	646.8882	0.0477		648.0812
Worker	0.1982	0.1335	1.5307	4.5700e-003	0.4436	3.1100e-003	0.4467	0.1177	2.8700e-003	0.1205		455.0834	455.0834	0.0136		455.4231
Total	**0.2804**	**2.6142**	**2.1627**	**0.0106**	**0.5925**	**0.0153**	**0.6078**	**0.1605**	**0.0145**	**0.1750**		**1,101.9716**	**1,101.9716**	**0.0613**		**1,103.5043**

3.5 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8617	8.8523	7.3875	0.0114		0.5224	0.5224		0.4806	0.4806	0.0000	1,102.9781	1,102.9781	0.3567		1,111.8962
Total	**0.8617**	**8.8523**	**7.3875**	**0.0114**		**0.5224**	**0.5224**		**0.4806**	**0.4806**	**0.0000**	**1,102.9781**	**1,102.9781**	**0.3567**		**1,111.8962**

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	0.0822	2.4807	0.6320	6.0200e-003	0.1489	0.0121	0.1611	0.0429	0.0116	0.0545		646.8882	646.8882	0.0477		648.0812
Worker	0.1982	0.1335	1.5307	4.5700e-003	0.4436	3.1100e-003	0.4467	0.1177	2.8700e-003	0.1205		455.0834	455.0834	0.0136		455.4231
Total	**0.2804**	**2.6142**	**2.1627**	**0.0106**	**0.5925**	**0.0153**	**0.6078**	**0.1605**	**0.0145**	**0.1750**		**1,101.9716**	**1,101.9716**	**0.0613**		**1,103.5043**

3.6 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7716	7.2266	7.1128	0.0113		0.3950	0.3950		0.3669	0.3669		1,035.3926	1,035.3926	0.3016		1,042.9323
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7716**	**7.2266**	**7.1128**	**0.0113**		**0.3950**	**0.3950**		**0.3669**	**0.3669**		**1,035.3926**	**1,035.3926**	**0.3016**		**1,042.9323**

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	0.0661	0.0445	0.5102	1.5200e-003	0.1479	1.0400e-003	0.1489	0.0392	9.6000e-004	0.0402		151.6945	151.6945	4.5300e-003		151.8077
Total	**0.0661**	**0.0445**	**0.5102**	**1.5200e-003**	**0.1479**	**1.0400e-003**	**0.1489**	**0.0392**	**9.6000e-004**	**0.0402**		**151.6945**	**151.6945**	**4.5300e-003**		**151.8077**

3.6 Paving - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7716	7.2266	7.1128	0.0113		0.3950	0.3950		0.3669	0.3669	0.0000	1,035.3926	1,035.3926	0.3016		1,042.9323
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7716**	**7.2266**	**7.1128**	**0.0113**		**0.3950**	**0.3950**		**0.3669**	**0.3669**	**0.0000**	**1,035.3926**	**1,035.3926**	**0.3016**		**1,042.9323**

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	0.0661	0.0445	0.5102	1.5200e-003	0.1479	1.0400e-003	0.1489	0.0392	9.6000e-004	0.0402		151.6945	151.6945	4.5300e-003		151.8077
Total	**0.0661**	**0.0445**	**0.5102**	**1.5200e-003**	**0.1479**	**1.0400e-003**	**0.1489**	**0.0392**	**9.6000e-004**	**0.0402**		**151.6945**	**151.6945**	**4.5300e-003**		**151.8077**

3.7 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	16.2027					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**16.4449**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

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	0.0404	0.0272	0.3118	9.3000e-004	0.0904	6.3000e-004	0.0910	0.0240	5.8000e-004	0.0246		92.7022	92.7022	2.7700e-003		92.7714
Total	**0.0404**	**0.0272**	**0.3118**	**9.3000e-004**	**0.0904**	**6.3000e-004**	**0.0910**	**0.0240**	**5.8000e-004**	**0.0246**		**92.7022**	**92.7022**	**2.7700e-003**		**92.7714**

3.7 Architectural Coating - 2020

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	16.2027					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**16.4449**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

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	0.0404	0.0272	0.3118	9.3000e-004	0.0904	6.3000e-004	0.0910	0.0240	5.8000e-004	0.0246		92.7022	92.7022	2.7700e-003		92.7714
Total	**0.0404**	**0.0272**	**0.3118**	**9.3000e-004**	**0.0904**	**6.3000e-004**	**0.0910**	**0.0240**	**5.8000e-004**	**0.0246**		**92.7022**	**92.7022**	**2.7700e-003**		**92.7714**

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	4.3537	15.9474	39.6510	0.1183	9.2117	0.1167	9.3284	2.4622	0.1094	2.5716		12,005.2268	12,005.2268	0.6945		12,022.5903
Unmitigated	4.3537	15.9474	39.6510	0.1183	9.2117	0.1167	9.3284	2.4622	0.1094	2.5716		12,005.2268	12,005.2268	0.6945		12,022.5903

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Enclosed Parking with Elevator	1,508.67	1,508.67	1508.67	2,323,396	2,323,396
Strip Mall	1,312.02	1,312.02	1312.02	2,020,550	2,020,550
Total	2,820.68	2,820.68	2,820.68	4,343,946	4,343,946

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
Enclosed Parking with Elevator	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Enclosed Parking with Elevator	0.588316	0.042913	0.184449	0.110793	0.017294	0.005558	0.015534	0.023021	0.001902	0.002024	0.006181	0.000745	0.001271
Strip Mall	0.588316	0.042913	0.184449	0.110793	0.017294	0.005558	0.015534	0.023021	0.001902	0.002024	0.006181	0.000745	0.001271

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	8.7000e-004	7.9500e-003	6.6800e-003	5.0000e-005		6.0000e-004	6.0000e-004		6.0000e-004	6.0000e-004		9.5376	9.5376	1.8000e-004	1.7000e-004	9.5943
NaturalGas Unmitigated	8.7000e-004	7.9500e-003	6.6800e-003	5.0000e-005		6.0000e-004	6.0000e-004		6.0000e-004	6.0000e-004		9.5376	9.5376	1.8000e-004	1.7000e-004	9.5943

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	81.0696	8.7000e-004	7.9500e-003	6.6800e-003	5.0000e-005		6.0000e-004	6.0000e-004		6.0000e-004	6.0000e-004		9.5376	9.5376	1.8000e-004	1.7000e-004	9.5943
Total		**8.7000e-004**	**7.9500e-003**	**6.6800e-003**	**5.0000e-005**		**6.0000e-004**	**6.0000e-004**		**6.0000e-004**	**6.0000e-004**		**9.5376**	**9.5376**	**1.8000e-004**	**1.7000e-004**	**9.5943**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	0.0810696	8.7000e-004	7.9500e-003	6.6800e-003	5.0000e-005		6.0000e-004	6.0000e-004		6.0000e-004	6.0000e-004		9.5376	9.5376	1.8000e-004	1.7000e-004	9.5943
Total		**8.7000e-004**	**7.9500e-003**	**6.6800e-003**	**5.0000e-005**		**6.0000e-004**	**6.0000e-004**		**6.0000e-004**	**6.0000e-004**		**9.5376**	**9.5376**	**1.8000e-004**	**1.7000e-004**	**9.5943**

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	0.4327	1.3000e-004	0.0136	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0289	0.0289	8.0000e-005		0.0309
Unmitigated	0.4327	1.3000e-004	0.0136	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0289	0.0289	8.0000e-005		0.0309

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1065					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3248					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.2800e-003	1.3000e-004	0.0136	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0289	0.0289	8.0000e-005		0.0309
Total	**0.4327**	**1.3000e-004**	**0.0136**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0289**	**0.0289**	**8.0000e-005**		**0.0309**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1065					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3248					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.2800e-003	1.3000e-004	0.0136	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0289	0.0289	8.0000e-005		0.0309
Total	**0.4327**	**1.3000e-004**	**0.0136**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0289**	**0.0289**	**8.0000e-005**		**0.0309**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Baja Mex Virginia Avenue

San Diego Air Basin, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	118.98	1000sqft	0.43	118,976.00	0
Strip Mall	13.21	1000sqft	0.30	13,210.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2020
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 - Construction schedule provided by applicant

Land Use - Gross site area=0.722 acres. Proposed building area per Oct 2, 2017 Site Plan.

Construction Phase - Applicant provided total construciton schedule

Demolition - Per August 2017 submittal

Grading - No import, export. Area disturbed: 31,450 sq ft. Per August 2017 grading plan

Vehicle Trips - Per Sept 2017 TIA

Energy Use -

Water And Wastewater - MAWA from August 7 2017 landscape plan for outdoor strip mall

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	5.00	24.00
tblConstructionPhase	NumDays	100.00	239.00
tblConstructionPhase	NumDays	2.00	10.00
tblConstructionPhase	NumDays	5.00	6.00
tblConstructionPhase	NumDays	1.00	5.00
tblGrading	AcresOfGrading	2.50	0.72
tblLandUse	BuildingSpaceSquareFeet	118,980.00	118,976.00
tblLandUse	LandUseSquareFeet	118,980.00	118,976.00
tblLandUse	LotAcreage	2.73	0.43
tblProjectCharacteristics	OperationalYear	2018	2020
tblVehicleTrips	CC_TTP	0.00	64.40
tblVehicleTrips	CNW_TTP	0.00	19.00
tblVehicleTrips	CW_TTP	0.00	16.60
tblVehicleTrips	DV_TP	0.00	40.00
tblVehicleTrips	PB_TP	0.00	15.00
tblVehicleTrips	PR_TP	0.00	45.00
tblVehicleTrips	ST_TR	0.00	12.68
tblVehicleTrips	ST_TR	42.04	99.32
tblVehicleTrips	SU_TR	0.00	12.68
tblVehicleTrips	SU_TR	20.43	99.32
tblVehicleTrips	WD_TR	0.00	12.68
tblVehicleTrips	WD_TR	44.32	99.32
tblWater	OutdoorWaterUseRate	599,724.59	24,092.00

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					
2019	1.3030	12.7168	9.9029	0.0217	0.8349	0.6278	1.3726	0.4356	0.5783	0.9486	0.0000	2,203.5036	2,203.5036	0.4245	0.0000	2,214.1162
2020	16.4906	11.4809	9.5320	0.0216	0.5925	0.5379	1.1304	0.1605	0.4953	0.6558	0.0000	2,160.4062	2,160.4062	0.4203	0.0000	2,170.9137
Maximum	**16.4906**	**12.7168**	**9.9029**	**0.0217**	**0.8349**	**0.6278**	**1.3726**	**0.4356**	**0.5783**	**0.9486**	**0.0000**	**2,203.5036**	**2,203.5036**	**0.4245**	**0.0000**	**2,214.1162**

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					
2019	1.3030	12.7168	9.9029	0.0217	0.8349	0.6278	1.3726	0.4356	0.5783	0.9486	0.0000	2,203.5036	2,203.5036	0.4245	0.0000	2,214.1162
2020	16.4906	11.4809	9.5320	0.0216	0.5925	0.5379	1.1304	0.1605	0.4953	0.6558	0.0000	2,160.4062	2,160.4062	0.4203	0.0000	2,170.9137
Maximum	**16.4906**	**12.7168**	**9.9029**	**0.0217**	**0.8349**	**0.6278**	**1.3726**	**0.4356**	**0.5783**	**0.9486**	**0.0000**	**2,203.5036**	**2,203.5036**	**0.4245**	**0.0000**	**2,214.1162**

	ROG	**NOx**	**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**

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	0.4327	1.3000e-004	0.0136	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0289	0.0289	8.0000e-005		0.0309
Energy	8.7000e-004	7.9500e-003	6.6800e-003	5.0000e-005		6.0000e-004	6.0000e-004		6.0000e-004	6.0000e-004		9.5376	9.5376	1.8000e-004	1.7000e-004	9.5943
Mobile	4.2285	16.2547	40.6606	0.1120	9.2117	0.1180	9.3297	2.4622	0.1107	2.5729		11,366.7013	11,366.7013	0.7103		11,384.4587
Total	**4.6620**	**16.2628**	**40.6808**	**0.1120**	**9.2117**	**0.1187**	**9.3304**	**2.4622**	**0.1113**	**2.5735**		**11,376.2678**	**11,376.2678**	**0.7106**	**1.7000e-004**	**11,394.0839**

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	0.4327	1.3000e-004	0.0136	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0289	0.0289	8.0000e-005		0.0309
Energy	8.7000e-004	7.9500e-003	6.6800e-003	5.0000e-005		6.0000e-004	6.0000e-004		6.0000e-004	6.0000e-004		9.5376	9.5376	1.8000e-004	1.7000e-004	9.5943
Mobile	4.2285	16.2547	40.6606	0.1120	9.2117	0.1180	9.3297	2.4622	0.1107	2.5729		11,366.7013	11,366.7013	0.7103		11,384.4587
Total	**4.6620**	**16.2628**	**40.6808**	**0.1120**	**9.2117**	**0.1187**	**9.3304**	**2.4622**	**0.1113**	**2.5735**		**11,376.2678**	**11,376.2678**	**0.7106**	**1.7000e-004**	**11,394.0839**

	ROG	NOx	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	1/1/2019	1/14/2019	5	10	
2	Site Preparation	Site Preparation	1/15/2019	1/21/2019	5	5	
3	Grading	Grading	1/22/2019	2/4/2019	5	10	
4	Building Construction	Building Construction	2/5/2019	1/3/2020	5	239	
5	Paving	Paving	1/4/2020	1/13/2020	5	6	
6	Architectural Coating	Architectural Coating	1/14/2020	2/14/2020	5	24	

Acres of Grading (Site Preparation Phase): 0.72

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.43

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 19,815; Non-Residential Outdoor: 6,605; Striped Parking Area: 7,139 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	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	4	10.00	0.00	11.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	54.00	22.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	11.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2392	0.0000	0.2392	0.0362	0.0000	0.0362			0.0000			0.0000
Off-Road	0.9530	8.6039	7.6917	0.0120		0.5371	0.5371		0.5125	0.5125		1,159.6570	1,159.6570	0.2211		1,165.1847
Total	**0.9530**	**8.6039**	**7.6917**	**0.0120**	**0.2392**	**0.5371**	**0.7763**	**0.0362**	**0.5125**	**0.5487**		**1,159.6570**	**1,159.6570**	**0.2211**		**1,165.1847**

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	9.8200e-003	0.3338	0.0764	8.6000e-004	0.0192	1.2800e-003	0.0205	5.2700e-003	1.2200e-003	6.4900e-003		93.6000	93.6000	8.7300e-003		93.8182
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	0.0444	0.0308	0.2924	8.2000e-004	0.0822	5.9000e-004	0.0827	0.0218	5.4000e-004	0.0223		81.6914	81.6914	2.6400e-003		81.7573
Total	**0.0542**	**0.3646**	**0.3688**	**1.6800e-003**	**0.1014**	**1.8700e-003**	**0.1032**	**0.0271**	**1.7600e-003**	**0.0288**		**175.2913**	**175.2913**	**0.0114**		**175.5755**

3.2 Demolition - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2392	0.0000	0.2392	0.0362	0.0000	0.0362			0.0000			0.0000
Off-Road	0.9530	8.6039	7.6917	0.0120		0.5371	0.5371		0.5125	0.5125	0.0000	1,159.6570	1,159.6570	0.2211		1,165.1847
Total	**0.9530**	**8.6039**	**7.6917**	**0.0120**	**0.2392**	**0.5371**	**0.7763**	**0.0362**	**0.5125**	**0.5487**	**0.0000**	**1,159.6570**	**1,159.6570**	**0.2211**		**1,165.1847**

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	9.8200e-003	0.3338	0.0764	8.6000e-004	0.0192	1.2800e-003	0.0205	5.2700e-003	1.2200e-003	6.4900e-003		93.6000	93.6000	8.7300e-003		93.8182
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	0.0444	0.0308	0.2924	8.2000e-004	0.0822	5.9000e-004	0.0827	0.0218	5.4000e-004	0.0223		81.6914	81.6914	2.6400e-003		81.7573
Total	**0.0542**	**0.3646**	**0.3688**	**1.6800e-003**	**0.1014**	**1.8700e-003**	**0.1032**	**0.0271**	**1.7600e-003**	**0.0288**		**175.2913**	**175.2913**	**0.0114**		**175.5755**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1527	0.0000	0.1527	0.0165	0.0000	0.0165			0.0000			0.0000
Off-Road	0.7195	8.9170	4.1407	9.7500e-003		0.3672	0.3672		0.3378	0.3378		965.1690	965.1690	0.3054		972.8032
Total	**0.7195**	**8.9170**	**4.1407**	**9.7500e-003**	**0.1527**	**0.3672**	**0.5199**	**0.0165**	**0.3378**	**0.3543**		**965.1690**	**965.1690**	**0.3054**		**972.8032**

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	0.0222	0.0154	0.1462	4.1000e-004	0.0411	2.9000e-004	0.0414	0.0109	2.7000e-004	0.0112		40.8457	40.8457	1.3200e-003		40.8786
Total	**0.0222**	**0.0154**	**0.1462**	**4.1000e-004**	**0.0411**	**2.9000e-004**	**0.0414**	**0.0109**	**2.7000e-004**	**0.0112**		**40.8457**	**40.8457**	**1.3200e-003**		**40.8786**

3.3 Site Preparation - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1527	0.0000	0.1527	0.0165	0.0000	0.0165			0.0000			0.0000
Off-Road	0.7195	8.9170	4.1407	9.7500e-003		0.3672	0.3672		0.3378	0.3378	0.0000	965.1690	965.1690	0.3054		972.8032
Total	**0.7195**	**8.9170**	**4.1407**	**9.7500e-003**	**0.1527**	**0.3672**	**0.5199**	**0.0165**	**0.3378**	**0.3543**	**0.0000**	**965.1690**	**965.1690**	**0.3054**		**972.8032**

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	0.0222	0.0154	0.1462	4.1000e-004	0.0411	2.9000e-004	0.0414	0.0109	2.7000e-004	0.0112		40.8457	40.8457	1.3200e-003		40.8786
Total	**0.0222**	**0.0154**	**0.1462**	**4.1000e-004**	**0.0411**	**2.9000e-004**	**0.0414**	**0.0109**	**2.7000e-004**	**0.0112**		**40.8457**	**40.8457**	**1.3200e-003**		**40.8786**

3.4 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	0.9530	8.6039	7.6917	0.0120		0.5371	0.5371		0.5125	0.5125		1,159.6570	1,159.6570	0.2211		1,165.1847
Total	**0.9530**	**8.6039**	**7.6917**	**0.0120**	**0.7528**	**0.5371**	**1.2898**	**0.4138**	**0.5125**	**0.9263**		**1,159.6570**	**1,159.6570**	**0.2211**		**1,165.1847**

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	0.0444	0.0308	0.2924	8.2000e-004	0.0822	5.9000e-004	0.0827	0.0218	5.4000e-004	0.0223		81.6914	81.6914	2.6400e-003		81.7573
Total	**0.0444**	**0.0308**	**0.2924**	**8.2000e-004**	**0.0822**	**5.9000e-004**	**0.0827**	**0.0218**	**5.4000e-004**	**0.0223**		**81.6914**	**81.6914**	**2.6400e-003**		**81.7573**

3.4 Grading - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	0.9530	8.6039	7.6917	0.0120		0.5371	0.5371		0.5125	0.5125	0.0000	1,159.6570	1,159.6570	0.2211		1,165.1847
Total	**0.9530**	**8.6039**	**7.6917**	**0.0120**	**0.7528**	**0.5371**	**1.2898**	**0.4138**	**0.5125**	**0.9263**	**0.0000**	**1,159.6570**	**1,159.6570**	**0.2211**		**1,165.1847**

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	0.0444	0.0308	0.2924	8.2000e-004	0.0822	5.9000e-004	0.0827	0.0218	5.4000e-004	0.0223		81.6914	81.6914	2.6400e-003		81.7573
Total	**0.0444**	**0.0308**	**0.2924**	**8.2000e-004**	**0.0822**	**5.9000e-004**	**0.0827**	**0.0218**	**5.4000e-004**	**0.0223**		**81.6914**	**81.6914**	**2.6400e-003**		**81.7573**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9576	9.8207	7.5432	0.0114		0.6054	0.6054		0.5569	0.5569		1,127.6696	1,127.6696	0.3568		1,136.5892
Total	**0.9576**	**9.8207**	**7.5432**	**0.0114**		**0.6054**	**0.6054**		**0.5569**	**0.5569**		**1,127.6696**	**1,127.6696**	**0.3568**		**1,136.5892**

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	0.1056	2.7299	0.7808	5.9200e-003	0.1489	0.0193	0.1682	0.0429	0.0185	0.0614		634.7006	634.7006	0.0535		636.0377
Worker	0.2398	0.1662	1.5789	4.4300e-003	0.4436	3.1600e-003	0.4468	0.1177	2.9100e-003	0.1206		441.1334	441.1334	0.0142		441.4893
Total	**0.3454**	**2.8961**	**2.3597**	**0.0104**	**0.5925**	**0.0225**	**0.6150**	**0.1605**	**0.0214**	**0.1819**		**1,075.8340**	**1,075.8340**	**0.0677**		**1,077.5270**

3.5 Building Construction - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9576	9.8207	7.5432	0.0114		0.6054	0.6054		0.5569	0.5569	0.0000	1,127.6696	1,127.6696	0.3568		1,136.5892
Total	**0.9576**	**9.8207**	**7.5432**	**0.0114**		**0.6054**	**0.6054**		**0.5569**	**0.5569**	**0.0000**	**1,127.6696**	**1,127.6696**	**0.3568**		**1,136.5892**

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	0.1056	2.7299	0.7808	5.9200e-003	0.1489	0.0193	0.1682	0.0429	0.0185	0.0614		634.7006	634.7006	0.0535		636.0377
Worker	0.2398	0.1662	1.5789	4.4300e-003	0.4436	3.1600e-003	0.4468	0.1177	2.9100e-003	0.1206		441.1334	441.1334	0.0142		441.4893
Total	**0.3454**	**2.8961**	**2.3597**	**0.0104**	**0.5925**	**0.0225**	**0.6150**	**0.1605**	**0.0214**	**0.1819**		**1,075.8340**	**1,075.8340**	**0.0677**		**1,077.5270**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8617	8.8523	7.3875	0.0114		0.5224	0.5224		0.4806	0.4806		1,102.9781	1,102.9781	0.3567		1,111.8962
Total	**0.8617**	**8.8523**	**7.3875**	**0.0114**		**0.5224**	**0.5224**		**0.4806**	**0.4806**		**1,102.9781**	**1,102.9781**	**0.3567**		**1,111.8962**

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	0.0861	2.4787	0.7014	5.8700e-003	0.1489	0.0124	0.1613	0.0429	0.0118	0.0547		630.2169	630.2169	0.0507		631.4847
Worker	0.2244	0.1499	1.4431	4.2900e-003	0.4436	3.1100e-003	0.4467	0.1177	2.8700e-003	0.1205		427.2113	427.2113	0.0129		427.5328
Total	**0.3105**	**2.6286**	**2.1445**	**0.0102**	**0.5925**	**0.0155**	**0.6080**	**0.1605**	**0.0147**	**0.1752**		**1,057.4281**	**1,057.4281**	**0.0636**		**1,059.0175**

3.5 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category						lb/day							lb/day			
Off-Road	0.8617	8.8523	7.3875	0.0114		0.5224	0.5224		0.4806	0.4806	0.0000	1,102.978 1	1,102.978 1	0.3567		1,111.8962
Total	**0.8617**	**8.8523**	**7.3875**	**0.0114**		**0.5224**	**0.5224**		**0.4806**	**0.4806**	**0.0000**	**1,102.978 1**	**1,102.978 1**	**0.3567**		**1,111.8962**

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	0.0861	2.4787	0.7014	5.8700e-003	0.1489	0.0124	0.1613	0.0429	0.0118	0.0547		630.2169	630.2169	0.0507		631.4847
Worker	0.2244	0.1499	1.4431	4.2900e-003	0.4436	3.1100e-003	0.4467	0.1177	2.8700e-003	0.1205		427.2113	427.2113	0.0129		427.5328
Total	**0.3105**	**2.6286**	**2.1445**	**0.0102**	**0.5925**	**0.0155**	**0.6080**	**0.1605**	**0.0147**	**0.1752**		**1,057.428 1**	**1,057.428 1**	**0.0636**		**1,059.017 5**

3.6 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7716	7.2266	7.1128	0.0113		0.3950	0.3950		0.3669	0.3669		1,035.3926	1,035.3926	0.3016		1,042.9323
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7716**	**7.2266**	**7.1128**	**0.0113**		**0.3950**	**0.3950**		**0.3669**	**0.3669**		**1,035.3926**	**1,035.3926**	**0.3016**		**1,042.9323**

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	0.0748	0.0500	0.4810	1.4300e-003	0.1479	1.0400e-003	0.1489	0.0392	9.6000e-004	0.0402		142.4038	142.4038	4.2900e-003		142.5109
Total	**0.0748**	**0.0500**	**0.4810**	**1.4300e-003**	**0.1479**	**1.0400e-003**	**0.1489**	**0.0392**	**9.6000e-004**	**0.0402**		**142.4038**	**142.4038**	**4.2900e-003**		**142.5109**

3.6 Paving - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7716	7.2266	7.1128	0.0113		0.3950	0.3950		0.3669	0.3669	0.0000	1,035.3926	1,035.3926	0.3016		1,042.9323
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7716**	**7.2266**	**7.1128**	**0.0113**		**0.3950**	**0.3950**		**0.3669**	**0.3669**	**0.0000**	**1,035.3926**	**1,035.3926**	**0.3016**		**1,042.9323**

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	0.0748	0.0500	0.4810	1.4300e-003	0.1479	1.0400e-003	0.1489	0.0392	9.6000e-004	0.0402		142.4038	142.4038	4.2900e-003		142.5109
Total	**0.0748**	**0.0500**	**0.4810**	**1.4300e-003**	**0.1479**	**1.0400e-003**	**0.1489**	**0.0392**	**9.6000e-004**	**0.0402**		**142.4038**	**142.4038**	**4.2900e-003**		**142.5109**

3.7 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	16.2027					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**16.4449**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

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	0.0457	0.0305	0.2940	8.7000e-004	0.0904	6.3000e-004	0.0910	0.0240	5.8000e-004	0.0246		87.0245	87.0245	2.6200e-003		87.0900
Total	**0.0457**	**0.0305**	**0.2940**	**8.7000e-004**	**0.0904**	**6.3000e-004**	**0.0910**	**0.0240**	**5.8000e-004**	**0.0246**		**87.0245**	**87.0245**	**2.6200e-003**		**87.0900**

3.7 Architectural Coating - 2020

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	16.2027					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**16.4449**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

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	0.0457	0.0305	0.2940	8.7000e-004	0.0904	6.3000e-004	0.0910	0.0240	5.8000e-004	0.0246		87.0245	87.0245	2.6200e-003		87.0900
Total	**0.0457**	**0.0305**	**0.2940**	**8.7000e-004**	**0.0904**	**6.3000e-004**	**0.0910**	**0.0240**	**5.8000e-004**	**0.0246**		**87.0245**	**87.0245**	**2.6200e-003**		**87.0900**

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	4.2285	16.2547	40.6606	0.1120	9.2117	0.1180	9.3297	2.4622	0.1107	2.5729		11,366.7013	11,366.7013	0.7103		11,384.4587
Unmitigated	4.2285	16.2547	40.6606	0.1120	9.2117	0.1180	9.3297	2.4622	0.1107	2.5729		11,366.7013	11,366.7013	0.7103		11,384.4587

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Enclosed Parking with Elevator	1,508.67	1,508.67	1508.67	2,323,396	2,323,396
Strip Mall	1,312.02	1,312.02	1312.02	2,020,550	2,020,550
Total	2,820.68	2,820.68	2,820.68	4,343,946	4,343,946

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
Enclosed Parking with Elevator	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Enclosed Parking with Elevator	0.588316	0.042913	0.184449	0.110793	0.017294	0.005558	0.015534	0.023021	0.001902	0.002024	0.006181	0.000745	0.001271
Strip Mall	0.588316	0.042913	0.184449	0.110793	0.017294	0.005558	0.015534	0.023021	0.001902	0.002024	0.006181	0.000745	0.001271

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	8.7000e-004	7.9500e-003	6.6800e-003	5.0000e-005		6.0000e-004	6.0000e-004		6.0000e-004	6.0000e-004		9.5376	9.5376	1.8000e-004	1.7000e-004	9.5943
NaturalGas Unmitigated	8.7000e-004	7.9500e-003	6.6800e-003	5.0000e-005		6.0000e-004	6.0000e-004		6.0000e-004	6.0000e-004		9.5376	9.5376	1.8000e-004	1.7000e-004	9.5943

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	81.0696	8.7000e-004	7.9500e-003	6.6800e-003	5.0000e-005		6.0000e-004	6.0000e-004		6.0000e-004	6.0000e-004		9.5376	9.5376	1.8000e-004	1.7000e-004	9.5943
Total		**8.7000e-004**	**7.9500e-003**	**6.6800e-003**	**5.0000e-005**		**6.0000e-004**	**6.0000e-004**		**6.0000e-004**	**6.0000e-004**		**9.5376**	**9.5376**	**1.8000e-004**	**1.7000e-004**	**9.5943**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	0.0810696	8.7000e-004	7.9500e-003	6.6800e-003	5.0000e-005		6.0000e-004	6.0000e-004		6.0000e-004	6.0000e-004		9.5376	9.5376	1.8000e-004	1.7000e-004	9.5943
Total		**8.7000e-004**	**7.9500e-003**	**6.6800e-003**	**5.0000e-005**		**6.0000e-004**	**6.0000e-004**		**6.0000e-004**	**6.0000e-004**		**9.5376**	**9.5376**	**1.8000e-004**	**1.7000e-004**	**9.5943**

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	0.4327	1.3000e-004	0.0136	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0289	0.0289	8.0000e-005		0.0309
Unmitigated	0.4327	1.3000e-004	0.0136	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0289	0.0289	8.0000e-005		0.0309

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1065					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3248					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.2800e-003	1.3000e-004	0.0136	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0289	0.0289	8.0000e-005		0.0309
Total	**0.4327**	**1.3000e-004**	**0.0136**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0289**	**0.0289**	**8.0000e-005**		**0.0309**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1065					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3248					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.2800e-003	1.3000e-004	0.0136	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0289	0.0289	8.0000e-005		0.0309
Total	**0.4327**	**1.3000e-004**	**0.0136**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0289**	**0.0289**	**8.0000e-005**		**0.0309**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Harris & Associates

Date: October 16, 2017

To: **Tim Daly, Project Manager**
City of San Diego
Development Services Department
1222 First Avenue
San Diego, CA 92101-4154
619.446.5356
TPDaly@sandiego.gov

Project Name: **Virginia Avenue Parking Garage**

Project Number: 375960

Description: Transmittal Letter for Climate Action Plan Consistency Checklist

Sent by: Ryan Binns, Director of Environmental Planning & Compliance
Harris & Associates
600 B Street, Suite 2000
San Diego, CA 92101
619.481.5015
Ryan.Binns@WeAreHarris.com

CLIMATE ACTION PLAN
CONSISTENCY CHECKLIST INTRODUCTION

In December 2015, the City adopted a Climate Action Plan (CAP) that outlines the actions that City will undertake to achieve its proportional share of State greenhouse gas (GHG) emission reductions. The purpose of the Climate Action Plan Consistency Checklist (Checklist) is to, in conjunction with the CAP, provide a streamlined review process for proposed new development projects that are subject to discretionary review and trigger environmental review pursuant to the California Environmental Quality Act (CEQA).[1]

Analysis of GHG emissions and potential climate change impacts from new development is required under CEQA. The CAP is a plan for the reduction of GHG emissions in accordance with CEQA Guidelines Section 15183.5. Pursuant to CEQA Guidelines Sections 15064(h)(3), 15130(d), and 15183(b), a project's incremental contribution to a cumulative GHG emissions effect may be determined not to be cumulatively considerable if it complies with the requirements of the CAP.

This Checklist is part of the CAP and contains measures that are required to be implemented on a project-by-project basis to ensure that the specified emissions targets identified in the CAP are achieved. Implementation of these measures would ensure that new development is consistent with the CAP's assumptions for relevant CAP strategies toward achieving the identified GHG reduction targets. Projects that are consistent with the CAP as determined through the use of this Checklist may rely on the CAP for the cumulative impacts analysis of GHG emissions. Projects that are not consistent with the CAP must prepare a comprehensive project-specific analysis of GHG emissions, including quantification of existing and projected GHG emissions and incorporation of the measures in this Checklist to the extent feasible. Cumulative GHG impacts would be significant for any project that is not consistent with the CAP.

The Checklist may be updated to incorporate new GHG reduction techniques or to comply with later amendments to the CAP or local, State, or federal law.

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[1] Certain projects seeking ministerial approval may be required to complete the Checklist. For example, projects in a Community Plan Implementation Overlay Zone may be required to use the Checklist to qualify for ministerial level review. See Supplemental Development Regulations in the project's community plan to determine applicability.

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CAP CONSISTENCY CHECKLIST
SUBMITTAL APPLICATION

- The Checklist is required only for projects subject to CEQA review.[2]
- If required, the Checklist must be included in the project submittal package. Application submittal procedures can be found in Chapter 11: Land Development Procedures of the City's Municipal Code.
- The requirements in the Checklist will be included in the project's conditions of approval.
- The applicant must provide an explanation of how the proposed project will implement the requirements described herein to the satisfaction of the Planning Department.

Application Information

Contact Information

Project No./Name: Virginia Avenue Parking Structure

Property Address: 4575 Camino De La Plaza, San Ysidro CA 92173

Applicant Name/Co.: Baja-Mex Insurance Services, Inc.

Contact Phone: 619-428-1616 Contact Email: FredBJMex@gmail.com

Was a consultant retained to complete this checklist? ☒ Yes ☐ No If Yes, complete the following

Consultant Name: Ryan Binns, ENV SP Contact Phone: 619-481-5015

Company Name: Harris & Associates Contact Email: ryan.binns@weareharris.com

Project Information

1. What is the size of the project (acres)? 0.722 acres

2. Identify all applicable proposed land uses:
   - ☐ Residential (indicate # of single-family units):
   - ☐ Residential (indicate # of multi-family units):
   - ☒ Commercial (total square footage): 13,210
   - ☐ Industrial (total square footage):
   - ☐ Other (describe):

3. Is the project or a portion of the project located in a Transit Priority Area? ☒ Yes ☐ No

4. Provide a brief description of the project proposed:

See attachment.

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[2] Certain projects seeking ministerial approval may be required to complete the Checklist. For example, projects in a Community Plan Implementation Overlay Zone may be required to use the Checklist to qualify for ministerial level review. See Supplemental Development Regulations in the project's community plan to determine applicability.

CAP CONSISTENCY CHECKLIST QUESTIONS

Step 1: Land Use Consistency

The first step in determining CAP consistency for discretionary development projects is to assess the project's consistency with the growth projections used in the development of the CAP. This section allows the City to determine a project's consistency with the land use assumptions used in the CAP.

Step 1: Land Use Consistency

Checklist Item (Check the appropriate box and provide explanation and supporting documentation for your answer)	Yes	No
A. Is the proposed project consistent with the existing General Plan and Community Plan land use and zoning designations?;[3] OR, B. If the proposed project is not consistent with the existing land use plan and zoning designations, and includes a land use plan and/or zoning designation amendment, would the proposed amendment result in an increased density within a Transit Priority Area (TPA)[4] and implement CAP Strategy 3 actions, as determined in Step 3 to the satisfaction of the Development Services Department?; OR, C. If the proposed project is not consistent with the existing land use plan and zoning designations, does the project include a land use plan and/or zoning designation amendment that would result in an equivalent or less GHG-intensive project when compared to the existing designations?	☑	☐

If "***Yes***," proceed to Step 2 of the Checklist. For question B above, complete Step 3. For question C above, provide estimated project emissions under both existing and proposed designation(s) for comparison. Compare the maximum buildout of the existing designation and the maximum buildout of the proposed designation.

If "***No***," in accordance with the City's Significance Determination Thresholds, the project's GHG impact is significant. The project must nonetheless incorporate each of the measures identified in Step 2 to mitigate cumulative GHG emissions impacts unless the decision maker finds that a measure is infeasible in accordance with CEQA Guidelines Section 15091. Proceed and complete Step 2 of the Checklist.

See attachment.

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[3] This question may also be answered in the affirmative if the project is consistent with SANDAG Series 12 growth projections, which were used to determine the CAP projections, as determined by the Planning Department.

[4] This category applies to all projects that answered in the affirmative to question 3 on the previous page: Is the project or a portion of the project located in a transit priority area.

Step 2: CAP Strategies Consistency

The second step of the CAP consistency review is to review and evaluate a project's consistency with the applicable strategies and actions of the CAP. Step 2 only applies to development projects that involve permits that would require a certificate of occupancy from the Building Official or projects comprised of one and two family dwellings or townhouses as defined in the California Residential Code and their accessory structures.[5] All other development projects that would not require a certificate of occupancy from the Building Official shall implement Best Management Practices for construction activities as set forth in the Greenbook (for public projects).

Step 2: CAP Strategies Consistency

Checklist Item (Check the appropriate box and provide explanation for your answer)	Yes	No	N/A
Strategy 1: Energy & Water Efficient Buildings			
1. *Cool/Green Roofs*. • Would the project include roofing materials with a minimum 3-year aged solar reflection and thermal emittance or solar reflection index equal to or greater than the values specified in the voluntary measures under California Green Building Standards Code (Attachment A)?; OR • Would the project roof construction have a thermal mass over the roof membrane, including areas of vegetated (green) roofs, weighing at least 25 pounds per square foot as specified in the voluntary measures under California Green Building Standards Code?; OR • Would the project include a combination of the above two options? Check "N/A" only if the project does not include a roof component. See attachment.	☐	☐	☑

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[5] Actions that are not subject to Step 2 would include, for example: 1) discretionary map actions that do not propose specific development, 2) permits allowing wireless communication facilities, 3) special events permits, 4) use permits or other permits that do not result in the expansion or enlargement of a building (e.g., decks, garages, etc.), and 5) non-building infrastructure projects such as roads and pipelines. Because such actions would not result in new occupancy buildings from which GHG emissions reductions could be achieved, the items contained in Step 2 would not be applicable.

2. *Plumbing fixtures and fittings*

With respect to plumbing fixtures or fittings provided as part of the project, would those low-flow fixtures/appliances be consistent with each of the following:

Residential buildings:

- Kitchen faucets: maximum flow rate not to exceed 1.5 gallons per minute at 60 psi;
- Standard dishwashers: 4.25 gallons per cycle;
- Compact dishwashers: 3.5 gallons per cycle; and
- Clothes washers: water factor of 6 gallons per cubic feet of drum capacity?

Nonresidential buildings:

- Plumbing fixtures and fittings that do not exceed the maximum flow rate specified in Table A5.303.2.3.1 (voluntary measures) of the California Green Building Standards Code (See Attachment A); and
- Appliances and fixtures for commercial applications that meet the provisions of Section A5.303.3 (voluntary measures) of the California Green Building Standards Code (See Attachment A)?

Check "N/A" only if the project does not include any plumbing fixtures or fittings.

☑ ☐ ☐

See attachment.

Strategy 3: Bicycling, Walking, Transit & Land Use

3. *Electric Vehicle Charging*

- Multiple-family projects of 17 dwelling units or less: Would 3% of the total parking spaces required, or a minimum of one space, whichever is greater, be provided with a listed cabinet, box or enclosure connected to a conduit linking the parking spaces with the electrical service, in a manner approved by the building and safety official, to allow for the future installation of electric vehicle supply equipment to provide electric vehicle charging stations at such time as it is needed for use by residents?

- Multiple-family projects of more than 17 dwelling units: Of the total required listed cabinets, boxes or enclosures, would 50% have the necessary electric vehicle supply equipment installed to provide active electric vehicle charging stations ready for use by residents?

- Non-residential projects: Of the total required listed cabinets, boxes or enclosures, would 50% have the necessary electric vehicle supply equipment installed to provide active electric vehicle charging stations ready for use?

Check "N/A" only if the project is a single-family project or would not require the provision of listed cabinets, boxes, or enclosures connected to a conduit linking the parking spaces with electrical service, e.g., projects requiring fewer than 10 parking spaces.

See attachment.

☑ ☐ ☐

Strategy 3: Bicycling, Walking, Transit & Land Use

(Complete this section if project includes non-residential or mixed uses)

4. *Bicycle Parking Spaces*

Would the project provide more short- and long-term bicycle parking spaces than required in the City's Municipal Code (Chapter 14, Article 2, Division 5)?[6]

Check "N/A" only if the project is a residential project.

See attachment.

☑ ☐ ☐

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[6] Non-portable bicycle corrals within 600 feet of project frontage can be counted towards the project's bicycle parking requirements.

5. *Shower facilities*

If the project includes nonresidential development that would accommodate over 10 tenant occupants (employees), would the project include changing/shower facilities in accordance with the voluntary measures under the California Green Building Standards Code as shown in the table below?

Number of Tenant Occupants (Employees)	Shower/Changing Facilities Required	Two-Tier (12" X 15" X 72") Personal Effects Lockers Required
0-10	0	0
11-50	1 shower stall	2
51-100	1 shower stall	3
101-200	1 shower stall	4
Over 200	1 shower stall plus 1 additional shower stall for each 200 additional tenant-occupants	1 two-tier locker plus 1 two-tier locker for each 50 additional tenant-occupants

Check "N/A" only if the project is a residential project, or if it does not include nonresidential development that would accommodate over 10 tenant occupants (employees).

See attachment.

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6. *Designated Parking Spaces*

If the project includes a nonresidential use in a TPA, would the project provide designated parking for a combination of low-emitting, fuel-efficient, and carpool/vanpool vehicles in accordance with the following table?

Number of Required Parking Spaces	Number of Designated Parking Spaces
0-9	0
10-25	2
26-50	4
51-75	6
76-100	9
101-150	11
151-200	18
201 and over	At least 10% of total

This measure does not cover electric vehicles. See Question 4 for electric vehicle parking requirements.

☑ ☐ ☐

Note: Vehicles bearing Clean Air Vehicle stickers from expired HOV lane programs may be considered eligible for designated parking spaces. The required designated parking spaces are to be provided within the overall minimum parking requirement, not in addition to it.

Check "N/A" only if the project is a residential project, or if it does not include nonresidential use in a TPA.

See attachment.

7. *Transportation Demand Management Program*

If the project would accommodate over 50 tenant-occupants (employees), would it include a transportation demand management program that would be applicable to existing tenants and future tenants that includes:

At least one of the following components:

- Parking cash out program
- Parking management plan that includes charging employees market-rate for single-occupancy vehicle parking and providing reserved, discounted, or free spaces for registered carpools or vanpools
- Unbundled parking whereby parking spaces would be leased or sold separately from the rental or purchase fees for the development for the life of the development

And at least three of the following components:

- Commitment to maintaining an employer network in the SANDAG iCommute program and promoting its RideMatcher service to tenants/employees
- On-site carsharing vehicle(s) or bikesharing
- Flexible or alternative work hours
- Telework program
- Transit, carpool, and vanpool subsidies
- Pre-tax deduction for transit or vanpool fares and bicycle commute costs
- Access to services that reduce the need to drive, such as cafes, commercial stores, banks, post offices, restaurants, gyms, or childcare, either onsite or within 1,320 feet (1/4 mile) of the structure/use?

Check "N/A" only if the project is a residential project or if it would not accommodate over 50 tenant-occupants (employees).

See attachment.

☐	☐	☑

Step 3: Project CAP Conformance Evaluation (if applicable)

The third step of the CAP consistency review only applies if Step 1 is answered in the affirmative under option B. The purpose of this step is to determine whether a project that is located in a TPA but that includes a land use plan and/or zoning designation amendment is nevertheless consistent with the assumptions in the CAP because it would implement CAP Strategy 3 actions. In general, a project that would result in a reduction in density inside a TPA would not be consistent with Strategy 3.The following questions must each be answered in the affirmative and fully explained.

1. **Would the proposed project implement the General Plan's City of Villages strategy in an identified Transit Priority Area (TPA) that will result in an increase in the capacity for transit-supportive residential and/or employment densities?**

   Considerations for this question:
   - Does the proposed land use and zoning designation associated with the project provide capacity for transit-supportive residential densities within the TPA?
   - Is the project site suitable to accommodate mixed-use village development, as defined in the General Plan, within the TPA?
   - Does the land use and zoning associated with the project increase the capacity for transit-supportive employment intensities within the TPA?

2. **Would the proposed project implement the General Plan's Mobility Element in Transit Priority Areas to increase the use of transit?**

   Considerations for this question:
   - Does the proposed project support/incorporate identified transit routes and stops/stations?
   - Does the project include transit priority measures?

3. **Would the proposed project implement pedestrian improvements in Transit Priority Areas to increase walking opportunities?**

   Considerations for this question:
   - Does the proposed project circulation system provide multiple and direct pedestrian connections and accessibility to local activity centers (such as transit stations, schools, shopping centers, and libraries)?
   - Does the proposed project urban design include features for walkability to promote a transit supportive environment?

4. **Would the proposed project implement the City of San Diego's Bicycle Master Plan to increase bicycling opportunities?**

   Considerations for this question:
   - Does the proposed project circulation system include bicycle improvements consistent with the Bicycle Master Plan?
   - Does the overall project circulation system provide a balanced, multimodal, "complete streets" approach to accommodate mobility needs of all users?

5. **Would the proposed project incorporate implementation mechanisms that support Transit Oriented Development?**

   Considerations for this question:
   - Does the proposed project include new or expanded urban public spaces such as plazas, pocket parks, or urban greens in the TPA?
   - Does the land use and zoning associated with the proposed project increase the potential for jobs within the TPA?
   - Do the zoning/implementing regulations associated with the proposed project support the efficient use of parking through mechanisms such as: shared parking, parking districts, unbundled parking, reduced parking, paid or time-limited parking, etc.?

6. **Would the proposed project implement the Urban Forest Management Plan to increase urban tree canopy coverage?**

   Considerations for this question:
   - Does the proposed project provide at least three different species for the primary, secondary and accent trees in order to accommodate varying parkway widths?
   - Does the proposed project include policies or strategies for preserving existing trees?
   - Does the proposed project incorporate tree planting that will contribute to the City's 20% urban canopy tree coverage goal?

CLIMATE ACTION PLAN CONSISTENCY CHECKLIST

ATTACHMENT A

This attachment provides performance standards for applicable Climate Action Pan (CAP) Consistency Checklist measures.

Table 1 Roof Design Values for Question 1: Cool/Green Roofs supporting Strategy 1: Energy & Water Efficient Buildings of the Climate Action Plan

Land Use Type	Roof Slope	Minimum 3-Year Aged Solar Reflectance	Thermal Emittance	Solar Reflective Index
Low-Rise Residential	≤ 2:12	0.55	0.75	64
	> 2:12	0.20	0.75	16
High-Rise Residential Buildings, Hotels and Motels	≤ 2:12	0.55	0.75	64
	> 2:12	0.20	0.75	16
Non-Residential	≤ 2:12	0.55	0.75	64
	> 2:12	0.20	0.75	16

Source: Adapted from the California Green Building Standards Code (CALGreen) Tier 1 residential and non-residential voluntary measures shown in Tables A4.106.5.1 and A5.106.11.2.2, respectively. Roof installation and verification shall occur in accordance with the CALGreen Code.

CALGreen does not include recommended values for low-rise residential buildings with roof slopes of ≤ 2:12 for San Diego's climate zones (7 and 10). Therefore, the values for climate zone 15 that covers Imperial County are adapted here.

Solar Reflectance Index (SRI) equal to or greater than the values specified in this table may be used as an alternative to compliance with the aged solar reflectance values and thermal emittance.

Table 2 **Fixture Flow Rates for Non-Residential Buildings related to Question 2: Plumbing Fixtures and Fittings supporting Strategy 1: Energy & Water Efficient Buildings of the Climate Action Plan**

Fixture Type	Maximum Flow Rate
Showerheads	1.8 gpm @ 80 psi
Lavatory Faucets	0.35 gpm @60 psi
Kitchen Faucets	1.6 gpm @ 60 psi
Wash Fountains	1.6 [rim space(in.)/20 gpm @ 60 psi]
Metering Faucets	0.18 gallons/cycle
Metering Faucets for Wash Fountains	0.18 [rim space(in.)/20 gpm @ 60 psi]
Gravity Tank-type Water Closets	1.12 gallons/flush
Flushometer Tank Water Closets	1.12 gallons/flush
Flushometer Valve Water Closets	1.12 gallons/flush
Electromechanical Hydraulic Water Closets	1.12 gallons/flush
Urinals	0.5 gallons/flush

Source: Adapted from the California Green Building Standards Code (CALGreen) Tier 1 non-residential voluntary measures shown in Tables A5.303.2.3.1 and A5.106.11.2.2, respectively. See the California Plumbing Code for definitions of each fixture type.

Where complying faucets are unavailable, aerators rated at 0.35 gpm or other means may be used to achieve reduction.

Acronyms:
gpm = gallons per minute
psi = pounds per square inch (unit of pressure)
in. = inch

Table 3 **Standards for Appliances and Fixtures for Commercial Application related to Question 2: Plumbing Fixtures and Fittings supporting Strategy 1: Energy & Water Efficient Buildings of the Climate Action Plan**

Appliance/Fixture Type	Standard	
Clothes Washers	Maximum Water Factor (WF) that will reduce the use of water by 10 percent below the California Energy Commissions' WF standards for commercial clothes washers located in Title 20 of the *California Code of Regulations.*	
Conveyor-type Dishwashers	0.70 maximum gallons per rack (2.6 L) (High-Temperature)	0.62 maximum gallons per rack (4.4 L) (Chemical)
Door-type Dishwashers	0.95 maximum gallons per rack (3.6 L) (High-Temperature)	1.16 maximum gallons per rack (2.6 L) (Chemical)
Undercounter-type Dishwashers	0.90 maximum gallons per rack (3.4 L) (High-Temperature)	0.98 maximum gallons per rack (3.7 L) (Chemical)
Combination Ovens	Consume no more than 10 gallons per hour (38 L/h) in the full operational mode.	
Commercial Pre-rinse Spray Valves (manufactured on or after January 1, 2006)	Function at equal to or less than 1.6 gallons per minute (0.10 L/s) at 60 psi (414 kPa) and • Be capable of cleaning 60 plates in an average time of not more than 30 seconds per plate. • Be equipped with an integral automatic shutoff. • Operate at static pressure of at least 30 psi (207 kPa) when designed for a flow rate of 1.3 gallons per minute (0.08 L/s) or less.	

Source: Adapted from the California Green Building Standards Code (CALGreen) Tier 1 non-residential voluntary measures shown in Section A5.303.3. See the California Plumbing Code for definitions of each appliance/fixture type.

Acronyms:
L = liter
L/h = liters per hour
L/s = liters per second
psi = pounds per square inch (unit of pressure)
kPa = kilopascal (unit of pressure)

Contact Information

Project No./Name:	Virginia Avenue Parking Structure Project
Property Address:	4575 Camino De La Plaza San Ysidro, CA 92173
Applicant Name/Co.:	Baja-Mex Insurance Services
Contact Phone and Email:	(619) 428-1616 FredBJMex@gmail.com
Was a consultant retained to complete this checklist?	YES
Consultant Name:	Ryan Binns, ENV SP
Company Name:	Harris & Associates
Contact Phone and Email:	(619) 481-5015 ryan.binns@weareharris.com

Project Information

1. What is the size of the project (acres)? 0.722 acres
2. Identify all applicable proposed land uses: Commercial. Total square footage 13,210
3. Is the project located in a Transit Priority Area? YES
4. Provide a brief description of the project proposed: Baja-Mex Insurance Services, Inc. proposes to construct a mixed-use commercial and parking structure on the corner of Camino De La Plaza and Virginia Avenue, to accommodate the existing parking needs from surrounding uses, including patrons of the Las Americas Premium Outlets and the International Border. The project site is currently occupied by a one-story 2,400 square foot Baja-Mex Insurance retail building and paved parking spaces.

   The project involves the demolition of the existing structure and the construction of a multi-level structure that will include retail on the ground floor and approximately 349 parking spaces. The mixed-use commercial portion of the structure will include 13,210 square feet of retail space. The parking structure will be no taller than 70 feet in elevation and will be no more than six stories above grade. Access to the project site will be via a driveway from Camino De La Plaza. A left turn pocket would be added which would require the widening of the north side of Camino de la Plaza, west of Virginia Avenue. The driveway will allow left turns (westbound to southbound) into the site; however, the driveway will restrict vehicles exiting the site to right turns via a raised median.

Step 1: Land Use Consistency - YES

The project is consistent with existing General Plan and Community Plan land use and zoning designations. The project site has a land use designation of Regional Commercial in the San Ysidro Community Plan, which is generally meant to encourage a wide variety of uses, including commercial service, civic, retail, office, and limited industrial uses (City 2016c). The zoning designation, according to the official City of San Diego Zoning Map, is CR-2-1 (City 2016d). The project would meet the zoning development regulations except for the exceptions requested in the Planned Development Permit being processed with the project.

Step 2: CAP Strategies Consistency

The project involves permits that would require a certificate of occupancy from the Building Official. Therefore, Step 2 of the CAP Consistency Checklist applies to the project.

Strategy 1: Energy & Water Efficient Buildings

1. **Cool/Green Roofs – N/A**
   The proposed project would have a roof deck with approximately 77 parking spaces. The roof deck would have horizontal PVC fabric screening 50% of the parking spaces. Future rooftop PV panels are proposed to be provided at a later date and would replace the screening fabric. These features do not constitute a roof component and therefore this question of the CAP Consistency Checklist does not apply to the proposed project.

2. **Plumbing fixtures and fittings – YES**
   The project is a nonresidential building that would include plumbing fixtures such as bathroom sinks, toilets, and urinals. The flow rate of these fixtures would not exceed the maximum flow rates defined in Table 2 of Attachment A of the CAP Consistency Checklist.

Strategy 3: Bicycling, Walking, Transit & Land Use

3. **Electric Vehicle Charging – YES**
   The project would be required to provide 66 parking spaces, per San Diego Municipal Code §142.0530. In order to comply with this CAP strategy, it is assumed that 3% of total parking spaces required, or a minimum of one space, whichever is greater, must be provided with a listed cabinet, box, or enclosure connected to a conduit linking the parking spaces with electrical service, and that, of the total required listed cabinets, boxes or enclosures, 50% would need to have the necessary electric vehicle supply equipment installed to provide active electric vehicle charging stations ready for use. The project will provide 2 spaces (3% of 66 total required spaces) that are equipped with a cabinet, box, or enclosure that links the spaces with electrical service. One of those spaces (50%) would have the necessary electric vehicle supply equipment installed to provide active electric vehicle charging ready for use.

4. **Bicycle Parking Spaces – YES**
   According to the City's Municipal Code (Chapter 14, Article 2, Division 5), the minimum number of required short-term bicycle parking spaces shall be 2; or 0.1 per 1,000 square feet of building floor area, excluding floor area devoted to parking; or 5% of the required automobile parking space minimum, whichever is greater. The minimum number of required long-term bicycle parking spaces for non-residential development is 1; or 5% of the required automobile parking for any premises with more than ten full-time employees. Given the size of the proposed project, it would be required to provide 66 vehicle parking spaces.[1] Therefore, the project would be required to provide 3 short-term and 3 long-term bicycle parking spaces.[2] The project proposes to include 3 short-term bicycle parking spaces and 3 long-term bicycle parking spaces. The long-term bicycle parking spaces would consist of secure bike lockers.

5. **Shower Facilities – YES**
   The project includes nonresidential development that would accommodate 40 employees on a daily basis. The project would include 1 shower stall/changing facility and 2 two-tier personal effects lockers in accordance with the voluntary measures under the California Green Building Standards Code.

6. **Designated Parking Spaces – YES**
   The project includes nonresidential use in a Transit Priority Area. Therefore, the project is required to provide parking for a combination of low-emitting, fuel-efficient, and carpool/vanpool vehicles. The project proposes 5 spaces for low-emitting, fuel-efficient vehicles and 5 spaces for carpool/vanpool vehicles, a combined 10 parking spaces for low-emitting, fuel-efficient, and carpool/vanpool vehicles. This is above the requirement of a combined 6 spaces for low-emitting, fuel-efficient, and carpool/vanpool vehicles. Therefore, the project is in compliance with this requirement.

7. **Transportation Demand Management Program – N/A**
   The project would accommodate less than 50 employees.

Step 3: Project CAP Conformance Evaluation – N/A

The project is consistent with the existing land use and zoning designations. Therefore, step 3 does not apply.

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[1] The project proposes 13,210 sf of retail space. Multiplying that size by the 5.0 spaces per 1,000 sf requirement (§142.0530) gives 66 required spaces.

[2] 5% of 66 is 3.3, which was rounded to 3 spaces.

References

California Building Standards Commission. 2014. California Green Building Standards Code (California Code of Regulations Title 24 Part 11). January 1, 2014.

City of San Diego Planning Department. 2016a. Transit Priority Areas per SB743. May 31, 2016.

City of San Diego Development Services Department. 2016b. Electronic communication. October 26, 2016.

City of San Diego. 2016c. San Ysidro Community Plan. November 15.

City of San Diego. 2016d. San Ysidro Rezoning Map. November 15.

City of San Diego Municipal Code, as amended. 2017.

CHRISTIAN WHEELER
ENGINEERING

REPORT OF PRELIMINARY GEOTECHNICAL INVESTIGATION

VIRGINIA AVENUE PARKING STRUCTURE
4575 CAMINO DE LA PLAZA
SAN YSIDRO, CALIFORNIA

PREPARED FOR

BAJA-MEX INSURANCE SERVICES, INC.
4575 CAMINO DE LA PLAZA
SAN YSIDRO, CALIFORNIA 92173

PREPARED BY

CHRISTIAN WHEELER ENGINEERING
3980 HOME AVENUE
SAN DIEGO, CALIFORNIA 92105

CHRISTIAN WHEELER
ENGINEERING

April 13, 2015

Baja-Mex Insurance Services, Inc.
4575 Camino De La Plaza
San Ysidro, California 92173
Attention: Fred Sobke

CWE 2130661.01

Subject: **Report of Preliminary Geotechnical Investigation**
Virginia Avenue Parking Structure
4575 Camino De La Plaza, San Ysidro, California

Ladies and Gentlemen:

In accordance with our Proposal dated December 16, 2013, we have completed a preliminary geotechnical investigation for the subject project. We are presenting herein our findings and recommendations.

In general, we found the subject property suitable for the proposed construction, provided the recommendations provided herein are followed. Based on the results of our investigation, the most significant geotechnical condition to affect the proposed construction is the likely need use ground improvement techniques or deep foundations in order to support the relatively heaving loads of the proposed parking structure. Specific design criteria are provided in the attached report.

If you have any questions after reviewing this report, please do not hesitate to contact our office. This opportunity to be of professional service is sincerely appreciated.

Respectfully submitted,
CHRISTIAN WHEELER ENGINEERING

Shawn Caya, R.G.E. #2748

Troy S. Wilson, C.E.G. #2551

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CHRISTIAN WHEELER
ENGINEERING

REPORT OF PRELIMINARY GEOTECHNICAL INVESTIGATION

VIRGINIA AVENUE PARKING STRUCTURE
4575 CAMINO DE LA PLAZA
SAN YSIDRO, CALIFORNIA

INTRODUCTION AND PROJECT DESCRIPTION

This report presents the results of a preliminary geotechnical investigation performed for a proposed parking structure project to be constructed in the San Ysidro area of the city of San Diego, California. Figure Number 1, on the following page, presents a vicinity map showing the location of the project.

We understand that it is proposed to demolish the existing improvements and to construct a new parking structure and commercial building on the property. The new structure will consist of 5 levels of parking structure over one level of retail space. We expect that the new parking structure will consist of five levels of cast-in-place concrete construction and will have a total of 338 parking spaces. The retail space, bathrooms and storage will be approximately 15,000 square feet and will be located on the ground floor. Although the structural design has not been performed at this time, we understand that column loads up to 1,500 kips are possible. Only minor grading is expected to establish the anticipated pad grade.

To assist in the preparation of this report, our firm has been given a site plan prepared by Sillman Wright Architects. This plan was used as the base for our Site Plan and Geotechnical Map, which is included herewith as Plate Number 1.

This report has been prepared for the exclusive use of Baja-Mex Insurance Services, Inc. and its consultants for specific application to the project described herein. Should the project be modified, the conclusions and recommendations presented in this report should be reviewed by Christian Wheeler Engineering for conformance with our recommendations and to determine whether any additional subsurface investigation, laboratory testing and/or recommendations are necessary. Our professional services have been performed, our findings obtained, and our recommendations prepared in accordance with generally accepted engineering principles and practices. This warranty is in lieu of all other warranties, expressed or implied.

Site Vicinity Map

(Adapted from Google Maps)

VIRGINIA AVENUE PARKING STRUCTURE

4575 CAMINO DE LA PLAZA

SAN YSIDRO, CALIFORNIA

CWE 2130661.01 APRIL 2015 FIGURE 1

PROJECT SCOPE

Our preliminary geotechnical investigation consisted of surface reconnaissance, subsurface exploration, obtaining representative soil samples, laboratory testing, analysis of the field and laboratory data and review of relevant geologic literature. Our scope of service did not include assessment of hazardous substance contamination, recommendations to prevent floor slab moisture intrusion or the formation of mold within the structure, or any other services not specifically described in the scope of services presented below. More specifically, our intent was to provide the services listed below.

- Explore the subsurface conditions of the site to the depths influenced by the proposed construction.
- Evaluate, by laboratory tests and our past experience with similar soil types, the engineering properties of the various soil strata that may influence the proposed construction, including bearing capacities, expansive characteristics and settlement potential.
- Describe the general geology at the site, including possible geologic hazards that could have an effect on the proposed construction, and provide the seismic design parameters as required by the 2013 edition of the California Building Code.
- Address potential construction difficulties that may be encountered due to soil conditions, groundwater or geologic hazards, and provide recommendations concerning these problems.
- Address the potential for soil liquefaction at the site.
- Provide site preparation and grading recommendations for the anticipated work.
- Provide foundation recommendations for the type of construction anticipated and develop soil engineering design criteria for the recommended foundation designs.
- Provide preliminary pavement sections.
- Prepare this report, which includes, in addition to our conclusions and recommendations, a plot plan showing the areal extent of the geological units and the locations of our exploratory borings, exploration logs, and a summary of the laboratory test results.

Although tests were performed to categorize the potential corrosivity of the on-site the soils that may be in contact with below grade structures, it should be understood Christian Wheeler Engineering does not practice corrosion engineering. If such an analysis is considered necessary, we recommend that the client retain an engineering firm that specializes in this field to consult with them on this matter. The results of these tests should only be used as a guideline to determine if additional testing and analysis is necessary.

FINDINGS

SITE DESCRIPTION

The project area is located southwest of the intersection of Camino De La Plaza and Virginia Avenue in the San Ysidro area of San Diego, California. It is identified by the address of 4575 Camino De La Plaza and Assessor's Parcel Number 666-400-10. The lot currently supports a single-story, wood-frame building in the northeast portion that houses an insurance sales office. The remaining portions of the lot support an asphalt concrete parking lot with landscaped boundaries. We understand that there is a bank of four 36-inch storm drains that traverse the central portion of the property in a westerly direction and then turn towards the south near the western property line. These storm drains appear to be about three to four feet below the existing ground surface. Topographically, the site is relatively level with on-site elevations ranging from about 55 to 57 feet (datum unknown) based on plans provided by Stuart Engineering.

GENERAL GEOLOGY AND SUBSURFACE CONDITIONS

GEOLOGIC SETTING AND SOIL DESCRIPTION: The project site is located in the Coastal Plains Physiographic Province of San Diego County and is underlain by alluvium and artificial fill. These materials are described below:

> **ARTIFICIAL FILL (Qaf):** Artificial fill was encountered in each of our borings. Within our borings, the fill extended to an approximate depths ranging from 2 to 4 feet below the existing grade and generally consisted of reddish-brown, moist, medium dense, silty sand (SM).
>
> **ALLUVIUM (Qal):** Quaternary-age alluvium was encountered below the fill in each of our subsurface explorations. Where encountered, the alluvium extended to depths beyond our borings in excess of 54½ feet below the existing grades. The soils generally consisted of light brown and grayish-brown, moist to saturated, soft/loose to medium dense/stiff, interbedded layers of poorly graded sand with silt (SP-SM), poorly-graded sand (SP), and well graded sand with silt (SW-SP).

GROUNDWATER: Groundwater was measured in each of our exploratory borings during drilling. The water level was allowed to stabilize prior to final measurement. The measured depths ranged from approximately 16 feet, 9 inches to 17 feet, 8 inches below the existing grade. Groundwater levels are anticipated to fluctuate as a result of precipitation and may be different than those observed during subsurface investigation. It should also be recognized that minor groundwater seepage problems might occur after development of a site even where none were present before development. These are usually minor phenomena and are often the result of an alteration in drainage patterns and/or an increase in irrigation water. It is further our opinion that these problems can be most effectively corrected on an individual basis if and when they occur.

TECTONIC SETTING: No faults are known to traverse the subject site. However, it should be noted that much of Southern California, including the San Diego County area, is characterized by a series of Quaternary-age fault zones that consist of several individual, en echelon faults that generally strike in a northerly to northwesterly direction. Some of these fault zones (and the individual faults within the zone) are classified as "active" according to the criteria of the California Division of Mines and Geology. Active fault zones are those that have shown conclusive evidence of faulting during the Holocene Epoch (the most recent 11,000 years). The Division of Mines and Geology used the term "potentially active" on Earthquake Fault Zone maps until 1988 to refer to all Quaternary-age (last 1.6 million years) faults for the purpose of evaluation for possible zonation in accordance with the Alquist-Priolo Earthquake Fault Zoning Act and identified all Quaternary-age faults as "potentially active" except for certain faults that were presumed to be inactive based on direct geologic evidence of inactivity during all of Holocene time or longer. Some faults considered to be "potentially active" would be considered to be "active" but lack specific criteria used by the State Geologist, such as *sufficiently active* and *well-defined*. Faults older than Quaternary-age are not specifically defined in Special Publication 42, Fault Rupture Hazard Zones in California, published by the California Division of Mines and Geology. However, it is generally accepted that faults showing no movement during the Quaternary period may be considered to be "inactive". The City of San Diego guidelines indicate that since the beginning of the Pleistocene Epoch marks the boundary between "potentially active" and "inactive" faults, unfaulted Pleistocene-age deposits are accepted as evidence that a fault may be considered to be "inactive."

TABLE I: PROXIMAL FAULT ZONES

Fault Zone	Distance
Rose Canyon	6 miles
Coronado Bank	18 miles
San Diego Trough	23 miles
Elsinore (Julian)	46 miles
San Clemente	50 miles
Earthquake Valley	50 miles
San Jacinto (Anza)	66 miles
San Andreas	93 miles

A review of available geologic maps indicates that the nearest active fault zone is the Rose Canyon Fault Zone (RCFZ), located approximately 6 miles west of the site. Other active fault zones in the region that could possibly affect the site include the Coronado Bank Fault Zone to the west; the San Diego Trough and San Clemente Fault

Zones to the southwest; and the Elsinore, Earthquake Valley, San Jacinto, and San Andreas Fault Zones to the northeast. These proximal fault zones are summarized above in Table I.

GEOLOGIC HAZARDS

SEISMIC HAZARD: A likely geologic hazard to affect the site is ground shaking as a result of movement along one of the major active fault zones mentioned in the "Tectonic Setting" section of this report. Per Chapter 16 of the 2013 California Building Code (CBC), the Risk-Targeted Maximum Considered Earthquake (MCE_R) ground acceleration is that which results in the largest maximum response to horizontal ground motions with adjustments for a targeted risk of structural collapse equal to one percent in 50 years. Figures 1613..3.1(1) and 1613.3.1(2) of the CBC present MCE_R accelerations for short (0.2 sec.) and long (1.0 sec.) periods, respectively, based on a soil Site Class B (CBC 1613.3.2) and a structural damping of five percent. For the subject site, correlation with measured blow counts indicates that the upper 100 feet of geologic subgrade can be characterized as Site Class D. In this case, the mapped MCE_R accelerations are modified using the Site Coefficients presented in Tables 1613.3.3(1) and (2). The modified MCE spectral accelerations are then multiplied by two-thirds in order to obtain the design spectral accelerations. These seismic design parameters for the subject site (32.5347°, -117.0368°), based on Chapter 16 of the CBC, are presented in Table II below.

TABLE II: CBC 2013 EDITION – SEISMIC DESIGN PARAMETERS

CBC – Chapter 16 Section	Seismic Design Parameter	Recommended Value
Section 1613.3.2	Soil Site Class	D
Figure 1613.3.1 (1)	MCE_R Acceleration for Short Periods (0.2 sec), S_s	0.903 g
Figure 1613.3.1 (2)	MCE_R Acceleration for 1.0 Sec Periods (1.0 sec), S_1	0.340 g
Table 1613.3.3 (1)	Site Coefficient, F_a	1.139
Table 1613.3.3 (2)	Site Coefficient, F_v	1.721
Section 1613.3.3	S_{MS} = MCE_R Spectral Response at 0.2 sec. = $(S_s)(F_a)$	1.028 g
Section 1613.3.3	S_{M1} = MCE_R Spectral Response at 1.0 sec. = $(S_1)(F_v)$	0.587 g
Section 1613.3.4	S_{DS} = Design Spectral Response at 0.2 sec. = $2/3(S_{MS})$	0.685 g
Section 1613.3.4	S_{D1} = Design Spectral Response at 1.0 sec. = $2/3(S_{M1})$	0.390 g
Section 1803.2.12	PGA_M per Section 11.8.3 of ASCE 7	0.418 g

It can be noted that sites underlain by liquefaction-susceptible soils should be designated as site class F, requiring a dynamic site response analysis. However, as discussed in Section 20.3.1 of ASCE Standard 7 "Minimum Design Loads for Buildings and Other Structures", for structures having fundamental periods of vibration equal to or less than 0.5 second, it is not required to perform a dynamic site response analysis. We expect that the proposed structure will have a fundamental period less than 0.5 second and can therefore be designed using soil Site Class D as described previously.

LANDSLIDE POTENTIAL AND SLOPE STABILITY: As part of this investigation, we reviewed the publication, "Landslide Hazards in the Southern Part of the San Diego Metropolitan Area" by Tan, 1995. This reference is a comprehensive study that classifies San Diego County into areas of relative landslide susceptibility. The site is located in landslide susceptibility Area 2. Land within Area 2 is considered to be "marginally susceptible" to landsliding. Based on the absence of significant slopes on or within the vicinity of the subject site, the potential for slope failures can be considered negligible.

FLOODING: As delineated on Flood Insurance Rate Map (FIRM) 06073C2166G prepared by the Federal Emergency Management Agency, the site is not located within a flood hazard zone.

TSUNAMIS: Tsunamis are great sea waves produced by submarine earthquakes or volcanic eruptions. According to the San Diego County Multi-Jurisdictional Hazard Mitigation Plan, the project site is located outside the limits of the maximum projected tsunami runup.

SEICHES: Seiches are periodic oscillations in large bodies of water such as lakes, harbors, bays or reservoirs. The risk potential for damage to the subject site caused by seiches is relatively low.

LIQUEFACTION

GENERAL: The subject site is in an area considered susceptible to liquefaction. In order to be subject to liquefaction, three conditions must be present: loose sandy or cohesionless silty deposits, shallow groundwater, and earthquake shaking of sufficient magnitude and duration. Based on our site-specific study, it appears that shallow groundwater is present at the site and strong earthquake shaking may affect the site. Additionally, as described in the Geologic Setting and Soil Description section of this report above, the materials below the shallow water table in the project area consist of Holocene-age alluvium that contains layers of sands and silty sands that are expected to have soil properties conducive to liquefaction.

It should be noted that the following discussion is in no way a guarantee that the analysis will accurately predict the liquefaction potential at the site. The analysis provides general information only on the site liquefaction potential. It should be noted that many of the parameters used in liquefaction evaluations are subjective and open to interpretation, and that much is yet unknown about both the seismicity of the San Diego area and the phenomenon of liquefaction.

DESCRIPTION OF ANALYSIS: Our analysis was performed in accordance with the procedure recommended in Soil Liquefaction During Earthquakes (Idriss and Boulanger, 2008), which is referenced in

California Geologic Survey Special Publication 117 – Guidelines for Evaluating and Mitigating Seismic Hazards in California. Our analyses were limited to the upper 48 feet of soils as the soils demonstrated significantly higher blow counts and liquefaction below that depth, if it were to occur, is not considered to have a significant effect on surface improvements.

EARTHQUAKE PARAMETERS: As permitted in Section 1803.5.12 of the California Building Code, our calculations were performed using a peak ground acceleration (PGA_M = 0.42g) as determined using the procedures set forth in Section 11.8.3 of ASCE 7-10. We have also performed a seismic hazard deaggregation using the interactive program available on the U. S. Geological Survey website. Within the USGS program, the site coordinates were entered and a deaggregation was performed based on the peak ground acceleration with two percent probability of exceedance in 50 years (0.40g) for soil with Vs^{30} = 200 m/s (Soil Site Class D). For the subject site, this yielded a modal earthquake magnitude of 6.7. Based on this result and the proximity of the site to the Rose Canyon and Coronado Bank Fault Zones, we have used an earthquake magnitude of 6.9 in our liquefaction evaluation.

POTENTIAL FOR LIQUEFACTION: Using the parameters described above, the results of our liquefaction analyses indicate that some of the saturated sandy portions of the alluvium within the upper approximately 50 feet possess factors-of-safety against soil liquefaction of less than 1.3 and are therefore considered liquefiable.

POST LIQUEFACTION RECONSOLIDATION SETTLEMENT: The potential amount of total vertical settlement due to reconsolidation of the liquefied soils was estimated using the methods presented by Idriss and Boulanger, 2008. The estimated settlement for boring B-1 is approximately 1¼ inch. It can be noted that, for sites with relatively small lateral displacement (i.e. less than one foot), predicted settlements are typically within a factor of two relative to those observed (Seed et al, 2003).

In terms of differential settlement, CGS Special Publication 117 notes that considerable difficulty exists in trying to "reliably estimate" the amount of differential settlement at a site caused by soil liquefaction. As such, a conservative estimate of differential settlement at any given site can be assumed to be two-thirds of the total liquefaction-induced settlement (CGS, 2008). Using this criterion, without any deep ground modification procedures, the subject project area may be assumed to be subject to approximately ¾ inch of liquefaction-induced, differential settlement.

LATERAL SPREADING: Lateral ground spreading can occur when viscous liquefied soils flow downslope, usually towards a river channel or shoreline. Based on such factors as the relatively low potential for soil liquefaction, the nearly level topography of the site and surrounding areas, and the relatively gentle hydraulic gradient of the water table across the area it is our opinion that the potential for lateral spreading is low.

CONCLUSIONS

In general, we found that the subject site is suitable to support the proposed housing project provided the foundation and site preparation recommendations presented herein are followed. The main geotechnical and geologic conditions that will impact the proposed construction are the relatively high column loads that might necessitate ground improvement or deep foundations, the presence of surficial soils across much of the site that are potentially compressible when supporting new improvements, and relatively minor lenses of alluvial soils that are subject to liquefaction during a major seismic event.

Given the relatively high column loads of the planned parking structure, it might be unfeasible to support the structure on conventional shallow foundations without improving the existing soils. One solution is to improve the existing alluvium through the installation of aggregate piers, which would increase the stiffness of the existing soil and thereby reduce its settlement potential and increase its allowable soil bearing pressure. Although the final allowable soil bearing pressure for the improved soil would be provided by a specialty design/build contractor, our preliminary conversations with a representative from Western Ground Improvement indicate that the allowable bearing pressure of the existing alluvium could possibly be increased to 8,000 psf. Alternatively, the structure could be supported by a deep foundation system. Based on the sandy nature of the alluvial soils, the presence of shallow groundwater, and the relatively close proximity of adjacent businesses, we are presenting recommendations for Continuous Flight Auger (CFA) pile foundations. Recommendations for other deep foundation systems, such as drilled piers or driven piles, can be provided upon request.

The site is underlain by potentially compressible surficial soils. Such soils will need to be overexcavated and replaced as properly compacted fill prior to placing new fill and/or constructing new settlement-sensitive improvements. Specific recommendations are provided in the following section of this report.

Good engineering practice requires that where the evaluation indicates that liquefaction is likely (or reasonably possible), the hazards that might reasonably be caused by liquefaction, that could result in the collapse of a structure and/or loss of life be mitigated. Based on our evaluation, we estimate that there is the potential for approximately 1¼ inches of total liquefaction settlement and ¾ inch of differential liquefaction settlement due to the design earthquake. Given this relatively low potential for liquefaction settlement, it is our opinion that the proposed parking structure will have a life-safety performance level if supported by a conventional shallow foundation system. This solution, however, does not preclude the possibility of some structural damage and settlement occurring as a result of a major seismic event.

RECOMMENDATIONS

GRADING AND EARTHWORK

GENERAL: All grading should conform to the guidelines presented in Appendix J of the California Building Code, the minimum requirements of the City of San Diego, and the recommended Grading Specifications and Special Provisions attached hereto, except where specifically superseded in the text of this report. Prior to grading, a representative of Christian Wheeler Engineering should be present at the pre-construction meeting to provide additional grading guidelines, if necessary, and to review the earthwork schedule.

OBSERVATION OF GRADING: Continuous observation by the Geotechnical Consultant is essential during the grading operation to confirm conditions anticipated by our investigation, to allow adjustments in design criteria to reflect actual field conditions exposed, and to determine that the grading proceeds in general accordance with the recommendations contained herein.

CLEARING AND GRUBBING: Site preparation should begin with the removal of the existing improvements that are designated for demolition. The removals should include all abandoned utilities, foundations, slabs, vegetation, construction debris and other deleterious materials from the site. This should include all significant root material. The resulting materials should be disposed of off-site in a legal dumpsite.

SITE PREPARATION: The following recommendations are based on the assumption that all existing site materials are suitable for reuse on the site and are not considered contaminated or otherwise are unsuitable. We recommend that the existing soils be overexcavated to a depth of at least 3 feet below the existing grade and be replaced as properly compacted structural fill. Where the bank of existing RCP storm drains traverses the site, we recommend that the exposed soils be moisture conditioned and compacted in place prior to placing fill or constructing improvements. The Geotechnical Consultant should observe the overexcavation operations and the base of removal areas prior to either filling or the construction of improvements. If soft or otherwise unsuitable soils are exposed at the removal bottom, it might be necessary to perform additional excavation or to stabilize the bottom. Specific recommendations will need to be made on a case-by-case basis. Once the Geotechnical Consultant has verified a suitable bottom, the removed soils may be replaced as properly compacted fill. All fill should be placed in accordance with the "Compaction and Method of Filling" section of this report.

EXCAVATION CHRACTERISTICS: Based on our exploratory excavations, the subsurface materials at the site appear to be excavatable to the anticipated excavation depths with conventional heavy-duty earthmoving equipment in good operating condition. Significant caving of the exploratory excavations was not encountered at the time of our subsurface explorations. However, it can be noted that the on-site soils consist of sandy soils that are relatively dry in the existing condition. It should be expected that excavations in the alluvial materials could experience localized caving and sloughing. Additionally, soft or spongy soils may be encountered that will necessitate lightweight equipment and/or top-loading with an excavator.

IMPORTED FILL MATERIAL: Soils to be imported to the site should be evaluated and approved by the Geotechnical Consultant prior to being imported. At least five working days notice of a potential import source should be given to the Geotechnical Consultant so that appropriate testing can be accomplished. The type of material considered most desirable for import is granular material containing some silt or clay binder, which has an Expansion Index of less than 50. Less than 25 percent of the material should be larger than the Standard #4 sieve, and less than 25 percent finer than the Standard # 200 sieve. Soils not meeting there criteria should not be used for structural fill or backfill.

COMPACTION AND METHOD OF FILLING: All structural fill and backfill material placed at the site should be compacted to a relative compaction of at least 90 percent of maximum dry density as determined by ASTM Laboratory Test D1557. Fills should be placed at or slightly above optimum moisture content, in lifts six to eight inches thick, with each lift compacted by mechanical means. Fills should consist of approved earth material, free of trash or debris, roots, vegetation, or other materials determined to be unsuitable by our soil technicians or project geologist. Fill material should be free of rocks or lumps of soil in excess of twelve inches in maximum dimension; however, this should be reduced to six inches within four feet of finish grade.

All utility trench backfill should be compacted to a minimum of 90 percent of its maximum dry density. The upper twelve inches of subgrade beneath paved areas should be compacted to 95 percent of the materials maximum dry density. This compaction should be obtained by the paving contractor just prior to placing the aggregate base material and should not be part of the mass grading requirements or operation.

TEMPORARY CUT SLOPES: The contractor is solely responsible for designing and constructing stable, temporary excavations and will need to shore, slope, or bench the sides of trench excavations as required to maintain the stability of the excavation sides. The contractor's "competent person", as defined in the OSHA Construction Standards for Excavations, 29 CFR, Part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety process. We anticipate that the existing on-site soils will consist of Type C material. Our firm should be contacted to observe all temporary cut slopes during grading to ascertain that no unforeseen adverse conditions exist. No surcharge loads such as foundation loads, or soil or equipment stockpiles, vehicles, etc. should be allowed within a distance from the top of temporary slopes equal to half the slope height.

SURFACE DRAINAGE: The ground around the proposed structure should be graded so that surface water flows rapidly away from the structure without ponding. In general, we recommend that the ground adjacent to structure slope away at a gradient of at least two percent. Densely vegetated areas where runoff can be impaired should have a minimum gradient of five percent within the first five feet from the structure. Our firm should be contacted to review the applicability to the site of any storm water systems that incorporate infiltration.

GRADING PLAN REVIEW: The final grading plans should be submitted to this office for review in order to ascertain that the geotechnical recommendations remain applicable to the final plan and that no additional recommendations are needed due to changes in the anticipated development. Our firm should be notified of changes to the proposed project that could necessitate revisions of or additions to the information contained herein.

AGGREGATE PIERS

As is customary for these specialized solutions, our recommendation is that aggregate piers be designed and constructed by a specialty contractor that is experienced in said ground improvement systems. We recommend that the depth, diameter, spacing, material, construction procedures and allowable design parameters be specified by the specialty contractor with the intent of limiting the total settlement to 1 inch and the differential settlement to ¾ inch over a horizontal distance of 40 feet.

During construction, the installation of each column should be observed and the consistency of installation verified by recording the pier depth and diameter, the volume of aggregate base material placed in the excavation, and the number of lifts used to backfill the excavation. The specialty contractor will be required to confirm the pier modulus achieved in the field by load testing to verify that it meets or exceeds the modulus assumed in the design. The test pier(s) will need to be constructed in the same manner as the remaining piers so that the modulus test results can be applied to the project as a whole or to representative groups of piers. The test procedure should be specified by the specialty contractor and reviewed by the geotechnical consultant.

CONVENTIONAL SHALLOW FOUNDATIONS

GENERAL: It is our opinion that the proposed parking structure may be supported by conventional continuous and isolated spread footings. The following recommendations are considered the minimum based on the anticipated soil conditions and are not intended to be in lieu of structural considerations. All foundations should be designed by a qualified structural engineer.

DIMENSIONS: New spread footings supporting the proposed parking structure should be embedded at least 24 inches below the finish pad grade. Continuous and isolated footings should have minimum widths of 36 and 48 inches, respectively. Footings with these dimensions and founded in the existing soils may be designed for an allowable soil bearing pressure of 4,000 pounds per square foot. The allowable bearing capacity for conventional foundations supported by existing soil that is improved with aggregate piers should be provided by the specialty contractor; however, we understand that an initial estimate of 8,000 pounds per square foot has been provided by a specialty contractor. The allowable bearing capacities may be increased by one-third for combinations of temporary loads, such as those due to wind or seismic loads.

New spread footings supporting minor at-grade structures or building improvements should be embedded at least 18 inches below the finish pad grade. Continuous and isolated footings should have minimum widths of 12 and 24 inches, respectively. New spread footings supporting site retaining walls should be embedded at least 18 inches below the finish pad grade and should have a minimum width of 24 inches. For these improvements, footings with the above recommended minimum dimensions may be designed for an allowable soil bearing pressure of 2,500 pounds per square foot. The allowable bearing capacities may be increased by one-third for combinations of temporary loads, such as those due to wind or seismic loads.

FOOTING REINFORCING: Reinforcement requirements for foundations should be provided by a structural engineer. However, based on the anticipated soil conditions, we recommend that the minimum reinforcing for light miscellaneous improvement supported by continuous footings consist of at least two No. 5 bars positioned near the bottom of the footing and at least two No. 5 bars positioned near the top of the footing.

LATERAL LOAD RESISTANCE: Lateral loads against foundations may be resisted by friction between the bottom of the footing and the supporting soil, and by the passive pressure against the footing. The coefficient of friction between concrete and soil may be considered to be 0.35. The passive resistance may be considered to be equal to an equivalent fluid weight of 350 pounds per cubic foot. This assumes the footings are poured tight against undisturbed soil. If a combination of the passive pressure and friction is used, the friction value should be reduced by one-third.

SETTLEMENT CHARACTERISTICS: Provided the recommendations presented in this report are followed, the anticipated total and differential foundation settlement is expected to be less than about 1 inch and ¾ inch over 40 feet, respectively. In terms of liquefaction, total and differential settlements of about 1¼ inches and ¾ inch, respectively, are estimated. It should be recognized that minor cracks normally occur in concrete slabs and foundations due to shrinkage during curing or redistribution of stresses, therefore some cracks should be anticipated. Such cracks are not necessarily an indication of excessive vertical movements.

EXPANSIVE CHARACTERISTICS: The anticipated foundation soils are expected to have a medium expansion potential. The recommendations presented in this report reflect this condition.

CONTINUOUS FLIGHT AUGER (CFA) PILE FOUNDATIONS

GENERAL: As an alternative to the shallow foundation recommendations presented above, the proposed parking structure can be supported by CFA pile foundations. The following recommendations are considered the minimum based on the anticipated soil conditions and are not intended to be lieu of structural considerations. All foundations should be designed by a qualified structural engineer.

MINIMUM PILE DIMENSIONS: All CFA piles should embedded at least 20 feet below the bottom of the grade beam and should have a minimum diameter of 1½ feet. The project structural engineer should design all pile locations, dimensions, and reinforcing using the recommendations and design parameters presented herein. However, as a minimum, the piles should be spaced no closer than two pile diameters center to center.

LATERAL BEARING CAPACITY: The allowable lateral bearing resistance to lateral loads may be assumed to be 350 pounds per square foot per foot of depth up to a maximum of 4,500 psf. This value may be assumed to act on an area equal to twice the pile diameter. If necessary, our firm can provide more detailed analyses of the induced deflections, shears and moments in the pile foundations once the initial pile geometries and loads are determined.

DOWNWARD BEARING CAPACITY: Although minimum dimensions are established above, the final design embedment depth and diameter should be specified by the project structural engineer based on the design loading conditions. The allowable downward capacity can be determined using Figure F-1. It should be noted that the net pile weight is not included in the allowable capacities. Provided the pile center-to-center spacing is at least three pile diameters, group effects can be neglected.

UPLIFT CAPACITY: The allowable uplift capacity can be determined using Figure F-2. It should be noted that the net pile weight is not included.

SETTLEMENT CHARACTERISTICS: The anticipated total and/or differential settlement is expected to be less than about one-half inch for pile foundations up to four feet in diameter provided the recommendations presented in this report are followed. It should be recognized that minor cracks normally occur in concrete slabs and foundations due to shrinkage during curing or redistribution of stresses, therefore some cracks may be anticipated. Such cracks are not necessarily an indication of excessive vertical movements.

CFA PILE CONSTRUCTION CONSIDERATIONS: The performance of CFA piles is dependent to a great extent on proper installation technique. We recommend that a contractor familiar and experienced with the installation of CFA piles be retained on the project. The following items should be considered during the construction of auger-cast piles:

- The rate of drilling penetration and rotation should be maintained at a level such that the auger is advanced without excessive mining of the soil along the pile sides.
- Once the required tip elevation is reached, grouting should begin immediately. The initial lift to blow the plug should limited to six inches in order to minimize potential stress relief at the bearing surface.
- After the initial lift, the grout should be pumped with sufficient pressure and the auger withdrawn slowly enough to maintain the hole and allow lateral penetration of the grout into soft or porous zones of surrounding soil. For the lowest 3 to 6 feet of the hole, the delivered grout volume should be approximately 200 percent of the theoretical volume required to fill the pile for that length. For the remainder of the pile, the delivered grout volume should be at least 120 percent of the theoretical volume.
- The grout pressure and auger withdrawal rate should be maintained at steady levels in order to construct a pile of uniform diameter without "necking".
- The grout should include additives that control setting and shrinkage, and must be fluid enough to be pumped easily without excessive pressure losses.
- All reinforcement should be inserted before the grout sets up, normally within ten minutes after the augers are withdrawn. The reinforcement should be placed in the center of the pile, extend the full design length, and be plumb to avoid having it protrude from the grout into the soil.

MONITORING: The project geotechnical engineer should provide full-time observation and testing of the pile installation. Observations will include review of drill rates and injection pressures as well as the grout volumes placed, all of which should be included in the contractor's logs in terms of units per depth (maximum of 3-foot intervals). Tests will include those to quantify the pertinent physical properties of the grout placed, such as flow and compressive strength.

Prior to construction of the test pile (see below), we recommend that the piling contractor prepare and submit a pile installation plan that provides the items listed below.

- The proposed equipment (including sizes) to be used.
- A step-by-step description of the installation procedure.
- Target drilling and grouting parameters for pile installation, including auger rotation speed, drilling penetration rates, torque, applied crowd pressures, grout pressures, and grout volume factors.
- Details of methods of reinforcement placement.
- Mix designs for all grout to be used.
- Equipment and procedures for monitoring and recording auger rotation speed, auger penetration rates, auger depths, crowd pressure, grout pressure, and grout volumes during installation.

TESTING PROGRAM: We recommend that at least one test pile for each pile type be installed with monitoring by the Geotechnical Consultant to evaluate the suitability of the contractor's installation procedures and equipment, as well as our design assumptions. We recommend the maximum test load be two times the design load. Based on the subsurface conditions encountered, we recommend using the "Quick Load Test Method" referenced in ASTM D1143. We recommend the 100 percent test load application be held and monitored for a period of four hours. If reaction piles are used for applying the test loads, a portion of the reaction piles installed should be similar to the test pile to aid in the installation evaluation. The test pile can be used as a production pile as long as the net "set" experienced during the load tests is in acceptable ranges.

FOUNDATION PLAN REVIEW

The final foundation plan and accompanying details and notes should be submitted to this office for review. The intent of our review will be to verify that the plans used for construction reflect the minimum dimensioning and reinforcing criteria presented in this section and that no additional criteria are required due to changes in the foundation type or layout. It is not our intent to review structural plans, notes, details, or calculations to verify that the design engineer has correctly applied the geotechnical design values. It is the responsibility of the design engineer to properly design/specify the foundations and other structural elements based on the requirements of the structure and considering the information presented in this report.

FOUNDATION EXCAVATION OBSERVATION

All foundation excavations, including foundation keys, should be observed by the Geotechnical Consultant prior to placing reinforcing steel or formwork in order to determine if the foundation recommendations presented herein are followed. All footing excavations should be excavated neat, level, and square. All loose or unsuitable material should be removed prior to the placement of concrete.

CORROSIVITY

The water soluble sulfate content was determined for a representative soil sample from the site in accordance with California Test Method 417. The result, which is presented in Appendix B, indicates that the on-site soils are, in general, negligibly corrosive to concrete.

It should be understood Christian Wheeler Engineering does not practice corrosion engineering. If such an analysis is considered necessary, we recommend that the client retain an engineering firm that specializes in this field to consult with them on this matter. The results of our tests should only be used as a guideline to determine if additional testing and analysis is necessary.

ON-GRADE SLABS

GENERAL: It is our understanding that the floor system of the proposed structure will consist of a concrete slab-on-grade. The following recommendations are considered the minimum slab requirements based on the soil conditions and are not intended to be in lieu of structural considerations.

INTERIOR SLAB: From a geotechnical perspective, we recommend that the minimum floor slab thickness be four inches and that the floor slab be reinforced with at least No. 3 reinforcing bars placed at 18 inches on center each. Slab reinforcement should be supported on chairs such that the reinforcing bars are positioned at mid-height in the floor slab. The owner and the project structural engineer should determine if the on-grade slabs need to be designed for special loading conditions. For such cases, a subgrade modulus of 100 pounds per cubic inch can be assumed for the subgrade provided it is prepared as recommended in this report. The allowable bearing load for the slab is 1,500 pounds per square foot.

.

UNDER-SLAB VAPOR RETARDERS: Where floor coverings are installed, steps should be taken to minimize the transmission of moisture vapor from the subsoil through the interior slabs where it can potentially damage the interior floor coverings. We recommend that the owner/contractor follow national standards for the installation of vapor retarders below interior slabs as presented in currently published standards including ACI 302, "Guide to Concrete Floor and Slab Construction" and ASTM E1643, "Standard Practice for Installation of Water Vapor Retarder Used in Contact with Earth or Granular Fill Under Concrete Slabs". If sand is placed above or below the vapor retarding material, it should have a sand equivalent of at least 30 and contain less than 20% passing the Number 100 sieve and less than 10% passing the Number 200 sieve.

We recommend that the flooring installer perform standard moisture vapor emission tests prior to the installation of all moisture-sensitive floor coverings in accordance with ASTM F1869 "Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride".

EXTERIOR CONCRETE FLATWORK: Exterior concrete on-grade slabs not subject to vehicular traffic should have a minimum thickness of four inches. Exterior slabs abutting perimeter foundations should be doweled into the footings. All slabs should be provided with weakened plane joints in accordance with the American Concrete Institute (ACI) guidelines. Alternative patterns consistent with ACI guidelines can also be used. A concrete mix with a 1-inch maximum aggregate size and a water/cement ratio of less than 0.6 is recommended for exterior slabs. Lower water content will decrease the potential for shrinkage cracks. Both coarse and fine aggregate should conform to the latest edition of the "Standard Specifications for Public Works Construction" ('Greenbook").

Special attention should be paid to the method of concrete curing to reduce the potential for excessive shrinkage and resultant random cracking. It should be recognized that minor cracks occur normally in concrete slabs due to shrinkage. Some shrinkage cracks should be expected and are not necessarily an indication of excessive movement or structural distress.

EARTH RETAINING WALLS

FOUNDATIONS: Foundations for retaining walls can be designed in accordance with the foundation recommendations previously presented.

EQUIVALENT FLUID PRESSURES: The active soil pressure for the design of unrestrained and restrained earth retaining structures with level backfill surface may be assumed to be equivalent to the pressure of a fluid weighing 35 and 55 pounds per cubic foot, respectively. Thirty percent of any area surcharge placed adjacent to the retaining wall may be assumed to act as a uniform horizontal pressure against the wall. Where vehicles will be allowed within ten feet of the retaining wall, a uniform horizontal pressure of 100 pounds per square foot should be added to the upper 10 feet of the retaining wall to account for the effects of adjacent traffic. If any other loads are anticipated, the Geotechnical Consultant should be contacted for the necessary increase in soil pressure. All values are based on a drained backfill condition.

If it is necessary to consider seismic pressure, it may be assumed to be equivalent to the pressure of a fluid weighing 10 pounds per cubic foot, but the pressure distribution should be inverted so that the highest value is at the top of the wall. This corresponds to an approximate pseudo-static acceleration (Kh) of 0.12 g.

