# Hunter Highway Stormwater Retrofit Project

## *Operation and Maintenance Manual*

***Town of Hunter, Greene County, New York***

***October 2008***

# *Project Partners*


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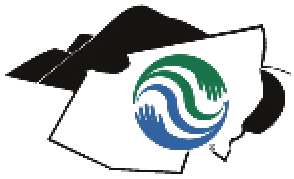

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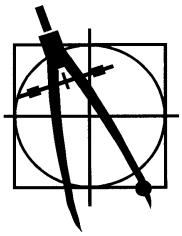

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## APPENDICES

# 1.0 Introduction

The Town of Hunter Highway Garage is a publicly owned storage facility located on State Route 23A in the Town of Hunter, Greene County, New York. The Greene County Soil and Water Conservation District, Kaaterskill Associates and the Town of Hunter Highway Department are undertaking this project to attenuate the Total Suspended Solids (TSS) entering the existing storm drain system on site. This project is funded by the Catskill Watershed Corporation Stormwater Retrofit Program, which was set up as part of the NYC Watershed Agreement to provide funds for stormwater management needed to correct or reduce existing erosion, polluted runoff or other problems associated with stormwater.

The facility includes a three bay garage, a three bay 120' x 20' barn for equipment storage, two above ground 2000-gallon petro-chemical storage tanks (double wall), and a 60' x 48' sand/salt storage facility. A paved parking area approximately 0.93 acres exists between the buildings, which during the winter months is often covered with sand and salt not only from snow and ice removal but also from trucks entering and exiting from the loading area Greene County Soil and Water Conservation District (GCSWCD) and the Hunter Highway department. proposed the implementation a number of stormwater management practices (SMP's) in association with the Foundation's redevelopment of a series of commercial buildings and impervious parking areas in the in the Town of Hunter. SMP's include a new stormsewer system and Barriers intended to improve housekeeping and improved site riparian vegetation. SMP's were designed to improve stormwater water quality, reduce stormwater quantity and provide non-erosive stormwater conveyance through the site.

## 1.1 Purpose

The purpose of this document is to briefly describe individual SMP's, list the water quality and non-water quality objectives for each SMP, document inspection frequency and procedures, and describe required thresholds and procedures for maintenance. The operation and maintenance (O&M) manual was developed to ensure continued long-term performance of each implemented SMP. O&M objectives specific to the each SMP include:

- Minimize sediment and pollutant discharges.
- Prevent parking areas, roads, drainage systems, facilities and property from becoming pollutant sources.
- Protect public safety and health.
- Prevent catastrophic infrastructure failures.
- Maintain or restore the intended infrastructure function.
- Prevent or reduce flooding.
- Protect infrastructure.
- Meet public expectations for aesthetics.

Although this is a stormwater retrofit project, this manual was developed to conform to existing federal and state stormwater O&M procedures and requirements for new construction

projects. Further grant funding for this project by Catskill Watershed Corporation (CWC) required the development and approval of this manual by CWC and New York City Department of Environmental Protection (NYC DEP) West of Hudson Engineering Group. CWC funding rules requires the implementation of this plan for a period of ten years.

## 1.2 Manual Layout

The structure of this O&M allows inspection and maintenance records to be easily evaluated. Findings from these evaluations will assist in the modification and improvement of maintenance procedures, identification of inefficiencies and need for modification of individual SMP's. This manual is intended to be a working document updated annually, and as necessary, to provide effective long-term operation and maintenance for the facility.

The following table summarizes the suggested frequency of minimum inspection for each SMP. Storm events exceeding 2-year rainfall event will require additional inspection.

