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:	Harbison Canyon Subdivision
Record ID (Permit) No(s):	PDS2022-TPM-21316
Assessor's Parcel No(s):	513-101-11
Street Address (or Intersection):	2030 Harbison Canyon Road
City, State, Zip:	El Cajon, CA 92019
Part 2. Applicant / Project Proponent Information	
Name:	Nagham Sabah Hakeem
Company:	
Street Address:	1233 Pfeifer Lane
City, State, Zip:	El Cajon, CA 92020
Phone Number	(224) 425-8802
Email:	nagham.sabah@gmail.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)
	33,120	48,404	193,002 ft^2

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

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

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

Part 4. Priority Classification & SWQMP Form Selection

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

Part 5. Applicant Signature

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

Applicant / Project Proponent Signature: [signature] Date: 9/13/2022

- ***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

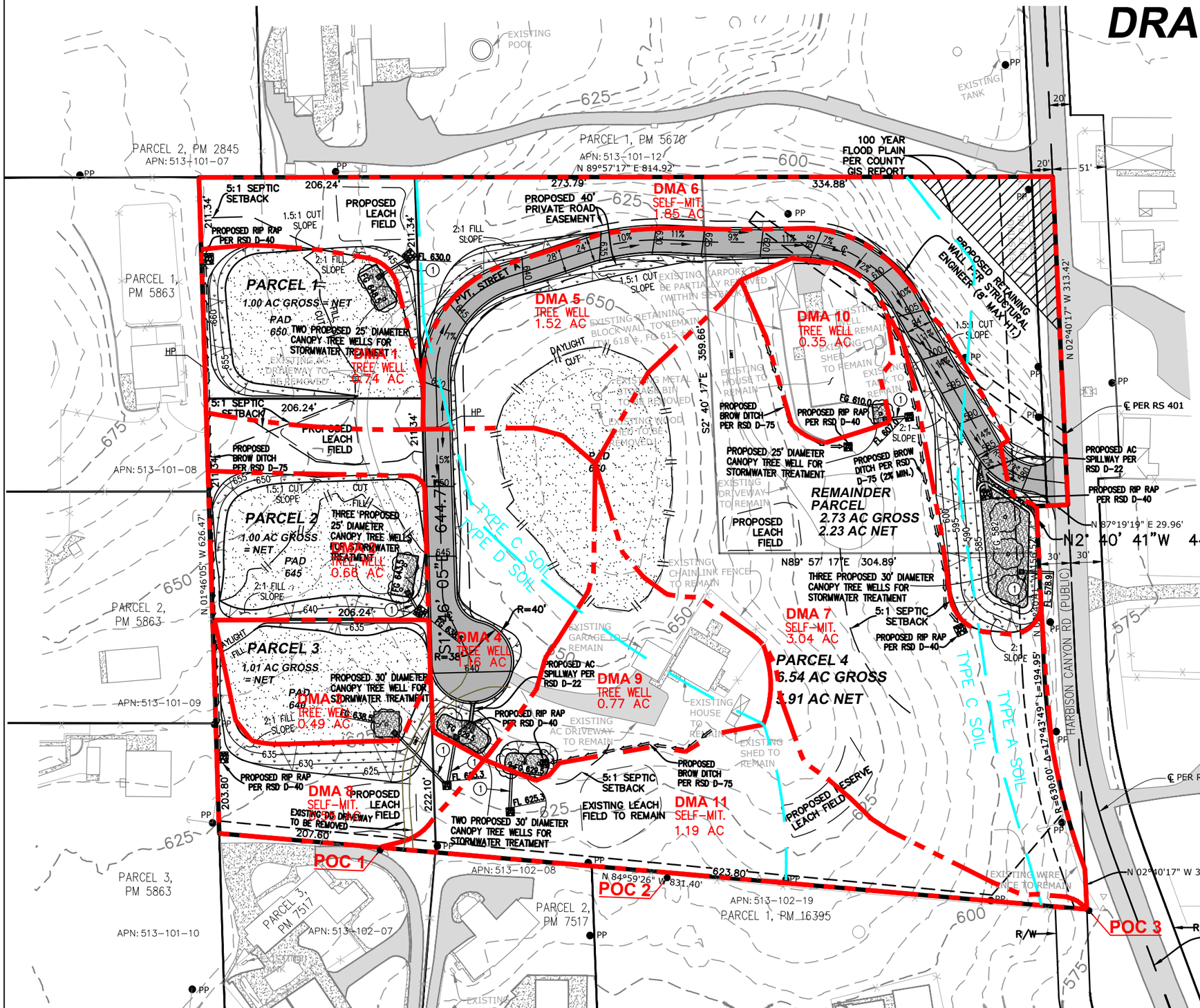
- DMA Exhibits must show all DMAs on the project site. Exhibits must include all applicable features identified in applicable SWQMP attachments.
- Exhibits may be prepared individually for the BMPs associated with each applicable SWQMP Attachment (6, 7, 8, and/or 9) or combined into one or more consolidated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

DMA Exhibit ID #:	
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.

DRAINAGE MANAGEMENT AREA EXHIBIT

2030 HARBISON CANYON ROAD
EL CAJON, CA 92019



LEGEND:

- DMA BOUNDARY
- TREE IN TREE WELL (SEE BELOW FOR MATURE CANOPY DIAMETER SIZES PER EACH DMA 1-5, 9, 10)
- PROPOSED AC PAVEMENT

NOTES:

1. SOIL: TYPE A, C, D
2. CRITICAL SEDIMENT YIELD COARSE AREAS: NONE
3. DEPTH TO GROUNDWATER: UNKNOWN
4. NO NATURAL HYDROLOGIC FEATURES EXIST ON-SITE
5. PROPOSED IMPERVIOUS AREAS ON PARCELS 1-3 IS 6,500 SF MAXIMUM. THIS ACCOUNTS FOR THE FUTURE HOME ROOF AREA, FUTURE DRIVEWAY, AND ANY FUTURE HARDSCAPE.

DMA SUMMARY:

DMA 1 : 2 ~ 25' MATURE CANOPY DIAMETER TREE WELLS (3' DEEP AMENDED SOIL, 1,200 CF AMENDED SOIL VOLUME PROVIDED PER TREE)

DMA 2 : 2 ~ 25' MATURE CANOPY DIAMETER TREE WELLS (3' DEEP AMENDED SOIL, 1,200 CF AMENDED SOIL VOLUME PROVIDED PER TREE)

DMA 3 : 1 ~ 30' MATURE CANOPY DIAMETER TREE WELL (3' DEEP AMENDED SOIL, 1,728 CF AMENDED SOIL VOLUME PROVIDED PER TREE)

DMA 4 : 2 ~ 30' MATURE CANOPY DIAMETER TREE WELLS (4' DEEP AMENDED SOIL, 1,600 CF AMENDED SOIL VOLUME PROVIDED PER TREE)

DMA 5 : 3 ~ 30' MATURE CANOPY DIAMETER TREE WELLS (3' DEEP AMENDED SOIL, 2,468 CF AMENDED SOIL VOLUME PROVIDED PER TREE)

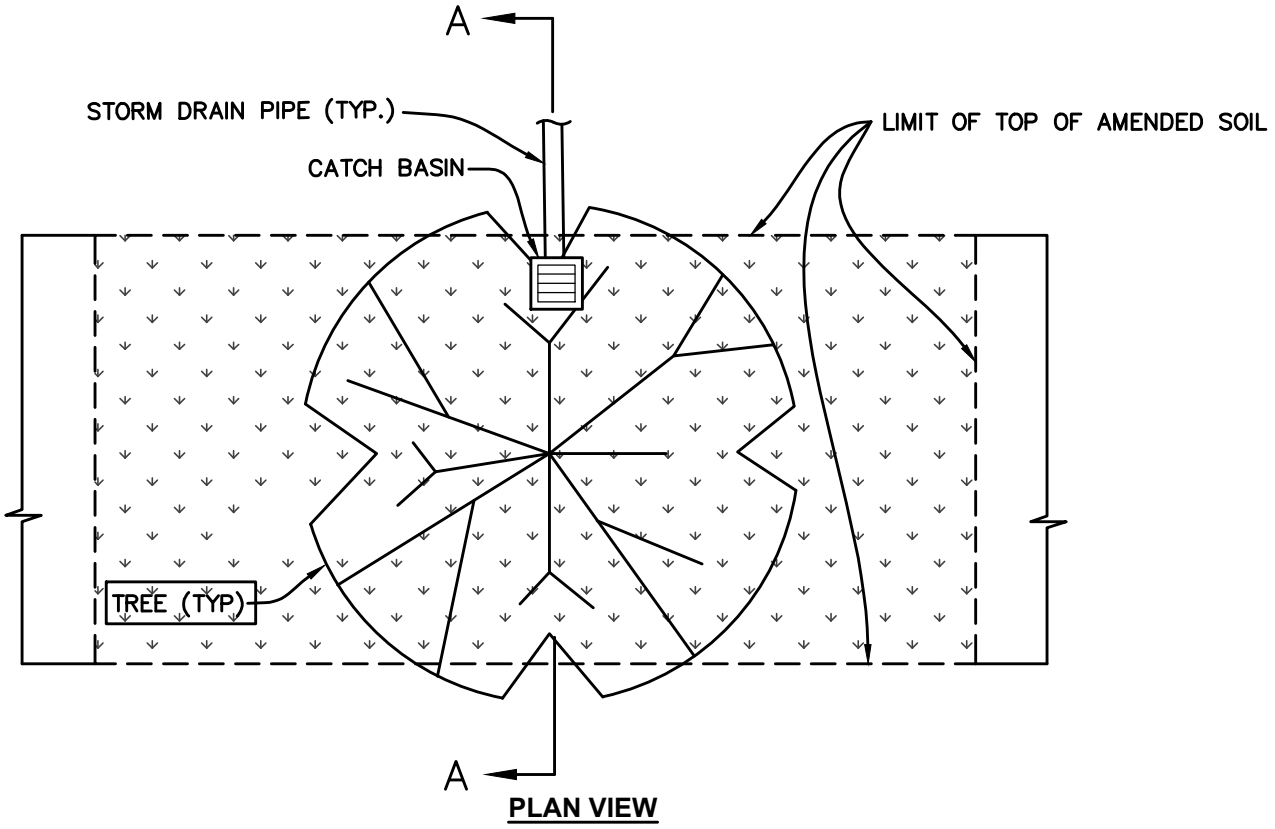
DMA 9 : 2 ~ 30' MATURE CANOPY DIAMETER TREE WELLS (4' DEEP AMENDED SOIL, 1,444 CF AMENDED SOIL VOLUME PROVIDED PER TREE)

DMA 10 : 1 ~ 25' MATURE CANOPY DIAMETER TREE WELL (4' DEEP AMENDED SOIL, 1,232 CF AMENDED SOIL VOLUME PROVIDED PER TREE)

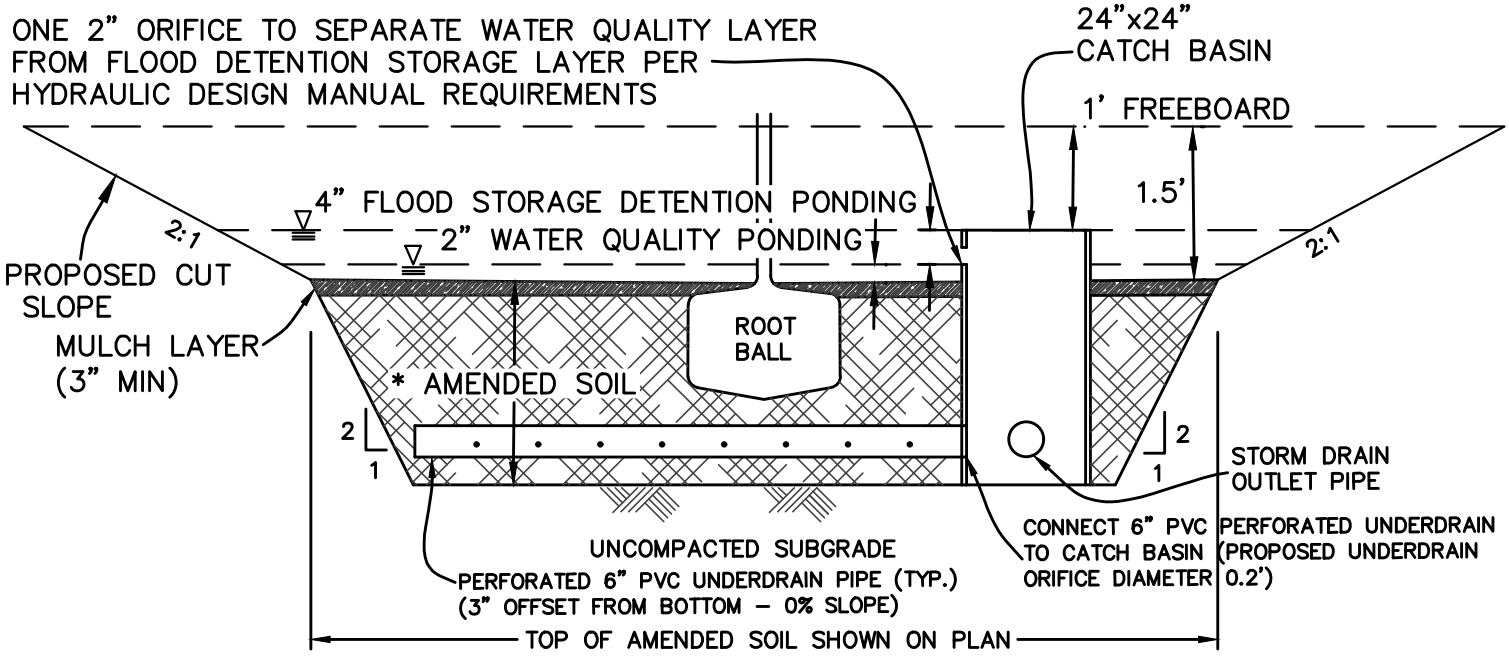
100' 50' 0 100' 200' 300'

SCALE: 1"= 100'

L:\PROJECTS 3D\221331-HARBISON CANYON\PRODUCTION DRAWINGS\DELIVERABLES\221331- DRAINAGE.DWG August 08, 2025 - 11:47am



PLAN VIEW



SECTION A-A

NOTE:

AMENDED SOIL THICKNESS VARIES DEPENDING ON TREE WELL:
- TREE WELLS IN DMAs 1,2,3 & 5 HAVE 3.0' OF AMENDED SOIL
- TREE WELLS IN DMAs 4,9 & 10 HAVE 4.0' OF AMENDED SOIL

TYPICAL TREE WELL DETAIL

NO SCALE

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

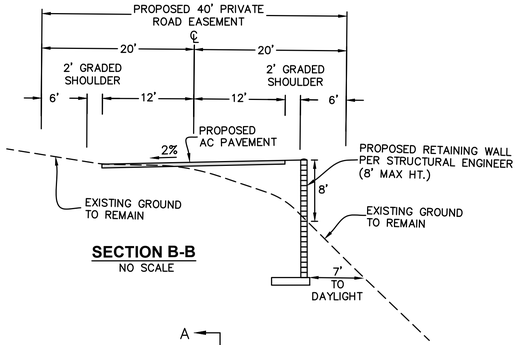
2.3 Construction Plan Sets

- 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	**Preliminary 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

PRELIMINARY GRADING PLAN



SECTION B-B
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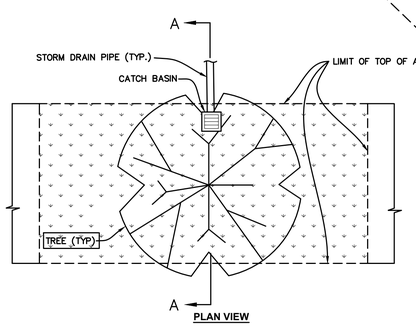
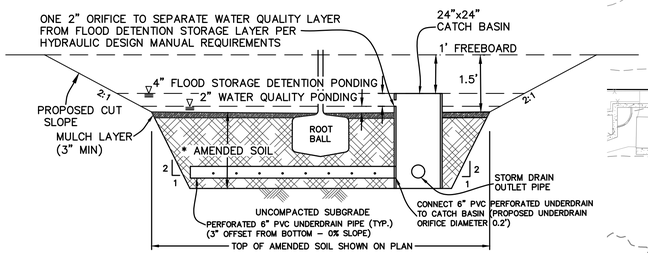


PLAN VIEW



SECTION A-A

NOTE:
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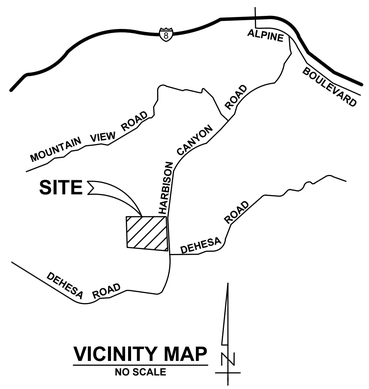
–TREE WELLS IN DMAs 4,9 & 10 HAVE 4.0' OF AMENDED SOIL