PASSIVE PRESSURES: The passive pressure for the prevailing soil conditions may be considered to be 350 pounds per square foot per foot of depth for foundations. This pressure may be increased one-third for seismic loading. The coefficient of friction for concrete to soil may be assumed to be 0.35 for the resistance to lateral movement. When combining frictional and passive resistance, the friction should be reduced by one-third.

WATERPROOFING AND SUBDRAINS: The project architect should provide (or coordinate) waterproofing details for the retaining walls. The design values presented above are based on a drained backfill condition and do not consider hydrostatic pressures. Unless hydrostatic pressures are incorporated into the design, the retaining wall designer should provide a subdrain detail. A typical retaining wall subdrain detail is presented as Plate No. 2 of this report. Additionally, outlets points for the retaining wall subdrains should be coordinated by the project civil engineer. For subterranean walls, it may be necessary to collect the subdrain water in sumps and then pump it to an appropriate outlet.

BACKFILL: All retaining wall backfill should be compacted to at least 90 percent relative compaction. It is anticipated that the on-site soils are suitable for use as backfill material provided the design parameters given herein are used in the wall design. Retaining walls should not be backfilled until the masonry/concrete has reached an adequate strength.

PRELIMINARY PAVEMENT SECTIONS

GENERAL: We expect that new pavement will be installed as part of the project. The following presents preliminary sections for asphalt concrete (AC) or Portland Cement Concrete (PCC) construction. The pavement sections provided in Table III and Table IV should be considered preliminary and should be used for planning purposes only. Final pavement designs should be determined after R-value tests have been performed in the actual subgrade material in place after grading. Presuming the grading recommendations presented previously are followed, we estimate that the subgrade soils will have an R-Value of approximately 25. The Traffic Index and Traffic Categories shown below are assumed. The project client and/or civil engineer should determine whether these assumed values are appropriate for the traffic conditions.

ASPHALT CONCRETE PAVEMENTS: We expect that the drive aisles and parking stalls will primarily support passenger vehicles with only occasional heavily loaded vehicles. The asphalt concrete pavement section was calculated using the Caltrans design method using an assumed Traffic Index of 5.5 for drive aisles and 4.5 for parking stalls.

TABLE III: ASPHALT CONCRETE PAVEMENT SECTION

Pavement Type	Traffic Index	Pavement Thickness	Base Thickness	Base Material	Subgrade Compaction
Asphalt Concrete					
Drive Aisles	5.5	3.0 in.	8.0 in.	CAB or Class II	95% in upper 12”
Parking Stalls	4.5	3.0 in.	5.0 in.	CAB or Class II	95% in upper 12”

Prior to placing the base material beneath asphalt concrete pavements, the subgrade soil should be scarified to a depth of 12 inches and compacted to at least 95 percent of its maximum dry density at a moisture content one to three percent above optimum.

The base material could consist of Crushed Aggregate Base (CAB) or Class II Aggregate Base. The Crushed Aggregate Base should conform to the requirements set forth in Section 200-2.2 of the Standard Specifications for Public Works Construction. The Class II Aggregate Base should conform to requirements set forth in Section 26-1.02A of the Standard Specifications for California Department of Transportation. Asphalt concrete should be placed in accordance with ‘Standard Specifications for Public Works Construction (Greenbook), Section 302-5. Asphalt concrete pavement should be compacted to at least 95 % of Hveem density.

CONCRETE PAVEMENTS: Portland cement concrete (PCC) pavement thickness can be determined from Table V. The PCC pavement section was determined in general accordance with the procedure recommended within the American Concrete Institute report ACI-330R-08 Guide for Design and Construction of Concrete Parking Lots using the parameters listed in Table IV.

TABLE IV: CONCRETE PAVEMENT DESIGN PARAMETERS

Design Parameter	Design Value
Modulus of Subgrade Reaction, k	100 pci
Modulus of Rupture for Concrete, M_R	500 psi
Traffic Category (Main Driveways)	A (ADTT = 10)

ADTT = Average Daily Truck Traffic. Trucks defined as vehicles with at least six wheels.

TABLE V: MINIMUM CONCRETE PAVEMENT THICKNESS

Pavement Use	Thickness
Main Driveways/Aisles/Trash Enclosures	6.0 in
Parking Stalls	5.5 in

Prior to placing concrete pavement, the subgrade soils should be scarified to a depth of 12 inches and compacted to at least 95 percent of their maximum dry density at a moisture content one to three percent above optimum. Concrete pavement construction should comply with the requirements set forth in Sections 201-1.1.2 and 302-6 of the Standard Specifications for Public Works Construction (concrete Class 560-C-3250).

LIMITATIONS

REVIEW, OBSERVATION AND TESTING

The recommendations presented in this report are contingent upon our review of final plans and specifications. Such plans and specifications should be made available to the geotechnical engineer and engineering geologist so that they may review and verify their compliance with this report and with the California Building Code.

It is recommended that Christian Wheeler Engineering be retained to provide continuous soil engineering services during the earthwork operations. This is to verify compliance with the design concepts, specifications or recommendations and to allow design changes in the event that subsurface conditions differ from those anticipated prior to start of construction.

UNIFORMITY OF CONDITIONS

The recommendations and opinions expressed in this report reflect our best estimate of the project requirements based on an evaluation of the subsurface soil conditions encountered at the subsurface exploration locations and on the assumption that the soil conditions do not deviate appreciably from those encountered. It should be recognized that the performance of the foundations and/or cut and fill slopes may be influenced by undisclosed or unforeseen variations in the soil conditions that may occur in the intermediate and unexplored areas. Any unusual conditions not covered in this report that may be encountered during site development should be brought to the attention of the geotechnical engineer so that he may make modifications if necessary.

CHANGE IN SCOPE

This office should be advised of any changes in the project scope or proposed site grading so that we may determine if the recommendations contained herein are appropriate. This should be verified in writing or modified by a written addendum.

TIME LIMITATIONS

The findings of this report are valid as of this date. Changes in the condition of a property can, however, occur with the passage of time, whether they be due to natural processes or the work of man on this or adjacent properties. In addition, changes in the Standards-of-Practice and/or Government Codes may occur. Due to such changes, the findings of this report may be invalidated wholly or in part by changes beyond our control. Therefore, this report should not be relied upon after a period of two years without a review by us verifying the suitability of the conclusions and recommendations.

PROFESSIONAL STANDARD

In the performance of our professional services, we comply with that level of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions and in the same locality. The client recognizes that subsurface conditions may vary from those encountered at the locations where our test pits, surveys, and explorations are made, and that our data, interpretations, and recommendations be based solely on the information obtained by us. We will be responsible for those data, interpretations, and recommendations, but shall not be responsible for the interpretations by others of the information developed. Our services consist of professional consultation and observation only, and no warranty of any kind whatsoever, express or implied, is made or intended in connection with the work performed or to be performed by us, or by our proposal for consulting or other services, or by our furnishing of oral or written reports or findings.

CLIENT'S RESPONSIBILITY

It is the client's responsibility, or its representatives, to ensure that the information and recommendations contained herein are brought to the attention of the structural engineer and architect for the project and incorporated into the project's plans and specifications. It is further their responsibility to take the necessary measures to insure that the contractor and his subcontractors carry out such recommendations during construction.

FIELD EXPLORATIONS

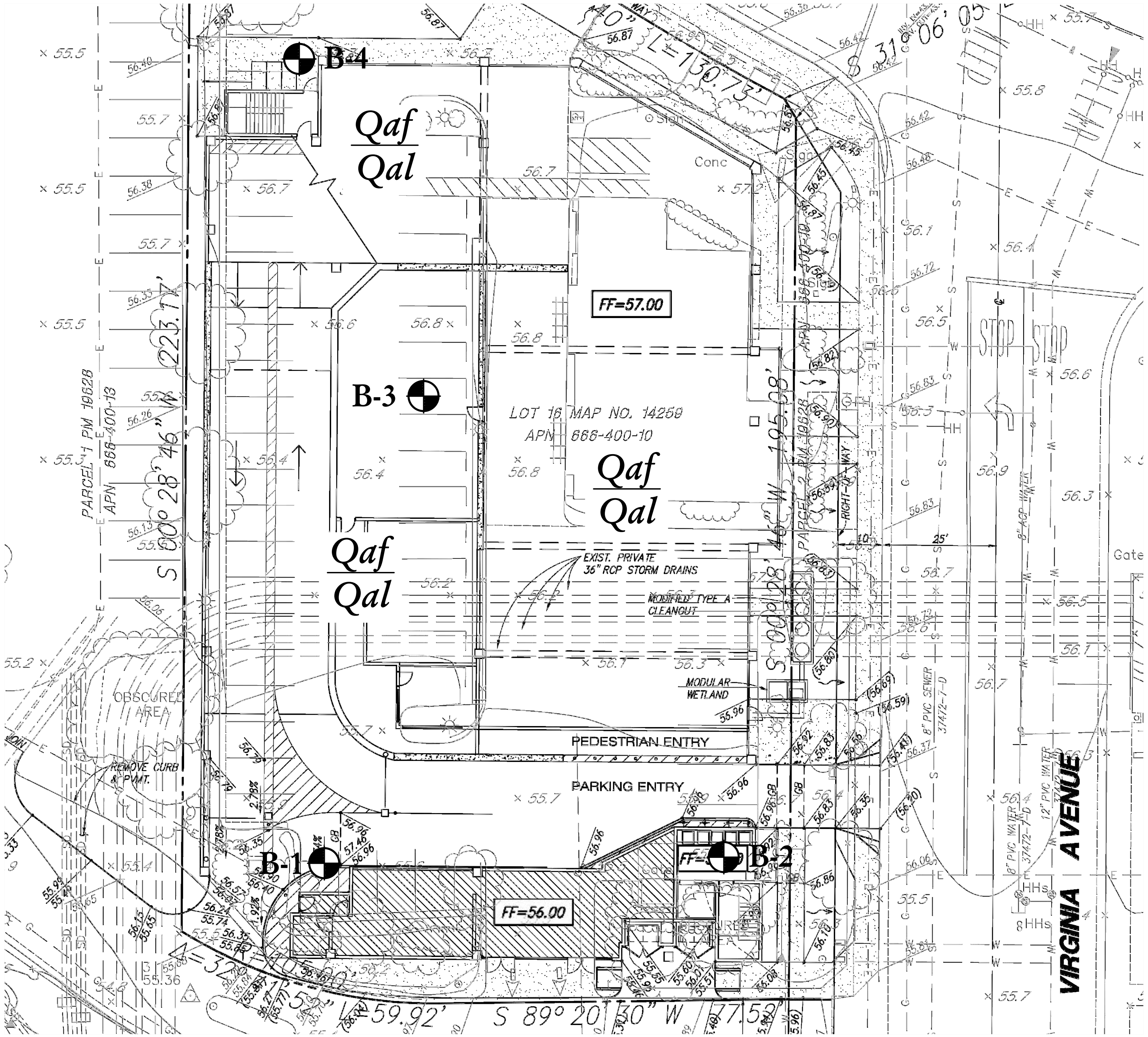
Four subsurface explorations were made during this investigation at the locations indicated on the Site Plan included herewith as Plate Number 1 on March 6, 2015. These explorations consisted of small-diameter, hollow-stem borings drilled with a truck-mounted drill rig. The fieldwork was conducted under the observation and direction of our engineering geology personnel.

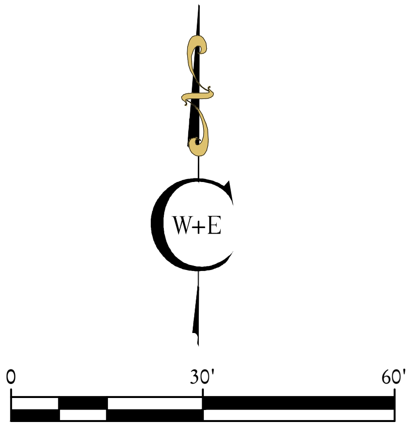
The borings were carefully logged when made. The boring logs are presented in the attached Appendix A. The soils are described in accordance with the Unified Soils Classification. In addition, a verbal textural description, the wet color, the apparent moisture and the density or consistency are provided. The density of granular soils is given as either very loose, loose, medium dense, dense or very dense. The consistency of silts or clays is given as either very soft, soft, medium stiff, stiff, very stiff, or hard. Undisturbed samples of typical and representative soils were obtained and returned to the laboratory for testing. The undisturbed samples were obtained by driving a 2 ⅜-inch inside diameter split-tube sampler ahead of the auger using a 140-pound weight free-falling a distance of 30 inches. The number of blows required to drive the sampler each foot was recorded and this value is presented on the attached boring logs as "Penetration Resistance." Bulk samples of disturbed soil were also collected in bags from the auger cuttings during the advancement of the borings and transported to the laboratory for testing.

LABORATORY TESTING

Laboratory tests were performed in accordance with the generally accepted American Society for Testing and Materials (ASTM) test methods or suggested procedures. A brief description of the tests performed and the subsequent results are presented in Appendix B.

CWE LEGEND	
◐ B-4	APPROXIMATE BORING LOCATION
Qaf Qal	ARTIFICIAL FILL OVER ALLUVIUM





SCALE: 1" = 30'

SILLMAN WRIGHT ARCHITECTS

7515 METROPOLITAN DR., SUITE 400
SAN DIEGO, CA 92108
TEL 619.294.7515 FAX 619.294.7592

VIRGINIA AVENUE
PARKING STRUCTURE
SAN YSIDRO, CA 92173

Prepaed By:
Stuart Engineering
7525 Metropolitan Drive,Ste.302
San Diego, CA. 92108
Tel. : (619) 296-1010
Fax : (619) 296-9276
Contact: Thomas M. Henry
E-mail: thenry@stuartengineering.com

Project Name:
Virginia Ave. Parking Structure
Coastal Development Permit
Site Development Permit

Project Address:
4575 Camino De La Plaza
San Ysidro, Ca 92173

Revision 5 Date:

Revision 4 Date:

Revision 3 Date:

Revision 2 Date:

Revision 1 Date:

Original Date: 08/06/14

Project No.: 375960

Sheet Titles:
Preliminary
Grading Plan

Sheet No.: C-101
Sheet: 12 of 15

PEACE
27232
3-31-15

STUART ENGINEERING
7525 METROPOLITAN DRIVE STE. 308
SAN DIEGO, CA 92108 (619) 296-1010
7-31-14
STUART PEACE R.C.E. 27232 DATE
REGISTRATION EXPIRES: 3-31-15

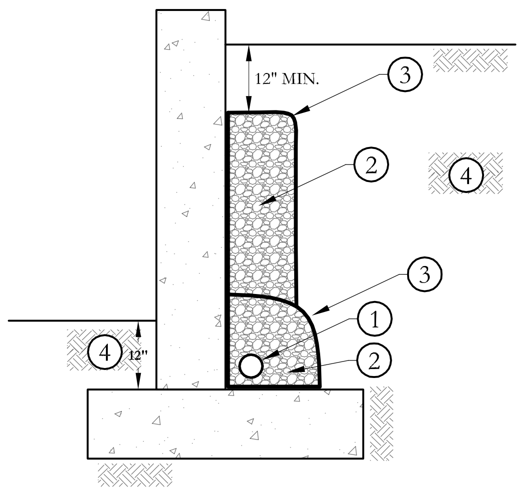
DESIGNER: T.H.
DRAWN: JR
CHECKED: S.P.
JOB NO.: 1295-13-00

SITE PLAN AND GEOTECHNICAL MAP

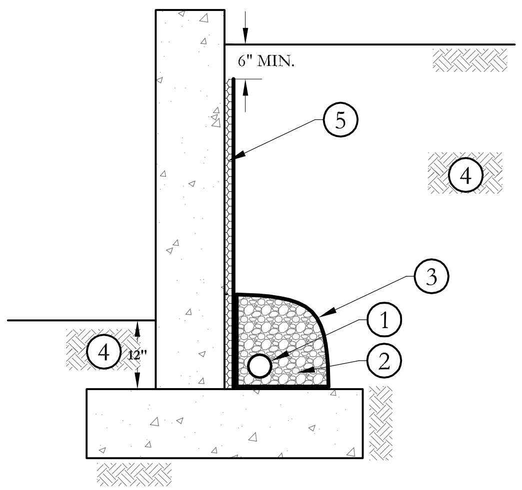
VIRGINIA AVENUE PARKING STRUCTURE
4575 CAMINO DE LA PLAZA
SAN YSIDRO, CALIFORNIA

DATE:	APRIL 2015	JOB NO.:	2130661.01
BY:	MWL	PLATE NO.:	1

CHRISTIAN WHEELER
ENGINEERING



1 DETAIL



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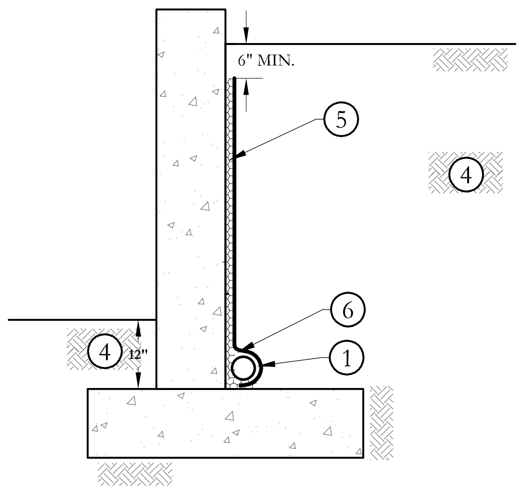
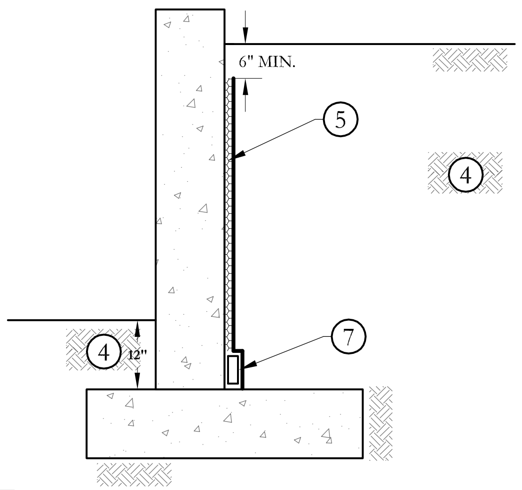


3 DETAIL



4 DETAIL

NOTES AND DETAILS

GENERAL NOTES:

1) THE NEED FOR WATERPROOFING SHOULD BE EVALUATED BY OTHERS.
2) WATERPROOFING TO BE DESIGNED BY OTHERS (CWE CAN PROVIDE A DESIGN IF REQUESTED).
3) EXTEND DRAIN TO SUITABLE DISCHARGE POINT PER CIVIL ENGINEER.
4) DO NOT CONNECT SURFACE DRAINS TO SUBDRAIN SYSTEM.

DETAILS:

① 4-INCH PERFORATED PVC PIPE ON TOP OF FOOTING, HOLES POSITIONED DOWNWARD (SDR 35, SCHEDULE 40, OR EQUIVALENT).

② ¾ INCH OPEN-GRADED CRUSHED AGGREGATE.

③ GEOFABRIC WRAPPED COMPLETELY AROUND ROCK.

④ PROPERLY COMPACTED BACKFILL SOIL.

⑤ WALL DRAINAGE PANELS (MIRADRAIN OR EQUIVALENT) PLACED PER MANUFACTURER'S REC'S.

⑥ UNDERLAY SUBDRAIN WITH AND CUT FABRIC BACK FROM DRAINAGE PANELS AND WRAP FABRIC AROUND PIPE.

⑦ COLLECTION DRAIN (TOTAL DRAIN OR EQUIVALENT) LOCATED AT BASE OF WALL DRAINAGE PANEL PER MANUFACTURER'S RECOMMENDATIONS.

CANTILEVER RETAINING WALL DRAINAGE SYSTEMS

VIRGINIA AVENUE PARKING STRUCTURE
4575 CAMINO DE LA PLAZA
SAN YSIDRO, CALIFORNIA

DATE:	APRIL 2015	JOB NO.:	2130661.01
BY:	BDT	PLATE NO.:	2

CHRISTIAN WHEELER
ENGINEERING

Appendix A

Boring Logs

LOG OF TEST BORING B-1 (0-30')

Date Drilled:	3/6/15	Equipment:	Mobil B-61
Logged By:	TSW	Auger Type:	3¼-inch Hollow Stem
Existing Elevation:	55½ feet	Drive Type:	140lbs/30 inches
Proposed Elevation:	57 feet	Depth to Water:	16 feet 9 inches

Sample Type and Laboratory Test Legend

Cal	Modified California Sampler	CK	Chunk Density
SPT	Standard Penetration Test	DR	Density Ring
ST	Shelby Tube	NG	Nuclear Gauge Test
MD	Max Density	DS	Direct Shear
SO4	Soluble Sulfates	Con	Consolidation
SA	Sieve Analysis	EI	Expansion Index
HA	Hydrometer	R-Val	Resistance Value
SE	Sand Equivalent	Chl	Soluble Chlorides
PI	Plasticity Index	Res	pH & Resistivity
CP	Collapse Potential		

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	USCS SYMBOL	SUMMARY OF SUBSURFACE CONDITIONS (based on Unified Soil Classification System)	PENETRATION (blows per foot)	SAMPLE TYPE	BULK	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS
0	55½			3" AC over 5" Base.							
			SM	**Artificial Fill (Qaf):** Reddish-brown, moist, medium dense, fine- to coarse-grained, slightly SILTY SAND with gravel-size rock.	57	Cal	▨	7.4	128.8		
5	50½		SW-SM	**Alluvium (Qal):** Grayish-brown, moist, medium dense, fine- to coarse-grained, WELL-GRADED SAND with SILT and gravel-size rock; friable.	32	Cal	▨	5.3	106.6		Con
			SP	Light-brown, moist, medium dense, medium- to coarse-grained, POORLY-GRADED SAND with gravel-size rock.							
10	45½										
			SW-SM	Light-brown, moist, medium dense, fine- to coarse-grained, WELL-GRADED SAND with SILT and gravel-size rock.	23	Cal		2.5	102.2		
15	40½										
	▼			Very moist.	26	Cal		2.5	101.4		
				Saturated.							
			SP-SM	Light-brown, saturated, medium dense, medium- to coarse-grained, POORLY-GRADED SAND with SILT and gravel-size rock. Gravel lens from 19'-20'.							
20	35½										
					25	SPT	▨				SA
				Possible gravel lens from 23'-24'.							
25	30½										
					17	SPT	▨				SA
30	25½										

Notes:

Symbol Legend

∇	Groundwater Level During Drilling
▼	Groundwater Level After Drilling
❜❜	Apparent Seepage
*	No Sample Recovery
**	Erroneous Blow Count (rocks present)

VIRGINIA AVENUE PARKING STRUCTURE
4575 CAMINO DE LA PLAZA
SAN YSIDRO, CALIFORNIA

DATE:	APRIL 2015	JOB NO.:	2130661.01
BY:	MWL	FIGURE NO.:	A-1

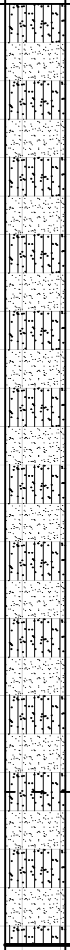
CHRISTIAN WHEELER
ENGINEERING

LOG OF TEST BORING B-1 (30-60')

Date Drilled:	3/6/15	Equipment:	Mobil B-61
Logged By:	TSW	Auger Type:	3¼-inch Hollow Stem
Existing Elevation:	55½ feet	Drive Type:	140lbs/30 inches
Proposed Elevation:	57 feet	Depth to Water:	16 feet 9 inches

Sample Type and Laboratory Test Legend

Cal	Modified California Sampler	CK	Chunk Density
SPT	Standard Penetration Test	DR	Density Ring
ST	Shelby Tube	NG	Nuclear Gauge Test
MD	Max Density	DS	Direct Shear
SO4	Soluble Sulfates	Con	Consolidation
SA	Sieve Analysis	EI	Expansion Index
HA	Hydrometer	R-Val	Resistance Value
SE	Sand Equivalent	Chl	Soluble Chlorides
PI	Plasticity Index	Res	pH & Resistivity
CP	Collapse Potential		



DEPTH (ft)	ELEVATION (ft)	USCS SYMBOL	SUMMARY OF SUBSURFACE CONDITIONS (based on Unified Soil Classification System)	PENETRATION (blows per foot)	SAMPLE TYPE	BULK	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS
30	25½	SP-SM	**Alluvium (Qal):** Light-brown, saturated, medium dense, medium- to coarse-grained, POORLY-GRADED SAND with SILT and gravel-size rock.	28	SPT	▨				SA
35	20½		Possible gravel lens from 35½'-36½'.	63	SPT**	▨				SA
40	15½			73	SPT	▨				SA
45	10½			53	SPT	▨				SA
50	5½		Gravel layer from 50½'-54½'.	71	SPT	▨				SA
				50/2"	SPT**					
55			Practical drill refusal at 54½ feet. Groundwater encountered at 16 feet 9 inches.							
60										

Notes:

Symbol Legend

- ∇ Groundwater Level During Drilling
- ▼ Groundwater Level After Drilling
- ❞ Apparent Seepage
- * No Sample Recovery
- ** Erroneous Blow Count (rocks present)

VIRGINIA AVENUE PARKING STRUCTURE
4575 CAMINO DE LA PLAZA
SAN YSIDRO, CALIFORNIA

DATE:	APRIL 2015	JOB NO.:	2130661.01
BY:	MWL	FIGURE NO.:	A-2

CHRISTIAN WHEELER
ENGINEERING

LOG OF TEST BORING B-2

Date Drilled:	3/6/15	Equipment:	Mobil B-61
Logged By:	TSW	Auger Type:	3¼-inch Hollow Stem
Existing Elevation:	56 feet	Drive Type:	140lbs/30 inches
Proposed Elevation:	57 feet	Depth to Water:	16 feet 11 inches

Sample Type and Laboratory Test Legend

Cal	Modified California Sampler	CK	Chunk Density
SPT	Standard Penetration Test	DR	Density Ring
ST	Shelby Tube	NG	Nuclear Gauge Test
MD	Max Density	DS	Direct Shear
SO4	Soluble Sulfates	Con	Consolidation
SA	Sieve Analysis	EI	Expansion Index
HA	Hydrometer	R-Val	Resistance Value
SE	Sand Equivalent	Chl	Soluble Chlorides
PI	Plasticity Index	Res	pH & Resistivity
CP	Collapse Potential		

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	USCS SYMBOL	SUMMARY OF SUBSURFACE CONDITIONS (based on Unified Soil Classification System)	PENETRATION (blows per foot)	SAMPLE TYPE	BULK	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS
0	56			3" AC over 3" Base.							
			SM	**Artificial Fill (Qaf):** Reddish-brown, moist, medium dense, fine- to coarse-grained, slightly SILTY SAND.	21	Cal	▨	9.1	125.4		
5	51		SW-SM	**Alluvium (Qal):** Grayish-brown, moist, medium dense, fine- to coarse-grained, WELL-GRADED SAND with SILT and gravel-size rock.							
			SP	Light-brown, moist, medium dense, medium- to coarse-grained, POORLY-GRADED SAND with gravel-size rock.							
10	46										
			SW-SM	Light-brown, moist, medium dense, fine- to coarse-grained, WELL-GRADED SAND with SILT and gravel-size rock. Possible gravel lens from 13'-13½'.	19	Cal		4.4	92.3		
15	41										
	▼			Saturated.							
			SP-SM	Light-brown, saturated, medium dense, medium- to coarse-grained, POORLY-GRADED SAND with SILT and gravel-size rock. Possible gravel lens from 18½'-19'.							
20	36				80/8"	Cal		18.7	106.4		
25	31										
30	26				46	Cal		15.8	110.3		
				Boring terminated at 30 feet. Groundwater encountered at 16 feet 11 inches.							

Notes:

Symbol Legend

∇	Groundwater Level During Drilling
▼	Groundwater Level After Drilling
❜❜	Apparent Seepage
*	No Sample Recovery
**	Erroneous Blow Count (rocks present)

VIRGINIA AVENUE PARKING STRUCTURE
4575 CAMINO DE LA PLAZA
SAN YSIDRO, CALIFORNIA

DATE:	APRIL 2015	JOB NO.:	2130661.01
BY:	MWL	FIGURE NO.:	A-3

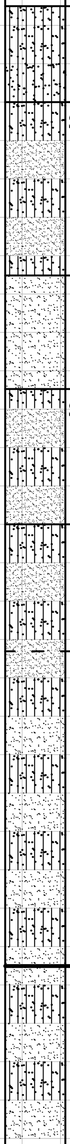
CHRISTIAN WHEELER
ENGINEERING

LOG OF TEST BORING B-3

Date Drilled: 3/6/15
Logged By: TSW
Existing Elevation: 56½ feet
Proposed Elevation: 57 feet
Equipment: Mobil B-61
Auger Type: 3¼-inch Hollow Stem
Drive Type: 140lbs/30 inches
Depth to Water: 17 feet 4 inches

Sample Type and Laboratory Test Legend

Cal	Modified California Sampler	CK	Chunk Density
SPT	Standard Penetration Test	DR	Density Ring
ST	Shelby Tube	NG	Nuclear Gauge Test
MD	Max Density	DS	Direct Shear
SO4	Soluble Sulfates	Con	Consolidation
SA	Sieve Analysis	EI	Expansion Index
HA	Hydrometer	R-Val	Resistance Value
SE	Sand Equivalent	Chl	Soluble Chlorides
PI	Plasticity Index	Res	pH & Resistivity
CP	Collapse Potential		



DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	USCS SYMBOL	SUMMARY OF SUBSURFACE CONDITIONS (based on Unified Soil Classification System)	PENETRATION (blows per foot)	SAMPLE TYPE	BULK	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS
0	56½			2" AC over 3" Base.							
			SM	**Artificial Fill (Qaf):** Reddish-brown, moist, medium dense, fine- to coarse-grained, slightly SILTY SAND with gravel-size rock.	31	Cal	▨	7.2	120.9		SA MD DS SO4
			SW-SM	**Alluvium (Qal):** Grayish-brown, moist, medium dense, fine- to coarse-grained, WELL-GRADED SAND with SILT and gravel-size rock; friable.			▨				
5	51½				25	Cal	▨	5.8	104.7		Con
			SP	Light-brown, moist, medium dense, medium- to coarse-grained, POORLY-GRADED SAND with gravel-size rock.							
10	46½										
			SW-SM	Light-brown, moist, medium dense, fine- to coarse-grained, WELL-GRADED SAND with SILT and gravel-size rock.	24	Cal		3.3	96.9		
			SP-SM	Light-brown, moist, medium dense, medium- to coarse-grained, POORLY-GRADED SAND with SILT and gravel-size rock. Gravel lens from 14'-15'.							
15	41½				30	Cal		2.3	101.5		
	▼			Saturated.							
20	36½				38	Cal**					
25	31½				50/5"	Cal**					
				Boring terminated at 25½ feet. Groundwater encountered at 17 feet 4 inches.							
30	26½										

Notes:

Symbol Legend

▽	Groundwater Level During Drilling
▼	Groundwater Level After Drilling
❞	Apparent Seepage
*	No Sample Recovery
**	Erroneous Blow Count (rocks present)

VIRGINIA AVENUE PARKING STRUCTURE
4575 CAMINO DE LA PLAZA
SAN YSIDRO, CALIFORNIA

DATE: APRIL 2015
JOB NO.: 2130661.01
BY: MWL
FIGURE NO.: A-4

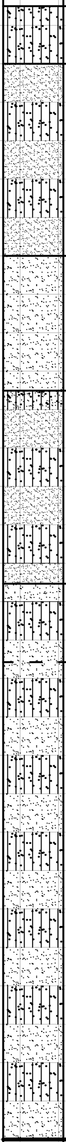
CHRISTIAN WHEELER
ENGINEERING

LOG OF TEST BORING B-4

Date Drilled:	3/6/15	Equipment:	Mobil B-61
Logged By:	TSW	Auger Type:	3¼-inch Hollow Stem
Existing Elevation:	56½ feet	Drive Type:	140lbs/30 inches
Proposed Elevation:	57 feet	Depth to Water:	17 feet 8 inches

Sample Type and Laboratory Test Legend

Cal	Modified California Sampler	CK	Chunk Density
SPT	Standard Penetration Test	DR	Density Ring
ST	Shelby Tube	NG	Nuclear Gauge Test
MD	Max Density	DS	Direct Shear
SO4	Soluble Sulfates	Con	Consolidation
SA	Sieve Analysis	EI	Expansion Index
HA	Hydrometer	R-Val	Resistance Value
SE	Sand Equivalent	Chl	Soluble Chlorides
PI	Plasticity Index	Res	pH & Resistivity
CP	Collapse Potential		



DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	USCS SYMBOL	SUMMARY OF SUBSURFACE CONDITIONS (based on Unified Soil Classification System)	PENETRATION (blows per foot)	SAMPLE TYPE	BULK	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS
0	56½			6" AC.							
			SM	**Artificial Fill (Qaf):** Reddish-brown, moist, medium dense, fine- to medium-grained, slightly SILTY SAND with gravel-size rock.							
			SW-SM	**Alluvium (Qal):** Grayish-brown, moist, medium dense, fine- to coarse-grained, WELL-GRADED SAND with SILT and gravel-size rock; friable.	43	Cal	▨	3.0	106.6		
5	51½						▨				
					22	Cal	▨	2.7	96.2		Con
			SP	Light-brown, moist, medium dense, medium- to coarse-grained, POORLY-GRADED SAND with gravel-size rock.							
10	46½										
			SW-SM	Light-brown, moist, medium dense, fine- to coarse-grained, WELL-GRADED SAND with SILT and gravel-size rock.	18	Cal		2.6	97.8		
				Possible gravel lens from 13'-13½'.							
15	41½										
			SP-SM	Light-brown, moist, medium dense, medium- to coarse-grained, POORLY-GRADED SAND with SILT and gravel-size rock.	24	Cal		2.4	103.2		
	▼			Saturated.							
20	36½				42	Cal		13.9	111.7		
25	31½										
					58	Cal		13.4	118.9		
30	26½				59	Cal		15.0	109.1		
				Boring terminated at 30 feet. Groundwater encountered at 17 feet 8 inches.							

Notes:

Symbol Legend

∇	Groundwater Level During Drilling
▼	Groundwater Level After Drilling
❜❜	Apparent Seepage
*	No Sample Recovery
**	Erroneous Blow Count (rocks present)

VIRGINIA AVENUE PARKING STRUCTURE
4575 CAMINO DE LA PLAZA
SAN YSIDRO, CALIFORNIA

DATE:	APRIL 2015	JOB NO.:	2130661.01
BY:	MWL	FIGURE NO.:	A-5

CHRISTIAN WHEELER
ENGINEERING

Appendix B

Laboratory Test Results

LABORATORY DESCRIPTION

Laboratory tests were performed in accordance with the generally accepted American Society for Testing and Materials (ASTM) test methods or suggested procedures. Brief descriptions of the tests performed are presented below:

a) **CLASSIFICATION:** Field classifications were verified in the laboratory by visual examination. The final soil classifications are in accordance with the Unified Soil Classification System and are presented on the exploration logs in Appendix A.

b) **MOISTURE-DENSITY:** In-place moisture contents and dry densities were determined for representative soil samples. This information was an aid to classification and permitted recognition of variations in material consistency with depth. The dry unit weight is determined in pounds per cubic foot, and the in-place moisture content is determined as a percentage of the soil's dry weight. The results of these tests are summarized in the exploration logs presented in Appendix A.

c) **GRAIN SIZE DISTRIBUTION:** The grain size distributions of selected samples were determined in accordance with ASTM C136 and/or ASTM D422.

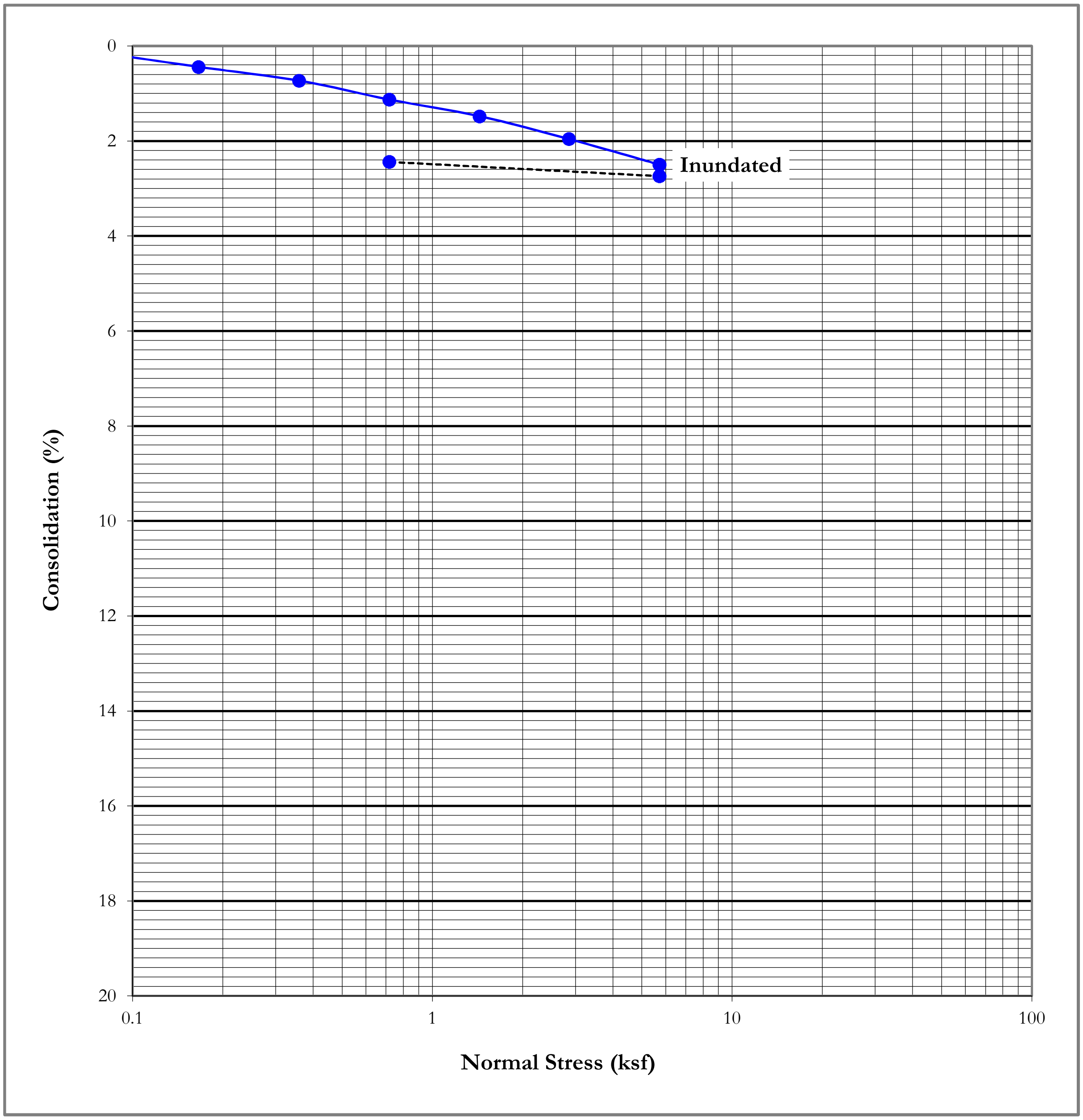
d) **DIRECT SHEAR:** Direct shear tests were performed to determine the failure envelope of selected soils based on yield shear strength. The shear box was designed to accommodate a sample having a diameter of 2.375 inches or 2.50 inches and a height of 1.0 inch. Samples were tested at different vertical loads and a saturated moisture content. The shear stress was applied at a constant rate of strain of approximately 0.05 inch per minute.

e) **CONSOLIDATION TESTS:** One dimensional consolidation testing was performed in accordance with ASTM D2435. The specimen was placed in a consolidometer with porous stones at the top and bottom and loads were applied in a geometric progression. After vertical movement ceased with each load interval, the resulting deformation was recorded. The percent consolidation is reported as the ratio of vertical compression to the original sample height. The test sample was inundated at some point in the test cycle to determine its behavior under the anticipated loads as soil moisture increases.

f) **MAXIMUM DENSITY & OPTIMUM MOISTURE CONTENT:** The maximum dry density and optimum moisture content of typical soils were determined in the laboratory in accordance with ASTM Standard Test D-1557, Method A.

g) **SOLUBLE SULFATE CONTENT:** The soluble sulfate content was determined for representative samples in accordance with California Test Methods 417.

CONSOLIDATION (ASTM D2435)



Sample No	Initial Moisture Content	Initial Dry Density	Final Moisture Content
B-1 @ 6½'	5.3%	106.6	16.2%

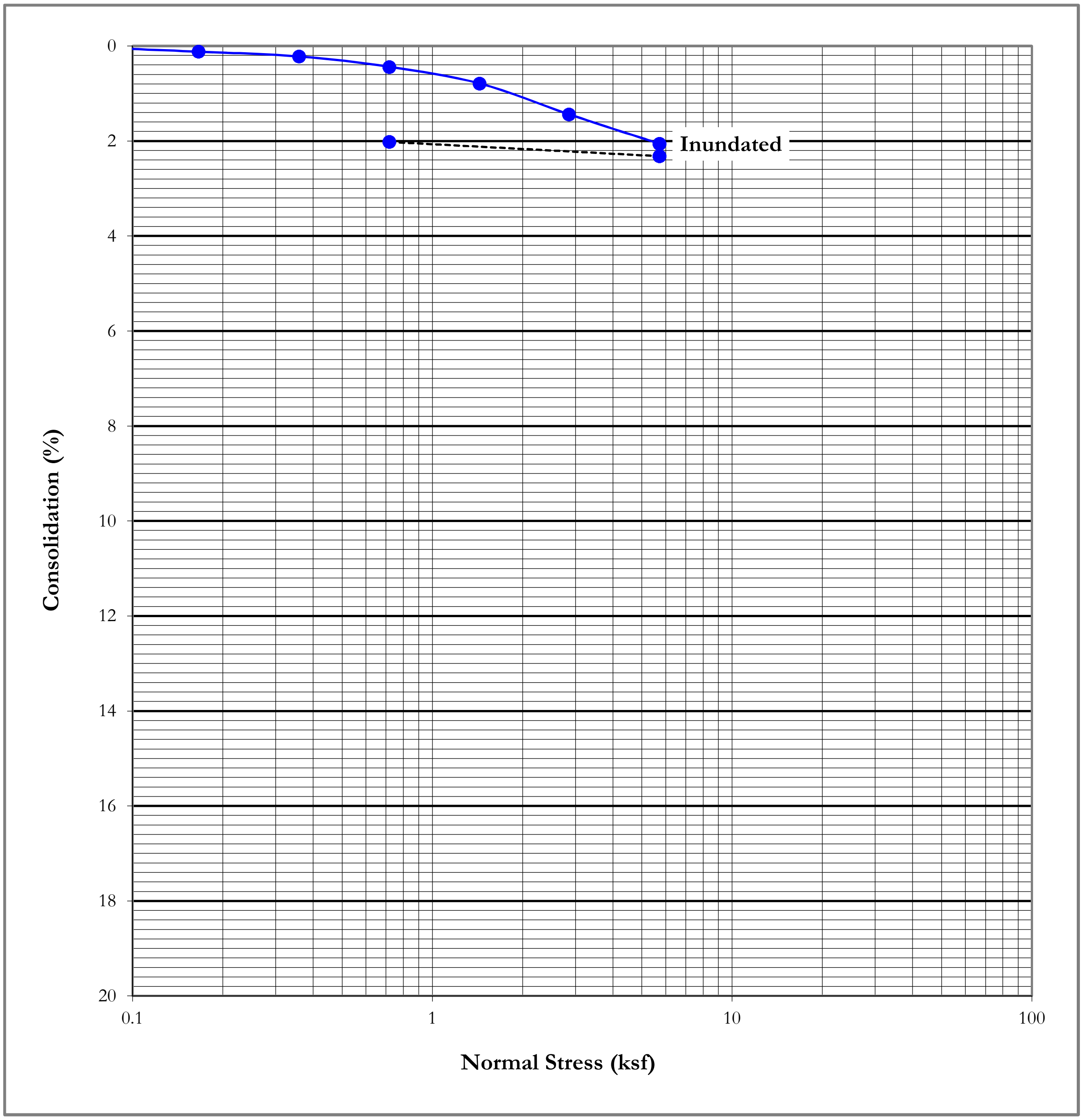
CHRISTIAN WHEELER
ENGINEERING

LABORATORY TEST RESULTS

PROPOSED PARKING STRUCTURE
4575 CAMINO DE LA PLAZA, SAN YSIDRO, CA

PROJECT NO. 2130661
DATE 4/6/15
FIGURE
B2

CONSOLIDATION (ASTM D2435)



Sample No	Initial Moisture Content	Initial Dry Density	Final Moisture Content
B-3 @ 6½'	5.8%	104.7	17.6%

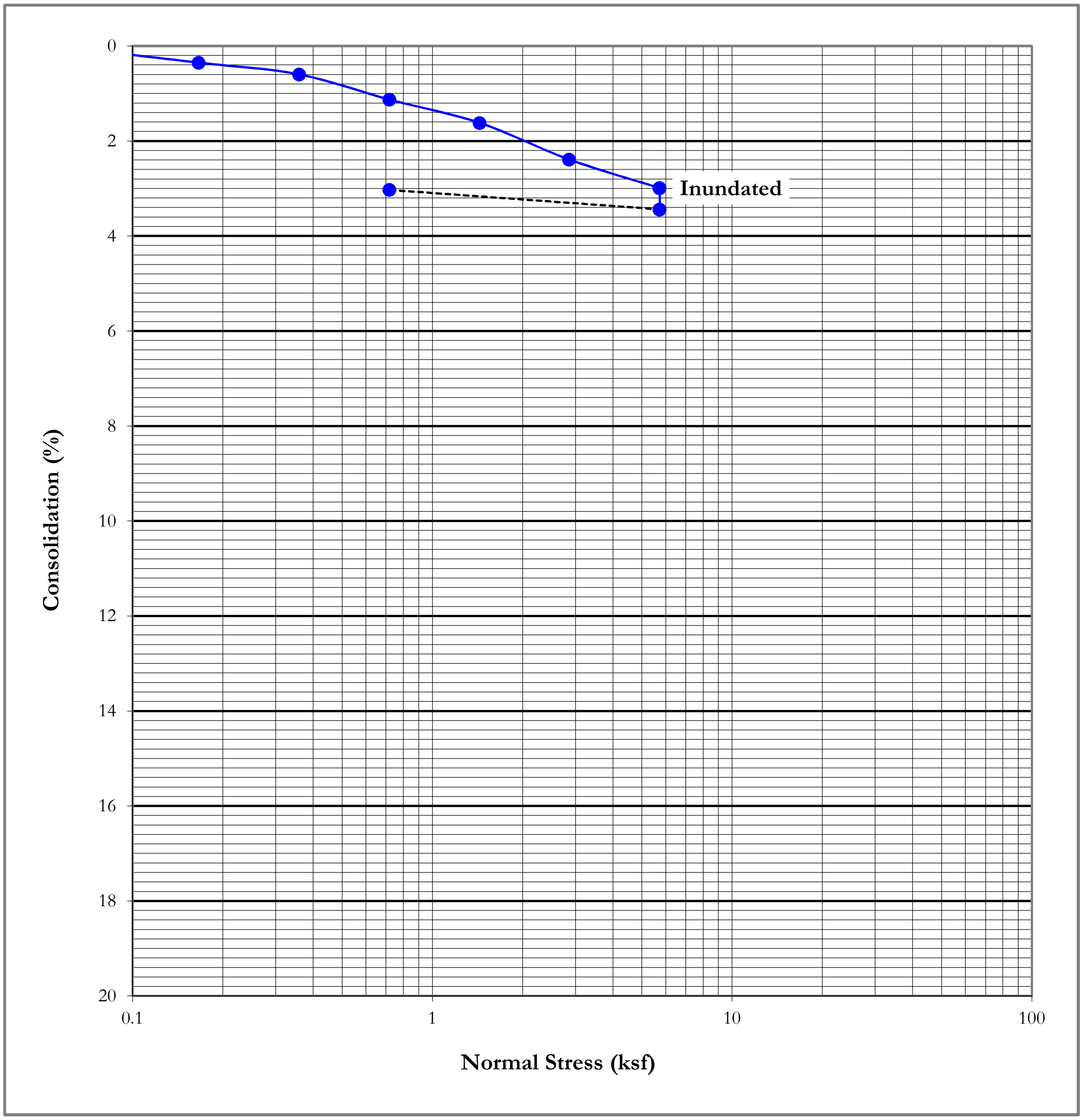
CHRISTIAN WHEELER
ENGINEERING

LABORATORY TEST RESULTS

PROPOSED PARKING STRUCTURE
4575 CAMINO DE LA PLAZA, SAN YSIDRO, CA

PROJECT NO. 2130661
DATE 4/6/15
FIGURE
B3

CONSOLIDATION (ASTM D2435)



Sample No	Initial Moisture Content	Initial Dry Density	Final Moisture Content
B-4 @ 6½'	2.7%	96.2	23.4%

CHRISTIAN WHEELER
ENGINEERING

LABORATORY TEST RESULTS

PROPOSED PARKING STRUCTURE
4575 CAMINO DE LA PLAZA, SAN YSIDRO, CA

PROJECT NO. 2130661
DATE 4/6/15
FIGURE
B4

CORROSIVITY TESTS

Sample No.	CALTEST 417	CALTEST 643		CALTEST 422
	Sulfate Content (% SO_4)	pH	Resistivity (ohm-cm)	Chloride Content (ppm)
B-3 @ ½'-3'	0.012	--	--	--

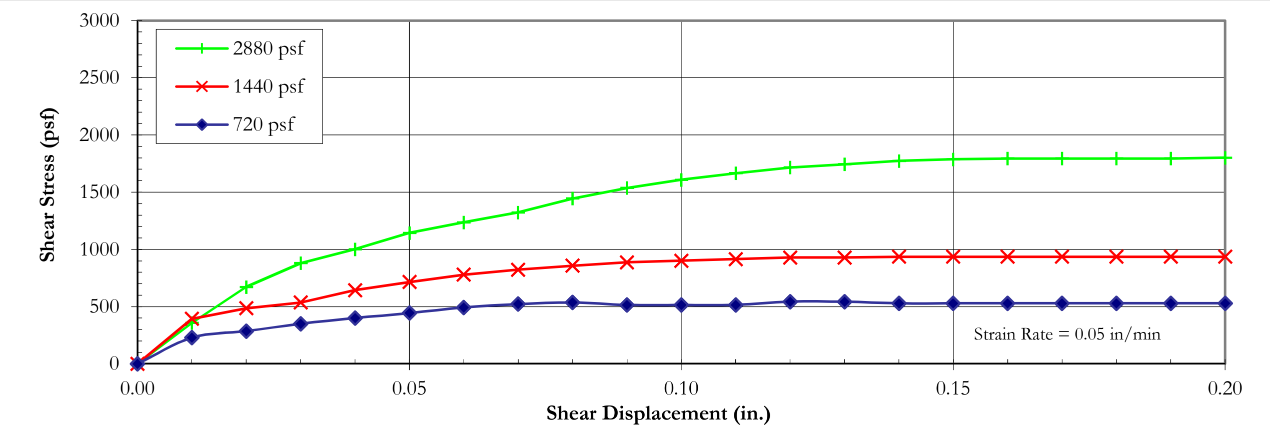
CHRISTIAN WHEELER
ENGINEERING

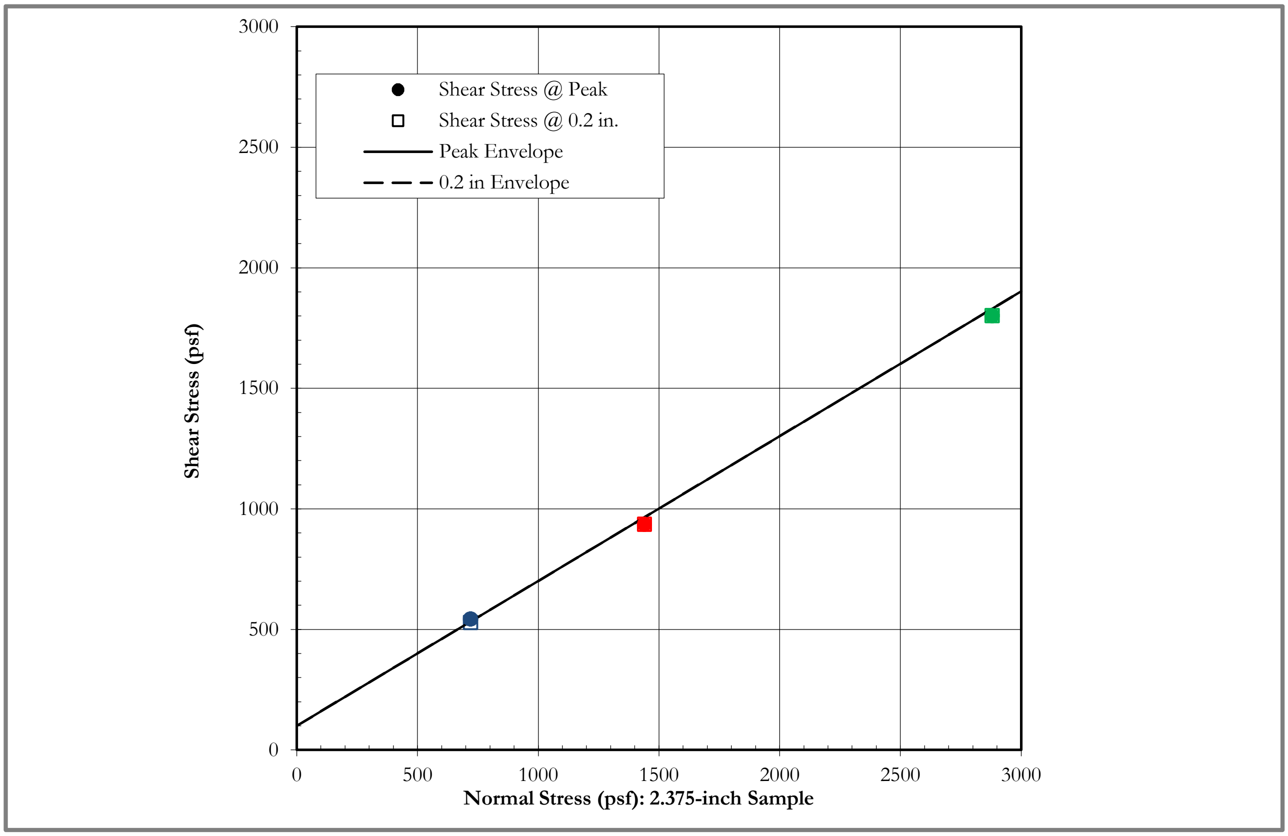
LABORATORY TEST RESULTS

PROPOSED PARKING STRUCTURE
4575 CAMINO DE LA PLAZA, SAN YSIDRO, CA

PROJECT NO. 2130661
DATE 4/6/15
FIGURE
B5

DIRECT SHEAR TEST (ASTM D3080)





Sample No. B-3 @ ½'-3'

Sample Type: Remolded to 90%

Normal Stress (psf)	**720**	**1440**	**2880**
Peak Shear Stress (psf)	543	937	1802
Shear Stress at 0.2 in (psf)	529	937	1802
Initial Dry Density (pcf)	115.2	115.2	115.2
Initial Moisture Content (%)	9.0	9.0	9.0

	Peak	**at 0.2 in Displacement**
Friction Angle, ϕ (deg):	31	31
Cohesion Intercept, c (psf):	100	100

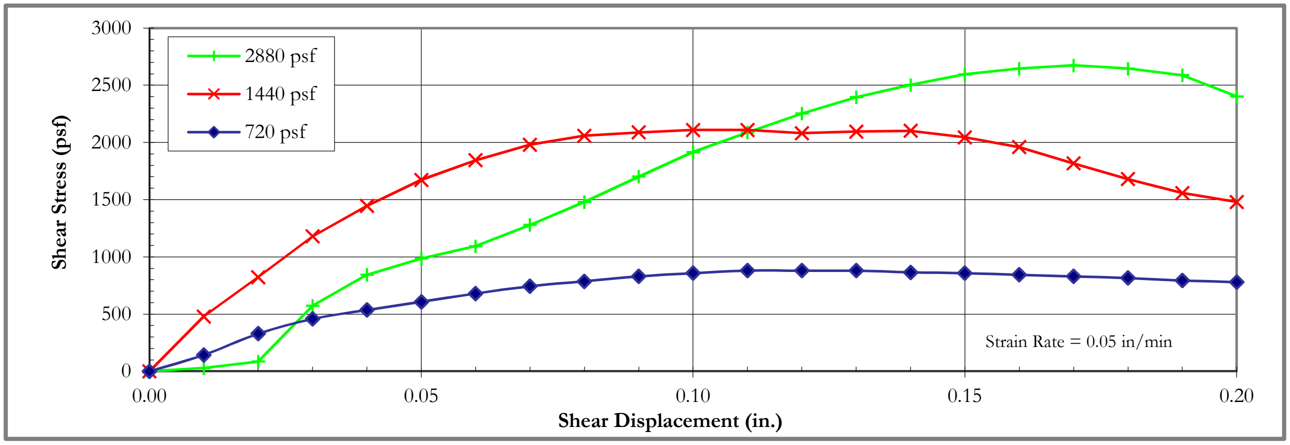
CHRISTIAN WHEELER
ENGINEERING

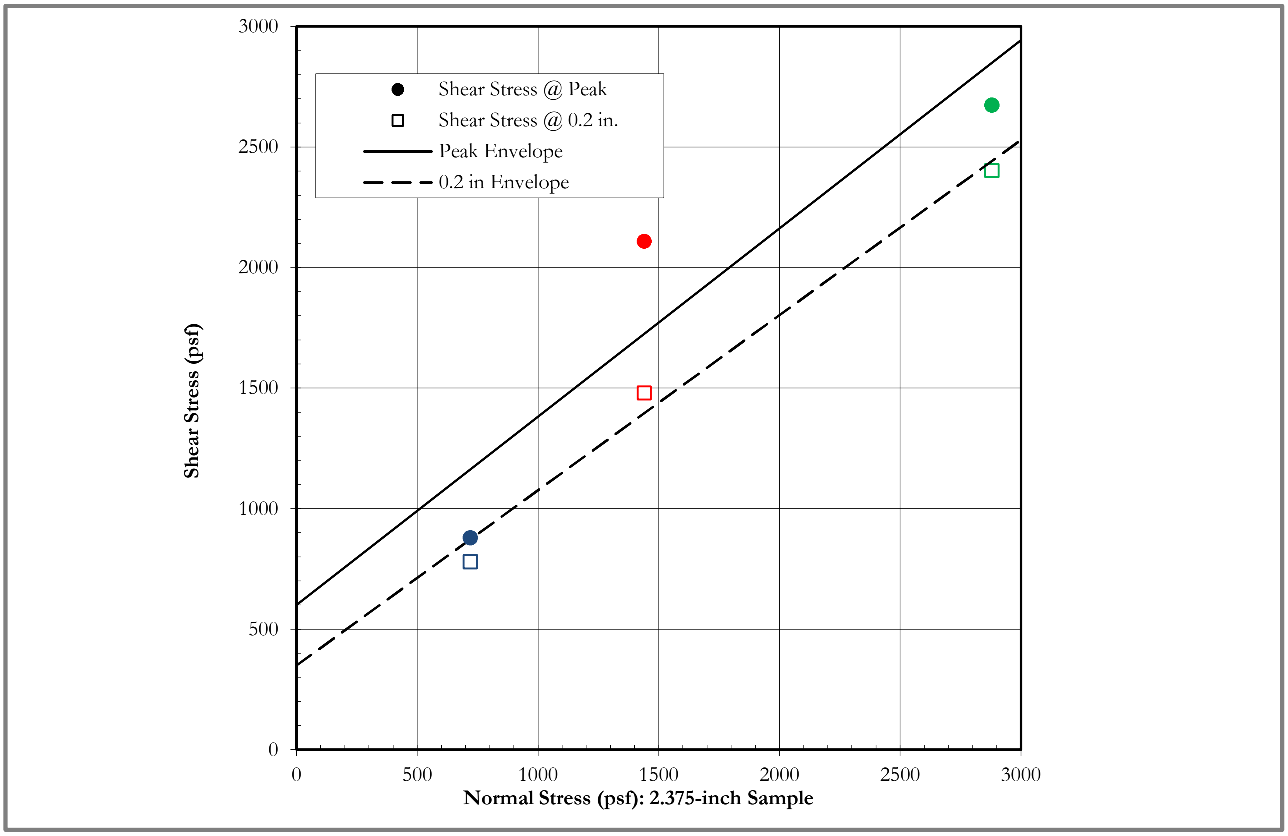
LABORATORY TEST RESULTS

PROPOSED PARKING STRUCTURE
4575 CAMINO DE LA PLAZA, SAN YSIDRO, CA

PROJECT NO. 2130661
DATE 4/6/15
FIGURE
B6

DIRECT SHEAR TEST (ASTM D3080)





Sample No. B-3 @ 2½'

Sample Type: Remolded to 90%

Normal Stress (psf)	**720**	**1440**	**2880**
Peak Shear Stress (psf)	879	2109	2674
Shear Stress at 0.2 in (psf)	779	1480	2402
Initial Dry Density (pcf)	119.5	125.4	117.9
Initial Moisture Content (%)	5.3	8.9	7.5

	Peak	**at 0.2 in Displacement**
Friction Angle, ϕ (deg):	38	36
Cohesion Intercept, c (psf):	600	350

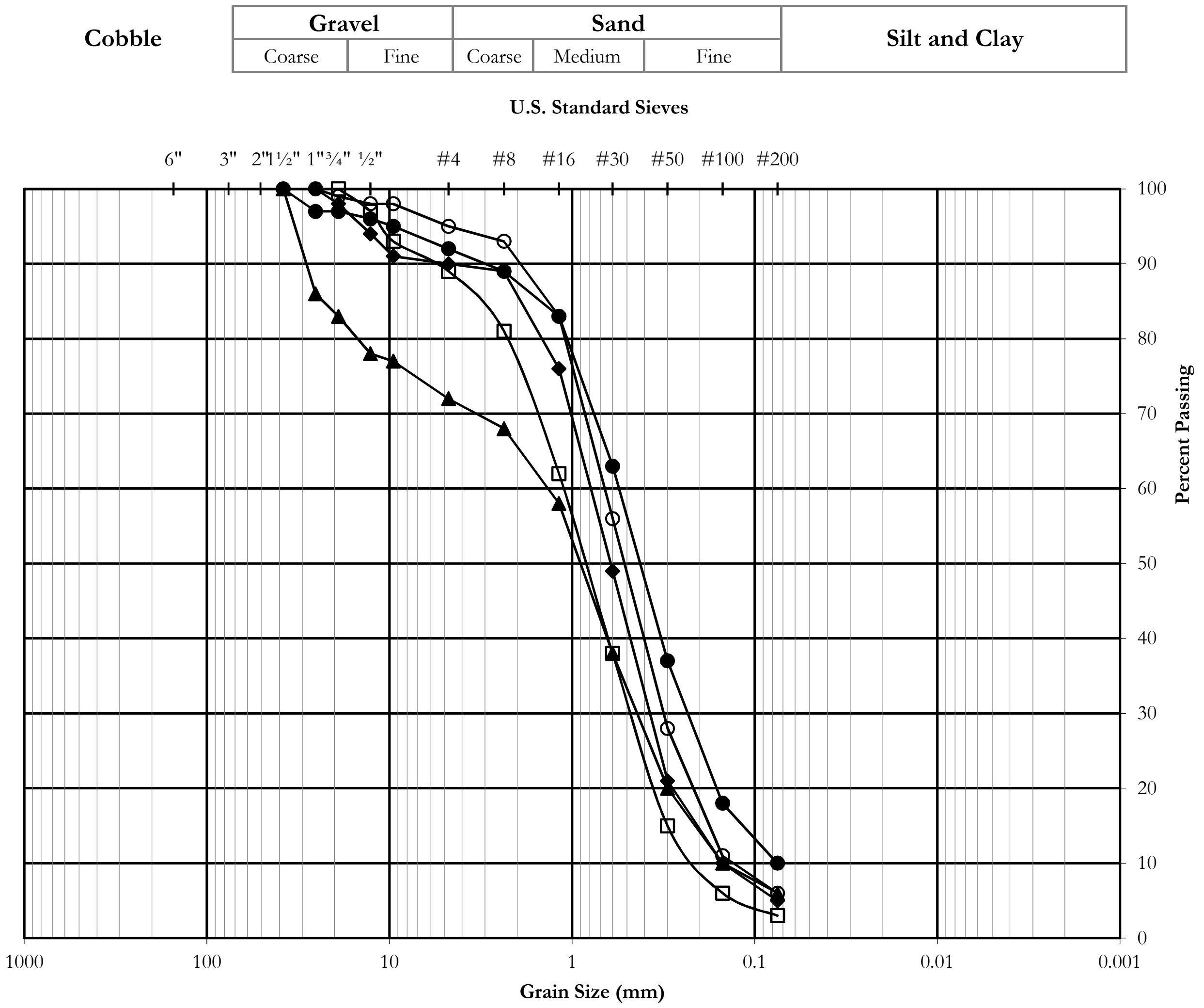
CHRISTIAN WHEELER
ENGINEERING

LABORATORY TEST RESULTS

PROPOSED PARKING STRUCTURE
4575 CAMINO DE LA PLAZA, SAN YSIDRO, CA

PROJECT NO. 2130661
DATE 4/6/15
FIGURE
B7

GRAIN SIZE DISTRIBUTION (ASTM D422)



Symbol	Sample No.	Liquid Limit	Plastic Limit	Plasticity Index	D$_{10}$	D$_{30}$	D$_{60}$	C$_u$	C$_c$	USCS
□	**B-1 @ 20'-21½'**									SP
♦	**B-1 @ 25'-26½'**									SP-SM
○	**B-1 @ 30'-31½'**									SP-SM
▲	**B-1 @ 35'-36½'**									SP-SM
●	**B-1 @ 40'-41½'**									SP-SM

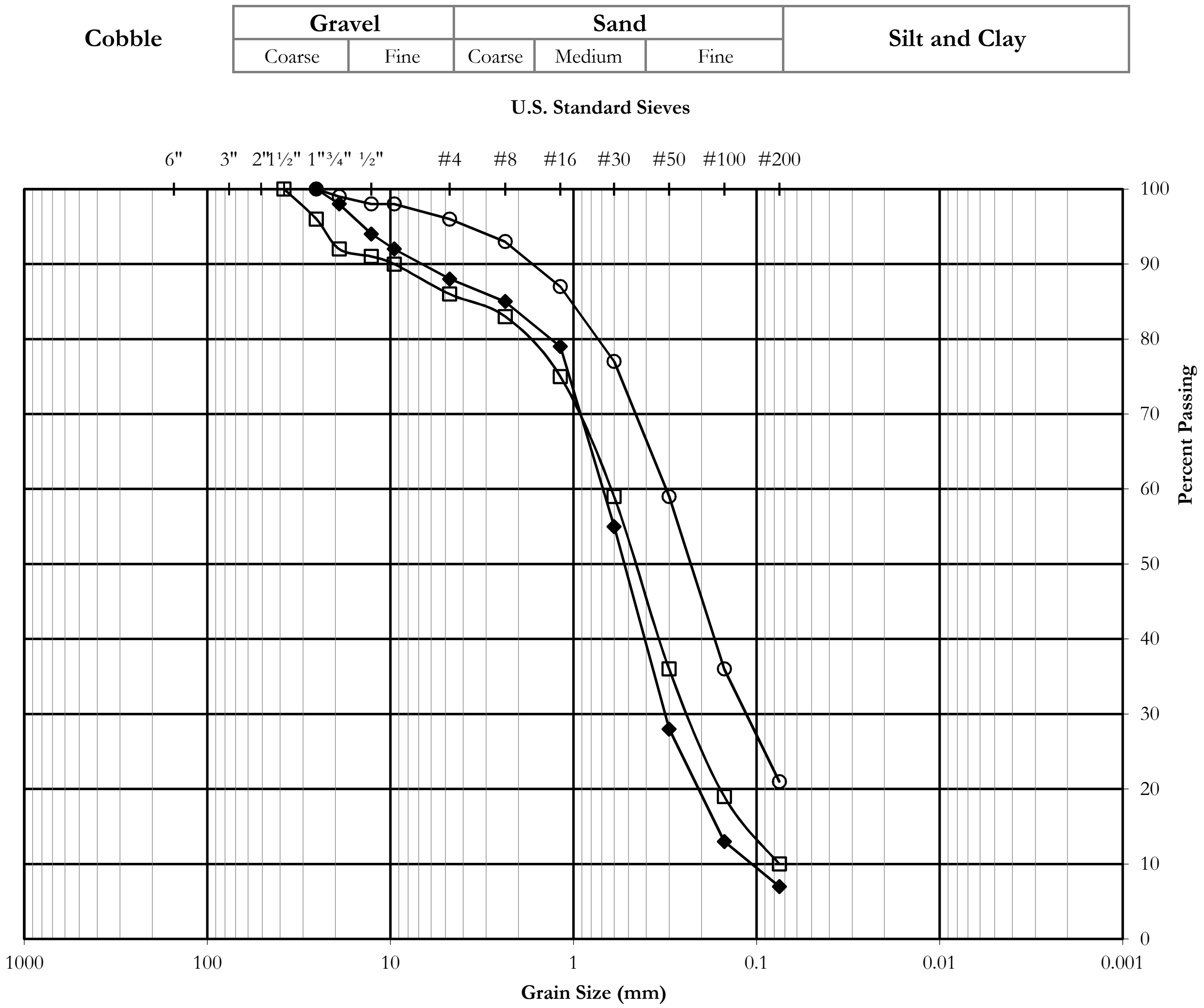
CHRISTIAN WHEELER
ENGINEERING

LABORATORY TEST RESULTS

PROPOSED PARKING STRUCTURE
4575 CAMINO DE LA PLAZA, SAN YSIDRO, CA

PROJECT NO.	2130661
DATE	4/6/15
FIGURE	B8

GRAIN SIZE DISTRIBUTION (ASTM D422)



Symbol	Sample No.	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	USCS
□	**B-1 @ 45'-46½'**									SP-SM
♦	**B-1 @ 50'-51½'**									SP-SM
○	**B-3 @ ½'-3'**									SM

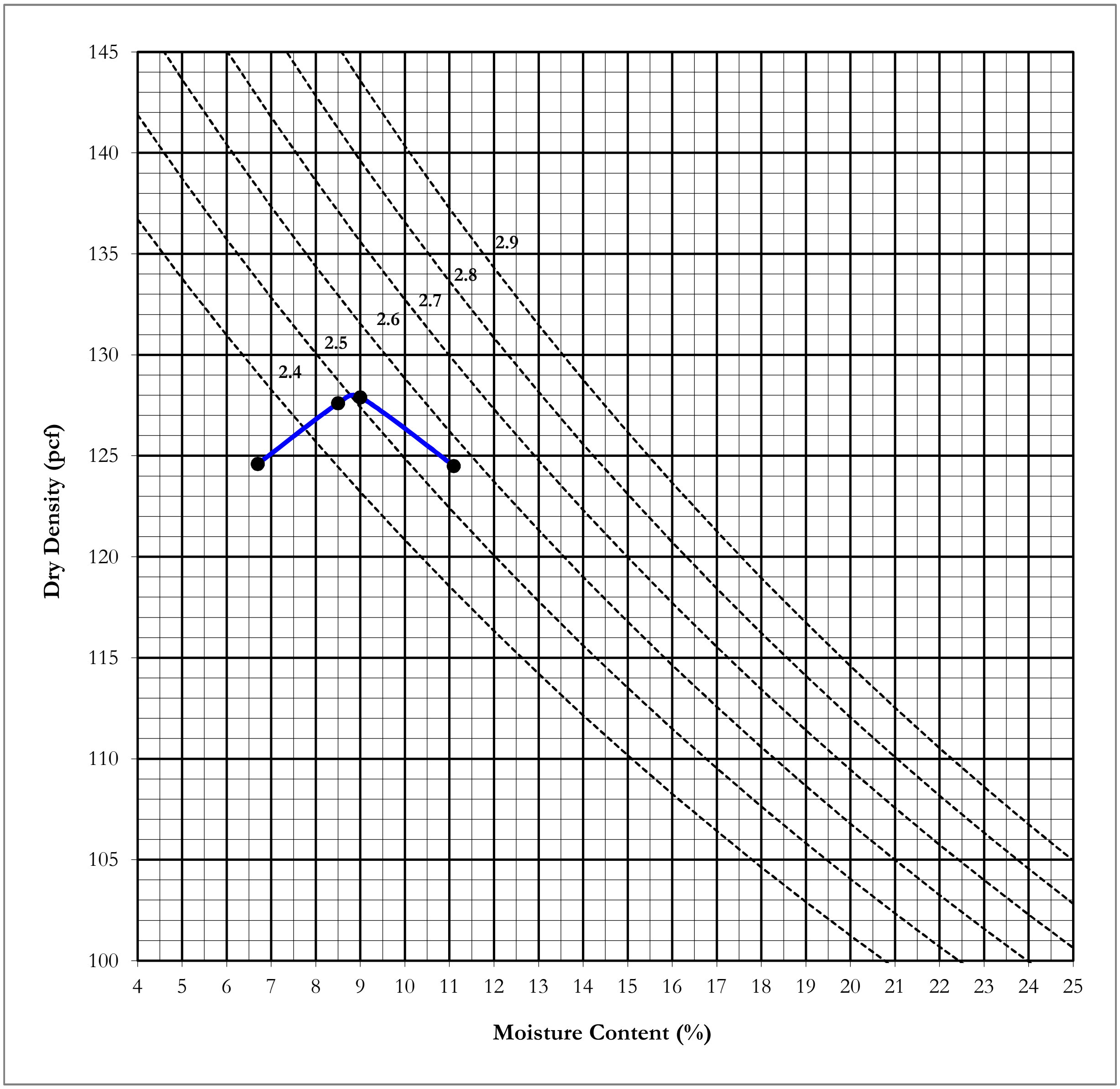
CHRISTIAN WHEELER
ENGINEERING

LABORATORY TEST RESULTS

PROJECT NO. 2130661
DATE 4/6/15
FIGURE
B9

PROPOSED PARKING STRUCTURE
4575 CAMINO DE LA PLAZA, SAN YSIDRO, CA

MAXIMUM DENSITY AND OPTIMUM MOISTURE CONTENT (ASTM D1557)



Sample No	Sample Description	Method	Maximum Dry Density (pcf)	Optimum Moisture Content (%)
B-3 @ ½'-3'	Reddish-brown, silty sand (SM)	A	127.9	9.0

CHRISTIAN WHEELER
ENGINEERING

LABORATORY TEST RESULTS

PROJECT NO. 2130661
DATE 4/6/15

PROPOSED PARKING STRUCTURE
4575 CAMINO DE LA PLAZA, SAN YSIDRO, CA

FIGURE
B10

Appendix C

Liquefaction Analyses

LIQUEFACTION ANALYSIS (Idriss and Boulanger, 2008)

Field Measurements					Soil Classification					Cyclic Stress Ratio, CSR						Cyclic Resistance Ratio, CRR								CRR/CSR
Layer No.	Bottom Elev. (ft)	ΔH (ft)	SPT Depth (ft)	Field N	Soil Type (USCS)	Fines Content (%)	LL	PI	Assumed Non Liquefiable Layer	γ (lb/ft^3)	γ_w (lb/ft^3)	σ_v (lb/ft^2)	σ'_v (lb/ft^2)	r_d	CSR	C_N	C_R	$N_{1,60}$	$N_{1,60,CS}$	MSF	K_σ	$CRR_{7.5,\ 1\ atm}$	CRR	Factor of Safety
1	17.0	17	3.0	15	CL	50			yes	120	0	360	360	0.998	0.272	1.700	0.75	26.3	31.9	--	--	--	--	--
2	23.0	6	21.0	25	SP	3				125	62.4	2540	2290.4	0.921	0.279	0.960	0.95	31.3	31.3	1.17	0.98	0.583	0.671	2.00
3	28.0	5	26.0	17	SP-SM	5				125	62.4	3165	2603.4	0.894	0.297	0.900	0.95	20.0	20.0	1.17	0.97	0.206	0.234	0.79
4	33.0	5	31.0	28	SP-SM	6				125	62.4	3790	2916.4	0.866	0.307	0.851	0.95	31.1	31.1	1.17	0.93	0.566	0.617	2.00
5	38.0	5	36.0	63	SP-SM	6				125	62.4	4415	3229.4	0.838	0.313	0.808	1	70.0	70.0	1.17	0.87	2.000	2.000	2.00
6	43.0	5	41.0	73	SP-SM	10				125	62.4	5040	3542.4	0.809	0.314	0.772	1	77.5	78.6	1.17	0.85	2.000	1.985	2.00
7	48.0	5	46.0	53	SP-SM	10				125	62.4	5665	3855.4	0.780	0.313	0.740	1	53.9	55.1	1.17	0.82	2.000	1.926	2.00
8																								
9																								
10																								
11																								
11																								
11																								
11																								
11																								

INPUT PARAMETERS

Earthquake Magnitude, M_w	6.9
Peak Ground Acceleration (g)	0.42
Depth to Groudwater (ft)	17
Sampler Correction Factor, C_S	1
Borehole Diameter Correction Factor, C_B	1.1
Energy Ratio Correction Factor, C_E	1.25

BORING B-1

VIRGINIA AVENUE PARKNIG STRUCTURE

4575 CAMINO DE LA PLAZA
SAN DIEGO, CALIFORNIA

VERTICAL RECONSOLIDATION

Layer No.	Limiting Shear Strain	Parameter $F\alpha$	Max Shear Strain	Vertical Reconsolidation Strain	ΔSi (in)
1	0.036	-0.219	0.000	0.000	0.00
2	0.039	-0.180	0.000	0.000	0.00
3	0.162	0.518	0.075	0.022	1.30
4	0.040	-0.166	0.000	0.000	0.00
5	0.000	-3.299	0.000	0.000	0.00
6	0.000	-4.070	0.000	0.000	0.00
7	0.000	-2.006	0.000	0.000	0.00
8	0.500	0.948	0.500	0.120	0.00
9	0.500	0.948	0.500	0.120	0.00
10	0.500	0.948	0.500	0.120	0.00
11	0.500	0.948	0.500	0.120	0.00
12	0.500	0.948	0.500	0.120	0.00
13	0.500	0.948	0.500	0.120	0.00
14	0.500	0.948	0.500	0.120	0.00
15	0.500	0.948	0.500	0.120	0.00

Total Settlement = **1.30**

Appendix D

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Appendix E

Recommended Grading Specifications – General Provisions

RECOMMENDED GRADING SPECIFICATIONS - GENERAL PROVISIONS

PROPOSED PARKING STRUCTURE
4575 CAMINO DE LA PLAZA
SAN DIEGO, CALIFORNIA

GENERAL INTENT

The intent of these specifications is to establish procedures for clearing, compacting natural ground, preparing areas to be filled, and placing and compacting fill soils to the lines and grades shown on the accepted plans. The recommendations contained in the preliminary geotechnical investigation report and/or the attached Special Provisions are a part of the Recommended Grading Specifications and shall supersede the provisions contained hereinafter in the case of conflict. These specifications shall only be used in conjunction with the geotechnical report for which they are a part. No deviation from these specifications will be allowed, except where specified in the geotechnical report or in other written communication signed by the Geotechnical Engineer.

OBSERVATION AND TESTING

Christian Wheeler Engineering shall be retained as the Geotechnical Engineer to observe and test the earthwork in accordance with these specifications. It will be necessary that the Geotechnical Engineer or his representative provide adequate observation so that he may provide his opinion as to whether or not the work was accomplished as specified. It shall be the responsibility of the contractor to assist the Geotechnical Engineer and to keep him appraised of work schedules, changes and new information and data so that he may provide these opinions. In the event that any unusual conditions not covered by the special provisions or preliminary geotechnical report are encountered during the grading operations, the Geotechnical Engineer shall be contacted for further recommendations.

If, in the opinion of the Geotechnical Engineer, substandard conditions are encountered, such as questionable or unsuitable soil, unacceptable moisture content, inadequate compaction, adverse weather, etc., construction should be stopped until the conditions are remedied or corrected or he shall recommend rejection of this work.

Tests used to determine the degree of compaction should be performed in accordance with the following American Society for Testing and Materials test methods:

Maximum Density & Optimum Moisture Content - ASTM D-1557-91
Density of Soil In-Place - ASTM D-1556-90 or ASTM D-2922

All densities shall be expressed in terms of Relative Compaction as determined by the foregoing ASTM testing procedures.

PREPARATION OF AREAS TO RECEIVE FILL

All vegetation, brush and debris derived from clearing operations shall be removed, and legally disposed of. All areas disturbed by site grading should be left in a neat and finished appearance, free from unsightly debris.

After clearing or benching the natural ground, the areas to be filled shall be scarified to a depth of 6 inches, brought to the proper moisture content, compacted and tested for the specified minimum degree of compaction. All loose soils in excess of 6 inches thick should be removed to firm natural ground which is defined as natural soil which possesses an in-situ density of at least 90 percent of its maximum dry density.

When the slope of the natural ground receiving fill exceeds 20 percent (5 horizontal units to 1 vertical unit), the original ground shall be stepped or benched. Benches shall be cut to a firm competent formational soil. The lower bench shall be at least 10 feet wide or 1-1/2 times the equipment width, whichever is greater, and shall be sloped back into the hillside at a gradient of not less than two (2) percent. All other benches should be at least 6 feet wide. The horizontal portion of each bench shall be compacted prior to receiving fill as specified herein for compacted natural ground. Ground slopes flatter than 20 percent shall be benched when considered necessary by the Geotechnical Engineer.

Any abandoned buried structures encountered during grading operations must be totally removed. All underground utilities to be abandoned beneath any proposed structure should be removed from within 10 feet of the structure and properly capped off. The resulting depressions from the above described procedure should be backfilled with acceptable soil that is compacted to the requirements of the Geotechnical Engineer. This includes, but is not limited to, septic tanks, fuel tanks, sewer lines or leach lines, storm drains and water lines. Any buried structures or utilities not to be abandoned should be brought to the attention of the Geotechnical Engineer so that he may determine if any special recommendation will be necessary.

All water wells which will be abandoned should be backfilled and capped in accordance to the requirements set forth by the Geotechnical Engineer. The top of the cap should be at least 4 feet below finish grade or 3 feet below the bottom of footing whichever is greater. The type of cap will depend on the diameter of the well and should be determined by the Geotechnical Engineer and/or a qualified Structural Engineer.

FILL MATERIAL

Materials to be placed in the fill shall be approved by the Geotechnical Engineer and shall be free of vegetable matter and other deleterious substances. Granular soil shall contain sufficient fine material to fill the voids. The definition and disposition of oversized rocks and expansive or detrimental soils are covered in the geotechnical report or Special Provisions. Expansive soils, soils of poor gradation, or soils with low strength characteristics may be thoroughly mixed with other soils to provide satisfactory fill material, but only with the explicit consent of the Geotechnical Engineer. Any import material shall be approved by the Geotechnical Engineer before being brought to the site.

PLACING AND COMPACTION OF FILL

Approved fill material shall be placed in areas prepared to receive fill in layers not to exceed 6 inches in compacted thickness. Each layer shall have a uniform moisture content in the range that will allow the compaction effort to be efficiently applied to achieve the specified degree of compaction. Each layer shall be uniformly compacted to the specified minimum degree of compaction with equipment of adequate size to economically compact the layer. Compaction equipment should either be specifically designed for soil compaction or of proven reliability. The minimum degree of compaction to be achieved is specified in either the Special Provisions or the recommendations contained in the preliminary geotechnical investigation report.

When the structural fill material includes rocks, no rocks will be allowed to nest and all voids must be carefully filled with soil such that the minimum degree of compaction recommended in the Special Provisions is achieved. The maximum size and spacing of rock permitted in structural fills and in non-structural fills is discussed in the geotechnical report, when applicable.

Field observation and compaction tests to estimate the degree of compaction of the fill will be taken by the Geotechnical Engineer or his representative. The location and frequency of the tests shall be at the Geotechnical Engineer's discretion. When the compaction test indicates that a particular layer is at less than the required degree of compaction, the layer shall be reworked to the satisfaction of the Geotechnical Engineer and until the desired relative compaction has been obtained.

Fill slopes shall be compacted by means of sheepsfoot rollers or other suitable equipment. Compaction by sheepsfoot roller shall be at vertical intervals of not greater than four feet. In addition, fill slopes at a ratio of two horizontal to one vertical or flatter, should be trackrolled. Steeper fill slopes shall be over-built and cut-back to finish contours after the slope has been constructed. Slope compaction operations shall result in all fill material six or more inches inward from the finished face of the slope having a relative compaction of at least 90 percent of maximum dry density or the degree of compaction specified in the Special Provisions section of this specification. The compaction operation on the slopes shall be continued until the Geotechnical Engineer is of the opinion that the slopes will be surficially stable.

Density tests in the slopes will be made by the Geotechnical Engineer during construction of the slopes to determine if the required compaction is being achieved. Where failing tests occur or other field problems arise, the Contractor will be notified that day of such conditions by written communication from the Geotechnical Engineer or his representative in the form of a daily field report.

If the method of achieving the required slope compaction selected by the Contractor fails to produce the necessary results, the Contractor shall rework or rebuild such slopes until the required degree of compaction is obtained, at no cost to the Owner or Geotechnical Engineer.

CUT SLOPES

The Engineering Geologist shall inspect cut slopes excavated in rock or lithified formational material during the grading operations at intervals determined at his discretion. 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 analyzed by the Engineering Geologist and Geotechnical Engineer to determine if mitigating measures are necessary.

Unless otherwise specified in the geotechnical report, no cut slopes shall be excavated higher or steeper than that allowed by the ordinances of the controlling governmental agency.

ENGINEERING OBSERVATION

Field observation by the Geotechnical Engineer or his representative shall be made during the filling and compaction operations so that he can express his opinion regarding the conformance of the grading with acceptable standards of practice. Neither the presence of the Geotechnical Engineer or his representative or the observation and testing shall release the Grading Contractor from his duty to compact all fill material to the specified degree of compaction.

SEASON LIMITS

Fill shall not be placed during unfavorable weather conditions. When work is interrupted by heavy rain, filling operations shall not be resumed until the proper moisture content and density of the fill materials can be achieved. Damaged site conditions resulting from weather or acts of God shall be repaired before acceptance of work.

RECOMMENDED GRADING SPECIFICATIONS - SPECIAL PROVISIONS

RELATIVE COMPACTION: The minimum degree of compaction to be obtained in compacted natural ground, compacted fill, and compacted backfill shall be at least 90 percent. For street and parking lot subgrade, the upper twelve inches should be compacted to at least 95 percent relative compaction.

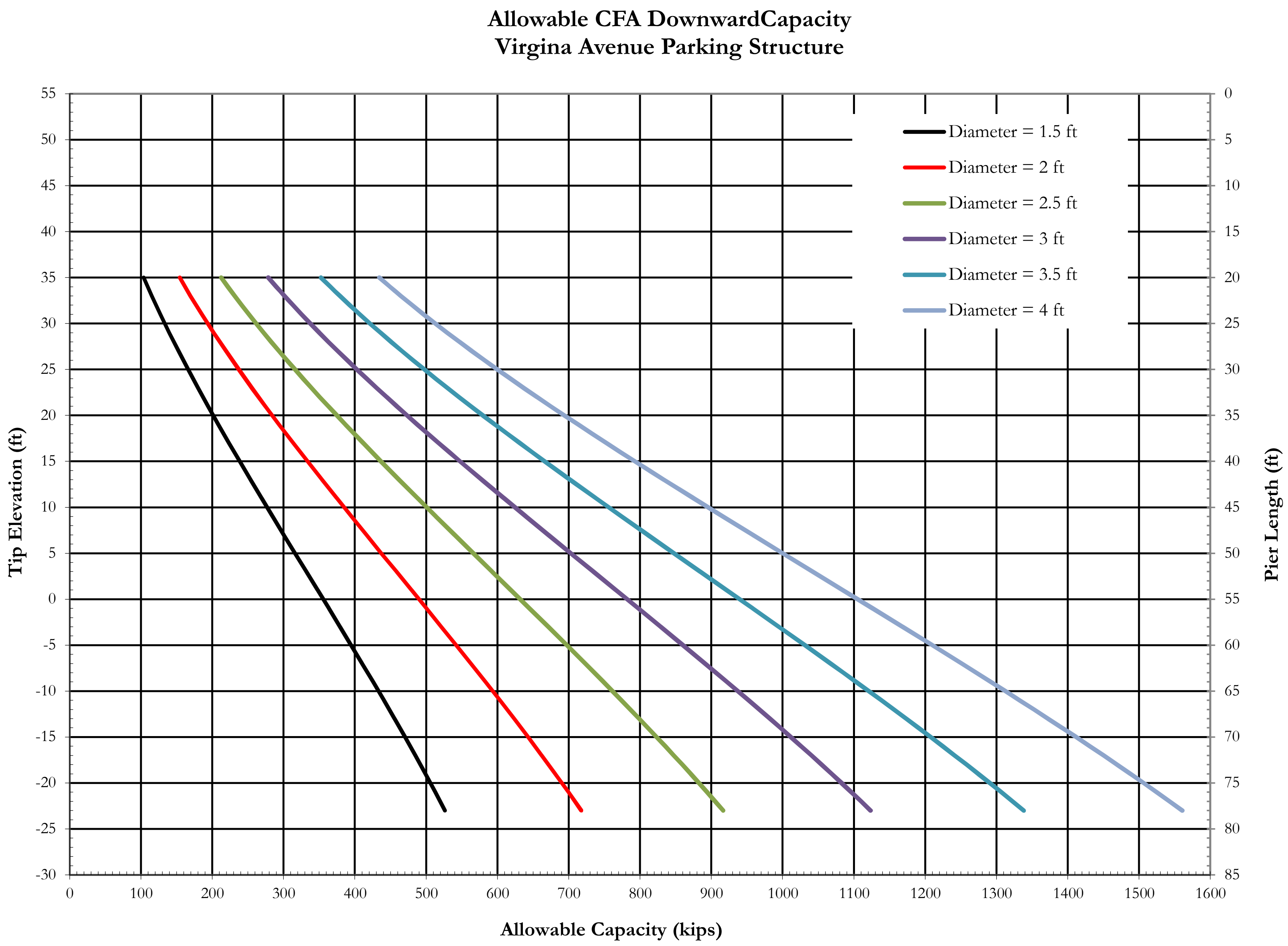
EXPANSIVE SOILS: Detrimentally expansive soil is defined as clayey soil which has an expansion index of 50 or greater when tested in accordance with the American Society of Testing Materials (ASTM) Laboratory Test D4829-95.

OVERSIZED MATERIAL: Oversized fill material is generally defined herein as rocks or lumps of soil over six inches in diameter. Oversized materials should not be placed in fill unless recommendations of placement of such material is provided by the Geotechnical Engineer. At least 40 percent of the fill soils shall pass through a No. 4 U.S. Standard Sieve.

TRANSITION LOTS: Where transitions between cut and fill occur within the proposed building pad, the cut portion should be undercut a minimum of one foot below the base of the proposed footings and recompacted as structural backfill. In certain cases that would be addressed in the geotechnical report, special footing reinforcement or a combination of special footing reinforcement and undercutting may be required.

Appendix F

Continuous Flight Auger Pile Capacities


Allowable CFA DownwardCapacity
Virgina Avenue Parking Structure
Tip Elevation (ft)
Pier Length (ft)
Allowable Capacity (kips)
Diameter = 1.5 ft
Diameter = 2 ft
Diameter = 2.5 ft
Diameter = 3 ft
Diameter = 3.5 ft
Diameter = 4 ft
55
50
45
40
35
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
-30
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
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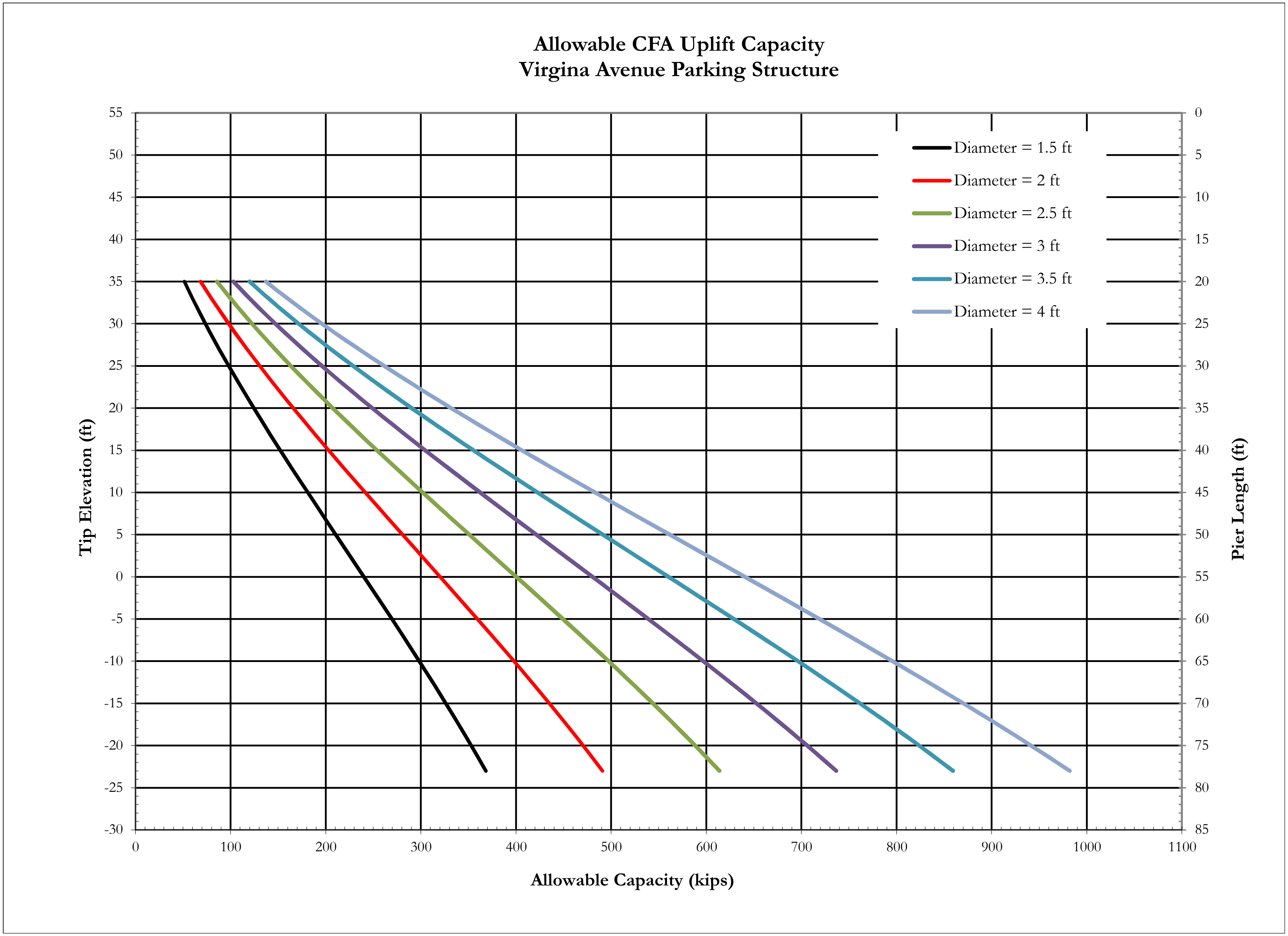
1100
1200
1300
1400
1500
1600


Allowable CFA Uplift Capacity
Virgina Avenue Parking Structure
Tip Elevation (ft)
55
50
45
40
35
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
-30
Pier Length (ft)
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
Allowable Capacity (kips)
0
100
200
300
400
500
600
700
800
900
1000
1100
Diameter = 1.5 ft
Diameter = 2 ft
Diameter = 2.5 ft
Diameter = 3 ft
Diameter = 3.5 ft
Diameter = 4 ft

CHRISTIAN WHEELER
ENGINEERING

July 25, 2016

Baja-Mex Insurance Services, Inc.
4575 Camino De La Plaza
San Ysidro, California 92173
Attention: Fred Sobke

CWE 2130661.03

Subject: **Geotechnical Investigation for Proposed Infiltration Devices**
Virginia Avenue Parking Structure, 4757 Camino De La Plaza, California

References: Christian Wheeler Engineering, 2015, Report of Preliminary Geotechnical Investigation, Virginia Avenue Parking Structure, 4575 Camino De La Plaza, San Ysidro, California, dated April 13, 2015, Report No. 2130661.01.

