OPERATION & MAINTENANCE MANUAL

For The

WILLAMETTE RIVER (ELLSWORTH ST) BRIDGE Sec.

WATER QUALITY FACILITY

INDEX

1. Identification

Facility Name:	Ellsworth St Bridge Water Quality Inlets
DFI Number:	D00204
MP:	10.36
Project Name:	Willamette Rover (Ellsworth St) Bridge Sec.
Facility Type:	Storm filter unit
Drawings:	34V-51
Location:	Albany Corvallis Highway at MP 10.54 , Under the Ellsworth Street Bridge on Front Street and MP 10.38 under the bridge in the park.

2. Designer

Catch basin storm filter unit

Department:	ODOT Hydraulic Section (Salem)
	ODOT Roadway Section
Designer	Engineering and Asset Management Unit Manager,

3. Construction

Construction was completed in 2003

Contractor:	Wildish Standard Paving.

4. Facility Contact Information

The following ODOT units are located in the Region Tech Center and can provide assistance on operation and maintenance of the facility

Region 2 Geo/Hydro/Environmental Unit –

Hydraulics Specialist: Mechanics of how the facility operates and how it is designed

Haz-Mat Specialist: Spill management and management of material cleaned from the facility.

Environmental Specialist: Environmental rules, wildlife management

Region 2 Directory Assistance – (503) 986-2601

Office of Maintenance (Salem) –

General support, stormwater rules, vegetation management, waste management

Office of Maintenance Directory Assistance – (503) 986-3000

Engineering and Asset Management Unit Manager, (503) 986-4200
Asset management information and state-wide technical support in facility operation and hazardous materials handling.

5 System Overview

The Catch Basin Storm Filter (CBSF) consists of a multi-chamber steel catch basin unit that can contain up to four Storm Filler cartridges. The CBSF is offered both as a standard and as a deep unit and is available in concrete for select configurations.

The CBSF is installed flush with the finished grade and is applicable for both constrained lot and retro fit applications.

The CBSF unit treats peak water quality design flows up to 0.13 cfs, coupled with an internal weir overflow capacity of 1.0 cfs for the standard unit and up to 3.0 cfs for the deep unit.

6 Spill Prevention and Response

Spill prevention is an important factor in the successful operation of a stormwater management system. Prevention measures shall be taken at all times when handling substances that contaminate water. In the case of a spill, contact the Region 2 Haz-Mat Unit immediately. If safety allows, take measures to keep spill materials out of adjacent waterways (Willamette River) such as blocking the final outflow from the inlet and/ or applying absorbent to spilled material.

7 Water Quality System

This CBSF is installed as the primary receiver of runoff, similar o a standard grated catch basin. The CBSF has a traffic bearing, H-20 lid that slows the filter to be installed in parking lots, and for all practical purposes, take up no land area.

The CBSF consists of a sumped inlet chamber and a cartridge chamber(s). Runoff enters the sumped inlet chamber, either by sheet flow from a paved surface or from an inlet pipe discharging directly to the unit vault. The inlet chamber is equipped with an internal baffle, which traps debris and floating oil and grease, and an overflow weir. While in the inlet chamber, heavier solids are allowed to settle into the deep sump, while lighter solids and soluble pollutants are directed under the baffle and into the cartridge chamber through a port between the baffle and the overflow

weir. Once in the cartridge chamber, polluted water ponds and percolates horizontally through the media in the filter cartridges. Treated water collects in the cartridges center tube from where it is directed by an under-drain manifold to the outlet pipe on the downstream side of the overflow weir and is discharged.

8 Basin Overflow

When flows into the CBSF exceed the water quality design value, excess water spills over the overflow weir, bypassing the cartridge bay, and discharges to the outlet pipe.

9 Maintenance Requirements

Schedule

Special

- Inspection and maintenance (after 24-hour rainfall > 0.50 inches).
- Clean the vertical drain pipes at intermediate cleanout.
- After large flood events.

Annual

- Inspection and maintenance of vault prior to fall rains following guidance in Appendix D.

Every 5 to 10 Years

- Remove sediment from sump bottom.

A. Basin Inlets

- **Inlet Pipes** – Remove debris and sediment obstructing storm water from entering bridge drains

10 Waste Material Handling

The “ODOT Maintenance Yards Environmental Management System (EMS) Policy and Procedures Manual 2004” offers guidance on managing materials cleaned from highway stormwater facilities. DEQ defines this material as waste and as such it must be disposed at a permitted waste management facility (landfill, incinerator, etc.) or managed, reused, or recycled according to DEQ waste rules.