**Table 1. SMP inspection frequency.**

| SMP | Inspection Frequency |
|---|---|
| Catch Basin | Annually |
| Manhole | Annually |
| Stormsewer Pipes | Annually |
| Downstream Defender | Annually |
| Stormsewer Outfall | Annually |

### 1.3 Responsibilities

GCSWCD will perform O&M for a period of ten years or as additional funding is provided. After this period, the current property owner, The Town of Hunter will take responsibility of all O&M of the proposed stormwater components. O&M contacts are as follows:

**Greene County Soil and Water Conservation District**
907 County Office Building
Cairo, N.Y. 12413
518.622.3620 Phone
518.622.0344 Fax
www.gcswcd.com
**Contact: Jeff Flack**
**Director**
mailto:jeff@gcswcd.com

**Town of Hunter**
P.O. Box 70
State Route 23A
Tannersville, NY 12485
1.518.589.7017 Phone
**Contact: Dennis Lucas**
**Acting Town Supervisor**

# 2.0 Stormsewer System and TSS Separator-Operation and Maintenance

Storm sewer systems consist of a collection of pipes and structures that work together to convey storm flow while trapping sediment and pollutants. The components of a storm sewer system require various types of maintenance. To keep the entire system operating at its optimum it is necessary to maintain every component of the system. The following table summarizes the frequency of maintenance for the storm sewer system and the downstream defender.

## 2.1 Deep Sump Catch Basin

Catch Basins trap sediment and pollutants that can pollute water bodies. They need to be inspected and cleaned to remove accumulated sediment, fluids, and trash. Proper operation and maintenance will:

- Prevents parking areas, roads, drainage systems, facilities and property from becoming pollutant sources
- Maintain or restore the intended infrastructure function
- Prevent or reduce flooding
- Protect infrastructure

### *2.1.1 Inspection*

Catch basins should be inspected at least once per year. Additionally there should be periodic inspections of the catch basin and surrounding areas for pollutants such as leaks from dumpsters, minor spills, and dumping and litter. If pollutants are found action should be taken immediately to have the pollutant source removed.

Inspection procedure is as follows:

1. Set up any necessary safety equipment around the access grate. Safety equipment should notify passing pedestrian and road traffic that work is being done.
2. Remove the grate to the inlet.
3. Without entering the vessel, look down into the chamber to inspect the inside.
4. Make note of any irregularities.
5. Without entering the vessel, use the pole with the skimmer net to remove floatables and loose debris from the outer annulus of the chamber.
6. Using a sediment probe measure the depth of sediment that has collected in the sump of the vessel.
7. On the Maintenance Log record the date, unit location, estimated volume of floatables and gross debris removed, and the depth of sediment measured. Also note any apparent irregularities such as damaged components or blockages.
8. Securely replace the grate.
9. Take down safety equipment.
10. Notify GCSWCD of any irregularities noted during inspection.

### *2.1.2 Maintenance-Cleaning*

Clean catch basins when they become one third full to maintain sediment-trapping capacity. Catch basin cleaning should be performed in a way that keeps removed sediment and water from being discharged back into the storm sewer. A good time to clean them is at the end of the dry season. Clean putrid materials from catch basins when discovered or reported. Keep the inlet cleared of debris and litter.

1. Set up any necessary safety equipment around the access grate of the catch basin. Safety equipment should notify passing pedestrian and road traffic that work is being done.
2. Remove the grate to the basin
3. Without entering the vessel, look down into the chamber to inspect the inside. Make note of any irregularities.
4. Remove floatables stored on the surface of the water with the vactor hose or the skimmer net.
5. Using a sediment probe, measure the depth of sediment that has collected in the sump of the vessel and record it in the Maintenance Log
6. Once all floatables have been removed, drop the vactor hose to the base of the sump. Vactor out the sediment and gross debris off the sump floor.
7. Retract the vactor hose from the vessel.
8. On the Maintenance Log, record the date, unit location, estimated volume of floatables and gross debris removed, and the depth of sediment measured.
9. Also note any apparent irregularities such as damaged components or blockages.
10. Securely replace the grate.

### *2.1.3 Safety*

Entry inside underground structures requires confined space equipment and procedures and compliance with OSHA (29 CFR 1910.0146 and 29 CFR 1926.21) and NYS Industrial Codes Rules 12 and 23. Set up any necessary safety equipment around the access port or grate. Safety equipment should notify passing pedestrian and road traffic that work is being done.

