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Skagit County Auditor

Permanent Stormwater Control Facilities Operation and Maintenance (O&M) Manual

for:

Gateway Starbucks

Located at:

1102 State Route 20
Sedro-Woolley, WA 98284

Prepared for:

Sedro-Woolley Corner LLC
103 N Township St
Sedro-Woolley, WA 98284
PH: 360.733.5760

Prepared by:

Davido Consulting Group, Inc
2210 Riverside Drive, Suite #110
Mount Vernon, WA 98273
PH: 360.899.110

Grantor – Sedro-Woolley Corner LLC
Grantee – Sedro-Woolley Public
Parcel Number – P37199
Assessor Number –
Sec/Twp/Rng – SE ¼ of Section 23, T35N, R4E, Skagit County, WA

Gateway Starbucks

Stormwater Operation and Maintenance Manual

Revised June 8th, 2022

Gateway Starbucks
Stormwater Operation and Maintenance Manual

Organization Responsible for Maintenance of the On-Site Storm System:
Sedro Woolley Corner, LLC (*their successors, or assigns)
103 N Township St, Sedro Woolley, WA 98284
PH: 206-979-8653

The Location Where the Operation and Maintenance Manual is to be Kept:
A copy of the final, approved O&M Manual shall be kept on site (1102 SR 20, Sedro Woolley, WA 98284) and at the office of Sedro Woolley Corner, LLC its successors or assigns.

The final, approved O&M Manual will be recorded in Skagit County at:

1800 Continental Place
Mount Vernon WA 98273
PH: 360-416-1800

Maintenance Responsibilities and Reporting:
All on-site permanent stormwater facilities (*media filters, oil/water separators, catch basins, and storm pipes*) shall be maintained in perpetuity in a manner that allows them to function as originally designed. The owner of the property, association, or its designated representative is solely responsible for the inspection, maintenance, repair, and replacement of all permanent stormwater facilities located on site and any and all costs associated therewith. The City of Sedro-Woolley is under no obligation to maintain or repair permanent stormwater facilities located on this site.

The owner, association or its designated representative shall submit an annual operation and maintenance report for the permanent stormwater facilities to the City of Sedro-Woolley Public Works Department on or before March 31st of each year for the previous year's inspection and maintenance activities. The report shall include any remedial actions taken, how the actions were completed, who performed them, any problems encountered, and any required follow-up actions such as maintenance, repair, or replacement. Annual report and other maintenance records shall be maintained on-site and available to the City upon request.

The City shall have the right to enter onto the property for inspection and compliance purposes. Should inspection reports (either by the property owner, association or by the City) indicate the permanent stormwater facilities are not being properly maintained or show signs of failure and the property owner has not remedied any maintenance standards exceedances, the City of Sedro-Woolley reserves the right but not the obligation to perform work that is necessary to maintain the permanent stormwater facilities that has not been performed by the property owner, and recover any and all costs so incurred by the City from the property owner. Failure to properly maintain the permanent stormwater facilities may also result in City levied fines in accordance with Sedro-Woolley Municipal Code Title 13, Chapter 13.40.

Gateway Starbucks
Stormwater Operation and Maintenance Manual

Description of the On-Site Storm System:

The on-site storm system for the Gateway Starbucks site consists of stormwater Best Management Practices (BMPs) including catch basins, storm pipe, Coalescing Plate Separator and a BayFilter stormfilter. Stormwater runoff from the majority of the proposed concrete walkway, parking and drive areas will be collected, conveyed and discharge to the Coalescing Plate Separator and then on to the BayFilter structure with an Enhanced Media Cartridge. All onsite stormwater facilities are privately owned and therefore privately maintained.

Record drawings should be consulted during maintenance, inspection, and repair activities. Record drawings shall be kept at the City of Sedro-Woolley offices.

Description of On-Site BMP Facilities:

BayFilter Stormfiter:

A single enhanced media cartridge BayFilter will be housed in a 60-inch manhole near the southeast area of the site. Stormwater runoff from the concrete walkways, asphalt driveway and parking lot shall sheet flow towards catch basins and be treated first through the Coalescing Plate Separator and then the BayFilter cartridge and then discharged into the underground stormwater network. The BayFilter can be found in the permit drawing on Sheet C14, detail D7. See Figure 1 below for this detail.

