

City of Escondido PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

FORMER SEARS
REDEVELOPMENT
PERMIT NO. _____

210 EAST VIA RANCHO PARKWAY
ESCONDIDO, CA 92025

ASSESSOR'S PARCEL NUMBER(S):
271-030-14-00

ENGINEER OF WORK:

ERIC ARMSTRONG – RCE 36083

PREPARED FOR:

COSTCO WHOLESALE
999 LAKE DRIVE
ISSAQUAH, WA 98027

PDP SWQMP PREPARED BY:

FUSCOE ENGINEERING, INC
6390 GREENWICH DRIVE,
STE 170
SAN DIEGO, CA 92122
858-554-1500

DATE OF SWQMP:
SEPTEMBER 6, 2022

PLANS PREPARED BY:
FUSCOE ENGINEERING, INC
6390 GREENWICH DRIVE
SAN DIEGO, CA 92122
858-554-1500

SWQMP APPROVED BY:
[FOR CITY STAFF ONLY]

APPROVAL DATE:



PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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ATTACHMENTS

Attachment 1: Backup for PDP Pollutant Control BMPs

Attachment 1a: Storm Water Pollutant Control Worksheet Calculations (Worksheet B.2-1 DCV, Form I-4)

Attachment 1b: Form I-5, Categorization of Infiltration Feasibility Condition

Attachment 1c: Form I-6, Factor of Safety and Design Infiltration Rate Worksheet

Attachment 1d: Drainage Management Area (DMA) Exhibit

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Attachment 2: Backup for PDP Hydromodification Control Measures

Attachment 2a: Flow Control Facility Design

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Attachment 2c: Management of Critical Coarse Sediment Yield Areas

Attachment 2d: Geomorphic Assessment of Receiving Channels (optional)

Attachment 2e: Vector Control Plan (if applicable)

Attachment 3: Structural BMP Maintenance Plan

Attachment 3a: Structural BMP Maintenance Thresholds and Actions

Attachment 3b: Draft Maintenance Agreements / Notifications (when applicable)

Attachment 4: City of Escondido PDP Structural BMP Verification

Attachment 5: Copy of Plan Sheets Showing Permanent Storm Water BMPs

ACRONYMS

ACP	Alternative Compliance Project
APN	Assessor's Parcel Number
BMP	Best Management Practice
DMA	Drainage Management Area
EOW	Engineer of Work
HMP	Hydromodification Management Plan
HSG	Hydrologic Soil Group
MS4	Municipal Separate Storm Sewer System
N/A	Not Applicable
PDP	Priority Development Project
PE	Professional Engineer
SC	Source Control
SD	Site Design
SDRWQCB	San Diego Regional Water Quality Control Board
SIC	Standard Industrial Classification
SWDM	Storm Water Design Manual
SWQMP	Storm Water Quality Management Plan
WMAA	Watershed Management Area Analysis
WQIP	Water Quality Improvement Plan

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PDP SWQMP PREPARER'S CERTIFICATION PAGE

**Project Name: FORMER SEARS
REDEVELOPMENT
Permit Application Number:**

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 City of Escondido Storm Water Design Manual, which is a design manual for compliance with the City of Escondido Municipal Code (Chapter 22, Article 2) 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 City of Escondido has adopted minimum requirements for managing urban runoff, including storm water, from land development activities, as described in the Storm Water 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 City 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.

RCE 36083 EXP 06/30/2024

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

ERIC ARMSTRONG

Print Name

FUSCOE ENGINEERING, INC

Company

Date

Engineer's Seal:

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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		Initial Submittal
2		
3		
4		

Final Design

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

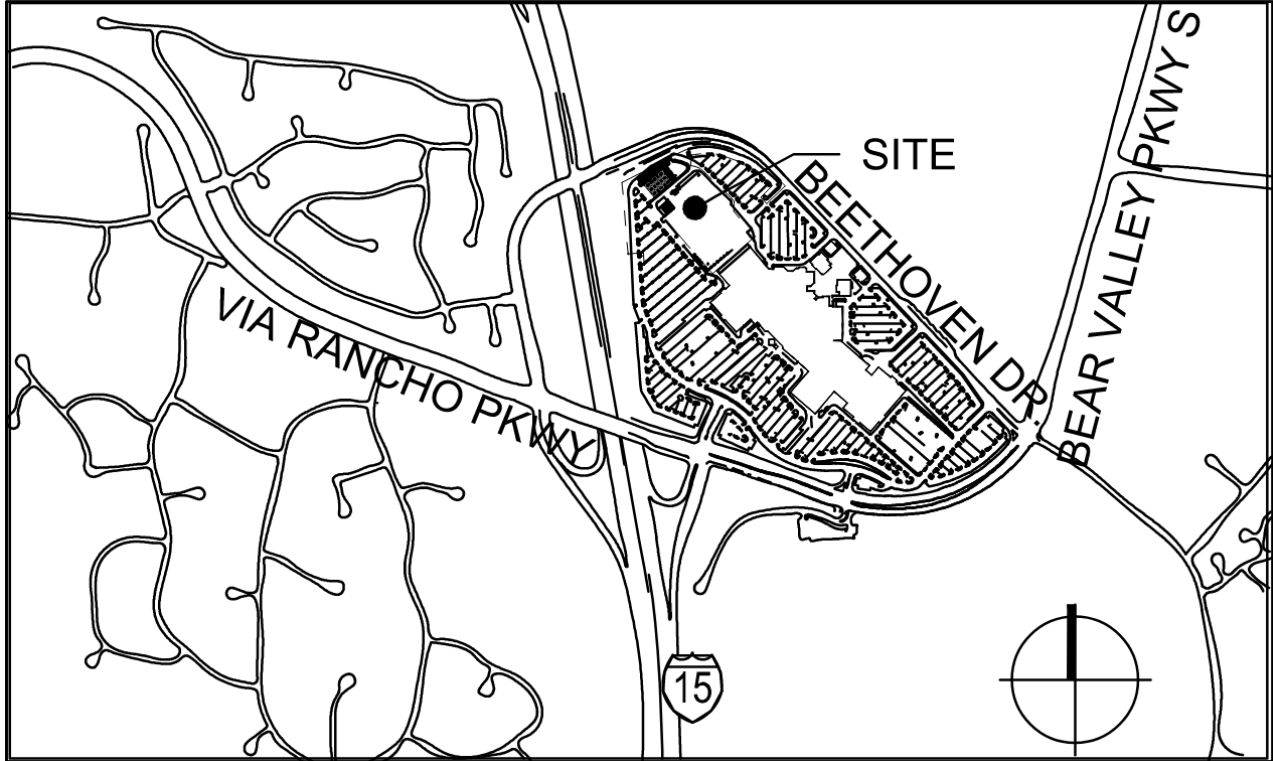
Plan Changes

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

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

PROJECT VICINITY MAP

Project Name: FORMER SEARS REDEVELOPMENT
Record ID:



PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 1: Project type determination (Standard or Priority Development Project) (Form I-2a)

Project Summary Information	
Project Name	FORMER SEARS REDEVELOPMENT
Project Address	210 EAST VIA RANCHO PARKWAY
Assessor's Parcel Number(s)	271-030-14-00
Permit Application Number	
Project Watershed (Hydrologic Unit)	Select One: <input type="checkbox"/> Carlsbad 904 <input checked="" type="checkbox"/> San Dieguito 905
Parcel Area (total area of Assessor's Parcel(s) associated with the project)	<u>9.957</u> Acres (<u>433,741</u> Square Feet)
Area to be disturbed by the project (Project Area)	<u>13.32</u> Acres (<u>580,219</u> Square Feet)
Project Proposed Impervious Area (subset of Project Area)	<u>12.31</u> Acres (<u>536,254</u> Square Feet)
Project Proposed Pervious Area (subset of Project Area)	<u>1.01</u> Acres (<u>43,965</u> Square Feet)
Note: Proposed Impervious Area + Proposed Pervious Area = Area to be Disturbed by the Project. This may be less than the Parcel Area.	
Confirmation of Priority Development Project Determination	
The project is (select one): <input type="checkbox"/> New Development <input checked="" type="checkbox"/> Redevelopment ¹	
The total proposed newly created or replaced impervious area is: <u>536,254</u> ft ²	

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.

Solar energy farms that are not also one of the categories listed in Step 2b of Table 1-1. City staff must also determine that appropriate BMPs are provided to mitigate for downstream impacts due to significant changes to the existing hydrology

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Is the project in any of the following categories, (a) through (f)?			
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	(a)	New development projects that create 10,000 square feet or more of impervious surfaces (collectively over the entire project site). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	(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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	(c)	<p>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:</p> <ul style="list-style-type: none"> (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.
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	(d)	<p>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).</p> <p><i>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.</i></p>
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	(e)	<p>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:</p> <ul style="list-style-type: none"> (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.

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Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	(f)	<p>New or redevelopment projects that result in the disturbance of one or more acres of land and are expected to generate pollutants post construction. <i>Note: See Storm Water Design Manual Section 1.4.2 for additional guidance.</i></p>
<p>Does the project meet the definition of one or more of the Priority Development Project categories (a) through (f) listed above?</p> <p><input type="checkbox"/> No – the project is <u>not</u> a Priority Development Project (Standard Project). <input checked="" type="checkbox"/> Yes – the project is a Priority Development Project (PDP).</p> <p>Further guidance may be found in Chapter 1 and Table 1-2 of the Storm Water Design Manual.</p>			
<p>The following is for redevelopment PDPs only:</p> <p>The area of existing (pre-project) impervious area at the project site is: 561,956 ft² (A) The total proposed newly created or replaced impervious area is 536,254 ft² (B) Percent impervious surface created or replaced (B/A)*100: 95.4% The percent impervious surface created or replaced is (select one based on the above calculation):</p> <p><input type="checkbox"/> less than or equal to fifty percent (50%) – only newly created or replaced impervious areas are considered a PDP and subject to stormwater requirements</p> <p>OR</p> <p><input checked="" type="checkbox"/> greater than fifty percent (50%) – the entire project site is considered a PDP and subject to stormwater requirements</p>			

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 1.1: Storm Water Quality Management Plan requirements

Step	Answer	Progression
<p>Is the project a Standard Project, Priority Development Project (PDP), or exception to PDP definitions?</p> <p>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 Storm Water Design Manual <i>in its entirety</i>.</p>	<input type="checkbox"/> Standard Project	<u>Standard Project</u> requirements apply, including <u>Standard Project SWQMP</u> . Complete Form I-1.
	<input checked="" type="checkbox"/> PDP	Standard and PDP requirements apply, including <u>PDP SWQMP</u> . SWQMP Required.
	<input type="checkbox"/> PDP with ACP	If participating in offsite alternative compliance, complete Step 6.3 and an ACP SWQMP.
	<input type="checkbox"/> PDP Exemption	Go to Step 1.2 below.

Step 1.2: Exemption to PDP definitions

<p>Is the project exempt from PDP definitions based on either of the following:</p> <p><input type="checkbox"/> Projects that are only new or retrofit paved sidewalks, bicycle lanes, or trails that meet the following criteria:</p> <ul style="list-style-type: none"> (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 Green Streets Infrastructure; 	<p>If so:</p> <p><u>Standard Project</u> requirements apply, AND <u>any additional requirements specific to the type of project</u>. <u>City concurrence</u> with the exemption is required. <i>Provide discussion and list any additional requirements below in this form.</i></p>
<p><input type="checkbox"/> Projects that are only retrofitting or redeveloping existing paved alleys, streets or roads that are designed and constructed in accordance with the City of Escondido Guidance on Green Infrastructure.</p>	PDP Exempt.
<p><i>Discussion / justification, and additional requirements for exceptions to PDP definitions, if applicable:</i></p>	

Step 2: Construction Storm Water BMPs

Construction storm water BMPs shall be shown on the Grading Plan and (if applicable) included in the Storm Water Pollution Prevention Plan (SWPPP).

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Step 3: City of Escondido PDP SWQMP Site Information Checklist (Form I-2a)

Step 3.1: Description of Existing Site Condition

<p>Current Status of the Site (select all that apply):</p> <p><input checked="" type="checkbox"/> Existing development</p> <p><input type="checkbox"/> Previously graded but not built out</p> <p><input type="checkbox"/> Demolition completed without new construction</p> <p><input type="checkbox"/> Agricultural or other non-impervious use</p> <p><input type="checkbox"/> Vacant, undeveloped/natural</p> <p><i>Description / Additional Information:</i> Former Sears building connected to Westfield Mall</p>
<p>Existing Land Cover Includes (select all that apply and provide each area on site):</p> <p><input checked="" type="checkbox"/> Vegetative Cover <u>0.42</u> Acres (<u>18,263</u> Square Feet)</p> <p><input type="checkbox"/> Non-Vegetated Pervious Areas _____ Acres (_____ Square Feet)</p> <p><input checked="" type="checkbox"/> Impervious Areas <u>12.90</u> Acres (<u>561,956</u> Square Feet)</p> <p><i>Description / Additional Information:</i> Parking lots, roof top, walkways, and planters</p>
<p>Underlying Soil belongs to Hydrologic Soil Group (select all that apply):</p> <p><input type="checkbox"/> NRCS Type A</p> <p><input type="checkbox"/> NRCS Type B</p> <p><input type="checkbox"/> NRCS Type C</p> <p><input checked="" type="checkbox"/> NRCS Type D</p>
<p>Approximate Depth to Groundwater (GW) (or N/A for no infiltration BMPs):</p> <p><input type="checkbox"/> GW Depth < 5 feet</p> <p><input type="checkbox"/> 5 feet < GW Depth < 10 feet</p> <p><input checked="" type="checkbox"/> 10 feet < GW Depth < 20 feet</p> <p><input type="checkbox"/> GW Depth > 20 feet</p>
<p>Existing Natural Hydrologic Features (select all that apply):</p> <p><input type="checkbox"/> Watercourses</p> <p><input type="checkbox"/> Seeps</p> <p><input type="checkbox"/> Springs</p> <p><input type="checkbox"/> Wetlands</p> <p><input checked="" type="checkbox"/> None</p> <p><input type="checkbox"/> Other</p> <p><i>Description / Additional Information:</i></p>

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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:

Existing drainage is urban and conveyed in surface gutters to inlets. Then conveyed in underground storm drains to outlet into a natural channel (Kit Carson Creek).

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Step 3.3: Description of Proposed Site Development

<p><i>Project Description / Proposed Land Use and/or Activities:</i> Demolition of the former Sears building and construction of a new 1-story Retail building.</p>
<p><i>List/describe proposed impervious features of the project (e.g., buildings, roadways, parking lots, courtyards, athletic courts, other impervious features):</i> Impervious features include buildings, roadways, parking lots, and walkways.</p>
<p><i>List/describe proposed pervious features of the project (e.g., landscape areas):</i> Perimeter landscaping and landscape islands within the parking lot.</p>
<p>Does the project include grading and changes to site topography? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><i>Description / Additional Information:</i> Large infill of bottom floor of existing Sears building with retaining wall on south and east sides. Slight grading modifications to site parking lots for drainage.</p>

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	18,263	43,965	240.7%
Pervious (non-vegetated)	0	0	0
Impervious	561,956	536,254	95.4%

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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:

Existing on-site storm drain will be partially demolished and replaced with new storm drain pipes that will convey storm water off site. The western parking lots will sheet flow into Modular Wetland Units via curb inlets and conveyed partially by a ribbon gutter to the north. Similarly to the east, storm water will sheet flow across the parking lot into curb inlets and ultimately into MWS treatment systems. Treated water will then enter holding tanks to reduce storm event flows from entering the downstream storm drain systems.

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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).

- 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:

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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

<p><i>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):</i> The site is tributary to Kit Carson Creek which is a tributary to the San Dieguito River. The San Dieguito River outlets to the Pacific Ocean. The storm water will flow through Lake Hodges, which is an artificial lake/reservoir formed by a dam on the San Dieguito River.</p>			
<p>List any 303(d) impaired water bodies² 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:</p>			
303(d) Impaired Water Body	Pollutant(s)/Stressor(s)	TMDLs / WQIP Highest Priority Pollutant	
Kit Carson Creek			
Lake Hodges			
San Dieguito River			
<p>Identification of Project Site Pollutants*</p> <p>*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).</p>			
<p>Identify pollutants expected from the project site based on all proposed use(s) of the site (see Storm Water Design Manual Appendix B.6):</p>			
Pollutant	Not Applicable to the Project Site	Anticipated from the Project Site	Also a Receiving Water Pollutant of Concern
Sediment		X	X
Nutrients		X	X
Heavy Metals	X		
Organic Compounds	X		
Trash & Debris		X	X
Oxygen Demanding Substances	X		
Oil & Grease		X	
Bacteria & Viruses	X		
Pesticides	X		

² 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

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Step 3.7: Hydromodification Management Requirements

Do hydromodification management requirements apply (see Section 1.6 of the Storm Water 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 WMAA³ for the watershed in which the project resides.

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

³The 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

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Step 3.7.1: Critical Coarse Sediment Yield Areas*

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

Based on the maps provided within the WMAA, do potential critical coarse sediment yield areas exist within the project drainage boundaries?

Yes

No, no critical coarse sediment yield areas to be protected based on WMAA maps

If yes, have any of the optional analyses presented in Section 6.2 of the manual been performed?

6.2.1 Verification of GLUs (classification that provides an estimate of sediment yield based on geology, hillslope, and land cover) Onsite

6.2.2 Downstream Systems Sensitivity to Coarse Sediment

6.2.3 Optional Additional Analysis of Potential Critical Coarse Sediment Yield Areas Onsite

No optional analyses performed, the project will avoid critical coarse sediment yield areas identified based on WMAA maps

If optional analyses were performed, what is the final result?

No critical coarse sediment yield areas to be protected based on verification of GLUs onsite. Critical coarse sediment yield areas exist but additional analysis has determined that protection is not required. Documentation attached in Attachment 8 of the SWQMP.

Critical coarse sediment yield areas exist and require protection. The project will implement management measures described in Sections 6.2.4 and 6.2.5 as applicable, and the areas are identified on the SWQMP Exhibit.

Discussion / Additional Information:

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Flow Control for Post-Project Runoff*

<p>*This Section only required if hydromodification management requirements apply</p> <p><i>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.</i></p>
<p>Has a geomorphic assessment been performed for the receiving channel(s)?</p> <p><input checked="" type="checkbox"/> No, the low flow threshold is 0.1Q2 (default low flow threshold)</p> <p><input type="checkbox"/> Yes, the result is the low flow threshold is 0.1Q2</p> <p><input type="checkbox"/> Yes, the result is the low flow threshold is 0.3Q2</p> <p><input type="checkbox"/> Yes, the result is the low flow threshold is 0.5Q2</p> <p><i>If a geomorphic assessment has been performed, provide title, date, and preparer:</i></p> <p><i>Discussion / Additional Information: (optional)</i></p>

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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.

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.

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Step 4: Source Control BMP Checklist (Form I-2b)

Source Control BMPs			
<p>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 City Storm Water Design Manual for information to implement source control BMPs shown in this checklist. The following checklists serve as guides only. Mark what elements are included in your project. See Storm Water Design Manual Chapter 4 and Appendix E for more information on determining appropriate BMPs for your project.</p> <p>Answer each category below pursuant to the following:</p> <ul style="list-style-type: none"> • "Yes" means the project will implement the source control BMP as described in Chapter 4.2 and/or Appendix E of the City Storm Water 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?		
SC-1 Prevention of Illicit Discharges into the MS4	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input checked="" type="checkbox"/> Direct irrigation water away from impervious surfaces <input type="checkbox"/> Direct vehicle wash water away from impervious surfaces <input type="checkbox"/> Other: _____			
<i>Discussion / justification if SC-1 not implemented:</i>			
SC-2 Storm Drain Stenciling or Signage	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input checked="" type="checkbox"/> Stencil or stamp storm drains with anti-dumping message <input type="checkbox"/> Post signs prohibiting illegal dumping <input type="checkbox"/> Other			
<i>Discussion / justification if SC-2 not implemented:</i>			
SC-3 Protect Outdoor Materials Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input checked="" type="checkbox"/> Store materials inside a covered enclosure <input checked="" type="checkbox"/> Direct runoff from downspouts and roofs away from storage areas <input type="checkbox"/> Other			
<i>Discussion / justification if SC-3 not implemented:</i>			

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SC-4 Protect Materials Stored in Outdoor Work Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> Locate work area away from storm drains or catch basins Work over impermeable surfaces where spills and pollutants can be captured and <input checked="" type="checkbox"/> removed <i>Discussion / justification if SC-4 not implemented:</i>			
SC-5 Protect Trash Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input checked="" type="checkbox"/> Locate trash containers in a roofed, walled enclosure <input type="checkbox"/> Locate trash containers away from storm drains <i>Discussion / justification if SC-5 not implemented:</i>			
SC-6 Additional BMPs Based on Potential Sources of Runoff Pollutants (must answer for each source listed below):			
<input type="checkbox"/> A. On-site storm drain inlets	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> B. Interior floor drains and elevator shaft sump pumps	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> C. Interior parking garages	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> D. Need for future indoor & structural pest control	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> E. Landscape/outdoor pesticide use	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> F. Pools, spas, ponds, fountains, and other water features	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> G. Food service	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> H. Refuse areas	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> I. Industrial processes	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> J. Outdoor storage of equipment or materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> K. Vehicle and equipment cleaning	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> L. Vehicle/equipment repair and maintenance	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> M. Fuel dispensing areas	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> N. Loading docks	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> O. Fire sprinkler test water	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> P. Miscellaneous drain or wash water	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> Q. Plazas, sidewalks, and parking lots	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<i>Discussion / justification if SC-6 not implemented. Clearly identify which sources of runoff pollutants are discussed. Justification must be provided for <u>all</u> "No" answers shown above.</i>			

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

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Step 5: Site Design BMP Checklist (Form I-2c)

Site Design BMPs			
<p>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 City Storm Water Design Manual for information to implement site design BMPs shown in this checklist. The following checklists serve as guides only. Mark what elements are included in your project. See Storm Water Design Manual Chapter 4 and Appendix E for more information on determining appropriate BMPs for your project.</p> <p>Answer each category below pursuant to the following:</p> <ul style="list-style-type: none"> • "Yes" means the project will implement the site design BMP as described in Chapter 4.3 and/or Appendix E of the City Storm Water 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?		
SD-1 Maintain Natural Drainage Pathways and Hydrologic Features	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> Maintain existing drainage patterns <i>Discussion / justification if SD-1 not implemented:</i>			
SD-2 Conserve Natural Areas, Soils, and Vegetation	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> Preserve trees (see Zoning Code Art. 55 Grading & Erosion Control; Art. 62 Landscape Regulations) <input type="checkbox"/> Avoid sensitive areas such as wetlands and waterways <i>Discussion / justification if SD-2 not implemented:</i>			
SD-3 Minimize Impervious Area	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> Install parking and driving aisles to minimum width required to meet standards <i>Discussion / justification if SD-3 not implemented:</i>			

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SD-4 Minimize Soil Compaction	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input checked="" type="checkbox"/> Avoid compaction in planned landscaped spaces <input type="checkbox"/> Till and amend soil for improved infiltration capacity <i>Discussion / justification if SD-4 not implemented:</i>			
SD-5 Impervious Area Dispersion	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> Drain rooftops, roads or sidewalks into adjacent landscape areas <input type="checkbox"/> Drain impervious surfaces through pervious areas <i>Discussion / justification if SD-5 not implemented:</i>			
SD-6 Runoff Collection	<input checked="" type="checkbox"/> Yes		
<i>Discussion / justification if SD-6 not implemented:</i>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
SD-7 Landscaping with Native or Drought Tolerant Species			
<i>Discussion / justification if SD-7 not implemented:</i>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
SD-8 Harvesting and Using Precipitation			
<i>Discussion / justification if SD-8 not implemented:</i>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A

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

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 6: PDP Structural BMPs (Form I-3)

All PDPs must implement structural BMPs for storm water pollutant control (see Chapter 5 of the Storm Water 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 Storm Water 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 City 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 8.2.3.2 of the Storm Water Design Manual). PDP structural BMPs must be maintained into perpetuity, and the City must confirm the maintenance (see Section 7 of the Storm Water 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 Storm Water 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.

Due to a lack of pervious space available on site, proprietary biofiltration units (Modular Wetland Systems – MWS) are being proposed for pollutant control.

The selected biofiltration units have small footprints and meet the requirements per Section B.6.3. Runoff will be collected and conveyed to the biofiltration unit before flowing offsite via storm drain system.

The Modular Wetland Units will be maintained in accordance with manufacturer guidelines and conditions.