TREEWELL DETAIL
NO SCALE



VICINITY MAP
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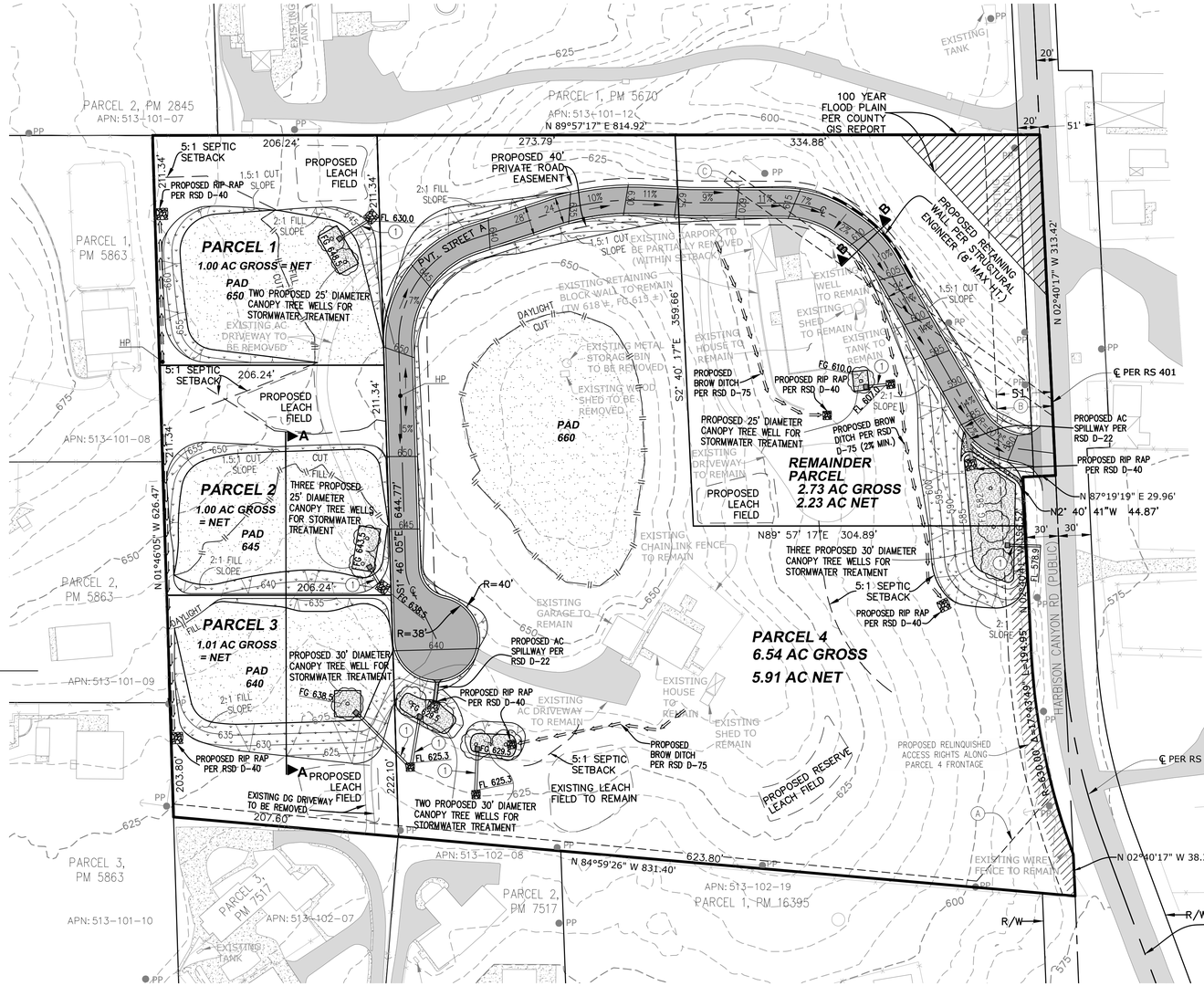
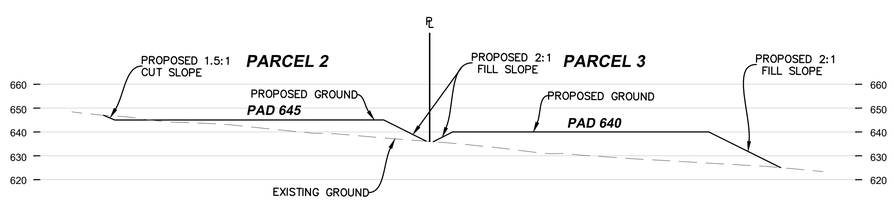
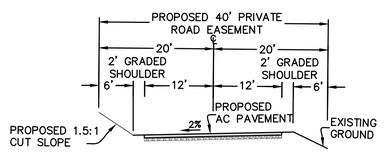
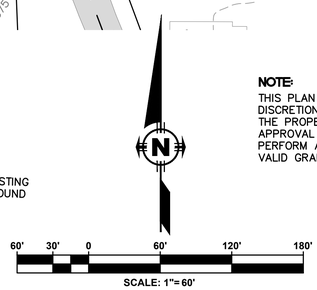




SECTION A-A
SCALE: H: 1"=30'
V: 1"=30'



PROPOSED "STREET A"
TYPICAL SECTION
NO SCALE
LOOKING WEST



NOTE:
THIS PLAN IS PROVIDED TO ALLOW FOR FULL AND ADEQUATE DISCRETIONARY REVIEW OF A PROPOSED DEVELOPMENT PROJECT. THE PROPERTY OWNER ACKNOWLEDGES THAT ACCEPTANCE OR APPROVAL OF THIS PLAN DOES NOT CONSTITUTE AN APPROVAL TO PERFORM ANY GRADING SHOWN HEREON, AND AGREES TO OBTAIN VALID GRADING PERMISSIONS BEFORE COMMENCING SUCH ACTIVITY.

LEGAL DESCRIPTION:

PARCEL 4 OF PARCEL MAP NO. 1002, IN THE COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, SEPTEMBER 21, 1972. EXCEPTING THEREFROM THAT PORTION DESCRIBED IN DEED TO THE COUNTY OF SAN DIEGO FOR ROAD SURVEY NO. 1530 RECORDED OCTOBER 24, 1963 AS INSTRUMENT NO. 190971.

BENCHMARK:

DESCRIPTION: 3" SAN DIEGO COUNTY SURVEY BRASS DISC STAMPED "BM EC 137"

LOCATION: APPROXIMATELY 0.4 MILES WESTERLY OF SLOANE CANYON ROAD ALONG DEHESA ROAD.

ELEVATION: 500.6 (NAVD88)

SOURCE: ROS 17739

TOPOGRAPHY:

TOPOGRAPHY PROVIDED BY PHOTOGEODETIC, INC.
DATE FLOWN: APRIL 19, 2022

EASEMENT NOTES:

EASEMENTS PLOTTED PER PRELIMINARY REPORT PREPARED BY CORINTHIAN TITLE COMPANY AS ORDER NO. 2015329–SH DATED MAY 02, 2022.

Ⓐ CENTERLINE OF SDG&E PUBLIC UTILITY EASEMENT RECORDED MARCH 30, 1953 IN BOOK 4791, PAGE 23 (NO WIDTH GIVEN).

Ⓑ IRREVOCABLE OFFER OF DEDICATION FOR PUBLIC HIGHWAY GRANTED TO THE COUNTY OF SAN DIEGO PER DOCUMENT RECORDED AUGUST 16, 1972 AS DOC# 1972–216628.

Ⓒ 12' WIDE PUBLIC UTILITY EASEMENT PER DOCUMENT RECORDED FEBRUARY 20, 1973 AS DOC# 1973–044103.

CENTERLINE OF SDG&E PUBLIC UTILITY EASEMENT RECORDED JUNE 6, 1940 IN BOOK 1033, PAGE 302 (NOT PLOTTABLE).

25' WIDE UNNAMED EASEMENT RECORDED JUNE 13, 1946 IN BOOK 2153, PAGE 78 (NOT PLOTTABLE).

SITE ADDRESS:

2030 HARBISON CANYON ROAD
EL CAJON, CA 92019

APN:

513–101–11

EARTHWORK:

CUT= 12,700 C.Y.
FILL= 11,400 C.Y.
10% SHRINKAGE= 1,300 C.Y.
IMPORT/EXPORT= 0 C.Y.

LEGEND

① PROPOSED 6" PVC STORM DRAIN PIPE

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

LAWRENCE W. WALSH — DATE

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

PRELIMINARY GRADING PLAN– TPM NO. 21616

WALSH ENGINEERING & SURVEYING, INC.

CEQA DRAINAGE STUDY
For
Harbison Canyon TPM
(APN 513-101-11)

2030 Harbison Canyon Road
El Cajon, CA 92019

Prepared for:
Nagham Sabah
1233 Pfeifer Lane
El Cajon, CA 92020

(Walsh Engineering Job No 221331)

607 Aldwych Road * El Cajon, CA 92020 * Phone (619) 588-6747 * Fax (619) 792-1232
www.walsh-engineering.com

Table of Contents

Introduction

The project is a subdivision located at 2030 Harbison Canyon Road, El Cajon, CA 92019 (see attached Vicinity Map). The site will be divided into four parcels and a remainder parcel. A proposed private road will provide access.

Pre-Developed Condition

In the current condition, the site has two existing homes and a private road. The rest of the site is vacant natural land that slopes downward from west to east. There are three drainage basins with areas of 3.27, 2.06, and 9.99 acres for Basins 1, 2, and 3, respectively (see the Pre-Developed Drainage Map in Section 2). Basins 1, 2, and 3 had respective flow rates of 5.22, 3.90, and 12.34 cfs. See the table below for a summary of pre-developed values and flow rates.

Post-Developed Condition

In the post-developed condition, there will be a proposed private road and three new homes. There are three drainage basins that all have the same acreage as the pre-developed condition (see the Post Developed Drainage Map in Section 2). The post-developed flow rates for Basins 1, 2, and 3 were calculated to be 6.00, 3.23 and 13.00 cfs, respectively. The decrease in flow rate for Basin 2 is largely a result of the increased time of concentration from a proposed flat pad. The increase in flow rate for Basins 1 and 3 is due to the higher C-value from the proposed private road's AC pavement. See the table below for a summary of post-developed values and flow rates.

Summary/Conclusion

The increase in flow rates from the development will be mitigated back to pre-developed rates using tree wells, which will be conjunctive use facilities for both pollutant control and detention storage. The tree wells will provide 4" of ponding for detention storage above the 2" vertical orifice in the catch basin that is 2" above the finished grade of each tree well. The purpose of the orifice is to separate the water quality ponding layer from flood storage ponding to satisfy the County's conjunctive use requirements. Flood routing detention analysis was done through the Hydroflow Express Hydrographs

program (see Output files for Basins 1 and 3 in Section 2 herein). The mitigated flowrate for Basin 1 was calculated to be 4.58 cfs, which is below the pre-developed flow rate of 5.22 cfs. The mitigated flowrate for Basin 3 was calculated to be 11.51 cfs, which is below the pre-developed flow rate of 12.34 cfs. See the table below for a summary of hydrology values and flowrates.

There will be no increase in flow rate from the pre to post developed condition or adverse negative effects as a result of the development.

Basin	Pre-Developed Effective C	Post-Developed Effective C	Pre-Developed Tc (min.)	Post-Developed Tc (min.)	Pre-Developed I (in./hr.)	Post-Developed I (in./hr.)	Pre-Developed Area (acres)	Post-Developed Area (acres)
1	0.36	0.43	12.26	12.95	4.43	4.28	3.27	3.27
2	0.42	0.42	11.87	15.66	4.53	3.79	2.06	2.06
3	0.36	0.385	18.24	19.69	3.43	3.38	9.99	9.99

Basin	Pre-Developed Q_{100} (cfs)	Post-Developed Q_{100} (cfs)	Mitigated Q_{100} (cfs)
1	5.22	6.00	4.58
2	3.90	3.23	n/a
3	12.34	13.00	11.51

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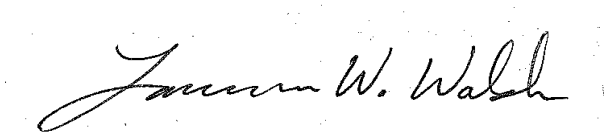
DECLARATION OF RESPONSIBLE CHARGE

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 ARE CONFINED TO A REVIEW ONLY AND DOES NOT RELIEVE ME, AS ENGINEER OF WORK, OF MY RESPONSIBILITIES FOR PROJECT DESIGN.



8/12/24

LAWRENCE W. WALSH, RCE 46316 DATE

For CEQA purposes, the following information is provided in this study for project review.

Q: Will the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?
A: No. The overall existing drainage patterns will be maintained, no alterations to streams or rivers will occur and no increase in off-site erosion or siltation will be caused by this project.

Q: Will the project substantially alter the existing drainage pattern of the site or area including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?
A: No. The overall existing drainage patterns will be maintained. No alterations to streams or rivers will occur and the rate or amount of runoff will not significantly increase.

Q: Will the project create or contribute runoff water which will exceed the capacity of existing or planned storm water drainage systems?
A: No. The project will not create or contribute runoff water which will exceed the capacity of existing or planned storm water drainage systems.

Q: Will the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map, including County Floodplain Maps?
A: No. The project does not propose to place housing within a 100-year flood hazard area (see attached County Flood Areas map).

Q: Will the project place within a 100-year flood hazard area structures which would impede or redirect flood flows?
A: No. The project will not place structures within a 100-year flood hazard area.

Q: Will the project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam on-site or off-site?
A: No. The project will not expose people or structures to a significant risk of loss, injury or death involving flooding as a result of failure of Dam(s) or levee(s).

6.0 General Requirements

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

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

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

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

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

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

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

DMA #	*a. DMA Area (ft^2)*	*Incidental Impervious Area*		*Permit # and Sheet #*
		b. Size(ft^2)	*c. % (b/a*100)*	
6	80,586	3,998	4.9	Preliminary Grading Plan
7	132,422	0	0	Preliminary Grading Plan
8	23,379	0	0	Preliminary Grading Plan
11	51,945	0	0	Preliminary Grading Plan

- "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 #***

- "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)**	
1	32,207	☐	☒	Preliminary Grading Plan
2	28,851	☐	☒	Preliminary Grading Plan
3	21,542	☐	☒	Preliminary Grading Plan
4	50,501	☐	☒	Preliminary Grading Plan
5	66,290	☐	☒	Preliminary Grading Plan
9	33,552	☐	☒	Preliminary Grading Plan
10	15,193	☐	☒	Preliminary Grading Plan
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	