Preliminary Grading Plan, Virginia Avenue Parking Structure, San Ysidro, CA, by Stuart Engineering, dated August 6, 2014.

Ladies and Gentlemen:

In accordance with your request, we have prepared this report to present the results of our storm water infiltration evaluation at the subject site. In general, the purpose of our investigation was to address the Geotechnical Feasibility Criteria as outlined in Section C.2 of the City BMP Design Manual and to provide design infiltration rates based on percolation rates measured in the field. Additionally, Parts 1 and 2 of Worksheet C.4-1 "Categorization of Infiltration Feasibility Condition" are included as Appendix B of this report.

To assist us in the preparation of this proposal, we were provided with an undated, preliminary BMP Plan by Stuart Engineering. We understand that as part of the storm water management plan, storm water detention chambers will be installed below the pavement in two areas on the site. One area will be located in the northwest portion of the site while the other is in the southwest portion. We understand that the chambers will be set in a matrix of crushed rock and that the bottom of the chamber basin will be approximately 6 feet below the proposed pavement elevation.

FINDINGS

SITE DESCRIPTION

The project area is located southwest of the intersection of Camino De La Plaza and Virginia Avenue in the San Ysidro area of San Diego, California. It is identified by the address of 4575 Camino De La Plaza and Assessor's Parcel Number 666-400-10. The lot currently supports a single-story, wood-frame building in the northeast portion that houses an insurance sales office. The remaining portions of the lot support an asphalt concrete parking lot with landscaped boundaries. We understand that there is a bank of four 36-inch storm drains that traverse the central portion of the property in a westerly direction and then turn towards the south near the western property line. These storm drains appear to be about three to four feet below the existing ground surface. Topographically, the site is relatively level with on-site elevations ranging from about 55 to 57 feet (datum unknown) based on plans provided by Stuart Engineering.

FIELD INVESTIGATION

Four subsurface explorations were made during our original geotechnical investigation on March 6, 2015. These explorations consisted of small-diameter, hollow-stem borings drilled with a truck-mounted drill rig. These borings were extended to depths ranging from about 25 to 54 feet below the existing ground surface. Recent subsurface explorations were made on July 7, 2016 via hand-augering in the areas expected to support the infiltration BMPs. These borings were meant to supplement our original borings and were extended to 16 to 17 feet below the existing ground surface. The approximate locations of the borings are shown on Plate No. 1. The borings were logged in detail with emphasis on describing the soil profile.

GEOLOGIC SETTING AND SOIL DESCRIPTION

The site is underlain by Quaternary-age alluvial deposits that are mantled by a relatively thin layer of artificial fill. At the chamber locations, the fill was found to have an approximate thickness of 2 to 4 feet. As observed within our borings, the fill consists of silty sand (SM). The alluvial deposits typically consist of poorly-graded sand (SP) and well-graded sand with silt (SW-SM).

DEPTH TO GROUNDWATER

Groundwater was measured in each of our exploratory borings during drilling. The water level was allowed to stabilize prior to final measurement. The measured depths ranged from approximately 16 feet, 9 inches to 17 feet, 8 inches below the existing grade. It should be noted that variations in subsurface water (including perched water zones and seepage) may result from fluctuations in the ground surface topography, subsurface stratification, precipitation, irrigation, and other factors that may not have been evident at the time of the investigation.

INFILTRATION RATE MEASUREMENT

Our infiltration testing was performed in four borings that were augered in the planned infiltration areas on May July 7, 2016. The approximate locations of the infiltration borings are shown on Plate No. 1. In each case, the six-inch-diameter borings were augered to a depth of 70 to 72 inches below existing grade and cleaned of all loose material. A four-inch diameter perforated pipe was set in the hole and surrounded by ¾ inch gravel to prevent caving. After pipe installation, the test holes were presoaked. The water dissipated quickly.

The field infiltration rates were determined the same day by using the falling head test method. Each pipe was filled with water and the "Sandy Soil Criteria Test" was performed over two-25 minute periods of time. The tests resulted in water dropping more than 6 inches during each 25 minute period. The initial water level was established by refilling the test holes to near the top of the proposed BMP. The rate of water infiltration was monitored and recorded every 3 to 5 minutes over a period of one hour until the infiltration rates stabilized. Measurements were taken using a water level meter (Solinst, Model 101) with an accuracy measured to 0.005 foot increments (0.06 inch increments). The measured field infiltration rates are presented in Table I.

TABLE I: FIELD INFILTRATION RATES

Test No.	Location	Depth of Testing	Field Infiltration Rate
PT-1	NW Chamber	72 inches	9.3 inches per hour
PT-2	NW Chamber	70 inches	14.2 inches per hour
PT-3	SW Chamber	70 inches	15.7 inches per hour
PT-4	SW Chamber	72 inches	24.9 inches per hour

GEOTECHNICAL FEASIBILITY CRITERIA

GENERAL

Based on the current Storm Water Standards, BMP Design Manual, certain geotechnical criteria need to be addressed when assessing the feasibility and desirability of the use of infiltration BMPs for a project site. Those criteria, Per Section C.2 of the manual, are addressed below.

C2.1 SOIL AND GEOLOGIC CONDITIONS

Site soil and geologic conditions influence the rate at which water can physically enter the soils. Based on the conditions observed in our exploratory borings, the existing soils above the water table in the project area consist of relatively permeable well graded sand with silt (SW-SM) and poorly graded sand (SP). Shallow bedrock, impermeable layers, and/or confining units were not encountered in the subsurface explorations.

C2.2 SETTLEMENT AND VOLUME CHANGE

Settlement and volume change can occur when water is introduced below grade. Based upon the subgrade soil conditions observed in our borings, the infiltration sites are underlain alluvial deposits that are capped by a layer of man-placed fill soil. The man-placed fill soil is subject to a higher potential for hydro-collapse upon wetting while the potential for hydro-collapse within the underlying alluvial deposits is considered to be relatively low. Measurement of the hydro-collapse of three samples under pressure greater than the allowable bearing pressure showed values that were generally less than 0.5 percent.

C2.3 SLOPE STABILITY

Infiltration of water has the potential to increase the risk of failure to nearby slopes. The site is relatively level, and no descending slopes are located within a reasonable proximity of the site. Therefore, the risk of slope failure due to infiltration of stormwater would be considered negligible.

C2.4 UTILITY CONSIDERATIONS

Utilities are either public or private infrastructure components that include underground pipelines, vaults, and wires/conduit, and above ground wiring and associated structures. Infiltration of water can pose a risk to subsurface utilities, or geotechnical hazards can occur within the utility trenches when water is introduced. Existing underground utilities are anticipated within the area of the proposed infiltration BMP. The risk of introducing water into a utility trench would be considered moderate to high depending on the proximity of the storm water BMP to utilities.

C2.5 GROUNDWATER MOUNDING

Groundwater mounding occurs when infiltrated water creates a rise in the groundwater table beneath the facility. Groundwater mounding can affect nearby subterranean structures and utilities. Based on the relatively high permeability of the sandy soils below the site, it is expected that the infiltrated water will readily migrate laterally and that the potential for groundwater mounding is low.

C2.6 RETAINING WALL AND FOUNDATIONS

Infiltration of water can result in potential increases in lateral pressures and potential reduction in soil strength. Retaining walls and foundations can be negatively impacted by these changes in soil conditions. The BMPs will not be located adjacent to existing or planned retaining walls but will be located nearby planned foundations. The risk of a potential increase in lateral pressures and potential reduction in soil strength is expected to be low to moderate and can be mitigated by deepening the foundations adjacent to the storm chambers.

C2.7 OTHER FACTORS: ANTICIPATED FLOW PATH OF INFILTRATED WATER

Subsurface soil conditions can affect infiltration or migration of water towards structures, slopes, utilities or other features. The proposed BMPs will be constructed adjacent to existing pavements, sidewalks, curbs, and gutters that were not designed to accommodate saturated subgrade conditions. As such, the lateral flow of storm water within the fill layer, which supports those surface improvements and is subject to potential hydro-collapse, will need to be prevented. Below the fill, the alluvial deposits are expected to be uniformly sandy with good infiltration characteristics. We anticipate that infiltrated storm water will flow vertically and then migrate laterally once it encounters the groundwater table.

CONCLUSIONS

Based on our investigation, it is our opinion that full infiltration is feasible, from a geotechnical standpoint, for the proposed storm chambers provided the recommendations provided in this report are incorporated into the design and construction. In general, the conclusions listed below were made.

- Field infiltration rates within the alluvial deposits underlying the proposed storm chamber basins were found to be relatively high with values ranging from about 9.3 to 24.9 inches per hour. Design infiltration rates, based on the factors-of-safety presented in Appendix D of the BMP Design Manual, are presented in the Recommendations section of this report.
- Based on a review of our field study and our experience with similar projects, we anticipate that, as long as our recommendations herein are followed, infiltration of storm water utilizing the proposed onsite storm water infiltration BMPs will not result in soil piping, daylight water seepage, or slope instability for the property or project sites down-gradient of the site.
- Hydro-collapse resulting in settlement could occur within the fill soils underlying the surface improvements within about 10 feet of the proposed BMPs. As such, lateral migration of the infiltrated water within the fill soil and any adjacent utility trenches will need to be prevented to protect the surface improvements adjacent to the storm chamber basins. Additionally, the depth of the infiltration layer will need to correspond to at least the top of the alluvial deposits. Provided this is done, we do not anticipate that the infiltration of stormwater will affect the existing structures.
- The proposed storm chamber basins will be located nearby the planned foundations. In order to reduce the effect of potential soil strength reduction, the adjacent footings will need to be deepened to extend below the bottom of the basins.

RECOMMENDATIONS

DESIGN INFILTRATION RATE

The measured percolation rates were converted to infiltration rates using the Porchet Method. The spreadsheet used for the conversion is included in Appendix C of this report. The average infiltration rates of the soil underlying the proposed northwest and southwest storm chambers are 11.7 and 20.3 inches per hour, respectively. Based on the site suitability considerations (soil assessment method, soil type, soil variability, and depth to seasonal high groundwater or impervious layers) and design related considerations (level of pretreatment and expected influent sediment loads, redundancy/resiliency of system, and compaction during construction), we recommend that a factor of safety 4.5 be used for the design infiltration rates for the proposed storm chamber basins. Worksheet D.5-1 "Factor of Safety and Design Infiltration Rate Worksheet," is included in Appendix C of this report for each BMP. Based on this, we recommend that the design infiltration rate of 2.6 and 4.5 inches per hour be used for the proposed northwest and southwest basins, respectively.

INFILTRATION DEPTH AND IMPERMEABLE LINERS

For the storm chambers, we recommend that the depth at which infiltration occurs be at least 5 feet below the existing grade. The portions of the basins that will be constructed above those depths or adjacent/within utility trench backfill should have an impermeable surface on the sides of the BMP to prevent lateral flow into the adjacent fill or utility trench backfill.

DEEPENED FOUNDATIONS

We understand that the planned parking structure will be supported by conventional shallow foundations. In order to mitigate the potential effect of soil strength loss and to provide access for future maintenance, we recommend that the foundations within 10 feet of the proposed storm chamber basins extend to a depth of at least one foot below the bottom of the basin.

ROUTINE MAINTANCE

It should be recognized that routine inspection and maintenance of the BMPs are necessary to prevent clogging and failure. A maintenance plan should be specified for each BMP by the designer and followed by the owner during the entire lifetime of the BMP device.

LIMITATIONS

REVIEW, OBSERVATION AND TESTING

The recommendations presented in this report are contingent upon final plan being submitted to our office for review. The intent of our review will be to verify that the plans used for construction reflect the minimum dimensioning criteria presented above and that no additional criteria are required due to changes in the plans. It is not our intent to review the civil engineering plans, notes, details, or calculations to verify that the engineer has complied with any particular storm water design standards. It is the responsibility of the designer to properly prepare the storm water plan based on the municipal requirements considering the planned site development and infiltration rates.

It is recommended that Christian Wheeler Engineering be retained to provide periodic soil engineering services during the earthwork operations. This is to verify compliance with the design concepts, specifications or recommendations and to allow design changes in the event that subsurface conditions differ from those anticipated prior to start of construction.

UNIFORMITY OF CONDITIONS

The recommendations and opinions expressed in this report reflect our best estimate of the project requirements based on an evaluation of the subsurface soil conditions encountered at the subsurface exploration locations and on the assumption that the soil conditions do not deviate appreciably from those encountered. It should be recognized that the performance of the infiltration devices and adjacent improvements may be influenced by undisclosed or unforeseen variations in the soil conditions that may occur in the intermediate and unexplored areas. Any unusual conditions not covered in this report that may be encountered during site development should be brought to the attention of the geotechnical engineer so that he may make modifications if necessary.

CHANGE IN SCOPE

This office should be advised of any changes in the project scope or proposed site grading so that we may determine if the recommendations contained herein are appropriate. This should be verified in writing or modified by a written addendum.

TIME LIMITATIONS

The findings of this report are valid as of this date. Changes in the condition of a property can, however, occur with the passage of time, whether they be due to natural processes or the work of man on this or adjacent properties. In addition, changes in the Standards-of-Practice and/or Government Codes may occur. Due to such changes, the findings of this report may be invalidated wholly or in part by changes beyond our control. Therefore, this report should not be relied upon after a period of two years without a review by us verifying the suitability of the conclusions and recommendations.

PROFESSIONAL STANDARD

In the performance of our professional services, we comply with that level of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions and in the same locality. The client recognizes that subsurface conditions may vary from those encountered at the locations where our test pits, surveys, and explorations are made, and that our data, interpretations, and recommendations be based solely on the information obtained by us. We will be responsible for those data, interpretations, and recommendations, but shall not be responsible for the interpretations by others of the information developed. Our services consist of professional consultation and observation only, and no warranty of any kind whatsoever, express or implied, is made or intended in connection with the work performed or to be performed by us, or by our proposal for consulting or other services, or by our furnishing of oral or written reports or findings.

CLIENT'S RESPONSIBILITY

It is the client’s responsibility, or its representatives, to ensure that the information and recommendations contained herein are brought to the attention of designer for the project and incorporated into the project's plans and specifications. It is further their responsibility to take the necessary measures to insure that the contractor and his subcontractors carry out such recommendations during construction.

If you should have any questions regarding this report, please do not hesitate to contact this office. This opportunity to be of professional service is sincerely appreciated.

Respectfully submitted,
CHRISTIAN WHEELER ENGINEERING

Troy S. Wilson, CEG #2551

Shawn C. Caya, RGE #2748

SCC:scc;tsw

Attachments: Plate No. 1 – Site Plan and Geotechnical Map
Appendix A – Exploration Logs
Appendix B – Worksheet C4.1
Appendix C – Infiltration Rate and Factor of Safety Determination

Distribution: thenry@stuartengineering.com
fsobkeins@hotmail.com

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No. 2551
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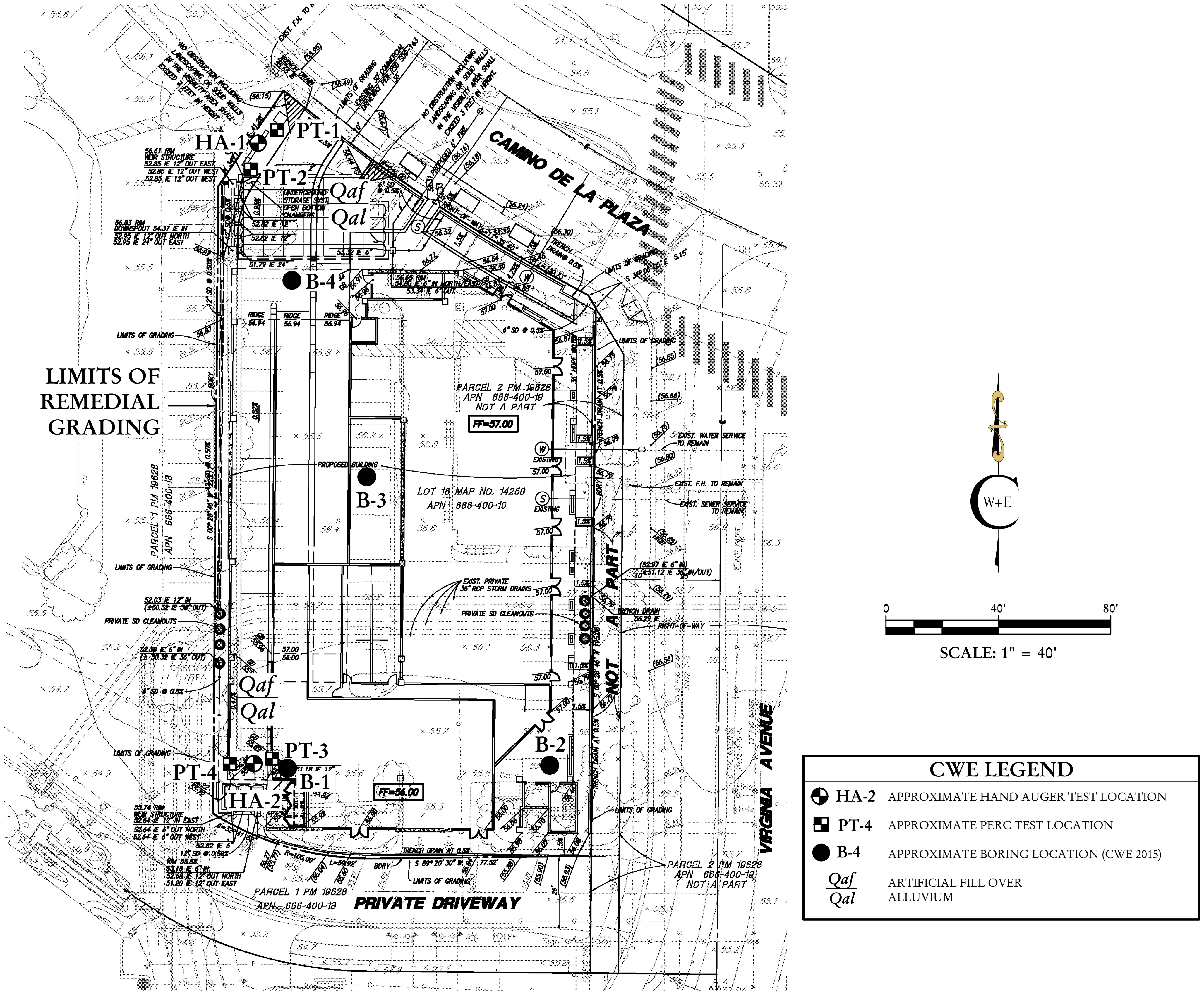
SHAWN C. CAYA
GE2748
EXP. 6/30/2016



CWE LEGEND

HA-2	APPROXIMATE HAND AUGER TEST LOCATION
PT-4	APPROXIMATE PERC TEST LOCATION
● B-4	APPROXIMATE BORING LOCATION (CWE 2015)
Qaf / Qal	ARTIFICIAL FILL OVER ALLUVIUM

SITE PLAN AND GEOTECHNICAL MAP

VIRGINIA AVENUE PARKING STRUCTURE
4575 CAMINO DE LA PLAZA
SAN YSIDRO, CALIFORNIA

DATE:	JULY 2016	REPORT NO.:	2130661.03
BY:	SD	PLATE NO.:	1

CHRISTIAN WHEELER
ENGINEERING

Appendix A

Recent Hand Auger Logs and Previous Boring Logs

LOG OF HAND-AUGER TEST HA-1

Date Logged:	7/7/16	Equipment:	Hand Auger
Logged By:	TSW	Bucket Ty;e:	4 inch
Existing Elevation:	56.0 feet	Drive Type:	N/A
Proposed Elevation:	N/A	Depth to Water:	N/A

Sample Type and Laboratory Test Legend

Cal	Modified California Sampler	CK	Chunk
SPT	Standard Penetration Test	DR	Drive Ring
ST	Shelby Tube		
MD	Max Density	DS	Direct Shear
SO4	Soluble Sulfates	Con	Consolidation
SA	Sieve Analysis	EI	Expansion Index
HA	Hydrometer	R-Val	Resistance Value
SE	Sand Equivalent	Chl	Soluble Chlorides
PI	Plasticity Index	Res	pH & Resistivity
CP	Collapse Potential	SD	Sample Density

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	USCS SYMBOL	SUMMARY OF SUBSURFACE CONDITIONS (based on Unified Soil Classification System)	PENETRATION (blows per foot)	SAMPLE TYPE	BULK	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS
0			SM	**Artificial Fill (Qaf):** Medium brown, moist, loose to medium dense, fine- to coarse-grained, SILTY SAND with gravel- to cobbble-size rocks; minor roots from 0 to 2 feet.							
5			SW-SM	**Alluvium (Qal):** Grayish-brown, moist, medium dense, fine- to coarse-grained, WELL-GRADED SAND with silt and gravel-size rock.			▨				
10			SP	Light brown, moist, medium dense, medium- to coarse-grained, POORLY GRADED SAND with gravel-size rock.			▨				
15			SW-SM	Light brown, moist, medium dense, fine- to coarse-grained, WELL-GRADED SAND with silt and gravel-size rock. Possible gravel lens at 14 to 14.5 feet. Gravel up to 1 inch.			▨				
	▼		SP-SM	Light brown, very moist, medium dense, medium- to coarse-grained, POORLY GRADED SAND with silt and gravel-size rock. Saturated.							
20				Hand auger terminated at 17.5 feet. Groundwater encountered at 17 feet.							
25											
30											

Notes:

Symbol Legend

∇	Groundwater Level During Drilling
▼	Groundwater Level After Drilling
❞	Apparent Seepage
*	No Sample Recovery
**	Non-Representative Blow Count (rocks present)

VIRGINIA AVENUE PARKING STRUCTURE
4575 CAMINO DE LA PLAZA
SAN YSIDRO, CALIFORNIA

DATE:	JULY 2016	JOB NO.:	2130661.03
BY:	SRD	FIGURE NO.:	A-1

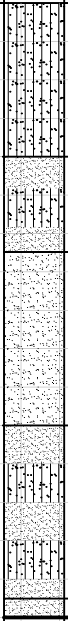
CHRISTIAN WHEELER
ENGINEERING

LOG OF HAND-AUGER TEST HA-2

Date Logged:	7/7/16	Equipment:	Hand Auger
Logged By:	TSW	Bucket Ty;e:	4 inch
Existing Elevation:	56.0 feet	Drive Type:	N/A
Proposed Elevation:	N/A	Depth to Water:	N/A

Sample Type and Laboratory Test Legend

Cal	Modified California Sampler	CK	Chunk
SPT	Standard Penetration Test	DR	Drive Ring
ST	Shelby Tube		
MD	Max Density	DS	Direct Shear
SO4	Soluble Sulfates	Con	Consolidation
SA	Sieve Analysis	EI	Expansion Index
HA	Hydrometer	R-Val	Resistance Value
SE	Sand Equivalent	Chl	Soluble Chlorides
PI	Plasticity Index	Res	pH & Resistivity
CP	Collapse Potential	SD	Sample Density



DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	USCS SYMBOL	SUMMARY OF SUBSURFACE CONDITIONS (based on Unified Soil Classification System)	PENETRATION (blows per foot)	SAMPLE TYPE	BULK	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS
0			SM	**Artificial Fill (Qaf):** Medium brown, moist, loose to medium dense, fine- to coarse-grained, SILTY SAND with gravel- to cobble-size rock; minor roots from 0 to 3 feet.							
5			SW-SM	**Alluvium (Qal):** Grayish-brown, moist, medium dense, fine- to coarse-grained, WELL-GRADED SAND with silt and gravel-size rock.							
10			SP	Light brown, moist, medium dense, medium- to coarse-grained, POORLY GRADED SAND with gravel-size rock.			▨				
15			SW-SM	Light brown, moist, medium dense, fine- to coarse-grained, WELL-GRADED SAND with silt and gravel-size rock.							
				Moist to very moist.							
				Hand auger terminated at 16 feet. No groundwater or seepage encountered.							
20											
25											
30											

Notes:

Symbol Legend

▽	Groundwater Level During Drilling
▼	Groundwater Level After Drilling
❞	Apparent Seepage
*	No Sample Recovery
**	Non-Representative Blow Count (rocks present)

VIRGINIA AVENUE PARKING STRUCTURE
4575 CAMINO DE LA PLAZA
SAN YSIDRO, CALIFORNIA

DATE:	JULY 2016	JOB NO.:	2130661.03
BY:	SRD	FIGURE NO.:	A-2

CHRISTIAN WHEELER
ENGINEERING

LOG OF TEST BORING B-1 (0-30')

Date Drilled:	3/6/15	Equipment:	Mobil B-61
Logged By:	TSW	Auger Type:	3¼-inch Hollow Stem
Existing Elevation:	55½ feet	Drive Type:	140lbs/30 inches
Proposed Elevation:	57 feet	Depth to Water:	16 feet 9 inches

Sample Type and Laboratory Test Legend

Cal	Modified California Sampler	CK	Chunk Density
SPT	Standard Penetration Test	DR	Density Ring
ST	Shelby Tube	NG	Nuclear Gauge Test
MD	Max Density	DS	Direct Shear
SO4	Soluble Sulfates	Con	Consolidation
SA	Sieve Analysis	EI	Expansion Index
HA	Hydrometer	R-Val	Resistance Value
SE	Sand Equivalent	Chl	Soluble Chlorides
PI	Plasticity Index	Res	pH & Resistivity
CP	Collapse Potential		

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	USCS SYMBOL	SUMMARY OF SUBSURFACE CONDITIONS (based on Unified Soil Classification System)	PENETRATION (blows per foot)	SAMPLE TYPE	BULK	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS
0	55½			3" AC over 5" Base.							
			SM	**Artificial Fill (Qaf):** Reddish-brown, moist, medium dense, fine- to coarse-grained, slightly SILTY SAND with gravel-size rock.	57	Cal	▨	7.4	128.8		
5	50½		SW-SM	**Alluvium (Qal):** Grayish-brown, moist, medium dense, fine- to coarse-grained, WELL-GRADED SAND with SILT and gravel-size rock; friable.	32	Cal	▨	5.3	106.6		Con
			SP	Light-brown, moist, medium dense, medium- to coarse-grained, POORLY-GRADED SAND with gravel-size rock.							
10	45½										
			SW-SM	Light-brown, moist, medium dense, fine- to coarse-grained, WELL-GRADED SAND with SILT and gravel-size rock.	23	Cal		2.5	102.2		
15	40½										
	▼			Very moist.	26	Cal		2.5	101.4		
				Saturated.							
			SP-SM	Light-brown, saturated, medium dense, medium- to coarse-grained, POORLY-GRADED SAND with SILT and gravel-size rock. Gravel lens from 19'-20'.							
20	35½				25	SPT	▨				SA
				Possible gravel lens from 23'-24'.							
25	30½				17	SPT	▨				SA
30	25½										

Notes:

Symbol Legend

∇	Groundwater Level During Drilling
▼	Groundwater Level After Drilling
❜❜	Apparent Seepage
*	No Sample Recovery
**	Erroneous Blow Count (rocks present)

VIRGINIA AVENUE PARKING STRUCTURE
4575 CAMINO DE LA PLAZA
SAN YSIDRO, CALIFORNIA

DATE:	APRIL 2015	JOB NO.:	2130661.01
BY:	MWL	FIGURE NO.:	A-1

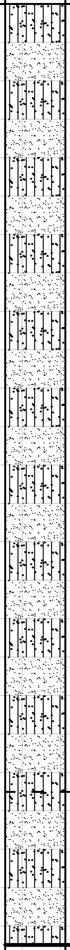
CHRISTIAN WHEELER
ENGINEERING

LOG OF TEST BORING B-1 (30-60')

Date Drilled:	3/6/15	Equipment:	Mobil B-61
Logged By:	TSW	Auger Type:	3¼-inch Hollow Stem
Existing Elevation:	55½ feet	Drive Type:	140lbs/30 inches
Proposed Elevation:	57 feet	Depth to Water:	16 feet 9 inches

Sample Type and Laboratory Test Legend

Cal	Modified California Sampler	CK	Chunk Density
SPT	Standard Penetration Test	DR	Density Ring
ST	Shelby Tube	NG	Nuclear Gauge Test
MD	Max Density	DS	Direct Shear
SO4	Soluble Sulfates	Con	Consolidation
SA	Sieve Analysis	EI	Expansion Index
HA	Hydrometer	R-Val	Resistance Value
SE	Sand Equivalent	Chl	Soluble Chlorides
PI	Plasticity Index	Res	pH & Resistivity
CP	Collapse Potential		



DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	USCS SYMBOL	SUMMARY OF SUBSURFACE CONDITIONS (based on Unified Soil Classification System)	PENETRATION (blows per foot)	SAMPLE TYPE	BULK	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS
30	25½		SP-SM	**Alluvium (Qal):** Light-brown, saturated, medium dense, medium- to coarse-grained, POORLY-GRADED SAND with SILT and gravel-size rock.	28	SPT	■				SA
35	20½			Possible gravel lens from 35½'-36½'.	63	SPT**	■				SA
40	15½				73	SPT	■				SA
45	10½				53	SPT	■				SA
50	5½			Gravel layer from 50½'-54½'.	71	SPT	■				SA
					50/2"	SPT**					
55				Practical drill refusal at 54½ feet. Groundwater encountered at 16 feet 9 inches.							
60											

Notes:

Symbol Legend

▽	Groundwater Level During Drilling
▼	Groundwater Level After Drilling
❜❜	Apparent Seepage
*	No Sample Recovery
**	Erroneous Blow Count (rocks present)

VIRGINIA AVENUE PARKING STRUCTURE
4575 CAMINO DE LA PLAZA
SAN YSIDRO, CALIFORNIA

DATE:	APRIL 2015	JOB NO.:	2130661.01
BY:	MWL	FIGURE NO.:	A-2

CHRISTIAN WHEELER
ENGINEERING

LOG OF TEST BORING B-2

Date Drilled: 3/6/15
Logged By: TSW
Existing Elevation: 56 feet
Proposed Elevation: 57 feet

Equipment: Mobil B-61
Auger Type: 3¼-inch Hollow Stem
Drive Type: 140lbs/30 inches
Depth to Water: 16 feet 11 inches

Sample Type and Laboratory Test Legend

Cal	Modified California Sampler	CK	Chunk Density
SPT	Standard Penetration Test	DR	Density Ring
ST	Shelby Tube	NG	Nuclear Gauge Test
MD	Max Density	DS	Direct Shear
SO4	Soluble Sulfates	Con	Consolidation
SA	Sieve Analysis	EI	Expansion Index
HA	Hydrometer	R-Val	Resistance Value
SE	Sand Equivalent	Chl	Soluble Chlorides
PI	Plasticity Index	Res	pH & Resistivity
CP	Collapse Potential		

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	USCS SYMBOL	SUMMARY OF SUBSURFACE CONDITIONS (based on Unified Soil Classification System)	PENETRATION (blows per foot)	SAMPLE TYPE	BULK	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS
0	56			3" AC over 3" Base.							
			SM	**Artificial Fill (Qaf):** Reddish-brown, moist, medium dense, fine- to coarse-grained, slightly SILTY SAND.	21	Cal	▨	9.1	125.4		
5	51		SW-SM	**Alluvium (Qal):** Grayish-brown, moist, medium dense, fine- to coarse-grained, WELL-GRADED SAND with SILT and gravel-size rock.							
			SP	Light-brown, moist, medium dense, medium- to coarse-grained, POORLY-GRADED SAND with gravel-size rock.							
10	46										
			SW-SM	Light-brown, moist, medium dense, fine- to coarse-grained, WELL-GRADED SAND with SILT and gravel-size rock. Possible gravel lens from 13'-13½'.	19	Cal		4.4	92.3		
15	41										
	▼			Saturated.							
			SP-SM	Light-brown, saturated, medium dense, medium- to coarse-grained, POORLY-GRADED SAND with SILT and gravel-size rock. Possible gravel lens from 18½'-19'.							
20	36				80/8"	Cal		18.7	106.4		
25	31										
30	26				46	Cal		15.8	110.3		
				Boring terminated at 30 feet. Groundwater encountered at 16 feet 11 inches.							

Notes:

Symbol Legend

▽	Groundwater Level During Drilling
▼	Groundwater Level After Drilling
❞	Apparent Seepage
*	No Sample Recovery
**	Erroneous Blow Count (rocks present)

VIRGINIA AVENUE PARKING STRUCTURE
4575 CAMINO DE LA PLAZA
SAN YSIDRO, CALIFORNIA

DATE:	APRIL 2015	JOB NO.:	2130661.01
BY:	MWL	FIGURE NO.:	A-3

CHRISTIAN WHEELER
ENGINEERING

LOG OF TEST BORING B-3

Date Drilled: 3/6/15
Logged By: TSW
Existing Elevation: 56½ feet
Proposed Elevation: 57 feet

Equipment: Mobil B-61
Auger Type: 3¼-inch Hollow Stem
Drive Type: 140lbs/30 inches
Depth to Water: 17 feet 4 inches

Sample Type and Laboratory Test Legend

Cal	Modified California Sampler	CK	Chunk Density
SPT	Standard Penetration Test	DR	Density Ring
ST	Shelby Tube	NG	Nuclear Gauge Test
MD	Max Density	DS	Direct Shear
SO4	Soluble Sulfates	Con	Consolidation
SA	Sieve Analysis	EI	Expansion Index
HA	Hydrometer	R-Val	Resistance Value
SE	Sand Equivalent	Chl	Soluble Chlorides
PI	Plasticity Index	Res	pH & Resistivity
CP	Collapse Potential		

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	USCS SYMBOL	SUMMARY OF SUBSURFACE CONDITIONS (based on Unified Soil Classification System)	PENETRATION (blows per foot)	SAMPLE TYPE	BULK	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS
0	56½			2" AC over 3" Base.							
			SM	**Artificial Fill (Qaf):** Reddish-brown, moist, medium dense, fine- to coarse-grained, slightly SILTY SAND with gravel-size rock.	31	Cal	▨	7.2	120.9		SA MD DS SO4
			SW-SM	**Alluvium (Qal):** Grayish-brown, moist, medium dense, fine- to coarse-grained, WELL-GRADED SAND with SILT and gravel-size rock; friable.			▨				
5	51½						▨				
					25	Cal	▨	5.8	104.7		Con
			SP	Light-brown, moist, medium dense, medium- to coarse-grained, POORLY-GRADED SAND with gravel-size rock.							
10	46½										
			SW-SM	Light-brown, moist, medium dense, fine- to coarse-grained, WELL-GRADED SAND with SILT and gravel-size rock.	24	Cal		3.3	96.9		
			SP-SM	Light-brown, moist, medium dense, medium- to coarse-grained, POORLY-GRADED SAND with SILT and gravel-size rock. Gravel lens from 14'-15'.							
15	41½										
					30	Cal		2.3	101.5		
	▼			Saturated.							
20	36½										
					38	Cal**					
25	31½				50/5"	Cal**					
				Boring terminated at 25½ feet. Groundwater encountered at 17 feet 4 inches.							
30	26½										

Notes:

Symbol Legend

▽	Groundwater Level During Drilling
▼	Groundwater Level After Drilling
❜❜	Apparent Seepage
*	No Sample Recovery
**	Erroneous Blow Count (rocks present)

VIRGINIA AVENUE PARKING STRUCTURE
4575 CAMINO DE LA PLAZA
SAN YSIDRO, CALIFORNIA

DATE: APRIL 2015
JOB NO.: 2130661.01
BY: MWL
FIGURE NO.: A-4

CHRISTIAN WHEELER
ENGINEERING

LOG OF TEST BORING B-4

Date Drilled:	3/6/15	Equipment:	Mobil B-61
Logged By:	TSW	Auger Type:	3¼-inch Hollow Stem
Existing Elevation:	56½ feet	Drive Type:	140lbs/30 inches
Proposed Elevation:	57 feet	Depth to Water:	17 feet 8 inches

Sample Type and Laboratory Test Legend

Cal	Modified California Sampler	CK	Chunk Density
SPT	Standard Penetration Test	DR	Density Ring
ST	Shelby Tube	NG	Nuclear Gauge Test
MD	Max Density	DS	Direct Shear
SO4	Soluble Sulfates	Con	Consolidation
SA	Sieve Analysis	EI	Expansion Index
HA	Hydrometer	R-Val	Resistance Value
SE	Sand Equivalent	Chl	Soluble Chlorides
PI	Plasticity Index	Res	pH & Resistivity
CP	Collapse Potential		

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	USCS SYMBOL	SUMMARY OF SUBSURFACE CONDITIONS (based on Unified Soil Classification System)	PENETRATION (blows per foot)	SAMPLE TYPE	BULK	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS
0	56½			6" AC.							
			SM	**Artificial Fill (Qaf):** Reddish-brown, moist, medium dense, fine- to medium-grained, slightly SILTY SAND with gravel-size rock.							
			SW-SM	**Alluvium (Qal):** Grayish-brown, moist, medium dense, fine- to coarse-grained, WELL-GRADED SAND with SILT and gravel-size rock; friable.	43	Cal	▨	3.0	106.6		
5	51½						▨				
					22	Cal	▨	2.7	96.2		Con
			SP	Light-brown, moist, medium dense, medium- to coarse-grained, POORLY-GRADED SAND with gravel-size rock.							
10	46½										
			SW-SM	Light-brown, moist, medium dense, fine- to coarse-grained, WELL-GRADED SAND with SILT and gravel-size rock.	18	Cal		2.6	97.8		
				Possible gravel lens from 13'-13½'.							
15	41½										
			SP-SM	Light-brown, moist, medium dense, medium- to coarse-grained, POORLY-GRADED SAND with SILT and gravel-size rock.	24	Cal		2.4	103.2		
	▼			Saturated.							
20	36½				42	Cal		13.9	111.7		
25	31½										
					58	Cal		13.4	118.9		
30	26½				59	Cal		15.0	109.1		
				Boring terminated at 30 feet. Groundwater encountered at 17 feet 8 inches.							

Notes:

Symbol Legend

▽	Groundwater Level During Drilling
▼	Groundwater Level After Drilling
❜❜	Apparent Seepage
*	No Sample Recovery
**	Erroneous Blow Count (rocks present)

VIRGINIA AVENUE PARKING STRUCTURE
4575 CAMINO DE LA PLAZA
SAN YSIDRO, CALIFORNIA

DATE:	APRIL 2015	JOB NO.:	2130661.01
BY:	MWL	FIGURE NO.:	A-5

CHRISTIAN WHEELER
ENGINEERING

Appendix B

Worksheet C.4-1: Categorization of Infiltration Feasibility Condition

Worksheet C.4-1: Categorization of Infiltration Feasibility Condition

<table>
<tr><th colspan="2">Categorization of Infiltration Feasibility Condition</th><th colspan="2">Worksheet C.4-1</th></tr>
<tr><td colspan="4">Part 1 - Full Infiltration Feasibility Screening Criteria
Would infiltration of the full design volume be feasible from a physical perspective without any undesirable consequences that cannot be reasonably mitigated?</td></tr>
<tr><td>Criteria</td><td>Screening Question</td><td>Yes</td><td>No</td></tr>
<tr><td>1</td><td>Is the estimated reliable infiltration rate below proposed facility locations greater than 0.5 inches per hour? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.</td><td>X</td><td></td></tr>
<tr><td colspan="4">Provide basis:
Based on our field percolation rate testing, the infiltration rate for each basin area is expected to be above 0.5 inches per hour with the appropriate Factor of Safeties (FOS) included.</td></tr>
<tr><td>2</td><td>Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.</td><td>X</td><td></td></tr>
<tr><td colspan="4">Provide basis:
Based on our subsurface investigation and laboratory testing of collected soil samples, we have determined that infiltration greater than 0.5 inches per hour can be allowed without increasing risk of geotechnical hazards. Minor settlement from hydro-collapse of the fill material can be expected; however, we recommend that the basin sides be lined to a depth of at least 5 feet below grade, which is below the proposed fill depth. Due to the sandy soil conditions at this depth and the absence of continuous, impermeable layers below this, we anticipate the potential for lateral migration to be low.</td></tr>
</table>

Troy S. Wilson, CEG #2551

Appendix C

1) Porchet Method- Percolation to Infiltration Conversion Spreadsheet

2) D.5-1 Worksheet: Factor of Safety and Design Infiltration Worksheets

Percolation to Infiltration Rate Conversion (Porchet Method)

Perc Test #	Gravel Adjustment Factor	Boring Radius (inches)	Depth of Hole Below Existing Grade (inches)	Time Interval (min.)	Height of pipe above surface (feet)	Initial Water Depth without correction (feet)	Final Water Depth without correction (feet)	Initial Water Height with correction (inches), Ho	Final Water Height with correction (inches), Hf	Change in head (inches) Delta H	Average Head Height (inches) Havg	Tested Infiltration Rate (inch/hour)
1	0.64	3	72	3	4.25	6.00	7.70	51.00	30.60	20.40	40.80	9.26
2	0.64	3	70	3.25	4.42	6.00	8.50	51.04	21.04	30.00	36.04	14.16
3	0.64	3	70	5	4.42	6.98	9.73	39.28	6.28	33.00	22.78	15.66
4	0.64	3	72	2.72	4.25	7.00	9.50	39.00	9.00	30.00	24.00	24.91

"Initial and final water depth without correction" are measurements taken from top of pipe if pipe is sticking out of ground (most cases)

"Initial and final water height with correction" factors in the height of pipe above surface, and provides measurement of water above bottom of pipe

If measurements are taken from grade "Height of pipe above surface" = 0

Gravel Adjustment Factor:

- 1.00 - No Gravel Used (No Caving)
- 0.51 - 3/4 inch gravel with 8 inch diameter hole
- 0.64 - 3/4 inch gravel with 6 inch diameter hole

Porchet Method - Tested Percolation Rate Conversion to Tested Infiltration Rate

$$I_t = \frac{\Delta H \; 60 \; r}{\Delta t \; (r+2H_{avg})}$$

I_t = tested infiltration rate, inches per hour

ΔH = change in head over the time interval, inches

Δt = time interval, minutes

r = effective radius of test hole

H_{avg} = average head height over the time interval, inches

Worksheet D.5-1: Factor of Safety and Design Infiltration Rate Worksheet

<table>
<tr><th colspan="4">Factor of Safety and Design Infiltration Rate Worksheet</th><th colspan="2">Worksheet D.5-1</th></tr>
<tr><th colspan="2">Factor Category</th><th>Factor Description</th><th>Assigned Weight (w)</th><th>Factor Value (v)</th><th>Product (p) p = w x v</th></tr>
<tr><td rowspan="5">A</td><td rowspan="5">Suitability Assessment</td><td>Soil assessment methods</td><td>0.25</td><td>2</td><td>0.5</td></tr>
<tr><td>Predominant soil texture</td><td>0.25</td><td>1</td><td>0.25</td></tr>
<tr><td>Site soil variability</td><td>0.25</td><td>1</td><td>0.25</td></tr>
<tr><td>Depth to groundwater / impervious layer</td><td>0.25</td><td>2</td><td>0.5</td></tr>
<tr><td colspan="3">Suitability Assessment Safety Factor, $S_A = \Sigma p$</td><td>1.5</td></tr>
<tr><td rowspan="4">B</td><td rowspan="4">Design</td><td>Level of pretreatment/ expected sediment loads</td><td>0.5</td><td>3</td><td>1.5</td></tr>
<tr><td>Redundancy/resiliency</td><td>0.25</td><td>3</td><td>0.75</td></tr>
<tr><td>Compaction during construction</td><td>0.25</td><td>3</td><td>0.75</td></tr>
<tr><td colspan="3">Design Safety Factor, $S_B = \Sigma p$</td><td>3.0</td></tr>
<tr><td colspan="4">Combined Safety Factor, $S_{total} = S_A \times S_B$</td><td colspan="2">4.5</td></tr>
<tr><td colspan="4">Observed Infiltration Rate, inch/hr, $K_{observed}$
(corrected for test-specific bias)</td><td colspan="2">11.7</td></tr>
<tr><td colspan="4">Design Infiltration Rate, in/hr, $K_{design} = K_{observed} / S_{total}$</td><td colspan="2">2.6</td></tr>
<tr><td colspan="6">Supporting Data</td></tr>
<tr><td colspan="6">Basin No. 1: Falling head percolation test method used. Further description provided in report.</td></tr>
</table>

Worksheet D.5-1: Factor of Safety and Design Infiltration Rate Worksheet

Factor of Safety and Design Infiltration Rate Worksheet			Worksheet D.5-1		
Factor Category		Factor Description	Assigned Weight (w)	Factor Value (v)	Product (p) $p = w \times v$
A	Suitability Assessment	Soil assessment methods	0.25	2	0.5
		Predominant soil texture	0.25	1	0.25
		Site soil variability	0.25	1	0.25
		Depth to groundwater / impervious layer	0.25	2	0.5
		Suitability Assessment Safety Factor, $S_A = \Sigma p$			1.5
B	Design	Level of pretreatment/ expected sediment loads	0.5	3	1.5
		Redundancy/resiliency	0.25	3	0.75
		Compaction during construction	0.25	3	0.75
		Design Safety Factor, $S_B = \Sigma p$			3.0
Combined Safety Factor, $S_{total} = S_A \times S_B$					4.5
Observed Infiltration Rate, inch/hr, $K_{observed}$ (corrected for test-specific bias)					20.3
Design Infiltration Rate, in/hr, $K_{design} = K_{observed} / S_{total}$					4.5
Supporting Data					
Basin No. 2 - Falling head percolation test method used. Further description provided in report.					

Traffic Impact Analysis

Virginia Avenue Parking Structure

San Diego, California
Final Version – November 27, 2017

Prepared For:

Baja-Mex Insurance Services, Inc.
4575 Camino De La Plaza
San Ysidro, CA 92173

Prepared By:

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9255 Dillon Drive
La Mesa, CA 91941
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APPENDIX

EXECUTIVE SUMMARY:

This traffic study documents the traffic impacts associated with the removal of the existing 2,400 s.f. Baja-Mex facility and adjacent parking lot, and the construction of a 283 space "park & walk" parking structure with 3,730 s.f. for Baja-Mex and 9,480 s.f. of retail space, along with the required retail parking with 66 spaces. Based on current scheduling and anticipated approvals, it is expected that this project will complete construction in October, 2019.

This study assumes that the reconstruction of the San Ysidro Land Port-of-entry (LPOE) project, also termed the *Virginia Avenue Pedestrian Facility and Interstate 5 (I-5) Southbound Realignment* project, is fully funded and will be substantially completed by the time this project is constructed. The westerly pedestrian crossing portion of the project was initially opened for northbound pedestrians only. The southbound crossings began on July 31, 2017.

The proposed project has been calculated to generate 2,820 net driveway ADT trips, with 84 AM, and 218 PM peak hour driveway trips (see table below). This was determined by a study, after consultation with City staff, where we performed counts at facilities in the immediate area with uses that approximate those proposed with this development.

Use Proposed	Floor area	Trip rate	ADT (driveway)	AM (in; out) (driveway)	PM (in; out) (driveway)
Baja-Mex	3,730 sf	146/1,000 sf	544	16 (8;8)	54 (27;27)
Retail	9,480 sf	118/1,000 sf	1,118	22 (9;13)	100 (50;50)
Park & walk	283 spaces	5.6/space	1,584	59 (47;12)	102 (51;51)
Totals			**3,246**	**97 (64;33)**	**256 (128;128)**
Existing Baja-Mex	2,400 sf	146/1000sf	350	10 (5;5)	35 (18;18)
Existing park & walk	*	*	76	3 (2;1)	3 (1;2)
Totals			**426**	**13 (7;6)**	**38 (19;19)**
Net driveway trips added			2,820	84 (57;27)	218 (109;109)

*Based on actual transaction data

Based on the analysis contained in this report, the following significant impacts were determined:

Direct Impacts:

There were no direct impacts relative to the development of this project based on the analysis contained in this report.

Cumulative Impacts:

There were no cumulative impacts relative to the development of this project based on the analysis contained in this report.

Construction Traffic Impacts:

There were no significant impacts related to anticipated construction traffic during development of the site.

1.0 Introduction

RCE Traffic Engineering has prepared this study to analyze the potential traffic impacts associated with the proposed Virginia Avenue Parking Structure at the southwest quadrant of the Camino De La Plaza & Virginia Avenue intersection in the San Ysidro Community of the City of San Diego. The project location is shown on Figure 1 (Project Location).

This project will include the removal of the existing 2,400 s.f. Baja-Mex facility and adjacent parking lot, and the construction of a 283 space "park & walk" parking structure along with 3,730 s.f. for Baja-Mex and 9,480 s.f. of retail spaces.

This traffic analysis will study the following conditions:

- Existing Conditions
- Existing + Project Conditions
- Near Term (2019) Conditions
- Near Term (2019) + Project Conditions
- Horizon Year (2035) Conditions
- Horizon Year (2035) + Project Conditions

2.0 Project Description

The project is located in the southwest quadrant of the Camino De La Plaza & Virginia Avenue intersection. The current use of the site is as a Baja-Mex facility with a small "park & walk" facility. Currently, access is provided to the site via one driveway onto Camino De La Plaza and one onto Virginia Avenue. This project will include the removal of the existing 2,400 s.f. Baja-Mex facility and surface parking, and the construction of a 283 space "park & walk" parking structure along with 3,730 s.f. for Baja-Mex and 9,480 s.f. of retail spaces.

Because of the anticipated traffic and pedestrian volumes expected on Virginia Avenue due to the full implementation of the Virginia Avenue Pedestrian Facility and Transit Center, we configured our development to avoid access from Virginia Avenue.

3.0 Project Features

Access to the site will be via a driveway on Camino De La Plaza. Due to the anticipated project trip distribution, the driveway will allow left turns (westbound to southbound) into the site, however, will restrict vehicles exiting the site to right turns only. Due to the proximity of the driveway to the Virginia Avenue intersection, widening and re-striping westbound Camino De La Plaza to provide "side-by-side" turn lanes for left turn stacking between the proposed driveway and the Virginia Avenue intersection is necessary. The widening of the north side of Camino De La Plaza will provide adequate width to add u-turns to the eastbound left turn move at the Camino De La Plaza & Virginia Avenue intersection. Currently u-turns are prohibited. Please see Figure 12 for the proposed striping plan.

4.0 Existing Conditions

4.1 Existing Street Network

The principal roadways in the project area are as follows:

- Camino De La Plaza – within the project area, is classified as a four-lane collector in the current Community Plan. West of Virginia Avenue, Camino De La Plaza is constructed as a four-lane facility with a two-way left-turn lane, and bike lanes but with no shoulders. East of Virginia Avenue, Camino De La Plaza is currently constructed as a four-lane facility with left turn lanes at the signalized intersections.

- Virginia Avenue – is a non-circulation element roadway south of Camino De La Plaza. Currently, Virginia Avenue provides secondary access to the Las Americas Outlets and The Outlets at the Border retail developments via an east-west private driveway located approximately 200 feet south of Camino De La Plaza. Virginia Avenue provides access to a Transit Center which is used as a major drop-off/pick-up point for pedestrians using the pedestrian crossing to travel from Mexico.

4.2 Existing Traffic Volumes

4.2.1 Street Segment Volumes

Figure 3 shows the existing daily traffic volumes (ADT) of Camino De La Plaza. These volumes were compiled by Pacific Technical Data on Wednesday, April 12, 2017. Please refer to Appendix A for the actual count sheets.

4.2.2 Peak Hour Intersection Volumes

Figure 3 also shows the existing intersection volumes of all approaches and turn moves. These volumes were compiled by Pacific Technical Data on Wednesday April 12, 2017. Please refer to Appendix A for the vehicle count sheets and Appendix H for pedestrian count sheets.

5.0 Study Area

In order to determine the limits of the study area for this project, we assigned the project generated traffic onto the surrounding street system as shown on Figure 4.

The project trips were assigned based on the following assumptions:

1. The trips associated with the proposed "park & walk" portion of this project will divert from the recently removed 1,178 space park & walk lot located south of the I-5/Camino De La Plaza intersection. This existing parking has been removed in conjunction with the Port of Entry realignment project.

2. The Retail portion of this project will be reduced by a 50% pass-by rate to determine the impacts to adjacent streets and intersections. This is in conformance with the City of San Diego's Trip Generation Manual for Convenience Markets, and the assumption that the majority of business will come from border crossing pedestrians and users of the new park & walk facility.

Based on the above assumptions, we have prepared the attached Figures 4 & 5. Figure 4 shows the project trip distribution, and Figure 5 assigns project generated peak hour and ADT trips to this distribution.

Based on the City of San Diego "Traffic Impact Study Manual" guidelines, all intersections, street segments and freeway segments to which the project would add 50 or more peak hour trips in either direction are to be included in the study area.

As can be clearly seen from Figure 5, the only intersection or segment that receives 50 or more peak hour trips is the Camino De La Plaza & Virginia Avenue intersection. The following is a list of the study area facilities to be studied:

Intersections:

- Camino De La Plaza & Virginia Avenue
- Camino De La Plaza & Project Driveway

Street Segments:

- Camino De La Plaza – east and west of the Virginia Avenue intersection

6.0 Analysis Scenarios

This traffic analysis will study the following conditions:

- Existing Conditions
- Existing + Project Conditions
- Near Term Conditions
- Near Term + Project Conditions
- Horizon Year (2035) Conditions
- Horizon Year (2035) + Project Conditions

7.0 Analysis Approach and Methodology

7.1 Level of Service Methodology

The Level of Service (LOS) is a qualitative measure used to describe the operational conditions within a traffic stream, and a motorist and/or passenger's perception of the performance of the roadway. LOS is designated a letter from A to F, with LOS A representing the best operating conditions and LOS F the worst. LOS D is considered acceptable for peak hour operating conditions by the City of San Diego.

7.1.1 Roadway Level of Service

Circulation element roadways within the study area were evaluated using the City of San Diego's "Roadway Classifications, Levels of Service (LOS) and Average Daily Traffic (ADT)" table. See Appendix B. This methodology compares daily traffic volumes to roadway classifications to determine the approximate daily street segment level of service. This methodology is based on generalized assumptions regarding roadway design and traffic compositions and often does not accurately reflect peak hour operating characteristics. It is intended to be used as a guide to help determine roadway classifications and sizing. The acceptable level of service standard for roadways in San Diego is level of service D.

7.1.2 Intersection Level of Service

Intersection levels of service were evaluated using the 2000 Highway Capacity Manual methods for signalized and unsignalized intersections. The University of Florida Transportation Research Center's Highway Capacity Software program was used in analyzing the intersections within the study area.

The acceptable level of service for intersections in San Diego is LOS D. If the delay at an existing intersection declines to LOS E (unstable flow) or worse, it is considered an unacceptable condition by the City.

8.0 Significance Criteria

According to the City of San Diego's "Significance Determination Thresholds" (January 2011), a project is considered to have a significant impact if the addition of project traffic to the street system would decrease their operations by thresholds defined in Table 7.1 below. The impacts are either "direct" or "cumulative" depending on the following definitions:

> "Direct Traffic Impacts are those projected to occur at the time a proposed development becomes operational, including other developments not presently operational but which are anticipated to be operational at the time (near time)."
>
> "Cumulative Traffic Impacts are those projected to occur at some point after a proposed development becomes operational, such as during subsequent phases of a project and when additional proposed developments in the area become operational (short-term cumulative) or when the affected community plan area reaches full planned build out (long-term cumulative)."

Table 8.1

Level of Service with Project*	Allowable Change Due To Project Impact**					
	Freeways		Roadway Segments		Intersections	Ramp Metering
	V/C	Speed (mph)	V/C	Speed (mph)	Delay (sec.)	Delay (min.)
E (or ramp meter delays above 15 min.)	0.010	1.0	0.02	1.0	2.0	2.0
F (or ramp meter delays above 15 min.)	0.005	0.5	0.01	0.5	1.0	1.0

*All LOS measurements are based upon Highway Capacity Manual procedures for peak-hour conditions. However, V/C ratios for roadway segments are estimated on an ADT/24-hour traffic volume basis (using Table 2 of the City's Traffic Impact Study Manual. The acceptable LOS for freeways, roadways, and intersections is generally LOS "D" (LOS "C" for undeveloped locations). For metered freeway ramps, LOS does not apply. However, ramp meter delays above 15 minutes are considered excessive.

**IF a proposed project's traffic causes the values shown in the table to be exceeded, the impacts are determined to be significant. The project applicant shall then identify feasible improvements (within the Traffic Impact Study) that will restore/and maintain the traffic facility to an acceptable LOS. If the LOS with the proposed project becomes unacceptable (see above * note), or if the project adds a significant number of peak-hour trips to cause any traffic queues to exceed on-ramp or off-ramp storage capacities, the project applicant shall be responsible for mitigating the project's direct significant and/or cumulatively considerable traffic impacts.

9.0 Analysis of Existing Conditions

9.1 Peak Hour Intersection Level of Service

Currently, the intersection of Camino De La Plaza and Virginia Avenue operates at LOS C during the AM peak hour and LOS D during the PM Peak hour. This is considered acceptable under the City of San Diego guidelines. Please see Appendix D for LOS calculations and Appendix I for existing signal timing sheets.

9.2 Street Segment Level of Service

Currently, the street segment of Camino De La Plaza west of Virginia Avenue operates at LOS C and the segment east of Virginia Avenue operates at LOS D.

Table 9.1
EXISTING INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Without Project	
			Delay (sec)	LOS
Camino De La Plaza & Virginia Avenue	Signal	AM	31.1	C
		PM	37.6	D
Camino De La Plaza & site driveway (w/b left turn delay)	Right and left in, right out	AM	7.5	A
		PM	8.7	A

Table 9.2
EXISTING STREET SEGMENT OPERATIONS

Street Segment	Functional Classification	Existing Capacity (LOS E)	Without Project		
			ADT	V/C	LOS
Camino De La Plaza (West of Virginia Avenue)	4-Lane Collector	30,000	19,754	0.658	C
Camino De La Plaza (east of Virginia Avenue)	4-Lane Collector	30,000	23,472	0.782	D

10.0 Cumulative Projects

Based on consultation with City staff, it has been determined that the only pending project at the time of the traffic counts which will directly impact the study area of this report is the opening of the southbound pedestrian facility of the *Interstate 5 (I-5) Southbound Realignment and Virginia Avenue Pedestrian Facility* project. This cumulative project is estimated to increase traffic to the area to access the new pedestrian crossing into Mexico via the Camino De La Plaza & Virginia Avenue intersection.

The existing traffic counts were taken on April 12, 2017. At that time, only the northbound pedestrian crossings were operational. Since that time, southbound crossings have been opened (July 31, 2017). To account for this change in the near term scenario, this analysis has used the projected traffic volumes contained in the approved *San Ysidro Community Plan Update Traffic Impact Study* prepared by Kimley Horn, dated June 2016. This is a very conservative approach since it assumes that 2035 volumes will appear in the near term scenario. See Appendix F for these figures.

11.0 Project Generated Traffic

11.1 Project Trip Generation

Because this area is not similar to other areas within the City in relation to traffic and pedestrian activities, it was determined that the City of San Diego Trip Generation Rates would not provide an accurate estimate of the traffic generation related to this development.

Based on the field surveys and counts of existing facilities (please see Appendix E for the detailed Project Trip Generation Summary), we determined an appropriate ADT (Average Daily Traffic) rate and peak hour rates for the three main uses proposed. The results of calculating these rates for the proposed development and subtracting out the existing site use, we calculated the following net driveway trip rates based on the site data on the Site Plan.

ADT = 2,820 trips
AM peak = 84 (57 in; 27 out)
PM peak = 218 (109 in; 109 out)

Please see Table 11.1 for trip generation calculations.

Table 11.1
Trip Generation Calculations

Use Proposed	Floor area	Trip rate	ADT (driveway)	AM (in; out) (driveway)	PM (in; out) (driveway)
Baja-Mex	3,730 sf	146/1,000 sf	544	16 (8;8)	54 (27;27)
Retail	9,480 sf	118/1,000 sf	1,118	22 (9;13)	100 (50;50)
Park & walk	283 spaces	5.6/space	1,584	59 (47;12)	102 (51;51)
Totals			**3,246**	**97 (64;33)**	**256 (128;128)**
Existing Baja-Mex	2,400 sf	146/1000sf	350	10 (5;5)	35 (18;18)
Existing park & walk	*	*	76	3 (2;1)	3 (1;2)
Totals			**426**	**13 (7;6)**	**38 (19;19)**
Net driveway trips			2,820	84 (57;27)	218 (109;109)

*Based on actual transaction data

11.2 Project Trip Distribution and Assignment

In order to assess the project related traffic impacts on the surrounding street system we assigned the calculated trips as shown in Figures 4 & 5.

The project trips were assigned based on the following assumptions:

1. The trips associated with the proposed "park & walk" portion of this project will divert from the recently closed park & walk lot located south of the I-5/Camino De La Plaza intersection. This existing parking was closed in conjunction with the Port of Entry realignment project. Therefore, we have assumed that the background traffic for the proposed "park & walk" facility is already on the surrounding roadway network. When the existing traffic counts were taken (April 12, 2017), only the northbound pedestrian crossing

was open. Because of this, we have assumed that only 50% of the peak hour traffic volumes expected for the proposed "park & walk" portion of this project were passing through the Camino De La Plaza & Virginia Avenue intersection when the counts were taken.

2. The Retail portion of this project will be reduced by a 50% pass-by rate to determine the impacts to adjacent streets and intersections. This is in conformance with the City of San Diego's Trip Generation Manual for Convenience Markets, and the assumption that the majority of business will come from border crossing pedestrians and users of the new park & walk facility.

Figure 4 shows the project trip distribution, and Figure 5 assigns project generated peak hour and ADT trips to this distribution.

12.0 Analysis of Existing + Project Scenario

12.1 Peak Hour Intersection Level of Service

We added the project trips to the existing volumes to determine if the project will have any significant impacts to the project area intersections. Figure 6 summarizes these existing + project traffic volumes for the study area.

Calculations show that the intersection of Camino De La Plaza and Virginia Avenue will continue to operate at LOS C during the AM Peak hour and LOS D during the PM Peak hour. The westbound left turn move at the project driveway and Camino De La Plaza is calculated to operate at LOS A during the AM and PM Peak hour. This is considered acceptable under the City of San Diego guidelines.

Please see Appendix D for LOS calculations.

12.2 Street Segment Level of Service

Comparing the anticipated street segment volumes with the City of San Diego's roadway capacity chart (Appendix B), the street segment of Camino De La Plaza west of Virginia Avenue will continue to operate at LOS C and the segment east of Virginia Avenue will continue to operate at LOS D; however, since the increase in volume to capacity does not exceed 0.020 this is considered acceptable under the City of San Diego guidelines.

Table 12.1
EXISTING + PROJECT INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Without Project		With Project		Increase (Delay)	Impact Type
			Delay	LOS	Delay	LOS		
Camino De La Plaza & Virginia Avenue	Signal	AM	31.1	C	31.1	C	0.0	None
		PM	37.6	D	38.5	D	0.9	None
Camino De La Plaza & Project Driveway (w/b left turn delay)	Left & Right in/Right out	AM	7.5	A	7.7	A	0.2	None
		PM	8.7	A	8.8	A	0.1	None

Table 12.2
EXISTING + PROJECT STREET SEGMENT OPERATIONS

Street Segment	Functional Classification	Existing Capacity (LOS E)	Without Project			With Project			Increase (V/C)	Impact Type
			ADT	V/C	LOS	ADT	V/C	LOS		
Camino De La Plaza (West of Virginia Avenue)	4-Lane Collector	30,000	19,754	0.658	C	19,822	0.661	C	0.003	None
Camino De La Plaza (east of Virginia Avenue)	4-Lane Collector	30,000	23,472	0.782	D	24,081	0.802	D	0.020	None

13.0 Analysis of Near Term (2019) Scenario

13.1 Peak Hour Intersection Level of Service

The U.S. General Services Administration (GSA) is in the process of implementing the reconfiguration and expansion of the existing San Ysidro Land Port of Entry (LPOE) to improve the overall capacity and operational efficiency. This involved the construction of a second (western) pedestrian crossing at Virginia Avenue.

Currently the pedestrian crossing is operational, however when traffic counts were taken, only the northbound pedestrian crossing was open. The addition of this southbound pedestrian crossing will increase pedestrian activities in the direct vicinity of this project.

To be conservative for this analysis, we have used the turn volumes shown for horizon year 2035 in the *San Ysidro Community Plan Update Traffic Impact Study*.

Figure 7 summarizes these cumulative traffic volumes; Figure 8 shows near term traffic volumes for the study area.

Calculations show that the intersection of Camino De La Plaza and Virginia Avenue will operate at LOS D during the AM Peak hour and degrade to LOS E during the PM Peak hour.

Please see Appendix D for LOS calculations.

13.2 Street Segment Level of Service

Comparing the anticipated street segment volumes with the City of San Diego's roadway capacity chart (Appendix B), the street segment of Camino De La Plaza west of Virginia Avenue will operate at LOS C and the segment east of Virginia Avenue will degrade to LOS E.

14.0 Analysis of Near Term (2019) + Project Scenario

14.1 Peak Hour Intersection Level of Service

For this analysis, we added the project traffic to the near term volumes.

Figure 9 summarizes these near term + project traffic volumes.

Calculations show that the intersection of Camino De La Plaza and Virginia Avenue will continue to operate at LOS D during the AM Peak hour and LOS E during the PM Peak hour. Since the increase in volume to capacity does not exceed 0.020 this is considered acceptable under the City of San Diego guidelines. At the driveway to the project, the westbound left turn move is calculated to operate at LOS A during the AM and PM Peak hours. This is considered acceptable under the City of San Diego guidelines. Please see Appendix D for LOS calculations.

14.2 Street Segment Level of Service

Comparing the anticipated street segment volumes with the City of San Diego's roadway capacity chart (Appendix B), the street segment of Camino De La Plaza west of Virginia Avenue will continue to operate at LOS D and the segment east of Virginia Avenue will continue to operate at LOS E after addition of project trips. Because the increase in volume/capacity (v/c) due to the addition of project traffic does not exceed 0.020, this is considered acceptable under the City of San Diego guidelines. Please see Appendix D for LOS calculations.

Table 14.1
NEAR TERM INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Without Project		With Project		Increase (Delay)	Impact Type
			Delay	LOS	Delay	LOS		
Camino De La Plaza & Virginia Avenue	Signal	AM	41.4	D	41.5	D	0.1	None
		PM	70.8	E	70.8	E	0.0	None
Camino De La Plaza & Project Driveway (w/b left turn delay)	Left & Right in/Right out	AM	7.7	A	7.8	A	0.1	None
		PM	8.8	A	9.3	A	0.5	None

Table 14.2
NEAR TERM STREET SEGMENT OPERATIONS

Street Segment	Functional Clas-sification	Existing Capacity (LOS E)	Without Project			With Project			Increase (V/C)	Impact Type
			ADT	V/C	LOS	ADT	V/C	LOS		
Camino De La Plaza (West of Virginia Avenue)	4-Lane Collector	30,000	20,254	0.675	D	20,322	0.682	D	0.007	None
Camino De La Plaza (east of Virginia Avenue)	4-Lane Collector	30,000	26,172	0.872	E	26,781	0.892	E	0.020	None

15.0 Analysis of Horizon Year (2035) (without project) Scenario

15.1 Peak Hour Intersection Level of Service

For this analysis, we have utilized the long-term project traffic volumes contained in the *San Ysidro Community Plan Update Traffic Impact Study* prepared by Kimley Horn, dated June 2016. Refer to Appendix F for this figure.

After reviewing the above referenced Study, it was determined that the future development of the parking area located on the north side of Camino De La Plaza will have access to the north leg of the Camino De La Plaza & Virginia Avenue intersection, and the recently constructed "Outlets at the Border" development has access to the south leg of the intersection. As such, we have added projected traffic turn volumes for both of those projects to the volumes shown in the Study.

Figure 10 summarizes these Horizon Year (2035) (without project) traffic volumes.

Calculations show that the intersection of Camino De La Plaza and Virginia Avenue will continue to operate at LOS D during the AM Peak hour and LOS E during the PM Peak hour. This is considered unacceptable under the City of San Diego guidelines. Please see Appendix D for LOS calculations.

15.2 Street Segment Level of Service

Comparing the anticipated street segment volumes with the City of San Diego's roadway capacity chart (Appendix B), the street segments of Camino De La Plaza east and west of Virginia Avenue will operate at LOS E. This is considered unacceptable under the City of San Diego guidelines. Please see Appendix D for LOS calculations.

16.0 Analysis of Horizon Year (2035) + project Scenario

16.1 Peak Hour Intersection Level of Service

For this analysis, we added the project traffic to the year 2035 traffic volumes. Figure 11 summarizes these Horizon Year (2035) + project traffic volumes.

Calculations show that the intersection of Camino De La Plaza and Virginia Avenue will continue to operate at LOS D during the AM Peak hour and LOS E during the PM Peak hour. Because the increase in delay related to the addition of project trips is less than 2 seconds, this is considered acceptable under the City of San Diego guidelines. At the driveway to the project, the westbound left turn move is calculated to continue to operate at LOS A during the AM Peak hour and LOS B during the PM Peak hours. Please see Appendix D for LOS calculations.

16.2 Street Segment Level of Service

Comparing the anticipated street segment volumes with the City of San Diego's roadway capacity chart (Appendix B), the street segment of Camino De La Plaza east and west of Virginia Avenue will continue to operate at LOS E. Please see Appendix D for LOS calculations. Because the increase in volume/capacity (v/c) due to the addition of project traffic does not exceed 0.020, this is considered acceptable under the City of San Diego guidelines.

Table 16.1
HORIZON YEAR (2035) INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Without Project		With Project		Increase (Delay)	Impact Type
			Delay	LOS	Delay	LOS		
Camino De La Plaza & Virginia Avenue	Signal	AM	42.8	D	42.9	D	0.1	None
		PM	63.4	E	64.7	E	1.3	None
Camino De La Plaza & Project Driveway (w/b left turn delay)	Left & Right in/Right out	AM	8.1	A	9.1	A	1.0	None
		PM	10.6	B	11.8	B	1.2	None

Table 16.2
HORIZON YEAR (2035) STREET SEGMENT OPERATIONS

Street Segment	Functional Clas-sification	Existing Capacity (LOS E)	Without Project			With Project			Increase (V/C)	Impact Type
			ADT	V/C	LOS	ADT	V/C	LOS		
Camino De La Plaza (West of Virginia Avenue)	4-Lane Collector	30,000	28,500	0.950	E	28,568	0.952	E	0.002	None
Camino De La Plaza (east of Virginia Avenue)	4-Lane Collector	30,000	28,500	0.950	E	29,109	0.970	E	0.020	None

17.0 Other Items Studied

17.1 Queuing Analysis

Due to the location of the proposed driveway access to the project, the queuing of the left turns into the project and the eastbound to northbound left turns at the Virginia Avenue & Camino De La Plaza intersection is of concern. The project is proposing side-by-side left turn lanes. Please see figure 12 for details. Calculations of queues for these moves during the "Year 2035 + Project" scenario during the PM Peak hour, shows a westbound left (into the project driveway) queue of 0.69 vehicles and an eastbound left (at the Camino De La Plaza & Virginia Avenue intersection) queue of 3.6 vehicles. The total distance between the project driveway and Virginia Avenue is approximately 60 feet. Assuming 25 feet per vehicle, this storage for both moves cannot be accommodated in one lane. This is the "worst-case" scenario studied and is calculated to only occur for limited periods during the year 2035 PM Peak hour. As a project feature, this project proposes to widen and re-stripe westbound Camino De La Plaza to provide "side-by-side" separate turn lanes for left turn stacking between the proposed driveway and the Virginia Avenue intersection. We also propose the addition of "KEEP CLEAR" pavement markings to further reduce the waiting times for vehicles turning left into the project driveway. Additional stacking for eastbound left turns at the Virginia Avenue intersection can be accommodated in the existing two-way-left-turn-lane west of the project driveway. This proposed widening will provide adequate pavement width for u-turns from the eastbound left turn lane at Virginia Avenue, which will accommodate vehicles exiting the site (right turn only) to proceed westbound. Please refer to Appendix G for details on this queuing.

17.2 Pedestrians

Pedestrian counts were taken at the Camino De La Plaza & Virginia Avenue intersection on Wednesday, April 12, 2017 to determine existing pedestrian patterns. Count sheets are included in Appendix H. Due to the number of existing crossings and the increases anticipated due to southbound crossings into Mexico, we have assumed that pedestrian crossings will occur during each cycle. The LOS calculations in this report have timed the phase cycles to accommodate these crossings.

17.3 Parking

A total of 349 parking spaces are proposed with this project.

Parking requirements for this project were calculated, per the San Diego Municipal Code, at 5 spaces per 1,000 square feet of floor area for the retail and "Baja-Mex" portions of the project. At 13,210 square feet, 66 parking spaces are required. This leaves 283 spaces for the "park and walk" portion of the project.

17.4 Construction Traffic Impacts

The expected duration of construction is approximately 9 months. Projections for construction traffic volumes during development of this project are a maximum of 20 trucks and 36 vehicles per day. Using a Passenger Car Equivalent (PCE) of 2.0 for large trucks, this equates to an ADT of 152 vehicles per day. This is far less than the traffic volumes generated by the existing business activities on the site (426 ADT), which will cease once construction begins. Prior to beginning construction activities, the contractor will coordinate with City staff to determine hours of construction, worker parking accommodations, temporary lane closures, and any other activities that impact the public right-of-way. It is anticipated that large trucks will be restricted to off peak hours and night work.

18.0 Conclusion

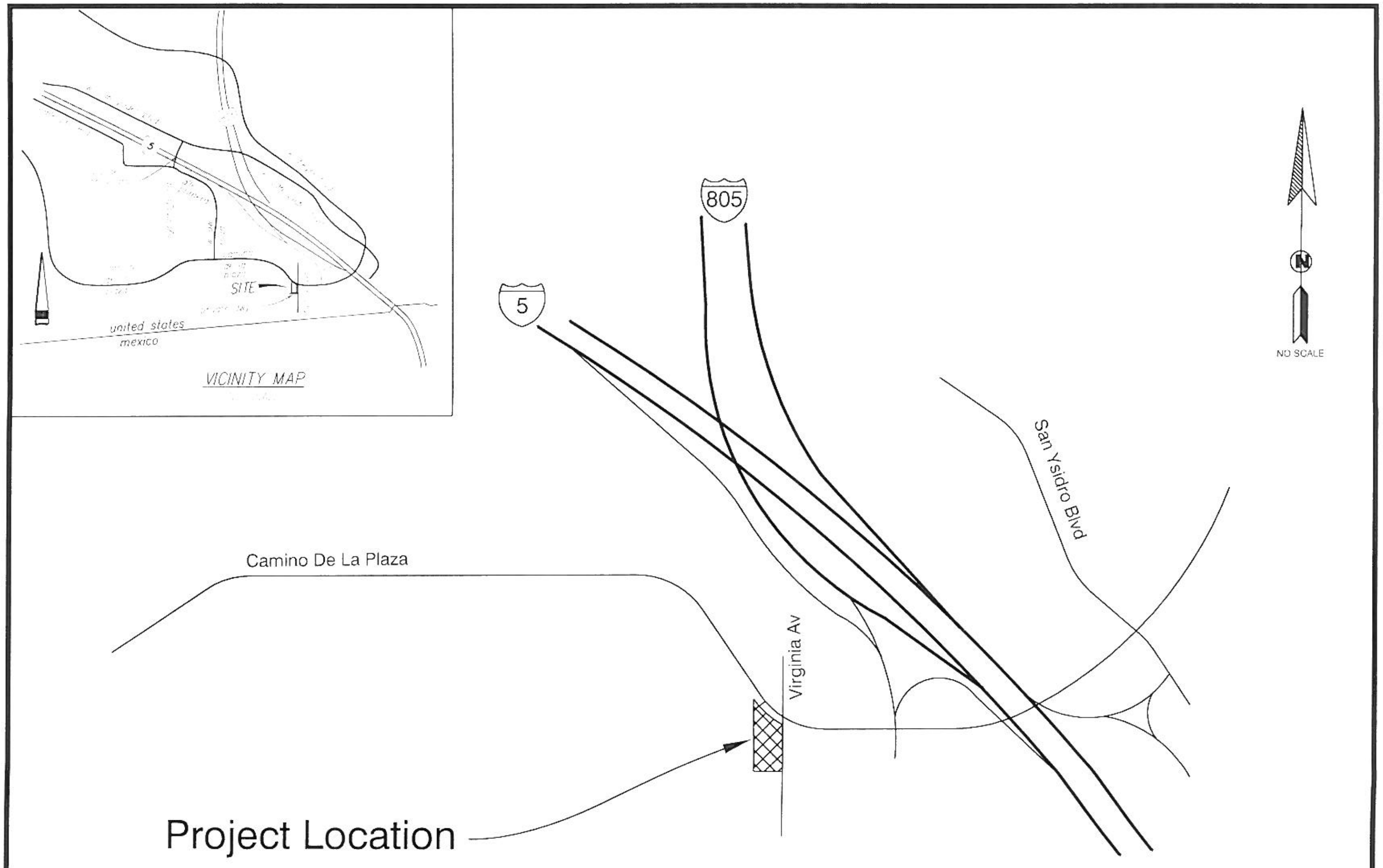
Based on the analysis contained in this report, it is our conclusion that the project as proposed will have no significant impacts on the study area roadways and intersections provided the improvements outlined in the Project Features section above are constructed.

Please feel free to call if you need additional information.

Sincerely,

Rick Crafts, CE, TE

REGISTERED PROFESSIONAL ENGINEER
RICHARD H. CRAFTS, JR.
No. 34512
Exp. 9/30/19
CIVIL
STATE OF CALIFORNIA



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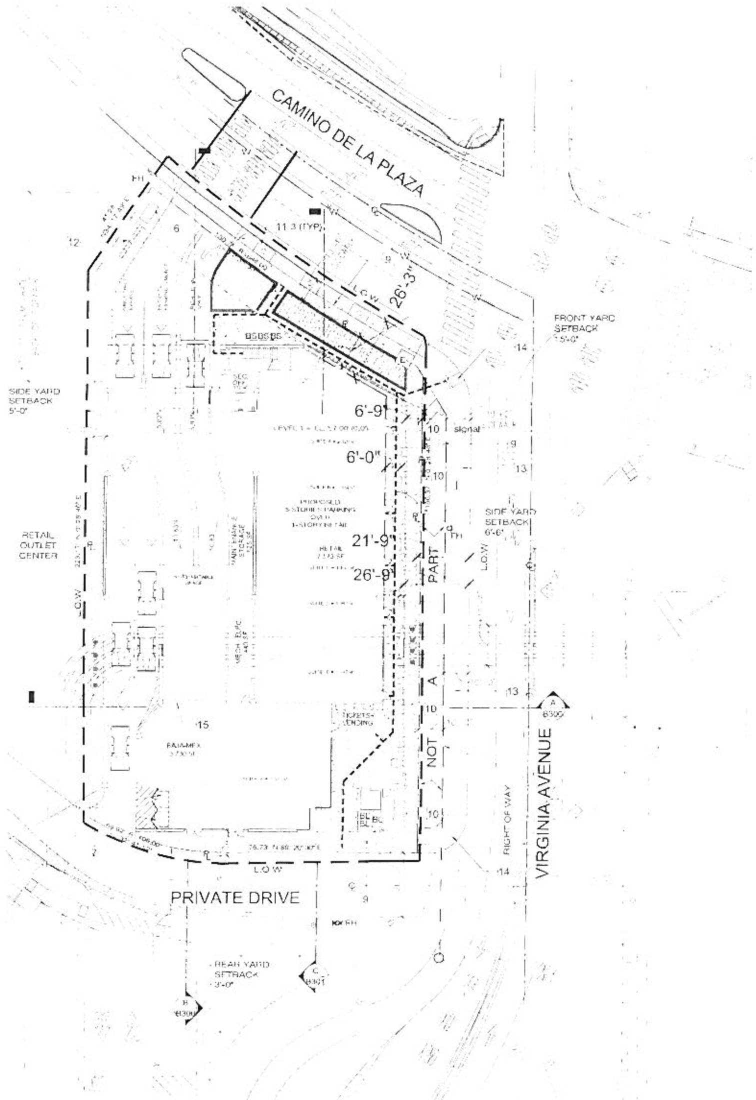
Virginia Avenue Parking Structure

PROJECT LOCATION
& VICINITY MAP

FIGURE #1

FIGURE 2
SITE PLAN



NOTE:
PROVIDE BUILDING ADDRESS NUMBERS, VISIBLE AND LEGIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY PER FHPS POLICY P-00-6 (UFC 901.4.4)

Proposed Site Plan

GENERAL NOTES:

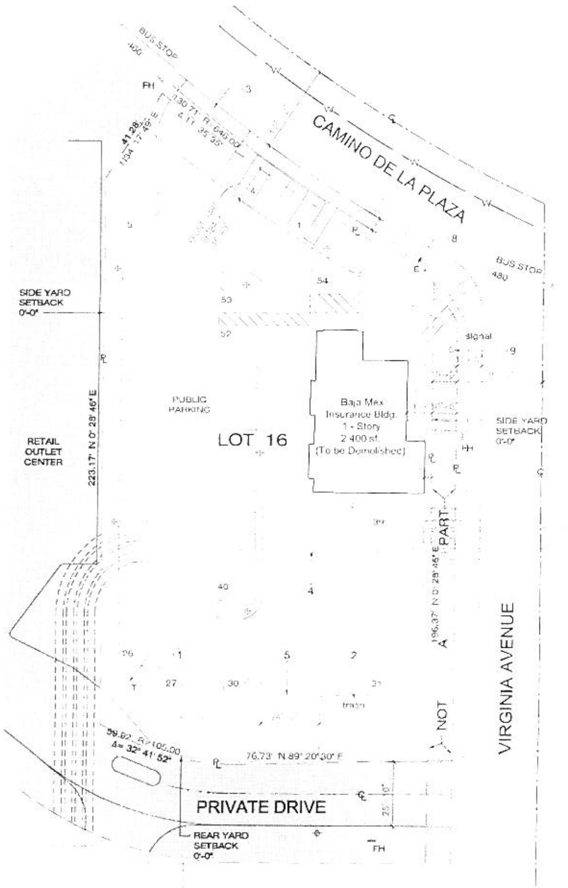
1. IMPROVEMENTS ON ADJACENT PARCELS 1 AND 2 OF PARCEL MAP 19269 ARE ALLOWED PER THE "OVERALL RECIPROCAL EASEMENT AND COST SHARING AGREEMENT" FOR INTERNATIONAL GATEWAY OF AMERICAS PER DOCUMENT #2001-0751836 RECORDED OCTOBER 17, 2001, AND LATER AMENDED.
2. THE ONLY EASEMENT ON + SITE ARE FOR THE EXISTING SDG&E FACILITIES. SINCE THEY ARE MEASURED FROM THE PHYSICAL LOCATION WHICH IS PARTIALLY UNDERGROUND THEY ARE NOT PLOTABLE.

