



LONG TERM POLLUTION PREVENTION AND MAINTAINENCE PLAN

for

ADESA Holliston

194 Lowland Street, Holliston, MA

October 6, 2020

Prepared for:

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Contact Information

Stormwater Management Practices Owner

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Responsible Party for Operation and Maintenance

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SWMP O&M Manual Overview

In accordance with local, state, and federal regulations and the approved site plan for the project, the subject site contains several stormwater management practices to collect and convey stormwater, control erosion and sediment, attenuate peak flow rates of runoff, and remove stormwater pollutants. Specific stormwater management practices for this project include drainage structures and pipes, deep sump catch basins, underground detention facilities, and riprap and outlet protection.

This manual has been prepared to outline general procedures to assist the responsible party in fulfilling operation and maintenance duties of the stormwater management facilities. Please note that the inspection, operation, and maintenance guidelines presented may need to be updated based on actual conditions encountered during the life of the facility. Copies of all completed inspection forms shall be kept on file at the main office of the facility.

Stormwater System Overview

On-site stormwater runoff from the project site will be collected, conveyed, and treated with a combination of measures including drainage structures and pipes, deep sump catch basins, water quality hydrodynamic separators (“Barracuda”) and underground detention/infiltration facilities. Different areas of the site drain to different structures and underground detention/infiltration facilities. Please see Appendix A for a detailed drainage area map indicating which direction stormwater will be routed. Stormwater runoff from the project site will ultimately discharge to two separate outfalls with approximately 1.76 acres of runoff directed to underground detention facility 1 and approximately 2.16 acres directed to underground detention facility 2.

Surface runoff from asphalt pavement on the west side of the lot will be collected by drainage inlets and connect to underground detention facility 2. Overflow from this facility will outfall to Bogastow Brook. Surface runoff from the east parking lot area will be collected by drainage inlets and connect to underground detention facility 1. Overflow from this facility will outfall to the existing pond along the north end of the site. Runoff outside the parking lot that is not collected via storm drains will sheet flow to either the existing pond north of the site or Bogastow Brook to the south of the site.

Stormwater Management Practices Descriptions

Drainage Structures and Pipes

Stormwater runoff from the site will be collected and conveyed by a system of inlet structures and subsurface drainage piping throughout the project area. Drainage inlets are reinforced concrete boxes with metal grates or curb openings located throughout the site, primarily in low-lying areas. The inlets are collected via a network of pipes that direct stormwater runoff to designated outfall locations by gravity flow. The service life of a concrete, subsurface drainage system is in excess of 50 years.

Deep Sump Catch Basins

Catch basins on-site will have a sump elevation beneath the outlet elevation to provide a small reservoir area. The reservoir area is used to allow time for particles and suspended solids to settle out and accumulate in the sump prior to discharge. The deep sump catch basins will also be equipped with outlet guards (oil separator hoods) to aid in preventing trash, debris, oil, and other floatables from entering the conveyance system. The service life for a properly maintained deep sump catch basin is 20-50 years.

Water Quality Hydrodynamic Separators (“Barracuda”)

Drainage manholes with internal water quality hydrodynamic separators are provided on all piping systems prior to discharge to the underground detention chamber systems on site.

Stormwater flows are collected in the on-site drainage system and flow through a typical 4 or 6-foot concrete manhole that has been fitted with an internal chamber system designed to separate Total Suspended Solids (TSS) from stormwater and store the TSS in the manhole sump. The service life of well-maintained outlet manhole and hydrodynamic separator system is protection is 20-50 years.

Riprap and Outlet Protection

Outlet protection is structurally lined aprons or other acceptable energy dissipating devices placed at the outlets of pipes or paved channel sections. Riprap is a commonly used type of outlet protection consisting of large rocks underlain by a filter fabric and keyed into the surrounding soil. The purpose of outlet protection is to prevent scour at stormwater outlets, to protect outlet structures or spillways, and to minimize the potential for downstream erosion by reducing the velocity and energy of concentrated stormwater flows. The service life of well-maintained outlet protection is 20-50 years.

Underground Stormwater Detention Chambers (“Stormtech”)

Underground storm water detention systems capture and store runoff in large pipes or other subsurface structures or chambers. Storm water enters the system through a riser pipe connected to a catch basin or manhole with grate inlet and flows into a series of chambers or compartments for storage. Captured runoff is retained throughout the storm event, and can be released directly back into surface waters through an outlet pipe. The service life of the underground detention chamber system is expected to be in excess of 50 years.