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 6.2: Structural BMP Checklist

(Copy this page as needed to provide information for each individual proposed structural BMP)	
Structural BMP ID No. BMP-1	
Construction Plan Sheet No.	
Type of structural BMP: <input type="checkbox"/> Retention by harvest and use (HU-1) <input type="checkbox"/> Retention by infiltration basin (INF-1) <input type="checkbox"/> Retention by bioretention (INF-2) <input type="checkbox"/> Retention by permeable pavement (INF-3) <input type="checkbox"/> Partial retention by biofiltration with partial retention (PR-1) <input type="checkbox"/> Biofiltration (BF-1) <input type="checkbox"/> Biofiltration with Nutrient Sensitive Media Design (BF-2) <input checked="" type="checkbox"/> Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F <input type="checkbox"/> Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) <input type="checkbox"/> 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) <input type="checkbox"/> Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) <input type="checkbox"/> Detention pond or vault for hydromodification management <input type="checkbox"/> Other (describe in discussion section below)	
Purpose: <input checked="" type="checkbox"/> Pollutant control only <input type="checkbox"/> Hydromodification control only <input type="checkbox"/> Combined pollutant control and hydromodification control <input type="checkbox"/> Pre-treatment/forebay for another structural BMP <input type="checkbox"/> 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 8.2.3.2 of the Storm Water Design Manual)	Eric Armstrong, PE 36083 Fuscoe Engineering, Inc 6390 Greenwich Drive, Suite 170 San Diego, CA 92122
Who will be the final owner of this BMP?	<input type="checkbox"/> HOA <input checked="" type="checkbox"/> Property Owner <input type="checkbox"/> City <input type="checkbox"/> Other (describe)
Who will maintain this BMP into perpetuity?	<input type="checkbox"/> HOA <input checked="" type="checkbox"/> Property Owner <input type="checkbox"/> City <input type="checkbox"/> Other (describe)
<i>Discussion (as needed):</i> (Continue on subsequent pages as necessary)	

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 6.2: Structural BMP Checklist

(Copy this page as needed to provide information for each individual proposed structural BMP)	
Structural BMP ID No. BMP-2	
Construction Plan Sheet No.	
Type of structural BMP: <input type="checkbox"/> Retention by harvest and use (HU-1) <input type="checkbox"/> Retention by infiltration basin (INF-1) <input type="checkbox"/> Retention by bioretention (INF-2) <input type="checkbox"/> Retention by permeable pavement (INF-3) <input type="checkbox"/> Partial retention by biofiltration with partial retention (PR-1) <input type="checkbox"/> Biofiltration (BF-1) <input type="checkbox"/> Biofiltration with Nutrient Sensitive Media Design (BF-2) <input checked="" type="checkbox"/> Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F <input type="checkbox"/> Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) <input type="checkbox"/> 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) <input type="checkbox"/> Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) <input type="checkbox"/> Detention pond or vault for hydromodification management <input type="checkbox"/> Other (describe in discussion section below)	
Purpose: <input checked="" type="checkbox"/> Pollutant control only <input type="checkbox"/> Hydromodification control only <input type="checkbox"/> Combined pollutant control and hydromodification control <input type="checkbox"/> Pre-treatment/forebay for another structural BMP <input type="checkbox"/> 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 8.2.3.2 of the Storm Water Design Manual)	Eric Armstrong, PE 36083 Fuscoe Engineering, Inc 6390 Greenwich Drive, Suite 170 San Diego, CA 92122
Who will be the final owner of this BMP?	<input type="checkbox"/> HOA <input checked="" type="checkbox"/> Property Owner <input type="checkbox"/> City <input type="checkbox"/> Other (describe)
Who will maintain this BMP into perpetuity?	<input type="checkbox"/> HOA <input checked="" type="checkbox"/> Property Owner <input type="checkbox"/> City <input type="checkbox"/> Other (describe)
<i>Discussion (as needed):</i> (Continue on subsequent pages as necessary)	

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 6.2: Structural BMP Checklist

(Copy this page as needed to provide information for each individual proposed structural BMP)	
Structural BMP ID No. BMP-3	
Construction Plan Sheet No.	
Type of structural BMP: <input type="checkbox"/> Retention by harvest and use (HU-1) <input type="checkbox"/> Retention by infiltration basin (INF-1) <input type="checkbox"/> Retention by bioretention (INF-2) <input type="checkbox"/> Retention by permeable pavement (INF-3) <input type="checkbox"/> Partial retention by biofiltration with partial retention (PR-1) <input type="checkbox"/> Biofiltration (BF-1) <input type="checkbox"/> Biofiltration with Nutrient Sensitive Media Design (BF-2) <input checked="" type="checkbox"/> Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F <input type="checkbox"/> Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) <input type="checkbox"/> 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) <input type="checkbox"/> Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) <input type="checkbox"/> Detention pond or vault for hydromodification management <input type="checkbox"/> Other (describe in discussion section below)	
Purpose: <input checked="" type="checkbox"/> Pollutant control only <input type="checkbox"/> Hydromodification control only <input type="checkbox"/> Combined pollutant control and hydromodification control <input type="checkbox"/> Pre-treatment/forebay for another structural BMP <input type="checkbox"/> 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 8.2.3.2 of the Storm Water Design Manual)	Eric Armstrong, PE 36083 Fuscoe Engineering, Inc 6390 Greenwich Drive, Suite 170 San Diego, CA 92122
Who will be the final owner of this BMP?	<input type="checkbox"/> HOA <input checked="" type="checkbox"/> Property Owner <input type="checkbox"/> City <input type="checkbox"/> Other (describe)
Who will maintain this BMP into perpetuity?	<input type="checkbox"/> HOA <input checked="" type="checkbox"/> Property Owner <input type="checkbox"/> City <input type="checkbox"/> Other (describe)
<i>Discussion (as needed):</i>	
<i>(Continue on subsequent pages as necessary)</i>	

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 6.2: Structural BMP Checklist

(Copy this page as needed to provide information for each individual proposed structural BMP)	
Structural BMP ID No. BMP-4	
Construction Plan Sheet No.	
Type of structural BMP: <input type="checkbox"/> Retention by harvest and use (HU-1) <input type="checkbox"/> Retention by infiltration basin (INF-1) <input type="checkbox"/> Retention by bioretention (INF-2) <input type="checkbox"/> Retention by permeable pavement (INF-3) <input type="checkbox"/> Partial retention by biofiltration with partial retention (PR-1) <input type="checkbox"/> Biofiltration (BF-1) <input type="checkbox"/> Biofiltration with Nutrient Sensitive Media Design (BF-2) <input checked="" type="checkbox"/> Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F <input type="checkbox"/> Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) <input type="checkbox"/> 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) <input type="checkbox"/> Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) <input type="checkbox"/> Detention pond or vault for hydromodification management <input type="checkbox"/> Other (describe in discussion section below)	
Purpose: <input checked="" type="checkbox"/> Pollutant control only <input type="checkbox"/> Hydromodification control only <input type="checkbox"/> Combined pollutant control and hydromodification control <input type="checkbox"/> Pre-treatment/forebay for another structural BMP <input type="checkbox"/> 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 8.2.3.2 of the Storm Water Design Manual)	Eric Armstrong, PE 36083 Fuscoe Engineering, Inc 6390 Greenwich Drive, Suite 170 San Diego, CA 92122
Who will be the final owner of this BMP?	<input type="checkbox"/> HOA <input checked="" type="checkbox"/> Property Owner <input type="checkbox"/> City <input type="checkbox"/> Other (describe)
Who will maintain this BMP into perpetuity?	<input type="checkbox"/> HOA <input checked="" type="checkbox"/> Property Owner <input type="checkbox"/> City <input type="checkbox"/> Other (describe)
<i>Discussion (as needed):</i> (Continue on subsequent pages as necessary)	

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 6.2: Structural BMP Checklist

(Copy this page as needed to provide information for each individual proposed structural BMP)	
Structural BMP ID No. BMP-5	
Construction Plan Sheet No.	
Type of structural BMP: <input type="checkbox"/> Retention by harvest and use (HU-1) <input type="checkbox"/> Retention by infiltration basin (INF-1) <input type="checkbox"/> Retention by bioretention (INF-2) <input type="checkbox"/> Retention by permeable pavement (INF-3) <input type="checkbox"/> Partial retention by biofiltration with partial retention (PR-1) <input type="checkbox"/> Biofiltration (BF-1) <input type="checkbox"/> Biofiltration with Nutrient Sensitive Media Design (BF-2) <input checked="" type="checkbox"/> Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F <input type="checkbox"/> Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) <input type="checkbox"/> 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) <input type="checkbox"/> Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) <input type="checkbox"/> Detention pond or vault for hydromodification management <input type="checkbox"/> Other (describe in discussion section below)	
Purpose: <input checked="" type="checkbox"/> Pollutant control only <input type="checkbox"/> Hydromodification control only <input type="checkbox"/> Combined pollutant control and hydromodification control <input type="checkbox"/> Pre-treatment/forebay for another structural BMP <input type="checkbox"/> 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 8.2.3.2 of the Storm Water Design Manual)	Eric Armstrong, PE 36083 Fuscoe Engineering, Inc 6390 Greenwich Drive, Suite 170 San Diego, CA 92122
Who will be the final owner of this BMP?	<input type="checkbox"/> HOA <input checked="" type="checkbox"/> Property Owner <input type="checkbox"/> City <input type="checkbox"/> Other (describe)
Who will maintain this BMP into perpetuity?	<input type="checkbox"/> HOA <input checked="" type="checkbox"/> Property Owner <input type="checkbox"/> City <input type="checkbox"/> Other (describe)
<i>Discussion (as needed):</i>	
<i>(Continue on subsequent pages as necessary)</i>	

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 6.2: Structural BMP Checklist

(Copy this page as needed to provide information for each individual proposed structural BMP)	
Structural BMP ID No. BMP-6	
Construction Plan Sheet No.	
Type of structural BMP: <input type="checkbox"/> Retention by harvest and use (HU-1) <input type="checkbox"/> Retention by infiltration basin (INF-1) <input type="checkbox"/> Retention by bioretention (INF-2) <input type="checkbox"/> Retention by permeable pavement (INF-3) <input type="checkbox"/> Partial retention by biofiltration with partial retention (PR-1) <input type="checkbox"/> Biofiltration (BF-1) <input type="checkbox"/> Biofiltration with Nutrient Sensitive Media Design (BF-2) <input checked="" type="checkbox"/> Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F <input type="checkbox"/> Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) <input type="checkbox"/> 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) <input type="checkbox"/> Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) <input type="checkbox"/> Detention pond or vault for hydromodification management <input type="checkbox"/> Other (describe in discussion section below)	
Purpose: <input checked="" type="checkbox"/> Pollutant control only <input type="checkbox"/> Hydromodification control only <input type="checkbox"/> Combined pollutant control and hydromodification control <input type="checkbox"/> Pre-treatment/forebay for another structural BMP <input type="checkbox"/> 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 8.2.3.2 of the Storm Water Design Manual)	Eric Armstrong, PE 36083 Fuscoe Engineering, Inc 6390 Greenwich Drive, Suite 170 San Diego, CA 92122
Who will be the final owner of this BMP?	<input type="checkbox"/> HOA <input checked="" type="checkbox"/> Property Owner <input type="checkbox"/> City <input type="checkbox"/> Other (describe)
Who will maintain this BMP into perpetuity?	<input type="checkbox"/> HOA <input checked="" type="checkbox"/> Property Owner <input type="checkbox"/> City <input type="checkbox"/> Other (describe)
<i>Discussion (as needed):</i>	
<i>(Continue on subsequent pages as necessary)</i>	

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 6.2: Structural BMP Checklist

(Copy this page as needed to provide information for each individual proposed structural BMP)	
Structural BMP ID No. BMP-7	
Construction Plan Sheet No.	
Type of structural BMP: <input type="checkbox"/> Retention by harvest and use (HU-1) <input type="checkbox"/> Retention by infiltration basin (INF-1) <input type="checkbox"/> Retention by bioretention (INF-2) <input type="checkbox"/> Retention by permeable pavement (INF-3) <input type="checkbox"/> Partial retention by biofiltration with partial retention (PR-1) <input type="checkbox"/> Biofiltration (BF-1) <input type="checkbox"/> Biofiltration with Nutrient Sensitive Media Design (BF-2) <input checked="" type="checkbox"/> Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F <input type="checkbox"/> Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) <input type="checkbox"/> 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) <input type="checkbox"/> Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) <input type="checkbox"/> Detention pond or vault for hydromodification management <input type="checkbox"/> Other (describe in discussion section below)	
Purpose: <input checked="" type="checkbox"/> Pollutant control only <input type="checkbox"/> Hydromodification control only <input type="checkbox"/> Combined pollutant control and hydromodification control <input type="checkbox"/> Pre-treatment/forebay for another structural BMP <input type="checkbox"/> 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 8.2.3.2 of the Storm Water Design Manual)	Eric Armstrong, PE 36083 Fuscoe Engineering, Inc 6390 Greenwich Drive, Suite 170 San Diego, CA 92122
Who will be the final owner of this BMP?	<input type="checkbox"/> HOA <input checked="" type="checkbox"/> Property Owner <input type="checkbox"/> City <input type="checkbox"/> Other (describe)
Who will maintain this BMP into perpetuity?	<input type="checkbox"/> HOA <input checked="" type="checkbox"/> Property Owner <input type="checkbox"/> City <input type="checkbox"/> Other (describe)
<i>Discussion (as needed):</i>	
<i>(Continue on subsequent pages as necessary)</i>	

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 6.2: Structural BMP Checklist

(Copy this page as needed to provide information for each individual proposed structural BMP)	
Structural BMP ID No. BMP-8	
Construction Plan Sheet No.	
Type of structural BMP: <input type="checkbox"/> Retention by harvest and use (HU-1) <input type="checkbox"/> Retention by infiltration basin (INF-1) <input type="checkbox"/> Retention by bioretention (INF-2) <input type="checkbox"/> Retention by permeable pavement (INF-3) <input type="checkbox"/> Partial retention by biofiltration with partial retention (PR-1) <input type="checkbox"/> Biofiltration (BF-1) <input type="checkbox"/> Biofiltration with Nutrient Sensitive Media Design (BF-2) <input checked="" type="checkbox"/> Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F <input type="checkbox"/> Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) <input type="checkbox"/> 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) <input type="checkbox"/> Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) <input type="checkbox"/> Detention pond or vault for hydromodification management <input type="checkbox"/> Other (describe in discussion section below)	
Purpose: <input checked="" type="checkbox"/> Pollutant control only <input type="checkbox"/> Hydromodification control only <input type="checkbox"/> Combined pollutant control and hydromodification control <input type="checkbox"/> Pre-treatment/forebay for another structural BMP <input type="checkbox"/> 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 8.2.3.2 of the Storm Water Design Manual)	Eric Armstrong, PE 36083 Fuscoe Engineering, Inc 6390 Greenwich Drive, Suite 170 San Diego, CA 92122
Who will be the final owner of this BMP?	<input type="checkbox"/> HOA <input checked="" type="checkbox"/> Property Owner <input type="checkbox"/> City <input type="checkbox"/> Other (describe)
Who will maintain this BMP into perpetuity?	<input type="checkbox"/> HOA <input checked="" type="checkbox"/> Property Owner <input type="checkbox"/> City <input type="checkbox"/> Other (describe)
<i>Discussion (as needed):</i>	
<i>(Continue on subsequent pages as necessary)</i>	

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 6.3: Offsite Alternative Compliance Participation Form

THIS FORM IS NOT APPLICABLE AT THIS TIME: An Alternative Compliance Program is under consideration by the City of Escondido.	
PDP INFORMATION	
Record ID:	
Assessor's Parcel Number(s) [APN(s)]	
What are your PDP Pollutant Control Debits? *See Attachment 1 of the PDP SWQMP	
What are your PDP HMP Debits? (if applicable) *See Attachment 2 of the PDP SWQMP	
ACP Information	
Record ID:	
Assessor's Parcel Number(s) [APN(s)]	
Project Owner/Address	
What are your ACP Pollutant Control Credits? *See Attachment 1 of the ACP SWQMP	
What are your ACP HMP Debits? (if applicable) *See Attachment 2 of the ACP SWQMP	
Is your ACP in the same watershed as your PDP? <input type="checkbox"/> Yes <input type="checkbox"/> No	Will your ACP project be completed prior to the completion of the PDP? <input type="checkbox"/> Yes <input type="checkbox"/> No
Does your ACP account for all Deficits generated by the PDP? <input type="checkbox"/> Yes <input type="checkbox"/> 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) _____

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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.2-1 (Required) -Worksheet B.3-1 (Form I-4; Required) -Worksheet B.4-1 (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)	<input checked="" type="checkbox"/> Included
Attachment 1b	Form I-5, Categorization of Infiltration Feasibility Condition (Required unless the project will use harvest and use BMPs) Refer to Appendices C and D of the Storm Water Design Manual to complete Form I-5.	<input checked="" type="checkbox"/> Included <input type="checkbox"/> Not included because the entire project will use harvest and use BMPs
Attachment 1c	Form I-6, Factor of Safety and Design Infiltration Rate Worksheet (Required unless the project will use harvest and use BMPs) Refer to Appendices C and D of the Storm Water Design Manual to complete Form I-6.	<input checked="" type="checkbox"/> Included <input type="checkbox"/> Not included because the entire project will use harvest and use BMPs
Attachment 1d	DMA Exhibit (Required) See DMA Exhibit Checklist on the back of this Attachment cover sheet.	<input checked="" type="checkbox"/> Included
Attachment 1e	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.	<input checked="" type="checkbox"/> Included

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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)

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Worksheet B.2-1. DCV

Design Capture Volume – BMP-1		Worksheet B-2.1		
1	85 th percentile 24-hr storm depth from Figure B.1-1	d=	0.60	inches
2	Area tributary to BMP (s)	A=	1.34	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.90	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	2,627	cubic-feet
Design Capture Volume – BMP-2		Worksheet B-2.1		
1	85 th percentile 24-hr storm depth from Figure B.1-1	d=	0.60	inches
2	Area tributary to BMP (s)	A=	0.98	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.90	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	1,921	cubic-feet
Design Capture Volume – BMP-3		Worksheet B-2.1		
1	85 th percentile 24-hr storm depth from Figure B.1-1	d=	0.60	inches
2	Area tributary to BMP (s)	A=	2.06	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.90	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	4,039	cubic-feet

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Design Capture Volume – BMP-4		Worksheet B-2.1		
1	85 th percentile 24-hr storm depth from Figure B.1-1	d=	0.60	inches
2	Area tributary to BMP (s)	A=	1.93	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.90	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	3,784	cubic-feet
Design Capture Volume – BMP-5		Worksheet B-2.1		
1	85 th percentile 24-hr storm depth from Figure B.1-1	d=	0.60	inches
2	Area tributary to BMP (s)	A=	1.91	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.90	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	3,744	cubic-feet
Design Capture Volume – BMP-6		Worksheet B-2.1		
1	85 th percentile 24-hr storm depth from Figure B.1-1	d=	0.60	inches
2	Area tributary to BMP (s)	A=	1.37	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.90	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	2,686	cubic-feet

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Design Capture Volume – BMP-7		Worksheet B-2.1		
1	85 th percentile 24-hr storm depth from Figure B.1-1	d=	0.60	inches
2	Area tributary to BMP (s)	A=	1.97	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.90	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	3,862	cubic-feet
Design Capture Volume – BMP-8		Worksheet B-2.1		
1	85 th percentile 24-hr storm depth from Figure B.1-1	d=	0.60	inches
2	Area tributary to BMP (s)	A=	1.76	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.90	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	3,450	cubic-feet

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

Category	#	Description	<i>i</i>	<i>ii</i>	<i>iii</i>	<i>iv</i>	<i>v</i>	<i>vi</i>	<i>vii</i>	<i>viii</i>	Units
Standard Drainage Basin Inputs	1	Drainage Basin ID or Name	AREA GP	AREA HL	AREA A	AREA B	AREA F	AREA E	AREA J	AREA CDK	unitless
	2	85th Percentile 24-hr Storm Depth	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	inches
	3	Impervious Surfaces <u>Not Directed to Dispersion Area</u> (C=0.90)	49,956	36,711	76,359	84,071	75,248	58,015	81,860	74,036	sq-ft
	4	Semi-Pervious Surfaces <u>Not Serving as Dispersion Area</u> (C=0.30)									sq-ft
	5	Engineered Pervious Surfaces <u>Not Serving as Dispersion Area</u> (C=0.10)									sq-ft
	6	Natural Type A Soil <u>Not Serving as Dispersion Area</u> (C=0.10)									sq-ft
	7	Natural Type B Soil <u>Not Serving as Dispersion Area</u> (C=0.14)									sq-ft
	8	Natural Type C Soil <u>Not Serving as Dispersion Area</u> (C=0.23)									sq-ft
	9	Natural Type D Soil <u>Not Serving as Dispersion Area</u> (C=0.30)									sq-ft
Dispersion Area, Tree Well & Rain Barrel Inputs (Optional)	10	Does Tributary Incorporate Dispersion, Tree Wells, and/or Rain Barrels?	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	yes/no
	11	Impervious Surfaces Directed to Dispersion Area per SD-B (Ci=0.90)									sq-ft
	12	Semi-Pervious Surfaces Serving as Dispersion Area per SD-B (Ci=0.30)									sq-ft
	13	Engineered Pervious Surfaces Serving as Dispersion Area per SD-B (Ci=0.10)									sq-ft
	14	Natural Type A Soil Serving as Dispersion Area per SD-B (Ci=0.10)									sq-ft
	15	Natural Type B Soil Serving as Dispersion Area per SD-B (Ci=0.14)									sq-ft
	16	Natural Type C Soil Serving as Dispersion Area per SD-B (Ci=0.23)									sq-ft
	17	Natural Type D Soil Serving as Dispersion Area per SD-B (Ci=0.30)	8,415	5,978	13,375		75,248	1,662	3,953	2,630	sq-ft
	18	Number of Tree Wells Proposed per SD-A									#
	19	Average Mature Tree Canopy Diameter									ft
	20	Number of Rain Barrels Proposed per SD-E									#
21	Average Rain Barrel Size									gal	
Initial Runoff Factor Calculation	22	Total Tributary Area	58,371	42,689	89,734	84,071	150,496	59,677	85,813	76,666	sq-ft
	23	Initial Runoff Factor for Standard Drainage Areas	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	unitless
	24	Initial Runoff Factor for Dispersed & Dispersion Areas	0.30	0.30	0.30	0.00	0.30	0.30	0.30	0.30	unitless
	25	Initial Weighted Runoff Factor	0.81	0.82	0.81	0.90	0.60	0.88	0.87	0.88	unitless
	26	Initial Design Capture Volume	2,364	1,750	3,634	3,783	4,515	2,626	3,733	3,373	cubic-feet
Dispersion Area Adjustments	27	Total Impervious Area Dispersed to Pervious Surface	0	0	0	0	0	0	0	0	sq-ft
	28	Total Pervious Dispersion Area	8,415	5,978	13,375	0	75,248	1,662	3,953	2,630	sq-ft
	29	Ratio of Dispersed Impervious Area to Pervious Dispersion Area	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	ratio
	30	Adjustment Factor for Dispersed & Dispersion Areas	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	ratio
	31	Runoff Factor After Dispersion Techniques	0.81	0.82	0.81	0.90	0.60	0.88	0.87	0.88	unitless
32	Design Capture Volume After Dispersion Techniques	2,364	1,750	3,634	3,783	4,515	2,626	3,733	3,373	cubic-feet	
Tree & Barrel Adjustments	33	Total Tree Well Volume Reduction	0	0	0	0	0	0	0	0	cubic-feet
	34	Total Rain Barrel Volume Reduction	0	0	0	0	0	0	0	0	cubic-feet
Results	35	Final Adjusted Runoff Factor	0.81	0.82	0.81	0.90	0.60	0.88	0.87	0.88	unitless
	36	Final Effective Tributary Area	47,281	35,005	72,685	75,664	90,298	52,516	74,657	67,466	sq-ft
	37	Initial Design Capture Volume Retained by Site Design Elements	0	0	0	0	0	0	0	0	cubic-feet
	38	Final Design Capture Volume Tributary to BMP	2,364	1,750	3,634	3,783	4,515	2,626	3,733	3,373	cubic-feet

No Warning Messages

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

Category	#	Description	<i>i</i>	<i>ii</i>	<i>iii</i>	<i>iv</i>	<i>v</i>	<i>vi</i>	<i>vii</i>	<i>viii</i>	Units
Basic Analysis	1	Drainage Basin ID or Name	AREA GP	AREA HL	AREA A	AREA B	AREA F	AREA E	AREA J	AREA CDK	unitless
	2	85th Percentile Rainfall Depth	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	inches
	3	Predominant NRCS Soil Type Within BMP Location	D	D	D	D	D	D	D	D	unitless
	4	Is proposed BMP location Restricted or Unrestricted for Infiltration Activities?	Restricted	Restricted	Restricted	Restricted	Restricted	Restricted	Restricted	Restricted	unitless
	5	Nature of Restriction	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	unitless
	6	Do Minimum Retention Requirements Apply to this Project?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	yes/no
	7	Are Habitable Structures Greater than 9 Stories Proposed?	No	No	No	No	No	No	No	No	yes/no
Advanced Analysis	8	Has Geotechnical Engineer Performed an Infiltration Analysis?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	yes/no
	9	Design Infiltration Rate Recommended by Geotechnical Engineer	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	in/hr
Result	10	Design Infiltration Rate Used To Determine Retention Requirements	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	in/hr
	11	Percent of Average Annual Runoff that Must be Retained within DMA	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	percentage
	12	Fraction of DCV Requiring Retention	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	ratio
	13	Required Retention Volume	47	35	73	76	90	53	75	67	cubic-feet
No Warning Messages											

DMA						POLLUTANT CONTROL					
DMA	TOTAL AREA (AC)	TOTAL AREA (SF)	PERVIOUS AREA (SF)	IMPERVIOUS AREA - ROOFS, CONCRETE, ASPHALT (SF)	WATER QUALITY WEIGHTED AREA (SF)	METHOD OF TREATMENT	Weighted C Factor	DCV (CF)	MWS TREATMENT FLOWRATE REQUIRED (CFS)	MWS TREATMENT FLOWRATE PROVIDED (CFS)	MWS Model#
G	1.26	54,886	8,415	46,471	42,665	BMP-1 (MWS)	0.90	2627	0.362	0.462	8X16
P	0.08	3,485	0	3,485	3,136						
A	2.06	89,734	13,375	76,359	70,060	BMP-3 (MWS)	0.90	4039	0.557	0.693	8X24
H	0.68	29,621	4,400	25,221	23,139	BMP-2 (MWS)	0.90	1921	0.265	0.346	8X12
L	0.30	13,068	1,578	11,490	10,499						
B	1.93	84,071	0	84,071	75,664	BMP-4 (MWS)	0.90	3,784	0.522	0.693	8X24
F	1.91	83,200	7,952	75,248	68,518	BMP-5 (MWS)	0.90	3,744	0.516	0.693	8X24
E	1.37	59,677	1,662	58,015	52,380	BMP-6 (MWS)	0.90	2,686	0.370	0.462	8X16
J	1.97	85,813	3,953	81,860	74,069	BMP-7 (MWS)	0.90	3,862	0.532	0.693	8X24
C	0.61	26,572	1,232	25,340	22,929	BMP-8 (MWS)	0.90	3,450	0.476	0.462	8X16
D	1.02	44,431	515	43,916	39,576						
K	0.13	5,663	883	4,780	4,390						
M	1.89	82,328	-	-	-						
N	1.18	51,401	-	-	-	No Treatment (Outside Project Boundary)					
O	2.39	104,108	-	-	-						

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Categorization of Infiltration Feasibility Condition		Form I-5	
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?			
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 shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.		NO
Provide basis: GEOTECHNICAL INVESTIGATION FOUND THAT THE INFILTRATION RATE IS LESS THAN 0.1 IN/HR AT DEPTHS 0-5 FT. ADDITIONALLY GROUNDWATER DEPTHS WERE FOUND TO BE AT 16 FT BGS. AS PER BMP DEVELOPMENT GUIDELINES, FULL INFILTRATION IS NOT RECOMMENDED AT SITES WITH SHALLOW GROUNDWATER.			
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 shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.		NO
Provide basis: GEOTECHNICAL INVESTIGATION FOUND THAT THE INFILTRATION RATE IS LESS THAN 0.1 IN/HR AT DEPTHS 0-5 FT. ADDITIONALLY GROUNDWATER DEPTHS WERE FOUND TO BE AT 16 FT BGS. AS PER BMP DEVELOPMENT GUIDELINES, FULL INFILTRATION IS NOT RECOMMENDED AT SITES WITH SHALLOW GROUNDWATER.			
Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Form I-5			
Criteria	Screening Question	Yes	No
3	<p>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 shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.</p>		NO
<p>Provide basis:</p> <p>GEOTECHNICAL INVESTIGATION FOUND THAT THE INFILTRATION RATE IS LESS THAN 0.1 IN/HR AT DEPTHS 0-5 FT. ADDITIONALLY GROUNDWATER DEPTHS WERE FOUND TO BE AT 16 FT BGS. AS PER BMP DEVELOPMENT GUIDELINES, FULL INFILTRATION IS NOT RECOMMENDED AT SITES WITH SHALLOW GROUNDWATER.</p> <p>Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.</p>			
4	<p>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 shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.</p>		NO
<p>Provide basis:</p> <p>GEOTECHNICAL INVESTIGATION FOUND THAT THE INFILTRATION RATE IS LESS THAN 0.1 IN/HR AT DEPTHS 0-5 FT. ADDITIONALLY GROUNDWATER DEPTHS WERE FOUND TO BE AT 16 FT BGS. AS PER BMP DEVELOPMENT GUIDELINES, FULL INFILTRATION IS NOT RECOMMENDED AT SITES WITH SHALLOW GROUNDWATER.</p> <p>Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.</p>			
Part 1 Result*	<p>If all answers to rows 1 - 4 are “Yes” a full infiltration design is potentially feasible. The feasibility screening category is Full Infiltration</p> <p>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</p>		NO

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Form I-5			
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 shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.		NO
<p>Provide basis:</p> <p>GEOTECHNICAL INVESTIGATION FOUND THAT THE INFILTRATION RATE IS LESS THAN 0.1 IN/HR AT DEPTHS 0-5 FT. ADDITIONALLY GROUNDWATER DEPTHS WERE FOUND TO BE AT 16 FT BGS. AS PER BMP DEVELOPMENT GUIDELINES, FULL INFILTRATION IS NOT RECOMMENDED AT SITES WITH SHALLOW GROUNDWATER.</p> <p>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.</p>			
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 shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.		NO
<p>Provide basis:</p> <p>GEOTECHNICAL INVESTIGATION FOUND THAT THE INFILTRATION RATE IS LESS THAN 0.1 IN/HR AT DEPTHS 0-5 FT. ADDITIONALLY GROUNDWATER DEPTHS WERE FOUND TO BE AT 16 FT BGS. AS PER BMP DEVELOPMENT GUIDELINES, FULL INFILTRATION IS NOT RECOMMENDED AT SITES WITH SHALLOW GROUNDWATER.</p> <p>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.</p>			

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Form I-5			
Criteria	Screening Question	Yes	No
7	<p>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 shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.</p>		NO
<p>Provide basis:</p> <p>GEOTECHNICAL INVESTIGATION FOUND THAT THE INFILTRATION RATE IS LESS THAN 0.1 IN/HR AT DEPTHS 0-5 FT. ADDITIONALLY GROUNDWATER DEPTHS WERE FOUND TO BE AT 16 FT BGS. AS PER BMP DEVELOPMENT GUIDELINES, FULL INFILTRATION IS NOT RECOMMENDED AT SITES WITH SHALLOW GROUNDWATER.</p> <p>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.</p>			
8	<p>Can infiltration be allowed without violating downstream water rights? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.</p>		NO
<p>Provide basis:</p> <p>GEOTECHNICAL INVESTIGATION FOUND THAT THE INFILTRATION RATE IS LESS THAN 0.1 IN/HR AT DEPTHS 0-5 FT. ADDITIONALLY GROUNDWATER DEPTHS WERE FOUND TO BE AT 16 FT BGS. AS PER BMP DEVELOPMENT GUIDELINES, FULL INFILTRATION IS NOT RECOMMENDED AT SITES WITH SHALLOW GROUNDWATER.</p> <p>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.</p>			
Part 2 Result*	<p>If all answers from row 5-8 are yes then partial infiltration design is potentially feasible. The feasibility screening category is Partial Infiltration.</p> <p>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.</p>		NO INFILTRATION

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

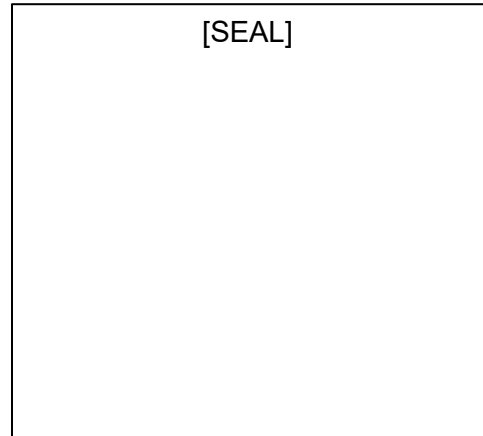
Form I-5 Certification

The Geotechnical Engineer certifies they completed Form I-5 except Criteria 4 & 8 (see Appendix C.4.3).