FIRE NOTES:

1. POST INDICATOR VALVES, FIRE DEPARTMENT CONNECTIONS AND ALARM BELL ARE TO BE LOCARED ON THE ADDRESS/ACCESS SIDE OF THE STRUCTURE.
2. PROVIDE BUILDING ADDRESS NUMBERS, VISIBLE AND LEGIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY PER FHPS POLICY P-00-6

LEGEND:

W	INDICATES EXISTING WATER LINE
	INDICATES PARCEL 1 PM 19628
	INDICATES PARCEL 2 PM 19628
BS	SHORT TERM BYCICLE PARKING SPACE
BL	LONG TERM BYCICLE BIKE LOCKER
℄	INDICATES PROPERTY LINE
- - - - - - - -	INDICATES ACCESSIBLE PATH OF TRAVEL
	INDICATES AREA OF LANDSCAPING
	INDICATES NEW CONCRETE SIDE WALK
- - - - - - - - L.O.W	INDICATES LIMITS OF WORK



Existing Site Plan

PROPOSED PARKING DATA:

EXISTING PARKING:

53 SPACES

PROPOSED BUILDING AREA,

PARKING	108,692 SF
RETAIL - SECURITY	13,210 SF
BUILDING MAINTENANCE & STORAGE	625 SF
DRIVE ASILE, RAMPS, CIRCULATION, MECH/ELEC, STAIRS, ELEVATOR RESTROOMS	9,659 SF
TOTAL	132,186 SF

Parking:

1ST LEVEL	
PARKING STALLS:	0 SP
2ND LEVEL	
STANDARD STALLS:	0 SP
ACCESSIBLE STALLS:	8 SP
ZERO EMISSION STALLS:	5 SP
CARPOOL STALLS:	5 SP
RETAIL ONLY STALLS:	23 SP
TOTAL STALLS:	41 SP
3RD LEVEL	
STANDARD STALLS:	77 SP
4TH LEVEL	
STANDARD STALLS:	77 SP
5TH LEVEL	
STANDARD STALLS:	77 SP
6TH LEVEL	
STANDARD STALLS:	47 SP
RETAIL ONLY STALLS:	30 SP
TOTAL STALLS:	77 SP

1ST LEVEL	
BICYCLE SHORT TERM PARKING:	3 SP
BICYCLE LONG TERM PARKING:	3 SP
TOTAL BICYCLE PARKING:	6 SP

Accessible Parking

REQUIRED: 8 SPACES
PROVIDED: 8 SPACES

Van Accessible Parking

REQUIRED: 2 SPACES
PROVIDED: 2 SPACES

Motorcycle Parking

REQUIRED: 2% x 66 = 1 Space (2 required minimum)
PROVIDED: 7 Spaces

Long Term Bicycle Parking

REQUIRED: 5% x 66 = 3 Bike Locker
PROVIDED: 3 Bike Locker

Short Term Bicycle Parking

REQUIRED: 5% x 66 = 3 BikeSpaces
PROVIDED: 3 Bike Spaces

Car Pool Parking

REQUIRED: 8% x 33 = 5 Spaces
PROVIDED: 5 Spaces

Zero Emissions Parking

REQUIRED: 8% x 66 = 5 Spaces
PROVIDED: 5 Spaces

Retail Parking

REQUIRED: 13,210 SF x 2.5/1000= 33 Spaces
PROVIDED: 66 Spaces

RETAIL PARKING:	
ACCESSIBLE STALLS:	3 SP
ZERO EMISSION STALLS:	5 SP
CARPOOL STALLS:	5 SP
RETAIL ONLY STALLS:	53 SP
TOTAL STALLS:	66 SP

KEYNOTES:

1 (E) TRANSFORMER TO BE MOVED (SDG & E TRANSFORMER EASEMENT)
2 (E) TRASH ENCLOSURE TO BE REMOVED
3 (E) DRIVEWAY
4 (E) 4-36" DIA. RCP PRIVATE STORM DRAINS
5 (E) DRIVEWAY TO BE REMOVED
6 (N) TRANSFORMER WITH SDG & E TRANSFORMER EASEMENT
7 (N) RECYCLE & TRASH ENCLOSURE
8 (E) ELECTRICAL PEDESTAL TO REMAIN WITH SDG & E PEDESTAL EASEMENT
9 (E) SIGN
10 (E) LANDSCAPE TO REMAIN (N.I.C.)
11 (N) STREET TREE POCKET (40 SF. MIN.) W/ ADA ACCESSIBLE PEDESTRIAN TREE GRATE
12 (N) MONUMENT SIGN
13 (N) 10'-0" WIDE SIDEWALK BY OTHERS
14 (N) CURB RAMPS BY OTHERS
15 PROVIDE STEPS

VIRGINIA AVENUE
PARKING STRUCTURE
SAN YSIDRO, CA 92173

08/07/17
12/23/16
01/14/16
08/06/15
04/14/15
08/21/14
375960

Existing / Proposed Site Plans

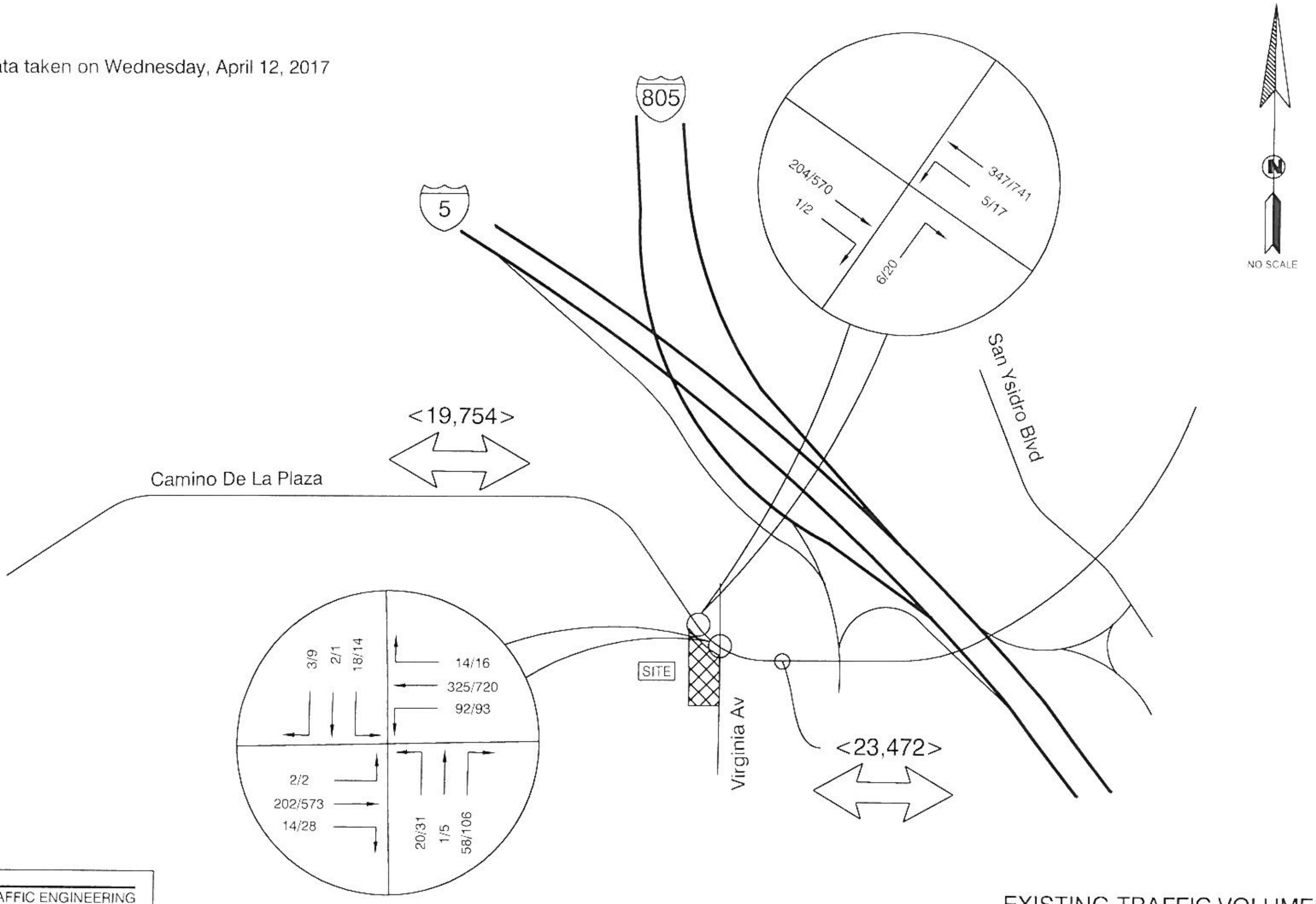
ASP-100

2 16

LEGEND:

Peak Hour Volumes	AM/PM
ADT Volumes	<ADT>

Count data taken on Wednesday, April 12, 2017

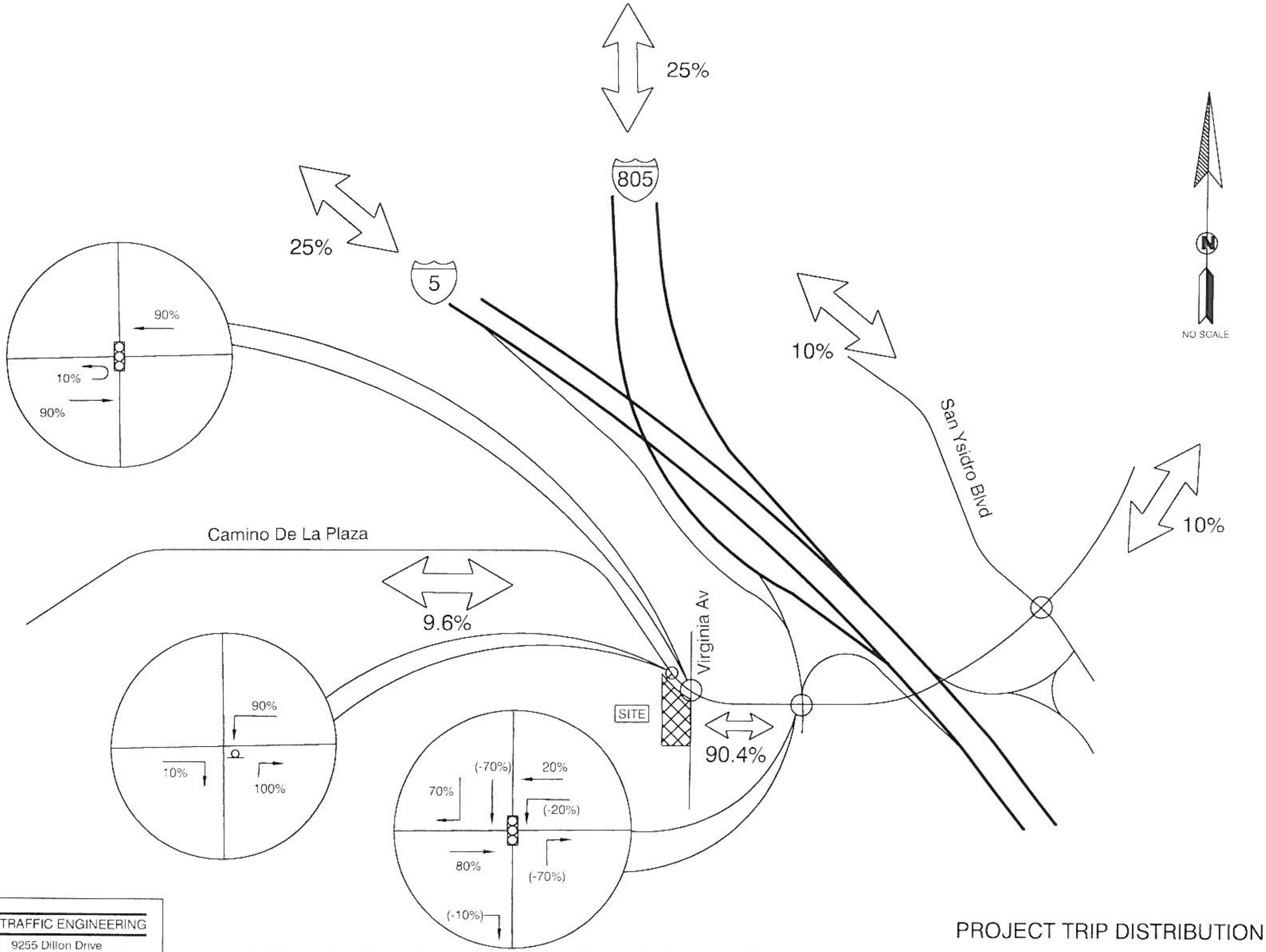


RCE TRAFFIC ENGINEERING
9255 Dillon Drive
La Mesa, California 91941
Phone: (619) 589-9151
rickcrafts@cox.net

Virginia Avenue Parking Structure

EXISTING TRAFFIC VOLUMES

FIGURE #3

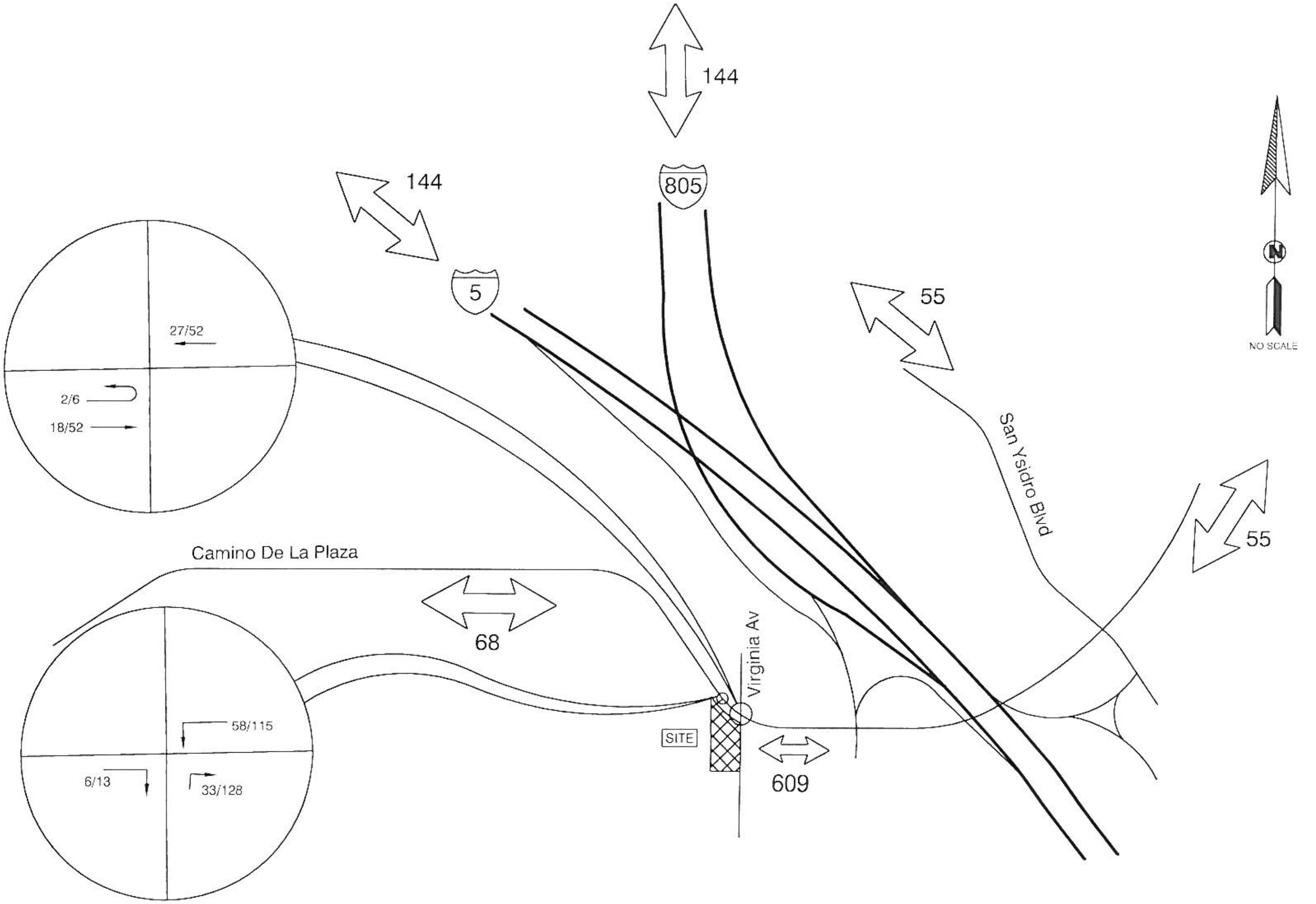


PROJECT TRIP DISTRIBUTION

Virginia Avenue Parking Structure

FIGURE #4

RCE TRAFFIC ENGINEERING
9255 Dillon Drive
La Mesa, California 91941
Phone: (619) 589-9151
Fax: (619) 589-9209

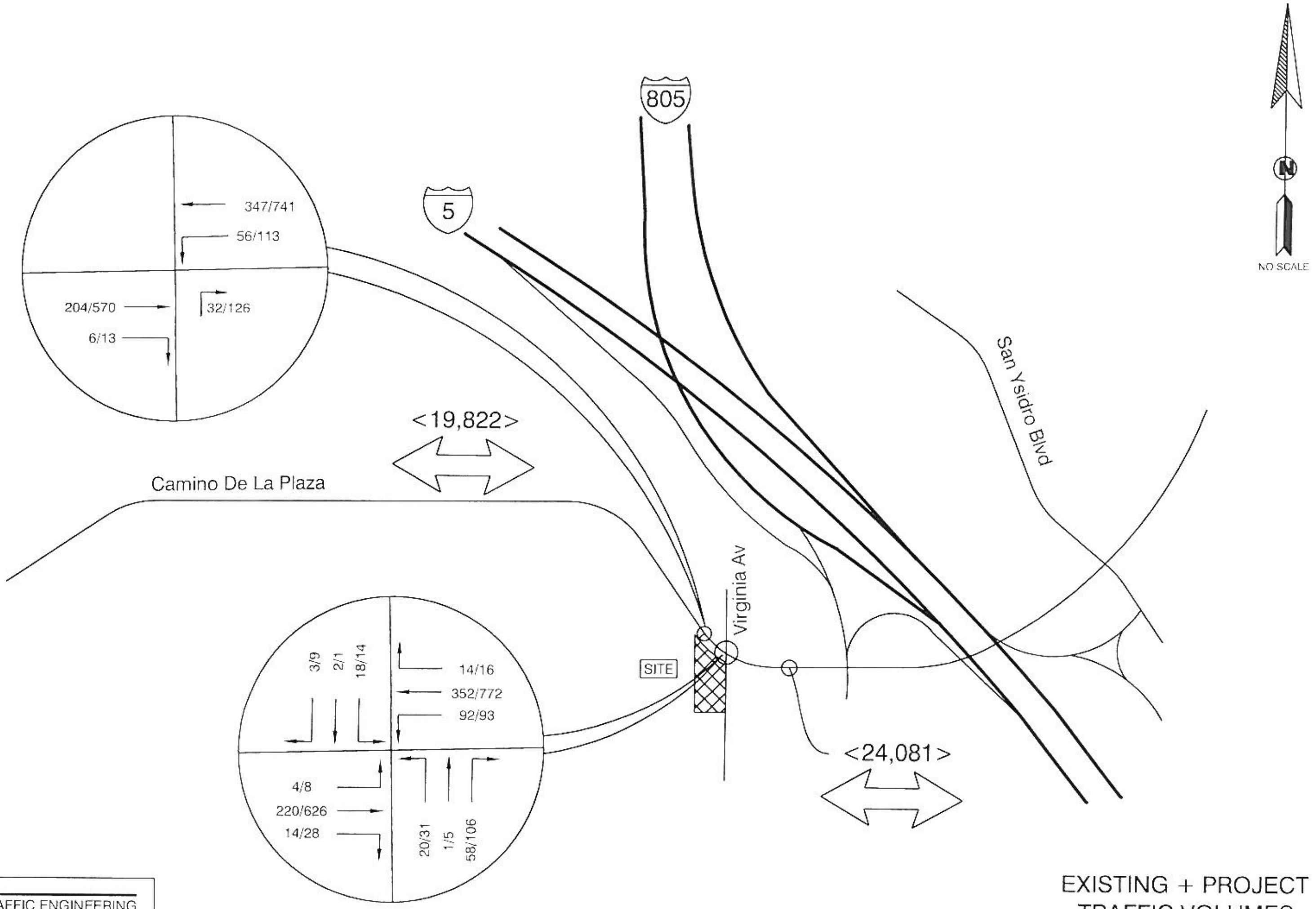


RCE TRAFFIC ENGINEERING
9255 Dillon Drive
La Mesa, California 91941
Phone: (619) 589-9151
rickcrafts@cox.net

Virginia Avenue Parking Structure

PROJECT TRIPS

FIGURE #5

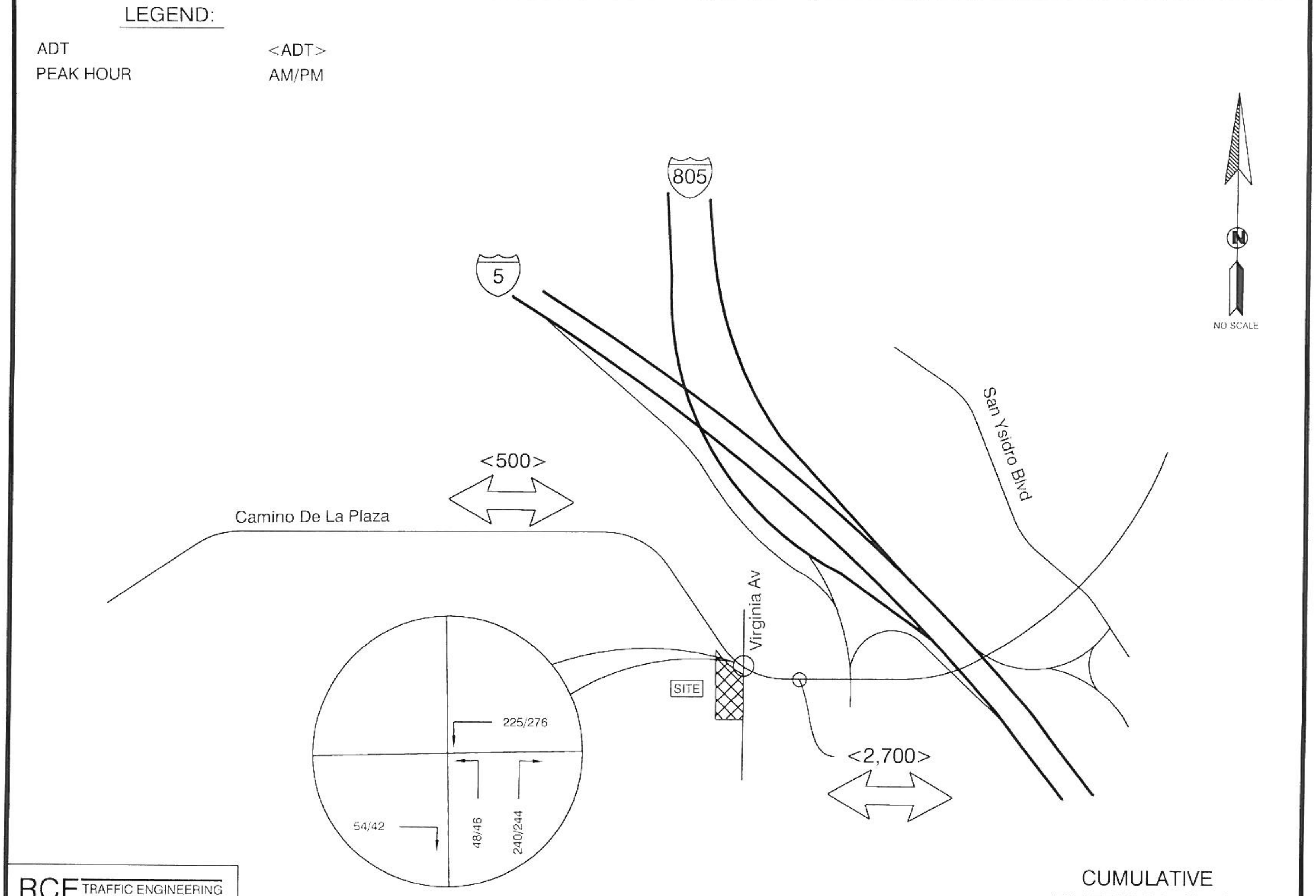


EXISTING + PROJECT
TRAFFIC VOLUMES

FIGURE #6

Virginia Avenue Parking Structure

RCE TRAFFIC ENGINEERING
9255 Dillon Drive
La Mesa, California 91941
Phone: (619) 589-9151
rickcrafts@cox.net



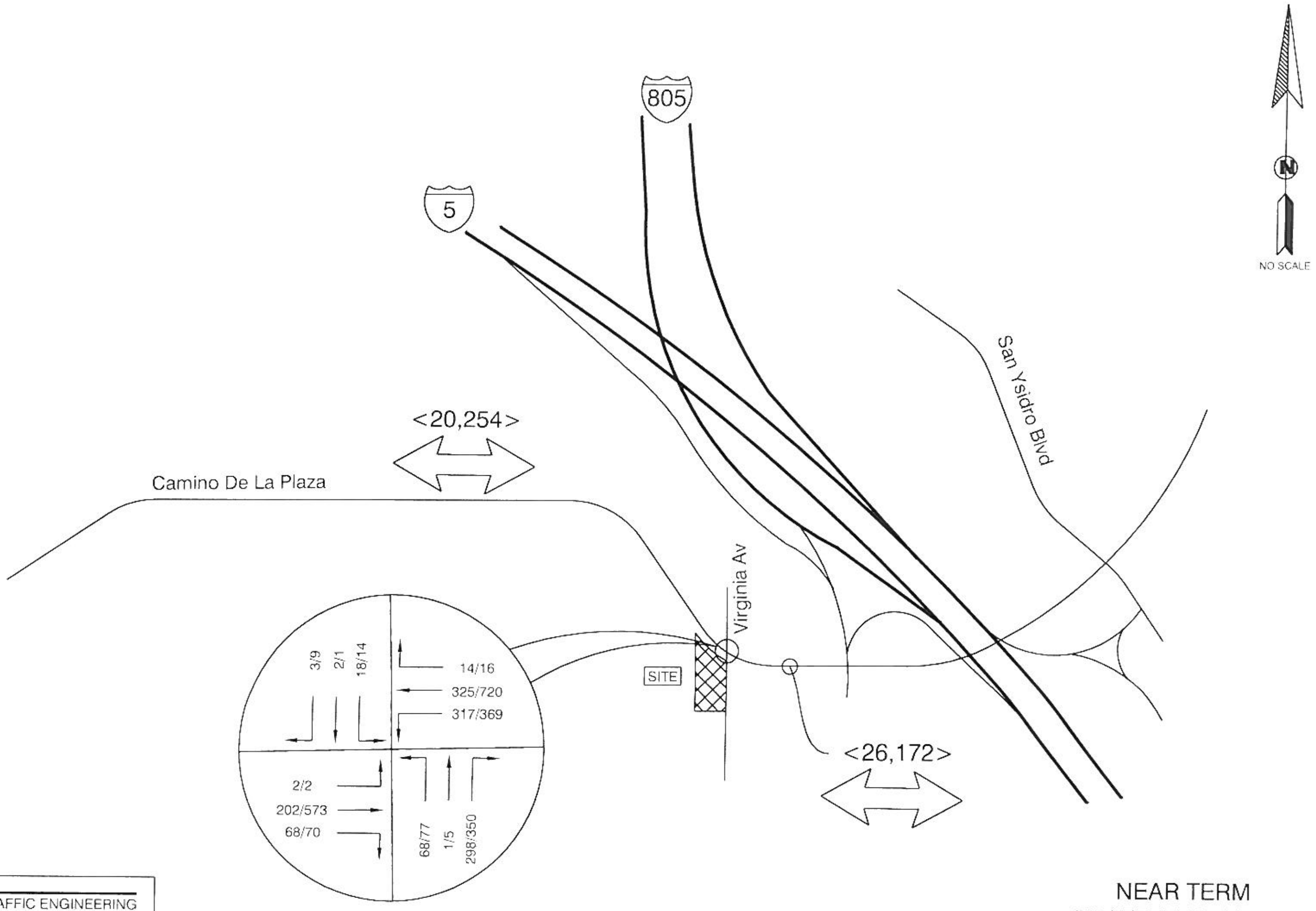
CUMULATIVE
TRAFFIC VOLUMES
FIGURE #7

Virginia Avenue Parking Structure

RCE TRAFFIC ENGINEERING
9255 Dillon Drive
La Mesa, California 91941
Phone: (619) 589-9151
rickcrafts@cox.net

LEGEND:

Peak Hour Volumes	AM/PM
ADT Volumes	<ADT>



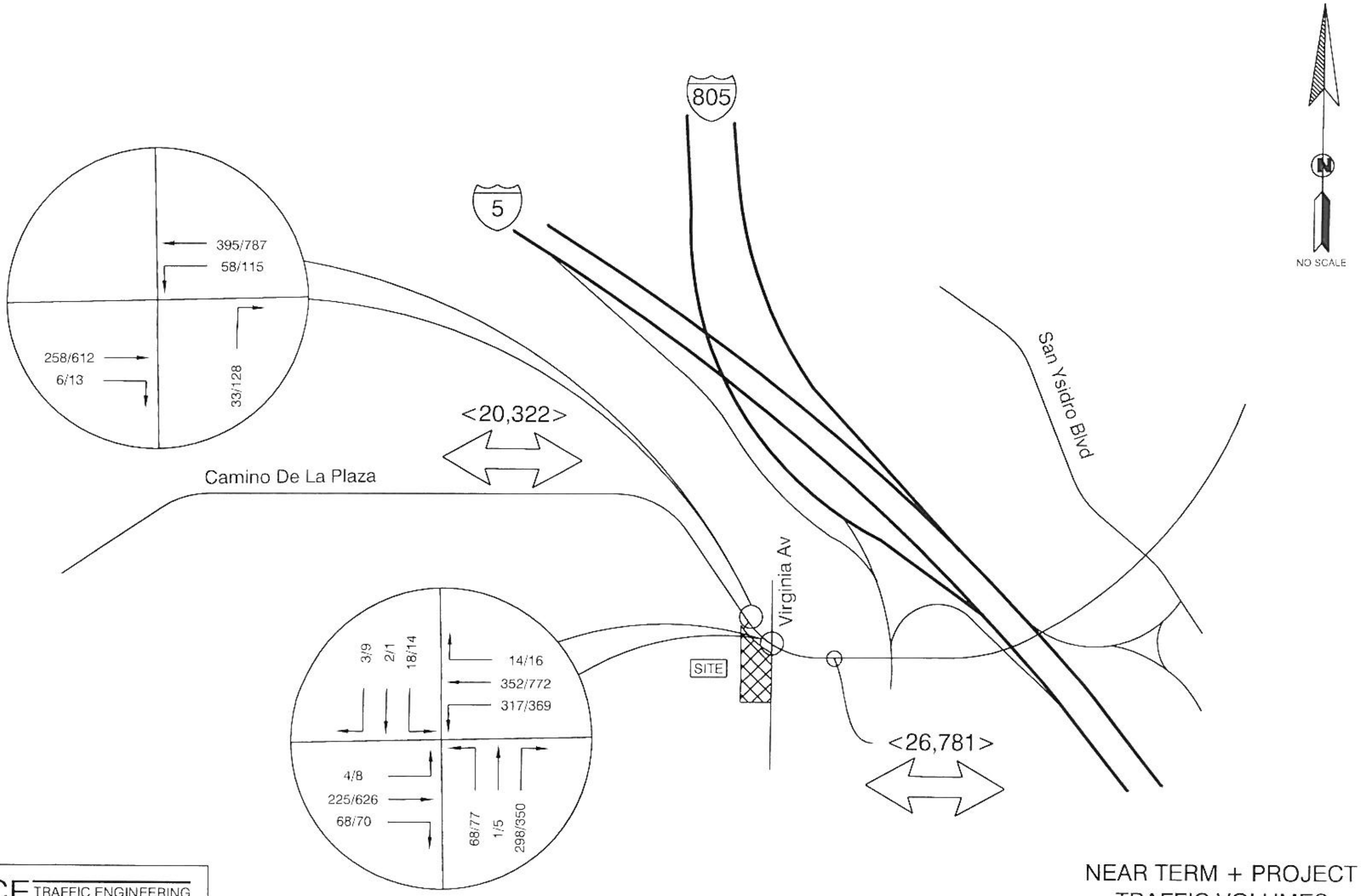
NEAR TERM
TRAFFIC VOLUMES
FIGURE #8

Virginia Avenue Parking Structure

RCE TRAFFIC ENGINEERING
9255 Dillon Drive
La Mesa, California 91941
Phone: (619) 589-9151
rickcrafts@cox.net

LEGEND:

Peak Hour Volumes	AM/PM
ADT Volumes	<ADT>



RCE TRAFFIC ENGINEERING
9255 Dillon Drive
La Mesa, California 91941
Phone: (619) 589-9151
rickcrafts@cox.net

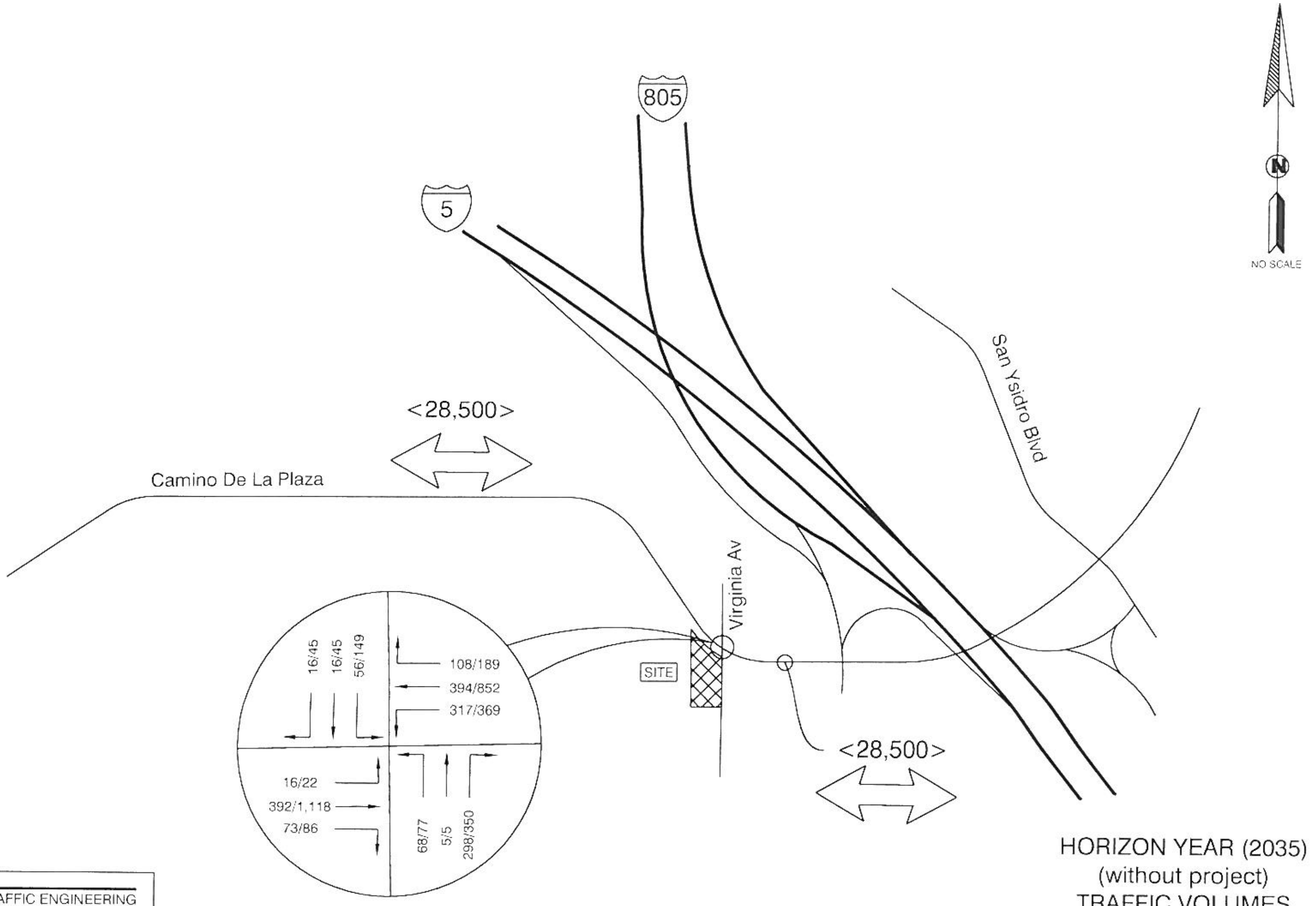
Virginia Avenue Parking Structure

NEAR TERM + PROJECT
TRAFFIC VOLUMES

FIGURE #9

LEGEND:

ADT	<ADT>
PEAK HOUR	AM/PM



HORIZON YEAR (2035)
(without project)
TRAFFIC VOLUMES

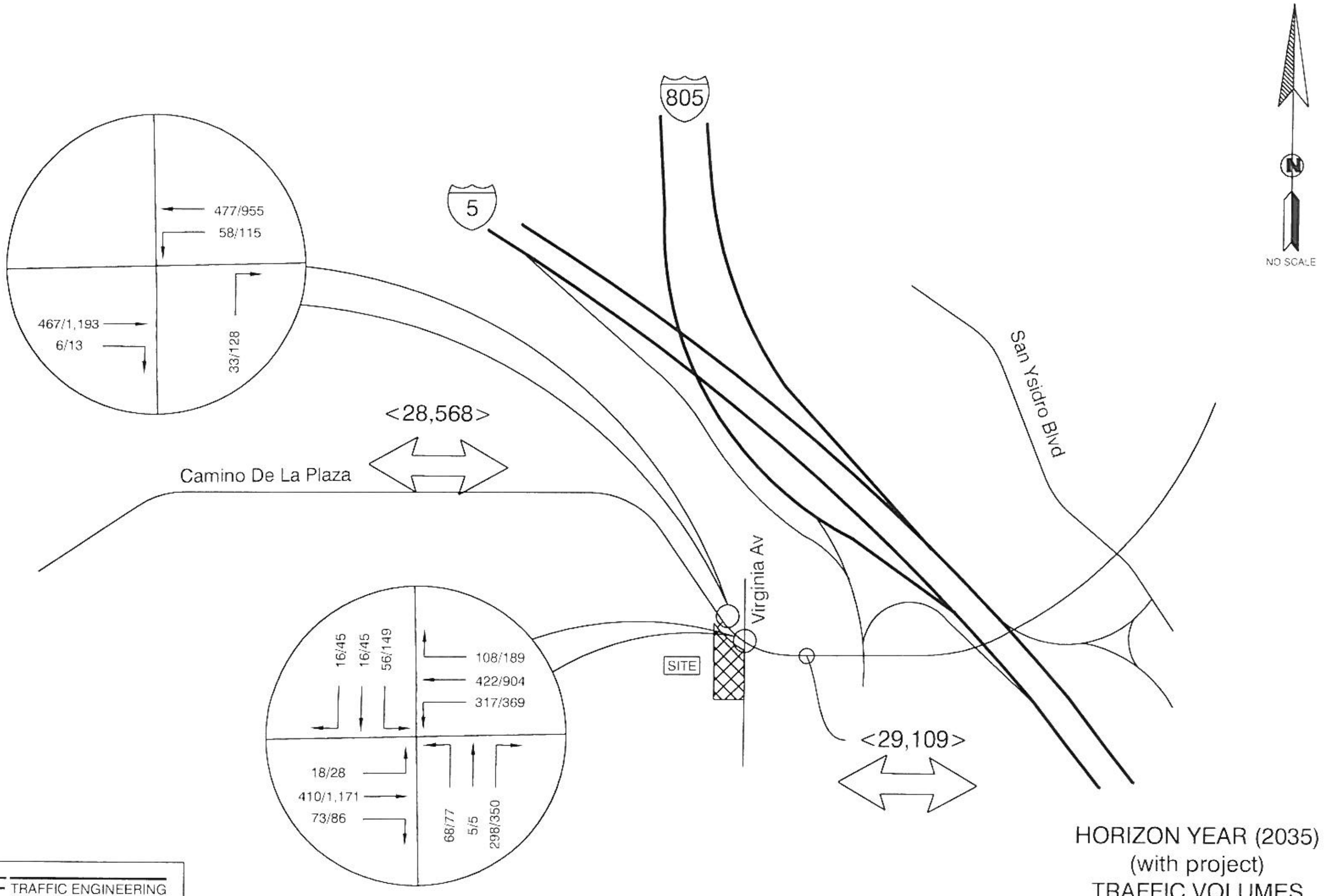
Virginia Avenue Parking Structure

FIGURE #10

RCE TRAFFIC ENGINEERING
9255 Dillon Drive
La Mesa, California 91941
Phone: (619) 589-9151
rickcrafts@cox.net

LEGEND:

ADT <ADT>
PEAK HOUR AM/PM



HORIZON YEAR (2035)
(with project)
TRAFFIC VOLUMES

Virginia Avenue Parking Structure

FIGURE #11

RCE TRAFFIC ENGINEERING
9255 Dillon Drive
La Mesa, California 91941
Phone: (619) 589-9151
rickcrafts@cox.net

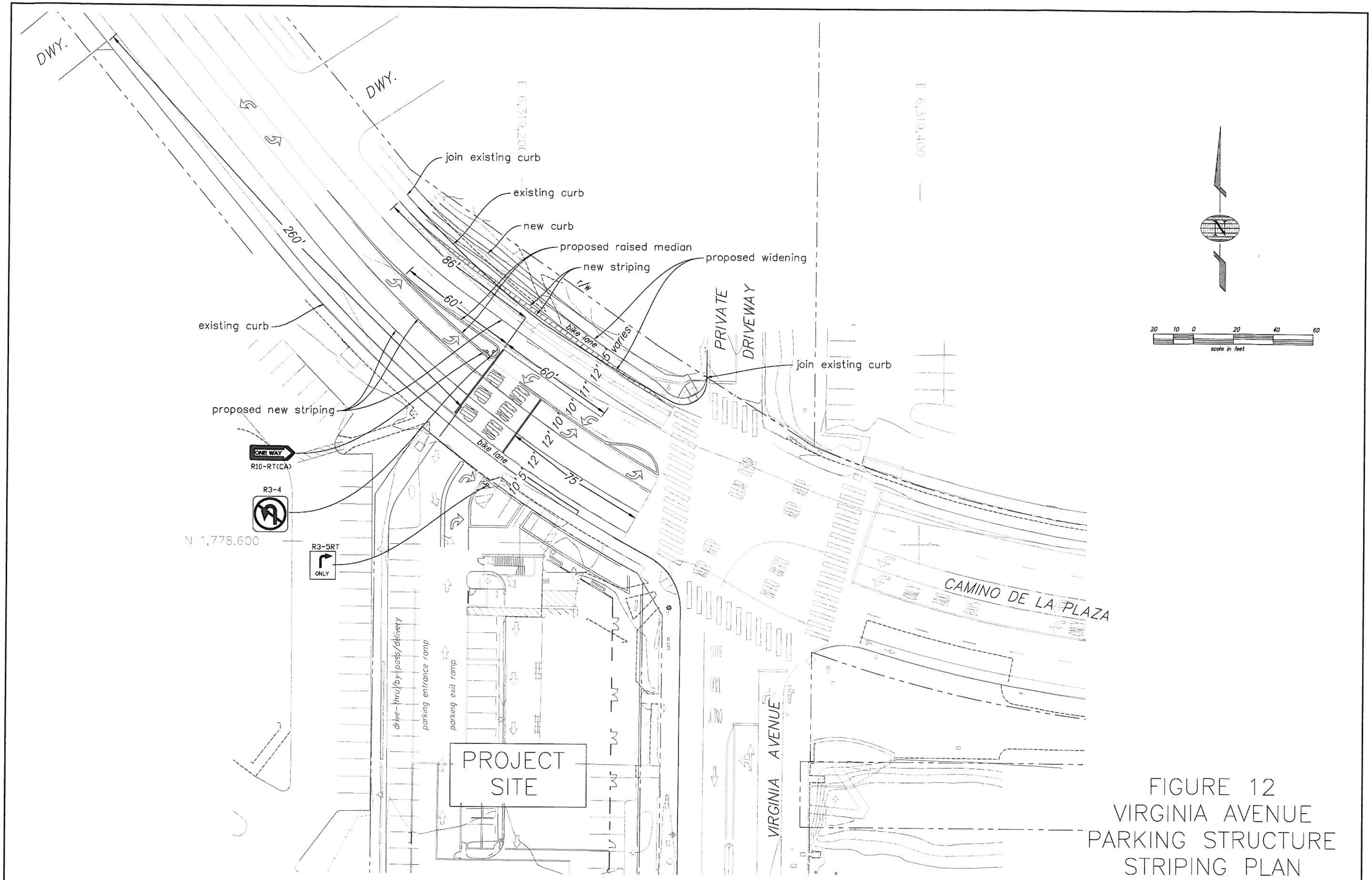


FIGURE 12
VIRGINIA AVENUE
PARKING STRUCTURE
STRIPING PLAN

Traffic Impact Analysis

Virginia Avenue Parking Structure

San Diego, California
November 27, 2017

APPENDIX

APPENDIX A

Traffic Counts

WEDNESDAY - APRIL 12TH, 2017 CITY: SAN YSIDRO PROJECT: PTD17-0414-03

CAMINO DE LA PLAZA W-O VIRGINA

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			17		35			12:00			137		196		
00:15			22		19			12:15			160		218		
00:30			13		8			12:30			158		212		
00:45			10	62	21	83	145	12:45			146	601	208	834	1435
01:00			10		8			13:00			149		191		
01:15			7		9			13:15			148		196		
01:30			6		7			13:30			181		238		
01:45			3	26	14	38	64	13:45			193	671	224	849	1520
02:00			6		8			14:00			189		195		
02:15			3		6			14:15			200		199		
02:30			8		9			14:30			169		214		
02:45			11	28	11	34	62	14:45			198	756	219	827	1583
03:00			5		4			15:00			193		164		
03:15			4		16			15:15			171		202		
03:30			5		10			15:30			205		198		
03:45			9	23	22	52	75	15:45			176	745	215	779	1524
04:00			8		16			16:00			154		177		
04:15			12		17			16:15			144		224		
04:30			10		24			16:30			187		211		
04:45			17	47	29	86	133	16:45			149	634	202	814	1448
05:00			21		29			17:00			136		194		
05:15			20		34			17:15			137		180		
05:30			22		30			17:30			141		161		
05:45			18	81	47	140	221	17:45			133	547	193	728	1275
06:00			23		45			18:00			149		183		
06:15			21		37			18:15			144		171		
06:30			21		55			18:30			141		179		
06:45			39	104	65	202	306	18:45			134	568	199	732	1300
07:00			24		66			19:00			157		218		
07:15			36		67			19:15			163		201		
07:30			66		88			19:30			171		178		
07:45			54	180	83	304	484	19:45			186	677	179	776	1453
08:00			65		98			20:00			178		143		
08:15			64		90			20:15			164		158		
08:30			45		85			20:30			188		141		
08:45			52	226	129	402	628	20:45			187	717	94	536	1253
09:00			59		105			21:00			204		96		
09:15			59		135			21:15			160		79		
09:30			79		139			21:30			111		56		
09:45			74	271	172	551	822	21:45			108	583	72	303	886
10:00			87		170			22:00			80		50		
10:15			105		190			22:15			83		35		
10:30			98		202			22:30			73		45		
10:45			112	402	194	756	1158	22:45			63	299	35	165	464
11:00			111		179			23:00			64		28		
11:15			116		188			23:15			41		32		
11:30			121		223			23:30			25		29		
11:45			134	482	184	774	1256	23:45			24	154	16	105	259
Total Vol.				1932		3422	**5354**					6952		7448	**14400**

Daily Totals

NB	SB	EB	WB	**Combined**
		8884	10870	**19754**

	AM			PM		
Split %	36.1%	63.9%	**27.1%**	48.3%	51.7%	**72.9%**
Peak Hour	11:45	11:30	**11:45**	14:45	13:30	**13:30**
Volume	589	821	**1399**	767	856	**1619**
P.H.F.	0.92	0.92	**0.93**	0.94	0.90	**0.97**

WEDNESDAY - APRIL 12TH, 2017 CITY: SAN YSIDRO PROJECT: PTD17-0414-03

CAMINO DE LA PLAZA E-O VIRGINA

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			24		38			12:00			157		228		
00:15			22		19			12:15			176		249		
00:30			22		12			12:30			170		256		
00:45			13	81	19	88	169	12:45			156	659	260	993	1652
01:00			16		13			13:00			174		237		
01:15			8		11			13:15			158		288		
01:30			8		7			13:30			198		332		
01:45			4	36	9	40	76	13:45			203	733	276	1133	1866
02:00			5		9			14:00			267		236		
02:15			9		9			14:15			233		247		
02:30			11		12			14:30			194		230		
02:45			13	38	12	42	80	14:45			232	926	259	972	1898
03:00			7		9			15:00			208		196		
03:15			7		25			15:15			193		239		
03:30			8		26			15:30			204		235		
03:45			8	30	24	84	114	15:45			192	797	266	936	1733
04:00			11		23			16:00			199		201		
04:15			15		21			16:15			167		270		
04:30			21		40			16:30			186		221		
04:45			18	65	36	120	185	16:45			156	708	218	910	1618
05:00			30		36			17:00			146		222		
05:15			29		58			17:15			164		188		
05:30			34		95			17:30			174		195		
05:45			35	128	101	290	418	17:45			144	628	216	821	1449
06:00			65		70			18:00			169		212		
06:15			51		44			18:15			175		205		
06:30			39		72			18:30			152		239		
06:45			41	196	84	270	466	18:45			160	656	245	901	1557
07:00			42		85			19:00			145		240		
07:15			52		106			19:15			194		232		
07:30			75		113			19:30			177		216		
07:45			74	243	108	412	655	19:45			208	724	192	880	1604
08:00			78		124			20:00			182		185		
08:15			75		115			20:15			178		152		
08:30			55		112			20:30			202		149		
08:45			64	272	154	505	777	20:45			203	765	113	599	1364
09:00			71		129			21:00			205		113		
09:15			79		168			21:15			191		104		
09:30			75		167			21:30			153		98		
09:45			98	323	206	670	993	21:45			129	678	107	422	1100
10:00			103		199			22:00			137		53		
10:15			111		214			22:15			131		37		
10:30			109		241			22:30			84		54		
10:45			115	438	247	901	1339	22:45			73	425	50	194	619
11:00			134		231			23:00			63		43		
11:15			118		238			23:15			42		34		
11:30			149		242			23:30			20		26		
11:45			137	538	213	924	1462	23:45			27	152	23	126	278
Total Vol.				2388		4346	**6734**					7851		8887	**16738**

Daily Totals

NB	SB	EB	WB	**Combined**
		10239	13233	**23472**

	AM			**PM**		
Split %	35.5%	64.5%	**28.7%**	46.9%	53.1%	**71.3%**
Peak Hour	11:45	10:45	**11:45**	14:00	13:00	**13:30**
Volume	640	958	**1586**	926	1133	**1992**
P.H.F.	0.91	0.97	**0.93**	0.87	0.85	**0.94**

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	SAN YSIDRO	PROJECT #:	PTD17-0414-03
4/12/17	NORTH & SOUTH:	VIRGINIA AVE	LOCATION #:	B
WEDNESDAY	EAST & WEST:	CAMINO DE LA PLAZA	CONTROL:	SIGNAL

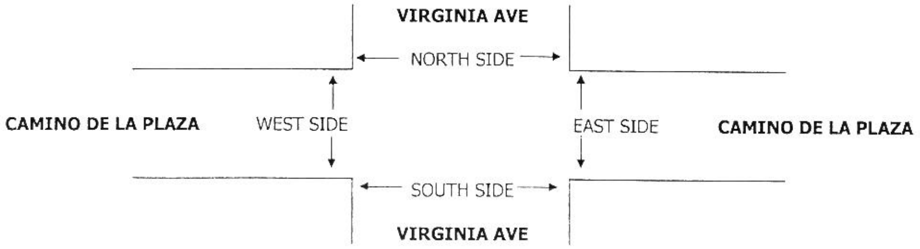
NOTES:

AM		▲		
PM		N		
MD	◀ W			E ▶
OTHER		S		
OTHER		▼		

		NORTHBOUND VIRGINIA AVE			SOUTHBOUND VIRGINIA AVE			EASTBOUND CAMINO DE LA PLAZA			WESTBOUND CAMINO DE LA PLAZA				
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	WL-2 CAB/BUS
	LANES:	1.5	0.5	1	0	1	0	1	2	0	2	2	0		
AM	6:30 AM	5	0	14	5	0	0	0	19	3	14	38	8	106	5
	6:45 AM	3	0	8	2	0	0	0	29	5	12	65	5	129	8
	7:00 AM	4	1	7	11	0	2	2	20	2	13	59	5	126	6
	7:15 AM	2	0	16	1	1	0	0	31	4	19	72	7	153	7
	7:30 AM	7	0	14	3	0	0	1	44	4	28	76	5	182	3
	7:45 AM	2	1	17	1	1	0	0	50	2	15	77	4	170	5
	8:00 AM	7	0	14	7	1	0	0	54	4	22	93	3	205	8
	8:15 AM	4	0	13	7	0	3	1	54	4	27	79	2	194	5
	VOLUMES	34	2	103	37	3	5	4	301	28	150	559	39	1,265	47
	APPROACH %	24%	1%	74%	82%	7%	11%	1%	90%	8%	20%	75%	5%		
	APP/DEPART	139	/	45	45	/	181	333	/	441	748	/	598	0	
	BEGIN PEAK HR		7:30 AM												
	VOLUMES	20	1	58	18	2	3	2	202	14	92	325	14	751	
	APPROACH %	25%	1%	73%	78%	9%	13%	1%	93%	6%	21%	75%	3%		
	PEAK HR FACTOR		0.940			0.575			0.924			0.913		0.916	
	APP/DEPART	79	/	17	23	/	108	218	/	278	431	/	348	0	WL-2
PM	4:30 PM	8	3	28	6	1	4	0	163	9	20	189	4	435	8
	4:45 PM	4	0	18	4	0	1	0	148	6	19	183	5	388	9
	5:00 PM	5	1	27	3	0	1	0	124	8	29	187	3	388	5
	5:15 PM	14	1	33	1	0	3	2	138	5	25	161	4	387	3
	5:30 PM	5	2	28	7	2	1	0	144	8	27	153	5	382	5
	5:45 PM	5	0	24	0	1	1	0	139	5	26	191	2	394	1
	6:00 PM	3	0	27	3	1	0	0	145	3	23	184	4	393	3
	6:15 PM	10	1	30	9	1	0	0	132	3	27	166	4	383	6
	VOLUMES	54	8	215	33	6	11	2	1,133	47	196	1,414	31	3,150	40
	APPROACH %	19%	3%	78%	66%	12%	22%	0%	96%	4%	12%	86%	2%		
	APP/DEPART	277	/	41	50	/	249	1,182	/	1,381	1,641	/	1,479	0	
	BEGIN PEAK HR		4:30 PM												
	VOLUMES	31	5	106	14	1	9	2	573	28	93	720	16	1,598	
	APPROACH %	22%	4%	75%	58%	4%	38%	0%	95%	5%	11%	87%	2%		
	PEAK HR FACTOR		0.740			0.545			0.876			0.946		0.918	
	APP/DEPART	142	/	23	24	/	122	603	/	693	829	/	760	0	

U-TURNS

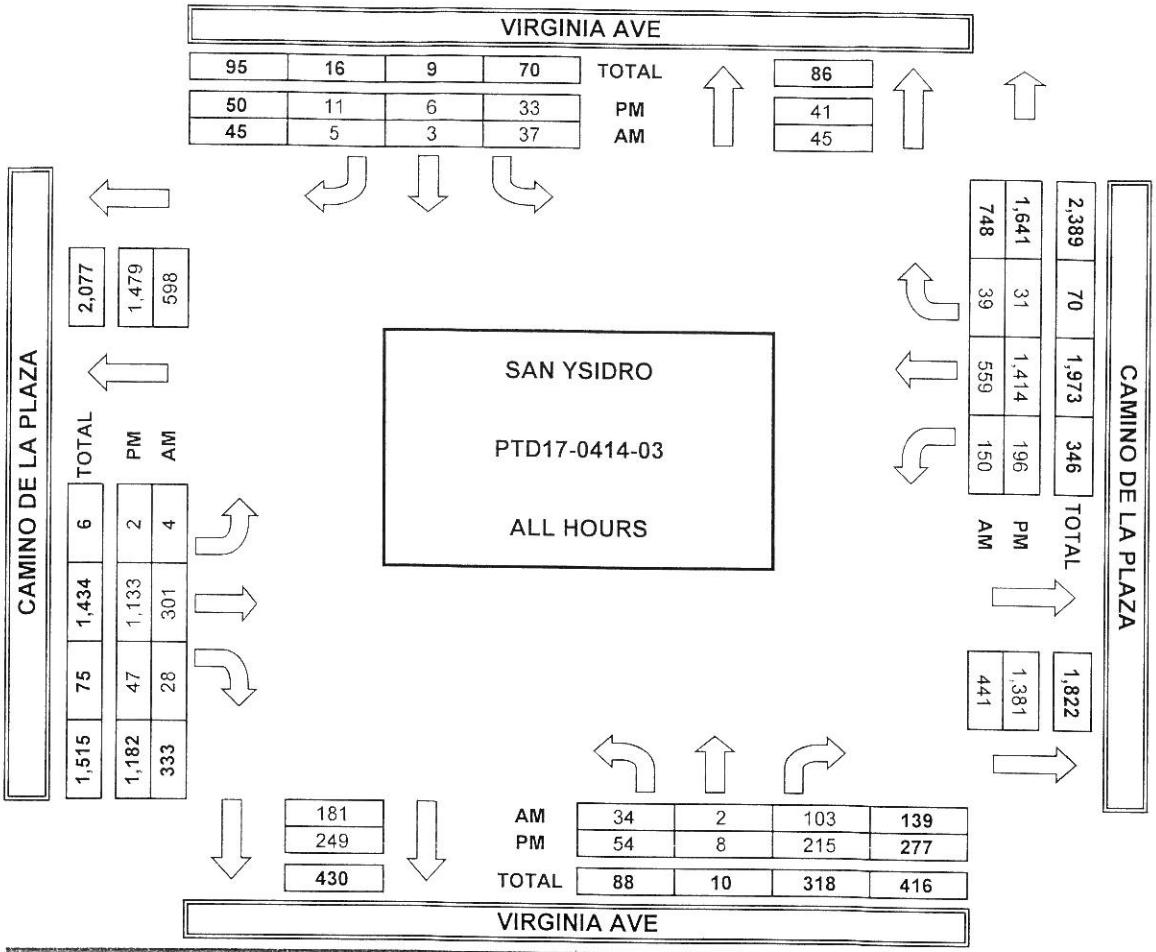
NB X	SB X	EB X	WB X	TTL
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0

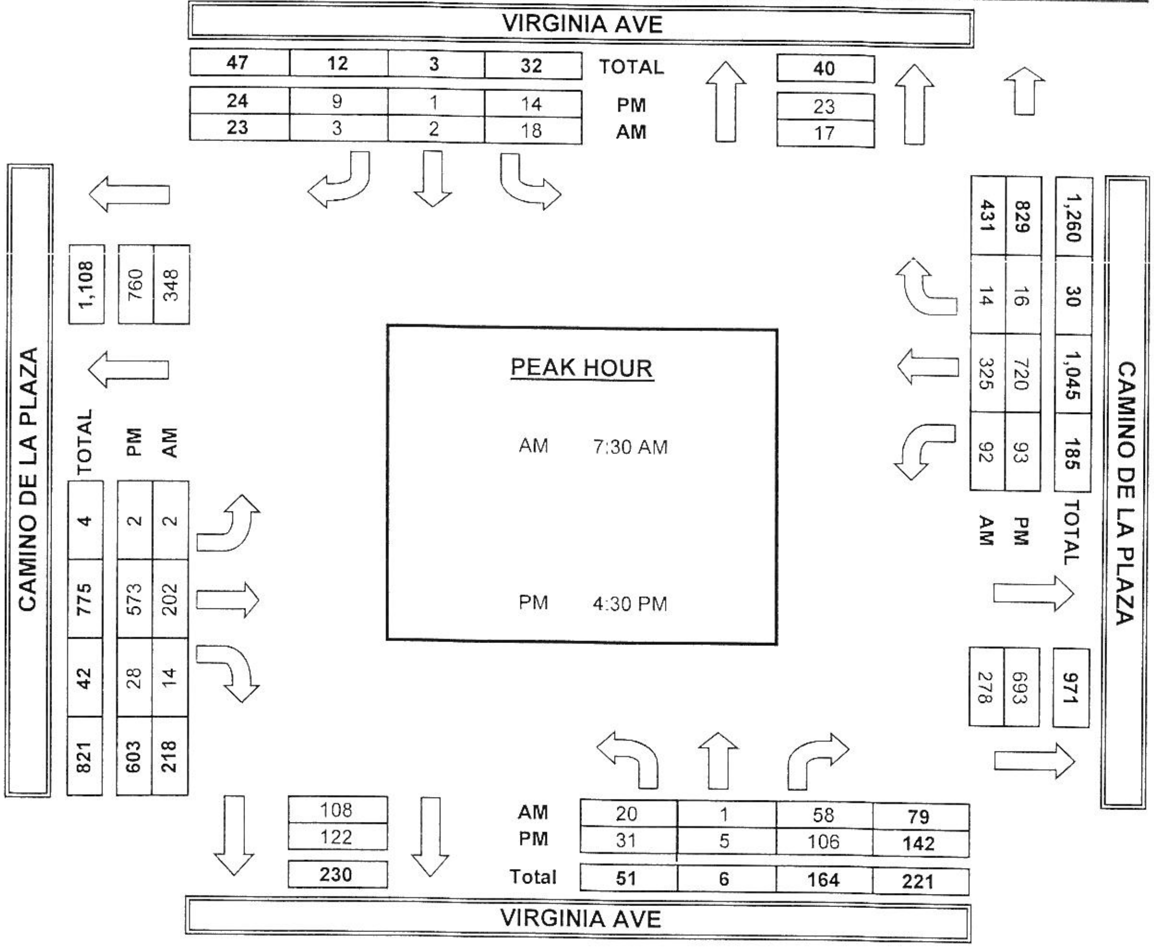


		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	6:30 AM					0					0					0
	6:45 AM					0					0					0
	7:00 AM					0					0					0
	7:15 AM					0					0					0
	7:30 AM					0					0					0
	7:45 AM					0					0					0
	8:00 AM					0					0					0
	8:15 AM					0					0					0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:30 PM					0					0					0
	4:45 PM					0					0					0
	5:00 PM					0					0					0
	5:15 PM					0					0					0
	5:30 PM					0					0					0
	5:45 PM					0					0					0
	6:00 PM					0					0					0
	6:15 PM					0					0					0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PACIFIC TECHNICAL DATA

TURNING MOVEMENT COUNTS





APPENDIX B

City of San Diego's Table 2

TABLE 2
ROADWAY CLASSIFICATIONS, LEVELS OF SERVICE (LOS) AND AVERAGE DAILY TRAFFIC (ADT)

			LEVEL OF SERVICE				
STREET CLASSIFICATION	LANES		A	B	C	D	E
Freeway	8 lanes		60,000	84,000	120,000	140,000	150,000
Freeway	6 lanes		45,000	63,000	90,000	110,000	120,000
Freeway	4 lanes		30,000	42,000	60,000	70,000	80,000
Expressway	6 lanes		30,000	42,000	60,000	70,000	80,000
Prime Arterial	6 lanes		25,000	35,000	50,000	55,000	60,000
Major Arterial	6 lanes		20,000	28,000	40,000	45,000	50,000
Major Arterial	4 lanes		15,000	21,000	30,000	35,000	40,000
Collector	4 lanes		10,000	14,000	20,000	25,000	30,000
Collector (no center lane) (continuous left-turn lane)	4 lanes 2 lanes		5,000	7,000	10,000	13,000	15,000
Collector (no fronting property)	2 lanes		4,000	5,500	7,500	9,000	10,000
Collector (commercial-industrial fronting)	2 lanes		2,500	3,500	5,000	6,500	8,000
Collector (multi-family)	2 lanes		2,500	3,500	5,000	6,500	8,000
Sub-Collector (single-family)	2 lanes		---	---	2,200	---	---

LEGEND

XX/XXX = Approximate recommended ADT based on the City of San Diego Street Design Manual

NOTES:

1. The volumes and the average daily level of service listed above are only intended as a general planning guideline

2. Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots not carry through traffic. Levels of service normally apply to roads carrying through traffic between major trip generators and attractors.

APPENDIX C

City of San Diego's Significance Thresholds

California Environmental Quality Act

Significance Determination Thresholds

Development Services Department

City of San Diego
Development Services

Land Development
Review Division
(619) 446-5460

JANUARY 2011*

***Note:** Development Services Department staff periodically revises sections of the thresholds in response to CEQA case law, and changes in federal, state, and local regulations. Staff also periodically provides updated information and clarification and direction for environmental analysts.

O. TRANSPORTATION / CIRCULATION and PARKING

Note: This section is to be applied for projects deemed complete on or after January 1, 2007. For projects deemed complete prior to January 1, 2007, the following Section O.1. on Page 73 is to be applied.

Project-related traffic impacts are one of the most commonly identified environmental impacts under the CEQA. Traffic operations and safety impacts are addressed in this section. Other environmental impacts associated with project- related traffic and transportation infrastructure improvements (e.g., air quality, noise, biology) are addressed in the applicable sections of this manual which pertain to such issues.

Direct traffic impacts are those projected to occur at the time a proposed development becomes operational, including other developments not presently operational but which are anticipated to be operational at that time (near term).

Cumulative traffic impacts are those projected to occur at some point after a proposed development becomes operational, such as during subsequent phases of a project and when additional proposed developments in the area become operational (short-term cumulative) or when the affected community plan area reaches full planned build out (long-term cumulative).

It is possible that a project's near term (direct) impacts may be reduced in the long term, as future projects develop and provide additional roadway improvements (for instance, through implementation of traffic phasing plans). In such a case, the project may have direct impacts but not contribute considerably to a cumulative impact.

For intersections and roadway segments affected by a project, level of service (LOS) D or better is considered acceptable under both direct and cumulative conditions.

INITIAL STUDY CHECKLIST QUESTIONS

The following are taken from the City's Initial Study Checklist. They provide guidance on determining the potential significance of impacts to transportation, circulation systems, and parking~~:~~

Would the proposal result in:

1. Traffic generation in excess of specific community plan allocation?
2. An increase in projected traffic which is substantial (see table on following page) in relation to the existing traffic load and capacity of the street system?
3. Addition of a substantial amount of traffic to a congested freeway segment, interchange, or ramp as shown in the table on the next page?
4. An increased demand for off-site parking?
5. Effects on existing parking?
6. Substantial impact upon existing or planned transportation systems?
7. Substantial alterations to present circulation movements including effects on existing public access to beaches, parks, or other open space areas?

8. Increase in traffic hazards for motor vehicles, bicyclists or pedestrians due to a proposed, non-standard design feature (e.g., poor sight distance or driveway onto an access-restricted roadway)?
9. A conflict with adopted policies, plans or programs supporting alternative transportation models (e.g., bus turnouts, bicycle racks)?

SIGNIFICANCE THRESHOLDS

The following thresholds have been established to determine significant traffic impacts:

1. If any intersection, roadway segment, or freeway segment affected by a project would operate at LOS E or F under either direct or cumulative conditions, the impact would be significant if the project exceeds the thresholds shown in the table below.

2. At any ramp meter location with delays above 15 minutes, the impact would be significant if the project exceeds the thresholds shown in the table below.

3. If a project would add a substantial amount of traffic to a congested freeway segment, interchange, or ramp, the impact may be significant.

4. Addition of a substantial amount of traffic to a congested freeway segment, interchange, or ramp as shown in the table below?

5. If a project would increase traffic hazards to motor vehicles, bicyclists or pedestrians due to proposed non-standard design features (e.g., poor sight distance, proposed driveway onto an access-restricted roadway), the impact would be significant. Note: analysts should refer readers to a discussion of this issue in the Health and Safety section of the environmental document.

5. If a project would result in the construction of a roadway which is inconsistent with the General Plan and/or a community plan, the impact would be significant if the proposed roadway would not properly align with other existing or planned roadways.

6. If a project would result in a substantial restriction in access to publicly or privately owned land, the impact would be significant.

Level of Service with Project *	Allowable Change Due To Project Impact **					
	Freeways		Roadway Segments		Intersections	Ramp Metering
	V/C	*Speed (mph)*	*V/C*	*Speed (mph)*	*Delay (sec.)*	*Delay (min.)*
E (or ramp meter delays above 15 min.)	0.010	1.0	0.02	1.0	2.0	2.0
F (or ramp meter delays above 15 min.)	0.005	0.5	0.01	0.5	1.0	1.0

Note 1: The allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS E is 2 minutes.

Note 2: The allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS F is 1 minute.

* All LOS measurements are based upon Highway Capacity Manual procedures for peak-hour conditions. However, V/C ratios for roadway segments are estimated on an ADT/24-hour traffic volume basis (using Table 2 of the City's Traffic Impact Study Manual. The acceptable LOS for freeways, roadways, and intersections is generally "D" ("C" for undeveloped locations). For metered freeway ramps, LOS does not apply. However, ramp meter delays above 15 minutes are considered excessive.

** If a proposed project's traffic causes the values shown in the table to be exceeded, the impacts are determined to be significant. The project applicant shall then identify feasible improvements (within the Traffic Impact Study) that will restore/and maintain the traffic facility at an acceptable LOS. If the LOS with the proposed project becomes unacceptable (see above * note), or if the project adds a significant amount of peak-hour trips to cause any traffic queues to exceed on- or off-ramp storage capacities, the project applicant shall be responsible for mitigating the project's direct significant and/or cumulatively considerable traffic impacts.

KEY:
Delay = Average control delay per vehicle measured in seconds for intersections, or minutes for ramp meters
LOS = Level of Service
Speed = Speed measured in miles per hour
V/C = Volume to Capacity ratio

PARKING

Parking requirements vary by land use and location and are dictated by the City of San Diego Municipal Code and adopted by the City Council policies.

SIGNIFICANCE THRESHOLDS

Non-compliance with the City's parking ordinance does not necessarily constitute a significant environmental impact. However, it can lead to a decrease in the availability of existing public parking in the vicinity of the project. Generally, if a project is deficient by more than ten percent of the required amount of parking and at least one of the following criteria applies, then a significant impact may result:

1. The project's parking shortfall or displacement of existing parking would substantially affect the availability of parking in an adjacent residential area, including the availability of public parking.

2. The parking deficiency would severely impede the accessibility of a public facility, such as a park or beach.

APPENDIX D

Intersection Level of Service Calculations

```
                HCS+: Signalized Intersections Release 5.4

Analyst: RHC                              Inter.: Camino De La Plaza & Virginia
Agency: RCE Traffic Engineering           Area Type: CBD or Similar
Date:   9/15/17                           Jurisd: City of San Diego
Period: AM peak - Existing                Year  : 2017
Project ID: Virginia Avenue Parking Structure
E/W St: Camino De La Plaza                N/S St: Virginia Avenue

______________________SIGNALIZED INTERSECTION SUMMARY______________________
          |  Eastbound    |  Westbound    |  Northbound   |  Southbound   |
          | L    T    R   | L    T    R   | L    T    R   | L    T    R   |
          |               |               |               |               |
No. Lanes |   1   2   0   |   1   2   0   |   0   1   1   |   0   1   0   |
LGConfig  | L    TR       | L    TR       |      LT   R   |      LTR      |
Volume    |2    202  14  |92    325  14  |20   1    58   |18   2    3    |
Lane Width|12.0 12.0      |12.0 12.0      |     12.0 12.0 |     12.0      |
RTOR Vol  |          0    |          0    |          0    |          0    |

Duration    0.25       Area Type: CBD or Similar
______________________________Signal Operations_____________________________
Phase Combination 1     2     3     4 |               5     6     7     8
EB   Left         A                   |  NB   Left          A
     Thru                     A       |       Thru          A
     Right                    A       |       Right         A
     Peds                     X       |       Peds          X
WB   Left         A     A             |  SB   Left    A
     Thru               A     A       |       Thru    A
     Right              A     A       |       Right   A
     Peds                     X       |       Peds    X
NB   Right        A     A             |  EB   Right
SB   Right                            |  WB   Right
Green            11.5  10.0  50.0                    26.0  25.0
Yellow           3.5   3.5   3.5                     3.5   3.5
All Red          0.0   0.0   0.0                     0.0   0.0
                                                 Cycle Length: 140.0    secs
_____________________Intersection Performance Summary______________________
Appr/   Lane      Adj Sat     Ratios        Lane Group    Approach
Lane    Group     Flow Rate   ___________   ___________   ___________
Grp     Capacity    (s)       v/c    g/C    Delay LOS     Delay LOS

___________________________________________________________________________
Eastbound
L        133       1624       0.02   0.08   59.1   E
TR       1141      3196       0.21   0.36   31.3   C      31.5    C

Westbound
L        290       1624       0.34   0.18   51.0   D
TR       1454      3206       0.25   0.45   23.7   C      29.5    C

Northbound

LT       291       1632       0.08   0.18   48.0   D      33.6    C
R        453       1185       0.14   0.38   28.4   C
Southbound

LTR      298       1602       0.08   0.19   47.3   D      47.3    D

        Intersection Delay = 31.1  (sec/veh)   Intersection LOS = C
___________________________________________________________________________
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                    HCS+: Signalized Intersections Release 5.4




Phone:                                          Fax:
E-Mail:
______________________________OPERATIONAL ANALYSIS_____________________________

Analyst:                 RHC
Agency/Co.:              RCE Traffic Engineering
Date Performed:          9/15/17
Analysis Time Period:    AM peak - Existing
Intersection:            Camino De La Plaza & Virginia
Area Type:               CBD or Similar
Jurisdiction:            City of San Diego
Analysis Year:           2017
Project ID:  Virginia Avenue Parking Structure
E/W St: Camino De La Plaza                  N/S St: Virginia Avenue

_________________________________VOLUME DATA___________________________________

           |  Eastbound     |  Westbound     |  Northbound    |  Southbound    |
           | L    T    R    | L    T    R    | L    T    R    | L    T    R    |
           |                |                |                |                |
Volume     |2    202  14    |92   325  14    |20   1    58    |18   2    3     |
% Heavy Veh|0    0    0     |0    0    0     |0    0    0     |0    0    0     |
PHF        |0.92 0.92 0.92  |0.92 0.92 0.92  |0.92 0.92 0.92  |0.92 0.92 0.92  |
PK 15 Vol  |1    55   4     |25   88   4     |5    1    16    |5    1    1     |
Hi Ln Vol  |                |                |                |                |
% Grade    |     0          |     0          |     0          |     0          |
Ideal Sat  |1900 1900       |1900 1900       |     1900 1900  |     1900       |
ParkExist  |                |                |                |                |
NumPark    |                |                |                |                |
No. Lanes  |  1   2    0    |  1   2    0    |  0   1    1    |  0   1    0    |
LGConfig   | L     TR       | L     TR       |      LT   R    |      LTR       |
Lane Width |12.0 12.0       |12.0 12.0       |     12.0 12.0  |     12.0       |
RTOR Vol   |          0     |          0     |          0     |          0     |
Adj Flow   |2    235        |100  368        |     23   63    |     25         |
%InSharedLn|                |                |                |                |
Prop LTs   |      0.000     |      0.000     |      0.957     |      0.800     |
Prop RTs   |   0.064        |   0.041        |   0.000 1.000  |   0.120        |
Peds  Bikes|   100    0     |   160    0     |   110    0     |   50     0     |
Buses      |0    0          |0    0          |     0    0     |     0          |
%InProtPhase                |          0.0   |          0.0   |                |
Duration    0.25      Area Type: CBD or Similar

_____________________________OPERATING PARAMETERS______________________________

           |  Eastbound     |  Westbound     |  Northbound    |  Southbound    |
           | L    T    R    | L    T    R    | L    T    R    | L    T    R    |
           |                |                |                |                |
Init Unmet |0.0  0.0        |0.0  0.0        |     0.0  0.0   |     0.0        |
Arriv. Type|3    3          |3    3          |     3    3     |     3          |
Unit Ext.  |3.0  3.0        |3.0  3.0        |     3.0  3.0   |     3.0        |
I Factor   |     1.000      |     1.000      |     1.000      |     1.000      |
Lost Time  |2.0  2.0        |2.0  2.0        |     2.0  2.0   |     2.0        |
Ext of g   |2.0  2.0        |2.0  2.0        |     2.0  2.0   |     2.0        |
Ped Min g  |     23.0       |     19.9       |     24.4       |     23.7       |
```

```
                    HCS+: Signalized Intersections Release 5.4

    Analyst: RHC                               Inter.: Camino De La Plaza & Virginia
    Agency: RCE Traffic Engineering            Area Type: CBD or Similar
    Date:   9/15/17                            Jurisd: City of San Diego
    Period: AM peak - Existing + project       Year  : 2017
    Project ID: Virginia Avenue Parking Structure
    E/W St: Camino De La Plaza                 N/S St: Virginia Avenue

    ______________________SIGNALIZED INTERSECTION SUMMARY_______________________
             |   Eastbound    |   Westbound    |   Northbound   |   Southbound   |
             |  L    T    R   |  L    T    R   |  L    T    R   |  L    T    R   |
             |                |                |                |                |
             | _______________|________________|________________|________________|
    No. Lanes|   1    2    0  |   1    2    0  |   0    1    1  |   0    1    0  |
    LGConfig |  L    TR       |  L    TR       |       LT   R   |       LTR      |
    Volume   |4    220  14    |92   352  14    |20   1    58    |18   2    3     |
    Lane Width|12.0 12.0      |12.0 12.0       |     12.0 12.0  |     12.0       |
    RTOR Vol |           0    |           0    |           0    |           0    |
    ____________________________________________________________________________
    Duration    0.25      Area Type: CBD or Similar
    ___________________________Signal Operations________________________________
    Phase Combination 1    2    3    4 |            5    6    7    8
    EB  Left          A                | NB  Left        A
        Thru                    A      |     Thru        A
        Right                   A      |     Right       A
        Peds                    X      |     Peds        X
    WB  Left          A    A           | SB  Left   A
        Thru               A    A      |     Thru   A
        Right              A    A      |     Right  A
        Peds                    X      |     Peds   X
    NB  Right         A    A           | EB  Right
    SB  Right                          | WB  Right
    Green            11.5 10.0 50.0                  26.0  25.0
    Yellow           3.5  3.5  3.5                   3.5   3.5
    All Red          0.0  0.0  0.0                   0.0   0.0
                                                  Cycle Length: 140.0    secs
    _____________________Intersection Performance Summary______________________
    Appr/   Lane      Adj Sat     Ratios        Lane Group    Approach
    Lane    Group     Flow Rate  __________     __________    __________
    Grp     Capacity    (s)      v/c    g/C     Delay LOS     Delay LOS
    ___________________________________________________________________________
    Eastbound
    L        133       1624      0.03   0.08    59.2   E
    TR       1143      3200      0.22   0.36    31.5   C      32.0    C

    Westbound
    L        290       1624      0.34   0.18    51.0   D
    TR       1456      3210      0.27   0.45    24.0   C      29.4    C

    Northbound

    LT       291       1632      0.08   0.18    48.0   D      33.6    C
    R        453       1185      0.14   0.38    28.4   C
    Southbound

    LTR      298       1602      0.08   0.19    47.3   D      47.3    D

            Intersection Delay = 31.1  (sec/veh)   Intersection LOS = C
    ___________________________________________________________________________
```

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                 HCS+: Signalized Intersections Release 5.4





Phone:                                          Fax:
E-Mail:
_____________________________OPERATIONAL ANALYSIS____________________________

Analyst:                    RHC
Agency/Co.:                 RCE Traffic Engineering
Date Performed:             9/15/17
Analysis Time Period:       AM peak - Existing + project
Intersection:               Camino De La Plaza & Virginia
Area Type:                  CBD or Similar
Jurisdiction:               City of San Diego
Analysis Year:              2017
Project ID:  Virginia Avenue Parking Structure
E/W St: Camino De La Plaza               N/S St: Virginia Avenue

_______________________________VOLUME DATA___________________________________

             |  Eastbound      |  Westbound      |  Northbound     |  Southbound     |
             | L    T    R     | L    T    R     | L    T    R     | L    T    R     |
             |                 |                 |                 |                 |
Volume       |4     220  14    |92    352  14    |20    1    58    |18    2    3     |
% Heavy Veh  |0     0    0     |0     0    0     |0     0    0     |0     0    0     |
PHF          |0.92  0.92 0.92  |0.92  0.92 0.92  |0.92  0.92 0.92  |0.92  0.92 0.92  |
PK 15 Vol    |1     60   4     |25    96   4     |5     1    16    |5     1    1     |
Hi Ln Vol    |                 |                 |                 |                 |
% Grade      |      0          |      0          |      0          |      0          |
Ideal Sat    |1900  1900       |1900  1900       |      1900 1900  |      1900       |
ParkExist    |                 |                 |                 |                 |
NumPark      |                 |                 |                 |                 |
No. Lanes    |   1    2    0   |   1    2    0   |   0    1    1   |   0    1    0   |
LGConfig     | L      TR       | L      TR       |       LT   R    |       LTR       |
Lane Width   |12.0  12.0       |12.0  12.0       |      12.0 12.0  |      12.0       |
RTOR Vol     |           0     |           0     |           0     |           0     |
Adj Flow     |4     254        |100   398        |      23   63    |      25         |
%InSharedLn  |                 |                 |                 |                 |
Prop LTs     |        0.000    |        0.000    |       0.957     |       0.800     |
Prop RTs     |    0.059        |    0.038        |    0.000 1.000  |    0.120        |
Peds  Bikes  |    100   0      |    160   0      |    110   0      |    50    0      |
Buses        |0     0          |0     0          |      0    0     |      0          |
%InProtPhase                   |           0.0   |           0.0   |                 |
Duration     0.25      Area Type: CBD or Similar

