County of San Diego
PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Steeve Subdivision
PDS2015-TPM-21225

Bear Valley Parkway/Birch Ave
Escondido, CA 92027]

ASSESSOR'S PARCEL NUMBER(S):
APN 234-120-66

ENGINEER OF WORK:

William C. Yen, RCE 33730

PREPARED FOR:

Rolf Steeve, Jr. and Roger W. Steeve
1567 Dublin Lane
Escondido, CA 92027
(760) 822-4669

PDP SWQMP PREPARED BY:

Bill Yen & Associates, Inc.
13071 Poway Road
Poway, CA 92064
(858) 679-8010

DATE OF SWQMP:
March 28, 2017

PLANS PREPARED BY:
William C. Yen
13071 Poway Road
Poway, CA 92064
(858) 679-8010

SWQMP APPROVED BY:

APPROVAL DATE:

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Table of Contents

Attachments

Acronyms

ACP	Alternative Compliance Project
APN	Assessor's Parcel Number
BMP	Best Management Practice
BMP DM	Best Management Practice Design Manual
HMP	Hydromodification Management Plan
HSG	Hydrologic Soil Group
MS4	Municipal Separate Storm Sewer System
N/A	Not Applicable
NRCS	Natural Resources Conservation Service
PDCI	Private Development Construction Inspection Section
PDP	Priority Development Project
PDS	Planning and Development Services
PE	Professional Engineer
RPO	Resource Protection Ordinance
SC	Source Control
SD	Site Design
SDRWQCB	San Diego Regional Water Quality Control Board
SIC	Standard Industrial Classification
SWQMP	Storm Water Quality Management Plan
WMAA	Watershed Management Area Analysis
WPO	Watershed Protection Ordinance
WQIP	Water Quality Improvement Plan

PDP SWQMP Preparer's Certification Page

Project Name: Steeve Subdivision
Permit Application Number: PDS2015-TPM-21225

PREPARER'S CERTIFICATION

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

I have read and understand that the County of San Diego has adopted minimum requirements for managing urban runoff, including storm water, from land development activities, as described in the BMP Design Manual. I certify that this PDP SWQMP has been completed to the best of my ability and accurately reflects the project being proposed and the applicable BMPs proposed to minimize the potentially negative impacts of this project's land development activities on water quality. I understand and acknowledge that the plan check review of this PDP SWQMP by County staff is confined to a review and does not relieve me, as the Engineer in Responsible Charge of design of storm water BMPs for this project, of my responsibilities for project design.

William Yen RCE 33730 EX. 6/30/2018
Engineer of Work's Signature, PE Number & Expiration Date

William C. Yen, RCE 33730
Print Name

Bill Yen & Associates, Inc.
Company

March 28, 2017
Date

Engineer's Seal:

Template Date: March 16, 2016
LUEG:SW **PDP SWQMP**

Preparation Date: March 28, 2017

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Submittal Record

Use this Table to keep a record of submittals of this PDP SWQMP. Each time the PDP SWQMP is re-submitted, provide the date and status of the project. In column 4 summarize the changes that have been made or indicate if response to plancheck comments is included. When applicable, insert response to plancheck comments behind this page.

Preliminary Design / Planning / CEQA

Submittal Number	Date	Summary of Changes
1	8/8/2016	Initial Submittal
2	12/1/2016	BMP definitions, added texts, revised maps
3	3/28/2017	POCs 1, 3, and 4 to POC 1
4		

Final Design

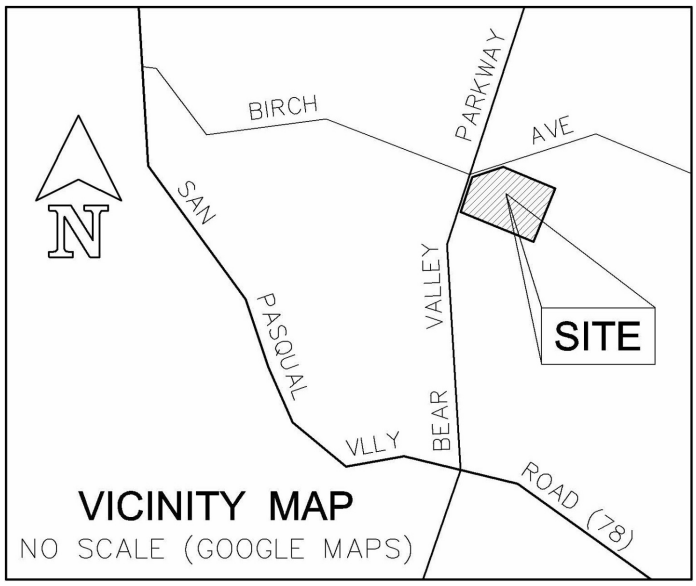
Submittal Number	Date	Summary of Changes
1		Initial Submittal
2		
3		
4		

Plan Changes

Submittal Number	Date	Summary of Changes
1		Initial Submittal
2		
3		
4		

Project Vicinity Map

Project Name: Steeve Subdivision
Record ID: PDS2015-TPM-21225



Step 1: Project type determination (Standard or Priority Development Project)

Is the project part of another Priority Development Project (PDP)? If so, a PDP SWQMP is required. Go to Step 2.			(☐ Yes ☑ No
The project is (select one): ☑ New Development ☐ Redevelopment[1]			
The total proposed newly created or replaced impervious area is:			34,696 ft^2
The total existing (pre-project) impervious area is:			0 ft^2
The total area disturbed by the project is:			54,751 ft^2
If the total area disturbed by the project is 1 acre (43,560 sq. ft.) or more OR the project is part of a larger common plan of development disturbing 1 acre or more, a Waste Discharger Identification (WDID) number must be obtained from the State Water Resources Control Board. WDID: WDID TBD			
Is the project in any of the following categories, (a) through (f)?[2]			
Yes ☑	No ☐	(a)	New development projects that create 10,000 square feet or more of impervious surfaces[3] (collectively over the entire project site). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.
Yes ☐	No ☑	(b)	Redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface (collectively over the entire project site on an existing site of 10,000 square feet or more of impervious surfaces). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.
Yes ☐	No ☑	(c)	New and redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface (collectively over the entire project site), and support one or more of the following uses: (i) Restaurants. This category is defined as a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (Standard Industrial Classification (SIC) code 5812). (ii) Hillside development projects. This category includes development on any natural slope that is twenty-five percent or greater. (iii) Parking lots. This category is defined as a land area or facility for the temporary parking or storage of motor vehicles used personally, for business, or for commerce. (iv) Streets, roads, highways, freeways, and driveways. This category is defined as any paved impervious surface used for the transportation of automobiles, trucks, motorcycles, and other vehicles.

[1] Redevelopment is defined as: The creation and/or replacement of impervious surface on an already developed site. Examples include the expansion of a building footprint, road widening, the addition to or replacement of a structure, and creation or addition of impervious surfaces. Replacement of impervious surfaces includes any activity that is not part of a routine maintenance activity where impervious material(s) are removed, exposing underlying soil during construction. Redevelopment does not include routine maintenance activities, such as trenching and resurfacing associated with utility work; pavement grinding; resurfacing existing roadways; new sidewalks construction; pedestrian ramps; or bike lanes on existing roads; and routine replacement of damaged pavement, such as pothole repair.

[2] Applicants should note that any development project that will create and/or replace 10,000 square feet or more of impervious surface (collectively over the entire project site) is considered a new development.

[3] For solar energy farm projects, the area of the solar panels does not count toward the total impervious area of the site.

Project type determination (continued)

Yes ☐	No ☑	(d)	New or redevelopment projects that create and/or replace 2,500 square feet or more of impervious surface (collectively over the entire project site), and discharging directly to an Environmentally Sensitive Area (ESA). "Discharging directly to" includes flow that is conveyed overland a distance of 200 feet or less from the project to the ESA, or conveyed in a pipe or open channel any distance as an isolated flow from the project to the ESA (i.e. not commingled with flows from adjacent lands). *Note: ESAs are areas that include but are not limited to all Clean Water Act Section 303(d) impaired water bodies; areas designated as Areas of Special Biological Significance by the State Water Board and San Diego Water Board; State Water Quality Protected Areas; water bodies designated with the RARE beneficial use by the State Water Board and San Diego Water Board; and any other equivalent environmentally sensitive areas which have been identified by the Copermittees. See BMP Design Manual Section 1.4.2 for additional guidance.*
Yes ☐	No ☑	(e)	New development projects, or redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface, that support one or more of the following uses: (i) Automotive repair shops. This category is defined as a facility that is categorized in any one of the following SIC codes: 5013, 5014, 5541, 7532-7534, or 7536-7539. (ii) Retail gasoline outlets (RGOs). This category includes RGOs that meet the following criteria: (a) 5,000 square feet or more or (b) a projected Average Daily Traffic (ADT) of 100 or more vehicles per day.
Yes ☑	No ☐	(f)	New or redevelopment projects that result in the disturbance of one or more acres of land and are expected to generate pollutants post construction. *Note: See BMP Design Manual Section 1.4.2 for additional guidance.*

Does the project meet the definition of one or more of the Priority Development Project categories (a) through (f) listed above?

☐ No – the project is not a Priority Development Project (Standard Project).

☑ Yes – the project is a Priority Development Project (PDP).

Further guidance may be found in Chapter 1 and Table 1-2 of the BMP Design Manual.

The following is for **redevelopment PDPs only**:

The area of existing (pre-project) impervious area at the project site is: ft^2 (A)

The total proposed newly created or replaced impervious area is ft^2 (B)

Percent impervious surface created or replaced (B/A)*100: %

The percent impervious surface created or replaced is (select one based on the above calculation):

☐ less than or equal to fifty percent (50%) – **only newly created or replaced impervious areas are considered a PDP and subject to stormwater requirements**

OR

☐ greater than fifty percent (50%) – **the entire project site is considered a PDP and subject to stormwater requirements**

Step 1.1: Storm Water Quality Management Plan requirements

Step	Answer	Progression
Is the project a Standard Project, Priority Development Project (PDP), or exception to PDP definitions? To answer this item, complete Step 1 Project Type Determination Checklist on Pages 1 and 2, and see PDP exemption information below. For further guidance, see Section 1.4 of the BMP Design Manual *in its entirety*.	☐ Standard Project	Standard Project requirements apply, including Standard Project SWQMP. **Complete Standard Project SWQMP.**
	☑ PDP	Standard and PDP requirements apply, including PDP SWQMP. **Complete PDP SWQMP.**
	☐ PDP with ACP	If participating in offsite alternative compliance, **complete Step 6.3 and an ACP SWQMP.**
	☐ PDP Exemption	**Go to Step 1.2 below.**

Step 1.2: Exemption to PDP definitions

Is the project exempt from PDP definitions based on either of the following: ☐ Projects that are only new or retrofit paved sidewalks, bicycle lanes, or trails that meet the following criteria: (i) Designed and constructed to direct storm water runoff to adjacent vegetated areas, or other non-erodible permeable areas; OR (ii) Designed and constructed to be hydraulically disconnected from paved streets or roads [i.e., runoff from the new improvement does not drain directly onto paved streets or roads]; OR (iii) Designed and constructed with permeable pavements or surfaces in accordance with County of San Diego Guidance on Green Infrastructure;	If so: Standard Project requirements apply, AND any additional requirements specific to the type of project. County concurrence with the exemption is required. *Provide discussion and list any additional requirements below in this form.* **Complete Standard Project SWQMP**
☐ Projects that are only retrofitting or redeveloping existing paved alleys, streets or roads that are designed and constructed in accordance with the County of San Diego Guidance on Green Infrastructure.	**Complete Green Streets PDP Exempt SWQMP.**
Discussion / justification, and additional requirements for exceptions to PDP definitions, if applicable:	

Step 2: Construction Storm Water BMP Checklist

Minimum Required Standard Construction Storm Water BMPs		
If you answer "Yes" to any of the questions below, your project is subject to Table 1 on the following page (Minimum Required Standard Construction Stormwater BMPs). As noted in Table 1, please select at least the minimum number of required BMPs, or as many as are feasible for your project. If no BMP is selected, an explanation must be given in the box provided. The following questions are intended to aid in determining construction BMP requirements for your project. **Note: All selected BMPs below must be included on the BMP plan incorporated into the construction plan sets.**		
1. Will there be soil disturbing activities that will result in exposed soil areas? (This includes minor grading and trenching.) **Reference Table 1 Items A, B, D, and E** Note: Soil disturbances NOT considered significant include, but are not limited to, change in use, mechanical/electrical/plumbing activities, signs, temporary trailers, interior remodeling, and minor tenant improvement.	☑Yes	□No
2. Will there be asphalt paving, including patching? **Reference Table 1 Items D and F**	☑Yes	□No
3. Will there be slurries from mortar mixing, coring, or concrete saw cutting? **Reference Table 1 Items D and F**	☑Yes	☐No
4. Will there be solid wastes from concrete demolition and removal, wall construction, or form work? **Reference Table 1 Items D and F**	☑Yes	☐No
5. Will there be stockpiling (soil, compost, asphalt, concrete, solid waste) for over 24 hours? **Reference Table 1 Items D and F**	☑Yes	□No
6. Will there be dewatering operations? **Reference Table 1 Items C and D**	□Yes	☑No
7. Will there be temporary on-site storage of construction materials, including mortar mix, raw landscaping and soil stabilization materials, treated lumber, rebar, and plated metal fencing materials? **Reference Table 1 Items E and F**	☑Yes	☐No
8. Will trash or solid waste product be generated from this project? **Reference Table 1 Item F**	☑Yes	□No
9. Will construction equipment be stored on site (e.g.: fuels, oils, trucks, etc.?) **Reference Table 1 Item F**	☑Yes	☐No
10. Will Portable Sanitary Services ("Porta-potty") be used on the site? **Reference Table 1 Item F**	☑Yes	□No

Table 1. Construction Storm Water BMP Checklist

Minimum Required Best Management Practices (BMPs)	CALTRANS SW Handbook[4] Detail or County Std. Detail	✔ BMP Selected	Reference sheet No.'s where each selected BMP is shown on the plans. If no BMP is selected, an explanation must be provided.
A. Select Erosion Control Method for Disturbed Slopes (choose at least one for the appropriate season)			
Vegetation Stabilization Planting[5] (Summer)	SS-2, SS-4	☑	
Hydraulic Stabilization Hydroseeding[2] (Summer)	SS-4	☑	
Bonded Fiber Matrix or Stabilized Fiber Matrix[6] (Winter)	SS-3	☑	
Physical Stabilization Erosion Control Blanket[3] (Winter)	SS-7	☐	
B. Select erosion control method for disturbed flat areas (slope < 5%) (choose at least one)			
County Standard Lot Perimeter Protection Detail	PDS 659[7], SC-2	☐	
Will use erosion control measures from Item A on flat areas also	SS-3, 4, 7	☑	
County Standard Desilting Basin (must treat all site runoff)	PDS 660[8], SC-2	☐	
Mulch, straw, wood chips, soil application	SS-6, SS-8	☐	

4 State of California Department of Transportation (Caltrans). 2003. Storm Water Quality Handbooks, Construction Site Best Management Practices (BMPs) Manual. March. Available online at: http://www.dot.ca.gov/hq/construc/stormwater/manuals.htm.

5 If Vegetation Stabilization (Planting or Hydroseeding) is proposed for erosion control it may be installed between May 1st and August 15th. Slope irrigation is in place and needs to be operable for slopes >3 feet. Vegetation must be watered and established prior to October 1st. The owner must implement a contingency physical BMP by August 15th if vegetation establishment does not occur by that date. If landscaping is proposed, erosion control measures must also be used while landscaping is being established. Established vegetation must have a subsurface mat of intertwined mature roots with a uniform vegetative coverage of 70 percent of the natural vegetative coverage or more on all disturbed areas.

6 All slopes over three feet must have established vegetative cover prior to final permit approval.

7 County of San Diego, Planning & Development Services. 2012. Standard Lot Perimeter Protection Design System. Building Division. PDS 659. Available online at http://www.sandiegocounty.gov/pds/docs/pds659.pdf.

8 County of San Diego, Planning & Development Services. 2012. County Standard Desilting Basin for Disturbed Areas of 1 Acre or Less Building Division. PDS 659. Available online at http://www.sandiegocounty.gov/pds/docs/pds660.pdf.

Table 1. Construction Storm Water BMP Checklist (continued)

Minimum Required Best Management Practices (BMPs)	CALTRANS SW Handbook Detail or County Std. Detail	✔ BMP Selected	Reference sheet No.'s where each selected BMP is shown on the plans. If no BMP is selected, an explanation must be provided.
C. If runoff or dewatering operation is concentrated, velocity must be controlled using an energy dissipater			
Energy Dissipater Outlet Protection[9]	SS-10	☐	No dewatering operations needed
D. Select sediment control method for all disturbed areas (choose at least one)			
Silt Fence	SC-1	☑	**To be submitted during final engineering stages erosion control sheets for grading plans.**
Fiber Rolls (Straw Wattles)	SC-5	☐	
Gravel & Sand Bags	SC-6 & 8	☑	
Dewatering Filtration	NS-2	☐	
Storm Drain Inlet Protection	SC-10	☑	
Engineered Desilting Basin (sized for 10-year flow)	SC-2	☑	
E. Select method for preventing offsite tracking of sediment (choose at least one)			
Stabilized Construction Entrance	TC-1	☑	**To be submitted during final engineering stages erosion control sheets for grading plans.**
Construction Road Stabilization	TC-2	☐	
Entrance/Exit Tire Wash	TC-3	☐	
Entrance/Exit Inspection & Cleaning Facility	TC-1	☐	
Street Sweeping and Vacuuming	SC-7	☐	
F. Select the general site management BMPs			
F.1 Materials Management			
Material Delivery & Storage	WM-1	☑	**To be submitted during final engineering stages erosion control sheets for grading plans.**
Spill Prevention and Control	WM-4	☐	
F.2 Waste Management[10]			
Waste Management Concrete Waste Management	WM-8	☐	**To be submitted during final engineering stages erosion control sheets for grading plans.**
Solid Waste Management	WM-5	☑	
Sanitary Waste Management	WM-9	☑	
Hazardous Waste Management	WM-6	☐	

Note: The Construction General Permit (Order No. 2009-0009-DWQ) also requires all projects not subject to the BMP Design Manual to comply with runoff reduction requirements through the implementation of post-construction BMPs as described in Section XIII of the order.

[9] Regional Standard Drawing D-40 – Rip Rap Energy Dissipater is also acceptable for velocity reduction.

[10] Not all projects will have every waste identified. The applicant is responsible for identifying wastes that will be onsite and applying the appropriate BMP. For example, if concrete will be used, BMP WM-8 must be selected.

Step 3: County of San Diego PDP SWQMP Site Information Checklist

Step 3.1: Description of Existing Site Condition

Project Watershed (Complete Hydrologic Unit, Area, and Subarea Name with Numeric Identifier)	905 SAN DIEGUITO HU, 905.2 HODGES HA, 905.24, BEAR HSA

Current Status of the Site (select all that apply):

- ☐ Existing development
- ☐ Previously graded but not built out
- ☐ Demolition completed without new construction
- ☑ Agricultural or other non-impervious use
- ☐ Vacant, undeveloped/natural

Description / Additional Information:

Existing Land Cover Includes (select all that apply and provide each area on site):

- ☐ Vegetative Cover 0.22 Acres (9,583 Square Feet)
- ☐ Non-Vegetated Pervious Areas 4.40 Acres (191,664 Square Feet)
- ☐ Impervious Areas 0 Acres (0 Square Feet)

Description / Additional Information:

Underlying Soil belongs to Hydrologic Soil Group (select all that apply):

- ☐ NRCS Type A
- ☐ NRCS Type B
- ☑ NRCS Type C
- ☐ NRCS Type D

Approximate Depth to Groundwater (GW) (or N/A if no infiltration is used):

- ☐ GW Depth < 5 feet
- ☐ 5 feet < GW Depth < 10 feet
- ☐ 10 feet < GW Depth < 20 feet
- ☑ GW Depth > 20 feet

Existing Natural Hydrologic Features (select all that apply):

- ☑ Watercourses
- ☐ Seeps
- ☐ Springs
- ☐ Wetlands
- ☐ None
- ☐ Other

The existing watercourse exists as a natural swale going from the intersection of Birch Ave with Bear Valley Parkway to the south existing at POC#1 (see the Hydromodification Exhibit). It is considered a water of the U.S. and permitting from the U.S. Army Corps would be required if a culvert is ultimately proposed. The final engineering drawings will determine if a permit will be acquired or not.

Description / Additional Information:

Step 3.2: Description of Existing Site Drainage Patterns

How is storm water runoff conveyed from the site? At a minimum, this description should answer:

(1) Whether existing drainage conveyance is natural or urban;
(2) Is runoff from offsite conveyed through the site? if yes, quantify all offsite drainage areas, design flows, and locations where offsite flows enter the project site, and summarize how such flows are conveyed through the site;
(3) Provide details regarding existing project site drainage conveyance network, including any existing storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, natural or constructed channels; and
(4) Identify all discharge locations from the existing project site along with a summary of conveyance system size and capacity for each of the discharge locations. Provide summary of the pre-project drainage areas and design flows to each of the existing runoff discharge locations.

Describe existing site drainage patterns:
The existing drainage conveyance is a natural watercourse that enters the northwest of the property via culvert and exists near the southwest corner of the property. The surrounding areas from the east and northeast sheet flow into the watercourse. The watercourse will remain intact and undisturbed. A total of 30.7 areas of offsite drainage will flow or sheet flow through the property and through the watercourse. All runoff will reach the southwest corner of the property, said point being the point of confluence. A new 48" diameter culvert will be put into place at the point of confluence due to a driveway traversing the watercourse. See referenced drainage study.

Each BMP1, 3, and 4 will have one point of compliance, POC1, and BMP2 will have one point of compliance, POC2.

Step 3.3: Description of Proposed Site Development

Project Description / Proposed Land Use and/or Activities:
The development proposes to subdivide a 4.62 acres plot of land into 4 parcels of 1 acre or greater. The two south lots will share an access driveway. The two north lots will also share an access driveway..

List/describe proposed impervious features of the project (e.g., buildings, roadways, parking lots, courtyards, athletic courts, other impervious features):
Impervious features will include 2 driveways and 4 single family residences.

List/describe proposed pervious features of the project (e.g., landscape areas):
The buildings will require 10 ft walkways around the perimeters per fire department standards and any new slopes will be landscaped to minimize erosion. All remaining areas will be largely undisturbed.

A portion of the access driveway for parcels 2 and 3 will be designed to be pervious paving. This will be because it will not be possible to surface drain this portion of the driveway to the BMP for parcel 2.

Does the project include grading and changes to site topography?
☑Yes
☐No

Description / Additional Information:
Minimal grading will be required due to the slopes existing gentle fall.

Insert acreage or square feet for the different land cover types in the table below:

Change in Land Cover Type Summary			
Land Cover Type	Existing (acres or ft^2)	Proposed (acres or ft^2)	Percent Change
Vegetation	0.20 AC	1.28 AC	+28%
Pervious (non-vegetated)	4.40 AC	2.33 AC	-45%
Impervious	0.00 AC	0.81 AC	+17%

Step 3.4: Description of Proposed Site Drainage Patterns

Does the project include changes to site drainage (e.g., installation of new storm water conveyance systems)?

☑Yes
☐No

If yes, provide details regarding the proposed project site drainage conveyance network, including storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, natural or constructed channels, and the method for conveying offsite flows through or around the proposed project site. Identify all discharge locations from the proposed project site along with a summary of the conveyance system size and capacity for each of the discharge locations. Provide a summary of pre- and post-project drainage areas and design flows to each of the runoff discharge locations. Reference the drainage study for detailed calculations.

Describe proposed site drainage patterns:
The site will include new storm drains, new storm water treatment facilities and a concrete culvert.

The storm drain system, consisting of concrete brow ditches, storm drains, clean outs, and rip rap dissipaters will be used to convey the offsite storm water around the development, either north/northwest of parcels 2 and 3 or to the south of lots 1 and 4, and towards the existing water course.

Parcel 3 will have storm water treatment facility that will also be tied into the storm water conveyance systems that include parcels 1 and 4. Parcels 1 and 4 will have storm water treatment facilities that will have a localized storm water conveyance system that ties outfalls directly to a point of confluence. This point of confluence is at the outfall of a proposed 48” culvert.

Step 3.5: Potential Pollutant Source Areas

Identify whether any of the following features, activities, and/or pollutant source areas will be present (select all that apply). Select "Other" if the project is a phased development and provide a description:

- ☑ On-site storm drain inlets
- ☐ Interior floor drains and elevator shaft sump pumps
- ☐ Interior parking garages
- ☑ Need for future indoor & structural pest control
- ☑ Landscape/Outdoor Pesticide Use
- ☐ Pools, spas, ponds, decorative fountains, and other water features
- ☐ Food service
- ☐ Refuse areas
- ☐ Industrial processes
- ☐ Outdoor storage of equipment or materials
- ☐ Vehicle and Equipment Cleaning
- ☐ Vehicle/Equipment Repair and Maintenance
- ☐ Fuel Dispensing Areas
- ☐ Loading Docks
- ☑ Fire Sprinkler Test Water
- ☐ Miscellaneous Drain or Wash Water
- ☐ Plazas, sidewalks, and parking lots
- ☐ Other (provide description)

Description / Additional Information:
Project is in the designing stages which means the full scope of what will be designed into the final designs is TBD. As such, the most common potential pollutant sources have been check marked and will be updated if need be during the final stages of design.

Step 3.6: Identification and Narrative of Receiving Water and Pollutants of Concern

Describe flow path of storm water from the project site discharge location(s), through urban storm conveyance systems as applicable, to receiving creeks, rivers, and lagoons as applicable, and ultimate discharge to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable):
The project runoff will flow through the project and exit the project at the POC. From there it will flow south then southwest through an existing water course for approximately 4.5 miles where it reaches Lake Hodges. From there it enters San Dieguito River and flows west for approximately 12 miles where it enters the Pacific Ocean.

List any 303(d) impaired water bodies[11] within the path of storm water from the project site to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable), identify the pollutant(s)/stressor(s) causing impairment, and identify any TMDLs and/or Highest Priority Pollutants from the WQIP for the impaired water bodies:

303(d) Impaired Water Body	Pollutant(s)/Stressor(s)	TMDLs / WQIP Highest Priority Pollutant
Lake Hodges	Color, manganese, mercury, nitrogen, pH, phosphorus, turbidity	Manganese, mercury, pH, turbidity
San Dieguito River	Enterococcus, fecal coliform, nitrogen, phosphorus, total dissolved solids, toxicity	Indicator bacteria
San Dieguito Lagoon	Total coliform	Indicator bacteria

Identification of Project Site Pollutants*

*Identification of project site pollutants below is only required if flow-thru treatment BMPs are implemented onsite in lieu of retention or biofiltration BMPs. Note the project must also participate in an alternative compliance program (unless prior lawful approval to meet earlier PDP requirements is demonstrated).

Identify pollutants expected from the project site based on all proposed use(s) of the site (see BMP Design Manual Appendix B.6):

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

[11] The current list of Section 303(d) impaired water bodies can be found at http://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/#impaired

Oil & Grease	☐	☑	☑
Bacteria & Viruses	☐	☑	☑
Pesticides	☐	☑	☐

Step 3.7: Hydromodification Management Requirements

Do hydromodification management requirements apply (see Section 1.6 of the BMP Design Manual)?

☑Yes, hydromodification management requirements for flow control and preservation of critical coarse sediment yield areas are applicable.

☐No, the project will discharge runoff directly to existing underground storm drains discharging directly to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.

☐No, the project will discharge runoff directly to conveyance channels whose bed and bank are concrete-lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.

☐No, the project will discharge runoff directly to an area identified as appropriate for an exemption by the WMAA[12] for the watershed in which the project resides.

Description / Additional Information (to be provided if a 'No' answer has been selected above):

[12] The Watershed Management Area Analysis (WMAA) is an optional element for inclusion in the Water Quality Improvement Plans (WQIPs) described in the 2013 MS4 Permit [Provision B.3.b.(4)]. It is available online at the Project Clean Water website: http://www.projectcleanwater.org/index.php?option=com_content&view=article&id=248

Step 3.7.1: Critical Coarse Sediment Yield Areas*

***This Section only required if hydromodification management requirements apply**

Projects must satisfy critical coarse sediment yield area (CCSYA) requirements by characterizing the project as one of the scenario-types presented below and satisfying associated criteria. Projects must appropriately satisfy all requirements for identification, avoidance, and bypass, OR may alternatively elect to demonstrate no net impact.

☐ **Scenario 1**: Project is subject to and in compliance with RPO requirements *(without utilization of RPO exemptions 86.604(e)(2)(cc) or 86.604(e)(3) that result in impacts to more than 15% of the project-scale CCSYAs)*.

- ☐ Identify: Project has identified both onsite and upstream CCSYAs as areas that are coarse, ≥25% slope, and ≥50' tall. *(Optional refinement methods may be performed per guidance in Section H.1.2). AND,*
- ☐ Avoid: Project has avoided onsite CCSYAs per existing RPO steep slope encroachment criteria. AND,
- ☐ Bypass: Project has demonstrated that both onsite and upstream CCSYAs are bypassed through or around the project site with a 2 year peak storm velocity of 3 feet per second or greater. OR,
- ☐ No Net Impact: Project does not satisfy all Scenario 1 criteria above and must alternatively demonstrate no net impact to the receiving water.

☑ **Scenario 2**: Project is entirely exempt/not subject to RPO requirements without utilization of RPO exemptions 86.604(e)(2)(cc) or 86.604(e)(3).

- ☐ Identify: Project has identified upstream CCSYAs that are coarse, ≥25% slope, and ≥50' tall. *(Optional refinement methods may be performed per guidance in Section H.1.2). AND,*
- ☑ Avoid: Project is not required to avoid onsite CCSYAs as none were identified in the previous step. AND,
- ☐ Bypass: Project has demonstrated that upstream CCSYAs are bypassed through or around the project site with a 2 year peak storm velocity of 3 feet per second or greater. OR,
- ☐ No Net Impact: Project does not satisfy all Scenario 2 criteria above and must alternatively demonstrate no net impact to the receiving water. *(Skip to next row).*

☐ **Scenario 3**: Project utilizes exemption(s) via RPO Section 86.604(e)(2)(cc) or 86.604(e)(3) and impacts more than 15% of the project-scale CCSYAs.

- ☐ No Net Impact: Project is not eligible for traditional methods of identification, avoidance, and bypass. Project must demonstrate no net impact to the receiving water.

Critical Coarse Sediment Yield Areas Continued
Demonstrate No Net Impact
If the project elects to satisfy CCSYA criteria through demonstration of no net impact to the receiving water. Applicants must identify the methods utilized from the list below and provide supporting documentation in Attachment 2c of the SWQMP. Check all that are applicable. ☑ N/A, the project appropriately identifies, avoids, and bypasses CCSYAs. ☐ Project has performed additional analysis to demonstrate that impacts to CCSYAs satisfy the no net impact standard of Ep/Sp≤1.1. ☐ Project has provided alternate mapping of CCSYAs. ☐ Project has implemented additional onsite hydromodification flow control measures. ☐ Project has implemented an offsite stream rehabilitation project to offset impacts. ☐ Project has implemented other applicant-proposed mitigation measures.

Step 3.7.2: Flow Control for Post-Project Runoff*

*This Section only required if hydromodification management requirements apply
List and describe point(s) of compliance (POCs) for flow control for hydromodification management (see Section 6.3.1). For each POC, provide a POC identification name or number correlating to the project's HMP Exhibit and a receiving channel identification name or number correlating to the project's HMP Exhibit. All drainage will flow to POC#1 or POC#2 on HMP Exhibit, Attachment 2b. It is located at the southwest corner of the subject property or the southwest corner of subject proposed parcel 2 and will have all on-site treatment and hydromodification flow through said points. Flow control will occur on each individual parcel (4 BMPs)..
Has a geomorphic assessment been performed for the receiving channel(s)? ☑ No, the low flow threshold is 0.1Q2 (default low flow threshold) ☐ Yes, the result is the low flow threshold is 0.1Q2 ☐ Yes, the result is the low flow threshold is 0.3Q2 ☐ Yes, the result is the low flow threshold is 0.5Q2 *If a geomorphic assessment has been performed, provide title, date, and preparer:* NA *Discussion / Additional Information: (optional)*

Step 3.8: Other Site Requirements and Constraints

When applicable, list other site requirements or constraints that will influence storm water management design, such as zoning requirements including setbacks and open space, or local codes governing minimum street width, sidewalk construction, allowable pavement types, and drainage requirements.

Driveway access design requires two fire apparatus turnarounds. Fire department requires an inner 50 clearing and landscaping zone and an outer 50 clearing and landscaping around the single family residences. Landscaping types vary depending on the zone. Watercourses have been avoided and will not be disturbed. Grading/disturbance has been design to minimum.

In all cases, the BMPs drawdown time is less than 96 hours and the ponding time is less than 24 hours and in the case of BMP2, less than 36 hours. In the case where 24 hour drawdown time is not possible for BMP2, landscaping plans that allow selections of plants to thrive in 36 hour drawdown times will be submitted and approved by the County.

Optional Additional Information or Continuation of Previous Sections As Needed

This space provided for additional information or continuation of information from previous sections as needed.

Step 4: Source Control BMP Checklist

Source Control BMPs			
All development projects must implement source control BMPs 4.2.1 through 4.2.6 where applicable and feasible. See Chapter 4.2 and Appendix E of the County BMP Design Manual for information to implement source control BMPs shown in this checklist. Answer each category below pursuant to the following: • "Yes" means the project will implement the source control BMP as described in Chapter 4.2 and/or Appendix E of the County BMP Design Manual. Discussion / justification is not required. • "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided. • "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project has no outdoor materials storage areas). Discussion / justification must be provided.			
Source Control Requirement	**Applied?**		
4.2.1 Prevention of Illicit Discharges into the MS4	☑Yes	□No	□N/A
Discussion / justification if 4.2.1 not implemented:			
4.2.2 Storm Drain Stenciling or Signage	☑Yes	□No	□N/A
Discussion / justification if 4.2.2 not implemented:			
4.2.3 Protect Outdoor Materials Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☑Yes	□No	□N/A
Discussion / justification if 4.2.3 not implemented:			
4.2.4 Protect Materials Stored in Outdoor Work Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐Yes	□No	☑N/A
Discussion / justification if 4.2.4 not implemented: TBD based on final engineering stages.			

Source Control Requirement	Applied?		
4.2.5 Protect Trash Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☑Yes	□No	□N/A
Discussion / justification if 4.2.5 not implemented:			
4.2.6 Additional BMPs Based on Potential Sources of Runoff Pollutants (must answer for each source listed below):			
☐ A. On-site storm drain inlets	☑Yes	□No	□N/A
□ B. Interior floor drains and elevator shaft sump pumps	☐Yes	□No	☑N/A
☐ C. Interior parking garages	☐Yes	□No	☑N/A
☐ D. Need for future indoor & structural pest control	☑Yes	□No	□N/A
☐ E. Landscape/outdoor pesticide use	☑Yes	□No	□N/A
□ F. Pools, spas, ponds, fountains, and other water features	☐Yes	□No	☑N/A
☐ G. Food service	☐Yes	□No	☑N/A
☐ H. Refuse areas	☐Yes	□No	☑N/A
☐ I. Industrial processes	☐Yes	□No	☑N/A
☐ J. Outdoor storage of equipment or materials	☐Yes	□No	☑N/A
☐ K. Vehicle and equipment cleaning	☐Yes	□No	☑N/A
☐ L. Vehicle/equipment repair and maintenance	☐Yes	□No	☑N/A
☐ M. Fuel dispensing areas	☐Yes	□No	☑N/A
☐ N. Loading docks	☐Yes	□No	☑N/A
☐ O. Fire sprinkler test water	☑Yes	□No	□N/A
☐ P. Miscellaneous drain or wash water	☐Yes	□No	☑N/A
☐ Q. Plazas, sidewalks, and parking lots	☐Yes	□No	☑N/A
Discussion / justification if 4.2.6 not implemented. Clearly identify which sources of runoff pollutants are discussed. Justification must be provided for <u>all</u> "No" answers shown above.			

