Stormwater Pollution Prevention Plan
Rock Creek Park Maintenance Facility

Site: Rock Creek Park
5000 Glover Rd NW
Washington, DC 20015-1008
(202) 895-6000

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Certification

I certify that this document and all attachments are, to the best of my knowledge, true, accurate, and complete. I am aware that there are penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Nicholas Bartolomeo

Printed Name: Nicholas Bartolomeo

Date: 9/29/14

Job Title: Chief of Resources Mgmt.

Tel. #: 202-895-6010

Approved by: _____
Superintendent, Rock Creek Park

Date: 10/28/14

Table of Contents

1 - Overview

1.1 General Facility Information

Address:	Rock Creek Park 5000 Glover Rd NW Washington, DC 20015-100
SIC Code:	4959 – Road Services, Street cleaning service, Snow clearing
Coordinates:	38°57'23.12'' 77°02'59.12''
Ownership:	Federal
NPDES:	To be determined. As of April 2014, EPA has not yet released the requirements for the 2013 NPDES MSGP permit application.
Project/Permit Tracking Number	

1.2 Introduction

The Rock Creek Park Maintenance Facility (facility) is located in Rock Creek Park (ROCR), a unit of the National Park Service (NPS), in Northwest Washington, DC. The facility houses the park's Maintenance staff and is the base of maintenance operations for the park's facilities and grounds, including roads, trails, vehicles, trees, waterways, picnic areas, a green-roofed research facility, an amphitheatre, stables, and numerous historic and non-historic buildings. The Maintenance Facility also houses the park's Natural Resource Management staff and related equipment, including wildland fire equipment and a chemical storage shed for pesticides.

As authorized by the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. Point sources are discrete conveyances such as pipes or man-made ditches. Individual homes that are connected to a municipal system, use a septic system, or do not have a surface discharge do not need an NPDES permit; however, industrial, municipal, and other facilities must obtain permits if their discharges go directly to surface waters. In order to maintain the property, park staff are involved in activities that have the potential to impact the quality of stormwater that leaves the facility and ultimately flows into Rock Creek. These activities include fuel dispensing, solid waste storage, hazardous waste management, roadway maintenance, vehicle and equipment repair, tree maintenance, and salt storage and loading. Due to the industrial functions associated with equipment maintenance and roadway care, the U.S Environmental Protection Agency requires that the Rock Creek Park Maintenance Facility be permitted under the EPA's NPDES Multi-sector General Permit (MSGP).

This stormwater pollution prevention plan (SWPPP) is a permit requirement. It describes best management practices (BMPs) including a schedule of activities, prohibited activities, maintenance procedures, inspection criteria, and other management responsibilities. The BMPs are designed to prevent and reduce stormwater contamination on the property and subsequent waterway contamination. The contents of this plan have been developed to conform to the EPA's MSGP permit.

1.3 Objectives

The goal of this plan is to identify the potential sources of pollution from the facility and develop and implement BMPs to reduce polluted stormwater runoff.

The objectives of this plan are to:

- Identify potential sources of pollution at the ROCR Maintenance Facility;
- Describe BMPs which are to be used at the ROCR Maintenance Facility; and
- Provide other elements -- such as a monitoring program and recordkeeping and reporting program -- that will help ROCR comply with the terms and conditions of the MSGP.

2 - Stormwater Pollution Prevention Team

The Facility Manager is responsible for ensuring that all stormwater permit requirements, including requirements of the associated SWPPP, are met.

A ROCR SWPPP Team assists the Facility Manager. The Team's responsibility is to implement, revise, and maintain the SWPPP. The roles of these individuals will be described and updated to reflect changes in ROCR activities and personnel. The SWPPP Team roster is located in Appendix A.

The SWPPP Team is responsible for:

- The implementation of all MSGP and SWPPP plan requirements;
- Conducting the comprehensive site compliance evaluation and quarterly inspections;
- Identifying and addressing potential pollution sources as they develop;
- Overseeing implementation of BMPs;
- Implementing employee training;
- Preparing and submitting any reports as requested by the EPA;
- Identifying and correcting any deficiencies in the SWPPP; and
- Ensuring updates to the SWPPP (such as changes in facility operation and employees) are made within required timeframes (see Section 7.4).

3 - Physical Site Information

3.1 Site Overview

The north side of the facility consists of a fenced paved asphalt area, rectangular in shape with buildings around the perimeter. There is a covered fuel dispensing station in the middle of the rectangle. The southern half of the site is unpaved gravel, and includes four buildings, dumpsters, and gravel and stone storage piles. The entire site is entirely surrounded by woods. Rock Creek is located 1500 feet southeast of the facility.

Stormwater from building roofs and the primary maintenance facility is channeled onto the ground. There are few drains on this portion of the site, with the exception of the area around the fuel dispensing station, so stormwater generally flows across the asphalt and gravel surfaces into the adjacent woods. Several years ago – the exact date is unknown -- park staff created a ditch on the eastern side of the property for stormwater detention. Staff report that this ditch contains water after heavy rains but is generally dry.

Stormwater from the parking area enters storm drains and is discharged into the woods to the south. The water which passes through this system enters through Filterra units at the drain openings, and is directed into an Aqua-Swirl unit. The Filterra units contain an engineered soil filter media, a mulch layer, an under-drain system, and vegetation. They are designed to detain runoff and remove a range of pollutants. The Aqua-Swirl device at the top of a slope removes sediment and free-floating oil and debris.

After the water passes through the Aqua Swirl, it continues down a pipe on the southern slope and into the woods. The pipe is approximately 190 feet long, and fitted with drop boxes at the top and bottom. This drainage solution was designed by an engineering firm in response to the park's desire to prevent erosion and stormwater pollution.

Engineered drawings of the site and equipment are present in Appendix E.

3.2 ROCR Maintenance Facility Functions

The ROCR Maintenance Facility is approximately 2.5 acres, and includes the following operations:

- Office space;
- Vehicle fueling, fuel storage, and oil storage;
- Vehicle and equipment maintenance areas;
- Vehicle and landscaping equipment and supplies storage;
- Hazardous waste storage and management;
- Wildland fire management equipment;
- Pesticide storage, and
- Salt storage and loading.

3.2 Structures

Structures at the facility include:

- Parking spaces;
- Office buildings;
- Equipment sheds;
- Tool equipment storage;
- Storage bays for vehicles and heavy equipment;
- Covered salt storage building;
- Underground gasoline and diesel tanks and aboveground fuel dispensers;
- Covered storage for hazardous materials;
- Aqua-Swirl Device;
- Flammable material and pesticide storage lockers;
- Dumpsters containing road debris collected by the street sweeper; and
- Piles of sand, stone, and gravel.

3.3 Location and Facility Diagram

The ROCR Maintenance Facility (Fig. 1) is approximately 2.5 acres located in Rock Creek Park off of Military Road between Connecticut Avenue and 16th Street NW (Fig. 2) in Washington D.C.

Fig. 1 – An aerial photograph of the ROCR Maintenance Facility

Fig. 2 – The ROCR Maintenance Facility (identified above) is part of Rock Creek Park in NW Washington D.C.

Fig. 3 – ROCR Maintenance Facility features, buildings and structures, drainage patterns, and the location of storm drains.

4 - Potential Sources of Stormwater Pollution

4.1 Materials Inventory

The maintenance facility is the base of maintenance operations for ROCR. The site is approximately 2.5 acres of land which supports several industrial activities such as roadway and vehicle maintenance.

Within the boundaries of the complex, there is a covered fuel dispensing station, and adjacent to the dispensers there are spill pads and clean-up materials.

There is a salt storage structure, which contains a pile of salt for winter roadway de-icing. The storage structure is covered, has three walls and is open along the eastern side. The salt pile is limited in size so that it fits under the roof. Staff minimizes exposure of this salt to stormwater by sweeping spillage back onto the pile and under the roof after transfers.

Hazardous material, pesticide, oil, and battery storage areas are located on the site. These materials are stored in cabinets or in secondary containment under cover. Pesticides are stored in a waterproof flammable material shed with internal secondary containment.

Solid waste dumpsters are present in the middle of the facility. These dumpsters contain the debris collected by the street sweepers, as well as other bulky debris. The dumpsters are uncovered.

In the past, vehicle and equipment washing had occasionally taken place on the site. This practice has been discontinued and staff now has vehicles cleaned at commercial car-washes.

4.2 Site Evaluation Summary

The ROCR Maintenance Facility has few storm drains, so materials that might be picked up by stormwater will likely be washed across the asphalt and into the woods. Material present in the parking area will enter the Filterra units and pass through the Aqua-Swirl.

During the first site inspection in 2010, there was minor evidence of erosion and washing on the southern and northern corners of the property. It was reported by staff that this erosion was likely due to unseasonably heavy rains.

The following list describes the activities most likely to impact stormwater quality at the site.

- *Stored vehicles and equipment* have the potential to drip fluids such as oil, antifreeze, grease, and fuel onto the ground.
- *Fueling activities* have the potential to result in drips of fuel onto the ground, and a small possibility of spilling larger quantities. Fuel dispensed on site includes diesel fuel and gasoline.
- *Salt transfers* may leave salt on the ground, which could be washed away by stormwater. (Note: This site uses sodium chloride.)
- *Distributed hazardous material storage* requires the transport of materials across the grounds, which may result in drips onto the ground. These materials include paints and solvents, gasoline and oil, and pesticides. These materials are primarily generated by illegal dumping that takes place in the park and is cleaned up by park staff.
- *Open solid waste dumpsters or other containers* can contribute pollutants as rain washes over stored materials and runs out the bottom of open dumpsters or other containers.
- *Litter* from staff and visitors may wash away with stormwater.

5 - Past Spills and Spill Reporting

5.1 Spill History

A spill or leak that requires reporting to the District Department of the Environment or the National Response Center (NRC) has not occurred at the ROCR Maintenance Facility in more than seven years.

5.2 Spill Reporting

In the event that there is a non-incidental spill of hazardous material such as oil or solvents into the environment, in accordance with the MSGP, the Facility Manager will:

a. Notify the National Response Center (in the Washington, DC metropolitan area) at (202) 267-2675 in accordance with the requirements of 40 CFR 110, and 40 CFR 302 respectively, as soon as there is knowledge of the discharge. Direct Contact Numbers for spill response in the DDOE are (as of 9/2013):
    - John Emminizer: Emergency Program Coordinator for DDOE: office: (202) 645-5665 Cell: (202)-281-0885
b. Follow the NPS National Capital Region Emergency Response Handbook directions, which include contacting all the following in the event of an emergency spill:
    - US Park Police (USPP) Communications Center (DC area) at 202-610-7505
    - National Capital Region Communications Center (outside DC area, 301-714-2235)
    - Local fire department at 911

    In the event of a non-emergency spill, the USPP and National Capital Region must be contacted at the numbers listed above.
c. Submit to the District Department of the Environment – within 10 working days of knowledge of the release – a written description of the release (including the type and estimate of the amount of material released), the date that such release occurred, the circumstances leading to the release, and steps to be taken in accordance with the MSGP; and
d. Within 14 calendar days after the spill has occurred and ROCR staff have completed response actions, ROCR management must review and revise this SWPPP as necessary to prevent a future spill of hazardous substances (including oil) from recurring.