____________________________OPERATING PARAMETERS_____________________________

             |  Eastbound      |  Westbound      |  Northbound     |  Southbound     |
             | L    T    R     | L    T    R     | L    T    R     | L    T    R     |
             |                 |                 |                 |                 |
Init Unmet   |0.0   0.0        |0.0   0.0        |      0.0  0.0   |      0.0        |
Arriv. Type  |3     3          |3     3          |      3    3     |      3          |
Unit Ext.    |3.0   3.0        |3.0   3.0        |      3.0  3.0   |      3.0        |
I Factor     |      1.000      |      1.000      |      1.000      |      1.000      |
Lost Time    |2.0   2.0        |2.0   2.0        |      2.0  2.0   |      2.0        |
Ext of g     |2.0   2.0        |2.0   2.0        |      2.0  2.0   |      2.0        |
Ped Min g    |      23.0       |      19.9       |      24.4       |      23.7       |
```

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                  HCS+: Signalized Intersections Release 5.4

Analyst: RHC                              Inter.: Camino De La Plaza & Virginia
Agency: RCE Traffic Engineering           Area Type: CBD or Similar
Date:   9/15/17                           Jurisd: City of San Diego
Period: AM peak - Existing + cumul.       Year  : 2019
Project ID: Virginia Avenue Parking Structure
E/W St: Camino De La Plaza                N/S St: Virginia Avenue

______________________SIGNALIZED INTERSECTION SUMMARY___________________________
             |  Eastbound      |  Westbound      |  Northbound     |  Southbound     |
             | L    T    R     | L    T    R     | L    T    R     | L    T    R     |
             |                 |                 |                 |                 |
             | _______________ |_______________  | _______________ |_______________  |
No. Lanes    |   1    2    0   |   1    2    0   |   0    1    1   |   0    1    0   |
LGConfig     | L     TR        | L     TR        |        LT   R   |       LTR       |
Volume       |2    202  68     |317  325  14     |68   1    298    |18   2    3      |
Lane Width   |12.0 12.0        |12.0 12.0        |     12.0 12.0   |     12.0        |
RTOR Vol     |          0      |          0      |          0      |          0      |
________________________________________________________________________________
Duration     0.25      Area Type: CBD or Similar
_________________________________Signal Operations______________________________
Phase Combination 1     2     3     4  |              5     6     7     8
EB   Left         A                    |  NB  Left          A
     Thru                     A        |      Thru          A
     Right                    A        |      Right         A
     Peds                     X        |      Peds          X
WB   Left         A     A              |  SB  Left    A
     Thru               A     A        |      Thru    A
     Right              A     A        |      Right   A
     Peds                     X        |      Peds    X
NB   Right        A     A              |  EB  Right
SB   Right                             |  WB  Right
Green            11.5  30.0  40.0                     26.0  35.0
Yellow           3.5   3.5   3.5                      3.5   3.5
All Red          0.0   0.0   0.0                      0.0   0.0
                                                      Cycle Length: 160.0    secs
_______________________Intersection Performance Summary_________________________
Appr/   Lane      Adj Sat     Ratios       Lane Group    Approach
Lane    Group     Flow Rate  __________   ___________   ___________
Grp     Capacity   (s)       v/c    g/C   Delay LOS     Delay LOS
________________________________________________________________________________
Eastbound
L        117       1624      0.02   0.07   69.1   E
TR       724       2896      0.41   0.25   50.5   D     50.6   D

Westbound
L        457       1624      0.75   0.28   59.5   E
TR       1462      3183      0.25   0.46   26.5   C     42.5   D

Northbound

LT       357       1630      0.21   0.22   51.5   D     31.7   C
R        577       1105      0.56   0.52   27.1   C
Southbound

LTR      257       1582      0.10   0.16   57.2   E     57.2   E

        Intersection Delay = 41.4  (sec/veh)   Intersection LOS = D
________________________________________________________________________________
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                  HCS+: Signalized Intersections Release 5.4



Phone:                                       Fax:
E-Mail:
______________________________OPERATIONAL ANALYSIS_____________________________

Analyst:                 RHC
Agency/Co.:              RCE Traffic Engineering
Date Performed:          9/15/17
Analysis Time Period:    AM peak - Existing + cumul.
Intersection:            Camino De La Plaza & Virginia
Area Type:               CBD or Similar
Jurisdiction:            City of San Diego
Analysis Year:           2019
Project ID:  Virginia Avenue Parking Structure
E/W St: Camino De La Plaza             N/S St: Virginia Avenue

________________________________VOLUME DATA___________________________________

           |  Eastbound    |  Westbound    |  Northbound   |  Southbound   |
           | L    T    R   | L    T    R   | L    T    R   | L    T    R   |
           |               |               |               |               |
Volume     |2    202  68   |317  325  14   |68   1    298  |18   2    3    |
% Heavy Veh|0    0    0    |0    0    0    |0    0    0    |0    0    0    |
PHF        |0.92 0.92 0.92 |0.92 0.92 0.92 |0.92 0.92 0.92 |0.92 0.92 0.92 |
PK 15 Vol  |1    55   18   |86   88   4    |18   1    81   |5    1    1    |
Hi Ln Vol  |               |               |               |               |
% Grade    |     0         |     0         |     0         |     0         |
Ideal Sat  |1900 1900      |1900 1900      |     1900 1900 |     1900      |
ParkExist  |               |               |               |               |
NumPark    |               |               |               |               |
No. Lanes  |  1    2    0  |  1    2    0  |  0    1    1  |  0    1    0  |
LGConfig   | L     TR      | L     TR      |      LT   R   |      LTR      |
Lane Width |12.0 12.0      |12.0 12.0      |     12.0 12.0 |     12.0      |
RTOR Vol   |          0    |          0    |          0    |          0    |
Adj Flow   |2    294       |345  368       |     75   324  |     25        |
%InSharedLn|               |               |               |               |
Prop LTs   |     0.000     |     0.000     |      0.987    |      0.800    |
Prop RTs   |   0.252       |   0.041       |   0.000 1.000 |   0.120       |
Peds  Bikes|   150   0     |   200   0     |   175   0     |   100   0     |
Buses      |0    0         |0    0         |     0    0    |     0         |
%InProtPhase               |          0.0  |          0.0  |               |
Duration    0.25      Area Type: CBD or Similar

_____________________________OPERATING PARAMETERS_____________________________

           |  Eastbound    |  Westbound    |  Northbound   |  Southbound   |
           | L    T    R   | L    T    R   | L    T    R   | L    T    R   |
           |               |               |               |               |
Init Unmet |0.0  0.0       |0.0  0.0       |     0.0  0.0  |     0.0       |
Arriv. Type|3    3         |3    3         |     3    3    |     3         |
Unit Ext.  |3.0  3.0       |3.0  3.0       |     3.0  3.0  |     3.0       |
I Factor   |     1.000     |     1.000     |     1.000     |     1.000     |
Lost Time  |2.0  2.0       |2.0  2.0       |     2.0  2.0  |     2.0       |
Ext of g   |2.0  2.0       |2.0  2.0       |     2.0  2.0  |     2.0       |
Ped Min g  |     23.8      |     20.6      |     25.3      |     24.4      |
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                 HCS+: Signalized Intersections Release 5.4

Analyst: RHC                                Inter.: Camino De La Plaza & Virginia
Agency: RCE Traffic Engineering             Area Type: CBD or Similar
Date:   9/15/17                             Jurisd: City of San Diego
Period: AM peak - Exist + cumul.+ proj      Year   : 2019
Project ID: Virginia Avenue Parking Structure
E/W St: Camino De La Plaza                  N/S St: Virginia Avenue

______________________SIGNALIZED INTERSECTION SUMMARY_______________________
           |   Eastbound    |   Westbound    |   Northbound   |   Southbound   |
           | L    T    R    | L    T    R    | L    T    R    | L    T    R    |
           |                |                |                |                |
No. Lanes  |  1    2    0   |  1    2    0   |  0    1    1   |  0    1    0   |
LGConfig   | L    TR        | L    TR        |      LT   R    |      LTR       |
Volume     |4    225  68    |317  352  14    |68   1    298   |18   2    3     |
Lane Width |12.0 12.0       |12.0 12.0       |     12.0 12.0  |     12.0       |
RTOR Vol   |          0     |          0     |          0     |          0     |
____________________________________________________________________________
Duration    0.25      Area Type: CBD or Similar
________________________________Signal Operations___________________________
Phase Combination 1     2     3     4 |          5     6     7     8
EB  Left          A                   | NB  Left       A
    Thru                      A       |     Thru       A
    Right                     A       |     Right      A
    Peds                      X       |     Peds       X
WB  Left          A     A             | SB  Left    A
    Thru                A     A       |     Thru    A
    Right               A     A       |     Right   A
    Peds                      X       |     Peds    X
NB  Right         A     A             | EB  Right
SB  Right                             | WB  Right
Green            11.5  30.0  40.0                26.0  35.0
Yellow           3.5   3.5   3.5                 3.5   3.5
All Red          0.0   0.0   0.0                 0.0   0.0
                                                 Cycle Length: 160.0    secs
_______________________Intersection Performance Summary_____________________
Appr/   Lane      Adj Sat    Ratios        Lane Group   Approach
Lane    Group     Flow Rate  __________    __________   __________
Grp     Capacity    (s)      v/c     g/C   Delay LOS    Delay LOS
____________________________________________________________________________
Eastbound
L        117      1624       0.03   0.07   69.2   E
TR       731      2924       0.44   0.25   50.9   D    51.2    D

Westbound
L        457      1624       0.75   0.28   59.5   E
TR       1465     3189       0.27   0.46   26.8   C    42.0    D

Northbound

LT       357      1630       0.21   0.22   51.5   D    31.7    C
R        577      1105       0.56   0.52   27.1   C
Southbound

LTR      257      1582       0.10   0.16   57.2   E    57.2    E

        Intersection Delay = 41.5  (sec/veh)   Intersection LOS = D
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                HCS+: Signalized Intersections Release 5.4







Phone:                                          Fax:
E-Mail:
_____________________________OPERATIONAL ANALYSIS_____________________________

Analyst:                    RHC
Agency/Co.:                 RCE Traffic Engineering
Date Performed:             9/15/17
Analysis Time Period:       AM peak - Exist + cumul.+ proj
Intersection:               Camino De La Plaza & Virginia
Area Type:                  CBD or Similar
Jurisdiction:               City of San Diego
Analysis Year:              2019
Project ID:  Virginia Avenue Parking Structure
E/W St: Camino De La Plaza                  N/S St: Virginia Avenue

______________________________VOLUME DATA_____________________________________

           |  Eastbound     |  Westbound     |  Northbound    |  Southbound    |
           | L    T    R    | L    T    R    | L    T    R    | L    T    R    |
           |_______________ |_______________ |_______________ |_______________ |
Volume     |4    225  68    |317  352  14    |68   1    298   |18   2    3     |
% Heavy Veh|0    0    0     |0    0    0     |0    0    0     |0    0    0     |
PHF        |0.92 0.92 0.92  |0.92 0.92 0.92  |0.92 0.92 0.92  |0.92 0.92 0.92  |
PK 15 Vol  |1    61   18    |86   96   4     |18   1    81    |5    1    1     |
Hi Ln Vol  |                |                |                |                |
% Grade    |     0          |     0          |     0          |     0          |
Ideal Sat  |1900 1900       |1900 1900       |     1900 1900  |     1900       |
ParkExist  |                |                |                |                |
NumPark    |                |                |                |                |
No. Lanes  |  1    2    0   |  1    2    0   |  0    1    1   |  0    1    0   |
LGConfig   | L      TR      | L      TR      |      LT    R   |       LTR      |
Lane Width |12.0 12.0       |12.0 12.0       |     12.0 12.0  |     12.0       |
RTOR Vol   |           0    |           0    |           0    |           0    |
Adj Flow   |4    319        |345  398        |     75   324   |     25         |
%InSharedLn|                |                |                |                |
Prop LTs   |      0.000     |      0.000     |      0.987     |      0.800     |
Prop RTs   |   0.232        |   0.038        |   0.000 1.000  |   0.120        |
Peds  Bikes|   150    0     |   200    0     |   175    0     |   100    0     |
Buses      |0    0          |0    0          |     0    0     |     0          |
%InProtPhase                |          0.0   |          0.0   |                |
Duration    0.25      Area Type: CBD or Similar

____________________________OPERATING PARAMETERS______________________________

           |  Eastbound     |  Westbound     |  Northbound    |  Southbound    |
           | L    T    R    | L    T    R    | L    T    R    | L    T    R    |
           |_______________ |_______________ |_______________ |_______________ |
Init Unmet |0.0  0.0        |0.0  0.0        |     0.0  0.0   |     0.0        |
Arriv. Type|3    3          |3    3          |     3    3     |     3          |
Unit Ext.  |3.0  3.0        |3.0  3.0        |     3.0  3.0   |     3.0        |
I Factor   |     1.000      |     1.000      |     1.000      |     1.000      |
Lost Time  |2.0  2.0        |2.0  2.0        |     2.0  2.0   |     2.0        |
Ext of g   |2.0  2.0        |2.0  2.0        |     2.0  2.0   |     2.0        |
Ped Min g  |     23.8       |     20.6       |     25.3       |     24.4       |
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                  HCS+: Signalized Intersections Release 5.4

Analyst: RHC                            Inter.: Camino De La Plaza & Virginia
Agency: RCE Traffic Engineering         Area Type: CBD or Similar
Date:    9/15/17                        Jurisd: City of San Diego
Period: AM peak - 2035                  Year   : 2035
Project ID: Virginia Avenue Parking Structure
E/W St: Camino De La Plaza              N/S St: Virginia Avenue

_________________________SIGNALIZED INTERSECTION SUMMARY_______________________
           |  Eastbound     |  Westbound     |  Northbound    |  Southbound    |
           | L    T    R    | L    T    R    | L    T    R    | L    T    R    |
           |                |                |                |                |
           | _______________|________________|________________|________________|
No. Lanes  |   1   2   0    |   1   2   0    |   0   1   1    |   1   1   0    |
LGConfig   | L     TR       | L     TR       |       LT   R   | L     TR       |
Volume     |16   392  73    |317  394  108   |68   5    298   |56   16   16    |
Lane Width |12.0 12.0       |12.0 12.0       |     12.0 12.0  |12.0 12.0       |
RTOR Vol   |          0     |          0     |          0     |           0    |
______________________________________________________________________________
Duration      0.25      Area Type: CBD or Similar
______________________________Signal Operations________________________________
Phase Combination 1     2     3     4  |             5     6     7     8
EB   Left         A                    | NB   Left         A
     Thru                     A        |      Thru         A
     Right                    A        |      Right        A
     Peds                     X        |      Peds         X
WB   Left         A     A              | SB   Left   A
     Thru               A     A        |      Thru   A
     Right              A     A        |      Right  A
     Peds                     X        |      Peds   X
NB   Right        A     A              | EB   Right
SB   Right                             | WB   Right
Green            11.5  30.0  45.0                   26.0  30.0
Yellow           3.5   3.5   3.5                    3.5   3.5
All Red          0.0   0.0   0.0                    0.0   0.0
                                                    Cycle Length: 160.0   secs
_____________________Intersection Performance Summary__________________________
Appr/   Lane       Adj Sat     Ratios          Lane Group   Approach
Lane    Group      Flow Rate  ____________     __________   __________
Grp     Capacity     (s)      v/c    g/C       Delay LOS    Delay LOS
______________________________________________________________________________
Eastbound
L         117      1624       0.15   0.07      70.2   E
TR        857      3047       0.59   0.28      50.6   D     51.3   D

Westbound
L         457      1624       0.75   0.28      59.5   E
TR        1428     2911       0.38   0.49      25.7   C     38.8   D

Northbound

LT        306      1633       0.26   0.19      55.9   E     37.1   D
R         514      1047       0.63   0.49      32.5   C
Southbound
L         264      1624       0.23   0.16      58.8   E
TR        233      1436       0.15   0.16      57.8   E     58.4   E

         Intersection Delay = 42.8  (sec/veh)   Intersection LOS = D
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                  HCS+: Signalized Intersections Release 5.4




Phone:                                        Fax:
E-Mail:
______________________________OPERATIONAL ANALYSIS______________________________

Analyst:                  RHC
Agency/Co.:               RCE Traffic Engineering
Date Performed:           9/15/17
Analysis Time Period:     AM peak - 2035
Intersection:             Camino De La Plaza & Virginia
Area Type:                CBD or Similar
Jurisdiction:             City of San Diego
Analysis Year:            2035
Project ID:  Virginia Avenue Parking Structure
E/W St: Camino De La Plaza              N/S St: Virginia Avenue

________________________________VOLUME DATA_____________________________________

           |  Eastbound    |  Westbound    |  Northbound   |  Southbound   |
           | L    T    R   | L    T    R   | L    T    R   | L    T    R   |
           |               |               |               |               |
Volume     |16   392  73   |317  394  108  |68   5    298  |56   16   16   |
% Heavy Veh|0    0    0    |0    0    0    |0    0    0    |0    0    0    |
PHF        |0.92 0.92 0.92 |0.92 0.92 0.92 |0.92 0.92 0.92 |0.92 0.92 0.92 |
PK 15 Vol  |4    107  20   |86   107  29   |18   2    81   |15   4    4    |
Hi Ln Vol  |               |               |               |               |
% Grade    |     0         |     0         |     0         |     0         |
Ideal Sat  |1900 1900      |1900 1900      |     1900 1900 |1900 1900      |
ParkExist  |               |               |               |               |
NumPark    |               |               |               |               |
No. Lanes  |   1    2    0 |   1    2    0 |   0    1    1 |   1    1    0 |
LGConfig   | L     TR      | L     TR      |       LT   R  | L     TR      |
Lane Width |12.0 12.0      |12.0 12.0      |     12.0 12.0 |12.0 12.0      |
RTOR Vol   |          0    |          0    |          0    |          0    |
Adj Flow   |17   505       |345  545       |     79   324  |61   34        |
%InSharedLn|               |               |               |               |
Prop LTs   |      0.000    |      0.000    |      0.937    |      0.000    |
Prop RTs   |   0.156       |   0.215       |   0.000 1.000 |   0.500       |
Peds  Bikes|   150    0    |   200    0    |   175    0    |   100    0    |
Buses      |0    0         |0    0         |     0    0    |0    0         |
%InProtPhase               |          0.0  |          0.0  |               |
Duration     0.25      Area Type: CBD or Similar

_____________________________OPERATING PARAMETERS_______________________________

           |  Eastbound    |  Westbound    |  Northbound   |  Southbound   |
           | L    T    R   | L    T    R   | L    T    R   | L    T    R   |
           |               |               |               |               |
Init Unmet |0.0  0.0       |0.0  0.0       |     0.0  0.0  |0.0  0.0       |
Arriv. Type|3    3         |3    3         |     3    3    |3    3         |
Unit Ext.  |3.0  3.0       |3.0  3.0       |     3.0  3.0  |3.0  3.0       |
I Factor   |     1.000     |     1.000     |     1.000     |     1.000     |
Lost Time  |2.0  2.0       |2.0  2.0       |     2.0  2.0  |2.0  2.0       |
Ext of g   |2.0  2.0       |2.0  2.0       |     2.0  2.0  |2.0  2.0       |
Ped Min g  |     23.8      |     20.6      |     25.3      |     24.4      |
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                HCS+: Signalized Intersections Release 5.4

   Analyst: RHC                            Inter.: Camino De La Plaza & Virginia
   Agency: RCE Traffic Engineering         Area Type: CBD or Similar
   Date:   9/15/17                         Jurisd: City of San Diego
   Period: AM peak - 2035 with proj        Year  : 2035
   Project ID: Virginia Avenue Parking Structure
   E/W St: Camino De La Plaza              N/S St: Virginia Avenue

   ______________________SIGNALIZED INTERSECTION SUMMARY_______________________
              |  Eastbound      |  Westbound      |  Northbound     |  Southbound     |
              |  L    T    R    |  L    T    R    |  L    T    R    |  L    T    R    |
              |                 |                 |                 |                 |
              | ______________  | _____________   | _____________   | _____________   |
   No. Lanes  |   1    2    0   |   1    2    0   |   0    1    1   |   1    1    0   |
   LGConfig   |  L     TR       |  L     TR       |       LT    R   |  L     TR       |
   Volume     |18    410   73   |317   422  108   |68    5    298   |56    16   16    |
   Lane Width |12.0 12.0        |12.0 12.0        |     12.0 12.0   |12.0 12.0        |
   RTOR Vol   |           0     |           0     |           0     |           0     |
   ____________________________________________________________________________
   Duration     0.25       Area Type: CBD or Similar
   ___________________________Signal Operations________________________________
   Phase Combination 1     2     3     4 |             5     6     7     8
   EB   Left         A                   |  NB   Left        A
        Thru                     A       |       Thru        A
        Right                    A       |       Right       A
        Peds                     X       |       Peds        X
   WB   Left         A     A             |  SB   Left  A
        Thru               A     A       |       Thru  A
        Right              A     A       |       Right A
        Peds                     X       |       Peds  X
   NB   Right        A     A             |  EB   Right
   SB   Right                            |  WB   Right
   Green            11.5  30.0  45.0                26.0  30.0
   Yellow           3.5   3.5   3.5                 3.5   3.5
   All Red          0.0   0.0   0.0                 0.0   0.0
                                                   Cycle Length: 160.0    secs
   ____________________Intersection Performance Summary________________________
   Appr/   Lane      Adj Sat    Ratios         Lane Group    Approach
   Lane    Group     Flow Rate  __________     __________    __________
   Grp     Capacity    (s)      v/c    g/C     Delay LOS     Delay LOS
   ____________________________________________________________________________
   Eastbound
   L        117       1624      0.17   0.07    70.5   E
   TR       859       3055      0.61   0.28    51.2   D      51.9   D

   Westbound
   L        457       1624      0.75   0.28    59.5   E
   TR       1437      2929      0.40   0.49    26.0   C      38.6   D

   Northbound

   LT       306       1633      0.26   0.19    55.9   E      37.1   D
   R        514       1047      0.63   0.49    32.5   C
   Southbound
   L        264       1624      0.23   0.16    58.8   E
   TR       233       1436      0.15   0.16    57.8   E      58.4   E

          Intersection Delay = 42.9  (sec/veh)   Intersection LOS = D
   ____________________________________________________________________________
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                 HCS+: Signalized Intersections Release 5.4




Phone:                                         Fax:
E-Mail:
____________________________OPERATIONAL ANALYSIS____________________________

Analyst:                     RHC
Agency/Co.:                  RCE Traffic Engineering
Date Performed:              9/15/17
Analysis Time Period:        AM peak - 2035 with proj
Intersection:                Camino De La Plaza & Virginia
Area Type:                   CBD or Similar
Jurisdiction:                City of San Diego
Analysis Year:               2035
Project ID:  Virginia Avenue Parking Structure
E/W St: Camino De La Plaza                 N/S St: Virginia Avenue

_______________________________VOLUME DATA__________________________________

             |  Eastbound     |  Westbound     |  Northbound    |  Southbound    |
             | L    T    R    | L    T    R    | L    T    R    | L    T    R    |
             |                |                |                |                |
Volume       |18   410  73    |317  422  108   |68   5    298   |56   16   16    |
% Heavy Veh  |0    0    0     |0    0    0     |0    0    0     |0    0    0     |
PHF          |0.92 0.92 0.92  |0.92 0.92 0.92  |0.92 0.92 0.92  |0.92 0.92 0.92  |
PK 15 Vol    |5    111  20    |86   115  29    |18   2    81    |15   4    4     |
Hi Ln Vol    |                |                |                |                |
% Grade      |     0          |     0          |     0          |     0          |
Ideal Sat    |1900 1900       |1900 1900       |     1900 1900  |1900 1900       |
ParkExist    |                |                |                |                |
NumPark      |                |                |                |                |
No. Lanes    |   1   2   0    |   1   2   0    |   0   1   1    |   1   1   0    |
LGConfig     | L     TR       | L     TR       |       LT   R   | L     TR       |
Lane Width   |12.0 12.0       |12.0 12.0       |     12.0 12.0  |12.0 12.0       |
RTOR Vol     |          0     |          0     |          0     |          0     |
Adj Flow     |20   525        |345  576        |     79   324   |61   34         |
%InSharedLn  |                |                |                |                |
Prop LTs     |      0.000     |      0.000     |     0.937      |      0.000     |
Prop RTs     |    0.150       |    0.203       |   0.000 1.000  |    0.500       |
Peds  Bikes  |    150   0     |    200   0     |   175   0      |    100   0     |
Buses        |0    0          |0    0          |     0    0     |0    0          |
%InProtPhase                  |          0.0   |          0.0   |                |
Duration     0.25     Area Type: CBD or Similar

___________________________OPERATING PARAMETERS_____________________________

             |  Eastbound     |  Westbound     |  Northbound    |  Southbound    |
             | L    T    R    | L    T    R    | L    T    R    | L    T    R    |
             |                |                |                |                |
Init Unmet   |0.0  0.0        |0.0  0.0        |     0.0  0.0   |0.0  0.0        |
Arriv. Type  |3    3          |3    3          |     3    3     |3    3          |
Unit Ext.    |3.0  3.0        |3.0  3.0        |     3.0  3.0   |3.0  3.0        |
I Factor     |     1.000      |     1.000      |     1.000      |     1.000      |
Lost Time    |2.0  2.0        |2.0  2.0        |     2.0  2.0   |2.0  2.0        |
Ext of g     |2.0  2.0        |2.0  2.0        |     2.0  2.0   |2.0  2.0        |
Ped Min g    |     23.8       |     20.6       |     25.3       |     24.4       |
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                HCS+: Signalized Intersections Release 5.4

Analyst: RHC                          Inter.: Camino De La Plaza & Virginia
Agency: RCE Traffic Engineering       Area Type: CBD or Similar
Date:   9/15/17                       Jurisd: City of San Diego
Period: PM peak - Existing            Year   : 2017
Project ID: Virginia Avenue Parking Structure
E/W St: Camino De La Plaza            N/S St: Virginia Avenue

____________________SIGNALIZED INTERSECTION SUMMARY___________________
            |   Eastbound    |   Westbound    |   Northbound   |   Southbound   |
            |  L    T    R   |  L    T    R   |  L    T    R   |  L    T    R   |
            |                |                |                |                |
No. Lanes   |   1    2    0  |   1    2    0  |   0    1    1  |   0    1    0  |
LGConfig    |  L     TR      |  L     TR      |       LT    R  |       LTR      |
Volume      |2    573  28    |93   720  16    |31   5    106   |14   1    9     |
Lane Width  |12.0 12.0       |12.0 12.0       |     12.0 12.0  |     12.0       |
RTOR Vol    |          0     |           0    |          67    |           0    |
______________________________________________________________________________
Duration     0.25      Area Type: CBD or Similar
______________________________Signal Operations_______________________________
Phase Combination 1     2     3     4  |           5     6     7     8
EB   Left         A                    |  NB Left        A
     Thru               A              |     Thru        A
     Right              A              |     Right       A
     Peds               X              |     Peds        X
WB   Left         A                    |  SB Left   A
     Thru               A              |     Thru   A
     Right              A              |     Right  A
     Peds               X              |     Peds   X
NB   Right        A                    |  EB Right
SB   Right                             |  WB Right
Green            24.0  60.0                       26.0  26.0
Yellow           3.5   3.5                        3.5   3.5
All Red          0.0   0.0                        0.0   0.0
                                                   Cycle Length: 150.0   secs
____________________Intersection Performance Summary__________________________
Appr/   Lane      Adj Sat     Ratios        Lane Group    Approach
Lane    Group     Flow Rate  ___________   __________    __________
Grp     Capacity    (s)      v/c    g/C    Delay LOS     Delay LOS
______________________________________________________________________________
Eastbound
L        260      1624       0.01   0.16   53.0   D
TR       1282     3205       0.51   0.40   34.3   C      34.3   C

Westbound
L        260      1624       0.39   0.16   57.4   E
TR       1290     3224       0.62   0.40   36.8   D      39.1   D

Northbound

LT       284      1639       0.14   0.17   52.7   D      42.1   D
R        411      1152       0.10   0.36   32.3   C
Southbound

LTR      244      1408       0.11   0.17   52.4   D      52.4   D

        Intersection Delay = 37.6  (sec/veh)   Intersection LOS = D
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                    HCS+: Signalized Intersections Release 5.4




Phone:                                          Fax:
E-Mail:
_____________________________OPERATIONAL ANALYSIS____________________________

Analyst:                    RHC
Agency/Co.:                 RCE Traffic Engineering
Date Performed:             9/15/17
Analysis Time Period:       PM peak - Existing
Intersection:               Camino De La Plaza & Virginia
Area Type:                  CBD or Similar
Jurisdiction:               City of San Diego
Analysis Year:              2017
Project ID:  Virginia Avenue Parking Structure
E/W St: Camino De La Plaza                N/S St: Virginia Avenue

________________________________VOLUME DATA__________________________________

           |  Eastbound      |  Westbound      |  Northbound     |  Southbound     |
           | L    T    R     | L    T    R     | L    T    R     | L    T    R     |
           |________________ |________________ |________________ |________________ |
Volume     |2    573  28     |93   720  16     |31   5    106    |14   1    9      |
% Heavy Veh|0    0    0      |0    0    0      |0    0    0      |0    0    0      |
PHF        |0.92 0.92 0.92   |0.92 0.92 0.92   |0.92 0.92 0.92   |0.92 0.92 0.92   |
PK 15 Vol  |1    156  8      |25   196  4      |8    2    29     |4    1    3      |
Hi Ln Vol  |                 |                 |                 |                 |
% Grade    |     0           |     0           |     0           |     0           |
Ideal Sat  |1900 1900        |1900 1900        |     1900 1900   |     1900        |
ParkExist  |                 |                 |                 |                 |
NumPark    |                 |                 |                 |                 |
No. Lanes  |  1   2   0      |  1   2   0      |  0   1   1      |  0   1   0      |
LGConfig   | L    TR         | L    TR         |      LT   R     |      LTR        |
Lane Width |12.0 12.0        |12.0 12.0        |     12.0 12.0   |     12.0        |
RTOR Vol   |          0      |          0      |          67     |          0      |
Adj Flow   |2    653         |101  800         |     39   42     |     26          |
%InSharedLn|                 |                 |                 |                 |
Prop LTs   |      0.000      |      0.000      |     0.872       |      0.577      |
Prop RTs   |   0.046         |   0.021         |   0.000 1.000   |   0.385         |
Peds  Bikes|   155    0      |   250    0      |   120    0      |   160    0      |
Buses      |0    0           |0    0           |     0    0      |     0           |
%InProtPhase                 |                 |          0.0    |                 |
Duration    0.25      Area Type: CBD or Similar

____________________________OPERATING PARAMETERS_____________________________

           |  Eastbound      |  Westbound      |  Northbound     |  Southbound     |
           | L    T    R     | L    T    R     | L    T    R     | L    T    R     |
           |________________ |________________ |________________ |________________ |
Init Unmet |0.0  0.0         |0.0  0.0         |     0.0  0.0    |     0.0         |
Arriv. Type|3    3           |3    3           |     3    3      |     3           |
Unit Ext.  |3.0  3.0         |3.0  3.0         |     3.0  3.0    |     3.0         |
I Factor   |     1.000       |     1.000       |     1.000       |     1.000       |
Lost Time  |2.0  2.0         |2.0  2.0         |     2.0  2.0    |     2.0         |
Ext of g   |2.0  2.0         |2.0  2.0         |     2.0  2.0    |     2.0         |
Ped Min g  |     23.7        |     21.0        |     24.5        |     25.0        |
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                    HCS+: Signalized Intersections Release 5.4

    Analyst: RHC                              Inter.: Camino De La Plaza & Virginia
    Agency: RCE Traffic Engineering           Area Type: CBD or Similar
    Date:   9/15/17                           Jurisd: City of San Diego
    Period: PM peak - Existing + proj         Year  : 2017
    Project ID: Virginia Avenue Parking Structure
    E/W St: Camino De La Plaza                N/S St: Virginia Avenue

    ______________________SIGNALIZED INTERSECTION SUMMARY_______________________
              |  Eastbound       |  Westbound       |  Northbound      |  Southbound      |
              |  L    T    R     |  L    T    R     |  L    T    R     |  L    T    R     |
              |                  |                  |                  |                  |
              |__________________|__________________|__________________|__________________|
    No. Lanes |   1    2    0    |   1    2    0    |   0    1    1    |   0    1    0    |
    LGConfig  |  L     TR        |  L     TR        |        LT   R    |       LTR        |
    Volume    |8    626  28      |93   772  16      |31   5    106     |14   1    9       |
    Lane Width|12.0 12.0         |12.0 12.0         |     12.0 12.0    |     12.0         |
    RTOR Vol  |          0       |          0       |          67      |          0       |

    ____________________________________________________________________________
    Duration     0.25       Area Type: CBD or Similar
    ___________________________Signal Operations_________________________________
    Phase Combination 1      2      3     4  |         5      6      7      8
    EB   Left         A                      | NB  Left         A
         Thru                A               |     Thru         A
         Right               A               |     Right        A
         Peds                X               |     Peds         X
    WB   Left         A                      | SB  Left    A
         Thru                A               |     Thru    A
         Right               A               |     Right   A
         Peds                X               |     Peds    X
    NB   Right        A                      | EB  Right
    SB   Right                               | WB  Right
    Green            24.0   60.0                          26.0   26.0
    Yellow           3.5    3.5                           3.5    3.5
    All Red          0.0    0.0                           0.0    0.0
                                                      Cycle Length: 150.0    secs
    __________________Intersection Performance Summary___________________________
    Appr/    Lane      Adj Sat     Ratios        Lane Group    Approach
    Lane     Group     Flow Rate  ___________   ___________   ___________
    Grp      Capacity     (s)      v/c    g/C    Delay LOS     Delay LOS
    _____________________________________________________________________________
    Eastbound
    L          260       1624      0.03   0.16   53.3  D
    TR         1284      3209      0.55   0.40   35.2  D       35.4   D

    Westbound
    L          260       1624      0.39   0.16   57.4  E
    TR         1290      3226      0.66   0.40   38.1  D       40.1   D

    Northbound

    LT         284       1639      0.14   0.17   52.7  D       42.1   D
    R          411       1152      0.10   0.36   32.3  C
    Southbound

    LTR        244       1408      0.11   0.17   52.4  D       52.4   D

             Intersection Delay = 38.5  (sec/veh)   Intersection LOS = D
    _____________________________________________________________________________
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                    HCS+: Signalized Intersections Release 5.4




 Phone:                                         Fax:
 E-Mail:
 _____________________________OPERATIONAL ANALYSIS_____________________________

 Analyst:                 RHC
 Agency/Co.:              RCE Traffic Engineering
 Date Performed:          9/15/17
 Analysis Time Period:    PM peak - Existing + proj
 Intersection:            Camino De La Plaza & Virginia
 Area Type:               CBD or Similar
 Jurisdiction:            City of San Diego
 Analysis Year:           2017
 Project ID:  Virginia Avenue Parking Structure
 E/W St: Camino De La Plaza                  N/S St: Virginia Avenue

 ________________________________VOLUME DATA___________________________________

               |  Eastbound       |  Westbound       |  Northbound      |  Southbound      |
               | L    T    R      | L    T    R      | L    T    R      | L    T    R      |
               |________________  |________________  |________________  |________________  |
 Volume        |8    626  28      |93   772  16      |31   5    106     |14   1    9       |
 % Heavy Veh   |0    0    0       |0    0    0       |0    0    0       |0    0    0       |
 PHF           |0.92 0.92 0.92    |0.92 0.92 0.92    |0.92 0.92 0.92    |0.92 0.92 0.92    |
 PK 15 Vol     |2    170  8       |25   210  4       |8    2    29      |4    1    3       |
 Hi Ln Vol     |                  |                  |                  |                  |
 % Grade       |     0            |     0            |     0            |     0            |
 Ideal Sat     |1900 1900         |1900 1900         |     1900 1900    |     1900         |
 ParkExist     |                  |                  |                  |                  |
 NumPark       |                  |                  |                  |                  |
 No. Lanes     |  1    2    0     |  1    2    0     |  0    1    1     |  0    1    0     |
 LGConfig      | L     TR         | L     TR         |      LT    R     |       LTR        |
 Lane Width    |12.0 12.0         |12.0 12.0         |     12.0 12.0    |     12.0         |
 RTOR Vol      |          0       |          0       |          67      |           0      |
 Adj Flow      |9    710          |101  856          |     39   42      |     26           |
 %InSharedLn   |                  |                  |                  |                  |
 Prop LTs      |      0.000       |      0.000       |      0.872       |      0.577       |
 Prop RTs      |    0.042         |    0.020         |   0.000 1.000    |   0.385          |
 Peds  Bikes   |    155    0      |    250    0      |   120    0       |   160    0       |
 Buses         |0    0            |0    0            |     0    0       |     0            |
 %InProtPhase                     |                  |          0.0     |                  |
 Duration      0.25       Area Type: CBD or Similar

 _____________________________OPERATING PARAMETERS_____________________________

               |  Eastbound       |  Westbound       |  Northbound      |  Southbound      |
               | L    T    R      | L    T    R      | L    T    R      | L    T    R      |
               |________________  |________________  |________________  |________________  |
 Init Unmet    |0.0  0.0          |0.0  0.0          |     0.0  0.0     |     0.0          |
 Arriv. Type   |3    3            |3    3            |     3    3       |     3            |
 Unit Ext.     |3.0  3.0          |3.0  3.0          |     3.0  3.0     |     3.0          |
 I Factor      |     1.000        |     1.000        |     1.000        |     1.000        |
 Lost Time     |2.0  2.0          |2.0  2.0          |     2.0  2.0     |     2.0          |
 Ext of g      |2.0  2.0          |2.0  2.0          |     2.0  2.0     |     2.0          |
 Ped Min g     |     23.7         |     21.0         |     24.5         |     25.0         |
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                   HCS+: Signalized Intersections Release 5.4

Analyst: RHC                               Inter.: Camino De La Plaza & Virginia
Agency: RCE Traffic Engineering            Area Type: CBD or Similar
Date:   9/15/17                            Jurisd: City of San Diego
Period: PM peak - Existing + cuml          Year  : 2017
Project ID: Virginia Avenue Parking Structure
E/W St: Camino De La Plaza                 N/S St: Virginia Avenue

______________________SIGNALIZED INTERSECTION SUMMARY_______________________
           |  Eastbound    |  Westbound    |  Northbound   |  Southbound   |
           | L    T    R   | L    T    R   | L    T    R   | L    T    R   |
           |               |               |               |               |
           | ------------- | ------------- | ------------- | ------------- |
No. Lanes  |   1    2    0 |   1    2    0 |   0    1    1 |   0    1    0 |
LGConfig   | L     TR      | L     TR      |      LT    R  |      LTR      |
Volume     |2    573  70   |369  720  16   |77   5    350  |14   1    9    |
Lane Width |12.0 12.0      |12.0 12.0      |     12.0 12.0 |     12.0      |
RTOR Vol   |          0    |          0    |          67   |          0    |
____________________________________________________________________________
Duration     0.25      Area Type: CBD or Similar
__________________________________Signal Operations_________________________
Phase Combination 1     2     3     4  |            5     6     7     8
EB   Left         A                    |  NB  Left        A
     Thru               A              |      Thru        A
     Right              A              |      Right       A
     Peds               X              |      Peds        X
WB   Left         A                    |  SB  Left  A
     Thru               A              |      Thru  A
     Right              A              |      Right A
     Peds               X              |      Peds  X
NB   Right        A                    |  EB  Right
SB   Right                             |  WB  Right
Green            30.0  59.0                         26.0  26.0
Yellow           3.5   3.5                          3.5   3.5
All Red          0.0   0.0                          0.0   0.0
                                                 Cycle Length: 155.0    secs
_____________________Intersection Performance Summary_______________________
Appr/   Lane        Adj Sat     Ratios         Lane Group   Approach
Lane    Group       Flow Rate  -----------    ------------ -----------
Grp     Capacity      (s)      v/c     g/C     Delay LOS    Delay LOS
____________________________________________________________________________
Eastbound
L        314        1624       0.01    0.19    50.5   D
TR       1192       3132       0.59    0.38    39.0   D     39.1    D

Westbound
L        314        1624       1.28    0.19    209.6  F
TR       1227       3223       0.65    0.38    40.8   D     97.1    F

Northbound

LT       274        1633       0.32    0.17    57.5   E     48.1    D
R        438        1142       0.70    0.38    45.3   D
Southbound

LTR      235        1402       0.11    0.17    54.9   D     54.9    D

        Intersection Delay = 70.8  (sec/veh)   Intersection LOS = E
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                   HCS+: Signalized Intersections Release 5.4




Phone:                                           Fax:
E-Mail:
______________________________OPERATIONAL ANALYSIS_____________________________

Analyst:                     RHC
Agency/Co.:                  RCE Traffic Engineering
Date Performed:              9/15/17
Analysis Time Period:        PM peak - Existing + cuml
Intersection:                Camino De La Plaza & Virginia
Area Type:                   CBD or Similar
Jurisdiction:                City of San Diego
Analysis Year:               2017
Project ID:  Virginia Avenue Parking Structure
E/W St: Camino De La Plaza                   N/S St: Virginia Avenue

_______________________________VOLUME DATA_____________________________________

           |  Eastbound    |  Westbound    |  Northbound   |  Southbound   |
           | L    T    R   | L    T    R   | L    T    R   | L    T    R   |
           |               |               |               |               |
Volume     |2    573  70   |369  720  16   |77   5    350  |14   1    9    |
% Heavy Veh|0    0    0    |0    0    0    |0    0    0    |0    0    0    |
PHF        |0.92 0.92 0.92 |0.92 0.92 0.92 |0.92 0.92 0.92 |0.92 0.92 0.92 |
PK 15 Vol  |1    156  19   |100  196  4    |21   2    95   |4    1    3    |
Hi Ln Vol  |               |               |               |               |
% Grade    |     0         |     0         |     0         |     0         |
Ideal Sat  |1900 1900      |1900 1900      |     1900 1900 |     1900      |
ParkExist  |               |               |               |               |
NumPark    |               |               |               |               |
No. Lanes  |  1    2    0  |  1    2    0  |  0    1    1  |  0    1    0  |
LGConfig   | L    TR       | L    TR       |      LT   R   |      LTR      |
Lane Width |12.0 12.0      |12.0 12.0      |     12.0 12.0 |     12.0      |
RTOR Vol   |          0    |          0    |          67   |          0    |
Adj Flow   |2    699       |401  800       |     89   308  |     26        |
%InSharedLn|               |               |               |               |
Prop LTs   |      0.000    |      0.000    |     0.944     |      0.577    |
Prop RTs   |   0.109       |   0.021       |   0.000 1.000 |   0.385       |
Peds Bikes |   155   0     |   250   0     |  120   0      |  160   0      |
Buses      |0    0         |0    0         |     0    0    |     0         |
%InProtPhase               |               |          0.0  |               |
Duration    0.25      Area Type: CBD or Similar

_____________________________OPERATING PARAMETERS_______________________________

           |  Eastbound    |  Westbound    |  Northbound   |  Southbound   |
           | L    T    R   | L    T    R   | L    T    R   | L    T    R   |
           |               |               |               |               |
Init Unmet |0.0  0.0       |0.0  0.0       |     0.0  0.0  |     0.0       |
Arriv. Type|3    3         |3    3         |     3    3    |     3         |
Unit Ext.  |3.0  3.0       |3.0  3.0       |     3.0  3.0  |     3.0       |
I Factor   |     1.000     |     1.000     |     1.000     |     1.000     |
Lost Time  |2.0  2.0       |2.0  2.0       |     2.0  2.0  |     2.0       |
Ext of g   |2.0  2.0       |2.0  2.0       |     2.0  2.0  |     2.0       |
Ped Min g  |     23.8      |     21.1      |     24.6      |     25.1      |
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                  HCS+: Signalized Intersections Release 5.4

Analyst: RHC                            Inter.: Camino De La Plaza & Virginia
Agency: RCE Traffic Engineering         Area Type: CBD or Similar
Date:   9/15/17                         Jurisd: City of San Diego
Period: PM peak - Exist + cuml + proj   Year  : 2017
Project ID: Virginia Avenue Parking Structure
E/W St: Camino De La Plaza              N/S St: Virginia Avenue

________________________SIGNALIZED INTERSECTION SUMMARY______________________
           |  Eastbound     |  Westbound     |  Northbound    |  Southbound    |
           |  L    T    R   |  L    T    R   |  L    T    R   |  L    T    R   |
           |                |                |                |                |
           | _______________|________________|________________|_______________ |
No. Lanes  |   1    2    0  |   1    2    0  |   0    1    1  |   0    1    0  |
LGConfig   |  L    TR       |  L    TR       |       LT   R   |       LTR      |
Volume     |8    626  70    |369  772  16    |77   5    350   |14   1    9     |
Lane Width |12.0 12.0       |12.0 12.0       |     12.0 12.0  |     12.0       |
RTOR Vol   |          0     |          0     |          67    |          0     |
_____________________________________________________________________________
Duration     0.25       Area Type: CBD or Similar
____________________________Signal Operations________________________________
Phase Combination 1     2     3     4  |           5     6     7     8
EB   Left         A                    | NB  Left        A
     Thru               A              |     Thru        A
     Right              A              |     Right       A
     Peds               X              |     Peds        X
WB   Left         A                    | SB  Left  A
     Thru               A              |     Thru  A
     Right              A              |     Right A
     Peds               X              |     Peds  X
NB   Right        A                    | EB  Right
SB   Right                             | WB  Right
Green             30.0  59.0                       26.0  26.0
Yellow            3.5   3.5                        3.5   3.5
All Red           0.0   0.0                        0.0   0.0
                                                     Cycle Length: 155.0    secs
____________________Intersection Performance Summary__________________________
Appr/   Lane      Adj Sat     Ratios          Lane Group    Approach
Lane    Group     Flow Rate  ___________     __________    ___________
Grp     Capacity    (s)      v/c     g/C      Delay LOS     Delay  LOS
_____________________________________________________________________________
Eastbound
L        314        1624      0.03    0.19     50.7   D
TR       1196       3141      0.63    0.38     40.2   D      40.4    D

Westbound
L        314        1624      1.28    0.19     209.6  F
TR       1228       3225      0.70    0.38     42.2   D      95.6    F

Northbound

LT       274        1633      0.32    0.17     57.5   E      48.1    D
R        438        1142      0.70    0.38     45.3   D
Southbound

LTR      235        1402      0.11    0.17     54.9   D      54.9    D

        Intersection Delay = 70.2  (sec/veh)   Intersection LOS = E

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                 HCS+: Signalized Intersections Release 5.4




Phone:                                           Fax:
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______________________________OPERATIONAL ANALYSIS_____________________________

Analyst:                  RHC
Agency/Co.:               RCE Traffic Engineering
Date Performed:           9/15/17
Analysis Time Period:     PM peak - Exist + cuml + proj
Intersection:             Camino De La Plaza & Virginia
Area Type:                CBD or Similar
Jurisdiction:             City of San Diego
Analysis Year:            2017
Project ID:  Virginia Avenue Parking Structure
E/W St: Camino De La Plaza                N/S St: Virginia Avenue

________________________________VOLUME DATA____________________________________

           |  Eastbound     |  Westbound     |  Northbound    |  Southbound    |
           | L    T    R    | L    T    R    | L    T    R    | L    T    R    |
           |_______________ |_______________ |_______________ |_______________ |
Volume     |8    626  70    |369  772  16    |77   5    350   |14   1    9     |
% Heavy Veh|0    0    0     |0    0    0     |0    0    0     |0    0    0     |
PHF        |0.92 0.92 0.92  |0.92 0.92 0.92  |0.92 0.92 0.92  |0.92 0.92 0.92  |
PK 15 Vol  |2    170  19    |100  210  4     |21   2    95    |4    1    3     |
Hi Ln Vol  |                |                |                |                |
% Grade    |     0          |     0          |     0          |     0          |
Ideal Sat  |1900 1900       |1900 1900       |     1900 1900  |     1900       |
ParkExist  |                |                |                |                |
NumPark    |                |                |                |                |
No. Lanes  |  1    2    0   |  1    2    0   |  0    1    1   |  0    1    0   |
LGConfig   | L     TR       | L     TR       |      LT    R   |      LTR       |
Lane Width |12.0 12.0       |12.0 12.0       |     12.0 12.0  |     12.0       |
RTOR Vol   |          0     |          0     |          67    |           0    |
Adj Flow   |9    756        |401  856        |     89   308   |     26         |
%InSharedLn|                |                |                |                |
Prop LTs   |      0.000     |      0.000     |      0.944     |      0.577     |
Prop RTs   |   0.101        |   0.020        |   0.000 1.000  |   0.385        |
Peds  Bikes|   155    0     |   250    0     |   120    0     |   160    0     |
Buses      |0    0          |0    0          |     0    0     |     0          |
%InProtPhase                |                |          0.0   |                |
Duration    0.25      Area Type: CBD or Similar

_____________________________OPERATING PARAMETERS______________________________

           |  Eastbound     |  Westbound     |  Northbound    |  Southbound    |
           | L    T    R    | L    T    R    | L    T    R    | L    T    R    |
           |_______________ |_______________ |_______________ |_______________ |
Init Unmet |0.0  0.0        |0.0  0.0        |     0.0  0.0   |     0.0        |
Arriv. Type|3    3          |3    3          |     3    3     |     3          |
Unit Ext.  |3.0  3.0        |3.0  3.0        |     3.0  3.0   |     3.0        |
I Factor   |     1.000      |     1.000      |     1.000      |     1.000      |
Lost Time  |2.0  2.0        |2.0  2.0        |     2.0  2.0   |     2.0        |
Ext of g   |2.0  2.0        |2.0  2.0        |     2.0  2.0   |     2.0        |
Ped Min g  |     23.8       |     21.1       |     24.6       |     25.1       |
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                  HCS+: Signalized Intersections Release 5.4

Analyst: RHC                            Inter.: Camino De La Plaza & Virginia
Agency: RCE Traffic Engineering         Area Type: CBD or Similar
Date:    4/21/17                        Jurisd: City of San Diego
Period: PM peak - 2035 without proj     Year  : 2035
Project ID: Virginia Avenue Parking Structure
E/W St: Camino De La Plaza              N/S St: Virginia Avenue

_________________________SIGNALIZED INTERSECTION SUMMARY_______________________
           |  Eastbound     |  Westbound     |  Northbound    |  Southbound    |
           | L    T    R    | L    T    R    | L    T    R    | L    T    R    |
           |                |                |                |                |
           |_______________ |_______________ |_______________ |_______________ |
No. Lanes  |   1    2    0  |   1    2    0  |   0    1    1  |   1    1    0  |
LGConfig   | L     TR       | L     TR       |        LT   R  | L     TR       |
Volume     |22   1118 86    |369  852  189   |77   5    350   |149  45   45    |
Lane Width |12.0 12.0       |12.0 12.0       |     12.0 12.0  |12.0 12.0       |
RTOR Vol   |          0     |          0     |          67    |           0    |
_______________________________________________________________________________
Duration    0.25      Area Type: CBD or Similar
______________________________Signal Operations_______________________________
Phase Combination 1     2     3     4  |            5     6     7     8
EB   Left         A                    |  NB   Left       A
     Thru                     A        |       Thru       A
     Right                    A        |       Right      A
     Peds                     X        |       Peds       X
WB   Left         A     A              |  SB   Left  A
     Thru               A     A        |       Thru  A
     Right              A     A        |       Right A
     Peds                     X        |       Peds  X
NB   Right        A     A              |  EB   Right
SB   Right                             |  WB   Right
Green            11.3  31.3  95.6                     26.4  26.4
Yellow           3.5   0.0   3.5                      3.5   3.5
All Red          0.0   0.0   0.0                      0.0   0.0
                                                        Cycle Length: 205.0   secs
____________________Intersection Performance Summary___________________________
Appr/   Lane        Adj Sat     Ratios          Lane Group    Approach
Lane    Group       Flow Rate   __________      __________    __________
Grp     Capacity     (s)        v/c    g/C      Delay LOS     Delay LOS
_______________________________________________________________________________
Eastbound
L        90          1624       0.27   0.06     94.5   F
TR       1479        3172       0.88   0.47     56.4   E      57.1   E

Westbound
L        365         1624       1.10   0.22     155.8  F
TR       1847        2983       0.61   0.62     24.6   C      58.9   E

Northbound

LT       210         1633       0.42   0.13     83.7   F      79.1   E
R        359         969        0.86   0.37     77.8   E
Southbound
L        209         1624       0.78   0.13     103.0  F
TR       170         1318       0.58   0.13     88.8   F      97.6   F

         Intersection Delay = 63.4  (sec/veh)   Intersection LOS = E
_______________________________________________________________________________
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                  HCS+: Signalized Intersections Release 5.4



Phone:                                        Fax:
E-Mail:
______________________________OPERATIONAL ANALYSIS_____________________________

Analyst:                  RHC
Agency/Co.:               RCE Traffic Engineering
Date Performed:           4/21/17
Analysis Time Period:     PM peak - 2035 without proj
Intersection:             Camino De La Plaza & Virginia
Area Type:                CBD or Similar
Jurisdiction:             City of San Diego
Analysis Year:            2035
Project ID:  Virginia Avenue Parking Structure
E/W St: Camino De La Plaza              N/S St: Virginia Avenue

________________________________VOLUME DATA____________________________________

           |  Eastbound     |  Westbound     |  Northbound    |  Southbound    |
           | L    T    R    | L    T    R    | L    T    R    | L    T    R    |
           |_______________ |_______________ |_______________ |_______________ |
Volume     |22   1118 86    |369  852  189   |77   5    350   |149  45   45    |
% Heavy Veh|0    0    0     |0    0    0     |0    0    0     |0    0    0     |
PHF        |0.92 0.92 0.92  |0.92 0.92 0.92  |0.92 0.92 0.92  |0.92 0.92 0.92  |
PK 15 Vol  |6    304  23    |100  232  51    |21   2    95    |40   12   12    |
Hi Ln Vol  |                |                |                |                |
% Grade    |     0          |     0          |     0          |     0          |
Ideal Sat  |1900 1900       |1900 1900       |     1900 1900  |1900 1900       |
ParkExist  |                |                |                |                |
NumPark    |                |                |                |                |
No. Lanes  |   1   2   0    |   1   2   0    |   0   1   1    |   1   1   0    |
LGConfig   | L     TR       | L     TR       |       LT   R   | L     TR       |
Lane Width |12.0 12.0       |12.0 12.0       |     12.0 12.0  |12.0 12.0       |
RTOR Vol   |          0     |          0     |          67    |          0     |
Adj Flow   |24   1308       |401  1131       |     89   308   |162  98         |
%InSharedLn|                |                |                |                |
Prop LTs   |      0.000     |      0.000     |      0.944     |      0.000     |
Prop RTs   |   0.071        |   0.181        |   0.000 1.000  |   0.500        |
Peds  Bikes|   200   0      |   300   0      |   200   0      |   200   0      |
Buses      |0    0          |0    0          |     0    0     |0    0          |
%InProtPhase                |          0.0   |          0.0   |                |
Duration    0.25      Area Type: CBD or Similar

_____________________________OPERATING PARAMETERS______________________________

           |  Eastbound     |  Westbound     |  Northbound    |  Southbound    |
           | L    T    R    | L    T    R    | L    T    R    | L    T    R    |
           |_______________ |_______________ |_______________ |_______________ |
Init Unmet |0.0  0.0        |0.0  0.0        |     0.0  0.0   |0.0  0.0        |
Arriv. Type|3    3          |3    3          |     3    3     |3    3          |
Unit Ext.  |3.0  3.0        |3.0  3.0        |     3.0  3.0   |3.0  3.0        |
I Factor   |     1.000      |     1.000      |     1.000      |     1.000      |
Lost Time  |2.0  2.0        |2.0  2.0        |     2.0  2.0   |2.0  2.0        |
Ext of g   |2.0  2.0        |2.0  2.0        |     2.0  2.0   |2.0  2.0        |
Ped Min g  |     25.0       |     22.8       |     26.3       |     26.3       |
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                HCS+: Signalized Intersections Release 5.4

Analyst: RHC                             Inter.: Camino De La Plaza & Virginia
Agency: RCE Traffic Engineering          Area Type: CBD or Similar
Date:   4/21/17                          Jurisd: City of San Diego
Period: PM peak - 2035 with proj         Year  : 2035
Project ID: Virginia Avenue Parking Structure
E/W St: Camino De La Plaza               N/S St: Virginia Avenue

______________________SIGNALIZED INTERSECTION SUMMARY_______________________
            |   Eastbound    |   Westbound    |   Northbound   |   Southbound   |
            | L     T     R  | L     T     R  | L     T     R  | L     T     R  |
            |                |                |                |                |
            |________________|________________|________________|________________|
No. Lanes   |   1    2    0  |   1    2    0  |   0    1    1  |   1    1    0  |
LGConfig    | L     TR       | L     TR       |      LT    R   | L     TR       |
Volume      |28   1171 86    |369  904  189   |77    5    350  |149  45    45   |
Lane Width  |12.0 12.0       |12.0 12.0       |     12.0 12.0  |12.0 12.0       |
RTOR Vol    |          0     |           0    |          67    |           0    |
____________________________________________________________________________
Duration    0.25       Area Type: CBD or Similar
_____________________________Signal Operations______________________________
Phase Combination 1     2     3     4  |              5     6     7     8
EB  Left          A                    | NB  Left           A
    Thru                      A        |     Thru           A
    Right                     A        |     Right          A
    Peds                      X        |     Peds           X
WB  Left          A     A              | SB  Left     A
    Thru                A     A        |     Thru     A
    Right               A     A        |     Right    A
    Peds                      X        |     Peds     X
NB  Right         A     A              | EB  Right
SB  Right                              | WB  Right
Green            11.3  31.3  95.6                    26.4  26.4
Yellow           3.5   0.0   3.5                     3.5   3.5
All Red          0.0   0.0   0.0                     0.0   0.0
                                                  Cycle Length: 205.0    secs
_____________________Intersection Performance Summary_______________________
Appr/   Lane      Adj Sat    Ratios         Lane Group    Approach
Lane    Group     Flow Rate  ___________    __________    __________
Grp     Capacity    (s)      v/c    g/C     Delay LOS     Delay LOS
____________________________________________________________________________
Eastbound
L       90        1624       0.33   0.06    95.4   F
TR      1481      3176       0.92   0.47    61.1   E      61.9   E

Westbound
L       365       1624       1.10   0.22    155.8  F
TR      1855      2996       0.64   0.62    25.4   C      58.3   E

Northbound

LT      210       1633       0.42   0.13    83.7   F      79.1   E
R       359       969        0.86   0.37    77.8   E
Southbound
L       209       1624       0.78   0.13    103.0  F
TR      170       1318       0.58   0.13    88.8   F      97.6   F

        Intersection Delay = 64.7  (sec/veh)   Intersection LOS = E
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                  HCS+: Signalized Intersections Release 5.4



Phone:                                        Fax:
E-Mail:
______________________________OPERATIONAL ANALYSIS_____________________________

Analyst:                  RHC
Agency/Co.:               RCE Traffic Engineering
Date Performed:           4/21/17
Analysis Time Period:     PM peak - 2035 with proj
Intersection:             Camino De La Plaza & Virginia
Area Type:                CBD or Similar
Jurisdiction:             City of San Diego
Analysis Year:            2035
Project ID:  Virginia Avenue Parking Structure
E/W St: Camino De La Plaza              N/S St: Virginia Avenue

_______________________________VOLUME DATA____________________________________

           |  Eastbound    |  Westbound    |  Northbound   |  Southbound   |
           | L    T    R   | L    T    R   | L    T    R   | L    T    R   |
           |               |               |               |               |
           |_______________|_______________|_______________|_______________|
Volume     |28   1171 86   |369  904  189  |77   5    350  |149  45   45   |
% Heavy Veh|0    0    0    |0    0    0    |0    0    0    |0    0    0    |
PHF        |0.92 0.92 0.92 |0.92 0.92 0.92 |0.92 0.92 0.92 |0.92 0.92 0.92 |
PK 15 Vol  |8    318  23   |100  246  51   |21   2    95   |40   12   12   |
Hi Ln Vol  |               |               |               |               |
% Grade    |     0         |     0         |     0         |     0         |
Ideal Sat  |1900 1900      |1900 1900      |     1900 1900 |1900 1900      |
ParkExist  |               |               |               |               |
NumPark    |               |               |               |               |
No. Lanes  |   1   2   0   |   1   2   0   |   0   1   1   |   1   1   0   |
LGConfig   | L      TR     | L      TR     |       LT   R  | L      TR     |
Lane Width |12.0 12.0      |12.0 12.0      |     12.0 12.0 |12.0 12.0      |
RTOR Vol   |          0    |          0    |          67   |          0    |
Adj Flow   |30   1366      |401  1188      |     89   308  |162  98        |
%InSharedLn|               |               |               |               |
Prop LTs   |      0.000    |      0.000    |      0.944    |      0.000    |
Prop RTs   |   0.068       |   0.173       |   0.000 1.000 |   0.500       |
Peds  Bikes|   200   0     |   300   0     |   200   0     |   200   0     |
Buses      |0    0         |0    0         |     0    0    |0    0         |
%InProtPhase               |          0.0  |          0.0  |               |
Duration   0.25      Area Type: CBD or Similar

______________________________OPERATING PARAMETERS______________________________

           |  Eastbound    |  Westbound    |  Northbound   |  Southbound   |
           | L    T    R   | L    T    R   | L    T    R   | L    T    R   |
           |               |               |               |               |
           |_______________|_______________|_______________|_______________|
Init Unmet |0.0  0.0       |0.0  0.0       |     0.0  0.0  |0.0  0.0       |
Arriv. Type|3    3         |3    3         |     3    3    |3    3         |
Unit Ext.  |3.0  3.0       |3.0  3.0       |     3.0  3.0  |3.0  3.0       |
I Factor   |     1.000     |     1.000     |     1.000     |     1.000     |
Lost Time  |2.0  2.0       |2.0  2.0       |     2.0  2.0  |2.0  2.0       |
Ext of g   |2.0  2.0       |2.0  2.0       |     2.0  2.0  |2.0  2.0       |
Ped Min g  |     25.0      |     22.8      |     26.3      |     26.3      |
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                 HCS+: Unsignalized Intersections Release 5.4

_______________________TWO-WAY STOP CONTROL SUMMARY___________________________

Analyst:              Rick Crafts
Agency/Co.:           RCE Traffic Engineering
Date Performed:       4/27/17
Analysis Time Period: AM - existing
Intersection:         Camino De La Plaza & driveway
Jurisdiction:         City of San Diego
Units: U. S. Customary
Analysis Year:        2016
Project ID:  Virginia Avenue Parking Structure
East/West Street:     Camino De La Plaza
North/South Street:   project driveway
Intersection Orientation: EW                 Study period (hrs):  0.25

______________________Vehicle Volumes and Adjustments_________________________
Major Street:  Approach       Eastbound              Westbound
               Movement     1      2      3     |  4      5      6
                            L      T      R     |  L      T      R
______________________________________________________________________________
Volume                             204    1        5      347
Peak-Hour Factor, PHF              0.92   0.92     0.92   0.92
Hourly Flow Rate, HFR              221    1        5      377
Percent Heavy Vehicles             --     --       0      --     --
Median Type/Storage         Undivided             /
RT Channelized?
Lanes                              2    0             1   2
Configuration                      T   TR              L  T
Upstream Signal?                   Yes                    No
______________________________________________________________________________
Minor Street:  Approach       Northbound             Southbound
               Movement     7      8      9     |  10     11     12
                            L      T      R     |  L      T      R
______________________________________________________________________________
Volume                                    6
Peak Hour Factor, PHF                     0.92
Hourly Flow Rate, HFR                     6
Percent Heavy Vehicles                    0
Percent Grade (%)                  0                      0
Flared Approach:  Exists?/Storage                 /                     /
Lanes                                   1
Configuration                          R
______________________________________________________________________________

__________________Delay, Queue Length, and Level of Service___________________
Approach            EB     WB        Northbound            Southbound
Movement            1      4    |  7      8      9     |  10     11     12
Lane Config                L    |                R     |
______________________________________________________________________________
v (vph)                    5                     6
C(m) (vph)                 1417                  1029
v/c                        0.00                  0.01
95% queue length           0.01                  0.02
Control Delay              7.5                   8.5
LOS                         A                     A
Approach Delay                           8.5
Approach LOS                              A
______________________________________________________________________________
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                 HCS+: Unsignalized Intersections Release 5.4

_______________________TWO-WAY STOP CONTROL SUMMARY___________________________

Analyst:              Rick Crafts
Agency/Co.:           RCE Traffic Engineering
Date Performed:       4/27/17
Analysis Time Period: AM - x + project
Intersection:         Camino De La Plaza & driveway
Jurisdiction:         City of San Diego
Units: U. S. Customary
Analysis Year:        2016
Project ID:  Virginia Avenue Parking Structure
East/West Street:     Camino De La Plaza
North/South Street:   project driveway
Intersection Orientation: EW                 Study period (hrs):  0.25

______________________Vehicle Volumes and Adjustments_________________________
Major Street:  Approach        Eastbound               Westbound
               Movement     1      2      3     |  4      5      6
                            L      T      R     |  L      T      R
______________________________________________________________________________
Volume                             204    6        56     347
Peak-Hour Factor, PHF              0.92   0.92     0.92   0.92
Hourly Flow Rate, HFR              221    6        60     377
Percent Heavy Vehicles             --     --       0      --     --
Median Type/Storage         Undivided            /
RT Channelized?
Lanes                              2    0         1   2
Configuration                      T   TR          L  T
Upstream Signal?                   Yes                No

Minor Street:  Approach        Northbound              Southbound
               Movement     7      8      9     |  10     11     12
                            L      T      R     |  L      T      R
______________________________________________________________________________
Volume                                    32
Peak Hour Factor, PHF                     0.92
Hourly Flow Rate, HFR                     34
Percent Heavy Vehicles                    0
Percent Grade (%)                  0                      0
Flared Approach:  Exists?/Storage                /                      /
Lanes                                   1
Configuration                          R
______________________________________________________________________________

__________________Delay, Queue Length, and Level of Service___________________
Approach            EB     WB         Northbound           Southbound
Movement            1      4   |  7      8      9    |  10     11     12
Lane Config                L   |                R    |
______________________________________________________________________________
v (vph)                    60                   34
C(m) (vph)                 1411                 1025
v/c                        0.04                 0.03
95% queue length           0.13                 0.10
Control Delay              7.7                  8.6
LOS                         A                    A
Approach Delay                           8.6
Approach LOS                              A
______________________________________________________________________________
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                 HCS+: Unsignalized Intersections Release 5.4

_______________________TWO-WAY STOP CONTROL SUMMARY___________________________

Analyst:              Rick Crafts
Agency/Co.:           RCE Traffic Engineering
Date Performed:       4/27/17
Analysis Time Period: AM near term w/o project
Intersection:         Camino De La Plaza & driveway
Jurisdiction:         City of San Diego
Units: U. S. Customary
Analysis Year:        2020
Project ID:  Virginia Avenue Parking Structure
East/West Street:     Camino De La Plaza
North/South Street:   project driveway
Intersection Orientation: EW                 Study period (hrs):  0.25

______________________Vehicle Volumes and Adjustments_________________________
Major Street:  Approach       Eastbound                Westbound
               Movement     1      2      3     |  4      5      6
                            L      T      R     |  L      T      R
______________________________________________________________________________
Volume                             258    1        6      395
Peak-Hour Factor, PHF              0.92   0.92     0.92   0.92
Hourly Flow Rate, HFR              280    1        6      429
Percent Heavy Vehicles             --     --       0      --     --
Median Type/Storage         Undivided             /
RT Channelized?
Lanes                              2    0             1   2
Configuration                      T   TR              L  T
Upstream Signal?                   Yes                    No
______________________________________________________________________________
Minor Street:  Approach       Northbound               Southbound
               Movement     7      8      9     |  10     11     12
                            L      T      R     |  L      T      R
______________________________________________________________________________
Volume                                    6
Peak Hour Factor, PHF                     0.92
Hourly Flow Rate, HFR                     6
Percent Heavy Vehicles                    0
Percent Grade (%)                  0                      0
Flared Approach:  Exists?/Storage                /                      /
Lanes                                   1
Configuration                          R
______________________________________________________________________________

__________________Delay, Queue Length, and Level of Service___________________
Approach            EB     WB         Northbound             Southbound
Movement            1      4   |  7      8      9    |  10     11     12
Lane Config                L   |                R    |
______________________________________________________________________________
v (vph)                    6                    6
C(m) (vph)                 1346                 990
v/c                        0.00                 0.01
95% queue length           0.01                 0.02
Control Delay              7.7                  8.7
LOS                         A                    A
Approach Delay                           8.7
Approach LOS                              A
______________________________________________________________________________
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                 HCS+: Unsignalized Intersections Release 5.4

_______________________TWO-WAY STOP CONTROL SUMMARY___________________________

Analyst:               Rick Crafts
Agency/Co.:            RCE Traffic Engineering
Date Performed:        4/27/17
Analysis Time Period:  AM - x + cumul + project
Intersection:          Camino De La Plaza & driveway
Jurisdiction:          City of San Diego
Units: U. S. Customary
Analysis Year:         2020
Project ID:  Virginia Avenue Parking Structure
East/West Street:      Camino De La Plaza
North/South Street:    project driveway
Intersection Orientation: EW                 Study period (hrs):  0.25

______________________Vehicle Volumes and Adjustments__________________________
Major Street:  Approach       Eastbound                Westbound
               Movement     1      2      3     |  4      5      6
                            L      T      R     |  L      T      R
_______________________________________________________________________________
Volume                             258    6        56     395
Peak-Hour Factor, PHF              0.92   0.92     0.92   0.92
Hourly Flow Rate, HFR              280    6        60     429
Percent Heavy Vehicles             --     --       0      --     --
Median Type/Storage         Undivided             /
RT Channelized?
Lanes                              2    0             1   2
Configuration                      T   TR              L  T
Upstream Signal?                   Yes                    No

_______________________________________________________________________________
Minor Street:  Approach       Northbound               Southbound
               Movement     7      8      9     |  10     11     12
                            L      T      R     |  L      T      R
_______________________________________________________________________________
Volume                                    32
Peak Hour Factor, PHF                     0.92
Hourly Flow Rate, HFR                     34
Percent Heavy Vehicles                    0
Percent Grade (%)                  0                      0
Flared Approach:  Exists?/Storage                /                     /
Lanes                                   1
Configuration                          R
_______________________________________________________________________________

__________________Delay, Queue Length, and Level of Service_____________________
Approach            EB     WB          Northbound              Southbound
Movement            1      4    |  7      8      9     |  10     11     12
Lane Config                L    |                R     |
_______________________________________________________________________________
v (vph)                    60                    34
C(m) (vph)                 1341                  988
v/c                        0.04                  0.03
95% queue length           0.14                  0.11
Control Delay              7.8                   8.8
LOS                         A                     A
Approach Delay                           8.8
Approach LOS                              A
_______________________________________________________________________________
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                HCS+: Unsignalized Intersections Release 5.4

______________________TWO-WAY STOP CONTROL SUMMARY_____________________

Analyst:                 Rick Crafts
Agency/Co.:              RCE Traffic Engineering
Date Performed:          4/27/17
Analysis Time Period:    AM - 2035 without project
Intersection:            Camino De La Plaza & driveway
Jurisdiction:            City of San Diego
Units: U. S. Customary
Analysis Year:           2035
Project ID:  Virginia Avenue Parking Structure
East/West Street:        Camino De La Plaza
North/South Street:      project driveway
Intersection Orientation: EW                   Study period (hrs):  0.25

_____________________Vehicle Volumes and Adjustments___________________
Major Street:  Approach        Eastbound                Westbound
               Movement     1       2       3     |  4       5       6
                            L       T       R     |  L       T       R
_______________________________________________________________________
Volume                              467     1        6       477
Peak-Hour Factor, PHF               0.92    0.92     0.92    0.92
Hourly Flow Rate, HFR               507     1        6       518
Percent Heavy Vehicles              --      --       0       --      --
Median Type/Storage         Undivided             /
RT Channelized?
Lanes                               2    0              1    2
Configuration                       T   TR               L   T
Upstream Signal?                    Yes                      No

_______________________________________________________________________
Minor Street:  Approach        Northbound               Southbound
               Movement     7       8       9     |  10      11      12
                            L       T       R     |  L       T       R
_______________________________________________________________________
Volume                                      6
Peak Hour Factor, PHF                       0.92
Hourly Flow Rate, HFR                       6
Percent Heavy Vehicles                      0
Percent Grade (%)                   0                        0
Flared Approach:  Exists?/Storage                /                    /
Lanes                                     1
Configuration                            R
_______________________________________________________________________

_________________Delay, Queue Length, and Level of Service_____________
Approach         EB      WB         Northbound            Southbound
Movement         1       4    |  7       8       9    |  10      11      12
Lane Config              L    |                  R    |
_______________________________________________________________________
v (vph)                  6                       6
C(m) (vph)               1158                    946
v/c                      0.01                    0.01
95% queue length         0.02                    0.02
Control Delay            8.1                     8.8
LOS                       A                       A
Approach Delay                           8.8
Approach LOS                              A
_______________________________________________________________________
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                 HCS+: Unsignalized Intersections Release 5.4

______________________TWO-WAY STOP CONTROL SUMMARY_______________________

Analyst:                Rick Crafts
Agency/Co.:             RCE Traffic Engineering
Date Performed:         4/27/17
Analysis Time Period:   AM - 2035 with project
Intersection:           Camino De La Plaza & driveway
Jurisdiction:           City of San Diego
Units: U. S. Customary
Analysis Year:          2035
Project ID:  Virginia Avenue Parking Structure
East/West Street:       Camino De La Plaza
North/South Street:     project driveway
Intersection Orientation: EW                 Study period (hrs):  0.25

______________________Vehicle Volumes and Adjustments____________________
Major Street:  Approach        Eastbound                Westbound
               Movement     1      2      3     |  4      5      6
                            L      T      R     |  L      T      R
_________________________________________________________________________
Volume                             467    6        53     477
Peak-Hour Factor, PHF              0.92   0.92     0.92   0.92
Hourly Flow Rate, HFR              507    6        57     518
Percent Heavy Vehicles             --     --       0      --     --
Median Type/Storage         Undivided             /
RT Channelized?
Lanes                              2    0             1   2
Configuration                      T   TR              L  T
Upstream Signal?                   Yes                    No

_________________________________________________________________________
Minor Street:  Approach        Northbound               Southbound
               Movement     7      8      9     |  10     11     12
                            L      T      R     |  L      T      R
_________________________________________________________________________
Volume                                    32
Peak Hour Factor, PHF                     0.92
Hourly Flow Rate, HFR                     34
Percent Heavy Vehicles                    0
Percent Grade (%)                  0                      0
Flared Approach:  Exists?/Storage                /                      /
Lanes                                   1
Configuration                          R
_________________________________________________________________________

__________________Delay, Queue Length, and Level of Service______________
Approach            EB     WB        Northbound              Southbound
Movement            1      4   |  7      8      9    |  10      11     12
Lane Config                L   |                R    |
_________________________________________________________________________
v (vph)                    57                   34
C(m) (vph)                 1135                 910
v/c                        0.05                 0.04
95% queue length           0.16                 0.12
Control Delay              8.3                  9.1
LOS                         A                    A
Approach Delay                           9.1
Approach LOS                              A
_________________________________________________________________________
```

```
                 HCS+: Unsignalized Intersections Release 5.4

_______________________TWO-WAY STOP CONTROL SUMMARY_____________________________

Analyst:              Rick Crafts
Agency/Co.:           RCE Traffic Engineering
Date Performed:       4/27/17
Analysis Time Period: PM - existing
Intersection:         Camino De La Plaza & driveway
Jurisdiction:         City of San Diego
Units: U. S. Customary
Analysis Year:        2016
Project ID:  Virginia Avenue Parking Structure
East/West Street:     Camino De La Plaza
North/South Street:   project driveway
Intersection Orientation: EW                  Study period (hrs):  0.25

______________________Vehicle Volumes and Adjustments____________________________
Major Street:  Approach       Eastbound                Westbound
               Movement     1      2      3      |  4      5      6
                            L      T      R      |  L      T      R
_________________________________________________________________________________
Volume                             570    2         17     741
Peak-Hour Factor, PHF              0.92   0.92      0.92   0.92
Hourly Flow Rate, HFR              619    2         18     805
Percent Heavy Vehicles             --     --        0      --     --
Median Type/Storage         Undivided             /
RT Channelized?
Lanes                              2    0              1   2
Configuration                      T   TR               L  T
Upstream Signal?                   Yes                     No
_________________________________________________________________________________
Minor Street:  Approach       Northbound               Southbound
               Movement     7      8      9      |  10     11     12
                            L      T      R      |  L      T      R
_________________________________________________________________________________
Volume                                    20
Peak Hour Factor, PHF                     0.92
Hourly Flow Rate, HFR                     21
Percent Heavy Vehicles                    0
Percent Grade (%)                  0                       0
Flared Approach:  Exists?/Storage                /                     /
Lanes                                   1
Configuration                          R
_________________________________________________________________________________

__________________Delay, Queue Length, and Level of Service______________________
Approach            EB     WB        Northbound                Southbound
Movement            1      4   |  7      8      9    |  10     11     12
Lane Config                L   |                R    |
_________________________________________________________________________________
v (vph)                    18                   21
C(m) (vph)                 1002                 795
v/c                        0.02                 0.03
95% queue length           0.05                 0.08
Control Delay              8.7                  9.7
LOS                         A                    A
Approach Delay                           9.7
Approach LOS                              A
_________________________________________________________________________________
```

```
                 HCS+: Unsignalized Intersections Release 5.4

_______________________TWO-WAY STOP CONTROL SUMMARY___________________________

Analyst:              Rick Crafts
Agency/Co.:           RCE Traffic Engineering
Date Performed:       4/27/17
Analysis Time Period: PM - x + project
Intersection:         Camino De La Plaza & driveway
Jurisdiction:         City of San Diego
Units: U. S. Customary
Analysis Year:        2016
Project ID:  Virginia Avenue Parking Structure
East/West Street:     Camino De La Plaza
North/South Street:   project driveway
Intersection Orientation: EW               Study period (hrs):  0.25

______________________Vehicle Volumes and Adjustments__________________________
Major Street:  Approach        Eastbound                Westbound
               Movement     1      2      3     |  4      5      6
                            L      T      R     |  L      T      R
_______________________________________________________________________________
Volume                             570    13       113    741
Peak-Hour Factor, PHF              0.92   0.92     0.92   0.92
Hourly Flow Rate, HFR              619    14       122    805
Percent Heavy Vehicles             --     --       0      --     --
Median Type/Storage         Undivided            /
RT Channelized?
Lanes                              2    0             1   2
Configuration                      T   TR              L  T
Upstream Signal?                   Yes                    No

_______________________________________________________________________________
Minor Street:  Approach        Northbound               Southbound
               Movement     7      8      9     |  10     11     12
                            L      T      R     |  L      T      R
_______________________________________________________________________________
Volume                                    118
Peak Hour Factor, PHF                     0.92
Hourly Flow Rate, HFR                     128
Percent Heavy Vehicles                    0
Percent Grade (%)                  0                      0
Flared Approach:  Exists?/Storage               /                     /
Lanes                                   1
Configuration                          R
_______________________________________________________________________________

__________________Delay, Queue Length, and Level of Service___________________
Approach           EB     WB         Northbound              Southbound
Movement           1      4   |  7      8      9    |  10     11     12
Lane Config               L   |                R    |
_______________________________________________________________________________
v (vph)                   122                  128
C(m) (vph)                992                  789
v/c                       0.12                 0.16
95% queue length          0.42                 0.58
Control Delay             9.1                  10.4
LOS                        A                    B
Approach Delay                          10.4
Approach LOS                             B
_______________________________________________________________________________
```

```
             HCS+: Unsignalized Intersections Release 5.4

________________TWO-WAY STOP CONTROL SUMMARY____________________

Analyst:         Rick Crafts
Agency/Co.:      RCE Traffic Engineering
Date Performed:  4/27/17
Analysis Time Period: PM - x + cuml
Intersection:    Camino De La Plaza & driveway
Jurisdiction:    City of San Diego
Units: U. S. Customary
Analysis Year:   2016
Project ID:  Virginia Avenue Parking Structure
East/West Street:   Camino De La Plaza
North/South Street:  project driveway
Intersection Orientation: EW                Study period (hrs):  0.25

________________Vehicle Volumes and Adjustments_________________
Major Street:  Approach      Eastbound                Westbound
               Movement     1     2     3    |  4     5     6
                            L     T     R    |  L     T     R
________________________________________________________________
Volume                            612   2       17    787
Peak-Hour Factor, PHF             0.92  0.92    0.92  0.92
Hourly Flow Rate, HFR             665   2       18    855
Percent Heavy Vehicles            --    --      0     --    --
Median Type/Storage         TWLTL            / 1
RT Channelized?
Lanes                             2   0            1  2
Configuration                     T  TR             L T
Upstream Signal?                  Yes                 No
________________________________________________________________
Minor Street:  Approach      Northbound               Southbound
               Movement     7     8     9    |  10    11    12
                            L     T     R    |  L     T     R
________________________________________________________________
Volume                                  20
Peak Hour Factor, PHF                   0.92
Hourly Flow Rate, HFR                   21
Percent Heavy Vehicles                  0
Percent Grade (%)                 0                   0
Flared Approach:  Exists?/Storage            /                /
Lanes                                 1
Configuration                        R
________________________________________________________________

_____________Delay, Queue Length, and Level of Service__________
Approach        EB    WB        Northbound         Southbound
Movement        1     4   |  7     8     9    |  10    11    12
Lane Config           L   |              R    |
________________________________________________________________
v (vph)               18                 21
C(m) (vph)            963                772
v/c                   0.02               0.03
95% queue length      0.06               0.08
Control Delay         8.8                9.8
LOS                    A                  A
Approach Delay                  9.8
Approach LOS                     A
________________________________________________________________
```

```
                 HCS+: Unsignalized Intersections Release 5.4

_______________________TWO-WAY STOP CONTROL SUMMARY______________________________

Analyst:              Rick Crafts
Agency/Co.:           RCE Traffic Engineering
Date Performed:       4/27/17
Analysis Time Period: PM - x + cuml + proj
Intersection:         Camino De La Plaza & driveway
Jurisdiction:         City of San Diego
Units: U. S. Customary
Analysis Year:        2016
Project ID:  Virginia Avenue Parking Structure
East/West Street:     Camino De La Plaza
North/South Street:   project driveway
Intersection Orientation: EW                Study period (hrs):  0.25

______________________Vehicle Volumes and Adjustments_____________________________
Major Street:  Approach       Eastbound              Westbound
               Movement     1      2      3      |  4      5      6
                            L      T      R      |  L      T      R
_________________________________________________________________________________
Volume                             612    13        113    787
Peak-Hour Factor, PHF              0.92   0.92      0.92   0.92
Hourly Flow Rate, HFR              665    14        122    855
Percent Heavy Vehicles             --     --        0      --     --
Median Type/Storage         TWLTL                 / 1
RT Channelized?
Lanes                              2    0             1    2
Configuration                      T   TR              L   T
Upstream Signal?                   Yes                     No
_________________________________________________________________________________
Minor Street:  Approach       Northbound             Southbound
               Movement     7      8      9      |  10     11     12
                            L      T      R      |  L      T      R
_________________________________________________________________________________
Volume                                    126
Peak Hour Factor, PHF                     0.92
Hourly Flow Rate, HFR                     136
Percent Heavy Vehicles                    0
Percent Grade (%)                  0                       0
Flared Approach:  Exists?/Storage                 /                     /
Lanes                                   1
Configuration                          R
_________________________________________________________________________________

__________________Delay, Queue Length, and Level of Service_______________________
Approach           EB     WB          Northbound             Southbound
Movement           1      4    |  7      8      9      |  10     11     12
Lane Config               L    |                R      |
_________________________________________________________________________________
v (vph)                   122                   136
C(m) (vph)                953                   767
v/c                       0.13                  0.18
95% queue length          0.44                  0.64
Control Delay             9.3                   10.7
LOS                        A                     B
Approach Delay                           10.7
Approach LOS                              B
_________________________________________________________________________________
```

```
                 HCS+: Unsignalized Intersections Release 5.4

______________________TWO-WAY STOP CONTROL SUMMARY___________________________

Analyst:              Rick Crafts
Agency/Co.:           RCE Traffic Engineering
Date Performed:       4/27/17
Analysis Time Period: PM - 2035 without project
Intersection:         Camino De La Plaza & driveway
Jurisdiction:         City of San Diego
Units: U. S. Customary
Analysis Year:        2035
Project ID:  Virginia Avenue Parking Structure
East/West Street:     Camino De La Plaza
North/South Street:   project driveway
Intersection Orientation: EW                 Study period (hrs):  0.25

_____________________Vehicle Volumes and Adjustments__________________________
Major Street:  Approach        Eastbound                  Westbound
               Movement     1      2      3     |  4      5      6
                            L      T      R     |  L      T      R

_____________________________________________________________________________
Volume                             1193   2        17     955
Peak-Hour Factor, PHF              0.92   0.92     0.92   0.92
Hourly Flow Rate, HFR              1296   2        18     1038
Percent Heavy Vehicles             --     --       0      --     --
Median Type/Storage         Undivided             /
RT Channelized?
Lanes                              2    0             1   2
Configuration                      T   TR              L  T
Upstream Signal?                   Yes                    No

_____________________________________________________________________________
Minor Street:  Approach        Northbound                 Southbound
               Movement     7      8      9     |  10     11     12
                            L      T      R     |  L      T      R

_____________________________________________________________________________
Volume                                    20
Peak Hour Factor, PHF                     0.92
Hourly Flow Rate, HFR                     21
Percent Heavy Vehicles                    0
Percent Grade (%)                  0                      0
Flared Approach:  Exists?/Storage                /                    /
Lanes                                   1
Configuration                          R

_____________________________________________________________________________

__________________Delay, Queue Length, and Level of Service___________________
Approach           EB     WB         Northbound               Southbound
Movement           1      4    |  7      8      9    |  10     11     12
Lane Config               L    |                R    |

_____________________________________________________________________________
v (vph)                   18                    21
C(m) (vph)                658                   823
v/c                       0.03                  0.03
95% queue length          0.08                  0.08
Control Delay             10.6                  9.5
LOS                        B                     A
Approach Delay                           9.5
Approach LOS                              A

_____________________________________________________________________________
```

```
                 HCS+: Unsignalized Intersections Release 5.4

_______________________TWO-WAY STOP CONTROL SUMMARY___________________________

Analyst:              Rick Crafts
Agency/Co.:           RCE Traffic Engineering
Date Performed:       4/27/17
Analysis Time Period: PM - 2035 with project
Intersection:         Camino De La Plaza & driveway
Jurisdiction:         City of San Diego
Units: U. S. Customary
Analysis Year:        2035
Project ID:  Virginia Avenue Parking Structure
East/West Street:     Camino De La Plaza
North/South Street:   project driveway
Intersection Orientation: EW                 Study period (hrs):  0.25

______________________Vehicle Volumes and Adjustments_________________________
Major Street:  Approach        Eastbound              Westbound
               Movement     1      2      3     |  4      5      6
                            L      T      R     |  L      T      R
______________________________________________________________________________
Volume                             1193   13       113    955
Peak-Hour Factor, PHF              0.92   0.92     0.92   0.92
Hourly Flow Rate, HFR              1296   14       122    1038
Percent Heavy Vehicles             --     --       0      --     --
Median Type/Storage         Undivided             /
RT Channelized?
Lanes                              2    0             1   2
Configuration                      T   TR              L  T
Upstream Signal?                   Yes                    No
______________________________________________________________________________
Minor Street:  Approach        Northbound             Southbound
               Movement     7      8      9     |  10     11     12
                            L      T      R     |  L      T      R
______________________________________________________________________________
Volume                                    126
Peak Hour Factor, PHF                     0.92
Hourly Flow Rate, HFR                     136
Percent Heavy Vehicles                    0
Percent Grade (%)                  0                      0
Flared Approach:  Exists?/Storage                /                      /
Lanes                                   1
Configuration                          R
______________________________________________________________________________

__________________Delay, Queue Length, and Level of Service___________________
Approach            EB     WB        Northbound            Southbound
Movement            1      4   |  7      8      9    |  10     11     12
Lane Config                L   |                R    |
______________________________________________________________________________
v (vph)                    122                  136
C(m) (vph)                 649                  823
v/c                        0.19                 0.17
95% queue length           0.69                 0.59
Control Delay              11.8                 10.2
LOS                         B                    B
Approach Delay                           10.2
Approach LOS                              B
______________________________________________________________________________
```

APPENDIX E

Project Trip Generation Study

RCE TRAFFIC AND TRANSPORTATION ENGINEERING

9255 DILLON DRIVE
LA MESA, CALIFORNIA 91941
Tel. (619) 589-9151
Fax. (619 589-9209

Proposed Project Traffic Rates

This project proposes the following uses:

Baja-Mex business - 4,148 sf
Retail - 7925 sf
Park & Walk - 349 parking spaces

Using the rates determined in the Trip Generation Study (Appendix E), the proposed site is estimated to generate the following traffic volumes:

ADT (driveway rates) = 3,068 trips
ADT (streets) = 2,600 trips
AM peak (driveway) = 97 (64 in; 33 out)
AM peak (streets) = 87 (62 in; 25 out)
PM peak (driveway) = 236 (118 in; 118 out)
PM peak (streets) = 194 (97 in; 97 out)

RCE TRAFFIC AND TRANSPORTATION ENGINEERING

9255 DILLON DRIVE
LA MESA, CALIFORNIA 91941
Tel. (619) 589-9151
Fax. (619 589-9209

June 12, 2014

Fred Sobke
Baja-Mex Insurance Services, Inc.
4575 Camino de la Plaza
San Ysidro, CA 92173

Subject: Parking Structure at 4575 Camino de la Plaza

Dear Mr. Sobke,

To address issue #2 (page 6 of 7) of the City of San Diego's first Cycle Issues Report (attached as appendix C), I have conducted field surveys and traffic and pedestrian counts of existing developments in the area that provide similar facilities as those proposed in this development.

The U.S. General Services Administration (GSA) is in the process of implementing the reconfiguration and expansion of the existing San Ysidro Land Port of Entry (LPOE) to improve the overall capacity and operational efficiency. This involves the construction of a second (western) pedestrian crossing at Virginia Avenue.

The addition of this new pedestrian crossing will greatly increase pedestrian activities in the direct vicinity of this project.

Because this area is not similar to other areas within the City in relation to traffic and pedestrian activities, it was determined that the City of San Diego Trip Generation Rates would not provide an accurate estimate of the traffic generation related to this development.

SUMMARY:

Based on the field surveys and counts of existing facilities, we determined an appropriate ADT (Average Daily Traffic) rate and peak hour rates for the three main uses proposed. The results of calculating these rates for the proposed development and subtracting out the existing site use, we calculated the following trip rates based on the site data on the Site Plan (attached as figures 1 & 2, dated 6/2/14):

ADT = 2,329 trips
AM peak = 67 (46 in; 21 out)
Noon peak = 180 (90 in; 90 out)
PM peak = 176 (88 in; 88 out)

The following is a detailed summary of the studies performed and the results:

1. Peak Hours

To determine the peak hours for the project area, we prepared a 24 hour count of Camino De La Plaza adjacent to the project site. (See Appendix A for count sheets and figure 3 for count locations) It was found that traffic volumes increase throughout the day beginning at approximately 5 AM, tapering off at approximately 7 PM. For purposes of this study, I have chosen the following peak periods to analyze:

AM peak hour = 7 to 8 AM
Noon peak hour = 12 to 1 PM
PM peak hour = 5 to 6 PM

2. Baja-Mex Site – Existing Traffic Generation Rates

The existing Baja-Mex site currently consists of a "park & walk" lot and a 2,400 square foot (sf) Baja-Mex business. We performed traffic and pedestrian counts on the existing site to determine drive-thru, walk-up, and park & walk rates (see appendix B for rate calculations). The results were as follows:

<u>Existing Baja-Mex:</u>

ADT = 350 trips = 146 trips/1,000 sf
Walk-ups= 69/1,000 sf
AM = 3% (50% in; 50% out)
Noon = 10% (50% in; 50% out)
PM = 10% (50% in; 50% out)

<u>Existing park & walk:</u>

ADT = 76 trips (based on actual transactions)
AM = 3 (2:1)
Noon = 4 (2:2)
PM = 3 (1:2)

3. Retail Traffic Generation Rates

To estimate the appropriate traffic generation rates for the retail portion of this project we found an existing commercial site located on the southwest corner of the San Ysidro Boulevard & Border Village Road intersection. (Identified as location #3 on figure 3) The site contains approximately 9,100 s.f., with a 7-11 convenience store, a bank, a tax/immigration office, and a Boost mobile phone store. An existing storage facility also uses the driveways to this site, however, we identified and removed these vehicles from our results.

The results were as follows:

ADT = 118 trips/1,000 sf

Walk-ups= 64/1,000 sf
AM peak = 2% (40% in; 60% out)
Noon peak = 7% (50% in; 50% out)
PM peak = 9% (50% in; 50% out)

4. Park & Walk Traffic Generation Rates

To estimate the appropriate traffic generation rates for the park & walk portion of this project we found an existing park & walk site that serves the same purpose as the proposed park & walk portion of this project. The lot is located on the southwest corner of the San Ysidro Boulevard & Camino De La Plaza intersection and contains approximately 165 parking spaces (150 marked and approximately 15 around the edge of the lot).

The results were as follows: (Weekdays)

ADT = 4.6 trips/parking space
AM peak = 3.5% (80% in; 20% out)
Noon peak = 8% (50% in; 50% out)
PM peak = 6% (45% in; 55% out)

The results for weekends were as follows: (Weekends)

ADT = 5.6 trips/parking space
AM peak = 3.7% (80% in; 20% out)
Noon peak = 5% (40% in; 60% out)
PM peak = 6.5% (50% in; 50% out)

5. Proposed Project Traffic Rates

This project proposes the following uses:

Baja-Mex business - 1,492 sf
Retail - 10,049 sf
Park & Walk - 294 parking spaces

Using the rates determined above, the proposed site is estimated to generate the following traffic volumes:

ADT = 2,329 trips
AM peak = 67 (46 in; 21 out)
Noon peak = 180 (90 in; 90 out)
PM peak = 176 (88 in; 88 out)

6. Comparison to City of San Diego Rates

The City of San Diego publishes standard Trip Generation Rates for developments within the City. Based on these standard rates the proposed project would generate the following traffic volumes:

ADT = 4,359 trips
AM peak = 443 (267 in; 176 out)
PM peak = 431 (168 in; 263 out)

Conclusion

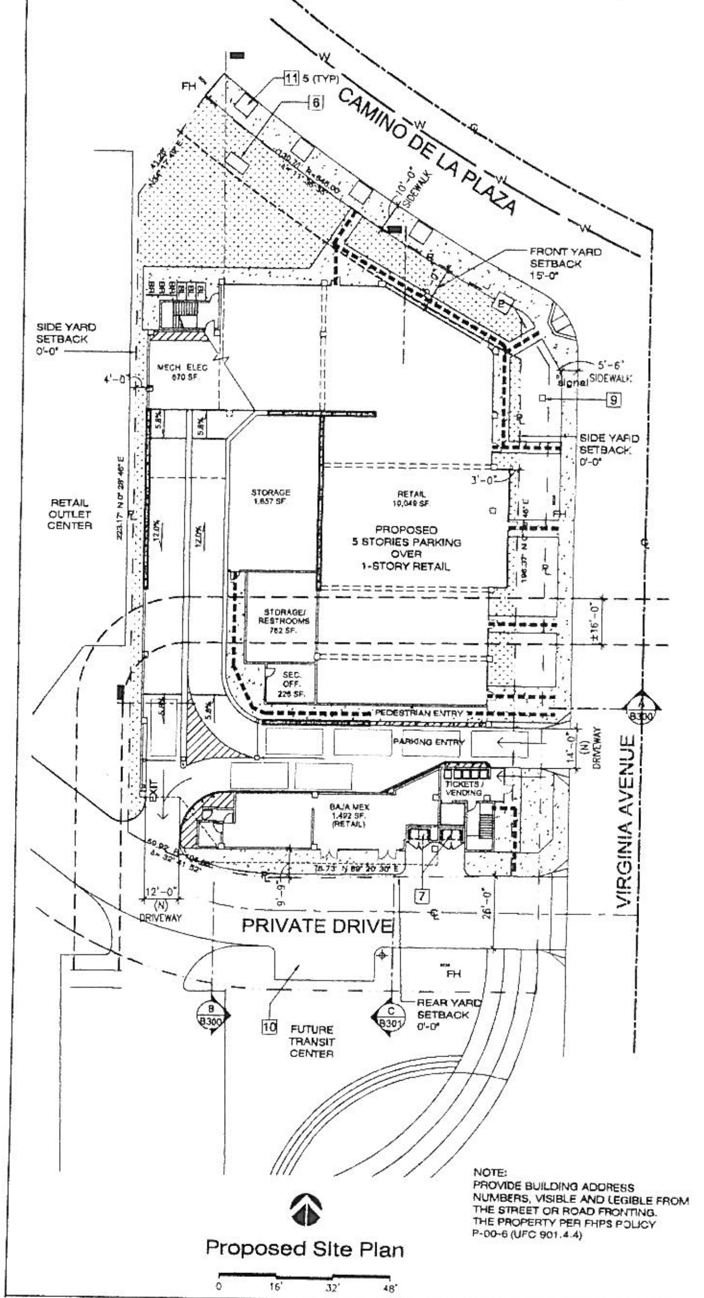
Based on the information collected during this study, it was found that this area is unique from other areas throughout the San Diego region based on the high volume of pedestrian activity and the lack of defined peak periods. Pedestrian "walk-ups" account for approximately 50% of the customers at the existing commercial site as well as at the existing Baja-Mex site. These factors account for the major differences in the trip generation rates as compared to the standard City of San Diego Trip Generation Rates. It should also be noted that this is a conservative approach as it does not reflect potential joint-use trips that will use multiple services at the site.

Based on the information contained in this study, it is my opinion that the "Proposed Project Traffic Rates" shown above will accurately represent the traffic expected to be generated by this project.

Please feel free to call me if you have questions or need additional information.

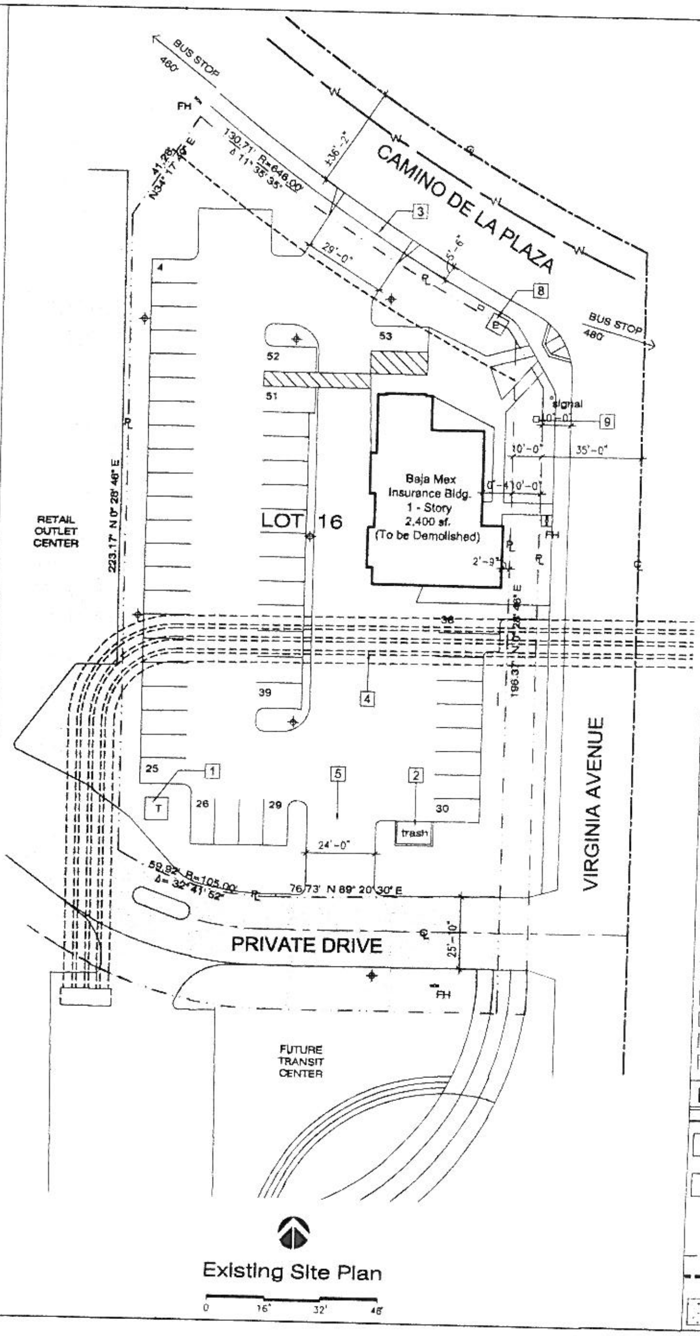
Sincerely,

Rick Crafts, CE, TE



Proposed Site Plan

NOTE:
PROVIDE BUILDING ADDRESS NUMBERS, VISIBLE AND LEGIBLE FROM THE STREET OR ROAD FRONTING. THE PROPERTY PER FHPS POLICY P-00-6 (UFC 901.4.4)



Existing Site Plan

PROPOSED PARKING DATA:

EXISTING PARKING:

53 SPACES

PROPOSED BUILDING AREA:

PARKING	112,892 SF.
RETAIL	13,930 SF.
STORAGE/COMMON SPACE	3,386 SF.
TOTAL :	130,208 SF.

Parking:

1ST Level:	0 SP.
2ND Level:	68 SP.
3RD Level:	75 SP.
4TH Level:	75 SP.
5TH Level:	75 SP.
6TH Level:	45 SP.
TOTAL (INCLUDING ACCESSIBLE PARKING)	338 SP.

Accessible Parking

REQUIRED : 8 SPACES
PROVIDED: 8 SPACES

Van Accessible Parking

REQUIRED : 2 SPACES
PROVIDED: 2 SPACES

Motorcycle Parking

REQUIRED: 2% x 44 = 9 Spaces
PROVIDED: 10 Spaces

Long Term Bicycle Parking

REQUIRED: 5% x 44 = 3 Bike Locker
PROVIDED: 3 Bike Locker

Short Term Bicycle Parking

REQUIRED: 5% x 44 = 3 BikeSpaces
PROVIDED: 3 Bike Spaces

Car Pool Parking

REQUIRED: 1 Space
PROVIDED: 1 Space

Zero Emissions Parking

REQUIRED: 1 Space
PROVIDED: 1 Space

Retail Parking

REQUIRED: 17,316 x 2.5% = 44 Spaces
PROVIDED: 44 Spaces

KEYNOTES:

1	(E) TRANSFORMER
2	(E) TRASH ENCLOSURE TO BE REMOVED
3	(E) DRIVEWAY TO BE REMOVED AND REPLACED WITH FULL - HEIGHT CURB, GUTTER, AND SIDEWALK.
4	(E) 4-36" DIA. RCP PRIVATE STORM DRAINS
5	(E) DRIVEWAY TO BE REMOVED
6	(N) TRANSFORMER
7	(N) RECYCLE & TRASH ENCLOSURE
8	(E) ELECTRICAL PEDESTAL TO REMAIN
9	(E) SIGN
10	(N) LOADING SPACE (12'W X 35'L X 14' HIGH CLEAR)
11	(N) STREET TREE POCKET (40 SF. MIN.)

LEGEND:

—W—	INDICATES EXISTING WATER LINE
☐	INDICATES PARCEL 1 PM 19628 (NOT PART OF PROJECT)
☐	INDICATES PARCEL 2 PM 19628 (NOT PART OF PROJECT)
BS	SHORT TERM BYCICLE PARKING SPACE
BL	LONG TERM BYCICLE BIKE LOCKER
— ℞ —	INDICATES PROPERTY LINE
- - - -	INDICATES ACCESSIBLE PATH OF TRAVEL
░	INDICATES AREA OF LANDSCAPING

SILLMAN WRIGHT ARCHITECTS

VIRGINIA AVENUE PARKING STRUCTURE

SAN YSIDRO, CA 92173

Prepoed By:
Sillman Wright Architects
7515 Metropolitan Drive,Ste 400
San Diego, CA 92108
Tel. : (619) 294-7515
Fax : (619) 294-7592
Contact: Richard Badt
E-mail: rbadt@sillmanwright.com

Project Name:
Virginia Ave. Parking Structure
Coastal Development Permit
Site Development Permit

Project Address:
4575 Camino De La Plaza
San Ysidro, Ca 92173

Revision 5 Date:

Revision 4 Date:

Revision 3 Date:

Revision 2 Date:

Revision 1 Date:

Original Date: 06/02/14

Project No.: 13027

Sheet Titles:
Existing / Proposed Site Plans

Sheet No.:
ASP-100

Sheet: 2 of 15

FIGURE 1 – SITE PLAN

LEGEND:

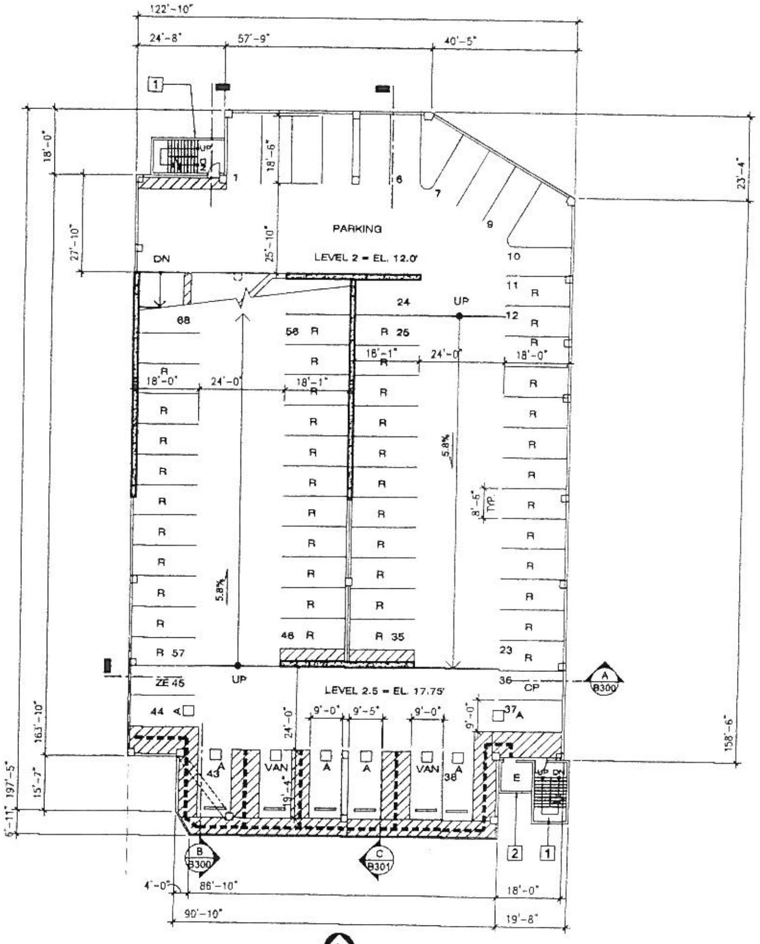
(E)	(E) INDICATES "EXISTING"
(N)	(N) INDICATES "NEW"
A	INDICATES ACCESSIBLE PARKING SPACE
M	INDICATES MOTORCYCLE PARKING SPACE
CP	CAR POOL PARKING SPACE
ZE	LOW ZERO EMISSIONS PARKING SPACE
BS	SHORT TERM BYCICLE PARKING SPACE
R	RETAIL PARKING SPACES
V	VAN ACCESSIBLE PARKING SPACE
BL	LONG TERM BYCICLE BIKE LOCKER
------	INDICATES ACCESSIBLE PATH OF TRAVEL

KEYNOTES:

1	(N) STAIRS
2	(N) ELEVATOR
3	(E) PRIVATE STORM DRAIN
4	(1) BICYCLE LOCKER 39"W x 48"H x 75"L
5	AUTOMATED PAY STATION
6	7'-6" CLEARANCE BELOW RAMP

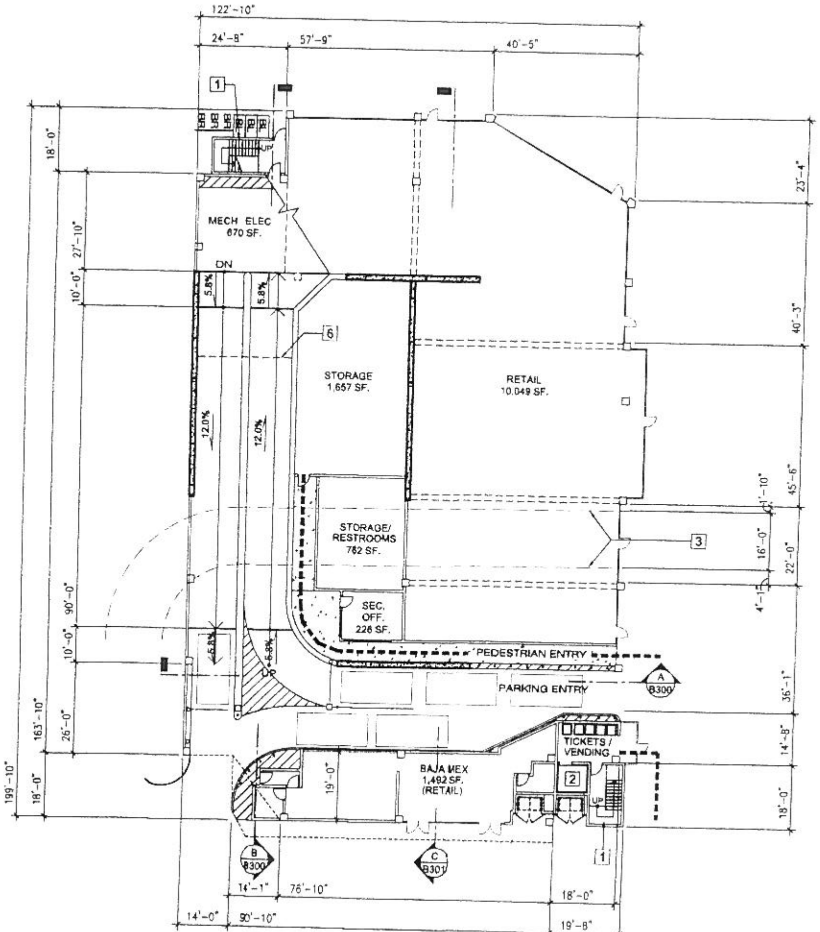
PROPOSED PARKING DATA:

Parking	
1ST LEVEL	
PARKING STALLS:	0 SP.
2ND LEVEL	
STANDARD STALLS:	60 SP.
ACCESSIBLE STALLS:	8 SP.
FLOOR AREA:	
1ST FLOOR COMMON & STORAGE AREA:	9,447 SF.
1ST FLOOR RETAIL AREA:	13,813 SF.
TOTAL 1ST FLOOR AREA :	23,260 SF.
2ND FLOOR AREA:	23,450 SF.



Second Level Floor Plan

0 16' 32' 48'



First Level / Site Plan

0 16' 32' 48'

SILLMAN WRIGHT ARCHITECTS

VIRGINIA AVENUE PARKING STRUCTURE
SAN YSIDRO, CA 92173

Prepaed By:
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E-mail: rbadt@sillmanwright.com

Project Name:
Virginia Ave. Parking Structure
Coastal Development Permit
Site Development Permit

Project Address:
4575 Camino De La Plaza
San Ysidro, Ca 92173

Revision 5 Date:
Revision 4 Date:
Revision 3 Date:
Revision 2 Date:
Revision 1 Date:
Original Date: 06/02/14
Project No.: 13027
Sheet Titles: 1st and 2nd Level Plans
Sheet No: A-100
Sheet 3 of 15

FIGURE 2 – SITE PLAN

FIGURE 3 – COUNT LOCATIONS

APPENDIX A

TRAFFIC COUNT SHEETS

LOCATION #1

WEDNESDAY, MAY 7TH, 2014 CITY: SAN YSIDRO PROJECT: PTD14-0509-01

CAMINO DE LA PLAZA E-O VIA NACIONAL

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			8		12			12:00			76		101		
00:15			10		10			12:15			103		118		NOON
00:30			9		8			12:30			107		118		
00:45			1	28	2	32	60	12:45			127	413	123	460	873
01:00			8		5			13:00			113		114		
01:15			8		6			13:15			102		119		
01:30			4		4			13:30			118		125		
01:45			6	26	7	22	48	13:45			135	468	142	500	968
02:00			1		2			14:00			132		88		
02:15			0		4			14:15			132		133		
02:30			4		0			14:30			156		131		
02:45			2	7	2	8	15	14:45			122	542	144	496	1038
03:00			4		1			15:00			138		139		
03:15			3		3			15:15			133		140		
03:30			4		7			15:30			155		124		
03:45			4	15	6	17	32	15:45			156	582	137	540	1122
04:00			1		7			16:00			123		123		
04:15			2		8			16:15			144		139		
04:30			7		10			16:30			136		127		
04:45			6	16	17	42	58	16:45			142	545	149	538	1083
05:00			5		13			17:00			124		126		
05:15			7		10			17:15			126		177		PM
05:30			22		10			17:30			154		181		
05:45			12	46	23	56	102	17:45			144	548	177	661	1209
06:00			7		23			18:00			134		159		
06:15			13		28			18:15			137		176		
06:30			16		30			18:30			120		171		
06:45			24	60	33	114	174	18:45			146	537	170	676	1213
07:00			16		27			19:00			125		157		
AM 07:15			20		36			19:15			121		131		
07:30			29		45			19:30			137		113		
07:45			30	95	66	174	269	19:45			136	519	95	496	1015
08:00			38		67			20:00			161		94		
08:15			19		64			20:15			128		72		
08:30			34		76			20:30			122		59		
08:45			47	138	90	297	435	20:45			125	536	51	276	812
09:00			53		71			21:00			131		56		
09:15			34		79			21:15			110		41		
09:30			39		84			21:30			100		40		
09:45			63	189	89	323	512	21:45			57	398	38	175	573
10:00			55		102			22:00			58		20		
10:15			64		91			22:15			42		27		
10:30			84		102			22:30			50		20		
10:45			65	268	98	393	661	22:45			16	166	16	83	249
11:00			94		111			23:00			23		9		
11:15			91		90			23:15			20		21		
11:30			81		114			23:30			6		7		
11:45			81	347	128	443	790	23:45			8	57	16	53	110
Total Vol.				1235		1921	**3156**					5311		4954	**10265**

Daily Totals

NB	SB	EB	WB	**Combined**
		6546	6875	**13421**

	AM			**PM**		
Split %	39.1%	60.9%	**23.5%**	51.7%	48.3%	**76.5%**
Peak Hour	11:45	11:45	**11:45**	15:00	17:15	**17:30**
Volume	367	465	**832**	582	694	**1262**
P.H.F.	0.86	0.91	**0.92**	0.93	0.96	**0.94**

LOCATION # 2

WEDNESDAY, MAY 7TH, 2014 CITY: SAN YSIDRO PROJECT: PTD14-0509-01

INSURANCE SHOP WITH DRIVE THRU

Hours - 7Am - 8PM

AM Period	INS		OUTS		DRIVE THRU		WALK UPS			PM Period	INS		OUTS		DRIVE THRU		WALK UPS		
00:00	0		1		0		0			12:00	2		2		1		3		
00:15	0		0		0		0			12:15	2		1		2		3		
00:30	1		0		0		0			12:30	1		2		2		2		
00:45	0	1	0	1	0	0	0	0	2	12:45	2	7	2	7	5	10	6	14	38
01:00	0		0		0		0			13:00	0		2		1		2		
01:15	0		0		0		0			13:15	2		1		2		8		
01:30	1		1		0		0			13:30	0		2		2		2		
01:45	0	1	0	1	0	0	0	0	2	13:45	2	4	2	7	5	10	2	14	35
02:00	0		0		0		0			14:00	3		0		4		1		
02:15	0		0		0		0			14:15	1		1		2		1		
02:30	0		0		0		0			14:30	0		0		1		0		
02:45	1	1	0	0	0	0	0	0	1	14:45	1	5	1	2	6	13	4	6	26
03:00	0		0		0		0			15:00	2		2		2		1		
03:15	0		0		0		0			15:15	2		1		5		3		
03:30	0		0		0		0			15:30	1		2		5		4		
03:45	0	0	0	0	0	0	0	0		15:45	1	6	0	5	7	19	3	11	41
04:00	1		1		0		0			16:00	2		1		0		3		
04:15	0		0		0		0			16:15	2		0		4		1		
04:30	0		1		0		0			16:30	2		0		2		3		
04:45	1	2	0	2	0	0	0	0	4	16:45	6	12	0	1	7	13	1	8	34
05:00	0		0		0		0			17:00	1		0		3		2		
05:15	0		0		0		0			17:15	3		0		1		4		
05:30	1		0		0		0			17:30	2		0		4		5		
05:45	0	1	0	0	0	0	0	0	1	17:45	1	7	1	1	2	10	7	18	36
06:00	1		0		0		1			18:00	1		0		2		11		
06:15	0		1		0		0			18:15	2		0		2		3		
06:30	1		1		0		2			18:30	2		2		1		2		
06:45	0	2	1	3	0	0	1	4	9	18:45	1	6	0	2	1	6	2	18	32
07:00	2		1		1		1			19:00	4		2		4		5		
07:15	0		1		0		1			19:15	1		1		3		7		
07:30	1		0		0		0			19:30	4		0		4		6		
07:45	1	4	0	2	1	2	1	3	11	19:45	1	10	1	4	4	15	1	19	48
08:00	1		0		0		2			20:00	3		0		2		2		
08:15	1		0		0		0			20:15	2		0		2		0		
08:30	0		0		0		2			20:30	0		0		0		1		
08:45	2	4	0	0	2	2	1	5	11	20:45	2	7	0	0	1	5	6	9	21
09:00	0		0		2		0			21:00	1		2		1		4		
09:15	0		0		1		0			21:15	1		0		2		5		
09:30	1		0		1		1			21:30	1		2		0		2		
09:45	1	2	0	0	5	9	2	3	14	21:45	1	4	0	4	1	4	0	11	23
10:00	1		2		2		4			22:00	0		0		0		1		
10:15	1		1		4		3			22:15	1		0		0		0		
10:30	2		1		3		3			22:30	0		2		0		0		
10:45	0	4	1	5	3	12	4	14	35	22:45	0	1	0	2	0	0	0	1	4
11:00	2		1		2		3			23:00	0	-20	0	-13	0	-9	0	-25	(off hours)
11:15	3		2		6		2			23:15	0		0		0		0		
11:30	2		1		3		1			23:30	0		0		0		0		
11:45	1	8	0	4	2	13	2	8	33	23:45	0	0	0	0	0	0	0	0	
Total Vol.		30		18		38		37	**123**			69		35		105		129	**338**

Daily Totals

INS	OUTS	D-THRU	W-UPS	Combined
~~99~~ 79	~~53~~ 40	~~143~~ 134	~~166~~ 141	**461**

	AM					PM				
Split %	24.4%	14.6%	30.9%	30.1%	**26.7%**	20.4%	10.4%	31.1%	38.2%	**73.3%**
Peak Hour	11:00	10:00	09:45	10:00	**10:30**	16:00	12:00	15:00	17:15	**19:00**
Volume	8	5	14	14	**38**	12	7	19	27	**48**
P.H.F.	0.67	0.63	0.70	0.88	**0.73**	1.00	0.88	0.68	0.61	**0.80**

PACIFIC TECHNICAL DATA

LOCATION # 2 - (Only on Border Village Rd)

WEDNESDAY, MAY 7TH, 2014 CITY: SAN YSIDRO PROJECT: PTD14-0509-01

STORAGE & SHOPPING CENTER

STORAGE FACILITY

INCLUDES OUT OF STORAGE TRIPS

AM Period	INS 1		INS 2		OUTS		WALK UPS			PM Period	INS 1		INS 2		OUTS		WALK UPS		
00:00	0		1		0		0			12:00	5		3		12		20		
00:15	0		0		0		0			12:15	9		8		8		17		
00:30	0		1		0		0			12:30	3		8		8	20	14		
00:45	0	0	0	2	0	0	0	0	2	12:45	5	22	7	26	14	~~42~~	16	67	157
01:00	0		0		1		0			13:00	3		4		11		10		
01:15	0		0		0		0			13:15	8		9		9		15		
01:30	0		0		0		0			13:30	15		13		20	22	27		
01:45	0	0	1	1	0	1	0	0	2	13:45	0	26	6	32	8	~~48~~	9	61	167
02:00	1		0		0		0			14:00	1		4		8		7		
02:15	0		1		1		0			14:15	7		4		4		9		
02:30	0		1		0		0			14:30	11		8		11	7	11		
02:45	0	1	0	2	1	2	0	0	5	14:45	14	33	9	25	17	40	14	41	139
03:00	1		1		0		0			15:00	11		6		11		16		
03:15	0		0		0		1			15:15	10		9		17		10		
03:30	0		0		0		0			15:30	6		5		18	27	17		
03:45	0	1	2	3	1	1	2	3	8	15:45	5	32	6	26	15	~~61~~	11	54	173
04:00	0		1		4		1			16:00	10		6		15		16		
04:15	0		2		5		0			16:15	4		10		8		8		
04:30	0		0		1		2			16:30	9		8		15	19	13		
04:45	0	0	0	3	3	13	3	6	22	16:45	6	29	3	27	10	~~48~~	16	53	157
05:00	0		1		7		1			17:00	11		10		13		12		
05:15	0		2		4		0			17:15	7		6		10		13		
05:30	0		4		4		1			17:30	4		9		14	19	20		
05:45	0	0	1	8	6	21	1	3	32	17:45	7	29	3	28	11	~~48~~	4	49	154
06:00	1		6		5		1			18:00	4		6		12		7		
06:15	1		4		3		1			18:15	6		4		11		10		
06:30	0		1		3	[illegible]	0			18:30	6		5		12		3		
06:45	1	3	0	11	5	~~16~~	1	3	33	18:45	3	19	5	20	10	45	3	23	107
07:00	1		0		5		0			19:00	7		4		14		6		
07:15	0		3		6		1			19:15	4		2		9		6		
07:30	1		1		3	11	2			19:30	4		3		4		3		
07:45	1	3	2	6	0	~~14~~	0	3	26	19:45	2	17	4	13	9	36	6	21	87
08:00	2		2		3		2			20:00	1		4		5		1		
08:15	4		2		3		2			20:15	5		4		7		3		
08:30	0		5		5	8	3			20:30	4		1		10		2		
08:45	1	7	6	15	4	~~15~~	13	20	57	20:45	5	15	4	13	7	29	4	10	67
09:00	2		4		9		5			21:00	2		4		8		5		
09:15	2		7		6		11			21:15	0		0		3		2		
09:30	4		7		9	20	10			21:30	4		0		0		1		
09:45	1	9	5	23	5	29	7	33	94	21:45	2	8	0	4	4	15	2	10	37
10:00	2		13		5		10			22:00	2		1		2		1		
10:15	2		7		13		13			22:15	2		1		6		0		
10:30	1		1		6	14	14			22:30	1		1		1		2		
10:45	11	16	1	22	6	~~30~~	9	46	114	22:45	1	6	1	4	3	12	0	3	25
11:00	6		3		9		18			23:00	0		0		2		1		
11:15	8		1		9		13			23:15	2		0		5		2		
11:30	11		2		10	4	28			23:30	0		1		1	6	0		
11:45	5	30	7	13	6	~~34~~	12	71	148	23:45	0	2	2	3	0	~~8~~	0	3	16
Total Vol.		70		109		~~176~~ 106		188	**543**			238		221		~~432~~ 194		395	**1286**

(SUBTRACT SELF-STORAGE)

Daily Totals

INS 1	INS 2	OUTS	W-UPS	**Combined**
308	330	~~608~~ 300	583	**1829**

	AM				PM				
Split %	12.9%	20.1%	32.4%	34.6% **29.7%**	18.5%	17.2%	33.6%	30.7%	**70.3%**
Peak Hour	10:45	09:15	11:15	11:30 **11:30**	14:30	12:45	15:15	12:45	**14:45**
Volume	36	32	37	77 **163**	46	33	65	68	**190**
P.H.F.	0.82	0.62	0.77	0.69 **0.80**	0.84	0.63	0.90	0.63	**0.88**

Intersection # 3 - (Dwy on San Ysidro Blvd.)

