10130 ADELLA PROJECT

CEQA Class 32 Categorical Exemption Report

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1.0 INTRODUCTION

1.1 Background

The proposed 10130 Adella Project (Project) site (APN 6221-026-020) is located within the Tweedy Boulevard Specific Plan (TBSP) Area. The TBSP (Ordinance No. 2359) was adopted by the South Gate City Council on March 12, 2019. The purpose of the TBSP is to revitalize the Tweedy corridor as a citywide and regional destination, restore its "sense of place," and improve access to all modes of active transportation, including walking, bicycling and transit.

The TBSP area consists of approximately 622 acres and is generally bounded by Indiana Avenue to the north and Michigan Avenue to the south, Alameda Corridor/the City of Los Angeles to the west, and the Los Angeles River to the east. The Specific Plan divides the area into three sectors: Tweedy West Subarea, Tweedy Mile Subarea, and Tweedy East Subarea. The Project site is in the Tweedy East Subarea which extends between Hunt Avenue and the Los Angeles River. Most of this subarea is characterized by single family residential development with some multi-family residential uses. Commercial uses are located at the intersection of Atlantic Avenue and Tweedy Boulevard. Industrial uses are located on the east side of Atlantic Avenue. The Legacy High School complex is located east of Atlantic Avenue near the Project site. The Project site is identified as an opportunity for additional flexibility for development.

1.2 CEQA Compliance

CEQA Guidelines Section 15300, *Categorical Exemptions*, states Section 21804 of the Public Resources Code requires these Guidelines to include a list of classes of projects which have been determined not to have a significant effect on the environment and which shall, therefore, be exempt from the provisions of CEQA. As a result, several classes of projects have been identified and declared to be categorically exempt from the requirement for the preparation of environmental documents. CEQA Guidelines Section 15332, *In-fill Development Projects*, states Class 32 consists of projects characterized as in-fill development meeting the following conditions:

(a) The project is consistent with the applicable general plan designation and all applicable general plan policies as well as with applicable zoning designation and regulations.

(b) The proposed development occurs within city limits on a project site of no more than five acres substantially surrounded by urban uses.

(c) The project site has no value as habitat for endangered, rare or threatened species.

(d) Approval of the project would not result in any significant effects relating to traffic, noise, air quality, or water quality.

(e) The site can be adequately served by all required utilities and public services.

This report serves as the technical documentation and analysis for the proposed 10130 Adella Project (Project) in the City of South Gate. The analysis is intended to determine whether the Project is eligible for an exemption from further environmental review pursuant to Public Resources Code Section 15332, *In-fill Development Projects*, based upon the findings documented in Section 3.0 and Section 4.0 of this report.

2.0 PROJECT DESCRIPTION

2.1 Project Location

The 10130 Adella Project (Project) is located at the intersection of Adella Avenue and Legacy Lane, in the eastern portion of the City of South Gate (City) within the County of Los Angeles; refer to Figure 1, *Regional Map*. The Project site is comprised of one parcel (APNs 6221-026-020) totaling approximately 2.02 acres; refer to Figure 2, *Vicinity Map*.

Regional access to the site is provided via Interstate 710 (I-710) located to the south of the Project site. Local access to the site is provided from Adella Avenue and Legacy Lane via Tweedy Boulevard.

2.2 Existing Setting

On-Site Land Uses

The Project site is a relatively flat, rectangular shaped property with elevations ranging from approximately 95.5 to 98.9 feet above mean sea level. The Project site is undeveloped and primarily comprised of ruderal vegetation and coarse fill. Fencing currently surrounds the Project site. Two driveway aprons, one located on the northern perimeter connecting to Legacy Lane and one located on the southwestern perimeter connecting to Adella Avenue, provide access to the Project site.

General Plan and Zoning

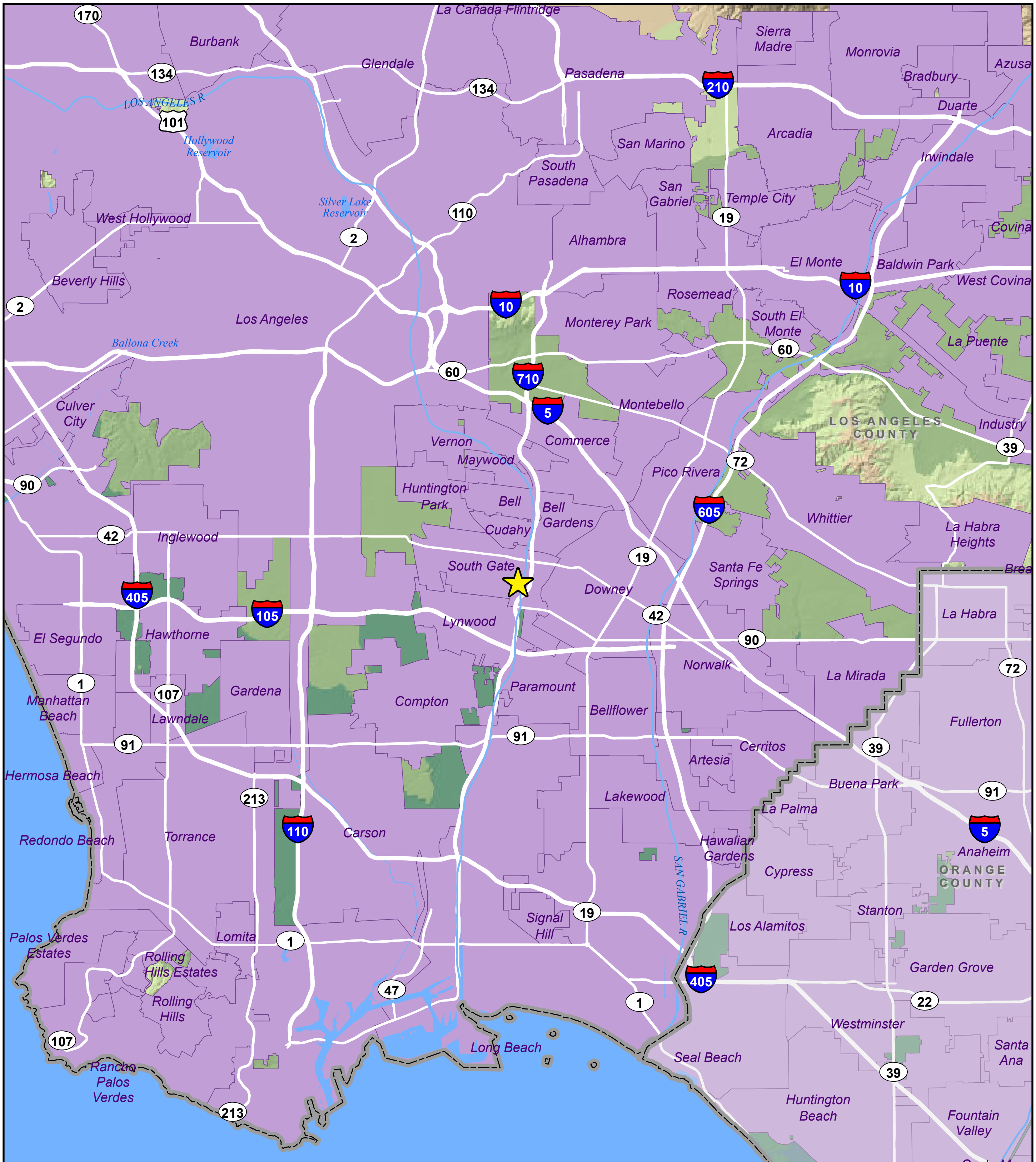
According to the South Gate General Plan 2035 Community Design Element (Figure CD 4 Districts), the Project site is within the Tweedy Education District. Several place types (Table CD 7, Allowable Place Types by District) are allowed within the Tweedy Education District. The Neighborhood Medium-High designation is identified as a desired place type. This designation provides for duplexes/triplexes/fourplexes, townhouses/rowhouses, multi-family, parks/plazas/open space, education, cultural, public assembly, and civic/institutional land uses at a density of 21-40 units/acre, maximum of 4 stories (with bonus of up to 45 units per acre and 5 stories).

According to the City's Zoning Map, the Project site is located in the Tweedy Boulevard Specific Plan (TBSP) Area. The TBSP (March 2019) states the major objectives of the TBSP are to identify land use options that include expanding existing retail, providing new ground floor retail and mixed uses, increasing housing opportunities, and preserving existing industrial uses located to the west of Atlantic Avenue. TBSP Figure 2-1, Land Use and Design Opportunities, characterizes the Project site as "Provide Additional Flexibility for Development," and TBSP Figure 4-1, Specific Plan Zones, identifies the zoning for the site as Industrial Flex (IF) – 2.0 FAR. The IF zone provides flexibility to transition to other uses, while enabling existing industrial operations to expand if they so desire. Multi-family residential uses are permitted subject to review and approval of an administrative plan review within the IF zone. The IF development standards provide for a maximum residential density of 40 dwelling units (du) per acre and a maximum of 60 dwelling units per acre with bonus.

Surrounding Uses

Uses surrounding the Project site include:

- North: Immediately north of the Project site is Legacy Lane. To the north of Legacy Lane are the baseball and softball fields within the Legacy High School campus, zoned Civic (CV).
- East: East of the Project site is a construction/truck laydown yard zoned IF. To the east of this property is the Los Angeles River.
- South: South of and adjacent to the Project site is a Southern California Edison (SCE) easement and single-family residential uses are located south of the SCE easement, within the TBSP. The SCE easement is zoned IF and the residential properties are zoned Neighborhood Low (NL). Further south, outside of the TBSP area, the single-family residential properties are also zoned NL.
- West: Immediately west of the Project site are Legacy Lane and Adella Avenue. North of Legacy Lane and west of Adella Avenue are undeveloped lots within the Legacy High School Complex (zoned CV). South of Legacy Lane and west of Adella Avenue are single-family residential uses zoned NL.



LEGEND

Project Location

County Boundary

Incorporated Area

Sources: Los Angeles County GIS; California State Geoportal. Map date: February 13, 2025.

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Figure 1. Regional Map

LEGEND

- Project Site
- City Boundaries
- Natural Areas & Wildlife Sanctuaries
- Regional Parks & Gardens
- Public Elementary Schools
- Public High Schools

N

0 100 200

US Feet

10130 ADELLA CE PROJECT

Figure 2. Vicinity Map

Sources: ArcGIS Map Service; Los Angeles County GIS. Map date: March 10, 2025.

2.3 Project Characteristics

The Project Applicant requests approval of a Vesting Tentative Tract Map (VTTM) and Design Review to allow development of a residential community consisting of 54-units, including six affordable units, as described below.

Proposed Residential Development

The Project proposes to construct 54-unit, three-story attached townhomes in six buildings (120,089 gross square-feet (SF); 25.5 du/acre); refer to Figure 3, *Proposed Site Plan*. Each building would contain nine units and have a maximum height of 37 feet one inch (to the roof peak). The units would consist of a mix of floor plans with three- to four-bedroom options, ranging in size from 1,304 to 1,705 square feet. Six (12 percent) of the units would be provided at the moderate-income level.

Existing perimeter fencing would be removed, and new screen walls consisting of six-foot block retaining walls would be constructed along the eastern and southern property lines.

Common Open Space, Amenities, and Landscaping

Approximately 25,739 square feet of open space is proposed including 13,843 square feet within private decks and patios and 11,896 square feet within common open space areas. Two linear common open space areas would be situated between Buildings 2 and 3 (The Paseo) and Buildings 4 and 5 (Core Common Open Space); refer to Figure 4, Conceptual Landscape Plan.

The Paseo would be accessed via pedestrian walkways and include open lawn and seating areas; refer to Figure 4. Shade trees, accent landscaping with décor gravel and screening trees and vine plantings would also be provided.

The Core Common Open Space would also be accessed via pedestrian walkways and include an event lawn for outdoor activities, shade trellis with picnic tables and BBQ, and seating areas; refer to Figure 4. Accent trees with décor gravel, canopy trees with string lighting, decomposed granite paving, and screening shrubs and vine plantings would also be provided.

Transformers would be located within each of the common open space areas, adjacent to Legacy Lane. A mailbox cluster would also be provided adjacent to the Common Outdoor Open Space area.

In addition to landscaping provided within the common open space areas, trees, shrubs, and ground cover would be installed along the perimeter of the site and adjacent to the individual units; refer to Figure 4. Pedestrian walkways would extend within the Project site and to individual units.

As part of the Project, the sidewalks along Legacy Lane and Adella Avenue would remain in place. New curb, gutter and sidewalks would be constructed upon removal of the existing driveway aprons. Construction of the new driveways, as described below, would require the removal of an existing tree well and streetlight, which would be relocated.

Vehicular Access and Parking

The existing driveway aprons would be removed, and vehicular access would be provided from Legacy Lane. Three shared driveways (minimum drive aisles of 26 feet wide) would extend south into the site providing access to the private residential garages; refer to Figure 3 and Figure 4. The Project would provide a total of 108 parking spaces, with each unit featuring an attached two-car garage. Trash enclosures would be provided at the terminus of each driveway.

Architecture

The Project proposes two building types in an Arts and Crafts-inspired design; refer to Figure 5a, *Building "A"- Building Elevations*, and Figure 5b, *Building "B"- Building Elevations*. Each building would include balconies, porches, and patios. The buildings would have different pitches and ridges in the roofs and two different color schemes with a variety of building materials to highlight the building elevations. Materials include a concrete tile roof, tapered smooth columns, stucco light sand finish coating, horizontal siding, decorative shutters, and wood railings. Additionally, the proposed development features bay windows, light fixtures, and sectional garage doors.

Infrastructure and Utilities

Dry utilities, including electricity, natural gas, and telephone lines currently serve the Project site and surrounding area. The overhead power lines located outside of the eastern, western, and southern sides of the Project site would remain in place. The existing guy wire near the western side of the Project site on Adella Avenue would be relocated. As part of the Project, two transformers would be installed onsite. The Project would be all-electric; no natural gas connections would be necessary.

Domestic water and sanitary sewer lines are located within Legacy Lane and Adella Lane, adjacent to the Project site. As part of the Project, domestic water lines (8-inch) and sanitary sewer lines (8-inch) would be installed within the driveways and connect to existing off-site infrastructure within Legacy Lane. The existing fire hydrant near the northwestern corner of the Project site along Adella Avenue would be protected in place and a new fire hydrant would be provided along Legacy Lane.

The proposed Project would provide onsite curbs and gutters to convey runoff to sump areas equipped with grated inlet catch basins near the driveway entrances. The catch basins would be connected by a stormdrain pipe to convey runoff towards the proposed infiltration trench downstream for water quality treatment and infiltration.

Project Construction and Phasing

Project construction activities are anticipated to be initiated in June 2025 and occur over approximately 13 months with completion anticipated in September 2026. No demolition is required; the Project site is currently vacant with no structures or hardscape.

Requested Entitlements

The Project Applicant requests approval of the following entitlements:

- Vesting Tentative Tract Map (VTTM No. 84531) to create a subdivision for Condominium Purposes; and
- Administrative Plan Review and Design Review to ensure compliance with the TBSP desired development.

2.4 Discretionary Approvals

The City of South Gate, as the Lead Agency, has discretionary authority over the proposed Project. The Project would be subject to various City permits and approvals, including, but not limited to:

- Vesting Tentative Tract Map (VTTM)
- Administrative Plan Review
- Design Review; and
- Los Angeles Regional Water Quality Control Board – National Pollutant Discharge Elimination System (NPDES) Compliance/Low Impact Development (LID) approvals.

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LEGEND

3-STORY UNITS

- PLAN 1 - 3 BEDROOM: 30 UNITS
- PLAN 2 - 4 BEDROOM: 18 UNITS
- PLAN 3 - 4 BEDROOM: 6 UNITS
- OPEN SPACE - COMMON
- OPEN SPACE - PRIVATE (GROUND FLOOR PATIOS ONLY)

- UNIT ENTRY
- BLDG # — NUMBER
- n-PLEX — TYPE
- ELEV n — ELEVATION
- PROJECT BOUNDARY
- OVERHEAD POWER LINE
- A — ACCESSIBLE UNIT
- TRANSFORMER

Sources: KTGY. Map date: February 13, 2025.

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Figure 3. Proposed Site Plan

LEGEND

1 Project Entry
2 Canopy Street Trees with Accent Planting
3 The Core Common Open Space (refer to Enlargement L-3
4 The Paseo (refer to Enlargement L-4)
5 Pedestrian Walkway
6 Screening Trees with Vine Planting
7 Shared Drive
8 Transformer
9 AC Units
10 Existing Street Tree (To Be Protected In Place)
11 Mailbox Cluster
12 Trash Enclosure

Common Outdoor Open Space: 11,902 s.f. (.27 ac)

Private Open Space: 9,922.0 s.f. (.23 ac)

Sources: C2 Collaborative. Map date: February 13, 2025.

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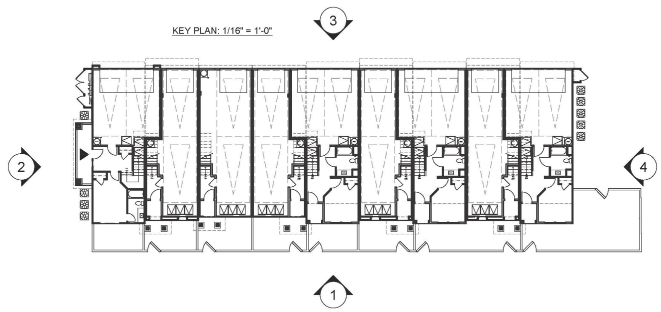
Figure 4. Conceptual Landscape Plan

1 FRONT - ADELLA LANE OR COMMON OPEN SPACE AREAS

KEY PLAN: 1/16" = 1'-0"



2 LEFT - LEGACY LANE

MATERIAL LEGEND

1	CONCRETE TILE ROOF
2	TAPERED SMOOTH COLUMN 22" AT BASE/20" AT CAPITAL
3	STUCCO, LIGHT SAND FINISH
4	SMOOTH LAP HORIZONTAL SIDING
5	VINYL WINDOWS
6	FIBER CEMENT TRIM
7	FOAM TRIM W/ STUCCO OVER
8	ENTRY DOOR
9	SECTIONAL GARAGE
10	LIGHT FIXTURE
11	WOOD RAILING
12	UTILITY DOOR
13	WOOD OUTLOOKERS
14	WOOD TRUSS TAIL
15	BAY WINDOW
16	CEMENTITIOUS VERT. BOARD & BATT AT GABLE
17	DECORATIVE SHUTTERS

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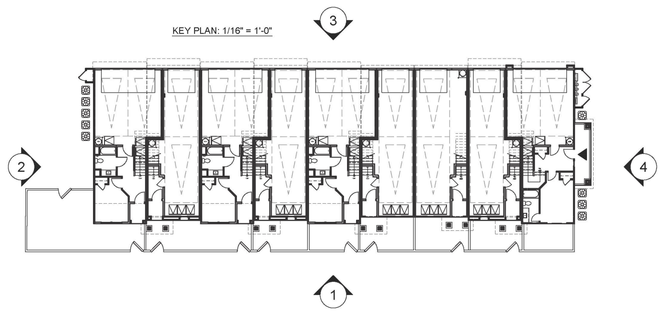
Figure 5a. Building "A"- Building Elevations

Sources: KTGY. Map date: February 13, 2025.

3 REAR



4 RIGHT - LEGACY LANE

MATERIAL LEGEND	
1	CONCRETE TILE ROOF
2	TAPERED SMOOTH COLUMN 22" AT BASE/20" AT CAPITAL
3	STUCCO, LIGHT SAND FINISH
4	SMOOTH LAP HORIZONTAL SIDING
5	VINYL WINDOWS
6	FIBER CEMENT TRIM
7	FOAM TRIM W/ STUCCO OVER
8	ENTRY DOOR
9	SECTIONAL GARAGE
10	LIGHT FIXTURE
11	WOOD RAILING
12	UTILITY DOOR
13	WOOD OUTLOOKERS
14	WOOD TRUSS TAIL
15	BAY WINDOW
16	CEMENTITIOUS VERT. BOARD & BATT AT GABLE
17	DECORATIVE SHUTTERS

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Figure 5b. Building “B”- Building Elevations

Sources: KTGY. Map date: February 13, 2025.

3.0 CEQA GUIDELINES SECTION 15332. IN-FILL DEVELOPMENT PROJECTS

Class 32 Categorical Exemption Conditions Analysis

CEQA Guidelines Section 15332 establishes the following conditions for projects characterized as in-fill development to meet the conditions to be exempt. As demonstrated below, the proposed Project meets the conditions for a Class 32 Categorical Exemption.

Condition (a) ***The project is consistent with the applicable general plan designation and all applicable general plan policies as well as with applicable zoning designation and regulations.***

General Plan

As identified in *South Gate General Plan 2035* (General Plan), the Project site's General Plan land use designation is Tweedy Education District. The area is a former industrial area that currently has a large amount of vacant land and abandoned buildings. The vision for the Tweedy Educational District is to create a new, 21st century educational complex that is supported by complimentary uses that contribute to the improvement of the City. The Tweedy Education District land use designation is also described as providing new public educational facilities and other uses such as parks, cultural facilities, and retail uses.

Instead of providing an allowable future land use for each parcel, the General Plan uses "Place Types" – designations, which moves beyond land use to also include form and character requirements. The Neighborhood Medium-High designation is a desired place type within the Tweedy Educational District (Table CD 7, Allowable Place Types by District). This designation provides for duplexes/triplexes/fourplexes, townhouses/rowhouses, multi-family, parks/plazas/open space, education, cultural, public assembly, and civic/institutional land uses at a density of 21-40 units/acre, maximum of 4 stories (with bonus of up to 45 units per acre and 5 stories).

The Project site is comprised of one parcel (APN 6221-026-020) totaling approximately 2.02 acres. The Project proposes to construct 54 attached townhomes in six buildings (120,089 gross square feet (SF); 25.5 du/acre). The Project is consistent with the Tweedy Education District land use designation and the Neighborhood Medium-High place type.

An analysis of the proposed Project's consistency with relevant policies of the City of South Gate General Plan Community Design Element, including those adopted for the purpose of avoiding or mitigating an environmental effect, is provided in <u>Table 1</u>, <u>*South Gate General Plan Policy Consistency Analysis*</u>.

Table 1
South Gate General Plan Policy Consistency Analysis

Community Design Policy	Consistency Analysis
Goal 1: An enhanced image and identity within the region.	
Policy 1.1.1 The City should accommodate its share of regional housing needs to help house the next generation of California residents.	Consistent. The Project proposes to construct 54 townhomes including six affordable units on an existing vacant lot, contributing to the City's share of regional housing needs for South Gate residents.
Goal CD 2: A complete, integrated and balanced mix of residential and non-residential uses that meets the needs of existing and future residents.	
Policy 2.1.1 New development and redevelopment will be encouraged to advance a unified and coherent pattern of development, maximize the use of land and fill gaps in the urban environment.	Consistent. The proposed residential Project would be constructed on an existing vacant lot, surrounded by existing development, including residential development to the west and south. Development of the site, as proposed, would fill a gap in the urban environment through development of a vacant site with residential uses.
Policy 2.6.2 New development should pay its fair share of required improvements to public facilities and services.	Consistent. The proposed Project would be required to pay development impact fees per the South Gate Municipal Code Chapter 9.46, Development Impact Fee, ensuring its fair share of funding for necessary improvements to public services and facilities.
Policy 2.6.3 Infrastructure should be in place or planned prior to approval of new development projects that require such infrastructure.	Consistent. Dry utilities, including electricity, natural gas, and telephone lines currently serve the surrounding area. Domestic water and sanitary sewer lines are located within Legacy Lane and Adella Lane, adjacent to the Project site. As part of the Project, on-site utilities would be installed and would connect to existing off-site infrastructure to serve the proposed development.
Goal CD 3: Integrated land use and transportation development that encourages walking, biking, and the use of public transportation	
Policy 3.1.5 Higher intensity residential and commercial development will be encouraged within ¼ mile of existing and potential future high frequency bus transit corridors, especially in areas where two or more high frequency transit lines cross. These areas include the following intersections: Firestone Boulevard and Atlantic Avenue; Firestone Boulevard and California Street; Firestone Boulevard and Long Beach Boulevard; Long Beach Boulevard and Tweedy Boulevard; Tweedy Boulevard and Atlantic	Consistent. The Project site is located within 0.2 miles of Atlantic Avenue which is designated as a High Quality Transit Corridor. The Project would result in the development of 54 townhome units on an undeveloped site within proximity to high frequency bus transit corridors.

Community Design Policy	Consistency Analysis
Avenue; Firestone Boulevard and Garfield Avenue; and Garfield Avenue and Imperial Boulevard.	
Goal CD 4: Preservation and enhancement of existing neighborhoods' quality and character	
Policy 4.1.4 New development projects or infrastructure projects should not physically divide established neighborhoods.	Consistent. The Project proposes a townhome development on an undeveloped property with residential uses located south, an industrial use located to the east, and education uses located to the north and northwest. The Project would not physically divide an established neighborhood. The Project would provide for a transition between the established residential neighborhood to the south of the Project site and the educational uses located north of the Project site.
Tweedy Educational District	
Policy 1 The residential neighborhoods to the north and south of the District should be buffered from new non-residential uses in the Tweedy Educational District. Policy 2 New residential uses, such as townhomes and small scale apartments, may be located on the north and/or south side of the Tweedy Educational District to serve as a buffer between the educational uses and the residential neighborhoods.	Consistent. The Project site is located in the Tweedy East Subarea which extends between Hunt Avenue and the Los Angeles River where most of this subarea is comprised of single-family residential uses with some multi-family uses. The Project site is located adjacent to an existing single-family residential neighborhood and would provide a buffer/transition between the residential neighborhood to the south and educational uses located to the north of the Project site.
Policy 4 The redevelopment of the District should provide direct and safe public access to the Los Angeles River through the site.	Consistent. The proposed Project would not impede direct and safe public access to the Los Angeles River, located to the east of the Project site.

In addition to the policies identified above, the City's General Plan Housing Element provides Policy HE 1.3.2, where the City encourages the use of density bonuses and other regulatory concessions to encourage affordable housing development. As described in the Zoning discussion below, the Project proposes 54 townhome units of which six units (12 percent) would be provided at the moderate-income level. Pursuant to State Density Bonus Law, the Project would be eligible for unlimited waivers to accommodate the proposed development with the affordable units.

Zoning

The Project site is located in the TBSP Area. TBSP Figure 2-1 (Land Use and Design Opportunities), characterizes the Project site as "Provide Additional Flexibility for Development," and TBSP Figure 4-1 (Specific Plan Zones), identifies the zoning for the site as Industrial Flex (IF) – 2.0 FAR. The IF zone provides flexibility to transition to other uses, while enabling existing industrial operations to expand if they so desire. Multi-family residential uses are permitted subject to review and approval of an administrative plan review within the IF zone. The IF development standards provide for a maximum residential density of 40 du per acre and a maximum of 60 du per acre with bonus.

The Project proposes to construct 54 townhome units at a density of 25.5 du/acre. The proposed Project would be consistent with the zoning for the Project site.

Request for Waivers

TBSP Table 4-5 (IF Development Standards) identifies the development standards applicable to development within the IF Zone.

The Project proposes 54 townhome units, of which six units (12 percent) would be provided at the moderate-income level. Pursuant to State Density Bonus Law, the Project would be eligible for unlimited waivers. The Project would be consistent with the development density of the IF Zone. In order to provide for the development of the Project, as proposed, the Applicant is requesting the following waivers:

Waivers	Required	Proposed
Front Setback – Legacy Lane	20 feet, 0 inches	4 feet, 6 inches
Street Side – Adella Avenue	20 feet, 0 inches	15 feet to 24 feet
Primary Frontage/Side Street Property Line	65 percent of the building shall include a 0-foot setback (build to the property line) and the remaining building façade may be set back up to 10 feet	Legacy Lane: 5 foot 11 inches to 6 feet 4 inch Adella Avenue: 12 feet 2 inch to 21 feet 1 inch
Third Floor Step-back	10 feet, 0 inches on 3rd Floor	No step-back; the proposed buildings would be setback 16-feet 7 inches from the property line and overhead lines within the SCE easement
Common Outdoor Open Space	20% of total lot size: 18,417 square feet	13,385 square feet
Common Indoor Open Space	One community room of at least 500 square feet	No community room is proposed as part of the Project
Overhead Lines	Underground overhead lines along Adella Avenue and Legacy Lane	The two power poles and overhead lines on the western edge of the Project site would remain in place.

In accordance with State Density Bonus law, the City must grant a waiver of any development standard that would preclude the construction of the Project within the permitted building envelope unless the City finds that the requested waiver would have a specific, adverse impact upon health, safety, or the physical environment, or would have an adverse impact on any property listed in the California Register of Historical Resources; or that the waiver would be contrary to state or federal law. The proposed waivers would not result in a direct physical impact on the environment due to a conflict with a regulation adopted for the purpose of avoiding or mitigating an environmental effect. Additionally, as discussed under Section 4.0, Exception (f) below, the Project would not have an adverse impact on a property listed in the California Register of Historical Resources.

Condition (b) ***The proposed development occurs within city limits on a project site of no more than five acres substantially surrounded by urban uses.***

The Project site is located in the City of South Gate within the County of Los Angeles. The site is comprised of one parcel (APN 6221-026-020) totaling approximately 2.02 acres located at the intersection of Adella Avenue and Legacy Lane, in the eastern portion of the City. As described in Section 2.0, Project Description and shown on Figure 2, the Project site is located within a developed urban area with Legacy High School campus zoned CV located to the north/northwest, a construction/truck laydown yard zoned IF located to the east, and a SCE easement zoned IF and single-family residential uses zoned NL within the TBSP located to the south.

Condition (c) ***The project site has no value as habitat for endangered, rare or threatened species.***

According to the General Plan Green City Element, the City is an entirely urbanized area, where plants and trees are limited to parks, streetscaping, some riparian zones around the Los Angeles River and Rio Hondo Channel, and private yards and gardens. There are no known threatened or endangered species and very sparse wildlife, though migratory or native birds may be found in natural areas such as South Gate Park or areas around the Los Angeles River. The Project site is undeveloped and has been regularly cleared with some ruderal vegetation and coarse fill remaining. The Project site has no value as a habitat for endangered, rare, or threatened species. Similarly, as described above, the Project site is located within a highly developed area of the City and does not provide habitat suitable for endangered, rare, or threatened species.

Condition (d) ***Approval of the project would not result in any significant effects relating to traffic, noise, air quality, or water quality.***

Traffic

Conflict with any Program, Plan, Ordinance or Policy

The proposed Project would not conflict with any program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.

Transit Facilities. The City operates a local transit bus system called the "Get Around Town Express" (GATE). The service runs on a continuous loop. The service operates for most of the year with a few exceptions. It runs Monday to Friday from 6:00 a.m. to 7:00 p.m., and Saturday from 8:00 a.m. to 5:00 p.m. There are no stops immediately adjacent to the Project site. The two stops closest to the site are Atlantic Avenue and Southern Avenue and Atlantic Avenue and Tweedy Boulevard.[1]

LA Metro provides regional bus service to the City. Lines 117, 260, and 261 provide service in proximity to the Project site. Line 117 provides service between Lakewood and LAX/Metro Transit Center with a stop at Atlantic Avenue and Tweedy Boulevard. Typically, Line 117 operates on weekdays and weekends from approximately 4:00 a.m. to 2:05 a.m. Lines 260 and 261 provide service along Atlantic Avenue between Pasadena and Compton. There is no stop within South Gate. The closest stops are at Atlantic and Slauson, north of the City and Atlantic and Martin Luther King Jr Boulevard, south of the City.

The Project site would continue to be served by the existing transit system after Project implementation. The population growth associated with the Project could incrementally increase the demand for public transit services. However, the Project would not conflict with a program plan, ordinance, or policy addressing transit and impacts would be less than significant.

Roadway Facilities. Local access to the site is provided from Adella Avenue and Legacy Lane via Tweedy Boulevard and Atlantic Avenue. According to the General Plan, Atlantic Avenue is a Boulevard (Primary Arterial), and Tweedy Boulevard is an Avenue (Secondary Arterial) west of Atlantic Avenue and a Street (Collector) east of Atlantic Avenue.

Boulevards are major streets that carry both local and through traffic and are expected to carry the highest volumes of traffic in the City. They provide limited access to adjacent land uses. Boulevards are multi-modal streets that serve as key transit corridors, emergency response routes, and may also serve as truck routes. They are functionally equivalent to a Primary Arterial.

Avenues are secondary streets that carry primarily local traffic and also some through traffic. They serve shorter trips and provide access to adjacent land uses. They are local transit corridors and are the primary bicycle routes and pedestrian routes in the City. Avenues are functionally equivalent to a Secondary Arterial.

Streets connect neighborhoods to each other and to commercial and other districts. They also connect arterials to local roads. Streets are functionally equivalent to Collector Streets.

[1] City of South Gate, *The Gate Get Around Town Express Eastside Route*, available at east_route_map_2023_2024.pdf, accessed March 5, 2025.

The Project does not propose any changes to Atlantic Avenue or Tweedy Boulevard. The two existing driveway aprons, one located on the northern perimeter connecting to Legacy Lane and one located on the southwestern perimeter connecting to Adella Avenue would be removed and vehicular access would be provided from Legacy Lane. Three shared driveways (minimum drive aisles of 26 feet wide) would extend south into the site providing access to the private residential garages. As part of the Project, the sidewalks along Legacy Lane and Adella Avenue would remain in place. New curb, gutter and sidewalks would be constructed upon removal of the existing driveway aprons. No other modifications to the existing roadways would occur.

Bicycle Facilities. There are no existing bicycle facilities adjacent to the Project site. A bike path is located adjacent to the Los Angeles River, located to the east of the Project site. The General Plan Mobility Element Figure ME 5 (Bicycle Plan) identifies Tweedy Boulevard and Legacy Lane as Class III Bike Streets connecting to a Class I Bike Path along the Los Angeles River. A Class III Bike Street is a signed street providing for shared use of a street by motor vehicles and bicyclists. While bicyclists have no exclusive use or priority, the signage (both by the side of the street and stenciled on the roadway surface) warns motorists of bicyclists sharing the roadway space. The Project would not prohibit or interfere with Legacy Lane as a Class III Bike Street.

The *City of South Gate Bicycle Transportation Plan* (Bicycle Plan), was adopted in October 2012. This plan is intended to guide the development and maintenance of a comprehensive bicycle network and includes programs to achieve these goals of higher levels of connectivity. The Bicycle Plan (Chapter 6) identifies proposed bicycle facilities within the City. Tweedy Boulevard right-of-way from Atlantic Avenue to the Los Angeles River identifies a 12-foot bicycle path on the school site with improved signage, pavement, and grading at the access point to the Los Angeles River. No existing or proposed bikeways are identified adjacent to the Project site. Thus, the Project would not conflict with existing or proposed bicycle facilities.

Pedestrian Facilities. Sidewalks are currently provided along Legacy Lane and Adella Avenue, adjacent to the Project site. As discussed above, the Project would remove two existing driveway aprons and construct new sidewalk, curb, and gutters adjacent to the Project site. The existing width of the sidewalks would not change. Pedestrian walkways would extend within the Project site from Adella Avenue and Legacy Lane. Trees, shrubs, and ground cover would be installed along the perimeter of the site, providing for an improved pedestrian experience when compared to existing conditions. The Project would not conflict with a program, plan, ordinance, or policy addressing pedestrian facilities.

Consistency with CEQA Guidelines Section 15064.3, subdivision (b)

This discussion is based primarily on the *10130 Adella Avenue Residential Project Trip Generation & VMT Analysis Screening* (Transportation Memorandum) prepared by MAT Engineering, dated February 27, 2025, and included in its entirety as Appendix A, Transportation Memorandum.

In response to Senate Bill (SB) 743, the California Natural Resource Agency certified and adopted new CEQA Guidelines in December 2018 which now identify Vehicle Miles Traveled (VMT) as the most appropriate metric to evaluate a project's transportation impact under CEQA (§ 15064.3).

An evaluation of the Project's VMT has been conducted utilizing the Southern California Association of Governments (SCAG) VMT screening website. Based on the SCAG data, the Project site is located within 0.2 miles of Atlantic Avenue which is designated as a High Quality Transit Corridor. Hence, the proposed Project screens out from requiring a full VMT analysis and is considered to have a less than significant VMT impact. Therefore, the Project would be consistent with CEQA Guidelines Section 15064.3, subdivision (b).

Hazards Due to a Geometric Design Feature or Incompatible Use

The Project would not provide any off-site roadway improvements that could substantially increase hazards due to a design feature. The Project site is currently accessed from two driveways (one driveway apron on Adella Avenue and one driveway apron on Legacy Lane). The Project proposes to remove the existing driveway aprons and provide three shared driveways that would extend from Legacy Lane into the Project site and provide access to the private garages. All driveways would be required to be constructed in compliance with the South Gate Municipal Code and engineering requirements. As the Project would not alter geometric design of the site (e.g., introduce sharp curves, dangerous intersections, blind spots, etc.), the Project would have less than significant impacts in this regard.

Emergency Access

Atlantic Avenue and Tweedy Boulevard are identified as evacuation routes in the General Plan Safety Element (Figure SE-2). The construction and operation of the proposed Project would not place any permanent physical barriers on Atlantic Avenue or Tweedy Boulevard. There is the potential that portions of Adella Avenue or Legacy Lane, located immediately adjacent to the Project site, may be temporarily closed, or controlled by construction personnel during construction activities. Any temporary closure would be required to receive permission from the City. However, this would be temporary and emergency access to the Project site and surrounding area would be required to be maintained at all times. Additionally, all construction staging would occur within the boundaries of the Project site and would not interfere with circulation within the Project area.

As previously discussed, the Project would provide three driveways from Legacy Lane to access the Project site and private garages. The private interior driveway system would be required to be consistent with Los Angeles County Fire Department (LACFD) access requirements. Prior to the issuance of a building permit, the applicant is required to submit appropriate plans for plan review to ensure compliance with zoning, building, and fire codes. LACFD would review the Project for access requirements, minimum roadway widths, fire apparatus access roads, fire lanes, signage, and access walkways, among other requirements to ensure adequate emergency access would be provided to and within the Project site. The Project would be required to comply with all applicable Building and Fire Code requirements and would submit construction plans to the Fire Department's Engineering Building Plan Check Unit for review and approval prior to issuance of any building permit. Approval by the Fire Department would ensure that Project construction and operation would not result in inadequate emergency access and impacts would be less than significant.

Air Quality

Regulatory Setting

Mass Emissions Thresholds

The South Coast Air Quality Management District's (SCAQMD) significance criteria is relied upon to assess the potential for significant impacts to air quality. According to the SCAQMD, an air quality impact is considered significant if a proposed project would violate any ambient air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. The SCAQMD has established thresholds of significance for air quality during project construction and operations, as shown in Table 2, *South Coast Air Quality Management District Emissions Thresholds*.

Table 2
South Coast Air Quality Management District Emissions Thresholds

Criteria Air Pollutants and Precursors (Regional)	Construction-Related	Operational-Related
	Average Daily Emissions (pounds/day)	Average Daily Emissions (pounds/day)
Volatile Organic Compounds (VOC)	75	55
Carbon Monoxide (CO)	550	550
Nitrogen Oxides (NO_x)	100	55
Sulfur Oxides (SO_x)	150	150
Coarse Particulates (PM_{10})	150	150
Fine Particulates ($PM_{2.5}$)	55	55
Source: South Coast Air Quality Management District, *CEQA Air Quality Handbook*, 1993 ($PM_{2.5}$ threshold adopted June 1, 2007).		

Localized Carbon Monoxide

In addition to the daily thresholds listed above, the proposed Project would be subject to the ambient air quality standards. These are addressed through an analysis of localized Carbon Monoxide (CO) impacts. The California 1-hour and 8-hour CO standards are:

- 1-hour = 20 parts per million (ppm)
- 8-hour = 9 ppm

The significance of localized impacts depends on whether ambient CO levels near a project site exceed State and federal CO standards. The South Coast Air Basin (SCAB) has been designated as attainment under the 1-hour and 8-hour standards.

Localized Significance Thresholds

In addition to the CO hotspot analysis, the SCAQMD developed Local Significance Thresholds ("LSTs") for emissions of Nitrogen Oxide (NOx), CO, Coarse Particulate Matter (PM_{10}), and Fine Particulate Matter ($PM_{2.5}$) generated at new development sites (off-site mobile source emissions are not included in the LST analysis). LSTs represent the maximum emissions that can be generated at a project site without expecting to cause or substantially contribute to an exceedance of the most stringent national or State ambient air quality standards. LSTs are based on the ambient concentrations of that pollutant within the project source receptor area (SRA), as demarcated by the SCAQMD, and the distance to the nearest sensitive receptor. The nearest sensitive receptor to the Project site are the residential uses located approximately nine meters (30 feet) to the south.

LST analysis for construction is applicable for projects that disturb five acres or less on a single day, such as the proposed Project, which is approximately 2.02 acres. The Project site is located within SCAQMD SRA 12 (South Central LA County). Table 3, *Local Significance Thresholds (Construction/Operations)*, shows the LSTs for a two-acre project site in SRA 12 with sensitive receptors located within 25 meters of the Project site.

Table 3
Local Significance Thresholds (Construction/Operations)

Project Size	Nitrogen Oxide (NOx)[2] – lbs/day	Carbon Monoxide (CO)[2] – lbs/day	Coarse Particulates (PM_{10})[2] – lbs/day	Fine Particulates ($PM_{2.5}$)[2] – lbs/day
2.0 acres[1]	65/65	346/346	7/2	4/1

Source: South Coast Air Quality Management District, *Localized Significance Threshold Methodology – Appendix C*, revised October 21, 2009.
Notes:
1. 2.0-acre maximum daily disturbed acreage, consistent with the Project's maximum grading activities.
2. The closest receptors are located 9 meters to the south of the site. SCAQMD recommends using the 25-meter threshold for any project within 25 meters of a sensitive receptor, therefore the 25-meter threshold was used.

Air Quality Management Plan Consistency

The Project site is located within the South Coast Air Basin (SCAB), which is under the jurisdiction of the SCAQMD. The SCAQMD is required, pursuant to the federal Clean Air Act (FCAA), to reduce emissions of criteria pollutants for which SCAB is non-attainment. To reduce such emissions, the SCAQMD adopted the 2022 Air Quality Management Plan (AQMP) in December 2022, as an update to the 2016 AQMP. The 2022 AQMP establishes a program of rules and regulations directed at reducing air pollutant emissions and achieving State and national air quality standards. The AQMP is a regional and multi-agency effort including the SCAQMD, the California Air Resources Board (CARB), the Southern California Association of Governments (SCAG), and the EPA. The 2022 AQMP's pollutant control strategies are based on the latest scientific and technical information and planning assumptions, including SCAG's Connect SoCal (2020-2045 RTP/SCS)[2], updated emission inventory methodologies for various source categories, and SCAG's growth forecasts. SCAG's growth forecasts were defined in consultation with local governments and with reference to local general plans. The proposed Project is subject to SCAQMD's AQMP.

Criteria for determining consistency with the AQMP are defined by the following indicators:

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

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

Consistency Criterion No. 1 refers to the California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS). CAAQS and NAAQS violations would occur if localized or regional significance thresholds were exceeded. As shown in Table 4 and Table 5, the proposed Project's construction and operational emissions would be below SCAQMD's thresholds. As the Project would not generate localized construction or regional construction or operational emissions that would exceed SCAQMD thresholds of significance, the Project would not violate any air quality standards. Thus, the Project would be consistent with the first criterion.

Consistency Criterion No. 2 refers to SCAG's growth forecasts and associated assumptions included in the AQMP. The future air quality levels projected in the AQMP are based on SCAG's growth projections, which are based, in part, on the general plans of cities located within the SCAG region. Therefore, projects that are consistent with the applicable assumptions used in the development of the AQMP would not jeopardize attainment of the air quality levels identified in the AQMP.

With respect to determining consistency with Consistency Criterion No. 2, it is important to recognize that air quality planning within the air basin focuses on attainment of ambient air quality standards at the earliest feasible date. Projections for achieving air quality goals are based on assumptions regarding population, housing, and growth trends. Thus, SCAQMD's second criterion for determining project consistency focuses on whether the proposed Project exceeds the assumptions utilized in preparing the forecasts presented in the 2022 AQMP. Determining

[2] While SCAG has adopted the 2024-2050 RTP/SCS, CARB has not yet certified it. However, the 2022 AQMP utilizes growth forecasts and measures from Connect SoCal 2020 (2020-2045 RTP/SCS). Therefore, for purposes of this air quality analysis, Connect SoCal 2020 is relevant and appliable to consistency with the 2022 AQMP. It is noted that the Project is also consistent with SCAG's 2024-2050 RTP/SCS land use for the site and within the population projections for the City.

whether a project exceeds the assumptions reflected in the 2022 AQMP involves the evaluation of the three criteria outlined below. The following discussion provides an analysis of each of these criteria.

1. *Would the project be consistent with the population, housing, and employment growth projections utilized in the preparation of the AQMP?*

Growth projections included in the 2022 AQMP form the basis for the projections of air pollutant emissions and are based on the General Plan land use designations and SCAG's 2020-2045 RTP/SCS demographics forecasts. The population, housing, and employment forecasts within the 2020-2045 RTP/SCS are based on local general plans as well as input from local governments, such as the City of South Gate. The SCAQMD has incorporated these same demographic growth forecasts for various socioeconomic categories (e.g., population, housing, employment) into the 2022 AQMP.

As discussed above, the Project site's General Plan land use designation is Tweedy Education District. This designation provides for duplexes/triplexes/fourplexes, townhouses/rowhouses, multi-family, parks/plazas/open space, education, cultural, public assembly, and civic/institutional land uses at a density of 21-40 units/acre, maximum of 4 stories (with bonus of up to 45 units per acre and 5 stories).

The General Plan Final EIR analyzed the potential environmental impacts from projected future development intensity and density based upon anticipated development associated with the future land use opportunities described in the Community Design Element. Overall, the General Plan analyzed the environmental impacts based on a buildout of 125,457 residents, 28,839 housing units, and employment of 23,435.

Connect SoCal (SCAG's 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy), forecasts the City's population will reach 112,800 by 2045 with 25,600 housing units.[3] As stated, the AQMP is based on SCAG's growth forecasts which are informed by the local jurisdictions.

The Project proposes the development of 54 townhome units at a density of 25.5 du/acre. According to the California Department of Finance, the City's current (January 2024) population is 92,729 residents.[4] With the increased residential development potential and associated population growth of 197 residents, the City's population could reach 92,926, which is within the population of 125,547 anticipated by the General Plan Final EIR and population of 112,800

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[3] *SCAG adopted Connect SoCal 2024 (2024–2050 RTP/SCS) in April 2024. While SCAG has adopted the 2024-2050 RTP/SCS, CARB has not yet certified it. However, the 2022 AQMP utilizes growth forecasts and measures from Connect SoCal 2020 (2020-2045 RTP/SCS).*

[4] California Department of Finance, *E-5 Population and Housing Estimates for Cities, Counties, and the State – January 1, 2020-2024*, May 2024.

forecast by SCAG.[5] The population, housing, and employment forecasts, which are adopted by SCAG's Regional Council, are based on the local plans and policies applicable to the City. As the SCAQMD has incorporated these same projections into the 2022 AQMP, it can be concluded that the proposed Project would be consistent with the projections, thereby meeting this 2022 AQMP criterion.

2. *Would the project implement all feasible air quality mitigation measures?*

The proposed Project would result in less than significant air quality impacts. Compliance with all feasible emission reduction measures identified by SCAQMD would be required, as identified in Responses (b) and (c). As such, the proposed Project meets this 2022 AQMP consistency criterion.

3. *Would the project be consistent with the land use planning strategies set forth in the AQMP?*

Land use planning strategies set forth in the 2022 AQMP are primarily based on Connect SoCal. As discussed above, the Project would be consistent with the actions and strategies of Connect SoCal.

In conclusion, the determination of 2022 AQMP consistency is primarily concerned with the long-term influence of a project on air quality in the air basin. The proposed Project would not result in a long-term impact on the region's ability to meet State and federal air quality standards. Therefore, the Project would not conflict with or obstruct implementation of the applicable air quality plan, and this impact would be less than significant.

Cumulative Impacts

<u>Short-Term Construction Impacts</u>

Project construction activities would generate short-term emissions of criteria air pollutants. The pollutants of primary concern within the Project site include ozone-precursor pollutants (i.e., VOC and NOx) and PM_{10} and $PM_{2.5}$. Construction-generated emissions are short term and temporary, lasting only while construction activities occur, but would be considered a significant air quality impact if the volume of pollutants generated exceeds the South Coast AQMD's thresholds of significance.

Construction results in the temporary generation of emissions resulting from site grading, road paving, motor vehicle exhaust associated with construction equipment and worker trips, and the movement of construction equipment, especially on unpaved surfaces. Emissions of airborne particulate matter are largely dependent on the amount of ground disturbance associated with

[5] Population increase based upon an average household size of 3.64 persons per household per the California Department of Finance, *E-5 Population and Housing Estimates for Cities, Counties, and the State – January 1, 2020-2024*, May 2024.

site preparation activities, as well as weather conditions and the appropriate application of water.

Construction-related emissions were calculated using the CARB-approved California Emissions Estimator Model (CalEEMod) computer program, which is designed to model emissions for land use development projects, based on typical construction requirements. Refer to Appendix B for additional information regarding the construction assumptions used in this analysis.

The Project's predicted maximum daily construction-related emissions are summarized in Table 4, *Construction-Related Emissions (Maximum Pounds Per Day)*. As shown in Table 4, all criteria pollutant emissions would remain below their respective thresholds. While impacts would be considered to be less than significant, Project development would be subject to compliance with South Coast AQMD Rules 402 (Nuisance), 403 (Fugitive Dust), and 1113 (Architectural Coatings), which would further reduce specific construction-related emissions. Project construction emissions would not worsen ambient air quality, create additional violations of federal and state standards, or delay the South Coast AQMD's goal for meeting attainment standards in the South Coast Air Basin. Project cumulative air quality impacts associated with construction emissions would be less than significant.

Table 4
Construction-Related Emissions (Maximum Pounds Per Day)

Construction Year	Volatile Organic Compounds (VOC)	Nitrogen Oxides (NOx)	Carbon Monoxide (CO)	Sulfur Oxides (SOx)	Coarse Particulates (PM_{10})	Fine Particulates ($PM_{2.5}$)
2025	2.9	17.2	23.9	<0.1	2.6	1.5
2026	2.8	11.4	16.0	<0.1	1.0	0.5
South Coast AQMD Threshold	75	100	550	150	150	55
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Source: CalEEMod version 2022.1.1.19.
Notes: South Coast AQMD Rule 403 Fugitive Dust applied. Rule 403 reduction/credits include the following: properly maintain mobile and other construction equipment; replace ground cover in disturbed areas quickly; water exposed surfaces three times daily; cover stockpiles with tarps; water all haul roads twice daily; and limit speeds on unpaved roads to 15 miles per hour. Reductions percentages from the South Coast AQMD CEQA Handbook (Tables XI-A through XI-E) were applied. No mitigation was applied to construction equipment; refer to Appendix B for model outputs.

Long-Term Operational Emissions Impacts

The Project's operational emissions would be associated with motor vehicle use and area sources. Mobile sources emissions are generated from vehicle operations associated with Project operations. Typically, area sources are small sources that contribute very minor emissions individually, but when combined they may generate substantial amounts of pollutants. Area specific defaults in CalEEMod were used to calculate area source emissions.

CalEEMod was also used to calculate pollutants emissions from vehicular trips generated by the proposed Project; refer to Appendix B. The CalEEMod estimated emissions from Project operations are summarized in Table 5, *Operational-Related Emissions (Maximum Pounds Per Day)*. Note that emissions rates differ from summer to winter due to different fuel mixtures required to be sold during the different seasons.

Table 5
Operational-Related Emissions (Maximum Pounds Per Day)

Source	Volatile Organic Compounds (VOC)	Nitrogen Oxides (NOx)	Carbon Monoxide (CO)	Sulfur Oxides (SOx)	Coarse Particulates (PM_{10})	Fine Particulates ($PM_{2.5}$)
Summer Emissions						
Mobile	1.4	1.0	11.0	<0.1	2.4	0.6
Area Source	1.6	0.0	3.1	<0.1	<0.1	<0.1
Energy	<0.1	0.2	0.1	<0.1	<0.1	<0.1
Total	3.0	1.2	14.2	<0.1	2.4	0.6
South Coast AQMD Threshold	55	55	550	150	150	55
Exceeds Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Winter Emissions						
Mobile	1.4	1.1	10.3	<0.1	2.4	0.6
Area Source	1.3	0	0	0	0	0
Energy	<0.1	0.2	0.1	<0.1	<0.1	<0.1
Total	2.7	1.3	10.4	<0.1	2.4	0.6
South Coast AQMD Threshold	55	55	550	150	150	55
Exceeds Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Source: CalEEMod Version 2022.1.1.19; refer to Appendix B for model outputs.						

As shown in Table 5, emission calculations generated from CalEEMod demonstrate that Project operations would not exceed the South Coast AQMD thresholds for any criteria air pollutants. Therefore, Project cumulative operational impacts would be less than significant.

Sensitive Receptors

Localized Construction Significance Analysis

Sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis.

The closest sensitive receptor is the residences located to the south of the Project site. In order to identify impacts to sensitive receptors, the SCAQMD recommends addressing LSTs for construction and operations impacts (area sources only).

Due to the size of the Project site, Project construction activities would disturb up to two acres per day. Therefore, the LST thresholds for two acres is used for the construction LST analysis. The nearest sensitive uses are located approximately 30 feet to the south of the Project site. According to SCAQMD LST Methodology, projects with boundaries located closer than 25 meters to the nearest receptor should use the LSTs for receptors located at 25 meters. Therefore, the LST value for two acres and 25 meters was used.

Table 6, *Localized Significance of Construction Emissions (Maximum Pounds Per Day)*, shows the localized construction-related emissions. It is noted that the localized emissions presented in Table 6 are less than those in Table 4 because localized emissions include only on-site emissions (i.e., from construction equipment and fugitive dust). As seen in Table 6, emissions would not exceed the LSTs for SRA 12. Construction LST impacts would be less than significant in this regard.

Table 6
Localized Significance of Construction Emissions (Maximum Pounds Per Day)

Maximum Emissions	NO_x	CO	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions (on-site)[1]	10.6	14.5	2.5	1.5
Localized Significance Threshold[2]	65	346	7	4
Thresholds Exceeded?	**No**	**No**	**No**	**No**

Notes:
1. The grading phase emissions would present the worst-case scenario for CO, PM_{10}, and $PM_{2.5}$, and the building construction phase emissions would present the worst-case scenario for NO_X. Modeling assumptions include compliance with SCAQMD Rule 403 which requires: properly maintain mobile and other construction equipment; replace ground cover in disturbed areas quickly; water exposed surfaces three times daily; cover stock piles with tarps; water all haul roads twice daily; and limit speeds on unpaved roads to 15 miles per hour.
2. The Localized Significance Threshold was determined using Appendix C of the SCAQMD Final Localized Significant Threshold Methodology guidance document for pollutants NO_X, CO, PM_{10}, and $PM_{2.5}$. The Localized Significance Threshold was based on the anticipated daily acreage disturbance for construction (the thresholds for 2 acres were used), the distance to sensitive receptors (25 meters), and the source receptor area (SRA 12).

Localized Operational Significance Analysis

The on-site operational emissions are compared to the LST thresholds in Table 7, *Localized Significance of Operational Emissions (Maximum Pounds per Day)*. Table 7 shows that the maximum daily emissions of these pollutants during operations would not result in significant concentrations of pollutants at nearby sensitive receptors. Therefore, the proposed Project would result in a less than significant impact concerning localized emissions during operational activities.

Table 7
Localized Significance of Operational Emissions (Maximum Pounds per Day)

Emission Sources	Nitrogen Oxides (NOx)	Carbon Monoxide (CO)	Coarse Particulates (PM_{10})	Fine Particulates ($PM_{2.5}$)
On-Site Emissions (Area Sources)	<0.1	3.1	<0.1	<0.1
South Coast AQMD Localized Screening Threshold (2 acres at 25 meters)	65	346	2	1
Exceed South Coast AQMD Threshold?	**No**	**No**	**No**	**No**
Source: CalEEMod version 2022.1.1.19; refer to Appendix B for model outputs.				

Carbon Monoxide Hotspots

An analysis of carbon monoxide "hot spots" is often used to determine whether the change in the level of service of an intersection resulting from the proposed Project would have the potential to result in exceedances of the California Ambient Air Quality Standards or National Ambient Air Quality Standards. It has long been recognized that carbon monoxide exceedances are caused by vehicular emissions, primarily when vehicles are idling at intersections. Vehicle emissions standards have become increasingly stringent in the last 20 years. Currently, the carbon monoxide standard in California is a maximum of 3.4 grams per mile for passenger cars (requirements for certain vehicles are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, carbon monoxide concentrations have steadily declined.

Accordingly, with the steadily decreasing carbon monoxide emissions from vehicles, even very busy intersections do not result in exceedances of the carbon monoxide standard. The 2022 AQMP is the most recent version that addresses carbon monoxide concentrations. As part of the South Coast AQMD Carbon Monoxide Hotspot Analysis, the Wilshire Boulevard/Veteran Avenue intersection, one of the most congested intersections in Southern California with approximately 100,000 average daily traffic (ADT), was modeled for carbon monoxide concentrations. This modeling effort identified a carbon monoxide concentration high of 4.6 ppm, which is well below the 35-ppm Federal standard. The proposed Project would not produce the volume of traffic required to generate a carbon monoxide hot spot in the context of the South Coast AQMD's Carbon Monoxide Hotspot Analysis. As the carbon monoxide hotspots were not experienced at the Wilshire Boulevard/Veteran Avenue intersection even as it accommodates 100,000 ADT, it can be reasonably inferred that carbon monoxide hotspots would not be experienced at any Project area intersections from the 364 daily new passenger car and truck trips attributable to the proposed Project. Therefore, potential impacts would be less than significant.

Objectionable Odors

According to the SCAQMD CEQA Air Quality Handbook, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The proposed Project does not include any uses identified by the SCAQMD as being associated with odors.

Construction activities associated with the Project may generate detectable odors from heavy-duty equipment exhaust and architectural coatings. However, construction-related odors would be short-term in nature and cease upon project completion. In addition, the Project would be required to comply with the California Code of Regulations, Title 13, Sections 2449(d)(3) and 2485, which minimizes the idling time of construction equipment either by shutting it off when not in use or by reducing the time of idling to no more than five minutes. This would further reduce the detectable odors from heavy-duty equipment exhaust. The Project would also comply with the SCAQMD Regulation XI, Rule 1113 – Architectural Coating, which would minimize odor impacts from ROG emissions during architectural coating. Any impacts on existing adjacent land uses would be short-term and are less than significant.

Noise

This section is based primarily on the *54-Unit Multi-Family Housing Noise Impact Assessment* (Noise Impact Assessment) prepared by MD Acoustics, dated March 7, 2025, and included in its entirety as Appendix C, Noise Impact Assessment.

Existing Noise and Regulatory Setting

Existing Noise Environment

One 24-hour ambient noise measurement was conducted at the Project site to determine the existing ambient noise levels. Noise data indicates that major roadway traffic, local traffic, and school operations are the primary sources of noise impacting the site and the adjacent uses.

As indicated in the Noise Impact Assessment, the existing ambient noise level ranges from 53 to 61 dBA Leq near the Project site and surrounding area. The quietest daytime hourly level occurred at 11:00 a.m. and was 53 dBA Leq. The quietest nighttime hourly level occurred at 10:00 p.m. and was 55 dBA Leq; refer to Appendix C.

Regulatory Setting

City of South Gate Municipal Code Chapter 11.34, Noise Control Program, establishes the standards and policies to control unnecessary, excessive, and annoying noise and vibrations in the City of South Gate.

Per Section 11.34.020(B), school ground activities (including athletic events) are exempt from the noise standards defined in Chapter 11.34.

Section 11.34.080(A) establishes noise level standards for different noise zones, as shown in Table 8, *Noise Zone Standards*.

Table 8
Noise Zone Standards

Noise Zone	Land Use Category	Noise Standards	
		7:00 a.m. to 10:00 p.m.	10:00 p.m. to 7:00 a.m.
I	Noise-sensitive area	45	45
II	Residential properties (in any zone)	50	40
III	Commercial properties	55	55
IV	Industrial properties	60	60

Section 11.34.080(C) defines noise level limit adjustments depending on the cumulative period that the noise occurs throughout the hour, as shown in Table 9, *Permitted Temporary Noise Level Increase*.

Table 9
Permitted Temporary Noise Level Increase

Permitted Maximum Increase	Noise Duration
+ 5 dBA	30 minutes per hour
+ 10 dBA	15 minutes per hour
+ 12 dBA	10 minutes per hour
+ 15 dBA	5 minutes per hour
+ 20 dBA	2 minutes per hour

The General Plan Noise Element defines policies to reduce noise due to construction activities. Construction noise policies include the following:

P.1 Construction activities will be prohibited between the hours of 7:00 PM to 8:00 AM Monday through Saturday and on Sundays and Federal holidays.

P.2 Construction noise reduction methods will be employed to the maximum extent feasible. These measures may include, but not limited to, shutting off idling equipment, installing temporary acoustic barriers around stationary construction noise sources, maximizing the distance between construction equipment staging areas and occupied sensitive receptor areas, and use of electric air compressors and similar power tools, rather than diesel equipment.

P.3 Prior to approval of project plans and specifications by the City, project applicants and/or construction contractors will identify construction equipment and noise reducing measures, and the anticipated noise reduction.

P.4 The City will require municipal vehicles and noise-generating mechanical equipment purchased or used by the City to comply with noise standards specified in the City's Municipal Code, or other applicable codes.

P.5 The City may exceed the noise standards on a case-by-case basis for special circumstances including emergency situations, special events and expedited development projects.

Short-Term Construction Noise

The degree of construction noise may vary for different areas of the Project site and may also vary depending on the construction activities. Noise levels associated with the construction would also vary with the different phases of construction. The closest sensitive uses surrounding the Project site include existing residential properties to the south. These uses would be an average of 115 feet away from construction activities and as close as 30 feet from construction activities.

Table 10, *Construction Noise Levels at South Residences*, presents the construction noise levels at sensitive receptors (residences to the south) based on the proposed construction phases and equipment. A likely worst-case construction noise scenario assumes equipment operating as close as 30 feet and an average of 115 feet from the nearest sensitive receptor. Leq levels represent the average construction noise level during each phase. The levels shown in Table 10 assume that all equipment is reduced by a minimum of 15 dB, either with the implementation of mufflers or by replacing diesel equipment with electric equipment.

Table 10
Construction Noise Levels at South Residences

Location	Phase	dBA Leq
Adjacent Residential Properties	Grading	61
	Building	65
	Paving	63
	Architectural Coatings	53

As shown in Table 10, construction noise would range from 53 to 65 dBA Leq at the adjacent residences to the south. Construction noise is considered a short-term impact and would be considered significant if construction activities do not comply with the City's Noise Element policies.

In compliance with Policy P.3 of the General Plan Noise Element, which requires project applicants and/or project construction contractors to identify construction equipment and noise reducing measures, and the anticipated noise reduction, the Project would be required to implement a Construction Noise Management Plan (CNMP); refer to Appendix C. The CNMP outlines the construction noise reduction methods that would be implemented during construction operations per the General Plan Noise Element. Noise Element Policy P.2 requires construction noise reduction methods to be employed to the maximum extent feasible. Construction noise levels would be monitored as outlined in the CNMP.

Construction noise would have a temporary or periodic increase in the existing ambient noise level above existing conditions within the Project vicinity. Construction activities would be prohibited between the hours of 7:00 p.m. to 8:00 a.m. Monday through Saturday and on Sundays and Federal holidays pursuant to General Plan Noise Element Policy P.1. Compliance with the General Plan Noise Element and implementation of the CNMP would reduce construction noise to the extent feasible and construction impacts would be less than significant.

Long-Term Operational Noise

The future worst-case noise level projections were modeled using referenced sound level data for the various stationary on-site sources (HVAC units, transformers). There will be an HVAC unit for each townhome unit (54 total HVAC units). HVAC units will be located on the ground, and there will be a group of up to five HVAC units on the south side of each building and a group of up to four HVAC units on the north side of each building. As a worst-case scenario, the model assumes that all 54 units are operating simultaneously and continuously.

Each HVAC unit will have a sound power level of 73 dBA. The HVAC units were modeled as point sources located three feet above the ground. Each point source represents a group of four to five HVAC units. The two proposed on-site transformers were modeled as point sources located five feet above the ground with a sound power of 77 dBA each.

Receptors that may be affected by the Project operational noise include existing residences to the south, industrial uses to the east, and educational uses, including the high school baseball and softball fields to the north. A total of five receptors were modeled to accurately evaluate the future operational noise levels at the surrounding uses. The model assumes that all noise sources are operating simultaneously and continuously throughout the hour.

Table 11, *Worst-Case Predicted Operational Noise Levels (dBA)*, provides the ambient noise level, the Project's predicted noise level, and the combined Project plus ambient noise level condition. As a worst-case scenario the Project's operational noise level was compared to the quietest existing hourly noise level (53 dBA Leq at 11:00 a.m.).

Table 11
Worst-Case Predicted Operational Noise Levels (dBA)

Receptor[1]	Existing Ambient Noise Level (dBA, Leq)	Project Noise Level (dBA, Leq)[2]	Total Combined Noise Level (dBA, Leq)	Maximum Permitted Daytime Noise Level (dBA, Leq)[3]	Change in Noise Level as a Result of Project (dBA, Leq)
1	53	42	53	50	0
2	53	43	53	50	0
3	53	33	53	60	0
4	53	39	53	45	0
5	53	45	54	45	1

Notes:
1. Receptors 1 and 2 represent residential uses, receptor 3 represents industrial uses, and receptors 4 and 5 represent educational.
2. Refer to Exhibit C of Appendix C for the proposed Project future noise level projections and contours. operational noise level projects at each receptor.
3. South Gate Municipal Code Section 11.34.080(A).

As indicated in Table 11, Project-only noise levels are predicted to be up to 43 dBA Leq at the existing residential uses, 33 dBA Leq at the adjacent industrial uses, and 39 to 45 dBA Leq at the institutional/civic uses. The Project-only noise level would meet the daytime noise level limits as defined in South Gate Municipal Code Section 11.34.080(A). The Project would increase the existing ambient noise level by up to 1 dB at the high school baseball and softball fields. It takes a change of 3 dB for the human ear to perceive a difference. Therefore, the change in noise level associated with the proposed Project's on-site operations would be "Not Perceptible" at all receptors.

It should be noted that the Project operational noise levels may occur during nighttime hours and, therefore, Project-only noise levels at residential uses may exceed the nighttime noise standard of 40 dBA Leq by up to 3 dB. However, the quietest hourly noise level measured during nighttime hours was 55 dBA Leq (refer to Table 3 of Appendix C). The Project noise level would increase the nighttime ambient noise level by 0 dB, and the operational noise would be masked by the existing ambient noise. Therefore, the impact is less than significant.

The Project site is currently undeveloped; therefore, traffic noise is not currently generated at the Project site. The Project would generate 364 daily trips and up to 28 peak hour trips. Vehicle trips would need to double in order to experience a change of 3 dB or more, which is perceptible to the human ear. The Project would not double the traffic volumes along nearby roadways, and the noise impact due to Project traffic would be less than significant.

Groundborne Vibration or Noise

Construction equipment is anticipated to operate no closer than 30 feet from the nearest residential structure to the south. The primary vibration source during construction may be from a vibratory roller. At a distance of 30 feet, a vibratory roller would yield a worst-case 0.172 PPV (in/sec), which is likely perceptible but below any risk of damage (0.3 in/sec PPV is the threshold of old residential structures). Therefore, Project construction activities would not generate excessive groundborne vibration or groundborne noise levels.

Water Quality

This discussion is based in part on the *Preliminary Hydrology & Hydraulics Study* (Preliminary Hydrology Study) prepared by C&V Consulting Inc., dated January 2025 and included in its entirety as Appendix D, Preliminary Hydrology Report and the *Preliminary Low Impact Development Plan* (Preliminary LID Plan) prepared by C&V Consulting Inc., dated January 2025 and included in its entirety as Appendix E, Preliminary LID Plan.

The Project site is currently undeveloped and relatively flat with elevations ranging from approximately 95.5 to 98.9 feet above mean sea level. Existing site drainage is primarily directed as sheet flow from the east side towards the surrounding streets in the vicinity of the Project site. The runoff continues along the curb and gutter south in Adella Avenue to Blumont Road where it continues south to Brookdale Road where it flows east into a catch basin. The runoff can be presumed to discharge into the US Army Corp of Engineer maintained Los Angeles River Channel east of the site; the Los Angeles River ultimately discharges to the Pacific Ocean at San Pedro Bay.

The Project site is more than one acre and is therefore required to obtain a General Construction Permit. According to the City's Municipal Code Section 6.67.030, *Pollutant Source Reduction*, the Project is required to submit a Low Impact Development (LID) Plan that complies with the current municipal NPDES permit. To obtain a grading or building permit, the Project would be required to submit an Owner's Certification Statement of Minimum Requirements. Further, in accordance with the City's Municipal Code and as a Condition of Approval, the Project would be required to comply with BMPs from the time of land clearing, demolition, or commencement of construction until receipt of certificate of occupancy. BMPs selected for the Project shall be set forth in the County of Los Angeles Low Impact Development (LID) Standards Manual. Construction or work is subject to inspection by the Public Works or Community Development Director to assess whether the minimum requirements for construction development are being achieved and applicable BMPs are being implemented. Thus, Project construction activities would not result in significant effects related to water quality.

In the proposed condition, stormwater runoff would be conveyed to surface flow via the proposed onsite curb and gutter and directed to the sump areas equipped with grated inlet catch basins located near the driveway entrances/exits of the site. The catch basins would be connected by a stormdrain pipe to convey the runoff towards the infiltration trench downstream for water quality treatment and infiltration. For larger storm events when the infiltration system is at capacity, the stormwater runoff would back up into the catch basin and overflow through a parkway drain into the public right of way. The overflow pipe would be at an elevation to ensure full water quality volume is being treated prior to the outlet to the parkway drain. After entering Legacy Lane, the stormwater would surface flow following historic drainage patterns into the existing catch basin that flows into the Los Angeles River and ultimately the Pacific Ocean.

The Preliminary LID Plan indicates the proposed project is classified as a "Designated Project" per the Los Angeles County Department of Public Works (LACDPW), Low impact Development Standards Manual. A "Designated Project" is defined by the LACDPW as "Redevelopment projects, which are developments that result in creation or addition or replacement of either: (1) 5,000 square feet or more of impervious surface on a site that was previously developed…; or (2) 10,000 square feet or more of impervious surface area on a site that was previous developed as a single-family home."

The County of Los Angeles LID Standards Manual lists preference for selection of BMPs which includes retention-based stormwater quality control measures, biofiltration, vegetation-based storm quality control measures, and/or treatment-based stormwater quality control measures. The Project would implement a retention-based stormwater quality control measure by using a drywell infiltration system, described above. Additionally, roof gutters would discharge to landscape areas using splash blocks when possible, creating passive bio treatment in small planter areas prior to interception by an area drain system, catch basin, and storm drain system. All runoff from the site is tributary to the proposed onsite infiltration system. As retention-based stormwater quality control measures are of the highest priority per the LA County LID Manual, the other stormwater quality control measures were not considered. Additional BMPs, as described in the Preliminary LID Plan, would ensure that Project operations would not violate any water quality standards.

Condition (e) ***The site can be adequately served by all required utilities and public services.***

Water. The South Gate Water System serves the entirety of the City, including the Project site, with the exception of the Hollydale area, which is served by Golden State Water Company. The City receives its water from two main sources, groundwater from the Central Groundwater Basin (Basin) and recycled water from Central Basin Municipal Water District (CBMWD). The City's allocated Allowed Pumping Allocations (APA) from the Central Basin is 11,183 AF. The water system in South Gate is regulated through federal law, state law, the South Gate Municipal Code, and court decisions.

The City of South Gate uses groundwater from the City wells as its primary source. As discussed in the 2020 UWMP, water generated from wells is chlorinated and distributed to City customers or stored in reservoirs. The City can also acquire imported water from the Metropolitan Water District of Southern California (MWD) through CBMWD but has not done so in several years.

South Gate Water supplies water to the City, including the Project site. The South Gate 2020 UWMP confirms that water supplies would meet the service area's water demands for normal, single-dry, and multiple dry-year conditions through 2045 (refer to Tables 3.13 through 3.19 of the 2020 UWMP). The 2020 UWMP water demand forecasts are based on adopted General Plan land use designations.

The Project would increase the demand for water when compared to existing site conditions. However, the Project would be consistent with the land uses allowed and anticipated within the Tweedy Education District land use and TBSP. The IF zone provides flexibility to transition to other uses, while enabling existing industrial operations to expand if they so desire. The IF development standards provide for a maximum residential density of 40 du/acre and a maximum of 60 du/acre with bonus. The Project proposes to construct 54 townhome units at a density of 25.5 du/acre. Because the 2020 UWMP accounts for future growth and the Project is consistent with the General Plan land use designation, adequate water supplies would be available to serve the Project.

Domestic water lines are located within Legacy Lane and Adella Avenue, adjacent to the Project site. As part of the Project, domestic water lines (8-inch) would be installed within the driveways and connect to existing off-site infrastructure within Legacy Lane. Thus, adequate water facilities would be available to serve the Project.

Wastewater. The City's sanitary sewer collection system is managed by the City's Public Works Department. Generally, sewer flows within the City flow by gravity from north to south. Approximately 99 percent of local wastewater flows discharge into Los Angeles County Sanitation Districts (LACSD) facilities for transportation, treatment, and disposal. The remaining one percent of total sewage passes into the City's system and is then discharged into LACSD facilities.[6]

The Project would increase the demand for wastewater treatment when compared to existing site conditions. However, as discussed above, the Project would be consistent with the land uses allowed and anticipated within the Tweedy Education District land use and TBSP. The design capacities of LACSD's facilities are based on the regional growth forecast adopted by SCAG. Expansion of LACSD's facilities must be sized and their service phased in a manner that is consistent with the SCAG regional growth forecast. Because SCAG growth projections are based in part on growth identified in local General Plans, growth associated with development of the Project site based on its General Plan land use designation has been anticipated by the growth forecasts. The Project is consistent with the General Plan and zoning for the site. Thus, the Project would be within the population projections anticipated and planned for by the City's General Plan. Further, LACSD has the authority to charge a fee for the privilege of connecting to the LACSD's Sewage System for increasing the strength or quantity of wastewater discharged from connected facilities. The fee payment would be required before a permit to connect to the sewer

[6] Kennedy/Jenkins Consultants Inc., *City of South Gate Sewer Master Plan*, June 2019.

is issued. Thus, adequate wastewater treatment would be available to serve the proposed Project.

As part of the Project, 8-inch sanitary sewer lines would be installed within the driveways and connect to existing off-site sewer lines within Legacy Lane. As the Project would connect to existing infrastructure, adequate wastewater facilities would be available to serve the Project.

Solid Waste. The City has a Refuse Collection and Recycling Services Franchise Agreement with Universal Waste Systems, Inc.[7] The proposed development would result in an increase in solid waste generation at the Project site. However, the increase in solid waste would not be substantial. As stated, the Project would be consistent with the site's General Plan land use and zoning. The South Gate General Plan anticipates increased development of residential uses and plans for this growth. Solid waste pickup and disposal services would be available to serve the Project.

Electricity and Natural Gas. Southern California Edison and Southern California Gas provides power and gas to the city.[8] The proposed Project would increase demand for these services when compared to existing conditions. However, the increase would be consistent with land uses and development potential anticipated by the General Plan and TBSP. The service providers would have the capacity to provide adequate services for the proposed development.

Fire and Police. The South Gate Police Department and the Los Angeles County Fire Department provide police, fire protection, and emergency medical services to the Project site.[9] The proposed Project could increase demand for police and fire protection services; however, services are already being provided to the surrounding area. The proposed Project would be within the development potential anticipated by the General Plan and TBSP. Fire and police protection services would have the capacity to provide adequate services to the proposed development.

[7] Universal Waste Systems, Inc. *South Gate*, https://www.uwscompany.com/south-gate/, accessed February 11, 2025.

[8] City of South Gate, n.d. Utilities and Water, https://www.cityofsouthgate.org/Government/Departments/Administrative-Services/Utilities-Water, accessed February 11, 2025.

[9] City of South Gate, December 2009. *South Gate General Plan 2035 Public Facilities and Services Element.*

4.0 EXCEPTIONS TO CATEGORICAL EXEMPTIONS ANALYSIS

CEQA Guidelines Section 15300.2 establishes exceptions to categorical exemptions identified in Article 19. Categorical Exemptions. A Project meeting any of these exceptions would not qualify for a categorical exemption pursuant to CEQA. As demonstrated below, none of the exceptions are applicable to the Project.

Exception (a) Location. Classes 3, 4, 5, 6 and 11 are qualified by consideration of where the project is to be located – a project that is ordinarily insignificant in its impact on the environment may in a particularly sensitive environment be significant. Therefore, these classes are considered to apply all instances, expect where the project may impact on an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state or local agencies.

Exception (a) is specifically applicable to CE Classes 3, 4, 5, 6, and 11. The Project does not qualify for any of these classes. The Project is being considered and analyzed for CEQA Guidelines Section 15332, In-fill Development Projects (Class 32). Thus, this exception is not applicable.

Exception (b) Cumulative Impact. All exemptions for these classes are inapplicable when the cumulative impact of successive projects of the same type in the same place, over time is significant.

The Project proposes to construct 54 townhome units on an undeveloped parcel (APN 6221-026-020). There are no projects currently proposed or known within the Project area of the same type. The Project is consistent with the General Plan land use anticipated for the site. The General Plan anticipates and plans for new development of residential uses within the Tweedy Educational District. The Project would not result in a significant environmental impact and would not contribute to a significant cumulative impact. Exception (b) would not apply to the Project.

Exception (c) Significant Effect. A categorical exemption shall not be used for an activity where there is a reasonable possibility that their activity will have a significant effect on the environment due to unusual circumstances.

There are no unusual circumstances associated with the Project site or the Project. The Project site is located within an urbanized area of the City and does not include any site-specific environmental conditions that would preclude the proposed development. The Project proposes to construct 54 townhome units on a currently undeveloped parcel in an area of the City anticipated for new development. The proposed Project is consistent with the General Plan land use designation and zoning for the site.

Exception (d) Scenic Highways. A categorical exemption shall not be used for a project which may result in damage to scenic resources, including but not limited to trees, historic buildings, rock outcroppings, or similar resources, within a highway officially designated as a state scenic highway. This does not apply to improvements which are required as mitigation by an adopted negative declaration or certified EIR.

There are no officially designated or eligible State Scenic Highways within proximity to the Project site.[10] Thus, the proposed Project would not result in damage to scenic resources within an officially designated State Scenic Highway. Exception (d) would not apply to the Project.

Exception (e) Hazardous Waste Sites. A categorical exemption shall not be used for a project located on a site which is included on any list compiled pursuant to Section 65962.5 of the Government Code.

Government Code Section 65962.5 requires the DTSC and SWRCB to compile and update a regulatory site's listing (per the criteria of the Section). The California Department of Health Services is also required to compile and update, as appropriate, a list of all public drinking water wells that contain detectable levels of organic contaminants and that are subject to water analysis pursuant to Section 116395 of the Health and Safety Code. Section 65962.5 requires the local enforcement agency, as designated pursuant to Section 18051 of Title 14 of the California Code of Regulations, to compile, as appropriate, a list of all solid waste disposal facilities from which there is a known migration of hazardous waste. The Project site is not listed pursuant to Government Code Section 65962.5.[11] Thus, Exception (e) would not apply to the Project.

Exception (f) Historical Resources. A categorical exemption shall not be used for a project which may cause a substantial adverse change in the significance of a historical resource.

The Project site is undeveloped. There are no historical resources within the Project site. The Project would not cause a substantial adverse change in the significance of a historical resource and Exception (f) would not apply.

[10] California Department of Transportation. California State Scenic Highways, https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways, accessed February 11, 2025.
[11] California Environmental Protection Agency, *Cortese List Data Resources*, https://calepa.ca.gov/sitecleanup/corteselist/, accessed February 11, 2025.

5.0 CONCLUSION

As detailed herein, on the basis of substantial evidence in the light of the whole record, the proposed 10130 Adella Project meets the criteria pursuant to CEQA Guidelines Section 15332, *In-fill Development Projects*.

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6.0 REFERENCES

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California Department of Transportation, *California State Scenic Highways*, https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways, accessed February 11, 2025.

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C&V Consulting Inc., *Preliminary Hydrology & Hydraulics Study Tentative Tract Map No. 84531*, January 2025.

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Kennedy Jenks, *City of South Gate Sewer Master Plan*, June 2019.

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Appendix A – Transportation Memorandum

MAT Engineering, Inc.

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February 27, 2025

Mr. Rodrigo Pelayo
Senior Planner
CITY OF SOUTH GATE
8650 California Avenue
South Gate, CA 90280

Subject: **10130 Adella Avenue Residential Project Trip Generation & VMT Analysis/Screening, City of South Gate, California**

Dear Mr. Pelayo,

MAT Engineering, Inc. is pleased to submit this trip generation study and VMT screening for the proposed 10130 Adella Avenue residential project in the City of South Gate.

The analysis prepared and contained in this letter report is consistent with and based on the scope of work previously prepared and submitted to the City for approval.

A. Project Description & Location

The currently vacant project site is located at 10130 Adella Avenue in the City of South Gate. The proposed project consists of construction of 54 dwelling units of multifamily residential use.

Exhibit A shows the project location. **Exhibit B** shows the proposed site plan.

B. Project Trip Generation

Trip generation represents the amount of trips attracted and produced by a land use.

The trip generation for the proposed project is based upon the specific land uses that have been planned for this project and has been determined utilizing the Institute of Transportation Engineers (ITE) trip generation rates which is an industry standard for calculating trips associated with land uses.

Table 1 shows the trip ITE trip generation rates for the proposed uses based on the ITE. **Attachment A** shows the ITE trip rates utilized in this analysis

Table 1
ITE Trip Generation Rates

Land Use	ITE Code	Units	Peak Hour						Daily
			AM Peak Hour			PM Peak Hour			
			In	Out	Total	In	Out	Total	
Multifamily Residential (Low-rise)	220	DU	0.10	0.30	0.40	0.32	0.19	0.51	6.74

Notes:
Source: 2021 ITE 11th Edition Trip Generation Manual;
DU = Dwelling Units.

Utilizing the ITE trip generation rates from **Table 1**, **Table 2** shows a summary of the trip generation for the proposed land use.

Table 2
Proposed Land Use Trip Generation

Land Use	Quantity	Units	ITE Code	Peak Hour						Daily
				AM Peak Hour			PM Peak Hour			
				In	Out	Total	In	Out	Total	
Multifamily Residential (Low-Rise)	54	DU	220	5	17	22	17	11	28	364

Source:
Institute of Transportation Engineers (ITE) 2021 Trip Generation Manual (11th Edition) Source: 2021 ITE 11th Edition Trip Generation Manual.
DU = Dwelling Units.

As shown in **Table 2**, based on the ITE trip generation rates, the proposed use is expected to generate approximately 364 daily trips which include approximately 22 AM peak hour trips and approximately 28 PM peak hour trips.

C. Trip Generation Evaluation

As shown in **Table 2**, the proposed project is forecast to generate approximately 364 daily trips which include approximately 22 AM peak hour trips and approximately 28 PM peak hour trips.

Based on industry standards and the Los Angeles County traffic study requirements, typically, a full traffic study is required when a project generates more than 50 peak hour trips.

Since the proposed project is expected to generate a low number of trips, a full traffic study is not required for the proposed project. Due to the low number of trips, the project is expected to not have an adverse impact on the level of service and operations of the surrounding circulation system and roadway network. Once the project trips are distributed and disbursed onto the surrounding roadway network, the amount of project trips added to any major intersection will be even further reduced and insignificant

D. Proposed Scope of Vehicle Miles Traveled (VMT) Analysis

In response to Senate Bill (SB) 743, the California Natural Resource Agency certified and adopted new CEQA Guidelines in December 2018 which now identify Vehicle Miles Traveled (VMT) as the most appropriate metric to evaluate a project's transportation impact under CEQA (§ 15064.3).

