

# FACILITY: OPEN CHANNELS - DRY SWALE (O-1)\*



## GENERAL MAINTENANCE CARD

Stormwater Coalition of Albany County  
swcoalition@albanycounty.com

Funding for This Project Provided by the  
New York State Department of Environmental Conservation  
Environmental Protection Fund

Prepared By: HAZENAND SAWYER

May 2010

### PURPOSE AND FUNCTION

An open drainage channel or depression explicitly designed to detain and promote the filtration of stormwater runoff into the soil media.

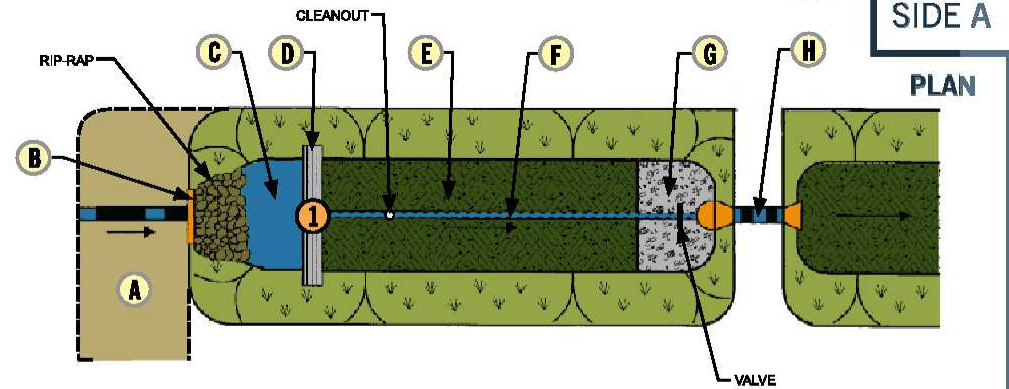
### SHORT-TERM MEASURES (FREQUENCY: AT LEAST ONCE A MONTH)

#### Drainage Issues:

1. **Maintain contributing drainage area.**
  - Remove trash and debris and dispose off-site, as required.
  - Stabilize and mow area as required. Remove clippings.
  - Ensure that activities in the drainage area minimize oil/grease and sediment entry to the system.
2. **Inspect inlet (Location B) and forebay (Location C), or other pretreatment devices.**
  - Remove debris manually and dispose off-site, as required.
  - Note any cracks in pipe and concrete pipe collar.
  - Note any displaced field stone. Remove as required.
  - Note any evidence of altered flow around check dam (Location D).
3. **Inspect vegetated swale (Location E).**
  - Remove debris manually and dispose off-site, as required.
  - Note any channels, soil exposure or other evidence of erosion. Stabilize for further maintenance.
  - Note dewatering time. The facility should drain completely within 24-48 hours of a storm event. If clogging occurs, remove sediment and cleanout underdrain (refer to Item 2 of Long-Term Measures).
4. **Inspect gravel inlet trench (Location G).**
  - Remove debris manually and dispose off-site, as required.
  - Note dewatering time. The facility should drain completely within 24-48 hours of a storm event. If clogging occurs, remove and replace gravel media (refer to Item 3 of Long-Term Measures).
5. **Inspect outlet structure (half round pipe weir at Location H).**
  - a. **Half Round Pipe Weir**
    - Remove debris manually and dispose off-site, as required.
    - Note any cracks/damage to half round pipe, weir and weir box (see critical maintenance issues box).

#### Landscaping:

6. **Inspect overall condition of vegetation onsite.**
  - Irrigate as necessary during plant establishment and during periods of little rain or drought.
  - Remove vegetative invasives manually, ensuring root removal, to the extent possible. Refer to Appendix 1: New York State Invasive Plants for key species. Note any significant establishment for future removal/maintenance.
  - Relocate rodents and/or provide exclusion devices, as required.