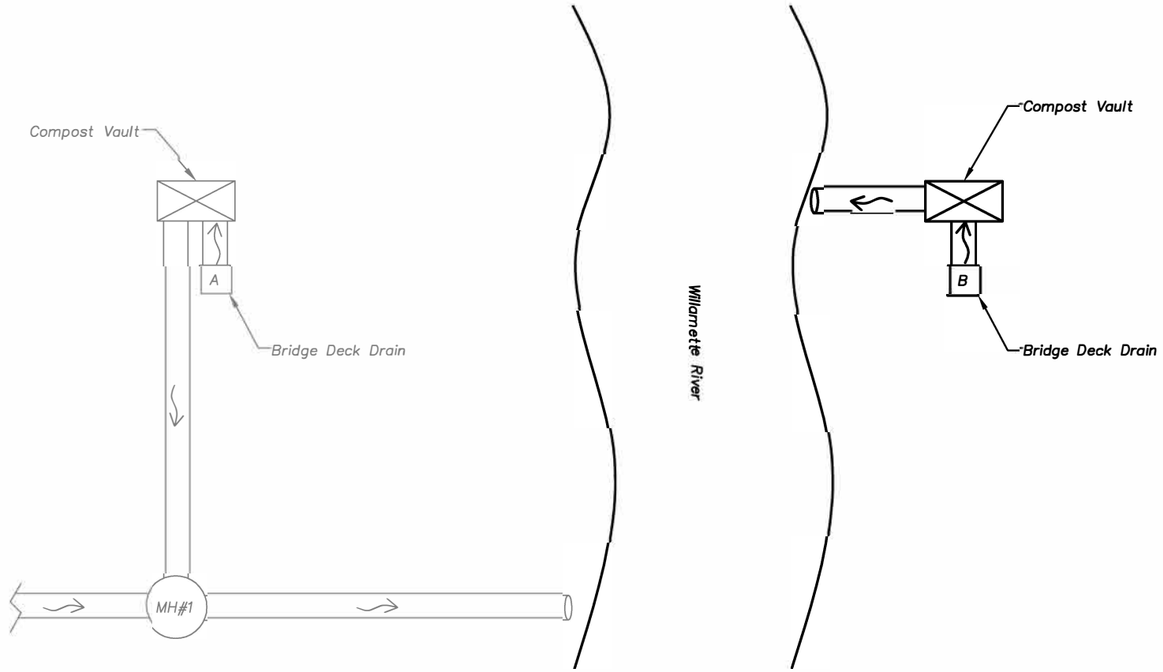
Cleanout materials can be contaminated with chemical pollutants such as heavy metals or hydrocarbons generated from highway vehicles. If cleanings are sent to a permitted waste management facility (landfill or incinerator), waste management facility operators may require testing for specific pollutants (such as lead) before the material will be accepted for disposal.

If cleanout material is being stockpiled or recycled it should be known if the material is contaminated with pollutants and at what levels. Chemical testing for total metals (lead, cadmium, copper, zinc) and hydrocarbons (polycyclic aromatic hydrocarbons -PAHs) is usually adequate to characterize road waste pollutant levels. However, be aware of other pollutants that might be present and test accordingly (for example a facility may have been exposed to a highway spill). All trash and litter must be removed (by screening) and properly disposed.

Whenever stockpiling or reusing road waste material, be sure it will not migrate or erode and that road waste does not contain pollutants at levels that will negatively impact adjacent land, waterways, or groundwater. Stockpiling and reusing cleanout material may require approval or a permit from DEQ. See facility contact information for assistance in managing cleanout material.

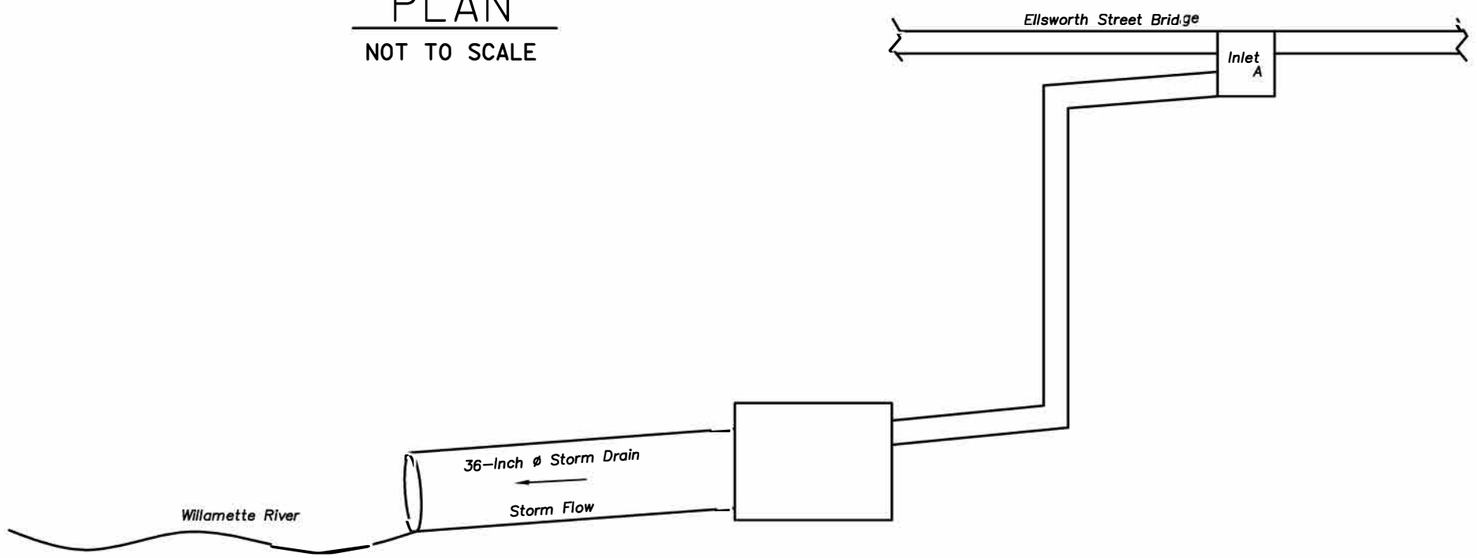
Appendix A

Project Schematic and Operation Drawing(s)



