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	
Project Name	Sundale
Project Address	(Vacant) Sundale Road, San Diego, CA 92019
Assessor's Parcel # (APN)	498-192-09
Permit # / Record ID	PDS2021-LDGRMJ-30366

Project Applicant / Project Proponent		
Name	Emad Yousif	
Address	1490 South Orange Avenue, #128, El Cajon, CA 92020	
Phone	(573) 289-5107	**Email:** emaloud@yahoo.com

SWQMP Preparer		
Name	Brendan Hofstee	
Company (if applicable)	Walsh Engineering & Surveying, Inc.	
Address	607 Aldwych Road, El Cajon, CA 92020	
Phone	(619) 588-6747	**Email:** brendan@walsh-engineering.com
PE Number (if applicable)		

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	Brendan Hofstee	**Date**	1-15-24

COUNTY ACCEPTED

SWQMP Approved By:

Approval Date:

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

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		Initial Submittal
2		
3		
4		
5		
Final Design		
1	3/9/23	Initial Submittal
2	8/10/23	Addressing comments dated 5/31/23
3	1/5/24	Addressing comments dated 10/19/23
4	5/2/24	Final Version. Adding SWMA
5		
Plan Changes		
1		Initial Submittal
2		
3		
4		
5		

General Directions

Note: These directions may be omitted from the final SWQMP submittal.	See ***PDP SWQMP Form Instructions*** for additional, more detailed guidance and explanation of terms.

① 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 some attachments not already checked will be identified during the completion of this form.

② Attachment 1: Stormwater Intake Form

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

③ Table 1: Submittal Scope

Complete Table 1 to document the scope of activities covered under the current 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 in Table 1, 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.

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

Table 2 Completion: Complete **Table 2** to document existing (Group 1) and proposed (Groups 2 and 3) site features and the BMPs to be implemented for them. Except where otherwise noted, all BMPs must be implemented ***where applicable and feasible***.

- ***Full implementation*** means a BMP will be fully implemented everywhere that the feature exists on the site. For example, all existing water bodies will be fully conserved.
- ***Partial implementation*** means that some BMP implementation will occur, but the BMP will NOT be fully implemented everywhere that the feature exists. For example, only one of two existing water bodies will be conserved, or not all rooftop runoff will be dispersed to vegetated areas.
- ***Infeasible*** means a BMP cannot be either partially or fully implemented. Infeasibility can be based both on technical factors (soil type, site layout, etc.) and economic considerations (material or labor costs, etc.). However, technical factors should generally be given greater weight.

Table 3 Completion: All projects must complete **Table 3, Part A** to identify applicable requirements for documenting pollutant-generating sources/ features and source control BMPs. Part B is required unless the PDP is a Small Residential Project OR none of the sources or features listed in the table are proposed for the project. Sources, features, and BMPS other than those identified in Table 3 should be described in Table 4. *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.

Each BMP listed in Table 3 must be implemented ***where applicable and feasible***. Leaving a BMP unselected means it will not be either partially or fully implemented.

If requested by County staff, complete and submit a **Source Control BMP Worksheet (Attachment 3)**.

Table 4 Completion: Use **Table 4** to provide justifications for baseline BMPs as shown.

Feature or Activity	Mandatory Justification	Justify if Requested
• Table 2 Existing and Proposed Features • Table 3 Pollutant-generating Sources	Any feature or activity for which NO BMPs are selected (you must explain why all BMPs are infeasible)	Individual BMPs that will either not be implemented, or will only be partially implemented

Also use Table 4 to describe any proposed sources, features, or BMPs that are not listed in Table 2 or 3.

⑤ Attachment 4: Existing Site and Drainage Description

Complete **Attachment 4** 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 4.

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 5** as follows.

Table 5, 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 5, 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 5, 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 5, 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 and 5.5)
   - 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. These selections should also be recorded on the PDP SWQMP Submittal Checklist (Page 1).

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 6: Critical Coarse Sediment Yield Area Requirements

Complete **Table 6** to determine if Critical Coarse Sediment Yield Area (CCSYA) requirements apply to upstream offsite areas (Part A), onsite areas (Part B), or both. See BMPDM Appendix H for additional description of requirements and options. Document all Table 6 selections, including hydromodification management exemptions, in **Attachment 9**.

⑨ Tables 7 and 8: Temporary Construction Phase BMPs

Complete **Table 7** 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 8** to describe why BMPs not selected in Table 7 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 2, 3, and 7** 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 eight 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: Source Control BMP Worksheet

☐ 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: 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. Some attachments are presented out of order because they are shared between multiple SWQMP forms.

Table 1 – Scope of SWQMP Submittal

Select one option below 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***	Use the spaces below to identify 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.):

Table 2 – Baseline BMPs for Existing and Proposed Site Features

Site Features Select each feature that applies.	BMP Implementation Describe BMP implementation for each selected site feature.				
Group 1: Existing Natural Site Features [See BMPDM Sections 4.3.1 and 4.3.2]					
	Maintain & conserve natural features (SD-G)		**Establish buffers for waterbodies (SD-H)**		
	Full	Partial	Full	Partial	
☐ **Natural waterbodies**	☐	☐	☐	☐	
☐ **Natural storage reservoirs & drainage corridors**	☐	☐			
☑ **Natural areas, soils, & vegetation (incl. trees)**	☑	☐			
Group 2: Common Impervious Outdoor Site Features [See BMPDM Sections 4.3.3 and 4.3.5]					
	Disperse impervious areas (SD-B)		**Use permeable materials (SD-D)**		**Minimize impervious areas (SD-I)**
	Full	Partial	Full	Partial	
☐ **Streets and roads**	☐	☐	☐	☐	☑ Check here to confirm that impervious surfaces have been minimized where applicable and feasible for all outdoor impervious areas. If not, explain in Table 3.
☐ **Sidewalks & walkways**	☐	☐	☐	☐	
☐ **Parking areas & lots**	☐	☐	☐	☐	
☑ **Driveways**	☐	☐	☐	☑	
☐ **Patios, decks, & courtyards**	☐	☐	☐	☐	
☐ **Hardcourt recreation areas**	☐	☐	☐	☐	
☐	☐	☐	☐	☐	
☐	☐	☐	☐	☐	
☐	☐	☐	☐	☐	
Group 3: Other Outdoor Site Features [See BMPDM Sections 4.2.6, 4.3.4, 4.3.5, 4.3.7, and 4.3.8]					
☑ **Rooftop areas**	**Disperse rooftop runoff (SD-B)**		**Install green roofs (optional; SD-C)**		**Use rain barrels to capture runoff (optional; SD-E)**
	Full	Partial	Full	Partial	Full / Partial
	☐	☑	☐	☐	☐ / ☐
☑ **Landscaped areas**	**Use water-efficient landscaping (SD-J)**		**Install efficient irrigation systems (SD-K)**		**Minimize erosion of slopes and surfaces (SD-L)**
	Full	Partial	Full	Partial	Full / Partial
	☑	☐	☐	☐	☐ / ☐
☐ **Water features (pools, spas, etc.)**	**Provide a designated washing area (SC-A)**		**Drain feature to the sanitary sewer (if allowed) (SC-B)**		**Drain feature to a pervious area (SC-C)**
	Full	Partial	Full	Partial	Full / Partial
	☐	☐	☐	☐	☐ / ☐

Note: Justification is required in Table 4 for any feature not selecting at least one BMP (either full or partial implementation). For Group 2 features this means not selecting either SD-B or SD-D. Additional justifications may be required on request by County staff. Also use Table 4 to describe sources or BMPs other than those listed.

Table 3 –Baseline BMPs for Pollutant-generating Sources (Group 4)

A. Requirements for Documentation
Select either or both as applicable.

Completion of Part B is not required because:

☑ This is a Small Residential Project, OR

☐ None of these sources or features is proposed.

☐ ***Source Control BMP Requirements Worksheet E.1-1*** (SC in Appendix E of the BMP Design Manual) is included as **Attachment 3** (optional unless requested by County staff).

B. Sources and BMPs
Select all proposed sources and features below. Then select the BMPs on the right to be implemented for each.

	SC-B Plumb to sanitary sewer	SC-C Drain feature to a pervious area	SC-D Provide containment for spills and discharges	SC-E Prevent contact with rainfall	SC-F Isolate flows from adjacent areas	SC-G Prevent wind dispersal	SC-H Label with stencils or signs
Common Source Areas							
☐ Trash & Refuse Storage	☐	---	☐	☐	☐	☐	---
☐ Materials & Equipment Storage	☐	---	☐	☐	☐	☐	---
☐ Loading & Unloading	☐	---	☐	☐	☐	---	---
☐ Fueling	☐	---	☐	☐	☐	---	---
☐ Maintenance & Repair	☐	---	☐	☐	☐	---	---
☐ Vehicle & Equipment Cleaning	☐	---	☐	☐	☐	---	---
☐ Food Preparation or Service	☐	---	☐	☐	☐	---	---
Distributed Features							
☐ Storm drain inlets & catch basins	---	---	---	---	---	---	☐
☐ Interior floor drains and sumps	☐	---	---	---	---	---	---
☐ Drain lines (air conditioning, etc.)	☐	☐	☐	---	---	---	---
☐ Fire test sprinkler discharges	☐	☐	☐	---	---	---	---

Provide the following in Table 4: (1) justification of any source area or feature with NO BMPs selected, (2) justification of individual unselected BMPs *if requested by County staff*, and (3) identification of any proposed pollutant-generating sources and BMPs not listed here.

Note: Pollutant-generating sources and features may not discharge directly to the MS4. Discharging to any of the stormwater BMPs identified in Table 5 Part B is also discouraged. If doing so, however, the source or feature area must be included in applicable DCV calculations.

Table 4 – Explanations and Justifications for Table 2 and 3 Baseline BMPs

☑ **Check here if no explanations or justifications for Table 2 or 3 BMPs are required.**		
• **Required Justifications**: If NO BMPs are selected for a source or feature, justify why <u>all</u> BMPs are either not applicable or are infeasible. For Group 2 features NO BMPs means not selecting either SD-B or SD-D. • **If Requested**: Justify why individual BMPs will not be implemented or will only be partially implemented. • **Additional Explanation**: Describe any proposed features and/or BMPs not listed in Tables 2 or 3.		
BMP-Feature Combination		**Explanation**
Feature		
BMP		
Feature		
BMP		
Feature		
BMP		
Feature		
BMP		
Feature		
BMP		
Feature		
BMP		
Feature		
BMP		

Table 5: 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 (ft²)	b. Impervious area created / replaced (ft²)	c. % Impervious created / replaced [(b/a)*100]

☐ *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 ☒	Source Control BMP Worksheet (see Page 3) ☒	Previous SWQMP Submittals (see Page 1) ☐	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 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 BMPs (BMPDM Chapter 6)			☐	☐	☐	☐	
☐Alternative Compliance Project (BMPDM Section 1.8)				☐	☐	☐	☐

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

Table 6: 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**[2]

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**

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

Table 7 –Minimum Construction Stormwater BMPs

Minimum Required BMPs by Activity Type Select all applicable activities and at least one BMP for each	References Caltrans[3]	 County of San Diego	
☑ **Erosion Control for Disturbed Slopes** (choose at least 1 per season)			
☐ Vegetation Stabilization Planting[4] (Summer)	SS-2, SS-4		
☑ Hydraulic Stabilization Hydroseeding[9] (Summer)	SS-4		
☐ Bonded Fiber Matrix or Stabilized Fiber Matrix[5] (Winter)	SS-3		
☑ Physical Stabilization Erosion Control Blanket[7] (Winter)	SS-7		
☑ **Erosion control for disturbed flat areas (slope < 5%)**			
☐ County Standard Lot Perimeter Protection Detail	SC-2	PDS 659[6]	
☐ 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[7]	
☑ 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[8]	
☑ **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[9]**			
☑ Waste Management Concrete Waste Management	WM-8		
☑ Solid Waste Management	WM-5		
☑ Sanitary Waste Management	WM-9		
☑ Hazardous Waste Management	WM-6		

[3] See Caltrans 2017 Storm Water Quality Handbooks, Construction Site BMP Manual, available at: (http://www.dot.ca.gov/hq/construc/stormwater/manuals.htm)
[4] 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.
[5] All slopes over three feet must have established vegetative cover prior to final permit approval.
[6] County PDS 659. Standard Lot Perimeter Protection Design System (Bldg. Division)
[7] County PDS 660. County Standard Desilting Basin for Disturbed Areas of 1 Acre or Less Bldg. Division
[8] Regional Standard Drawing D-40 – Rip Rap Energy Dissipater (also acceptable for velocity reduction)
[9] Applicants are responsible to apply appropriate BMPs for specific wastes (e.g., BMP WM-8 for concrete).

Table 8 – Explanations and Justifications for Construction Phase BMPs

☑ **Check here if no explanations or justifications for Table 7 BMPs are required.**		
Justifications for Table 7 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 7.		
Activity Type / BMP		**Explanation**
Activity Type		
BMP		
Activity Type		
BMP		
Activity Type		
BMP		
Activity Type		
BMP		
Activity Type		
BMP		
Activity Type		
BMP		
Activity Type		
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:	Sundale
Record ID (Permit) No(s):	PDS2021-LDGRMJ-30366
Assessor's Parcel No(s):	498-192-09
Street Address (or Intersection):	(Vacant) Sundale Road
City, State, Zip:	San Diego, CA, 92019
Part 2. Applicant / Project Proponent Information	
Name:	Emad Yousif
Company:	
Street Address:	1490 South Orange Avenue, #128
City, State, Zip:	El Cajon, CA 92020
Phone Number	(573) 289-5107
Email:	emaloud@yahoo.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)**
	0	21,793 ft^2	129,354 ft^2

Ⓑ		**WDID # (if issued)**
	☒ Check here and provide a WDID# if this project is subject to the California Construction General Permit (Order No. 2009-0009-DWQ)[1]	9 37C396570

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: 

Date: 03-14-2023

- ***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).

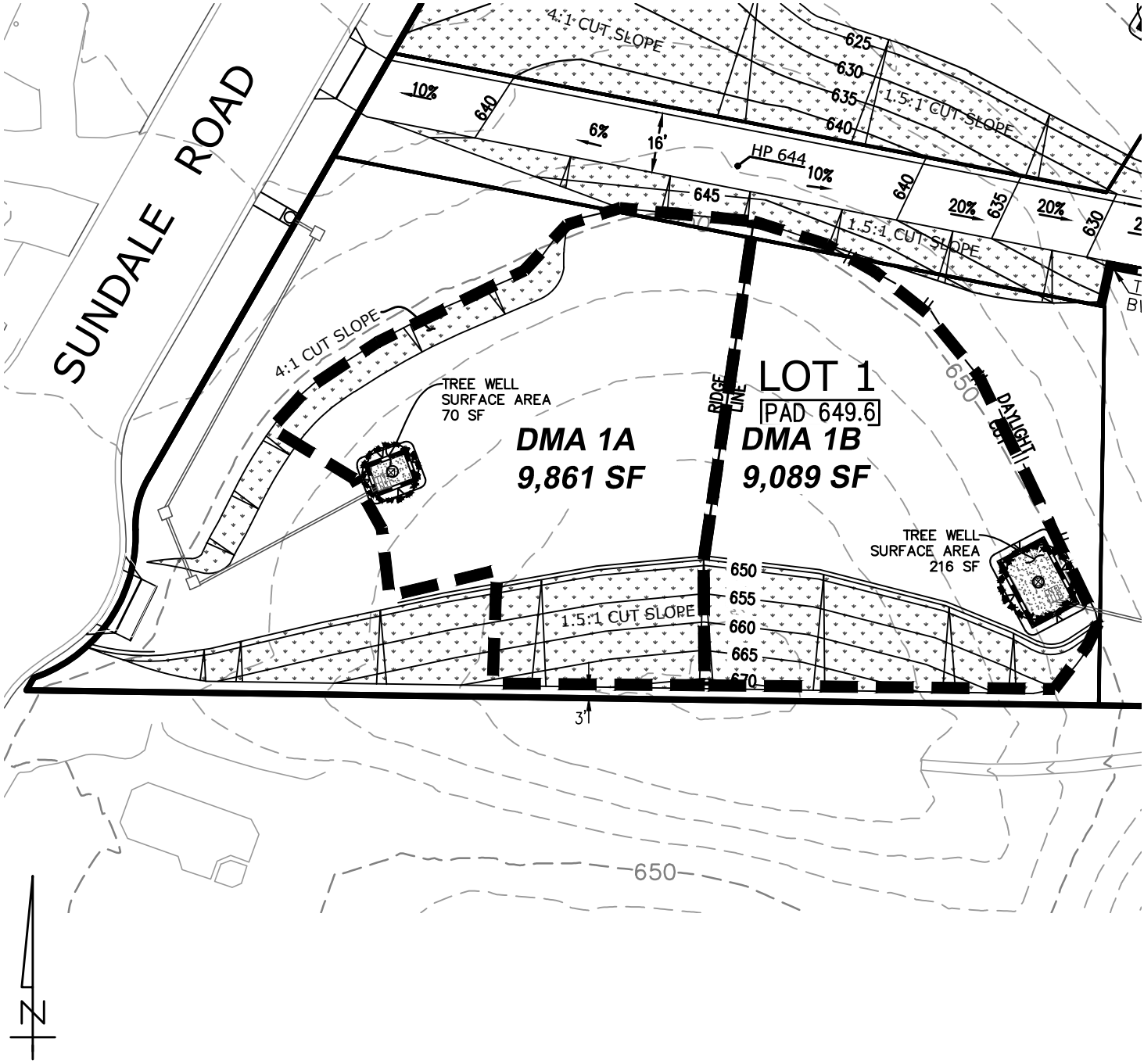
DMA Exhibit ID #:	**DMA Exhibit**
A. Features required for all exhibits	
1. Existing Site Features	
☒ Underlying hydrologic soil group (A, B, C, D)	☒ Topography and impervious areas
☒ Approximate depth to groundwater	☒ Existing drainage network, directions, and offsite connections
☒ Natural hydrologic 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

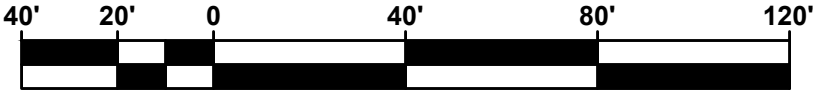
[1] Group 1-4 features and baseline BMPs from PDP SWQMP Tables 2 and 3.
[2] Minimum Construction Stormwater BMPs from PDP SWQMP Table 7.
[3] Identify the location, ID numbers, type, and size/detail of BMPs.

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.

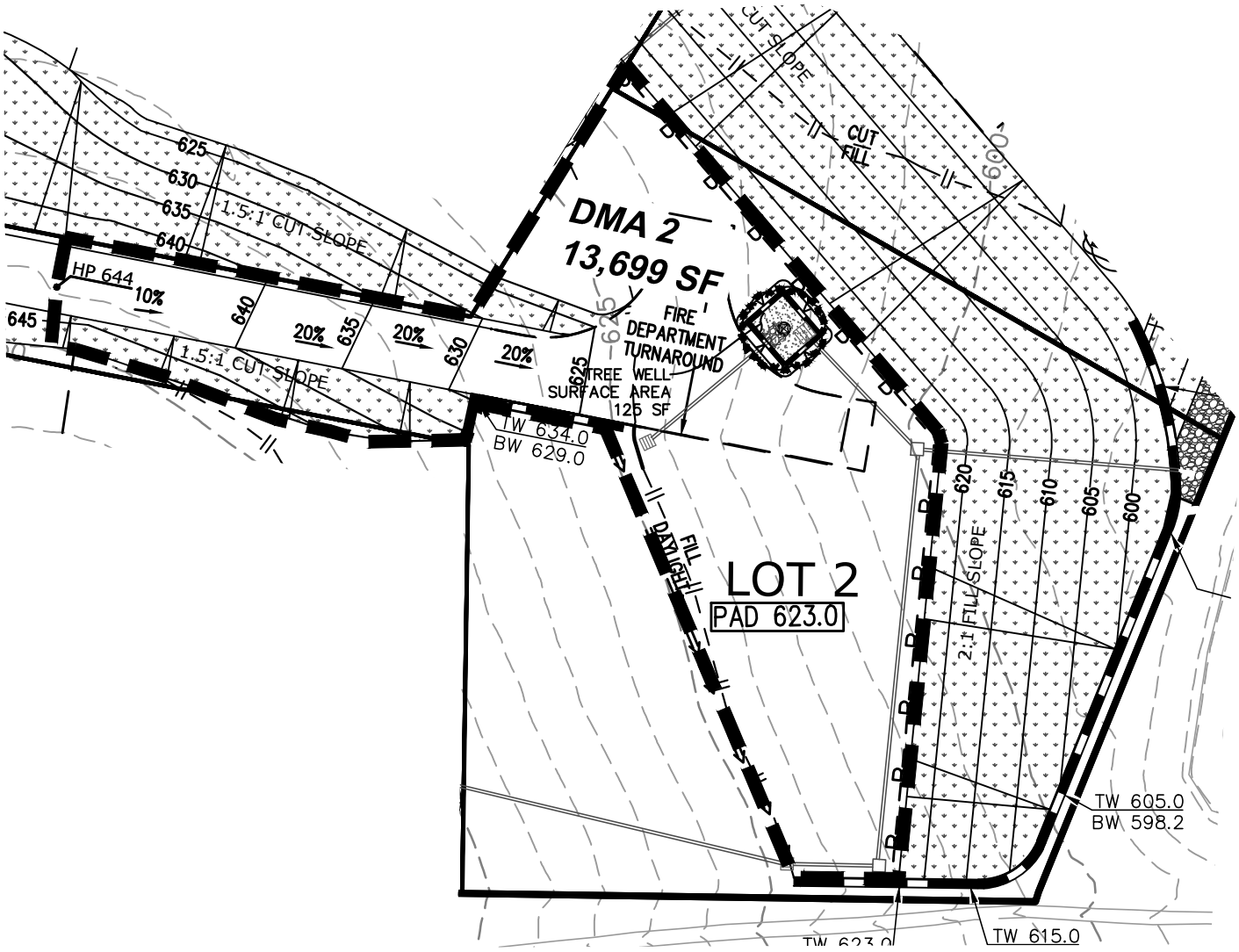
☒	All Mapbooks are attached
☐	All Mapbooks are in Attachment 11





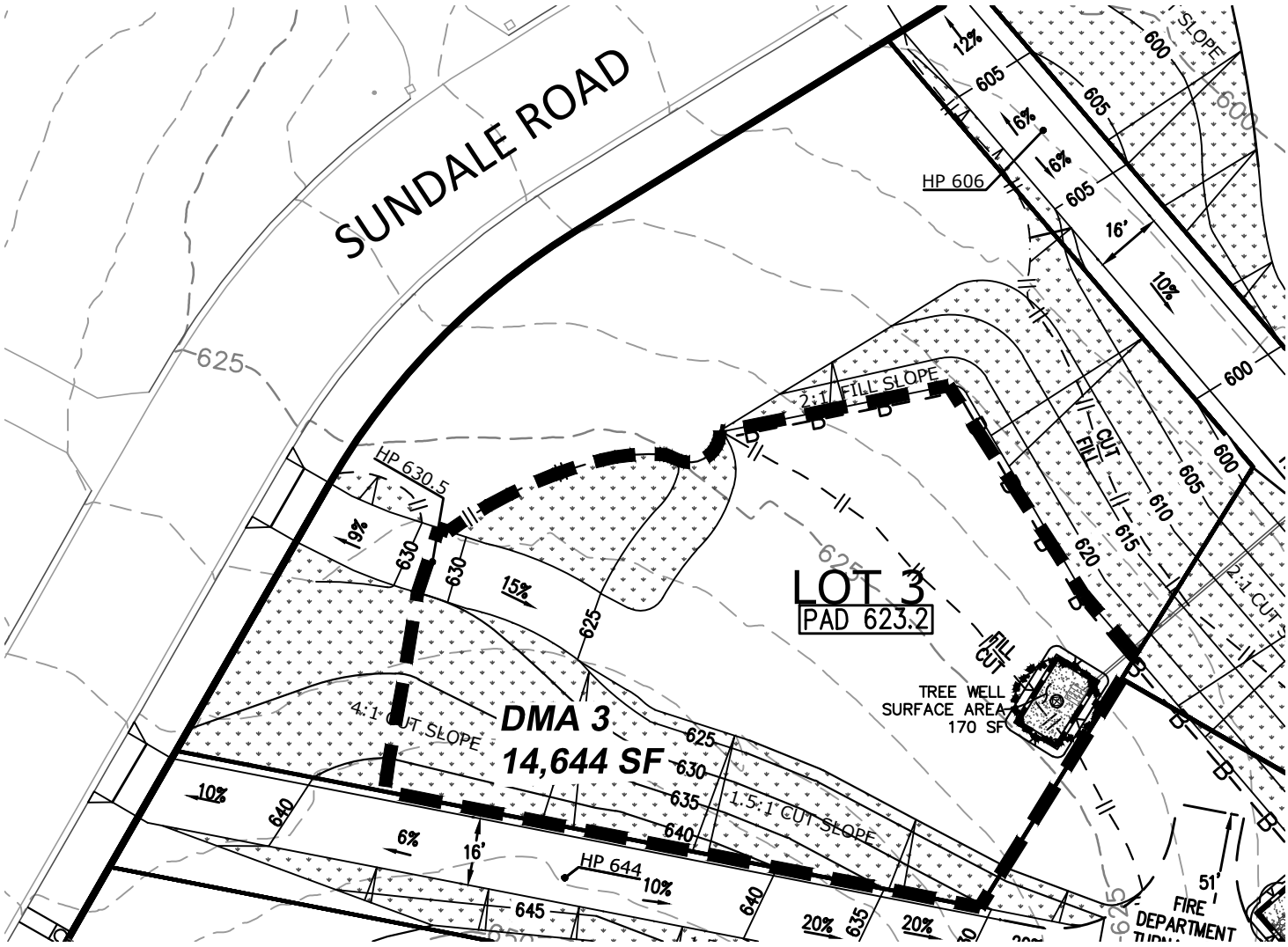
SCALE: 1"= 40'

APN 498-192-09
ATTACHMENT 2.2
LOT 1: DMA 1A & 1B MAPBOOK



SCALE: 1"= 40'

APN 498-192-09
ATTACHMENT 2.2
LOT 2: DMA 2 MAPBOOK

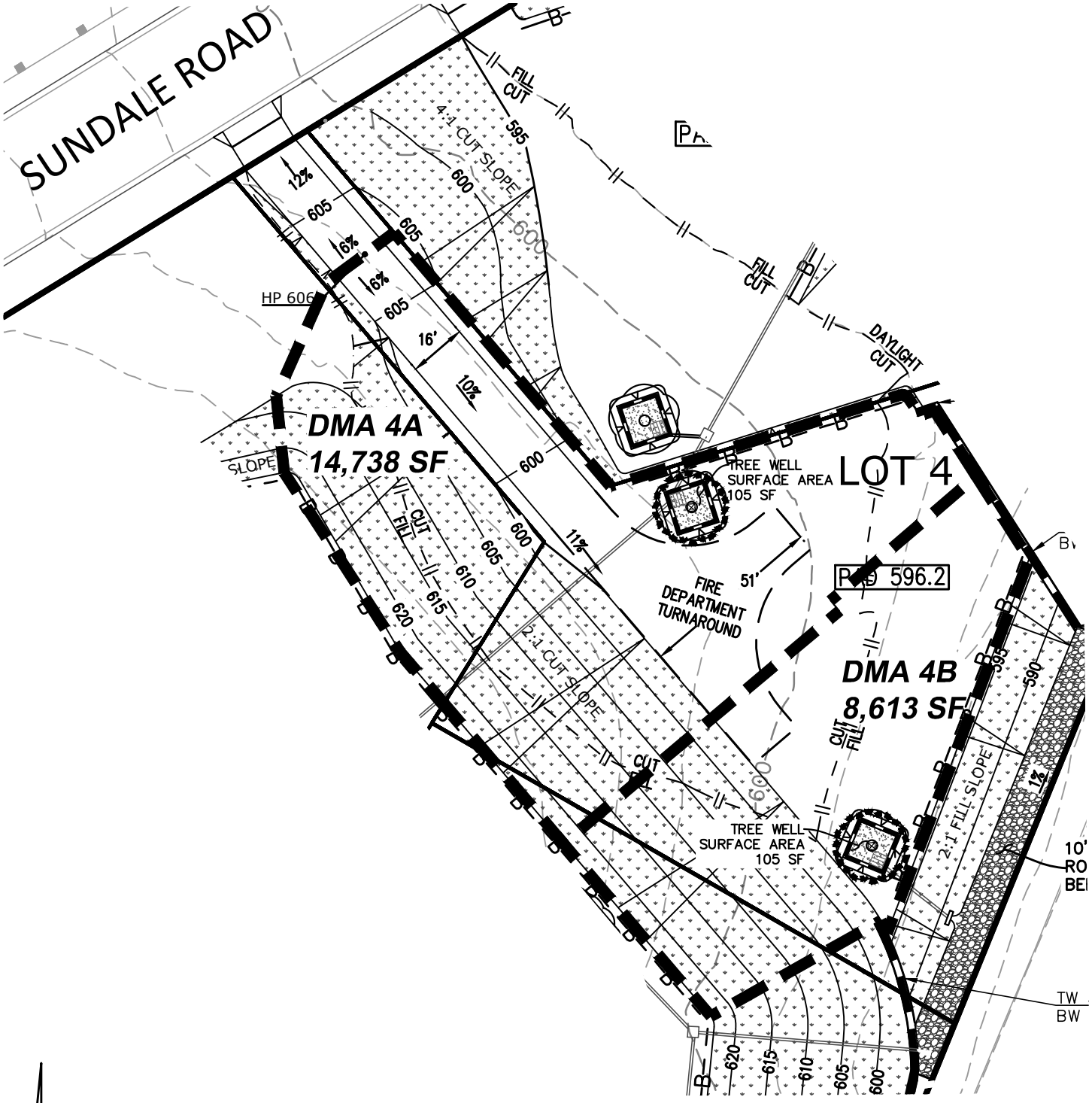


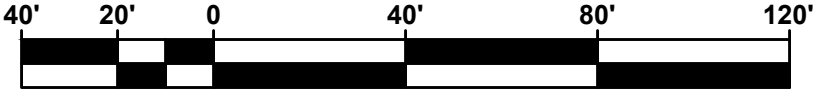
N

40' 20' 0 40' 80' 120'

SCALE: 1"= 40'

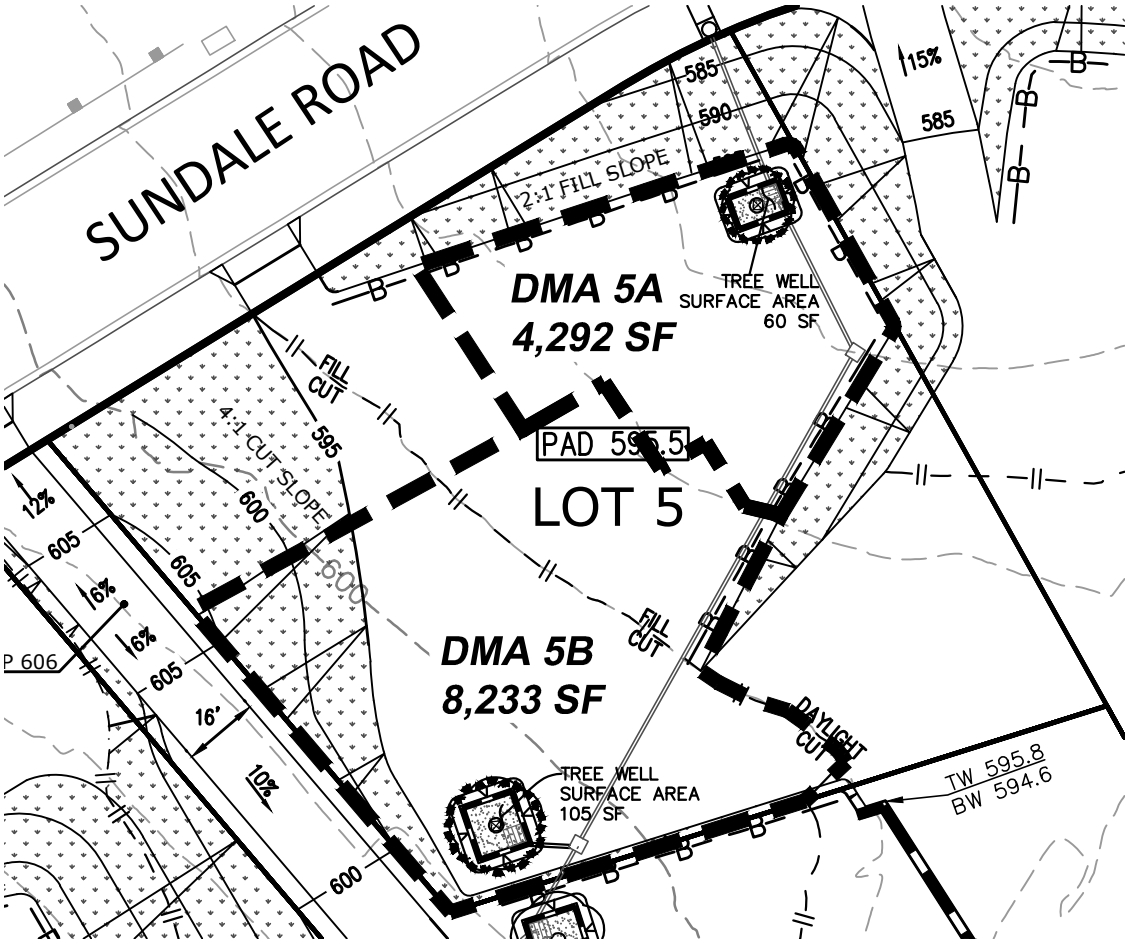
APN 498-192-09
ATTACHMENT 2.2
LOT 3: DMA 3 MAPBOOK





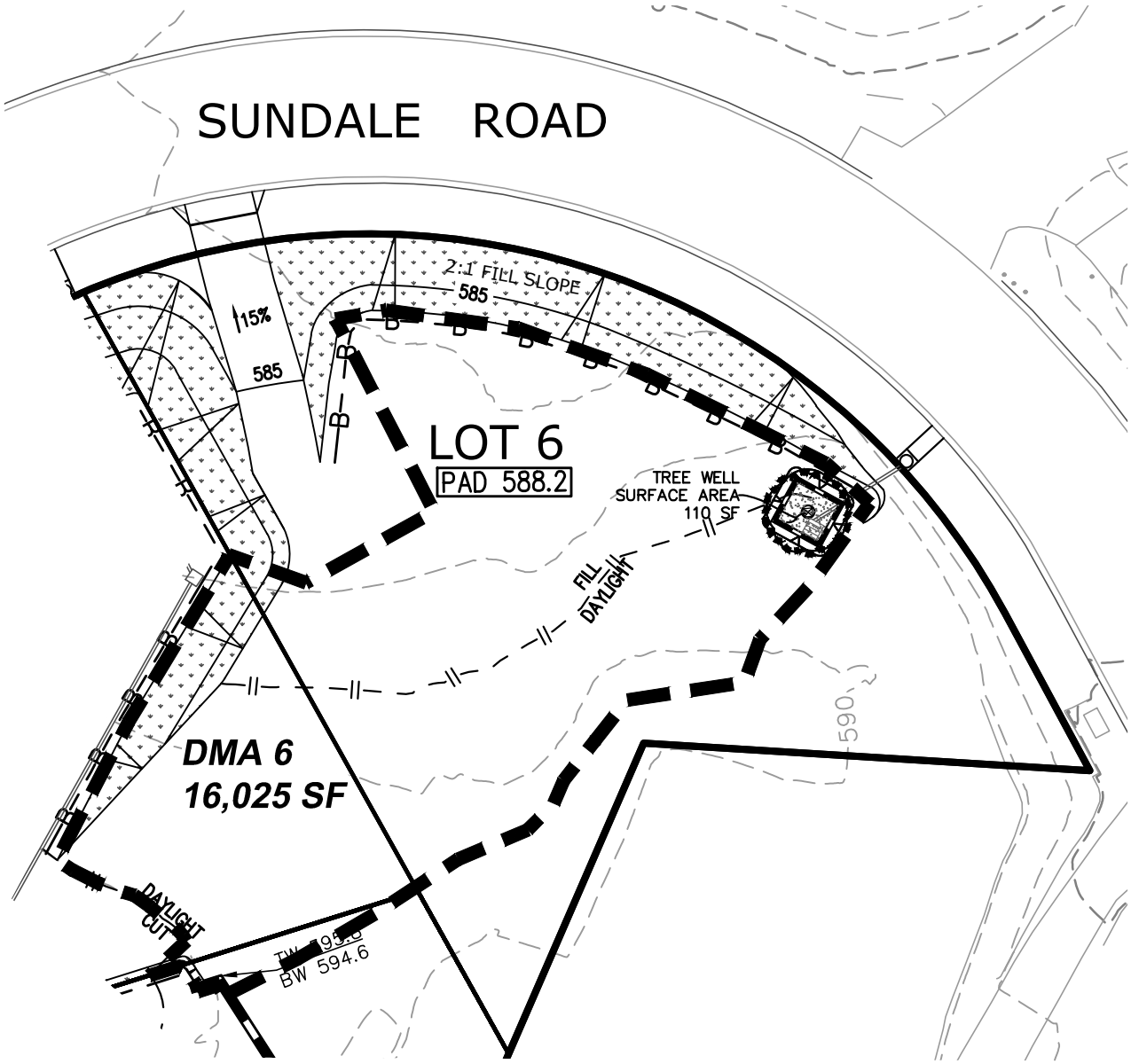
SCALE: 1"= 40'

APN 498-192-09
ATTACHMENT 2.2
LOT 4: DMA 4A & 4B MAPBOOK



SCALE: 1"= 40'

APN 498-192-09
ATTACHMENT 2.2
LOT 5: DMA 5A & 5B MAPBOOK



SCALE: 1"= 40'

APN 498-192-09
ATTACHMENT 2.2
LOT 6: DMA 6 MAPBOOK

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	**Grading Plan**
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

GRADING PLAN

GENERAL GRADING NOTES:

1. APPROVAL OF THIS GRADING PLAN DOES NOT CONSTITUTE APPROVAL OF VERTICAL OR HORIZONTAL ALIGNMENT OF ANY PRIVATE ROAD SHOWN HEREON FOR COUNTY ROAD PURPOSES.