### *2.1.4 Materials Handling*

Disposal of waste from maintenance of drainage facilities shall be conducted in accordance with NYSDEC regulations. All floating petroleum product will be removed from the water surface with sorbent pads/cloths. All remaining material will be removed by a vacuum truck and liquids and solids will be disposed of separately.

Solids will be allowed to settle on-site in the vacuum truck. The liquids will then be returned to the structure through a 100 micron filter. The remaining solid waste products, including sorbent material, are then considered non-hazardous solid waste under NYSDEC Part 360 regulations. The remaining solid waste sediment will be disposed of at a NYCDEP

approved site, and the sorbent materials will be sent to a solid waste facility. Any remaining liquid waste is considered petroleum-contaminated liquid under NYSDEC Part 360 regulations and shall be transported, treated and/or disposed of at a permitted waste treatment and/or disposal facility.

If a single shipment of liquid waste weighs more than 227 kilograms (approximately 60 gallons of liquid waste) it must be transported by a hauler with a NYSDEC Part 364 waste transporter permit who meets industrial waste transport requirements.

### *2.1.5 Repairs*

1. Repair any cracked or defective plates or baffles. Cracks are repaired so that no cracks greater than ¼ inches exist.
2. Repair any leaks that allow water levels to drop and cause oil to be washed from the unit.
3. Repair all security and access features so they are fully functional. This includes locking lids, covers, and ladder rungs.

Follow the practice described under the Activity: Repair and Replacement of Enclosed Drainage Systems.

## 2.2 Manhole

Manholes are large cylindrical vaults usually set at storm sewer pipe connections. Unless you have OSHA approved training and equipment, never enter a manhole. There is a considerable risk of injury. Proper operation and maintenance will:

- Minimize sediment and pollutant discharges from the structure.
- Prevent parking areas, roads, drainage systems, facilities and property from becoming pollutant sources
- Maintain or restore the intended infrastructure function
- Prevent or reduce flooding
- Protect infrastructure

### *2.2.1 Inspection*

Inspect the manhole once per year. Check the frame and lid for cracks and wear, such as rocking lids or lids moved by traffic. Periodically inspect the manhole and surrounding areas for pollutants such as leaks from dumpsters, minor spills, and dumping. Take action to have the pollutant source removed.

1. Set up any necessary safety equipment around the access port or grate. Safety equipment should notify passing pedestrian and road traffic that work is being done.
2. Remove the lid to the manhole.
3. Without entering the vessel, look down into the chamber to inspect the inside.
4. Make note of any irregularities.
5. Without entering the vessel, use the pole with the skimmer net to remove floatables

and loose debris from the outer annulus of the chamber.

6. Using a sediment probe measure the depth of sediment that has collected in the sump of the vessel.
7. On the Maintenance Log record the date, unit location, estimated volume of floatables and gross debris removed, and the depth of sediment measured. Also note any apparent irregularities such as damaged components or blockages.
8. Securely replace the grate or lid.
9. Take down safety equipment.
10. Notify GCSWCD of any irregularities noted during inspection.

### *2.2.2 Maintenance-Cleaning*

Clean manholes when there is a blockage of water flow path. Cleaning should be performed in a way that makes certain removed sediment and water is not discharged back into the storm sewer.

1. Set up any necessary safety equipment around the access grate of the catch basin. Safety equipment should notify passing pedestrian and road traffic that work is being done.
2. Remove the grate to the basin
3. Without entering the vessel, look down into the chamber to inspect the inside. Make note of any irregularities.
4. Remove floatables stored on the surface of the water with the vactor hose or the skimmer net.
5. Using a sediment probe, measure the depth of sediment that has collected in the sump of the vessel and record it in the Maintenance Log
6. Once all floatables have been removed, drop the vactor hose to the base of the sump. Vactor out the sediment and gross debris off the sump floor.
7. Retract the vactor hose from the vessel.
8. On the Maintenance Log, record the date, unit location, estimated volume of floatables and gross debris removed, and the depth of sediment measured.
9. Also note any apparent irregularities such as damaged components or blockages.
10. Securely replace the grate.