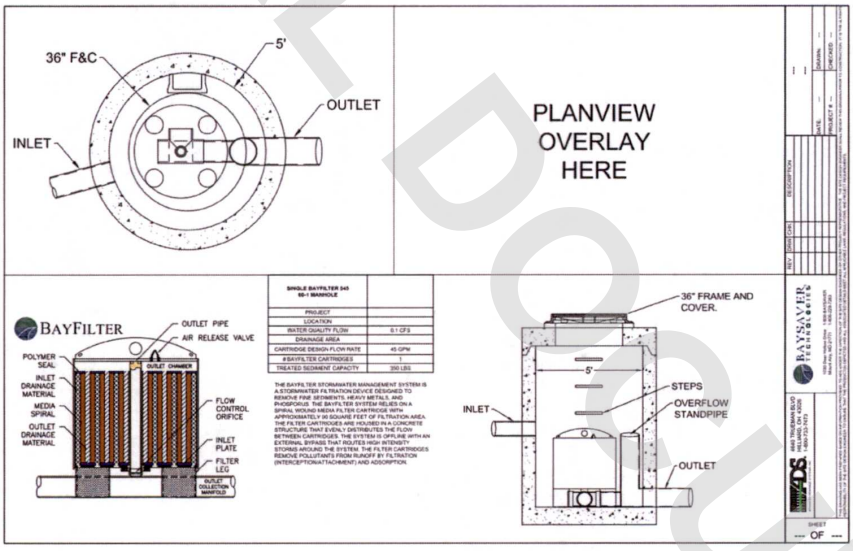

Figure 1 BayFilter Stormfilter

Oil/Water Separator:

An Oldcastle Coalescing Plate Separator is proposed in the southeast area of the site. Stormwater runoff from the concrete walkways, asphalt driveway and parking lot shall sheet flow towards catch basins and first treated through the Coalescing Plate Separator before

discharging to the BayFilter cartridge ultimately flowing to the underground stormwater network. The Coalescing Plate Separator can be found in the permit drawing on Sheet C14, detail D6. See Figure 2 below for this detail.

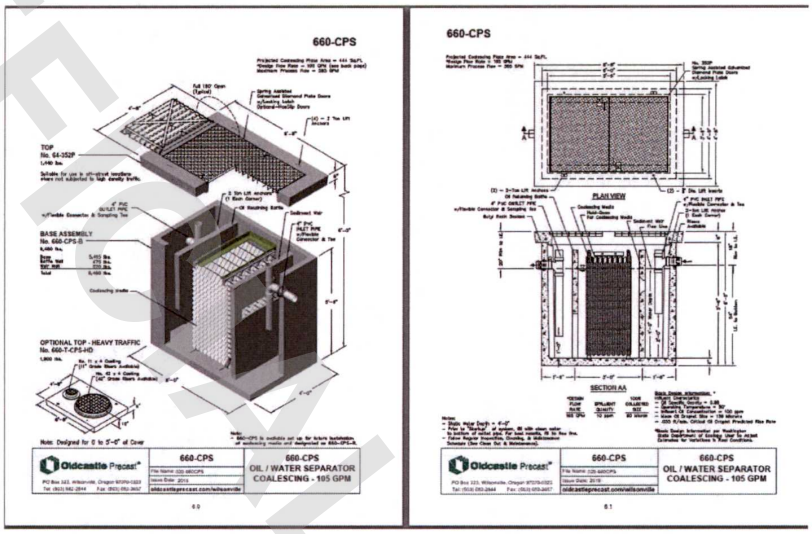

Figure 2 Oldcastle Oil/Water Separator

Maintenance Procedures:

BayFilter Stormfiter:
All BayFilter stormfilter structures provide access for inspection, media replacement and washing of the structure. Visual indicators for maintenance are observable from the surface. Used cartridges may be sent back to BaySaver Technologies in exchange for a new/recycled cartridge. Detailed operations and maintenance procedures for the BayFilter stormfilter can be found at the end of this report.

Oil/Water Separator:
The OldCastle Coalescing Plate Separator provides access for inspection and occasional cleaning. There are firms specializing in pumping out and cleaning oil/water separators. More detailed maintenance standards can be found at the end of this report.