6 – Stormwater Control Measures

In accordance with the MGSP, this SWPPP includes an evaluation and determination of a number of BMPs that have been implemented at the ROCR Maintenance Facility to minimize the amount of stormwater pollutants discharged, and prevent any non-stormwater contaminants (pollution sources) from entering the stormwater.

6.1 Preventative Maintenance

- Ensure that vehicles stored outside have routine preventative maintenance to keep them in good working order. Specifically, identify and address all leaks during oil changes and maintenance and when they are otherwise observed.

- Store all containers of hazardous materials (such as oil, cleaning chemicals, solvents) and hazardous waste in an inside storage area and not outside exposed to the elements. Container integrity becomes weakened with time when containers are stored outside and they may develop cracks or leaks which can expose the product to stormwater runoff.

- Maintain Filterra units which receive water from the parking area in accordance with the manufacturer's instructions. Proper maintenance requires annual inspections of the contents and the replanting of shrubs which are browsed by deer or are dying.

- Maintain the Aqua-Swirl device in accordance with the manufacturer's instructions. Proper maintenance requires regular inspections, the replacement of oil absorbent materials and the regular removal of accumulated debris. Proper maintenance documentation must also be kept.

6.2 Good Housekeeping Practices

Consistent and proactive housekeeping is required to minimize contaminants which can enter stormwater. In order to minimize pollution, ROCR staff will:

- Regularly sweep remnant salt into the covered salt structure.
- Purchase salt in quantities that are small enough to fit under the covered storage.
- Institute and document a street sweeping schedule of the maintenance area to collect debris and trash to prevent them from washing out with the stormwater.
- Wipe residue from all hazardous materials containers after use and prior to transport or storage. This practice shall be supported by locating waste rags in the vicinity of containers and training staff of this requirement.
- In accordance with HAZCOM requirements, maintain an up-to-date hazardous material inventory which identifies all chemical substances present in the workplace, and label containers with the contents and appropriate hazard information.
- Cover bulky equipment that is scheduled for disposal.
- Continue to dispose of trash and recyclables properly. This requires putting trash in appropriate containers and keeping all containers covered, including dumpsters.
- When drips and spills are cleaned up with the litter type absorbent, sweep the absorbent up promptly. It would be preferable to utilize the mat type absorbent when possible.

6.3 Spill Prevention and Response Procedures

Park staff will follow the park's Emergency Action Plan (EAP), currently in draft, when responding to spills of hazardous material such as fuel, oil and solvent. Staff will be trained on these procedures when hired and when the EAP changes, in accordance with OSHA requirements. The training will include the types and volumes of material staff may attempt to clean up without additional support. The training will also include procedures for getting help in an emergency.

In addition, ROCR staff will observe the following BMPs:

- Spill clean-up materials will be provided near fuel dispensing areas.
- When refueling portable containers, place containers first in a plastic tub so any spills that occur are contained in the tub rather than spilled out onto the ground.
- Place plastic tubs with oil-absorbent pads underneath outside vehicles and equipment that are unused for extended periods of time. Check the condition of the plastic tubs and oil-absorbent pads on a regular basis. If vehicle and equipment fluids collect in these tubs, dispose of them appropriately; also dispose of used oil-absorbent pads appropriately. Alternatively, drain oil, antifreeze, and fuel from unused vehicles and equipment to prevent any leaks that result from worn seals and hoses.
- Dispose of hazardous materials at regular intervals thought the regional hazardous waste disposal contract.

6.4 Sediment Control Measures

High volume water flows can wash away organic materials and lead to erosion and gullying. This scenario had occurred on the southern slope but has been addressed with the installation of the pipe, Filterra units, the Aqua-Swirl, and drop-box flow reducers described in Section 3.1.

In other areas, park staff will slow water flows with structural controls, and maintain flora to control erosion and filter stormwater. In order to reduce erosion at the edges of the pavement, staff will:

- Restore the areas where erosion and gullying is evident by promoting plant growth. This will be accomplished by methods aligned with ROCR resource protection goals such as actively planting native low-growing herbaceous and woody plants or turf.
- For areas where downspouts go directly on the ground, slow down the velocity of the discharge by installing shrubs and stones. Consider also using rain barrels to capture water that could be released at a slower rate over time.
- Reduce the severity of water flows at outflow areas by installing simple structural controls such as shrubs and stones, immediately adjacent to where water flows off the asphalt.

6.5 Management of Runoff from Salt Storage

Park staff are purchasing salt in quantities that can be contained under cover within the salt storage building. The effectiveness of this measure will be considered as part of the annual SWPPP inspection and review process.

6.6 Employee Training

Effective training and awareness on this SWPPP will be provided to employees. Employee training will educate employees about general stormwater issues and the requirements of the SWPPP. This training program will include background information on the components and goals of the SWPPP, BMPs, and inspection procedures. All maintenance employees will be trained within sixty days of their start date. A record of this training will be kept in the personnel file in accordance with the ROCR environmental management system (EMS) documentation and recordkeeping system, as well as with this plan.

All employees will participate in an annual refresher-training which will take place by November 15th of each year. This training may be structured as follows:

a) A review of the goals and purpose of the SWPPP.
b) A walk through of facilities with a discussion of the BMPs.
c) A discussion of the potential sources of stormwater contamination.
d) Opportunity to read through a copy of the SWPPP.
e) Opportunity to suggest new BMPs.

Attendance for this training will be recorded and maintained with this plan for at least three years. A template training sign-in sheet is located in Appendix D. This sheet is to be used to demonstrate that training took place and serves as the official training record.

The training program will be reviewed biennially by the SWPPP Team to determine its effectiveness and to make any necessary changes.

6.7 Other Controls

- ROCR management will evaluate the possibility of covering the dumpster which holds the debris from the street sweeping operations. Alternatively, the park may consider replacing the large dumpster with multiple small dumpsters that can be covered. This sediment may contain pollutants from vehicles. Therefore, ROCR staff will determine whether the sediment is a hazardous waste and manage accordingly.

- Institute street sweeping in the maintenance area on a regular basis and document this action. This will capture litter and debris which may otherwise wash away with the stormwater.

- Perform all equipment cleaning indoors or under cover. Conduct the cleaning in an area with a concrete floor with no floor drain other than to sanitary sewers or treatment facilities. Discharges to the sanitary sewer system must be done in compliance with rules and policies of the POTW.

Vehicle Washing

Under the MGSP, vehicle rinsing or washing where the wash water is exposed to the environment is explicitly prohibited. Vehicle washing will be done off-site at a designated wash facility. Car wash facilities near ROCR by vehicle type include:

Passenger vehicles, regular size trucks and SUVs:

Mr. Wash Car Wash
7996 Georgia Avenue
Silver Spring, MD 20910
301-495-9355

Flagship Car Wash
4432 Connecticut Avenue, NW
Washington, DC 20008
202-363-4960

Larger vehicles:

Kenilworth Car Wash
3501 Kenilworth Avenue
Hyattsville, MD 20871
301-277-0700

If the park determines that vehicle washing on site is necessary, it will seek to acquire a vehicle wash bay which captures wash water for either recycling or transfer to the sanitary sewer.

If the park determines to pursue permit coverage for vehicle washing operations that do not take place in a designated wash-rack, then the MGSP is not applicable. For on-site vehicle washing that discharges into the environment, an individual industrial discharge permit application must be submitted to the Region 3 EPA. If granted, this permit will likely have substantial requirements regarding testing and water quality standards.

Table A. Implementation Schedule for Best Management Practices

BMP Summary	Potential Pollutant	Implementation Schedule
Purchase salt in quantities that are small enough to fit under the covered storage.	Salt	Seasonally when salt is purchased
Sweep up salt that flows out of salt storage facility or is left behind during transfers.	Salt	As needed and after salt transfers
Collect litter and sweep-up debris. Have the street sweeper make rounds in the facility.	Anthropogenic debris and litter	On an on-going basis
Store trash in covered containers. Acquire additional containers as necessary. Ensure that all containers have the ability to be closed or covered.	Anthropogenic debris and chemical contaminants	Immediately
Cover bulky equipment stored outside or scheduled for disposal.	Anthropogenic debris and litter	Immediately
Store all containers of hazardous materials (such as oil, cleaning chemicals, solvents) in an inside storage area and not outside exposed to the elements.	Solvents, paint, oil, and other liquids.	On an ongoing basis.
Maintain Filterra units in accordance with the manufacturer's instructions.	Vehicle Fluids and sediment	Annually and as necessary.
Maintain the Aqua-Swirl device in accordance with the manufacturer's instructions.	Vehicle Fluids and sediment	Annually and as necessary.
Wipe residue from all hazardous materials and hazardous waste containers after use and prior to transport or storage.	Solvents, paint, oil, and other liquids.	Immediately
Provide spill clean-up materials at the fuel dispensing areas.	Drips/spills of fuel	As necessary
Provide secondary containment for refueling portable containers.	Drips/spills of fuel	As necessary
Place catch-pans with oil-absorbent pads under unused equipment and implement preventative maintenance for in-use vehicles. Routinely check the condition of the catch-pans and oil-absorbent pads; dispose of collected liquids and used absorbents according to applicable regulations.	Vehicle liquids	Immediately
Do not wash or rinse vehicles on site. Wash or rinse vehicles at an approved off-site location.	Soap, oil, and other vehicle fluids	Immediately
Implement sediment control methods to reduce flow rates. This may include installing water diverters below downspouts, and vegetated swales adjacent to the property.	Stormwater flow that causes erosion	Immediately and as needed.
In accordance with HAZCOM requirements, maintain an up-to-date hazardous material inventory which identifies all chemical substances present in the workplace, and label containers with the contents and appropriate hazard information.	All pollutants	Immediately and on an ongoing basis
Train employees on the stormwater pollution prevention plan.	All pollutants	Within 60 days for new employees. By November 15th of each year for annual refresher

7 - Inspections

The ROCR SWPPP Team will monitor the grounds for SWPPP effectiveness on an ongoing basis, and will conduct formal quarterly inspections and an annual comprehensive site compliance evaluation. Records of inspections and evaluations shall be kept for at least three years from the date they are performed.

7.1 Quantitative Evaluation of Water Quality

The stormwater which leaves the property goes into the Rock Creek watershed. The water quality in Rock Creek is compromised biologically by fecal coliform, and has an established TMDL (Total Maximum Daily Loads) for organics, bacteria, and metals. The park is not required to monitor for these pollutants unless the EPA informs the park otherwise through its permit requirements. EPA's notice will include specifications on which pollutant to monitor and the required monitoring frequency during the first year of permit coverage. Upon notification of that requirement, this SWPPP should be updated to reflect this monitoring schedule.

For more information, see relevant literature on the DDOE website regarding the pollutants for which TMDLs have been established (a) and water quality standards for those pollutants (b).

a) Rock Creek Watershed Implementation Plan
http://ddoe.dc.gov/sites/default/files/dc/sites/ddoe/publication/attachments/A%20Rock%20Creek%20WIP%202010%20Final_0.pdf

b) Water Quality Standards for Surface Waters (21 DCMR Ch. 11):
http://www.dcregs.dc.gov/Gateway/RuleHome.aspx?RuleID=482301

7.2 Ongoing Monitoring

Specific requirements may be prescribed after the EPA reviews the NOI. However, park staff will at a minimum follow the guidelines below:

- On an ongoing basis, ROCR staff will observe the grounds for evidence of spills and leaks, then identify equipment and practices that may be leaking liquids. Doing so will ensure that the BMPs identified in the SWPPP are being implemented and are effective in minimizing or reducing the threat of pollutant discharge. Any deficiencies in the implementation of the SWPPP that are found shall be corrected as soon as practicable.