### MAJOR AREAS OF PRACTICE

- |                          |                    |                        |
|--------------------------|--------------------|------------------------|
| A. Maintenance Accessway | D. Check Dam       | G. Gravel Inlet Trench |
| B. Inlet Structure       | E. Vegetated Swale | H. Outlet Structure    |
| C. Forebay               | F. Underdrain      |                        |

- Trim shrubs and cut grass along street frontages, as required. Dispose of clippings off-site.
- Mow vegetation in dry swale as required to maintain grass heights in the four to six inch range. Mow only when swale is dry to avoid rutting. Dispose of clippings off-site.

#### Perimeter Treatment (perimeter boundaries not shown on figures):

7. **Inspect overall condition of the perimeter treatment items.**
  - Remove accumulated litter/debris by hand; dispose off-site.
  - Secure gates, guiderails, signs, and boulders as required.

### MEDIUM-TERM MEASURES (FREQUENCY: ONCE EVERY SIX MONTHS)

#### Drainage Issues:

1. **Measure sediment depth in pretreatment forebay (Location C).**
2. **Inspect inlet (Location B), and forebay (Location C), or other pretreatment devices.**
  - Repair cracks in pipe and concrete pipe collar, as required, if present.
  - Replace displaced field stone, as required.
  - Repair check dam (Location D), as required.
3. **Inspect vegetated swale (Location E) and repair eroded areas as required.**
4. **Inspect outlet structure (such as half round pipe weir at Location H).**
  - Repair cracks/damage to half round pipe, weir and weir box, as required.
  - Clear culvert as required to maintain conveyance.
5. **Inspect for unstable embankments.**
  - Repair/reinforce as required using field stone, plantings, etc.

#### Landscaping:

6. **Inspect for plant mortality.**
  - Remove dead vegetation by hand; dispose off-site; replant as required.

#### Critical Maintenance Issues

- 1) Weirs
  - Presence of corrosion
  - Weld joint weakness
  - Valves operational
  - Security key in known location
  - Clogging of barrel outlets

Albany County	City of Albany	Town of Bethlehem	City of Cohoes	Town of Colonie	Village of Colonie	Village of Green Island	Town of Guilderland	Village of Menands	Town of New Scotland	Village of Voorheesville	City of Watervliet	SUNY Albany
---------------	----------------	-------------------	----------------	-----------------	--------------------	-------------------------	---------------------	--------------------	----------------------	--------------------------	--------------------	-------------

\* Facility abbreviations refer to 2003 NYSDEC Stormwater Design Manual practice labels



- Remove trees that start to grow in the vicinity of the swale (Location E), and dispose off-site, as required.
- Note any bare areas. Cultivate soil and revegetate as required. Introduce alternative plantings, as required.

7. Inspect for significant establishment of Invasives and develop an area-wide plan for removal.

8. Inspect for herbivore damage.

- Repair burrows/damage created by rodents, as required.
- Introduce alternative plantings, as required.

**Perimeter Treatment (perimeter boundaries not shown on figures):**

9. Lubricate locks and hinges on gates, as required.

10. Refurbish or mow accessway, as required.

11. Inspect and repair damaged locks, gates, guiderails, and signs, as required.

#### LONG-TERM MEASURES (FREQUENCY: ONCE EVERY YEAR)

**Drainage Issues:**

1. Remove sediment from forebay and adjacent catch basins; "vactoring" recommended.

2. Inspect vegetated swale (Location E) and underdrain (Location F).

- If water remains 24-48 hours following a storm event, cleanout underdrain (Location F) and replace top two to five inches of media as required:

- Close valve at end of underdrain pipe, near outlet structure.
- Attach a standard compressor and fitting to cleanout and run compressed air through pipe. Repeat until swale surface is sufficiently broken up.
- Remove compressor hose and fittings. Restore valve to original setting.
- Remove top two to five inches of media and dispose off-site.
- Replace media according to original specifications or to approved, revised specifications.
- Seed or sod to restore ground cover, as required.

- If sediment accumulation is greater than 25% of channel capacity, remove sediment as required.

- Inspect for uniformity in cross-section and longitudinal slope. Correct as required.