Effective July 1, 2020, the previous CEQA metric of LOS, typically measured in terms of automobile delay, roadway capacity and congestion, generally will no longer constitute a significant environmental impact.

An evaluation of the project VMT has been conducted utilizing the Southern California Association of Governments (SCAG) VMT screening website. Based on the SCAG data and as shown in **Exhibit C**, the project site is located within 0.2 miles of Atlantic Avenue which is designated as a High Quality Transit Corridor. Hence, the proposed project is expected to screen out for requiring a full VMT analysis.

Hence, the proposed project is screened out for requiring a full VMT analysis and the proposed project is forecast to have a less than significant VMT impact.

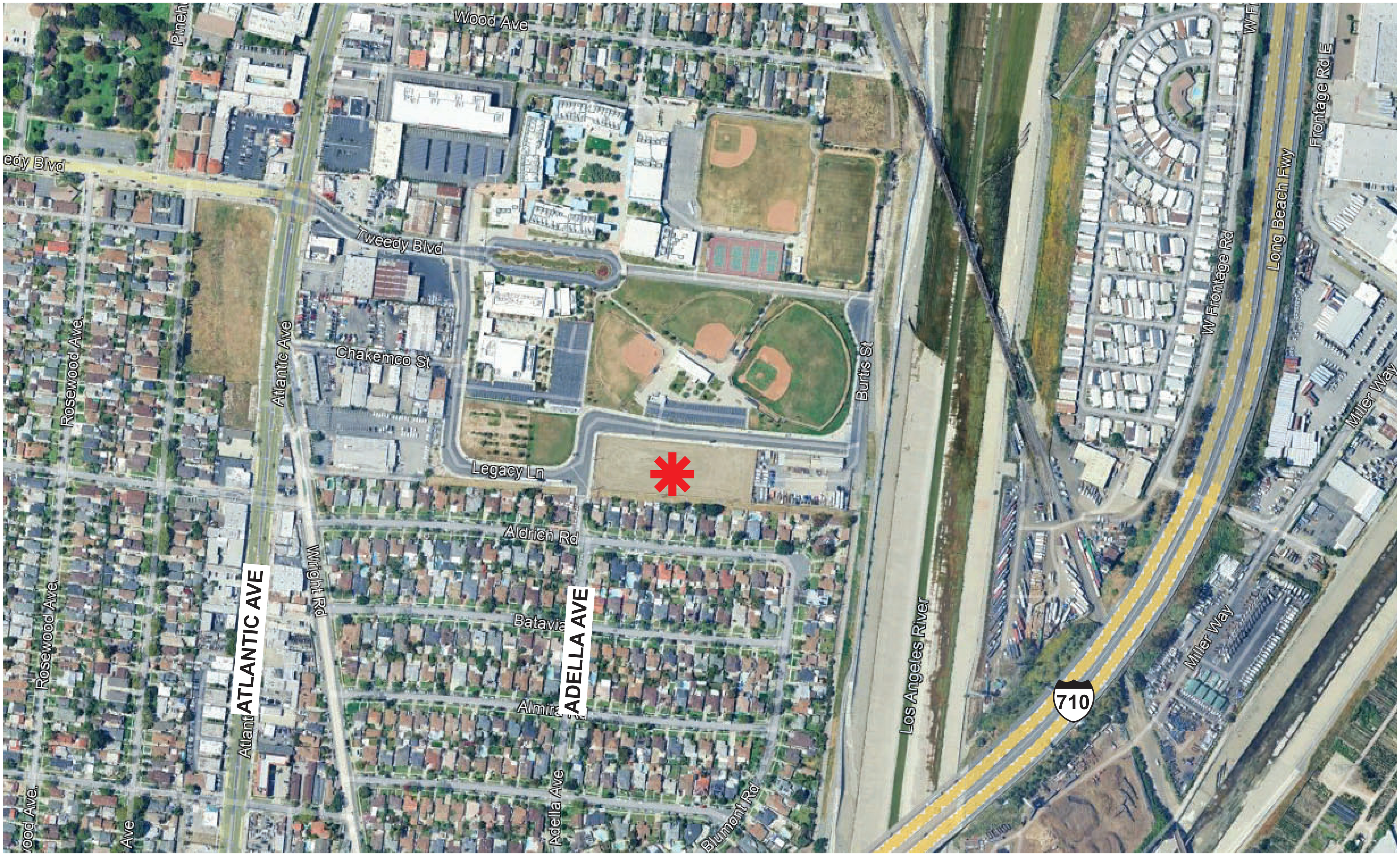
MAT Engineering Inc. appreciates the opportunity to provide this technical memorandum. If you have any questions, concerns, or comments, please contact us at 949-344-1828 or at@matengineering.com.

Respectfully submitted,

MAT ENGINEERING, INC.

Alex Tabrizi, PE, TE

President



Not to Scale

Legend:

Site Location

ENGINEERING, INC.

Location

Exhibit A

Not to Scale

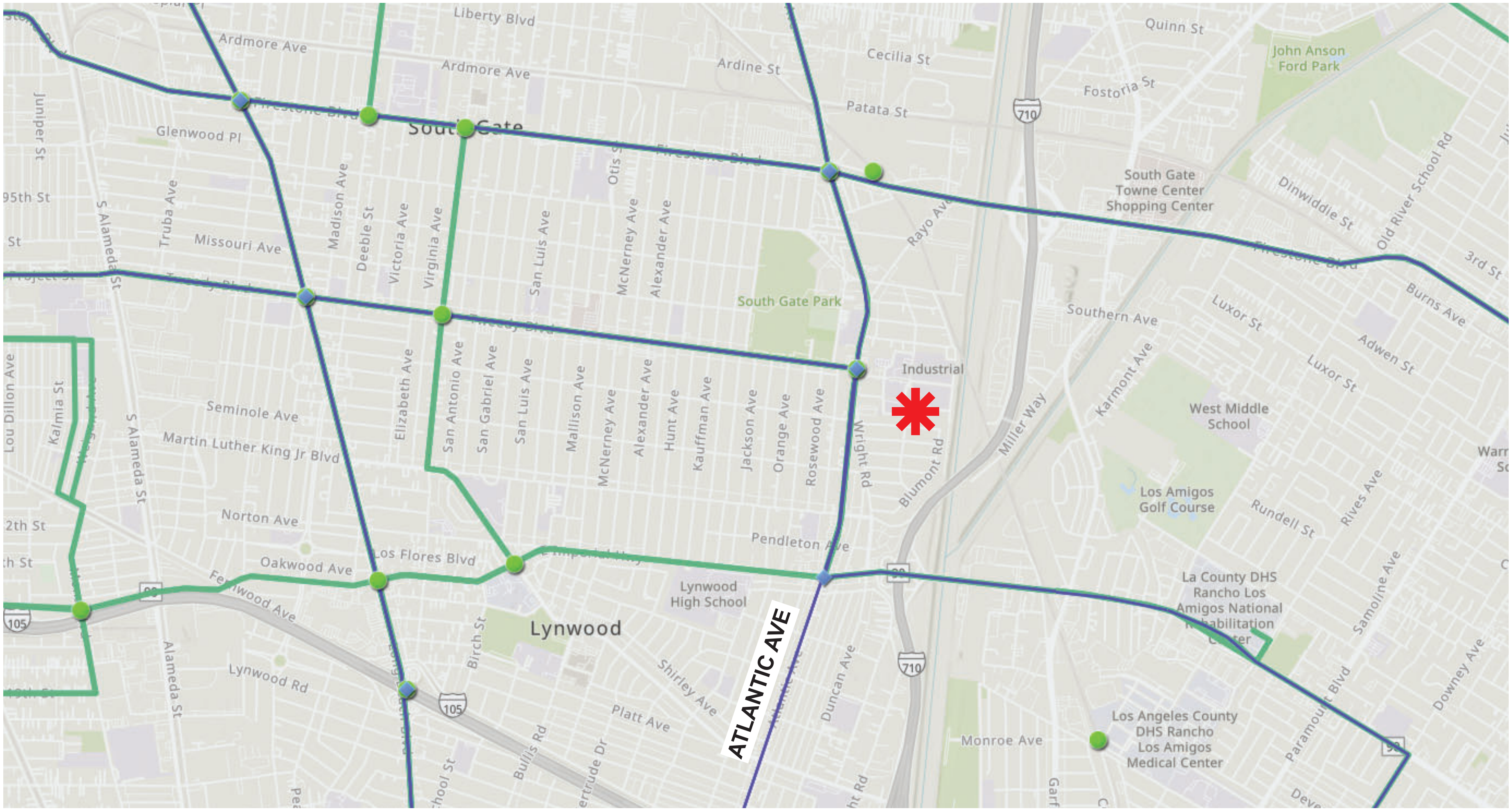
MN ENGINEERING, INC.

Site Plan

Exhibit B

10130 Adella Avenue Residential Project, City of South Gate, California / 0006-2024-11

FEB/2025



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Legend:

Site Location

SCAG High Quality Transit Routes

Exhibit C

10130 Adella Avenue Residential Project, City of South Gate, California / 0006-2024-11

FEB/2025

ENGINEERING, INC.

Attachment A

ITE Trip Generation Data

Land Use: 220
Multifamily Housing (Low-Rise)

Description

Low-rise multifamily housing includes apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and that have two or three floors (levels). Various configurations fit this description, including walkup apartment, mansion apartment, and stacked townhouse.

- A walkup apartment typically is two or three floors in height with dwelling units that are accessed by a single or multiple entrances with stairways and hallways.

- A mansion apartment is a single structure that contains several apartments within what appears to be a single-family dwelling unit.

- A fourplex is a single two-story structure with two matching dwelling units on the ground and second floors. Access to the individual units is typically internal to the structure and provided through a central entry and stairway.

- A stacked townhouse is designed to match the external appearance of a townhouse. But, unlike a townhouse dwelling unit that only shares walls with an adjoining unit, the stacked townhouse units share both floors and walls. Access to the individual units is typically internal to the structure and provided through a central entry and stairway.

Multifamily housing (mid-rise) (Land Use 221), multifamily housing (high-rise) (Land Use 222), affordable housing (Land Use 223), and off-campus student apartment (low-rise) (Land Use 225) are related land uses.

Land Use Subcategory

Data are presented for two subcategories for this land use: (1) not close to rail transit and (2) close to rail transit. A site is considered close to rail transit if the walking distance between the residential site entrance and the closest rail transit station entrance is ½ mile or less.

Additional Data

For the three sites for which both the number of residents and the number of occupied dwelling units were available, there were an average of 2.72 residents per occupied dwelling unit.

For the two sites for which the numbers of both total dwelling units and occupied dwelling units were available, an average of 96.2 percent of the total dwelling units were occupied.

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (https://www.ite.org/technical-resources/topics/trip-and-parking-generation/).

For the three sites for which data were provided for both occupied dwelling units and residents, there was an average of 2.72 residents per occupied dwelling unit.

It is expected that the number of bedrooms and number of residents are likely correlated to the trips generated by a residential site. To assist in future analysis, trip generation studies of all multifamily housing should attempt to obtain information on occupancy rate and on the mix of residential unit sizes (i.e., number of units by number of bedrooms at the site complex).

The sites were surveyed in the 1980s, the 1990s, the 2000s, the 2010s, and the 2020s in British Columbia (CAN), California, Delaware, Florida, Georgia, Illinois, Indiana, Maine, Maryland, Massachusetts, Minnesota, New Jersey, Ontario (CAN), Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Utah, and Washington.

Source Numbers

188, 204, 237, 300, 305, 306, 320, 321, 357, 390, 412, 525, 530, 579, 583, 638, 864, 866, 896, 901, 903, 904, 936, 939, 944, 946, 947, 948, 963, 964, 966, 967, 1012, 1013, 1014, 1036, 1047, 1056, 1071, 1076

Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

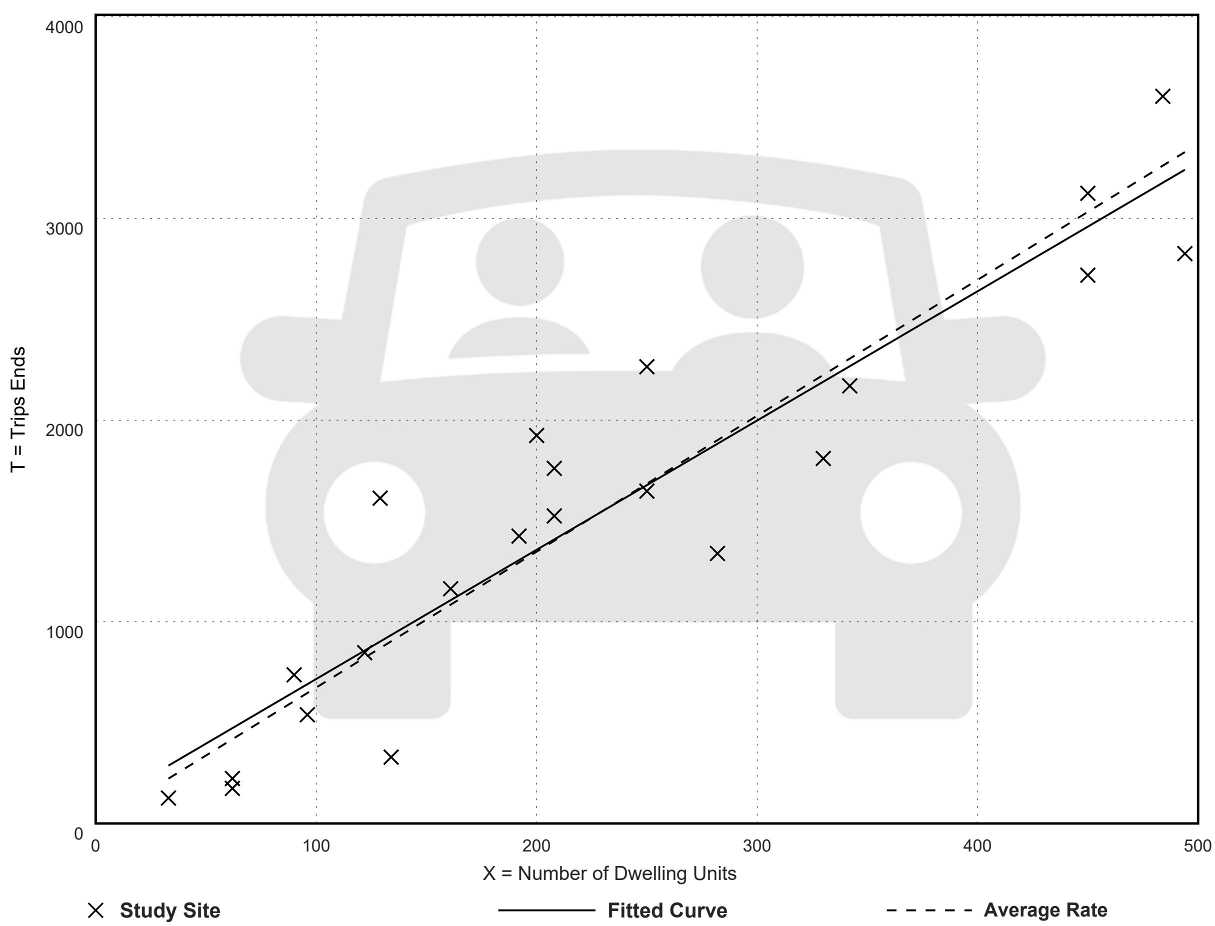
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 22
Avg. Num. of Dwelling Units: 229
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
6.74	2.46 - 12.50	1.79

Data Plot and Equation



Fitted Curve Equation: $T = 6.41(X) + 75.31$ **$R^2 = 0.86$**

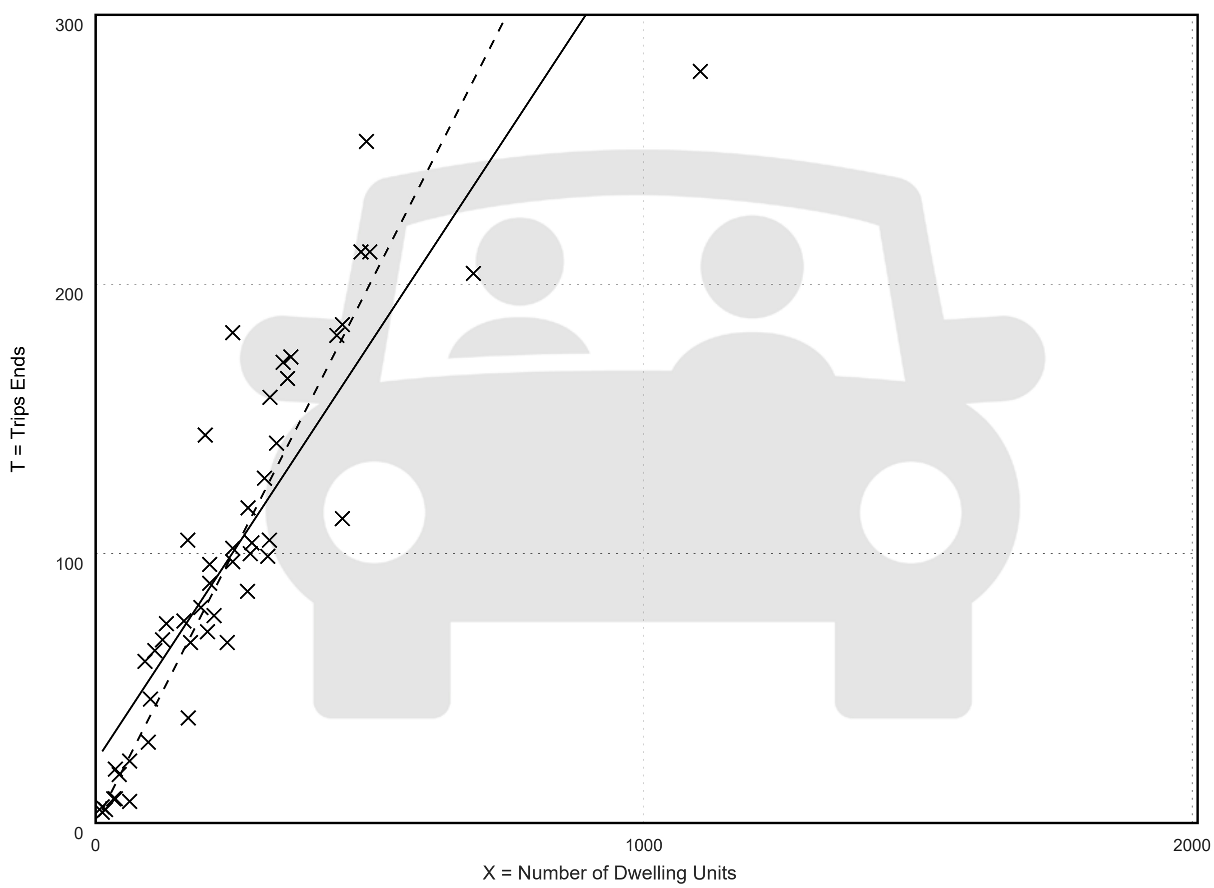
Multifamily Housing (Low-Rise) Not Close to Rail Transit (220)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 49
Avg. Num. of Dwelling Units: 249
Directional Distribution: 24% entering, 76% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.40	0.13 - 0.73	0.12

Data Plot and Equation



× **Study Site** ——— **Fitted Curve** - - - - - **Average Rate**

Fitted Curve Equation: T = 0.31(X) + 22.85 **R^2= 0.79**

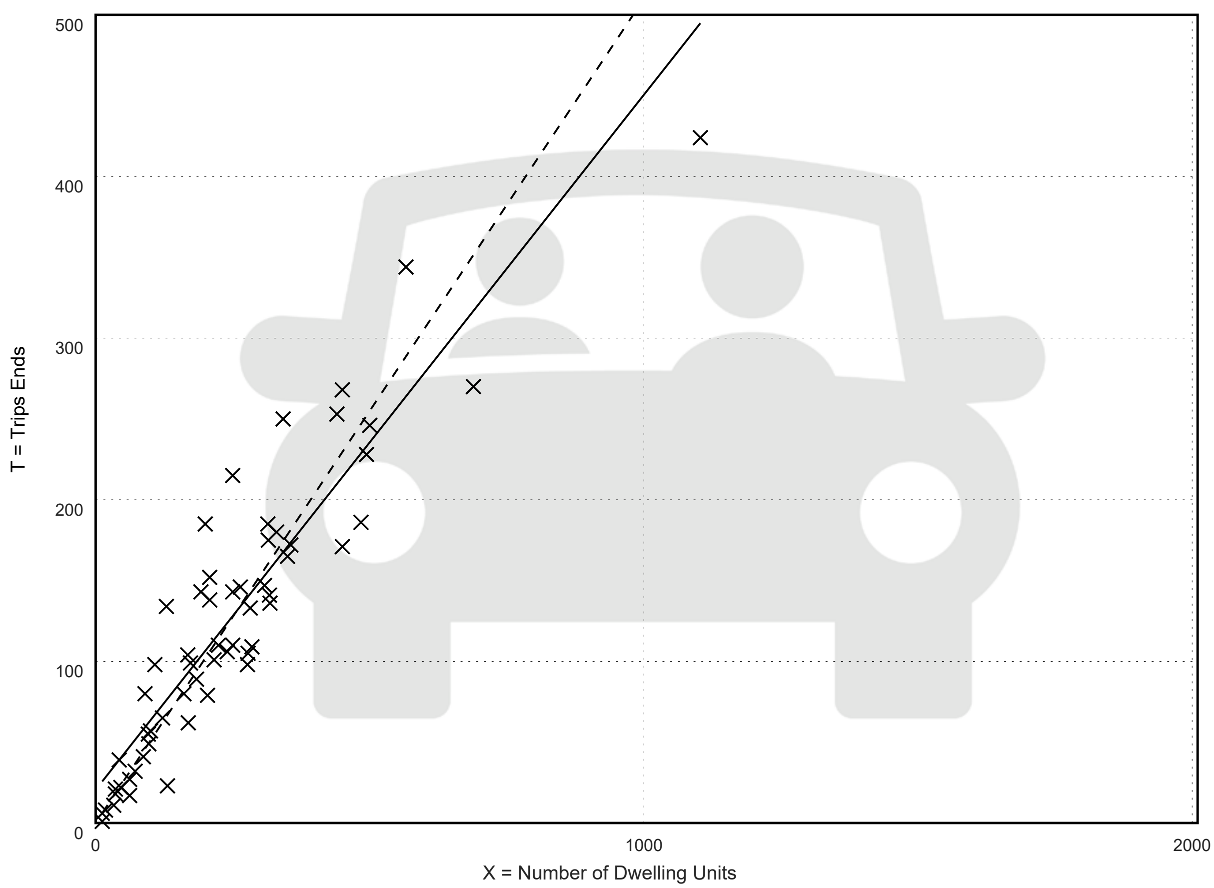
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	59
Avg. Num. of Dwelling Units:	241
Directional Distribution:	63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.51	0.08 - 1.04	0.15

Data Plot and Equation



Study Site | **Fitted Curve** | **Average Rate**

Fitted Curve Equation: T = 0.43(X) + 20.55

R^2= 0.84

Attachment B

Los Angeles County Traffic Study Guidelines

Public Works
LOS ANGELES COUNTY

Los Angeles County Public Works

Transportation Impact Analysis Guidelines

July 23, 2020
Prepared by Public Works

Table of Contents

Section 1. - Introduction

Public Works generally will require the preparation and submission of a Transportation Impact Analysis for projects that meet the following criteria:

- Development Projects:
    - Estimated to generate a net increase of 110 or more daily vehicle[1] trips.
- Transportation Projects:
    - Likely to induce additional vehicle[1] miles traveled (VMT) by increasing vehicle capacity.
- Projects for which a Transportation Impact Analysis is required by County ordinance; regulation; resolution; court order; or directive from the Board of Supervisors, Regional Planning Commission.

A Transportation Impact Analysis requires analyses and forecasting of impacts or deficiencies to the circulation system generated by the project. The Transportation Impact Analysis identifies feasible measures or corrective conditions to offset any impacts or deficiencies.

The Transportation Impact Analysis shall be prepared under the direction of, and be signed by, a Professional Engineer, registered in the State of California to practice either Traffic or Civil Engineering.

[1] The term vehicle refers to on-road passenger vehicles, specifically cars and light trucks. Heavy-duty trucks should only be included in a traffic impacts analysis for modeling convenience and ease of calculation (e.g., where models or data provide combine auto and heavy-freight VMT) but should not contribute to a finding of significant traffic impact under any circumstances.

<u>Section 2. - Overall Steps</u>

The project applicant shall follow the general steps summarized below when preparing a transportation impact analysis for a discretionary development project or transportation project.

Step 1. Project Memo

The project applicant shall inform Public Works that a new Transportation Impact Analysis is being prepared. In this initial communication, the following information shall be provided:

A. <u>Project</u> <u>Description</u> – Provide a general description of the project, including size (defined by square footage per use and/or number of dwelling units) and use(s). The project description should include information on any phased construction and any unusual conditions. The project description shall specify a building address, Assessor's parcel number, and project title.

B. <u>Project Site Plan</u> – Submit the proposed project site plan, which shall clearly identify driveway or access location(s), loading/unloading areas, and parking design and circulation to help define the distribution of project trips. Considerations for traffic flow and movement should be designed and incorporated early in building and parking layout plans. To minimize and prevent last minute building design changes, project applicants should contact the Public Works Land Development Division and Public Works Traffic Safety and Mobility Division to determine the requirements for driveway width and internal circulation before finalizing the building and parking layout design.

Step 2. Other Agency Contacts

The project applicant shall consult with other agencies or adjacent jurisdictions (e.g., Caltrans, other cities, transit agencies, etc.) that may be affected by site access and travel demands generated by the project to ensure those agencies' transportation-related concerns and issues are properly addressed in the Transportation Impact Analysis. If, as part of site access and circulation evaluation (see Section 4), a Transportation Impact Analysis includes the evaluation of an intersection or intersections in an adjacent local jurisdiction, then any corrective actions deemed necessary to address circulation concerns should be reviewed by and confirmed in writing by that jurisdiction. Written confirmation of consultation with all affected agencies is required.

Step 3. Scoping Document

The project applicant shall prepare and submit a Scoping Document to Public Works through the EPIC-LA portal. The Scoping Document describes the assumptions and parameters that shall be included in the Transportation Impact Analysis including any analysis requirements from other affected jurisdictions identified in Step 2.

Step 4. Data Collection

The project applicant shall gather qualitative and quantitative data needed to support the required analyses and components of the Transportation Impact Analysis. Traffic count data shall be collected in accordance with standards and methods established in the Transportation Impact Analysis Guidelines.

Step 5. Transportation Impact Analysis Submittal

The project applicant shall submit the completed Transportation Impact Analysis to Public Works through the EPIC-LA portal and ensure that all subsequent submittals of the Transportation Impact Analysis are dated and timestamped.

Step 6. Transportation Impact Analysis Confirmation of Findings Letter

Public Works will prepare and distribute a Transportation Impact Analysis Confirmation of Findings Letter after the fees have been submitted and the Transportation Impact Analysis has been reviewed and approved.

The Transportation Impact Analysis Confirmation of Findings Letter will be limited to summarizing the findings and requirements for the proposed project. Additional fees/deposits may be required should the project applicant request findings and requirements for additional project alternatives.

Step 7. Mitigation and Monitoring

The project applicant may be responsible for ongoing reporting, depending on the nature of the mitigation measures and corrective actions to be implemented by the project. Reporting and monitoring of Transportation Demand Management (TDM) measures implemented by the project to improve mobility options at and around a project site may also be required and will be described in the Transportation Impact Analysis Confirmation of Findings Letter.

Section 3. - California Environmental Quality Act (CEQA) Transportation Impact Analysis Process

Section 3.1. - Development Projects

Section 3.1.1. - Introduction

The updated CEQA Guidelines certified and adopted by the California Natural Resources Agency in December 2018 are now in effect. Accordingly, Public Works recognizes the need to provide information based on guidance from the Office of Planning and Research and the California Air Resources Board on the assessment of vehicle miles traveled (VMT), thresholds of significance, and mitigation measures for development projects and land use plans in accordance with the amended Appendix G question below:

- For a development project, would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)(1)?

For development projects, the intent of this question is to assess whether a proposed project or plan adequately reduces total VMT. Public Works provides the following guidance regarding screening and impact criteria to address this question. The following screening criteria and impact criteria are only meant to serve as guidance for projects to determine whether a Transportation Impact Analysis should be performed, and the criteria to determine if a project generates a significant transportation impact. The criteria shall be determined on a project-by-project basis as approved by Public Works.

Section 3.1.2. - Screening Criteria

Section 3.1.2.1. - Non-Retail Project Trip Generation Screening Criteria

If the answer is no to the question below, further analysis is not required, and a less than significant determination can be made.

- Does the development project generate a net increase of 110 or more daily vehicle[1] trips[2]?

A project's daily vehicle trip generation should be estimated using the most recent edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual. If the project proposed land use is not listed in the ITE Trip Generation Manual, please submit a trip generation study to Public Works for review and approval.

Section 3.1.2.2. - Retail Project Site Plan Screening Criteria

A project that contains a local serving retail use is assumed to have less than significant VMT impacts for the retail portion of the project. If the answer to the following question

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[2] As referenced in the Governor's Office of Planning and Research (OPR), *Technical Advisory on Evaluating Transportation Impacts in CEQA*, December 2018.

is no, a less than significant determination can be made for the portion of the project that contains retail uses.

- Does the project contain retail uses that exceed 50,000 square feet of gross floor area[2]?

However, if the retail project is part of a mixed-use project, then the remaining portion of the project may be subject to further analysis in accordance with other screening criteria in Section 3.1. Projects that include retail uses in excess of the Retail Project Site Plan Screening Criteria need to evaluate the entirety of the project's VMT.

Section 3.1.2.3. – Proximity to Transit Based Screening Criteria

If a project is located near a major transit stop or high-quality transit corridor, the following question should be considered:

- Is the project located within a one-half mile radius of a major transit stop or an existing stop along a high-quality transit corridor[2]?

If the answer to the question above is yes, then the following subsequent questions should be considered:

- Does the project have a Floor Area Ratio[2] less than 0.75?
- Does the project provide more parking than required by the County Code[2]?
- Is the project inconsistent with the SCAG RTP/SCS[2]?
- Does the project replace residential units set aside for lower income households with a smaller number of market-rate residential units[2]?

If the answer to all four questions is no, further analysis is not required, and a less than significant determination can be made.

To determine the proposed change in residential units, the total number of lower income housing units that exist on the project site should be counted and compared to the total number of lower income and market-rate residential units proposed by the project. If there is a net decrease in residential units, the Proximity to Transit Based Screening Criteria cannot be utilized.

Section 3.1.2.4. – Residential Land Use Based Screening Criteria

Independent of the screening criteria for non-retail and retail projects, certain projects that further the State's affordable housing goals are presumed to have less than significant impact on VMT. If the project requires a discretionary action and the answer is yes to the question below, further analysis is not required, and a less than significant determination can be made.

- Are 100% of the units, excluding manager's units, set aside for lower income households[2]?

Section 3.1.3. - Impact Criteria

The project has a potentially significant VMT impact if it meets one or more of the criteria listed below. The impact criteria below are considered as potential options that may be selected as thresholds for determining significance. These impact criteria below are based on guidance published by OPR[2] and CARB[3] but their applicability to a specific project shall be justified with substantial evidence and is not presumed to be appropriate.

- Residential Projects The project's residential VMT[4] per capita would not be 16.8%[3] below the existing residential VMT[4] per capita for the Baseline Area in which the project is located (Table 3.1.3.-1),
- Office Projects. The project's employment VMT[5] per employee exceeding would not be 16.8%[3] below the existing employment VMT[5] per employee for the Baseline Area in which the project is located (see Table 3.1.3.-1),
- Regional Serving Retail Projects. The project would result in a net increase[2] in existing total VMT (see Table 3.1.3.-1),
- Land Use Plans. The plan total VMT per service population[6] (residents and employees) would not be 16.8%[3] below the existing VMT per service population[6] for the Baseline Area in which the plan is located (see Table 3.1.3.-1),
- For other land use types, please contact Public Works to determine which of the above are an appropriate threshold of significance to be utilized (see Table 3.1.3.-1).

Table 3.1.3-1 provides the Baseline VMT for the North and South areas of the County at the time these guidelines were prepared. The Baseline VMT applied in the Transportation Impact Analysis should be consistent with the year that the transportation study begins as defined in the Scoping Document.

[3] As referenced by the VMT reduction goals discussed in the California Air Resources Board, 2017 Scoping Plan-Identified VMT Reductions and Relationship to State Goals, January 2019, Figure 3.
[4] Residential VMT is the VMT generated by Home-Based Work and Home-Based Other trip productions.
[5] Employment VMT is the VMT generated by Home-Based Work trip attractions.
[6] Service population is the sum of the number residents and the number of employees

Table 3.1.3.-1 – Baseline VMT for North and South County

Baseline Area	Residential VMT per Capita	Employment VMT per Employee	Total VMT per Service Population
North County	22.3	19.0	43.1
South County	12.7	18.4	31.1

The geographic boundaries for the North County and South County Baseline Areas are shown in Figure 3.1.3-1.

Figure 3.1.3.-1 North and South County Baseline VMT Boundaries

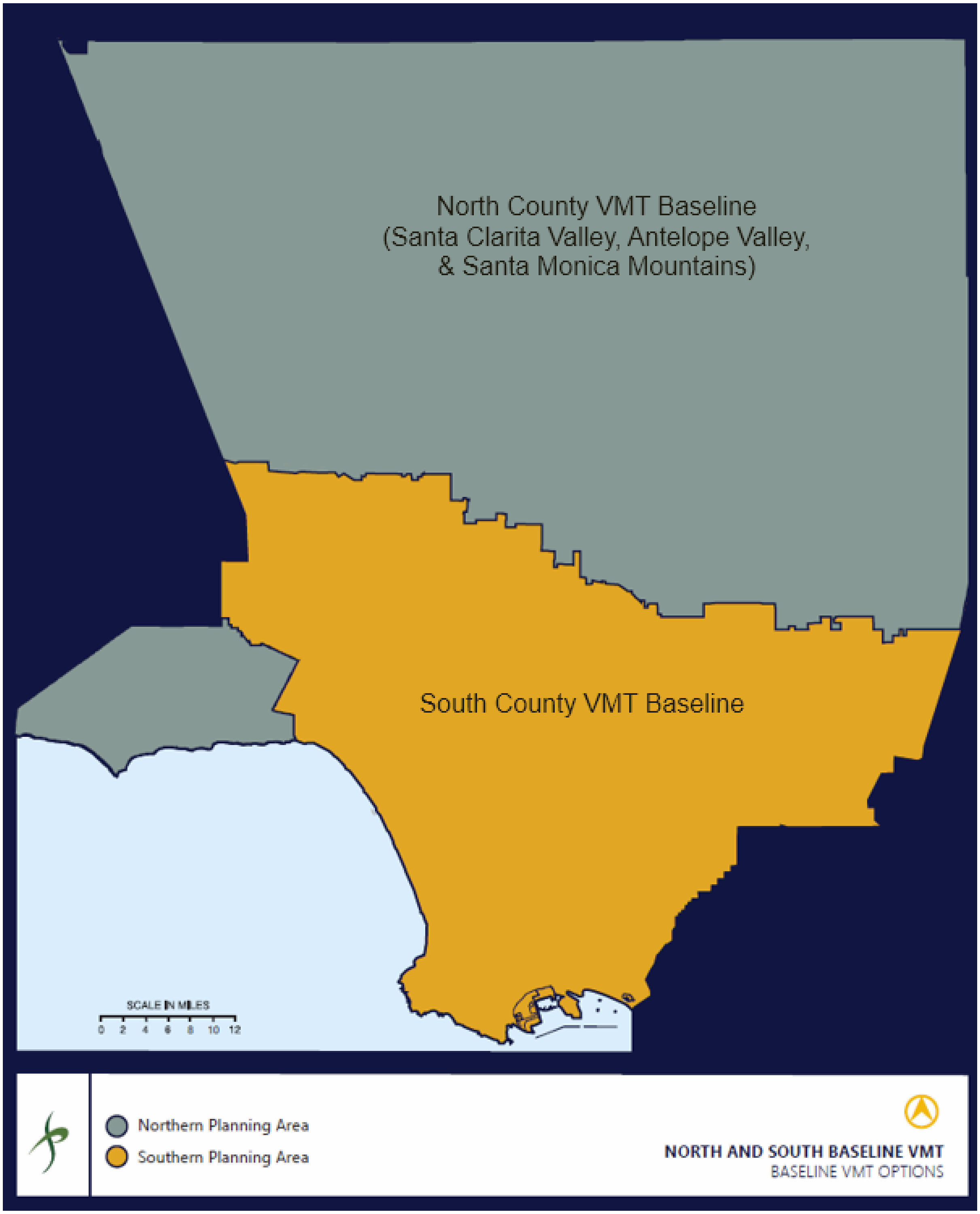


Table 3.1.3.-2 – VMT Impact Criteria (16.8% Below Area Baseline)

Baseline Area	Residential VMT per Capita	Employment VMT per Employee	Total VMT per Service Population (residents and employees)
North County	18.6	15.8	35.9
South County	10.6	15.3	25.9

Section 3.1.4. - Methodology

<u>Section 3.1.4.1 - Evaluation</u>

Screening and impact evaluation should be conducted for the following types of development projects:

- Non-Retail Land Uses:
    - Residential Land Uses:
        - Single-family housing,
        - Multi-family housing,
        - Affordable housing (for lower income households).
    - Office, Manufacturing, or Institutional Land Uses:
        - General office,
        - Medical office,
        - Light industrial,
        - Manufacturing,
        - Warehousing/self-storage,
        - K-12 schools,
        - College/university,
        - Hotel/motel.
- Retail Land Uses:
    - General retail,
    - Furniture store,
    - Pharmacy/drugstore,
    - Supermarket,
    - Bank,
    - Health club,
    - Restaurant,
    - Auto repair,
    - Home improvement superstore,
    - Discount store,
    - Movie theater.

The land uses described above are not intended to be inclusive of every project-type reviewed by Public Works and subject to CEQA. For these and all other land uses, the appropriate screening criteria and impact evaluation shall be determined on a project-by-project basis.

Section 3.1.4.2. - Project Impact Determination

- Residential Projects: Daily vehicle[1] trips, daily VMT, and daily residential VMT[4] per capita for residential projects should be estimated using the SCAG RTP/SCS Travel Demand Forecast Model (as described in the Los Angeles County Senate Bill (SB) 743 Implementation and CEQA Updates Report[7]). Transportation demand management strategies to be included as project design features should be considered in the estimation of a project's daily vehicle trips and VMT (see Section 3.1.5 regarding TDM strategies),

- Office Projects: Daily vehicle[1] trips, daily VMT, and daily employment VMT[5] per employee for office projects should be estimated using the SCAG RTP/SCS Travel Demand Forecast Model (as described Los Angeles County Senate Bill (SB) 743 Implementation and CEQA Updates Report[7]). Transportation demand management strategies to be included as project design features should be considered in the estimation of a project's daily vehicle trips and VMT,

- Regional Serving Retail Projects: The Scoping Document prepared by the project applicant and Public Works will outline one of the following methods for impact determination:

    - Preparation of a market-study-based transportation analysis submitted by the project applicant that demonstrates the project area is underserved for the proposed retail use and that the project will shorten existing shopping trips by creating an intervening location between trip origins and current retail destinations.

    - Run the SCAG RTP/SCS Travel Demand Forecasting Model (as described in the Los Angeles County Senate Bill (SB) 743 Implementation and CEQA Updates Report[7]) with and without the project. Since the overall number of trips in the model is based on home-based trips and is balanced to home-trip productions, the total number of trips will not be influenced materially by the introduction of the additional retail space. Rather, the model will redistribute home-shopping trips from other retail destinations to the proposed retail destination,

        - If the project is entirely retail, the following steps apply:
            - Determine the traffic analysis zone (TAZ) in which the project is located,

[7] *Los Angeles County Senate Bill (SB) 743 Implementation and CEQA Updates Report*, Fehr & Peers, June 2020

- Convert the project retail land uses into the appropriate employment categories utilized in the model and adjust the socioeconomic parameters in the TAZ appropriately to reflect removal of existing land uses and addition of the project,
- Run the four-step model process for the model existing base year for the four-time periods in the model (AM peak period, midday period, PM peak period, nighttime period) for the base ("no project") scenario and for the "plus project" scenario,
- Calculate total VMT on the model network for each time period and sum to determine daily VMT for each scenario. The total VMT should capture both employee and home-shopping trips. Subtract the daily VMT for the base scenario from the daily VMT for the "plus project" scenario to determine the net change in daily VMT.

▪ If the proposed project is a mixed-use development including more than 50,000 square feet of retail, conduct steps similar to those described above. However, first create a "without retail" model scenario that includes the rest of the project's proposed land uses and then create and run the four-step model for this "with retail" scenario. Subtract the daily VMT for the "without retail" scenario from the daily VMT for the "with retail" scenario to determine the net change in daily VMT.

- Land Use Plans: Daily vehicle[1] trips, daily VMT, and daily total VMT per service population[6] for land use plans should be estimated using the SCAG RTP/SCS Travel Demand Forecast Model (as described Los Angeles County Senate Bill (SB) 743 Implementation and CEQA Updates Report[7]). Transportation demand management strategies to be included as project design features should be considered in the estimation of a project's daily vehicle trips and VMT,

- Unique Land Uses: Some projects will not fit into one of the above categories. In such cases, a customized approach may be required to estimate daily trips and VMT. The methodology and thresholds to be used in such cases should be developed in consultation with and approved by Public Works staff at the outset of the study,

- Mixed-Use Projects: The project VMT impact should be considered significant if any (one or all) of the project land uses exceed the impact criteria for that particular land use, taking credit for internal capture. In such cases, mitigation options that reduce the VMT generated by any or all of the land uses could be considered.

Section 3.1.4.3. - Cumulative Impacts Determination

Land use projects should consider both short- and long-term project effects on VMT. Short-term effects will be evaluated in the detailed project-level VMT analysis. Long-term, or cumulative effects is determined through consistency with the SCAG RTP/SCS. The

RTP/SCS is the regional plan that demonstrates compliance with air quality conformity requirements and GHG reduction targets. As such, projects that are consistent with this plan in terms of development location, density, and intensity, are part of the regional solution for meeting air pollution and GHG goals. Projects that are deemed to be consistent would have a less than significant cumulative impact on VMT. Development in a location where the RTP/SCS does not specify any development may indicate a significant impact on transportation. However, if a project does not demonstrate a significant impact in the project impact analysis, a less than significant impact in the cumulative impact analysis can also be determined. Projects that fall under the RTP/SCS's efficiency-based impact thresholds are already shown to align with the long-term VMT and greenhouse gas reduction goals of SCAG's RTP/SCS.

Land use projects that: (1) demonstrate a project impact after applying an efficiency based VMT threshold and (2) are not deemed to be consistent with the SCAG RTP/SCS could have a significant cumulative impact on VMT. Further evaluation would be necessary to determine whether the project's cumulative impact on VMT is significant. This analysis could be conducted by running the SCAG RTP/SCS Travel Demand Forecasting Model (as described in the Los Angeles County Senate Bill (SB) 743 Implementation and CEQA Updates Report[7]) with the cumulative "no project" scenario representing the RTP/SCS cumulative year conditions and the cumulative "plus project" scenario representing the reallocation of the population and/or employment growth based on the land supply changes associated with the proposed project. Baseline Area VMT, residential VMT per capita, or employment VMT per employee (depending on project type) would be calculated for both scenarios, and any increase in VMT, residential VMT per capita, or employment VMT per employee (depending on project type) above that which was forecasted in the RTP/SCS would constitute a significant impact.

When specifically evaluating the VMT impacts of regional-serving retail, the cumulative analysis would include additional steps under the project impact methodology to compare a cumulative "plus project" scenario with the cumulative "no project" scenario. The cumulative "no project" scenarios represents the adopted RTP/SCS cumulative year conditions (as incorporated into the SCAG RTP/SCS model). This would involve the following additional steps:

- Determine the traffic analysis zone (TAZ) in which the project is located,
- Convert the project land uses into the appropriate employment categories utilized in the RTP/SCS horizon year model. Adjust the socioeconomic parameters in the TAZ appropriately to reflect removal of the existing land uses and addition of the project,
- Run the four-step model process for the model's cumulative "no project" scenario for the four-time periods in the model (AM peak period, midday period, PM peak period, nighttime period). Then do the same for the base cumulative "no project" scenario and for the cumulative "plus project" scenario,
- Calculate total VMT on the model's network for each time period as well as the sum total to determine daily VMT for each scenario. Subtract the daily VMT for the

base cumulative “no project” scenario from the daily VMT for the cumulative “plus project” scenario to determine the net change in daily VMT.

Land use plans that: (1) demonstrate a project impact after applying an efficiency based VMT threshold and (2) are not deemed to be consistent with the SCAG RTP/SCS could have a significant cumulative impact on VMT. Further evaluation would be necessary to determine whether the Plan’s cumulative impact on VMT is significant. This analysis could be conducted by running the SCAG RTP/SCS Travel Demand Forecasting Model (as described in the Los Angeles County Senate Bill (SB) 743 Implementation and CEQA Updates Report[7]) with the cumulative “no project” scenario representing the RTP/SCS cumulative year conditions and the cumulative “plus project” scenario representing the reallocation of the population and/or employment growth based on the land supply changes associated with the proposed plan. Total VMT and VMT per service population would be calculated for both scenarios, and any increase in VMT above that which was forecasted in the RTP/SCS would constitute a significant impact.

Section 3.1.5. - Mitigation

<u>Section 3.1.5.1. - Development Project Mitigations</u>

Potential mitigation measures for a development project’s VMT impacts can include the following:

- Transportation demand management (TDM) strategies beyond those that will be included as project design features. These strategies shall be demonstrated to be effective in reducing VMT. Some of these may include, but are not limited to, the following described in Table 3.1.5-1 below. Substantial evidence should be provided to the Public Works to support the claimed effectiveness of the measure(s),

Table 3.1.5-1: TDM Strategies

Category	Measure
Commute Trip Reduction	• Commute Trip Reduction Programs with Required Monitoring • Ride Sharing Programs • Subsidized or Discounted Transit Programs • Telecommuting • Alternative Work Schedules
Land Use/Location	• Increase Transit Accessibility
Parking Policy/Parking	• Unbundle parking
Neighborhood/Site Enhancement	• Pedestrian Network Improvements • Traffic Calming Measures • Car Sharing Programs

- Additional TDM measures beyond those listed above may be considered, if such measure is used to quantitatively reduce a project's VMT estimate. Substantial evidence should be provided to Public Works to support the effectiveness of the measure,
- For a single-use project, introducing compatible additional land uses to allow for internalization of trips,
- For a mixed-use project, modifying the project's land use mix to increase internalization of trips, reduce external trip generation, and serve the local community.

Section 3.1.5.2. - Land Use Plans Mitigations

Potential mitigation measures for land use plan VMT impacts can include:

- Reallocation of future land use development to increase land use variety and density in transportation-efficient locations (e.g., proximity to jobs and housing, proximity to transit, proximity to services),
- Measures to enhance the public transit system and/or connections to the system including active transportation mode improvements, such as infrastructure improvements, programs, or education and marketing,
- Measures to encourage reduced reliance on automobile trips and encourage transit and active transportation modes.

Section 3.2. - Transportation Projects

Section 3.2.1. - Introduction

Transportation projects that increase vehicular capacity can lead to additional travel on the roadway network, which can include induced vehicle travel due to factors such as increased speeds and induced growth. To provide consistency across transportation projects and achieve the County's sustainability goals, the screening criteria for transportation impacts is based on the question below:

- For a transportation project, would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)(2)?

For transportation projects, the intent is to assess whether a transportation project induces substantial additional VMT. The following screening criteria and impact criteria are meant to serve as guidance for projects to determine whether a Transportation Impact Analysis should be performed, and whether a project generates a significant transportation impact. The criteria will be considered on a project-by-project basis as approved by Public Works.

Section 3.2.2. - Screening Criteria

If the answer is no to the following question, further analysis will not be required, and a less than significant impact determination can be made for that threshold:

- Would the project include the addition of through traffic lanes on existing or new highways, including general purpose lanes, high-occupancy vehicle (HOV) lanes, peak period lanes, auxiliary lanes, and lanes through grade-separated interchanges (except managed lanes, transit lanes, and auxiliary lanes of less than one mile in length designed to improve roadway safety)[2]?

Transit and active transportation projects and projects that reduce roadway capacity generally reduce VMT and, therefore, are presumed to cause a less-than-significant impact. Transportation projects that are not likely to lead to a substantial or measurable increase in vehicle travel and would, therefore, not be required to prepare an induced travel analysis supported by the OPR technical advisory[2], are listed below:

- Rehabilitation, maintenance, replacement, safety, and repair projects designed to improve the condition of existing transportation assets (e.g., highways; roadways; bridges; culverts; Transportation Management System field elements such as cameras, message signs, detection, or signals; tunnels; transit systems; and assets that serve bicycle and pedestrian facilities) and that do not add additional motor vehicle capacity,
- Roadside safety devices or hardware installation such as median barriers and guardrails,

- Roadway shoulder enhancements to provide "breakdown space" - dedicated space for use only by transit vehicles, to provide bicycle access, or to otherwise improve safety, but which will not be used as automobile vehicle travel lanes,
- Addition of an auxiliary lane of less than one mile in length designed to improve roadway safety,
- Installation, removal, or reconfiguration of traffic lanes that are not for through traffic, such as left, right, and U-turn pockets, two-way left turn lanes, or emergency breakdown lanes that are not utilized as through lanes,
- Addition of roadway capacity on local or collector streets provided the project also substantially improves conditions for pedestrians, cyclists, and, if applicable, transit,
- Conversion of existing general-purpose lanes (including ramps) to managed lanes or transit lanes, or changing lane management in a manner that would not substantially increase vehicle travel,
- Addition of a new lane that is permanently restricted to use only by transit vehicles,
- Reduction in number of through lanes,
- Grade separation to separate vehicles from rail, transit, pedestrians or bicycles, or to replace a lane to separate preferential vehicles (e.g., high-occupancy vehicles [HOV], high-occupancy toll [HOT], or trucks) from general vehicles,
- Installation, removal, or reconfiguration of traffic control devices,
- Installation of traffic metering systems, detection systems, cameras, changeable message signs and other electronics designed to optimize vehicle, bicycle, or pedestrian flow,
- Timing of signals to optimize vehicle, bicycle or pedestrian flow,
- Installation of roundabouts or traffic circles,
- Installation or reconfiguration of traffic calming devices,
- Adoption of, or increase, in tolls,
- Addition of tolled lanes, where tolls are sufficient to mitigate VMT increase.
- Initiation of new transit service,
- Conversion of streets from one-way to two-way operation with no net increase in number of traffic lanes,
- Removal or relocation of off-street or on-street parking spaces,
- Adoption or modification of on-street parking or loading restrictions (including meters, time limits, accessible spaces, and preferential/reserved parking permit programs),
- Addition of traffic wayfinding signage,
- Rehabilitation and maintenance projects that do not add motor vehicle capacity,

- Addition of new or enhanced bike or pedestrian facilities on existing streets/highways or within existing public rights-of-way,
- Addition of Class I bike paths, trails, multi-use paths, or other off-road facilities that serve non- motorized travel,
- Installation of publicly available alternative fuel/charging infrastructure,
- Adding of passing lanes, truck climbing lanes, or truck brake-check lanes in rural areas that do not increase overall vehicle capacity along the corridor.

Section 3.2.3. – Impact Criteria

The project has a potentially significant VMT impact if it meets the criteria listed below. The impact criteria below are considered as a potential option that may be selected as thresholds for determining significance. The impact criteria below is based on guidance published by OPR[2], but their applicability to a specific project shall be justified with substantial evidence and is not presumed to be appropriate.

- The project will increase the project area VMT, as measurable by the SCAG RTP/SCS base year Travel Demand Forecasting Model plus an induced travel elasticity factor per lane mile[2].

Section 3.2.4. - Methodology

<u>Section 3.2.4.1. - Project Impacts Determination</u>

The County utilizes the SCAG RTP/SCS Travel Demand Forecasting Model (as described in the Los Angeles County Senate Bill (SB) 743 Implementation and CEQA Updates Report[7]) that is suitable for assessing change in VMT due to a given roadway project in its land use/transportation context. This model should be used to calculate the change in VMT from transportation projects that, by definition, are considered to have the potential for inducing VMT.

For the direct measurement of project impacts, the SCAG RTP/SCS model's base year network should be modified to reflect the vehicle capacity-enhancements that would result from the proposed transportation project. The base year model should be run with and without the proposed transportation project, without adjusting the model's land use inputs, to isolate the potential change in network VMT with the project as compared to the baseline. The assessment should cover the full area in which driving patterns are expected to change and include supporting evidence for why such area was selected.

The SCAG RTP/SCS model is capable of adjusting trip lengths, mode split, and route choice in response to network changes. However, the model does not include the ability to modify land use in response to changes to the transportation system and will not increase trips to reflect latent demand. Therefore, such induced travel should be estimated by applying an induced demand elasticity factor available from appropriate academic literature.

Accordingly, the VMT impact of a transportation project shall be calculated as the direct change in VMT as estimated by the SCAG RTP/SCS model (as described in the Los Angeles County Senate Bill (SB) 743 Implementation and CEQA Updates Report[7]) with and without the project plus a factor for induced demand calculated as follows:

- Run the SCAG RTP/SCS model with and without the transportation project to isolate the potential direct change in network VMT due to changes in trip length, mode split, and route choice,
- Using the SCAG RTP/SCS model, determine the total modeled lane-miles over the project area that fully captures travel behavior changes resulting from the project,
- Determine the percent change in total lane miles that will result from the project,
- Using the SCAG RTP/SCS model, determine the total existing VMT over that same area,
- Multiply the percent increase in lane miles by the existing VMT and then multiply that by the elasticity factor from the latest induced travel literature to determine the induced VMT,
- Add the induced VMT to the modeled change in network VMT due to trip length, mode split, and route choice.

Section 3.2.4.2. - Cumulative Impacts Determination

Analyses should consider both short- and long-term project effects on VMT. Short-term effects will be evaluated in the project-level VMT analysis described above. Long-term, or cumulative, effects will be determined through consistency with the SCAG RTP/SCS. The RTP/SCS is the regional plan that demonstrates compliance with air quality conformity requirements and greenhouse gas (GHG) reduction targets. As such, transportation projects that are included in this plan are part of the regional solution for meeting air pollution and GHG reduction goals. Transportation projects that are deemed to be consistent would have a less than significant cumulative impact on VMT.

Transportation projects that are not deemed to be consistent could have a significant cumulative impact on VMT. Further evaluation would be necessary to determine whether such a project's cumulative impact on VMT is significant. This analysis would be conducted by running the RTP/SCS cumulative year conditions and the cumulative "plus project" scenario (as described in the Los Angeles County Senate Bill (SB) 743 Implementation and CEQA Updates Report[7]) incorporating the network changes due to the proposed transportation project. An induced demand elasticity factor should be applied to any increase in VMT thus determined, and any increase in VMT would constitute a significant impact because it could jeopardize regional air quality conformity or GHG reduction findings.

Section 3.2.5. – Mitigation

Mitigation measures that could reduce the amount of increased vehicle travel induced by capacity increases could include, but not be limited to, the following measures:

- Converting existing general-purpose lanes to HOV lanes, high occupancy toll (HOT) lanes, toll lanes, or bus lanes to encourage carpools and fund transit improvements,
- Implementing or funding off-site mobility improvements, including the initiation of transportation management organizations (TMOs),
- Implementing intelligent transportation systems (ITS) strategies to improve passenger throughput on existing lanes,
- Additional measures beyond those listed above, may be considered, if such measures are used to quantitatively reduce a project's VMT estimate, substantial evidence should be provided to support the claimed effectiveness of the measure(s).

<u>Section 4. – Site Access Studies</u>

<u>Section 4.1. – Operational Analysis</u>

Section 4.1.1. - Introduction

The site access and circulation constraints related to the provision of access to and from the project site may be analyzed as part of the project's environmental review. The analysis should address the site access and circulation needs of vehicles, bicycles and pedestrians. If the operation analysis is determined to be necessary in consultation with Public Works, operational performance may be quantified for primary site access points, unsignalized intersections integral to the project's site access, and signalized intersections in the vicinity of the project site.

Section 4.1.2. - Screening Criteria

<u>Section 4.1.2.1. - Development Projects</u>

For development projects, if the answer is yes to the following questions, further analysis may be required to assess whether the project would negatively affect project access and circulation:

- Is the project required to submit a Transportation Impact Analysis?
- Does the development project involve a discretionary action that would be reviewed by the Department of Regional Planning?

Section 4.1.3. - Evaluation Criteria

<u>Section 4.1.3.1. - Operational Deficiencies</u>

The Transportation Impact Analysis should include a quantitative evaluation of the project's expected access and circulation operations. Project access is considered constrained if the project's traffic would contribute to unacceptable queuing at nearby signalized intersections. Unacceptable or extended queuing may be defined as follows:

- Spill over from turn pockets into through lanes,
- Spill over into intersections.

Section 4.1.4. - Methodology

<u>Section 4.1.4.1. - Level of Service and Queueing Methodology</u>

Intersection level of service (LOS) and queueing methodologies from the latest edition of the Transportation Research Board Highway Capacity Manual (HCM) should be used to evaluate the operation of the project driveways and nearby intersections. For individual isolated intersection analysis, the use of software packages such as Synchro, Vistro, or HCS that implement the HCM methodologies is acceptable.

Where oversaturated conditions currently exist, the operational analysis should be conducted using Synchro/SimTraffic or VISSIM simulation models to more accurately reflect the effect of downstream congestion on intersection operations. VISSIM should be used in areas with transit lanes or with high levels of pedestrians conflicting with vehicle turning movements

Section 4.1.4.2. - Study Area

Study locations should be determined in consultation with Public Works and should include:

- All primary project driveway(s),
- Unsignalized and/signalized intersections that are adjacent to the project or that are expected to be integral to the project's site access and circulation plan,
- Additional intersections may be necessary as determined by Public Works.

For most projects, analyze traffic for both the a.m. and p.m. weekday peak hours as determined by 24-hour traffic counts. For some projects, expanding the analysis to include midday or weekend periods may be appropriate if these are expected to be the prime periods of trip generation for the project.

Section 4.1.4.3. - Traffic Counts

Traffic counts should generally be conducted per the following guidance and by Section 4.1.4.2., unless otherwise directed by Public Works:

- Turning movement data at the study intersections:
  - Should be collected in 15-minute intervals,
  - Must include vehicle classifications, pedestrian volume counts, and bicycle counts,
  - Must include a minimum or 2 hours of traffic counts for each of the peak hours,
  - Must be taken on Tuesdays, Wednesdays or Thursdays,
  - Must exclude holidays, and the first weekdays before and after the holiday,
  - Must be taken on days when local schools or colleges are in session,
  - Must be taken on days of good weather, and avoid atypical conditions (e.g., road construction, detours, or major traffic incidents),
- Traffic counts used from other traffic studies in the area may be use if they are reviewed and approved by Public Works.

When simulation analyses are to be conducted, obtain traffic speed and/or travel time data during peak periods to aid in calibration of the simulation model.

Section 4.1.4.4. - Project Trip Distribution

Distribution patterns for project trips should be determined considering a number of factors including, but not limited to, the following:

- Characteristics of the street system serving the project site,
- Level of accessibility of routes to and from the proposed project site,
- Locations of employment and commercial centers,
- Locations of residential areas.

The Transportation Impact Analysis shall include map(s) showing project trip distribution percentages (inbound and outbound) at the study intersections, and project driveway(s). This map shall be pre-approved by Public Works and included in the Transportation Impact Analysis Scoping Document.

Section 4.1.4.5. - Traffic Forecasts

The Transportation Impact Analysis shall estimate traffic conditions for the study horizon year selected during the scoping phase and recorded in the executed Scoping Document. The study shall clearly identify the horizon year and annual ambient growth rate used for the study. For development projects constructed in phases over several years, the Transportation Impact Analysis should analyze intermediary milestones before the buildout and completion of the project. The annual ambient growth rate shall be determined by Public Works staff during the scoping process and can be based on the most recent SCAG Regional Transportation Model or other empirical information approved by Public Works.

The Transportation Impact Analysis shall consider trip generation for known development projects within one-half mile (2,640 foot) radius of the farthest outlying study intersections. Consultation with the Department of Regional Planning or other planning agencies will be required to compile a related projects list.

The traffic forecasts for the project access and circulation constraints are determined by adding project-generated trips to future base traffic volumes, including ambient growth and related projects and conducting the operational analysis.

Any programmed and funded transportation system improvements that are expected to be implemented on or before the project buildout year should be identified in the study, in consultation with Public Works. If programmed improvements include a modification to the existing lane configuration at any of the study intersections, then the study should identify these changes and include the revised lane configuration in the LOS calculations for all future scenarios.

Section 4.1.5. – Recommended Action

Potential corrective actions for project access and circulation constraints can include, but are not limited to:

- Installation of a traffic signal or stop signs or electronic warning devices at site access points,
- Redesign and/or relocation of project access points,
- Redesign of the internal access and circulation system,
- Installation of stop-signs and pavement markings internal to the site,
- Restriction or prohibition of turns at site access points,
- Installation of new traffic signal, left-turn signal phasing, or other vehicle flow enhancements at nearby intersections,
- Reconfiguration of study intersections that reduces gridlock and unsafe conflict points.

Any of the above-mentioned actions shall be recommended in accordance with California Manual on Uniform Traffic Control Devices (CA MUTCD) warrants and criteria, or other criteria deemed appropriate by Public Works.

Section 4.2 – Construction Phase Analysis

Section 4.2.1. - Introduction

This category addresses activities associated with project construction and major in-street construction of infrastructure projects.

Section 4.2.2. - Screening Criteria

If the answer is yes to any of the following questions, further analysis will be required to assess if the project could negatively affect existing pedestrian, bicycle, transit, or vehicle circulation:

- For projects that require construction activities to take place within the right-of-way of a highway, would it be necessary to close any temporary lanes, alleys, or streets for more than one day (including day and evening hours, and overnight closures if on a residential street)?
- For projects that require construction activities to take place within the right-of-way of a Local Street, would it be necessary to temporarily close any lanes, alleys, or streets for more than seven days (including day and evening hours, and including overnight closures if on a residential street)?
- Would in-street construction activities result in the loss of any vehicle, bicycle, or pedestrian access, including loss of existing bicycle parking to an existing land use for more than one day, including day and evening hours and overnight closures if access is lost to residential units?
- Would in-street construction activities result in the loss of any ADA access to an existing transit station, stop, or facility (e.g., layover zone)?

- Would in-street construction activities restrict access to any bus stops for more than one day, or necessitate any rerouting of a bus route?

- Would construction of a project interfere with pedestrian, bicycle, transit, or vehicle circulation and accessibility to adjoining areas?

Please note, that further analysis may determine that a project construction analysis may be required as determined by Public Works.

Section 4.2.3. - Evaluation Criteria

Factors to be considered as part of the construction phase analysis are: location of the project site, functional classification of the adjacent street, availability of alternate routes or additional capacity, temporary loss of bicycle parking, temporary loss of bus stops or rerouting of transit lines, duration of temporary loss of access, affected land uses, and magnitude of the temporary construction activities.

- Temporary transportation constraints:
  - Length of time of temporary street closures or closures of one or more travel lanes,
  - Classification of the street (major arterial, state highway) affected,
  - Existing congestion levels on the affected street segments and intersections,
  - Direct access to freeway on- or off-ramp or other state highway,
  - Presence of emergency services (fire, hospital, etc.) located nearby that regularly use the affected street,
- Temporary loss of access:
  - Length of time of any loss of pedestrian or bicycle circulation outside the construction zone,
  - Length of time of any loss of vehicular, bicycle, or pedestrian access to a parcel within the construction zone,
  - Length of time of any loss of ADA pedestrian access to a transit station, stop, or facility,
  - Availability of nearby vehicular or pedestrian access within 1/2 mile of the lost access,
- Temporary Loss of Bus Stops or Rerouting of Bus Lines:
  - Days and times during which an existing bus stop would be unavailable or existing service would be interrupted,
  - Availability of a nearby location (within 1/2 mile) to which the bus stop or route can be temporarily relocated,
  - Existence of other bus stops or routes with similar routes/destinations within a 1/2- mile radius of the affected stops or routes,
  - Time of interruption on a weekday, weekend or holiday, and whether the existing bus route typically provides service on those day(s).

Section 4.2.4. – Methodology

Describe the physical setting, including the classification of adjacent streets, on-street parking conditions, including bicycle parking, in the immediate vicinity of the construction project, a description of the land uses potentially affected by construction, and an inventory of existing transit lines, bus stops, transit stations, and transit facilities within a 1/2-mile radius of the construction site. Review proposed construction procedures/plans to determine whether construction activity within the street right-of-way would require any of the following:

- Closure of street, sidewalk, or lanes,
- Blocking existing vehicle, bicycle, or pedestrian access along a street or to parcels fronting the street,
- Modification of access to transit stations, stops, or facilities during service hours,
- Closure or movement of an existing bus stop or rerouting of an existing bus line.
- Creation of transportation hazards.

Compare the results to the evaluation criteria to determine the level of deficiency.

Section 4.2.5. - Recommended Action

Potential corrective conditions for project construction constraints can include but are not limited to:

- Implement traffic management plan, including traffic control plans,
    - Consult with Public Works if temporary closure of a travel lane may be necessary to stage equipment in the public right-of-way,
- Modify construction procedures,
- Limit major road obstructions to off-peak hours,
- Coordinate with emergency service and public transit providers,
- Provide alternative vehicular, bicycle, and/or pedestrian access to affected parcels. Consult with Public Works if temporary closure of a travel lane may be necessary to maintain adequate pedestrian and bicycle access as part of the traffic management plan,
- Coordinate access with adjacent property owners and tenants,
- Coordinate with transit agency regarding maintenance of ADA access to transit stations, stops, and transit facilities (e.g., layover zones),
- Coordinate with transit providers regarding need to temporarily close or relocate bus stops or reroute service.

<u>Section 4.3. – Local Residential Street Cut-Through Analysis</u>

Section 4.3.1. - Introduction

Development and transportation projects may be required to conduct a Local Residential Street Cut-Through Analysis (LRSTM). The objective of this analysis is to determine potential increases in average daily traffic (ADT) volumes on designated Local Streets near a project that can be classified as cut-through trips generated by the project, and that can adversely affect the character and function of those streets. Cut- through trips are defined as trips along a street classified as a Local Street in the County's General Plan, with residential land-use frontage, as an alternative to trips along a highway defined as Limited Secondary, Secondary, Major, Parkway, or Expressway as designated in the County's General Plan for purposes of accessing a destination that is not within the neighborhood within which the Local Street is located.

Cut-through traffic may result from development projects that add vehicle trips to congested arterial street segments, or by transportation projects that reduce vehicular capacity on highway street segments. To mitigate potential adverse impacts from cut-through traffic (e.g., congestion, access issues, and speeding on Local Streets), traffic calming and diverting features should be considered and, if deemed appropriate by Public Works, implemented to offset any anticipated cut-through traffic.

Section 4.3.2. - Screening Criteria

Section 4.3.2.1. - Development Projects

If the answer is yes to the following questions, further analysis may be required to assess whether the project would negatively affect residential streets:

- Is the project required to submit a Transportation Impact Analysis?
- Does the development project involve a discretionary action that would be reviewed by the Department of Regional Planning?

In addition, for development projects to which all of the following circumstances apply, select local residential street segments for analyses during the transportation assessment scoping process:

- The project is located along a current Limited Secondary, Secondary, Major, Parkway, Expressway per the County's General Plan and the study intersections under project build-out conditions (as determined in Section 4.1) operate at a peak hour LOS E or LOS F.

- The project has a potential, based on connectivity to the roadway network, to add automobile traffic to the alternative local residential street route(s) during peak hours,

- An alternative local residential street route (defined as local streets as designated in the County's General Plan passing through a residential neighborhood) provide motorists with a viable alternative route. A viable alternative local residential street route is defined as one which is parallel and reasonably adjacent to the primary route as to make it attractive as an alternative to the primary route. The project applicant in consultation with Public Works shall define which routes are viable alternative routes, based on, but not limited to, features such as geography and presence of existing traffic control devices, and other criteria as determined by Public Works.

For the purpose of screening for daily vehicle trips, a proposed project's daily vehicle trips should be estimated using the most recent edition of the ITE Trip Generation Manual. If the project proposed land use is not listed in the ITE Trip Generation Manual, please submit a trip generation study to Public Works for review and approval.

Section 4.3.3. - Methodology

<u>Section 4.3.3.1. - Development Projects</u>

Future peak hour "without project" traffic conditions for the study intersections in the vicinity of the project identified in Section 4.1 should be developed using the intersection analysis methodologies, including an ambient growth rate to the study horizon year and adding traffic generated by related projects. Future "without project" daily traffic volumes for the local residential streets included in the analysis should be developed by collecting daily traffic counts for the subject streets, adding an ambient growth rate to the study horizon year, and adding traffic generated by related projects, also using methodologies described in Section 4.1.

The methodologies described in Section 4.1 should be applied to estimate the daily and peak hour trip generation of the project and distribute the project trips to the street system to forecast the amount of project traffic that may be added to nearby congested highways. If the nearby study intersections are projected to operate at LOS E or F, the analysis shall include the following:

- Estimate the amount of peak hour project traffic that may instead shift away from the congested facilities to local residential streets,
- Estimate the amount of daily project traffic that may shift to local residential streets, considering that the street system is less congested during non-peak hours than during peak hours,

Section 4.3.4. - Recommended Action

If the analysis indicated the project may result in substantial diversion, the project applicant shall conduct public outreach and develop a Local Residential Street Cut-Through (LRSTM) Plan. The project applicant shall consult with Public Works, and neighborhood stakeholders, and any other stakeholders to collaboratively prepare the LRSTM Plan. Coordination with the appropriate Supervisorial District office may be necessary to designate the stakeholders that should facilitate the public outreach.

The project applicant shall submit a separate scoping document for the LRSTM Plan to Public Works for review and approval as part of the Transportation Impact Analysis which shall include the following items:

- Identify key milestones,
- Summarize the proposed process in developing a LRSTM plan for the local residential street segments of concern,
- Define a public outreach and consensus- building process,
- Propose selection and approval criteria for any evaluated traffic calming measures,
- Provide a funding plan which will include potential sources of funding.

The project applicant shall submit the LRSTM Plan with a cost estimate for the improvements, and a funding plan to Public Works for review and approval, prior to issuance of building permit. The LRSTM Plan shall be prepared in conformance with the guidelines established by Public Works and should contain, at a minimum, the following elements:

- Description of existing facilities and neighborhood traffic conditions,
- Description of proposed neighborhood traffic controls, including sketches of specific street modifications,
- Analysis of any change in existing or future traffic patterns as a result of implementation of the plan,
- Implementation and monitoring program.

The project applicant shall lead public outreach in consultation with Public Works and the affected Supervisorial District office.

The development of the LRSTM plan shall include the analysis of any relevant traffic data, roadway characteristics, and conditions of the local residential street segments of concern.

The LRSTM Plan should prioritize implementing effective traffic calming subject to Public Works guidelines and appropriate warrants, which may include, but is not limited to:

- Traffic circles,
- Speed humps,
- Roadway narrowing effects (raised medians, traffic chokers, etc.),
- Landscaping features,
- Roadway striping changes,
- Traffic control devices,
- Restrictive measures such as turn restrictions, physical barriers, diverters, signal metering, etc.,
    - Restrictive measures should be carefully evaluated to ensure that they do not lead to the diversion of a significant amount of traffic from one local residential street to another local residential street.

For these above-mentioned items, the project applicant shall also be responsible for conducting the engineering evaluation of the potential measures to determine the feasibility regarding drainage, constructability, street design and other pertinent elements.

Section 4.4 - Additional Site Access Analysis

Section 4.4.1 - Introduction

Project access and circulation constraints related to the site plan, and access to and from the project site may be analyzed separately from the Transportation Impact Analysis.

Section 4.4.2. - Screening Criteria

If the answer is yes to any of the following question, additional site access studies may be required to assess the projects site access requirements:

- Would the project provide a driveway on a rural cross section two-lane highway per the County's General Plan?
- Does the project's land use require vehicles to queue on-site?
- Does the project's land use include intermittent events which may exceed the supply of on-site parking?

Section 4.4.3. - Evaluation and Methodology

The project applicant shall prepare and submit a Scoping Document to Public Works through the EPIC-LA portal. The Scoping Document describes the assumptions and parameters that shall be included in the Additional Site Access Studies including any analysis requirements. The additional site access studies required based on the screening criteria from Section 4.4.2. are listed below

- Public Works may evaluate the site access requirements for a driveway on a rural two-lane highway by requesting a Traffic Access Management Study to be conducted,

- Public Works may evaluate the site access requirements for vehicular queuing by requesting a Traffic Queueing Analysis to be conducted,

- Public Works may evaluate the site access requirements for land use with intermittent events that will exceed the supply of on-site parking by requesting a Traffic Event Management Study to be conducted.

Section 4.4.4. - Recommended Actions

Potential corrective actions for project access and circulation will be addressed in the additional site access studies and documented in a Traffic Study Confirmation of Findings Letter from Public Works.

Section 5. - Study Format and Required Content

Each Transportation Impact Analysis should follow a consistent format and organization and include all of the figures, maps, and information presented in this section. The level of detail required for each project's Transportation Impact Analysis should be determined during the scoping process and identified in the Scoping Document.

Section 5.1. - Project Description

A Transportation Impact Analysis shall include a detailed project description at the beginning of the document. The project description should include the following information:

- Project case number, as assigned by the Department of Regional Planning (if applicable Tract Map, Parcel Map, Conditional Use Permit, RPPL),
- Location of the project site, address, Assessor's Block and Lot number(s), cross streets, and Supervisorial District, and Unincorporated Community,
- Existing and proposed total square footage for each type of land use and/or the number of residential units, including the net changes for each type of use,
- Transportation demand management measures proposed as part of the project.

This section shall also include the following maps and figures:

- Project site plan showing driveway locations, loading/unloading area,
- Site map showing study intersections and distance of the project driveway(s) from the adjacent intersections. Include location and identification of all major buildings, driveways, parking areas, and loading docks of the project.

Section 5.2. - Site Conditions

The information on the location and surroundings of the project shall be discussed following the project description, as a different section of the Transportation Impact Analysis. This section will provide a brief, but comprehensive description of the existing transportation infrastructure and conditions in the vicinity of the project. The specific boundaries of the Transportation Impact Analysis area, for both the location and surroundings of the project, should be confirmed during the initial discussion and scoping process with Public Works.

The project context section should include the following information, with the level of detail to be directed by Public Works during the scoping process:

- Street designations, classifications, pedestrian and bicycle facilities existing and planned,

- Description of the study area streets, including the number and width of lanes, direction of flow, on-street parking information, and other significant street information,
- Location of, distance from, and routings to and from on-ramps and off-ramps of regional highways and freeways,
- Description of public transit routes operating on the streets within the Transportation Impact Analysis area, including hours of service, peak period headways, type of vehicle (bus, light rail vehicle, etc.), and service provider.

This section of a Transportation Impact Analysis will also include the following maps and figures:

- Area map showing location of the project and related projects,
- Street maps of the study area indicating street names, classifications, and traffic control,
- Map or diagram of potential pedestrian destinations within 1,320 feet of the edge of a project site,
- Table indicating location, size, name, description, and trip generation of each related project.

Section 5.3. - Analysis, Discussion, and Results

Following the descriptions of the project and its surroundings, the Transportation Impact Analysis shall contain sections that detail the analyses conducted, summarize the results, and identify any significant transportation impacts and mitigation measures for each of the CEQA issue areas identified in Section 3, and any operational deficiencies and corrective actions for the additional areas of analysis identified in Section 4.

The Transportation Impact Analysis should include calculations, data, and descriptions of any transportation analyses conducted to determine project impacts on the transportation system. The Transportation Impact Analysis should describe the results of all project scenarios and describe all project impacts that have been identified.

Section 5.4. – Mitigation Measures and Recommended Actions

Section 5.4.1. - Introduction

When a project is expected to result in significant transportation impacts, as defined in Section 3, or transportation deficiencies, as defined in Section 4, the project’s consultant should meet with Public Works to discuss potential transportation mitigation options and corrective actions before submitting a Transportation Impact Analysis. A variety of transportation mitigation measures should be considered to mitigate a project’s significant transportation impact to a level of insignificance.

All proposed mitigation measures shall be described in the Transportation Impact Analysis and to the satisfaction of Public Works.

Section 5.4.2. - Transportation Demand Management Measures

Mitigation measures shall minimize vehicle miles traveled through Transportation Demand Management (TDM) strategies. A preliminary draft performance based TDM Program shall be included in the Transportation Impact Analysis for any project seeking trip generation amendments supported by TDM, to the satisfaction of Public Works. The applicant may be allowed to reduce the total project trips and VMT by an amount determined to be commensurate with the measures proposed in the TDM Program.

Section 5.4.3. - Physical Infrastructure Improvements

Construction of physical infrastructure improvements shall encourage walking and biking and the use of transit. Conceptual Traffic Signal Plans and Conceptual Signing and Striping Plans should be prepared for any proposed physical infrastructure improvements and should be submitted to Public Works for review and approval as part of the Transportation Impact Analysis.

Section 5.4.4. - Mitigation Monitoring and Reporting Program in CEQA Documents

Each mitigation measure in the project's mitigation monitoring program should be described separately in the CEQA Document. The following details are required for each measure:

- Identification of the agency responsible for monitoring the measure and coordinating all participants,
- Qualifications, if any, of the necessary monitor(s),
- Monitoring schedule (i.e., the phase of the project, frequency, and completion/termination) – this should be stated for physical mitigation measures required during construction as well as those that are for the operation/life of the project (e.g., TDM program),
- Funding required and sources of funding for monitoring activities by both project and County personnel (especially for long-term monitoring activities).