Professional Geotechnical Engineer's Printed Name:

Professional Geotechnical Engineer's Signed Name:

Date: _____



The Project Design Engineer certifies they completed Criteria 4 & 8 (see Appendix C.4.4).

Professional Project Design Engineer's Printed Name:

ERIC ARMSTRONG

Professional Project Design Engineer's Signed Name:

Date: _____



PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Factor of Safety and Design Infiltration Rate Worksheet			Form I-6		
Factor Category		Factor Description	Assigned Weight (w)	Factor Value (v)	Product (p) $p = w \times v$
A	Suitability Assessment	Soil assessment methods	0.25		
		Predominant soil texture	0.25		
		Site soil variability	0.25		
		Depth to groundwater / impervious layer	0.25		
		Suitability Assessment Safety Factor, $S_A = \sum p$			
B	Design	Level of pretreatment/ expected sediment loads	0.5		
		Redundancy/resiliency	0.25		
		Compaction during construction	0.25		
		Design Safety Factor, $S_B = \sum p$			
Combined Safety Factor, $S_{total} = S_A \times S_B$					
Observed Infiltration Rate, inch/hr, $K_{observed}$ (corrected for test-specific bias)					
Design Infiltration Rate, in/hr, $K_{design} = K_{observed} / S_{total}$					
Supporting Data					
<p>Briefly describe infiltration test and provide reference to test forms:</p> <p>GEOTECHNICAL INVESTIGATION FOUND THAT THE INFILTRATION RATE IS LESS THAN 0.1 IN/HR AT DEPTHS 0-5 FT. ADDITIONALLY GROUNDWATER DEPTHS WERE FOUND TO BE AT 16 FT BGS. AS PER BMP DEVELOPMENT GUIDELINES, FULL INFILTRATION IS NOT RECOMMENDED AT SITES WITH SHALLOW GROUNDWATER.</p>					

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

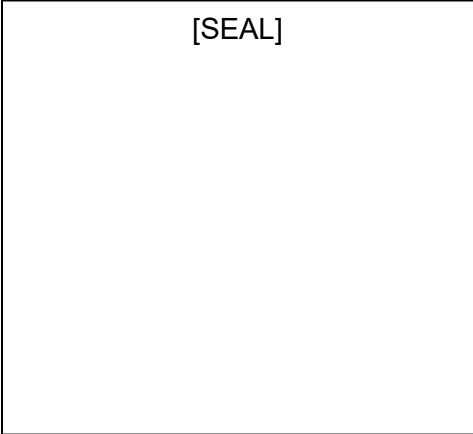


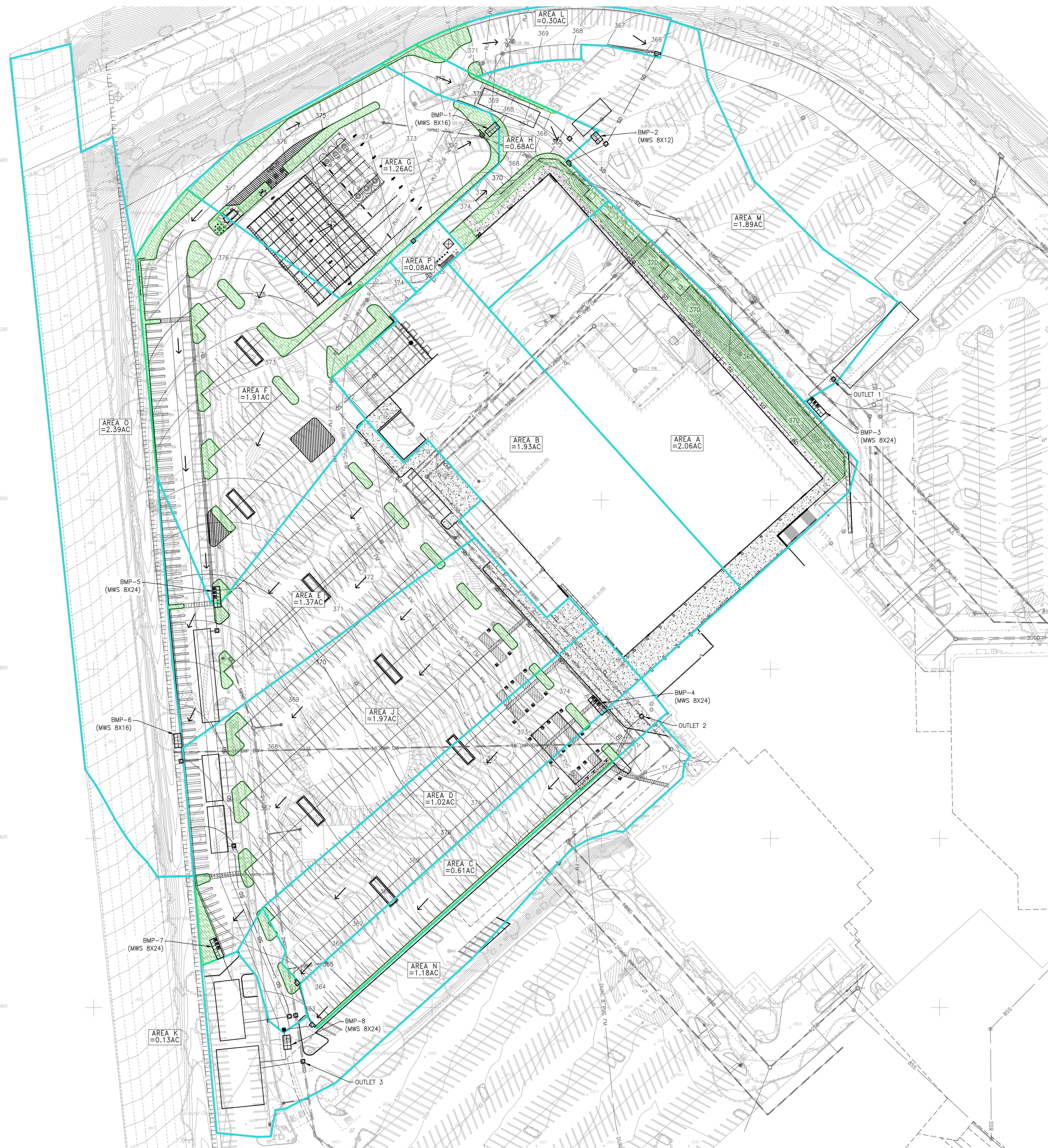
The Geotechnical Engineer certifies they completed Form I-6 (see Appendix C.4.3).

Professional Geotechnical Engineer's Printed Name:

Professional Geotechnical Engineer's Signed Name:

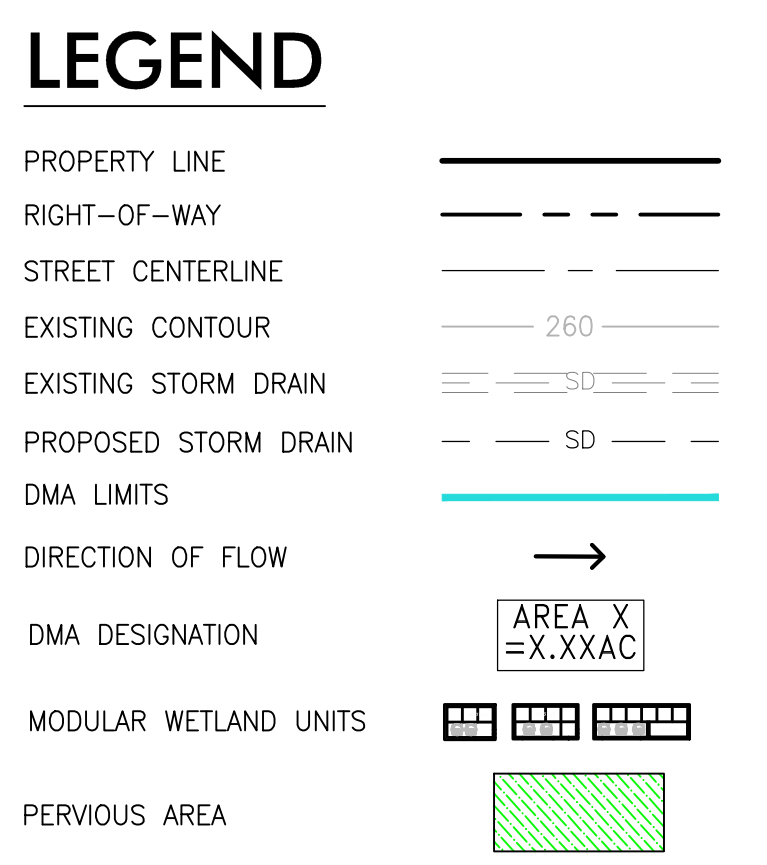
Date: _____





PROJECT SITE INFO
 UNDERLYING HYDROLOGIC SOIL: D
 APPROXIMATE DEPTH TO GROUNDWATER: 15 FT
 EXISTING NATURAL HYDROLOGIC FEATURES (WATERCOURSES, SEEPS, WETLANDS): NONE
 CRITICAL COARSE SEDIMENT YIELD AREAS TO BE PROTECTED: NONE
 EXISTING IMPERVIOUS AREA: 561,956 SF
 DISTURBED AREA: 580,219 SF
 PROPOSED IMPERVIOUS AREA: 536,254 SF
 PROPOSED PERVIOUS AREA: 43,965 SF

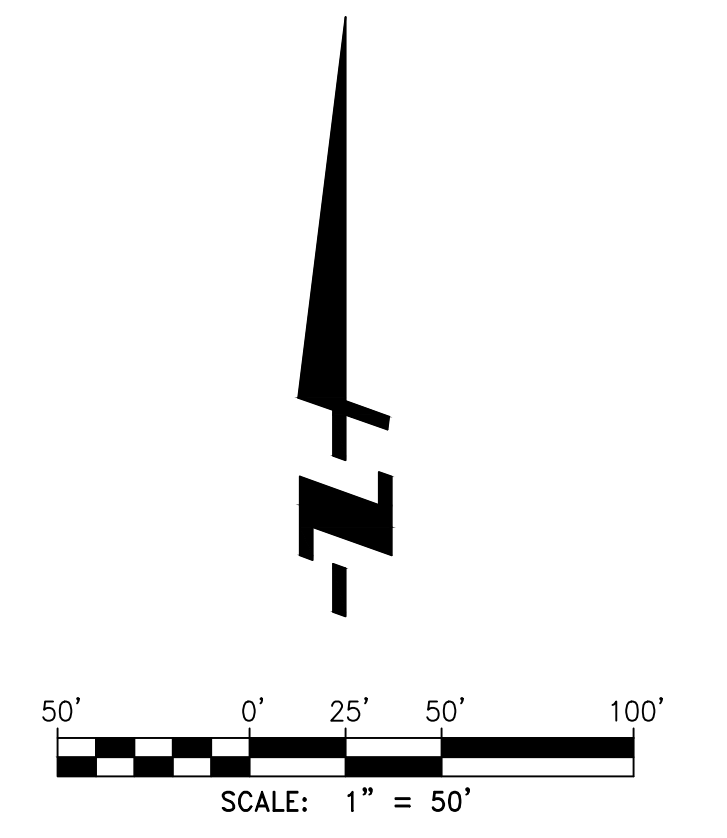
SITE DESIGN BMPs
 1 SD-B IMPERVIOUS AREA DISPERSION
 2 SD-F AMENDED SOILS



DMA SUMMARY TABLE:

DMA	TOTAL AREA (AC)	TOTAL AREA (SF)	PERVIOUS AREA (SF)	IMPERVIOUS AREA - ROOFS, CONCRETE, ASPHALT (SF)	% IMPERVIOUS	WATER QUALITY WEIGHTED AREA (SF)	Weighted C Factor	DCV (CF)	TREATED BY (BMP ID)	DRAINS TO (Outlet ID)
A	2.06	89,734	13,375	76,359	85.1%	70,060	0.90	4039	BMP-3 (MWS)	1
B	1.93	84,071	0	84,071	100.0%	75,664	0.90	3784	BMP-4 (MWS)	2
C	0.61	26,572	1,232	25,340	95.4%	22,929	0.90	3450	BMP-8 (MWS)	3
D	1.02	44,431	515	43,916	98.8%	39,576	0.90	3450	BMP-6 (MWS)	3
E	1.37	59,677	1,662	58,015	97.2%	52,380	0.90	2686	BMP-6 (MWS)	3
F	1.91	83,200	7,952	75,248	90.4%	68,518	0.90	3744	BMP-5 (MWS)	3
G	1.26	54,886	9,415	45,471	82.7%	42,665	0.90	2627	BMP-3 (MWS)	1
H	0.68	29,621	4,400	25,221	85.1%	23,139	0.90	1921	BMP-2 (MWS)	1
J	1.97	85,813	3,953	81,860	95.4%	74,069	0.90	3862	BMP-7 (MWS)	3
K	0.13	563	383	180	32.0%	4,390	0.90	3450	BMP-8 (MWS)	3
L	0.30	13,068	1,578	11,490	87.9%	10,499	0.90	1921	BMP-2 (MWS)	1
P	0.08	3,485	0	3,485	100.0%	3,136	0.90	2627	BMP-3 (MWS)	1
M	1.89	82,328								
N	1.18	51,401								
O	2.39	104,108								

No Treatment (Outside Project Boundary)



FORMER SEARS REDEVELOPMENT
 ATTACHMENT 1a & 1b
 DMA EXHIBIT

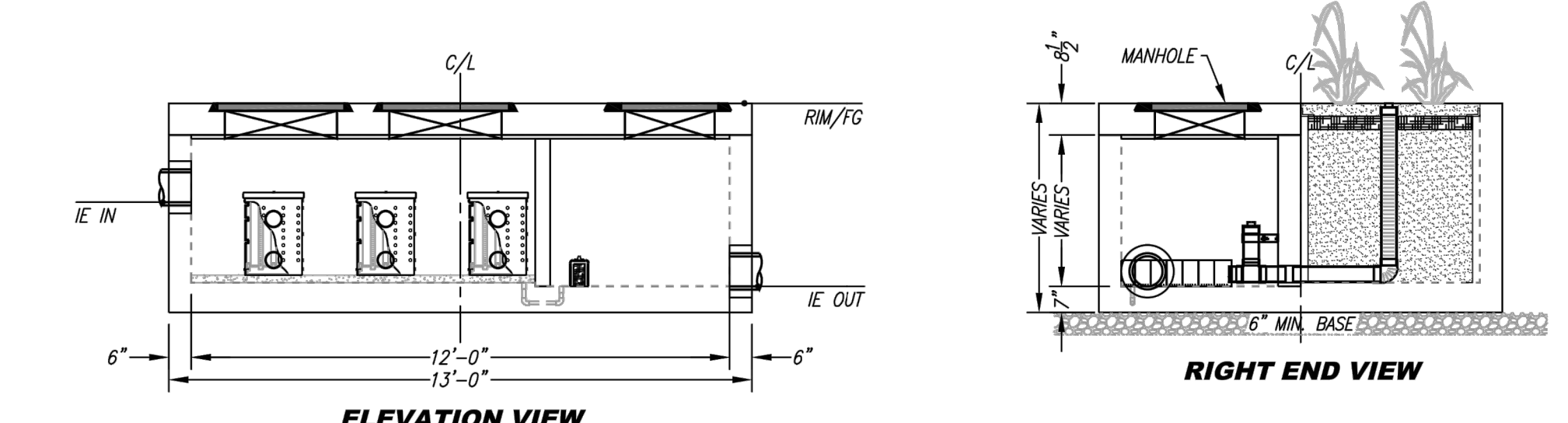
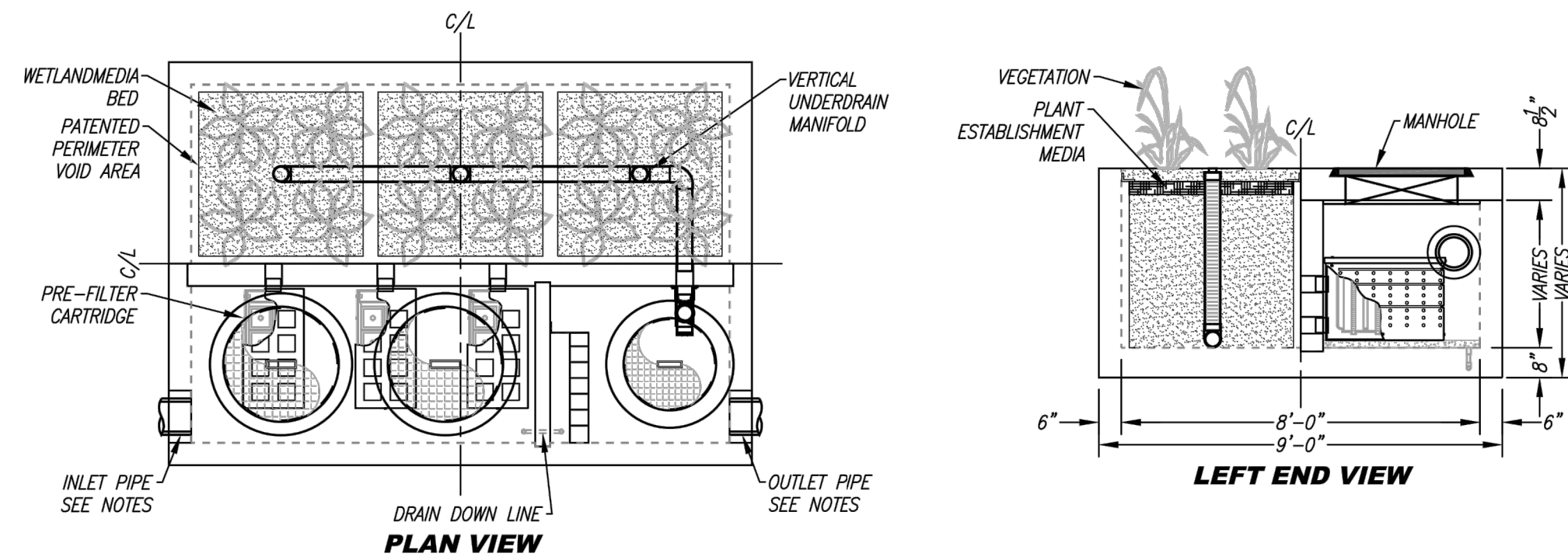
REVISIONS

NO.	INIT.	DATE	DESCRIPTION	APP'D	DATE

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 Irvine, California 92606
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JOB NO.
756-101
 DRAWN BY:
MUL
 SHEET
1 of 2

SITE SPECIFIC DATA			
PROJECT NUMBER			
PROJECT NAME			
PROJECT LOCATION			
STRUCTURE ID			
TREATMENT REQUIRED			
VOLUME BASED (CF)		FLOW BASED (CFS)	
N/A		0.348	
TREATMENT HGL AVAILABLE (FT)			
PEAK BYPASS REQUIRED (CFS) - IF APPLICABLE			
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2	N/A	N/A	N/A
OUTLET PIPE			
PRE-TREATMENT	BIOFILTRATION	DISCHARGE	
RIM ELEVATION			
SURFACE LOAD	PEDESTRIAN	OPEN PLANTER	PEDESTRIAN
FRAME & COVER	2EA #30"	OPEN PLANTER	#24"
NOTES: PRELIMINARY NOT FOR CONSTRUCTION			



TREATMENT FLOW (CFS)	0.348
OPERATING HEAD (FT)	3.4
PRE-TREATMENT LOADING RATE (GPM/SF)	2.0
WETLAND MEDIA LOADING RATE (GPM/SF)	1.0

MWS-L-8-12-V
 STORMWATER BIOFILTRATION SYSTEM
 STANDARD DETAIL

INSTALLATION NOTES

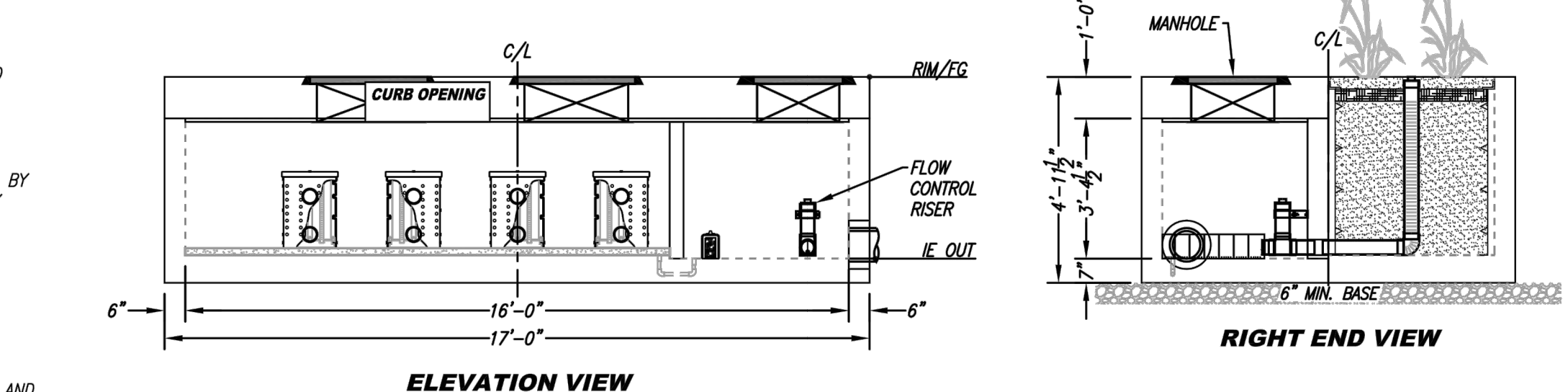
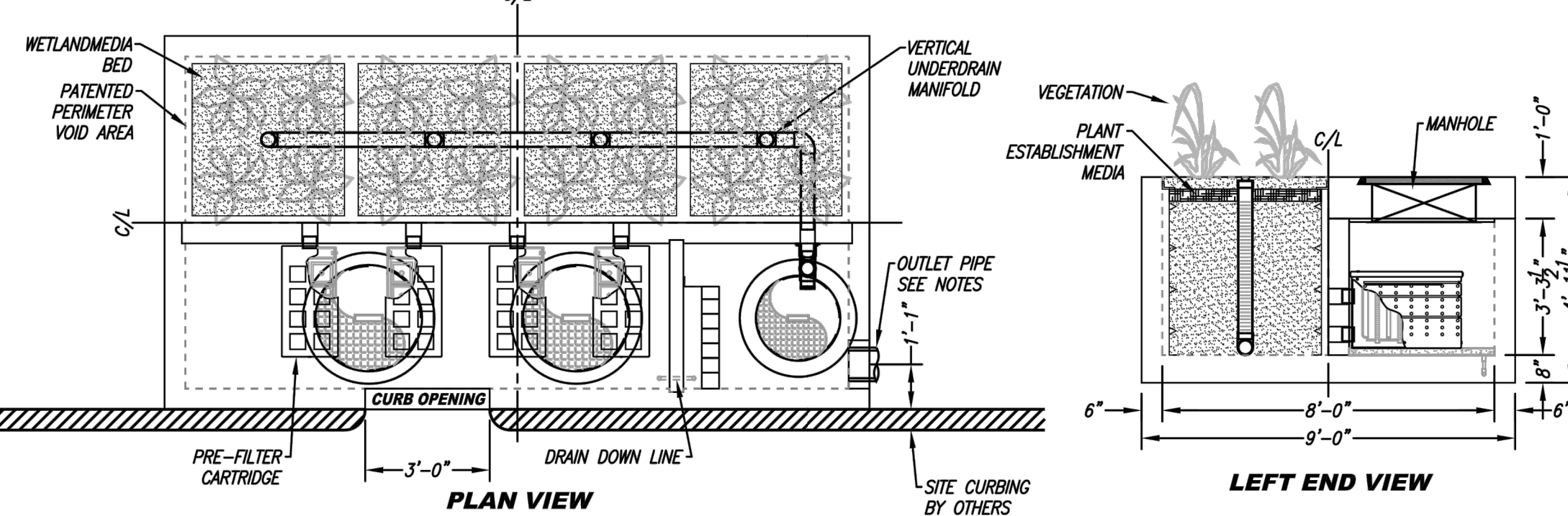
- CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS REQUIRED TO OFFLOAD AND INSTALL THE SYSTEM AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURER'S SPECIFICATIONS, UNLESS OTHERWISE STATED IN MANUFACTURER'S CONTRACT.
- UNIT MUST BE INSTALLED ON LEVEL BASE. MANUFACTURER RECOMMENDS A MINIMUM 6" LEVEL ROCK BASE UNLESS SPECIFIED BY THE PROJECT ENGINEER. CONTRACTOR IS RESPONSIBLE TO VERIFY PROJECT ENGINEER'S RECOMMENDED BASE SPECIFICATIONS.
- CONTRACTOR TO SUPPLY AND INSTALL ALL EXTERNAL CONNECTING PIPES. ALL PIPES MUST BE FLUSH WITH INSIDE SURFACE OF CONCRETE. (PIPES CANNOT INTRUDE BEYOND FLUSH). INVERT OF OUTFLOW PIPE MUST BE FLUSH WITH DISCHARGE CHAMBER FLOOR. ALL PIPES SHALL BE SEALED WATER TIGHT PER MANUFACTURER'S STANDARD CONNECTION DETAIL.
- CONTRACTOR RESPONSIBLE FOR INSTALLATION OF ALL RISERS, MANHOLES, AND HATCHES. CONTRACTOR TO GROUT ALL MANHOLES AND HATCHES TO MATCH FINISHED SURFACE UNLESS SPECIFIED OTHERWISE.
- VEGETATION SUPPLIED AND INSTALLED BY OTHERS. ALL UNITS WITH VEGETATION MUST HAVE DRIP OR SPRAY IRRIGATION SUPPLIED AND INSTALLED BY OTHERS.
- CONTRACTOR RESPONSIBLE FOR CONTACTING BIO CLEAN FOR ACTIVATION OF UNIT. MANUFACTURER'S WARRANTY IS VOID WITH OUT PROPER ACTIVATION BY A BIO CLEAN REPRESENTATIVE.

GENERAL NOTES

- MANUFACTURER TO PROVIDE ALL MATERIALS UNLESS OTHERWISE NOTED.
- ALL DIMENSIONS, ELEVATIONS, SPECIFICATIONS AND CAPACITIES ARE SUBJECT TO CHANGE. FOR PROJECT SPECIFIC DRAWINGS DETAILING EXACT DIMENSIONS, WEIGHTS AND ACCESSORIES PLEASE CONTACT BIO CLEAN.

DETAIL - MODULAR WETLAND SYSTEM (8'X12')
NOT TO SCALE

SITE SPECIFIC DATA			
PROJECT NUMBER			
ORDER NUMBER			
PROJECT NAME			
PROJECT LOCATION			
STRUCTURE ID			
TREATMENT REQUIRED			
VOLUME BASED (CF)		FLOW BASED (CFS)	
N/A		0.462	
TREATMENT HGL AVAILABLE (FT)			
PEAK BYPASS REQUIRED (CFS) - IF APPLICABLE			
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2	N/A	N/A	N/A
OUTLET PIPE			
PRE-TREATMENT	BIOFILTRATION	DISCHARGE	
RIM ELEVATION			
SURFACE LOAD	PEDESTRIAN	OPEN PLANTER	PEDESTRIAN
FRAME & COVER	2EA #30"	N/A	#24"
WETLAND MEDIA VOLUME (CY)			TBD
ORIFICE SIZE (DIA. INCHES)			TBD
NOTES: PRELIMINARY NOT FOR CONSTRUCTION.			



TREATMENT FLOW (CFS)	0.462
OPERATING HEAD (FT)	3.4
PRE-TREATMENT LOADING RATE (GPM/SF)	2.0
WETLAND MEDIA LOADING RATE (GPM/SF)	1.0

MWS-L-8-16-C
 STORMWATER BIOFILTRATION SYSTEM
 STANDARD DETAIL

INSTALLATION NOTES

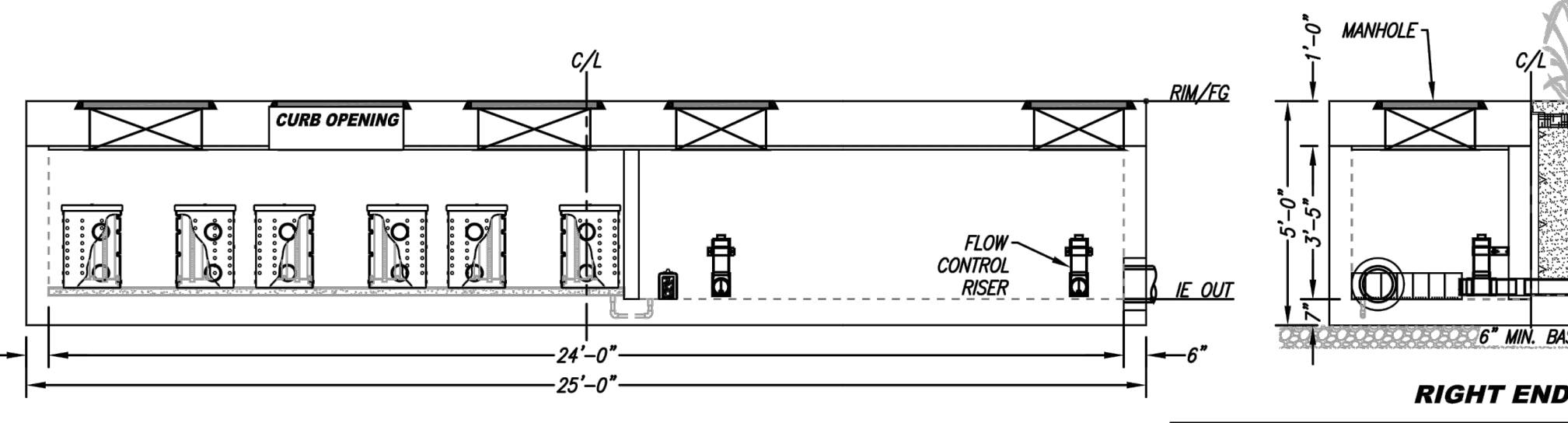
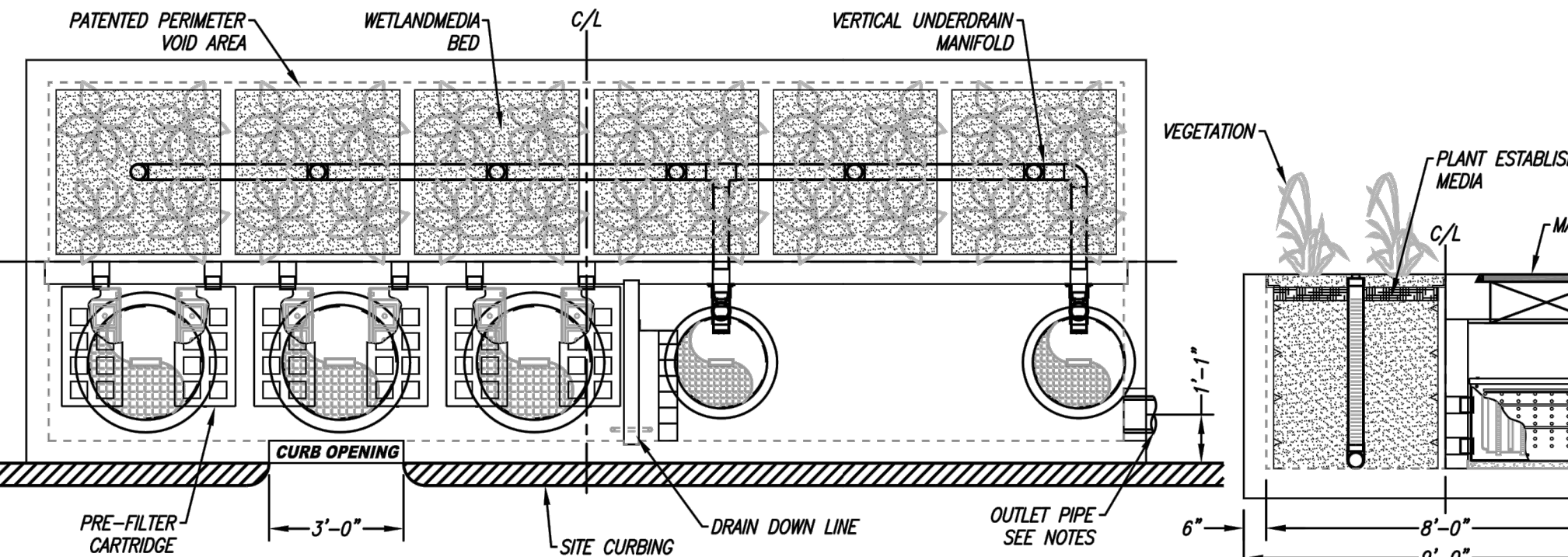
- CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS REQUIRED TO OFFLOAD AND INSTALL THE SYSTEM AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURER'S SPECIFICATIONS, UNLESS OTHERWISE STATED IN MANUFACTURER'S CONTRACT.
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- CONTRACTOR TO SUPPLY AND INSTALL ALL EXTERNAL CONNECTING PIPES. ALL PIPES MUST BE FLUSH WITH INSIDE SURFACE OF CONCRETE. (PIPES CANNOT INTRUDE BEYOND FLUSH). INVERT OF OUTFLOW PIPE MUST BE FLUSH WITH DISCHARGE CHAMBER FLOOR. ALL PIPES SHALL BE SEALED WATER TIGHT PER MANUFACTURER'S STANDARD CONNECTION DETAIL.
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DETAIL - MODULAR WETLAND SYSTEM (8'X16')
NOT TO SCALE

SITE SPECIFIC DATA			
PROJECT NUMBER			
ORDER NUMBER			
PROJECT NAME			
PROJECT LOCATION			
STRUCTURE ID			
TREATMENT REQUIRED			
VOLUME BASED (CF)		FLOW BASED (CFS)	
N/A		0.693	
TREATMENT HGL AVAILABLE (FT)			
PEAK BYPASS REQUIRED (CFS) - IF APPLICABLE			
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
PRE-TREATMENT	BIOFILTRATION	DISCHARGE	
RIM ELEVATION			
SURFACE LOAD	PEDESTRIAN	OPEN PLANTER	PEDESTRIAN
FRAME & COVER	3 EA #30"	N/A	2 EA #24"
WETLAND MEDIA VOLUME (CY)			TBD
ORIFICE SIZE (DIA. INCHES)			TBD
NOTES: PRELIMINARY NOT FOR CONSTRUCTION.			



TREATMENT FLOW (CFS)	0.693
OPERATING HEAD (FT)	3.4
PRE-TREATMENT LOADING RATE (GPM/SF)	2.0
WETLAND MEDIA LOADING RATE (GPM/SF)	1.0

MWS-L-8-24-C
 STORMWATER BIOFILTRATION SYSTEM
 STANDARD DETAIL

INSTALLATION NOTES

- CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS REQUIRED TO OFFLOAD AND INSTALL THE SYSTEM AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURER'S SPECIFICATIONS, UNLESS OTHERWISE STATED IN MANUFACTURER'S CONTRACT.
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- CONTRACTOR TO SUPPLY AND INSTALL ALL EXTERNAL CONNECTING PIPES.
- CONTRACTOR RESPONSIBLE FOR INSTALLATION OF ALL RISERS, MANHOLES, AND HATCHES. CONTRACTOR TO GROUT ALL MANHOLES AND HATCHES TO MATCH FINISHED SURFACE UNLESS SPECIFIED OTHERWISE.
- DRIP OR SPRAY IRRIGATION REQUIRED ON ALL UNITS WITH VEGETATION.
- CONTRACTOR RESPONSIBLE FOR CONTACTING MODULAR WETLANDS FOR ACTIVATION OF UNIT. MANUFACTURER'S WARRANTY IS VOID WITH OUT PROPER ACTIVATION BY A MODULAR WETLANDS REPRESENTATIVE.

GENERAL NOTES

- MANUFACTURER TO PROVIDE ALL MATERIALS UNLESS OTHERWISE NOTED.
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DETAIL - MODULAR WETLAND SYSTEM (8'X24')
NOT TO SCALE

FORMER SEARS REDEVELOPMENT

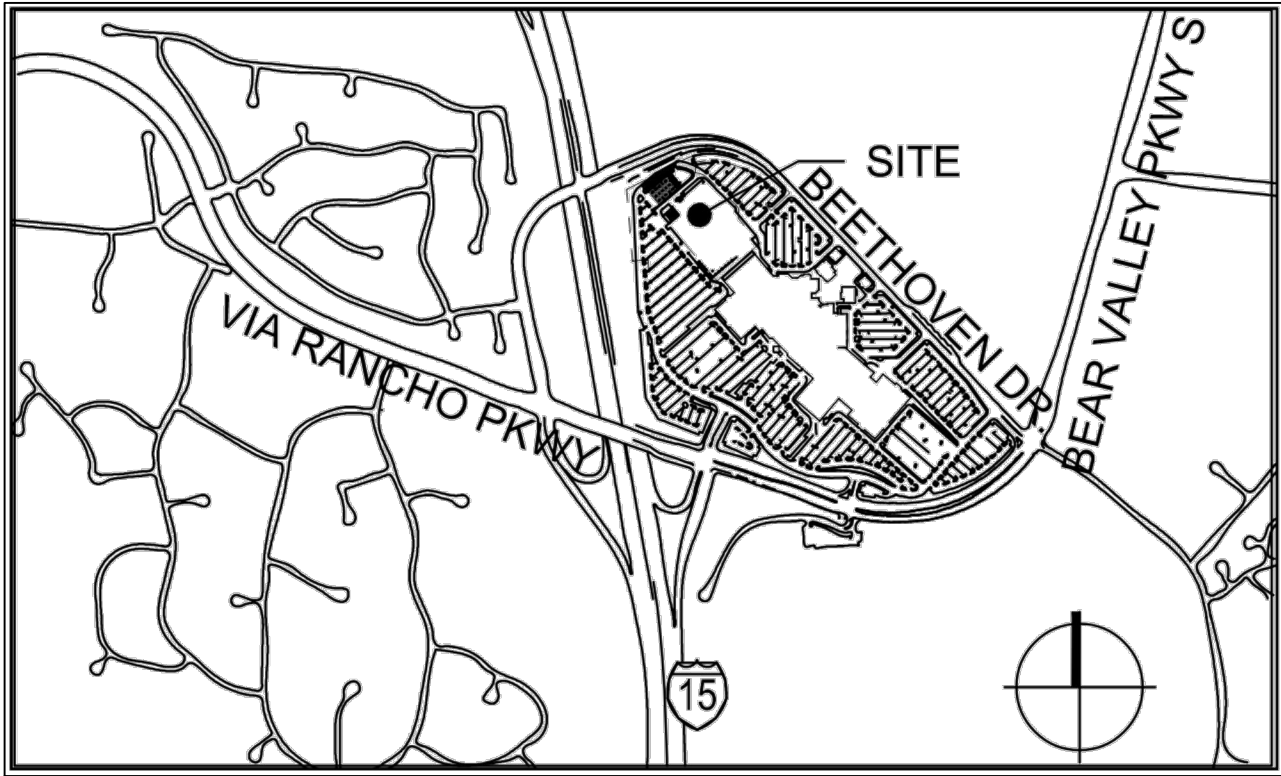
DMA EXHIBIT - DETAILS

REVISIONS			
NO.	INIT. DATE	DESCRIPTION	APP'D DATE

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2 of 2

P:\PROJECTS\2016\101_Support\REVISED\DWG\101-01.dwg & associated files (08-08-22 4:25:59) Plotted by: mstan

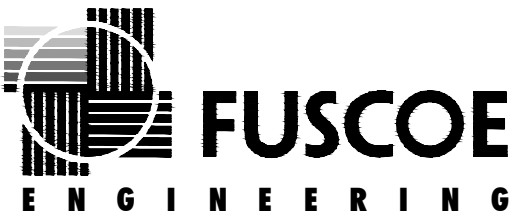


VICINITY MAP

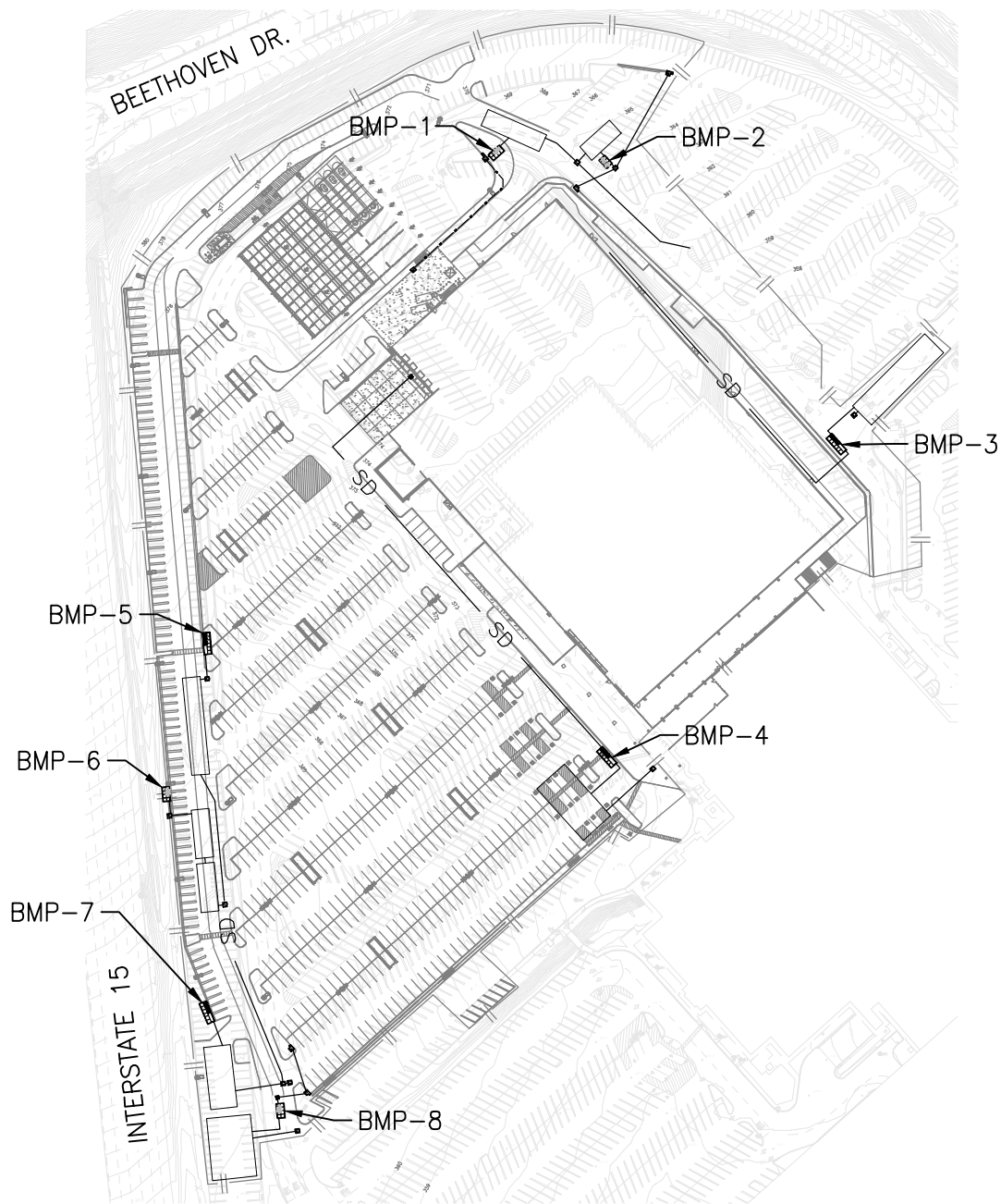


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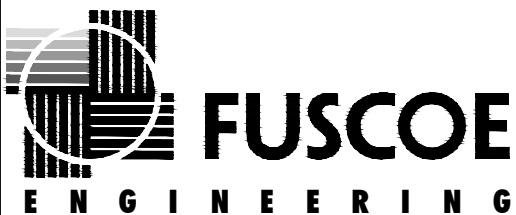
PARCEL A AND PARCEL B OF AMENDED CERTIFICATE OF COMPLIANCE, IN THE CITY OF SAN DIEGO, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, FILED AUGUST 27, 2021, AS DOCUMENT NO. 2021-0609970 OF OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.



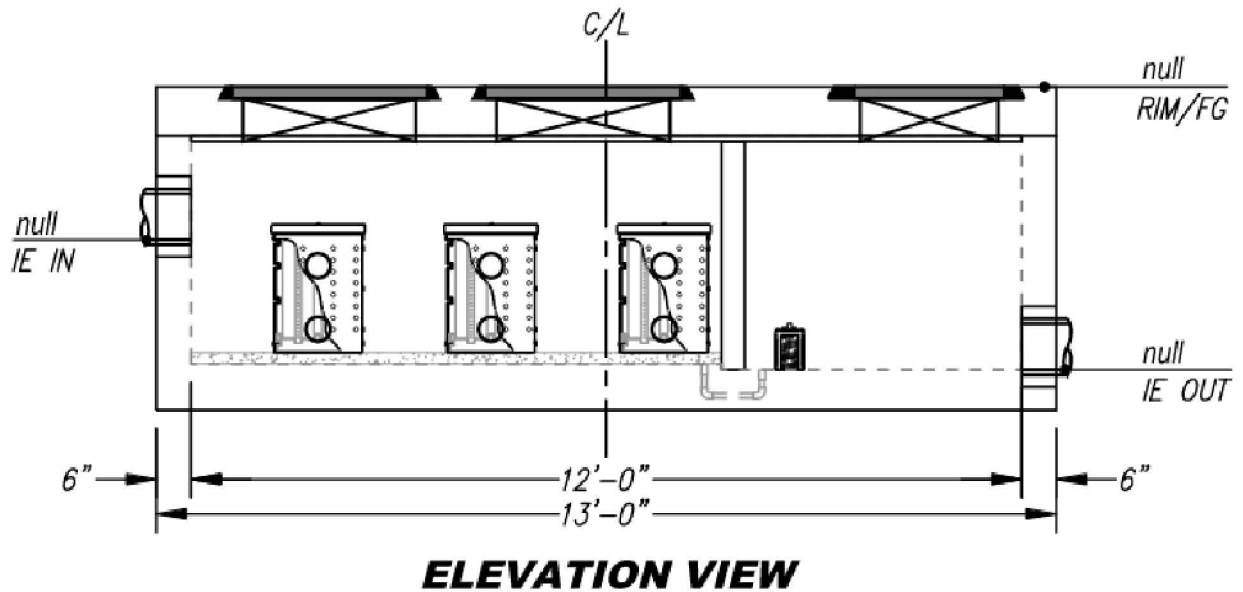
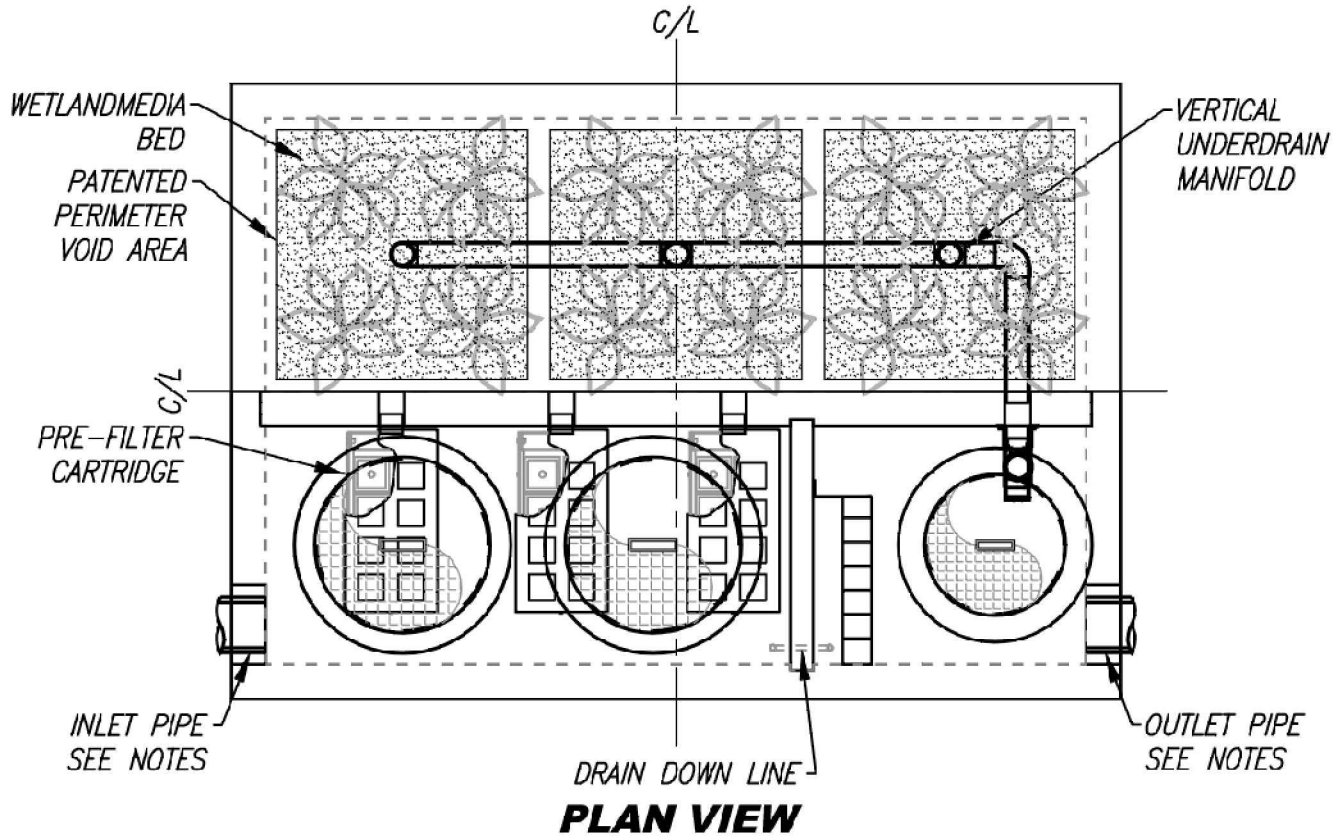
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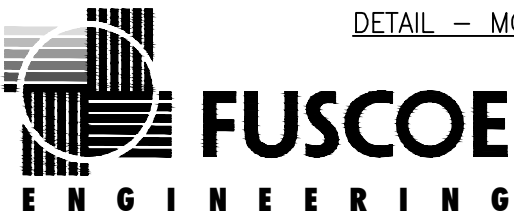
SITE MAP



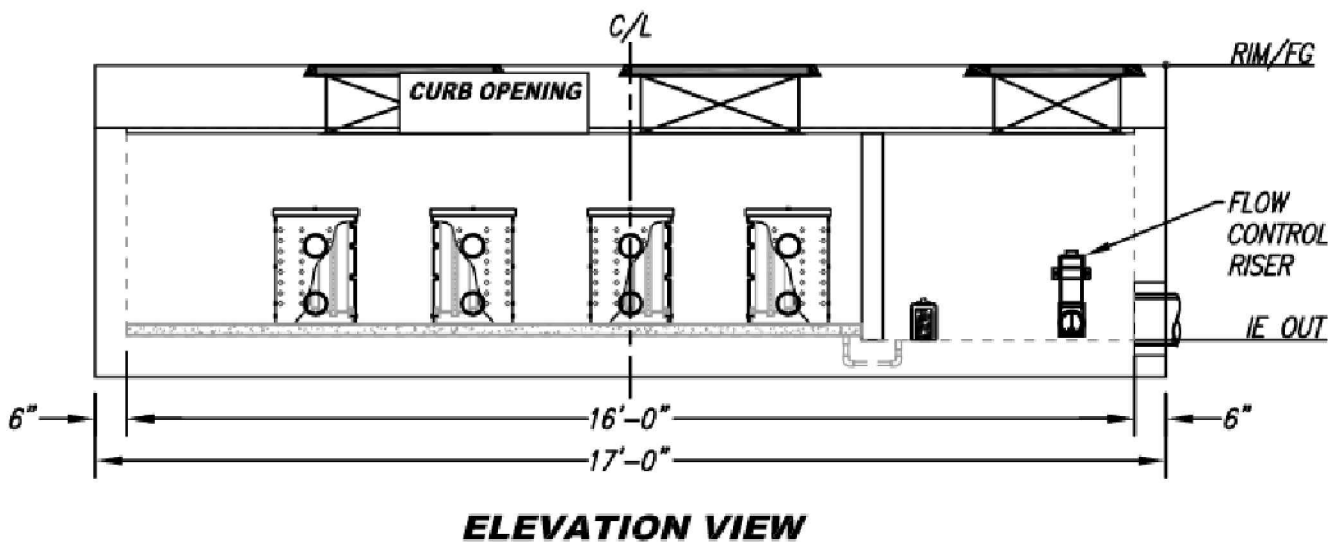
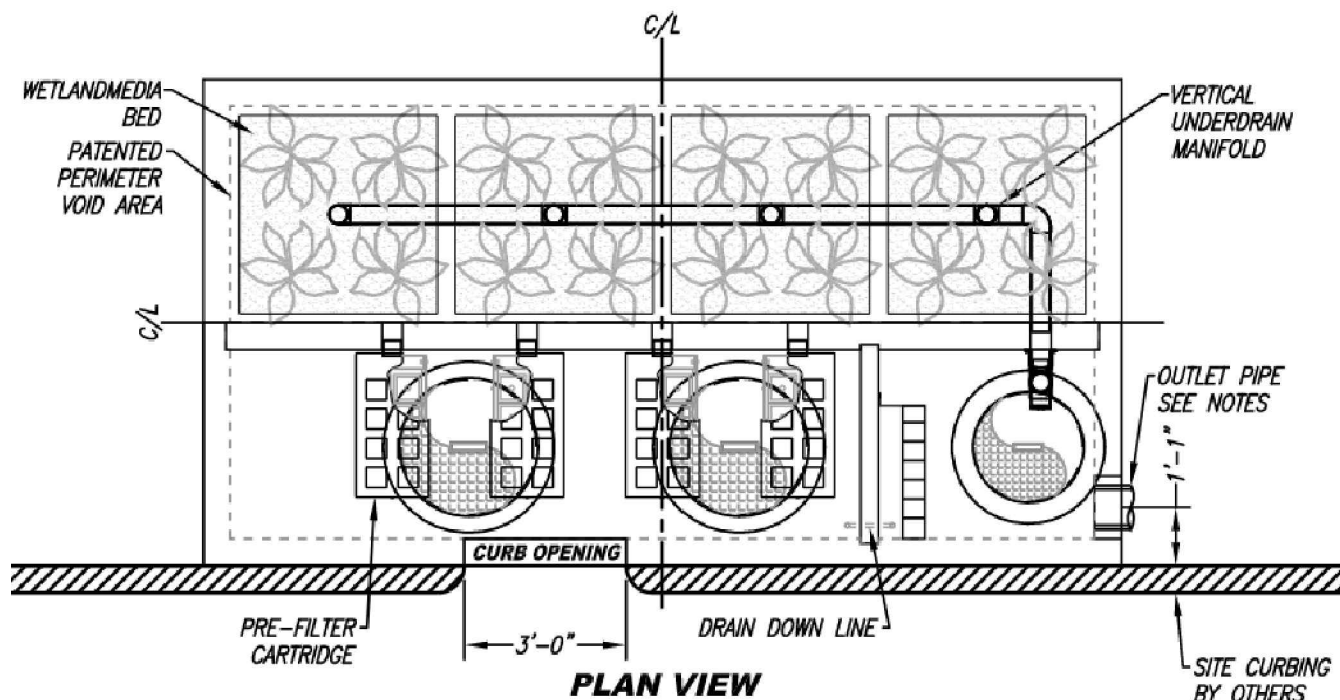
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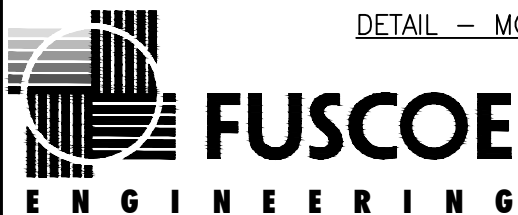
DETAIL - MODULAR WETLAND MODEL MWS-L-8-12-V



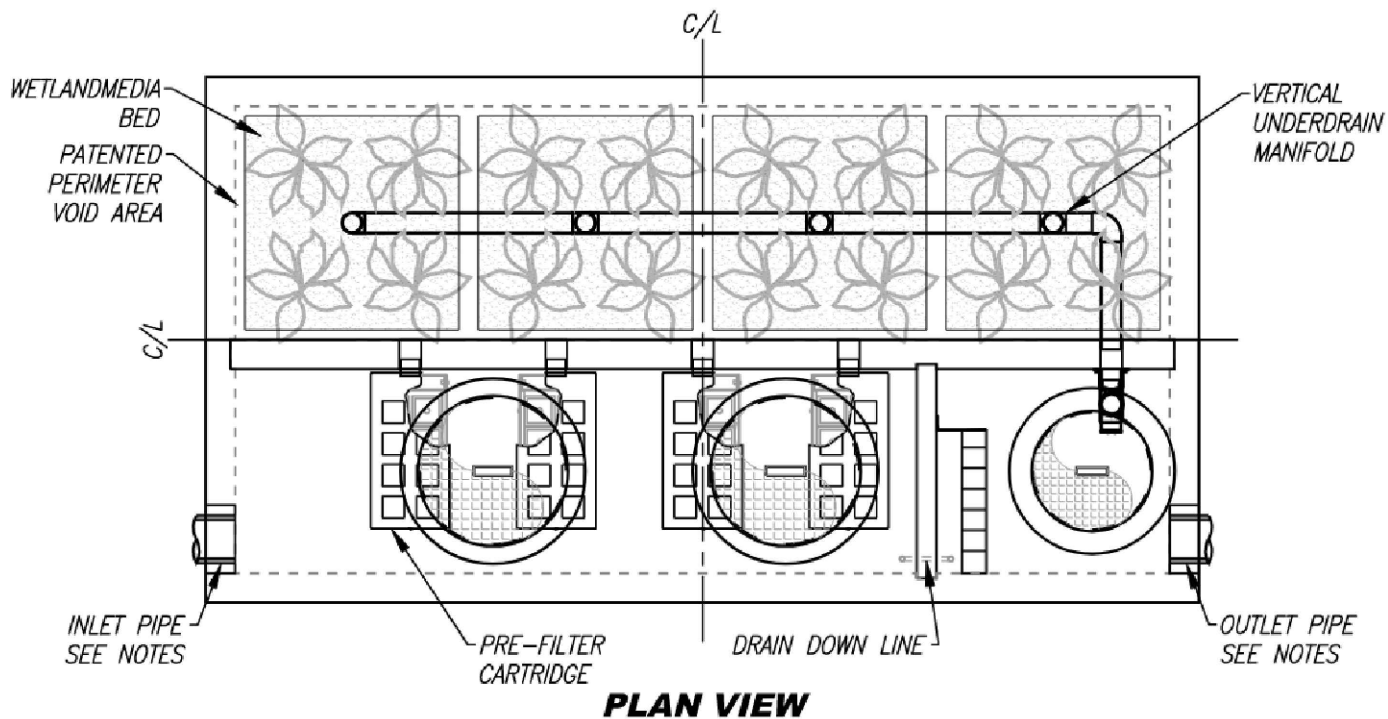
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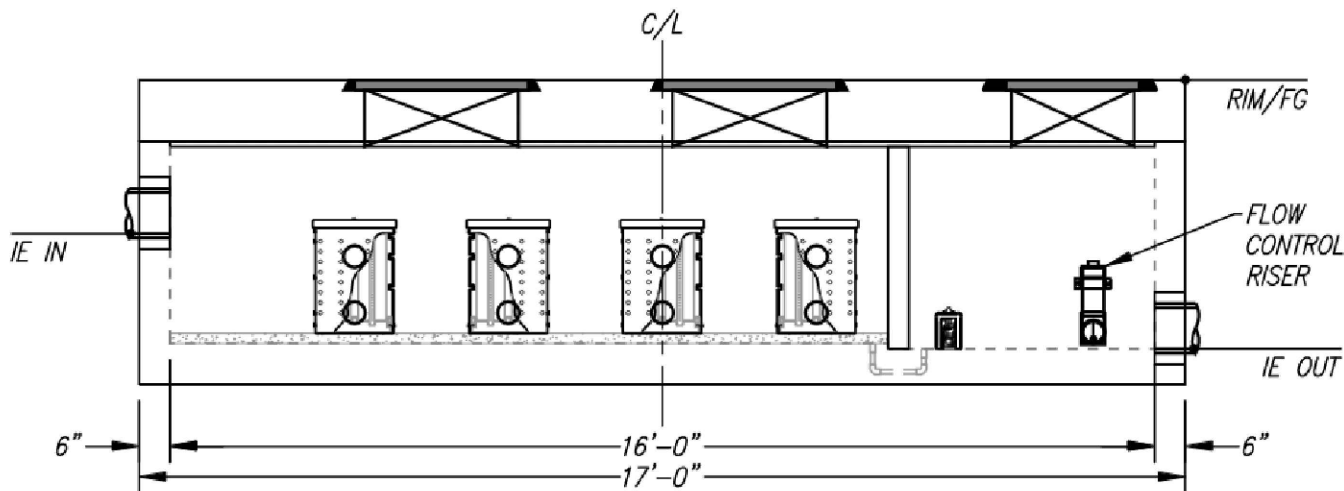
DETAIL - MODULAR WETLAND MODEL MWS-L-8-16-C



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PLAN VIEW



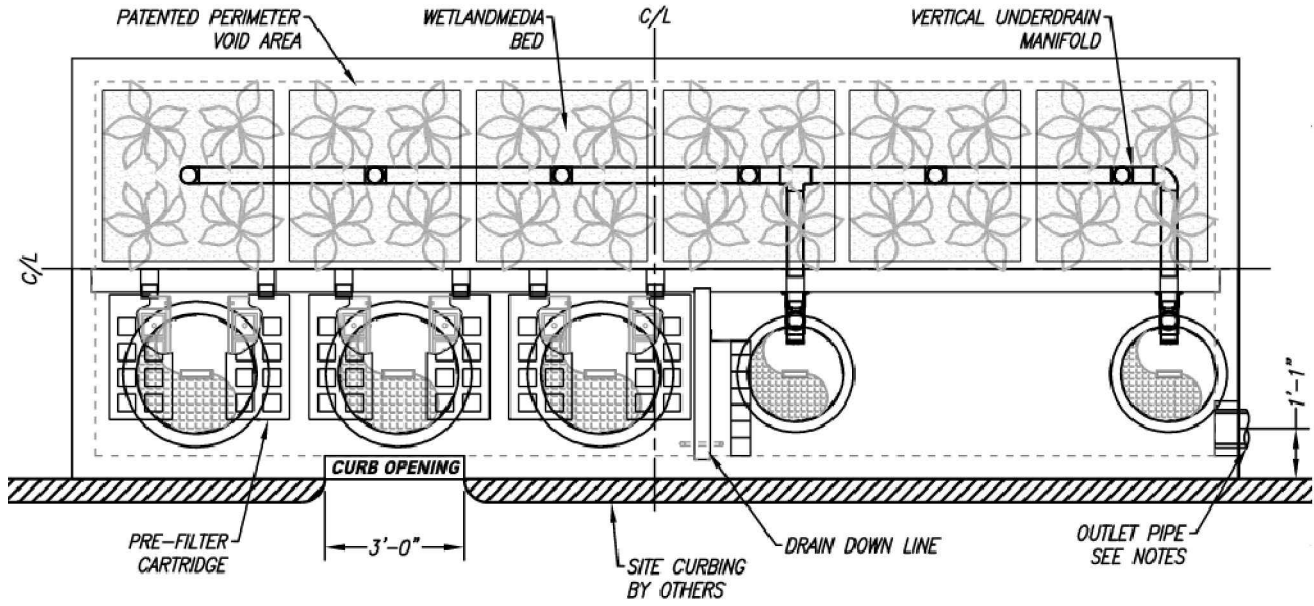
ELEVATION VIEW

DETAIL - MODULAR WETLAND MODEL MWS-L-8-16-V

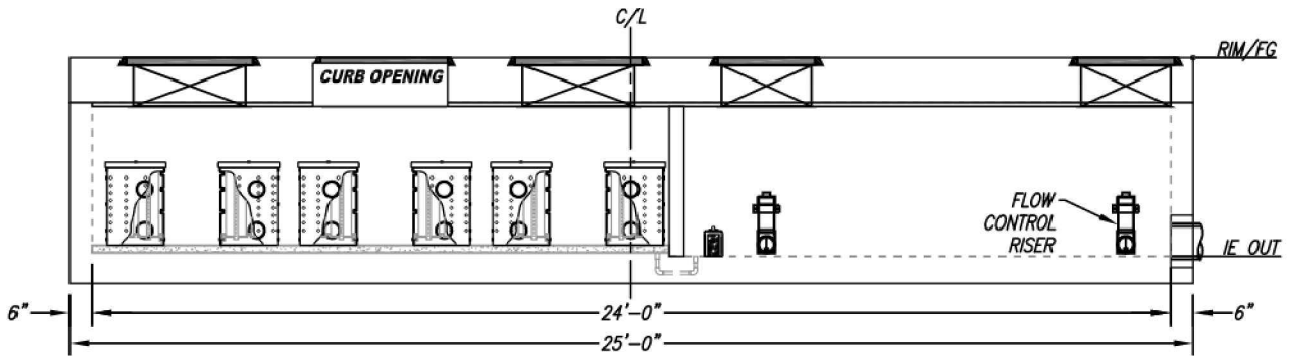


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PLAN VIEW



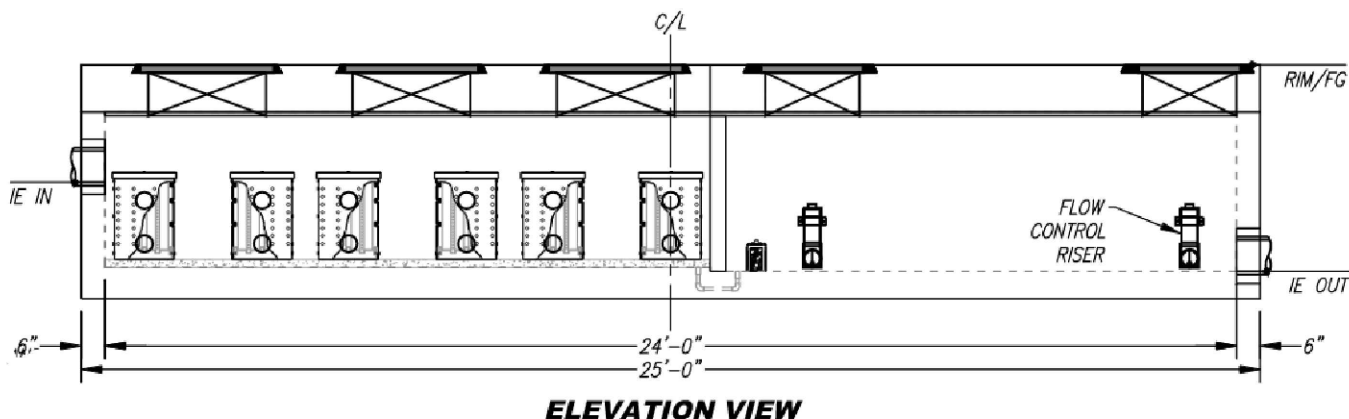
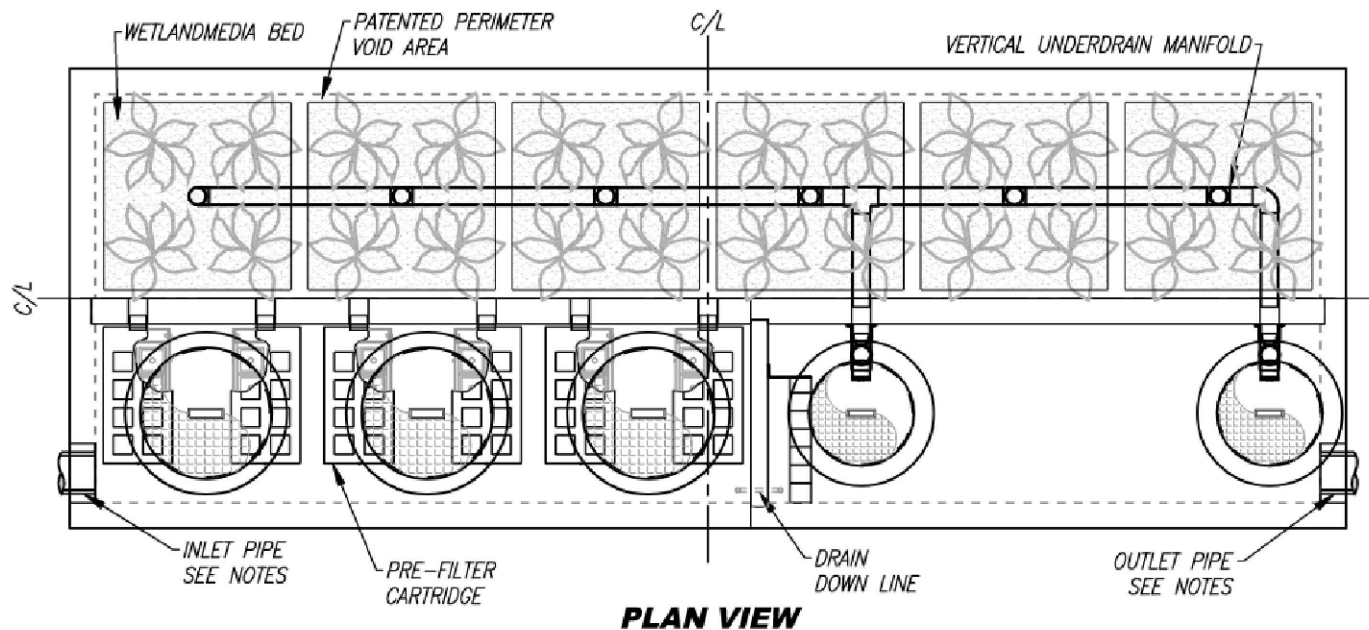
ELEVATION VIEW

DETAIL - MODULAR WETLAND MODEL MWS-L-8-24-C

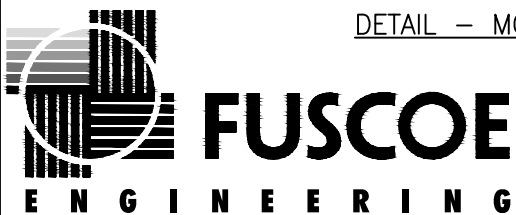


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E N G I N E E R I N G

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DETAIL - MODULAR WETLAND MODEL MWS-L-8-24-V



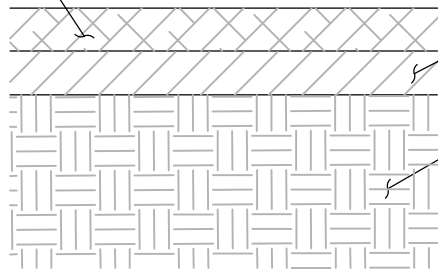
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3" MULCH LAYER. SHAVINGS OR COMPOST TO BE ROTOTILLED INTO NATIVE SOIL TO A MIN. DEPTH OF 6".

5% SLOPE MAX. IN ALL DIRECTIONS

AT GRADE PLANTING PER LANDSCAPE PLANS

12" LAYER OF AMENDED COMPACTED SOIL



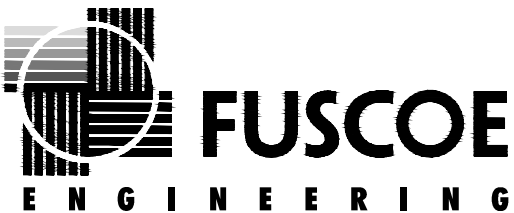
NOTE:

SOIL AMENDMENTS SHALL BE FREE OF STONES, STUMPS, ROOTS, GLASS, PLASTIC, METAL, AND OTHER DELETERIOUS MATERIALS

DETAIL - AMENDED SOILS

NOT TO SCALE

DETAIL - AMENDED SOILS

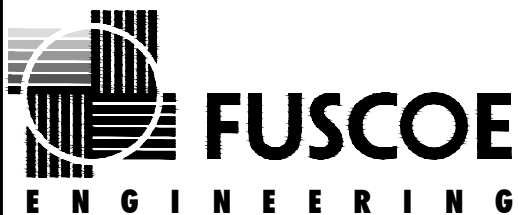


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SITE DESIGN, SOURCE CONTROL, & POLLUTANT CONTROL
BMP OPERATION & MAINTENANCE PROCEDURE

O&M RESPONSIBLE PARTY DESIGNEE: PROPERTY OWNER / HOA / CITY / OTHER: LEASEHOLDER

BMP DESCRIPTION	INSPECTION FREQUENCY	MAINTENANCE FREQUENCY	MAINTENANCE METHOD	QUANTITY
SITE DESIGN ELEMENTS				
LANDSCAPING	BI-MONTHLY	AS DETERMINED BY INSPECTION	REMOVE TRASH AND DEBRIS	43,965 SF
SOURCE CONTROL ELEMENTS				
ONSITE STORM DRAIN INLETS	AFTER EACH STORM EVENT	AS DETERMINED BY INSPECTION	REMOVE TRASH & DEBRIS TO KEEP TRASH & SILT-FREE	6 EA
POLLUTANT CONTROL BMP(S)				
BIOFILTRATION UNITS MODULAR WETLAND SYSTEM (BMPs 1 - 8) LEVEL 1	BI-ANNUALLY	AS DETERMINED BY INSPECTION	REMOVE TRASH AND DEBRIS PER MANUFACTURER'S GUIDELINES	8 EA
HYDROMODIFICATION CONTROL				
UNDERGROUND DETENTION VAULT (HMPs 1 - 8) LEVEL 1	BEFORE & AFTER LARGE STORM EVENTS OR ON A WEEKLY BASIS DURING PERIODS OF WET WEATHER	AS DETERMINED BY INSPECTION OF ANY BLOCKAGE OF INLETS/OUTLETS, STRUCTURAL DAMAGE AND EROSION DAMAGE		8 EA



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PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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 Storm Water Design Manual	<input checked="" type="checkbox"/> Included <input type="checkbox"/> Submitted as separate stand-alone document
Attachment 2b	Hydromodification Management Exhibit (Required)	<input checked="" type="checkbox"/> 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 Storm Water Design Manual.	<input type="checkbox"/> Exhibit depicting onsite and/or upstream sources of critical coarse sediment as mapped in the WMAA AND, <input checked="" type="checkbox"/> Demonstration that the project effectively avoids and bypasses sources of mapped critical coarse sediment OR, <input type="checkbox"/> Demonstration that project does not generate a net impact on the receiving water.
Attachment 2d	Geomorphic Assessment of Receiving Channels (Optional) See Section 6.3.4 of the Storm Water Design Manual.	<input checked="" type="checkbox"/> Not performed <input type="checkbox"/> Included <input type="checkbox"/> Submitted as separate stand-alone document
Attachment 2e	Vector Control Plan (Required when structural BMPs will not drain in 96 hours)	<input type="checkbox"/> Included <input checked="" type="checkbox"/> Not required because BMPs will drain in less than 96 hours

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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)

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

ATTACHMENT 3

Structural BMP Maintenance Information

This is the cover sheet for Attachment 3.

Indicate which Items are Included behind this cover sheet:

Attachment Sequence	Contents	Checklist
Attachment 3a	Structural BMP Maintenance Plan (Required)	<input type="checkbox"/> Included See Structural BMP Maintenance Information Checklist on the back of this Attachment cover sheet.
Attachment 3b	Draft Storm Water Control Facilities Maintenance Agreement (SWCFMA) (when applicable)	<input type="checkbox"/> Included <input type="checkbox"/> Not Applicable

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Use this checklist to ensure the required information has been included in the Structural BMP Maintenance Information Attachment:

Attachment 3a must identify:

- Specific maintenance indicators and actions for proposed structural BMP(s). This must be based on Section 7.7 of the Storm Water Design Manual and enhanced to reflect actual proposed components of the structural BMP(s)
- How to access the structural BMP(s) to inspect and perform maintenance
- Features that are provided to facilitate inspection (e.g., observation ports, cleanouts, silt posts, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds)
- Manufacturer and part number for proprietary parts of structural BMP(s) when applicable
- Maintenance thresholds specific to the structural BMP(s), with a location-specific frame of reference (e.g., level of accumulated materials that triggers removal of the materials, to be identified based on viewing marks on silt posts or measured with a survey rod with respect to a fixed benchmark within the BMP)
- Recommended equipment to perform maintenance
- When applicable, necessary special training or certification requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management

Attachment 3b: For all Structural BMPs, Attachment 3b must include a draft maintenance agreement in the City's standard format (PDP applicant to contact City staff to obtain the current maintenance agreement forms or download from City's website).

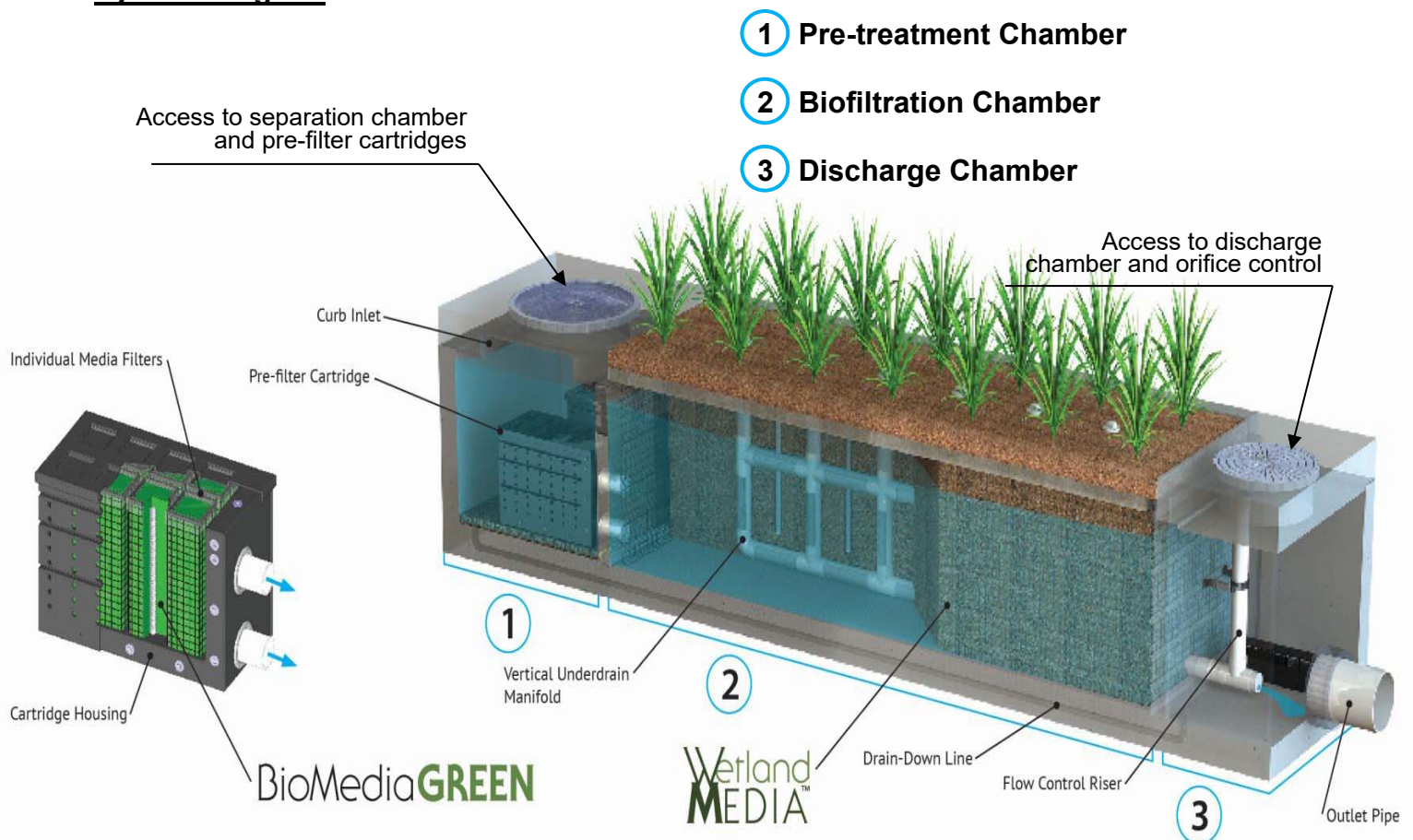


Inspection Guidelines for Modular Wetland System - Linear

Inspection Summary

- Inspect Pre-Treatment, Biofiltration and Discharge Chambers – average inspection interval is 6 to 12 months.
 - *(15 minute average inspection time).*
- NOTE: Pollutant loading varies greatly from site to site and no two sites are the same. Therefore, the first year requires inspection monthly during the wet season and every other month during the dry season in order to observe and record the amount of pollutant loading the system is receiving.

System Diagram



Inspection Overview

As with all stormwater BMPs inspection and maintenance on the MWS Linear is necessary. Stormwater regulations require that all BMPs be inspected and maintained to ensure they are operating as designed to allow for effective pollutant removal and provide protection to receiving water bodies. It is recommended that inspections be performed multiple times during the first year to assess the site specific loading conditions. This is recommended because pollutant loading and pollutant characteristics can vary greatly from site to site. Variables such as nearby soil erosion or construction sites, winter sanding on roads, amount of daily traffic and land use can increase pollutant loading on the system. The first year of inspections can be used to set inspection and maintenance intervals for subsequent years to ensure appropriate maintenance is provided. Without appropriate maintenance a BMP will exceed its storage capacity which can negatively affect its continued performance in removing and retaining captured pollutants.

Inspection Equipment

Following is a list of equipment to allow for simple and effective inspection of the MWS Linear:

- Modular Wetland Inspection Form
- Flashlight
- Manhole hook or appropriate tools to remove access hatches and covers
- Appropriate traffic control signage and procedures
- Measuring pole and/or tape measure.
- Protective clothing and eye protection.
- 7/16" open or closed ended wrench.
- **Large permanent black marker (initial inspections only – first year)**
- Note: entering a confined space requires appropriate safety and certification. It is generally not required for routine inspections of the system.





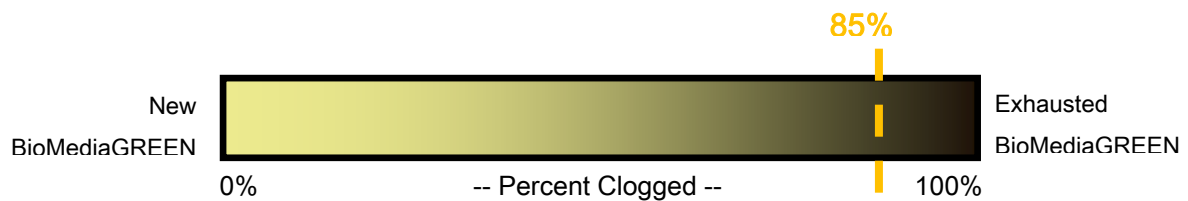
Inspection Steps

The core to any successful stormwater BMP maintenance program is routine inspections. The inspection steps required on the MWS Linear are quick and easy. As mentioned above the first year should be seen as the maintenance interval establishment phase. During the first year more frequent inspections should occur in order to gather loading data and maintenance requirements for that specific site. This information can be used to establish a base for long term inspection and maintenance interval requirements.

The MWS Linear can be inspected through visual observation without entry into the system. All necessary pre-inspection steps must be carried out before inspection occurs, especially traffic control and other safety measures to protect the inspector and near-by pedestrians from any dangers associated with an open access hatch or manhole. Once these access covers have been safely opened the inspection process can proceed:

- Prepare the inspection form by writing in the necessary information including project name, location, date & time, unit number and other info (see inspection form).
- Observe the inside of the system through the access hatches. If minimal light is available and vision into the unit is impaired utilize a flashlight to see inside the system and all of its chambers.
- Look for any out of the ordinary obstructions in the inflow pipe, pre-treatment chamber, biofiltration chamber, discharge chamber or outflow pipe. Write down any observations on the inspection form.
- Through observation and/or digital photographs estimate the amount of trash, debris and sediment accumulated in the pre-treatment chamber. Utilizing a tape measure or measuring stick estimate the amount of trash, debris and sediment in this chamber. Record this depth on the inspection form.

- Through visual observation inspect the condition of the pre-filter cartridges. Look for excessive build-up of sediments on the cartridges, any build-up on the top of the cartridges, or clogging of the holes. Record this information on the inspection form. The pre-filter cartridges can further be inspected by removing the cartridge tops and assessing the color of the BioMediaGREEN filter cubes (requires entry into pre-treatment chamber – see notes above regarding confined space entry). Record the color of the material. New material is a light green in color. As the media becomes clogged it will turn darker in color, eventually becoming dark brown or black. Using the below color indicator record the percentage of media exhausted.



- The biofiltration chamber is generally maintenance free due to the system's advanced pre-treatment chamber. For units which have open planters with vegetation it is recommended that the vegetation be inspected. Look for any plants that are dead or showing signs of disease or other negative stressors. Record the general health of the plants on the inspection and indicate through visual observation or digital photographs if trimming of the vegetation is needed.
- The discharge chamber houses the orifice control structure and is connected to the outflow pipe. It is important to check to ensure the orifice is in proper operating conditions and free of any obstructions. Generally, the discharge chamber will be clean and free of debris. Inspect the water marks on the side walls. If possible, inspect the discharge chamber during a rain event to assess the amount of flow leaving the system while it is at 100% capacity (pre-treatment chamber water level at peak HGL). The water level of the flowing water should be compared to the watermark level on the side walls which is an indicator of the highest discharge rate the system achieved when initially installed. Record on the form is there is any difference in level from watermark in inches.

- NOTE: During the first few storms the water level in the outflow chamber should be observed and a 6" long horizontal watermark line drawn (using a large permanent marker) at the water level in the discharge chamber while the system is operating at 100% capacity. The diagram below illustrates where a line should be drawn. This line is a reference point for future inspections of the system:



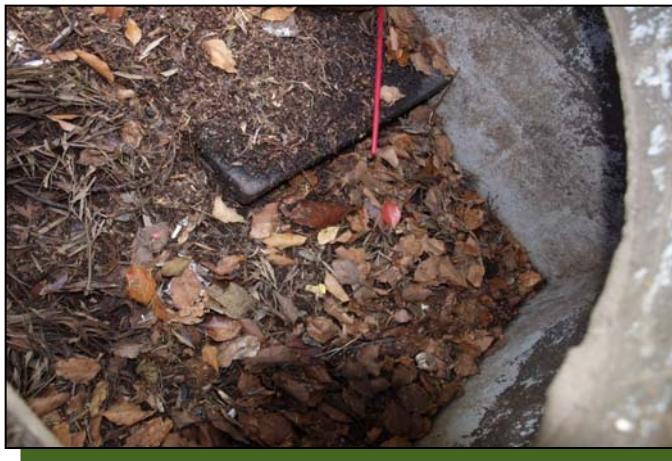
Using a permanent marker draw a 6 inch long horizontal line, as shown, at the higher water level in the MWS Linear discharge chamber.

- Water level in the discharge chamber is a function of flow rate and pipe size. Observation of water level during the first few months of operation can be used as a benchmark level for future inspections. The initial mark and all future observations shall be made when system is at 100% capacity (water level at maximum level in pre-treatment chamber). If future water levels are below this mark when system is at 100% capacity this is an indicator that maintenance to the pre-filter cartridges may be needed.
- Finalize inspection report for analysis by the maintenance manager to determine if maintenance is required.

Maintenance Indicators

Based upon observations made during inspection, maintenance of the system may be required based on the following indicators:

- Missing or damaged internal components or cartridges.
- Obstructions in the system or its inlet or outlet.
- Excessive accumulation of floatables in the pre-treatment chamber in which the length and width of the chamber is fully impacted more than 18”.



- Excessive accumulation of sediment in the pre-treatment chamber of more than 6” in depth.



- Excessive accumulation of sediment on the BioMediaGREEN media housed within the pre-filter cartridges. The following chart shows photos of the condition of the BioMediaGREEN contained within the pre-filter cartridges. When media is more than 85% clogged replacement is required.



- Overgrown vegetation.



- Water level in discharge chamber during 100% operating capacity (pre-treatment chamber water level at max height) is lower than the watermark by 20%.



Inspection Notes

1. Following maintenance and/or inspection, it is recommended the maintenance operator prepare a maintenance/inspection record. The record should include any maintenance activities performed, amount and description of debris collected, and condition of the system and its various filter mechanisms.
2. The owner should keep maintenance/inspection record(s) for a minimum of five years from the date of maintenance. These records should be made available to the governing municipality for inspection upon request at any time.
3. Transport all debris, trash, organics and sediments to approved facility for disposal in accordance with local and state requirements.
4. Entry into chambers may require confined space training based on state and local regulations.
5. No fertilizer shall be used in the Biofiltration Chamber.
6. Irrigation should be provided as recommended by manufacturer and/or landscape architect. Amount of irrigation required is dependent on plant species. Some plants may not require irrigation after initial establishment.

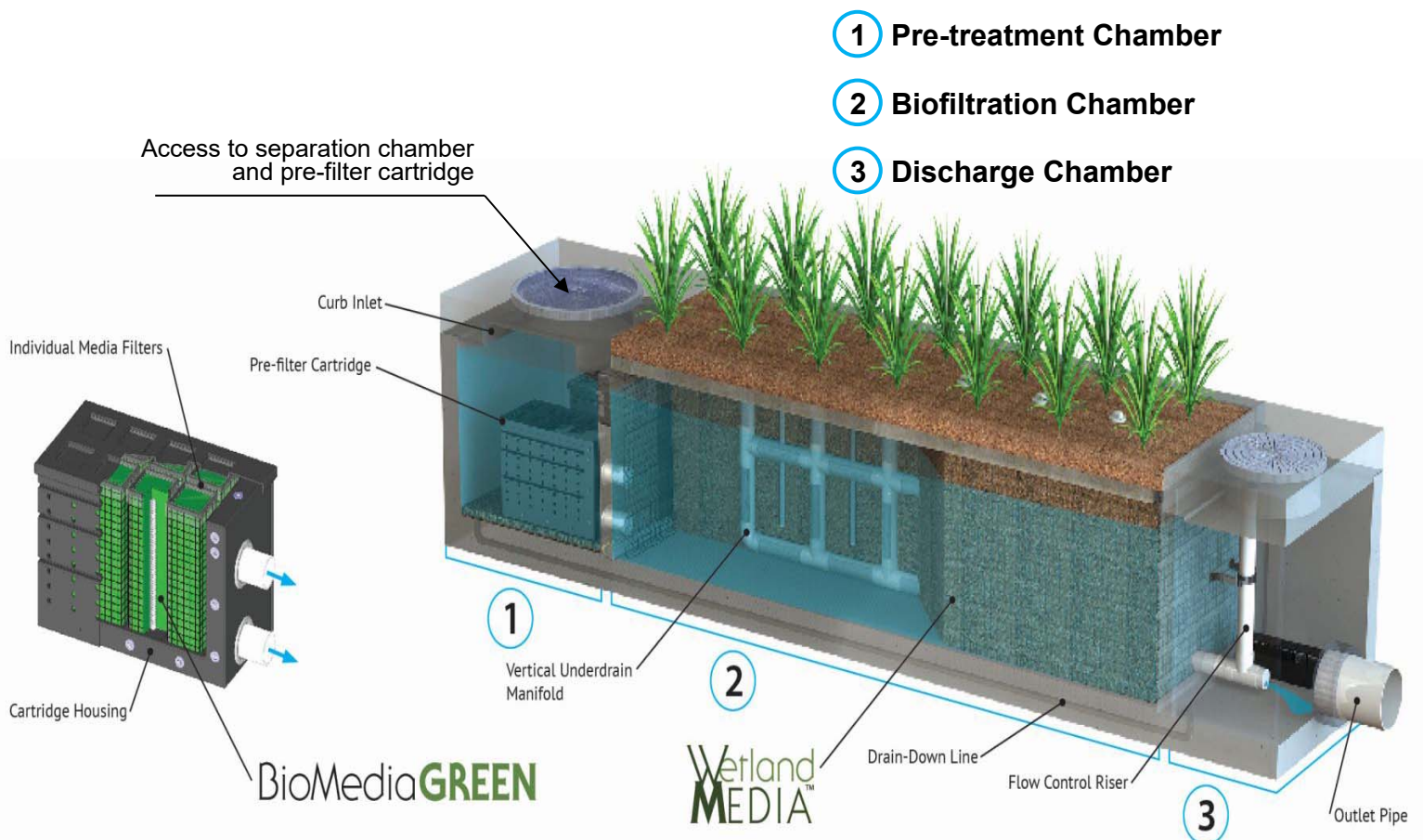


Maintenance Guidelines for Modular Wetland System - Linear

Maintenance Summary

- Remove Sediment from Pre-Treatment Chamber – average maintenance interval is 12 to 24 months.
 - (10 minute average service time).
- Replace Pre-Filter Cartridge Media – average maintenance interval 12 to 24 months.
 - (10-15 minute per cartridge average service time).
- Trim Vegetation – average maintenance interval is 6 to 12 months.
 - (Service time varies).

System Diagram



Maintenance Overview

The time has come to maintain your Modular Wetland System Linear (MWS Linear). To ensure successful and efficient maintenance on the system we recommend the following. The MWS Linear can be maintained by removing the access hatches over the systems various chambers. All necessary pre-maintenance steps must be carried out before maintenance occurs, especially traffic control and other safety measures to protect the inspector and near-by pedestrians from any dangers associated with an open access hatch or manhole. Once traffic control has been set up per local and state regulations and access covers have been safely opened the maintenance process can begin. It should be noted that some maintenance activities require confined space entry. All confined space requirements must be strictly followed before entry into the system. In addition the following is recommended:

- Prepare the maintenance form by writing in the necessary information including project name, location, date & time, unit number and other info (see maintenance form).
- Set up all appropriate safety and cleaning equipment.
- Ensure traffic control is set up and properly positioned.
- Prepare a pre-checks (OSHA, safety, confined space entry) are performed.

Maintenance Equipment

Following is a list of equipment required for maintenance of the MWS Linear:

- Modular Wetland Maintenance Form
- Manhole hook or appropriate tools to access hatches and covers
- Protective clothing, flashlight and eye protection.
- 7/16" open or closed ended wrench.
- Vacuum assisted truck with pressure washer.
- Replacement BioMediaGREEN for Pre-Filter Cartridges if required (order from manufacturer).



Maintenance Steps

1. Pre-treatment Chamber (bottom of chamber)
 - A. Remove access hatch or manhole cover over pre-treatment chamber and position vacuum truck accordingly.
 - B. With a pressure washer spray down pollutants accumulated on walls and pre-filter cartridges.
 - C. Vacuum out Pre-Treatment Chamber and remove all accumulated pollutants including trash, debris and sediments. Be sure to vacuum the floor until pervious pavers are visible and clean.
 - D. If Pre-Filter Cartridges require media replacement move onto step 2. If not, replace access hatch or manhole cover.



Removal of access hatch to gain access below.



Insertion of vacuum hose into separation chamber.



Removal of trash, sediment and debris.



Fully cleaned separation chamber.

2. Pre-Filter Cartridges (attached to wall of pre-treatment chamber)

- A. After finishing step 1 enter pre-treatment chamber.
- B. Unscrew the two bolts holding the lid on each cartridge filter and remove lid.



Pre-filter cartridges with tops on.



Inside cartridges showing media filters ready for replacement.

- C. Place the vacuum hose over each individual media filter to suck out filter media.



Vacuuming out of media filters.

- D. Once filter media has been sucked use a pressure washer to spray down inside of the cartridge and it's containing media cages. Remove cleaned media cages and place to the side. Once removed the vacuum hose can be inserted into the cartridge to vacuum out any remaining material near the bottom of the cartridge.

- E. Reinstall media cages and fill with new media from manufacturer or outside supplier. Manufacturer will provide specification of media and sources to purchase. Utilize the manufacture provided refilling tray and place on top of cartridge. Fill tray with new bulk media and shake down into place. Using your hands slightly compact media into each filter cage. Once cages are full removed refilling tray and replace cartridge top ensuring bolts are properly tightened.



Refilling tray for media replacement.



Refilling tray on cartridge with bulk media.



- F. Exit pre-treatment chamber. Replace access hatch or manhole cover.

3. Biofiltration Chamber (middle vegetated chamber)

- A. In general, the biofiltration chamber is maintenance free with the exception of maintaining the vegetation. Using standard gardening tools properly trim back the vegetation to healthy levels. The MWS Linear utilizes vegetation similar to surrounding landscape areas therefore trim vegetation to match surrounding vegetation. If any plants have died replace plants with new ones:





Inspection Notes

1. Following maintenance and/or inspection, it is recommended the maintenance operator prepare a maintenance/inspection record. The record should include any maintenance activities performed, amount and description of debris collected, and condition of the system and its various filter mechanisms.
2. The owner should keep maintenance/inspection record(s) for a minimum of five years from the date of maintenance. These records should be made available to the governing municipality for inspection upon request at any time.
3. Transport all debris, trash, organics and sediments to approved facility for disposal in accordance with local and state requirements.
4. Entry into chambers may require confined space training based on state and local regulations.
5. No fertilizer shall be used in the Biofiltration Chamber.
6. Irrigation should be provided as recommended by manufacturer and/or landscape architect. Amount of irrigation required is dependent on plant species. Some plants may not require irrigation after initial establishment.



Inspection Form



Modular Wetland System, Inc.

P. 760.433-7640

F. 760-433-3176

E. Info@modularwetlands.com

www.modularwetlands.com



Inspection Report Modular Wetlands System



Project Name _____

Project Address _____ (city) (Zip Code)

Owner / Management Company _____

Contact _____

Phone () -

Inspector Name _____

Date ____ / ____ / ____

Time _____ AM / PM

Type of Inspection Routine Follow Up Complaint

Storm

Storm Event in Last 72-hours? No Yes

Weather Condition _____

Additional Notes _____

For Office Use Only
(Reviewed By)
(Date) Office personnel to complete section to the left.

Inspection Checklist

Modular Wetland System Type (Curb, Grate or UG Vault): _____ Size (22', 14' or etc.): _____

Structural Integrity:	Yes	No	Comments
Damage to pre-treatment access cover (manhole cover/grate) or cannot be opened using normal lifting pressure?			
Damage to discharge chamber access cover (manhole cover/grate) or cannot be opened using normal lifting pressure?			
Does the MWS unit show signs of structural deterioration (cracks in the wall, damage to frame)?			
Is the inlet/outlet pipe or drain down pipe damaged or otherwise not functioning properly?			
Working Condition:			
Is there evidence of illicit discharge or excessive oil, grease, or other automobile fluids entering and clogging the unit?			
Is there standing water in inappropriate areas after a dry period?			
Is the filter insert (if applicable) at capacity and/or is there an accumulation of debris/trash on the shelf system?			
Does the depth of sediment/trash/debris suggest a blockage of the inflow pipe, bypass or cartridge filter? If yes, specify which one in the comments section. Note depth of accumulation in in pre-treatment chamber.			Depth:
Does the cartridge filter media need replacement in pre-treatment chamber and/or discharge chamber?			Chamber:
Any signs of improper functioning in the discharge chamber? Note issues in comments section.			
Other Inspection Items:			
Is there an accumulation of sediment/trash/debris in the wetland media (if applicable)?			
Is it evident that the plants are alive and healthy (if applicable)? Please note Plant Information below.			
Is there a septic or foul odor coming from inside the system?			

Waste:	Yes	No
Sediment / Silt / Clay		
Trash / Bags / Bottles		
Green Waste / Leaves / Foliage		

Recommended Maintenance	
No Cleaning Needed	
Schedule Maintenance as Planned	
Needs Immediate Maintenance	

Plant Information	
Damage to Plants	
Plant Replacement	
Plant Trimming	

Additional Notes: _____



Maintenance Report



Modular Wetland System, Inc.

P. 760.433-7640

F. 760-433-3176

E. Info@modularwetlands.com

www.modularwetlands.com



Cleaning and Maintenance Report Modular Wetlands System



Project Name _____

Project Address _____ (city) (Zip Code)

Owner / Management Company _____

Contact _____

Phone () -

Inspector Name _____

Date ____ / ____ / ____ Time ____ AM / PM

Type of Inspection Routine Follow Up Complaint Storm Storm Event in Last 72-hours? No Yes

Weather Condition _____

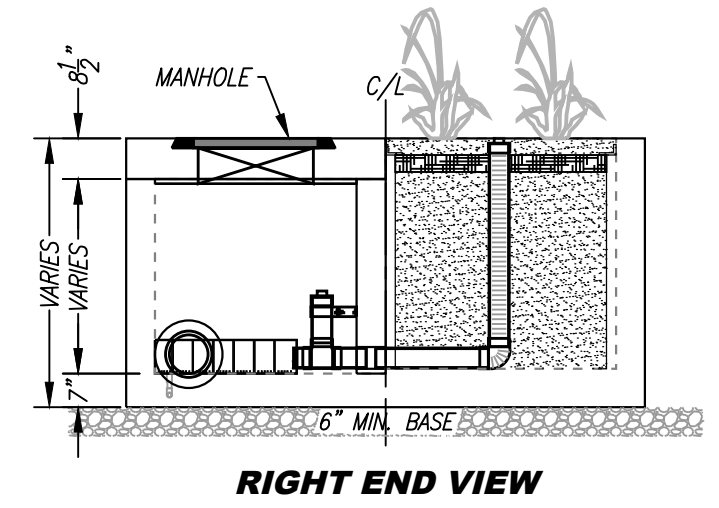
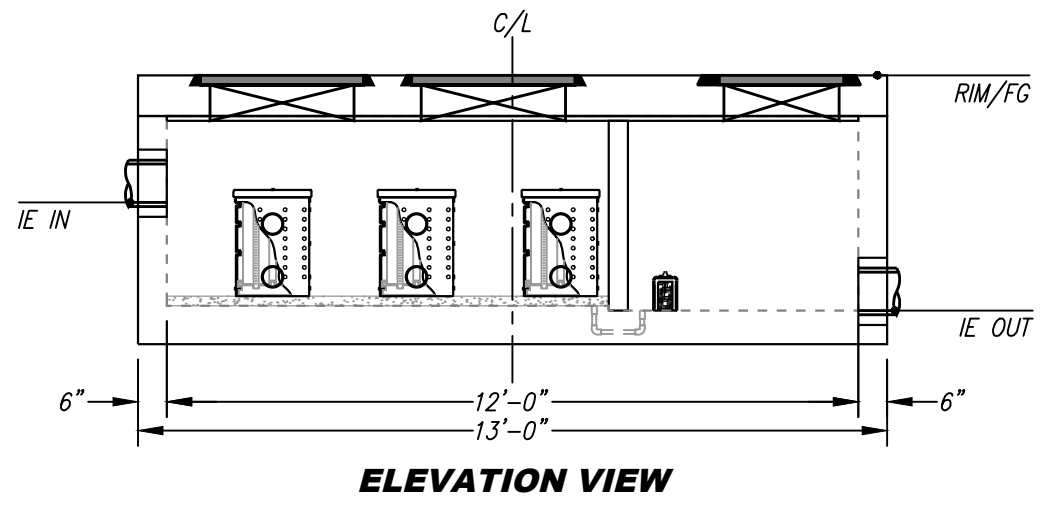
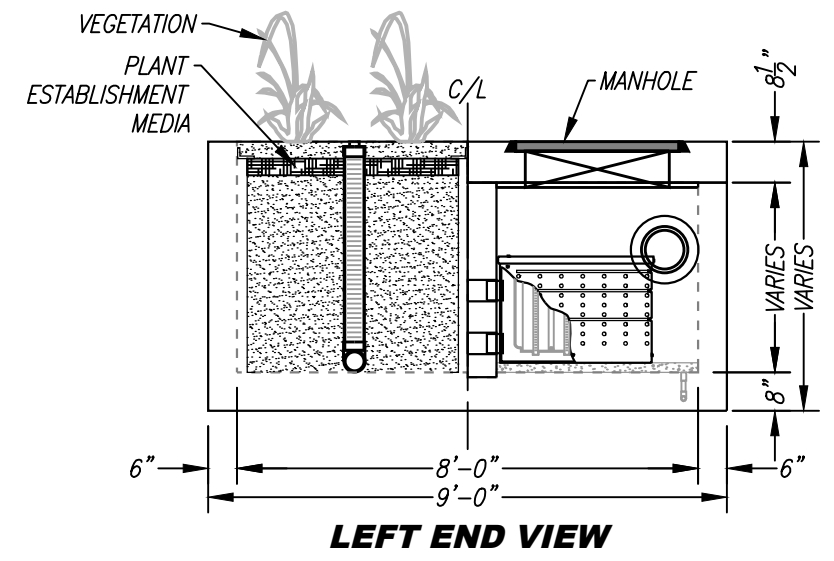
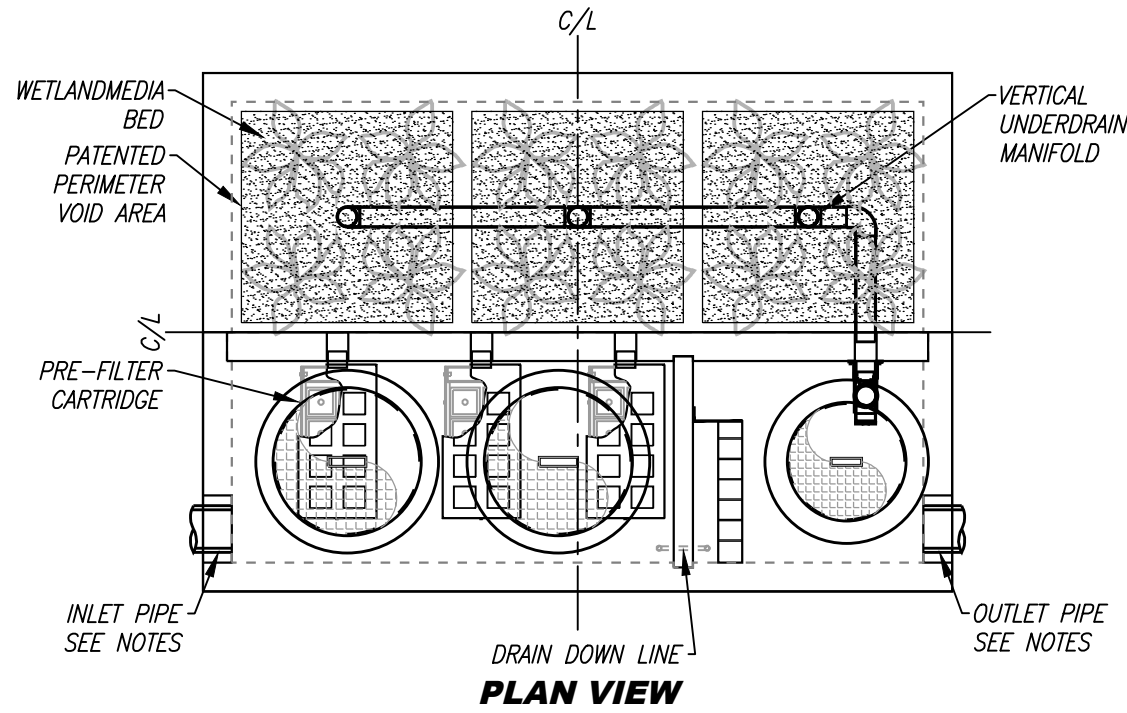
Additional Notes _____

For Office Use Only
(Reviewed By)
(Date) Office personnel to complete section to the left.

Site Map #	GPS Coordinates of Insert	Manufacturer / Description / Sizing	Trash Accumulation	Foliage Accumulation	Sediment Accumulation	Total Debris Accumulation	Condition of Media 25/50/75/100 (will be changed @ 75%)	Operational Per Manufactures' Specifications (If not, why?)
	Lat: Long:	MWS Catch Basins						
		MWS Sedimentation Basin						
		Media Filter Condition						
		Plant Condition						
		Drain Down Media Condition						
		Discharge Chamber Condition						
		Drain Down Pipe Condition						
		Inlet and Outlet Pipe Condition						

Comments:

SITE SPECIFIC DATA			
PROJECT NUMBER			
PROJECT NAME			
PROJECT LOCATION			
STRUCTURE ID			
TREATMENT REQUIRED			
VOLUME BASED (CF)		FLOW BASED (CFS)	
N/A			
PEAK BYPASS REQUIRED (CFS) – IF APPLICABLE			
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
	PRETREATMENT	BIOFILTRATION	DISCHARGE
RIM ELEVATION			
SURFACE LOAD			
FRAME & COVER	2EA $\phi 30"$		$\phi 24"$
NOTES:			



INSTALLATION NOTES

1. CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS REQUIRED TO OFFLOAD AND INSTALL THE SYSTEM AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURERS SPECIFICATIONS, UNLESS OTHERWISE STATED IN MANUFACTURERS CONTRACT.
2. UNIT MUST BE INSTALLED ON LEVEL BASE. MANUFACTURER RECOMMENDS A MINIMUM 6" LEVEL ROCK BASE UNLESS SPECIFIED BY THE PROJECT ENGINEER. CONTRACTOR IS RESPONSIBLE TO VERIFY PROJECT ENGINEERS RECOMMENDED BASE SPECIFICATIONS.
4. CONTRACTOR TO SUPPLY AND INSTALL ALL EXTERNAL CONNECTING PIPES. ALL PIPES MUST BE FLUSH WITH INSIDE SURFACE OF CONCRETE. (PIPES CANNOT INTRUDE BEYOND FLUSH). INVERT OF OUTFLOW PIPE MUST BE FLUSH WITH DISCHARGE CHAMBER FLOOR. ALL PIPES SHALL BE SEALED WATER TIGHT PER MANUFACTURERS STANDARD CONNECTION DETAIL.
5. CONTRACTOR RESPONSIBLE FOR INSTALLATION OF ALL RISERS, MANHOLES, AND HATCHES. CONTRACTOR TO GROUT ALL MANHOLES AND HATCHES TO MATCH FINISHED SURFACE UNLESS SPECIFIED OTHERWISE.
6. VEGETATION SUPPLIED AND INSTALLED BY OTHERS. ALL UNITS WITH VEGETATION MUST HAVE DRIP OR SPRAY IRRIGATION SUPPLIED AND INSTALLED BY OTHERS.
7. CONTRACTOR RESPONSIBLE FOR CONTACTING BIO CLEAN FOR ACTIVATION OF UNIT. MANUFACTURERS WARRANTY IS VOID WITH OUT PROPER ACTIVATION BY A BIO CLEAN REPRESENTATIVE.

GENERAL NOTES

1. MANUFACTURER TO PROVIDE ALL MATERIALS UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS, ELEVATIONS, SPECIFICATIONS AND CAPACITIES ARE SUBJECT TO CHANGE. FOR PROJECT SPECIFIC DRAWINGS DETAILING EXACT DIMENSIONS, WEIGHTS AND ACCESSORIES PLEASE CONTACT BIO CLEAN.

TREATMENT FLOW (CFS)	
OPERATING HEAD (FT)	
PRETREATMENT LOADING RATE (GPM/SF)	
WETLAND MEDIA LOADING RATE (GPM/SF)	



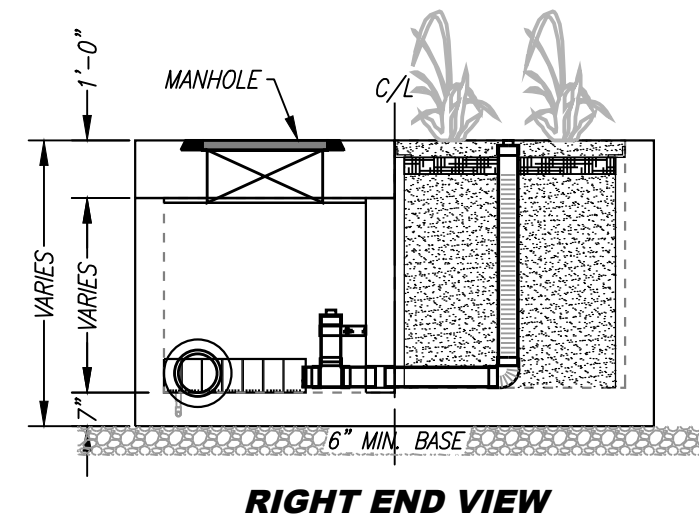
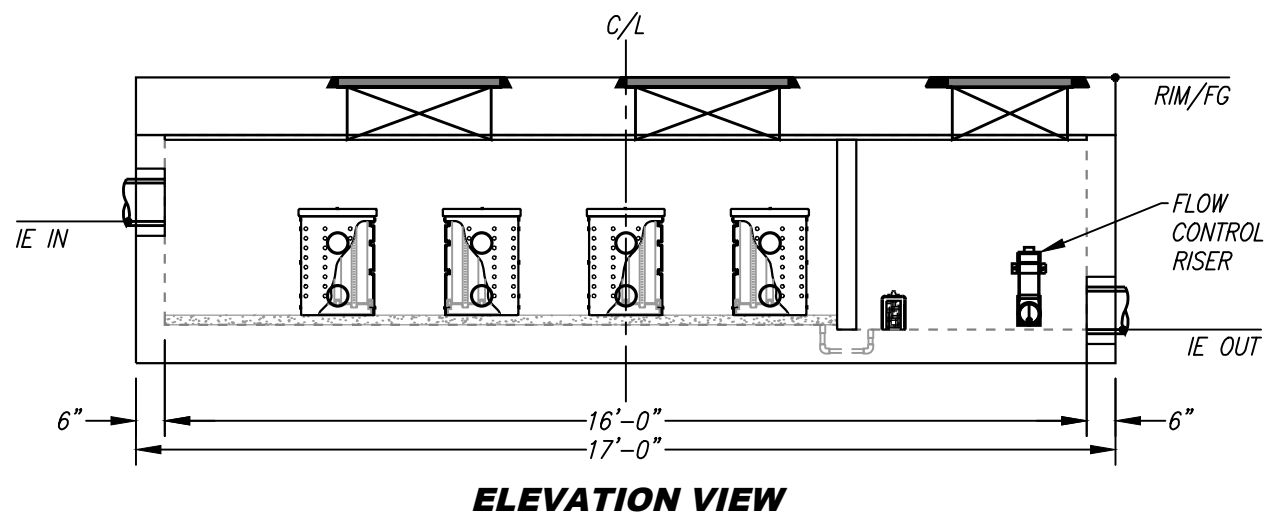
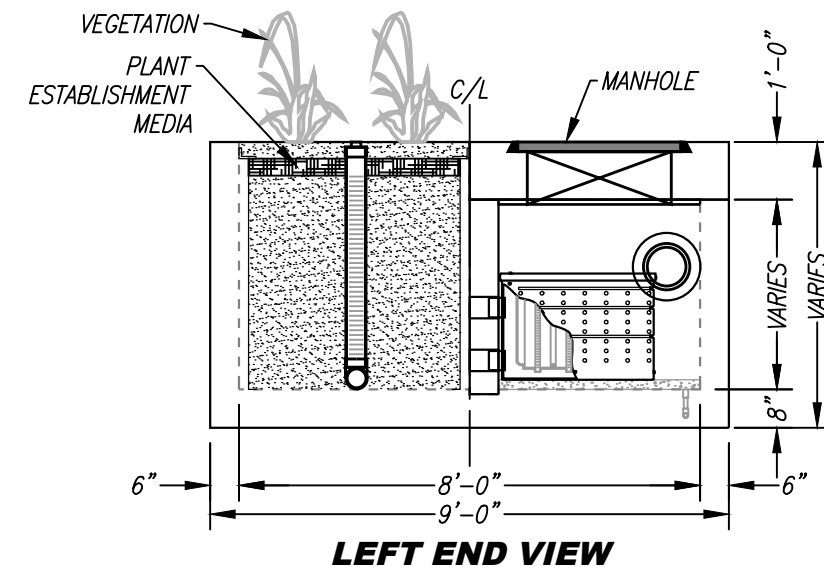
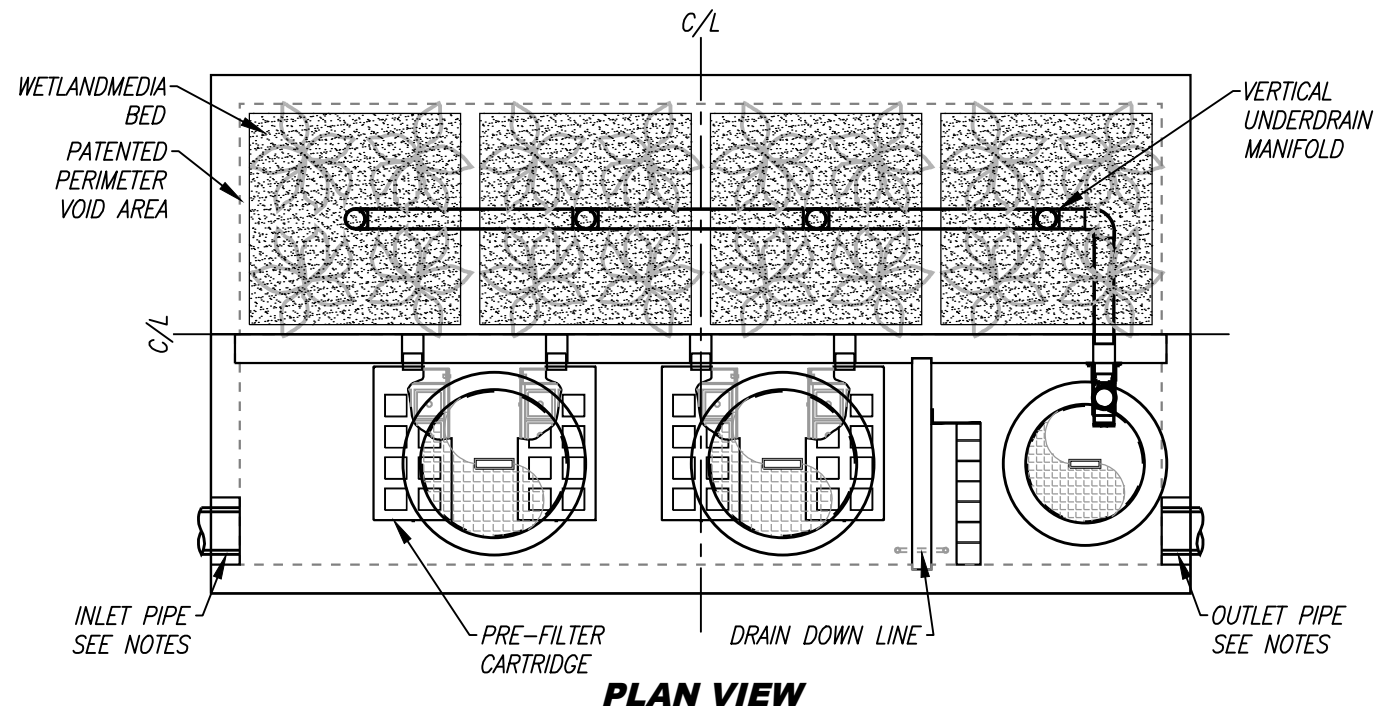
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MWS-L-8-12-V
STORMWATER BIOFILTRATION SYSTEM
STANDARD DETAIL

5/23/19TOL/EE

SITE SPECIFIC DATA			
PROJECT NUMBER			
PROJECT NAME			
PROJECT LOCATION			
STRUCTURE ID			
TREATMENT REQUIRED			
VOLUME BASED (CF)		FLOW BASED (CFS)	
N/A			
PEAK BYPASS REQUIRED (CFS) – IF APPLICABLE			
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
	PRETREATMENT	BIOFILTRATION	DISCHARGE
RIM ELEVATION			
SURFACE LOAD			
FRAME & COVER	2EA $\phi 30"$		$\phi 24"$
NOTES:			



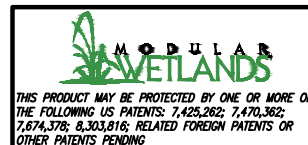
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TREATMENT FLOW (CFS)	
OPERATING HEAD (FT)	
PRETREATMENT LOADING RATE (GPM/SF)	
WETLAND MEDIA LOADING RATE (GPM/SF)	

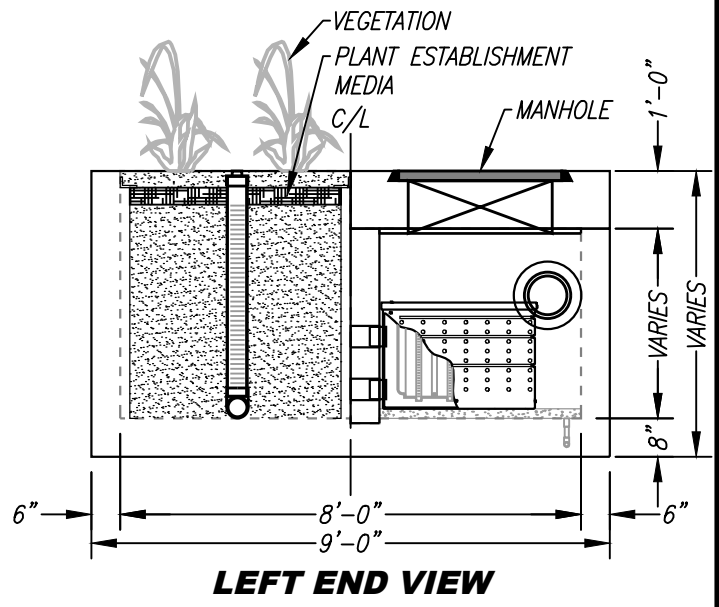
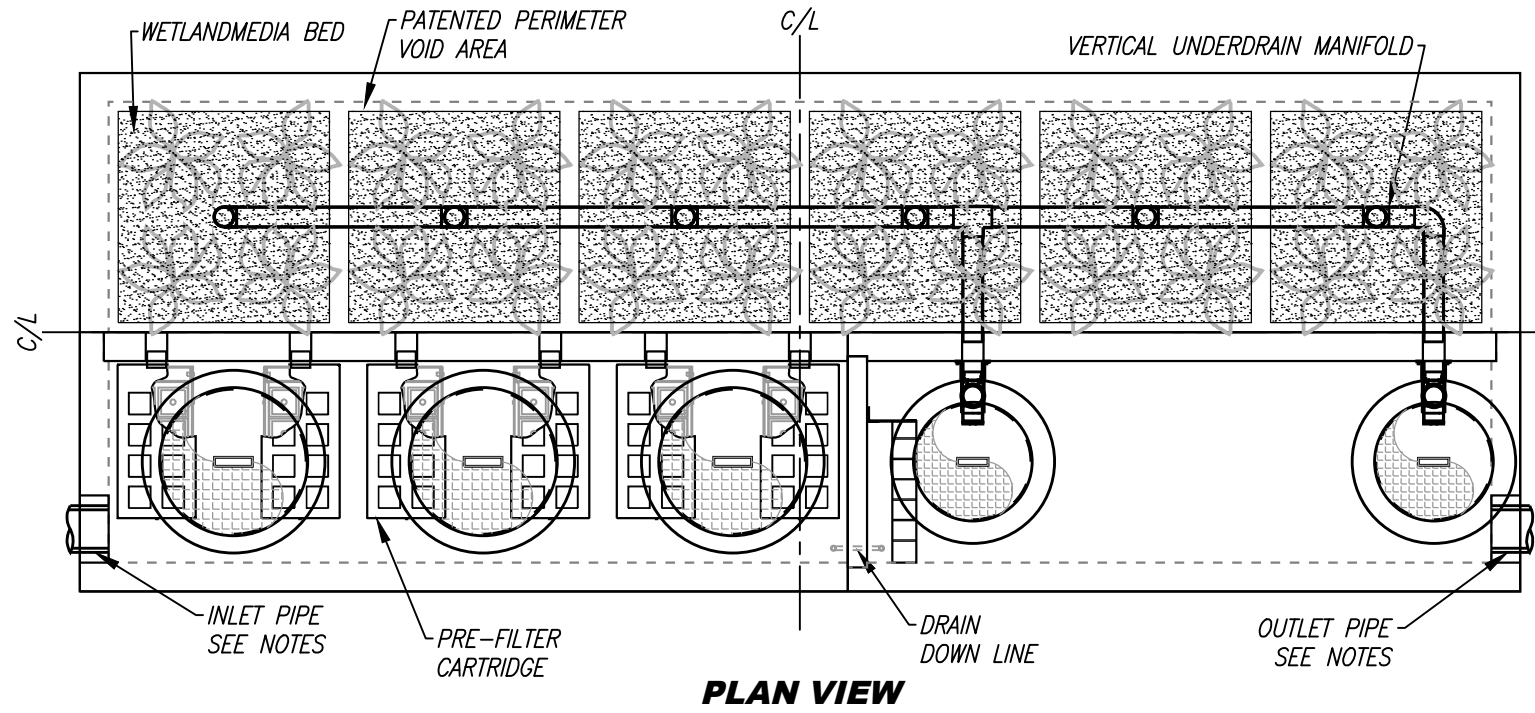


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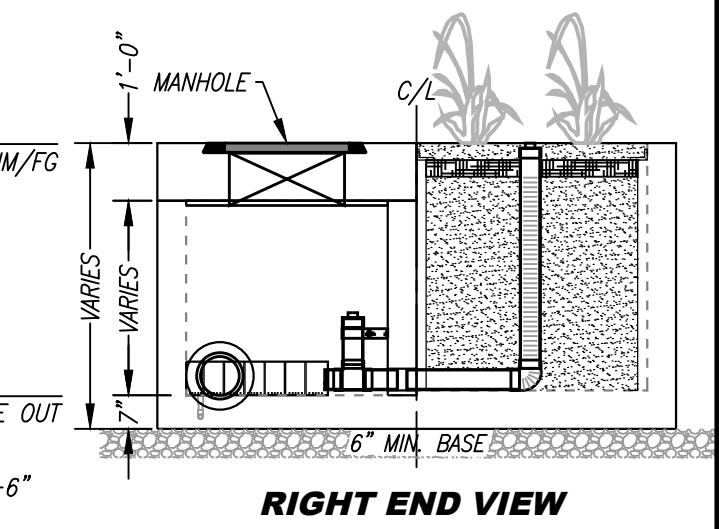
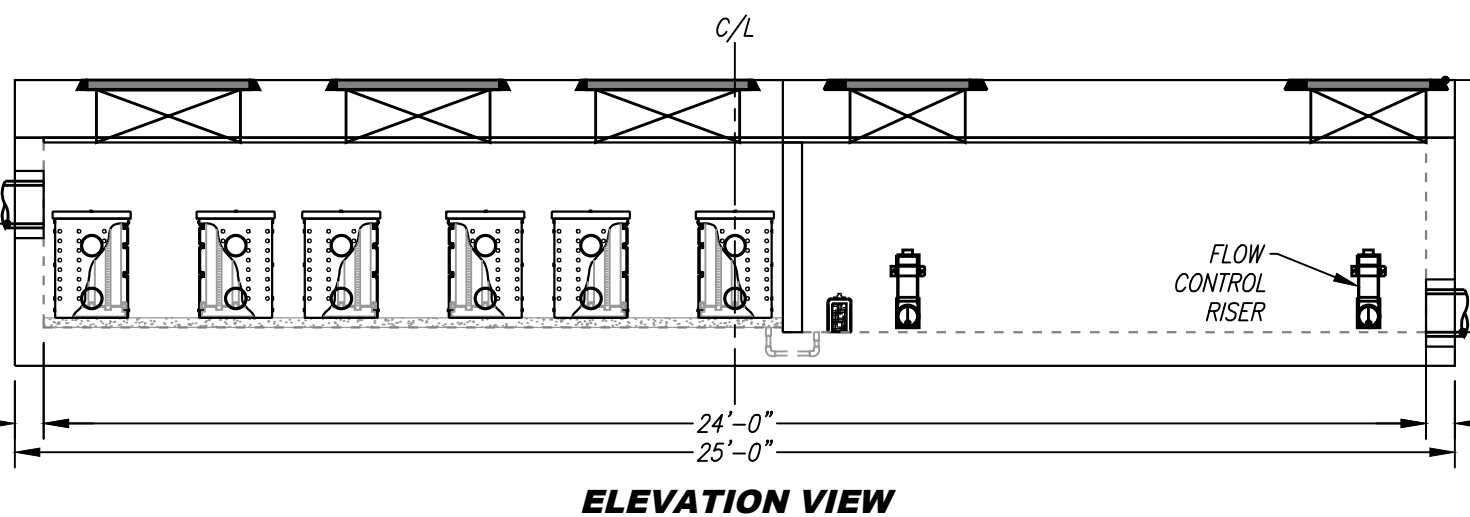
MWS-L-8-16-V
STORMWATER BIOFILTRATION SYSTEM
STANDARD DETAIL

SITE SPECIFIC DATA			
PROJECT NUMBER			
PROJECT NAME			
PROJECT LOCATION			
STRUCTURE ID			
TREATMENT REQUIRED			
VOLUME BASED (CF)		FLOW BASED (CFS)	
N/A			
PEAK BYPASS REQUIRED (CFS) – IF APPLICABLE			
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
	PRETREATMENT	BIOFILTRATION	DISCHARGE
RIM ELEVATION			
SURFACE LOAD			
FRAME & COVER	3EA Ø30"		2EA Ø24"
NOTES:			