2. FINAL APPROVAL OF THESE GRADING PLANS IS SUBJECT TO FINAL APPROVAL OF THE ASSOCIATED IMPROVEMENT PLANS WHERE APPLICABLE.

3. IMPORT MATERIAL SHALL BE OBTAINED FROM A LEGAL SITE.

4. A CONSTRUCTION EXCAVATION OR ENCROACHMENT PERMIT FROM THE DEPARTMENT OF PUBLIC WORKS WILL BE REQUIRED FOR ANY WORK IN THE COUNTY RIGHT-OF-WAY.

5. ALL SLOPES WILL BE PLANTED IN ACCORDANCE WITH SAN DIEGO COUNTY SPECIFICATIONS.

6. THE CONTRACTOR SHALL VERIFY THE EXISTENCE AND LOCATION OF ALL UTILITIES BEFORE COMMENCING WORK. NOTICE OF THE PROPOSED WORK SHALL BE GIVEN TO THE FOLLOWING AGENCIES.

SAN DIEGO GAS AND ELECTRIC	1-800-422-4133
PACIFIC BELL	1-800-422-4133
COX CABLE	1-800-422-4133
HELIX WATER DISTRICT	1-619-443-3805

7. A SOILS REPORT MAY BE REQUIRED PRIOR TO THE ISSUANCE OF A BUILDING PERMIT.

8. APPROVAL OF THESE PLANS BY THE DIRECTOR OF PUBLIC WORKS DOES NOT AUTHORIZE ANY WORK OR GRADING TO BE PERFORMED UNTIL THE PROPERTY OWNER'S PERMISSION HAS BEEN OBTAINED AND A VALID GRADING PERMIT HAS BEEN ISSUED.

9. THE DIRECTOR OF PUBLIC WORKS APPROVAL OF THESE PLANS DOES NOT CONSTITUTE COUNTY BUILDING OFFICIAL APPROVAL OF ANY FOUNDATIONS FOR STRUCTURES TO BE PLACED ON THE AREA COVERED BY THESE PLANS. NO WAIVER OF THE GRADING ORDNANCE REQUIREMENTS CONCERNING MINIMUM COVER OVER EXPANSIVE SOILS IS MADE OR IMPLIED (SECTION 87.403 AND 87.410). ANY SUCH WAIVER MUST BE OBTAINED FROM THE DIRECTOR OF PLANNING AND LAND USE.

10. ALL OPERATIONS CONDUCTED ON THE PREMISES, INCLUDING THE WARMING UP, REPAIR, ARRIVAL, DEPARTURE OR RUNNING OF TRUCKS, EARTH MOVING EQUIPMENT, CONSTRUCTION EQUIPMENT AND ANY OTHER ASSOCIATED GRADING EQUIPMENT SHALL BE LIMITED TO THE PERIOD BETWEEN 7:00 AM AND 6:00 PM EACH DAY, MONDAY THROUGH SATURDAY AND NO EARTH MOVING OR GRADING OPERATIONS SHALL BE CONDUCTED ON THE PREMISES ON SUNDAYS OR HOLIDAYS.

11. ALL MAJOR SLOPES SHALL BE ROUNDED INTO EXISTING TERRAIN TO PRODUCE A CONTOURED TRANSITION FROM CUT TO FILL FACES TO NATURAL GROUND AND ABUTTING CUT OR FILL SURFACES.

12. NOT WITHSTANDING, THE MINIMUM STANDARDS SET FORTH IN THE GRADING ORDINANCE AND NOT WITHSTANDING THE APPROVAL OF THESE PLANS, THE PERMITTEE IS RESPONSIBLE FOR THE PREVENTION OF DAMAGE TO THE ADJACENT PROPERTY. NO PERSON SHALL EXCAVATE ON LAND SO CLOSE TO THE PROPERTY LINE AS TO ENDANGER ANY ADJOINING PUBLIC STREET, SIDEWALK, ALLEY, FUNCTIONS OF ANY SEWER DISPOSAL SYSTEM OR ANY OTHER PUBLIC OR PRIVATE PROPERTY WITHOUT SUPPORTING OR PROTECTING SUCH PROPERTY FROM SETTLING, CRACKING, EROSION, SILTING, SCOUR OR OTHER DAMAGE WHICH MIGHT RESULT FROM THE GRADING DESCRIBED ON THIS PLAN. THE COUNTY WILL HOLD THE PERMITTEE RESPONSIBLE FOR CORRECTION OF NON-DEDICATED IMPROVEMENTS WHICH DAMAGE ADJACENT PROPERTY.

13. SLOPE RATIOS:

CUT – 1.5:1 FOR MINOR SLOPES, 2:1 FOR MAJOR SLOPES
FILL – 2:1 FOR ALL SLOPES

EXCAVATION: 13,000 C.Y. FILL: 13,000 C.Y.
IMPORT: 0 C.Y. EXPORT: 0 C.Y.

A SEPARATE VALID PERMIT MUST BE OBTAINED FOR EITHER WASTE OR IMPORT AREAS.

14. SPECIAL CONDITION IF ANY ARCHAEOLOGICAL RESOURCES ARE DISCOVERED ON THE SITE OF THIS GRADING DURING GRADING OPERATIONS, SUCH OPERATIONS WILL CEASE IMMEDIATELY, AND THE PERMITTEE WILL NOTIFY THE DIRECTOR OF PUBLIC WORKS OF THE DISCOVERY. GRADING OPERATIONS WILL NOT RECOMMENCE UNTIL THE PERMITTEE HAS RECEIVED WRITTEN AUTHORITY FROM THE DIRECTOR OF PUBLIC WORKS TO DO SO.

15. COMPACTION TESTING AND THE COMPACTION REPORT IS REQUIRED FOR ALL FILL THAT IS OVER 12 INCHES IN DEPTH.

16. FINISHED GRADING SHALL BE CERTIFIED BY A REGISTERED CIVIL ENGINEER AND INSPECTED BY THE COUNTY ENGINEER FOR DRAINAGE CLEARANCE. APPROVAL OF ROUGH GRADING DOES NOT CERTIFY FINISH GRADING BECAUSE OF POTENTIAL SURFACE DRAINAGE PROBLEMS THAT MAY BE CREATED BY LANDSCAPING ACCOMPLISHED AFTER ROUGH GRADING CERTIFICATION.

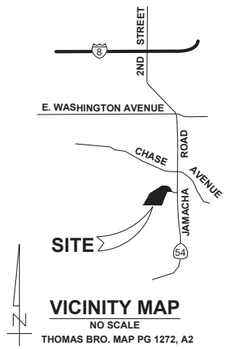
17. ALL GRADING WILL BE IN ACCORDANCE WITH THE SAN DIEGO COUNTY STANDARD DRAWINGS DS-8, DS-10, DS-11 AND D-75.

PDS ENVIRONMENTAL NOTE:

NOTICE: THE ISSUANCE OF THIS PERMIT/APPROVAL BY THE COUNTY OF SAN DIEGO DOES NOT AUTHORIZE THE APPLICANT FOR SAID PERMIT/APPROVAL TO VIOLATE ANY FEDERAL, STATE, OR COUNTY LAYS, ORDINANCES, REGULATIONS, OR POLICIES INCLUDING, BUT NOT LIMITED TO, THE FEDERAL ENDANGERED SPECIES ACT AND ANY AMENDMENTS THERETO.

MONUMENTATION GENERAL NOTE:

THE CONTRACTOR SHALL BE RESPONSIBLE TO LOCATE AND PROTECT ALL SURVEY CONTROL MEASUREMENTS, WHETHER SHOWN ON THESE PLANS OR NOT, WITHIN THE PROJECT AREA. ALL SURVEY MONUMENTS, WHETHER FOR HORIZONTAL OR VERTICAL CONTROL, THAT WILL OR COULD BE DISTURBED OR REMOVED BY THE CONTRACTOR, OR HIS EMPLOYEES, AGENTS, SUBCONTRACTORS, CONSULTANT OR LICENSEES, SHALL BE LOCATED PRIOR TO BEING DISTURBED OR REMOVED AND REPLACED OR RESET IN ACCORDANCE WITH THE CALIFORNIA BUSINESS & PROFESSIONS CODE SECTION 8771(b), AT THE CONTRACTOR'S SOLE EXPENSE, UNDER THE SUPERVISION OF A LICENSED LAND SURVEYOR OR REGISTERED CIVIL ENGINEER AUTHORIZED TO PRACTICE LAND SURVEYING IN THE STATE OF CALIFORNIA. IN ADDITION, A RECORD OF SURVEY OR CORNER RECORD, AS APPLICABLE, SHALL BE FILED AND/OR RECORDED, IN ACCORDANCE WITH THE PROVISIONS OF SAID CODE.



VICINITY MAP
NO SCALE
THOMAS BRO. MAP PG 1272, A2

OWNER'S CERTIFICATE:

IT IS AGREED THAT FIELD CONDITIONS MAY REQUIRE CHANGES TO THESE PLANS.

IT IS FURTHER AGREED THAT THE OWNER (DEVELOPER) SHALL HAVE A REGISTERED CIVIL ENGINEER MAKE SUCH CHANGES, ALTERATIONS OR ADDITIONS TO THESE PLANS WHICH THE DIRECTOR OF PUBLIC WORKS DETERMINES ARE NECESSARY AND DESIRABLE FOR THE PROPER COMPLETION OF THE IMPROVEMENTS.

I HEREBY AGREE TO COMMENCE WORK ON ANY IMPROVEMENTS SHOWN ON THESE PLANS WITHIN EXISTING COUNTY RIGHT-OF-WAY WITHIN 60 DAYS AFTER ISSUANCE OF THE CONSTRUCTION PERMIT AND TO PURSUE SUCH WORK ACTIVELY ON EVERY NORMAL WORKING DAY UNTIL COMPLETED, IRRESPECTIVE AND INDEPENDENT OF ANY OTHER WORK ASSOCIATED WITH THIS PROJECT OR UNDER MY CONTROL.

EMAD YOUSIF DATE
1490 SOUTH ORANGE AVENUE, #128
EL CAJON, CA 92020
(573) 289-5107

SOILS ENGINEER CERTIFICATION:

THIS GRADING PLAN HAS BEEN REVIEWED BY THE UNDERSIGNED AND FOUND TO BE IN CONFORMANCE WITH THE RECOMMENDATIONS AS OUTLINED IN THE SOILS REPORT FOR THIS PROJECT. THE SOILS REPORT SHALL BE CONSIDERED AS A PART OF THIS PLAN, AND ALL GRADING WORK SHALL BE DONE IN ACCORDANCE WITH THE SPECIFICATIONS AND RECOMMENDATIONS OF SAID REPORT DATED 7-30-21 TITLED "PRELIMINARY GEOTECHNICAL INVESTIGATION AND DESIGN RECOMMENDATIONS, SUNDALE 6-LOT SUBDIVISION, SUNDALE ROAD, EL CAJON, COUNTY OF SAN DIEGO, CALIFORNIA" PREPARED BY ADVANCED GEOTECHNICAL SOLUTIONS, INC.

ANDRES BERNAL RCE 62366 RGE 2715 EXP 9-30-23 DATE
ADVANCED GEOTECHNICAL SOLUTIONS, INC.
485 CORPORATE DRIVE, SUITE B
ESCONDIDO, CA 92029
(619) 867-0487

REGISTERED PROFESSIONAL ENGINEER – ANDRES BERNAL – NO. 2715 – GEOTECHNICAL – STATE OF CALIFORNIA

WORK TO BE DONE

DRAINAGE AND GRADING WORK CONSIST OF THE FOLLOWING WORK TO TO BE DONE ACCORDING TO THESE PLANS, THE SAN DIEGO AREA REGIONAL STANDARD DRAWING (RSD) AND THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (GREEN BOOK), CURRENT EDITION AND PER SAN DIEGO COUNTY GRADING ORDINANCE.

LEGEND

ITEM	REGIONAL STD. DWG.	SYMBOL	QTY.
CONTOUR		700	
GRADED SLOPE (2:1 CUT/2:1 FILL)	DS-08, 10, 11	CUT / FILL	
SPOT ELEVATION		720.7	
DAYLIGHT LINE		CUT / FILL	
PROPOSED 18"X18" CATCH BASIN WITH STEEL GRATE ("BROOKS" 1818CB)			10 EA
PROPOSED 24X24" CATCH BASIN WITH STEEL COVER ("BROOKS" 2424CB)			4 EA
PROPOSED 12"X12" CATCH BASIN WITH STEEL COVER ("BROOKS" 1212CB)			3 EA
PROPOSED 12"X12" CATCH BASIN WITH STEEL GRATE ("BROOKS" 1212CB)			1 EA
PROPOSED PRIVATE 6" PVC STORM DRAIN PIPE (SCH. 20)			478 LF
PROPOSED PRIVATE 10" PVC STORM DRAIN PIPE (SCH. 20)			195 LF
PROPOSED PRIVATE 12" PVC STORM DRAIN PIPE (SCH. 20)			183 LF
PROPOSED RETAINING WALL. SPECIAL INSPECTION IS REQUIRED (PER STRUCTURAL ENGINEER SHEETS 6-10)			1,688 SF
PROPOSED 5' MAX RETAINING WALL	RSD C-02		123 SF
PROPOSED BERM (SEE DETAIL ON SHEET 2)			
PROPOSED CURB OUTLET – TYPE B	RSD D-25B		3 EA
PROPOSED 16' DRIVEWAY	RSD G-14A		6 EA
PROPOSED TREE WELL FOR STORMWATER TREATMENT PURPOSES (SEE SHEETS 2 & 5 FOR MATURE CANOPY DIAMETER SIZE)			9 EA
PROPOSED TYPE 2 5'x5'x1.1' THICK NO. 2 BACKING CLASS RIPRAP	RSD D-40		1 CY

LEGAL DESCRIPTION:

PARCELS A, B, C, & D OF CERTIFICATE OF COMPLIANCE NO. BC-21-0016 C(1) RECORDED IN THE OFFICE OF THE COUNTY RECORDER ON JUNE 3, 2021 AS DOCUMENT NO. 2021-0415208

SHEET INDEX:

DECLARATION OF RESPONSIBLE CHARGE

I HEREBY DECLARE THAT I AM THE ENGINEER OF WORK FOR THIS PROJECT. THAT I HAVE EXERCISED RESPONSIBLE CHARGE OVER THE DESIGN OF THE PROJECT AS DEFINED IN SECTION 6703 OF THE BUSINESS AND PROFESSIONS CODE, AND THAT THE DESIGN IS CONSISTENT WITH CURRENT STANDARDS.

I UNDERSTAND THAT THE CHECK OF PROJECT DRAWINGS AND SPECIFICATIONS BY THE COUNTY OF SAN DIEGO IS CONFINED TO A REVIEW ONLY AND DOES NOT RELIEVE ME, AS ENGINEER OF WORK, OF MY RESPONSIBILITIES FOR PROJECT DESIGN.

LAWRENCE W. WALSH R.C.E. 46316 EXP 12-31-24 DATE

REGISTERED PROFESSIONAL ENGINEER – LAWRENCE W. WALSH – 46316 – CIVIL – STATE OF CALIFORNIA

Walsh Engineering & Surveying, Inc.
607 Aldwych Road, El Cajon, CA 92020
(619) 588-6747 (619) 792-1232 Fax

CALL BEFORE YOU DIG – UNDERGROUND SERVICE ALERT
1-800-642-2444
CALL TWO WORKING DAYS BEFORE YOU DIG

NOTE: ALL REQUIRED FIRE CLEARING WILL NOT CREATE A LAND DISTURBANCE ACTIVITY AS DEFINED BY COUNTY CODE.

DISTURBED AREA CALCS

PAD + SLOPES:	112,097	SF
ROAD:	8,745	SF
PRIMARY SEPTIC:	8,516	SF
FIRE CLEARING:	0	SF
TOTAL:	129,354	SF
WDID NO. (if greater than 1 acre):	9 37C396570	
SWPPP / CONSTRUCTION SITE RISK LEVEL:	LEVEL 1	

LOCAL BENCHMARK: CENTERLINE WELL MONUMENT WITH 3" BRASS DISC STAMPED "RCE 18136" AT CENTER OF BULB IN SUNDALE ROAD APPROXIMATELY 31' NORTHWESTERLY FROM THE SOUTHWESTERLY CORNER OF SUBJECT PROPERTY AS SHOWN HEREON. EL: 647.07 (NAVD88)

PDS ENVIRONMENTAL REVIEW

APPROVED FOR COMPLIANCE WITH ENVIRONMENTAL REVIEW

APPROVED BY: _____

DATE: _____

PERMITS

CURB GRADE	N/A
SITE PLAN NO.	N/A
LANDSCAPE PERMIT NO.	PDS2021-LP-21-097
IMPROV. PERMIT NO.	N/A
TENTATIVE MAP NO.	TM 2272 APPROVED 8-26-60
N.O.I. NO.	9 37C396570

PRIVATE CONTRACT

SHEET 1 | COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS | OF 10 SHEETS

GRADING PLANS FOR:

SUNDALE ROAD

CALIFORNIA COORDINATE INDEX: 218-1792

RECOMMENDED FOR APPROVAL: _____ SUBDIVISION ENGINEER

APPROVED FOR WILLIAM P. MORGAN, COUNTY ENGINEER
BY: _____ DATE: _____

ENGINEER OF WORK: LAWRENCE W. WALSH RCE 46316 EXP 12-31-24

CHECKED BY: _____

TM 2272

PDS2021-LDGRMJ-30366

OWNER'S / PERMITTEE'S

NAME: EMAD YOUSIF
ADDRESS: 1490 SOUTH ORANGE AVENUE, #128
EL CAJON, CA 92020
TELEPHONE NO.: (573) 289-5107
SHORT LEGAL DESCRIPTION: LOTS 5, 9 & 10 AND POR. LOTS 4, 6 & 8, MAP 4684
A.P.N. 498-192-09
SITE ADDRESS: SUNDALE ROAD (VACANT)
EL CAJON, CA 92019

RECORD PLAN

BY: _____
DATE: _____
R.C.E. _____ EXPIRES: _____

FIRE AGENCY

SAN MIGUEL FIRE PROTECTION DISRICT
APPROVED BY: _____
DATE: _____

COUNTY APPROVED CHANGES

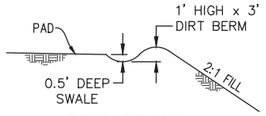
NO.	DESCRIPTION	APPROVED BY	DATE

BENCH MARK

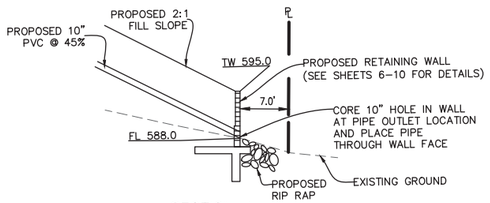
DESCRIPTION: CENTERLINE WELL MONUMENT WITH 1" PIPE AND DISC STAMPED "SAN DIEGO SURVEYOR".
LOCATION: CENTERLINE OF JAMACHA ROAD 15' NORTHERLY OF INTERSECTION WITH FALDA DEL CERRO.
RECORD FROM: SAN DIEGO COUNTY BENCHBOOK AND ROS 17454
ELEVATION: 562.84 DATUM: NAVD88

ENGINEER'S NAME: WALSH ENGINEERING & SURVEYING, INC.
PHONE NO.: 619-588-6747

L:\PROJECTS 3D\191138-SUNDALE\PRODUCTION DRAWINGS\DELIVERABLES\191138-SHEET 1-TITLE.DWG January 15, 2024 – 8:44am



BERM DETAIL
NO SCALE



SECTION A-A
H: 1" = 10'
V: 1" = 10'

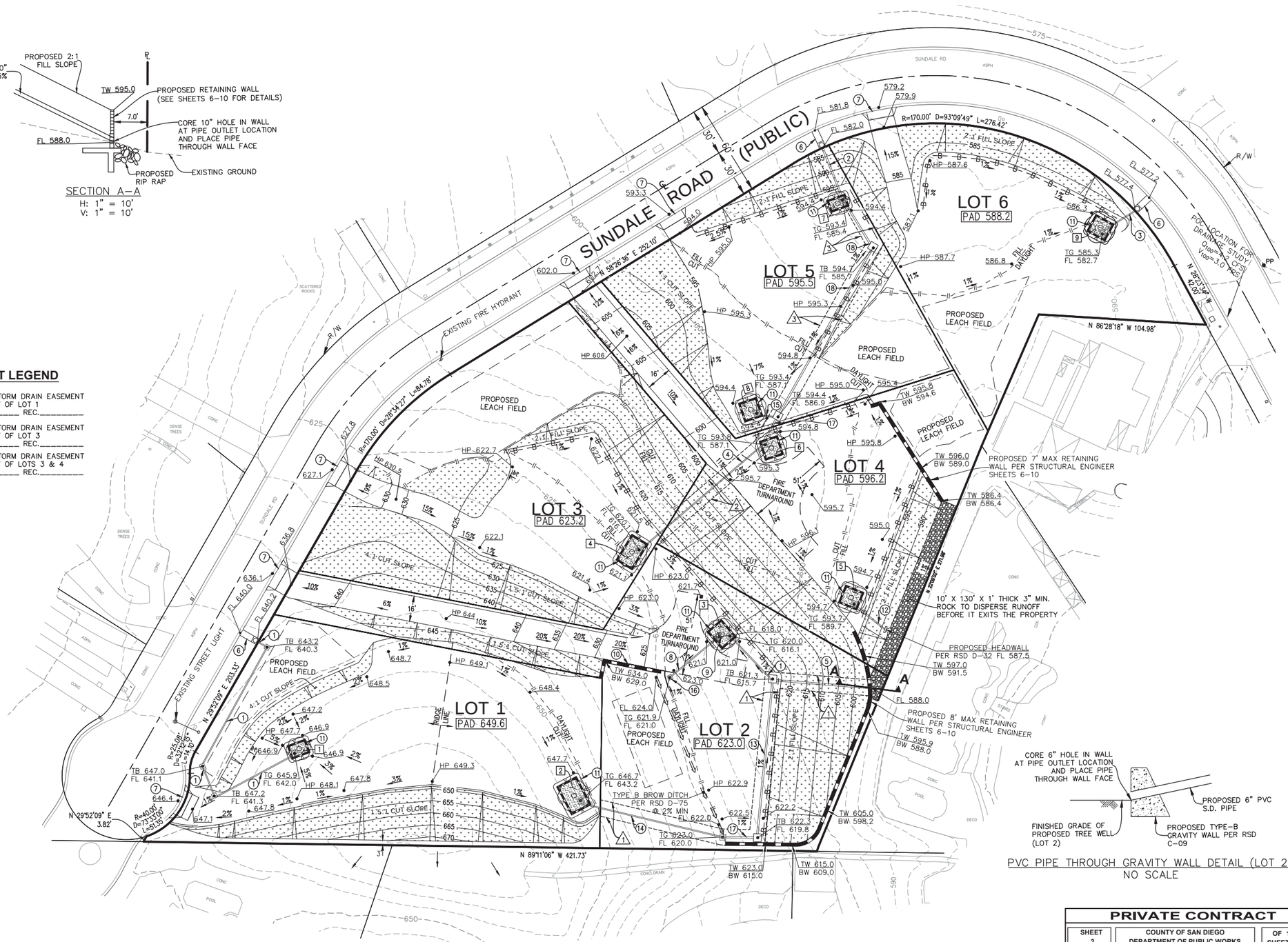
TREE WELL LEGEND:					
NO.	CANOPY DIAMETER (FT)	SOIL DEPTH (FT)	FG	TW	BW
1	15	5.5	645.4	645.9	644.9
2	20	6	644.7	646.7	643.7
3	20	6	618.0	620.0	617.0
4	20	4	619.6	620.1	618.6
5	20	6	591.7	593.7	590.7
6	20	6	593.3	593.8	592.3
7	15	6	592.9	593.4	591.9
8	20	6	592.9	593.4	591.9
9	20	6	584.8	585.3	583.8

LEGEND

1. PROPOSED 6" PVC S.D. PIPE @ 1%
2. PROPOSED 12" PVC S.D. PIPE @ 10%
3. PROPOSED 6" PVC S.D. PIPE @ 22%
4. PROPOSED 6" PVC S.D. PIPE @ 28%
5. PROPOSED 10" PVC S.D. PIPE @ 45%
6. PROPOSED CURB OUTLET PER RSD D-25B
7. PROPOSED 16' DRIVEWAY PER RSD G-14A
8. PROPOSED 6" PVC S.D. PIPE @ 8%
9. PROPOSED TYPE 2 5'x5'x1.1' THICK NO. 2 BACKING CLASS RIPRAP PER RSD D-40
10. PROPOSED 5' MAX RETAINING WALL PER RSD C-02
11. PROPOSED TYPE B GRAVITY WALL PER RSD C-09
12. PROPOSED 6" PVC S.D. PIPE @ 6%
13. PROPOSED 10" PVC S.D. PIPE @ 4%
14. PROPOSED 6" PVC S.D. PIPE @ 26%
15. PROPOSED 6" PVC S.D. PIPE @ 2%
16. PROPOSED 12"X12" CATCH BASIN WITH STEEL GRATE ("BROOKS" 1212CB)
17. PROPOSED 10" PVC S.D. PIPE @ 1%
18. PROPOSED 12" PVC S.D. PIPE @ 1%

EASEMENT LEGEND

1. PROPOSED 10' STORM DRAIN EASEMENT FOR THE BENEFIT OF LOT 1 PER DOC.#_____ REC._____
2. PROPOSED 10' STORM DRAIN EASEMENT FOR THE BENEFIT OF LOT 3 PER DOC.#_____ REC._____
3. PROPOSED 10' STORM DRAIN EASEMENT FOR THE BENEFIT OF LOTS 3 & 4 PER DOC.#_____ REC._____



PVC PIPE THROUGH GRAVITY WALL DETAIL (LOT 2)
NO SCALE

NOTE:

CONSTRUCTION/EXCAVATION PERMIT IS REQUIRED FOR WORK WITHIN THE COUNTY RIGHT-OF-WAY, INCLUDING DRIVEWAY ACCESS AND D-25.

IMPERVIOUS SURFACES (SF)	LOT 1	LOT 2	LOT 3	LOT 4	LOT 5	LOT 6
FUTURE HOUSE (SF)	3,792	1,942	2,104	2,380	3,832	2,540
ALLOWABLE FUTURE PCC (SF)	206	1,318	886	1,763	0	0
TOTAL IMPERVIOUS (SF)	3,998	3,260	2,990	4,143	3,832	2,540

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

LAWRENCE W. WALSH R.C.E. 46316 DATE
Walsh Engineering & Surveying, Inc.
607 Aldwych Road, El Cajon, CA 92020
(619) 588-6747 (619) 792-1232 Fax

REGISTERED PROFESSIONAL ENGINEER LAWRENCE W. WALSH 46316 CIVIL STATE OF CALIFORNIA

COUNTY APPROVED CHANGES			
NO.	DESCRIPTION	APPROVED BY	DATE

LOCAL BENCHMARK: CENTERLINE WELL MONUMENT WITH 3" BRASS DISC STAMPED "RCE 18136" AT CENTER OF BULB IN SUNDALE ROAD APPROXIMATELY 31' NORTHWESTERLY FROM THE SOUTHWESTERLY CORNER OF SUBJECT PROPERTY AS SHOWN HEREON. EL: 647.07 (NAVD88)

BENCH MARK
DESCRIPTION: CENTERLINE WELL MONUMENT WITH 1" PIPE AND DISC STAMPED "SAN DIEGO SURVEYOR".
LOCATION: CENTERLINE OF JAMACHA ROAD 15' NORTHERLY OF INTERSECTION WITH FALDA DEL CERRO.
RECORD FROM: SAN DIEGO COUNTY BENCHBOOK AND ROS 17454
ELEVATION: 562.84 DATUM: NAVD88

PRIVATE CONTRACT

SHEET 2	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	OF 10 SHEETS

GRADING PLANS FOR:

SUNDALE ROAD

CALIFORNIA COORDINATE INDEX: 218-1792

RECOMMENDED FOR APPROVAL: SUBDIVISION ENGINEER	APPROVED FOR WILLIAM P. MORGAN, COUNTY ENGINEER BY: DATE:
ENGINEER OF WORK: LAWRENCE W. WALSH RCE 46316 EXP 12-31-24	CHECKED BY: TM 2272
	PDS2021-LDGRMJ-30366

ENGINEER'S NAME: WALSH ENGINEERING & SURVEYING, INC.
PHONE NO.: 619-588-6747

L:\PROJECTS 3D\191138-SUNDALE\PRODUCTION DRAWINGS\191138-ENGINEERING BASE.DWG January 12, 2024 - 6:12pm

STORM WATER MANAGEMENT NOTES

1. DURING THE RAINY SEASON THE AMOUNT OF EXPOSED SOIL ALLOWED AT ONE TIME SHALL NOT EXCEED THAT WHICH CAN BE ADEQUATELY PROTECTED BY THE PROPERTY OWNER IN THE EVENT OF A RAIN STORM. 125 SHALL BE RETAINED ON THE JOB SITE IN A MANNER THAT ALLOWS FULL DEPLOYMENT AND COMPLETE INSTALLATION IN 48 HOURS OR LESS OF A FORECAST RAIN.

2. NO AREA BEING DISTURBED SHALL EXCEED 50 ACRES AT ANY GIVEN TIME WITHOUT DEMONSTRATING TO THE SAN DIEGO COUNTY D.P.W. DIRECTOR'S SATISFACTION THAT ADEQUATE EROSION AND SEDIMENT CONTROL CAN BE MAINTAINED. ANY DISTURBED AREA THAT IS NOT ACTIVELY GRADED FOR 15 DAYS MUST BE FULLY PROTECTED FROM EROSION, UNTIL ADEQUATE LONG-TERM PROTECTIONS ARE INSTALLED, THE DISTURBED AREA SHALL BE INCLUDED WHEN CALCULATING THE ACTIVE DISTURBANCE AREA. ALL EROSION CONTROL MEASURES SHALL REMAIN INSTALLED AND MAINTAINED DURING ANY INACTIVE PERIOD.

3. THE PROPERTY OWNER IS OBLIGATED TO INSURE COMPLIANCE WITH ALL APPLICABLE STORM WATER REGULATIONS AT ALL TIMES. THE B.M.P.'S (BEST MANAGEMENT PRACTICES) THAT HAVE BEEN INCORPORATED INTO THE THIS PLAN SHALL BE IMPLEMENTED AND MAINTAINED TO EFFECTIVELY PREVENT THE POTENTIALLY NEGATIVE IMPACTS OF THIS PROJECT'S CONSTRUCTION ACTIVITIES ON STORM WATER QUALITY. THE MAINTENANCE OF THE B.M.P.'S IS THE PERMITTEE'S RESPONSIBILITY, AND FAILURE TO PROPERLY INSTALL OR MAINTAIN THE B.M.P.'S MAY RESULT IN ENFORCEMENT ACTION BY THE COUNTY OF SAN DIEGO OR OTHERS. IF INSTALLED B.M.P.'S FAIL, THEY MUST BE REPAIRED OR REPLACED WITH AN ACCEPTABLE ALTERNATE WITHIN 24 HOURS, OR A SOON AS SAFE TO DO SO.

4. A NOTICE OF INTENT (NOI) HAS BEEN, OR WILL BE FILED WITH THE STATE WATER RESOURCES CONTROL BOARD (SWRCB) AND THAT A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) HAS BEEN OR WILL BE PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF CALIFORNIA GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY (PERMIT NO. CAS000002) FOR ALL OPERATIONS ASSOCIATED WITH THESE PLANS. THE NOI NUMBER ASSIGNED BY SWRCB FOR THIS PROJECT IS [WDID#] [ALTERNATIVE: NOT YET ASSIGNED, BUT WILL BE PROVIDED BEFORE A PERMIT IS ISSUED], THE PERMITTEE SHALL KEEP A COPY OF THE SWPPP ON SITE AND AVAILABLE FOR REVIEW BY COUNTY.

EMERGENCY EROSION CONTROL NOTES

1. ALL BUILDING PADS TO BE DIKED AND THE DIKES MAINTAINED TO PREVENT WATER FROM FLOWING FROM THE PAD UNTIL THE STREETS AND DRIVEWAYS ARE PAVED AND WATER CAN FLOW FROM THE PADS WITHOUT CAUSING EROSION, OR CONSTRUCT DRAINAGE FACILITIES TO THE SATISFACTION OF THE COUNTY DEPARTMENT OF PUBLIC WORKS THAT WILL ALLOW WATER TO DRAIN FROM THE PAD WITHOUT CAUSING EROSION.

2. TOPS OF SLOPES TO BE DIKED OR TRENCHED TO PREVENT WATER FROM FLOWING OVER THE CREST OF SLOPES.

3. MANUFACTURED SLOPES AND PADS SHALL BE ROUNDED VERTICALLY AND HORIZONTALLY AS APPROPRIATE TO BLEND WITH THE SURROUNDING TOPOGRAPHY.

4. AS SOON AS CUTS OR EMBANKMENTS ARE COMPLETED, BUT NOT LATER THAN OCTOBER 1, ALL CUT AND FILL SHALL BE STABILIZED WITH A HYDROMULCH MIXTURE OR AN EQUAL TREATMENT APPROVED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS. BETWEEN OCTOBER 1 AND APRIL 15, APPROVED SLOPE PROTECTION MEASURES SHALL PROCEED IMMEDIATELY BEHIND THE EXPOSURE OF CUT SLOPES AND/OR THE CREATION OF EMBANKMENT SLOPES.

5. CATCH BASINS, DESILTING AND STORM SYSTEMS SHALL BE INSTALLED TO THE SATISFACTION OF THE COUNTY DEPARTMENT OF PUBLIC WORKS.

6. GRAVEL BAG CHECK DAMS TO BE PLACED IN A MANNER APPROVED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS IN UNPAVED STREETS WITH GRADIENTS IN EXCESS OF 2% AND OR IN OTHER GRADED OR EXCAVATED AREAS AS REQUIRED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS.

7. THE DEVELOPER TO MAINTAIN THE PLANTING AND EROSION CONTROL MEASURES DESCRIBED ABOVE UNTIL RELIEVED OF THE SAME BY THE COUNTY DEPARTMENT OF PUBLIC WORKS. THE DEVELOPER SHALL REMOVE ALL SOIL INTERCEPTED BY GRAVEL BAGS, CATCH BASINS AND DESILTING BASINS AND KEEP THESE FACILITIES CLEAN AND FREE OF SILT AND SAND AND SHALL REPAIR ANY ERODED SLOPES AS DIRECTED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS.

IRRIGATION NOTE

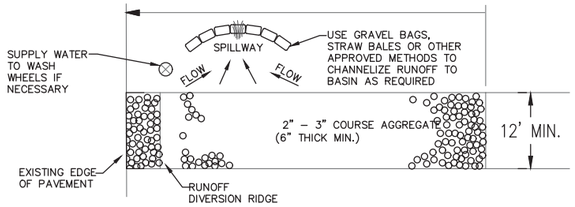
LOCATION AND FREQUENCY OF SPRINKLER HEADS TO BE DETERMINED IN THE FIELD BY CONTRACTOR.

BONDED FIBER MATRIX (BFM) SLOPE PROTECTION

APPLICATION RATES SHALL BE 3,500 POUNDS PER ACRE MINIMUM FOR 2:1 OR SHALLOWER SLOPES AND 4,000 POUNDS PER ACRE FOR SLOPES STEEPER THAN 2:1.
BFM SHALL BE APPLIED AT LEAST 24 HOURS BEFORE OR AFTER RAINFALL.
THE SITE MUST BE PROTECTED WITH BROW DITCHES AND/OR DIVERSION BERMS AT THE TOP OF SLOPES TO DIVERT FLOW FROM THE FACE OF THE SLOPE.
BFM SHALL BE APPLIED TO PROVIDE 100% COVERAGE (i.e. APPLICATION FROM MULTIPLE ANGLES).

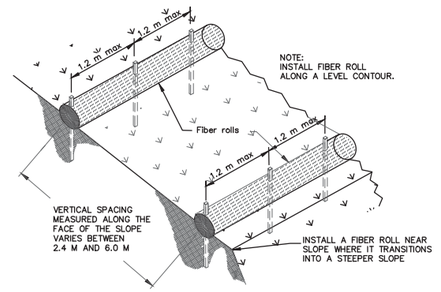
FOR PERMANENT EROSION CONTROL PURPOSES, BFM MUST BE INSTALLED IN CONJUNCTION WITH SEEDED EROSION CONTROL VEGETATION.

A LETTER FROM THE HYDROSEED CONTRACTOR CERTIFYING THAT THE BFM HAS BEEN INSTALLED IN ACCORDANCE WITH THE APPROVED APPLICATION RATES AND COVERAGE REQUIREMENTS SHALL BE SUBMITTED TO THE COUNTY INSPECTOR FOR APPROVAL.

