

## MI-6: BMP Inspection & Maintenance

Stormwater BMPs are designed to capture and treat pollutants from stormwater runoff. If BMPs are not routinely maintained, their effectiveness at pollutant removal decreases and, in some cases, they may become a source of pollutants. This SOP outlines procedures for inspecting and maintaining stormwater BMPs so that they continue to function as designed.

## MS4 Permit Requirements

The 2017 MS4 Permit requires that stormwater BMPs be inspected at least once annually.

## Stormwater BMPs

An inventory of City-owned BMPs is attached, including BMP description, type, ID, target pollutants, location, and responsible department. BMP locations are shown on the attached map.

BMPs utilized within the City of Manchester's urbanized area can generally be grouped into four main categories to allow for a more organized and efficient inspection and maintenance process:

1. Subsurface Separation BMPs (SSS)
  - Water Quality Units
  - Vortechs
  - Swirl Concentrator
  - Baffle Tank
2. Surface Filtration BMPs (SF)
  - Gravel Wetlands
  - Rain Gardens
  - Tree Filters
  - Stormtreat Units
3. Surface Basin BMPs (SB)
  - Forebays
4. Surface Infiltration BMPs (SI)
  - Porous Pavement
  - Water Quality Swales

## Inspection and Maintenance

The 2017 MS4 Permit requires that stormwater BMPs be inspected at least once annually. Due to the varied nature of the BMPs present within the City of Manchester's Urbanized Area, some BMPs must be maintained more frequently than others. Maintenance requirements are determined based on inspection results. All inspection forms include a check box to indicate whether a BMP requires a work order as a result of the observations made during inspection.

Both inspection and maintenance frequencies should be adjusted upon review of past inspection sheets, i.e. BMPs that accumulate more sediment or experience more wear and tear than others should be inspected and maintained more frequently.

See attached inspection and maintenance Forms SSS, SF, SB and SI for the specific inspection and maintenance requirements of each BMP group.

### Maintenance Work Orders and Procedures

- Print maps and instructions (Forms) for BMP maintenance assignments on the following pages.
- Conduct visual inspection of BMPs to evaluate maintenance needs and determine the equipment that will be required to perform the work. Visual inspection will also help identify safety hazards or other issues that may hinder the maintenance operations.

Based on inspection results, a DPW representative will generate work orders for any specific required maintenance of City BMPs. Maintenance requirements will be based on the information provided in the various inspection categories, and could include sediment removal, landscaping, vegetation upkeep, and replacement of parts. Once a work order is generated, DPW staff will perform the required maintenance on the BMP in question and will log this maintenance in the maintenance log.

All inspection and maintenance forms are to be tracked and kept on file for reference. Inspection frequencies and general maintenance schedules should be adjusted as needed using this information. It is recommended that inspection and maintenance data also be recorded within an Excel database for easier access and analysis. Any adjustments to inspection frequencies should be updated in the “Manchester Stormwater BMP Inventory”.

See attached inspection and maintenance procedures and maintenance log form (Forms referenced above) for more detailed information.

### Recordkeeping and Reporting

- Use the attached BMP Inspection and Maintenance log to record inspection and maintenance activities for all City-owned BMPs.

## FORM SSS

**Annual inspection of all BMPs is required under the MS4 Permit. See below for other recommendations.**

### Subsurface Separation BMPs - Inspection & Maintenance Instructions

Procedure	Objective	Recommended Frequency
Interior and Sump Sediment Removal	Maintain flow capacity. Inspect subsurface chambers for presence of sediment and remove sediment once accumulations reach 50% of the height between the bottom of the chamber and the outlet pipe invert.	Performed once per year for the first year. Establish a schedule based on previous years capacity inspections.
Pipe Inspection	Remove accumulated sediment to maintain flow capacity through inlet and outlet pipes. Ensure inlet and outlet pipes are in good working conditions.	Performed once per year for the first year. Establish a schedule based on previous years capacity inspections.
Interior and Exterior Surface Inspection	Visually inspect condition of surface slab top and access hatches (i.e. cracks, missing bolts, leaks)	Inspections performed once per year or as needed based on prior inspections.
Trash, Debris & Floatables Removal	Maintain flow capacity. Inspect and remove debris and floatables via manhole covers. Floatables and debris can be removed prior to dewatering if access allows.	Performed twice per year for the first year. Establish a schedule based on previous years capacity inspections.