- On an ongoing basis, employees will observe stormwater, and consider the color, odor, clarity, floating solids, foam, oil sheen, and any other obvious indicators of stormwater pollution. If a stormwater pollutant is observed, employees are responsible for notifying a member of the SWPPP Team. The SWPPP Team will then attempt to locate the source of the pollutant and evaluate whether additional BMPs should be implemented to prevent further stormwater contamination.

7.3 Quarterly Inspections

Monitored Outfalls

The outfall that will be monitored is located at the base of the pipe on the southern slope of the property, below the parking lot. Park staff will also inspect water that washes off the pavement near the salt storage building to the west.

Quarterly SWPPP Implementation Evaluation

The SWPPP Team will conduct quarterly site inspections to evaluate the SWPPP effectiveness. Quarterly routine site inspections are required for all potential pollutant discharge and exposure areas specified in this SWPPP. The goal of these inspections is to make sure that the BMPs identified in the SWPPP are being implemented and are effective in minimizing or reducing the threat of pollutant discharge. Deficiencies in the implementation of the SWPPP will be corrected within two weeks. Records of each routine facility inspection will be maintained with the SWPPP and will be kept for at least three years from the date of the inspection.

A template log for tracking quarterly implementation evaluations is located in Appendix C.

Quarterly Visual Inspection

Once each quarter, a member of the SWPPP team will collect a stormwater sample from each outfall and conduct a qualitative visual assessment of those samples.

The sampling must be performed during a storm event that results in an actual discharge from the outfall ("measurable storm event") and which follows the preceding measurable storm event by at least 72 hours (3 days). Samples must be collected within the first 30 minutes of the storm. If it is not possible to collect the sample within the first 30 minutes, the sample must be collected as soon as practicable and documentation must be kept with the SWPPP explaining why it was not possible to take samples within the first 30 minutes.

The visual assessment will be made of the samples in clean, clear glass or plastic containers, and examined in a well-lit area. The inspector will visually inspect the sample for the following water quality characteristics: color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and any other indicator of stormwater pollution.

The results must be documented and maintained with the other documents associated with this plan.

For each monitoring event, except snowmelt monitoring, record the date and duration (in hours) of the rainfall event, rainfall total (in inches) for that rainfall event, and time (in days) since the previous measurable storm event. For snowmelt monitoring, the inspector shall identify the date of the sampling event.

A template log for tracking the quarterly outfall visual inspection is located in Appendix C.

7.4 Comprehensive Site Compliance Evaluation

Once a year, the SWPP Team will complete a comprehensive site compliance evaluation. The evaluation must include an inspection of all areas of the facility affected by the MSGP. The purpose of this inspection is to:

- Confirm the accuracy of the description of potential pollution sources;
- Determine the effectiveness of the SWPPP; and
- Assess compliance with terms and conditions of the MSGP.

During the annual comprehensive site compliance evaluation, all potential pollution sources will be visually inspected for evidence of actual or potential discharges. Any equipment or structures needed to implement the SWPPP will also be inspected to ensure it is in proper working order. Also, if any leaks or spills of hazardous substances occur, these areas will be inspected for the next three years (i.e., next three comprehensive site compliance evaluations). Finally, results of quarterly visual evaluations will be reviewed and taken into account during the comprehensive site compliance evaluation.

Each comprehensive site compliance evaluation will be documented, and records will be maintained for at least three years after the date of the evaluation. Required information includes the scope of the evaluation, the individual(s) conducting the evaluation, and any significant observations relating to the implementation of the SWPPP.

If the comprehensive site compliance evaluation determines that the SWPPP does not clearly account for all potential pollution sources or does not appropriately address control measures, the SWPPP will be modified within two weeks after the comprehensive site compliance evaluation is conducted. Changes in procedure or operations will be implemented within twelve weeks after the completion of the comprehensive site compliance evaluation or before the next storm event, whichever is sooner.

The SWPPP team must document the findings of each comprehensive site inspection and maintain this documentation onsite with the SWPPP. A Comprehensive Site Compliance log is located in Appendix B of this plan. Reporting requirements are described in Section 8.3 of this plan.

Any corrective action required as a result of the comprehensive site inspection must be performed consistent with Part 3 of the permit.

8. Schedule, Recordkeeping and Reporting

8.1 Timeline for SWPPP Monitoring Actions

Type of Monitoring	Frequency	Responsible Party	Associated Records
Casual	Ongoing	Everyone at the facility	Keep comments with quarterly inspection logs.
Quarterly Inspection	Quarterly	SWPPP Team	Keep records for at least three years.
Quarterly Water Sampling	Quarterly after a storm event	SWPPP Designee	Keep records for at least three years.
As described in permit requirements and requested by the EPA: Quantitative Measurement	Quarterly	SWPPP Designee	Keep records for at least three years.
Comprehensive Site Compliance Evaluation	Annually	SWPPP Team	Keep records for at least three years.
Administrative changes to the SWPPP (e.g., name changes, changes in the description of potential pollution sources)	Within two weeks of identifying an issue	SWPPP Team	Updated and dated SWPPP.
Procedural changes to the SWPPP (e.g., modifications to a BMP or implementation of a new BMP)	Within 12 weeks of completing Comprehensive Site Compliance Evaluation **or** before the next storm event, whichever is sooner.	SWPPP Team	Updated and dated SWPPP.
Employee training on SWPPP	Within 60 days of start date, then annually thereafter	An individual designated by the SWPPP team who is familiar with the SWPPP, BMPs, and Permit at ROCR	Keep training logs for at least three years.

8.2 Recordkeeping Requirements

The park will keep the following inspection, monitoring, and certification records with the SWPPP, complete and up-to-date, and demonstrate full compliance with the conditions of the permit.

- A copy of the NOI submitted to EPA along with any correspondence exchanged between ROCR and EPA specific to coverage under this permit;
- A copy of the acknowledgment letter ROCR receives from the NOI Processing Center or eNOI system assigning the permit tracking number;
- A copy of the permit;
- Descriptions and dates of any incidences of non-incidental spills, leaks, or other releases that resulted in discharges of pollutants to waters of the U.S., through stormwater or otherwise; the circumstances leading to the release and actions taken in response to the release; and measures taken to prevent the recurrence of such releases;
- Records of employee training, including date training received;
- Documentation of maintenance and repairs of control measures;
- All inspection reports, including the Quarterly Water Inspection, the Quarterly SWPP Implementation, and the Annual Comprehensive Site Compliance reports;
- Description of any deviations from the schedule for visual assessments and/or monitoring, and the reason for the deviations (e.g., adverse weather or it was impracticable to collect samples within the first 30 minutes of a measurable storm event); and
- Description of any corrective action taken at the park, including triggering event and dates when problems were discovered and modifications occurred.

8.3 Annual Reporting Requirements

In accordance with Section 7.2 of the MSGP, the SWPPP Team Leader will submit an annual report to the EPA which includes the findings from the comprehensive site inspection and any corrective action documentation. If corrective action is required but not completed at the time of submission of this annual report, the report will describe the status of any outstanding corrective action(s). In addition, the annual report must include the following information:

- Facility name
- NPDES permit tracking number
- Facility physical address
- Contact person name, title, and phone number

EPA strongly recommends that this report is submitted using the Annual Reporting Form provided in the permit as MSGP Appendix I. The annual report must be submitted to the EPA to the address listed in permit Section 7.6.1 within 45 days (postmark date) after conducting the comprehensive site inspection. Details about submitting this form will be provided in the permit language.

The current EPA Region 3 contact for Stormwater in DC is Kaitlyn Bendik, bendik.kaitlyn@epa.gov, DC Storm Water Permits, Nonpoint Source for DC, 215-814-5735.

Updated EPA Region 3 contacts may be found on the following site:
http://www.epa.gov/reg3wapd/npdes/contacts.htm#DCR050000

Appendices

Appendix A. SWPPP Team Member Roster

Team Leader

Title:	Natural Resource Management Specialist
Name:	Ken Ferebee
Office Phone:	202-895-6221
Responsibilities:	Environmental Management Team Leader. Inspection, Training, and Reporting

Team Members

Title:	Chief, Resources Management
Name:	Nick Bartolomeo
Office Phone:	202-895-6010
Responsibilities:	Management Oversight

Title:	Chief, Maintenance
Name:	Don Kirk
Office Phone:	202-895-6011
Responsibilities:	Management Oversight

Title:	Natural Resource Management Specialist
Name:	Joe Kish
Office Phone:	202-895-6079
Responsibilities:	Inspection and Training Oversight

Title:	Natural Resource Management Specialist
Name:	Bill Yeaman
Office Phone:	202-895-6074
Responsibilities:	Stormwater Sampling, Training

Last updated: January, 2014

Appendix B. Annual Comprehensive Site Compliance Completion Form

Photocopy this document and complete to validate that annual inspections are being performed.

Instructions: The Annual Comprehensive Site Compliance Evaluation must be conducted by members of the SWPPP, who are familiar with the activities of the ROCR Maintenance Facility and the SWPPP, including the BMPs identified in the SWPPP. They must assess conditions at the ROCR Maintenance Facility that could impact stormwater quality and assess the effectiveness of the BMPs chosen to be implemented. Evaluations must include: all BMPs identified in this SWPPP to ensure they are functioning correctly; a visual inspection of areas where materials or activities are exposed to stormwater as identified in the SWPPP; areas where major spills and leaks have occurred within the past three years; and discharge locations or points from ROCR property. Results of visual evaluations conducted during the year must be taken into consideration during the evaluation.

During the review the evaluator should ask:

1.	Is the area free of debris or residue that could be washed away by stormwater? If No, what are those materials and where did they come from?	Yes	No
2.	Are all pollution sources identified in the SWPPP? If No, what additional areas should be included in the SWPPP?	Yes	No
3.	Are the BMPs identified and implemented in the SWPPP sufficient and effective? If No, why and what changes should be made?	Yes	No
4.	Are all BMPs identified and implemented in the SWPPP sufficient to prevent or minimize polluted stormwater discharge? If No, what additional BMPs should be identified and implemented?	Yes	No
5.	Were past quarterly visual evaluation records reviewed as part of this Annual Comprehensive Site Compliance Evaluation?	Yes	No
6.	If a major leak or spill of hazardous materials occurred in the past three years, was the area evaluated for the potential for future spills and leaks?	Yes N/A	No

Once the evaluation has been completed, the results should be shared with the entire SWPPP Team, and the SWPPP and training schedule should be updated as necessary.

The ROCR Maintenance Complex is in compliance with this SWPPP and with the permit issued by the Region 3 EPA.

Name: _____ Date: _____

Signature: _____

Appendix C. Quarterly Inspection

Photocopy this document and complete to validate that quarterly routine site inspections are being performed.

SWPPP Implementation

Quarterly routine site inspections are required for all potential pollutant discharge and exposure areas specified in this SWPPP. The goal of these inspections is to make sure that the BMPs identified in the SWPPP are being implemented and are effective in minimizing or reducing the threat of pollutant discharge. Deficiencies in the implementation of the SWPPP must be corrected within two weeks. These records must be maintained with the SWPPP and must be kept for at least three years from the date of the inspection.

Instructions: Complete the log below to track the completion of quarterly inspections. If any deficiencies are identified please explain on a separate page then document and attach the follow-up procedures.