Note: Show all source control measures described above that are included in design capture volume calculations in the plan sheets of Attachment 5.

Step 5: Site Design BMP Checklist

Site Design BMPs
All development projects must implement site design BMPs SD-A through SD-H where applicable and feasible. See Chapter 4.3 and Appendix E of the County BMP Design Manual for information to implement site design BMPs shown in this checklist. Answer each category below pursuant to the following: • "Yes" means the project will implement the site design BMP as described in Chapter 4.3 and/or Appendix E of the County BMP Design Manual. Discussion / justification is not required. • "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided. • "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project site has no existing natural areas to conserve). Discussion / justification must be provided.

Site Design Requirement	Applied?		
4.3.1 Maintain Natural Drainage Pathways and Hydrologic Features	☑Yes	□No	□N/A
Discussion / justification if 4.3.1 not implemented:			
4.3.2 Conserve Natural Areas, Soils, and Vegetation	☑Yes	□No	□N/A
Discussion / justification if 4.3.2 not implemented:			
4.3.3 Minimize Impervious Area	☑Yes	□No	□N/A
Discussion / justification if 4.3.3 not implemented: Impervious areas have been kept to a minimum based on fire requirements and pervious paving has been included in the design where slopes and elevations will not allow for redirecting this tributary area to a BMP (see DMA 40 on the Attachment 1C, DMA Map).			
4.3.4 Minimize Soil Compaction	☑Yes	□No	□N/A
Discussion / justification if 4.3.4 not implemented:			
4.3.5 Impervious Area Dispersion	☐Yes	☑No	□N/A
Discussion / justification if 4.3.5 not implemented: There is not sufficient buffer areas from roof to BMPs on all parcels to allow for impervious area dispersion. The roofs will surface drain to BMPs and my incidentally traverse areas which are considered pervious but this can be an available option in the final design stages given how each individual parcel is developed by future owners.			

Site Design Requirement	Applied?		
4.3.6 Runoff Collection	☑Yes	□No	□N/A
Discussion / justification if 4.3.6 not implemented: Permeable pavement will be designed at the center of the driveway for parcels 2 and 3. See area 40 of *Attachment 1C*.			
4.3.7 Landscaping with Native or Drought Tolerant Species	☑Yes	□No	□N/A
Discussion / justification if 4.3.7 not implemented:			
4.3.8 Harvesting and Using Precipitation	☐Yes	☑No	□N/A
Discussion / justification if 4.3.8 not implemented: Cisterns or rain barrel collection systems are systems that can be implemented for this project during the final design stage. As the project is being proposed, if owner wishes to sell parcels before final development, the most conservative BMP size is going to be determined. This will involve not including cisterns or rain barrels. Cisterns can be considered in for storage but because of their higher costs, it will be a design implementation that can be decided by a potential future owner depending on their overall budget. Similarly, the decision not to use rain barrels will be reflected in the conservative design of the BMP's selected and future owners will have the opportunity to select rain barrels for use in their final design approach. A detailed review of the site design features will occur during final engineering of BMPs when the project features are identified in more detail.			

Note: Show all site design measures described above that are included in design capture volume calculations in the plan sheets of Attachment 5.

Step 6: PDP Structural BMPs

All PDPs must implement structural BMPs for storm water pollutant control (see Chapter 5 of the BMP Design Manual). Selection of PDP structural BMPs for storm water pollutant control must be based on the selection process described in Chapter 5. PDPs subject to hydromodification management requirements must also implement structural BMPs for flow control for hydromodification management (see Chapter 6 of the BMP Design Manual). Both storm water pollutant control and flow control for hydromodification management can be achieved within the same structural BMP(s).

PDP structural BMPs must be verified by the County at the completion of construction. This may include requiring the project owner or project owner's representative and engineer of record to certify construction of the structural BMPs (see Section 1.12 of the BMP Design Manual). PDP structural BMPs must be maintained into perpetuity, and the County must confirm the maintenance (see Section 7 of the BMP Design Manual).

Use this section to provide narrative description of the general strategy for structural BMP implementation at the project site in the box below. Then complete the PDP structural BMP summary information sheet (Step 6.2) for each structural BMP within the project (copy the BMP summary information sheet [Step 6.2] as many times as needed to provide summary information for each individual structural BMP).

Step 6.1: Description of structural BMP strategy

Describe the general strategy for structural BMP implementation at the site. This information must describe how the steps for selecting and designing storm water pollutant control BMPs presented in Section 5.1 of the BMP Design Manual were followed, and the results (type of BMPs selected). For projects requiring hydromodification flow control BMPs, indicate whether pollutant control and flow control BMPs are integrated or separate. At the end of this discussion provide a summary of all the structural BMPs within the project including the type and number.

The proposed project will subdivide the subject parcel into 4 individual parcels. Each parcel will have a parcel specific BMP designed into it to collect the local runoff water for treatment, retention and hydromodification.

The BMP selected for parcels 1 and 2 are biofiltration with partial retention (PR-1). See below for decision flow chart and explanation of this selection. This selection allows the drawdown time of 36 hours to be met and with added gravel depth the storage capacity of the not reliably retained amount can be stored. Flow control will be designed into each biofiltration with partial retention that is conveyed beyond the quantities not infiltrated based on the BMP Design Manual. Pollutant control and flow control are integrated into the design.

Use FIGURE 5.1 of BMP Design Manual:

Step 1 → Step 1a, No → Step 1B → Step 2, no → Figure 5-2 → Step 3 → Step 3A & B Partial Infiltration Condition, Yes → Step 3C → Step 4, yes → Step 4A.

From step 3A & 3B and 4A of above flow chart, the best feasible BMP is the PR-1 given the steps followed for the BMP Design Manual. Although other BMPs were in consideration, PR-1 is the most feasible BMP for this preliminary design. During the final engineering design, if other BMPs become available those BMPs will be considered and determination of selected BMP will be revised according to the MS4 Permit and approval.

The BMP selected for parcels 3 and 4 are biofiltration (BF-1) designed with impermeable liners to prevent infiltration. See below for decision matrix and explanation of this selection. This design was selected due to the BMP locations near proposed leach fields on the west parcels, 2 and 1, respectively. Because of this, the designed gravel depth of the biofiltration will allow the retention of the calculated discharge as well as flow control based on the BMP design Manual. Pollutant control and flow control are integrated into the design.

(Continue on following page as necessary.)

Description of structural BMP strategy continued
(Page reserved for continuation of description of general strategy for structural BMP implementation at the site)

(Continued from previous page)

Use FIGURE 5.1 of BMP Design Manual:

Step 1 → Step 1a, No → Step 1B → Step 2, no → Figure 5-2 → Step 3 → Step 3A & B No Infiltration Condition, Yes → Step 3C → Step 4, yes → Step 4A.

From step 3A & 3B and 4A of above flow chart, the best feasible BMP is the BF-1, with an impermeable liner, given the steps followed for the BMP Design Manual. Although other BMPs were in consideration, BF-1 is the most feasible BMP for this preliminary design. During the final engineering design, if other BMPs become available those BMPs will be considered and determination of selected BMP will be revised according to the MS4 Permit and approval.

In all cases, the BMPs drawdown time is less than 96 hours and the ponding time is less than 24 hours and in the case of BMP2, less than 36 hours. In the case where 24 hour drawdown time is not possible for BMP2, landscaping plans that allow selections of plants to thrive in 36 hour drawdown times will be submitted and approved by the County. See Attachment 2a.

Permeable paving will be used where elevations will not allow the stormwater to be routed to a BMP (See DMA 40 on the DMA Map, Attachment 1C). DMA40 is at the proposed driveway entrance for parcel's 2 and 3, is self-retaining and is included as a site design BMP.

Step 6.2: Structural BMP Checklist

(Copy this page as needed to provide information for each individual proposed structural BMP)	
Structural BMP ID No. 1	
Construction Plan Sheet No. Preliminary Grading Plan Sheet 1, parcel 1	
Type of structural BMP: ☐ Retention by harvest and use (HU-1) ☐ Retention by infiltration basin (INF-1) ☐ Retention by bioretention (INF-2) ☐ Retention by permeable pavement (INF-3) ☑ Partial retention by biofiltration with partial retention (PR-1) ☐ Biofiltration (BF-1) ☐ Biofiltration with Nutrient Sensitive Media Design (BF-2) ☐ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F ☐ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) ☐ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) ☐ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) ☐ Detention pond or vault for hydromodification management ☐ Other (describe in discussion section below)	
Purpose: ☐ Pollutant control only ☐ Hydromodification control only ☑ Combined pollutant control and hydromodification control ☐ Pre-treatment/forebay for another structural BMP ☐ Other (describe in discussion section below)	
Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms (See Section 1.12 of the BMP Design Manual)	William C. Yen, RCE, (858) 679-8010, 13071 Poway Road, Poway, CA 92064 (or engineer of work during BMP final engineering design and construction stage)
Who will be the final owner of this BMP?	☐ HOA ☑ Property Owner ☐ County ☐ Other (describe)
Who will maintain this BMP into perpetuity?	☐ HOA ☑ Property Owner ☐ County ☐ Other (describe)
What Category (1-4) is the Structural BMP? Refer to the Category definitions in Section 7.3 of the BMP DM. Attach the appropriate maintenance agreement in Attachment 3.	Category 1
Discussion (as needed): *(Continue on subsequent pages as necessary)*	

Step 6.2: Structural BMP Checklist

(Copy this page as needed to provide information for each individual proposed structural BMP)	
Structural BMP ID No. 2	
Construction Plan Sheet No. Preliminary Grading Plan Sheet 1, parcel 2	
Type of structural BMP: ☐ Retention by harvest and use (HU-1) ☐ Retention by infiltration basin (INF-1) ☐ Retention by bioretention (INF-2) ☐ Retention by permeable pavement (INF-3) ☑ Partial retention by biofiltration with partial retention (PR-1) ☐ Biofiltration (BF-1) ☐ Biofiltration with Nutrient Sensitive Media Design (BF-2) ☐ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F ☐ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) ☐ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) ☐ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) ☐ Detention pond or vault for hydromodification management ☐ Other (describe in discussion section below)	
Purpose: ☐ Pollutant control only ☐ Hydromodification control only ☑ Combined pollutant control and hydromodification control ☐ Pre-treatment/forebay for another structural BMP ☐ Other (describe in discussion section below)	
Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms (See Section 1.12 of the BMP Design Manual)	William C. Yen, RCE, (858) 679-8010, 13071 Poway Road, Poway, CA 92064 (or engineer of work during BMP final engineering design and construction stage)
Who will be the final owner of this BMP?	☐ HOA ☑ Property Owner ☐ County ☐ Other (describe)
Who will maintain this BMP into perpetuity?	☐ HOA ☑ Property Owner ☐ County ☐ Other (describe)
What Category (1-4) is the Structural BMP? Refer to the Category definitions in Section 7.3 of the BMP DM. Attach the appropriate maintenance agreement in Attachment 3.	Category 1.

Step 6.2: Structural BMP Checklist

(Copy this page as needed to provide information for each individual proposed structural BMP)	
Structural BMP ID No. 3	
Construction Plan Sheet No. Preliminary Grading Plan Sheet 1, parcel 3	
Type of structural BMP: ☐ Retention by harvest and use (HU-1) ☐ Retention by infiltration basin (INF-1) ☐ Retention by bioretention (INF-2) ☐ Retention by permeable pavement (INF-3) ☐ Partial retention by biofiltration with partial retention (PR-1) ☑ Biofiltration (BF-1) ☐ Biofiltration with Nutrient Sensitive Media Design (BF-2) ☐ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F ☐ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) ☐ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) ☐ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) ☐ Detention pond or vault for hydromodification management ☐ Other (describe in discussion section below)	
Purpose: ☐ Pollutant control only ☐ Hydromodification control only ☑ Combined pollutant control and hydromodification control ☐ Pre-treatment/forebay for another structural BMP ☐ Other (describe in discussion section below)	
Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms (See Section 1.12 of the BMP Design Manual)	William C. Yen, RCE, (858) 679-8010, 13071 Poway Road, Poway, CA 92064 (or engineer of work during BMP final engineering design and construction stage)
Who will be the final owner of this BMP?	☐ HOA ☑ Property Owner ☐ County ☐ Other (describe)
Who will maintain this BMP into perpetuity?	☐ HOA ☑ Property Owner ☐ County ☐ Other (describe)
What Category (1-4) is the Structural BMP? Refer to the Category definitions in Section 7.3 of the BMP DM. Attach the appropriate maintenance agreement in Attachment 3.	Category 1.

Discussion (as needed): The biofiltration will not allow infiltration due to its location near an adjacent parcel leach field. Therefore detention will be sized to accommodate the treatment and flow control appropriately as per the BMP Design Manual and the biofiltration will be designed with an impermeable liner.

Step 6.2: Structural BMP Checklist

(Copy this page as needed to provide information for each individual proposed structural BMP)	
Structural BMP ID No. 4	
Construction Plan Sheet No. Preliminary Grading Plan Sheet 1, parcel 4	
Type of structural BMP: ☐ Retention by harvest and use (HU-1) ☐ Retention by infiltration basin (INF-1) ☐ Retention by bioretention (INF-2) ☐ Retention by permeable pavement (INF-3) ☐ Partial retention by biofiltration with partial retention (PR-1) ☑ Biofiltration (BF-1) ☐ Biofiltration with Nutrient Sensitive Media Design (BF-2) ☐ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F ☐ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) ☐ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) ☐ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) ☐ Detention pond or vault for hydromodification management ☐ Other (describe in discussion section below)	
Purpose: ☐ Pollutant control only ☐ Hydromodification control only ☑ Combined pollutant control and hydromodification control ☐ Pre-treatment/forebay for another structural BMP ☐ Other (describe in discussion section below)	
Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms (See Section 1.12 of the BMP Design Manual)	William C. Yen, RCE, (858) 679-8010, 13071 Poway Road, Poway, CA 92064 (or engineer of work during BMP final engineering design and construction stage)
Who will be the final owner of this BMP?	☐ HOA ☑ Property Owner ☐ County ☐ Other (describe)
Who will maintain this BMP into perpetuity?	☐ HOA ☑ Property Owner ☐ County ☐ Other (describe)
What Category (1-4) is the Structural BMP? Refer to the Category definitions in Section 7.3 of the BMP DM. Attach the appropriate maintenance agreement in Attachment 3.	Category 1.

Discussion (as needed): The biofiltration can not allow infiltration due to its location near an adjacent parcel leach field. Therefore detention will be sized to accommodate the treatment and flow control appropriately as per the BMP Design Manual and the biofiltration will be designed with an impermeable liner.

Step 6.3: Offsite Alternative Compliance Participation Form

PDP INFORMATION	
Record ID:	NA
Assessor's Parcel Number(s) [APN(s)]	NA
What are your PDP Pollutant Control Debits? *See Attachment 1 of the PDP SWQMP	NA
What are your PDP HMP Debits? (if applicable) *See Attachment 2 of the PDP SWQMP	NA
ACP Information	
Record ID:	NA
Assessor's Parcel Number(s) [APN(s)]	NA
Project Owner/Address	NA
What are your ACP Pollutant Control Credits? *See Attachment 1 of the ACP SWQMP	NA
What are your ACP HMP Debits? (if applicable) *See Attachment 2 of the ACP SWQMP	NA
Is your ACP in the same watershed as your PDP? ☐ Yes ☐ No	Will your ACP project be completed prior to the completion of the PDP? ☐ Yes ☐ No
Does your ACP account for all Deficits generated by the PDP? ☐ Yes ☐ No (PDP and/or ACP must be redesigned to account for all deficits generated by the PDP.	What is the difference between your PDP debits and ACP Credits? *(ACP Credits -Total PDP Debits = Total Earned Credits)

ATTACHMENT 1

BACKUP FOR PDP POLLUTANT CONTROL BMPS

This is the cover sheet for Attachment 1.

Indicate which Items are Included behind this cover sheet:

Attachment Sequence	Contents	Checklist
Attachment 1a	Storm Water Pollutant Control Worksheet Calculations -Worksheet B.3-1 (Required) -Worksheet B.1-1 (Required) -Worksheet B.4-1 (if applicable) -Worksheet B.4-2 (if applicable) -Worksheet B.5-1 (if applicable) -Worksheet B.5-2 (if applicable) -Worksheet B.5-3 (if applicable) -Worksheet B.6-1 (if applicable) -Summary Worksheet (optional)	B.3-1, B.1-1, B.5-2, B.2-1, D.5-1, B.4-1 Included
Attachment 1b	Form I-8, Categorization of Infiltration Feasibility Condition (Required unless the project will use harvest and use BMPs) Refer to Appendices C and D of the BMP Design Manual to complete Form I-8.	☑ Included ☐ Not included because the entire project will use harvest and use BMPs
Attachment 1c	DMA Exhibit (Required) See DMA Exhibit Checklist on the back of this Attachment cover sheet.	☑ Included
Attachment 1d	Individual Structural BMP DMA Mapbook (Required) -Place each map on 8.5”x11” paper. -Show at a minimum the DMA, Structural BMP, and any existing hydrologic features within the DMA.	☑ Included

Use this checklist to ensure the required information has been included on the DMA Exhibit:

The DMA Exhibit must identify:

☑ Underlying hydrologic soil group
☑ Approximate depth to groundwater
☑ Existing natural hydrologic features (watercourses, seeps, springs, wetlands)
☑ Critical coarse sediment yield areas to be protected
☑ Existing topography and impervious areas
☑ Existing and proposed site drainage network and connections to drainage offsite
☑ Proposed demolition
☑ Proposed grading
☑ Proposed impervious features
☑ Proposed design features and surface treatments used to minimize imperviousness
☑ Drainage management area (DMA) boundaries, DMA ID numbers, and DMA areas (square footage or acreage), and DMA type (i.e., drains to BMP, self-retaining, or self-mitigating)
☑ Potential pollutant source areas and corresponding required source controls (see Chapter 4, Appendix E.1, and Step 3.5)
☑ Structural BMPs (identify location, structural BMP ID#, type of BMP, and size/detail)

Automated Worksheet B.3-1: Project-Scale BMP Feasibility Analysis (V1.3)

Category	#	Description	Value	Units
Capture & Use Inputs	0	Design Capture Volume for Entire Project Site	1,007	cubic-feet
	1	Proposed Development Type	Residential	unitless
	2	Number of Residents or Employees at Proposed Development	16	#
	3	Total Planted Area within Development	52,213	sq-ft
	4	Water Use Category for Proposed Planted Areas	Low	unitless
Infiltration Inputs	5	Is Average Site Design Infiltration Rate ≤0.500 Inches per Hour?	Yes	yes/no
	6	Is Average Site Design Infiltration Rate ≤0.010 Inches per Hour?	No	yes/no
	7	Is Infiltration of the Full DCV Anticipated to Produce Negative Impacts?	No	yes/no
	8	Is Infiltration of Any Volume Anticipated to Produce Negative Impacts?	No	yes/no
Calculations	9	36-Hour Toilet Use Per Resident or Employee	1.86	cubic-feet
	10	Subtotal: Anticipated 36 Hour Toilet Use	30	cubic-feet
	11	Anticipated 1 Acre Landscape Use Over 36 Hours	52.14	cubic-feet
	12	Subtotal: Anticipated Landscape Use Over 36 Hours	62	cubic-feet
	13	Total Anticipated Use Over 36 Hours	92	cubic-feet
	14	Total Anticipated Use / Design Capture Volume	0.09	cubic-feet
	15	Are Full Capture and Use Techniques Feasible for this Project?	No	unitless
	16	Is Full Retention Feasible for this Project?	No	yes/no
	17	Is Partial Retention Feasible for this Project?	Yes	yes/no
Result	18	Feasibility Category	4	1, 2, 3, 4, 5

Worksheet B.3-1 General Notes:

A. Applicants may use this worksheet to determine the types of structural BMPs that are acceptable for implementation at their project site (as required in Section 5 of the BMPDM). User input should be provided for yellow shaded cells, values for all other cells will be automatically generated. Projects demonstrating feasibility or potential feasibility via this worksheet are encouraged to incorporate capture and use features in their project.

B. Negative impacts associated with retention may include geotechnical, groundwater, water balance, or other issues identified by a geotechnical engineer and substantiated through completion of Form I-8.

C. Feasibility Category 1: Applicant must implement capture & use, retention, and/or infiltration elements for the entire DCV.

D. Feasibility Category 2: Applicant must implement capture & use elements for the entire DCV.

E. Feasibility Category 3: Applicant must implement retention and/or infiltration elements for all DMAs with Design Infiltration Rates greater than 0.50 in/hr.

F. Feasibility Category 4: Applicant must implement standard unlined biofiltration BMPs sized at ≥3% of the effective impervious tributary area for all DMAs with Design Infiltration Rates of 0.011 to 0.50 in/hr. Applicants may be permitted to implement lined BMPs, reduced size BMPs, and/or specialized biofiltration BMPs provided additional criteria identified in "Supplemental Retention Criteria for Non-Standard Biofiltration BMPs" are satisfied.

G. Feasibility Category 5: Applicant must implement standard lined biofiltration BMPs sized at ≥3% of the effective impervious tributary area for all DMAs with Design Infiltration Rates of 0.010 in/hr or less. Applicants may also be permitted to implement reduced size and/or specialized biofiltration BMPs provided additional criteria identified in "Supplemental Retention Criteria for Non-Standard Biofiltration BMPs" are satisfied.

H. PDPs participating in an offsite alternative compliance program are not held to the feasibility categories presented herein.

Automated Worksheet B.1-1: Calculation of Design Capture Volume (V1.3)

Category	#	Description	*i*	*ii*	*iii*	*iv*	*v*	*vi*	*vii*	*viii*	*ix*	*x*	Units
Standard Drainage Basin Inputs	0	Drainage Basin ID or Name	Basin 1	Basin 2	Basin 3	Basin 4							unitless
	1	Basin Drains to the Following BMP Type	Biofiltration	Biofiltration	Biofiltration	Biofiltration							unitless
	2	85th Percentile 24-hr Storm Depth	0.64	0.64	0.64	0.64							inches
	3	Design Infiltration Rate Recommended by Geotechnical Engineer	0.000	0.000	0.000	0.000							in/hr
	4	Impervious Surfaces Not Directed to Dispersion Area (C=0.90)	11,364	7,933	7,769	7,608							sq-ft
	5	Semi-Pervious Surfaces Not Serving as Dispersion Area (C=0.30)	0	0	0	0							sq-ft
	6	Engineered Pervious Surfaces Not Serving as Dispersion Area (C=0.10)	3,355	4,270	3,538	3,360							sq-ft
	7	Natural Type A Soil Not Serving as Dispersion Area (C=0.10)	0	0	0	0							sq-ft
	8	Natural Type B Soil Not Serving as Dispersion Area (C=0.14)	0	0	0	0							sq-ft
	9	Natural Type C Soil Not Serving as Dispersion Area (C=0.23)	0	0	724	478							sq-ft
	10	Natural Type D Soil Not Serving as Dispersion Area (C=0.30)	0	0	0	0							sq-ft
Dispersion Area, Tree Well & Rain Barrel Inputs (Optional)	11	Does Tributary Incorporate Dispersion, Tree Wells, and/or Rain Barrels?	No	No	No	No	No	No	No	No	No	No	yes/no
	12	Impervious Surfaces **Directed to Dispersion Area** per SD-B (Ci=0.90)											sq-ft
	13	Semi-Pervious Surfaces **Serving as Dispersion Area** per SD-B (Ci=0.30)											sq-ft
	14	Engineered Pervious Surfaces **Serving as Dispersion Area** per SD-B (Ci=0.10)											sq-ft
	15	Natural Type A Soil **Serving as Dispersion Area** per SD-B (Ci=0.10)											sq-ft
	16	Natural Type B Soil **Serving as Dispersion Area** per SD-B (Ci=0.14)											sq-ft
	17	Natural Type C Soil **Serving as Dispersion Area** per SD-B (Ci=0.23)											sq-ft
	18	Natural Type D Soil **Serving as Dispersion Area** per SD-B (Ci=0.30)											sq-ft
	19	Number of Tree Wells Proposed per SD-A											#
	20	Average Mature Tree Canopy Diameter											ft
	21	Number of Rain Barrels Proposed per SD-E											#
	22	Average Rain Barrel Size											gal
Treatment Train Inputs & Calculations	23	Does BMP Overflow to Stormwater Features in Downstream Drainage?	No	No	No	No	No	No	No	No	No	No	unitless
	24	Identify Downstream Drainage Basin Providing Treatment in Series											unitless
	25	Percent of Upstream Flows Directed to Downstream Dispersion Areas											percent
	26	Upstream Impervious Surfaces Directed to Dispersion Area (Ci=0.90)	0	0	0	0	0	0	0	0	0	0	cubic-feet
	27	Upstream Impervious Surfaces Not Directed to Dispersion Area (C=0.90)	0	0	0	0	0	0	0	0	0	0	cubic-feet
Initial Runoff Factor Calculation	28	Total Tributary Area	14,719	12,203	12,031	11,446	0	0	0	0	0	0	sq-ft
	29	Initial Runoff Factor for Standard Drainage Areas	0.72	0.62	0.62	0.64	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	30	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
	31	Initial Weighted Runoff Factor	0.72	0.62	0.62	0.64	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	32	Initial Design Capture Volume	565	404	398	391	0	0	0	0	0	0	cubic-feet
Dispersion Area Adjustments	33	Total Impervious Area Dispersed to Pervious Surface	0	0	0	0	0	0	0	0	0	0	sq-ft
	34	Total Pervious Dispersion Area	0	0	0	0	0	0	0	0	0	0	sq-ft
	35	Ratio of Dispersed Impervious Area to Pervious Dispersion Area	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	ratio
	36	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
	37	Runoff Factor After Dispersion Techniques	0.72	0.62	0.62	0.64	n/a	n/a	n/a	n/a	n/a	n/a	unitless
	38	Design Capture Volume After Dispersion Techniques	565	404	398	391	0	0	0	0	0	0	cubic-feet
Tree & Barrel Adjustments	39	Total Tree Well Volume Reduction	0	0	0	0	0	0	0	0	0	0	cubic-feet
	40	Total Rain Barrel Volume Reduction	0	0	0	0	0	0	0	0	0	0	cubic-feet
Results	41	Final Adjusted Runoff Factor	0.72	0.62	0.62	0.64	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	42	Final Effective Tributary Area	10,598	7,566	7,459	7,325	0	0	0	0	0	0	sq-ft
	43	Initial Design Capture Volume Retained by Site Design Elements	0	0	0	0	0	0	0	0	0	0	cubic-feet
	44	Final Design Capture Volume Tributary to BMP	565	404	398	391	0	0	0	0	0	0	cubic-feet

Worksheet B.1-1 General Notes:

A. Applicants may use this worksheet to calculate design capture volumes for up to 10 drainage areas User input must be provided for yellow shaded cells, values for all other cells will be automatically generated, errors/notifications will be highlighted in red and summarized below. Upon completion of this worksheet, proceed to the appropriate BMP Sizing worksheet(s).

Automated Worksheet B.5-1: Sizing Lined or Unlined Biofiltration BMPs (V1.3)

Category	#	Description	*i*	*ii*	*iii*	*iv*	*v*	*vi*	*vii*	*viii*	*ix*	*x*	Units
BMP Inputs	0	Drainage Basin ID or Name	Basin 1	Basin 2	Basin 3	Basin 4	-	-	-	-	-	-	sq-ft
	1	Design Infiltration Rate Recommended by Geotechnical Engineer	0.000	0.000	0.000	0.000	-	-	-	-	-	-	in/hr
	2	Effective Tributary Area	10,598	7,566	7,459	7,325	-	-	-	-	-	-	sq-ft
	3	Minimum Biofiltration Footprint Sizing Factor	0.030	0.030	0.030	0.030	-	-	-	-	-	-	ratio
	4	Design Capture Volume Tributary to BMP	565	404	398	391	-	-	-	-	-	-	cubic-feet
	5	Is Biofiltration Basin Impermeably Lined or Unlined?	Lined	Lined	Lined	Lined							unitless
	6	Provided Biofiltration BMP Surface Area	1,200	1,100	1,300	1,000							sq-ft
	7	Provided Surface Ponding Depth	12	12	12	12							inches
	8	Provided Soil Media Thickness	18	18	18	18							inches
	9	Provided Depth of Gravel Above Underdrain Invert	15	3	12	15							inches
	10	Diameter of Underdrain or Hydromod Orifice (Select Smallest)	0.42	0.41	0.40	0.35							inches
	11	Provided Depth of Gravel Below the Underdrain	3	3	3	3							inches
Retention Calculations	12	Volume Infiltrated Over 6 Hour Storm	0	0	0	0	0	0	0	0	0	0	cubic-feet
	13	Soil Media Pore Space Available for Retention	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	unitless
	14	Gravel Pore Space Available for Retention	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	15	Effective Retention Depth	0.90	0.90	0.90	0.90	0.00	0.00	0.00	0.00	0.00	0.00	inches
	16	Calculated Retention Storage Drawdown (Including 6 Hr Storm)	120	120	120	120	0	0	0	0	0	0	hours
	17	Volume Retained by BMP	90	83	98	75	0	0	0	0	0	0	cubic-feet
	18	Fraction of DCV Retained	0.16	0.20	0.24	0.19	0.00	0.00	0.00	0.00	0.00	0.00	ratio
	19	Portion of Retention Performance Standard Satisfied	0.18	0.22	0.26	0.21	0.00	0.00	0.00	0.00	0.00	0.00	ratio
	20	Fraction of DCV Retained (normalized to 36-hr drawdown)	0.09	0.11	0.14	0.11	0.00	0.00	0.00	0.00	0.00	0.00	ratio
	21	Design Capture Volume Remaining for Biofiltration	514	360	342	348	0	0	0	0	0	0	cubic-feet
Biofiltration Calculations	22	Max Hydromod Flow Rate through Underdrain	0.0089	0.0073	0.0078	0.0062	n/a	n/a	n/a	n/a	n/a	n/a	CFS
	23	Max Soil Filtration Rate Allowed by Underdrain Orifice	0.32	0.29	0.26	0.27	n/a	n/a	n/a	n/a	n/a	n/a	in/hr
	24	Soil Media Filtration Rate per Specifications	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	in/hr
	25	Soil Media Filtration Rate to be used for Sizing	0.32	0.29	0.26	0.27	5.00	5.00	5.00	5.00	5.00	5.00	in/hr
	26	Depth Biofiltered Over 6 Hour Storm	1.93	1.72	1.56	1.61	30.00	30.00	30.00	30.00	30.00	30.00	inches
	27	Soil Media Pore Space Available for Biofiltration	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	unitless
	28	Effective Depth of Biofiltration Storage	21.60	16.80	20.40	21.60	0.00	0.00	0.00	0.00	0.00	0.00	inches
	29	Drawdown Time for Surface Ponding	37	42	46	45	0	0	0	0	0	0	hours
	30	Drawdown Time for Effective Biofiltration Depth	67	59	78	80	0	0	0	0	0	0	hours
	31	Total Depth Biofiltered	23.53	18.52	21.96	23.21	30.00	30.00	30.00	30.00	30.00	30.00	inches
	32	Option 1 - Biofilter 1.50 DCV: Target Volume	771	540	513	522	0	0	0	0	0	0	cubic-feet
	33	Option 1 - Provided Biofiltration Volume	771	540	513	522	0	0	0	0	0	0	cubic-feet
	34	Option 2 - Store 0.75 DCV: Target Volume	386	270	257	261	0	0	0	0	0	0	cubic-feet
	35	Option 2 - Provided Storage Volume	386	270	257	261	0	0	0	0	0	0	cubic-feet
	36	Portion of Biofiltration Performance Standard Satisfied	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	ratio
Result	37	Do Site Design Elements and BMPs Satisfy Annual Retention Requirements?	Yes	Yes	Yes	Yes	-	-	-	-	-	-	yes/no
	38	Overall Portion of Performance Standard Satisfied	0.18	0.22	0.26	0.21	0.00	0.00	0.00	0.00	0.00	0.00	ratio
	39	This BMP Overflows to the Following Drainage Basin	-	-	-	-	-	-	-	-	-	-	unitless
	40	**Deficit of Effectively Treated Stormwater**	-463	-315	-295	-309	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	cubic-feet

Worksheet B.5-1 General Notes:

A. Applicants may use this worksheet to size Lined or Unlined Biofiltration BMPs (BF-1, PR-1) for up to 10 basins. User input must be provided for yellow shaded cells, values for blue cells are automatically populated based on user inputs from previous worksheets, values for all other cells will be automatically generated, errors/notifications will be highlighted in red/orange and summarized below. BMPs fully satisfying the pollutant control performance standards will have a deficit treated volume of zero and be highlighted in green.

Attention!

-Vegetated BMPs must have a surface ponding drawdown time of 24 hours or less. Drawdown times over 24 hours may be permitted at the discretion of County staff if certified by a landscape architect or agronomist.

-This BMP does not fully satisfy the performance standards for pollutant control and must be supplemented with flow-thru treatment and an offsite alternative compliance project.

Summary of Stormwater Pollutant Control Calculations (V1.3)

Category	#	Description	*i*	*ii*	*iii*	*iv*	*v*	*vi*	*vii*	*viii*	*ix*	*x*	Units
General Info	0	Drainage Basin ID or Name	Basin 1	Basin 2	Basin 3	Basin 4	-	-	-	-	-	-	unitless
	1	85th Percentile Storm Depth	0.64	0.64	0.64	0.64	-	-	-	-	-	-	inches
	2	Design Infiltration Rate Recommended by Geotechnical Engineer	0.000	0.000	0.000	0.000	-	-	-	-	-	-	in/hr
	3	Total Tributary Area	14,719	12,203	12,031	11,446	-	-	-	-	-	-	sq-ft
	4	85th Percentile Storm Volume (Rainfall Volume)	785	651	642	610	-	-	-	-	-	-	cubic-feet
Initial DCV	5	Initial Weighted Runoff Factor	0.72	0.62	0.62	0.64	-	-	-	-	-	-	unitless
	6	Initial Design Capture Volume	565	404	398	391	-	-	-	-	-	-	cubic-feet
Site Design Volume Reductions	7	Dispersion Area Reductions	0	0	0	0	-	-	-	-	-	-	cubic-feet
	8	Tree Well and Rain Barrel Reductions	0	0	0	0	-	-	-	-	-	-	cubic-feet
BMP Volume Reductions	9	Effective Area Tributary to BMP	10,598	7,566	7,459	7,325	-	-	-	-	-	-	square feet
	10	Final Design Capture Volume Tributary to BMP	565	404	398	391	-	-	-	-	-	-	cubic-feet
	11	Basin Drains to the Following BMP Type	Biofiltration	Biofiltration	Biofiltration	Biofiltration	-	-	-	-	-	-	unitless
	12	Volume Retained by BMP (normalized to 36 hour drawdown)	51	44	56	43	-	-	-	-	-	-	cubic-feet
Total Volume Reductions	13	Total Fraction of Initial DCV Retained within DMA	0.09	0.11	0.14	0.11	-	-	-	-	-	-	fraction
	14	Percent of Average Annual Runoff Retention Provided	13.7%	16.5%	20.1%	16.5%	-	-	-	-	-	-	%
	15	Percent of Average Annual Runoff Retention Required	1.5%	1.5%	1.5%	1.5%	-	-	-	-	-	-	%
Performance Standard	16	Percent of Pollution Control Standard Satisfied	18.0%	22.0%	26.0%	21.0%	-	-	-	-	-	-	%
Treatment Train	17	Discharges to Secondary Treatment in Drainage Basin	-	-	-	-	-	-	-	-	-	-	unitless
	18	Impervious Surface Area Still Requiring Treatment	9,656	6,557	6,133	6,430	-	-	-	-	-	-	square feet
	19	Impervious Surfaces Directed to Downstream Dispersion Area	-	-	-	-	-	-	-	-	-	-	square feet
	20	Impervious Surfaces Not Directed to Downstream Dispersion Area	-	-	-	-	-	-	-	-	-	-	square feet
Result	21	Deficit of Effectively Treated Stormwater	-463	-315	-295	-309	-	-	-	-	-	-	cubic-feet

Summary Notes:

All fields in this summary worksheet are populated based on previous user inputs. If applicable, drainage basin elements that require revisions and/or supplemental information outside the scope of these worksheets are highlighted in orange and summairzed in the red text below. If all drainage basins achieve full compliance without a need for supplemental information, a green message will appear below.