Copy and Paste table here for additional DMAs

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

6.3.1 Self-retaining DMAs with Impervious Dispersion Areas

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

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

Summary Sheet for Self-retaining DMAs with Impervious Area Dispersion

Attach Printouts from SSD-BMP tool below

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

6.3.2 Self-retaining DMAs with Tree Wells

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

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

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

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

Summary Sheet for Self-retaining DMAs with Tree Wells

Attach Printouts from SSD-BMP tool below

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

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

Category	#	Description	*i*	*ii*	*iii*	*iv*	*v*	*vi*	*vii*	*viii*	*ix*	*x*	Units
Standard Drainage Basin Inputs	1	Drainage Basin ID or Name	DMA 1	DMA 2	DMA 3	DMA 4	DMA 5	DMA 9	DMA 10				unitless
	2	85th Percentile 24-hr Storm Depth	0.48	0.48	0.48	0.48	0.48	0.48	0.48				inches
	3	Is Hydromodification Control Applicable?	No	No	No	No	No	No	No				yes/no
	4	Impervious Surfaces Not Directed to Dispersion Area (C=0.90)	6,500	6,500	6,500	9,516	19,388	7,310	5,315				sq-ft
	5	Semi-Pervious Surfaces Not Serving as Dispersion Area (C=0.30)	0	0	0	0	0	0	0				sq-ft
	6	Engineered Pervious Surfaces Not Serving as Dispersion Area (C=0.10)	0	0	0	0	0	0	0				sq-ft
	7	Natural Type A Soil Not Serving as Dispersion Area (C=0.10)	0	0	0	0	10,951	0	0				sq-ft
	8	Natural Type B Soil Not Serving as Dispersion Area (C=0.14)	0	0	0	0	0	0	0				sq-ft
	9	Natural Type C Soil Not Serving as Dispersion Area (C=0.23)	0	0	0	16,267	35,951	11,638	9,878				sq-ft
	10	Natural Type D Soil Not Serving as Dispersion Area (C=0.30)	25,707	22,127	15,042	24,746	0	14,604	0				sq-ft
SSD-BMPs Proposed	11	Does Tributary Incorporate Dispersion and/or Rain Barrels?	No	No	No	No	No	No	No				yes/no
	12	Does Tributary Incorporate Tree Wells?	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	32,207	28,627	21,542	50,529	66,290	33,552	15,193	0	0	0	sq-ft
	23	Initial Runoff Factor for Standard Drainage Areas	0.42	0.44	0.48	0.39	0.40	0.41	0.46	0.00	0.00	0.00	unitless
	24	Initial Runoff Factor for Dispersed & Dispersion Areas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	25	Initial Weighted Runoff Factor	0.42	0.44	0.48	0.39	0.40	0.41	0.46	0.00	0.00	0.00	unitless
	26	Initial Design Capture Volume	541	504	414	788	1,061	550	280	0	0	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	0.42	0.44	0.48	0.39	0.40	0.41	0.46	n/a	n/a	n/a	unitless
	32	Design Capture Volume After Dispersion Techniques	541	504	414	788	1,061	550	280	0	0	0	cubic-feet
	33	Total Rain Barrel Volume Reduction	0	0	0	0	0	0	0	0	0	0	cubic-feet
Results	34	Final Adjusted Runoff Factor	0.42	0.44	0.48	0.39	0.40	0.41	0.46	0.00	0.00	0.00	unitless
	35	Final Effective Tributary Area	13,527	12,596	10,340	19,706	26,516	13,756	6,989	0	0	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)	541	504	414	788	1,061	550	280	0	0	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 1	DMA 2	DMA 3	DMA 4	DMA 5	DMA 9	DMA 10	-	-	-	unitless
	2	Design Capture Volume Tributary to BMP	541	504	414	788	1,061	550	280	-	-	-	cubic-feet
	3	Is Hydromodification Control Applicable?	No	No	No	No	No	No	No	-	-	-	yes/no
	4	Predominant NRCS Soil Type Within Tree Well(s) Location	D	D	D	D	A	D	C				unitless
	5	Select a Tree Species for the Tree Well(s) Consistent with SD-A Tree Palette Table Note: Numbers shown in list are Tree Species Mature Canopy Diameters	25' - Western Redbud	25' - Western Redbud	30' - Desert Willow	30' - Desert Willow	30' - Desert Willow	30' - Desert Willow	25' - Western Redbud				unitless
	6	Tree Well(s) Soil Depth (Installation Depth) Must be 30, 36, 42, or 48 Inches; Select from Standard Depths**	36	36	36	48	36	48	48				inches
	7	Number of Identical* Tree Wells Proposed for this DMA	2	2	1	2	3	2	1				trees
	8	Proposed Width of Tree Well(s) Soil Installation for One (1) Tree	20.0	20.0	24.0	20.0	41.0	19.0	22.0				feet
	9	Proposed Length of Tree Well(s) Soil Installation for One (1) Tree	20.0	20.0	24.0	20.0	33.3	19.0	14.0				feet
Tree Data	10	Botanical Name of Tree Species	Cercis Occidentalis	Cercis Occidentalis	Chilopsis Linearis	Chilopsis Linearis	Chilopsis Linearis	Chilopsis Linearis	Cercis Occidentalis	-	-	-	unitless
	11	Tree Species Mature Height per SD-A	25	25	30	30	30	30	25	-	-	-	feet
	12	Tree Species Mature Canopy Diameter per SD-A	25	25	30	30	30	30	25	-	-	-	feet
	13	Minimum Soil Volume Required In Tree Well (2 Cubic Feet Per Square Foot of Mature Tree Canopy Projection Area)	982	982	1414	1414	1414	1414	982	-	-	-	cubic-feet
	14	Credit Volume Per Tree	290	290	420	420	420	420	290	-	-	-	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	-	-	-	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	-	-	-	cubic-feet
	17	Number of Trees Required	2	2	1	2	3	2	1	-	-	-	trees
	18	Total Area of Tree Well Soil Required for Each Tree	327	327	471	353	471	353	245	-	-	-	sq-ft
	19	Approximate Required Width of Tree Well Soil Area for Each Tree	19	19	22	19	22	19	16	-	-	-	feet
	20	Approximate Required Length of Tree Well Soil Area for Each Tree	19	19	22	19	22	19	16	-	-	-	feet
	21	Number of Trees Proposed for this DMA	2	2	1	2	3	2	1	-	-	-	trees
	22	Total Area of Tree Well Soil Proposed for Each Tree	400	400	576	400	1365	361	308	-	-	-	sq-ft
	23	Minimum Spacing Between Multiple Trees To Meet Soil Area Requirements (when applicable)***	25.0	25.0	n/a	30.0	41.0	30.0	n/a	-	-	-	feet
Results	24	Are Tree Well Soil Installation Requirements Met?	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/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	-	-	-	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.

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	POC at southerly property line near southwesterly corner
POC	2	POC at midpoint of southerly property line
POC	3	POC at southeasterly property corner near Harbison Canyon Road

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 HYDROMODIFICATION EXHIBIT

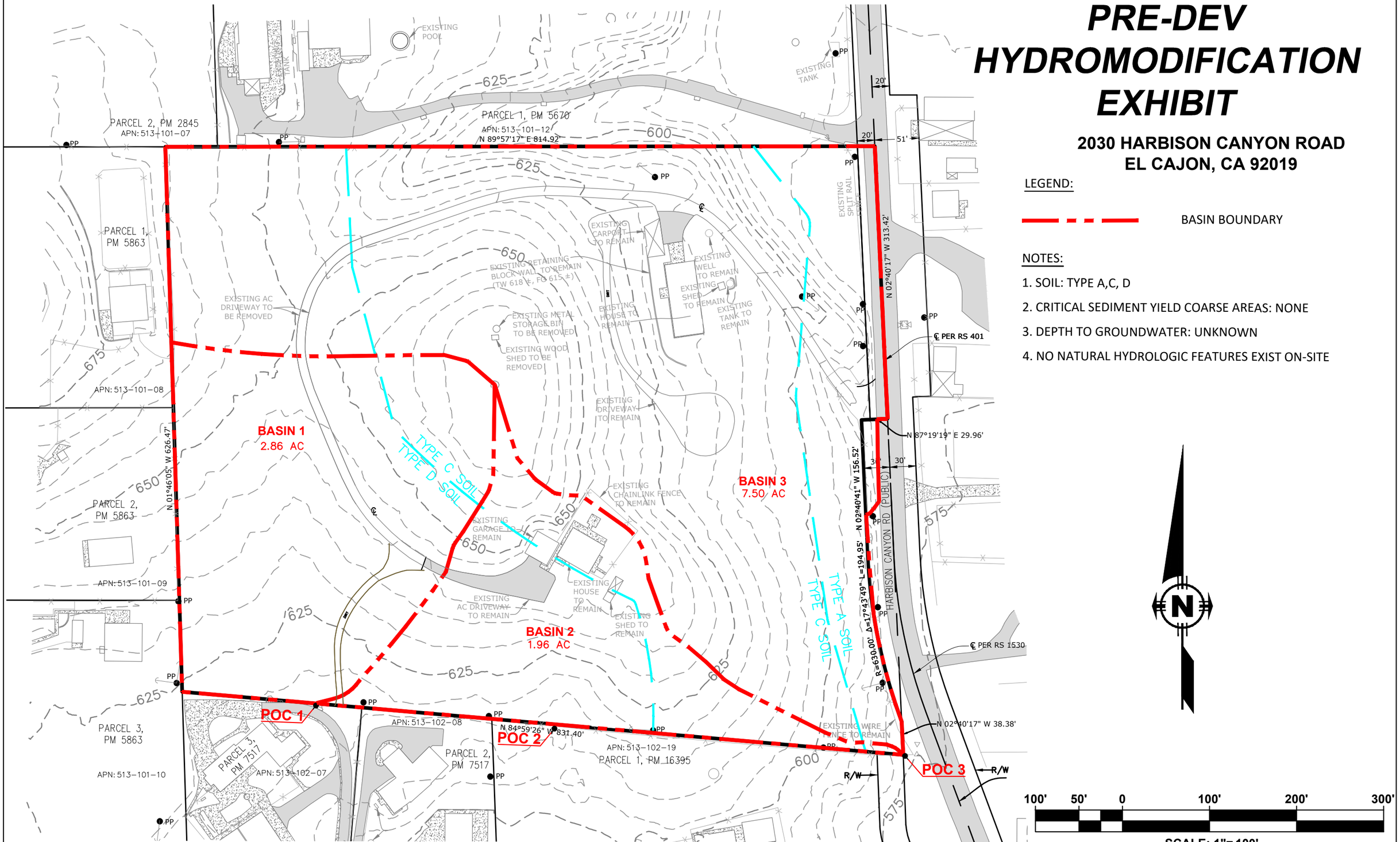
2030 HARBISON CANYON ROAD
EL CAJON, CA 92019

LEGEND:

BASIN BOUNDARY

NOTES:

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



POST-DEV HYDROMODIFICATION EXHIBIT

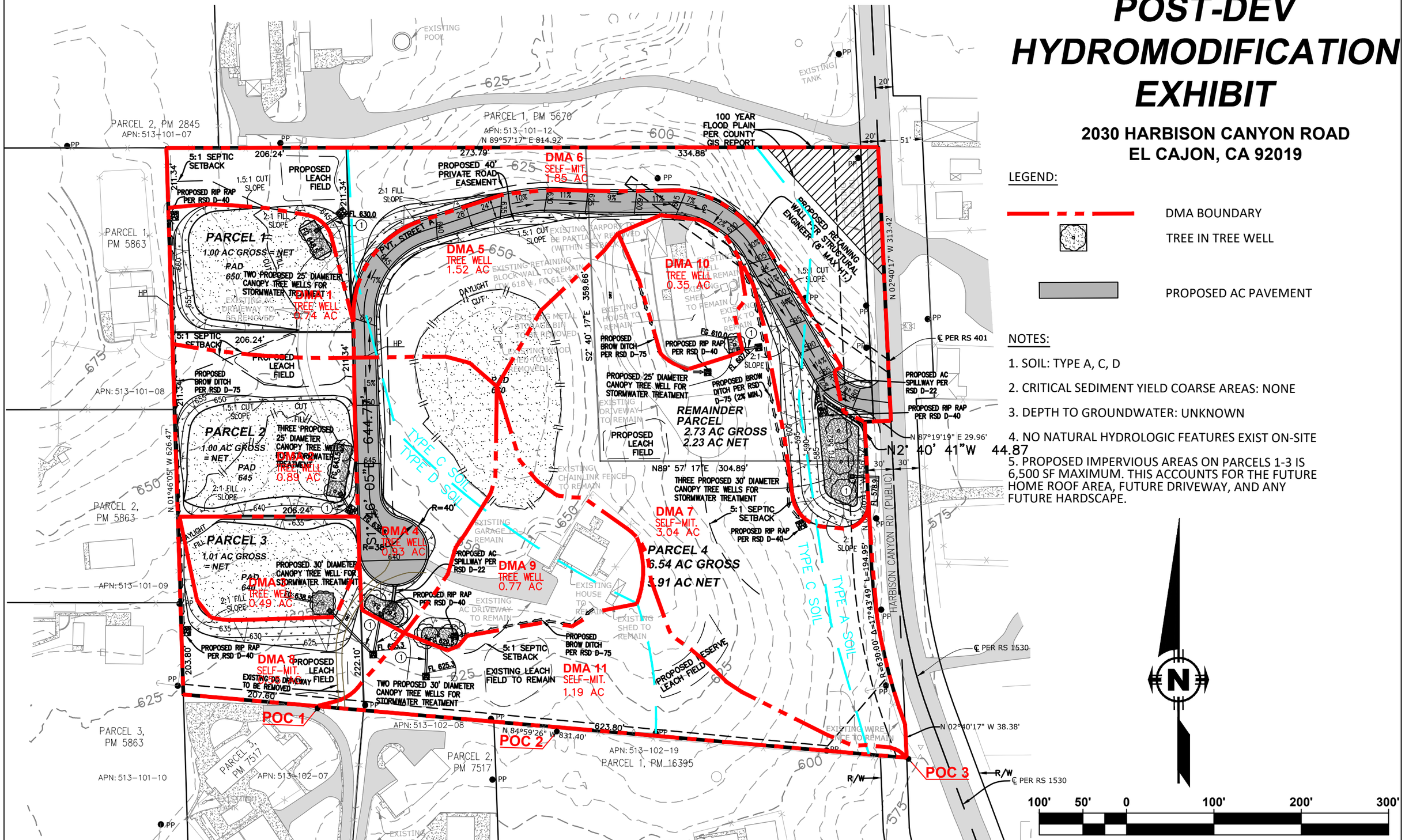
2030 HARBISON CANYON ROAD
EL CAJON, CA 92019

LEGEND:

- DMA BOUNDARY
- TREE IN TREE WELL
- PROPOSED AC PAVEMENT

NOTES:

1. SOIL: TYPE A, C, D
2. CRITICAL SEDIMENT YIELD COARSE AREAS: NONE
3. DEPTH TO GROUNDWATER: UNKNOWN
4. NO NATURAL HYDROLOGIC FEATURES EXIST ON-SITE
5. PROPOSED IMPERVIOUS AREAS ON PARCELS 1-3 IS 6,500 SF MAXIMUM. THIS ACCOUNTS FOR THE FUTURE HOME ROOF AREA, FUTURE DRIVEWAY, AND ANY FUTURE HARDSCAPE.



POST-DEV HYDROMODIFICATION EXHIBIT

2030 HARBISON CANYON ROAD
EL CAJON, CA 92019

LEGEND:

DMA BOUNDARY

TREE IN TREE WELL

PROPOSED AC PAVEMENT

NOTES:

1. SOIL: TYPE A, C, D
2. CRITICAL SEDIMENT YIELD COARSE AREAS: NONE
3. DEPTH TO GROUNDWATER: UNKNOWN
4. NO NATURAL HYDROLOGIC FEATURES EXIST ON-SITE
5. PROPOSED IMPERVIOUS AREAS ON PARCELS 1-3 IS 6,500 SF MAXIMUM. THIS ACCOUNTS FOR THE FUTURE HOME ROOF AREA, FUTURE DRIVEWAY, AND ANY FUTURE HARDSCAPE.

SCALE: 1"= 100'

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SDHM 3.1

PROJECT REPORT

General Model Information

Project Name:	SDHM Harb Cyn 10-30-23
Site Name:	Harbison Canyon
Site Address:	2030 Harbison Canyon Road
City:	El Cajon
Report Date:	8/8/2025
Gage:	FLINN SP
Data Start:	10/01/1963
Data End:	09/30/2004
Timestep:	Hourly
Precip Scale:	1.000
Version Date:	2021/06/28

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
Low Flow Threshold for POC3:	10 Percent of the 2 Year
High Flow Threshold for POC3:	10 Year

Landuse Basin Data

Predeveloped Land Use

Basin 1

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C,NatVeg,Moderate	0.34
D,NatVeg,Moderate	2.52
Pervious Total	2.86

Impervious Land Use	acre
Impervious Total	0
Basin Total	2.86

Element Flows To:

Surface	Interflow	Groundwater

Basin 3

Bypass: No

GroundWater: No

Pervious Land Use	acre
C,NatVeg,Steep	4.2
D,NatVeg,Moderate	1.2
C,NatVeg,Moderate	0.6
C,NatVeg,Flat	0.3
A,NatVeg,Flat	0.3
A,NatVeg,Steep	0.9
Pervious Total	7.5

Impervious Land Use	acre
Impervious Total	0
Basin Total	7.5

Element Flows To:

Surface	Interflow	Groundwater

Basin 2

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C,NatVeg,Flat	0.27
C,NatVeg,Steep	0.43
D,NatVeg,Flat	0.08
D,NatVeg,Moderate	0.08
D,NatVeg,Steep	1.1
Pervious Total	1.96

Impervious Land Use	acre
Impervious Total	0
Basin Total	1.96

Element Flows To:

Surface	Interflow	Groundwater

Mitigated Land Use

DMA 1

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
D,NatVeg,Flat	0.4
D,NatVeg,Moderate	0.14
D,NatVeg,Steep	0.05
Pervious Total	0.59

Impervious Land Use	acre
IMPERVIOUS-FLAT	0.15
Impervious Total	0.15
Basin Total	0.74

Element Flows To:

Surface	Interflow	Groundwater
Surface Biofilter 1	Surface Biofilter 1	

DMA 2

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
D,NatVeg,Flat	0.35
D,NatVeg,Moderate	0.13
D,NatVeg,Steep	0.03
Pervious Total	0.51

Impervious Land Use	acre
IMPERVIOUS-FLAT	0.15
Impervious Total	0.15
Basin Total	0.66

Element Flows To:

Surface	Interflow	Groundwater
Surface Biofilter 2	Surface Biofilter 2	

DMA 3

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
D,NatVeg,Flat	0.28
D,NatVeg,Steep	0.06
Pervious Total	0.34

Impervious Land Use	acre
IMPERVIOUS-FLAT	0.15
Impervious Total	0.15
Basin Total	0.49

Element Flows To:

Surface	Interflow	Groundwater
Surface Biofilter 3	Surface Biofilter 3	

DMA 4

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
D,NatVeg,Flat	0.05
D,NatVeg,Steep	0.34
C,NatVeg,Steep	0.1
C,NatVeg,Flat	0.24
D,NatVeg,Moderate	0.2
Pervious Total	0.93

Impervious Land Use	acre
IMPERVIOUS-FLAT	0.23
Impervious Total	0.23
Basin Total	1.16

Element Flows To:

Surface	Interflow	Groundwater
Surface Biofilter 4	Surface Biofilter 4	

DMA 5

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C,NatVeg,Steep	0.49
A,NatVeg,Steep	0.17
A,NatVeg,Flat	0.1
C,NatVeg,Moderate	0.14
C,NatVeg,Flat	0.2
Pervious Total	1.1

Impervious Land Use	acre
IMPERVIOUS-FLAT	0.42
Impervious Total	0.42
Basin Total	1.52

Element Flows To:

Surface	Interflow	Groundwater
Surface Biofilter 5	Surface Biofilter 5	

DMA 6

Bypass:	Yes
GroundWater:	No

Pervious Land Use	acre
A,NatVeg,Steep	0.18
A,NatVeg,Flat	0.39
C,NatVeg,Steep	0.76
D,NatVeg,Steep	0.04
D,NatVeg,Moderate	0.37
C,NatVeg,Moderate	0.11
Pervious Total	1.85

Impervious Land Use	acre
Impervious Total	0
Basin Total	1.85

Element Flows To:

Surface	Interflow	Groundwater

DMA 7

Bypass:	Yes
GroundWater:	No

Pervious Land Use	acre
C,NatVeg,Steep	2.13
C,NatVeg,Flat	0.62
A,NatVeg,Steep	0.23
A,NatVeg,Moderate	0.06
Pervious Total	3.04

Impervious Land Use	acre
Impervious Total	0
Basin Total	3.04

Element Flows To:

Surface	Interflow	Groundwater

DMA 8

Bypass:	Yes
GroundWater:	No

Pervious Land Use	acre
D,NatVeg,Steep	0.16
D,NatVeg,Moderate	0.39
Pervious Total	0.55

Impervious Land Use	acre
Impervious Total	0
Basin Total	0.55

Element Flows To:

Surface	Interflow	Groundwater

DMA 9

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C,NatVeg,Flat	0.15
C,NatVeg,Steep	0.11
D,NatVeg,Flat	0.11
D,NatVeg,Steep	0.23
Pervious Total	0.6

Impervious Land Use	acre
IMPERVIOUS-FLAT	0.17
Impervious Total	0.17
Basin Total	0.77

Element Flows To:

Surface	Interflow	Groundwater
Surface Biofilter 6	Surface Biofilter 6	

DMA 11

Bypass:	Yes
GroundWater:	No
Pervious Land Use	acre
C,NatVeg,Steep	0.37
D,NatVeg,Steep	0.82
Pervious Total	1.19
Impervious Land Use	acre
Impervious Total	0
Basin Total	1.19

Element Flows To:

Surface	Interflow	Groundwater

DMA 10

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C,NatVeg,Flat	0.06
C,NatVeg,Steep	0.17
Pervious Total	0.23

Impervious Land Use	acre
IMPERVIOUS-FLAT	0.12
Impervious Total	0.12
Basin Total	0.35

Element Flows To:

Surface	Interflow	Groundwater
Surface Biofilter 7	Surface Biofilter 7	

Routing Elements
Predeveloped Routing

Mitigated Routing

Biofilter 1

Bottom Length:	20.00 ft.
Bottom Width:	50.00 ft.
Material thickness of first layer:	3
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:	0.05
Infiltration safety factor:	1
Wetted surface area On	
Total Volume Infiltrated (ac-ft.):	2.38
Total Volume Through Riser (ac-ft.):	5.148
Total Volume Through Facility (ac-ft.):	8.851
Percent Infiltrated:	26.89
Total Precip Applied to Facility:	0.852
Total Evap From Facility:	0.737
Underdrain used	
Underdrain Diameter (feet):	0.5
Orifice Diameter (in.):	0.2
Offset (in.):	3
Flow Through Underdrain (ac-ft.):	1.323
Total Outflow (ac-ft.):	8.851
Percent Through Underdrain:	14.95
Discharge Structure	
Riser Height:	0.5 ft.
Riser Diameter:	24 in.
Orifice 1 Diameter:	2 in. Elevation:0.17 ft.
Element Flows To:	
Outlet 1	Outlet 2

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0230	0.0000	0.0000	0.0000
0.0495	0.0230	0.0003	0.0000	0.0000
0.0989	0.0230	0.0007	0.0000	0.0000
0.1484	0.0230	0.0010	0.0000	0.0000
0.1978	0.0230	0.0014	0.0000	0.0000
0.2473	0.0230	0.0017	0.0000	0.0000
0.2967	0.0230	0.0020	0.0001	0.0001
0.3462	0.0230	0.0024	0.0005	0.0005
0.3956	0.0230	0.0027	0.0006	0.0006
0.4451	0.0230	0.0031	0.0008	0.0008
0.4945	0.0230	0.0034	0.0010	0.0010
0.5440	0.0230	0.0037	0.0012	0.0012
0.5934	0.0230	0.0041	0.0012	0.0012
0.6429	0.0230	0.0044	0.0012	0.0012
0.6923	0.0230	0.0048	0.0012	0.0012
0.7418	0.0230	0.0051	0.0012	0.0012
0.7912	0.0230	0.0054	0.0012	0.0012
0.8407	0.0230	0.0058	0.0012	0.0012

0.8901	0.0230	0.0061	0.0012	0.0012
0.9396	0.0230	0.0065	0.0012	0.0012
0.9890	0.0230	0.0068	0.0012	0.0012
1.0385	0.0230	0.0072	0.0012	0.0012
1.0879	0.0230	0.0075	0.0012	0.0012
1.1374	0.0230	0.0078	0.0012	0.0012
1.1868	0.0230	0.0082	0.0012	0.0012
1.2363	0.0230	0.0085	0.0012	0.0012
1.2857	0.0230	0.0089	0.0012	0.0012
1.3352	0.0230	0.0092	0.0012	0.0012
1.3846	0.0230	0.0095	0.0012	0.0012
1.4341	0.0230	0.0099	0.0012	0.0012
1.4835	0.0230	0.0102	0.0012	0.0012
1.5330	0.0230	0.0106	0.0012	0.0012
1.5824	0.0230	0.0109	0.0012	0.0012
1.6319	0.0230	0.0112	0.0012	0.0012
1.6813	0.0230	0.0116	0.0012	0.0012
1.7308	0.0230	0.0119	0.0012	0.0012
1.7802	0.0230	0.0123	0.0012	0.0012
1.8297	0.0230	0.0126	0.0012	0.0012
1.8791	0.0230	0.0129	0.0012	0.0012
1.9286	0.0230	0.0133	0.0012	0.0012
1.9780	0.0230	0.0136	0.0012	0.0012
2.0275	0.0230	0.0140	0.0012	0.0012
2.0769	0.0230	0.0143	0.0012	0.0012
2.1264	0.0230	0.0146	0.0012	0.0012
2.1758	0.0230	0.0150	0.0012	0.0012
2.2253	0.0230	0.0153	0.0012	0.0012
2.2747	0.0230	0.0157	0.0012	0.0012
2.3242	0.0230	0.0160	0.0012	0.0012
2.3736	0.0230	0.0163	0.0012	0.0012
2.4231	0.0230	0.0167	0.0012	0.0012
2.4725	0.0230	0.0170	0.0012	0.0012
2.5220	0.0230	0.0174	0.0012	0.0012
2.5714	0.0230	0.0177	0.0012	0.0012
2.6209	0.0230	0.0181	0.0012	0.0012
2.6703	0.0230	0.0184	0.0012	0.0012
2.7198	0.0230	0.0187	0.0012	0.0012
2.7692	0.0230	0.0191	0.0012	0.0012
2.8187	0.0230	0.0194	0.0012	0.0012
2.8681	0.0230	0.0198	0.0012	0.0012
2.9176	0.0230	0.0201	0.0012	0.0012
2.9670	0.0230	0.0204	0.0012	0.0012
3.0000	0.0230	0.0207	0.0012	0.0012

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
3.0000	0.0230	0.0207	0.0000	0.0030	0.0000
3.0495	0.0233	0.0218	0.0000	0.0030	0.0000
3.0989	0.0236	0.0230	0.0000	0.0030	0.0000
3.1484	0.0239	0.0241	0.0000	0.0030	0.0001
3.1978	0.0242	0.0253	0.0000	0.0030	0.0001
3.2473	0.0246	0.0265	0.0000	0.0030	0.0001
3.2967	0.0249	0.0278	0.0000	0.0030	0.0001
3.3462	0.0252	0.0290	0.0001	0.0030	0.0001
3.3956	0.0256	0.0303	0.0002	0.0030	0.0001
3.4451	0.0259	0.0315	0.0003	0.0030	0.0002
3.4945	0.0262	0.0328	0.0004	0.0030	0.0002

3.5440	0.0266	0.0341	0.0006	0.0030	0.0002
3.5934	0.0269	0.0354	0.0006	0.0030	0.0002
3.6429	0.0272	0.0368	0.0007	0.0030	0.0002
3.6923	0.0276	0.0381	0.0007	0.0030	0.0003
3.7418	0.0279	0.0395	0.0008	0.0030	0.0003
3.7912	0.0283	0.0409	0.0008	0.0030	0.0003
3.8407	0.0286	0.0423	0.0008	0.0030	0.0003
3.8901	0.0290	0.0437	0.0009	0.0030	0.0003
3.9396	0.0293	0.0452	0.0009	0.0030	0.0003
3.9890	0.0297	0.0466	0.0009	0.0030	0.0004
4.0385	0.0300	0.0481	0.0010	0.0030	0.0004
4.0879	0.0304	0.0496	0.0010	0.0030	0.0004
4.1374	0.0307	0.0511	0.0010	0.0030	0.0004
4.1868	0.0311	0.0526	0.0011	0.0030	0.0004
4.2363	0.0315	0.0542	0.0011	0.0030	0.0004
4.2857	0.0318	0.0558	0.0011	0.0030	0.0005
4.3352	0.0322	0.0573	0.0011	0.0030	0.0005
4.3846	0.0326	0.0589	0.0012	0.0030	0.0005
4.4341	0.0329	0.0606	0.0012	0.0030	0.0005
4.4835	0.0333	0.0622	0.0012	0.0030	0.0005
4.5000	0.0334	0.0627	0.0012	0.0030	0.0000

Surface Biofilter 1

Element Flows To:

Outlet 1	Outlet 2
	Biofilter 1

Biofilter 2

Bottom Length:	20.00 ft.
Bottom Width:	40.00 ft.
Material thickness of first layer:	3
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:	0.05
Infiltration safety factor:	1
Wetted surface area On	
Total Volume Infiltrated (ac-ft.):	1.956
Total Volume Through Riser (ac-ft.):	4.959
Total Volume Through Facility (ac-ft.):	8.325
Percent Infiltrated:	23.5
Total Precip Applied to Facility:	0.683
Total Evap From Facility:	0.598
Underdrain used	
Underdrain Diameter (feet):	0.5
Orifice Diameter (in.):	0.2
Offset (in.):	3
Flow Through Underdrain (ac-ft.):	1.41
Total Outflow (ac-ft.):	8.325
Percent Through Underdrain:	16.94
Discharge Structure	
Riser Height:	0.5 ft.
Riser Diameter:	24 in.
Orifice 1 Diameter:	2 in. Elevation:0.17 ft.
Element Flows To:	
Outlet 1	Outlet 2

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0184	0.0000	0.0000	0.0000
0.0495	0.0184	0.0003	0.0000	0.0000
0.0989	0.0184	0.0005	0.0000	0.0000
0.1484	0.0184	0.0008	0.0000	0.0000
0.1978	0.0184	0.0011	0.0000	0.0000
0.2473	0.0184	0.0014	0.0000	0.0000
0.2967	0.0184	0.0016	0.0000	0.0001
0.3462	0.0184	0.0019	0.0001	0.0004
0.3956	0.0184	0.0022	0.0002	0.0005
0.4451	0.0184	0.0025	0.0003	0.0006
0.4945	0.0184	0.0027	0.0004	0.0007
0.5440	0.0184	0.0030	0.0005	0.0009
0.5934	0.0184	0.0033	0.0006	0.0009
0.6429	0.0184	0.0035	0.0007	0.0009
0.6923	0.0184	0.0038	0.0007	0.0009
0.7418	0.0184	0.0041	0.0008	0.0009
0.7912	0.0184	0.0044	0.0008	0.0009
0.8407	0.0184	0.0046	0.0008	0.0009
0.8901	0.0184	0.0049	0.0009	0.0009
0.9396	0.0184	0.0052	0.0009	0.0009

0.9890	0.0184	0.0054	0.0009	0.0009
1.0385	0.0184	0.0057	0.0010	0.0009
1.0879	0.0184	0.0060	0.0010	0.0009
1.1374	0.0184	0.0063	0.0010	0.0009
1.1868	0.0184	0.0065	0.0011	0.0009
1.2363	0.0184	0.0068	0.0011	0.0009
1.2857	0.0184	0.0071	0.0011	0.0009
1.3352	0.0184	0.0074	0.0011	0.0009
1.3846	0.0184	0.0076	0.0012	0.0009
1.4341	0.0184	0.0079	0.0012	0.0009
1.4835	0.0184	0.0082	0.0012	0.0009
1.5330	0.0184	0.0084	0.0012	0.0009
1.5824	0.0184	0.0087	0.0013	0.0009
1.6319	0.0184	0.0090	0.0013	0.0009
1.6813	0.0184	0.0093	0.0013	0.0009
1.7308	0.0184	0.0095	0.0013	0.0009
1.7802	0.0184	0.0098	0.0013	0.0009
1.8297	0.0184	0.0101	0.0014	0.0009
1.8791	0.0184	0.0104	0.0014	0.0009
1.9286	0.0184	0.0106	0.0014	0.0009
1.9780	0.0184	0.0109	0.0014	0.0009
2.0275	0.0184	0.0112	0.0014	0.0009
2.0769	0.0184	0.0114	0.0015	0.0009
2.1264	0.0184	0.0117	0.0015	0.0009
2.1758	0.0184	0.0120	0.0015	0.0009
2.2253	0.0184	0.0123	0.0015	0.0009
2.2747	0.0184	0.0125	0.0015	0.0009
2.3242	0.0184	0.0128	0.0016	0.0009
2.3736	0.0184	0.0131	0.0016	0.0009
2.4231	0.0184	0.0134	0.0016	0.0009
2.4725	0.0184	0.0136	0.0016	0.0009
2.5220	0.0184	0.0139	0.0016	0.0009
2.5714	0.0184	0.0142	0.0017	0.0009
2.6209	0.0184	0.0144	0.0017	0.0009
2.6703	0.0184	0.0147	0.0017	0.0009
2.7198	0.0184	0.0150	0.0017	0.0009
2.7692	0.0184	0.0153	0.0017	0.0009
2.8187	0.0184	0.0155	0.0017	0.0009
2.8681	0.0184	0.0158	0.0018	0.0009
2.9176	0.0184	0.0161	0.0018	0.0009
2.9670	0.0184	0.0163	0.0018	0.0009
3.0000	0.0184	0.0165	0.0018	0.0009

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
3.0000	0.0184	0.0165	0.0000	0.0027	0.0000
3.0495	0.0186	0.0174	0.0000	0.0027	0.0000
3.0989	0.0189	0.0184	0.0000	0.0027	0.0000
3.1484	0.0192	0.0193	0.0000	0.0027	0.0001
3.1978	0.0195	0.0203	0.0020	0.0027	0.0001
3.2473	0.0198	0.0212	0.0137	0.0027	0.0001
3.2967	0.0200	0.0222	0.0315	0.0027	0.0001
3.3462	0.0203	0.0232	0.0456	0.0027	0.0001
3.3956	0.0206	0.0242	0.0516	0.0027	0.0001
3.4451	0.0209	0.0253	0.0569	0.0027	0.0001
3.4945	0.0212	0.0263	0.0618	0.0027	0.0002
3.5440	0.0215	0.0274	0.2619	0.0027	0.0002
3.5934	0.0218	0.0284	0.6758	0.0027	0.0002