WEDNESDAY, MAY 7TH, 2014 CITY: SAN YSIDRO PROJECT: PTD14-0509-01

SHOPPING CENTER

AM Period	IN		OUT			PM Period	IN		OUT		
00:00	0		0			12:00	1		5		
00:15	1		1			12:15	3		4		
00:30	0		1			12:30	2		4		
00:45	0	1	0	2	3	12:45	1	7	5	18	25
01:00	0		0			13:00	3		1		
01:15	0		1			13:15	5		5		
01:30	0		0			13:30	5		6		
01:45	0	0	0	1	1	13:45	2	15	6	18	33
02:00	1		0			14:00	4		4		
02:15	0		0			14:15	1		0		
02:30	0		0			14:30	6		3		
02:45	0	1	0	0	1	14:45	10	21	2	9	30
03:00	1		0			15:00	4		4		
03:15	0		0			15:15	4		7		
03:30	0		0			15:30	4		2		
03:45	1	2	0	0	2	15:45	2	14	3	16	30
04:00	0		2			16:00	7		6		
04:15	1		0			16:15	11		8		
04:30	1		1			16:30	5		4		
04:45	0	2	2	5	7	16:45	8	31	3	21	52
05:00	0		1			17:00	6		8		
05:15	1		2			17:15	4		5		
05:30	1		2			17:30	6		12		
05:45	2	4	2	7	11	17:45	4	20	2	27	47
06:00	3		2			18:00	2		9		
06:15	3		2			18:15	2		2		
06:30	0		0			18:30	1		1		
06:45	0	6	2	6	12	18:45	1	6	2	14	20
07:00	1		0			19:00	6		4		
07:15	0		1			19:15	3		6		
07:30	0		0			19:30	2		4		
07:45	0	1	0	1	2	19:45	1	12	1	15	27
08:00	1		1			20:00	1		1		
08:15	1		2			20:15	1		5		
08:30	4		5			20:30	1		2		
08:45	3	9	3	11	20	20:45	4	7	5	13	20
09:00	3					21:00	1		2		
09:15	3		2			21:15	1		0		
09:30	6		1			21:30	0		4		
09:45	7	19	3	6	25	21:45	1	3	1	7	10
10:00	4		5			22:00	0		0		
10:15	4		4			22:15	1		0		
10:30	1		3			22:30	0		1		
10:45	4	3	3	15	18	22:45	0	1	4	5	6
11:00	5		3			23:00	0		0		
11:15	4		4			23:15	0		3		
11:30	6		9			23:30	3		0		
11:45	7	22	3	19	41	23:45	0	3	1	4	7
Total Vol.		70		73	**143**			140		167	**307**

Daily Totals

IN	OUT	**Combined**
210	240	**450**

	AM			**PM**		
Split %	49.0%	51.0%	**31.8%**	45.6%	54.4%	**68.2%**
Peak Hour	11:00	11:15	**11:00**	16:00	16:45	**16:15**
Volume	22	21	**41**	31	28	**53**
P.H.F.	0.79	0.58	**0.68**	0.64	0.58	**0.70**

LOCATION 4 (WEEKDAY)

WEDNESDAY, MAY 7TH, 2014 CITY: SAN YSIDRO PROJECT: PTD14-0509-01

LOCATION 4 - PARK & RIDE

AM Period	IN 1		IN 2		OUT			PM Period	IN 1		IN 2		OUT		
00:00	0		1		3			12:00	3		3		7		
00:15	0		2		2			12:15	5		6		6		
00:30	0		0		4			12:30	1		4		7		
00:45	0	0	1	4	1	10	14	12:45	1	10	9	22	8	28	60
01:00	0		0		2			13:00	0		7		6		
01:15	0		0		1			13:15	0		2		6		
01:30	0		1		2			13:30	0		6		7		
01:45	0	0	0	1	3	8	9	13:45	0	0	3	18	11	30	48
02:00	0		0		1			14:00	0		5		8		
02:15	0		1		2			14:15	0		3		14		
02:30	0		0		1			14:30	0		4		4		
02:45	0	0	1	2	0	4	6	14:45	0	0	5	17	5	31	48
03:00	0		0		2			15:00	0		2		3		
03:15	0		0		1			15:15	0		4		6		
03:30	0		0		2			15:30	0		1		8		
03:45	0	0	0	0	3	8	8	15:45	0	0	5	12	6	23	35
04:00	0		2		1			16:00	0		4		5		
04:15	1		1		1			16:15	0		8		4		
04:30	1		1		1			16:30	0		6		7		
04:45	1	3	0	4	0	3	10	16:45	0	0	4	22	8	24	46
05:00	0		1		0			17:00	0		6		4		
05:15	0		0		0			17:15	0		7		10		
05:30	1		2		0			17:30	0		1		5		
05:45	2	3	1	4	0	0	7	17:45	0	0	8	22	7	26	48
06:00	1		1		1			18:00	0		2		6		
06:15	1		1		1			18:15	0		11		8		
06:30	1		2		0			18:30	0		1		6		
06:45	2	5	1	5	0	2	12	18:45	0	0	8	22	8	28	50
07:00	3		3		1			19:00	0		8		6		
07:15	1		2		2			19:15	0		3		6		
07:30	3		2		0			19:30	0		5		5		
07:45	3	10	5	12	1	4	26	19:45	0	0	7	23	3	20	43
08:00	2		4		2			20:00	0		4		5		
08:15	1		5		4			20:15	0		1		3		
08:30	1		5		2			20:30	0		6		2		
08:45	3	7	4	18	2	10	35	20:45	0	0	5	16	6	16	32
09:00	2		6		0			21:00	0		1		8		
09:15	5		13		1			21:15	0		3		7		
09:30	2		13		4			21:30	0		4		2		
09:45	1	10	6	38	6	11	59	21:45	0	0	4	12	9	26	38
10:00	1		6		6			22:00	0		1		8		
10:15	5		4		3			22:15	0		4		3		
10:30	2		4		3			22:30	0		3		7		
10:45	0	8	7	21	5	17	46	22:45	0	0	1	9	4	22	31
11:00	2		8		2			23:00	0		5		4		
11:15	0		5		6			23:15	0		1		1		
11:30	1		6		4			23:30	0		1		2		
11:45	1	4	4	23	5	17	44	23:45	0	0	2	9	3	10	19
Total Vol.		50		132		94	**276**			10		204		284	**498**

Daily Totals

IN 1	IN 2	OUT	Combined
60	336	378	**774**

	AM				PM			
Split %	18.1%	47.8%	34.1%	**35.7%**	2.0%	41.0%	57.0%	**64.3%**
Peak Hour	08:45	09:00	11:45	**09:15**	12:00	18:15	13:30	**12:00**
Volume	12	38	25	**64**	10	28	40	**60**
P.H.F.	0.60	0.73	0.89	**0.84**	0.50	0.64	0.71	**0.83**

THURSDAY, MAY 8TH, 2014 CITY: SAN YSIDRO PROJECT: PTD14-0509-01

LOCATION 4 - PARK & RIDE

AM Period	IN 1		IN 2		OUT			PM Period	IN 1		IN 2		OUT		
00:00	0		2		4			12:00	1		1		2		
00:15	0		1		2			12:15	2		3		2		
00:30	0		0		1			12:30	0		3		3		
00:45	0	0	2	5	0	7	12	12:45	0	3	2	9	2	9	21
01:00	0		1		1			13:00	0		1		3		
01:15	0		1		1			13:15	0		3		3		
01:30	0		0		1			13:30	0		2		5		
01:45	0	0	0	2	1	4	6	13:45	0	0	3	9	2	13	22
02:00	0		1		1			14:00	0		0		2		
02:15	0		1		0			14:15	0		4		4		
02:30	0		2		2			14:30	0		3		4		
02:45	0	0	0	4	3	6	10	14:45	0	0	3	10	6	16	26
03:00	0		2		3			15:00	0		7		4		
03:15	0		1		1			15:15	0		2		8		
03:30	0		1		4			15:30	0		3		3		
03:45	0	0	1	5	2	10	15	15:45	0	0	4	16	6	21	37
04:00	0		1		3			16:00	0		1		7		
04:15	0		0		4			16:15	0		2		6		
04:30	0		1		0			16:30	0		7		2		
04:45	0	0	0	2	0	7	9	16:45	0	0	4	14	6	21	35
05:00	0		0		2			17:00	0		5		9		
05:15	1		1		0			17:15	0		3		2		
05:30	2		0		1			17:30	0		1		4		
05:45	3	6	2	3	0	3	12	17:45	0	0	4	13	8	23	36
06:00	1		1		1			18:00	0		7		7		
06:15	1		2		1			18:15	0		3		4		
06:30	1		0		1			18:30	0		6		2		
06:45	2	5	0	3	1	4	12	18:45	0	0	6	22	6	19	41
07:00	3		0		1			19:00	0		4		4		
07:15	3		0		1			19:15	0		12		6		
07:30	2		1		0			19:30	0		6		8		
07:45	4	12	2	3	0	2	17	19:45	0	0	3	25	6	24	49
08:00	2		3		0			20:00	0		4		4		
08:15	3		0		1			20:15	0		5		6		
08:30	4		2		0			20:30	0		6		5		
08:45	0	9	2	7	0	1	17	20:45	0	0	6	21	5	20	41
09:00	1		3		0			21:00	0		4		7		
09:15	4		5		0			21:15	0		4		3		
09:30	0		1		0			21:30	0		3		4		
09:45	2	7	2	11	1	1	19	21:45	0	0	3	14	6	20	34
10:00	3		6		1			22:00	0		7		10		
10:15	1		6		1			22:15	0		5		6		
10:30	2		4		1			22:30	0		4		8		
10:45	1	7	2	18	2	5	30	22:45	0	0	1	17	7	31	48
11:00	2		3		0			23:00	0		1		6		
11:15	3		2		0			23:15	0		2		6		
11:30	1		0		1			23:30	0		2		4		
11:45	2	8	5	10	4	5	23	23:45	0	0	1	6	3	19	25
Total Vol.		54		73		55	**182**			3		176		236	**415**

Daily Totals

IN 1	IN 2	OUT	Combined
57	249	291	**597**

	AM				PM			
Split %	29.7%	40.1%	30.2%	**30.5%**	0.7%	42.4%	56.9%	**69.5%**
Peak Hour	07:45	09:45	03:30	**09:45**	12:00	18:30	22:00	**18:45**
Volume	13	18	13	**30**	3	28	31	**52**
P.H.F.	0.81	0.75	0.81	**0.75**	0.38	0.58	0.78	**0.72**

MONDAY, MAY 12TH, 2014 CITY: SAN YSIDRO PROJECT: PTD14-0509-01

LOCATION 4 - PARK & RIDE

AM Period	IN 1		IN 2		OUT			PM Period	IN 1		IN 2		OUT		
00:00	0		0		3			12:00	0		1		6		
00:15	0		1		2			12:15	0		2		5		
00:30	0		1		1			12:30	2		5		4		
00:45	0	0	1	3	1	7	10	12:45	1	3	6	14	3	18	35
01:00	0		2		2			13:00	0		0		3		
01:15	0		1		1			13:15	5		7		12		
01:30	0		0		1			13:30	1		1		5		
01:45	0	0	0	3	1	5	8	13:45	1	7	3	11	4	24	42
02:00	0		1		1			14:00	1		2		7		
02:15	0		1		2			14:15	0		1		7		
02:30	0		0		1			14:30	1		2		1		
02:45	0	0	1	3	1	5	8	14:45	2	4	0	5	2	17	26
03:00	0		1		1			15:00	3		2		9		
03:15	0		2		1			15:15	3		3		4		
03:30	0		1		0			15:30	0		3		6		
03:45	0	0	1	5	1	3	8	15:45	5	11	4	12	9	28	51
04:00	0		1		3			16:00	0		3		6		
04:15	0		1		2			16:15	3		5		2		
04:30	0		1		4			16:30	1		3		0		
04:45	0	0	3	6	5	14	20	16:45	0	4	2	13	6	14	31
05:00	0		0		1			17:00	1		2		4		
05:15	0		2		1			17:15	2		4		5		
05:30	0		2		2			17:30	0		2		6		
05:45	0	0	3	7	0	4	11	17:45	1	4	0	8	5	20	32
06:00	0		1		1			18:00	1		2		3		
06:15	0		0		1			18:15	2		0		7		
06:30	0		1		3			18:30	2		1		4		
06:45	0	0	1	3	2	7	10	18:45	3	8	4	7	3	17	32
07:00	2		1		2			19:00	0		1		6		
07:15	1		2		4			19:15	0		1		4		
07:30	2		3		2			19:30	0		2		3		
07:45	1	6	4	10	1	9	25	19:45	0	0	1	5	6	19	24
08:00	1		2		1			20:00	0		4		4		
08:15	2		2		1			20:15	0		0		4		
08:30	2		1		3			20:30	0		3		2		
08:45	1	6	2	7	1	6	19	20:45	0	0	1	8	6	16	24
09:00	0		2		1			21:00	0		2		2		
09:15	1		1		1			21:15	0		0		3		
09:30	3		2		2			21:30	0		3		3		
09:45	3	7	2	7	2	6	20	21:45	0	0	3	8	5	13	21
10:00	4		2		3			22:00	0		4		16		
10:15	5		4		2			22:15	0		3		8		
10:30	4		2		2			22:30	0		0		1		
10:45	5	18	3	11	2	9	38	22:45	1	1	4	11	4	29	41
11:00	6		2		1			23:00	0		1		1		
11:15	2		4		4			23:15	0		1		5		
11:30	1		2		2			23:30	0		1		1		
11:45	1	10	2	10	4	11	31	23:45	0	0	1	4	2	9	13
Total Vol.		47		75		86	**208**			42		106		224	**372**

Daily Totals

IN 1	IN 2	OUT	**Combined**
89	181	310	**580**

	AM				**PM**			
Split %	22.6%	36.1%	41.3%	**35.9%**	11.3%	28.5%	60.2%	**64.1%**
Peak Hour	10:15	07:15	11:45	**10:00**	15:00	12:30	21:30	**15:00**
Volume	20	11	19	**38**	11	18	32	**51**
P.H.F.	0.83	0.69	0.79	**0.86**	0.50	0.64	0.50	**0.71**

TUESDAY MAY 13TH, 2014
LOCATION 4 - PARK & RIDE

CITY: SAN YSIDRO

PROJECT: PTD14-0509-01

AM Period	IN 1		IN 2		OUT				PM Period	IN 1		IN 2		OUT		
00:00	0		1		1				12:00	0		4		7		
00:15	0		2		2				12:15	0		5		5		
00:30	0		0		1				12:30	0		1		4		
00:45	0	0	0	3	1	5		8	12:45	0	0	6	16	7	23	39
01:00	0		0		0				13:00	0		6		5		
01:15	0		1		0				13:15	0		5		8		
01:30	0		0		0				13:30	0		4		4		
01:45	0	0	1	2	0	0		2	13:45	0	0	4	19	3	20	39
02:00	0		2		2				14:00	0		6		5		
02:15	0		0		0				14:15	0		2		8		
02:30	0		0		1				14:30	0		4		10		
02:45	0	0	0	2	1	4		6	14:45	0	0	7	19	9	32	51
03:00	0		1		0				15:00	0		10		16		
03:15	0		1		0				15:15	0		3		7		
03:30	0		0		0				15:30	0		1		7		
03:45	0	0	1	3	1	1		4	15:45	0	0	3	17	7	37	54
04:00	0		1		1				16:00	0		5		7		
04:15	0		2		3				16:15	0		5		9		
04:30	0		1		1				16:30	0		5		5		
04:45	0	0	1	5	1	6		11	16:45	0	0	4	19	9	30	49
05:00	0		0		2				17:00	0		3		7		
05:15	0		1		0				17:15	0		1		10		
05:30	0		2		1				17:30	0		4		4		
05:45	0	0	2	5	0	3		8	17:45	1	1	3	11	3	24	36
06:00	0		0		1				18:00	0		6		6		
06:15	0		0		1				18:15	0		3		7		
06:30	0		0		1				18:30	0		3		5		
06:45	0	0	1	1	0	3		4	18:45	0	0	2	14	8	26	40
07:00	1		2		1				19:00	0		1		3		
07:15	2		2		2				19:15	0		1		1		
07:30	3		2		2				19:30	0		3		3		
07:45	0	6	3	9	1	6		21	19:45	0	0	2	7	3	10	17
08:00	1		3		1				20:00	0		3		5		
08:15	2		4		0				20:15	0		5		4		
08:30	0		3		0				20:30	0		8		1		
08:45	3	6	3	13	1	2		21	20:45	0	0	3	19	5	15	34
09:00	6		3		1		0		21:00	0		7		8		
09:15	3		6		1				21:15	0		6		8		
09:30	3		4		1				21:30	0		5		7		
09:45	2	14	5	18	1	4		36	21:45	0	0	4	22	6	29	51
10:00	3		4		1				22:00	0		2		6		
10:15	4		3		2				22:15	0		3		4		
10:30	1		2		1				22:30	0		3		5		
10:45	2	10	2	11	4	8		29	22:45	0	0	1	9	4	19	28
11:00	0		4		5				23:00	0		2		3		
11:15	1		4		5				23:15	0		2		6		
11:30	3		6		2				23:30	0		2		2		
11:45	2	6	2	16	3	15		37	23:45	0	0	2	8	1	12	20
Total Vol.		42		88		57		**187**			1		180		277	**458**

Daily Totals

IN 1	IN 2	OUT	Combined
43	268	334	**645**

	AM				**PM**			
Split %	22.5%	47.1%	30.5%	**29.0%**	0.2%	39.3%	60.5%	**71.0%**
Peak Hour	08:45	09:15	11:45	**11:15**	17:00	14:30	14:15	**14:15**
Volume	15	19	19	**39**	1	24	43	**66**
P.H.F.	0.63	0.79	0.68	**0.89**		0.60	0.67	**0.63**

LOCATION #4 (WEEKEND)

FRIDAY, MAY 9TH, 2014 CITY: SAN YSIDRO PROJECT: PTD14-0509-01

LOCATION 4 - PARK & RIDE

AM Period	IN 1		IN 2		OUT			PM Period	IN 1		IN 2		OUT		
00:00	0		5		3			12:00	0		2		3		
00:15	0		4		2			12:15	0		3		4		
00:30	0		6		2			12:30	0		2		2		
00:45	0	0	3	18	2	9	27	12:45	1	1	2	9	1	10	20
01:00	0		2		1			13:00	0		6		1		
01:15	0		1		1			13:15	0		4		2		
01:30	0		0		0			13:30	0		2		3		
01:45	0	0	1	4	1	3	7	13:45	0	0	2	14	3	9	23
02:00	0		1		1			14:00	0		3		5		
02:15	0		0		2			14:15	0		2		6		
02:30	0		1		3			14:30	0		2		4		
02:45	0	0	0	2	2	8	10	14:45	0	0	1	8	5	20	28
03:00	0		3		2			15:00	0		1		4		
03:15	0		2		6			15:15	0		2		5		
03:30	0		4		4			15:30	0		2		6		
03:45	0	0	2	11	6	18	29	15:45	0	0	6	11	7	22	33
04:00	0		2		2			16:00	0		5		8		
04:15	0		1		1			16:15	0		2		8		
04:30	0		0		2			16:30	0		5		9		
04:45	0	0	0	3	2	7	10	16:45	0	0	4	16	5	30	46
05:00	0		0		1			17:00	0		8		9		
05:15	0		1		1			17:15	0		9		11		
05:30	0		0		0			17:30	0		8		5		
05:45	0	0	2	3	0	2	5	17:45	0	0	6	31	4	29	60
06:00	2		1		1			18:00	0		4		6		
06:15	1		1		1			18:15	0		5		4		
06:30	3		2		2			18:30	0		1		6		
06:45	3	9	3	7	1	5	21	18:45	0	0	5	15	6	22	37
07:00	3		2		2			19:00	0		6		8		
07:15	4		1		2			19:15	0		8		9		
07:30	5		4		1			19:30	0		9		10		
07:45	2	14	6	13	2	7	34	19:45	0	0	12	35	5	32	67
08:00	1		5		0			20:00	0		11		7		
08:15	6		6		1			20:15	0		4		9		
08:30	2		5		1			20:30	0		6		9		
08:45	4	13	2	18	2	4	35	20:45	0	0	7	28	5	30	58
09:00	2		1		1			21:00	0		8		4		
09:15	1		3		1			21:15	0		5		9		
09:30	2		2		2			21:30	0		4		11		
09:45	3	8	1	7	1	5	20	21:45	0	0	9	26	5	29	55
10:00	2		4		1			22:00	0		5		4		
10:15	2		5		1			22:15	0		4		9		
10:30	1		2		0			22:30	0		3		12		
10:45	2	7	2	13	2	4	24	22:45	0	0	2	14	8	33	47
11:00	2		4		1			23:00	0		4		8		
11:15	4		2		0			23:15	0		5		9		
11:30	0		2		1			23:30	0		6		5		
11:45	0	6	3	11	1	3	20	23:45	0	0	3	18	5	27	45
Total Vol.		57		110		75	**242**			1		225		293	**519**

Daily Totals

IN 1	IN 2	OUT	**Combined**
58	335	368	**761**

			AM				**PM**	
Split %	23.6%	45.5%	31.0%	**31.8%**	0.2%	43.4%	56.5%	**68.2%**
Peak Hour	06:45	07:45	03:00	**07:30**	12:00	19:15	22:15	**19:15**
Volume	15	22	18	**39**	1	40	37	**71**
P.H.F.	0.75	0.92	0.75	**0.75**		0.83	0.77	**0.93**

SATURDAY, MAY 10TH, 2014 CITY: SAN YSIDRO PROJECT: PTD14-0509-01

LOCATION 4 - PARK & RIDE

AM Period	IN 1		IN 2		OUT			PM Period	IN 1		IN 2		OUT		
00:00	0		9		3			12:00	0		5		4		
00:15	0		5		2			12:15	0		1		6		
00:30	0		4		1			12:30	0		3		5		
00:45	0	0	6	24	2	8	32	12:45	0	0	4	13	2	17	30
01:00	0		10		4			13:00	0		2		5		
01:15	0		5		5			13:15	0		8		3		
01:30	0		4		6			13:30	0		3		4		
01:45	0	0	9	28	3	18	46	13:45	0	0	0	13	6	18	31
02:00	0		5		3			14:00	0		9		10		
02:15	0		4		5			14:15	0		5		2		
02:30	0		6		7			14:30	0		4		8		
02:45	0	0	5	20	5	20	40	14:45	0	0	3	21	7	27	48
03:00	0		4		9			15:00	0		3		12		
03:15	0		5		8			15:15	0		4		6		
03:30	0		3		5			15:30	0		4		5		
03:45	0	0	1	13	7	29	42	15:45	0	0	5	16	7	30	46
04:00	0		2		9			16:00	0		5		3		
04:15	0		3		9			16:15	0		4		5		
04:30	0		2		5			16:30	0		2		7		
04:45	0	0	1	8	9	32	40	16:45	0	0	6	17	7	22	39
05:00	0		2		6			17:00	0		5		6		
05:15	0		1		6			17:15	0		4		3		
05:30	0		2		5			17:30	0		1		8		
05:45	0	0	1	6	5	22	28	17:45	0	0	3	13	8	25	38
06:00	0		1		2			18:00	0		2		5		
06:15	0		0		2			18:15	0		4		4		
06:30	0		1		4			18:30	0		3		3		
06:45	0	0	6	8	5	13	21	18:45	0	0	4	13	5	17	30
07:00	0		5		4			19:00	0		1		1		
07:15	0		4		2			19:15	0		4		8		
07:30	0		9		3			19:30	0		0		3		
07:45	0	0	5	23	1	10	33	19:45	0	0	6	11	2	14	25
08:00	0		4		6			20:00	0		4		4		
08:15	0		5		6			20:15	0		8		1		
08:30	0		8		4			20:30	0		0		2		
08:45	0	0	12	29	3	19	48	20:45	0	0	1	13	6	13	26
09:00	0		11		4			21:00	0		5		4		
09:15	0		15		1			21:15	0		5		4		
09:30	0		9		5			21:30	0		7		5		
09:45	0	0	5	40	6	16	56	21:45	0	0	3	20	3	16	36
10:00	0		7		6			22:00	0		7		3		
10:15	0		9		5			22:15	0		11		5		
10:30	0		5		4			22:30	0		6		2		
10:45	0	0	4	25	5	20	45	22:45	0	0	10	34	3	13	47
11:00	0		8		6			23:00	0		7		6		
11:15	0		9		5			23:15	0		7		3		
11:30	0		8		10			23:30	0		6		4		
11:45	0	0	5	30	3	24	54	23:45	0	0	5	25	2	15	40
Total Vol.				254		231	**485**					209		227	**436**

Daily Totals

IN 1	IN 2	OUT	Combined
	463	458	**921**

	AM			**PM**		
Split %	52.4%	47.6%	**52.7%**	47.9%	52.1%	**47.3%**
Peak Hour	08:45	04:00	**08:45**	22:00	14:30	**22:15**
Volume	47	32	**60**	34	33	**50**
P.H.F.	0.78	0.89	**0.94**	0.77	0.69	**0.78**

SUNDAY, MAY 11TH, 2014 CITY: SAN YSIDRO PROJECT: PTD14-0509-01

LOCATION 4 - PARK & RIDE

AM Period	IN 1		IN 2		OUT			PM Period	IN 1		IN 2		OUT		
00:00	0		7		8			12:00	0		4		8		
00:15	0		5		6			12:15	0		5		5		
00:30	0		6		5			12:30	0		6		9		
00:45	0	0	5	23	4	23	46	12:45	0	0	5	20	4	26	46
01:00	0		6		6			13:00	0		5		5		
01:15	0		9		7			13:15	0		7		4		
01:30	0		5		8			13:30	0		9		9		
01:45	0	0	10	30	9	30	60	13:45	0	0	11	32	5	23	55
02:00	0		5		5			14:00	0		5		8		
02:15	0		7		4			14:15	0		4		9		
02:30	0		5		6			14:30	0		6		9		
02:45	0	0	6	23	8	23	46	14:45	0	0	9	24	12	38	62
03:00	0		6		5			15:00	0		10		4		
03:15	0		8		4			15:15	0		5		5		
03:30	0		9		7			15:30	0		4		9		
03:45	0	0	5	28	5	21	49	15:45	0	0	6	25	10	28	53
04:00	0		6		2			16:00	0		5		5		
04:15	0		6		3			16:15	0		4		4		
04:30	0		3		2			16:30	0		2		8		
04:45	0	0	1	16	4	11	27	16:45	0	0	3	14	9	26	40
05:00	0		3		5			17:00	0		3		10		
05:15	0		2		5			17:15	0		2		5		
05:30	0		4		6			17:30	0		4		5		
05:45	0	0	2	11	6	22	33	17:45	0	0	2	11	4	24	35
06:00	0		1		8			18:00	0		2		6		
06:15	0		2		7			18:15	0		6		3		
06:30	0		3		3			18:30	0		2		5		
06:45	0	0	2	8	2	20	28	18:45	0	0	4	14	4	18	32
07:00	0		1		1			19:00	0		4		6		
07:15	0		4		2			19:15	0		2		8		
07:30	0		5		1			19:30	0		1		8		
07:45	0	0	4	14	3	7	21	19:45	0	0	2	9	7	29	38
08:00	0		2		3			20:00	0		1		3		
08:15	0		3		2			20:15	0		2		2		
08:30	0		5		1			20:30	0		3		1		
08:45	0	0	5	15	4	10	25	20:45	0	0	2	8	0	6	14
09:00	0		6		4			21:00	0		4		1		
09:15	0		5		2			21:15	0		1		2		
09:30	0		4		2			21:30	0		1		2		
09:45	0	0	4	19	1	9	28	21:45	0	0	2	8	1	6	14
10:00	0		9		2			22:00	0		1		1		
10:15	0		10		6			22:15	0		2		1		
10:30	0		5		2			22:30	0		3		2		
10:45	0	0	4	28	2	12	40	22:45	0	0	3	9	2	6	15
11:00	0		4		4			23:00	0		6		1		
11:15	0		6		5			23:15	0		5		0		
11:30	0		3		4			23:30	0		4		4		
11:45	0	0	4	17	5	18	35	23:45	0	0	3	18	1	6	24
Total Vol.				232		206	**438**					192		236	**428**

IN 1	IN 2	**Daily Totals** OUT	**Combined**
	424	442	**866**

		AM			**PM**	
Split %	53.0%	47.0%	**50.6%**	44.9%	55.1%	**49.4%**
Peak Hour	01:00	01:00	**01:00**	13:00	14:00	**14:15**
Volume	30	30	**60**	32	38	**63**
P.H.F.	0.75	0.83	**0.79**	0.73	0.79	**0.75**

APPENDIX B
CALCULATIONS

PEAK HOURS – (COUNT LOCATION #1)

Camino De La Plaza west of Virginia Avenue

- AM Peak - 7 to 8 AM
- Noon Peak - 12 to 1 AM
- PM Peak - 5 to 6 PM

EXISTING BAJA-MEX SITE – (COUNT LOCATION #2)

Baja-Mex – Existing Site – 2,400 sf building - (Hours of operation: 7 AM to 8 PM (weekdays))

Transactions (5/7/14):

- Cash Exchange - 265
- Insurance Policies - 17
- Park & Walk - 38

Counts – (Adjusted to reflect business hours only)

TOTAL SITE:

ADT

- (in: out; drive-thru; walk-up) (vehicle counts at driveway on Camino De La Plaza)
- (79; 40; 134; 141)

ADT = (in + drive-thru) X 2 = **426 ADT**

PEAK HOURS

- (in; out; drive-thru; walk-up)
- AM Peak - (4; 2; 2; 3)
- Noon Peak - (7; 7; 10; 14)
- PM Peak - (7; 1; 10; 18)

BAJA-MEX:

ADT

- ((in + drive-thru) X 2)) – (park & walk) X 2)) =
- ((79 + 134) X 2)) – (38 X 2) =
- **350 ADT**/2,400 sf = **146 trips/1,000 sf**

WALK-UPS

- 166 (24 hours)/2,400 sf = **69 walk-ups/1,000 sf**

PEAK HOURS

- (in X 2) + (drive-thru X 2)
- AM Peak - 12(6; 6) = **3% (5; 5)**
- Noon Peak - 34(17; 17) = **10% (5; 5)**
- PM Peak - 34(17; 17) = **10% (5; 5)**

PARK & WALK:

ADT

- (transactions X 2) =
- (38 X 2) = = **76 ADT**

PEAK HOURS

- AM Peak = **3 (2; 1)**
- Noon Peak = **4 (2; 2)**
- PM Peak = **3 (1; 2)**

EXISTING COMMERCIAL SITE – (COUNT LOCATION #3)

Existing commercial site – approximately 9,100 sf

ADT

- (in + out)
- (540 + 540) =
- **1,080 ADT**/9,100 sf = **118 trips/1,000 sf**

WALK-UPS

- 583 (24 hours)/9,100 sf = **64 walk-ups/1,000 sf**

PEAK HOURS

- AM Peak - 19(7; 12) = **2% (4; 6)**
- Noon Peak - 71(33; 38) = **7% (5; 5)**
- PM Peak - 104(48; 46) = **9% (5; 5)**

EXISTING PARK & WALK LOT – (COUNT LOCATION #4)

Existing park & walk lot – 165 parking spaces (150 striped, approximately 15 around edge)

WEEKDAYS – (Monday thru Thursday):

ADT

- (in + out)
- (396 + 378) =
- **774 ADT**/165 parking spaces = **4.6 trips/parking space**

PEAK HOURS

- AM Peak - 26(22; 4) = **3.5% (8; 2)**
- Noon Peak - 60(32; 28) = **8% (5; 5)**
- PM Peak - 48(22; 26) = **6% (4.5; 5.5)**

WEEKENDS – (Friday thru Sunday):

ADT

- (in + out)
- (463 + 458) =
- **921 ADT**/165 parking spaces = **5.6 trips/parking space**

PEAK HOURS

- AM Peak - 34(27; 7) = **3.7% (8; 2)**
- Noon Peak - 46(20; 26) = **5% (4; 6)**
- PM Peak - 60(31; 29) = **6.5% (5; 5)**

PROPOSED PROJECT TRAFFIC GENERATION

ADT

= (Baja-Mex + Retail + Park & Walk – existing site)
= (146/KSF X 1,492 sf) + (118 /KSF X 10,049 sf) + (4.6/space X 294) – (426 trips)
= (218) + (1,185) + (1,352) – (426)
= **2,329**

PEAK HOURS

AM Peak = (Baja-Mex + Retail + Park & Walk – existing site)
= 7(4; 4) + 24(10; 14) + 47(38; 9) – 12(6; 6)
= **67 (46; 21)**

Noon Peak = 22(11; 11) + 83(42; 42) + 108(54; 54) – 34(17; 17)
= **180 (90; 90)**

PM Peak = 22(11; 11) + 107(53; 53) + 81(41; 41) – 34(17; 17)
= **176 (88; 88)**

PROPOSED PROJECT USING CITY GENERATION RATES

Traffic Generation:

Baja-Mex – use calculated rates:

- ADT = 218, AM = 7(4; 4), PM = 22(11; 11)

Retail – use the following City rates:

Bank (assume 3,500 sf)

- ADT = 150 trips/KSF, AM = 4%(7; 3), PM = 8%(4; 6)
- = 525, AM = 21(15; 6), PM = 42(17; 25)

Convenience Store (assume 3,500 sf)

- ADT = 700 trips/KSF, AM = 9%(5; 5), PM = 7%(5; 5)
- = 2,450, AM = 220(110; 110), PM = 172(86; 86)

Strip Commercial (assumes 3,049 sf (remainder))

- ADT = 40 trips/KSF, AM = 3%(6; 4), PM = 9%(5; 5)
- = 122, AM = 4(2; 2), PM = 11(6; 6)

Parking – use the following City rate (Park & Ride lot):

- ADT = 5 trips/space, AM = 14%(7; 3), PM = 15%(3; 7)
- = 1,470, AM = 206(144; 62), PM = 221(66; 155)

Total Site Traffic Generation

ADT = (Baja-Mex + Bank + Convenience Store + Strip Comm'l + Parking – Existing Site)
= (218) + (525) + (2,450) + (122) + (1,470) – (426)
= **4,359 ADT**

AM = **443 (267; 176)**

PM = **431 (168; 263)**

Review Information

Cycle Type: 1 Preliminary Review
Submitted: 12/16/2013 Deemed Complete on 12/16/2013
Reviewing Discipline: LDR-Transportation Dev
Cycle Distributed: 12/17/2013
Reviewer: Lundquist, Jim
(619) 446-5396
jlundquist@sandiego.gov
Assigned: 12/17/2013
Started: 12/19/2013
Review Due: 01/07/2014
Hours of Review: 7.00
Completed: 01/07/2014 COMPLETED ON TIME
Next Review Method: Preliminary Review
Closed: 01/09/2014

. The reviewer has indicated they want to review this project again. Reason chosen by the reviewer: Partial Response to Cmnts/Regs.
. Your project still has 24 outstanding review issues with LDR-Transportation Dev (all of which are new).
. Last month LDR-Transportation Dev performed 44 reviews, 86.4% were on-time, and 42.4% were on projects at less than < 3 complete submittals.

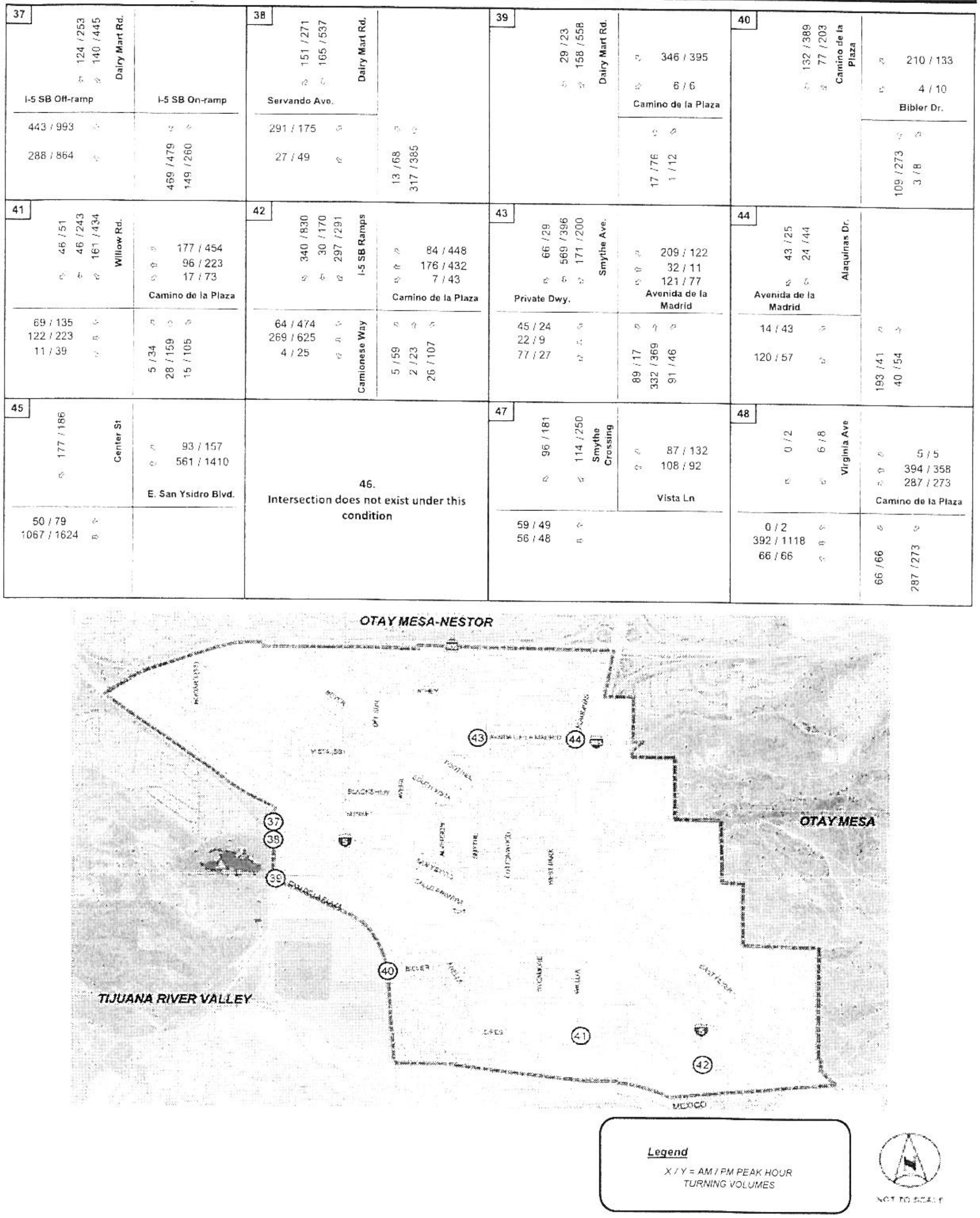
🗁 24004280 1/7/14

Cleared?	Issue Num	Issue Text
☐	1	There were no specific questions posed for the Transportation Development section. (New Issue)
☐	2	Please provide an estimated trip generation for the proposed project, including the 426 space pay parking structure, both on a daily and peak period basis. What is the expected turnover rate for the parking spaces? (New Issue)
☐	3	Depending upon the trip generation, a transportation impact study may be required. (New Issue)
☐	4	Please demonstrate how the proposed project will function in coordination with the proposed SANDAG/GSA project to provide improvements in the Virginia Avenue corridor. A 14' sidewalk along the project frontage on Virginia Avenue will be required. A minimum of a 10" noncontiguous sidewalk along the project frontage on Camino de la Plaza will be required. (New Issue)
☐	5	Provide and show information regarding any existing or proposed project to the west and south of the project site to show driveways and right of way widths of streets. Provide information regarding Lot 15 of Map No. 14259 which owes a 5 foot strip of land between Lot 16 and Virginia Avenue. Has Lot 15 provided access to your site? Who is the owner? (New Issue)
☐	6	Access: Curb returns are not permitted at the proposed unsignalized access points. All proposed driveways/access points must be the San Diego Regional Standard SDG-160 standard driveways and perpendicular to the right-of-way. (New Issue)
☐	7	Street Improvements: The plans should clearly show and dimension all existing and proposed public improvements fronting the property and provide roadway cross sections of all fronting streets including centerline to property line distance, centerline to curb line distance, travel lane configuration and width, and location of sidewalk, in order to determine any potential street dedication or improvement requirements. The project should install noncontiguous sidewalks on all public street frontages. (New Issue)
☐	8	The parking resume is required to include: automobile van accessible accessible carpool vehicles and zero emissions vehicles loading spaces motorcycle long term bicycle short term bicycle showers/lockers. (New Issue)
☐	9	SDMC Table 142-05E requires 2.5 automobiles parking spaces per 1,000 SF of commercial development. 4,617 proposed SF of commercial/retail x 2.5 = 11.54 = 12 automobile spaces required for the retail uses. (New Issue)
☐	10	Information Bulletin 305 identifies the requirement of nine accessible parking spaces, with two spaces being van accessible. Provide these spaces closest to the walking path to the commercial development and public street. (New Issue)

APPENDIX F

Community Plan Update Traffic Volumes

FIGURE 4-2.4



Year 2035 Proposed Land Use Peak-Hour Intersection Volumes (Cont.)

APPENDIX G

Queuing Analysis

```
                    HCS+: Signalized Intersections Release 5.4

Analyst: RHC                               Inter.: Camino De La Plaza & Virginia
Agency: RCE Traffic Engineering            Area Type: CBD or Similar
Date:   4/21/17                            Jurisd: City of San Diego
Period: PM peak - 2035 with proj           Year  : 2035
Project ID: Virginia Avenue Parking Structure
E/W St: Camino De La Plaza                 N/S St: Virginia Avenue

______________________SIGNALIZED INTERSECTION SUMMARY_______________________
              |  Eastbound     |  Westbound     |  Northbound    |  Southbound    |
              | L    T    R    | L    T    R    | L    T    R    | L    T    R    |
              |                |                |                |                |
              |________________|________________|________________|________________|
No. Lanes     |  1    2    0   |  1    2    0   |  0    1    1   |  1    1    0   |
LGConfig      | L    TR        | L    TR        |      LT   R    | L    TR        |
Volume        |28   1171 86    |369  904  189   |77   5    350   |149  45   45    |
Lane Width    |12.0 12.0       |12.0 12.0       |     12.0 12.0  |12.0 12.0       |
RTOR Vol      |          0     |          0     |          67    |          0     |
____________________________________________________________________________
Duration     0.25      Area Type: CBD or Similar
_______________________________Signal Operations____________________________
Phase Combination 1     2     3     4  |          5     6     7     8
EB  Left          A                    | NB  Left       A
    Thru                      A        |     Thru       A
    Right                     A        |     Right      A
    Peds                      X        |     Peds       X
WB  Left          A     A              | SB  Left   A
    Thru                A     A        |     Thru   A
    Right               A     A        |     Right  A
    Peds                      X        |     Peds   X
NB  Right         A     A              | EB  Right
SB  Right                              | WB  Right
Green            11.3  31.3  95.6                26.4  26.4
Yellow           3.5   0.0   3.5                 3.5   3.5
All Red          0.0   0.0   0.0                 0.0   0.0
                                                 Cycle Length: 205.0    secs
______________________Intersection Performance Summary_____________________
Appr/   Lane      Adj Sat    Ratios       Lane Group    Approach
Lane    Group     Flow Rate  _________    __________    __________
Grp     Capacity    (s)      v/c    g/C   Delay LOS     Delay LOS
____________________________________________________________________________
Eastbound
L        90       1624       0.33   0.06  95.4   F
TR       1481     3176       0.92   0.47  61.1   E      61.9   E

Westbound
L        365      1624       1.10   0.22  155.8  F
TR       1855     2996       0.64   0.62  25.4   C      58.3   E

Northbound

LT       210      1633       0.42   0.13  83.7   F      79.1   E
R        359      969        0.86   0.37  77.8   E
Southbound
L        209      1624       0.78   0.13  103.0  F
TR       170      1318       0.58   0.13  88.8   F      97.6   F

       Intersection Delay = 64.7  (sec/veh)   Intersection LOS = E
____________________________________________________________________________
```

```
                    HCS+: Signalized Intersections Release 5.4




Phone:                                                  Fax:
E-Mail:
____________________________________OPERATIONAL ANALYSIS___________________________________

Analyst:                       RHC
Agency/Co.:                    RCE Traffic Engineering
Date Performed:                4/21/17
Analysis Time Period:          PM peak - 2035 with proj
Intersection:                  Camino De La Plaza & Virginia
Area Type:                     CBD or Similar
Jurisdiction:                  City of San Diego
Analysis Year:                 2035
Project ID:  Virginia Avenue Parking Structure
E/W St: Camino De La Plaza                     N/S St: Virginia Avenue

____________________________________VOLUME DATA_____________________________________

             |  Eastbound     |  Westbound     |  Northbound    |  Southbound    |
             | L    T    R    | L    T    R    | L    T    R    | L    T    R    |
             |________________|________________|________________|________________|
Volume       |28   1171 86    |369  904  189   |77   5    350   |149  45   45    |
% Heavy Veh  |0    0    0     |0    0    0     |0    0    0     |0    0    0     |
PHF          |0.92 0.92 0.92  |0.92 0.92 0.92  |0.92 0.92 0.92  |0.92 0.92 0.92  |
PK 15 Vol    |8    318  23    |100  246  51    |21   2    95    |40   12   12    |
Hi Ln Vol    |                |                |                |                |
% Grade      |     0          |     0          |     0          |     0          |
Ideal Sat    |1900 1900       |1900 1900       |     1900 1900  |1900 1900       |
ParkExist    |                |                |                |                |
NumPark      |                |                |                |                |
No. Lanes    |  1    2    0   |  1    2    0   |  0    1    1   |  1    1    0   |
LGConfig     | L      TR      | L      TR      |      LT    R   | L      TR      |
Lane Width   |12.0 12.0       |12.0 12.0       |     12.0 12.0  |12.0 12.0       |
RTOR Vol     |          0     |          0     |          67    |           0    |
Adj Flow     |30   1366       |401  1188       |     89   308   |162  98         |
%InSharedLn  |                |                |                |                |
Prop LTs     |      0.000     |      0.000     |     0.944      |      0.000     |
Prop RTs     |   0.068        |   0.173        |  0.000 1.000   |   0.500        |
Peds  Bikes  |   200    0     |   300    0     |  200    0      |   200    0     |
Buses        |0    0          |0    0          |     0    0     |0    0          |
%InProtPhase                  |          0.0   |          0.0   |                |
Duration     0.25      Area Type: CBD or Similar

____________________________________OPERATING PARAMETERS______________________________

             |  Eastbound     |  Westbound     |  Northbound    |  Southbound    |
             | L    T    R    | L    T    R    | L    T    R    | L    T    R    |
             |________________|________________|________________|________________|
Init Unmet   |0.0  0.0        |0.0  0.0        |     0.0  0.0   |0.0  0.0        |
Arriv. Type  |3    3          |3    3          |     3    3     |3    3          |
Unit Ext.    |3.0  3.0        |3.0  3.0        |     3.0  3.0   |3.0  3.0        |
I Factor     |     1.000      |     1.000      |     1.000      |     1.000      |
Lost Time    |2.0  2.0        |2.0  2.0        |     2.0  2.0   |2.0  2.0        |
Ext of g     |2.0  2.0        |2.0  2.0        |     2.0  2.0   |2.0  2.0        |
Ped Min g    |     25.0       |     22.8       |     26.3       |     26.3       |
```

```
_______________________________________PHASE DATA______________________________________

Phase Combination 1      2      3      4 |            5      6      7      8

EB  Left          A                      | NB  Left          A
    Thru                        A        |     Thru          A
    Right                       A        |     Right         A
    Peds                        X        |     Peds          X

WB  Left          A      A               | SB  Left   A
    Thru                 A      A        |     Thru   A
    Right                A      A        |     Right  A
    Peds                        X        |     Peds   X

NB  Right         A      A               | EB  Right
                                         |
SB  Right                                | WB  Right
                                         |
                                         |
Green            11.3   31.3   95.6                  26.4   26.4
Yellow           3.5    0.0    3.5                   3.5    3.5
All Red          0.0    0.0    0.0                   0.0    0.0

                                                  Cycle Length: 205.0   secs

________________VOLUME ADJUSTMENT AND SATURATION FLOW WORKSHEET________________
Volume Adjustment
             |   Eastbound    |   Westbound    |   Northbound   |   Southbound   |
             |  L    T    R   |  L    T    R   |  L    T    R   |  L    T    R   |
             |________________|________________|________________|________________|
Volume, V    |28   1171 86    |369  904  189   |77   5    350   |149  45   45    |
PHF          |0.92 0.92 0.92  |0.92 0.92 0.92  |0.92 0.92 0.92  |0.92 0.92 0.92  |
Adj flow     |30   1273 93    |401  983  205   |84   5    308   |162  49   49    |
No. Lanes    |  1    2    0   |  1    2    0   |  0    1    1   |  1    1    0   |
Lane group   | L    TR        | L    TR        |      LT    R   | L    TR        |
Adj flow     |30   1366       |401  1188       |      89   308  |162  98         |
Prop LTs     |     0.000      |     0.000      |     0.944      |     0.000      |
Prop RTs     |   0.068        |   0.173        |  0.000 1.000   |   0.500        |

Saturation Flow Rate (see Exhibit 16-7 to determine the adjustment factors)____
          Eastbound           Westbound        Northbound        Southbound
LG      L      TR           L      TR             LT     R       L      TR
So     1900   1900         1900   1900           1900   1900    1900   1900
Lanes  1      2      0     1      2      0      0 1      1       1      1      0
fW     1.000  1.000        1.000  1.000          1.000  1.000   1.000  1.000
fHV    1.000  1.000        1.000  1.000          1.000  1.000   1.000  1.000
fG     1.000  1.000        1.000  1.000          1.000  1.000   1.000  1.000
fP     1.000  1.000        1.000  1.000          1.000  1.000   1.000  1.000
fBB    1.000  1.000        1.000  1.000          1.000  1.000   1.000  1.000
fA     0.900  0.900        0.900  0.900          0.900  0.900   0.900  0.900
fLU    1.000  0.952        1.000  0.952          1.000  1.000   1.000  1.000
fRT           0.990               0.974          1.000  0.850          0.925
fLT    0.950  1.000        0.950  1.000          0.955          0.950  1.000
Sec.
fLpb   1.000  1.000        1.000  1.000          1.000          1.000  1.000
fRpb          0.985               0.945          1.000  0.667          0.833
S      1624   3176         1624   2996           1633   969     1624   1318
Sec.
_____________________________CAPACITY AND LOS WORKSHEET________________________
Capacity Analysis and Lane Group Capacity
```

```
                        Adj       Adj Sat    Flow      Green   --Lane Group--
   Appr/  Lane       Flow Rate  Flow Rate    Ratio     Ratio   Capacity   v/c
   Mvmt   Group         (v)        (s)       (v/s)     (g/C)      (c)     Ratio
_______________________________________________________________________________
Eastbound
   Prot
   Perm
   Left   L           30          1624        0.02      0.06     90        0.33
   Prot
   Perm
   Thru   TR          1366        3176      # 0.43      0.47     1481      0.92
   Right
Westbound
   Prot
   Perm
   Left   L           401         1624        0.25      0.22     365       1.10
   Prot
   Perm
   Thru   TR          1188        2996        0.40      0.62     1855      0.64
   Right
Northbound
   Prot
   Perm
   Left
   Prot
   Perm
   Thru   LT          89          1633        0.05      0.13     210       0.42
   Right  R           308         969       # 0.32      0.37     359       0.86
Southbound
   Prot
   Perm
   Left   L           162         1624      # 0.10      0.13     209       0.78
   Prot
   Perm
   Thru   TR          98          1318        0.07      0.13     170       0.58
   Right
_______________________________________________________________________________
Sum of flow ratios for critical lane groups, Yc =   Sum (v/s)    = 0.85
Total lost time per cycle,  L = 7.00  sec
Critical flow rate to capacity ratio,        Xc = (Yc)(C)/(C-L) = 0.88

Control Delay and LOS Determination_____________________________________
Appr/   Ratios     Unf    Prog   Lane  Incremental  Res     Lane Group    Approach
Lane   __________  Del    Adj    Grp   Factor Del   Del    ____________  ___________
Grp    v/c   g/C   d1     Fact   Cap   k       d2   d3      Delay LOS    Delay LOS
___________________________________________________________________________________
Eastbound
L      0.33  0.06  93.2   1.000 90     0.11   2.2   0.0     95.4   F
TR     0.92  0.47  51.2   1.000 1481   0.44   9.9   0.0     61.1   E     61.9    E

Westbound
L      1.10  0.22  79.4   1.000 365    0.50   76.3  0.0     155.8  F
TR     0.64  0.62  24.6   1.000 1855   0.22   0.8   0.0     25.4   C     58.3    E

Northbound

LT     0.42  0.13  82.3   1.000 210    0.11   1.4   0.0     83.7   F     79.1    E
R      0.86  0.37  59.5   1.000 359    0.39   18.3  0.0     77.8   E
Southbound
L      0.78  0.13  86.4   1.000 209    0.32   16.6  0.0     103.0  F
TR     0.58  0.13  84.0   1.000 170    0.17   4.8   0.0     88.8   F     97.6    F
```

```
_______________________________________________________________________________
        Intersection delay = 64.7  (sec/veh)   Intersection LOS = E


_____________________SUPPLEMENTAL PERMITTED LT WORKSHEET____________________
                            for exclusive lefts
Input
                                                          EB    WB    NB    SB
Opposed by Single(S) or Multiple(M) lane approach
Cycle length, C                              205.0   sec
Total actual green time for LT lane group, G (s)
Effective permitted green time for LT lane group, g(s)
Opposing effective green time, go (s)
Number of lanes in LT lane group, N
Number of lanes in opposing approach, No
Adjusted LT flow rate, VLT (veh/h)
Proportion of LT in LT lane group, PLT
Proportion of LT in opposing flow, PLTo
Adjusted opposing flow rate, Vo (veh/h)
Lost time for LT lane group, tL
Computation
LT volume per cycle, LTC=VLTC/3600
Opposing lane util. factor, fLUo                          0.952 0.952 1.000 1.000
Opposing flow, Volc=VoC/[3600(No)fLUo] (veh/ln/cyc)
gf=G[exp(- a * (LTC ** b))]-tl, gf<=g
Opposing platoon ratio, Rpo (refer Exhibit 16-11)
Opposing Queue Ratio, qro=Max[1-Rpo(go/C),0]
gq, (see Exhibit C16-4,5,6,7,8)
gu=g-gq if gq>=gf, or = g-gf if gq<gf
n=Max(gq-gf)/2,0)
PTHo=1-PLTo
PL*=PLT[1+(N-1)g/(gf+gu/EL1+4.24)]
EL1 (refer to Exhibit C16-3)
EL2=Max((1-Ptho**n)/Plto, 1.0)
fmin=2(1+PL)/g  or  fmin=2(1+Pl)/g
gdiff=max(gq-gf,0)
fm=[gf/g]+[gu/g]/[1+PL(EL1-1)], (min=fmin;max=1.00)
flt=fm=[gf/g]+[gu/g]/[1+PL(EL1-1)]+[gdiff/g]/[1+PL(EL2-1)],(fmin<=fm<=1.00)
or flt=[fm+0.91(N-1)]/N**
Left turn adjustment, fLT

For special case of single-lane approach opposed by multilane approach,
see text.
* If Pl>=1 for shared left-turn lanes with N>1, then assume de-facto
  left-turn lane and redo calculations.
** For permitted left-turns with multiple exclusive left-turn lanes, flt=fm.
For special case of multilane approach opposed by single-lane approach
or when gf>gq, see text.

_____________________SUPPLEMENTAL PERMITTED LT WORKSHEET____________________
                              for shared lefts
Input
                                                          EB    WB    NB    SB
Opposed by Single(S) or Multiple(M) lane approach
Cycle length, C                              205.0   sec
Total actual green time for LT lane group, G (s)
Effective permitted green time for LT lane group, g(s)
Opposing effective green time, go (s)
Number of lanes in LT lane group, N
```

```
Number of lanes in opposing approach, No
Adjusted LT flow rate, VLT (veh/h)
Proportion of LT in LT lane group, PLT                0.000 0.000 0.944 0.000
Proportion of LT in opposing flow, PLTo
Adjusted opposing flow rate, Vo (veh/h)
Lost time for LT lane group, tL
Computation
LT volume per cycle, LTC=VLTC/3600
Opposing lane util. factor, fLUo                      0.952 0.952 1.000 1.000
Opposing flow, Volc=VoC/[3600(No)fLUo] (veh/ln/cyc)
gf=G[exp(- a * (LTC ** b))]-tl, gf<=g
Opposing platoon ratio, Rpo (refer Exhibit 16-11)
Opposing Queue Ratio, qro=Max[1-Rpo(go/C),0]
gq, (see Exhibit C16-4,5,6,7,8)
gu=g-gq if gq>=gf, or = g-gf if gq<gf
n=Max(gq-gf)/2,0)
PTHo=1-PLTo
PL*=PLT[1+(N-1)g/(gf+gu/EL1+4.24)]
EL1 (refer to Exhibit C16-3)
EL2=Max((1-Ptho**n)/Plto, 1.0)
fmin=2(1+PL)/g  or  fmin=2(1+Pl)/g
gdiff=max(gq-gf,0)
fm=[gf/g]+[gu/g]/[1+PL(EL1-1)], (min=fmin;max=1.00)
flt=fm=[gf/g]+[gu/g]/[1+PL(EL1-1)]+[gdiff/g]/[1+PL(EL2-1)],(fmin<=fm<=1.00)
or flt=[fm+0.91(N-1)]/N**
Left-turn adjustment, fLT

For special case of single-lane approach opposed by multilane approach,
see text.
* If Pl>=1 for shared left-turn lanes with N>1, then assume de-facto
  left-turn lane and redo calculations.
** For permitted left-turns with multiple exclusive left-turn lanes, flt=fm.
For special case of multilane approach opposed by single-lane approach
or when gf>gq, see text.

_______________SUPPLEMENTAL PEDESTRIAN-BICYCLE EFFECTS WORKSHEET_______________
Permitted Left Turns
                                                        EB    WB    NB    SB
Effective pedestrian green time, gp (s)
Conflicting pedestrian volume, Vped (p/h)
Pedestrian flow rate, Vpedg (p/h)
OCCpedg
Opposing queue clearing green, gq (s)
Eff. ped. green consumed by opp. veh. queue, gq/gp
OCCpedu
Opposing flow rate, Vo (veh/h)
OCCr
Number of cross-street receiving lanes, Nrec
Number of turning lanes, Nturn
ApbT
Proportion of left turns, PLT
Proportion of left turns using protected phase, PLTA
Left-turn adjustment, fLpb
Permitted Right Turns
Effective pedestrian green time, gp (s)               95.6  95.6  26.4  26.4
Conflicting pedestrian volume, Vped (p/h)             200   300   200   200
Conflicting bicycle volume, Vbic (bicycles/h)         0     0     0     0
Vpedg                                                 428   643   1553  1553
OCCpedg                                               0.214 0.322 0.555 0.555
Effective green, g (s)                                95.6  0.0   0.0   26.4
Vbicg                                                 0     0     0     0
```

```
OCCbicg                                                 0.020 0.020 0.020 0.020
OCCr                                                    0.214 0.322 0.555 0.555
Number of cross-street receiving lanes, Nrec            1     1     2     2
Number of turning lanes, Nturn                          1     1     1     1
ApbT                                                    0.786 0.678 0.667 0.667
Proportion right-turns, PRT                             0.068 0.173 1.000 0.500
Proportion right-turns using protected phase, PRTA      0.000 0.000 0.000 0.000
Right turn adjustment, fRpb                             0.985 0.945       0.833

_____________________SUPPLEMENTAL UNIFORM DELAY WORKSHEET___________________

                                                        EBLT  WBLT  NBLT  SBLT
Cycle length, C                              205.0  sec
Adj. LT vol from Vol Adjustment Worksheet, v
v/c ratio from Capacity Worksheet, X
Protected phase effective green interval, g (s)
Opposing queue effective green interval, gq
Unopposed green interval, gu
Red time r=(C-g-gq-gu)
Arrival rate, qa=v/(3600(max[X,1.0]))
Protected ph. departure rate, Sp=s/3600
Permitted ph. departure rate, Ss=s(gq+gu)/(gu*3600)
XPerm
XProt
Case
Queue at beginning of green arrow, Qa
Queue at beginning of unsaturated green, Qu
Residual queue, Qr
Uniform Delay, d1

________________DELAY/LOS WORKSHEET WITH INITIAL QUEUE______________________

       Initial Dur.    Uniform Delay   Initial Final   Initial Lane
Appr/  Unmet   Unmet   _______________ Queue   Unmet   Queue   Group
Lane   Demand  Demand  Unadj.  Adj.    Param.  Demand  Delay   Delay
Group  Q veh   t hrs.  ds      d1 sec    u     Q veh   d3 sec  d sec
______________________________________________________________________________
Eastbound
L      0.0     0.00    96.8    93.2    0.00    0.0     0.0     95.4
TR     0.0     0.00    54.7    51.2    0.00    0.0     0.0     61.1
       0.0                                             0.0

Westbound
L      0.0     0.00    79.4    79.4    0.00    9.0     0.0     155.8
TR     0.0     0.00    39.0    24.6    0.00    0.0     0.0     25.4
       0.0                                             0.0

Northbound
       0.0                                             0.0
LT     0.0     0.00    89.3    82.3    0.00    0.0     0.0     83.7
R      0.0     0.00    64.5    59.5    0.00    0.0     0.0     77.8

Southbound
L      0.0     0.00    89.3    86.4    0.00    0.0     0.0     103.0
TR     0.0     0.00    89.3    84.0    0.00    0.0     0.0     88.8
       0.0                                             0.0
______________________________________________________________________________
       Intersection Delay  64.7   sec/veh     Intersection LOS  E


__________________________BACK OF QUEUE WORKSHEET___________________________
```

```
                     Eastbound          Westbound          Northbound          Southbound
LaneGroup      |L     TR          |L     TR          |      LT    R     |L     TR          |
Init Queue     |0.0   0.0         |0.0   0.0         |      0.0   0.0   |0.0   0.0         |
Flow Rate      |30    717         |401   623         |      89    308   |162   98          |
So             |1900  1900        |1900  1900        |      1900  1900  |1900  1900        |
No.Lanes       |1     2     0     |1     2     0     |0     1     1     |1     1     0     |
SL             |1624  1668        |1624  1573        |      1633  969   |1624  1318        |
LnCapacity     |90    777         |365   974         |      210   359   |209   170         |
Flow Ratio     |0.0   0.4         |0.2   0.4         |      0.1   0.3   |0.1   0.1         |
v/c Ratio      |0.33  0.92        |1.10  0.64        |      0.42  0.86  |0.78  0.58        |
Grn Ratio      |0.06  0.47        |0.22  0.62        |      0.13  0.37  |0.13  0.13        |
I Factor       |      1.000       |      1.000       |      1.000       |      1.000       |
AT or PVG      |3     3           |3     3           |      3     3     |3     3           |
Pltn Ratio     |1.00  1.00        |1.00  1.00        |      1.00  1.00  |1.00  1.00        |
PF2            |1.00  1.00        |1.00  1.00        |      1.00  1.00  |1.00  1.00        |
Q1             |1.6   38.2        |22.8  22.4        |      4.7   16.2  |8.9   5.3         |
kB             |0.3   1.0         |0.6   1.1         |      0.4   0.6   |0.4   0.4         |
Q2             |0.1   6.3         |8.3   1.9         |      0.3   2.6   |1.3   0.5         |
Q Average      |1.8   44.6        |31.1  24.3        |      5.0   18.8  |10.2  5.8         |
Q Spacing      |25.0  25.0        |25.0  25.0        |      25.0  25.0  |25.0  25.0        |
Q Storage      |0     0           |0     0           |      0     0     |0     0           |
Q S Ratio      |                  |                  |                  |                  |
70th Percentile Output:
fB%            |1.2   1.1         |1.1   1.2         |      1.2   1.2   |1.2   1.2         |
BOQ            |2.1   50.5        |35.6  28.0        |      5.9   21.9  |12.0  6.8         |
QSRatio        |                  |                  |                  |                  |
85th Percentile Output:
fB%            |1.6   1.4         |1.4   1.4         |      1.6   1.5   |1.5   1.5         |
BOQ            |2.8   61.0        |43.7  34.8        |      7.8   27.5  |15.4  8.9         |
QSRatio        |                  |                  |                  |                  |
90th Percentile Output:
fB%            |1.8   1.4         |1.5   1.5         |      1.7   1.6   |1.6   1.7         |
BOQ            |3.1   64.3        |46.1  36.9        |      8.5   29.3  |16.7  9.8         |
QSRatio        |                  |                  |                  |                  |
95th Percentile Output:
fB%            |2.0   1.6         |1.6   1.7         |      2.0   1.7   |1.8   1.9         |
BOQ            |3.6   69.1        |49.9  40.2        |      9.8   32.2  |18.7  11.1        |
QSRatio        |                  |                  |                  |                  |
98th Percentile Output:
fB%            |2.6   1.7         |1.8   1.9         |      2.4   1.9   |2.2   2.3         |
BOQ            |4.6   77.2        |55.7  45.0        |      11.9  36.4  |22.0  13.5        |
QSRatio        |                  |                  |                  |                  |
_____________________________________________________________________________________________

________________________________________ERROR MESSAGES_______________________________________

          No errors to report.
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                 HCS+: Unsignalized Intersections Release 5.4

_______________________TWO-WAY STOP CONTROL SUMMARY___________________________

Analyst:              Rick Crafts
Agency/Co.:           RCE Traffic Engineering
Date Performed:       4/27/17
Analysis Time Period: PM - 2035 with project
Intersection:         Camino De La Plaza & driveway
Jurisdiction:         City of San Diego
Units: U. S. Customary
Analysis Year:        2035
Project ID:  Virginia Avenue Parking Structure
East/West Street:     Camino De La Plaza
North/South Street:   project driveway
Intersection Orientation: EW                Study period (hrs):  0.25

______________________Vehicle Volumes and Adjustments__________________________
Major Street:  Approach        Eastbound               Westbound
               Movement     1      2      3     |  4      5      6
                            L      T      R     |  L      T      R

-------------------------------------------------------------------------------
Volume                             1193   13       113    955
Peak-Hour Factor, PHF              0.92   0.92     0.92   0.92
Hourly Flow Rate, HFR              1296   14       122    1038
Percent Heavy Vehicles             --     --       0      --     --
Median Type/Storage         Undivided             /
RT Channelized?
Lanes                              2    0             1   2
Configuration                      T   TR              L  T
Upstream Signal?                   Yes                    No

-------------------------------------------------------------------------------
Minor Street:  Approach        Northbound              Southbound
               Movement     7      8      9     |  10     11     12
                            L      T      R     |  L      T      R

-------------------------------------------------------------------------------
Volume                                    126
Peak Hour Factor, PHF                     0.92
Hourly Flow Rate, HFR                     136
Percent Heavy Vehicles                    0
Percent Grade (%)                  0                      0
Flared Approach:  Exists?/Storage               /                      /
Lanes                                   1
Configuration                          R

-------------------------------------------------------------------------------

__________________Delay, Queue Length, and Level of Service___________________
Approach            EB     WB          Northbound              Southbound
Movement            1      4   |  7      8      9    |  10     11     12
Lane Config                L   |                R    |

-------------------------------------------------------------------------------
v (vph)                    122                  136
C(m) (vph)                 649                  823
v/c                        0.19                 0.17
95% queue length           0.69                 0.59
Control Delay              11.8                 10.2
LOS                         B                    B
Approach Delay                           10.2
Approach LOS                              B

-------------------------------------------------------------------------------
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                  HCS+: Unsignalized Intersections Release 5.4




Phone:                                        Fax:
E-Mail:

______________________TWO-WAY STOP CONTROL(TWSC) ANALYSIS_____________________

Analyst:              Rick Crafts
Agency/Co.:           RCE Traffic Engineering
Date Performed:       4/27/17
Analysis Time Period: PM - 2035 with project
Intersection:         Camino De La Plaza & driveway
Jurisdiction:         City of San Diego
Units: U. S. Customary
Analysis Year:        2035
Project ID:  Virginia Avenue Parking Structure
East/West Street:     Camino De La Plaza
North/South Street:   project driveway
Intersection Orientation: EW                 Study period (hrs):  0.25

________________________Vehicle Volumes and Adjustments_______________________
Major Street Movements      1      2      3      4      5      6
                            L      T      R      L      T      R
______________________________________________________________________________
Volume                             1193   13     113    955
Peak-Hour Factor, PHF              0.92   0.92   0.92   0.92
Peak-15 Minute Volume              324    4      31     260
Hourly Flow Rate, HFR              1296   14     122    1038
Percent Heavy Vehicles             --     --     0      --     --
Median Type/Storage         Undivided             /
RT Channelized?
Lanes                              2    0           1   2
Configuration                      T   TR            L  T
Upstream Signal?                   Yes                  No
______________________________________________________________________________
Minor Street Movements      7      8      9      10     11     12
                            L      T      R      L      T      R
______________________________________________________________________________
Volume                                    126
Peak Hour Factor, PHF                     0.92
Peak-15 Minute Volume                     34
Hourly Flow Rate, HFR                     136
Percent Heavy Vehicles                    0
Percent Grade (%)                  0                    0
Flared Approach:  Exists?/Storage                /                     /
RT Channelized?                           No
Lanes                                   1
Configuration                          R
______________________________________________________________________________

______________________Pedestrian Volumes and Adjustments______________________
Movements                    13     14     15     16
______________________________________________________________________________
Flow (ped/hr)                0      0      0      0
```

```
Lane Width (ft)                12.0   12.0   12.0   12.0
Walking Speed (ft/sec)         4.0    4.0    4.0    4.0
Percent Blockage               0      0      0      0
____________________________________________________________________________

_____________________________Upstream Signal Data___________________________
                 Prog.    Sat   Arrival   Green  Cycle   Prog.   Distance
                 Flow     Flow   Type     Time   Length  Speed   to Signal
                 vph      vph             sec     sec     mph      feet
____________________________________________________________________________
S2   Left-Turn   38      1900     3       7      205     30       140
     Through     1155    1900     3       50     205     30       140
S5   Left-Turn
     Through
____________________________________________________________________________

Worksheet 3-Data for Computing Effect of Delay to Major Street Vehicles
____________________________________________________________________________
                                          Movement 2     Movement 5
____________________________________________________________________________
Shared ln volume, major th vehicles:
Shared ln volume, major rt vehicles:
Sat flow rate, major th vehicles:
Sat flow rate, major rt vehicles:
Number of major street through lanes:
____________________________________________________________________________

Worksheet 4-Critical Gap and Follow-up Time Calculation
____________________________________________________________________________
Critical Gap Calculation
Movement          1      4      7      8      9      10     11     12
                  L      L      L      T      R      L      T      R
____________________________________________________________________________
t(c,base)                4.1                  6.2
t(c,hv)          2.00   2.00   2.00   2.00   2.00   2.00   2.00   2.00
P(hv)                   0                    0
t(c,g)                         0.20   0.20   0.10   0.20   0.20   0.10
Percent Grade                  0.00   0.00   0.00   0.00   0.00   0.00
t(3,lt)                 0.00                 0.00
t(c,T):    1-stage 0.00 0.00   0.00   0.00   0.00   0.00   0.00   0.00
           2-stage 0.00 0.00   1.00   1.00   0.00   1.00   1.00   0.00
t(c)       1-stage      4.1                  6.2
           2-stage
____________________________________________________________________________
Follow-Up Time Calculations
Movement          1      4      7      8      9      10     11     12
                  L      L      L      T      R      L      T      R
____________________________________________________________________________
t(f,base)               2.20                 3.30
t(f,HV)          1.00   1.00   1.00   1.00   1.00   1.00   1.00   1.00
P(HV)                   0                    0
t(f)                    2.2                  3.3
____________________________________________________________________________

Worksheet 5-Effect of Upstream Signals
____________________________________________________________________________
Computation 1-Queue Clearance Time at Upstream Signal
                                           Movement 2          Movement 5
                                         V(t)   V(l,prot)   V(t)   V(l,prot)
____________________________________________________________________________
V prog                                   1155      38
```

```
Total Saturation Flow Rate, s (vph)       3800     3800
Arrival Type                              3        3
Effective Green, g (sec)                  50       7
Cycle Length, C (sec)                     205      205
Rp (from Exhibit 16-11)                   1.000    1.000
Proportion vehicles arriving on green P   0.244    0.034
g(q1)                                     47.1     2.0
g(q2)                                     20.6     0.0
g(q)                                      67.7     2.0

------------------------------------------------------------------------------
Computation 2-Proportion of TWSC Intersection Time  blocked
                                            Movement 2        Movement 5
                                          V(t)  V(l,prot)  V(t)   V(l,prot)

------------------------------------------------------------------------------
alpha                                          0.500
beta                                           0.667
Travel time, t(a) (sec)                        3.175
Smoothing Factor, F                            0.486
Proportion of conflicting flow, f         1.000    1.000
Max platooned flow, V(c,max)              3800     2796
Min platooned flow, V(c,min)              2000     2000
Duration of blocked period, t(p)          48.9     1.4
Proportion time blocked, p                     0.245             0.000

------------------------------------------------------------------------------
Computation 3-Platoon Event Periods      Result

------------------------------------------------------------------------------
p(2)                                     0.245
p(5)                                     0.000
p(dom)                                   0.245
p(subo)                                  0.000
Constrained or unconstrained?              U

------------------------------------------------------------------------------
Proportion
unblocked                  (1)               (2)             (3)
for minor              Single-stage           Two-Stage Process
movements, p(x)          Process         Stage I         Stage II

------------------------------------------------------------------------------
p(1)
p(4)                      0.755
p(7)
p(8)
p(9)                      0.755
p(10)
p(11)
p(12)

------------------------------------------------------------------------------
Computation 4 and 5
Single-Stage Process
Movement                1      4      7      8      9     10     11     12
                        L      L      L      T      R      L      T      R

------------------------------------------------------------------------------
V c,x                         1310                 655
s                             3000                 3000
Px                            0.755                0.755
V c,u,x                       761                  0

------------------------------------------------------------------------------
C r,x                         860                  1091
C plat,x                      649                  823

------------------------------------------------------------------------------
Two-Stage Process
                     7               8              10              11
```

```
              Stage1  Stage2  Stage1  Stage2  Stage1  Stage2  Stage1  Stage2
-----------------------------------------------------------------------------
V(c,x)
s
P(x)
V(c,u,x)
-----------------------------------------------------------------------------
C(r,x)
C(plat,x)
-----------------------------------------------------------------------------

Worksheet 6-Impedance and Capacity Equations
-----------------------------------------------------------------------------
Step 1: RT from Minor St.                         9                12
-----------------------------------------------------------------------------
Conflicting Flows                               655
Potential Capacity                              823
Pedestrian Impedance Factor                     1.00             1.00
Movement Capacity                               823
Probability of Queue free St.                   0.83             1.00
-----------------------------------------------------------------------------
Step 2: LT from Major St.                         4                 1
-----------------------------------------------------------------------------
Conflicting Flows                               1310
Potential Capacity                              649
Pedestrian Impedance Factor                     1.00             1.00
Movement Capacity                               649
Probability of Queue free St.                   0.81             1.00
Maj L-Shared Prob Q free St.
-----------------------------------------------------------------------------
Step 3: TH from Minor St.                         8                11
-----------------------------------------------------------------------------
Conflicting Flows
Potential Capacity
Pedestrian Impedance Factor                     1.00             1.00
Cap. Adj. factor due to Impeding mvmnt          0.81             0.81
Movement Capacity
Probability of Queue free St.                   1.00             1.00
-----------------------------------------------------------------------------
Step 4: LT from Minor St.                         7                10
-----------------------------------------------------------------------------
Conflicting Flows
Potential Capacity
Pedestrian Impedance Factor                     1.00             1.00
Maj. L, Min T Impedance factor                                   0.81
Maj. L, Min T Adj. Imp Factor.                                   0.86
Cap. Adj. factor due to Impeding mvmnt          0.81             0.71
Movement Capacity
-----------------------------------------------------------------------------

Worksheet 7-Computation of the Effect of Two-stage Gap Acceptance
-----------------------------------------------------------------------------
Step 3: TH from Minor St.                         8                11
-----------------------------------------------------------------------------
Part 1 - First Stage
Conflicting Flows
Potential Capacity
Pedestrian Impedance Factor
Cap. Adj. factor due to Impeding mvmnt
Movement Capacity
Probability of Queue free St.
```

```
_______________________________________________________________________________
Part 2 - Second Stage
Conflicting Flows
Potential Capacity
Pedestrian Impedance Factor
Cap. Adj. factor due to Impeding mvmnt
Movement Capacity
_______________________________________________________________________________
Part 3 - Single Stage
Conflicting Flows
Potential Capacity
Pedestrian Impedance Factor                      1.00             1.00
Cap. Adj. factor due to Impeding mvmnt           0.81             0.81
Movement Capacity
_______________________________________________________________________________
Result for 2 stage process:
a
y
C t
Probability of Queue free St.                    1.00             1.00
_______________________________________________________________________________
Step 4: LT from Minor St.                          7               10
_______________________________________________________________________________
Part 1 - First Stage
Conflicting Flows
Potential Capacity
Pedestrian Impedance Factor
Cap. Adj. factor due to Impeding mvmnt
Movement Capacity
_______________________________________________________________________________
Part 2 - Second Stage
Conflicting Flows
Potential Capacity
Pedestrian Impedance Factor
Cap. Adj. factor due to Impeding mvmnt
Movement Capacity
_______________________________________________________________________________
Part 3 - Single Stage
Conflicting Flows
Potential Capacity
Pedestrian Impedance Factor                      1.00             1.00
Maj. L, Min T Impedance factor                                    0.81
Maj. L, Min T Adj. Imp Factor.                                    0.86
Cap. Adj. factor due to Impeding mvmnt           0.81             0.71
Movement Capacity
_______________________________________________________________________________
Results for Two-stage process:
a
y
C t
_______________________________________________________________________________

Worksheet 8-Shared Lane Calculations
_______________________________________________________________________________
Movement                              7      8      9      10     11     12
                                      L      T      R      L      T      R
_______________________________________________________________________________
Volume (vph)                                        136
Movement Capacity (vph)                             823
Shared Lane Capacity (vph)
_______________________________________________________________________________
```

```
Worksheet 9-Computation of Effect of Flared Minor Street Approaches

________________________________________________________________________________
Movement                               7      8      9     10     11      12
                                       L      T      R      L      T       R
________________________________________________________________________________
C sep                                               823
Volume                                              136
Delay
Q sep
Q sep +1
round (Qsep +1)
________________________________________________________________________________
n max
C sh
SUM C sep
n
C act
________________________________________________________________________________

Worksheet 10-Delay, Queue Length, and Level of Service

________________________________________________________________________________
Movement             1      4      7      8      9     10     11      12
Lane Config                 L                    R
________________________________________________________________________________
v (vph)                    122                  136
C(m) (vph)                 649                  823
v/c                        0.19                 0.17
95% queue length           0.69                 0.59
Control Delay              11.8                 10.2
LOS                         B                    B
Approach Delay                          10.2
Approach LOS                             B
________________________________________________________________________________

Worksheet 11-Shared Major LT Impedance and Delay
________________________________________________________________________________
                                                  Movement 2     Movement 5
________________________________________________________________________________
p(oj)                                                1.00           0.81
v(il), Volume for stream 2 or 5
v(i2), Volume for stream 3 or 6
s(il), Saturation flow rate for stream 2 or 5
s(i2), Saturation flow rate for stream 3 or 6
P*(oj)
d(M,LT), Delay for stream 1 or 4                                    11.8
N, Number of major street through lanes
d(rank,1) Delay for stream 2 or 5
________________________________________________________________________________
```

APPENDIX H

Pedestrian Counts

APRIL 12, 2017

AM PEDESTRIAN 6:30 - 8:30

PTD17-0414-03 LOC: A

	NB TO EB → ↑	WB TO SB ← ↓
6:30		
6:45		
7:00		
7:15		
7:30		
7:45		
8:00		
8:15		

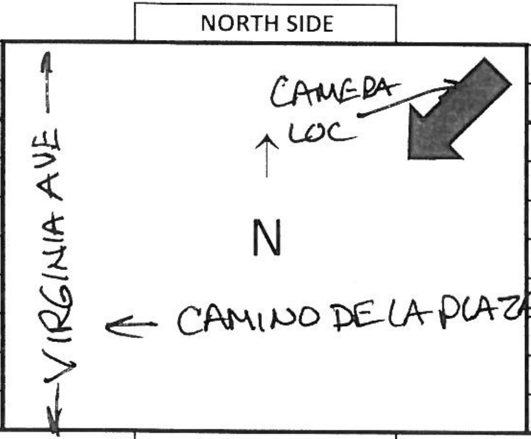
NORTH SIDE

	WB ←	EB →
6:30		
6:45		
7:00		
7:15		
7:30		
7:45		
8:00		
8:15		

	NB TO WB ← ↑	EB TO SB → ↓
6:30		
6:45		
7:00		
7:15		
7:30		
7:45		
8:00		
8:15		

WEST SIDE

	NB	SB
6:30		
6:45		
7:00		
7:15		
7:30		
7:45		
8:00		
8:15		



EAST SIDE

	NB	SB
6:30		
6:45	1	
7:00		
7:15	3	1
7:30		
7:45		
8:00		
8:15		

	WB TO NB ← ↑	SB TO EB → ↓
6:30		
6:45		
7:00		
7:15		
7:30		
7:45		
8:00		
8:15		

SOUTH SIDE

	WB ←	EB →
6:30	22	8
6:45	27	4
7:00	21	2
7:15	22	1
7:30	36	9
7:45	47	6
8:00	10	2
8:15	38	10

*

	EB TO NB → ↑	SB TO WB ← ↓
6:30		
6:45		
7:00		
7:15		
7:30		
7:45		
8:00		
8:15		

BICYCLE CROSSINGS

	NS	SS	ES	WS	TOTAL
6:30					0
6:45					0
7:00					0
7:15					0
7:30					0
7:45					0
8:00					0
8:15					0

April 12, 2017

AM PEDESTRIAN 6:30 - 8:30

PTD17-0414-03 LOC: B

	NB TO EB → ↑	WB TO SB ← ↓
6:30	1	
6:45	1	
7:00	2	3
7:15	4	1
7:30	4	
7:45	1	
8:00	1	
8:15	7	

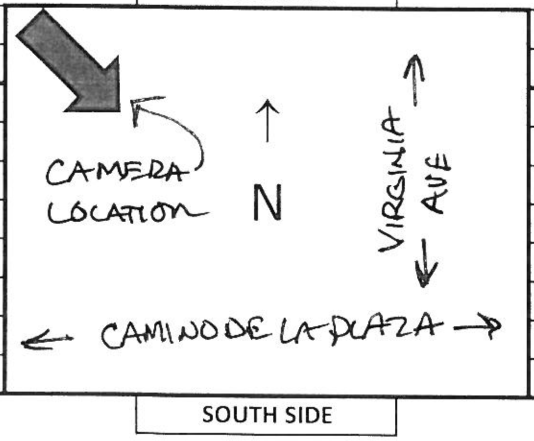
NORTH SIDE

	WB ←	EB →
6:30	9	0
6:45	8	2
7:00	8	6
7:15	11	2
7:30	18	13
7:45	14	8
8:00	30	3
8:15	7	7

	NB TO WB ← ↑	EB TO SB → ↓
6:30		
6:45		
7:00		
7:15		1
7:30		
7:45		
8:00		
8:15		

WEST SIDE

	NB ↑	SB ↓
6:30	10	0
6:45	5	1
7:00	10	2
7:15	10	1
7:30	10	4
7:45	4	2
8:00	14	2
8:15	13	3



EAST SIDE

	NB ↑	SB ↓
6:30	16	1
6:45	10	4
7:00	16	3
7:15	23	4
7:30	18	8
7:45	21	8
8:00	39	1
8:15	10	7

	WB TO NB ← ↑	SB TO EB → ↓
6:30		
6:45		
7:00	3	
7:15		
7:30		
7:45		
8:00		
8:15		

SOUTH SIDE

	WB ←	EB →
6:30	24	13
6:45	31	5
7:00	17	10
7:15	31	4
7:30	23	3
7:45	34	9
8:00	19	5
8:15	41	11

	EB TO NB → ↑	SB TO WB ← ↓
6:30	10	9
6:45	7	4
7:00	12	8
7:15	11	14
7:30	19	6
7:45	19	6
8:00	30	13
8:15	7	12

BICYCLE CROSSINGS

	NS	SS	ES	WS	TOTAL
6:30	1				0
6:45					0
7:00					0
7:15		1			0
7:30					0
7:45					0
8:00					0
8:15					0

April 12, 2017

PM PEDESTRIAN 4:30 - 6:30

	NB TO EB	WB TO SB
4:30		5
4:45	7	7
5:00	3	8
5:15	11	5
5:30	4	7
5:45	6	4
6:00	5	10
6:15	6	8

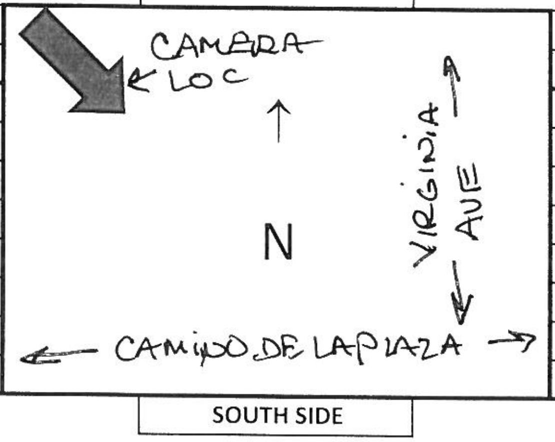
NORTH SIDE

	WB	EB
4:30	5	40
4:45	22	26
5:00	16	14
5:15	15	18
5:30	10	17
5:45	23	15
6:00	17	7
6:15	10	11

	NB TO WB	EB TO SB
4:30		
4:45	14	7
5:00	3	4
5:15		
5:30		5
5:45		
6:00		
6:15		

WEST SIDE

	NB	SB
4:30	15	32
4:45	11	20
5:00	44	9
5:15	8	13
5:30	7	11
5:45	10	15
6:00	9	13
6:15	7	19



EAST SIDE

	NB	SB
4:30	7	14
4:45	25	21
5:00	17	6
5:15	17	14
5:30	15	6
5:45	16	9
6:00	23	14
6:15	10	8

	WB TO NB	SB TO EB
4:30		
4:45		
5:00		
5:15		
5:30		
5:45		
6:00		
6:15		

SOUTH SIDE

	WB	EB
4:30	31	74
4:45	21	69
5:00	53	45
5:15	33	69
5:30	20	51
5:45	35	54
6:00	43	43
6:15	52	64

	EB TO NB	SB TO WB
4:30	18	15
4:45	10	9
5:00	11	14
5:15	10	4
5:30	8	2
5:45	14	2
6:00	16	1
6:15	6	0

	BICYCLE CROSSINGS				
	NS	SS	ES	WS	TOTAL
4:30					0
4:45					0
5:00					0
5:15					0
5:30	1				0
5:45					0
6:00					0
6:15					0

APPENDIX I

Signal Timing Sheets

ERSECTION: CAMINO DE LA PLAZA & VIRGINIA AV

Group Assignment:
Field Master Assignment:
System Reference Number:

N/S Street: Virginia Av
E/W Street: Camino de la Plaza

Last Database Change
Timing sheets by JMV
Approved by
Timing implemented on. 6/30/2016

170 sec

	Camino de la Plaza					Camino de la Plaza		Virginia
	Phase							
Phase Numbers---->	1	2	3	4	5	6	7	8
	1+8							
0 Ped Walk		7				7	7	7
1 Ped FDW		15				6	19	19
2 Min Green	4	7			4	7	4	4
3 Type 3 Disconnect								
4 Added per Vehicle								
5 Veh Extension	2.0	3.8			2.0	3.8	2.0	2.0
6 Max Gap	2.0	3.8			2.0	3.8	2.0	2.0
7 Min Gap	2.0	0.2			2.0	0.2	2.0	2.0
8 Max Limit	30	60			30	60	40	~~40~~ 40
9 Max Limit 2								
A Adv. / Delay Walk								
B PE Min Ped FDW		1				1	1	1
C Cond Serv Check								
D Reduce Every		0.8				0.8		
E Yellow Change	3.4	3.9			3.4	3.9	3.9	3.9
F Red Clear	1.0	1.0			1.0	1.0	1.0	1.0

Phase Timing - Bank 1 <F/1+Phase+Row>

	E
RR-1 Delay	
RR-1 Clear	
EV-A Delay	0
EV-A Clear	0
EV-B Delay	0
EV-B Clear	0
EV-C Delay	0
EV-C Clear	0
EV-D Delay	0
EV-D Clear	0
RR-2 Delay	
RR-2 Clear	
View EV Delay	- - -
View EV Clear	- - -
View RR Delay	- - -
View RR Clear	- - -

Preempt Timing <F/1+E+Row>

	F	Row
Permit	12 5678	0
Red Lock		1
Yellow Lock		2
Min Recall		3
Ped Recall		4
View Set Peds		5
Rest In Walk		6
Red Rest		7
Double Entry		8
Max Recall		9
Soft Recall	2 6	A
Max 2		B
Cond. Service		C
Man Cntrl Calls		D
Yellow Start	2 6	E
First Phases	8	F

Phase Functions <F/1+F+Row>

Current Calculated Cycle Length: C/0 + B + F

	9	A	B	C	D
	- - -	- - -	- - -	- - -	- - -
Phase 1					
Phase 2					
Phase 3					
Phase 4					
Phase 5					
Phase 6					
Phase 7					
Phase 8					

Max Initial
Alternate Walk
Alternate FDW
Alternate Initial
Alternate Extension

Alternate Timing <F/1+Column+Phase>

Free Lag	2 6 8	<C/1+F+0>

How to Set Page Access Code:
F/1 – C + 0 + F = 1
F + 9 + E = 1

Drop Number		<C/0+0+0>
Zone Number		<C/0+0+1>
Area Number		<C/0+0+2>
Area Address		<C/0+0+3>
QuicNet Channel		(QuicNet)

Communication Addresses

Flash Start	0	<F/1+0+E>
Red Revert	5.0	<F/1+0+F>
All Red Start	0.0	<F/1+C+0>
FYA Red Rev	0.0	<F/1+0+5>
OVLP CHG R	0.0	<F/1+0+3>

Start / Revert Times

Manual Plan
0 = Automatic
1-9 = Plan 1-9
14 = Free
15 = Flash

Manual Offset
0 = Automatic
1 = Offset A
2 = Offset B
3 = Offset C

(Outputs specified in Assignable Outputs at E/127+A+E & F)

Exclusive Walk	0	<F/1+0+0>
Exclusive FDW	0	<F/1+0+1>
All Red Clear	0.0	<F/1+0+2>

Exclusive Ped Phase

Manual Plan	14	<C/0+A+1>
Manual Offset	0	<C/0+B+1>

Manual Selection

Notes: 38924-18-D

Timing Sheet Version: 233 MC1

Version: 4.5.3.3

TION: CAMINO DE LA PLAZA & VIRGINIA AV

		Overlap							
	Column Numbers --->	1	2	3	4	5	6	7	8
Row	Overlap Name --->								
0	Load Switch Number								
1	Veh Set 1 - Phases	1							
2	Veh Set 2 - Phases								
3	Veh Set 3 - Phases								
4	Neg Veh Phases	2 567							
5	Neg Ped Phases	2 678							
6	Green Omit Phases	8							
7	Green Clear Omit Phs.								
8	Overlap Recall								
9	Queue Jump Phase								
A	Queue Jump Time								
B	Minimum Green								
C	Maximum Green								
D	Green Clear								
E	Yellow Change	3.4							
F	Red Clear	1.0							

Overlap Assignments <E/29+Column+Row>

Extra 1 Flags
1 = TBC Type 1
2 = NEMA Ext. Coord
3 = Auto Daylight Savings
4 = Solid FDW on EV
5 = Extended Status
6 = International Ped
7 = Flash - Clear Outputs
8 = Split Ring

Extra 2 Flags
1 = AWB During Initial
2 = Reserved
3 = Disable Min Walk
4 = QuicNet System
5 = Ignore P/P on EV
6 = Manual Hold in FDW
7 = Allow QuicNet PE
8 = Flash Grn B4 Yellow

	C	Row
EV-A	0	0
EV-B	0	1
EV-C	0	2
EV-D	0	3
RR-1 *	- - -	4
RR-2 *	- - -	5
SE-1	0	6
SE-2	0	7
		8
		9
		A
		B
		C
		D
		E
		F

Preempt Priority
<E/125+C+Row>
(* RR-1 is always Highest, and RR-2 is always Second Highest)

Row	Column Numbers --->	E
0	Exclusive Phases	
1	RR-1 Clear Phases	
2	RR-2 Clear Phases	
3	RR-2 Limited Service	
4	Prot / Perm Phases	
5	Flash to PE Circuits	
6	Flash Entry Phases	
7	Disable Yellow Range	
8	Disable Ovp Yel Range	
9	Overlap Yellow Flash	
A	EV-A Phases	2 5
B	EV-B Phases	7
C	EV-C Phases	1 6
D	EV-D Phases	8
E	Extra 1 Config. Bits	1 34
F	IC Select (Interconnect)	2

Configuration <E/125+E+Row>

	F
Ext. Permit 1 Phases	
Ext. Permit 2 Phases	
Exclusive Ped Assign	
Preempt Non-Lock	
Ped for 2P Output	2
Ped for 6P Output	6
Ped for 4P Output	7
Ped for 8P Output	8
Yellow Flash Phases	
Low Priority A Phases	
Low Priority B Phases	
Low Priority C Phases	
Low Priority D Phases	
Restricted Phases	
Extra 2 Config. Bits	3

Configuration <E/125+F+Row>

	F
Fast Green Flash Phase	
Green Flash Phases	
Flashing Walk Phases	
Guaranteed Passage	
Simultaneous Gap Term	12345678
Sequential Timing	
Advance Walk Phases	
Delay Walk Phases	
External Recall	
Start-up Overlap Green	
Max Extension	
Inhibit Ped Reservice	
Semi-Actuated	
Start-up Overlap Yellow	
Start-up Vehicle Calls	12 5678
Start-up Ped Calls	2 678

Specials <F/2+F+Row>

Flash to PE & PE Non-Lock
1 = EV A 5 = RR 1
2 = EV B 6 = RR 2
3 = EV C 7 = SE 1
4 = EV D 8 = SE 2

IC Select Flags
1 =
2 = Modem
3 = 7-Wire Slave
4 =
5 =
6 = Simplex Master
7 =
5 = Offset Interrupter

	2	Row
		0
Phase 1	0	1
Phase 2	0	2
Phase 3	0	3
Phase 4	0	4
Phase 5	0	5
Phase 6	0	6
Phase 7	0	7
Phase 8	0	8
		9
		A
		B
		C
		D
		E
		F

Coordination Transition Minimums
<C/5+2+Row>

CTION: CAMINO DE LA PLAZA & VIRGINIA AV

	umn Numbers ---->	0	1	2	3	1	3
Row	Detector Name	C1 Pin Number	Attributes	Phase(s)	Assign	Delay	Carry-over
0	2I2U	39	45 7	2	123		1.8
1	6J2U	40	45 7	6	123		1.8
2	4I6U	41	45 7	4	123		
3	8J6U	42	45 7	8	123		
4	2I2L	43	45 7	2	123		1.8
5	6J2L	44	45 7	6	123		1.8
6	4I6L	45	45 7	4	123		
7	8J6L	46	45 7	8	123		
8	2I4	47	67	2	123		
9	6J4	48	67	6	123		
A	4I8	49	67	4	123		
B	8J8	50	67	8	123		
C	5J1U	55	45 7	5	123		
D	1I1U	56	45 7	1	123		
E	7J5	57	45 7	7	123		
F	3I5	58	45 7	3	123		

		4	5	6	7	2	4
					1		2
Row	Detector Name	C1 Pin Number	Attributes	Phase(s)	Assign	Delay	over
0	5J9U	59	45 7	5	123		
1	1I9U	60	45 7	1	123		
2	7J9L	61	45 7	7	123		
3	3I9L	62	45 7	3	123		
4	2I3U	63	45 7	2	123		1.8
5	6J3U	64	45 7	6	123		1.8
6	4I7U	65	45 7	4	123		
7	8J7U	66	45 7	8	123		
8	2 PPB	67	2	2	123		
9	6 PPB	68	2	6	123		
A	4 PPB	69	2	7	123		
B	8 PPB	70	2	8	123		
C	2I3L	76	45 7	2	123		
D	6J3L	77	45 7	6	123		
E	4I7L	78	45 7	4	123		
F	8J7L	79	45 7	8	123		

Detector Assignments <E/126+Column+Row>

<D/0+Column+Row>

Detector Attributes

1 = Full Time Delay
2 = Ped Call
3 = Overlap
4 = Count
5 = Extension
6 = Type 3
7 = Calling
8 = Alternate

Det. Assignments

1 = Det. Set 1
2 = Det. Set 2
3 = Det. Set 3
4 =
5 =
6 = Failure - Min Recall
7 = Failure - Max Recall
8 = Report on Failure

	Ped / Phase / Overlap								
Column Numbers ---->	1	2	3	4	5	6	7	8	Row
Walk									0
Don't Walk									1
Phase Green									2
Phase Yellow									3
Phase Red									4
Overlap Green	35								5
Overlap Yellow	37								6
Overlap Red									7

Redirect Phase Outputs <E/127+Column+Row>

Cabinet Type	30	<E/125+D+0>

Enable Redirection

(Enable Redirection = 30)

Max OFF (minutes)	20	<D/0+0+1>
Max ON (minutes)	60	<D/0+0+2>
Chatter Fail Time	0	<D/0+0+4>

Detector Failure Monitor

	B	Row
One-Shot	0	8
Ext. Timer	0	9
DELAY-A	0	A
DELAY-B	0	B
DELAY-C	0	C
DELAY-D	0	D
DELAY-E	0	E
DELAY-F	0	F

Delay Logic Times

<D/0+B+Row> (seconds)

ION: CAMINO DE LA PLAZA & VIRGINIA AV

	Column 8		Column 9		Column A		Column B		Column C		Column D		Column E		Column F		Row
0	One-Shot Timer		Latch 1 Set		NOT-3		Max 2		Pretimed		Set Monday		Dial 2 (7-Wire)		Sim Term		0
1	AND-5 (a)		Latch 1 Reset		NOT-4		Reserved		Plan 1		Ext. Perm 1		Dial 3 (7-Wire)		EV-A	71	1
2	AND-5 (b)		Latch 2 Set		OR-4 (a)		Reserved		Plan 2		Ext. Perm 2		Offset 1 (7-Wire)		EV-B	72	2
3	AND-6 (a)		Latch 2 Reset		OR-4 (b)		Reserved		Plan 3		Gate Down		Offset 2 (7-Wire)		EV-C	73	3
4	AND-6 (b)		NAND-3 (a)		OR-5 (a)		Reserved		Plan 4		Set Clock		Offset 3 (7-Wire)		EV-D	74	4
5	Reserved		NAND-3 (b)		OR-5 (b)		Reserved		Plan 5		Stop Time	82	Free (7-Wire)		RR-1	51	5
6	Reserved		NAND-4 (a)		OR-6 (a)		Reserved		Plan 6		Flash Sense	81	Flash (7-Wire)		RR-2	52	6
7	Reserved		NAND-4 (b)		OR-6 (b)		Reserved		Plan 7		Manual Enable		Excl. Ped Omit		Spec. Event 1		7
8	Spec. Funct. 1		OR-7 (a)		EXTMR		Reserved		Plan 8		Man. Advance		NOT-1		Spec. Event 2		8
9	Spec. Funct. 2		OR-7 (b)		Reserved		Max Inhibit (nema)		Plan 9		External Alarm		NOT-2		External Lag		9
A	Spec. Funct. 3		OR-7 (c)		AND-4 (a)		Force A (nema)		DELAY-A		Phase Bank 2		OR-1 (a)		AND-1 (a)		A
B	Spec. Funct. 4		OR-7 (d)		AND-4 (b)		Force B (nema)		DELAY-B		Phase Bank 3		OR-1 (b)		AND-1 (b)		B
C	Reserved		OR-8 (a)		11		C.N.A. (nema)		DELAY-C		Overlap Set 2		OR-2 (a)		AND-2 (a)		C
D	Reserved		OR-8 (b)		NAND-1 (b)		Hold (nema)		DELAY-D		Overlap Set 3		OR-2 (b)		AND-2 (b)		D
E	Reserved		OR-8 (c)		NAND-2 (a)		Max Recall		DELAY-E		Detector Set 2		OR-3 (a)		AND-3 (a)		E
F	Reserved		OR-8 (d)		NAND-2 (b)		Min Recall		DELAY-F		Detector Set 3		OR-3 (b)		AND-3 (b)		F

Assignable Inputs <E/126+Column+Row>

Row	Column 8		Column 9		1		Column B		Column C		Column D		Column E		Column F		Row
0	Reserved		Phase ON - 1		Preempt Fail		Flasher 0		Free		NOT-1		TOD Out 1		Dial 2 (7-Wire)		0
1	Reserved		Phase ON - 2		Sp Evnt Out 1		Flasher 1		Plan 1		OR-1		TOD Out 2		Dial 3 (7-Wire)		1
2	Reserved		Phase ON - 3		Sp Evnt Out 2		Fast Flasher		Plan 2		OR-2		TOD Out 3		Offset 1 (7-Wire)		2
3	Reserved		Phase ON - 4		Sp Evnt Out 3		EXTMR		Plan 3		OR-3		TOD Out 4		Offset 2 (7-Wire)		3
4	Reserved		Phase ON - 5		Sp Evnt Out 4		One-Shot Timer		Plan 4		AND-1		TOD Out 5		Offset 3 (7-Wire)		4
5	Reserved		Phase ON - 6		Sp Evnt Out 5		Reserved		Plan 5		AND-2		TOD Out 6		Free (7-Wire)		5
6	Reserved		Phase ON - 7		Sp Evnt Out 6		Latch 1		Plan 6		AND-3		TOD Out 7		Flash (7-Wire)		6
7	Reserved		Phase ON - 8		Sp Evnt Out 7		Latch 2		Plan 7		NOT-2		TOD Out 8		Preempt		7
8	Flh Yell Arrow 1		Ph. Check - 1		Sp Evnt Out 8		NOT-3		Plan 8		EV-A		Adv. Warn - 1		Low Priority A		8
9	Green 1		Ph. Check - 2		Coord On		NOT-4		Plan 9		EV-B		Adv. Warn - 2		Low Priority B		9
A	Flh Yell Arrow 3		Ph. Check - 3		Detector Fail		OR-4		Spec. Funct. 3		EV-C		DELAY-A		Low Priority C		A
B	Green 3		Ph. Check - 4		Spec. Funct. 1		OR-5		Spec. Funct. 4		EV-D		DELAY-B		Low Priority D		B
C	Flh Yell Arrow 5		Ph. Check - 5		Spec. Funct. 2		OR-6		NAND-3		RR-1		DELAY-C		AND-5		C
D	Green 5		Ph. Check - 6		Central Control		AND-4		NAND-4		RR-2		DELAY-D		AND-6		D
E	Flh Yell Arrow 7		Ph. Check - 7		Excl. Ped DW		NAND-1		OR-7		Spec. Event 1		DELAY-E		Reserved		E
F	Green 7		Ph. Check - 8		Excl. Ped WK		NAND-2		OR-8		Spec. Event 2		DELAY-F		Reserved		F

Assignable Outputs <E/127+Column+Row>

Virginia Avenue Parking Structure
Waste Management Plan

February 2018

Prepared by:

Harris & Associates
600 B Street, Suite 2000
San Diego, California 92101
Contact: Ryan Binns

1. INTRODUCTION

Sanitation, as solid waste management is sometimes called, is essential to public health and safety. It is a heavily regulated public service. Federal law under the Resource Conservation Recovery Act sets the tone, establishing a preference for activities that divert materials from disposal, and outlining basic requirements for ensuring that disposal facilities do not threaten health, safety, or the environment. State law provides additional requirements throughout the state codes, in particular the Public Resource Code, where the Integrated Waste Management Act is codified. Most solid waste laws in California are implemented by CalRecycle. Finally, local codes, franchises, and contracts provide the requirements that waste generators, haulers, and facility operators must follow.