Date: _____

Time: _____

1.	Are all potential sources of stormwater contamination addressed in this plan?	Yes	No
2.	Are the grounds clear of spills and leaks?	Yes	No
3.	Are the grounds free of debris such as solid waste, trash and litter?	Yes	No
4.	Is the ground below vehicles and equipment free of oil that has leaked from above?	Yes	No
5.	Are vehicles and equipment that is stored for extended periods of time drained of fluids, or are absorbent rags or tubs placed below that equipment and regularly maintained?	Yes	No
6.	Are all containers of hazardous materials stored inside?	Yes	No
7.	Are universal wastes covered and stored in secondary containment?	Yes	No
8.	Is the area around the salt storage facility free of excess salt? Has salt been swept back into the salt storage facility as appropriate?	Yes	No
9.	Are dumpsters and trash barrels present in sufficient quantity to contain all the bags of solid waste?	Yes	No
10.	Has any evidence of spills or leakage been reported or cleaned since the last quarterly inspection?	No	Yes
11.	Are vehicles washed at an off-site carwash or into a wash rack?	Yes	No
12.	Have new employees been trained on the SWPPP within 60 days of their start date?	Yes	No
13.	Have measures to address erosion been maintained? Do the measures used to address erosion appear effective?	Yes	No
14.	Are the quarterly visual assessments up to date?	Yes	No

Inspector's Name: _____

Signature: _____

Inspection Date: _____

Quarterly Visual Assessment

Once each quarter, a park staff member must collect a stormwater sample from each outfall and conduct a visual assessment of the sample.

The sampling must be performed during a storm event that results in an actual discharge from the outfall ("measurable storm event") and which follows the preceding measurable storm event by at least 72 hours (3 days). Samples must be collected within the first 30 minutes of the storm. If it is not possible to collect the sample within the first 30 minutes, the sample must be collected as soon as practicable and documentation must be kept with the SWPPP explaining why it was not possible to take samples within the first 30 minutes.

The visual assessment must be made of a sample in a clean, clear glass, or plastic container, and examined in a well-lit area. You must visually inspect the sample for the following water quality characteristics: color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and any other indicator of stormwater pollution.

After the assessment is made, please describe any sources of observed stormwater contamination. And, if applicable, why it was not possible to take samples within the first 30 minutes?

Date: _____

Time: _____

Weather: _____

Location A: _____

Location B: _____

Location C: _____

Nature of Discharge: Runoff Snowmelt

		Loc A	Loc B	Loc C
The sample is free of any color.	Color			
The sample has no unusual odor.	Odor			
The sample is clear.	Clarity			
The sample is free of floating solids.	Float			
The sample is free of settled solids.	Settled			
The sample is free of suspended solids.	Suspended			
There is no foam on the water.	Foam			
There is no oil sheen on the water.	Sheen			
There is not any other indicator of stormwater pollution.	Other			

Inspector's Name: _____

Signature: _____

Appendix D. Annual Employee Training Recordkeeping Form

Use this or a similar form to track attendance of annual employee SWPPP training.

Description and scope of training:

_____
_____
_____
_____

Date	Employee's Name	Employee's Signature

Appendix E. Engineered Drawings and Specifications of Stormwater Control Devices

See following pages.

Installed at maintenance yard

filterra™
A Growing Idea in Stormwater Filtration

Filterra™ Stormwater Bioretention Filtration System

Features and Benefits

Best Value. The most cost effective stormwater treatment system available with relatively low costs for materials, installation and long-term maintenance.

Regulatory Compliance. University of Virginia testing proved Filterra™ meets or exceeds federal and state regulatory requirements for pollutant removal.

Aesthetics. Landscaping enhances appearance, habitat and pollutant removal.

Maintenance Support. Unlike competitive systems, a standard two-year maintenance agreement is built into the unit price.

Versatility. May be used for new construction or as an urban retrofit device.

- **Streetscapes**
- **Parking lots**
- **Highways**
- **Industrial settings**
- **Urban settings**
- **Roof drains**
- **Combined Sewer Overflows (CSO)**

Design Support. Americast engineers can assist your design team with all aspects of each Filterra™ application, including flora selection and sizing.*

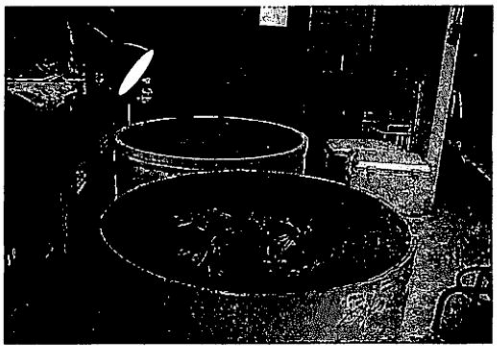
Adaptability. May be used alone or in combination with other BMPs.

Selection. Varying configurations to meet both standard and unique site conditions.*

*For more details, see Sizing Made Easy worksheet.

A Highly Effective Stormwater Treatment System

Filterra™ is well-suited for the ultra-urban environment with high removal efficiency for many toxic substances such as petroleum and heavy metals.



The Filterra™ system meets or exceeds federal and state regulatory guidelines for pollutant removal efficiencies of Total Suspended Solids (TSS), Phosphorus and Nitrogen.

Expected Pollutant Removal

(6' x 6' filter for 1/4 acre impervious drainage area)

Annual Volume Percent Filtered = 90%
TP Removal = 74%
TN Removal = 68%
TSS Removal = 85%
Metal Removal = 82%

Information on the pollutant removal efficiency of the filter soil/plant media is based on a two-year research study performed by Dr. Shaw Yu at the Civil Engineering Department at the University of Virginia.

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Phone: (804) 798-6068 • Toll Free: (800) 999-CAST (2278) • Fax: (804) 798-3426
www.americastusa.com • filterra@americastusa.com

U.S. Patent 6,277,274 • Other patents pending

Sizing Made Easy

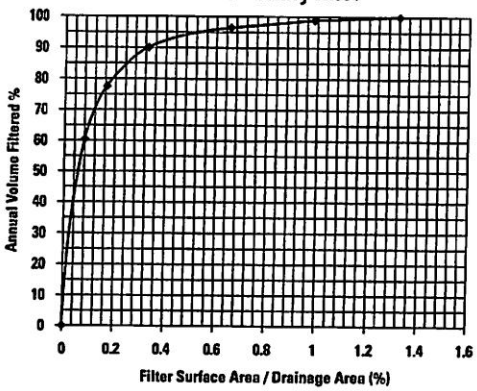
Filterra™ sizing is easy. Since the filter flow rate is known, the annual volume of runoff treated can be calculated based on the relationship of filter surface area to drainage area to rainfall intensity. The chart below shows the relationship between filter surface area to drainage area to annual volume treated.

The target annual volume treated for Filterra™ is 90%. Based on this target, a 36-square-foot filter will treat 1/4 acre of impervious surface and is the basic recommended size for Filterra™. Follow the procedure below to calculate the filter area needed for a site.

filterra™
A Growing Idea in Stormwater Filtration.

Filterra™ Stormwater Bioretention Filtration System

Filterra™ Sizing Chart



Sizing Procedure

Based on the recommended target of 90% annual volume treated, the filter surface area (FSA) to drainage area (DA) ratio is approximately 0.33% (according to the Sizing Chart above). To calculate the surface area of Filterra™ needed for a site, simply use the following formula:

$$\frac{(\text{FSA/DA }\%)(\text{DA ac.})(43{,}560 \text{ sq. ft.})}{100}$$

Example

Annual rainfall treated = 90%
FSA/DA (from chart) = 0.33%
Proposed site impervious drainage area = 1.0

$$\frac{(.33)\,(1.0)\,(43{,}560)}{100} = 143.7 \text{ sq. ft.}$$

The formula yields a necessary Filterra™ surface area of 143.7 sq. ft. to treat 1.0 acres of impervious surface. This equates to four 6' x 6' Filterra™ boxes. In general, it is recommended that one 6' x 6' Filterra™ box be used for every 1/4 acre of impervious surface. For example, a residential street 28' wide with a center crown would require only one 6' x 6' Filterra™ box every 700' on each side of the street. Treating over 95% of the annual volume would require a surface area of 9' x 12' every 700 feet. Once the ratio of filter surface area to drainage area reaches 1.0%, very little additional pollutant removal benefits may be gained.

Determining Annual Pollutant Removal

Simply multiply the percent annual volume treated (90% for a 6' x 6' filter box) by the maximum pollutant removal percentage for each pollutant from the table below. Removals are based on University of Virginia (UVA) monitoring.

Maximum Pollutant Removal (from UVA Testing)	
Pollutant	**Removal (%)**
Total Suspended Solids (TSS)	95
Total Phosphorous	82
Total Nitrogen	76
Metals such as Copper	91

Example

Annual volume treated = 90%
Maximum TSS Removal = 95% (from table above)
Annual Removal = (0.90) (0.95) = 85%

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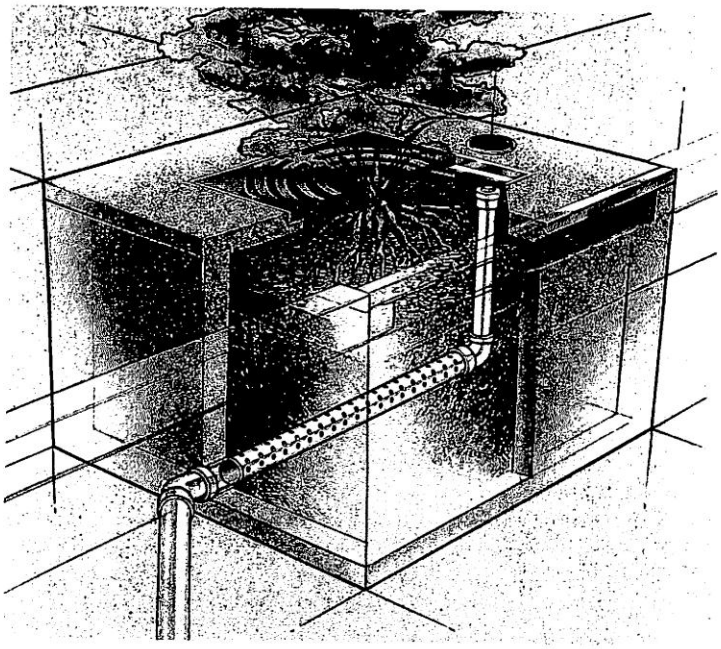
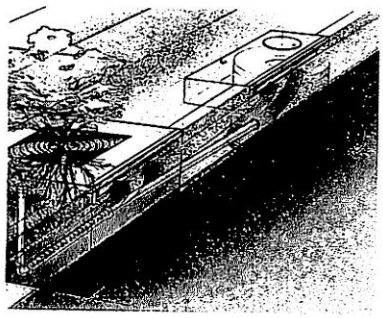
www.americastusa.com • filterra@americastusa.com



The Filterra™ Stormwater Bioretention Filtration System harnesses the power of nature to capture and immobilize pollutants to treat urban runoff. Trees, grasses and shrubs do more than make it attractive. They also enhance pollutant removal.