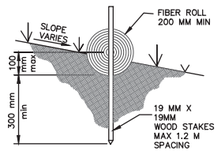


NOTE:
ALL AREAS OF SIGNIFICANT VEHICLE TRAFFIC (SITE ENTRANCES, ACCESS ROADS, PARKING LOTS, ETC.) SHOULD BE STABILIZED IMMEDIATELY AFTER GRADING TO PREVENT EROSION AND CONTROL DUST. SITE ENTRANCES AND EXITS ARE ESPECIALLY IMPORTANT. USE GRAVEL APPROACHES TO LIMIT TRACKING OF SEDIMENT OFFSITE.

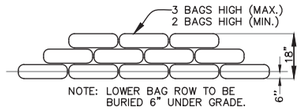
STABILIZED CONSTRUCTION ENTRANCE
NO SCALE
TC-1



TYPICAL FIBER ROLL INSTALLATION
NO SCALE



ENTRENCHMENT DETAIL
NO SCALE



GRAVEL BAG CHECK DAM
NO SCALE
SC-6

SILTATION AND SEDIMENT CONTROL MEASURES NOTES:

1. THE SEDIMENT BASINS SHALL BE PROVIDED AT THE LOWER END OF EVERY DRAINAGE AREA PRODUCING SEDIMENT RUNOFF. THE BASINS SHALL BE MAINTAINED AND CLEANED TO DESIGN CONTOURS AFTER EVERY RUNOFF PRODUCING STORM. THE BASINS SHOULD BE SEMI-PERMANENT STRUCTURES THAT WOULD REMAIN UNTIL SOIL STABILIZING VEGETATION HAS BECOME WELL ESTABLISHED ON ALL ERODIBLE SLOPES.

2. SEDIMENTATION BASINS MAY NOT BE REMOVED OR MADE INOPERATIVE WITHOUT PRIOR APPROVAL OF THE COUNTY ENGINEER.

3. UTILITY TRENCHES THAT ARE CUT THROUGH BASIN DIKES OR BASIN INLET DIKES SHALL BE PLUGGED WITH SANDBAGS FROM TOP OF PIPE TO TOP OF DIKE.

4. ALL UTILITY TRENCHES SHALL BE BLOCKED AT THE PRESCRIBED INTERVALS WITH A DOUBLE ROW OF GRAVEL BAGS WITH A TOP ELEVATION LEVEL WITH, AND TWO GRAVEL BAGS BELOW, THE GRADED SURFACE OF THE STREET. GRAVEL BAGS ARE TO BE PLACED WITH LAPPED COURSES. THE INTERVALS PRESCRIBED BETWEEN GRAVEL BAG BLOCKING SHALL DEPEND ON THE SLOPE OF THE GROUND SURFACE. BUT NOT EXCEED THE FOLLOWING:

GRADE OF THE STREET	INTERVAL
LESS THAN 2%	AS REQUIRED
2% TO 4%	100 FEET
4% TO 10%	50 FEET
OVER 10%	25 FEET

5. AFTER UTILITY TRENCHES ARE BACKFILLED AND COMPACTED. THE SURFACES OVER SUCH TRENCHES SHALL BE MOUNDED SLIGHTLY TO PREVENT CHANNELING OF WATER IN THE TRENCH AREA. CARE SHOULD BE EXERCISED TO PROVIDE FOR CROSS FLOW AT FREQUENT INTERVALS WHERE TRENCHES ARE NOT ON THE CENTERLINE OF A CROWNED STREET.

6. ALL BUILDING PADS SHOULD BE SLOPED TOWARDS THE DRIVEWAYS AND VELOCITY CHECK DAMS PROVIDED AT THE BASE OF ALL DRIVEWAYS DRAINING INTO THE STREET.

7. PROVIDE VELOCITY CHECK DAMS IN ALL UNPAVED GRADED CHANNELS AT THE INTERVALS INDICATED BELOW:

GRADE OF THE STREET	INTERVAL BETWEEN CHECKDAMS
LESS THAN 3%	100 FEET
3% TO 6%	50 FEET
OVER 6%	25 FEET

8. PROVIDE VELOCITY CHECK DAMS IN ALL STREET AREAS ACCORDING TO INTERVALS INDICATED BELOW. VELOCITY CHECK DAMS MAY BE CONSTRUCTED OF GRAVEL BAGS, TIMBER, OR OTHER EROSION RESISTANT MATERIALS APPROVED BY THE COUNTY ENGINEER. AND SHALL EXTEND COMPLETELY ACROSS THE STREET OR CHANNEL AT RIGHT ANGLES TO THE CENTERLINE. VELOCITY CHECK DAMS MAY ALSO SERVE AS SEDIMENT TRAPS.

GRADE OF THE STREET	INTERVAL	NO. OF BAGS HIGH
LESS THAN 2%	AS REQUIRED	1
2% TO 4%	100 FEET	1
4% TO 6%	50 FEET	1
6% TO 10%	50 FEET	2
OVER 10%	25 FEET	2

9. PROVIDE A GRAVEL BAG SILT BASIN OR TRAP BY EVERY STORM DRAIN INLET TO PREVENT SEDIMENT FROM ENTERING DRAIN SYSTEM.

10. GRAVEL BAGS AND FILL MATERIAL SHALL BE STOCKPILED AT INTERVALS, READY FOR USE WHEN REQUIRED.

11. ALL EROSION CONTROL DEVICES WITHIN THE DEVELOPMENT SHOULD BE MAINTAINED DURING AND AFTER EVERY RUNOFF PRODUCING STORM. IF POSSIBLE, MAINTENANCE CREWS SHOULD BE REQUIRED TO HAVE ACCESS TO ALL AREA.

12. PROVIDE RIP RAP ON CURVES AND STEEP DROPS IN ALL EROSION PRONE DRAINAGE CHANNELS DOWNSTREAM FROM THE DEVELOPMENT. THIS PROTECTION WOULD REDUCE EROSION CAUSED BY THE INCREASED FLOWS THAT MAY BE ANTICIPATED FROM DENUDED SLOPES. OR FROM IMPERVIOUS SURFACES.

13. ANY PROPOSED ALTERNATE CONTROL MEASURES MUST BE APPROVED IN ADVANCE BY ALL RESPONSIBLE AGENCIES; I.E., COUNTY ENGINEER, DEPARTMENT OF SANITATION AND FLOOD CONTROL, OFFICE OF ENVIRONMENTAL MANAGEMENT, ETC.

LOCAL BENCHMARK: CENTERLINE WELL MONUMENT WITH 3" BRASS DISC STAMPED "RCE 18136" AT CENTER OF BULB IN SUNDALE ROAD APPROXIMATELY 31' NORTHWESTERLY FROM THE SOUTHWESTERLY CORNER OF SUBJECT PROPERTY AS SHOWN HEREON. EL: 647.07 (NAVD88)

LAWRENCE W. WALSH R.C.E. 46316 EXP 12-31-24 DATE

Walsh Engineering & Surveying, Inc.
607 Aldwych Road, El Cajon, CA 92020
(619) 588-6747 (619) 792-1232 Fax

REGISTERED PROFESSIONAL ENGINEER — LAWRENCE W. WALSH — 46316 — CIVIL — STATE OF CALIFORNIA

COUNTY APPROVED CHANGES			
NO.	DESCRIPTION	APPROVED BY	DATE

BENCH MARK

DESCRIPTION: CENTERLINE WELL MONUMENT WITH 1" PIPE AND DISC STAMPED "SAN DIEGO SURVEYOR".
LOCATION: CENTERLINE OF JAMACHA ROAD 15' NORTHERLY OF INTERSECTION WITH FALDA DEL CERRO.
RECORD FROM: SAN DIEGO COUNTY BENCHBOOK AND ROS 17454
ELEVATION: 562.84 DATUM: NAVD88

PRIVATE CONTRACT

SHEET 3	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	OF 10 SHEETS

EROSION CONTROL NOTES AND DETAILS FOR:

SUNDALE ROAD

CALIFORNIA COORDINATE INDEX: 218-1792

RECOMMENDED FOR APPROVAL: SUBDIVISION ENGINEER	APPROVED FOR WILLIAM P. MORGAN, COUNTY ENGINEER BY: DATE:
ENGINEER OF WORK: LAWRENCE W. WALSH RCE 46316 EXP 12-31-24	CHECKED BY: TM 2272
	PDS2021-LDGRMJ-30366

ENGINEER'S NAME: WALSH ENGINEERING & SURVEYING, INC.
PHONE NO.: 619-588-6747

L:\PROJECTS 3D\191138-SUNDALE\PRODUCTION DRAWINGS\DELIVERABLES\191138-SHEET 3-EC NOTES.DWG January 09, 2024 - 11:10am

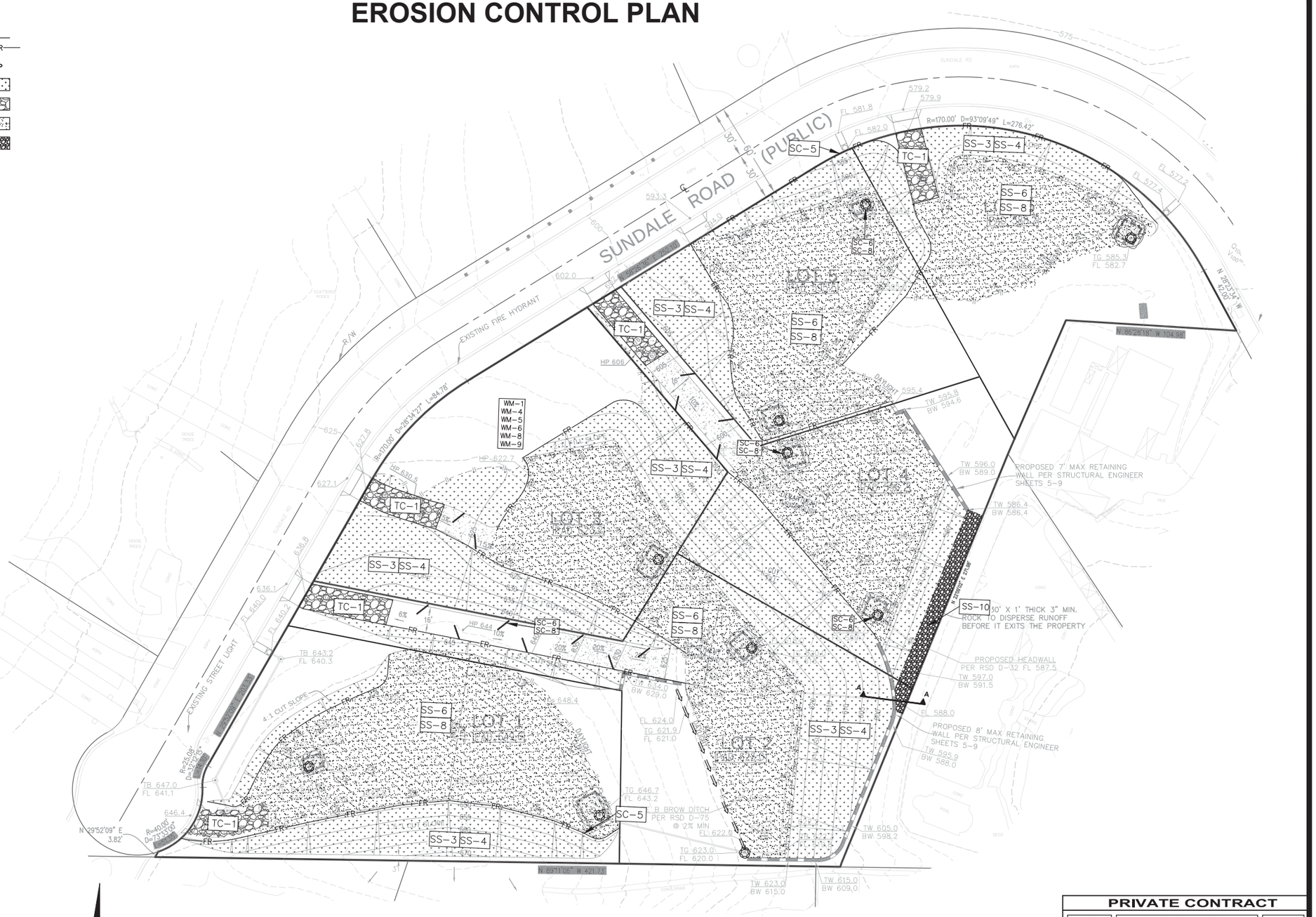
EROSION CONTROL PLAN

LEGEND

ITEM	STD. DWG.	SYMBOL
FIBER ROLL	SC-5	—FR—FR—
GRAVEL BAGS	SC-6, SC-8	
HYDROSEEDING & BONDED FIBER MATRIX (B.F.M.)	SS-3, SS-4	
STABILIZED CONSTRUCTION ENTRANCE	TC-1	
MULCH	SS-6, SS-8	
ENERGY DISSIPATER OUTLET PROTECTION	SS-10	

MATERIALS & WASTE MANAGEMENT CONTROL BMPs

WM-1	MATERIAL DELIVERY & STORAGE
WM-4	SPILL PREVENTION AND CONTROL
WM-8	CONCRETE WASTE MANAGEMENT
WM-5	SOLID WASTE MANAGEMENT
WM-9	SANITARY WASTE MANAGEMENT
WM-6	HAZARDOUS WASTE MANAGEMENT



LOCAL BENCHMARK: CENTERLINE WELL MONUMENT WITH 3" BRASS DISC STAMPED "RCE 18136" AT CENTER OF BULB IN SUNDALE ROAD APPROXIMATELY 31' NORTHWESTERLY FROM THE SOUTHWESTERLY CORNER OF SUBJECT PROPERTY AS SHOWN HEREON. EL: 647.07 (NAVD88)

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LAWRENCE W. WALSH R.C.E. 46316 EXP 12-31-24 DATE

Walsh Engineering & Surveying, Inc.
607 Aldwych Road, El Cajon, CA 92020
(619) 588-6747 (619) 792-1232 Fax

REGISTERED PROFESSIONAL ENGINEER LAWRENCE W. WALSH 46316 CIVIL STATE OF CALIFORNIA

PRIVATE CONTRACT

SHEET 4	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	OF 10 SHEETS

EROSION CONTROL PLAN FOR:

SUNDALE ROAD

CALIFORNIA COORDINATE INDEX: 218-1792

RECOMMENDED FOR APPROVAL: SUBDIVISION ENGINEER	APPROVED FOR WILLIAM P. MORGAN, COUNTY ENGINEER BY: DATE:
ENGINEER OF WORK: LAWRENCE W. WALSH RCE 46316 EXP 12-31-24	CHECKED BY: TM 2272
	PDS2021-LDGRMJ-30366

ENGINEER'S NAME: WALSH ENGINEERING & SURVEYING, INC.
PHONE NO.: 619-588-6747

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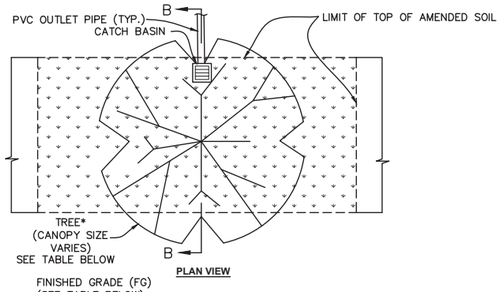
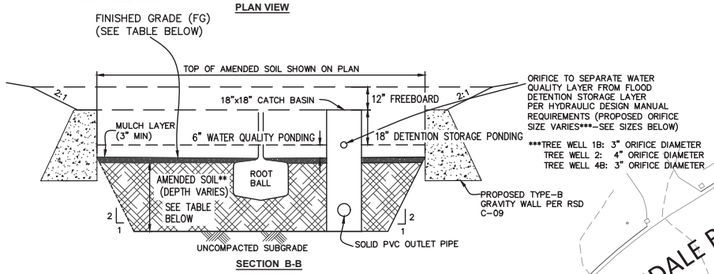
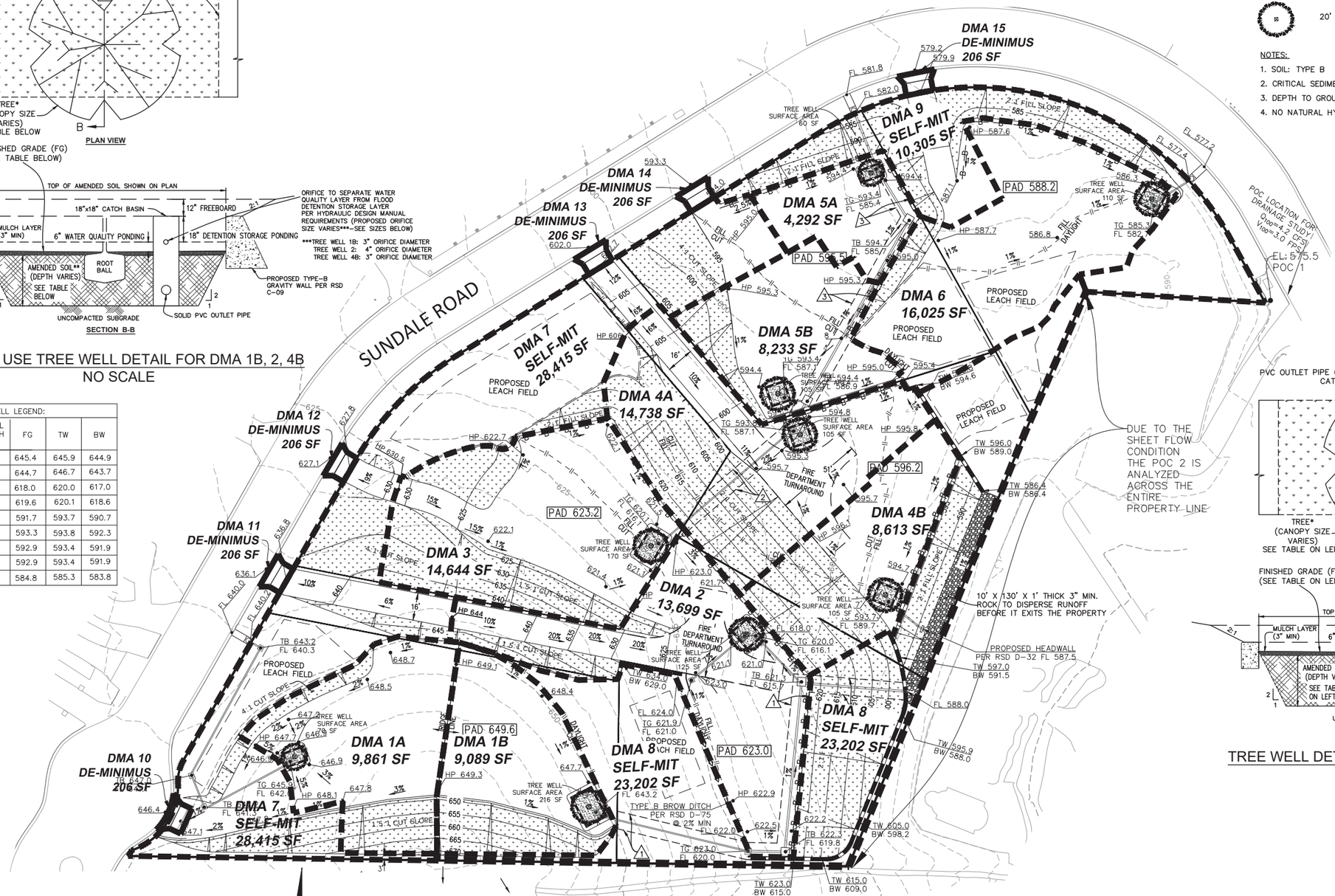
DMA SHEET

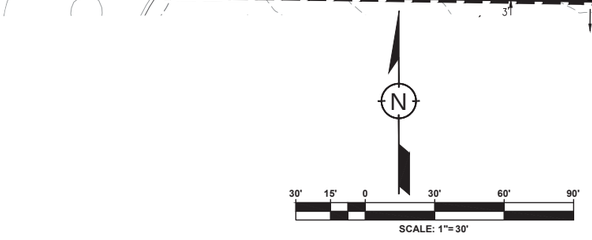




CONJUNCTIVE USE TREE WELL DETAIL FOR DMA 1B, 2, 4B
NO SCALE

TREE WELL LEGEND:					
DMA NO.	*CANOPY DIAMETER (FT)	**SOIL DEPTH (FT)	FG	TW	BW
1A	15	5.5	645.4	645.9	644.9
1B	20	6	644.7	646.7	643.7
2	20	6	618.0	620.0	617.0
3	20	4	619.6	620.1	618.6
4B	20	6	591.7	593.7	590.7
4A	20	6	593.3	593.8	592.3
5A	15	6	592.9	593.4	591.9
5B	20	6	592.9	593.4	591.9
6	20	6	584.8	585.3	583.8



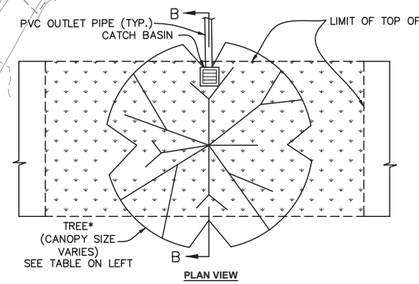


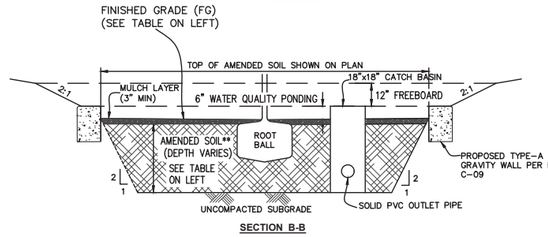
LEGEND:

- DMA BOUNDARY
- 15' DIAMETER TREE WELL
- 20' DIAMETER TREE WELL

NOTES:

1. SOIL: TYPE B
2. CRITICAL SEDIMENT YIELD COARSE AREAS: NONE
3. DEPTH TO GROUNDWATER: UNKNOWN
4. NO NATURAL HYDROLOGIC FEATURES EXIST ON–SITE





TREE WELL DETAIL FOR DMA 1A, 3, 4A, 5A, 5B & 6
NO SCALE

LAWRENCE W. WALSH R.C.E. 46316 DATE
Walsh Engineering & Surveying, Inc.
607 Aldwych Road, El Cajon, CA 92020
(619) 588-6747 (619) 792-1232 Fax

REGISTERED PROFESSIONAL ENGINEER LAWRENCE W. WALSH 46316 CIVIL STATE OF CALIFORNIA

COUNTY APPROVED CHANGES			
NO.	DESCRIPTION	APPROVED BY	DATE

BENCH MARK

DESCRIPTION: CENTERLINE WELL MONUMENT WITH 1" PIPE AND DISC STAMPED "SAN DIEGO SURVEYOR".
LOCATION: CENTERLINE OF JAMACHA ROAD 15' NORTHERLY OF INTERSECTION WITH FALDA DEL CERRO.
RECORD FROM: SAN DIEGO COUNTY BENCHBOOK AND ROS 17454
ELEVATION: 562.84 DATUM: NAVD88

PRIVATE CONTRACT

SHEET 5	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	OF 10 SHEETS

GRADING PLANS FOR:

SUNDALE ROAD

CALIFORNIA COORDINATE INDEX: 218-1792

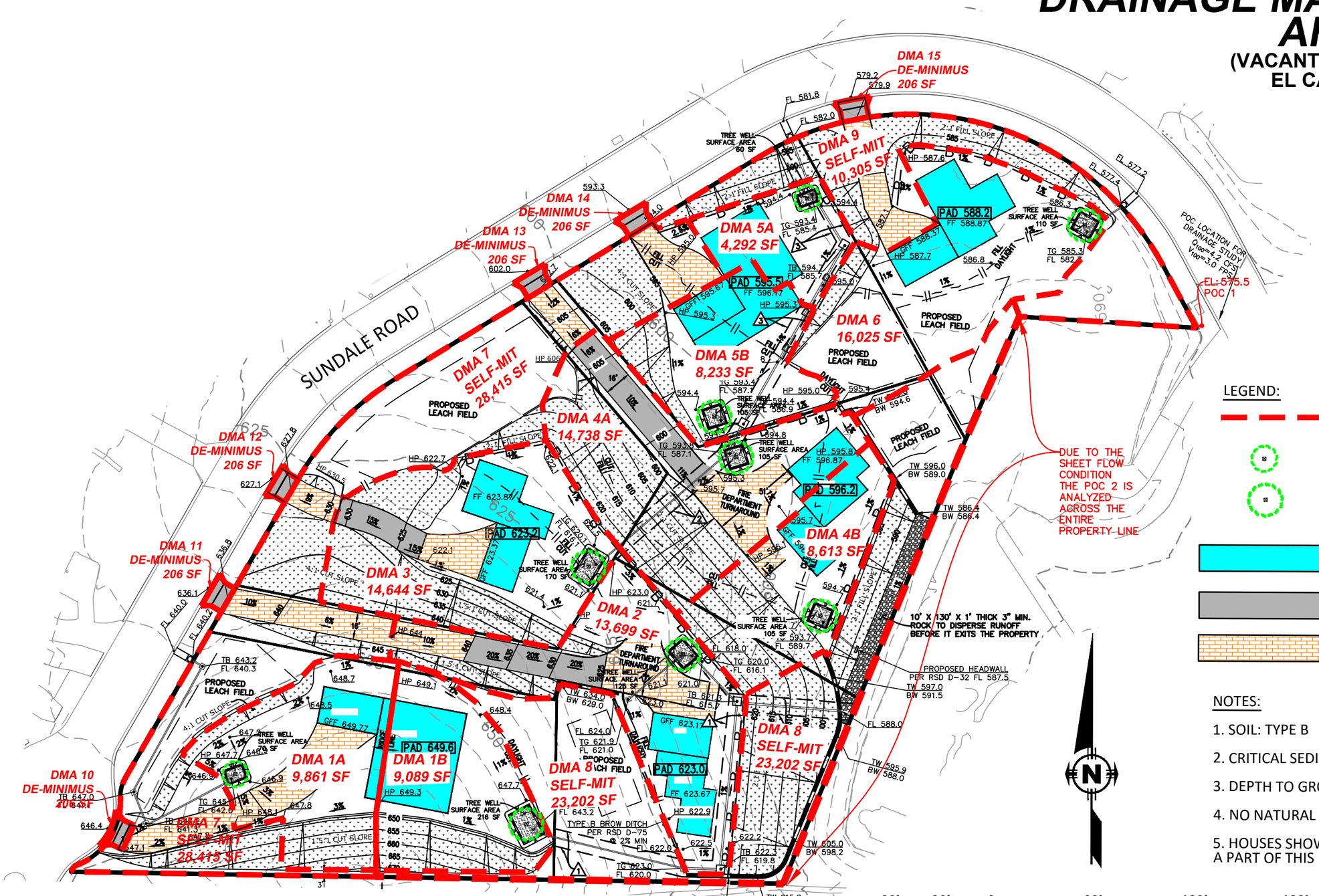
RECOMMENDED FOR APPROVAL: SUBDIVISION ENGINEER	APPROVED FOR WILLIAM P. MORGAN, COUNTY ENGINEER BY: DATE:
ENGINEER OF WORK: LAWRENCE W. WALSH RCE 46316 EXP 12-31-24	CHECKED BY: TM 2272
	PDS2021-LDGRMJ-30366

ENGINEER'S NAME: WALSH ENGINEERING & SURVEYING, INC.
PHONE NO.: 619-588-6747

L:\PROJECTS 3D\191138–SUNDALE\PRODUCTION DRAWINGS\DELIVERABLES\191138–SHEET 5–DMA EXHIBIT.DWG January 15, 2024 – 10:23am

DRAINAGE MANAGEMENT AREA EXHIBIT

(VACANT) SUNDALE ROAD
EL CAJON, CA 92019



LEGEND:

- DMA BOUNDARY
- 15' DIAMETER TREE WELL
- 20' DIAMETER TREE WELL
- PROPOSED FUTURE HOUSE
- PROPOSED PCC PAVEMENT
- PROPOSED PERMEABLE PAVERS

NOTES:

1. SOIL: TYPE B
2. CRITICAL SEDIMENT YIELD COARSE AREAS: NONE
3. DEPTH TO GROUNDWATER: UNKNOWN
4. NO NATURAL HYDROLOGIC FEATURES EXIST ON-SITE
5. HOUSES SHOWN ARE JUST FOR REFERENCE AND NOT A PART OF THIS PERMIT

60' 30' 0 60' 120' 180'

SCALE: 1"= 60'

IMPERVIOUS SURFACES (SF)	LOT 1	LOT 2	LOT 3	LOT 4	LOT 5	LOT 6
FUTURE HOUSE (SF)	3,792	1,942	2,104	2,380	3,832	2,540
ALLOWABLE FUTURE PCC (SF)	206	1,318	886	1,763	0	0
TOTAL IMPERVIOUS (SF)	3,998	3,260	2,990	4,143	3,832	2,540

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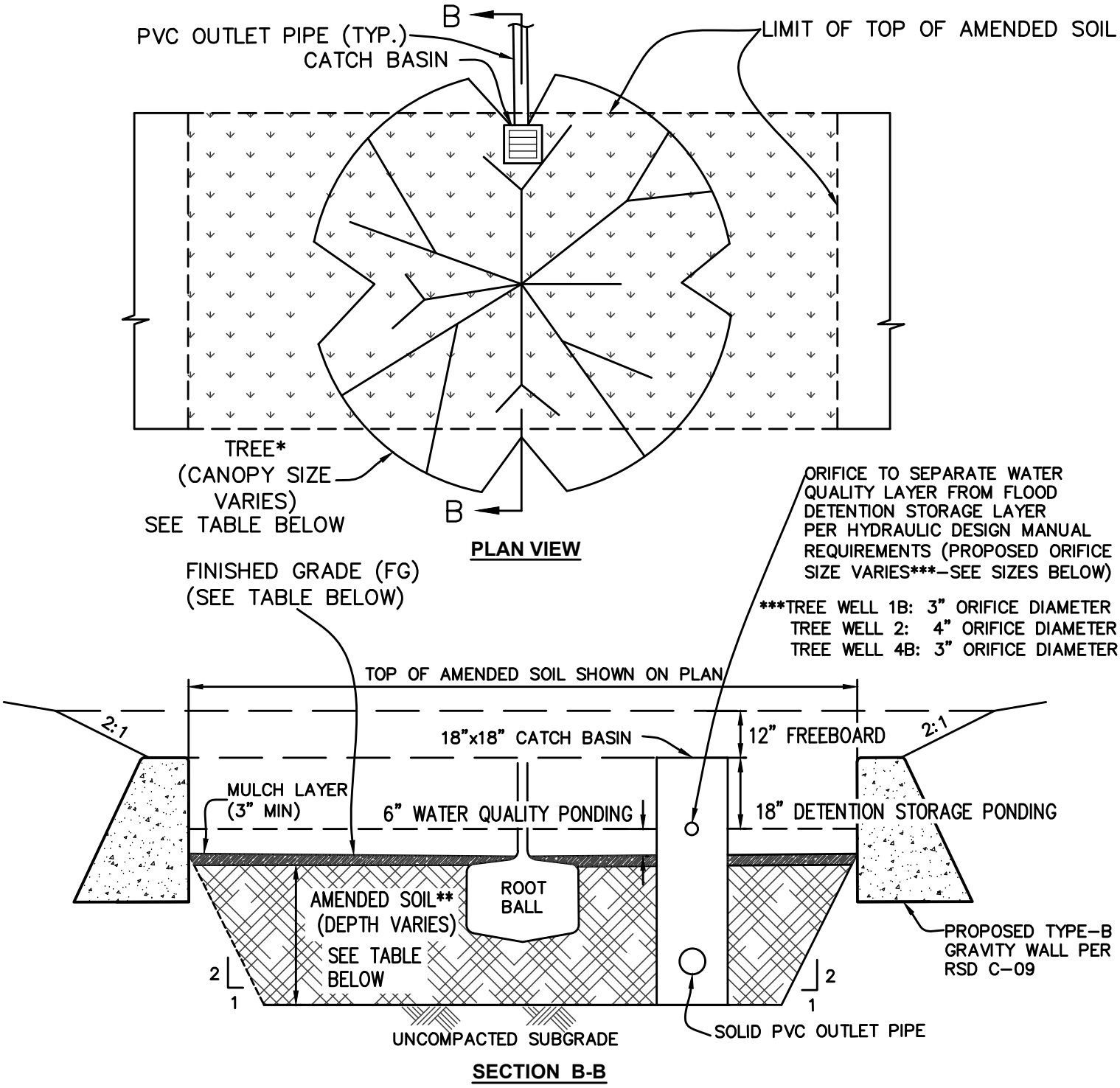
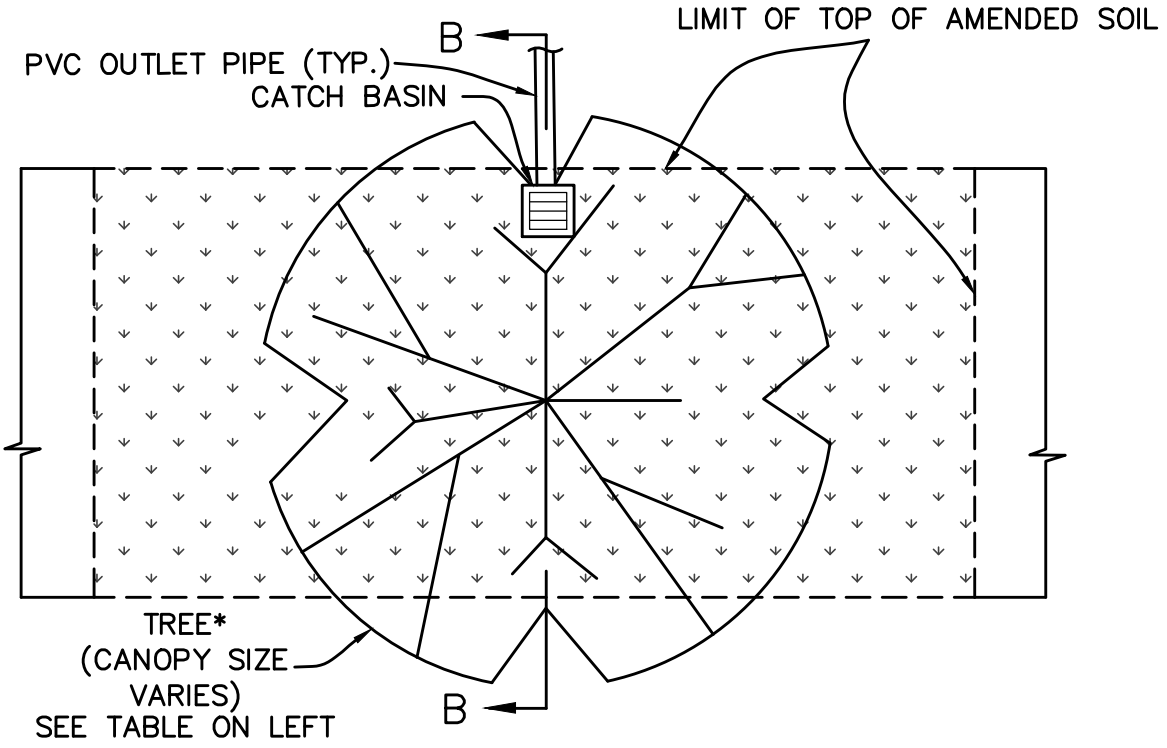
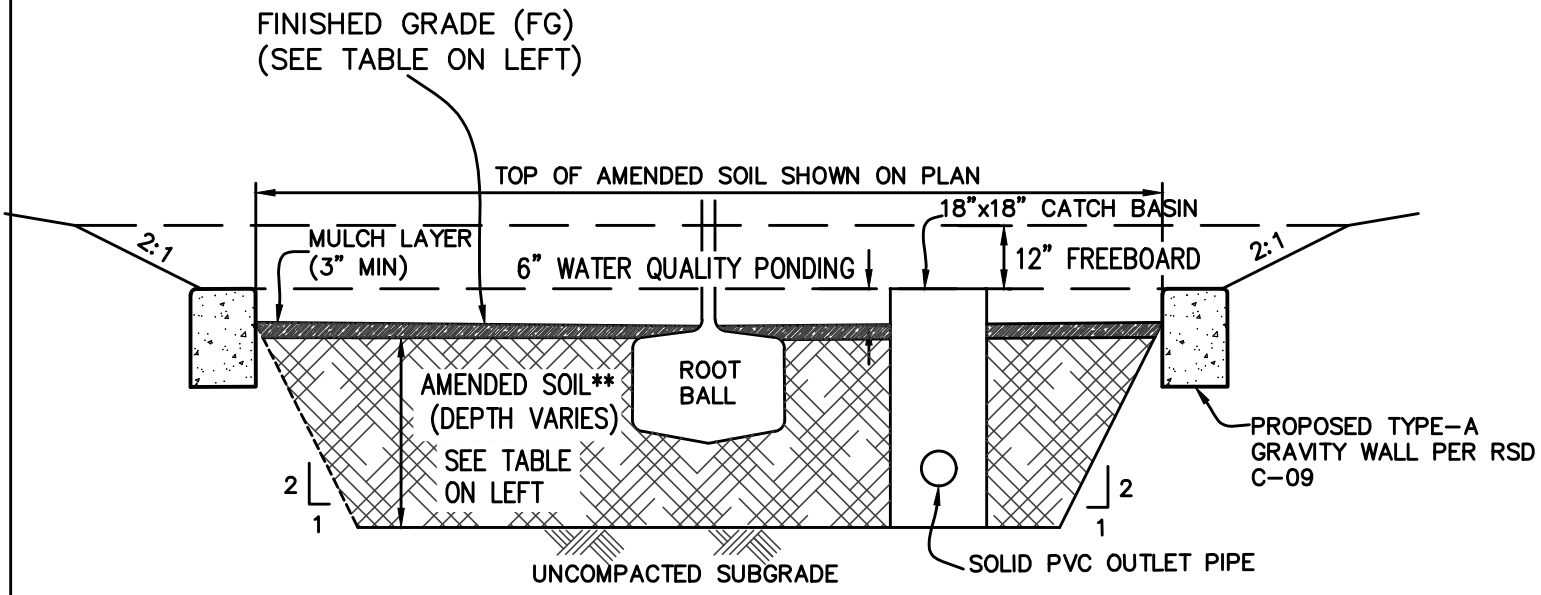


CONJUNCTIVE USE TREE WELL DETAIL FOR DMA 1B, 2, 4B

NO SCALE



PLAN VIEW



SECTION B-B

TREE WELL DETAIL FOR DMA 1A, 3, 4A, 5A, 5B & 6

NO SCALE

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: Drainage Study
Prepared By: Walsh Engineering & Surveying, Inc.
Date: 01-15-24

  - 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.