### *2.2.3 Safety*

Entry inside underground structures requires confined space equipment and procedures and compliance with OSHA (29 CFR 1910.0146 and 29 CFR 1926.21) and NYS Industrial Codes Rules 12 and 23. Set up any necessary safety equipment around the access port or grate. Safety equipment should notify passing pedestrian and road traffic that work is being done.

### *2.2.4 Materials Handling*

Disposal of waste from maintenance of drainage facilities shall be conducted in accordance with NYSDEC regulations. All floating petroleum product will be removed from the water surface with sorbent pads/cloths. All remaining material will be removed by a vacuum truck and liquids and solids will be disposed of separately.

Solids will be allowed to settle on-site in the vacuum truck. The liquids will then be returned to the structure through a 100 micron filter. The remaining solid waste products, including sorbent material, are then considered non-hazardous solid waste under NYSDEC Part 360 regulations. The remaining solid waste sediment will be disposed of at a NYCDEP approved site, and the sorbent materials will be sent to a solid waste facility. Any remaining liquid waste is considered petroleum-contaminated liquid under NYSDEC Part 360 regulations and shall be transported, treated and/or disposed of at a permitted waste treatment and/or disposal facility.

If a single shipment of liquid waste weighs more than 227 kilograms (approximately 60 gallons of liquid waste) it must be transported by a hauler with a NYSDEC Part 364 waste transporter permit who meets industrial waste transport requirements.

### *2.2.5 Repairs*

1. Repair any cracked or defective plates or baffles. Cracks are repaired so that no cracks greater than ¼ inches exist.
2. Repair any leaks that allow water levels to drop and cause oil to be washed from the unit.
3. Repair all security and access features so they are fully functional. This includes locking lids, covers, and ladder rungs.

Follow the practice described under the Activity: Repair and Replacement of Enclosed Drainage Systems.

## 2.3 Stormsewer Pipes

Stormsewer pipes convey stormwater and should be cleaned to remove sediment or blockages when problems are identified. Storm pipes must be clear of obstructions and breaks to prevent localized flooding. Proper operation and maintenance will:

- Minimize sediment and pollutant discharges from the work area
- Prevent parking areas, roads, drainage systems, facilities and property from becoming pollutant sources
- Maintain or restore the intended infrastructure function
- Prevent or reduce flooding
- Protect infrastructure

### *2.3.1 Inspection*

Stormsewer pipes should be inspected annually and sediment depths in the pipes should be recorded in the Maintenance Log. Sediment depth should not be allowed to accumulate past 20 percent of the pipe diameter.

### *2.3.2 Maintenance-Cleaning*

Clean pipes when sediment depth is greater than 20 percent of pipe diameter. When cleaning a pipe, minimize sediment and debris discharges from pipes to the storm sewer. Install downstream debris traps (where applicable) before cleaning and then remove material. Generally, use mechanical methods to remove root obstructions from inside storm sewer pipes. Do not put root-dissolving chemicals in storm sewer pipes. If there is a problem, remove the vegetation over the line.

### *2.3.3 Safety*

Entry inside underground structures requires confined space equipment and procedures and compliance with OSHA (29 CFR 1910.0146 and 29 CFR 1926.21) and NYS Industrial Codes Rules 12 and 23. Set up any necessary safety equipment around the access port or grate. Safety equipment should notify passing pedestrian and road traffic that work is being done.

### *2.3.4 Materials Handling*

Disposal of waste from maintenance of drainage facilities shall be conducted in accordance with NYSDEC regulations. All floating petroleum product will be removed from the water surface with sorbent pads/cloths. All remaining material will be removed by a vacuum truck and liquids and solids will be disposed of separately.

Solids will be allowed to settle on-site in the vacuum truck. The liquids will then be returned to the structure through a 100 micron filter. The remaining solid waste products, including sorbent material, are then considered non-hazardous solid waste under NYSDEC Part 360 regulations. The remaining solid waste sediment will be disposed of at a NYCDEP approved site, and the sorbent materials will be sent to a solid waste facility. Any remaining liquid waste is considered petroleum-contaminated liquid under NYSDEC Part 360 regulations and shall be transported, treated and/or disposed of at a permitted waste treatment and/or disposal facility.