Maintenance Procedures

Routine Maintenance

- Sweep parking lot and other paved areas. < spring and fall, and after significant winter storm where salt or sand has been applied >
- Maintain landscaping properly by mowing and pruning. Replace any dying or diseased plant species. < as necessary >
- Pick up trash and litter on-site before stormwater runoff can transport debris to the stormwater management practices. < ongoing >
- Walk entire site to inspect for erosion, drainage problems, and damage to the stormwater management practices. < quarterly >
- Inspect pavement over system for any signs of settlement or abnormal cracking. <quarterly>
- Document all inspections using the log provided. < quarterly >

Drainage Structures and Pipes

- Visually inspect for inlets and drainage structures for signs of damage such as

- exposed reinforcement and concrete cracking. < quarterly >
- Vacuum accumulated sediment from inlets once depth is greater than 6 inches and dispose of in an approved off-site location. < as necessary >
- Vacuum accumulated sediment from pipes once depth is greater than 3 inches and dispose of in an approved off-site location. < as necessary >
- Remove any debris or obstructions from inlets. < as necessary >

Deep Sump Catch Basins

- Visually inspect catch basin structure for signs of damage such as exposed reinforcement and concrete cracking. < quarterly >
- Inspect perimeter gasket system of outlet guards/inserts to confirm water is not bypassing insert. < quarterly >
- Pump standing water from sump, vacuum accumulated sediment, and dispose of in an approved off-site location. < annually >
- Remove any debris within trough area. < quarterly >
- Unfasten oil separator hood insert for inspection and reattach if no major damage is evident. < as necessary >

PUBLIC SAFETY NOTE: All cast iron storm water structure grates and covers shall be kept in good condition and kept closed at all times. Any damaged or broken structures will be replaced immediately upon discovery.

Water Quality Hydrodynamic Separators (“Barracuda”)

- Visually inspect drainage manhole structure for signs of damage such as exposed reinforcement and concrete cracking. < quarterly >
- Inspect internal Barracuda insert to confirm no cracking or damage to insert or that water is not bypassing insert. < quarterly >
- Pump standing water from sump, vacuum accumulated sediment, and dispose of in an approved off-site location. < annually >

Riprap and Outlet Protection

- Replace any dislodged or washed out riprap. < as necessary >
- Remove vegetation interfering with function of riprap. < as necessary >
- Vacuum accumulated sediment visible from riprap surface. Only sediment above the top layer of riprap needs to be removed. Trapped sediment in the riprap voids can remain until sediment accumulates to a depth where it can bypass the outlet protection. < as necessary >
- Regrade and stabilize any eroded soils with additional riprap and permanent seeding. The method of repair will depend on the severity of the eroded area and the source of the erosion. Severe erosion repairs should be done following a detailed review of the area by an engineer. Minor repairs should be completed as follows: < as necessary >
 - o Install silt fence around proposed work area.
 - o Remove eroded soil, replace soil and add additional soil if necessary, compact and regrade area to original conditions.
 - o Seed and stabilize repair area and install erosion control blanket.

- Replace riprap stones to original location and place additional stones where erosion has occurred outside of the original rip-rap apron.
- Remove silt fence following final stabilization of area.

Underground Stormwater Detention/Infiltration Chambers

Underground storm water detention systems require very little maintenance. They have no moving parts and remain intact for many years. Underground stormwater detention structures must be cleaned periodically to remove accumulated trash, grit, sediments, and other debris. The installation of catch basins or grates at the inlet will reduce trash accumulation, but suspended solids will still be carried into the storage area, where they may settle out and accumulate on the bottom of the structure. The structures need to be cleaned to remove this accumulated material, which should be tested to determine if it contains any toxic or hazardous materials, and then disposed according to local regulations regarding storm water residuals.