Introduction
The project is a 6 lot grading plan on a vacant 3.7 acre property located on Sundale Road, El Cajon, CA 92019 (see attached Vicinity Map and reduced Sheet 2 of the Grading Plan). The project covers development of the lots, even though the purpose of the plan is for grading only. The purpose of this drainage study is to show how the areas of the pre and post development basins are kept the same, but that any increase in flow from pre to post development is mitigated.

Pre-Developed Condition
In the pre-developed condition, the site is composed of vacant natural terrain with Type B soil. The project site is surrounded by homes in a suburban setting and has an average slope of 17%, with runoff flowing south to north through the site. There are two drainage basins on the property. The C-values for Basins 1 and 2 are 0.33 and 0.25, respectively (see C-value Calculations in Appendix C). Basin 1 is approximately 3 acres and discharges at a point of comparison on Sundale Road (see Pre-Developed Drainage Map in Appendix B). Basin 2 is approximately 1.3 acres and sheet flows across the Easterly property line. Due to the sheet flow condition of Basin 2, the entire length of the Easterly boundary will be considered the point of comparison. Using CivilDesign software, the pre-developed flow rates were calculated to be 4.38 cfs for Basin 1 and 1.57 cfs for Basin 2 (see Pre-Developed Calculations in Appendix D). See the table on the next page for a summary of pre-developed values and flow rates.

Post-Developed Condition
In the post-developed condition, the C-values increase to 0.41 and 0.34 in Basins 1 and 2, respectively, to account for the increase in impervious area (see C-value Calculations in Appendix C). In Basin 1, a longer flow path starting from Lot 1 will increase the time of concentration (see Post-Developed Drainage Map in Appendix B). Using CivilDesign software, the calculated post-developed flow rate is 4.23 cfs (see Post-Developed Calculations in Appendix E). That is, the runoff has decreased by 0.15 cfs from 4.38 cfs in the Pre-Developed condition. In Basin 2, the post-developed flow rate is 1.78 cfs, having increased by 0.21 cfs from 1.57 cfs in the Pre-Developed condition. See the table on the next page for a summary of post-developed values and flow rates.

There are two mitigation measures proposed to counter Basin 2's increase in flow rate. To help mitigate concentrated runoff leaving the site, a 130' X 10' X 1' thick rock bed is proposed along the Easterly property line, which will help recreate a sheet flow condition. 3" rock was deemed suitable for energy dissipation following analysis of flows and velocities of discharge on to the rock bed. The second mitigation measure is routing the runoff through three conjunctive use tree wells before leaving the site. These tree wells are designed to meet section 6.2.7 of the Hydraulic Design Manual. The hydrographs and detention pond outputs for each tree well from the Hydraflow Hydrographs Civil 3D program can be found in Appendix F.

Orifices have been added and modeled at the tree well finished grade elevation using the start of the flood storage layer. The orifice design is in the "Culvert/Orifice Structures" section on the "Pond Report" page for each tree well in Appendix F. The Sub-Basin 2-2 tree well has one 3" orifice. The Sub-Basin 2-5 tree well has one 4" orifice. The Sub-Basin 2-7 tree well has one 3" orifice. Catch basin parameters are in the "Weir Structures" section of the "Pond Report."

Conclusion

Comparing the flow rates for the pre and post-developed conditions, there is a 0.15 cfs decrease in runoff for Basin 1 and a 0.21 cfs increase in runoff for Basin 2. Therefore, no detention will be required in Basin 1. As for Basin 2, the runoff will be detained by three proposed tree wells. The mitigated flow rate, 1.19 cfs, in the table below is calculated herein. Pond No.1, which is Sub-basin 2-2's tree well, detains 0.28 cfs. That is, the pond's Q_{100} peak is 0.213 cfs, whereas the unmitigated Q_{100} peak is 0.49 cfs (see Hydrograph Summary Report in Appendix F). The detained flow is 0.49 cfs – 0.213 cfs = 0.28 cfs. Pond No.2, which is Sub-basin 2-5's tree well, detains 0.15 cfs. Here, the pond's Q_{100} peak is 0.384 cfs, whereas the unmitigated Q_{100} peak is 0.53 cfs, resulting in detained flow of 0.53 cfs – 0.384 cfs = 0.15 cfs. Pond No.3, which is Sub-basin 2-7's tree well, detains 0.16 cfs. Here, the pond's Q_{100} peak is 0.220 cfs, whereas the unmitigated Q_{100} peak is 0.38 cfs, resulting in detained flow of 0.38 – 0.22 cfs = 0.16 cfs. Overall, the total amount detained is 0.28 cfs + 0.15 cfs + 0.16 cfs = 0.59 cfs, which exceeds the minimum 0.21 cfs to satisfy detention requirements. Therefore, Post Basin 2's mitigated flow rate is now 1.78 cfs – 0.59 cfs = 1.19 cfs.

The Hydraflow program also calculates the maximum water surface level in each pond. Each maximum water surface level stays below the 1.5' available for ponding. That is, each maximum elevation in the Hydrograph Summary Report remains below its respective catch basin's Crest Elevation noted in the Weir Structures section of the Pond Report (see Appendix F). For example, Sub-Basin's 2-2 tree well has a maximum water surface level of 646.14 feet, which is below the catch basin's crest elevation of 646.70 feet. Each pond also includes the minimum 1' of freeboard.

In conclusion, there is no detention needed for Basin 1. Basin 2's increase in flow rate from proposed development has been adequately detained. The peak flow rate from proposed development will be mitigated back to the pre-developed flow rate.

Basin	Pre-Developed Effective C	Pre-Developed Tc (min.)	Pre-Developed I (in./hr.)	Pre-Developed Area (acres)	Pre-Developed Q_{100} (cfs)
1	0.33	11.43	4.33	3.04	4.38
2	0.25	9.22	4.97	1.26	1.57

Basin	Post-Developed Effective C	Post-Developed Tc (min.)	Post-Developed I (in./hr.)	Post-Developed Area (acres)	Post-Developed Q_{100} (cfs)	Mitigated Q_{100} (cfs)
1	0.41	16.63	3.40	3.04	4.23	N/A
2	0.34	12.20	4.15	1.26	1.78	1.19

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	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**	• Sub-attachment 6.3.1	• Fact Sheet SD-B (Appendix E.8)
☒ **Tree Wells**	• Sub-attachment 6.3.2	• Fact Sheet SD-A (Appendix E.7)

- Submit this cover page and all "Required Sub-attachments" 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)*	
7	28,415	0	0	PDS2021-LDGRMJ-30366, SHEET #2
8	23,202	0	0	PDS2021-LDGRMJ-30366, SHEET #2
9	10,305	0	0	PDS2021-LDGRMJ-30366, SHEET #2

- "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 #***
10	206	PDS2021-LDGRMJ-30366, SHEET 2
11	206	PDS2021-LDGRMJ-30366, SHEET 2
12	206	PDS2021-LDGRMJ-30366, SHEET 2
13	206	PDS2021-LDGRMJ-30366, SHEET 2
14	206	PDS2021-LDGRMJ-30366, SHEET 2
15	206	PDS2021-LDGRMJ-30366, SHEET 2

- "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)**	
1A	9,861	☐	☒	PDS2021-LDGRMJ-30366, SHEET #2
1B	9,089	☐	☒	PDS2021-LDGRMJ-30366, SHEET #2
2	13,699	☐	☒	PDS2021-LDGRMJ-30366, SHEET #2
3	14,644	☐	☒	PDS2021-LDGRMJ-30366, SHEET #2
4A	14,738	☐	☒	PDS2021-LDGRMJ-30366, SHEET #2
4B	8,613	☐	☒	PDS2021-LDGRMJ-30366, SHEET #2
5A	4,292	☐	☒	PDS2021-LDGRMJ-30366, SHEET #2
5B	8,233	☐	☒	PDS2021-LDGRMJ-30366, SHEET #2
6	16,025	☐	☒	PDS2021-LDGRMJ-30366, SHEET #2
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	

- "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, and any other guidance or instruction identified by the County.

---

[2]Applicants wishing to utilize parameters less conservative than listed here must submit modeling to support their proposal. Consult your project manager for more information.
[3]Including the permeable pavement.

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.
- The following apply if the dispersion area is **permeable pavement** (SD-D in Appendix E):
  - For pollutant control only, a DMA is considered self-retaining if the ratio of total drainage area (including permeable pavement) to area of permeable pavement is 1.5:1 or less, and all other design requirements of SD-D are satisfied.
  - Hydromodification management performance standards can be satisfied using permeable pavement only if constructed to Structural BMP specifications. In this case, the permeable pavement must be sized and constructed in accordance with the requirements of INF-3.

[2]Applicants wishing to utilize parameters less conservative than listed here must submit modeling to support their proposal. Consult your project manager for more information.
[3]Including the permeable pavement.

Summary Sheet for DMAs with Impervious Area Dispersion (Complete 1 sheet per DMA)

DMA #

A. Minimum Sizing Requirements

Verify that minimum standards are satisfied for the applicable dispersion area type below[2].

Native Soil (Pollutant Control Only) Select one and provide calculations below.

☐ Soil Group A: Ratio I:P is 2:1 or less ☐ Soil Group B: Ratio I:P is 1:1 or less

Impervious Area (ft²)	*Permeable Dispersion Area (ft²)*	*Ratio I:P*

Amended Soil (Pollutant Control plus Hydromodification Management)

Must satisfy both conditions and provide calculations below.

☐ Ratio I:P is 1:1 or less, AND

☐ 11 inches or more of the top of the pervious area consists of amended soils (Fact Sheet SD-F)

Impervious Area (ft²)	*Permeable Dispersion Area (ft²)*	*Ratio I:P*

Permeable Pavement (Pollutant Control Only) Provide calculations below.

☐ Ratio DMA area to area of permeable pavement is 1.5:1 or less

DMA Area[3] (ft²)	*Permeable Pavement Area (ft²)*	*Ratio DMA:Pavement*

B. Minimum Design Criteria

Check the boxes below to confirm that each design criterion has been satisfied for the DMA.

Impervious Areas:

☐ Are graded to ensure area that the full DCV drains to the dispersion area before the runoff discharges from the DMA.

Pervious Dispersion Areas:

☐ Are less than 5% slope and sheet flow over a distance of at least 10 feet from inflow to overflow route.

☐ Have inflow velocities of 3 ft/s or less OR use energy dissipation methods (e.g., riprap, level spreader) for concentrated inflows.

☐ Are densely and robustly vegetated with drought tolerant species.

☐ Consist of soil types capable of supporting or being amended to support vegetation (e.g., with sand or compost). If applicable, media amendments have been tested to verify that they are not a source of pollutants.

☐ Are owned by the project owner and will be dedicated to exclude future uses that might reduce their effectiveness.

Copy and Paste table here for additional DMAs

[2]Applicants wishing to utilize parameters less conservative than listed here must submit modeling to support their proposal. Consult your project manager for more information.

[3]Including the permeable pavement.

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)**

- 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 B.1. An automated version of Worksheet B.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 (complete one sheet per DMA)

DMA #: 1A	**DMA Area (ft²): 9,861**		
Required Retention Volume (RRV)			
a. Design Capture Volume (DCV; ft³): 96			
b. DCV Multiplier (Fact Sheet SD-A)			
Applicable Structural Performance Standards (select one)	Tree well soil depth (inches)	Underlying soil type (A, B, C, or D)	DCV Multiplier
☒ Pollutant control only	Any	All	1.0
☐ Pollutant control plus hydromodification			
c. Required Retention Volume (ft³) [DCV * DCV Multiplier]			**96**

Tree Well Credit Volume (add records or copy this sheet as needed for additional tree wells)

Provide the information below for each tree well or group of tree wells within the DMA. A single entry can be used for any group of tree wells of the same species and soil depth.

Tree species or name	Arroyo Willow	**No. tree wells**	1
Mature Canopy Diameter (ft)	15	**Credit Volume per tree well (ft³)**	100
Tree well ID #(s)	DMA 1A	**Combined Volume (ft³)**	**100**
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft³)**	
Tree well ID #(s)		**Combined Volume (ft³)**	
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft³)**	
Tree well ID #(s)		**Combined Volume (ft³)**	
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft³)**	
Tree well ID #(s)		**Combined Volume (ft³)**	
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft³)**	
Tree well ID #(s)		**Combined Volume (ft³)**	

Total Credit Volume (ft3) Add the combined volumes above. Total credit volume must equal or exceed the RRV.	**100**

Summary Sheet for Self-retaining DMAs with Tree Wells (complete one sheet per DMA)

DMA #: 1B	**DMA Area (ft²): 9,089**		
Required Retention Volume (RRV)			
a. Design Capture Volume (DCV; ft³): 139			
b. DCV Multiplier (Fact Sheet SD-A)			
Applicable Structural Performance Standards (select one)	Tree well soil depth (inches)	Underlying soil type (A, B, C, or D)	DCV Multiplier
☒ Pollutant control only	Any	All	1.0
☐ Pollutant control plus hydromodification			
c. Required Retention Volume (ft³) [DCV * DCV Multiplier]			**180**

Tree Well Credit Volume (add records or copy this sheet as needed for additional tree wells)

Provide the information below for each tree well or group of tree wells within the DMA. A single entry can be used for any group of tree wells of the same species and soil depth.

Tree species or name	Strawberry Tree	**No. tree wells**	1
Mature Canopy Diameter (ft)	20	**Credit Volume per tree well (ft³)**	180
Tree well ID #(s)	DMA 1B	**Combined Volume (ft³)**	**180**
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft³)**	
Tree well ID #(s)		**Combined Volume (ft³)**	
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft³)**	
Tree well ID #(s)		**Combined Volume (ft³)**	
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft³)**	
Tree well ID #(s)		**Combined Volume (ft³)**	
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft³)**	
Tree well ID #(s)		**Combined Volume (ft³)**	

Total Credit Volume (ft3) Add the combined volumes above. Total credit volume must equal or exceed the RRV.	**180**

Summary Sheet for Self-retaining DMAs with Tree Wells (complete one sheet per DMA)

DMA #: 2	**DMA Area (ft²):** 13,699		
Required Retention Volume (RRV)			
a. Design Capture Volume (DCV; ft³): 180			
b. DCV Multiplier (Fact Sheet SD-A)			
Applicable Structural Performance Standards (select one)	Tree well soil depth (inches)	Underlying soil type (A, B, C, or D)	DCV Multiplier
☒ Pollutant control only	Any	All	1.0
☐ Pollutant control plus hydromodification			
c. Required Retention Volume (ft³) [DCV * DCV Multiplier]			**180**

Tree Well Credit Volume (add records or copy this sheet as needed for additional tree wells)

Provide the information below for each tree well or group of tree wells within the DMA. A single entry can be used for any group of tree wells of the same species and soil depth.

Tree species or name	Strawberry Tree	**No. tree wells**	1
Mature Canopy Diameter (ft)	20	**Credit Volume per tree well (ft³)**	180
Tree well ID #(s)	DMA 2	**Combined Volume (ft³)**	**180**
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft³)**	
Tree well ID #(s)		**Combined Volume (ft³)**	
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft³)**	
Tree well ID #(s)		**Combined Volume (ft³)**	
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft³)**	
Tree well ID #(s)		**Combined Volume (ft³)**	
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft³)**	
Tree well ID #(s)		**Combined Volume (ft³)**	

Total Credit Volume (ft3) Add the combined volumes above. Total credit volume must equal or exceed the RRV.	**180**

Summary Sheet for Self-retaining DMAs with Tree Wells (complete one sheet per DMA)

DMA #: 3	**DMA Area (ft^2): 14,644**		
Required Retention Volume (RRV)			
a. Design Capture Volume (DCV; ft^3): 180			
b. DCV Multiplier (Fact Sheet SD-A)			
Applicable Structural Performance Standards (select one)	Tree well soil depth (inches)	Underlying soil type (A, B, C, or D)	DCV Multiplier
☒ Pollutant control only	Any	All	1.0
☐ Pollutant control plus hydromodification			
c. Required Retention Volume (ft^3) [DCV * DCV Multiplier]			**180**

Tree Well Credit Volume (add records or copy this sheet as needed for additional tree wells)

Provide the information below for each tree well or group of tree wells within the DMA. A single entry can be used for any group of tree wells of the same species and soil depth.

Tree species or name	Strawberry Tree	**No. tree wells**	1
Mature Canopy Diameter (ft)	20	**Credit Volume per tree well (ft^3)**	180
Tree well ID #(s)	DMA 3	**Combined Volume (ft^3)**	**180**
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft^3)**	
Tree well ID #(s)		**Combined Volume (ft^3)**	
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft^3)**	
Tree well ID #(s)		**Combined Volume (ft^3)**	
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft^3)**	
Tree well ID #(s)		**Combined Volume (ft^3)**	
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft^3)**	
Tree well ID #(s)		**Combined Volume (ft^3)**	

Total Credit Volume (ft3) Add the combined volumes above. Total credit volume must equal or exceed the RRV.	**180**

Summary Sheet for Self-retaining DMAs with Tree Wells (complete one sheet per DMA)

DMA #: 4A	**DMA Area (ft^2): 14,738**		
Required Retention Volume (RRV)			
a. Design Capture Volume (DCV; ft^3): 169			
b. DCV Multiplier (Fact Sheet SD-A)			
Applicable Structural Performance Standards (select one)	Tree well soil depth (inches)	Underlying soil type (A, B, C, or D)	DCV Multiplier
☒ Pollutant control only	Any	All	1.0
☐ Pollutant control plus hydromodification			
c. Required Retention Volume (ft^3) [DCV * DCV Multiplier]			**169**

Tree Well Credit Volume (add records or copy this sheet as needed for additional tree wells)

Provide the information below for each tree well or group of tree wells within the DMA. A single entry can be used for any group of tree wells of the same species and soil depth.

Tree species or name	Strawberry Tree	**No. tree wells**	1
Mature Canopy Diameter (ft)	20	**Credit Volume per tree well (ft^3)**	180
Tree well ID #(s)	DMA 4A	**Combined Volume (ft^3)**	**180**
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft^3)**	
Tree well ID #(s)		**Combined Volume (ft^3)**	
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft^3)**	
Tree well ID #(s)		**Combined Volume (ft^3)**	
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft^3)**	
Tree well ID #(s)		**Combined Volume (ft^3)**	
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft^3)**	
Tree well ID #(s)		**Combined Volume (ft^3)**	

Total Credit Volume (ft3) Add the combined volumes above. Total credit volume must equal or exceed the RRV.	**180**

Summary Sheet for Self-retaining DMAs with Tree Wells (complete one sheet per DMA)

DMA #: 4B	**DMA Area (ft²): 8,613**		
Required Retention Volume (RRV)			
a. Design Capture Volume (DCV; ft³): 102			
b. DCV Multiplier (Fact Sheet SD-A)			
Applicable Structural Performance Standards (select one)	Tree well soil depth (inches)	Underlying soil type (A, B, C, or D)	DCV Multiplier
☒ Pollutant control only	Any	All	1.0
☐ Pollutant control plus hydromodification			
c. Required Retention Volume (ft³) [DCV * DCV Multiplier]			**102**

Tree Well Credit Volume (add records or copy this sheet as needed for additional tree wells)

Provide the information below for each tree well or group of tree wells within the DMA. A single entry can be used for any group of tree wells of the same species and soil depth.

Tree species or name	Strawberry Tree	**No. tree wells**	1
Mature Canopy Diameter (ft)	20	**Credit Volume per tree well (ft³)**	180
Tree well ID #(s)	DMA 4B	**Combined Volume (ft³)**	**180**
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft³)**	
Tree well ID #(s)		**Combined Volume (ft³)**	
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft³)**	
Tree well ID #(s)		**Combined Volume (ft³)**	
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft³)**	
Tree well ID #(s)		**Combined Volume (ft³)**	
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft³)**	
Tree well ID #(s)		**Combined Volume (ft³)**	

Total Credit Volume (ft3) Add the combined volumes above. Total credit volume must equal or exceed the RRV.	**180**

Summary Sheet for Self-retaining DMAs with Tree Wells (complete one sheet per DMA)

DMA #: 5A	**DMA Area (ft²): 4,292**		
Required Retention Volume (RRV)			
a. Design Capture Volume (DCV; ft³): 77			
b. DCV Multiplier (Fact Sheet SD-A)			
Applicable Structural Performance Standards (select one)	Tree well soil depth (inches)	Underlying soil type (A, B, C, or D)	DCV Multiplier
☒ Pollutant control only	Any	All	1.0
☐ Pollutant control plus hydromodification			
c. Required Retention Volume (ft³) [DCV * DCV Multiplier]			**77**

Tree Well Credit Volume (add records or copy this sheet as needed for additional tree wells)

Provide the information below for each tree well or group of tree wells within the DMA. A single entry can be used for any group of tree wells of the same species and soil depth.

Tree species or name	Arroyo Willow	**No. tree wells**	1
Mature Canopy Diameter (ft)	15	**Credit Volume per tree well (ft³)**	100
Tree well ID #(s)	DMA 5A	**Combined Volume (ft³)**	**100**
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft³)**	
Tree well ID #(s)		**Combined Volume (ft³)**	
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft³)**	
Tree well ID #(s)		**Combined Volume (ft³)**	
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft³)**	
Tree well ID #(s)		**Combined Volume (ft³)**	
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft³)**	
Tree well ID #(s)		**Combined Volume (ft³)**	

Total Credit Volume (ft3) Add the combined volumes above. Total credit volume must equal or exceed the RRV.	**100**

Summary Sheet for Self-retaining DMAs with Tree Wells (complete one sheet per DMA)

DMA #: 5B	**DMA Area (ft²): 8,233**		
Required Retention Volume (RRV)			
a. Design Capture Volume (DCV; ft³): 122			
b. DCV Multiplier (Fact Sheet SD-A)			
Applicable Structural Performance Standards (select one)	Tree well soil depth (inches)	Underlying soil type (A, B, C, or D)	DCV Multiplier
☒ Pollutant control only	Any	All	1.0
☐ Pollutant control plus hydromodification			
c. Required Retention Volume (ft³) [DCV * DCV Multiplier]			**122**

Tree Well Credit Volume (add records or copy this sheet as needed for additional tree wells)

Provide the information below for each tree well or group of tree wells within the DMA. A single entry can be used for any group of tree wells of the same species and soil depth.

Tree species or name	Strawberry Tree	**No. tree wells**	1
Mature Canopy Diameter (ft)	20	**Credit Volume per tree well (ft³)**	180
Tree well ID #(s)	DMA 5B	**Combined Volume (ft³)**	**180**
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft³)**	
Tree well ID #(s)		**Combined Volume (ft³)**	
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft³)**	
Tree well ID #(s)		**Combined Volume (ft³)**	
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft³)**	
Tree well ID #(s)		**Combined Volume (ft³)**	
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft³)**	
Tree well ID #(s)		**Combined Volume (ft³)**	

Total Credit Volume (ft3) Add the combined volumes above. Total credit volume must equal or exceed the RRV.	**180**

Summary Sheet for Self-retaining DMAs with Tree Wells (complete one sheet per DMA)

DMA #: 6	**DMA Area (ft^2): 16,025**		
Required Retention Volume (RRV)			
a. Design Capture Volume (DCV; ft^3): 177			
b. DCV Multiplier (Fact Sheet SD-A)			
Applicable Structural Performance Standards (select one)	Tree well soil depth (inches)	Underlying soil type (A, B, C, or D)	DCV Multiplier
☒ Pollutant control only	Any	All	1.0
☐ Pollutant control plus hydromodification			
c. Required Retention Volume (ft^3) [DCV * DCV Multiplier]			**177**

Tree Well Credit Volume (add records or copy this sheet as needed for additional tree wells)

Provide the information below for each tree well or group of tree wells within the DMA. A single entry can be used for any group of tree wells of the same species and soil depth.

Tree species or name	Strawberry Tree	**No. tree wells**	1
Mature Canopy Diameter (ft)	20	**Credit Volume per tree well (ft^3)**	180
Tree well ID #(s)	DMA 6	**Combined Volume (ft^3)**	**180**
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft^3)**	
Tree well ID #(s)		**Combined Volume (ft^3)**	
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft^3)**	
Tree well ID #(s)		**Combined Volume (ft^3)**	
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft^3)**	
Tree well ID #(s)		**Combined Volume (ft^3)**	
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft^3)**	
Tree well ID #(s)		**Combined Volume (ft^3)**	

Total Credit Volume (ft3) Add the combined volumes above. Total credit volume must equal or exceed the RRV.	**180**

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

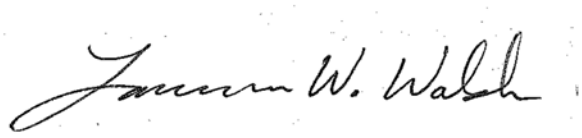
Project Name Sundale
Permit Application Number PDS2021-LDGRMJ-30366

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).



No. C 46316 EXP 12-31-24

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

Lawrence W. Walsh

Print Name

Walsh Engineering & Surveying, Inc..

Company

Engineer's Seal:

5-2-24

Date

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.

For this project, we are using tree wells as structural BMPs for pollutant control and hydromodification satisfaction. The DCVs were calculated using the SSD-BMP Automated Worksheet I-1. BMP characteristics, namely tree well canopy size, were designed using SSD-BMP Automated Worksheet I-3. The dimensions of each tree well, along with soil depth, were sized in Worksheet I-3 and confirmed in SDHM software.

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: Harvest and Use	Infiltration	Unlined Biofiltration	Lined Biofiltration	Flow-thru treatment	Hydromodification Management [1]	Other	Permit # and Sheet #
1A	1A	9,861	☐	☐	☐	☐	☐	☐	☒	PDS2021-LDGRMJ-30366 Sheets 2 & 5
1B	1B	9,089	☐	☐	☐	☐	☐	☐	☒	PDS2021-LDGRMJ-30366 Sheets 2 & 5
2	2	13,699	☐	☐	☐	☐	☐	☐	☒	PDS2021-LDGRMJ-30366 Sheets 2 & 5
3	3	14,644	☐	☐	☐	☐	☐	☐	☒	PDS2021-LDGRMJ-30366 Sheets 2 & 5
4A	4A	14,738	☐	☐	☐	☐	☐	☐	☒	PDS2021-LDGRMJ-30366 Sheets 2 & 5
4B	4B	8,613	☐	☐	☐	☐	☐	☐	☒	PDS2021-LDGRMJ-30366 Sheets 2 & 5
5A	5A	4,292	☐	☐	☐	☐	☐	☐	☒	PDS2021-LDGRMJ-30366 Sheets 2 & 5
5B	5B	8,233	☐	☐	☐	☐	☐	☐	☒	PDS2021-LDGRMJ-30366 Sheets 2 & 5
6	6	16,025	☐	☐	☐	☐	☐	☐	☒	PDS2021-LDGRMJ-30366 Sheets 2 & 5
			☐	☐	☐	☐	☐	☐	☐	
			☐	☐	☐	☐	☐	☐	☐	
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			☐	☐	☐	☐	☐	☐	☐	

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

			☐	☐	☐	☐	☐	☐	☐	
			☐	☐	☐	☐	☐	☐	☐	
			☐	☐	☐	☐	☐	☐	☐	

Copy and Paste table here for additional BMPs

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

Structural BMP ID #	DMA 1A	**Permit # and Sheet #**	PDS2021-LDGRMJ-30366 2 & 5

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	Lawrence W. Walsh larry@walsh-engineering.com (619)-588-6747

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

	Cat. 1	Cat. 2	Cat. 3	Cat. 4
BMP Maintenance Category	☐	☒	☐	☐
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)

BMP type is a tree well that incorporates underdrains and retaining walls around the BMP perimeter.

[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.

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

Structural BMP ID #	DMA 1B	**Permit # and Sheet #**	PDS2021-LDGRMJ-30366 2 & 5

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	Lawrence W. Walsh larry@walsh-engineering.com (619)-588-6747

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)

BMP type is a tree well that incorporates underdrains and retaining walls around the BMP perimeter.

[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.

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

Structural BMP ID #	DMA 2	**Permit # and Sheet #**	PDS2021-LDGRMJ-30366 2 & 5

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	Lawrence W. Walsh larry@walsh-engineering.com (619)-588-6747

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)

BMP type is a tree well that incorporates underdrains and retaining walls around the BMP perimeter.

[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.

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

Structural BMP ID #	DMA 3	**Permit # and Sheet #**	PDS2021-LDGRMJ-30366 2 & 5

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	Lawrence W. Walsh larry@walsh-engineering.com (619)-588-6747

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)

BMP type is a tree well that incorporates underdrains and retaining walls around the BMP perimeter.

[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.

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

Structural BMP ID #	DMA 4A	**Permit # and Sheet #**	PDS2021-LDGRMJ-30366 2 & 5

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	Lawrence W. Walsh larry@walsh-engineering.com (619)-588-6747

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)

BMP type is a tree well that incorporates underdrains and retaining walls around the BMP perimeter.

[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.

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

Structural BMP ID #	DMA 4B	**Permit # and Sheet #**	PDS2021-LDGRMJ-30366 2 & 5

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	Lawrence W. Walsh larry@walsh-engineering.com (619)-588-6747

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)

BMP type is a tree well that incorporates underdrains and retaining walls around the BMP perimeter.

[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.

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

Structural BMP ID #	DMA 5A	**Permit # and Sheet #**	PDS2021-LDGRMJ-30366 2 & 5

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	Lawrence W. Walsh larry@walsh-engineering.com (619)-588-6747

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)

BMP type is a tree well that incorporates underdrains and retaining walls around the BMP perimeter.

[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.

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

Structural BMP ID #	DMA 5B	**Permit # and Sheet #**	PDS2021-LDGRMJ-30366 2 & 5

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	Lawrence W. Walsh larry@walsh-engineering.com (619)-588-6747

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)

BMP type is a tree well that incorporates underdrains and retaining walls around the BMP perimeter.

[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.

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

Structural BMP ID #	DMA 6	**Permit # and Sheet #**	PDS2021-LDGRMJ-30366 2 & 5

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	Lawrence W. Walsh larry@walsh-engineering.com (619)-588-6747

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)

BMP type is a tree well that incorporates underdrains and retaining walls around the BMP perimeter.

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

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 1A	DMA 1B	DMA 2	DMA 3	DMA 4A	DMA 4B	DMA 5A	DMA 5B	DMA 6		unitless
	2	85th Percentile 24-hr Storm Depth	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51		inches
	3	Is Hydromodification Control Applicable?	No	No	No	No	No	No	No	No	No		yes/no
	4	Impervious Surfaces Not Directed to Dispersion Area (C=0.90)	1,200	2,592	3,260	2,990	2,545	1,598	1,554	2,278	2,540		sq-ft
	5	Semi-Pervious Surfaces Not Serving as Dispersion Area (C=0.30)	0	0	0	0	0	0	0	0	0		sq-ft
	6	Engineered Pervious Surfaces Not Serving as Dispersion Area (C=0.10)	1,424	0	3,049	874	1,626	344	0	0	0		sq-ft
	7	Natural Type A Soil Not Serving as Dispersion Area (C=0.10)	0	0	0	0	0	0	0	0	0		sq-ft
	8	Natural Type B Soil Not Serving as Dispersion Area (C=0.14)	7,237	6,497	7,390	10,780	10,567	6,671	2,738	5,955	13,485		sq-ft
	9	Natural Type C Soil Not Serving as Dispersion Area (C=0.23)	0	0	0	0	0	0	0	0	0		sq-ft
	10	Natural Type D Soil Not Serving as Dispersion Area (C=0.30)	0	0	0	0	0	0	0	0	0		sq-ft
SSD-BMPs Proposed	11	Does Tributary Incorporate Dispersion and/or Rain Barrels?	No	No	No	No	No	No	No	No	No		yes/no
	12	Does Tributary Incorporate Tree Wells?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		yes/no
Dispersion Area & Rain Barrel Inputs (Optional)	13	Impervious Surfaces **Directed to Dispersion Area** per SD-B (Ci=0.90)											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)											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	9,861	9,089	13,699	14,644	14,738	8,613	4,292	8,233	16,025	0	sq-ft
	23	Initial Runoff Factor for Standard Drainage Areas	0.23	0.36	0.31	0.29	0.27	0.28	0.42	0.35	0.26	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	0.23	0.36	0.31	0.29	0.27	0.28	0.42	0.35	0.26	0.00	unitless
	26	Initial Design Capture Volume	96	139	180	180	169	102	77	122	177	0	cubic-feet
Dispersion Area Adjustment & Rain Barrel Adjustment	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 for DCV Reduction	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	0.23	0.36	0.31	0.29	0.27	0.28	0.42	0.35	0.26	n/a	unitless
	32	Design Capture Volume After Dispersion Techniques	96	139	180	180	169	102	77	122	177	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	0.23	0.36	0.31	0.29	0.27	0.28	0.42	0.35	0.26	0.00	unitless
	35	Final Effective Tributary Area	2,268	3,272	4,247	4,247	3,979	2,412	1,803	2,882	4,167	0	sq-ft
	36	Initial Design Capture Volume Retained by Dispersion Area and Rain Barrel(s)	0	0	0	0	0	0	0	0	0	0	cubic-feet
	37	Remaining Design Capture Volume Tributary to Tree Well(s)	96	139	180	180	169	102	77	122	177	0	cubic-feet

No Warning Messages

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 1A	DMA 1B	DMA 2	DMA 3	DMA 4A	DMA 4B	DMA 5A	DMA 5B	DMA 6	-	unitless
	2	Design Capture Volume Tributary to BMP	96	139	180	180	169	102	77	122	177	-	cubic-feet
	3	Is Hydromodification Control Applicable?	No	No	No	No	No	No	No	No	No	-	yes/no
	4	Predominant NRCS Soil Type Within Tree Well(s) Location	B	B	B	B	B	B	B	B	B		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	15' - Arroyo Willow	20' - Strawberry Tree	20' - Strawberry Tree	20' - Strawberry Tree	20' - Strawberry Tree	20' - Strawberry Tree	15' - Arroyo Willow	20' - Strawberry Tree	20' - Strawberry Tree		unitless
	6	Tree Well(s) Soil Depth (Installation Depth) Must be 30, 36, 42, or 48 Inches; Select from Standard Depths**	66	72	72	48	72	72	72	72	72		inches
	7	Number of Identical* Tree Wells Proposed for this DMA	1	1	1	1	1	1	1	1	1		trees
	8	Proposed Width of Tree Well(s) Soil Installation for One (1) Tree	10.0	18.0	12.5	10.0	10.5	10.5	6.0	10.0	10.0		feet
	9	Proposed Length of Tree Well(s) Soil Installation for One (1) Tree	7.0	12.0	10.0	17.0	10.0	10.0	10.0	10.5	11.0		feet
Tree Data	10	Botanical Name of Tree Species	Salix Lasiolepsis	Arbutus Unedo	Arbutus Unedo	Arbutus Unedo	Arbutus Unedo	Arbutus Unedo	Salix Lasiolepsis	Arbutus Unedo	Arbutus Unedo	-	unitless
	11	Tree Species Mature Height per SD-A	25	30	30	30	30	30	25	30	30	-	feet
	12	Tree Species Mature Canopy Diameter per SD-A	15	20	20	20	20	20	15	20	20	-	feet
	13	Minimum Soil Volume Required In Tree Well (2 Cubic Feet Per Square Foot of Mature Tree Canopy Projection Area)	353	628	628	628	628	628	353	628	628	-	cubic-feet
	14	Credit Volume Per Tree	100	180	180	180	180	180	100	180	180	-	cubic-feet
Tree Well Sizing Calculations	15	DCV Multiplier To Meet Flow Control Requirements	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-	unitless
	16	Required Retention Volume (RRV) To Meet Flow Control Requirements	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-	cubic-feet
	17	Number of Trees Required	1	1	1	1	1	1	1	1	1	-	trees
	18	Total Area of Tree Well Soil Required for Each Tree	64	105	105	157	105	105	59	105	105	-	sq-ft
	19	Approximate Required Width of Tree Well Soil Area for Each Tree	9	11	11	13	11	11	8	11	11	-	feet
	20	Approximate Required Length of Tree Well Soil Area for Each Tree	9	11	11	13	11	11	8	11	11	-	feet
	21	Number of Trees Proposed for this DMA	1	1	1	1	1	1	1	1	1	-	trees
	22	Total Area of Tree Well Soil Proposed for Each Tree	70	216	125	170	105	105	60	105	110	-	sq-ft
	23	Minimum Spacing Between Multiple Trees To Meet Soil Area Requirements (when applicable)***	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-	feet
Results	24	Are Tree Well Soil Installation Requirements Met?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	yes/no
	25	Is Remaining DCV Requirement Fully Satisfied by Tree Well(s)?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	yes/no
	26	Is Hydromodification Control Requirement Satisfied by Tree Well(s)?	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-	yes/no

No Warning Messages

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.

7.5 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).