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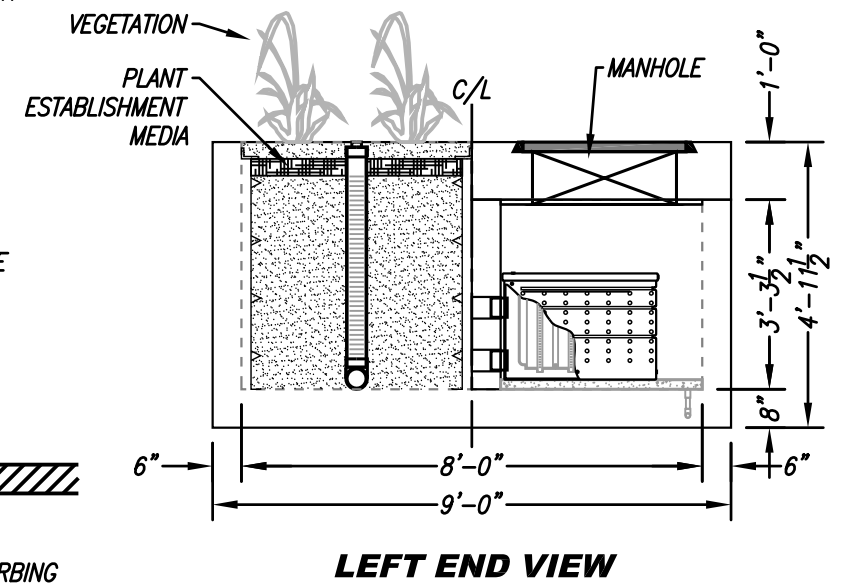
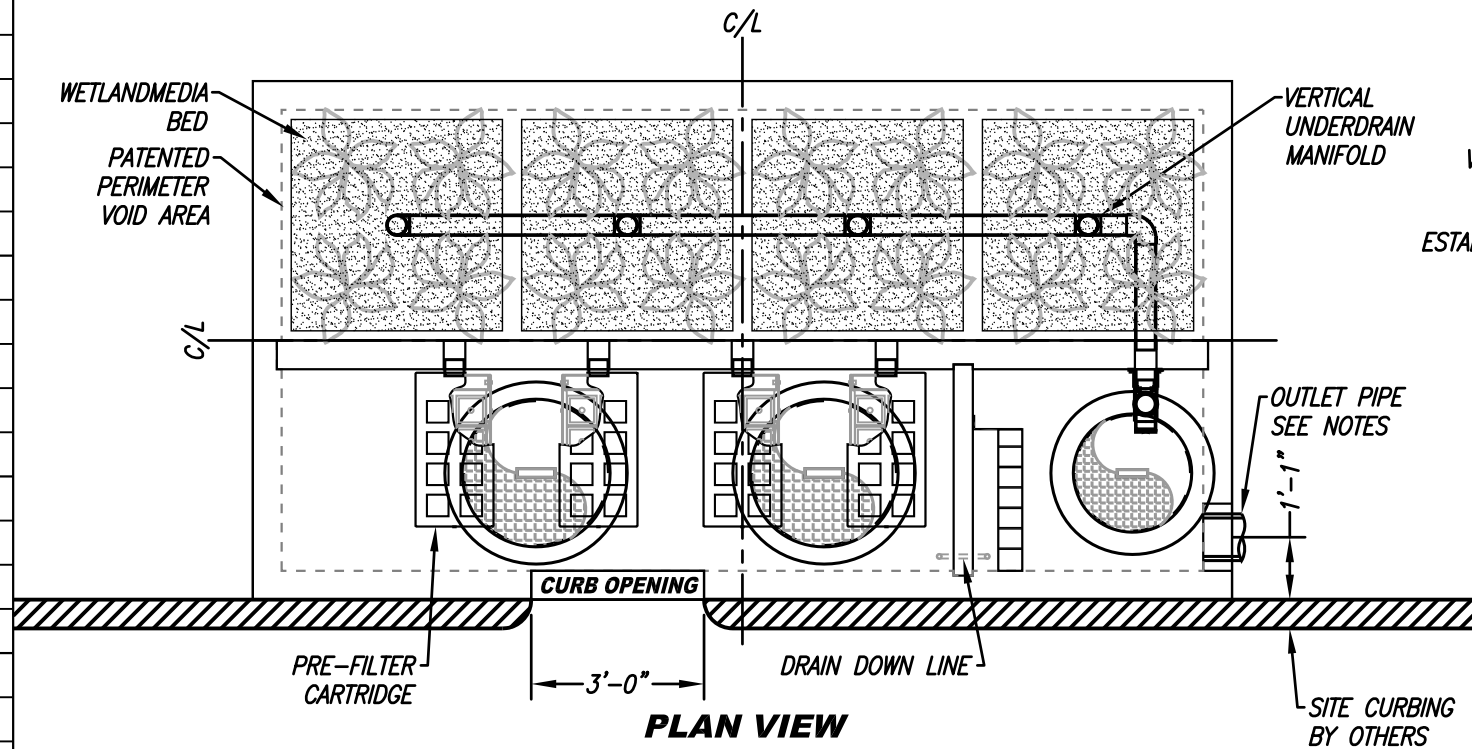


TREATMENT FLOW (CFS)	
OPERATING HEAD (FT)	
PRETREATMENT LOADING RATE (GPM/SF)	
WETLAND MEDIA LOADING RATE (GPM/SF)	

MWS-L-8-24-V
STORMWATER BIOFILTRATION SYSTEM
STANDARD DETAIL

5/23/19TOL/EE

SITE SPECIFIC DATA			
PROJECT NUMBER			
ORDER NUMBER			
PROJECT NAME			
PROJECT LOCATION			
STRUCTURE ID			
TREATMENT REQUIRED			
VOLUME BASED (CF)		FLOW BASED (CFS)	
TREATMENT HGL AVAILABLE (FT)			
PEAK BYPASS REQUIRED (CFS) – IF APPLICABLE			
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
	PRETREATMENT	BIOFILTRATION	DISCHARGE
RIM ELEVATION			
SURFACE LOAD	PEDESTRIAN	OPEN PLANTER	PEDESTRIAN
FRAME & COVER	2EA Ø30"	N/A	Ø24"
WETLAND MEDIA VOLUME (CY)		TBD	
ORIFICE SIZE (DIA. INCHES)		TBD	
NOTES: PRELIMINARY NOT FOR CONSTRUCTION.			

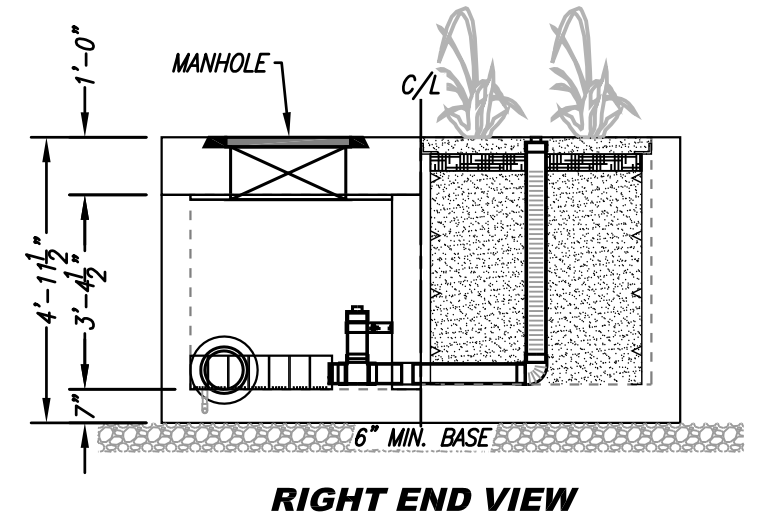
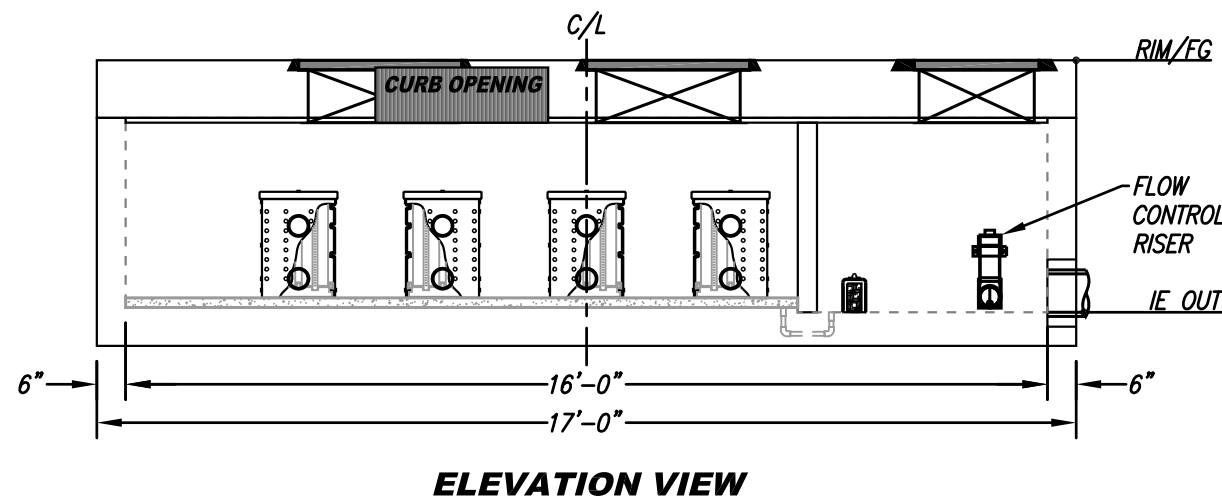


INSTALLATION NOTES

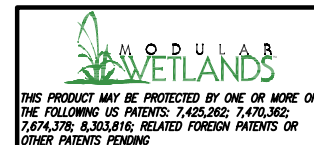
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TREATMENT FLOW (CFS)	0.462
OPERATING HEAD (FT)	3.4
PRETREATMENT LOADING RATE (GPM/SF)	2.0
WETLAND MEDIA LOADING RATE (GPM/SF)	1.0



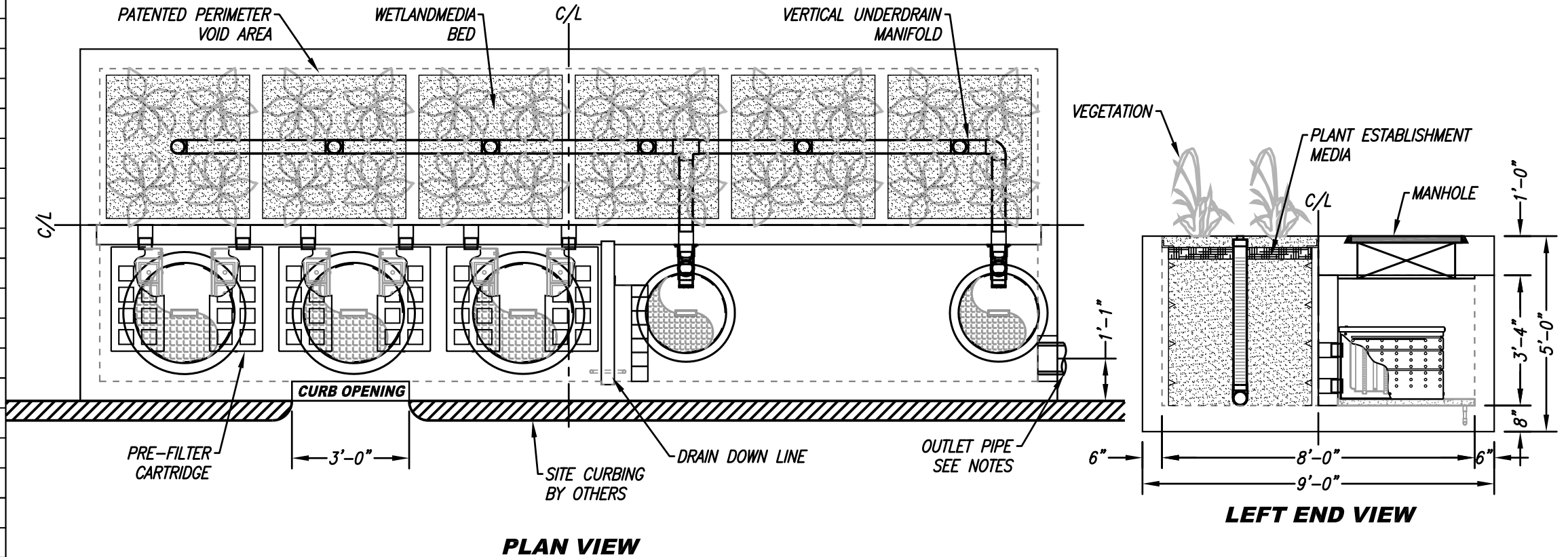
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MWS-L-8-16-C
STORMWATER BIOFILTRATION SYSTEM
STANDARD DETAIL

SITE SPECIFIC DATA			
PROJECT NUMBER			
ORDER NUMBER			
PROJECT NAME			
PROJECT LOCATION			
STRUCTURE ID			
TREATMENT REQUIRED			
VOLUME BASED (CF)		FLOW BASED (CFS)	
TREATMENT HGL AVAILABLE (FT)			
PEAK BYPASS REQUIRED (CFS) - IF APPLICABLE			
PIPE DATA		I.E.	MATERIAL
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
	PRETREATMENT	BIOFILTRATION	DISCHARGE
RIM ELEVATION			
SURFACE LOAD		PEDESTRIAN	OPEN PLANTER
FRAME & COVER		3 EA Ø30"	N/A
WETLAND MEDIA VOLUME (CY)			TBD
ORIFICE SIZE (DIA. INCHES)			TBD
NOTES: PRELIMINARY NOT FOR CONSTRUCTION.			

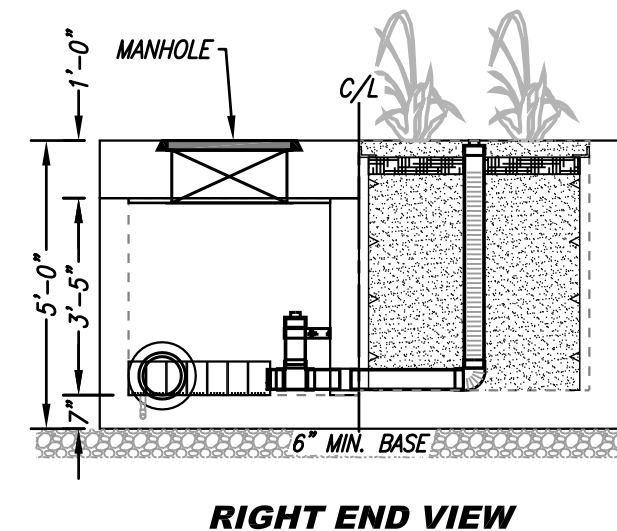
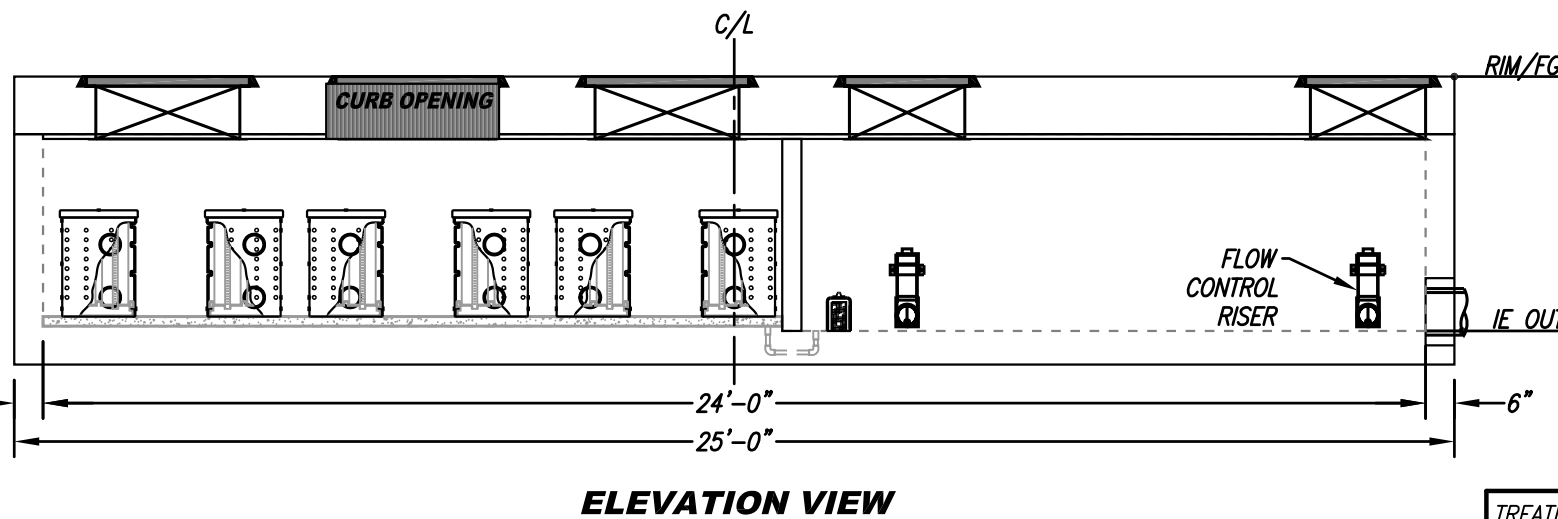


INSTALLATION NOTES

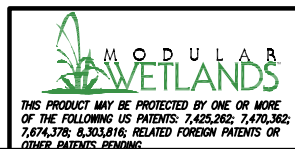
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TREATMENT FLOW (CFS)	0.693
OPERATING HEAD (FT)	3.4
PRETREATMENT LOADING RATE (GPM/SF)	2.0
WETLAND MEDIA LOADING RATE (GPM/SF)	1.0



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MWS-L-8-24-C
STORMWATER BIOFILTRATION SYSTEM
STANDARD DETAIL

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

ATTACHMENT 4

City of Escondido PDP Structural BMP Verification for Permitted Land
Development Projects

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

City of Escondido Storm Water Structural BMP Verification Form Page 1 of 4	
Project Summary Information	
Project Name	COSTCO ESCONDIDO
Record ID (e.g., grading/improvement plan number)	
Project Address	210 EAST VIA RANCHO PARKWAY ESCONDIDO, CA 92025
Assessor's Parcel Number(s) (APN(s))	271-030-14-00
Project Watershed (Complete Hydrologic Unit, Area, and Subarea Name with Numeric Identifier)	SAN DIEGUITO RIVER HODGES 905.2
Maintenance Notification / Agreement No.	
Responsible Party for Construction Phase	
Developer's Name	COSTCO WHOLESALE
Address	999 LAKE DRIVE ISSAQUAH, WA 98027
Email Address	
Phone Number	
Engineer of Work	ERIC ARMSTRONG, PE
Engineer's Phone Number	858-554-1500
Responsible Party for Ongoing Maintenance	
Owner's Name(s)*	COSTCO WHOLESALE
Address	999 LAKE DRIVE ISSAQUAH, WA 98027
Email Address	
Phone Number	
*Note: If a corporation or LLC, provide information for principal partner or Agent for Service of Process. If an HOA, provide information for the Board or property manager at time of project closeout.	

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Checklist for Engineer of Work (EOW) to submit to Field Engineering:

- Copy of the final accepted SWQMP and any accepted addendum.
- Copy of the most current plan showing the Storm Water Structural BMP Table, plans/cross-section sheets of the Structural BMPs and the location of each verified as-built Structural BMP.
- Photograph of each Structural BMP.
- Photograph(s) of each Structural BMP during the construction process to illustrate proper construction.
- Copy of the approved Structural BMP maintenance agreement and associated security

By signing below, I certify that the Structural BMP(s) for this project have been constructed and all BMPs are in substantial conformance with the approved plans and applicable regulations. I understand the City reserves the right to inspect the above BMPs to verify compliance with the approved plans and Storm Water Ordinance. Should it be determined that the BMPs were not constructed to plan or code, corrective actions may be necessary before permits can be closed.

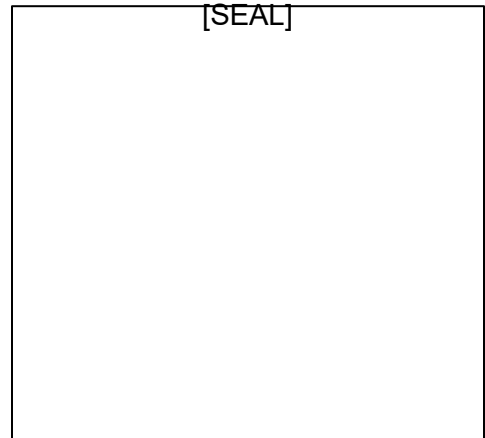
Please sign your name and seal.

Professional Engineer's Printed Name:

ERIC ARMSTRONG

Professional Engineer's Signed Name:

Date: _____



PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

CITY - OFFICIAL USE ONLY:

Permit #: _____

City Inspector: _____

Date Project has/expects to close: _____

Date verification received from Engineer of Work (EOW): _____

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

City Inspector's Signature: _____ Date: _____

FOR Environmental Programs:

Date Received from Field Engineering: _____

Environmental Programs Submittal Reviewer: _____

Environmental Programs Reviewer concurs that the information provided for the following Structural BMPs is acceptable to enter into the Structural BMP Maintenance verification inventory:

List acceptable Structural BMPs:

Environmental Programs Reviewer's Signature: _____

Date: _____

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

ATTACHMENT 5

Copy of Plan Sheets Showing Permanent Storm Water BMPs, Source Control, and Site Design

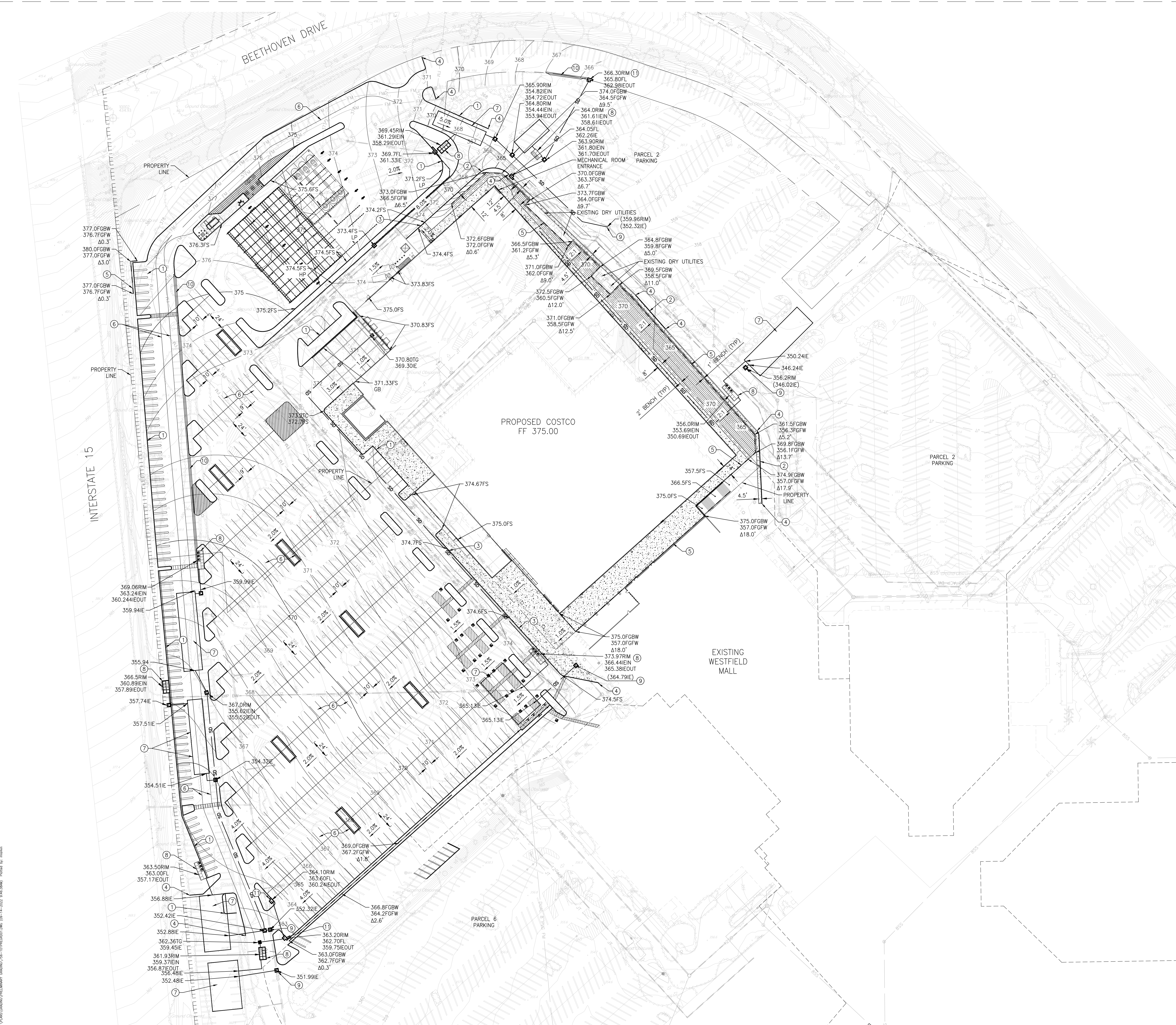
This is the cover sheet for Attachment 5.

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

The plans must identify:

- Structural BMP(s) with ID numbers matching Step 6 Summary of PDP Structural BMPs
- The grading and drainage design shown on the plans must be consistent with the delineation of DMAs shown on the DMA exhibit
- Details and specifications for construction of structural BMP(s)
- Signage indicating the location and boundary of structural BMP(s) as required by City staff
- How to access the structural BMP(s) to inspect and perform maintenance
- Features that are provided to facilitate inspection (e.g., observation ports, cleanouts, silt posts, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds)
- Manufacturer and part number for proprietary parts of structural BMP(s) when applicable
- Maintenance thresholds specific to the structural BMP(s), with a location-specific frame of reference (e.g., level of accumulated materials that triggers removal of the materials, to be identified based on viewing marks on silt posts or measured with a survey rod with respect to a fixed benchmark within the BMP)
- Recommended equipment to perform maintenance
- When applicable, necessary special training or certification requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management
- Include landscaping plan sheets showing vegetation requirements for vegetated structural BMP(s)
- All BMPs must be fully dimensioned on the plans
- When proprietary BMPs are used, site-specific cross section with outflow, inflow, and model number must be provided. Photocopies of general brochures are not acceptable.
- Include all source control and site design measures described in Steps 4 and 5 of the SWQMP. Can be included as a separate exhibit as necessary.

***Note: Plan sheets included in this attachment can be full size or half size.**



CONSTRUCTION NOTES	
①	6" CURB
②	6" CURB & GUTTER
③	0" CURB
④	CONNECT TO EXISTING CURB
⑤	RETAINING WALL
⑥	STRIPING BY OTHERS
⑦	HYDROMODIFICATION STORAGE TANK
⑧	MODULAR WETLAND SYSTEM
⑨	CONNECT TO EXISTING STORM DRAIN LINE
⑩	RIBBON GUTTER
⑪	TYPE B CURB INLET

GRADING VOLUME:
 CUT VOLUME: 1,510 CY
 FILL VOLUME: 94,870 CY
 IMPORT VOLUME: 93,360 CY
 NOTE: EARTHWORK ESTIMATES ARE RAW & UNADJUSTED. TO BE USED FOR PERMITTING PURPOSES ONLY. NOT FOR BIDDING.

FORMER SEARS REDEVELOPMENT

GRADING PLAN

ESCONDIDO, CALIFORNIA

SEPTEMBER 14, 2022

FUSCOE
 ENGINEERING
 6390 Greenwich Dr., Suite 170
 San Diego, California 92122
 tel 858.554.1500 • fax 858.597.0335
 www.fuscoe.com

1101 Second Ave, Ste 100
 Seattle, WA 98101
 206 962 6500
 MG2.com

MG2

19-5135-01
 SEPTEMBER 14, 2022
 PRELIMINARY
 GRADING
 PLAN

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