If a single shipment of liquid waste weighs more than 227 kilograms (approximately 60 gallons of liquid waste) it must be transported by a hauler with a NYSDEC Part 364 waste transporter permit who meets industrial waste transport requirements.

### *2.3.5 Repairs*

1. Repair pipes when a dent or break closes more than 20 percent of the pipe diameter.
2. Repair pipes damaged or with deteriorated connections.

## 2.4 Hydro International-Downstream Defender

The Downstream Defender protects the environment by removing a wide range of pollutants from stormwater runoff. Periodic removal of these captured pollutants is essential to the continuous, long-term functioning of the Downstream Defender. The Downstream Defender will capture and retain sediment and oil until the sediment and oil storage volumes are full to capacity. When sediment and oil storage capacities are reached, the Downstream Defender will no longer be able to store removed sediment and oil. Proper operation and maintenance will:

- Minimize sediment and pollutant discharges from the structure.
- Prevent parking areas, roads, drainage systems, facilities and property from becoming pollutant sources.
- Maintain or restore the intended infrastructure function.
- Protect infrastructure.

### *2.4.1 Inspection*

1. Set up any necessary safety equipment around the access port or grate of the Downstream Defender as stipulated by local ordinances. Safety equipment should notify passing pedestrian and road traffic that work is being done.
2. Remove the lid to the manhole.
3. Without entering the vessel, look down into the chamber to inspect the inside.
4. Make note of any irregularities.
5. Without entering the vessel, use the pole with the skimmer net to remove floatables and loose debris from the outer annulus of the chamber.
6. Using a sediment probe measure the depth of sediment that has collected in the sump of the vessel.
7. On the Maintenance Log record the date, unit location, estimated volume of floatables and gross debris removed, and the depth of sediment measured. Also note any apparent irregularities such as damaged components or blockages.
8. Securely replace the grate or lid.
9. Take down safety equipment.
10. Notify Hydro International of any irregularities noted during inspection.

### *2.4.2 Maintenance-Cleaning*

Floatables cleanout is typically done in conjunction with sediment removal. A commercially or municipally owned sump-vac is used to remove captured sediment and floatables.

Floatables and loose debris can also be netted with a skimmer and pole. The access port located at the top of the manhole provides unobstructed access for a vactor hose and skimmer pole to be lowered to the base of the sump.

1. Set up any necessary safety equipment around the access port or grate of the Downstream Defender as stipulated by local ordinances. Safety equipment should notify passing pedestrian and road traffic that work is being done.
2. Remove the lid to the manhole
3. Without entering the vessel, look down into the chamber to inspect the inside. Make note of any irregularities.
4. Using the Floatables Port for access, remove oil and floatables stored on the surface of the water with the vactor hose or the skimmer net.
5. Using a sediment probe, measure the depth of sediment that has collected in the sump of the vessel and record it in the Maintenance Log

6. Once all floatables have been removed, drop the vactor hose to the base of the sump via the Central Access Port. Vactor out the sediment and gross debris off the sump floor.
7. Retract the vactor hose from the vessel.
8. On the Maintenance Log, record the date, unit location, estimated volume of floatables and gross debris removed, and the depth of sediment measured.
9. Also note any apparent irregularities such as damaged components or blockages.
10. Securely replace the grate or lid.

### *2.4.3 Safety*

Entry inside underground structures requires confined space equipment and procedures and compliance with OSHA (29 CFR 1910.0146 and 29 CFR 1926.21) and NYS Industrial Codes Rules 12 and 23. Set up any necessary safety equipment around the access port or grate. Safety equipment should notify passing pedestrian and road traffic that work is being done.

### *2.4.4 Materials Handling*

Disposal of waste from maintenance of drainage facilities shall be conducted in accordance with NYSDEC regulations. All floating petroleum product will be removed from the water surface with sorbent pads/cloths. All remaining material will be removed by a vacuum truck and liquids and solids will be disposed of separately.