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

8.0 General Requirements

- Completion of this attachment is required for all PDPs subject to hydromodification management requirements (see PDP SWQMP Form Table 5). Do not submit this attachment if exempt from Hydromodification Management requirements. Document the PDP exemption in Attachment 9.
- Submit this cover page and all required Sub-attachments for all structural hydromodification management BMPs proposed for the project.
- Constructed features must fully satisfy the requirements described in applicable BMPDM sections and appendices, 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.
- Structural BMP Certification. All structural hydromodification management BMPs documented this attachment must be certified by a registered engineer in Attachment 7, Sub-attachment 7.1.
- Structural BMP Verification. 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)
☒ **8.1: Flow Control Facility Design** (required)[1] Submit using ☒ the Sub-attachment 8.1 cover sheet provided, or ☐ as a separate stand-alone document labeled Sub-attachment 8.1.
☒ **8.2: Hydromodification Management Points of Compliance** (required) Complete the table provided in Sub-attachment 8.2.
8.3: Geomorphic Assessment of Receiving Channels 1. Has a geomorphic assessment been performed for the receiving channel(s)? ☒ No, the low flow threshold is 0.1Q2 (default low flow threshold)
☐ Yes (provide the information below): Low flow threshold: ☐ 0.1Q2 ☐ 0.3Q2 ☐ 0.5Q2
Title: Date: Preparer:
Submit using ☐ the Sub-attachment 8.3 cover sheet provided, or ☐ as a separate stand-alone document labeled Sub-attachment 8.3.
8.4: Vector Control Plan (required if BMPs will not drain in less than 96 hours) ☐ Included with this attachment ☒ Not required

[1] Including Structural BMP Drawdown Calculations and Overflow Design Summary. See BMPDM Chapter 6 and Appendix G for additional design guidance.

8.1 Flow Control Facility Design

Insert Flow Control Facility Design behind this cover page or submit as a separate stand-alone document labeled Sub-attachment 8.1.

8.2 Hydromodification Management Points of Compliance

- List and describe all points of compliance (POCs) for flow control for hydromodification management.
- For each POC, provide a POC identification name or number, and a receiving channel identification name or number correlating to the project's HMP Exhibit (see Attachment 2).

POC name or #	Channel name or #	POC Description
POC	1	Located at the northeast corner of the project at Sundale Road.
POC	2	Located along the entire easterly property line due to a sheet flow condition across the property line.

8.3 Geomorphic Assessment of Receiving Water Channels

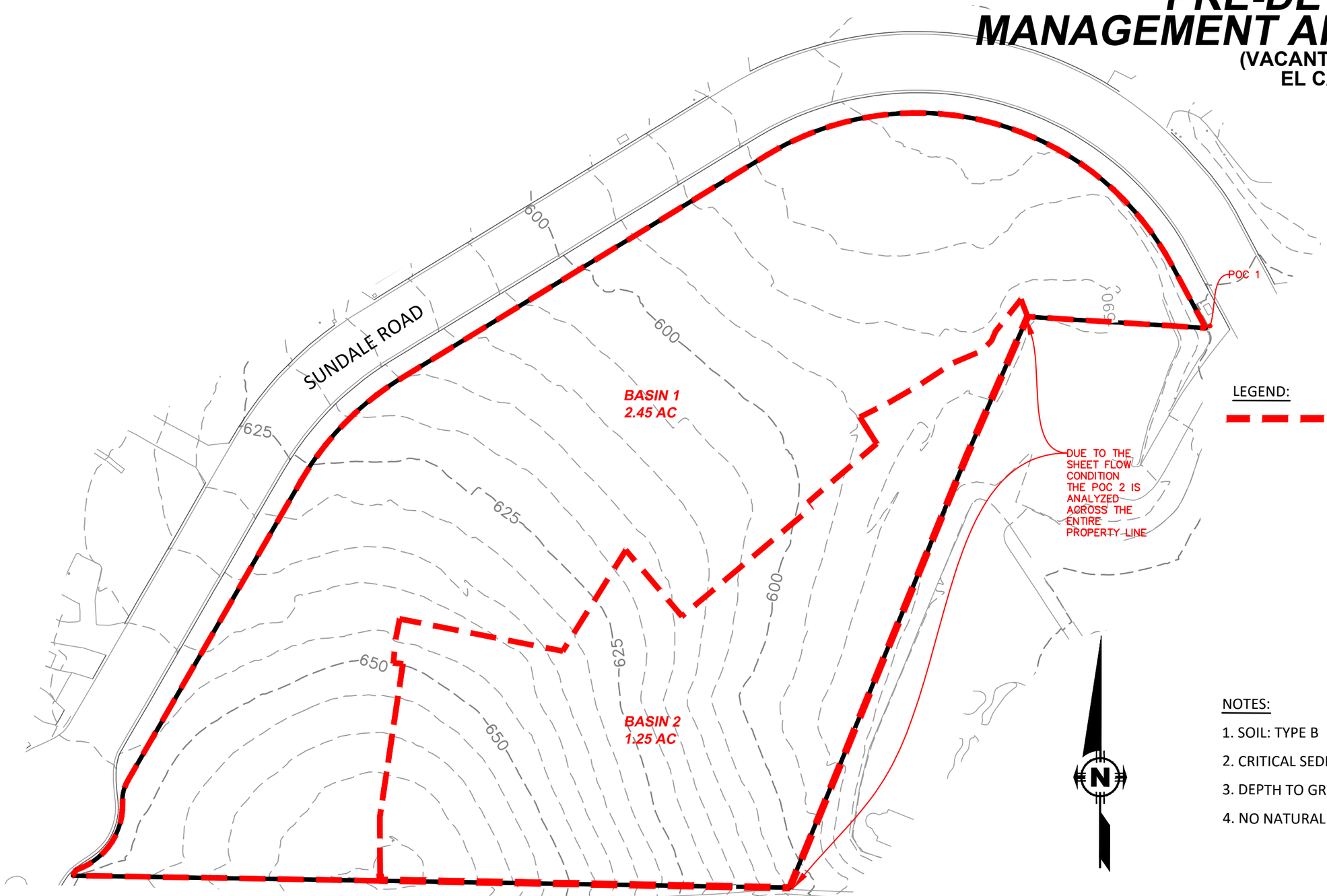
Insert Geomorphic Assessment behind this cover page or submit as a separate stand-alone document labeled Sub-attachment 8.3.

8.4 Vector Control Plan

Insert Vector Control Plan behind this cover page or submit as a separate stand-alone document labeled Sub-attachment 8.4.

PRE-DEV DRAINAGE MANAGEMENT AREA EXHIBIT

(VACANT) SUNDALE ROAD
EL CAJON, CA 92019



LEGEND:

BASIN BOUNDARY

NOTES:

1. SOIL: TYPE B
2. CRITICAL SEDIMENT YIELD COARSE AREAS: NONE
3. DEPTH TO GROUNDWATER: UNKNOWN
4. NO NATURAL HYDROLOGIC FEATURES EXIST ON-SITE

60' 30' 0 60' 120' 180'

SCALE: 1"= 60'

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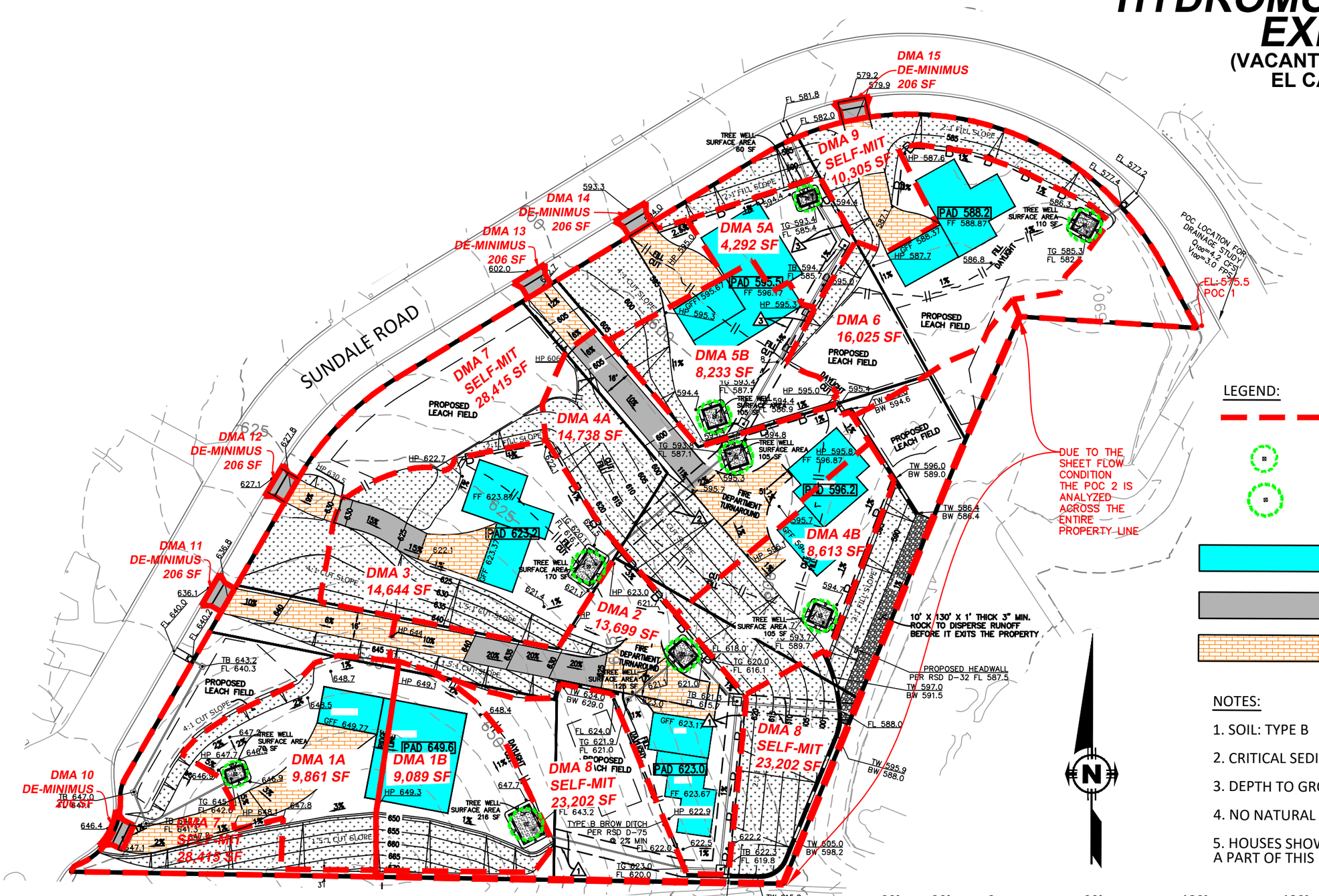
HYDROMODIFICATION EXHIBIT

(VACANT) SUNDALE ROAD
EL CAJON, CA 92019



LEGEND:

- DMA BOUNDARY
- 15' DIAMETER TREE WELL
- 20' DIAMETER TREE WELL
- PROPOSED FUTURE HOUSE
- PROPOSED PCC PAVEMENT
- PROPOSED PERMEABLE PAVERS

NOTES:

1. SOIL: TYPE B
2. CRITICAL SEDIMENT YIELD COARSE AREAS: NONE
3. DEPTH TO GROUNDWATER: UNKNOWN
4. NO NATURAL HYDROLOGIC FEATURES EXIST ON-SITE
5. HOUSES SHOWN ARE JUST FOR REFERENCE AND NOT A PART OF THIS PERMIT

60' 30' 0 60' 120' 180'

SCALE: 1"= 60'

IMPERVIOUS SURFACES (SF)	LOT 1	LOT 2	LOT 3	LOT 4	LOT 5	LOT 6
FUTURE HOUSE (SF)	3,792	1,942	2,104	2,380	3,832	2,540
ALLOWABLE FUTURE PCC (SF)	206	1,318	886	1,763	0	0
TOTAL IMPERVIOUS (SF)	3,998	3,260	2,990	4,143	3,832	2,540

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SDHM 3.1

PROJECT REPORT

General Model Information

TRUST Project Name: SDHM Sundale 12-28-23
Site Name: Sundale
Site Address: (Vacant) Sundale Road
City: El Cajon
Report Date: 1/3/2024
Gage: FLINN SP
Data Start: 10/01/1963
Data End: 09/30/2004
Timestep: Hourly
Precip Scale: 1.000
Version Date: 2022/06/20

POC Thresholds

Low Flow Threshold for POC1:	10 Percent of the 2 Year
High Flow Threshold for POC1:	10 Year
Low Flow Threshold for POC2:	10 Percent of the 2 Year
High Flow Threshold for POC2:	10 Year

Landuse Basin Data

Predeveloped Land Use

Basin 1

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
B,NatVeg,Flat	0.09
B,NatVeg,Moderate	0.48
B,NatVeg,Steep	1.88
Pervious Total	2.45

Impervious Land Use	acre
Impervious Total	0
Basin Total	2.45

Element Flows To:

Surface	Interflow	Groundwater

Basin 2

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
B,NatVeg,Moderate	0.23
B,NatVeg,Steep	1.02
Pervious Total	1.25

Impervious Land Use	acre
Impervious Total	0
Basin Total	1.25

Element Flows To:

Surface	Interflow	Groundwater

Mitigated Land Use

DMA 1A

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
B,NatVeg,Flat	0.1
B,NatVeg,Steep	0.1
Pervious Total	0.2

Impervious Land Use	acre
IMPERVIOUS-FLAT	0.02
Impervious Total	0.02
Basin Total	0.22

Element Flows To:

Surface	Interflow	Groundwater
Surface Biofilter 1	Surface Biofilter 1	

DMA 1B

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
B,NatVeg,Flat	0.11
B,NatVeg,Steep	0.04
Pervious Total	0.15

Impervious Land Use	acre
IMPERVIOUS-FLAT	0.06
Impervious Total	0.06
Basin Total	0.21

Element Flows To:

Surface	Interflow	Groundwater
Surface Biofilter 2	Surface Biofilter 2	

DMA 2

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
B,NatVeg,Flat	0.14
B,NatVeg,Moderate	0.07
B,NatVeg,Steep	0.03
Pervious Total	0.24

Impervious Land Use	acre
IMPERVIOUS-FLAT	0.04
IMPERVIOUS-STEEP	0.03
Impervious Total	0.07
Basin Total	0.31

Element Flows To:

Surface	Interflow	Groundwater
Surface Biofilter 3	Surface Biofilter 3	

DMA 3

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
B,NatVeg,Steep	0.12
B,NatVeg,Moderate	0.02
B,NatVeg,Flat	0.13
Pervious Total	0.27

Impervious Land Use	acre
IMPERVIOUS-FLAT	0.05
IMPERVIOUS-MOD	0.02
Impervious Total	0.07
Basin Total	0.34

Element Flows To:

Surface	Interflow	Groundwater
Surface Biofilter 4	Surface Biofilter 4	

DMA 4A

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
B,NatVeg,Flat	0.08
B,NatVeg,Moderate	0.04
B,NatVeg,Steep	0.16
Pervious Total	0.28

Impervious Land Use	acre
IMPERVIOUS-FLAT	0.02
IMPERVIOUS-MOD	0.04
Impervious Total	0.06
Basin Total	0.34

Element Flows To:

Surface	Interflow	Groundwater
Surface Biofilter 5	Surface Biofilter 5	

DMA 4B

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
B,NatVeg,Flat	0.08
B,NatVeg,Moderate	0.01
B,NatVeg,Steep	0.08
Pervious Total	0.17

Impervious Land Use	acre
IMPERVIOUS-FLAT	0.03
Impervious Total	0.03
Basin Total	0.2

Element Flows To:

Surface	Interflow	Groundwater
Surface Biofilter 6	Surface Biofilter 6	

DMA 5A

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
B,NatVeg,Flat	0.06
Pervious Total	0.06

Impervious Land Use	acre
IMPERVIOUS-FLAT	0.04
Impervious Total	0.04
Basin Total	0.1

Element Flows To:

Surface	Interflow	Groundwater
Surface Biofilter 7	Surface Biofilter 7	

DMA 5B

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
B,NatVeg,Steep	0.03
B,NatVeg,Flat	0.1
Pervious Total	0.13

Impervious Land Use	acre
IMPERVIOUS-FLAT	0.06
Impervious Total	0.06
Basin Total	0.19

Element Flows To:

Surface	Interflow	Groundwater
Surface Biofilter 8	Surface Biofilter 8	

DMA 6

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
B,NatVeg,Steep	0.01
B,NatVeg,Flat	0.14
B,NatVeg,Moderate	0.16
Pervious Total	0.31

Impervious Land Use	acre
IMPERVIOUS-FLAT	0.06
Impervious Total	0.06
Basin Total	0.37

Element Flows To:

Surface	Interflow	Groundwater
Surface Biofilter 9	Surface Biofilter 9	

DMA 8

Bypass:	Yes
GroundWater:	No

Pervious Land Use	acre
B,NatVeg,Moderate	0.1
B,NatVeg,Steep	0.43
Pervious Total	0.53

Impervious Land Use	acre
Impervious Total	0
Basin Total	0.53

Element Flows To:

Surface	Interflow	Groundwater

DMA 9

Bypass:	Yes
GroundWater:	No

Pervious Land Use	acre
B,NatVeg,Flat	0.01
B,NatVeg,Moderate	0.03
B,NatVeg,Steep	0.2
Pervious Total	0.24

Impervious Land Use	acre
Impervious Total	0
Basin Total	0.24

Element Flows To:

Surface	Interflow	Groundwater

DMA 7

Bypass:	Yes
GroundWater:	No

Pervious Land Use	acre
B,NatVeg,Steep	0.56
B,NatVeg,Moderate	0.09
Pervious Total	0.65

Impervious Land Use	acre
Impervious Total	0
Basin Total	0.65

Element Flows To:

Surface	Interflow	Groundwater

Mitigated Routing

Biofilter 1

Bottom Length:	7.00 ft.
Bottom Width:	10.00 ft.
Material thickness of first layer:	5.5
Material type for first layer:	ESM
Material thickness of second layer:	0
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Infiltration On	
Infiltration rate:	0.2
Infiltration safety factor:	1
Wetted surface area On	
Total Volume Infiltrated (ac-ft.):	0.774
Total Volume Through Riser (ac-ft.):	0.662
Total Volume Through Facility (ac-ft.):	1.436
Percent Infiltrated:	53.9
Total Precip Applied to Facility:	0.056
Total Evap From Facility:	0.062
Underdrain not used	
Discharge Structure	
Riser Height:	0.5 ft.
Riser Diameter:	18 in.
Element Flows To:	
Outlet 1	Outlet 2

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0016	0.0000	0.0000	0.0000
0.0769	0.0016	0.0000	0.0000	0.0000
0.1538	0.0016	0.0001	0.0000	0.0000
0.2308	0.0016	0.0001	0.0000	0.0000
0.3077	0.0016	0.0001	0.0000	0.0000
0.3846	0.0016	0.0002	0.0000	0.0000
0.4615	0.0016	0.0002	0.0000	0.0000
0.5385	0.0016	0.0003	0.0000	0.0000
0.6154	0.0016	0.0003	0.0000	0.0000
0.6923	0.0016	0.0003	0.0000	0.0000
0.7692	0.0016	0.0004	0.0000	0.0001
0.8462	0.0016	0.0004	0.0000	0.0001
0.9231	0.0016	0.0004	0.0000	0.0001
1.0000	0.0016	0.0005	0.0000	0.0001
1.0769	0.0016	0.0005	0.0000	0.0001
1.1538	0.0016	0.0006	0.0000	0.0002
1.2308	0.0016	0.0006	0.0000	0.0002
1.3077	0.0016	0.0006	0.0000	0.0002
1.3846	0.0016	0.0007	0.0000	0.0003
1.4615	0.0016	0.0007	0.0000	0.0003
1.5385	0.0016	0.0007	0.0000	0.0003
1.6154	0.0016	0.0008	0.0000	0.0003
1.6923	0.0016	0.0008	0.0000	0.0003
1.7692	0.0016	0.0009	0.0000	0.0003
1.8462	0.0016	0.0009	0.0000	0.0003

1.9231	0.0016	0.0009	0.0000	0.0003
2.0000	0.0016	0.0010	0.0000	0.0003
2.0769	0.0016	0.0010	0.0000	0.0003
2.1538	0.0016	0.0010	0.0000	0.0003
2.2308	0.0016	0.0011	0.0000	0.0003
2.3077	0.0016	0.0011	0.0000	0.0003
2.3846	0.0016	0.0011	0.0000	0.0003
2.4615	0.0016	0.0012	0.0000	0.0003
2.5385	0.0016	0.0012	0.0000	0.0003
2.6154	0.0016	0.0013	0.0000	0.0003
2.6923	0.0016	0.0013	0.0000	0.0003
2.7692	0.0016	0.0013	0.0000	0.0003
2.8462	0.0016	0.0014	0.0000	0.0003
2.9231	0.0016	0.0014	0.0000	0.0003
3.0000	0.0016	0.0014	0.0000	0.0003
3.0769	0.0016	0.0015	0.0000	0.0003
3.1538	0.0016	0.0015	0.0000	0.0003
3.2308	0.0016	0.0016	0.0000	0.0003
3.3077	0.0016	0.0016	0.0000	0.0003
3.3846	0.0016	0.0016	0.0000	0.0003
3.4615	0.0016	0.0017	0.0000	0.0003
3.5385	0.0016	0.0017	0.0000	0.0003
3.6154	0.0016	0.0017	0.0000	0.0003
3.6923	0.0016	0.0018	0.0000	0.0003
3.7692	0.0016	0.0018	0.0000	0.0003
3.8462	0.0016	0.0019	0.0000	0.0003
3.9231	0.0016	0.0019	0.0000	0.0003
4.0000	0.0016	0.0019	0.0000	0.0003
4.0769	0.0016	0.0020	0.0000	0.0003
4.1538	0.0016	0.0020	0.0000	0.0003
4.2308	0.0016	0.0020	0.0000	0.0003
4.3077	0.0016	0.0021	0.0000	0.0003
4.3846	0.0016	0.0021	0.0000	0.0003
4.4615	0.0016	0.0022	0.0000	0.0003
4.5385	0.0016	0.0022	0.0000	0.0003
4.6154	0.0016	0.0022	0.0000	0.0003
4.6923	0.0016	0.0023	0.0000	0.0003
4.7692	0.0016	0.0023	0.0000	0.0003
4.8462	0.0016	0.0023	0.0000	0.0003
4.9231	0.0016	0.0024	0.0000	0.0003
5.0000	0.0016	0.0024	0.0000	0.0003
5.0769	0.0016	0.0024	0.0000	0.0003
5.1538	0.0016	0.0025	0.0000	0.0003
5.2308	0.0016	0.0025	0.0000	0.0003
5.3077	0.0016	0.0026	0.0000	0.0003
5.3846	0.0016	0.0026	0.0000	0.0003
5.4615	0.0016	0.0026	0.0000	0.0003
5.5000	0.0016	0.0027	0.0000	0.0003

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
5.5000	0.001607	0.002652	0.0000	0.0081	0.0000
5.5769	0.001607	0.002775	0.0000	0.0081	0.0000
5.6538	0.001607	0.002899	0.0000	0.0083	0.0000
5.7308	0.001607	0.003022	0.0000	0.0084	0.0000
5.8077	0.001607	0.003146	0.0000	0.0086	0.0000
5.8846	0.001607	0.003270	0.0000	0.0087	0.0000
5.9615	0.001607	0.003393	0.0000	0.0088	0.0000

6.0385	0.001607	0.003517	0.1200	0.0088	0.0000
6.1154	0.001607	0.003640	0.6219	0.0088	0.0000
6.1923	0.001607	0.003764	1.3261	0.0088	0.0000
6.2692	0.001607	0.003888	2.1526	0.0088	0.0000
6.3462	0.001607	0.004011	3.0289	0.0088	0.0000
6.4231	0.001607	0.004135	3.8809	0.0088	0.0000
6.5000	0.001607	0.004258	4.6391	0.0088	0.0000
6.5769	0.001607	0.004382	5.2506	0.0088	0.0000
6.6538	0.001607	0.004506	5.6953	0.0088	0.0000
6.7308	0.001607	0.004629	6.0050	0.0088	0.0000
6.8077	0.001607	0.004753	6.3689	0.0088	0.0000
6.8846	0.001607	0.004877	6.6653	0.0088	0.0000
6.9615	0.001607	0.005000	6.9490	0.0088	0.0000
7.0000	0.001607	0.005062	7.2217	0.0088	0.0000

Surface Biofilter 1

Element Flows To:

Outlet 1	Outlet 2
	Biofilter 1

Biofilter 2

Bottom Length:	12.00 ft.
Bottom Width:	18.00 ft.
Material thickness of first layer:	6
Material type for first layer:	ESM
Material thickness of second layer:	0
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Infiltration On	
Infiltration rate:	0.2
Infiltration safety factor:	1
Wetted surface area On	
Total Volume Infiltrated (ac-ft.):	2.096
Total Volume Through Riser (ac-ft.):	0.467
Total Volume Through Facility (ac-ft.):	2.563
Percent Infiltrated:	81.78
Total Precip Applied to Facility:	0.172
Total Evap From Facility:	0.19
Underdrain not used	
Discharge Structure	
Riser Height:	2 ft.
Riser Diameter:	18 in.
Orifice 1 Diameter:	3.000 in. Elevation:0.5 ft.
Element Flows To:	
Outlet 1	Outlet 2

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0050	0.0000	0.0000	0.0000
0.0989	0.0050	0.0001	0.0000	0.0000
0.1978	0.0050	0.0003	0.0000	0.0000
0.2967	0.0050	0.0004	0.0000	0.0000
0.3956	0.0050	0.0006	0.0000	0.0000
0.4945	0.0050	0.0007	0.0000	0.0001
0.5934	0.0050	0.0009	0.0000	0.0001
0.6923	0.0050	0.0010	0.0000	0.0001
0.7912	0.0050	0.0012	0.0000	0.0002
0.8901	0.0050	0.0013	0.0000	0.0002
0.9890	0.0050	0.0015	0.0000	0.0003
1.0879	0.0050	0.0016	0.0000	0.0004
1.1868	0.0050	0.0018	0.0000	0.0004
1.2857	0.0050	0.0019	0.0000	0.0005
1.3846	0.0050	0.0021	0.0000	0.0006
1.4835	0.0050	0.0022	0.0000	0.0008
1.5824	0.0050	0.0024	0.0000	0.0009
1.6813	0.0050	0.0025	0.0000	0.0010
1.7802	0.0050	0.0026	0.0000	0.0010
1.8791	0.0050	0.0028	0.0000	0.0010
1.9780	0.0050	0.0029	0.0000	0.0010
2.0769	0.0050	0.0031	0.0000	0.0010
2.1758	0.0050	0.0032	0.0000	0.0010
2.2747	0.0050	0.0034	0.0000	0.0010
2.3736	0.0050	0.0035	0.0000	0.0010
2.4725	0.0050	0.0037	0.0000	0.0010

2.5714	0.0050	0.0038	0.0000	0.0010
2.6703	0.0050	0.0040	0.0000	0.0010
2.7692	0.0050	0.0041	0.0000	0.0010
2.8681	0.0050	0.0043	0.0000	0.0010
2.9670	0.0050	0.0044	0.0000	0.0010
3.0659	0.0050	0.0046	0.0000	0.0010
3.1648	0.0050	0.0047	0.0000	0.0010
3.2637	0.0050	0.0049	0.0000	0.0010
3.3626	0.0050	0.0050	0.0000	0.0010
3.4615	0.0050	0.0051	0.0000	0.0010
3.5604	0.0050	0.0053	0.0000	0.0010
3.6593	0.0050	0.0054	0.0000	0.0010
3.7582	0.0050	0.0056	0.0000	0.0010
3.8571	0.0050	0.0057	0.0000	0.0010
3.9560	0.0050	0.0059	0.0000	0.0010
4.0549	0.0050	0.0060	0.0000	0.0010
4.1538	0.0050	0.0062	0.0000	0.0010
4.2527	0.0050	0.0063	0.0000	0.0010
4.3516	0.0050	0.0065	0.0000	0.0010
4.4505	0.0050	0.0066	0.0000	0.0010
4.5495	0.0050	0.0068	0.0000	0.0010
4.6484	0.0050	0.0069	0.0000	0.0010
4.7473	0.0050	0.0071	0.0000	0.0010
4.8462	0.0050	0.0072	0.0000	0.0010
4.9451	0.0050	0.0074	0.0000	0.0010
5.0440	0.0050	0.0075	0.0000	0.0010
5.1429	0.0050	0.0077	0.0000	0.0010
5.2418	0.0050	0.0078	0.0000	0.0010
5.3407	0.0050	0.0079	0.0000	0.0010
5.4396	0.0050	0.0081	0.0000	0.0010
5.5385	0.0050	0.0082	0.0000	0.0010
5.6374	0.0050	0.0084	0.0000	0.0010
5.7363	0.0050	0.0085	0.0000	0.0010
5.8352	0.0050	0.0087	0.0000	0.0010
5.9341	0.0050	0.0088	0.0000	0.0010
6.0000	0.0050	0.0089	0.0000	0.0010

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
6.0000	0.0050	0.0089	0.0000	0.0250	0.0000
6.0989	0.0050	0.0094	0.0000	0.0250	0.0000
6.1978	0.0050	0.0099	0.0000	0.0258	0.0000
6.2967	0.0050	0.0104	0.0000	0.0262	0.0000
6.3956	0.0050	0.0109	0.0000	0.0266	0.0000
6.4945	0.0050	0.0114	0.0000	0.0271	0.0000
6.5934	0.0050	0.0119	0.0254	0.0275	0.0000
6.6923	0.0050	0.0124	0.0884	0.0279	0.0000
6.7912	0.0050	0.0128	0.1318	0.0283	0.0000
6.8901	0.0050	0.0133	0.1525	0.0287	0.0000
6.9890	0.0050	0.0138	0.1708	0.0291	0.0000
7.0879	0.0050	0.0143	0.1873	0.0295	0.0000
7.1868	0.0050	0.0148	0.2024	0.0299	0.0000
7.2857	0.0050	0.0153	0.2165	0.0304	0.0000
7.3846	0.0050	0.0158	0.2297	0.0308	0.0000
7.4835	0.0050	0.0163	0.2422	0.0312	0.0000
7.5824	0.0050	0.0168	0.2541	0.0316	0.0000
7.6813	0.0050	0.0173	0.2655	0.0320	0.0000
7.7802	0.0050	0.0178	0.2763	0.0324	0.0000

7.8791	0.0050	0.0182	0.2868	0.0328	0.0000
7.9780	0.0050	0.0187	0.2969	0.0332	0.0000
8.0769	0.0050	0.0192	0.6458	0.0333	0.0000
8.1758	0.0050	0.0197	1.4787	0.0333	0.0000
8.2747	0.0050	0.0202	2.5398	0.0333	0.0000
8.3736	0.0050	0.0207	3.6741	0.0333	0.0000
8.4725	0.0050	0.0212	4.7260	0.0333	0.0000
8.5714	0.0050	0.0217	5.5639	0.0333	0.0000
8.6703	0.0050	0.0222	6.1305	0.0333	0.0000
8.7692	0.0050	0.0227	6.5833	0.0333	0.0000
8.8681	0.0050	0.0231	6.9787	0.0333	0.0000
8.9670	0.0050	0.0236	7.3525	0.0333	0.0000
9.0000	0.0050	0.0238	7.7078	0.0333	0.0000

Surface Biofilter 2

Element Flows To:

Outlet 1	Outlet 2
	Biofilter 2

Biofilter 3

Bottom Length:	10.00 ft.
Bottom Width:	12.50 ft.
Material thickness of first layer:	6
Material type for first layer:	ESM
Material thickness of second layer:	0
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Infiltration On	
Infiltration rate:	0.2
Infiltration safety factor:	1
Wetted surface area On	
Total Volume Infiltrated (ac-ft.):	2.013
Total Volume Through Riser (ac-ft.):	1.271
Total Volume Through Facility (ac-ft.):	3.284
Percent Infiltrated:	61.3
Total Precip Applied to Facility:	0.107
Total Evap From Facility:	0.131
Underdrain not used	
Discharge Structure	
Riser Height:	2 ft.
Riser Diameter:	18 in.
Orifice 1 Diameter:	4.000 in. Elevation:0.5 ft.
Element Flows To:	
Outlet 1	Outlet 2

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0029	0.0000	0.0000	0.0000
0.0989	0.0029	0.0001	0.0000	0.0000
0.1978	0.0029	0.0002	0.0000	0.0000
0.2967	0.0029	0.0003	0.0000	0.0000
0.3956	0.0029	0.0003	0.0000	0.0000
0.4945	0.0029	0.0004	0.0000	0.0000
0.5934	0.0029	0.0005	0.0000	0.0000
0.6923	0.0029	0.0006	0.0000	0.0001
0.7912	0.0029	0.0007	0.0000	0.0001
0.8901	0.0029	0.0008	0.0000	0.0001
0.9890	0.0029	0.0009	0.0000	0.0002
1.0879	0.0029	0.0009	0.0000	0.0002
1.1868	0.0029	0.0010	0.0000	0.0003
1.2857	0.0029	0.0011	0.0000	0.0003
1.3846	0.0029	0.0012	0.0000	0.0004
1.4835	0.0029	0.0013	0.0000	0.0004
1.5824	0.0029	0.0014	0.0000	0.0005
1.6813	0.0029	0.0014	0.0000	0.0006
1.7802	0.0029	0.0015	0.0000	0.0006
1.8791	0.0029	0.0016	0.0000	0.0006
1.9780	0.0029	0.0017	0.0000	0.0006
2.0769	0.0029	0.0018	0.0000	0.0006
2.1758	0.0029	0.0019	0.0000	0.0006
2.2747	0.0029	0.0020	0.0000	0.0006
2.3736	0.0029	0.0020	0.0000	0.0006
2.4725	0.0029	0.0021	0.0000	0.0006

2.5714	0.0029	0.0022	0.0000	0.0006
2.6703	0.0029	0.0023	0.0000	0.0006
2.7692	0.0029	0.0024	0.0000	0.0006
2.8681	0.0029	0.0025	0.0000	0.0006
2.9670	0.0029	0.0026	0.0000	0.0006
3.0659	0.0029	0.0026	0.0000	0.0006
3.1648	0.0029	0.0027	0.0000	0.0006
3.2637	0.0029	0.0028	0.0000	0.0006
3.3626	0.0029	0.0029	0.0000	0.0006
3.4615	0.0029	0.0030	0.0000	0.0006
3.5604	0.0029	0.0031	0.0000	0.0006
3.6593	0.0029	0.0032	0.0000	0.0006
3.7582	0.0029	0.0032	0.0000	0.0006
3.8571	0.0029	0.0033	0.0000	0.0006
3.9560	0.0029	0.0034	0.0000	0.0006
4.0549	0.0029	0.0035	0.0000	0.0006
4.1538	0.0029	0.0036	0.0000	0.0006
4.2527	0.0029	0.0037	0.0000	0.0006
4.3516	0.0029	0.0037	0.0000	0.0006
4.4505	0.0029	0.0038	0.0000	0.0006
4.5495	0.0029	0.0039	0.0000	0.0006
4.6484	0.0029	0.0040	0.0000	0.0006
4.7473	0.0029	0.0041	0.0000	0.0006
4.8462	0.0029	0.0042	0.0000	0.0006
4.9451	0.0029	0.0043	0.0000	0.0006
5.0440	0.0029	0.0043	0.0000	0.0006
5.1429	0.0029	0.0044	0.0000	0.0006
5.2418	0.0029	0.0045	0.0000	0.0006
5.3407	0.0029	0.0046	0.0000	0.0006
5.4396	0.0029	0.0047	0.0000	0.0006
5.5385	0.0029	0.0048	0.0000	0.0006
5.6374	0.0029	0.0049	0.0000	0.0006
5.7363	0.0029	0.0049	0.0000	0.0006
5.8352	0.0029	0.0050	0.0000	0.0006
5.9341	0.0029	0.0051	0.0000	0.0006
6.0000	0.0029	0.0052	0.0000	0.0006

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
6.0000	0.0029	0.0052	0.0000	0.0145	0.0000
6.0989	0.0029	0.0054	0.0000	0.0145	0.0000
6.1978	0.0029	0.0057	0.0000	0.0149	0.0000
6.2967	0.0029	0.0060	0.0000	0.0152	0.0000
6.3956	0.0029	0.0063	0.0000	0.0154	0.0000
6.4945	0.0029	0.0066	0.0000	0.0157	0.0000
6.5934	0.0029	0.0069	0.0304	0.0159	0.0000
6.6923	0.0029	0.0072	0.1138	0.0161	0.0000
6.7912	0.0029	0.0074	0.2171	0.0164	0.0000
6.8901	0.0029	0.0077	0.2712	0.0166	0.0000
6.9890	0.0029	0.0080	0.3036	0.0169	0.0000
7.0879	0.0029	0.0083	0.3329	0.0171	0.0000
7.1868	0.0029	0.0086	0.3598	0.0173	0.0000
7.2857	0.0029	0.0089	0.3849	0.0176	0.0000
7.3846	0.0029	0.0091	0.4084	0.0178	0.0000
7.4835	0.0029	0.0094	0.4306	0.0180	0.0000
7.5824	0.0029	0.0097	0.4517	0.0183	0.0000
7.6813	0.0029	0.0100	0.4719	0.0185	0.0000
7.7802	0.0029	0.0103	0.4913	0.0188	0.0000

7.8791	0.0029	0.0106	0.5099	0.0190	0.0000
7.9780	0.0029	0.0108	0.5279	0.0192	0.0000
8.0769	0.0029	0.0111	0.8844	0.0193	0.0000
8.1758	0.0029	0.0114	1.7246	0.0193	0.0000
8.2747	0.0029	0.0117	2.7928	0.0193	0.0000
8.3736	0.0029	0.0120	3.9341	0.0193	0.0000
8.4725	0.0029	0.0123	4.9927	0.0193	0.0000
8.5714	0.0029	0.0125	5.8373	0.0193	0.0000
8.6703	0.0029	0.0128	6.4104	0.0193	0.0000
8.7692	0.0029	0.0131	6.8695	0.0193	0.0000
8.8681	0.0029	0.0134	7.2711	0.0193	0.0000
8.9670	0.0029	0.0137	7.6508	0.0193	0.0000
9.0000	0.0029	0.0138	8.0121	0.0193	0.0000

Surface Biofilter 3

Element Flows To:

Outlet 1	Outlet 2
	Biofilter 3

Biofilter 4

Bottom Length:	10.00 ft.
Bottom Width:	17.00 ft.
Material thickness of first layer:	4
Material type for first layer:	ESM
Material thickness of second layer:	0
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Infiltration On	
Infiltration rate:	0.2
Infiltration safety factor:	1
Wetted surface area On	
Total Volume Infiltrated (ac-ft.):	2.121
Total Volume Through Riser (ac-ft.):	1.327
Total Volume Through Facility (ac-ft.):	3.448
Percent Infiltrated:	61.51
Total Precip Applied to Facility:	0.138
Total Evap From Facility:	0.142
Underdrain not used	
Discharge Structure	
Riser Height:	0.5 ft.
Riser Diameter:	18 in.
Element Flows To:	
Outlet 1	Outlet 2

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0039	0.0000	0.0000	0.0000
0.0604	0.0039	0.0001	0.0000	0.0000
0.1209	0.0039	0.0001	0.0000	0.0000
0.1813	0.0039	0.0002	0.0000	0.0000
0.2418	0.0039	0.0003	0.0000	0.0000
0.3022	0.0039	0.0004	0.0000	0.0000
0.3626	0.0039	0.0004	0.0000	0.0001
0.4231	0.0039	0.0005	0.0000	0.0001
0.4835	0.0039	0.0006	0.0000	0.0001
0.5440	0.0039	0.0006	0.0000	0.0001
0.6044	0.0039	0.0007	0.0000	0.0002
0.6648	0.0039	0.0008	0.0000	0.0002
0.7253	0.0039	0.0008	0.0000	0.0003
0.7857	0.0039	0.0009	0.0000	0.0004
0.8462	0.0039	0.0010	0.0000	0.0004
0.9066	0.0039	0.0011	0.0000	0.0005
0.9670	0.0039	0.0011	0.0000	0.0006
1.0275	0.0039	0.0012	0.0000	0.0007
1.0879	0.0039	0.0013	0.0000	0.0008
1.1484	0.0039	0.0013	0.0000	0.0008
1.2088	0.0039	0.0014	0.0000	0.0008
1.2692	0.0039	0.0015	0.0000	0.0008
1.3297	0.0039	0.0016	0.0000	0.0008
1.3901	0.0039	0.0016	0.0000	0.0008
1.4505	0.0039	0.0017	0.0000	0.0008
1.5110	0.0039	0.0018	0.0000	0.0008
1.5714	0.0039	0.0018	0.0000	0.0008

1.6319	0.0039	0.0019	0.0000	0.0008
1.6923	0.0039	0.0020	0.0000	0.0008
1.7527	0.0039	0.0021	0.0000	0.0008
1.8132	0.0039	0.0021	0.0000	0.0008
1.8736	0.0039	0.0022	0.0000	0.0008
1.9341	0.0039	0.0023	0.0000	0.0008
1.9945	0.0039	0.0023	0.0000	0.0008
2.0549	0.0039	0.0024	0.0000	0.0008
2.1154	0.0039	0.0025	0.0000	0.0008
2.1758	0.0039	0.0025	0.0000	0.0008
2.2363	0.0039	0.0026	0.0000	0.0008
2.2967	0.0039	0.0027	0.0000	0.0008
2.3571	0.0039	0.0028	0.0000	0.0008
2.4176	0.0039	0.0028	0.0000	0.0008
2.4780	0.0039	0.0029	0.0000	0.0008
2.5385	0.0039	0.0030	0.0000	0.0008
2.5989	0.0039	0.0030	0.0000	0.0008
2.6593	0.0039	0.0031	0.0000	0.0008
2.7198	0.0039	0.0032	0.0000	0.0008
2.7802	0.0039	0.0033	0.0000	0.0008
2.8407	0.0039	0.0033	0.0000	0.0008
2.9011	0.0039	0.0034	0.0000	0.0008
2.9615	0.0039	0.0035	0.0000	0.0008
3.0220	0.0039	0.0035	0.0000	0.0008
3.0824	0.0039	0.0036	0.0000	0.0008
3.1429	0.0039	0.0037	0.0000	0.0008
3.2033	0.0039	0.0038	0.0000	0.0008
3.2637	0.0039	0.0038	0.0000	0.0008
3.3242	0.0039	0.0039	0.0000	0.0008
3.3846	0.0039	0.0040	0.0000	0.0008
3.4451	0.0039	0.0040	0.0000	0.0008
3.5055	0.0039	0.0041	0.0000	0.0008
3.5659	0.0039	0.0042	0.0000	0.0008
3.6264	0.0039	0.0042	0.0000	0.0008
3.6868	0.0039	0.0043	0.0000	0.0008
3.7473	0.0039	0.0044	0.0000	0.0008
3.8077	0.0039	0.0045	0.0000	0.0008
3.8681	0.0039	0.0045	0.0000	0.0008
3.9286	0.0039	0.0046	0.0000	0.0008
3.9890	0.0039	0.0047	0.0000	0.0008
4.0000	0.0039	0.0047	0.0000	0.0008

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
4.0000	0.0039	0.0047	0.0000	0.0197	0.0000
4.0604	0.0039	0.0049	0.0000	0.0197	0.0000
4.1209	0.0039	0.0052	0.0000	0.0203	0.0000
4.1813	0.0039	0.0054	0.0000	0.0206	0.0000
4.2418	0.0039	0.0056	0.0000	0.0209	0.0000
4.3022	0.0039	0.0059	0.0000	0.0212	0.0000
4.3626	0.0039	0.0061	0.0000	0.0215	0.0000
4.4231	0.0039	0.0063	0.0000	0.0218	0.0000
4.4835	0.0039	0.0066	0.0000	0.0221	0.0000
4.5440	0.0039	0.0068	0.1466	0.0221	0.0000
4.6044	0.0039	0.0070	0.5355	0.0221	0.0000
4.6648	0.0039	0.0073	1.0569	0.0221	0.0000
4.7253	0.0039	0.0075	1.6695	0.0221	0.0000
4.7857	0.0039	0.0077	2.3387	0.0221	0.0000

4.8462	0.0039	0.0080	3.0289	0.0221	0.0000
4.9066	0.0039	0.0082	3.7040	0.0221	0.0000
4.9670	0.0039	0.0085	4.3296	0.0221	0.0000
5.0275	0.0039	0.0087	4.8762	0.0221	0.0000
5.0879	0.0039	0.0089	5.3242	0.0221	0.0000
5.1484	0.0039	0.0092	5.6687	0.0221	0.0000
5.2088	0.0039	0.0094	5.9258	0.0221	0.0000
5.2692	0.0039	0.0096	6.2154	0.0221	0.0000
5.3297	0.0039	0.0099	6.4550	0.0221	0.0000
5.3901	0.0039	0.0101	6.6860	0.0221	0.0000
5.4505	0.0039	0.0103	6.9092	0.0221	0.0000
5.5000	0.0039	0.0105	7.1255	0.0221	0.0000

Surface Biofilter 4

Element Flows To:

Outlet 1	Outlet 2
	Biofilter 4

Biofilter 5

Bottom Length:	10.00 ft.
Bottom Width:	10.50 ft.
Material thickness of first layer:	6
Material type for first layer:	ESM
Material thickness of second layer:	0
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Infiltration On	
Infiltration rate:	0.2
Infiltration safety factor:	1
Wetted surface area On	
Total Volume Infiltrated (ac-ft.):	1.717
Total Volume Through Riser (ac-ft.):	1.496
Total Volume Through Facility (ac-ft.):	3.213
Percent Infiltrated:	53.44
Total Precip Applied to Facility:	0.086
Total Evap From Facility:	0.105
Underdrain not used	
Discharge Structure	
Riser Height:	0.5 ft.
Riser Diameter:	18 in.
Element Flows To:	
Outlet 1	Outlet 2

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0024	0.0000	0.0000	0.0000
0.0824	0.0024	0.0001	0.0000	0.0000
0.1648	0.0024	0.0001	0.0000	0.0000
0.2473	0.0024	0.0002	0.0000	0.0000
0.3297	0.0024	0.0002	0.0000	0.0000
0.4121	0.0024	0.0003	0.0000	0.0000
0.4945	0.0024	0.0004	0.0000	0.0000
0.5769	0.0024	0.0004	0.0000	0.0000
0.6593	0.0024	0.0005	0.0000	0.0001
0.7418	0.0024	0.0005	0.0000	0.0001
0.8242	0.0024	0.0006	0.0000	0.0001
0.9066	0.0024	0.0007	0.0000	0.0001
0.9890	0.0024	0.0007	0.0000	0.0001
1.0714	0.0024	0.0008	0.0000	0.0002
1.1538	0.0024	0.0008	0.0000	0.0002
1.2363	0.0024	0.0009	0.0000	0.0002
1.3187	0.0024	0.0010	0.0000	0.0003
1.4011	0.0024	0.0010	0.0000	0.0003
1.4835	0.0024	0.0011	0.0000	0.0004
1.5659	0.0024	0.0011	0.0000	0.0004
1.6484	0.0024	0.0012	0.0000	0.0005
1.7308	0.0024	0.0013	0.0000	0.0005
1.8132	0.0024	0.0013	0.0000	0.0005
1.8956	0.0024	0.0014	0.0000	0.0005
1.9780	0.0024	0.0014	0.0000	0.0005
2.0604	0.0024	0.0015	0.0000	0.0005
2.1429	0.0024	0.0015	0.0000	0.0005

2.2253	0.0024	0.0016	0.0000	0.0005
2.3077	0.0024	0.0017	0.0000	0.0005
2.3901	0.0024	0.0017	0.0000	0.0005
2.4725	0.0024	0.0018	0.0000	0.0005
2.5549	0.0024	0.0018	0.0000	0.0005
2.6374	0.0024	0.0019	0.0000	0.0005
2.7198	0.0024	0.0020	0.0000	0.0005
2.8022	0.0024	0.0020	0.0000	0.0005
2.8846	0.0024	0.0021	0.0000	0.0005
2.9670	0.0024	0.0021	0.0000	0.0005
3.0495	0.0024	0.0022	0.0000	0.0005
3.1319	0.0024	0.0023	0.0000	0.0005
3.2143	0.0024	0.0023	0.0000	0.0005
3.2967	0.0024	0.0024	0.0000	0.0005
3.3791	0.0024	0.0024	0.0000	0.0005
3.4615	0.0024	0.0025	0.0000	0.0005
3.5440	0.0024	0.0026	0.0000	0.0005
3.6264	0.0024	0.0026	0.0000	0.0005
3.7088	0.0024	0.0027	0.0000	0.0005
3.7912	0.0024	0.0027	0.0000	0.0005
3.8736	0.0024	0.0028	0.0000	0.0005
3.9560	0.0024	0.0029	0.0000	0.0005
4.0385	0.0024	0.0029	0.0000	0.0005
4.1209	0.0024	0.0030	0.0000	0.0005
4.2033	0.0024	0.0030	0.0000	0.0005
4.2857	0.0024	0.0031	0.0000	0.0005
4.3681	0.0024	0.0032	0.0000	0.0005
4.4505	0.0024	0.0032	0.0000	0.0005
4.5330	0.0024	0.0033	0.0000	0.0005
4.6154	0.0024	0.0033	0.0000	0.0005
4.6978	0.0024	0.0034	0.0000	0.0005
4.7802	0.0024	0.0035	0.0000	0.0005
4.8626	0.0024	0.0035	0.0000	0.0005
4.9451	0.0024	0.0036	0.0000	0.0005
5.0275	0.0024	0.0036	0.0000	0.0005
5.1099	0.0024	0.0037	0.0000	0.0005
5.1923	0.0024	0.0038	0.0000	0.0005
5.2747	0.0024	0.0038	0.0000	0.0005
5.3571	0.0024	0.0039	0.0000	0.0005
5.4396	0.0024	0.0039	0.0000	0.0005
5.5220	0.0024	0.0040	0.0000	0.0005
5.6044	0.0024	0.0041	0.0000	0.0005
5.6868	0.0024	0.0041	0.0000	0.0005
5.7692	0.0024	0.0042	0.0000	0.0005
5.8516	0.0024	0.0042	0.0000	0.0005
5.9341	0.0024	0.0043	0.0000	0.0005
6.0000	0.0024	0.0043	0.0000	0.0005

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
6.0000	0.0024	0.0043	0.0000	0.0122	0.0000
6.0824	0.0024	0.0045	0.0000	0.0122	0.0000
6.1648	0.0024	0.0047	0.0000	0.0125	0.0000
6.2473	0.0024	0.0049	0.0000	0.0127	0.0000
6.3297	0.0024	0.0051	0.0000	0.0128	0.0000
6.4121	0.0024	0.0053	0.0000	0.0130	0.0000
6.4945	0.0024	0.0055	0.0000	0.0132	0.0000
6.5769	0.0024	0.0057	0.3391	0.0132	0.0000

6.6593	0.0024	0.0059	1.0052	0.0132	0.0000
6.7418	0.0024	0.0061	1.8479	0.0132	0.0000
6.8242	0.0024	0.0063	2.7777	0.0132	0.0000
6.9066	0.0024	0.0065	3.7040	0.0132	0.0000
6.9890	0.0024	0.0067	4.5388	0.0132	0.0000
7.0714	0.0024	0.0069	5.2124	0.0132	0.0000
7.1538	0.0024	0.0071	5.6953	0.0132	0.0000
7.2363	0.0024	0.0073	6.0242	0.0132	0.0000
7.3187	0.0024	0.0075	6.4121	0.0132	0.0000
7.4011	0.0024	0.0077	6.7271	0.0132	0.0000
7.4835	0.0024	0.0079	7.0280	0.0132	0.0000
7.5000	0.0024	0.0080	7.3166	0.0132	0.0000

Surface Biofilter 5

Element Flows To:

Outlet 1	Outlet 2
	Biofilter 5

Biofilter 6

Bottom Length:	10.00 ft.
Bottom Width:	10.50 ft.
Material thickness of first layer:	6
Material type for first layer:	ESM
Material thickness of second layer:	0
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Infiltration On	
Infiltration rate:	0.2
Infiltration safety factor:	1
Wetted surface area On	
Total Volume Infiltrated (ac-ft.):	1.117
Total Volume Through Riser (ac-ft.):	0.552
Total Volume Through Facility (ac-ft.):	1.669
Percent Infiltrated:	66.93
Total Precip Applied to Facility:	0.084
Total Evap From Facility:	0.094
Underdrain not used	
Discharge Structure	
Riser Height:	2 ft.
Riser Diameter:	18 in.
Orifice 1 Diameter:	3.000 in. Elevation:0.5 ft.
Element Flows To:	
Outlet 1	Outlet 2

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0024	0.0000	0.0000	0.0000
0.0989	0.0024	0.0001	0.0000	0.0000
0.1978	0.0024	0.0001	0.0000	0.0000
0.2967	0.0024	0.0002	0.0000	0.0000
0.3956	0.0024	0.0003	0.0000	0.0000
0.4945	0.0024	0.0004	0.0000	0.0000
0.5934	0.0024	0.0004	0.0000	0.0000
0.6923	0.0024	0.0005	0.0000	0.0001
0.7912	0.0024	0.0006	0.0000	0.0001
0.8901	0.0024	0.0006	0.0000	0.0001
0.9890	0.0024	0.0007	0.0000	0.0001
1.0879	0.0024	0.0008	0.0000	0.0002
1.1868	0.0024	0.0009	0.0000	0.0002
1.2857	0.0024	0.0009	0.0000	0.0003
1.3846	0.0024	0.0010	0.0000	0.0003
1.4835	0.0024	0.0011	0.0000	0.0004
1.5824	0.0024	0.0011	0.0000	0.0004
1.6813	0.0024	0.0012	0.0000	0.0005
1.7802	0.0024	0.0013	0.0000	0.0005
1.8791	0.0024	0.0014	0.0000	0.0005
1.9780	0.0024	0.0014	0.0000	0.0005
2.0769	0.0024	0.0015	0.0000	0.0005
2.1758	0.0024	0.0016	0.0000	0.0005
2.2747	0.0024	0.0016	0.0000	0.0005
2.3736	0.0024	0.0017	0.0000	0.0005
2.4725	0.0024	0.0018	0.0000	0.0005

2.5714	0.0024	0.0019	0.0000	0.0005
2.6703	0.0024	0.0019	0.0000	0.0005
2.7692	0.0024	0.0020	0.0000	0.0005
2.8681	0.0024	0.0021	0.0000	0.0005
2.9670	0.0024	0.0021	0.0000	0.0005
3.0659	0.0024	0.0022	0.0000	0.0005
3.1648	0.0024	0.0023	0.0000	0.0005
3.2637	0.0024	0.0024	0.0000	0.0005
3.3626	0.0024	0.0024	0.0000	0.0005
3.4615	0.0024	0.0025	0.0000	0.0005
3.5604	0.0024	0.0026	0.0000	0.0005
3.6593	0.0024	0.0026	0.0000	0.0005
3.7582	0.0024	0.0027	0.0000	0.0005
3.8571	0.0024	0.0028	0.0000	0.0005
3.9560	0.0024	0.0029	0.0000	0.0005
4.0549	0.0024	0.0029	0.0000	0.0005
4.1538	0.0024	0.0030	0.0000	0.0005
4.2527	0.0024	0.0031	0.0000	0.0005
4.3516	0.0024	0.0031	0.0000	0.0005
4.4505	0.0024	0.0032	0.0000	0.0005
4.5495	0.0024	0.0033	0.0000	0.0005
4.6484	0.0024	0.0034	0.0000	0.0005
4.7473	0.0024	0.0034	0.0000	0.0005
4.8462	0.0024	0.0035	0.0000	0.0005
4.9451	0.0024	0.0036	0.0000	0.0005
5.0440	0.0024	0.0036	0.0000	0.0005
5.1429	0.0024	0.0037	0.0000	0.0005
5.2418	0.0024	0.0038	0.0000	0.0005
5.3407	0.0024	0.0039	0.0000	0.0005
5.4396	0.0024	0.0039	0.0000	0.0005
5.5385	0.0024	0.0040	0.0000	0.0005
5.6374	0.0024	0.0041	0.0000	0.0005
5.7363	0.0024	0.0041	0.0000	0.0005
5.8352	0.0024	0.0042	0.0000	0.0005
5.9341	0.0024	0.0043	0.0000	0.0005
6.0000	0.0024	0.0043	0.0000	0.0005

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
6.0000	0.0024	0.0043	0.0000	0.0122	0.0000
6.0989	0.0024	0.0046	0.0000	0.0122	0.0000
6.1978	0.0024	0.0048	0.0000	0.0126	0.0000
6.2967	0.0024	0.0051	0.0000	0.0128	0.0000
6.3956	0.0024	0.0053	0.0000	0.0130	0.0000
6.4945	0.0024	0.0055	0.0000	0.0132	0.0000
6.5934	0.0024	0.0058	0.0254	0.0134	0.0000
6.6923	0.0024	0.0060	0.0884	0.0136	0.0000
6.7912	0.0024	0.0062	0.1318	0.0138	0.0000
6.8901	0.0024	0.0065	0.1525	0.0140	0.0000
6.9890	0.0024	0.0067	0.1708	0.0142	0.0000
7.0879	0.0024	0.0070	0.1873	0.0144	0.0000
7.1868	0.0024	0.0072	0.2024	0.0146	0.0000
7.2857	0.0024	0.0074	0.2165	0.0148	0.0000
7.3846	0.0024	0.0077	0.2297	0.0150	0.0000
7.4835	0.0024	0.0079	0.2422	0.0152	0.0000
7.5824	0.0024	0.0082	0.2541	0.0154	0.0000
7.6813	0.0024	0.0084	0.2655	0.0156	0.0000
7.7802	0.0024	0.0086	0.2763	0.0158	0.0000

7.8791	0.0024	0.0089	0.2868	0.0160	0.0000
7.9780	0.0024	0.0091	0.2969	0.0162	0.0000
8.0769	0.0024	0.0093	0.6458	0.0162	0.0000
8.1758	0.0024	0.0096	1.4787	0.0162	0.0000
8.2747	0.0024	0.0098	2.5398	0.0162	0.0000
8.3736	0.0024	0.0101	3.6741	0.0162	0.0000
8.4725	0.0024	0.0103	4.7260	0.0162	0.0000
8.5714	0.0024	0.0105	5.5639	0.0162	0.0000
8.6703	0.0024	0.0108	6.1305	0.0162	0.0000
8.7692	0.0024	0.0110	6.5833	0.0162	0.0000
8.8681	0.0024	0.0113	6.9787	0.0162	0.0000
8.9670	0.0024	0.0115	7.3525	0.0162	0.0000
9.0000	0.0024	0.0116	7.7078	0.0162	0.0000

Surface Biofilter 6

Element Flows To:

Outlet 1	Outlet 2
	Biofilter 6

Biofilter 7

Bottom Length:	6.00 ft.
Bottom Width:	10.00 ft.
Material thickness of first layer:	6
Material type for first layer:	ESM
Material thickness of second layer:	0
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Infiltration On	
Infiltration rate:	0.2
Infiltration safety factor:	1
Wetted surface area On	
Total Volume Infiltrated (ac-ft.):	0.996
Total Volume Through Riser (ac-ft.):	0.529
Total Volume Through Facility (ac-ft.):	1.525
Percent Infiltrated:	65.31
Total Precip Applied to Facility:	0.048
Total Evap From Facility:	0.059
Underdrain not used	
Discharge Structure	
Riser Height:	0.5 ft.
Riser Diameter:	18 in.
Element Flows To:	
Outlet 1	Outlet 2

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0014	0.0000	0.0000	0.0000
0.0824	0.0014	0.0000	0.0000	0.0000
0.1648	0.0014	0.0001	0.0000	0.0000
0.2473	0.0014	0.0001	0.0000	0.0000
0.3297	0.0014	0.0001	0.0000	0.0000
0.4121	0.0014	0.0002	0.0000	0.0000
0.4945	0.0014	0.0002	0.0000	0.0000
0.5769	0.0014	0.0002	0.0000	0.0000
0.6593	0.0014	0.0003	0.0000	0.0000
0.7418	0.0014	0.0003	0.0000	0.0000
0.8242	0.0014	0.0003	0.0000	0.0001
0.9066	0.0014	0.0004	0.0000	0.0001
0.9890	0.0014	0.0004	0.0000	0.0001
1.0714	0.0014	0.0004	0.0000	0.0001
1.1538	0.0014	0.0005	0.0000	0.0001
1.2363	0.0014	0.0005	0.0000	0.0001
1.3187	0.0014	0.0005	0.0000	0.0002
1.4011	0.0014	0.0006	0.0000	0.0002
1.4835	0.0014	0.0006	0.0000	0.0002
1.5659	0.0014	0.0006	0.0000	0.0002
1.6484	0.0014	0.0007	0.0000	0.0003
1.7308	0.0014	0.0007	0.0000	0.0003
1.8132	0.0014	0.0007	0.0000	0.0003
1.8956	0.0014	0.0008	0.0000	0.0003
1.9780	0.0014	0.0008	0.0000	0.0003
2.0604	0.0014	0.0009	0.0000	0.0003
2.1429	0.0014	0.0009	0.0000	0.0003

2.2253	0.0014	0.0009	0.0000	0.0003
2.3077	0.0014	0.0010	0.0000	0.0003
2.3901	0.0014	0.0010	0.0000	0.0003
2.4725	0.0014	0.0010	0.0000	0.0003
2.5549	0.0014	0.0011	0.0000	0.0003
2.6374	0.0014	0.0011	0.0000	0.0003
2.7198	0.0014	0.0011	0.0000	0.0003
2.8022	0.0014	0.0012	0.0000	0.0003
2.8846	0.0014	0.0012	0.0000	0.0003
2.9670	0.0014	0.0012	0.0000	0.0003
3.0495	0.0014	0.0013	0.0000	0.0003
3.1319	0.0014	0.0013	0.0000	0.0003
3.2143	0.0014	0.0013	0.0000	0.0003
3.2967	0.0014	0.0014	0.0000	0.0003
3.3791	0.0014	0.0014	0.0000	0.0003
3.4615	0.0014	0.0014	0.0000	0.0003
3.5440	0.0014	0.0015	0.0000	0.0003
3.6264	0.0014	0.0015	0.0000	0.0003
3.7088	0.0014	0.0015	0.0000	0.0003
3.7912	0.0014	0.0016	0.0000	0.0003
3.8736	0.0014	0.0016	0.0000	0.0003
3.9560	0.0014	0.0016	0.0000	0.0003
4.0385	0.0014	0.0017	0.0000	0.0003
4.1209	0.0014	0.0017	0.0000	0.0003
4.2033	0.0014	0.0017	0.0000	0.0003
4.2857	0.0014	0.0018	0.0000	0.0003
4.3681	0.0014	0.0018	0.0000	0.0003
4.4505	0.0014	0.0018	0.0000	0.0003
4.5330	0.0014	0.0019	0.0000	0.0003
4.6154	0.0014	0.0019	0.0000	0.0003
4.6978	0.0014	0.0019	0.0000	0.0003
4.7802	0.0014	0.0020	0.0000	0.0003
4.8626	0.0014	0.0020	0.0000	0.0003
4.9451	0.0014	0.0020	0.0000	0.0003
5.0275	0.0014	0.0021	0.0000	0.0003
5.1099	0.0014	0.0021	0.0000	0.0003
5.1923	0.0014	0.0021	0.0000	0.0003
5.2747	0.0014	0.0022	0.0000	0.0003
5.3571	0.0014	0.0022	0.0000	0.0003
5.4396	0.0014	0.0022	0.0000	0.0003
5.5220	0.0014	0.0023	0.0000	0.0003
5.6044	0.0014	0.0023	0.0000	0.0003
5.6868	0.0014	0.0023	0.0000	0.0003
5.7692	0.0014	0.0024	0.0000	0.0003
5.8516	0.0014	0.0024	0.0000	0.0003
5.9341	0.0014	0.0025	0.0000	0.0003
6.0000	0.0014	0.0025	0.0000	0.0003

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
6.0000	0.001377	0.002479	0.0000	0.0069	0.0000
6.0824	0.001377	0.002593	0.0000	0.0069	0.0000
6.1648	0.001377	0.002706	0.0000	0.0071	0.0000
6.2473	0.001377	0.002820	0.0000	0.0072	0.0000
6.3297	0.001377	0.002933	0.0000	0.0073	0.0000
6.4121	0.001377	0.003047	0.0000	0.0074	0.0000
6.4945	0.001377	0.003160	0.0000	0.0075	0.0000
6.5769	0.001377	0.003274	0.3391	0.0075	0.0000

6.6593	0.001377	0.003388	1.0052	0.0075	0.0000
6.7418	0.001377	0.003501	1.8479	0.0075	0.0000
6.8242	0.001377	0.003615	2.7777	0.0075	0.0000
6.9066	0.001377	0.003728	3.7040	0.0075	0.0000
6.9890	0.001377	0.003842	4.5388	0.0075	0.0000
7.0714	0.001377	0.003955	5.2124	0.0075	0.0000
7.1538	0.001377	0.004069	5.6953	0.0075	0.0000
7.2363	0.001377	0.004182	6.0242	0.0075	0.0000
7.3187	0.001377	0.004296	6.4121	0.0075	0.0000
7.4011	0.001377	0.004409	6.7271	0.0075	0.0000
7.4835	0.001377	0.004523	7.0280	0.0075	0.0000
7.5000	0.001377	0.004545	7.3166	0.0075	0.0000

Surface Biofilter 7

Element Flows To:

Outlet 1	Outlet 2
	Biofilter 7

Biofilter 8

Bottom Length:	10.00 ft.
Bottom Width:	10.50 ft.
Material thickness of first layer:	6
Material type for first layer:	ESM
Material thickness of second layer:	0
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Infiltration On	
Infiltration rate:	0.2
Infiltration safety factor:	1
Wetted surface area On	
Total Volume Infiltrated (ac-ft.):	1.628
Total Volume Through Riser (ac-ft.):	0.851
Total Volume Through Facility (ac-ft.):	2.479
Percent Infiltrated:	65.67
Total Precip Applied to Facility:	0.084
Total Evap From Facility:	0.101
Underdrain not used	
Discharge Structure	
Riser Height:	0.5 ft.
Riser Diameter:	18 in.
Element Flows To:	
Outlet 1	Outlet 2

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0024	0.0000	0.0000	0.0000
0.0824	0.0024	0.0001	0.0000	0.0000
0.1648	0.0024	0.0001	0.0000	0.0000
0.2473	0.0024	0.0002	0.0000	0.0000
0.3297	0.0024	0.0002	0.0000	0.0000
0.4121	0.0024	0.0003	0.0000	0.0000
0.4945	0.0024	0.0004	0.0000	0.0000
0.5769	0.0024	0.0004	0.0000	0.0000
0.6593	0.0024	0.0005	0.0000	0.0001
0.7418	0.0024	0.0005	0.0000	0.0001
0.8242	0.0024	0.0006	0.0000	0.0001
0.9066	0.0024	0.0007	0.0000	0.0001
0.9890	0.0024	0.0007	0.0000	0.0001
1.0714	0.0024	0.0008	0.0000	0.0002
1.1538	0.0024	0.0008	0.0000	0.0002
1.2363	0.0024	0.0009	0.0000	0.0002
1.3187	0.0024	0.0010	0.0000	0.0003
1.4011	0.0024	0.0010	0.0000	0.0003
1.4835	0.0024	0.0011	0.0000	0.0004
1.5659	0.0024	0.0011	0.0000	0.0004
1.6484	0.0024	0.0012	0.0000	0.0005
1.7308	0.0024	0.0013	0.0000	0.0005
1.8132	0.0024	0.0013	0.0000	0.0005
1.8956	0.0024	0.0014	0.0000	0.0005
1.9780	0.0024	0.0014	0.0000	0.0005
2.0604	0.0024	0.0015	0.0000	0.0005
2.1429	0.0024	0.0015	0.0000	0.0005

2.2253	0.0024	0.0016	0.0000	0.0005
2.3077	0.0024	0.0017	0.0000	0.0005
2.3901	0.0024	0.0017	0.0000	0.0005
2.4725	0.0024	0.0018	0.0000	0.0005
2.5549	0.0024	0.0018	0.0000	0.0005
2.6374	0.0024	0.0019	0.0000	0.0005
2.7198	0.0024	0.0020	0.0000	0.0005
2.8022	0.0024	0.0020	0.0000	0.0005
2.8846	0.0024	0.0021	0.0000	0.0005
2.9670	0.0024	0.0021	0.0000	0.0005
3.0495	0.0024	0.0022	0.0000	0.0005
3.1319	0.0024	0.0023	0.0000	0.0005
3.2143	0.0024	0.0023	0.0000	0.0005
3.2967	0.0024	0.0024	0.0000	0.0005
3.3791	0.0024	0.0024	0.0000	0.0005
3.4615	0.0024	0.0025	0.0000	0.0005
3.5440	0.0024	0.0026	0.0000	0.0005
3.6264	0.0024	0.0026	0.0000	0.0005
3.7088	0.0024	0.0027	0.0000	0.0005
3.7912	0.0024	0.0027	0.0000	0.0005
3.8736	0.0024	0.0028	0.0000	0.0005
3.9560	0.0024	0.0029	0.0000	0.0005
4.0385	0.0024	0.0029	0.0000	0.0005
4.1209	0.0024	0.0030	0.0000	0.0005
4.2033	0.0024	0.0030	0.0000	0.0005
4.2857	0.0024	0.0031	0.0000	0.0005
4.3681	0.0024	0.0032	0.0000	0.0005
4.4505	0.0024	0.0032	0.0000	0.0005
4.5330	0.0024	0.0033	0.0000	0.0005
4.6154	0.0024	0.0033	0.0000	0.0005
4.6978	0.0024	0.0034	0.0000	0.0005
4.7802	0.0024	0.0035	0.0000	0.0005
4.8626	0.0024	0.0035	0.0000	0.0005
4.9451	0.0024	0.0036	0.0000	0.0005
5.0275	0.0024	0.0036	0.0000	0.0005
5.1099	0.0024	0.0037	0.0000	0.0005
5.1923	0.0024	0.0038	0.0000	0.0005
5.2747	0.0024	0.0038	0.0000	0.0005
5.3571	0.0024	0.0039	0.0000	0.0005
5.4396	0.0024	0.0039	0.0000	0.0005
5.5220	0.0024	0.0040	0.0000	0.0005
5.6044	0.0024	0.0041	0.0000	0.0005
5.6868	0.0024	0.0041	0.0000	0.0005
5.7692	0.0024	0.0042	0.0000	0.0005
5.8516	0.0024	0.0042	0.0000	0.0005
5.9341	0.0024	0.0043	0.0000	0.0005
6.0000	0.0024	0.0043	0.0000	0.0005

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
6.0000	0.0024	0.0043	0.0000	0.0122	0.0000
6.0824	0.0024	0.0045	0.0000	0.0122	0.0000
6.1648	0.0024	0.0047	0.0000	0.0125	0.0000
6.2473	0.0024	0.0049	0.0000	0.0127	0.0000
6.3297	0.0024	0.0051	0.0000	0.0128	0.0000
6.4121	0.0024	0.0053	0.0000	0.0130	0.0000
6.4945	0.0024	0.0055	0.0000	0.0132	0.0000
6.5769	0.0024	0.0057	0.3391	0.0132	0.0000

6.6593	0.0024	0.0059	1.0052	0.0132	0.0000
6.7418	0.0024	0.0061	1.8479	0.0132	0.0000
6.8242	0.0024	0.0063	2.7777	0.0132	0.0000
6.9066	0.0024	0.0065	3.7040	0.0132	0.0000
6.9890	0.0024	0.0067	4.5388	0.0132	0.0000
7.0714	0.0024	0.0069	5.2124	0.0132	0.0000
7.1538	0.0024	0.0071	5.6953	0.0132	0.0000
7.2363	0.0024	0.0073	6.0242	0.0132	0.0000
7.3187	0.0024	0.0075	6.4121	0.0132	0.0000
7.4011	0.0024	0.0077	6.7271	0.0132	0.0000
7.4835	0.0024	0.0079	7.0280	0.0132	0.0000
7.5000	0.0024	0.0080	7.3166	0.0132	0.0000

Surface Biofilter 8

Element Flows To:

Outlet 1	Outlet 2
	Biofilter 8

Biofilter 9

Bottom Length:	10.00 ft.
Bottom Width:	11.00 ft.
Material thickness of first layer:	6
Material type for first layer:	ESM
Material thickness of second layer:	0
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Infiltration On	
Infiltration rate:	0.2
Infiltration safety factor:	1
Wetted surface area On	
Total Volume Infiltrated (ac-ft.):	1.713
Total Volume Through Riser (ac-ft.):	1.366
Total Volume Through Facility (ac-ft.):	3.079
Percent Infiltrated:	55.63
Total Precip Applied to Facility:	0.088
Total Evap From Facility:	0.106
Underdrain not used	
Discharge Structure	
Riser Height:	0.5 ft.
Riser Diameter:	18 in.
Element Flows To:	
Outlet 1	Outlet 2

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0025	0.0000	0.0000	0.0000
0.0824	0.0025	0.0001	0.0000	0.0000
0.1648	0.0025	0.0001	0.0000	0.0000
0.2473	0.0025	0.0002	0.0000	0.0000
0.3297	0.0025	0.0002	0.0000	0.0000
0.4121	0.0025	0.0003	0.0000	0.0000
0.4945	0.0025	0.0004	0.0000	0.0000
0.5769	0.0025	0.0004	0.0000	0.0000
0.6593	0.0025	0.0005	0.0000	0.0001
0.7418	0.0025	0.0006	0.0000	0.0001
0.8242	0.0025	0.0006	0.0000	0.0001
0.9066	0.0025	0.0007	0.0000	0.0001
0.9890	0.0025	0.0007	0.0000	0.0001
1.0714	0.0025	0.0008	0.0000	0.0002
1.1538	0.0025	0.0009	0.0000	0.0002
1.2363	0.0025	0.0009	0.0000	0.0003
1.3187	0.0025	0.0010	0.0000	0.0003
1.4011	0.0025	0.0011	0.0000	0.0003
1.4835	0.0025	0.0011	0.0000	0.0004
1.5659	0.0025	0.0012	0.0000	0.0004
1.6484	0.0025	0.0012	0.0000	0.0005
1.7308	0.0025	0.0013	0.0000	0.0005
1.8132	0.0025	0.0014	0.0000	0.0005
1.8956	0.0025	0.0014	0.0000	0.0005
1.9780	0.0025	0.0015	0.0000	0.0005
2.0604	0.0025	0.0016	0.0000	0.0005
2.1429	0.0025	0.0016	0.0000	0.0005

2.2253	0.0025	0.0017	0.0000	0.0005
2.3077	0.0025	0.0017	0.0000	0.0005
2.3901	0.0025	0.0018	0.0000	0.0005
2.4725	0.0025	0.0019	0.0000	0.0005
2.5549	0.0025	0.0019	0.0000	0.0005
2.6374	0.0025	0.0020	0.0000	0.0005
2.7198	0.0025	0.0021	0.0000	0.0005
2.8022	0.0025	0.0021	0.0000	0.0005
2.8846	0.0025	0.0022	0.0000	0.0005
2.9670	0.0025	0.0022	0.0000	0.0005
3.0495	0.0025	0.0023	0.0000	0.0005
3.1319	0.0025	0.0024	0.0000	0.0005
3.2143	0.0025	0.0024	0.0000	0.0005
3.2967	0.0025	0.0025	0.0000	0.0005
3.3791	0.0025	0.0026	0.0000	0.0005
3.4615	0.0025	0.0026	0.0000	0.0005
3.5440	0.0025	0.0027	0.0000	0.0005
3.6264	0.0025	0.0027	0.0000	0.0005
3.7088	0.0025	0.0028	0.0000	0.0005
3.7912	0.0025	0.0029	0.0000	0.0005
3.8736	0.0025	0.0029	0.0000	0.0005
3.9560	0.0025	0.0030	0.0000	0.0005
4.0385	0.0025	0.0031	0.0000	0.0005
4.1209	0.0025	0.0031	0.0000	0.0005
4.2033	0.0025	0.0032	0.0000	0.0005
4.2857	0.0025	0.0032	0.0000	0.0005
4.3681	0.0025	0.0033	0.0000	0.0005
4.4505	0.0025	0.0034	0.0000	0.0005
4.5330	0.0025	0.0034	0.0000	0.0005
4.6154	0.0025	0.0035	0.0000	0.0005
4.6978	0.0025	0.0036	0.0000	0.0005
4.7802	0.0025	0.0036	0.0000	0.0005
4.8626	0.0025	0.0037	0.0000	0.0005
4.9451	0.0025	0.0037	0.0000	0.0005
5.0275	0.0025	0.0038	0.0000	0.0005
5.1099	0.0025	0.0039	0.0000	0.0005
5.1923	0.0025	0.0039	0.0000	0.0005
5.2747	0.0025	0.0040	0.0000	0.0005
5.3571	0.0025	0.0041	0.0000	0.0005
5.4396	0.0025	0.0041	0.0000	0.0005
5.5220	0.0025	0.0042	0.0000	0.0005
5.6044	0.0025	0.0042	0.0000	0.0005
5.6868	0.0025	0.0043	0.0000	0.0005
5.7692	0.0025	0.0044	0.0000	0.0005
5.8516	0.0025	0.0044	0.0000	0.0005
5.9341	0.0025	0.0045	0.0000	0.0005
6.0000	0.0025	0.0045	0.0000	0.0005

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
6.0000	0.0025	0.0045	0.0000	0.0127	0.0000
6.0824	0.0025	0.0048	0.0000	0.0127	0.0000
6.1648	0.0025	0.0050	0.0000	0.0131	0.0000
6.2473	0.0025	0.0052	0.0000	0.0133	0.0000
6.3297	0.0025	0.0054	0.0000	0.0134	0.0000
6.4121	0.0025	0.0056	0.0000	0.0136	0.0000
6.4945	0.0025	0.0058	0.0000	0.0138	0.0000
6.5769	0.0025	0.0060	0.3391	0.0138	0.0000

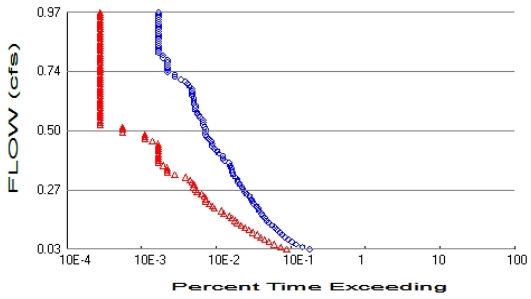
6.6593	0.0025	0.0062	1.0052	0.0138	0.0000
6.7418	0.0025	0.0064	1.8479	0.0138	0.0000
6.8242	0.0025	0.0066	2.7777	0.0138	0.0000
6.9066	0.0025	0.0068	3.7040	0.0138	0.0000
6.9890	0.0025	0.0070	4.5388	0.0138	0.0000
7.0714	0.0025	0.0073	5.2124	0.0138	0.0000
7.1538	0.0025	0.0075	5.6953	0.0138	0.0000
7.2363	0.0025	0.0077	6.0242	0.0138	0.0000
7.3187	0.0025	0.0079	6.4121	0.0138	0.0000
7.4011	0.0025	0.0081	6.7271	0.0138	0.0000
7.4835	0.0025	0.0083	7.0280	0.0138	0.0000
7.5000	0.0025	0.0083	7.3166	0.0138	0.0000

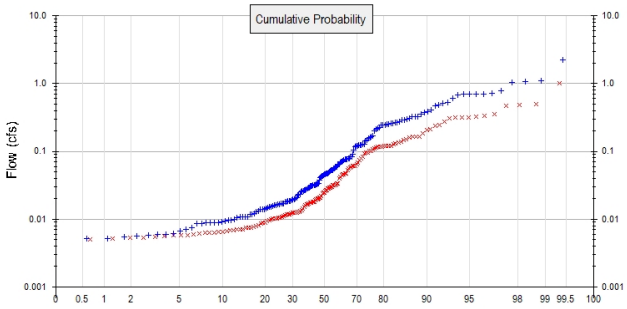
Surface Biofilter 9

Element Flows To:

Outlet 1	Outlet 2
	Biofilter 9

Analysis Results
POC 1





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1
Total Pervious Area: 2.45
Total Impervious Area: 0

Mitigated Landuse Totals for POC #1
Total Pervious Area: 2.14
Total Impervious Area: 0.31

Flow Frequency Method: Cunnane

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	**Flow(cfs)**
2 year	0.325594
5 year	0.701479
10 year	0.974188
25 year	1.306803

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	**Flow(cfs)**
2 year	0.159973
5 year	0.318547
10 year	0.441172
25 year	0.593291

Duration Flows

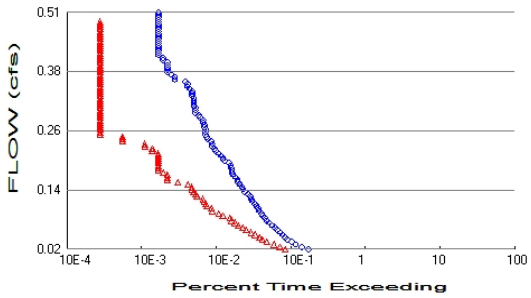
The Facility PASSED

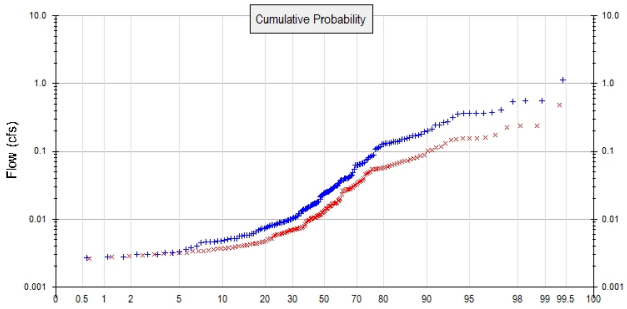
Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0326	637	318	49	Pass
0.0421	512	262	51	Pass
0.0516	426	216	50	Pass
0.0611	367	184	50	Pass
0.0706	330	161	48	Pass
0.0801	300	142	47	Pass
0.0896	275	129	46	Pass
0.0991	258	111	43	Pass
0.1087	236	99	41	Pass
0.1182	219	87	39	Pass
0.1277	202	78	38	Pass
0.1372	182	69	37	Pass
0.1467	171	64	37	Pass
0.1562	162	58	35	Pass
0.1657	150	54	36	Pass
0.1752	144	45	31	Pass
0.1847	136	42	30	Pass
0.1943	131	34	25	Pass
0.2038	124	32	25	Pass
0.2133	115	29	25	Pass
0.2228	110	26	23	Pass
0.2323	106	26	24	Pass
0.2418	101	25	24	Pass
0.2513	91	23	25	Pass
0.2608	87	20	22	Pass
0.2703	82	19	23	Pass
0.2799	80	18	22	Pass
0.2894	74	18	24	Pass
0.2989	70	17	24	Pass
0.3084	69	16	23	Pass
0.3179	66	14	21	Pass
0.3274	60	10	16	Pass
0.3369	59	8	13	Pass
0.3464	58	8	13	Pass
0.3559	57	8	14	Pass
0.3655	55	7	12	Pass
0.3750	53	6	11	Pass
0.3845	47	6	12	Pass
0.3940	44	6	13	Pass
0.4035	44	6	13	Pass
0.4130	39	6	15	Pass
0.4225	37	6	16	Pass
0.4320	34	6	17	Pass
0.4415	32	6	18	Pass
0.4511	32	6	18	Pass
0.4606	31	5	16	Pass
0.4701	29	4	13	Pass
0.4796	27	4	14	Pass
0.4891	26	4	15	Pass
0.4986	26	2	7	Pass
0.5081	26	2	7	Pass
0.5176	25	2	8	Pass
0.5272	24	1	4	Pass

0.5367	24	1	4	Pass
0.5462	24	1	4	Pass
0.5557	22	1	4	Pass
0.5652	21	1	4	Pass
0.5747	20	1	5	Pass
0.5842	19	1	5	Pass
0.5937	19	1	5	Pass
0.6032	19	1	5	Pass
0.6128	18	1	5	Pass
0.6223	18	1	5	Pass
0.6318	18	1	5	Pass
0.6413	17	1	5	Pass
0.6508	17	1	5	Pass
0.6603	17	1	5	Pass
0.6698	17	1	5	Pass
0.6793	16	1	6	Pass
0.6888	15	1	6	Pass
0.6984	14	1	7	Pass
0.7079	12	1	8	Pass
0.7174	10	1	10	Pass
0.7269	10	1	10	Pass
0.7364	8	1	12	Pass
0.7459	8	1	12	Pass
0.7554	8	1	12	Pass
0.7649	8	1	12	Pass
0.7744	8	1	12	Pass
0.7840	8	1	12	Pass
0.7935	7	1	14	Pass
0.8030	7	1	14	Pass
0.8125	6	1	16	Pass
0.8220	6	1	16	Pass
0.8315	6	1	16	Pass
0.8410	6	1	16	Pass
0.8505	6	1	16	Pass
0.8601	6	1	16	Pass
0.8696	6	1	16	Pass
0.8791	6	1	16	Pass
0.8886	6	1	16	Pass
0.8981	6	1	16	Pass
0.9076	6	1	16	Pass
0.9171	6	1	16	Pass
0.9266	6	1	16	Pass
0.9361	6	1	16	Pass
0.9457	6	1	16	Pass
0.9552	6	1	16	Pass
0.9647	6	1	16	Pass
0.9742	6	1	16	Pass

Water Quality

POC 2





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #2
Total Pervious Area: 1.25
Total Impervious Area: 0

Mitigated Landuse Totals for POC #2
Total Pervious Area: 1.09
Total Impervious Area: 0.16

Flow Frequency Method: Cunnane

Flow Frequency Return Periods for Predeveloped. POC #2

Return Period	**Flow(cfs)**
2 year	0.172992
5 year	0.363006
10 year	0.505109
25 year	0.66942

Flow Frequency Return Periods for Mitigated. POC #2

Return Period	**Flow(cfs)**
2 year	0.076803
5 year	0.153778
10 year	0.213988
25 year	0.283773

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0173	620	304	49	Pass
0.0222	508	258	50	Pass
0.0272	418	213	50	Pass
0.0321	367	172	46	Pass
0.0370	325	150	46	Pass
0.0419	302	136	45	Pass
0.0469	278	120	43	Pass
0.0518	260	106	40	Pass
0.0567	237	90	37	Pass
0.0616	221	81	36	Pass
0.0666	202	71	35	Pass
0.0715	187	65	34	Pass
0.0764	171	58	33	Pass
0.0814	163	55	33	Pass
0.0863	150	44	29	Pass
0.0912	144	39	27	Pass
0.0961	137	32	23	Pass
0.1011	131	31	23	Pass
0.1060	125	27	21	Pass
0.1109	118	26	22	Pass
0.1158	111	25	22	Pass
0.1208	106	24	22	Pass
0.1257	102	20	19	Pass
0.1306	96	19	19	Pass
0.1356	87	18	20	Pass
0.1405	82	17	20	Pass
0.1454	80	17	21	Pass
0.1503	74	15	20	Pass
0.1553	71	11	15	Pass
0.1602	69	8	11	Pass
0.1651	66	8	12	Pass
0.1700	60	8	13	Pass
0.1750	58	7	12	Pass
0.1799	58	6	10	Pass
0.1848	57	6	10	Pass
0.1898	56	6	10	Pass
0.1947	53	6	11	Pass
0.1996	47	6	12	Pass
0.2045	44	6	13	Pass
0.2095	42	6	14	Pass
0.2144	39	6	15	Pass
0.2193	35	5	14	Pass
0.2242	34	5	14	Pass
0.2292	32	4	12	Pass
0.2341	32	4	12	Pass
0.2390	31	2	6	Pass
0.2440	28	2	7	Pass
0.2489	27	2	7	Pass
0.2538	26	1	3	Pass
0.2587	26	1	3	Pass
0.2637	26	1	3	Pass
0.2686	25	1	4	Pass
0.2735	25	1	4	Pass

0.2784	24	1	4	Pass
0.2834	24	1	4	Pass
0.2883	22	1	4	Pass
0.2932	21	1	4	Pass
0.2982	19	1	5	Pass
0.3031	19	1	5	Pass
0.3080	19	1	5	Pass
0.3129	18	1	5	Pass
0.3179	18	1	5	Pass
0.3228	18	1	5	Pass
0.3277	18	1	5	Pass
0.3327	17	1	5	Pass
0.3376	17	1	5	Pass
0.3425	17	1	5	Pass
0.3474	16	1	6	Pass
0.3524	15	1	6	Pass
0.3573	15	1	6	Pass
0.3622	14	1	7	Pass
0.3671	10	1	10	Pass
0.3721	10	1	10	Pass
0.3770	9	1	11	Pass
0.3819	8	1	12	Pass
0.3869	8	1	12	Pass
0.3918	8	1	12	Pass
0.3967	8	1	12	Pass
0.4016	8	1	12	Pass
0.4066	7	1	14	Pass
0.4115	7	1	14	Pass
0.4164	6	1	16	Pass
0.4213	6	1	16	Pass
0.4263	6	1	16	Pass
0.4312	6	1	16	Pass
0.4361	6	1	16	Pass
0.4411	6	1	16	Pass
0.4460	6	1	16	Pass
0.4509	6	1	16	Pass
0.4558	6	1	16	Pass
0.4608	6	1	16	Pass
0.4657	6	1	16	Pass
0.4706	6	1	16	Pass
0.4755	6	1	16	Pass
0.4805	6	1	16	Pass
0.4854	6	1	16	Pass
0.4903	6	0	0	Pass
0.4953	6	0	0	Pass
0.5002	6	0	0	Pass
0.5051	6	0	0	Pass

Water Quality

Model Default Modifications

Total of 0 changes have been made.

PERLND Changes

No PERLND changes have been made.

IMPLND Changes

No IMPLND changes have been made.

Appendix
Predeveloped Schematic

Mitigated Schematic

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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)

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

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.

[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.

There are no CCSYAs on-site. See attachment.

CRITICAL COARSE SEDIMENT YIELD MAP

NO SCALE

POTENTIAL CRITICAL COARSE SEDIMENT YIELD AREA (NONE ON-SITE)

(SOURCE: 2015 SAN DIEGO BAY WATERSHED MANAGEMENT AREA ANALYSIS)

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.

[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.

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)

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. Do not leave any fields blank; indicate *N/A* for any requested item that is not applicable.

PART 1 General Project and Applicant Information

Table 1: Project and Applicant Information

A. Project Summary Information	**ID No. IVF-20___-____ To be assigned by DPW-WPP**
Project Name	Sundale
Record ID (e.g. grading/improvement plan number, building permit)	PDS2021-LDGRMJ-30366
Project Address	(Vacant) Sundale Road, San Diego CA 92019
Assessor's Parcel Number(s) APN(s)	498-192-09
Project Watershed (complete Hydrologic Unit, Area, and Subarea Name with Numeric Identifier)	909.22 Sweetwater Hydrologic Unit, Middle Sweetwater HA, Hillsdale HSA
B. Owner Information	
Name	Emad Yousif
Address	1490 South Orange Avenue, El Cajon, CA 92020
Email Address	emaloud@yahoo.com
Phone Number	(573) 289-5107

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

If this is a partial Installation Verification Form submittal, list ALL DMAs and BMPs for the Priority Development Project in **Table 2**. Provide acceptance information where applicable.

Table 2: Information for Partial IVF Submittals

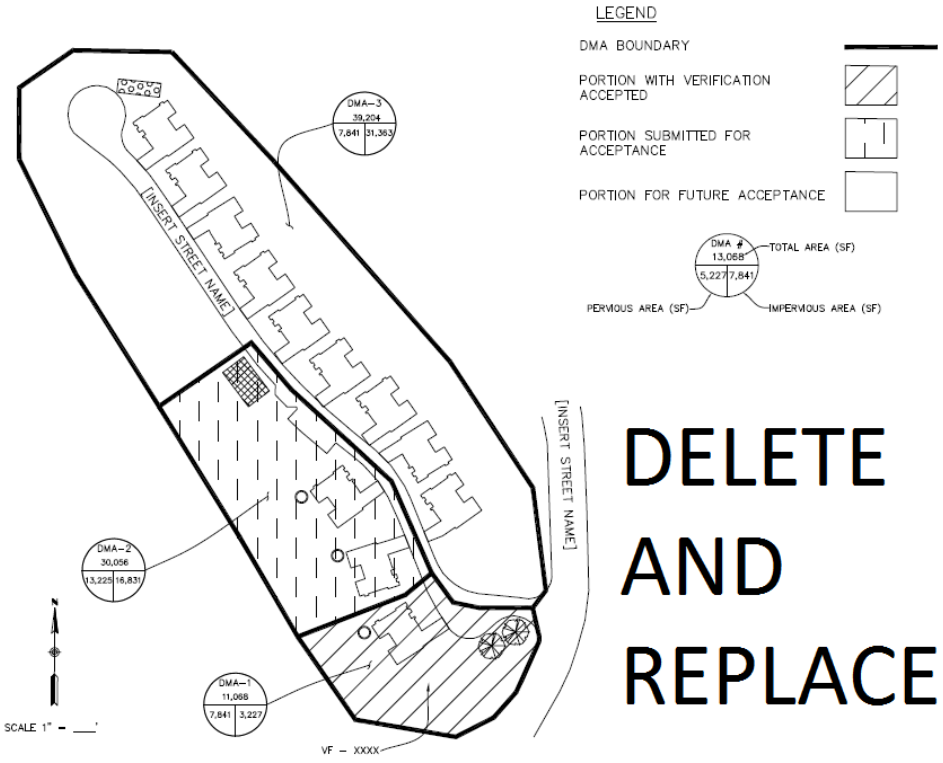
A: DMA and BMP Information

DMA #	Structural and Significant Site Design BMPs	WPP Acceptance Date	IVF ID No. (e.g. 2018-001)

B: DMA and BMP Map

Please attach a map showing (1) all DMAs for the project site, (2) the DMAs and/or lots accepted under previous Verification Forms, and (3) the locations of Structural BMPs and Significant Site Design BMPs previously accepted.

SAMPLE DMA MAP



PART 2 DMA and 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.
- Documentation of SD-BMPs is not required in this table for any DMA that also contains S-BMPs.
- 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.

Table 3: Required Information for Structural BMPs and Significant Site Design BMPs

DMA #	BMP Information			Maintenance Category	Maintenance Agreement or Maintenance Notification Recorded Doc. #	Construction Plan Sheet #	Landscape Plan # & Sheet # (For Vegetated BMPs Only)	FOR DPW-WPP USE ONLY *Reviewer concurs that the BMP(s) may be accepted into inventory (date and initial)*
	Quantity	Description/Type of Structural BMP	BMP ID #(s)					
Part A Structural BMPs (S-BMPs)								
Add rows as needed								
Part B Significant Site Design BMPs (SSD-BMPs)								
1A	1	Tree Well	DMA #1A	---	---	GP SHEET 2		
1B	1	Tree Well	DMA #1B	---	---	GP SHEET 2		
2	1	Tree Well	DMA #2	---	---	GP SHEET 2		

3	1	Tree Well	DMA #3	---	---	GP SHEET 2		
4A	1	Tree Well	DMA #4A	---	---	GP SHEET 2		
4B	1	Tree Well	DMA #4B	---	---	GP SHEET 2		
5A	1	Tree Well	DMA #5A	---	---	GP SHEET 2		
5B	1	Tree Well	DMA #5B	---	---	GP SHEET 2		
6	2	Tree Well	DMA #6	---	---	GP SHEET 2		

PART 3 Required Attachments for All BMPs Listed in Table 3

For ALL projects, submit the following to the County inspector (check all that are attached):

☐ Photographs: Labeled photographs illustrating proper construction of each S-BMP or SSD-BMP.

☐ Maintenance Agreements: Copies of all approved and recorded Storm Water Maintenance Agreements (SWMAs) or Maintenance Notifications (MNs) for all S-BMPs.

Note: All BMPs proposed for County ownership will remain the responsibility of the owner listed on **Page 1** until a signed Letter of Acceptance of Completion is received by the DPW Watershed Protection Program.

For Grading and Improvement projects only, ALSO submit:

☐ Construction Plans: An 11" X 17" copy of the most current applicable approved Construction Plan sheets:

- ☐ Grading Plans, AND/OR
- ☐ Improvement Plans, AND/OR
- ☐ Precise Grading Plan(s) (only for residential subdivisions with tract homes), AND/OR
- ☐ Other (Please specify) Click here to enter text.

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

- ☐ A BMP Table, AND
- ☐ A plan/cross-section of each verified as-built BMP, AND
- ☐ The location of each verified as-built BMP

☐ Landscape Plans: An 11" X 17" copy of the most current applicable Landscape Plan sheets where the BMPs are required to be vegetated, including:

- ☐ The Certification of Completion (Form 407), AND
- ☐ The Certificate of Approval from PDS Landscape Architect

Note: For each Landscape Plan, the sheets submitted must show the location of each verified as-built BMP.

Required only for Verifications for Partial Record Plans

☐ If this is a partial record plan verification, please include the following:

- ☐ A list of previously submitted Verification Forms (**Table 2, A**)
- ☐ A map of DMAs and BMPs (**Table 2, B**)

PART 4 Preparer's Certification

By signing below, I certify that the BMP(s) listed in Table 3 of this Verification Form have been constructed and all 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 (Table 3, Part A) must be certified by a licensed professional engineer.

Please sign and, if applicable, provide your seal below.

[SEAL]

Preparer's Printed Name:

____Click here to enter text._____

Email: _Click here to enter text._____

Phone Number: _Click here to enter text._____

Preparer's Signed Name:

_____

Date: _Click here to enter text._____

COUNTY - OFFICIAL USE ONLY:

For County Inspectors

County Department: _____

Date verification received from EOW: _____

By signing below, County Inspector concurs that every noted BMP has been installed per plan.

Inspector Name: _____

Inspector's Signature: _____ Date: _____

For Building Division Only

Inspection Supervisor Name: _____

Inspector Supervisor's Signature: _____ Date: _____

PDCI & Building, along with the rest of this package, please provide to DPW WPP:

☐ A copy of the final accepted SWQMP and any accepted addendum

For Watershed Protection Program Only

Date Received: _____

WPP Reviewer: _____

WPP Reviewer concurs that the BMPs accepted in **Part 2** above may be entered into inventory.

WPP Reviewer's Signature: _____ Date: _____

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.

Recorded at Request of, and When)
Recorded, Please Return To:)
COUNTY OF SAN DIEGO)
DEPARTMENT OF PUBLIC WORKS)
ATTN: **TAYLOR RYAN** (O-650))
5510 OVERLAND AVENUE, STE 310)
SAN DIEGO, CA 92123)

Above Space For Recorder's Use

STORM WATER FACILITIES MAINTENANCE AGREEMENT

(TM-2272, PDS2021-LDGRMJ-30366)

THIS AGREEMENT for the maintenance and repair of certain Storm Water Management Facilities is entered into between **EMAD YOUSIF** (hereinafter referred to as "OWNER"), and the County of San Diego (hereinafter referred to as "COUNTY"), for the benefit of the COUNTY, the OWNER, the successors in interest to the COUNTY or the OWNER, and the public generally.

RECITALS

A. OWNER is the owner of certain real property located in the County of San Diego, California, more particularly described in Exhibit "A" hereto (hereinafter referred to as the "PROPERTY"), and has proposed that the PROPERTY be developed as a **six lot subdivision** in accordance with application(s) for the following permit(s) or approval(s) which is/are on file with the COUNTY: **TM-2272, PDS2021-LDGRMJ-30366**.

B. In accordance with the "County of San Diego Watershed Protection, Storm Water Management and Discharge Control" Ordinance (San Diego County Code Section 67.801 et seq.; the "Storm Water Ordinance"), the County of San Diego "Subdivision Ordinance" (San Diego County Code Section 81.101 et seq.), the County of San Diego Zoning Ordinance, the "Grading Ordinance" (San Diego County Code Section 87.101 et seq.), and/or other ordinances or regulations of COUNTY which regulate land development, OWNER has prepared and submitted to COUNTY a Storm Water Quality Management Plan (hereinafter, the "SWQMP"), which is on file with COUNTY's Director of Public Works. The SWQMP proposes that Storm Water runoff from the PROPERTY be managed by the use of the following Storm Water Management Facilities which are identified in the SWQMP as "Best Management Practices" or "BMPs": **Structural Detention Basins with incorporated Tree Wells and Underdrains**.

The precise location(s) and extent of the BMPs are indicated on the **Grading Plan** on file with COUNTY's Department of Public Works, as No. **PDS2021-LDGRMJ-30336**,

including any plan revisions affecting the BMPs which are approved by OWNER and the COUNTY. The SWQMP specifies the manner and standards by which the BMPs must be repaired and maintained in order to retain their effectiveness, as set forth in the "BMP MAINTENANCE PROGRAM" which is attached hereto as Exhibit "B" and Exhibit "C" illustrating the locations of the installed BMPs.

C. The information contained in the SWQMP, and OWNER's representations that the BMPs will be maintained pursuant to the SWQMP, have been relied upon by COUNTY in approving OWNER's development applications. It is the purpose of this Agreement to assure that the BMPs are maintained, by creating obligations which are enforceable against the OWNER and the OWNER's successors in interest in the PROPERTY. It is intended that these obligations be enforceable notwithstanding other provisions related to BMP maintenance which are provided by law.

AGREEMENT

NOW, THEREFORE, for consideration of (a) COUNTY's approval of the above development applications, and (b) the mutual covenants set forth herein, **IT IS HEREBY AGREED AS FOLLOWS:**

1. Maintenance of Storm Water Management Facilities. OWNER agrees, for itself and its successors in interest to all or any portion of the PROPERTY, to comply in all respects with the requirements of the Storm Water Ordinance and the SWQMP with regards to the maintenance of BMPs designated in the SWQMP, and in particular agrees to perform, at its sole cost, expense and liability, the following "MAINTENANCE ACTIVITIES": all inspections, cleaning, repairs, servicing, maintenance and other actions specified in the BMP MAINTENANCE PROGRAM, with respect to all of the BMPs listed at Recital "B" above, at the times and in the manner specified in the BMP MAINTENANCE PROGRAM. OWNER shall initiate, perform and complete all MAINTENANCE ACTIVITIES at the required time, without request or demand from COUNTY or any other agency. OWNER further agrees that "MAINTENANCE ACTIVITIES" shall include replacement, retrofit, upgrade or modification of the BMPs in the event of failure. The BMPs shall be deemed to have failed if they are unable to prevent the discharge of pollutants in accordance with the regulatory requirements in place at the time the SWQMP was approved or such subsequent requirements as may legally be imposed on OWNER as a condition of the continued use of the PROPERTY. Replacement shall be with an identical type, size and model of BMP, except that:

(a) COUNTY's Director of Public Works may authorize substitution of an alternative BMP if he or she determines that it will function as well as or better than the failed BMP; or

(b) If the BMP fails notwithstanding its intent or design, in the judgment of the Director of Public Works, the BMP must be modified, retrofitted or upgraded to prevent any continued or future failure.

2. Notices. OWNER further agrees that it shall, prior to transferring ownership of any land on which any of the above BMPs is located, and also prior to transferring ownership of any such BMP, provide clear written notice of the above maintenance obligations associated with that BMP to the transferee.

3. COUNTY's Right To Perform Maintenance; Waiver and Release. It is agreed that COUNTY shall have the right, but not the obligation, to elect to perform any or all of the MAINTENANCE ACTIVITIES if, in the COUNTY's sole judgment, OWNER has failed to perform the same. Prior to undertaking to perform any MAINTENANCE ACTIVITIES, COUNTY shall provide 30 days advance written notice to OWNER to correct the deficiencies noted by COUNTY; provided, however, that such prior written notice shall not be required in the event that the COUNTY determines that an emergency situation exists and that personal injury, property damage or other health or safety risks make it infeasible to provide such notice and cure period. It is recognized and understood that the COUNTY makes no representation that it intends to or will perform any of the MAINTENANCE ACTIVITIES, and any election by COUNTY to perform any of the MAINTENANCE ACTIVITIES shall in no way relieve OWNER of its continuing maintenance obligations under this Agreement. If COUNTY elects to perform any of the MAINTENANCE ACTIVITIES, it is understood that COUNTY shall be deemed to be acting as the agent of the OWNER and said work shall be without warranty or representation by COUNTY as to safety or effectiveness, shall be deemed to be accepted by OWNER "as is", and shall be covered by OWNER's defense and indemnity provisions below.

OWNER, for itself and its successors and assigns, hereby forever waives, releases and discharges the COUNTY from all claims, demands, rights and causes of action of any kind which they now have or hereafter may have on account of or in any way growing out of damages or injuries, known or unknown at the present time, resulting from the COUNTY's undertaking and carrying out said MAINTENANCE ACTIVITIES. OWNER hereby expressly agrees that the foregoing waiver and relinquishment of rights is given with full knowledge of the provisions of California Civil Code Section 1542 and with the intention that such waiver and relinquishment is intended to and shall extend to waive the benefits of the provisions of Section 1542, which reads as follows:

> "A general release does not extend to claims that the creditor or releasing party does not know or suspect to exist in his or her favor at the time of executing the release and that, if known by him or her, would have materially affected his or her settlement with the debtor or released party."

If COUNTY performs any of the MAINTENANCE ACTIVITIES pursuant to this paragraph 3, then OWNER shall pay all of COUNTY's costs incurred in performing the MAINTENANCE ACTIVITIES, including, but not limited to, County staff time and expenses of performing the MAINTENANCE ACTIVITIES. OWNER's obligation to pay COUNTY's costs of performing MAINTENANCE ACTIVITIES is a continuing obligation which shall not be limited by any other provision of this agreement.

4. Administration of Agreement.

(a) For COUNTY. COUNTY hereby designates its Director of Public Works as the officer charged with responsibility and authority to administer this Agreement on behalf of COUNTY. Any notice or communication related to the implementation of this Agreement desired or required to be delivered to COUNTY shall be addressed to said Director of Public Works at 5510 Overland Avenue, Suite 410, San Diego, California 92123-1237. The Director of Public Works is also granted authority to enter into appropriate amendments to this Agreement on behalf of COUNTY, provided that the amendment is consistent with the purposes of this Agreement as set forth above.

(b) For OWNER. The name and address of OWNER's agent for purposes of administration of this Agreement for OWNER, and on behalf of OWNER's successors until such time as OWNER has provided COUNTY with written notice of the name and address of its successor in interest, shall be:

Name: Emad Yousif

Address: 1490 South Orange Avenue, #128, El Cajon, CA, 92020

Any notice or communication related to the implementation of this Agreement desired or required to be delivered to OWNER shall be addressed to said person at said address. Any such notice or communication shall be deemed effective when so addressed and deposited in the U.S. Mail, First Class postage prepaid.

5. Defense and Indemnity. In addition to the Waiver and Release provided at paragraph 3 above, OWNER agrees that COUNTY shall not be liable for, and OWNER and its successors in interest shall defend and indemnify COUNTY and the employees and agents of COUNTY (collectively "COUNTY PARTIES") from and against, any and all claims, demands, regulatory enforcement actions, liability, judgments, awards, fines, mechanics' liens or other liens, labor disputes, losses, damages, expenses, charges or costs of any kind or character, including attorneys' fees and court costs (hereinafter collectively referred to as "CLAIMS"), related to this Agreement and arising either directly or indirectly from any act, error, omission or negligence of OWNER, OWNER's successors, or their contractors, licensees, agents, servants or

employees, including, without limitation, Claims caused by the concurrent negligent act, error or omission, whether active or passive, of COUNTY PARTIES, including actions undertaken by COUNTY pursuant to paragraph 3 above. OWNER shall have no obligation, however, to defend or indemnify COUNTY PARTIES from a Claim if it is determined by a court of competent jurisdiction that such Claim was caused by the sole negligence or willful misconduct of COUNTY PARTIES. Nothing in this Agreement, COUNTY'S approval of the subdivision or other applications or plans and specifications, or inspection of the work, is intended to acknowledge responsibility for any such matter, and COUNTY PARTIES shall have absolutely no responsibility or liability therefor unless otherwise provided by applicable law. Nothing in this paragraph is intended to, nor shall be interpreted so as to, have any effect upon the operation of any immunities from liability provided to COUNTY PARTIES by law related to the MAINTENANCE ACTIVITIES.

6. **OWNER's Continuing Responsibilities Where Work Commenced or Permit Obtained.** Notwithstanding any other provision of this Agreement, no transfer or conveyance of the PROPERTY or any portion thereof shall in any way relieve OWNER of or otherwise affect OWNER's responsibilities for installation or maintenance of BMPs which may have arisen under the ordinances or regulations of COUNTY referred to in Recital B above, or other Federal, State or COUNTY laws, on account of OWNER having obtained a permit which creates such obligations or having commenced grading, construction or other land disturbance work.

7. **Amendment.** The terms of this Agreement may be modified only by a written amendment approved and signed by the Board of Supervisors or the Director of Public Works acting on behalf of COUNTY, and by OWNER or OWNER's successor(s) in interest.

8. **Termination and Release.**

(a) Release Upon Termination. This Agreement may be terminated and OWNER and the PROPERTY released from the covenants set forth herein, by a Release which COUNTY may execute if it determines that another mechanism will assure the ongoing maintenance of the BMPs or that it is no longer necessary to assure such maintenance.

(b) Release Upon Conveyance. OWNER's BMP maintenance obligations herein constitute (in addition to covenants running with the land as described in paragraph 7 above) personal contractual covenants for which OWNER shall remain obligated notwithstanding conveyance of the PROPERTY. OWNER may obtain a release from said obligations as to all or a portion of the PROPERTY in the event OWNER conveys all of OWNER's interest in all or a portion of the PROPERTY, under the following procedure and conditions:

(i) OWNER shall notify the COUNTY in writing of its intent to become released due to such conveyance. The notice shall propose the date that the release is proposed to become effective, which shall not be less than 30 days after the date the notice is given. The notice shall provide COUNTY with the name, address and telephone number of the person to whom the PROPERTY or portion thereof is to be conveyed.

(ii) COUNTY may provide OWNER within such thirty day period with a "Deficiency Notice", stating either that there are then unperformed MAINTENANCE ACTIVITIES which must be completed prior to OWNER being released from said maintenance obligations, or that further information is required relating to the arrangements for the new owner to undertake the maintenance responsibilities. If COUNTY provides a Deficiency Notice, then OWNER shall not be released from the maintenance obligations until COUNTY is satisfied that the deficiencies have been rectified, in which case COUNTY shall provide OWNER written acknowledgement of release.

(iii) In the event COUNTY does not provide OWNER with a Deficiency Notice within such 30 day period, then OWNER shall on the 31st day be deemed released from the maintenance obligations of this Agreement (subject to the paragraph above entitled, "OWNERS' Continuing Responsibilities Where Work Commenced or Permit Obtained"). In that event, COUNTY shall provide OWNER written acknowledgement of release upon request by OWNER.

9. Governing Law and Severability. This Agreement shall be governed by the laws of the State of California. In the event that any of the provisions of this AGREEMENT are held to be unenforceable or invalid by any court of competent jurisdiction, the validity and enforceability of the remaining provisions shall not be affected thereby.

IN WITNESS WHEREOF, the parties have executed this AGREEMENT on the 25th day of April, 2024.

OWNER

By: _____ April 25 2024

EMAD YOUSIF, Owner Date

[Notarial Acknowledgement(s) Attached]

COUNTY OF SAN DIEGO

This is to certify that this Agreement is approved by the undersigned officer on behalf of the Board of Supervisors of the County of San Diego pursuant to authority conferred by action of the Board of Supervisors taken on August 13, 2003 (21), and the grantee consents to its recordation thereof by its duly authorized officer.

By: _____ _____

TAYLOR RYAN, P.E., Project Manager — Date
Department of Planning and Development Services

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT **CIVIL CODE § 1189**

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
County of San Diego)

On 4/25/24 before me, Tim Abbo, notary public,
Date *Here Insert Name and Title of the Officer*

personally appeared Emad Yousif
Name(s) of Signer(s)

n/a,

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

TIM ABBO
Notary Public - California
San Diego County
Commission # 2432816
My Comm. Expires Dec 30, 2026

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____
Signature of Notary Public

Place Notary Seal Above

OPTIONAL

Though this section is optional, completing this information can deter alteration of the document or fraudulent reattachment of this form to an unintended document.