Appendix B – Air Quality Modeling

South Gate - 10130 Adella Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	South Gate - 10130 Adella
Construction Start Date	6/1/2025
Operational Year	2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	0.50
Precipitation (days)	18.4
Location	South Gate, CA 90280, USA
County	Los Angeles-South Coast
City	South Gate
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4274
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Apartments Low Rise	54.0	Dwelling Unit	2.02	57,240	0.00	0.00	160	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-10-A	Water Exposed Surfaces
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.25	2.94	17.2	23.9	0.04	0.68	7.21	7.86	0.62	3.46	4.05	—	4,373	4,373	0.18	0.08	3.23	4,405
Mit.	3.25	2.94	17.2	23.9	0.04	0.68	1.97	2.62	0.62	0.92	1.51	—	4,373	4,373	0.18	0.08	3.23	4,405
% Reduced	—	—	—	—	—	—	73%	67%	—	73%	63%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.24	2.94	11.9	15.8	0.03	0.43	0.66	1.09	0.40	0.16	0.56	—	3,129	3,129	0.13	0.07	0.07	3,153
Mit.	3.24	2.94	11.9	15.8	0.03	0.43	0.66	1.09	0.40	0.16	0.56	—	3,129	3,129	0.13	0.07	0.07	3,153
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.50	1.36	5.44	7.49	0.01	0.18	0.62	0.79	0.17	0.25	0.41	—	1,491	1,491	0.06	0.03	0.54	1,503
Mit.	1.50	1.36	5.44	7.49	0.01	0.18	0.31	0.50	0.17	0.10	0.25	—	1,491	1,491	0.06	0.03	0.54	1,503
% Reduced	—	—	—	—	—	—	50%	37%	—	60%	37%	—	—	—	—	—	—	—

Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.27	0.25	0.99	1.37	< 0.005	0.03	0.11	0.14	0.03	0.05	0.07	—	247	247	0.01	0.01	0.09	249
Mit.	0.27	0.25	0.99	1.37	< 0.005	0.03	0.06	0.09	0.03	0.02	0.05	—	247	247	0.01	0.01	0.09	249
% Reduced	—	—	—	—	—	—	50%	37%	—	60%	37%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	3.25	2.94	17.2	23.9	0.04	0.68	7.21	7.86	0.62	3.46	4.05	—	4,373	4,373	0.18	0.08	3.23	4,405
2026	3.13	2.84	11.3	16.0	0.03	0.39	0.66	1.05	0.35	0.16	0.51	—	3,147	3,147	0.13	0.07	2.63	3,172
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	3.24	2.94	11.9	15.8	0.03	0.43	0.66	1.09	0.40	0.16	0.56	—	3,129	3,129	0.13	0.07	0.07	3,153
2026	3.13	2.84	11.4	15.6	0.03	0.39	0.66	1.05	0.35	0.16	0.51	—	3,114	3,114	0.13	0.07	0.07	3,137
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.99	0.88	4.39	5.63	0.01	0.17	0.62	0.79	0.15	0.25	0.41	—	1,085	1,085	0.05	0.02	0.37	1,093
2026	1.50	1.36	5.44	7.49	0.01	0.18	0.31	0.50	0.17	0.07	0.24	—	1,491	1,491	0.06	0.03	0.54	1,503
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.18	0.16	0.80	1.03	< 0.005	0.03	0.11	0.14	0.03	0.05	0.07	—	180	180	0.01	< 0.005	0.06	181
2026	0.27	0.25	0.99	1.37	< 0.005	0.03	0.06	0.09	0.03	0.01	0.04	—	247	247	0.01	0.01	0.09	249

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	3.25	2.94	17.2	23.9	0.04	0.68	1.97	2.62	0.62	0.92	1.51	—	4,373	4,373	0.18	0.08	3.23	4,405
2026	3.13	2.84	11.3	16.0	0.03	0.39	0.66	1.05	0.35	0.16	0.51	—	3,147	3,147	0.13	0.07	2.63	3,172
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	3.24	2.94	11.9	15.8	0.03	0.43	0.66	1.09	0.40	0.16	0.56	—	3,129	3,129	0.13	0.07	0.07	3,153
2026	3.13	2.84	11.4	15.6	0.03	0.39	0.66	1.05	0.35	0.16	0.51	—	3,114	3,114	0.13	0.07	0.07	3,137
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.99	0.88	4.39	5.63	0.01	0.17	0.31	0.48	0.15	0.10	0.25	—	1,085	1,085	0.05	0.02	0.37	1,093
2026	1.50	1.36	5.44	7.49	0.01	0.18	0.31	0.50	0.17	0.07	0.24	—	1,491	1,491	0.06	0.03	0.54	1,503
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.18	0.16	0.80	1.03	< 0.005	0.03	0.06	0.09	0.03	0.02	0.05	—	180	180	0.01	< 0.005	0.06	181
2026	0.27	0.25	0.99	1.37	< 0.005	0.03	0.06	0.09	0.03	0.01	0.04	—	247	247	0.01	0.01	0.09	249

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.16	3.01	1.22	14.2	0.03	0.04	2.33	2.37	0.03	0.59	0.63	25.4	3,102	3,128	2.73	0.12	9.15	3,240
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.86	2.72	1.28	10.4	0.03	0.03	2.33	2.37	0.03	0.59	0.63	25.4	2,986	3,011	2.73	0.12	0.64	3,117

Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.89	2.75	1.20	11.6	0.02	0.03	2.07	2.10	0.03	0.52	0.56	25.4	2,757	2,782	2.72	0.11	3.79	2,887
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.53	0.50	0.22	2.12	< 0.005	0.01	0.38	0.38	0.01	0.10	0.10	4.21	456	461	0.45	0.02	0.63	478

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.53	1.40	0.97	11.0	0.03	0.02	2.33	2.35	0.02	0.59	0.61	—	2,603	2,603	0.13	0.11	8.74	2,646
Area	1.61	1.59	0.03	3.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.19	8.19	< 0.005	< 0.005	—	8.22
Energy	0.03	0.01	0.22	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	479	479	0.04	< 0.005	—	481
Water	—	—	—	—	—	—	—	—	—	—	—	3.86	13.0	16.9	0.40	0.01	—	29.6
Waste	—	—	—	—	—	—	—	—	—	—	—	21.5	0.00	21.5	2.15	0.00	—	75.4
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Total	3.16	3.01	1.22	14.2	0.03	0.04	2.33	2.37	0.03	0.59	0.63	25.4	3,102	3,128	2.73	0.12	9.15	3,240
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.51	1.38	1.06	10.3	0.02	0.02	2.33	2.35	0.02	0.59	0.61	—	2,494	2,494	0.14	0.11	0.23	2,531
Area	1.32	1.32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.03	0.01	0.22	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	479	479	0.04	< 0.005	—	481
Water	—	—	—	—	—	—	—	—	—	—	—	3.86	13.0	16.9	0.40	0.01	—	29.6
Waste	—	—	—	—	—	—	—	—	—	—	—	21.5	0.00	21.5	2.15	0.00	—	75.4
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Total	2.86	2.72	1.28	10.4	0.03	0.03	2.33	2.37	0.03	0.59	0.63	25.4	2,986	3,011	2.73	0.12	0.64	3,117

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.34	1.23	0.96	9.41	0.02	0.01	2.07	2.08	0.01	0.52	0.54	—	2,260	2,260	0.12	0.10	3.38	2,296
Area	1.52	1.51	0.02	2.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.61	5.61	< 0.005	< 0.005	—	5.63
Energy	0.03	0.01	0.22	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	479	479	0.04	< 0.005	—	481
Water	—	—	—	—	—	—	—	—	—	—	—	3.86	13.0	16.9	0.40	0.01	—	29.6
Waste	—	—	—	—	—	—	—	—	—	—	—	21.5	0.00	21.5	2.15	0.00	—	75.4
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Total	2.89	2.75	1.20	11.6	0.02	0.03	2.07	2.10	0.03	0.52	0.56	25.4	2,757	2,782	2.72	0.11	3.79	2,887
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.25	0.22	0.17	1.72	< 0.005	< 0.005	0.38	0.38	< 0.005	0.10	0.10	—	374	374	0.02	0.02	0.56	380
Area	0.28	0.28	< 0.005	0.38	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.93	0.93	< 0.005	< 0.005	—	0.93
Energy	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	79.2	79.2	0.01	< 0.005	—	79.6
Water	—	—	—	—	—	—	—	—	—	—	—	0.64	2.15	2.79	0.07	< 0.005	—	4.90
Waste	—	—	—	—	—	—	—	—	—	—	—	3.57	0.00	3.57	0.36	0.00	—	12.5
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07
Total	0.53	0.50	0.22	2.12	< 0.005	0.01	0.38	0.38	0.01	0.10	0.10	4.21	456	461	0.45	0.02	0.63	478

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.53	1.40	0.97	11.0	0.03	0.02	2.33	2.35	0.02	0.59	0.61	—	2,603	2,603	0.13	0.11	8.74	2,646
Area	1.61	1.59	0.03	3.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.19	8.19	< 0.005	< 0.005	—	8.22
Energy	0.03	0.01	0.22	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	479	479	0.04	< 0.005	—	481
Water	—	—	—	—	—	—	—	—	—	—	—	3.86	13.0	16.9	0.40	0.01	—	29.6
Waste	—	—	—	—	—	—	—	—	—	—	—	21.5	0.00	21.5	2.15	0.00	—	75.4

Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Total	3.16	3.01	1.22	14.2	0.03	0.04	2.33	2.37	0.03	0.59	0.63	25.4	3,102	3,128	2.73	0.12	9.15	3,240
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.51	1.38	1.06	10.3	0.02	0.02	2.33	2.35	0.02	0.59	0.61	—	2,494	2,494	0.14	0.11	0.23	2,531
Area	1.32	1.32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.03	0.01	0.22	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	479	479	0.04	< 0.005	—	481
Water	—	—	—	—	—	—	—	—	—	—	—	3.86	13.0	16.9	0.40	0.01	—	29.6
Waste	—	—	—	—	—	—	—	—	—	—	—	21.5	0.00	21.5	2.15	0.00	—	75.4
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Total	2.86	2.72	1.28	10.4	0.03	0.03	2.33	2.37	0.03	0.59	0.63	25.4	2,986	3,011	2.73	0.12	0.64	3,117
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.34	1.23	0.96	9.41	0.02	0.01	2.07	2.08	0.01	0.52	0.54	—	2,260	2,260	0.12	0.10	3.38	2,296
Area	1.52	1.51	0.02	2.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.61	5.61	< 0.005	< 0.005	—	5.63
Energy	0.03	0.01	0.22	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	479	479	0.04	< 0.005	—	481
Water	—	—	—	—	—	—	—	—	—	—	—	3.86	13.0	16.9	0.40	0.01	—	29.6
Waste	—	—	—	—	—	—	—	—	—	—	—	21.5	0.00	21.5	2.15	0.00	—	75.4
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Total	2.89	2.75	1.20	11.6	0.02	0.03	2.07	2.10	0.03	0.52	0.56	25.4	2,757	2,782	2.72	0.11	3.79	2,887
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.25	0.22	0.17	1.72	< 0.005	< 0.005	0.38	0.38	< 0.005	0.10	0.10	—	374	374	0.02	0.02	0.56	380
Area	0.28	0.28	< 0.005	0.38	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.93	0.93	< 0.005	< 0.005	—	0.93
Energy	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	79.2	79.2	0.01	< 0.005	—	79.6
Water	—	—	—	—	—	—	—	—	—	—	—	0.64	2.15	2.79	0.07	< 0.005	—	4.90
Waste	—	—	—	—	—	—	—	—	—	—	—	3.57	0.00	3.57	0.36	0.00	—	12.5
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07
Total	0.53	0.50	0.22	2.12	< 0.005	0.01	0.38	0.38	0.01	0.10	0.10	4.21	456	461	0.45	0.02	0.63	478

3. Construction Emissions Details

3.1. Grading (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.80	1.51	14.1	14.5	0.02	0.64	—	0.64	0.59	—	0.59	—	2,455	2,455	0.10	0.02	—	2,463
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.85	0.87	< 0.005	0.04	—	0.04	0.04	—	0.04	—	148	148	0.01	< 0.005	—	148
Dust From Material Movement	—	—	—	—	—	—	0.43	0.43	—	0.21	0.21	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.02	0.02	0.15	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	24.5	24.5	< 0.005	< 0.005	—	24.6
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.70	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	138	138	0.01	< 0.005	0.51	140
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.02	8.02	< 0.005	< 0.005	0.01	8.12
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.33	1.33	< 0.005	< 0.005	< 0.005	1.35
Vendor	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	0.00
Hauling	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	0.00

3.2. Grading (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.80	1.51	14.1	14.5	0.02	0.64	—	0.64	0.59	—	0.59	—	2,455	2,455	0.10	0.02	—	2,463
Dust From Material Movement	—	—	—	—	—	—	1.84	1.84	—	0.89	0.89	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.85	0.87	< 0.005	0.04	—	0.04	0.04	—	0.04	—	148	148	0.01	< 0.005	—	148
Dust From Material Movement	—	—	—	—	—	—	0.11	0.11	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.15	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	24.5	24.5	< 0.005	< 0.005	—	24.6
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—

Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.70	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	138	138	0.01	< 0.005	0.51	140
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.02	8.02	< 0.005	< 0.005	0.01	8.12
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.33	1.33	< 0.005	< 0.005	< 0.005	1.35
Vendor	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	0.00
Hauling	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	0.00

3.3. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.49	1.24	10.6	11.9	0.02	0.40	—	0.40	0.37	—	0.37	—	2,201	2,201	0.09	0.02	—	2,209
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.49	1.24	10.6	11.9	0.02	0.40	—	0.40	0.37	—	0.37	—	2,201	2,201	0.09	0.02	—	2,209
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.45	0.37	3.17	3.55	0.01	0.12	—	0.12	0.11	—	0.11	—	659	659	0.03	0.01	—	661
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.58	0.65	< 0.005	0.02	—	0.02	0.02	—	0.02	—	109	109	< 0.005	< 0.005	—	109
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.19	0.17	0.17	2.71	0.00	0.00	0.51	0.51	0.00	0.12	0.12	—	538	538	0.02	0.02	1.97	546
Vendor	0.01	0.01	0.21	0.10	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	183	183	0.01	0.03	0.50	191

Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.17	0.19	2.29	0.00	0.00	0.51	0.51	0.00	0.12	0.12	—	510	510	0.02	0.02	0.05	516
Vendor	0.01	0.01	0.22	0.10	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	183	183	0.01	0.03	0.01	191
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.06	0.72	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	155	155	0.01	0.01	0.25	157
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	54.8	54.8	< 0.005	0.01	0.07	57.3
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.6	25.6	< 0.005	< 0.005	0.04	26.0
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.08	9.08	< 0.005	< 0.005	0.01	9.48
Hauling	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	0.00

3.4. Building Construction (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.49	1.24	10.6	11.9	0.02	0.40	—	0.40	0.37	—	0.37	—	2,201	2,201	0.09	0.02	—	2,209
Onsite truck	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	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.49	1.24	10.6	11.9	0.02	0.40	—	0.40	0.37	—	0.37	—	2,201	2,201	0.09	0.02	—	2,209
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.45	0.37	3.17	3.55	0.01	0.12	—	0.12	0.11	—	0.11	—	659	659	0.03	0.01	—	661
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.58	0.65	< 0.005	0.02	—	0.02	0.02	—	0.02	—	109	109	< 0.005	< 0.005	—	109
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.19	0.17	0.17	2.71	0.00	0.00	0.51	0.51	0.00	0.12	0.12	—	538	538	0.02	0.02	1.97	546
Vendor	0.01	0.01	0.21	0.10	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	183	183	0.01	0.03	0.50	191
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.17	0.19	2.29	0.00	0.00	0.51	0.51	0.00	0.12	0.12	—	510	510	0.02	0.02	0.05	516

Vendor	0.01	0.01	0.22	0.10	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	183	183	0.01	0.03	0.01	191
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.06	0.72	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	155	155	0.01	0.01	0.25	157
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	54.8	54.8	< 0.005	0.01	0.07	57.3
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.6	25.6	< 0.005	< 0.005	0.04	26.0
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.08	9.08	< 0.005	< 0.005	0.01	9.48
Hauling	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	0.00

3.5. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.41	1.18	10.1	11.8	0.02	0.36	—	0.36	0.33	—	0.33	—	2,201	2,201	0.09	0.02	—	2,208
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.41	1.18	10.1	11.8	0.02	0.36	—	0.36	0.33	—	0.33	—	2,201	2,201	0.09	0.02	—	2,208

Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.68	0.56	4.83	5.62	0.01	0.17	—	0.17	0.16	—	0.16	—	1,051	1,051	0.04	0.01	—	1,055
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.88	1.02	< 0.005	0.03	—	0.03	0.03	—	0.03	—	174	174	0.01	< 0.005	—	175
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16	0.14	0.15	2.51	0.00	0.00	0.51	0.51	0.00	0.12	0.12	—	527	527	0.02	0.02	1.78	535
Vendor	0.01	0.01	0.20	0.10	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	180	180	0.01	0.03	0.49	188
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16	0.14	0.17	2.14	0.00	0.00	0.51	0.51	0.00	0.12	0.12	—	499	499	0.02	0.02	0.05	505
Vendor	0.01	0.01	0.21	0.10	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	180	180	0.01	0.03	0.01	188
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.09	1.07	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	242	242	0.01	0.01	0.37	245
Vendor	0.01	< 0.005	0.10	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	86.0	86.0	< 0.005	0.01	0.10	89.8

Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.02	0.20	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	40.1	40.1	< 0.005	< 0.005	0.06	40.6
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.2	14.2	< 0.005	< 0.005	0.02	14.9
Hauling	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	0.00

3.6. Building Construction (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.41	1.18	10.1	11.8	0.02	0.36	—	0.36	0.33	—	0.33	—	2,201	2,201	0.09	0.02	—	2,208
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.41	1.18	10.1	11.8	0.02	0.36	—	0.36	0.33	—	0.33	—	2,201	2,201	0.09	0.02	—	2,208
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.68	0.56	4.83	5.62	0.01	0.17	—	0.17	0.16	—	0.16	—	1,051	1,051	0.04	0.01	—	1,055

Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.88	1.02	< 0.005	0.03	—	0.03	0.03	—	0.03	—	174	174	0.01	< 0.005	—	175
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16	0.14	0.15	2.51	0.00	0.00	0.51	0.51	0.00	0.12	0.12	—	527	527	0.02	0.02	1.78	535
Vendor	0.01	0.01	0.20	0.10	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	180	180	0.01	0.03	0.49	188
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16	0.14	0.17	2.14	0.00	0.00	0.51	0.51	0.00	0.12	0.12	—	499	499	0.02	0.02	0.05	505
Vendor	0.01	0.01	0.21	0.10	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	180	180	0.01	0.03	0.01	188
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.09	1.07	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	242	242	0.01	0.01	0.37	245
Vendor	0.01	< 0.005	0.10	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	86.0	86.0	< 0.005	0.01	0.10	89.8
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.02	0.20	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	40.1	40.1	< 0.005	< 0.005	0.06	40.6
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.2	14.2	< 0.005	< 0.005	0.02	14.9
Hauling	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	0.00

3.7. Paving (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.83	0.70	6.13	8.21	0.01	0.27	—	0.27	0.25	—	0.25	—	1,244	1,244	0.05	0.01	—	1,248
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.41	3.41	< 0.005	< 0.005	—	3.42
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.56	0.56	< 0.005	< 0.005	—	0.57
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	1.04	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	207	207	0.01	0.01	0.76	210
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.55	0.55	< 0.005	< 0.005	< 0.005	0.55
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.09	0.09	< 0.005	< 0.005	< 0.005	0.09
Vendor	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	0.00
Hauling	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	0.00

3.8. Paving (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.83	0.70	6.13	8.21	0.01	0.27	—	0.27	0.25	—	0.25	—	1,244	1,244	0.05	0.01	—	1,248
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.41	3.41	< 0.005	< 0.005	—	3.42
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.56	0.56	< 0.005	< 0.005	—	0.57
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	1.04	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	207	207	0.01	0.01	0.76	210
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.55	0.55	< 0.005	< 0.005	< 0.005	0.55

Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.09	0.09	< 0.005	< 0.005	< 0.005	0.09
Vendor	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	0.00
Hauling	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	0.00

3.9. Architectural Coating (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	1.37	1.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134

Architectural Coatings	1.37	1.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.21	0.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	31.9	31.9	< 0.005	< 0.005	—	32.0
Architectural Coatings	0.33	0.33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.28	5.28	< 0.005	< 0.005	—	5.30
Architectural Coatings	0.06	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.54	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	108	108	< 0.005	< 0.005	0.39	109
Vendor	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	0.00
Hauling	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	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.04	0.46	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	102	102	< 0.005	< 0.005	0.01	103
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	24.7	24.7	< 0.005	< 0.005	0.04	25.0
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.09	4.09	< 0.005	< 0.005	0.01	4.14
Vendor	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	0.00
Hauling	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	0.00

3.10. Architectural Coating (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	1.37	1.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	1.37	1.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.21	0.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	31.9	31.9	< 0.005	< 0.005	—	32.0
Architectural Coatings	0.33	0.33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.28	5.28	< 0.005	< 0.005	—	5.30
Architectural Coatings	0.06	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.54	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	108	108	< 0.005	< 0.005	0.39	109
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.04	0.46	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	102	102	< 0.005	< 0.005	0.01	103
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	24.7	24.7	< 0.005	< 0.005	0.04	25.0
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.09	4.09	< 0.005	< 0.005	0.01	4.14
Vendor	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	0.00
Hauling	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	0.00

3.11. Architectural Coating (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.15	0.12	0.86	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	1.37	1.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	0.86	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	1.37	1.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.41	0.54	< 0.005	0.01	—	0.01	0.01	—	0.01	—	63.7	63.7	< 0.005	< 0.005	—	64.0
Architectural Coatings	0.65	0.65	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.6	10.6	< 0.005	< 0.005	—	10.6

Architect Coatings	0.12	0.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.50	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	105	105	< 0.005	< 0.005	0.36	107
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.43	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	99.9	99.9	< 0.005	< 0.005	0.01	101
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.02	0.21	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	48.4	48.4	< 0.005	< 0.005	0.07	49.0
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.01	8.01	< 0.005	< 0.005	0.01	8.12
Vendor	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	0.00
Hauling	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	0.00

3.12. Architectural Coating (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	0.86	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	1.37	1.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	0.86	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	1.37	1.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.41	0.54	< 0.005	0.01	—	0.01	0.01	—	0.01	—	63.7	63.7	< 0.005	< 0.005	—	64.0
Architectural Coatings	0.65	0.65	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.6	10.6	< 0.005	< 0.005	—	10.6
Architectural Coatings	0.12	0.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.50	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	105	105	< 0.005	< 0.005	0.36	107
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.43	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	99.9	99.9	< 0.005	< 0.005	0.01	101
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.02	0.21	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	48.4	48.4	< 0.005	< 0.005	0.07	49.0
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.01	8.01	< 0.005	< 0.005	0.01	8.12
Vendor	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	0.00
Hauling	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	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	1.53	1.40	0.97	11.0	0.03	0.02	2.33	2.35	0.02	0.59	0.61	—	2,603	2,603	0.13	0.11	8.74	2,646
Total	1.53	1.40	0.97	11.0	0.03	0.02	2.33	2.35	0.02	0.59	0.61	—	2,603	2,603	0.13	0.11	8.74	2,646
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	1.51	1.38	1.06	10.3	0.02	0.02	2.33	2.35	0.02	0.59	0.61	—	2,494	2,494	0.14	0.11	0.23	2,531
Total	1.51	1.38	1.06	10.3	0.02	0.02	2.33	2.35	0.02	0.59	0.61	—	2,494	2,494	0.14	0.11	0.23	2,531
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.25	0.22	0.17	1.72	< 0.005	< 0.005	0.38	0.38	< 0.005	0.10	0.10	—	374	374	0.02	0.02	0.56	380
Total	0.25	0.22	0.17	1.72	< 0.005	< 0.005	0.38	0.38	< 0.005	0.10	0.10	—	374	374	0.02	0.02	0.56	380

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	1.53	1.40	0.97	11.0	0.03	0.02	2.33	2.35	0.02	0.59	0.61	—	2,603	2,603	0.13	0.11	8.74	2,646
Total	1.53	1.40	0.97	11.0	0.03	0.02	2.33	2.35	0.02	0.59	0.61	—	2,603	2,603	0.13	0.11	8.74	2,646
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	1.51	1.38	1.06	10.3	0.02	0.02	2.33	2.35	0.02	0.59	0.61	—	2,494	2,494	0.14	0.11	0.23	2,531
Total	1.51	1.38	1.06	10.3	0.02	0.02	2.33	2.35	0.02	0.59	0.61	—	2,494	2,494	0.14	0.11	0.23	2,531
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.25	0.22	0.17	1.72	< 0.005	< 0.005	0.38	0.38	< 0.005	0.10	0.10	—	374	374	0.02	0.02	0.56	380
Total	0.25	0.22	0.17	1.72	< 0.005	< 0.005	0.38	0.38	< 0.005	0.10	0.10	—	374	374	0.02	0.02	0.56	380

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	196	196	0.02	< 0.005	—	198
Total	—	—	—	—	—	—	—	—	—	—	—	—	196	196	0.02	< 0.005	—	198

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	196	196	0.02	< 0.005	—	198
Total	—	—	—	—	—	—	—	—	—	—	—	—	196	196	0.02	< 0.005	—	198
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	32.5	32.5	< 0.005	< 0.005	—	32.7
Total	—	—	—	—	—	—	—	—	—	—	—	—	32.5	32.5	< 0.005	< 0.005	—	32.7

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	196	196	0.02	< 0.005	—	198
Total	—	—	—	—	—	—	—	—	—	—	—	—	196	196	0.02	< 0.005	—	198
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	196	196	0.02	< 0.005	—	198
Total	—	—	—	—	—	—	—	—	—	—	—	—	196	196	0.02	< 0.005	—	198
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	32.5	32.5	< 0.005	< 0.005	—	32.7
Total	—	—	—	—	—	—	—	—	—	—	—	—	32.5	32.5	< 0.005	< 0.005	—	32.7

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.03	0.01	0.22	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	282	282	0.02	< 0.005	—	283
Total	0.03	0.01	0.22	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	282	282	0.02	< 0.005	—	283
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.03	0.01	0.22	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	282	282	0.02	< 0.005	—	283
Total	0.03	0.01	0.22	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	282	282	0.02	< 0.005	—	283
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	46.7	46.7	< 0.005	< 0.005	—	46.8
Total	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	46.7	46.7	< 0.005	< 0.005	—	46.8

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.03	0.01	0.22	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	282	282	0.02	< 0.005	—	283
Total	0.03	0.01	0.22	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	282	282	0.02	< 0.005	—	283
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.03	0.01	0.22	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	282	282	0.02	< 0.005	—	283
Total	0.03	0.01	0.22	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	282	282	0.02	< 0.005	—	283
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	46.7	46.7	< 0.005	< 0.005	—	46.8
Total	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	46.7	46.7	< 0.005	< 0.005	—	46.8

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.22	1.22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural Coatings	0.10	0.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.29	0.27	0.03	3.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.19	8.19	< 0.005	< 0.005	—	8.22
Total	1.61	1.59	0.03	3.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.19	8.19	< 0.005	< 0.005	—	8.22
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.22	1.22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.10	0.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	1.32	1.32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.22	0.22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.02	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.04	0.03	< 0.005	0.38	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.93	0.93	< 0.005	< 0.005	—	0.93
Total	0.28	0.28	< 0.005	0.38	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.93	0.93	< 0.005	< 0.005	—	0.93

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.22	1.22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.10	0.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.29	0.27	0.03	3.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.19	8.19	< 0.005	< 0.005	—	8.22
Total	1.61	1.59	0.03	3.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.19	8.19	< 0.005	< 0.005	—	8.22
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.22	1.22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.10	0.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	1.32	1.32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.22	0.22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural Coating	0.02	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.04	0.03	< 0.005	0.38	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.93	0.93	< 0.005	< 0.005	—	0.93
Total	0.28	0.28	< 0.005	0.38	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.93	0.93	< 0.005	< 0.005	—	0.93

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	3.86	13.0	16.9	0.40	0.01	—	29.6
Total	—	—	—	—	—	—	—	—	—	—	—	3.86	13.0	16.9	0.40	0.01	—	29.6
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	3.86	13.0	16.9	0.40	0.01	—	29.6
Total	—	—	—	—	—	—	—	—	—	—	—	3.86	13.0	16.9	0.40	0.01	—	29.6
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	0.64	2.15	2.79	0.07	< 0.005	—	4.90
Total	—	—	—	—	—	—	—	—	—	—	—	0.64	2.15	2.79	0.07	< 0.005	—	4.90

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	3.86	13.0	16.9	0.40	0.01	—	29.6
Total	—	—	—	—	—	—	—	—	—	—	—	3.86	13.0	16.9	0.40	0.01	—	29.6
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	3.86	13.0	16.9	0.40	0.01	—	29.6
Total	—	—	—	—	—	—	—	—	—	—	—	3.86	13.0	16.9	0.40	0.01	—	29.6
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	0.64	2.15	2.79	0.07	< 0.005	—	4.90
Total	—	—	—	—	—	—	—	—	—	—	—	0.64	2.15	2.79	0.07	< 0.005	—	4.90

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartme Low Rise	—	—	—	—	—	—	—	—	—	—	—	21.5	0.00	21.5	2.15	0.00	—	75.4
Total	—	—	—	—	—	—	—	—	—	—	—	21.5	0.00	21.5	2.15	0.00	—	75.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	21.5	0.00	21.5	2.15	0.00	—	75.4
Total	—	—	—	—	—	—	—	—	—	—	—	21.5	0.00	21.5	2.15	0.00	—	75.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	3.57	0.00	3.57	0.36	0.00	—	12.5
Total	—	—	—	—	—	—	—	—	—	—	—	3.57	0.00	3.57	0.36	0.00	—	12.5

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	21.5	0.00	21.5	2.15	0.00	—	75.4
Total	—	—	—	—	—	—	—	—	—	—	—	21.5	0.00	21.5	2.15	0.00	—	75.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	21.5	0.00	21.5	2.15	0.00	—	75.4

Total	—	—	—	—	—	—	—	—	—	—	—	21.5	0.00	21.5	2.15	0.00	—	75.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	3.57	0.00	3.57	0.36	0.00	—	12.5
Total	—	—	—	—	—	—	—	—	—	—	—	3.57	0.00	3.57	0.36	0.00	—	12.5

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Remove	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Grading	Grading	6/1/2025	7/1/2025	5.00	22.0	—
Building Construction	Building Construction	8/1/2025	9/1/2026	5.00	283	—
Paving	Paving	8/1/2025	8/2/2025	5.00	1.00	—
Architectural Coating	Architectural Coating	9/1/2025	9/1/2026	5.00	262	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	7.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	8.00	367	0.29
Building Construction	Forklifts	Diesel	Average	2.00	7.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74

Building Construction	Tractors/Loaders/Back	Diesel	Average	1.00	6.00	84.0	0.37
Building Construction	Welders	Diesel	Average	3.00	8.00	46.0	0.45
Paving	Cement and Mortar Mixers	Diesel	Average	1.00	8.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Paving	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Back hoes	Diesel	Average	2.00	7.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	8.00	367	0.29
Building Construction	Forklifts	Diesel	Average	2.00	7.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Back hoes	Diesel	Average	1.00	6.00	84.0	0.37
Building Construction	Welders	Diesel	Average	3.00	8.00	46.0	0.45
Paving	Cement and Mortar Mixers	Diesel	Average	1.00	8.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Paving	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	84.0	0.37

Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	10.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	38.9	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	5.77	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	7.78	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	10.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	38.9	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	5.77	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	7.78	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	115,911	38,637	0.00	0.00	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Ton of Debris)	Material Exported (Ton of Debris)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Grading	0.00	0.00	22.0	0.00	—
Paving	0.00	0.00	0.00	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Apartments Low Rise	—	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	349	0.03	< 0.005
2026	0.00	346	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year

Apartments Low Rise	395	440	339	143,658	2,960	3,292	2,539	1,075,772

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Apartments Low Rise	395	440	339	143,658	2,960	3,292	2,539	1,075,772

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
115911	38,637	0.00	0.00	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00

Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Apartments Low Rise	207,092	346	0.0330	0.0040	880,506

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Apartments Low Rise	207,092	346	0.0330	0.0040	880,506

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Apartments Low Rise	2,012,785	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Apartments Low Rise	2,012,785	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Low Rise	40.0	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Low Rise	40.0	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Apartments Low Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Low Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Apartments Low Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Low Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	8.60	annual days of extreme heat
Extreme Precipitation	4.95	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2

Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	42.6
AQ-PM	81.1
AQ-DPM	56.3
Drinking Water	74.0
Lead Risk Housing	97.8
Pesticides	0.00
Toxic Releases	93.7
Traffic	38.5
Effect Indicators	—
CleanUp Sites	51.0
Groundwater	49.0

Haz Waste Facilities/Generators	61.6
Impaired Water Bodies	0.00
Solid Waste	43.9
Sensitive Population	—
Asthma	59.6
Cardio-vascular	82.3
Low Birth Weights	58.6
Socioeconomic Factor Indicators	—
Education	90.4
Housing	89.1
Linguistic	87.6
Poverty	81.9
Unemployment	86.2

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	9.765173874
Employed	14.35904016
Median HI	11.44616964
Education	—
Bachelor's or higher	4.824842808
High school enrollment	100
Preschool enrollment	68.52303349
Transportation	—
Auto Access	15.55241884
Active commuting	82.98472989

Social	—
2-parent households	10.23995894
Voting	17.64403952
Neighborhood	—
Alcohol availability	4.516874118
Park access	5.068651354
Retail density	81.36789426
Supermarket access	94.25125112
Tree canopy	35.39073528
Housing	—
Homeownership	17.51571924
Housing habitability	11.81829847
Low-inc homeowner severe housing cost burden	4.568202233
Low-inc renter severe housing cost burden	67.80443988
Uncrowded housing	15.27011421
Health Outcomes	—
Insured adults	13.64044655
Arthritis	60.6
Asthma ER Admissions	48.7
High Blood Pressure	72.3
Cancer (excluding skin)	87.6
Asthma	30.0
Coronary Heart Disease	31.2
Chronic Obstructive Pulmonary Disease	35.3
Diagnosed Diabetes	9.0
Life Expectancy at Birth	50.8
Cognitively Disabled	25.4
Physically Disabled	33.4

Heart Attack ER Admissions	12.2
Mental Health Not Good	11.5
Chronic Kidney Disease	14.8
Obesity	9.3
Pedestrian Injuries	19.6
Physical Health Not Good	8.0
Stroke	29.9
Health Risk Behaviors	—
Binge Drinking	68.3
Current Smoker	20.2
No Leisure Time for Physical Activity	10.4
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	32.5
Elderly	69.3
English Speaking	2.5
Foreign-born	81.4
Outdoor Workers	46.0
Climate Change Adaptive Capacity	—
Impervious Surface Cover	11.6
Traffic Density	63.0
Traffic Access	87.4
Other Indices	—
Hardship	93.2
Other Decision Support	—
2016 Voting	16.2

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	91.0
Healthy Places Index Score for Project Location (b)	12.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	SouthGate, FlorenceFirestone,

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Land uses as provided by applicant (see Project Description).
Construction: Construction Phases	Construction schedule as provided by applicant.
Operations: Hearths	No hearths

Appendix C – Noise Impact Assessment

AZ Office
4960 S. Gilbert Road, Ste 1-461
Chandler, AZ 85249
p. (602) 774-1950

CA Office
1197 Los Angeles Avenue, Ste C-256
Simi Valley, CA 93065
p. (805) 426-4477

March 7, 2025

Ms. Starla Barker
De Novo Planning Group
Ste 180 East Main St #108
Tustin, CA 92780

Subject: **54-Unit Multi-Family Housing – Cat32 Exemption Noise Impact Assessment – South Gate, CA**

Dear Ms. Barker:

MD Acoustics, LLC (MD) has completed a noise impact assessment for the proposed 54-unit multi-family residential project located at 10130 Adella Avenue in the City of South Gate, CA (APN: 6221-026-020). The project has filed for a Categorical 32 Exemption (Cat32) in which an "Infill" Categorical Exemption (CEQA Guideline Section 15332) exempts infill development within urbanized areas if it meets certain criteria. The class consists of environmentally benign infill projects that are consistent with the local General Plan and Zoning requirements. This class is not intended for projects that would result in any significant traffic, noise, air quality, or water quality impacts. It may apply to residential, commercial, industrial, and/or mixed-use projects.

This noise assessment intends to demonstrate the Project's compliance with applicable noise regulations and lack of significant noise impacts. A list of definitions and terminology is located in Appendix A.

1.0 Project Description and Assessment Overview

The project site is located at 10130 Adella Avenue in the City of South Gate, California, as shown in Exhibit A. The project site and surrounding uses are located within the Tweedy Boulevard Specific Plan (TBSP) Area. The site is currently zoned as Industrial Flex (IF). Land uses surrounding the site include the Legacy High School campus to the north and west, zoned as Civic (CV). There are existing baseball and softball fields directly north of the project site. East of the project site is a construction/truck laydown yard, zoned as IF. Land uses south and southwest of the project site include existing residences within Neighborhood Low (NL) zoning. Legacy Lane is to the north and west of the project site, and Adella Avenue is to the west. The project is not within two miles of a public airport or public-use airport.

The project proposes the development of six (6) buildings consisting of 54 attached townhome units on the approximately 2.02-acre site. Each building would contain nine (9) units ranging from 1,304 to 1,705 square feet. There will be approximately 25,739 square feet of open space, including 13,843 square feet within private decks and patios and 11,896 square feet within common open space areas. The project will include 108 total parking spaces, all located within private garages. The project will include a 6-foot wall along the southern property line. The proposed project site plan is in Exhibit B.

2.0 Local Acoustical Requirements and CEQA Guidelines

The City of South Gate has outlined the following within Chapter 11.34 of the South Gate Municipal Code as it relates to noise regulation:

Per Section 11.34.020(B), school ground activities (including athletic events) are exempt from the noise standards defined in this chapter.

Section 11.34.080(A) establishes noise level standards for different noise zones, as shown in Table 1.

Table 1: Noise Zone Standards

Noise Zone	Land Use Category	Noise Standards (dBA Leq)	
		7 a.m. to 10 p.m.	10 p.m. to 7 a.m.
I	Noise-sensitive area	45	45
II	Residential properties (in any zone)	50	40
III	Commercial properties	55	55
IV	Industrial properties	60	60

Section 11.34.080(C) defines noise level limit adjustments depending on the cumulative period that the noise occurs throughout the hour, as shown in Table 2.

Table 2: Permitted Temporary Noise Level Increase

Permitted Maximum Increase	Noise Duration
+ 5 dBA	30 mins. per hour
+ 10 dBA	15 mins. per hour
+ 12 dBA	10 mins. per hour
+ 15 dBA	5 mins. per hour
+ 20 dBA	2 mins. per hour

The City of South Gate defines policies to reduce noise due to construction within the Noise Element of the General Plan. Construction noise policies include the following:

P.1 Construction activities will be prohibited between the hours of 7:00 PM to 8: 00 AM Monday through Saturday and on Sundays and Federal holidays.

P.2 Construction noise reduction methods will be employed to the maximum extent feasible. These measures may include, but not limited to, shutting off idling equipment, installing temporary acoustic barriers around stationary construction noise sources, maximizing the distance between construction equipment staging areas and occupied sensitive receptor areas, and use of electric air compressors and similar power tools, rather than diesel equipment.

P.3 Prior to approval of project plans and specifications by the City, project applicants and/or construction contractors will identify construction equipment and noise reducing measures, and the anticipated noise reduction.

P.4 The City will require municipal vehicles and noise-generating mechanical equipment purchased or used by the City to comply with noise standards specified in the City's Municipal Code, or other applicable codes.

P.5 The City may exceed the noise standards on a case-by-case basis for special circumstances including emergency situations, special events and expedited development projects.

According to CEQA guidelines, the project would have a potential impact if it resulted in:

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

b) Generation of excessive groundborne vibration or groundborne noise levels?

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the project area to excessive noise levels?

3.0 Study Method and Procedure

3.1 Ambient Noise Measurements

One (1) 24-hour ambient noise measurement was conducted at the project site from 1/30/2025 to 1/31/2025. The sound level meter measured the Leq, Lmin, Lmax, and other statistical data (e.g., L2, L8…). The noise measurements were taken to determine the existing ambient noise levels. Noise data indicates that highway traffic, local traffic, and school operations are the primary sources of noise impacting the site and the adjacent uses. This assessment utilizes the ambient noise data as a basis and compares project operational levels to said data.

The results of the long-term noise data are presented in Table 3.

<Table 3, next page>

Table 3: Long-Term Noise Measurement Data (dBA)[1]

Date	Time	1-Hour dB(A)							
		L_{EQ}	L_{MAX}	L_{MIN}	L_2	L_8	L_{25}	L_{50}	L_{90}
1/30/2025	12:00 PM	55	72	44.5	60.5	59	55.1	53.8	49.9
1/30/2025	1:00 PM	55.6	75.7	44.7	64.4	57.7	55.2	53.2	48
1/30/2025	2:00 PM	54.2	75.4	44.2	58.5	58.2	55	52.3	47.9
1/30/2025	3:00 PM	54.6	74.7	44.2	59.8	57.2	54.6	52.4	48.2
1/30/2025	4:00 PM	56.5	73.9	45.6	64.1	59.6	55.3	53.9	51.2
1/30/2025	5:00 PM	59.9	81.8	47.1	69.8	60.3	57.5	55.9	53.3
1/30/2025	6:00 PM	55.4	68.5	48.5	59.1	57.6	56.5	54.8	51.1
1/30/2025	7:00 PM	57.5	77.5	47.6	66	59.9	56.8	55.6	51.7
1/30/2025	8:00 PM	57	74.1	51.6	60.2	59.2	57.4	56.2	54.6
1/30/2025	9:00 PM	56.5	73.2	50.3	63.3	58.2	56.5	55.2	53.1
1/30/2025	10:00 PM	55.2	73.7	49.4	59.8	56.6	55.2	54.1	52.1
1/30/2025	11:00 PM	60	85.2	51.1	67.4	61	56.9	56	54
1/31/2025	12:00 AM	56.1	71.7	51.9	61	57.8	56.1	55.3	54.2
1/31/2025	1:00 AM	56.2	70.7	51.1	61.4	57.6	56.4	55.6	54.1
1/31/2025	2:00 AM	56.6	71.1	52.2	59.5	58.7	56.7	55.8	55
1/31/2025	3:00 AM	58	73.9	52.3	63.2	58.9	58	57.4	55.6
1/31/2025	4:00 AM	61.2	69.5	55.9	63.6	63	62.2	60.9	59.1
1/31/2025	5:00 AM	60.8	67.1	57.5	62.3	62.1	61.4	60.8	59.4
1/31/2025	6:00 AM	59.3	68.2	57.2	60.7	60.1	59.5	59.2	58.6
1/31/2025	7:00 AM	59.2	75.9	54.3	62.9	60.7	59.5	58.1	56.6
1/31/2025	8:00 AM	57	73.8	50.6	63.1	58.4	57.4	55.8	52.8
1/31/2025	9:00 AM	56.3	79.9	48.3	61.6	58	54.9	52.9	50
1/31/2025	10:00 AM	57.6	79	46.9	66.3	59.1	55.9	53.1	50.1
1/31/2025	11:00 AM	52.7	67.3	44.8	57.8	56.5	53	51.6	48.3
CNEL		65							

1. Quietest ambient noise level during daytime hours highlighted in green, and the quietest ambient noise level during nighttime hours highlighted in yellow.

Noise data indicates the ambient noise level ranges from 53 to 61 dBA Leq near the project site and surrounding area. The quietest daytime hourly level, highlighted in green, occurred at 11 AM and was 53 dBA Leq. The quietest nighttime hourly level, highlighted in yellow, occurred at 10 PM and was 55 dBA Leq. Additional field notes and photographs are provided in Appendix B.

For this evaluation, MD has compared the project's projected noise levels to the existing ambient level. The existing ambient noise level exceeds the City's residential noise limits by a minimum of 3 dB during daytime hours and by a minimum of 15 dB during daytime hours. Thus, MD will compare the project's projected noise levels to the quietest measured hourly noise level to show the maximum potential noise impact due to the project.

3.2 SoundPLAN Acoustic Model

SoundPLAN (SP) acoustical modeling software was utilized to model future worst-case stationary noise impacts to the adjacent land uses. SP is capable of evaluating multiple stationary noise source impacts at various receiver locations. SP's software utilizes algorithms (based on the inverse square law and reference equipment noise level data) to calculate noise level projections. The software allows the user to input specific noise sources, spectral content, sound barriers, building placement, topography, and sensitive receptor locations.

The future worst-case noise level projections were modeled using referenced sound level data for the various stationary on-site sources (HVAC units, transformers). There will be an AC unit for each townhome unit (54 total HVAC units). HVAC units will be located on the ground, and there will be a group of 5 HVAC units on the south side of each building and a group of 4 HVAC units on the north side of each building. As a worst-case scenario, the model assumes that all 54 units are operating simultaneously and continuously. Each HVAC unit will have a sound power level of 73 dBA. The HVAC units were modeled as point sources located 3 feet above the ground. Each point source represents a group of 4 to 5 HVAC units. The two transformers were modeled as point sources located 5 feet above the ground with a sound power of 77 dBA each. Appendix D provides the SoundPLAN inputs and outputs.

3.3 FHWA Construction Noise Model

The construction noise analysis utilizes the FHWA Roadway Construction Noise Model methodology, together with several key construction parameters. Key inputs include distance to the sensitive receiver, equipment usage, % usage factor, and baseline parameters for the project site. The project was analyzed based on the different construction phases. The FHWA has compiled data regarding the noise-generated characteristics of typical construction activities and is presented in Table 4.

Table 4: RCNM Measured Noise Emission Reference Levels[1]

Type	Typical Noise Level at 50 Feet (dBA)
Concrete Saw	90
Dozer	82
Grader	85
Tractor	84
Roller	80
Crane	81
Man Lift	75
Concrete Mixer Truck	79
Air Compressor	78

Notes:
[1] Referenced Noise Levels from the FHWA RCNM.

3.4 Construction Vibration Model

Construction activities can produce vibration that may be felt by adjacent land uses. The construction of the proposed project would not require the use of equipment such as pile drivers, which are known to generate substantial construction vibration levels. The primary vibration source during construction may be from a vibratory roller. A vibratory roller has a vibration impact of 0.210 inches per second peak particle velocity (PPV) at 25 feet which is likely perceptible but below any risk of architectural damage.

The fundamental equation used to calculate vibration propagation through average soil conditions and distance is as follows:

$$PPV_{equipment} = PPV_{ref}\ (25/D_{rec})^{n}$$

Where: PPV_{ref} *= reference PPV at 25ft.*
D_{rec} *= distance from equipment to receiver in ft.*
n = 1.1 (the value related to the attenuation rate through ground)

The thresholds from the Caltrans Transportation and Construction Induced Vibration Guidance Manual provide general thresholds and guidelines as to the vibration damage potential from vibratory impacts.

4.0 Traffic Noise Level Projections

The project is not anticipated to generate more than 50 peak hour trips, thus, a full traffic study is not required. Therefore, the traffic noise level projections were not analyzed for this project. However, it takes a change of 3 dB or more to hear an audible difference, which would occur with a doubling of traffic. According to the project trip generation (prepared by MAT Engineering, Inc.), the project will generate 364 daily trips and up to 28 peak hour trips. The project is not anticipated to double the traffic volumes along nearby roadways, and the noise impact due to project traffic will be less than significant.

5.0 Project Operational Noise Level Projections

Receptors that may be affected by the project operational noise include existing residences to the south, civic uses to the west, industrial uses to the east, and high school baseball and softball fields to the north. A total of five (5) receptors were modeled to accurately evaluate the future operational noise levels at the surrounding uses. Exhibit C shows the projected levels at these receptors. A yellow dot denotes a receptor. Receptors 1 and 2 represent residential uses, receptor 3 represents industrial uses, and receptors 4 and 5 represent civic uses. The model assumes that all noise sources are operating simultaneously and continuously throughout the hour.

Table 5 presents the ambient noise level, the project's noise level, and the combined project plus ambient noise level condition. As a worst-case scenario, MD compared the project operational noise level to the quietest existing hourly noise level (53 dBA Leq at 11 AM) to show the maximum potential noise impact due to the project.

<Table 5, next page>

Table 5: Worst-Case Predicted Operational Noise Levels (dBA)[1]

Receptor[1]	Existing Ambient Noise Level (dBA, Leq)	Project Noise Level (dBA, Leq)[2]	Total Combined Noise Level (dBA, Leq)	Maximum Permitted Daytime Noise Level (dBA, Leq)[3]	Change in Noise Level as Result of Project (dBA, Leq)
1	53	42	53	**50**	0
2	53	43	53	**50**	0
3	53	33	53	**60**	0
4	53	39	53	**45**	0
5	53	45	54	**45**	1

Notes:
1. Receptors 1 and 2 represent existing residential uses, Receptor 3 represents industrial uses, and Receptosr 4 and 5 represent civic uses.
2. See Exhibit C for the operational noise level projections at said receptors.
3. See City Code Section 11.34.080(A)

Exhibit C shows the future noise level projections and contours based on the proposed project design. The model indicates that the project-only noise level will be up to 43 dBA Leq at the existing residential uses, 33 dBA Leq at industrial uses, and 39 to 45 dBA Leq at civic uses. The project-only noise level will meet the daytime noise level limits as defined in Section 11.34.080(A) of the Municipal Code. The project will increase the existing ambient noise level by 0 dB at the residential, industrial, and civic uses, and by up to 1 dB at the high school baseball and softball fields. Table 6 provides the characteristics associated with changes in noise levels.

Table 6: Change in Noise Level Characteristics

Changes in Intensity Level, dBA	Changes in Apparent Loudness
1	Not perceptible
3	Just perceptible
5	Clearly noticeable
10	Twice (or half) as loud

https://www.fhwa.dot.gov/environMent/noise/regulations_and_guidance/polguide/polguide02.cfm

It takes a change of 3 dB for the human ear to perceive a difference. Therefore, the change in noise level would be “Not Perceptible” at all receptors.

It should be noted that the project operational noise levels shown in Exhibit C may occur during nighttime hours and, therefore, project-only noise levels at residential uses may exceed the nighttime noise standard of 40 dBA Leq by up to 3 dB. However, the quietest hourly noise level measured during nighttime hours was 55 dBA Leq (see Table 3). The project noise level will increase the nighttime ambient noise level by 0 dB, and the operational noise will be masked by the existing ambient noise. Therefore, the impact is less than significant.

6.0 Construction Noise Impact

6.1 Construction Noise Projections

The degree of construction noise may vary for different areas of the project site and also vary depending on the construction activities. Noise levels associated with construction will vary with the different phases of construction. Sensitive land uses surrounding the site include existing residential properties to the south. These uses are an average of 115 feet away from construction activities and as close as 30 feet from construction activities.

Table 7 presents the construction noise levels at sensitive receptors (residences to the south) based on the proposed construction phases and equipment. A likely worst-case construction noise scenario assumes equipment operating as close as 30 feet and an average of 115 feet from the nearest sensitive receptor. Leq levels represent the average construction noise level during each phase. The levels shown in Table 7 assume that all equipment is reduced by a minimum of 15 dB, either with the implementation of mufflers or by replacing diesel equipment with electric equipment. See Appendix F for calculations.

Table 7: Construction Noise Levels at South Residences

Location	Phase	dBA Leq
Adjacent Residential Properties	Grade	61
	Build	65
	Pave	63
	Arch Coat	53

As shown in Table 7, construction noise will range from 53 to 65 dBA Leq at the adjacent residences to the south. Construction noise is considered a short-term impact and would be considered significant if construction activities do not comply with the City's Noise Element policies.

In compliance with Policy P.3 of the City's Noise Element, MD has provided a Construction Noise Management Plan (CNMP). The CNMP outlines the construction noise reduction methods that will be implemented during construction operations in order to reduce the noise to the extent feasible, per Policy P.2. Construction noise levels will be monitored as outlined in the CNMP. See Appendix G for the CNMP.

Construction noise will have a temporary or periodic increase in the ambient noise level above the existing within the project vicinity. Construction will occur within the allowable hours as defined in Policy P.1. Compliance with the General Plan Noise Element and implementation of the CNMP will reduce construction noise to the extent feasible; therefore, the construction noise impact will be less than significant.

6.2 Construction Vibration Projections

Construction equipment is anticipated to operate no closer than 30 feet from the nearest residential building to the south. The primary vibration source during construction may be from a vibratory roller. At a distance of 30 feet, a vibratory roller would yield a worst-case 0.172 PPV (in/sec), which is likely perceptible but below any risk of damage (0.3 in/sec PPV is the threshold of old residential structures). The impact is thus less than significant. See Appendix F for calculations.

7.0 Conclusions

The project will be compliant with the City's noise ordinance and CEQA guidelines. In addition, the project will not generate a significant noise impact during operation. The project is not within 2 miles of a private or public airport. MD is pleased to provide this noise assessment for the proposed project. If you have any questions regarding this analysis, please call our office at (805) 426-4477.

Sincerely,
MD Acoustics, LLC

Rachel Edelman, INCE-USA
Acoustical Consultant

Sarah Ostergaard, INCE-USA
Acoustical Consultant

Exhibit A
Location Map

Exhibit B
Site Plan

Exhibit C
Operational Noise Levels

Appendix A

Glossary of Acoustical Terms

Glossary of Terms

A-Weighted Sound Level: The sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighting filter de-emphasizes the very low and very high-frequency components of the sound in a manner similar to the response of the human ear. A numerical method of rating human judgment of loudness.

Ambient Noise Level: The composite of noise from all sources, near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

Community Noise Equivalent Level (CNEL): The average equivalent A-weighted sound level during a 24-hour day, obtained after the addition of five (5) decibels to sound levels in the evening from 7:00 to 10:00 PM and after the addition of ten (10) decibels to sound levels in the night before 7:00 AM and after 10:00 PM.

Decibel (dB): A unit for measuring the amplitude of a sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micro-pascals.

dB(A): A-weighted sound level (see definition above).

Equivalent Sound Level (LEQ): The sound level corresponding to a steady noise level over a given sample period with the same amount of acoustic energy as the actual time-varying noise level. The energy average noise level during the sample period.

Habitable Room: Any room meeting the requirements of the Uniform Building Code or other applicable regulations which is intended to be used for sleeping, living, cooking, or dining purposes, excluding such enclosed spaces as closets, pantries, bath or toilet rooms, service rooms, connecting corridors, laundries, unfinished attics, foyers, storage spaces, cellars, utility rooms, and similar spaces.

L(n): The A-weighted sound level exceeded during a certain percentage of the sample time. For example, L10 in the sound level exceeded 10 percent of the sample time. Similarly L50, L90, L99, etc.

Noise: *A*ny unwanted sound or sound which is undesirable because it interferes with speech and hearing or is intense enough to damage hearing, or is otherwise annoying. The State Noise Control Act defines noise as "...excessive undesirable sound...".

Noise Criteria (NC) Method: This metric plots octave band sound levels against a family of reference curves, with the number rating equal to the highest tangent line value as demonstrated in Figure 1.

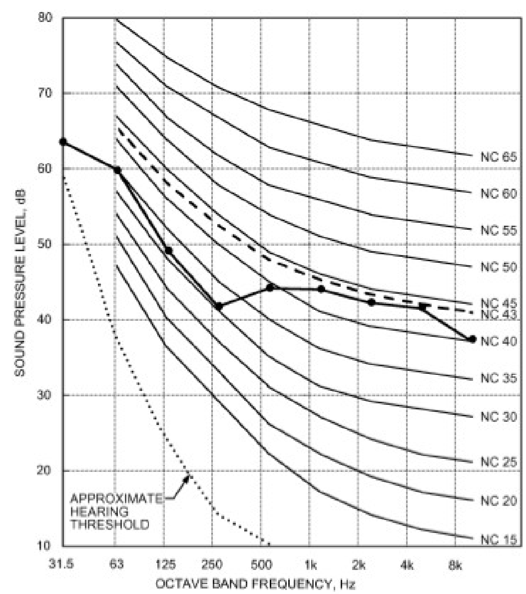
Percent Noise Levels: See L(n).

Room Criterion (RC) Method: When sound quality in the space is important, the RC metric provides a diagnostic tool to quantify both the speech interference level and spectral imbalance.

Sound Level (Noise Level): The weighted sound pressure level obtained by use of a sound level meter having a standard frequency filter for attenuating part of the sound spectrum.

Sound Level Meter: An instrument, including a microphone, an amplifier, an output meter, and frequency weighting networks for the measurement and determination of noise and sound levels.

FIGURE 1: Sample NC Curves and Sample Spectrum Levels



***Sound Transmission Class (STC*)**:** To quantify STC, a Transmission Loss (TL) measurement is performed in a laboratory over a range of 16 third-octave bands between 125 – 4,000 Hertz (Hz). The average human voice creates sound within the 125 – 4,000 Hz 1/3rd octave bands.

STC is a single-number rating given to a particular material or assembly. The STC rating measures the ability of a material or an assembly to resist airborne sound transfer over the specified frequencies (see ASTM International Classification E413 and E90). In general, a higher STC rating corresponds with a greater reduction of noise transmitting through a partition.

STC is highly dependent on the construction of the partition. The STC of a partition can be increased by: adding mass, increasing or adding air space, and adding absorptive materials within the assembly. The STC rating does not assess low-frequency sound transfer (e.g. sounds less than 125 Hz). Special consideration must be given to spaces where the noise transfer concern has lower frequencies than speech, such as mechanical equipment and or/or music. The STC rating is a lab test that does not take into consideration weak points, penetrations, or flanking paths.

Even with a high STC rating, any penetration, air-gap, or “flanking path can seriously degrade the isolation quality of a wall. Flanking paths are the means for sound to transfer from one space to another other than through the wall. Sound can flank over, under, or around a wall. Sound can also travel through common ductwork, plumbing, or corridors. Noise will travel between spaces at the weakest points. Typically, there is no reason to spend money or effort to improve the walls until all weak points are controlled first.

Outdoor Living Area: Outdoor spaces that are associated with residential land uses typically used for passive recreational activities or other noise-sensitive uses. Such spaces include patio areas, barbecue areas, jacuzzi areas, etc. associated with residential uses; outdoor patient recovery or resting areas associated with hospitals, convalescent hospitals, or rest homes; outdoor areas associated with places of worship which have a significant role in services or other noise-sensitive activities; and outdoor school facilities routinely used for educational purposes which may be adversely impacted by noise. Outdoor areas usually not included in this definition are: front yard areas, driveways, greenbelts, maintenance areas and storage areas associated with residential land uses; exterior areas at hospitals that are not used for patient activities; outdoor areas associated with places of worship and principally used for short-term social gatherings; and, outdoor areas associated with school facilities that are not typically associated with educational uses prone to adverse noise impacts (for example, school play yard areas).

Percent Noise Levels: See L(n).

Sound Level (Noise Level): The weighted sound pressure level obtained by use of a sound level meter having a standard frequency filter for attenuating part of the sound spectrum.

Sound Level Meter: An instrument, including a microphone, an amplifier, an output meter, and frequency weighting networks for the measurement and determination of noise and sound levels.

Single Event Noise Exposure Level (SENEL): The dB(A) level which, if it lasted for one second, would produce the same A-weighted sound energy as the actual event.

Appendix B

Field Sheet

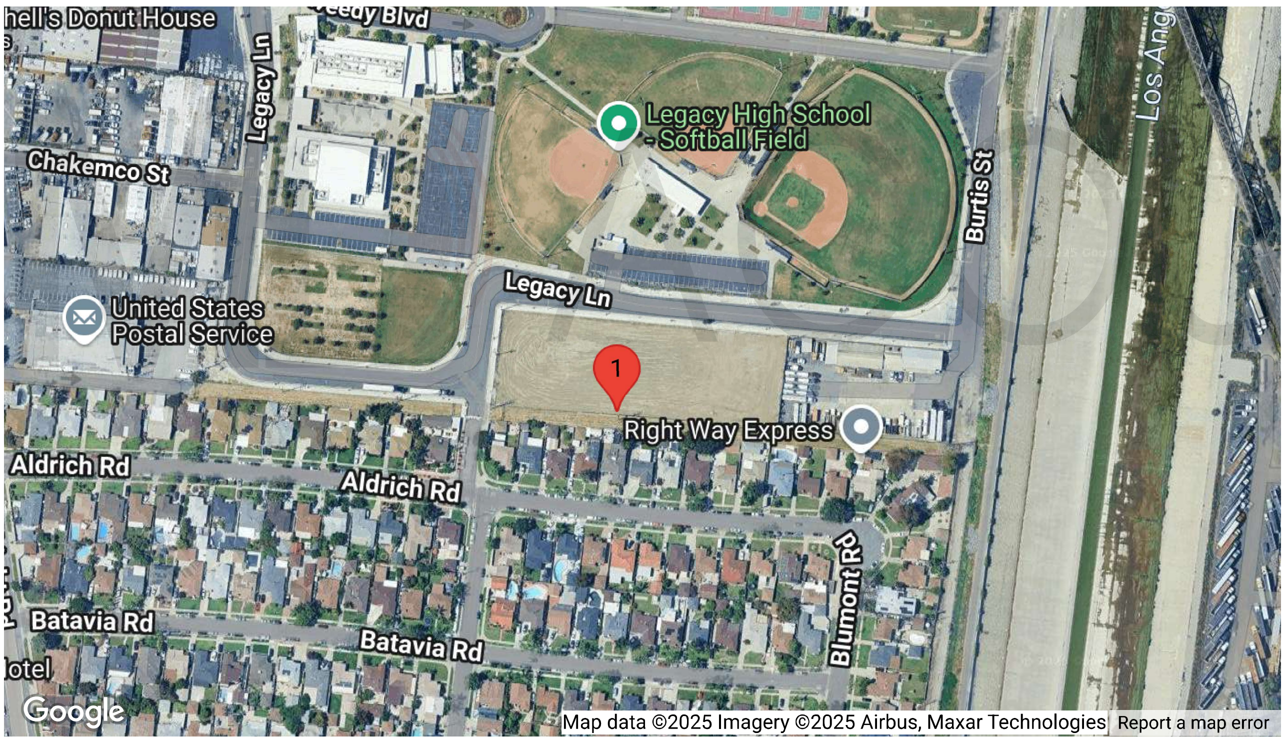
24-Hour Continuous Noise Measurement Datasheet - NM-1

Project Name:	54 Unit Adella
Project: #/Name:	0462-2024-040
Site Address/Location:	10130 Adella Ave
Date:	01/30/2025
Field Tech/Engineer:	Jason Schuyler / Rachel Edelman

Site Observations:

Temps in the 70'sF during the day and 40's at night. The NM was placed 4'9" from the height of the ground, The wall on the east side of the property is roughly 10ft tall and it sits on a 3-5ft' burm of soil.

Sound Meter:	Piccolo-II, Soft dB	**SN:** PO223120106
Settings:	A-weighted, slow, 1-min, 24-hour duration	
Site Id:	NM-1	



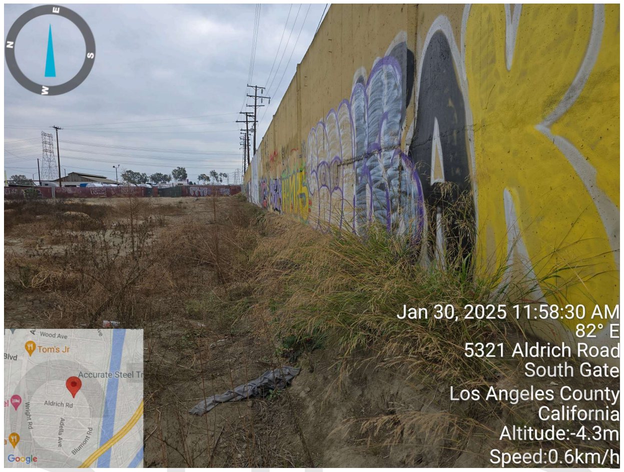
24-Hour Continuous Noise Measurement Datasheet - Cont. - NM-1

Project Name:	54 Unit Adella	**Calibrator:**	
Site Address/Location:	10130 Adella Ave	**Cal Check: Pre-test:**	**Post Test:**
Site Id:	NM-1		

Figure 1: NM1

Figure 2: NM1

Figure 3: NM1



24-Hour Continuous Noise Measurement Datasheet - Cont. - NM-1

Project Name: 54 Unit Adella
Site Address/Location: 10130 Adella Ave
Site Id: NM-1

Site Topo: Flat ground open lot
Meteorological Cond.:
Ground Type: Sandy soil and clay

Day: 1 of 1
Noise Source(s) w/ Distance:
road noise and residential noise

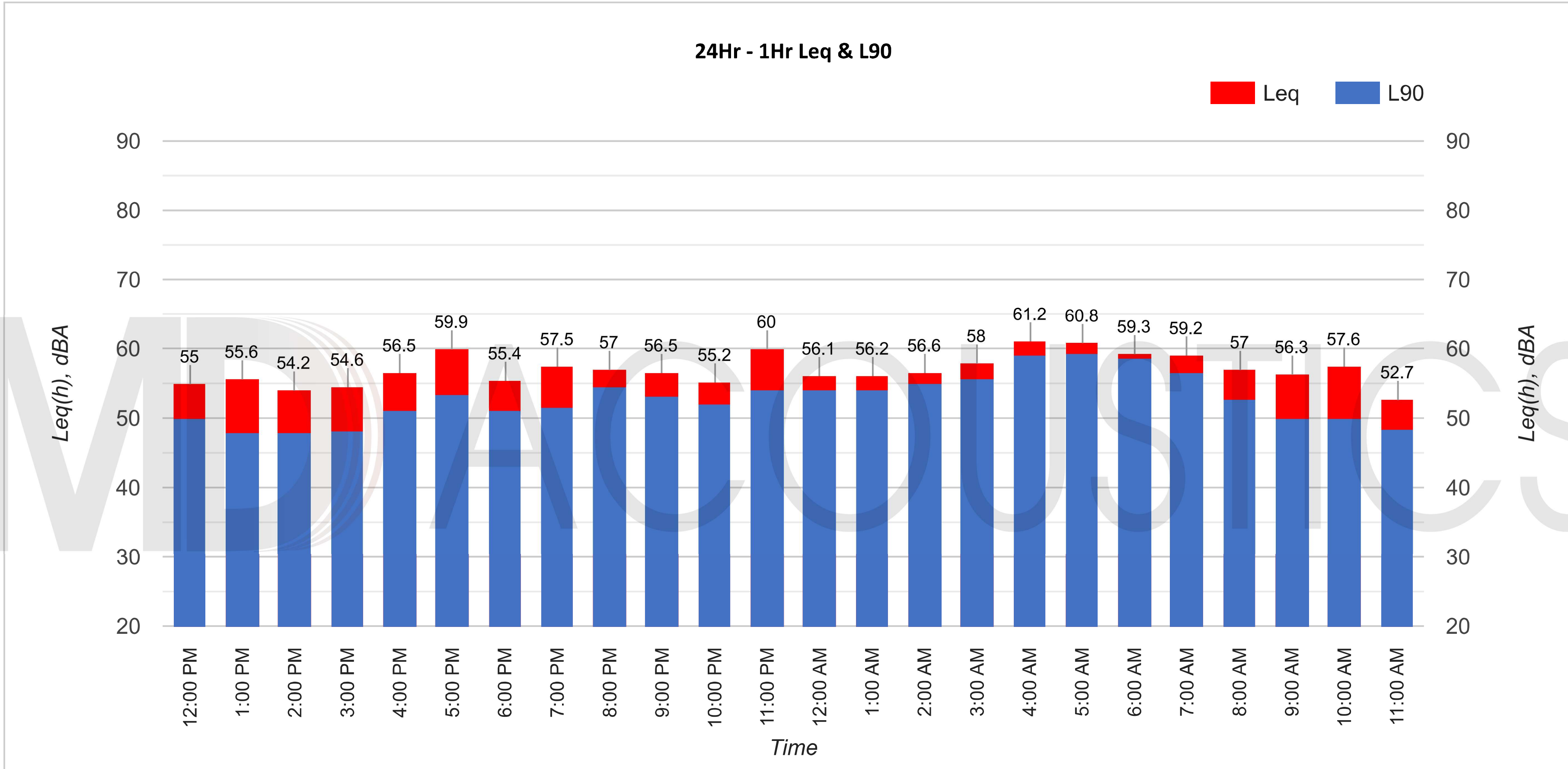
Table 1: Baseline Noise Measurement Summary

Date	Start	Stop	Leq	Lmax	Lmin	L2	L8	L25	L50	L90
1/30/2025	12:00 PM	1:00 PM	55	72	44.5	60.5	59	55.1	53.8	49.9
1/30/2025	1:00 PM	2:00 PM	55.6	75.7	44.7	64.4	57.7	55.2	53.2	48
1/30/2025	2:00 PM	3:00 PM	54.2	75.4	44.2	58.5	58.2	55	52.3	47.9
1/30/2025	3:00 PM	4:00 PM	54.6	74.7	44.2	59.8	57.2	54.6	52.4	48.2
1/30/2025	4:00 PM	5:00 PM	56.5	73.9	45.6	64.1	59.6	55.3	53.9	51.2
1/30/2025	5:00 PM	6:00 PM	59.9	81.8	47.1	69.8	60.3	57.5	55.9	53.3
1/30/2025	6:00 PM	7:00 PM	55.4	68.5	48.5	59.1	57.6	56.5	54.8	51.1
1/30/2025	7:00 PM	8:00 PM	57.5	77.5	47.6	66	59.9	56.8	55.6	51.7
1/30/2025	8:00 PM	9:00 PM	57	74.1	51.6	60.2	59.2	57.4	56.2	54.6
1/30/2025	9:00 PM	10:00 PM	56.5	73.2	50.3	63.3	58.2	56.5	55.2	53.1
1/30/2025	10:00 PM	11:00 PM	55.2	73.7	49.4	59.8	56.6	55.2	54.1	52.1
1/30/2025	11:00 PM	12:00 AM	60	85.2	51.1	67.4	61	56.9	56	54
1/31/2025	12:00 AM	1:00 AM	56.1	71.7	51.9	61	57.8	56.1	55.3	54.2
1/31/2025	1:00 AM	2:00 AM	56.2	70.7	51.1	61.4	57.6	56.4	55.6	54.1
1/31/2025	2:00 AM	3:00 AM	56.6	71.1	52.2	59.5	58.7	56.7	55.8	55
1/31/2025	3:00 AM	4:00 AM	58	73.9	52.3	63.2	58.9	58	57.4	55.6
1/31/2025	4:00 AM	5:00 AM	61.2	69.5	55.9	63.6	63	62.2	60.9	59.1
1/31/2025	5:00 AM	6:00 AM	60.8	67.1	57.5	62.3	62.1	61.4	60.8	59.4
1/31/2025	6:00 AM	7:00 AM	59.3	68.2	57.2	60.7	60.1	59.5	59.2	58.6
1/31/2025	7:00 AM	8:00 AM	59.2	75.9	54.3	62.9	60.7	59.5	58.1	56.6
1/31/2025	8:00 AM	9:00 AM	57	73.8	50.6	63.1	58.4	57.4	55.8	52.8
1/31/2025	9:00 AM	10:00 AM	56.3	79.9	48.3	61.6	58	54.9	52.9	50
1/31/2025	10:00 AM	11:00 AM	57.6	79	46.9	66.3	59.1	55.9	53.1	50.1
1/31/2025	11:00 AM	12:00 PM	52.7	67.3	44.8	57.8	56.5	53	51.6	48.3

DNL	64.6

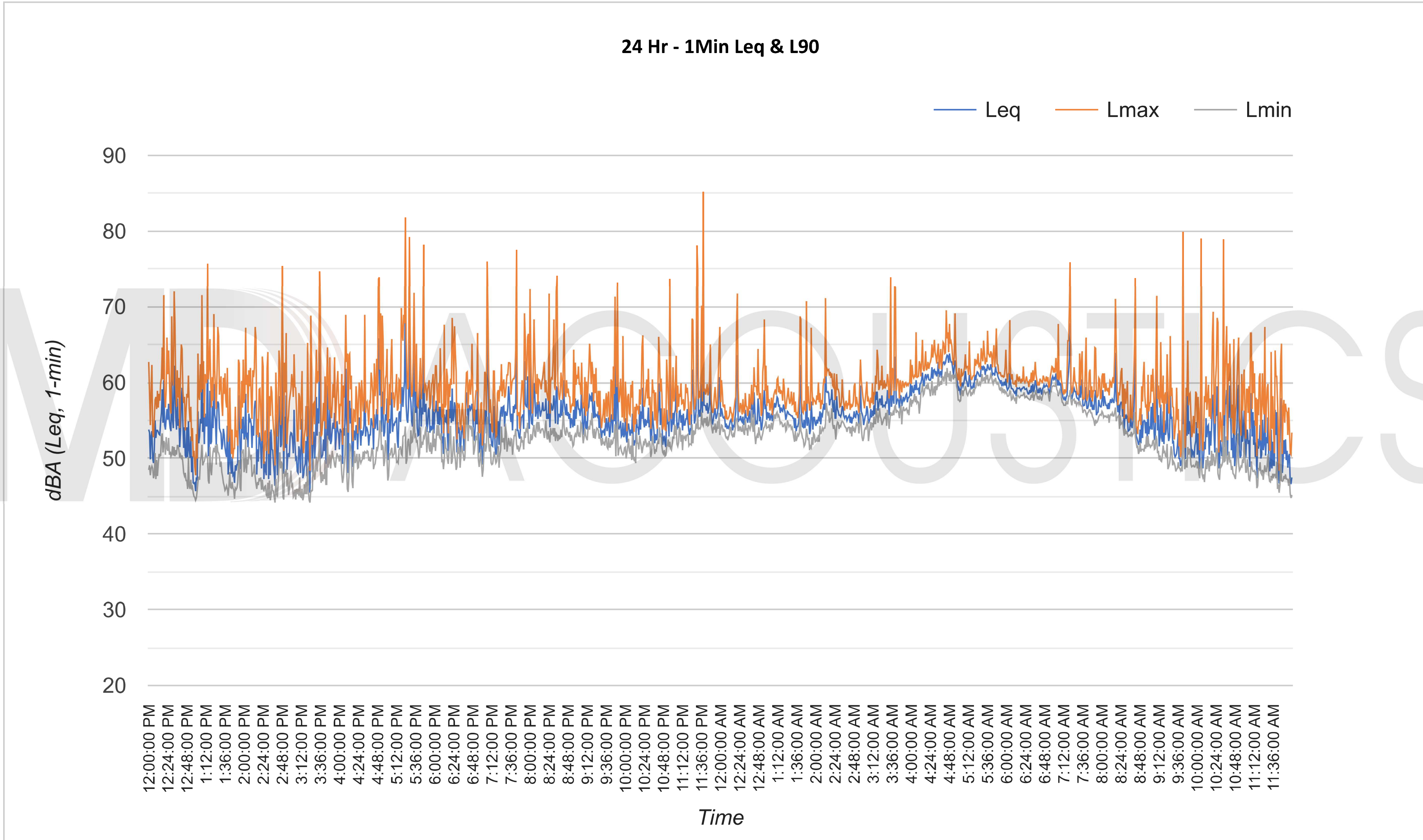
24-Hour Continuous Noise Measurement Datasheet - Cont. - NM-1

Project Name:	54 Unit Adella	**Site Topo:**	Flat ground open lot	**Day:** 1 of 1
Site Address/Location:	10130 Adella Ave	**Meteorological Cond.:**		**Noise Source(s) w/ Distance:**
Site Id:	NM-1	**Ground Type:**	Sandy soil and clay	road noise and residential noise

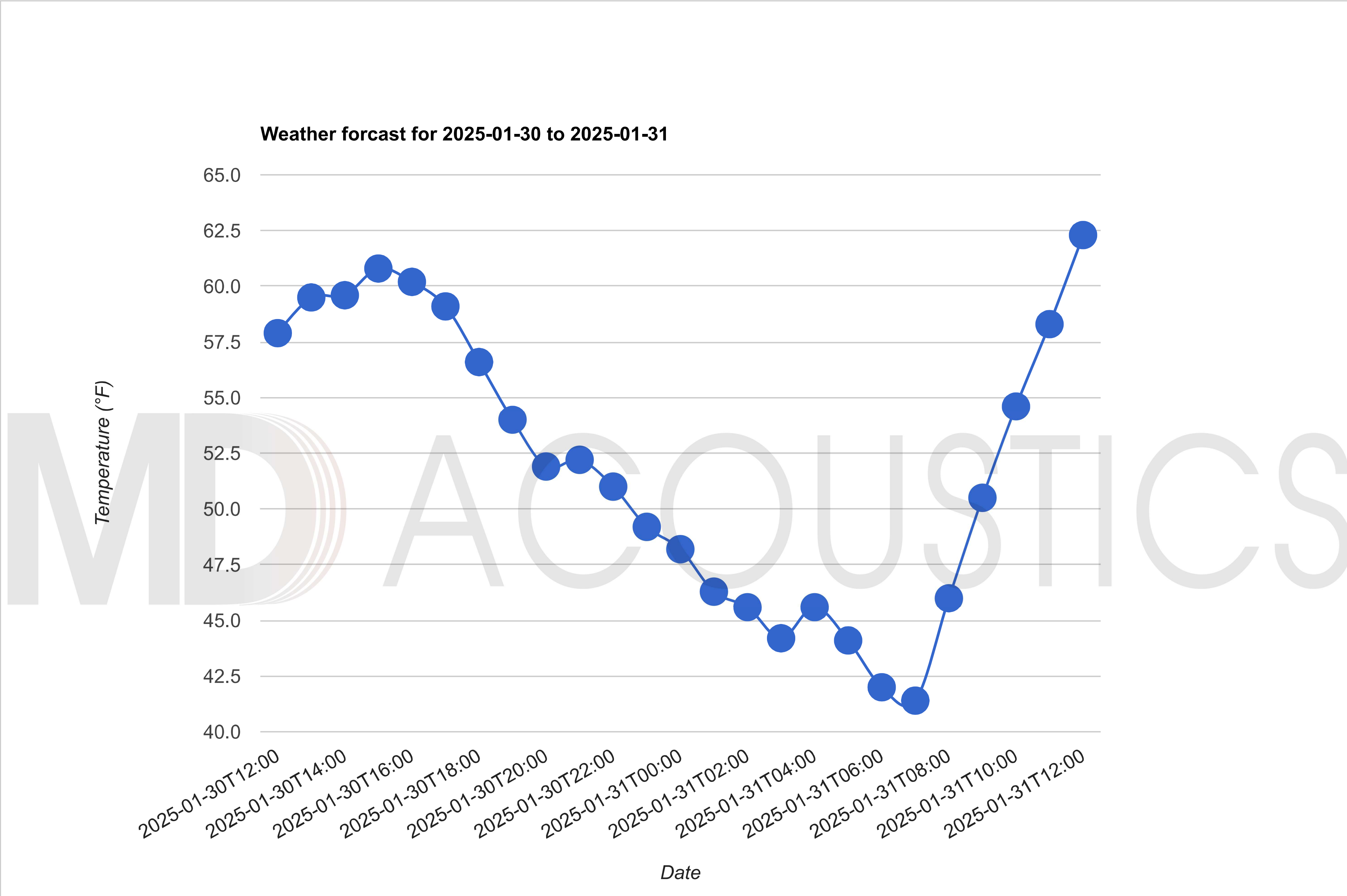


24-Hour Continuous Noise Measurement Datasheet - Cont. - NM-1

Project Name:	54 Unit Adella	**Site Topo:**	Flat ground open lot	**Day:** 1 of 1
Site Address/Location:	10130 Adella Ave	**Meteorological Cond.:**		**Noise Source(s) w/ Distance:**
Site Id:	NM-1	**Ground Type:**	Sandy soil and clay	road noise and residential noise



MD ACOUSTICS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62.5
60.0
57.5
55.0
52.5
50.0
47.5
45.0
42.5
40.0
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2025-01-30T14:00
2025-01-30T16:00
2025-01-30T18:00
2025-01-30T20:00
2025-01-30T22:00
2025-01-31T00:00
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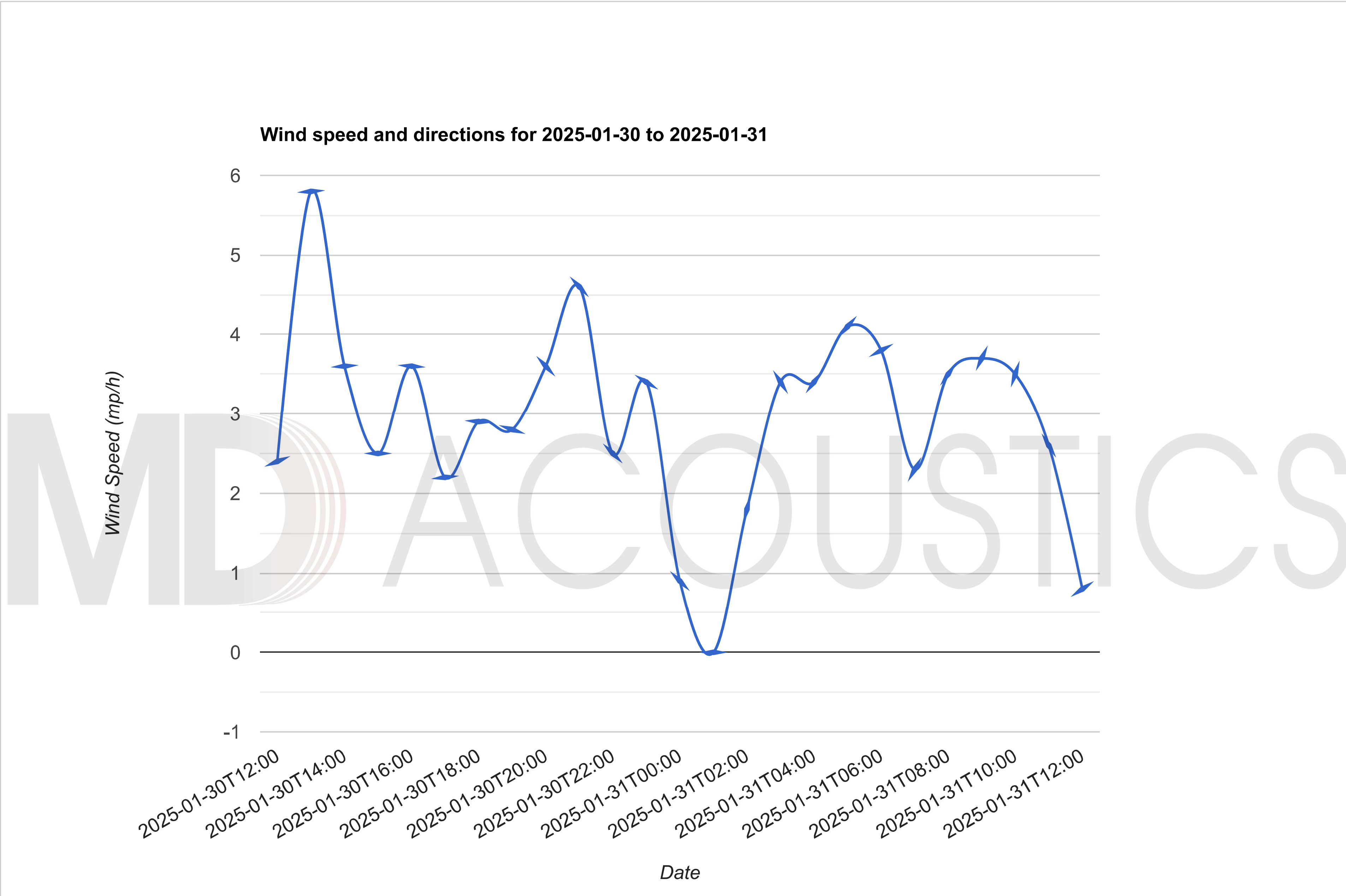
Date



Source: Global Forecast System (GFS) weather forcast model

Appendix C

Traffic

MAT Engineering, Inc.

www.matengineering.com
17192 Murphy Avenue #14902
Irvine, CA 92623
Ph: 949.344.1828

February 6, 2025

Mr. Jose Loera
CITY OF SOUTH GATE
8650 California Avenue
South Gate, CA 90280

Subject: **10130 Adella Avenue Residential Project Trip Generation & VMT Analysis/Screening Scope of Work, City of South Gate, California**

Dear Mr. Loera,

MAT Engineering, Inc. is pleased to submit this proposed scoping agreement for preparation of a trip generation study and VMT screening for the proposed 10130 Adella Avenue residential project in the City of South Gate.

A. Project Description & Location

The currently vacant project site is located at 10130 Adella Avenue in the City of South Gate. The proposed project consists of construction of 54 dwelling units of multifamily residential use.

Exhibit A shows the project location. **Exhibit B** shows the proposed site plan.

B. Project Trip Generation

Trip generation represents the amount of trips attracted and produced by a land use.

The trip generation for the proposed project is based upon the specific land uses that have been planned for this project and has been determined utilizing the Institute of Transportation Engineers (ITE) trip generation rates which is an industry standard for calculating trips associated with land uses.

Table 1 shows the trip ITE trip generation rates for the proposed uses based on the ITE. **Attachment A** shows the ITE trip rates utilized in this analysis

Table 1
ITE Trip Generation Rates

Land Use	ITE Code	Units	Peak Hour						Daily
			AM Peak Hour			PM Peak Hour			
			In	Out	Total	In	Out	Total	
Multifamily Residential (Low-rise)	220	DU	0.10	0.30	0.40	0.32	0.19	0.51	6.74

Notes:

Source: 2021 ITE 11th Edition Trip Generation Manual;

DU = Dwelling Units.

Utilizing the ITE trip generation rates from **Table 1**, **Table 2** shows a summary of the trip generation for the proposed land use.

Table 2
Proposed Land Use Trip Generation

Land Use	Quantity	Units	ITE Code	Peak Hour						Daily
				AM Peak Hour			PM Peak Hour			
				In	Out	Total	In	Out	Total	
Multifamily Residential (Low-Rise)	54	DU	220	5	17	22	17	11	28	364

Source:

Institute of Transportation Engineers (ITE) 2021 Trip Generation Manual (11th Edition) Source: 2021 ITE 11th Edition Trip Generation Manual.

DU = Dwelling Units.

As shown in **Table 2**, based on the ITE trip generation rates, the proposed use is expected to generate approximately 364 daily trips which include approximately 22 AM peak hour trips and approximately 28 PM peak hour trips.

C. Trip Generation Evaluation

As shown in **Table 2**, the proposed project is forecast to generate approximately 364 daily trips which include approximately 22 AM peak hour trips and approximately 28 PM peak hour trips.

Based on industry standards and the Los Angeles County traffic study requirements, typically, a full traffic study is required when a project generates more than 50 peak hour trips. Since the proposed project is expected to generate a low number of peak hour trips, MAT Engineering, Inc. proposes preparation of a trip generation memorandum for the project instead of a full traffic study.

The trip generation memorandum will disclose the project's trip generation based on the ITE trip generation rates and draw a conclusion that based on the low number of trips, the proposed project is expected to not result in an adverse level of service impact and operations on the surrounding roadway system.

D. Proposed Scope of Vehicle Miles Traveled (VMT) Analysis

In response to Senate Bill (SB) 743, the California Natural Resource Agency certified and adopted new CEQA Guidelines in December 2018 which now identify Vehicle Miles Traveled (VMT) as the most appropriate metric to evaluate a project's transportation impact under CEQA (§ 15064.3).

Effective July 1, 2020, the previous CEQA metric of LOS, typically measured in terms of automobile delay, roadway capacity and congestion, generally will no longer constitute a significant environmental impact.

An evaluation of the project VMT has been conducted utilizing the Southern California Association of Governments (SCAG) VMT screening website. Based on the SCAG data and as shown in **Exhibit C**, the project site is located within 0.2 miles of Atlantic Avenue which is designated as a High Quality Transit Corridor. Hence, the proposed project is expected to screen out for requiring a full VMT analysis.

MAT Engineering, Inc., will prepare a VMT screening memo for the proposed project based on this screening criteria.

MAT Engineering Inc. appreciates the opportunity to provide this scope of work for review. If you have any questions, concerns, or comments, please contact us at 949-344-1828 or at@matengineering.com.

Respectfully submitted,

MAT ENGINEERING, INC.

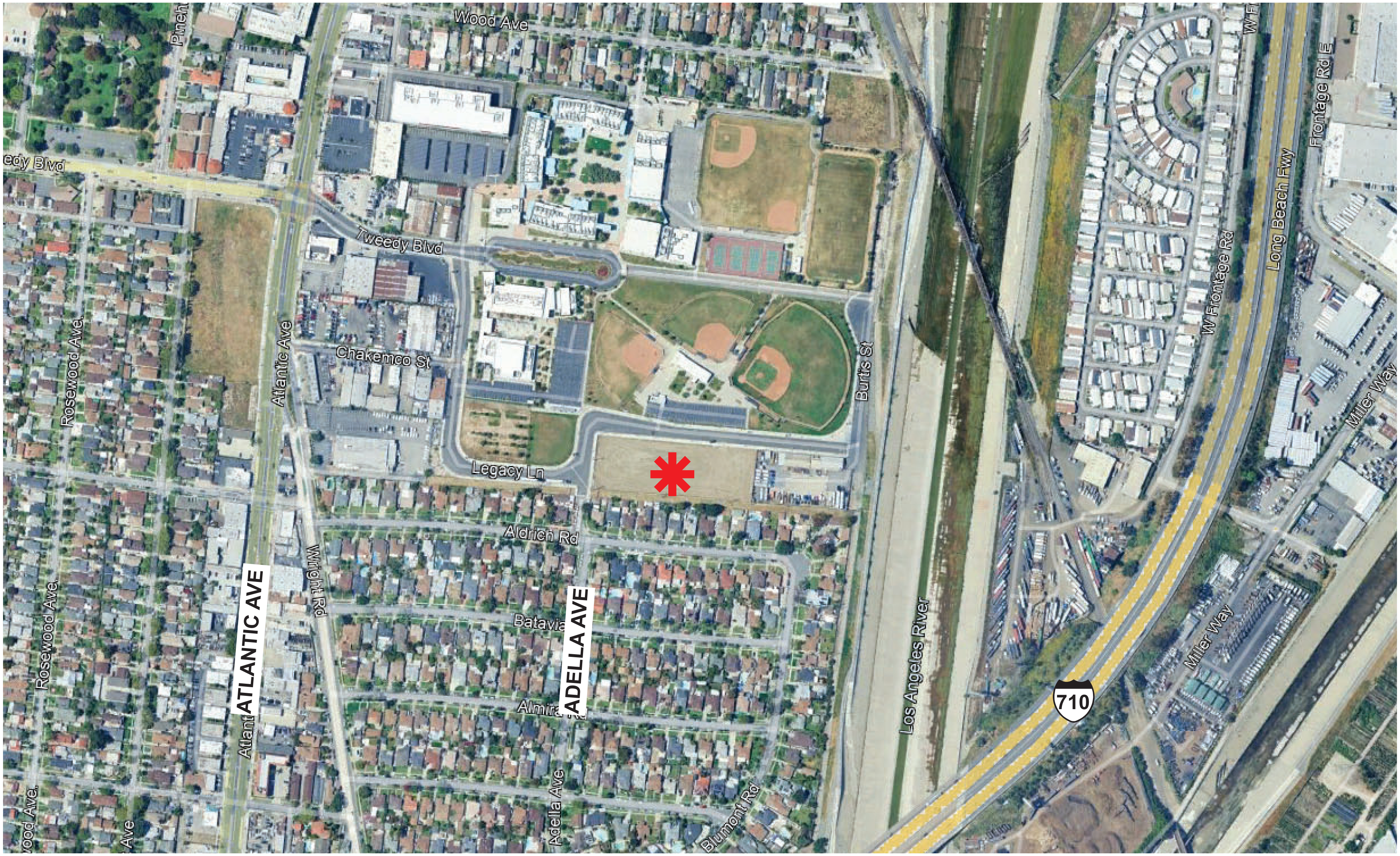
Approved by:

____

____
Date

Alex Tabrizi, PE, TE

President



Not to Scale

Legend:

Site Location

Location

Exhibit A

MN ENGINEERING, INC.