3.6429	0.0221	0.0295	1.2175	0.0027	0.0002
3.6923	0.0224	0.0306	1.8584	0.0027	0.0002
3.7418	0.0227	0.0317	2.5791	0.0027	0.0002
3.7912	0.0230	0.0328	3.3627	0.0027	0.0002
3.8407	0.0233	0.0340	4.1929	0.0027	0.0003
3.8901	0.0236	0.0351	5.0532	0.0027	0.0003
3.9396	0.0239	0.0363	5.9265	0.0027	0.0003
3.9890	0.0242	0.0375	6.7956	0.0027	0.0003
4.0385	0.0245	0.0387	7.6435	0.0027	0.0003
4.0879	0.0248	0.0399	8.4540	0.0027	0.0003
4.1374	0.0251	0.0412	9.2122	0.0027	0.0004
4.1868	0.0254	0.0424	9.9054	0.0027	0.0004
4.2363	0.0257	0.0437	10.524	0.0027	0.0004
4.2857	0.0261	0.0450	11.063	0.0027	0.0004
4.3352	0.0264	0.0463	11.520	0.0027	0.0004
4.3846	0.0267	0.0476	11.903	0.0027	0.0004
4.4341	0.0270	0.0489	12.223	0.0027	0.0005
4.4835	0.0273	0.0502	12.501	0.0027	0.0005
4.5000	0.0275	0.0507	12.931	0.0027	0.0000

Surface Biofilter 2

Element Flows To:

Outlet 1	Outlet 2
	Biofilter 2

Biofilter 3

Bottom Length:	24.00 ft.
Bottom Width:	24.00 ft.
Material thickness of first layer:	3
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:	0.05
Infiltration safety factor:	1
Wetted surface area On	
Total Volume Infiltrated (ac-ft.):	1.413
Total Volume Through Riser (ac-ft.):	4.388
Total Volume Through Facility (ac-ft.):	7.279
Percent Infiltrated:	19.41
Total Precip Applied to Facility:	0.493
Total Evap From Facility:	0.437
Underdrain used	
Underdrain Diameter (feet):	0.5
Orifice Diameter (in.):	0.2
Offset (in.):	3
Flow Through Underdrain (ac-ft.):	1.478
Total Outflow (ac-ft.):	7.279
Percent Through Underdrain:	20.3
Discharge Structure	
Riser Height:	0.5 ft.
Riser Diameter:	24 in.
Orifice 1 Diameter:	2 in. Elevation:0.17 ft.
Element Flows To:	
Outlet 1	Outlet 2

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0132	0.0000	0.0000	0.0000
0.0495	0.0132	0.0002	0.0000	0.0000
0.0989	0.0132	0.0004	0.0000	0.0000
0.1484	0.0132	0.0006	0.0000	0.0000
0.1978	0.0132	0.0008	0.0000	0.0000
0.2473	0.0132	0.0010	0.0000	0.0000
0.2967	0.0132	0.0012	0.0000	0.0000
0.3462	0.0132	0.0014	0.0001	0.0002
0.3956	0.0132	0.0016	0.0002	0.0003
0.4451	0.0132	0.0018	0.0003	0.0004
0.4945	0.0132	0.0020	0.0004	0.0004
0.5440	0.0132	0.0022	0.0005	0.0005
0.5934	0.0132	0.0024	0.0006	0.0006
0.6429	0.0132	0.0026	0.0007	0.0007
0.6923	0.0132	0.0027	0.0007	0.0007
0.7418	0.0132	0.0029	0.0008	0.0007
0.7912	0.0132	0.0031	0.0008	0.0007
0.8407	0.0132	0.0033	0.0008	0.0007
0.8901	0.0132	0.0035	0.0009	0.0007
0.9396	0.0132	0.0037	0.0009	0.0007

0.9890	0.0132	0.0039	0.0009	0.0007
1.0385	0.0132	0.0041	0.0010	0.0007
1.0879	0.0132	0.0043	0.0010	0.0007
1.1374	0.0132	0.0045	0.0010	0.0007
1.1868	0.0132	0.0047	0.0011	0.0007
1.2363	0.0132	0.0049	0.0011	0.0007
1.2857	0.0132	0.0051	0.0011	0.0007
1.3352	0.0132	0.0053	0.0011	0.0007
1.3846	0.0132	0.0055	0.0012	0.0007
1.4341	0.0132	0.0057	0.0012	0.0007
1.4835	0.0132	0.0059	0.0012	0.0007
1.5330	0.0132	0.0061	0.0012	0.0007
1.5824	0.0132	0.0063	0.0013	0.0007
1.6319	0.0132	0.0065	0.0013	0.0007
1.6813	0.0132	0.0067	0.0013	0.0007
1.7308	0.0132	0.0069	0.0013	0.0007
1.7802	0.0132	0.0071	0.0013	0.0007
1.8297	0.0132	0.0073	0.0014	0.0007
1.8791	0.0132	0.0075	0.0014	0.0007
1.9286	0.0132	0.0077	0.0014	0.0007
1.9780	0.0132	0.0078	0.0014	0.0007
2.0275	0.0132	0.0080	0.0014	0.0007
2.0769	0.0132	0.0082	0.0015	0.0007
2.1264	0.0132	0.0084	0.0015	0.0007
2.1758	0.0132	0.0086	0.0015	0.0007
2.2253	0.0132	0.0088	0.0015	0.0007
2.2747	0.0132	0.0090	0.0015	0.0007
2.3242	0.0132	0.0092	0.0016	0.0007
2.3736	0.0132	0.0094	0.0016	0.0007
2.4231	0.0132	0.0096	0.0016	0.0007
2.4725	0.0132	0.0098	0.0016	0.0007
2.5220	0.0132	0.0100	0.0016	0.0007
2.5714	0.0132	0.0102	0.0017	0.0007
2.6209	0.0132	0.0104	0.0017	0.0007
2.6703	0.0132	0.0106	0.0017	0.0007
2.7198	0.0132	0.0108	0.0017	0.0007
2.7692	0.0132	0.0110	0.0017	0.0007
2.8187	0.0132	0.0112	0.0017	0.0007
2.8681	0.0132	0.0114	0.0018	0.0007
2.9176	0.0132	0.0116	0.0018	0.0007
2.9670	0.0132	0.0118	0.0018	0.0007
3.0000	0.0132	0.0119	0.0018	0.0007

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
3.0000	0.0132	0.0119	0.0000	0.0025	0.0000
3.0495	0.0134	0.0126	0.0000	0.0025	0.0000
3.0989	0.0137	0.0132	0.0000	0.0025	0.0000
3.1484	0.0139	0.0139	0.0000	0.0025	0.0000
3.1978	0.0141	0.0146	0.0020	0.0025	0.0001
3.2473	0.0143	0.0153	0.0137	0.0025	0.0001
3.2967	0.0146	0.0160	0.0315	0.0025	0.0001
3.3462	0.0148	0.0167	0.0456	0.0025	0.0001
3.3956	0.0150	0.0175	0.0516	0.0025	0.0001
3.4451	0.0153	0.0182	0.0569	0.0025	0.0001
3.4945	0.0155	0.0190	0.0618	0.0025	0.0001
3.5440	0.0157	0.0198	0.2619	0.0025	0.0001
3.5934	0.0160	0.0205	0.6758	0.0025	0.0002

3.6429	0.0162	0.0213	1.2175	0.0025	0.0002
3.6923	0.0165	0.0222	1.8584	0.0025	0.0002
3.7418	0.0167	0.0230	2.5791	0.0025	0.0002
3.7912	0.0169	0.0238	3.3627	0.0025	0.0002
3.8407	0.0172	0.0246	4.1929	0.0025	0.0002
3.8901	0.0174	0.0255	5.0532	0.0025	0.0002
3.9396	0.0177	0.0264	5.9265	0.0025	0.0002
3.9890	0.0179	0.0273	6.7956	0.0025	0.0003
4.0385	0.0182	0.0281	7.6435	0.0025	0.0003
4.0879	0.0185	0.0291	8.4540	0.0025	0.0003
4.1374	0.0187	0.0300	9.2122	0.0025	0.0003
4.1868	0.0190	0.0309	9.9054	0.0025	0.0003
4.2363	0.0192	0.0318	10.524	0.0025	0.0003
4.2857	0.0195	0.0328	11.063	0.0025	0.0003
4.3352	0.0198	0.0338	11.520	0.0025	0.0003
4.3846	0.0200	0.0348	11.903	0.0025	0.0004
4.4341	0.0203	0.0358	12.223	0.0025	0.0004
4.4835	0.0206	0.0368	12.501	0.0025	0.0004
4.5000	0.0207	0.0371	12.931	0.0025	0.0000

Surface Biofilter 3

Element Flows To:

Outlet 1	Outlet 2
	Biofilter 3

Biofilter 4

Bottom Length:	20.00 ft.
Bottom Width:	40.00 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:	0.05
Infiltration safety factor:	1
Wetted surface area On	
Total Volume Infiltrated (ac-ft.):	2.237
Total Volume Through Riser (ac-ft.):	9.654
Total Volume Through Facility (ac-ft.):	13.83
Percent Infiltrated:	16.17
Total Precip Applied to Facility:	0.696
Total Evap From Facility:	0.661
Underdrain used	
Underdrain Diameter (feet):	0.5
Orifice Diameter (in.):	0.2
Offset (in.):	3
Flow Through Underdrain (ac-ft.):	1.939
Total Outflow (ac-ft.):	13.83
Percent Through Underdrain:	14.02
Discharge Structure	
Riser Height:	0.5 ft.
Riser Diameter:	24 in.
Orifice 1 Diameter:	2 in. Elevation:0.17 ft.
Element Flows To:	
Outlet 1	Outlet 2

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0184	0.0000	0.0000	0.0000
0.0604	0.0184	0.0003	0.0000	0.0000
0.1209	0.0184	0.0007	0.0000	0.0000
0.1813	0.0184	0.0010	0.0000	0.0000
0.2418	0.0184	0.0013	0.0000	0.0000
0.3022	0.0184	0.0017	0.0000	0.0000
0.3626	0.0184	0.0020	0.0001	0.0002
0.4231	0.0184	0.0023	0.0001	0.0003
0.4835	0.0184	0.0027	0.0002	0.0003
0.5440	0.0184	0.0030	0.0003	0.0004
0.6044	0.0184	0.0033	0.0004	0.0005
0.6648	0.0184	0.0037	0.0005	0.0006
0.7253	0.0184	0.0040	0.0006	0.0008
0.7857	0.0184	0.0043	0.0008	0.0009
0.8462	0.0184	0.0047	0.0008	0.0009
0.9066	0.0184	0.0050	0.0009	0.0009
0.9670	0.0184	0.0053	0.0009	0.0009
1.0275	0.0184	0.0057	0.0010	0.0009
1.0879	0.0184	0.0060	0.0010	0.0009
1.1484	0.0184	0.0063	0.0010	0.0009

1.2088	0.0184	0.0067	0.0011	0.0009
1.2692	0.0184	0.0070	0.0011	0.0009
1.3297	0.0184	0.0073	0.0011	0.0009
1.3901	0.0184	0.0077	0.0012	0.0009
1.4505	0.0184	0.0080	0.0012	0.0009
1.5110	0.0184	0.0083	0.0012	0.0009
1.5714	0.0184	0.0087	0.0012	0.0009
1.6319	0.0184	0.0090	0.0013	0.0009
1.6923	0.0184	0.0093	0.0013	0.0009
1.7527	0.0184	0.0097	0.0013	0.0009
1.8132	0.0184	0.0100	0.0014	0.0009
1.8736	0.0184	0.0103	0.0014	0.0009
1.9341	0.0184	0.0107	0.0014	0.0009
1.9945	0.0184	0.0110	0.0014	0.0009
2.0549	0.0184	0.0113	0.0015	0.0009
2.1154	0.0184	0.0117	0.0015	0.0009
2.1758	0.0184	0.0120	0.0015	0.0009
2.2363	0.0184	0.0123	0.0015	0.0009
2.2967	0.0184	0.0127	0.0016	0.0009
2.3571	0.0184	0.0130	0.0016	0.0009
2.4176	0.0184	0.0133	0.0016	0.0009
2.4780	0.0184	0.0137	0.0016	0.0009
2.5385	0.0184	0.0140	0.0016	0.0009
2.5989	0.0184	0.0143	0.0017	0.0009
2.6593	0.0184	0.0147	0.0017	0.0009
2.7198	0.0184	0.0150	0.0017	0.0009
2.7802	0.0184	0.0153	0.0017	0.0009
2.8407	0.0184	0.0157	0.0017	0.0009
2.9011	0.0184	0.0160	0.0018	0.0009
2.9615	0.0184	0.0163	0.0018	0.0009
3.0220	0.0184	0.0167	0.0018	0.0009
3.0824	0.0184	0.0170	0.0018	0.0009
3.1429	0.0184	0.0173	0.0018	0.0009
3.2033	0.0184	0.0176	0.0019	0.0009
3.2637	0.0184	0.0180	0.0019	0.0009
3.3242	0.0184	0.0183	0.0019	0.0009
3.3846	0.0184	0.0186	0.0019	0.0009
3.4451	0.0184	0.0190	0.0019	0.0009
3.5055	0.0184	0.0193	0.0020	0.0009
3.5659	0.0184	0.0196	0.0020	0.0009
3.6264	0.0184	0.0200	0.0020	0.0009
3.6868	0.0184	0.0203	0.0020	0.0009
3.7473	0.0184	0.0206	0.0020	0.0009
3.8077	0.0184	0.0210	0.0020	0.0009
3.8681	0.0184	0.0213	0.0021	0.0009
3.9286	0.0184	0.0216	0.0021	0.0009
3.9890	0.0184	0.0220	0.0021	0.0009
4.0000	0.0184	0.0220	0.0021	0.0009

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
4.0000	0.0184	0.0220	0.0000	0.0030	0.0000
4.0604	0.0187	0.0232	0.0000	0.0030	0.0000
4.1209	0.0190	0.0243	0.0000	0.0030	0.0001
4.1813	0.0194	0.0255	0.0003	0.0030	0.0001
4.2418	0.0197	0.0266	0.0120	0.0030	0.0001
4.3022	0.0201	0.0278	0.0336	0.0030	0.0001
4.3626	0.0204	0.0291	0.0476	0.0030	0.0001

4.4231	0.0208	0.0303	0.0546	0.0030	0.0001
4.4835	0.0211	0.0316	0.0608	0.0030	0.0002
4.5440	0.0215	0.0329	0.2619	0.0030	0.0002
4.6044	0.0218	0.0342	0.7864	0.0030	0.0002
4.6648	0.0222	0.0355	1.4913	0.0030	0.0002
4.7253	0.0226	0.0369	2.3310	0.0030	0.0002
4.7857	0.0229	0.0382	3.2730	0.0030	0.0002
4.8462	0.0233	0.0396	4.2873	0.0030	0.0003
4.9066	0.0237	0.0410	5.3437	0.0030	0.0003
4.9670	0.0240	0.0425	6.4109	0.0030	0.0003
5.0275	0.0244	0.0439	7.4578	0.0030	0.0003
5.0879	0.0248	0.0454	8.4540	0.0030	0.0003
5.1484	0.0252	0.0469	9.3722	0.0030	0.0004
5.2088	0.0256	0.0485	10.190	0.0030	0.0004
5.2692	0.0260	0.0500	10.892	0.0030	0.0004
5.3297	0.0263	0.0516	11.473	0.0030	0.0004
5.3901	0.0267	0.0532	11.941	0.0030	0.0004
5.4505	0.0271	0.0548	12.319	0.0030	0.0005
5.5000	0.0275	0.0562	12.793	0.0030	0.0000

Surface Biofilter 4

Element Flows To:

Outlet 1	Outlet 2
	Biofilter 4

Biofilter 5

Bottom Length:	41.00 ft.
Bottom Width:	100.00 ft.
Material thickness of first layer:	3
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:	0.3
Infiltration safety factor:	1
Wetted surface area On	
Total Volume Infiltrated (ac-ft.):	15.914
Total Volume Through Riser (ac-ft.):	4.265
Total Volume Through Facility (ac-ft.):	20.56
Percent Infiltrated:	77.4
Total Precip Applied to Facility:	3.23
Total Evap From Facility:	2.711
Underdrain used	
Underdrain Diameter (feet):	0.5
Orifice Diameter (in.):	0.2
Offset (in.):	3
Flow Through Underdrain (ac-ft.):	0.381
Total Outflow (ac-ft.):	20.56
Percent Through Underdrain:	1.85
Discharge Structure	
Riser Height:	0.5 ft.
Riser Diameter:	24 in.
Orifice 1 Diameter:	2 in. Elevation:0.17 ft.
Element Flows To:	
Outlet 1	Outlet 2