Description of Attached Document

Title or Type of Document: _____
Document Date: _____ Number of Pages: _____
Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)

Signer's Name: _____
☐ Corporate Officer — Title(s): _____
☐ Partner — ☐ Limited ☐ General
☐ Individual ☐ Attorney in Fact
☐ Trustee ☐ Guardian or Conservator
☐ Other: _____
Signer Is Representing: _____

Signer's Name: _____
☐ Corporate Officer — Title(s): _____
☐ Partner — ☐ Limited ☐ General
☐ Individual ☐ Attorney in Fact
☐ Trustee ☐ Guardian or Conservator
☐ Other: _____
Signer Is Representing: _____

EXHIBIT"A"
LEGAL DESCRIPTION

PARCELS A, B, C, & D OF CERTIFICATE OF COMPLIANCE NO. BC-21-0016 C(1) RECORDED IN THE OFFICE OF THE COUNTY RECORDER ON JUNE 3, 2021 AS DOCUMENT NO. 2021-0415208.

SD-1
Tree Wells

BMP MAINTENANCE FACT SHEET
FOR
SITE DESIGN BMP SD-1 TREE WELLS

Tree wells as site design BMPs are trees planted in configurations that allow storm water runoff to be directed into the soil immediately surrounding the tree. The tree may be contained within a planter box or structural cells. The surrounding area will be graded to direct runoff to the tree well. There may be features such as tree grates, suspended pavement design, or shallow surface depressions designed to allow runoff into the tree well. Typical tree well components include:

- Trees of the appropriate species for site conditions and constraints
- Available growing space based on tree species, soil type, water availability, surrounding land uses, and project goals
- Entrance/opening that allows storm water runoff to flow into the tree well (e.g., a curb opening, tree grate, or surface depression)
- Optional suspended pavement design to provide structural support for adjacent pavement without requiring compaction of underlying layers
- Optional root barrier devices as needed; a root barrier is a device installed in the ground, between a tree and the sidewalk, intended to guide roots down and away from the sidewalk in order to prevent sidewalk lifting from tree roots
- Optional tree grates; to be considered to maximize available space for pedestrian circulation and to protect tree roots from compaction related to pedestrian circulation; tree grates are typically made up of porous material that will allow the runoff to soak through
- Optional shallow surface depression for ponding of excess runoff
- Optional planter box drain

Normal Expected Maintenance

Tree health shall be maintained as part of normal landscape maintenance. Additionally, ensure that storm water runoff can be conveyed into the tree well as designed. That is, the opening that allows storm water runoff to flow into the tree well (e.g., a curb opening, tree grate, or surface depression) shall not be blocked, filled, re-graded, or otherwise changed in a manner that prevents storm water from draining into the tree well. A summary table of standard inspection and maintenance indicators is provided within this Fact Sheet.

Non-Standard Maintenance or BMP Failure

Tree wells are site design BMPs that normally do not require maintenance actions beyond routine landscape maintenance. The normal expected maintenance described above ensures the BMP functionality. If changes have been made to the tree well entrance / opening such that runoff is prevented from draining into the tree well (e.g., a curb inlet opening is blocked by debris or a grate is clogged causing runoff to flow around instead of into the tree well, or a surface depression has been filled so runoff flows away from the tree well), the BMP is not performing as intended to protect downstream waterways from pollution and/or erosion. Corrective maintenance will be required to restore drainage into the tree well as designed.

Surface ponding of runoff directed into tree wells is expected to infiltrate/evapotranspirate within 24-96 hours following a storm event. Surface ponding longer than approximately 24 hours following a storm event may be detrimental to vegetation health, and surface ponding longer than approximately 96 hours following a storm event poses a risk of vector (mosquito) breeding. Poor drainage can result from clogging or compaction of the soils surrounding the tree. Loosen or replace the soils to restore drainage.

Other Special Considerations

Site design BMPs, such as tree wells, installed within a new development or redevelopment project are components of an overall storm water management strategy for the project. The presence of site design BMPs within a project is usually a factor in the determination of the amount of runoff to be managed with structural BMPs (i.e., the amount of runoff expected to reach downstream retention or biofiltration basins that process storm water runoff from the project as a whole). When site design BMPs are not maintained or are removed, this can lead to clogging or failure of downstream structural BMPs due to greater delivery of runoff and pollutants than intended for the structural BMP. Therefore, the [City Engineer] may require confirmation of maintenance of site design BMPs as part of their structural BMP maintenance documentation requirements. Site design BMPs that have been installed as part of the project should not be removed, nor should they be bypassed by re-routing roof drains or re-grading surfaces within the project. If changes are necessary, consult the [City Engineer] to determine requirements.

SD-1
Tree Wells

SUMMARY OF STANDARD INSPECTION AND MAINTENANCE FOR SD-1 TREE WELLS		
The property owner is responsible to ensure inspection, operation and maintenance of permanent BMPs on their property unless responsibility has been formally transferred to an agency, community facilities district, homeowners association, property owners association, or other special district. Maintenance frequencies listed in this table are average/typical frequencies. Actual maintenance needs are site-specific, and maintenance may be required more frequently. Maintenance must be performed whenever needed, based on maintenance indicators presented in this table. The BMP owner is responsible for conducting regular inspections to see when maintenance is needed based on the maintenance indicators. During the first year of operation of a structural BMP, inspection is recommended at least once prior to August 31 and then monthly from September through May. Inspection during a storm event is also recommended. After the initial period of frequent inspections, the minimum inspection and maintenance frequency can be determined based on the results of the first year inspections.		
Threshold/Indicator	**Maintenance Action**	**Typical Maintenance Frequency**
Tree health	Routine actions as necessary to maintain tree health.	• Inspect monthly. • Maintenance when needed.
Dead or diseased tree	Remove dead or diseased tree. Replace per original plans.	• Inspect monthly. • Maintenance when needed.
Standing water in tree well for longer than 24 hours following a storm event Surface ponding longer than approximately 24 hours following a storm event may be detrimental to tree health	Loosen or replace soils surrounding the tree to restore drainage.	• Inspect monthly and after every 0.5-inch or larger storm event. If standing water is observed, increase inspection frequency to after every 0.1-inch or larger storm event. • Maintenance when needed.
Presence of mosquitos/larvae For images of egg rafts, larva, pupa, and adult mosquitos, see http://www.mosquito.org/biology	Disperse any standing water from the tree well to nearby landscaping. Loosen or replace soils surrounding the tree to restore drainage (and prevent standing water).	• Inspect monthly and after every 0.5-inch or larger storm event. If mosquitos are observed, increase inspection frequency to after every 0.1-inch or larger storm event. • Maintenance when needed
Entrance / opening to the tree well is blocked such that storm water will not drain into the tree well (e.g., a curb inlet opening is blocked by debris or a grate is clogged causing runoff to flow around instead of into the tree well; or a surface depression is filled such that runoff drains away from the tree well)	Make repairs as appropriate to restore drainage into the tree well.	• Inspect monthly. • Maintenance when needed.

SUMMARY OF STANDARD INSPECTION AND MAINTENANCE FOR BF-1 BIOFILTRATION		
The property owner is responsible to ensure inspection, operation and maintenance of permanent BMPs on their property unless responsibility has been formally transferred to an agency, community facilities district, homeowners association, property owners association, or other special district. Maintenance frequencies listed in this table are average/typical frequencies. Actual maintenance needs are site-specific, and maintenance may be required more frequently. Maintenance must be performed whenever needed, based on maintenance indicators presented in this table. The BMP owner is responsible for conducting regular inspections to see when maintenance is needed based on the maintenance indicators. During the first year of operation of a structural BMP, inspection is recommended at least once prior to August 31 and then monthly from September through May. Inspection during a storm event is also recommended. After the initial period of frequent inspections, the minimum inspection and maintenance frequency can be determined based on the results of the first year inspections.		
Threshold/Indicator	**Maintenance Action**	**Typical Maintenance Frequency**
Accumulation of sediment, litter, or debris	Remove and properly dispose of accumulated materials, without damage to the vegetation or compaction of the media layer.	• Inspect monthly. If the BMP is 25% full* or more in one month, increase inspection frequency to monthly plus after every 0.1-inch or larger storm event. • Remove any accumulated materials found at each inspection.
Obstructed inlet or outlet structure	Clear blockage.	• Inspect monthly and after every 0.5-inch or larger storm event. • Remove any accumulated materials found at each inspection.
Damage to structural components such as weirs, inlet or outlet structures	Repair or replace as applicable	• Inspect annually. • Maintenance when needed.
Poor vegetation establishment	Re-seed, re-plant, or re-establish vegetation per original plans.	• Inspect monthly. • Maintenance when needed.
Dead or diseased vegetation	Remove dead or diseased vegetation, re-seed, re-plant, or re-establish vegetation per original plans.	• Inspect monthly. • Maintenance when needed.
Overgrown vegetation	Mow or trim as appropriate.	• Inspect monthly. • Maintenance when needed.
2/3 of mulch has decomposed, or mulch has been removed	Remove decomposed fraction and top off with fresh mulch to a total depth of 3 inches.	• Inspect monthly. • Replenish mulch annually, or more frequently when needed based on inspection.

*"25% full" is defined as ¼ of the depth from the design bottom elevation to the crest of the outflow structure (e.g., if the height to the outflow opening is 12 inches from the bottom elevation, then the materials must be removed when there is 3 inches of accumulation – this should be marked on the outflow structure).

SUMMARY OF STANDARD INSPECTION AND MAINTENANCE FOR BF-1 BIOFILTRATION (Continued from previous page)		
Threshold/Indicator	**Maintenance Action**	**Typical Maintenance Frequency**
Erosion due to concentrated irrigation flow	Repair/re-seed/re-plant eroded areas and adjust the irrigation system.	• Inspect monthly. • Maintenance when needed.
Erosion due to concentrated storm water runoff flow	Repair/re-seed/re-plant eroded areas, and make appropriate corrective measures such as adding erosion control blankets, adding stone at flow entry points, or minor re-grading to restore proper drainage according to the original plan. If the issue is not corrected by restoring the BMP to the original plan and grade, the [City Engineer] shall be contacted prior to any additional repairs or reconstruction.	• Inspect after every 0.5-inch or larger storm event. If erosion due to storm water flow has been observed, increase inspection frequency to after every 0.1-inch or larger storm event. • Maintenance when needed. If the issue is not corrected by restoring the BMP to the original plan and grade, the [City Engineer] shall be contacted prior to any additional repairs or reconstruction.
Standing water in BMP for longer than 24 hours following a storm event Surface ponding longer than approximately 24 hours following a storm event may be detrimental to vegetation health	Make appropriate corrective measures such as adjusting irrigation system, removing obstructions of debris or invasive vegetation, clearing underdrains, or repairing/replacing clogged or compacted soils.	• Inspect monthly and after every 0.5-inch or larger storm event. If standing water is observed, increase inspection frequency to after every 0.1-inch or larger storm event. • Maintenance when needed.
Presence of mosquitos/larvae For images of egg rafts, larva, pupa, and adult mosquitos, see http://www.mosquito.org/biology	If mosquitos/larvae are observed: first, immediately remove any standing water by dispersing to nearby landscaping; second, make corrective measures as applicable to restore BMP drainage to prevent standing water. If mosquitos persist following corrective measures to remove standing water, or if the BMP design does not meet the 96-hour drawdown criteria due to release rates controlled by an orifice installed on the underdrain, the [City Engineer] shall be contacted to determine a solution. A different BMP type, or a Vector Management Plan prepared with concurrence from the County of San Diego Department of Environmental Health, may be required.	• Inspect monthly and after every 0.5-inch or larger storm event. If mosquitos are observed, increase inspection frequency to after every 0.1-inch or larger storm event. • Maintenance when needed.
Underdrain clogged	Clear blockage.	• Inspect if standing water is observed for longer than 24-96 hours following a storm event. • Maintenance when needed.

References

American Mosquito Control Association.
http://www.mosquito.org/
County of San Diego. 2014. Low Impact Development Handbook.
http://www.sandiegocounty.gov/content/sdc/dpw/watersheds/susmp/lid.html
San Diego County Copermittees. 2016. Model BMP Design Manual, Appendix E, Fact Sheet SD-1.
http://www.projectcleanwater.org/index.php?option=com_content&view=article&id=250&Itemid=220

SD-1
Tree Wells

Date:	Inspector:	BMP ID No.:
Permit No.:	APN(s):	
Property / Development Name:	Responsible Party Name and Phone Number:	
Property Address of BMP:	Responsible Party Address:	

INSPECTION AND MAINTENANCE CHECKLIST FOR SD-1 TREE WELLS PAGE 1 of 2			
Threshold/Indicator	**Maintenance Recommendation**	**Date**	**Description of Maintenance Conducted**
Dead or diseased tree Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Remove dead or diseased tree ☐ Replace per original plans ☐ Other / Comments:		
Standing water in tree well for longer than 24 hours following a storm event Surface ponding longer than approximately 24 hours following a storm event may be detrimental to tree health Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Loosen or replace soils surrounding the tree to restore drainage ☐ Other / Comments:		

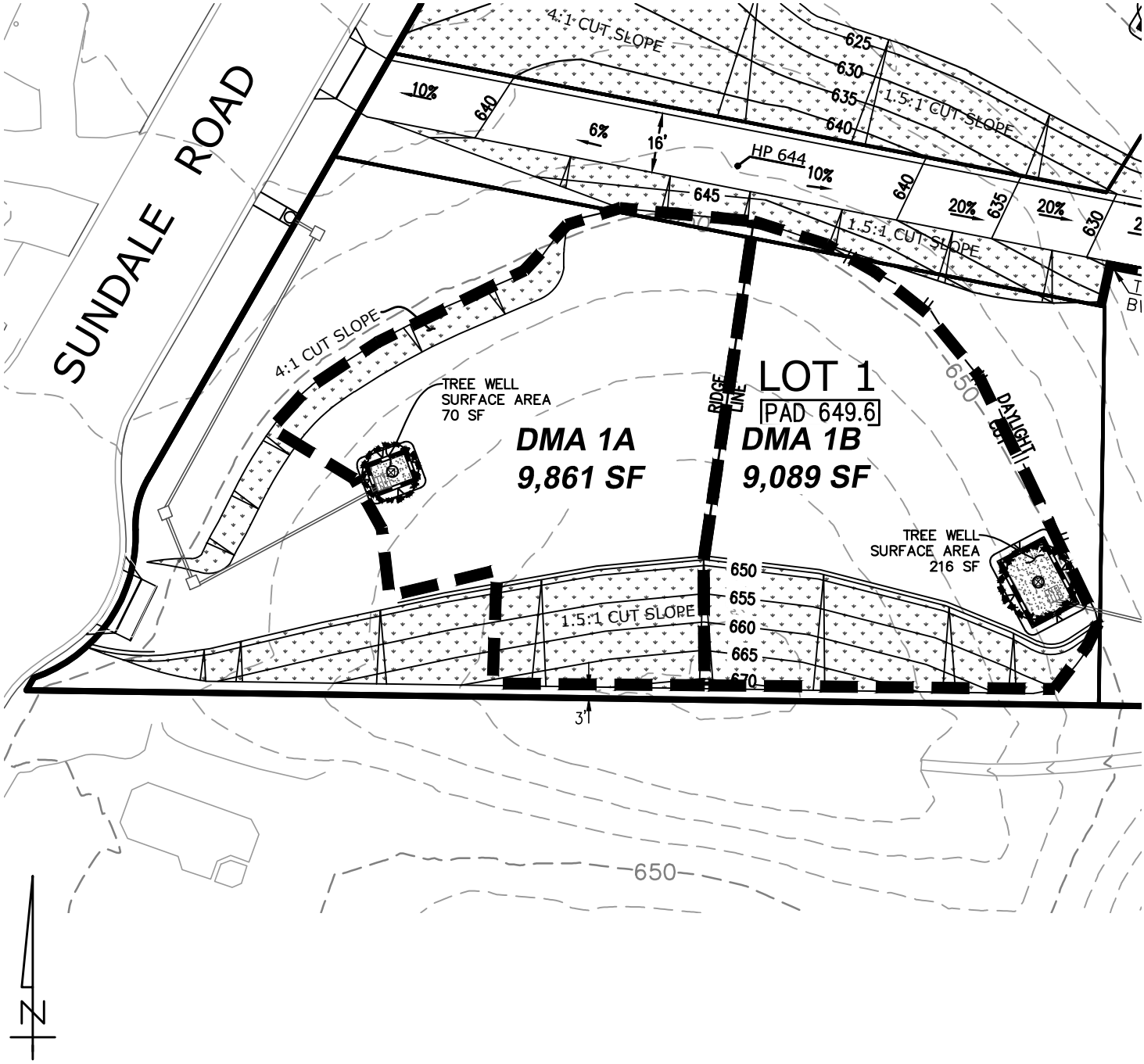
SD-1
Tree Wells

Date:	Inspector:	BMP ID No.:
Permit No.:	APN(s):	

INSPECTION AND MAINTENANCE CHECKLIST FOR SD-1 TREE WELLS PAGE 2 of 2			
Threshold/Indicator	**Maintenance Recommendation**	**Date**	**Description of Maintenance Conducted**
Presence of mosquitos/larvae For images of egg rafts, larva, pupa, and adult mosquitos, see http://www.mosquito.org/biology Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Disperse any standing water from the tree well to nearby landscaping ☐ Loosen or replace soils surrounding the tree to restore drainage (and prevent standing water) ☐ Other / Comments:		
Entrance / opening to the tree well is blocked such that storm water will not drain into the tree well (e.g., a curb inlet opening is blocked by debris or a grate is clogged causing runoff to flow around instead of into the tree well; or a surface depression is filled such that runoff drains away from the tree well) Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Make repairs as appropriate to restore drainage into the tree well ☐ Other / Comments:		

EXHIBIT "C"

SHEET 1 OF 6



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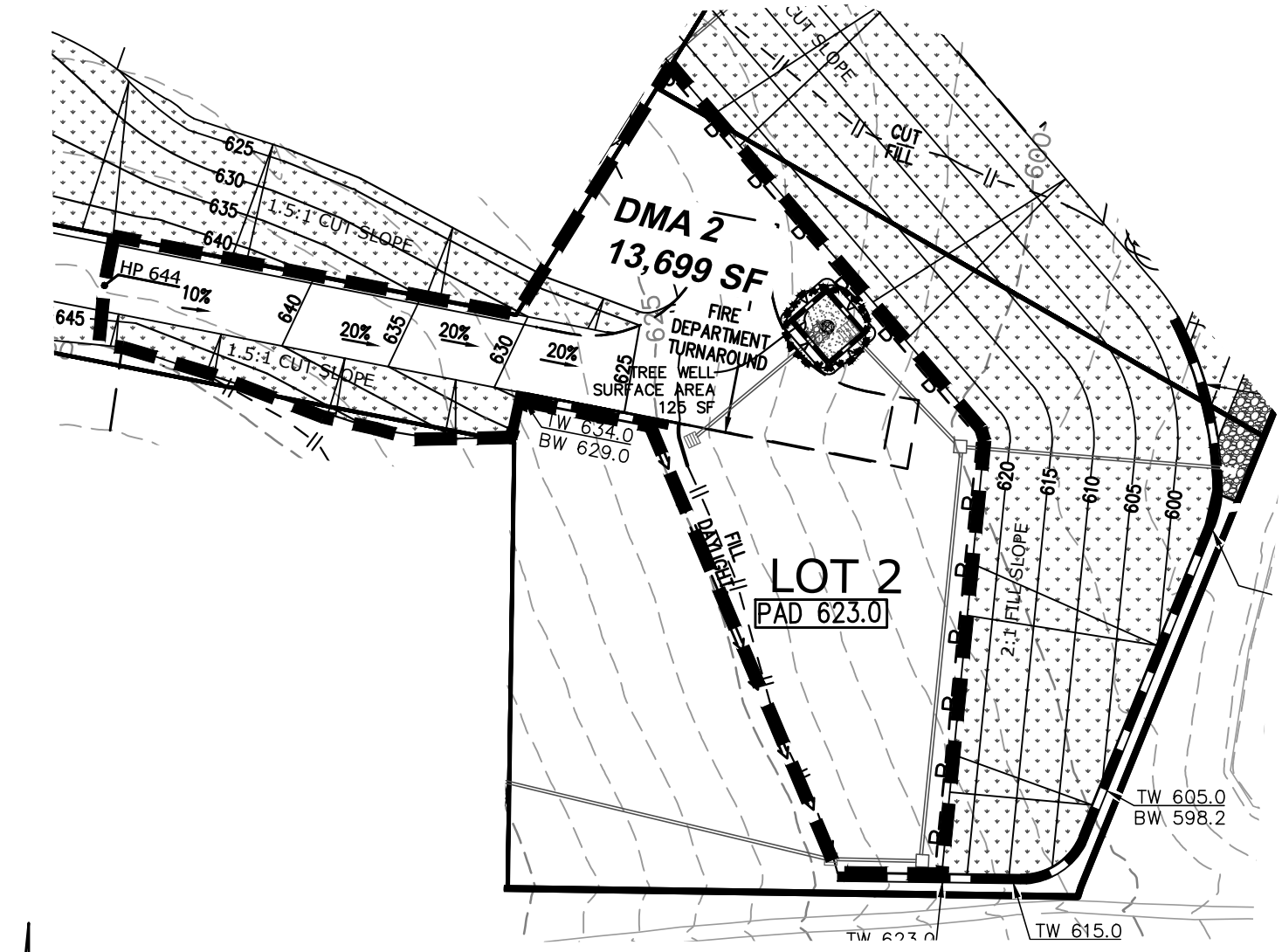
SHEET 2 OF 6



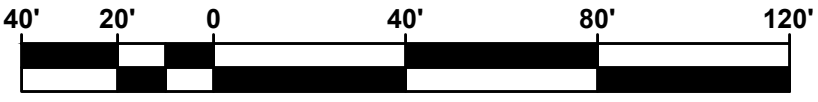


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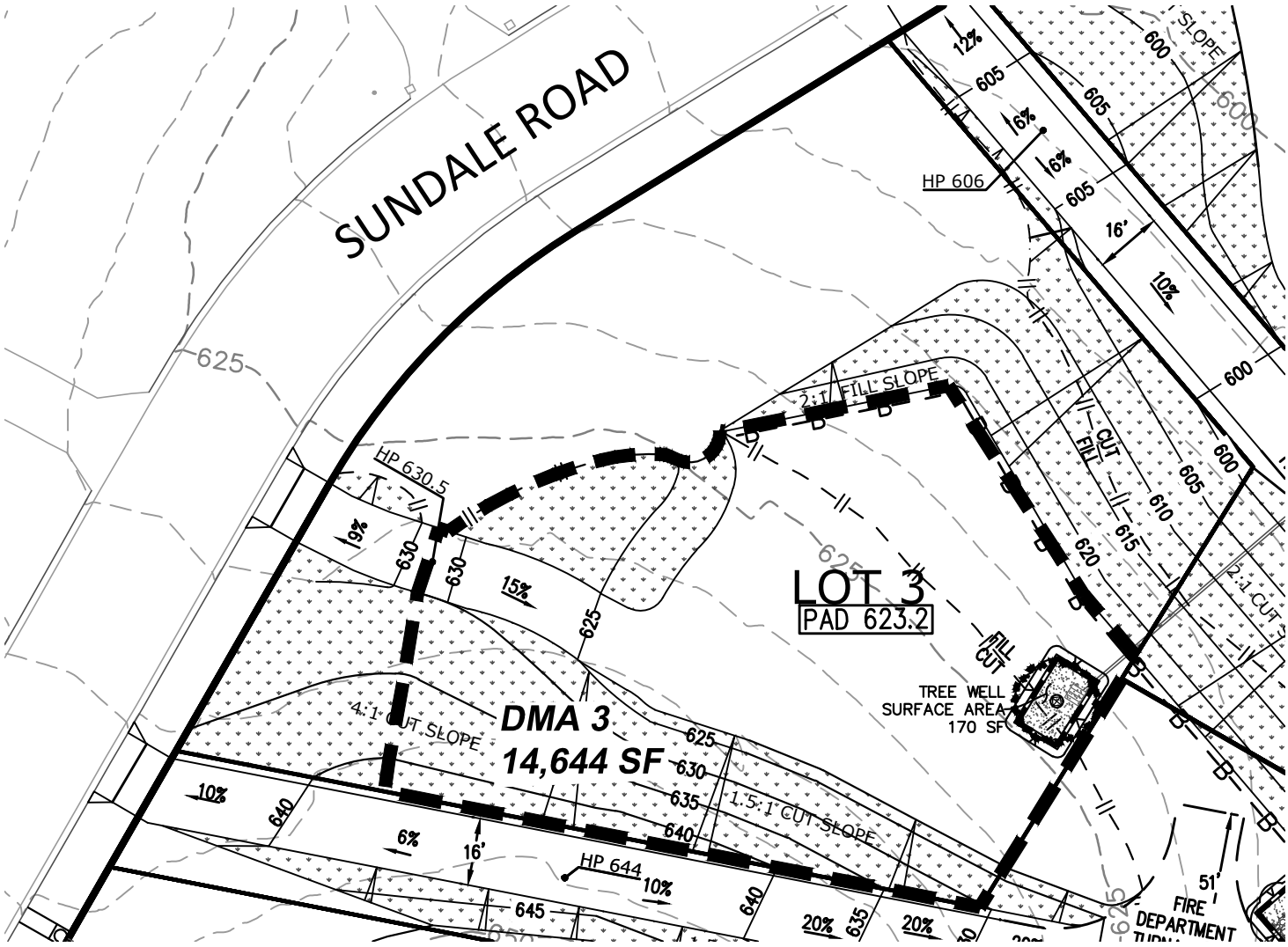
EXHIBIT "C"

SHEET 3 OF 6



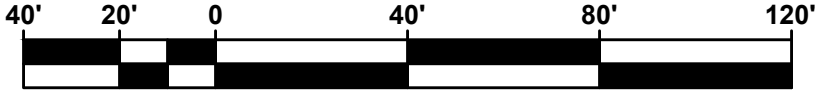


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EXHIBIT "C"

SHEET 4 OF 6

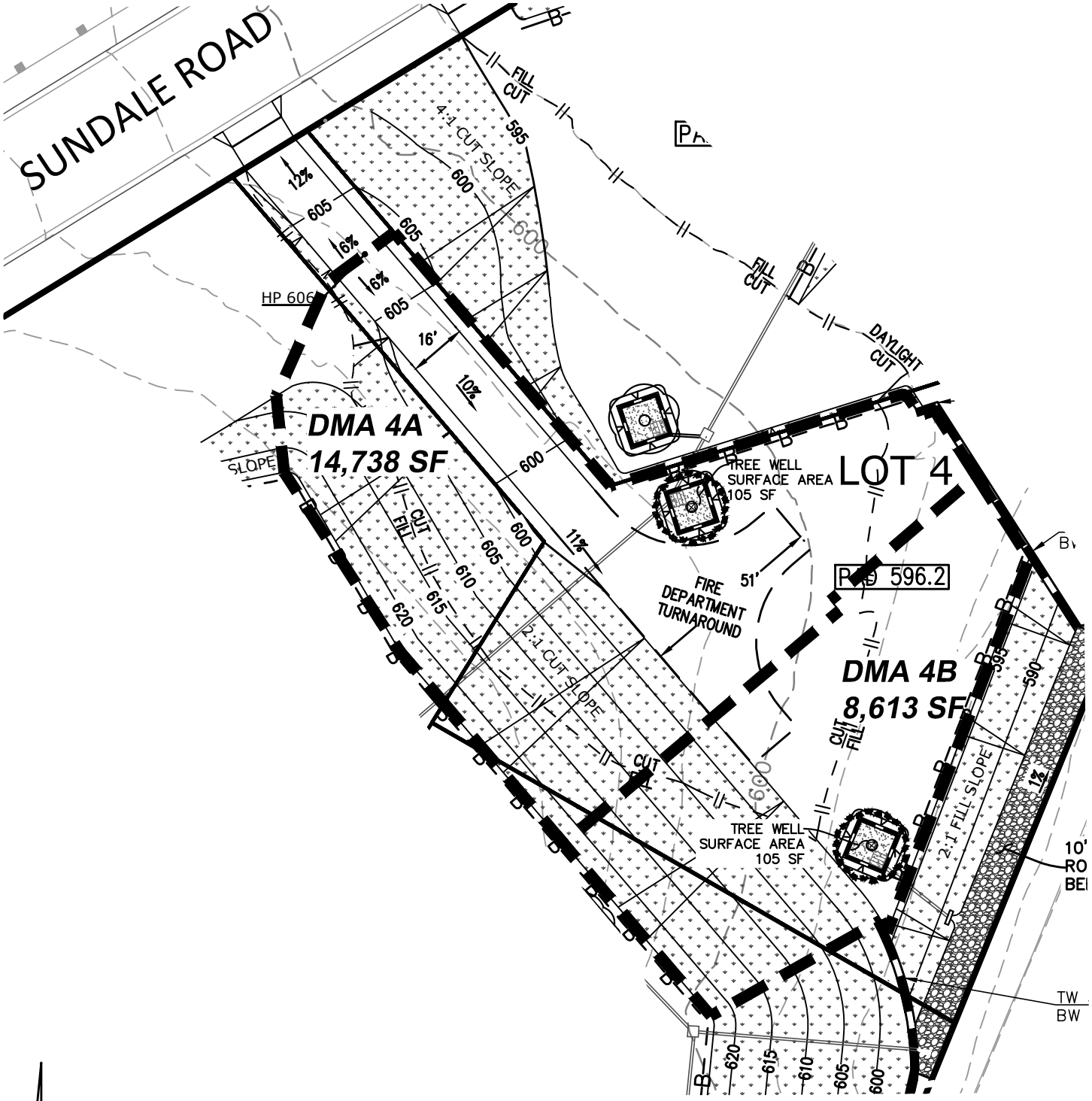

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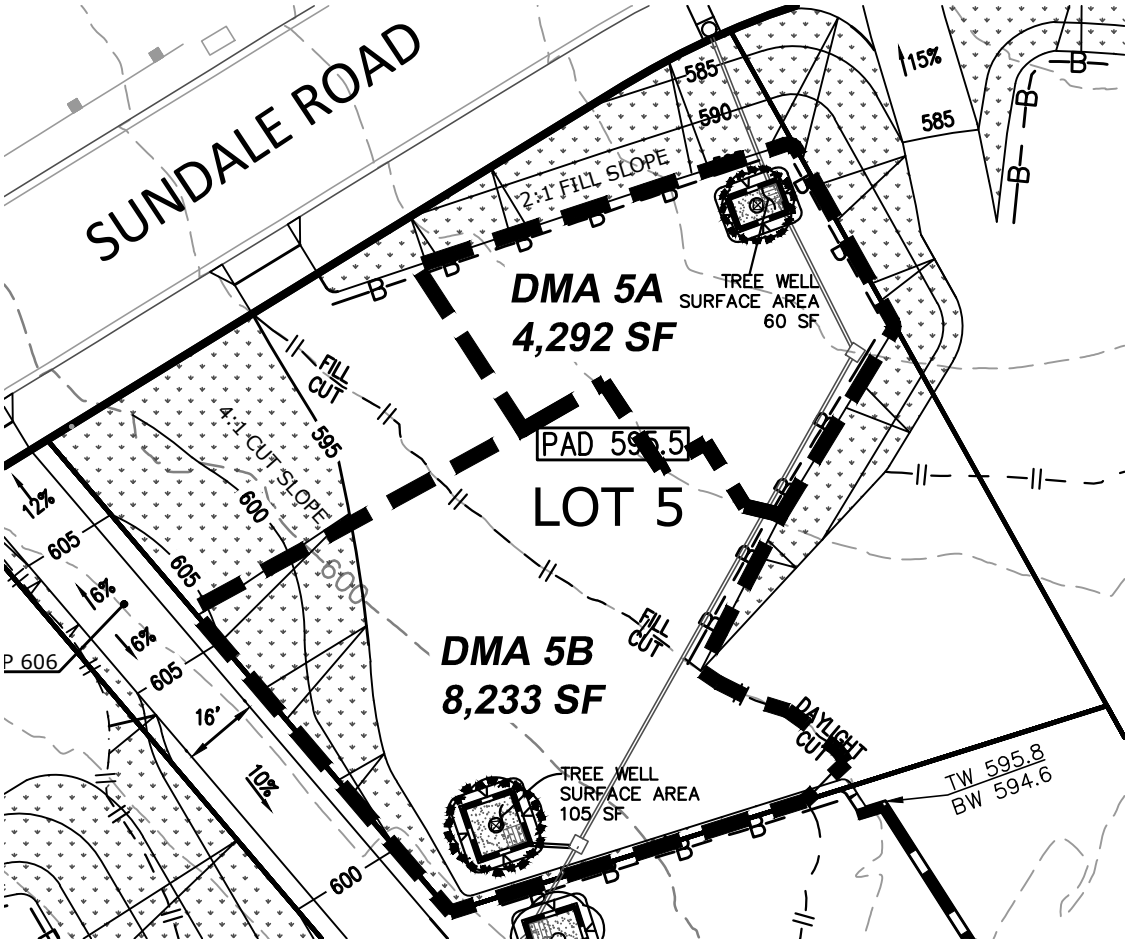
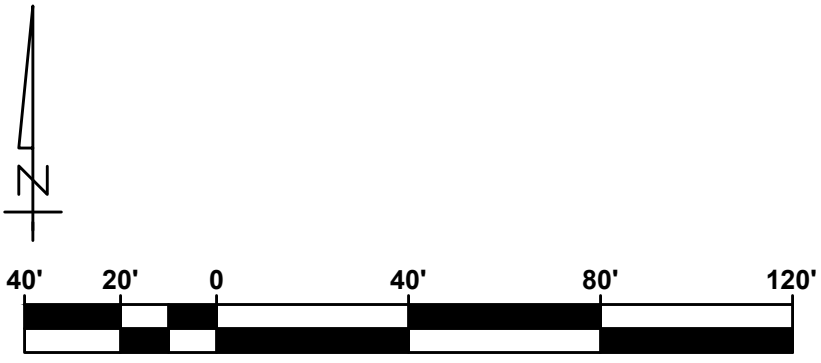
EXHIBIT "C"

SHEET 5 OF 6





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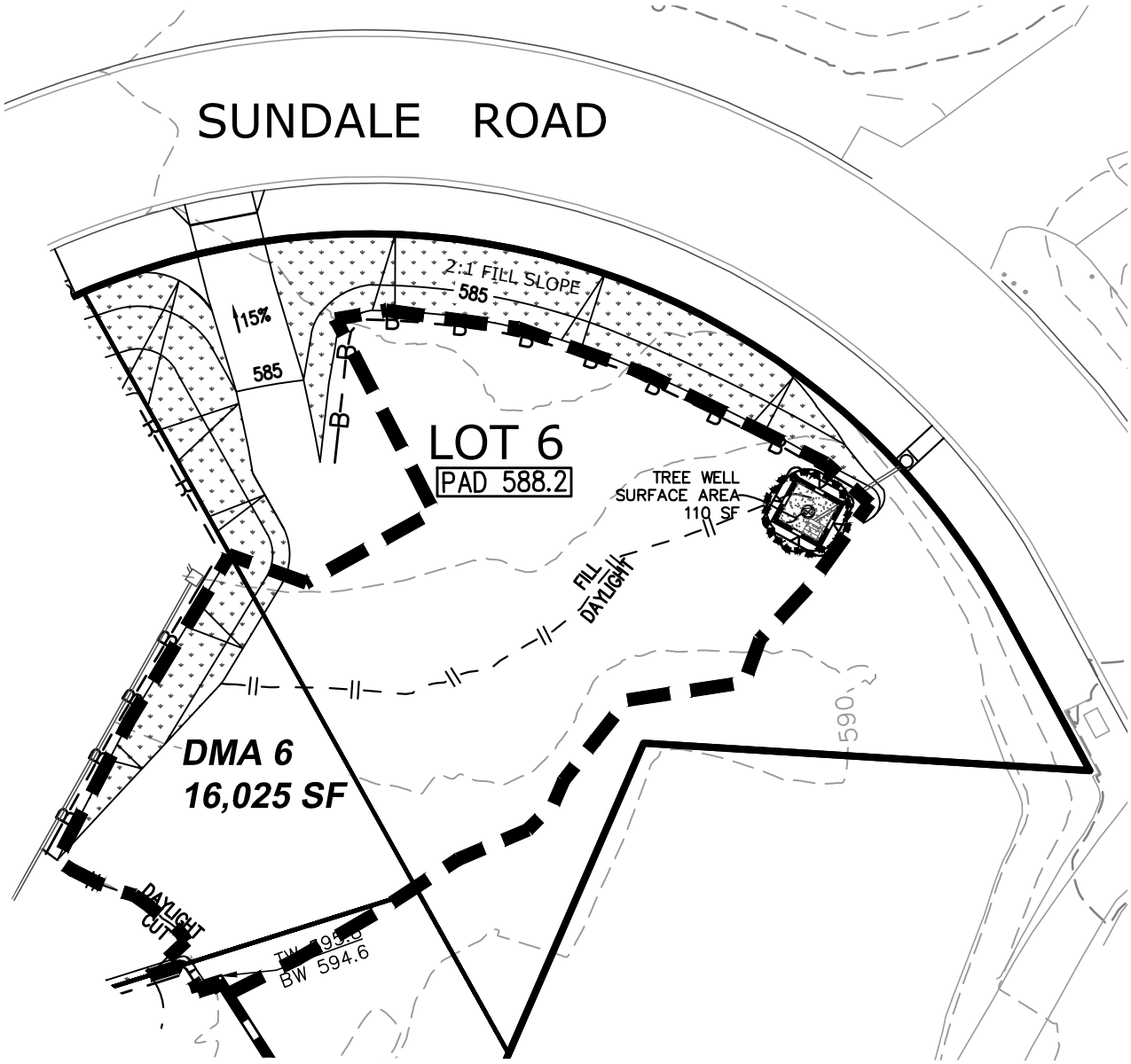

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