Additional maintenance procedures attached:
Volume V-A: BMP Maintenance Tables of the 2019 Stormwater Management Manual for Western Washington

PERMANENT STORMWATER FACILITY PERMIT
ANNUAL REPORTING FORM

City of Sedro-Woolley
Public Works Department
RE: Permanent Stormwater Facilities Permit – Annual Reporting
325 Metcalf Street, Sedro-Woolley, WA 98284
Phone: 360-855-0771

This form must be completed and the certification signed by the Owner, its administrator, executor, successor, heir or assign. One signed copy of the completed Annual Report, including attachments, shall be submitted to the Public Works Department by March 31st for the year prior.

GENERAL INFORMATION		
Owner Name (☐ check if new):	**Reporting Period:** Jan. 1st to Dec 31st _____ * Reports for each year are due to the City by Mar. 31st of the following year.	
Facility Address:		
Contact Person (☐ check if new) **Name:** **Phone Number(☐ check if new):** **Mailing Address (☐ check if new):**		
Have there been any major changes to or maintenance on the BMPs?	☐YES	☐ NO
Does the BMP have any major deficiencies?	☐YES	☐ NO
Do you have an updated Inspection and Maintenance Plan?	☐YES	☐ NO

"I certify that to the best of my knowledge and belief the maintenance and inspection of the permanent BMPs is being implemented in accordance to the Stormwater Facility Operation and Maintenance Plan for this property or that a notice of any deficiencies has been provided."

_____ _____
Signature Date

ATTACHMENTS:
Inspection Log/Certification

[Attach additional information as needed. Remedial actions taken, how they were completed, and who performed them. Deficiencies to the BMPs, or problems encountered.]

BAYSAVER TECHNOLOGIES

ADS

BAYFILTER™ INSPECTION AND MAINTENANCE MANUAL

The BayFilter system requires periodic maintenance to continue operating at the design efficiency. The maintenance process is comprised of the removal and replacement of each BayFilter cartridge, vertical drain down module; and the cleaning of the vault or manhole with a vacuum truck.

The maintenance cycle of the BayFilter system will be driven mostly by the actual solids load on the filter. The system should be periodically monitored to be certain it is operating correctly. Since stormwater solids loads can be variable, it is possible that the maintenance cycle could be more or less than the projected duration.

BayFilter systems in volume-based applications are designed to treat the WQv in 24 to 48 hours initially. Late in the operational cycle of the BayFilter, the flow rate will diminish as a result of occlusion. When the drain down exceeds the regulated standard, maintenance should be performed.

When a BayFilter system is first installed, it is recommended that it be inspected every six (6) months. When the filter system exhibits flows below design levels the system should be maintained. Filter cartridge replacement should also be considered when sediment levels are at or above the level of the manifold system. Please contact the BaySaver Technologies Engineering Department for maintenance cycle estimations or assistance at **1.800.229.7283**.

BayFilter System Cleanout

Vactor Truck Maintenance

Jet Vactoring Through Access Hatch

BAYSAVER TECHNOLOGIES

ADS

Maintenance Procedures

1. Contact BaySaver Technologies for replacement filter cartridge pricing and availability at 1-800-229-7283.
2. Remove the manhole covers and open all access hatches.
3. Before entering the system make sure the air is safe per OSHA Standards or use a breathing apparatus. Use low O_2, high CO, or other applicable warning devices per regulatory requirements.
4. Using a vacuum truck remove any liquid and sediments that can be removed prior to entry.
5. Remove the hold down bars. Using a small lift or the boom of the vacuum truck, remove used cartridges by lifting them out.
6. Any cartridges that cannot be readily lifted can be easily slid along the floor to a location they can be lifted via a boom lift.
7. When all the cartridges have been removed, it is now practical to remove the balance of the solids and water. Loosen the stainless clamps on the Fernco couplings for the manifold and remove the drain pipes as well. Carefully cap the manifold and the Ferncos and rinse the floor, washing away the balance of any remaining collected solids.
8. Clean the manifold pipes, inspect, and reinstall.
9. Install the exchange cartridges, reinstall the hold down bars and close all covers.
10. The used cartridges may be sent back to BaySaver Technologies for recycling.

Manifold Tee View of a Cleaned System

Cartridge Hoist Point

For more information please see the BaySaver website at www.baysaver.com or contact 1-800-229-7283.

