County of San Diego

Stormwater Quality Management Plan (SWQMP)

For Priority Development Projects (PDPs)

Use for all PDPs (see Storm Water Intake Form, Part 4)

Priority Development Project

Project Information	Development type ☒ New development ☐ Redevelopment	
Project Name	Woodside Self-Storage	
Project Address	12407-12413 Woodside Avenue, Lakeside, CA 92040	
Assessor's Parcel # (APN)	394-122-16	
Permit # / Record ID	PDS2022-MUP-22-006	
Project category (select one)	☒ Commercial	☐ Minor subdivision*
	☐ Industrial	☐ Major subdivision*
	☐ Single family residential lot	☐ Multi-family residential*
	*If residential, is a Homeowners Association (HOA) proposed? ☐ Yes ☐ No	

Project Applicant / Project Proponent		
Name	21st Century Lakeside Holdings, LLC, Attn.: Roberto Garmo	
Address	5464 Grossmont Center Dr., Suite 300, La Mesa, CA 91942	
Phone	(619) 441-2500	**Email:** rg@novoprop.com

SWQMP Preparer		
Name	Patric de Boer	
Company (if applicable)	Omega Engineering Consultants	
Address	4320 Viewridge Ave., Suite C, San Diego, CA 92123	
Phone	(858) 634-8620	**Email:** patric@omega-consultants.com
PE Number (if applicable)	83583	

Preparer's Certification

I understand that the County of San Diego has adopted minimum requirements for managing urban runoff, including storm water, from land development activities, as described in the County of San Diego BMP Design Manual. The BMP Design Manual is a design manual for compliance with local County of San Diego Watershed Protection Ordinance (Sections 67.801 et seq.) and regional MS4 Permit (California Regional Water Quality Control Board San Diego Region Order No. R9-2013-0001, as amended by Order No. R9-2015-0001 and Order No. R9-2015-0100) requirements for storm water management.

This SWQMP is intended to comply with applicable requirements of the BMP Design Manual. I certify that it has been completed to the best of my ability and accurately reflects the project being proposed and the applicable BMPs proposed to minimize the potentially negative impacts of this project's land development activities on water quality. I understand and acknowledge that the plan check review of this SWQMP by County staff is confined to a review and does not relieve me as the person in charge of overseeing the selection and design of storm water BMPs for this project, of my responsibilities for project design.

Signature Patric de Boer **Date** November 22, 2023

COUNTY ACCEPTED

SWQMP Approved By: *Approval Date*:

**** NOTE* Approval does not constitute compliance with regulatory requirements.***

Scope of SWQMP Submittal (Required)

Select the option that describes the scope of this SWQMP Submittal. Document your selection as indicated.

SWQMP Scope	Required Documentation
☒ ***a. SWQMP addresses the entire project***	No additional documentation.
☐ ***b. SWQMP implements requirements of an earlier master SWQMP submittal***	Include a copy of the previous submittal as **Attachment 4**.
☐ ***c. First of multiple SWQMP submittals***	Identify below the elements addressed in this submittal and in future submittals.

(1) Elements addressed in current submittal (streets, common areas, first project phase, etc.):

(2) Elements to be addressed in future submittal(s) (individual lots, future project phases, etc.):

Submittal Record: List the dates of SWQMP and plan submittals and updates. Briefly describe key changes from previous versions. If responding to plan check comments, note this in the entry and attach the responses as applicable.

No.	Date	Summary of Changes
Preliminary Design / Planning / CEQA		
1	5/10/2022	Initial Submittal
2	12/22/2022	2nd Submittal
3	7/21/2023	3rd Submittal
4	11/22/2023	4th Submittal
Final Design		
1	Date	Initial Submittal
2	Date	Summary of Change
3	Date	Summary of Change
No.	Date	Summary of Change
Plan Changes		
1	Date	Initial Submittal
2	Date	Summary of Change
3	Date	Summary of Change
No.	Date	Summary of Change

General Directions

Note: These directions may be omitted from the print version of the SWQMP submittal.

① Scope of SWQMP Submittal and Submittal Record (inside front cover)

Use the ***Submittal Scope*** table to document the scope of activities covered under this SWQMP Form. Select one of the three options presented.

- ***SWQMP addresses the entire project***. If this SWQMP form addresses the entire project from start to finish, additional documentation of the project scope is not required.
- ***SWQMP implements requirements of an earlier master SWQMP submittal***. If this SWQMP Form implements requirements identified in an earlier master SWQMP Form, documentation of those earlier requirements must be provided. Include a copy of the previous submittal as **Attachment 4**.
- ***First of multiple SWQMP submittals***. If this is the first of multiple SWQMP submittals, use the spaces provided under Part c to identify and briefly describe which project elements are addressed in this submittal and which ones will be addressed in future submittals. For example, this PDP addresses only streets and roads, but individual lots will be documented in future submittals.

Use the ***Submittal Record*** table to list the dates of any updates to the SWQMP or construction plans. Briefly describe key changes from previous versions. If responding to plan check comments, note this in the entry and attach the responses as applicable.

② PDP SWQMP Submittal Checklist

The checklist on Page 1 summarizes the tables and attachments to be included with this PDP SWQMP submittal. It should be filled out after completing the remainder of the form. Tables and attachments with boxes already checked (☒) are required for all projects. All tables are required. The applicability of attachments not already checked will be identified during the completion of this form.

③ Attachment 1: Stormwater Intake Form

Submit a copy of your completed ***Storm Water Intake Form*** as **Attachment 1**.

④ Tables 1, 2, and 3: Baseline Site Design and Source Control BMPs

Table 1 Completion: Complete **Table 1** to document existing and proposed site features and the BMPs to be implemented for them. All BMPs must be implemented ***where applicable and feasible***. Applicability is generally assumed if a feature exists or is proposed.

Table 2 Completion: Table 2 is not required for Small Residential Projects. Applicants should check the box at the top of the table to confirm it does not apply.

> *Small Residential Projects* are those requiring *either:* a Building Permit, Minor Residential Grading Permit, or Site Plan Permit for a single family home; *or* a Tentative Parcel Map Permit for up to 4 single family homes and a remainder parcel.

All other projects must complete **Table 2** to identify applicable requirements for documenting pollutant-generating sources/ features and source control BMPs.

BMPs must be implemented for **Table 1** and **2** features ***where feasible***. Leaving the box for a BMP unchecked means it will not be implemented (either partially or fully) either because it is inapplicable or infeasible. Explanations must be provided in **Table 3**. Tables 1 and 2 both provide specific instructions on when explanations are required.

⑤ Attachment 5: Existing Site and Drainage Description

Complete **Attachment 5** to provide a description of (1) the existing pre-development condition of the site, and (2) existing and proposed drainage conditions for the site. If required, include a copy of the site Drainage Study with Attachment 5.

⑥ Structural Performance Standards

Determine which Structural Performance Standards apply to the PDP, where they apply, and which compliance strategies you will use to satisfy them. Record your selections in **Table 4** as follows.

Table 4, Part A.1, Selection of Standards: First select the standards that apply to the project.

- *Pollutant control plus hydromodification* — Select if the PDP is not exempt from hydromodification management requirements. It must satisfy both the Pollutant Control Performance Standard (BMPDM Section 2.2) and the Hydromodification Management Performance Standard (BMPDM Section 2.3).
- *Pollutant control only* — Select if the PDP is exempt from hydromodification management requirements per BMPDM Section 6.1. Document the exemption in **Attachment 9**.

Table 4, Part A.2, Application of Standards: Next indicate where on the site the standards apply.

- If this is a **New Development Project**, the standards apply to all impervious surfaces on the site.
- If this is a **Redevelopment Project**, their applicability will depend on the ratio of created or replaced impervious areas to existing impervious areas (see BMPDM Section 1.7). Complete the calculations in the table to determine your obligation. The **percent (%) impervious created or replaced (c)** is determined by dividing the **impervious area created or replaced (b)** by the **existing impervious area (a)** and multiplying the result by 100.
  - **If c is 50% or more**: The standards apply to all impervious surfaces on the site (a + b).
  - **If c is less than 50%**: The standards apply only to created or replaced impervious surfaces (b only).

Table 4, Part B.1: Summary of Required Attachments (1 through 5)

Use this part of the table to summarize which of Attachments 1 through 5 will be included with the SWQMP submittal. If you are completing an **electronic version** of this form, your selections will be automatically recorded based on your previous input. If you are completing a **hard copy** of this form, you must manually select Attachments 3 and 4 as applicable (see pages 4 and 6). Note that Attachments 1,2, and 5 are required for all projects.

Table 4, Part B.2: Selection of Compliance Strategies

Complete Part B.2 to document which compliance options will be used to satisfy the applicable standards for the site. Before doing so, you must determine which option will be used for each DMA. The following four potential design options are presented in detail in BMPDM Chapters 5 and 6.

1. **Self-mitigating DMAs** (BMPDM Section 5.2.1)
2. **De Minimis DMAs** (BMPDM Section 5.2.2)
3. **Self-retaining DMAs** (BMPDM Section 5.2.3)
4. **Structural BMPs**
   - Pollutant Control BMPs (BMPDM Sections 5.4)
   - Hydromodification BMPs (BMPDM Chapter 6)
   - Alternative Compliance Project (BMPDM Section 1.8)

Only one compliance option may be used per individual DMA. Regardless of which option is selected for any DMA, it must fully satisfy the applicable standard(s) determined in Part A.1.

On the left side of Part B, check the applicable boxes for each compliance option to be used.

⑦ Summary of Additional Required Attachments (6 through 12)

You must complete and submit each attachment identified for the compliance options selected. Applicable attachments are listed to the right of each compliance option. If you are completing an **electronic version** of this form, the required attachments for each design option will automatically be selected when you choose the compliance option. As noted above, these selections will also be recorded on the PDP SWQMP Submittal Checklist (Page 1). If you are completing a **hard copy** of this form, you will need to manually check the boxes for each applicable attachment on both pages.

Note that Attachment 9 (Critical Coarse Sediment Yield Areas) is required for all PDPs. If the PDP is exempt from hydromodification requirements, the exemption must be documented in Attachment 9.

⑧ Table 5: Critical Coarse Sediment Yield Area Requirements

Complete **Table 5** to select a compliance pathway for addressing Critical Coarse Sediment Yield Area (CCSYA) requirements for the PDP. See BMPDM Appendix H for additional description of requirements and options. Document Table 5 selections, including hydromodification management exemptions, in **Attachment 9**.

⑨ Tables 6 and 7: Temporary Construction Phase BMPs

Complete **Table 6** to document the minimum construction BMPs to be implemented for the project. Each BMP must be implemented ***where applicable and feasible***. At least one BMP must be selected for each construction activity listed in the table (except Erosion Control for Disturbed Slopes, which requires one BMP per season).

If applicable, use **Table 7** to describe why BMPs not selected in Table 6 are either infeasible or are only partially feasible. Justifications must be provided for all construction activity types for which NO BMPs were selected. If requested by County staff, also justify why specific individual BMPs were not selected.

⑩ Attachment 2: DMA Exhibits and Construction Plans

Exhibits and construction plan sets incorporating all applicable site features, activities, and BMPs identified in **Tables 1, 2, and 6** must be submitted as **Attachment 2 (DMA Exhibits and Construction Plan Sheets)**. See the Attachment 2 cover sheet for additional instructions.

PDP SWQMP Submittal Checklist

SWQMP Tables: All of the tables below must be completed.

SWQMP Attachments[1]: Use the checklist below to identify which attachments will be included with this submittal. Attachments with boxes already checked (☒) are required for all projects. The applicability of other attachments will be determined upon completing this form.

☒ Attachment 1: Storm Water Intake Form

☒ Attachment 2: DMA Exhibits and Construction Plan Sheets

☐ Attachment 3: Reserved for Future Use

☐ Attachment 4: Previous SWQMP Submittals

☒ Attachment 5: Existing Site and Drainage Description

☒ Attachment 6: Documentation of DMAs without Structural BMPs

☒ Attachment 7: Documentation of DMAs with Structural Pollutant Control BMPs

☒ Attachment 8: Documentation of DMAs with Structural Hydromodification Management BMPs

☒ Attachment 9: Management of Critical Coarse Sediment Yield Areas

☒ Attachment 10: BMP Installation Verification Form

☒ Attachment 11: BMP Maintenance Agreements and Plans

☐ Attachment 12: Documentation of Alternative Compliance Projects (ACPs)

After completing the remainder of this form, check the applicable SWQMP Attachment boxes to summarize your selections.

[1] All SWQMP Attachments are available at www.sandiego.gov/stormwater under the Development Resources tab, Submittal Templates.

Table 1 – Baseline BMPs for Existing and Proposed Site Features

A. BMPs for Existing Natural Site Features (See Fact Sheet BL-1)

1. Check the boxes below for each existing feature on the site.

2. Select the BMPs to be implemented for each identified feature. Explain why any BMP not selected is infeasible in Table 3.

	Conserve natural features (SD-G)	Provide buffers around waterbodies (SD-H)
☐ Natural waterbodies	☐	☐
☐ Natural storage reservoirs & drainage corridors	☐	---
☐ Natural areas, soils, & vegetation (incl. trees)	☐	---

B. BMPs for Common Impervious Outdoor Site Features (See Fact Sheet BL-2)

1. Check the boxes below for each proposed feature.

*2. Select the BMPs to be implemented for each proposed feature. If neither BMP **SD-B** nor **SD-I** is selected for a feature, explain why both BMPs are infeasible in Table 3.*

	a. Direct runoff to pervious areas (SD-B)	b. Construct surfaces from permeable materials (SD-I)	c. Minimize the size of impervious areas
☒ Streets and roads	☒	☐	☒ *Check this box to confirm that all impervious areas on the site will be minimized where feasible.*
☒ Sidewalks & walkways	☒	☐	
☒ Parking areas & lots	☒	☐	
☒ Driveways	☒	☐	*If this box is not checked, identify the surfaces that cannot be minimized in Table 3, and explain why it is infeasible to do so.*
☐ Patios, decks, & courtyards	☐	☐	
☐ Hardcourt recreation areas	☐	☐	
☐ Other:	☐	☐	

C. ☒ **BMPs for Rooftop Areas:** *Check this box if rooftop areas are proposed and select at least one BMP below.* **(See Fact Sheet BL-3)**

If no BMPs are selected, explain why they are infeasible in Table 3.

1. Direct runoff to pervious areas (SD-B)	2. Install green roofs (SD-C)	3. Install rain barrels (SD-E)
☒	☐	☐

D. ☒ **BMPs for Landscaped Areas:** *Check this box if landscaping is proposed and select at least one BMP below.* **(See Fact Sheet BL-4)**

If no BMPs are selected, explain why they are infeasible in Table 3.

1. Sustainable Landscaping (SD-K)
☒

Note: All features and BMPs must be shown on applicable construction plans. See applicable Fact Sheets in Appendix C of the BMP Design Manual for additional information.

Note: Use Table 3 to explain BMP infeasibility or inapplicability, or to describe features or BMPs not listed in this table. Additional explanation may be required by the County.

Table 2 – Baseline BMPs for Pollutant-generating Sources

☐ If this is a **Small Residential Project**, check this box and skip the rest of this table.

A. Management of Stormwater Discharges

1. Identify all proposed outdoor work areas below (☐ *Check here if none are proposed*)	**2. Which BMPs will be used to prevent materials from contacting rainfall or runoff?** (See Fact Sheet BL-5) *(Select all feasible BMPs for each work area[2])*			**3. Where will runoff from the work area be routed?** (See Fact Sheet BL-6) *(Select one or more option for each work area)*			
	Overhead covering (rooftops, etc.) (SC-A)	**Separation of flows from adjacent areas (berms, etc.) (SC-B)**	**Wind protection (screens, etc.) (SC-C)**	**Sanitary sewer[3] (SC-D)**	**Containment system (SC-E)**	**Stormwater S-BMP or SSD-BMP[4]**	**Other[5]**
☒ Trash & Refuse Storage	☒	☐	☒	☒	☒	☐	☐
☐ Materials & Equipment Storage	☐	☐	☐	☐	☐	☐	☐
☐ Loading & Unloading	☐	☐	---	☐	☐	☐	☐
☐ Fueling	☐	☐	---	☐	☐	☐	☐
☐ Maintenance & Repair	☐	☐	---	☐	☐	☐	☐
☐ Vehicle & Equipment Cleaning	☐	☐	---	☐	☐	☐	☐
☐ Other:	☐	☐	---	☐	☐	☐	☐

B. Prevention of Non-stormwater Discharges (See Fact Sheet BL-7)

Select one option for each feature below:

• **Storm drain inlets and catch basins …**	☐ are not proposed	☒ will be labeled with stenciling or signage to discourage dumping **(SC-F)**
• **Educational BMP Signage …**	☐ are not proposed	☒ will be labeled with educational signage for BMP **(SC-G)**
• **Interior work surfaces, floor drains, & sumps …**	☒ are not proposed	☐ will not discharge directly or indirectly to the MS4 or receiving waters
• **Drain lines (e.g., air conditioning, boiler, etc.) …**	☒ are not proposed	☐ will not discharge directly or indirectly to the MS4 or receiving waters
• **Fire sprinkler test water …**	☐ are not proposed	☒ will not discharge directly or indirectly to the MS4 or receiving waters

Note: All outdoor features and BMPs in this table must be shown on applicable construction plans. See applicable Fact Sheets in Appendix C of the BMP Design Manual for additional information.

Note: Use Table 3 to explain BMP infeasibility or inapplicability, or to describe features or BMPs not listed in this table. Additional explanation may be required by the County.

[2] Each BMP is required where feasible. If none are selected for any feature, explain why they are infeasible in Table 3.

[3] Separate wastewater agency approvals may be required.

[4] Structural Treatment Control BMPs (S-BMPs) and Significant Site Design BMPs (SSD-BMPs) may not receive discharges from work areas that concentrate pollutants in a manner that will impair their functioning. Discharges from the proposed work area must also be included in DCV calculations for the applicable BMP.

[5] Describe other proposed options for managing stormwater discharges in Table 3.

Table 3 – Explanations and Justifications for Table 1 and 2 Baseline BMPs

☒ **Check here if no explanations or justifications for Table 1 or 2 BMPs are required.**

- **Required Justifications**: Provide explanations of BMP inapplicability and/or infeasibility as indicated per Tables 1 and 2.
- **If Requested**: Justify why specific BMPs will not be implemented or will only be partially implemented.
- **Additional Explanation**: Describe any proposed features and/or BMPs not listed in Tables 1 or 2.

BMP-Feature Combination		**Explanation**
Feature	Feature	Explanation
BMP	BMP	
Feature	Feature	Explanation
BMP	BMP	
Feature	Feature	Explanation
BMP	BMP	
Feature	Feature	Explanation
BMP	BMP	
Feature	Feature	Explanation
BMP	BMP	
Feature	Feature	Explanation
BMP	BMP	
Feature	Feature	Explanation
BMP	BMP	

Table 4: DMA Structural Compliance Strategies and Documentation

Part A – Selection and Application Structural Performance Standards

1. Selection of Standards (select one; see BMPDM Section 6.1)

☐ a. Pollutant control + hydromodification ☒ b. Pollutant control only (project is exempt from hydromodification requirements)

2. Application of Structural Performance Standards (select one; see BMPDM Section 1.7)

☐ **New Development Projects:** Standards apply to all impervious surfaces.

☒ **Redevelopment Projects:** Complete the calculations below. Select the applicable scenario based on the results.

a. Existing impervious area (ft^2)	b. Impervious area created / replaced (ft^2)	c. % Impervious created / replaced [(b/a)*100]
13,722	41,827	305%

☒ *Scenario 1: c is 50% or more*: Performance standards apply to all impervious surfaces (a + b).

☐ *Scenario 2: c is less than 50%*: Performance standards apply only to created or replaced impervious surfaces (b only).

Part B – Compliance Strategies and Required Attachments

1.*Complete and submit each of the applicable attachments on the right.*

Att. 1	Att. 2	Att. 3	Att. 4	Att. 5
Storm Water Intake Form ☒	DMA Exhibits and Construction Plan Sheets ☒	N/A ☐	Previous SWQMP Submittals (see inside cover) ☒	Existing Site and Drainage Description ☒

2. *Indicate each compliance strategy below that will be used for one or more DMAs on the site.*

	Att. 6 DMAs without Structural BMPs	Att. 7 DMAs w/ Structural Pollutant Control BMPs	Att. 8 DMAs w/ Structural Hydromod. BMPs	Att. 9 Critical Coarse Sediment Yield Areas	Att. 10 BMP Installation Verification Form	Att. 11 Maintenance Agreements/ Plans	Att. 12 Alternative Compliance Projects
☒Self-mitigating DMAs (BMPDM Section 5.2.1)	☒			☒			
☐De Minimis DMAs (BMPDM Section 5.2.2)	☐			☐			
☐Self-retaining DMAs (BMPDM Section 5.2.3)	☐			☐	☐		
Structural BMPs (select all that apply)							
☒Pollutant Control BMPs (BMPDM Section 5.4)		☒		☒	☒	☒	
☐Hydromodification Control BMPs (BMPDM Chapter 6)			☐	☐	☐	☐	
☐Alternative Compliance Project (BMPDM Section 1.8)				☐	☐	☐	☐

☒ **Please check this box after you complete this list. Corresponding attachments will be automatically selected on the right.**

- *Attachments 1, 2, and 5 are required for all projects.*

Table 5: Critical Coarse Sediment Yield Area (CCSYA) Requirements

- Identify one applicable compliance pathway for the PDP below.
- Document your selection in **Attachment 9**.

A. Hydromodification Management Exemption (BMPDM Sections 1.6 and 6.1)

☒ **PDP is Exempt from Hydromodification Management Requirements**

Select if hydromodification management exemption was selected in Table 4 Part A.1.

B. Watershed Management Area (WMAA) Mapping (BMPDM Appendix H.1.1.2)

☒ **WMAA mapping demonstrates the following:**

a. <5% of potential onsite CCYSAs will be impacted (built on or obstructed)

b. All potential upstream offsite CCYSAs will be bypassed

C. Resource Protection Ordinance (RPO) Methods (BMPDM Appendix H.1.1.1)

☐ **RPO Scenario 1: PDP is subject to and in compliance with RPO requirements**

a. Project requires one or more discretionary permits (RPO applicability is confirmed during discretionary review)

b. Onsite AND upstream offsite CCSYAs will be avoided and/or bypassed

☐ **RPO Scenario 2: PDP is entirely exempt/not subject to RPO requirements**[6]

a. Project does not require discretionary permits

b. Project will bypass all upstream offsite CCSYAs (no requirements for onsite CCSYAs)

D. No Net Impact Analysis (BMPDM Appendix H.4)

☐ **Project demonstrates no net impact to receiving waters**

[6] Does not include PDPs utilizing exemption(s) via RPO Section 86.604(e)(2)(cc) or 86.604(e)(3).

Table 6 –Minimum Construction Stormwater BMPs

Minimum Required BMPs by Activity Type Select all applicable activities and at least one BMP for each.	References Caltrans[7]	 County of San Diego	
☒ **Erosion Control for Disturbed Slopes** (choose at least 1 per season)			
☒ Vegetation Stabilization Planting[8] (Summer)	SS-2, SS-4		
☐ Hydraulic Stabilization Hydroseeding (Summer)	SS-4		
☒ Bonded Fiber Matrix or Stabilized Fiber Matrix[9] (Winter)	SS-3		
☐ Physical Stabilization Erosion Control Blanket (Winter)	SS-7		
☒ **Erosion control for disturbed flat areas (slope < 5%)**			
☒ County Standard Lot Perimeter Protection Detail	SC-2	PDS 659[10]	
☒ Use of Item A erosion control measures on flat areas	SS-3, SS-4, SS-7		
☐ County Standard Desilting Basin (must treat all site runoff)	SC-2	PDS 660[11]	
☒ Mulch, straw, wood chips, soil application	SS-6, SS-8		
☐ **Energy dissipation (required to control velocity for concentrated runoff or dewatering discharge)**			
☐ Energy Dissipater Outlet Protection	SS-10	RSD D-40[12]	
☒ **Sediment control for all disturbed areas**			
☐ Silt Fence	SC-1		
☐ Fiber Rolls (Straw Wattles)	SC-5		
☒ Gravel & Sand Bags	SC-6, SC-8		
☐ Dewatering Filtration	NS-2		
☒ Storm Drain Inlet Protection	SC-10		
☐ Engineered Desilting Basin (sized for 10-year flow)	SC-2		
☒ **Preventing offsite tracking of sediment**			
☒ Stabilized Construction Entrance	TC-1		
☐ Construction Road Stabilization	TC-2		
☐ Entrance/Exit Tire Wash	TC-3		
☐ Entrance/Exit Inspection & Cleaning Facility	TC-1		
☒ Street Sweeping and Vacuuming	SC-7		
☒ **Materials Management**			
☒ Material Delivery & Storage	WM-1		
☒ Spill Prevention and Control	WM-4		
☒ **Waste Management[13]**			
☒ Waste Management Concrete Waste Management	WM-8		
☒ Solid Waste Management	WM-5		
☒ Sanitary Waste Management	WM-9		
☐ Hazardous Waste Management	WM-6		

[7] See Caltrans 2017 Construction Site Best Management Practices (BMP) Manual available at: https://dot.ca.gov/programs/construction/storm-water-and-water-pollution-control/manuals-and-handbooks
[8] Planting or Hydroseeding may be installed between May 1st and August 15th. Slope irrigation must be in place and operable for slopes >3 feet. Vegetation must be watered and established prior to October 1st. A contingency physical BMP must be implemented by August 15th if vegetation is not established by that date. If landscaping is proposed, erosion control measures must also be used while landscaping is being established. Established vegetation must have a subsurface mat of intertwined mature roots with a uniform vegetative coverage of 70 percent of the natural vegetative coverage or more on all disturbed areas.
[9] All slopes over three feet must have established vegetative cover prior to final permit approval.
[10] County PDS 659. Standard Lot Perimeter Protection Design System (Bldg. Division)
[11] County PDS 660. County Standard Desilting Basin for Disturbed Areas of 1 Acre or Less Bldg. Division
[12] Regional Standard Drawing D-40 – Rip Rap Energy Dissipater (also acceptable for velocity reduction)
[13] Applicants are responsible to apply appropriate BMPs for specific wastes (e.g., BMP WM-8 for concrete).

Table 7 – Explanations and Justifications for Construction Phase BMPs

☐ **Check here if no explanations or justifications for Table 6 BMPs are required.**		
Justifications for Table 6 Temporary Construction Phase BMPs • **Required Justifications**: Justify all construction activity types for which NO BMPs were selected. • **If Requested**: Justify why specific individual BMPs were not selected. • **Additional Explanation**: Describe any proposed features and/or BMPs not listed in Table 6.		
Activity Type / BMP		**Explanation**
Activity Type	Energy Dissipation	Concentrated velocity will not be significant for the use of energy dissipators.
BMP	SS-10	
Activity Type	Activity Type	Explanation
BMP	BMP	
Activity Type	Activity Type	Explanation
BMP	BMP	
Activity Type	Activity Type	Explanation
BMP	BMP	
Activity Type	Activity Type	Explanation
BMP	BMP	
Activity Type	Activity Type	Explanation
BMP	BMP	
Activity Type	Activity Type	Explanation
BMP	BMP	

County of San Diego
Stormwater Quality Management Plan (SWQMP)
Attachment 1: Storm Water Intake Form for All Permit Applications

This form establishes Stormwater Quality Management Plan (SWQMP) requirements for Development Projects per Sections 67.809 and 67.811 of the County of San Diego Watershed Protection Ordinance (WPO).
See ***Storm Water Intake Form Instructions*** for additional guidance and explanation of terms.

Part 1. Project Information	
Project Name:	Woodside Self-Storage
Record ID (Permit) No(s):	PDS2022-MUP-22-006
Assessor's Parcel No(s):	394-122-16
Street Address (or Intersection):	12407-12413 Woodside Avenue
City, State, Zip:	Lakeside, CA 92040

Part 2. Applicant / Project Proponent Information	
Name:	Nick Siracusa
Company:	Omega Engineering Consultants
Street Address:	4320 Viewridge Ave., Suite C
City, State, Zip:	San Diego, CA 92123
Phone Number	(858) 634-8620
Email:	nsiracusa@omega-consultants.com

Part 3. Required Information for All Development Projects

Ⓐ **1. Existing (pre-development) impervious surfaces (ft²)**	**2. Created or replaced impervious surfaces (ft²)**	**3. Total disturbed area (acres or ft²)**
13,722	41,827	1.29 acres

Ⓑ ☒ Check here and provide a WDID# if this project is subject to the California Construction General Permit (Order No. 2009-0009-DWQ)[1]	**WDID # (if issued)**
	TBD

For County Use Only	Reviewed By:	Review Date:
☐ Standard SWQMP	☐ PDP SWQMP	☐ Green Streets PDP Exemption SWQMP

[1] Available at: https://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.html

Part 4. Priority Classification & SWQMP Form Selection

(A) *If your project is the following … (select one)*	(B) *You must complete …*
☐ **Standard Project** ☐ a. Project is East of the Pacific/Salton Sea Divide ☐ b. None of the PDP criteria below applies	➔ **Standard *SWQMP Form***
☒ **Priority Development Project (PDP)** ☐ 1. Project is part of an existing PDP**,** OR ☒ 2. Project does any of the following: ☒ a. Creates or replaces a total of 10,000 ft² or more of impervious surface ☐ b. Creates or replaces a combined total of 5,000 ft² or more of impervious surface within one or more of the following uses: (1) parking lots; (2) streets, roads, highways, freeways, and/or driveways; (3) restaurants; and (4) hillsides ☐ c. Creates or replaces a combined total of 5,000 ft² or more of impervious surface within one or more of the following uses: (1) automotive repair shops; and (2) retail gasoline outlets ☐ d. Discharges directly to an Environmentally Sensitive Area (ESA) AND creates or replaces 2,500 ft² or more of impervious surface ☐ e. Disturbs one or more acres of land (43,560 ft²) and is expected to generate pollutants post-construction ☐ f. Is a redevelopment project that creates or replaces 5,000 ft² or more of impervious surface on a site already having at least 10,000 ft² of impervious surface	➔ **PDP *SWQMP Form***
☐ **Green Streets PDP Exemption**[2]	➔ **Green *Streets PDP Exemption SWQMP Form***

Part 5. Applicant Signature

I have reviewed the information in this form, and it is true and correct to the best of my knowledge.

Applicant / Project Proponent Signature: [signature] Date: 11/16/23

- ***Upon completion*** *submit this form to the County.*
- ***If requested****, attach supporting documentation to justify selections made or exemptions claimed.*
- ***If this is a PDP that is part of a larger existing PDP****, you will be required to attach a copy of the existing SWQMP to the newer SWQMP submittal.*

[2] ***Green Streets PDP Exemption Projects*** are those claiming exemption from PDP classification per WPO Section 67.811(b)(2) because they consist exclusively of *either* 1) development of new sidewalks, bike lanes, and/or trails; *or* 2) improvements to existing roads, sidewalks, bike lanes, and/or trails.

2.0 General Requirements

- Attachment 2 consolidates exhibits and plans required for the entire project.
- Complete the table below to indicate which sub-attachments are included with the submittal. Sub-attachments that are not applicable can be excluded from the submittal.
- Unless otherwise stated, features and BMPs identified and described in each corresponding Attachment (6 through 9) must be shown on applicable DMA Exhibits and construction plans submitted for the project.

Sub-attachments	Requirement
☒ **2.1: DMA Exhibits**	All PDPs
☒ **2.2: Individual Structural BMP DMA Mapbook**	PDPs with structural BMPs
☒ **2.3: Construction Plan Sets**	All projects

2.1 DMA Exhibits

- DMA Exhibits must show all DMAs on the project site. Exhibits must include all applicable features identified in applicable SWQMP attachments.
- Exhibits may be prepared individually for the BMPs associated with each applicable SWQMP Attachment (6, 7, 8, and/or 9) or combined into one or more consolidated exhibits.
- Use this checklist to ensure required information is included on each exhibit (copy as needed).

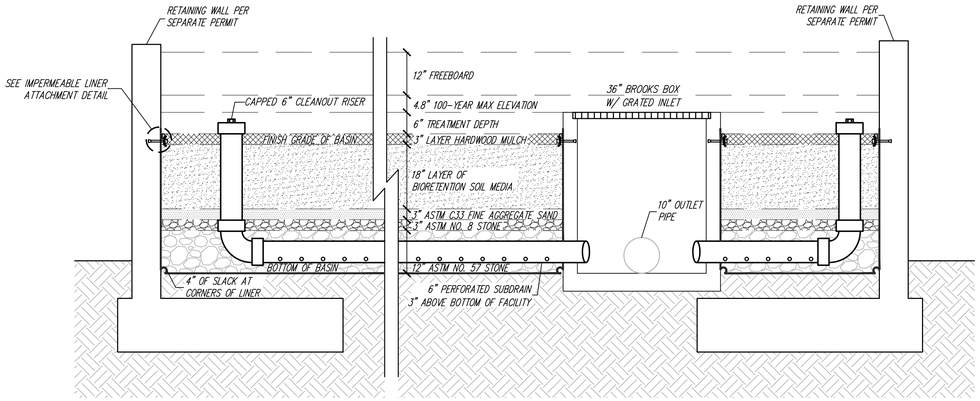
DMA Exhibit ID #:	**Sheet # C-03, DMA Map**
A. Features required for all exhibits	
1. Existing Site Features	
☒ Underlying hydrologic soil group (A, B, C, D)	☒ Topography and impervious areas
☒ Approximate depth to groundwater	☒ Existing drainage network, directions, and offsite connections
☒ Natural hydrologic features	
2. Drainage Management Area (DMA) Information	
☒ Proposed drainage network, directions, and offsite connections	☒ DMA boundaries, ID numbers, areas, and type (structural BMP, de minimis, etc.)
3. Proposed Site Changes, Features, and BMPs	
☒ Proposed demolition and grading	☐ Construction BMPs[2]
☒ Group 1, 2, and 3 Features[1]	☒ Baseline source control BMPs
☒ Group 4 Features	☒ Baseline source control BMPs
B. Proposed Features and BMPs Specific to Individual SWQMP Attachments[3]	
☒ Attachment 6	☐ SSD-BMP impervious dispersion areas ☒ SSD-BMP tree wells
☒ Attachment 7	☒ Structural pollutant control BMPs
☒ Attachment 8	☐ Structural hydromodification management BMPs ☐ Point(s) of Compliance (POC) for hydromodification management ☒ Proposed drainage boundary and drainage area to each POC
☒ Attachment 9	☐ Onsite CCSYAs ☐ Bypass of onsite CCSYAs ☒ Bypass of upstream offsite CCSYAs

[1] Group 1-4 features and baseline BMPs from PDP SWQMP Tables 2 and 3.
[2] Minimum Construction Stormwater BMPs from PDP SWQMP Table 7.
[3] Identify the location, ID numbers, type, and size/detail of BMPs.

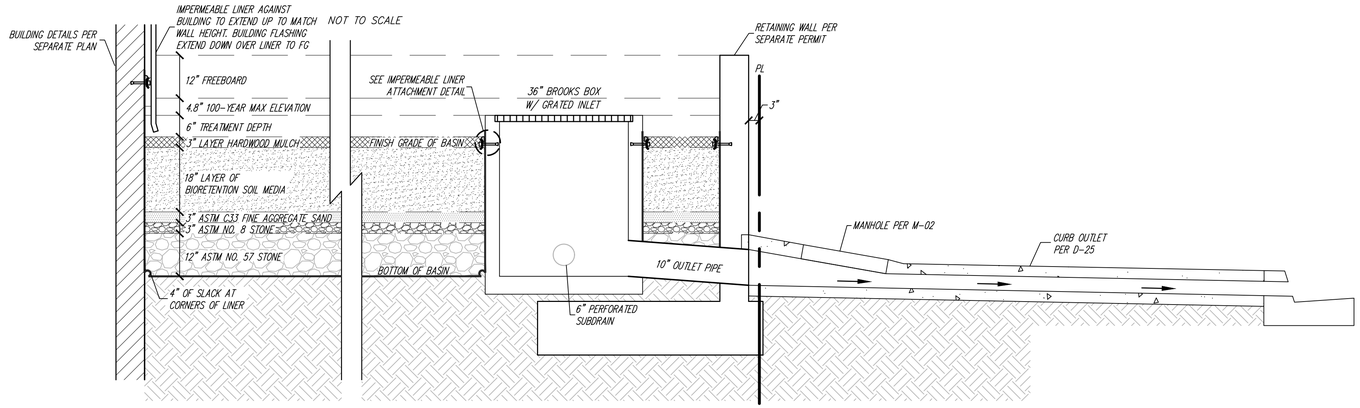
2.2 Individual Structural BMP DMA Mapbook

- Use this page as a cover sheet for the Structural DMA Mapbook.
- An individual Structural DMA Mapbook must be submitted for any project site with one or more structural BMPs. One Mapbook is required for each unique subsequent owner with responsibility for maintenance of a Structural BMP. Mapbook exhibits will be incorporated as exhibits in Stormwater Maintenance Agreements (SWMAs) and Maintenance Notifications (MNs). See Attachment 11 for additional information on maintenance agreements. If the Mapbook has been provided for each subsequent owner in Attachment 11, they are not required here.
- Place each map on 8.5"x11" paper.
- Show at a minimum the DMA, Structural BMP, Assessor's parcel boundaries with parcel numbers, and any existing hydrologic features within the DMA.

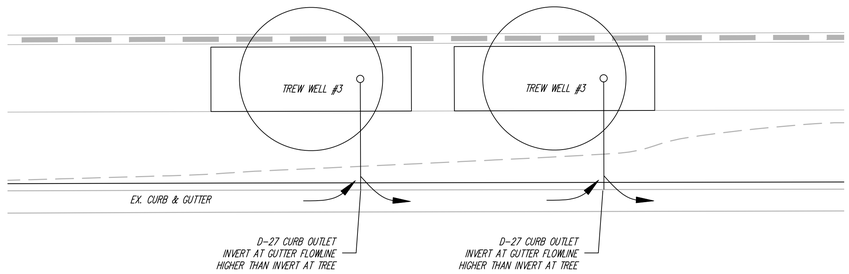
☐	All Mapbooks are attached
☒	All Mapbooks are in Attachment 11



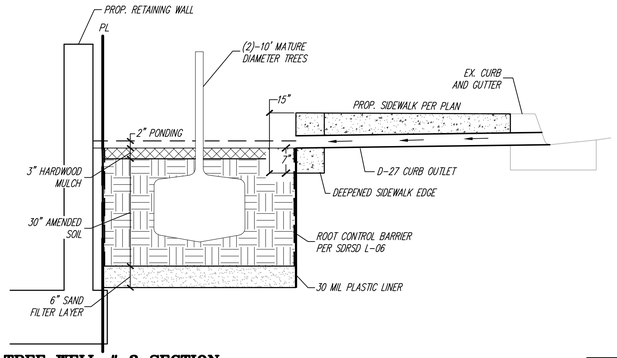
BIOFILTRATION BASIN CROSS SECTION — **A**



BIOFILTRATION BASIN CROSS SECTION BMP-1 — **B**



TREE WELL #3 PLAN VIEW — **C**



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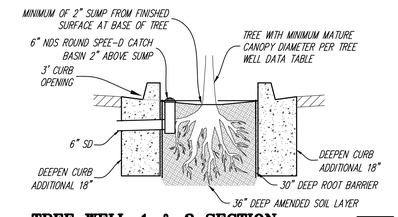

TREE WELL-1 & 2 SECTION — **E**
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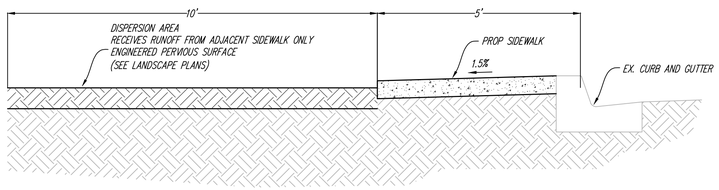

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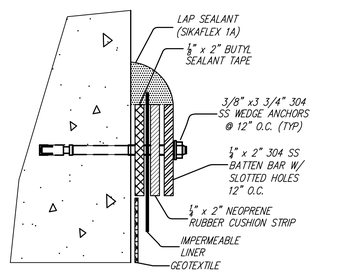

IMPERMEABLE LINER ATTACHMENT DETAIL
NOT TO SCALE

OMEGA ENGINEERING CONSULTANTS
4320 VIEWRIDGE AVE. SUITE C
SAN DIEGO, CA 92123
PH:(858) 634-8620 FAX:(858)-634-8627

12/21/23 DATE

SEAN M. SAVAGE R.C.E. 75677

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BY: NICK SPADUSA
DATE: 12/21/2023 1:27:07 PM

21ST CENTURY LAKESIDE HOLDINGS, LLC
WOODSIDE SELF STORAGE
SAN DIEGO COUNTY, CA

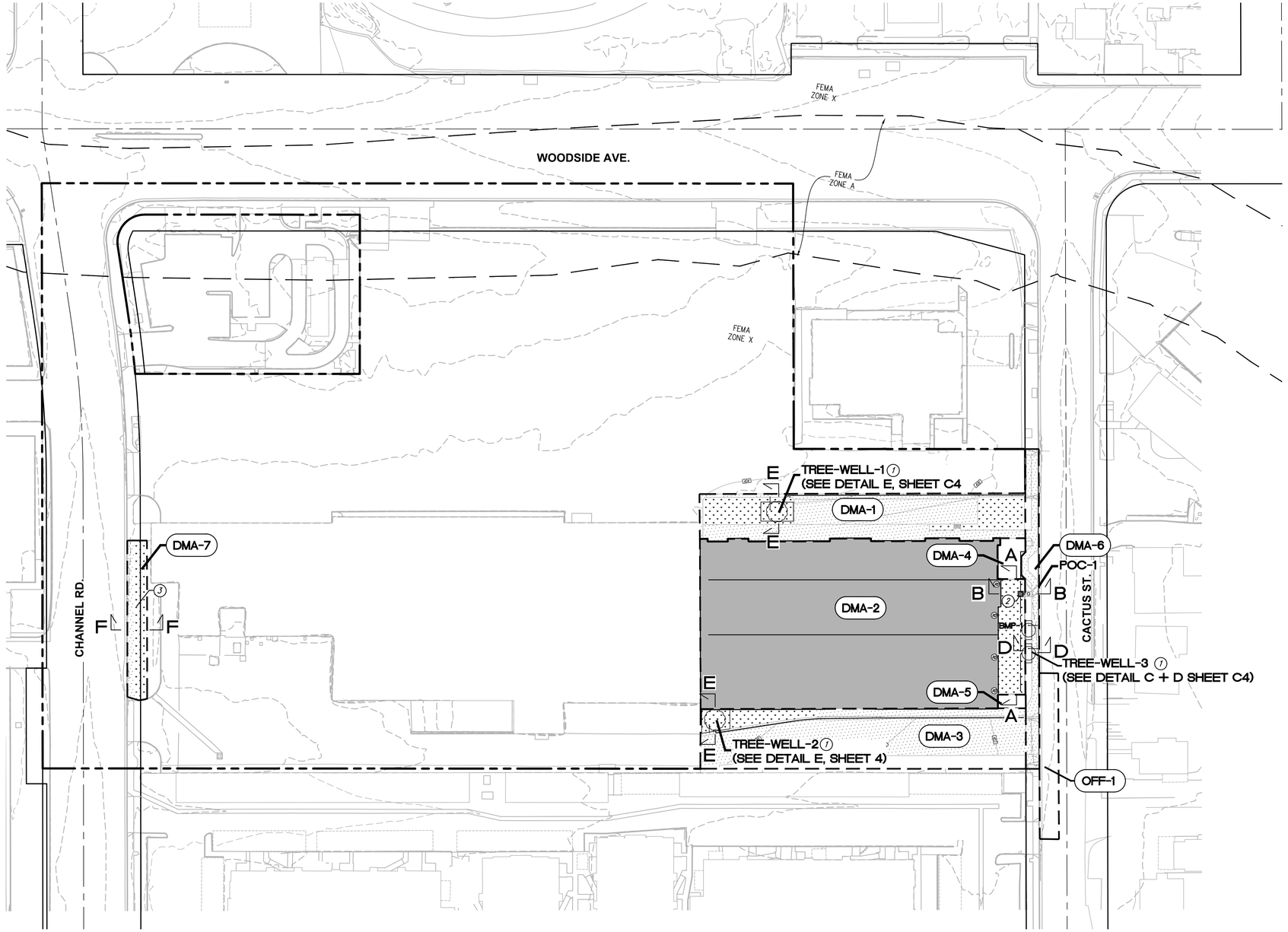
C4

BMP DETAILS

JOB NUMBER: 21-528

DATE: 12/21/2023

JORDAN ARCHITECTS
131 CALLE IGLESIA, SUITE 100
SAN CLEMENTE, CA 92672
949.388.8090



LEGEND:

- DMA BOUNDARY
- DRAINAGE ARROWS
- POINT OF COMPLIANCE — POC-#
- DRAINAGE MANAGEMENT AREA — DMA-#
- IMPERVIOUS AREA
- ROOF AREA
- ENGINEERED PERVIOUS AREAS
- NATURAL "D" SOIL AREAS
- ROOF DRAIN LOCATION. — (RD)

SOURCE CONTROL BMP NOTES

ALL APPLICABLE SOURCE CONTROL BMPS SHALL BE UTILIZED

A. ALL ONSITE INLETS TO BE MARKED "NO DUMPING" OR SIMILAR AND ALL OPERATIONAL PRECAUTIONS TO AVOID NON STORM WATER DISCHARGE SHALL BE FOLLOWED PER THE CITY'S BMP DESIGN MANUAL.

B. PROPOSED REFUSE AREA WILL REMAIN COVERED AND PROTECTED FROM WIND DISPERSAL. SIGNS SHALL BE PLACED WITH WORDS "DO NOT DUMP HAZARDOUS MATERIALS OR LIQUIDS HERE" OR SIMILAR. OWNER SHALL BE RESPONSIBLE TO KEEP THE AREA CLEAN OF LITTER AND SPILLS.

C. OWNER TO BE RESPONSIBLE FOR SWEEPING PLAZAS, SIDEWALKS, AND PARKING LOTS. THIS IS TO BE DONE REGULARLY AND AS NEEDED TO PREVENT ACCUMULATION OF LITTER AND DEBRIS.

D. FIRE SPRINKLER TEST WATER SHALL BE DRAINED TO THE BIOFILTRATION BASIN.

E. CONDENSATE DRAIN LINES INCLUDING AIR CONDITIONING SHALL BE ROUTED TO LANDSCAPE.

F. ROOFING, GUTTERS, AND TRIM SHALL NOT BE MADE OF COPPER OR OTHER UNPROTECTED METALS THAT MAY LEACH INTO RUNOFF MUST BE AVOIDED.

NOTES

1. UNDERLYING NRCS HYDROLOGIC SOIL GROUP FOR SITE IS TYPE D
2. PER THE GEOTECHNICAL EVALUATION PERFORMED BY LGC GEOTECHNICAL INC. ON MARCH 29, 2022, GROUNDWATER DEPTH WAS ENCOUNTERED AT APPROXIMATELY 20 FEET BELOW EXISTING GROUND SURFACE
3. NO EXISTING NATURAL HYDROLOGIC FEATURES
4. NO CRITICAL COARSE SEDIMENT YIELD AREAS ON SITE
5. AVOID USING COPPER WHEN SELECTING ROOF DRAINAGE AND ROOFING TRIM MATERIALS

DMA DATA TABLE

DMA-NO.	TOT. AREA (SF)	IMPERVIOUS (%)	DESIGN DCV (CF)	TYPE/TREATED BY
DMA-1	8,177	70	220	TREE WELL-1
DMA-2	28,787	94	999	BMP-1
DMA-3	10,555	71	289	TREE WELL-2
DMA-4	555	0	–	SELF-MITIGATING
DMA-5	205	0	–	SELF-MITIGATING
DMA-6	2,419	67	63	TREE WELL-3
DMA-7	1,689	32	63	IMPERVIOUS AREA DISPERSION
OFF-1	1705	100	63	DMA-6, TREE WELL 3 *

* NOTE: THE OFFSITE AREA SHOWN HEREON HAS AN EQUIVALENT DCV TO DMA-6.

TREATMENT BMP DATA TABLE

BMP-#	TREATING	PROPOSED FOOTPRINT	DESCRIPTION
BMP-1	DMA-1	1,600 SF	FULLY LINED BIOFILTRATION BASIN

TREE WELL DATA TABLE

TREE WELL #	TRIBUTARY BASIN	TOTAL DCV REDUCTION	AMENDED SOIL DEPTH	PROVIDED SOIL AREA (PER TREE)	# OF TREES	CANOPY DIAMETER
1	DMA-1	290 CF	3 FT	336 SF	1	25 FT
2	DMA-3	290 CF	3 FT	336 SF	1	25 FT
3 *	DMA-6	80 CF	2.5 FT	63 SF	2	10 FT

* NOTE: THE PROPOSED OFFSITE IMPROVEMENTS WILL BE MITIGATED BY THE PROPOSED TREE WELL # 3.

SOURCE CONTROL BMPs

- TREE WELL, SIZED PER DATA TABLE (1)
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FILENAME: P:\DWG OMEGA\0689 LAKESIDE SELF-STORAGE\ACAD\DISCRETIONARY\0689-CGP-03-04-DMA.DWG
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21ST CENTURY LAKESIDE HOLDINGS, LLC

WOODSIDE SELF STORAGE

SAN DIEGO COUNTY, CA

GRAPHICAL SCALE: 1" = 40'
0 20 40 80 120

C3

DMA MAP

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2.3 Construction Plan Sets

- DMAs, features, and BMPs identified and described in this attachment must also be shown on all applicable construction and landscape plans.
- As applicable, plan sheets must identify:
    - All features and BMPs identified in Sub-attachment 2.1 (DMA Exhibits).
    - The additional information listed below.
- Use this checklist to ensure required information is included on each plan (copy as needed).

Plan Type	**Conceptual Grading Plans**
Required Information[4]	
☒ Structural BMP(s) and Significant Site Design BMPs (if applicable) with ID numbers.	
☒ The grading and drainage design shown on the plans must be consistent with the delineation of DMAs shown on the DMA exhibit.	
☒ Details and specifications for construction of Structural BMP(s) and Significant Site Design BMPs (if applicable).	
☒ Signage indicating the location and boundary of structural BMP(s) as required by County staff.	
☐ How to access the structural BMP(s) to inspect and perform maintenance.	
☒ Features that are provided to facilitate inspection (e.g., observation ports, cleanouts, silt posts, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds).	
☐ Maintenance thresholds specific to the structural BMP(s), with a location-specific frame of reference (e.g., level of accumulated materials that triggers removal of the materials, to be identified based on viewing marks on silt posts or measured with a survey rod with respect to a fixed benchmark within the BMP).	
☐ Recommended equipment to perform maintenance.	
☒ When applicable, necessary special training or certification requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management.	
☐ Include landscaping plan sheets (if available) showing vegetation requirements for vegetated structural BMP(s).	
☒ All BMPs must be fully dimensioned on the plans.	
☐ When proprietary BMPs are used, site-specific cross-section with outflow, inflow, and manufacturer model number must be provided. Photocopies of general brochures are not acceptable.	
☒ Include all source control and site design measures described in the SWQMP.	
☒ Include all construction BMPs described in the SWQMP.	

[4] For Building Permit Applications, refer to Form PDS 272, https://www.sandiegocounty.gov/content/dam/sdc/pds/docs/pds272.pdf

5.0 General Requirements

- Each Priority Development Project (PDP) must provide a description of existing site conditions and proposed changes to them, including changes to topography and drainage.
- Has a **Drainage Report** has been prepared for the PDP?