Attention!

-Performance standards for onsite pollutant control are not satisfied. The applicant must implement onsite flow-thru BMPs per Worksheet B.6-1 and an offsite alternative compliance project to mitigate for the deficit of effectively treated stormwater.

WORKSHEET B.2-1. DCV, STEEVE TPM 21225, PARCEL 1				
1	85^{th} percentile 24-hr storm depth from Figure B.1-1	d=	0.64	inches
2	Area tributary to BMP (s)	A=	0.34	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.72	unitless
4	Street trees volume reduction	TCV=	0.00	cubic-feet
5	Rain barrels volume reduction	RCV=	0.00	cubic-feet
6	Calculate DCV = (3630 x C x d x A) - TCV - RCV	DCV=	569	cubic-feet

WORKSHEET D.5-1, STEEVE TPM 21225, PARCEL 1					
Factor of Safety and Design Infiltration Rate Worksheet			Worksheet D.5-1		
Factor Category		Factor Description	Assigned Weight (w)	Factor Value (v)	Product (p) p = w x v
A	Suitability Assessment	Soil assessment methods	0.25	3	0.75
		Predominant soil texture	0.25	3	0.75
		Site soil variability	0.25	3	0.75
		Depth to groundwater / impervious	0.25	1	0.25
		Suitability Assessment Safety Factor, $S_A = \Sigma p$			2.5
B	Design	Level of pretreatment/expected sediment loads	0.5	1	0.5
		Redundancy/resiliency	0.25	2	0.5
		Compaction during construction	0.25	3	0.75
		Design Safety Factor, $S_B = \Sigma p$			1.75
Combined Safety Factor, $S_{total} = S_A \times S_B$					4.4
Observed Infiltration Rate, inch/hr, $K_{observed}$ (corrected for test-specific bias)					0.2
Design Infiltration Rate, in/hr, $K_{design} = K_{observed} / S_{total}$					0.05

Supporting Data

Briefly describe infiltration test and provide reference to test forms: This form uses the infiltration rate given by NCRS. This form is for an estimate only. The sizing of the biofiltration w/partial retention will be calculated with the infiltration rates acquired during final engineering design process. For sizing, on the DMA map, 0 in/hr was used per the Table G.1-5 of the BMPDM for soil type C.

WORKSHEET B.4-1, STEEVE TPM 21225, PARCEL 1				
1	DCV (Worksheet B.2-1)	DCV =	569	cubic-feet
2	Estimated design infiltration rate (Worksheet D.5-1)	K_{design}=	0.05	in/hr
3	Available BMP surface area	A_{BMP} =	1200	sq-ft
4	Average effective depth in the BMP footprint (DCV/A_{BMP})	D_{avg} =	0.47	feet
5	Drawdown time, T = (D_{avg} * 12/K_{design})	T =	124	hours
6	Provide alternative calculation of drawdown time, if needed. See additional design for treating 0.75 of the DCV not reliably retained.			

DESIGN TO DETAIN 0.75 X DCV NOT RELIABLY RETAINED, STEEVE 21225, PARCEL 1			
Depth Needed for 36 Hr DDT, 36 hr x K_{design} / 12	D_{36} =	0.137	feet
DCV Reliably Retained, (D_{36} / D_{avg}) x DCV	DCV_{ret} =	165	cu-ft
DCV Not Reliably Retained, DCV - DCV_{ret}	DCV_{tr} =	404	cu-ft
0.75 Times DCV Not Reliably Retained, 0.75 x DCV_{tr}	$DCV_{0.75}$ =	303	cu-ft

From BMP Sizing Spreadsheet V1.04			
Designed Ponding Depth	D_p =	12	inches
Volume Due to Ponding, A_{BMP} x D_p / (12 in/ft)	V_p =	1200	cu-ft
Porosity, from the BMP Sizing Spreadsheet	r =	0.40	unitless
Design New Gravel Layer Above (d)	D_{grvl} =	15.00	inches
Designed Volume Detained Due to D_{grvl}, A_{BMP} x D_{grvl} / (12in/ft)	V_{grvl} =	600	cu-ft
Total Detained Volume	V_{grvl}+V_p=	1800	cu-ft
Total Detained Volume - 0.75 times =		1497	cu-ft
Is 0.75 x DCV Retained in Basin?			Yes

Note: V_{grvl} + V_p should be greater than $DCV_{0.75}$ to comply with the MS4 permit.

WORKSHEET B.2-1. DCV, STEEVE TPM 21225, PARCEL 2				
1	85^{th} percentile 24-hr storm depth from Figure B.1-1	d=	0.64	inches
2	Area tributary to BMP (s)	A=	0.28	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.62	unitless
4	Street trees volume reduction	TCV=	0.00	cubic-feet
5	Rain barrels volume reduction	RCV=	0.00	cubic-feet
6	Calculate DCV = (3630 x C x d x A) - TCV - RCV	DCV=	404	cubic-feet

WORKSHEET D.5-1, STEEVE TPM 21225, PARCEL 2					
Factor of Safety and Design Infiltration Rate Worksheet			Worksheet D.5-1		
Factor Category		Factor Description	Assigned Weight (w)	Factor Value (v)	Product (p) p = w x v
A	Suitability Assessment	Soil assessment methods	0.25	3	0.75
		Predominant soil texture	0.25	3	0.75
		Site soil variability	0.25	3	0.75
		Depth to groundwater / impervious	0.25	1	0.25
		Suitability Assessment Safety Factor, $S_A = \Sigma p$			2.5
B	Design	Level of pretreatment/expected sediment loads	0.5	1	0.5
		Redundancy/resiliency	0.25	2	0.5
		Compaction during construction	0.25	1	0.25
		Design Safety Factor, $S_B = \Sigma p$			1.25
Combined Safety Factor, $S_{total} = S_A \times S_B$					3.1
Observed Infiltration Rate, inch/hr, $K_{observed}$ (corrected for test-specific bias)					0.2
Design Infiltration Rate, in/hr, $K_{design} = K_{observed} / S_{total}$					0.06

Supporting Data

Briefly describe infiltration test and provide reference to test forms: This form uses the infiltration rate given by NCRS. This form is for an estimate only. The sizing of the biofiltration w/partial retention will be calculated with the infiltration rates acquired during final engineering design process. For sizing, on the DMA map, 0 in/hr was used per the Table G.1-5 of the BMPDM for soil type C.

WORKSHEET B.4-1, STEEVE TPM 21225, PARCEL 2				
1	DCV (Worksheet B.2-1)	DCV =	404	cubic-feet
2	Estimated design infiltration rate (Worksheet D.5-1)	K_{design}=	0.06	in/hr
3	Available BMP surface area	A_{BMP} =	1100	sq-ft
4	Average effective depth in the BMP footprint (DCV/A_{BMP})	D_{avg} =	0.37	feet
5	Drawdown time, T = (D_{avg} * 12/K_{design})	T =	69	hours
6	Provide alternative calculation of drawdown time, if needed. See additional design for treating 0.75 of the DCV not reliably retained.			

DESIGN TO DETAIN 0.75 X DCV NOT RELIABLY RETAINED, STEEVE 21225, PARCEL 2			
Depth Needed for 36 Hr DDT, 36 hr x K_{design} / 12	D_{36} =	0.192	feet
DCV Reliably Retained, (D_{36} / D_{avg}) x DCV	DCV_{ret} =	211.2	cu-ft
DCV Not Reliably Retained, DCV - DCV_{ret}	DCV_{tr} =	192	cu-ft
0.75 Times DCV Not Reliably Retained, 0.75 x DCV_{tr}	$DCV_{0.75}$ =	144	cu-ft

From BMP Sizing Spreadsheet V1.04			
Designed Ponding Depth	D_p =	12	inches
Volume Due to Ponding, A_{BMP} x D_p / (12 in/ft)	V_p =	1100	cu-ft
Porosity, from the BMP Sizing Spreadsheet	r =	0.40	unitless
Design New Gravel Layer Above (d)	D_{grvl} =	3.00	inches
Designed Volume Detained Due to D_{grvl}, A_{BMP} x D_{grvl} / (12in/ft)	V_{grvl} =	110	cu-ft
Total Detained Volume	V_{grvl}+V_p=	1210	cu-ft
Total Detained Volume - 0.75 times =		1066	cu-ft
Is 0.75 x DCV Retained in Basin?			Yes

Note: V_{grvl} + V_p should be greater than $DCV_{0.75}$ to comply with the MS4 permit.

WORKSHEET B.2-1. DCV, STEEVE TPM 21225, PARCEL 3				
1	85^{th} percentile 24-hr storm depth from Figure B.1-1	d=	0.64	inches
2	Area tributary to BMP (s)	A=	0.28	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.62	unitless
4	Street trees volume reduction	TCV=	0.00	cubic-feet
5	Rain barrels volume reduction	RCV=	0.00	cubic-feet
6	Calculate DCV = (3630 x C x d x A) - TCV - RCV	DCV=	398	cubic-feet

WORKSHEET D.5-1, STEEVE TPM 21225, PARCEL 3					
Factor of Safety and Design Infiltration Rate Worksheet			Worksheet D.5-1		
Factor Category		Factor Description	Assigned Weight (w)	Factor Value (v)	Product (p) p = w x v
A	Suitability Assessment	Soil assessment methods	0.25	3	0.75
		Predominant soil texture	0.25	3	0.75
		Site soil variability	0.25	3	0.75
		Depth to groundwater / impervious	0.25	1	0.25
		Suitability Assessment Safety Factor, $S_A = \Sigma p$			2.5
B	Design	Level of pretreatment/expected sediment loads	0.5	1	0.5
		Redundancy/resiliency	0.25	2	0.5
		Compaction during construction	0.25	3	0.75
		Design Safety Factor, $S_B = \Sigma p$			1.75
Combined Safety Factor, $S_{total} = S_A \times S_B$					4.4
Observed Infiltration Rate, inch/hr, $K_{observed}$ (corrected for test-specific bias)					0.2
Design Infiltration Rate, in/hr, $K_{design} = K_{observed} / S_{total}$					0.05
Supporting Data					
Briefly describe infiltration test and provide reference to test forms:					

WORKSHEET B.4-1, STEEVE TPM 21225, PARCEL 3				
1	DCV (Worksheet B.2-1)	DCV =	398	cubic-feet
2	Estimated design infiltration rate (Worksheet D.5-1)	K_{design}=	0.05	in/hr
3	Available BMP surface area	A_{BMP} =	1300	sq-ft
4	Average effective depth in the BMP footprint (DCV/A_{BMP})	D_{avg} =	0.31	feet
5	Drawdown time, $T = (D_{avg} * 12/K_{design})$	T =	80	hours
6	Provide alternative calculation of drawdown time, if needed. A biofiltration is proposed due to the location of the BMP being in close proximity to the proposed leach lines to the westerly adjacent property. See additional design for retaining 0.75 of the DCV.			

DESIGN TO DETAIN 0.75 X DCV, STEEVE 21225, PARCEL 3			
0.75 Times DCV, 0.75 x DCV	$DCV_{0.75}$ =	298	cu-ft

From BMP Sizing Spreadsheet V1.04			
Designed Ponding Depth	D_p =	12	inches
Volume Due to Ponding, A_{BMP} x D_p / (12 in/ft)	V_p =	1300	cu-ft
Porosity, from the BMP Sizing Spreadsheet	r =	0.40	unitless
Design New Gravel Layer Above (d)	D_{grvl} =	12.00	inches
Designed Volume Detained Due to D_{grvl}, A_{BMP} x D_{grvl} / (12in/ft)	V_{grvl} =	520	cu-ft
Total Detained Volume	$V_{grvl}+V_p$=	1820	cu-ft
Total Detained Volume - 0.75 times =		1522	cu-ft
Is 0.75 x DCV Retained in Basin?			Yes

Note: $V_{grvl} + V_p$ should be greater than $DCV_{0.75}$ to comply with the MS4 permit.

WORKSHEET B.2-1. DCV, STEEVE TPM 21225, PARCEL 4				
1	85^{th} percentile 24-hr storm depth from Figure B.1-1	d=	0.64	inches
2	Area tributary to BMP (s)	A=	0.26	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.64	unitless
4	Street trees volume reduction	TCV=	0.00	cubic-feet
5	Rain barrels volume reduction	RCV=	0.00	cubic-feet
6	Calculate DCV = (3630 x C x d x A) - TCV - RCV	DCV=	391	cubic-feet

WORKSHEET D.5-1, STEEVE TPM 21225, PARCEL 4					
Factor of Safety and Design Infiltration Rate Worksheet			Worksheet D.5-1		
Factor Category		Factor Description	Assigned Weight (w)	Factor Value (v)	Product (p) p = w x v
A	Suitability Assessment	Soil assessment methods	0.25	3	0.75
		Predominant soil texture	0.25	3	0.75
		Site soil variability	0.25	3	0.75
		Depth to groundwater / impervious	0.25	1	0.25
		Suitability Assessment Safety Factor, $S_A = \Sigma p$			2.5
B	Design	Level of pretreatment/expected sediment loads	0.5	1	0.5
		Redundancy/resiliency	0.25	2	0.5
		Compaction during construction	0.25	3	0.75
		Design Safety Factor, $S_B = \Sigma p$			1.75
Combined Safety Factor, $S_{total} = S_A \times S_B$					4.4
Observed Infiltration Rate, inch/hr, $K_{observed}$ (corrected for test-specific bias)					0.2
Design Infiltration Rate, in/hr, $K_{design} = K_{observed} / S_{total}$					0.05
Supporting Data					
Briefly describe infiltration test and provide reference to test forms:					

WORKSHEET B.4-1, STEEVE TPM 21225, PARCEL 4				
1	DCV (Worksheet B.2-1)	DCV =	391	cubic-feet
2	Estimated design infiltration rate (Worksheet D.5-1)	K_{design}=	0.05	in/hr
3	Available BMP surface area	A_{BMP} =	1000	sq-ft
4	Average effective depth in the BMP footprint (DCV/A_{BMP})	D_{avg} =	0.39	feet
5	Drawdown time, T = (D_{avg} * 12/K_{design})	T =	103	hours
6	Provide alternative calculation of drawdown time, if needed. A biofiltration is proposed due to the location of the BMP being in close proximity to the proposed leach lines to the westerly adjacent property. See additional design for retaining 0.75 of the DCV.			

DESIGN TO DETAIN 0.75 X DCV, STEEVE 21225, PARCEL 4			
0.75 Times DCV, 0.75 x DCV	$DCV_{0.75}$ =	293	cu-ft

From BMP Sizing Spreadsheet V1.04			
Designed Ponding Depth	D_p =	12	inches
Volume Due to Ponding, A_{BMP} x D_p / (12 in/ft)	V_p =	1000	cu-ft
Porosity, from the BMP Sizing Spreadsheet	r =	0.40	unitless
Design New Gravel Layer Above (d)	D_{grvl} =	15.00	inches
Designed Volume Detained Due to D_{grvl}, A_{BMP} x D_{grvl} / (12in/ft)	V_{grvl} =	500	cu-ft
Total Detained Volume	$V_{grvl}+V_p$=	1500	cu-ft
Total Detained Volume - 0.75 times =		1207	cu-ft
Is 0.75 x DCV Retained in Basin?			Yes

Note: $V_{grvl} + V_p$ should be greater than $DCV_{0.75}$ to comply with the MS4 permit.

PARCEL 1 AND 2 BIOFILTRATION W/PARTIAL RETENTION

Categorization of Infiltration Feasibility Condition	Form I-8

Part 1 - Full Infiltration Feasibility Screening Criteria

Would infiltration of the full design volume be feasible from a physical perspective without any undesirable consequences that cannot be reasonably mitigated?

Note that it is not necessary to investigate each and every criterion in the worksheet if infiltration is precluded. Instead a letter of justification from a geotechnical professional familiar with the local conditions substantiating any geotechnical issues will be required.

Criteria	Screening Question	Yes	No
1	**Is the estimated reliable infiltration rate below proposed facility locations greater than 0.5 inches per hour?** The response to this Screening Question must be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.		x

Provide basis:

Soils report was generated by http://websoilsurvey.sc.egov.usda.gov per Table C.5-1 for soils and infiltration. The infiltration rate was consistent with the soils type and the soils type used for Worksheet D.5-1 was the more conservative rate of 0.2 in/hr. For this analysis, no infiltration testing has taken place. We use the conservative limit of the ranges provided in Table G.1-5 for analysis of 0.0 in/hr. During the final engineering processing, infiltration testing will occur per the BMPDM for final sizing.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.

2	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question must be based on a comprehensive evaluation of the factors presented in Appendix C.2.		N/A

Provide basis:

Infiltration rate is less than 0.5 in/hr. See Attachment 7. (Use infiltration rate of 0.0 in/hr per Table G.1-5 of the BMPDM.)

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.

Form I-8 Page 2 of 4			
Criteria	Screening Question	**Yes**	**No**
3	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of groundwater contamination (shallow water table, storm water pollutants or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question must be based on a comprehensive evaluation of the factors presented in Appendix C.3.		N/A
Provide basis: Infiltration rate is less than 0.5 in/hr. See Attachment 7. (Use infiltration rate of 0.0 in/hr per Table G.1-5 of the BMPDM.) Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
4	**Can infiltration greater than 0.5 inches per hour be allowed without causing potential water balance issues such as change of seasonality of ephemeral streams or increased discharge of contaminated groundwater to surface waters?** The response to this Screening Question must be based on a comprehensive evaluation of the factors presented in Appendix C.3.		N/A
Provide basis: Infiltration rate is less than 0.5 in/hr. See Attachment 7. (Use infiltration rate of 0.0 in/hr per Table G.1-5 of the BMPDM.) Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
Part 1 Result *	If all answers to rows 1 - 4 are "**Yes**" a full infiltration design is potentially feasible. The feasibility screening category is **Full Infiltration** If any answer from row 1-4 is "**No**", infiltration may be possible to some extent but would not generally be feasible or desirable to achieve a "full infiltration" design. Proceed to Part 2		

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by Agency/Jurisdictions to substantiate findings

Form I-8 Page 3 of 4

Part 2 – Partial Infiltration vs. No Infiltration Feasibility Screening Criteria

Would infiltration of water in any appreciable amount be physically feasible without any negative consequences that cannot be reasonably mitigated?

Criteria	Screening Question	Yes	No
5	**Do soil and geologic conditions allow for infiltration in any appreciable rate or volume?** The response to this Screening Question must be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.	x	

Provide basis:

Per Attachment 7, infiltration rate is 0.2 in/hr. (Use infiltration rate of 0.0 in/hr per Table G.1-5 of the BMPDM.)

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.

6	**Can Infiltration in any appreciable quantity be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level**? The response to this Screening Question must be based on a comprehensive evaluation of the factors presented in Appendix C.2.	x	

Provide basis:

Appendix D.3.3.2 allows for the borehole percolation tests to be used when determining the feasibility of the BMPs during the planning stage. The borehole percolation test methods conducted during a septic investigation resulted in discovery that ground water levels are 21 ft below surface. The septic information can be obtained at the County of San Diego DEH, LMAP-000036, dated 5/1/2015. (Use infiltration rate of 0.0 in/hr per Table G.1-5 of the BMPDM.)

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.

Form I-8 Page 4 of 4			
Criteria	Screening Question	**Yes**	**No**
7	**Can Infiltration in any appreciable quantity be allowed without posing significant risk for groundwater related concerns (shallow water table, storm water pollutants or other factors)?** The response to this Screening Question must be based on a comprehensive evaluation of the factors presented in Appendix C.3.	x	
Provide basis: For preliminary purposes, groundwater levels have been determined to be < 21 ft below surface per DEH documentation. For final engineering designs infiltration rates acquired will determine the design of the BMP. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
8	**Can infiltration be allowed without violating downstream water rights**? The response to this Screening Question must be based on a comprehensive evaluation of the factors presented in Appendix C.3.	x	
Provide basis: For preliminary purposes, percolation tests performed for septic systems have been performed and no affect to storm water has been determined per DEH documentation. For final engineering designs infiltration rates acquired will determine the design of the BMP. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
Part 2 Result*	If all answers from row 1-4 are yes then partial infiltration design is potentially feasible. The feasibility screening category is **Partial Infiltration.** If any answer from row 5-8 is no, then infiltration of any volume is considered to be **infeasible** within the drainage area. The feasibility screening category is **No Infiltration.**		

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by Agency/Jurisdictions to substantiate findings

PARCEL 3 AND 4 BIOFILTRATION

Categorization of Infiltration Feasibility Condition	Form I-8

Part 1 - Full Infiltration Feasibility Screening Criteria

Would infiltration of the full design volume be feasible from a physical perspective without any undesirable consequences that cannot be reasonably mitigated?

Note that it is not necessary to investigate each and every criterion in the worksheet if infiltration is precluded. Instead a letter of justification from a geotechnical professional familiar with the local conditions substantiating any geotechnical issues will be required.

Criteria	Screening Question	Yes	No
1	**Is the estimated reliable infiltration rate below proposed facility locations greater than 0.5 inches per hour?** The response to this Screening Question must be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.		N/A

Provide basis:

Soils report was generated by http://websoilsurvey.sc.egov.usda.gov per Table C.5-1 for soils and infiltration. The infiltration rate was consistent with the soils type and the soils type used for Worksheet D.5-1 was the more conservative rate of 0.2 in/hr. For this analysis, no infiltration will be allowed and an impermeable liner will be used. See criteria 2 below.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.

2	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question must be based on a comprehensive evaluation of the factors presented in Appendix C.2.		x

Provide basis:

BMP3 (parcel 3) and BMP4 (parcel 4) will be located near leach fields for parcels 2 and 1, respectively. because of their proximity to said fields, infiltration is not recommended. Therefore, the selection of biofiltration with liners is selected.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.

Form I-8 Page 2 of 4			
Criteria	Screening Question	**Yes**	**No**
3	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of groundwater contamination (shallow water table, storm water pollutants or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question must be based on a comprehensive evaluation of the factors presented in Appendix C.3.		x
Provide basis: No infiltration to be used. See criteria 2. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
4	**Can infiltration greater than 0.5 inches per hour be allowed without causing potential water balance issues such as change of seasonality of ephemeral streams or increased discharge of contaminated groundwater to surface waters?** The response to this Screening Question must be based on a comprehensive evaluation of the factors presented in Appendix C.3.		N/A
Provide basis: No infiltration to be used. See criteria 2. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
Part 1 Result *	If all answers to rows 1 - 4 are "**Yes**" a full infiltration design is potentially feasible. The feasibility screening category is **Full Infiltration** If any answer from row 1-4 is "**No**", infiltration may be possible to some extent but would not generally be feasible or desirable to achieve a "full infiltration" design. Proceed to Part 2		

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by Agency/Jurisdictions to substantiate findings

Form I-8 Page 3 of 4

Part 2 – Partial Infiltration vs. No Infiltration Feasibility Screening Criteria

Would infiltration of water in any appreciable amount be physically feasible without any negative consequences that cannot be reasonably mitigated?

Criteria	Screening Question	Yes	No
5	**Do soil and geologic conditions allow for infiltration in any appreciable rate or volume?** The response to this Screening Question must be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.		N/A

Provide basis:

No infiltration to be used. See criteria 2.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.

6	**Can Infiltration in any appreciable quantity be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level**? The response to this Screening Question must be based on a comprehensive evaluation of the factors presented in Appendix C.2.		N/A

Provide basis:

No infiltration to be used. See criteria 2.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.

Form I-8 Page 4 of 4			
Criteria	Screening Question	**Yes**	**No**
7	**Can Infiltration in any appreciable quantity be allowed without posing significant risk for groundwater related concerns (shallow water table, storm water pollutants or other factors)?** The response to this Screening Question must be based on a comprehensive evaluation of the factors presented in Appendix C.3.		N/A
Provide basis: No infiltration to be used. See criteria 2. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
8	**Can infiltration be allowed without violating downstream water rights**? The response to this Screening Question must be based on a comprehensive evaluation of the factors presented in Appendix C.3.		N/A
Provide basis: No infiltration to be used. See criteria 2. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
Part 2 Result*	If all answers from row 1-4 are yes then partial infiltration design is potentially feasible. The feasibility screening category is **Partial Infiltration.** If any answer from row 5-8 is no, then infiltration of any volume is considered to be **infeasible** within the drainage area. The feasibility screening category is **No Infiltration.**		

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by Agency/Jurisdictions to substantiate findings

ATTACHMENT 1C
DRAINAGE MANAGEMENT AREA MAP
COUNTY OF SAN DIEGO TPM 21225
APN 234-120-66

DMA TABLE (AREAS DRAIN TO AN BMP)						
DMA	AREA (SQ.FT.)	DMA CATEGORY	POST–PROJECT SURFACE TYPE	RUNOFF FACTOR	HATCH PATTERN	DRAINS TO
1A	2,820	DRAINS TO BMP	LANDSCAPE	0.1		A
1B	1,058	DRAINS TO BMP	LANDSCAPE	0.1		A
2A	2,890	DRAINS TO BMP	IMPERVIOUS PAVING	0.9		A
2B	4,744	DRAINS TO BMP	IMPERVIOUS PAVING	0.9		A
3	3,750	DRAINS TO BMP	ROOFTOP	0.9		A
4	1,243	DRAINS TO BMP	NATURAL TERRAIN	0.2		A
5	4,263	DRAINS TO BMP	LANDSCAPE	0.1		B
6	3,750	DRAINS TO BMP	ROOFTOP	0.9		B
7	4,185	DRAINS TO BMP	IMPERVIOUS PAVING	0.9		B
8	4,394	DRAINS TO BMP	IMPERVIOUS PAVING	0.9		C
9	722	DRAINS TO BMP	NATURAL TERRAIN	0.2		C
10	3,375	DRAINS TO BMP	ROOFTOP	0.9		C
11	3,538	DRAINS TO BMP	LANDSCAPE	0.1		C
12	3,375	DRAINS TO BMP	ROOFTOP	0.9		D
13	4,233	DRAINS TO BMP	IMPERVIOUS PAVING	0.9		D
14	513	DRAINS TO BMP	NATURAL TERRAIN	0.2		D
15	3,360	DRAINS TO BMP	LANDSCAPE	0.1		D

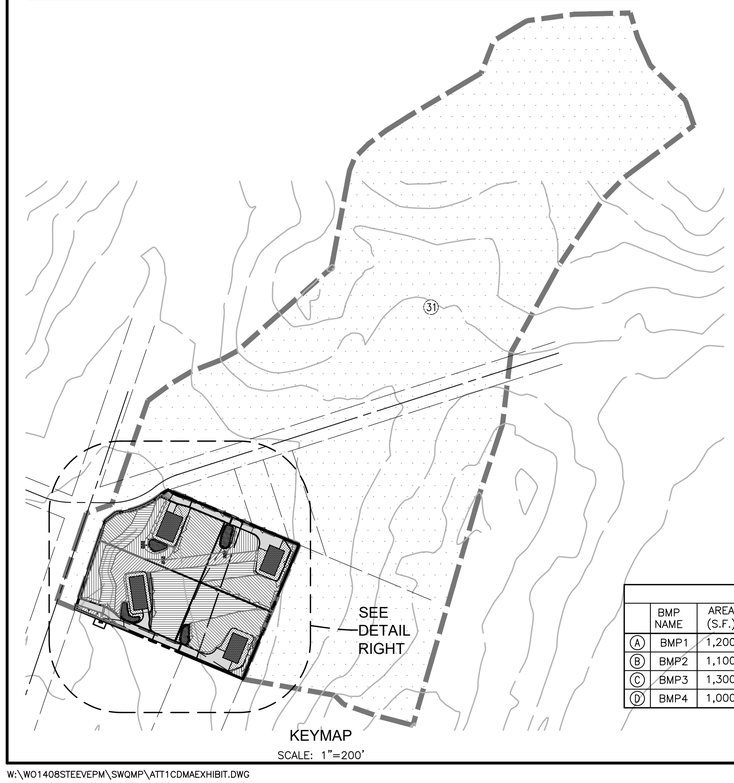
AREAS BYPASSING STRUCTURAL BMPS			
DMA	AREA (SQ.FT.)	POST–PROJECT SURFACE TYPE	HATCH PATTERN
20	14,232	SELF–MITIGATING	
21	4,524	SELF–MITIGATING	
22	13,341	SELF–MITIGATING	
23	359	SELF–MITIGATING	
24	17,491	SELF–MITIGATING	
25	39,951	SELF–MITIGATING	
26	15,681	SELF–MITIGATING	
27	2,338	SELF–MITIGATING	
28	7,664	SELF–MITIGATING	
29	891	SELF–MITIGATING	
30	255	SELF–MITIGATING	
31	1,336,983	SELF–MITIGATING	
32	4,151	SELF–RETAINING	
33	5,746	SELF–MITIGATING	
34	8,267	SELF–MITIGATING	
35	6,857	SELF–MITIGATING	
36	832	SELF–MITIGATING	
40	444	SELF–RETAINING	

NOTE:
DMA 31 WILL BE DIRECTED AROUND THE PROPERTY AND AWAY FROM THE BMPS AND IS NOT INCLUDED IN THE BMP SIZING CALCULATIONS. DRAINAGE STRUCTURES TO BE INCLUDED IN FINAL ENGINEERING DRAWINGS.

SECTION 5.2.1 SELF-MITIGATING NOTES

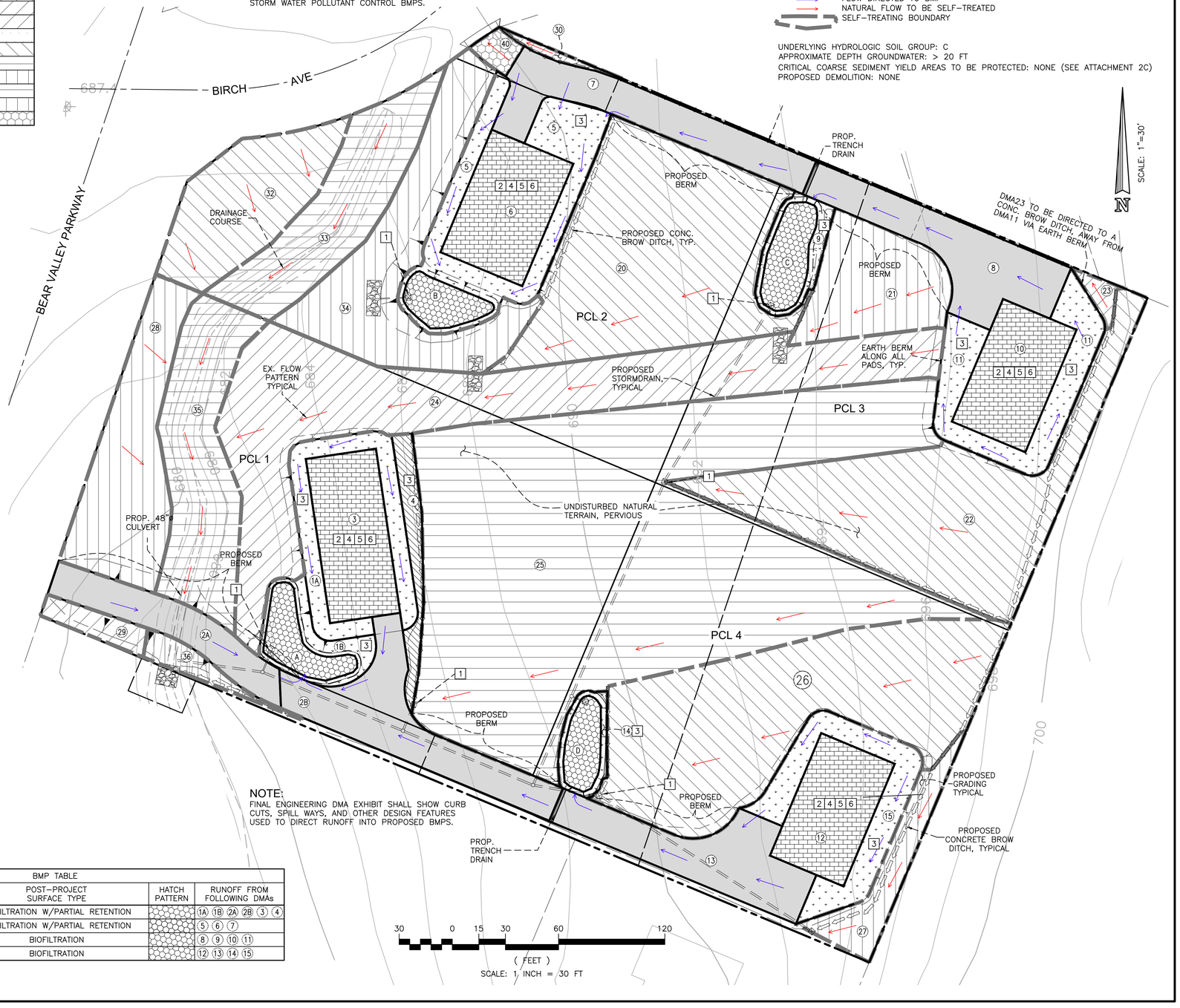
- VEGETATION IN THE NATURAL OR LANDSCAPED AREA IS NATIVE AND/OR NON–NATIVE/NON–INVASIVE DROUGHT TOLERANT SPECIES THAT DO NOT REQUIRE REGULAR APPLICATION OF FERTILIZERS AND PESTICIDES.
- SOILS ARE UNDISTURBED NATIVE TOPSOIL, OR DISTURBED SOILS THAT HAVE BEEN AMENDED AND AERATED TO PROMOTE WATER RETENTION CHARACTERISTICS EQUIVALENT TO UNDISTURBED NATIVE TOPSOIL.
- THE INCIDENTAL IMPERVIOUS AREAS ARE LESS THAN 5 PERCENT OF THE SELF–MITIGATING AREA.
- IMPERVIOUS AREA WITHIN THE SELF–MITIGATED AREA SHOULD NOT BE HYDRAULICALLY CONNECTED TO OTHER IMPERVIOUS AREAS UNLESS IT IS A STORM WATER CONVEYANCE SYSTEM (SUCH AS A BROW DITCH).
- THE SELF–MITIGATING AREA IS HYDRAULICALLY SEPARATE FROM DMAS THAT CONTAIN PERMANENT STORM WATER POLLUTANT CONTROL BMPS.