10130 Adella Avenue Residential Project, City of South Gate, California / 0006-2024-11

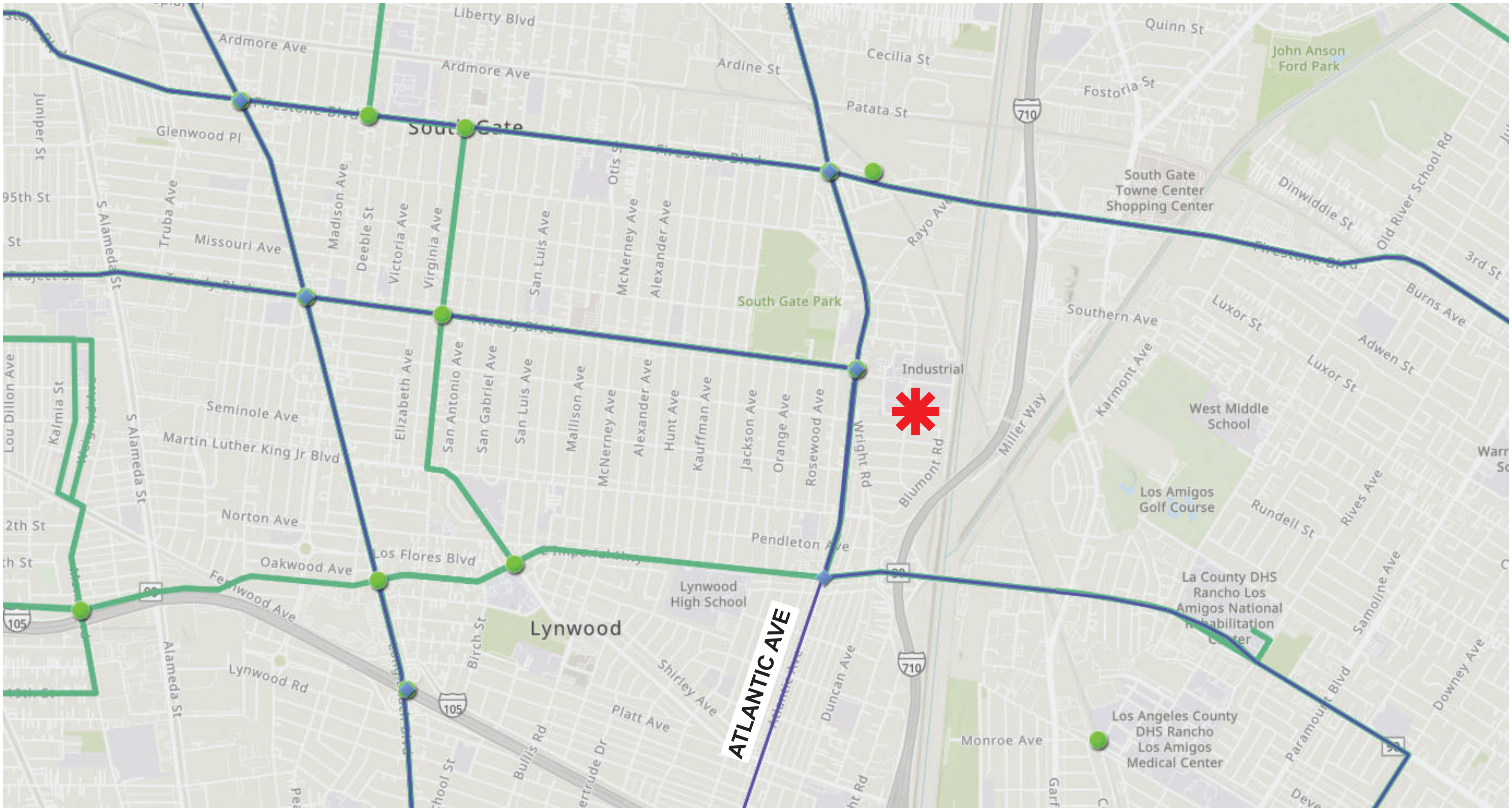
FEB/2025

Not to Scale

MN ENGINEERING, INC.

Site Plan

Exhibit B



Not to Scale

Legend:

Site Location

MN ENGINEERING, INC.

SCAG High Quality Transit Routes

10130 Adella Avenue Residential Project, City of South Gate, California / 0006-2024-11

FEB/2025

Exhibit C

Appendix D:

SoundPLAN Input/Outputs

10130 Adella South Gate
Contribution spectra - 001 - 10130 Adella South Gate: Outdoor SP

Source	Time slice	Sum dB(A)	25Hz dB(A)	31.5Hz dB(A)	40Hz dB(A)	50Hz dB(A)	63Hz dB(A)	80Hz dB(A)	100Hz dB(A)	125Hz dB(A)	160Hz dB(A)	200Hz dB(A)	250Hz dB(A)	315Hz dB(A)	400Hz dB(A)	500Hz dB(A)	630Hz dB(A)	800Hz dB(A)	1kHz dB(A)	1.25kHz dB(A)	1.6kHz dB(A)	2kHz dB(A)	2.5kHz dB(A)	3.15kHz dB(A)	4kHz dB(A)	5kHz dB(A)	6.3kHz dB(A)	8kHz dB(A)	10kHz dB(A)	12.5kHz dB(A)	16kHz dB(A)
Receiver R1 Fl G Lr,lim dB(A) Leq,d 42.1 dB(A)																														
HVAC (4)	Leq,d	11.4	-31.8	-26.2	-23.2	-11.2	-7.4	-14.3	-6.1	-5.0	-6.8	-6.5	-6.5	-4.6	-3.6	-2.6	1.3	2.9	-1.3	0.8	2.8	0.5	1.1	-2.7	-2.7	-6.3	-8.7	-17.1	-26.7	-34.8	-46.6
HVAC (4)	Leq,d	6.9	-37.5	-32.9	-29.7	-18.2	-14.6	-20.1	-11.8	-10.0	-11.2	-10.9	-10.9	-9.0	-8.0	-7.0	-3.1	-1.5	-5.6	-3.8	-1.7	-4.0	-3.4	-7.2	-7.2	-10.9	-13.4	-22.1	-32.4	-41.6	-55.1
HVAC (4)	Leq,d	4.4	-38.4	-33.8	-31.3	-18.7	-15.1	-22.0	-14.0	-12.3	-13.6	-13.4	-13.4	-11.5	-10.5	-9.6	-5.7	-4.0	-8.1	-6.3	-4.2	-6.5	-6.0	-9.8	-10.0	-13.7	-16.5	-25.4	-36.1	-45.8	-60.2
HVAC (4)	Leq,d	3.2	-39.2	-34.6	-30.7	-19.1	-15.5	-22.5	-14.7	-13.1	-14.4	-14.6	-14.6	-12.7	-11.8	-10.8	-6.9	-5.1	-9.3	-7.5	-5.3	-7.7	-7.3	-11.3	-11.7	-15.9	-19.4	-29.5	-41.9	-54.1	-71.6
HVAC (4)	Leq,d	8.6	-33.3	-28.5	-25.3	-13.7	-10.1	-17.2	-9.2	-7.8	-9.1	-9.1	-9.1	-7.2	-6.3	-5.4	-1.5	0.1	-4.0	-2.2	-0.1	-2.5	-1.9	-5.5	-5.5	-9.0	-11.2	-19.4	-29.0	-37.2	-49.3
HVAC (4)	Leq,d	11.9	-31.7	-26.5	-23.6	-11.9	-8.2	-15.1	-6.2	-4.8	-6.2	-5.9	-5.9	-3.9	-3.0	-2.0	1.9	3.5	-0.7	1.2	3.2	0.9	1.6	-2.1	-2.1	-5.5	-7.6	-15.7	-24.9	-32.6	-44.1
HVAC (5)	Leq,d	30.2	-20.6	-14.6	-10.6	2.5	7.5	1.4	10.6	12.5	11.4	12.2	12.3	14.2	15.1	16.1	19.9	21.4	17.2	19.0	20.7	18.4	21.5	17.9	18.0	14.7	12.8	5.1	-3.7	-10.6	-21.2
HVAC (5)	Leq,d	28.1	-24.3	-18.3	-14.3	-1.3	3.6	-2.4	6.4	8.4	7.3	8.2	10.7	12.7	13.6	14.6	18.5	19.9	15.8	17.6	19.6	17.2	17.8	14.0	14.0	11.5	9.1	0.4	-9.7	-18.8	-32.2
HVAC (5)	Leq,d	24.3	-25.5	-19.5	-15.5	-2.5	2.4	-3.6	5.0	6.9	5.8	6.5	6.6	8.5	9.5	10.4	14.3	15.9	11.7	13.6	15.6	13.3	13.7	9.9	11.7	7.8	4.9	-4.3	-15.4	-25.9	-41.1
HVAC (5)	Leq,d	35.6	-14.4	-8.3	-4.4	8.6	13.6	7.6	16.8	18.7	17.6	18.4	18.4	20.3	21.2	22.1	25.9	27.6	23.4	25.1	26.5	24.1	24.6	20.9	21.1	18.0	16.6	9.6	1.9	-2.9	-11.4
HVAC (5)	Leq,d	38.1	-10.4	-4.4	-0.5	12.5	17.4	11.3	20.6	22.4	21.3	21.8	21.7	23.4	24.2	24.9	28.5	30.1	25.5	27.0	29.0	26.4	26.6	22.7	22.8	19.6	18.1	11.2	3.9	-0.9	-8.3
HVAC (5)	Leq,d	34.3	-15.0	-8.9	-5.0	8.0	12.9	6.9	16.1	18.0	16.9	17.6	17.6	19.5	20.3	21.2	24.9	26.4	22.1	23.8	25.1	22.5	22.9	19.1	19.1	15.9	14.2	7.0	-0.9	-6.6	-15.3
Transformer	Leq,d	31.3								31.3																					
Transformer	Leq,d	8.9								8.9																					
Receiver R2 Fl G Lr,lim dB(A) Leq,d 42.7 dB(A)																														
HVAC (4)	Leq,d	8.8	-36.4	-31.7	-28.2	-14.6	-10.0	-16.2	-8.9	-7.6	-8.9	-8.8	-8.9	-7.0	-6.1	-5.1	-1.2	0.5	-3.6	-1.8	0.3	-2.1	-1.7	-5.7	-6.1	-10.2	-13.2	-22.5	-33.4	-43.2	-57.3
HVAC (4)	Leq,d	8.8	-35.9	-31.3	-28.8	-16.9	-12.6	-19.5	-11.2	-9.5	-9.4	-9.2	-9.2	-7.2	-6.3	-5.0	-1.1	0.5	-3.6	-1.8	0.3	-2.1	-1.5	-5.2	-5.3	-8.7	-10.9	-19.0	-28.4	-36.3	-48.2
HVAC (4)	Leq,d	8.6	-35.1	-30.4	-27.9	-15.8	-11.9	-18.3	-10.0	-8.5	-9.8	-9.5	-9.6	-7.7	-6.7	-5.8	-1.9	-0.2	-4.4	-1.7	0.3	-2.1	-1.5	-5.2	-5.2	-8.6	-10.7	-18.6	-27.6	-35.1	-46.4
HVAC (4)	Leq,d	9.1	-32.2	-27.5	-24.7	-13.2	-9.4	-16.5	-8.4	-6.9	-8.3	-8.5	-8.6	-6.7	-5.8	-4.9	-1.0	0.7	-3.5	-1.6	0.3	-2.0	-1.5	-5.2	-5.2	-8.7	-10.8	-18.8	-28.1	-35.8	-47.3
HVAC (4)	Leq,d	0.5	-40.0	-35.4	-32.8	-21.2	-17.5	-24.3	-16.8	-15.3	-16.7	-17.2	-17.2	-15.3	-14.4	-13.5	-9.6	-7.7	-11.9	-10.1	-8.0	-10.4	-10.1	-14.1	-14.6	-19.0	-22.7	-33.2	-46.2	-59.4	-78.3
HVAC (4)	Leq,d	6.9	-38.0	-33.4	-30.8	-16.9	-12.5	-19.3	-11.5	-9.9	-11.2	-10.8	-10.8	-8.9	-7.9	-7.0	-3.1	-1.2	-5.4	-3.6	-1.5	-4.0	-3.7	-7.8	-8.5	-13.0	-16.6	-26.7	-38.6	-49.8	-65.7
HVAC (5)	Leq,d	34.1	-16.3	-10.3	-6.3	6.7	11.7	5.7	14.8	16.8	15.7	16.5	16.5	18.5	19.4	20.4	24.3	25.9	21.7	23.5	25.1	22.8	23.4	19.8	20.1	17.0	15.4	8.3	0.3	-5.6	-14.8
HVAC (5)	Leq,d	39.4	-10.0	-3.9	0.0	13.0	17.9	11.9	21.2	23.1	22.0	22.6	22.5	24.3	25.2	26.0	29.7	31.4	27.0	28.6	30.2	27.7	28.1	24.4	24.5	21.5	20.1	13.5	6.3	1.7	-5.5
HVAC (5)	Leq,d	37.8	-11.1	-5.1	-1.2	11.8	16.7	10.7	20.0	21.9	20.7	21.3	21.3	23.1	23.9	24.7	28.4	30.0	25.6	27.2	28.2	25.6	26.0	22.1	22.2	19.1	17.7	10.9	3.7	-1.0	-8.4
HVAC (5)	Leq,d	23.2	-26.5	-20.5	-16.5	-3.5	1.5	-4.5	3.8	5.7	4.7	5.3	5.3	7.3	8.2	9.2	13.1	14.8	10.7	12.6	14.7	12.3	12.8	9.0	8.7	6.7	3.5	-6.1	-17.9	-29.3	-45.8
HVAC (5)	Leq,d	26.8	-25.4	-19.4	-15.4	-2.4	2.5	-3.5	5.1	7.0	6.0	6.7	6.7	8.6	12.1	13.1	17.0	18.6	14.4	16.3	18.4	16.0	16.5	13.9	13.7	9.9	7.1	-2.0	-13.0	-23.2	-38.1
HVAC (5)	Leq,d	29.0	-21.6	-15.6	-11.6	1.4	6.3	0.4	9.5	11.4	10.3	11.2	11.2	13.2	14.1	15.0	18.9	20.3	16.1	17.9	19.7	17.3	19.8	16.1	16.2	12.9	10.9	3.1	-5.9	-13.3	-24.4
Transformer	Leq,d	10.9								10.9																					
Transformer	Leq,d	13.6								13.6																					
Receiver R3 Fl G Lr,lim dB(A) Leq,d 32.9 dB(A)																														
HVAC (4)	Leq,d	8.5	-32.2	-26.8	-23.9	-12.3	-8.7	-16.0	-8.3	-7.1	-8.7	-9.1	-9.3	-7.4	-6.5	-5.6	-1.7	0.0	-4.2	-2.4	-0.3	-2.7	-2.1	-5.9	-5.9	-9.5	-11.8	-20.3	-30.0	-38.4	-50.6

Source	Time slice	Sum	25Hz	31.5Hz	40Hz	50Hz	63Hz	80Hz	100Hz	125Hz	160Hz	200Hz	250Hz	315Hz	400Hz	500Hz	630Hz	800Hz	1kHz	1.25kHz	1.6kHz	2kHz	2.5kHz	3.15kHz	4kHz	5kHz	6.3kHz	8kHz	10kHz	12.5kHz	16kHz
		dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
HVAC (4)	Leq,d	5.1	-36.9	-32.4	-29.8	-18.1	-14.2	-20.9	-13.2	-11.9	-13.4	-14.5	-14.6	-12.8	-9.7	-8.7	-4.9	-3.0	-7.2	-5.4	-3.3	-5.7	-5.3	-9.2	-9.5	-13.6	-16.7	-26.4	-38.0	-49.0	-64.8
HVAC (4)	Leq,d	3.0	-37.8	-33.2	-30.6	-19.0	-15.3	-22.1	-14.5	-13.1	-14.7	-15.7	-15.8	-14.0	-13.1	-12.2	-8.3	-4.9	-9.1	-7.3	-5.2	-7.6	-7.2	-11.2	-11.6	-15.8	-19.2	-29.3	-41.6	-53.6	-71.0
HVAC (4)	Leq,d	-0.2	-39.9	-35.3	-32.7	-21.0	-16.9	-23.7	-16.5	-15.1	-16.7	-17.8	-17.9	-16.1	-15.2	-14.4	-10.5	-8.4	-12.6	-10.9	-8.8	-11.4	-11.1	-15.3	-16.0	-20.7	-24.9	-36.1	-50.1	-64.6	-85.3
HVAC (4)	Leq,d	22.7	-18.6	-12.9	-9.2	3.3	7.8	1.3	10.0	11.4	9.7	7.8	7.1	8.3	8.7	8.9	12.1	14.8	10.0	11.1	12.0	9.1	9.2	5.2	5.2	2.0	0.5	-6.3	-13.7	-18.8	-26.7
HVAC (4)	Leq,d	11.0	-29.0	-24.0	-21.1	-9.4	-5.9	-13.1	-5.2	-4.0	-5.8	-6.5	-6.7	-4.9	-4.0	-3.2	0.7	2.5	-1.7	0.1	2.0	-0.3	0.3	-3.3	-3.1	-6.2	-8.0	-15.5	-23.9	-30.4	-40.3
HVAC (5)	Leq,d	5.8	-32.5	-27.9	-25.3	-13.6	-9.8	-16.8	-9.0	-7.9	-9.6	-11.6	-11.8	-10.1	-9.3	-8.5	-4.8	-2.6	-6.9	-5.2	-3.3	-5.7	-5.2	-9.0	-9.1	-12.8	-15.4	-24.2	-34.8	-44.5	-58.7
HVAC (5)	Leq,d	3.3	-34.6	-29.9	-27.3	-15.6	-11.8	-18.8	-11.5	-10.3	-12.1	-14.2	-14.5	-12.8	-11.9	-11.1	-7.4	-5.0	-9.4	-7.7	-5.7	-8.2	-7.9	-11.9	-12.4	-14.4	-17.9	-28.0	-40.5	-52.9	-70.7
HVAC (5)	Leq,d	2.1	-35.7	-31.0	-28.4	-16.7	-12.8	-19.8	-12.6	-11.4	-13.2	-15.4	-15.6	-13.9	-13.1	-12.3	-8.5	-6.1	-10.5	-8.8	-6.8	-9.4	-9.1	-13.3	-13.9	-18.5	-22.4	-33.1	-46.5	-60.2	-79.7
HVAC (5)	Leq,d	32.2	-16.9	-11.5	-8.3	3.9	8.1	1.3	9.7	10.8	9.0	7.8	7.0	8.2	8.5	8.8	12.1	14.2	9.5	10.8	11.8	25.0	25.8	23.8	24.4	21.7	20.6	13.9	6.5	1.3	-7.0
HVAC (5)	Leq,d	14.8	-23.0	-17.9	-15.0	-3.2	0.5	-6.9	1.1	1.9	-0.3	-1.9	-2.5	-1.0	-0.4	0.2	3.9	6.0	1.6	3.3	4.9	2.6	3.3	-0.1	0.4	-2.3	-3.4	-10.0	-17.3	-22.4	-30.6
HVAC (5)	Leq,d	9.4	-29.3	-24.4	-21.5	-9.8	-6.1	-13.2	-5.5	-4.5	-6.4	-8.0	-8.2	-6.5	-5.7	-4.8	-1.0	0.9	-3.4	-1.6	0.3	-2.0	-1.5	-5.2	-5.2	-8.8	-11.2	-19.6	-27.8	-36.5	-49.2
Transformer	Leq,d	12.7								12.7																					
Transformer	Leq,d	4.4								4.4																					
Receiver R4 Fl G Lr,lim dB(A) Leq,d 39.3 dB(A)																															
HVAC (4)	Leq,d	7.7	-30.0	-24.9	-21.9	-9.9	-6.0	-13.1	-5.9	-4.9	-6.8	-9.5	-9.9	-8.3	-7.6	-6.9	-3.2	-0.5	-5.0	-3.4	-1.5	-4.2	-4.0	-8.3	-9.0	-13.6	-17.2	-27.3	-39.2	-50.6	-66.9
HVAC (4)	Leq,d	12.5	-26.8	-21.3	-17.9	-5.5	-1.2	-7.9	0.3	1.5	-0.3	-4.0	-4.7	-3.5	-2.7	-2.3	1.0	4.6	-0.2	1.0	2.5	-0.4	-0.3	-4.4	-4.7	-8.5	-11.1	-19.6	-29.5	-38.2	-51.0
HVAC (4)	Leq,d	15.1	-24.7	-19.2	-15.8	-3.4	1.0	-5.7	2.7	3.9	2.1	-1.1	-1.8	-0.5	0.0	0.3	3.7	7.1	2.3	3.6	4.9	2.1	2.3	-1.8	-2.0	-5.6	-7.8	-15.9	-25.0	-32.6	-43.8
HVAC (4)	Leq,d	38.7	-12.2	-6.2	-2.2	10.8	15.8	9.8	19.0	21.0	19.9	18.8	18.9	20.9	22.0	23.0	26.9	30.5	26.5	28.5	30.1	28.0	28.9	25.6	26.3	23.8	23.0	16.8	10.0	5.6	-1.7
HVAC (4)	Leq,d	1.7	-34.4	-29.5	-26.5	-14.6	-10.7	-17.6	-10.8	-9.7	-11.7	-15.4	-16.0	-14.6	-13.9	-13.4	-9.8	-6.4	-11.1	-9.7	-8.0	-10.9	-10.9	-15.4	-16.5	-21.6	-26.3	-38.2	-53.2	-69.1	-91.5
HVAC (4)	Leq,d	5.7	-31.5	-26.5	-23.4	-11.5	-7.7	-14.7	-7.8	-6.8	-8.7	-11.6	-11.9	-10.4	-9.6	-8.9	-5.2	-2.5	-6.9	-5.4	-3.5	-6.2	-6.1	-10.5	-11.3	-16.2	-20.3	-31.3	-44.8	-58.2	-77.1
HVAC (5)	Leq,d	6.6	-31.5	-26.6	-23.8	-12.0	-8.3	-15.4	-8.0	-7.0	-9.0	-10.8	-11.1	-9.4	-8.6	-7.7	-3.9	-1.9	-6.2	-4.5	-2.5	-4.9	-4.5	-8.4	-8.5	-12.3	-14.9	-23.6	-34.0	-43.5	-57.4
HVAC (5)	Leq,d	10.2	-27.4	-22.3	-19.3	-7.3	-3.5	-10.7	-2.8	-2.0	-4.2	-6.6	-7.2	-5.8	-5.2	-4.5	-0.8	1.3	-3.1	-1.4	0.4	-2.0	-1.4	-5.0	-4.8	-8.0	-9.8	-17.4	-26.1	-20.4	-33.9
HVAC (5)	Leq,d	29.3	-22.8	-17.5	-14.2	-2.0	2.2	-4.7	3.6	4.7	2.9	0.3	-0.3	1.0	1.4	1.8	5.2	8.0	3.3	4.7	6.0	21.2	24.3	20.8	21.9	18.8	17.0	9.3	0.4	-6.9	-17.9
HVAC (5)	Leq,d	0.4	-38.4	-33.7	-31.0	-19.2	-15.4	-22.2	-15.1	-13.8	-15.5	-17.1	-17.3	-15.5	-14.6	-13.8	-10.0	-7.7	-12.0	-10.3	-8.3	-10.9	-10.7	-15.0	-15.8	-20.7	-25.1	-36.7	-51.3	-66.7	-88.4
HVAC (5)	Leq,d	3.2	-35.9	-31.2	-28.6	-17.0	-13.3	-20.2	-13.0	-11.7	-13.3	-14.4	-14.6	-12.8	-11.9	-11.0	-7.2	-5.0	-9.3	-7.6	-5.5	-8.0	-7.8	-12.0	-11.1	-15.8	-19.9	-31.1	-45.0	-59.3	-79.6
HVAC (5)	Leq,d	6.8	-33.8	-28.8	-26.2	-14.2	-10.4	-17.1	-9.6	-8.3	-9.8	-10.7	-10.8	-9.0	-8.1	-7.2	-3.4	-1.3	-5.6	-3.8	-1.8	-4.3	-4.0	-8.2	-8.8	-13.1	-16.6	-26.4	-37.9	-48.8	-64.6
Transformer	Leq,d	10.1								10.1																					
Transformer	Leq,d	14.9								14.9																					
Receiver R5 Fl G Lr,lim dB(A) Leq,d 44.8 dB(A)																															
HVAC (4)	Leq,d	33.6	-19.0	-13.0	-9.0	5.1	10.1	4.1	13.2	15.2	14.2	12.4	12.5	14.4	15.6	16.6	20.6	25.7	21.6	23.6	25.6	23.3	24.1	20.6	20.8	17.7	15.9	8.3	-0.6	-7.9	-19.0
HVAC (4)	Leq,d	38.4	-12.3	-6.3	-2.3	10.7	15.7	9.7	18.9	20.9	19.8	18.0	18.1	20.0	21.2	22.3	26.2	30.3	26.3	28.2	30.0	27.8	28.7	25.3	25.9	23.2	22.1	15.5	8.1	2.8	-5.6
HVAC (4)	Leq,d	39.8	-11.1	-5.0	-1.0	11.9	16.9	10.9	20.2	22.1	21.1	19.6	19.6	21.6	22.8	23.8	27.8	31.6	27.6	29.5	31.2	29.1	29.9	26.7	27.3	24.7	23.7	17.3	10.3	5.4	-2.4

10130 Adella South Gate
Contribution spectra - 001 - 10130 Adella South Gate: Outdoor SP

Source	Time slice	Sum	25Hz	31.5Hz	40Hz	50Hz	63Hz	80Hz	100Hz	125Hz	160Hz	200Hz	250Hz	315Hz	400Hz	500Hz	630Hz	800Hz	1kHz	1.25kHz	1.6kHz	2kHz	2.5kHz	3.15kHz	4kHz	5kHz	6.3kHz	8kHz	10kHz	12.5kHz	16kHz
		dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
HVAC (4)	Leq,d	37.6	-13.0	-6.9	-2.9	10.1	15.0	9.0	18.2	20.2	19.1	17.1	17.2	19.1	20.3	21.3	25.2	29.6	25.5	27.5	29.3	27.1	27.9	24.6	25.1	22.4	21.2	14.4	6.9	1.3	-7.4
HVAC (4)	Leq,d	28.2	-23.0	-17.0	-13.0	0.0	4.9	-1.1	7.2	9.1	8.1	6.5	6.5	8.4	9.7	10.7	14.6	20.7	16.6	18.5	20.6	18.2	18.7	14.8	14.5	10.4	7.2	-2.6	-14.5	-26.2	-43.2
HVAC (4)	Leq,d	31.1	-21.0	-14.9	-10.9	2.0	9.5	3.5	12.2	14.2	13.1	9.5	9.6	11.5	12.8	13.8	17.7	23.4	19.3	21.2	23.2	20.9	21.6	17.9	18.0	14.5	12.1	3.6	-6.5	-15.5	-29.0
HVAC (5)	Leq,d	10.4	-28.6	-23.6	-20.5	-8.3	-4.2	-11.3	-3.6	-2.4	-4.2	-6.7	-7.1	-5.5	-4.8	-4.1	-0.4	2.1	-2.4	-0.8	1.1	-1.5	-1.2	-5.2	-5.6	-9.6	-12.4	-21.4	-31.8	-41.0	-54.3
HVAC (5)	Leq,d	20.9	-27.6	-22.5	-19.3	-7.6	-4.0	-10.8	-3.2	-2.2	-4.1	-5.6	-5.8	-4.1	-3.3	-2.4	1.4	3.4	-0.9	0.8	2.8	12.6	15.8	12.4	12.9	9.9	8.5	-0.3	-11.3	-21.5	-36.6
HVAC (5)	Leq,d	17.2	-27.0	-21.7	-18.6	-6.4	-2.3	-9.2	-1.3	-0.2	-2.1	-5.5	-6.2	-4.8	-4.3	-3.8	-0.4	2.9	-1.8	-0.5	1.1	10.8	11.4	7.8	7.8	4.2	1.8	-5.0	-15.6	-25.2	-40.1
HVAC (5)	Leq,d	3.4	-36.9	-32.3	-29.8	-17.0	-13.5	-20.8	-13.6	-12.3	-13.7	-14.3	-14.4	-12.5	-11.6	-10.7	-6.8	-4.9	-9.1	-7.3	-5.2	-7.7	-7.3	-11.4	-12.0	-16.4	-20.2	-30.7	-43.7	-56.7	-75.2
HVAC (5)	Leq,d	6.2	-34.0	-29.3	-26.6	-14.3	-10.5	-17.8	-10.5	-9.2	-10.7	-11.4	-11.5	-9.7	-8.8	-7.8	-4.0	-2.0	-6.2	-4.5	-2.4	-4.8	-4.5	-8.6	-9.2	-13.6	-17.2	-27.4	-39.8	-51.9	-69.1
HVAC (5)	Leq,d	8.6	-32.0	-26.7	-23.6	-11.3	-7.6	-14.8	-7.3	-6.2	-8.0	-9.0	-9.1	-7.3	-6.5	-5.6	-1.7	0.2	-4.0	-2.2	-0.2	-2.6	-2.2	-6.2	-6.6	-10.7	-13.8	-23.0	-33.9	-43.8	-57.9
Transformer	Leq,d	27.4								27.4																					
Transformer	Leq,d	34.8								34.8																					

10130 Adella South Gate
Contribution level - 001 - 10130 Adella South Gate: Outdoor SP

Source	Source group	Source ty	Tr. lane	Leq,d dB(A)	A dB
Receiver R1 Fl G Lr,lim dB(A) Leq,d 42.1 dB(A)					
HVAC (5)	Default industrial noise	Point		24.3	0.0
HVAC (5)	Default industrial noise	Point		28.1	0.0
HVAC (5)	Default industrial noise	Point		30.2	0.0
HVAC (5)	Default industrial noise	Point		34.3	0.0
HVAC (5)	Default industrial noise	Point		38.1	0.0
HVAC (5)	Default industrial noise	Point		35.6	0.0
HVAC (4)	Default industrial noise	Point		4.4	0.0
HVAC (4)	Default industrial noise	Point		6.9	0.0
HVAC (4)	Default industrial noise	Point		11.4	0.0
HVAC (4)	Default industrial noise	Point		11.9	0.0
HVAC (4)	Default industrial noise	Point		8.6	0.0
HVAC (4)	Default industrial noise	Point		3.2	0.0
Transformer	Default industrial noise	Point		8.9	0.0
Transformer	Default industrial noise	Point		31.3	0.0
Receiver R2 Fl G Lr,lim dB(A) Leq,d 42.7 dB(A)					
HVAC (5)	Default industrial noise	Point		37.8	0.0
HVAC (5)	Default industrial noise	Point		39.4	0.0
HVAC (5)	Default industrial noise	Point		34.1	0.0
HVAC (5)	Default industrial noise	Point		29.0	0.0
HVAC (5)	Default industrial noise	Point		26.8	0.0
HVAC (5)	Default industrial noise	Point		23.2	0.0
HVAC (4)	Default industrial noise	Point		8.6	0.0
HVAC (4)	Default industrial noise	Point		8.8	0.0
HVAC (4)	Default industrial noise	Point		8.8	0.0
HVAC (4)	Default industrial noise	Point		6.9	0.0
HVAC (4)	Default industrial noise	Point		0.5	0.0
HVAC (4)	Default industrial noise	Point		9.1	0.0
Transformer	Default industrial noise	Point		13.6	0.0
Transformer	Default industrial noise	Point		10.9	0.0
Receiver R3 Fl G Lr,lim dB(A) Leq,d 32.9 dB(A)					
HVAC (5)	Default industrial noise	Point		2.1	0.0
HVAC (5)	Default industrial noise	Point		3.3	0.0
HVAC (5)	Default industrial noise	Point		5.8	0.0
HVAC (5)	Default industrial noise	Point		9.4	0.0
HVAC (5)	Default industrial noise	Point		14.8	0.0
HVAC (5)	Default industrial noise	Point		32.2	0.0
HVAC (4)	Default industrial noise	Point		3.0	0.0
HVAC (4)	Default industrial noise	Point		5.1	0.0
HVAC (4)	Default industrial noise	Point		8.5	0.0

Source	Source group	Source ty	Tr. lane	Leq,d dB(A)	A dB
HVAC (4)	Default industrial noise	Point		11.0	0.0
HVAC (4)	Default industrial noise	Point		22.7	0.0
HVAC (4)	Default industrial noise	Point		-0.2	0.0
Transformer	Default industrial noise	Point		4.4	0.0
Transformer	Default industrial noise	Point		12.7	0.0
Receiver R4 Fl G Lr,lim dB(A) Leq,d 39.3 dB(A)					
HVAC (5)	Default industrial noise	Point		29.3	0.0
HVAC (5)	Default industrial noise	Point		10.2	0.0
HVAC (5)	Default industrial noise	Point		6.6	0.0
HVAC (5)	Default industrial noise	Point		6.8	0.0
HVAC (5)	Default industrial noise	Point		3.2	0.0
HVAC (5)	Default industrial noise	Point		0.4	0.0
HVAC (4)	Default industrial noise	Point		15.1	0.0
HVAC (4)	Default industrial noise	Point		12.5	0.0
HVAC (4)	Default industrial noise	Point		7.7	0.0
HVAC (4)	Default industrial noise	Point		5.7	0.0
HVAC (4)	Default industrial noise	Point		1.7	0.0
HVAC (4)	Default industrial noise	Point		38.7	0.0
Transformer	Default industrial noise	Point		14.9	0.0
Transformer	Default industrial noise	Point		10.1	0.0
Receiver R5 Fl G Lr,lim dB(A) Leq,d 44.8 dB(A)					
HVAC (5)	Default industrial noise	Point		17.2	0.0
HVAC (5)	Default industrial noise	Point		20.9	0.0
HVAC (5)	Default industrial noise	Point		10.4	0.0
HVAC (5)	Default industrial noise	Point		8.6	0.0
HVAC (5)	Default industrial noise	Point		6.2	0.0
HVAC (5)	Default industrial noise	Point		3.4	0.0
HVAC (4)	Default industrial noise	Point		39.8	0.0
HVAC (4)	Default industrial noise	Point		38.4	0.0
HVAC (4)	Default industrial noise	Point		33.6	0.0
HVAC (4)	Default industrial noise	Point		31.1	0.0
HVAC (4)	Default industrial noise	Point		28.2	0.0
HVAC (4)	Default industrial noise	Point		37.6	0.0
Transformer	Default industrial noise	Point		34.8	0.0
Transformer	Default industrial noise	Point		27.4	0.0

10130 Adella South Gate
Octave spectra of the sources in dB(A) - 001 - 10130 Adella South Gate: Outdoor SP

Name	Source type	I or A m,m²	Li dB(A)	Rw dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Day histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)	16kHz dB(A)
HVAC (4)	Point				79.0	79.0	0.0	0.0		0	100%/24h	HVAC: 67.7dB @ 3ft - Carrier 50TFQ0006 -	55.3	64.1	66.9	71.7	73.4	73.2	70.2	65.8	54.1
HVAC (4)	Point				79.0	79.0	0.0	0.0		0	100%/24h	HVAC: 67.7dB @ 3ft - Carrier 50TFQ0006 -	55.3	64.1	66.9	71.7	73.4	73.2	70.2	65.8	54.1
HVAC (4)	Point				79.0	79.0	0.0	0.0		0	100%/24h	HVAC: 67.7dB @ 3ft - Carrier 50TFQ0006 -	55.3	64.1	66.9	71.7	73.4	73.2	70.2	65.8	54.1
HVAC (4)	Point				79.0	79.0	0.0	0.0		0	100%/24h	HVAC: 67.7dB @ 3ft - Carrier 50TFQ0006 -	55.3	64.1	66.9	71.7	73.4	73.2	70.2	65.8	54.1
HVAC (4)	Point				79.0	79.0	0.0	0.0		0	100%/24h	HVAC: 67.7dB @ 3ft - Carrier 50TFQ0006 -	55.3	64.1	66.9	71.7	73.4	73.2	70.2	65.8	54.1
HVAC (4)	Point				79.0	79.0	0.0	0.0		0	100%/24h	HVAC: 67.7dB @ 3ft - Carrier 50TFQ0006 -	55.3	64.1	66.9	71.7	73.4	73.2	70.2	65.8	54.1
HVAC (5)	Point				80.0	80.0	0.0	0.0		0	100%/24h	HVAC: 67.7dB @ 3ft - Carrier 50TFQ0006 -	56.3	65.1	67.9	72.7	74.4	74.2	71.2	66.8	55.1
HVAC (5)	Point				80.0	80.0	0.0	0.0		0	100%/24h	HVAC: 67.7dB @ 3ft - Carrier 50TFQ0006 -	56.3	65.1	67.9	72.7	74.4	74.2	71.2	66.8	55.1
HVAC (5)	Point				80.0	80.0	0.0	0.0		0	100%/24h	HVAC: 67.7dB @ 3ft - Carrier 50TFQ0006 -	56.3	65.1	67.9	72.7	74.4	74.2	71.2	66.8	55.1
HVAC (5)	Point				80.0	80.0	0.0	0.0		0	100%/24h	HVAC: 67.7dB @ 3ft - Carrier 50TFQ0006 -	56.3	65.1	67.9	72.7	74.4	74.2	71.2	66.8	55.1
HVAC (5)	Point				80.0	80.0	0.0	0.0		0	100%/24h	HVAC: 67.7dB @ 3ft - Carrier 50TFQ0006 -	56.3	65.1	67.9	72.7	74.4	74.2	71.2	66.8	55.1
HVAC (5)	Point				80.0	80.0	0.0	0.0		0	100%/24h	HVAC: 67.7dB @ 3ft - Carrier 50TFQ0006 -	56.3	65.1	67.9	72.7	74.4	74.2	71.2	66.8	55.1
Transformer	Point				77.0	77.0	0.0	0.0		0	100%/24h			77.0							
Transformer	Point				77.0	77.0	0.0	0.0		0	100%/24h			77.0							

Appendix E

Stationary Equipment

50PG03−14
Ultra High Efficiency Single Package Electric Cooling with Optional Electric Heat Commercial Rooftop Units with Puron® (R−410A) Refrigerant, Optional EnergyX™ (Energy Recovery Ventilator)
2 to 12.5 Nominal Tons

Carrier
turn to the experts™

Not equipment being used, but a similar assumption

Product Data

CENTURION

DEALER DESIGN AWARDS
the NEWS | GOLD

BUILDINGS magazine
Editors' Choice
TOP 100 PRODUCTS
2005

Puron®
the environmentally sound refrigerant

AHRI* CAPACITY RATINGS

50PG03-14

UNIT 50PG	NOMINAL CAPACITY (Tons)	NET COOLING CAPACITY (Btuh)	TOTAL POWER (kW)	SEER	EER†	SOUND RATING (dB)	IEER
03	2.0	24,000	2.1	14.1	11.5	75	—
04	3.0	35,800	3.1	14.1	11.7	73	—
05	4.0	47,500	4.0	15.0	12.2	72	—
06	5.0	58,500	4.9	14.8	12.2	78	—
07	6.0	69,000	5.8	—	12.2	78	13.0
08	7.5	88,000	7.0	—	12.7	80	13.5
09	8.5	102,000	8.4	—	12.4	80	13.4
12	10.0	119,000	9.9	—	12.2	80	13.0
14	12.5	150,000	13.2	—	11.5	83	11.6

LEGEND
EER – Energy Efficiency Ratio
SEER – Seasonal Energy Efficiency Ratio

*Air Conditioning, Heating and Refrigeration Institute.
† AHRI does not require EER ratings for units with capacity below 65,000 Btuh.

NOTES:
1. Tested in accordance with AHRI Standards 210–94 (sizes 03–12), 360–93 (size 14).
2. Ratings are net values, reflecting the effects of circulating fan heat.
3. Ratings are based on:
Cooling Standard: 80°F db, 67°F wb indoor entering–air temperature and 95°F db air entering outdoor unit.
IPLV Standard: 80°F db, 67°F wb indoor entering–air temperature and 80°F db outdoor entering–air temperature.
4. All 50PG units are in compliance with Energy Star® and ASHRAE 90.1 2010 Energy Standard for minimum SEER and EER requirements.
5. Units are rated in accordance with AHRI sound standards 270 or 370.
6. Per AHRI, Integrated Energy Efficiency Ratio (IEER) became effective beginning January 1, 2010. Integrated Part–Load Value (IPLV) was superseded by IEER on January 1, 2010. IEER is intended to be a measure of merit for the part load performance of the unit. Each building may have different part load performance due to local occupancy schedules, building construction, building location and ventilation requirements. For specific building energy analysis, an hour–by–hour analysis program should be used.

AHRI CERTIFIED™ www.ahridirectory.org

Use of the AHRI Certified TM Mark indicates a manufacturer's participation in the program For verification of certification for individual products, go to www.ahridirectory.org.

Appendix F

Construction Noise and Vibration Calculations

Receptor - Residences to the South

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Edge of Site to Receptor, feet	Center of Site to Receptor, feet	Item Usage Percent[1]	Ground Factor[2]	Usage Factor	Receptor Item Lmax, dBA	Recptor. Item Leq, dBA	Leq with 15 dB Reduction
GRADE										
Grader	1	85	30	115	40	0	0.40	89.4	73.8	58.8
Paver	1	77	30	115	50	0	0.50	81.4	66.8	51.8
Roller	1	80	30	115	20	1	0.20	86.7	62.2	47.2
							Log Sum	89.4	74.8	59.8
BUILD										
Crane	1	81	30	115	16	0	0.16	85.4	65.8	50.8
Grader	1	85	30	115	40	0	0.40	89.4	73.8	58.8
Paver	1	77	30	115	50	0	0.50	81.4	66.8	51.8
Roller	2	80	30	115	20	0	0.20	84.4	65.8	50.8
Slurry Trenching Machine	1	80	30	115	50	0	0.50	84.4	69.8	54.8
Tractor	1	84	30	115	40	0	0.40	88.4	72.8	57.8
								89.4	78.4	63.4
PAVE										
Paver	1	77	30	115	50	0	0.50	81.4	66.8	51.8
Grader	1	85	30	115	40	0	0.40	89.4	73.8	58.8
Roller	2	80	30	115	20	0	0.20	84.4	65.8	50.8
Slurry Trenching Machine	1	80	30	115	50	0	0.50	84.4	69.8	54.8
								89.4	76.6	61.6
ARCH COAT										
Compressor (air)	1	78	30	115	40	0	0.40	82.4	66.8	51.8
								82.4	66.8	51.8

[1]FHWA Construction Noise Handbook: Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

[2]FTA Transit Noise and Vibration Impact Assesment Manual Section 7.1, 0.66 for soft ground and 0 for hard ground

VIBRATION LEVEL IMPACT

Project:	54-Unit Multi-Family Housing	Date: 3/7/25
Source:	Vibratory Roller	
Scenario:	Unmitigated	
Location:	South Residential Buildings	
Address:	Adella Ave, South Gate	
PPV = PPVref(25/D)^n (in/sec)		

DATA INPUT

Equipment = Type	1	Vibratory Roller	INPUT SECTION IN BLUE
PPVref =	0.21	Reference PPV (in/sec) at 25 ft.	
D =	30.00	Distance from Equipment to Receiver (ft)	
n =	1.10	Vibration attenuation rate through the ground	

Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.

DATA OUT RESULTS

PPV =	**0.172**	IN/SEC	OUTPUT IN RED

Appendix G

Construction Noise Mitigation Plan

Construction Noise Management Plan
54-Unit Multi-Family Housing
10130 Adella Avenue, South Gate, CA

In compliance with Goal N.1 of the City of South Gate's General Plan Noise Element, the following noise reduction methods will be implemented during construction of the 54-Unit Multi-Family Housing project located at 10130 Adella Avenue, South Gate, CA:

1. Construction will occur during the permissible hours as defined in Policy N.1 of the City's Noise Element.
2. During construction, the contractor will ensure that all construction equipment is reduced by at least 15 dB, by ensuring that construction equipment is equipped with appropriate noise-attenuating devices that muffle heavy equipment, and/or that diesel equipment is replaced by electric equipment.
3. The contractor will locate equipment staging areas as far as possible, away from the sensitive receptors.
4. Idling equipment will be turned off when not in use.
5. Equipment will be maintained so that vehicles and their loads are secured from rattling and banging.

In the event that complaints arise resulting from excessive noise emanating from the 54-Unit Multi-Family Housing construction job-site, the following procedures are provided for the 54-Unit Housing project and the City of South Gate to receive and address neighborhood noise concerns.

1. Developer and City contact information will be provided for any noise complaints that may arise. Developer is available by phone and email, when not in person on site. Contact information will also be available on site.
2. Upon receipt of a noise complaint, the Construction Site Manager will document the date and time of complaint in a log. The Construction Site Manager will then work to identify the source of noise.
3. Once the source of the noise has been identified as generated from the project site and exceeds allowable noise levels, the Construction Site Manager will cease operations of that specific activity in order to determine what can be done to mitigate said noise in consultation with a Noise Consultant.
4. Noise will be lessened, and the Construction Site Manager will take necessary steps to resolve.

5. Within 1 business day, the Construction Site Manager will follow up with the concerned parties to update them on the status of resolution where feasible.

6. Within 1 business day, the Construction Site Manager will reach out to the City of South Gate Contact to apprise them of noise complaints received, and proposed steps to address or resolve the complaint.

   * If five (5) or more noise complaints have been filed within the span of one half hour and the specific noise source cannot be identified, the Construction Site Manager shall cease all operations and identify the noise source prior to recommencing all operations.

   I, the developer, acknowledge and understand that noncompliance with this Construction Noise Complaint Plan as well as the City of South Gate's noise regulations shall result in a stop work notice and/or administrative citations.

Appendix D – Preliminary Hydrology Report

PRELIMINARY HYDROLOGY & HYDRAULICS STUDY
TENTATIVE TRACT MAP No. 84531
10130 Adella Avenue
South Gate, California

Project Address:

10130 Adella Avenue
South Gate, Ca 90280

Prepared For:

City Ventures
3121 Michelson Drive, Ste. 150
Irvine, CA 92612
Nick Patterson, Director of Development
(763) 244-9855

Prepared By:

C&V Consulting Inc.
9830 Irvine Center Dr.
Irvine, CA 92618
Dane McDougall, P.E.
Project Manager
(949) 916-3800

Prepared:
January 2025

TABLE OF CONTENTS

Preliminary Hydrology & Hydraulics Study
for
Tentative Tract Map No. 84531
10130 Adella Avenue
South Gate, Ca

<u>ACKNOWLEDGEMENT AND SIGNATURE PAGE</u>

This Preliminary Hydrology & Hydraulics Study was prepared by C&V Consulting, Inc. under the supervision of Dane McDougall, P.E.

_________________________________ ____________
Dane McDougall, P.E. 80705 Date
Principal, C&V Consulting, Inc.

1.0 SITE DESCRIPTION:

The proposed project is located at 10130 Adella Avenue in the city of South Gate. It consists of six (6) buildings providing fifty-four (54) dwelling units over approximately 2.01 acres. The proposed development includes drive aisles, parking, landscaping, and walkways. The site is bound by Legacy Lane and Legacy High School to the north, Adella Avenue to the west, single family homes to the south, and a trucking company to the east. The project site will be accessible with three (3) entrances/ exits.

2.0 PURPOSE OF STUDY:

The preliminary hydrology study will determine the amount of stormwater runoff generated from the project site in the existing and proposed conditions. This study will anticipate whether detention or other peak flow mitigation methods will be required by comparing the proposed and existing condition peak flow rates for the 25- and 100-year storm events.

3.0 EXISTING CONDITIONS:

The site is relatively flat and currently vacant. Historic aerial images of the site are available as far back as 1954 and indicate the site and surrounding area was comprised of commercial structures and associated parking lots. By 2018, most of the surrounding commercial buildings to the north were demolished and Legacy Lane was constructed, leaving the commercial structure located on the subject site. By 2020, the structure and associated parking lot was demolished, leaving the subject site vacant. For this analysis, the pre-developed land use will be considered to be Commercial which is 90% impervious according to the LACDPW Hydrology Manual.

The site is relatively flat with elevations ranging from approximately 95.5 to 98.9 feet above mean sea level. Existing site drainage is primarily directed as sheet flow from the east side towards the surrounding streets in the vicinity of the site. The runoff continues along the curb and gutter south in Adella Avenue to Blumont Road where it continues south to Brookdale Road where it flows east into a catch basin. The runoff can be presumed to discharge into the US Army Corp of Engineer maintained Los Angeles River Channel east of the site; The Los Angeles River ultimately discharges to the Pacific Ocean at San Pedro Bay.

Refer to the “Existing Conditions Hydrology Map” located within Appendix C of this study for more information.

4.0 PROPOSED CONDITIONS:

The proposed project consists of six (6) buildings providing fifty-four (54) dwelling units over approximately 2.01 acres. It includes drive aisles, parking, landscaping, and walkways. The project will utilize onsite grated inlet catch basins equipped with FloGard inlet filters for water quality purposes and an infiltration trench for capture and treatment of stormwater.

Stormwater runoff will be conveyed to surface flow via the proposed onsite curb and gutter and directed to the sump areas equipped with grated inlet catch basins located near the driveway entrances/ exits of the site as the site is graded to flow towards those areas. The catch basins will be connected by a storm drain pipe to convey the runoff towards the infiltration trench downstream for water quality treatment and infiltration. During larger storm events when the infiltration system is at capacity, stormwater runoff will back up into the catch basin and overflow through a parkway drain into the public right of way. The overflow pipe will be at an elevation to ensure full water quality volume is being treated prior to the outlet to the parkway drain. After entering Legacy Lane, the stormwater will surface flow following historic drainage patterns into an existing catch basin that flows into the Los Angeles River and ultimately the Pacific Ocean.

For this study, post-development impervious cover was estimated to be 85% per LACDPW Hydrology Manual land use type “Low-Rise Apartments, Condominiums, and Townhouses”. Imperviousness is to be verified with final site plan to confirm the consistency of the water quality treatment design during final engineering.

Refer to separately prepared Preliminary Grading and Utility Plans for site design information.

During final engineering, water surface elevation will be analyzed and provided to verify all habitable structures will have at least a 1 foot of freeboard during the 100-year storm event.

According to the Federal Emergency Management Agency (FEMA), FIRM rate map Number 06037C1810F, revised September 26, 2008, the site is located within the flood zone as follows: Zone X – *“Areas with reduced flood risk due to levee”*

The “Proposed Conditions Preliminary Hydrology Map” is included in Appendix D for reference.

5.0 METHODOLOGY:

The site was analyzed using the Los Angeles County Department of Public Works Hydrology Manual. The initial subarea was analyzed for acreage, land-use, soil type, peak flow rate and time of concentration according to the Rational Method described in the manual.

In this preliminary hydrology study, the proposed condition impervious area percentage values were conservative estimation from the LA County Hydrology Manual. During final engineering, impervious areas will be calculated in more detail to refine all peak flow rates.

In accordance with the Los Angeles County Department of Public Works Hydrology Manual all habitable structures must have a finished floor elevation to allow 1 ft of freeboard during the 100-year storm event. Catch basin, pipe sizing and 100-year water surface elevation calculations will be provided during final engineering.

6.0 RESULTS:

Hydrology Summary

Pre-Developed Hydrology Summary							
Area ID	**Total Area (AC)**	**Pervious Area (AC)**	**Pervious (%)**	**Impervious Area (AC)**	**Impervious (%)**	**Q25 (CFS)**	**Q100 (CFS)**
X1	2.01	0.2	10%	1.81	90%	5.43	7.01
TOTAL	**2.01**	**0.2**	**10%**	**1.81**	**90%**	**5.43**	**7.01**

Post-Developed Hydrology Summary							
Area ID	**Total Area (AC)**	**Pervious Area (AC)**	**Pervious (%)**	**Impervious Area (AC)**	**Impervious (%)**	**Q25 (CFS)**	**Q100 (CFS)**
A1	0.59	0.09	15.0%	0.50	85.0%	1.55	2.01
A2	0.75	0.11	15.0%	0.64	85.0%	1.97	2.56
A3	0.67	0.10	15.0%	0.57	85.0%	1.76	2.28
TOTAL	**2.01**	**0.30**	**15.0%**	**1.71**	**85.0%**	**5.28**	**6.85**

Percent Change:
Δ25-year peak storm flow = -2.76% change
Δ100-year peak storm flow = -2.28% change

Refer to Appendix C, D, & E of this report for additional information shown in the LACDPW HydroCalc output data, as well as the pre-developed and post-developed hydrology maps.

Detention Sizing
The proposed conditions peak flow rates for the Q25 and Q100 storm events is lesser than the peak flow rate of the existing conditions, detention storage is not required for mitigation purposes. Infiltration trenches are sized to detain and infiltrate the water quality volume.

Catch Basin Sizing
Catch basin sizing was analyzed for the 25-year storm event peak flow rates. Refer to Appendix G, Hydraulic Calculations for catch basin sizing.

Pipe Sizing

Onsite storm drain piping will be sized for the 25-year storm event and will be analyzed based on open channel flow. Therefore, WSPG hydraulic pressure analysis is not warranted.

$Q = \frac{k'}{n} d^{8/3} S^{1/2}$ per King's Handbook

k' = 0.463
d = pipe diameter

n=0.013*
S=0.005

Pipe Diameter	Max. Q (cfs)
8"	0.854
12"	2.518
15"	4.566
18"	7.425
24"	15.991
36"	47.146

n=0.013*
S=0.010

Pipe Diameter	Max. Q (cfs)
8"	1.208
12"	3.562
15"	6.457
18"	10.501
24"	22.614
36"	66.675

*A Manning's Roughness Coefficient of 0.013 has been utilized to represent the roughness coefficient of PVC and/or HDPE piping.

100-Year Water Surface Elevations

Water surface elevations for the 100-year storm event peak flow rates will verify that the proposed finish floor elevations are set at least 1' above the water surface elevation and will be calculated and provided during final engineering.

7.0 CONCLUSION:

The results from this preliminary hydrology study utilizing Los Angeles County Department of Public Works Hydrology Manual demonstrate that the proposed condition peak flow rates for the 25- and 100-year storm events decrease compared to the existing condition peak flow as indicated in the hydrology summary results in Section 6 of this report. This is mainly due to the increase in pervious cover and low time of concentration for the proposed development. During final engineering, impervious area for proposed conditions will be calculated in more detail based on the finalized landscape plan. Proposed infiltration facilities will be for water quality treatment only.

The proposed development will be graded to allow for three (3) low points on the site equipped with a grate inlet catch basins. These catch basins will be connected to the infiltration trench for water quality treatment. A total volume of 5080 cft was determined as the required water quality treatment volume and the infiltration trench is sized to statically detain 5198 cft of runoff. Refer to separate LID report for additional information. During larger storm events when the infiltration system is at capacity, stormwater runoff will back up into the catch basin and overflow through a parkway drain into the public right of way. The overflow pipe will be at an elevation to ensure full water quality volume is being treated prior to the outlet to the parkway drain. After entering Legacy Lane, the stormwater will surface flow following historic drainage patterns into an existing catch basin that flows into the Los Angeles River and ultimately the Pacific Ocean.

8.0 DESIGN ASSUMPTIONS:

1. The property is in the City of South Gate, Los Angeles County rainfall region.

2. 100-year storm event flood level protection analysis required for habitable structures per the requirements of the Los Angeles County Department of Public Works Hydrology Manual

3. According to the Los Angeles County Department of Public Works Hydrology Manual 50-Year 24-Hour Isohyet Map 1-H1.9, the drainage area is in Soil Group 015, the site receives 6.05 inches of rainfall over a 24-Hr storm (Q_{50}).

4. The LACDPW HydroCalc was utilized to determine the time of concentration, run-off flow rate and run-off volume for site.

5. The site was analyzed for a 25 and 100-year storm events per the requirements of the January 2006 Los Angeles County Department of Public Works Hydrology Manual. The Rational Method Analysis was performed, and the appropriate calculations are provided herein.

6. Existing Site imperviousness was approximated to be 90% based on the LACDPW Hydrology Manual for “Commercial” land use type.

7. The proposed site was assumed to be approximately 85% based on the LACDPW Hydrology Manual for “Low-Rise Apartments, Condominiums, and Townhouses” land use type.

9.0 REFERENCES:

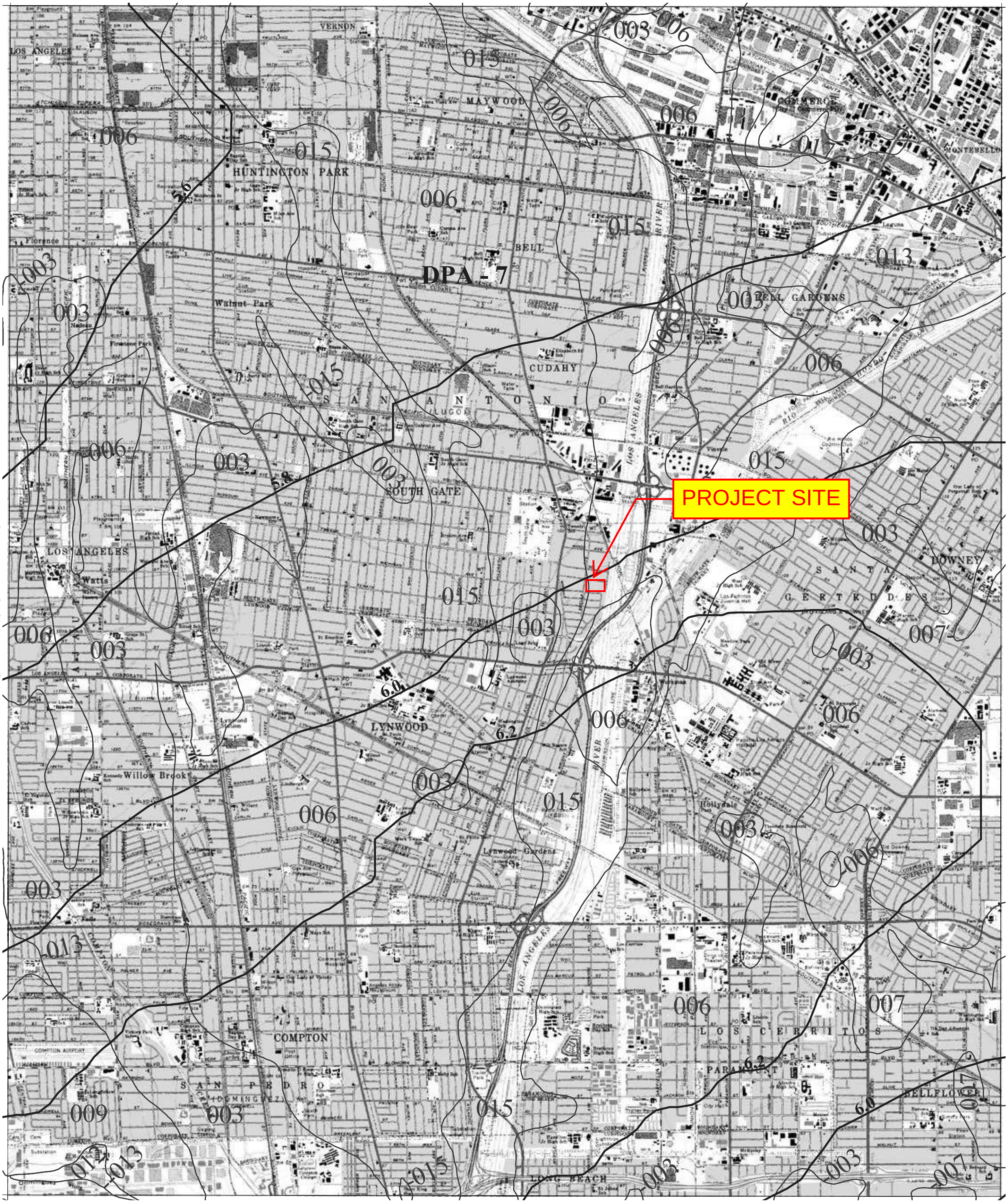
1. Los Angeles County Department of Public Works, “Hydrology Manual”, January 2006.
2. Los Angeles County Department of Public Works, “HydroCalc” Outputs and Data
3. Hydraflow Express Extensions for Civil 3D 2021.
4. Existing and Proposed Hydrology Maps for Tentative Tract No. 84531, prepared by C&V Consulting, Inc., January 2025.
5. Project plans and specifications for Tentative Tract Map 84531, prepared by C&V Consulting, Inc. January 2025.

APPENDIX A
VICINITY MAP

VICINITY MAP

N.T.S

APPENDIX B
South Gate Isohyet Map



016 SOIL CLASSIFICATION AREA

7.2 INCHES OF RAINFALL

DPA - 6 DEBRIS POTENTIAL AREA

N S E W

1 0 1 2 Miles

25-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.878
10-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.714

SOUTH GATE
50-YEAR 24-HOUR ISOHYET

1-H1.9

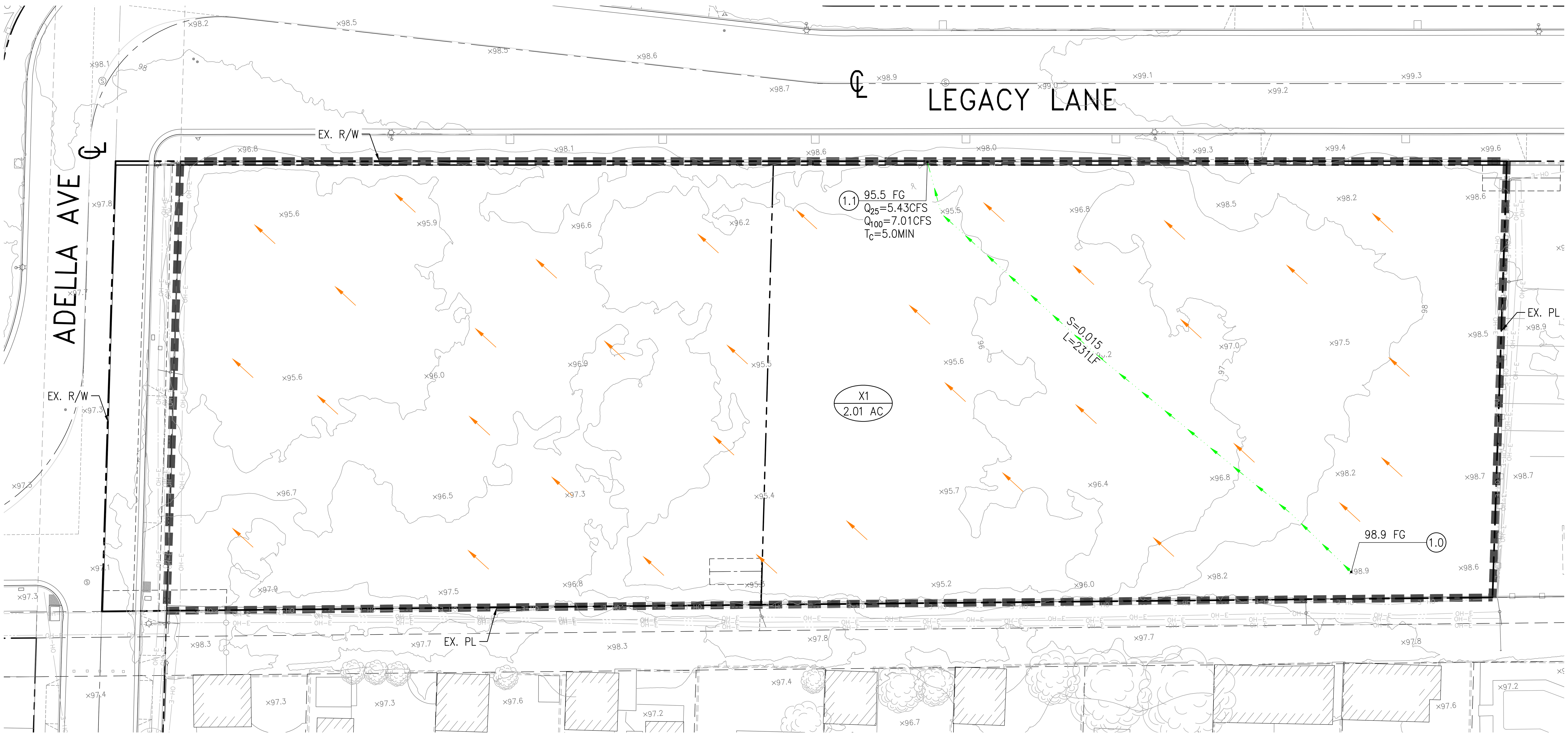
LOS ANGELES COUNTY PUBLIC WORKS Public Service That Works

APPENDIX C
Preliminary Pre-Development Hydrology Map

PRE-DEVELOPMENT HYDROLOGY MAP
FOR TENTATIVE TRACT NO. 84531

10130 ADELLA AVENUE
CITY OF SOUTH GATE
COUNTY OF LOS ANGELES

VICINITY MAP
N.T.S



LEGEND

- EXISTING RIGHT-OF-WAY/ BOUNDARY
- PROPOSED PROPERTY LINE
- DRAINAGE MANAGEMENT AREA (DMA)
- PROPOSED STORM DRAIN
- DRAINAGE FLOW ARROWS
- SURFACE FLOW PATH
- PIPE FLOW PATH
- PROPOSED CATCH BASIN
- DMA X / X.XX AC — DRAINAGE MANAGEMENT AREA (DMA)
- PERVIOUS AREA
- INITIAL SUBAREA NODE
- SPOT ELEVATION 00.00
- Q_{25} =X.XX CFS — PEAK RUNOFF IN CUBIC FEET PER SECOND (CFS)
- Tc=X.X MIN — TIME OF CONCENTRATION IN MINUTES (MIN) PROVIDED FOR 100-YR STORM EVENT

SCALE: 1" = 20'

0 10 20 40

PREPARED BY:			
REGISTERED PROFESSIONAL ENGINEER DANE P. MCDOUGALL C 80705 CIVIL STATE OF CALIFORNIA C&V CONSULTING, INC. CIVIL ENGINEERING LAND PLANNING & SURVEYING 9830 IRVINE CENTER DRIVE IRVINE, CALIFORNIA 92618 (949) 916-3800 INFO@CVC-INC.NET WWW.CVC-INC.NET	CITY OF SOUTH GATE DEPARTMENT OF PUBLIC WORKS/ ENGINEERING	PROJECT NO. CVEN-180	
	VESTING TENTATIVE TRACT MAP NO. 84531 PRE-DEVELOPMENT HYDROLOGY MAP 10130 ADELLA AVENUE SOUTH GATE, CALIFORNIA 90280	SHEET 1 OF 1	PLAN SET: PS01 DATE: 1/16/2025

P:\C\CVEN-180\DWG\SHEETS\EH\EH-P0-01-XHYD.DWG
BY: SARAH MCMASTERS

APPENDIX D
Preliminary Post Development Hydrology Map

POST DEVELOPMENT HYDROLOGY MAP
FOR TENTATIVE TRACT NO. 84531

10130 ADELLA AVENUE
CITY OF SOUTH GATE
COUNTY OF LOS ANGELES

VICINITY MAP
N.T.S

LEGEND

- EXISTING RIGHT-OF-WAY/ BOUNDARY
- PROPOSED PROPERTY LINE
- DRAINAGE MANAGEMENT AREA (DMA)
- PROPOSED STORM DRAIN
- DRAINAGE FLOW ARROWS
- SURFACE FLOW PATH
- PIPE FLOW PATH
- PROPOSED CATCH BASIN
- DMA X / X.XX AC — DRAINAGE MANAGEMENT AREA (DMA)
- PERVIOUS AREA
- INITIAL SUBAREA NODE; SPOT ELEVATION 00.00; Q_{25} =X.XX CFS — PEAK RUNOFF IN CUBIC FEET PER SECOND (CFS); Tc=X.X MIN — TIME OF CONCENTRATION IN MINUTES (MIN) PROVIDED FOR 100-YR STORM EVENT

PREPARED BY:

REGISTERED PROFESSIONAL ENGINEER
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INFO@CVC-INC.NET
WWW.CVC-INC.NET

CITY OF SOUTH GATE DEPARTMENT OF PUBLIC WORKS/ ENGINEERING	PROJECT NO.	CVEN-180
VESTING TENTATIVE TRACT MAP NO. 84531 POST DEVELOPMENT HYDROLOGY MAP 10130 ADELLA AVENUE SOUTH GATE, CALIFORNIA 90280	SHEET 1 OF 1	

APPENDIX E
HYDROLOGY CALCULATIONS

Existing Conditions Hydrology Calculations
(25 & 100-year Storm Events)

Peak Flow Hydrologic Analysis

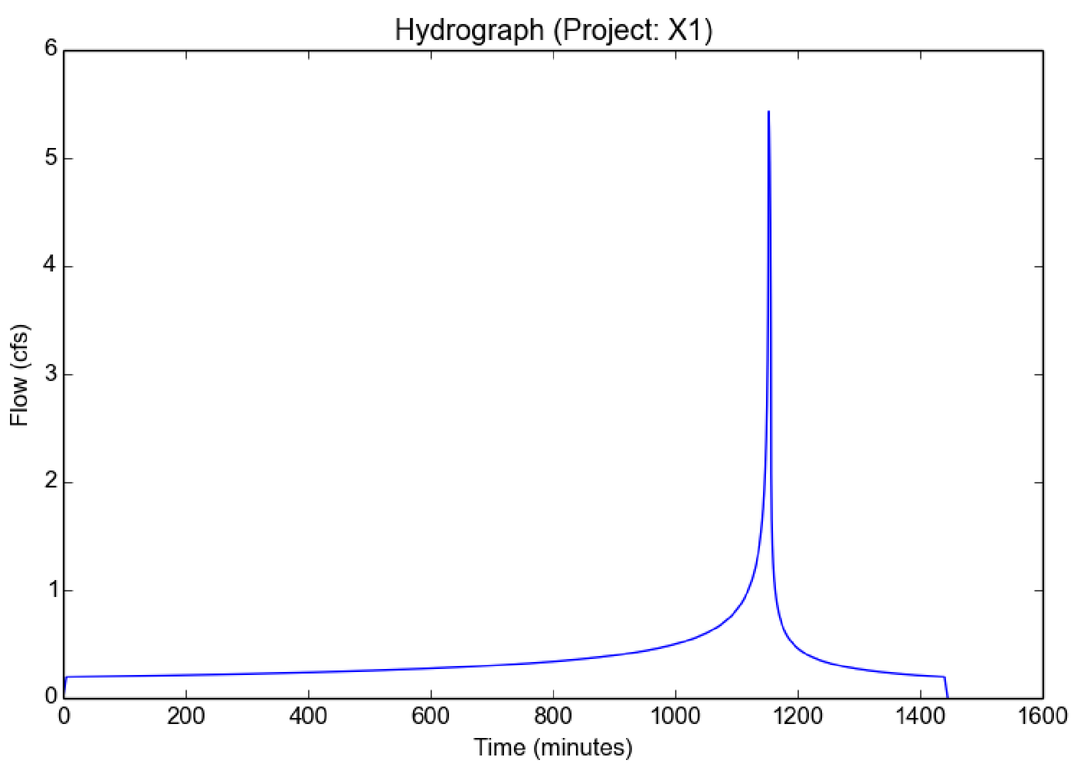
File location: P:/C/CVEN-180/Admin/Reports/Hydrology/Appendix E - Hydrology Calculations/South Gate - X1_Q25.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Project
Subarea ID	X1
Area (ac)	2.01
Flow Path Length (ft)	231.0
Flow Path Slope (vft/hft)	0.015
50-yr Rainfall Depth (in)	6.05
Percent Impervious	0.9
Soil Type	15
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.3119
Peak Intensity (in/hr)	3.1692
Undeveloped Runoff Coefficient (Cu)	0.4268
Developed Runoff Coefficient (Cd)	0.8527
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	5.4317
Burned Peak Flow Rate (cfs)	5.4317
24-Hr Clear Runoff Volume (ac-ft)	0.7251
24-Hr Clear Runoff Volume (cu-ft)	31585.4487



Peak Flow Hydrologic Analysis

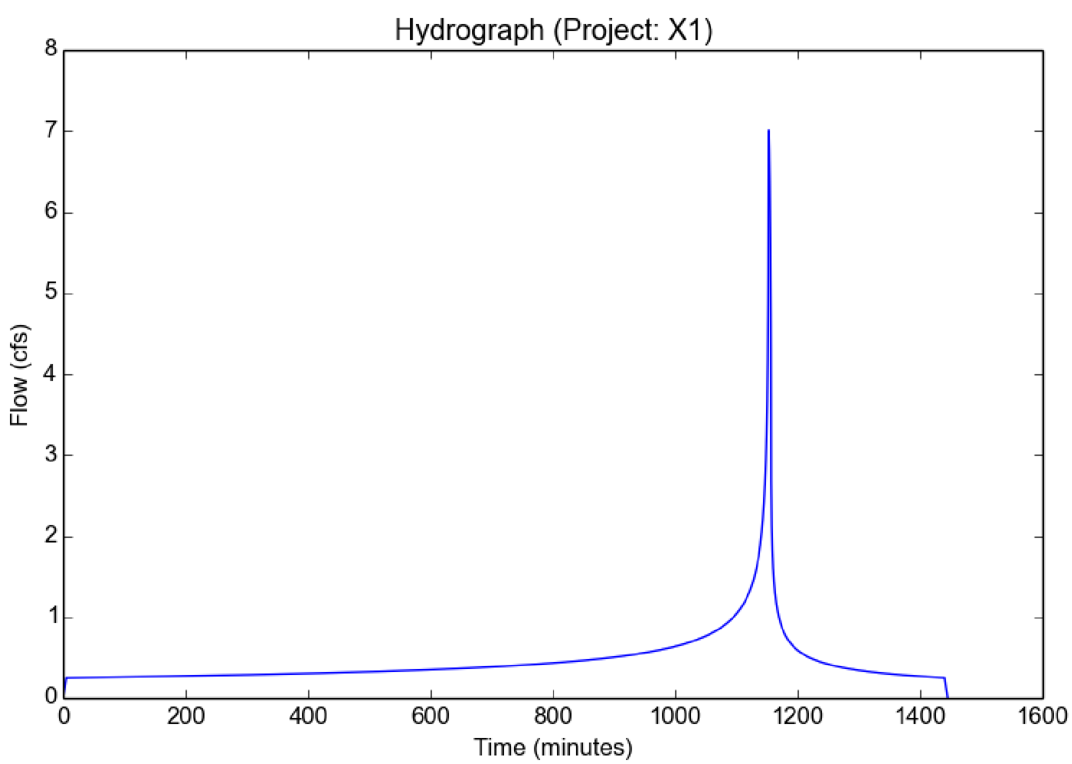
File location: P:/C/CVEN-180/Admin/Reports/Hydrology/Appendix E - Hydrology Calculations/South Gate - X1_Q100.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Project
Subarea ID	X1
Area (ac)	2.01
Flow Path Length (ft)	231.0
Flow Path Slope (vft/hft)	0.015
50-yr Rainfall Depth (in)	6.05
Percent Impervious	0.9
Soil Type	15
Design Storm Frequency	100-yr
Fire Factor	0
LID	False

Output Results

Modeled (100-yr) Rainfall Depth (in)	6.7881
Peak Intensity (in/hr)	4.05
Undeveloped Runoff Coefficient (Cu)	0.5101
Developed Runoff Coefficient (Cd)	0.861
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	7.009
Burned Peak Flow Rate (cfs)	7.009
24-Hr Clear Runoff Volume (ac-ft)	0.9275
24-Hr Clear Runoff Volume (cu-ft)	40400.359



Proposed Conditions Hydrology Calculations
(25 & 100-year Storm Events)

Peak Flow Hydrologic Analysis

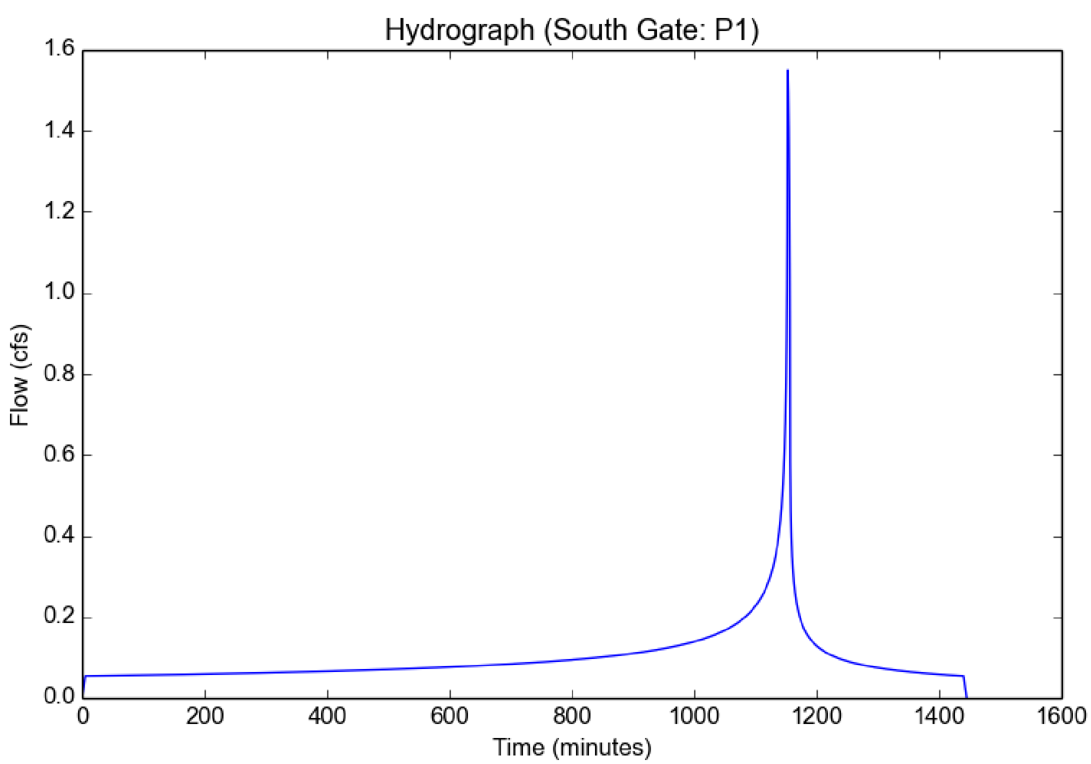
File location: P:/C/CVEN-180/Admin/Reports/Hydrology/South Gate - P1_Q25.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	South Gate
Subarea ID	P1
Area (ac)	0.59
Flow Path Length (ft)	166.32
Flow Path Slope (vft/hft)	0.0109
50-yr Rainfall Depth (in)	6.05
Percent Impervious	0.85
Soil Type	15
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.3119
Peak Intensity (in/hr)	3.1692
Undeveloped Runoff Coefficient (Cu)	0.4268
Developed Runoff Coefficient (Cd)	0.829
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.5501
Burned Peak Flow Rate (cfs)	1.5501
24-Hr Clear Runoff Volume (ac-ft)	0.2027
24-Hr Clear Runoff Volume (cu-ft)	8829.9103



Peak Flow Hydrologic Analysis

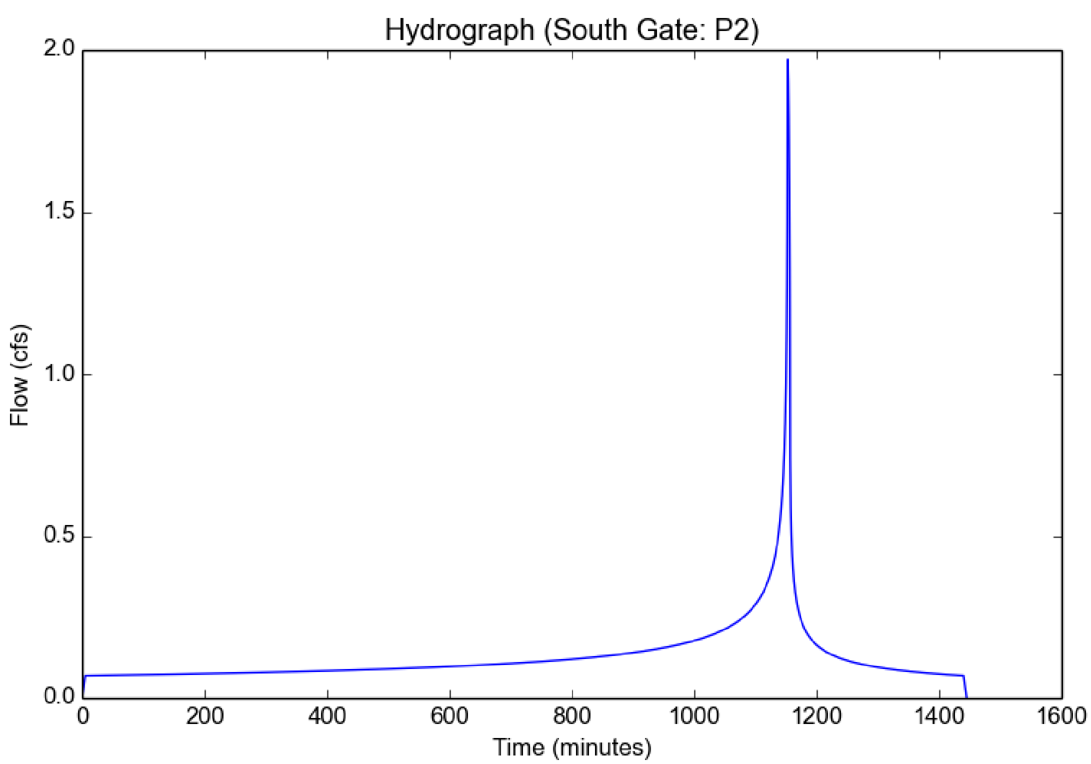
File location: P:/C/CVEN-180/Admin/Reports/Hydrology/South Gate - P2_Q25.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	South Gate
Subarea ID	P2
Area (ac)	0.75
Flow Path Length (ft)	166.91
Flow Path Slope (vft/hft)	0.0109
50-yr Rainfall Depth (in)	6.05
Percent Impervious	0.85
Soil Type	15
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.3119
Peak Intensity (in/hr)	3.1692
Undeveloped Runoff Coefficient (Cu)	0.4268
Developed Runoff Coefficient (Cd)	0.829
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.9705
Burned Peak Flow Rate (cfs)	1.9705
24-Hr Clear Runoff Volume (ac-ft)	0.2577
24-Hr Clear Runoff Volume (cu-ft)	11224.4623