(See Reverse Side)

**Subsurface Separation BMPs - Inspection & Maintenance Log**

Date of Inspection & Name of Inspector	BMP I.D. #	Does BMP appear to be working properly?	Is maintenance required?*	Depth from rim to top of sediment (inches)	Deposits	Infrastructure	Inlet Pipes	Outlet Pipes
		Yes  No	Yes  No		- None - Grease/Oil - Grass clippings/compost - Trash/Debris - Other**	- Clogged pipes - Cracked concrete - Missing hardware - Other damage**	- Good Condition - Cracked - Exposed steel - Corroded - Other**	- Good Condition - Cracked - Exposed steel - Corroded - Other**
Comments								<b>Work Order required</b>  <input type="checkbox"/>

\* Describe any maintenance requirements in the comments section.

\*\* Elaborate on any "other" conditions in the comments section.

## FORM SF

**Annual inspection of all BMPs is required under the MS4 Permit. See below for other recommendations.**

### Surface Filtration BMPs - Inspection and Maintenance Requirements

Procedure	Objective	Recommended Frequency
Landscaping & Vegetation	Minimize woody vegetation establishment/takeover above and around BMP footprint (except tree filters). Remove weeds or excess growth to prevent takeover. Replace tree filter trees if necessary. Mow and maintain banks to (gravel wetland) to provide access to critical BMP components and prevent vegetation takeover for future maintenance access. Dispose of mowed material/clippings after each mowing (similar handling to catch basin cleanings).	As needed by inspection. Mow and maintain woody vegetation twice per year (Spring and Fall). Removal of woody vegetation from BMP footprints should occur every two years or as necessary.
Debris and Litter Removal	Remove debris and litter from adjacent areas for aesthetics, to reduce accumulation within BMP and to prevent contribution of downstream floatables.	As needed by inspection or twice per year (Spring and Fall).
Sediment Removal	Maintain flow capacity. Measure and record any sediment depths. Sediment should be removed from BMP surfaces and/or subsurface chambers such that no forebay or chamber contains sediment greater than 50% of the height between the basin bottom and the lowest outlet. Excavate and remove any sediment located near drainage infrastructure to prevent clogging. Dispose of sediment (similar handling to catch basin cleanings).	Performed once per year for the first year. Establish a schedule based on first year accumulations. Do not let sediment build up to 50% of the total capacity at any spot.
Side Slopes, Riprap & Vegetation Care	Visually inspect condition of rip-rap and vegetated embankments (i.e. depletion of riprap or vegetation and stability of embankment). On side slopes, monitor and repair erosion or signs of animal burrows, remove woody vegetation, and replace missing rip rap stone. Prevent damage to adjacent land and vegetation during any stabilization work. Re-grade and re-seed any side slope areas damaged during work.	As needed by inspection and after any stabilization activity.
Spillway Care	Visually inspect condition of riprap on spillways and overflow areas. Remove any woody vegetation that could limit flow capacity or impact riprap subgrades. Repair any damaged or eroded areas. Replace any area with riprap where underlying erosion fabric has been exposed.	As needed by inspection or twice per year (Spring and Fall).
Interior/Exterior Surface & Grate Inspection	Visually inspect condition of any exposed concrete structures and grates (i.e. cracks, missing bolts, leaks). Inspect interior and exterior of outlet control structures for any debris or accumulated sediment and remove if flow is prohibited.	As needed by inspection or once per year.
Vegetation Care/ Harvesting	Visually inspect the condition of vegetation at each BMP. During dry times or times of vegetation die-off, inspect BMPs for decaying vegetation. If surface vegetation build-up is greater than 12" from the bottom subsoils, conduct harvesting efforts to remove decayed vegetation. This can be done by hand and or by machine taking care not to upset root mat systems on wetland surface. Dispose of vegetation on appropriate upland areas. After removing dead vegetation, re-aerate and re-seed.	Monitor dead wetland vegetation build-up and remove build-up as needed by inspection or once per year.
Invasive Species Removal	Visually inspect filtration BMPs for any invasive plant species. Remove and dispose of invasives in accordance with <i>NH Department of Agriculture Code of Administrative Rules, Invasive Chapter Agr 3800; RSA 430:55 (2004)</i> and <i>NH Department of Environmental Services Code of Administrative Rules, Invasive Aquatic Species, Chapter Env-Wq 1303.02; RSA 487:16-a (1998)</i>	Monitor twice per year. Remove as needed to limit spreading of invasive species.
Subsurface Piping and Stone Flushing	Monitor subsurface infiltration. Surface soil infiltration should not be used as maintenance or cleaning criteria. Maintain proper stormwater access to the subsurface portions of the BMPs to maintain hydraulic performance by flushing of any piping infrastructure.	As needed by inspection based on drain times or signs of clogging or staining on drainage structures.

(See Reverse Side)

**Surface Filtration BMPs - Inspection & Maintenance Log**

Date of Inspection & Name of Inspector	BMP I.D. #	Does BMP appear to be working properly?	Is maintenance required?*	Depth from lowest outlet to top of sediment (inches)	Deposits	Erodibility	Vegetation	Infrastructure	Spillways	Inlet Flared End Sections
		Yes  No	Yes  No		- None - Grease/Oil - Grass Clippings/ Compost - Trash/Debris - Other**	- None - Channeling/ Depressions - Bank Erosion - Displaced Riprap - Other**	- No Distress - Distressed - Sparse - Undesirable Woody Plants	- Clogged pipes - Cracks - Missing hardware - Other damage**	- Good Condition - Cracked - Exposed Fabric - Eroded	- Good Condition - Cracked - Exposed Steel - Corroded
Comments										<b>Work Order required</b>  <input type="checkbox"/>

\* Describe any maintenance requirements in the comments section.

\*\* Elaborate on any "other" conditions in the comments section.

## FORM SB

**Annual inspection of all BMPs is required under the MS4 Permit. See below for other recommendations.**

### Surface Basin BMPs - Inspection and Maintenance Requirements

Procedure	Objective	Recommended Frequency
Landscaping & Vegetation	Minimize woody vegetation establishment/takeover at vegetated locations. Mow lower forebay banks to maintain access to BMPs and prevent vegetation takeover.	As needed by inspection. Mow and maintain woody vegetation twice per year (Spring and Fall). Remove mowed material/clippings from each mowing; rake areas of stone bottom.
Debris and Litter Removal	Remove debris and litter from forebay and adjacent land for aesthetics and to prevent contribution of downstream floatables.	As needed by inspection or twice per year (Spring and Fall).
Sediment Removal	Maintain flow capacity. Inspect that the forebay drains within 24 to 72 hours. Measure and record sediment depth. Inspect and remove sediment, particularly at pipe discharge and outlet control structure. Excavate and remove sediment from forebay. Dispose of sediment (similar handling to catch basin cleanings).	Once per year. Establish a schedule based on accumulations observed during inspection. Do not let sediment build up to 50% of basin depth at any spot or completely cover vegetation or outlet control structure into down gradient wetland areas.
Slope, Riprap & Vegetation Care	Visually inspect condition of rip-rap and vegetated embankments (i.e. depletion of riprap or vegetation and stability of embankment). On side slopes, monitor and repair animal burrows, remove woody vegetation, and replace missing rip rap stone. Prevent damage to adjacent land and vegetation during any stabilization work. Re-grade any side slope areas damaged during work.	As needed by inspection and after any sediment removal activity.
Spillway Care	Visually inspect condition of riprap on spillways and overflow areas. Remove any woody vegetation that could limit flow capacity or impact riprap subgrades. Repair any damaged or eroded areas. Replace any area with riprap where underlying erosion fabric is exposed.	As needed by inspection or twice per year (Spring and Fall).
Hydrocarbon Removal	Inspect forebays for evidence of hydrocarbons, if observed this material shall be immediately removed using absorbent pads or other suitable measures and legally disposed of.	Inspect twice per year. Maintain as needed by inspection or twice per year.

(See Reverse Side)

**Surface Basin BMPs - Inspection & Maintenance Log**

Date of Inspection & Name of Inspector	BMP I.D. #	Does BMP appear to be working properly?	Is maintenance required?*	Depth from lowest outlet to top of sediment (inches)	Deposits	Erodibility	Vegetation	Spillways	Inlet Flared End Sections
		Yes  No	Yes  No		- None - Grease/Oil - Grass Clippings/ Compost - Trash/Debris - Other**	- None - Channeling/ Depressions - Bank Erosion - Displaced Riprap - Other**	- No Distress - Distressed - Sparse - Undesirable Woody Plants	- Good Condition - Cracked - Exposed Fabric - Eroded	- Good Condition - Cracked - Exposed Steel - Corroded
Comments									<b>Work Order required</b>  <input type="checkbox"/>

\* Describe any maintenance requirements in the comments section.

\*\* Elaborate on any "other" conditions in the comments section.



## FORM SI

**Annual inspection of all BMPs is required under the MS4 Permit. See below for other recommendations.**

### Surface Infiltration BMPs - Inspection & Maintenance Instructions

#### General

Procedure	Objective	Recommended Frequency
Debris and Litter Removal	Remove for aesthetics and contribution of downstream floatables problems.	As needed by inspection or twice per year (Spring and Fall).
Sediment Removal	Maintain flow capacity. Inspect and vacuum or excavate sediment if present to prevent clogging.	As needed by inspection or once per year. Recommend in early Spring and Summer months.

#### Non-Vegetated

Procedure	Objective	Recommended Frequency
Inspect Structural Integrity	Inspect BMP for signs of wear, cracks, compaction, or sinking. If porous asphalt begins to break, repair in-kind.	Once per year in the Spring.
Winter Care	Winter plowing should be routine and requires no special blade or adjustments. Porous asphalt requires only 25% of salt routinely used on impervious asphalt to achieve equivalent results. Remove compacted snow and ice from porous asphalt as to avoid clogging.	As needed by inspection and after winter weather events.
Reclaim Flow Capacity	If porous asphalt clogs, pressure wash asphalt to reclaim flow capacity.	As needed by inspection.

#### Vegetated

Procedure	Objective	Recommended Frequency
Slope, Riprap & Vegetation Care	Visually inspect condition of rip-rap (if present) and vegetated embankments (i.e. depletion of riprap or vegetation and stability of embankment). On side slopes, monitor and repair animal burrows, remove woody vegetation, and replace missing rip rap stone. Prevent damage to adjacent land and vegetation during any stabilization work. Re-grade any side slope areas damaged during work.	As needed by inspection and after any sediment removal activity.
Landscaping & Vegetation (Swales)	Minimize woody vegetation establishment/takeover. Mow banks to maintain access to BMPs and prevent vegetation takeover.	As needed by inspection. Mow and maintain woody vegetation twice per year (Spring and Fall). Remove mowed material/clippings from each mowing; rake areas of stone bottom.

(See Reverse Side)

**Surface Infiltration BMPs - Inspection & Maintenance Log**

Date of Inspection & Name of Inspector	BMP I.D. #	Does BMP appear to be working properly?	Is maintenance required?*	Maximum Sediment Depth (inches)	Deposits	Vegetation	Erodibility
		Yes  No	Yes  No		- None - Grease/oil - Grass clippings/ compost - Trash/debris - Other**	- No Distress - Distressed - Sparse - Other**	- None - Channeling/depressions - Bank erosion - Asphalt cracks/potholes - Other**
Comments							<p align="center"><b>Work Order required</b></p> <p align="center"><input type="checkbox"/></p>

\* Describe any maintenance requirements in the comments section.

\*\* Elaborate on any "other" conditions in the comments section.

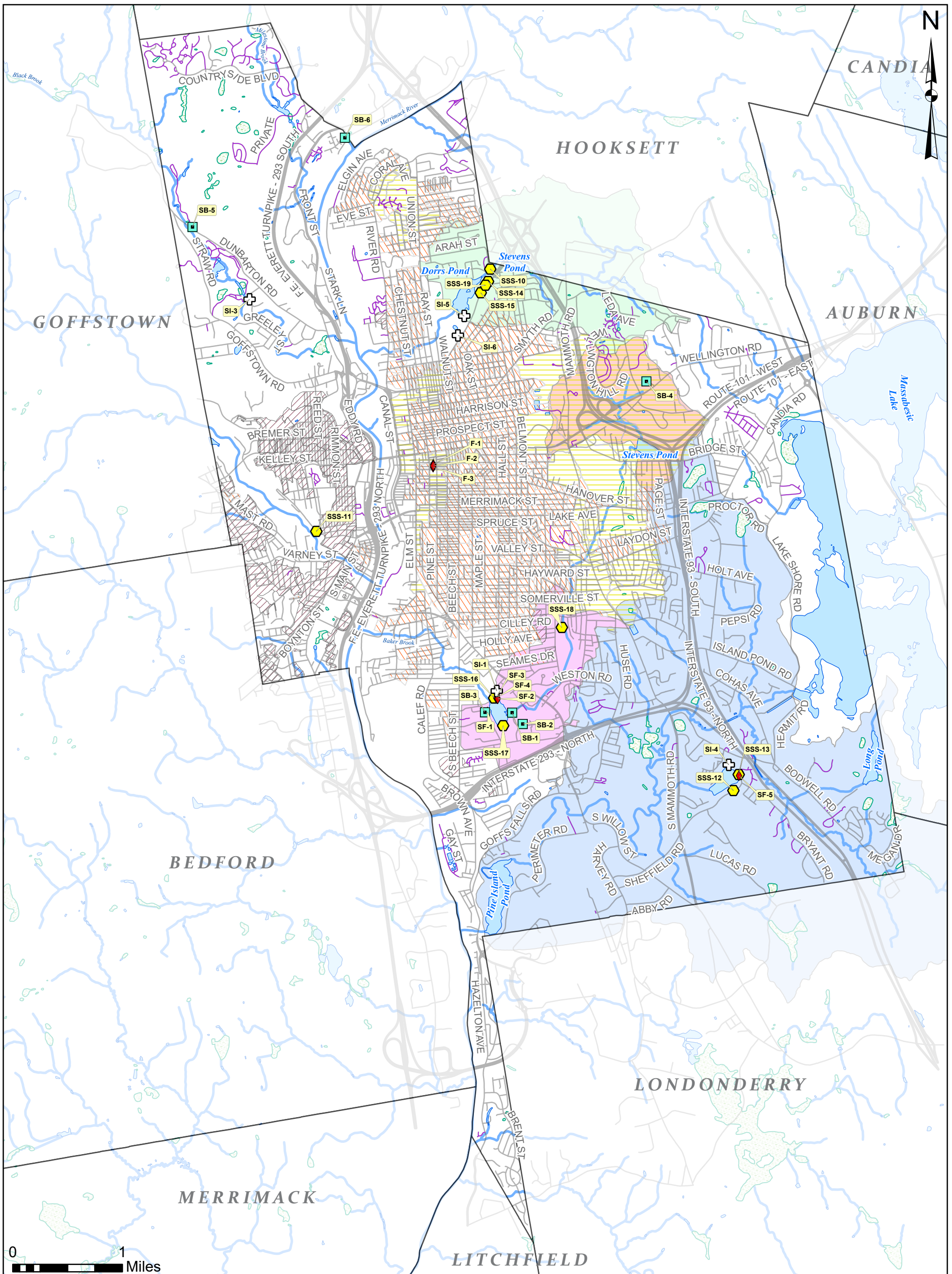
## Maintenance Record

Date of Previous Maintenance:		Today's Date:		Initials:		BMP I.D. #:	
Sediment removal?	Yes	No	Other maintenance?	Yes	No	If Yes, fill out below:	
	If Yes, fill out below:			If Yes, fill out below:			
Depth of Material Removed (Inches)			Maintenance Type	Maintenance Details			
			<input type="checkbox"/> Landscaping/vegetation				
Volume of Material Removed			<input type="checkbox"/> Structural repair				
Material Description			<input type="checkbox"/> Debris/litter removal				
Material Hauled Away By			<input type="checkbox"/> Other				
Material Sent To							

Existing City-owned BMP Inventory, Manchester, NH

BMP Description	BMP Type	BMP ID (City)	BMP ID (GIS mapping)	Target Pollutant(s)	City Facility	Address/Location	Responsible Department	Maintenance Type / Record	Sign Name	Sign Name Source
Bioretention Island	Surface Filtration	-	F-1		Hartnett Parking Lot	Intersection of Concord St and Chestnut St			Hartnett Bioretention Island	CEI
Bioretention Island	Surface Filtration	-	F-2		Hartnett Parking Lot	Intersection of Concord St and Chestnut St			Hartnett Bioretention Island	CEI
Bioretention Island	Surface Filtration	-	F-3		Hartnett Parking Lot	Intersection of Concord St and Chestnut St			Hartnett Bioretention Island	CEI
Forebay	Surface Basin	FB-118438	SB-1	TSS	Nutt Pond	Near 333 March Avenue (east inlet)	DPW EPD	GIS	Nutt Pond E Inlet Forebay	EPD
Forebay	Surface Basin	FB-118439	SB-2	TSS	Nutt Pond	Near 250 John E. Devine Drive (south inlet)	DPW EPD	GIS	Nutt Pond S Inlet Forebay	EPD
Forebay	Surface Basin	-	SB-3	TSS	Nutt Pond	End of Bradley Street	DPW EPD	GIS	Nutt Pond W Inlet Forebay	CEI
Swale	Surface Basin	-	SB-4	TSS, floatables, hydrocarbons, Phosphorus	Residential Neighborhood	Lavallee Lane	DPW EPD	GIS	Lavallee Lane Swale	CEI
Swale with Check Dam	Surface Filtration	-	SB-5	TSS, floatables, hydrocarbons, Phosphorus	Dunbarton Road Culvert Crossing	Dunbarton Road	DPW EPD	GIS	Dunbarton Rd Swale	CEI
Retention Basin	Surface Basin	"Frog Pond"	SB-6		Greenview Village Apartments	End of Golfview Dr			Greenview Village Retention Pond	CEI
Gravel Wetland	Subsurface Filtration	-	SF-1	TSS, floatables, hydrocarbons, Nitrogen, Phosphorus	Nutt Pond	End of Bradley Street	DPW EPD	GIS	Nutt Pond Gravel Wetland	CEI
Rain Garden	Subsurface Filtration	-	SF-2	TSS, floatables, hydrocarbons, Nitrogen, Phosphorus	Nutt Pond/Precourt Park	Near 4 Driving Park Road	DPW EPD	GIS	Precourt Park Rain Garden	CEI
Tree Filter	Subsurface Filtration	-	SF-3	TSS, floatables, hydrocarbons, Nitrogen, Phosphorus	Nutt Pond/Precourt Park	Near 4 Driving Park Road	DPW EPD	GIS	Precourt Park Tree Filter	CEI
Tree Filter	Subsurface Filtration	-	SF-4	TSS, floatables, hydrocarbons, Nitrogen, Phosphorus	Nutt Pond/Precourt Park	Near 4 Driving Park Road	DPW EPD	GIS	Precourt Park Tree Filter	CEI
Stormtreat Unit	Subsurface Filtration	-	SF-5	TSS, floatables, hydrocarbons, Nitrogen, Phosphorus	Crystal Lake	Near 730 Corning Road (Stormwater Treatment Center)	DPW EPD	GIS	Crystal Lake STS	EPD
Porous Pavement	Surface Infiltration	-	SI-1	TSS, floatables, hydrocarbons, Phosphorus	Nutt Pond/Precourt Park	Near 4 Driving Park Road	DPW EPD	GIS	Precourt Park Porous Pavement	CEI
Infiltration Basin	Surface Infiltration	-	SI-3		Solid Waste Dropoff	500 Dunbarton Rd			Solid Waster Dropoff Infiltration Basin	CEI
Infiltration Basin	Surface Infiltration	-	SI-4		Crystal Lake Park	679 Bodwell Rd			Crystal Lake Infiltration Basin	CEI
Retention Basin	Surface Infiltration	-	SI-5		Dorrs Pond	Parking lot north of Red Coat Ln			Dorrs Pond Infiltration Basin	CEI
Infiltration Basin	Surface Infiltration	-	SI-6		Dorrs Pond	Parking lot south of Red Coat Ln			Dorrs Pond Retention Basin	CEI
Water Quality Unit	Subsurface Separation	WQU-000049	SSS-1	TSS, floatables	Manchester Municipal Complex	Near 485 Valley Street	DPW Facilities	Maximo	Municipal Complex WQU	CEI
Swirl Concentrator	Subsurface Separation	BT-118432	SSS-10	TSS	Hooksett Plaza	67 Hamel Drive	DPW EPD	GIS	Hooksett Plaza Baffle Tank	EPD
Baffle Tank Vortechics Unit	Subsurface Separation	BT-118433	SSS-11	TSS, floatables, hydrocarbons	Piscataquog Trail/River	Douglas Street near 288 Conant Street	DPW EPD	GIS	Douglas St Vortechics	EPD
Baffle Tank	Subsurface Separation	BT-118435	SSS-12	TSS	Crystal Lake	Near 537 Corning Road	DPW EPD	GIS	Corning Rd Baffle Tank	EPD
Baffle Tank	Subsurface Separation	BT-118434	SSS-13	TSS	Crystal Lake	Near 730 Corning Road (Stormwater Treatment Center)	DPW EPD	GIS	Crystal Lake Baffle Tank	CEI
Baffle Tank	Subsurface Separation	BT-121018	SSS-14	TSS	Dorrs Pond	Day Street @ Hooksett Road	DPW EPD	GIS	Dorrs Pond Baffle	EPD
Baffle Tank	Subsurface Separation	BT-118431	SSS-15	TSS	Dorrs Pond	Near 555 Hooksett Road	DPW EPD	GIS	Dorrs Pond Baffle	EPD
Baffle Tank	Subsurface Separation	BT-118440	SSS-16	TSS	Nutt Pond/Precourt Park	Near 103 Driving Park Road (north inlet)	DPW EPD	GIS	Nutt Pond N inlet	EPD
Baffle Tank	Subsurface Separation	BT-118441	SSS-17	TSS	Nutt Pond	Near 333 March Avenue (south inlet)	DPW EPD	GIS	Nutt Pond S inlet	EPD
Deep Sump Manhole	Subsurface Separation	BT-121019	SSS-18	TSS	Woodgate Court	Woodgate Court near Holly Avenue	DPW EPD	GIS	Woodgate Court 10' DMH	EPD
Baffle Tank	Subsurface Separation	BT-119327	SSS-19	TSS	Dorrs Pond	Near 673 Hooksett Road	DPW EPD	GIS	Dorrs Pond Baffle	EPD
Water Quality Unit	Subsurface Separation	WQU-000046	SSS-2	TSS, floatables	Manchester Municipal Complex	Near 485 Valley Street	DPW Facilities	Maximo	Municipal Complex WQU	CEI
Water Quality Unit	Subsurface Separation	WQU-000026	SSS-3	TSS, floatables	Manchester Municipal Complex	Near 449 Hayward Street	DPW Facilities	Maximo	Municipal Complex WQU	CEI
Water Quality Unit	Subsurface Separation	WQU-000014	SSS-4	TSS, floatables	Manchester Municipal Complex	Near 425 Hayward Street	DPW Facilities	Maximo	Municipal Complex WQU	CEI
Water Quality Unit	Subsurface Separation	WQU-000035	SSS-5	TSS, floatables	Manchester Municipal Complex	Near 390 Maple Street	DPW Facilities	Maximo	Municipal Complex WQU	CEI
Water Quality Unit	Subsurface Separation	WQU-000084	SSS-6	TSS, floatables	Manchester Municipal Complex	Near 215 Lincoln Street	DPW Facilities	Maximo	Municipal Complex WQU	CEI
Water Quality Unit	Subsurface Separation	WQU-000069	SSS-7	TSS, floatables	Manchester Municipal Complex	Near 254 Lincoln Street	DPW Facilities	Maximo	Municipal Complex WQU	CEI
Water Quality Unit	Subsurface Separation	WQU-000066	SSS-8	TSS, floatables	Manchester Municipal Complex	Near 565 Hayward Street	DPW Facilities	Maximo	Municipal Complex WQU	CEI
Vortechs 7000	Subsurface Separation	VORTECHS MODEL 7000	SSS-9	TSS, floatables, hydrocarbons	Monarchs Hockey Rink	555 Elm Street	DPW Facilities	Maximo	Hockey Rink Vortechics	CEI

Updated September 2022.



**Legend**

- |                       |                  |                     |                        |
|-----------------------|------------------|---------------------|------------------------|
| <b>BMP Type:</b>      | Combined Sewer   | State or Interstate | P Impaired Watersheds: |
| Subsurface Separation | Recombined Sewer | Pond, Reservoir     | Dorrs Pond             |
| Surface Basin         | Previously CSO   | Swamp, Marsh        | Nutt Pond              |
| Subsurface Filtration | Private Roads    | Stream, River       | Pine Island Pond       |
| Surface Infiltration  | Local Roads      |                     | Stevens Pond           |

**BMP Location Map**

**Manchester, NH**



Note: SI-2 was determined to be a natural channel rather than a stormwater BMP.

Data Sources: GRANIT, City of Manchester, CEI