SOURCE CONTROL BMP TABLE			
	POSSIBLE POLLUTANT SOURCE	PERMANENT SOURCE CONTROL BMP	OPERATIONAL SOURCE CONTROL BMP
1	ON–SITE DRAIN INLETS	MARK ALL INLETS WITH THE WORDS "NO DUMPING! FLOW TO BAY" OR SIMILAR	MAINTAIN AND PERIODICALLY REPAINT OR REPLACE INLET MARKINGS. PROVIDE STORMWATER POLLUTION PREVENTION INFORMATION TO NEW SITE OWNERS.
2	NEED FOR FUTURE INDOOR & STRUCTURAL PEST CONTRL	NOTE BUILDING DESIGN FEATURE THAT DISCOURAGE ENTRY OF PESTS	PROVIDE INTEGRATED PEST MANAGEMENT INFORMATION TO OWNERS, LESSEES AND OPERATORS.
3	LANDSCAPE/OUTDOOR PESTICIDES USE	DESIGN LANDSCAPING TO MINIMIZE IRRIGATION AND RUNOFF, TO PROMOTE SURFACE INFILTRATION, AND TO MINIMIZE THE USE OF FERTILIZERS AND PESTICIDES. SPECIFY PLANTS THAT ARE TOLERANT TO SATURATED SOIL CONDITIONS AT BIORETENTION PLANTERS. USE PEST–RESISTANT PLANTS.	MAINTAIN LANDSCAPING USING MINIMUM OR NO PESTICIDES. PROVIDE IMP INFORMATION TO NEW OWNERS, LESSEES AND OPERATORS.
4	FIRE SPRINKLER TEST WATER	CONNECT FIRE SPRINKLER TEST WATER TO SANITARY SEWER.	DISPOSE FIRE SPRINKLER LINE FLUSH WATER INTO SANITARY SEWER.
5	ROOF DRAINS	DIRECT ALL ROOF DRAINS TOWARDS LANDSCAPE BUFFER AREAS OR INTO BIORETENTIONS THROUGH STORM DRAIN SYSTEM	ROUTINELY CLEAN ROOF DRAIN OPENINGS FROM DEBRIS AND FOLIAGE
6	ROOFING, GUTTERS AND TRIM	AVOID ROOFING, GUTTERS AND TRIM MADE OF COPPER OR OTHER UNPROTECTED METALS THAT MAY LEACH INTO RUNOFF.	



LEGEND
FLOW DIRECTED TO BMP
NATURAL FLOW TO BE SELF–TREATED
SELF–TREATING BOUNDARY

UNDERLYING HYDROLOGIC SOIL GROUP: C
APPROXIMATE DEPTH GROUNDWATER: > 20 FT
CRITICAL COARSE SEDIMENT YIELD AREAS TO BE PROTECTED: NONE (SEE ATTACHMENT 2C)
PROPOSED DEMOLITION: NONE

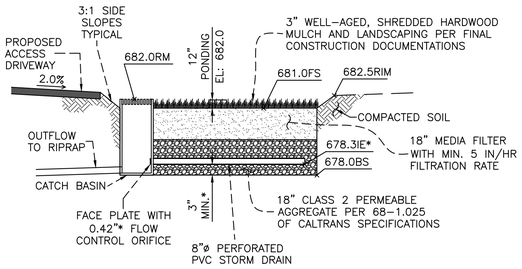


NOTE:
FINAL ENGINEERING DMA EXHIBIT SHALL SHOW CURB CUTS, SPILL WAYS, AND OTHER DESIGN FEATURES USED TO DIRECT RUNOFF INTO PROPOSED BMP'S.

BMP TABLE						
	BMP NAME	AREA (S.F.)	DMA CATEGORY	POST–PROJECT SURFACE TYPE	HATCH PATTERN	RUNOFF FROM FOLLOWING DMAs
A	BMP1	1,200	IMP	BIOFILTRATION W/PARTIAL RETENTION		1A 1B 2A 2B 3 4
B	BMP2	1,100	IMP	BIOFILTRATION W/PARTIAL RETENTION		5 6 7
C	BMP3	1,300	IMP	BIOFILTRATION		8 9 10 11
D	BMP4	1,000	IMP	BIOFILTRATION		12 13 14 15

W:\W0140BSTEEVEPM\SWQMP\ATT1CDMAEXHIBIT.DWG
PLOTTED: 3/28/2017

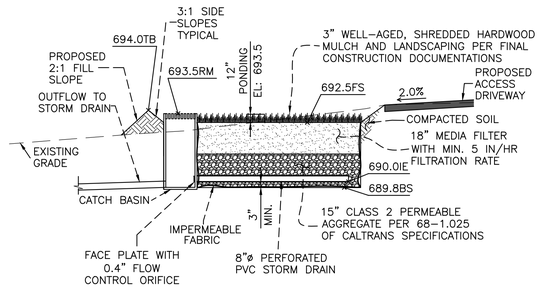
ATTACHMENT 1C
DRAINAGE MANAGEMENT AREA MAP
COUNTY OF SAN DIEGO TPM 21225
APN 234-120-66



*BMP1 IS DESIGNED WITH THE MOST CONSERVATED FILTRATION AVAILABLE PER POTENTIAL INFILTRATION RATES SHOWN IN TABLE G.1-5 OF APPENDIX G OF THE BMPDM. IT IS DESIGNED AS A PR-1 AND WILL BE RECALCULATED WHEN SITE SPECIFIC INFILTRATION RATES ARE DETERMINED DURING THE FINAL ENGINEERING PROCESS.

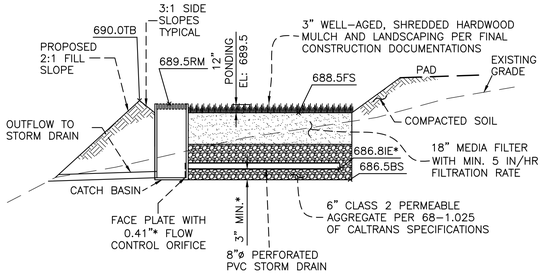
BMP1: BIOFILTRATION W/PARTIAL RETENTION (PR-1)

NO SCALE



BMP3: BIOFILTRATION (BF-1)

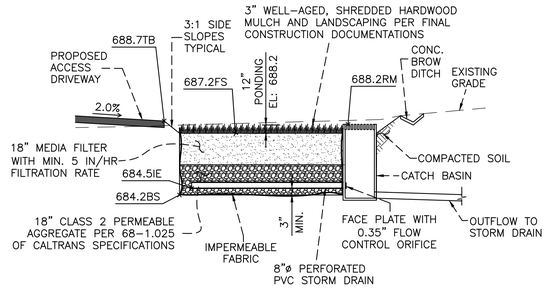
NO SCALE



*BMP2 IS DESIGNED WITH THE MOST CONSERVATED FILTRATION AVAILABLE PER POTENTIAL INFILTRATION RATES SHOWN IN TABLE G.1-5 OF APPENDIX G OF THE BMPDM. IT IS DESIGNED AS A PR-1 AND WILL BE RECALCULATED WHEN SITE SPECIFIC INFILTRATION RATES ARE DETERMINED DURING THE FINAL ENGINEERING PROCESS.

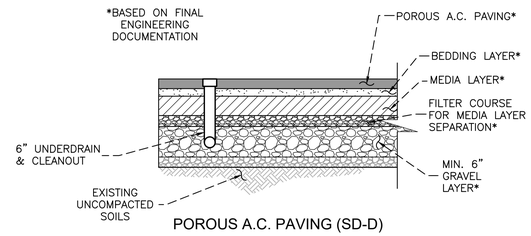
BMP2: BIOFILTRATION W/PARTIAL RETENTION (PR-1)

NO SCALE



BMP4: BIOFILTRATION (BF-1)

NO SCALE



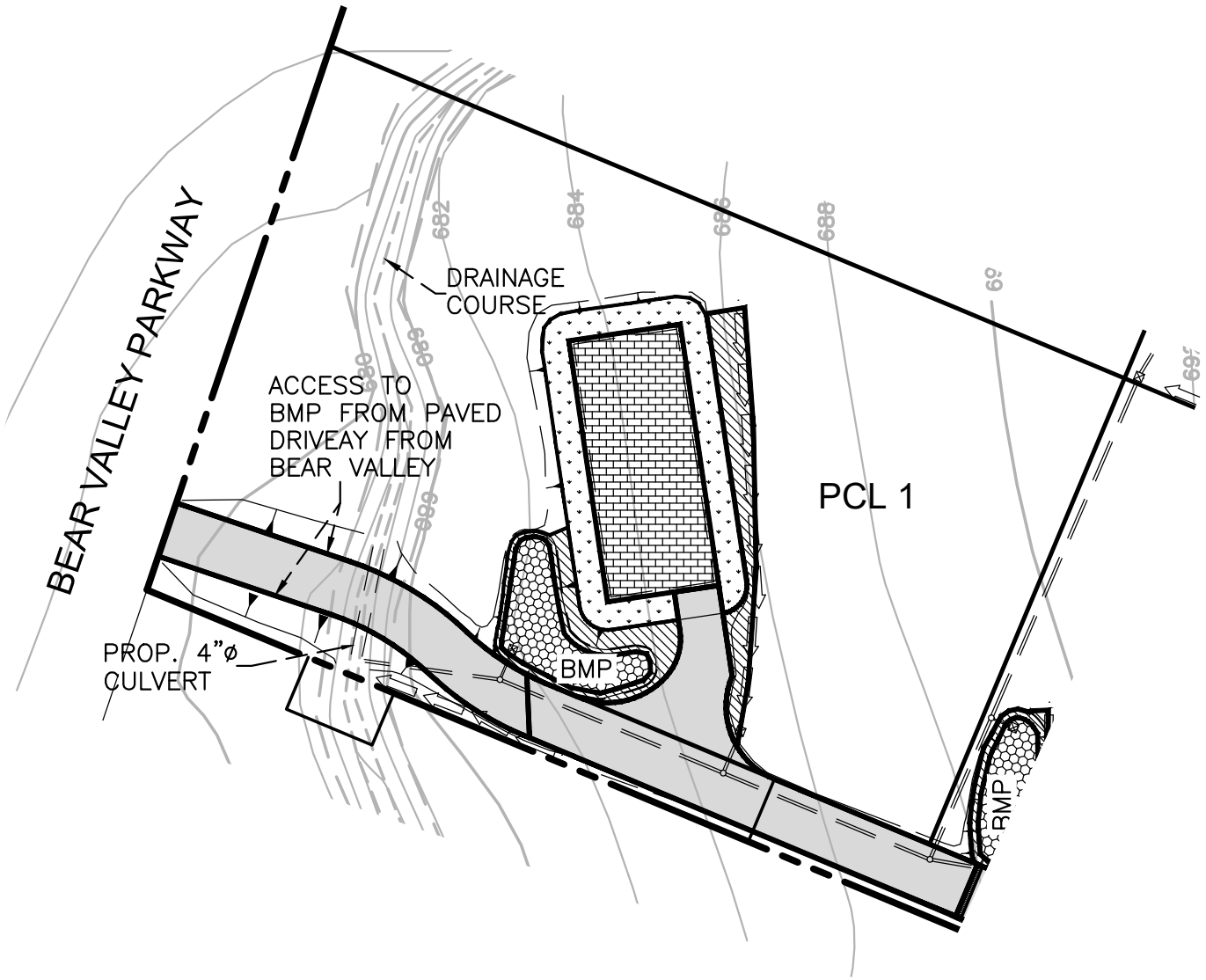
POROUS A.C. PAVING (SD-D)

(SEE DMA 40)
NO SCALE

ATTACHMENT 1D
INDIVIDUAL STRUCTURAL BMP DMA MAPBOOK
COUNTY OF SAN DIEGO TPM 21225
APN 234-120-66, PARCEL 1

SCALE: 1"=60'

N

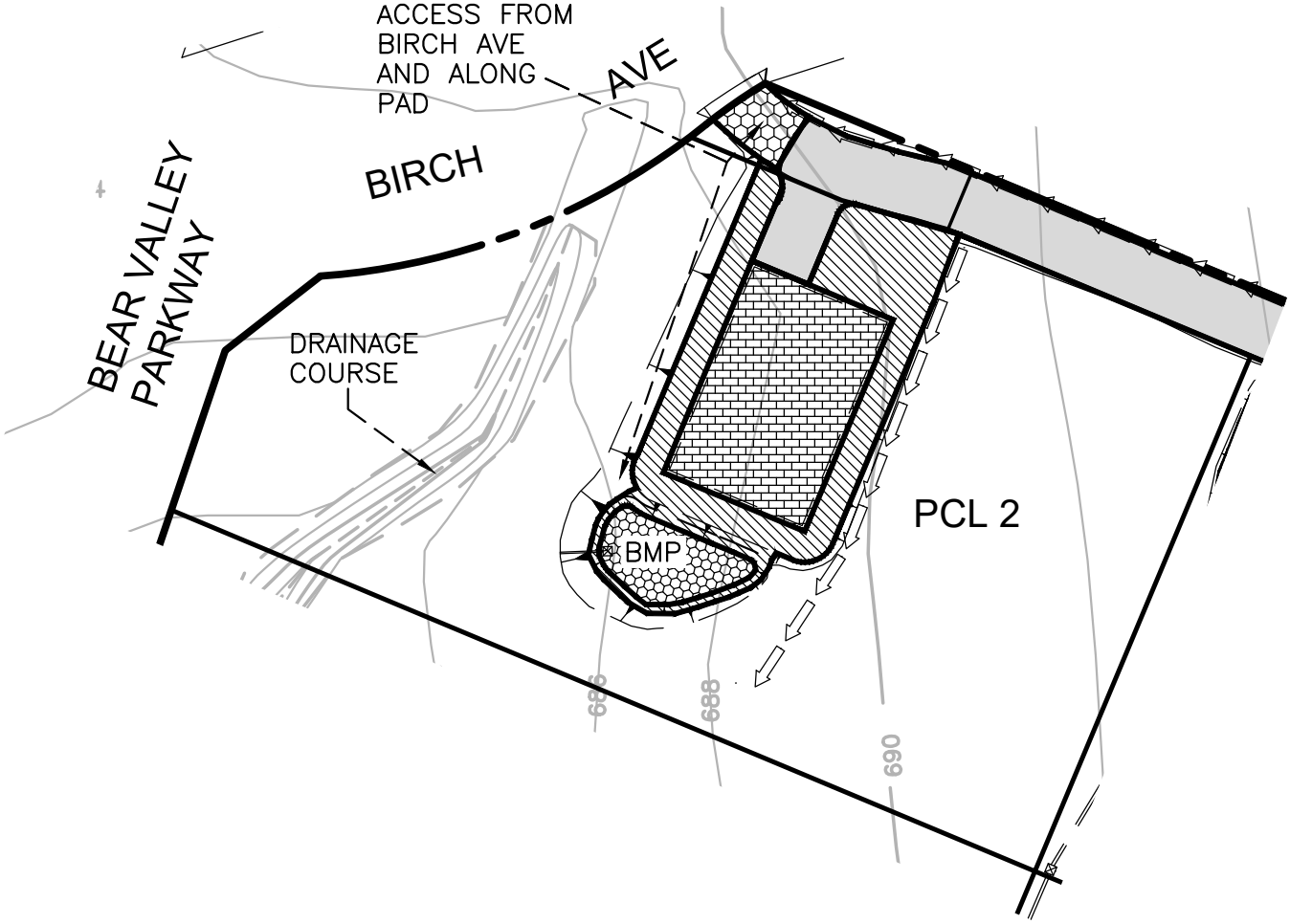


SURFACE TYPE	
LANDSCAPE	
IMPERVIOUS PAVING	
ROOFTOP	
NATURAL TERRAIN	

ATTACHMENT 1D
INDIVIDUAL STRUCTURAL BMP DMA MAPBOOK
COUNTY OF SAN DIEGO TPM 21225
APN 234-120-66, PARCEL 2

SCALE: 1"=60'

N

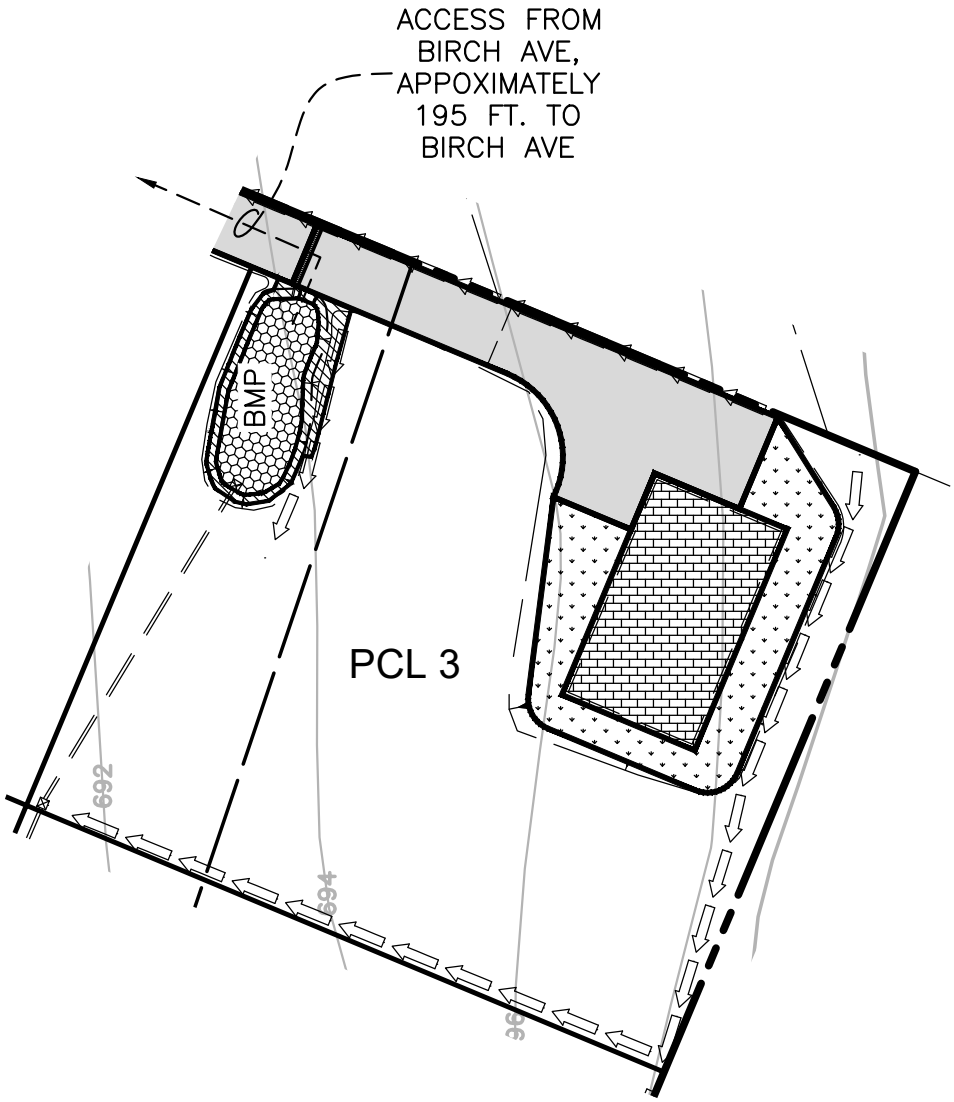


SURFACE TYPE	
LANDSCAPE	
IMPERVIOUS PAVING	
ROOFTOP	
PERVIOUS PAVING	

ATTACHMENT 1D
INDIVIDUAL STRUCTURAL BMP DMA MAPBOOK
COUNTY OF SAN DIEGO TPM 21225
APN 234-120-66, PARCEL 3

N

SCALE: 1"=60'

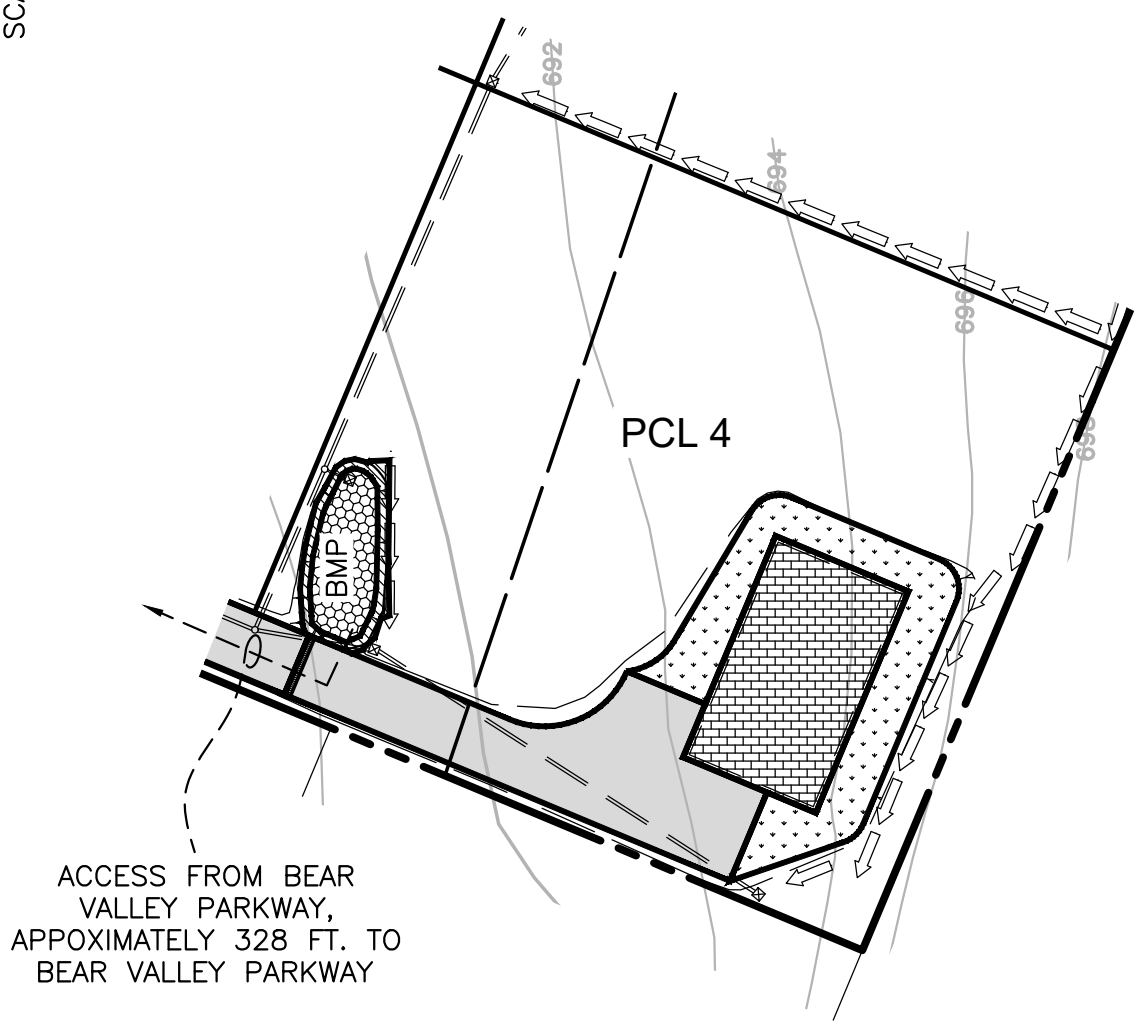


SURFACE TYPE	
LANDSCAPE	
IMPERVIOUS PAVING	
ROOFTOP	
NATURAL TERRAIN	

ATTACHMENT 1D
INDIVIDUAL STRUCTURAL BMP DMA MAPBOOK
COUNTY OF SAN DIEGO TPM 21225
APN 234-120-66, PARCEL 4

SCALE: 1"=60'

N



ACCESS FROM BEAR VALLEY PARKWAY, APPOXIMATELY 328 FT. TO BEAR VALLEY PARKWAY

SURFACE TYPE	
LANDSCAPE	
IMPERVIOUS PAVING	
ROOFTOP	
NATURAL TERRAIN	

ATTACHMENT 2

BACKUP FOR PDP HYDROMODIFICATION CONTROL MEASURES

This is the cover sheet for Attachment 2.

☐ Mark this box if this attachment is empty because the project is exempt from PDP hydromodification management requirements.

Indicate which Items are Included behind this cover sheet:

Attachment Sequence	Contents	Checklist
Attachment 2a	Flow Control Facility Design, including Structural BMP Drawdown Calculations and Overflow Design Summary (Required) See Chapter 6 and Appendix G of the BMP Design Manual	☑ Included ☐ Submitted as separate stand-alone document
Attachment 2b	Hydromodification Management Exhibit (Required)	☑ Included See Hydromodification Management Exhibit Checklist on the back of this Attachment cover sheet.
Attachment 2c	Management of Critical Coarse Sediment Yield Areas See Section 6.2 and Appendix H of the BMP Design Manual.	☐ Exhibit depicting onsite and/or upstream sources of critical coarse sediment as mapped by Regional or Jurisdictional approaches outlined in Appendix H.1 AND, ☑ Demonstration that the project effectively avoids and bypasses sources of mapped critical coarse sediment per approaches outlined in Appendix H.2 and H.3. OR, ☐ Demonstration that project does not generate a net impact on the receiving water per approaches outlined in Appendix H.4.
Attachment 2d	Geomorphic Assessment of Receiving Channels (Optional) See Section 6.3.4 of the BMP Design Manual.	☑ Not performed ☐ Included ☐ Submitted as separate stand-alone document
Attachment 2e	Vector Control Plan (Required when structural BMPs will not drain in 96 hours)	☐ Included ☑ Not required because BMPs will drain in less than 96 hours

Use this checklist to ensure the required information has been included on the Hydromodification Management Exhibit:

The Hydromodification Management Exhibit must identify:

☑ Underlying hydrologic soil group
☑ Approximate depth to groundwater
☑ Existing natural hydrologic features (watercourses, seeps, springs, wetlands)
☑ Critical coarse sediment yield areas to be protected
☑ Existing topography
☑ Existing and proposed site drainage network and connections to drainage offsite
☑ Proposed grading
☑ Proposed impervious features
☑ Proposed design features and surface treatments used to minimize imperviousness
☑ Point(s) of Compliance (POC) for Hydromodification Management
☑ Existing and proposed drainage boundary and drainage area to each POC (when necessary, create separate exhibits for pre-development and post-project conditions)
☑ Structural BMPs for hydromodification management (identify location, type of BMP, and size/detail)

SDHM 3.0

PROJECT REPORT

General Model Information

Project Name:	POC1
Site Name:	Steeve POC134
Site Address:	Bear Valley Parkway
City:	Escondido
Report Date:	3/28/2017
Gage:	ESCONDID
Data Start:	10/01/1964
Data End:	09/30/2004
Timestep:	Hourly
Precip Scale:	1.000
Version Date:	2016/11/23

POC Thresholds

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

Landuse Basin Data

Predeveloped Land Use

Basin 1

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
C,Dirt,Flat	3.137
C,Dirt,Steep	0.453
Pervious Total	3.59
Impervious Land Use	acre
Impervious Total	0
Basin Total	3.59

Element Flows To:

Surface	Interflow	Groundwater

Mitigated Land Use

Basin 1

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C,UrbNoIrr,Steep	0.029
C,UrbNoIrr,Flat	0.089
Pervious Total	0.118

Impervious Land Use	acre
IMPERVIOUS-FLAT	0.261
Impervious Total	0.261
Basin Total	0.379

Element Flows To:

Surface	Interflow	Groundwater
Surface BMP1	Surface BMP1	

Basin 3

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C,UrbNoIrr,Flat	0.081
C,Dirt,Flat	0.017
Pervious Total	0.098

Impervious Land Use	acre
IMPERVIOUS-FLAT	0.178
Impervious Total	0.178
Basin Total	0.276

Element Flows To:

Surface	Interflow	Groundwater
Surface BMP3	Surface BMP3	

Basin 4

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C,Dirt,Flat	0.011
C,UrbNoIrr,Flat	0.077
Pervious Total	0.088

Impervious Land Use	acre
IMPERVIOUS-FLAT	0.175
Impervious Total	0.175
Basin Total	0.263

Element Flows To:

Surface	Interflow	Groundwater
Surface BMP4	Surface BMP4	

Basin Bypass

Bypass:	Yes
GroundWater:	No
Pervious Land Use	acre
C,Dirt,Steep	0.35
C,UrbNoIrr,Flat	2.242
Pervious Total	2.592
Impervious Land Use	acre
Impervious Total	0
Basin Total	2.592

Element Flows To:

Surface	Interflow	Groundwater

Routing Elements
Predeveloped Routing

Mitigated Routing

BMP1

Bottom Length:	60.00 ft.
Bottom Width:	20.00 ft.
Material thickness of first layer:	1.5
Material type for first layer:	Amended 5 in/hr
Material thickness of second layer:	1.5
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Underdrain used	
Underdrain Diameter (feet):	0.67
Orifice Diameter (in.):	0.42
Offset (in.):	3
Flow Through Underdrain (ac-ft.):	9.553
Total Outflow (ac-ft.):	10.495
Percent Through Underdrain:	91.03
Discharge Structure	
Riser Height:	1 ft.
Riser Diameter:	36 in.
Element Flows To:	
Outlet 1	Outlet 2

Landscape Swale Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0602	0.0000	0.0000	0.0000
0.0495	0.0598	0.0003	0.0000	0.0000
0.0989	0.0592	0.0006	0.0000	0.0000
0.1484	0.0586	0.0009	0.0000	0.0000
0.1978	0.0580	0.0012	0.0000	0.0000
0.2473	0.0574	0.0015	0.0000	0.0000
0.2967	0.0568	0.0018	0.0000	0.0000
0.3462	0.0562	0.0021	0.0000	0.0000
0.3956	0.0557	0.0024	0.0000	0.0000
0.4451	0.0551	0.0028	0.0000	0.0000
0.4945	0.0545	0.0031	0.0000	0.0000
0.5440	0.0539	0.0035	0.0000	0.0000
0.5934	0.0533	0.0038	0.0000	0.0000
0.6429	0.0528	0.0041	0.0000	0.0000
0.6923	0.0522	0.0045	0.0000	0.0000
0.7418	0.0516	0.0049	0.0000	0.0000
0.7912	0.0511	0.0052	0.0000	0.0000
0.8407	0.0505	0.0056	0.0000	0.0000
0.8901	0.0499	0.0060	0.0000	0.0000
0.9396	0.0494	0.0064	0.0000	0.0000
0.9890	0.0488	0.0067	0.0000	0.0000
1.0385	0.0482	0.0071	0.0000	0.0000
1.0879	0.0477	0.0075	0.0000	0.0000
1.1374	0.0471	0.0079	0.0000	0.0000
1.1868	0.0466	0.0083	0.0000	0.0000
1.2363	0.0460	0.0088	0.0000	0.0000
1.2857	0.0455	0.0092	0.0000	0.0000
1.3352	0.0449	0.0096	0.0000	0.0000
1.3846	0.0444	0.0100	0.0000	0.0000

1.4341	0.0438	0.0105	0.0000	0.0000
1.4835	0.0433	0.0109	0.0000	0.0000
1.5330	0.0428	0.0113	0.0000	0.0000
1.5824	0.0422	0.0118	0.0000	0.0000
1.6319	0.0417	0.0122	0.0000	0.0000
1.6813	0.0412	0.0127	0.0000	0.0000
1.7308	0.0406	0.0132	0.0000	0.0000
1.7802	0.0401	0.0136	0.0000	0.0000
1.8297	0.0396	0.0141	0.0000	0.0000
1.8791	0.0390	0.0146	0.0000	0.0000
1.9286	0.0385	0.0151	0.0000	0.0000
1.9780	0.0380	0.0156	0.0000	0.0000
2.0275	0.0375	0.0161	0.0000	0.0000
2.0769	0.0370	0.0166	0.0000	0.0000
2.1264	0.0365	0.0171	0.0000	0.0000
2.1758	0.0359	0.0176	0.0000	0.0000
2.2253	0.0354	0.0181	0.0000	0.0000
2.2747	0.0349	0.0186	0.0000	0.0000
2.3242	0.0344	0.0192	0.0000	0.0000
2.3736	0.0339	0.0197	0.0000	0.0000
2.4231	0.0334	0.0203	0.0000	0.0000
2.4725	0.0329	0.0208	0.0000	0.0000
2.5220	0.0324	0.0214	0.0000	0.0000
2.5714	0.0319	0.0219	0.0000	0.0000
2.6209	0.0314	0.0225	0.0000	0.0000
2.6703	0.0309	0.0231	0.0000	0.0000
2.7198	0.0304	0.0237	0.0000	0.0000
2.7692	0.0300	0.0242	0.0000	0.0000
2.8187	0.0295	0.0248	0.0000	0.0000
2.8681	0.0290	0.0254	0.0000	0.0000
2.9176	0.0285	0.0260	0.0000	0.0000
2.9670	0.0280	0.0266	0.0000	0.0000
3.0000	0.0275	0.0271	0.0000	0.0000

Landscape Swale Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
3.0000	0.0602	0.0271	0.0000	0.1469	0.0000
3.0495	0.0608	0.0300	0.0000	0.1469	0.0000
3.0989	0.0614	0.0331	0.0000	0.1515	0.0000
3.1484	0.0620	0.0361	0.0000	0.1562	0.0000
3.1978	0.0626	0.0392	0.0000	0.1609	0.0000
3.2473	0.0632	0.0423	0.0000	0.1656	0.0000
3.2967	0.0638	0.0455	0.0000	0.1703	0.0000
3.3462	0.0644	0.0486	0.0000	0.1750	0.0000
3.3956	0.0651	0.0518	0.0000	0.1797	0.0000
3.4451	0.0657	0.0551	0.0000	0.1844	0.0000
3.4945	0.0663	0.0583	0.0000	0.1890	0.0000
3.5440	0.0669	0.0616	0.0000	0.1937	0.0000
3.5934	0.0675	0.0649	0.0000	0.1984	0.0000
3.6429	0.0682	0.0683	0.0007	0.2031	0.0000
3.6923	0.0688	0.0717	0.0011	0.2078	0.0000
3.7418	0.0694	0.0751	0.0013	0.2125	0.0000
3.7912	0.0700	0.0785	0.0015	0.2172	0.0000
3.8407	0.0707	0.0820	0.0017	0.2218	0.0000
3.8901	0.0713	0.0855	0.0019	0.2265	0.0000
3.9396	0.0719	0.0891	0.0020	0.2312	0.0000
3.9890	0.0726	0.0926	0.0021	0.2359	0.0000
4.0385	0.0732	0.0963	0.0023	0.2406	0.0000

4.0879	0.0739	0.0999	0.0024	0.2453	0.0000
4.1374	0.0745	0.1036	0.0025	0.2500	0.0000
4.1868	0.0752	0.1073	0.0026	0.2547	0.0000
4.2363	0.0758	0.1110	0.0027	0.2593	0.0000
4.2857	0.0765	0.1148	0.0028	0.2640	0.0000
4.3352	0.0771	0.1186	0.0029	0.2687	0.0000
4.3846	0.0778	0.1224	0.0030	0.2734	0.0000
4.4341	0.0784	0.1262	0.0031	0.2781	0.0000
4.4835	0.0791	0.1301	0.0032	0.2828	0.0000
4.5000	0.0793	0.1314	0.0033	0.2843	0.0000

Surface BMP1

Element Flows To:

Outlet 1	Outlet 2
	BMP1

BMP3

Bottom Length:	65.00 ft.
Bottom Width:	20.00 ft.
Material thickness of first layer:	1.5
Material type for first layer:	Amended 5 in/hr
Material thickness of second layer:	1.25
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Underdrain used	
Underdrain Diameter (feet):	0.67
Orifice Diameter (in.):	0.4
Offset (in.):	3
Flow Through Underdrain (ac-ft.):	6.751
Total Outflow (ac-ft.):	7.203
Percent Through Underdrain:	93.72
Discharge Structure	
Riser Height:	1 ft.
Riser Diameter:	36 in.
Element Flows To:	
Outlet 1	Outlet 2