Peak Flow Hydrologic Analysis

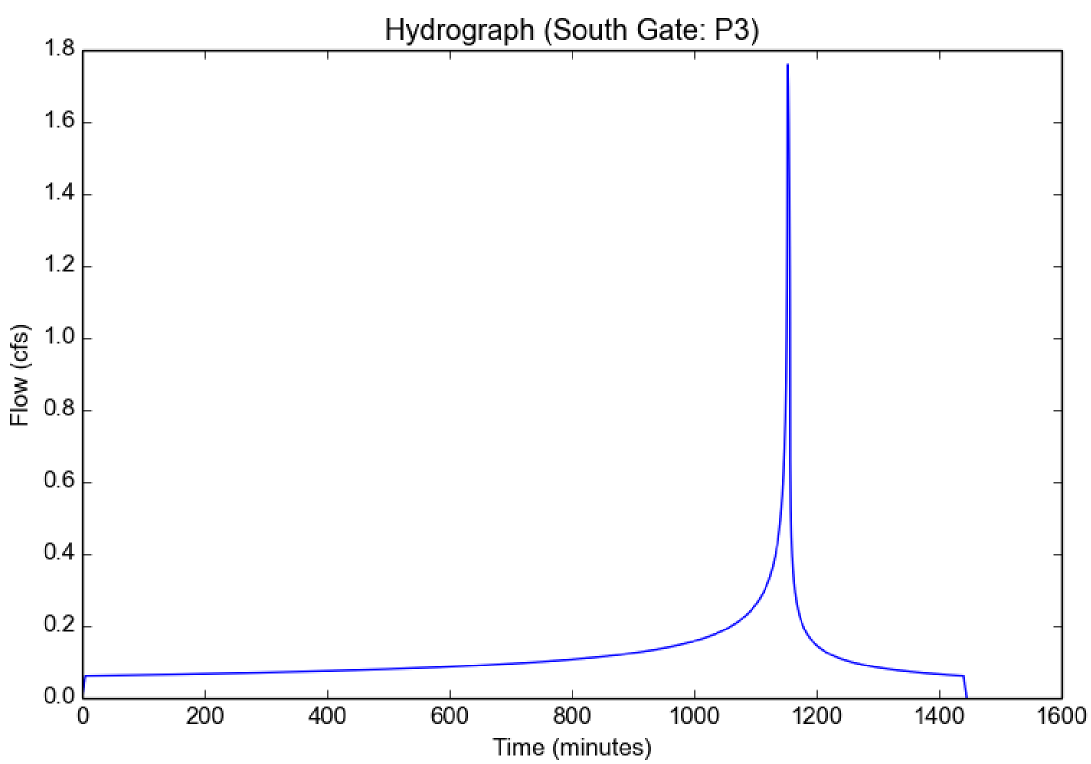
File location: P:/C/CVEN-180/Admin/Reports/Hydrology/South Gate - P3_Q125.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	South Gate
Subarea ID	P3
Area (ac)	0.67
Flow Path Length (ft)	166.88
Flow Path Slope (vft/hft)	0.0111
50-yr Rainfall Depth (in)	6.05
Percent Impervious	0.85
Soil Type	15
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.3119
Peak Intensity (in/hr)	3.1692
Undeveloped Runoff Coefficient (Cu)	0.4268
Developed Runoff Coefficient (Cd)	0.829
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.7603
Burned Peak Flow Rate (cfs)	1.7603
24-Hr Clear Runoff Volume (ac-ft)	0.2302
24-Hr Clear Runoff Volume (cu-ft)	10027.1863



Peak Flow Hydrologic Analysis

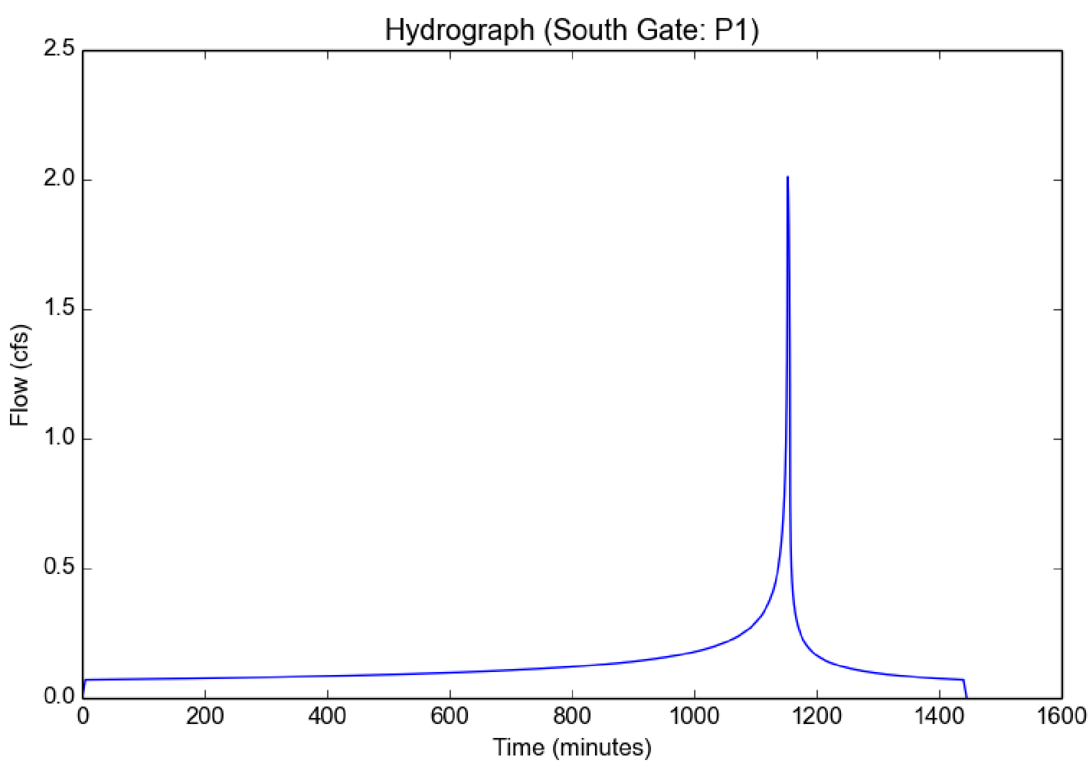
File location: P:/C/CVEN-180/Admin/Reports/Hydrology/South Gate - P1_Q100.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	South Gate
Subarea ID	P1
Area (ac)	0.59
Flow Path Length (ft)	166.32
Flow Path Slope (vft/hft)	0.0109
50-yr Rainfall Depth (in)	6.05
Percent Impervious	0.85
Soil Type	15
Design Storm Frequency	100-yr
Fire Factor	0
LID	False

Output Results

Modeled (100-yr) Rainfall Depth (in)	6.7881
Peak Intensity (in/hr)	4.05
Undeveloped Runoff Coefficient (Cu)	0.5101
Developed Runoff Coefficient (Cd)	0.8415
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	2.0108
Burned Peak Flow Rate (cfs)	2.0108
24-Hr Clear Runoff Volume (ac-ft)	0.2594
24-Hr Clear Runoff Volume (cu-ft)	11300.1498



Peak Flow Hydrologic Analysis

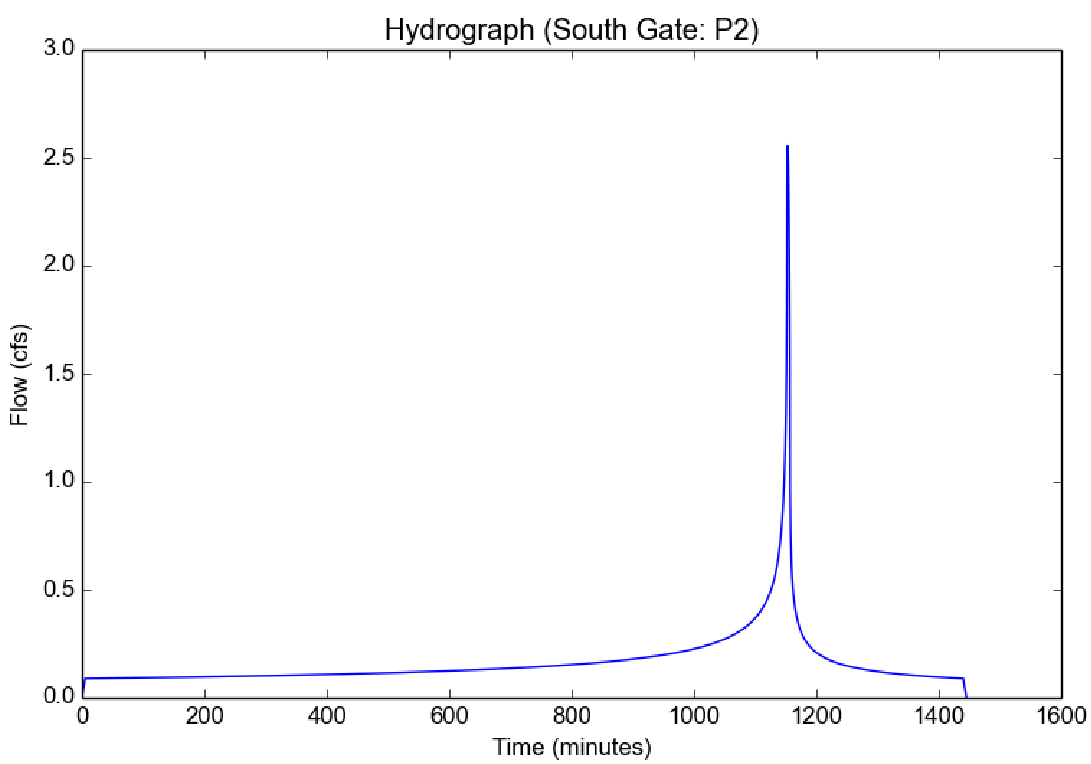
File location: P:/C/CVEN-180/Admin/Reports/Hydrology/South Gate - P2_Q100.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	South Gate
Subarea ID	P2
Area (ac)	0.75
Flow Path Length (ft)	166.91
Flow Path Slope (vft/hft)	0.0109
50-yr Rainfall Depth (in)	6.05
Percent Impervious	0.85
Soil Type	15
Design Storm Frequency	100-yr
Fire Factor	0
LID	False

Output Results

Modeled (100-yr) Rainfall Depth (in)	6.7881
Peak Intensity (in/hr)	4.05
Undeveloped Runoff Coefficient (Cu)	0.5101
Developed Runoff Coefficient (Cd)	0.8415
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	2.5561
Burned Peak Flow Rate (cfs)	2.5561
24-Hr Clear Runoff Volume (ac-ft)	0.3298
24-Hr Clear Runoff Volume (cu-ft)	14364.5972



Peak Flow Hydrologic Analysis

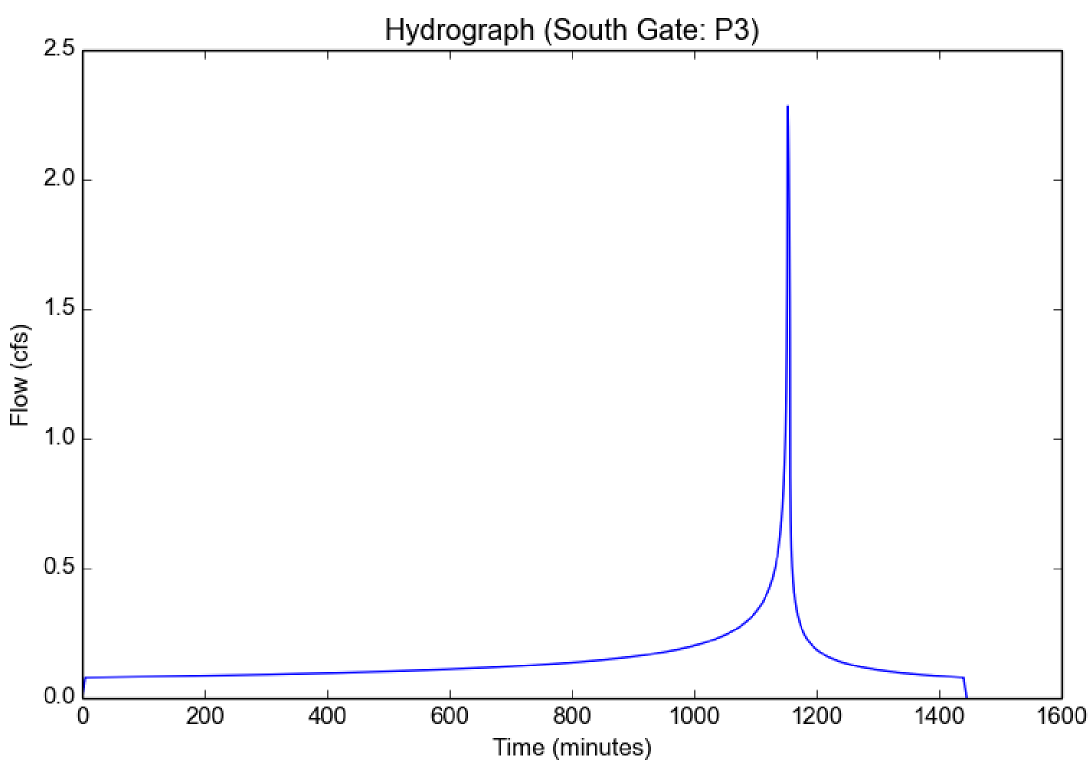
File location: P:/C/CVEN-180/Admin/Reports/Hydrology/South Gate - P3_Q100.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	South Gate
Subarea ID	P3
Area (ac)	0.67
Flow Path Length (ft)	166.88
Flow Path Slope (vft/hft)	0.0111
50-yr Rainfall Depth (in)	6.05
Percent Impervious	0.85
Soil Type	15
Design Storm Frequency	100-yr
Fire Factor	0
LID	False

Output Results

Modeled (100-yr) Rainfall Depth (in)	6.7881
Peak Intensity (in/hr)	4.05
Undeveloped Runoff Coefficient (Cu)	0.5101
Developed Runoff Coefficient (Cd)	0.8415
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	2.2834
Burned Peak Flow Rate (cfs)	2.2834
24-Hr Clear Runoff Volume (ac-ft)	0.2946
24-Hr Clear Runoff Volume (cu-ft)	12832.3735



APPENDIX F
Hydraulic Calculations

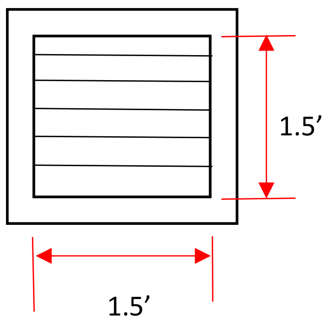
Catch Basin Sizing

CONSULTING, INC.
CIVIL ENGINEERING
LAND PLANNING & SURVEYING

CALCULATION SHEET
Prepared by: Sarah McMasters
Project No. CVEN-180
10130 Adella Avenue
South Gate, California
1/17/2025

GRATE INLET CAPACITY CALCULATIONS

CB #1 – Refer to Proposed Conditions Hydrology Map for Catch Basin location.



~REFER TO THE URBAN DRAINAGE DESIGN MANUAL, UNITED STATES DEPARTMENT OF TRANSPORTATION

Ponding Depth, H = 0.50’ (6”)

Perimeter, P = 4.5’ (flows enter from three sides)

$Q/P = 3.0\ H^{3/2}$

$Q = 3.0\ H^{3/2}P$

$Q = 3.0(0.50)^{3/2}(4.5)$

Q = 4.77 cfs

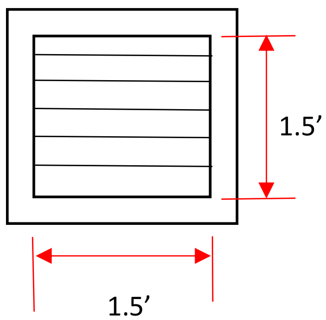
50% Clogging Factor = 0.5(4.77) = **2.39 cfs**

CB #1_Q25 = **1.55 cfs < 2.39 cfs** ✓

CALCULATION SHEET
Prepared by: Sarah McMasters
Project No. CVEN-180
10130 Adella Avenue
South Gate, California
1/17/2025

GRATE INLET CAPACITY CALCULATIONS

CB #2 – Refer to Proposed Conditions Hydrology Map for Catch Basin location.



~REFER TO THE URBAN DRAINAGE DESIGN MANUAL, UNITED STATES DEPARTMENT OF TRANSPORTATION

Ponding Depth, H = 0.50’ (6”)

Perimeter, P = 4.5’ (flows enter from three sides)

$Q/P = 3.0\ H^{3/2}$

$Q = 3.0\ H^{3/2}P$

$Q = 3.0(0.50)^{3/2}(4.5)$

Q = 4.77 cfs

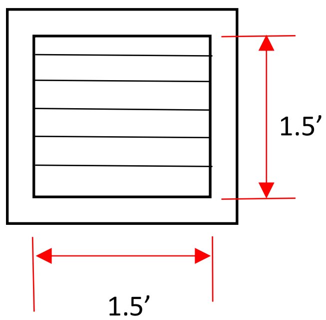
50% Clogging Factor = 0.5(4.77) = **2.39 cfs**

CB #2_Q25 = **1.97 cfs < 2.39 cfs** ✓

CALCULATION SHEET
Prepared by: Sarah McMasters
Project No. CVEN-180
10130 Adella Avenue
South Gate, California
1/17/2025

GRATE INLET CAPACITY CALCULATIONS

CB #3 – Refer to Proposed Conditions Hydrology Map for Catch Basin location.



~REFER TO THE URBAN DRAINAGE DESIGN MANUAL, UNITED STATES DEPARTMENT OF TRANSPORTATION

Ponding Depth, H = 0.50’ (6”)

Perimeter, P = 4.5’ (flows enter from three sides)

$Q/P = 3.0\ H^{3/2}$

$Q = 3.0\ H^{3/2}P$

$Q = 3.0(0.50)^{3/2}(4.5)$

Q = 4.77 cfs

50% Clogging Factor = 0.5(4.77) = **2.39 cfs**

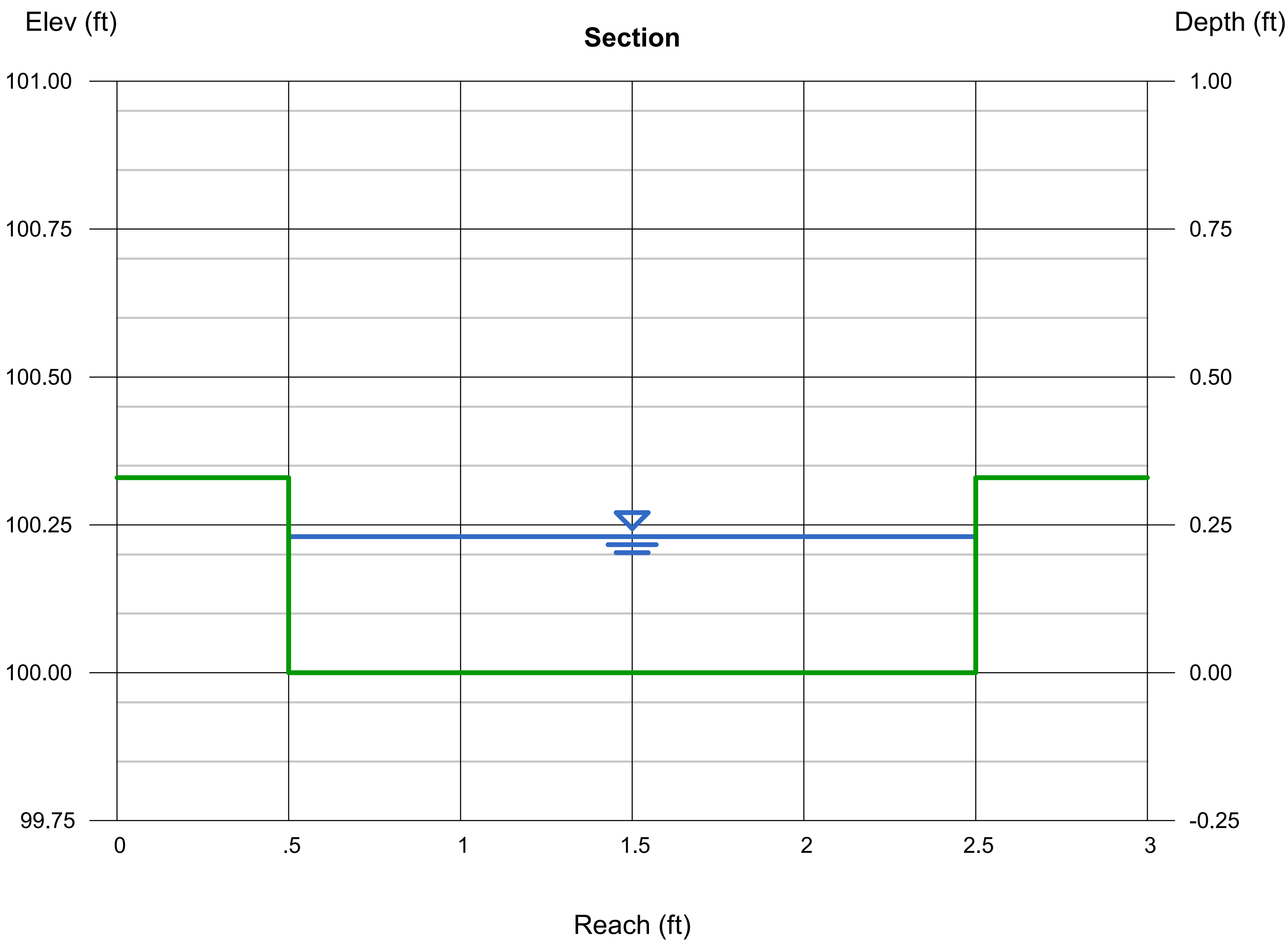
CB #3_Q25 = **1.76 cfs < 2.39 cfs** ✓

Parkway Drain Sizing

Channel Report

Parkway Drain P1

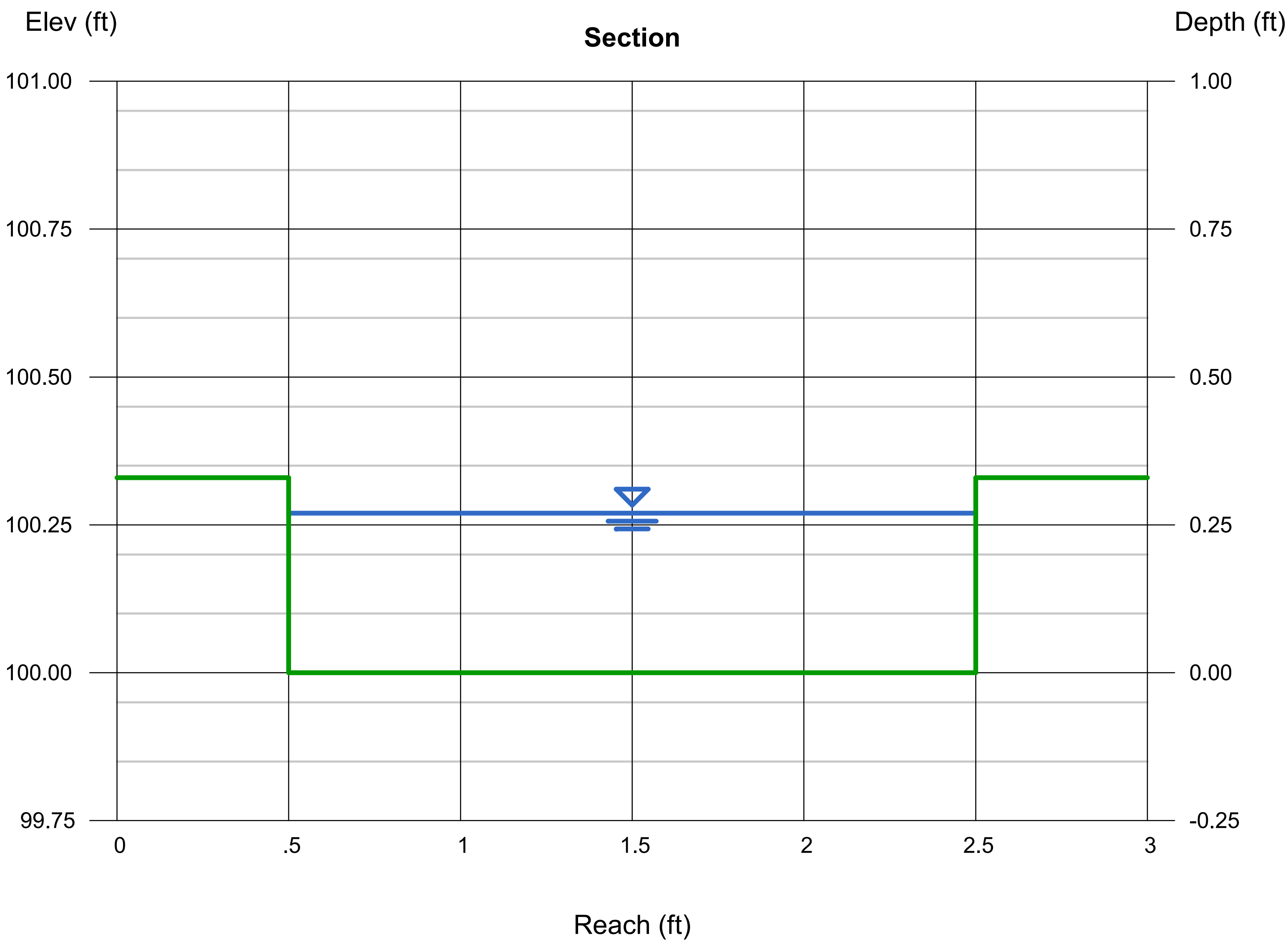
Rectangular		**Highlighted**	
Bottom Width (ft)	= 2.00	Depth (ft)	= 0.23
Total Depth (ft)	= 0.33	Q (cfs)	= 2.010
		Area (sqft)	= 0.46
Invert Elev (ft)	= 100.00	Velocity (ft/s)	= 4.37
Slope (%)	= 2.00	Wetted Perim (ft)	= 2.46
N-Value	= 0.015	Crit Depth, Yc (ft)	= 0.32
		Top Width (ft)	= 2.00
Calculations		EGL (ft)	= 0.53
Compute by:	Known Q		
Known Q (cfs)	= 2.01		



Channel Report

Parkway Drain P2

Rectangular		**Highlighted**	
Bottom Width (ft)	= 2.00	Depth (ft)	= 0.27
Total Depth (ft)	= 0.33	Q (cfs)	= 2.560
		Area (sqft)	= 0.54
Invert Elev (ft)	= 100.00	Velocity (ft/s)	= 4.74
Slope (%)	= 2.00	Wetted Perim (ft)	= 2.54
N-Value	= 0.015	Crit Depth, Yc (ft)	= 0.33
		Top Width (ft)	= 2.00
Calculations		EGL (ft)	= 0.62
Compute by:	Known Q		
Known Q (cfs)	= 2.56		

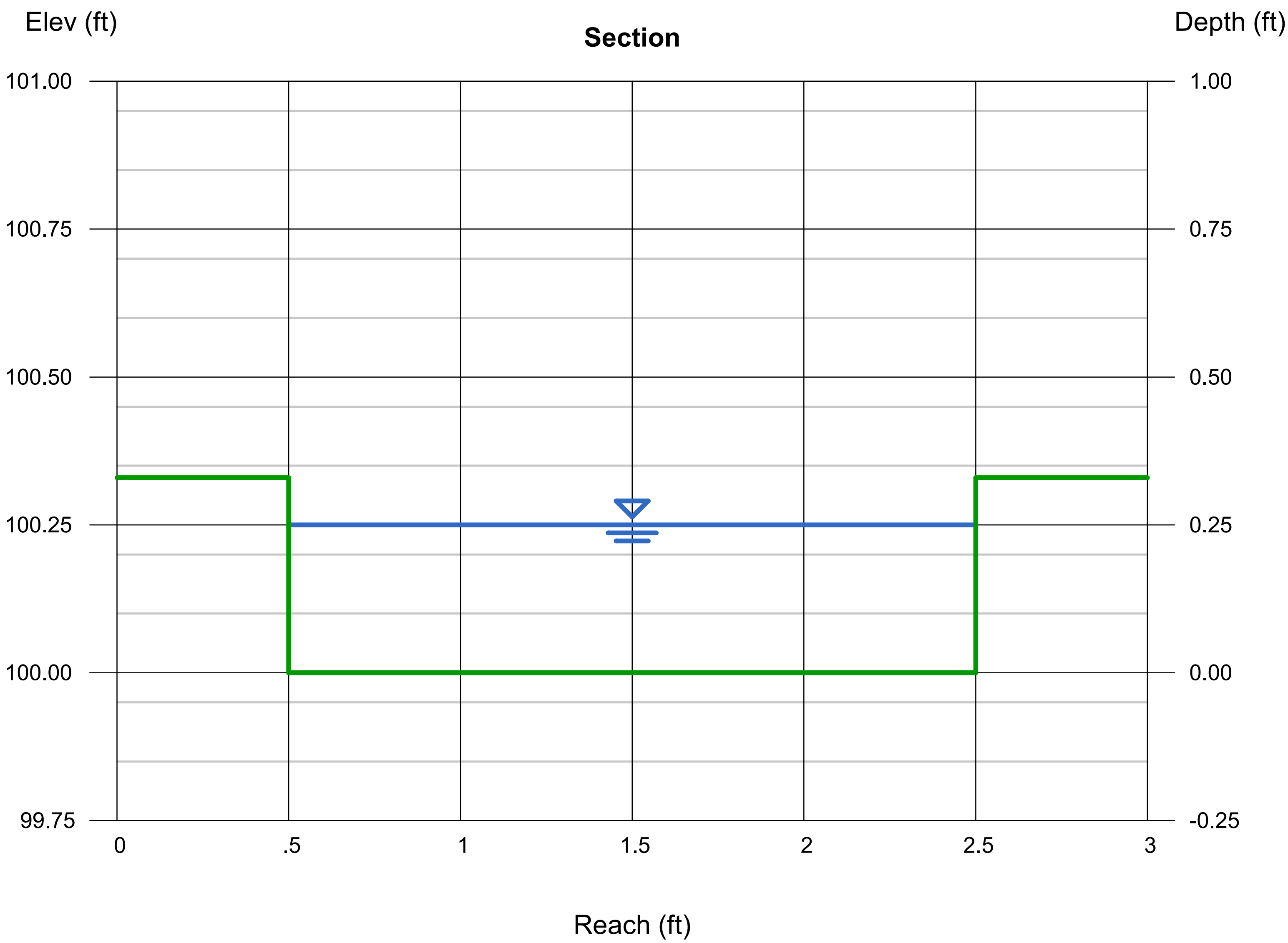


Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Friday, Jan 17 2025

Parkway Drain P3

Rectangular		**Highlighted**	
Bottom Width (ft)	= 2.00	Depth (ft)	= 0.25
Total Depth (ft)	= 0.33	Q (cfs)	= 2.280
		Area (sqft)	= 0.50
Invert Elev (ft)	= 100.00	Velocity (ft/s)	= 4.56
Slope (%)	= 2.00	Wetted Perim (ft)	= 2.50
N-Value	= 0.015	Crit Depth, Yc (ft)	= 0.33
		Top Width (ft)	= 2.00
Calculations		EGL (ft)	= 0.57
Compute by:	Known Q		
Known Q (cfs)	= 2.28		



100-Year Water Surface Elevation
To be provided during Final Engineering

APPENDIX G
As-builts & References

VESTING TENTATIVE TRACT MAP NO. 84531

FOR CONDOMINIUM PURPOSES

IN THE CITY OF SOUTH GATE, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA

LEGAL DESCRIPTION:

PARCEL A:

THAT PORTION OF LOT 9 OF TRACT NO. 2778, IN THE CITY OF SOUTH GATE, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 30 PAGES 84 AND 85 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE WESTERLY LINE OF SAID LOT 9, DISTANT SOUTH 6° 55' 55" WEST 517.68 FEET FROM THE NORTHWESTERLY CORNER OF SAID LOT 9; THENCE SOUTH 84° 47' 20" EAST 537.61 FEET; THENCE SOUTH 7° 05' 32" WEST 167.19 FEET, MORE OR LESS, TO THE NORTHERLY LINE OF A 10.00 FOOT STRIP OF LAND WHICH IS THE PROPERTY OF SOUTHERN CALIFORNIA EDISON COMPANY, AS RECORDED IN BOOK 5954, PAGE 384 OFFICIAL RECORDS OF SAID COUNTY; THENCE NORTH 85° 21' 50" WEST ALONG THE NORTHERLY LINE OF SAID 10.00 FOOT STRIP, 537.32 FEET TO THE WESTERLY LINE OF SAID LOT 9; THENCE NORTH 6° 55' 55" SOUTH EAST ALONG THE WESTERLY LINE OF SAID LOT 9, 172.57 FEET TO THE POINT OF BEGINNING.

PARCEL B:

THAT PORTION OF LOT 9 OF TRACT NO. 2778, IN THE CITY OF SOUTH GATE, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 30, PAGES 84 AND 85 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

THE SOUTHERLY 1.50 FEET OF PARCEL 2 OF THE PROPERTIES DESCRIBED IN A CORPORATION GRANT DEED TO DONALD RAWLINS, MARIAN F. RAWLINS, AND THE CROCKER BANK AS TRUSTEES OF THE RAWLINS FAMILY TRUST UNDER TRUST INSTRUMENT DATED NOVEMBER 15, 1983, RECORDED ON SEPTEMBER 11, 1984 AS INSTRUMENT NO. 84-1090427 OFFICIAL RECORDS, IN THE OFFICE OF SAID COUNTY RECORDER. TOGETHER WITH THE SOUTHERLY 1.50 FEET OF THE LAND DESCRIBED IN PARCEL 3 OF THE DEED RECORDED ON AUGUST 31, 1981 AS INSTRUMENT NO. 81-872668 OF OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER.

PARCEL C:

THAT PORTION OF LOT 9 OF TRACT NO. 2778, IN THE CITY OF SOUTH GATE, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 30, PAGES 84 AND 85 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

THE SOUTHERLY 1.50 FEET OF THE LAND DESCRIBED IN PARCEL 1 OF THE DEED RECORDED ON AUGUST 31, 1981 AS INSTRUMENT NO. 81-872668 OF OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER.

APN: 6221-026-020

VESTED OWNER:

10130 ADELLA, LLC, A CALIFORNIA LIMITED LIABILITY COMPANY AS TO PARCELS A AND C; AND GREG SOLASS, A MARRIED MAN AS HIS SOLE AND SEPARATE PROPERTY AS TO 50% INTEREST AND PETER J. POLOS AND KRISTIE C. POLOS, AS TRUSTEE OF THE PETER AND KRISTIE POLOS FAMILY TRUST, U/D/T SEPTEMBER 11, 2017 AS TO 50% INTEREST, ALL AS TENANTS IN COMMON AS TO PARCEL B

SITE ADDRESS:

10130 ADELLA AVE,
SOUTH GATE, CA 90280

BASIS OF BEARINGS:

THE BEARINGS SHOWN HEREON ARE BASED ON THE BEARING N68°22'17.1"W BETWEEN CALIFORNIA SPATIAL REFERENCE CENTER, CSRC, CONTINUOUSLY OPERATING REFERENCE STATIONS, CORS, "BGIS" AND "MHMS"

DATUM STATEMENT:

ALL COORDINATES SHOWN HEREON ARE GRID VALUES BASED ON THE CALIFORNIA COORDINATE SYSTEM OF 1983, CCS83, ZONE V,(2017.5 EPOCH), IN ACCORDANCE WITH THE CALIFORNIA PUBLIC RESOURCES CODE SECTION 8801-8819. ALL DISTANCES SHOWN HEREON ARE GROUND VALUES IN U.S. SURVEY FEET UNLESS OTHERWISE NOTED. A COMBINATION SCALE FACTOR OF 0.9999779830 WAS USED FOR THIS PROJECT AT NORTHING 1800422.704, EASTING 6508474.051. TO OBTAIN GRID DISTANCES, MULTIPLY GROUND DISTANCES BY THE COMBINATION SCALE FACTOR

	NORTHING	EASTING:
BGIS	1810453.394	6513246.632
MHMS	1800292.278	6487619.932
DYH2	1799957.152	6523008.368

BENCHMARK STATEMENT:

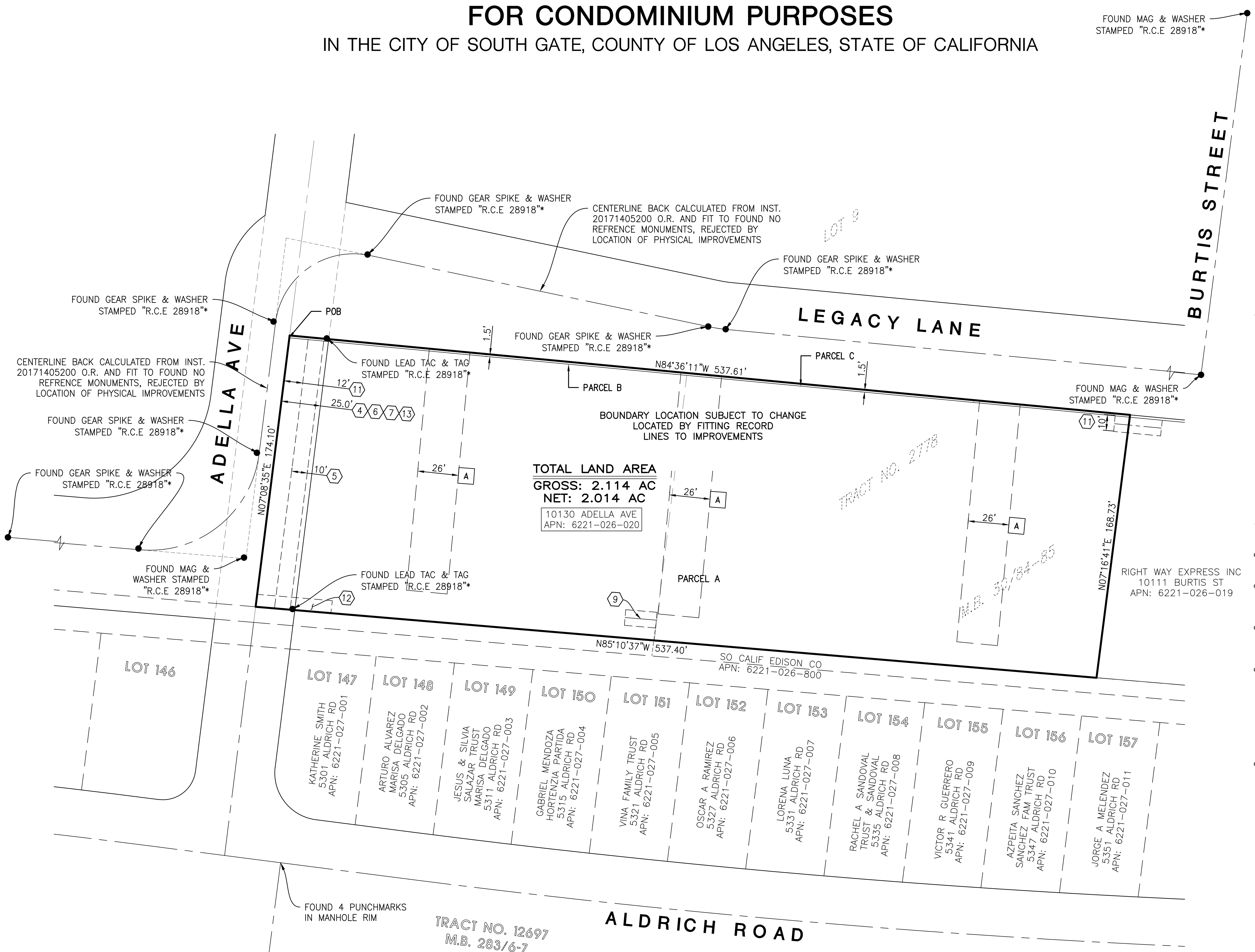
LOS ANGELES COUNTY BENCHMARK NO. PY10721
ELEV: 93.576 (NAVD88)
DESCRIBED AS: LOS ANGELES COUNTY BENCHMARK TAG IN NORTH CURB 1 FOOT WEST OF BEGIN CURB RETURN @ NORTH EASTERLY CORNER IMPERIAL HWY & ATLANTIC BLVD (TABLE A-5)

FLOOD NOTE:

THE SUBJECT PROPERTY FALLS WITHIN "ZONE X, AREA WITH REDUCED FLOOD RISK DUE TO LEVEE" PER FEMA MAP NO. 06037C1810F, A PRINTED PANEL, EFFECTIVE SEPTEMBER 26, 2008 (TABLE A-3).

LAND USE SUMMARY:

GROSS AREA: 2.114 AC
NET AREA: 2.014 AC
TOTAL PROPOSED LOTS: 1
TOTAL PROPOSED DWELLING UNITS: 54



VICINITY MAP

N.T.S

CIVIL ENGINEER:

C&V CONSULTING, INC.
9830 IRVINE CENTER DRIVE
IRVINE, CA 92618
PHONE: (949) 445-1833

SUBDIVIDER:

CITY VENTURES HOMEBUILDING, LLC
3121 MICHELSON DRIVE, SUITE 150
IRVINE, CA 92612
(949) 258-7515

SHEET INDEX:

SHEET NO.	
SHEET 1	TENTATIVE TRACT MAP
SHEET 2	PRELIMINARY SITE PLAN
SHEET 3	PRELIMINARY GRADING
SHEET 4	PRELIMINARY UTILITY PLAN
SHEET 5	PRELIMINARY FIRE ACCESS & HYDRANT LOCATION PLAN

LEGEND:

CENTERLINE
SUBDIVISION BOUNDARY
EASEMENT
EX. LOT LINE
EX. R/W
TIE

EXISTING EASEMENTS:

\# DENOTES PLOTTED ITEM.

4 AN EASEMENT FOR ROAD PURPOSES AND INCIDENTAL PURPOSES IN THE DOCUMENT RECORDED AS BOOK 21675 PAGE 346 OF OFFICIAL RECORDS.

5 AN EASEMENT FOR POLE LINES, GUYS, ANCHORS AND INCIDENTAL PURPOSES, RECORDED MARCH 29, 1945 AS INSTRUMENT NO. 1681 IN BOOK 21851, PAGE 22 OF OFFICIAL RECORDS.

6 AN EASEMENT FOR ROAD AND INCIDENTAL PURPOSES IN THE DOCUMENT RECORDED APRIL 12, 1945 AS INSTRUMENT NO. 135 IN BOOK 21853, PAGE 227 OF OFFICIAL RECORDS.

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EASEMENT PLOTS OUT OF AREA AND WAS QUITCLAIMED BY INST. 20181158744

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RECORDED NOVEMBER 4, 1955 AS INSTRUMENT NO. 3848 OF OFFICIAL RECORDS.

NO PLOTTABLE LEGAL DESCRIPTION

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12 AN EASEMENT FOR UNDERGROUND TELEPHONE, TELEGRAPH AND COMMUNICATION STRUCTURES AND INCIDENTAL PURPOSES, RECORDED NOVEMBER 16, 1965 AS INSTRUMENT NO. 3191 OF OFFICIAL RECORDS.

13 A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF SOUTH GATE APPROVING LOT LINE ADJUSTMENT NO. 69, A CERTIFIED COPY OF WHICH RECORDED NOVEMBER 27, 1996 AS INSTRUMENT NO. 96-1917935 OF OFFICIAL RECORDS.

NO MATERIAL DISCREPANCY

15 THE EFFECT OF A MAP PURPORTING TO SHOW THE LAND AND OTHER PROPERTY, FILED JANUARY 12, 2009 IN BOOK 220, PAGE 59 OF RECORD OF SURVEYS.
NO MATERIAL DISCREPANCY

16 THE EFFECT OF A MAP PURPORTING TO SHOW THE LAND AND OTHER PROPERTY, FILED JULY 26, 2010 IN BOOK 233, PAGE 90 OF RECORD OF SURVEYS.

SAME AS ITEM 15.

UTILITY PURVEYORS & SERVICES:

WATER & SEWER:	CITY OF SOUTH GATE	(323) 563-9586
ELECTRIC:	SOUTHERN CALIFORNIA EDISON	(800) 655-4555
GAS:	THE SOUTHERN CALIFORNIA GAS COMPANY	(800) 427-2200
CABLE TV AND TELEPHONE:	SPECTRUM	(855) 840-7357
TRASH/RECYCLING:	UNIVERSAL WASTE SYSTEM	(562) 334-3660

SCALE: 1" = 40'

0 20 40 80

SURVEYOR'S BOUNDARY NOTE*:

A NUMBER OF MONUMENTS WERE FOUND TAGGED "R.C.E. 28918" AND LOCATED AT THE TIME OF FIELD SURVEY, HOWEVER NO PUBLIC RECORDS APPEAR TO EXIST SHOWING HOW THESE MONUMENTS WERE SET. THE ENGINEER OF RECORD WAS UNABLE OR UNWILLING TO PROVIDE C&V CONSULTING, INC. WITH SUCH DATA AND THE CITY OF SOUTH GATE CLAIMED NO RECORDS FOR THIS SURVEY HAVE EVER BEEN SUBMITTED TO THE CITY. THE COUNTY OF LOS ANGELES HAS ON FILE A PARCEL MAP NUMBER ISSUED TO R.C.E. 28918 AS PM 71904, HOWEVER THE COUNTY HAS NO FURTHER RECORDS AVAILABLE TO PROVIDE FOR THIS PARCEL MAP NUMBER.

A TITLE SEARCH WAS ABLE TO LOCATE THE RECORD DOCUMENT WHICH CREATED LEGACY LANE AS INSTRUMENT NO. 20171405200 O.R. SAID DOCUMENT CONTAINS A LEGAL DESCRIPTION STAMPED BY R.C.E. 28918 WHICH MAKES REFERENCE TO THE FILING OF PARCEL MAP NO. 71904 AND HOW ONCE THE MAP IS RECORDED, IT SHALL SUPERCEDE THE RECORDED DESCRIPTION. FROM THIS DOCUMENT A RECONSTRUCTION OF HOW THESE MONUMENTS MAY CONTROL THE STREET EASEMENT WAS PUT TOGETHER WHICH IS SHOWN HEREON.

THE CITY OF SOUTH GATE WAS ABLE TO PROVIDE C&V CONSULTING, INC. WITH THE AS-BUILT DRAWINGS FOR LEGACY LANE'S CONSTRUCTION. USING THIS INFORMATION AND PHYSICAL EVIDENCE OBSERVED AND LOCATED AT THE TIME OF THE FIELD SURVEY WE HAVE CONCLUDED THAT THE FOUND MONUMENTS "R.C.E. 28918" ARE SIGNIFICANTLY OFF FROM THE PHYSICALLY BUILT IMPROVEMENTS AND THEREFORE HAVE UNIVERSALLY BEEN REJECTED BY THIS SURVEY.

AN EXTENSIVE SEARCH FOR OTHER SURROUNDING MONUMENT MONUMENTS WAS MADE THROUGHOUT THE AREA TO CORROBORATE THE REJECTION OF THE FOUND "R.C.E. 28918" MONUMENTS, HOWEVER A VERY LIMITED NUMBER OF OTHER MONUMENTS PRESENTLY EXIST. THEREFOR THIS SURVEY'S BOUNDARY IS ESTABLISHED BY BEST FITTING RECORD INFORMATION TO THE OBSERVED PHYSICAL LOCATION OF IMPROVEMENTS, WHICH RESULTS IN THE RECORD DATA OF ADELLA AVENUE AND ALDRICH ROAD ALIGNING WITH THE INTERSECTION OF 4 PUNCH MARKS FOUND ON A MANHOLE RIM AT THAT CENTERLINE INTERSECTION.

PROPOSED EASEMENTS:

A INDICATES AN EASEMENT FOR INGRESS AND EGRESS FOR EMERGENCY AND PUBLIC SECURITY VEHICLE PURPOSES DEDICATED TO THE CITY OF SOUTH GATE

NOTE:

1) PURSUANT TO SUBDIVISION MAP ACT SECTION 66456.1(a), MULTIPLE FINAL MAPS MAY BE FILED ON THIS TENTATIVE MAP.

SURVEYOR'S STATEMENT:

THE SURVEY ON WHICH THIS VESTING TENTATIVE MAP IS BASED WAS DONE BY ME, OR UNDER MY DIRECTION. FIELDWORK WAS COMPLETED ON DECEMBER 14, 2023.

PROFESSIONAL LAND SURVEYOR
DANE P. MCDOUGALL
L.S. 9297
STATE OF CALIFORNIA

DANE P. MCDOUGALL, L.S. 9297

ENGINEER'S STATEMENT:

THIS VESTING TENTATIVE MAP WAS PREPARED BY ME, OR UNDER MY DIRECTION ON JANUARY 9, 2025.

RYAN J. BITTENER, R.C.E. 68167

PREPARED BY:

REGISTERED PROFESSIONAL ENGINEER
DANE P. MCDOUGALL
C 80705
CIVIL
STATE OF CALIFORNIA

C&V CONSULTING, INC.
CIVIL ENGINEERING
LAND PLANNING & SURVEYING
9830 IRVINE CENTER DRIVE
IRVINE, CALIFORNIA 92618
(949) 916-3800
INFO@CVC-INC.NET
WWW.CVC-INC.NET

PREPARED FOR:

City Ventures

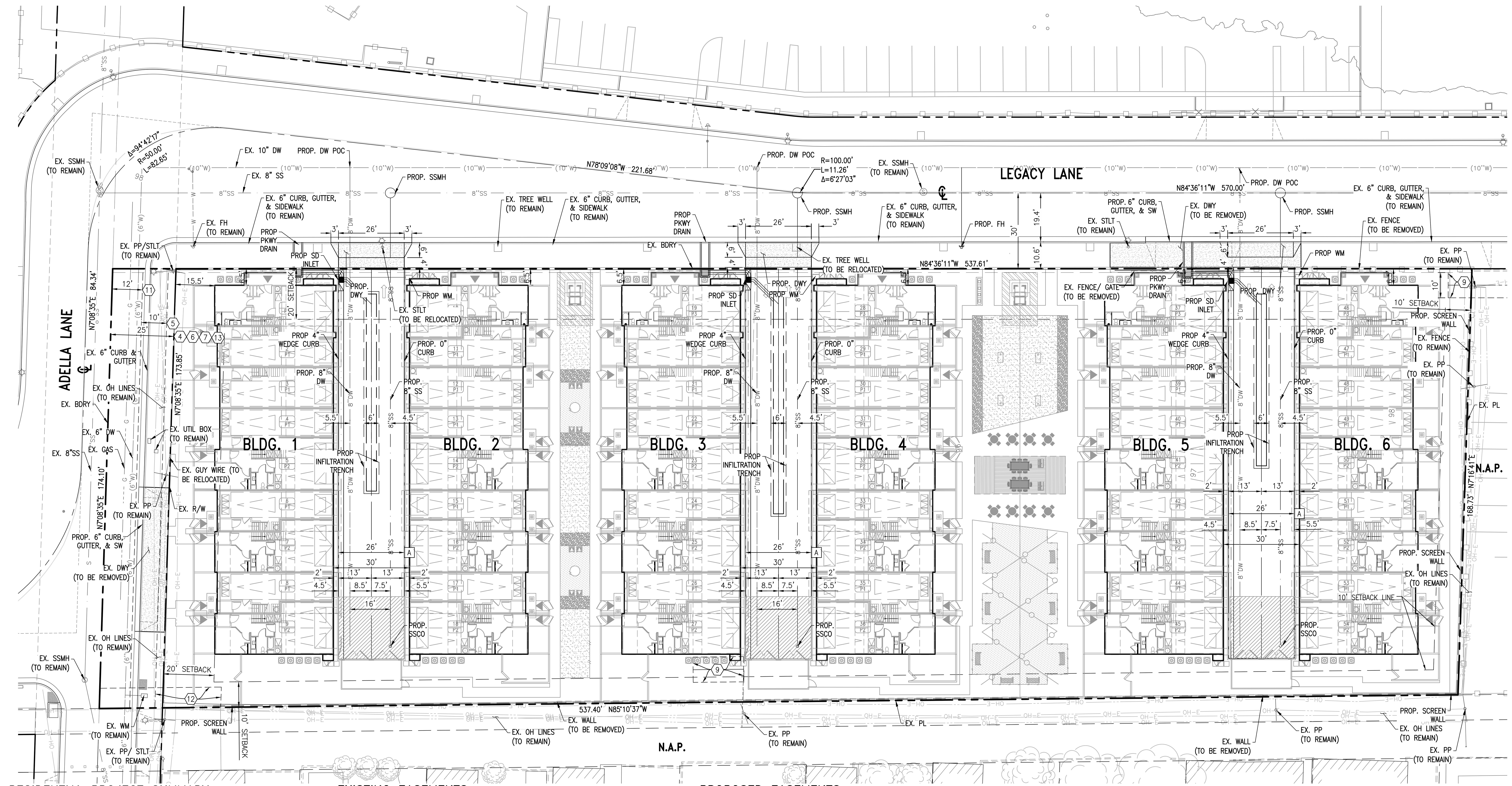
CITY VENTURES HOMEBUILDING, LLC
121 MICHELSON DRIVE, SUITE 150
IRVINE, CA 92612
(949) 258-7540

CITY OF SOUTH GATE
DEPARTMENT OF PLANNING AND DEVELOPMENT

VESTING TENTATIVE TRACT MAP NO. 84531
VESTING TENTATIVE TRACT MAP
10130 ADELLA AVENUE
SOUTH GATE, CALIFORNIA 90280

PROJECT NO. CVEN-180

SHEET 1 OF 5



LEGEND:

	LOT LINE
	SETBACK LINE
	EASEMENT LINE
	CENTERLINE
	EX. R/W
	EX. BOUNDARY
8" DW	PROP. DW MAIN
DW	PROP. DW LATERAL
8" SS	PROP. SS MAIN
SS	PROP. SS LATERAL
SD	PROP. SD
G	EX. GAS
8" SS	EX. SS
(12" W)	EX. DW
SD	EX. SD

ABBREVIATIONS:

BNDY	BOUNDARY
CB	CATCH BASIN
CF	CURB FACE
CLF	CHAIN LINK FENCE
CO	CLEANOUT
DCDA	DOUBLE CHECK DETECTOR ASSEMBLY
	DROP INLET
DW	DOMESTIC WATER
DWY	DRIVEWAY
ELEC	ELECTRIC
ESMT	EASEMENT
EVCS	ELECTRIC VEHICLE CHARGING STATION
EX.	EXISTING
FG	FINISHED GRADE
	FLOW LINE
	FINISHED FLOOR
FH	FIRE HYDRANT
	FINISHED SURFACE
FW	FIRE WATER
GM	GAS METER
INV	INVERT
LP	LOW POINT
MH	MANHOLE
MWS	MODULAR WETLANDS SYSTEM
NTS	NOT TO SCALE
OH	OVERHEAD WIRES
PB	PULL BOX
PED	PEDESTAL
PKWY	PARKWAY
PL	PROPERTY LINE
POC	POINT OF CONNECTION
PP	POWER POLE
PROP.	PROPOSED
	RADIUS
RFM	RESIDENTIAL FIRE METER
R/W	RIGHT OF WAY
SD	STORM DRAIN
SF	SQUARE FEET
SS	SANITARY SEWER
STD	STANDARD
STLT	STREETLIGHT
TC	TOP OF CURB
TE	TRASH ENCLOSURE
TG	TOP OF GRATED INLET
TYP.	TYPICAL
WM	WATER METER
WV	WATER VALVE

RESIDENTIAL PROJECT SUMMARY

54 UNITS TOTAL
CURRENT/ PROPOSED ZONING – INDUSTRIAL FLEX
25.5 DU/ACRE
2 CAR ATTACHED GARAGES

PLAN SUMMARY

30	PLAN 1 @	1364 SF	3 BD
18	PLAN 2 @	1658 SF	4 BD
6	PLAN 3 @	1681 SF	4 BD

PARKING SUMMARY

30 U @ 1.5 SPACES	= 45 SPACES
24 U @ 2.5 SPACES	= 60 SPACES
	= 105 SPACES REQUIRED
54 GARAGES X 2 STALLS	= 108 STALLS PROVIDED

SETBACKS

	REQUIRED	PROVIDED
FRONT:	20'	4'–6'
STREET:	20'	15'–24'
INTERIOR:	10'	15'–20'
REAR:	10'	15'–20'

OPEN SPACE

20% TOTAL LOT SIZE	= 18,417 SF (COMMON)
50% OF UNITS NEED 36 SF	= 972 SF (PRIVATE)
	= 19,389 SF (REQUIRED)
248 SF/UNIT	= 13,385 SF (COMMON)
3,282 DECKS + 10,049	= 13,331 SF (PRIVATE)
	= 26,716 SF (PROVIDED)
RESIDENTIAL SITE COVERAGE	= 23%

EXISTING EASEMENTS

\# DENOTES PLOTTED ITEM

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PROPOSED EASEMENTS

A INDICATES AN EASEMENT FOR INGRESS AND EGRESS FOR EMERGENCY AND PUBLIC SECURITY VEHICLE PURPOSES DEDICATED TO THE CITY OF SOUTH GATE

PROJECT AREA

GROSS TOTAL LAND AREA: 2.114 AC
NET TOTAL LAND AREA: 2.014 AC

SCALE: 1" = 20'
0 10 20 40

PREPARED BY:

REGISTERED PROFESSIONAL ENGINEER
DANE P. MCDOUGALL
C 80705
CIVIL
STATE OF CALIFORNIA

C&V CONSULTING, INC.
CIVIL ENGINEERING
LAND PLANNING & SURVEYING
9830 IRVINE CENTER DRIVE
IRVINE, CALIFORNIA 92618
(949) 916-3800
INFO@CVC-INC.NET
WWW.CVC-INC.NET

PREPARED FOR:

City Ventures
CITY VENTURES HOMEBUILDING, LLC
121 MICHELSON DRIVE, SUITE 150
IRVINE, CA 92612
(949) 258–7540

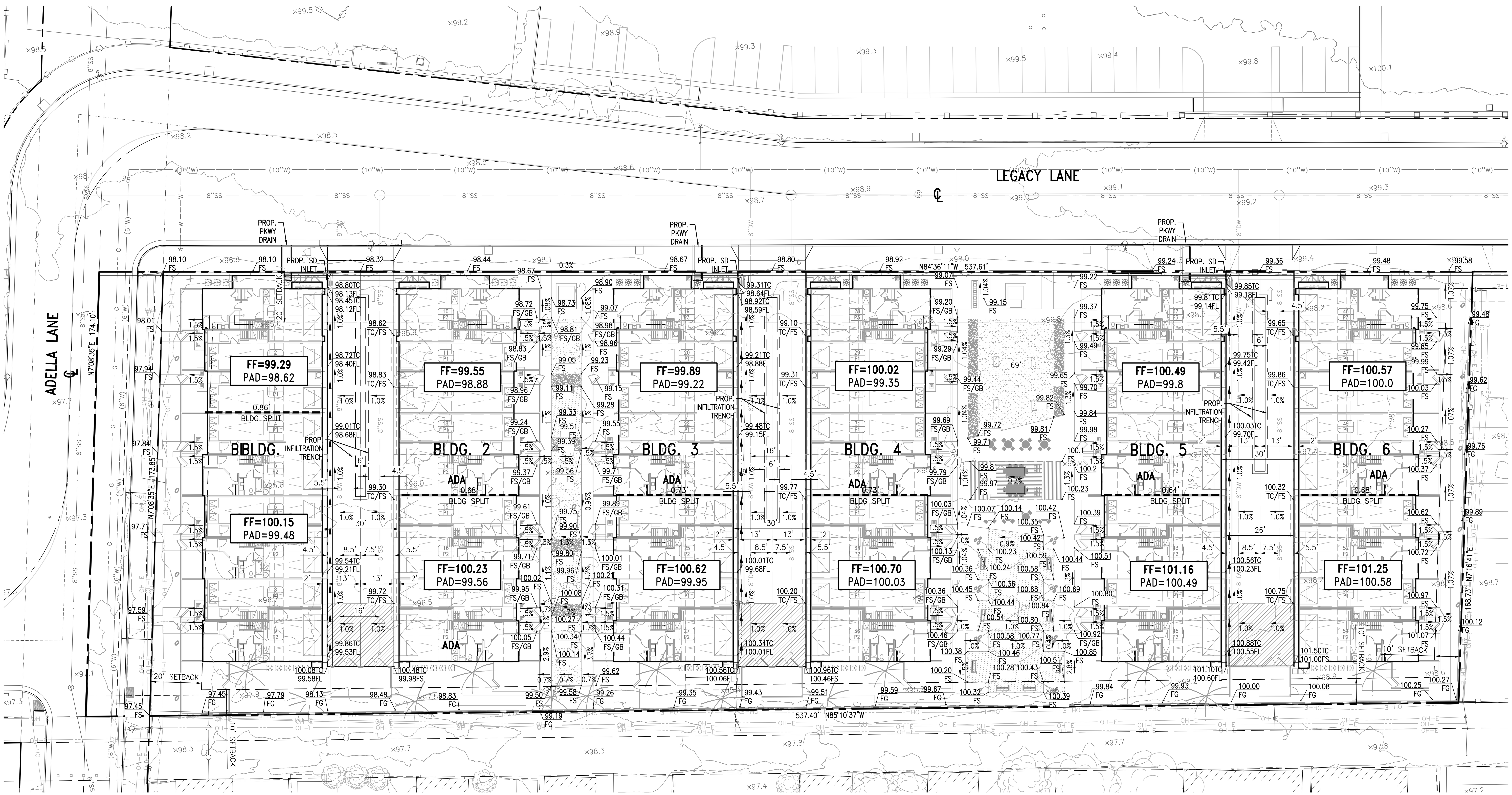
CITY OF SOUTH GATE
DEPARTMENT OF PLANNING AND DEVELOPMENT

VESTING TENTATIVE TRACT MAP NO. 84531
PRELIMINARY SITE PLAN

10130 ADELLA AVENUE
SOUTH GATE, CALIFORNIA 90280

PROJECT NO. CVEN-180
SHEET 2 OF 5

PLAN SET: PS01
DATE: 6/14/2024
P:\C\CVEN-180\DWG\SHEETS\VTM\VTM-P0-02-SP.DWG
BY: SARAH MCMASTERS



LEGEND:

	LOT LINE
	SETBACK LINE
	EASEMENT LINE
	CENTERLINE
	EX. R/W
	EX. BOUNDARY
8" DW	PROP. DW MAIN
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8" SS	PROP. SS MAIN
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INV	INVERT
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PROP.	PROPOSED
	RADIUS
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R/W	RIGHT OF WAY
SD	STORM DRAIN
SF	SQUARE FEET
SS	SANITARY SEWER
STD	STANDARD
STLT	STREETLIGHT
TC	TOP OF CURB
TE	TRASH ENCLOSURE
TG	TOP OF GRATED INLET
TYP.	TYPICAL
WM	WATER METER
WV	WATER VALVE

SCALE: 1" = 20'

0 10 20 40

PREPARED BY:

REGISTERED PROFESSIONAL ENGINEER
DANE P. MCDOUGALL
C 80705
CIVIL
STATE OF CALIFORNIA

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PREPARED FOR:

City Ventures

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CITY OF SOUTH GATE
DEPARTMENT OF PLANNING AND DEVELOPMENT

VESTING TENTATIVE TRACT MAP NO. 84531
PRELIMINARY GRADING PLAN

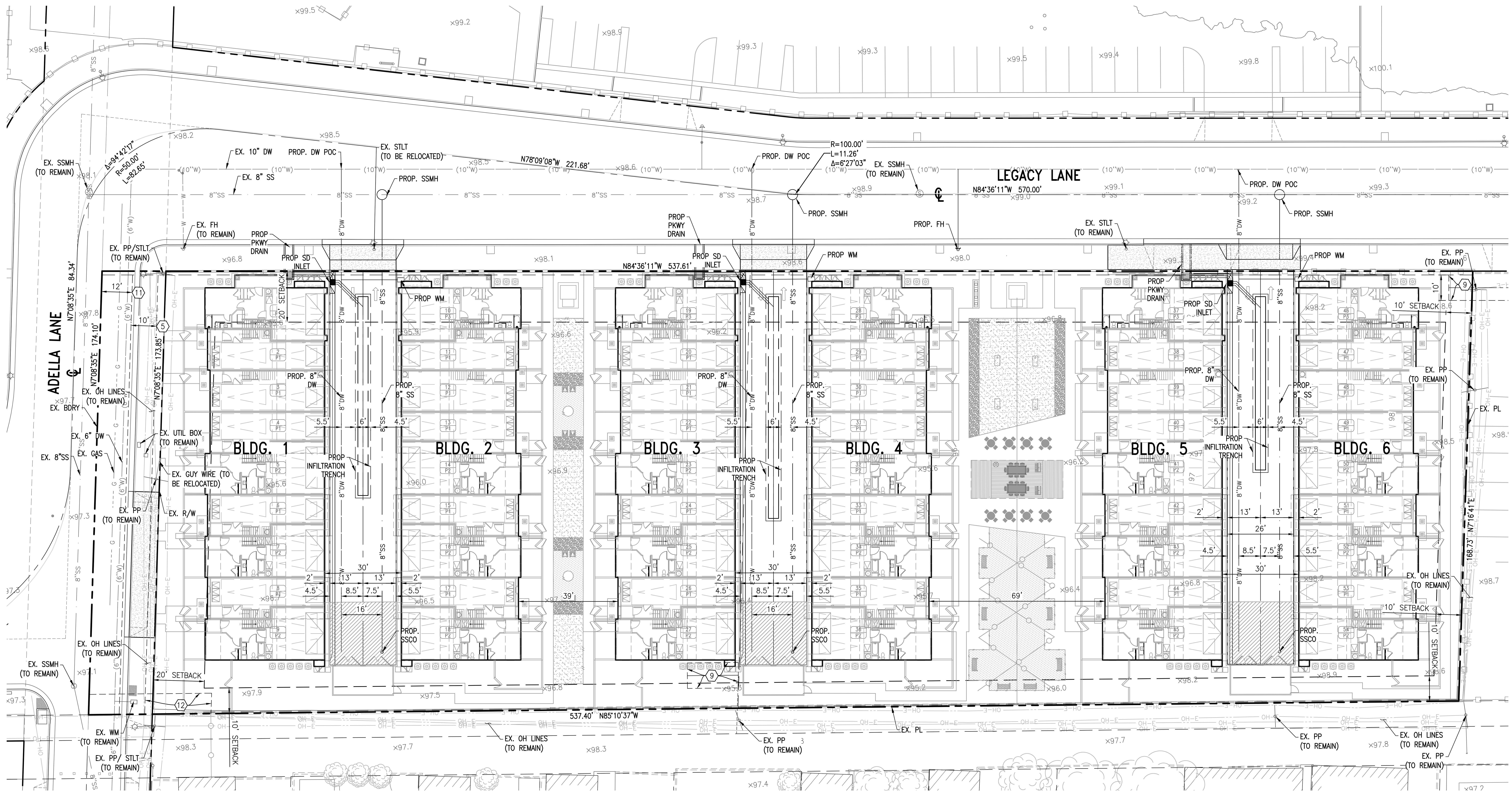
10130 ADELLA AVENUE
SOUTH GATE, CALIFORNIA 90280

PROJECT NO. CVEN-180

SHEET 3 OF 5

PLAN SET: PS01
DATE: 1/9/2025

P:\C\CVEN-180\DWG\SHEETS\VTTM\VTM-P0-03-GP.DWG
BY: SARAH MCMASTERS



LEGEND:

	LOT LINE
	SETBACK LINE
	EASEMENT LINE
	CENTERLINE
	EX. R/W
	EX. BOUNDARY
8" DW	PROP. DW MAIN
DW	PROP. DW LATERAL
8" SS	PROP. SS MAIN
SS	PROP. SS LATERAL
SD	PROP. SD
G	EX. GAS
8" SS	EX. SS
(12" W)	EX. DW
SD	EX. SD

ABBREVIATIONS:

BNDY	BOUNDARY
CB	CATCH BASIN
CF	CURB FACE
CLF	CHAIN LINK FENCE
CO	CLEANOUT
DCDA	DOUBLE CHECK DETECTOR ASSEMBLY
	DROP INLET
DW	DOMESTIC WATER
DWY	DRIVEWAY
ELEC	ELECTRIC
ESMT	EASEMENT
EVCS	ELECTRIC VEHICLE CHARGING STATION
EX.	EXISTING
FG	FINISHED GRADE
	FLOW LINE
	FINISHED FLOOR
FH	FIRE HYDRANT
	FINISHED SURFACE
FW	FIRE WATER
GM	GAS METER
INV	INVERT
LP	LOW POINT
MH	MANHOLE
MWS	MODULAR WETLANDS SYSTEM
NTS	NOT TO SCALE
OH	OVERHEAD WIRES
PB	PULL BOX
PED	PEDESTAL
PKWY	PARKWAY
PL	PROPERTY LINE
POC	POINT OF CONNECTION
PP	POWER POLE
PROP.	PROPOSED
	RADIUS
RFM	RESIDENTIAL FIRE METER
R/W	RIGHT OF WAY
SD	STORM DRAIN
SF	SQUARE FEET
SS	SANITARY SEWER
STD	STANDARD
STLT	STREETLIGHT
TC	TOP OF CURB
TE	TRASH ENCLOSURE
TG	TOP OF GRATED INLET
TYP.	TYPICAL
WM	WATER METER
WV	WATER VALVE

EXISTING EASEMENTS

#	DENOTES PLOTTED ITEM
4	AN EASEMENT FOR ROAD PURPOSES AND INCIDENTAL PURPOSES IN THE DOCUMENT RECORDED AS BOOK 21675 PAGE 346 OF OFFICIAL RECORDS.
5	AN EASEMENT FOR POLE LINES, GUYS, ANCHORS AND INCIDENTAL PURPOSES, RECORDED MARCH 29, 1945 AS INSTRUMENT NO. 1681 IN BOOK 21851, PAGE 22 OF OFFICIAL RECORDS.
6	AN EASEMENT FOR ROAD AND INCIDENTAL PURPOSES IN THE DOCUMENT RECORDED APRIL 12, 1945 AS INSTRUMENT NO. 135 IN BOOK 21853, PAGE 227 OF OFFICIAL RECORDS.
7	AN EASEMENT FOR PUBLIC STREET, ROAD AND HIGHWAY AND INCIDENTAL PURPOSES, RECORDED JULY 12, 1946 AS INSTRUMENT NO. 2505 IN BOOK 23393, PAGE 267 OF OFFICIAL RECORDS.
8	AN EASEMENT FOR PUBLIC UTILITIES AND INCIDENTAL PURPOSES IN THE DOCUMENT RECORDED JANUARY 6, 1955 AS INSTRUMENT NO. 3480 OF OFFICIAL RECORDS. EASEMENT PLOTS OUT OF AREA AND WAS QUITCLAIMED BY INST. 20181158744
9	AN EASEMENT FOR AN ELECTRIC LINE AND INCIDENTAL PURPOSES, RECORDED APRIL 5, 1955 AS INSTRUMENT NO. 2315 OF OFFICIAL RECORDS.
10	AN EASEMENT FOR POLE AND APPURTENANT ELECTRICAL FACILITIES AND INCIDENTAL PURPOSES, RECORDED NOVEMBER 4, 1955 AS INSTRUMENT NO. 3848 OF OFFICIAL RECORDS. NO PLOTTABLE LEGAL DESCRIPTION
11	AN EASEMENT FOR POLE LINES AND INCIDENTAL PURPOSES, RECORDED MAY 1, 1956 AS INSTRUMENT NO. 4269 IN BOOK 51054, PAGE 206 OF OFFICIAL RECORDS.
12	AN EASEMENT FOR UNDERGROUND TELEPHONE, TELEGRAPH AND COMMUNICATION STRUCTURES AND INCIDENTAL PURPOSES, RECORDED NOVEMBER 16, 1965 AS INSTRUMENT NO. 3191 OF OFFICIAL RECORDS.
13	A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF SOUTH GATE APPROVING LOT LINE ADJUSTMENT NO. 69, A CERTIFIED COPY OF WHICH RECORDED NOVEMBER 27, 1996 AS INSTRUMENT NO. 96-1917935 OF OFFICIAL RECORDS. NO MATERIAL DISCREPANCY
15	THE EFFECT OF A MAP PURPORTING TO SHOW THE LAND AND OTHER PROPERTY, FILED JANUARY 12, 2009 IN BOOK 220, PAGE 59 OF RECORD OF SURVEYS. NO MATERIAL DISCREPANCY
16	THE EFFECT OF A MAP PURPORTING TO SHOW THE LAND AND OTHER PROPERTY, FILED JULY 26, 2010 IN BOOK 233, PAGE 90 OF RECORD OF SURVEYS. SAME AS ITEM 15.

SCALE: 1" = 20'

0 10 20 40

PREPARED BY:

REGISTERED PROFESSIONAL ENGINEER
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CITY OF SOUTH GATE
DEPARTMENT OF PLANNING AND DEVELOPMENT

VESTING TENTATIVE TRACT MAP NO. 84531
PRELIMINARY UTILITY PLAN

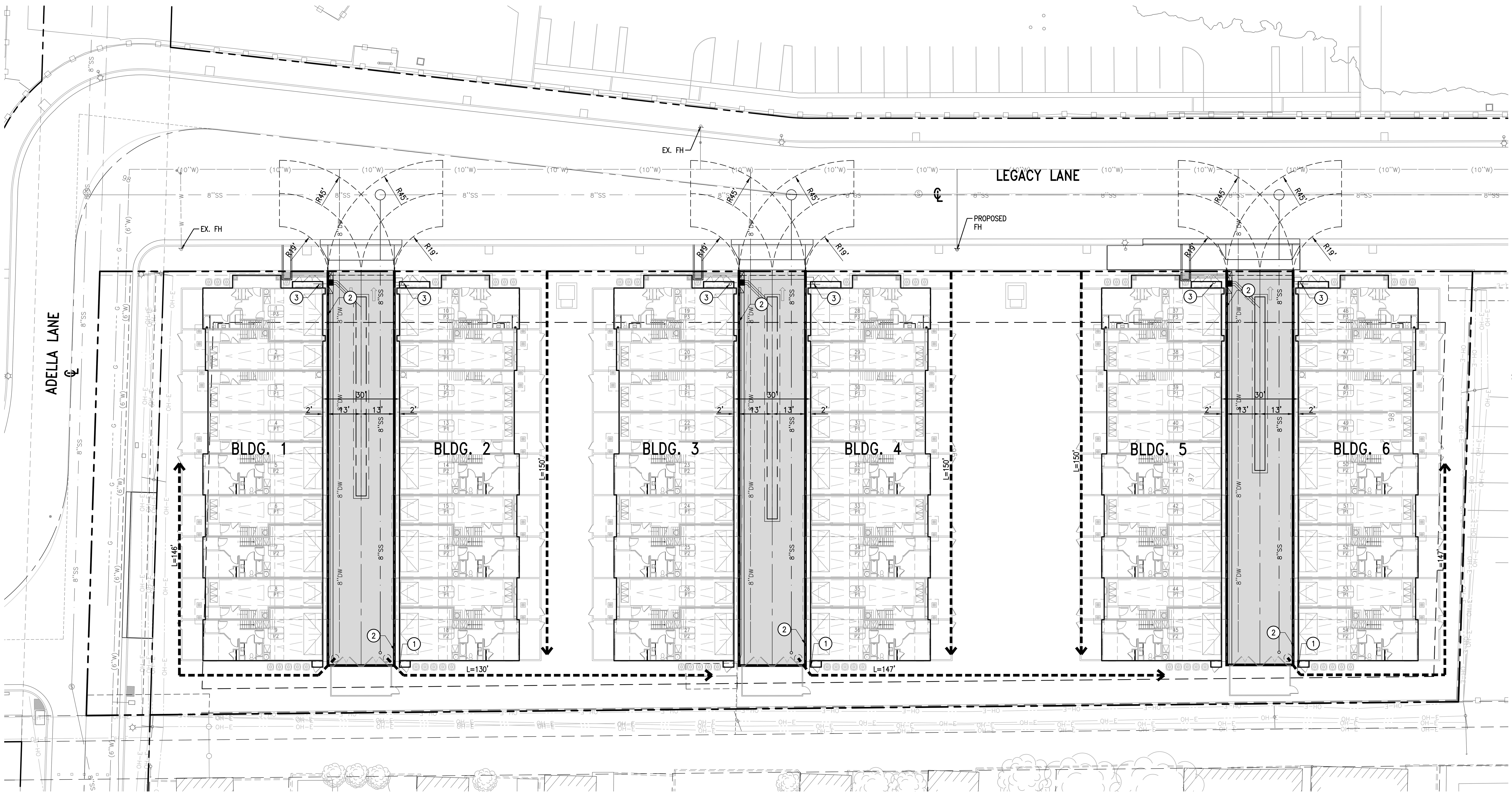
10130 ADELLA AVENUE
SOUTH GATE, CALIFORNIA 90280

PROJECT NO. CVEN-180

SHEET 4 OF 5

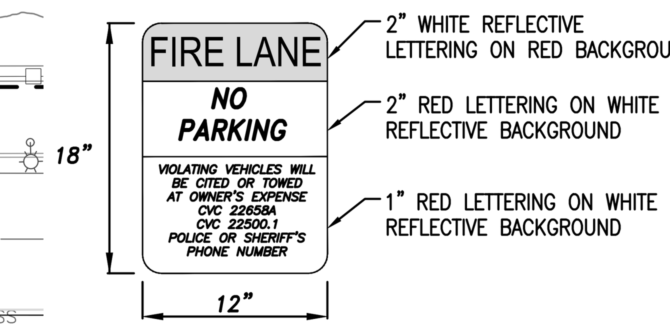
PLAN SET: PS01
DATE: 6/14/2024

P:\C\CVEN-180\DWG\SHEETS\VTM\VTM-P0-04-UTIL.DWG
BY: SARAH MCMASTERS



CONSTRUCTION NOTES:

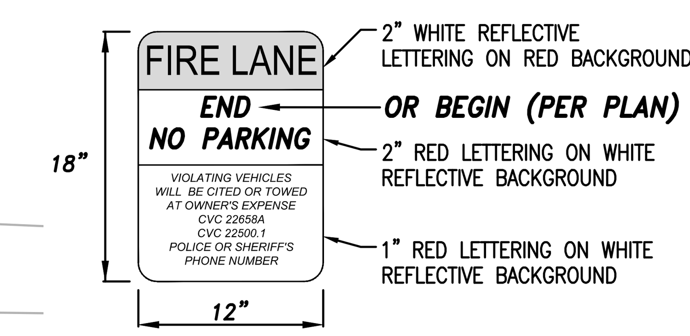
1. INSTALL "FIRE LANE" SIGN PER DETAIL 1 HEREON.
2. FIRE LANE IDENTIFICATION–RED CURBS PER DETAIL 2 HEREON.
3. INSTALL "FIRE LANE" SIGN BEGIN OR END PER DETAIL 3 HEREON.



ALL SIGN AND LETTERING DIMENSIONS ARE MINIMUMS.

SIGNS SHALL BE SECURELY MOUNTED FACING THE DIRECTION OF TRAVEL AND CLEARLY VISIBLE TO ONCOMING TRAFFIC ENTERING THE DESIGNATED AREA. SIGNS SHALL BE MADE OF DURABLE MATERIAL.

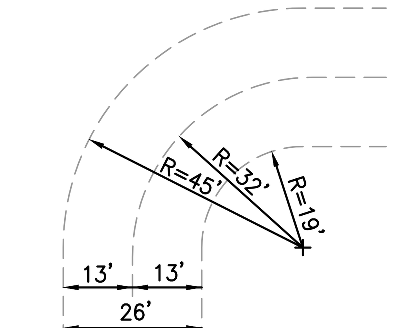
1 NO PARKING SIGN



ALL SIGN AND LETTERING DIMENSIONS ARE MINIMUMS.

SIGNS SHALL BE SECURELY MOUNTED FACING THE DIRECTION OF TRAVEL AND CLEARLY VISIBLE TO ONCOMING TRAFFIC ENTERING THE DESIGNATED AREA. SIGNS SHALL BE MADE OF DURABLE MATERIAL.

2 3 BEGIN & END NO PARKING SIGN



FIRE LANE TURNING RADIUS TYPICAL DETAIL

NOT TO SCALE

LEGEND

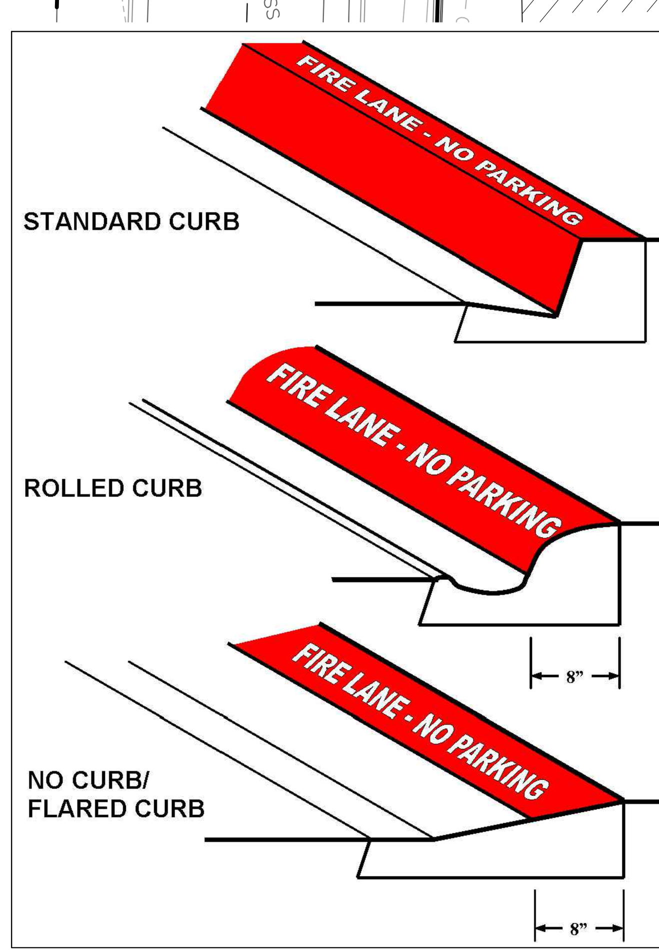
- EXISTING STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED FIRE TRUCK ACCESS
- EX. POWER POLE
- 8" FW — PROPOSED 8" FW
- HOSE PULL
- RIGHT OF WAY/PROPERTY LINE
- RED CURB STRIPING

ABBREVIATIONS

FH	FIRE HYDRANT
PR.	PROPOSED
EX	EXISTING
PL	PROPERTY LINE
R/W	RIGHT OF WAY
TYP.	TYPICAL
BLDG	BUILDING
IRR.	IRRIGATION

SCALE: 1" = 20'

0 10 20 40



1. CURBS SHALL BE PAINTED RED
2. "FIRE LANE – NO PARKING" SHALL BE PAINTED ON TOP OF CURB IN 3" WHITE LETTERING AT A SPACING OF 30' ON CENTER OR PORTION THEREOF.

2 RED CURB PAVEMENT MARKING

NOT TO SCALE

PROJECT GENERAL NOTES:

1. ALL FIRE ACCESS LANES MEET LACFD MINIMUM REQUIREMENTS 19' & 45' RADII.

2. THIS PROJECT DOES NOT HAVE ANY FUEL MODIFICATION OR WILD LAND EXPOSURES AND IS NOT IN A VERY HIGH FIRE HAZARD ZONE.

3. THIS PROJECT IS DESIGNED IN CONFORMANCE WITH THE CBC, 2022 EDITION.

4. ALL FIRE ACCESS ROADS SHALL BE ALL WEATHER, MEET THE CRITERIA OF AN ALL WEATHER DRIVING SURFACE AND COMPLY WITH LACoFD GUIDELINE FOR FIRE APPARATUS ROADS.