  ☒ **Yes**

  - Review of the Drainage Report must be concurrent with the PDP SWQMP.
  - Include the summary page of the Drainage Report with this cover page, and provide the following information:

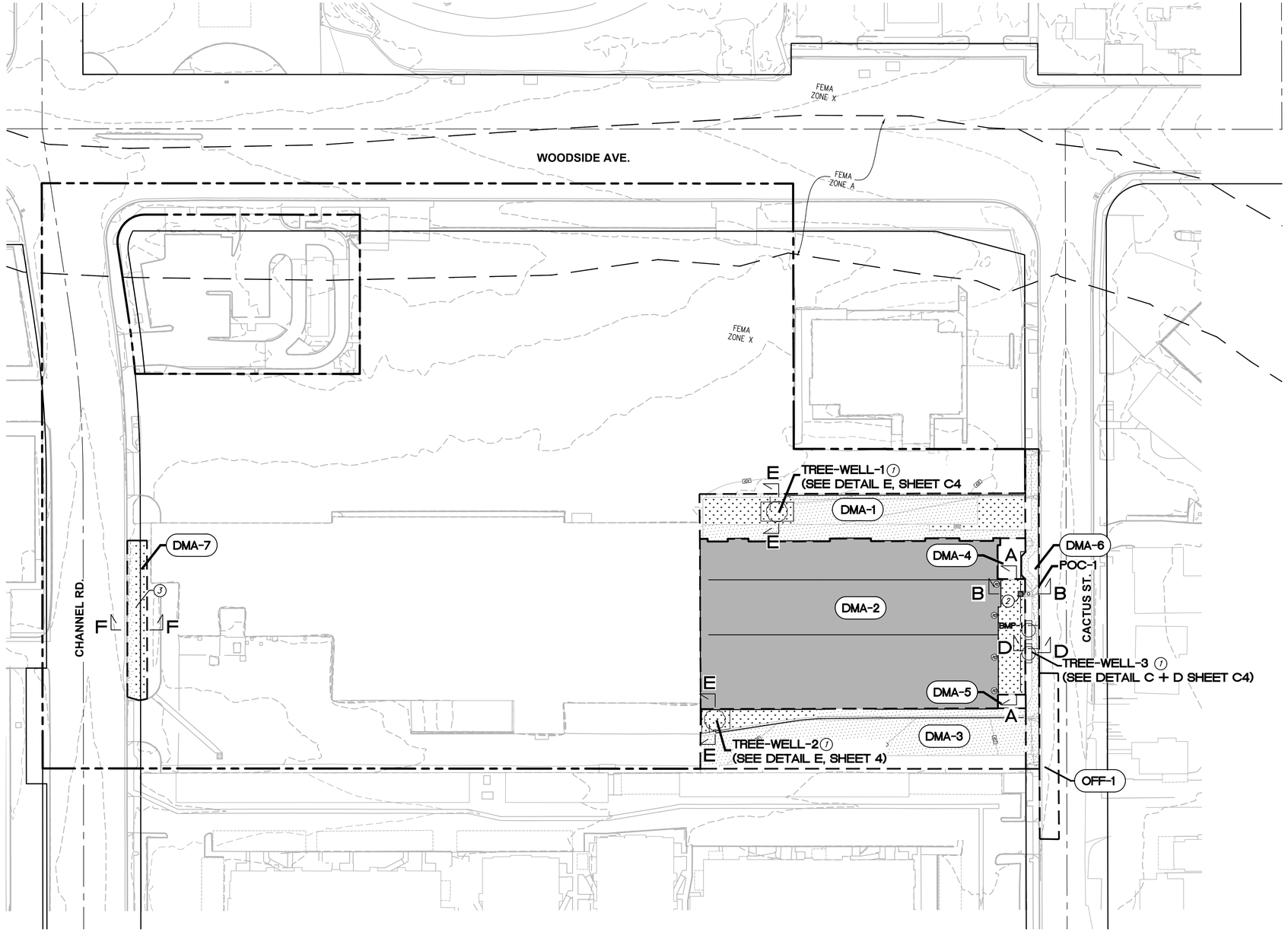
    Title: Woodside Self-Storage

    Prepared By: Omega Engineering

    Consultants Date: 11/22/2023

  - Do not complete the rest of this attachment (also exclude these additional pages from your submittal). Additional documentation of site and drainage conditions is not required unless requested by County staff.

  ☐ **No** -- Complete and submit the remainder of this attachment below.



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FILENAME: P:\DWG OMEGA\0689 LAKESIDE SELF-STORAGE\ACAD\DISCRETIONARY\0689-CGP-03-04-DMA.DWG
BY: NICK SPADOSA
DATE: 12/21/2023 1:27:07 PM

21ST CENTURY LAKESIDE HOLDINGS, LLC

WOODSIDE SELF STORAGE

SAN DIEGO COUNTY, CA

GRAPHICAL SCALE: 1" = 40'
0 20 40 80 120

C3

DMA MAP

JOB NUMBER: 21-528

DATE: 12/21/2023

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131 CALLE IGLESIA, SUITE 100
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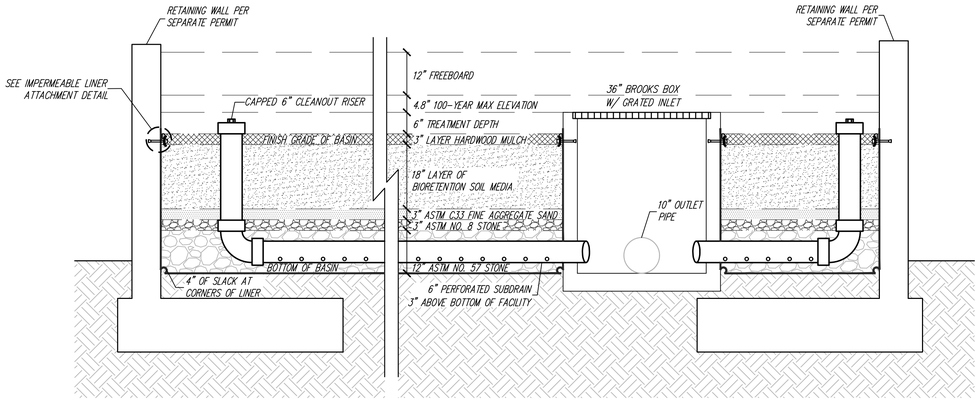
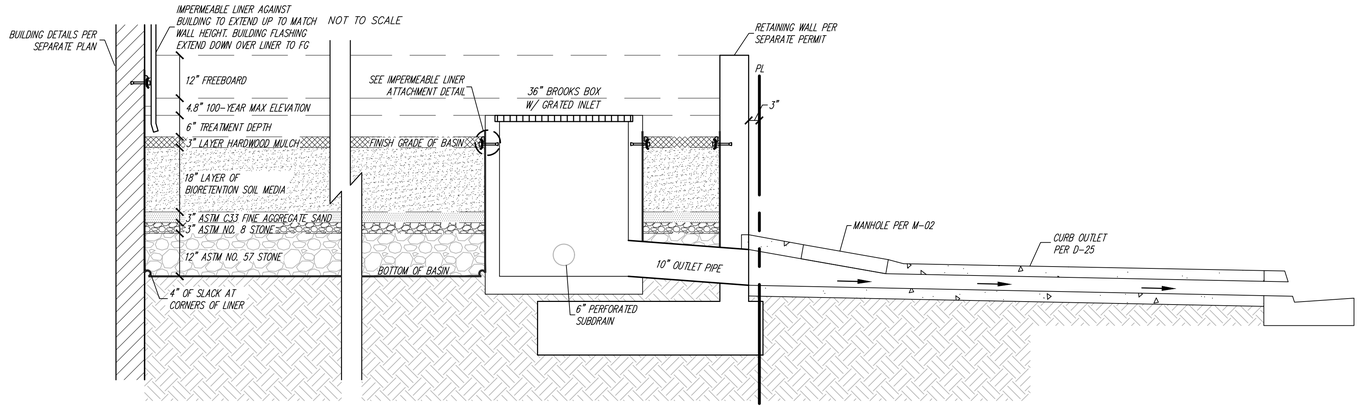


BIOFILTRATION BASIN CROSS SECTION — **A**



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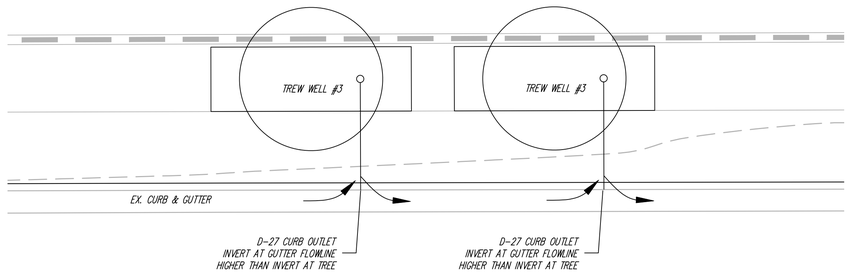
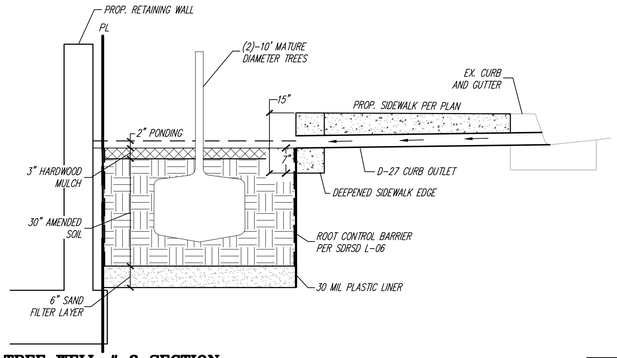


TREE WELL #3 PLAN VIEW — **C**



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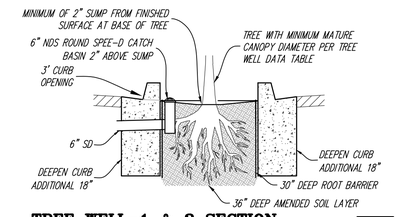
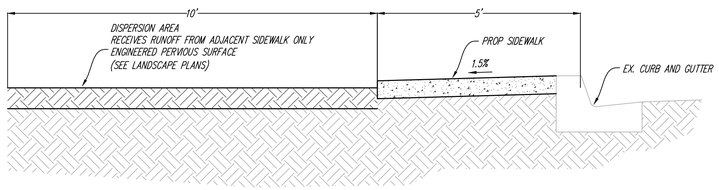


TREE WELL-1 & 2 SECTION — **E**
NOT TO SCALE



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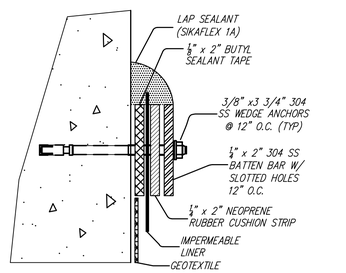

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949.388.8090

GRADING PLAN NOTES:

PRIOR TO PRECONSTRUCTION MEETING

NOTICE: IN THE EVENT THAT ANY ACTIVITY, INCLUDING EARTHMOVING OR CONSTRUCTION, DISCOVERS THE PRESENCE OF UNDERGROUND STORAGE TANKS, SEPTIC TANKS, WELLS, SITE DEBRIS, AND/OR CONTAMINATED SOILS ON-SITE, THE CONTRACTOR AND/OR PROPERTY OWNER SHALL NOTIFY THE COUNTY OF SAN DIEGO PLANNING & DEVELOPMENT SERVICES DEPARTMENT AND THE DEPARTMENT OF ENVIRONMENTAL HEALTH AND QUALITY. THE PRESENCE OF CONTAMINATED SOILS WILL REQUIRE SOIL TESTING AND REMEDIATION IN ACCORDANCE WITH STANDARD COUNTY PROCEEDURES. THIS PROCESS WILL BE DETERMINED ONCE THE COUNTY IS NOTIFIED OF THE PRESENCE OF CONTAMINATED SOILS.

PROJECT CONDITIONS

PRIOR TO THE APPROVAL OF ANY PLAN

DEHQ#X-WELL DESTRUCTION
INTENT: IN ORDER TO ENSURE THAT THE WATER WELL LOCATED ON THE PROPERTY IS REMOVED, AND TO COMPLY WITH THE COUNTY REGULATORY CODE SECTION 67.431, ALL UNUSED AND NON-OPERATIONAL WELLS SHALL BE PROPERLY DESTROYED. DESCRIPTION OF REQUIREMENT: ALL UNUSED WELLS SHALL BE PROPERLY DESTROYED BY A CALIFORNIA C-57 LICENSED WELL DRILLER. A WELL DESTRUCTION PERMIT SHALL BE OBTAINED FROM THE [DEHQ, LWQ] AND ALL APPLICABLE INSPECTION FEES SHALL BE PAID. DOCUMENTATION: THE APPLICANT SHALL PROVIDE COPIES OF THE WELL DESTRUCTION LOGS TO [DEHQ, LWQ] UPON COMPLETION OF THE WELL DESTRUCTION. TIMING: PRIOR TO THE APPROVAL OF ANY PLAN, ISSUANCE OF ANY PERMIT (EXCLUDING WELL DESTRUCTION PERMIT), AND PRIOR TO OCCUPANCY OR USE OF THE PREMISES IN RELIANCE OF THIS PERMIT, THE APPLICANT SHALL DESTROY THE WELL. MONITORING: UPON SUBMITTAL OF THE WELL DESTRUCTION LOGS, [DEHQ, LWQ] SHALL PERFORM A FIELD INSPECTION TO VERIFY THAT THE WELL HAS BEEN PROPERLY DESTROYED.

HAZ#X-STRUCTURE AND DEBRIS REMOVAL [PDS, FEE]
INTENT: IN ORDER TO COMPLY WITH THE PROPOSED PROJECT DESIGN FOR PDS2021-STP-21-010, STRUCTURE(S) TO BE REMOVED AND DEBRIS PILE(S) IDENTIFIED ON THE APPROVED PLAN SET SHALL BE REMODELED/DEMOLISHED/REMOVED, AS APPLICABLE. ADDITIONAL DEBRIS LOCATED THROUGHOUT THE PROJECT SITE SHALL ALSO BE PROPERLY DISPOSED OF. DESCRIPTION OF REQUIREMENT: THE STRUCTURE(S)/DEBRIS PILE(S) SHOWN ON THE APPROVED PLAN SET SHALL BE REMOVED OR DEMOLISHED. DOCUMENTATION: THE APPLICANT SHALL SUBMIT TO THE [PDS, PPD] A SIGNED STAMPED STATEMENT FROM A REGISTERED PROFESSIONAL; ENGINEER, SURVEYOR, CONTRACTOR, WHICH STATES, THAT THE STRUCTURE(S)/DEBRIS PILE(S) HAVE BEEN REMODELED/DEMOLISHED/REMOVED. THE LETTER REPORT SHALL ALSO INCLUDE BEFORE AND AFTER PICTURES OF THE AREA AND STRUCTURE. TIMING: PRIOR TO THE APPROVAL OF ANY PLAN, ISSUANCE OF ANY PERMIT (EXCLUDING DEMOLITION PERMIT), AND PRIOR TO APPROVAL OF THE MAP THE APPLICANT SHALL COMPLY WITH THIS CONDITION. MONITORING: THE [PDS, PPD] SHALL REVIEW THE STATEMENT AND, PHOTOS, AND ANY ADDITIONAL EVIDENCE FOR COMPLIANCE WITH THIS CONDITION.

HAZ#X-ASBESTOS SURVEY [PDS, FEE X 2]
INTENT: IN ORDER TO AVOID HAZARDS ASSOCIATED WITH ASBESTOS CONTAINING MATERIALS (ACMS) AND TO MITIGATE BELOW LEVELS OF SIGNIFICANCE AS ESTABLISHED BY THE COUNTY OF SAN DIEGO HAZARDOUS MATERIALS AND EXISTING CONTAMINATION GUIDELINES FOR DETERMINING SIGNIFICANCE, THE STRUCTURES IDENTIFIED ON THE APPROVED [RECORD ID] PLAN SET FOR DEMOLITION SHALL BE SURVEYED FOR THE PRESENCE OF ACMS IN ACCORDANCE WITH DISTRICT RULE 1206. DESCRIPTION OF REQUIREMENT: A FACILITY SURVEY SHALL BE PERFORMED TO DETERMINE THE PRESENCE OR ABSENCE OF ACMS IN THE STRUCTURES IDENTIFIED FOR DEMOLITION OR REMODEL ON THE APPROVED PLAN SET. SUSPECT MATERIALS THAT WILL BE DISTURBED BY THE DEMOLITION ACTIVITIES SHALL BE SAMPLED AND ANALYZED FOR ASBESTOS CONTENT, OR ASSUMED TO BE ASBESTOS CONTAINING. THE SURVEY SHALL BE CONDUCTED BY A PERSON CERTIFIED BY CAL/OSHA PURSUANT TO APPLICABLE REGULATIONS AND SHALL HAVE TAKEN AND PASSED AN EPA-APPROVED BUILDING INSPECTOR COURSE.

A. IF ACMS ARE FOUND PRESENT, THEY SHALL BE HANDLED AND REMEDIATED IN COMPLIANCE WITH APPLICABLE SAN DIEGO COUNTY AIR POLLUTION CONTROL DISTRICT REGULATIONS
B. ACMS SHALL BE DISPOSED OF IN ACCORDANCE WITH APPLICABLE REGULATIONS.

DOCUMENTATION: THE APPLICANT SHALL COMPLETE THE HAZARDOUS MATERIAL QUESTIONNAIRE AND SUBMIT TO THE [APCD]. IF REQUIRED BY APCD, THE APPLICANT SHALL SUBMIT FURTHER DOCUMENTATION TO APCD TIMING: PRIOR TO GRADING OR IMPROVEMENT PERMIT (EXCLUDING DEMOLITION PERMIT), THE APPLICANT SHALL COMPLY WITH THIS CONDITION. MONITORING: THE [APCD] SHALL REVIEW THE HAZARDOUS MATERIAL QUESTIONNAIRE AND ANY ADDITIONAL EVIDENCE REQUIRED BY APCD. THE [PDS, PCC] SHALL REVIEW THE DOCUMENTATION APPROVED AND STAMPED BY APCD FOR COMPLIANCE WITH THIS CONDITION.

HAZ#X-LEAD SURVEY [PDS, FEE X 2]
INTENT: IN ORDER TO AVOID HAZARDS ASSOCIATED WITH LEAD BASED PAINT (LBP) AND LEAD CONTAINING MATERIALS (LCM) TO MITIGATE BELOW LEVELS OF SIGNIFICANCE AS ESTABLISHED IN THE COUNTY OF SAN DIEGO HAZARDOUS MATERIALS AND EXISTING CONTAMINATION GUIDELINES FOR DETERMINING SIGNIFICANCE, THE STRUCTURE(S) IDENTIFIED ON THE APPROVED PLOT PLAN DESIGNATED FOR DEMOLITION SHALL BE SURVEYED FOR THE PRESENCE OF LBP/LCM BECAUSE THE STRUCTURES MAY HAVE BEEN BUILT PRIOR TO 1980. DESCRIPTION OF REQUIREMENT: A FACILITY SURVEY SHALL BE PERFORMED TO DETERMINE THE PRESENCE OR ABSENCE OF LBP/LCM IN THE STRUCTURES IDENTIFIED FOR DEMOLITION ON THE APPROVED PLOT PLAN SET. THE SURVEY SHALL BE COMPLETED BY A CALIFORNIA DEPARTMENT OF HEALTH SERVICES (DHS) CERTIFIED LEAD INSPECTOR/RISK ASSESSOR TO DETERMINE THE PRESENCE OR ABSENCE OF LBP AND LCM LOCATED IN THE STRUCTURE. THE FOLLOWING CONDITIONS ONLY APPLY IF LBP AND LCM ARE PRESENT:

A. ALL LBP AND LCM SHALL BE MANAGED IN ACCORDANCE WITH APPLICABLE REGULATIONS.
B. ALL LBP AND LCM SCHEDULED FOR DEMOLITION OR DISTURBED DURING REMODELING MUST COMPLY WITH APPLICABLE REGULATIONS FOR DEMOLITION METHODS AND DUST SUPPRESSION.
C. DISPOSAL SHALL BE IN COMPLIANCE WITH APPLICABLE REGULATIONS.

DOCUMENTATION: THE APPLICANT SHALL SUBMIT A LETTER OR REPORT PREPARED BY A CALIFORNIA DHS CERTIFIED LEAD INSPECTOR/RISK ASSESSOR TO THE [DEHQ HAZ MAT], WHICH CERTIFIES THAT THERE WAS NO LBP/LCM PRESENT, OR ALL LEAD CONTAINING MATERIALS HAVE BEEN REMEDIATED PURSUANT TO APPLICABLE REGULATIONS. TIMING: PRIOR TO GRADING OR IMPROVEMENT PERMIT (EXCLUDING DEMOLITION PERMIT), THE APPLICANT SHALL COMPLY WITH THIS CONDITION. MONITORING: THE [DEHQ HAZ MAT] SHALL REVIEW THE REPORT AND ANY ADDITIONAL EVIDENCE FOR COMPLIANCE WITH THIS CONDITION. THE [PDS, PCC] SHALL REVIEW THE COMPLETED AND STAMPED REPORT AND ANY ADDITIONAL EVIDENCE FOR COMPLIANCE WITH THIS CONDITION.

PRIOR TO GRADING OR IMPROVEMENT PLANS

HAZ #X-STORAGE TANK REMOVAL, SOIL TESTING AND REMEDIATION [PDS, FEE X 2]

INTENT: IN ORDER TO COMPLY WITH THE COUNTY OF SAN DIEGO HAZARDOUS MATERIALS AND EXISTING CONTAMINATION GUIDELINES FOR DETERMINING SIGNIFICANCE, ANY ABOVEGROUND OR BELOWGROUND STORAGE TANKS LOCATED ON THE PROJECT SITE, WHICH ARE TO BE REMOVED, MUST BE TESTED AND REMEDIATED. REMEDIATION COMPLETED UNDER THE SUPERVISION OF THE DEPARTMENT OF ENVIRONMENTAL HEALTH AND QUALITY (DEHQ), SITE ASSESSMENT AND MITIGATION PROGRAM (SAM) IS REQUIRED. THE EXCAVATED SOIL SHOULD BE STOCKPILED, TESTED, CHARACTERIZED FOR DISPOSAL AND TRANSPORTED OFF-SITE TO AN APPROPRIATE DISPOSAL FACILITY. DESCRIPTION OF REQUIREMENT: FOR SOIL TESTING, A SIGNED, STAMPED ADDENDUM TO THE PHASE I ESA SHALL BE PREPARED BY A REGISTERED CIVIL ENGINEER OR PROFESSIONAL GEOLOGIST. THE ADDENDUM SHALL INCLUDE THE FOLLOWING INFORMATION OR AS MODIFIED BY DEHQ:

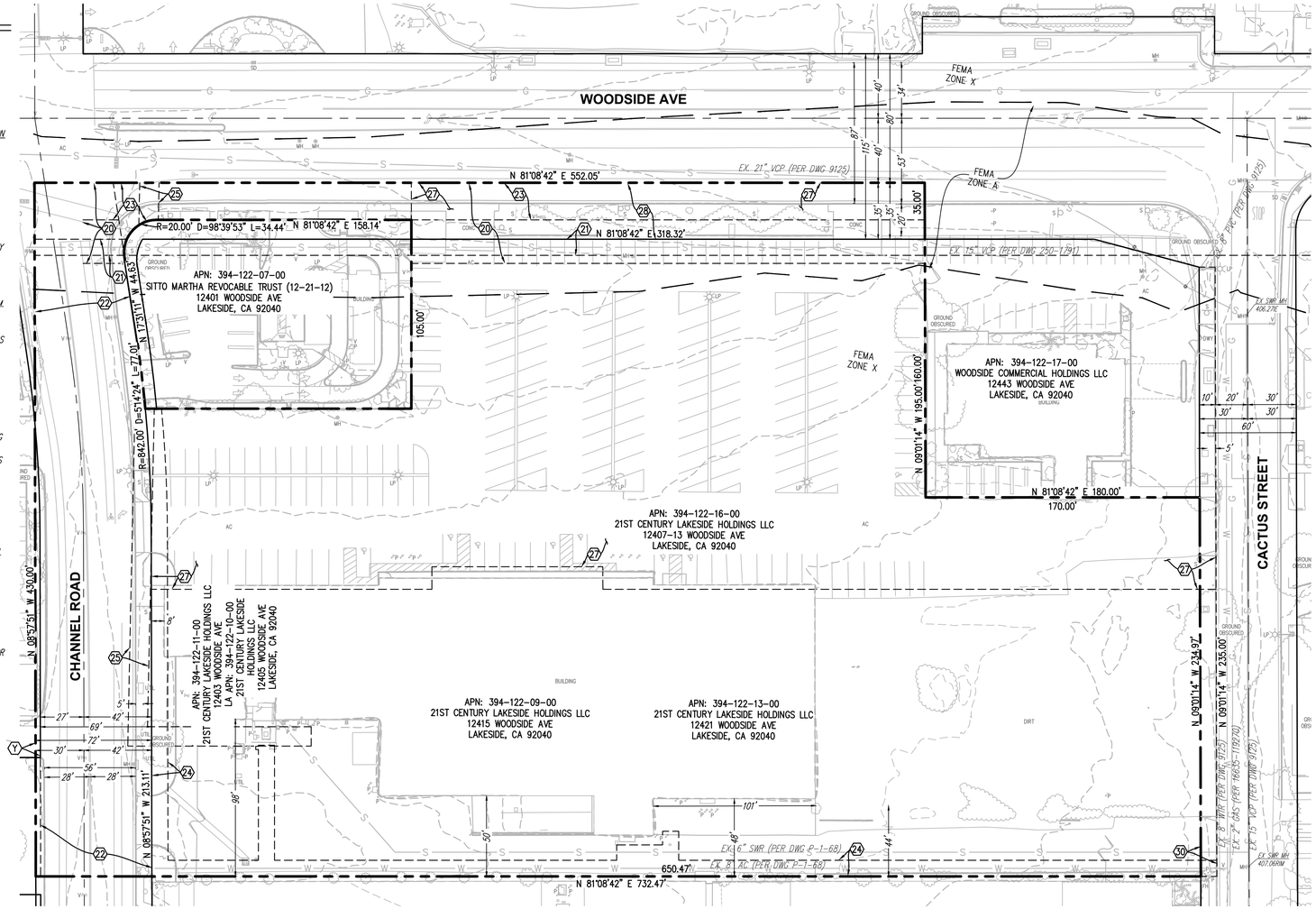
A. DOCUMENTATION THAT THE SOIL SAMPLING OCCURRED BETWEEN SIX INCHES TO 2-3 FEET IN DEPTH.
B. FINDINGS WHICH IDENTIFY WHETHER ONSITE SOILS IN THIS LOCATION EXCEED REGULATORY SCREENING LEVELS FOR SOIL VAPORS, PETROLEUM, HEAVY METALS, OR OTHER CONTAMINANTS (TPH).
C. IF CONTAMINATED SOILS ARE DETECTED, PROVIDE A COPY OF THE CONTRACT AND A SIGNED SEALED STATEMENT FROM THE REGISTERED CIVIL ENGINEER OR PROFESSIONAL GEOLOGIST, WHICH STATES THAT THEY IMPLEMENTED THE WORK PLAN APPROVED BY SAM. GRADING REQUIRED TO IMPLEMENT THE SITE REMEDIATION ACTIVITIES IS PERMITTED.

FOR REMEDIATION, A CALIFORNIA LICENSED ENVIRONMENTAL CONSULTANT COMPANY SHALL PREPARE A SOIL MANAGEMENT PLAN (SMP), FOR THE REMEDIATION OF HAZARDOUS MATERIALS AS IDENTIFIED ABOVE. THE PLAN SHALL BE PREPARED AND IMPLEMENTED PURSUANT TO THE DEHQ SAM MANUAL UNDER DIRECTION FROM THE DEHQ SAM.

D. ENROLLMENT IN THE DEHQ, VOLUNTARY ASSISTANCE PROGRAM (VAP) IS REQUIRED. IF CONTAMINATION IS FOUND TO BE FROM AN UNDERGROUND STORAGE TANK (UST) THEN ENROLLMENT IN THE RWQCB, UST CLEANUP PROGRAM IS REQUIRED IN LIEU OF ENROLLMENT IN THE VAP. ALL SOIL REMEDIATION SHALL BE COMPLETED UNDER SUPERVISION OF THE SAM OR RWQCB AS REQUIRED.
E. ALL REQUIRED GRADING WORK SHALL COMPLY WITH THE COUNTY OF SAN DIEGO GRADING ORDINANCE 87.101 ET. AL.
F. IF THE DIRECTOR OF PDS DETERMINES THE REMEDIATION WORK WILL TAKE AN ENORMOUS AMOUNT OF TIME THAT WOULD BE DETRIMENTAL TO ULTIMATE PROJECT IMPLEMENTATION, APPROVAL OF OTHER ENGINEERING PLANS AND/OR ISSUANCE OF OTHER PROJECT PERMITS MAY BE PERMITTED AS LONG AS THERE IS NO RISK OF EFFECTS TO PUBLIC HEALTH AND SAFETY. CONCURRENCE FROM THE [DEHQ, SAM OR RWQCB] IS REQUIRED, AND THE APPLICANT SHALL ENTER INTO A SECURED AGREEMENT FOR THE COMPLETION OF THE REMEDIATION WORK.

DOCUMENTATION: THE APPLICANT SHALL CONTRACT WITH A CALIFORNIA LICENSED ENVIRONMENTAL CONSULTANT TO PREPARE THE SMP AND IMPLEMENT ANY REQUIRED WORK PLAN FOR SOIL REMEDIATION. THE APPLICANT SHALL ALSO ENROLL IN THE VAP OR UST CLEANUP PROGRAM AND PAY ALL APPLICABLE FEES FOR REVIEW AND COMPLETION OF THIS REQUIREMENT. UPON COMPLETION OF THE VAP OR UST CLEANUP PROGRAM, A "CLOSURE LETTER" FROM [DEHQ, SAM OR RWQCB] SHALL BE SUBMITTED TO THE [PDS, PPD] FOR APPROVAL. TIMING: PRIOR TO APPROVAL OF ANY GRADING AND/OR IMPROVEMENT PLANS, THE APPLICANT SHALL COMPLY WITH THIS CONDITION. MONITORING: THE [DEHQ, SAM OR RWQCB] SHALL OVERSEE THE PROGRESS OF THE REMEDIATION PROJECT. UPON COMPLETION OF THE REMEDIATION PROJECT THE [DEHQ, SAM OR RWQCB] SHALL ISSUE A "CLOSURE LETTER" TO THE APPLICANT. THE [PDS, PPD] SHALL REVIEW THE CLOSURE LETTER FOR COMPLIANCE WITH THIS CONDITION.

EASEMENT NOTE:
FOR EASEMENT DESCRIPTIONS SEE SHEET C-1.



GRAPHICAL SCALE: 1" = 40'
0 20 40 80 120

21ST CENTURY LAKESIDE HOLDINGS, LLC
WOODSIDE SELF STORAGE
SAN DIEGO COUNTY, CA

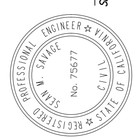
CONSTRAINTS MAP

C-5

OMEGA ENGINEERING CONSULTANTS
4320 VIEWRIDGE AVE, SUITE C
SAN DIEGO, CA 92123
PH:(858) 634-8620 FAX:(858)-634-8627

12/21/23 DATE

SEAN M. SAVAGE R.C.E. 75677



JORDAN ARCHITECTS
131 CALLE IGLESIA, SUITE 100
SAN CLEMENTE, CA 92672
949.388.8090

JOB NUMBER: 21-528

DATE: 12/21/2023

FILENAME: P:\OMG ONEGA\0689 LAKESIDE SELF-STORAGE\ACAD\DISCRETIONARY\0689-CGP-05-CONSTRAINTS.DWG

BY: NICK SPADUSA

DATE: 12/21/2023 1:34:29 PM

EASEMENTS:

(20) EASEMENT FOR UTILITIES AND INCIDENTAL PURPOSES IN FAVOR OF LAKESIDE IRRIGATION DISTRICT RECORDED 4/6/1949 IN BOOK 3163 PAGE 412, OF OFFICIAL RECORDS.

(21) EASEMENT FOR UTILITIES AND INCIDENTAL PURPOSES IN FAVOR OF LAKESIDE SANITATION DISTRICT PER 1/16/1959 IN BOOK 7450 PAGE 39, OF OFFICIAL RECORDS.

(22) EASEMENT FOR HIGHWAY AND INCIDENTAL PURPOSES IN FAVOR OF THE COUNTY OF SAN DIEGO RECORDED 9/30/1966 AS INSTRUMENT NO. 1966-158808, OF OFFICIAL RECORDS.

(23) EASEMENT FOR HIGHWAY AND INCIDENTAL PURPOSES IN FAVOR OF THE COUNTY OF SAN DIEGO RECORDED 11/6/1967 AS INSTRUMENT NO. 1967-173544, OF OFFICIAL RECORDS.

(24) EASEMENT AGREEMENT FOR UTILITIES AND INCIDENTAL PURPOSES IN FAVOR OF LAKESIDE IRRIGATION DISTRICT RECORDED 6/6/1968, AS INSTRUMENT NO. 1968-95017, OFFICIAL RECORDS

(25) EASEMENT FOR RIGHT OF WAY AND INCIDENTAL PURPOSES IN FAVOR OF SDGE RECORDED 4/1/1969 AS INSTRUMENT NO. 1969-56087, OF OFFICIAL RECORDS.

(27) EASEMENT AND PARKING AREA AGREEMENT RECORDED 7/11/1971, AS INSTRUMENT NO. 1971-122650, OFFICIAL RECORDS

(28) EASEMENT FOR DRAINAGE PURPOSES IN FAVOR OF THE SAN DIEGO COUNTY FLOOD CONTROL DISTRICT RECORDED 9/19/1985, AS INSTRUMENT NO. 1985-346720, OFFICIAL RECORDS

(29) EASEMENT FOR UTILITIES AND INCIDENTAL PURPOSES IN FAVOR OF SDGE RECORDED 8/14/1992 AS INSTRUMENT NO. 1992-514072, OF OFFICIAL RECORDS. THE LOCATION OF SAID EASEMENT IS NOT SPECIFICALLY STATED IN THE DOCUMENTS BUT INCLUDES 3' ON EVERY SIDE OF THE EXISTING FACILITIES. THE APPROXIMATE LOCATION OF THE REFERENCED TRANSFORMER IS SHOWN HEREON.

(30) DEDICATION PER RECORD OF SURVEY MAP NO. 23996 RECORDED IN BOOK 487, PAGE 9 DECEMBER 17, 1910 OF OFFICIAL RECORDS

(Y) A 2'-WIDE PORTION OF BENEDICT AVENUE, NOW VACATED AND CLOSED TO PUBLIC USE, DOES NOT APPEAR TO BE COVERED BY AN EASEMENT FOR CHANNEL ROAD.

ABBREVIATIONS:

AC	ASPHALT CONCRETE	LSCAPE	LANDSCAPE
ARCH	ARCHITECTURAL	MH	MANHOLE
B	BOLLARD	N	NORTH
BFP	BACK FLOW PREVENTER	P	PAVEMENT
BLDG	BUILDING	PIV	POST INDICATOR VALVE
BW	BOTTOM OF WALL	PL	PROPERTY LINE
C.B.	CATCH BASIN	POC	POINT OF CONNECTION
CONC	CONCRETE	PP	POWER POLE
CRB	CURB	PROP	PROPOSED
E	EAST	PVT	PRIVATE
ELEC	ELECTRICAL UTILITIES	RIM	RIM ELEVATION
E-OH	ELECTRICAL OVERHEAD	R/W	RIGHT-OF-WAY
EX	EXISTING	S	SOUTH
FDC	FIRE DEPARTMENT CONNECTION	SD	STORM DRAIN UTILITIES
FF	FINISH FLOOR	SDMH	STORM DRAIN MANHOLE
FG	FINISH GRADE	SMH	SEWER MANHOLE
FH	FIRE HYDRANT	SWR	SEWER
FL	FLOW LINE	SWK	SIDEWALK
FS	FIRE SERVICE	TC	TOP OF CURB
G	GAS FACILITIES	TW	TOP OF WALL
GTR	GUTTER	W	WEST
IE	INVERT ELEVATION	WM	WATER METER BOX
IRR	IRRIGATION	WTR	WATER
LP	LIGHT POLE	WV	WATER VALVE

TITLE INFORMATION:

TITLE INFORMATION FOR THIS SURVEY BASED ON A PRELIMINARY REPORT PREPARED BY CALIFORNIA TITLE COMPANY AS ORDER NO. 400-2307842-37, DATED: JANUARY 24, 2022.

VERTICAL BENCHMARK:

DESCRIPTION: SAN DIEGO COUNTY REAL TIME NETWORK (SDCRTN) CONTINUOUSLY OPERATING REFERENCE STATION (CORS) "P473", (NSRS2007) 2011.00 EPOCH.

ELEVATION: 732.17' (NAVD88)

LEGAL DESCRIPTION:

PARCEL 1:

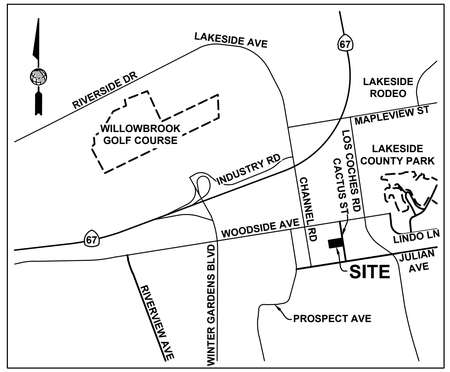
THAT PORTION OF LOT 150 AND THAT PORTION OF THE EAST HALF OF BENEDICT AVENUE, NOW VACANT AND CLOSED TO PUBLLC USE, IN EL CAJON VALLEY COMPANY'S LAND, IN THE COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 289, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, DECEMBER 30, 1886, DESCRIBED AS FOLLOWS: BEGINNING AT THE SOUTHEASTERLY CORNER OF SAID LOT 150; THENCE ALONG THE SOUTHERLY LINE 11-THEREOF SOUTH 81°07'00" WEST, 250.00 FEET; THENCE PARALLEL WITH THE EASTERLY LINE OF SAID LOT, NORTH 09°06'15" WEST, 125.00 FEET; THENCE SOUTH 81°07'00" WEST 240.00 FEET; THENCE SOUTH 09°06'15" EAST, 125.00 FEET TO SAID SOUTHERLY LOT-LINE; THENCE ALONG SAID SOUTHERLY LINE AND THE WESTERLY PROLONGATION THEREOF, SOUTH 81°07'00" WEST, 242.95 FEET TO THE CENTER LINE OF SAID BENEDICT AVENUE; THENCE ALONG SAID CENTER LINE NORTH 80°57'50" WEST 756.60 FEET TO THE WESTERLY PROLONGATION OF THE NORTHERLY LINE OF SAID LOT 150; THENCE ALONG SAID WESTERLY PROLONGATION AND SAID NORTHERLY LINE NORTH 81° 07' 00" EAST, 731.10 FEET TO THE NORTHEASTERLY CORNER OF SAID LOT; THENCE ALONG THE EASTERLY LINE OF SAID LOT, SOUTH 09° 06'15" EAST, 756.69 FEET TO THE POINT OF BEGINNING. EXCEPTING THEREFROM THAT PORTION OF SAID LAND DESCRIBED AS FOLLOWS:
BEGINNING AT THE INTERSECTION OF THE EASTERLY LINE OF 01ANNEL ROAD, DESCRIBED IN DEED TO THE COUNTY OF SAN DIEGO, RECORDED SEPTEMBER 30, 1966 AS INSTRUMENT NO, 158808, OF OFFICIAL RECORDS, WITH A LINE WHICH IS PARALLEL AND 140 FEET SOUTHERLY AT RIGHT ANGLES FROM THE NORTHERLY LINE OF LOT 150; THENCE EASTERLY ALONG SAID PARALLEL LINE 165.00 FEET; THENCE NORTHERLY AT RIGHT ANGLES TO SAID PARALLEL LINE, 177.00 FEET; THENCE WESTERLY PARALLEL TO SAID PARALLEL LINE 158.18 FEET TO THE BEGINNING OF A TANGENT CURVE, CONCAVE TO SOUTHEAST WHOSE RADIUS IS 20.00 FEET; THENCE ALONG THE ARC OF SAID CURVE 34.47 FEET TO A POINT OF TANGENCY (WITH THE EASTERLY LINE OF CHANNEL ROAD; THENCE SOUTHERLY ALONG THE EASTERLY LINE OF CHANNEL ROAD; THENCE SOUTHERLY ALONG THE EASTERLY LINE OF CHANNEL ROAD 44.53 FEET TO THE BEGINNING OF A TANGENT CURVE, CONCAVE TO THE WEST, WHOSE RADIUS IS 842.00 FEET; THENCE ALONG THE ARC OF SAID CURVE 50.32 FEET TO THE POINT OF BEGINNING.
ALSO EXCEPTING THEREFROM THE EASTERLY 180.00 FEET TO THE NORTHERLY 195.00 FEET OF SAID LOT 150. AND ALSO EXCEPTING THEREFROM THAT PORTION LYING SOUTHERLY OF A LINE DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF SAID LOT 150; THENCE ALONG EASTERLY LINE OF SOUTH 08°37'22" EAST, 430.00 FEET TO THE SOUTHERLY LINE OF THE NORTHERLY 430.00 FEET OF SAID LOT AND BEING THE TRUE POINT OF BEGINNING; THENCE ALONG SAID SOUTHERLY LINE, AND THE WESTERLY PROLONGATION OF SAID SOUTHERLY LINE, SOUTH 81°31'38" WEST; 731.10 FEET TO TIE CENTER LINE OF SAID BENEDICT AVENUE,

PARCEL 2:

NON-EXCLUSIVE EASEMENTS FOR INGRESS, EGRESS AND PARKING AS PROVIDED IN THAT CERTAIN GRANTS OF EASEMENTS AND PARKING AGREEMENT RECORDED JUNE 11, 1971 AS INSTRUMENT NO, 122650 OF OFFICIAL RECORDS.

GRADING QUANTITIES:

GRADED AREA	1.11 [ACRES]
MAX FILL	4.28 [FT]
MAX CUT	10.45 [FT]
FILL QUANTITIES	486 [CY]
CUT QUANTITIES	8,131 [CY]
UNDERCUT QUANTITIES	826 [CY]
EXPORT CONDITION	8,471 [CY]



VICINITY MAP:

NO SCALE

OWNER:

21ST CENTURY LAKESIDE HOLDINGS, LLC.

SITE ADDRESS:

12407-13 WOODSIDE AVE
LAKESIDE, CA 92040

ASSESSOR'S PARCEL NUMBER:

394-122-09, 394-122-10, 394-122-11, 394-122-13, 394-122-16

SOURCE OF TOPOGRAPHY:

TOPOGRAPHY SHOWN HEREON IS BASED ON AERIAL PHOTOGRAMMETRIC MAPPING CONDUCTED BY PRECISION UAV. AS PHOTOGRAPHED ON NOVEMBER 22, 2022. HORIZONTAL AND VERTICAL GROUND CONTROL WERE ESTABLISHED BY OMEGA LAND SURVEYING, INC. ON NOVEMBER 18, 2022 WITH SUPPLEMENTAL DATA COLLECTED ON NOVEMBER 30, 2022.

BASIS OF BEARINGS:

THE BASIS OF BEARINGS FOR THIS SURVEY IS THE CENTERLINE OF WOODSIDE AVE AS SHOWN ON ROS 23996, SAID BEARING BEING "N 81°08'42" E"

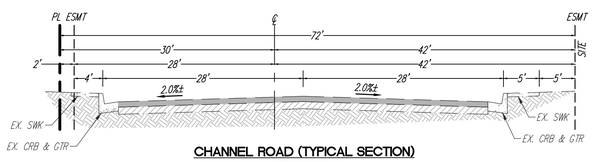
SHEET INDEX:

EXISTING LEGEND:

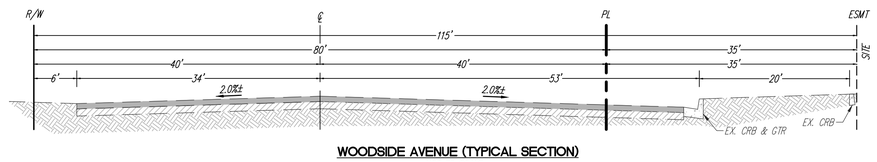
ITEM	SYMBOL
CENTERLINE	
RIGHT-OF-WAY	
EX. PROPERTY LINE	
EX CONTOUR	275
EX. SPOT ELEVATION	965.8'
EX ELECTRICAL OR COMMUNICATIONS MANHOLE	E E
EX SANITARY SEWER & MANHOLE	S S
EX WATER	W W
EX FIRE HYDRANT ASSEMBLY	
EX CURB & GUTTER	
EX TREE	
EX. POWER POLE	
EX. AC BERM	

PROPOSED LEGEND:

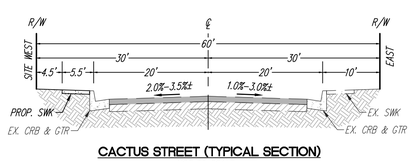
ITEM	SYMBOL
PROPOSED CONTOUR	38
PROPOSED PROPERTY LINE	
PROPOSED FINISH FLOOR ELEVATION	FF=52.00
PROPOSED TOP OF CURB ELEVATION	374.00TC
PROPOSED PAVEMENT ELEVATION	374.00P
PROPOSED FLOWLINE ELEVATION	374.00FL
PROPOSED FINISHED GRADE ELEVATION	374.00FG
PROPOSED GRADIANT	1.75%
PROPOSED CURB (PVT)	
PROPOSED CURB & GUTTER (PVT)	
PROPOSED ROLLED CURB & GUTTER (PVT)	
PROPOSED PCC SIDEWALK (PUB)	
PROPOSED AC PAVEMENT (PVT)	
PROPOSED GRIND & OVERLAY (PVT)	
PROPOSED DRIVEWAY (PUBLIC)	
PROPOSED STORM DRAIN (PVT)	SIZE & TYPE PER PLAN SD
PROPOSED WATER LATERAL (PVT)	SIZE & TYPE PER PLAN W
PROPOSED BFP (PVT)	
PROPOSED BFP W/ FDC (PVT)	
PROPOSED DOMESTIC WATER POINT OF CONNECTION	W
PROPOSED FIRE POINT OF CONNECTION	FS
PROPOSED IRRIGATION POINT OF CONNECTION	IR
PROPOSED SEWER POINT OF CONNECTION	S
PROPOSED SEWER LATERAL (PVT)	SIZE & TYPE PER PLAN
PROPOSED SEWER CLEANOUT (PVT)	
PROPOSED BUILDING FOOTPRINT	
PROPOSED STORM DRAIN STRUCTURE (PVT)	
PROPOSED 4' WIDE RIBBON GUTTER (PVT)	
PROPOSED ALLEY APRON (PUB)	
PROPOSED CMU WALL (PVT)	
PROPOSED BIORETENTION BASIN (PVT)	



CHANNEL ROAD (TYPICAL SECTION)
NOT TO SCALE



WOODSIDE AVENUE (TYPICAL SECTION)
NOT TO SCALE



CACTUS STREET (TYPICAL SECTION)
NOT TO SCALE

OMEGA
ENGINEERING CONSULTANTS
4320 VIEWRIDGE AVE. SUITE C
SAN DIEGO, CA 92123
PH:(858) 634-8620 FAX:(858)-634-8627

12/21/23
DATE

SEAN M. SAVAGE R.C.E. 75677

SEAN M. SAVAGE No. 75677 CIVIL PROFESSIONAL ENGINEER REGISTERED STATE OF CALIFORNIA

FILENAME: P:\DWG OMEGA\0889 LAKESIDE SELF-STORAGE\ACAD\DISCRETIONARY\0889-CDP-01-TITLE.DWG
BY: NICK SPACIOSA
DATE: 12/21/2023 1:36:04 PM

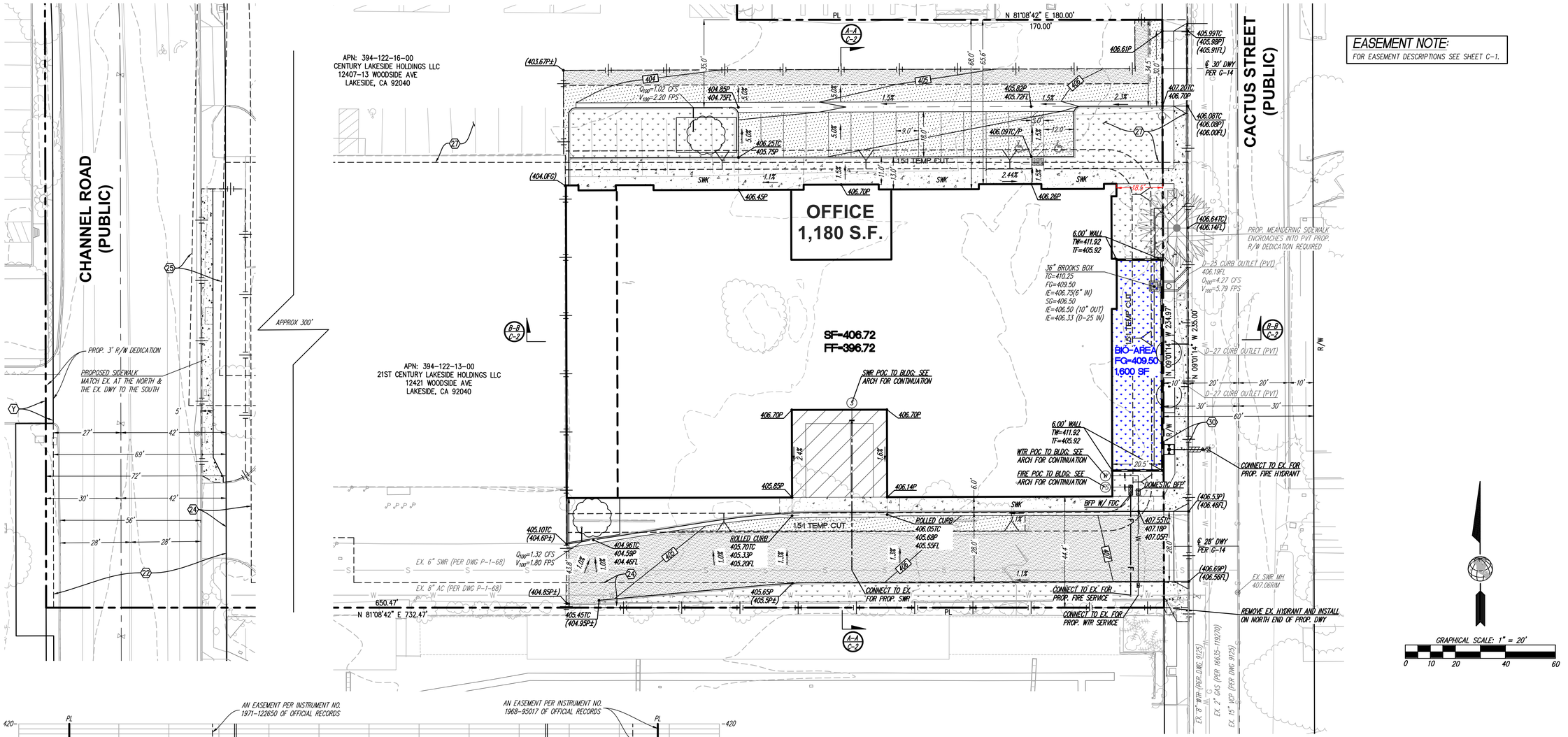
21ST CENTURY LAKESIDE HOLDINGS, LLC
WOODSIDE SELF STORAGE
SAN DIEGO COUNTY, CA

C-1
TITLE SHEET

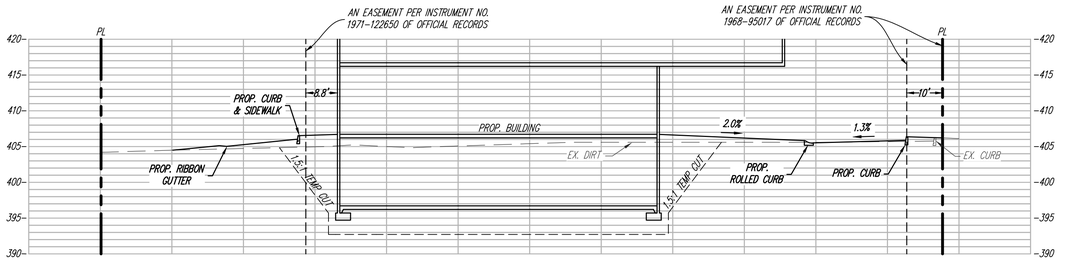
JOB NUMBER: 21-528

DATE: 12/21/2023

JORDAN
ARCHITECTS
131 CALLE IGLESIA, SUITE 100
SAN CLEMENTE, CA 92672
949.388.8090



EASEMENT NOTE:
FOR EASEMENT DESCRIPTIONS SEE SHEET C-1.