Landscape Swale Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0614	0.0000	0.0000	0.0000
0.0467	0.0609	0.0003	0.0000	0.0000
0.0934	0.0603	0.0006	0.0000	0.0000
0.1401	0.0597	0.0009	0.0000	0.0000
0.1868	0.0591	0.0012	0.0000	0.0000
0.2335	0.0585	0.0015	0.0000	0.0000
0.2802	0.0579	0.0018	0.0000	0.0000
0.3269	0.0574	0.0022	0.0000	0.0000
0.3736	0.0568	0.0025	0.0000	0.0000
0.4203	0.0562	0.0028	0.0000	0.0000
0.4670	0.0556	0.0032	0.0000	0.0000
0.5137	0.0551	0.0035	0.0000	0.0000
0.5604	0.0545	0.0039	0.0000	0.0000
0.6071	0.0539	0.0042	0.0000	0.0000
0.6538	0.0534	0.0046	0.0000	0.0000
0.7005	0.0528	0.0049	0.0000	0.0000
0.7473	0.0523	0.0053	0.0000	0.0000
0.7940	0.0517	0.0057	0.0000	0.0000
0.8407	0.0511	0.0061	0.0000	0.0000
0.8874	0.0506	0.0064	0.0000	0.0000
0.9341	0.0500	0.0068	0.0000	0.0000
0.9808	0.0495	0.0072	0.0000	0.0000
1.0275	0.0489	0.0076	0.0000	0.0000
1.0742	0.0484	0.0080	0.0000	0.0000
1.1209	0.0478	0.0084	0.0000	0.0000
1.1676	0.0473	0.0088	0.0000	0.0000
1.2143	0.0467	0.0093	0.0000	0.0000
1.2610	0.0462	0.0097	0.0000	0.0000
1.3077	0.0457	0.0101	0.0000	0.0000
1.3544	0.0451	0.0105	0.0000	0.0000
1.4011	0.0446	0.0110	0.0000	0.0000

1.4478	0.0441	0.0114	0.0000	0.0000
1.4945	0.0435	0.0119	0.0000	0.0000
1.5412	0.0430	0.0123	0.0000	0.0000
1.5879	0.0425	0.0128	0.0000	0.0000
1.6346	0.0419	0.0133	0.0000	0.0000
1.6813	0.0414	0.0137	0.0000	0.0000
1.7280	0.0409	0.0142	0.0000	0.0000
1.7747	0.0404	0.0147	0.0000	0.0000
1.8214	0.0399	0.0151	0.0000	0.0000
1.8681	0.0393	0.0156	0.0000	0.0000
1.9148	0.0388	0.0161	0.0000	0.0000
1.9615	0.0383	0.0166	0.0000	0.0000
2.0082	0.0378	0.0171	0.0000	0.0000
2.0549	0.0373	0.0176	0.0000	0.0000
2.1016	0.0368	0.0182	0.0000	0.0000
2.1484	0.0363	0.0187	0.0000	0.0000
2.1951	0.0358	0.0192	0.0000	0.0000
2.2418	0.0353	0.0197	0.0000	0.0000
2.2885	0.0348	0.0203	0.0000	0.0000
2.3352	0.0343	0.0208	0.0000	0.0000
2.3819	0.0338	0.0214	0.0000	0.0000
2.4286	0.0333	0.0219	0.0000	0.0000
2.4753	0.0328	0.0225	0.0000	0.0000
2.5220	0.0323	0.0230	0.0000	0.0000
2.5687	0.0318	0.0236	0.0000	0.0000
2.6154	0.0313	0.0242	0.0000	0.0000
2.6621	0.0308	0.0248	0.0000	0.0000
2.7088	0.0303	0.0253	0.0000	0.0000
2.7500	0.0298	0.0259	0.0000	0.0000

Landscape Swale Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
2.7500	0.0614	0.0259	0.0000	0.1588	0.0000
2.7967	0.0620	0.0288	0.0000	0.1588	0.0000
2.8434	0.0626	0.0317	0.0000	0.1636	0.0000
2.8901	0.0632	0.0346	0.0000	0.1684	0.0000
2.9368	0.0637	0.0376	0.0000	0.1732	0.0000
2.9835	0.0643	0.0405	0.0000	0.1780	0.0000
3.0302	0.0649	0.0436	0.0000	0.1828	0.0000
3.0769	0.0655	0.0466	0.0000	0.1876	0.0000
3.1236	0.0661	0.0497	0.0000	0.1924	0.0000
3.1703	0.0667	0.0528	0.0000	0.1972	0.0000
3.2170	0.0674	0.0559	0.0000	0.2020	0.0000
3.2637	0.0680	0.0591	0.0000	0.2068	0.0000
3.3104	0.0686	0.0623	0.0000	0.2116	0.0000
3.3571	0.0692	0.0655	0.0004	0.2164	0.0000
3.4038	0.0698	0.0687	0.0008	0.2212	0.0000
3.4505	0.0704	0.0720	0.0010	0.2259	0.0000
3.4973	0.0710	0.0753	0.0012	0.2307	0.0000
3.5440	0.0716	0.0786	0.0014	0.2355	0.0000
3.5907	0.0723	0.0820	0.0015	0.2403	0.0000
3.6374	0.0729	0.0854	0.0017	0.2451	0.0000
3.6841	0.0735	0.0888	0.0018	0.2499	0.0000
3.7308	0.0741	0.0923	0.0019	0.2547	0.0000
3.7775	0.0748	0.0957	0.0020	0.2595	0.0000
3.8242	0.0754	0.0992	0.0021	0.2643	0.0000
3.8709	0.0760	0.1028	0.0022	0.2691	0.0000
3.9176	0.0767	0.1063	0.0023	0.2739	0.0000

3.9643	0.0773	0.1099	0.0024	0.2787	0.0000
4.0110	0.0779	0.1136	0.0025	0.2835	0.0000
4.0577	0.0786	0.1172	0.0026	0.2883	0.0000
4.1044	0.0792	0.1209	0.0027	0.2931	0.0000
4.1511	0.0798	0.1246	0.0028	0.2979	0.0000
4.1978	0.0805	0.1284	0.0029	0.3027	0.0000
4.2445	0.0811	0.1321	0.0029	0.3075	0.0000
4.2500	0.0812	0.1326	0.0030	0.3080	0.0000

Surface BMP3

Element Flows To:

Outlet 1	Outlet 2
	BMP3

BMP4

Bottom Length:	50.00 ft.
Bottom Width:	20.00 ft.
Material thickness of first layer:	1.5
Material type for first layer:	Amended 5 in/hr
Material thickness of second layer:	1.5
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Underdrain used	
Underdrain Diameter (feet):	0.67
Orifice Diameter (in.):	0.35
Offset (in.):	3
Flow Through Underdrain (ac-ft.):	6.512
Total Outflow (ac-ft.):	7.038
Percent Through Underdrain:	92.52
Discharge Structure	
Riser Height:	1 ft.
Riser Diameter:	36 in.
Element Flows To:	
Outlet 1	Outlet 2

Landscape Swale Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0515	0.0000	0.0000	0.0000
0.0495	0.0511	0.0002	0.0000	0.0000
0.0989	0.0506	0.0005	0.0000	0.0000
0.1484	0.0501	0.0007	0.0000	0.0000
0.1978	0.0495	0.0010	0.0000	0.0000
0.2473	0.0490	0.0012	0.0000	0.0000
0.2967	0.0485	0.0015	0.0000	0.0000
0.3462	0.0480	0.0018	0.0000	0.0000
0.3956	0.0475	0.0020	0.0000	0.0000
0.4451	0.0469	0.0023	0.0000	0.0000
0.4945	0.0464	0.0026	0.0000	0.0000
0.5440	0.0459	0.0029	0.0000	0.0000
0.5934	0.0454	0.0032	0.0000	0.0000
0.6429	0.0449	0.0035	0.0000	0.0000
0.6923	0.0444	0.0038	0.0000	0.0000
0.7418	0.0439	0.0041	0.0000	0.0000
0.7912	0.0434	0.0044	0.0000	0.0000
0.8407	0.0429	0.0047	0.0000	0.0000
0.8901	0.0424	0.0050	0.0000	0.0000
0.9396	0.0419	0.0053	0.0000	0.0000
0.9890	0.0414	0.0056	0.0000	0.0000
1.0385	0.0409	0.0060	0.0000	0.0000
1.0879	0.0404	0.0063	0.0000	0.0000
1.1374	0.0399	0.0066	0.0000	0.0000
1.1868	0.0395	0.0070	0.0000	0.0000
1.2363	0.0390	0.0073	0.0000	0.0000
1.2857	0.0385	0.0077	0.0000	0.0000
1.3352	0.0380	0.0081	0.0000	0.0000
1.3846	0.0375	0.0084	0.0000	0.0000
1.4341	0.0371	0.0088	0.0000	0.0000
1.4835	0.0366	0.0092	0.0000	0.0000

1.5330	0.0361	0.0095	0.0000	0.0000
1.5824	0.0357	0.0099	0.0000	0.0000
1.6319	0.0352	0.0103	0.0000	0.0000
1.6813	0.0347	0.0107	0.0000	0.0000
1.7308	0.0343	0.0111	0.0000	0.0000
1.7802	0.0338	0.0115	0.0000	0.0000
1.8297	0.0333	0.0119	0.0000	0.0000
1.8791	0.0329	0.0123	0.0000	0.0000
1.9286	0.0324	0.0127	0.0000	0.0000
1.9780	0.0320	0.0131	0.0000	0.0000
2.0275	0.0315	0.0135	0.0000	0.0000
2.0769	0.0311	0.0140	0.0000	0.0000
2.1264	0.0306	0.0144	0.0000	0.0000
2.1758	0.0302	0.0148	0.0000	0.0000
2.2253	0.0298	0.0153	0.0000	0.0000
2.2747	0.0293	0.0157	0.0000	0.0000
2.3242	0.0289	0.0162	0.0000	0.0000
2.3736	0.0284	0.0166	0.0000	0.0000
2.4231	0.0280	0.0171	0.0000	0.0000
2.4725	0.0276	0.0176	0.0000	0.0000
2.5220	0.0271	0.0180	0.0000	0.0000
2.5714	0.0267	0.0185	0.0000	0.0000
2.6209	0.0263	0.0190	0.0000	0.0000
2.6703	0.0259	0.0195	0.0000	0.0000
2.7198	0.0254	0.0200	0.0000	0.0000
2.7692	0.0250	0.0205	0.0000	0.0000
2.8187	0.0246	0.0210	0.0000	0.0000
2.8681	0.0242	0.0215	0.0000	0.0000
2.9176	0.0238	0.0220	0.0000	0.0000
2.9670	0.0234	0.0225	0.0000	0.0000
3.0000	0.0230	0.0229	0.0000	0.0000

Landscape Swale Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
3.0000	0.0515	0.0229	0.0000	0.1224	0.0000
3.0495	0.0520	0.0254	0.0000	0.1224	0.0000
3.0989	0.0525	0.0280	0.0000	0.1263	0.0000
3.1484	0.0531	0.0306	0.0000	0.1302	0.0000
3.1978	0.0536	0.0333	0.0000	0.1341	0.0000
3.2473	0.0542	0.0359	0.0000	0.1380	0.0000
3.2967	0.0547	0.0386	0.0000	0.1419	0.0000
3.3462	0.0552	0.0414	0.0000	0.1458	0.0000
3.3956	0.0558	0.0441	0.0000	0.1497	0.0000
3.4451	0.0563	0.0469	0.0000	0.1536	0.0000
3.4945	0.0569	0.0497	0.0000	0.1575	0.0000
3.5440	0.0574	0.0525	0.0000	0.1614	0.0000
3.5934	0.0580	0.0554	0.0000	0.1653	0.0000
3.6429	0.0585	0.0582	0.0005	0.1692	0.0000
3.6923	0.0591	0.0611	0.0007	0.1732	0.0000
3.7418	0.0597	0.0641	0.0009	0.1771	0.0000
3.7912	0.0602	0.0670	0.0010	0.1810	0.0000
3.8407	0.0608	0.0700	0.0012	0.1849	0.0000
3.8901	0.0614	0.0731	0.0013	0.1888	0.0000
3.9396	0.0619	0.0761	0.0014	0.1927	0.0000
3.9890	0.0625	0.0792	0.0015	0.1966	0.0000
4.0385	0.0631	0.0823	0.0016	0.2005	0.0000
4.0879	0.0636	0.0854	0.0017	0.2044	0.0000
4.1374	0.0642	0.0886	0.0017	0.2083	0.0000

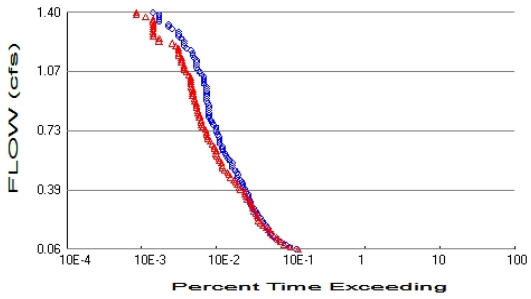
4.1868	0.0648	0.0918	0.0018	0.2122	0.0000
4.2363	0.0654	0.0950	0.0019	0.2161	0.0000
4.2857	0.0660	0.0982	0.0020	0.2200	0.0000
4.3352	0.0666	0.1015	0.0020	0.2239	0.0000
4.3846	0.0671	0.1048	0.0021	0.2278	0.0000
4.4341	0.0677	0.1082	0.0022	0.2317	0.0000
4.4835	0.0683	0.1115	0.0022	0.2356	0.0000
4.5000	0.0685	0.1126	0.0023	0.2369	0.0000

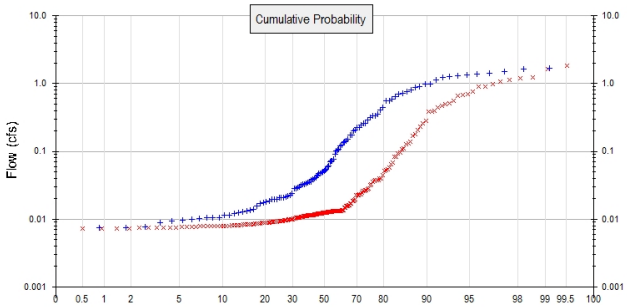
Surface BMP4

Element Flows To:

Outlet 1	Outlet 2
	BMP4

Analysis Results
POC 1





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1
Total Pervious Area: 3.59
Total Impervious Area: 0

Mitigated Landuse Totals for POC #1
Total Pervious Area: 2.896
Total Impervious Area: 0.614

Flow Frequency Method: Weibull

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	**Flow(cfs)**
2 year	0.576758
5 year	1.250732
10 year	1.40212
25 year	1.649699

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	**Flow(cfs)**
2 year	0.387722
5 year	0.903265
10 year	1.179955
25 year	1.653318

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0577	417	441	105	Pass
0.0713	341	346	101	Pass
0.0848	303	288	95	Pass
0.0984	255	254	99	Pass
0.1120	221	239	108	Pass
0.1256	210	227	108	Pass
0.1392	196	204	104	Pass
0.1527	188	188	100	Pass
0.1663	178	177	99	Pass
0.1799	169	164	97	Pass
0.1935	162	148	91	Pass
0.2071	152	140	92	Pass
0.2206	146	131	89	Pass
0.2342	136	127	93	Pass
0.2478	129	125	96	Pass
0.2614	125	119	95	Pass
0.2750	119	113	94	Pass
0.2885	111	110	99	Pass
0.3021	105	107	101	Pass
0.3157	102	105	102	Pass
0.3293	101	100	99	Pass
0.3429	97	92	94	Pass
0.3564	95	88	92	Pass
0.3700	93	86	92	Pass
0.3836	88	85	96	Pass
0.3972	86	75	87	Pass
0.4108	82	71	86	Pass
0.4243	80	67	83	Pass
0.4379	78	64	82	Pass
0.4515	73	60	82	Pass
0.4651	69	55	79	Pass
0.4787	68	52	76	Pass
0.4922	66	50	75	Pass
0.5058	63	45	71	Pass
0.5194	58	43	74	Pass
0.5330	58	42	72	Pass
0.5466	58	41	70	Pass
0.5601	53	39	73	Pass
0.5737	50	38	76	Pass
0.5873	48	36	75	Pass
0.6009	46	35	76	Pass
0.6145	43	35	81	Pass
0.6280	42	33	78	Pass
0.6416	42	33	78	Pass
0.6552	40	31	77	Pass
0.6688	39	29	74	Pass
0.6824	39	27	69	Pass
0.6959	38	27	71	Pass
0.7095	37	26	70	Pass
0.7231	36	26	72	Pass
0.7367	35	25	71	Pass
0.7503	35	23	65	Pass
0.7638	32	22	68	Pass

0.7774	31	22	70	Pass
0.7910	30	22	73	Pass
0.8046	28	21	75	Pass
0.8182	28	21	75	Pass
0.8317	28	20	71	Pass
0.8453	28	20	71	Pass
0.8589	28	19	67	Pass
0.8725	28	19	67	Pass
0.8861	27	19	70	Pass
0.8997	26	18	69	Pass
0.9132	26	18	69	Pass
0.9268	26	17	65	Pass
0.9404	26	17	65	Pass
0.9540	26	17	65	Pass
0.9676	26	17	65	Pass
0.9811	26	16	61	Pass
0.9947	24	16	66	Pass
1.0083	24	16	66	Pass
1.0219	24	16	66	Pass
1.0355	24	16	66	Pass
1.0490	23	15	65	Pass
1.0626	21	14	66	Pass
1.0762	20	13	65	Pass
1.0898	19	13	68	Pass
1.1034	19	13	68	Pass
1.1169	19	12	63	Pass
1.1305	19	12	63	Pass
1.1441	18	12	66	Pass
1.1577	17	11	64	Pass
1.1713	17	11	64	Pass
1.1848	16	11	68	Pass
1.1984	14	11	78	Pass
1.2120	13	10	76	Pass
1.2256	13	9	69	Pass
1.2392	13	6	46	Pass
1.2527	12	6	50	Pass
1.2663	11	5	45	Pass
1.2799	11	5	45	Pass
1.2935	11	5	45	Pass
1.3071	9	5	55	Pass
1.3206	8	5	62	Pass
1.3342	8	5	62	Pass
1.3478	6	5	83	Pass
1.3614	6	5	83	Pass
1.3750	6	4	66	Pass
1.3885	6	3	50	Pass
1.4021	5	3	60	Pass

Water Quality

Drawdown Time Results

Pond: BMP1

Days	Stage(feet)	Percent of Total Run Time
1	1.217	6.1621
2	1.963	4.1079
3	2.794	2.5165
4	3.000	N/A
5	3.000	N/A

Maximum Stage: 3.001 Drawdown Time: Exceeds 5 days.

Pond: BMP3

Days	Stage(feet)	Percent of Total Run Time
1	1.043	5.3279
2	1.621	3.4006
3	2.298	2.0508
4	2.750	N/A
5	2.750	N/A

Maximum Stage: 2.751 Drawdown Time: Exceeds 5 days.

Pond: BMP4

Days	Stage(feet)	Percent of Total Run Time
1	1.106	6.4636
2	1.685	4.5009
3	2.347	2.9948
4	3.000	N/A
5	3.000	N/A

Maximum Stage: 3.001 Drawdown Time: Exceeds 5 days.

Model Default Modifications

Total of 0 changes have been made.

PERLND Changes

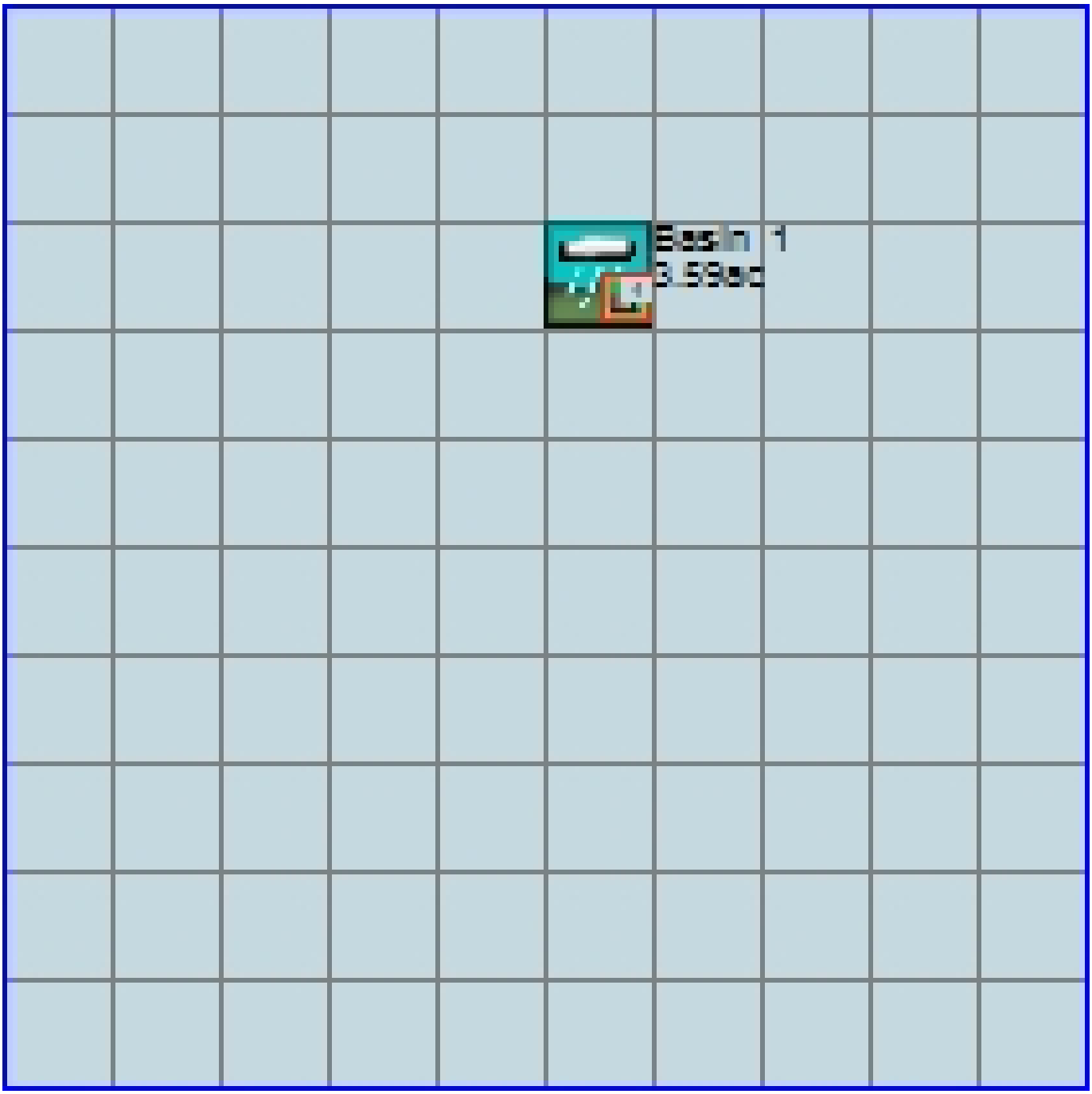
No PERLND changes have been made.

IMPLND Changes

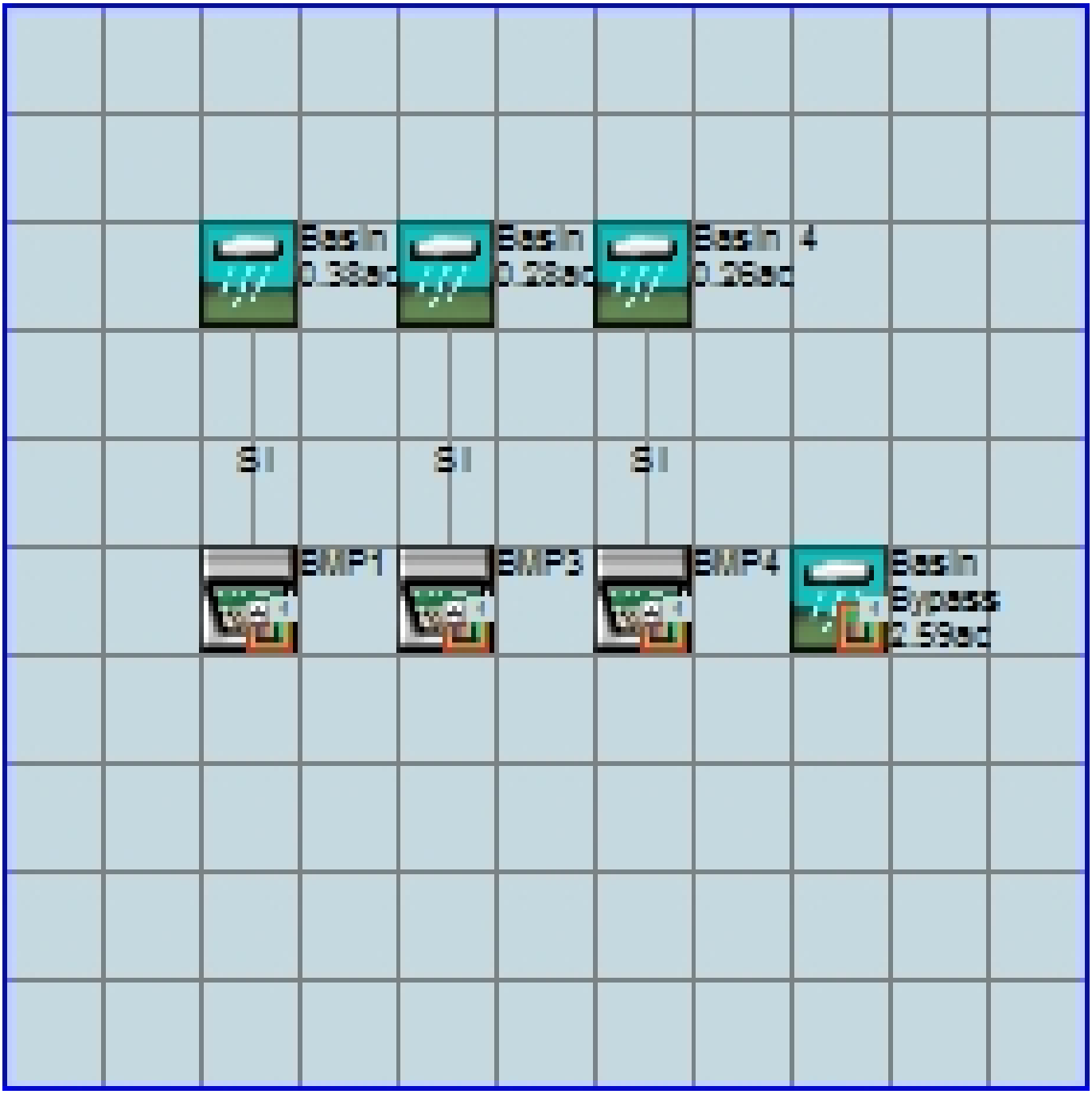
No IMPLND changes have been made.

Appendix

Predeveloped Schematic



Mitigated Schematic



Predeveloped UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1964 10 01        END    2004 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                   UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                              ***
WDM         26   POC1.wdm
MESSU       25   PrePOC1.MES
            27   PrePOC1.L61
            28   PrePOC1.L62
            30   POCPOC11.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:60
      PERLND      22
      PERLND      24
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Basin  1                   MAX                    1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                       in  out           ***
   22      C,Dirt,Flat            1    1    1    1   27    0
   24      C,Dirt,Steep           1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************ Active Sections ****************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   22         0    0    1    0    0    0    0    0    0    0    0    0
   24         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags **************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
```

```
 22         0    0    4    0    0    0    0    0    0    0    0    0    1    9
 24         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
 22         0    1    1    1    0    0    0    0    1    1    0
 24         0    1    1    1    0    0    0    0    1    1    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
 22              0       4.8     0.045       200      0.05       2.5     0.915
 24              0       4.2      0.03       150      0.15       2.5     0.915
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
 22              0         0         2         2         0      0.05      0.05
 24              0         0         2         2         0      0.05      0.05
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                              ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
 22              0       0.6       0.2       1.5       0.7         0
 24              0       0.6       0.2       1.5       0.7         0
  END PWAT-PARM4
  MON-LZETPARM
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
 22       0.4  0.4  0.4  0.4  0.6  0.6  0.6  0.6  0.6  0.4  0.4  0.4
 24       0.4  0.4  0.4  0.4  0.6  0.6  0.6  0.6  0.6  0.4  0.4  0.4
  END MON-LZETPARM
  MON-INTERCEP
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
 22       0.1  0.1  0.1  0.1 0.06 0.06 0.06 0.06 0.06  0.1  0.1  0.1
 24       0.1  0.1  0.1  0.1 0.06 0.06 0.06 0.06 0.06  0.1  0.1  0.1
  END MON-INTERCEP

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
               ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS       IFWS       LZS       AGWS       GWVS
 22              0         0      0.01          0       0.4       0.01          0
 24              0         0      0.01          0       0.4       0.01          0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                     in  out           ***
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************ Active Sections ******************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
  END PRINT-INFO
```

```
  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
Basin  1***
PERLND  22                       3.137     COPY   501     12
PERLND  22                       3.137     COPY   501     13
PERLND  24                       0.453     COPY   501     12
PERLND  24                       0.453     COPY   501     13

******Routing******
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   12.1        DISPLY   1     INPUT  TIMSER 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                ***
    # -  #<----------------><---> User T-series  Engl Metr LKFG             ***
                                      in  out                               ***
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************ Active Sections ****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ****************** PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                 ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
            FG FG FG FG  possible  exit  *** possible  exit      possible  exit
             *  *  *  *    *  *  *  *  *       *  *  *  *  *         ***
  END HYDR-PARM1
```

```
  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><--------><--------> ***
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                          ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
         *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><---><--->
  END HYDR-INIT
END RCHRES

SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1              PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1              IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    1              PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    1              IMPLND   1 999 EXTNL  PETINP

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
COPY   501 OUTPUT MEAN   1 1     12.1      WDM    501 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>            <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK       12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   12