5. LARGEST BUILDING SQ. FOOTAGE = 13,763 SQ. FT.

6. BUILDINGS ARE DESIGNATED TYPE VA

7. OCCUPANCY/SPRINKLER TYPE: R2/FULL 13 NFPA

8. THE BUILDING HEIGHTS ARE APPROXIMATELY 55'–0" AND 3 STORIES MAX.

9. BUILDING ADDRESS NUMBER SHALL BE PROVIDED AND MAINTAINED SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET FRONTING THE PROPERTY. THE NUMBERS SHALL BE A MINIMUM 3 INCHES HIGH, 1 INCH WIDE WITH A 3/8 INCH STROKE. FOR BUILDINGS SET BACK MORE THAN 150 FEET FROM THE STREET, THE NUMBERS SHALL BE A MINIMUM 5 INCHES HIGH, 2 INCHES WIDE WITH A 1/2 INCH STROKE. FIRE CODE 908.4.4.

10. A KEY BOX SHALL BE PROVIDED AT THE MAIN ENTRANCE, IN ACCORDANCE WITH FIRE CODE 902.4, AND AS SET FORTH IN FIRE DEPARTMENT REGULATION 5.

11. THE REQUIRED FIRE FLOW FOR PUBLIC FIRE HYDRANTS AT THIS LOCATION IS 1500 GALLONS PER MINUTE, AT 20 PSI RESIDUAL PRESSURE, FOR A DURATION OF 2 HOURS OVER AND ABOVE MAXIMUM DAILY DOMESTIC DEMAND. FIRE CODE 903.2 AND FIRE DEPARTMENT REGULATION 8.

12. ALL FIRE HYDRANTS SHALL MEASURE 6"X4"X2–1/12", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL; AND SHALL BE INSTALLED IN COMPLIANCE WITH FIRE DEPARTMENT REGULATION 8. FIRE CODE 903.2.1

13. ALL ON–SITE FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND APPROVED PRIOR TO BUILDING OCCUPANCY. FIRE CODE 1001.4

14. THE INSPECTION, HYDROSTATIC TEST AND FLUSHING OF THE UNDERGROUND FIRE PROTECTION PIPING SHALL BE WITNESSED BY AN AUTHORIZED FIRE DEPARTMENT REPRESENTATIVE AND NO UNDERGROUND PIPING OR THRUST BLOCKS SHALL BE COVERED WITH EARTH OR HIDDEN FROM VIEW UNTIL THE FIRE DEPARTMENT REPRESENTATIVE HAS BEEN NOTIFIED AND GIVEN NOT LESS THAN 48 HOURS IN WHICH TO INSPECT SUCH INSTALLATIONS. FIRE CODE 1001.4

15. THE REQUIRED FIRE FLOW IS CALCULATED PER THE COUNTY OF LOS ANGELES CODE, APPENDIX B. REGULATION 8 IS NO LONGER ACCEPTABLE.

PREPARED BY:

REGISTERED PROFESSIONAL ENGINEER DANE P. MCDOUGALL C 80705 CIVIL STATE OF CALIFORNIA

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PREPARED FOR:

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CITY OF SOUTH GATE
DEPARTMENT OF PLANNING AND DEVELOPMENT

VESTING TENTATIVE TRACT MAP NO. 84531
PRELIMINARY FIRE ACCESS PLAN
10130 ADELLA AVENUE
SOUTH GATE, CALIFORNIA 90280

PROJECT NO. CVEN-180

SHEET 5 OF 5

PLAN SET: PS01
DATE: 1/9/2025

Appendix E – Preliminary LID Plan

PRELIMINARY LOW IMPACT DEVELOPMENT PLAN (LID)

Prepared for:
City Ventures Homebuilding, LLC
Attention: Nick Patterson
3121 Michelson Drive, Ste. 150
Irvine, CA 92612

Property:

10130 Adella Avenue
South Gate, California
APN: 6221-026-020

Prepared by:
C&V Consulting, Inc.
9830 Irvine Center Drive
Irvine, California 92618
(949) 916-3800
Contact: Mr. Dane McDougall, P.E.

Preparation Date:
January 2025

Receipt of WDID
REPLACE THIS SHEET

To be provided prior to final approval

Notice of Intent
REPLACE THIS SHEET

To be provided prior to final approval

Table of Contents

List of Figures

List of Appendices

Project Owner's Certification of the Preliminary Low Impact Development (LID) Plan

Project Name: ***South Gate***

Project Number: **Tentative Tract Map No. 84531**
APN 6221-026-020

Project Address: **10130 Adella Avenue**
South Gate , CA 90208

This Preliminary Low Impact Development (LID) Plan for the 10130 Adella Avenue (***TTM No. 84531)*** project has been prepared for City Ventures by C&V Consulting, Inc. It is intended to comply with the requirements of the City of South Gate's Conditions of Approval.

The undersigned is authorized to approve implementation of provisions of this plan as appropriate and will strive to have the plan carried out by successors consistent with the County of Los Angeles LID Manual and the intent of the NPDES storm water requirements.

"I certify under penalty of law that this document and all attachments were prepared under my jurisdiction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathered the information, to the best of my knowledge and belief, the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Owner's Name:	Nick Patterson		
Owner's Title:	Director of Development		
Company:	City Ventures		
Address:	3121 Michelson Drive, Ste. 150, Irvine, CA 92612		
Email:	npatterson@cityventures.com		
Telephone No.:	(763) 244-9855		
Signature:		Date:	

Engineer Certification

Engineer's Name:	Dane McDougall		
Engineer's Title:	Principal		
Company:	C&V Consulting, Inc.		
Address:	9830 Irvine Center Drive, Irvine, CA 92618		
Email:	dmcdougall@cvc-inc.net		
Telephone No.	(949) 916-3800		
I hereby certify that this Low Impact Development Plan is in compliance with, and meets the requirements set forth in, Order No. R4-2012-0175, of the Los Angeles Regional Water Quality Control Board.			
Engineer's Signature		Date	
Place Stamp Here			

Section 2

A. <u>Contact Information/List of Responsible Parties</u>

The homeowner's association (HOA) contact information is:

Contact: TBD
Phone: TBD
The Homeowner's Association

The HOA shall have primary responsibility and significant authority for the implementation, maintenance, and inspection of the property Best Management Practices (BMPs). Duties include, but are not limited to:

- Implementing all elements of the Low Impact Development Plan, including but not limited to:
    - Implementation of prompt and effective erosion and sediment control measures
    - Implementing all non-storm water management, and materials and waste management activities, such as: monitoring, discharges, general site clean-up; vehicle and equipment cleaning, spill control; ensuring that nothing other than storm water enters the storm drain system, etc.
- Pre-storm inspections
- Storm event inspections
- Post-storm inspections
- Routine inspections as described in the Low Impact Development Plan
- Ensuring elimination of all unauthorized discharges
- The HOA shall be assigned authority to mobilize crews to make immediate repairs to the control measures.
- Coordinate all the necessary corrections/repairs are made immediately, and that the project always complies with the Low Impact Development Plan.
- Managing and report any Illicit Connections or Illegal Discharges.

Section 3

A. <u>References</u>

The following documents are made a part of this Low Impact Development Plan by reference:

- Project plans and specifications for Tentative Tract No. 84531, prepared by C&V Consulting, Inc.
- State Water Resources Control Board (SWRCB) Order No. 2013-0001-DWQ, February 5, 2013.
- National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000002, Waste Discharge Requirements (WDRs) for Discharges of Storm Water Runoff Associated with Construction Activity.
- California Stormwater BMP Handbook – Construction, November 2009.
- California Stormwater BMP Handbook – New Development and Redevelopment, January 2003.
- County of Los Angeles Department of Public Works L.I.D. Standards Manual, February 2014

Section 4 – Body of LID Plan

A. Objectives

This Low Impact Development (LID) Plan has four main objectives:

1) Identify all pollutant sources, including sources of sediment that may affect the quality of storm water discharges associated with daily use / activity (storm water discharges) from the property site.
2) Identify non-storm water discharges.
3) Identify, construct, implement and maintain Best Management Practices (BMPs) to reduce or eliminate pollutants in storm water discharges and authorized non-storm water discharges from the property site.
4) Develop a maintenance schedule for BMPs designed to reduce or eliminate pollutants.

B. Project Background and Description

The proposed project is located at 10130 Adella Avenue in the city of South Gate. It consists of six (6) buildings providing fifty-four (54) dwelling units over approximately 2.01 acres. The proposed development includes drive aisles, parking, landscaping, and walkways. The site is bound by Legacy Lane and Legacy High School to the north, Adella Avenue to the west, single family homes to the south, and a trucking company to the east. The project site will be accessible with three (3) entrances/ exits.

Historic aerial images of the site are available as far back as 1954 and indicate the site and surrounding area was comprised of commercial structures and associated parking lots. By 2018, most of the surrounding commercial buildings to the north were demolished and Legacy Lane was constructed, leaving the commercial structure located on the subject site. By 2020, the structure and associated parking lot was demolished, leaving the subject site vacant.

The site is relatively flat with elevations ranging from approximately 95.5 to 98.9 feet above mean sea level. Historically the site was used for commercial purposes so the impervious cover of the pre-developed condition was approximated to be 90% per LACDPW Hydrology Manual land use type “Commercial.” For this preliminary study, post-development impervious cover was estimated to be 85% per LACDPW Hydrology Manual land use type “Low-Rise Apartments, Condominiums, and Townhouses”. Imperviousness is to be verified with final site plan to confirm the consistency of the water quality treatment design during final engineering.

C. Vicinity Map

The proposed development consists of six (6) buildings providing fifty-four (54) dwelling units over approximately 2.01 acres. The proposed development includes drive aisles, parking, landscaping, and walkways. The site is bound by Legacy Lane and Legacy High School to the north, Adella Avenue to the west, single family homes to the south, and a trucking company to the east.

Refer to Figure 1 for the Vicinity Map

D. Pre-Development Drainage Condition

The site is relatively flat with elevations ranging from approximately 95.5 to 98.9 feet above mean sea level. Existing site drainage is primarily directed as sheet flow from the east side towards the surrounding streets in the vicinity of the site. The runoff continues along the curb and gutter south in Adella Avenue to Blumont Road where it continues south to Brookdale Road where it flows east into a catch basin. The runoff can be presumed to discharge into the US Army Corp of Engineer maintained Los Angeles River Channel east of the site; The Los Angeles River ultimately discharges to the Pacific Ocean at San Pedro Bay.

Water bodies downstream of the project site are listed on the most current 303 (d) List as follows:

- Los Angeles River Reach 2
    - Trash
    - Nutrients
    - Ammonia
    - Indicator Bacteria
    - Oil
    - Copper
    - Lead
- Los Angeles River Reach 1
    - Copper (Dissolved)
    - Cadmium
    - Ammonia
    - Zinc (Dissolved)
    - pH
    - Cyanide
    - Nutrients
    - Indicator Bacteria
    - Trash
    - Lead
- Los Angeles River Estuary
    - Chlordane
    - PCBs
    - Trash
    - DDT
    - Toxicity
- San Pedro Bay
    - Total DDT
    - PCBs
    - Toxicity
    - Chlordane

E. Post-Development Drainage Condition

The proposed project consists of six (6) buildings providing fifty-four (54) dwelling units over approximately 2.01 acres. It includes drive aisles, parking, landscaping, and walkways. The project will utilize onsite grated inlet catch basins equipped with FloGard inlet filters for water quality purposes and an Infiltration Trench for capture and treatment of stormwater.

Stormwater runoff will be conveyed to surface flow via the proposed onsite curb and gutter and directed to the sump areas equipped with grated inlet catch basins located near the driveway entrances/ exits of the site as the site is graded to flow towards those areas. The catch basins will be connected by a storm drain pipe to convey the runoff towards the Infiltration Trench downstream for water quality treatment and infiltration. During larger storm events when the infiltration system is at capacity, stormwater runoff will back up into the catch basin and overflow through a parkway drain into the public right of way. The overflow pipe will be at an elevation to ensure full water quality volume is being treated prior to the outlet to the parkway drain. After entering Legacy Lane, the stormwater will surface flow following historic drainage patterns into an existing catch basin that flows into the Los Angeles River and ultimately the Pacific Ocean.

Refer to separately prepared Preliminary Grading and Utility Plans for site design information.

Per Preliminary Infiltration Testing prepared by ALTA California Geotechnical, Inc. dated June 13, 2024, infiltration BMP was determined to be feasible. See below for the results of the field percolation testing:

Table Summary of Infiltration Testing (No Factor of Safety)		
Test Designation	P-1	P-2
Approximate Depth of Test	5.0 ft	10.0 ft
Final Time Interval	10 minutes	10 minutes
Radius of Test Hole	4 inches	4 inches
Tested Infitration Rate	1.0 in/hr	2.6 in/hr

Refer to Figure 2, BMP Exhibit for additional information.

F. LID Project Types, Characteristics, & Activities

Per the Los Angeles Department of Public Works (LACDPW), *Low Impact Development Standards Manual*, dated February 2014, the proposed project is classified as a "Designated Project." A "Designated Project" is defined by the LACDPW as follows:

> "Redevelopment projects, which are developments that result in creation or addition or replacement of either: (1) 5,000 square feet or more of impervious surface on a site that was previously developed as described in the above bullets; or (2) 10,000 square feet or more of impervious surface area on a site that was previous developed as a single-family home."

G. Pollutant Source Identification and BMP Selection

The following is a list of materials to be used in the daily construction activities at the project site, which will potentially contribute to pollutants, other than sediment, to storm water runoff. Control Practices for each activity are identified below:

- Vehicle fluids, including oil, grease, petroleum, and coolants from personal vehicles.
- Landscaping materials and wastes (topsoil, plant materials, herbicides, fertilizers, mulch, pesticides)
- General trash debris and litter
- Pet waste (bacteria/ fecal coliforms)

The Best Management Practices (BMPs) that have been selected for implementation on this project are detailed in the following sections.

H. Source Control BMPs

The County of Los Angeles LID Standards Manual lists preference for selection of BMPs which includes retention-based stormwater quality control measures, biofiltration, vegetation-based storm quality control measures, and/or treatment-based stormwater quality control measures. This project has selected a retention-based stormwater quality control measure by using a drywell infiltration system.

In the soils report prepared by Alta California Geotechnical, Inc., an infiltration system was determined to be feasible as a stormwater BMP. Additionally, roof gutters will discharge to landscape areas using splash blocks when possible, creating passive bio treatment in small planter areas prior to interception by an area drain system, catch basin, and storm drain system. All runoff from the site is tributary to the proposed onsite infiltration system. As retention-based stormwater quality control measures are of the highest priority per the LA County LID Manual, the other stormwater quality control measures were not considered.

Structural BMPs shall be installed by the developer and contractor through the construction and development of the project; planting and irrigation systems shall be designed by licensed landscape architects and installed by qualified contractors to specifications and standards of the City of South Gate. The structural BMPs used for this project are summarized below.

Project proponents shall implement site design concepts that achieve each of the following:

- Minimize Storm Water Pollutants of Concern

The following tables identify the source control and treatment BMPs and how each is implemented to achieve each site design concept.

Table-1: Site Design BMPs

BMP	TECHNIQUE	INCLUDED?		BRIEF DESCRIPTION OF METHOD
		YES	NO	
SD-10	Site Design & Landscape Planning	X		
SD-11	Roof Runoff Controls	X		
SD-12	Efficient Irrigation	X		
SD-13	Storm Drain Signage	X		
SD-20	Pervious Pavements		X	Site design does not allow for this BMP.
SD-21	Alternative Building Materials		X	Not Applicable
SD-30	Fueling Areas		X	Not Applicable
SD-31	Maintenance Bays & Docks		X	Not Applicable
SD-32	Trash Storage Areas	X		
SD-33	Vehicle Washing Areas		X	Not Applicable
SD-34	Outdoor Material Storage Areas		X	Not Applicable
SD-35	Outdoor Work Areas		X	Not Applicable
SD-36	Outdoor Processing Areas		X	Not Applicable

Roof Runoff Controls
All roof runoff will be collected and directed to splash blocks then onto grass or vegetated swales before discharging to the street or storm drain system. Area drains within the onsite landscaping between buildings will flow to onsite infiltration system where flows will be treated.

Efficient Irrigation
As part of the design of all common area landscape irrigation shall employ water conservation principals, including, but not limited to, such provisions as water sensors, programmable irrigation times (for short cycles), etc., will be used. Such common areas will be maintained by the HOA.

Storm Drain Signage
Storm Drain Signage will be provided on all proposed on-site catch basins to prevent residence from discarding pollutants to the storm drain system and potentially obstructing the proposed BMP treatment facility. The placard or stencil will indicate the ultimate destination of the runoff entering the device. This stencil shall be always weatherproof and visible. The HOA will be responsible for maintaining the signage after the construction is completed. See Appendix D for an example.

Trash Storage Areas
Proposed trash enclosures will be designed in accordance with all standards set by local building and fire codes, current County ordinances and zoning requirements, as well as the design specifications outlined in the Los Angeles County LID Manual.

Table-2: Source Control BMPs

BMP	TECHNIQUE	INCLUDED?		BRIEF DESCRIPTION OF METHOD
		YES	NO	
S-1	Storm Drain Message and Signage	X		
S-2	Outdoor Material Storage Area		X	Not Applicable
S-3	Outdoor Trash Storage and Waste Handling Area	X		
S-4	Outdoor Loading/Unloading Dock Area		X	No Loading Dock Areas
S-5	Outdoor Repair/Maintenance Area		X	No Maintenance Bays
S-6	Outdoor Vehicle/Equipment's/Accessory Washing Area		X	No Wash Areas
S-7	Fueling Area		X	No Fueling Areas
S-8	Landscape Irrigation Practices	X		
S-9	Building Materials Selection	X		
S-10	Animal Care and Handling Facilities		X	No Animal Care Facility
S-11	Outdoor Horticulture Areas		X	Not Applicable

Storm Drain Message and Signage
Storm Drain Signage will be provided on all proposed on-site catch basins to prevent residence from discarding pollutants to the storm drain system and potentially obstructing the proposed BMP treatment facility. The placard or stencil will indicate the ultimate destination of the runoff entering the device. This stencil shall be always weatherproof and visible. The HOA will be responsible for maintaining the signage after the construction is completed. See Appendix B for an example.

Outdoor Trash Storage and Waste Handling Area
Proposed trash enclosures will be designed in accordance with all standards set by local building and fire codes, current County ordinances and zoning requirements, as well as the design specifications outlined in the Los Angeles County LID Manual.

Landscape Irrigation Processes
Management programs will be designed and established by the HOA, who will maintain the common areas within the project site. These programs will include how to mitigate the potential dangers of fertilizer and pesticide usage (refer to the Maintenance and Frequency Table). Ongoing maintenance will be consistent with the State of California Model- Water Efficient Landscape Ordinance. Fertilizer and pesticide usage shall be consistent with County Management Guidelines for use of Fertilizers and Pesticides.

Building Materials Selection
Material selection will minimize the use of copper, galvanized metals and other materials that could add significant amounts of harmful pollutants to stormwater runoff.

Table-3: Stormwater Quality Control BMPs

BMP	NAME	INCLUDED?		IF NOT APPLICABLE, STATE BRIEF REASON
		YES	NO	
RET-1	Bioretention		X	Used alternative method – Infiltration Trench
RET-2	Infiltration Basin		X	Used alternative method – Infiltration Trench
RET-3	Infiltration Trench	X		
RET-4	Drywell		X	Used alternative method – Infiltration Trench
RET-5	Permeable Pavement without an Underdrain		X	Used alternative method – Infiltration Trench
RET-6	Rain Barrel/Cistern		X	Used alternative method – Infiltration Trench
BIO-1	Biofiltration		X	Used alternative method – Infiltration Trench
VEG-1	Green Roof		X	Space not available for BMP
VEG-2	Stormwater Planter		X	Used alternative method – Infiltration Trench
VEG-3	Tree-Well Filter		X	Used alternative method – Infiltration Trench
VEG-4	Vegetated Swales		X	Space not available for BMP
VEG-5	Vegetated Filter Strip		X	Space not available for BMP

BMP	NAME	INCLUDED?		IF NOT APPLICABLE, STATE BRIEF REASON
		YES	NO	
T-1	Sand Filter		X	Space not available for BMP
T-2	Constructed Wetland		X	This is not a wetland area/ development
T-3	Extended Detention Basin		X	Space not available for BMP
T-4	Wet Pond		X	This is not a wetland area/ development
T-5	Permeable Pavement with an Underdrain		X	Used alternative method – Infiltration Trench

RET-3 Infiltration Trench
The proposed infiltration trench consists of a 48" perforated HDPE Storm Drain Pipe wrapped in gravel and geotextile fabric. The system will be designed to provide enough static volume within the domes and gravel bed to retain and infiltrate the entire DCV. The amount of surface area provided will be designed to ensure infiltration of the entire DCV within 48 hours. See Appendix C for system sizing calculations.

Refer to Appendix C for the supporting calculations as provided by Albus & Associates.

I. Non-Structural BMPs
Non-structural BMPs are generally managerial, educational, inspection and/ or maintenance oriented. These items consist of educating employees and occupants, developing, and implementing HOA guidelines, implementing BMPs and enforcing Code requirements. Non-structural BMPs used for this project are summarized below:

Education for Employees and Occupants
Practical informational materials will be provided to occupants, the HOA and employees on general good housekeeping practices that contribute to protection of storm water quality. Among other things, these materials will describe the use of chemicals (including household type) that should be limited to the property, with no discharge of specified wastes via hosing or other direct discharge to gutters, catch basins and storm drains.

This program must be maintained, enforced, and updated periodically by the HOA. Educational materials including, but not limited to, the materials included in the Appendix F of this plan will be made available to the employees and contractors of the HOA.

Activity Restrictions
Activities on this site will be limited to activities related to residential living. The Conditions, Covenants, and Restrictions (CC&Rs) will outline the activities that are restricted on the property. Such activities related to the LID include car washing, car maintenance and disposal of used motor fluids, pet waste cleanup, and trash container areas.

Common Area Landscape Management
Management programs will be designed and established by the HOA, who will maintain the common areas within the project site. These programs will include how to mitigate the potential dangers of fertilizer and pesticide usage, require that fertilizer and pesticide usage shall be consistent with City and County guidelines, discuss utilization of water-efficient landscaping practices, require that maintenance be consistent with any Los Angeles County water conservation resolutions or City of South Gate equivalent, and detail the proper disposal of landscape wastes. Ongoing maintenance will be consistent with the State of California Model Water-Efficient Landscape Ordinance. Fertilizer and pesticide usage shall be consistent with County Management Guidelines for use of Fertilizers and Pesticides.

Common Area Litter Control
The HOA will be required to implement trash management and litter control procedures in the common areas aimed at reducing pollution of drainage water. The HOA may also contract with their landscape maintenance firm to provide this service during regularly scheduled maintenance, which should consist of litter patrol, emptying of trash receptacles in common areas, and noting trash disposal violations and reporting the violations to the HOA for remediation.

Street Sweeping in Private Streets and Parking Lots
The HOA shall have all streets and parking lots swept on a weekly basis. This procedure will be intensified around October 15th of each year prior to and throughout rainstorm period.

Drainage Facility Inspection & Maintenance
The HOA will be responsible for implementing each of the BMPs detailed in this plan. The HOA will also be responsible for cleaning and maintaining the BMPs on a regular basis. Refer to Appendix G for the Operation and Maintenance Plan. Refer to Appendix B for site specific drainage BMP information.

Title 22 CC&R Compliance
The HOA will comply with this Regulation as part of the development's CC&Rs. CC&Rs will be prepared as a separate document and reviewed by the City's Attorney.

Uniform Fire Code Implementation
The HOA will comply with this Code as part of the development's CC&Rs. CC&Rs will be prepared as a separate document and reviewed by the City's Attorney

Employee Training/Education Program
A training program will be established as it would apply to future employees, contractors, and homeowners of the HOA to inform and train in maintenance activities regarding the impact of dumping oil, paints, solvents, or other potentially harmful chemicals into storm drains; the proper use of fertilizers and pesticides in landscaping maintenance practices; and the impacts of littering and improper water disposal.

The HOA (or a hired firm) will conduct the training program which will include targeted training sessions with specific construction disciplines (landscaping, concrete finishers, painters, etc.). See Appendix F for examples of educational materials that will be provided to the Employees.

The project's O&M will include provisions for future employee training programs conducted on a yearly based prior to the rainy season.

J. BMP Maintenance, Inspection, and Repair

Inspections will be conducted as follows:

- Annually prior to the start of the rainy season (Oct. 1st- May 31st)
- Every (1) month during rainy season
- At any other time(s) or intervals of time specified in the contract documents

An inspection form shall be completed at least once per year prior to the start of the rainy season. This inspection check sheet (see Appendix G) shall be included in this report and always kept onsite. The check sheet should be filled out completely and clearly indicate any BMPs that need repair or maintenance. These repairs and/ or maintenance procedures shall be carried out at the soonest possible time.

A legible log shall be kept on site to record the inspection of the storm water pollution abatement control measures. The record must contain the following information: (i) type of maintenance activities or source-control practices; (ii) date the activities are completed; and (iii) the name of the operator performing the activities. During transfer of ownership/operation of the facility, the current owner must notify the new owner/operator of the BMPs and the associated maintenance activities that also transfer to the new owner/operator of the property. See Appendix G.

K. Inspection, Maintenance, and Responsibility for BMPs

The following tables list the post-construction BMPs (routine non-structural and structural), the required ongoing maintenance, the inspection and maintenance frequency, the inspection criteria, and the entity or party responsible for implementation, maintenance, and/or inspection.

Table-4: Non-Structural BMP Maintenance Responsibility/Frequency Matrix

BMP	RESPONSIBILITY	FREQUENCY
Homeowner/ Business owner Education, Activity Restrictions	HOA/Owner will provide educational materials. Those materials and responsibilities must be passed onto subsequent property owners.	Continuous. CC&Rs to be provided to homeowners at the time they purchase the property and updates provided by the HOA as they occur.
Common Area Landscape Management	HOA/Owner will appoint a landscape maintenance contractor	Monthly during regular maintenance and use with management guidelines for use of fertilizers and pesticides.

BMP	RESPONSIBILITY	FREQUENCY
Parking Areas and Drives Management	HOA/Owner will appoint a landscape maintenance contractor	The Drives Aisles are to be swept on a routine scheduled basis to facilitate the pickup of trash and debris (plant or otherwise) and to remove excessive oil, grease, and build-up. During sweeping, debris is to be removed from the parking areas and drives and then scrubbed and rinsed. This sweeping schedule will be at a minimum occurrence of once a week and as necessary to rid / reduce active pollutants from the pavement areas. This maintenance requirement will be listed in the Convent, Conditions and Restrictions (CC&Rs) of this project. These CC&Rs will be recorded to the property at the County Recorder's Office and be included on the final Title report of these properties.
Litter Control by Sweeping	HOA/Owner will appoint a landscape maintenance contractor.	Weekly inspection of trash receptacles to ensure that lids are closed and pick up any excess trash on the ground, noting trash disposal violations to the HOA for remediation.
Employee Training	HOA/Owner will appoint a landscape contractor after construction.	Monthly for maintenance personnel and employees to include the educational materials contained in the approved LID.
Common Area Catch Basin Inspection & Cleaning	HOA/Owner will appoint a landscape maintenance contractor for common areas and storm drain facilities.	Inspect basins once a month. Clean debris and silt in bottom of catch basins as needed. Intensified on or about October 15th each year or prior to the first 24-hour storm event, whichever occurs first. Refer to Appendix E.

Table-5: Structural BMP Maintenance Responsibility/Frequency Matrix

BMP	RESPONSIBILITY	FREQUENCY
Common Area Efficient Irrigation	HOA/Owner will appoint a landscape contractor after construction	Once a week, in conjunction with maintenance activities. Verify that runoff minimizing landscape design continues to function by checking that water sensors are functioning properly, that irrigation heads are adjusted properly to eliminate overspray to hardscape areas, and to verify that irrigation timing and cycle lengths are adjusted in accordance with

BMP	RESPONSIBILITY	FREQUENCY
		water demands, given time of year, weather and day or nighttime temperatures.
Common Area Runoff Efficient Landscape Design	HOA/Owner will appoint a landscaping contractor	Once a week in conjunction with maintenance activities and prior to finalizing any replanting schemes. Verify that plants continue to be grouped according to similar water requirements to reduce excess irrigation runoff.
Catch Basin Stenciling	HOA/Owner	A warning stencil will be painted on top and in view with the words: "No-Dumping – Drains to Ocean" At all catch basin, drain inlets draining to the street or storm drain system. See Appendix "B" (example). Once every 6 months, inspect for re-stenciling needs. Re-stencil as needed immediately.
Infiltration Trench	HOA/Owner	Infiltration Trench maintenance will conform to manufacturer's specifications. Please see additional information in Appendix C
Oldcastle FloGard Catch Basin Insert Filters	HOA/Owner	Oldcastle FloGard catch basin insert filter maintenance will conform to manufacturer's specifications. See additional information in Appendix B

L. Operation/Maintenance Funding after Project Completion

The post-construction BMPs as described above will be funded and maintained by:

Nick Patterson
Tel: (763) 244-9855
City Ventures
3121 Michelson Drive, Ste. 150
Irvine, CA 92612

Maintenance and requirements for the property will be listed in the Convent, Conditions and Restrictions (CC&Rs) of this project and will be the responsibility of the property owner at all times. These CC&Rs will be recorded to the property at the County Recorder's Office and be included on the Title report of these properties.

Figure -1:
Project Vicinity Map

VICINITY MAP

N.T.S

Figure -2:
BMP Exhibit

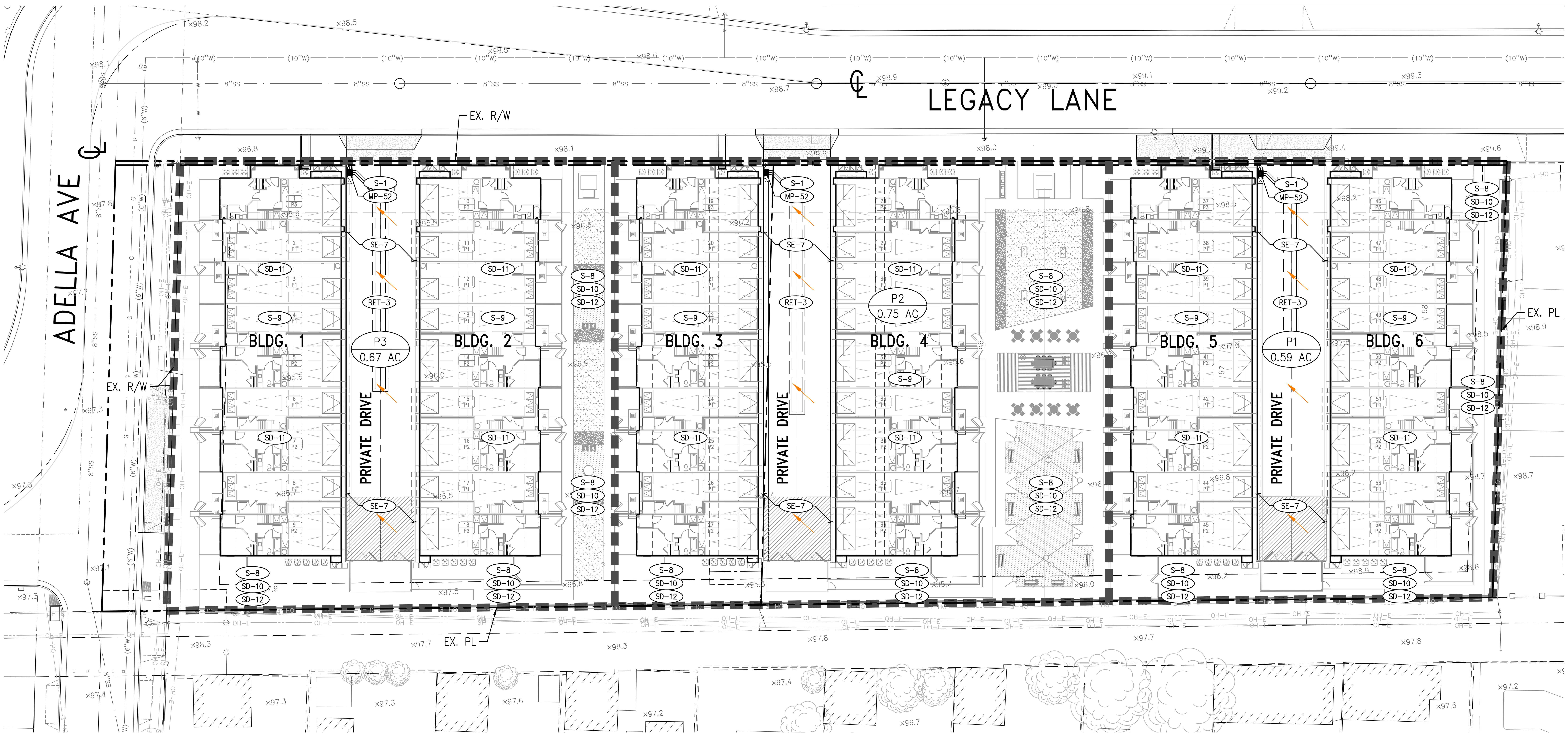
BMP EXHIBIT
FOR TENTATIVE TRACT NO. 84531

10130 ADELLA AVENUE
CITY OF SOUTH GATE
COUNTY OF LOS ANGELES

VICINITY MAP
N.T.S

LEGEND

- EXISTING RIGHT-OF-WAY/ BOUNDARY
- PROPOSED PROPERTY LINE
- DRAINAGE MANAGEMENT AREA (DMA)
- PROPOSED STORM DRAIN
- DRAINAGE FLOW ARROWS
- PROPOSED CATCH BASIN
- DMA X / X.XX AC — DRAINAGE MANAGEMENT AREA (DMA)

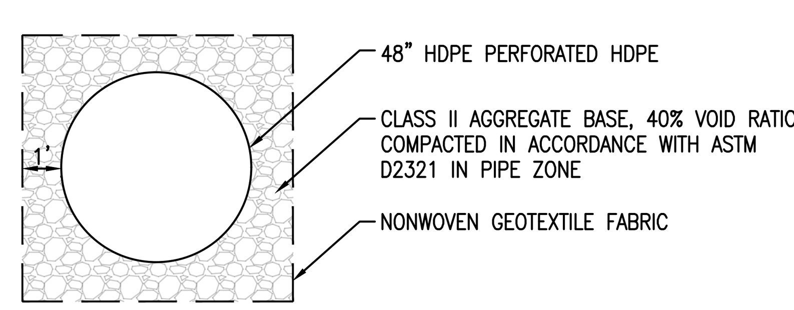


SCALE: 1" = 20'
0 10 20 40

BEST MANGEMENT PRACTICES (BMPS)

S-1	STORM DRAIN SIGNAGE	SD-12	EFFICIENT IRRIGATION
S-8 / SD-10	SITE DESIGN & LANDSCAPE PLANNING	SE-7	STREET SWEEPING & VACUUMING
S-9	BUILDING MATERIALS SELECTION	MP-52	OLDCASTLE FLOGARD CATCH BASIN INSERT FILTERS (OR APPROVED EQUAL)
SD-11	ROOF RUNOFF CONTROLS	RET-3	INFILTRATION TRENCH

INFILTRATION TRENCH DETAIL



PREPARED BY:

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CITY OF SOUTH GATE
DEPARTMENT OF PUBLIC WORKS/ ENGINEERING

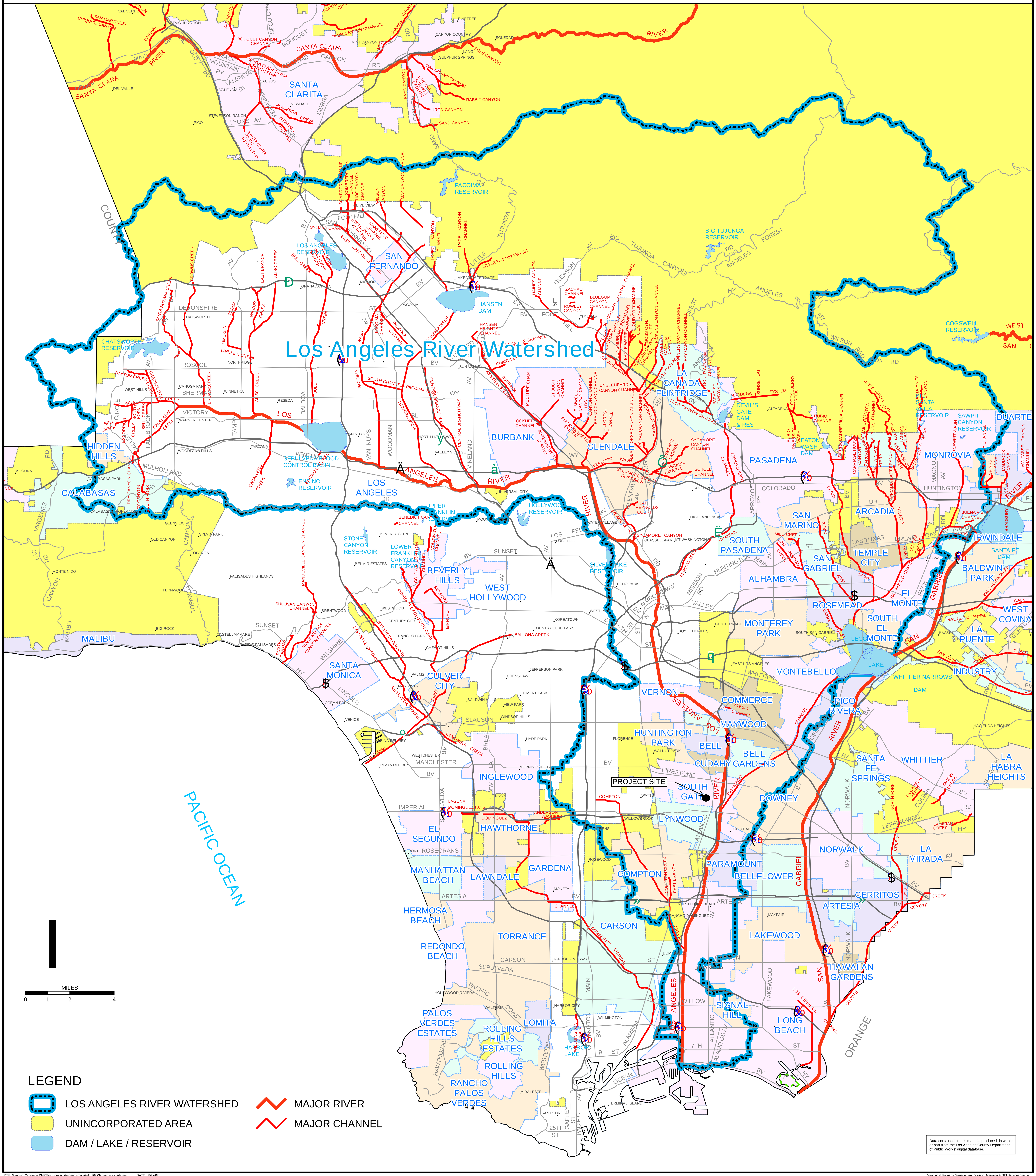
VESTING TENTATIVE TRACT MAP NO. 84531
BMP EXHIBIT
10130 ADELLA AVENUE
SOUTH GATE, CALIFORNIA 90280

PROJECT NO. CVEN-180
SHEET 1 OF 1

Figure -3:
Impaired Waters

COUNTY OF LOS ANGELES

LOS ANGELES RIVER WATERSHED



Appendix A:
Volume and Flow Rate Calculations and Hydrologic Report

The proposed development was analyzed for the 0.75-in storm event and the 85th Percentile storm event using the LACDPW HydroCalc software. The governing stormwater runoff peak volume between the two storm events was utilized for design. Below is a summary of the HydroCalc outputs:

DMA	85th Percentile Storm ✓		0.75-in Storm		Governing
	Volume (cf)	Flowrate (cfs)	Volume (cf)	Flowrate (cfs)	DCV (cf) 85th Percentile
1	1491.05	0.158	1242.54	0.1229	1491.05
2	1895.4	0.194	1579.5	0.1562	1895.4
3	1693.23	0.179	1411.02	0.1395	1693.23
Total	5079.68	0.531	4233.06	0.4186	5079.68

Refer to LACDPW HydroCalc Output Data within this Appendix for Volume and Flowrate Calculations.

Peak Flow Hydrologic Analysis

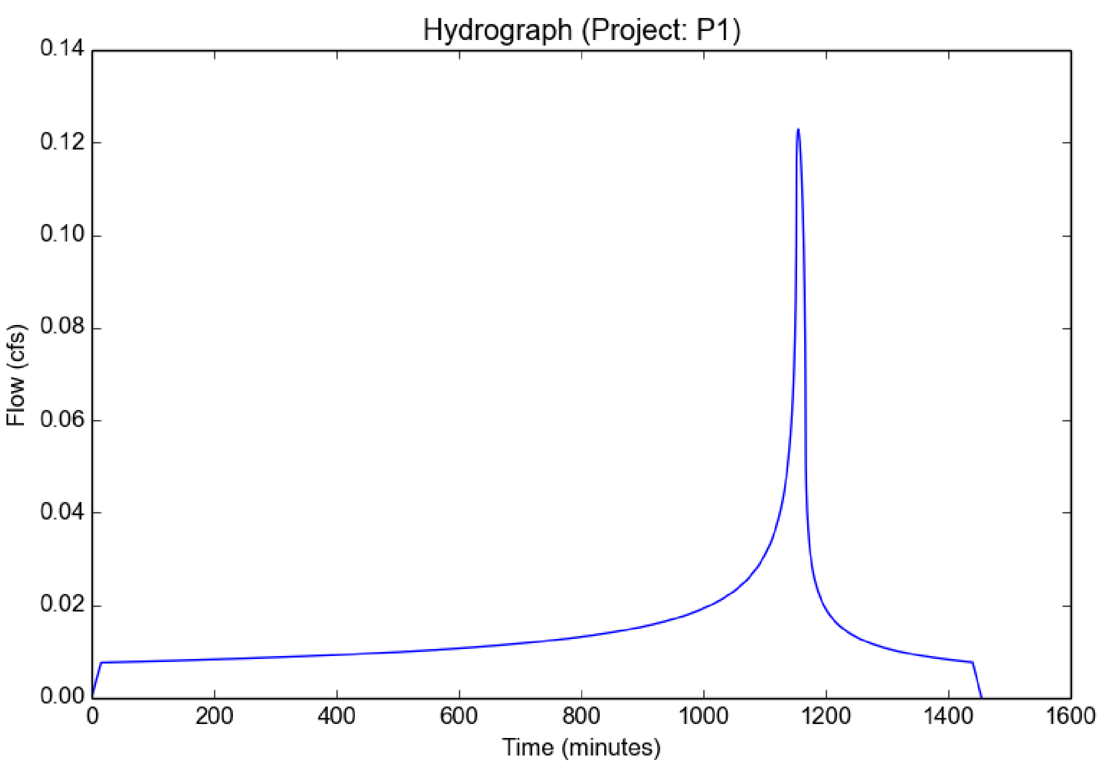
File location: P:/C/CVEN-180/Admin/Reports/Hydrology/Appendix E - Hydrology Calculations/South Gate - P1_0.75inch.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Project
Subarea ID	P1
Area (ac)	0.59
Flow Path Length (ft)	166.23
Flow Path Slope (vft/hft)	0.0109
0.75-inch Rainfall Depth (in)	0.75
Percent Impervious	0.85
Soil Type	15
Design Storm Frequency	0.75 inch storm
Fire Factor	0
LID	True

Output Results

Modeled (0.75 inch storm) Rainfall Depth (in)	0.75
Peak Intensity (in/hr)	0.267
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.78
Time of Concentration (min)	15.0
Clear Peak Flow Rate (cfs)	0.1229
Burned Peak Flow Rate (cfs)	0.1229
24-Hr Clear Runoff Volume (ac-ft)	0.0285
24-Hr Clear Runoff Volume (cu-ft)	1242.5435



Peak Flow Hydrologic Analysis

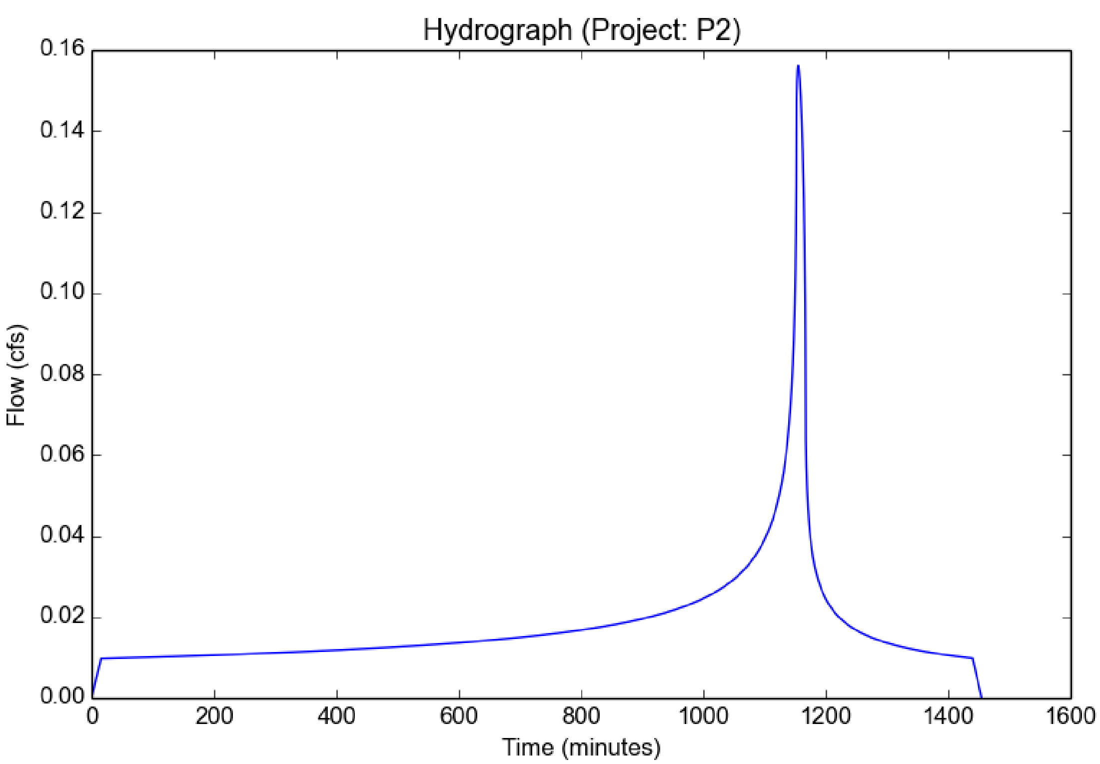
File location: P:/C/CVEN-180/Admin/Reports/Hydrology/Appendix E - Hydrology Calculations/South Gate - P2_0.75inch.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Project
Subarea ID	P2
Area (ac)	0.75
Flow Path Length (ft)	166.9
Flow Path Slope (vft/hft)	0.0109
0.75-inch Rainfall Depth (in)	0.75
Percent Impervious	0.85
Soil Type	15
Design Storm Frequency	0.75 inch storm
Fire Factor	0
LID	True

Output Results

Modeled (0.75 inch storm) Rainfall Depth (in)	0.75
Peak Intensity (in/hr)	0.267
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.78
Time of Concentration (min)	15.0
Clear Peak Flow Rate (cfs)	0.1562
Burned Peak Flow Rate (cfs)	0.1562
24-Hr Clear Runoff Volume (ac-ft)	0.0363
24-Hr Clear Runoff Volume (cu-ft)	1579.5045



Peak Flow Hydrologic Analysis

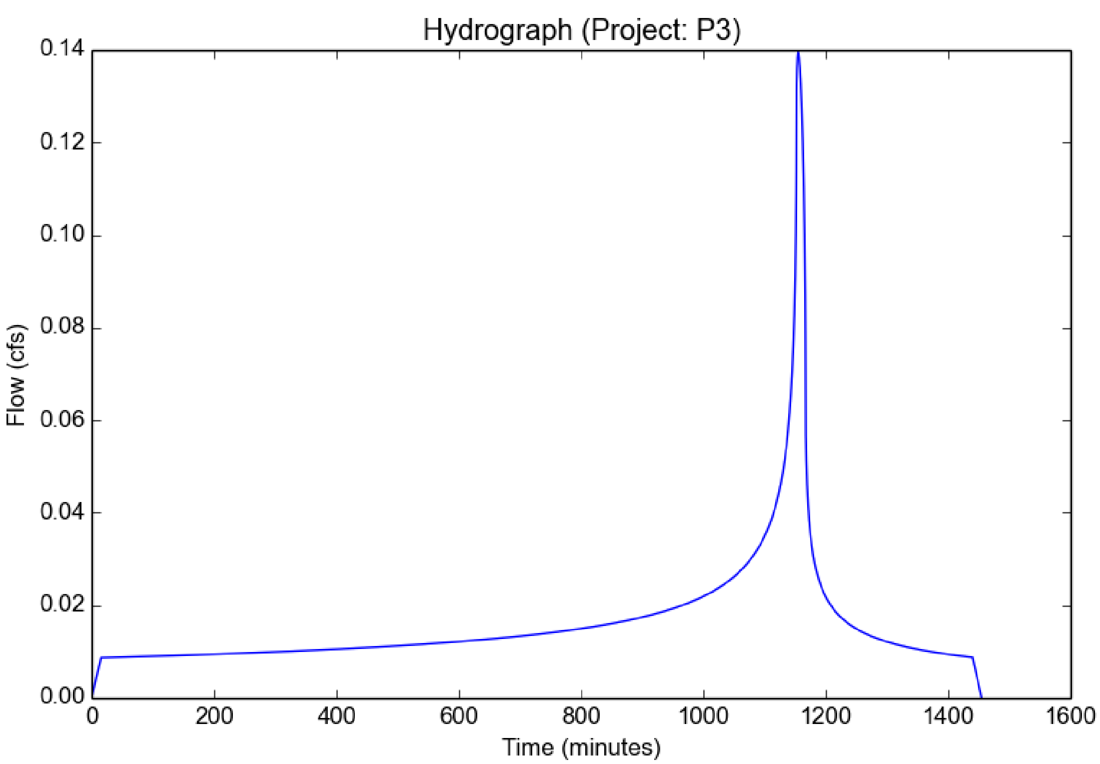
File location: P:/C/CVEN-180/Admin/Reports/Hydrology/Appendix E - Hydrology Calculations/South Gate - P3_0.75inch.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Project
Subarea ID	P3
Area (ac)	0.67
Flow Path Length (ft)	166.88
Flow Path Slope (vft/hft)	0.0111
0.75-inch Rainfall Depth (in)	0.75
Percent Impervious	0.85
Soil Type	15
Design Storm Frequency	0.75 inch storm
Fire Factor	0
LID	True

Output Results

Modeled (0.75 inch storm) Rainfall Depth (in)	0.75
Peak Intensity (in/hr)	0.267
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.78
Time of Concentration (min)	15.0
Clear Peak Flow Rate (cfs)	0.1395
Burned Peak Flow Rate (cfs)	0.1395
24-Hr Clear Runoff Volume (ac-ft)	0.0324
24-Hr Clear Runoff Volume (cu-ft)	1411.024



Peak Flow Hydrologic Analysis

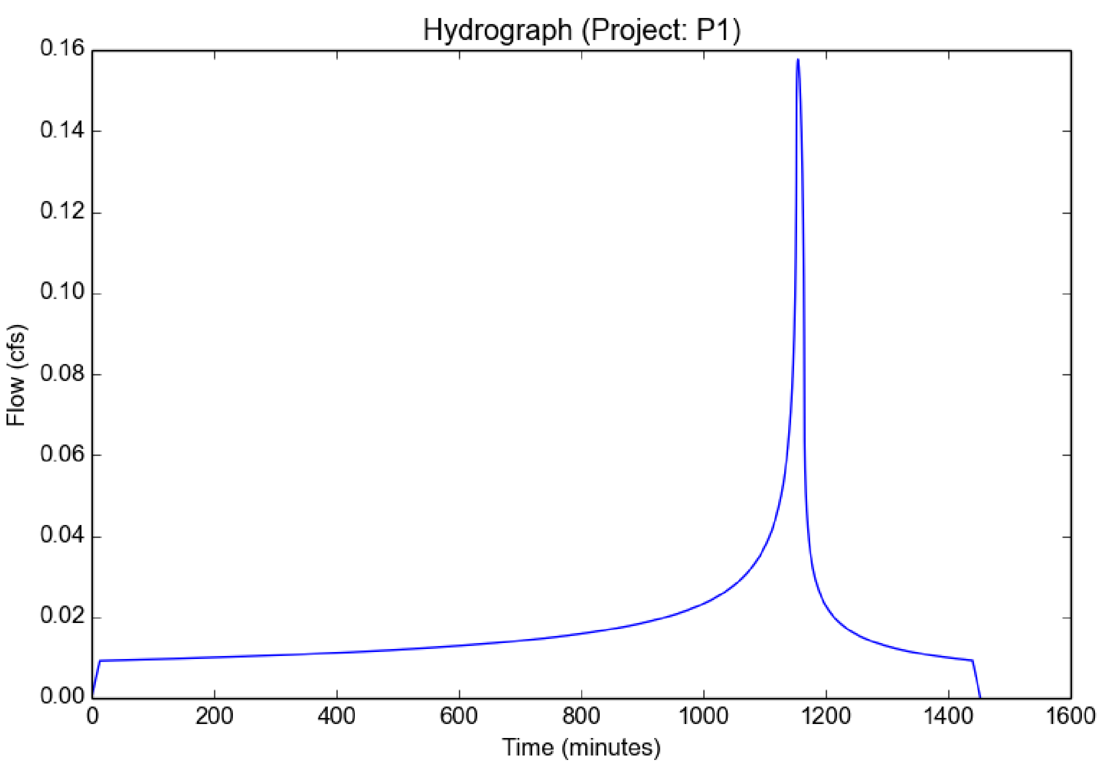
File location: P:/C/CVEN-180/Admin/Reports/LID/_Appendix A - Calculations/South Gate - P1_85th Percentile.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Project
Subarea ID	P1
Area (ac)	0.59
Flow Path Length (ft)	166.23
Flow Path Slope (vft/hft)	0.0109
85th Percentile Rainfall Depth (in)	0.9
Percent Impervious	0.85
Soil Type	15
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	0.9
Peak Intensity (in/hr)	0.3427
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.78
Time of Concentration (min)	13.0
Clear Peak Flow Rate (cfs)	0.1577
Burned Peak Flow Rate (cfs)	0.1577
24-Hr Clear Runoff Volume (ac-ft)	0.0342
24-Hr Clear Runoff Volume (cu-ft)	1491.0512



Peak Flow Hydrologic Analysis

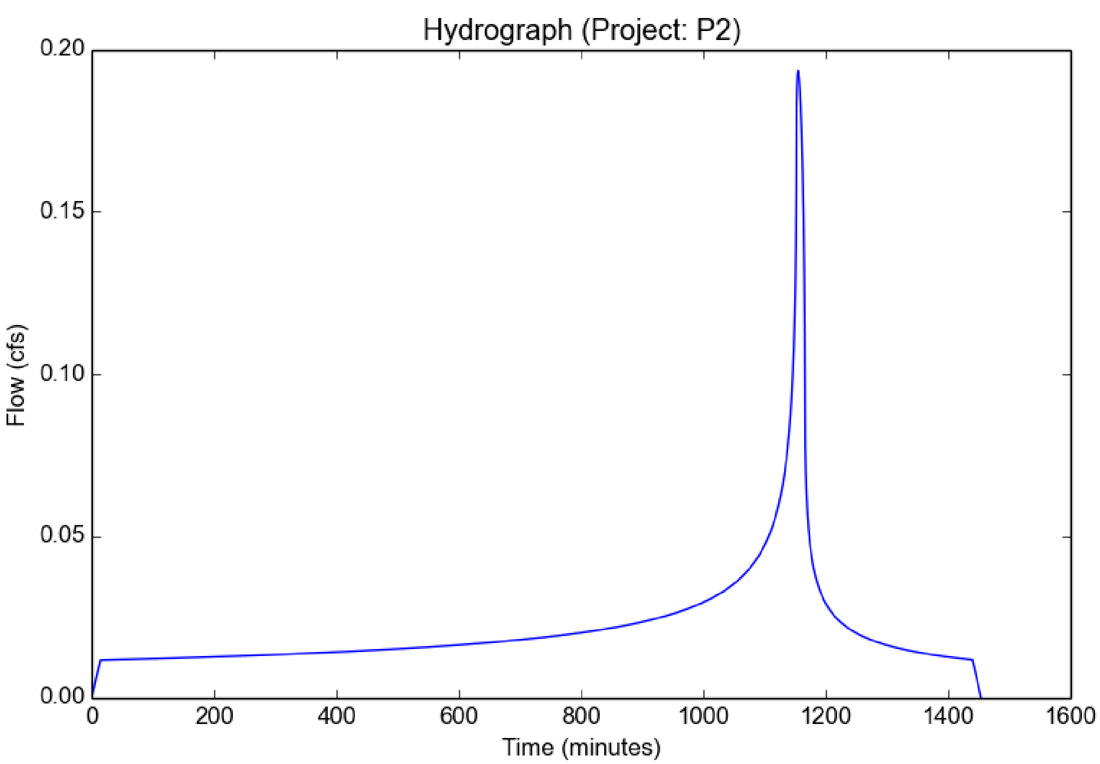
File location: P:/C/CVEN-180/Admin/Reports/LID/_Appendix A - Calculations/South Gate - P2_85th Percentile.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Project
Subarea ID	P2
Area (ac)	0.75
Flow Path Length (ft)	166.9
Flow Path Slope (vft/hft)	0.0109
85th Percentile Rainfall Depth (in)	0.9
Percent Impervious	0.85
Soil Type	15
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	0.9
Peak Intensity (in/hr)	0.331
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.78
Time of Concentration (min)	14.0
Clear Peak Flow Rate (cfs)	0.1936
Burned Peak Flow Rate (cfs)	0.1936
24-Hr Clear Runoff Volume (ac-ft)	0.0435
24-Hr Clear Runoff Volume (cu-ft)	1895.4047



Peak Flow Hydrologic Analysis

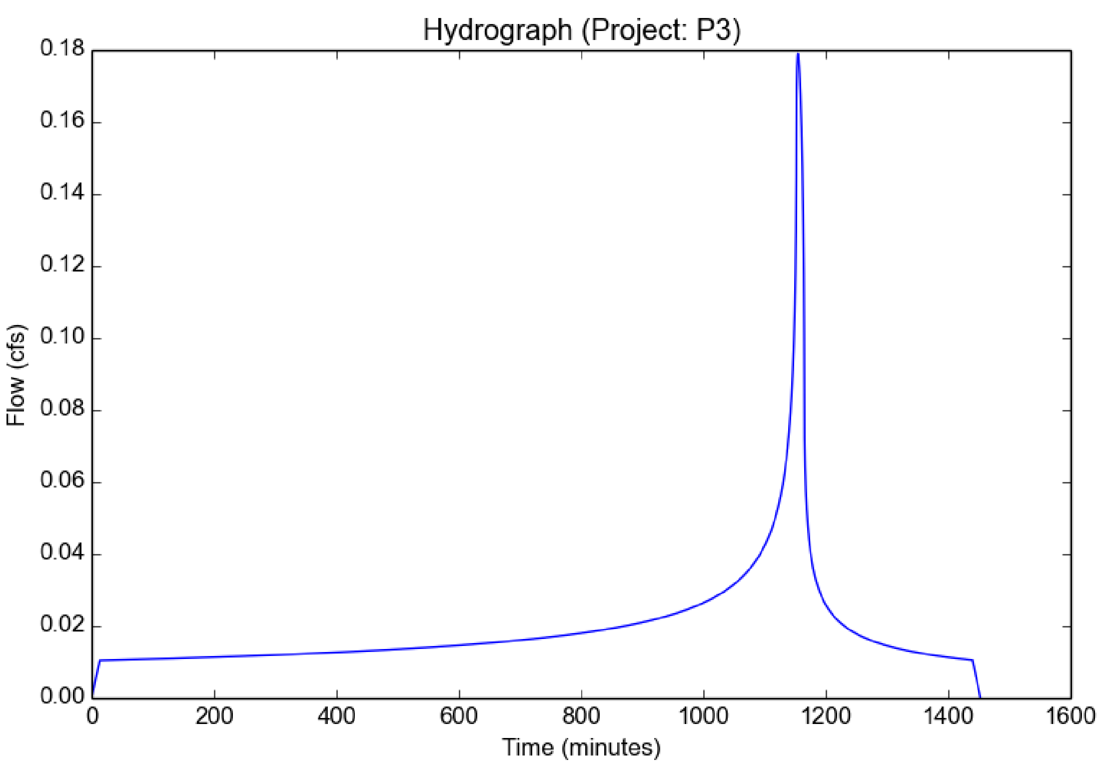
File location: P:/C/CVEN-180/Admin/Reports/LID/_Appendix A - Calculations/South Gate - P3_85th Percentile.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Project
Subarea ID	P3
Area (ac)	0.67
Flow Path Length (ft)	166.88
Flow Path Slope (vft/hft)	0.0111
85th Percentile Rainfall Depth (in)	0.9
Percent Impervious	0.85
Soil Type	15
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

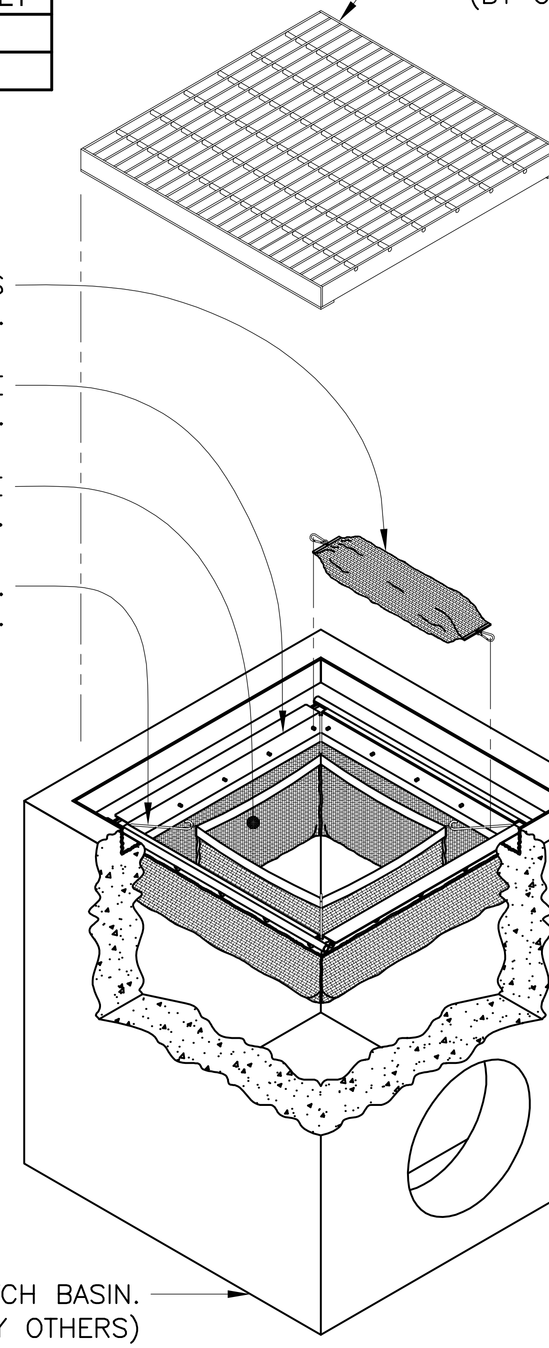
Modeled (85th percentile storm) Rainfall Depth (in)	0.9
Peak Intensity (in/hr)	0.3427
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.78
Time of Concentration (min)	13.0
Clear Peak Flow Rate (cfs)	0.1791
Burned Peak Flow Rate (cfs)	0.1791
24-Hr Clear Runoff Volume (ac-ft)	0.0389
24-Hr Clear Runoff Volume (cu-ft)	1693.2276



Appendix B:
Site BMPs

FG-0001

SPECIFIER CHART			
MODEL	INLET ID	GRATE OD	COMMENTS
FF-12D	12" X 12"	15" X 15"	GRATED INLET
FF-16D	16" X 16"	18" X 18"	GRATED INLET
FF-18D	18" X 18"	20" X 20"	GRATED INLET
FF-1836SD	18" X 36"	18" X 40"	GRATED INLET
FF-1836DGO	18" X 36"	18" X 40"	COMBINATION INLET
FF-24D	24" X 24"	26" X 26"	GRATED INLET
FF-2436SD	24" X 36"	24" X 40"	GRATED INLET
FF-24DGO	24" X 24"	18" X 26"	COMBINATION INLET
FF-2436DGO	24" X 36"	24" X 40"	COMBINATION INLET
FF-36D (2 PIECE)	36" X 36"	36" X 40"	GRATED INLET
FF-3648D (2 PIECE)	36" X 48"	40" X 48"	GRATED INLET



NOTES:

1. Filter insert shall have a high flow bypass feature.

2. Filter support frame shall be constructed from stainless steel Type 304.

3. Filter medium shall be *Fossil Rock* ™, installed and maintained in accordance with manufacturer specifications.

4. Storage capacity reflects 80% of maximum solids collection prior to impeding filtering bypass.

Inlet Filtration

FloGard®

Catch Basin Insert Filter

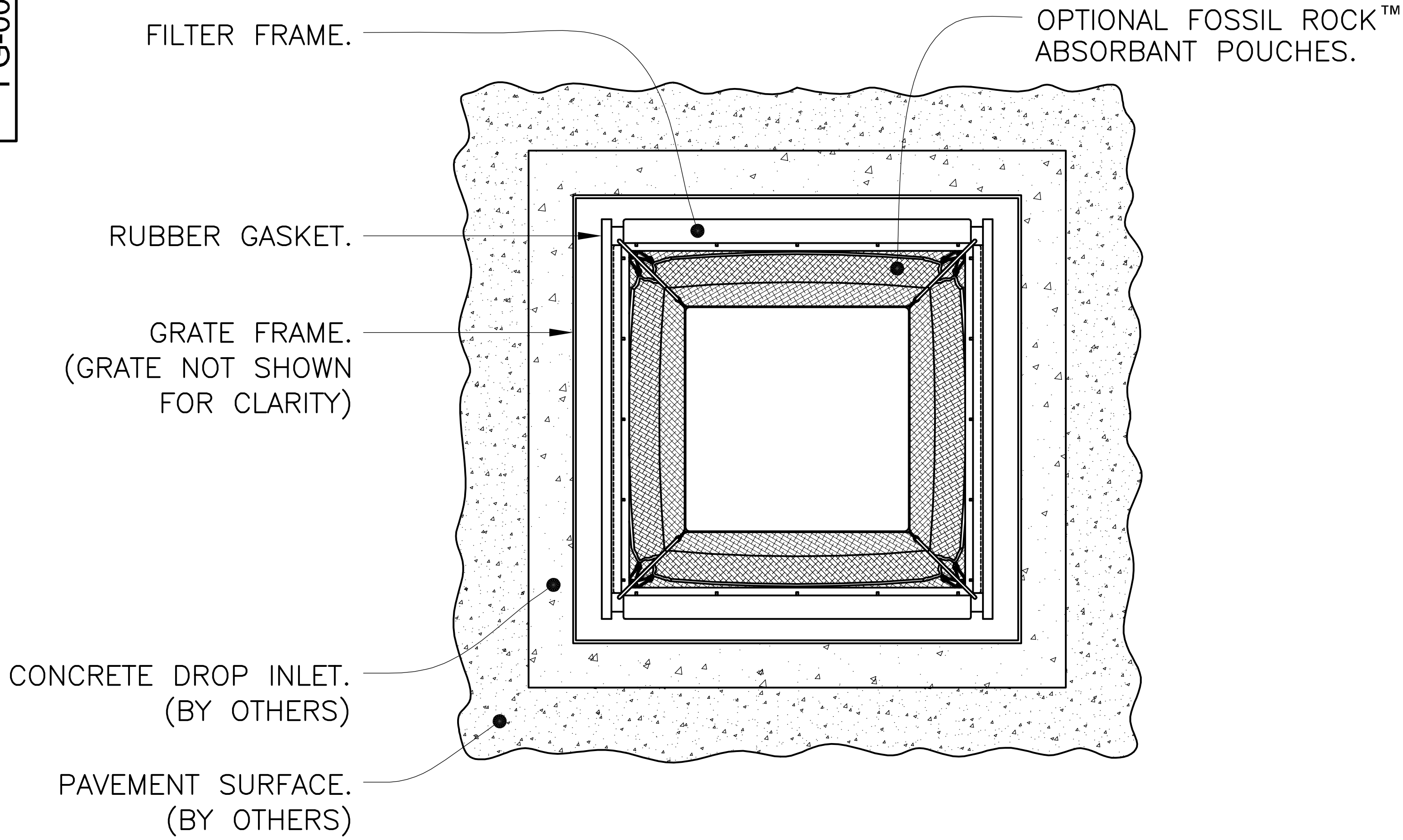
Grated Inlet Style

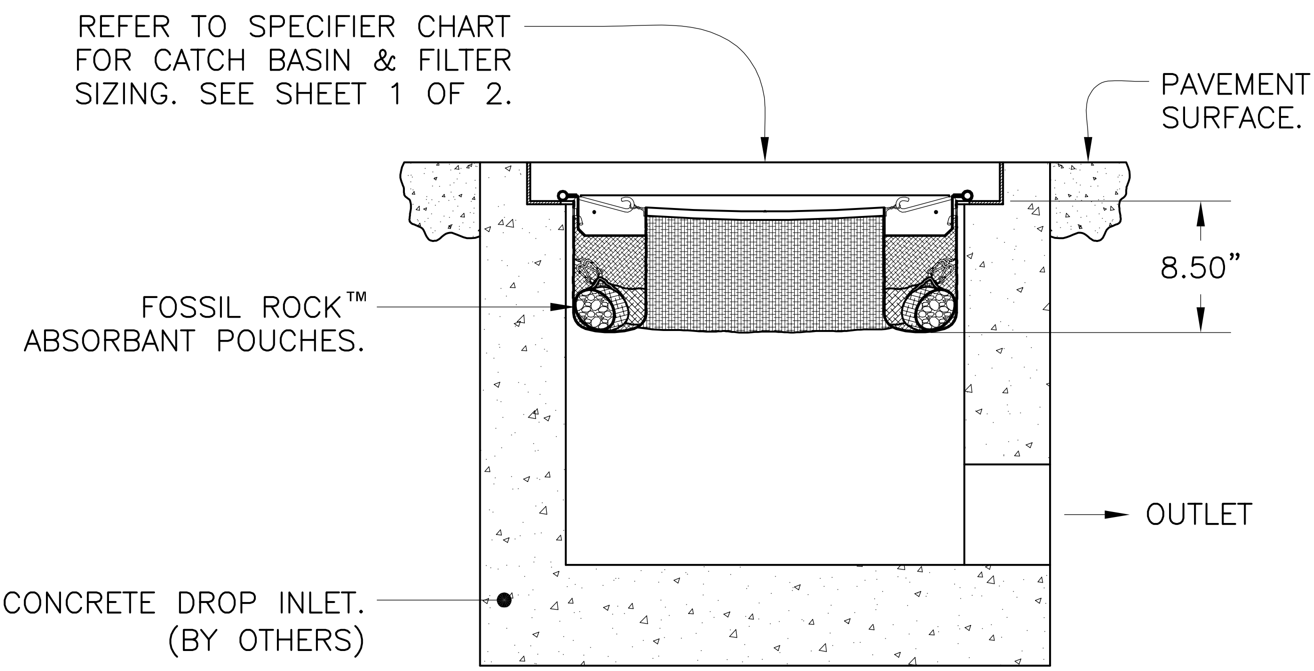
Oldcastle® Stormwater Solutions

7921 Southpark Plaza, Suite 200 | Littleton, CO | 80120 | Ph: 800.579.8819 | oldcastlestormwater.com

DRAWING NO.	REV	ECO	DATE	
FG-0001	E	ECO-0142 JPR 7/13/16	JPR 12/18/06	SHEET 1 OF 2

FG-0001





SECTION VIEW

Inlet Filtration

FloGard®

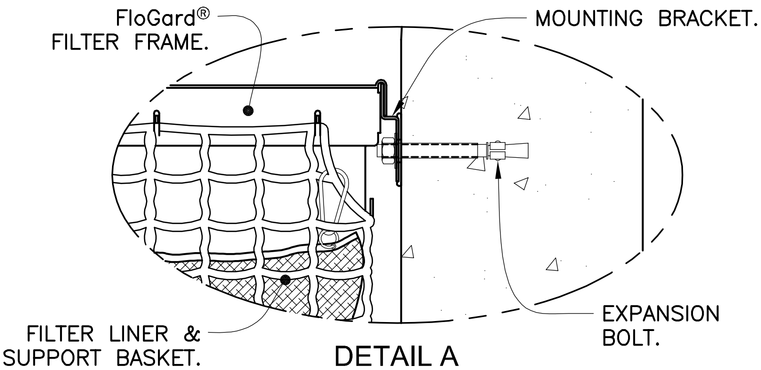
Catch Basin Insert Filter

Grated Inlet Style

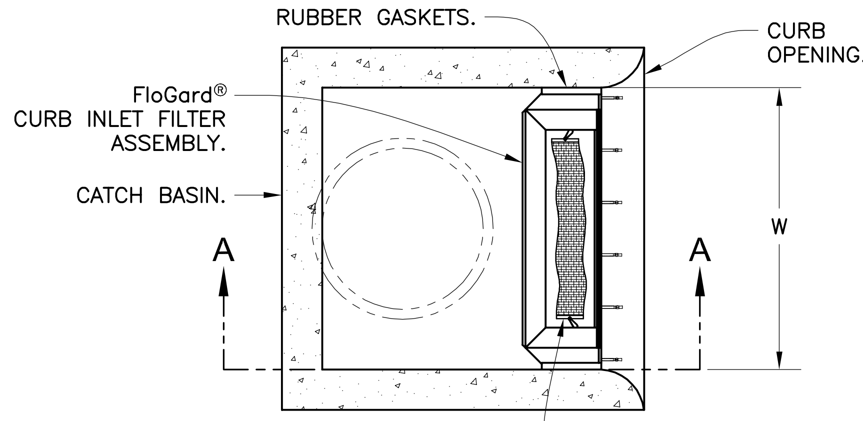
Oldcastle® Stormwater Solutions

7921 Southpark Plaza, Suite 200 | Littleton, CO | 80120 | Ph: 800.579.8819 | oldcastlestormwater.com

DRAWING NO.	REV	ECO	DATE	
FG-0001	E	ECO–0142 JPR 7/13/16	JPR 12/18/06	SHEET 2 OF 2

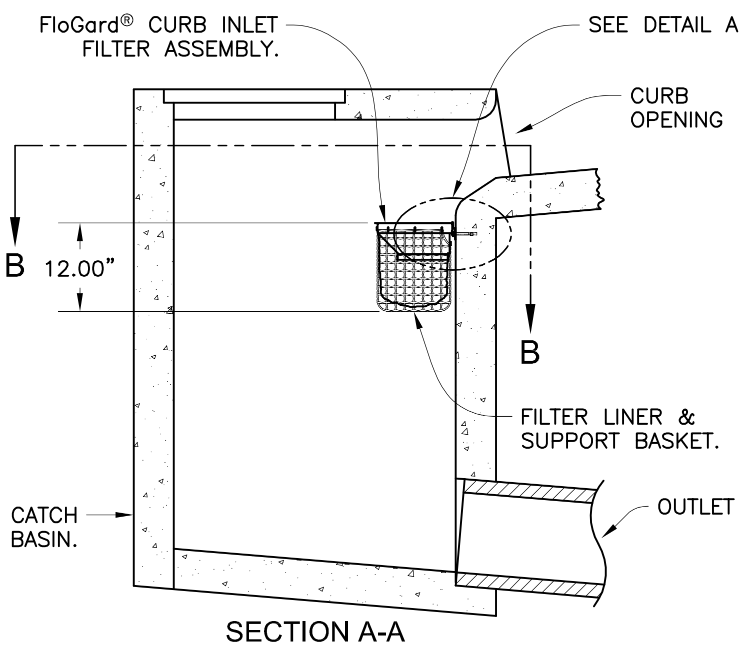


DETAIL A
MOUNTING BRACKET & EXPANSION BOLTS
SEE NOTE 2
SCALE: 6X



SECTION B-B
TOP VIEW
SCALE: 1X

SPECIFIER CHART				
MODEL NO.	Curb Opening Width - W -	Storage Capacity - Cu. Ft. -	Filtered Flow Rate - GPM/CFS -	Bypass Flow Rate - GPM/CFS -
FGP-24CI	2.0' (24")	.95	338 / .75	2,513 / 5.6
FGP-30CI	2.5' (30")	1.20	450 / 1.00	3,008 / 6.7
FGP-36CI	3.0' (36")	1.50	563 / 1.25	3,547 / 7.9
FGP-42CI	3.5' (42")	1.80	675 / 1.50	3,951 / 8.8
FGP-48CI	4.0' (48")	2.10	768 / 1.76	4,445 / 9.9
FGP-5.0CI	5.0' (60")	2.40	900 / 2.00	5,208 / 11.6
FGP-6.0CI	6.0' (72")	3.05	1,126 / 2.51	6,196 / 13.8
FGP-7.0CI	7.0' (84")	3.65	1,350 / 3.01	7,139 / 15.9
FGP-8.0CI	8.0' (96")	4.25	1,576 / 3.51	8,082 / 18.0
FGP-10.0CI	10.0' (120")	4.85	1,800 / 4.01	9,833 / 21.9
FGP-12.0CI	12.0' (144")	6.10	2,252 / 5.02	11,764 / 26.2
FGP-14.0CI	14.0' (168")	7.30	2,700 / 6.02	13,515 / 30.1
FGP-16.0CI	16.0' (192")	8.55	3.152 / 7.02	15,446 / 34.4
FGP-18.0CI	18.0' (216")	9.45	3,490 / 7.78	17,152 / 38.2
FGP-21.0CI	21.0' (252")	10.95	4,050 / 9.02	19,891 / 44.3
FGP-28.0CI	28.0 (336")	14.60	5,400 / 12.03	26,311 / 58.6



SECTION A-A
SIDE VIEW
SCALE: 1X

NOTES:

1. Filter insert shall have a high flow bypass feature.
2. Filter support frame shall be constructed from stainless steel Type 304.
3. Filter medium shall be *Fossil Rock ™*, installed and maintained in accordance with manufacturer specifications.
4. Storage capacity reflects 80% of maximum solids collection prior to impeding filtering bypass.

Inlet
Filtration

FloGard®

Catch Basin Insert Filter

Curb Inlet Style

Oldcastle®
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DRAWING NO.	REV	ECO	DATE	
FGP-0002	E	ECO-0127 JPR 5/18/15	JPR 1/3/06	SHEET 1 OF 1

Drain Inserts — MP-52

Design Considerations

- Use with other BMPs
- Fit and Seal Capacity within Inlet

Targeted Constituents

✓	Sediment
✓	Nutrients
✓	Trash
✓	Metals
	Bacteria
✓	Oil and Grease
✓	Organics

Removal Effectiveness

See New Development and Redevelopment Handbook-Section 5.

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Description

Drain inserts are manufactured filters or fabric placed in a drop inlet to remove sediment and debris. There are a multitude of inserts of various shapes and configurations, typically falling into one of three different groups: socks, boxes, and trays. The sock consists of a fabric, usually constructed of polypropylene. The fabric may be attached to a frame or the grate of the inlet holds the sock. Socks are meant for vertical (drop) inlets. Boxes are constructed of plastic or wire mesh. Typically a polypropylene "bag" is placed in the wire mesh box. The bag takes the form of the box. Most box products are one box; that is, the setting area and filtration through media occur in the same box. Some products consist of one or more trays or mesh grates. The trays may hold different types of media. Filtration media vary by manufacturer. Types include polypropylene, porous polymer, treated cellulose, and activated carbon.

California Experience

The number of installations is unknown but likely exceeds a thousand. Some users have reported that these systems require considerable maintenance to prevent plugging and bypass.

Advantages

- Does not require additional space as inserts as the drain inlets are already a component of the standard drainage systems.
- Easy access for inspection and maintenance.
- As there is no standing water, there is little concern for mosquito breeding.
- A relatively inexpensive retrofit option.

Limitations

Performance is likely significantly less than treatment systems that are located at the end of the drainage system such as ponds and vaults. Usually not suitable for large areas or areas with trash or leaves than can plug the insert.

Design and Sizing Guidelines

Refer to manufacturer's guidelines. Drain inserts come any many configurations but can be placed into three general groups: socks, boxes, and trays. The sock consists of a fabric, usually constructed of polypropylene. The fabric may be attached to a frame or the grate of the inlet holds the sock. Socks are meant for vertical (drop) inlets. Boxes are constructed of plastic or wire mesh. Typically a polypropylene "bag" is placed in the wire mesh box. The bag takes the form of the box. Most box products are one box; that is, the setting area and filtration through media occurs in the same box. One manufacturer has a double-box. Stormwater enters the first box where setting occurs. The stormwater flows into the second box where the filter media is located. Some products consist of one or more trays or mesh grates. The trays can hold different types of media. Filtration media vary with the manufacturer: types include polypropylene, porous polymer, treated cellulose, and activated carbon.

Construction/Inspection Considerations

Be certain that installation is done in a manner that makes certain that the stormwater enters the unit and does not leak around the perimeter. Leakage between the frame of the insert and the frame of the drain inlet can easily occur with vertical (drop) inlets.

Performance

Few products have performance data collected under field conditions.

Siting Criteria

It is recommended that inserts be used only for retrofit situations or as pretreatment where other treatment BMPs presented in this section area used.

Additional Design Guidelines

Follow guidelines provided by individual manufacturers.

Maintenance

Likely require frequent maintenance, on the order of several times per year.

Cost

- The initial cost of individual inserts ranges from less than $100 to about $2,000. The cost of using multiple units in curb inlet drains varies with the size of the inlet.

- The low cost of inserts may tend to favor the use of these systems over other, more effective treatment BMPs. However, the low cost of each unit may be offset by the number of units that are required, more frequent maintenance, and the shorter structural life (and therefore replacement).

References and Sources of Additional Information

Hrachovec, R., and G. Minton, 2001, Field testing of a sock-type catch basin insert, Planet CPR, Seattle, Washington

Interagency Catch Basin Insert Committee, Evaluation of Commercially-Available Catch Basin Inserts for the Treatment of Stormwater Runoff from Developed Sites, 1995

Larry Walker Associates, June 1998, NDMP Inlet/In-Line Control Measure Study Report

Manufacturers literature

Santa Monica (City), Santa Monica Bay Municipal Stormwater/Urban Runoff Project - Evaluation of Potential Catch basin Retrofits, Woodward Clyde, September 24, 1998

Woodward Clyde, June 11, 1996, Parking Lot Monitoring Report, Santa Clara Valley Nonpoint Source Pollution Control Program.

Design Objectives

☑ Maximize Infiltration

☑ Provide Retention

☑ Slow Runoff

☑ Minimize Impervious Land Coverage

Prohibit Dumping of Improper Materials

Contain Pollutants

Collect and Convey

Description

Each project site possesses unique topographic, hydrologic, and vegetative features, some of which are more suitable for development than others. Integrating and incorporating appropriate landscape planning methodologies into the project design is the most effective action that can be done to minimize surface and groundwater contamination from stormwater.

Approach

Landscape planning should couple consideration of land suitability for urban uses with consideration of community goals and projected growth. Project plan designs should conserve natural areas to the extent possible, maximize natural water storage and infiltration opportunities, and protect slopes and channels.

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment.

Design Considerations

Design requirements for site design and landscapes planning should conform to applicable standards and specifications of agencies with jurisdiction and be consistent with applicable General Plan and Local Area Plan policies.

Designing New Installations

Begin the development of a plan for the landscape unit with attention to the following general principles:

- Formulate the plan on the basis of clearly articulated community goals. Carefully identify conflicts and choices between retaining and protecting desired resources and community growth.

- Map and assess land suitability for urban uses. Include the following landscape features in the assessment: wooded land, open unwooded land, steep slopes, erosion-prone soils, foundation suitability, soil suitability for waste disposal, aquifers, aquifer recharge areas, wetlands, floodplains, surface waters, agricultural lands, and various categories of urban land use. When appropriate, the assessment can highlight outstanding local or regional resources that the community determines should be protected (e.g., a scenic area, recreational area, threatened species habitat, farmland, fish run). Mapping and assessment should recognize not only these resources but also additional areas needed for their sustenance.