PLAN

NOT TO SCALE



PROFILE

NOT TO SCALE

OPERATION DRAWING

Willamette Bridge Ellsworth
HWY 20 MP 10.36
Linn and Benton COUNTIES

SHT 2 OF 2

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Appendix B

Stormwater Facility Photos

Photo Log Schematic

Photos


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Appendix C

ODOT Project Plan Sheets

Title Sheet

Water Quality Plan Sheets

INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
1	Title Sheet
1A	Index Of Sheets Cont'd. & Standard Drawing Nos.
2, 2A	Typical Sections
2B Thru 2B-5 Incl.	Details
2C, 2C-2	Traffic Control Details
2C-3 Thru 2C-15 Incl.	Traffic Control Plans
2D	Erosion Control Details
2D-2 Thru 2D-3 Incl.	Erosion Control Plans
2E	Pipe Data
3	Alignment & General Construction
3A	Profile
4	Alignment & General Construction
4A	Profile
5	Alignment & General Construction
5A	Profile

DRAWING NO.	DESCRIPTION
BRIDGE NO. 01025	
59662	Plan & Elevation
59663, 59664	Deck Plans
59665	Deck Section & Rail Elevation
59666	Baluster Rail Details
59667	Pylon Details At Bent 3
59668	Pylon Details At Sta. 1+474.778
59669	Joint Details
59670	Single Strip Expansion Joint
59671	Single Strip Expansion Joint At Sidewalk
59672	Access Opening (Sidewalk) & Drain Detail
59673	Rail Transition
59674	Sign Mount Details
59675	Luminaire Mounting Details
59676	Conduit Details
59677, 59678,	Bent 3 Deck Drain Details
59679	Bent 8 Deck Drain Details
60202	Baluster Rail Details
PERMANENT SIGNING	
S-4935, S-4936	Signing Plans
S-4937	Sign Details
S-4938	Sign & Post Data Tables

STATE OF OREGON

DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED PROJECT

PAVING & BRIDGE RAIL REHABILITATION

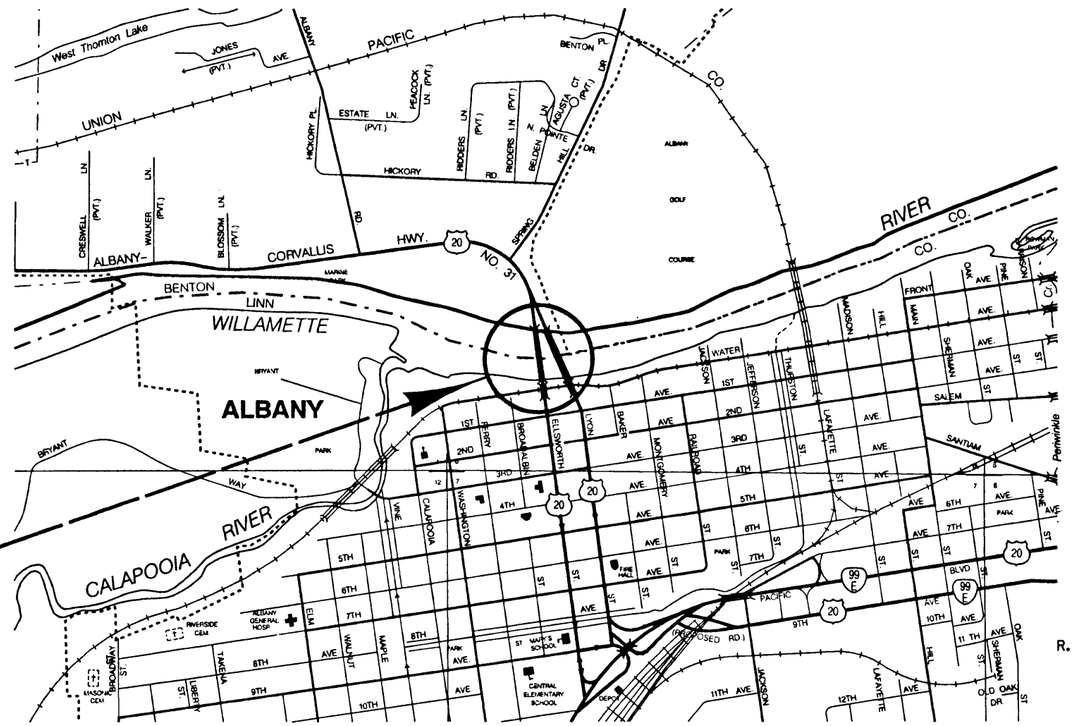
WILLAMETTE RIVER (ELLSWORTH ST.) BRIDGE SEC.

ALBANY - CORVALLIS HIGHWAY

LINN & BENTON COUNTIES

APRIL 2001

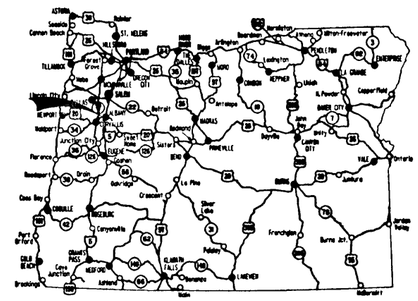
READV. OCTOBER 2001



T. 11 S.,
R. 3 W., W.M.

PROJECT X-BRS-STP-S031(3)

STA. 1+305 (M.P. 10.44)



Overall Length Of Project - 522 m (1713 Ft)

ATTENTION !
Oregon Law Requires You To Follow Rules
Adopted By The Oregon Utility Notification Center.
These Rules Are Set Forth In OAR 952-001-0010 Through
OAR 952-001-0090. You May Obtain Copies Of The Rules From The Center,
Or Answers To Questions About The Rules By Calling (503) 232-1987.