  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13


END MASS-LINK

END RUN
```

Mitigated UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1964 10 01        END    2004 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                    UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                              ***
WDM         26   POC1.wdm
MESSU       25   MitPOC1.MES
            27   MitPOC1.L61
            28   MitPOC1.L62
            30   POCPOC11.dat
END FILES

OPN SEQUENCE
    INGRP               INDELT 00:60
      PERLND      57
      PERLND      55
      IMPLND       1
      PERLND      22
      PERLND      24
      GENER        2
      RCHRES       1
      RCHRES       2
      GENER        4
      RCHRES       3
      RCHRES       4
      GENER        6
      RCHRES       5
      RCHRES       6
      COPY         1
      COPY       501
      COPY       601
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Surface BMP1               MAX                    1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  601         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
    2        24
    4        24
    6        24
  END OPCODE
  PARM
    #    #         K ***
    2             0.
    4             0.
    6             0.
  END PARM
```

```
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                        in  out           ***
   57      C,UrbNoIrr,Steep       1    1    1    1   27    0
   55      C,UrbNoIrr,Flat        1    1    1    1   27    0
   22      C,Dirt,Flat            1    1    1    1   27    0
   24      C,Dirt,Steep           1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************ Active Sections ******************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   57         0    0    1    0    0    0    0    0    0    0    0    0
   55         0    0    1    0    0    0    0    0    0    0    0    0
   22         0    0    1    0    0    0    0    0    0    0    0    0
   24         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ***************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   57         0    0    4    0    0    0    0    0    0    0    0    0    1    9
   55         0    0    4    0    0    0    0    0    0    0    0    0    1    9
   22         0    0    4    0    0    0    0    0    0    0    0    0    1    9
   24         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   57         0    1    1    1    0    0    0    0    1    1    0
   55         0    1    1    1    0    0    0    0    1    1    0
   22         0    1    1    1    0    0    0    0    1    1    0
   24         0    1    1    1    0    0    0    0    1    1    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   57              0       4.2      0.03       150      0.15       2.5     0.915
   55              0       4.8      0.05       200      0.05       2.5     0.915
   22              0       4.8     0.045       200      0.05       2.5     0.915
   24              0       4.2      0.03       150      0.15       2.5     0.915
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   57              0         0         2         2         0      0.05      0.05
   55              0         0         2         2         0      0.05      0.05
   22              0         0         2         2         0      0.05      0.05
   24              0         0         2         2         0      0.05      0.05
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                          ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   57              0       0.6       0.2       1.5       0.7         0
   55              0       0.6       0.2       1.5       0.7         0
   22              0       0.6       0.2       1.5       0.7         0
   24              0       0.6       0.2       1.5       0.7         0
  END PWAT-PARM4
  MON-LZETPARM
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   57       0.4  0.4  0.4  0.4  0.6  0.6  0.6  0.6  0.6  0.4  0.4  0.4
   55       0.4  0.4  0.4  0.4  0.6  0.6  0.6  0.6  0.6  0.4  0.4  0.4
```

```
   22       0.4  0.4  0.4  0.4  0.6  0.6  0.6  0.6  0.6  0.4  0.4  0.4
   24       0.4  0.4  0.4  0.4  0.6  0.6  0.6  0.6  0.6  0.4  0.4  0.4
  END MON-LZETPARM
  MON-INTERCEP
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   57       0.1  0.1  0.1  0.1 0.06 0.06 0.06 0.06 0.06  0.1  0.1  0.1
   55       0.1  0.1  0.1  0.1 0.06 0.06 0.06 0.06 0.06  0.1  0.1  0.1
   22       0.1  0.1  0.1  0.1 0.06 0.06 0.06 0.06 0.06  0.1  0.1  0.1
   24       0.1  0.1  0.1  0.1 0.06 0.06 0.06 0.06 0.06  0.1  0.1  0.1
  END MON-INTERCEP

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
               ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS      IFWS       LZS      AGWS      GWVS
   57             0         0      0.01         0       0.4      0.01         0
   55             0         0      0.01         0       0.4      0.01         0
   22             0         0      0.01         0       0.4      0.01         0
   24             0         0      0.01         0       0.4      0.01         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                     in  out           ***
    1      IMPERVIOUS-FLAT        1    1    1   27    0
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************ Active Sections ******************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
    1         0    0    1    0    0    0
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
    1         0    0    4    0    0    0    1    9
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
    1         0    0    0    0    1
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
    1           100      0.05      0.05       0.1
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
    1              0         0
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
    1             0         0
  END IWAT-STATE1

END IMPLND
```

```
SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
Basin  1***
PERLND  57                       0.029     RCHRES   1      2
PERLND  57                       0.029     RCHRES   1      3
PERLND  55                       0.089     RCHRES   1      2
PERLND  55                       0.089     RCHRES   1      3
IMPLND   1                       0.261     RCHRES   1      5
Basin  3***
PERLND  55                       0.081     RCHRES   3      2
PERLND  55                       0.081     RCHRES   3      3
PERLND  22                       0.017     RCHRES   3      2
PERLND  22                       0.017     RCHRES   3      3
IMPLND   1                       0.178     RCHRES   3      5
Basin  4***
PERLND  22                       0.011     RCHRES   5      2
PERLND  22                       0.011     RCHRES   5      3
PERLND  55                       0.077     RCHRES   5      2
PERLND  55                       0.077     RCHRES   5      3
IMPLND   1                       0.175     RCHRES   5      5
Basin  Bypass***
PERLND  24                        0.35     COPY   501     12
PERLND  24                        0.35     COPY   601     12
PERLND  24                        0.35     COPY   501     13
PERLND  24                        0.35     COPY   601     13
PERLND  55                       2.242     COPY   501     12
PERLND  55                       2.242     COPY   601     12
PERLND  55                       2.242     COPY   501     13
PERLND  55                       2.242     COPY   601     13

******Routing******
PERLND  57                       0.029     COPY     1     12
PERLND  55                       0.089     COPY     1     12
IMPLND   1                       0.261     COPY     1     15
PERLND  57                       0.029     COPY     1     13
PERLND  55                       0.089     COPY     1     13
RCHRES   1                           1     RCHRES   2      8
PERLND  55                       0.081     COPY     1     12
PERLND  22                       0.017     COPY     1     12
IMPLND   1                       0.178     COPY     1     15
PERLND  55                       0.081     COPY     1     13
PERLND  22                       0.017     COPY     1     13
RCHRES   3                           1     RCHRES   4      8
PERLND  22                       0.011     COPY     1     12
PERLND  55                       0.077     COPY     1     12
IMPLND   1                       0.175     COPY     1     15
PERLND  22                       0.011     COPY     1     13
PERLND  55                       0.077     COPY     1     13
RCHRES   5                           1     RCHRES   6      8
RCHRES   2                           1     COPY   501     16
RCHRES   1                           1     COPY   501     17
RCHRES   4                           1     COPY   501     16
RCHRES   3                           1     COPY   501     17
RCHRES   6                           1     COPY   501     16
RCHRES   5                           1     COPY   501     17
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   12.1        DISPLY   1     INPUT  TIMSER 1
GENER    2 OUTPUT TIMSER      .0002778     RCHRES   1     EXTNL  OUTDGT 1
GENER    4 OUTPUT TIMSER      .0002778     RCHRES   3     EXTNL  OUTDGT 1
GENER    6 OUTPUT TIMSER      .0002778     RCHRES   5     EXTNL  OUTDGT 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
```

```
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                 ***
    # -  #<-----------------><---> User T-series  Engl Metr LKFG             ***
                                      in  out                                ***
    1     Surface BMP1            3    1    1    1   28    0    1
    2     BMP1                    1    1    1    1   28    0    1
    3     Surface BMP3            3    1    1    1   28    0    1
    4     BMP3                    1    1    1    1   28    0    1
    5     Surface BMP4            3    1    1    1   28    0    1
    6     BMP4                    1    1    1    1   28    0    1
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************* Active Sections ******************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
    1         1    0    0    0    0    0    0    0    0    0
    2         1    0    0    0    0    0    0    0    0    0
    3         1    0    0    0    0    0    0    0    0    0
    4         1    0    0    0    0    0    0    0    0    0
    5         1    0    0    0    0    0    0    0    0    0
    6         1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ****************** PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
    1         4    0    0    0    0    0    0    0    0    0    1    9
    2         4    0    0    0    0    0    0    0    0    0    1    9
    3         4    0    0    0    0    0    0    0    0    0    1    9
    4         4    0    0    0    0    0    0    0    0    0    1    9
    5         4    0    0    0    0    0    0    0    0    0    1    9
    6         4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                    ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
           FG FG FG FG  possible  exit  *** possible  exit      possible  exit
            *  *  *  *    *  *  *  *  *       *  *  *  *  *        ***
    1       0  1  0  0    4  5  6  0  0       0  1  0  0  0       2  1  2  2  2
    2       0  1  0  0    4  0  0  0  0       0  0  0  0  0       2  2  2  2  2
    3       0  1  0  0    4  5  6  0  0       0  1  0  0  0       2  1  2  2  2
    4       0  1  0  0    4  0  0  0  0       0  0  0  0  0       2  2  2  2  2
    5       0  1  0  0    4  5  6  0  0       0  1  0  0  0       2  1  2  2  2
    6       0  1  0  0    4  0  0  0  0       0  0  0  0  0       2  2  2  2  2
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><--------><------***
    1             1      0.01       0.0       0.0       0.5       0.0
    2             2      0.01       0.0       0.0       0.5       0.0
    3             3      0.01       0.0       0.0       0.5       0.0
    4             4      0.01       0.0       0.0       0.5       0.0
    5             5      0.01       0.0       0.0       0.5       0.0
    6             6      0.01       0.0       0.0       0.5       0.0
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                       ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><---><--->
    1           0         4.0  5.0  6.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    2           0         4.0  0.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    3           0         4.0  5.0  6.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
```

```
    4            0         4.0  0.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    5            0         4.0  5.0  6.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    6            0         4.0  0.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
  END HYDR-INIT
END RCHRES

SPECT-ACTIONS
*** User-Defined Variable Quantity Lines
***                          addr
***                         <------>
*** kwd  varnam optyp  opn  vari  s1 s2 s3 tp multiply  lc ls ac as agfn ***
  <****> <----> <----> <-> <----><-><-><-><-><--------> <><-> <><-> <--> ***
  UVQUAN vol2   RCHRES   2 VOL              4
  UVQUAN v2m2   GLOBAL     WORKSP  1        3
  UVQUAN vpo2   GLOBAL     WORKSP  2        3
  UVQUAN v2d2   GENER    2 K       1        3
*** User-Defined Variable Quantity Lines
***                          addr
***                         <------>
*** kwd  varnam optyp  opn  vari  s1 s2 s3 tp multiply  lc ls ac as agfn ***
  <****> <----> <----> <-> <----><-><-><-><-><--------> <><-> <><-> <--> ***
  UVQUAN vol4   RCHRES   4 VOL              4
  UVQUAN v2m4   GLOBAL     WORKSP  3        3
  UVQUAN vpo4   GLOBAL     WORKSP  4        3
  UVQUAN v2d4   GENER    4 K       1        3
*** User-Defined Variable Quantity Lines
***                          addr
***                         <------>
*** kwd  varnam optyp  opn  vari  s1 s2 s3 tp multiply  lc ls ac as agfn ***
  <****> <----> <----> <-> <----><-><-><-><-><--------> <><-> <><-> <--> ***
  UVQUAN vol6   RCHRES   6 VOL              4
  UVQUAN v2m6   GLOBAL     WORKSP  5        3
  UVQUAN vpo6   GLOBAL     WORKSP  6        3
  UVQUAN v2d6   GENER    6 K       1        3
*** User-Defined Target Variable Names
***                  addr or                        addr or
***                 <------>                       <------>
*** kwd   varnam ct  vari  s1 s2 s3  frac oper     vari  s1 s2 s3  frac oper
  <****>  <----><-> <----><-><-><-> <---> <-->    <----><-><-><-> <---> <-->
  UVNAME  v2m2    1 WORKSP  1         1.0 QUAN
  UVNAME  vpo2    1 WORKSP  2         1.0 QUAN
  UVNAME  v2d2    1 K       1         1.0 QUAN
*** User-Defined Target Variable Names
***                  addr or                        addr or
***                 <------>                       <------>
*** kwd   varnam ct  vari  s1 s2 s3  frac oper     vari  s1 s2 s3  frac oper
  <****>  <----><-> <----><-><-><-> <---> <-->    <----><-><-><-> <---> <-->
  UVNAME  v2m4    1 WORKSP  3         1.0 QUAN
  UVNAME  vpo4    1 WORKSP  4         1.0 QUAN
  UVNAME  v2d4    1 K       1         1.0 QUAN
*** User-Defined Target Variable Names
***                  addr or                        addr or
***                 <------>                       <------>
*** kwd   varnam ct  vari  s1 s2 s3  frac oper     vari  s1 s2 s3  frac oper
  <****>  <----><-> <----><-><-><-> <---> <-->    <----><-><-><-> <---> <-->
  UVNAME  v2m6    1 WORKSP  5         1.0 QUAN
  UVNAME  vpo6    1 WORKSP  6         1.0 QUAN
  UVNAME  v2d6    1 K       1         1.0 QUAN
*** opt foplop dcdts  yr mo dy hr mn d t   vnam  s1 s2 s3 ac quantity  tc  ts rp
  <****><-><--><><-><--> <> <> <> <><><>  <----><-><-><-><-><--------> <> <-><->
  GENER   2                              v2m2            =  1102.
*** Compute remaining available pore space
  GENER   2                              vpo2            =  v2m2
  GENER   2                              vpo2           -=  vol2
*** Check to see if VPORA goes negative; if so set VPORA = 0.0
IF (vpo2 < 0.0) THEN
  GENER   2                              vpo2            =  0.0
END IF
*** Infiltration volume
  GENER   2                              v2d2            =  vpo2
```

```
*** opt foplop dcdts  yr mo dy hr mn d t   vnam  s1 s2 s3 ac quantity  tc  ts rp
  <****><-><--><><-><--> <> <> <> <><><>  <----><-><-><-><-><-><--------> <> <-><->
  GENER   4                                v2m4           =  1049.
*** Compute remaining available pore space
  GENER   4                                vpo4           =  v2m4
  GENER   4                                vpo4          -=  vol4
*** Check to see if VPORA goes negative; if so set VPORA = 0.0
IF (vpo4 < 0.0) THEN
  GENER   4                                vpo4           =  0.0
END IF
*** Infiltration volume
  GENER   4                                v2d4           =  vpo4
*** opt foplop dcdts  yr mo dy hr mn d t   vnam  s1 s2 s3 ac quantity  tc  ts rp
  <****><-><--><><-><--> <> <> <> <><><>  <----><-><-><-><-><-><--------> <> <-><->
  GENER   6                                v2m6           =  932.
*** Compute remaining available pore space
  GENER   6                                vpo6           =  v2m6
  GENER   6                                vpo6          -=  vol6
*** Check to see if VPORA goes negative; if so set VPORA = 0.0
IF (vpo6 < 0.0) THEN
  GENER   6                                vpo6           =  0.0
END IF
*** Infiltration volume
  GENER   6                                v2d6           =  vpo6
END SPEC-ACTIONS
FTABLES
  FTABLE      2
   62    4
     Depth      Area    Volume  Outflow1 Velocity  Travel Time***
      (ft)   (acres) (acre-ft)   (cfs)   (ft/sec)    (Minutes)***
  0.000000  0.060193  0.000000  0.000000
  0.049451  0.059794  0.000289  0.000000
  0.098901  0.059197  0.000582  0.000000
  0.148352  0.058602  0.000881  0.000000
  0.197802  0.058009  0.001184  0.000000
  0.247253  0.057418  0.001493  0.000000
  0.296703  0.056829  0.001806  0.000000
  0.346154  0.056242  0.002125  0.000000
  0.395604  0.055657  0.002449  0.000000
  0.445055  0.055074  0.002778  0.000000
  0.494505  0.054493  0.003112  0.000000
  0.543956  0.053914  0.003451  0.000000
  0.593407  0.053337  0.003795  0.000000
  0.642857  0.052763  0.004145  0.000737
  0.692308  0.052190  0.004500  0.001059
  0.741758  0.051619  0.004860  0.001303
  0.791209  0.051050  0.005225  0.001508
  0.840659  0.050484  0.005596  0.001688
  0.890110  0.049919  0.005972  0.001851
  0.939560  0.049356  0.006353  0.002000
  0.989011  0.048795  0.006740  0.002139
  1.038462  0.048237  0.007132  0.002269
  1.087912  0.047680  0.007529  0.002393
  1.137363  0.047126  0.007932  0.002510
  1.186813  0.046573  0.008340  0.002622
  1.236264  0.046022  0.008754  0.002729
  1.285714  0.045474  0.009173  0.002832
  1.335165  0.044927  0.009598  0.002931
  1.384615  0.044383  0.010028  0.003028
  1.434066  0.043840  0.010464  0.003121
  1.483516  0.043300  0.010905  0.003211
  1.532967  0.042762  0.011346  0.003299
  1.582418  0.042225  0.011794  0.003385
  1.631868  0.041691  0.012246  0.003469
  1.681319  0.041158  0.012704  0.003550
  1.730769  0.040628  0.013168  0.003630
  1.780220  0.040100  0.013638  0.003708
  1.829670  0.039573  0.014113  0.003785
  1.879121  0.039049  0.014593  0.003860
  1.928571  0.038527  0.015080  0.003933
```

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  1.978022  0.038007  0.015572  0.004005
  2.027473  0.037488  0.016070  0.004076
  2.076923  0.036972  0.016573  0.004146
  2.126374  0.036458  0.017083  0.004215
  2.175824  0.035946  0.017598  0.004282
  2.225275  0.035436  0.018119  0.004349
  2.274725  0.034928  0.018645  0.004414
  2.324176  0.034421  0.019178  0.004479
  2.373626  0.033917  0.019716  0.004543
  2.423077  0.033415  0.020261  0.004605
  2.472527  0.032915  0.020811  0.004667
  2.521978  0.032417  0.021367  0.004729
  2.571429  0.031921  0.021929  0.004789
  2.620879  0.031427  0.022497  0.004849
  2.670330  0.030935  0.023072  0.004909
  2.719780  0.030445  0.023652  0.004967
  2.769231  0.029957  0.024238  0.005026
  2.818681  0.029472  0.024830  0.005084
  2.868132  0.028988  0.025428  0.005141
  2.917582  0.028506  0.026033  0.005199
  2.967033  0.028026  0.026643  0.005281
  3.000000  0.027548  0.056812  0.005387
  END FTABLE  2
  FTABLE      1
   32    6
     Depth      Area    Volume  Outflow1  Outflow2  outflow 3 Velocity  Travel
Time***
      (ft)   (acres) (acre-ft)   (cfs)      (cfs)     (cfs)   (ft/sec)
(Minutes)***
  0.000000  0.027548  0.000000  0.000000  0.000000  0.000000
  0.049451  0.060793  0.002991  0.000000  0.146857  0.000000
  0.098901  0.061396  0.006013  0.000000  0.151544  0.000000
  0.148352  0.062000  0.009064  0.000000  0.156231  0.000000
  0.197802  0.062607  0.012145  0.000000  0.160918  0.000000
  0.247253  0.063215  0.015255  0.000000  0.165604  0.000000
  0.296703  0.063826  0.018397  0.000000  0.170291  0.000000
  0.346154  0.064438  0.021568  0.000000  0.174978  0.000000
  0.395604  0.065053  0.024770  0.000000  0.179665  0.000000
  0.445055  0.065669  0.028002  0.000000  0.184352  0.000000
  0.494505  0.066288  0.031264  0.000000  0.189039  0.000000
  0.543956  0.066909  0.034558  0.000000  0.193726  0.000000
  0.593407  0.067531  0.037882  0.000000  0.198413  0.000000
  0.642857  0.068156  0.041237  0.000000  0.203100  0.000000
  0.692308  0.068782  0.044623  0.000000  0.207787  0.000000
  0.741758  0.069411  0.048039  0.000000  0.212474  0.000000
  0.791209  0.070042  0.051487  0.000000  0.217161  0.000000
  0.840659  0.070675  0.054967  0.000000  0.221847  0.000000
  0.890110  0.071309  0.058477  0.000000  0.226534  0.000000
  0.939560  0.071946  0.062019  0.000000  0.231221  0.000000
  0.989011  0.072585  0.065593  0.000000  0.235908  0.000000
  1.038462  0.073226  0.069198  0.240185  0.240595  0.000000
  1.087912  0.073869  0.072835  0.829417  0.245282  0.000000
  1.137363  0.074514  0.076504  1.618868  0.249969  0.000000
  1.186813  0.075160  0.080205  2.565262  0.254656  0.000000
  1.236264  0.075809  0.083937  3.643604  0.259343  0.000000
  1.285714  0.076460  0.087702  4.835706  0.264030  0.000000
  1.335165  0.077113  0.091499  6.126383  0.268717  0.000000
  1.384615  0.077768  0.095329  7.501776  0.273404  0.000000
  1.434066  0.078425  0.099191  8.948510  0.278090  0.000000
  1.483516  0.079084  0.103085  10.45326  0.282777  0.000000
  1.500000  0.079304  0.104391  12.00255  0.284340  0.000000
  END FTABLE  1
  FTABLE      4
   60    4
     Depth      Area    Volume  Outflow1 Velocity  Travel Time***
      (ft)   (acres) (acre-ft)   (cfs)   (ft/sec)    (Minutes)***
  0.000000  0.061378  0.000000  0.000000
  0.046703  0.060859  0.000295  0.000000
  0.093407  0.060273  0.000595  0.000000
  0.140110  0.059689  0.000899  0.000000
```

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  0.186813  0.059106  0.001209  0.000000
  0.233516  0.058526  0.001523  0.000000
  0.280220  0.057947  0.001842  0.000000
  0.326923  0.057370  0.002166  0.000000
  0.373626  0.056794  0.002495  0.000000
  0.420330  0.056221  0.002828  0.000000
  0.467033  0.055649  0.003167  0.000000
  0.513736  0.055079  0.003510  0.000000
  0.560440  0.054511  0.003858  0.000000
  0.607143  0.053945  0.004211  0.000355
  0.653846  0.053380  0.004570  0.000759
  0.700549  0.052818  0.004933  0.001012
  0.747253  0.052257  0.005301  0.001214
  0.793956  0.051698  0.005674  0.001386
  0.840659  0.051140  0.006052  0.001539
  0.887363  0.050585  0.006436  0.001678
  0.934066  0.050031  0.006824  0.001807
  0.980769  0.049479  0.007217  0.001926
  1.027473  0.048929  0.007616  0.002039
  1.074176  0.048381  0.008020  0.002146
  1.120879  0.047835  0.008428  0.002247
  1.167582  0.047290  0.008842  0.002345
  1.214286  0.046747  0.009261  0.002438
  1.260989  0.046206  0.009686  0.002528
  1.307692  0.045667  0.010115  0.002615
  1.354396  0.045129  0.010550  0.002699
  1.401099  0.044594  0.010990  0.002780
  1.447802  0.044060  0.011435  0.002859
  1.494505  0.043528  0.011886  0.002936
  1.541209  0.042997  0.012336  0.003011
  1.587912  0.042469  0.012792  0.003084
  1.634615  0.041942  0.013253  0.003156
  1.681319  0.041418  0.013719  0.003226
  1.728022  0.040895  0.014190  0.003294
  1.774725  0.040373  0.014667  0.003361
  1.821429  0.039854  0.015149  0.003427
  1.868132  0.039336  0.015637  0.003492
  1.914835  0.038820  0.016130  0.003555
  1.961538  0.038306  0.016628  0.003618
  2.008242  0.037794  0.017132  0.003679
  2.054945  0.037284  0.017641  0.003740
  2.101648  0.036775  0.018156  0.003799
  2.148352  0.036268  0.018676  0.003858
  2.195055  0.035763  0.019201  0.003916
  2.241758  0.035260  0.019732  0.003973
  2.288462  0.034759  0.020269  0.004030
  2.335165  0.034259  0.020811  0.004086
  2.381868  0.033761  0.021358  0.004142
  2.428571  0.033265  0.021912  0.004199
  2.475275  0.032771  0.022470  0.004257
  2.521978  0.032279  0.023035  0.004366
  2.568681  0.031788  0.023605  0.004416
  2.615385  0.031299  0.024180  0.004465
  2.662088  0.030812  0.024762  0.004514
  2.708791  0.030327  0.025349  0.004563
  2.750000  0.029844  0.054329  0.004605
  END FTABLE  4
  FTABLE      3
   34    6
     Depth      Area    Volume  Outflow1  Outflow2  outflow 3 Velocity  Travel
Time***
      (ft)   (acres) (acre-ft)   (cfs)      (cfs)     (cfs)   (ft/sec)
(Minutes)***
  0.000000  0.029844  0.000000  0.000000  0.000000  0.000000
  0.046703  0.061968  0.002880  0.000000  0.158813  0.000000
  0.093407  0.062559  0.005788  0.000000  0.163608  0.000000
  0.140110  0.063152  0.008724  0.000000  0.168404  0.000000
  0.186813  0.063747  0.011687  0.000000  0.173199  0.000000
  0.233516  0.064344  0.014678  0.000000  0.177994  0.000000
  0.280220  0.064942  0.017697  0.000000  0.182790  0.000000
```

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0.326923  0.065542  0.020744  0.000000  0.187585  0.000000
0.373626  0.066145  0.023819  0.000000  0.192381  0.000000
0.420330  0.066749  0.026923  0.000000  0.197176  0.000000
0.467033  0.067354  0.030054  0.000000  0.201971  0.000000
0.513736  0.067962  0.033214  0.000000  0.206767  0.000000
0.560440  0.068571  0.036402  0.000000  0.211562  0.000000
0.607143  0.069182  0.039619  0.000000  0.216358  0.000000
0.653846  0.069795  0.042864  0.000000  0.221153  0.000000
0.700549  0.070410  0.046138  0.000000  0.225948  0.000000
0.747253  0.071027  0.049441  0.000000  0.230744  0.000000
0.793956  0.071645  0.052773  0.000000  0.235539  0.000000
0.840659  0.072265  0.056133  0.000000  0.240335  0.000000
0.887363  0.072887  0.059523  0.000000  0.245130  0.000000
0.934066  0.073511  0.062942  0.000000  0.249926  0.000000
0.980769  0.074136  0.066389  0.000000  0.254721  0.000000
1.027473  0.074764  0.069866  0.145022  0.259516  0.000000
1.074176  0.075393  0.073373  0.642943  0.264312  0.000000
1.120879  0.076024  0.076909  1.336713  0.269107  0.000000
1.167582  0.076657  0.080474  2.180380  0.273903  0.000000
1.214286  0.077291  0.084069  3.149312  0.278698  0.000000
1.260989  0.077928  0.087694  4.226429  0.283493  0.000000
1.307692  0.078566  0.091348  5.398013  0.288289  0.000000
1.354396  0.079206  0.095032  6.651932  0.293084  0.000000
1.401099  0.079848  0.098746  7.976750  0.297880  0.000000
1.447802  0.080491  0.102491  9.361249  0.302675  0.000000
1.494505  0.081137  0.106265  10.79418  0.307470  0.000000
1.500000  0.081213  0.106711  12.26414  0.308035  0.000000
END FTABLE  3
FTABLE      6
 62    4
   Depth      Area    Volume  Outflow1 Velocity  Travel Time***
    (ft)   (acres) (acre-ft)   (cfs)   (ft/sec)    (Minutes)***
0.000000  0.051469  0.000000  0.000000
0.049451  0.051115  0.000241  0.000000
0.098901  0.050587  0.000485  0.000000
0.148352  0.050060  0.000734  0.000000
0.197802  0.049535  0.000988  0.000000
0.247253  0.049012  0.001245  0.000000
0.296703  0.048491  0.001508  0.000000
0.346154  0.047972  0.001774  0.000000
0.395604  0.047455  0.002045  0.000000
0.445055  0.046941  0.002320  0.000000
0.494505  0.046428  0.002600  0.000000
0.543956  0.045917  0.002884  0.000000
0.593407  0.045408  0.003172  0.000000
0.642857  0.044902  0.003465  0.000512
0.692308  0.044397  0.003763  0.000735
0.741758  0.043894  0.004065  0.000905
0.791209  0.043394  0.004372  0.001047
0.840659  0.042895  0.004683  0.001172
0.890110  0.042399  0.004999  0.001285
0.939560  0.041904  0.005320  0.001389
0.989011  0.041411  0.005645  0.001485
1.038462  0.040921  0.005975  0.001576
1.087912  0.040432  0.006309  0.001662
1.137363  0.039946  0.006648  0.001743
1.186813  0.039461  0.006992  0.001820
1.236264  0.038979  0.007341  0.001895
1.285714  0.038499  0.007694  0.001967
1.335165  0.038020  0.008053  0.002036
1.384615  0.037544  0.008416  0.002102
1.434066  0.037069  0.008784  0.002167
1.483516  0.036597  0.009156  0.002230
1.532967  0.036127  0.009529  0.002291
1.582418  0.035658  0.009907  0.002351
1.631868  0.035192  0.010290  0.002409
1.681319  0.034728  0.010678  0.002465
1.730769  0.034266  0.011070  0.002521
1.780220  0.033805  0.011468  0.002575
1.829670  0.033347  0.011870  0.002628
```

```
  1.879121  0.032891  0.012278  0.002680
  1.928571  0.032437  0.012690  0.002731
  1.978022  0.031985  0.013107  0.002782
  2.027473  0.031535  0.013530  0.002831
  2.076923  0.031087  0.013957  0.002879
  2.126374  0.030641  0.014390  0.002927
  2.175824  0.030196  0.014827  0.002974
  2.225275  0.029754  0.015270  0.003020
  2.274725  0.029314  0.015718  0.003065
  2.324176  0.028876  0.016171  0.003110
  2.373626  0.028440  0.016629  0.003155
  2.423077  0.028007  0.017092  0.003198
  2.472527  0.027575  0.017561  0.003241
  2.521978  0.027145  0.018035  0.003284
  2.571429  0.026717  0.018514  0.003326
  2.620879  0.026291  0.018998  0.003368
  2.670330  0.025867  0.019488  0.003409
  2.719780  0.025445  0.019983  0.003450
  2.769231  0.025026  0.020483  0.003490
  2.818681  0.024608  0.020988  0.003530
  2.868132  0.024192  0.021499  0.003570
  2.917582  0.023778  0.022016  0.003611
  2.967033  0.023367  0.022538  0.003667
  3.000000  0.022957  0.048066  0.003741
  END FTABLE  6
  FTABLE      5
   32    6
     Depth      Area    Volume  Outflow1  Outflow2  outflow 3 Velocity  Travel
Time***
      (ft)   (acres) (acre-ft)   (cfs)      (cfs)     (cfs)   (ft/sec)
(Minutes)***
  0.000000  0.022957  0.000000  0.000000  0.000000  0.000000
  0.049451  0.052002  0.002558  0.000000  0.122381  0.000000
  0.098901  0.052536  0.005143  0.000000  0.126286  0.000000
  0.148352  0.053072  0.007754  0.000000  0.130192  0.000000
  0.197802  0.053611  0.010392  0.000000  0.134098  0.000000
  0.247253  0.054151  0.013056  0.000000  0.138004  0.000000
  0.296703  0.054693  0.015748  0.000000  0.141909  0.000000
  0.346154  0.055238  0.018466  0.000000  0.145815  0.000000
  0.395604  0.055784  0.021211  0.000000  0.149721  0.000000
  0.445055  0.056333  0.023983  0.000000  0.153627  0.000000
  0.494505  0.056883  0.026782  0.000000  0.157533  0.000000
  0.543956  0.057436  0.029609  0.000000  0.161438  0.000000
  0.593407  0.057990  0.032463  0.000000  0.165344  0.000000
  0.642857  0.058547  0.035344  0.000000  0.169250  0.000000
  0.692308  0.059105  0.038253  0.000000  0.173156  0.000000
  0.741758  0.059666  0.041190  0.000000  0.177061  0.000000
  0.791209  0.060229  0.044154  0.000000  0.180967  0.000000
  0.840659  0.060793  0.047146  0.000000  0.184873  0.000000
  0.890110  0.061360  0.050167  0.000000  0.188779  0.000000
  0.939560  0.061928  0.053215  0.000000  0.192684  0.000000
  0.989011  0.062499  0.056292  0.000000  0.196590  0.000000
  1.038462  0.063072  0.059396  0.240185  0.200496  0.000000
  1.087912  0.063647  0.062529  0.829417  0.204402  0.000000
  1.137363  0.064223  0.065691  1.618868  0.208307  0.000000
  1.186813  0.064802  0.068881  2.565262  0.212213  0.000000
  1.236264  0.065383  0.072100  3.643604  0.216119  0.000000
  1.285714  0.065966  0.075348  4.835706  0.220025  0.000000
  1.335165  0.066551  0.078624  6.126383  0.223931  0.000000
  1.384615  0.067137  0.081930  7.501776  0.227836  0.000000
  1.434066  0.067726  0.085264  8.948510  0.231742  0.000000
  1.483516  0.068317  0.088628  10.45326  0.235648  0.000000
  1.500000  0.068515  0.089756  12.00255  0.236950  0.000000
  END FTABLE  5
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1              PERLND   1 999 EXTNL  PREC
```

```
WDM      2 PREC     ENGL    1              IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    1              PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    1              IMPLND   1 999 EXTNL  PETINP
WDM      2 PREC     ENGL    1              RCHRES   1     EXTNL  PREC
WDM      2 PREC     ENGL    1              RCHRES   3     EXTNL  PREC
WDM      2 PREC     ENGL    1              RCHRES   5     EXTNL  PREC
WDM      1 EVAP     ENGL    0.5            RCHRES   1     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.7            RCHRES   2     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.5            RCHRES   3     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.7            RCHRES   4     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.5            RCHRES   5     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.7            RCHRES   6     EXTNL  POTEV

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
RCHRES   2 HYDR   RO     1 1        1      WDM   1000 FLOW     ENGL      REPL
RCHRES   2 HYDR   STAGE  1 1        1      WDM   1001 STAG     ENGL      REPL
RCHRES   1 HYDR   STAGE  1 1        1      WDM   1002 STAG     ENGL      REPL
RCHRES   1 HYDR   O      1 1        1      WDM   1003 FLOW     ENGL      REPL
COPY     1 OUTPUT MEAN   1 1     12.1      WDM    701 FLOW     ENGL      REPL
COPY   501 OUTPUT MEAN   1 1     12.1      WDM    801 FLOW     ENGL      REPL
COPY   601 OUTPUT MEAN   1 1     12.1      WDM    901 FLOW     ENGL      REPL
RCHRES   4 HYDR   RO     1 1        1      WDM   1004 FLOW     ENGL      REPL
RCHRES   4 HYDR   STAGE  1 1        1      WDM   1005 STAG     ENGL      REPL
RCHRES   3 HYDR   STAGE  1 1        1      WDM   1006 STAG     ENGL      REPL
RCHRES   3 HYDR   O      1 1        1      WDM   1007 FLOW     ENGL      REPL
RCHRES   6 HYDR   RO     1 1        1      WDM   1008 FLOW     ENGL      REPL
RCHRES   6 HYDR   STAGE  1 1        1      WDM   1009 STAG     ENGL      REPL
RCHRES   5 HYDR   STAGE  1 1        1      WDM   1010 STAG     ENGL      REPL
RCHRES   5 HYDR   O      1 1        1      WDM   1011 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>             <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK        2
PERLND     PWATER SURO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK    2

  MASS-LINK        3
PERLND     PWATER IFWO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK    3

  MASS-LINK        5
IMPLND     IWATER SURO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK    5

  MASS-LINK        8
RCHRES     OFLOW  OVOL   2                 RCHRES         INFLOW IVOL
  END MASS-LINK    8

  MASS-LINK       12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   12

  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13

  MASS-LINK       15
IMPLND     IWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   15

  MASS-LINK       16
RCHRES     ROFLOW                          COPY           INPUT  MEAN
  END MASS-LINK   16
```

```
  MASS-LINK       17
RCHRES     OFLOW  OVOL   1                COPY           INPUT  MEAN
  END MASS-LINK   17


END MASS-LINK

END RUN
```

Predeveloped HSPF Message File

```
ERROR/WARNING ID:   238   1

The continuity error reported below is greater than 1 part in 1000 and is
therefore considered high.

Did you specify any "special actions"?  If so, they could account for it.

Relevant data are:
DATE/TIME: 1967/ 7/31 24: 0

RCHRES :    1

RELERR       STORS        STOR       MATIN      MATDIF
-1.000E+00     0.00000  0.0000E+00     0.00000  1.9138E-12

Where:

RELERR is the relative error (ERROR/REFVAL).
ERROR  is (STOR-STORS) - MATDIF.
REFVAL is the reference value (STORS+MATIN).
STOR   is the storage of material in the processing unit (land-segment or
reach/reservior) at the end of the present interval.
STORS  is the storage of material in the pu at the start of the present
printout reporting period.
MATIN  is the total inflow of material to the pu during the present printout
reporting period.
MATDIF is the net inflow (inflow-outflow) of material to the pu during the
present printout reporting period.
```

```
ERROR/WARNING ID:   238   1

The continuity error reported below is greater than 1 part in 1000 and is
therefore considered high.

Did you specify any "special actions"?  If so, they could account for it.

Relevant data are:
DATE/TIME: 1967/ 7/31 24: 0

RCHRES :    3

RELERR       STORS        STOR       MATIN      MATDIF
-1.000E+00     0.00000  0.0000E+00     0.00000  1.7540E-12

Where:

RELERR is the relative error (ERROR/REFVAL).
ERROR  is (STOR-STORS) - MATDIF.
REFVAL is the reference value (STORS+MATIN).
STOR   is the storage of material in the processing unit (land-segment or
reach/reservior) at the end of the present interval.
STORS  is the storage of material in the pu at the start of the present
printout reporting period.
MATIN  is the total inflow of material to the pu during the present printout
reporting period.
MATDIF is the net inflow (inflow-outflow) of material to the pu during the
present printout reporting period.
```

```
ERROR/WARNING ID:   238   1

The continuity error reported below is greater than 1 part in 1000 and is
therefore considered high.

Did you specify any "special actions"?  If so, they could account for it.

Relevant data are:
```

DATE/TIME: 1967/ 7/31 24: 0

RCHRES :   5

RELERR	STORS	STOR	MATIN	MATDIF
-1.000E+00	0.00000	0.0000E+00	0.00000	1.5681E-12

Where:

RELERR is the relative error (ERROR/REFVAL).
ERROR is (STOR-STORS) - MATDIF.
REFVAL is the reference value (STORS+MATIN).
STOR   is the storage of material in the processing unit (land-segment or reach/reservior) at the end of the present interval.
STORS is the storage of material in the pu at the start of the present printout reporting period.
MATIN is the total inflow of material to the pu during the present printout reporting period.
MATDIF is the net inflow (inflow-outflow) of material to the pu during the present printout reporting period.

ERROR/WARNING ID: 238   1

The continuity error reported below is greater than 1 part in 1000 and is therefore considered high.

Did you specify any "special actions"? If so, they could account for it.

Relevant data are:
DATE/TIME: 1969/ 8/31 24: 0

RCHRES :   1

RELERR	STORS	STOR	MATIN	MATDIF
-1.000E+00	0.00000	0.0000E+00	0.00000	3.2398E-12

Where:

RELERR is the relative error (ERROR/REFVAL).
ERROR is (STOR-STORS) - MATDIF.
REFVAL is the reference value (STORS+MATIN).
STOR   is the storage of material in the processing unit (land-segment or reach/reservior) at the end of the present interval.
STORS is the storage of material in the pu at the start of the present printout reporting period.
MATIN is the total inflow of material to the pu during the present printout reporting period.
MATDIF is the net inflow (inflow-outflow) of material to the pu during the present printout reporting period.

ERROR/WARNING ID: 238   1

The continuity error reported below is greater than 1 part in 1000 and is therefore considered high.

Did you specify any "special actions"? If so, they could account for it.

Relevant data are:
DATE/TIME: 1969/ 8/31 24: 0

RCHRES :   3

RELERR	STORS	STOR	MATIN	MATDIF
-1.000E+00	0.00000	0.0000E+00	0.00000	2.9185E-12

Where:

RELERR is the relative error (ERROR/REFVAL).
ERROR is (STOR-STORS) - MATDIF.

REFVAL is the reference value (STORS+MATIN).
STOR is the storage of material in the processing unit (land-segment or reach/reservior) at the end of the present interval.
STORS is the storage of material in the pu at the start of the present printout reporting period.
MATIN is the total inflow of material to the pu during the present printout reporting period.
MATDIF is the net inflow (inflow-outflow) of material to the pu during the present printout reporting period.

ERROR/WARNING ID: 238 1

The continuity error reported below is greater than 1 part in 1000 and is therefore considered high.

Did you specify any "special actions"? If so, they could account for it.

Relevant data are:
DATE/TIME: 1969/ 8/31 24: 0

RCHRES : 5

RELERR	STORS	STOR	MATIN	MATDIF
-1.000E+00	0.00000	0.0000E+00	0.00000	2.6096E-12

Where:

RELERR is the relative error (ERROR/REFVAL).
ERROR is (STOR-STORS) - MATDIF.
REFVAL is the reference value (STORS+MATIN).
STOR is the storage of material in the processing unit (land-segment or reach/reservior) at the end of the present interval.
STORS is the storage of material in the pu at the start of the present printout reporting period.
MATIN is the total inflow of material to the pu during the present printout reporting period.
MATDIF is the net inflow (inflow-outflow) of material to the pu during the present printout reporting period.

ERROR/WARNING ID: 238 1

The continuity error reported below is greater than 1 part in 1000 and is therefore considered high.

Did you specify any "special actions"? If so, they could account for it.

Relevant data are:
DATE/TIME: 1979/ 8/31 24: 0

RCHRES : 1

RELERR	STORS	STOR	MATIN	MATDIF
-1.000E+00	0.00000	0.0000E+00	0.00000	2.4873E-12

Where:

RELERR is the relative error (ERROR/REFVAL).
ERROR is (STOR-STORS) - MATDIF.
REFVAL is the reference value (STORS+MATIN).
STOR is the storage of material in the processing unit (land-segment or reach/reservior) at the end of the present interval.
STORS is the storage of material in the pu at the start of the present printout reporting period.
MATIN is the total inflow of material to the pu during the present printout reporting period.
MATDIF is the net inflow (inflow-outflow) of material to the pu during the present printout reporting period.

ERROR/WARNING ID: 238 1

The continuity error reported below is greater than 1 part in 1000 and is
therefore considered high.

Did you specify any "special actions"? If so, they could account for it.

Relevant data are:
DATE/TIME: 1979/ 8/31 24: 0

RCHRES :   3

RELERR	STORS	STOR	MATIN	MATDIF
-1.000E+00	0.00000	0.0000E+00	0.00000	2.3113E-12

Where:

RELERR is the relative error (ERROR/REFVAL).
ERROR is (STOR-STORS) - MATDIF.
REFVAL is the reference value (STORS+MATIN).
STOR   is the storage of material in the processing unit (land-segment or
reach/reservior) at the end of the present interval.
STORS is the storage of material in the pu at the start of the present
printout reporting period.
MATIN is the total inflow of material to the pu during the present printout
reporting period.
MATDIF is the net inflow (inflow-outflow) of material to the pu during the
present printout reporting period.

ERROR/WARNING ID: 238   1

The continuity error reported below is greater than 1 part in 1000 and is
therefore considered high.

Did you specify any "special actions"? If so, they could account for it.

Relevant data are:
DATE/TIME: 1979/ 8/31 24: 0

RCHRES :   5

RELERR	STORS	STOR	MATIN	MATDIF
-1.000E+00	0.00000	0.0000E+00	0.00000	2.0668E-12

Where:

RELERR is the relative error (ERROR/REFVAL).
ERROR is (STOR-STORS) - MATDIF.
REFVAL is the reference value (STORS+MATIN).
STOR   is the storage of material in the processing unit (land-segment or
reach/reservior) at the end of the present interval.
STORS is the storage of material in the pu at the start of the present
printout reporting period.
MATIN is the total inflow of material to the pu during the present printout
reporting period.
MATDIF is the net inflow (inflow-outflow) of material to the pu during the
present printout reporting period.

ERROR/WARNING ID: 238   1

The continuity error reported below is greater than 1 part in 1000 and is
therefore considered high.

Did you specify any "special actions"? If so, they could account for it.

Relevant data are:
DATE/TIME: 1987/ 5/31 24: 0

RCHRES :   3

```
RELERR       STORS        STOR       MATIN      MATDIF
-1.000E+00     0.00000  0.0000E+00     0.00000  3.5184E-12

Where:

RELERR is the relative error (ERROR/REFVAL).
ERROR  is (STOR-STORS) - MATDIF.
REFVAL is the reference value (STORS+MATIN).
STOR   is the storage of material in the processing unit (land-segment or
reach/reservior) at the end of the present interval.
STORS  is the storage of material in the pu at the start of the present
printout reporting period.
MATIN  is the total inflow of material to the pu during the present printout
reporting period.
MATDIF is the net inflow (inflow-outflow) of material to the pu during the
present printout reporting period.
```

```
ERROR/WARNING ID:   238   1

The continuity error reported below is greater than 1 part in 1000 and is
therefore considered high.