SECTION A-A
HORIZONTAL SCALE 1"=20'
VERTICAL SCALE 1"=10'

SECTION B-B
HORIZONTAL SCALE 1"=20'
VERTICAL SCALE 1"=10'

OMEGA
ENGINEERING CONSULTANTS
4320 VIEWRIDGE AVE, SUITE C
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DATE 12/21/23

SEAN M. SAVAGE R.C.E. 75677

PROFESSIONAL ENGINEER * SEAN M. SAVAGE * No. 75677 * REGISTERED * CIVIL * STATE OF CALIFORNIA

FILENAME: P:\DWG OMEGA\0689 LAKESIDE SELF-STORAGE\ACAD\DISCRETIONARY\0689-CGP-02-CGP.DWG
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21ST CENTURY LAKESIDE HOLDINGS, LLC
WOODSIDE SELF STORAGE
SAN DIEGO COUNTY, CA

CONCEPTUAL GRADING

C-2

JORDAN
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JOB NUMBER: 21-528

DATE: 12/21/2023

Proposed Rational Calculation Summary

Basin	Area (ac)	Impervious %	C	CA	Tc (mins)	I_{100} (in/hr)	Q_{100} (cfs)	DP-#
P-1.1	4.45	93%	0.86	3.82	7.05	5.91	22.57	DP-1
P-1.2	0.68	91%	0.85	0.58	5.00	7.38	4.27	
O-1	0.29	86%	0.82	0.24	8.13	5.39	1.29	
O-2	0.18	78%	0.78	0.14	7.41	5.73	5.49	
O-3	1.11	80%	0.79	0.87	13.33	3.92	7.19	
P-2.1	0.86	87%	0.83	0.71	7.43	5.71	4.07	DP-2

Below is a summary of the proposed confluence flow calculations.

Proposed Flow Junction Calculation Summary

Confluence Pt.	Tributary Flows	Tc (mins)	I_{100} (in/hr)	Q_{100} (cfs)	Confluence Flow (cfs)
CP-1	P-1.2	5.00	7.38	4.27	5.07
	O-1	8.13	5.39	1.29	
DP-1	O-3	13.33	3.92	7.19	26.37
	P-1.1	7.05	5.91	22.57	

The peak flowrate for DP-1 and DP-2 are 26.37 cfs and 4.07 cfs, respectively.

Results & Conclusions

The proposed improvements result in a decrease of generated runoff during the peak of the 100-year, 6-hr storm. Below is a summary of the existing and proposed peak flowrates and velocities.

	DP-#	Area (ac)	Q_{100} (cfs)
Existing Conditions	DP-1	6.68	27.11
	DP-2	0.89	4.08
Proposed Conditions	DP-1	6.71	26.37
	DP-2	0.86	4.07

	Discharge Location	V_{100} (fps)	Q_{100} (cfs)
Existing Conditions	Cactus Street	1.76	1.71
	Woodside Avenue*	2.22	4.28
	DP-1	11.55**	27.11
	DP-2	1.79	4.08
Proposed Conditions	Cactus Street	2.27	5.49
	Woodside Avenue*	2.49	7.19
	DP-1	11.41**	26.37
	DP-2	1.78	4.07

The existing curb inlet on Woodside Ave that accepts flow from Woodside Ave. and Cactus St has an opening width of 9.5 ft. and the existing flow captured by the curb inlet is 4.28 CFS; the proposed flow to the existing curb inlet is 7.19 CFS. The max capacity of the curb inlet (sag) is 10.08 CFS.

* The Q100 tributary to Woodside Avenue includes the flow from Cactus Street and (in the proposed conditions) the flow generated from Basin P-2.1.

** As reference drawings for the storm drain system within Woodside Ave. and Cactus St. are unavailable or do not exist, several assumptions have been made. Based on site walks, it appears that stormwater from Basins E-1.1 and P-1.1 will enter the public MS4 system first via a private inlet in the parking lot of the existing development. This flow will then confluence with stormwater generated by Woodside Ave and Cactus St. This confluence point is assumed to take place within the public MS4 below Woodside Ave.

The project will modify the onsite drainage patterns, but the discharge points will remain the same. The project is not anticipated to contribute runoff that will exceed the capacity of the existing or planned storm drain system conveyances. The street gutter capacity analysis on the "Proposed Conditions" section demonstrates that the diversion of flow to Cactus Street and Woodside Avenue will not over-capacitate the gutter, curb inlet, and the existing storm drain system (See Appendix 12).

The proposed project will not alter the existing drainage pattern substantially, through the alteration of the course of a stream or river, or in a manner that would result in substantial erosion or siltation on- or off-site.

The proposed project will not place any structures in the 100-year flood hazard areas or flood plain as mapped on the FEMA National Flood Hazard Layer FIRMette (See Appendix 14). The proposed project will not place any structures within a 100-year flood hazard area which will impede or redirect flood flows.

The project site is located 1.8 miles downstream of Chet Harritt Dam. Per Sunny Day Failure Analysis Flood Inundation Map, Sheet 2, the project is within an identified Inundation Area (See Appendix 15). The failure of the dam would expose the people and structures on-site to significant loss, injury or death involving flooding.

It is the opinion of Omega Engineering Consultants that the project will not cause adverse effects to the downstream facilities or receiving waters. A separate Storm Water Quality Management Plan has been prepared to discuss the water quality impacts for the proposed development.

6.0 General Requirements

- Use this attachment to document all proposed (1) self-mitigating, (2) de minimis, and (3) self-retaining DMAs. Indicate under "DMA Compliance Option" below which design options will be used to satisfy structural performance requirements for one or more DMA.

DMA Compliance Option	Required Sub-attachments or Printouts	BMPDM Design Resources
☒ **Self-mitigating**	• Sub-attachment 6.1	• BMPDM Section 5.2.1
☐ **De minimis**	• Sub-attachment 6.2	• BMPDM Section 5.2.2
☒ **Self-retaining**[1]	• Sub-attachment 6.3	• BMPDM Section 5.2.3 (all options)
SSD-BMP Type(s)		
☒ **Impervious Area Dispersion**	• DCV calculations from SSD-BMP tool • Dispersion Areas calculations from SSD-BMP tool	• Fact Sheet SD-B (Appendix E.8) • Appendix I
☒ **Tree Wells**	• DCV calculations from SSD-BMP tool • Tree Well calculations from SSD-BMP tool	• Fact Sheet SD-A (Appendix E.7) • Appendix I

- Submit this cover page and all "Required Sub-attachments or Printouts" listed for each selected DMA compliance option.
- See the BMPDM sections and appendices listed under "BMPDM Design Resources" for additional explanation of design requirements. Each constructed feature must fully satisfy the requirements described in these resources, and any other guidance identified by the County.
- DMA Exhibits and Construction Plans: DMAs, features, and BMPs identified and described in this attachment must be shown on DMA Exhibits and all applicable construction plans submitted for the project. See Attachment 2 for additional instruction on exhibits and plans.

[1] If "Self-retaining" is selected, also choose the types of Significant Site Design BMPs (SSD-BMPs) to be used. SSD-BMPs are Site Design BMPs that are sized and constructed to fully satisfy all applicable Structural Performance Standards for a DMA.

6.1 Self-mitigating DMAs (complete this page once for ALL self-mitigating DMAs)

Self-mitigating DMAs consist of natural or landscaped areas that drain directly offsite or to the public storm drain system. These DMAs are excluded from DCV calculations.

- Provide the information requested below for each proposed self-mitigating DMA. Add rows or copy the table if additional entries are needed.

DMA #	*a. DMA Area (ft^2)*	*Incidental Impervious Area*		*Permit # and Sheet #*
		b. Size(ft^2)	*c. % (b/a*100)*	
DMA-4	555	0	0	PDS2022-MUP-22-006, Sheet C-3
DMA-5	205	0	0	PDS2022-MUP-22-006, Sheet C-3

- "DMA #", "DMA Area", and "Permit # and Sheet #" are required for all DMAs listed.
- "Incidental Impervious Area" calculations are required only where applicable (see below).
- Each self-mitigating DMA must <u>fully</u> satisfy all design requirements and restrictions described in BMPDM Section 5.2.1 and any other guidance or instruction identified by the County. Check the boxes below to confirm that all required conditions are satisfied <u>for every DMA listed</u>.

☒ Each DMA is hydraulically separate from other DMAs that contain permanent storm water pollutant control BMPs.

<u>Natural and Landscaped Areas</u>

☒ Each DMA consists solely of natural or landscaped areas, except for incidental impervious areas (see below).

☒ Each area drains directly offsite or to the public storm drain system.

☒ Soils are undisturbed native topsoil, or disturbed soils that have been amended and aerated to promote water retention characteristics equivalent to undisturbed native topsoil.

☒ Vegetation is native and/or non-native/non-invasive drought tolerant species that do not require regular application of fertilizers and pesticides.

<u>Incidental Impervious Areas (if applicable; see above)</u>

Minor impervious areas may be permitted within the DMA if they satisfy the following criteria:

☐ They are not hydraulically connected to other impervious areas (unless it is a storm water conveyance system such as a brow ditch).

☐ They comprise less than 5% of the total DMA. Calculate the % incidental impervious area in the table above (c= b/a). DMAs are <u>not</u> self-mitigating if this area is 5% or greater.

6.2 De Minimis DMAs (complete this page once for ALL de minimis DMAs)

De minimis DMAs consist of areas too small to be considered significant contributors of pollutants and not practicable to drain to a BMP. They are excluded from DCV calculations. Examples include driveway aprons connecting to existing streets, portions of sidewalks, retaining walls, and similar features at the external boundaries of a project.

- Provide the information requested below for each proposed de minimis DMA. Add rows or copy the table if additional entries are needed.

DMA #	***DMA Area (ft^2)***	***Permit # and Sheet #***
N/A	N/A	N/A

- "DMA #", "DMA Area", and "Permit # and Sheet #" are required.
- Check the boxes below to confirm that each required condition is satisfied for ALL de minimis DMAs on the site.

  ☐ Each DMA listed is less than 250 square feet and not adjacent or hydraulically connected to each other.

  ☐ Each DMA listed <u>fully</u> satisfies all design requirements and restrictions described in BMPDM Section 5.2.2 De Minimis DMAs.

6.3 Self-retaining DMAs using Significant Site Design BMPs

Self-retaining DMAs use Site Design BMPs to fully-retain the entire DCV, at a minimum. Site Design BMPs that fully retain the DCV, at a minimum, therefore replacing the need for a Structural BMP (S-BMP), are classified as Significant Site Design BMPs (SSD-BMPs). To satisfy pollutant control requirements only, self-retaining means retention of the entire DCV. However, under some circumstances, a self-retaining DMA can also satisfy hydromodification management requirements by implementing BMPs that retain a greater volume of runoff.

- Provide the information requested below for each proposed self-retaining DMA. Add rows or copy the table if additional entries are needed.

DMA #	**DMA Area (ft^2)**	**BMP Type** (choose one per DMA)		***Permit # and Sheet #***
		Dispersion Area (Att. 6.3.1)	**Tree Wells (Att. 6.3.2)**	
DMA-1	8,177	☐	☒	PDS2022-MUP-22-006, Sheet C-3,4
DMA-3	10,555	☐	☒	PDS2022-MUP-22-006, Sheet C-3,4
DMA-6	2,419	☐	☒	PDS2022-MUP-22-006, Sheet C-3,4
DMA-7	1,689	☒	☐	PDS2022-MUP-22-006, Sheet C-3,4
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	

Copy and Paste table here for additional DMAs

- "DMA #", "DMA Area", and "Permit # and Sheet #" are required.
- Select one BMP Type per DMA. Provide detailed documentation for each DMA in Attachments 6.3.1 (Impervious Dispersion Areas) and/or 6.3.2 (Tree Wells) below.
- Each self-retaining DMA must <u>fully</u> satisfy all design requirements and restrictions described in BMPDM Section 5.2.3, applicable BMPDM Appendix E Fact Sheets, BMPDM Appendix I, and any other guidance or instruction identified by the County.

6.3.1 Self-retaining DMAs with Impervious Dispersion Areas

Impervious area dispersion (dispersion) refers to the practice of effectively disconnecting impervious areas from directly draining to the storm drain system by routing runoff from impervious areas such as rooftops (through downspout disconnection), walkways, and driveways onto the surface of adjacent pervious areas. The intent is to slow runoff discharges and reduce volumes. Dispersion with partial or full infiltration results in significant volume reduction by means of infiltration and evapotranspiration. When adequately sized, dispersion can also be used to satisfy both the pollutant control and hydromodification management structural performance standards for a DMA.

- Each self-retaining DMA with impervious area dispersion must fully satisfy all design requirements and restrictions described in BMPDM Section 5.2.3, Fact Sheet SD-B: Impervious Area Dispersion, and any other guidance or instruction identified by the County.
- Documentation of compliance with all applicable conditions must be submitted with this sub-attachment using the ***Summary Sheet for DMAs with Impervious Area Dispersion*** on the next page. One version of this Summary Sheet must be completed for each applicable DMA.
- Applicants are responsible to comply with all other applicable requirements, regardless of whether they are included in the summary sheet.
- The following applies if the dispersion area is **native soil** (SD-B in Appendix E):
    - For pollutant control only, the DMA is considered self-retaining if the impervious to pervious ratio is:
        - 2:1 when the pervious area is composed of Hydrologic Soil Group A
        - 1:1 when the pervious area is composed of Hydrologic Soil Group B
- The following applies if the dispersion area includes **amended soil** (SD-B in Appendix E):
    - DMAs using impervious area dispersion can be considered to meet both pollutant control and hydromodification flow control requirements if the impervious to pervious area ratio is 1:1 or less and all other design requirements of SD-B are satisfied, including 11 inches of amended soil.

Summary Sheet for Self-retaining DMAs with Impervious Area Dispersion

Attach Printouts from SSD-BMP tool below

- DCV calculations from SSD-BMP tool
- Dispersion Areas calculations from SSD-BMP tool

6.3.2 Self-retaining DMAs with Tree Wells

Trees wells can provide a variety of benefits such as interception and increased infiltration of rainfall, reduced erosion, energy conservation, air quality improvement, and aesthetic enhancement. They can also be used to satisfy both pollutant control and hydromodification management performance standards for a DMA.

- Each self-retaining DMA with tree wells must fully satisfy all design requirements and restrictions described in BMPDM Section 5.2.3, Fact Sheet SD-A: Tree Wells, and any other guidance or instruction identified by the County.
- For pollutant control only, the DMA must retain the entire DCV. For hydromodification management, an additional volume must be retained in accordance with the sizing requirements presented in the DCV multiplier table in Fact Sheet SD-A.
- Documentation of compliance with applicable conditions must be submitted using the ***Summary Sheet for Self-retaining DMAs with Tree Wells*** on the next page. One version of this Summary Sheet must be completed for each applicable DMA.
- If both pollutant control and hydromodification standards apply, the soil depth of all tree wells in the DMA must be selected before determining the Required Retention Volume (RRV). Each tree well must be constructed to the selected depth. For pollutant control only, tree wells within a DMA may be constructed to different soil depths.
- In most cases tree wells must use Amended Soil per Fact Sheet SD-F. However, Structural Soil is required in some cases (e.g., placing the tree well next to a curb). See ***Structural Requirements for Confined Tree Well Soil Volume*** in Fact Sheet SD-A for additional explanation. If applicable, list the DMAs and Tree Well #s below for all tree wells requiring Structural Soil.

DMA #	**Tree Wells Requiring Structural Soil (list Tree Well #s)**
N/A	N/A

- The Design Capture Volume (DCV) must be known for each DMA in order to determine the volume to be mitigated by the tree wells. Instructions for DCV calculation are provided in BMPDM Appendix I.1. An automated version of Worksheet I.1 (Calculation of Design Capture Volume) is available at www.sandiegocounty.gov/stormwater under the Development Resources tab.

Summary Sheet for Self-retaining DMAs with Tree Wells

Attach Printouts from SSD-BMP tool below

- DCV calculations from SSD-BMP tool
- Tree Wells calculations from SSD-BMP tool

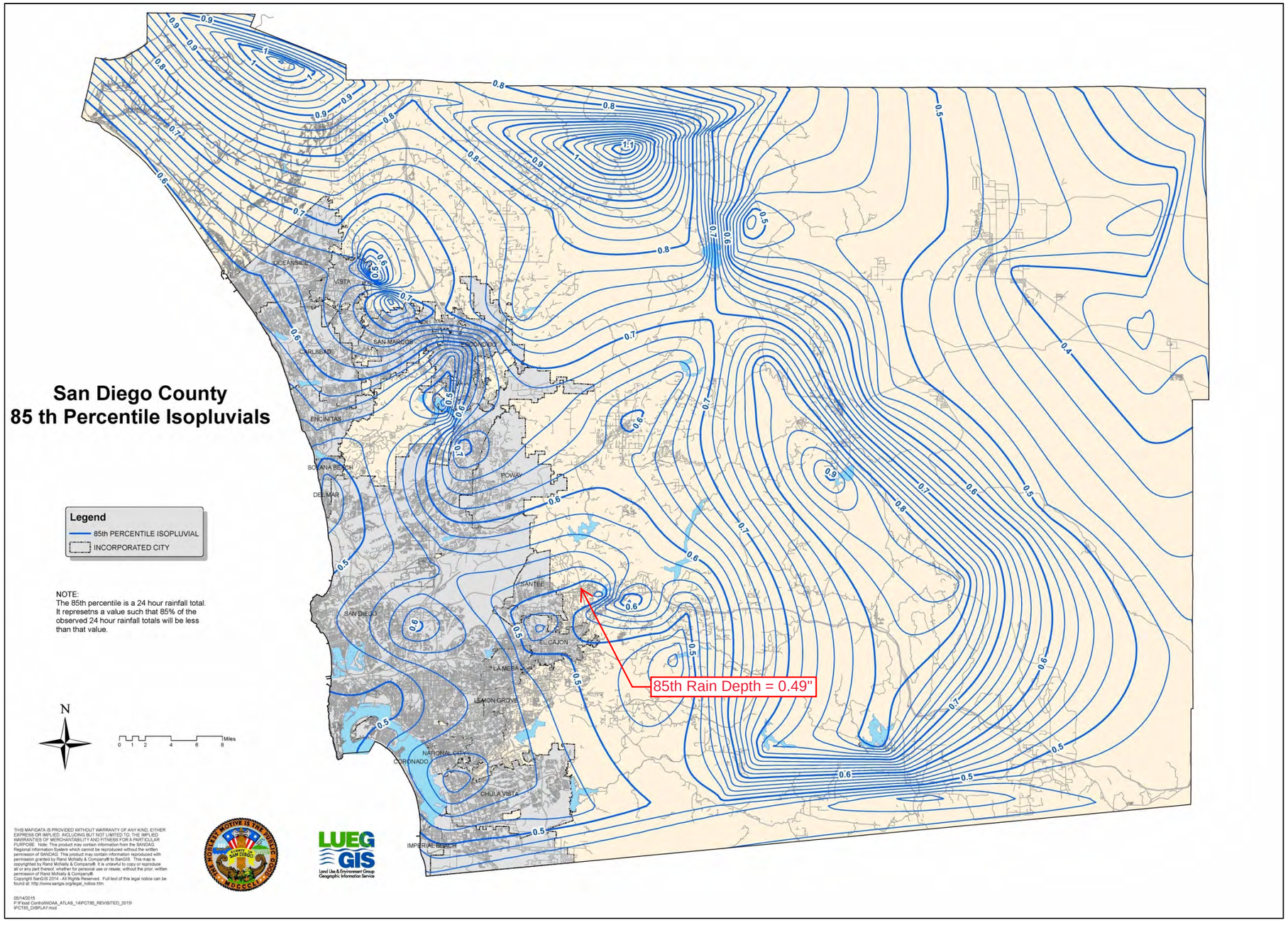

Figure B.1-1: 85th Percentile 24-hour Isopluvial Map

SSD-BMP Automated Worksheet I-1: Step 1. Calculation of Design Capture Volume (V1.0)

Category	#	Description	*i*	*ii*	*iii*	*iv*	*v*	*vi*	*vii*	*viii*	*ix*	*x*	Units
Standard Drainage Basin Inputs	1	Drainage Basin ID or Name	DMA-1	DMA-3	DMA-6	DMA-7	OFF-1						unitless
	2	85th Percentile 24-hr Storm Depth	0.49	0.49	0.49	0.49	0.49						inches
	3	Is Hydromodification Control Applicable?	No	No	No	No	No						yes/no
	4	Impervious Surfaces Not Directed to Dispersion Area (C=0.90)	5,699	7,481	1,626		1,705						sq-ft
	5	Semi-Pervious Surfaces Not Serving as Dispersion Area (C=0.30)											sq-ft
	6	Engineered Pervious Surfaces Not Serving as Dispersion Area (C=0.10)	2,478	3,074	793								sq-ft
	7	Natural Type A Soil Not Serving as Dispersion Area (C=0.10)											sq-ft
	8	Natural Type B Soil Not Serving as Dispersion Area (C=0.14)											sq-ft
	9	Natural Type C Soil Not Serving as Dispersion Area (C=0.23)											sq-ft
	10	Natural Type D Soil Not Serving as Dispersion Area (C=0.30)											sq-ft
SSD-BMPs Proposed	11	Does Tributary Incorporate Dispersion and/or Rain Barrels?				Yes							yes/no
	12	Does Tributary Incorporate Tree Wells?	Yes	Yes	Yes	No							yes/no
Dispersion Area & Rain Barrel Inputs (Optional)	13	Impervious Surfaces **Directed to Dispersion Area** per SD-B (Ci=0.90)				542							sq-ft
	14	Semi-Pervious Surfaces **Serving as Dispersion Area** per SD-B (Ci=0.30)											sq-ft
	15	Engineered Pervious Surfaces **Serving as Dispersion Area** per SD-B (Ci=0.10)				1,147							sq-ft
	16	Natural Type A Soil **Serving as Dispersion Area** per SD-B (Ci=0.10)											sq-ft
	17	Natural Type B Soil **Serving as Dispersion Area** per SD-B (Ci=0.14)											sq-ft
	18	Natural Type C Soil **Serving as Dispersion Area** per SD-B (Ci=0.23)											sq-ft
	19	Natural Type D Soil **Serving as Dispersion Area** per SD-B (Ci=0.30)											sq-ft
	20	Number of Rain Barrels Proposed per SD-E											#
	21	Average Rain Barrel Size											gal
Initial Runoff Factor Calculation	22	Total Tributary Area	8,177	10,555	2,419	1,689	1,705	0	0	0	0	0	sq-ft
	23	Initial Runoff Factor for Standard Drainage Areas	0.66	0.67	0.64	0.00	0.90	0.00	0.00	0.00	0.00	0.00	unitless
	24	Initial Runoff Factor for Dispersed & Dispersion Areas	0.00	0.00	0.00	0.36	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	25	Initial Weighted Runoff Factor	0.66	0.67	0.64	0.36	0.90	0.00	0.00	0.00	0.00	0.00	unitless
	26	Initial Design Capture Volume	220	289	63	25	63	0	0	0	0	0	cubic-feet
Dispersion Area Adjustment & Rain Barrel Adjustment	27	Total Impervious Area Dispersed to Pervious Surface	0	0	0	542	0	0	0	0	0	0	sq-ft
	28	Total Pervious Dispersion Area	0	0	0	1,147	0	0	0	0	0	0	sq-ft
	29	Ratio of Dispersed Impervious Area to Pervious Dispersion Area for DCV Reduction	n/a	n/a	n/a	0.50	n/a	n/a	n/a	n/a	n/a	n/a	ratio
	30	Adjustment Factor for Dispersed & Dispersion Areas	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	ratio
	31	Runoff Factor After Dispersion Techniques	0.66	0.67	0.64	0.00	0.90	n/a	n/a	n/a	n/a	n/a	unitless
	32	Design Capture Volume After Dispersion Techniques	220	289	63	0	63	0	0	0	0	0	cubic-feet
	33	Total Rain Barrel Volume Reduction	0	0	0	0	0	0	0	0	0	0	cubic-feet
Results	34	Final Adjusted Runoff Factor	0.66	0.67	0.64	0.00	0.90	0.00	0.00	0.00	0.00	0.00	unitless
	35	Final Effective Tributary Area	5,397	7,072	1,548	0	1,535	0	0	0	0	0	sq-ft
	36	Initial Design Capture Volume Retained by Dispersion Area and Rain Barrel(s)	0	0	0	25	0	0	0	0	0	0	cubic-feet
	37	Remaining Design Capture Volume Tributary to Tree Well(s)	220	289	63	0	63	0	0	0	0	0	cubic-feet

No Warning Messages

Basin Off-1 has an equivalent DCV to DMA-6. This Cactus St. offsite area is tributary to the BMP trees. Cactus St. will drain to the trees in DMA-6 via reverse curb outlets per D-27

SSD-BMP Automated Worksheet I-2: Step 2. Dispersion Area Validation (V1.0)													
Category	**#**	**Description**	*i*	*ii*	*iii*	*iv*	*v*	*vi*	*vii*	*viii*	*ix*	*x*	**Units**
Standard Dispersion Area Inputs	1	Drainage Basin ID or Name	-	-	-	DMA-7	-	-	-	-	-	-	unitless
	2	Final Design Capture Volume (DCV)	-	-	-	0	-	-	-	-	-	-	cubic-feet
	3	Is Hydromodification Control Applicable?	-	-	-	No	-	-	-	-	-	-	yes/no
	4	Total Impervious Area Dispersed to Pervious Surface	-	-	-	542	-	-	-	-	-	-	sq-ft
	5	Total Engineered Pervious Surface and/or Natural Soil Dispersion Area (Does Not Include Semi-Pervious Surfaces Serving as Dispersion Area)	-	-	-	1,147	-	-	-	-	-	-	sq-ft
	6	Ratio of Dispersed Impervious Area to Total Engineered Pervious Surface and/or Natural Soil Dispersion Area	-	-	-	0.47	-	-	-	-	-	-	unitless
	7	Dispersion Area Length (Length of Sheet Flow Across Dispersion Area)				107							feet
	8	Dispersion Area Slope				0.5							%
	9	Thickness of Amended Soil				0							inches
	10	How is Flow Dispersed Across Width of Dispersion Area (definitions below*)?				Sheet Flow							unitless
Results	11	Is DCV Requirement Fully Satisfied by Dispersion Area?	-	-	-	Yes	-	-	-	-	-	-	yes/no
	12	Is Hydromodification Control Requirement Satisfied by Dispersion Area?	-	-	-	n/a	-	-	-	-	-	-	yes/no
	13	Are Dispersion Area Length, Slope, and Thickness of Amended Soil (when applicable) Adequate?	-	-	-	Yes	-	-	-	-	-	-	yes/no

No Warning Messages

Notes:

***How is Flow Dispersed Across Width of Pervious Dispersion Area?**

Sheet Flow: Flow arrives as sheet flow across the width of the adjacent impervious area

Spreader(s): Flow is discharged from flow spreader(s) across the width of the pervious area

Roof Drains: Discharge from roof drains distributed across the width of the pervious area

Curb Cuts: Discharge from curb cuts distributed across the width of the pervious area

Other: Other (Describe in PDP SWQMP)

SSD-BMP Automated Worksheet I-3: Step 3. Tree Well Sizing (V1.0)													
Category	**#**	**Description**	*i*	*ii*	*iii*	*iv*	*v*	*vi*	*vii*	*viii*	*ix*	*x*	**Units**
Standard Tree Well Inputs	1	Drainage Basin ID or Name	DMA-1	DMA-3	DMA-6	-	OFF-1	-	-	-	-	-	unitless
	2	Design Capture Volume Tributary to BMP	220	289	63	-	63	-	-	-	-	-	cubic-feet
	3	Is Hydromodification Control Applicable?	No	No	No	-	No	-	-	-	-	-	yes/no
	4	Predominant NRCS Soil Type Within Tree Well(s) Location	D	D									unitless
	5	Select a Tree Species for the Tree Well(s) Consistent with SD-A Tree Palette Table Note: Numbers shown in list are Tree Species Mature Canopy Diameters	25' - Other	25' - Other	10' - Other								unitless
	6	Tree Well(s) Soil Depth (Installation Depth) Must be 30, 36, 42, or 48 Inches; Select from Standard Depths**	36	36	30								inches
	7	Number of Identical* Tree Wells Proposed for this DMA	1	1	2								trees
	8	Proposed Width of Tree Well(s) Soil Installation for One (1) Tree	14.0	14.0	4.5								feet
	9	Proposed Length of Tree Well(s) Soil Installation for One (1) Tree	24.0	24.0	14.0								feet
Tree Data	10	Botanical Name of Tree Species	Provide in PDP SWQMP	Provide in PDP SWQMP	Provide in PDP SWQMP	-	-	-	-	-	-	-	unitless
	11	Tree Species Mature Height per SD-A	Provide in PDP SWQMP	Provide in PDP SWQMP	Provide in PDP SWQMP	-	-	-	-	-	-	-	feet
	12	Tree Species Mature Canopy Diameter per SD-A	25	25	10	-	-	-	-	-	-	-	feet
	13	Minimum Soil Volume Required In Tree Well (2 Cubic Feet Per Square Foot of Mature Tree Canopy Projection Area)	982	982	157	-	-	-	-	-	-	-	cubic-feet
	14	Credit Volume Per Tree	290	290	40	-	-	-	-	-	-	-	cubic-feet
Tree Well Sizing Calculations	15	DCV Multiplier To Meet Flow Control Requirements	n/a	n/a	n/a	-	-	-	-	-	-	-	unitless
	16	Required Retention Volume (RRV) To Meet Flow Control Requirements	n/a	n/a	n/a	-	-	-	-	-	-	-	cubic-feet
	17	Number of Trees Required	1	1	2	-	-	-	-	-	-	-	trees
	18	Total Area of Tree Well Soil Required for Each Tree	327	327	63	-	-	-	-	-	-	-	sq-ft
	19	Approximate Required Width of Tree Well Soil Area for Each Tree	19	19	8	-	-	-	-	-	-	-	feet
	20	Approximate Required Length of Tree Well Soil Area for Each Tree	19	19	8	-	-	-	-	-	-	-	feet
	21	Number of Trees Proposed for this DMA	1	1	2	-	-	-	-	-	-	-	trees
	22	Total Area of Tree Well Soil Proposed for Each Tree	336	336	63	-	-	-	-	-	-	-	sq-ft
	23	Minimum Spacing Between Multiple Trees To Meet Soil Area Requirements (when applicable)***	n/a	n/a	14.0	-	-	-	-	-	-	-	feet
Results	24	Are Tree Well Soil Installation Requirements Met?	Yes	Yes	Yes	-	Incomplete	-	-	-	-	-	yes/no
	25	Is Remaining DCV Requirement Fully Satisfied by Tree Well(s)?	Yes	Yes	Yes	-	Incomplete	-	-	-	-	-	yes/no
	26	Is Hydromodification Control Requirement Satisfied by Tree Well(s)?	n/a	n/a	n/a	-	n/a	-	-	-	-	-	yes/no

Basin Off-1 has an equivalent DCV to DMA-6. This Cactus St. offsite area is tributary to the BMP trees. Cactus St. will drain to the trees in DMA-6 via reverse curb outlets per D-27

Notes:

*If using more than one mature canopy diameter within the same DMA, only the smallest mature canopy diameter should be entered. Alternatively, if more than one mature canopy diameter is proposed and/or the dimensions of multiple tree well installations will vary, separate DMAs may be delineated.

**If the actual proposed installation depth is not available in the table of standard depths, select the next lower depth.

***Tree Canopy or Agency Requirements May Also Influence the Minimum Spacing of Trees.

7.0 General Requirements

- Submit this cover page and all required Sub-attachments for all structural BMPs proposed for the project.
- See the BMPDM sections and appendices listed under "BMPDM Design Resources" in the table below for additional explanation of design requirements. Constructed features must fully satisfy the requirements described in these resources, and any other guidance identified by the County.
- PDPs subject to hydromodification management requirements must also implement structural BMPs for flow control for hydromodification management. Completion of SWQMP Attachment 8 is also required for these BMPs.
- DMA Exhibits and Construction Plans: DMAs, features, and BMPs identified and described in this attachment must be shown on DMA Exhibits and all applicable construction plans submitted for the project. See Attachment 2 for additional instruction on exhibits and plans.
- Structural BMP Certification. All structural BMPs documented this attachment and in Attachment 8 must be certified by a registered engineer in Sub-attachment 7.1.
- Structural BMP Verification. Structural BMP installation must be verified by the County at the completion of construction. Applicants must complete an Installation Verification Form (Attachment 10).

Sub-attachments (check all that are completed)	**Requirement**	**BMPDM Design Resources**
☒ **7.1: Preparer's Certification**	Required	• N/A
☒ **7.2: Structural BMP Strategy**	Required	• BMPDM Sections 5.1., 5.3, 5.4, and Chapter 6 • BMPDM Appendix E (pages E-78 through E-210)
☒ **7.3: Structural BMP Checklist(s)**	Required	
☒ **7.4: Stormwater Pollutant Control Worksheet Calculations**	Required	• BMPDM Appendix B
☒ **7.5: Identification and Narrative of Receiving Water and Pollutants of Concern**	Required if flow-thru BMPs are proposed	• N/A

7.1 Engineer of Work Certification for Structural BMPs

Project Name Woodside Self-Storage
Permit Application Number PDS2022-MUP-22-006

CERTIFICATION

I hereby declare that I am the Engineer in Responsible Charge of design of structural storm water best management practices (BMPs) for this project, and that I have exercised responsible charge over the design of the BMPs as defined in Section 6703 of the Business and Professions Code, and that the design is consistent with the PDP requirements of the County of San Diego BMP Design Manual, which is a design manual for compliance with local County of San Diego Watershed Protection Ordinance (Sections 67.801 et seq.) and regional MS4 Permit (California Regional Water Quality Control Board San Diego Region Order No. R9-2013-0001 as amended by R9-2015-0001 and R9-2015-0100) requirements for storm water management. I have read and understand that the County of San Diego has adopted minimum requirements for managing urban runoff, including storm water, from land development activities, as described in the BMP Design Manual.

I certify that this PDP SWQMP has been completed to the best of my ability and accurately reflects the project being proposed and the applicable BMPs proposed to minimize the potentially negative impacts of this project's land development activities on water quality. I understand and acknowledge that the plan check review of this PDP SWQMP by County staff is confined to a review and does not relieve me, as the Engineer in Responsible Charge of design of structural storm water BMPs for this project, of my responsibilities for their design.

☒ In addition to the structural pollutant control BMPs described in this attachment, this certification applies to the Structural Hydromodification Management BMPs described in Attachment 8 (check if applicable).

Engineer of Work's Signature, PE Number & Expiration Date

Patric de Boer

Print Name

Omega Engineering Consultants

Company

8/7/2023

Date

Engineer's Seal:

7.2 Structural BMP Strategy

7.2.1 Narrative Strategy (Continue description on subsequent pages as necessary)

Describe the general strategy for structural BMP implementation at the project site. For pollutant control BMPs, your description must address the key points outlined in Section 5.1 of the BMP Design Manual, and the type of BMPs selected. For projects requiring hydromodification flow control BMPs, indicate whether pollutant control and flow control BMPs are integrated or separate.

The first consideration was the feasibility of Harvest and Reuse. Harvest and Use is considered infeasible due to the demand being significantly less than the DCV under the assumptions of 2 employees and pervious area within the DMAs to be low water use landscaping.

The second consideration is the feasibility of infiltration. The mapped soil type is hydrologic group D and is anticipated to be unsuitable for infiltration. As a result, full or partial infiltration has been deemed infeasible in the site. Additionally, the Geotechnical Report for the subject development has identified the potential for liquefaction, strongly recommending no infiltration. We chose to use a fully lined biofiltration basin to treat the entire building roof. The biofiltration basin (BMP-1) has a soil filtration layer that will serve the purpose of pollutant control requirements. Two 25-foot mature canopy diameter tree wells will be utilized to treat a portion of the site. In addition, Two 10' mature diameter street trees will be added along the landscape area adjacent to the proposed sidewalk. The proposed street trees will implement modified Green Street features for the proposed improvements. Due to the limitations to collect runoff with Cactus Street sloping from south to north, the proposed tree wells will collect and treat stormwater from Cactus Street. A D-27 curb-outlet will be installed at the curb face, draining back to the trees. Stormwater will pond 2" within the tree well and then drain back to the curb and gutter upon ponding more than 2" during higher flow storm events. The easterly proposed sidewalk along Channel Rd is being treated by the Dispersion Area immediately adjacent to the sidewalk. The sidewalk will lean into the dispersion area.

The site is hydromodification exempt as it drains to an exempt portion of the San Diego River that is concrete lined. Please see attached "Receiving Waters and Conveyance Systems Exempt from Hydromodification Management Requirements" sheet for more details.

7.2.2 Structural BMP Summary Table (Complete for all proposed structural BMPs)

- List and provide the information requested below for all pollutant control and hydromodification management BMPs proposed for the project.
- For each BMP listed, complete the Structural BMP Checklist on the next page. Copy the Checklist as many times as needed.

BMP ID #	DMA #	DMA Area (ft²)	Structural BMP Type							Permit # and Sheet #
			Harvest and Use	Infiltration	Unlined Biofiltration	Lined Biofiltration	Flow-thru treatment	Hydromodification Management [1]	Other	
1	2	28,787	☐	☐	☐	☒	☐	☐	☐	PDS2022-MUP-22-006, Sheet C-3,4
			☐	☐	☐	☐	☐	☐	☐	
			☐	☐	☐	☐	☐	☐	☐	
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			☐	☐	☐	☐	☐	☐	☐	
			☐	☐	☐	☐	☐	☐	☐	

Copy and Paste table here for additional BMPs

[1] Hydromodification Management BMPs must be accompanied by BMPs that provide pollutant control.

7.3 Structural BMP Checklist (Complete once for each proposed structural BMP)

Structural BMP ID #	1	**Permit # and Sheet #**	PDS2022-MUP-22-006 Sheet # C-3

BMP Type

Infiltration
- ☐ Infiltration basin (INF-1)
- ☐ Bioretention (INF-2)
- ☐ Permeable pavement (INF-3)

Unlined Biofiltration
- ☐ Biofiltration with partial retention (PR-1)

Lined Biofiltration
- ☒ Biofiltration (BF-1)
- ☐ Nutrient Sensitive Media Design (BF-2)
- ☐ Proprietary Biofiltration (BF-3)

Harvest and Use
- ☐ Cistern (HU-1)

Flow-thru Treatment (describe below)
- ☐ With prior lawful approval to meet earlier PDP requirements
- ☐ Pre-treatment/forebay for an onsite retention or biofiltration BMP[2]
- ☐ With alternative compliance

Hydromodification Management[3]
- ☐ Detention pond or vault
- ☐ **Other** (describe below)

BMP Purpose
- ☒ Pollutant control only
- ☐ Hydromodification control only
- ☐ Combined pollutant control and hydromodification
- ☐ Pre-treatment/forebay for another BMP
- ☐ Other (describe below)

BMP Verification (See BMPDM Section 8.3)

Provide name and contact information for the party responsible to sign BMP verification forms	Andrew Kann Omega Engineering Consultants 858-634-8620

BMP Ownership and Maintenance (See BMPDM Section 7.3 and Attachment 11)

BMP Maintenance Category	Cat. 1 ☒	Cat. 2 ☐	Cat. 3 ☐	Cat. 4 ☐
Final owner of BMP	☐ HOA	☒ Property Owner	☐ County	☐ Other (describe):
Maintenance of BMP into perpetuity	☐ HOA	☒ Property Owner	☐ County	☐ Other (describe):

Discussion (As needed; Continue on subsequent pages as necessary)

The proposed BMP consists of a lined biofiltration basin that meets pollutant control criteria.

[2] Indicate which onsite retention or biofiltration BMP the pre-treatment/forebay serves.
[3] Hydromodification Management BMPs must be accompanied by BMPs that provide pollutant control.

Copy and Paste table here for additional BMPs

[2] Indicate which onsite retention or biofiltration BMP the pre-treatment/forebay serves.
[3] Hydromodification Management BMPs must be accompanied by BMPs that provide pollutant control.

7.4 Storm Water Pollutant Control Worksheet Calculations

- Use this page as a cover sheet for the submittal of any required worksheets below.
- Complete the checklist to identify which BMPDM Appendix B (Storm Water Pollutant Control Hydrologic Calculations and Sizing Methods) worksheets are included with this attachment.
- See BMPDM Appendix B for an explanation of the applicability of individual worksheets and detailed guidance on their completion.

Worksheet	Requirement
☒ Worksheet B.1 Calculation of Design Capture Volume (DCV)	Required
☒ Worksheet B.2 Retention Requirements	Required
☒ Worksheet B.3 BMP Performance	Required
☐ Worksheet B.4 Major Maintenance Intervals for Reduced-sized BMPs	If applicable
☒ Other worksheets	As required

Automated Worksheet B.1: Calculation of Design Capture Volume (V2.0)

Category	#	Description	*i*	*ii*	*iii*	*iv*	*v*	*vi*	*vii*	*viii*	*ix*	*x*	Units
Standard Drainage Basin Inputs	1	Drainage Basin ID or Name	DMA-2										unitless
	2	85th Percentile 24-hr Storm Depth	0.49										inches
	3	Impervious Surfaces Not Directed to Dispersion Area (C=0.90)	27,020										sq-ft
	4	Semi-Pervious Surfaces Not Serving as Dispersion Area (C=0.30)											sq-ft
	5	Engineered Pervious Surfaces Not Serving as Dispersion Area (C=0.10)	1,767										sq-ft
	6	Natural Type A Soil Not Serving as Dispersion Area (C=0.10)											sq-ft
	7	Natural Type B Soil Not Serving as Dispersion Area (C=0.14)											sq-ft
	8	Natural Type C Soil Not Serving as Dispersion Area (C=0.23)											sq-ft
	9	Natural Type D Soil Not Serving as Dispersion Area (C=0.30)											sq-ft
Dispersion Area, Tree Well & Rain Barrel Inputs (Optional)	10	Does Tributary Incorporate Dispersion, Tree Wells, and/or Rain Barrels?	No	No	No								yes/no
	11	Impervious Surfaces **Directed to Dispersion Area** per SD-B (Ci=0.90)											sq-ft
	12	Semi-Pervious Surfaces **Serving as Dispersion Area** per SD-B (Ci=0.30)											sq-ft
	13	Engineered Pervious Surfaces **Serving as Dispersion Area** per SD-B (Ci=0.10)											sq-ft
	14	Natural Type A Soil **Serving as Dispersion Area** per SD-B (Ci=0.10)											sq-ft
	15	Natural Type B Soil **Serving as Dispersion Area** per SD-B (Ci=0.14)											sq-ft
	16	Natural Type C Soil **Serving as Dispersion Area** per SD-B (Ci=0.23)											sq-ft
	17	Natural Type D Soil **Serving as Dispersion Area** per SD-B (Ci=0.30)											sq-ft
	18	Number of Tree Wells Proposed per SD-A											#
	19	Average Mature Tree Canopy Diameter											ft
	20	Number of Rain Barrels Proposed per SD-E											#
	21	Average Rain Barrel Size											gal
Initial Runoff Factor Calculation	22	Total Tributary Area	28,787	0	0	0	0	0	0	0	0	0	sq-ft
	23	Initial Runoff Factor for Standard Drainage Areas	0.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	24	Initial Runoff Factor for Dispersed & Dispersion Areas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	25	Initial Weighted Runoff Factor	0.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	26	Initial Design Capture Volume	999	0	0	0	0	0	0	0	0	0	cubic-feet
Dispersion Area Adjustments	27	Total Impervious Area Dispersed to Pervious Surface	0	0	0	0	0	0	0	0	0	0	sq-ft
	28	Total Pervious Dispersion Area	0	0	0	0	0	0	0	0	0	0	sq-ft
	29	Ratio of Dispersed Impervious Area to Pervious Dispersion Area	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	ratio
	30	Adjustment Factor for Dispersed & Dispersion Areas	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	ratio
	31	Runoff Factor After Dispersion Techniques	0.85	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	unitless
	32	Design Capture Volume After Dispersion Techniques	999	0	0	0	0	0	0	0	0	0	cubic-feet
Tree & Barrel Adjustments	33	Total Tree Well Volume Reduction	0	0	0	0	0	0	0	0	0	0	cubic-feet
	34	Total Rain Barrel Volume Reduction	0	0	0	0	0	0	0	0	0	0	cubic-feet
Results	35	Final Adjusted Runoff Factor	0.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	36	Final Effective Tributary Area	24,469	0	0	0	0	0	0	0	0	0	sq-ft
	37	Initial Design Capture Volume Retained by Site Design Elements	0	0	0	0	0	0	0	0	0	0	cubic-feet
	38	Final Design Capture Volume Tributary to BMP	999	0	0	0	0	0	0	0	0	0	cubic-feet

No Warning Messages

Automated Worksheet B.2: Retention Requirements (V2.0)

Category	#	Description	*i*	*ii*	*iii*	*iv*	*v*	*vi*	*vii*	*viii*	*ix*	*x*	Units
Basic Analysis	1	Drainage Basin ID or Name	DMA-2	-	-	-	-	-	-	-	-	-	unitless
	2	85th Percentile Rainfall Depth	0.49	-	-	-	-	-	-	-	-	-	inches
	3	Predominant NRCS Soil Type Within BMP Location	D										unitless
	4	Is proposed BMP location Restricted or Unrestricted for Infiltration Activities?	Restricted										unitless
	5	Nature of Restriction	Soil Type										unitless
	6	Do Minimum Retention Requirements Apply to this Project?	Yes										yes/no
	7	Are Habitable Structures Greater than 9 Stories Proposed?	No										yes/no
Advanced Analysis	8	Has Geotechnical Engineer Performed an Infiltration Analysis?	Yes										yes/no
	9	Design Infiltration Rate Recommended by Geotechnical Engineer	0.000										in/hr
Result	10	Design Infiltration Rate Used To Determine Retention Requirements	0.000	-	-	-	-	-	-	-	-	-	in/hr
	11	Percent of Average Annual Runoff that Must be Retained within DMA	4.5%	-	-	-	-	-	-	-	-	-	percentage
	12	Fraction of DCV Requiring Retention	0.02	-	-	-	-	-	-	-	-	-	ratio
	13	Required Retention Volume	20	-	-	-	-	-	-	-	-	-	cubic-feet

No Warning Messages

Automated Worksheet B.3: BMP Performance (V2.0)

Category	#	Description	*i*	*ii*	*iii*	*iv*	*v*	*vi*	*vii*	*viii*	*ix*	*x*	Units
BMP Inputs	1	Drainage Basin ID or Name	DMA-2	-	-	-	-	-	-	-	-	-	sq-ft
	2	Design Infiltration Rate Recommended	0.000	-	-	-	-	-	-	-	-	-	in/hr
	3	Design Capture Volume Tributary to BMP	999	-	-	-	-	-	-	-	-	-	cubic-feet
	4	Is BMP Vegetated or Unvegetated?	Vegetated										unitless
	5	Is BMP Impermeably Lined or Unlined?	Lined										unitless
	6	Does BMP Have an Underdrain?	Underdrain										unitless
	7	Does BMP Utilize Standard or Specialized Media?	Standard										unitless
	8	Provided Surface Area	1,600										sq-ft
	9	Provided Surface Ponding Depth	6										inches
	10	Provided Soil Media Thickness	24										inches
	11	Provided Gravel Thickness (Total Thickness)	15										inches
	12	Underdrain Offset	3										inches
	13	Diameter of Underdrain or Hydromod Orifice (Select Smallest)	6.00										inches
	14	Specialized Soil Media Filtration Rate											in/hr
	15	Specialized Soil Media Pore Space for Retention											unitless
	16	Specialized Soil Media Pore Space for Biofiltration											unitless
	17	Specialized Gravel Media Pore Space											unitless
Retention Calculations	18	Volume Infiltrated Over 6 Hour Storm	0	0	0	0	0	0	0	0	0	0	cubic-feet
	19	Ponding Pore Space Available for Retention	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	unitless
	20	Soil Media Pore Space Available for Retention	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	unitless
	21	Gravel Pore Space Available for Retention (Above Underdrain)	0.00	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	unitless
	22	Gravel Pore Space Available for Retention (Below Underdrain)	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	unitless
	23	Effective Retention Depth	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	inches
	24	Fraction of DCV Retained (Independent of Drawdown Time)	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	ratio
	25	Calculated Retention Storage Drawdown Time	120	0	0	0	0	0	0	0	0	0	hours
	26	Efficacy of Retention Processes	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	ratio
	27	Volume Retained by BMP (Considering Drawdown Time)	323	0	0	0	0	0	0	0	0	0	cubic-feet
	28	Design Capture Volume Remaining for Biofiltration	676	0	0	0	0	0	0	0	0	0	cubic-feet
Biofiltration Calculations	29	Max Hydromod Flow Rate through Underdrain	1.7044	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	cfs
	30	Max Soil Filtration Rate Allowed by Underdrain Orifice	46.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	in/hr
	31	Soil Media Filtration Rate per Specifications	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	in/hr
	32	Soil Media Filtration Rate to be used for Sizing	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	in/hr
	33	Depth Biofiltered Over 6 Hour Storm	30.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	inches
	34	Ponding Pore Space Available for Biofiltration	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	35	Soil Media Pore Space Available for Biofiltration	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	unitless
	36	Gravel Pore Space Available for Biofiltration (Above Underdrain)	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	unitless
	37	Effective Depth of Biofiltration Storage	15.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	inches
	38	Drawdown Time for Surface Ponding	1	0	0	0	0	0	0	0	0	0	hours
	39	Drawdown Time for Effective Biofiltration Depth	3	0	0	0	0	0	0	0	0	0	hours
	40	Total Depth Biofiltered	45.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	inches
	41	Option 1 - Biofilter 1.50 DCV: Target Volume	1,014	0	0	0	0	0	0	0	0	0	cubic-feet
	42	Option 1 - Provided Biofiltration Volume	1,014	0	0	0	0	0	0	0	0	0	cubic-feet
	43	Option 2 - Store 0.75 DCV: Target Volume	507	0	0	0	0	0	0	0	0	0	cubic-feet
	44	Option 2 - Provided Storage Volume	507	0	0	0	0	0	0	0	0	0	cubic-feet
	45	Portion of Biofiltration Performance Standard Satisfied	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	ratio
Result	46	Do Site Design Elements and BMPs Satisfy Annual Retention Requirements?	Yes	-	-	-	-	-	-	-	-	-	yes/no
	47	Overall Portion of Performance Standard Satisfied (BMP Efficacy Factor)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	ratio
	48	**Deficit of Effectively Treated Stormwater**	**0**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	cubic-feet

No Warning Messages

7.5 Identification and Narrative of Receiving Water and Pollutants of Concern

- Complete this sub-attachment *only if flow-thru treatment BMPs are implemented onsite* in lieu of retention or biofiltration BMPs. Unless excepted because of a Prior Lawful Approval[4], PDPs must also participate in an alternative compliance program[5].

A. General Description

Describe flow path of storm water from the project site discharge location(s), through urban storm conveyance systems as applicable, to receiving creeks, rivers, and lagoons as applicable, and ultimate discharge to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable).

N/A, Flow-through treatment not proposed.