3. Inspect gravel inlet trench for clogging. Remove and replace top two to five inches of media as required.

4. Inspect stone diaphragm for clogging. Remove accumulated sediment. Replace stone as required.

#### LONG-TERM MEASURES (FREQUENCY: ONCE EVERY THREE TO FIVE YEARS)

**Drainage Issues:**

1. Restore vegetated swale (Location E) and gravel inlet trench (Location G) as required.

- Remove all media and dispose off-site.
- Inspect perforated pipe for clogging or damage and replace as required.
- Replace media according to original specifications.
- Seed or sod to restore ground cover, as required.

#### DEWATERING PROCEDURE AT PRETREATMENT DEVICE

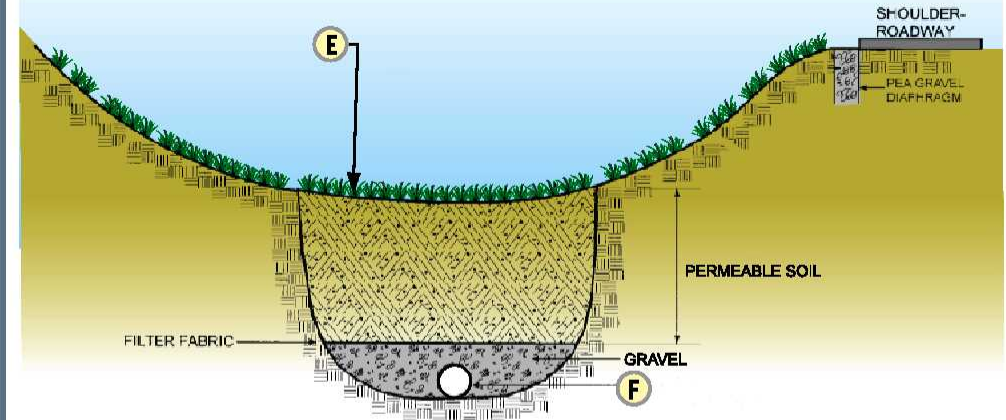
The forebay or other pretreatment device must be dewatered before proceeding with "vactoring" operations.

**Methodology:**

1. Park the "vactor" truck along the maintenance accessway near the inlet (Location A). The boom should be extended in the direction of the forebay.
2. Ensure clear access for a two-person crew down the slope near the forebay (Location C).
3. Pump out the water from the forebay to the swale (Location E) downstream.
4. Proceed with "vactoring" operations.

SIDE B

SECTION



#### MAJOR AREAS OF PRACTICE

E. Vegetated Swale

F. Underdrain

#### "VACTORING" PROCEDURE AT PRETREATMENT DEVICE

**Methodology:**

1. Connect the "vactor" truck to an approved nearby source of clean water for "vactoring" purposes.
2. Unwind the water jet hose reel and place it down the slope of the forebay to Location C. Use hose to loosen the accumulated sediment.
3. Place the flexible suction hose into the forebay (Location C).
4. Perform "vactoring" operations by simultaneously using the suction arm and water jet hose to remove slurry until the rip-rap base is reached.
5. Continue slurry removal until capacity of "vactor" truck is reached.
6. Stop "vactoring" work. Dispose of slurry off-site.
7. Repeat Steps 1-6 until all the sediment has been removed.
8. After "vactoring" work is complete, carefully remove the flexible suction hose and the water jet hose from forebay, and transport them back to the truck.
9. Inspect the accessway and adjacent area for damage, such as dislodged field stone, wood chips, etc., and refurbish as required.

**Note:** Secure locks on gates as necessary prior to exiting site.

#### Paperwork and Reporting

- 1) Refer to site specific SWPPP and regulated MS4 for reporting requirements related to maintenance
- 2) Report practice failures to owner-operator and relevant regulated MS4

#### Maintenance Considerations During Design

- Erosion and Sediment Control
  - Inlet/Outlet Protection
  - Sediment Removal
- Pretreatment Devices
- Underdrains
- Landscaping
- Maintenance Access
- Cold Climate Considerations