Did you specify any "special actions"?  If so, they could account for it.

Relevant data are:
DATE/TIME: 1987/ 5/31 24: 0

RCHRES :    5

RELERR       STORS        STOR       MATIN      MATDIF
-1.000E+00     0.00000  0.0000E+00     0.00000  3.1432E-12

Where:

RELERR is the relative error (ERROR/REFVAL).
ERROR  is (STOR-STORS) - MATDIF.
REFVAL is the reference value (STORS+MATIN).
STOR   is the storage of material in the processing unit (land-segment or
reach/reservior) at the end of the present interval.
STORS  is the storage of material in the pu at the start of the present
printout reporting period.
MATIN  is the total inflow of material to the pu during the present printout
reporting period.
MATDIF is the net inflow (inflow-outflow) of material to the pu during the
present printout reporting period.
```

```
ERROR/WARNING ID:   238   1

The continuity error reported below is greater than 1 part in 1000 and is
therefore considered high.

Did you specify any "special actions"?  If so, they could account for it.

Relevant data are:
DATE/TIME: 1990/ 8/31 24: 0

RCHRES :    1

RELERR       STORS        STOR       MATIN      MATDIF
-1.000E+00     0.00000  0.0000E+00     0.00000  2.7932E-13

Where:

RELERR is the relative error (ERROR/REFVAL).
ERROR  is (STOR-STORS) - MATDIF.
REFVAL is the reference value (STORS+MATIN).
STOR   is the storage of material in the processing unit (land-segment or
reach/reservior) at the end of the present interval.
STORS  is the storage of material in the pu at the start of the present
```

printout reporting period.
MATIN is the total inflow of material to the pu during the present printout reporting period.
MATDIF is the net inflow (inflow-outflow) of material to the pu during the present printout reporting period.

ERROR/WARNING ID: 238   1

The continuity error reported below is greater than 1 part in 1000 and is therefore considered high.

Did you specify any "special actions"? If so, they could account for it.

Relevant data are:
DATE/TIME: 1990/ 8/31 24: 0

RCHRES :   3

RELERR	STORS	STOR	MATIN	MATDIF
-1.000E+00	0.00000	0.0000E+00	0.00000	1.5614E-13

Where:

RELERR is the relative error (ERROR/REFVAL).
ERROR is (STOR-STORS) - MATDIF.
REFVAL is the reference value (STORS+MATIN).
STOR   is the storage of material in the processing unit (land-segment or reach/reservior) at the end of the present interval.
STORS is the storage of material in the pu at the start of the present printout reporting period.
MATIN is the total inflow of material to the pu during the present printout reporting period.
MATDIF is the net inflow (inflow-outflow) of material to the pu during the present printout reporting period.

The count for the WARNING printed above has reached its maximum.

If the condition is encountered again the message will not be repeated.

ERROR/WARNING ID: 238   1

The continuity error reported below is greater than 1 part in 1000 and is therefore considered high.

Did you specify any "special actions"? If so, they could account for it.

Relevant data are:
DATE/TIME: 1990/ 8/31 24: 0

RCHRES :   5

RELERR	STORS	STOR	MATIN	MATDIF
-1.000E+00	0.00000	0.0000E+00	0.00000	1.0103E-13

Where:

RELERR is the relative error (ERROR/REFVAL).
ERROR is (STOR-STORS) - MATDIF.
REFVAL is the reference value (STORS+MATIN).
STOR   is the storage of material in the processing unit (land-segment or reach/reservior) at the end of the present interval.
STORS is the storage of material in the pu at the start of the present printout reporting period.
MATIN is the total inflow of material to the pu during the present printout reporting period.
MATDIF is the net inflow (inflow-outflow) of material to the pu during the present printout reporting period.

The count for the WARNING printed above has reached its maximum.

If the condition is encountered again the message will not be repeated.

ERROR/WARNING ID: 238 1

The continuity error reported below is greater than 1 part in 1000 and is
therefore considered high.

Did you specify any "special actions"? If so, they could account for it.

Relevant data are:
DATE/TIME: 2000/ 5/31 24: 0

RCHRES : 1

RELERR	STORS	STOR	MATIN	MATDIF
-1.000E+00	0.00000	0.0000E+00	0.00000	2.6768E-12

Where:

RELERR is the relative error (ERROR/REFVAL).
ERROR is (STOR-STORS) - MATDIF.
REFVAL is the reference value (STORS+MATIN).
STOR   is the storage of material in the processing unit (land-segment or
reach/reservior) at the end of the present interval.
STORS is the storage of material in the pu at the start of the present
printout reporting period.
MATIN is the total inflow of material to the pu during the present printout
reporting period.
MATDIF is the net inflow (inflow-outflow) of material to the pu during the
present printout reporting period.

The count for the WARNING printed above has reached its maximum.

If the condition is encountered again the message will not be repeated.

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SDHM 3.0

PROJECT REPORT

General Model Information

Project Name:	POC2
Site Name:	Parcel 2 TPM 21225
Site Address:	
City:	
Report Date:	3/28/2017
Gage:	ESCONDID
Data Start:	10/01/1964
Data End:	09/30/2004
Timestep:	Hourly
Precip Scale:	1.000
Version Date:	2016/11/23

POC Thresholds

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

Landuse Basin Data
Predeveloped Land Use

Basin 2

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
C,Dirt,Flat	0.859
C,Dirt,Steep	0.151
Pervious Total	1.01
Impervious Land Use	acre
Impervious Total	0
Basin Total	1.01

Element Flows To:

Surface	Interflow	Groundwater

Mitigated Land Use

Basin 2

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C,UrbNoIrr,Flat	0.098
Pervious Total	0.098

Impervious Land Use	acre
IMPERVIOUS-FLAT	0.182
Impervious Total	0.182
Basin Total	0.28

Element Flows To:

Surface	Interflow	Groundwater
Surface BMP2	Surface BMP2	

Bypass Basin

Bypass:	Yes
GroundWater:	No
Pervious Land Use	acre
C,Dirt,Steep	0.129
C,UrbNoIrr,Steep	0.018
C,UrbNoIrr,Flat	0.548
Pervious Total	0.695
Impervious Land Use	acre
Impervious Total	0
Basin Total	0.695

Element Flows To:

Surface	Interflow	Groundwater

Routing Elements
Predeveloped Routing

Mitigated Routing

BMP2

Bottom Length:	55.00 ft.
Bottom Width:	20.00 ft.
Material thickness of first layer:	1.5
Material type for first layer:	Amended 5 in/hr
Material thickness of second layer:	0.5
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Underdrain used	
Underdrain Diameter (feet):	0.67
Orifice Diameter (in.):	0.41
Offset (in.):	3
Flow Through Underdrain (ac-ft.):	6.424
Total Outflow (ac-ft.):	6.99
Percent Through Underdrain:	91.9
Discharge Structure	
Riser Height:	1 ft.
Riser Diameter:	36 in.
Element Flows To:	
Outlet 1	Outlet 2

Landscape Swale Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0448	0.0000	0.0000	0.0000
0.0385	0.0444	0.0004	0.0000	0.0000
0.0769	0.0440	0.0008	0.0000	0.0000
0.1154	0.0436	0.0012	0.0000	0.0000
0.1538	0.0432	0.0017	0.0000	0.0000
0.1923	0.0428	0.0021	0.0000	0.0000
0.2308	0.0424	0.0025	0.0000	0.0000
0.2692	0.0420	0.0030	0.0000	0.0000
0.3077	0.0416	0.0034	0.0000	0.0000
0.3462	0.0412	0.0039	0.0000	0.0000
0.3846	0.0408	0.0044	0.0000	0.0000
0.4231	0.0404	0.0048	0.0000	0.0000
0.4615	0.0400	0.0053	0.0000	0.0000
0.5000	0.0396	0.0058	0.0000	0.0000
0.5385	0.0392	0.0063	0.0000	0.0000
0.5769	0.0388	0.0068	0.0000	0.0000
0.6154	0.0384	0.0073	0.0000	0.0000
0.6538	0.0381	0.0078	0.0000	0.0000
0.6923	0.0377	0.0083	0.0000	0.0000
0.7308	0.0373	0.0088	0.0000	0.0000
0.7692	0.0369	0.0093	0.0000	0.0000
0.8077	0.0365	0.0098	0.0000	0.0000
0.8462	0.0361	0.0104	0.0000	0.0000
0.8846	0.0358	0.0109	0.0000	0.0000
0.9231	0.0354	0.0114	0.0000	0.0000
0.9615	0.0350	0.0120	0.0000	0.0000
1.0000	0.0346	0.0125	0.0000	0.0000
1.0385	0.0342	0.0131	0.0000	0.0000
1.0769	0.0339	0.0137	0.0000	0.0000

1.1154	0.0335	0.0142	0.0000	0.0000
1.1538	0.0331	0.0148	0.0000	0.0000
1.1923	0.0328	0.0154	0.0000	0.0000
1.2308	0.0324	0.0160	0.0000	0.0000
1.2692	0.0320	0.0166	0.0000	0.0000
1.3077	0.0316	0.0172	0.0000	0.0000
1.3462	0.0313	0.0178	0.0000	0.0000
1.3846	0.0309	0.0184	0.0000	0.0000
1.4231	0.0306	0.0191	0.0000	0.0000
1.4615	0.0302	0.0197	0.0000	0.0000
1.5000	0.0298	0.0203	0.0000	0.0000
1.5385	0.0295	0.0210	0.0000	0.0000
1.5769	0.0291	0.0216	0.0000	0.0000
1.6154	0.0288	0.0223	0.0000	0.0000
1.6538	0.0284	0.0229	0.0000	0.0000
1.6923	0.0280	0.0236	0.0000	0.0000
1.7308	0.0277	0.0242	0.0000	0.0000
1.7692	0.0273	0.0249	0.0000	0.0000
1.8077	0.0270	0.0256	0.0000	0.0000
1.8462	0.0266	0.0263	0.0000	0.0000
1.8846	0.0263	0.0270	0.0000	0.0000
1.9231	0.0259	0.0277	0.0000	0.0000
1.9615	0.0256	0.0284	0.0000	0.0000
2.0000	0.0253	0.0291	0.0000	0.0000

Landscape Swale Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
2.0000	0.0448	0.0291	0.0000	0.1337	0.0000
2.0385	0.0452	0.0308	0.0000	0.1337	0.0000
2.0769	0.0456	0.0326	0.0000	0.1370	0.0000
2.1154	0.0460	0.0343	0.0000	0.1403	0.0000
2.1538	0.0465	0.0361	0.0000	0.1437	0.0000
2.1923	0.0469	0.0379	0.0000	0.1470	0.0000
2.2308	0.0473	0.0397	0.0000	0.1504	0.0000
2.2692	0.0477	0.0415	0.0000	0.1537	0.0000
2.3077	0.0481	0.0434	0.0000	0.1571	0.0000
2.3462	0.0485	0.0452	0.0000	0.1604	0.0000
2.3846	0.0490	0.0471	0.0000	0.1637	0.0000
2.4231	0.0494	0.0490	0.0000	0.1671	0.0000
2.4615	0.0498	0.0509	0.0000	0.1704	0.0000
2.5000	0.0502	0.0528	0.0000	0.1738	0.0000
2.5385	0.0506	0.0548	0.0000	0.1771	0.0000
2.5769	0.0511	0.0567	0.0000	0.1804	0.0000
2.6154	0.0515	0.0587	0.0006	0.1838	0.0000
2.6538	0.0519	0.0607	0.0009	0.1871	0.0000
2.6923	0.0524	0.0627	0.0011	0.1905	0.0000
2.7308	0.0528	0.0647	0.0013	0.1938	0.0000
2.7692	0.0532	0.0668	0.0014	0.1972	0.0000
2.8077	0.0536	0.0688	0.0016	0.2005	0.0000
2.8462	0.0541	0.0709	0.0017	0.2038	0.0000
2.8846	0.0545	0.0730	0.0018	0.2072	0.0000
2.9231	0.0550	0.0751	0.0019	0.2105	0.0000
2.9615	0.0554	0.0772	0.0020	0.2139	0.0000
3.0000	0.0558	0.0793	0.0023	0.2172	0.0000
3.0385	0.0563	0.0815	0.0024	0.2205	0.0000
3.0769	0.0567	0.0837	0.0025	0.2239	0.0000
3.1154	0.0572	0.0859	0.0025	0.2272	0.0000
3.1538	0.0576	0.0881	0.0026	0.2306	0.0000

3.1923	0.0580	0.0903	0.0027	0.2339	0.0000
3.2308	0.0585	0.0925	0.0028	0.2373	0.0000
3.2692	0.0589	0.0948	0.0028	0.2406	0.0000
3.3077	0.0594	0.0971	0.0029	0.2439	0.0000
3.3462	0.0598	0.0994	0.0030	0.2473	0.0000
3.3846	0.0603	0.1017	0.0030	0.2506	0.0000
3.4231	0.0607	0.1040	0.0031	0.2540	0.0000
3.4615	0.0612	0.1063	0.0032	0.2573	0.0000
3.5000	0.0617	0.1087	0.0032	0.2606	0.0000
3.5000	0.0617	0.1087	0.0033	0.2606	0.0000

Surface BMP2

Element Flows To:

Outlet 1	Outlet 2
	BMP2

Porous Pavement 1

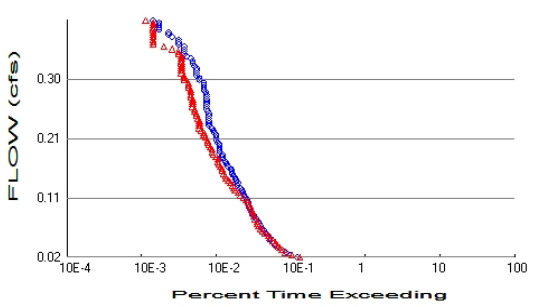
Pavement Area:0.0101 acre.Pavement Length:22.00 ft.
Pavement Width: 20.00 ft.
Pavement slope 1:0.02 To 1
Pavement thickness: 0.33
Pour Space of Pavement: 0.7
Material thickness of second layer: 1.17
Pour Space of material for second layer: 0.4
Material thickness of third layer: 0
Pour Space of material for third layer: 0
Element Flows To:
Outlet 1 Outlet 2

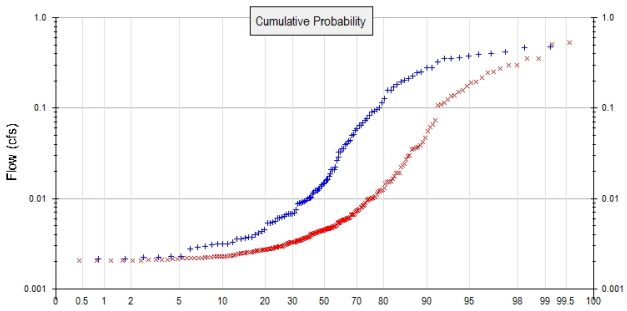
Porous Pavement Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.010	0.000	0.000	0.000
0.0167	0.010	0.000	0.126	0.000
0.0333	0.010	0.000	0.178	0.000
0.0500	0.010	0.000	0.218	0.000
0.0667	0.010	0.000	0.252	0.000
0.0833	0.010	0.000	0.282	0.000
0.1000	0.010	0.000	0.308	0.000
0.1167	0.010	0.000	0.333	0.000
0.1333	0.010	0.000	0.356	0.000
0.1500	0.010	0.000	0.378	0.000
0.1667	0.010	0.000	0.398	0.000
0.1833	0.010	0.000	0.418	0.000
0.2000	0.010	0.000	0.436	0.000
0.2167	0.010	0.000	0.454	0.000
0.2333	0.010	0.000	0.471	0.000
0.2500	0.010	0.001	0.488	0.000
0.2667	0.010	0.001	0.504	0.000
0.2833	0.010	0.001	0.520	0.000
0.3000	0.010	0.001	0.535	0.000
0.3167	0.010	0.001	0.549	0.000
0.3333	0.010	0.001	0.564	0.000
0.3500	0.010	0.001	0.578	0.000
0.3667	0.010	0.001	0.591	0.000
0.3833	0.010	0.001	0.604	0.000
0.4000	0.010	0.001	0.617	0.000
0.4167	0.010	0.001	0.630	0.000
0.4333	0.010	0.001	0.643	0.000
0.4500	0.010	0.001	0.655	0.000
0.4667	0.010	0.001	0.667	0.000
0.4833	0.010	0.002	0.679	0.000
0.5000	0.010	0.002	0.690	0.000
0.5167	0.010	0.002	0.702	0.000
0.5333	0.010	0.002	0.713	0.000
0.5500	0.010	0.002	0.724	0.000
0.5667	0.010	0.002	0.735	0.000
0.5833	0.010	0.002	0.746	0.000
0.6000	0.010	0.002	0.756	0.000
0.6167	0.010	0.002	0.767	0.000
0.6333	0.010	0.002	0.777	0.000
0.6500	0.010	0.002	0.787	0.000

0.6667	0.010	0.002	0.797	0.000
0.6833	0.010	0.002	0.807	0.000
0.7000	0.010	0.002	0.817	0.000
0.7167	0.010	0.002	0.827	0.000
0.7333	0.010	0.003	0.836	0.000
0.7500	0.010	0.003	0.846	0.000
0.7667	0.010	0.003	0.855	0.000
0.7833	0.010	0.003	0.864	0.000
0.8000	0.010	0.003	0.873	0.000
0.8167	0.010	0.003	0.882	0.000
0.8333	0.010	0.003	0.891	0.000
0.8500	0.010	0.003	0.900	0.000
0.8667	0.010	0.003	0.909	0.000
0.8833	0.010	0.003	0.918	0.000
0.9000	0.010	0.003	0.926	0.000
0.9167	0.010	0.003	0.935	0.000
0.9333	0.010	0.003	0.943	0.000
0.9500	0.010	0.003	0.952	0.000
0.9667	0.010	0.003	0.960	0.000
0.9833	0.010	0.004	0.968	0.000
1.0000	0.010	0.004	0.976	0.000
1.0167	0.010	0.004	0.985	0.000
1.0333	0.010	0.004	0.993	0.000
1.0500	0.010	0.004	1.001	0.000
1.0667	0.010	0.004	1.009	0.000
1.0833	0.010	0.004	1.016	0.000
1.1000	0.010	0.004	1.024	0.000
1.1167	0.010	0.004	1.032	0.000
1.1333	0.010	0.004	1.040	0.000
1.1500	0.010	0.004	1.047	0.000
1.1667	0.010	0.004	1.055	0.000
1.1833	0.010	0.004	1.062	0.000
1.2000	0.010	0.005	1.070	0.000
1.2167	0.010	0.005	1.077	0.000
1.2333	0.010	0.005	1.084	0.000
1.2500	0.010	0.005	1.092	0.000
1.2667	0.010	0.005	1.099	0.000
1.2833	0.010	0.005	1.106	0.000
1.3000	0.010	0.005	1.113	0.000
1.3167	0.010	0.005	1.121	0.000
1.3333	0.010	0.006	1.128	0.000
1.3500	0.010	0.006	1.135	0.000
1.3667	0.010	0.006	1.142	0.000
1.3833	0.010	0.006	1.149	0.000
1.4000	0.010	0.006	1.155	0.000
1.4167	0.010	0.006	1.162	0.000
1.4333	0.010	0.006	1.169	0.000
1.4500	0.010	0.006	1.176	0.000
1.4667	0.010	0.007	1.183	0.000
1.4833	0.010	0.007	1.189	0.000
1.5000	0.010	0.007	1.196	0.000

Analysis Results
POC 1





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1
Total Pervious Area: 1.01
Total Impervious Area: 0

Mitigated Landuse Totals for POC #1
Total Pervious Area: 0.793
Total Impervious Area: 0.192101

Flow Frequency Method: Weibull

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	**Flow(cfs)**
2 year	0.163581
5 year	0.355327
10 year	0.395915
25 year	0.464885

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	**Flow(cfs)**
2 year	0.109116
5 year	0.250911
10 year	0.326162
25 year	0.50867

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0164	424	464	109	Pass
0.0202	345	365	105	Pass
0.0240	304	300	98	Pass
0.0279	266	269	101	Pass
0.0317	229	249	108	Pass
0.0355	215	233	108	Pass
0.0394	200	221	110	Pass
0.0432	189	205	108	Pass
0.0470	179	184	102	Pass
0.0509	173	175	101	Pass
0.0547	164	156	95	Pass
0.0585	154	150	97	Pass
0.0624	147	138	93	Pass
0.0662	138	131	94	Pass
0.0700	132	125	94	Pass
0.0739	127	124	97	Pass
0.0777	121	118	97	Pass
0.0815	113	114	100	Pass
0.0854	106	111	104	Pass
0.0892	104	108	103	Pass
0.0930	101	105	103	Pass
0.0969	98	101	103	Pass
0.1007	96	98	102	Pass
0.1045	94	93	98	Pass
0.1084	90	89	98	Pass
0.1122	87	81	93	Pass
0.1160	83	73	87	Pass
0.1199	80	69	86	Pass
0.1237	78	63	80	Pass
0.1275	74	61	82	Pass
0.1314	68	59	86	Pass
0.1352	68	54	79	Pass
0.1390	65	51	78	Pass
0.1429	63	48	76	Pass
0.1467	60	47	78	Pass
0.1505	58	44	75	Pass
0.1544	57	42	73	Pass
0.1582	55	42	76	Pass
0.1620	50	40	80	Pass
0.1659	49	38	77	Pass
0.1697	47	37	78	Pass
0.1735	43	37	86	Pass
0.1774	42	35	83	Pass
0.1812	42	32	76	Pass
0.1851	40	31	77	Pass
0.1889	39	31	79	Pass
0.1927	39	29	74	Pass
0.1966	39	28	71	Pass
0.2004	37	27	72	Pass
0.2042	35	27	77	Pass
0.2081	35	25	71	Pass
0.2119	35	24	68	Pass
0.2157	33	24	72	Pass

0.2196	32	22	68	Pass
0.2234	31	21	67	Pass
0.2272	28	21	75	Pass
0.2311	28	21	75	Pass
0.2349	28	21	75	Pass
0.2387	28	20	71	Pass
0.2426	28	19	67	Pass
0.2464	28	19	67	Pass
0.2502	27	18	66	Pass
0.2541	26	18	69	Pass
0.2579	26	17	65	Pass
0.2617	26	17	65	Pass
0.2656	26	17	65	Pass
0.2694	26	17	65	Pass
0.2732	26	16	61	Pass
0.2771	26	16	61	Pass
0.2809	25	16	64	Pass
0.2847	24	16	66	Pass
0.2886	24	15	62	Pass
0.2924	24	15	62	Pass
0.2962	24	15	62	Pass
0.3001	21	13	61	Pass
0.3039	21	13	61	Pass
0.3077	19	13	68	Pass
0.3116	19	12	63	Pass
0.3154	19	12	63	Pass
0.3192	19	12	63	Pass
0.3231	18	12	66	Pass
0.3269	17	12	70	Pass
0.3307	17	12	70	Pass
0.3346	16	12	75	Pass
0.3384	14	12	85	Pass
0.3422	13	11	84	Pass
0.3461	13	11	84	Pass
0.3499	13	9	69	Pass
0.3537	13	7	53	Pass
0.3576	11	5	45	Pass
0.3614	11	5	45	Pass
0.3652	11	5	45	Pass
0.3691	9	5	55	Pass
0.3729	8	5	62	Pass
0.3767	8	5	62	Pass
0.3806	6	5	83	Pass
0.3844	6	5	83	Pass
0.3882	6	5	83	Pass
0.3921	6	5	83	Pass
0.3959	5	4	80	Pass

Water Quality

Drawdown Time Results

Pond: BMP2

Days	Stage(feet)	Percent of Total Run Time
1	0.872	5.8398
2	1.193	3.9601
3	1.573	2.5650
4	2.000	N/A
5	2.000	N/A

Maximum Stage: 2.000 Drawdown Time: Exceeds 5 days.

Model Default Modifications

Total of 0 changes have been made.

PERLND Changes

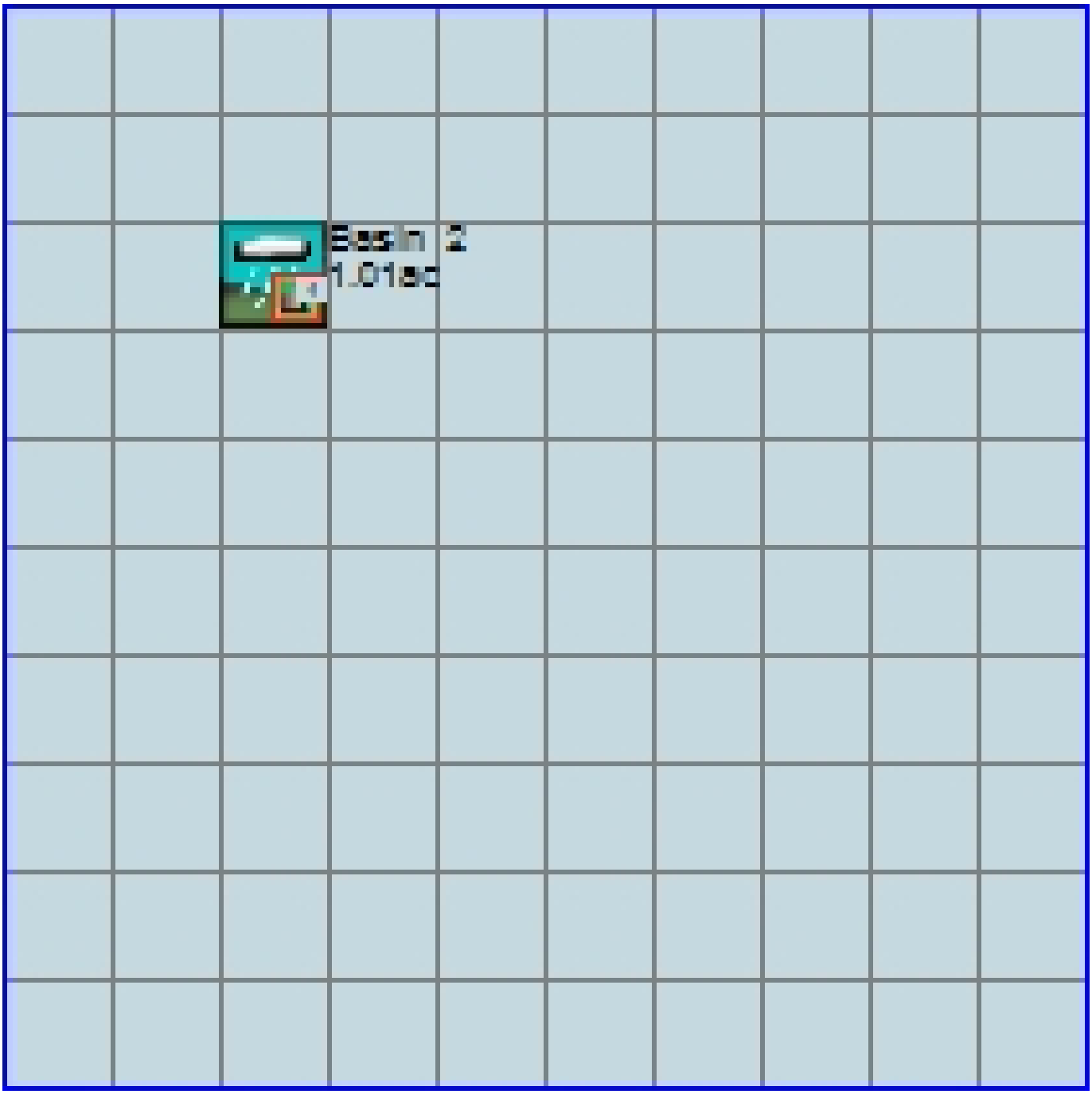
No PERLND changes have been made.

IMPLND Changes

No IMPLND changes have been made.

Appendix

Predeveloped Schematic



Mitigated Schematic

Predeveloped UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1964 10 01        END    2004 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                   UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                              ***
WDM         26   POC2.wdm
MESSU       25   PrePOC2.MES
            27   PrePOC2.L61
            28   PrePOC2.L62
            30   POCPOC21.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:60
      PERLND      22
      PERLND      24
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Basin  2                   MAX                    1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                       in  out           ***
   22      C,Dirt,Flat            1    1    1    1   27    0
   24      C,Dirt,Steep           1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************ Active Sections ****************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   22         0    0    1    0    0    0    0    0    0    0    0    0
   24         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags **************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
```

```
   22         0    0    4    0    0    0    0    0    0    0    0    0    1    9
   24         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   22         0    1    1    1    0    0    0    0    1    1    0
   24         0    1    1    1    0    0    0    0    1    1    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   22              0       4.8     0.045       200      0.05       2.5     0.915
   24              0       4.2      0.03       150      0.15       2.5     0.915
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   22              0         0         2         2         0      0.05      0.05
   24              0         0         2         2         0      0.05      0.05
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                              ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   22              0       0.6       0.2       1.5       0.7         0
   24              0       0.6       0.2       1.5       0.7         0
  END PWAT-PARM4
  MON-LZETPARM
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   22       0.4  0.4  0.4  0.4  0.6  0.6  0.6  0.6  0.6  0.4  0.4  0.4
   24       0.4  0.4  0.4  0.4  0.6  0.6  0.6  0.6  0.6  0.4  0.4  0.4
  END MON-LZETPARM
  MON-INTERCEP
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   22       0.1  0.1  0.1  0.1 0.06 0.06 0.06 0.06 0.06  0.1  0.1  0.1
   24       0.1  0.1  0.1  0.1 0.06 0.06 0.06 0.06 0.06  0.1  0.1  0.1
  END MON-INTERCEP

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
               ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS      IFWS       LZS      AGWS       GWVS
   22              0         0      0.01         0       0.4      0.01          0
   24              0         0      0.01         0       0.4      0.01          0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                     in  out           ***
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************ Active Sections ******************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
  END PRINT-INFO
```

```
  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
Basin  2***
PERLND  22                       0.859     COPY   501     12
PERLND  22                       0.859     COPY   501     13
PERLND  24                       0.151     COPY   501     12
PERLND  24                       0.151     COPY   501     13

******Routing******
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   12.1        DISPLY   1     INPUT  TIMSER 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                ***
    # -  #<----------------><---> User T-series  Engl Metr LKFG             ***
                                      in  out                               ***
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************ Active Sections ****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ****************** PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                 ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
            FG FG FG FG  possible  exit  *** possible  exit      possible  exit
             *  *  *  *    *  *  *  *  *       *  *  *  *  *         ***
  END HYDR-PARM1
```

```
  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><-------->       ***
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                         ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><--->
  END HYDR-INIT
END RCHRES

SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1              PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1              IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    1              PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    1              IMPLND   1 999 EXTNL  PETINP

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
COPY   501 OUTPUT MEAN   1 1     12.1      WDM    501 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>            <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK       12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   12

  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13


END MASS-LINK

END RUN
```

Mitigated UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1964 10 01        END    2004 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                    UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                              ***
WDM         26   POC2.wdm
MESSU       25   MitPOC2.MES
            27   MitPOC2.L61
            28   MitPOC2.L62
            30   POCPOC21.dat
END FILES

OPN SEQUENCE
    INGRP               INDELT 00:60
      PERLND      55
      IMPLND       1
      PERLND      24
      PERLND      57
      IMPLND       6
      RCHRES       1
      GENER        3
      RCHRES       2
      RCHRES       3
      COPY         1
      COPY       501
      COPY       601
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Porous Pavement  1          MAX                    1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  601         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
    3        24
  END OPCODE
  PARM
    #    #         K ***
    3             0.
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                          in  out           ***
   55      C,UrbNoIrr,Flat        1    1    1    1   27    0
   24      C,Dirt,Steep           1    1    1    1   27    0
   57      C,UrbNoIrr,Steep       1    1    1    1   27    0
```

```
END GEN-INFO
*** Section PWATER***

ACTIVITY
  <PLS > ************* Active Sections ******************************
  # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
 55         0    0    1    0    0    0    0    0    0    0    0    0
 24         0    0    1    0    0    0    0    0    0    0    0    0
 57         0    0    1    0    0    0    0    0    0    0    0    0
END ACTIVITY

PRINT-INFO
  <PLS > ***************** Print-flags **************************** PIVL  PYR
  # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
 55         0    0    4    0    0    0    0    0    0    0    0    0    1    9
 24         0    0    4    0    0    0    0    0    0    0    0    0    1    9
 57         0    0    4    0    0    0    0    0    0    0    0    0    1    9
END PRINT-INFO

PWAT-PARM1
  <PLS >  PWATER variable monthly parameter value flags  ***
  # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
 55         0    1    1    1    0    0    0    0    1    1    0
 24         0    1    1    1    0    0    0    0    1    1    0
 57         0    1    1    1    0    0    0    0    1    1    0
END PWAT-PARM1

PWAT-PARM2
  <PLS >      PWATER input info: Part 2         ***
  # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR      KVARY      AGWRC
 55              0       4.8      0.05       200      0.05        2.5      0.915
 24              0       4.2      0.03       150      0.15        2.5      0.915
 57              0       4.2      0.03       150      0.15        2.5      0.915
END PWAT-PARM2