An Attractive Alternative to Conventional Systems

A combination of aesthetics, science and engineering makes Filterra™ such an appealing option. Above ground, the system's shrubs, grasses or trees add beauty and value to the urban landscape. Underground, nature's complex physical, chemical and biological processes are hard at work removing a wide range of nonpoint source pollutants from urban stormwater runoff. Stormwater flows through a specially designed filter media mixture contained in a landscaped concrete container. The mixture immobilizes pollutants; those pollutants are then decomposed, volatilized and incorporated into the biomass of the Filterra™ system's micro/macro fauna and flora. Stormwater runoff flows through the media and into an underdrain system at the bottom of the container, where the treated water is discharged. Higher flows bypass Filterra™ via a downstream inlet structure.



Filterra™ is optimized for high volume/flow treatment and high pollutant removal.

An Effective and Economical Technology

Filterra™ is similar in concept to bioretention in its function and applications, with the major distinction that Filterra™ has been optimized for high volume/flow treatment and high pollutant removal. It takes up little space and may be used on highly developed sites such as landscaped areas, green space, parking lots and streetscapes. Filterra™ is exceedingly adaptable and may be used for all developments and in all soil conditions.

An Easy-Maintenance System

While the technology behind Filterra™ is complex, installation and maintenance are not. A flexible, single-unit design featuring drop-in-place construction makes Filterra™ easy to install. Unlike competitive systems, a standard two-year maintenance agreement is included with the purchase of every unit. Maintenance records are kept by Americast and are updated when maintenance is performed. Finally, unlike most stormwater filtration systems, Filterra™ is easy and safe to inspect.

While the technology behind the Filterra™ Stormwater Bioretention Filtration System is complex, installation is not. Drop-in-place construction makes the single-unit system easy to install. What's more, Americast engineers can assist your design team in planning the system and provide on-site installation support.

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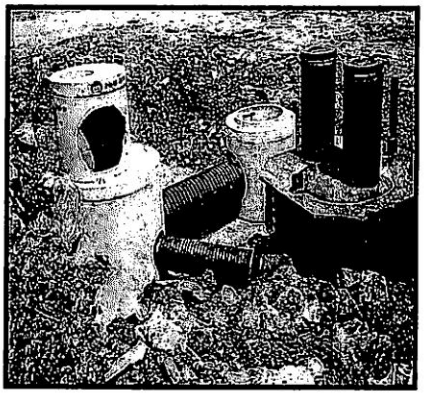
U.S. Patent #6,277,
Other patents pend

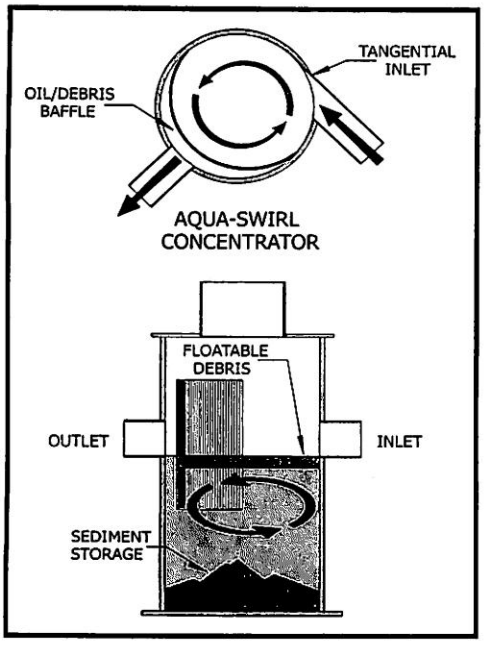
Aqua-Swirl™ Concentrator Stormwater Treatment System

The *Aqua-Swirl™ Concentrator* provides a highly effective means for the removal of sediment and free-floating oil and debris from the "First Flush". Swirl technology is a proven form of treatment utilized throughout the stormwater and wastewater industry.

Typically, the *Aqua-Swirl™ Concentrator* is installed in an "off-line" configuration which directs the "first flush" (i.e. 25% of the peak design storm) to the hydrodynamic separator for treatment. This allows approximately 90% – 95% of the annual runoff volume to be treated by the *Aqua-Swirl™ Concentrator*. Larger, less frequent storm events are routed past the treatment chamber, thereby reducing turbulence within the system and eliminating the possibility of re-suspension of previously captured pollutants.



Aqua-Swirl™ Concentrator System Operation:

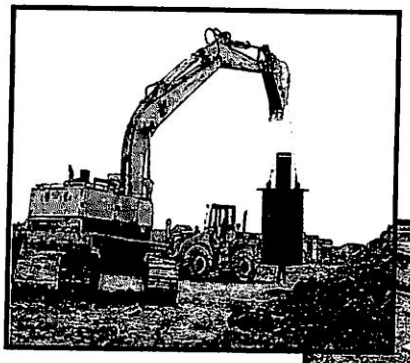


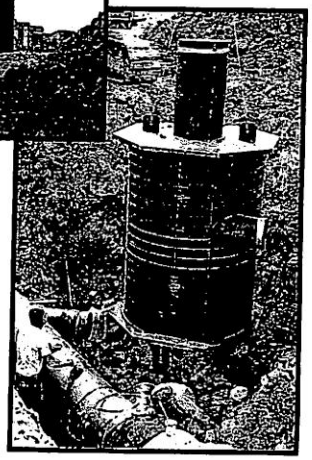
Stormwater enters the Swirl Concentrator™ by means of a tangential inlet pipe which induces a circular flow pattern. A combination of gravitational and hydrodynamic drag forces encourage the solids to drop out of the flow and migrate to the center of the chamber were velocities are at their lowest. The subsequent velocity gradient that has been created by the swirling action prevents solids from re-suspending, even under high flow conditions.

The treated flow exits the Swirl Concentrator™ behind an arced baffle. The bottom of the baffle extends below the invert of the flow-through pipe thereby capturing

free-floating oil and debris. The top of the baffle extends above the calculated high water elevation, exposing it to atmospheric conditions. This prevents a siphoning effect at the outlet and also serves as an emergency overflow feature.

The *Aqua-Swirl™ Concentrator* is fabricated using durable High-Density Polyethylene (HDPE) materials, which guarantees long system life. Unlike other stormwater treatment systems that are fabricated in concrete, the *Aqua-Swirl™* system is lightweight and can be off-loaded without the need for special lifting equipment (no crane is required), allowing for easy on-site handling and installation. All connections are normally joined by heat fusion, producing full restrained joints with zero leakage. All workmanship is handled by AquaShield, Inc. to ensure consistent quality of our systems.





The *Aqua-Swirl™* has been designed to minimize and simplify the inspection/maintenance function. It is important that a routine inspection and maintenance program is established for each unit based on the volume or load of the contaminants of concern, the frequency of releases of contaminants at the facility or location, and the nature of the area being drained.

We recommend that for the first year of operation, semi-annual inspection of the swirl chamber be performed in order to develop an appropriate schedule of maintenance for the site. Typically, annual cleanout is required in colder climates where sediment loads tend to accumulate more rapidly due to aggressive sanding practices. In warmer climates, cleanout tends to be required less frequently.

Free-floating oil and floatable debris can be directly observed and accessed through the 28" manhole provided directly over the center of the swirl chamber. Cleanout of accumulated sediment only needs to be performed when the usable sediment storage volume has been occupied.

Cleanout of the Aqua-Swirl™ Concentrator is simple and can typically be preformed by a vactor truck. The system can be inspected and maintained completely from the surface to eliminate the need for confined space entry.

AquaShield Concentrator System Calculations (Project #00789)

Date: 11/18/03
Project Name: Rock Creek
Model: AS-3 Offline
City,State: Washington, D.C.

Calculated/Designed by:

Larry Zeigler
CAD & Design Engineer
AquaShield, Inc.

Note: Elevations shown are in feet;
Inch dimensions are shown as noted,
see drawing for more details.

Rim Elevation:305.00

Swirl Inlet/Outlet:294.33

Height of Swirl (inches):104

Bottom Swirl Elevation= 288.66

Top Swirl Elevation= 297.327

Swirl Riser (inches)= 92.08

ORIGINAL
WWW.AQUASHIELDINC.COM
☎ 8883449044
SHOP DRAWING COMPLETED
REVIEWED (11/18/03)
Larry Zeigler

Installed in lawn next to entrance to maintenance courtyard

Page 1

Aqua-Swirl™ Concentrator Stormwater Treatment System

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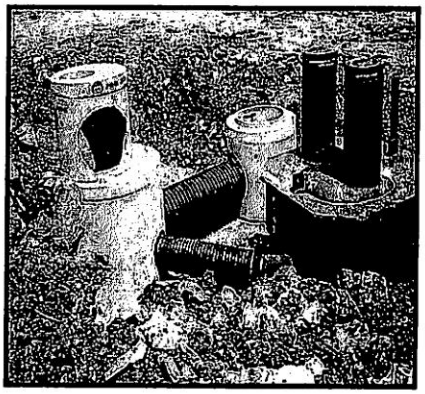
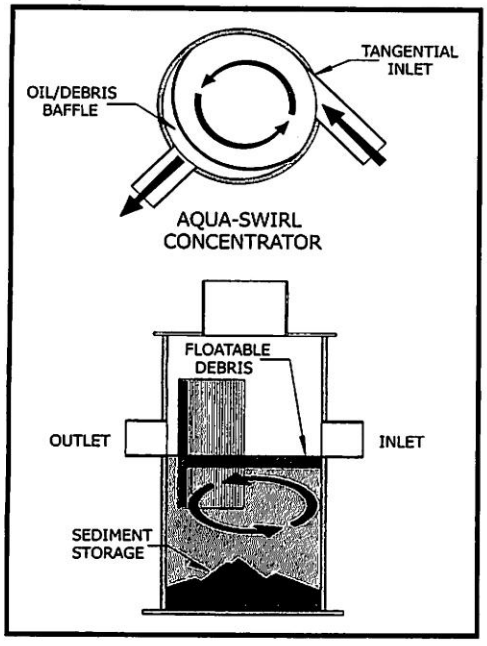


Aqua-Swirl™ Concentrator System Operation:



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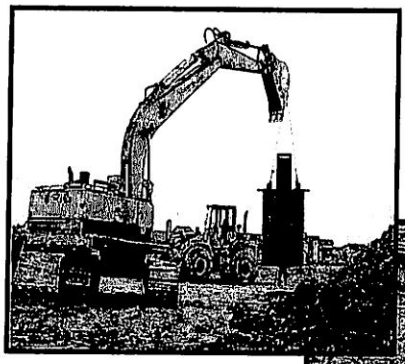

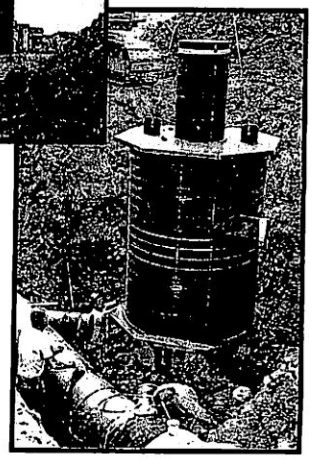

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Minimum Standard 3.11C
Filterra™ Bioretention Filter System
(revised 11/01/02)

Definition

The Filterra™ treatment system is a manufactured bioretention stormwater best management practice (BMP) that filters stormwater runoff from impervious surfaces (roadways, parking lots and roof tops). The Filterra™ treatment system consists of a concrete container filled with an engineered soil filter media, a mulch layer, an under-drain system and a tree, shrub or other plant selection. This filtration system can be integrated into the site design of both new development and redeveloped projects. Runoff drains directly from the impervious surface, through the filter media, and then out of the container through the under drain system to be discharged to a receiving system or infiltrated into the surrounding soil.