Solid waste management is, ultimately, a local government responsibility. Each local government manages this responsibility differently in response to local conditions. Although the methods differ, each local government must ensure that solid wastes are:

- not deposited where they should not be;
- collected in an acceptable manner;
- processed as appropriate; and
- wastes reduced, recycled, composted, transformed into energy, or safely disposed of if uses cannot be secured.

The California Environmental Quality Act (CEQA) requires that potential impacts to public services must be considered. Several types of projects may have impacts. The City of San Diego (City) establishes a threshold of 60 tons per year of solid waste as a threshold for potentially significant cumulative impacts. It is estimated that construction, demolition, and/or renovation of 40,000 square feet of building space would generate this volume. Projects developing 1,000,000 square feet or more of building space, generating 1,500 tons per year of waste, have the potential for direct impacts.

Baja-Mex Insurance Services, Inc. proposes to construct a commercial and parking structure on the corner of Camino de la Plaza and Virginia Avenue in the San Ysidro Community Plan Area of the City. A comprehensive update to the 1990 San Ysidro Community Plan was conducted by the City and approved November 15, 2016. The San Ysidro Community Plan Update (SYCPU) established land use designations and policies to guide future development consistent with the City's General Plan. In regards to solid waste, the SYCPU Final Environmental Impact Report concluded that any future development projects that would result from implementation of the SYCPU must comply with the City's Municipal Code in regards to Solid Waste and Recycling. In addition, any future discretionary development exceeding the 60-ton threshold must prepare a waste management plan targeting 75 percent waste reduction. The purpose of the Waste Management Plan is to identify the project's waste generation rates, determine potential impacts and identify ways to reduce solid waste impacts pursuant to the City's CEQA Significance Determination Thresholds.

2. PROJECT DESCRIPTION

The proposed project would construct a commercial and parking structure on the corner of Camino de la Plaza and Virginia Avenue, to accommodate the existing parking needs from surrounding uses, including the Las Americas Premium Outlets and the International Border. The project site is currently occupied by an existing one-story 2,400 square foot Baja-Mex Insurance Services retail building and 54 parking spaces.

The proposed project would demolish the existing structure and associated parking spaces, and then construct a six-story structure that would include retail space on the ground floor and 349 parking spaces on the upper levels. The proposed structure totals 132,186 square feet (sf) that includes 108,692 sf of parking, 13,210 sf of commercial retail space, 9,659 sf of drive aisles, ramps, circulation, restrooms, stairs, and elevators, and 625 sf of building maintenance and storage space. The parking structure would be no taller than 70 feet in elevation and would be no more than five stories above grade. The new parking structure would expand on the existing retail and parking currently provided at the site.

Access to the parking structure and drive-through windows/by-pass lane would be via a driveway from Camino de la Plaza. Left turns into the site would be from a left turn lane (westbound to southbound) created by widening the north side of Camino de la Plaza, thereby accommodating “side by side” left turn lanes. This widening would also provide enough width that U-turns for eastbound vehicles at the intersection would be allowed. Vehicles leaving the parking structure would be restricted by a raised median to right turns only onto Camino de la Plaza. Vehicles from the drive-through window/by-pass lane would exit onto a private drive on the south side of the proposed structure.

The existing Baja-Mex Insurance Services building currently has trash pick-up once per week to include a 3 cubic yard container and; therefore, generates approximately 0.13 tons per week or 6.7 tons of waste per year. The construction phase of the project would generate demolition debris from the existing 2,400 square foot building and the existing asphalt parking spaces and associated driving aisles. Construction requires an equal amount of cut and fill so no export of soil will occur from the site.

3. WASTE TO BE GENERATED

Different uses generate different amounts of waste. When specific information in regards to waste generation is unknown for a project, a general rule of three or more pounds per square foot can be used to calculate waste generation during demolition, construction, and per year during ongoing use of a site. Demolition of the existing 2,400 square foot Baja-Mex Insurance Services building and the associated asphalt parking spaces, driving aisles, sidewalks, and curbs and gutters would generate approximately 615 tons of waste as shown in Table 1. This includes concrete pavement, sidewalk and slab, asphalt pavement, curb and gutter, roofing and drywall. In addition, the construction of the 132,186 sf parking structure would generate approximately 200 tons of waste based on the three pounds per square foot rule. Once operational, the proposed 13,210 sf of commercial space and associated parking structure will generate an estimated 39,840 pounds of waste per year or approximately 20 tons of waste per year based on the three pounds per square foot rule. The other portions of the parking structure including the parking stalls and building maintenance spaces will generate a negligible amount of waste on a yearly basis and is included as part of the 20 tons per year calculated for the retail space. Waste generated during operation includes, but is not limited to; paper, packaging, plastic, bimetal cans, bulky items, landscape debris, and electronic waste.

Table 1 – Summary of Project Generated Waste

Wastes	Generated	Bins/Service	Handling (include diversion rate for the facility)
Demolition			
Concrete includes pavement, sidewalk, and slab	236 tons	Ongoing during construction	Recycle
Drywall	8 tons	Ongoing during construction	Landfill
Roofing	21 tons	Ongoing during construction	Landfill
Asphalt pavement	265 tons	Ongoing during construction	Recycle
Landscape debris		Ongoing during construction	Recycle
Curb and Gutter	20 tons	Ongoing during construction	Recycle
Base	18 tons	Ongoing during construction	Recycle
Curb	47 tons	Ongoing during construction	Recycle
DEMOLITION TOTAL	**615 tons**		
Construction			
Construction	**200 tons**	Ongoing during construction	Landfill and Recycle
Ongoing Use			
Paper		Once per week	Recycle
Plastics		Once per week	Recycle
Metal Cans		Once per week	Recycle
Landscape Debris		Every two weeks	Recycle
ONGOING TOTAL	**20 tons/year**		

4. MANAGING WASTE

The goal of the Waste Management Plan is to come up with measures to help reduce the amount of waste generated by the proposed project and to send less volume for disposal. The proposed project would include several different measures to help reduce the amount of waste generated and disposed.

- On site grading for the project would be balanced, 30 cubic yards of cut and fill are required. This would require no export; thus, minimizing the amount of material that would need to be disposed of during construction.
- The bullet resistant glass and security main door from existing building would be incorporated into the new Virginia Avenue Parking Structure.
- Businesses will provide copiers with double-sided printing functions, encourage use of electronic billing, receipts, rechargeable batteries, and reuse packing material.
- Businesses would use permanent plates and utensils in the break room and encourage reusable bags and containers.

- The project would require the demolition of the existing 2,400 square foot Baja-Mex Insurance Services building and associated 53-space asphalt parking lot. The concrete and asphalt generated during demolition would be segregated and recycled at the appropriate facility.
- The commercial spaces would provide recycling bins for paper, plastics, and metal cans for its tenants and use an appropriate recycling facility that segregates materials for recycling.
- Landscape debris generated during demolition and ongoing operations would be hauled off by a landscape contractor who would recycle it at the appropriate facility.
- The exterior of the parking levels would be screened from Camino de la Plaza and Virginia Avenue with a recyclable PVC composite screen. In addition, all open parking spaced on the roof deck would have horizontal recyclable PVC composite screen screening 50% of each parking space.

5. SUMMARY

The proposed project would construct a commercial and parking structure on the corner of Camino de la Plaza and Virginia Avenue in the urbanized community of San Ysidro within the City of San Diego, to accommodate the existing parking needs from surrounding uses, including the Las Americas Premium Outlets and the International Border. The proposed project would demolish the 2,400 square foot existing structure and associated asphalt parking spaces and construct a multi-level structure that would include retail on the ground floor and approximately 349 parking spaces. The proposed structure totals 132,186 sf that includes 108,692 sf of parking, 13,210 sf of commercial retail space, 9,659 sf of drive aisles, ramps, circulation, restrooms, stairs and elevators, and 625 square feet of building maintenance and storage space. The proposed project would generate approximately 615 tons of waste from the demolition of the existing 2,400 square foot Baja-Mex Insurance Services building and associated parking facilities, 200 tons from the construction of the 132,186 square foot parking structure, and approximately 20 tons annually during operations. The project proposes to incorporate several types of measures to reduce the amount of waste that is generated and disposed of in the area’s landfills. These measures include:

- Balancing cut and fill quantities to eliminate the export of materials.
- The bullet resistant glass and security main door from existing building would be incorporated into the new Virginia Avenue Parking Structure
- Businesses would provide copiers with double-sided printing functions, encourage the use of electronic billing, receipts, and rechargeable batteries, and reuse packing material.
- Businesses would use permanent plates and utensils in the break room and encourage reusable bags and containers.
- Concrete and asphalt generated during demolition would be recycled.
- The commercial spaces would provide recycling bins for paper, plastics, and metal cans.
- Landscape debris generated during demolition and ongoing operations would be hauled off and recycled.

Based on the amount of waste that would be generated by the operation of the parking structure and associated commercial uses, the proposed project is under the threshold for a cumulatively significant impact since it would generates less than 60 tons of solid waste per year and would therefore result in a less than significant impact.

The City of San Diego

PRIORITY DEVELOPMENT PROJECT (PDP) STORM WATER QUALITY MANAGEMENT PLAN (SWQMP) FOR

VIRGINIA AVENUE PARKING STRUCTURE

PTS No. 375960

Civil Engineering/Surveying/Planning

STUART ENGINEERING

ENGINEER OF WORK:

REGISTERED PROFESSIONAL ENGINEER
STUART PEACE
No. 27232
Exp. 3–31–17
CIVIL
STATE OF CALIFORNIA

Stuart Peace, RCE 27232

PREPARED FOR:

FRED SOBKE
BAJA-MEX INSURANCE SERVICES
4575 CAMINO DE LA PLAZA
SAN YSIDRO, CA. 92173
TEL. (619) 428-1616

PREPARED BY:

STUART ENGINEERING
7525 METROPOLITAN DRIVE, SUITE 308
SAN DIEGO, CA 92108
JOB NO. 1295-13-00
STUART PEACE, RCE 27232

July 18, 2016

Approved by: City of San Diego Date

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TABLE OF CONTENTS

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ACRONYMS

APN	Assessor’s Parcel Number
ASBS	Area of Special Biological Significance
BMP	Best Management Practice
CEQA	California Environmental Quality Act
CGP	Construction General Permit
DCV	Design Capture Volume
DMA	Drainage Management Areas
ESA	Environmentally Sensitive Area
GLU	Geomorphic Landscape Unit
GW	Ground Water
HMP	Hydromodification Management Plan
HSG	Hydrologic Soil Group
HU	Harvest and Use
INF	Infiltration
LID	Low Impact Development
LUP	Linear Underground/Overhead Projects
MS4	Municipal Separate Storm Sewer System
N/A	Not Applicable
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
PDP	Priority Development Project
PE	Professional Engineer
POC	Pollutant of Concern
SC	Source Control
SD	Site Design
SDRWQCB	San Diego Regional Water Quality Control Board
SIC	Standard Industrial Classification
SWPPP	Storm Water Pollutant Protection Plan
SWQMP	Storm Water Quality Management Plan
TMDL	Total Maximum Daily Load
WMAA	Watershed Management Area Analysis
WPCP	Water Pollution Control Program
WQIP	Water Quality Improvement Plan

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CERTIFICATION PAGE

Project Name: Virginia Avenue Parking Structure
Permit Application Number:

I hereby declare that I am the Engineer in Responsible Charge of design of storm water BMPs for this project, and that I have exercised responsible charge over the design of the project as defined in Section 6703 of the Business and Professions Code, and that the design is consistent with the requirements of the Storm Water Standards, which is based on the requirements of SDRWQCB Order No. R9-2013-0001 as amended by R9-2015-0001 and R9-2015-0100 (MS4 Permit).

I have read and understand that the City Engineer has adopted minimum requirements for managing urban runoff, including storm water, from land development activities, as described in the Storm Water Standards. I certify that this PDP SWQMP has been completed to the best of my ability and accurately reflects the project being proposed and the applicable source control and site design BMPs proposed to minimize the potentially negative impacts of this project's land development activities on water quality. I understand and acknowledge that the plan check review of this PDP SWQMP by the City Engineer is confined to a review and does not relieve me, as the Engineer in Responsible Charge of design of storm water BMPs for this project, of my responsibilities for project design.

Stuart Peace	27232	03.03.2017
Stuart Peace Engineer of Work's Signature	PE Number	Expiration Date

Civil Engineering/Surveying/Planning

STUART ENGINEERING

Company

07.18.2016
Date

REGISTERED PROFESSIONAL ENGINEER
STUART PEACE
No. 27232
Exp. 3–31–17
CIVIL
STATE OF CALIFORNIA

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SUBMITTAL RECORD

Use this Table to keep a record of submittals of this PDP SWQMP. Each time the PDP SWQMP is re-submitted, provide the date and status of the project. In last column indicate changes that have been made or indicate if response to plan check comments is included. When applicable, insert response to plan check comments.

Submittal Number	Date	Project Status	Changes
1	5-29-14	☒ Preliminary Design/Planning/CEQA ☐ Final Design	Initial Submittal
2	3-25-15	☒ Preliminary Design/Planning/CEQA ☐ Final Design	Addressing of Plan Check Comments
3	8-5-15	☒ Preliminary Design/Planning/CEQA ☐ Final Design	Addressing of Plan Check Comments
4	1-21-16	☒ Preliminary Design/Planning/CEQA ☐ Final Design	Addressing of Plan Check Comments
5	3-18-16	☒ Preliminary Design/Planning/CEQA ☐ Final Design	New Storm Water Permit
6	5-6-16	☒ Preliminary Design/Planning/CEQA ☐ Final Design	Addressing of Plan Check Comments
7	7-18-16	☒ Preliminary Design/Planning/CEQA ☐ Final Design	Addressing of Plan Check Comments/ Design change from 'No Infiltration Condition' to 'Full infiltration Condition'

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PROJECT VICINITY MAP

Project Name: Virginia Avenue Parking Structure

Permit Application Number:

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DS-560 STORM WATER REQUIREMENTS APPLICABILITY CHECKLIST

Complete and attach DS-560 Form included in Appendix A.1

City of San Diego
Development Services
1222 First Ave., MS-302
San Diego, CA 92101
(619) 446-5000

THE CITY OF SAN DIEGO

Storm Water Requirements Applicability Checklist

FORM
DS-560
FEBRUARY 2016

Project Address: 4575 Camino de la Plaza, San Ysidro, CA 92173	Project Number *(for City Use Only)*:

SECTION 1. Construction Storm Water BMP Requirements:

All construction sites are required to implement construction BMPs in accordance with the performance standards in the Storm Water Standards Manual. Some sites are additionally required to obtain coverage under the State Construction General Permit (CGP)[1] , which is administered by the State Water Resources Control Board.

For all project complete PART A: If project is required to submit a SWPPP or WPCP, continue to PART B.

PART A: Determine Construction Phase Storm Water Requirements.

1. Is the project subject to California's statewide General NPDES permit for Storm Water Discharges Associated with Construction Activities, also known as the State Construction General Permit (CGP)? (Typically projects with land disturbance greater than or equal to 1 acre.)

   ☐ Yes; SWPPP required, skip questions 2-4 ☒ No; next question

2. Does the project propose construction or demolition activity, including but not limited to, clearing, grading, grubbing, excavation, or any other activity that results in ground disturbance and contact with storm water runoff?

   ☒ Yes; WPCP required, skip 3-4 ☐ No; next question

3. Does the project propose routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of the facility? (Projects such as pipeline/utility replacement)

   ☐ Yes; WPCP required, skip 4 ☐ No; next question

4. Does the project only include the following Permit types listed below?

   - Electrical Permit, Fire Alarm Permit, Fire Sprinkler Permit, Plumbing Permit, Sign Permit, Mechanical Permit, Spa Permit.
   - Individual Right of Way Permits that exclusively include only ONE of the following activities: water service, sewer lateral, or utility service.
   - Right of Way Permits with a project footprint less than 150 linear feet that exclusively include only ONE of the following activities: curb ramp, sidewalk and driveway apron replacement, pot holing, curb and gutter replacement, and retaining wall encroachments.

   ☐ Yes; no document required

   Check one of the boxes to the right, and continue to PART B:

   ☐ If you checked "Yes" for question 1,
   a SWPPP is REQUIRED. Continue to PART B

   ☐ If you checked "No" for question 1, and checked "Yes" for question 2 or 3,
   a WPCP is REQUIRED. If the project proposes less than 5,000 square feet of ground disturbance AND has less than a 5-foot elevation change over the entire project area, a Minor WPCP may be required instead. **Continue to PART B.**

   ☐ If you checked "No" for all questions 1-3, and checked "Yes" for question 4
   PART B **does not apply and no document is required. Continue to Section 2.**

---

[1] More information on the City's construction BMP requirements as well as CGP requirements can be found at: www.sandiego.gov/stormwater/regulations/index.shtml

PART B: Determine Construction Site Priorit

This prioritization must be completed within this form, noted on the plans, and included in the SWPPP or WPCP. The city reserves the right to adjust the priority of projects both before and after construction. Construction projects are assigned an inspection frequency based on if the project has a "high threat to water quality." The City has aligned the local definition of "high threat to water quality" to the risk determination approach of the State Construction General Permit (CGP). The CGP determines risk level based on project specific sediment risk and receiving water risk. Additional inspection is required for projects within the Areas of Special Biological Significance (ASBS) watershed. **NOTE:** The construction priority does **NOT** change construction BMP requirements that apply to projects; rather, it determines the frequency of inspections that will be conducted by city staff.

Complete PART B and continued to Section 2

1. ☐ **ASBS**

a. Projects located in the ASBS watershed.

2. ☐ **High Priority**

a. Projects 1 acre or more determined to be Risk Level 2 or Risk Level 3 per the Construction General Permit and not located in the ASBS watershed.

b. Projects 1 acre or more determined to be LUP Type 2 or LUP Type 3 per the Construction General Permit and not located in the ASBS watershed.

3. ☐ **Medium Priority**

a. Projects 1 acre or more but not subject to an ASBS or high priority designation.

b. Projects determined to be Risk Level 1 or LUP Type 1 per the Construction General Permit and not located in the ASBS watershed.

4. ☒ **Low Priority**

a. Projects requiring a Water Pollution Control Plan but not subject to ASBS, high, or medium priority designation.

SECTION 2. Permanent Storm Water BMP Requirements.

Additional information for determining the requirements is found in the Storm Water Standards Manual.

PART C: Determine if Not Subject to Permanent Storm Water Requirements.

Projects that are considered maintenance, or otherwise not categorized as "new development projects" or "redevelopment projects" according to the Storm Water Standards Manual are not subject to Permanent Storm Water BMPs.

If "yes" is checked for any number in Part C, proceed to Part F and check "Not Subject to Permanent Storm Water BMP Requirements".

If "no" is checked for all of the numbers in Part C continue to Part D.

1. Does the project only include interior remodels and/or is the project entirely within an existing enclosed structure and does not have the potential to contact storm water? ☐ Yes ☒ No
2. Does the project only include the construction of overhead or underground utilities without creating new impervious surfaces? ☐ Yes ☒ No
3. Does the project fall under routine maintenance? Examples include, but are not limited to: roof or exterior structure surface replacement, resurfacing or reconfiguring surface parking lots or existing roadways without expanding the impervious footprint, and routine replacement of damaged pavement (grinding, overlay, and pothole repair). ☐ Yes ☒ No

PART D: PDP Exempt Requirements.

PDP Exempt projects are required to implement site design and source control BMPs.

If "yes" was checked for any questions in Part D, continue to Part F and check the box labeled "PDP Exempt."

If "no" was checked for all questions in Part D, continue to Part E.

1. Does the project ONLY include new or retrofit sidewalks, bicycle lanes, or trails that:
   - Are designed and constructed to direct storm water runoff to adjacent vegetated areas, or other non-erodible permeable areas? Or;
   - Are designed and constructed to be hydraulically disconnected from paved streets and roads? Or;
   - Are designed and constructed with permeable pavements or surfaces in accordance with the Green Streets guidance in the City's Storm Water Standards manual?

   ☐ Yes; PDP exempt requirements apply ☒ No; next question

2. Does the project ONLY include retrofitting or redeveloping existing paved alleys, streets or roads designed and constructed in accordance with the Green Streets guidance in the City's Storm Water Standards Manual?

   ☐ Yes; PDP exempt requirements apply ☒ No; project not exempt. PDP requirements apply

PART E: Determine if Project is a Priority Development Project (PDP).

Projects that match one of the definitions below are subject to additional requirements including preparation of a Storm Water Quality Management Plan (SWQMP).

If "yes" is checked for any number in PART E, continue to PART F.

If "no" is checked for every number in PART E, continue to PART F and check the box labeled "Standard Development Project".

1. **New Development that creates 10,000 square feet or more of impervious surfaces collectively over the project site.** This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land. ☐ Yes ☒ No
2. **Redevelopment project that creates and/or replaces 5,000 square feet or more of impervious surfaces on an existing site of 10,000 square feet or more of impervious surfaces**. This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land. ☒ Yes ☐ No
3. **New development or redevelopment of a restaurant.** Facilities that sell prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC 5812), and where the land development creates and/or replace 5,000 square feet or more of impervious surface. ☐ Yes ☒ No
4. **New development or redevelopment on a hillside.** The project creates and/or replaces 5,000 square feet or more of impervious surface (collectively over the project site) and where the development will grade on any natural slope that is twenty-five percent or greater. ☐ Yes ☒ No
5. **New development or redevelopment of a parking lot that creates and/or replaces 5,000 square feet or more of impervious surface (collectively over the project site).** ☐ Yes ☒ No
6. **New development or redevelopment of streets, roads, highways, freeways, and driveways.** The project creates and/or replaces 5,000 square feet or more of impervious surface (collectively over the project site). ☐ Yes ☒ No

7. **New development or redevelopment discharging directly to an Environmentally Sensitive Area.** The project creates and/or replaces 2,500 square feet of impervious surface (collectively over project site), and discharges directly to an Environmentally Sensitive Area (ESA). "Discharging directly to" includes flow that is conveyed overland a distance of 200 feet or less from the project to the ESA, or conveyed in a pipe or open channel any distance as an isolated flow from the project to the ESA (i.e. not commingled with flows from adjacent lands). ☐ Yes ☒ No

8. **New development or redevelopment projects of a retail gasoline outlet (RGO) that create and/or replaces 5,000 square feet of impervious surface.** The development project meets the following criteria: (a) 5,000 square feet or more or (b) has a projected Average Daily Traffic (ADT) of 100 or more vehicles per day. ☐ Yes ☒ No

9. **New development or redevelopment projects of an automotive repair shops that creates and/or replaces 5,000 square feet or more of impervious surfaces.** Development projects categorized in any one of Standard Industrial Classification (SIC) codes 5013, 5014, 5541, 7532-7534, or 7536-7539. ☐ Yes ☒ No

10. **Other Pollutant Generating Project.** The project is not covered in the categories above, results in the disturbance of one or more acres of land and is expected to generate pollutants post construction, such as fertilizers and pesticides. This does not include projects creating less than 5,000 sf of impervious surface and where added landscaping does not require regular use of pesticides and fertilizers, such as slope stabilization using native plants. Calculation of the square footage of impervious surface need not include linear pathways that are for infrequent vehicle use, such as emergency maintenance access or bicycle pedestrian use, if they are built with pervious surfaces of if they sheet flow to surrounding pervious surfaces. ☐ Yes ☒ No

PART F: Select the appropriate category based on the outcomes of PART C through PART E.

1. The project is **NOT SUBJECT TO STORM WATER REQUIREMENTS**. ☐
2. The project is a **STANDARD DEVELOPMENT PROJECT**. Site design and source control BMP requirements apply. See the Storm Water Standards Manual for guidance. ☐
3. The project is **PDP EXEMPT**. Site design and source control BMP requirements apply. See the Storm Water Standards Manual for guidance. ☐
4. The project is a **PRIORITY DEVELOPMENT PROJECT**. Site design, source control, and structural pollutant control BMP requirements apply. See the Storm Water Standards Manual for guidance on determining if project requires a hydromodification plan management ☒

Name of Owner or Agent *(Please Print)*: Fred Sobke Title: Pres.

Signature: Fred B. Sobke Date: 3/16/16

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Project Name: Virginia Parking Structure

FORM I-1: Applicability of Permanent, Post-Construction Storm Water BMP Requirements

Applicability of Permanent, Post-Construction		Form I-1
Project Identification		
Project Name: Virginia Avenue Parking Structure		
Permit Application Number:		Date: July 18, 2016
Determination of Requirements		
The purpose of this form is to identify permanent, post-construction requirements that apply to the project. This form serves as a short summary of applicable requirements, in some cases referencing separate forms that will serve as the backup for the determination of requirements. Answer each step below, starting with Step 1 and progressing through each step until reaching "Stop". Refer to Part 1 of Storm Water Standards sections and/or separate forms referenced in each step below.		
Step	Answer	Progression
Step 1: Is the project a "development project"? See Section 1.3 of the BMP Design Manual (Part 1 of Storm Water Standards) for guidance.	☒ Yes	Go to **Step 2.**
	☐ No	Stop. Permanent BMP requirements do not apply. No SWQMP will be required. Provide discussion below.
Discussion / justification if the project is <u>not</u> a "development project" (e.g., the project includes <u>only</u> interior remodels within an existing building):		
Step 2: Is the project a Standard Project, Priority Development Project (PDP), or exception to PDP definitions? To answer this item, see Section 1.4 of the BMP Design Manual (Part 1 of Storm Water Standards) in its entirety for guidance, AND complete Storm Water Requirements Applicability Checklist.	☐ Standard Project	Stop. Standard Project requirements apply.
	☒ PDP	PDP requirements apply, including PDP SWQMP. Go to **Step 3.**
	☐ PDP Exempt	Stop. Standard Project requirements apply. Provide discussion and list any additional requirements below.
Discussion / justification, and additional requirements for exceptions to PDP definitions, if applicable:		

Form I-1 Page 2

Step	Answer	Progression
Step 3. Is the project subject to earlier PDP requirements due to a prior lawful approval? See Section 1.10 of the BMP Design Manual (Part 1 of Storm Water Standards) for guidance.	☐ Yes	Consult the City Engineer to determine requirements. Provide discussion and identify requirements below. Go to Step 4.
	☒ No	BMP Design Manual PDP Requirements apply. Go to **Step 4.**
Discussion / justification of prior lawful approval, and identify requirements (not required if prior lawful approval does not apply): Not applicable.		
Step 4. Do hydromodification control requirements apply? See Section 1.6 of the BMP Design Manual (Part 1 of Storm Water Standards) for guidance.	☒ Yes	PDP structural BMPs required for pollutant control (Chapter 5) and hydromodification control (Chapter 6). Go to **Step 5**.
	☐ No	Stop. PDP structural BMPs required for pollutant control (Chapter 5) only. Provide brief discussion of exemption to hydromodification control below.
Discussion / justification if hydromodification control requirements do <u>not</u> apply: Not applicable. The project is subject to hydromodification control requirements.		
Step 5. Does protection of critical coarse sediment yield areas apply? See Section 6.2 of the BMP Design Manual (Part 1 of Storm Water Standards) for guidance.	☐ Yes	Management measures required for protection of critical coarse sediment yield areas (Chapter 6.2). Stop.
	☒ No	Management measures not required for protection of critical coarse sediment yield areas. Provide brief discussion below. Stop.
Discussion / justification if protection of critical coarse sediment yield areas does <u>not</u> apply: Per the Potential Critical Coarse Sediment Yield Area Map of the Watershed Management Area Analysis (WMAA), there are no CCSYAs located within or upstream of the project perimeter.		

FORM I-3B: Site Information Checklist for PDPs

Site Information Checklist For PDPs	Form I-3B
Project Summary Information	
Project Name	Virginia Avenue Parking Structure
Project Address	4575 Camino de la Plaza, San Ysidro, CA 92173
Assessor's Parcel Number(s) (APN(s))	6664001000
Permit Application Number	
Project Watershed	Select One: ☐ San Dieguito River ☐ Penasquitos ☐ Mission Bay ☐ San Diego River ☐ San Diego Bay ☒ Tijuana River
Hydrologic subarea name with Numeric Identifier up to two decimal places (9XX.XX)	911.12
Project Area (total area of Assessor's Parcel(s) associated with the project or total area of the right-of-way)	0.73 Acres (31,611 Square Feet)
Area to be disturbed by the project (Project Footprint)	0.73 Acres (31,611 Square Feet)
Project Proposed Impervious Area (subset of Project Footprint)	0.68Acres (29,648 Square Feet)
Project Proposed Pervious Area (subset of Project Footprint)	0.05 Acres (1,964 Square Feet)
Note: Proposed Impervious Area + Proposed Pervious Area = Area to be Disturbed by the Project. This may be less than the Project Area.	
The proposed increase or decrease in impervious area in the proposed condition as compared to the pre-project condition.	+16 % (Increase)

Form I-3B Page 2 of 13

Description of Existing Site Condition and Drainage Patterns

Current Status of the Site (select all that apply):
☒ Existing development
☐ Previously graded but not built out
☐ Agricultural or other non-impervious use
☐ Vacant, undeveloped/natural
Description / Additional Information:

The property is currently fully developed with a drive-thru Mexican insurance business building with paved parking spaces and perimeter landscaping.

Existing Land Cover Includes (select all that apply):
☒ Vegetative Cover
☐ Non-Vegetated Pervious Areas
☒ Impervious Areas
Description / Additional Information:

Existing land cover includes the building roof, paved parking lot and landscape areas.

Underlying Soil belongs to Hydrologic Soil Group (select all that apply):
☒ NRCS Type A
☐ NRCS Type B
☐ NRCS Type C
☐ NRCS Type D

Approximate Depth to Groundwater (GW):
☐ GW Depth < 5 feet
☐ 5 feet < GW Depth < 10 feet
☒ 10 feet < GW Depth < 20 feet
☐ GW Depth > 20 feet

"Groundwater was measured in each of our exploratory borings during drilling. The water level was allowed to stabilize prior to final measurement. The measured depths ranged from approximately 16 feet, 9 inches to 17 feet, 8 inches below the existing grade. Groundwater levels are anticipated to fluctuate as a result of precipitation and may be different than those observed during subsurface investigation. It should also be recognized that minor groundwater seepage problems might occur after development of a site even where none were present before development. These are usually minor phenomena and are often the result of an alteration in drainage patterns and/or an increase in irrigation water. It is further our opinion that these problems can be most effectively corrected on an individual basis if and when they occur." Report of Preliminary Geotechnical Investigation for Virginia Avenue Parking Structure prepared by Christian Wheeler Engineering (Pages 3, 4)

Project Name: Virginia Parking Structure

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Existing Natural Hydrologic Features (select all that apply):

☐ Watercourses
☐ Seeps
☐ Springs
☐ Wetlands
☒ None

Description / Additional Information:

Form I-3B Page 4 of 13

Description of Existing Site Topography and Drainage:

How is storm water runoff conveyed from the site? At a minimum, this description should answer:

1. Whether existing drainage conveyance is natural or urban;
2. If runoff from offsite is conveyed through the site? If yes, quantification of all offsite drainage areas, design flows, and locations where offsite flows enter the project site and summarize how such flows are conveyed through the site;
3. Provide details regarding existing project site drainage conveyance network, including storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, and natural and constructed channels;
4. Identify all discharge locations from the existing project along with a summary of the conveyance system size and capacity for each of the discharge locations. Provide summary of the pre-project

Description / Additional Information:

Runoff from the pre-developed project site sheet flows in southern direction and enters a storm drain system near the USA/Mexico border that discharges to the Tijuana River.

Currently four private 36-inch diameter reinforced concrete pipes (RCP) traverse through the middle of the site conveying water from an east-west oriented public channel to the east of Virginia Avenue to a recently constructed double 3’x8’ concrete box culvert on an adjacent property to the southwest which outlets to the Tijuana River.

Form I-3B Page 5 of 13

Description of Proposed Site Development and Drainage Patterns

Project Description / Proposed Land Use and/or Activities:

Runoff from the project site will be captured by a series of roof drains and trench drain systems that will direct runoff to proposed underground storage systems consisting of arch chambers. The open bottom arch chambers will temporary store runoff but will also allow runoff to infiltrate into the ground. These systems have been designed to not only comply with pollutant control requirements but also to comply with flow control requirements.

Runoff generated from larger storm events will overtop proposed weir structures that will be installed within proposed cleanouts at the end of each arch chambers system. Runoff will then be conveyed to proposed storm drain pipes that will be connected to the existing private 4-36" storm drain pipes located under the proposed building with modified cleanout systems. The modified clean out systems will consist of modified (poured base) SDS-107 sewer manholes used as storm drain cleanouts.

The existing private 4-36" pipes under the proposed building travel westerly and southerly and connect to a 3-foot high x 10-foot wide double box culvert that outlets to the Tijuana River.

List/describe proposed impervious features of the project (e.g., buildings, roadways, parking lots, courtyards, athletic courts, other impervious features):

Proposed impervious features will include the proposed building's roof, asphalt and concrete pavement.

List/describe proposed pervious features of the project (e.g., landscape areas):

Proposed pervious features will include a few landscape areas.

Does the project include grading and changes to site topography?

☐ Yes
☒ No

Description / Additional Information:

The proposed site includes the demolition of all existing site features and the construction of a multistory parking structure, with new hardscape and landscape features. Drainage patterns will not change.

Form I-3B Page 6 of 13

Does the project include changes to site drainage (e.g., installation of new storm water conveyance systems)?

☒ Yes
☐ No

If yes, provide details regarding the proposed project site drainage conveyance network, including storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, natural and constructed channels, and the method for conveying offsite flows through or around the proposed project site. Identify all discharge locations from the proposed project site along with a summary of the conveyance system size and capacity for each of the discharge locations. Provide a summary of pre and post-project drainage areas and design flows to each of the runoff discharge locations. Reference the drainage study for detailed calculations.

Description / Additional Information:

Runoff from the project site will be captured by a series of roof drains and trench drain systems that will direct runoff to proposed underground storage systems consisting of arch chambers. The open bottom arch chambers will temporary store runoff but will also allow runoff to infiltrate into the ground. These systems have been designed to not only comply with pollutant control requirements but also to comply with flow control requirements.

Runoff generated from larger storm events will overtop proposed weir structures that will be installed within proposed cleanouts at the end of each arch chambers system. Runoff will then be conveyed to proposed storm drain pipes that will be connected to the existing private 4-36” storm drain pipes located under the proposed building with a modified cleanout systems. The modified clean out systems will consist of modified (poured base) SDS-107 sewer manholes used as storm drain cleanouts.

The existing private 4-36” pipes under the proposed building travel westerly and southerly and connect to a 3-foot high x 10-foot wide double box culvert that outlets to the Tijuana River.

Project Name: Virginia Parking Structure

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Identify whether any of the following features, activities, and/or pollutant source areas will be present (select all that apply):

☒ On-site storm drain inlets
☒ Interior floor drains and elevator shaft sump pumps
☐ Interior parking garages
☐ Need for future indoor & structural pest control
☒ Landscape/Outdoor Pesticide Use
☐ Pools, spas, ponds, decorative fountains, and other water features
☐ Food service
☐ Refuse areas
☐ Industrial processes
☐ Outdoor storage of equipment or materials
☐ Vehicle and Equipment Cleaning
☐ Vehicle/Equipment Repair and Maintenance
☐ Fuel Dispensing Areas
☐ Loading Docks
☒ Fire Sprinkler Test Water
☐ Miscellaneous Drain or Wash Water
☒ Plazas, sidewalks, and parking lots
☐ Large Trash Generating Facilities
☐ Animal Facilities
☐ Plant Nurseries and Garden Centers
☒ Automotive-related Uses

Description / Additional Information:

The project proposes the construction of a multistory parking structure, with new associated hardscape and landscape features. Proposed utilities will also be constructed as part of the project.

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Identification and Narrative of Receiving Water

Narrative describing flow path from discharge location(s), through urban storm conveyance system, to receiving creeks, rivers, and lagoons and ultimate discharge location to Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable)

Treated storm water from the project site will be conveyed to a pipe that will be connected to the existing private 4-36" pipe located under the proposed building with a modified cleanout system which will consist of sewer manholes used as storm drain cleanouts.

The existing private 4-36" pipes under the proposed building travel westerly and southerly and connect to a 3-foot high x 10-foot wide double box culvert that outlets to the Tijuana River. The Tijuana River discharges into the Pacific Ocean. (Distance from project site: ~6.3 miles)

Provide a summary of all beneficial uses of receiving waters downstream of the project discharge locations.

Beneficial Uses for Coastal Waters (Tijuana River Estuary)

Hydrologic Unit Number	REC 1	REC 2	BIOL	COMM	EST	WILD	RARE	MAR	MIGR	SPWN	SHELL
911.11	X	X	X	X	X	X	X	X	X	X	X

X Existing Beneficial Use

Beneficial Uses for Ground Waters (San Ysidro Hydrologic Sub-area 911.11 and Water Tanks Hydrologic Sub-area 911.12)

Hydrologic Sub-Area Number	MUN	AGR	IND
911.11	X	X	X
911.11	O	O	O

X Existing Beneficial Use
o Potential Beneficial Use

Project Name: Virginia Parking Structure

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Identify all ASBS (areas of special biological significance) receiving waters downstream of the project discharge locations. Not applicable
Provide distance from project outfall location to impaired or sensitive receiving waters. Not applicable
Summarize information regarding the proximity of the permanent, post-construction storm water BMPs to the City's Multi-Habitat Planning Area and environmentally sensitive lands. Not applicable

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Identification of Receiving Water Pollutants of Concern

List any 303(d) impaired water bodies within the path of storm water from the project site to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable), identify the pollutant(s)/stressor(s) causing impairment, and identify any TMDLs and/or Highest Priority Pollutants from the WQIP for the impaired water bodies:

303(d) Impaired Water Body	Pollutant(s)/Stressor(s)	TMDLs/ WQIP Highest Priority Pollutant
Pacific Shoreline at the Tijuana Hydrologic Unit at the mouth of Tijuana River	Enterococcus bacteria, fecal coliform and total coliform	Sedimentation/Siltation (wet weather); and Turbidity (wet weather)

Identification of Project Site Pollutants*

*Identification of project site pollutants **is only required if flow-thru** treatment BMPs are implemented onsite in lieu of retention or biofiltration BMPs (note the project must also participate in an alternative compliance program unless prior lawful approval to meet earlier PDP requirements is demonstrated)

Identify pollutants anticipated from the project site based on all proposed use(s) of the site (see BMP Design Manual (Part 1 of Storm Water Standards) Appendix B.6):

Pollutant	Not Applicable to the Project Site	Anticipated from the Project Site	Also a Receiving Water Pollutant of Concern
Sediment			
Nutrients			
Heavy Metals			
Organic Compounds			
Trash & Debris			
Oxygen Demanding Substances			
Oil & Grease			
Bacteria & Viruses			
Pesticides			

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Hydromodification Management Requirements

Do hydromodification management requirements apply (see Section 1.6 of the BMP Design Manual)?

☒ Yes, hydromodification management flow control structural BMPs required.
☐ No, the project will discharge runoff directly to existing underground storm drains discharging directly to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.
☐ No, the project will discharge runoff directly to conveyance channels whose bed and bank are concrete- lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.
☐ No, the project will discharge runoff directly to an area identified as appropriate for an exemption by the WMAA for the watershed in which the project resides.

Description / Additional Information (to be provided if a 'No' answer has been selected above):

Runoff from the project site will be captured by a series of roof drains and trench drain systems that will direct runoff to proposed underground storage systems consisting of arch chambers to comply with pollutant control and hydromodification requirements. The open arch chamber systems will allow runoff to infiltrate into the ground. A project specific susceptibility study has been performed to show that the Tijuana River is a stream with low susceptibility to erosion. Therefore, the 0.5Q2 flow was used to size the proposed open bottom arch chamber systems.

Critical Coarse Sediment Yield Areas*
*This Section only required if hydromodification management requirements

Based on Section 6.2 and Appendix H does CCSYA exist on the project footprint or in the upstream area draining through the project footprint?

☐ Yes
☒ No

Discussion / Additional Information:

Per the Potential Critical Coarse Sediment Yield Area Map of the Watershed Management Area Analysis (WMAA), there are no CCSYAs located within or upstream of the project perimeter.

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Flow Control for Post-Project Runoff*
*This Section only required if hydromodification management requirements

List and describe point(s) of compliance (POCs) for flow control for hydromodification management (see Section 6.3.1). For each POC, provide a POC identification name or number correlating to the project's HMP Exhibit and a receiving channel identification name or number correlating to the project's HMP Exhibit.

DMA 100 & DMA 200:
Runoff from the rooftop will be captured by a series of roof drains that will convey runoff to a downspout that will be connected to a proposed storage system consisting of arch chambers. Runoff from northerly driveway, north and northeast walkways and landscaped areas of the site will be captured by proposed trench drain systems that will also be connected to the proposed arch chamber system. The open bottom arch chambers will temporary store runoff but will also allow runoff to infiltrate into the ground. These systems have been designed to not only comply with pollutant control requirements but also to comply with flow control requirements per the latest Storm Water Standards dated 2016. Runoff generated from larger storm events will be conveyed via a proposed storm drain pipe that will be connected to the existing private storm drain system (4x36” pipes) via modified cleanout systems. The modified cleanout systems will consist of modified (poured base) SDS-107 sewer manholes used as storm drain cleanouts.

DMA 300:
Runoff from the south and southeast property will be captured by a proposed trench drain system around the perimeter of the property and will drain to a proposed second storage system consisting of arch chambers. The open bottom arch chambers will temporary store runoff but will also allow runoff to infiltrate into the ground. These systems have been designed to not only comply with pollutant control requirements but also to comply with flow control requirements per the latest Storm Water Standards dated 2016. Runoff generated from larger storm events will be conveyed via a proposed storm drain pipe that will be connected to the existing private storm drain system (4x36” pipes) via modified cleanout systems. The modified cleanout systems will consist of modified (poured base) SDS-107 sewer manholes used as storm drain cleanouts.

Ultimate Point of Discharge:
The existing private 4x36” pipes travel westerly and southerly and connect to a 3-foot high x 10-foot wide double box culvert that outlets to the Tijuana River. The Tijuana River discharges into the Pacific Ocean.

Project Name: Virginia Parking Structure

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Has a geomorphic assessment been performed for the receiving channel(s)?

☐ No, the low flow threshold is 0.1Q2 (default low flow threshold)
☐ Yes, the result is the low flow threshold is 0.1Q2
☐ Yes, the result is the low flow threshold is 0.3Q2
☒ Yes, the result is the low flow threshold is 0.5Q2

If a geomorphic assessment has been performed, provide title, date, and preparer:

A project specific susceptibility study entitled '*Hydromodification Screening For the Virginia Avenue Parking Structure*', dated March 18, 2016 has been performed by Chang Consultants.
The Tijuana River is a stream with low susceptibility to erosion. Therefore, the 0.5Q2 flow was used to size the underground open bottom arch storage systems.

Discussion / Additional Information: (optional)

Other Site Requirements and Constraints

When applicable, list other site requirements or constraints that will influence storm water management design, such as zoning requirements including setbacks and open space, or local codes governing minimum street width, sidewalk construction, allowable pavement types, and drainage requirements.

Optional Additional Information or Continuation of Previous Sections As Needed

This space provided for additional information or continuation of information from previous sections as needed.

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Project Name: Virginia Parking Structure

FORM I-4: Source Control BMP Checklist for All Development Projects

Source Control BMP Checklist for All Development Projects	Form I-4		
Source Control BMPs			
All development projects must implement source control BMPs SC-1 through SC-6 where applicable and feasible. See Chapter 4 and Appendix E of the BMP Design Manual (Part 1 of the Storm Water Standards) for information to implement source control BMPs shown in this checklist. Answer each category below pursuant to the following. • "Yes" means the project will implement the source control BMP as described in Chapter 4 and/or Appendix E of the BMP Design Manual. Discussion / justification is not required. • "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion /justification must be provided. • ”N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project has no outdoor materials storage areas). Discussion / justification may be provided.			
Source Control Requirement	Applied?		
SC-1 Prevention of Illicit Discharges into the MS4	☒ Yes	☐ No	☐ N/A
Discussion / justification if SC-1 not implemented:			
SC-2 Storm Drain Stenciling or Signage	☒ Yes	☐ No	☐ N/A
Discussion / justification if SC-2 not implemented:			
SC-3 Protect Outdoor Materials Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐ Yes	☐ No	☒ N/A
Discussion / justification if SC-3 not implemented: No outdoor materials storage areas are proposed for this site.			
SC-4 Protect Materials Stored in Outdoor Work Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐ Yes	☐ No	☒ N/A
Discussion / justification if SC-4 not implemented: No materials will be stored in outdoor work areas.			
SC-5 Protect Trash Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☒ Yes	☐ No	☐ N/A
Discussion / justification if SC-5 not implemented:			

Form I-4 Page 2 of 2

Source Control Requirement	Applied?		
SC-6 Additional BMPs Based on Potential Sources of Runoff Pollutants (must answer for each source listed below)			
On-site storm drain inlets	☒Yes	☐No	☐N/A
Interior floor drains and elevator shaft sump pumps	☒Yes	☐No	☐N/A
Interior parking garages	☐Yes	☐No	☒N/A
Need for future indoor & structural pest control	☐Yes	☐No	☒N/A
Landscape/Outdoor Pesticide Use	☒Yes	☐No	☐N/A
Pools, spas, ponds, decorative fountains, and other water features	☐Yes	☐No	☒N/A
Food service	☐Yes	☐No	☒N/A
Refuse areas	☐Yes	☐No	☒N/A
Industrial processes	☐Yes	☐No	☒N/A
Outdoor storage of equipment or materials	☐Yes	☐No	☒N/A
Vehicle/Equipment Repair and Maintenance	☐Yes	☐No	☒N/A
Fuel Dispensing Areas	☐Yes	☐No	☒N/A
Loading Docks	☐Yes	☐No	☒N/A
Fire Sprinkler Test Water	☒Yes	☐No	☐N/A
Miscellaneous Drain or Wash Water	☐Yes	☐No	☒N/A
Plazas, sidewalks, and parking lots	☒Yes	☐No	☐N/A
SC-6A: Large Trash Generating Facilities	☐Yes	☐No	☒N/A
SC-6B: Animal Facilities	☐Yes	☐No	☒N/A
SC-6C: Plant Nurseries and Garden Centers	☐Yes	☐No	☒N/A
SC-6D: Automotive-related Uses	☐Yes	☐No	☒N/A
Discussion / justification if SC-6 not implemented. Clearly identify which sources of runoff pollutants are discussed. Justification must be provided for <u>all</u> "No" answers shown above.			

FORM I-5: Site Design BMP Checklist for All Development Projects

Site Design BMP Checklist for All Development Projects	Form I-5

Site Design BMPs

All development projects must implement site design BMPs SD-1 through SD-8 where applicable and feasible.

See Chapter 4 and Appendix E of the BMP Design Manual (Part 1 of Storm Water Standards) for information to implement site design BMPs shown in this checklist.

Answer each category below pursuant to the following.

- "Yes" means the project will implement the site design BMP as described in Chapter 4 and/or Appendix E of the BMP Design Manual. Discussion / justification is not required.
- "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided.
- "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project site has no existing natural areas to conserve). Discussion / justification may be provided.

A site map with implemented site design BMPs must be included at the end of this checklist.

Site Design Requirement	Applied?		
SD-1 Maintain Natural Drainage Pathways and Hydrologic Features	☐Yes	☐No	☒N/A
Discussion / justification if SD-1 not implemented: There are no existing natural drainage pathways or hydrologic features located within the project perimeter.			
1-1 Are existing natural drainage pathways and hydrologic features mapped on the site map?	☐Yes	☒No	
1-2 Are trees implemented? If yes, are they shown on the site map?	☐Yes	☒No	
1-3 Implemented trees meet the design criteria in SD-1 Fact Sheet (e.g. soil volume, maximum credit, etc.)?	☒Yes	☒No	
1-4 Is tree credit volume calculated using Appendix B.2.2.1 and SD-1 Fact Sheet in Appendix E?	☐ Yes	☒No	
SD-2 Have natural areas, soils and vegetation been conserved?	☐Yes	☐No	☒N/A
Discussion / justification if SD-2 not implemented: There are no natural areas/soils located within the project perimeter.			

Form I-5 Page 2 of 4

Site Design Requirement	Applied?		
SD-3 Minimize Impervious Area	☒Yes	☐No	☐N/A
Discussion / justification if SD-3 not implemented:			
SD-4 Minimize Soil Compaction	☒Yes	☐No	☐N/A
Discussion / justification if SD-4 not implemented:			
SD-5 Impervious Area Dispersion	☐Yes	☒No	☐N/A
Discussion / justification if SD-5 not implemented: The project consists of the construction of a multi-story parking structure. The proposed footprint and the size of the project does not leave much space for impervious area dispersion.			
5-1 Is the pervious area receiving runon from impervious area identified on the site map?	☐Yes	☒No	
5-2 Does the pervious area satisfy the design criteria in SD-5 Fact Sheet in Appendix E (e.g. maximum slope, minimum length, etc.)	☐Yes	☒No	
5-3 Is impervious area dispersion credit volume calculated using Appendix B.2.1.1 and SD-5 Fact Sheet in Appendix E?	☐Yes	☒No	

Form I-5 Page 3 of 4			
Site Design Requirement	Applied?		
SD-6 Runoff Collection	☐Yes	☒No	☐N/A
Discussion / justification if SD-6 not implemented: A green roof was not considered for this project, since the upper deck will be used as a parking lot. Permeable pavement was not incorporated into the design because of known ‘chewing gum problems’.			
6a-1 Are green roofs implemented in accordance with design criteria in SD-6A Fact Sheet? If yes, are they shown on the site map?	☐Yes	☒No	
6a-2 Is green roof credit volume calculated using Appendix B.2.1.2 and SD-6A Fact Sheet in Appendix E?	☐Yes	☒No	
6b-1 Are permeable pavements implemented in accordance with design criteria in SD-6B Fact Sheet? If yes, are they shown on the site map?	☐Yes	☒No	
6b-2 Is permeable pavement credit volume calculated using Appendix B.2.1.3 and SD-6B Fact Sheet in Appendix E?	☐Yes	☒No	
SD-7 Landscaping with Native or Drought Tolerant Species	☒Yes	☐No	☐N/A
Discussion / justification if SD-7 not implemented:			
SD-8 Harvesting and Using Precipitation	☐Yes	☒No	☐N/A
Discussion / justification if SD-8 not implemented: Rain barrels have not been incorporated into the design.			
8-1 Are rain barrels implemented in accordance with design criteria in SD-8 Fact Sheet? If yes, are they shown on the site map?	☐Yes	☒No	
8-2 Is rain barrel credit volume calculated using Appendix B.2.2.2 and SD-8 Fact Sheet in Appendix E?	☐Yes	☒No	

Form I-5 Page 4 of 4

Insert Site Map with all site design BMPs identified:

See Attachment 1a for Storm Water Treatment and Hydromodification Exhibits.

FORM I-6: Summary of PDP Structural BMPs

Summary of PDP Structural BMPs	Form I-6
PDP Structural BMPs	
All PDPs must implement structural BMPs for storm water pollutant control (see Chapter 5 of the BMP Design Manual, Part 1 of Storm Water Standards). Selection of PDP structural BMPs for storm water pollutant control must be based on the selection process described in Chapter 5. PDPs subject to hydromodification management requirements must also implement structural BMPs for flow control for hydromodification management (see Chapter 6 of the BMP Design Manual). Both storm water pollutant control and flow control for hydromodification management can be achieved within the same structural BMP(s). PDP structural BMPs must be verified by the City at the completion of construction. This includes requiring the project owner or project owner's representative to certify construction of the structural BMPs (complete Form DS-563). PDP structural BMPs must be maintained into perpetuity (see Chapter 7 of the BMP Design Manual). Use this form to provide narrative description of the general strategy for structural BMP implementation at the project site in the box below. Then complete the PDP structural BMP summary information sheet (page 3 of this form) for each structural BMP within the project (copy the BMP summary information page as many times as needed to provide summary information for each individual structural BMP).	

Form I-6 Page 2

PDP Structural BMPs

Describe the general strategy for structural BMP implementation at the site. This information must describe how the steps for selecting and designing storm water pollutant control BMPs presented in Section 5.1 of the BMP Design Manual were followed, and the results (type of BMPs selected). For projects requiring hydromodification flow control BMPs, indicate whether pollutant control and flow control BMPs are integrated or separate.

For treatment of the anticipated and potential pollutants generated from the proposed project the structural BMPs proposed for this project are a Self-Treating Area and two open bottom arch chamber systems that were designed to comply with pollutant control and flow control requirements.

DMA 100 & DMA 200:
Runoff from the rooftop will be captured by a series of roof drains that will convey runoff to a downspout that will be connected to a proposed storage system consisting of arch chambers. Runoff from northerly driveway, north and northeast walkways and landscaped areas of the site will be captured by proposed trench drain systems that will also be connected to the proposed arch chamber system. The open bottom arch chambers will temporary store runoff but will also allow runoff to infiltrate into the ground. These systems have been designed to not only comply with pollutant control requirements but also to comply with flow control requirements per the latest Storm Water Standards dated 2016. Runoff generated from larger storm events will be conveyed via a proposed storm drain pipe that will be connected to the existing private storm drain system (4x36" pipes) via modified cleanout systems. The modified cleanout systems will consist of a modified (poured base) SDS-107 sewer manholes used as storm drain cleanouts.

DMA 300:
Runoff from the south and southeast property will be captured by a proposed trench drain system around the perimeter of the property and will drain to a proposed second storage system consisting of arch chambers. The open bottom arch chambers will temporary store runoff but will also allow runoff to infiltrate into the ground. These systems have been designed to not only comply with pollutant control requirements but also to comply with flow control requirements per the latest Storm Water Standards dated 2016. Runoff generated from larger storm events will be conveyed via a proposed storm drain pipe that will be connected to the existing private storm drain system (4x36" pipes) via modified cleanout systems. The modified cleanout systems will consist of modified (poured base) SDS-107 sewer manholes used as storm drain cleanouts.

Ultimate Point of Discharge:
The existing private 4x36" pipes travel westerly and southerly and connect to a 3-foot high x 10-foot wide double box culvert that outlets to the Tijuana River. The Tijuana River discharges into the Pacific Ocean.

Form I-6 Page 3

Structural BMP Summary Information

Structural BMP ID No.: Open Bottom Storage Chamber System IMP 'A'

Construction Plan Sheet No. Storm Water Treatment & Hydromodification Exhibit – Sheet 1 and 2

Type of structural BMP:

☐ Retention by harvest and use (HU-1)

☒ Retention by infiltration basin (INF-1)

☐ Retention by bioretention (INF-2)

☐ Retention by permeable pavement (INF-3)

☐ Partial retention by biofiltration with partial retention (PR-1)

☐ Biofiltration (BF-1)

☐ Proprietary Biofiltration Systems (BF-3)

☐ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below)

☐ Flow-thru treatment control included as pre-treatment/ forebay for an onsite retention or biofiltration BMP (provide BMP type/ description and indicate which onsite retention or biofiltration BMP it serves in discussion section below)

☐ Flow-thru treatment control with alternative compliance (provide BMP type/ description)

☐ Detention pond or vault for hydromodification management

☐ Other

Purpose:

☐ Pollutant Control only

☐ Hydromodification control only

☒ Combined pollutant control and hydromodification control

☐ Pre-treatment/ forebay for another structural BMP

☐ Other (descrive in discussion below)

Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification form DS-563	Stuart Peace, CRE 27232 Stuart Engineering, Peace Engineering, Inc., A California Corporation 7525 Metropolitan Drive Suite 308 San Diego, CA 92108 (619) 296-1010 Ext 12 (619) 296-9276 FAX speace@stuartengineering.com
Who will be the final owner of this BMP?	Fred Sobke Baja-Mex Insurance Services 4575 Camino De La Plaza San Ysidro, CA. 92173 (619) 428-1616
Who will maintain this BMP into perpetuity?	Fred Sobke Baja-Mex Insurance Services 4575 Camino De La Plaza San Ysidro, CA. 92173 (619) 428-1616
What is the funding mechanism for maintenance?	TBD

Form I-6 Page 3

Structural BMP Summary Information

Structural BMP ID No.: Open Bottom Storage Chamber System IMP ‘B’

Construction Plan Sheet No. Storm Water Treatment & Hydromodification Exhibit – Sheet 1 and 2

Type of structural BMP:

☐ Retention by harvest and use (HU-1)

☒ Retention by infiltration basin (INF-1)

☐ Retention by bioretention (INF-2)

☐ Retention by permeable pavement (INF-3)

☐ Partial retention by biofiltration with partial retention (PR-1)

☐ Biofiltration (BF-1)

☐ Proprietary Biofiltration Systems (BF-3)

☐ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below)

☐ Flow-thru treatment control included as pre-treatment/ forebay for an onsite retention or biofiltration BMP (provide BMP type/ description and indicate which onsite retention or biofiltration BMP it serves in discussion section below)

☐ Flow-thru treatment control with alternative compliance (provide BMP type/ description)

☐ Detention pond or vault for hydromodification management

☐ Other

Purpose:

☐ Pollutant Control only

☐ Hydromodification control only

☒ Combined pollutant control and hydromodification control

☐ Pre-treatment/ forebay for another structural BMP

☐ Other (descrive in discussion below)

Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification form DS-563	Stuart Peace, CRE 27232 Stuart Engineering, Peace Engineering, Inc., A California Corporation 7525 Metropolitan Drive Suite 308 San Diego, CA 92108 (619) 296-1010 Ext 12 (619) 296-9276 FAX speace@stuartengineering.com
Who will be the final owner of this BMP?	Fred Sobke Baja-Mex Insurance Services 4575 Camino De La Plaza San Ysidro, CA. 92173 (619) 428-1616
Who will maintain this BMP into perpetuity?	Fred Sobke Baja-Mex Insurance Services 4575 Camino De La Plaza San Ysidro, CA. 92173 (619) 428-1616
What is the funding mechanism for maintenance?	TBD

Form I-6 Page 4 of 4
Structural BMP ID No.: IMP ‘A’, IMP ‘B’
Construction Plan Sheet No.: Storm Water Treatment & Hydromodification Exhibit – Sheet 1 and 2
Discussion (as needed): Proposed arch chamber systems as described in previous sections of this report.

FORM DS-563: Permanent BMP Construction, Self-Certification Form

The City of San Diego

City of San Diego
Development Services
1222 First Ave., MS-501
San Diego, CA 92101
(619) 236-5500

Permanent BMP Construction

Self Certification Form

FORM
DS-563
February 2013

Date Prepared:	Project No.:
Project Applicant:	Phone:
Project Address:	
Project Engineer:	Phone:

The purpose of this form is to verify that the site improvements for the project, identified above, have been constructed in conformance with the approved Standard Urban Storm Water Mitigation Plan (SUSMP) documents and drawings.

This form must be completed by the engineer and submitted prior to final inspection of the construction permit. Completion and submittal of this form is required for all new development and redevelopment projects in order to comply with the City's Storm Water ordinances and NDPES Permit Order No. R9-2007-0001. Final inspection for occupancy and/or release of grading or public improvement bonds may be delayed if this form is not submitted and approved by the City of San Diego.

CERTIFICATION:
As the professional in responsible charge for the design of the above project, I certify that I have inspected all constructed Low Impact Development (LID) site design, source control and treatment control BMP's required per the approved SUSMP and Construction Permit No. ______________________; and that said BMP's have been constructed in compliance with the approved plans and all applicable specifications, permits, ordinances and Order No. R9-2007-0001 of the San Diego Regional Water Quality Control Board.

I understand that this BMP certification statement does not constitute an operation and maintenance verification.

Signature: ____

Date of Signature: _________________________________

Printed Name: ____________________________________

Title: ____

Phone No. ____

Clear Form

Engineer's Stamp

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ATTACHMENT 1: BACKUP FOR PDP POLLUTANT CONTROL BMPS

This is the cover sheet for Attachment 1.

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Project Name: Virginia Parking Structure

Attachment Sequence	Contents	Checklist
Attachment 1a	DMA Exhibit (Required) See DMA Exhibit Checklist.	☒ Included
Attachment 1b	Tabular Summary of DMAs Showing DMA ID matching DMA Exhibit, DMA Area, and DMA Type (Required)* *Provide table in this Attachment OR on DMA Exhibit in Attachment 1a	☒ Included on DMA Exhibit in Attachment 1a ☐ Included as Attachment 1b, separate from DMA Exhibit
Attachment 1c	Form I-7, Harvest and Use Feasibility Screening Checklist (Required unless the entire project will use infiltration BMPs) Refer to Appendix B.3-1 of the BMP Design Manual to complete Form I-7.	☒ Included ☐ Not included because the entire project will use infiltration BMPs
Attachment 1d	Form I-8, Categorization of Infiltration Feasibility Condition (Required unless the project will use harvest and use BMPs) Refer to Appendices C and D of the BMP Design Manual to complete Form I-8.	☒ Included ☐ Not included because the entire project will use harvest and use BMPs
Attachment 1e	Pollutant Control BMP Design Worksheets / Calculations (Required) Refer to Appendices B and E of the BMP Design Manual for structural pollutant control BMP design guidelines and site design credit calculations	☒ Included

Indicate which Items are Included:

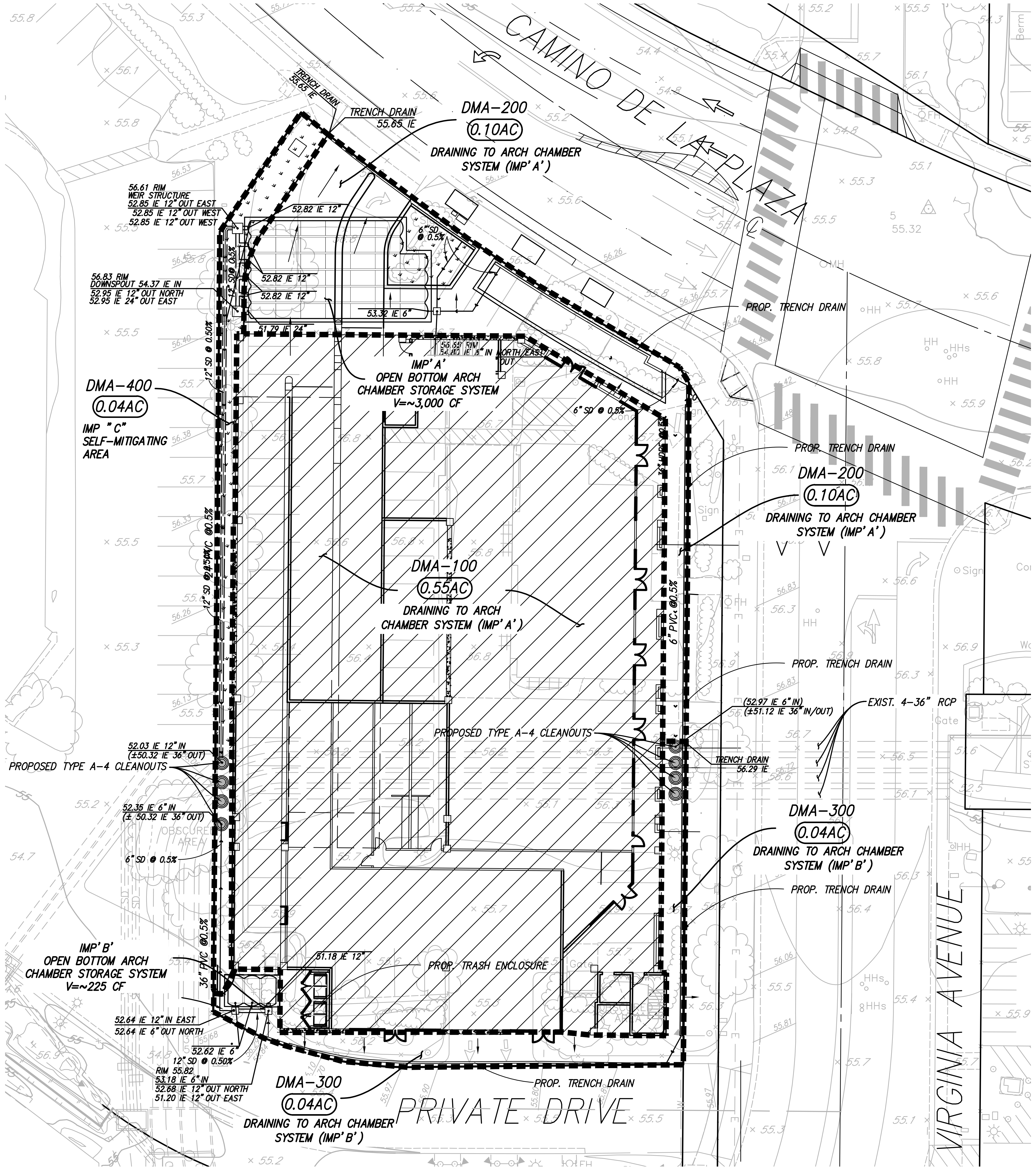
Attachment 1a: DMA Exhibit

Use this checklist to ensure the required information has been included on the DMA Exhibit:

The DMA Exhibit must identify:

☒ Underlying hydrologic soil group
☒ Approximate depth to groundwater
☒ Existing natural hydrologic features (watercourses, seeps, springs, wetlands)
☒ Critical coarse sediment yield areas to be protected
☒ Existing topography and impervious areas
☒ Existing and proposed site drainage network and connections to drainage offsite
☒ Proposed grading
☒ Proposed impervious features
☐ Proposed design features and surface treatments used to minimize imperviousness
☒ Drainage management area (DMA) boundaries, DMA ID numbers, and DMA areas (square footage or acreage), and DMA type (i.e., drains to BMP, self-retaining, or self-mitigating)
☐ Potential pollutant source areas and corresponding required source controls (see Chapter 4, Appendix E.1, and Form I-3B)
☐ Structural BMPs (identify location, type of BMP, and size/detail)

VIRGINIA AVENUE PARKING STRUCTURE
STORM WATER TREATMENT &
HYDROMODIFICATION EXHIBIT



FLOW CONTROL:

Site Information			
Project Name	Virginia Avenue Parking Structure	Hydrologic Unit	911.11
Project Applicant:	Stuart Engineering	Rain Gauge	Lindbergh
Jurisdiction:	City of San Diego	Total Project Area:	31,611
Assessor's Parcel Number:	666-400-10	Low Flow Threshold:	0.5Q2
BMP Name:	IMP 'A', IMP 'B'	BMP Type:	Open Bottom Arch Chambers

05Q2 - INFILTRATION SYSTEM - OPEN BOTTOM ARCH CHAMBERS

Areas Draining to BMP						Sizing Factors			Minimum BMP Size		
DMA Name	Area (sf)	Soil Type	Slope	Post Project Surface Type	Runoff Factor (From Table G.2-1)	Surface Area, A	Surface Volume, V1	Subsurface Volume, V2	Surface Area (sf)	Surface Volume (cf)	Subsurface Volume (cf)
100	23,862	A	Flat	Roof	1.00	0.040	0.104	N/A	954	2,482	N/A
200	4,381	A	Flat	AC Pvmt, Concrete Pvmt	0.91	0.040	0.104	N/A	160	415	N/A
Total DMA Area	28,243							Minimum BMP Size*	1,114	2,896	N/A
								Proposed BMP Size*	1,480	3,000	N/A

*Minimum BMP Size = Total of rows above.
*Proposed BMP Size > Minimum BMP size.

05Q2 - INFILTRATION SYSTEM - OPEN BOTTOM ARCH CHAMBERS

Areas Draining to BMP						Sizing Factors			Minimum BMP Size		
DMA Name	Area (sf)	Soil Type	Slope	Post Project Surface Type	Runoff Factor (From Table G.2-1)	Surface Area, A	Surface Volume, V1	Subsurface Volume, V2	Surface Area (sf)	Surface Volume (cf)	Subsurface Volume (cf)
300	1,842	A	Flat	Concrete Pvmt	1.00	0.040	0.104	N/A	74	192	N/A
Total DMA Area	1,842							Minimum BMP Size*	74	192	N/A
								Proposed BMP Size*	145	225	N/A

*Minimum BMP Size = Total of rows above.
*Proposed BMP Size > Minimum BMP size.

ADDITIONAL CALCULATIONS:

Summary OF DMAs, Various Runoff Coefficients & Design Capture Volume Calculations
Virginia Avenue Parking Structure

DMA #	Surface Type	Slope	Area [sf]	Area [ac]	Pervious [sf]	Runoff Factor Treatment Control for Pervious Areas	Runoff Factor HMP for Pervious Areas	Impervious [sf]	Runoff Factor Treatment Control for Impervious Areas	Runoff Factor HMP for Impervious Areas	Weighted Runoff Factor, C DCV	Weighted Runoff Factor, C HMP	85th Percentile, 24-hr Storm Event Rainfall Depth, d [in]	Design Capture Volume, DCV [cf]
100	Roof	Flat	23,862	0.55	0	0.10	0.10	23,862	0.90	1.00	0.90	1.00	0.46	823
200	AC Pvmt, Concrete Pvmt, Landscape	Flat	4,381	0.10	437	0.10	0.10	3,944	0.90	1.00	0.82	0.91	0.46	138
300	Concrete Pvmt	Flat	1,842	0.04	0	0.10	0.10	1,842	0.90	1.00	0.90	1.00	0.46	64
400	Landscape, Concrete Pvmt	Flat	1,527	0.04	1,527	0.10	0.10	0	0.90	1.00	0.10	0.10	0.46	6
	Total		**31,611**	**0.73**	**1,964**			**29,648**						**1,030**

PROJECT INFORMATION:

PROJECT NAME: VIRGINIA PARKING STRUCTURE
PROJECT ADDRESS: 4575 CAMINO DE LA PLAZA
SAN YSIDRO, CA 92117
PROJECT SIZE: 0.73 ACRES
PROJECT PRIORITY: PRIORITY DEVELOPMENT PROJECT (PDP)
LOW PRIORITY
OFFSITE RUN-ON: N/A
SUBJECT TO HMP REQUIREMENTS: YES
STREAM SUSCEPTIBILITY: LOW -> 0.5Q2
AVAILABLE CHANNEL SCREENING REPORT: YES
UNDERLYING HYDROLOGIC SOIL GROUP: SOIL TYPE 'A'
DEPTH TO GROUNDWATER: ~16 FT-17 FT
EXISTING NATURAL HYDROLOGIC FEATURES: N/A
CRITICAL COARSE SEDIMENT YIELD AREAS: N/A

LEGEND:

DRAINAGE MANAGEMENT BOUNDARY	- - - - - -
DRAINAGE BASIN AREA	0.46AC
DRAINAGE BASIN DESIGNATOR	DMA-100
LANDSCAPED AREA	⠿
BUILDING ROOF AREA	▨
DIRECTION OF FLOW	→ →
OPEN BOTTOM UNDERGROUND ARCH CHAMBER SYSTEM IMP'A' STORAGE VOLUME:~3,000 CF IMP'B' STORAGE VOLUME:~225 CF	▭
STORM DRAIN	—SD—
IMP'C' SELF-RETAINING AREA (DMA 400)	⠿

SOURCE CONTROL BMPS

SC-1 PREVENT ILLICIT DISCHARGE INTO MS4
SC-2 STORM DRAIN STENCILING OR SIGNAGE
SC-5 TRASH STORAGE AREAS
SC-34 WASTE HANDLING & DISPOSAL
SC-41 BUILDING & GROUNDS MAINTENANCE
SC-43 PARKING AREA MAINTENANCE
SC-44 DRAINAGE SYSTEM MAINTENANCE

SITE DESIGN BMPS

SD-3 MINIMIZE IMPERVIOUS AREAS
SD-4 MINIMIZE SOIL COMPACTION
SD-6 COLLECT RUNOFF
SD-7 LANDSCAPE WITH NATIVE OR DROUGHT TOLERANT SPECIES
SD-12 EFFICIENT IRRIGATION

ADDITIONAL PROJECT INFORMATION:

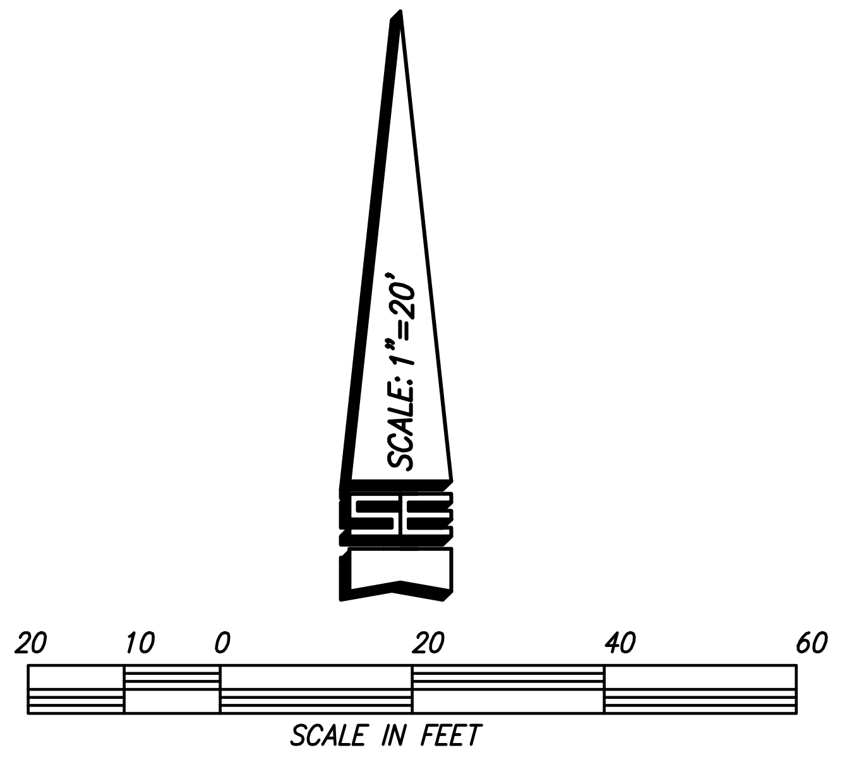
SLOPE: FLAT
RAIN GAUGE: LINDBERGH
STREAM SUSCEPTIBILITY: LOW -> 0.5Q2
PER HYDROMODIFICATION SCREENING PREPARED BY CHANG CONSULTANTS, DATED MARCH 18, 2016

POLLUTANT CONTROL:

Self-mitigating DMA(s)

DMA Name	IMP Name	Basin Area (acre)	Basin Percent Pervious (%)	Minimum Percent Pervious (%)
400	IMP 'C'	0.04	100%	95

Self-mitigating DMAs consist of natural or landscaped areas that drain directly offsite or to the public storm drain system.



SHEET 1 OF 2

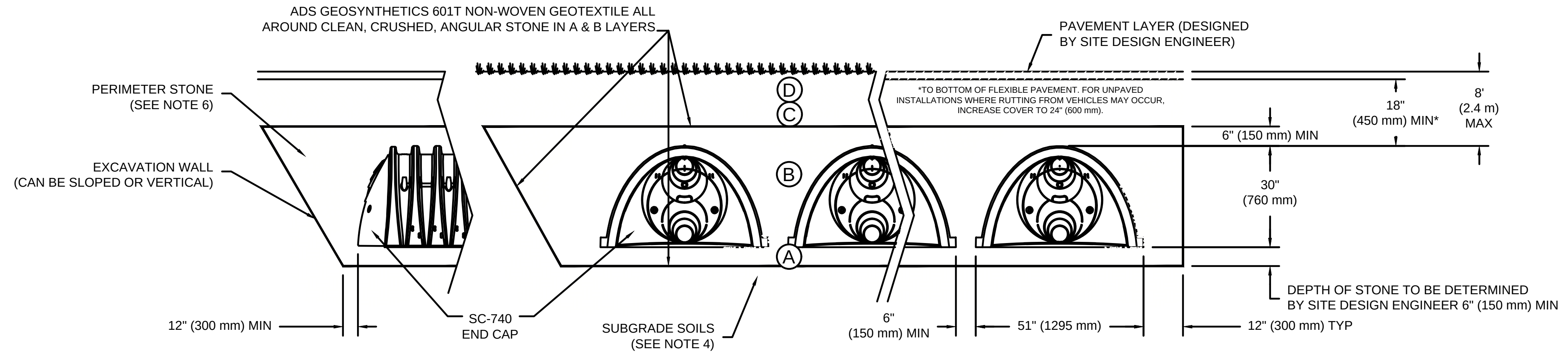
VIRGINIA AVENUE PARKING STRUCTURE
STORM WATER TREATMENT &
HYDROMODIFICATION EXHIBIT

7-18-2016
5-5-2016
3-18-2016

STUART ENGINEERING
7525 METROPOLITAN DRIVE STE. 308
SAN DIEGO, CA 92108 (619) 296-1010
FAX (619) 296-9276 EMAIL: SE@stuartengineering.com

DESIGNER: SG
DRAWN: SG
DATE: 1-21-15
JOB NO.: 1295-13-00

VIRGINIA AVENUE PARKING STRUCTURE STORM WATER TREATMENT & HYDROMODIFICATION EXHIBIT



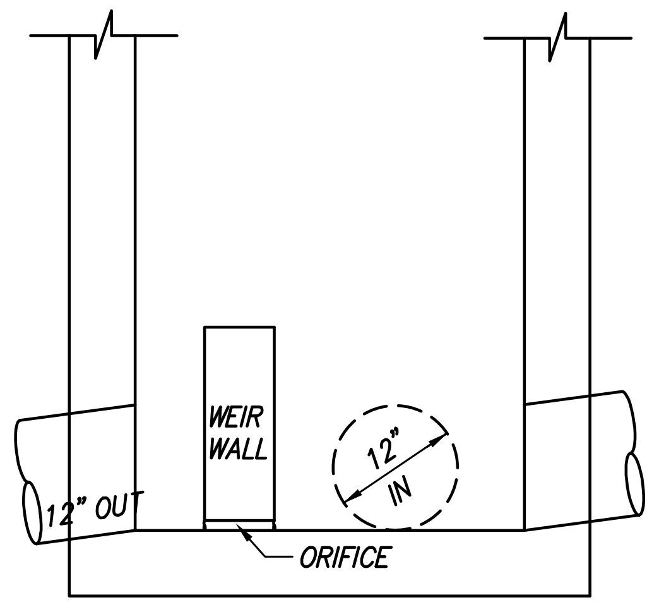
NOTES:

1. SC-740 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS", OR ASTM F2922 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
4. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
5. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
6. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

OPEN BOTTOM STORM CHAMBER SYSTEM FOR IMP 'A' AND IMP 'B'

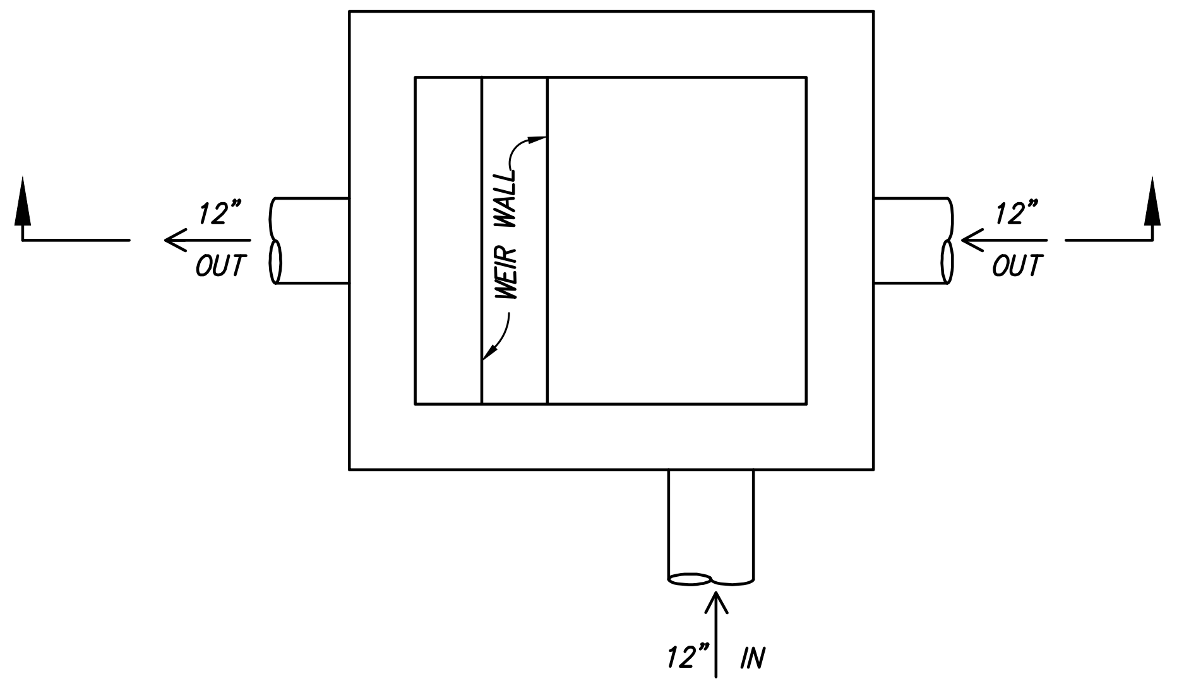
Open Bottom Arch Chamber System - Storage Calculations

DMA	Minimum Required Flow Control Surface Volume [cf]	Open Bottom Arch Chamber System Model	Open Bottom Arch Chamber Module Dimensions (L x W x H)	Installed Storage per Open Bottom Arch Chamber Module [cf]	Total # of Proposed Open Bottom Arch Chambers Modules	Total Provided Storage [cf]	Provided Storage Volume > Required Storage Volume?
DMA 100 & DMA 200	2,896	StormTech SC-740 Chamber	85.4" x 51.0" x 30.0"	74.9	40	2,996	YES
DMA 300	192	StormTech SC-740 Chamber	85.4" x 51.0" x 30.0"	74.9	3	225	YES



MODIFIED CLEAN OUT SECTION

NO SCALE



MODIFIED CLEANOUT/DIVERSION STRUCTURE

NO SCALE

SIMPLE SIZING METHOD

DMA 100, DMA 200

Worksheet B.4-1: Simple Sizing Method for Infiltration BMPs

Simple Sizing Method for Infiltration BMPs		Worksheet B.4-1		
1	DCV (Worksheet B-2.1)	DCV=	961	cubic-feet
2	Estimated design infiltration rate (Worksheet D.5-1)	K_{design}=	2.60	in/hr
3	Available BMP surface area	A_{BMP}=	1,485	sq-ft
4	Average effective depth in the BMP footprint (DCV/A_{BMP})	D_{avg}=	0.65	feet
5	Drawdown time, T (D_{avg} *12/K_{design})	T=	3.0	hours
5a	Drawdown time, T < 36 hours?		YES	☐ Yes ☐ No
6	Provide alternative calculation of drawdown time, if needed: The area of the proposed open bottom chamber storage system accounts for approximately 1,485 sf.			

Notes: Drawdown time must be less than 36 hours. This criterion was set to achieve average annual capture of 80% to account for back to back storms (See rationale in Section B.4.3). In order to use a different drawdown time, BMPs should be sized using the percent capture method (Section B.4.2). The average effective depth calculation should account for any aggregate/media in the BMP. For example, 4 feet of stone at a porosity of 0.4 would equate to 1.6 feet of effective depth.

This method may overestimate drawdown time for BMPs that drain through both the bottom and walls of the system. BMP specific calculations of drawdown time may be provided that account for BMP-specific geometry.