THE MOST ADVANCED NAME IN WATER MANAGEMENT SOLUTIONS™

Advanced Drainage Systems, Inc.
4640 Trueman Blvd., Hilliard, OH 43026
1-800-821-6710 www.ads-pipe.com

Table V-A.5: Maintenance Standards - Catch Basins

Maintenance Component	Defect	Conditions When Maintenance is Needed	Results Expected When Maintenance is performed
General	Trash & Debris	Trash or debris which is located immediately in front of the catch basin opening or is blocking inletting capacity of the basin by more than 10%. Trash or debris (in the basin) that exceeds 60 percent of the sump depth as measured from the bottom of basin to invert of the lowest pipe into or out of the basin, but in no case less than a minimum of six inches clearance from the debris surface to the invert of the lowest pipe. Trash or debris in any inlet or outlet pipe blocking more than 1/3 of its height. Dead animals or vegetation that could generate odors that could cause complaints or dangerous gases (e.g., methane).	No Trash or debris located immediately in front of catch basin or on grate opening. No trash or debris in the catch basin. Inlet and outlet pipes free of trash or debris. No dead animals or vegetation present within the catch basin.
	Sediment	Sediment (in the basin) that exceeds 60 percent of the sump depth as measured from the bottom of basin to invert of the lowest pipe into or out of the basin, but in no case less than a minimum of 6 inches clearance from the sediment surface to the invert of the lowest pipe.	No sediment in the catch basin
	Structure Damage to Frame and/or Top Slab	Top slab has holes larger than 2 square inches or cracks wider than 1/4 inch. (Intent is to make sure no material is running into basin). Frame not sitting flush on top slab, i.e., separation of more than 3/4 inch of the frame from the top slab. Frame not securely attached	Top slab is free of holes and cracks. Frame is sitting flush on the riser rings or top slab and firmly attached.
	Fractures or Cracks in Basin Walls/ Bottom	Maintenance person judges that structure is unsound. Grout fillet has separated or cracked wider than 1/2 inch and longer than 1 foot at the joint of any inlet/outlet pipe or any evidence of soil particles entering catch basin through cracks.	Basin replaced or repaired to design standards. Pipe is regrouted and secure at basin wall.
	Settlement/ Misalignment	If failure of basin has created a safety, function, or design problem.	Basin replaced or repaired to design standards.
	Vegetation	Vegetation growing across and blocking more than 10% of the basin opening. Vegetation growing in inlet/outlet pipe joints that is more than six inches tall and less than six inches apart.	No vegetation blocking opening to basin. No vegetation or root growth present.
	Contamination and Pollution	See Table V-A.1: Maintenance Standards - Detention Ponds	No pollution present.
Catch Basin Cover	Cover Not in Place	Cover is missing or only partially in place. Any open catch basin requires maintenance.	Cover/grate is in place, meets design standards, and is secured
	Locking Mechanism Not Working	Mechanism cannot be opened by one maintenance person with proper tools. Bolts into frame have less than 1/2 inch of thread.	Mechanism opens with proper tools.
	Cover Difficult to Remove	One maintenance person cannot remove lid after applying normal lifting pressure. (Intent is keep cover from sealing off access to maintenance.)	Cover can be removed by one maintenance person.
Ladder	Ladder Rungs Unsafe	Ladder is unsafe due to missing rungs, not securely attached to basin wall, misalignment, rust, cracks, or sharp edges.	Ladder meets design standards and allows maintenance person safe access.
Metal Grates (If Applicable)	Grate opening Unsafe	Grate with opening wider than 7/8 inch.	Grate opening meets design standards.
	Trash and Debris	Trash and debris that is blocking more than 20% of grate surface inletting capacity.	Grate free of trash and debris.
	Damaged or Missing.	Grate missing or broken member(s) of the grate.	Grate is in place, meets the design standards, and is installed and aligned with the flow path.

Table V-A.13: Maintenance Standards - Sand Filters (Above Ground/Open) (continued)

Maintenance Component	Defect	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
	Flow Spreader	Flow spreader uneven or clogged so that flows are not uniformly distributed across sand filter.	Spreader leveled and cleaned so that flows are spread evenly over sand filter.
	Damaged Pipes	Any part of the piping that is crushed or deformed more than 20% or any other failure to the piping.	Pipe repaired or replaced.