LET'S ALL
WORK TOGETHER
TO MAKE THIS
JOB SAFE

OREGON TRANSPORTATION COMMISSION

Steven H. Corey	CHAIRMAN
Gail L. Achterman	COMMISSIONER
Stuart Foster	COMMISSIONER
Randall Papé	COMMISSIONER
John Russell	COMMISSIONER
Bruce A. Warner	DIRECTOR OF TRANSPORTATION

REGISTERED PROFESSIONAL ENGINEER
13,704
OREGON
JULY 16, 1987
CATHERINE M. NELSON
Expires Dec. 31, 2002

Catherine M. Nelson

ACTING TECHNICAL SERVICES MANAGING ENGINEER

METRIC

WILLAMETTE RIVER (ELLSWORTH ST.) BRIDGE SEC.
ALBANY - CORVALLIS HIGHWAY
LINN & BENTON COUNTIES

FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	X-BRS-STP-S031(3)	1

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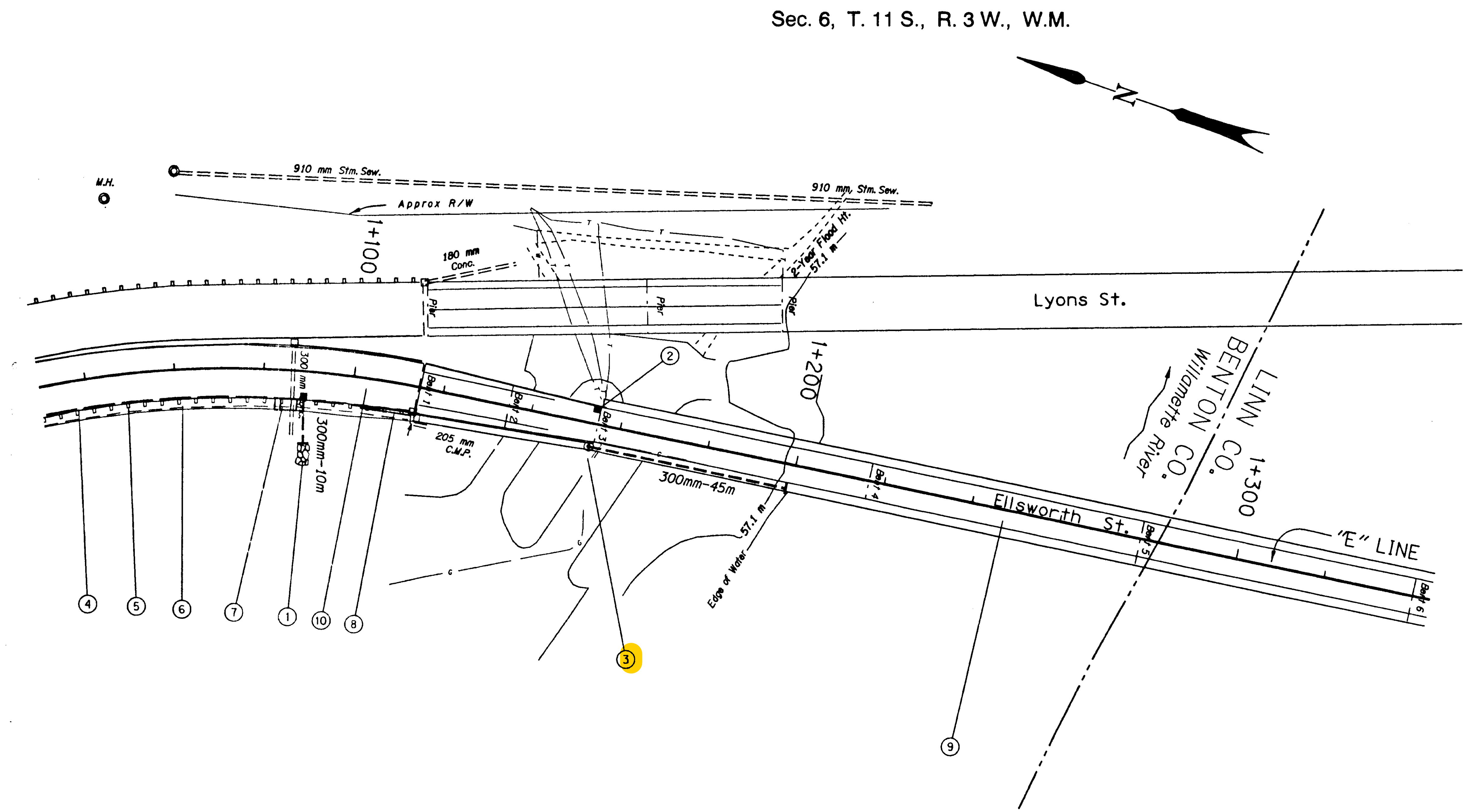
VIEW A1 C022-1409



① Sta. "E" 1+089 Rt.
Const. Type "CG-2" Inlet
Inst. 300 mm Culv. Pipe - 10 m
Tr. Exc. - 10 m^3
Const. Outlet Basin
Const. Loose Rip-Rap (Class 25) - 0.5 m^3
(For Details, See Sht. 2B)

② Sta. "E" 1+154, 3 m Lt.
Const. Inlet, Type "B" Modified
Connect To Bridge Deck Drain
(See Drg. No. RD339)
(For Details, See Br. Drg. No. 59677)

③ Sta. "E" 1+154, 7 m Rt.
Const. Water Quality Manhole
Pipe Under Pvmt. - 10 m
Inst. 300 mm Sew. Pipe - 45 m
Connect To Bridge Deck Drain
Tr. Exc. - 45 m^3
(For Details, See Br. Drg. No. 59677)

④ See Sht. 3, Note 3

⑤ See Sht. 3, Note 4

⑥ See Sht. 3, Note 5

⑦ Sta. "E" 1+085 Rt.
Const. Special Sidewalk Bike Ramp
(For Details, See Sht. 2B)