Project plan designs should conserve natural areas to the extent possible, maximize natural water storage and infiltration opportunities, and protect slopes and channels.

Conserve Natural Areas during Landscape Planning

If applicable, the following items are required and must be implemented in the site layout during the subdivision design and approval process, consistent with applicable General Plan and Local Area Plan policies:

- Cluster development on least-sensitive portions of a site while leaving the remaining land in a natural undisturbed condition.

- Limit clearing and grading of native vegetation at a site to the minimum amount needed to build lots, allow access, and provide fire protection.

- Maximize trees and other vegetation at each site by planting additional vegetation, clustering tree areas, and promoting the use of native and/or drought tolerant plants.

- Promote natural vegetation by using parking lot islands and other landscaped areas.

- Preserve riparian areas and wetlands.

Maximize Natural Water Storage and Infiltration Opportunities Within the Landscape Unit

- Promote the conservation of forest cover. Building on land that is already deforested affects basin hydrology to a lesser extent than converting forested land. Loss of forest cover reduces interception storage, detention in the organic forest floor layer, and water losses by evapotranspiration, resulting in large peak runoff increases and either their negative effects or the expense of countering them with structural solutions.

- Maintain natural storage reservoirs and drainage corridors, including depressions, areas of permeable soils, swales, and intermittent streams. Develop and implement policies and regulations to discourage the clearing, filling, and channelization of these features. Utilize them in drainage networks in preference to pipes, culverts, and engineered ditches.

- Evaluating infiltration opportunities by referring to the stormwater management manual for the jurisdiction and pay particular attention to the selection criteria for avoiding groundwater contamination, poor soils, and hydrogeological conditions that cause these facilities to fail. If necessary, locate developments with large amounts of impervious surfaces or a potential to produce relatively contaminated runoff away from groundwater recharge areas.

Protection of Slopes and Channels during Landscape Design

- Convey runoff safely from the tops of slopes.
- Avoid disturbing steep or unstable slopes.
- Avoid disturbing natural channels.
- Stabilize disturbed slopes as quickly as possible.
- Vegetate slopes with native or drought tolerant vegetation.
- Control and treat flows in landscaping and/or other controls prior to reaching existing natural drainage systems.
- Stabilize temporary and permanent channel crossings as quickly as possible, and ensure that increases in run-off velocity and frequency caused by the project do not erode the channel.
- Install energy dissipaters, such as riprap, at the outlets of new storm drains, culverts, conduits, or channels that enter unlined channels in accordance with applicable specifications to minimize erosion. Energy dissipaters shall be installed in such a way as to minimize impacts to receiving waters.
- Line on-site conveyance channels where appropriate, to reduce erosion caused by increased flow velocity due to increases in tributary impervious area. The first choice for linings should be grass or some other vegetative surface, since these materials not only reduce runoff velocities, but also provide water quality benefits from filtration and infiltration. If velocities in the channel are high enough to erode grass or other vegetative linings, riprap, concrete, soil cement, or geo-grid stabilization are other alternatives.
- Consider other design principles that are comparable and equally effective.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define “redevelopment” in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of “ redevelopment” must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under “designing new installations” above should be followed.

Redevelopment may present significant opportunity to add features which had not previously been implemented. Examples include incorporation of depressions, areas of permeable soils, and swales in newly redeveloped areas. While some site constraints may exist due to the status of already existing infrastructure, opportunities should not be missed to maximize infiltration, slow runoff, reduce impervious areas, disconnect directly connected impervious areas.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Stormwater Management Manual for Western Washington, Washington State Department of Ecology, August 2001.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

Roof Runoff Controls

SD-11

Rain Garden

Design Objectives

☑ Maximize Infiltration

☑ Provide Retention

☑ Slow Runoff

Minimize Impervious Land Coverage

Prohibit Dumping of Improper Materials

☑ Contain Pollutants

Collect and Convey

Description

Various roof runoff controls are available to address stormwater that drains off rooftops. The objective is to reduce the total volume and rate of runoff from individual lots, and retain the pollutants on site that may be picked up from roofing materials and atmospheric deposition. Roof runoff controls consist of directing the roof runoff away from paved areas and mitigating flow to the storm drain system through one of several general approaches: cisterns or rain barrels; dry wells or infiltration trenches; pop-up emitters, and foundation planting. The first three approaches require the roof runoff to be contained in a gutter and downspout system. Foundation planting provides a vegetated strip under the drip line of the roof.

Approach

Design of individual lots for single-family homes as well as lots for higher density residential and commercial structures should consider site design provisions for containing and infiltrating roof runoff or directing roof runoff to vegetative swales or buffer areas. Retained water can be reused for watering gardens, lawns, and trees. Benefits to the environment include reduced demand for potable water used for irrigation, improved stormwater quality, increased groundwater recharge, decreased runoff volume and peak flows, and decreased flooding potential.

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment.

Design Considerations

Designing New Installations

Cisterns or Rain Barrels

One method of addressing roof runoff is to direct roof downspouts to cisterns or rain barrels. A cistern is an above ground storage vessel with either a manually operated valve or a permanently open outlet. Roof runoff is temporarily stored and then released for irrigation or infiltration between storms. The number of rain

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barrels needed is a function of the rooftop area. Some low impact developers recommend that every house have at least 2 rain barrels, with a minimum storage capacity of 1000 liters. Roof barrels serve several purposes including mitigating the first flush from the roof which has a high volume, amount of contaminants, and thermal load. Several types of rain barrels are commercially available. Consideration must be given to selecting rain barrels that are vector proof and childproof. In addition, some barrels are designed with a bypass valve that filters out grit and other contaminants and routes overflow to a soak-away pit or rain garden.

If the cistern has an operable valve, the valve can be closed to store stormwater for irrigation or infiltration between storms. This system requires continual monitoring by the resident or grounds crews, but provides greater flexibility in water storage and metering. If a cistern is provided with an operable valve and water is stored inside for long periods, the cistern must be covered to prevent mosquitoes from breeding.

A cistern system with a permanently open outlet can also provide for metering stormwater runoff. If the cistern outlet is significantly smaller than the size of the downspout inlet (say ¼ to ½ inch diameter), runoff will build up inside the cistern during storms, and will empty out slowly after peak intensities subside. This is a feasible way to mitigate the peak flow increases caused by rooftop impervious land coverage, especially for the frequent, small storms.

Dry wells and Infiltration Trenches

Roof downspouts can be directed to dry wells or infiltration trenches. A dry well is constructed by excavating a hole in the ground and filling it with an open graded aggregate, and allowing the water to fill the dry well and infiltrate after the storm event. An underground connection from the downspout conveys water into the dry well, allowing it to be stored in the voids. To minimize sedimentation from lateral soil movement, the sides and top of the stone storage matrix can be wrapped in a permeable filter fabric, though the bottom may remain open. A perforated observation pipe can be inserted vertically into the dry well to allow for inspection and maintenance.

In practice, dry wells receiving runoff from single roof downspouts have been successful over long periods because they contain very little sediment. They must be sized according to the amount of rooftop runoff received, but are typically 4 to 5 feet square, and 2 to 3 feet deep, with a minimum of 1-foot soil cover over the top (maximum depth of 10 feet).

To protect the foundation, dry wells must be set away from the building at least 10 feet. They must be installed in solids that accommodate infiltration. In poorly drained soils, dry wells have very limited feasibility.

Infiltration trenches function in a similar manner and would be particularly effective for larger roof areas. An infiltration trench is a long, narrow, rock-filled trench with no outlet that receives stormwater runoff. These are described under Treatment Controls.

Pop-up Drainage Emitter

Roof downspouts can be directed to an underground pipe that daylights some distance from the building foundation, releasing the roof runoff through a pop-up emitter. Similar to a pop-up irrigation head, the emitter only opens when there is flow from the roof. The emitter remains flush to the ground during dry periods, for ease of lawn or landscape maintenance.

Foundation Planting

Landscape planting can be provided around the base to allow increased opportunities for stormwater infiltration and protect the soil from erosion caused by concentrated sheet flow coming off the roof. Foundation plantings can reduce the physical impact of water on the soil and provide a subsurface matrix of roots that encourage infiltration. These plantings must be sturdy enough to tolerate the heavy runoff sheet flows, and periodic soil saturation.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of " redevelopment" must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under "designing new installations" above should be followed.

Supplemental Information

Examples

- City of Ottawa's Water Links Surface –Water Quality Protection Program
- City of Toronto Downspout Disconnection Program
- City of Boston, MA, Rain Barrel Demonstration Program

Other Resources

Hager, Marty Catherine, Stormwater, "Low-Impact Development", January/February 2003. www.stormh2o.com

Low Impact Urban Design Tools, Low Impact Development Design Center, Beltsville, MD. www.lid-stormwater.net

Start at the Source, Bay Area Stormwater Management Agencies Association, 1999 Edition

Design Objectives

- ☑ Maximize Infiltration
- ☑ Provide Retention
- ☑ Slow Runoff
- Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- Contain Pollutants
- Collect and Convey

Description

Irrigation water provided to landscaped areas may result in excess irrigation water being conveyed into stormwater drainage systems.

Approach

Project plan designs for development and redevelopment should include application methods of irrigation water that minimize runoff of excess irrigation water into the stormwater conveyance system.

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment. (Detached residential single-family homes are typically excluded from this requirement.)

Design Considerations

Designing New Installations

The following methods to reduce excessive irrigation runoff should be considered, and incorporated and implemented where determined applicable and feasible by the Permittee:

- Employ rain-triggered shutoff devices to prevent irrigation after precipitation.
- Design irrigation systems to each landscape area's specific water requirements.
- Include design featuring flow reducers or shutoff valves triggered by a pressure drop to control water loss in the event of broken sprinkler heads or lines.
- Implement landscape plans consistent with County or City water conservation resolutions, which may include provision of water sensors, programmable irrigation times (for short cycles), etc.

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- Design timing and application methods of irrigation water to minimize the runoff of excess irrigation water into the storm water drainage system.
- Group plants with similar water requirements in order to reduce excess irrigation runoff and promote surface filtration. Choose plants with low irrigation requirements (for example, native or drought tolerant species). Consider design features such as:
  - Using mulches (such as wood chips or bar) in planter areas without ground cover to minimize sediment in runoff
  - Installing appropriate plant materials for the location, in accordance with amount of sunlight and climate, and use native plant materials where possible and/or as recommended by the landscape architect
  - Leaving a vegetative barrier along the property boundary and interior watercourses, to act as a pollutant filter, where appropriate and feasible
  - Choosing plants that minimize or eliminate the use of fertilizer or pesticides to sustain growth
- Employ other comparable, equally effective methods to reduce irrigation water runoff.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of " redevelopment" must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under "designing new installations" above should be followed.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

Storm Drain Signage

SD-13

Design Objectives

- Maximize Infiltration
- Provide Retention
- Slow Runoff
- Minimize Impervious Land Coverage
- ☑ Prohibit Dumping of Improper Materials
- Contain Pollutants
- Collect and Convey

Description

Waste materials dumped into storm drain inlets can have severe impacts on receiving and ground waters. Posting notices regarding discharge prohibitions at storm drain inlets can prevent waste dumping. Storm drain signs and stencils are highly visible source controls that are typically placed directly adjacent to storm drain inlets.

Approach

The stencil or affixed sign contains a brief statement that prohibits dumping of improper materials into the urban runoff conveyance system. Storm drain messages have become a popular method of alerting the public about the effects of and the prohibitions against waste disposal.

Suitable Applications

Stencils and signs alert the public to the destination of pollutants discharged to the storm drain. Signs are appropriate in residential, commercial, and industrial areas, as well as any other area where contributions or dumping to storm drains is likely.

Design Considerations

Storm drain message markers or placards are recommended at all storm drain inlets within the boundary of a development project. The marker should be placed in clear sight facing toward anyone approaching the inlet from either side. All storm drain inlet locations should be identified on the development site map.

Designing New Installations

The following methods should be considered for inclusion in the project design and show on project plans:

- Provide stenciling or labeling of all storm drain inlets and catch basins, constructed or modified, within the project area with prohibitive language. Examples include "NO DUMPING

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– DRAINS TO OCEAN" and/or other graphical icons to discourage illegal dumping.

- Post signs with prohibitive language and/or graphical icons, which prohibit illegal dumping at public access points along channels and creeks within the project area.

Note - Some local agencies have approved specific signage and/or storm drain message placards for use. Consult local agency stormwater staff to determine specific requirements for placard types and methods of application.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. If the project meets the definition of "redevelopment", then the requirements stated under " designing new installations" above should be included in all project design plans.

Additional Information

Maintenance Considerations

- Legibility of markers and signs should be maintained. If required by the agency with jurisdiction over the project, the owner/operator or homeowner's association should enter into a maintenance agreement with the agency or record a deed restriction upon the property title to maintain the legibility of placards or signs.

Placement

- Signage on top of curbs tends to weather and fade.

- Signage on face of curbs tends to be worn by contact with vehicle tires and sweeper brooms.

Supplemental Information

Examples

- Most MS4 programs have storm drain signage programs. Some MS4 programs will provide stencils, or arrange for volunteers to stencil storm drains as part of their outreach program.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

Street Sweeping and Vacuuming SE-7

Objectives

EC	Erosion Control	
SE	Sediment Control	☒
TR	Tracking Control	☑
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	☑
Metals	
Bacteria	
Oil and Grease	☑
Organics	

Potential Alternatives

None

Description and Purpose

Street sweeping and vacuuming includes use of self-propelled and walk-behind equipment to remove sediment from streets and roadways, and to clean paved surfaces in preparation for final paving. Sweeping and vacuuming prevents sediment from the project site from entering storm drains or receiving waters.

Suitable Applications

Sweeping and vacuuming are suitable anywhere sediment is tracked from the project site onto public or private paved streets and roads, typically at points of egress. Sweeping and vacuuming are also applicable during preparation of paved surfaces for final paving.

Limitations

Sweeping and vacuuming may not be effective when sediment is wet or when tracked soil is caked (caked soil may need to be scraped loose).

Implementation

- Controlling the number of points where vehicles can leave the site will allow sweeping and vacuuming efforts to be focused, and perhaps save money.
- Inspect potential sediment tracking locations daily.
- Visible sediment tracking should be swept or vacuumed on a daily basis.

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- Do not use kick brooms or sweeper attachments. These tend to spread the dirt rather than remove it.

- If not mixed with debris or trash, consider incorporating the removed sediment back into the project

Costs
Rental rates for self-propelled sweepers vary depending on hopper size and duration of rental. Expect rental rates from $58/hour (3 yd^3 hopper) to $88/hour (9 yd^3 hopper), plus operator costs. Hourly production rates vary with the amount of area to be swept and amount of sediment. Match the hopper size to the area and expect sediment load to minimize time spent dumping.

Inspection and Maintenance
- Inspect BMPs prior to forecast rain, daily during extended rain events, after rain events, weekly during the rainy season, and at two-week intervals during the non-rainy season.

- When actively in use, points of ingress and egress must be inspected daily.

- When tracked or spilled sediment is observed outside the construction limits, it must be removed at least daily. More frequent removal, even continuous removal, may be required in some jurisdictions.

- Be careful not to sweep up any unknown substance or any object that may be potentially hazardous.

- Adjust brooms frequently; maximize efficiency of sweeping operations.

- After sweeping is finished, properly dispose of sweeper wastes at an approved dumpsite.

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Labor Surcharge and Equipment Rental Rates, State of California Department of Transportation (Caltrans), April 1, 2002 – March 31, 2003.

RET-3: Infiltration Trench

Description

An infiltration trench is a narrow trench constructed in naturally pervious soils designed for retaining and infiltrating stormwater runoff into the underlying native soils and groundwater table. Infiltration trenches are typically filled with gravel and sand, although use of manufactured percolation tank modules may be considered in place of gravel fill. Infiltration trenches provide stormwater runoff treatment through a variety of natural mechanisms (i.e., filtration, adsorption, biological degradation) as water flows through the soil profile.

Infiltration trenches differ from infiltration basins in that the former are used for small drainage areas and stores stormwater runoff out of sight underground within the void spaces of rocks or stones or percolation tank modules. Infiltration basins are used for larger drainage areas and stormwater is stored within a visible ponded surface.

Infiltration vaults and infiltration leach fields are subsurface variations of the infiltration trench concept in which stormwater runoff is distributed to the upper zone of the subsurface gravel bed by means of perforated pipes.

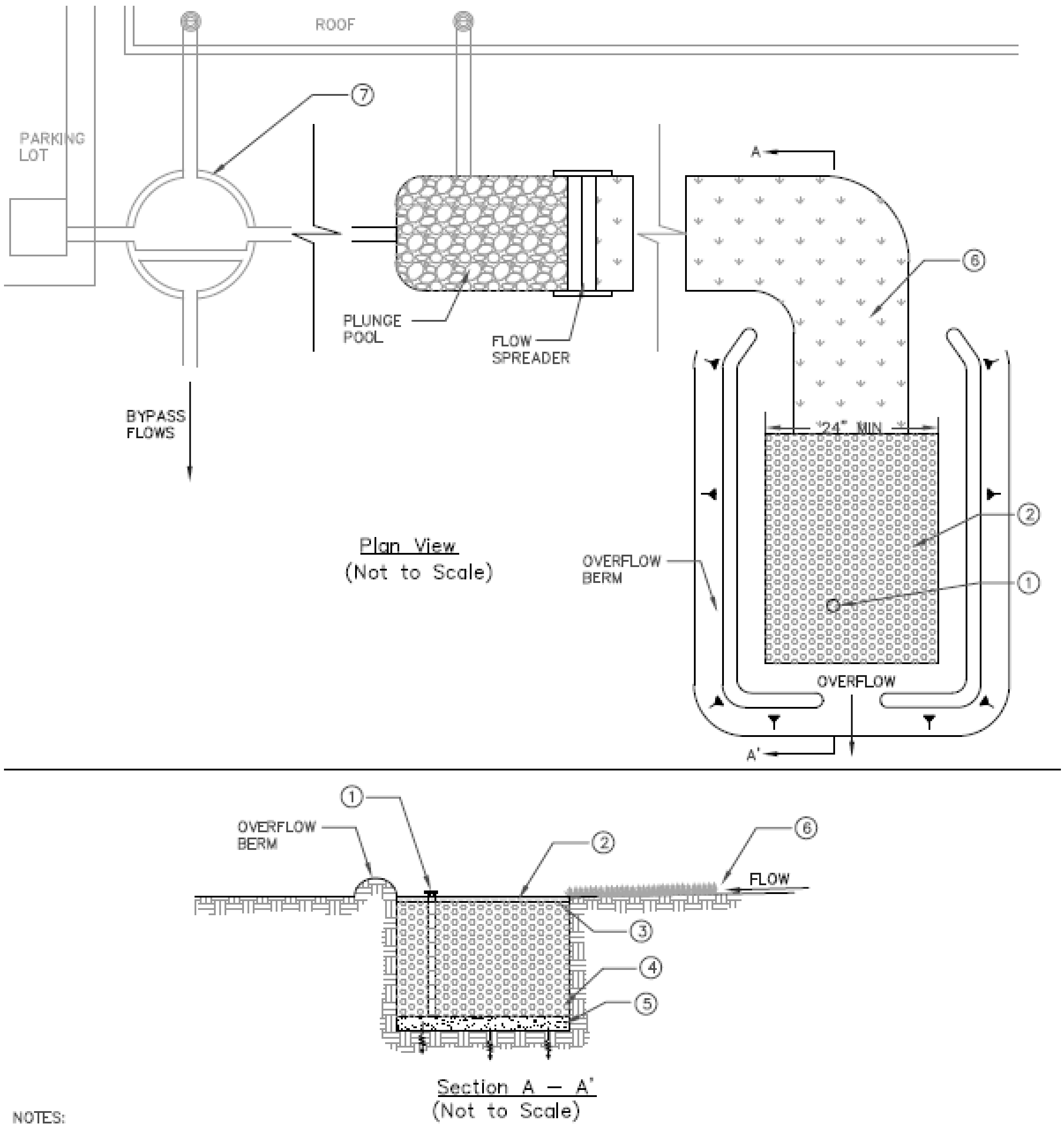
A schematic of a typical infiltration trench is presented in Figure E-3.

LID Ordinance Requirements

Infiltration trenches can be used to meet the on-site retention requirements of the LID Ordinance. Infiltration trenches will prevent pollutants in the SWQDv from being discharged off-site.

Advantages

- Reduces or eliminates stormwater runoff discharge to receiving water for most storm events
- Reduces peak stormwater runoff, which provides erosion control
- Provides groundwater recharge
- Provides effective treatment through settling and filtering while requiring relatively small space.
- Fits in narrow areas and unused areas of a development site.
- Is suitable for use when water is not available for irrigation or base flow.



NOTES:

1. OBSERVATION WELL WITH LOCKABLE ABOVE–GROUND CAP
2. 2" PEA GRAVEL FILTER LAYER
3. PROVIDE FILTER FABRIC IF NO PRETREATMENT IS PROVIDED
4. 3' – 5' DEEP TRENCH FILLED WITH 2" – 6" DIAMETER CLEAN STONE WITH 30% – 40% VOIDS
5. 6" DEEP SAND FILTER LAYER (OR FABRIC EQUIVALENT)
6. RUNOFF FILTERS THROUGH GRASS FILTER STRIP OR VEGETATED SWALE
7. OPTIONAL FLOW CONTROL DEVICE FOR OFF–LINE CONFIGURATIONS

Figure E-3. Infiltration Trench Schematic

Disadvantages

- Is not appropriate for areas with too low or too high permeability soils
- May not be appropriate for industrial sites or locations with contaminated soils or where spills may occur because of the potential threat to groundwater contamination
- Must be protected from high sediment loads
- May result in standing water, which may allow vector breeding
- Is not appropriate on fill or sites with steep slopes

General Constraints and Implementation Considerations

- Infiltration trenches can be integrated into open space buffers and other landscape areas.
- The potential for groundwater contamination must be carefully considered,. Infiltration trenches are not suitable for sites that:
    - Use or store chemicals or hazardous materials, unless they are prevented from entering the trench; or
    - Un-remediated "brownfield sites" where there is known groundwater or soil contamination.
- Infiltration trenches should be sited away from tree drip lines and kept free of vegetation.
- If the corrected in-situ infiltration rate exceed 2.4 in/hr, then stormwater runoff may need to be fully-treated with an upstream stormwater quality control measure prior to infiltration to protect groundwater quality.
- Infiltration trenches cannot be located on sites with a slope greater than 15 percent.
- Pretreatment to remove sediment is required to protect infiltration trench from high sediment loads.
- If possible, the entire tributary area of the infiltration trench should be stabilized before construction begins. If this is not possible, all flows should be diverted around the infiltration trench to protect it from sediment loads during construction or the top two inches of soil from the infiltration trench floor should be removed after the site has been stabilized. Excavated material should be stored such that it cannot be washed back into the infiltration trench if a storm occurs during construction.
- The equipment used to construct the infiltration trench should have extra wide low-pressure tires. Construction traffic should not enter the infiltration trench because it can compact soil, which reduces infiltration capacity. If heavy equipment is used on the base of the infiltration trench, the infiltrative capacity may be restored by tilling or aerating prior to placing the infiltrative bed.

- Clean, washed gravel should be placed in the excavated trench in lifts and lightly compacted with a plate compactor. Use of unwashed gravel can result in clogging.
- A geomembrane liner should be installed generously with overlapping seams on sides, bottom, and one foot below the surface of the infiltration trench.
- After construction is completed, the entire tributary area of the infiltration trench should be stabilized before allowing stormwater runoff to enter it.
- An observation well must be installed to check water levels, detention time, and evidence of clogging. An access road along the entire length of the infiltration trench is required unless it is located along an existing road or parking lot that can be safely used for maintenance access.

Design Specifications

The following sections provide design specifications for infiltration trenches.

Geotechnical

Due to the potential to contaminate groundwater, cause slope instability, impact surrounding structures, and potential for insufficient infiltration capacity, an extensive geotechnical site investigation must be conducted during the site planning process to verify site suitability for an infiltration trench. All geotechnical investigations must be performed according to the most recent GMED Policy GS 200.1. Soil infiltration rates and the groundwater table depth must be evaluated to ensure that conditions are satisfactory for proper operation of an infiltration trench. The project applicant must demonstrate through infiltration testing, soil logs, and the written opinion of a licensed civil engineer that sufficiently permeable soils exist on-site to allow the construction of a properly functioning infiltration trench.

Infiltration trenches are appropriate for soils with a minimum corrected in-situ infiltration rate of 0.3 in/hr. The geotechnical report must determine if the proposed project site is suitable for an infiltration trench and must recommend a design infiltration rate (see “Design Infiltration Rate” under the “Sizing” section). The geotechnical investigation should be such that a good understanding is gained as to how the stormwater runoff will move through the soil (horizontally or vertically) and if there are any geological conditions that could inhibit the movement of water.

Pretreatment

Pretreatment is important for all structural stormwater quality control measures, but it is particularly important for retention facilities. Pretreatment refers to design features that provide settling of large particles before stormwater runoff enters a stormwater quality control measure in order to reduce the long-term maintenance burden. Pretreatment should be provided to reduce the sediment load entering an infiltration trench in order to maintain the infiltration rate of the infiltration trench. To ensure that infiltration trenches are effective, the project applicant must incorporate pretreatment devices that provide sediment reduction (e.g., vegetated swales, vegetated filter strips, sedimentation manholes, and proprietary devices).

Setbacks

Infiltration trenches must be sited following the setbacks from the most recent GMED Policy GS 200.1.

Geometry

- Infiltration trenches must be designed and constructed to be at least 24 inches wide and 3 to 5 feet deep.
- The longitudinal slope of the trench should not exceed three percent.
- The filter bed media layers must have the following composition and thickness:
    - Top layer: 2 inches of pea gravel
    - Middle layer: 3 to 5 feet of washed 2- to 6-inch gravel; void spaces should be approximately 30 to 40 percent
    - Bottom layer: 6 inches of sand or geomembrane liner equivalent.

Sizing

Infiltration trenches are sized a simple sizing method where the SWQDv must be completely infiltrated within 96 hours. Infiltration trenches provide stormwater runoff storage in the voids of the rock fill or percolation tank modules.

<u>Step 1: Determine the SWQDv</u>

Infiltration trenches must be designed to capture and retain the SWQDv (see Section 6 for SWQDv calculation procedures).

<u>Step 2: Determine the design infiltration rate</u>

Determine the corrected in-situ infiltration rate (f_{design}) of the native soil using the procedures described in the most recent GMED Policy GS 200.1.

<u>Step 3: Calculate the surface area</u>

Determine the size of the required infiltration surface by assuming the SWQDv will fill the available void spaces of the gravel storage layer. The maximum depth of stormwater runoff that can be infiltrated within the maximum retention time (96 hrs) is calculated using the following equation:

$$d_{max} = \frac{f_{design}}{12} \times t$$

Where:

d_{max} = Maximum depth of water that can be infiltrated within the maximum retention time [ft];
f_{design} = Design infiltration rate [in/hr]; and
t = Maximum retention time (max 96 hrs) [hr].

Select the infiltration trench depth (d_t) such that:

$$d_t \leq \frac{d_{max}}{n_t}$$

Where:

d_t = Depth of infiltration trench [ft];
d_{max} = Maximum depth of water that can be infiltrated within the maximum retention time [ft]; and
n_t = Infiltration trench fill porosity.

Calculate the infiltrating surface area (bottom of the infiltration trench) required:

$$A = \frac{SWQDv}{d_t \times n_t}$$

Where:

A = Surface area of the bottom of the infiltration trench [ft^2];
SWQDv = Stormwater quality design volume [ft^3];
d_t = Depth of infiltration trench fill [ft]; and
n_t = Infiltration trench porosity.

Flow Entrance and Energy Dissipation

Energy dissipation controls, constructed of sound materials such as stones, concrete, or proprietary devices that are rated to withstand the energy of the influent flow, must be installed at the inlet to the infiltration trench. Flow velocity at the inlet must be 4 ft/s or less. Consult with LACDPW for the type and design of energy dissipation structure.

Drainage

The specifications for designing drainage systems for infiltration trenches are presented below:

- The bottom of infiltration trench must be native soil that is over-excavated at least one foot in depth with the soil replaced uniformly without compaction. Amending the excavated soil with two to four inches (~15 to 30 percent) of coarse sand is recommended.

- The use of vertical piping, either for distribution or infiltration enhancement, is prohibited. This application may be classified as a Class V Injection Well per 40 CFR Part 146.5(e)(4).
- The infiltration capacity of the subsurface layers should be sufficient to ensure a maximum detention time of 96 hours. An observation well must be installed to allow observation of detention time.

Hydraulic Restriction Layer

The entire infiltrative area, including the side slopes must lined with a geomembrane liner to prevent soil from migrating into the top layer and reducing the infiltration capacity. The specifications of the geomembrane liner are presented in Table E-5. The entire trench area, including the sides, must be lined with a geomembrane liner prior to placing the media bed. Provide generous overlap at the seams.

Table E-5. Geomembrane Liner Specifications for Infiltration Trenches

Parameter	Test Method	Specifications
Material		Nonwoven geomembrane liner
Unit weight		8 oz/yd^3 (minimum)
Filtration rate		0.08 in/sec (minimum)
Puncture strength	ASTM D-751 (Modified)	125 lbs (minimum)
Mullen burst strength	ASTM D-751	400 lb/in^2 (minimum)
Tensile strength	AST D-1682	300 lbs (minimum)
Equiv. opening size	US Standard Sieve	No. 80 (minimum)

Observation Well

The observation well is a vertical section of perforated PVC pipe, four- to six-inch diameter, installed flush with the top of the infiltration trench on a footplate and with a locking, removable cap. The observation well is needed to monitor the infiltration rate in infiltration trench and is useful for marking the location of the infiltration trench.

Vegetation

- Infiltration trenches must be kept free of vegetation.
- Trees and other large vegetation should be planted away from infiltration trenches such that drip lines do not overhang the infiltration area.

Restricted Construction Materials

Use of pressure-treated wood or galvanized metal at or around an infiltration trench is prohibited.

Overflow Device

An overflow device must be provided in the event that stormwater runoff overtops the infiltration trench or if the infiltration trench becomes clogged. The overflow device must be able to convey stormwater runoff to a downstream conveyance system or other acceptable discharge point.

Maintenance Access

The infiltration trench must be safely accessible during wet and dry weather conditions if it is publicly-maintained. An access road along the entire length of the infiltration trench is required unless the trench is located along an existing road or parking lot that can be safely used for maintenance access. If the infiltration trench becomes plugged and fails, access is needed to excavate the infiltration trench and replace the filter bed media. All dimensions of the infiltration trench should also be increased by two inches to provide a fresh surface for infiltration. To prevent damage and compaction, access must able to accommodate a backhoe working at “arm’s length” from the infiltration trench.

Maintenance Requirements

Maintenance and regular inspections are important for proper function of infiltration trenches. The following are general maintenance requirements:

- Conduct regular inspection and routine maintenance for pretreatment devices.
- Inspect infiltration trench and its observation well frequently to ensure that water infiltrates into the subsurface completely within the maximum detention time of 96 hours. If water is present in the observation well more than 96 hours after a major storm, the infiltration trench may be clogged. Maintenance activities triggered by a potentially clogged facility include:
    - Check for debris/sediment accumulation, rake surface and remove sediment (if any), and evaluate potential sources of sediment and vegetative or other debris (i.e., embankment erosion, channel scour, overhanging trees). If suspected upstream sources are outside of the County's jurisdiction, additional pretreatment (i.e., trash racks, vegetated swales) may be necessary.
    - Assess the condition of the top aggregate layer for sediment buildup and crusting. Remove the top layer of pea gravel and replace. If slow draining conditions persist, the entire infiltration trench may need to be excavated and replaced.
- Eliminate standing water to prevent vector breeding.
- Inspect infiltration trenches annually. Remove and dispose of trash and debris as needed, but at least prior to the beginning of the wet season.
- Inspect overflow devices for obstructions or debris, which should be removed immediately. Repair or replace damaged pipes upon discovery.

A summary of potential problems that may need to be addressed by maintenance activities is presented in Table E-6.

The County requires execution of a maintenance agreement to be recorded by the property owner for the on-going maintenance of any privately-maintained stormwater quality control measures. The property owner is responsible for compliance with the maintenance agreement. A sample maintenance agreement is presented in Appendix H.

Table E-6. Infiltration Trench Troubleshooting Summary

Problem	Conditions When Maintenance Is Needed	Maintenance Required
Trash and Debris	Trash and debris > 5 ft^3/1,000 ft^2	Remove and dispose of trash and debris.
Contaminants and Pollution	Any evidence of oil, gasoline, contaminants, or other pollutants	Remove any evidence of visual contamination.
Erosion/Sediment Accumulation	Undercut or eroded areas at inlet structures	Repair eroded areas and re-grade if necessary.
	Accumulation of sediment, debris, and oil/grease in pretreatment devices	Remove sediment, debris, and/or oil/grease.
	Accumulation of sediment, debris, and oil/grease on surface, inlet or overflow structures	Remove sediment, debris, and/or oil/grease.
Water Drainage Rate	Standing water, or by inspection of observation wells	Remove the top layer of the infiltration trench bottom and replace if necessary.

S-1: Storm Drain Message and Signage

Purpose

Waste material dumped into storm drain inlets can adversely impact surface and ground waters. In fact, any material discharged into the storm drain system has the potential to significantly impact downstream receiving waters. Storm drain messages have become a popular method of alerting and reminding the public about the effects of and the prohibitions against waste disposal into the storm drain system. The signs are typically stenciled or affixed near the storm drain inlet or catch basin. The message simply informs the public that dumping of wastes into storm drain inlets is prohibited and/or that the drain ultimately discharges into receiving waters.

General Guidance

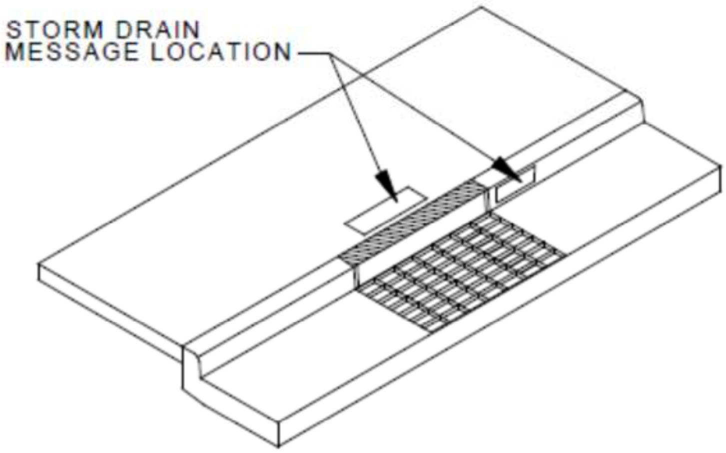
- The signs must be placed so they are easily visible to the public.
- Be aware that signs placed on sidewalk will be worn by foot traffic.

Design Specifications

- Signs with language and/or graphical icons that prohibit illegal dumping, must be posted at designated public access points along channels and streams within the project area. Consult with Los Angeles County Department of Public Works (LACDPW) staff to determine specific signage requirements for channels and streams.
- Storm drain message markers, placards, concrete stamps, or stenciled language/icons (e.g., “No Dumping – Drains to the Ocean”) are required at all storm drain inlets and catch basins within the project area to discourage illegal or inadvertent dumping. Signs should be placed in clear sight facing anyone approaching the storm drain inlet or catch basin from either side (see Figure D-1 and Figure D-2). LACDPW staff should be contacted to determine specific requirements for types of signs and methods of application. A stencil can be purchased for a nominal fee from LACDPW Building and Safety Office by calling (626) 458-3171. All storm drain inlet and catch basin locations must be identified on the project site map.

Maintenance Requirements

Legibility and visibility of markers and signs should be maintained (e.g., signs should be repainted or replaced as necessary). If required by LACDPW, the owner/operator or homeowner’s association shall enter into a maintenance agreement with the agency or record a deed restriction upon the property title to maintain the legibility of placards and signs.



NOTES:

1. STORM DRAIN MESSAGE SHALL BE APPLIED IN SUCH A WAY AS TO PROVIDE A CLEAR, LEGIBLE IMAGE.
2. STORM DRAIN MESSAGE SHALL BE PERMANENTLY APPLIED DURING THE CONSTRUCTION OF THE CURB AND GUTTER USING A METHOD APPROVED BY THE LOCAL AGENCY.

Figure D-1. Storm Drain Message Location – Curb Type Inlet

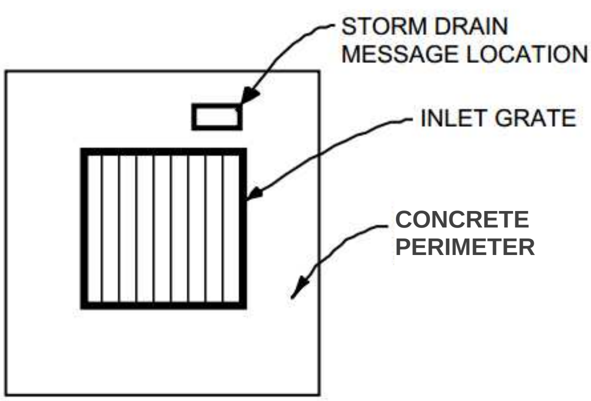


Figure D-2. Storm Drain Message Location – Catch Basin/Area Type Inlet

S-8: Landscape Irrigation Practices

Purpose

Irrigation runoff provides a pathway for pollutants (i.e., nutrients, bacteria, organics, sediment) to enter the storm drain system. By effectively irrigating, less runoff is produced resulting in less potential for pollutants to enter the storm drain system.

General Guidance

- Do not allow irrigation runoff from the landscaped area to drain directly to storm drain system.
- Minimize use of fertilizer, pesticides, and herbicides on landscaped areas.
- Plan sites with sufficient landscaped area and dispersal capacity (e.g., ability to receive irrigation water without generating runoff).
- Consult a landscape professional regarding appropriate plants, fertilizer, mulching applications, and irrigation requirements (if any) to ensure healthy vegetation growth.

Design Specifications

- Choose plants that minimize the need for fertilizer and pesticides.
- Group plants with similar water requirements and water accordingly.
- Use mulch to minimize evaporation and erosion.
- Include a vegetative boundary around project site to act as a filter.
- Design the irrigation system to only water areas that need it.
- Install an approved subsurface drip, pop-up, or other irrigation system.[1] The irrigation system should employ effective energy dissipation and uniform flow spreading methods to prevent erosion and facilitate efficient dispersion.
- Install rain sensors to shut off the irrigation system during and after storm events.
- Include pressure sensors to shut off flow-through system in case of sudden pressure drop. A sudden pressure drop may indicate a broken irrigation head or water line.
- If the hydraulic conductivity in the soil is not sufficient for the necessary water application rate, implement soil amendments to avoid potential geotechnical hazards (i.e., liquefaction, landslide, collapsible soils, and expansive soils).

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[1] If alternative distribution systems (e.g., spray irrigation) are approved, the County will establish guidelines to implement these new systems.

- For sites located on or within 50 feet of a steep slope (15% or greater), do not irrigate landscape within three days of a storm event to avoid potential geotechnical instability.[2]
- Implement Integrated Pest Management practices.

For additional guidelines and requirements, refer to the Los Angeles County Department of Health Services.

Maintenance Requirements

Maintain irrigation areas to remove trash and debris and loose vegetation. Rehabilitate areas of bare soil. If a rain or pressure sensor is installed, it should be checked periodically to ensure proper function. Inspect and maintain irrigation equipment and components to ensure proper functionality. Clean equipment as necessary to prevent algae growth and vector breeding. Maintenance agreements between LACDPW and the owner/operator may be required. Failure to properly maintain building and property may subject the property owner to citation.

[2] As determined by the City of Los Angeles, Building and Safety Division

S-9: Building Materials Selection

Purpose

Building materials can potentially contribute pollutants of concern to stormwater runoff through leaching. For example, metal buildings, roofing, and fencing materials may be significant sources of metals in stormwater runoff, especially due to acidic precipitation. The use of alternative building materials can reduce pollutant sources in stormwater runoff by eliminating compounds that can leach into stormwater runoff. Alternative building materials may also reduce the need to perform maintenance activities (i.e., painting) that involve pollutants of concern, and may reduce the volume of stormwater runoff. Alternative materials are available to replace lumber and paving.

Design Specifications

Lumber

Decks and other house components constructed using pressure-treated wood that is typically treated using arsenate, copper, and chromium compounds are hazardous to the environment. Pressure-treated wood may be replaced with cement-fiber or vinyl.

Roofs, Fencing, and Metals

Minimizing the use of copper and galvanized (zinc-coated) metals on buildings and fencing can reduce leaching of these pollutants into stormwater runoff. The following building materials are conventionally made of galvanized metals:

- Metal roofs;
- Chain-link fencing and siding; and
- Metal downspouts, vents, flashing, and trim on roofs.

Architectural use of copper for roofs and gutters should be avoided. As an alternative to copper and galvanized materials, coated metal products are available for both roofing and gutter application. Vinyl-coated fencing is an alternative to traditional galvanized chain-link fences. These products eliminate contact of bare metal with precipitation or stormwater runoff, and reduce the potential for stormwater runoff contamination. Roofing materials are also made of recycled rubber and plastic.

Green roofs may be an option. Green roofs use vegetation such as grasses and other plants as an exterior surface. The plants reduce the velocity of stormwater runoff and absorb water to reduce the volume of stormwater runoff. One potential problem with using green roofs in the Los Angeles County area is the long, hot and dry summers, which may kill the plants if they are not watered. See the Green Roof Fact Sheet (RET-7) in Appendix E.

Pesticides

The use of pesticides around foundations can be reduced through the use of alternative barriers. Sand barriers can be applied around foundations to deter termites, as they cannot tunnel through sand. Metal shields also block termites from tunneling. Additionally, diatomaceous earth can be used to repel or kill a wide variety of other pests.

Maintenance Requirements

The integrity of structural elements that are subject to damage (e.g., signs) must be maintained by the owner/operator as required by local codes and ordinances. Maintenance agreements between LACDPW and the owner/operator may be required. Failure to properly maintain building and property may subject the property owner to citation.

Appendix C:
Infiltration Trench Sizing and Draw Down Time Calculations

TR No. 84531
10130 Adella Avenue
South Gate, Ca

Per Preliminary Infiltration Testing prepared by ALTA California Geotechnical, Inc. dated June 13, 2024, infiltration BMP was determined to be feasible. The infiltration rate encountered at 10 feet deep was 2.6 in/hr. After applying a minimum factor of safety of 2, the infiltration rate used for design, Kdesign, was equal to 1.3 inches per hour. Refer to Attachment F of this report for infiltration testing information.

DMA P1
Area: 0.59 acres
Required Treatment Volume: 1491.05 cft
Proposed Lineal Feet of 48" HDPE (Perforated): 68 ft
Provided Storage Volume: 1520.71 cft
Installed System Surface Area (3 sides):
48 hour Infiltrated (Treated) Volume: 6552 cft
Drawdown Time of Required DCV: 10.92 hrs

DMA P2
Area: 0.75 acres
Required Treatment Volume: 1895.4 cft
Proposed Lineal Feet of 48" HDPE (Perforated): 87 ft
Provided Storage Volume: 1937.56 cft
Installed System Surface Area (3 sides):
48 hour Infiltrated (Treated) Volume: 8330.4 cft
Drawdown Time of Required DCV: 10.92 hrs

DMA P3
Area: 0.67 acres
Required Treatment Volume: 1693.23 cft
Proposed Lineal Feet of 48" HDPE (Perforated): 78 ft
Provided Storage Volume: 1740.11 cft
Installed System Surface Area (3 sides):
48 hour Infiltrated (Treated) Volume: 7488 cft
Drawdown Time or Required DCV: 10.85 hrs

Appendix D:
"NO DUMPING – DRAINS TO OCEAN" Stencil Examples

Sample Stencil 1

Sample Stencil 2

Appendix E:
Catch Basin Cleaning

OPERATION & MAINTENANCE PLAN
FOR FILTER INSERT

The maintenance program will include the following key components:

1. **REGULAR SWEEPING AND REMOVAL OF DEBRIS:**
   Vehicle parking lot will be swept on a regular basis. Sediment and debris (litter, leaves, papers and cans, etc.) within the area, especially around the drainage inlet, will be collected and removed. The frequency of sweeping will be based on the amount of sediment and debris generated.

2. **REGULAR INSPECTIONS:**
   The catch basin, downspout, or trench drain filter insert will be inspected on a regular basis. The frequency of inspection will be based on pollutant loading, amount of debris, leaves, etc., and amount of runoff. At a minimum, there will be three inspections per year.

3. **CONDUCT OF THE VISUAL INSPECTION:**
   a. Broom sweep around the inlet and remove the inlet grate.
   b. Inspect the filter liner for serviceability. If called for, the filter body will be replaced.
   c. Check the condition of the adsorbent pouches and visually check the condition of the enclosed adsorbent. If the surface of the granules is more than 50% coated with a dark gray or black substance, the pouches will be replaced with new ones.
   d. Check for loose or missing nuts (on some models) and gaps between the filter and the inlet wall, which would allow bypass of the filter during low flows.
   e. The filter components will be replaced in the inlet and the grate replaced.

4. **CLEANING OUT THE FILTER INSERT:**
   Regardless of the model of filter insert, the devices must be cleaned out on a recurring basis. The manufacturer recommends at least three cleanings per year – more in high exposure areas. For the Flo-Gard+Plus filters, the filter must be cleaned when the solids level reaches close to the fullel tip.
   a. The Standard Filter, in most cases, can be cleaned out by removing the device from the inlet and dumping the contents into a DOT approved drum for later disposal. If the oil-absorbant pouches need to be changed, the time to change them is immediately after dumping and before the filter is replaced in the inlet.
   b. Because of weight, method of installation and so forth, some filter inserts will be cleaned with the aid of a vactor truck. If necessary, the oil-absorbant pouches will be changed after the pollutants have been removed and as the filter is being returned to service.

5. **MAINTENANCE LOG:**
   Keep a log of all inspections and maintenance performed on the catch basins, trench drains, and filter inserts. Keep this log on-site.

CATCH BASIN MAINTENANCE RECORD

SITE INFORMATION	
Contact:	Phone: ( )
Project Name:	
Address:	
Filter No. & Model:	

SERVICE INFORMATION		
Date of Service:	By:	
☐ Inspection	☐ Clean Debris	☐ Clean Silt/Sediment
☐ Replace Pouch	☐ Replace Rock	☐ Repair/Replace Parts
Comments:		
Approval Signature:		

SITE INFORMATION	
Contact:	Phone: ( )
Project Name:	
Address:	
Filter No. & Model:	

SERVICE INFORMATION		
Date of Service:	By:	
☐ Inspection	☐ Clean Debris	☐ Clean Silt/Sediment
☐ Replace Pouch	☐ Replace Rock	☐ Repair/Replace Parts
Comments:		
Approval Signature:		

CATCH BASIN MAINTENANCE RECORD

SITE INFORMATION	
Contact:	Phone: ( )
Project Name:	
Address:	
Filter No. & Model:	

SERVICE INFORMATION		
Date of Service:	By:	
☐ Inspection	☐ Clean Debris	☐ Clean Silt/Sediment
☐ Replace Pouch	☐ Replace Rock	☐ Repair/Replace Parts
Comments:		
Approval Signature:		

SITE INFORMATION	
Contact:	Phone: ( )
Project Name:	
Address:	
Filter No. & Model:	

SERVICE INFORMATION		
Date of Service:	By:	
☐ Inspection	☐ Clean Debris	☐ Clean Silt/Sediment
☐ Replace Pouch	☐ Replace Rock	☐ Repair/Replace Parts
Comments:		
Approval Signature:		

GENERAL SPECIFICATIONS FOR MAINTENANCE OF *FLO-GARD™+PLUS CATCH BASIN INSERT FILTERS*

SCOPE:

Federal, State and Local Clean Water Act regulations and those of insurance carriers require that stormwater filtration systems be maintained and serviced on a recurring basis. The intent of the regulations is to ensure that the systems, on a continuing basis, efficiently remove pollutants from stormwater runoff thereby preventing pollution of the nation's water resources. These Specifications apply to the Flo-Gard™ +Plus Catch Basin Insert Filter.

RECOMMENDED FREQUENCY OF SERVICE:

Drainage Protection Systems (DPS) recommends that installed Flo-Gard™ +Plus Catch Basin Insert Filters be serviced on a recurring basis. Ultimately, the frequency depends on the amount of runoff, pollutant loading and interference from debris (leaves, vegetation, cans, paper, etc.); however, it is recommended that each installation be serviced a minimum of three times per year, with a change of filter medium once per year. DPS technicians are available to do an on-site evaluation, upon request.

RECOMMENDED TIMING OF SERVICE:

DPS guidelines for the timing of service are as follows:

1. For areas with a definite rainy season: Prior to, during and following the rainy season.
2. For areas subject to year-round rainfall: On a recurring basis (at least three times per year).
3. For areas with winter snow and summer rain: Prior to and just after the snow season and during the summer rain season.
4. For installed devices not subject to the elements (washracks, parking garages, etc.): On a recurring basis (no less than three times per year).

SERVICE PROCEDURES:

1. The service shall commence with collection and removal of sediment and debris (litter, leaves, papers, cans, etc.) and broom sweeping around the drainage inlet. Accumulated materials shall be placed in a DOT approved container for later disposal.
2. The catch basin shall be visually inspected for defects and possible illegal dumping. If illegal dumping has occurred, the proper authorities and property owner representative shall be notified as soon as practicable.
3. The catch basin grate shall be removed and set to one side. Using an industrial vacuum, the collected materials shall be removed from the liner. (Note: DPS uses a truck-mounted vacuum for servicing Flo-Gard™ +Plus catch basin inserts.)
4. When all of the collected materials have been removed, the filter medium pouches shall be removed by unsnapping the tether from the D-ring and set to one side. The filter liner, gaskets, stainless steel frame and mounting brackets, etc. shall be inspected for continued serviceability. Minor damage or defects found shall be corrected on-the-spot and a notation made on the Maintenance Record. More extensive deficiencies that affect the efficiency of the filter (torn liner, etc.), if approved by the customer representative, will be corrected and an invoice submitted to the representative along with the Maintenance Record.
5. The filter medium pouches shall be inspected for defects and continued serviceability and replaced as necessary and the pouch tethers re-attached to the liner's D-ring. See below.
6. The grate shall be replaced.

EXCHANGE AND DISPOSAL OF EXPOSED FILTER MEDIUM AND COLLECTED DEBRIS

The frequency of filter medium pouch exchange will be in accordance with the existing DPS-Customer Maintenance Contract. DPS recommends that the medium be changed at least once per year. During the appropriate service, or if so determined by the service technician during a non-scheduled service, the filter medium pouches will be replaced with new pouches and the exposed pouches placed in the DOT approved container, along with the exposed debris. Once the exposed pouches and debris have been placed in the container, DPS has possession and must dispose of it in accordance with local, state and federal agency requirements.

Note: As the generator, the landowner is ultimately responsible for the proper disposal of the exposed filter medium and debris. Because the materials likely contain petroleum hydrocarbons, heavy metals and other harmful pollutants, the materials must be treated as an EPA Class 2 Hazardous Waste and properly disposed of. DPS relieves the landowner of the actual disposal task, and provides certification of its completion in accordance with appropriate regulations.

DPS also has the capability of servicing all manner of catch basin inserts and catch basins without inserts, underground oil/water separators, stormwater interceptors and other such devices. All DPS personnel are highly qualified technicians and are confined space trained and certified. Call us at (888) 950-8826 for further information and assistance.

Appendix F:
Geotechnical Report

ALTA CALIFORNIA
GEOTECHNICAL INC.

170 North Maple Street, Suite 108
Corona, CA 92880
www.altageotechnical.com

CITY VENTURES
3121 Michelson Drive, Suite 150
Irvine, California 92612

June 28, 2024
Project No. 1-0533

Attention: Mr. Nick Patterson

Subject: ***GEOTECHNICAL INVESTIGATION***
10130 Adella Avenue, City of South Gate,
Los Angeles County, California

References: See Appendix

Dear Mr. Patterson:

Alta California Geotechnical, Inc. (Alta) is pleased to present this geotechnical investigation for the proposed development at 10130 Adella Avenue in the City of South Gate, Los Angeles County, California. This report is based upon a recent subsurface investigation conducted by Alta, laboratory testing, a review of published geologic maps, and Alta's staff's experience with similar projects in this vicinity.

Alta's review of the data indicates that the proposed development is feasible, from a geotechnical perspective, provided that the recommendations presented in this report are incorporated into the grading and improvement plans and implemented during site development.

Included in this report are:

- Discussion of the site geotechnical conditions.
- Recommendations for remedial and site grading, including unsuitable soil removals
- Geotechnical site construction recommendations
- Preliminary foundation design parameters
- Conduct preliminary Infiltration testing
- Estimate shrink/swell parameters

If you have any questions or should you require any additional information, please contact the undersigned at (951) 509-7090. Alta appreciates the opportunity to provide geotechnical consulting services for your project.

Sincerely,
Alta California Geotechnical, Inc.

LOGAN A. MARQUETTE
Civil Engineering Associate
Project Manager

Reviewed By:

SCOTT A. GRAY/RGE 2857
Reg. Exp.: 12-31-24
Registered Geotechnical Engineer
President

FRANK ECHENIQUE/CEG 2134
Reg. Exp.: 7-31-24
Certified Engineering Geologist

Distribution: (1) Addressee

LAM: SAG: eg-1-0533 June 28, 2024 (Geotechnical Investigation, Adella Ave, South Gate)

1.0 INTRODUCTION

The following report presents Alta's findings, conclusions, and geotechnical recommendations for the proposed development of 10130 Adella Avenue, located in the City of South Gate, California.

1.1 Purpose

The purpose of this report is to examine the existing geotechnical conditions and evaluate their impacts on the proposed development depicted on the accompanying conceptual site plan. This report is suitable for submittal to governing agencies and for use as a bid document.

1.2 Scope of Work

Alta's Scope of Work for this geotechnical investigation included the following:

- Review of the referenced literature, maps, and aerial photos (Appendix A).
- Site geologic mapping.
- Excavating, logging, and sampling of three (3) hollow stem auger borings to a maximum depth of approximately 51.5 feet below existing grade (Appendix B).
- Drill two (2) shallow additional borings for infiltration study and perform preliminary infiltration testing.
- Conducting laboratory testing on samples obtained during our investigation (Appendix C).
- Evaluating engineering geologic and geotechnical engineering data, including laboratory data, to develop recommendations for site remedial grading, import soil, foundations and utilities.
- Preparing this report and accompanying exhibits.

1.3 Report Limitations

The conclusions and recommendations in this report are based on the information generated during this investigation and our review of the referenced reports. The materials adjacent to or beneath those observed may have different characteristics than those observed, and no representations are made as to the quality or extent of the materials not observed.

2.0 PROJECT DESCRIPTION

2.1 Site Location and Existing Conditions

The rectangular-shaped, approximately ±2-acre site is relatively flat and vacant. The site is bounded to the north and west by Legacy Lane, to the east by a commercial structure, and to the south by a single-family residential development. Historic aerial images of the site are available as far back as 1954 and indicate the site and surrounding area was comprised of commercial structures and associated parking lots. By 2018, a majority of surrounding commercial buildings to the north were demolished and Legacy Lane was constructed, leaving the commercial structure located on the subject site. By 2020, the structure and associated parking lot was demolished, leaving the subject site vacant. The site has remained largely unchanged since.

Our literature review indicates that the site is underlain by young/Holocene age alluvium. No known active faults have been mapped at the site or in the immediate site vicinity.

The site is in a location with potential liquefaction zone according to the California Department of Conservation Seismic Hazard Zone Report. The report also indicates the historic high groundwater is less than ten feet below the surface.

2.2 Proposed Development

Alta anticipates that the site will be developed to accommodate a multi-family residential development and associated improvements. Alta anticipates that conventional cut-and-fill grading techniques will be used to develop the site for the support of wood-frame construction with shallow foundations and reinforced concrete slabs-on-grade, and associated improvements.

3.0 SITE INVESTIGATION

3.1 Current Subsurface Investigation

Alta conducted a subsurface investigation on May 28th of 2024, consisting of the drilling, logging, and select sampling of three (3) hollow-stem auger borings up to a maximum depth of 51.5 feet below the ground surface. In addition, two (2) shallow borings (5 and 10 feet deep) were advanced to conduct preliminary infiltration testing. The locations of the exploratory excavations are shown on Plate 1 and the logs are presented in Appendix B.

Laboratory testing was performed on ring and bulk samples obtained during the field investigation. A brief description of the laboratory test procedures and the test results are presented in Appendix C.

3.2 Infiltration Testing

Infiltration testing was performed by Alta on May 29, 2024, utilizing percolation methods in accordance with the Los Angeles County Guidelines for Geotechnical Investigation and Reporting Low Impact Development Stormwater Infiltration. Percolation rates were converted to infiltration rates utilizing the Porchet method. The resulting field infiltration rates, with no factor of safety, are presented below in Table 3-1. Recommendations for infiltration BMP design are presented in Section 6.3.

Table 3-1 Summary of Infiltration Testing (No Factor of Safety)		
Test Designation	P-1	P-2
Approximate Depth of Test	5.0 ft	10.0 ft
Final Time Interval	10 min.	10 min.
Tested Infiltration Rate	1.0 in/hr	2.6 in/hr

4.0 GEOLOGIC CONDITIONS

4.1 Geologic and Geomorphic Setting

Regionally, the site is located in the Peninsular Ranges geomorphic province, which characterizes the southwest portion of Southern California. The Peninsular Ranges province is composed of plutonic and metamorphic rock, lesser amounts of Tertiary volcanic and sedimentary rock, and Quaternary drainage in-fills and minor sediment veneers. The Peninsular Ranges are divisible into northwest-trending sub-blocks that extend south into Baja California and terminate to the north against the Transverse Ranges province.

4.2 Stratigraphy

Based on Alta's review of geologic literature and our subsurface investigation the project site is underlain by young alluvial deposits. The following is a brief description of this geologic unit encountered during this investigation.

4.2.1 Young Alluvial Deposits (Map symbol Qya)

The young alluvial deposits within the site consists primarily of light to dark brown, fine grained, dense, silty sand and sandy silt inter-lensed with brown silt that is moist and stiff. The young alluvium is generally dry in the upper 5 to 10 feet, and slightly moist to moist below that. Some minor seepage was encountered in one of the borings (B-2) advanced at the site at a depth of approximately 23 feet below the ground surface (bgs). This unit was encountered to a maximum depth of 51.5 feet bgs.

4.3 Geologic Structure

4.3.1 Tectonic Framework

Jennings (1985) defined eight structural provinces within California that have been classified by predominant regional fault trends and similar fold structure. Within this framework, the subject site is located within the Peninsular Ranges geomorphic province, controlled by the dominant northwest trend of the San Andreas Fault and the subparallel San Jacinto Fault, Whittier/Elsinore Fault, and the Newport-Inglewood Fault, all exhibit right lateral strike-slip movement. The closest of these major faults to the site is the Newport-Inglewood Fault, approximately 6.3 miles from the site.

4.3.2 Regionally Mapped Active Faults

Active faults in the region, including the Puente Hills Fault (1.5 miles north of the site), the Newport-Inglewood/Rose Canyon Fault (6.3 miles southwest of the site), and the Whittier-Elsinore Fault (8.3 miles northeast of the site). These fault systems have been studied extensively and in a large part control the geologic structure of the region.

4.3.3 Geologic Structure

Based upon our site investigation and literature review, the onsite subsurface is essentially flat lying sediments that do not appear to be faulted of folded.

4.4 Groundwater

Some minor groundwater seepage was encountered in one of the borings during Alta's recent investigation, at a depth of roughly 23 feet below the ground surface (Borings B-2). The water was perched above a silt lense. Based on state-provided information, the historic-high groundwater is approximately 10-feet below the ground surface (CDMG, 1997). Groundwater data from two nearby wells, State Well Numbers: 03S12W06B004S and 03S12W09J002S, at elevations 104-ft. and 99-ft, respectively, showed that depth to groundwater varied from 77- to 97-feet below the ground surface from 1999 and 2024 (CDWR, 2024).

4.5 Earthquake Hazards

The subject site is located in southern California, which is a tectonically active region. The type and magnitude of seismic hazards affecting a site are dependent on the distance to the causative fault and the intensity and magnitude of the seismic event. The seismic hazard may be primary, such as surface rupture and/or ground shaking, or secondary, such as liquefaction and/or ground lurching.

4.5.1 Local and Regional Faulting

The site is located in the Los Angeles basin. The closest known active fault to the site is the Puente Hills Fault located 1.5 miles from the site. No known active faults exist below the site or in the immediate site vicinity.

4.5.2 Seismicity

Ground shaking hazards caused by earthquakes along other active regional faults exist. The 2022 California Building Code requires use-modified spectral accelerations and velocities for most structural designs. Seismic design parameters using soil profile types identified in the 2022 California Building Code are presented in Section 7.3.

4.5.3 Surface Rupture

Active faults are not known to exist within the project and a review of Special Publication 42 indicates the site is not within a California State designated earthquake fault zone. Accordingly, the potential for fault surface rupture on the subject site is low.

4.5.4 Liquefaction

Seismic agitation of relatively loose saturated sands, silty sands, and some silts can result in a buildup of pore pressure. If the pore pressure exceeds the overburden stresses, a temporary quick condition known as liquefaction can occur. Liquefaction effects can manifest in several ways including: 1) loss of bearing; 2) lateral spread; 3) dynamic settlement; and 4) flow failure. Lateral spreading has typically been the most damaging mode of failure.

In general, the more recent that a sediment has been deposited, the more likely it will be susceptible to liquefaction. Other factors that must be considered are groundwater, confining stresses, relative density, and the intensity and duration of seismically induced ground shaking.

Some minor groundwater seepage was encountered in one of the borings during Alta's recent investigation, at a depth of roughly 23 feet below the ground surface (Boring B-2). The water was perched above a silt lens. Based on state-provided information, the historic-high groundwater is approximately 10-feet below the ground surface feet below the ground surface (CDMG, 1997).

Alta performed a liquefaction analysis utilizing data from our subsurface investigation to determine the liquefaction potential of the young alluvium. A description of Alta's analysis and calculations are presented in Appendix D of this report. A groundwater level of greater than 10.0 feet below existing ground surface was assumed. The results of our findings are discussed below under the headings of the specific types of liquefaction which can be manifested during seismic shaking. Conclusions regarding liquefaction are presented in Section 6.4.

- **Loss of Bearing:**
  Liquefaction can potentially cause bearing failure due to ground softening and near-failure in bearing. Based on the removal recommendations presented in this report, Alta anticipates that the potential for loss of bearing will be minimal.

- **Lateral Spreading:**
  The lateral displacement of surficial blocks of sediment can occur as a result of liquefaction in a subsurface layer. The most pervasive forms of lateral spreading typically involve sites located near a "free-face" (large slopes, channels, etc.), however, it has been noted that lateral spreading can occur on sites with gently sloping (1% or more) ground, such as the subject site.

  Determination of the potential for lateral spread is based on the presence of continuous potentially liquefiable soil layers underneath the structures, the presence of lateral confinement, and various analyses such as empirical modeling. Bartlett, Hansen and Youd (2002) states that surface manifestation of lateral spread is typically limited to sites with liquefiable soils within 10 meters (32 feet) of grade, and that sites underlain by soils with $(N1)_{60}$ values 15 and greater do not experience significant displacements from earthquakes with magnitudes less than 8.

  Given the flat nature of the site, the limited liquefiable layers with $(N1)_{60}$ values less than 15, our recommended unsuitable soil removals (Section 6.1.2) and our foundation design recommendations (Section 7.1), it is our opinion that the potential for lateral spread to occur onsite is considered within design tolerances of the proposed foundation systems, upon the completion of remedial grading.

- **Settlement:**
  Settlement due to seismic shaking can occur as a result of both liquefaction of saturated sediments or rearrangement of dry sand particles. Our liquefaction analysis was performed utilizing blow count data and laboratory test results to analyze the potential amount of settlement. A description of Alta's analysis and calculations are presented in Appendix D of this report. A discussion of settlement analysis results is presented in Section 6.3. Dynamic settlement design recommendations are presented in Section 7.1.

- **Flow Failure:**
  Due to the relatively flat nature of the site, and the relatively horizontal deposition of the underlying deposits, the potential for flow failure onsite is considered minimal.

4.5.5 Dry Sand Settlement

Dry sand settlement is the process of non-uniform settlement of the ground surface during a seismic event. Based on our subsurface investigation and our removal/recompaction recommendations, the potential for onsite dry sand settlement is anticipated to be nil.

4.6 Regional Subsidence

The site is not located in an area designated as susceptible to subsidence. Upon implementation of the remedial grading recommendations presented herein, the effects of subsidence on the development are considered to be negligible. If subsidence due to groundwater extraction were to occur, it would likely affect the entire region and not result in differential settlement across the site.

5.0 ENGINEERING PROPERTIES AND ANALYSIS

5.1 Materials Properties

Presented herein is a general discussion of the engineering properties of the onsite materials that will be encountered during construction of the proposed project. Descriptions of the soil (Unified Soil Classification System) are presented on the boring logs in Appendix B.

5.1.1 Excavation Characteristics

Based on the data provided from the subsurface investigation, it is our opinion that excavation characteristics across the site are favorable, such that conventional equipment can be utilized.

5.1.2 Compressibility

The upper portions of the young alluvium are considered compressible and unsuitable to support the proposed improvements. Recommended removal depths are presented in Section 6.1.2.

5.1.3 Hydro-Consolidation

Hydro-consolidation is the effect of introducing water into soil that is prone to collapse. Upon loading and initial wetting, the soil structure and apparent strength are altered resulting in almost immediate settlement. That settlement can have adverse impacts on engineered structures, particularly in areas where it is manifested differentially. Differential settlements are typically associated with differential wetting, irregularities in the subsurface soil conditions, or irregular loading patterns.

Based on laboratory testing results presented in Appendix C, there is minimal potential for hydro-collapse to occur within the young alluvium onsite. Upon the completion of the removal and recompaction recommendations presented herein, the potential for hydro-collapse shall be minimal and within foundation tolerances.

5.1.4 Expansion Potential

Based on expansion index testing performed during our subsurface investigation (Appendix C), the majority of soils onsite are “very low” to “low” in expansion potential ($0 \leq EI \leq 50$, Appendix C) when tested per ASTM D: 4829.

5.1.5 Earthwork Adjustments

The values presented in Table 5-1 are deemed appropriate for estimating purposes and may be used to balance earthwork quantities. As is the case with every project, contingencies should be made to adjust the earthwork balance when grading is in-progress and actual conditions are better defined.

TABLE 5-1
Earthwork Adjustment Factors

Geologic Unit	Adjustment Factor Range	Average
Young Alluvium	3% to 7%	5%

5.1.6 Chemical Analyses

Chemical testing was performed on samples of material underlying the proposed site during our subsurface investigation. Soluble sulfate test results indicate that the soluble sulfate concentrations of the soils tested are classified as negligible (Category S0) per ACI 318-14.

Negligible chloride levels were detected in the soils onsite. Based on laboratory results of soluble sulfate, chloride, and pH testing as presented in Appendix C, the onsite soils are classified as “non-corrosive” (Caltrans, 2022). Additional discussions on corrosion are presented in Section 7.9.

5.2 Engineering Analysis

Presented below is a general discussion of the engineering analysis methods that were utilized to develop the conclusions and recommendations presented in this report.

5.2.1 Bearing Capacity and Lateral Earth Pressures

Ultimate bearing capacity values were obtained using the graphs and formula presented in NAVFAC DM-7.1. Allowable bearing was determined by applying a factor of safety of at least 3 to the ultimate bearing capacity. Static lateral earth pressures were calculated using Rankine methods for active and passive cases. If it is desired to use Coulomb forces, a separate analysis specific to the application can be conducted.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on Alta's findings during our subsurface investigation, the laboratory test results, our staff's previous experience in the area, it is Alta's opinion that the development of the site is feasible from a geotechnical perspective. Presented below are recommendations that should be incorporated into site development and construction plans.

6.1.1 Site Preparation

Vegetation, construction debris, and other deleterious materials are unsuitable as structural fill material and should be disposed of offsite prior to commencing grading/construction. Any septic tanks, seepage pits or wells should be abandoned as per the County of Los Angeles Department of Health Services.

6.1.2 Unsuitable Soil Removals

The undocumented artificial fill and upper portions of young alluvial deposits are compressible and as such, are not suitable to support the proposed structures. Therfore, it is anticipated that, on average, the upper four (4) to six (6) feet of existing soils will require removal and recompaction, extending a minimum of five (5) feet horizontally outside of the structures. This recommended removal combined with the foundation recommendations presented in Section 7.1 should provide suitable support for the proposed structures.

Footings for structures should be underlain by a minimum of two (2) feet of compacted fill. As such, for building pads where unsuitable soil removals do not provide the minimum depth of compacted fill, or where design grades and/or remedial grading activities create cut/fill transitions, the cut and shallow fill portions of the building pads should be over-excavated during grading and replaced with compacted fill.

The Project Geotechnical Consultant should observe the removal bottom prior to placing fill. If unsuitable soils such as undocumented artificial fill is exposed upon the completion of the removals recommended above, additional removals may be required.

For fill areas in parking lots/drive aisles, in general, a minimum removal and recompaction of the upper two (2) feet is recommended, however all undocumented artificial fill shall be removed and recompacted. For cuts greater than two (2) feet in street areas, removals are not required. For cuts less than two (2) feet, the two (2) foot removal and recompaction applies.

Material removed as part of the unsuitable soil removals can be used as artificial fill, provided it is free of deleterious materials.

6.2 General Earthwork Recommendations

6.2.1 Compaction Standards

All fill and processed natural ground shall be compacted to a minimum relative compaction of 90 percent, as determined by ASTM Test Method: D-1557. Fill material should be moisture conditioned to optimum moisture or above, and as generally discussed in Alta’s Earthwork

Specification Section presented in Appendix F. Compaction shall be achieved with the use of sheepsfoot rollers or similar kneading type equipment. Mixing and moisture conditioning will be required in order to achieve the recommended moisture conditions.

6.2.2 Groundwater/Seepage

Depending on the depth of utilities, perched water conditions could be encountered depending on the time of year construction occurs.

6.2.3 Documentation of Removals

All removal/over-excavation bottoms should be observed and approved by the project Geotechnical Consultant prior to fill placement. Consideration should be given to surveying the removal bottoms and undercuts after approval by the geotechnical consultant and prior to the placement of fill. Staking should be provided to verify undercut locations and depths.

6.2.4 Treatment of Removal Bottoms

At the completion of removals/over-excavation, the exposed removal bottom should be ripped to a minimum depth of eight (8) inches, moisture-conditioned to above optimum moisture content and compacted in-place to the project standards.

6.2.5 Fill Placement

After removals are completed and scarification and compaction of the removal bottom is performed, additional fill may be placed. Fill should be placed in eight-inch bulk maximum lifts, moisture conditioned to optimum moisture content or above, compacted and tested as grading/construction progresses until final grades are attained.

6.2.6 Moisture Content

The moisture content of the upper in-situ soils varies, as shown in the boring logs presented in Appendix B. The majority of the upper several feet of onsite soils are above optimum moisture content and will require drying and mixing prior to placement as compacted fill.

6.2.7 Mixing

Mixing of materials may be necessary to prevent layering of different soil types and/or different moisture contents. The mixing should be accomplished prior to and as part of compaction of each fill lift.

6.2.8 Import Soils

Imported soils, if necessary, should consist of clean, structural quality, low expansive, compactable materials similar to the on-site soils and should be free of trash, debris or other objectionable materials. The project Geotechnical Consultant should be notified not less than 72 hours in advance of the locations of any soils proposed for import. Import sources should be sampled, tested, and approved by the project Geotechnical Consultant at the source prior to the importation of the soils to the site. The project Civil Engineer should include these requirements on plans and specifications for the project.

6.2.9 Utility Trenches

6.2.9.1 Excavation

Utility trenches should be supported, either by laying back excavations or shoring, in accordance with applicable OSHA standards. The existing site soils are classified as Soil Types "B" and "C" per OSHA standards. Upon completion of the recommended removals and recompaction, the artificial fill will be classified as Soil Type “B”. The Project Geotechnical

Consulting should be consulted if geologic conditions vary from what is presented in this report.

6.2.9.2 <u>Backfill</u>

Trench backfill should be compacted to at least 90 percent of maximum dry density as determined by ASTM D-1557. Onsite soils will not be suitable for use as bedding material but will be suitable for use in backfill provided oversized materials are removed. No surcharge loads should be imposed above excavations. This includes spoil piles, lumber, concrete trucks, or other construction materials and equipment. Drainage above excavations should be directed away from the banks. Care should be taken to avoid saturation of the soils. Compaction should be accomplished by mechanical means. Jetting of native soils will not be acceptable.

Under-slab trenches should also be compacted to project specifications. If select granular backfill (SE > 30) is used, compaction by flooding may be acceptable.

6.2.10 <u>Backcut Stability</u>

Temporary backcuts, if required during unsuitable soil removals, should be made no steeper than 1:1 without review and approval of the geotechnical consultant. Flatter backcuts may be necessary where geologic conditions dictate and where minimum width dimensions are to be maintained.

Care should be taken during remedial grading operations in order to minimize risk of failure. Should failure occur, complete removal of the disturbed material will be required.

In consideration of the inherent instability created by temporary construction backcuts for removals, it is imperative that grading schedules are coordinated to minimize the unsupported exposure time of these excavations. Once started, these excavations and subsequent fill operations should be maintained to completion without intervening delays imposed by avoidable circumstances. In cases where five-day workweeks comprise a normal schedule, grading should be planned to avoid exposing at-grade or near-grade excavations through a non-work weekend. Where improvements may be affected by temporary instability, either on or offsite, further restrictions such as slot cutting, extending work days, implementing weekend schedules, and/or other requirements considered critical to serving specific circumstances may be imposed.

6.3 Storm Water Infiltration Systems

From a geotechnical perspective, allowing storm water to infiltrate the onsite soil in concentrated areas increases the potential for settlement, liquefaction, and water-related damage to structures/improvements, such as wet slabs or pumping subgrade, and should be avoided where possible. If infiltration systems are required on this site, care should be taken in designing systems that control the storm water as much as possible.

Preliminary infiltration testing was as part of Alta's geotechnical investigation. The resulting infiltration rates for P-1 and P-2 were 1.0- and 2.6-inches per hour, respectively. The results do not include a factor of safety.

The Project Geotechnical Consultant should review the final WQMP design prior to construction.

6.4 Liquefaction

As discussed in Section 4.5.4 of this report, there is a potential for liquefaction to occur at the site during seismic shaking. More specifically, liquefaction could cause differential settlement. Typically, half to two thirds of that settlement should be considered differential (California Division of Mines and Geology, 2008, Special Publication 117a). If the analysis is based on multiple borings, seismic induced differential settlement may be determined as one-half the total settlement (City of Los Angeles, 2020). For lightly loaded, well-constructed structures underlain by a non-liquefiable layer over the liquefiable layers, such as will be developed at the site, the ultimate differential settlement across the structure may be more limited (Idriss and Boulinger, 2008).

In consideration of the proposed removal and recompaction of the soils below the proposed structures, the differential settlement shown in the liquefaction calculations, and the relatively uniform thickness of the liquefiable layers under the site, it is Alta's opinion that a dynamic differential settlement of 0.5-inches in 40 feet can be utilized in the design of the proposed structures onsite.

6.5 Boundary Conditions

Construction of retaining/screen walls along the site boundaries may require additional geotechnical recommendations concerning unsuitable soil removals and foundation design parameters. Boundary conditions for the project should be reviewed by the Project Geotechnical Consultant as the design progresses.

7.0 DESIGN CONSIDERATIONS

7.1 Structural Design

It is anticipated that multi-story wood-framed residential structures with slab on-grade and shallow foundations will be constructed. Upon the completion of rough grading, finish grade samples should be collected and tested in order to provide specific recommendations as they relate to the individual building pads. These test results and corresponding design recommendations should be presented in a final rough grading report. Final slab and foundation design recommendations should be made based upon specific structure sitings, loading conditions, and as-graded soil conditions.

It is anticipated that the majority of onsite soils will possess “very low” to “low” expansion potential when tested in general accordance with ASTM Test Method D: 4829. For budgeting purposes, the following foundation design requirements for a range of potential expansion characteristics are presented.

7.1.1 Foundation Design

Foundations may be preliminary designed based on the values presented in Table 7-1 below.

Table 7-1
Foundation Design Parameters*

Allowable Bearing	2000 lbs/ft^2 (assuming a minimum embedment depth and width of 12 inches)
Lateral Bearing	250 lbs/ft^2 at a depth of 12 inches plus 250 lbs/ft^2 for each additional 12 inches of embedment to a maximum of 2000 lbs/ft^2.
Sliding Coefficient	0.30
Settlement	Static Settlement – 0.5 inch in 40 feet Dynamic Settlement – 0.5 inch in 40 feet

*These values may be increased as allowed by Code to resist transient loads such as wind or seismic. Building code and structural design considerations may govern depth and reinforcement requirements and should be evaluated.

7.1.2 Conventional Foundation Systems

Based on the onsite soils conditions and information supplied by the CBC 2022, conventional foundation systems may be designed in accordance with Tables 7-1 and 7-2.

TABLE 7-2 CONVENTIONAL FOUNDATION DESIGN PARAMETERS	
Expansion Potential	***Very Low to Low***
Soil Category	I
Design Plasticity Index	12
Minimum Footing Embedment	12 inches*
*The minimum footing imbedments presented herein are based on expansion indexes. The structural engineer should determine minimum embedments based on the number of floors supported by the footings, the structural loading, and the requirements of the latest California Building Code.	
Minimum Footing Width	12-inches-The structural engineer should determine the minimum footing width based on loading and the latest California Building Code.
Minimum Footing Reinforcement	No. 4 rebar, one (1) on top, one (1) on bottom
Minimum Slab Thickness	4 inches (actual)
Minimum Slab Reinforcement	No. 3 rebar spaced 18 inches on center, each way
Under-Slab Requirement	See Section 7.2
Slab Subgrade Moisture	Minimum of 110 percent of optimum moisture to a depth of 12 inches prior to placing concrete.
Footing Embedment Adjacent to Swales and Slopes	If exterior footings adjacent to drainage swales are to exist within five (5) feet horizontally of the swale, the footing should be embedded sufficiently to assure embedment below the swale bottom is maintained. Footings adjacent to slopes should be embedded such that at least five- (5) feet is provided horizontally from edge of the footing to the face of the slope.
Garages	A grade beam reinforced continuously with the garage footings shall be constructed across the garage entrance, tying together the ends of the perimeter footings and between individual spread footings. This grade beam should be embedded at the same depth as the adjacent perimeter footings. A thickened slab, separated by a cold joint from the garage beam, should be provided at the garage entrance. Minimum dimensions of the thickened edge shall be six (6) inches deep. Footing depth, width and reinforcement should be the same as the structure. Slab thickness, reinforcement and under-slab treatment should be the same as the structure.

7.1.3 Post-Tensioned Slabs/Foundation Design Recommendations

Post-tensioned slabs for the project may be designed utilizing the parameters presented in Tables 7-1 and 7-3. The parameters presented herein are based on methodology provided in the Design of Post-Tensioned Slabs-On-Ground, Third Edition, by the Post-Tensioning Institute, in accordance with the 2022 CBC.

<table>
<tr><th colspan="7">TABLE 7-3
POST-TENSION SLAB DESIGN PARAMETERS</th></tr>
<tr><th rowspan="2">Category</th><th rowspan="2">Expansion Potential</th><th rowspan="2">Minimum Embedment*</th><th colspan="2">Edge Lift</th><th colspan="2">Center Lift</th></tr>
<tr><th>Em (ft)</th><th>Ym (inch)</th><th>Em (ft)</th><th>Ym (inch)</th></tr>
<tr><td>I</td><td>Very Low to Low</td><td>12 inches</td><td>5.4</td><td>0.61</td><td>9.0</td><td>0.26</td></tr>
<tr><td colspan="7">Slab Subgrade Moisture</td></tr>
<tr><td colspan="2">Category I</td><td colspan="5">Minimum 110% of optimum moisture to a depth of 12 inches prior to pouring concrete</td></tr>
<tr><td colspan="7">Embedment*
The minimum footing embedments presented herein are based on expansion indexes. The structural engineer should determine minimum embedments based on the number of floors supported by the footings, the structural loading, and the requirements of the latest California Building Code. If mat slabs are utilized, alternate embedment depths can be provided.</td></tr>
<tr><td colspan="7">Moisture Barrier
A moisture barrier should be provided in accordance with the recommendations presented in Section 7.2</td></tr>
<tr><td colspan="7">The parameters presented herein are based on procedures presented in the <u>Design of Post-Tensioned Slabs-On-Ground, Third Edition</u>. No corrections for vertical barriers at the edge of the slab, or for adjacent vegetation have been assumed. The design parameters are based on a Constant Suction Value of 3.9 pF.</td></tr>
</table>

7.2 Moisture Barrier

A moisture and vapor retarding system should be placed below the slabs-on-grade in portions of the structure considered to be moisture sensitive and should be capable of effectively preventing the migration of water and reducing the transmission of water vapor to acceptable levels. Historically, a 10-mil plastic membrane, such as Visqueen, placed between two to four inches of clean sand, has been used for this purpose. The use of this system or other systems can be considered, at the discretion of the designer, provided the system reduces the vapor transmission rates to acceptable levels.

7.3 Seismic Design

The site classes were determined based on the referenced reports and published geologic maps in the area in general conformance with Chapter 20 of ASCE 7-16. Based on the density of the underlying soils, a Site Class of D (shear wave velocity of 259 m/s) was selected. The seismic design parameters were calculated using a program based on the USGS website and ASCE 7-16 procedures. The resulting values are presented in Table 7-4. These values are applicable providing the exceptions presented in Supplements 2 and 3 of ASCE 7-16 are utilized in the design of the structure. If the design does not include the exception methodology, then a site-specific analysis shall be conducted.

TABLE 7-4 Seismic Ground Motion Values
2022 CBC and ASCE 7-16

Parameter	*Value*
Site Class	D
Site Latitude	33.9392
Site Longitude	-118.1774
Spectral Response Acceleration Parameter, S_S	1.715
Spectral Response Acceleration Parameter, S_1	0.613
Site Coefficient, F_a	1.0
Site Coefficient, F_v	1.7
MCE Spectral Response Acceleration Parameter, S_{MS}	1.715
MCE Spectral Response Acceleration Parameter, S_{M1}	1.042
Design Spectral Response Acceleration Parameter, S_{DS}	1.144
Design Spectral Response Acceleration Parameter, S_{D1}	0.695
Peak Ground Acceleration, PGA_M	0.806

7.4 Block Walls

Block walls, if used, should be embedded a minimum of 2 feet below the lowest adjacent grade. Construction joints (not more than 20 feet apart) should be included in the block wall construction. Side yard walls should be structurally separated from the rear yard wall.

7.5 Footing Excavations

Soils from the footing excavations should not be placed in slab-on-grade areas unless properly compacted and tested. The excavations should be cleaned of all loose/sloughed materials and be neatly trimmed at the time of concrete placement.

7.6 Retaining Wall Design

Retaining walls should be founded on compacted fill and should be backfilled with granular soils that allow for drainage behind the wall. Foundations may be designed in accordance with the recommendations presented in Table 7-1, above. Unrestrained walls, free to rotate at least 0.001 radians, may be designed to resist lateral pressures imposed by a fluid with a unit weight determined in accordance with Table 7-5 below. The table also presents design parameters for restrained retaining walls. These parameters may be used to design retaining walls that may be considered as restrained due to the method of construction or location (corner sections of unrestrained retaining walls).