- Inspect cleanout rims for damage or other defects < semiannually >
- Measure sediment levels in unit. If sediment is greater than 6-inches in depth, remove material by flushing the system and collecting flush water at downstream manhole with a vacuum truck. < semiannually >
- Inspect pavement over system for any signs of settlement or abnormal cracking. < semiannually >
- Visually inspect downstream grass slopes for any evidence of groundwater seepage or erosion. < semiannually >

Maintenance Frequency and Cost Opinion

Stormwater Management Practice	Inspection Frequency	Estimated Time for Inspection and Routine Maintenance	Cost Opinion for Inspection and Routine Maintenance
Drainage Structures and Pipes	Quarterly	6-18 hours	\$500 - \$4,000
Deep Sump Catch Basins	Quarterly	4-8 hours	\$500 - \$2,500
Hydrodynamic Separators	Quarterly	4-8 hours	\$500 - \$2,500
Riprap and Outlet Protection	Quarterly	2-6 hours	\$200 - \$1,500
Underground Detention Chambers	Quarterly	6-10 hours	\$400 - \$3,500

Appendix A
Stormwater Management Practices Location Map

Appendix B

Inspection Checklists and Maintenance Logs



Inspection Checklist and Maintenance Log **Drainage Structures and Pipes**

Project Name: _____ Inspection Date: _____

Project Location: _____ Inspection Personnel: _____

Location of Stormwater Management Practice: _____

Inspection Item	Yes	No	N/A	Corrective Action Required		Completion Date
Damage to Structure?						
Damage to Inlet Pipe(s)?						
Damage to Outlet Pipe(s)?						
Damage to Trash Rack(s)?						
Obstruction(s)?						
Undermining/Undercutting?						
Ponding around Inlets?						
Outlet Protection Washout?						
Settlement above Pipes?						
Accumulated Sediment?						
Accumulated Debris?						
Assessment Item	Good	Fair	Poor	Replace	N/A	Comments
Pavement condition above pipes						

Maintenance Activity Description:

Follow Up Requirements:

Inspector Signature: _____



Inspection Checklist and Maintenance Log **Deep Sump Catch Basins**

Project Name: _____ Inspection Date: _____
Project Location: _____ Inspection Personnel: _____
Location of Stormwater Management Practice: _____

Inspection Item	Yes	No	N/A	Corrective Action Required	Completion Date
Damage to Structure?					
Damage to Inlet Pipe(s)?					
Damage to Outlet Pipe(s)?					
Damage to Oil Separator Hood(s)?					
Obstruction(s)?					
Undermining/Undercutting?					
Ponding around Inlet? (except in sump)					
Settlement around Structure?					
Accumulated Sediment?					
Accumulated Debris?					

Maintenance Activity Description:

Follow Up Requirements:

Inspector Signature: _____



Inspection Checklist and Maintenance Log **Water Quality Hydrodynamic Separator**

Project Name: _____ Inspection Date: _____
Project Location: _____ Inspection Personnel: _____
Location of Stormwater Management Practice: _____

Inspection Item	Yes	No	N/A	Corrective Action Required	Completion Date
Damage to Structure?					
Damage to Inlet Pipe(s)?					
Damage to Outlet Pipe(s)?					
Damage to Water Quality Insert					
Obstruction(s)?					
Undermining/Undercutting?					
Ponding around structure?					
Settlement around Structure?					
Accumulated Sediment?					
Accumulated Debris?					

Maintenance Activity Description:

Follow Up Requirements:

Inspector Signature: _____



Inspection Checklist and Maintenance Log
Riprap and Outlet Protection

Project Name: _____ Inspection Date: _____

Project Location: _____ Inspection Personnel: _____

Location of Stormwater Management Practice: _____

Inspection Item	Yes	No	N/A	Corrective Action Required	Completion Date
Damage to Embankment?					
Damage to Discharge Structure?					
Damage to Discharge Pipe?					
Damage to Spillway?					
Damage to Filter Fabric? (if applicable)					
Obstruction(s)?					
Erosion/Scour?					
Undermining/Undercutting?					
Ponding at Outlet?					
Outlet Protection Washout?					
Accumulated Sediment?					
Accumulated Debris?					
Overgrown Vegetation?					

Maintenance Activity Description:

Follow Up Requirements:

Inspector Signature: _____



Inspection Checklist and Maintenance Log **Underground Stormwater Detention Chambers**

Project Name: _____ Inspection Date: _____

Project Location: _____ Inspection Personnel: _____

Location of Stormwater Management Practice: _____

Inspection Item	Yes	No	N/A	Corrective Action Required		Completion Date
Damage to Cleanout Rims?						
Damage to Inlet Pipe(s)?						
Damage to Outlet Pipe(s)?						
Obstruction(s)?						
Undermining/Undercutting?						
Ponding around Inlets?						
Outlet Protection Washout?						
Accumulated Sediment?						
Accumulated Debris?						
Assessment Item	Good	Fair	Poor	Replace	N/A	Comments
Pavement condition above system						

Maintenance Activity Description:

Follow Up Requirements:

Inspector Signature: _____

Appendix C

Water Quality Hydrodynamic Separator Maintenance Sheet

Maintenance Guide

BaySaver Barracuda™

July 2017

One of the advantages of the BaySaver Barracuda is the ease of maintenance. Like any system that collects pollutants, the BaySaver Barracuda must be maintained for continued effectiveness. Maintenance is a simple procedure performed using a vacuum truck or similar equipment. The systems were designed to minimize the volume of water removed during routine maintenance, reducing disposal costs.