⑧ Sta. "E" 1+107.6 Rt. To Sta. "E" 1+115.1
Const. Conc. Barrier To Curb Transition
(For Details, See Br. Drg. No. 59673)

⑨ Br. No. 01025
Const. Structural Overlay
Const. Conc. Pylons
Const. Inlets
Rehabilitation of Ped. Handrail And Sidewalk
Modify Or Replace Extg. Deck Joint
(For Drg. Nos., See Sht. 1)

⑩ Cold Plane Pavement Removal And
Asph. Conc. Pvmt. Match At Bridge Ends
(For Details, See Sht. 2B-2)

16-AUG-2001 14:13

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REGISTERED PROFESSIONAL ENGINEER
9,396
OREGON
JULY 22, 1977
MICHAEL L. HARRIS
Expires Jun. 30, 2003

OREGON DEPARTMENT OF TRANSPORTATION

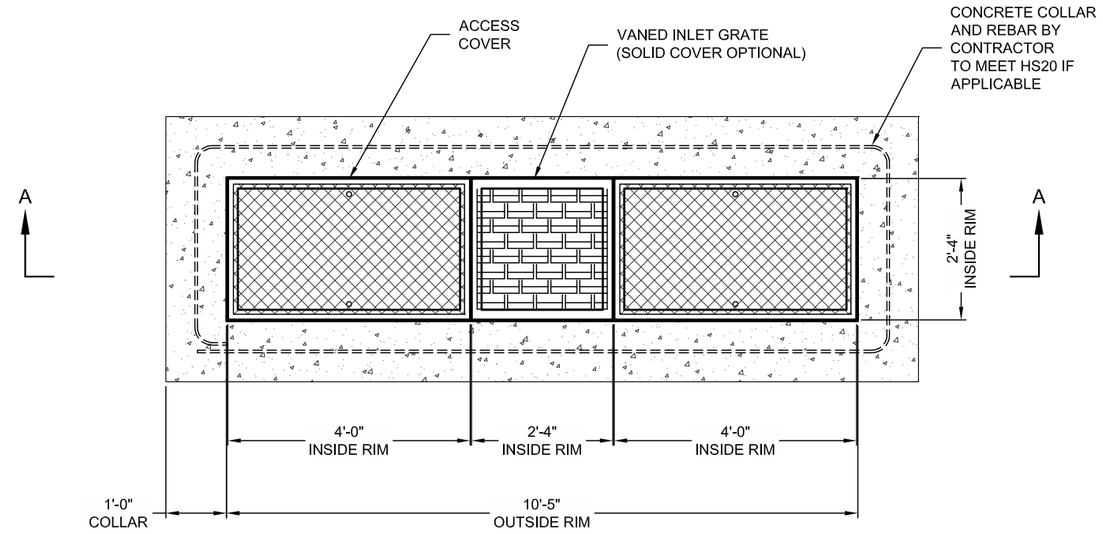
WILLAMETTE RIVER (ELLSWORTH ST.) BRIDGE SEC.
ALBANY - CORVALLIS HIGHWAY
LINN & BENTON COUNTIES

Design Team Leader - Mike Harris
Designed By - Derryl James
Drafted By - Steve Donaldson

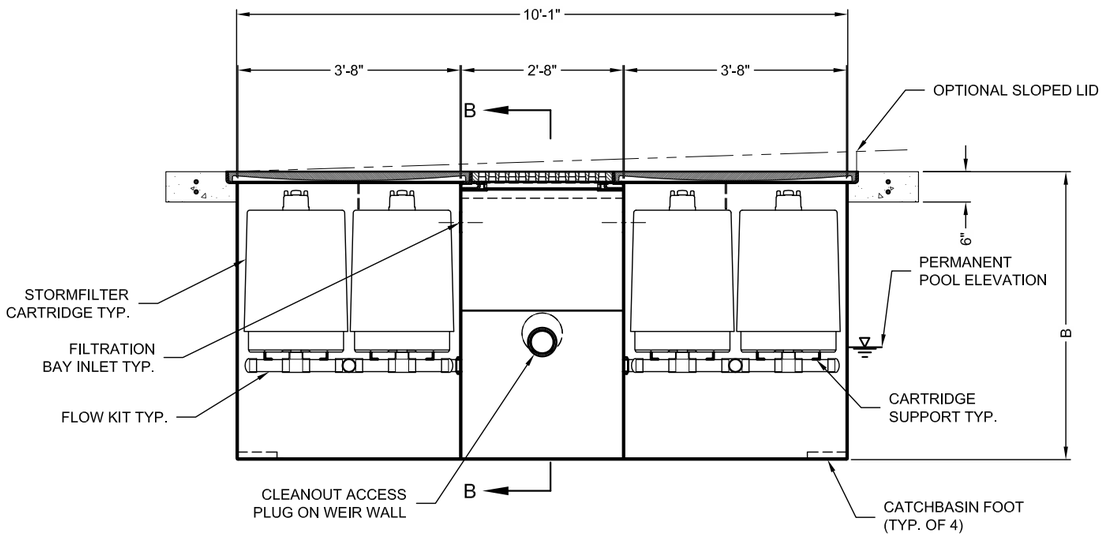
ALIGNMENT & GENERAL CONSTRUCTION

SHEET NO. 4

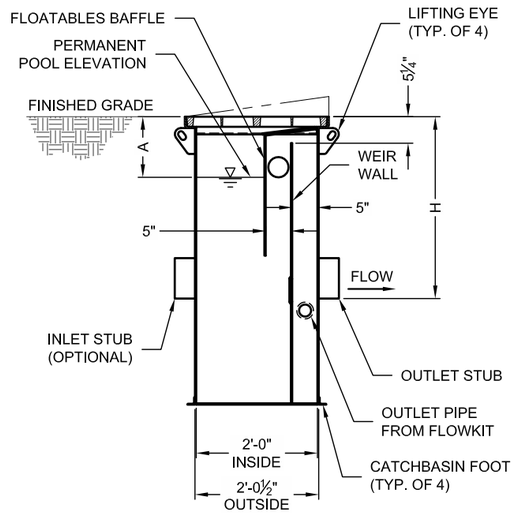
VIEW 3



PLAN VIEW
27" CARTRIDGES



SECTION A-A



SECTION C-C

STORMFILTER CATCHBASIN DESIGN NOTES

STORMFILTER TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. 4 CARTRIDGE CATCHBASIN HAS A MAXIMUM OF FOUR CARTRIDGES. SYSTEM IS SHOWN WITH A 27" CARTRIDGE, AND IS ALSO AVAILABLE WITH AN 18" CARTRIDGE. STORMFILTER CATCHBASIN CONFIGURATIONS ARE AVAILABLE WITH A DRY INLET BAY FOR VECTOR CONTROL.
PEAK HYDRAULIC CAPACITY PER TABLE BELOW. IF THE SITE CONDITIONS EXCEED PEAK HYDRAULIC CAPACITY, AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

CARTRIDGE SELECTION

CARTRIDGE HEIGHT	27"		18"		18" DEEP	
MINIMUM HYDRAULIC DROP (H)	3.05'		2.3'		3.3'	
SPECIFIC FLOW RATE (gpm/sf)	2 gpm/ft²	1 gpm/ft²	2 gpm/ft²	1 gpm/ft²	2 gpm/ft²	1 gpm/ft²
CARTRIDGE FLOW RATE (gpm)	22.5	11.25	15	7.5	15	7.5
PEAK HYDRAULIC CAPACITY	1.0		1.0		1.8	
INLET PERMANENT POOL LEVEL (A)	1'-0"		1'-0"		2'-0"	
OVERALL STRUCTURE HEIGHT (B)	4'-9"		3'-9"		4'-9"	

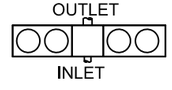
GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STORMFILTER CATCHBASIN STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
3. STORMFILTER CATCHBASIN WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
4. INLET SHOULD NOT BE LOWER THAN OUTLET. INLET (IF APPLICABLE) AND OUTLET PIPING TO BE SPECIFIED BY ENGINEER AND PROVIDED BY CONTRACTOR.
5. STORMFILTER CATCHBASIN EQUIPPED WITH 4 INCH (APPROXIMATE) LONG STUBS FOR INLET (IF APPLICABLE) AND OUTLET PIPING. STANDARD OUTLET STUB IS 8 INCHES IN DIAMETER. MAXIMUM OUTLET STUB IS 15 INCHES IN DIAMETER. CONNECTION TO COLLECTION PIPING CAN BE MADE USING FLEXIBLE COUPLING BY CONTRACTOR.
6. STEEL STRUCTURE TO BE MANUFACTURED OF 1/4 INCH STEEL PLATE. CASTINGS SHALL MEET AASHTO M306 LOAD RATING. TO MEET HS20 LOAD RATING ON STRUCTURE, A CONCRETE COLLAR IS REQUIRED. WHEN REQUIRED, CONCRETE COLLAR WITH QUANTITY (2) #4 REINFORCING BARS TO BE PROVIDED BY CONTRACTOR.
7. FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. RADIAL MEDIA DEPTH SHALL BE 7-INCHES. FILTER MEDIA CONTACT TIME SHALL BE AT LEAST 37 SECONDS.
8. SPECIFIC FLOW RATE IS EQUAL TO THE FILTER TREATMENT CAPACITY (gpm) DIVIDED BY THE FILTER CONTACT SURFACE AREA (sq ft).

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CATCHBASIN (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.

4-CARTRIDGE CATCHBASIN STORMFILTER DATA

STRUCTURE ID		XXX
WATER QUALITY FLOW RATE (cfs)		X.XX
PEAK FLOW RATE (<1 cfs)		X.XX
RETURN PERIOD OF PEAK FLOW (yrs)		XXX
CARTRIDGE FLOW RATE (gpm)		XX
MEDIA TYPE (CSF, PERLITE, ZPG, GAC, PHS)		XXXXX
RIM ELEVATION		XXX.XX'
PIPE DATA:	I.E.	DIAMETER
INLET STUB	XXX.XX'	XX"
OUTLET STUB	XXX.XX'	XX"

CONFIGURATION



SLOPED LID	YES\NO
SOLID COVER	YES\NO
NOTES/SPECIAL REQUIREMENTS:	
*PER ENGINEER OF RECORD	

The Stormwater Management StormFilter®

CONTECH® ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

4 CARTRIDGE CATCHBASIN STORMFILTER STANDARD DETAIL

Appendix D

Manufacturer Maintenance Guide

CONTECH®
ENGINEERED SOLUTIONS

StormFilter Inspection and Maintenance Procedures

The Stormwater Management StormFilter®

Maintenance Guidelines

The primary purpose of the Stormwater Management StormFilter® is to filter and prevent pollutants from entering our waterways. Like any effective filtration system, periodically these pollutants must be removed to restore the StormFilter to its full efficiency and effectiveness.

Maintenance requirements and frequency are dependent on the pollutant load characteristics of each site. Maintenance activities may be required in the event of a chemical spill or due to excessive sediment loading from site erosion or extreme storms. It is a good practice to inspect the system after major storm events.

Maintenance Procedures

Although there are many effective maintenance options, we believe the following procedure to be efficient, using common equipment and existing maintenance protocols. The following two-step procedure is recommended::

1. **Inspection**
   - Inspection of the vault interior to determine the need for maintenance.
2. **Maintenance**
   - Cartridge replacement
   - Sediment removal

Inspection and Maintenance Timing

At least one scheduled inspection should take place per year with maintenance following as warranted.

First, an inspection should be done before the winter season. During the inspection the need for maintenance should be determined and, if disposal during maintenance will be required, samples of the accumulated sediments and media should be obtained.

Second, if warranted, a maintenance (replacement of the filter cartridges and removal of accumulated sediments) should be performed during periods of dry weather.

In addition to these two activities, it is important to check the condition of the StormFilter unit after major storms for potential damage caused by high flows and for high sediment accumulation that may be caused by localized erosion in the drainage area. It may be necessary to adjust the inspection/ maintenance schedule depending on the actual operating conditions encountered by the system. In general, inspection activities can be conducted at any time, and maintenance should occur, if warranted, during dryer months in late summer to early fall.

Maintenance Frequency

The primary factor for determining frequency of maintenance for the StormFilter is sediment loading.

A properly functioning system will remove solids from water by trapping particulates in the porous structure of the filter media inside the cartridges. The flow through the system will naturally decrease as more and more particulates are trapped. Eventually the flow through the cartridges will be low enough to require replacement. It may be possible to extend the usable span of the cartridges by removing sediment from upstream trapping devices on a routine as-needed basis, in order to prevent material from being re-suspended and discharged to the StormFilter treatment system.

The average maintenance lifecycle is approximately 1-5 years. Site conditions greatly influence maintenance requirements. StormFilter units located in areas with erosion or active construction may need to be inspected and maintained more often than those with fully stabilized surface conditions.

Regulatory requirements or a chemical spill can shift maintenance timing as well. The maintenance frequency may be adjusted as additional monitoring information becomes available during the inspection program. Areas that develop known problems should be inspected more frequently than areas that demonstrate no problems, particularly after major storms. Ultimately, inspection and maintenance activities should be scheduled based on the historic records and characteristics of an individual StormFilter system or site. It is recommended that the site owner develop a database to properly manage StormFilter inspection and maintenance programs..

Inspection Procedures

The primary goal of an inspection is to assess the condition of the cartridges relative to the level of visual sediment loading as it relates to decreased treatment capacity. It may be desirable to conduct this inspection during a storm to observe the relative flow through the filter cartridges. If the submerged cartridges are severely plugged, then typically large amounts of sediments will be present and very little flow will be discharged from the drainage pipes. If this is the case, then maintenance is warranted and the cartridges need to be replaced.

Warning: In the case of a spill, the worker should abort inspection activities until the proper guidance is obtained. Notify the local hazard control agency and Contech Engineered Solutions immediately.

To conduct an inspection:

Important: Inspection should be performed by a person who is familiar with the operation and configuration of the StormFilter treatment unit.

1. If applicable, set up safety equipment to protect and notify surrounding vehicle and pedestrian traffic.
2. Visually inspect the external condition of the unit and take notes concerning defects/problems.
3. Open the access portals to the vault and allow the system vent.
4. Without entering the vault, visually inspect the inside of the unit, and note accumulations of liquids and solids.
5. Be sure to record the level of sediment build-up on the floor of the vault, in the forebay, and on top of the cartridges. If flow is occurring, note the flow of water per drainage pipe. Record all observations. Digital pictures are valuable for historical documentation.
6. Close and fasten the access portals.
7. Remove safety equipment.
8. If appropriate, make notes about the local drainage area relative to ongoing construction, erosion problems, or high loading of other materials to the system.
9. Discuss conditions that suggest maintenance and make decision as to weather or not maintenance is needed.

Maintenance Decision Tree

The need for maintenance is typically based on results of the inspection. The following Maintenance Decision Tree should be used as a general guide. (Other factors, such as Regulatory Requirements, may need to be considered)

1. Sediment loading on the vault floor.
   a. If >4" of accumulated sediment, maintenance is required.
2. Sediment loading on top of the cartridge.
   a. If >1/4" of accumulation, maintenance is required.
3. Submerged cartridges.
   a. If >4" of static water above cartridge bottom for more than 24 hours after end of rain event, maintenance is required. (Catch basins have standing water in the cartridge bay.)
4. Plugged media.
   a. If pore space between media granules is absent, maintenance is required.
5. Bypass condition.
   a. If inspection is conducted during an average rain fall event and StormFilter remains in bypass condition (water over the internal outlet baffle wall or submerged cartridges), maintenance is required.
6. Hazardous material release.
   a. If hazardous material release (automotive fluids or other) is reported, maintenance is required.
7. Pronounced scum line.
   a. If pronounced scum line (say ≥ 1/4" thick) is present above top cap, maintenance is required.

Maintenance

Depending on the configuration of the particular system, maintenance personnel will be required to enter the vault to perform the maintenance.

Important: If vault entry is required, OSHA rules for confined space entry must be followed.

Filter cartridge replacement should occur during dry weather. It may be necessary to plug the filter inlet pipe if base flows is occurring.

Replacement cartridges can be delivered to the site or customers facility. Information concerning how to obtain the replacement cartridges is available from Contech Engineered Solutions.

Warning: In the case of a spill, the maintenance personnel should abort maintenance activities until the proper guidance is obtained. Notify the local hazard control agency and Contech Engineered Solutions immediately.