TABLE 7-5
Equivalent Fluid Pressures for 90% Compacted Fill

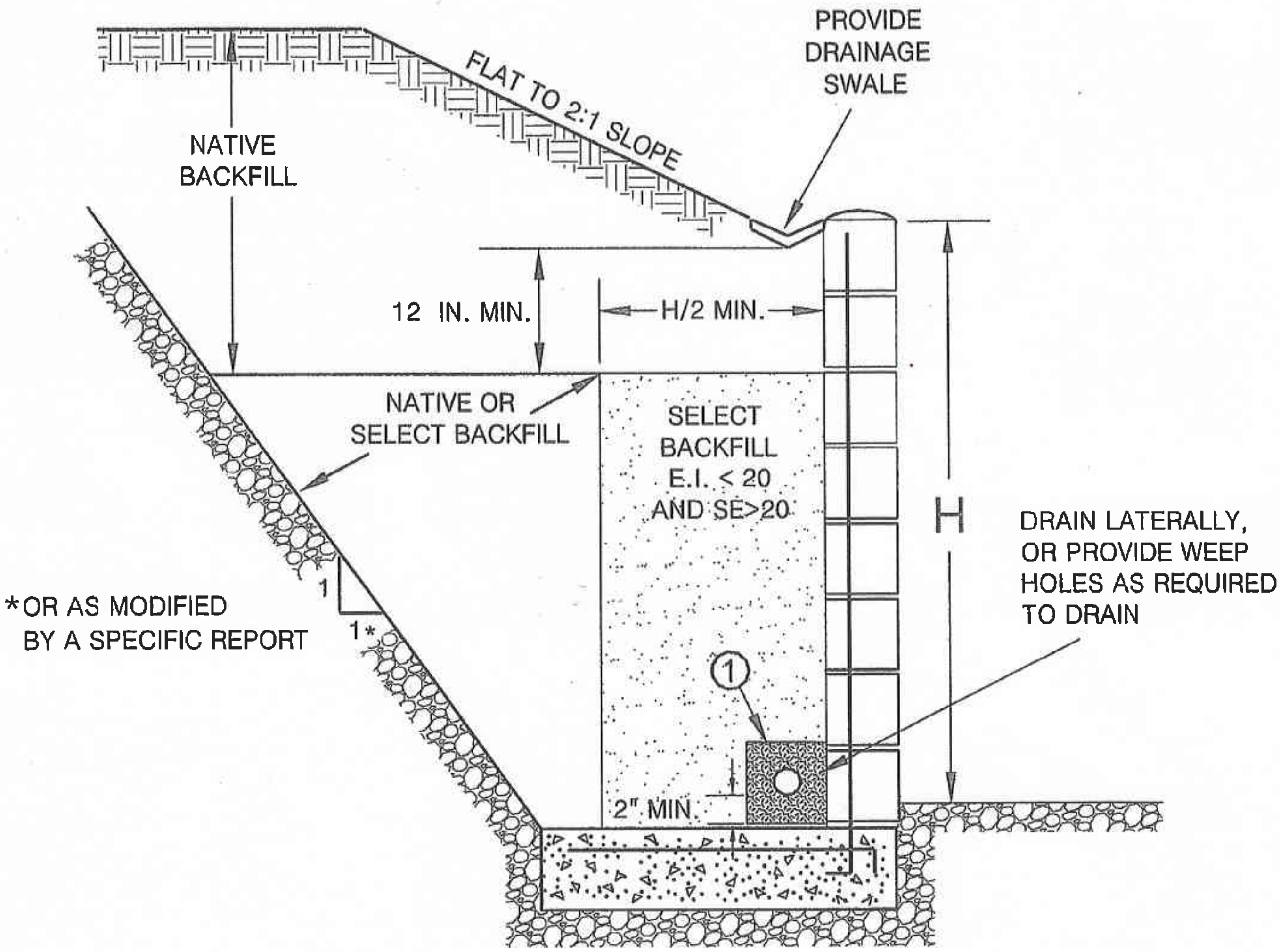
Backfill	Active Pressure (psf/ft)	At-Rest Pressure (psf/ft)
Level	35	55

Per the requirements of the CBC, the seismic force acting on the retaining walls with backfill exceeding 6-feet in height may be resolved utilizing the formula $16H^2$ lb/lineal ft (H=height of the wall). This force acts at approximately 0.6H above the base of the wall (inverted triangle). The seismic value can be converted as required by the retaining wall engineer. Retaining walls should be designed in general accordance with Section 1807A.2 of the 2022 CBC.

- Restrained retaining walls should be designed for "at-rest" conditions, utilizing at-rest pressure.
- The design loads presented in the above table are to be applied on the retaining wall in a horizontal fashion and as such friction between wall and retained soils should not be allowed in the retaining wall analyses.
- Additional allowances should be made in the retaining wall design to account for the influence of construction loads, temporary loads, and possible nearby structural footing loads.
- Select backfill should be granular, structural quality backfill with a Sand Equivalent of 20 or better and an ASCE Expansion Index of 20 or less. The backfill must encompass the full active wedge area. The upper one foot of backfill should be comprised of native on-site soils (see Plate A).
- The wall design should include waterproofing (where appropriate) and backdrains or weep holes for relieving possible hydrostatic pressures. The backdrain should be comprised of a 4-inch perforated PVC pipe in a 1 ft. by 1 ft., ¾-inch gravel matrix, wrapped with a geofabric. The backdrain should be installed with a minimum gradient of 2 percent and should be outletted to an appropriate location.
- No backfill should be placed against concrete until minimum design strengths are achieved.

It should be noted that the allowable bearing and lateral bearing values presented in Table 7-1 are based on level conditions at the toe. Modified design parameters can be presented for retaining walls with sloping condition at the toe. Other conditions should be evaluated on a case-by-case basis.

RETAINING WALL BACKFILL DETAIL



1

PIPE: 4-INCH PERFORATED PVC, SCHEDULE 40, SDR35 OR APPROVED ALTERNATE MINIMUM 8 PERFORATIONS (1/4-IN. DIA.) PER LINEAL FT. IN BOTTOM HALF OF PIPE

ROCK: MINIMUM VOLUME OF 1 CU. FT. OF 3/4-IN. MAX. ROCK PER. LINEAL FOOT OF PIPE, OR APPROVED ALTERNATE

FILTER FABRIC: MIRAFI 140 FILTER FABRIC OR APPROVED EQUIVALENT

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VER. 1/10

PLATE A

PATH: S:\Drafting\ALTA GEOTECHNICAL\GRADING DETAILS\PLATE A.dwg

7.7 Exterior Slabs and Walkways

Exterior concrete slabs and walkways should be designed and constructed in consideration of the following recommendations.

7.7.1 Subgrade Compaction

The subgrade below exterior concrete slabs should be compacted to a minimum of 90 percent relative compaction as determined by ASTM Test Method: D 1557.

7.7.2 Subgrade Moisture

The subgrade below concrete slabs should be moisture conditioned to a minimum of 110 percent of optimum moisture content prior to concrete placement.

7.7.3 Concrete Slab Thickness

Concrete flatwork and driveways should be designed utilizing four-inch minimum thickness.

7.7.4 Concrete Slab Reinforcement

Utilization of reinforcement for flatwork and driveways is subject to a cost/benefit analysis for the developer. Reinforcement will decrease the amount of cracking that may occur in flatwork, however, planning for occasional repairs may be more cost effective. The majority of the soils onsite are classified as very low in expansion potential. Consideration should be given to reinforcing flatwork with irregular (non-square/rectangular) shapes.

7.7.5 Control Joints

Weakened plane joints should be installed on walkways at intervals of approximately eight feet. Exterior slabs should be designed to withstand shrinkage of the concrete.

7.8 Concrete Design

As stated in Section 5.1.6, negligible concentrations of sulfates were detected in the onsite soils. Therefore, the use of sulfate resistant concrete is not required per ACI 318-14 at this time. Post-grading conditions should be evaluated, and final recommendations made at that time.

7.9 Corrosion

Based on preliminary testing from our investigation and the previous investigation, the onsite soils are classified as “non-corrosive” (Caltrans, 2022). Consideration should be given to protecting buried metals from corrosion. Typical measures may include using non-corrosive backfill, protective coatings, wrapping, plastic pipes, or a combination of these methods. A corrosion engineer should be consulted if specific design recommendations are required by the improvement designer.

Per ACI 318-14, an exposure class of C1 would be applicable to metals encased in concrete (rebar in footings) due to being exposed to moisture from surrounding soils. Per Table 19.3.2.1 of ACI 318-14, the requirements for concrete with an exposure class of C1 are a minimum compressive strength of 2500 psi and a maximum water-soluble chloride ion content in concrete of 0.30 (percent by weight of cement).

7.10 Pavement Design

Pavement sections for the proposed streets shall be designed based on laboratory testing conducted on samples taken from the soil subgrade. Preliminarily, based on an assumed R-Value of 30, the pavement may be designed utilizing the sections presented in Table 7-6. These sections should be verified upon the completion of grading, based on R-Value testing. The ultimate pavement section design for public streets is under the City of South Gate’s purview.

Table 7-6 Preliminary Pavement Sections		
Traffic Index	Pavement Section Options OR	
5.0	3-inch AC on 6-inch AB	4-inch AC on 4-inch AB
5.5	3-inch AC on 7-inch AB	4-inch AC on 5-inch AB
6.0	3.5-inch AC on 7.5-inch AB	4-inch AC on 6.5-inch AB
AC-Asphalt Concrete AB-Caltrans Class II Base		

Construction of the streets should be accomplished in accordance with the current criteria of the City of South Gate. Prior to the placement of base material, the subgrade should be suitably moisture conditioned, processed and compacted to a minimum 95 percent of the laboratory maximum density (ASTM: D 1557) to at least twelve (12) inches below subgrade. After subgrade compaction, the exposed grade should then be "proof"-rolled with heavy equipment to ensure the grade does not "pump" and is verified as non-yielding. Aggregate base material should be placed on the compacted subgrade and compacted in-place to a minimum 95 percent of the laboratory standard obtained per ASTM: D 1557.

7.11 Site Drainage

Positive drainage away from the proposed structures should be provided and maintained. Roof, pad, and lot drainage should be collected and directed away from the structures toward approved disposal areas through drainage terraces, gutters, down drains, and other devices. Design fine grade elevations should be maintained through the life of the structure or if design fine grade elevations are altered, adequate area drains should be installed in order to provide rapid discharge of water, away from structures.

8.0 LOT MAINTENANCE

Ongoing maintenance of the improvements is essential to the long-term performance of structures and slopes. As such, the owners must implement certain maintenance procedures. The attached "Maintenance and Improvement Considerations" presented in the Appendix E should be reviewed for issues related to drainage, slopes, maintenance, backyard improvements, etc. The following recommendations should also be implemented.

8.1 Lot Drainage

Roof, pad and lot drainage should be collected and directed away from structures and slopes and toward approved disposal areas. Design fine grade elevations should be maintained through the life of the structure or if design fine grade elevations are altered, adequate area drains should be installed in order to provide rapid discharge of water, away from structures and slopes. Residents should be made aware that they are responsible for maintenance and cleaning of all drainage terraces, down drains, and other devices that have been installed to promote structure and slope stability.

8.2 Burrowing Animals

Residents or owners should undertake a program for the elimination of burrowing animals. This should be an ongoing program in order to maintain slope stability.

9.0 FUTURE PLAN REVIEWS

This report represents a geotechnical review of the tract map. As the project design progresses, site specific geologic and geotechnical issues need to be considered in the design and construction of the project. Consequently, future plan reviews may be necessary. These reviews may include reviews of:

- Grading Plans
- Foundation plans

- Utility Plans

These plans should be forwarded to the Project Geotechnical Consultant for review.

10.0 CLOSURE

10.1 Geotechnical Review

For the purposes of this report, multiple working hypotheses were established for the project, utilizing the available data and the most probable model is used for the analysis. Future information collected during the proposed grading operations is intended to evaluate the hypothesis and as such, some of the assumptions summarized in this report may need to be changed. Some modifications of the grading recommendations may become necessary, should the conditions encountered in the field differ from the conditions hypothesized in this report.

Plans and sections of the project specifications should be reviewed by Alta, to evaluate conformance with the intent of the recommendations contained in this report. If the project description or final design varies from that described in herein, Alta must be consulted regarding the applicability of the recommendations contained herein and whether any changes are required. Alta accepts no liability for any use of its recommendations if the project description or final design varies and Alta is not consulted regarding the alterations.

10.2 Limitations

This report is based on the following: 1) the project as presented on the attached plan; 2) the information obtained from the subsurface investigation at the approximate locations indicated on the plans included herein; and 3) from the information presented in the referenced reports. The findings and recommendations are based on the results of the subsurface investigation, laboratory testing, and office analysis combined with an interpolation and extrapolation of conditions between and beyond the subsurface excavation locations. However, the materials adjacent to or beneath those observed may have different characteristics than those observed, and no precise representations are made as to the quality or extent of the materials not observed. The results reflect an interpretation of the direct evidence obtained. Work performed by Alta has been conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the geotechnical profession currently practicing in the same locality under similar conditions. No other representation, either expressed or implied, and no warranty or guarantee is included or intended.

The recommendations presented in this report are based on the assumption that an appropriate level of field review will be provided by a geotechnical consultant who is familiar with the design and site geologic conditions. That field review shall be sufficient to confirm that geotechnical and geologic conditions exposed during grading are consistent with the geologic representations and corresponding recommendations presented in this report.

The conclusions and recommendations included in this report are applicable to the specific design of this project as discussed in this report. They have no applicability to any other project or to any other location and any and all subsequent users accept any and all liability resulting from any use or reuse of the data, opinions, and recommendations without the prior written consent of Alta.

Alta has no responsibility for construction means, methods, techniques, sequences, procedures, safety precautions, programs in connection with the construction, acts or omissions of the CONTRACTOR or any other person performing any of the construction, or for the failure of any of them to carry out the construction in accordance with the final design drawings and specifications

APPENDIX A

REFERENCES

APPENDIX A

Selected References

California Code of Regulations, 2022, California Building Code, Title 24, Part 2, Volume 2, Based on the 2021 International Building Code, Effective Date January 1, 2023.

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Romanoff, Melvin, 1989, Underground Corrosion, NBS Circular 579, Reprinted by NACE, Houston, TX, 1989.

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APPENDIX B

Subsurface Investigation

APPENDIX B

Subsurface Investigation

Alta's subsurface investigation consisted of excavating, logging, and sampling three (3) hollow-stem auger borings. In addition, two shallow borings were advanced for preliminary infiltration testing. Details of the subsurface investigation are presented in Table B-1. The approximate locations of the exploratory excavations are shown on the accompanying Plate 1 and the Geotechnical Logs are attached.

TABLE B-1
SURFACE INVESTIGATION DETAILS

Equipment	Range of Depths	Sampling Methods	Sample Locations
8” Hollow-Stem Auger	Up to 51.5 feet	1. Bulk Samples 2. Ring Samples	1. Bulk-Select Depths 2. Ring-Every 2.5 or 5.0 feet.

UNIFIED SOIL CLASSIFICATION SYSTEM

Major Divisions		grf	ltr	Description
Coarse Grained Soils. More than 50% retained on No. 200 sieve	Gravel and Gravelly Soils. More than 50% of coarse fraction retained on No. 4 sieve		GW	Well-graded gravels or gravel sand mixtures, little or no fines
			GP	Poorly-graded gravels or gravel sand mixture, little or no fines
			GM	Silty gravels, gravel-sand-silt mixtures
			GC	Clayey gravels, gravel-sand-clay mixtures
	Sand and Sandy Soils. More than 50% of coarse fraction passes on No. 4 sieve		SW	Well-graded sands or gravelly sands, little or no fines
			SP	Poorly-graded sands or gravelly sands, little or no fines
			SM	Silty sands, sand-silt mixtures
			SC	Clayey sands, and-clay mixtures

Major Divisions		grf	ltr	
Fine Grained Soils. More than 50% passes on No. 200 sieve	Silts And Clays LL,<50		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL	Organic silts and organic silt-clays of low plasticity
	Silts And Clays LL,<50		MH	Inorganic silts, micaceous or diatomaceous fine or silty soils, elastic silts
			VH	Inorganic clays of high plasticity, fat clays
			OH	Organic clays of medium to high plasticity
Highly Organic Soils			PT	Peat and other highly organic soils

BOUNDARY CLASSIFICATION: Soils possessing characteristics of two groups are designated by combinations of group symbols.

PARTICLE SIZE LIMITS

U.S. STANDARD SERIES SIEVE: 200, 40, 10, 4 — CLEAR SQUARE SIEVE OPENINGS: 3/4", 3", 12"

Silts and Clays	Sand			Gravel		Cobbles	Boulders
	Fine	Medium	Coarse	Fine	Coarse		

RELATIVE DENSITY

Sands and Gravels	Blows/Foot (SPT)
Very Loose	<4
Loose	4-10
Medium Dense	11-30
Dense	31-50
Very Dense	>50

CONSISTENCY CLASSIFICATION

Silts and Clays	Criteria
Very Soft	Thumb penetrates soil >1 in.
Soft	Thumb penetrates soil 1 in.
Firm	Thumb penetrates soil 1/4 in.
Stiff	Readily indented with thumbnail
Very Stiff	Thumbnail will not indent soil

HARDNESS

Bedrock
Soft
Moderately Hard
Hard
Very Hard

LABORATORY TESTS

Symbol	Test
DS	Direct Shear
DSR	Direct Shear (Remolded)
CON	
SA	Sieve Analysis
MAX	Maximum Density
RV	Resistance (R) Value
EI	Expansion Index
SE	Sand Equivalent
AL	Atterberg Limits
CHEM	Chemical Analysis
HY	Hydrometer Analysis

SOIL MOISTURE

Increasing Visual Moisture Content

- Dry - Dry to touch
- Moist - Damp, but no visible free water
- wet - Visible free water

SIZE PROPORTIONS

Trace - <5%

Few - 5 to 10%

Some - 15 to 25%

KEY TO EXPLORATORY BORING LOGS

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PLATE B

GEOTECHNICAL BORING LOG

PROJECT NO.	1-0533	PROJECT NAME	10130 Adella Avenue		
DATE STARTED	5/28/24	GROUND ELEV.	94	BORING DESIG.	B-1
DATE FINISHED	5/28/24	GW DEPTH (FT)		LOGGED BY	LM
DRILLER	2R Drilling Inc.	DRIVE WT.	140 lbs.	NOTE	
TYPE OF DRILL RIG	8" Hollow-Stem Auger	DROP	30 in.		

DEPTH (Feet)	ELEV	SAMPLE TYPE	BLOWS	LITHOLOGY	GROUP SYMBOL	GEOTECHNICAL DESCRIPTION	MOISTURE CONT (%)	DRY (pcf) DENSITY	SAT-URATION (%)	OTHER TESTS
0	94	B			ML	**YOUNG ALLUVIUM** (Qya): SANDY SILT, very fine to fine grained, tannish brown, dry, firm.				MAX, EI, CHEM, HY
5	90	R	10			@5.0ft.: very fine grained, brown, dry, stiff.	19.6	91	64	
10	85	R	14		SP	@10.0ft.: SAND. fine grained, tan, slightly moist, medium dense.	29.1	86	84	
15	80	R	46		SM	@15.0ft.: SILTY SAND, very fine to fine grained, slightly moist, dark brown, dense.	12.1	116	75	
20	75	R	30			@20.0ft.: fine grained, grey, medium dense.	21.7	98	84	
25	70	S	2/3/3		ML	@25.0ft.: SILT, brown, moist, stiff.	36.1			
30	65	S	3/4/4			@30.0ft.: trace orange mottling.	32.2			
35	60	S	6/11/8		SM	@35.0ft.: SILTY SAND, very fine to fine grained, grey, moist, medium dense.	26.8			
	55					Continued:				

SAMPLE TYPES:
R RING (DRIVE) SAMPLE
S SPT (SPLIT SPOON) SAMPLE
B BULK SAMPLE T TUBE SAMPLE

GROUNDWATER
SEEPAGE
J: JOINTING C: CONTACT
B: BEDDING F: FAULT
S: SHEAR RS: RUPTURE SURFACE

Alta California Geotechnical, Inc.

P.N. 1-0533 PLATE B-1

GEOTECHNICAL BORING LOG

PROJECT NO.	1-0533	PROJECT NAME	10130 Adella Avenue		
DATE STARTED	5/28/24	GROUND ELEV.	94	BORING DESIG.	B-1
DATE FINISHED	5/28/24	GW DEPTH (FT)		LOGGED BY	LM
DRILLER	2R Drilling Inc.	DRIVE WT.	140 lbs.	NOTE	
TYPE OF DRILL RIG	8" Hollow-Stem Auger	DROP	30 in.		

DEPTH (Feet)	ELEV	SAMPLE TYPE	BLOWS	LITHOLOGY	GROUP SYMBOL	GEOTECHNICAL DESCRIPTION	MOISTURE CONT (%)	DRY (pcf) DENSITY	SAT-URATION (%)	OTHER TESTS
		S	2/5/10		ML	Continued: **YOUNG ALLUVIUM** (Qya): SILT, brown, moist, stiff, trace orange mottling.	29.8			
	50									
45		S	2/4/4				29.6			
	45									
50		S	3/4/6				31.5			
						TOTAL DEPTH: 51.5 FEET. NO GROUNDWATER ENCOUNTERED.				

SAMPLE TYPES:
- R RING (DRIVE) SAMPLE
- S SPT (SPLIT SPOON) SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE

GROUNDWATER
SEEPAGE
J: JOINTING C: CONTACT
B: BEDDING F: FAULT
S: SHEAR RS: RUPTURE SURFACE

Alta California Geotechnical, Inc.

P.N. 1-0533 PLATE B-1

GEOTECHNICAL BORING LOG

PROJECT NO.	1-0533	PROJECT NAME	10130 Adella Avenue		
DATE STARTED	5/28/24	GROUND ELEV.	93	BORING DESIG.	B-2
DATE FINISHED	5/28/24	GW DEPTH (FT)	24	LOGGED BY	LM
DRILLER	2R Drilling Inc.	DRIVE WT.	140 lbs.	NOTE	
TYPE OF DRILL RIG	8" Hollow-Stem Auger	DROP	30 in.		

DEPTH (Feet)	ELEV	SAMPLE TYPE	BLOWS	LITHOLOGY	GROUP SYMBOL	GEOTECHNICAL DESCRIPTION	MOISTURE CONT (%)	DRY (pcf) DENSITY	SAT-URATION (%)	OTHER TESTS
					ML	**YOUNG ALLUVIUM** (Qya): SANDY SILT, very fine to fine grained, tannish brown, dry, firm.				
	90	R	11			@2.5ft.: brown, dry, stiff.	18.0	96	66	
5		R	9		SM	@5.0ft.: SILTY SAND, very fine to fine grained, brown, slightly moist, loose, trace pores.	18.3	102	78	CON, HY
	85									
10		R	12			@10.0ft.: fine grained, greyish brown, moist, medium dense.	24.7	98	95	
	80									
15		R	16		ML	@15.0ft.: SANDY SILT, very fine grained, brown, moist, stiff.	27.3	95	98	
	75									
20		R	28		SM	@20.0ft.: SILTY SAND, very fine to fine grained, greyish brown, wet, medium dense.	23.7	94	83	
	70					@23.58ft.: PERCHED GROUNDWATER ENCOUNTERED.				
25		R	10		ML	@25.0ft.: SILT, grey, moist, stiff.	31.9	88	96	
						TOTAL DEPTH: 26.0 FEET. PERCHED GROUNDWATER ENCOUNTERED AT 23.58 FT.				

SAMPLE TYPES:
- R RING (DRIVE) SAMPLE
- S SPT (SPLIT SPOON) SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE

GROUNDWATER
SEEPAGE
J: JOINTING C: CONTACT
B: BEDDING F: FAULT
S: SHEAR RS: RUPTURE SURFACE

Alta California Geotechnical, Inc.

GEOTECHNICAL BORING LOG

PROJECT NO. 1-0533
DATE STARTED 5/28/24
DATE FINISHED 5/28/24
DRILLER 2R Drilling Inc.
TYPE OF DRILL RIG 8" Hollow-Stem Auger

PROJECT NAME 10130 Adella Avenue
GROUND ELEV. 98
GW DEPTH (FT)
DRIVE WT. 140 lbs.
DROP 30 in.

BORING DESIG. B-3
LOGGED BY LM
NOTE

DEPTH (Feet)	ELEV	SAMPLE TYPE	BLOWS	LITHOLOGY	GROUP SYMBOL	GEOTECHNICAL DESCRIPTION	MOISTURE CONT (%)	DRY (pcf) DENSITY	SAT-URATION (%)	OTHER TESTS
					ML	**ARTIFICIAL FILL-UNDOCUMENTED** (afu): SILTY SAND/SANDY SILT, very fine to fine grained, tanish brown, dry, loose.				
	95	R	13		ML	**YOUNG ALLUVIUM** (Qya): SANDY SILT, very fine to fine grained, light brown, dry. stiff.	12.6	89	39	
5		R	13			@5.0ft.: trace pores.	30.0	91	97	
	90									
10		R	17		SM	@10.0ft.: SILTY SAND, very fine to fine grained, brown, slightly moist, medium dense.	17.8	105	82	CON, HY
	85									
15		R	16			@15.0ft.: fine grained, greyish brown.	11.9	94	42	
	80									
20		R	28				10.6	99	42	
	75									
25		R	38				21.0	99	83	
						TOTAL DEPTH: 26.0 FEET. NO GROUNDWATER ENCOUNTERED.				

SAMPLE TYPES:
R RING (DRIVE) SAMPLE
S SPT (SPLIT SPOON) SAMPLE
B BULK SAMPLE
T TUBE SAMPLE

GROUNDWATER
SEEPAGE
J: JOINTING C: CONTACT
B: BEDDING F: FAULT
S: SHEAR RS: RUPTURE SURFACE

Alta California Geotechnical, Inc.

GEOTECHNICAL BORING LOG

PROJECT NO.	1-0533	PROJECT NAME	10130 Adella Avenue		
DATE STARTED	5/28/24	GROUND ELEV.	94	BORING DESIG.	P-1
DATE FINISHED	5/28/24	GW DEPTH (FT)		LOGGED BY	LM
DRILLER	2R Drilling Inc.	DRIVE WT.		NOTE	
TYPE OF DRILL RIG	8" Hollow-Stem Auger	DROP			

DEPTH (Feet)	ELEV	SAMPLE TYPE	BLOWS	LITHOLOGY	GROUP SYMBOL	GEOTECHNICAL DESCRIPTION	MOISTURE CONT (%)	DRY (pcf) DENSITY	SAT-URATION (%)	OTHER TESTS
					SM	**YOUNG ALLUVIUM** (Qya): SILTY SAND/SANDY SILT, very fine to fine grained, tannish brown, dry, loose.				
					ML	@2.5ft.: SANDY SILT, very fine to fine grained, brown, dry, firm.				
	90									
5						TOTAL DEPTH: 5.0 FEET. NO GROUNDWATER ENCOUNTERED.				

SAMPLE TYPES:
- R RING (DRIVE) SAMPLE
- S SPT (SPLIT SPOON) SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE

GROUNDWATER
SEEPAGE
J: JOINTING C: CONTACT
B: BEDDING F: FAULT
S: SHEAR RS: RUPTURE SURFACE

Alta California Geotechnical, Inc.

P.N. 1-0533 PLATE B-4

GEOTECHNICAL BORING LOG

PROJECT NO.	1-0533	PROJECT NAME	10130 Adella Avenue		
DATE STARTED	5/28/24	GROUND ELEV.	95	BORING DESIG.	P-2
DATE FINISHED	5/28/24	GW DEPTH (FT)		LOGGED BY	LM
DRILLER	2R Drilling Inc.	DRIVE WT.		NOTE	
TYPE OF DRILL RIG	8" Hollow-Stem Auger	DROP			

DEPTH (Feet)	ELEV	SAMPLE TYPE	BLOWS	LITHOLOGY	GROUP SYMBOL	GEOTECHNICAL DESCRIPTION	MOISTURE CONT (%)	DRY (pcf) DENSITY	SAT-URATION (%)	OTHER TESTS
	95				SM	**YOUNG ALLUVIUM** (Qya): SILTY SAND/SANDY SILT, very fine to fine grained, tannish brown, dry, loose.				
					ML	@2.5ft.: SANDY SILT, very fine to fine grained, brown, dry.				
5	90				SM	@5.0ft.: SILTY SAND, very fine to fine grained, light brown, slightly moist.				
					SP	@7.5ft.: SAND, fine grained, tan, slightly moist.				
10	85					TOTAL DEPTH: 10.0 FEET. NO GROUNDWATER ENCOUNTERED.				

SAMPLE TYPES:
- R RING (DRIVE) SAMPLE
- S SPT (SPLIT SPOON) SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE

GROUNDWATER
SEEPAGE
J: JOINTING C: CONTACT
B: BEDDING F: FAULT
S: SHEAR RS: RUPTURE SURFACE

Alta California Geotechnical, Inc.

APPENDIX C

Laboratory Testing

LABORATORY TESTING

The following laboratory tests were performed on representative samples in accordance with the applicable latest standards or methods from the ASTM, California Building Code (CBC) and California Department of Transportation.

Classification

Soils were classified with respect to the Unified Soil Classification System (USCS) in accordance with ASTM D-2487 and D-2488.

Particle Size Analysis

Modified hydrometer testing was conducted to aid in classification of the soil. The results of the particle size analysis are presented in Table 7-1 and Table C.

Maximum Density/Optimum Moisture

The maximum dry density and optimum moisture content of one (1) representative bulk sample was evaluated in accordance with ASTM D-1557. The results are summarized in Table C.

Expansion Index Tests

One (1) expansion index test was performed to evaluate the expansion potential of typical on-site soil. Testing was carried out in general conformance with ASTM Test Method D-4829. The results are presented in Table C.

Consolidation Tests

Consolidation testing was performed on two (2) relatively "undisturbed" soil sample at their natural moisture content in accordance with procedures outlined in ASTM D-2435. The samples were placed in a consolidometer and loads were applied incrementally in geometric progression. The samples (2.42-inches in diameter and 1-inch in height) were permitted to consolidate under each load increment until the slope of the characteristic linear secondary compression portion of the thickness versus log of time plot was apparent. The percent consolidation for each load cycle was recorded as the ratio of the amount of vertical compression to the original 1-inch height. The consolidation test results are shown on Plates C-1 and C-2

Chemical Analyses

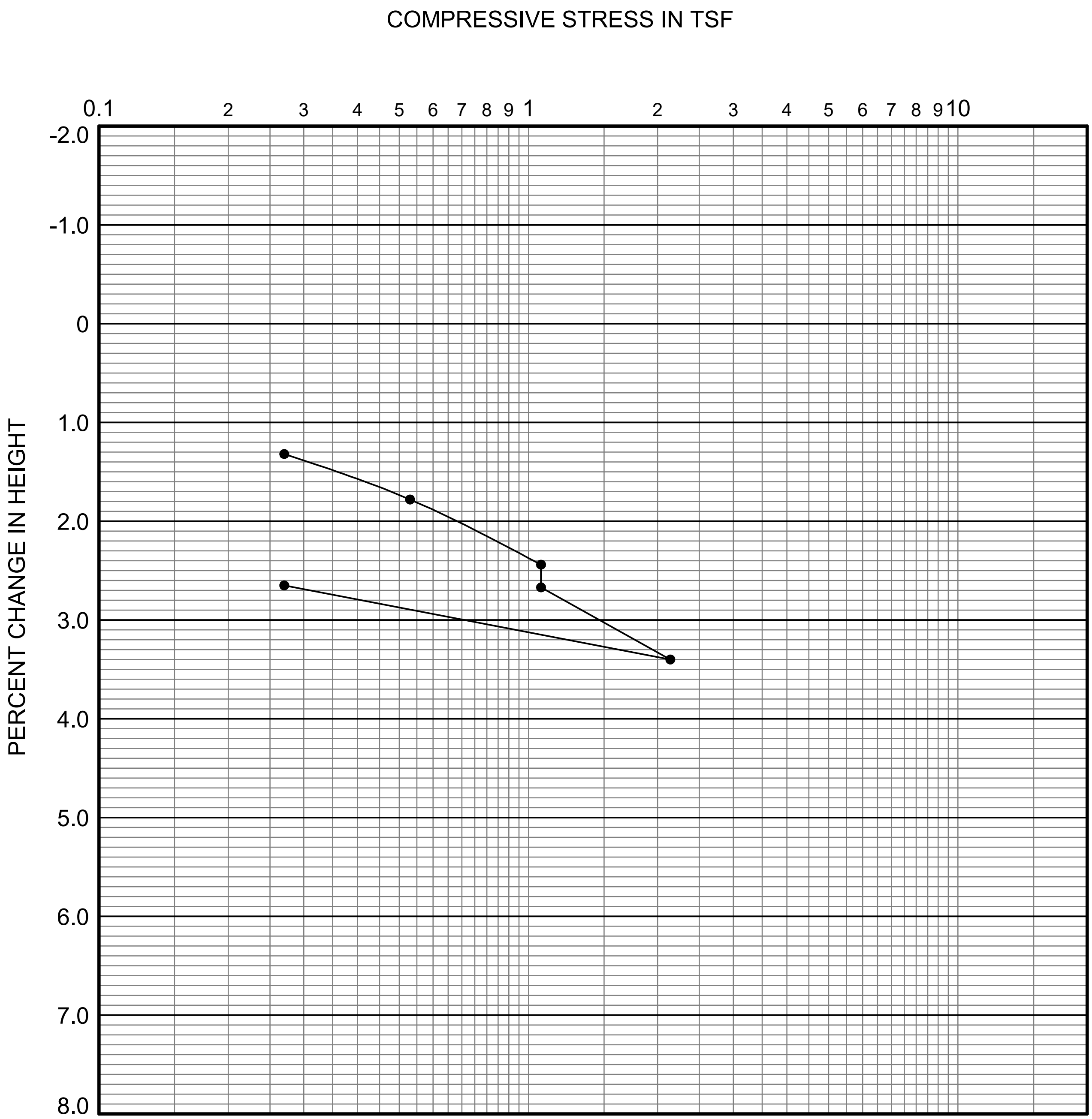
Chemical testing was performed on one select sample. The results of this test (sulfate content, resistivity, chloride content and pH) is presented on Table C.

Atterberg Limits

Atterberg limit testing was performed on one select sample. The Atterberg limits test results are presented on Table C.

TABLE C
SUMMARY OF LABORATORY TEST DATA
P.N. 1-0533

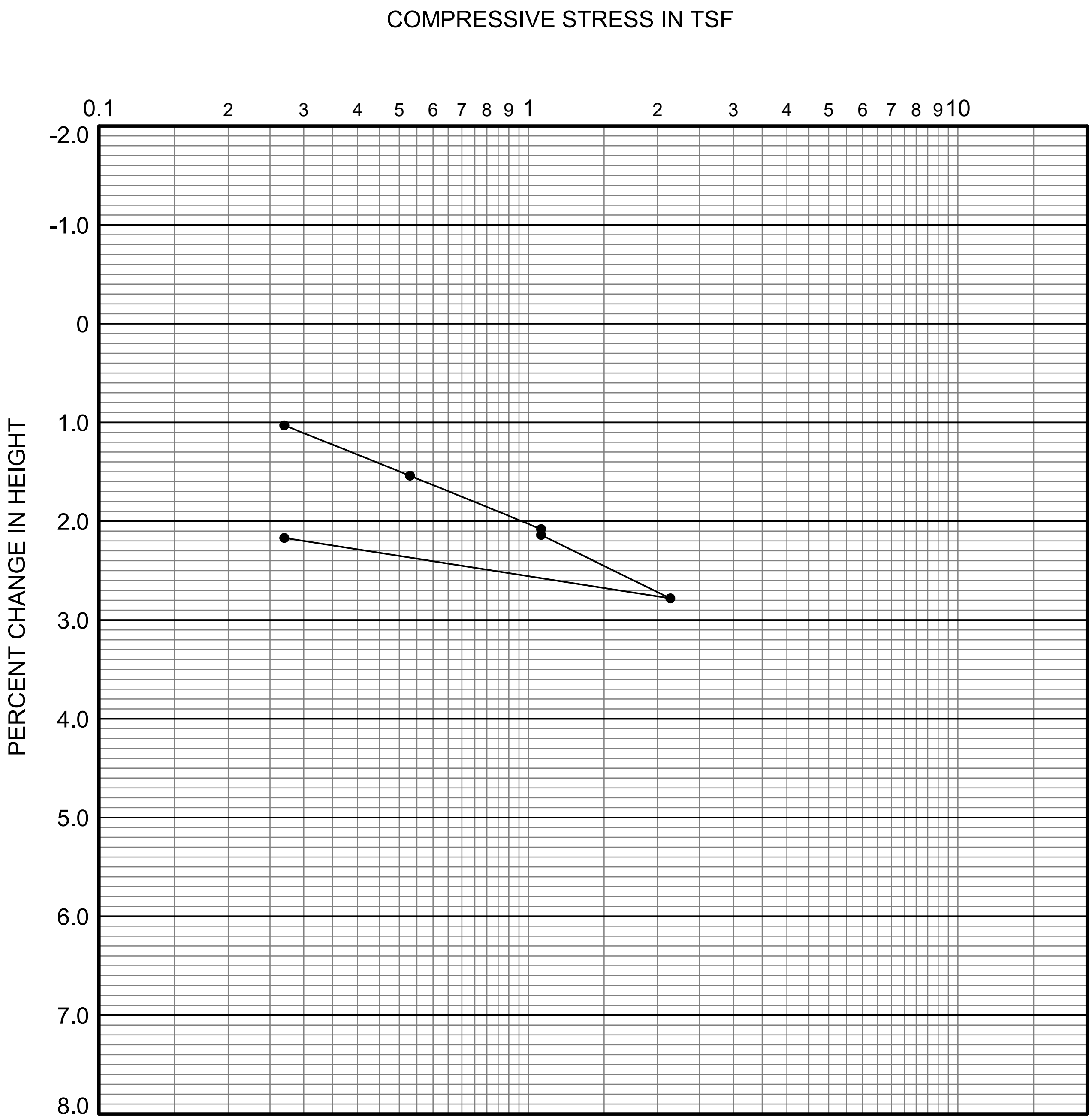
BORING	DEPTH (FEET)	SOIL DESCRIPTION	GROUP SYMBOL	MAXIMUM DENSITY (PCF)	OPTIMUM MOISTURE CONTENT (%)	DIRECT SHEAR	PLUS NO.4 SEIVE (plus 4.76mm) (%)	SAND (4.76mm-0.075mm) (%)	SILT (0.075mm-0.005mm) (%)	CLAY (minus 0.005mm) (%)	EXPANSION INDEX UBC 18-2	CONSOL	OTHER TESTS REMARKS
B-1	1	Sandy Silt (Qya)	ML	104.5	15.0		3	24	52	21	22		MinResist:4365-Ohmcm So4:<0.01%,Chl:75ppm,pH:7.6
B-1	25	Silt (Qya)	ML				0	4	57	39			LL:50, PL:25, PI:25
B-2	5	Silty Sand (Qya)	SM				0	54	29	17		SEE PLATE C-1	
B-3	10	Silty Sand (Qya)	SM				0	59	31	10		SEE PLATE C-2	



boring	depth (ft.)	dry density (pcf)	in situ moist. (%)	in situ satur. (%)	-200 sieve (%)	group symbol	typical names
B-2	5.0	102	18.3	78	46	SM	Silty Sand (Qya)

REMARKS: WATER ADDED AT 1.07 TSF

CONSOLIDATION CURVE	**Alta California Geotechnical, Inc.** P.N. 1-0533 PLATE C-1



boring	depth (ft.)	dry density (pcf)	in situ moist. (%)	in situ satur. (%)	-200 sieve (%)	group symbol	typical names
B-3	10.0	105	17.8	82	41	SM	Silty Sand (Qya)

REMARKS: WATER ADDED AT 1.07 TSF

CONSOLIDATION CURVE

Alta California Geotechnical, Inc.

P.N. 1-0533

PLATE C-2

APPENDIX D

Liquefaction Analysis

APPENDIX D

LIQUEFACTION ANALYSIS

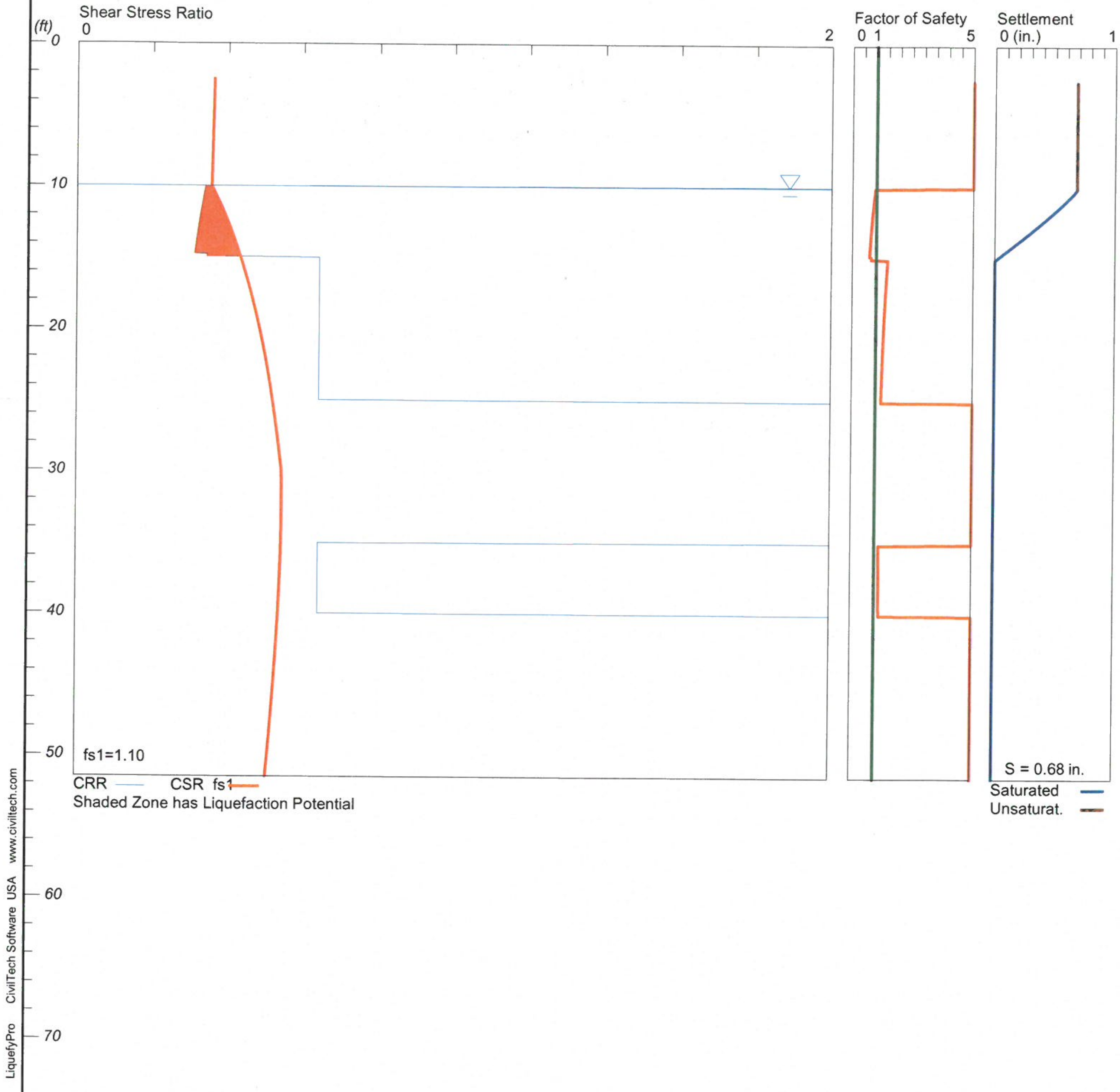
A liquefaction analysis was performed for the site based on blow count data obtained during our subsurface investigation. Our analysis was based on City of Los Angeles guidelines (City of Los Angeles, 2020) and utilized two methods. Method 1 utilized 2/3 of the PGA_M, the predominant earthquake magnitude assuming a 10% probability of exceedance in 50 years, and a factor of safety of 1.1. Method 2 utilized the PGA_M, the predominant earthquake magnitude assuming a 2% probability of exceedance in 50 years, and a factor of safety of 1.0. The results for Method 1 are presented on Plate D-1 and the results for Method 2 are presented on Plate D-2.

LIQUEFACTION ANALYSIS

Method 1

Hole No.=B-1

Magnitude=6.8
Acceleration=0.51g

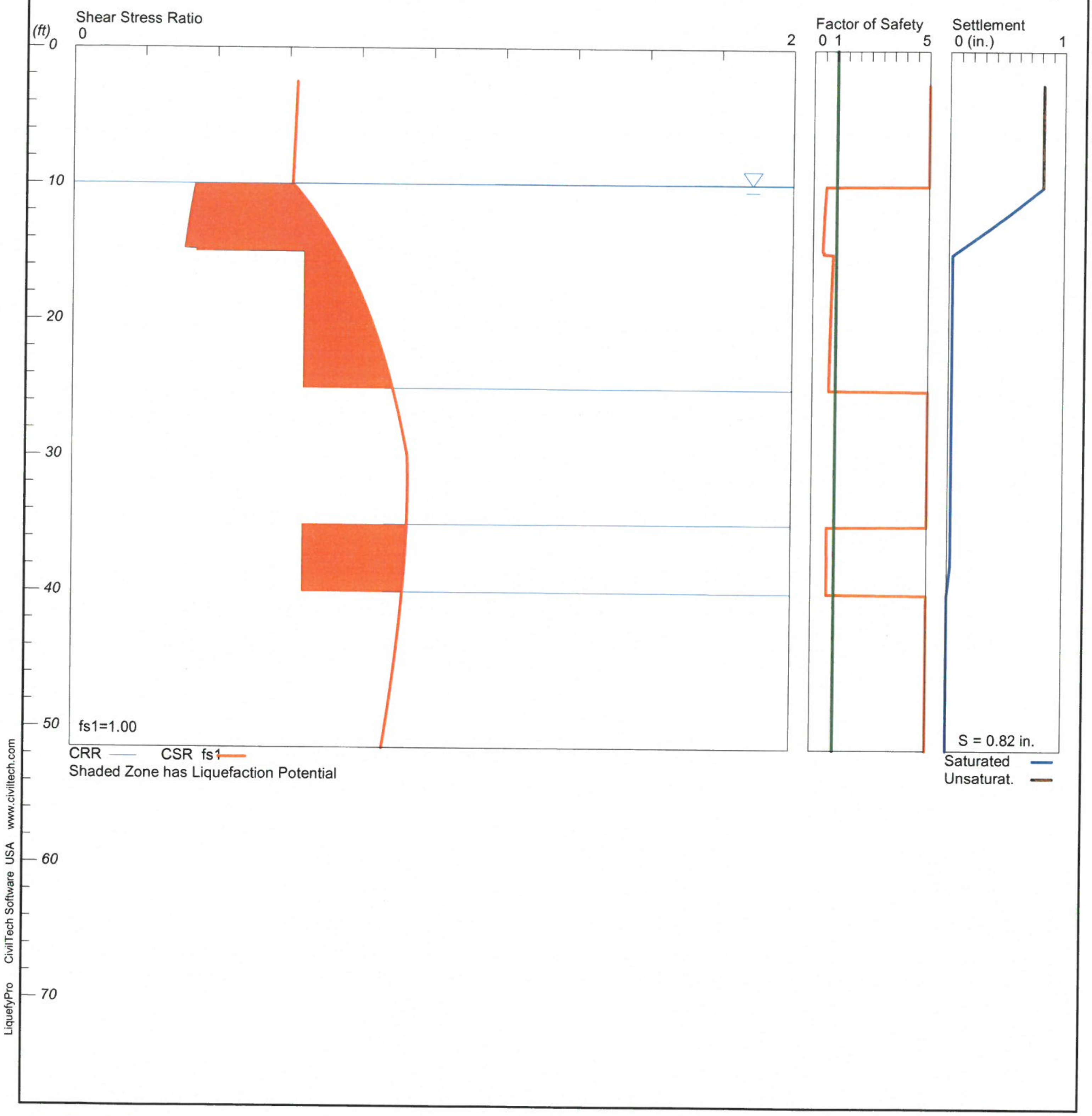


LIQUEFACTION ANALYSIS

Method 2

Hole No.=B-1

Magnitude=6.8
Acceleration=0.96g



APPENDIX E

Maintenance and Improvement Considerations

MAINTENANCE AND IMPROVEMENT CONSIDERATIONS

General

Owners purchasing property must assume a certain degree of responsibility for improvements and for maintaining conditions around their home. Of primary importance from a geotechnical standpoint are maintaining drainage patterns and minimizing the soil moisture variation below all improvements. Such design, construction and owner maintenance provisions may include:

- Employing contractors for improvements who design and build in recognition of local building codes and specific site soils conditions.
- Establishing and maintaining positive drainage away from all foundations, walkways, driveways, patios, and other improvements.
- Avoiding the construction of planters adjacent to structural improvements. Alternatively, planter sides/bottoms can be sealed with an impermeable membrane and drained away from the improvements via subdrains into approved disposal areas.
- Sealing and maintaining construction/control joints within concrete slabs and walkways to reduce the potential for moisture infiltration into the subgrade soils.
- Utilizing landscaping schemes with vegetation that requires minimal watering. Watering should be done in a uniform manner, as equally as possible on all sides of the foundation, keeping the soil "moist" but not allowing the soil to become saturated.
- Maintaining positive drainage away from structures and providing roof gutters on all structures with downspouts that are designed to carry roof runoff directly into area drains or discharged well away from the foundation areas.
- Avoiding the placement of trees closer to the proposed structures than a distance of one-half the mature height of the tree.
- Observation of the soil conditions around the perimeter of the structure during extremely hot/dry or unusually wet weather conditions so that modifications can be made in irrigation programs to maintain relatively uniform moisture conditions.

Sulfates

Owners should be cautioned against the import and use of certain inorganic fertilizers, soil amendments, and/or other soils from offsite sources in the absence of specific information relating to their chemical composition. Some fertilizers have been known to leach sulfate compounds into soils and increase the sulfate concentrations to potentially detrimental levels.

Site Drainage

- The owners should be made aware of the potential problems that may develop when drainage is altered through construction of hardscape improvements. Ponded water, drainage over the slope face, leaking irrigation systems, overwatering, or other conditions which could lead to ground saturation must be avoided.
- No water should be allowed to flow over the slopes. No alteration of pad gradients should be allowed that would prevent pad and roof runoff from being directed to approved disposal areas.
- Drainage patterns have been established at the time of the fine grading should be maintained throughout the life of the structure. No alterations to these drainage patterns should be made unless designed by qualified professionals in compliance with local code requirements and site-specific soils conditions.

Slope Drainage

- Residents should be made aware of the importance of maintaining and cleaning all interceptor ditches, drainage terraces, down drains, and any other drainage devices, which have been installed to promote slope stability.
- Subsurface drainage pipe outlets may protrude through slope surfaces and/or wall faces. These pipes, in conjunction with the graded features, are essential to slope and wall stability and must be protected in-place. They should not be altered or damaged in any way.

Planting and Irrigation of Slopes

- Seeding and planting of the slopes should be planned to achieve, as rapidly as possible, a well-established and deep-rooted vegetal cover requiring minimal watering.
- It is the responsibility of the landscape architect to provide such plants initially and of the residents to maintain such planting. Alteration of such a planting scheme is at the resident's risk.
- The resident is responsible for proper irrigation and for maintenance and repair of properly installed irrigation systems. Leaks should be fixed immediately.
- Sprinklers should be adjusted to provide maximum uniform coverage with a minimum of water usage and overlap. Overwatering with consequent wasteful runoff and serious ground saturation must be avoided.
- If automatic sprinkler systems are installed, their use must be adjusted to account for seasonal and natural rainfall conditions.

Burrowing Animals

- Residents must undertake a program to eliminate burrowing animals. This must be an ongoing program in order to promote slope stability.

Owner Improvement

Owner improvements (pools, spas, patio slabs, retaining walls, planters, etc.) should be designed to account for the terrain of the project, as well as expansive soil conditions and chemical characteristics. Design considerations on any given lot may need to include provisions for differential bearing materials, ascending/descending slope conditions, bedrock structure, perched (irrigation) water, special geologic surcharge loading conditions, expansive soil stresses, and long-term creep/settlement.

All owner improvements should be designed and constructed by qualified professionals utilizing appropriate design methodologies, which account for the on-site soils and geologic conditions. Each lot and proposed improvement should be evaluated on an individual basis.

Setback Zones

Manufactured slopes may be subject to long-term settlement and creep that can manifest itself in the form of both horizontal and vertical movement. These movements typically are produced as a result of weathering, erosion, gravity forces, and other natural phenomenon. A setback adjacent to slopes is required by most building codes, including the California Building Code. This zone is intended to locate and support the residential structures away from these slopes and onto soils that are not subject to the potential adverse effects of these natural phenomena.

The owner may wish to construct patios, walls, walkways, planters, swimming pools, spas, etc. within this zone. Such facilities may be sensitive to settlement and creep and should not be constructed within the setback zone unless properly engineered. It is suggested that plans for such improvements be designed by a professional engineer who is familiar with grading ordinances and design and construction requirements. In addition, we recommend that the designer and contractor familiarize themselves with the site specific geologic and geotechnical conditions on the specific lot.

APPENDIX F

Earthwork Specifications

ALTA CALIFORNIA GEOTECHNICAL, INC.
EARTHWORK SPECIFICATIONS

These specifications present the generally accepted standards and minimum earthwork requirements for the development of the project. These specifications shall be the project guidelines for earthwork except where specifically superseded in preliminary geology and soils reports, grading plan review reports or by the prevailing grading codes or ordinances of the controlling agency.

A. GENERAL

1. The Contractor shall be responsible for the satisfactory completion of all earthwork in accordance with the project plans and specifications.

2. The project Geotechnical Engineer and Engineering Geologist, or their representatives, shall provide observation and testing services, and Geotechnical consultation for the duration of the project.

3. All clearing, grubbing, stripping and site preparation for the project shall be accomplished by the Contractor to the satisfaction of the Geotechnical Engineer/Engineering Geologist.

4. It is the Contractor's responsibility to prepare the ground surface to receive fill to the satisfaction of the Geotechnical Engineer and to place, spread, mix, moisture condition, and compact the fill in accordance with the job specifications and as required by the Geotechnical Engineer. The Contractor shall also remove all material considered by the Geotechnical Engineer to be unsuitable for use in the construction of engineered fills.

5. The Contractor shall have suitable and sufficient equipment in operation to handle the amount of fill being placed. When necessary, equipment will be shut down temporarily in order to permit the proper preparation of fills.

B. PREPARATION OF FILL AREAS

1. Excessive vegetation and all deleterious material should be disposed of offsite as required by the Geotechnical Engineer.

   Existing fill, soil, alluvium or rock materials determined by the Geotechnical Engineer as being unsuitable for placement in compacted fills shall be removed and hauled from the site. Where applicable, the Contractor may obtain the approval of the Soils Engineer and the controlling authorities for the project to dispose of the above described materials, or a portion thereof, in designated areas onsite.

After removal of the deleterious materials have been accomplished, earth materials deemed unsuitable in their natural, in-place condition, shall be removed as recommended by the Geotechnical Engineer/Engineering Geologist.

2. Upon achieving a suitable bottom for fill placement, the exposed removal bottom shall be disced or bladed by the Contractor to the satisfaction of the Geotechnical Engineer. The prepared ground surfaces shall then be brought to the specified moisture content mixed as required, and compacted and tested as specified. In localities where it is necessary to obtain the approval of the controlling agency prior to placing fill, it will be the Contractor's responsibility to contact the proper authorities to visit the site.

3. Any underground structure such as cesspools, cisterns, mining shafts, tunnels, septic tanks, wells, pipelines or other structures not located prior to grading are to be removed or treated in a manner prescribed by the Geotechnical Engineer and/or the controlling agency for the project.

C. <u>ENGINEERED FILLS</u>

1. Any material imported or excavated on the property may be utilized as fill, provided the material has been determined to be suitable by the Geotechnical Engineer. Deleterious materials shall be removed from the fill as directed by the Geotechnical Engineer.

2. Rock or rock fragments less than twelve inches in the largest dimension may be utilized in the fill, provided they are not placed in concentrated pockets and the distribution of the rocks is approved by the Geotechnical Engineer.

3. Rocks greater than twelve inches in the largest dimension shall be taken offsite, or placed in accordance with the recommendations of the Geotechnical Engineer in areas designated as suitable for rock disposal.

4. All materials to be used as fill, shall be tested in the laboratory by the Geotechnical Engineer. Proposed import materials shall be approved by the Geotechnical Engineer 48 hours prior to importation.

5. The fill materials shall be placed by the Contractor in lifts, that when compacted, shall not exceed six inches. Each lift shall be spread evenly and shall be

thoroughly mixed to achieve a near uniform moisture condition and a uniform blend of materials.

All compaction shall be achieved at or above the optimum moisture content, as determined by the applicable laboratory standard. The Contractor will be notified if the fill materials are too wet or too dry to achieve the required compaction standard.

6. When the moisture content of the fill material is below the limit specified by the Geotechnical Engineer, water shall be added and the materials shall be blended until a uniform moisture content, within specified limits, is achieved. When the moisture content of the fill material is above the limits specified by the Geotechnical Engineer, the fill materials shall be aerated by discing, blading, mixed with dryer fill materials, or other satisfactory methods until the moisture content is within the specified limits.

7. Each fill lift shall be compacted to the minimum project standards, in compliance with the testing methods specified by the controlling governmental agency, and in accordance with recommendations of the Geotechnical Engineer.

   In the absence of specific recommendations by the Geotechnical Engineer to the contrary, the compaction standard shall be the most recent version of ASTM:D 1557.

8. Where a slope receiving fill exceeds a ratio of five-horizontal to one-vertical, the fill shall be keyed and benched through all unsuitable materials into sound bedrock or firm material, in accordance with the recommendations and approval of the Geotechnical Engineer.

9. Side hill fills shall have a <u>minimum key width</u> of 15 feet into bedrock or firm materials, unless otherwise specified in the soil report and approved by the Geotechnical Engineer in the field.

10. Drainage terraces and subdrainage devices shall be constructed in compliance with the ordinances of the controlling governmental agency and/or with the recommendations of the Geotechnical Engineer and Engineering Geologist.

11. The Contractor shall be required to maintain the specified minimum relative compaction out to the finish slope face of fill slopes, buttresses, and stabilization fills as directed by the Geotechnical Engineer and/or the governing agency for the project. This may be achieved by either overbuilding the slope and cutting

back to the compacted core; by direct compaction of the slope face with suitable equipment; or by any other procedure which produces the required result.

12. The fill portion of fill-over-cut slopes shall be properly keyed into rock or firm material; and the fill area shall be stripped of all soil or unsuitable materials prior to placing fill.

    The design cut portion of the slope should be made first and evaluated for suitability by the Engineering Geologist prior to placement of fill in the keyway above the cut slope.

13. Pad areas in cut or natural ground shall be approved by the Geotechnical Engineer. Finished surfaces of these pads may require scarification and recompaction, or over excavation as determined by the Geotechnical Engineer.

D. **CUT SLOPES**

1. The Engineering Geologist shall observe all cut slopes and shall be notified by the Contractor when cut slopes are to be started.

2. If, during the course of grading, unforeseen adverse or potentially adverse geologic conditions are encountered, the Engineering Geologist and Soil Engineer shall investigate, analyze and make recommendations to remediate these problems.

3. Non-erodible interceptor swales shall be placed at the top of cut slopes that face the same direction as the superjacent, prevailing drainage.

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

5. Drainage terraces shall be constructed in compliance with the ordinances of the controlling governmental agencies, and/or in accordance with the recommendations of the Geotechnical Engineer or Engineering Geologist.

E. **GRADING CONTROL**

1. Fill placement shall be observed and tested by the Geotechnical Engineer and/or his representative during grading.

   Field density tests shall be made by the Geotechnical Engineer and/or his representative to evaluate the compaction and moisture compliance of each fill lift. Density tests shall be conducted at intervals not to exceed two feet of fill height. Where sheepsfoot rollers are used, the fill may be disturbed to a depth of several inches. Density determinations shall be taken in the compacted material below the disturbed surface at a depth determined by the Geotechnical Engineer or his representative.

2. Where tests indicate that the density of any layer of fill, or portion thereof, is below the required relative compaction, or improper moisture content is in evidence, that particular layer or portion thereof shall be reworked until the required density and/or moisture content has been attained. Additional fills shall not be placed over an area until the previous lift of fill has been tested and found to meet the density and moisture requirements for the project and the previous lift is approved by the Geotechnical Engineer.

3. When grading activities are interrupted by heavy rains, fill operations shall not be resumed until field observations and tests by the Geotechnical Engineer indicate the moisture content and density of the fill are within the specified limits.

4. During construction, the Contractor shall properly grade all surfaces to maintain good drainage and prevent the ponding of water. The Contractor shall take remedial action to control surface water and to prevent erosion of graded areas until such time as a permanent drainage and erosion devices have been installed.

5. Observation and testing by the Geotechnical Engineer and/or his representative shall be conducted during filling and compacting operations in order that he will be able to state in his opinion that all cut and filled areas are graded in accordance with the approved specifications.

6. Upon the completion of grading activities and after the Geotechnical Engineer and Engineering Geologist have finished their observations of the work, final reports shall be submitted. No further excavation or fill placement shall be undertaken without prior notification of the Geotechnical Engineer and/or Engineering Geologist.

F. <u>FINISHED SLOPES</u>

All finished cut and fill slopes shall be planted and irrigated and/or protected from erosion in accordance with the project specifications, governing agencies, and/or as recommended by a landscape architect.


Legend
afu Artificial Fill Undocumented
Qya Young Alluvium (Bracketed Where Buried)
Approximate Location of Geologic Contact
B-3 Approximate Location of Boring
P-2 Approximate Location of Percolation Test
Legacy Ln
Legacy Ln
B-2
Qa
P-2
B-1
P-1
afu
(Qya)
B-3
PLATE 1
ALTA CALIFORNIA GEOTECHNICAL, INC.
170 N. MAPLE STREET, STE 108, CORONA, CA 92880
TELEPHONE: (951)509-7090
PROJECT NUMBER: 1-0533
DATE: June, 2024
N
200 ft
Google Earth

CITY VENTURES
3121 Michelson Drive, Suite 150
Irvine, California 92612

June 13, 2024
Project Number 1-0533

Attention: Mr. Nick Patterson

Subject: ***SUMMARY OF INFILTRATION TESTING***
10130 Adella Avenue, South Gate, California

References:
1. California Division of Mines and Geology, 1998, Seismic Hazard Zone Report for the South Gate 7.5-Minute Quadrangle, Los Angeles County, California, Report 034.
2. California Department of Water Resources, Water Data Library (WDL) Station Map: https://wdl.water.ca.gov/waterdatalibrary/

Dear Mr. Patterson:

Presented herein is Alta California Geotechnical, Inc.'s (Alta's) summary of infiltration testing for the proposed development located at 10130 Adella Avenue, in the City of South Gate, Los Angeles County, California. The scope of this testing is based on Alta's subsurface investigation and typical WQMP requirements. Presented below is a summary of pertinent groundwater information and our infiltration testing, and conclusions and recommendations based on the data.

Site Geotechnical Conditions

Based on our literature review and subsurface investigation, the site is underlain by young alluvium. Perched groundwater was encountered at 23.58-feet below the ground surface during our subsurface investigation. Based on state-provided information, the historic-high groundwater is approximately 10-feet below the ground surface feet below the ground surface (CDMG, 1997). Groundwater data from two nearby wells, State Well Numbers: 03S12W06B004S and 03S12W09J002S, at elevations 104-ft. and 99-ft, respectively, showed that depth to groundwater varied from 77- to 97-feet below the ground surface from 1999 and

2024. Per WQMP design requirements, we have reviewed public groundwater information from reasonably close wells with relatively recent data, focusing on readings in recent years. A summary of the data is presented in Table A and locations are shown on the accompanying Figure A.

Table A
Public Groundwater Information
Pertinent to 10130 Adella Avenue, South Gate, CA

State Well Name	Distance to Site (mi)	Ground Elevation above msl	Recent Depth to Groundwater (year)
03S12W06B004S	0.4	104	97.4 (1999)
03S12W09J002S	2.6	99	77.3 (2024)
02S12W31H002S	1.2	110	61.4 (1999)

Infiltration Testing

Two infiltration tests were recently conducted at locations shown on Plate 1, identified as P-1 and P-2. These tests were conducted in 5- and 10-feet deep borings, excavated with a hollow stem auger drill rig, utilizing percolation test methods in general conformance with the Los Angeles County Guidelines for Geotechnical Investigation and Reporting Low Impact Development Stormwater Infiltration.

A summary of the test results is presented below in Table B. The results do not include a factor of safety.

Table B – Summary of Infiltration Testing (No Factor of Safety)		
Test Designation	P-1	P-2
Approximate Depth of Test	5.0 feet	10.0 feet
Final Time Interval	10 Minutes	10 Minutes
Radius of Test Hole	4 inches	4 inches
Average Head over Time (Havg)	57 inches	75 inches
Tested Infiltration Rate	1.0 inches/hour	2.6 inches/hour

Conclusions and Recommendations

Based on our observations and testing, the soils encountered on-site are comprised of very fine to fine grained materials in a slightly moist to dry condition, resulting in infiltration rates of 1.0- to 2.6-inches per hour with no factor of safety. The WQMP designer should review the test results and determine if the proposed BMP system is appropriate for the site. A factor of safety should be applied to the results that is in accordance with City of South Gate requirements.

From a geotechnical perspective, allowing storm water to infiltrate the onsite soil in concentrated areas increases the potential for settlement, liquefaction, and water-related damage to structures/improvements, such as wet slabs or pumping subgrade. Care should be taken in designing systems that control the storm water as much as possible. A methodology for dealing with overflow should the infiltration system become clogged or full should be developed and maintained.

It is recommended that the Project Geotechnical Consultant observe the BMP excavations during construction to verify that the infiltration rates presented herein are appropriate. If it is determined that rates may be variable, additional infiltration testing should be undertaken.

Limitations

The conclusions and recommendations presented in this report are based on our infiltration test results and experience with similar soil conditions on similar projects. Materials adjacent to or beneath those observed may have different characteristics than those observed, and no precise representations are made as to the quality or extent of the materials not observed.

If you have any questions or should you require any additional information, please contact the undersigned at (951) 509-7090. Alta appreciates the opportunity to provide geotechnical consulting services for your project.

Sincerely,
Alta California Geotechnical, Inc.

LOGAN A. MARQUETTE
Civil Engineering Associate
Project Manager

SCOTT A. GRAY/RGE 2857
Reg. Exp.: 12-31-24
Registered Geotechnical Engineer
President

Distribution: (1) Addressee

LAM: SAG 1-0533, June 13, 2024 (Infiltration Testing, 10130 Adella Avenue, South Gate)

APPENDIX A

Boring Logs

UNIFIED SOIL CLASSIFICATION SYSTEM

Major Divisions		grf	ltr	Description
Coarse Grained Soils More than 50% retained on No. 200 sieve	Gravel and Gravelly Soils More than 50% of coarse fraction retained on No. 4 sieve		GW	Well-graded gravels or gravel sand mixtures, little or no fines
			GP	Poorly-graded gravels or gravel sand mixture, little or no fines
			GM	Silty gravels, gravel-sand-silt mixtures
			GC	Clayey gravels, gravel-sand-clay mixtures
	Sand and Sandy Soils More than 50% of coarse fraction passes on No. 4 sieve		SW	Well-graded sands or gravelly sands, little or no fines
			SP	Poorly-graded sands or gravelly sands, little or no fines
			SM	Silty sands, sand-silt mixtures
			SC	Clayey sands, and-clay mixtures

Major Divisions		grf	ltr	
Fine Grained Soils More than 50% passes on No. 200 sieve	Silts And Clays LL,<50		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL	Organic silts and organic silt-clays of low plasticity
	Silts And Clays LL,<50		MH	Inorganic silts, micaceous or diatomaceous fine or silty soils, elastic silts
			VH	Inorganic clays of high plasticity, fat clays
			OH	Organic clays of medium to high plasticity
Highly Organic Soils			PT	Peat and other highly organic soils

BOUNDARY CLASSIFICATION: Soils possessing characteristics of two groups are designated by combinations of group symbols.

PARTICLE SIZE LIMITS

	U.S. STANDARD SERIES SIEVE				CLEAR SQUARE SIEVE OPENINGS		
200	40	10	4	3/4"	3"	12"	
Silts and Clays	Sand			Gravel		Cobbles	Boulders
	Fine	Medium	Coarse	Fine	Coarse		

RELATIVE DENSITY

Sands and Gravels	Blows/Foot (SPT)
Very Loose	<4
Loose	4-10
Medium Dense	11-30
Dense	31-50
Very Dense	>50

CONSISTENCY CLASSIFICATION

Silts and Clays	Criteria
Very Soft	Thumb penetrates soil >1 in.
Soft	Thumb penetrates soil 1 in.
Firm	Thumb penetrates soil 1/4 in.
Stiff	Readily indented with thumbnail
Very Stiff	Thumbnail will not indent soil

HARDNESS

Bedrock
Soft
Moderately Hard
Hard
Very Hard

LABORATORY TESTS

Symbol	Test
DS	Direct Shear
DSR	Direct Shear (Remolded)
CON	
SA	Sieve Analysis
MAX	Maximum Density
RV	Resistance (R) Value
EI	Expansion Index
SE	Sand Equivalent
AL	Atterberg Limits
CHEM	Chemical Analysis
HY	Hydrometer Analysis

SOIL MOISTURE

Increasing Visual Moisture Content

- Dry - Dry to touch
- Moist - Damp, but no visible free water
- wet - Visible free water

SIZE PROPORTIONS

Trace - <5%
Few - 5 to 10%
Some - 15 to 25%

KEY TO EXPLORATORY BORING LOGS

ALTA CALIFORNIA GEOTECHNICAL INC.

PLATE B

GEOTECHNICAL BORING LOG

PROJECT NO. 1-0533
DATE STARTED 5/28/24
DATE FINISHED 5/28/24
DRILLER 2R Drilling Inc.
TYPE OF DRILL RIG 8" Hollow-Stem Auger

PROJECT NAME 10130 Adella Avenue
GROUND ELEV. 94
GW DEPTH (FT)
DRIVE WT. 140 lbs.
DROP 30 in.

BORING DESIG. B-1
LOGGED BY LM
NOTE

DEPTH (Feet)	ELEV	SAMPLE TYPE	BLOWS	LITHOLOGY	GROUP SYMBOL	GEOTECHNICAL DESCRIPTION	MOISTURE CONT (%)	DRY (pcf) DENSITY	SAT-URATION (%)	OTHER TESTS
0	94				ML	**YOUNG ALLUVIUM** (Qya): SANDY SILT, very fine to fine grained, tannish brown, dry, firm.				MAX, EI, CHEM, HY
	90	B								
5		R	10			@5.0ft.: very fine grained, brown, dry, stiff.	19.6	91	64	
	85									
10		R	14		SP	@10.0ft.: SAND. fine grained, tan, slightly moist, medium dense.	29.1	86	84	
	80									
15		R	46		SM	@15.0ft.: SILTY SAND, very fine to fine grained, slightly moist, dark brown, dense.	12.1	116	75	
	75									
20		R	30			@20.0ft.: fine grained, grey, medium dense.	21.7	98	84	
	70									
25		S	2/3/3		ML	@25.0ft.: SILT, brown, moist, stiff.	36.1			
	65									
30		S	3/4/4			@30.0ft.: trace orange mottling.	32.2			
	60									
35		S	6/11/8		SM	@35.0ft.: SILTY SAND, very fine to fine grained, grey, moist, medium dense.	26.8			
	55					Continued:				

SAMPLE TYPES:
R RING (DRIVE) SAMPLE
S SPT (SPLIT SPOON) SAMPLE
B BULK SAMPLE
T TUBE SAMPLE

GROUNDWATER
SEEPAGE
J: JOINTING C: CONTACT
B: BEDDING F: FAULT
S: SHEAR RS: RUPTURE SURFACE

GEOTECHNICAL BORING LOG

PROJECT NO.	1-0533	PROJECT NAME	10130 Adella Avenue		
DATE STARTED	5/28/24	GROUND ELEV.	94	BORING DESIG.	B-1
DATE FINISHED	5/28/24	GW DEPTH (FT)		LOGGED BY	LM
DRILLER	2R Drilling Inc.	DRIVE WT.	140 lbs.	NOTE	
TYPE OF DRILL RIG	8" Hollow-Stem Auger	DROP	30 in.		

DEPTH (Feet)	ELEV	SAMPLE TYPE	BLOWS	LITHOLOGY	GROUP SYMBOL	GEOTECHNICAL DESCRIPTION	MOISTURE CONT (%)	DRY (pcf) DENSITY	SAT-URATION (%)	OTHER TESTS
		S	2/5/10		ML	Continued: **YOUNG ALLUVIUM** (Qya): SILT, brown, moist, stiff, trace orange mottling.	29.8			
	50									
45		S	2/4/4				29.6			
	45									
50		S	3/4/6				31.5			
						TOTAL DEPTH: 51.5 FEET. NO GROUNDWATER ENCOUNTERED.				

SAMPLE TYPES:
- R RING (DRIVE) SAMPLE
- S SPT (SPLIT SPOON) SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE

GROUNDWATER
SEEPAGE
J: JOINTING C: CONTACT
B: BEDDING F: FAULT
S: SHEAR RS: RUPTURE SURFACE

Alta California Geotechnical, Inc.

GEOTECHNICAL BORING LOG

PROJECT NO.	1-0533	PROJECT NAME	10130 Adella Avenue		
DATE STARTED	5/28/24	GROUND ELEV.	93	BORING DESIG.	B-2
DATE FINISHED	5/28/24	GW DEPTH (FT)	24	LOGGED BY	LM
DRILLER	2R Drilling Inc.	DRIVE WT.	140 lbs.	NOTE	
TYPE OF DRILL RIG	8" Hollow-Stem Auger	DROP	30 in.		

DEPTH (Feet)	ELEV	SAMPLE TYPE	BLOWS	LITHOLOGY	GROUP SYMBOL	GEOTECHNICAL DESCRIPTION	MOISTURE CONT (%)	DRY (pcf) DENSITY	SAT-URATION (%)	OTHER TESTS
					ML	**YOUNG ALLUVIUM** (Qya): SANDY SILT, very fine to fine grained, tannish brown, dry, firm.				
	90	R	11			@2.5ft.: brown, dry, stiff.	18.0	96	66	
5		R	9		SM	@5.0ft.: SILTY SAND, very fine to fine grained, brown, slightly moist, loose, trace pores.	18.3	102	78	CON, HY
	85									
10		R	12			@10.0ft.: fine grained, greyish brown, moist, medium dense.	24.7	98	95	
	80									
15		R	16		ML	@15.0ft.: SANDY SILT, very fine grained, brown, moist, stiff.	27.3	95	98	
	75									
20		R	28		SM	@20.0ft.: SILTY SAND, very fine to fine grained, greyish brown, wet, medium dense.	23.7	94	83	
	70					@23.58ft.: PERCHED GROUNDWATER ENCOUNTERED.				
25		R	10		ML	@25.0ft.: SILT, grey, moist, stiff.	31.9	88	96	
						TOTAL DEPTH: 26.0 FEET. PERCHED GROUNDWATER ENCOUNTERED AT 23.58 FT.				

SAMPLE TYPES:
- R RING (DRIVE) SAMPLE
- S SPT (SPLIT SPOON) SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE

GROUNDWATER
SEEPAGE
J: JOINTING C: CONTACT
B: BEDDING F: FAULT
S: SHEAR RS: RUPTURE SURFACE

Alta California Geotechnical, Inc.

P.N. 1-0533

GEOTECHNICAL BORING LOG

PROJECT NO.	1-0533	PROJECT NAME	10130 Adella Avenue		
DATE STARTED	5/28/24	GROUND ELEV.	98	BORING DESIG.	B-3
DATE FINISHED	5/28/24	GW DEPTH (FT)		LOGGED BY	LM
DRILLER	2R Drilling Inc.	DRIVE WT.	140 lbs.	NOTE	
TYPE OF DRILL RIG	8" Hollow-Stem Auger	DROP	30 in.		

DEPTH (Feet)	ELEV	SAMPLE TYPE	BLOWS	LITHOLOGY	GROUP SYMBOL	GEOTECHNICAL DESCRIPTION	MOISTURE CONT (%)	DRY (pcf) DENSITY	SAT-URATION (%)	OTHER TESTS
					ML	**ARTIFICIAL FILL-UNDOCUMENTED** (afu): SILTY SAND/SANDY SILT, very fine to fine grained, tanish brown, dry, loose.				
	95	R	13		ML	**YOUNG ALLUVIUM** (Qya): SANDY SILT, very fine to fine grained, light brown, dry. stiff.	12.6	89	39	
5		R	13			@5.0ft.: trace pores.	30.0	91	97	
	90									
10		R	17		SM	@10.0ft.: SILTY SAND, very fine to fine grained, brown, slightly moist, medium dense.	17.8	105	82	CON, HY
	85									
15		R	16			@15.0ft.: fine grained, greyish brown.	11.9	94	42	
	80									
20		R	28				10.6	99	42	
	75									
25		R	38				21.0	99	83	
						TOTAL DEPTH: 26.0 FEET. NO GROUNDWATER ENCOUNTERED.				

SAMPLE TYPES:
- R RING (DRIVE) SAMPLE
- S SPT (SPLIT SPOON) SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE

GROUNDWATER
SEEPAGE
J: JOINTING C: CONTACT
B: BEDDING F: FAULT
S: SHEAR RS: RUPTURE SURFACE

Alta California Geotechnical, Inc.

P.N. 1-0533 PLATE B-3

GEOTECHNICAL BORING LOG

PROJECT NO.	1-0533	PROJECT NAME	10130 Adella Avenue		
DATE STARTED	5/28/24	GROUND ELEV.	94	BORING DESIG.	P-1
DATE FINISHED	5/28/24	GW DEPTH (FT)		LOGGED BY	LM
DRILLER	2R Drilling Inc.	DRIVE WT.		NOTE	
TYPE OF DRILL RIG	8" Hollow-Stem Auger	DROP			

DEPTH (Feet)	ELEV	SAMPLE TYPE	BLOWS	LITHOLOGY	GROUP SYMBOL	GEOTECHNICAL DESCRIPTION	MOISTURE CONT (%)	DRY (pcf) DENSITY	SAT-URATION (%)	OTHER TESTS
					SM	**YOUNG ALLUVIUM** (Qya): SILTY SAND/SANDY SILT, very fine to fine grained, tannish brown, dry, loose.				
	90				ML	@2.5ft.: SANDY SILT, very fine to fine grained, brown, dry, firm.				
5						TOTAL DEPTH: 5.0 FEET. NO GROUNDWATER ENCOUNTERED.				

SAMPLE TYPES:
- R RING (DRIVE) SAMPLE
- S SPT (SPLIT SPOON) SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE

GROUNDWATER
SEEPAGE
J: JOINTING C: CONTACT
B: BEDDING F: FAULT
S: SHEAR RS: RUPTURE SURFACE

Alta California Geotechnical, Inc.

P.N. 1-0533

PLATE B-4

GEOTECHNICAL BORING LOG

PROJECT NO.	1-0533	PROJECT NAME	10130 Adella Avenue		
DATE STARTED	5/28/24	GROUND ELEV.	95	BORING DESIG.	P-2
DATE FINISHED	5/28/24	GW DEPTH (FT)		LOGGED BY	LM
DRILLER	2R Drilling Inc.	DRIVE WT.		NOTE	
TYPE OF DRILL RIG	8" Hollow-Stem Auger	DROP			

DEPTH (Feet)	ELEV	SAMPLE TYPE	BLOWS	LITHOLOGY	GROUP SYMBOL	GEOTECHNICAL DESCRIPTION	MOISTURE CONT (%)	DRY (pcf) DENSITY	SAT-URATION (%)	OTHER TESTS
	95				SM	**YOUNG ALLUVIUM** (Qya): SILTY SAND/SANDY SILT, very fine to fine grained, tannish brown, dry, loose.				
					ML	@2.5ft.: SANDY SILT, very fine to fine grained, brown, dry.				
5	90				SM	@5.0ft.: SILTY SAND, very fine to fine grained, light brown, slightly moist.				
					SP	@7.5ft.: SAND, fine grained, tan, slightly moist.				
10	85					TOTAL DEPTH: 10.0 FEET. NO GROUNDWATER ENCOUNTERED.				

SAMPLE TYPES:
R RING (DRIVE) SAMPLE
S SPT (SPLIT SPOON) SAMPLE
B BULK SAMPLE T TUBE SAMPLE

GROUNDWATER
SEEPAGE
J: JOINTING C: CONTACT
B: BEDDING F: FAULT
S: SHEAR RS: RUPTURE SURFACE

Alta California Geotechnical, Inc.

P.N. 1-0533 PLATE B-5

1-0533
Plate 1
Legend
Approximate Location of Infiltration Test
10036
10130
10130
P-2
P-1
5301
5305
5311
5315
5321
5327
5331
5335
N
100 ft
Google Earth

Appendix G:
Operation and Maintenance Plan

To be provided during Final Engineering

Oldcastle Precast®

FLOGARD+PLUS®
CATCH BASIN INSERT FILTER

Inspection and Maintenance Guide

DRAINAGE PROTECTION SYSTEMS

DPS

A division of Oldcastle Precast

Stormwater

SCOPE:

Federal, State and Local Clean Water Act regulations and those of insurance carriers require that stormwater filtration systems be maintained and serviced on a recurring basis. The intent of the regulations is to ensure that the systems, on a continuing basis, efficiently remove pollutants from stormwater runoff thereby preventing pollution of the nation's water resources. These specifications apply to the FloGard+Plus® Catch Basin Insert Filter.

RECOMMENDED FREQUENCY OF SERVICE:

Drainage Protection Systems (DPS) recommends that installed FloGard+Plus Catch Basin Insert Filters be serviced on a recurring basis. Ultimately, the frequency depends on the amount of runoff, pollutant loading and interference from debris (leaves, vegetation, cans, paper, etc.); however, it is recommended that each installation be serviced a minimum of three times per year, with a change of filter medium once per year. DPS technicians are available to do an onsite evaluation, upon request.

RECOMMENDED TIMING OF SERVICE:

DPS guidelines for the timing of service are as follows:

1. For areas with a definite rainy season: Prior to, during and following the rainy season.
2. For areas subject to year-round rainfall: On a recurring basis (at least three times per year).
3. For areas with winter snow and summer rain: Prior to and just after the snow season and during the summer rain season.
4. For installed devices not subject to the elements (washracks, parking garages, etc.): On a recurring basis (no less than three times per year).

SERVICE PROCEDURES:

1. The catch basin grate shall be removed and set to one side. The catch basin shall be visually inspected for defects and possible illegal dumping. If illegal dumping has occurred, the proper authorities and property owner representative shall be notified as soon as practicable.
2. Using an industrial vacuum, the collected materials shall be removed from the liner. (Note: DPS uses a truck-mounted vacuum for servicing FloGard+Plus catch basin inserts.)
3. When all of the collected materials have been removed, the filter medium pouches shall be removed by unsnapping the tether from the D-ring and set to one side. The filter liner, gaskets, stainless steel frame and mounting brackets, etc., shall be inspected for continued serviceability. Minor damage or defects found shall be corrected on-the-spot and a notation made on the Maintenance Record. More extensive deficiencies that affect the efficiency of the filter (torn liner, etc.), if approved by the customer representative, will be corrected and an invoice submitted to the representative along with the Maintenance Record.
4. The filter medium pouches shall be inspected for defects and continued serviceability and replaced as necessary and the pouch tethers re-attached to the liner's D-ring. See below.
5. The grate shall be replaced.

REPLACEMENT AND DISPOSAL OF EXPOSED FILTER MEDIUM AND COLLECTED DEBRIS

The frequency of filter medium exchange will be in accordance with the existing DPS-Customer Maintenance Contract. DPS recommends that the medium be changed at least once per year. During the appropriate service, or if so determined by the service technician during a non-scheduled service, the filter medium will be replaced with new material. Once the exposed pouches and debris have been removed, DPS has possession and must dispose of it in accordance with local, state and federal agency requirements.

DPS also has the capability of servicing all manner of storm drain filters, catch basin inserts and catch basins without inserts, underground oil/water separators, stormwater interceptors and other such devices. All DPS personnel are highly qualified technicians and are confined space trained and certified. Call us at (888) 950-8826 for further information and assistance.

FLOGARD+PLUS®
CATCH BASIN INSERT FILTER

OUR MARKETS

BUILDING STRUCTURES

COMMUNICATIONS

WATER

ENERGY

TRANSPORTATION

Appendix H: General Education Materials

To be provided during Final Engineering