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0941	0.0000	0.0000	0.0000
0.0495	0.0941	0.0014	0.0000	0.0000
0.0989	0.0941	0.0028	0.0000	0.0000
0.1484	0.0941	0.0042	0.0000	0.0000
0.1978	0.0941	0.0056	0.0000	0.0000
0.2473	0.0941	0.0070	0.0000	0.0000
0.2967	0.0941	0.0084	0.0000	0.0004
0.3462	0.0941	0.0098	0.0000	0.0025
0.3956	0.0941	0.0112	0.0000	0.0034
0.4451	0.0941	0.0126	0.0001	0.0044
0.4945	0.0941	0.0140	0.0001	0.0056
0.5440	0.0941	0.0154	0.0001	0.0070
0.5934	0.0941	0.0168	0.0002	0.0086
0.6429	0.0941	0.0182	0.0002	0.0104
0.6923	0.0941	0.0195	0.0003	0.0124
0.7418	0.0941	0.0209	0.0004	0.0146
0.7912	0.0941	0.0223	0.0005	0.0171
0.8407	0.0941	0.0237	0.0006	0.0197
0.8901	0.0941	0.0251	0.0007	0.0227
0.9396	0.0941	0.0265	0.0008	0.0258

0.9890	0.0941	0.0279	0.0009	0.0285
1.0385	0.0941	0.0293	0.0010	0.0285
1.0879	0.0941	0.0307	0.0010	0.0285
1.1374	0.0941	0.0321	0.0010	0.0285
1.1868	0.0941	0.0335	0.0011	0.0285
1.2363	0.0941	0.0349	0.0011	0.0285
1.2857	0.0941	0.0363	0.0011	0.0285
1.3352	0.0941	0.0377	0.0011	0.0285
1.3846	0.0941	0.0391	0.0012	0.0285
1.4341	0.0941	0.0405	0.0012	0.0285
1.4835	0.0941	0.0419	0.0012	0.0285
1.5330	0.0941	0.0433	0.0012	0.0285
1.5824	0.0941	0.0447	0.0013	0.0285
1.6319	0.0941	0.0461	0.0013	0.0285
1.6813	0.0941	0.0475	0.0013	0.0285
1.7308	0.0941	0.0489	0.0013	0.0285
1.7802	0.0941	0.0503	0.0013	0.0285
1.8297	0.0941	0.0517	0.0014	0.0285
1.8791	0.0941	0.0531	0.0014	0.0285
1.9286	0.0941	0.0545	0.0014	0.0285
1.9780	0.0941	0.0559	0.0014	0.0285
2.0275	0.0941	0.0572	0.0014	0.0285
2.0769	0.0941	0.0586	0.0015	0.0285
2.1264	0.0941	0.0600	0.0015	0.0285
2.1758	0.0941	0.0614	0.0015	0.0285
2.2253	0.0941	0.0628	0.0015	0.0285
2.2747	0.0941	0.0642	0.0015	0.0285
2.3242	0.0941	0.0656	0.0016	0.0285
2.3736	0.0941	0.0670	0.0016	0.0285
2.4231	0.0941	0.0684	0.0016	0.0285
2.4725	0.0941	0.0698	0.0016	0.0285
2.5220	0.0941	0.0712	0.0016	0.0285
2.5714	0.0941	0.0726	0.0017	0.0285
2.6209	0.0941	0.0740	0.0017	0.0285
2.6703	0.0941	0.0754	0.0017	0.0285
2.7198	0.0941	0.0768	0.0017	0.0285
2.7692	0.0941	0.0782	0.0017	0.0285
2.8187	0.0941	0.0796	0.0017	0.0285
2.8681	0.0941	0.0810	0.0018	0.0285
2.9176	0.0941	0.0824	0.0018	0.0285
2.9670	0.0941	0.0838	0.0018	0.0285
3.0000	0.0941	0.0847	0.0018	0.0285

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
3.0000	0.0941	0.0847	0.0000	0.0303	0.0002
3.0495	0.0948	0.0894	0.0000	0.0303	0.0004
3.0989	0.0954	0.0941	0.0000	0.0303	0.0006
3.1484	0.0961	0.0988	0.0000	0.0303	0.0008
3.1978	0.0967	0.1036	0.0020	0.0303	0.0010
3.2473	0.0973	0.1084	0.0137	0.0303	0.0012
3.2967	0.0980	0.1132	0.0315	0.0303	0.0014
3.3462	0.0986	0.1181	0.0456	0.0303	0.0016
3.3956	0.0993	0.1230	0.0516	0.0303	0.0018
3.4451	0.1000	0.1279	0.0569	0.0303	0.0020
3.4945	0.1006	0.1329	0.0618	0.0303	0.0022
3.5440	0.1013	0.1378	0.2619	0.0303	0.0024
3.5934	0.1019	0.1429	0.6758	0.0303	0.0026

3.6429	0.1026	0.1479	1.2175	0.0303	0.0028
3.6923	0.1033	0.1530	1.8584	0.0303	0.0030
3.7418	0.1039	0.1581	2.5791	0.0303	0.0032
3.7912	0.1046	0.1633	3.3627	0.0303	0.0034
3.8407	0.1053	0.1685	4.1929	0.0303	0.0036
3.8901	0.1059	0.1737	5.0532	0.0303	0.0038
3.9396	0.1066	0.1790	5.9265	0.0303	0.0040
3.9890	0.1073	0.1843	6.7956	0.0303	0.0042
4.0385	0.1080	0.1896	7.6435	0.0303	0.0044
4.0879	0.1086	0.1949	8.4540	0.0303	0.0046
4.1374	0.1093	0.2003	9.2122	0.0303	0.0048
4.1868	0.1100	0.2057	9.9054	0.0303	0.0050
4.2363	0.1107	0.2112	10.524	0.0303	0.0052
4.2857	0.1114	0.2167	11.063	0.0303	0.0054
4.3352	0.1121	0.2222	11.520	0.0303	0.0056
4.3846	0.1128	0.2278	11.903	0.0303	0.0058
4.4341	0.1134	0.2334	12.223	0.0303	0.0061
4.4835	0.1141	0.2390	12.501	0.0303	0.0061
4.5000	0.1144	0.2409	12.931	0.0303	0.0000

Surface Biofilter 5

Element Flows To:

Outlet 1	Outlet 2
	Biofilter 5

Biofilter 6

Bottom Length:	19.00 ft.
Bottom Width:	38.00 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:	0.05
Infiltration safety factor:	1
Wetted surface area On	
Total Volume Infiltrated (ac-ft.):	1.831
Total Volume Through Riser (ac-ft.):	6.047
Total Volume Through Facility (ac-ft.):	9.612
Percent Infiltrated:	19.05
Total Precip Applied to Facility:	0.621
Total Evap From Facility:	0.581
Underdrain used	
Underdrain Diameter (feet):	0.5
Orifice Diameter (in.):	0.2
Offset (in.):	3
Flow Through Underdrain (ac-ft.):	1.734
Total Outflow (ac-ft.):	9.612
Percent Through Underdrain:	18.04
Discharge Structure	
Riser Height:	0.5 ft.
Riser Diameter:	24 in.
Orifice 1 Diameter:	2 in. Elevation:0.17 ft.
Element Flows To:	
Outlet 1	Outlet 2

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0166	0.0000	0.0000	0.0000
0.0604	0.0166	0.0003	0.0000	0.0000
0.1209	0.0166	0.0006	0.0000	0.0000
0.1813	0.0166	0.0009	0.0000	0.0000
0.2418	0.0166	0.0012	0.0000	0.0000
0.3022	0.0166	0.0015	0.0000	0.0000
0.3626	0.0166	0.0018	0.0002	0.0002
0.4231	0.0166	0.0021	0.0002	0.0002
0.4835	0.0166	0.0024	0.0003	0.0003
0.5440	0.0166	0.0027	0.0004	0.0004
0.6044	0.0166	0.0030	0.0005	0.0005
0.6648	0.0166	0.0033	0.0005	0.0005
0.7253	0.0166	0.0036	0.0007	0.0007
0.7857	0.0166	0.0039	0.0008	0.0008
0.8462	0.0166	0.0042	0.0008	0.0008
0.9066	0.0166	0.0045	0.0008	0.0008
0.9670	0.0166	0.0048	0.0008	0.0008
1.0275	0.0166	0.0051	0.0008	0.0008
1.0879	0.0166	0.0054	0.0008	0.0008
1.1484	0.0166	0.0057	0.0008	0.0008

1.2088	0.0166	0.0060	0.0008	0.0008
1.2692	0.0166	0.0063	0.0008	0.0008
1.3297	0.0166	0.0066	0.0008	0.0008
1.3901	0.0166	0.0069	0.0008	0.0008
1.4505	0.0166	0.0072	0.0008	0.0008
1.5110	0.0166	0.0075	0.0008	0.0008
1.5714	0.0166	0.0078	0.0008	0.0008
1.6319	0.0166	0.0081	0.0008	0.0008
1.6923	0.0166	0.0084	0.0008	0.0008
1.7527	0.0166	0.0087	0.0008	0.0008
1.8132	0.0166	0.0090	0.0008	0.0008
1.8736	0.0166	0.0093	0.0008	0.0008
1.9341	0.0166	0.0096	0.0008	0.0008
1.9945	0.0166	0.0099	0.0008	0.0008
2.0549	0.0166	0.0102	0.0008	0.0008
2.1154	0.0166	0.0105	0.0008	0.0008
2.1758	0.0166	0.0108	0.0008	0.0008
2.2363	0.0166	0.0111	0.0008	0.0008
2.2967	0.0166	0.0114	0.0008	0.0008
2.3571	0.0166	0.0117	0.0008	0.0008
2.4176	0.0166	0.0120	0.0008	0.0008
2.4780	0.0166	0.0123	0.0008	0.0008
2.5385	0.0166	0.0126	0.0008	0.0008
2.5989	0.0166	0.0129	0.0008	0.0008
2.6593	0.0166	0.0132	0.0008	0.0008
2.7198	0.0166	0.0135	0.0008	0.0008
2.7802	0.0166	0.0138	0.0008	0.0008
2.8407	0.0166	0.0141	0.0008	0.0008
2.9011	0.0166	0.0144	0.0008	0.0008
2.9615	0.0166	0.0147	0.0008	0.0008
3.0220	0.0166	0.0150	0.0008	0.0008
3.0824	0.0166	0.0153	0.0008	0.0008
3.1429	0.0166	0.0156	0.0008	0.0008
3.2033	0.0166	0.0159	0.0008	0.0008
3.2637	0.0166	0.0162	0.0008	0.0008
3.3242	0.0166	0.0165	0.0008	0.0008
3.3846	0.0166	0.0168	0.0008	0.0008
3.4451	0.0166	0.0171	0.0008	0.0008
3.5055	0.0166	0.0174	0.0008	0.0008
3.5659	0.0166	0.0177	0.0008	0.0008
3.6264	0.0166	0.0180	0.0008	0.0008
3.6868	0.0166	0.0183	0.0008	0.0008
3.7473	0.0166	0.0186	0.0008	0.0008
3.8077	0.0166	0.0189	0.0008	0.0008
3.8681	0.0166	0.0192	0.0008	0.0008
3.9286	0.0166	0.0195	0.0008	0.0008
3.9890	0.0166	0.0198	0.0008	0.0008
4.0000	0.0166	0.0199	0.0008	0.0008

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
4.0000	0.0166	0.0199	0.0000	0.0029	0.0000
4.0604	0.0169	0.0209	0.0000	0.0029	0.0000
4.1209	0.0172	0.0219	0.0000	0.0029	0.0000
4.1813	0.0175	0.0230	0.0000	0.0029	0.0001
4.2418	0.0179	0.0241	0.0000	0.0029	0.0001
4.3022	0.0182	0.0251	0.0000	0.0029	0.0001
4.3626	0.0185	0.0263	0.0001	0.0029	0.0001

4.4231	0.0189	0.0274	0.0001	0.0029	0.0001
4.4835	0.0192	0.0285	0.0002	0.0029	0.0001
4.5440	0.0195	0.0297	0.0003	0.0029	0.0002
4.6044	0.0199	0.0309	0.0004	0.0029	0.0002
4.6648	0.0202	0.0321	0.0005	0.0029	0.0002
4.7253	0.0206	0.0333	0.0006	0.0029	0.0002
4.7857	0.0209	0.0346	0.0007	0.0029	0.0002
4.8462	0.0213	0.0359	0.0008	0.0029	0.0003
4.9066	0.0216	0.0372	0.0009	0.0029	0.0003
4.9670	0.0220	0.0385	0.0009	0.0029	0.0003
5.0275	0.0223	0.0398	0.0010	0.0029	0.0003
5.0879	0.0227	0.0412	0.0010	0.0029	0.0003
5.1484	0.0231	0.0426	0.0010	0.0029	0.0003
5.2088	0.0234	0.0440	0.0011	0.0029	0.0004
5.2692	0.0238	0.0454	0.0011	0.0029	0.0004
5.3297	0.0242	0.0468	0.0011	0.0029	0.0004
5.3901	0.0246	0.0483	0.0012	0.0029	0.0004
5.4505	0.0249	0.0498	0.0012	0.0029	0.0004
5.5000	0.0253	0.0511	0.0012	0.0029	0.0000

Surface Biofilter 6

Element Flows To:

Outlet 1	Outlet 2
	Biofilter 6

Biofilter 7

Bottom Length:	14.00 ft.
Bottom Width:	22.00 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:	0.1
Infiltration safety factor:	1
Wetted surface area On	
Total Volume Infiltrated (ac-ft.):	1.096
Total Volume Through Riser (ac-ft.):	2.99
Total Volume Through Facility (ac-ft.):	5.44
Percent Infiltrated:	20.15
Total Precip Applied to Facility:	0.262
Total Evap From Facility:	0.249
Underdrain used	
Underdrain Diameter (feet):	0.5
Orifice Diameter (in.):	0.2
Offset (in.):	3
Flow Through Underdrain (ac-ft.):	1.354
Total Outflow (ac-ft.):	5.44
Percent Through Underdrain:	24.89
Discharge Structure	
Riser Height:	0.5 ft.
Riser Diameter:	24 in.
Orifice 1 Diameter:	2 in. Elevation:0.17 ft.
Element Flows To:	
Outlet 1	Outlet 2

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0071	0.0000	0.0000	0.0000
0.0604	0.0071	0.0001	0.0000	0.0000
0.1209	0.0071	0.0003	0.0000	0.0000
0.1813	0.0071	0.0004	0.0000	0.0000
0.2418	0.0071	0.0005	0.0000	0.0000
0.3022	0.0071	0.0006	0.0000	0.0000
0.3626	0.0071	0.0008	0.0001	0.0001
0.4231	0.0071	0.0009	0.0001	0.0001
0.4835	0.0071	0.0010	0.0001	0.0001
0.5440	0.0071	0.0012	0.0001	0.0001
0.6044	0.0071	0.0013	0.0002	0.0002
0.6648	0.0071	0.0014	0.0002	0.0002
0.7253	0.0071	0.0015	0.0003	0.0003
0.7857	0.0071	0.0017	0.0003	0.0003
0.8462	0.0071	0.0018	0.0004	0.0004
0.9066	0.0071	0.0019	0.0004	0.0004
0.9670	0.0071	0.0021	0.0005	0.0005
1.0275	0.0071	0.0022	0.0005	0.0005
1.0879	0.0071	0.0023	0.0006	0.0006
1.1484	0.0071	0.0024	0.0007	0.0007

1.2088	0.0071	0.0026	0.0007	0.0007
1.2692	0.0071	0.0027	0.0007	0.0007
1.3297	0.0071	0.0028	0.0007	0.0007
1.3901	0.0071	0.0029	0.0007	0.0007
1.4505	0.0071	0.0031	0.0007	0.0007
1.5110	0.0071	0.0032	0.0007	0.0007
1.5714	0.0071	0.0033	0.0007	0.0007
1.6319	0.0071	0.0035	0.0007	0.0007
1.6923	0.0071	0.0036	0.0007	0.0007
1.7527	0.0071	0.0037	0.0007	0.0007
1.8132	0.0071	0.0038	0.0007	0.0007
1.8736	0.0071	0.0040	0.0007	0.0007
1.9341	0.0071	0.0041	0.0007	0.0007
1.9945	0.0071	0.0042	0.0007	0.0007
2.0549	0.0071	0.0044	0.0007	0.0007
2.1154	0.0071	0.0045	0.0007	0.0007
2.1758	0.0071	0.0046	0.0007	0.0007
2.2363	0.0071	0.0047	0.0007	0.0007
2.2967	0.0071	0.0049	0.0007	0.0007
2.3571	0.0071	0.0050	0.0007	0.0007
2.4176	0.0071	0.0051	0.0007	0.0007
2.4780	0.0071	0.0053	0.0007	0.0007
2.5385	0.0071	0.0054	0.0007	0.0007
2.5989	0.0071	0.0055	0.0007	0.0007
2.6593	0.0071	0.0056	0.0007	0.0007
2.7198	0.0071	0.0058	0.0007	0.0007
2.7802	0.0071	0.0059	0.0007	0.0007
2.8407	0.0071	0.0060	0.0007	0.0007
2.9011	0.0071	0.0062	0.0007	0.0007
2.9615	0.0071	0.0063	0.0007	0.0007
3.0220	0.0071	0.0064	0.0007	0.0007
3.0824	0.0071	0.0065	0.0007	0.0007
3.1429	0.0071	0.0067	0.0007	0.0007
3.2033	0.0071	0.0068	0.0007	0.0007
3.2637	0.0071	0.0069	0.0007	0.0007
3.3242	0.0071	0.0071	0.0007	0.0007
3.3846	0.0071	0.0072	0.0007	0.0007
3.4451	0.0071	0.0073	0.0007	0.0007
3.5055	0.0071	0.0074	0.0007	0.0007
3.5659	0.0071	0.0076	0.0007	0.0007
3.6264	0.0071	0.0077	0.0007	0.0007
3.6868	0.0071	0.0078	0.0007	0.0007
3.7473	0.0071	0.0079	0.0007	0.0007
3.8077	0.0071	0.0081	0.0007	0.0007
3.8681	0.0071	0.0082	0.0007	0.0007
3.9286	0.0071	0.0083	0.0007	0.0007
3.9890	0.0071	0.0085	0.0007	0.0007
4.0000	0.0071	0.0085	0.0007	0.0007