Purpose

Filterra™ is designed to be a water quality filter device to remove a wide range of nonpoint source pollutants from urban runoff in the same manner as bioretention practices (refer to **Minimum Standard 3.11: Bioretenion Practices**). Pollutants are efficiently removed by a complex combination of physical, chemical and biological processes within the mulch, soil particles, microorganisms, and the plant materials.

Filterra™ can serve as a water quality BMP in areas where discharge of stormwater runoff into the sub-soils is not desired (e.g., gas stations and karst soils). An under drain system is used to convey filtered runoff to an adjacent drainage system. Where soils are permeable and ground water recharge is desirable Filterra™ can be designed to infiltrate highly treated water into the subsurface. It can be used as a filter only or as a combination filter and infiltration device. Filterra™ is generally not used for attenuation of large volumes of runoff for stream channel erosion control and flood control purposes. However, some degree of volume / flow reduction can be achieved by combining this filter system with an adjacent under ground storage / detention system (gravel trench or pipes). Such a combined system may be useful for urban retrofit projects to address problems associated with combined sewer overflows or for stream protection.

Conditions where Practice Applies

Filterra™ takes up little space (surface area or depth) and can be used in any type of urban or suburban commercial, industrial or residential development. Filterra™ is a suitable device for urban retrofit due to its flexible design, sizing criteria and concrete container and easy drop in place construction, it can be installed within the green space or streetscapes of redevelopment projects. Filterra™ can be modified to fit any curb line as a drop inlet along roadways, parking lots, or pedestrian plaza areas, **See Figure 1.** An adjacent drainage conveyance system is necessary in order to connect the under-drain system, and accept large storm bypass flows.

Figure 1. Filterra™ Urban Streetscape Design

It is designed to be used where runoff is likely to contain high concentrations of urban pollutants such as heavy metals, oil, and organics (such as gas stations, maintenance facilities and roadways). The system can be used alone or in combination with other BMP's. When used alone, pretreatment is not necessary as the system is designed to operate effectively without clogging from typical urban runoff concentrations of sediment and other particulate matter. The nature of the surface mulch and engineered filter media is such that particles become entrained into the mulch / filter media itself without clogging at the surface. The plant root system also keeps the soil open and free from clogging. As long as the

manufacturer's operating and maintenance procedures are followed the filter device is projected to work for 20 years or more without replacement of the filter media or plant material.

Planning Considerations

Site Conditions

The enclosed non-permeable concrete container makes Filterra™ suitable for situations where infiltration is undesirable or not possible. These situations would include: karst topography, high groundwater conditions, close proximity to buildings, steep slopes, contaminated soils, brownfields sites, highly contaminated runoff or where chemical or oil spills are likely (maintenance facilities, industrial and gas stations). For "hot spots" where chemical spills are likely, the system can be fitted with a valve to quickly close the discharge drain pipe isolating the spill in the concrete container and filter media for easy clean-up, removal and replacement.

Where Filterra™ is being used to provide a combination of filtration and infiltration into the adjacent soils, planning considerations should include unique site conditions such as soil permeability, seasonal high groundwater table, depth to bedrock, karst topography, etc. Soil permeability will determine the degree to which it can be used as an infiltration device. For further discussion on planning considerations for infiltration practices, refer to the planning considerations described in the **General Infiltration Practices, Minimum Standard3.10, and Bioretention Basin Practices, Minimum Standard 3.11.**

Developed Conditions

Filterra™ is highly adaptable and can be used for most developments. Since the filter is contained in a concrete box it can be built in and around roadways sidewalks buildings and parking lots. It can be installed on many slope conditions typical of parking lots and roadways. In highly urban areas it is possible to use it in the design of an entire streetscape converting the typical non-functional streetscape into one large vegetated filter treatment device.

Location Guidelines

Filterra™ is best incorporated into the overall site, or streetscape or parking lot landscaping plan. The individual box locations represent a combination of drainage considerations (based on final grades and water quality requirements), desired aesthetics, and minimum landscaping requirements, and must be coordinated with the design of the drainage infrastructure.

Aesthetic Considerations

Aesthetic considerations must be evaluated early in the site planning process. While topography and hydraulic considerations may dictate the general placement of each structure, overall aesthetics of the site should be integrated into the site plan and stormwater concept plan from their inception. Both the stormwater engineer and the Landscape Architect must participate during the layout of facilities and infrastructure to be placed on the site.

Sediment Control

Similar to bioretention basins and sand filters, Filterra™ if installed prior to full site stabilization and without proper inlet protection will become choked with sediment from upland construction operations, rendering it inoperable from the outset. Simply providing inlet protection or some other filtering mechanism during construction will not adequately control the sediment. One large storm may completely clog the soil media, requiring immediate maintenance.

Filterra™ should be installed AFTER the site work is complete and stabilization measures have been implemented. (External and adjacent drainage and conveyance systems are typically built along with the site utilities and other infrastructure, and later connected to the boxes when installed. If this is not possible, strict implementation of E&S protective measures must be installed and maintained in order to protect the filter media from premature clogging and failure.

Sizing Guidelines

In general, bioretention has proven successful in part because of the relatively small surface area, low construction costs and ease of maintenance. Filterra™ provides these same benefits.

The current **Minimum Standard 3.11: Bioretention Practices** establishes a target ratio of bioretention surface area to contributing impervious area of 2.5%. The manufacturer of Filterra™ in cooperation with the University of Virginia has conducted research to optimize the flow / pollutant removal characteristics of the filter media to significantly reduce this ratio. The patented filter media has both high flow rates and high pollutant removal capabilities. To establish the sizing criteria the manufacturer has examined the rainfall distribution and frequency ~~data from the mid-Atlantic region to size the filter surface area to treat 90% of the~~ total annual rainfall volume. Pollutant removal data was also related to the filter surface area and drainage area relationships. The optimum filter surface area to drainage area ratio is 0.33%. For example, the required minimum size filter for ¼ acre of impervious surface would be 36 square feet of filter surface area or one 6 ft. by 6 ft. filter box.

GENERAL NOTES:

1. System shall be designed for the following capacities:
Peak Treatment Flow: 1.8 cfs
Sediment Storage: 20 ft³
Oil/Debris Storage: 110 gal.

2. Manufacturer shall be responsible for complete assembly of Swirl Concentrator.

3. Swirl Concentrator shall be fabricated from high-density polyethylene (HDPE) ASTM F 714 cell class 345464C per ASTM D 3350.

4. HDPE stub outs and internal components shall be extrusion welded using accepted welding practices. Stub outs shall be supplied by Manufacturer and welded on inside and outside.

5. Manufacturer shall supply direct access to Swirl Concentrator via 28-inch OD riser, which can be field cut to match finished grade by Contractor.

6. Contractor shall supply pipe couplings to and from Swirl Concentrator, which shall be Fernco or Mission style neoprene boot with stainless steel tension bands and shear guard.

7. Contractor shall prepare excavation and off-load Swirl Concentrator. Contractor is responsible for bedding and backfill around Swirl Concentrator as detailed on site plan. (see notes 11 and 12)

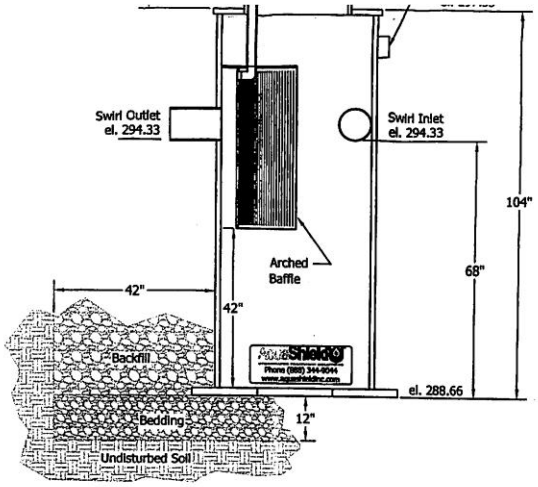
8. Manufacturer shall supply standard manhole frame and cover. (Traffic rated H20)

9. Where traffic loading (H-20) is required or anticipated, a reinforced concrete pad must be placed over the entire Swirl Concentrator per concrete design as calculated by Engineer. Sample of typical concrete design detail is available upon request.

10. Bollards shall be placed around access risers in non-traffic areas to prevent inadvertent loading by maintenance vehicles. Sample of typical bollard installation detail and recommended locations of bollards around the Swirl Concentrator can be provided upon request.

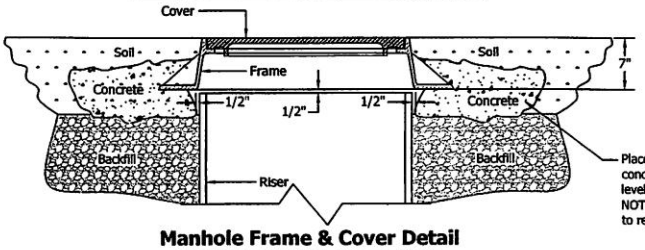
11. Excavation and Bedding - The trench and trench bottom shall be constructed in accordance with ASTM D-2321, Section 6, Trench Excavation, and Section 7, Installation. The HDPE Swirl Concentrator shall be installed on a stable base consisting of 12-inches of Class I stone materials (angular, crushed stone or rock, crushed gravel; large void content, contains little or no fines) as defined by ASTM D2321, Section 5, Materials, and compacted to 95% proctor density. All required safety precautions for Swirl Concentrator installation are the *responsibility of the Contractor.*

12. Backfill Requirements - Backfill materials shall be Class I or II stone materials, (well graded gravels, gravely sands; contains little or no fines) as defined by ASTM D2321, Section 5, Materials, and compacted to 90% proctor density. Class I materials are preferred. Backfill and bedding materials shall be free of debris. Backfilling shall conform to ASTM 1759, Section 4.2, "Design Assumptions". Backfill shall extend at least 3.5 feet outward from Swirl Concentrator and for the full height of the Swirl Concentrator (including riser) extending laterally to undisturbed soils.



Section A-A

Bollards shall be placed around access riser(s) in non-traffic areas to prevent inadvertent loading by maintenance vehicles.



Place small amount of concrete to support and level manhole frame. DO NOT allow manhole frame to rest upon HDPE riser.

Manhole Frame & Cover Detail
For Non-Traffic Areas Only
NTS

ORIGINAL

www.AQUASHIELDINC.com ☎ 8883449044
SHOP DRAWING COMPLETED
REVIEWED (11/18/03)
Larry Zeigler

AquaShield STORMWATER TREATMENT SOLUTIONS 2733 Kanasita Drive, Suite A, Chattanooga, TN 37343 Phone (888) 344-9044 Fax (423) 870-1005 www.aquashieldinc.com	Aqua-Swirl Concentrator Model AS-3 Off-Line Rock Creek Park Washington, DC - Project #00789	Document:	AS-3 SHOP	Rvwed	Rvw. Date	Rev. Date	Description of Revision
		Drawn By:	LZJ	LZJ	11/18/03		
		Scale:	1:30				
		Date:	11/18/03				
		Patent Pending					

Technical Bulletin 6 **Minimum Standard 3.11C**

The pollutant removal rates for Filterra™ also vary as a function of the filter surface area to drainage area. At the minimum 0.33% ratio filtering 90% of the annual runoff the expected pollutant removal rates are shown below. It is not recommended that a ratio of less than 0.33% be used.