Contractors can access the pollutants stored in the manhole through the manhole cover. This allows them to gain vacuum hose access to the bottom of the manhole to remove sediment and trash. There is no confined space entry necessary for inspection or maintenance.

The entire maintenance procedure typically takes from 2 to 4 hours, depending on the size of the system, the captured material, and the capacity of the vacuum truck.

Local regulations may apply to the maintenance procedure. Safe and legal disposal of pollutants is the responsibility of the maintenance contractor. Maintenance should be performed only by a qualified contractor.

Inspection and Cleaning Cycle

Periodic inspection is needed to determine the need for and frequency of maintenance. You should begin inspecting as soon as construction is complete and thereafter on an annual basis. Typically, the system needs to be cleaned every 1-3 years.

Excessive oils, fuels or sediments may reduce the maintenance cycle. Periodic inspection is important.

Determining When to Clean

To determine the sediment depth, the maintenance contractor should lower a stadia rod into the manhole until it contacts the top of the captured sediment and mark that spot on the rod. Then push the probe through to the bottom of the sump and mark that spot to determine sediment depth.

Maintenance should occur when the sediment has reached the levels indicated in the Storage Capacity Chart.

BaySaver Barracuda Storage Capacities

Model	Manhole Diameter	Treatment Chamber Capacity	Standard Sediment Capacity (20" depth)	NJDEP Sediment Capacity (50% of standard depth)
S3	36"	212 gallons	0.44 cubic yards	0.22 cubic yards
S4	48"	564 gallons	0.78 cubic yards	0.39 cubic yards
S5	60"	881 gallons	1.21 cubic yards	0.61 cubic yards
S6	72"	1269 gallons	1.75 cubic yards	0.88 cubic yards
S8	96"	3835 gallons	3.10 cubic yards	1.55 cubic yards
S10	120"	7496 gallons	4.85 cubic yards	2.43 cubic yards

Maintenance Instructions

1. Remove the manhole cover to provide access to the pollutant storage. Pollutants are stored in the sump, below the bowl assembly visible from the surface. You'll access this area through the 10" diameter access cylinder.

2. Use a vacuum truck or other similar equipment to remove all water, debris, oils and sediment. See figure 1.
3. Use a high pressure hose to clean the manhole of all the remaining sediment and debris. Then, use the vacuum truck to remove the water.
4. Fill the cleaned manhole with water until the level reaches the invert of the outlet pipe.
5. Replace the manhole cover.
6. Dispose of the polluted water, oils, sediment and trash at an approved facility.
 - Local regulations prohibit the discharge of solid material into the sanitary system. Check with the local sewer authority for authority to discharge the liquid.
 - Some localities treat the pollutants as leachate. Check with local regulators about disposal requirements.
 - Additional local regulations may apply to the maintenance procedure.

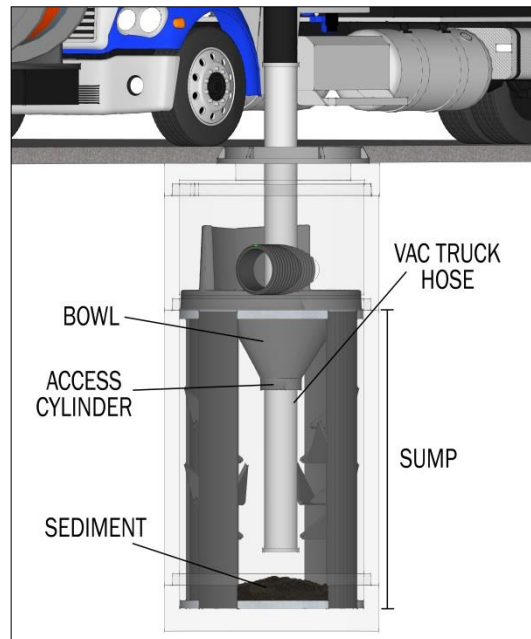


Figure 1