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
4.0000	0.0071	0.0085	0.0000	0.0028	0.0000
4.0604	0.0073	0.0089	0.0000	0.0028	0.0000
4.1209	0.0075	0.0094	0.0000	0.0028	0.0001
4.1813	0.0077	0.0098	0.0000	0.0028	0.0001
4.2418	0.0079	0.0103	0.0000	0.0028	0.0001
4.3022	0.0081	0.0108	0.0000	0.0028	0.0001
4.3626	0.0083	0.0113	0.0000	0.0028	0.0001

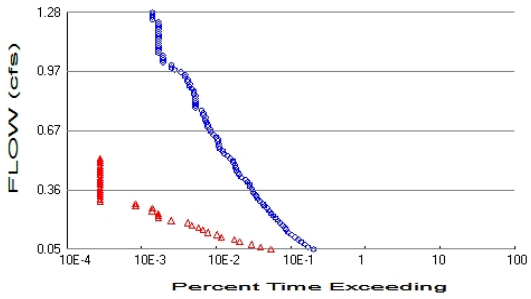
4.4231	0.0085	0.0118	0.0001	0.0028	0.0002
4.4835	0.0088	0.0123	0.0001	0.0028	0.0002
4.5440	0.0090	0.0128	0.0001	0.0028	0.0002
4.6044	0.0092	0.0134	0.0002	0.0028	0.0002
4.6648	0.0094	0.0140	0.0002	0.0028	0.0003
4.7253	0.0097	0.0145	0.0003	0.0028	0.0003
4.7857	0.0099	0.0151	0.0003	0.0028	0.0003
4.8462	0.0101	0.0157	0.0004	0.0028	0.0003
4.9066	0.0104	0.0163	0.0005	0.0028	0.0004
4.9670	0.0106	0.0170	0.0006	0.0028	0.0004
5.0275	0.0109	0.0176	0.0007	0.0028	0.0004
5.0879	0.0111	0.0183	0.0008	0.0028	0.0004
5.1484	0.0114	0.0190	0.0009	0.0028	0.0005
5.2088	0.0116	0.0197	0.0011	0.0028	0.0005
5.2692	0.0119	0.0204	0.0011	0.0028	0.0005
5.3297	0.0121	0.0211	0.0011	0.0028	0.0005
5.3901	0.0124	0.0218	0.0012	0.0028	0.0006
5.4505	0.0126	0.0226	0.0012	0.0028	0.0006
5.5000	0.0129	0.0232	0.0012	0.0028	0.0000

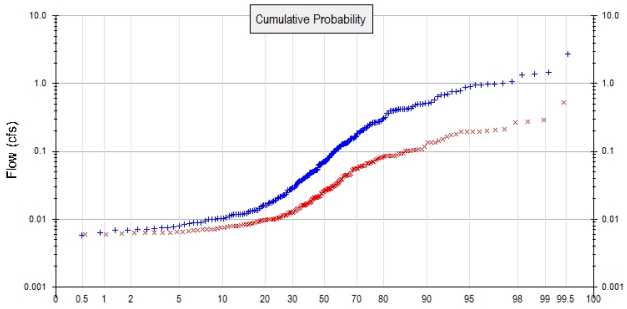
Surface Biofilter 7

Element Flows To:

Outlet 1	Outlet 2
	Biofilter 7

Analysis Results
POC 1





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1
Total Pervious Area: 2.86
Total Impervious Area: 0

Mitigated Landuse Totals for POC #1
Total Pervious Area: 2.33
Total Impervious Area: 0.53

Flow Frequency Method: Cunnane

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	**Flow(cfs)**
2 year	0.531743
5 year	0.970375
10 year	1.280088
25 year	1.686918

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	**Flow(cfs)**
2 year	0.106585
5 year	0.195491
10 year	0.25089
25 year	0.33464

Duration Flows

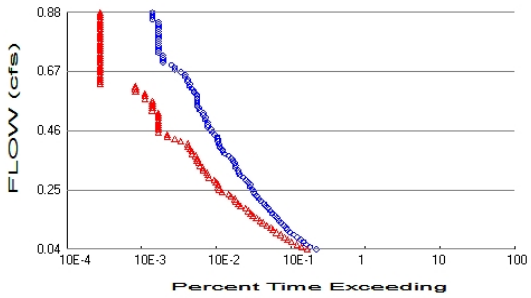
The Facility PASSED

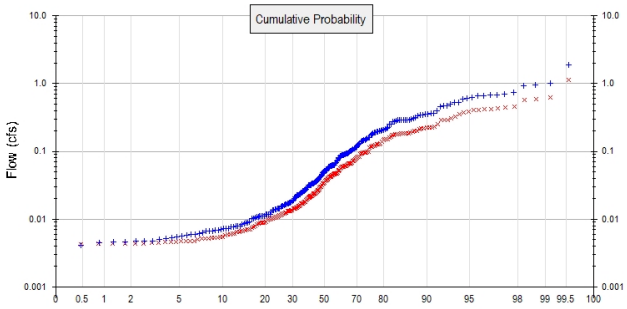
Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0532	722	196	27	Pass
0.0656	611	141	23	Pass
0.0780	556	107	19	Pass
0.0904	495	74	14	Pass
0.1027	452	63	13	Pass
0.1151	408	42	10	Pass
0.1275	373	37	9	Pass
0.1399	334	28	8	Pass
0.1523	314	24	7	Pass
0.1647	301	21	6	Pass
0.1771	279	17	6	Pass
0.1895	257	15	5	Pass
0.2019	242	9	3	Pass
0.2143	223	6	2	Pass
0.2267	210	6	2	Pass
0.2391	196	6	3	Pass
0.2515	187	5	2	Pass
0.2639	174	5	2	Pass
0.2762	158	3	1	Pass
0.2886	153	3	1	Pass
0.3010	138	1	0	Pass
0.3134	132	1	0	Pass
0.3258	124	1	0	Pass
0.3382	119	1	0	Pass
0.3506	113	1	0	Pass
0.3630	108	1	0	Pass
0.3754	103	1	0	Pass
0.3878	101	1	0	Pass
0.4002	95	1	1	Pass
0.4126	89	1	1	Pass
0.4250	78	1	1	Pass
0.4374	73	1	1	Pass
0.4498	71	1	1	Pass
0.4621	67	1	1	Pass
0.4745	66	1	1	Pass
0.4869	65	1	1	Pass
0.4993	62	1	1	Pass
0.5117	60	1	1	Pass
0.5241	55	1	1	Pass
0.5365	52	0	0	Pass
0.5489	46	0	0	Pass
0.5613	44	0	0	Pass
0.5737	40	0	0	Pass
0.5861	39	0	0	Pass
0.5985	39	0	0	Pass
0.6109	38	0	0	Pass
0.6233	38	0	0	Pass
0.6356	36	0	0	Pass
0.6480	33	0	0	Pass
0.6604	31	0	0	Pass
0.6728	30	0	0	Pass
0.6852	28	0	0	Pass
0.6976	28	0	0	Pass

0.7100	27	0	0	Pass
0.7224	26	0	0	Pass
0.7348	26	0	0	Pass
0.7472	24	0	0	Pass
0.7596	24	0	0	Pass
0.7720	23	0	0	Pass
0.7844	19	0	0	Pass
0.7968	19	0	0	Pass
0.8092	19	0	0	Pass
0.8215	19	0	0	Pass
0.8339	19	0	0	Pass
0.8463	19	0	0	Pass
0.8587	18	0	0	Pass
0.8711	18	0	0	Pass
0.8835	17	0	0	Pass
0.8959	16	0	0	Pass
0.9083	16	0	0	Pass
0.9207	15	0	0	Pass
0.9331	15	0	0	Pass
0.9455	14	0	0	Pass
0.9579	14	0	0	Pass
0.9703	12	0	0	Pass
0.9827	10	0	0	Pass
0.9950	9	0	0	Pass
1.0074	9	0	0	Pass
1.0198	7	0	0	Pass
1.0322	7	0	0	Pass
1.0446	7	0	0	Pass
1.0570	7	0	0	Pass
1.0694	6	0	0	Pass
1.0818	6	0	0	Pass
1.0942	6	0	0	Pass
1.1066	6	0	0	Pass
1.1190	6	0	0	Pass
1.1314	6	0	0	Pass
1.1438	6	0	0	Pass
1.1562	6	0	0	Pass
1.1686	6	0	0	Pass
1.1809	6	0	0	Pass
1.1933	6	0	0	Pass
1.2057	6	0	0	Pass
1.2181	6	0	0	Pass
1.2305	6	0	0	Pass
1.2429	5	0	0	Pass
1.2553	5	0	0	Pass
1.2677	5	0	0	Pass
1.2801	5	0	0	Pass

Water Quality

POC 2





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #2
Total Pervious Area: 1.96
Total Impervious Area: 0

Mitigated Landuse Totals for POC #2
Total Pervious Area: 1.79
Total Impervious Area: 0.17

Flow Frequency Method: Cunnane

Flow Frequency Return Periods for Predeveloped. POC #2

Return Period	**Flow(cfs)**
2 year	0.368111
5 year	0.671198
10 year	0.880844
25 year	1.163723

Flow Frequency Return Periods for Mitigated. POC #2

Return Period	**Flow(cfs)**
2 year	0.228283
5 year	0.42144
10 year	0.540306
25 year	0.722037

Duration Flows

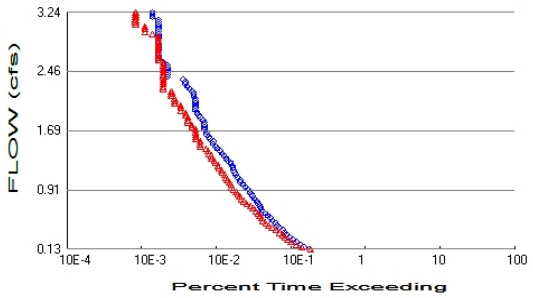
The Facility PASSED

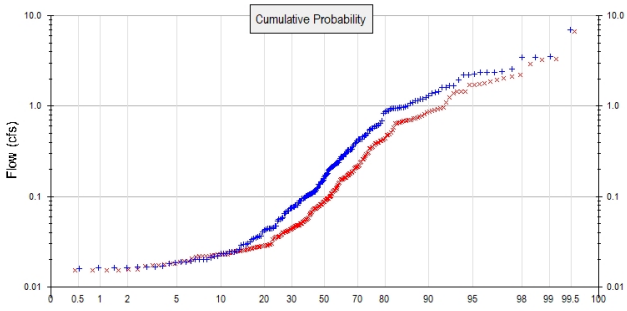
Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0368	785	597	76	Pass
0.0453	653	501	76	Pass
0.0539	584	436	74	Pass
0.0624	534	369	69	Pass
0.0709	483	324	67	Pass
0.0794	435	295	67	Pass
0.0880	394	262	66	Pass
0.0965	352	233	66	Pass
0.1050	324	207	63	Pass
0.1135	308	195	63	Pass
0.1221	292	172	58	Pass
0.1306	266	154	57	Pass
0.1391	250	140	56	Pass
0.1476	238	125	52	Pass
0.1562	218	113	51	Pass
0.1647	201	105	52	Pass
0.1732	192	98	51	Pass
0.1817	180	89	49	Pass
0.1903	167	76	45	Pass
0.1988	158	71	44	Pass
0.2073	143	66	46	Pass
0.2158	135	65	48	Pass
0.2244	127	57	44	Pass
0.2329	119	53	44	Pass
0.2414	115	43	37	Pass
0.2500	110	40	36	Pass
0.2585	104	38	36	Pass
0.2670	102	38	37	Pass
0.2755	97	36	37	Pass
0.2841	90	34	37	Pass
0.2926	83	29	34	Pass
0.3011	74	28	37	Pass
0.3096	72	27	37	Pass
0.3182	70	24	34	Pass
0.3267	66	24	36	Pass
0.3352	66	22	33	Pass
0.3437	63	21	33	Pass
0.3523	60	20	33	Pass
0.3608	57	20	35	Pass
0.3693	53	19	35	Pass
0.3778	47	17	36	Pass
0.3864	44	17	38	Pass
0.3949	42	16	38	Pass
0.4034	40	15	37	Pass
0.4119	39	15	38	Pass
0.4205	38	12	31	Pass
0.4290	38	10	26	Pass
0.4375	37	8	21	Pass
0.4460	34	8	23	Pass
0.4546	32	6	18	Pass
0.4631	31	6	19	Pass
0.4716	28	6	21	Pass
0.4801	28	6	21	Pass

0.4887	28	6	21	Pass
0.4972	26	6	23	Pass
0.5057	26	6	23	Pass
0.5142	24	6	25	Pass
0.5228	24	6	25	Pass
0.5313	22	5	22	Pass
0.5398	21	5	23	Pass
0.5483	20	5	25	Pass
0.5569	20	5	25	Pass
0.5654	20	5	25	Pass
0.5739	20	4	20	Pass
0.5824	20	4	20	Pass
0.5910	19	4	21	Pass
0.5995	18	3	16	Pass
0.6080	17	3	17	Pass
0.6166	16	3	18	Pass
0.6251	16	1	6	Pass
0.6336	15	1	6	Pass
0.6421	15	1	6	Pass
0.6507	14	1	7	Pass
0.6592	14	1	7	Pass
0.6677	12	1	8	Pass
0.6762	10	1	10	Pass
0.6848	10	1	10	Pass
0.6933	9	1	11	Pass
0.7018	7	1	14	Pass
0.7103	7	1	14	Pass
0.7189	7	1	14	Pass
0.7274	7	1	14	Pass
0.7359	6	1	16	Pass
0.7444	6	1	16	Pass
0.7530	6	1	16	Pass
0.7615	6	1	16	Pass
0.7700	6	1	16	Pass
0.7785	6	1	16	Pass
0.7871	6	1	16	Pass
0.7956	6	1	16	Pass
0.8041	6	1	16	Pass
0.8126	6	1	16	Pass
0.8212	6	1	16	Pass
0.8297	6	1	16	Pass
0.8382	6	1	16	Pass
0.8467	6	1	16	Pass
0.8553	5	1	20	Pass
0.8638	5	1	20	Pass
0.8723	5	1	20	Pass
0.8808	5	1	20	Pass

Water Quality

POC 3





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #3
Total Pervious Area: 7.5
Total Impervious Area: 0

Mitigated Landuse Totals for POC #3
Total Pervious Area: 6.81
Total Impervious Area: 0.69

Flow Frequency Method: Cunnane

Flow Frequency Return Periods for Predeveloped. POC #3

Return Period	**Flow(cfs)**
2 year	1.302478
5 year	2.369269
10 year	3.242546
25 year	4.17394

Flow Frequency Return Periods for Mitigated. POC #3

Return Period	**Flow(cfs)**
2 year	0.945525
5 year	1.911627
10 year	2.756702
25 year	3.941033