PWAT-PARM3
  <PLS >      PWATER input info: Part 3         ***
  # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
 55              0         0         2         2         0      0.05      0.05
 24              0         0         2         2         0      0.05      0.05
 57              0         0         2         2         0      0.05      0.05
END PWAT-PARM3
PWAT-PARM4
  <PLS >     PWATER input info: Part 4                              ***
  # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
 55              0       0.6       0.2       1.5       0.7         0
 24              0       0.6       0.2       1.5       0.7         0
 57              0       0.6       0.2       1.5       0.7         0
END PWAT-PARM4
MON-LZETPARM
  <PLS >      PWATER input info: Part 3         ***
  # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
 55       0.4  0.4  0.4  0.4  0.6  0.6  0.6  0.6  0.6  0.4  0.4  0.4
 24       0.4  0.4  0.4  0.4  0.6  0.6  0.6  0.6  0.6  0.4  0.4  0.4
 57       0.4  0.4  0.4  0.4  0.6  0.6  0.6  0.6  0.6  0.4  0.4  0.4
END MON-LZETPARM
MON-INTERCEP
  <PLS >      PWATER input info: Part 3         ***
  # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
 55       0.1  0.1  0.1  0.1 0.06 0.06 0.06 0.06 0.06  0.1  0.1  0.1
 24       0.1  0.1  0.1  0.1 0.06 0.06 0.06 0.06 0.06  0.1  0.1  0.1
 57       0.1  0.1  0.1  0.1 0.06 0.06 0.06 0.06 0.06  0.1  0.1  0.1
END MON-INTERCEP

PWAT-STATE1
  <PLS > *** Initial conditions at start of simulation
             ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
  # -  # ***  CEPS      SURS       UZS       IFWS       LZS       AGWS       GWVS
 55              0         0      0.01          0       0.4       0.01          0
 24              0         0      0.01          0       0.4       0.01          0
```

```
   57             0         0      0.01         0       0.4      0.01         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                     in  out           ***
    1      IMPERVIOUS-FLAT        1    1    1   27    0
    6      Porous Pavement        1    1    1   27    0
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************ Active Sections ******************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
    1         0    0    1    0    0    0
    6         0    0    1    0    0    0
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
    1         0    0    4    0    0    0    1    9
    6         0    0    4    0    0    0    1    9
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
    1         0    0    0    0    1
    6         0    0    0    0    1
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
    1            100      0.05      0.05       0.1
    6            100      0.01       0.1       0.1
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
    1              0         0
    6              0         0
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
    1              0         0
    6              0         0
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                 <--Area-->     <-Target->   MBLK   ***
<Name>   #                 <-factor->     <Name>   #   Tbl#   ***
Basin  2***
PERLND  55                      0.098     RCHRES   2      2
PERLND  55                      0.098     RCHRES   2      3
IMPLND   1                      0.182     RCHRES   2      5
IMPLND   6                     0.0101     RCHRES   1      5
Bypass Basin***
PERLND  24                      0.129     COPY   501     12
PERLND  24                      0.129     COPY   601     12
```

```
PERLND  24                      0.129     COPY   501     13
PERLND  24                      0.129     COPY   601     13
PERLND  57                      0.018     COPY   501     12
PERLND  57                      0.018     COPY   601     12
PERLND  57                      0.018     COPY   501     13
PERLND  57                      0.018     COPY   601     13
PERLND  55                      0.548     COPY   501     12
PERLND  55                      0.548     COPY   601     12
PERLND  55                      0.548     COPY   501     13
PERLND  55                      0.548     COPY   601     13

******Routing******
PERLND  55                      0.098     COPY     1     12
IMPLND   1                      0.182     COPY     1     15
PERLND  55                      0.098     COPY     1     13
RCHRES   2                          1     RCHRES   3      8
RCHRES   3                          1     COPY   501     16
RCHRES   2                          1     COPY   501     17
RCHRES   1                          1     COPY   501     16
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   12.1        DISPLY   1     INPUT  TIMSER 1
GENER    3 OUTPUT TIMSER      .0002778     RCHRES   2     EXTNL  OUTDGT 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                ***
    # -  #<-----------------><---> User T-series  Engl Metr LKFG            ***
                                        in  out                             ***
    1     Porous Pavement -007    1    1    1    1   28    0    1
    2     Surface BMP2            3    1    1    1   28    0    1
    3     BMP2                    1    1    1    1   28    0    1
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************ Active Sections ******************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
    1         1    0    0    0    0    0    0    0    0    0
    2         1    0    0    0    0    0    0    0    0    0
    3         1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ****************** PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
    1         4    0    0    0    0    0    0    0    0    0    1    9
    2         4    0    0    0    0    0    0    0    0    0    1    9
    3         4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                  ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
          FG FG FG FG  possible  exit  *** possible  exit      possible  exit
           *  *  *  *    *  *  *  *  *       *  *  *  *  *        ***
    1        0  1  0  0    4  0  0  0  0       0  0  0  0  0       2  2  2  2  2
    2        0  1  0  0    4  5  6  0  0       0  1  0  0  0       2  1  2  2  2
    3        0  1  0  0    4  0  0  0  0       0  0  0  0  0       2  2  2  2  2
  END HYDR-PARM1
```

```
  HYDR-PARM2
    # -  #    FTABNO       LEN      DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><--------><--------> ***
    1              1      0.01       0.0       0.0       0.5       0.0
    2              2      0.01       0.0       0.0       0.5       0.0
    3              3      0.01       0.0       0.0       0.5       0.0
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                         ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
         *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><--->
    1            0         4.0  0.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    2            0         4.0  5.0  6.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    3            0         4.0  0.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
  END HYDR-INIT
END RCHRES

SPEC-ACTIONS
*** User-Defined Variable Quantity Lines
***                           addr
***                          <------>
*** kwd  varnam optyp  opn  vari  s1 s2 s3 tp multiply  lc ls ac as agfn ***
  <****> <----> <----> <-> <----><-><-><-><-><--------> <><-> <><-> <--> ***
  UVQUAN vol3   RCHRES   3 VOL              4
  UVQUAN v2m3   GLOBAL     WORKSP  2        3
  UVQUAN vpo3   GLOBAL     WORKSP  3        3
  UVQUAN v2d3   GENER    3 K       1        3
*** User-Defined Target Variable Names
***                  addr or                       addr or
***                 <------>                      <------>
*** kwd   varnam ct  vari  s1 s2 s3  frac oper     vari  s1 s2 s3  frac oper
  <****>  <----><-> <----><-><-><-> <---> <-->    <----><-><-><-> <---> <-->
  UVNAME  v2m3    1 WORKSP  2         1.0 QUAN
  UVNAME  vpo3    1 WORKSP  3         1.0 QUAN
  UVNAME  v2d3    1 K       1         1.0 QUAN
*** opt foplop dcdts  yr mo dy hr mn d t   vnam  s1 s2 s3 ac quantity  tc  ts rp
  <****><-><--><><-><--> <> <> <> <><><>  <----><-><-><-><-><--------> <> <-><->
  GENER   3                               v2m3           =  1173.
*** Compute remaining available pore space
  GENER   3                               vpo3           =  v2m3
  GENER   3                               vpo3          -=  vol3
*** Check to see if VPORA goes negative; if so set VPORA = 0.0
IF (vpo3 < 0.0) THEN
  GENER   3                               vpo3           =  0.0
END IF
*** Infiltration volume
  GENER   3                               v2d3           =  vpo3
END SPEC-ACTIONS
FTABLES
  FTABLE      3
   53    4
     Depth      Area    Volume  Outflow1 Velocity  Travel Time***
      (ft)   (acres) (acre-ft)   (cfs)   (ft/sec)    (Minutes)***
  0.000000  0.044812  0.000000  0.000000
  0.038462  0.044404  0.000411  0.000000
  0.076923  0.043998  0.000827  0.000000
  0.115385  0.043593  0.001249  0.000000
  0.153846  0.043190  0.001676  0.000000
  0.192308  0.042787  0.002110  0.000000
  0.230769  0.042386  0.002548  0.000000
  0.269231  0.041986  0.002993  0.000000
  0.307692  0.041587  0.003443  0.000000
  0.346154  0.041190  0.003899  0.000000
  0.384615  0.040794  0.004361  0.000000
  0.423077  0.040399  0.004828  0.000000
  0.461538  0.040005  0.005301  0.000000
  0.500000  0.039612  0.005780  0.000000
  0.538462  0.039221  0.006265  0.000000
  0.576923  0.038830  0.006756  0.000000
```

```
  0.615385  0.038441  0.007252  0.000613
  0.653846  0.038054  0.007755  0.000888
  0.692308  0.037667  0.008263  0.001097
  0.730769  0.037282  0.008777  0.001272
  0.769231  0.036898  0.009297  0.001427
  0.807692  0.036515  0.009824  0.001566
  0.846154  0.036133  0.010356  0.001695
  0.884615  0.035753  0.010894  0.001816
  0.923077  0.035374  0.011438  0.001931
  0.961538  0.034996  0.011988  0.002044
  1.000000  0.034619  0.012544  0.002275
  1.038462  0.034243  0.013106  0.002367
  1.076923  0.033869  0.013675  0.002450
  1.115385  0.033496  0.014249  0.002530
  1.153846  0.033124  0.014830  0.002608
  1.192308  0.032754  0.015417  0.002684
  1.230769  0.032384  0.016010  0.002757
  1.269231  0.032016  0.016609  0.002829
  1.307692  0.031649  0.017214  0.002899
  1.346154  0.031283  0.017826  0.002967
  1.384615  0.030919  0.018444  0.003034
  1.423077  0.030555  0.019068  0.003099
  1.461538  0.030193  0.019698  0.003163
  1.500000  0.029832  0.020327  0.003226
  1.538462  0.029473  0.020963  0.003287
  1.576923  0.029114  0.021604  0.003347
  1.615385  0.028757  0.022252  0.003407
  1.653846  0.028401  0.022907  0.003465
  1.692308  0.028046  0.023567  0.003522
  1.730769  0.027693  0.024234  0.003578
  1.769231  0.027341  0.024908  0.003634
  1.807692  0.026990  0.025587  0.003689
  1.846154  0.026640  0.026273  0.003742
  1.884615  0.026291  0.026966  0.003796
  1.923077  0.025944  0.027665  0.003848
  1.961538  0.025597  0.028371  0.003900
  2.000000  0.025253  0.061073  0.003951
  END FTABLE  3
  FTABLE      2
   41    6
     Depth      Area    Volume  Outflow1  Outflow2  outflow 3 Velocity  Travel
Time***
      (ft)   (acres) (acre-ft)   (cfs)      (cfs)     (cfs)   (ft/sec)
(Minutes)***
  0.000000  0.025253  0.000000  0.000000  0.000000  0.000000
  0.038462  0.045220  0.001731  0.000000  0.133664  0.000000
  0.076923  0.045630  0.003479  0.000000  0.137006  0.000000
  0.115385  0.046041  0.005241  0.000000  0.140347  0.000000
  0.153846  0.046453  0.007020  0.000000  0.143689  0.000000
  0.192308  0.046867  0.008815  0.000000  0.147030  0.000000
  0.230769  0.047281  0.010625  0.000000  0.150372  0.000000
  0.269231  0.047697  0.012452  0.000000  0.153714  0.000000
  0.307692  0.048114  0.014294  0.000000  0.157055  0.000000
  0.346154  0.048533  0.016153  0.000000  0.160397  0.000000
  0.384615  0.048952  0.018028  0.000000  0.163738  0.000000
  0.423077  0.049373  0.019919  0.000000  0.167080  0.000000
  0.461538  0.049795  0.021826  0.000000  0.170422  0.000000
  0.500000  0.050218  0.023749  0.000000  0.173763  0.000000
  0.538462  0.050643  0.025689  0.000000  0.177105  0.000000
  0.576923  0.051068  0.027645  0.000000  0.180446  0.000000
  0.615385  0.051495  0.029617  0.000000  0.183788  0.000000
  0.653846  0.051923  0.031606  0.000000  0.187130  0.000000
  0.692308  0.052352  0.033611  0.000000  0.190471  0.000000
  0.730769  0.052783  0.035633  0.000000  0.193813  0.000000
  0.769231  0.053215  0.037671  0.000000  0.197154  0.000000
  0.807692  0.053648  0.039726  0.000000  0.200496  0.000000
  0.846154  0.054082  0.041798  0.000000  0.203838  0.000000
  0.884615  0.054517  0.043886  0.000000  0.207179  0.000000
  0.923077  0.054954  0.045992  0.000000  0.210521  0.000000
  0.961538  0.055392  0.048114  0.000000  0.213862  0.000000
```

```
1.000000  0.055831  0.050253  0.000000  0.217204  0.000000
1.038462  0.056271  0.052408  0.240185  0.220546  0.000000
1.076923  0.056713  0.054581  0.678966  0.223887  0.000000
1.115385  0.057156  0.056771  1.246710  0.227229  0.000000
1.153846  0.057600  0.058978  1.918337  0.230570  0.000000
1.192308  0.058045  0.061202  2.678934  0.233912  0.000000
1.230769  0.058491  0.063443  3.517872  0.237254  0.000000
1.269231  0.058939  0.065701  4.426674  0.240595  0.000000
1.307692  0.059388  0.067977  5.398013  0.243937  0.000000
1.346154  0.059838  0.070269  6.425179  0.247278  0.000000
1.384615  0.060289  0.072580  7.501776  0.250620  0.000000
1.423077  0.060742  0.074907  8.621529  0.253962  0.000000
1.461538  0.061196  0.077252  9.778179  0.257303  0.000000
1.500000  0.061651  0.079614  10.96542  0.260645  0.000000
1.500000  0.061651  0.079614  12.17685  0.260645  0.000000
END FTABLE  2
FTABLE      1
 91    4
   Depth      Area    Volume  Outflow1 Velocity  Travel Time***
    (ft)   (acres) (acre-ft)   (cfs)   (ft/sec)    (Minutes)***
0.000000  0.010101  0.000000  0.000000
0.016667  0.010101  0.000027  0.126120
0.033333  0.010101  0.000054  0.178361
0.050000  0.010101  0.000081  0.218447
0.066667  0.010101  0.000108  0.252241
0.083333  0.010101  0.000135  0.282014
0.100000  0.010101  0.000162  0.308931
0.116667  0.010101  0.000189  0.333683
0.133333  0.010101  0.000215  0.356723
0.150000  0.010101  0.000242  0.378361
0.166667  0.010101  0.000269  0.398828
0.183333  0.010101  0.000296  0.418294
0.200000  0.010101  0.000323  0.436894
0.216667  0.010101  0.000350  0.454734
0.233333  0.010101  0.000377  0.471900
0.250000  0.010101  0.000404  0.488463
0.266667  0.010101  0.000431  0.504482
0.283333  0.010101  0.000458  0.520008
0.300000  0.010101  0.000485  0.535084
0.316667  0.010101  0.000512  0.549746
0.333333  0.010101  0.000539  0.564028
0.350000  0.010101  0.000566  0.577957
0.366667  0.010101  0.000593  0.591557
0.383333  0.010101  0.000620  0.604853
0.400000  0.010101  0.000646  0.617862
0.416667  0.010101  0.000673  0.630602
0.433333  0.010101  0.000700  0.643091
0.450000  0.010101  0.000727  0.655341
0.466667  0.010101  0.000754  0.667367
0.483333  0.010101  0.000781  0.679180
0.500000  0.010101  0.000808  0.690790
0.516667  0.010101  0.000835  0.702209
0.533333  0.010101  0.000862  0.713445
0.550000  0.010101  0.000889  0.724507
0.566667  0.010101  0.000916  0.735402
0.583333  0.010101  0.000943  0.746139
0.600000  0.010101  0.000970  0.756723
0.616667  0.010101  0.000997  0.767161
0.633333  0.010101  0.001024  0.777459
0.650000  0.010101  0.001051  0.787622
0.666667  0.010101  0.001077  0.797656
0.683333  0.010101  0.001104  0.807565
0.700000  0.010101  0.001131  0.817354
0.716667  0.010101  0.001158  0.827027
0.733333  0.010101  0.001185  0.836589
0.750000  0.010101  0.001212  0.846042
0.766667  0.010101  0.001239  0.855391
0.783333  0.010101  0.001266  0.864638
0.800000  0.010101  0.001293  0.873788
0.816667  0.010101  0.001320  0.882843
```

```
  0.833333  0.010101  0.001347  0.891806
  0.850000  0.010101  0.001374  0.900680
  0.866667  0.010101  0.001401  0.909468
  0.883333  0.010101  0.001428  0.918171
  0.900000  0.010101  0.001455  0.926792
  0.916667  0.010101  0.001481  0.935334
  0.933333  0.010101  0.001508  0.943799
  0.950000  0.010101  0.001535  0.952189
  0.966667  0.010101  0.001562  0.960505
  0.983333  0.010101  0.001589  0.968750
  1.000000  0.010101  0.001616  0.976925
  1.016667  0.010101  0.001643  0.985032
  1.033333  0.010101  0.001670  0.993074
  1.050000  0.010101  0.001697  1.001050
  1.066667  0.010101  0.001724  1.008964
  1.083333  0.010101  0.001751  1.016816
  1.100000  0.010101  0.001778  1.024608
  1.116667  0.010101  0.001805  1.032341
  1.133333  0.010101  0.001832  1.040016
  1.150000  0.010101  0.001859  1.047635
  1.166667  0.010101  0.001886  1.055200
  1.183333  0.010101  0.001933  1.062710
  1.200000  0.010101  0.001980  1.070168
  1.216667  0.010101  0.002027  1.077574
  1.233333  0.010101  0.002074  1.084929
  1.250000  0.010101  0.002121  1.092235
  1.266667  0.010101  0.002168  1.099493
  1.283333  0.010101  0.002215  1.106703
  1.300000  0.010101  0.002263  1.113866
  1.316667  0.010101  0.002310  1.120983
  1.333333  0.010101  0.002357  1.128056
  1.350000  0.010101  0.002404  1.135084
  1.366667  0.010101  0.002451  1.142069
  1.383333  0.010101  0.002498  1.149012
  1.400000  0.010101  0.002545  1.155913
  1.416667  0.010101  0.002593  1.162773
  1.433333  0.010101  0.002640  1.169593
  1.450000  0.010101  0.002687  1.176373
  1.466667  0.010101  0.002734  1.183115
  1.483333  0.010101  0.002781  1.189818
  1.500000  0.010101  0.002828  1.196484
  END FTABLE  1
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1              PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1              IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    1              PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    1              IMPLND   1 999 EXTNL  PETINP
WDM      2 PREC     ENGL    1              RCHRES   2     EXTNL  PREC
WDM      1 EVAP     ENGL    1              RCHRES   1     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.5            RCHRES   2     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.7            RCHRES   3     EXTNL  POTEV

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
RCHRES   3 HYDR   RO     1 1        1      WDM   1000 FLOW     ENGL      REPL
RCHRES   3 HYDR   STAGE  1 1        1      WDM   1003 STAG     ENGL      REPL
RCHRES   2 HYDR   STAGE  1 1        1      WDM   1004 STAG     ENGL      REPL
RCHRES   2 HYDR   O      1 1        1      WDM   1005 FLOW     ENGL      REPL
COPY     1 OUTPUT MEAN   1 1     12.1      WDM    701 FLOW     ENGL      REPL
COPY   501 OUTPUT MEAN   1 1     12.1      WDM    801 FLOW     ENGL      REPL
COPY   601 OUTPUT MEAN   1 1     12.1      WDM    901 FLOW     ENGL      REPL
END EXT TARGETS
```

```
MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>             <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK         2
PERLND     PWATER SURO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK     2

  MASS-LINK         3
PERLND     PWATER IFWO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK     3

  MASS-LINK         5
IMPLND     IWATER SURO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK     5

  MASS-LINK         8
RCHRES     OFLOW  OVOL   2                 RCHRES         INFLOW IVOL
  END MASS-LINK     8

  MASS-LINK        12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK    12

  MASS-LINK        13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK    13

  MASS-LINK        15
IMPLND     IWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK    15

  MASS-LINK        16
RCHRES     ROFLOW                          COPY           INPUT  MEAN
  END MASS-LINK    16

  MASS-LINK        17
RCHRES     OFLOW  OVOL   1                 COPY           INPUT  MEAN
  END MASS-LINK    17


END MASS-LINK

END RUN
```

Predeveloped HSPF Message File

```
ERROR/WARNING ID:   238   1

The continuity error reported below is greater than 1 part in 1000 and is
therefore considered high.

Did you specify any "special actions"?  If so, they could account for it.

Relevant data are:
DATE/TIME: 1967/ 7/31 24: 0

RCHRES :    2

RELERR       STORS        STOR       MATIN      MATDIF
-1.000E+00     0.00000  0.0000E+00     0.00000  1.7267E-12

Where:

RELERR is the relative error (ERROR/REFVAL).
ERROR  is (STOR-STORS) - MATDIF.
REFVAL is the reference value (STORS+MATIN).
STOR   is the storage of material in the processing unit (land-segment or
reach/reservior) at the end of the present interval.
STORS  is the storage of material in the pu at the start of the present
printout reporting period.
MATIN  is the total inflow of material to the pu during the present printout
reporting period.
MATDIF is the net inflow (inflow-outflow) of material to the pu during the
present printout reporting period.
```

```
ERROR/WARNING ID:   238   1

The continuity error reported below is greater than 1 part in 1000 and is
therefore considered high.

Did you specify any "special actions"?  If so, they could account for it.

Relevant data are:
DATE/TIME: 1969/ 8/31 24: 0

RCHRES :    2

RELERR       STORS        STOR       MATIN      MATDIF
-1.000E+00     0.00000  0.0000E+00     0.00000  2.8745E-12

Where:

RELERR is the relative error (ERROR/REFVAL).
ERROR  is (STOR-STORS) - MATDIF.
REFVAL is the reference value (STORS+MATIN).
STOR   is the storage of material in the processing unit (land-segment or
reach/reservior) at the end of the present interval.
STORS  is the storage of material in the pu at the start of the present
printout reporting period.
MATIN  is the total inflow of material to the pu during the present printout
reporting period.
MATDIF is the net inflow (inflow-outflow) of material to the pu during the
present printout reporting period.
```

```
ERROR/WARNING ID:   238   1

The continuity error reported below is greater than 1 part in 1000 and is
therefore considered high.

Did you specify any "special actions"?  If so, they could account for it.

Relevant data are:
```

DATE/TIME: 1979/ 8/31 24: 0

RCHRES :   2

RELERR	STORS	STOR	MATIN	MATDIF
-1.000E+00	0.00000	0.0000E+00	0.00000	2.2768E-12

Where:

RELERR is the relative error (ERROR/REFVAL).
ERROR is (STOR-STORS) - MATDIF.
REFVAL is the reference value (STORS+MATIN).
STOR   is the storage of material in the processing unit (land-segment or reach/reservior) at the end of the present interval.
STORS is the storage of material in the pu at the start of the present printout reporting period.
MATIN is the total inflow of material to the pu during the present printout reporting period.
MATDIF is the net inflow (inflow-outflow) of material to the pu during the present printout reporting period.

ERROR/WARNING ID: 238   1

The continuity error reported below is greater than 1 part in 1000 and is therefore considered high.

Did you specify any "special actions"? If so, they could account for it.

Relevant data are:
DATE/TIME: 1987/ 5/31 24: 0

RCHRES :   2

RELERR	STORS	STOR	MATIN	MATDIF
-1.000E+00	0.00000	0.0000E+00	0.00000	3.4539E-12

Where:

RELERR is the relative error (ERROR/REFVAL).
ERROR is (STOR-STORS) - MATDIF.
REFVAL is the reference value (STORS+MATIN).
STOR   is the storage of material in the processing unit (land-segment or reach/reservior) at the end of the present interval.
STORS is the storage of material in the pu at the start of the present printout reporting period.
MATIN is the total inflow of material to the pu during the present printout reporting period.
MATDIF is the net inflow (inflow-outflow) of material to the pu during the present printout reporting period.

ERROR/WARNING ID: 238   1

The continuity error reported below is greater than 1 part in 1000 and is therefore considered high.

Did you specify any "special actions"? If so, they could account for it.

Relevant data are:
DATE/TIME: 2000/ 5/31 24: 0

RCHRES :   2

RELERR	STORS	STOR	MATIN	MATDIF
-1.000E+00	0.00000	0.0000E+00	0.00000	2.0173E-12

Where:

RELERR is the relative error (ERROR/REFVAL).
ERROR is (STOR-STORS) - MATDIF.

REFVAL is the reference value (STORS+MATIN).
STOR is the storage of material in the processing unit (land-segment or reach/reservior) at the end of the present interval.
STORS is the storage of material in the pu at the start of the present printout reporting period.
MATIN is the total inflow of material to the pu during the present printout reporting period.
MATDIF is the net inflow (inflow-outflow) of material to the pu during the present printout reporting period.

The count for the WARNING printed above has reached its maximum.

If the condition is encountered again the message will not be repeated.

Disclaimer

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ATTACHMENT 2B: PRE-DEVELOPMENT HYDROMODIFICATION MANAGEMENT EXHIBIT
COUNTY OF SAN DIEGO TPM 21225
APN 234-120-66

PRE-DEVELOPMENT SURFACE			
①	C,DIRT,FLAT	3.137 AC	DRAINS TO POC#1
②	C,DIRT,STEEP	0.453 AC	DRAINS TO POC#1
③	C,DIRT,FLAT	0.859 AC	DRAINS TO POC#2
④	C,DIRT,STEEP	0.151 AC	DRAINS TO POC#2

UNDERLYING HYDROLOGIC SOIL GROUP: C
APPROXIMATE DEPTH GROUNDWATER: > 20 FT
CRITICAL COARSE SEDIMENT YIELD AREAS TO BE PROTECTED: NONE (SEE ATTACHMENT 2C)
PROPOSED DEMOLITION: NONE

W:\WO1408STEEVEPM\SWQMP\ATT2BHYDROMODEXHIBIT.DWG
PLOTTED: 3/27/2017

ATTACHMENT 2B: POST-DEVELOPMENT HYDROMODIFICATION MANAGEMENT EXHIBIT
COUNTY OF SAN DIEGO TPM 21225
APN 234-120-66

SECTION 5.2.1 SELF-MITIGATING NOTES

- VEGETATION IN THE NATURAL OR LANDSCAPED AREA IS NATIVE AND/OR NON-NATIVE/NON-INVASIVE DROUGHT TOLERANT SPECIES THAT DO NOT REQUIRE REGULAR APPLICATION OF FERTILIZERS AND PESTICIDES.
- SOILS ARE UNDISTURBED NATIVE TOPSOIL, OR DISTURBED SOILS THAT HAVE BEEN AMENDED AND AERATED TO PROMOTE WATER RETENTION CHARACTERISTICS EQUIVALENT TO UNDISTURBED NATIVE TOPSOIL.
- THE INCIDENTAL IMPERVIOUS AREAS ARE LESS THAN 5 PERCENT OF THE SELF-MITIGATING AREA.
- IMPERVIOUS AREA WITHIN THE SELF-MITIGATED AREA SHOULD NOT BE HYDRAULICALLY CONNECTED TO OTHER IMPERVIOUS AREAS UNLESS IT IS A STORM WATER CONVEYANCE SYSTEM (SUCH AS A BROW DITCH).
- THE SELF-MITIGATING AREA IS HYDRAULICALLY SEPARATE FROM DMAS THAT CONTAIN PERMANENT STORM WATER POLLUTANT CONTROL BMPS.

UNDERLYING HYDROLOGIC SOIL GROUP: C
APPROXIMATE DEPTH GROUNDWATER: > 20 FT
CRITICAL COARSE SEDIMENT YIELD AREAS TO BE PROTECTED: NONE (SEE ATTACHMENT 2C)
PROPOSED DEMOLITION: NONE

POC NOTES:

POC#1 – IS DESIGNED TO BE RELEASED AT THE EXISTING SWALE EXITING THE PARCEL AT POINT A. AREAS DRAINING TO BMPS 1, 3 AND 4 WILL HAVE THE HYDROMODIFICATION PERFORMED ON EACH INDIVIDUAL PARCEL ALONG WITH TREATMENT AND RETENTIONS. THE POINT OF COMPLIANCE AND FINAL ANALYSIS FOR MITIGATION WILL TAKE PLACE AT POC#1 FOR THESE THREE PARCELS.

POC#2 – WILL EXIT THE BMP AT A POINT WHERE THE FLOWS WILL BE SPREAD OUT OVER 20 FT VIA A RIP RAP ENERGY DISSIPATER THAT WILL ALLOW THE FLOW TO MIMIC PRE-EXISTING DEVELOPMENT SHEET FLOW. THIS FLOW WILL BE SPREAD TO THE EXISTING SWALE AT AND THE POINT OF COMPLIANCE WILL BE AT WHERE THE SWALE EXISTS THE PARCEL. PERVIOUS PAVING WILL BE INCLUDED IN THIS ANALYSIS AS A BYPASS SITE DESIGN BMP, CONSIDERED TO BE SELF-RETAINING.

HYDROMODIFICATION NOTES:

NO SITE SPECIFIC GEOTECHNICAL INVESTIGATION HAS BEEN COMPLETED. FOR THIS PRELIMINARY ANALYSIS, A SENSITIVITY ANALYSIS IS CONDUCTED TO DETERMINE THE RANGE FOR THE STRUCTURAL BMP SIZE BASED ON A RANGE OF POSSIBLE INFILTRATION LISTED ON G.1-5. THE PROJECT INCLUDES A CONSERVATIVE SIZING BASED ON THE RANGE ON G.1-5,

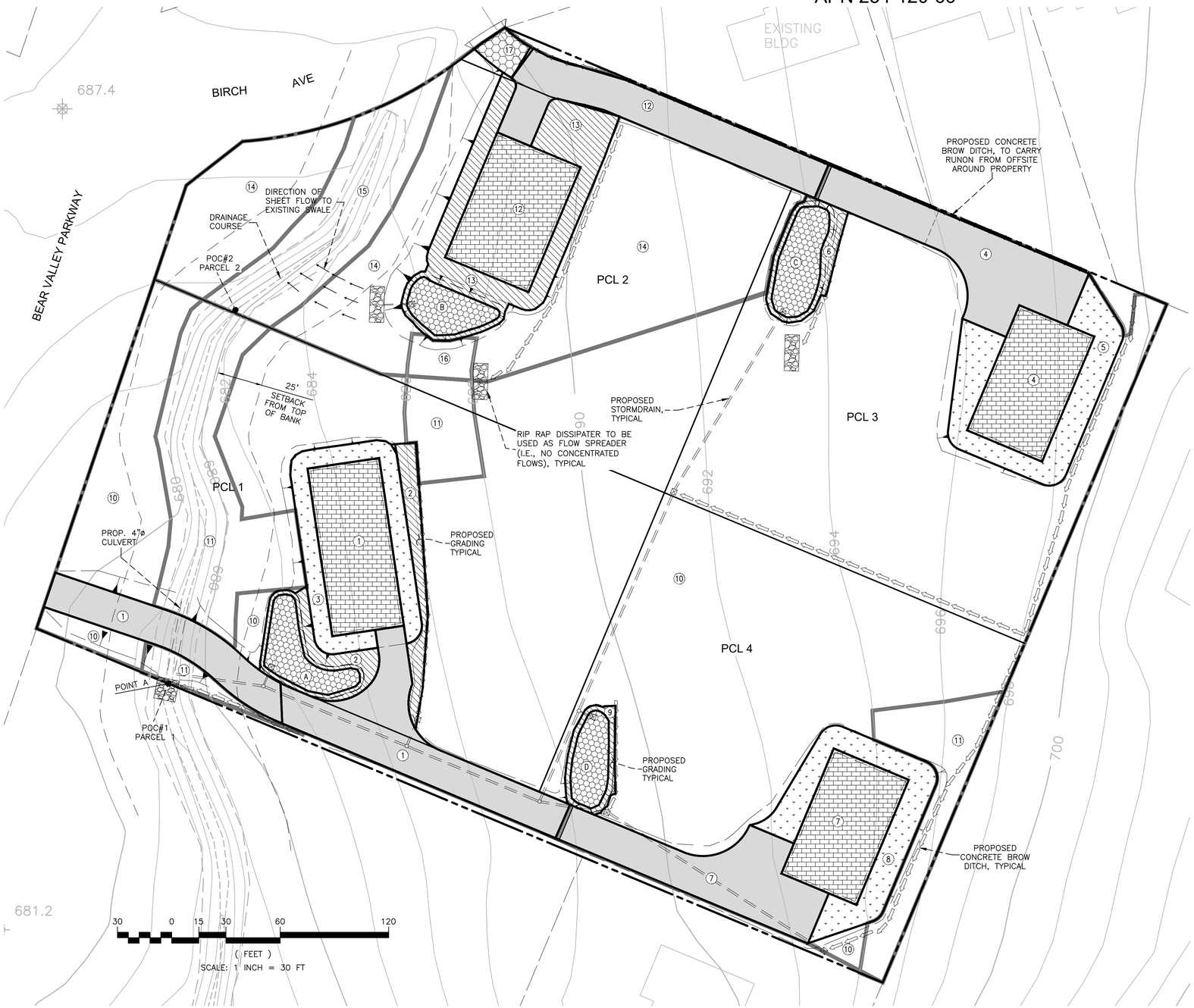
LOW INFILTRATION RATE: 0.0 IN/HR
HIGH INFILTRATION RATE: 0.08 IN/HR.

BMP1 AND BMP2 ARE SIZED AS PR-1 WITH THE LOW INFILTRATION RATE OF 0.0 IN/HR FOR THE MOST CONSERVATIVE ESTIMATE (SEE SDHM RESULTS IN ATTACHMENT 2).

POST-DEVELOPMENT SURFACE			
①	IMPERVIOUS-FLAT	0.261 AC	DRAINS TO BMP1
②	C,URBNOIRR,STEEP	0.029 AC	DRAINS TO BMP1
③	C,URBNOIRR,FLAT	0.089 AC	DRAINS TO BMP1
④	IMPERVIOUS-FLAT	0.178 AC	DRAINS TO BMP3
⑤	C,URBNOIRR,FLAT	0.081 AC	DRAINS TO BMP3
⑥	C,DIRT,FLAT	0.017 AC	DRAINS TO BMP3
⑦	IMPERVIOUS-FLAT	0.175 AC	DRAINS TO BMP4
⑧	C,URBNOIRR,FLAT	0.077 AC	DRAINS TO BMP4
⑨	C,DIRT,FLAT	0.011 AC	DRAINS TO BMP4
⑩	C,URBNOIRR,FLAT	2.242 AC	DRAINS TO POC#1
⑪	C,DIRT,STEEP	0.350 AC	DRAINS TO POC#1
⑫	MIPERVIOUS-FLAT	0.182 AC	DRAINS TO BMP2
⑬	C,URBNOIRR,FLAT	0.098 AC	DRAINS TO BMP2
⑭	C,URBNOIRR,FLAT	0.548 AC	DRAINS TO POC#2
⑮	C,DIRT,STEEP	0.129 AC	DRAINS TO POC#2
⑯	C,URBNOIRR,STEEP	0.018 AC	DRAINS TO POC#2
⑰	POROUS PAVEMENT	0.010 AC	DRAINS TO POC#2

BMP TABLE							
	BMP NAME	AREA (S.F.)	L X W	DMA CATEGORY	POST-PROJECT SURFACE TYPE	HATCH PATTERN	RUNOFF FROM FOLLOWING DMAs
Ⓐ	BMP1	1200	60'X20'	IMP	PR-1		1-3, 10, 11
Ⓑ	BMP2	1100	55'X20'	IMP	PR-1		1-3, 10, 11
Ⓒ	BMP3	1300	65'X20'	IMP	BF-1		1-3, 10, 11
Ⓓ	BMP4	1000	50'X20	IMP	BF-1		1-3, 10, 11

POST-DEVELOPMENT SURFACE TYPE	
LANDSCAPE	
IMPERVIOUS PAVING	
ROOFTOP	
NATURAL TERRAIN	
PERVIOUS PAVING	




Attachment 2c
Steeve Subdivision, Escondido
Legend
CCSYA
SITE
Google earth
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N
2000 ft