B. Water Body Impairments and Priorities

List any 303(d) impaired water bodies[6] within the path of storm water from the project site to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable), identify the pollutant(s)/stressor(s) causing impairment, and identify any TMDLs and/or Highest Priority Pollutants from the WQIP for the impaired water bodies:

303(d) Impaired Water Body	Pollutant(s)/Stressor(s)	TMDLs / WQIP Highest Priority Pollutant

C. Identification of Project Site Pollutants

Identify pollutants expected from the project site based on all proposed use(s) of the site (see BMP Design Manual Appendix J.5)

Pollutant	Not Applicable to the Project Site	Anticipated from the Project Site	Also a Receiving Water Pollutant of Concern
Sediment	☐	☐	☐
Nutrients	☐	☐	☐
Heavy Metals	☐	☐	☐
Organic Compounds	☐	☐	☐
Trash & Debris	☐	☐	☐
Oxygen Demanding Substances	☐	☐	☐
Oil & Grease	☐	☐	☐
Bacteria & Viruses	☐	☐	☐
Pesticides	☐	☐	☐

[4] See BMPDM Appendix L: Prior Lawful Approval Requirements and Guidance.
[5] See SWQMP Attachment 12 (Alternative Compliance Projects) and BMPDM Appendix J (Offsite Alternative Compliance Requirements and Guidance).
[6] The current list of Section 303(d) impaired water bodies can be found at: https://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2014_2016.shtml

March 29, 2022 Project No. 21287-01

Mr. Robert Garmo
21st Century Lakeside Holdings, LLC
5464 Grossmont Center Drive, Suite 300
La Mesa, California 91942

Subject: ***Preliminary Geotechnical Evaluation for Proposed Self Storage Development, 12407-12413 Woodside Avenue, Lakeside, California***

In accordance with your request, LGC Geotechnical, Inc. has performed a preliminary geotechnical evaluation for the proposed self-storage facility to be located on the vacant lot at 12407-12413 Woodside Avenue in Lakeside, California. The purpose of our study was to evaluate the existing onsite geotechnical conditions and to provide preliminary geotechnical recommendations relative to the proposed development.

Should you have any questions regarding this report, please do not hesitate to contact our office. We appreciate this opportunity to be of service.

Respectfully,

LGC Geotechnical, Inc.

Brad Zellmer, GE 2618
Project Engineer

REGISTERED PROFESSIONAL ENGINEER
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BTZ/KBC/klr

Distribution: (1) Addressee (electronic copy)
(1) Omega Engineering Consultants, Inc. (electronic copy)
Attention: Mr. Sean Savage
(5) Jordan Architects (4 wet-signed copies and electronic copy)
Attention: Mr. Dave Meinecke

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1.0 INTRODUCTION

LGC Geotechnical has performed a geotechnical evaluation for the proposed self-storage facility to be located on the vacant lot at 12407-12413 Woodside Avenue in Lakeside, California. (Figure 1). This report summarizes our findings, conclusions, and preliminary geotechnical recommendations relative to the proposed development of the site.

1.1 Project Description and Background

The site is an approximately 1-acre rectangular shaped parcel and is currently a vacant lot in an otherwise constructed strip mall. The site is bound to the east by Cactus Street and to the south by carports for adjacent apartment building, to the west by a commercial building, to the north by a drive isle and parking lot area. The proposed development site is relatively flat with existing elevations ranging from approximately 404 feet in the northwesterly corner to 407 feet in the southeasterly corner (Omega Land Surveying, 2022).

We understand that the proposed development will include a three-story, self-storage building including an additional one-story, subterranean level, an integral first-story office, and associated improvements. The basement level will extend over the majority of the building footprint, with the exception of the western 20 feet where the at-grade portion of the building will be constructed adjacent to an existing building structure (Jordan, 2020). Infiltration is anticipated to include lined planters along the eastern portion of the building. Preliminary building (dead plus live) loads were not provided at the time of this report. However, based on our experience with similar projects we have estimated a maximum structural (dead plus live) column and wall load of 100 kips and 8 kips per lineal foot, respectively. For a rigid mat slab, we have estimated an average applied surcharge due to dead plus live structural loads of 850 psf. Based on the conceptual grading plan, the basement finish floor will be at an elevation of 396.7 and the section floor at elevation 406.7 feet (Omega, 2022).

The recommendations given in this report are based on the layout and estimated structural loads and architectural information as indicated above. LGC Geotechnical should be provided with any updated project information, plans and/or any structural loads when they become available, in order to either confirm or modify the recommendations provided herein.

1.2 Subsurface Exploration

Our subsurface evaluation consisted of the excavation of drilling and sampling six small-diameter, exploratory hollow-stem borings (two of which were used for infiltration testing) and three Cone Penetration Test (CPT) soundings.

The borings were drilled by California Pacific Drilling, Inc. under subcontract to LGC Geotechnical. Four hollow-stem borings (HS-1 through HS-4) were drilled to depths ranging from approximately 25 to 65 feet below existing grade. Two hollow-stem borings used for infiltration testing (I-1 and I-2), were drilled to 10 feet below existing grade. An LGC Geotechnical representative observed the drilling operations, logged the borings, and collected

soil samples for laboratory testing. The borings were excavated using a truck-mounted drill rig equipped with 8-inch-diameter hollow-stem augers. Driven soil samples were collected by means of the Standard Penetration Test (SPT) and Modified California Drive (MCD) sampler generally obtained at 2.5 to 5-foot vertical increments. The MCD is a split-barrel sampler with a tapered cutting tip and lined with a series of 1-inch-tall brass rings. The SPT sampler and MCD sampler were driven using a 140-pound automatic hammer falling 30 inches to advance the sampler a total depth of 18 inches. The raw blow counts for each 6-inch increment of penetration were recorded on the boring logs. Bulk samples were also collected and logged at select depths for laboratory testing. At the completion of drilling, the borings were backfilled with grout and capped with concrete. Some settlement of the backfill may occur over time.

Infiltration testing was performed within two of the borings (I-1 and I-2) at a depth of approximately 10 feet below existing grade. An LGC Geotechnical engineer installed standpipes, backfilled the boring annulus with crushed rock, and pre-soaked the infiltration wells prior to testing. Infiltration testing was performed in general accordance with the County of San Diego testing guidelines. The infiltration test wells were subsequently backfilled with native soils at the completion of testing.

CPT soundings were pushed in three locations (CPT-1 through CPT-3) by Kehoe Testing, Inc. under subcontract to LGC Geotechnical. The CPT soundings were pushed to refusal with total depths varying from approximately 64 to 77 feet below existing grade. The CPT soundings were pushed using an electronic cone penetrometer in general accordance with the current ASTM standards (ASTM D5778 and ASTM D3441) using a 30-ton rig. The CPT equipment consisted of a cone penetrometer assembly mounted at the end of a series of hollow sounding rods. The interior of the cone penetrometer is instrumented with strain gauges that allow the simultaneous measurement of cone tip and friction sleeve resistance during penetration. The cone penetration assembly is continuously pushed into the soil by a set of hydraulic rams at a standard rate of 0.8 inches per second while the cone tip resistance and sleeve friction resistance are recorded at approximately every 2 inches and stored in digital form. Pore-water pressure dissipation tests were performed in each of the CPT soundings. Seismic cone (shear wave velocity) readings were performed in CPT-1 and CPT-3.

The approximate locations of the hollow-stem auger borings and CPT soundings are provided on Figure 2. The boring logs and CPT logs are provided in Appendix B.

1.3 Laboratory Testing

Representative bulk and driven samples were obtained for laboratory testing during our field evaluation. Laboratory testing included in-situ moisture content and dry unit weight, fines content, Atterberg Limits, expansion index, consolidation, direct shear, and corrosion (soluble sulfate, chloride, pH, and minimum resistivity).

- Dry density of the samples collected ranged from approximately 90 pounds per cubic foot (pcf) to 121 pcf, with an average of 105 pcf. Field moisture contents ranged from approximately 4 percent to 35 percent, with an average of approximately 16 percent.
- Eight fines content tests were performed and indicated a fines content (passing No. 200 sieve) ranging from approximately 8 to 73 percent. Based on the Unified Soils Classification System (USCS), six of the tested samples would be classified as “fine-grained”

and two of samples would be classified as “coarse-grained.”

- Six Atterberg Limit (liquid limit and plastic limit) tests resulted in Plasticity Index (PI) values ranging from 7 to 24.
- An Expansion Index (EI) test indicated an EI value of 0, corresponding to “Very Low” expansion potential.
- Three consolidation tests were performed. Swell and collapse at water inundation was negligible. The deformation versus vertical stress plots are provided in Appendix C.
- Two direct shear tests were performed. The shear strength plots are provided in Appendix C.
- Corrosion testing indicated soluble sulfate content values less than approximately 0.02 percent, chloride content of 41 parts per million (ppm), pH value of 8.4, and a minimum resistivity value of 1,560 ohm-centimeters.

Laboratory test results obtained from our field evaluation are provided in Appendix C.

2.0 GEOTECHNICAL CONDITIONS

2.1 Regional and Local Geology

Regionally, the site is located within the coastal sub-province of the Peninsular Ranges Geomorphic Province, near the western edge of the Southern California batholith. The topography at the edge of the batholith changes from the rugged landforms developed on the batholith to the more subdued landforms, which typify the softer, sedimentary formations of the coastal plain. Tertiary and Quaternary rocks are generally comprised of marine and non-marine sediments consisting of sandstone, mudstones, conglomerates, and occasional volcanic units. Erosion and regional tectonic uplift created the valleys and ridges of the area.

2.2 Site-Specific Geology and Generalized Subsurface Conditions

Based on our subsurface exploration and review of pertinent geologic literature and maps, the site is generally underlain by localized, thin pockets of artificial fill soils, which is in-turn underlain by the Quaternary Young Alluvial deposits (CGS, 2002). The soils encountered in our field explorations were generally fine-grained soils. The approximate extent of materials described below is depicted on the Geotechnical Map (Figure 2).

The field explorations (CPT soundings and borings) indicate primarily loose to medium dense silty sands and medium stiff to stiff sandy silts in the upper approximate 10 feet followed primarily by stiff to very stiff clays with isolated medium dense sandy layers to approximately 50 feet followed by dense sands with varying amounts of fines interbedded with finer-grained soils to the maximum explored depth of approximately 75 feet below existing grade. Moisture content of soils at planned foundation level (approximately 10 to 15 feet below existing grade) are generally well above optimum. Shear wave velocity readings performed in two of the CPT soundings indicated average shear wave velocity values of approximately 800 feet per second corresponding to Site Class D per Chapter 20 of ASCE 7-16

It should be noted that borings and CPT soundings are only representative of the location and time where/when they are performed, and varying subsurface conditions may exist outside of the performed location. In addition, subsurface conditions can change over time. The soil descriptions provided above should not be construed to mean that the subsurface profile is uniform, and that soil is homogeneous within the project area. For details on the stratigraphy at the exploration locations, refer to Appendix B.

2.3 Geologic Structure

Geologic structure was not identified, nor anticipated in the subject site geotechnical evaluation.

2.4 Landslides

Our research and field observations do not indicate the presence of landslides on the site or in the immediate vicinity.

2.5 Groundwater

Groundwater was encountered during our subsurface evaluation at approximately 20 feet below existing ground surface. Seasonal fluctuations of groundwater elevations should be expected over time. In general, groundwater levels fluctuate with the seasons and local zones of perched groundwater may be present within the near-surface deposits due to local landscape irrigation or precipitation especially during rainy seasons.

2.6 Faulting

California is located on the boundary between the Pacific and North American Lithospheric Plates. The average motion along this boundary is on the order of 50-mm/yr. in a right-lateral sense. The majority of the motion is expressed at the surface along the northwest trending San Andreas Fault Zone with lesser amounts of motion accommodated by sub-parallel faults located predominantly west of the San Andreas including the Elsinore, Newport-Inglewood, Rose Canyon, and Coronado Bank Faults. Within Southern California, a large bend in the San Andreas Fault north of the San Gabriel Mountains has resulted in a transfer of a portion of the right-lateral motion between the plates into left-lateral displacement and vertical uplift. Compression south and west of the bend has resulted in folding, left-lateral, reverse thrust faulting, and regional uplift creating the east-west trending Transverse Ranges and several east-west trending faults. Further south within the Los Angeles Basin, "blind thrust" faults are believed to have developed below the surface also as a result of this compression, which have resulted in earthquakes such as the 1994 Northridge event along faults with little to no surface expression.

Prompted by damaging earthquakes in Northern and Southern California, State legislation and policies concerning the classification and land-use criteria associated with faults have been developed. The Alquist-Priolo Earthquake Fault Zoning Act was implemented in 1972 to prevent the construction of urban developments across the trace of active faults. California Geologic Survey Special Publication 42 was created to provide guidance for following and implementing the law requirements. Special Publication 42 was most recently revised in 2018 (CGS, 2018a). According to the State Geologist, an "active" fault is defined as one which has had surface displacement within Holocene time (roughly the last 11,700 years). Regulatory Earthquake Fault Zones have been delineated to encompass traces of known, Holocene-active faults to address hazards associated with surface fault rupture within California. Where developments for human occupation are proposed within these zones, the state requires detailed fault evaluations be performed so that engineering-geologists can identify the locations of active faults and recommend setbacks from locations of possible surface fault rupture.

The subject site is not located within a State of California Fault Rupture Hazard Zone (CGS, 2018). There are no known active or potentially active faults mapped on the site. The nearest

known active fault is the Newport-Inglewood-Rose Canyon Fault Zone located approximately 16.8 miles west of the site.

Secondary effects of seismic shaking resulting from large earthquakes on the major faults in the Southern California region, which may affect the site, include ground lurching and shallow ground rupture, soil liquefaction, dynamic settlement, seiches and tsunamis. These secondary effects of seismic shaking are a possibility throughout the Southern California region and are dependent on the distance between the site and causative fault and the onsite geology. A discussion of these secondary effects is provided in the following sections.

2.6.1 Lurching and Shallow Ground Rupture

Soil lurching refers to the rolling motion on the ground surface by the passage of seismic surface waves. Effects of this nature are not likely to be significant where the thickness of soft sediments do not vary appreciably under structures. Ground rupture due to active faulting is not likely to occur onsite due to the absence of known active fault traces. Ground cracking due to shaking from distant seismic events is not considered a significant hazard, although it is a possibility at any site.

2.6.2 Liquefaction and Dynamic Settlement

Liquefaction is a seismic phenomenon in which loose, saturated, granular soils behave similarly to a fluid when subject to high-intensity ground shaking. Liquefaction occurs when three general conditions coexist: 1) shallow groundwater; 2) low density non-cohesive (granular) soils; and 3) high-intensity ground motion. Studies indicate that saturated, loose near surface cohesionless soils exhibit the highest liquefaction potential, while dry, dense, cohesionless soils and cohesive soils exhibit low to negligible liquefaction potential. In general, cohesive soils are not considered susceptible to liquefaction, depending on their plasticity and moisture content. Effects of liquefaction on level ground include settlement, sand boils, and bearing capacity failures below structures. Dynamic settlement of dry loose sands can occur as the sand particles tend to settle and densify as a result of a seismic event.

The data obtained from our field evaluation indicates that the site contains sandy layers susceptible to liquefaction. Liquefaction potential was evaluated using the procedures outlined by Special Publication 117A (SCEC, 1999 & CGS, 2008a). Liquefaction analysis was based on the applicable seismic criteria (e.g., PGA_M from 2019 CBC) and an estimated high groundwater depth of 15 feet. Liquefaction analysis was performed using the program CLiq (GeoLogismiki, 2017). Estimated total and differential seismic settlement due to liquefaction potential is provided in Table 1 below. Liquefaction calculations are provided in Appendix D.

TABLE 1

Estimated Settlement Due to Liquefaction Potential

Approximate Total Seismic Settlement	Differential Seismic Settlement
1-inch	½-inch over 40 feet

2.6.3 Lateral Spreading

Lateral spreading is a type of liquefaction-induced ground failure associated with the lateral displacement of surficial blocks of sediment resulting from liquefaction in a subsurface layer. Once liquefaction transforms the subsurface layer into a fluid mass, gravity plus the earthquake inertial forces may cause the mass to move down-slope towards a free face (such as a river channel or an embankment). Lateral spreading may cause large horizontal displacements and such movement typically damages pipelines, utilities, bridges, and structures.

Due to the site being relatively level and the lack of an adjacent free face to drive lateral spreading, the potential for lateral spreading is considered low.

2.6.4 Tsunamis and Seiches

Based on the elevation of the site, with respect to sea level, there is a low possibility of damage to the site during a large tsunami event.

2.7 Field Infiltration Testing

Estimation of infiltration rates was performed in general accordance with guidelines set forth by the County of San Diego (2020). In general, a 3-inch diameter perforated PVC pipe was placed in each borehole to be tested and the annulus was backfilled with gravel, including placement of about 2 inches of gravel at the bottom of the borehole. The infiltration wells were pre-soaked the day prior to testing. During the pre-test, if the water level drops more than 6 inches in 25 minutes for two consecutive readings, the test procedure for coarse-grained soils should be followed. If the water level does not meet that criterion, the procedure for fine-grained soils should be followed. The procedure for coarse-grained soils requires performing the test for one hour and taking one reading every 10 minutes from a fixed reference point. The procedure for fine-grained soils requires performing the test for six hours and taking one reading every 30 minutes from a fixed reference point. The pre-tests indicated that the procedure for coarse-grained soils should be followed.

These observed infiltration rates do not include any factor of safety. Observed infiltration rates have been normalized to correct the 3-Dimensional flow that occurs within the field test to 1-Dimensional flow out of the bottom of the boring (e.g., Porchet's method). The approximate infiltration test locations are shown on the Geotechnical Map (Figure 2). The infiltration test

data is located in Appendix E and is summarized below in Table 2.

TABLE 2

Summary of Infiltration Testing

Infiltration Test Location	Infiltration Test Depth Below Existing Grade (ft)	Observed Infiltration Rate* (Inch/Hr.)
I-1	10	1.1
I-2	10	0.6

*Normalized to One-Dimensional Flow, does not include any Factors of Safety.

It should be emphasized that infiltration test results are only representative of the location and depth where they are performed. Varying subsurface conditions may exist outside of the test locations which could alter the calculated infiltration rates indicated above. Infiltration tests are performed using relatively clean water free of particulates, silt, etc. Please refer to Section 4.10 for subsurface water infiltration recommendations.

2.8 Seismic Design Parameters

Since the site contains soils that are susceptible to liquefaction (refer to above Section "Liquefaction and Dynamic Settlement"), ASCE 7 which has been adopted by the CBC requires that site soils be assigned Site Class "F" and a site-specific response spectrum be performed. However, in accordance with Section 20.3.1 of ASCE 7, if the fundamental periods of vibration of the planned structure are equal to or less than 0.5 second, a site-specific response spectrum is not required and ASCE 7/2019 CBC site class and seismic parameters may be used in lieu of a site-specific response spectrum. **It should be noted that the seismic parameters provided herein are not applicable for any structure having a fundamental period of vibration greater than 0.5 second.**

The site seismic characteristics were evaluated per the guidelines set forth in Chapter 16, Section 1613 of the 2019 California Building Code (CBC) and applicable portions of ASCE 7-16 which has been adopted by the CBC. Please note that the following seismic parameters are only applicable for code-based acceleration response spectra and are not applicable for where site-specific ground motion procedures are required by ASCE 7-16. Representative site coordinates of latitude 32.8561 degrees north and longitude -116.9233 degrees west were utilized in our analyses. The maximum considered earthquake (MCE) spectral response accelerations (S_{MS} and S_{M1}) and adjusted design spectral response acceleration parameters (S_{DS} and S_{D1}) for Site Class D are provided in Table 3 on the following page. Since site soils are Site Class D, additional adjustments are required to code acceleration response spectrums as outlined below and provided in ASCE 7-16. The structural designer should contact the geotechnical consultant if structural conditions (e.g., number of stories, seismically isolated structures, etc.) require site-specific ground motions.

TABLE 3

Seismic Design Parameters

Selected Parameters from 2019 CBC, Section 1613 - Earthquake Loads	**Seismic Design Values**	**Notes/Exceptions**
Distance to applicable faults classifies the site as a "Near-Fault" site.		Section 11.4.1 of ASCE 7
Site Class	D*	Chapter 20 of ASCE 7
Ss (Risk-Targeted Spectral Acceleration for Short Periods)	0.770g	From SEAOC, 2022
S_1 (Risk-Targeted Spectral Accelerations for 1-Second Periods)	0.283g	From SEAOC, 2022
F_a (per Table 1613.2.3(1))	1.192	For Simplified Design Procedure of Section 12.14 of ASCE 7, F_a shall be taken as 1.4 (Section 12.14.8.1)
F_v (per Table 1613.2.3(2))	2.034	Value is only applicable per requirements/exceptions per Section 11.4.8 of ASCE 7
S_{MS} for Site Class D [Note: $S_{MS} = F_aS_S$]	0.918g	-
S_{M1} for Site Class D [Note: $S_{M1} = F_vS_1$]	0.576g	Value is only applicable per requirements/exceptions per Section 11.4.8 of ASCE 7
S_{DS} for Site Class D [Note: $S_{DS} = (^2/_3)S_{MS}$]	0.612g	-
S_{D1} for Site Class D [Note: $S_{D1} = (^2/_3)S_{M1}$]	0.384g	Value is only applicable per requirements/exceptions per Section 11.4.8 of ASCE 7
C_{RS} (Mapped Risk Coefficient at 0.2 sec)	0.929	ASCE 7 Chapter 22
C_{R1} (Mapped Risk Coefficient at 1 sec)	0.929	ASCE 7 Chapter 22
*Since site soils are Site Class D and S_1 is greater than or equal to 0.2, the seismic response coefficient Cs is determined by Eq. 12.8-2 for values of $T \leq 1.5T_s$ and taken equal to 1.5 times the value calculated in accordance with either Eq. 12.8-3 for $T_L \geq T > T_s$, or Eq. 12.8-4 for $T > T_L$. Refer to ASCE 7-16. Site Class F modified to Site Class D, seismic parameters only applicable for structure period ≤ 0.5 second, refer to discussion above.		

Section 1803.5.12 of the 2019 CBC (per Section 11.8.3 of ASCE 7) states that the maximum considered earthquake geometric mean (MCE_G) Peak Ground Acceleration (PGA) should be used for liquefaction potential. The PGA_M for the site is equal to 0.419g (SEAOC, 2022). The design PGA may be taken as 0.279g (2/3 of PGA_M).

A deaggregation of the PGA based on a 2,475-year average return period (MCE) indicates that an earthquake magnitude of 6.37 at a distance of 21.12 km from the site would contribute the most to this ground motion. A deaggregation of the PGA based on a 475-year average return period (Design Earthquake) indicates that an earthquake magnitude of 6.50 at a distance of

31.87 km from the site would contribute the most to this ground motion (USGS, 2014).

2.9 Rippability

In general, excavation for foundations and underground improvements should be achievable with the appropriate equipment.

2.10 Oversized Material

Generation of a surplus of oversized material (material greater than 8 inches in maximum dimension) is generally not anticipated during site grading. However, some oversized material may be encountered, which may result in excavation difficulty for narrow excavations (boreholes and trenches). Recommendations are provided for appropriate handling of oversized materials in Appendix F.

2.11 Expansion Potential

Based on the results of our recent laboratory testing, site soils are anticipated to have a "Very Low" expansion potential. Final expansion potential of site soils should be determined at the completion of grading. Results of expansion testing at finish grades will be utilized to confirm final foundation design.

3.0 FINDINGS AND CONCLUSIONS

Based on the results of our geotechnical evaluation, it is our opinion that the proposed site development is feasible from a geotechnical standpoint, provided the following conclusions and recommendations are incorporated into the site design, grading, and construction.

The following is a summary of the primary geotechnical factors, which may affect future development of the site.

- In general, the field explorations indicate primarily loose to medium dense silty sands and medium stiff to stiff sandy silts in the upper approximate 10 feet followed primarily by stiff to very stiff clays with isolated medium dense sandy layers to approximately 50 feet followed by dense sands with varying amounts of fines interbedded with finer-grained soils to the maximum explored depth of approximately 75 feet below existing grade. Foundation level soils are not suitable for the planned improvements (refer to Section 4.1). Import of aggregate base will be required below basement subgrade. Earthwork removals will be required for the at-grade portion of building (refer to Section 4.1).
- Due to the depth and proximity of the proposed basement with the adjacent structure and property lines, temporary shoring may be required.
- Groundwater was encountered during our subsurface evaluation at depth of approximately 20 feet below existing ground surface.
- Subsurface data indicates that sandy layers are susceptible to liquefaction and liquefaction-induced settlement. Our analysis indicates approximately 1 inch of seismically induced settlement may occur at the site during a significant earthquake. Differential dynamic settlement may be taken as ½ -inch over a horizontal span of 40 feet.
- Based on the estimated structural loads, it is our opinion that the proposed building structure can by supported by a rigid mat slab foundation supported on a layer of compacted aggregate base. However, as with many structures in Southern California risk does remain that the proposed structure could suffer some damage if liquefaction occurs. Repair and remedial work may be required after a liquefaction event.
- The proposed development will likely be subjected to strong seismic ground shaking during its design life from one of the regional faults. The subject site is not located within an Alquist-Priolo Earthquake Fault Zone. No faults were identified on the site during our site evaluation or research.
- Soils exposed at the proposed foundation level are anticipated to have a “Very Low” expansion potential (EI not exceeding 20). This shall be confirmed at the completion of site earthwork.
- Moisture content of soils near basement level (approximately 10 to 15 feet below existing grade) are generally well above optimum. Stabilization of removal bottom subgrade should be anticipated by the contractor prior to subsequent aggregate base placement. Significant moisture conditioning of existing soils should be anticipated to achieve adequate compaction
- Excavation for foundations and underground improvements should be achievable with the appropriate equipment.
- Field testing resulted in infiltration rates of 1.1 and 0.6 inches per hour in I-1 and I-2, respectively. The infiltration rates do not include a factor of safety. Site contains significant amounts of fine-grained soils, and fine-grained soils typically have very low infiltration rates.

4.0 PRELIMINARY RECOMMENDATIONS

The following recommendations are to be considered preliminary and should be confirmed upon completion of earthwork operations. In addition, they should be considered minimal from a geotechnical viewpoint, as there may be more restrictive requirements from the architect, structural engineer, building codes, governing agencies, or the City. It is the responsibility of the builder to ensure these recommendations are provided to the appropriate parties.

It should be noted that the following geotechnical recommendations are intended to provide sufficient information to develop the site in general accordance with the 2019 California Building Code (CBC) requirements. With regard to the potential occurrence of potentially catastrophic geotechnical hazards such as fault rupture, earthquake-induced landslides, liquefaction, etc. the following geotechnical recommendations should provide adequate protection for the proposed development to the extent required to reduce seismic risk to an "acceptable level." The "acceptable level" of risk is defined by the California Code of Regulations as "the level that provides reasonable protection of the public safety, though it does not necessarily ensure continued structural integrity and functionality of the project" [Section 3721(a)]. Therefore, repair and remedial work of the proposed improvement may be required after a significant seismic event. With regards to the potential for less significant geologic hazards to the proposed development, the recommendations contained herein are intended as a reasonable protection against the potential damaging effects of geotechnical phenomena such as expansive soils, fill settlement, groundwater seepage, etc. It should be understood, however, that although our recommendations are intended to maintain the structural integrity of the proposed development and structures given the site geotechnical conditions, they cannot preclude the potential for some cosmetic distress or nuisance issues to develop as a result of the site geotechnical conditions.

The geotechnical recommendations contained herein must be confirmed to be suitable or modified based on the actual conditions encountered during site development.

4.1 Site Earthwork

We anticipate that earthwork at the site will generally consist of demolition of the existing site improvements, installation of temporary shoring, excavation for the subterranean level, subgrade stabilization, subterranean retaining wall construction, foundation construction and utility construction.

We recommend that earthwork onsite be performed in accordance with the following recommendations, 2019 CBC/ City of Lakeside and the General Earthwork and Grading Specifications included in Appendix F. In case of conflict, the following recommendations shall supersede previous recommendations and those included as part of Appendix F.

4.1.1 Site Preparation

Prior to grading of areas to receive structural fill, engineered structures or improvements should be demolished and the area should be cleared of any existing vegetation, surface obstructions, existing debris and potentially compressible or otherwise unsuitable material. Debris should be removed and properly disposed of off-site. Holes resulting

from the removal of buried obstructions, which extend below proposed removal bottoms, should be replaced with suitable compacted fill material. Any abandoned utility lines should be completely removed and replaced with properly compacted fill.

If cesspools or septic systems are encountered, they should be removed in their entirety. The resulting excavation should be backfilled with properly compacted fill soils. As an alternative, cesspools can be backfilled with lean sand-cement slurry. Any encountered wells should be properly abandoned in accordance with regulatory requirements. At the conclusion of the clearing operations, a representative of LGC Geotechnical should observe and accept the site prior to further grading.

4.1.2 Removal Depths and Limits

In order to provide a relatively uniform bearing condition for the planned building structure, basement level soils are to be removed and replaced as properly compacted fills. For preliminary planning purposes, the depth of required removals may be estimated as indicated below. It should be noted that updated recommendations may be required based on changes to structural loads and/or building layout.

Basement Structure founded about 10 feet below Existing Grade: Excavations on the order of about 10 feet are anticipated for construction of the subterranean basement structure. Removals should extend a minimum depth of 2 feet below the proposed mat foundation and replaced with compacted aggregate base. Where practical, the envelope for removals should extend laterally a minimum horizontal distance of 2 feet beyond the edges of the proposed improvements. Building lines may be defined as the perimeter of the building proper, plus attached, or adjacent foundation supported features, including canopies, elevators, or walls.

At-Grade Portion of Building: Removals should extend a minimum depth of 5 feet below existing grade, or 2 feet below proposed footings, whichever is greater. In general, the envelope for removals should extend laterally a minimum horizontal distance of 5 feet beyond the edges of the proposed improvements.

Retaining/Free-Standing Wall At-Grade Structures: Removals should extend a minimum of 5 feet below existing grade, or 2 feet below proposed footings, whichever is greater. For minor structures such as free-standing and screen walls, the removals should extend at least 3 feet beneath the existing grade or 2 feet beneath the base of foundations, whichever is deeper.

At-Grade Pavement and Hardscape Areas: Removals should extend to suitable native material to at least 1-foot below the finished subgrade (i.e., below planned aggregate base/asphalt concrete). In general, the envelope for removals should extend laterally a minimum lateral distance of 2 feet beyond the edges of the proposed improvements.

Local conditions may be encountered during excavation that could require additional over-excavation beyond the above-noted minimum in order to obtain an acceptable subgrade. The actual depths and lateral extents of grading will be determined by the

geotechnical consultant, based on subsurface conditions encountered during grading. Removal areas should be accurately staked in the field by the Project Surveyor.

4.1.3 Temporary Excavations

Generally, temporary excavations should be sloped back to 1.5:1 (horizonal to vertical) inclination or flatter or be properly shored. Flatter excavations may be prudent where site conditions dictate. The temporary slope shall not include a vertical cut. Temporary excavations should be performed in accordance with project plans, specifications, and Occupational Safety and Health Administration (OSHA) requirements. Excavations should be laid back or shored in accordance with OSHA requirements before personnel or equipment are allowed to enter. Based on our field investigation, the majority of site soils are anticipated to be OSHA Type "C" soils (Refer to the attached boring logs, Appendix B). Soils below groundwater should be considered OSHA type "C" soils. Soil conditions should be regularly evaluated during construction to verify conditions are as anticipated. The contractor shall be responsible for providing the "competent person," required by OSHA standards, to evaluate soil conditions. Close coordination with the geotechnical consultant should be maintained to facilitate construction while providing safe excavations. Excavation safety is the sole responsibility of the contractor.

Surcharge loads (e.g., soil stockpiles, construction equipment, etc.) placed on top of the excavation should not be permitted within a horizontal distance equal to the height of the cut from the top of the excavation or 5 feet from the top of the excavation, whichever is greater. Once an excavation has been initiated, it should be backfilled as soon as practical. Prolonged exposure of temporary excavations may result in some localized instability. Excavations should be planned so that they are not initiated without sufficient time to shore/fill them prior to weekends, holidays, or forecasted rain.

4.1.4 Removal Bottoms and Subgrade Preparation

In general, removal bottom areas and any areas to receive compacted fill should be scarified to a minimum depth of 6 inches, brought to a near-optimum moisture condition, and re-compacted per project recommendations. However, scarification is generally not recommended for pumping subgrade conditions. Pumping subgrade should be anticipated for the basement. Where pumping subgrade is encountered, we recommend stabilization of the removal bottom prior to placement of fill. In general, stabilization should be anticipated to consist of placement of approximately of 6 to 12 inches of aggregate base on the excavation bottom, and "working it into" the bottom of until a firm bottom is established. The actual thickness of stabilization aggregate will be determined during earthwork based on field conditions. Stabilization aggregate base should be placed in layers and compacted. It should be anticipated that the first lift of crushed aggregate will be worked into the pumping subgrade. Subsequent lifts will help bridge the pumping conditions. Thickness of required aggregate base stabilization may be reduced by placing a layer of biaxial geogrid reinforcement (Tensar InterAx or acceptable equivalent) directly on the subgrade prior to aggregate base placement. Contractor may have to minimize construction traffic on the removal bottom to reduce disturbance. Soft and yielding subgrade should be evaluated on a case-by-case basis during earthwork

operations.

Removal bottoms and areas to receive fill should be observed and accepted by the geotechnical consultant prior to subsequent fill placement.

4.1.5 Material for Fill

From a geotechnical perspective, the onsite soils are generally considered suitable for use as general compacted fill (i.e., non-basement/retaining wall backfill), provided they are screened of organic materials, construction debris and any oversized material (8 inches in greatest dimension). Significant moisture conditioning of site soils should be anticipated as outlined in the section below.

Basement/retaining wall backfill should consist of sandy soils with a maximum of 40 percent fines (passing the No. 200 sieve) per American Society for Testing and Materials (ASTM) Test Method D1140 (or ASTM D6913/D422) and a Very Low expansion potential (EI of 20 or less per ASTM D4829). Soils should also be screened of organic materials, construction debris and any material greater than 3 inches in maximum dimension. The site contains soils that are not suitable for retaining wall backfill due to their fines content, therefore select grading and stockpiling and/or import will be required by the contractor for obtaining suitable retaining wall backfill soil.

From a geotechnical viewpoint, any required import soils should consist of clean, relatively granular soils of Very Low expansion potential (expansion index 20 or less based on ASTM D4829) and no particles larger than 3 inches in greatest dimension. Source samples of planned importation should be provided to the geotechnical consultant for laboratory testing a minimum of 3 working days prior to any planned importation for required laboratory testing.

Aggregate base (crushed aggregate base or crushed miscellaneous base) should conform to the requirements of Section 200-2 of the Standard Specifications for Public Works Construction ("Greenbook") for untreated base materials (except processed miscellaneous base) or Caltrans Class 2 aggregate base.

4.1.6 Fill Placement and Compaction

Material to be placed as fill should be brought to near-optimum moisture content (generally at about 2 percent above optimum moisture content) and recompacted to at least 90 percent relative compaction (per ASTM D1557). The moisture content of soils within portions of the site is anticipated to be very moist. Significant moisture conditioning will likely be necessary to achieve the required degree of compaction. Drying and/or mixing the very moist soils will be required prior to reusing the materials in compacted fills. Soils are also likely present that will require additional moisture in order to achieve the required compaction. The optimum lift thickness to produce a uniformly compacted fill will depend on the type and size of compaction equipment used. In general, fill should be placed in uniform lifts not exceeding 8 inches in compacted thickness. Each lift should be thoroughly compacted and accepted prior to subsequent lifts. Generally,

placement and compaction of fill should be performed in accordance with local grading ordinances and with observation and testing by the geotechnical consultant. Oversized material as previously defined should be removed from site fills.

Fill placed on any slopes greater than 5:1 (horizontal to vertical) should be properly keyed and benched into firm and competent soils as it is placed in lifts.

Aggregate base material below pavement subgrade should be compacted to a minimum of 95 percent relative compaction at or slightly above-optimum moisture content per ASTM D1557. Subgrade below aggregate base should be compacted to a minimum of 90 percent relative compaction per ASTM D1557 at or slightly above-optimum moisture content.

If gap-graded ¾-inch rock is used for backfill (around storm drain storage chambers, retaining wall backfill, etc.) it will require compaction. Rock shall be placed in thin lifts (typically not exceeding 6 inches) and mechanically compacted with observation by geotechnical consultant. Backfill rock shall meet the requirements of ASTM D2321. Gap-graded rock is required to be wrapped in filter fabric to prevent the migration of fines into the rock backfill.

4.1.7 Trench and Basement/Retaining Wall Backfill and Compaction

Bedding material used within the pipe zone should conform to the requirements of the current Greenbook and the pipe manufacturer. Where applicable, sand having a sand equivalent (SE) of 20 or greater (per Caltrans Test Method [CTM] 217) may be used to bed and shade the pipes within the bedding zone. Sand backfill should be densified by jetting or flooding and then tamped to ensure adequate compaction. Bedding sand should be from a natural source, manufactured sand from recycled material is not suitable for jetting. The onsite soils may generally be considered suitable as trench backfill (zone defined as 12 inches above the pipe to subgrade), provided the soils are screened of rocks greater than 6 inches in maximum dimension, construction debris and organic material. Trench backfill should be compacted in uniform lifts (as outlined above in Section "Material for Fill") by mechanical means to at least 90 percent relative compaction (per ASTM D1557). If gap-graded rock is used for trench backfill, refer to above Section 4.1.6.

Basement/retaining wall backfill should consist of predominately granular, sandy soils as outlined in above Section 4.1.6. Retaining wall backfill soils should be compacted in relatively uniform thin lifts to a minimum of 90 percent relative compaction (per ASTM D1557). Jetting or flooding of retaining wall backfill materials should not be permitted. If gap-graded rock is used for basement/retaining wall backfill, refer to above Section 4.1.6.

In backfill areas where mechanical compaction of soil backfill is impractical due to space constraints, typically sand-cement slurry may be substituted for compacted backfill. The slurry should contain about one sack of cement per cubic yard. When set, such a mix typically has the consistency of compacted soil. Sand cement slurry placed near the surface within landscape areas should be evaluated for potential impacts on planned improvements.

A representative from LGC Geotechnical should observe, probe, and test the backfill to verify compliance with the project recommendations.

4.2 Preliminary Foundation Design Recommendations

The following foundation recommendations are preliminary and must be confirmed by LGC Geotechnical at the completion of project plans (i.e., foundation, grading and site layout plans) as well as completion of earthwork. Please note that foundation recommendations are based on estimated structural loads. Increase of structural loads may require revision of the provided foundation recommendations and parameters and/or revised remedial recommendations.

Based on estimated structural loads, a mat foundation placed on compacted aggregate base can be used for support of the proposed building structure to distribute structural loads, to span local irregularities in the supporting capacity of the foundation soils, and to reduce the magnitude of differential settlements between adjacent columns and load bearing walls. The magnitude of total and differential settlements of the mat foundation will be a function of the structural design and stiffness of the mat. The mat foundation should be placed on suitable material as outlined above.

Site soils are anticipated to be of Very Low expansion potential (EI of 20 or less per ASTM D4829). However, this must be verified based on as-graded conditions. The proposed building foundation should be designed in consideration of site groundwater, liquefaction potential and dynamic settlement as outlined in Section 2.6.2.

The mat may be designed to impose a maximum dead-plus-live bearing pressure of 1,000 psf. This value may be increased by one-third for short duration seismic loading. A preliminary vertical modulus of subgrade reaction (k) ranging from 5 to 25 pounds per cubic inch (pci) may be used for dead plus live load conditions. We recommend that the structural design be based on the worst-case condition. The provided k values do not have to be reduced for area (i.e., these values are not for a 1-foot square loaded area). These values may be updated based on provided structural loads and/or additional analysis.

4.2.1 Slab Underlayment Guidelines

The following is for informational purposes only since slab underlayment (e.g., moisture retarder, sand or gravel layers for concrete curing and/or capillary break) is unrelated to the geotechnical performance of the foundation and thereby not the purview of the geotechnical consultant. In consideration of the proximity of site groundwater, post-construction moisture migration should be expected below the foundation. The foundation engineer/architect should determine whether the use of a capillary break (sand or gravel layer), in conjunction with the vapor retarder, is necessary or required by code. Sand layer thickness and location (above and/or below vapor retarder) should also be determined by the foundation engineer/architect.

4.3 Soil Bearing and Lateral Resistance

The following allowable soil bearing is for minor at-grade structures. Provided our earthwork recommendations are implemented, an allowable soil bearing pressure of 1,500 pounds per square foot (psf) may be used for the design of footings having a minimum width of 18 inches and a minimum embedment of 12 inches below lowest adjacent ground surface. This value may be increased by 500 psf for each additional foot of embedment and by 300 psf for each additional foot of foundation width to a maximum value of 2,500 psf. These allowable bearing pressures are applicable for level (ground slope equal to or flatter than 5 horizontal feet to 1-foot vertical) conditions only. Bearing values indicated are for total dead loads and frequently applied live loads and may be increased by ⅓ for short duration loading (i.e., wind or seismic loads). The increase of bearing capacity is based on a reduced factor of safety (seismic factor of safety equal to three-fourths of the static factor of safety) for short duration loading.

Resistance to lateral loads can be provided by frictions acting at the base of foundations and by passive earth pressure. For concrete/soil frictional resistance, an allowable coefficient of friction of 0.25 may be assumed with dead-load forces. An allowable passive lateral earth pressure of 240 psf per foot of depth (or pcf) to a maximum of 2,400 psf may be used for lateral resistance. These passive pressures are applicable for level (ground slope equal to or flatter than 5 horizontal feet to 1-foot vertical) conditions only. Frictional resistance and passive pressure may be used in combination without reduction. We recommend that the upper foot of passive resistance be neglected if finished grade will not be covered with concrete or asphalt concrete. The provided allowable passive pressures are based on a factor of safety of 1.5 and may be increased by one-third for short duration wind or seismic loading. This increase is based on a reduced factor of safety for short duration loading.

4.4 Lateral Earth Pressures for Basement/Retaining Walls

Basement walls up to about 10 feet in height are anticipated at the site. Lateral earth pressures are provided as equivalent fluid unit weights, in psf per foot of depth (or pcf). These values do not contain an appreciable factor of safety, so the basement wall designer should apply the applicable factors of safety and/or load factors during design.

If the wall can yield enough to mobilize the full shear strength of the soil, it can be designed for "active" pressure. If the wall cannot yield under the applied load, the shear strength of the soil cannot be mobilized, and the earth pressure will be higher. Such walls should be designed for "at-rest" conditions. If a structure moves toward the soils, the resulting resistance developed by the soil is the "passive" resistance. The equivalent fluid pressure values assume free-draining conditions and a drainage system will be installed and maintained to prevent the build-up of hydrostatic pressures. Typically, a basement wall constructed directly against temporary shoring is provided with a composite drainage mat (e.g., Miradrain, etc.) placed over the lagging and collected at the wall bottom by a manifold pipe system properly outletted to a suitable discharge point. Basement walls not requiring shoring due to adequate horizontal distance for temporary slopes are subsequently backfilled with sandy soils and a subdrain pipe is wrapped in drainage aggregate and filter fabric (e.g., "burrito" subdrain) and properly outletted to a suitable discharge point (Refer to Figure 3). If a sump pump is required to outlet accumulated water behind retaining/basement walls, the owner and any subsequent owners must be made aware that it will be their responsibility to ensure the sump pump continues to perform properly for the life of

the project. Basement/retaining wall structures should be provided with appropriate drainage and appropriately waterproofed. Please note that waterproofing and specification of the drainage mat and outlet system are not the purview of the geotechnical consultant. If conditions other than those assumed above are anticipated, the equivalent fluid pressure values should be provided on an individual-case basis by the geotechnical consultant. Refer to Figures 3 and 4.

The following lateral earth pressures are presented on Table 4A for design of site basement/retaining walls constructed against the shoring wall (i.e., cut condition not requiring backfill).

TABLE 4A

Lateral Earth Pressures – Cut Condition

Condition	**Equivalent Fluid Unit Weight (pcf)**
	Cut Condition w/Shoring Wall
	Level Backfill
Active	45
At-Rest	65

The following lateral earth pressures are presented on Table 4B are for backfilled basement/retaining walls using approved select granular soils with a maximum of 40 percent fines (passing the No. 200 sieve per ASTM D-421/422) and a maximum Expansion Index of 20 (per ASTM D-4829). The retaining wall designer should clearly indicate on the retaining wall plans the required sandy soil backfill criteria. If the limits of select sandy backfill indicated on Figure 3 cannot be extended due to property line constraints, the lateral earth pressures provided in Table 1A should be used.

TABLE 4B

Lateral Earth Pressures – Conventional Backfilled Basement/Retaining Walls

Condition	**Equivalent Fluid Unit Weight (pcf)**
	Approved Sandy Backfill Material
	Level Backfill
Active	35
At-Rest	55

Surcharge loading effects from any adjacent structures should be evaluated by the basement/retaining wall designer. In general, structural loads within a 1:1 (horizontal to vertical) upward projection from the bottom of the proposed basement/retaining wall footing

will surcharge the proposed retaining structure. In addition to the recommended earth pressure, basement/retaining walls adjacent to streets should be designed to resist vehicular traffic if applicable. Uniform surcharges may be estimated using the applicable coefficient of lateral earth pressure using a rectangular distribution. For a level backfill, a factor of 0.5 and 0.33 may be used for at-rest and active conditions, respectively. The vertical traffic surcharge may be determined by the structural designer. Estimated surcharge loads on the retaining wall may be provided on a case-by-case basis based on the proposed layout (i.e., retaining wall height and corresponding horizontal distance and extent of surcharge). The retaining wall designer should contact the geotechnical consultant for any required geotechnical assistance in estimating any applicable surcharge loads.

If required, the basement/retaining wall designer may use a seismic lateral earth pressure increment of 10 pcf for a level backfill condition. This increment should be applied in addition to the provided static lateral earth pressure using a "normal" triangular distribution with the resultant acting at H/3 in relation to the base of the retaining structure (where H is the retained height). For the restrained, at-rest condition, the seismic increment may be added to the applicable active lateral earth pressure (in lieu of the at-rest lateral earth pressure) when analyzing short duration seismic loading. Per Section 1803.5.12 of the 2019 CBC, the seismic lateral earth pressure is applicable to structures assigned to Seismic Design Category D through F for retaining wall structures supporting more than 6 feet of backfill height. This seismic lateral earth pressure is estimated using the procedure outlined by the Structural Engineers Association of California (Lew, et al, 2010.

Earthwork considerations for basement/retaining walls are provided in Section 4.1 (Site Earthwork) and the subsequent earthwork related sub-sections.

4.5 Temporary Shoring

The earth pressures provided below are only for temporary shoring conditions and assume a fully drained condition and do not include any hydrostatic pressures. For design of temporary shoring, consideration should be made for required removal depths below foundation grade.

Typical cantilever temporary shoring, where deflection of the shoring will not impact the performance of adjacent structures, may be designed using the active equivalent fluid pressures of 35 pounds per square foot (psf) per foot of depth (or pcf) for a level backfill. Braced shoring may be used in areas where the shoring will be located close to existing structures in order to limit shoring defections or required due to the proposed depth of excavation. Braced shoring with a level backfill may be designed using a uniform soil pressure of 23H in pounds per square foot (psf), where H is equal to the depth in feet of the excavation being shored. These lateral earth pressures do not include any hydrostatic pressures and any slopes above the temporary shoring will increase the above-noted lateral earth pressures and can be provided on a case-by-case basis.

In general, any building, equipment or traffic loads located within a 1:1 (horizontal to vertical) projection from the base of the shoring should be added to the applicable lateral earth pressure. If applicable, an additional uniform lateral pressure should be added to the appropriate lateral earth pressures to account for typical vehicle traffic loading. Uniform surcharges may be estimated using the applicable coefficient of lateral earth pressure using a

rectangular distribution. A factor of 0.30 may be used for the active condition. The vertical traffic surcharge may be determined by the shoring designer. For differing conditions, the above-noted lateral earth pressures can be provided on a case-by-case basis. The shoring designer should contact the geotechnical consultant for any required geotechnical input in estimating any applicable lateral surcharge loads.

For piers generally spaced a minimum of 2.5 pile diameters on-center, an allowable passive pressure of 260 pcf may be used for passive resistance. The passive pressure incorporates an arching factor of 2 (e.g., 130 pcf x 2) and should be limited to a maximum of 12 times the value provided above (e.g., 260 pcf to a maximum of 3,120 psf). Passive pressure values are only applicable for level (5 horizontal feet to 1-foot vertical or flatter) soil conditions. To develop the full lateral value, provisions should be made to assure firm contact between the soldier piles and the undisturbed soils. The concrete placed in the soldier pile borehole excavation below the excavated level should be of adequate strength to transfer the imposed loads to the surrounding soils. The provided allowable passive pressure values are based on a factor of safety of 1.3. Shoring designer should incorporate appropriate factors of safety in design.

Continuous lagging should be provided between the soldier piles. Lagging should be placed in a timely manner during excavation in order to minimize potential spalling and sloughing. Careful installation of the lagging will be necessary to achieve bearing against the retained earth. The backfill of the lagging should consist of sand-cement slurry. Means and methods are per the contractor in order to ultimately ensure full bearing of retained earth to the lagging. The soldier piles should be designed for the full anticipated lateral pressure, however, the pressure on the lagging will be less due to soil arching between the piles. We recommend that the lagging be designed for the recommended earth pressure but may be limited to a maximum value of 400 psf if surcharge loads are not present. Lagging placed behind the solider piles will negate the soil arching effect, therefore increased lateral earth pressures on the lagging should be anticipated.

It is difficult to accurately predict the amount of deflection of the shoring system. It should be realized, however, that some deflection will occur. The shoring should be designed to limit deflection to within tolerable limits. If greater deflection occurs during construction, additional bracing may be necessary. In areas where less deflection is desired, such as adjacent to existing settlement sensitive improvements, the shoring should be designed for higher lateral earth pressures.

Caving of the anchor holes should be prevented with the installation method selected. The contractor should evaluate the potential drilling conditions when planning the installation methods, refer to below Section “CIDH Boreholes for Temporary Shoring.”

4.6 Preliminary Pavement Sections

The following preliminary minimum asphalt concrete (AC) pavement sections are provided in Table 5 based on an assumed R-value of 15. These recommendations must be confirmed with R-value testing of representative near-surface soils at the completion of grading and after underground utilities have been installed and backfilled. Determination of the Traffic Index (TI) is not the purview of the geotechnical consultant. Final pavement sections should be confirmed by the project civil/transportation engineer based upon the final design Traffic Index. If requested, LGC Geotechnical will provide sections for alternate TI values.

TABLE 5

Asphalt Concrete Pavement Section Options

Pavement Area	Assumed Traffic Index*	Section Thickness (inches)	
		Asphalt Concrete	Aggregate Base
Auto Parking	4.5	4.0	4.0
Circulation Drives (little to no truck traffic)	5.0	4.0	6.0
Truck Driveways (limited truck traffic)	6.0	5.0	7.5

*Determination of the Traffic Index is not the purview of the geotechnical consultant.

The provided preliminary Portland Cement concrete pavement section is based on the guidelines of the American Concrete Institute (ACI 330R-08). For the final design section, we recommend a traffic study be performed as LGC Geotechnical does not perform traffic engineering. Traffic study should include the design vehicle (number of axles and load per axle) and estimated number of daily repetitions/trips. Based on an assumed Traffic Category C with an assumed Average Daily Truck Traffic (ADTT) of 20, we recommend a preliminary section of a minimum of 6 inches of concrete over 4 inches of compacted aggregate base over compacted subgrade. The concrete should have a minimum compressive strength of 4,000 psi and a minimum flexural strength of 550 psi at the time the pavement is subjected to traffic. Steel reinforcement is not required (ACI, 2013). This pavement section assumes that edge restraints like a curb and gutter will be provided. To reduce the potential (but not eliminate) for cracking, paving should provide control joints at regular intervals not exceeding 10 feet in each direction. Decreasing the spacing of these joints will further reduce, but not eliminate the potential for unsightly cracking. Preliminary pavement section is based on a 30-year design. Truck loading is defined one 16-kip axle and two 32-kip tandem axles (80 kips). Alternate section(s) may be provided based on anticipated specific traffic loadings and repetitions provided by others. LGC Geotechnical does not perform traffic engineering and determination of traffic loading is not the purview of the geotechnical consultant.