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.1302	641	659	102	Pass
0.1617	537	507	94	Pass
0.1931	483	422	87	Pass
0.2246	428	364	85	Pass
0.2560	387	328	84	Pass
0.2874	344	299	86	Pass
0.3189	318	278	87	Pass
0.3503	295	257	87	Pass
0.3817	280	228	81	Pass
0.4132	254	201	79	Pass
0.4446	235	181	77	Pass
0.4761	223	167	74	Pass
0.5075	204	152	74	Pass
0.5389	190	146	76	Pass
0.5704	177	139	78	Pass
0.6018	164	131	79	Pass
0.6332	152	122	80	Pass
0.6647	143	112	78	Pass
0.6961	138	104	75	Pass
0.7276	130	92	70	Pass
0.7590	127	85	66	Pass
0.7904	118	78	66	Pass
0.8219	111	74	66	Pass
0.8533	107	70	65	Pass
0.8847	101	67	66	Pass
0.9162	96	61	63	Pass
0.9476	88	58	65	Pass
0.9791	82	57	69	Pass
1.0105	76	54	71	Pass
1.0419	76	50	65	Pass
1.0734	69	49	71	Pass
1.1048	66	47	71	Pass
1.1362	64	43	67	Pass
1.1677	62	42	67	Pass
1.1991	60	39	65	Pass
1.2306	59	38	64	Pass
1.2620	56	35	62	Pass
1.2934	52	34	65	Pass
1.3249	49	31	63	Pass
1.3563	46	31	67	Pass
1.3877	43	29	67	Pass
1.4192	41	28	68	Pass
1.4506	37	26	70	Pass
1.4821	35	22	62	Pass
1.5135	33	22	66	Pass
1.5449	33	22	66	Pass
1.5764	30	19	63	Pass
1.6078	29	19	65	Pass
1.6392	27	19	70	Pass
1.6707	27	19	70	Pass
1.7021	25	19	76	Pass
1.7336	25	17	68	Pass
1.7650	25	17	68	Pass

1.7964	25	15	60	Pass
1.8279	24	15	62	Pass
1.8593	22	15	68	Pass
1.8907	21	14	66	Pass
1.9222	20	14	70	Pass
1.9536	19	12	63	Pass
1.9851	19	12	63	Pass
2.0165	19	12	63	Pass
2.0479	19	10	52	Pass
2.0794	19	10	52	Pass
2.1108	19	10	52	Pass
2.1422	18	9	50	Pass
2.1737	18	9	50	Pass
2.2051	17	9	52	Pass
2.2366	16	7	43	Pass
2.2680	15	7	46	Pass
2.2994	14	7	50	Pass
2.3309	14	7	50	Pass
2.3623	13	7	53	Pass
2.3937	8	7	87	Pass
2.4252	8	7	87	Pass
2.4566	8	7	87	Pass
2.4880	8	7	87	Pass
2.5195	8	7	87	Pass
2.5509	8	7	87	Pass
2.5824	7	7	100	Pass
2.6138	6	6	100	Pass
2.6452	6	6	100	Pass
2.6767	6	6	100	Pass
2.7081	6	6	100	Pass
2.7395	6	6	100	Pass
2.7710	6	6	100	Pass
2.8024	6	6	100	Pass
2.8339	6	6	100	Pass
2.8653	6	6	100	Pass
2.8967	6	6	100	Pass
2.9282	6	6	100	Pass
2.9596	6	5	83	Pass
2.9910	6	4	66	Pass
3.0225	6	4	66	Pass
3.0539	6	4	66	Pass
3.0854	6	3	50	Pass
3.1168	6	3	50	Pass
3.1482	6	3	50	Pass
3.1797	5	3	60	Pass
3.2111	5	3	60	Pass
3.2425	5	3	60	Pass

Water Quality

Model Default Modifications

Total of 0 changes have been made.

PERLND Changes

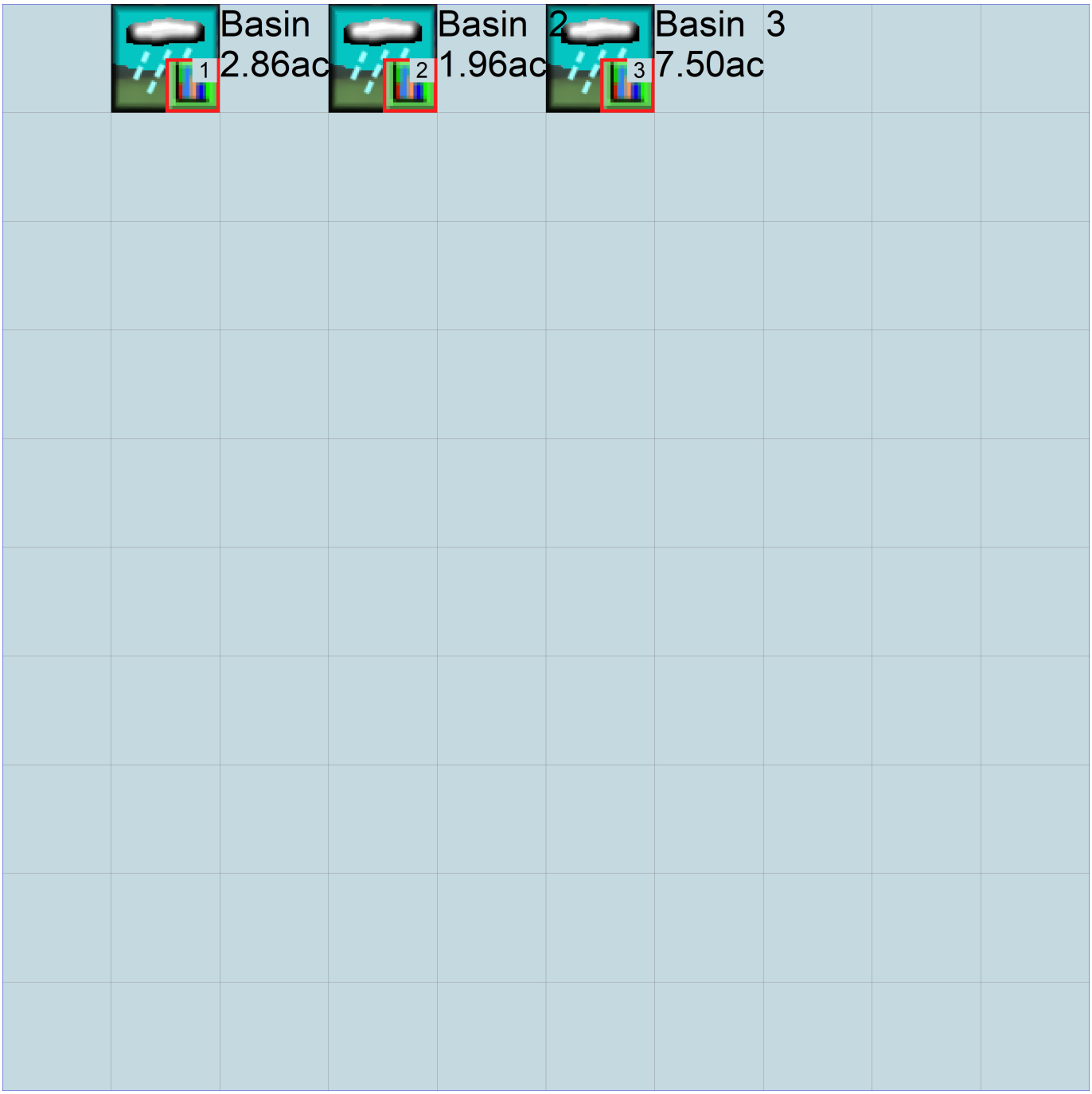
No PERLND changes have been made.

IMPLND Changes

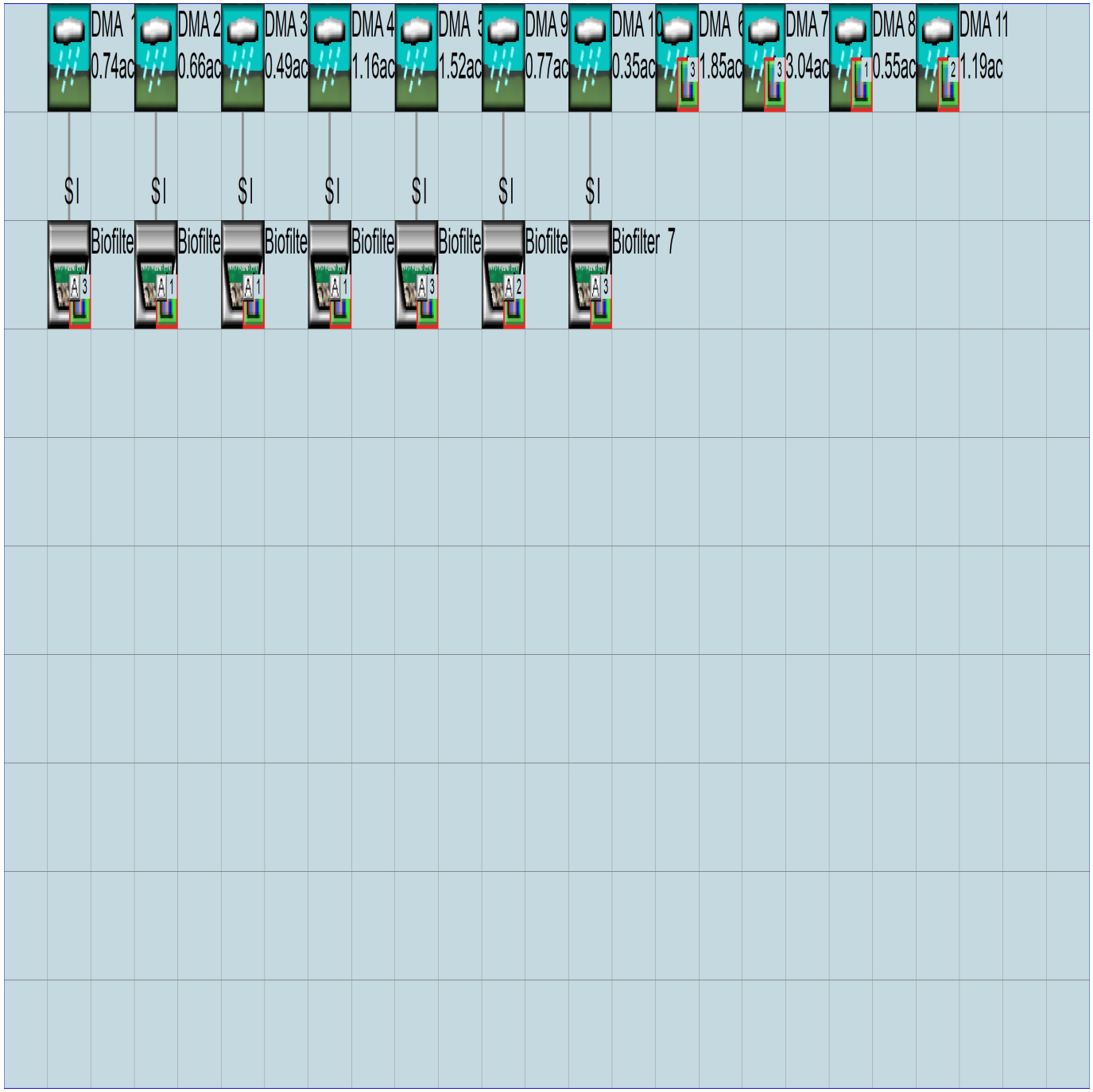
No IMPLND changes have been made.

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. All upstream CCSYAs are bypassed. 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.

PART 1 PROJECT INFORMATION

A. Project Summary Information	
Project Name	Harbison Canyon Subdivision
Record ID (e.g. grading/improvement plan number, building permit)	Preliminary Grading Plan
Project Address	2030 Harbison Canyon Road, El Cajon CA 92019
Assessor's Parcel Number(s) APN(s)	513-101-11
Project Watershed (Hydrologic Unit, Area, and Subarea Name with Numeric Identifier)	909.23 Sweetwater Hydrologic Unit, Middle Sweetwater HA, Dehesa HSA
B. Owner Information	
Name	Nagham Sabah
Address	1233 Pfeifer Lane, El Cajon, CA 92020
Email Address	nagham.sabah@gmail.com
Phone Number	(224) 425-8802

COUNTY – OFFICIAL USE ONLY	
INTAKE ID#	
ACCEPTANCE ID#	

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

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

DMA #	APN or Lot #	BMP ID #	WPP Acceptance Date (If applicable)	WPP Acceptance ID# (If applicable, e.g. 20/21-001)

PART 2 BMP INVENTORY INFORMATION

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

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

DMA #	BMP Information			Maintenance Category (1, 2, 3, or 4)	Maintenance Agreement Recorded DOC #	Construction Plan Sheet #	Landscape Plan Sheet #	FOR DPW-WPP USE ONLY
	Quantity	Description/Type of Structural BMP	BMP ID #					
A. Structural BMPs (S-BMPs)								
1	2	Tree Well	DMA 1					
2	2	Tree Well	DMA 2					
3	1	Tree Well	DMA 3					
4	2	Tree Well	DMA 4					
5	3	Tree Well	DMA 5					
9	2	Tree Well	DMA 9					
Add rows as needed. Click into the last column in the row below this, then press TAB to add a new row.								
10	1	Tree Well	DMA 10					
B. Significant Site Design BMPs (SSD-BMPs)								
		Choose an item.		Choose				
		Choose an item.		Choose				
		Choose an item.		Choose				
		Choose an item.		Choose				
		Choose an item.		Choose				
		Choose an item.		Choose				
Add rows as needed. Click into the last column in the row below this, then press TAB to add a new row.								

PART 3 REQUIRED ATTACHMENTS

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

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

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

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

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

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

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

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

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

- ☐ Final Landscape Plans
- ☐ Proof of Irrigation Installed (if applicable)

PART 4 PREPARER'S CERTIFICATION

By signing below, I certify that the BMP(s) listed in Part 2 of this Verification Form have been constructed and are in substantial conformance with the approved plans and applicable regulations. I understand the County reserves the right to inspect the above BMPs to verify compliance with the approved plans and Watershed Protection Ordinance (WPO). Should it be determined that the BMPs were not constructed to plan or code, corrective actions may be necessary before permits can be closed.

Note: Structural BMPs must be certified by a licensed professional engineer.

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

Preparer's Name:	
Email Address:	
Phone Number:	
Preparer's Signature:	
Date:	

[SEAL]

PROJECT RECORD ID: _____

COUNTY - OFFICIAL USE ONLY

County Inspector Approval:

***NOTE: The County approved SWQMP document and any Addendums or Revisions must be included with this BMP Installation Verification submittal package.**

- ☐ DPW Private Development Construction Inspection (PDCI)
- ☐ PDS Building
- ☐ DGS
- ☐ DPR

By signing below, the County Inspector concurs that every BMP listed in Part 2 of this BMP Installation Verification form has been installed per plan.

Inspector Name: _____

Inspector's Signature: _____ Date: _____

DPW Watershed Protection Program (WPP) Acceptance:

Date Received: _____

WPP Reviewer: _____

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

WPP Reviewer's Signature: _____ Date: _____

Enter Acceptance ID# on page 1.

NOTES:

11.0 Cover Sheet and General Requirements

- All Structural BMPs must have a plan and mechanism to ensure on-going maintenance. Use the table below to document the types of agreements to be submitted for the PDP and submit them under cover of this sheet.
- See BMPDM Section 7.3 for a description of maintenance categories and responsibilities. Note that since Category 3 and 4 BMPs are County-maintained, they do not require maintenance agreements.

a. Applicability of Maintenance Agreements

Check the boxes below to indicate which types of agreements are included with this attachment.

☒ **Maintenance Notification Agreement for Category 1 Stormwater Structural BMPs**

- Exhibit A: Project Site Map; and a Map for each BMP and its Drainage Management Area (DMA).
- Exhibit B: BMP Maintenance Plan (see below)

CATEGORY 1 MAINTENANCE AGREEMENTS ARE RECORDED PRIOR TO OCCUPANCY.

☐ **Storm Water Facilities Maintenance Agreement (SWMA) (Category 2 BMPs)**

- Exhibit A: Legal Description of Property
- Exhibit B: BMP Maintenance Program (see below)
- Exhibit C: BMP Locations

CATEGORY 2 MAINTENANCE AGREEMENTS ARE RECORDED PRIOR TO PERMIT ISSUANCE.

Maintenance agreement templates and instructions are available on the County's website: www.sandiegocounty.gov/stormwater under the Development Resources tab, Submittal Templates.

b. Maintenance Plan Requirements

Maintenance plans should include the following:

☒ Specific **maintenance indicators and actions** for proposed structural BMP(s). These must be based on maintenance indicators presented in BMP Design Manual Fact Sheets in Appendix E and enhanced to reflect actual proposed components of the structural BMP(s).

☒ **Access** to inspect and perform maintenance on the structural BMP(s).

☒ Features to **facilitate inspection** (e.g., observation ports, cleanouts, silt posts, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds).

☒ Manufacturer and part number for **proprietary parts** of structural BMP(s) when applicable.

☒ **Maintenance thresholds** specific to the structural BMP(s), with a location-specific frame of reference (e.g., level of accumulated materials that triggers removal of the materials, to be identified based on viewing marks on silt posts or measured with a survey rod with respect to a fixed benchmark within the BMP).

☒ Recommended **equipment** to perform maintenance.

☒ When applicable, necessary special **training or certification** requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management.

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.

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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.

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

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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:		

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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:		