Solids will be allowed to settle on-site in the vacuum truck. The liquids will then be returned to the structure through a 100 micron filter. The remaining solid waste products, including sorbent material, are then considered non-hazardous solid waste under NYSDEC Part 360 regulations. The remaining solid waste sediment will be disposed of at a NYCDEP approved site, and the sorbent materials will be sent to a solid waste facility. Any remaining liquid waste is considered petroleum-contaminated liquid under NYSDEC Part 360 regulations and shall be transported, treated and/or disposed of at a permitted waste treatment and/or disposal facility.

If a single shipment of liquid waste weighs more than 227 kilograms (approximately 60 gallons of liquid waste) it must be transported by a hauler with a NYSDEC Part 364 waste transporter permit who meets industrial waste transport requirements.

### *2.4.5 Repairs*

1. Repair any cracked or defective plates or baffles. Cracks are repaired so that no cracks greater than ¼ inches exist.
2. Repair any leaks that allow water levels to drop and cause oil to be washed from the unit.
3. Repair all security and access features so they are fully functional. This includes locking lids, covers, and ladder rungs.
4. Follow the practice described under the Activity: Repair and Replacement of Enclosed Drainage Systems.

## 2.5 Stormsewer Outfall

Stormsewer outfall protection is implemented to minimize scouring of stream and streambanks at outlet locations. This typically is a section or apron of rock placed at the outlet end of culvert, stormsewer or channel. Proper operation and maintenance will:

- Minimize sediment and pollutant discharges from the structure.
- Prevent parking areas, roads, drainage systems, facilities and property from becoming pollutant sources
- Maintain or restore the intended infrastructure function
- Prevent or reduce flooding
- Protect infrastructure

### *2.5.1 Inspection*

Inspect the outfall once per year for evidence of scour beneath the stone or for dislodged stones. Pipe terminations at the outfall should be clear of obstructions and breaks to prevent localized flooding. Check the headwall and pipe outlet for cracks and wear. Periodically inspect the condition of the outlet protection for any signs of erosion of the streambank and/or channel. Document any evidence of these conditions or any excessive sedimentation at or near outlet within the Maintenance Log.

### *2.5.2 Maintenance-Cleaning*

Maintenance and repairs of the outlet protection may require NYSDEC and ACOE permit/permissions due to potential disturbance stream bed and banks. Any necessary repairs should be made immediately.

## 2.6 Repair and Replacement of Enclosed Drainage Systems

This activity includes tasks such as repair and replacement of pipe, catch basins, drywells and manholes. It also includes drainage projects that add new pipes, catch basins, or infiltration structures. New drainage projects are subject to regulations Source control SMP's are required for activities such as concrete cutting. Proper operation and maintenance will:

- Minimize sediment and pollutant discharges from the work area
- Prevent parking areas, roads, drainage systems, facilities and property from becoming pollutant sources
- Maintain or restore the intended infrastructure function
- Prevent or reduce flooding

### *2.6.1 Practices*

1. Minimize vegetation removal. If work is near a stream or wetland, there are likely regulatory requirements under
2. Follow any construction permit requirements
3. If work is performed under contract, specify BMP performance under inspection/contract administration.
4. Prevent debris, oils, cleaning agents, and sediment from entering waterways.
5. Minimize work in wet weather. This will reduce the problems of containing sediment.
6. Carry spill control kit to contain and clean up possible small spills in the work area. .
7. Protect storm drains.
8. Cover storm sewer inlets, catch basins and open manholes to block sediment-bearing water.
9. If runoff contains sediment, use gravel-filled filter bags or an equivalent product to build berms around inlets.
10. Catch basin inserts are also an acceptable sediment trapping option.
11. At stream crossings, trap materials using screens or another form of containment. Use containment SMP's to protect roadside ditches during wet weather.
12. Avoid using water to clean up work sites.
13. Sweep or vacuum dust and debris from the repair job.
14. Do not wash materials into storm sewers.
15. Place stockpiles away from drainage ways.
16. Cover stockpiles or contain them with berms or other containment devices if there is a chance

## References

Empire State Chapter Soil & Water Conservation Society. 2005. New York Guidelines for Urban Erosion & Sediment Control. Syracuse, NY.