To conduct cartridge replacement and sediment removal maintenance:

1. If applicable, set up safety equipment to protect maintenance personnel and pedestrians from site hazards.
2. Visually inspect the external condition of the unit and take notes concerning defects/problems.
3. Open the doors (access portals) to the vault and allow the system to vent.
4. Without entering the vault, give the inside of the unit, including components, a general condition inspection.
5. Make notes about the external and internal condition of the vault. Give particular attention to recording the level of sediment build-up on the floor of the vault, in the forebay, and on top of the internal components.
6. Using appropriate equipment offload the replacement cartridges (up to 150 lbs. each) and set aside.
7. Remove used cartridges from the vault using one of the following methods:

Method 1:

A. This activity will require that maintenance personnel enter the vault to remove the cartridges from the under drain manifold and place them under the vault opening for lifting (removal). Disconnect each filter cartridge from the underdrain connector by rotating counterclockwise 1/4 of a turn. Roll the loose cartridge, on edge, to a convenient spot beneath the vault access.

   Using appropriate hoisting equipment, attach a cable from the boom, crane, or tripod to the loose cartridge. Contact Contech Engineered Solutions for suggested attachment devices.

B. Remove the used cartridges (up to 250 lbs. each) from the vault.

Important: Care must be used to avoid damaging the cartridges during removal and installation. The cost of repairing components damaged during maintenance will be the responsibility of the owner.

C. Set the used cartridge aside or load onto the hauling truck.

D. Continue steps a through c until all cartridges have been removed.

Method 2:

A. This activity will require that maintenance personnel enter the vault to remove the cartridges from the under drain manifold and place them under the vault opening for lifting (removal). Disconnect each filter cartridge from the underdrain connector by rotating counterclockwise 1/4 of a turn. Roll the loose cartridge, on edge, to a convenient spot beneath the vault access.

B. Unscrew the cartridge cap.

C. Remove the cartridge hood and float.

D. At location under structure access, tip the cartridge on its side.

E. Empty the cartridge onto the vault floor. Reassemble the empty cartridge.

F. Set the empty, used cartridge aside or load onto the hauling truck.

G. Continue steps a through e until all cartridges have been removed.

8. Remove accumulated sediment from the floor of the vault and from the forebay. This can most effectively be accomplished by use of a vacuum truck.
9. Once the sediments are removed, assess the condition of the vault and the condition of the connectors.
10. Using the vacuum truck boom, crane, or tripod, lower and install the new cartridges. Once again, take care not to damage connections.
11. Close and fasten the door.
12. Remove safety equipment.
13. Finally, dispose of the accumulated materials in accordance with applicable regulations. Make arrangements to return the used **empty** cartridges to Contech Engineered Solutions.

Related Maintenance Activities - Performed on an as-needed basis

StormFilter units are often just one of many structures in a more comprehensive stormwater drainage and treatment system.

In order for maintenance of the StormFilter to be successful, it is imperative that all other components be properly maintained. The maintenance/repair of upstream facilities should be carried out prior to StormFilter maintenance activities.

In addition to considering upstream facilities, it is also important to correct any problems identified in the drainage area. Drainage area concerns may include: erosion problems, heavy oil loading, and discharges of inappropriate materials.

Material Disposal

The accumulated sediment found in stormwater treatment and conveyance systems must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals (such as pesticides and petroleum products). Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads.

Sediments and water must be disposed of in accordance with all applicable waste disposal regulations. When scheduling maintenance, consideration must be made for the disposal of solid and liquid wastes. This typically requires coordination with a local landfill for solid waste disposal. For liquid waste disposal a number of options are available including a municipal vacuum truck decant facility, local waste water treatment plant or on-site treatment and discharge.

Inspection Report

Date: Personnel:

Location: System Size:

System Type: Vault ☐ Cast-In-Place ☐ Linear Catch Basin ☐ Manhole ☐ Other ☐

Sediment Thickness in Forebay: Date:

Sediment Depth on Vault Floor:

Structural Damage:

Estimated Flow from Drainage Pipes (if available):

Cartridges Submerged: Yes ☐ No ☐ Depth of Standing Water:

StormFilter Maintenance Activities (check off if done and give description)

☐ Trash and Debris Removal:

☐ Minor Structural Repairs:

☐ Drainage Area Report

Excessive Oil Loading: Yes ☐ No ☐ Source:

Sediment Accumulation on Pavement: Yes ☐ No ☐ Source:

Erosion of Landscaped Areas: Yes ☐ No ☐ Source:

Items Needing Further Work:

Owners should contact the local public works department and inquire about how the department disposes of their street waste residuals.

Other Comments:

Review the condition reports from the previous inspection visits.

StormFilter Maintenance Report

Date: _____ Personnel: _____

Location: _____ System Size: _____

System Type: Vault ☐ Cast-In-Place ☐ Linear Catch Basin ☐ Manhole ☐ Other ☐

List Safety Procedures and Equipment Used: _____

_____

_____

System Observations

Months in Service:

Oil in Forebay (if present): Yes ☐ No ☐

Sediment Depth in Forebay (if present): _____

Sediment Depth on Vault Floor: _____

Structural Damage: _____

Drainage Area Report

Excessive Oil Loading: Yes ☐ No ☐ Source: _____

Sediment Accumulation on Pavement: Yes ☐ No ☐ Source: _____

Erosion of Landscaped Areas: Yes ☐ No ☐ Source: _____

StormFilter Cartridge Replacement Maintenance Activities

Remove Trash and Debris: Yes ☐ No ☐ Details: _____

Replace Cartridges: Yes ☐ No ☐ Details: _____

Sediment Removed: Yes ☐ No ☐ Details: _____

Quantity of Sediment Removed (estimate?):

Minor Structural Repairs: Yes ☐ No ☐ Details: _____

Residuals (debris, sediment) Disposal Methods: _____

Notes:

_____

_____

_____

_____

_____

_____

_____

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