DMA 300

Worksheet B.4-1: Simple Sizing Method for Infiltration BMPs

Simple Sizing Method for Infiltration BMPs		Worksheet B.4-1		
1	DCV (Worksheet B-2.1)	DCV=	64	cubic-feet
2	Estimated design infiltration rate (Worksheet D.5-1)	K_{design}=	4.51	in/hr
3	Available BMP surface area	A_{BMP}=	50	sq-ft
4	Average effective depth in the BMP footprint (DCV/A_{BMP})	D_{avg}=	1.27	feet
5	Drawdown time, T (D_{avg} *12/K_{design})	T=	3.4	hours
5a	Drawdown time, T < 36 hours?		YES	☐ Yes ☐ No
6	Provide alternative calculation of drawdown time, if needed: The area of the proposed open bottom chamber storage system accounts for approximately 50 sf.			

Notes: Drawdown time must be less than 36 hours. This criterion was set to achieve average annual capture of 80% to account for back to back storms (See rationale in Section B.4.3). In order to use a different drawdown time, BMPs should be sized using the percent capture method (Section B.4.2). The average effective depth calculation should account for any aggregate/media in the BMP. For example, 4 feet of stone at a porosity of 0.4 would equate to 1.6 feet of effective depth.

This method may overestimate drawdown time for BMPs that drain through both the bottom and walls of the system. BMP specific calculations of drawdown time may be provided that account for BMP-specific geometry.

DESIGN CAPTURE VOLUME (DCV)

DMA 100, DMA 200

Worksheet B.2-1: DCV

	Design Capture Volume for DMA 400	Worksheet B.2-1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.46	inches
2	Area tributary to BMP (s)	A=	0.65	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.89	unitless
4	Trees Credit Volume	TCV=	0	cubic-feet
5	Rain barrels Credit Volume	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	961	cubic-feet

DMA 300

Worksheet B.2-1: DCV

	Design Capture Volume for DMA 300	Worksheet B.2-1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.46	inches
2	Area tributary to BMP (s)	A=	0.04	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.90	unitless
4	Trees Credit Volume	TCV=	0	cubic-feet
5	Rain barrels Credit Volume	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	64	cubic-feet

SHEET 2 OF 2

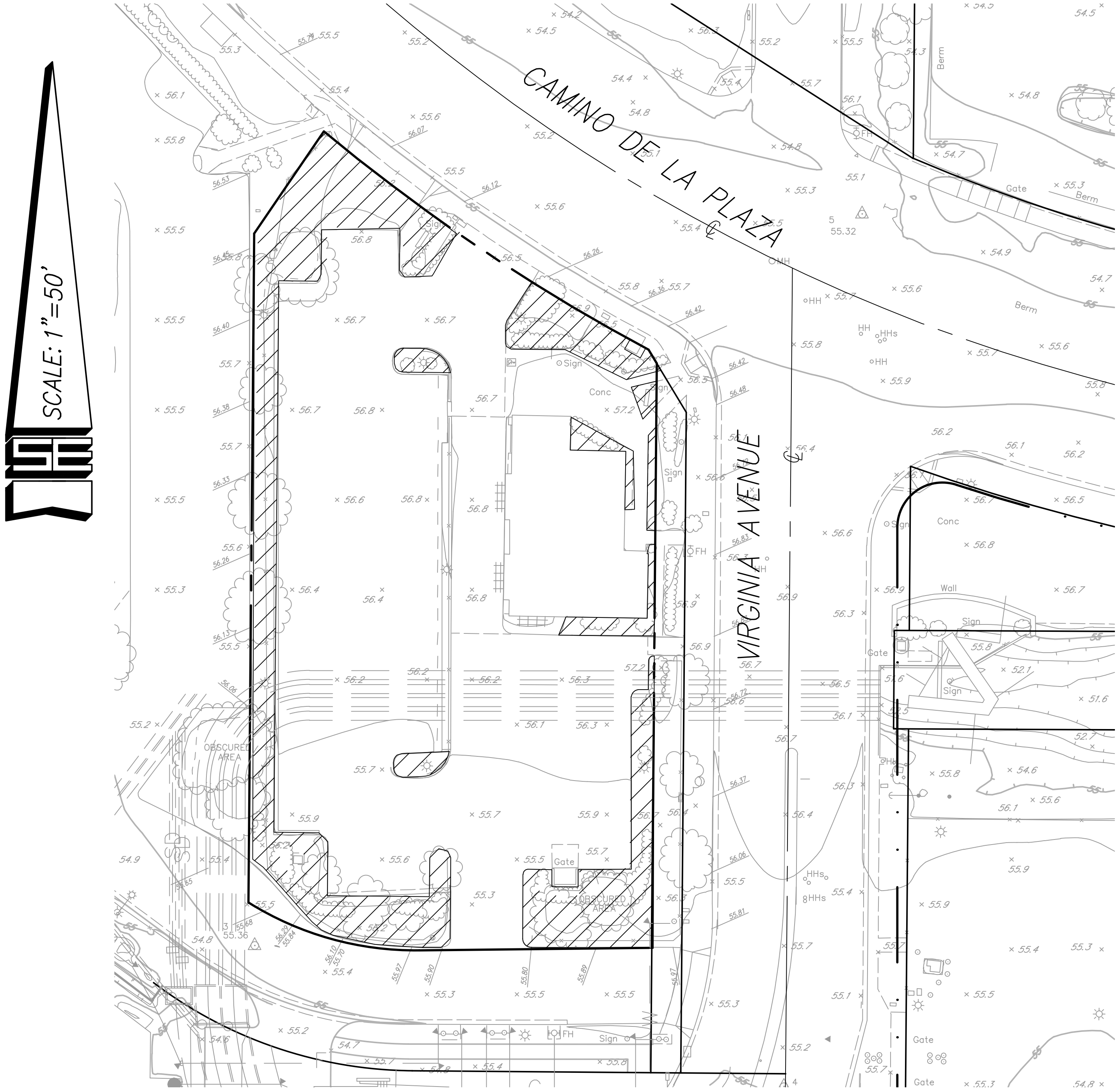
VIRGINIA AVENUE PARKING STRUCTURE
STORM WATER TREATMENT &
HYDROMODIFICATION EXHIBIT

7-18-2016
5-5-2016
3-18-2016

STUART ENGINEERING
7525 METROPOLITAN DRIVE STE. 308
SAN DIEGO, CA 92108 (619) 296-1010
FAX (619) 296-9276 EMAIL: SE@stuartengineering.com

DESIGNER: SG
DRAWN: SG
DATE: 1-21-15
JOB NO.: 1295-13-00

VIRGINIA AVENUE PARKING STRUCTURE
PERVIOUS/IMPERVIOUS AREA EXHIBIT

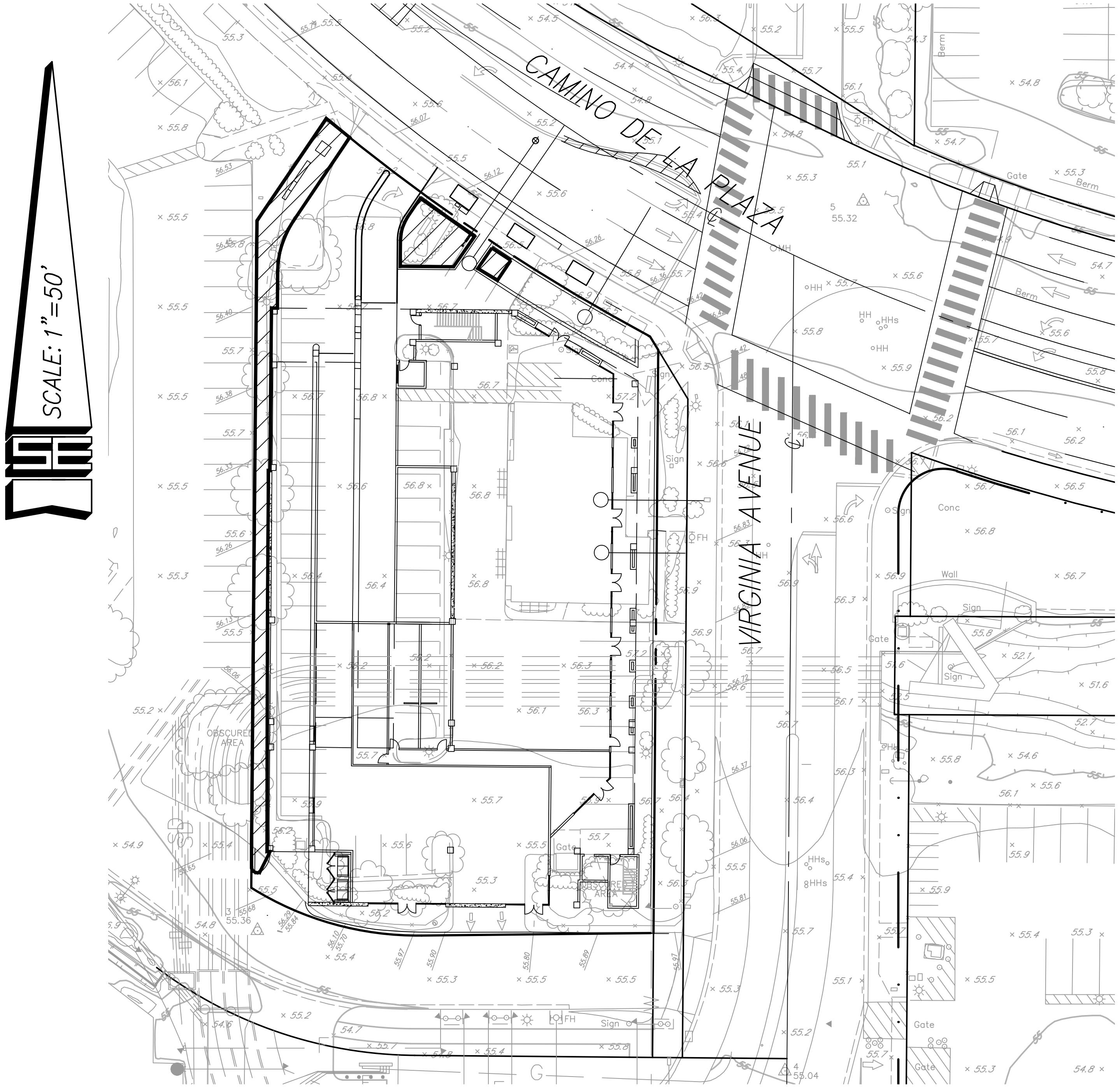


EXISTING CONDITIONS

LEGEND:

▨ PERVIOUS SURFACE

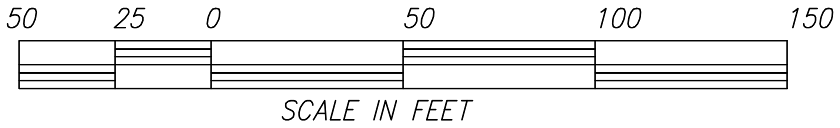
	IMPERVIOUS AREA	PERVIOUS AREA	TOTAL AREA	PERCENT IMPERVIOUSNESS
EXIST. CONDITION	0.56 AC	0.17 AC	0.73 AC	77%
PROP. CONDITION	0.68 AC	0.05 AC	0.73 AC	93%



PROPOSED CONDITIONS

LEGEND:

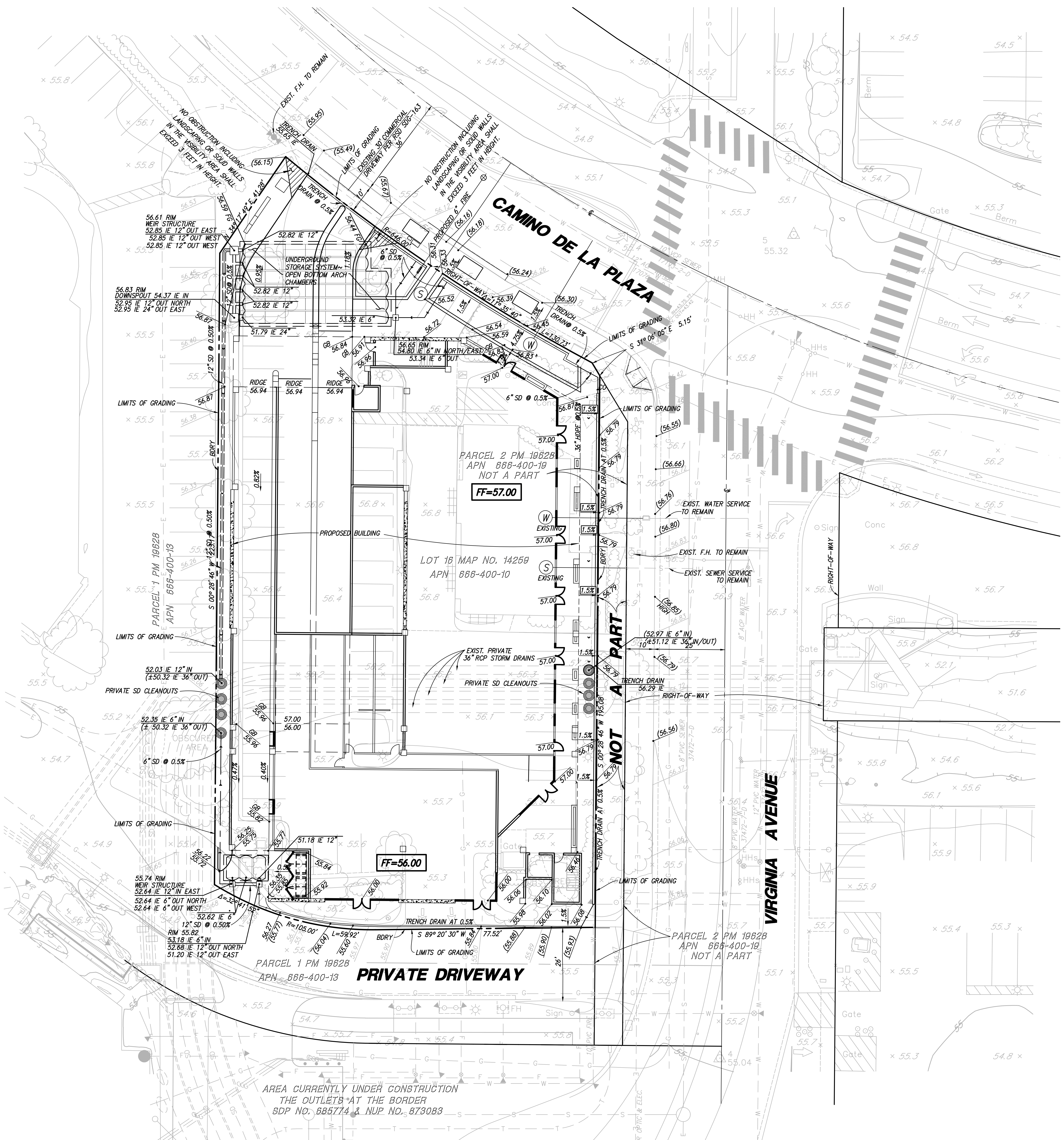
▨ PERVIOUS SURFACE



REVISED 3-18-2016
REVISED 1-20-2016
REVISED 8-5-2015

STUART ENGINEERING
7525 METROPOLITAN DRIVE STE. 308
SAN DIEGO, CA 92108 (619) 296-1010
FAX (619) 296-9276 EMAIL: SE@stuartengineering.com

DESIGNER: SG
DRAWN: SG
DATE: 1-20-16
JOB NO.: 1295-13-00



BENCH MARK

B.M. NO. 1464 SE SIDE CAMINO DE LA PLAZA BRIDGE
OVER INTERSTATE 5NGVD29 ELEVATION 90.95

LEGAL DESCRIPTION

LOT 16 OF MAP NO. 14259

ASSESSOR'S PARCEL NUMBER

666-400-10

OWNER/APPLICANT

BAJA-MEX INSURANCE SERVICES
4575 CAMINO DE LA PLAZA
SAN YSIDRO, CA 92173
ATTN: FRED SOBKE
PHONE 619-428-1616

TOPOGRAPHY

AERIAL TOPOGRAPHY IS BY: SAN-LO AERIAL SURVEYS
JOB NO.: 13846
DATED: MAY 27, 2014

LEGEND

PROPOSED IMPROVEMENTS

PROPERTY LINE	— — —
TOP OF CURB ELEVATION (ABOVE LINE)	56.50
FINISH SURFACE ELEVATIION (BELOW LINE)	56.00
EXIST. ELEVATION	(56.42)
6" CURB AND GUTTER	═
6" CURB	—
SIDEWALK	▨
DRIVEWAY	▨
CATCH BASIN	CB □
STORM DRAIN CLEANOUT	CO ○
STORM DRAIN	— - —
STORM DRAIN	═══
FIRE LINE	— —
WATER VALVE	⊗
BACKFLOW PREVENTER	⊗✓✓⊗
OPEN BOTTOM UNDERGROUND ARCH CHAMBER SYSTEM	

NOTE: NO SLOPES WILL BE CREATED

EXISTING IMPROVEMENTS

EXISTING WATER	— W —
EXISTING FIRE	— F —
EXISTING SEWER	— S —
EXISTING STORM DRAIN	═══
EXISTING GAS	— GAS —
EXISTING ELECTRIC	— E —
EXISTING SPOT ELEVATION	x 56.2
EXISTING CONTOUR	55

ABBREVIATION

ACP	ASBESTOS CEMENT PIPE
CB	CATCH BASIN
EXIST	EXISTING
INV	INVERT
MH	MANHOLE
SD	STORM DRAIN

NOTES:

1. PRIOR TO THE ISSUANCE OF ANY CONSTRUCTION PERMIT, THE OWNER/PERMITTEE SHALL ENTER INTO A MAINTENANCE AGREEMENT FOR THE ONGOING PERMANENT BMP MAINTENANCE, SATISFACTORY TO THE CITY ENGINEER.

2. PRIOR TO THE ISSUANCE OF ANY CONSTRUCTION PERMIT, THE OWNER/PERMITTEE SHALL INCORPORATE ANY CONSTRUCTION BEST MANAGEMENT PRACTICES NECESSARY TO COMPLY WITH CHAPTER 14, ARTICLE 2, DIVISION 1 (GRADING REGULATIONS) OF THE SAN DIEGO MUNICIPAL CODE, INTO THE CONSTRUCTION PLANS OR SPECIFICATIONS.

3. PRIOR TO THE ISSUANCE OF CONSTRUCTION PERMIT THE OWNER/PERMITTEE SHALL SUBMIT A WATER POLLUTION CONTROL PLAN (WPCP). THE WPCP SHALL BE PREPARED IN ACCORDANCE WITH THE GUIDELINES IN APPENDIX E OF THE CITY'S STORM WATER STANDARDS.

4. PRIOR TO THE ISSUANCE OF ANY CONSTRUCTION PERMIT, THE OWNER/PERMITTEE SHALL INCORPORATE AND SHOW THE TYPE AND LOCATION OF ALL POST-CONSTRUCTION BEST MANAGEMENT PRACTICES (BMP'S) ON THE FINAL CONSTRUCTION DRAWINGS, CONSISTENT WITH THE APPROVED WATER QUALITY TECHNICAL REPORT.

5. DEVELOPMENT OF THIS PROJECT SHALL COMPLY WITH THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD – SAN DIEGO REGION (SDRWQCB) ORDER NO. R9-2013-0001, WASTE DISCHARGE REQUIREMENTS FOR DISCHARGES OF STORM WATER RUNOFF ASSOCIATED WITH CONSTRUCTION ACTIVITY.

6. IMPROVEMENTS ON ADJACENT PARCELS 1 AND 2 OF PARCEL MAP 19268 ARE ALLOWED PER THE "OVERALL RECIPROCAL EASEMENT AND COST SHARING AGREEMENT" FOR INTERNATIONAL GATEWAY OF LMERICAS PER DOCUMENT #2001-0751836 RECORDED OCTOBER 17, 2001, AND LATER AMENDED.

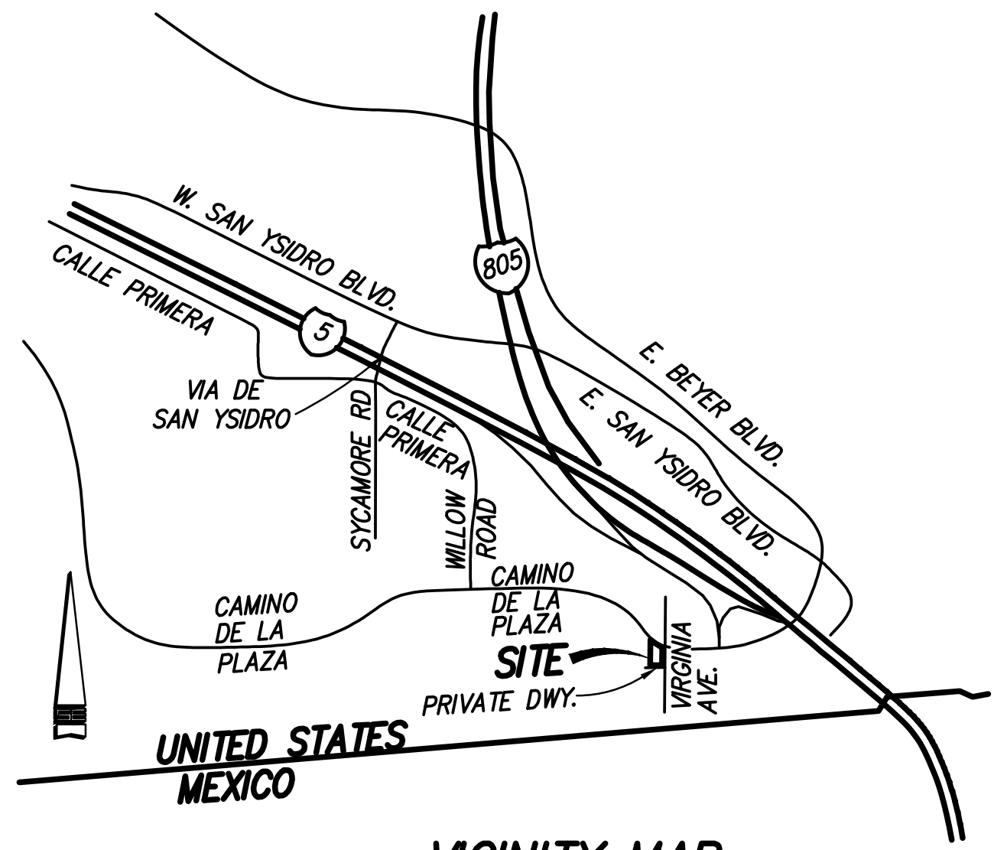
7. THE ONLY EASEMENTS ON-SITE ARE FOR THE EXISTING SDG&E FACILITIES. SINCE THEY ARE MEASURED FROM THE PHYSICAL LOCATION WHICH IS PARTIALLY UNDERGROUND THEY ARE NOT PLOTABLE.

8. PRIOR TO ANY WORK STARTING IN THE CITY OF SAN DIEGO RIGHT-OF-WAY, THE DEVELOPER SHALL APPLY FOR A "PUBLIC RIGHT-OF-WAY PERMIT FOR TRAFFIC CONTROL".

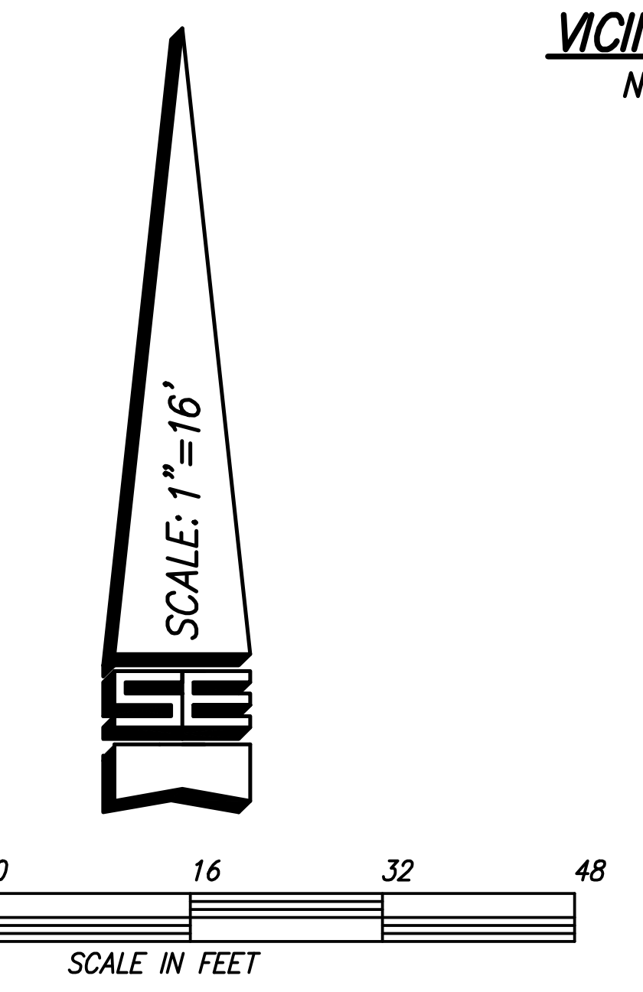
9. ARTIFICIAL LIGHTING USED TO ILLUMINATE THE PREMISES SHALL BE DIRECTED AWAY FROM ADJACENT PROPERTIES.

10. THE FINAL DESIGN SHALL BE REVIEWED AND APPROVED BY THE STORM WATER DEPARTMENT TO THE SATISFACTION OF THE CITY ENGINEER DUE TO THE BUILDING BEING CONSTRUCTED OVER THE EXISTING PRIVATE STORM DRAIN.

11. POST INDICATOR VALVES, FIRE DEPARTMENT CONNECTIONS AND ALARM BELL ARE TO BE LOCATED ON THE ADDRESS/ACCESS SIDE OF THE STRUCTURE.



VICINITY MAP
NO SCALE



GRADING DATA:

TOTAL AMOUNT OF AREA TO BE GRADED:		7,863 SQ. FT.
PERCENT OF AREA GRADED:		25 %
TOTAL AMOUNT OF AREA TO BE DISTURBED:		31,450 SQ. FT.
PERCENT OF AREA DISTURBED:		100 %
AMOUNT OF CUT:		30 C.Y.
MAXIMUM DEPTH OF CUT:		2.0 FT.
AMOUNT OF FILL IN COASTAL AREA:		30 C.Y.
MAXIMUM DEPTH OF FILL:		0.3 FT.
MAXIMUM HEIGHT OF FILL SLOPE(S):	NONE	SLOPE RATIO
MAXIMUM HEIGHT OF CUT SLOPE(S):	NONE	SLOPE RATIO
AMOUNT OF EXPORT SOIL:		0 C.Y.
RETAINING WALLS:	HOW MANY:	NONE
	MAXIMUM LENGTH:	N/A
	MAXIMUM HEIGHT:	N/A

No. 27232
Exp. 3-31-17

STUART ENGINEERING
7525 METROPOLITAN DRIVE STE. 308
SAN DIEGO, CA 92108 (619) 296-1010

Stuart Peace 7-13-16
STUART PEACE R.C.E. 27232 DATE
REGISTRATION EXPIRES: 3-31-17

DESIGNER: T.H.
DRAWN: JR
CHECKED: S.P.
JOB NO.: 1295-13-00

SILLMAN WRIGHT ARCHITECTS

7515 METROPOLITAN DR., SUITE 400
SAN DIEGO, CA 92108
TEL 619.294.7515 FAX 619.294.7592

VIRGINIA AVENUE PARKING STRUCTURE

SAN YSIDRO, CA 92173

Prepaed By:
Stuart Engineering
7525 Metropolitan Drive,Ste.302
San Diego, CA. 92108
Tel. : (619) 296-1010
Fax : (619) 296-9276
Contact: Thomas M. Henry
E-mail: thenry@stuartengineering.com

Project Name:
Virginia Ave. Parking Structure
Coastal Development Permit
Site Development Permit

Project Address:
4575 Camino De La Plaza
San Ysidro, Ca 92173

Revision 5 Date:
Revision 4 Date: 03/18/16
Revision 3 Date: 01/14/16
Revision 2 Date: 08/06/15
Revision 1 Date: 04/14/15
Original Date: 08/21/14
Project No.: 375960

Sheet Titles:
Preliminary Grading Plan

Sheet No.: C-101
Sheet: 12 of 15

Attachment 1b: Tabular Summary of DMAs and Design Capture Volume Calculations

DMA 100, DMA 200

Worksheet B.2-1: DCV

Design Capture Volume for DMA 100 & DMA 200		Worksheet B.2-1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.46	inches
2	Area tributary to BMP (s)	A=	0.65	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.89	unitless
4	Trees Credit Volume	TCV=	0	cubic-feet
5	Rain barrels Credit Volume	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	961	cubic-feet

DMA 300

Worksheet B.2-1: DCV

Design Capture Volume for DMA 300		Worksheet B.2-1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.46	inches
2	Area tributary to BMP (s)	A=	0.04	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.90	unitless
4	Trees Credit Volume	TCV=	0	cubic-feet
5	Rain barrels Credit Volume	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	64	cubic-feet

DMA 400

Worksheet B.2-1: DCV

Design Capture Volume for DMA 400		Worksheet B.2-1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.46	inches
2	Area tributary to BMP (s)	A=	0.04	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.10	unitless
4	Trees Credit Volume	TCV=	0	cubic-feet
5	Rain barrels Credit Volume	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	6	cubic-feet

Equation B.1.2: Estimating Runoff Factor for Area

$$C = \frac{\sum C_x A_x}{\sum A_x}$$

where:

C_x = Runoff factor for area X

A_x = Tributary area X (acres)

Table B.1-1: Runoff Factors for surfaces draining to BMPs -

Surface	Runoff Factor
Roofs[1]	0.90
Concrete or Asphalt[1]	0.90
Unit Pavers (grouted)[1]	0.90
Decomposite	0.30
Cobles or Crushed Aggregate	0.30
Amended, MulchedSoils or Landscape[2]	0.10
Compacted Soil (e.g. unoaved parking)	0.30
Natural (A Soil)	0.10
Natural (B Soil)	0.14
Natural (C Soil)	0.23
Natural (D Soil)	0.30

[1] Surface is considered impervious and could benefit from use of

[2] Surface shall be designed in accordance with SD-4 (Amended soils) fact sheet in Appendix E

Summary OF DMAs, Various Runoff Coefficients & Design Capture Volume Calculations

DMA #	Surface Type	Slope	Area [sf]	Area [ac]	Pervious [sf]	Runoff Factor Treatment Control for Pervious Areas	Runoff Factor HMP for Pervious Areas	Impervious [sf]	Runoff Factor Treatment Control for Impervious Areas	Runoff Factor HMP for Impervious Areas	Weighted Runoff Factor, C DCV	Weighted Runoff Factor, C HMP	85th Percentile, 24-hr Storm Event Rainfall Depth, d [in]	Design Capture Volume, DCV [cf]
100	Roof	Flat	23,862	0.55	0	0.10	0.10	23,862	0.90	1.00	0.90	1.00	0.46	823
200	AC Pvmt, Concrete Pvmt, Landscape	Flat	4,381	0.10	437	0.10	0.10	3,944	0.90	1.00	0.82	0.91	0.46	138
300	Concrete Pvmt	Flat	1,842	0.04	0	0.10	0.10	1,842	0.90	1.00	0.90	1.00	0.46	64
400	Landscape, Concrete Pvmt	Flat	1,527	0.04	1,527	0.10	0.10	0	0.90	1.00	0.10	0.10	0.46	6
		Total	**31,611**	**0.73**	**1,964**			**29,648**						**1,030**

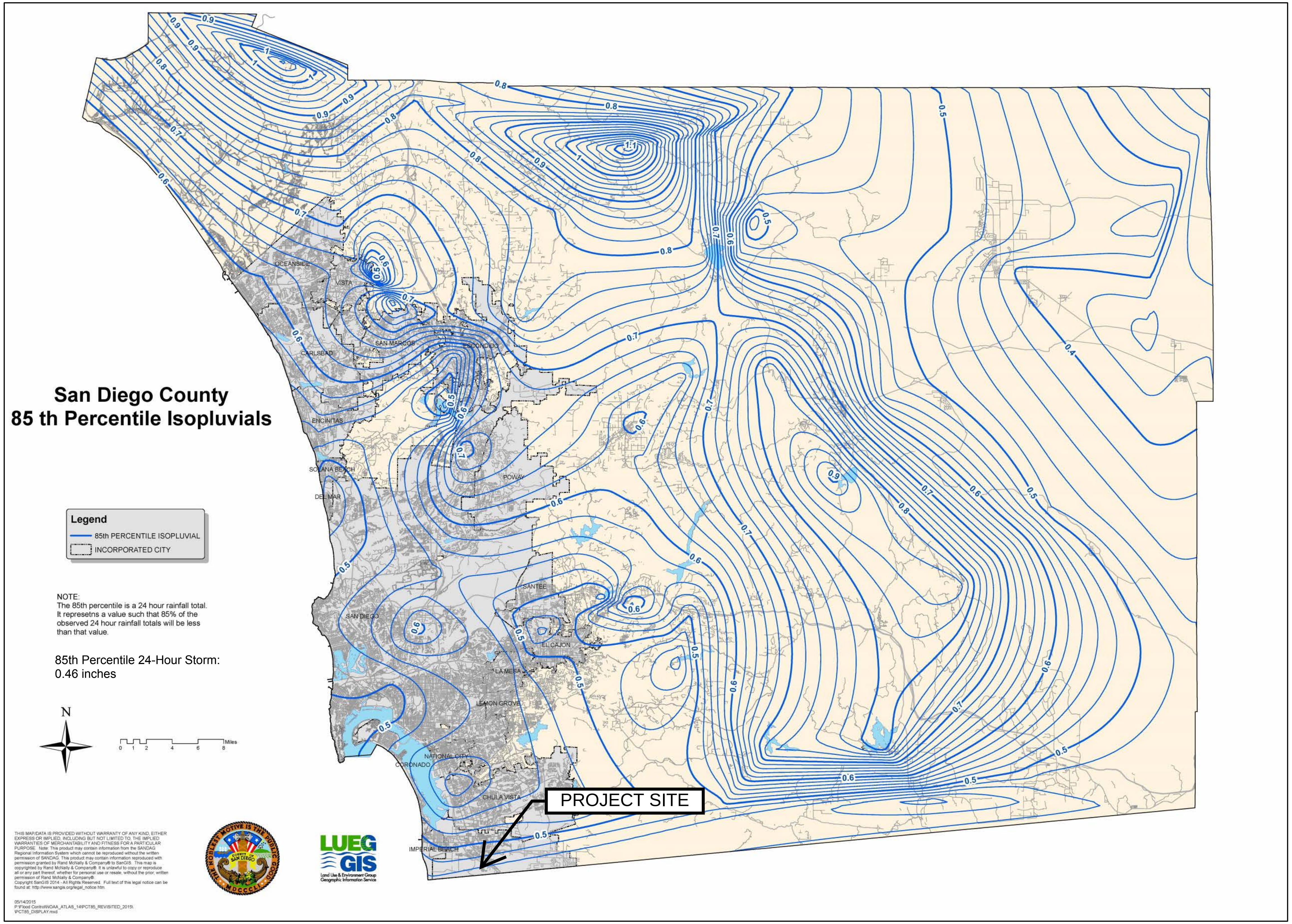


Figure B.1-1: 85th Percentile 24-hour Isopluvial Map

Project Name: Virginia Parking Structure

Attachment 1c: Harvest and Use Feasibility Screening (when applicable)

Harvest and Use Feasibility Checklist

Form I-7

1. Is there a demand for harvested water (check all that apply) at the project site that is reliably present during the wet season?

☒Toilet and urinal flushing
☐Landscape irrigation
☐Other:__

Since the project only proposes a few landscape areas (1,964 sf) Harvest and Use for landscape irrigation is not feasible.

2. If there is a demand; estimate the anticipated average wet season demand over a period of 36 hours. Guidance for planning level demand calculations for toilet/urinal flushing and landscape irrigation is provided in Section B.3.2.
[Provide a summary of calculations here]

The project proposes the construction of a multi-story parking structure including an insurance business and other retail stores on the first level.
The total number of employees is estimated to be 20. The commercial usage is 20 x 7 = 140 gallons (18.72 cf) per day.

36-hours demand = 1.5 days -> 1.5*18.72 = 28.08 cf < 1,030 cf (DCV)

0.25*DCV=0.25*1,030 cf = 257.5 cf > 28.08 cf

3. Calculate the DCV using worksheet B-2.1.
DCV = 1,030_______ (cubic feet)

The DCV was calculated based on DMA 100, DMA 200 and DMA 300 and DMA 400.

3a. Is the 36 hour demand greater than or equal to the DCV?	3b. Is the 36 hour demand greater than 0.25DCV but less than the full DCV?	3c. Is the 36 hour demand less than 0.25DCV?
☐ Yes / ☒ No ⇨ ⇩	☐ Yes / ☒ No ⇩ ⇨	☒ Yes ⇩
36h demand: 28.08 cf< 1,030 cf	36h demand: 28.08 cf< 0.25*1,030 = 257.5 cf	36h demand: 28.08 cf < 0.25*1,030=257.5 cf
Harvest and use appears to be feasible. Conduct more detailed evaluation and sizing calculations to confirm that DCV can be used at an adequate rate to meet drawdown criteria.	Harvest and use may be feasible. Conduct more detailed evaluation and sizing calculations to determine feasibility. Harvest and use may only be able to be used for a portion of the site, or (optionally) the storage may need to be upsized to meet long term capture targets while draining in longer than 36 hours.	Harvest and use is considered to be infeasible.

Is harvest and use feasible based on further evaluation?
☐ Yes, refer to Appendix E to select and size harvest and use BMPs.
☒ No, select alternate BMPs.

Attachment 1d: Categorization of Infiltration Feasibility Condition (when applicable)

Worksheet C.4-1: Categorization of Infiltration Feasibility Condition

Categorization of Infiltration Feasibility Condition	Worksheet C.4-1

Part 1 - Full Infiltration Feasibility Screening Criteria

Would infiltration of the full design volume be feasible from a physical perspective without any undesirable consequences that cannot be reasonably mitigated?

Criteria	Screening Question	Yes	No
1	Is the estimated reliable infiltration rate below proposed facility locations greater than 0.5 inches per hour? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.	X	

Provide basis:

Christian Wheeler Engineering: (Please see separate document)

Based on our field percolation rate testing, the infiltration rate for each basin area is expected to be above 0.5 inches per hour with the appropriate Factor of Safeties (FOS) included.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.

Criteria	Screening Question	Yes	No
2	Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.	X	

Provide basis:

Christian Wheeler Engineering: (Please see separate document)

Based on our subsurface investigation and laboratory testing of collected soil samples, we have determined that infiltration greater than 0.5 inches per hour can be allowed without increasing risk of geotechnical hazards. Minor settlement from hydro-collapse of the fill material can be expected; however, we recommend that the basin sides be lined to a depth of at least 5 feet below grade, which is below the proposed fill depth. Due to the sandy soil conditions at this depth and the absence of continuous, impermeable layers below this, we anticipate the potential for lateral migration to be low.

Royal Environmental Services, Inc.: (Please see separate document)

“Infiltration of rainwater is not expected to degrade water quality. The subject site and surrounding area are free of conditions that could potentially lead to degradation of groundwater quality from rainwater infiltration. Research into the site has found no open or closed environmental sites on or near the site, no permitted underground storage tanks (USTs) or any water production wells or gray water infiltration systems. Groundwater in the San Ysidro Hydrologic Subarea (911.11) of the Tijuana Valley Hydrologic Area where the site lies, has existing beneficial use designation for municipal supply, industrial and agricultural uses although water quality objectives are not as stringent as other areas of the Tijuana Valley Hydrologic area. Recent groundwater monitoring in the general area indicates higher than typical dissolved solids in the groundwater. The infiltration of stormwater given the treatment BMP proposed should provide water of a lower TDS and better quality than the water quality objectives for this area.”

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.

<table>
<tr><th colspan="4">Worksheet C.4-1 Page 2 of 4</th></tr>
<tr><th>Criteria</th><th>Screening Question</th><th>Yes</th><th>No</th></tr>
<tr><td>3</td><td>Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of groundwater contamination (shallow water table, storm water pollutants or other factors) that cannot be mitigated to an acceptable level? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.</td><td>X</td><td></td></tr>
<tr><td colspan="4">Provide basis:

Royal Environmental Services, Inc.: (Please see separate document entitled '*Stormwater Assessment, Virginia Avenue Parking Structure, 4575 Camino De La Plaza, San Ysidro*', dated 7-22-16)
"Infiltration of rainwater is not expected to degrade water quality. The subject site and surrounding area are free of conditions that could potentially lead to degradation of groundwater quality from rainwater infiltration. Research into the site has found no open or closed environmental sites on or near the site, no permitted underground storage tanks (USTs) or any water production wells or gray water infiltration systems. Groundwater in the San Ysidro Hydrologic Subarea (911.11) of the Tijuana Valley Hydrologic Area where the site lies, has existing beneficial use designation for municipal supply, industrial and agricultural uses although water quality objectives are not as stringent as other areas of the Tijuana Valley Hydrologic area. Recent groundwater monitoring in the general area indicates higher than typical dissolved solids in the groundwater. The infiltration of stormwater given the treatment BMP proposed should provide water of a lower TDS and better quality than the water quality objectives for this area."</td></tr>
<tr><td>4</td><td>Can infiltration greater than 0.5 inches per hour be allowed without causing potential water balance issues such as change of seasonality of ephemeral streams or increased discharge of contaminated groundwater to surface waters? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.</td><td>X</td><td></td></tr>
<tr><td colspan="4">Provide basis:

Royal Environmental Services, Inc.: (Please see separate document entitled '*Stormwater Assessment, Virginia Avenue Parking Structure, 4575 Camino De La Plaza, San Ysidro*', dated 7-22-16)
"Infiltration of rainwater will not cause a change in the flow of the Tijuana River largely due to the extremely small area of the site relative to the watershed and the small size of the site itself relative to neighboring properties. Storm water from the site currently is directed to the storm drain system that discharges to the concrete lined river channel south of the site. This channel discharges to the undeveloped river valley west of the site. Infiltrated water will join groundwater flowing through sediments of the Tijuana River beneath the site until it reaches the surface water west of the site."</td></tr>
<tr><td>**Part 1 Result***</td><td colspan="2">If all answers to rows 1 - 4 are "Yes" a full infiltration design is potentially feasible. The feasibility screening category is Full Infiltration

If any answer from row 1-4 is "No", infiltration may be possible to some extent but would not generally be feasible or desirable to achieve a "full infiltration" design. Proceed to Part 2</td><td>**Full Infiltration Condition**</td></tr>
</table>

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by City Engineer to substantiate findings.

<table>
<tr><th colspan="4">Worksheet C.4-1 Page 3 of 4</th></tr>
<tr><td colspan="4">Part 2 – Partial Infiltration vs. No Infiltration Feasibility Screening Criteria
Would infiltration of water in any appreciable amount be physically feasible without any negative consequences that cannot be reasonably mitigated?</td></tr>
<tr><td>Criteria</td><td>Screening Question</td><td>Yes</td><td>No</td></tr>
<tr><td>5</td><td>Do soil and geologic conditions allow for infiltration in any appreciable rate or volume? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.</td><td></td><td></td></tr>
<tr><td colspan="4">Provide basis:
This project is classified as Full Infiltration Condition per Criteria 1 through 4 above. Therefore, Criteria 5 through 8 are not applicable.
Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.</td></tr>
<tr><td>6</td><td>Can Infiltration in any appreciable quantity be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.</td><td></td><td></td></tr>
<tr><td colspan="4">Provide basis:
This project is classified as Full Infiltration Condition per Criteria 1 through 4 above. Therefore, Criteria 5 through 8 are not applicable.
Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.</td></tr>
</table>

<table>
<tr><th colspan="4">Worksheet C.4-1 Page 4 of 4</th></tr>
<tr><td>Criteria</td><td>Screening Question</td><td>Yes</td><td>No</td></tr>
<tr><td>7</td><td>Can Infiltration in any appreciable quantity be allowed without posing significant risk for groundwater related concerns (shallow water table, storm water pollutants or other factors)? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.</td><td></td><td></td></tr>
<tr><td colspan="4">Provide basis:
This project is classified as Full Infiltration Condition per Criteria 1 through 4 above. Therefore, Criteria 5 through 8 are not applicable.
Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.</td></tr>
<tr><td>8</td><td>Can infiltration be allowed without violating downstream water rights? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.</td><td></td><td></td></tr>
<tr><td colspan="4">Provide basis:
This project is classified as Full Infiltration Condition per Criteria 1 through 4 above. Therefore, Criteria 5 through 8 are not applicable.
Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.</td></tr>
<tr><td>Part 2 Result*</td><td colspan="2">If all answers from row 1-4 are yes, then partial infiltration design is potentially feasible. The feasibility screening category is Partial Infiltration.
If any answer from row 5-8 is no, then infiltration of any volume is considered to be infeasible within the drainage area. The feasibility screening category is No Infiltration.</td><td>N/A</td></tr>
</table>

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by City Engineer to substantiate findings

Attachment 1e: Pollutant Control BMP Design Worksheets / Calculations

DMA 100, DMA 200

Worksheet D.5-1: Factor of Safety and Design Infiltration Rate Worksheet

Factor of Safety and Design Infiltration Rate Worksheet			Worksheet D.5-1		
Factor Category		Factor Description	Assigned Weight (w)	Factor Value (v)	Product (p) p = w x v
A	Suitability Assessment	Soil assessment methods	0.25	2.00	0.50
		Predominant soil texture	0.25	1.00	0.25
		Site soil variability	0.25	1.00	0.25
		Depth to groundwater / impervious layer	0.25	2.00	0.50
		Suitability Assessment Safety Factor, SA = ∑p			**1.50**
B	Design	Level of pretreatment/ expected sediment loads	0.5	3.00	1.50
		Redundancy/resiliency	0.25	3.00	0.75
		Compaction during construction	0.25	3.00	0.75
		Design Safety Factor, SB = ∑p			**3.00**
Combined Safety Factor, S_{total}= SA x SB					**4.50**
Observed Infiltration Rate, inch/hr, $K_{observed}$					11.71 *
(corrected for test-specific bias)					
Design Infiltration Rate, in/hr, Kdesign = $K_{observed}$ / S_{total}					**2.60**
Supporting Data					
Briefly describe infiltration test and provide reference to test forms: DMA 1: Falling head percolation test method used. Further description provided in report. Percolation Test #1: 9.26 in/hr Percolation Test #2: 14.16 in/hr * -> Observed Infiltration Rate, $K_{observed}$: (Percloation Test #1 + Percolation Test #2)/2 = **11.71 in/hr**					

DMA 100, DMA 200

Worksheet B.4-1: Simple Sizing Method for Infiltration BMPs

Simple Sizing Method for Infiltration BMPs		**Worksheet B.4-1**		
1	DCV (Worksheet B-2.1)	DCV=	961	cubic-feet
2	Estimated design infiltration rate (Worksheet D.5-1)	K_{design}=	2.60	in/hr
3	Available BMP surface area	A_{BMP}=	1,485	sq-ft
4	Average effective depth in the BMP footprint (DCV/A_{BMP})	D_{avg}=	0.65	feet
5	Drawdown time, T (D_{avg} *12/K_{design})	T=	3.0	hours
5a	Drawdown time, T < 36 hours?		YES	☐ Yes ☐ No
6	Provide alternative calculation of drawdown time, if needed: The area of the proposed open bottom chamber storage system accounts for approximately 1,485 sf.			

Notes: Drawdown time must be less than 36 hours. This criterion was set to achieve average annual capture of 80% to account for back to back storms (See rationale in Section B.4.3). In order to use a different drawdown time, BMPs should be sized using the percent capture method (Section B.4.2). The average effective depth calculation should account for any aggregate/media in the BMP. For example, 4 feet of stone at a porosity of 0.4 would equate to 1.6 feet of effective depth.

This method may overestimate drawdown time for BMPs that drain through both the bottom and walls of the system. BMP specific calculations of drawdown time may be provided that account for BMP-specific geometry.

DMA 300

Worksheet D.5-1: Factor of Safety and Design Infiltration Rate Worksheet

Factor of Safety and Design Infiltration Rate Worksheet			Worksheet D.5-1		
Factor Category		Factor Description	Assigned Weight (w)	Factor Value (v)	Product (p) p = w x v
A	Suitability Assessment	Soil assessment methods	0.25	2.00	0.50
		Predominant soil texture	0.25	1.00	0.25
		Site soil variability	0.25	1.00	0.25
		Depth to groundwater / impervious layer	0.25	2.00	0.50
		Suitability Assessment Safety Factor, SA = ∑p			**1.50**
B	Design	Level of pretreatment/ expected sediment loads	0.5	3.00	1.50
		Redundancy/resiliency	0.25	3.00	0.75
		Compaction during construction	0.25	3.00	0.75
		Design Safety Factor, SB = ∑p			**3.00**
Combined Safety Factor, S_{total}= SA x SB					**4.50**
Observed Infiltration Rate, inch/hr, $K_{observed}$ (corrected for test-specific bias)					20.29 *
Design Infiltration Rate, in/hr, Kdesign = $K_{observed}$ / S_{total}					**4.51**

Supporting Data

Briefly describe infiltration test and provide reference to test forms:

DMA 2: Falling head percolation test method used. Further description provided in report.

Percolation Test #3: 15.66 in/hr

Percolation Test #4: 24.91 in/hr

* **->** Observed Infiltration Rate, $K_{observed}$: (Percloation Test #1 + Percolation Test #2)/2 = **20.29 in/hr**

DMA 300

Worksheet B.4-1: Simple Sizing Method for Infiltration BMPs

Simple Sizing Method for Infiltration BMPs		Worksheet B.4-1		
1	DCV (Worksheet B-2.1)	DCV=	64	cubic-feet
2	Estimated design infiltration rate (Worksheet D.5-1)	K_{design}=	4.51	in/hr
3	Available BMP surface area	A_{BMP}=	50	sq-ft
4	Average effective depth in the BMP footprint (DCV/A_{BMP})	D_{avg}=	1.27	feet
5	Drawdown time, T (D_{avg} *12/K_{design})	T=	3.4	hours
5a	Drawdown time, T < 36 hours?		YES	☐ Yes ☐ No
6	Provide alternative calculation of drawdown time, if needed: The area of the proposed open bottom chamber storage system accounts for approximately 50 sf.			

Notes: Drawdown time must be less than 36 hours. This criterion was set to achieve average annual capture of 80% to account for back to back storms (See rationale in Section B.4.3). In order to use a different drawdown time, BMPs should be sized using the percent capture method (Section B.4.2). The average effective depth calculation should account for any aggregate/media in the BMP. For example, 4 feet of stone at a porosity of 0.4 would equate to 1.6 feet of effective depth.

This method may overestimate drawdown time for BMPs that drain through both the bottom and walls of the system. BMP specific calculations of drawdown time may be provided that account for BMP-specific geometry.

Self-mitigating DMA(s)

DMA Name	IMP Name	Basin Area (acre)	Basin Percent Pervious (%)	Minimum Percent Pervious (%)
400	IMP 'C'	0.04	100%	95

Self-mitigating DMAs consist of natural or landscaped areas that drain directly offsite or to the public storm drain system.

ATTACHMENT 2: BACKUP FOR PDP HYDROMODIFICATION CONTROL MEASURES

This is the cover sheet for Attachment 2.

☐ Mark this box if this attachment is empty because the project is exempt from PDP hydromodification management requirements.

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Attachment Sequence	Contents	Checklist
Attachment 2a	Hydromodification Management Exhibit (Required)	☒ Included See Hydromodification Management Exhibit Checklist.
Attachment 2b	Management of Critical Coarse Sediment Yield Areas (WMAA Exhibit is required; additional analyses are optional) See Section 6.2 of the BMP Design Manual.	☐ Exhibit showing project drainage boundaries marked on WMAA Critical Coarse Sediment Yield Area Map (Required) Optional analyses for Critical Coarse Sediment Yield Area Determination ☐ 6.2.1 Verification of Geomorphic Landscape Units Onsite ☐ 6.2.2 Downstream Systems Sensitivity to Coarse Sediment ☐ 6.2.3 Optional Additional Analysis of Potential Critical Coarse Sediment Yield Areas Onsite
Attachment 2c	Geomorphic Assessment of Receiving Channels (Optional) See Section 6.3.4 of the BMP Design Manual.	☐ Not Performed ☐ Included ☒ Submitted as separate stand-alone document
Attachment 2d	Flow Control Facility Design and Structural BMP Drawdown Calculations (Required) Overflow Design Summary for each structural BMP See Chapter 6 and Appendix G of the BMP Design Manual	☒ Included ☐ Submitted as separate stand-alone document
Attachment 2e	Vector Control Plan (Required when structural BMPs will not drain in 96 hours)	☐ Included ☒ Not required because BMP will drain in less than 96 hours

Indicate which Items are Included:

Attachment 2a: Hydromodification Management Exhibit

Use this checklist to ensure the required information has been included on the Hydromodification Management Exhibit:

The Hydromodification Management Exhibit must identify:

☒ Underlying hydrologic soil group
☒ Approximate depth to groundwater
☐ Existing natural hydrologic features (watercourses, seeps, springs, wetlands) -> N/A
☐ Critical coarse sediment yield areas to be protected -> N/A
☒ Existing topography
☒ Existing and proposed site drainage network and connections to drainage offsite
☒ Proposed grading (See separate Preliminary Grading Plan)
☒ Proposed impervious features
☒ Proposed design features and surface treatments used to minimize imperviousness
☒ Point(s) of Compliance (POC) for Hydromodification Management
☒ Existing and proposed drainage boundary and drainage area to each POC (when necessary, create separate exhibits for pre-development and post-project conditions)
☒ Structural BMPs for hydromodification management (identify location, type of BMP, and size/detail)

Attachment 2b: Management of Critical Coarse Sediment Yield Areas

NOT APPLICABLE

Attachment 2c: Geomorphic Assessment of Receiving Channels

PLEASE SEE SEPARATE DOCUMENT

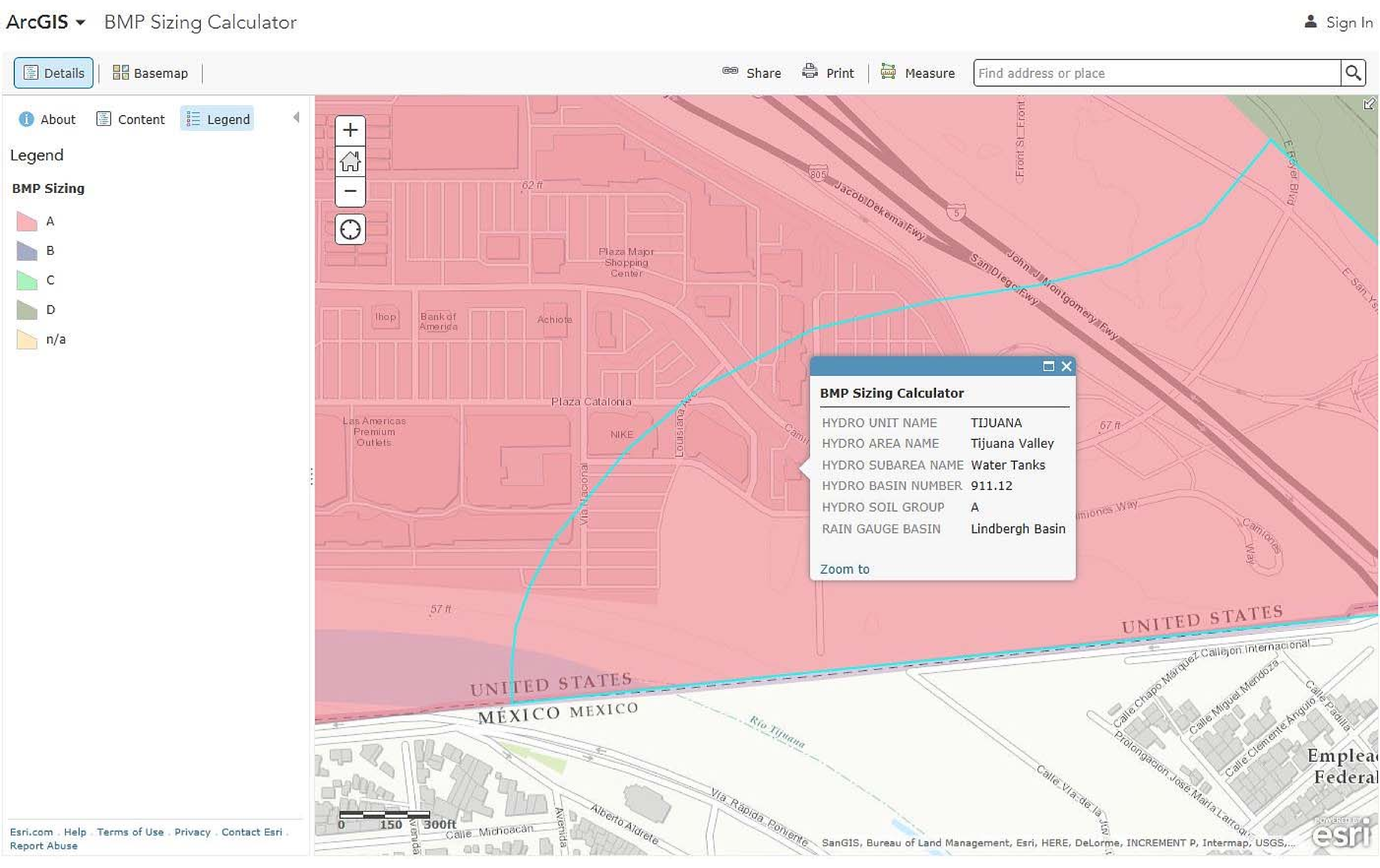
HYDROMODIFICATION SCREENING
FOR THE
VIRGINIA AVENUE
PARKING STRUCTURE

March 18, 2016

Prepared by ChangConsultants

Civil Engineering ◦ Hydrology ◦ Hydraulics ◦ Sedimentation
P.O. Box 9496
Rancho Santa Fe, CA 92067
(858) 692-0760

Attachment 2d: Flow Control Facility Design



Legend

BMP Sizing

🟥 A
🟦 B
🟩 C
▨ D
🟨 n/a

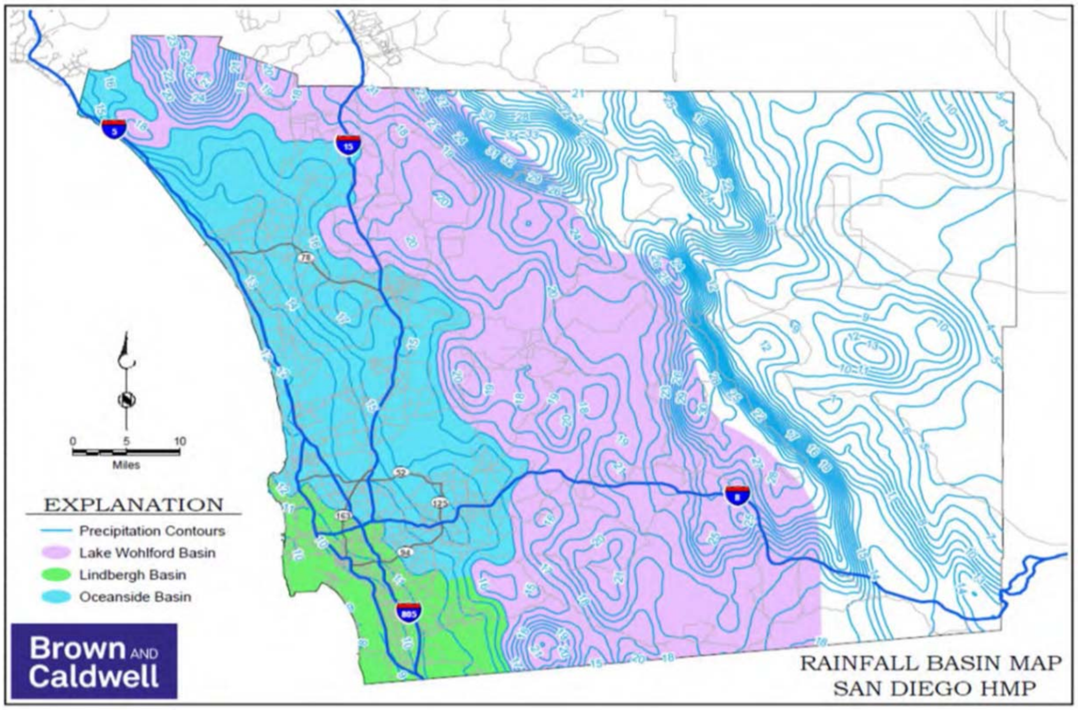
BMP Sizing Calculator

HYDRO UNIT NAME	TIJUANA
HYDRO AREA NAME	Tijuana Valley
HYDRO SUBAREA NAME	Water Tanks
HYDRO BASIN NUMBER	911.12
HYDRO SOIL GROUP	A
RAIN GAUGE BASIN	Lindbergh Basin

SanGIS, Bureau of Land Management, Esri, HERE, DeLorme, INCREMENT P, Intermap, USGS,...

Esri.com . Help . Terms of Use . Privacy . Contact Esri . Report Abuse

Soil Type: A
Slope: Flat
Rain Gauge: Lindbergh



Site Information			
Project Name	Virginia Avenue Parking Structure	Hydrologic Unit	911.11
Project Applicant:	Stuart Engineering	Rain Gauge	Lindbergh
Jurisdiction:	City of San Diego	Total Project Area:	31,611
Assessor's Parcel Number:	666-400-10	Low Flow Threshold:	0.5
BMP Name:	IMP 'A', IMP 'B'	BMP Type:	Open Bottom Arch Chambers (Full Infiltration)

Additional steps to use this BMP as a combined pollutant control and flow control BMP:

To use this BMP as a combined pollutant control and flow control BMP, determine the size of the BMP using the sizing factors, then refer to Appendix B.4 to check whether the BMP meets performance standards for infiltration for pollutant control. If necessary, increase the surface area to meet the drawdown requirement for pollutant control.

Table G.2-3: Sizing Factors for Hydromodification Flow Control Infiltration BMPs Designed Using Sizing Factor Method

Sizing Factors for Hydromodification Flow Control Infiltration BMPs Designed Using Sizing Factor Method						
Lower Flow Threshold	Soil Group	Slope	Rain Gauge	A	V_1	V_2
$0.5Q_2$	A	Flat	Lindbergh	0.040	0.1040	N/A
$0.5Q_2$	A	Moderate	Lindbergh	0.040	0.1040	N/A
$0.5Q_2$	A	Steep	Lindbergh	0.035	0.0910	N/A
$0.5Q_2$	B	Flat	Lindbergh	0.058	0.1495	N/A
$0.5Q_2$	B	Moderate	Lindbergh	0.055	0.1430	N/A
$0.5Q_2$	B	Steep	Lindbergh	0.050	0.1300	N/A
$0.5Q_2$	C	Flat	Lindbergh	N/A	N/A	N/A
$0.5Q_2$	C	Moderate	Lindbergh	N/A	N/A	N/A
$0.5Q_2$	C	Steep	Lindbergh	N/A	N/A	N/A
$0.5Q_2$	D	Flat	Lindbergh	N/A	N/A	N/A
$0.5Q_2$	D	Moderate	Lindbergh	N/A	N/A	N/A
$0.5Q_2$	D	Steep	Lindbergh	N/A	N/A	N/A
$0.5Q_2$	A	Flat	Oceanside	0.045	0.1170	N/A
$0.5Q_2$	A	Moderate	Oceanside	0.045	0.1170	N/A
$0.5Q_2$	A	Steep	Oceanside	0.040	0.1040	N/A
$0.5Q_2$	B	Flat	Oceanside	0.065	0.1690	N/A
$0.5Q_2$	B	Moderate	Oceanside	0.065	0.1690	N/A
$0.5Q_2$	B	Steep	Oceanside	0.060	0.1560	N/A
$0.5Q_2$	C	Flat	Oceanside	N/A	N/A	N/A
$0.5Q_2$	C	Moderate	Oceanside	N/A	N/A	N/A
$0.5Q_2$	C	Steep	Oceanside	N/A	N/A	N/A
$0.5Q_2$	D	Flat	Oceanside	N/A	N/A	N/A
$0.5Q_2$	D	Moderate	Oceanside	N/A	N/A	N/A
$0.5Q_2$	D	Steep	Oceanside	N/A	N/A	N/A
$0.5Q_2$	A	Flat	L Wohlford	0.050	0.1300	N/A
$0.5Q_2$	A	Moderate	L Wohlford	0.050	0.1300	N/A
$0.5Q_2$	A	Steep	L Wohlford	0.040	0.1040	N/A
$0.5Q_2$	B	Flat	L Wohlford	0.078	0.2015	N/A
$0.5Q_2$	B	Moderate	L Wohlford	0.075	0.1950	N/A
$0.5Q_2$	B	Steep	L Wohlford	0.065	0.1690	N/A
$0.5Q_2$	C	Flat	L Wohlford	N/A	N/A	N/A
$0.5Q_2$	C	Moderate	L Wohlford	N/A	N/A	N/A
$0.5Q_2$	C	Steep	L Wohlford	N/A	N/A	N/A
$0.5Q_2$	D	Flat	L Wohlford	N/A	N/A	N/A
$0.5Q_2$	D	Moderate	L Wohlford	N/A	N/A	N/A
$0.5Q_2$	D	Steep	L Wohlford	N/A	N/A	N/A
$0.3Q_2$	A	Flat	Lindbergh	0.040	0.1040	N/A

05Q2 - INFILTRATION SYSTEM - OPEN BOTTOM ARCH CHAMBERS

Areas Draining to BMP						Sizing Factors			Minimum BMP Size		
DMA Name	**Area (sf)**	**Soil Type**	**Slope**	**Post Project Surface Type**	**Runoff Factor (From Table G.2-1)**	**Surface Area, A**	**Surface Volume, V1**	**Subsurface Volume, V2**	**Surface Area (sf)**	**Surface Volume (cf)**	**Subsurface Volume (cf)**
100	23,862	A	Flat	Roof	1.00	0.040	0.104	N/A	954	2,482	N/A
200	4,381	A	Flat	AC Pvmt, Concrete Pvmt	0.91	0.040	0.104	N/A	160	415	N/A
Total DMA Area	**28,243**							**Minimum BMP Size***	**1,114**	**2,896**	**N/A**
								Proposed BMP Size*	**1,480**	**3,000**	**N/A**

*Minimum BMP Size = Total of rows above.
*Proposed BMP Size > Minimum BMP size.

05Q2 - INFILTRATION SYSTEM - OPEN BOTTOM ARCH CHAMBERS

Areas Draining to BMP						Sizing Factors			Minimum BMP Size		
DMA Name	**Area (sf)**	**Soil Type**	**Slope**	**Post Project Surface Type**	**Runoff Factor (From Table G.2-1)**	**Surface Area, A**	**Surface Volume, V1**	**Subsurface Volume, V2**	**Surface Area (sf)**	**Surface Volume (cf)**	**Subsurface Volume (cf)**
300	1,842	A	Flat	Concrete Pvmt	1.00	0.040	0.104	N/A	74	192	N/A
Total DMA Area	**1,842**							**Minimum BMP Size***	**74**	**192**	**N/A**
								Proposed BMP Size*	**145**	**225**	**N/A**

*Minimum BMP Size = Total of rows above.
*Proposed BMP Size > Minimum BMP size.

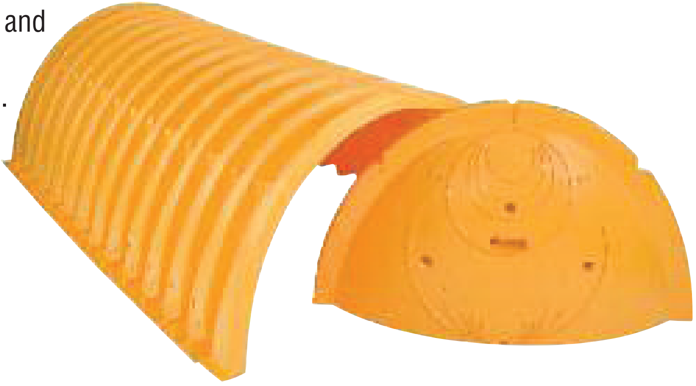
Open Bottom Arch Chamber System - Storage Calculations

DMA	Minimum Required Flow Control Surface Volume [cf]	Open Bottom Arch Chamber System Model	Open Bottom Arch Chamber Module Dimensions (L x W x H)	Installed Storage per Open Bottom Arch Chamber Module [cf]	Total # of Proposed Open Bottom Arch Chambers Modules	Total Provided Storage [cf]	Provided Storage Volume > Required Storage Volume?
DMA 100 & DMA 200	2,896	StormTech SC-740 Chamber	85.4" x 51.0" x 30.0"	74.9	40	2,996	YES
DMA 300	192	StormTech SC-740 Chamber	85.4" x 51.0" x 30.0"	74.9	3	225	YES

StormTech SC-740 Chamber

Designed to meet the most stringent industry performance standards for superior structural integrity while providing designers with a cost-effective method to save valuable land and protect water resources. The StormTech system is designed primarily to be used under parking lots thus maximizing land usage for commercial and municipal applications.

StormTech®
Detention • Retention • Recharge
Subsurface Stormwater Management℠



StormTech SC-740 Chamber
(not to scale)

Nominal Chamber Specifications

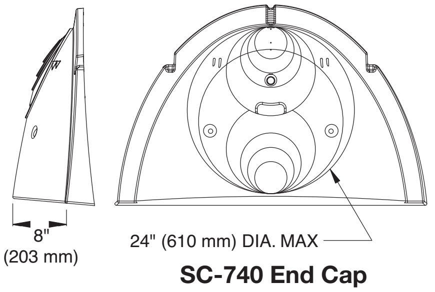
Size (L x W x H)
85.4" x 51.0" x 30.0"
(2170 x 1295 x 762 mm)

Chamber Storage
45.9 ft³ (1.30 m³)

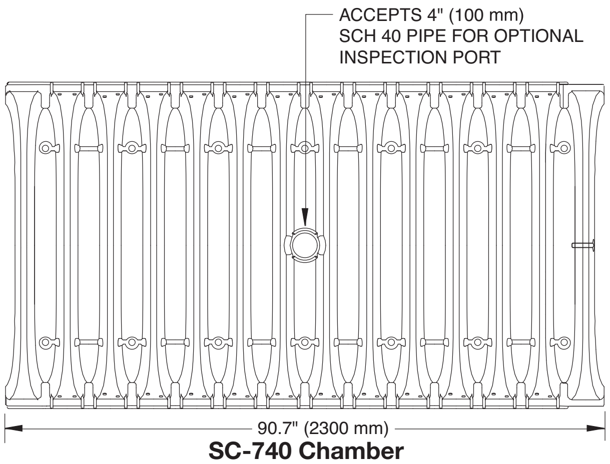
Minimum Installed Storage*
74.9 ft³ (2.12 m³)

Weight
74.0 lbs (33.6 kg)

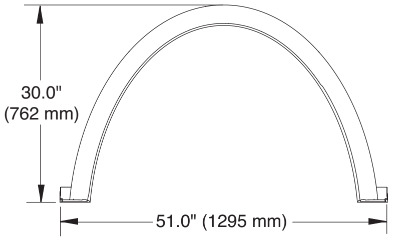
Shipping
30 chambers/pallet
60 end caps/pallet
12 pallets/truck

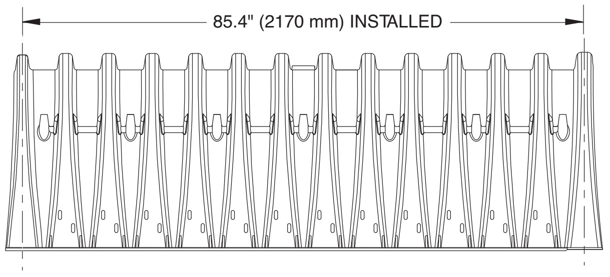


SC-740 End Cap

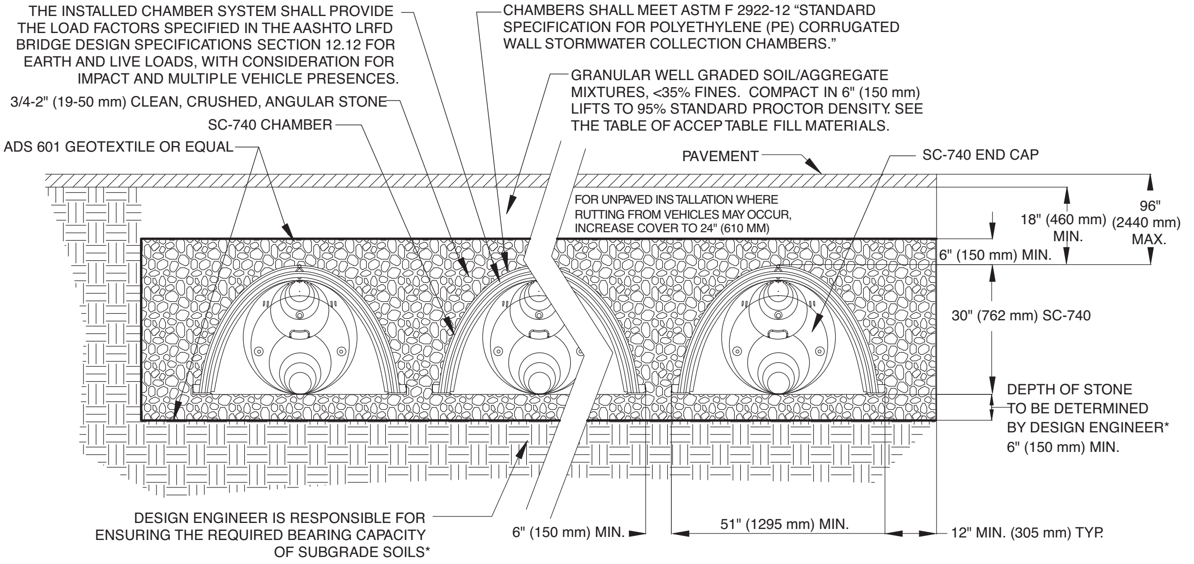


SC-740 Chamber





Typical Cross Section Detail
(not to scale)



THIS CROSS SECTION DETAILS THE REQUIREMENTS NECESSARY TO SATISFY THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 12.12 FOR EARTH AND LIVE LOADS USING STORMTECH CHAMBERS

MADE IN THE U.S.A.

SC-740 Cumulative Storage Volumes Per Chamber

Assumes 40% Stone Porosity. Calculations are Based Upon a 6" (152 mm) Stone Base Under the Chambers.

Depth of Water in System Inches (mm)	Cumulative Chamber Storage Ft^3 (m^3)	Total System Cumulative Storage Ft^3 (m^3)
42 (1067)	↑ 45.90 (1.300)	74.90 (2.121)
41 (1041)	45.90 (1.300)	73.77 (2.089)
40 (1016)	Stone 45.90 (1.300)	72.64 (2.057)
39 (991)	Cover 45.90 (1.300)	71.52 (2.025)
38 (965)	45.90 (1.300)	70.39 (1.993)
37 (948)	↓ 45.90 (1.300)	69.26 (1.961)
36 (914)	45.90 (1.300)	68.14 (1.929)
35 (889)	45.85 (1.298)	66.98 (1.897)
34 (864)	45.69 (1.294)	65.75 (1.862)
33 (838)	45.41 (1.286)	64.46 (1.825)
32 (813)	44.81 (1.269)	62.97 (1.783)
31 (787)	44.01 (1.246)	61.36 (1.737)
30 (762)	43.06 (1.219)	59.66 (1.689)
29 (737)	41.98 (1.189)	57.89 (1.639)
28 (711)	40.80 (1.155)	56.05 (1.587)
27 (686)	39.54 (1.120)	54.17 (1.534)
26 (660)	38.18 (1.081)	52.23 (1.479)
25 (635)	36.74 (1.040)	50.23 (1.422)
24 (610)	35.22 (0.977)	48.19 (1.365)
23 (584)	33.64 (0.953)	46.11 (1.306)
22 (559)	31.99 (0.906)	44.00 (1.246)
21 (533)	30.29 (0.858)	41.85 (1.185)
20 (508)	28.54 (0.808)	39.67 (1.123)
19 (483)	26.74 (0.757)	37.47 (1.061)
18 (457)	24.89 (0.705)	35.23 (0.997)
17 (432)	23.00 (0.651)	32.96 (0.939)
16 (406)	21.06 (0.596)	30.68 (0.869)
15 (381)	19.09 (0.541)	28.36 (0.803)
14 (356)	17.08 (0.484)	26.03 (0.737)
13 (330)	15.04 (0.426)	23.68 (0.670)
12 (305)	12.97 (0.367)	21.31 (0.608)
11 (279)	10.87 (0.309)	18.92 (0.535)
10 (254)	8.74 (0.247)	16.51 (0.468)
9 (229)	6.58 (0.186)	14.09 (0.399)
8 (203)	4.41 (0.125)	11.66 (0.330)
7 (178)	2.21 (0.063)	9.21 (0.264)
6 (152)	↑ 0	6.76 (0.191)
5 (127)	0	5.63 (0.160)
4 (102)	Stone Foundation 0	4.51 (0.125)
3 (76)	0	3.38 (0.095)
2 (51)	0	2.25 (0.064)
1 (25)	↓ 0	1.13 (0.032)

Note: Add 1.13 cu. ft. (0.032 m^3) of storage for each additional inch (25 mm) of stone foundation.

Storage Volume Per Chamber

	Bare Chamber Storage	Chamber and Stone Stone Foundation Depth in. (mm)		
	ft^3 (m^3)	6 (150)	12 (305)	18 (460)
StormTech SC-740	45.9 (1.3)	74.9 (2.1)	81.7 (2.3)	88.4 (2.5)

Note: Storage volumes are in cubic feet per chamber. Assumes 40% porosity for the stone plus the chamber volume.

Amount of Stone Per Chamber

	Stone Foundation Depth		
ENGLISH TONS (CUBIC YARDS)	**6"**	**12"**	**18"**
StormTech SC-740	3.8 (2.8 yd^3)	4.6 (3.3 yd^3)	5.5 (3.9 yd^3)
METRIC KILOGRAMS (METER³)	**150 mm**	**305 mm**	**460 mm**
StormTech SC-740	3450 (2.1 m^3)	4170 (2.5 m^3)	4490 (3.0 m^3)

Note: Assumes 6" (150 mm) of stone above, and between chambers.

Volume of Excavation Per Chamber

	Stone Foundation Depth		
	6" (150 mm)	12" (305 mm)	18" (460 mm)
StormTech SC-740	5.5 (4.2)	6.2 (4.7)	6.8 (5.2)

Note: Volumes are in cubic yards (cubic meters) per chamber. Assumes 6" (150 mm) of separation between chamber rows and 18" (460 mm) of cover. The volume of excavation will vary as the depth of the cover increases.

STANDARD LIMITED WARRANTY OF STORMTECH LLC ("STORMTECH"): PRODUCTS

(A) This Limited Warranty applies solely to the StormTech chambers and endplates manufactured by StormTech and sold to the original purchaser (the "Purchaser"). The chambers and endplates are collectively referred to as the "Products."

(B) The structural integrity of the Products, when installed strictly in accordance with StormTech's written installation instructions at the time of installation, are warranted to the Purchaser against defective materials and workmanship for one (1) year from the date of purchase. Should a defect appear in the Limited Warranty period, the Purchaser shall provide StormTech with written notice of the alleged defect at StormTech's corporate headquarters within ten (10) days of the discovery of the defect. The notice shall describe the alleged defect in reasonable detail. StormTech agrees to supply replacements for those Products determined by StormTech to be defective and covered by this Limited Warranty. The supply of replacement products is the sole remedy of the Purchaser for breaches of this Limited Warranty. StormTech's liability specifically excludes the cost of removal and/or installation of the Products.

(C) **THIS LIMITED WARRANTY IS EXCLUSIVE. THERE ARE NO OTHER WARRANTIES WITH RESPECT TO THE PRODUCTS, INCLUDING NO IMPLIED WARRANTIES OF MERCHANT-ABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE.**

(D) This Limited Warranty only applies to the Products when the Products are installed in a single layer. **UNDER NO CIRCUMSTANCES, SHALL THE PRODUCTS BE INSTALLED IN A MULTI-LAYER CONFIGURATION.**

(E) No representative of StormTech has the authority to change this Limited Warranty in any manner or to extend this Limited Warranty. This Limited Warranty does not apply to any person other than to the Purchaser.

(F) Under no circumstances shall StormTech be liable to the Purchaser or to any third party for product liability claims; claims arising from the design, shipment, or installation of the Products, or the cost of other goods or services related to the purchase and installation of the Products. For this Limited Warranty to apply, the Products must be installed in accordance with all site conditions required by state and local codes; all other applicable laws; and StormTech's written installation instructions.

(G) **THE LIMITED WARRANTY DOES NOT EXTEND TO INCIDENTAL, CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES. STORMTECH SHALL NOT BE LIABLE FOR PENALTIES OR LIQUIDATED DAMAGES, INCLUDING LOSS OF PRODUCTION AND PROFITS; LABOR AND MATERIALS; OVERHEAD COSTS; OR OTHER LOSS OR EXPENSE INCURRED BY THE PURCHASER OR ANY THIRD PARTY. SPECIFICALLY EXCLUDED FROM LIMITED WARRANTY COVERAGE ARE DAMAGE TO THE PRODUCTS ARISING FROM ORDINARY WEAR AND TEAR; ALTERATION, ACCIDENT, MISUSE, ABUSE OR NEGLECT; THE PRODUCTS BEING SUBJECTED TO VEHICLE TRAFFIC OR OTHER CONDITIONS WHICH ARE NOT PERMITTED BY STORMTECH'S WRITTEN SPECIFICATIONS OR INSTALLATION INSTRUCTIONS; FAILURE TO MAINTAIN THE MINIMUM GROUND COVERS SET FORTH IN THE INSTALLATION INSTRUCTIONS; THE PLACEMENT OF IMPROPER MATERIALS INTO THE PRODUCTS; FAILURE OF THE PRODUCTS DUE TO IMPROPER SITING OR IMPROPER SIZING; OR ANY OTHER EVENT NOT CAUSED BY STORMTECH. THIS LIMITED WARRANTY REPRESENTS STORMTECH'S SOLE LIABILITY TO THE PURCHASER FOR CLAIMS RELATED TO THE PRODUCTS, WHETHER THE CLAIM IS BASED UPON CONTRACT, TORT, OR OTHER LEGAL THEORY.**

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ATTACHMENT 3: STRUCTURAL BMP MAINTENANCE INFORMATION

This is the cover sheet for Attachment 3.

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Project Name: Virginia Parking Structure

Indicate which Items are Included:

Attachment Sequence	Contents	Checklist
Attachment 3a	Structural BMP Maintenance Thresholds and Actions (Required)	☒ Included See Structural BMP Maintenance Information Checklist.
Attachment 3b	Maintenance Agreement (Form DS-3247) (when applicable)	☒ Included ☐ Not Applicable

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Attachment 3a: Structural BMP Maintenance Thresholds and Actions

Use this checklist to ensure the required information has been included in the Structural BMP Maintenance Information Attachment:

Preliminary Design / Planning / CEQA level submittal:

- Attachment 3a must identify:

  ☒ Typical maintenance indicators and actions for proposed structural BMP(s) based on Section 7.7 of the BMP Design Manual

- Attachment 3b is not required for preliminary design / planning / CEQA level submittal.

Final Design level submittal:

Attachment 3a must identify:

☒ Specific maintenance indicators and actions for proposed structural BMP(s). This shall be based on Section 7.7 of the BMP Design Manual and enhanced to reflect actual proposed components of the structural BMP(s)
☒ How to access the structural BMP(s) to inspect and perform maintenance
☒ Features that are provided to facilitate inspection (e.g., observation ports, cleanouts, silt posts, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds)
☐ Manufacturer and part number for proprietary parts of structural BMP(s) when applicable
☐ Maintenance thresholds specific to the structural BMP(s), with a location-specific frame of reference (e.g., level of accumulated materials that triggers removal of the materials, to be identified based on viewing marks on silt posts or measured with a survey rod with respect to a fixed benchmark within the BMP)
☐ When applicable, frequency of bioretention soil media replacement.
☒ Recommended equipment to perform maintenance
☐ When applicable, necessary special training or certification requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management

Attachment 3b: For private entity operation and maintenance, Attachment 3b must include a Storm Water Management and Discharge Control Maintenance Agreement (Form DS-3247). The following information must be included in the exhibits attached to the maintenance agreement:

☐ Vicinity map
☐ Site design BMPs for which DCV reduction is claimed for meeting the pollutant control obligations.
☐ BMP and HMP location and dimensions
☐ BMP and HMP specifications/cross section/model
☐ Maintenance recommendations and frequency
☐ LID features such as (permeable paver and LS location, dim, SF).

Project Name: Virginia Parking Structure

MAINTENANCE OF OPEN BOTTOM ARCH CHAMBER SYSTEMS BMPs

Project Name: Virginia Avenue Parking Structure
Permit Application Number:

The proposed open bottom arch chamber systems (IMP 'A', IMP 'B') as shown on the Storm Water Treatment & Hydromodification Exhibit in Attachment 1e will be maintained in accordance with manufacturer guidelines.

Fred Sobke Date
Baja-Mex Insurance Services
4575 Camino De La Plaza
San Ysidro, CA 92173
Tel: (619) 428-1616

12.0 Inspection and Maintenance

12.1 ISOLATOR ROW INSPECTION

Regular inspection and maintenance are essential to assure a properly functioning stormwater system. Inspection is easily accomplished through the manhole or optional inspection ports of an Isolator Row. Please follow local and OSHA rules for a confined space entry.

Inspection ports can allow inspection to be accomplished completely from the surface without the need for a confined space entry. Inspection ports provide visual access to the system with the use of a flashlight. A stadia rod may be inserted to determine the depth of sediment. If upon visual inspection it is found that sediment has accumulated to an average depth exceeding 3" (76 mm), cleanout is required.

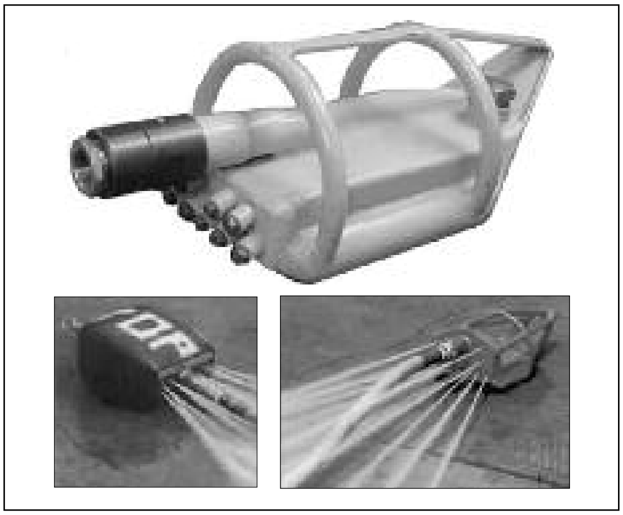
A StormTech Isolator Row should initially be inspected immediately after completion of the site's construction. While every effort should be made to prevent sediment from entering the system during construction, it is during this time that excess amounts of sediments are most likely to enter any stormwater system. Inspection and maintenance, if necessary, should be performed prior to passing responsibility over to the site's owner. Once in normal service, a StormTech Isolator Row should be inspected bi-annually until an understanding of the sites characteristics is developed. The site's maintenance manager can then revise the inspection schedule based on experience or local requirements.

12.2 ISOLATOR ROW MAINTENANCE

JetVac maintenance is recommended if sediment has been collected to an average depth of 3" (76 mm) inside the Isolator Row. More frequent maintenance may be required to maintain minimum flow rates through the Isolator Row. The JetVac process utilizes a high pressure water nozzle to propel itself down the Isolator Row while scouring and suspending sediments. As the nozzle is retrieved, a wave of suspended sediments is flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/ JetVac combination vehicles. Fixed nozzles designed for culverts or large diameter pipe cleaning are preferable. Rear facing jets with an effective spread of at least 45" (1143 mm) are best. The JetVac process shall only be performed on StormTech Rows that have AASHTO class 1 woven geotextile over the foundation stone (ADS 315ST or equal).

Looking down the Isolator Row.

A typical JetVac truck. (This is not a StormTech product.)



Examples of culvert cleaning nozzles appropriate for Isolator Row maintenance. (These are not StormTech products.)

12.0 Inspection & Maintenance

STORMTECH ISOLATOR™ ROW - STEP-BY-STEP MAINTENANCE PROCEDURES

Step 1) Inspect Isolator Row for sediment

- A) Inspection ports (if present)
    - i. Remove lid from floor box frame
    - ii. Remove cap from inspection riser
    - iii. Using a flashlight and stadia rod, measure depth of sediment
    - iv. If sediment is at, or above, 3" (76 mm) depth proceed to Step 2. If not proceed to Step 3.
- B) All Isolator Rows
    - i. Remove cover from manhole at upstream end of Isolator Row
    - ii. Using a flashlight, inspect down Isolator Row through outlet pipe
        1. Follow OSHA regulations for confined space entry if entering manhole
        2. Mirrors on poles or cameras may be used to avoid a confined space entry
    - iii. If sediment is at or above the lower row of sidewall holes [approximately 3" (76 mm)] proceed to Step 2. If not proceed to Step 3.

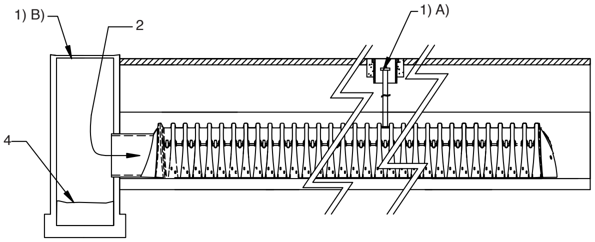
Step 2) Clean out Isolator Row using the JetVac process

- A) A fixed floor cleaning nozzle with rear facing nozzle spread of 45" (1143 mm) or more is preferable
- B) Apply multiple passes of JetVac until backflush water is clean
- C) Vacuum manhole sump as required during jetting

Step 3) Replace all caps, lids and covers

Step 4) Inspect and clean catch basins and manholes upstream of the StormTech system following local guidelines.

Figure 20 – StormTech Isolator Row (not to scale)



12.3 ECCENTRIC PIPE HEADER INSPECTION

Theses guidelines do not supercede a pipe manufacturer's recommended I&M procedures. Consult with the manufacturer of the pipe header system for specific I&M procedures. Inspection of the header system should be carried out quarterly. On sites which generate higher levels of sediment more frequent inspections may be necessary. Headers may be accessed through risers, access ports or manholes. Measurement of sediment may be taken with a stadia rod or similar device. Cleanout of sediment should occur when the sediment volume has reduced the storage area by 25% or the depth of sediment has reached approximately 25% of the diameter of the structure.

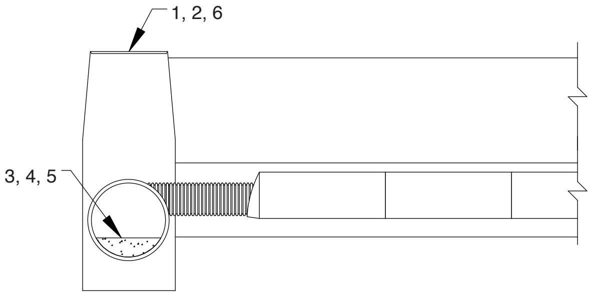
12.4 ECCENTRIC PIPE MANIFOLD MAINTENANCE

Cleanout of accumulated material should be accomplished by vacuum pumping the material from the header. Cleanout should be accomplished during dry weather. Care should be taken to avoid flushing sediments out through the outlet pipes and into the chamber rows.

Eccentric Header Step-by-Step Maintenance Procedures

1. Locate manholes connected to the manifold system
2. Remove grates or covers
3. Using a stadia rod, measure the depth of sediment
4. If sediment is at a depth of about 25% pipe volume or 25% pipe diameter proceed to step 5. If not proceed to step 6.
5. Vacuum pump the sediment. Do not flush sediment out inlet pipes.
6. Replace grates and covers
7. Record depth and date and schedule next inspection

Figure 21 – Eccentric Manifold Maintenance



Please contact StormTech's Technical Services Department at 888-892-2894 for a spreadsheet to estimate cleaning intervals.

Attachment 3b: Draft Maintenance Agreement (when applicable)

ATTACHMENT 4: COPY OF PLAN SHEETS SHOWING PERMANENT STORM WATER BMPS

This is the cover sheet for Attachment 4.

PLEASE SEE STORM WATER TREATMENT & HYDROMODIFICATION EXHIBIT IN ATTACHMENT 1a

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Use this checklist to ensure the required information has been included on the plans:

The plans must identify:

☒ Structural BMP(s) with ID numbers matching Form I-6 Summary of PDP Structural BMPs
☒ The grading and drainage design shown on the plans must be consistent with the delineation of DMAs shown on the DMA exhibit
☐ Details and specifications for construction of structural BMP(s)
☐ Signage indicating the location and boundary of structural BMP(s) as required by the City Engineer
☐ How to access the structural BMP(s) to inspect and perform maintenance
☐ Features that are provided to facilitate inspection (e.g., observation ports, cleanouts, silt posts, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds)
☐ Manufacturer and part number for proprietary parts of structural BMP(s) when applicable
☐ Maintenance thresholds specific to the structural BMP(s), with a location-specific frame of reference (e.g., level of accumulated materials that triggers removal of the materials, to be identified based on viewing marks on silt posts or measured with a survey rod with respect to a fixed benchmark within the BMP)
☐ Recommended equipment to perform maintenance
☐ When applicable, necessary special training or certification requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management
☐ Include landscaping plan sheets showing vegetation requirements for vegetated structural BMP(s)
☒ All BMPs must be fully dimensioned on the plans
☐ When proprietary BMPs are used, site specific cross section with outflow, inflow and model number shall be provided. Broucher photocopies are not allowed.

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ATTACHMENT 5: PRELIMINARY DRAINAGE REPORT

Attach project's drainage report. Refer to Drainage Design Manual to determine the reporting requirements.

PLEASE SEE SEPARATE DOCUMENT

PRELIMINARY DRAINAGE STUDY FOR

VIRGINIA AVENUE PARKING STRUCTURE

PREPARED BY

Civil Engineering/Surveying/Planning

STUART ENGINEERING

Revised March 18, 2016

January 21, 2016

August 6, 2015

March 26, 2015

September 9, 2014

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ATTACHMENT 6: GEOTECHNICAL AND GROUNDWATER INVESTIGATION REPORT

Attach project's geotechnical and groundwater investigation report. Refer to Appendix C.4 to determine the reporting requirements.

PLEASE SEE SEPARATE DOCUMENT(s)

1. **Report of Preliminary Geotechnical Investigation, Virginia Avenue Parking Structure, 4575 Camino De La Plaza, San Ysidro, California, dated April 13, 2015**
2. **Geotechnical Investigation for Propsoed Infiltration Devices, Virginia Avenue Parking Structure, 4757 Camino De La Plaza, California, dated July 25, 2016.**

PREPARED BY

CHRISTIAN WHEELER ENGINEERING
1980 Home Avenue
San Diego, CA 92105
(619) 550-1700

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ATTACHMENT 7: STORMWATER INFILTRATION ASSESSMENT REPORT

Attach project's geotechnical and groundwater investigation report. Refer to Appendix C.4 to determine the reporting requirements.

PLEASE SEE SEPARATE DOCUMENT

Stormwater Infiltration Assessment, Virginia Avenue Parking Structure, 4575 Camino De La Plaza, San Ysidro, California, dated July 22, 2016

PREPARED BY

Royal Environmental Services, Inc.
4705 50th Street, San Diego, CA 92115
(619) 985-63630