New York State Department of Environmental Conservation. August 2008. New York State Stormwater Management Design Manual. Albany, NY.

New York State Department of Environmental Conservation, Division of Water, Bureau of Water Quality Management. 1992. Reducing the Impacts of Stormwater Runoff from New Development. Albany, NY.
2.

# Appendix A – Inspection and Maintenance Log

**Stormsewer Pipes** **Annual Inspection / Maintenance Form**

Name(s): _____ Date: _____

Location: _____

Sediment Depth (% of pipe diameter): _____

Noted Damage / Irregularities: _____

_____

_____

_____

Description of Maintenance Performed: _____

_____

_____

_____

**Stormsewer Pipes** **Annual Inspection / Maintenance Form**

Name(s): _____ Date: _____

Location: _____

Sediment Depth (% of pipe diameter): _____

Noted Damage / Irregularities: _____

_____

_____

_____

Description of Maintenance Performed: _____

_____

_____

_____

**Stormsewer Outfall** **Annual Inspection / Maintenance Form**

Name(s): _____ Date: _____

Location: _____

Noted Scour Beneath the Stones: _____

_____

Noted Damage / Wear on Pipes or Headwall: _____

_____

Signs of Erosion Near Outlet Protection: _____

_____

Description of Maintenance Performed: _____

_____

_____

**Stormsewer Outfall** **Annual Inspection / Maintenance Form**

Name(s): _____ Date: _____

Location: _____

Noted Scour Beneath the Stones: _____

_____

Noted Damage / Wear on Pipes or Headwall: _____

_____

Signs of Erosion Near Outlet Protection: _____

_____

Description of Maintenance Performed: _____

_____

_____

**Manhole** **Annual Inspection / Maintenance Form**

Unit Location: _____ Date: _____

Depth of Floatables & Oils: _____

Estimated Volume of Floatables: _____

Estimated Volume of Gross Debris: _____

Depth of Sediment: _____

Noted Irregularities: _____

_____

_____

Description of Maintenance Performed: _____

_____

_____

**Manhole** **Annual Inspection / Maintenance Form**

Unit Location: _____ Date: _____

Depth of Floatables & Oils: _____

Estimated Volume of Floatables: _____

Estimated Volume of Gross Debris: _____

Depth of Sediment: _____

Noted Irregularities: _____

_____

_____

Description of Maintenance Performed: _____

_____

_____

**Deep Sump Catch Basin** **Annual Inspection / Maintenance Form**

Unit Location: _____ Date: _____

Depth of Floatables & Oils: _____

Estimated Volume of Floatables: _____

Estimated Volume of Gross Debris: _____

Depth of Sediment: _____

Noted Irregularities: _____

_____

_____

Description of Maintenance Performed: _____

_____

_____

**Deep Sump Catch Basin** **Annual Inspection / Maintenance Form**

Unit Location: _____ Date: _____

Depth of Floatables & Oils: _____

Estimated Volume of Floatables: _____

Estimated Volume of Gross Debris: _____

Depth of Sediment: _____

Noted Irregularities: _____

_____

_____

Description of Maintenance Performed: _____

_____

_____

**TSS Seperator - Downstream Defender** **Annual Inspection / Maintenance Form**

Unit Location: _____ Date: _____

Depth of Floatables & Oils: _____

Estimated Volume of Floatables: _____

Estimated Volume of Gross Debris: _____

Depth of Sediment: _____

Noted Irregularities: _____

_____

_____

Description of Maintenance Performed: _____

_____

_____

**TSS Seperator - Downstream Defender** **Annual Inspection / Maintenance Form**

Unit Location: _____ Date: _____

Depth of Floatables & Oils: _____

Estimated Volume of Floatables: _____

Estimated Volume of Gross Debris: _____

Depth of Sediment: _____

Noted Irregularities: _____

_____

_____

Description of Maintenance Performed: _____

_____

_____