The thicknesses shown are minimum thicknesses. Increasing the thickness of any or all of the above layers will reduce the likelihood of the pavement experiencing distress during its service life. The above recommendations are based on the assumption that proper maintenance and irrigation of the areas adjacent to the roadway will occur through the design life of the pavement. Failure to maintain a proper maintenance and/or irrigation program may jeopardize the integrity of the pavement.

Earthwork recommendations regarding aggregate base and subgrade are provided in the previous section “Site Earthwork” and the related sub-sections of this report.

4.7 Soil Corrosivity

Although not corrosion engineers (LGC Geotechnical is not a corrosion consultant), several governing agencies in Southern California require the geotechnical consultant to determine the corrosion potential of soils to buried concrete and metal facilities. We therefore present the

results of our testing with regard to corrosion for the use of the client and other consultants, as they determine necessary.

Corrosion testing indicated a soluble sulfate content value less than approximately 0.02 percent, chloride content of 41 parts per million (ppm), pH value of 8.4, and a minimum resistivity value of 1,560 ohm-centimeters. Based on Caltrans Corrosion Guidelines (2021), soils are considered corrosive if the pH is 5.5 or less, or the chloride concentration is 500 ppm or greater, or the sulfate concentration is 1,500 ppm (0.15 percent) or greater.

Based on laboratory sulfate test results, the near-surface soils have an exposure class of "S0" per ACI 318-14, Table 19.3.1.1 with respect to sulfates. This must be verified based on as-graded conditions.

4.8 Nonstructural Concrete Flatwork

Nonstructural concrete flatwork (such as walkways, etc.) has a high potential for cracking due to changes in soil volume related to soil-moisture fluctuations. To reduce the potential for excessive cracking and lifting, concrete should be designed in accordance with the minimum guidelines outlined in Table 6. These guidelines will reduce the potential for irregular cracking and promote cracking along control joints but will not eliminate all cracking or lifting. Thickening the concrete and/or adding additional reinforcement and control joints will further reduce cosmetic distress. Please note that where tile is planned to be placed over concrete the architect must take special care to ensure that control joints are carried up through the tile from the concrete. The concrete flatwork will move over time, the architect and builder must make provisions for this movement in both design and construction.

TABLE 6

Nonstructural Concrete Flatwork

	Flatwork	**City Sidewalk Curb and Gutters**
Minimum Thickness (in.)	4 inches	City/Agency Standard
Presoak	Wet down prior to placing	City/Agency Standard
Minimum Reinforcement	No. 3 rebar at 24 inches on centers	City/Agency Standard
Crack Control Joints	Saw cut or deep open tool joint to a minimum of $^1/_3$ the concrete thickness	City/Agency Standard
Maximum Joint Spacing	6 feet	City/Agency Standard

4.9 Surface Drainage and Landscaping

4.9.1 Precise Grading

From a geotechnical perspective, we recommend that compacted finished grade soils adjacent to proposed structures be sloped away from the proposed building structures and towards an approved drainage device or unobstructed swale. Drainage swales, wherever feasible, should not be constructed within 5 feet of buildings. Where lot and building geometry necessitates that drainage swales be routed closer than 5 feet to structural foundations, we recommend the use of area drains together with drainage swales. Drainage swales used in conjunction with area drains should be designed by the project civil engineer so that a properly constructed and maintained system will prevent ponding within 5 feet of the foundation. Code compliance of grades is not the purview of the geotechnical consultant.

Planters with open bottoms adjacent to buildings should be avoided. Planters should not be designed adjacent to buildings unless provisions for drainage, such as catch basins, liners, and/or area drains, are made. Overwatering must be avoided.

4.9.2 Landscaping

Planters adjacent to a building structure should be avoided wherever possible or be properly designed (e.g., lined with a membrane), to reduce the penetration of water into the adjacent footing subgrades and thereby reduce moisture-related damage to the foundation. Planting areas at grade should be provided with appropriate positive drainage. Wherever possible, exposed soil areas should be above adjacent paved grades to facilitate drainage. Planters should not be depressed below adjacent paved grades unless provisions for drainage, such as multiple depressed area drains, are constructed. Adequate drainage gradients, devices, and curbing should be provided to prevent runoff from adjacent pavement or walks into the planting areas. Irrigation methods should promote uniformity of moisture in planters and beneath adjacent concrete flatwork. Overwatering and underwatering of landscape areas must be avoided. Irrigation levels should be kept to the absolute minimum level necessary to maintain healthy plant life.

Area drain inlets should be maintained and kept clear of debris in order to properly function. Owners and property management personnel should also be made aware that excessive irrigation of neighboring properties can cause seepage and moisture conditions. Owners and property management personnel should be furnished with these recommendations communicating the importance of maintaining positive drainage away from structures, towards streets, when they design their improvements.

The impact of heavy irrigation or inadequate runoff gradients can create perched water conditions. This may result in seepage or shallow groundwater conditions where previously none existed. Maintaining adequate surface drainage and controlled irrigation will significantly reduce the potential for nuisance-type moisture problems. To reduce differential earth movements such as heaving and shrinkage due to the change in moisture content of foundation soils, which may cause distress to a structure and associated improvements, moisture content of the soils surrounding the structure

should be kept as relatively constant as possible.

4.10 Subsurface Water Infiltration

Recent regulatory changes have occurred that mandate that storm water be infiltrated below grade rather than collected in a conventional storm drain system. Typically, a combination of methods are implemented to reduce surface water runoff and increase infiltration including; permeable pavements/pavers for roadways and walkways, directing surface water runoff to grass-lined swales, retention areas, and/or drywells, etc.

It should be noted that collecting and concentrating surface water for the purpose of intentional infiltration below grade, conflicts with the geotechnical engineering objective of directing surface water away from slopes, structures and other improvements. The geotechnical stability and integrity of a site is reliant upon appropriately handling surface water. In general, the vast majority of geotechnical distress issues are directly related to improper drainage. In general, distress in the form of movement of improvements could occur as a result of soil saturation and loss of soil support, expansion, internal soil erosion, collapse and/or settlement.

Due to the site being comprised of significant amounts of fine-grained soils which have low infiltration rates, depth of groundwater and as well as liquefaction potential and estimated dynamic settlement, we strongly recommend against the intentional infiltration of storm water.

4.11 CIDH Boreholes for Temporary Shoring

Boreholes for temporary shoring should be plumb and free of loose or softened material. Extreme care in drilling, placement of reinforcement steel, and the pouring of concrete will be essential to avoid excessive disturbance of borehole walls. The soldier pile steel section should be installed, and the concrete pumped immediately after drilling is completed. Concrete placement by pumping or tremie tube to the bottom of Cast-In-Drilled Hole (CIDH) excavations is recommended. No soldier pile boreholes should be left open overnight. We recommend that boreholes not be drilled immediately adjacent to another borehole until the concrete in the other soldier pile borehole has attained its initial set. A representative from LGC Geotechnical should be onsite during the drilling of boreholes for temporary shoring to verify the assumptions made during the design stages.

Sandy soils are also present at the site and these materials are generally susceptible to caving. Caving of drilled holes and groundwater should be anticipated. The contractor should anticipate that any borehole left open for any extended period of time will likely experience additional caving. Refer to the boring logs provided in Appendix B. If caving occurs during construction of boreholes a temporary casing or alternate techniques may be required.

4.12 Pre-Construction Documentation and Construction Monitoring

Due to the proximity of existing structures to the proposed development, a program of documentation and monitoring should be devised and put into practice before the onset of any groundwork. LGC Geotechnical can perform these services at your request. This should include,

but not necessarily be limited to, detailed documentation of the existing improvements, buildings, and utilities around the area of proposed excavation, with particular attention to any distress that is already present prior to the start of work. Subsequent readings should be scheduled consistent with the program of work. Routine monitoring of horizontal and vertical movement should be performed for the shoring system and adjacent improvements during construction to verify that shoring deflections are within tolerable limits.

4.13 Geotechnical Plan Review

Project plans (e.g., grading, temporary shoring, foundation, basement etc.) and final project drawings should be reviewed by this office prior to construction to verify that our geotechnical recommendations, provided herein, have been appropriately incorporated. Additional or modified geotechnical recommendations may be required based on the proposed layout.

4.14 Geotechnical Observation and Testing During Construction

The recommendations provided in this report are based on limited subsurface observations and geotechnical analysis. The interpolated subsurface conditions should be checked in the field during construction by a representative of LGC Geotechnical. Geotechnical observation and testing is required per Section 1705 of the 2019 California Building Code (CBC).

Geotechnical observation and/or testing should be performed by LGC Geotechnical at the following stages:

- During installation of temporary shoring;
- During subgrade stabilization;
- During earthwork grading (subgrade bottoms, fill placement, etc.);
- During basement/retaining wall backfill and compaction;
- During utility trench backfill and compaction;
- Preparation of pavement subgrade and placement of aggregate base;
- After building foundation excavation and prior to placing reinforcement and/or concrete; and
- When any unusual soil conditions are encountered during any construction operation subsequent to issuance of this report.

5.0 LIMITATIONS

Our services were performed using the degree of care and skill ordinarily exercised, under similar circumstances, by reputable engineers and geologists practicing in this or similar localities. No other warranty, expressed or implied, is made as to the conclusions and professional advice included in this report. The samples taken and submitted for laboratory testing, the observations made, and the in-situ field testing performed are believed representative of the entire project; however, soil and geologic conditions revealed by excavation may be different than our preliminary findings. If this occurs, the changed conditions must be evaluated by the project soils engineer and geologist and design(s) adjusted as required or alternate design(s) recommended.

This report is issued with the understanding that it is the responsibility of the owner, or of his/her representative, to ensure that the information and recommendations contained herein are brought to the attention of the architect and/or project engineer and incorporated into the plans, and the necessary steps are taken to see that the contractor and/or subcontractor properly implements the recommendations in the field. The contractor and/or subcontractor should notify the owner if they consider any of the recommendations presented herein to be unsafe.

The findings of this report are valid as of the present date. However, changes in the conditions of a property can and do occur with the passage of time, whether they be due to natural processes or the works of man on this or adjacent properties. Therefore, the findings, conclusions, and recommendations presented in this report can be relied upon only if LGC Geotechnical has the opportunity to observe the subsurface conditions during grading and construction of the project, in order to confirm that our preliminary findings are representative for the site.

In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and modification, and should not be relied upon after a period of 3 years.

PROJECT NAME	21st Century - Woodside Ave
PROJECT NO.	21287-01
ENG. / GEOL.	BTZ/KBC
SCALE	Not to Scale
DATE	March 2022

LGC Geotechnical, Inc.

FIGURE 1
Site Location Map

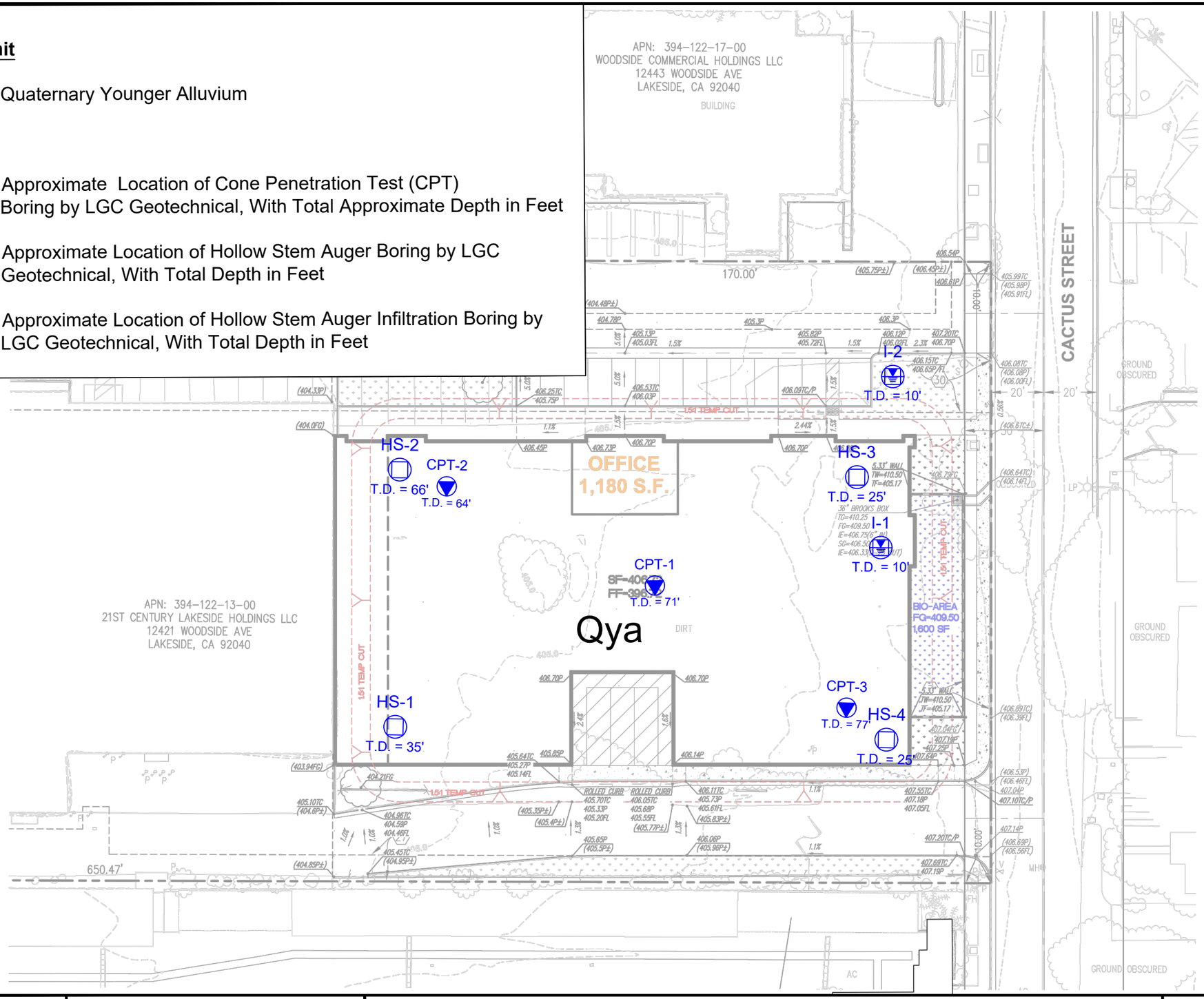
LEGEND

Geologic Unit

Qya	Quaternary Younger Alluvium

Symbols

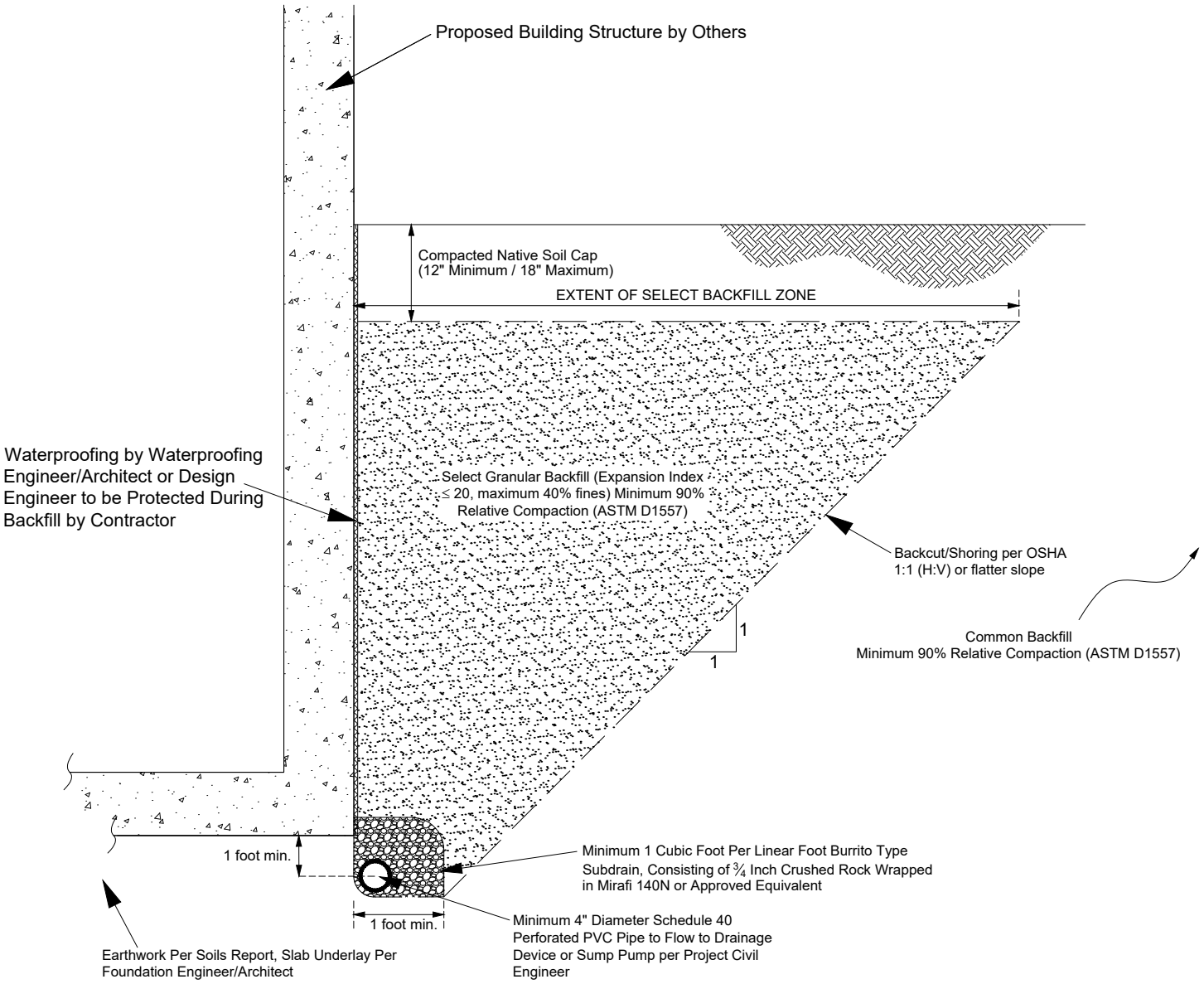
CPT-1 T.D. = 77'	Approximate Location of Cone Penetration Test (CPT) Boring by LGC Geotechnical, With Total Approximate Depth in Feet
HS-1 T.D. = 35'	Approximate Location of Hollow Stem Auger Boring by LGC Geotechnical, With Total Depth in Feet
I-1 T.D. = 10'	Approximate Location of Hollow Stem Auger Infiltration Boring by LGC Geotechnical, With Total Depth in Feet



LGC Geotechnical, Inc.
131 Calle Iglesia, Ste. 200
San Clemente, CA 92672
TEL (949) 369-6141 FAX (949) 369-6142

FIGURE 2
Geotechnical Map

PROJECT NAME	21st Century - Woodside Ave
PROJECT NO.	21287-01
ENG. / GEOL.	BTZ/KBC
SCALE	1" = 40'
DATE	March 2022

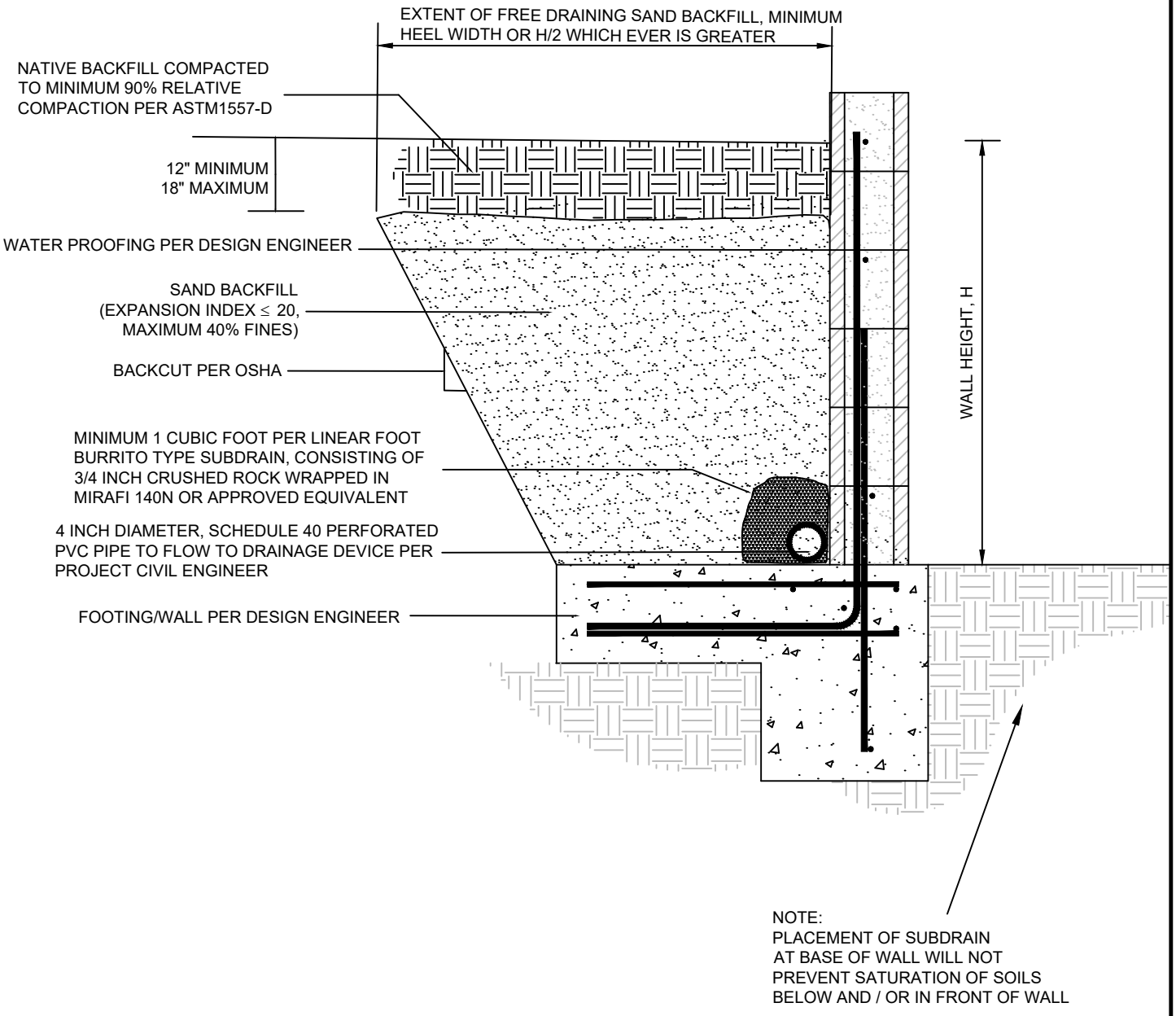


NOTE : Granular backfill may be substituted with 3/4 inch crushed compacted rock wrapped in filter fabric. Geotechnical drainage detail will not prevent water seepage into structure, it is only to prevent build up of water pressure against wall.

LGC Geotechnical, Inc.

FIGURE 3
Basement Subterranean Structure Backfill Detail

PROJECT NAME	21st Century - 12407-12413 Woodside Ave
PROJECT NO.	21287-01
ENG. / GEOL.	BTZ / KBC
SCALE	Not to Scale
DATE	March 2022



LGC Geotechnical, Inc.

FIGURE 4
Retaining Wall Backfill Detail

PROJECT NAME	21st Century - 12407-12413 Woodside Ave
PROJECT NO.	21287-01
ENG. / GEOL.	BTZ / KBC
SCALE	Not to Scale
DATE	March 2022

Appendix A
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APPENDIX A

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Appendix B
Boring & CPT Logs

Geotechnical Boring Log Borehole LGC-HS-1

Date: 12/20/2021 | **Drilling Company:** Cal Pac

Project Name: Woodside Self Storage | **Type of Rig:** Truck Mounted

Project Number: 21287-01 | **Drop:** 30" | **Hole Diameter:** 8"

Elevation of Top of Hole: ~405' MSL | **Drive Weight:** 140 pounds

Hole Location: See Geotechnical Map

Logged By CMP
Sampled By CMP
Checked By KBC

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
	0	B-1						@ 0' - **Quaternary Younger Alluvium (Qya):** Silty SAND: dark brown, moist, porous	
			R-1	4 5 5	108.2	11.9	SM	@ 2.5' - Silty SAND: gray brown, moist, loose, porous	CR EI
400	5		R-2	3 4 4	103.0	12.1		@ 5' - Silty SAND: dark brown, moist, loose	
			R-3	3 4 4	103.7	10.1		@ 7.5' - Silty SAND: dark brown, moist, loose	
395	10		SPT-1	2 2 3		27.3	ML	@ 10' - SILT with Sand: gray brown, very moist to wet, medium stiff, low plasticity	-#200
390	15		R-4	3 7 8	107.3	21.7	CL-ML	@ 15' - Silty CLAY with Sand: olive brown, very moist, stiff	DS
385	20		SPT-2	1 2 1		28.9	SC/CL	@ 20' - Clayey SAND/Sandy CLAY: dark olive brown, wet, very loose/soft	
380	25		R-5	2 4 6	113.5	17.8	SC-SM	@ 25' - Silty, Clayey SAND: dark gray brown, moist, loose	
	30								

LGC Geotechnical, Inc.

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED. THE DESCRIPTIONS PROVIDED ARE QUALITATIVE FIELD DESCRIPTIONS AND ARE NOT BASED ON QUANTITATIVE ENGINEERING ANALYSIS.

SAMPLE TYPES:

B	BULK SAMPLE
R	RING SAMPLE (CA Modified Sampler)
G	GRAB SAMPLE
SPT	STANDARD PENETRATION TEST SAMPLE
▽	GROUNDWATER TABLE

TEST TYPES:

DS	DIRECT SHEAR
MD	MAXIMUM DENSITY
SA	SIEVE ANALYSIS
S&H	SIEVE AND HYDROMETER
EI	EXPANSION INDEX
CN	CONSOLIDATION
CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Last Edited: 1/31/2022

Geotechnical Boring Log Borehole LGC-HS-1

Date: 12/20/2021 | **Drilling Company:** Cal Pac

Project Name: Woodside Self Storage | **Type of Rig:** Truck Mounted

Project Number: 21287-01 | **Drop:** 30" | **Hole Diameter:** 8"

Elevation of Top of Hole: ~405' MSL | **Drive Weight:** 140 pounds

Hole Location: See Geotechnical Map

Logged By CMP
Sampled By CMP
Checked By KBC

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
	30		SPT-3	4 8 12		16.4	SP	@ 30' - SAND: olive gray, wet, medium dense,	
370	35							Total Depth = 35' Groundwater not measured Backfilled with Grout on 12/20/2021	
365	40								
360	45								
355	50								
350	55								
	60								

LGC Geotechnical, Inc.

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED. THE DESCRIPTIONS PROVIDED ARE QUALITATIVE FIELD DESCRIPTIONS AND ARE NOT BASED ON QUANTITATIVE ENGINEERING ANALYSIS.

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TEST TYPES:

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EI	EXPANSION INDEX
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CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Geotechnical Boring Log Borehole LGC-HS-2

Date: 12/20/2021 | **Drilling Company:** Cal Pac

Project Name: Woodside Self Storage | **Type of Rig:** Truck Mounted

Project Number: 21287-01 | **Drop:** 30" | **Hole Diameter:** 8"

Elevation of Top of Hole: ~404' MSL | **Drive Weight:** 140 pounds

Hole Location: See Geotechnical Map

Logged By CMP
Sampled By CMP
Checked By KBC

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
	0	B-1						@ 0' - **Quaternary Younger Alluvium (Qya):** Sandy SILT with trace Gravel: dark brown, damps, stiff, porous	
			R-1	3 3 4	96.3	27.3	ML	@ 2.5' - Sandy SILT: dark gray brown, medium stiff	
400	5		R-2	3 3 4	101.2	11.3	CL	@ 5' - Sandy CLAY: dark olive brown, slightly moist, medium stiff	DS
			R-3	3 7 8	116.2	9.6	SM	@ 7.5' - Silty SAND: gray brown, moist, medium dense, porous	
395	10		SPT-1	2 4 4		19.0	CL	@ 10' - Sandy CLAY: dark brown, very moist, stiff	-#200 AL
390	15		R-4	4 3 5	102.8	11.2		@ 15' - Sandy CLAY: dark olive brown, slightly moist, medium stiff	CN AL
385	20		SPT-2	1 2 1		29.4		@ 20' - Sandy CLAY with trace gravel: olive gray brown, very moist to wet, soft	-#200 AL
380	25		R-5	1 2 3	114.0	18.1	SC	@ 25' - Clayey SAND: trace gravel, dark gray brown, moist, loose	CN AL
	30								

LGC Geotechnical, Inc.

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED. THE DESCRIPTIONS PROVIDED ARE QUALITATIVE FIELD DESCRIPTIONS AND ARE NOT BASED ON QUANTITATIVE ENGINEERING ANALYSIS.

SAMPLE TYPES:

B	BULK SAMPLE
R	RING SAMPLE (CA Modified Sampler)
G	GRAB SAMPLE
SPT	STANDARD PENETRATION TEST SAMPLE
▽	GROUNDWATER TABLE

TEST TYPES:

DS	DIRECT SHEAR
MD	MAXIMUM DENSITY
SA	SIEVE ANALYSIS
S&H	SIEVE AND HYDROMETER
EI	EXPANSION INDEX
CN	CONSOLIDATION
CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Last Edited: 1/28/2022

Geotechnical Boring Log Borehole LGC-HS-2

Date: 12/20/2021 | **Drilling Company:** Cal Pac

Project Name: Woodside Self Storage | **Type of Rig:** Truck Mounted

Project Number: 21287-01 | **Drop:** 30" | **Hole Diameter:** 8"

Elevation of Top of Hole: ~404' MSL | **Drive Weight:** 140 pounds

Hole Location: See Geotechnical Map

Logged By CMP
Sampled By CMP
Checked By KBC

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
	30		SPT-3	1 1 1		22.6	SC-SM	@ 30' - Silty, Clayey SAND: brown, wet, very loose	-#200 AL
370	35		R-6	3 3 6	101.4	26.1	SC	@ 35' - Clayey SAND: dark gray brown, wet, loose	
365	40		SPT-4	1 2 3		33.2	CL	@ 40' - Sandy CLAY: dark gray brown, wet, medium stiff	-#200
360	45		R-7	9 12 12	121.1	13.8	SP-SM	@ 45' - SAND with Silt: dark pinkish brown, wet, medium dense	
355	50		SPT-5	9 13 14		12.9		@ 50' - SAND with Silt: dark brown, wet, medium dense	-#200
350	55		R-8	8 19 19	109.4	20.7	SC	@ 55' - Clayey SAND: dark brown, wet, medium dense to dense	
	60								

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THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED. THE DESCRIPTIONS PROVIDED ARE QUALITATIVE FIELD DESCRIPTIONS AND ARE NOT BASED ON QUANTITATIVE ENGINEERING ANALYSIS.

SAMPLE TYPES:

B	BULK SAMPLE
R	RING SAMPLE (CA Modified Sampler)
G	GRAB SAMPLE
SPT	STANDARD PENETRATION TEST SAMPLE
▽	GROUNDWATER TABLE

TEST TYPES:

DS	DIRECT SHEAR
MD	MAXIMUM DENSITY
SA	SIEVE ANALYSIS
S&H	SIEVE AND HYDROMETER
EI	EXPANSION INDEX
CN	CONSOLIDATION
CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Geotechnical Boring Log Borehole LGC-HS-2

Date: 12/20/2021 | **Drilling Company:** Cal Pac

Project Name: Woodside Self Storage | **Type of Rig:** Truck Mounted

Project Number: 21287-01 | **Drop:** 30" | **Hole Diameter:** 8"

Elevation of Top of Hole: ~404' MSL | **Drive Weight:** 140 pounds

Hole Location: See Geotechnical Map

Logged By CMP
Sampled By CMP
Checked By KBC

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
	60		SPT-6	5 10 14		20.2	CL	@ 60 - Sandy CLAY: dark brown, wet, very stiff to hard	-#200
340	65		R-9	23 50/6"	117.4	13.8	SC	@ 65 - Clayey SAND: red brown, wet, very dense	
								Total Depth = 66' Groundwater not measured Backfilled with Grout on 12/20/2021	
335	70								
330	75								
325	80								
320	85								
	90								

LGC Geotechnical, Inc.

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED. THE DESCRIPTIONS PROVIDED ARE QUALITATIVE FIELD DESCRIPTIONS AND ARE NOT BASED ON QUANTITATIVE ENGINEERING ANALYSIS.

SAMPLE TYPES:

B	BULK SAMPLE
R	RING SAMPLE (CA Modified Sampler)
G	GRAB SAMPLE
SPT	STANDARD PENETRATION TEST SAMPLE
	GROUNDWATER TABLE

TEST TYPES:

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MD	MAXIMUM DENSITY
SA	SIEVE ANALYSIS
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EI	EXPANSION INDEX
CN	CONSOLIDATION
CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Geotechnical Boring Log Borehole LGC-HS-3

Date: 12/20/2021 | **Drilling Company:** Cal Pac

Project Name: Woodside Self Storage | **Type of Rig:** Truck Mounted

Project Number: 21287-01 | **Drop:** 30" | **Hole Diameter:** 8"

Elevation of Top of Hole: ~406' MSL | **Drive Weight:** 140 pounds

Hole Location: See Geotechnical Map

Logged By CMP
Sampled By CMP
Checked By KBC

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
	0	B-1						@ 0' - Fill: some vegetation, dead plant debris, animal burrows, to 2-3"	
400			R-1	7 9 10	107.1	3.6	SP-SM	@ 2.5' - **Quaternary Younger Alluvium (Qya):** SAND with Silt: trace gravel, light orange brown, slightly moist, medium dense, porous	
	5		R-2	4 4 5	94.3	7.2	SM	@ 5' - Silty SAND: dark brown, slightly moist, loose, porous	
			R-3	4 5 9	105.7	12.6	ML	@ 7.5' - Sandy SILT with trace gravel: dark brown, moist, stiff	
395	10		SPT-1	3 2 4		22.5		@ 10' - Sandy SILT: gray, very moist, medium stiff, some calcite stringers, porous	-#200
390	15		R-4	2 4 5	96.4	25.7		@ 15' - Sandy SILT with trace gravel: brown and light brown, very moist to wet, medium stiff to stiff	
385	20		SPT-2	2 1 2		26.4	SC/CL	@ 20' - Clayey SAND/Sandy CLAY: gray brown, very moist to wet, very loose/soft, trace rootlets, calcite stringers	
380	25		R-5	4 5 5				@ 25' - No Recovery	
375	30							Total Depth = 26.5' Groundwater Encountered at Approximately 23.7' Backfilled with Grout on 12/20/2021	

LGC Geotechnical, Inc.

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED. THE DESCRIPTIONS PROVIDED ARE QUALITATIVE FIELD DESCRIPTIONS AND ARE NOT BASED ON QUANTITATIVE ENGINEERING ANALYSIS.

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TEST TYPES:

DS	DIRECT SHEAR
MD	MAXIMUM DENSITY
SA	SIEVE ANALYSIS
S&H	SIEVE AND HYDROMETER
EI	EXPANSION INDEX
CN	CONSOLIDATION
CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Last Edited: 1/28/2022

Geotechnical Boring Log Borehole LGC-HS-4

Date: 12/20/2021 | **Drilling Company:** Cal Pac

Project Name: Woodside Self Storage | **Type of Rig:** Truck Mounted

Project Number: 21287-01 | **Drop:** 30" | **Hole Diameter:** 8"

Elevation of Top of Hole: ~407' MSL | **Drive Weight:** 140 pounds

Hole Location: See Geotechnical Map

Logged By CMP
Sampled By CMP
Checked By KBC

Elevation (ft)	Depth (ft)	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
	0						@ 0' - Fill, Silty SAND: olive brown, damp, animal burrows, dead plat debris	
		R-1	6 7 8	107.2	3.9	SM	@ 2.5' - **Quaternary Younger Alluvium (Qya):** Silty SAND: orange brown, slightly moist, medium dense, porous	
400	5	R-2	4 3 4	99.1	7.6		@ 5' - Silty SAND: brown, moist, loose	
		R-3	4 5 7	106.3	8.2		@ 7.5' - Silty SAND: gray brown, loose porous, trace rootlets	
395	10	SPT-1	3 3 4		15.0	ML	@ 10' - Sandy SILT: gray brown, moist, stiff	
390	15	R-4	4 4 6	89.7	35.4	CL	@ 15' - CLAY: olive brown, very moist to wet, medium stiff	CN
385	20	SPT-2	1 2 2		29.2		@ 20' - Sandy CLAY: dark gray brown, very moist to wet, medium stiff	
380	25	R-5	2 2 8				@ 25' - No Recovery	
	30						Total Depth = 26.5' Groundwater Encountered at Approximately 22.1' Backfilled with Grout on 12/20/2021	

B-1

LGC Geotechnical, Inc.

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED. THE DESCRIPTIONS PROVIDED ARE QUALITATIVE FIELD DESCRIPTIONS AND ARE NOT BASED ON QUANTITATIVE ENGINEERING ANALYSIS.

SAMPLE TYPES:

B	BULK SAMPLE
R	RING SAMPLE (CA Modified Sampler)
G	GRAB SAMPLE
SPT	STANDARD PENETRATION TEST SAMPLE
▽	GROUNDWATER TABLE

TEST TYPES:

DS	DIRECT SHEAR
MD	MAXIMUM DENSITY
SA	SIEVE ANALYSIS
S&H	SIEVE AND HYDROMETER
EI	EXPANSION INDEX
CN	CONSOLIDATION
CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Last Edited: 1/28/2022

Geotechnical Boring Log Borehole LGC-I-1

Date: 12/20/2021 | **Drilling Company:** Cal Pac

Project Name: Woodside Self Storage | **Type of Rig:** Truck Mounted

Project Number: 21287-01 | **Drop:** 30" | **Hole Diameter:** 8"

Elevation of Top of Hole: ~407' MSL | **Drive Weight:** 140 pounds

Hole Location: See Geotechnical Map

Logged By CMP
Sampled By CMP
Checked By KBC

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
	0							@ 0' - Silty SAND: dark brown, damp, trace calcite porous	
400			R-1	5 5 5	103.4	3.5	SP-SM	@ 2.5' - SAND with Silt: orange brown, slightly moist, loose	
	5		R-2	3 3 3	101.9	8.0	SM	@ 5' - Silty SAND: brown, moist very loose	
395			R-3	3 4 5	105.6	9.5		@ 7.5 - Silty SAND: gray brown, moist, loose	
	10							Total Depth = 10' Groundwater Not Encountered 3" Perforated pipe with filter sock installed, surrounded by gravel, and presoaked-pipe removed and backfilled on 12/21/2021	
390									
	15								
385									
	20								
380									
	25								
375									
	30								

LGC Geotechnical, Inc.

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED. THE DESCRIPTIONS PROVIDED ARE QUALITATIVE FIELD DESCRIPTIONS AND ARE NOT BASED ON QUANTITATIVE ENGINEERING ANALYSIS.

SAMPLE TYPES:

B	BULK SAMPLE
R	RING SAMPLE (CA Modified Sampler)
G	GRAB SAMPLE
SPT	STANDARD PENETRATION TEST SAMPLE
▽	GROUNDWATER TABLE

TEST TYPES:

DS	DIRECT SHEAR
MD	MAXIMUM DENSITY
SA	SIEVE ANALYSIS
S&H	SIEVE AND HYDROMETER
EI	EXPANSION INDEX
CN	CONSOLIDATION
CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Last Edited: 1/31/2022

Geotechnical Boring Log Borehole LGC-I-2

Date: 12/20/2021 | **Drilling Company:** Cal Pac

Project Name: Woodside Self Storage | **Type of Rig:** Truck Mounted

Project Number: 21287-01 | **Drop:** 30" | **Hole Diameter:** 8"

Elevation of Top of Hole: ~406' MSL | **Drive Weight:** 140 pounds

Hole Location: See Geotechnical Map

Logged By CMP
Sampled By CMP
Checked By KBC

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
	0							@ 0' - Fill, Silty SAND: dark brown	
			R-1	6 6 8	104.8	4.4	SP-SM	@ 2.5' - SAND with Silt: orange brown, medium dense	
400	5		R-2	5 4 6	102.1	5.7	SM	@ 5' - Silty SAND: dark brown, porous, pinhole porosity, calcite stringers, slightly moist, loose	
			R-3	5 4 7	103.8	10.8		@ 7.5' - Silty SAND: gray brown, moist, loose	
395	10							Total Depth = 10' Groundwater Not Encountered 3" Perforated pipe with filter sock installed, surrounded by gravel, and presoaked-pipe removed and backfilled on 12/21/2021	
390	15								
385	20								
380	25								
	30								

LGC Geotechnical, Inc.

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED. THE DESCRIPTIONS PROVIDED ARE QUALITATIVE FIELD DESCRIPTIONS AND ARE NOT BASED ON QUANTITATIVE ENGINEERING ANALYSIS.

SAMPLE TYPES:

B	BULK SAMPLE
R	RING SAMPLE (CA Modified Sampler)
G	GRAB SAMPLE
SPT	STANDARD PENETRATION TEST SAMPLE
▽	GROUNDWATER TABLE

TEST TYPES:

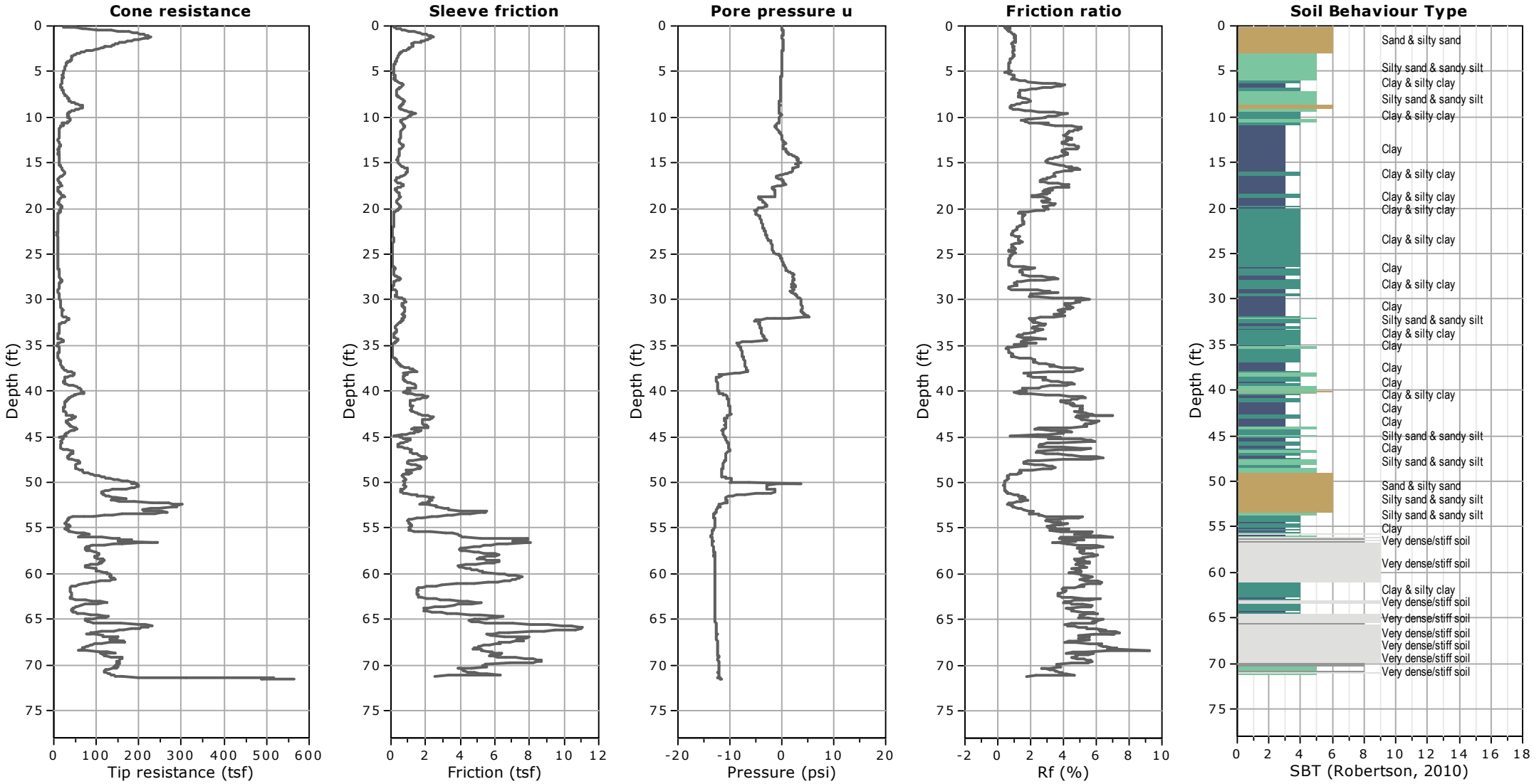
DS	DIRECT SHEAR
MD	MAXIMUM DENSITY
SA	SIEVE ANALYSIS
S&H	SIEVE AND HYDROMETER
EI	EXPANSION INDEX
CN	CONSOLIDATION
CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Last Edited: 1/31/2022

Kehoe Testing and Engineering
714-901-7270
steve@kehoetesting.com
www.kehoetesting.com

Project: **LGC Geotechnical**
Location: **12443 Woodside Ave, Lakeside, CA**

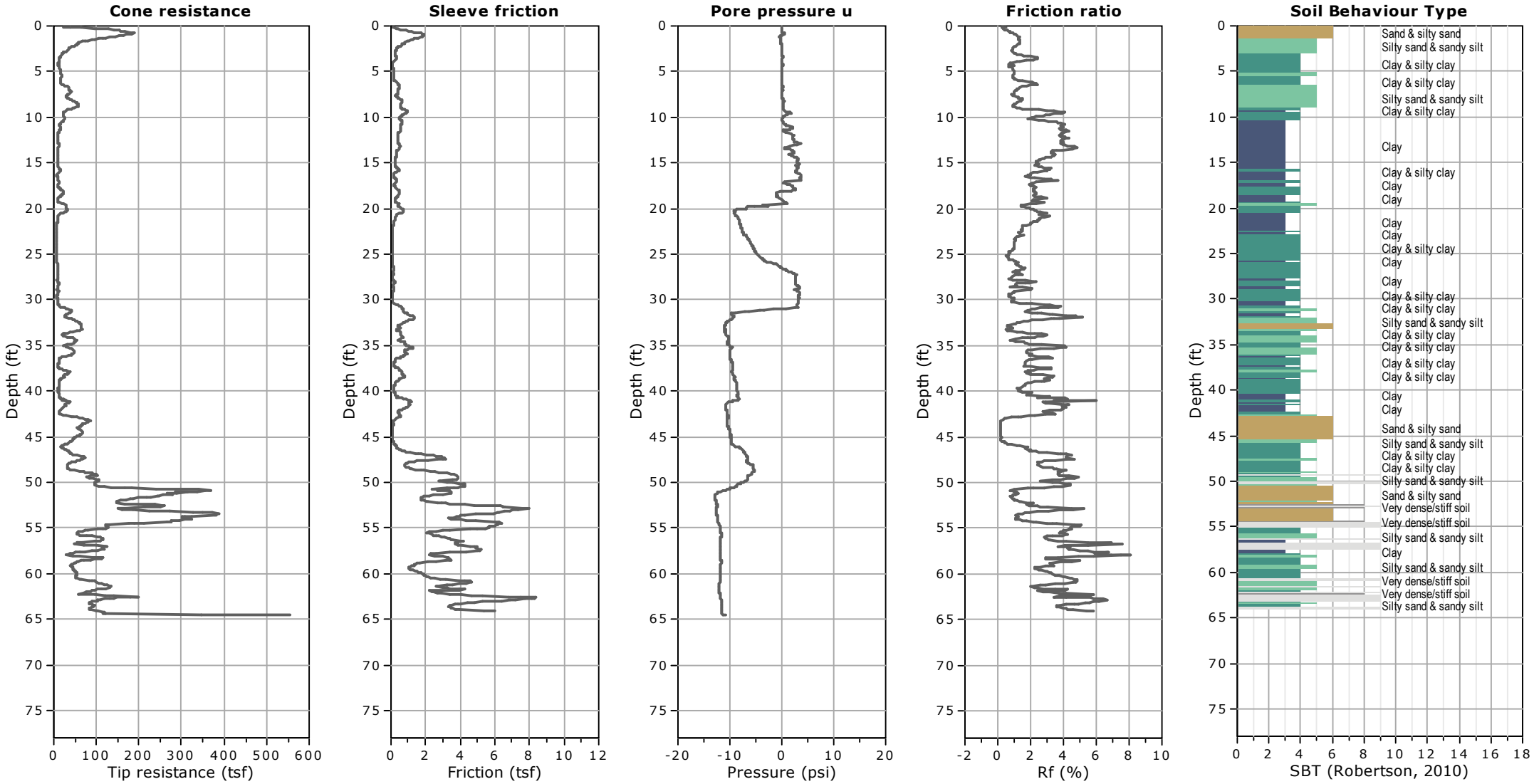
CPT-1
Total depth: 71.62 ft, Date: 2/16/2022



Kehoe Testing and Engineering
714-901-7270
steve@kehoetesting.com
www.kehoetesting.com

Project: **LGC Geotechnical**
Location: **12443 Woodside Ave, Lakeside, CA**

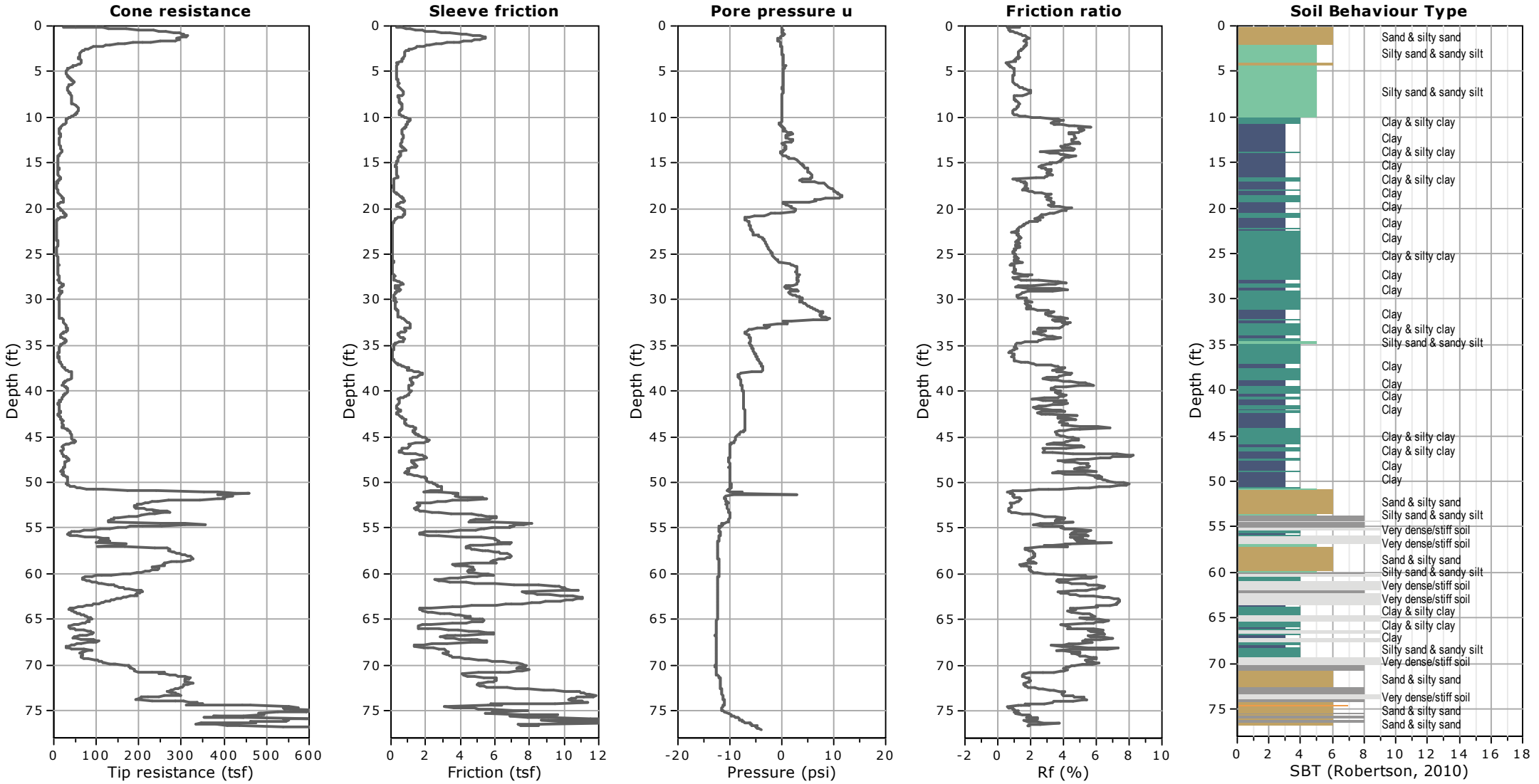
CPT-2
Total depth: 64.51 ft, Date: 2/16/2022