Expected Pollutant Removal (@ 0.33% filter surface area / drainage area)
Total Suspended Solids Removal = 85%
Total Phosphorous Removal = 74%
Total Nitrogen Removal = 68%
Total Metal Removal = 82%

Higher pollutant removal rates are possible by increasing the ratio of filter surface area to drainage area. See the manufactures detailed calculations for sizing and pollutant removal on their web site at: http://www.americastusa.com/filterra.html. Local jurisdictions may want to consider achieving the highest pollutant removals possible to protect water supplies (surface and ground water) or sensitive water bodies and streams. This may be achieved with Filterra™ by increasing the filter surface area to drainage area ratio.

However it is well documented that the pollutant removal efficiency of a filter device varies with the concentration of pollutants in the inflow (the higher the pollutant levels are in the inflow the higher the pollutant removal rates will be). In order to account for this variability in efficiency, the maximum allowable pollutant removal rates for Filterra™ are as follows:

Maximum Pollutant Removal Rates
Total Suspended Solids Removal = 90%
Total Phosphorous Removal = 80%
Total Nitrogen Removal = 65%
Total Metals Removal = 85%

The above guidance on calculating pollutant removal is based on review of the manufacturer's laboratory data and the best available existing body of data on bioretention systems. However, these removal rates are subject to continuing review, and evaluation of future monitoring data. These pollutant removal rates may be modified on a periodic basis by DCR as determined by ongoing field testing and future improvements to the Filterra™ system.*

TB6-5

Design Criteria

General

The design of Filterra™ shall be in accordance with manufacturers specifications. The designer is not only responsible for selecting the appropriate components for the particular design but also for ensuring long-term operation.

Soils Investigation

When infiltration into the surrounding subsoil is desired, refer to the **Planning Considerations and Design Criteria of General Infiltration Practices, MS-3.10**, and to local jurisdiction soil study requirements such as **Chapter 5, Section V. of the *Northern Virginia BMP Handbook***. A minimum of one soil boring log should be required for each structure where infiltration is considered.

Sizing Methodology

The designer must verify that Filterra™ has been sized and installed in accordance with the manufacturer's specifications. The distribution and sizing of the system of filters should be in accordance with the manufacturer's recommendations to achieve the most cost-effective treatment practicable while satisfying the performance-based or technology-based water quality criteria. Typical development / redevelopment streetscape or parking lot design will use a minimum of one 6'x6' filter box in an off-line configuration for every ¼of drainage area, or a combination of boxes so as to maintain a 0.33% ratio of filter surface area to drainage area.

When designing the system, consideration must be given for overflows during major storm events. Once the filter flow capacity is exceeded a backflow condition develops forcing runoff to by-pass the filter. Overflows should be diverted to a safe conveyance device (inlet, swale or green space).

Pretreatment

Pretreatment is generally not necessary as the filter's media, mulch and plant root system is designed to operate without clogging under normal conditions. Routine annual inspection and maintenance will ensure that the filter will operate for at least 20 years. Normal conditions mean a stabilized drainage area with typical concentrations of sediment and other urban pollutants. Follow the manufacturer's recommendations for unusual site conditions where high pollutant loads are expected. If it is installed when there is active construction within the

drainage area the opening to the filter should be blocked off. Follow the manufacturer's recommendations on protection of the filter box and media during construction activities.

Observation Well and Clean-out

Filterra™ is typically delivered to the site completely assembled or assembled by the manufacturer at the site. The system comes with an observation well installed that can also be used as a clean out to remove any blockages in the under drain piping.

Plant Materials

The plant materials used for Filterra™ should follow the manufacturer's recommendations. Generally, the manufacturer will provide and install the filter material and plants. The system can use typical readily available landscape plant materials. It is designed to use upland plants not wetland plants. Filterra™ provides a hydrologic regime where wetland plants will not survive and should not be used. The plants used for bioretention will also work for Filterra™. **See Minimum Standard 3.11a Bioretention Basin Practices.** One of the advantages of this system is that it uses commonly available nursery stock plant materials so the end user can select from a wide range of plants to also achieve aesthetic and habitat values. The types of plants used will also determine the depth and design of the concrete container. The standard 6' x 6' box is designed to accommodate a typical shrub, herbaceous material or a very small tree. If a standard street tree is used, the filter box must be larger to accommodate the larger root system, prevent wind throw and to ensure adequate filter surface area as the tree matures. A 9' x 12' box would be the minimum size needed for most street trees. In some cases the manufacturer may recommend a customized box size and configuration to accommodate special plant requirements, unique site conditions, water quality protection goals and ensure adequate performance.

It is not recommended that one filter be used to treat very large volumes of runoff from a large drainage area. Runoff should not be detained and stored in a holding tank to be metered out to the filter media over a long period of time. Exposing the soil, microbes and plants to prolonged and frequent flooding and wet conditions will significantly change the hydrologic regime reducing the effectiveness of the media to capture pollutants and the microbe's / plant's ability to cycle nutrients, break down organics and uptake heavy metals. Therefore, continuous or frequent flows (such as basement sump pump discharges, cooling water, condensate water, artesian wells, etc.) MUST BE EXCLUDED from routing through the system. If the filter media remains water logged for 3 or 4 days anaerobic conditions will develop dropping both oxygen and pH levels which may kill desirable soil microbes and the plants. Filterra™ is an upland system that must periodically dry out to maintain aerobic conditions to ensure the

productivity and vigor of the microbes and plants. The unique filtering system approach of designing for small drainage areas and distributing the filters uniformly throughout the site ensures that the filter drains properly in about one hour to maintain aerobic conditions and enable the filter to be ready to accept the next rain storm event in just a few hours. Follow the manufacturer's recommendations on sizing and distribution of the filter boxes as deviations from the manufacturer's specifications may void any manufacturer's warranty and significantly reduce the ability of the filter to perform properly.

Construction Specifications

Accepted construction standards and specifications should be followed where applicable. Specifications and the work should conform to methods and procedures applicable to the installation of a prefabricated concrete box such as an inlet or other type container structure. The construction specification of the concrete container or use of an alternative material for the container should comply with the recommendations of the manufacturer and all applicable standards by the local or state approval authority.

Sequence of Construction

Filterra™ can be constructed and installed at any convenient time during the construction of the site or after the installation of the site's infrastructure as a "drop in place" devise. However, it should not be placed in service until the contributing drainage area has been stabilized. If the device is installed during the construction of the site's infrastructure, the inlet opening must be protected from sediment. Follow the manufacturer's recommendations on sediment / erosion protection.

The specification for the construction of the system should state the following: 1) the earliest point at which the runoff can be safely directed to the device and 2) the means by which this "delay in usage" is to be accomplished. When the device is made operational will depend on a variety of unique site conditions and should be evaluated and determined on those conditions.

Excavation

When Filterra™ is to be used in conjunction with or as an infiltration device the preparation of the infiltration trench placement and type of stone used or filter fabric should conform to the **Construction Specifications of on Infiltration Trenches: Minimum Standard 3.10B.** Placement of the filter box should be on an acceptable base (gravel, sand or compacted soil) to prevent the device from settling. The filter container should be backfilled and compacted in the same

manner as any precast concrete structure. The under drain leaving the box and connecting to the receiving conveyance system should be appropriately supported to prevent deflection during backfilling operations and sealed at the connection points to prevent leakage.

Maintenance and Inspection Guidelines

The manufacturer provides for the inspection, care and maintenance of the Filterra™ device for the first two years. After this initial two year period, the owner / operator of the system should follow all of the manufacturer's maintenance and inspection guidelines. In general, annual routine inspection and maintenance activities required are of a similar nature to any landscaped area and would include removal of trash, debris and sediment, replenishment of the mulch, and care or replacement of plants. The plant material requires no special care or attention once it has acclimated. Annual maintenance and care of the plants in a 6'x6' FT may require using one bag of mulch, a hand full of all-purpose fertilizer (optional) and 20 minutes of time. Fertilization of the plants is optional since the system receives adequate nitrogen, organics and phosphorus from the runoff. During extreme droughts the plants may need to be watered in the same manner as any other landscape material. In the event of a chemical spill all of the soil and plants should be removed and properly disposed and replaced with new uncontaminated filter media and plants.

Manufacturer Contact:
Mr. Terry Siviter
Americast Inc.
Phone: 804 798 6068 / Web site: www.americastusa.com

AMERICAST

PHONE (804) 798-6068

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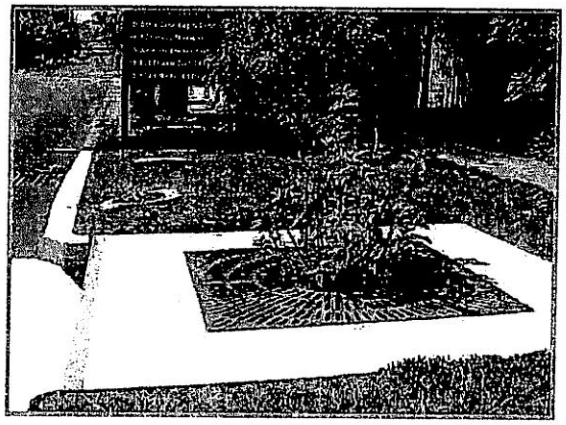
Stormwater Treatment

FILTERRA™ STORMWATER BIORETENTION FILTRATION SYSTEM

A Growing Idea in Stormwater Filtration



filterra™

A Growing Idea in Stormwater Filtration.

PRODUCT INFORMATION:

FLASH ANIMATION:

FILTERRA™ STORMWATER BIORETENTION FILTRATION SYSTEM

Download Flash Player

OTHER DOWNLOADS:

Download our Features and Benefits Sheet and the Sizing Made Easy Sheet (.pdf files)

Download our Sizing Excel Spreadsheet (.xls file)

The Filterra™ Stormwater Bioretention Filtration System harnesses the power of nature to capture and immobilize pollutants to treat urban runoff. Trees, grasses and shrubs do more than make it attractive. They also enhance pollutant removal.

An Attractive Alternative to Conventional Systems

A combination of aesthetics, science and engineering makes Filterra™ such an appealing option. Above ground, the system's shrubs, grasses or trees add beauty and value to the urban landscape. Underground, nature's complex physical, chemical and biological processes are hard at work removing a wide range of nonpoint source pollutants from urban stormwater runoff. Stormwater flows through a specially designed filter media mixture contained in a landscaped concrete container. The mixture immobilizes pollutants; those pollutants are then decomposed, volatilized and incorporated into the biomass of the Filterra™ system's micro/macro fauna and flora. Stormwater runoff flows through the media and into an underdrain system at the bottom of the container, where the treated water is discharged. Higher flows

bypass Filterra™ via a downstream inlet structure.

An Effective and Economical Technology

Filterra™ is similar in concept to bioretention in its function and applications, with the major distinction that Filterra™ has been optimized for high volume/flow treatment and high pollutant removal. It takes up little space and may be used on highly developed sites such as landscaped areas, green space, parking lots and streetscapes. Filterra™ is exceedingly adaptable and may be used for all developments and in all soil conditions.