Table V-A.14: Maintenance Standards - Sand Filters (Below Ground/Enclosed)

Maintenance Component	Defect	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
Below Ground Vault.	Sediment Accumulation on Sand Media Section	Sediment depth exceeds 1/2-inch.	No sediment deposits on sand filter section that which would impede permeability of the filter section.
	Sediment Accumulation in Pre-Settling Portion of Vault	Sediment accumulation in vault bottom exceeds the depth of the sediment zone plus 6-inches.	No sediment deposits in first chamber of vault.
	Trash/Debris Accumulation	Trash and debris accumulated in vault, or pipe inlet/outlet, floatables and non-floatables.	Trash and debris removed from vault and inlet/outlet piping.
	Sediment in Drain Pipes/Cleanouts	When drain pipes, cleanouts become full with sediment and/or debris.	Sediment and debris removed.
	Short Circuiting	When seepage/flow occurs along the vault walls and corners. Sand eroding near inflow area.	Sand filter media section re-laid and compacted along perimeter of vault to form a semi-seal. Erosion protection added to dissipate force of incoming flow and curtail erosion.
	Damaged Pipes	Inlet or outlet piping damaged or broken and in need of repair.	Pipe repaired and/or replaced.
	Access Cover Damaged/Not Working	Cover cannot be opened, corrosion/deformation of cover. Maintenance person cannot remove cover using normal lifting pressure.	Cover repaired to proper working specifications or replaced.
	Ventilation	Ventilation area blocked or plugged	Blocking material removed or cleared from ventilation area. A specified % of the vault surface area must provide ventilation to the vault interior (see design specifications).
	Vault Structure Damaged; Includes Cracks in Walls, Bottom, Damage to Frame and/or Top Slab.	Cracks wider than 1/2-inch or evidence of soil particles entering the structure through the cracks, or maintenance/inspection personnel determine that the vault is not structurally sound. Cracks wider than 1/2-inch at the joint of any inlet/outlet pipe or evidence of soil particles entering through the cracks.	Vault replaced or repairs made so that vault meets design specifications and is structurally sound. Vault repaired so that no cracks exist wider than 1/4-inch at the joint of the inlet/outlet pipe.
	Baffles/Internal walls	Baffles or walls corroding, cracking, warping and/or showing signs of failure as determined by maintenance/inspection person.	Baffles repaired or replaced to specifications.
	Access Ladder Damaged	Ladder is corroded or deteriorated, not functioning properly, not securely attached to structure wall, missing rungs, cracks, and misaligned.	Ladder replaced or repaired to specifications, and is safe to use as determined by inspection personnel.

Table V-A.15: Maintenance Standards - Manufactured Media Filters

Maintenance Component	Defect	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
Below Ground	Sediment Accumulation on Media.	Sediment depth exceeds 0.25-inches.	No sediment deposits which would impede permeability of the

Table V-A.15: Maintenance Standards - Manufactured Media Filters (continued)

Maintenance Component	Defect	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
			compost media.
Vault	Sediment Accumulation in Vault	Sediment depth exceeds 6-inches in first chamber.	No sediment deposits in vault bottom of first chamber.
	Trash/Debris Accumulation	Trash and debris accumulated on compost filter bed.	Trash and debris removed from the compost filter bed.
	Sediment in Drain Pipes/Clean-Outs	When drain pipes, clean-outs, become full with sediment and/or debris.	Sediment and debris removed.
	Damaged Pipes	Any part of the pipes that are crushed or damaged due to corrosion and/or settlement.	Pipe repaired and/or replaced.
	Access Cover Damaged/Not Working	Cover cannot be opened; one person cannot open the cover using normal lifting pressure, corrosion/deformation of cover.	Cover repaired to proper working specifications or replaced.
	Vault Structure Includes Cracks in Wall, Bottom, Damage to Frame and/or Top Slab	Cracks wider than 1/2-inch or evidence of soil particles entering the structure through the cracks, or maintenance/inspection personnel determine that the vault is not structurally sound. Cracks wider than 1/2-inch at the joint of any inlet/outlet pipe or evidence of soil particles entering through the cracks.	Vault replaced or repairs made so that vault meets design specifications and is structurally sound. Vault repaired so that no cracks exist wider than 1/4-inch at the joint of the inlet/outlet pipe.
	Baffles	Baffles corroding, cracking warping, and/or showing signs of failure as determined by maintenance/inspection person.	Baffles repaired or replaced to specifications.
	Access Ladder Damaged	Ladder is corroded or deteriorated, not functioning properly, not securely attached to structure wall, missing rungs, cracks, and misaligned.	Ladder replaced or repaired and meets specifications, and is safe to use as determined by inspection personnel.
Below Ground Cartridge Type	Media	Drawdown of water through the media takes longer than 1 hour, and/or overflow occurs frequently.	Media cartridges replaced.
	Short Circuiting	Flows do not properly enter filter cartridges.	Filter cartridges replaced.

Table V-A.17: Maintenance Standards - Coalescing Plate Oil/Water Separators

Maintenance Component	Defect	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
General	Monitoring	Inspection of discharge water for obvious signs of poor water quality.	Effluent discharge from vault should be clear with no thick visible sheen.
	Sediment Accumulation	Sediment depth in bottom of vault exceeds 6-inches in depth and/or visible signs of sediment on plates.	No sediment deposits on vault bottom and plate media, which would impede flow through the vault and reduce separation efficiency.
	Trash and Debris Accumulation	Trash and debris accumulated in vault, or pipe inlet/outlet, floatables and non-floatables.	Trash and debris removed from vault, and inlet/outlet piping.
	Oil Accumulation	Oil accumulation that exceeds 1-inch at the water surface.	Oil is extracted from vault using vactoring methods. Coalescing plates are cleaned by thoroughly rinsing and flushing. Should be no visible oil depth on water.
	Damaged Coalescing Plates	Plate media broken, deformed, cracked and/or showing signs of failure.	A portion of the media pack or the entire plate pack is replaced depending on severity of failure.
	Damaged Pipes	Inlet or outlet piping damaged or broken and in need of repair.	Pipe repaired and or replaced.
	Baffles	Baffles corroding, cracking, warping and/or showing signs of failure as determined by maintenance/inspection person.	Baffles repaired or replaced to specifications.
	Vault Structure Damage - Includes Cracks in Walls, Bottom, Damage to Frame and/or Top Slab	Cracks wider than 1/2-inch or evidence of soil particles entering the structure through the cracks, or maintenance/inspection personnel determine that the vault is not structurally sound. Cracks wider than 1/2-inch at the joint of any inlet/outlet pipe or evidence of soil particles entering through the cracks.	Vault replaced or repairs made so that vault meets design specifications and is structurally sound. Vault repaired so that no cracks exist wider than 1/4-inch at the joint of the inlet/outlet pipe.
	Access Ladder Damaged	Ladder is corroded or deteriorated, not functioning properly, not securely attached to structure wall, missing rungs, cracks, and misaligned.	Ladder replaced or repaired and meets specifications, and is safe to use as determined by inspection personnel.

Table V-A.18: Maintenance Standards - Catch Basin Inserts

Maintenance Component	Defect	Conditions When Maintenance is Needed	Results Expected When Maintenance is Performed
General	Sediment Accumulation	When sediment forms a cap over the insert media of the insert and/or unit.	No sediment cap on the insert media and its unit.
	Trash and Debris Accumulation	Trash and debris accumulates on insert unit creating a blockage/restriction.	Trash and debris removed from insert unit. Runoff freely flows into catch basin.
	Media Insert Not Removing Oil	Effluent water from media insert has a visible sheen.	Effluent water from media insert is free of oils and has no visible sheen.
	Media Insert Water Saturated	Catch basin insert is saturated with water and no longer has the capacity to absorb.	Remove and replace media insert
	Media Insert-Oil Saturated	Media oil saturated due to petroleum spill that drains into catch basin.	Remove and replace media insert.
	Media Insert Use Beyond Product Life	Media has been used beyond the typical average life of media insert product.	Remove and replace media at regular intervals, depending on insert product.

Table V-A.19: Maintenance Standards - Media Filter Drain (MFD)

Maintenance Component	Defect	Conditions When Maintenance is Needed	Results Expected When Maintenance is Performed
General	Sediment accumulation on grass filter strip	Sediment depth exceeds 2 inches or creates uneven grading that interferes with sheet flow.	Remove sediment deposits on grass treatment area of the embankment. When finished, embankment should be level from side to side and drain freely toward the toe of the embankment slope. There should be no areas of standing water once inflow has ceased.
	No-vegetation	Flow spreader is uneven or clogged so that flows are not uniformly distributed over entire embankment width.	Level the spreader and clean to spread flows evenly over entire embankment width.