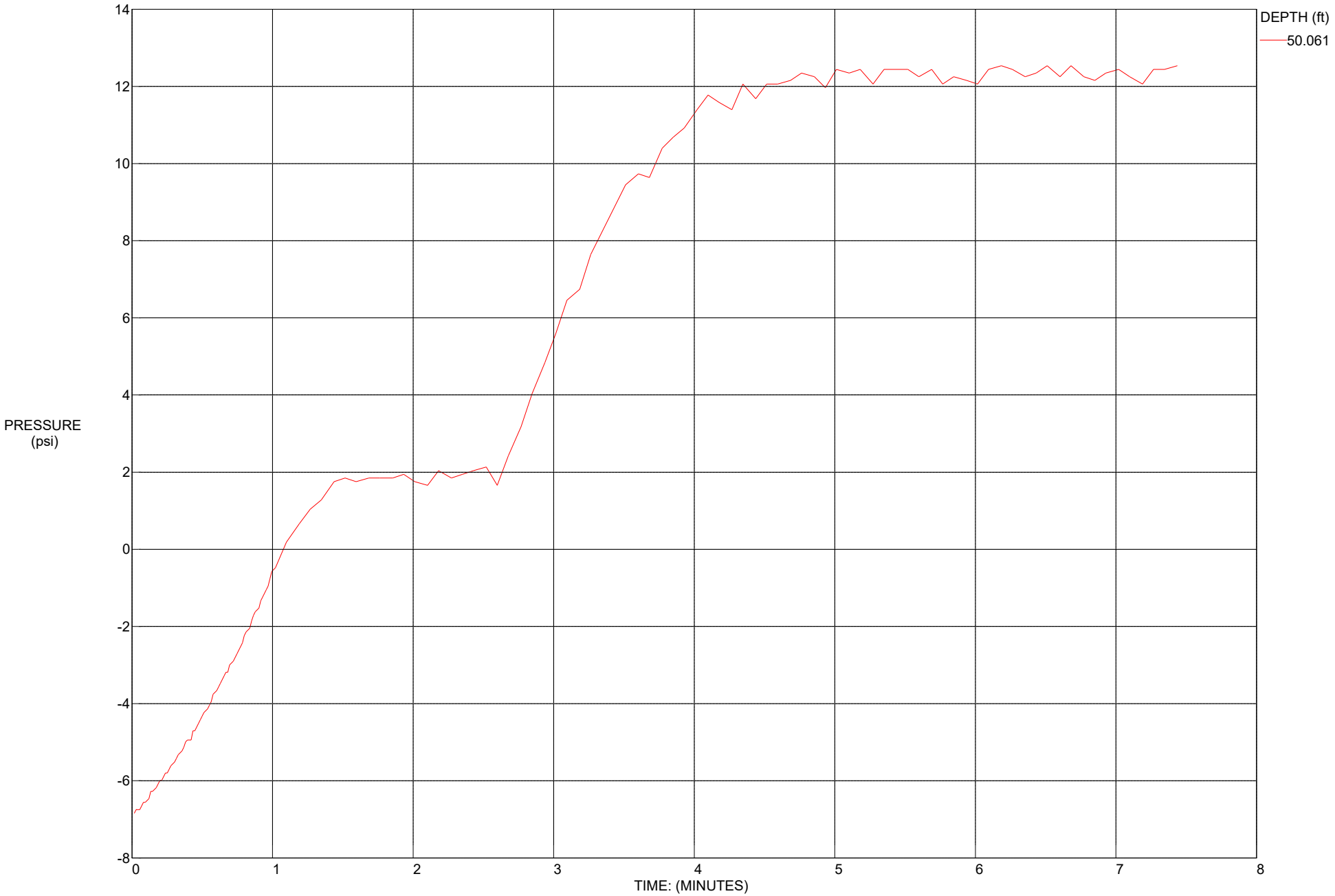
Kehoe Testing and Engineering
714-901-7270
steve@kehoetesting.com
www.kehoetesting.com

Project: **LGC Geotechnical**
Location: **12443 Woodside Ave, Lakeside, CA**

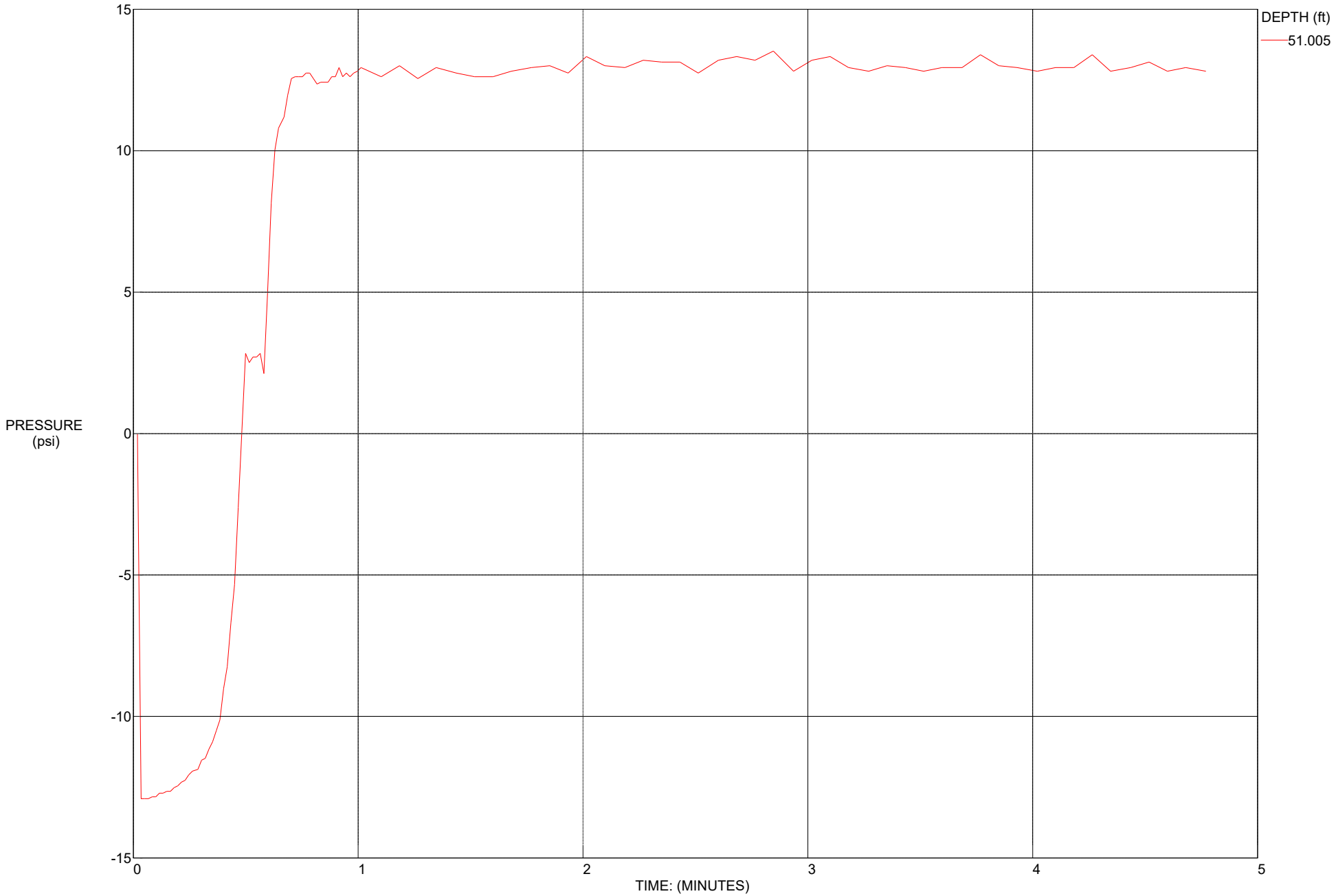
CPT-3
Total depth: 77.04 ft, Date: 2/16/2022



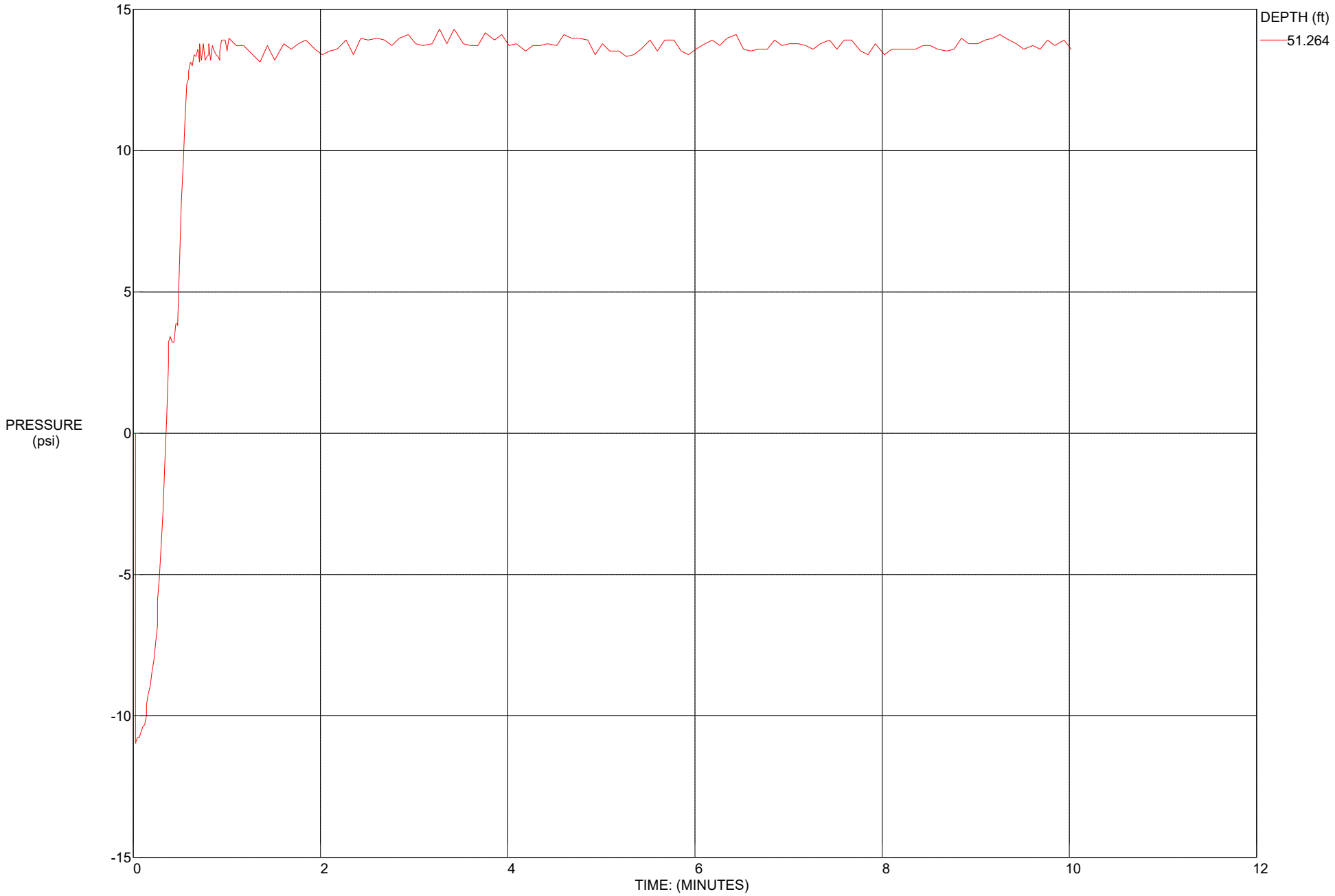
TEST ID: CPT-1


DEPTH (ft)
50.061
PRESSURE
(psi)
14
12
10
8
6
4
2
0
-2
-4
-6
-8
0
1
2
3
4
5
6
7
8
TIME: (MINUTES)

TEST ID: CPT-2


DEPTH (ft)
51.005
PRESSURE
(psi)
15
10
5
0
-5
-10
-15
0
1
2
3
4
5
TIME: (MINUTES)

TEST ID: CPT-3


DEPTH (ft)
51.264
PRESSURE
(psi)
15
10
5
0
-5
-10
-15
0
2
4
6
8
10
12
TIME: (MINUTES)

LGC Geotechnical
12443 Woodside Ave.
Lakeside, CA

CPT Shear Wave Measurements

Location	Tip Depth (ft)	Geophone Depth (ft)	Travel Distance (ft)	S-Wave Arrival (msec)	S-Wave Velocity from Surface (ft/sec)	Interval S-Wave Velocity (ft/sec)
CPT-1	5.02	4.02	4.49	6.84	656	
	10.63	9.63	9.84	14.88	661	665
	15.06	14.06	14.20	22.88	621	546
	20.01	19.01	19.11	29.44	649	749
	25.00	24.00	24.08	36.72	656	682
	30.02	29.02	29.09	44.30	657	660
	35.01	34.01	34.07	51.24	665	718
	39.60	38.60	38.65	58.12	665	666
	45.57	44.57	44.61	64.96	687	872
	50.07	49.07	49.11	70.14	700	868
	55.54	54.54	54.58	75.26	725	1068
	60.01	59.01	59.04	78.56	752	1354
	65.09	64.09	64.12	82.32	779	1350
	70.14	69.14	69.17	85.76	807	1467
	71.57	70.57	70.60	86.68	814	1554
CPT-3	5.02	4.02	4.49	5.56	808	
	10.01	9.01	9.23	11.64	793	779
	15.03	14.03	14.17	18.52	765	718
	19.98	18.98	19.09	26.00	734	657
	25.16	24.16	24.24	34.16	710	632
	30.09	29.09	29.16	43.04	677	554
	34.97	33.97	34.03	49.86	682	714
	40.06	39.06	39.11	55.76	701	861
	45.01	44.01	44.06	63.28	696	657
	50.00	49.00	49.04	69.60	705	789
	55.02	54.02	54.06	73.24	738	1378
	59.97	58.97	59.00	76.64	770	1455
	64.96	63.96	63.99	80.08	799	1450
	70.08	69.08	69.11	83.92	824	1333
	75.36	74.36	74.39	88.20	843	1233

Shear Wave Source Offset - 2 ft

S-Wave Velocity from Surface = Travel Distance/S-Wave Arrival
Interval S-Wave Velocity = (Travel Dist2-Travel Dist1)/(Time2-Time1)

Appendix C
Laboratory Test Results

APPENDIX C

Laboratory Test Results

The laboratory testing program was directed towards providing quantitative data relating to the relevant engineering properties of the soils. Samples considered representative of site conditions were tested in general accordance with American Society for Testing and Materials (ASTM) procedure and/or California Test Methods (CTM), where applicable. The following summary is a brief outline of the test type and a table summarizing the test results.

Moisture and Density Determination Tests: Moisture content (ASTM D2216) and dry density determinations (ASTM D2937) were performed on driven samples obtained from the test borings. The results of these tests are presented in the boring logs. Where applicable, only moisture content was determined from undisturbed or disturbed samples.

Grain Size Distribution/Fines Content: Representative samples were dried, weighed, and soaked in water until individual soil particles were separated (per ASTM D421) and then washed on a No. 200 sieve (ASTM D1140). Where applicable, the portion retained on the No. 200 sieve was dried and then sieved on a U.S. Standard brass sieve set in accordance with ASTM D6913 (sieve).

Sample Location	Description	% Passing # 200 Sieve
HS-1 @ 10 ft	Silt with Sand	73
HS-2 @ 10 ft	Sandy Clay	51
HS-2 @ 20 ft	Sandy Clay	54
HS-2 @ 30 ft	Silty, Clayey Sand	42
HS-2 @ 40 ft	Sandy Clay	66
HS-2 @ 50 ft	Sand with Silt	8
HS-2 @ 60 ft	Sandy Clay	52
HS-3 @ 10 ft	Sandy Silt	63

Laboratory Test Results

Atterberg Limits: The liquid and plastic limits ("Atterberg Limits") were determined per ASTM D4318 for engineering classification of fine-grained material and presented in the table below. The USCS soil classification indicated in the table below is based on the portion of sample passing the No. 40 sieve and may not necessarily be representative of the entire sample. The plots are provided in this Appendix.

Sample Location	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	USCS Soil Classification
HS-2 @ 10 ft	26	17	9	CL
HS-2 @ 15 ft	24	12	12	CL
HS-2 @ 20 ft	29	19	10	CL
HS-2 @ 25 ft	29	14	15	CL
HS-2 @ 30 ft	24	17	7	CL-ML
HS-4 @ 15 ft	44	20	24	CL

Expansion Index: The expansion potential of selected representative samples was evaluated by the Expansion Index Test per ASTM D4829. The results are presented in the table below.

Sample Location	Expansion Index	Expansion Potential*
HS-1 @ 1-3 ft	0	Very Low

* Per ASTM D4829

Consolidation: Consolidation tests were performed per ASTM D2435. Samples (2.4 inches in diameter and 1 inch in height) were placed in a consolidometer and increasing loads were applied. The samples were allowed to consolidate under "double drainage" and total deformation for each loading step was recorded. The percent consolidation for each load step was recorded as the ratio of the amount of vertical compression to the original sample height. The consolidation pressure curves are provided in this Appendix.

Direct Shear: Direct shear tests were performed on selected driven samples, which were soaked for a minimum of 24 hours prior to testing. The samples were tested under various normal loads using a motor-driven, strain-controlled, direct-shear testing apparatus (ASTM D3080). The plots are provided in this Appendix.

Laboratory Test Results

Soluble Sulfates: The soluble sulfate contents of selected samples were determined by standard geochemical methods (CTM 417). The test results are presented in the table below.

Sample Location	Sulfate Content (ppm)	Sulfate Content (%)
HS-1 @ 1-3 ft	126	< 0.02

Chloride Content: Chloride content was tested per CTM 422. The results are presented below.

Sample Location	Chloride Content (ppm)
HS-1 @ 1-3 ft	41

Minimum Resistivity and pH Tests: Minimum resistivity and pH tests were performed in general accordance with CTM 643 and standard geochemical methods. The results are presented in the table below.

Sample Location	pH	Minimum Resistivity (ohms-cm)
HS-1 @ 1-3 ft	8.4	1,560

ATTERBERG LIMITS

ASTM D 4318

Project Name:	El Cajon	Tested By:	Y. Nguyen	Date:	01/12/22
Project No. :	21287-01	Input By:	J. Ward	Date:	01/27/22
Boring No.:	HS-2	Checked By:	J. Ward		
Sample No.:	SPT-1	Depth (ft.)	10.0		
Soil Identification:	Dark brown sandy lean clay s(CL)				

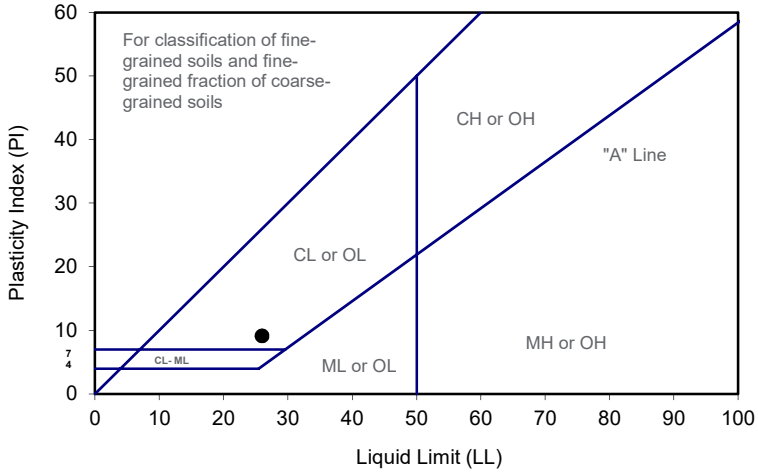
TEST	PLASTIC LIMIT		LIQUID LIMIT			
NO.	1	2	1	2	3	4
Number of Blows [N]			34	25	16	
Wet Wt. of Soil + Cont. (g)	11.19	11.01	19.02	18.73	18.81	
Dry Wt. of Soil + Cont. (g)	9.72	9.58	15.41	15.12	15.11	
Wt. of Container (g)	1.04	1.06	1.12	1.08	1.03	
Moisture Content (%) [Wn]	16.94	16.78	25.26	25.71	26.28	

Liquid Limit	**26**
Plastic Limit	**17**
Plasticity Index	**9**
Classification	**CL**

PI at "A" - Line = 0.73(LL-20) 4.38

One - Point Liquid Limit Calculation

$LL = Wn(N/25)^{0.121}$



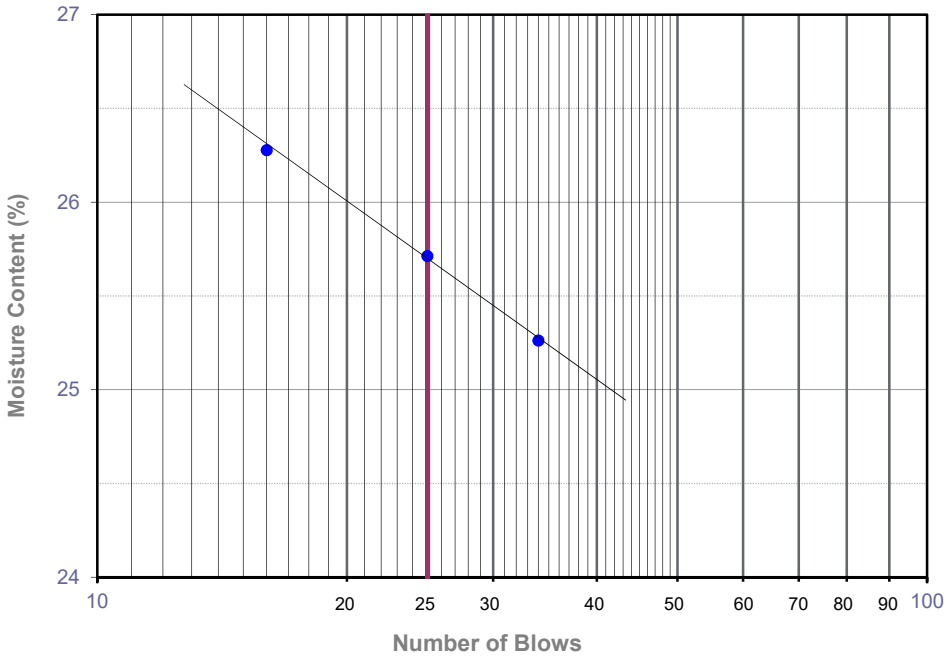
PROCEDURES USED

☐ Wet Preparation
Multipoint - Wet

☒ Dry Preparation
Multipoint - Dry

☒ Procedure A
Multipoint Test

☐ Procedure B
One-point Test



ATTERBERG LIMITS

ASTM D 4318

Project Name:	El Cajon	Tested By:	S. Felter	Date:	02/07/22
Project No. :	21287-01	Input By:	J. Ward	Date:	02/09/22
Boring No.:	HS-2	Checked By:	J. Ward		
Sample No.:	R-4	Depth (ft.)	15.0		
Soil Identification:	Dark olive brown sandy lean clay s(CL)				

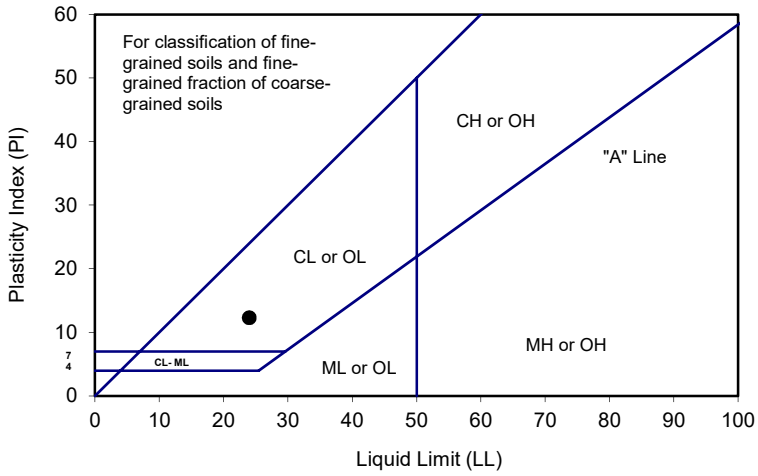
TEST	PLASTIC LIMIT		LIQUID LIMIT			
NO.	1	2	1	2	3	4
Number of Blows [N]			35	27	18	
Wet Wt. of Soil + Cont. (g)	10.04	10.03	21.77	21.96	22.18	
Dry Wt. of Soil + Cont. (g)	9.11	9.08	17.91	18.00	17.98	
Wt. of Container (g)	1.13	1.02	1.10	1.11	1.05	
Moisture Content (%) [Wn]	11.65	11.79	22.96	23.45	24.81	

Liquid Limit	**24**
Plastic Limit	**12**
Plasticity Index	**12**
Classification	**CL**

PI at "A" - Line = 0.73(LL-20) 2.92

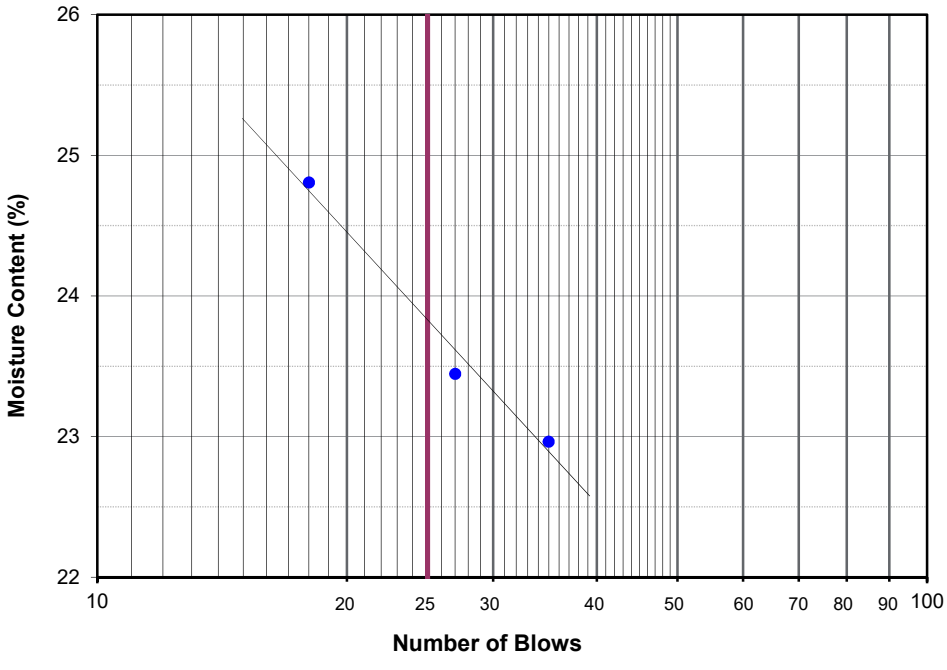
One - Point Liquid Limit Calculation

$LL = Wn(N/25)^{0.121}$



PROCEDURES USED

- [ ] Wet Preparation
  Multipoint - Wet
- [X] Dry Preparation
  Multipoint - Dry
- [X] Procedure A
  Multipoint Test
- [ ] Procedure B
  One-point Test



ATTERBERG LIMITS

ASTM D 4318

Project Name:	Woodside	Tested By:	A. Santos	Date:	02/16/22
Project No. :	21287-01	Input By:	J. Ward	Date:	02/18/22
Boring No.:	HS-2	Checked By:	J. Ward		
Sample No.:	SPT-2	Depth (ft.)	20.0		
Soil Identification:	Dark brown lean clay (CL)				

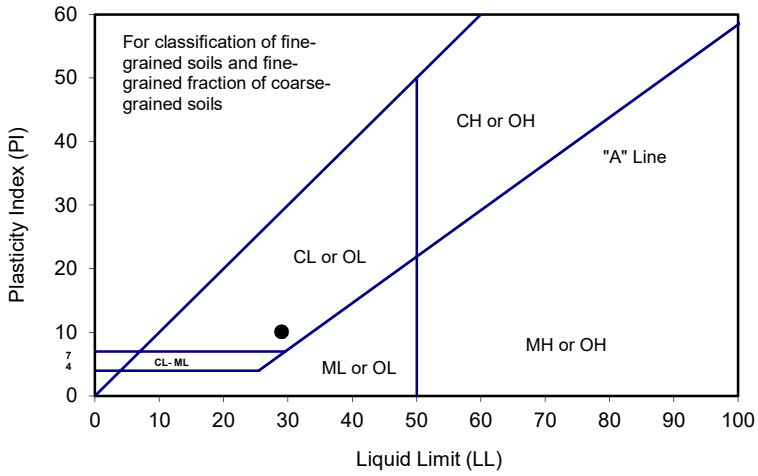
TEST	PLASTIC LIMIT		LIQUID LIMIT			
NO.	1	2	1	2	3	4
Number of Blows [N]			33	24	20	
Wet Wt. of Soil + Cont. (g)	11.02	9.51	22.64	23.17	24.66	
Dry Wt. of Soil + Cont. (g)	9.44	8.15	17.96	18.21	19.22	
Wt. of Container (g)	1.05	1.00	1.08	1.07	1.06	
Moisture Content (%) [Wn]	18.83	19.02	27.73	28.94	29.96	

Liquid Limit	**29**
Plastic Limit	**19**
Plasticity Index	**10**
Classification	**CL**

PI at "A" - Line = 0.73(LL-20) 6.57

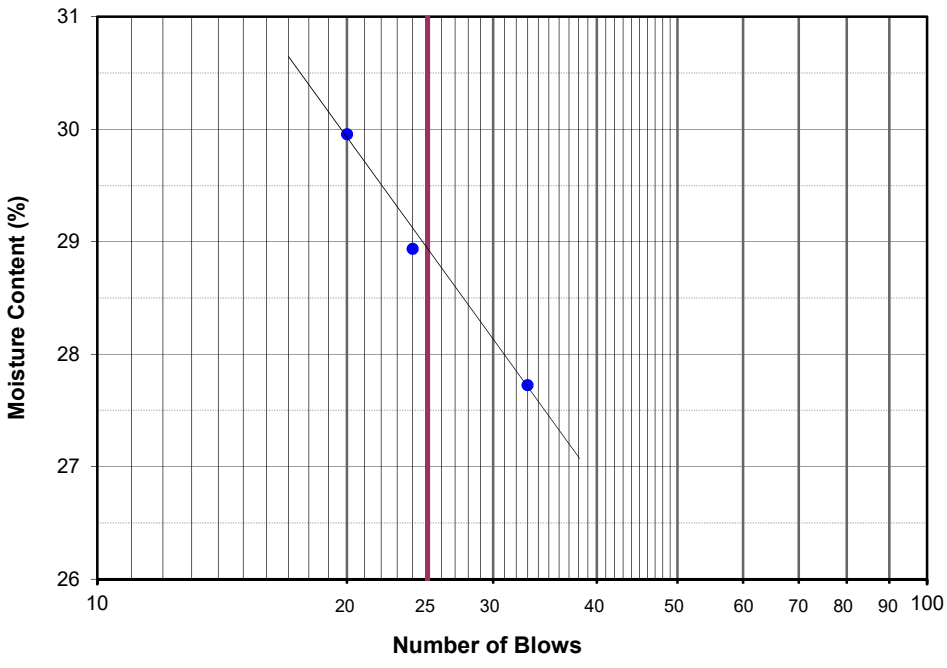
One - Point Liquid Limit Calculation

$LL = Wn(N/25)^{0.121}$



PROCEDURES USED

	Wet Preparation
	Multipoint - Wet
X	Dry Preparation
	Multipoint - Dry
X	Procedure A
	Multipoint Test
	Procedure B
	One-point Test



ATTERBERG LIMITS

ASTM D 4318

Project Name:	Woodside Self Storage	Tested By:	J. Domingo	Date:	03/08/22
Project No. :	21287-01	Input By:	A. Santos	Date:	03/09/22
Boring No.:	HS-2	Checked By:	J. Ward		
Sample No.:	R-5	Depth (ft.)	25.0		
Soil Identification:	Dark grayish brown clayey sand (SC)				

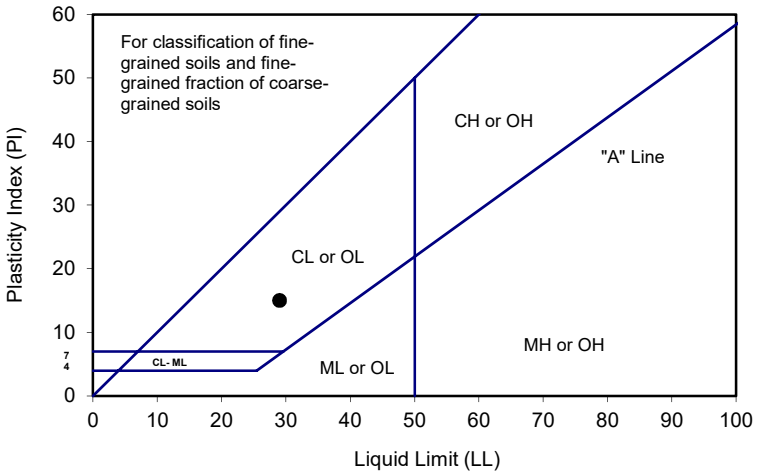
TEST	PLASTIC LIMIT		LIQUID LIMIT			
NO.	1	2	1	2	3	4
Number of Blows [N]			30	23	15	
Wet Wt. of Soil + Cont. (g)	9.10	9.23	21.82	20.01	20.21	
Dry Wt. of Soil + Cont. (g)	8.12	8.21	17.28	15.74	15.73	
Wt. of Container (g)	1.04	0.99	1.03	1.01	1.03	
Moisture Content (%) [Wn]	13.84	14.13	27.94	28.99	30.48	

Liquid Limit	**29**
Plastic Limit	**14**
Plasticity Index	**15**
Classification	**CL**

PI at "A" - Line = 0.73(LL-20) 6.57

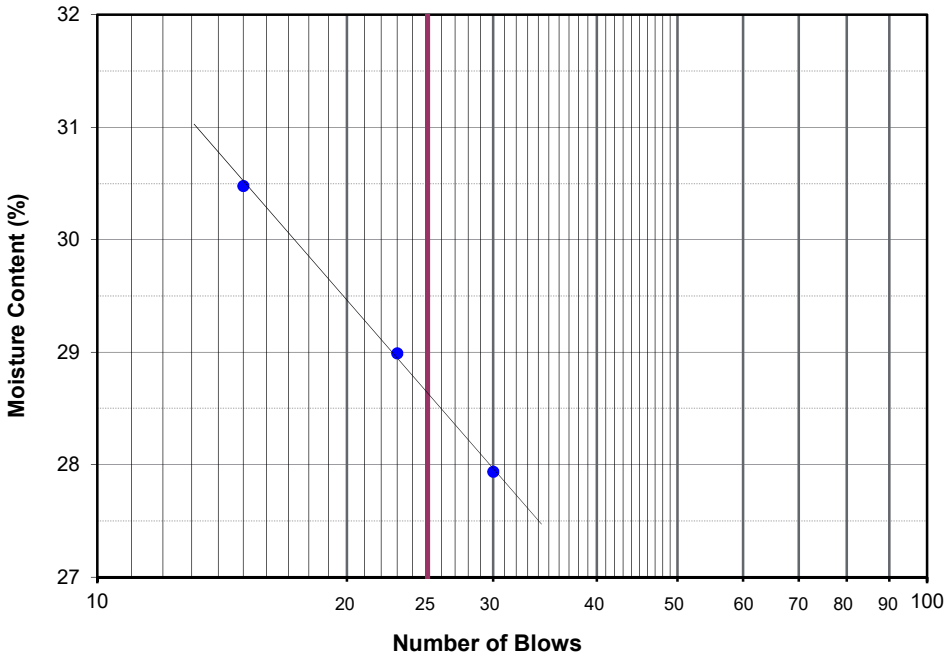
One - Point Liquid Limit Calculation

$LL = Wn(N/25)^{0.121}$



PROCEDURES USED

	Wet Preparation
	Multipoint - Wet
X	Dry Preparation
	Multipoint - Dry
X	Procedure A
	Multipoint Test
	Procedure B
	One-point Test



ATTERBERG LIMITS

ASTM D 4318

Project Name:	Woodside	Tested By:	ACS/JD	Date:	02/16/22
Project No. :	21287-01	Input By:	J. Ward	Date:	02/18/22
Boring No.:	HS-2	Checked By:	J. Ward		
Sample No.:	SPT-3	Depth (ft.)	30.0		
Soil Identification:	Dark brown silty clay (CL-ML)				

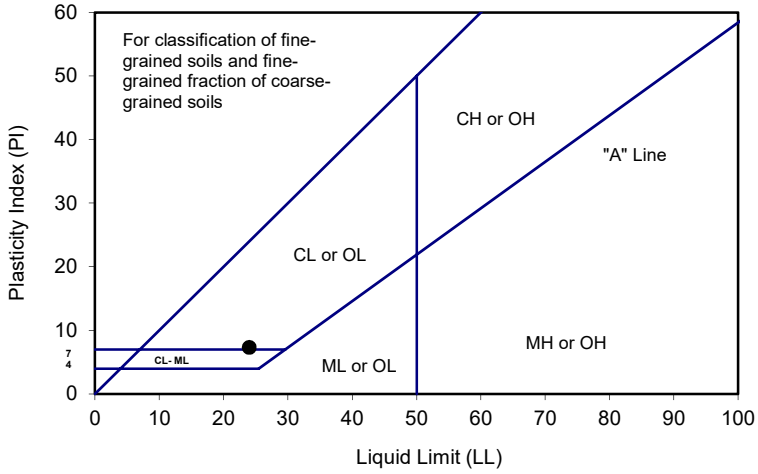
TEST	PLASTIC LIMIT		LIQUID LIMIT			
NO.	1	2	1	2	3	4
Number of Blows [N]			28	23	18	
Wet Wt. of Soil + Cont. (g)	9.78	10.00	21.59	21.70	22.73	
Dry Wt. of Soil + Cont. (g)	8.53	8.72	17.73	17.73	18.43	
Wt. of Container (g)	1.08	1.02	1.05	1.08	1.02	
Moisture Content (%) [Wn]	16.78	16.62	23.14	23.84	24.70	

Liquid Limit	**24**
Plastic Limit	**17**
Plasticity Index	**7**
Classification	**CL-ML**

PI at "A" - Line = 0.73(LL-20) 2.92

One - Point Liquid Limit Calculation

$LL = Wn(N/25)^{0.121}$



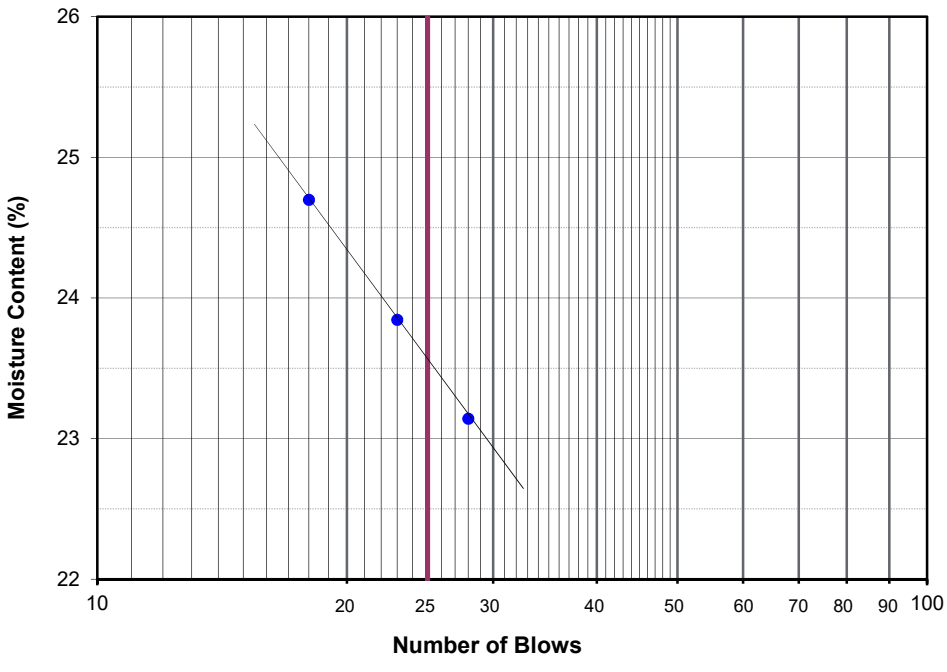
PROCEDURES USED

☐ Wet Preparation
Multipoint - Wet

☒ Dry Preparation
Multipoint - Dry

☒ Procedure A
Multipoint Test

☐ Procedure B
One-point Test



ATTERBERG LIMITS

ASTM D 4318

Project Name:	El Cajon	Tested By:	S. Felter	Date:	02/07/22
Project No. :	21287-01	Input By:	J. Ward	Date:	02/09/22
Boring No.:	HS-4	Checked By:	J. Ward		
Sample No.:	R-4	Depth (ft.)	15.0		
Soil Identification:	Olive brown lean clay (CL)				

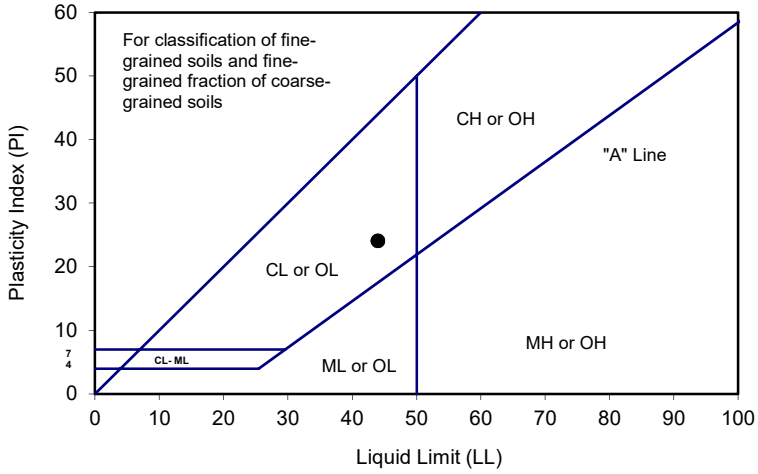
TEST	PLASTIC LIMIT		LIQUID LIMIT			
NO.	1	2	1	2	3	4
Number of Blows [N]			33	28	21	
Wet Wt. of Soil + Cont. (g)	9.84	9.89	20.06	20.00	20.17	
Dry Wt. of Soil + Cont. (g)	8.39	8.43	14.37	14.23	14.24	
Wt. of Container (g)	1.13	1.08	1.05	1.12	1.16	
Moisture Content (%) [Wn]	19.97	19.86	42.72	44.01	45.34	

Liquid Limit	**44**
Plastic Limit	**20**
Plasticity Index	**24**
Classification	**CL**

PI at "A" - Line = 0.73(LL-20) 17.52

One - Point Liquid Limit Calculation

$LL = Wn(N/25)^{0.121}$



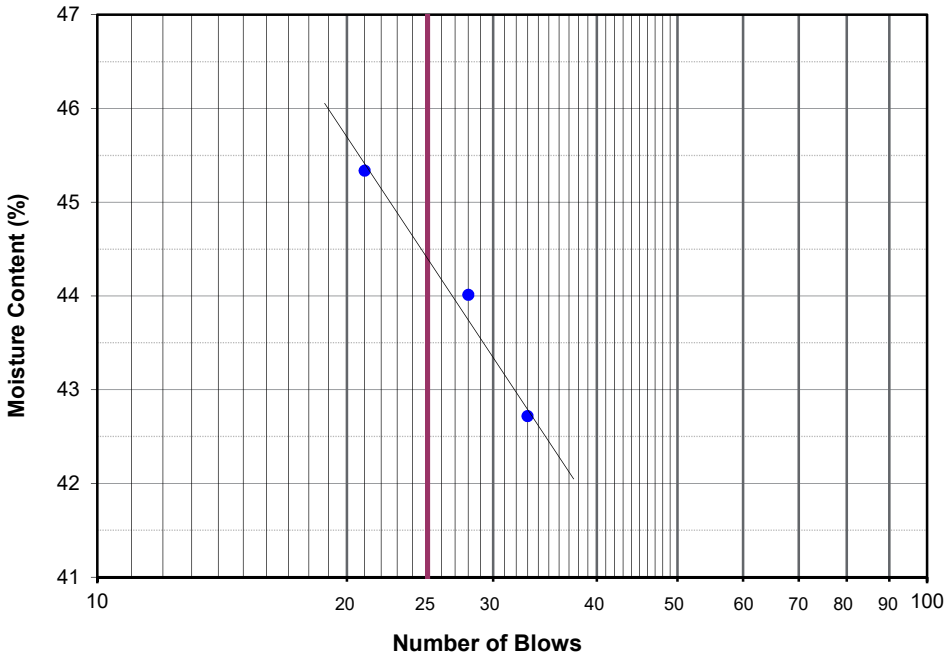
PROCEDURES USED

☐ Wet Preparation
Multipoint - Wet

☒ Dry Preparation
Multipoint - Dry

☒ Procedure A
Multipoint Test

☐ Procedure B
One-point Test



EXPANSION INDEX of SOILS
ASTM D 4829

Project Name:	El Cajon	Tested By:	G. Berdy	Date:	01/12/22
Project No.:	21287-01	Checked By:	J. Ward	Date:	01/27/22
Boring No.:	HS-1	Depth (ft.):	1-3		
Sample No.:	B-1				
Soil Identification:	Dark yellowish brown silty sand (SM)				

Dry Wt. of Soil + Cont. (g)	1000.00
Wt. of Container No. (g)	0.00
Dry Wt. of Soil (g)	1000.00
Weight Soil Retained on #4 Sieve	0.00
Percent Passing # 4	100.00

MOLDED SPECIMEN	Before Test	After Test
Specimen Diameter (in.)	4.01	4.01
Specimen Height (in.)	1.0000	0.9990
Wt. Comp. Soil + Mold (g)	594.30	451.60
Wt. of Mold (g)	163.30	0.00
Specific Gravity (Assumed)	2.70	2.70
Container No.	O	O
Wet Wt. of Soil + Cont. (g)	854.90	614.90
Dry Wt. of Soil + Cont. (g)	795.20	564.23
Wt. of Container (g)	0.00	163.30
Moisture Content (%)	7.51	12.64
Wet Density (pcf)	130.0	136.4
Dry Density (pcf)	120.9	121.1
Void Ratio	0.394	0.393
Total Porosity	0.283	0.282
Pore Volume (cc)	58.5	58.3
Degree of Saturation (%) [S_{meas}]	**51.4**	86.9

SPECIMEN INUNDATION in distilled water for the period of 24 h or expansion rate < 0.0002 in./h

Date	Time	Pressure (psi)	Elapsed Time (min.)	Dial Readings (in.)
01/12/22	13:22	1.0	0	0.5235
01/12/22	13:32	1.0	10	0.5230
Add Distilled Water to the Specimen				
01/12/22	14:04	1.0	32	0.5225
01/13/22	6:14	1.0	1002	0.5225
01/13/22	8:21	1.0	1129	0.5225

Expansion Index (EI_{meas}) = ((Final Rdg - Initial Rdg) / Initial Thick.) x 1000	**0**

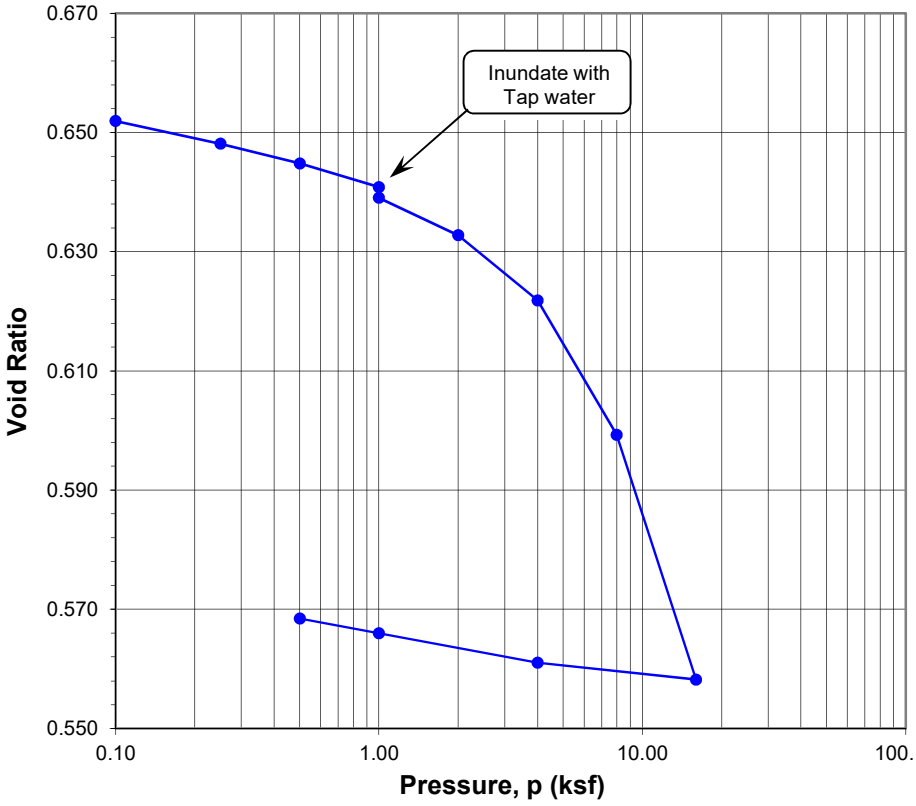
ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS

ASTM D 2435

Project Name: El Cajon
Project No.: 21287-01
Boring No.: HS-2
Sample No.: R-4
Soil Identification: Dark olive brown sandy lean clay s(CL)

Tested By: G. Bathala Date: 01/06/22
Checked By: J. Ward Date: 01/27/22
Depth (ft.): 15.0
Sample Type: Ring

Sample Diameter (in.):	2.415
Sample Thickness (in.):	1.000
Weight of Sample + ring (g):	181.49
Weight of Ring (g):	45.15
Height after consol. (in.):	0.9492
Before Test	
Wt. of Wet Sample+Cont. (g):	163.28
Wt. of Dry Sample+Cont. (g):	150.81
Weight of Container (g):	39.03
Initial Moisture Content (%)	11.2
Initial Dry Density (pcf)	102.0
Initial Saturation (%):	46
Initial Vertical Reading (in.)	0.1192
After Test	
Wt. of Wet Sample+Cont. (g):	255.87
Wt. of Dry Sample+Cont. (g):	234.90
Weight of Container (g):	65.19
Final Moisture Content (%)	16.84
Final Dry Density (pcf):	109.1
Final Saturation (%):	83
Final Vertical Reading (in.)	0.1730
Specific Gravity (assumed):	2.70
Water Density (pcf):	62.43

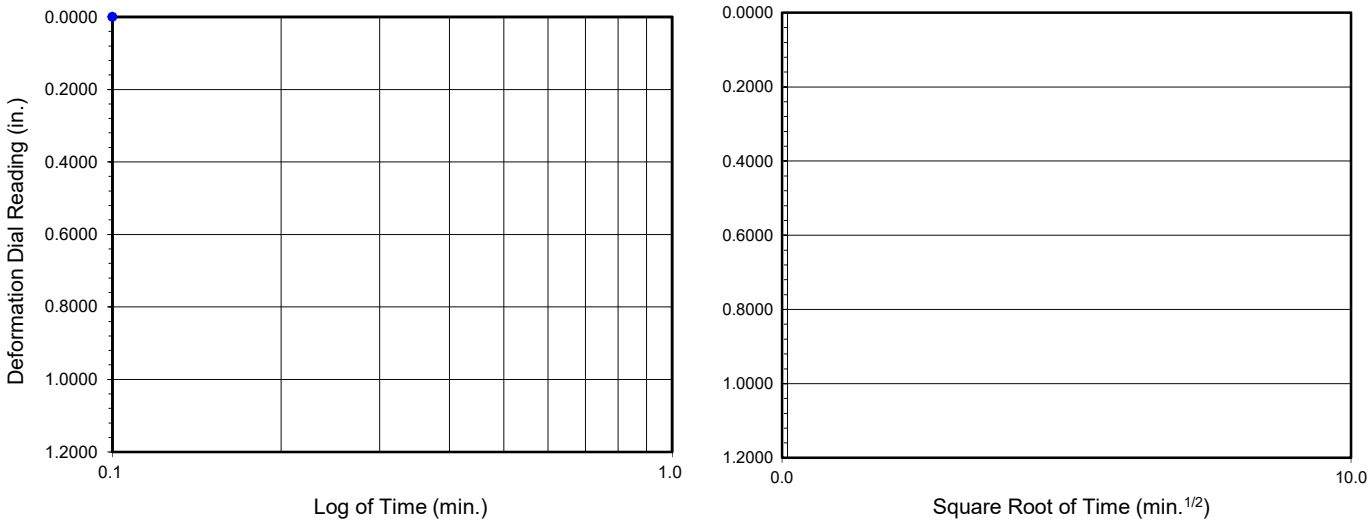


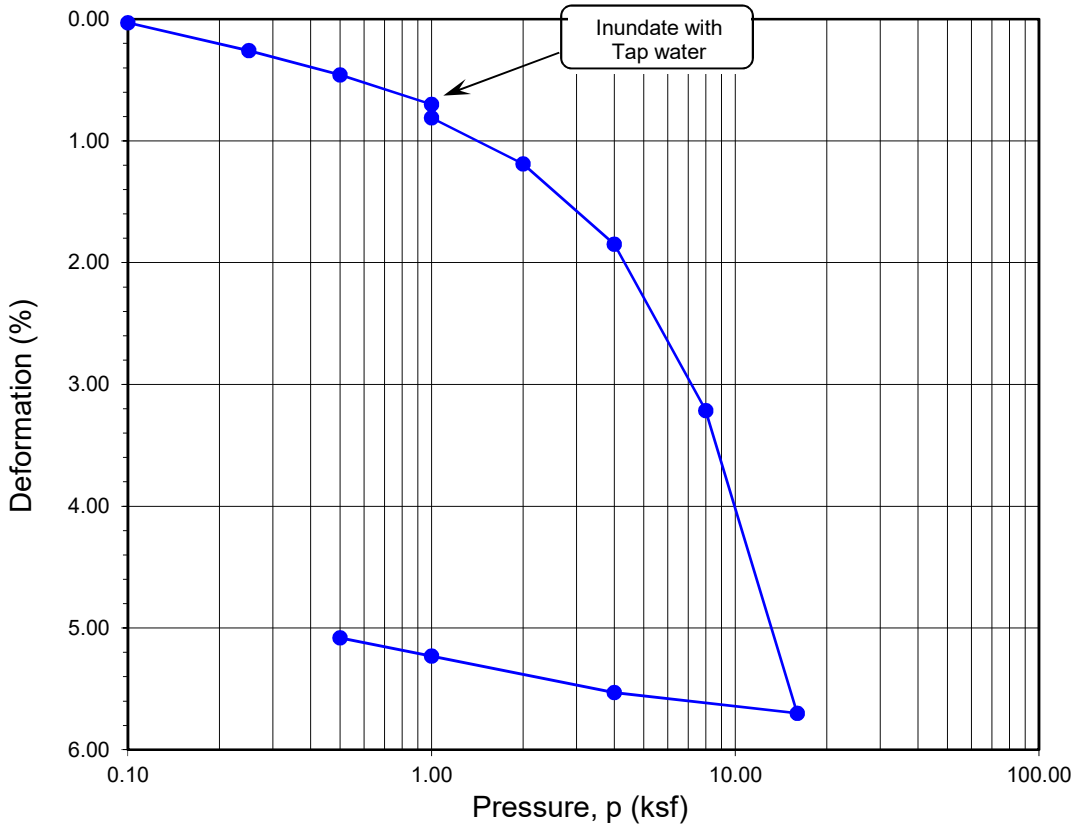
Pressure (p) (ksf)	Final Reading (in.)	Apparent Thickness (in.)	Load Compliance (%)	Deformation % of Sample Thickness	Void Ratio	Corrected Deforma-tion (%)
0.10	0.1195	0.9997	0.00	0.03	0.652	0.03
0.25	0.1223	0.9969	0.05	0.31	0.648	0.26
0.50	0.1249	0.9943	0.11	0.57	0.645	0.46
1.00	0.1281	0.9911	0.19	0.89	0.641	0.70
1.00	0.1292	0.9900	0.19	1.00	0.639	0.81
2.00	0.1340	0.9852	0.29	1.48	0.633	1.19
4.00	0.1418	0.9774	0.41	2.26	0.622	1.85
8.00	0.1568	0.9625	0.54	3.76	0.599	3.22
16.00	0.1831	0.9361	0.69	6.39	0.558	5.70
4.00	0.1796	0.9396	0.51	6.04	0.561	5.53
1.00	0.1751	0.9441	0.36	5.59	0.566	5.23
0.50	0.1730	0.9462	0.30	5.38	0.568	5.08

Time Readings

Date	Time	Elapsed Time (min)	Square Root of Time	Dial Rdgs. (in.)

Time Readings





Boring No.	Sample No.	Depth (ft.)	Moisture Content (%)		Dry Density (pcf)		Void Ratio		Degree of Saturation (%)	
			Initial	Final	Initial	Final	Initial	Final	Initial	Final
HS-2	**R-4**	**15**	**11.2**	**16.8**	**102.0**	**109.1**	**0.652**	**0.568**	**46**	**83**

Soil Identification: Dark olive brown sandy lean clay s(CL)

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS
ASTM D 2435

Project No.: 21287-01

El Cajon

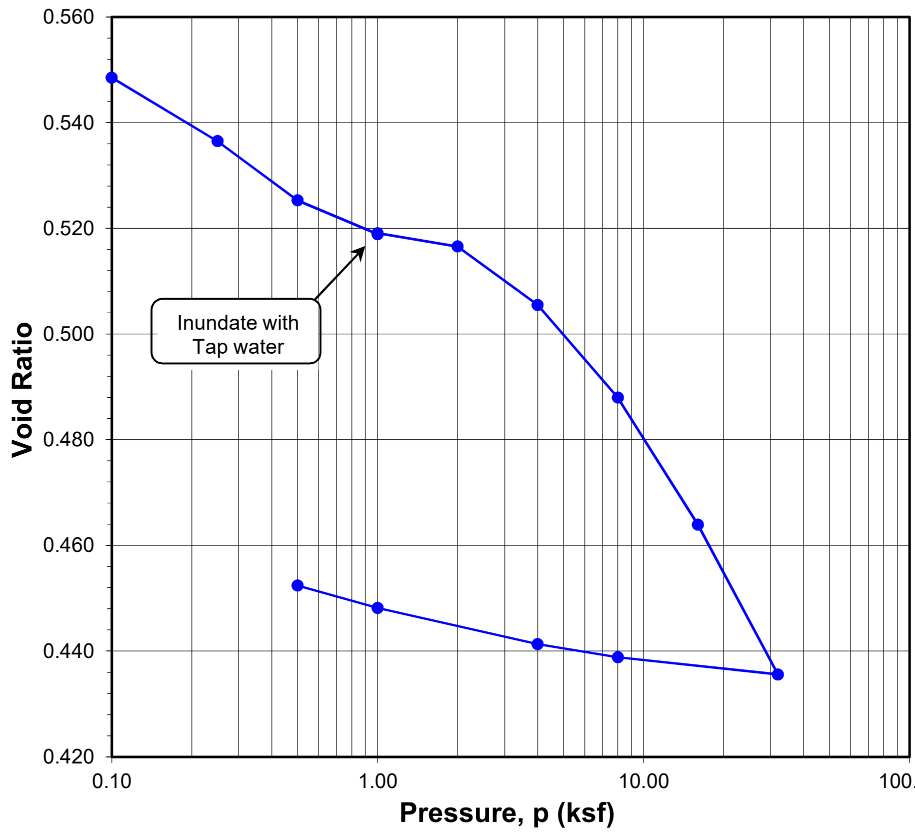
01-22

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS

ASTM D 2435

Project Name:	Woodside Self Storage	Tested By:	G. Bathala	Date:	03/14/22
Project No.:	21287-01	Checked By:	J. Ward	Date:	03/23/22
Boring No.:	HS-2	Depth (ft.):	25.0		
Sample No.:	R-5	Sample Type:	Ring		
Soil Identification:	Dark grayish brown clayey sand (SC)				

Sample Diameter (in.)	2.415
Sample Thickness (in.)	1.000
Wt. of Sample + Ring (g)	214.18
Weight of Ring (g)	45.57
Height after consol. (in.)	0.9328
Before Test	
Wt.Wet Sample+Cont. (g)	294.72
Wt.of Dry Sample+Cont. (g)	254.13
Weight of Container (g)	40.03
Initial Moisture Content (%)	19.0
Initial Dry Density (pcf)	117.9
Initial Saturation (%)	100
Initial Vertical Reading (in.)	0.3115
After Test	
Wt.of Wet Sample+Cont. (g)	270.72
Wt. of Dry Sample+Cont. (g)	251.97
Weight of Container (g)	61.48
Final Moisture Content (%)	12.94
Final Dry Density (pcf)	129.2
Final Saturation (%)	90
Final Vertical Reading (in.)	0.2367
Specific Gravity (assumed)	2.94
Water Density (pcf)	62.43

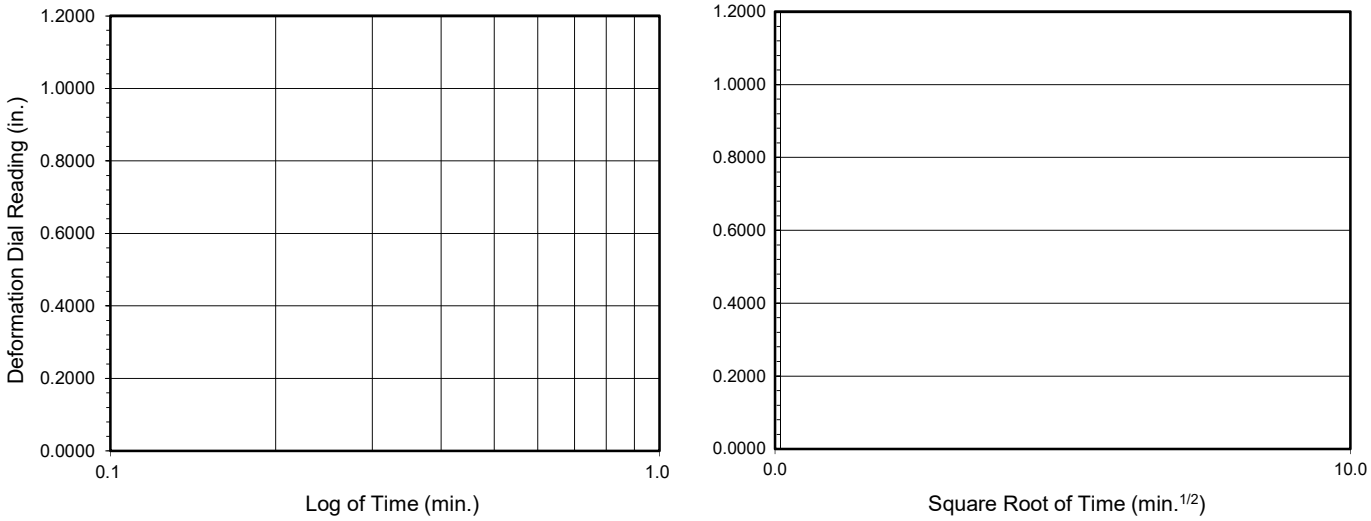


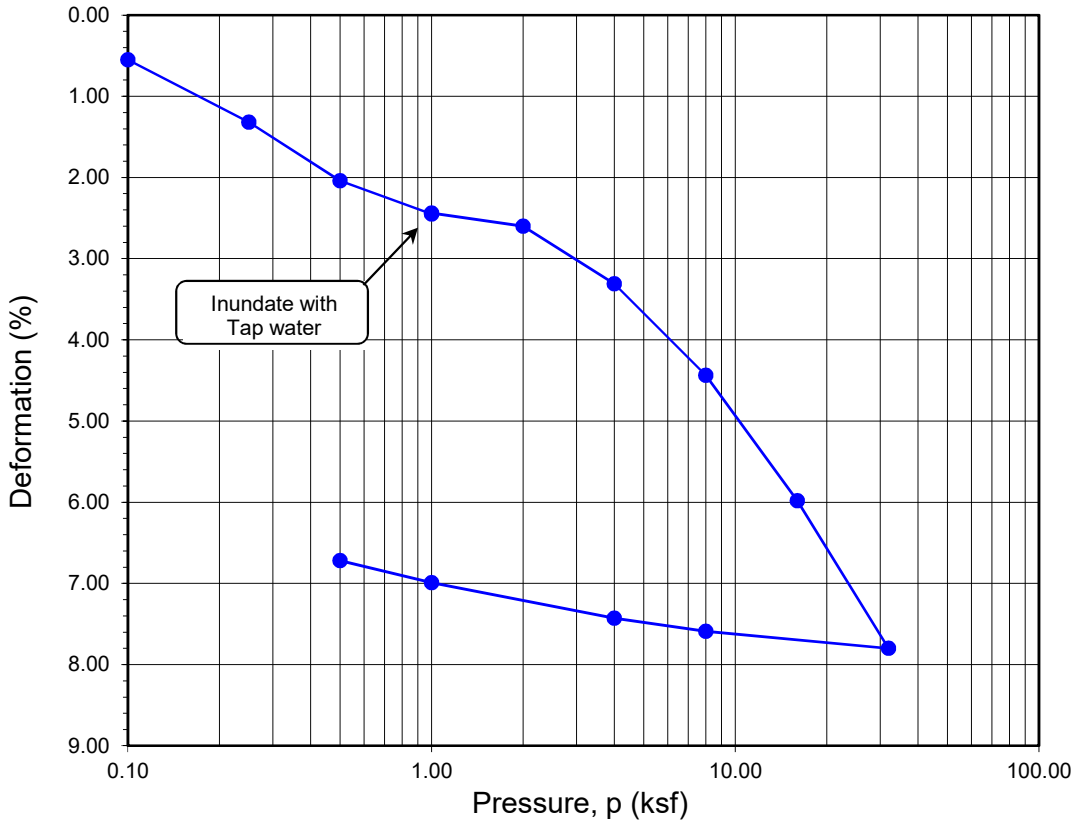
Pressure (p) (ksf)	Final Reading (in.)	Apparent Thickness (in.)	Load Compliance (%)	Deformation % of Sample Thickness	Void Ratio	Corrected Deformation (%)
0.10	0.3060	0.9945	0.00	0.55	0.549	0.55
0.25	0.2979	0.9864	0.04	1.36	0.537	1.32
0.50	0.2902	0.9787	0.09	2.13	0.525	2.04
1.00	0.2850	0.9735	0.20	2.65	0.519	2.45
1.00	0.2851	0.9736	0.20	2.64	0.519	2.44
2.00	0.2817	0.9702	0.38	2.98	0.517	2.60
4.00	0.2725	0.9610	0.59	3.90	0.506	3.31
8.00	0.2587	0.9472	0.85	5.29	0.488	4.44
16.00	0.2406	0.9291	1.11	7.09	0.464	5.98
32.00	0.2195	0.9080	1.40	9.20	0.436	7.80
8.00	0.2243	0.9128	1.13	8.72	0.439	7.59
4.00	0.2273	0.9158	0.99	8.42	0.441	7.43
1.00	0.2335	0.9220	0.81	7.80	0.448	6.99
0.50	0.2367	0.9252	0.76	7.48	0.452	6.72

Time Readings

Date	Time	Elapsed Time (min)	Square Root of Time	Dial Rdgs. (in.)

Time Readings





Boring No.	Sample No.	Depth (ft.)	Moisture Content (%)		Dry Density (pcf)		Void Ratio		Degree of Saturation (%)	
			Initial	Final	Initial	Final	Initial	Final	Initial	Final
HS-2	**R-5**	**25.0**	**19.0**	**12.9**	**117.9**	**129.2**	**0.557**	**0.452**	**100**	**90**

Soil Identification: Dark grayish brown clayey sand (SC)

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS
ASTM D 2435

Project No.: 21287-01

Woodside Self Storage

03-22

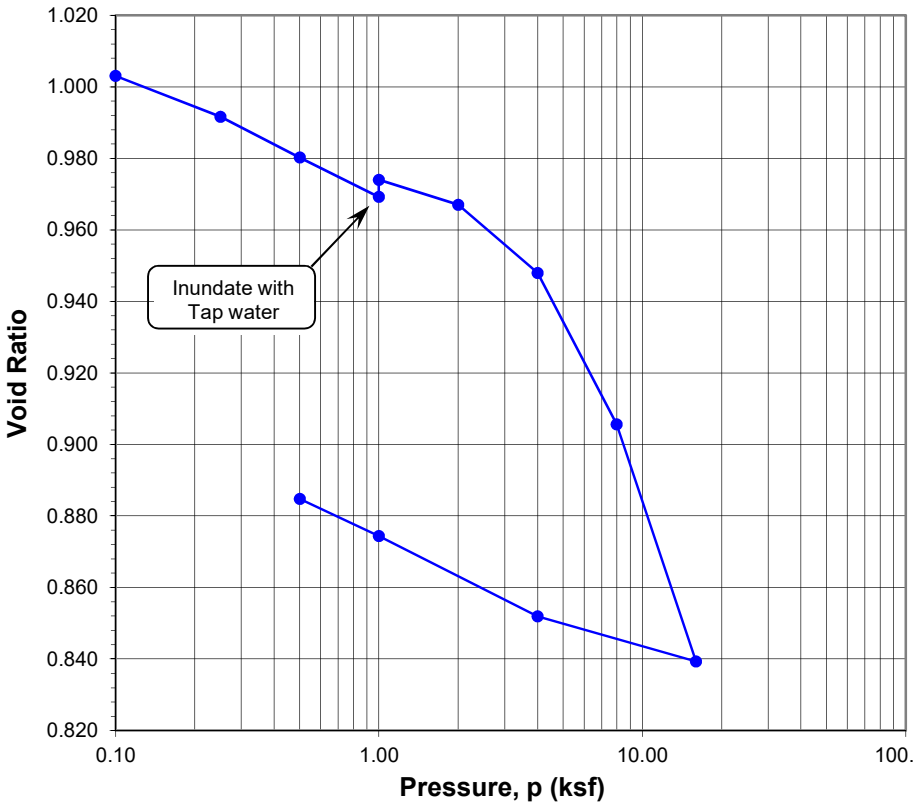
ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS

ASTM D 2435

Project Name: El Cajon
Project No.: 21287-01
Boring No.: HS-4
Sample No.: R-4
Soil Identification: Olive brown lean clay (CL)

Tested By: G. Bathala Date: 01/06/22
Checked By: J. Ward Date: 01/27/22
Depth (ft.): 15.0
Sample Type: Ring

Sample Diameter (in.):	2.415
Sample Thickness (in.):	1.000
Weight of Sample + ring (g):	189.81
Weight of Ring (g):	45.77
Height after consol. (in.):	0.9403
Before Test	
Wt. of Wet Sample+Cont. (g):	200.29
Wt. of Dry Sample+Cont. (g):	167.97
Weight of Container (g):	76.75
Initial Moisture Content (%)	35.4
Initial Dry Density (pcf)	88.5
Initial Saturation (%):	100
Initial Vertical Reading (in.)	0.0896
After Test	
Wt. of Wet Sample+Cont. (g):	245.83
Wt. of Dry Sample+Cont. (g):	215.61
Weight of Container (g):	59.16
Final Moisture Content (%)	27.30
Final Dry Density (pcf):	97.9
Final Saturation (%):	96
Final Vertical Reading (in.)	0.1527
Specific Gravity (assumed):	2.84
Water Density (pcf):	62.43

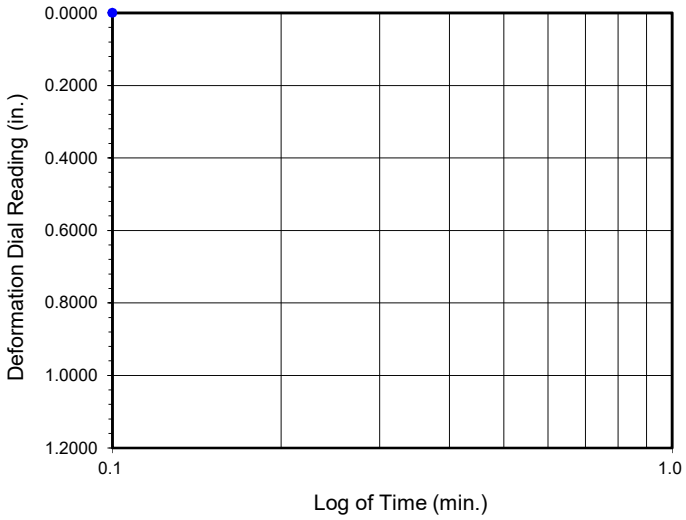


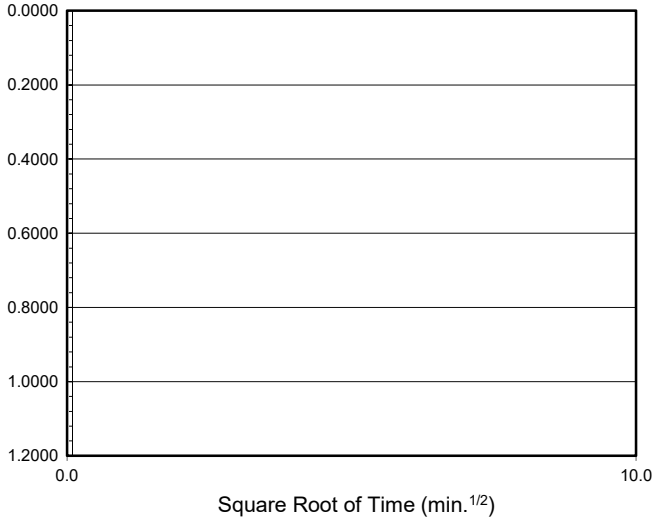
Pressure (p) (ksf)	Final Reading (in.)	Apparent Thickness (in.)	Load Compliance (%)	Deformation % of Sample Thickness	Void Ratio	Corrected Deforma-tion (%)
0.10	0.0903	0.9993	0.00	0.07	1.003	0.07
0.25	0.0966	0.9930	0.06	0.70	0.992	0.64
0.50	0.1031	0.9865	0.14	1.35	0.980	1.21
1.00	0.1096	0.9800	0.24	2.00	0.969	1.76
1.00	0.1072	0.9824	0.24	1.76	0.974	1.52
2.00	0.1117	0.9779	0.34	2.21	0.967	1.87
4.00	0.1223	0.9673	0.45	3.27	0.948	2.82
8.00	0.1447	0.9449	0.58	5.51	0.906	4.93
16.00	0.1793	0.9103	0.73	8.97	0.839	8.24
4.00	0.1713	0.9183	0.56	8.17	0.852	7.61
1.00	0.1585	0.9311	0.40	6.89	0.874	6.49
0.50	0.1527	0.9369	0.34	6.31	0.885	5.97

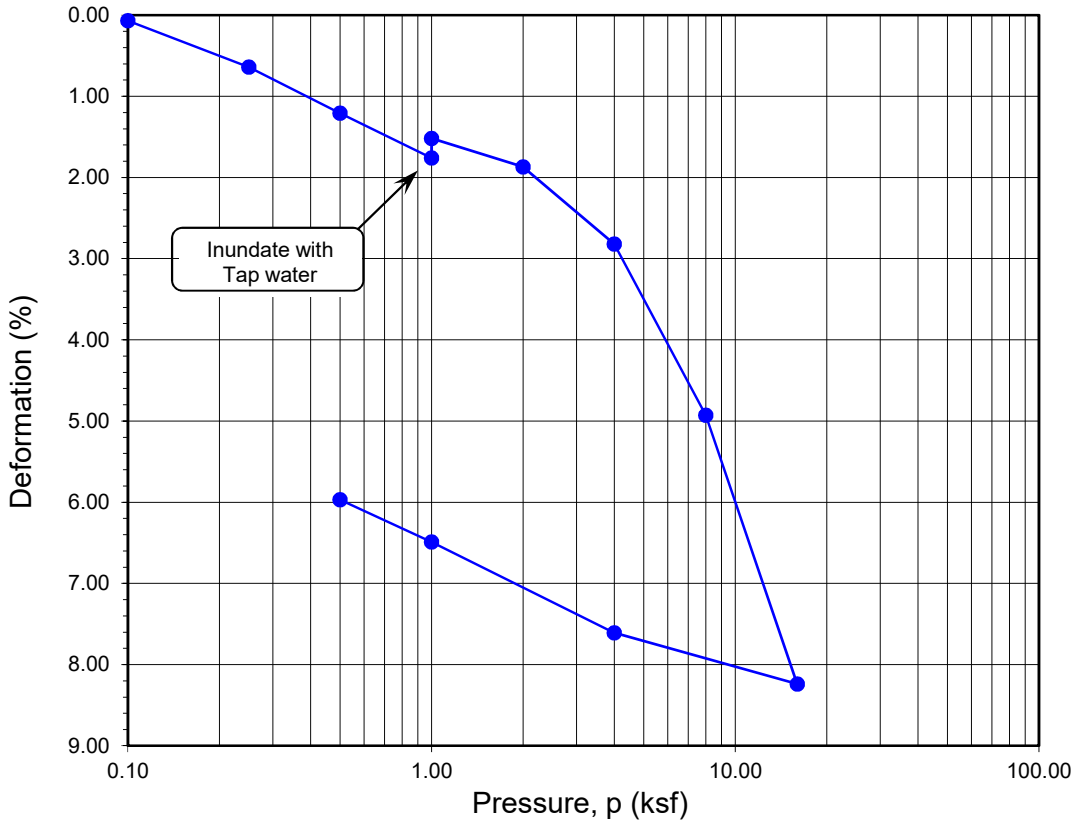
Time Readings

Date	Time	Elapsed Time (min)	Square Root of Time	Dial Rdgs. (in.)

Time Readings







Boring No.	Sample No.	Depth (ft.)	Moisture Content (%)		Dry Density (pcf)		Void Ratio		Degree of Saturation (%)	
			Initial	Final	Initial	Final	Initial	Final	Initial	Final
HS-4	**R-4**	**15**	**35.4**	**27.3**	**88.5**	**97.9**	**1.004**	**0.885**	**100**	**96**

Soil Identification: Olive brown lean clay (CL)

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS
ASTM D 2435

Project No.: 21287-01

El Cajon

01-22

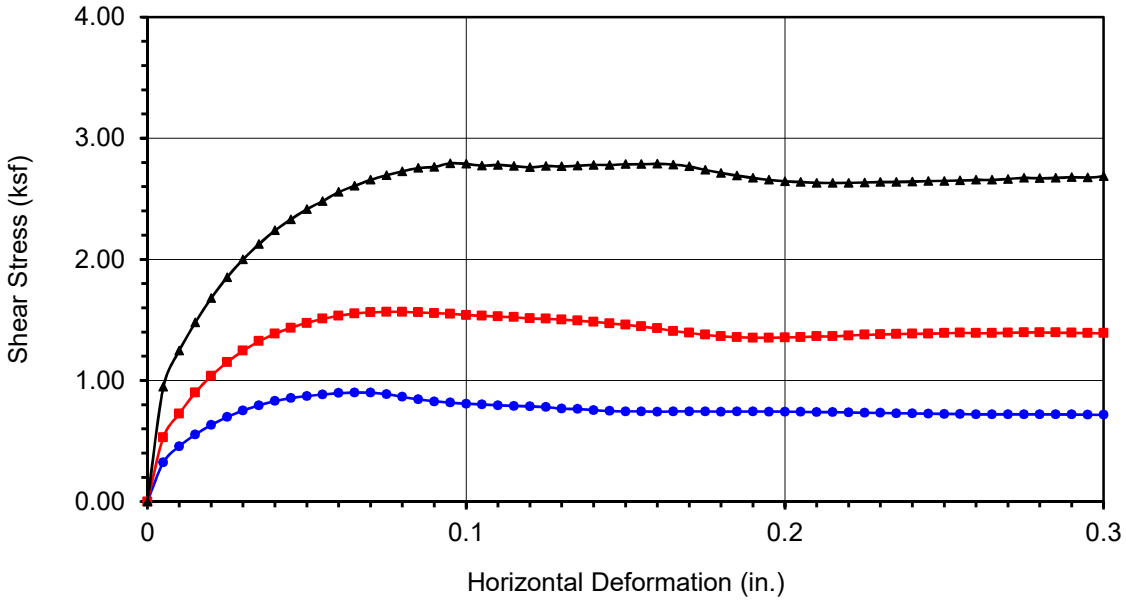
DIRECT SHEAR TEST

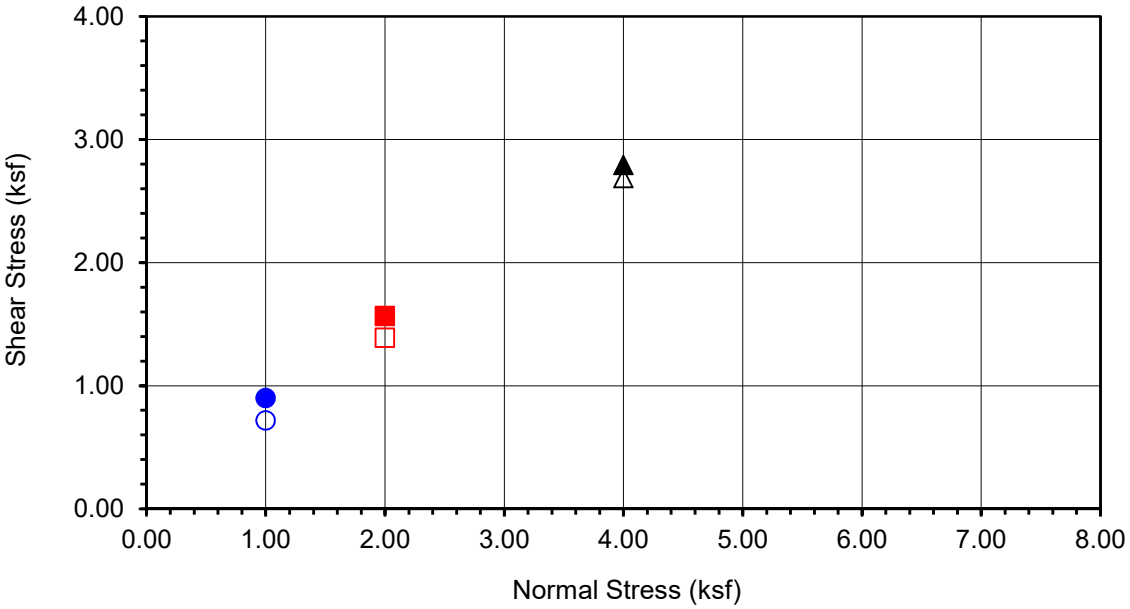
Consolidated Drained - ASTM D 3080

Project Name:	El Cajon	Tested By:	G. Bathala	Date:	01/10/22
Project No.:	21287-01	Checked By:	J. Ward	Date:	01/27/22
Boring No.:	HS-1	Sample Type:	Ring		
Sample No.:	R-4	Depth (ft.):	15.0		

Soil Identification: Olive brown silty clay with sand (CL-ML)s

Sample Diameter(in):	2.415	2.415	2.415
Sample Thickness(in.):	1.000	1.000	1.000
Weight of Sample + ring(gm):	201.17	201.65	203.98
Weight of Ring(gm):	45.17	45.67	45.66
Before Shearing			
Weight of Wet Sample+Cont.(gm):	191.43	191.43	191.43
Weight of Dry Sample+Cont.(gm):	167.13	167.13	167.13
Weight of Container(gm):	55.14	55.14	55.14
Vertical Rdg.(in): Initial	0.0000	0.2525	0.2222
Vertical Rdg.(in): Final	-0.0132	0.2725	0.2503
After Shearing			
Weight of Wet Sample+Cont.(gm):	228.37	206.54	191.76
Weight of Dry Sample+Cont.(gm):	202.44	181.55	167.61
Weight of Container(gm):	73.57	52.23	36.62
Specific Gravity (Assumed):	2.70	2.70	2.70
Water Density(pcf):	62.43	62.43	62.43





Boring No.	**HS-1**
Sample No.	**R-4**
Depth (ft)	**15**
Sample Type:	
Ring	
Soil Identification:	
Olive brown silty clay with sand (CL-ML)s	

Normal Stress (kip/ft²)	1.000	2.000	4.000
Peak Shear Stress (kip/ft²)	● 0.899	■ 1.566	▲ 2.792
Shear Stress @ End of Test (ksf)	○ 0.717	□ 1.390	△ 2.685
Deformation Rate (in./min.)	0.0017	0.0017	0.0017
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	21.70	21.70	21.70
Dry Density (pcf)	106.6	106.6	108.2
Saturation (%)	100.8	100.8	105.0
Soil Height Before Shearing (in.)	0.9868	0.9800	0.9719
Final Moisture Content (%)	20.1	19.3	18.4

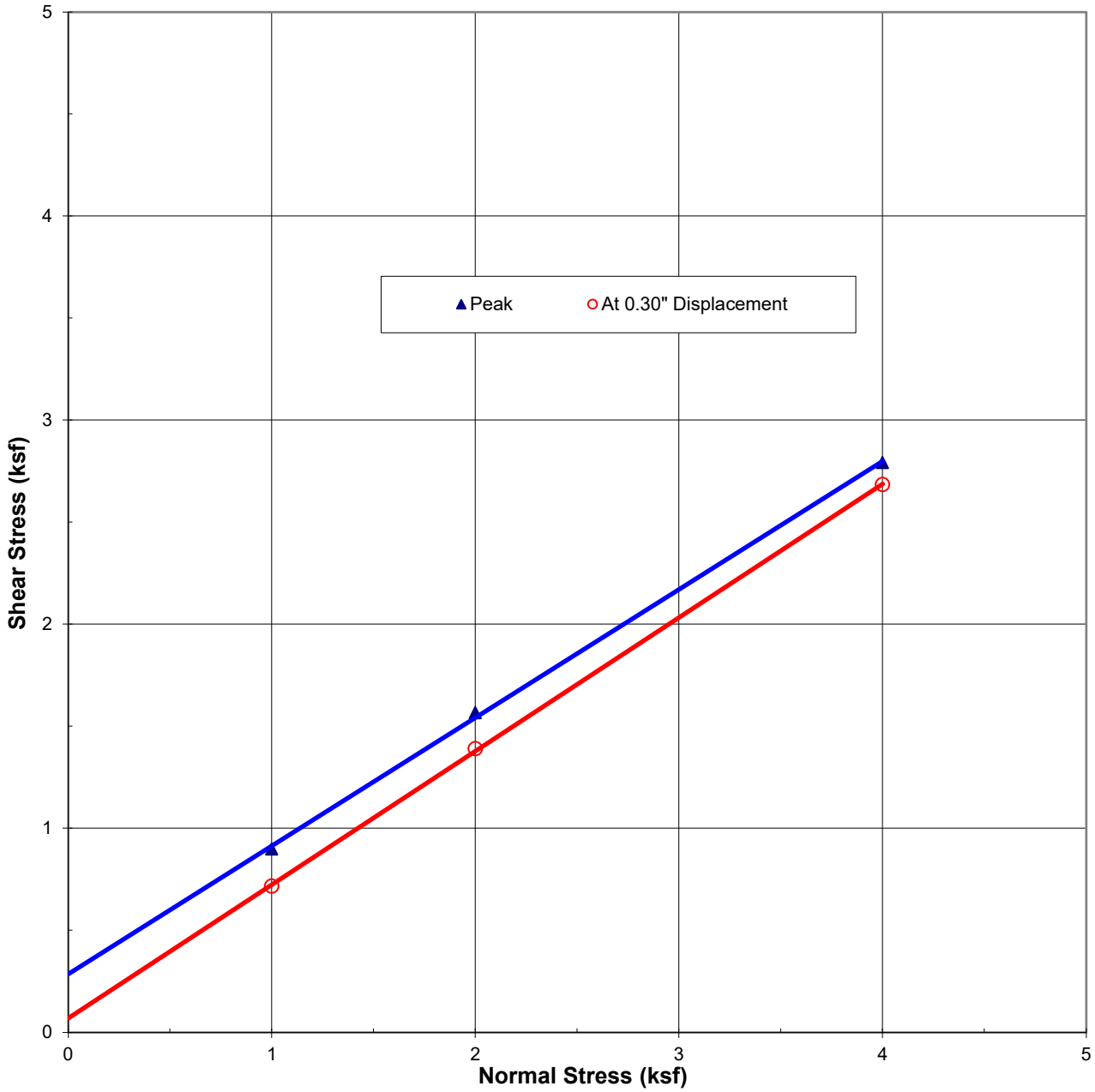
DIRECT SHEAR TEST RESULTS

Consolidated Drained - ASTM D 3080

Project No.: 21287-01

El Cajon

01-22



Tested Sample:
HS-1 at 15 ft

Peak:	At 0.30" Displacement:
32.1 Degrees	33.2 Degrees
0.29 ksf	0.07 ksf

LGC Geotechnical, Inc.

DIRECT SHEAR PLOT

Project Number: 21287-01
Date: Jan-22

Woodside Self Storage

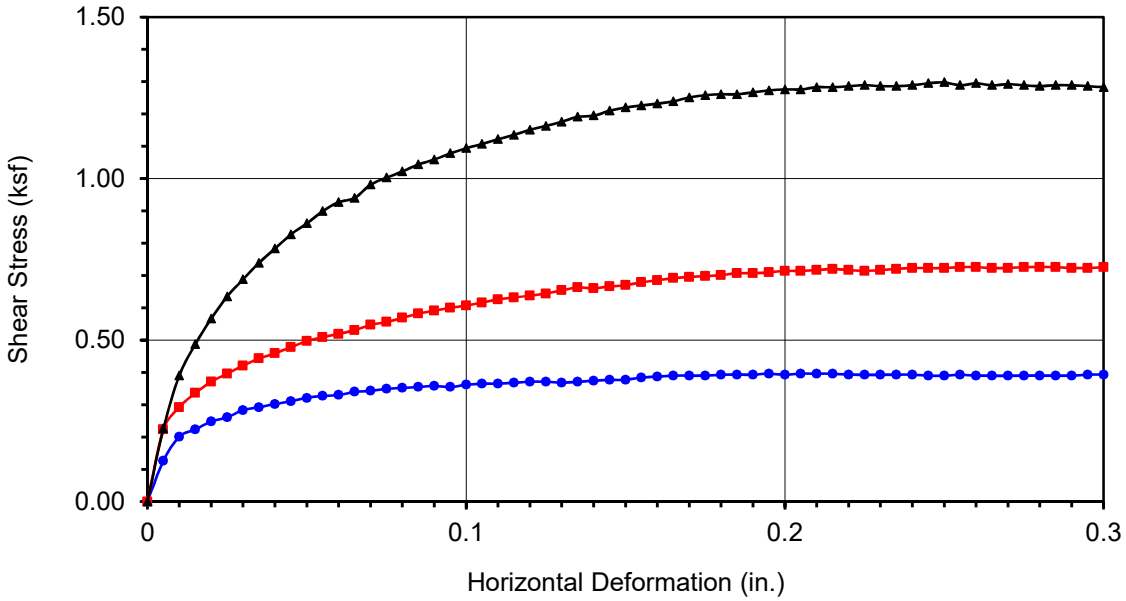
DIRECT SHEAR TEST

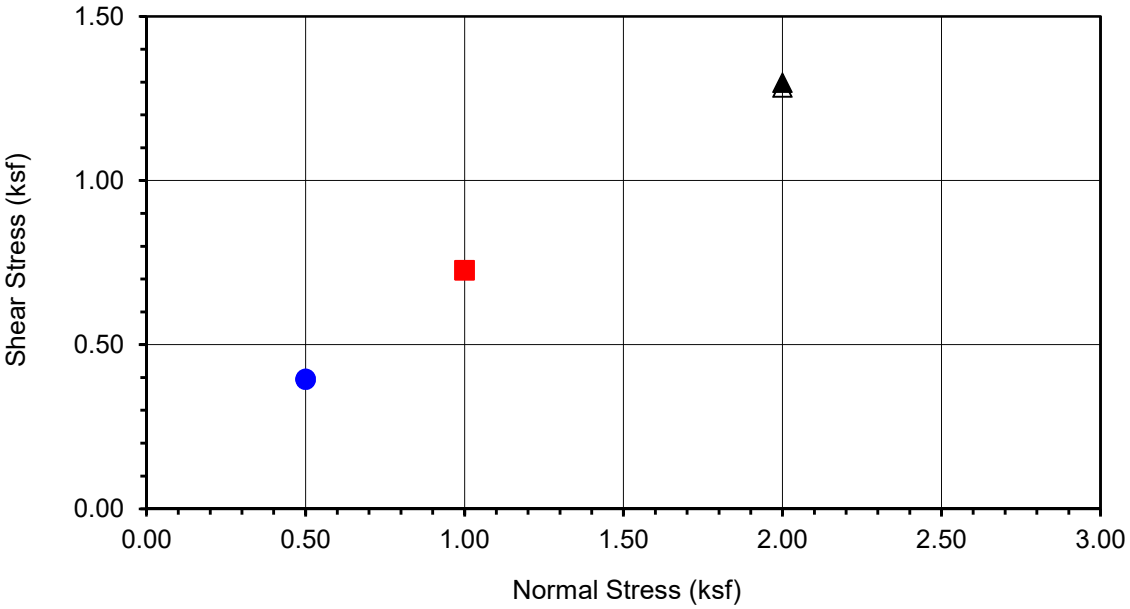
Consolidated Drained - ASTM D 3080

Project Name:	El Cajon	Tested By:	G. Bathala	Date:	01/12/22
Project No.:	21287-01	Checked By:	J. Ward	Date:	01/27/22
Boring No.:	HS-2	Sample Type:	Ring		
Sample No.:	R-2	Depth (ft.):	5.0		

Soil Identification: Dark olive brown sandy lean clay s(CL)

Sample Diameter(in):	2.415	2.415	2.415
Sample Thickness(in.):	1.000	1.000	1.000
Weight of Sample + ring(gm):	184.74	185.92	186.14
Weight of Ring(gm):	45.58	45.27	45.45
Before Shearing			
Weight of Wet Sample+Cont.(gm):	186.52	186.52	186.52
Weight of Dry Sample+Cont.(gm):	173.82	173.82	173.82
Weight of Container(gm):	61.47	61.47	61.47
Vertical Rdg.(in): Initial	0.2699	0.2435	0.0000
Vertical Rdg.(in): Final	0.2746	0.2516	-0.0183
After Shearing			
Weight of Wet Sample+Cont.(gm):	200.78	203.00	215.32
Weight of Dry Sample+Cont.(gm):	177.47	180.49	192.89
Weight of Container(gm):	55.15	57.16	69.46
Specific Gravity (Assumed):	2.70	2.70	2.70
Water Density(pcf):	62.43	62.43	62.43





Boring No.	**HS-2**
Sample No.	**R-2**
Depth (ft)	**5**
Sample Type: Ring	
Soil Identification: Dark olive brown sandy lean clay s(CL)	

Normal Stress (kip/ft²)	0.500	1.000	2.000
Peak Shear Stress (kip/ft²)	● 0.396	■ 0.726	▲ 1.298
Shear Stress @ End of Test (ksf)	○ 0.393	□ 0.726	△ 1.283
Deformation Rate (in./min.)	0.0017	0.0017	0.0017
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	11.30	11.30	11.30
Dry Density (pcf)	104.0	105.1	105.1
Saturation (%)	49.1	50.5	50.6
Soil Height Before Shearing (in.)	0.9953	0.9919	0.9817
Final Moisture Content (%)	19.1	18.3	18.2

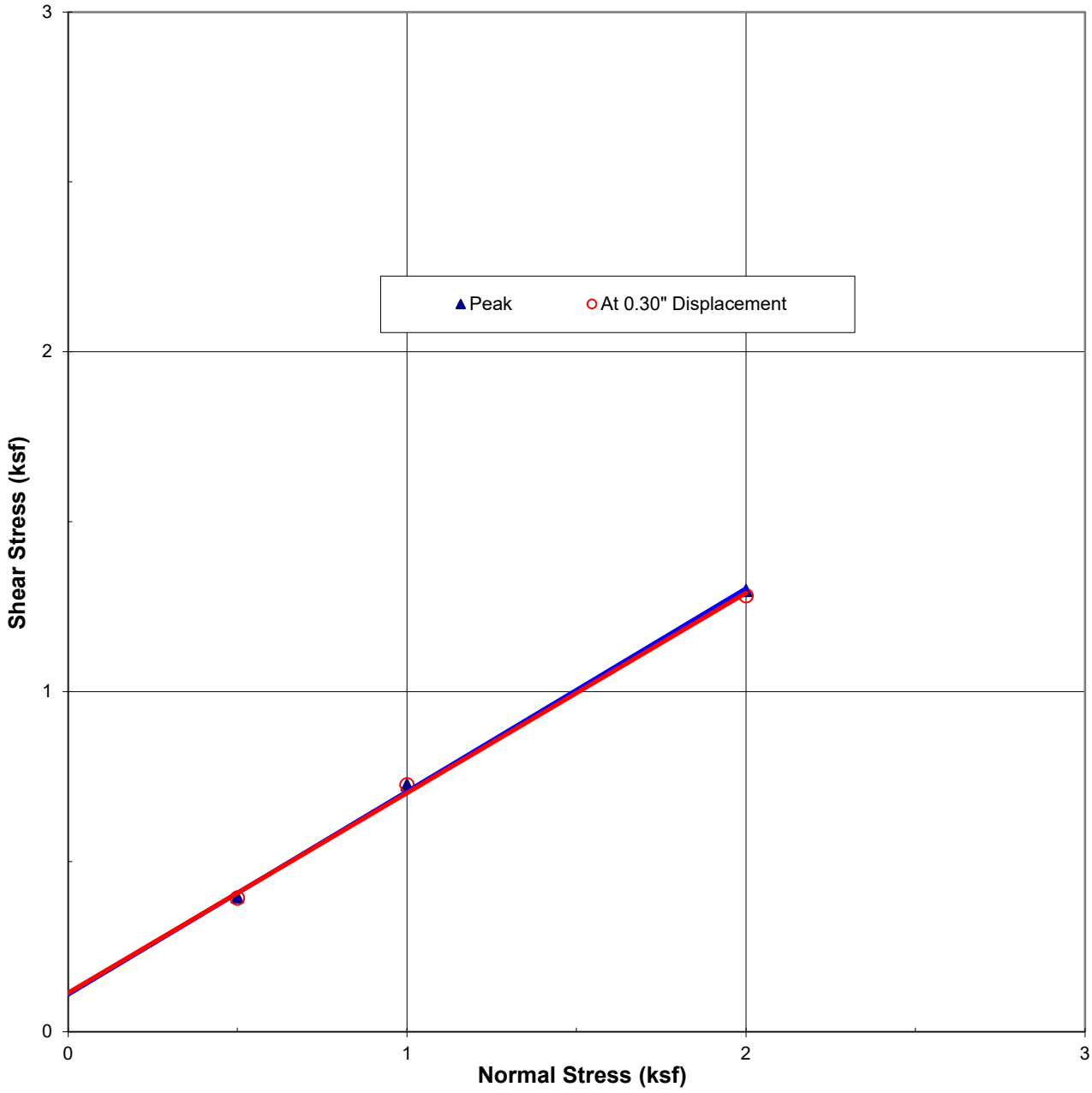
DIRECT SHEAR TEST RESULTS

Consolidated Drained - ASTM D 3080

Project No.: 21287-01

El Cajon

01-22



Tested Sample:
HS-2 at 5 ft

Peak:	At 0.30" Displacement:
30.8 Degrees	30.5 Degrees
0.11 ksf	0.11 ksf

LGC Geotechnical, Inc.

DIRECT SHEAR PLOT

Project Number: 21287-01
Date: Jan-22

Woodside Self Storage

TESTS for SULFATE CONTENT
CHLORIDE CONTENT and pH of SOILS

Project Name: El Cajon | Tested By : GB/GEB | Date: 01/08/22

Project No. : 21287-01 | Checked By: J. Ward | Date: 01/27/22

Boring No.	HS-1			
Sample No.	B-1			
Sample Depth (ft)	1-3			
Soil Identification:	Dark yellowish brown SM			
Wet Weight of Soil + Container (g)	122.30			
Dry Weight of Soil + Container (g)	121.15			
Weight of Container (g)	56.90			
Moisture Content (%)	1.79			
Weight of Soaked Soil (g)	100.51			

SULFATE CONTENT, DOT California Test 417, Part II

Beaker No.	307			
Crucible No.	11			
Furnace Temperature (°C)	860			
Time In / Time Out	7:15/8:00			
Duration of Combustion (min)	45			
Wt. of Crucible + Residue (g)	18.0289			
Wt. of Crucible (g)	18.0259			
Wt. of Residue (g) (A)	0.0030			
PPM of Sulfate (A) x 41150	123.45			
PPM of Sulfate, Dry Weight Basis	**126**			

CHLORIDE CONTENT, DOT California Test 422

ml of Extract For Titration (B)	15			
ml of AgNO3 Soln. Used in Titration (C)	0.4			
PPM of Chloride (C -0.2) * 100 * 30 / B	40			
PPM of Chloride, Dry Wt. Basis	**41**			

pH TEST, DOT California Test 643

pH Value	**8.42**			
Temperature °C	20.8			

SOIL RESISTIVITY TEST

DOT CA TEST 643

Project Name:	El Cajon		Tested By :	J. Domingo	Date: 01/17/22
Project No. :	21287-01		Checked By:	J. Ward	Date: 01/27/22
Boring No.:	HS-1		Depth (ft.) :	1-3	
Sample No. :	B-1				

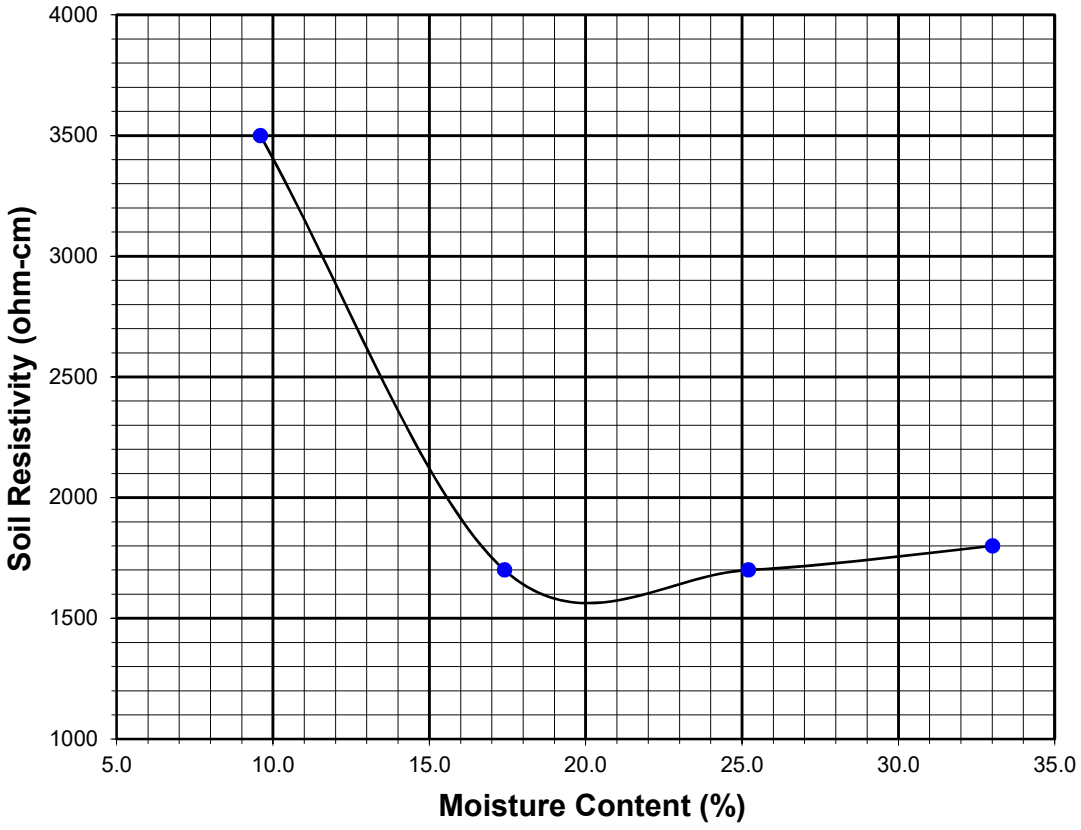
Soil Identification:* Dark yellowish brown SM

*California Test 643 requires soil specimens to consist only of portions of samples passing through the No. 8 US Standard Sieve before resistivity testing. Therefore, this test method may not be representative for coarser materials.

Specimen No.	Water Added (ml) (Wa)	Adjusted Moisture Content (MC)	Resistance Reading (ohm)	Soil Resistivity (ohm-cm)
1	10	9.60	3500	3500
2	20	17.40	1700	1700
3	30	25.21	1700	1700
4	40	33.01	1800	1800
5				

Moisture Content (%) (MCi)	1.79
Wet Wt. of Soil + Cont. (g)	122.30
Dry Wt. of Soil + Cont. (g)	121.15
Wt. of Container (g)	56.90
Container No.	
Initial Soil Wt. (g) (Wt)	130.40
Box Constant	1.000
MC =(((1+Mci/100)x(Wa/Wt+1))-1)x100	

Min. Resistivity (ohm-cm)	Moisture Content (%)	Sulfate Content (ppm)	Chloride Content (ppm)	Soil pH	
				pH	Temp. (°C)
DOT CA Test 643		DOT CA Test 417 Part II	DOT CA Test 422	DOT CA Test 643	
1560	**20.1**	**126**	**41**	**8.42**	**20.8**

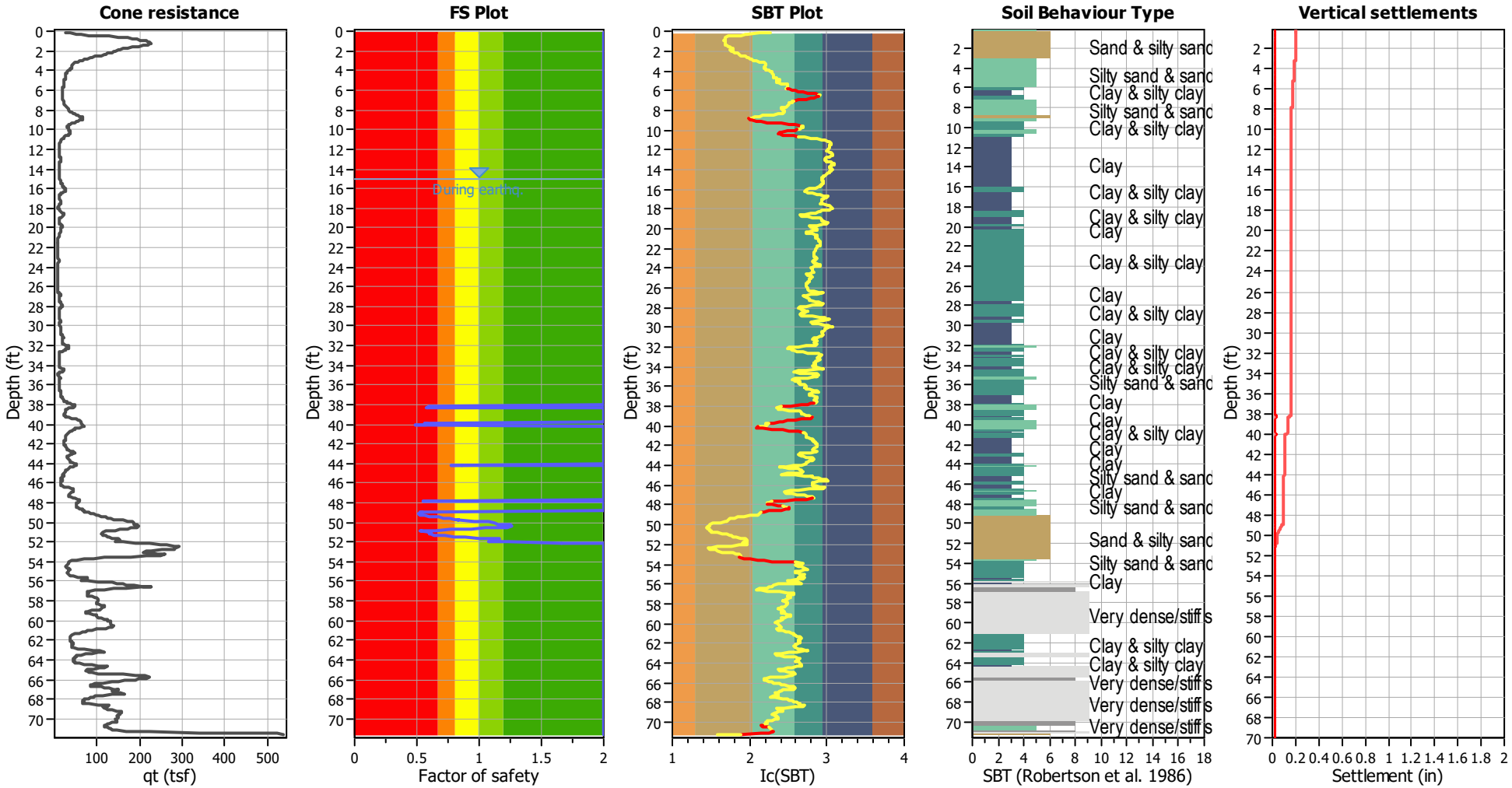


Appendix D
Liquefaction Analysis

GeoLogismiki
Geotechnical Engineers
Merarhias 56
http://www.geologismiki.gr

Project: 21st Century - 12407 Woodside Ave
Location: 21287-01

CPT: CPT-1
Total depth: 71.62 ft

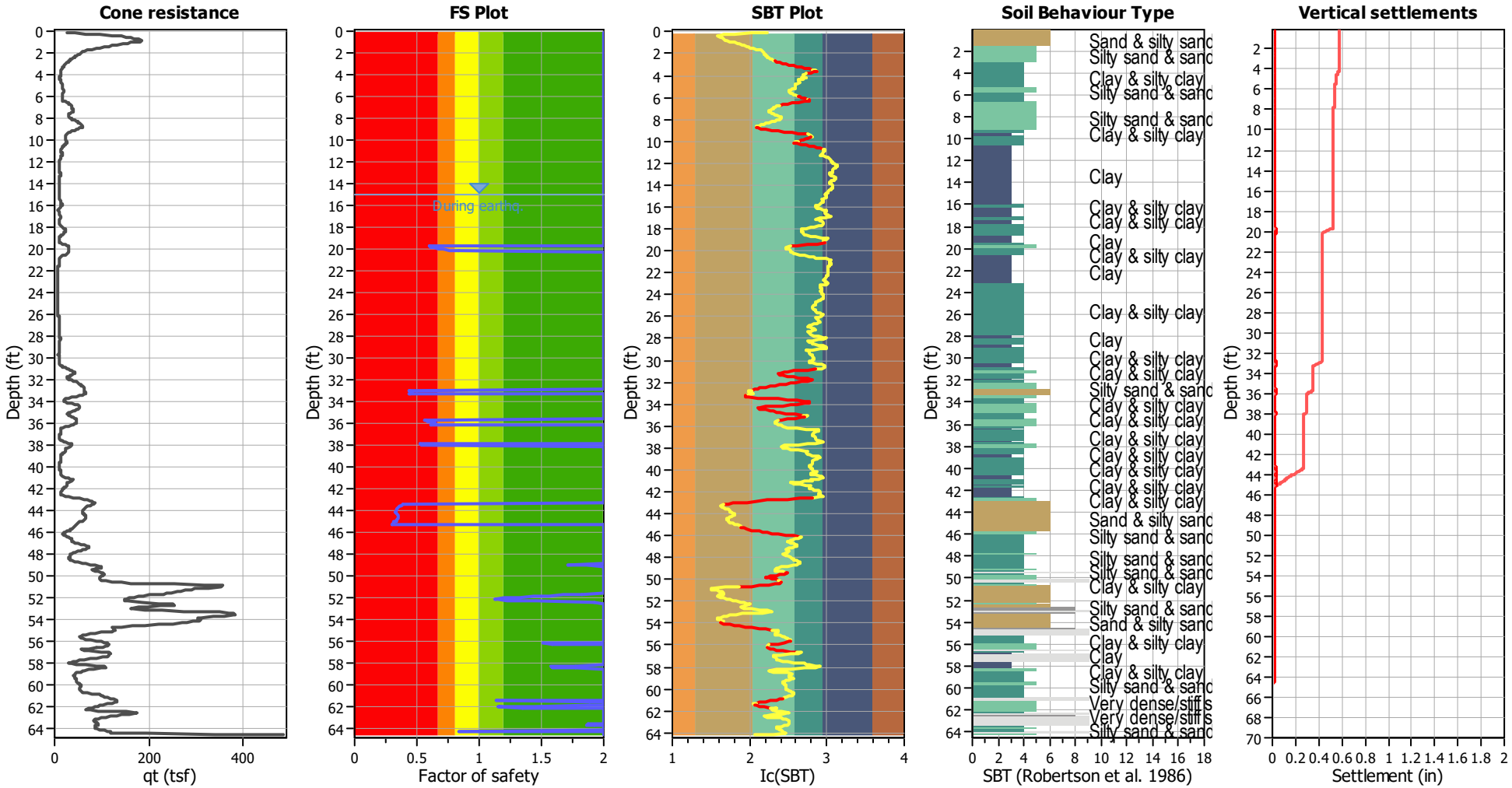


Analysis method:	NCEER (1998)	G.W.T. (in-situ):	23.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	15.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.37	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.42	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

GeoLogismiki
Geotechnical Engineers
Merarhias 56
http://www.geologismiki.gr

Project: 21st Century - 12407 Woodside Ave
Location: 21287-01

CPT: CPT-2
Total depth: 64.51 ft

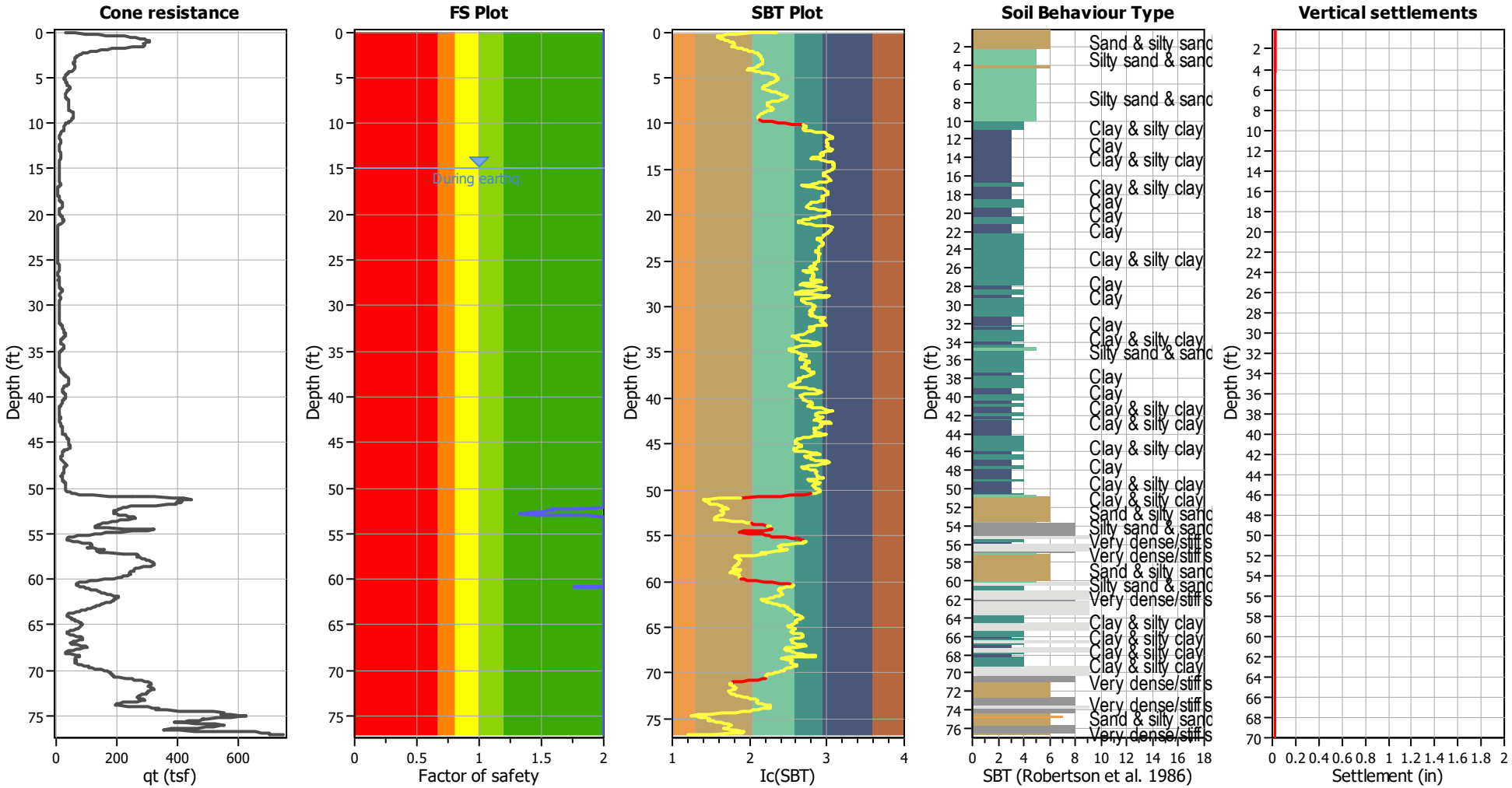


Analysis method:	NCEER (1998)	G.W.T. (in-situ):	22.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	15.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.37	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.42	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

GeoLogismiki
Geotechnical Engineers
Merarhias 56
http://www.geologismiki.gr

Project: 21st Century - 12407 Woodside Ave
Location: 21287-01

CPT: CPT-3
Total depth: 77.04 ft



Analysis method:	NCEER (1998)	G.W.T. (in-situ):	20.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	15.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.37	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.42	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

Appendix E
Infiltration Test Results

Infiltration Test Data Sheet

LGC Geotechnical, Inc
131 Calle Iglesia Suite 200, San Clemente, CA 92672 tel. (949) 369-6141

Project Name: Woodside Self Storage
Project Number: 21287-01
Date: 12/21/2021
Boring Number: I-1

Test hole dimensions (if circular)	
Boring Depth (feet)*:	10
Boring Diameter (inches):	8
Pipe Diameter (inches):	3

*measured at time of test

Test pit dimensions (if rectangular)	
Pit Depth (feet):	
Pit Length (feet):	
Pit Breadth (feet):	

*Pre-Test (Sandy Soil Criteria)**

Trial No.	Start Time (24:HR)	Stop Time (24:HR)	Time Interval (min)	Initial Depth to Water (feet)	Final Depth to Water (feet)	Total Change in Water Level (feet)	Greater Than or Equal to 0.5 feet (yes/no)
1	9:14	9:33	19.0	6.60	7.1	0.50	Yes
2	9:35	9:55	20.0	6.55	7.1	0.55	Yes

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements taken every 10 minutes. Otherwise, pre-soak (fill) overnight, and then obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25 inches

Main Test Data

Trial No.	Start Time (24:HR)	Stop Time (24:HR)	Time Interval, Δt (min)	Initial Depth to Water, D_o (feet)	Final Depth to Water, D_f (feet)	Change in Water Level, ΔD (feet)	Observed Infiltration Rate (in/hr)
1	9:56	10:08	12.0	6.60	6.90	0.30	0.9
2	10:09	10:19	10.0	6.50	6.80	0.30	1.0
3	10:24	10:34	10.0	6.30	6.55	0.25	0.8
4	10:35	10:45	10.0	6.20	6.50	0.30	0.9
5	10:46	10:56	10.0	5.75	6.10	0.35	1.0
6	10:57	11:07	10.0	5.95	6.35	0.40	1.2
7	11:08	11:18	10.0	5.75	6.15	0.40	1.1
8							
9							
10							
11							
12							
					Observed Infiltration Rate (Does Not Include Any Factor of Safety)		**1.1**

Sketch:

Notes:

LGC Geotechnical, Inc.

Infiltration Test Data Sheet

LGC Geotechnical, Inc
131 Calle Iglesia Suite 200, San Clemente, CA 92672 tel. (949) 369-6141

Project Name: Woodside Self Storage
Project Number: 21287-01
Date: 12/21/2021
Boring Number: I-2

Test hole dimensions (if circular)	
Boring Depth (feet)*:	10
Boring Diameter (inches):	8
Pipe Diameter (inches):	3

*measured at time of test

Test pit dimensions (if rectangular)	
Pit Depth (feet):	
Pit Length (feet):	
Pit Breadth (feet):	

*Pre-Test (Sandy Soil Criteria)**

Trial No.	Start Time (24:HR)	Stop Time (24:HR)	Time Interval (min)	Initial Depth to Water (feet)	Final Depth to Water (feet)	Total Change in Water Level (feet)	Greater Than or Equal to 0.5 feet (yes/no)
1	9:21	9:40	19.0	5.50	6.00	0.5	yes
2	9:41	10:05	24.0	5.60	6.10	0.5	yes

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements taken every 10 minutes. Otherwise, pre-soak (fill) overnight, and then obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25 inches

Main Test Data

Trial No.	Start Time (24:HR)	Stop Time (24:HR)	Time Interval, Δt (min)	Initial Depth to Water, D_o (feet)	Final Depth to Water, D_f (feet)	Change in Water Level, ΔD (feet)	Observed Infiltration Rate (in/hr)
1	10:06	10:16	10.0	5.85	6.05	0.20	0.6
2	10:18	10:28	10.0	5.80	6.00	0.20	0.6
3	10:29	10:39	10.0	5.70	5.90	0.20	0.5
4	10:40	10:50	10.0	5.65	5.89	0.24	0.7
5	10:51	11:01	10.0	5.55	5.75	0.20	0.5
6	11:02	11:12	10.0	5.35	5.60	0.25	0.6
7							
8							
9							
10							
11							
12							
						Observed Infiltration Rate (Does Not Include Any Factor of Safety)	**0.6**

Sketch:

Notes:

LGC Geotechnical, Inc.

Appendix F
General Earthwork and Grading Specifications

General Earthwork and Grading Specifications for Rough Grading

1.0 General

1.1 Intent

These General Earthwork and Grading Specifications are for the grading and earthwork shown on the approved grading plan(s) and/or indicated in the geotechnical report(s). These Specifications are a part of the recommendations contained in the geotechnical report(s). In case of conflict, the specific recommendations in the geotechnical report shall supersede these more general Specifications. Observations of the earthwork by the project Geotechnical Consultant during the course of grading may result in new or revised recommendations that could supersede these specifications or the recommendations in the geotechnical report(s).

1.2 The Geotechnical Consultant of Record

Prior to commencement of work, the owner shall employ a qualified Geotechnical Consultant of Record (Geotechnical Consultant). The Geotechnical Consultant shall be responsible for reviewing the approved geotechnical report(s) and accepting the adequacy of the preliminary geotechnical findings, conclusions, and recommendations prior to the commencement of the grading.

Prior to commencement of grading, the Geotechnical Consultant shall review the "work plan" prepared by the Earthwork Contractor (Contractor) and schedule sufficient personnel to perform the appropriate level of observation, mapping, and compaction testing.

During the grading and earthwork operations, the Geotechnical Consultant shall observe, map, and document the subsurface exposures to verify the geotechnical design assumptions. If the observed conditions are found to be significantly different than the interpreted assumptions during the design phase, the Geotechnical Consultant shall inform the owner, recommend appropriate changes in design to accommodate the observed conditions, and notify the review agency where required.

The Geotechnical Consultant shall observe the moisture-conditioning and processing of the subgrade and fill materials and perform relative compaction testing of fill to confirm that the attained level of compaction is being accomplished as specified. The Geotechnical Consultant shall provide the test results to the owner and the Contractor on a routine and frequent basis.

1.3 The Earthwork Contractor

The Earthwork Contractor (Contractor) shall be qualified, experienced, and knowledgeable in earthwork logistics, preparation and processing of ground to receive fill, moisture-conditioning and processing of fill, and compacting fill. The Contractor shall review and accept the plans, geotechnical report(s), and these Specifications prior to commencement of grading. The Contractor shall be solely responsible for performing the grading in accordance with the project plans and specifications. The Contractor shall prepare and submit to the owner and the Geotechnical Consultant a work plan that indicates the sequence of earthwork grading, the number of “equipment” of work and the estimated quantities of daily earthwork

contemplated for the site prior to commencement of grading. The Contractor shall inform the owner and the
Geotechnical Consultant of changes in work schedules and updates to the work plan at least 24 hours in advance of such changes so that appropriate personnel will be available for observation and testing. The Contractor shall not assume that the Geotechnical Consultant is aware of all grading operations.

The Contractor shall have the sole responsibility to provide adequate equipment and methods to accomplish the earthwork in accordance with the applicable grading codes and agency ordinances, these Specifications, and the recommendations in the approved geotechnical report(s) and grading plan(s). If, in the opinion of the Geotechnical Consultant, unsatisfactory conditions, such as unsuitable soil, improper moisture condition, inadequate compaction, insufficient buttress key size, adverse weather, etc., are resulting in a quality of work less than required in these specifications, the Geotechnical Consultant shall reject the work and may recommend to the owner that construction be stopped until the conditions are rectified. It is the contractor's sole responsibility to provide proper fill compaction.

2.0 Preparation of Areas to be Filled

2.1 Clearing and Grubbing

Vegetation, such as brush, grass, roots, and other deleterious material shall be sufficiently removed and properly disposed of in a method acceptable to the owner, governing agencies, and the Geotechnical Consultant.

The Geotechnical Consultant shall evaluate the extent of these removals depending on specific site conditions. Earth fill material shall not contain more than 1 percent of organic materials (by volume). Nesting of the organic materials shall not be allowed.

If potentially hazardous materials are encountered, the Contractor shall stop work in the affected area, and a hazardous material specialist shall be informed immediately for proper evaluation and handling of these materials prior to continuing to work in that area.

As presently defined by the State of California, most refined petroleum products (gasoline, diesel fuel, motor oil, grease, coolant, etc.) have chemical constituents that are considered to be hazardous waste. As such, the indiscriminate dumping or spillage of these fluids onto the ground may constitute a misdemeanor, punishable by fines and/or imprisonment, and shall not be allowed. The contractor is responsible for all hazardous waste relating to his work. The Geotechnical Consultant does not have expertise in this area. If hazardous waste is a concern, then the Client should acquire the services of a qualified environmental assessor.

2.2 Processing

Existing ground that has been declared satisfactory for support of fill by the Geotechnical Consultant shall be scarified to a minimum depth of 6 inches. Existing ground that is not satisfactory shall be over-excavated as specified in the following section. Scarification shall continue until soils are broken down and free of oversize material and the working surface is reasonably uniform, flat, and free of uneven features that would inhibit uniform compaction.

2.3 Over-excavation

In addition to removals and over-excavations recommended in the approved geotechnical report(s) and the grading plan, soft, loose, dry, saturated, spongy, organic-rich, highly fractured or otherwise unsuitable ground shall be over-excavated to competent ground as evaluated by the Geotechnical Consultant during grading.

2.4 Benching

Where fills are to be placed on ground with slopes steeper than 5:1 (horizontal to vertical units), the ground shall be stepped or benched. Please see the Standard Details for a graphic illustration. The lowest bench or key shall be a minimum of 15 feet wide and at least 2 feet deep, into competent material as evaluated by the Geotechnical Consultant. Other benches shall be excavated a minimum height of 4 feet into competent material or as otherwise recommended by the Geotechnical Consultant. Fill placed on ground sloping flatter than 5:1 shall also be benched or otherwise over-excavated to provide a flat subgrade for the fill.

2.5 Evaluation/Acceptance of Fill Areas

All areas to receive fill, including removal and processed areas, key bottoms, and benches, shall be observed, mapped, elevations recorded, and/or tested prior to being accepted by the Geotechnical Consultant as suitable to receive fill. The Contractor shall obtain a written acceptance from the Geotechnical Consultant prior to fill placement. A licensed surveyor shall provide the survey control for determining elevations of processed areas, keys, and benches.

3.0 Fill Material

3.1 General

Material to be used as fill shall be essentially free of organic matter and other deleterious substances evaluated and accepted by the Geotechnical Consultant prior to placement. Soils of poor quality, such as those with unacceptable gradation, high expansion potential, or low strength shall be placed in areas acceptable to the Geotechnical Consultant or mixed with other soils to achieve satisfactory fill material.

3.2 Oversize

Oversize material defined as rock, or other irreducible material with a maximum dimension greater than 8 inches, shall not be buried or placed in fill unless location, materials, and placement methods are specifically accepted by the Geotechnical Consultant. Placement operations shall be such that nesting of oversized material does not occur and such that oversize material is completely surrounded by compacted or densified fill. Oversize material shall not be placed within 10 vertical feet of finish grade or within 2 feet of future utilities or underground construction.

3.3 Import

If importing of fill material is required for grading, proposed import material shall meet the requirements of the geotechnical consultant. The potential import source shall be given to the Geotechnical Consultant at least 48 hours (2 working days) before importing begins so that its suitability can be determined and appropriate tests performed.

4.0 Fill Placement and Compaction

4.1 Fill Layers

Approved fill material shall be placed in areas prepared to receive fill (per Section 3.0) in near-horizontal layers not exceeding 8 inches in loose thickness. The Geotechnical Consultant may accept thicker layers if testing indicates the grading procedures can adequately compact the thicker layers. Each layer shall be spread evenly and mixed thoroughly to attain relative uniformity of material and moisture throughout.

4.2 Fill Moisture Conditioning

Fill soils shall be watered, dried back, blended, and/or mixed, as necessary to attain a relatively uniform moisture content at or slightly over optimum. Maximum density and optimum soil moisture content tests shall be performed in accordance with the American Society of Testing and Materials (ASTM Test Method D1557).

4.3 Compaction of Fill

After each layer has been moisture-conditioned, mixed, and evenly spread, it shall be uniformly compacted to not less than 90 percent of maximum dry density (ASTM Test Method D1557). Compaction equipment shall be adequately sized and be either specifically designed for soil compaction or of proven reliability to efficiently achieve the specified level of compaction with uniformity.

4.4 Compaction of Fill Slopes

In addition to normal compaction procedures specified above, compaction of slopes shall be accomplished by backrolling of slopes with sheepsfoot rollers at increments of 3 to 4 feet in fill elevation, or by other methods producing satisfactory results acceptable to the Geotechnical Consultant. Upon completion of grading, relative compaction of the fill, out to the slope face, shall be at least 90 percent of maximum density per ASTM Test Method D1557.

4.5 Compaction Testing

Field tests for moisture content and relative compaction of the fill soils shall be performed by the Geotechnical Consultant. Location and frequency of tests shall be at the Consultant's discretion based on field conditions encountered. Compaction test locations will not necessarily be selected on a random basis. Test locations shall be selected to verify adequacy of compaction levels in areas that are judged to be prone to inadequate compaction (such as close to slope faces and at the fill/bedrock benches).

4.6 Frequency of Compaction Testing

Tests shall be taken at intervals not exceeding 2 feet in vertical rise and/or 1,000 cubic yards of compacted fill soils embankment. In addition, as a guideline, at least one test shall be taken on slope faces for each 5,000 square feet of slope face and/or each 10 feet of vertical height of slope. The Contractor shall assure that fill construction is such that the testing schedule can be accomplished by the Geotechnical Consultant. The Contractor shall stop or slow down the earthwork construction if these minimum standards are not met.

4.7 Compaction Test Locations

The Geotechnical Consultant shall document the approximate elevation and horizontal coordinates of each test location. The Contractor shall coordinate with the project surveyor to assure that sufficient grade stakes are established so that the Geotechnical Consultant can determine the test locations with sufficient accuracy. At a minimum, two grade stakes within a horizontal distance of 100 feet and vertically less than
5 feet apart from potential test locations shall be provided.

5.0 Subdrain Installation

Subdrain systems shall be installed in accordance with the approved geotechnical report(s), the grading plan, and the Standard Details. The Geotechnical Consultant may recommend additional subdrains and/or changes in subdrain extent, location, grade, or material depending on conditions encountered during grading. All subdrains shall be surveyed by a land surveyor/civil engineer for line and grade after installation and prior to burial. Sufficient time should be allowed by the Contractor for these surveys.

6.0 Excavation

Excavations, as well as over-excavation for remedial purposes, shall be evaluated by the Geotechnical Consultant during grading. Remedial removal depths shown on geotechnical plans are estimates only. The actual extent of removal shall be determined by the Geotechnical Consultant based on the field evaluation of exposed conditions during grading. Where fill-over-cut slopes are to be graded, the cut portion of the slope shall be made, evaluated, and accepted by the Geotechnical Consultant prior to placement of materials for construction of the fill portion of the slope, unless otherwise recommended by the Geotechnical Consultant.

7.0 Trench Backfills

7.1 The Contractor shall follow all OHSA and Cal/OSHA requirements for safety of trench excavations.

7.2 All bedding and backfill of utility trenches shall be done in accordance with the applicable provisions of Standard Specifications of Public Works Construction. Bedding material shall have a Sand Equivalent greater than 30 (SE>30). The bedding shall be placed to 1 foot over

the top of the conduit and densified by jetting. Backfill shall be placed and densified to a minimum of 90 percent of maximum from 1 foot above the top of the conduit to the surface.

7.3 The jetting of the bedding around the conduits shall be observed by the Geotechnical Consultant.

7.4 The Geotechnical Consultant shall test the trench backfill for relative compaction. At least one test should be made for every 300 feet of trench and 2 feet of fill.

7.5 Lift thickness of trench backfill shall not exceed those allowed in the Standard Specifications of Public Works Construction unless the Contractor can demonstrate to the Geotechnical Consultant that the fill lift can be compacted to the minimum relative compaction by his alternative equipment and method.

9.0 General Requirements

- Complete the table below to indicate which compliance pathway was selected in PDP SWQMP Table 6. Include the corresponding sub-attachment with your SWQMP submittal. Other sub-attachments do not need to be included.
- See the BMPDM sections and appendices listed under "BMPDM Design Resources" for additional explanation of design requirements. Constructed features must fully satisfy the requirements described in these resources, and any other guidance identified by the County.
- DMA Exhibits and Construction Plans: CCSYAs and applicable BMPs identified and described in this attachment must be shown on DMA Exhibits and all applicable construction plans submitted for the project. See Attachment 2 for additional instruction on exhibits and plans.

Sub-attachments	BMPDM Design Resources
☒ **9.1: Documentation of Hydromodification Management Exemption**[1]	Section 1.6
☒ **9.2: Watershed Management Area Analysis (WMAA) Mapping**[1]	Appendix H.1.1.2
☐ **9.3: Resource Protection Ordinance (RPO) Methods**	Appendix H.1.1.1
☐ **9.4: No Net Impact Analysis**	Appendix H.4

[1] The San Diego County Regional comprehensive WMAA mapping data can be found on the Project Clean Water website here: http://www.projectcleanwater.org/download/wmaa_attc_data/

9.1 Documentation of Hydromodification Management Exemption (BMPDM Section 1.6)

- If the PDP is exempt from hydromodification management requirements (see Table 4 Part A.1 of the PDP SWQMP), use this Sub-attachment to document the exemption.
- Select the type of exemption below that applies and provide an explanation of the selection, including maps or other applicable documentation. Additional documentation may be requested by County staff.

Exemption Type per BMPDM Figure 1-2 (select one)

☐ a. The proposed project will discharge runoff directly to existing underground storm drains discharging directly to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.

☒ b. The proposed project will discharge runoff directly to conveyance channels whose bed and bank are concrete lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.

☐ c. The proposed project will discharge runoff directly to an area identified by the County as appropriate for an exemption by the WMAA for the watershed in which the project resides[2].

Explanation (add or attach pages as necessary)

The site is hydromodification exempt as it drains to an exempt portion of the San Diego River that is concrete lined. Please see attached "Receiving Waters and Conveyance Systems Exempt from Hydromodification Management Requirements" exhibit for more details.

[2] This option must include an analysis of the project using the methodology presented in Attachment E of the Regional Watershed Management Area Analysis.

San Diego River Watershed Management Area
HU 907.00, 436 mi2

Legend

- **Watershed Boundaries**
- **Municipal Boundaries**
- **Regional WMAA Streams**
- **Exempt Bodies:** Water Storage Reservoirs, Lakes, Enclosed Embayments, Pacific Ocean, Buena Vista Lagoon
- **Exempt River Reaches:** Reaches of San Luis Rey River, San Dieguito River, San Diego River, Forester Creek, Sweetwater River, Otay River
- **Exempt Conveyance Systems:** Existing underground storm drains or conveyance channels whose bed and bank are concrete-lined, discharging directly to exempt water bodies, exempt rivers, or localized areas of Agua Hedionda Lagoon and Batiquitos Lagoon

Project Site Location
Site drains via sheet flow to the public storm drain inlet on the northwesterly corner of the commercial development, thence to an exempt portion of the San Diego River and ultimately to the Pacific Ocean.

CARLSBAD
SAN MARCOS
Marcos Creek
Escondido Creek
ENCINITAS
S.D. COUNTY
San Dieguito River
Santa Ysabel Creek
Lusardi Creek
POWAY
Rattlesnake Creek
Los Penasquitos Creek
Carroll Canyon Creek
Rose Creek
SAN DIEGO
SANTEE
San Diego River
Forester Creek
EL CAJON
LA MESA
LEMON GROVE
Chollas Creek
Sweetwater River
CORONADO

Key Map (Not to Scale)

Aerial Imagery Source: DigitalGlobe, 06/2012

0 3.75 7.5 15 Miles

NORTH

Receiving Waters and Conveyance Systems Exempt from Hydromodification Management Requirements

Exhibit Date: Sept. 8, 2014

Geosyntec consultants | RICK ENGINEERING COMPANY


Drainage Pathway Map
Legend
Project Site
Site discharges to public storm drain system on Woodside Avenue, thence to Los Coches Creek, a concrete lined channel, and ultimately to the San Diego River, an HMP exempt channel.
Project Site
Google Earth
N
1000 ft

National Flood Hazard Layer FIRMette

FEMA

116°56'21"W 32°51'43"N

116°55'44"W 32°51'13"N

Feet

0 250 500 1,000 1,500 2,000

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

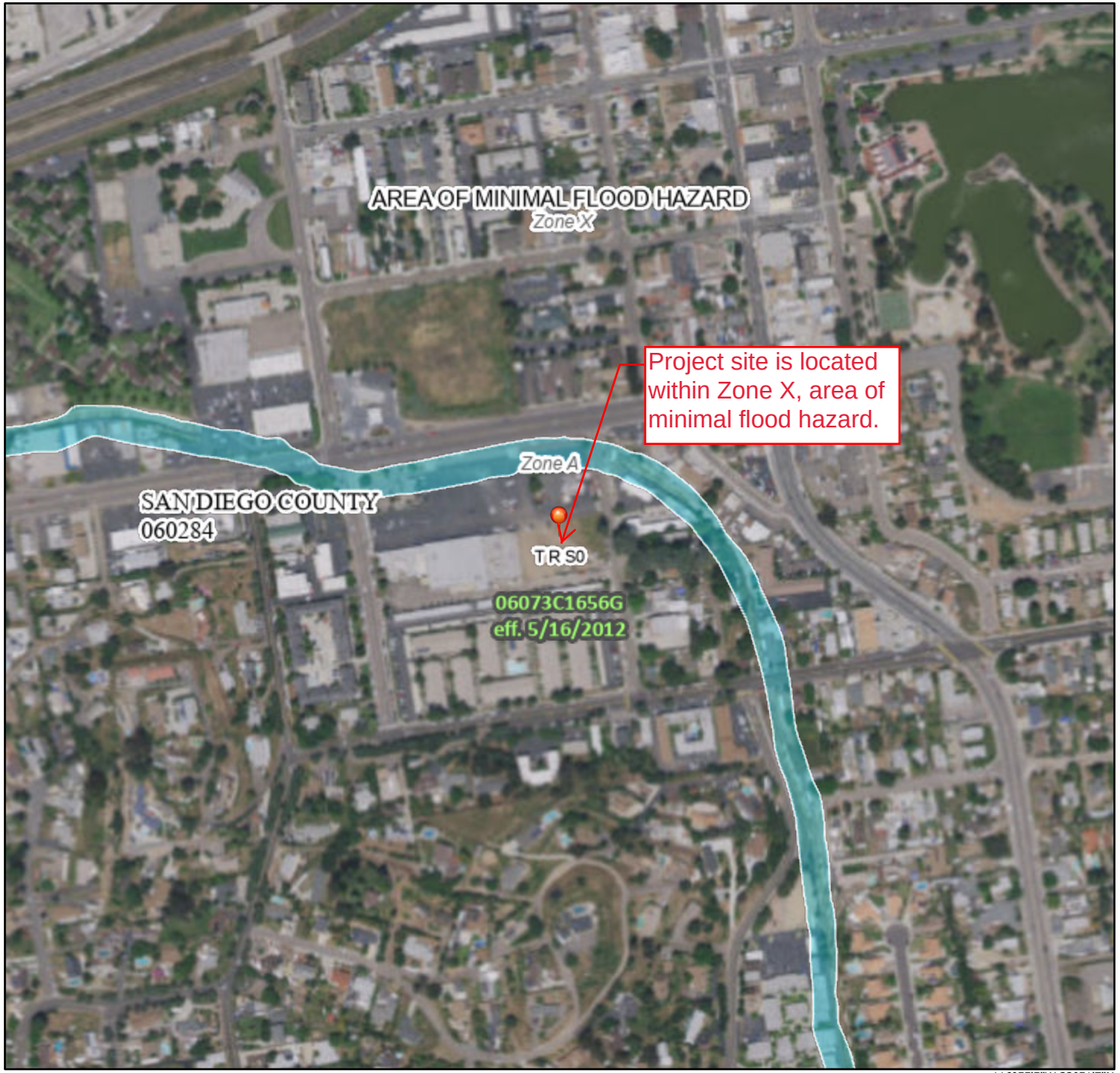
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 11/29/2022 at 2:08 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

National Flood Hazard Layer FIRMette

FEMA

116°55'43"W 32°51'37"N



116°55'5"W 32°51'7"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 11/18/2022 at 2:32 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

9.2 Watershed Management Area Analysis (WMAA) Mapping (BMPDM Appendix H.1.1.2)

Watershed Management Area Analysis (WMAA) mapping is a simple way to screen projects to determine the presence of onsite or offsite upstream Potential Critical Coarse Sediment Yield Areas (PCCSYAs). The San Diego County Regional WMAA mapping data can be found on the Project Clean Water website here: http://www.projectcleanwater.org/download/wmaa_attc_data/ .[3]

- Based on the WMAA map and the proposed project design, demonstrate below that both of the following conditions apply to the PDP:

  (a) Less than 5% of PCCSYAs will be impacted (built on or obstructed) by the PDP, and

  (b) All upstream offsite PCCYSAs will be bypassed (see BMPDM Appendix H.3).

A. Mapping Results -- At a minimum, show: (1) the project footprint, (2) areas of proposed development, (3) impacted onsite PCCSYAs, (4) offsite tributary areas[4], and (5) bypass of upstream offsite PCCSYAs.

The project does not have CCSYA areas on-site or CCSYA that drain to the site. See attached CCSYA Map for more details.

[3] Applicants may refine initial mapping results using options identified in BMPDM Appendix H.1.2.

[4] Tributary areas must be shown to demonstrate that upstream offsite PCCSYAs do not exist. If bypassing these areas, only the bypass should be shown.

B. Explanation -- Provide documentation as needed to demonstrate that (1) impacts to PCCSYAs are below 5%, and (2) upstream offsite PCCYSAs are effectively bypassed. Add pages as necessary.

N/A


CCSYA Map
No CCSYA's exist on-site or drain to the site
Legend
12407 Woodside Ave
CCSYA
12407 Woodside Ave
N
Google Earth
3000 ft

9.3 Resource Protection Ordinance (RPO) Methods (BMPDM Appendix H.1.1.1)

- Either of two Resource Protection Ordinance (RPO) methods may also be used to demonstrate compliance with CCSYA requirements. Select either option and document the selection below:

☐ **RPO Scenario 1: PDP is subject to and in compliance with RPO requirements**[5]

- **Select** if the project requires one or more discretionary permits;
- **Demonstrate** that onsite AND upstream offsite CCSYAs will be avoided and/or bypassed.

☐ **RPO Scenario 2: PDP is entirely exempt/not subject to RPO requirements**[6]

- **Select** if the project does not require discretionary permits;
- **Demonstrate** that all upstream offsite CCSYAs will be bypassed[7].

A. Mapping Results -- At a minimum, show as applicable: (1) the project footprint, (2) areas of proposed development, (3) locations of onsite and upstream offsite CCSYAs, and (4) bypass of all identified CCSYAs.
N/A

[5] RPO applicability is normally confirmed during discretionary review. Check with your project manager if you're not sure of your status.
[6] Does not include PDPs utilizing exemption(s) via RPO Section 86.604(e)(2)(cc) or 86.604(e)(3).
[7] This scenario does not impose requirements for onsite CCSYAs.

B. Explanation -- Provide documentation as needed to demonstrate that (1) onsite CCSYAs are avoided and bypassed [if applicable], and (2) upstream offsite CCYSAs are effectively bypassed. Add pages as necessary.

N/A

9.4 No Net Impact Analysis (BMPDM Appendix H.4)

- When impacts to CCSYAs cannot be avoided or effectively bypassed, applicants must demonstrate that their project generates no net impact to the receiving water per the performance metrics identified in BMPDM Appendix H.4.
- Use the space below to document that the PDP will generate no net impact to any receiving water.

No Net Impact Analysis (add or attach pages as necessary)
N/A

This form must be accepted by the County prior to the release of construction permits or granting of occupancy for applicable portions of a Priority Development Project (PDP). Its purpose is to provide documentation of the final installation of permanent Best Management Practices (BMPs) used to satisfy Structural Performance Standards for the development project. Compliance with these standards reduces the discharge of pollutants and flows from the completed project site. Applicable standards may be satisfied using Structural BMPs (S-BMPs), Significant Site Design BMPs (SSD-BMPs), or both. Applicants are responsible for providing all requested information.

PART 1 PROJECT INFORMATION

A. Project Summary Information	
Project Name	Woodside Self-Storage
Record ID (e.g. grading/improvement plan number, building permit)	PDS2022-MUP-22-006
Project Address	12407-12413 Woodside Avenue, Lakeside, CA
Assessor's Parcel Number(s) APN(s)	394-122-16
Project Watershed (Hydrologic Unit, Area, and Subarea Name with Numeric Identifier)	Unit: San Diego Area: Lower San Diego Sub-Area: Coches; Identifier: 907.14
B. Owner Information	
Name	21st Century Lakeside Holdings LLC; Attn.: Roberto Garmo
Address	5464 Grossmont Center Dr., Suite 300, La Mesa, CA 91942
Email Address	rg@novoprop.com
Phone Number	(619) 441-2500

COUNTY – OFFICIAL USE ONLY	
INTAKE ID#	
ACCEPTANCE ID#	

****THIS PAGE IS FOR PARTIAL VERIFICATIONS ONLY ****

If final grade release or granting of occupancy is being requested for only a portion of the Priority Development Project (PDP) please fill out the table below. Include ALL of the Structural BMPs and/or Significant Site Design BMPs for the entire project in the table. **Include a mark-up of the DMA map from the approved SWQMP with this Verification package that clearly shows which DMAs you are submitting for approval and which DMAs have already been accepted (if any).**

DMA #	APN or Lot #	BMP ID #	WPP Acceptance Date (If applicable)	WPP Acceptance ID# (If applicable, e.g. 20/21-001)
DMA-1	394-122-16	Tree Well # 1	TBD	TBD
DMA-2	394-122-16	BMP-1	TBD	TBD
DMA-3	394-122-16	Tree Well # 2	TBD	TBD
DMA-6	394-122-16	Tree Well #3	TBD	TBD

PART 2 BMP INVENTORY INFORMATION

Use this table to document Structural BMPs (S-BMPs) and Significant Site Design BMPs (SSD-BMPs) for the PDP. All DMAs that are not self-mitigating or de minimis must have at least one Structural BMP or Significant Site Design BMP.

- In **Part A** list all Structural BMPs (including both Pollutant Control and/or Hydromodification as applicable) by DMA.
- Complete **Part B** for all DMAs that contain only Significant Site Design BMPs. SSD-BMPs are Site Design BMPs (SD-BMPs) that are sized and constructed to satisfy Structural Performance Standards for a DMA.
- The information provided for each BMP in the table must match that provided in the Stormwater Quality Management Plan (SWQMP), construction plans, maintenance agreements, and other relevant project documentation.

DMA #	BMP Information			Maintenance Category (1, 2, 3, or 4)	Maintenance Agreement Recorded DOC #	Construction Plan Sheet #	Landscape Plan Sheet #	FOR DPW-WPP USE ONLY
	Quantity	Description/Type of Structural BMP	BMP ID #					
A. Structural BMPs (S-BMPs)								
2	1	Lined Biofiltration	1	1	TBD	Sheet C-3		
Add rows as needed. Click into the last column in the row below this, then press TAB to add a new row.								
B. Significant Site Design BMPs (SSD-BMPs)								
1	1	Tree Well	1	**N/A**	TBD	Sheet C-3		
3	1	Tree Well	2	**N/A**	TBD	Sheet C-3		
6	2	Tree Well	6	**N/A**	TBD	Sheet C-3		
		Choose an item.		Choose				
		Choose an item.		Choose				
		Choose an item.		Choose				
Add rows as needed. Click into the last column in the row below this, then press TAB to add a new row.								

PART 3 REQUIRED ATTACHMENTS

For the permanent BMPs listed in Part 2, submit the following to the County inspector along with this Verification form as a package (check all that are attached):

☒ **PHOTOGRAPHS:** Final construction photos of every permanent BMP listed in Part 2 are required. Final photos must be recent and be labeled with the date and a BMP Identifier. Additional photographs illustrating proper construction of the BMPs are recommended to be included and may be requested by WPP prior to acceptance of this Verification (e.g. excavation depths, liners, hydromodification orifices, Biofiltration Soil Media (BSM), vegetation, mulch).

☒ **MAINTENANCE AGREEMENTS:** Copies of approved and recorded Storm Water Maintenance Agreements (SWMA), Category 1 Maintenance Notification Agreements (MN), or Encroachment Maintenance and Removal Agreements (EMRA) for all S-BMPs.

Note: Significant Site Design (SSD) BMPs and most Category 4 BMPs do not require recorded maintenance agreements.

☒ **CONSTRUCTION PLANS:** Submit electronic and/or 11" X 17" hard copies of the current approved Construction Plan sheets for the Record ID(s) listed on Page 1:

- ☒ Grading Plans
- ☐ Improvement Plans
- ☐ Precise Grading Plan
- ☐ Building Plan (Applicable BMP Sheets only)
- ☐ Other (Please specify) _____

For each Construction Plan, the sheets submitted must incorporate all of the following:

- A BMP Table on Sheet 1, AND
- A plan detail cross-section of each verified as-built BMP, AND
- The location of each verified as-built BMP

☐ **LANDSCAPE PLANS**: If the PDP includes vegetated BMPs and has a Landscape Plan, submit the following:

- ☐ Final Landscape Plans
- ☐ Proof of Irrigation Installed (if applicable)

PART 4 PREPARER'S CERTIFICATION

By signing below, I certify that the BMP(s) listed in Part 2 of this Verification Form have been constructed and are in substantial conformance with the approved plans and applicable regulations. I understand the County reserves the right to inspect the above BMPs to verify compliance with the approved plans and Watershed Protection Ordinance (WPO). Should it be determined that the BMPs were not constructed to plan or code, corrective actions may be necessary before permits can be closed.

Note: Structural BMPs must be certified by a licensed professional engineer.

Please sign and, if applicable, provide your seal below.

Preparer's Name:	Patric de Boer
Email Address:	patric@omega-consultants.com
Phone Number:	(858) 634-8620
Preparer's Signature:	
Date:	

[SEAL]

PROJECT RECORD ID: _PDS2022-MUP-22-006_

COUNTY - OFFICIAL USE ONLY

County Inspector Approval:

***NOTE: The County approved SWQMP document and any Addendums or Revisions must be included with this BMP Installation Verification submittal package.**

- ☐ DPW Private Development Construction Inspection (PDCI)
- ☐ PDS Building
- ☐ DGS
- ☐ DPR

By signing below, the County Inspector concurs that every BMP listed in Part 2 of this BMP Installation Verification form has been installed per plan.

Inspector Name: _____

Inspector's Signature: _____ Date: _____

DPW Watershed Protection Program (WPP) Acceptance:

Date Received: _____

WPP Reviewer: _____

WPP Reviewer concurs that the BMPs accepted in **Part 2** above may be entered into County inventory.

WPP Reviewer's Signature: _____ Date: _____

Enter Acceptance ID# on page 1.

NOTES:

11.0 Cover Sheet and General Requirements

- All Structural BMPs must have a plan and mechanism to ensure on-going maintenance. Use the table below to document the types of agreements to be submitted for the PDP and submit them under cover of this sheet.
- See BMPDM Section 7.3 for a description of maintenance categories and responsibilities. Note that since Category 3 and 4 BMPs are County-maintained, they do not require maintenance agreements.

a. Applicability of Maintenance Agreements

Check the boxes below to indicate which types of agreements are included with this attachment.

☒ **Maintenance Notification Agreement for Category 1 Stormwater Structural BMPs**

- Exhibit A: Project Site Map; and a Map for each BMP and its Drainage Management Area (DMA).
- Exhibit B: BMP Maintenance Plan (see below)

CATEGORY 1 MAINTENANCE AGREEMENTS ARE RECORDED PRIOR TO OCCUPANCY.

☐ **Storm Water Facilities Maintenance Agreement (SWMA) (Category 2 BMPs)**

- Exhibit A: Legal Description of Property
- Exhibit B: BMP Maintenance Program (see below)
- Exhibit C: BMP Locations

CATEGORY 2 MAINTENANCE AGREEMENTS ARE RECORDED PRIOR TO PERMIT ISSUANCE.

Maintenance agreement templates and instructions are available on the County's website: www.sandiegocounty.gov/stormwater under the Development Resources tab, Submittal Templates.

b. Maintenance Plan Requirements

Maintenance plans should include the following:

☒ Specific **maintenance indicators and actions** for proposed structural BMP(s). These must be based on maintenance indicators presented in BMP Design Manual Fact Sheets in Appendix E and enhanced to reflect actual proposed components of the structural BMP(s).

☐ **Access** to inspect and perform maintenance on the structural BMP(s).

☒ Features to **facilitate inspection** (e.g., observation ports, cleanouts, silt posts, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds).

☐ Manufacturer and part number for **proprietary parts** of structural BMP(s) when applicable.

☐ **Maintenance thresholds** specific to the structural BMP(s), with a location-specific frame of reference (e.g., level of accumulated materials that triggers removal of the materials, to be identified based on viewing marks on silt posts or measured with a survey rod with respect to a fixed benchmark within the BMP).

☐ Recommended **equipment** to perform maintenance.

☒ When applicable, necessary special **training or certification** requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management.