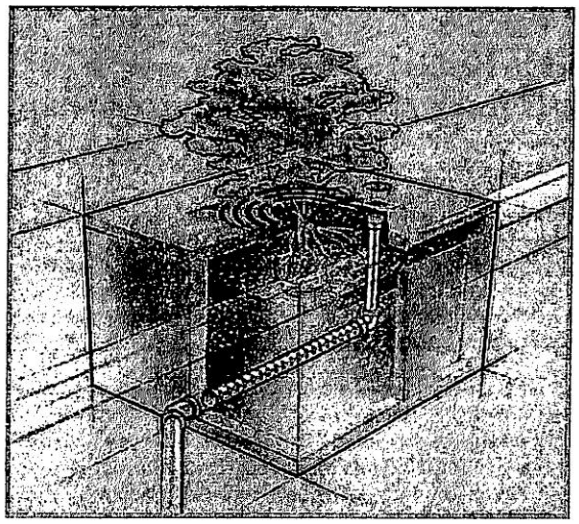
An Easy-Maintenance System

While the technology behind Filterra™ is complex, installation and maintenance are not. A flexible, single-unit design featuring drop-in-place construction makes Filterra™ easy to install. Unlike competitive systems, a standard two-year maintenance agreement is included with the purchase of every unit. Maintenance records are kept by Americast and are updated when maintenance is performed. Finally, unlike most stormwater filtration systems, Filterra™ is easy and safe to inspect. Filterra™ is optimized for high volume/flow treatment and high pollutant removal.

A Natural Solution for Stormwater Filtration

Today's emphasis on natural solutions to environmental issues makes the Filterra™ Stormwater Bioretention Filtration System an idea whose time has come. Filterra™ represents a major breakthrough in bioretention technology, harnessing the power of nature to capture and immobilize pollutants to treat urban runoff. In developing Filterra™, America's foremost expert on Low Impact Development and bioretention technologies created the most efficient — and cost effective — natural stormwater filtration system available.

See Filterra™ work (FLASH ANIMATION)



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Appendix F. The MSGP NOI

Attach a copy of the Notice of Intent.

This document will be filed when the MSGP application is submitted to EPA, see Appendix G.

Appendix G. MSGP Permits

The 2008 MSGP Permit

United States Environmental Protection Agency (EPA)
National Pollutant Discharge Elimination System (NPDES)
Multi-Sector General Permit for Stormwater Discharges
District of Columbia Permit Number: DCR050000

The 2013 MSGP Permit

Permit application will be submitted once EPA has notified permit holders that it is ready to accept applications for the 2013 MSGP Permit.

Note: The 2008 MSGP expired at midnight on September 29, 2013. A new permit to replace it has not been issued by EPA. Facilities that obtained coverage under the 2008 MSGP prior to its expiration are automatically granted an administrative continuance of permit coverage. ROCR's Maintenance Facility falls within this category. The administrative continuance will remain in effect until a new permit is issued. Those facilities already covered under the 2008 MSGP are not required to submit a new Notice of Intent (NOI) for permit coverage until the MSGP is reissued, and must continue to comply with all of the requirements in the 2008 permit, including requirements for monitoring and reporting.

Appendix H. Modification Log

Document changes and updates to the SWPPP. You should include additions of new BMPs, replacement of failed BMPs, significant changes in the activities or their timing on the project, changes in personnel, changes in inspection and maintenance procedures, updates to site maps, and so on.

Date	Modification to SWPPP	Employee Name	Employee Signature

Appendix I: Annual Reporting Form (see following pages)

NPDES Permit Tracking No.:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

Annual Reporting Form

A. GENERAL INFORMATION

1. Facility Name:

2. NPDES Permit Tracking No.:

3. Facility Physical Address:

a. Street:

b. City: c. State: d. Zip Code: -

4. Lead Inspectors Name: Title:

Additional Inspectors Name(s):

5. Contact Person: Title:

Phone: - - Ext. E-mail:

6. Inspection Date: / /

B. GENERAL INSPECTION FINDINGS

1. As part of this comprehensive site inspection, did you inspect all potential pollutant sources, including areas where industrial activity may be exposed to stormwater?
☐ YES ☐ NO

If NO, describe why not:

NOTE: *Complete Section C of this form for each industrial activity area inspected and included in your SWPPP or as newly identified in B.2 or B.3 below where pollutants may be exposed to stormwater.*

2. Did this inspection identify any stormwater or non-stormwater outfalls not previously identified in your SWPPP? ☐ YES ☐ NO

If YES, for each location, describe the sources of those stormwater and non-stormwater discharges and any associated control measures in place:

NPDES Permit Tracking No.:

3. Did this inspection identify any sources of stormwater or non-stormwater discharges not previously identified in your SWPPP? ☐ YES ☐ NO

If YES, describe these sources of stormwater or non-stormwater pollutants expected to be present in these discharges, and any control measures in place:

4. Did you review stormwater monitoring data as part of this inspection to identify potential pollutant hot spots? ☐ YES ☐ NO ☐ NA, no monitoring performed

If YES, summarize the findings of that review and describe any additional inspection activities resulting from this review:

5. Describe any evidence of pollutants entering the drainage system or discharging to surface waters, and the condition of and around outfalls, including flow dissipation measures to prevent scouring:

6. Have you taken or do you plan to take any corrective actions, as specified in Part 3 of the permit, since your last annual report submission (or since you received authorization to discharge under this permit if this is your first annual report), including any corrective actions identified as a result of this annual comprehensive site inspection?

☐ YES ☐ NO

If YES, how many conditions requiring review for correction action as specified in Parts 3.1 and 3.2 were addressed by these corrective actions? ☐☐

NOTE: *Complete the attached Corrective Action Form (Section D) for each condition identified, including any conditions identified as a result of this comprehensive stormwater inspection.*

NPDES Permit Tracking No.:

C. INDUSTRIAL ACTIVITY AREA SPECIFIC FINDINGS

Complete one block for each industrial activity area where pollutants may be exposed to stormwater. Copy this page for additional industrial activity areas.

In reviewing each area, you should consider:

- Industrial materials, residue, or trash that may have or could come into contact with stormwater;
- Leaks or spills from industrial equipment, drums, tanks, and other containers;
- Offsite tracking of industrial or waste materials from areas of no exposure to exposed areas; and
- Tracking or blowing of raw, final, or waste materials from areas of no exposure to exposed areas.

INDUSTRIAL ACTIVITY AREA _____:

1. Brief Description:

2. Are any control measures in need of maintenance or repair? ☐ YES ☐ NO

3. Have any control measures failed and require replacement? ☐ YES ☐ NO

4. Are any additional/revised control measures necessary in this area? ☐ YES ☐ NO

If YES to any of these three questions, provide a description of the problem: (Any necessary corrective actions should be described on the attached Corrective Action Form)

INDUSTRIAL ACTIVITY AREA _____:

1. Brief Description:

2. Are any control measures in need of maintenance or repair? ☐ YES ☐ NO

3. Have any control measures failed and require replacement? ☐ YES ☐ NO

4. Are any additional/revised c necessary in this area? ☐ YES ☐ NO

If YES to any of these three questions, provide a description of the problem: (Any necessary corrective actions should be described on the attached Corrective Action Form)

INDUSTRIAL ACTIVITY AREA _____:

Brief Description:

2. Are any control measures in need of maintenance or repair? ☐ YES ☐ NO

3. Have any control measures failed and require replacement? ☐ YES ☐ NO

4. Are any additional/revised BMPs necessary in this area? ☐ YES ☐ NO

If YES to any of these three questions, provide a description of the problem: (Any necessary corrective actions should be described on the attached Corrective Action Form)

NPDES Permit Tracking No.:

NOTE: *Copy this page and attach additional pages as necessary*

INDUSTRIAL ACTIVITY AREA ______:

1. Brief Description:

2. Are any control measures in need of maintenance or repair? ☐ YES ☐ NO

3. Have any control measures failed and require replacement? ☐ YES ☐ NO

4. Are any additional/revised BMPs necessary in this area? ☐ YES ☐ NO

If YES to any of these three questions, provide a description of the problem: (Any necessary corrective actions should be described on the attached Corrective Action Form)

INDUSTRIAL ACTIVITY AREA ______:

1. Brief Description:

2. Are any control measures in need of maintenance or repair? ☐ YES ☐ NO

3. Have any control measures failed and require replacement? ☐ YES ☐ NO

4. Are any additional/revised BMPs necessary in this area? ☐ YES ☐ NO

If YES to any of these three questions, provide a description of the problem: (Any necessary corrective actions should be described on the attached Corrective Action Form)

INDUSTRIAL ACTIVITY AREA ______:

1. Brief Description:

2. Are any control measures in need of maintenance or repair? ☐ YES ☐ NO

3. Have any control measures failed and require replacement? ☐ YES ☐ NO

4. Are any additional/revised BMPs necessary in this area? ☐ YES ☐ NO

If YES to any of these three questions, provide a description of the problem: (Any necessary corrective actions should be described on the attached Corrective Action Form)

NPDES Permit Tracking No.:

D. CORRECTIVE ACTIONS

Complete this page for each specific condition requiring a corrective action or a review determining that no corrective action is needed. Copy this page for additional corrective actions or reviews.

Include both corrective actions that have been initiated or completed since the last annual report, and future corrective actions needed to address problems identified in this comprehensive stormwater inspection. Include an update on any outstanding corrective actions that had not been completed at the time of your previous annual report.

1. Corrective Action # ☐☐ of ☐☐ for this reporting period.

2. Is this corrective action:

- ☐ An update on a corrective action from a previous annual report; or
- ☐ A new corrective action?

3. Identify the condition(s) triggering the need for this review:

- ☐ Unauthorized release or discharge
- ☐ Numeric effluent limitation exceedance
- ☐ Control measures inadequate to meet applicable water quality standards
- ☐ Control measures inadequate to meet non-numeric effluent limitations
- ☐ Control measures not properly operated or maintained
- ☐ Change in facility operations necessitated change in control measures
- ☐ Average benchmark value exceedance
- ☐ Other (describe): _____

4. Briefly describe the nature of the problem identified:

5. Date problem identified: ☐☐/☐☐/☐☐☐☐

6. How problem was identified:

- ☐ Comprehensive site inspection
- ☐ Quarterly visual assessment
- ☐ Routine facility inspection
- ☐ Benchmark monitoring
- ☐ Notification by EPA or State or local authorities
- ☐ Other (describe): _____

7. Description of corrective action(s) taken or to be taken to eliminate or further investigate the problem (e.g., describe modifications or repairs to control measures, analyses to be conducted, etc.) or if no modifications are needed, basis for that determination:

8. Did/will this corrective action require modification of your SWPPP? ☐ YES ☐ NO

9. Date corrective action initiated: ☐☐/☐☐/☐☐☐☐

10. Date correction action completed: ☐☐/☐☐/☐☐☐☐ or expected to be completed: ☐☐/☐☐/☐☐☐☐

11. If corrective action not yet completed, provide the status of corrective action at the time of the comprehensive site inspection and describe any remaining steps (including timeframes associated with each step) necessary to complete corrective action:

NPDES Permit Tracking No.:

E. ANNUAL REPORT CERTIFICATION

1. Compliance Certification

Do you certify that your annual inspection has met the requirements of Part 4.2 of the permit, and that, based upon the results of this inspection, to the best of your knowledge, you are in compliance with the permit? ☐ YES ☐ NO

If NO, summarize why you are not in compliance with the permit:

2. Annual Report Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Authorized Representative Printed Name: Title:

Signature: Date Signed: