

**STORMWATER  
MANAGEMENT  
SYSTEM OPERATION AND  
MAINTENANCE PLAN**

*for:*

**20 GODDARD DRIVE  
WAREHOUSE**

**ASSESSOR'S PLAT 13, LOT 39  
20 GODDARD DRIVE  
CRANSTON, RHODE ISLAND**

*Owner/Applicant:*

**20 GODDARD LLC  
10 GREENE STREET  
PROVIDENCE, RHODE ISLAND 02903**

*Prepared by:*



**GAROFALO**

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**MAY, 2022  
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The owner shall designate a qualified professional entity or individual to perform all monitoring & maintenance of the stormwater management system. The name, address and telephone number of the entity or individual shall be provided to the RIDEM & the local D.P.W. office.

**Land Use & Site Area:**

The proposed development improvements primarily involve the construction of an industrial warehouse. The central site access will be removed, and the northern and southern site entrances will each be reconstructed in close proximity to their existing locations. An employee parking field will be located along the northern side of the warehouse, and truck loading and storage facilities along with an additional row of parking spaces will be located along the southern side of the building. The development will provide landscaping improvements, and will include associated pedestrian features, walkways, lighting and other amenities.

**General:**

Stormwater Management structures, facilities and permanent BMP's must be inspected in accordance with this document. All documentation on scheduled inspections, times of inspections, maintenance completed, remedial actions taken to make repairs, and any modifications or reconstruction of the stormwater management system shall be submitted to the RIDEM and the local DPW within (30) days of the inspection.

Disposal of the accumulated sediment must be in accordance with all applicable local, state, and federal guidelines and regulations. If any drainage structure or outfall indicates the presence of petroleum it shall be removed and disposed of immediately in accordance with all applicable local, state and federal regulations.

**Emergency Contacts:**

**Richard Baccari II**  
**10 Greene Street**  
**Providence, Rhode Island 02903**  
**401-273-8010 x272**

## **A. Maintenance Operations**

### **Pavement Sweeping:**

1. Parking lots, roads and all access ways and gutters must be swept clean of all sediment and debris on a bi-annual basis in spring and fall, or as needed.

### **Drain Manholes:**

1. All drain manholes must be inspected and maintained on a bi-annual basis in March and October of each year. Drain manholes must be inspected to ensure frames and covers are not damaged, inlet and outlet pipes are flowing freely and there are no blockages within the manhole, and brick course is intact.
2. Drain manholes are to be cleaned once per year at minimum, and shall be cleaned whenever any sediment has accumulated within the drain manhole.
3. If inspection indicates the presence of petroleum, it shall be removed immediately and disposed of off-site in accordance with all applicable local, state and federal regulations.

### **Catch Basins:**

1. All catch basins must be inspected and maintained on a bi-annual basis in March and October of each year. Catch basins must be inspected to ensure frames and grates are not damaged, inlet and outlet pipes are flowing freely and there are no blockages within the catch basin.
2. Catch basins are to be cleaned once per year at minimum, and shall be cleaned whenever the depth of sediment is equal to or greater than half the sump depth. Care shall be taken during inspection and cleaning operations to avoid damage to any baffles, hoods, or other control structures that may be present.
3. All debris, sediment, and/or grease shall be removed from the oil/water separator catch basins and disposed of off-site in accordance with state and federal guidelines.

### **Sand Filter:**

1. Long-term maintenance of the basin (sand filter) is the responsibility of the owner. During the six months immediately after construction, filtering practices should be inspected following at least the first two precipitation events of at least 1-inch to ensure that the system is functioning properly. Maintenance thereafter shall be performed on a minimum yearly basis, and after every rain event greater than a 1-year, 24-hour, Type III event. Maintenance shall include mowing of the basin three times per growing season, and/or maintaining a grass height less than 12", whichever comes first; removing accumulated sediment from the bottom of the basin using shovels and wheelbarrows.
2. Sediment forebay maintenance shall be performed on a minimum yearly basis, and after every rain event greater than a 1-year, 24-hour, Type III event. Sediment shall be cleaned out of the sediment forebay when it accumulates to a depth of more than 1/2 the design depth. Vegetation within the sediment forebay shall be limited to a height of 18 inches. The sediment chamber outlet devices shall be cleaned/repared when drawdown times exceed 36 hours. Trash and debris shall be removed as necessary.

3. Silt/sediment shall be removed from the filter bed when the accumulation exceeds one inch. When the filtering capacity of the filter diminishes substantially (i.e., when water ponds on the surface of the filter bed for more than 48 hours), the top 6" of sand, along with any additional discolored material if encountered, shall be removed and shall be replaced with fresh material. The removed sediments shall be disposed in an acceptable manner at an approved and permitted location.

### **Infiltration Basin:**

1. Long-term maintenance of infiltration system is the responsibility of Owner or as specified in City permits and approvals. The Infiltration Basin must be inspected annually and after every rain event greater than a 1-year, 24-hour, Type III event to ensure that the design infiltration rate is being met. Any accumulated sediment within the Basin system shall be removed bi-annually using lightweight equipment such as shovels and wheelbarrows and disposed off-site.
2. Vegetative Maintenance (Sediment Forebay & Basin)
  - a. First Growing Season: Whenever overall vegetative canopy height reaches 18"-24", trim the meadow to a height of 8" using a string trimmer. Trimming will reduce competition by fast-growing weeds for sunlight and nutrients needed by slow-growing perennial natives. Trimming should cease by mid-September. Problem weeds should be hand pulled or spot sprayed with an approved aquatic herbicide such as Rodeo® or Garlon® 3A.
  - b. Second Growing Season: Problem weeds, such as purple loosestrife, phragmites, Japanese knotweed and reed canary grass, should be hand pulled or spot sprayed with an approved aquatic herbicide such as Rodeo® or Garlon® 3A. Mow to desired height as needed.
3. The system must be monitored for a 72-hour period after every rain storm event of two inches (2") or more. If any infiltration system fails to drain in a 72-hour period the Owner shall retain a qualified professional engineer to assess whether the infiltration system has failed and recommend any corrective action that is required. The corrective action determined shall be immediately implemented to restore the function of the systems to original design conditions. If sediment or organic debris build-up has limited the infiltration capabilities (infiltration basins) to below the design rate, the top 6 inches shall be removed and the surface roto-tilled to a depth of 12 inches. The basin bottom should be restored according to original design specifications.
4. Sediment forebay maintenance shall be performed on a minimum yearly basis, and after every rain event greater than a 1-year, 24-hour, Type III event. If sediment or organic debris build-up has limited the infiltration capabilities to below the design rate, the top 6 inches shall be removed and the surface roto-tilled to a depth of 12 inches. The forebay bottom should be restored according to original design specifications. The sediment chamber outlet devices shall be cleaned/repared when drawdown times exceed 36 hours. Trash and debris shall be removed as necessary.
5. Check pipes for clogging and flush as necessary.
6. If inspection indicates the presence of petroleum, it shall be removed immediately and disposed of off-site in accordance with all applicable local, state and federal regulations.

## **B. Pollution Prevention**

### **Solid Waste Containment:**

Solid waste storage and removal shall be ongoing and the responsibility of the owner.

### **Snow Disposal and Deicing:**

1. Snow removal shall happen in conformance with RIDEM requirements. No snow shall be placed within regulated wetlands.
2. No exterior storage or deicing materials shall be allowed at the site or at individual properties within the development area. Application of deicing materials shall be in conformance with the applicable RIDEM requirements.
3. During winter conditions salt and sand use site-wide shall be applied to the minimum extent possible to maintain safe conditions.

### **Good Housekeeping Operations:**

Good housekeeping and material management reduce the risk of accidental exposure of materials and substances to stormwater runoff.

1. All materials stored on-site will be stored in a neat, orderly manner in their appropriate containers and under a roof or other weather proof enclosure.
2. Products shall be kept in their original containers with the original manufacturer's label.
3. Substances should not be mixed with one another, unless recommended by the manufacturer.
4. Whenever possible, all of a product will be used up before disposing of a container.
5. Petroleum Products:  
All on-site vehicles and parking areas shall be regularly monitored for leaks and spills. Spills encountered during monitoring must be cleaned immediately.
6. Fertilizers:
  1. Fertilizers shall only be used in the minimum amounts as recommended by the manufacturer.
  2. The contents of any un-used fertilizer shall be transferred to a clearly labeled, weather proof sealable plastic bin, to avoid spillage.
7. Paints, Solvents:
  1. All paints and solvents shall be stored in original manufacturer's containers and in a weather proof covered location.
  2. The use of paints and solvents shall, whenever possible, be limited to service or storage bays. Where not possible, the work area shall be protected with impermeable drop clothes or tarps.

**STORMWATER MANAGEMENT  
SYSTEM OPERATION AND MAINTENANCE PLAN**

**APPENDIX - A**

**BMP LOCATION MAP**





**STORMWATER MANAGEMENT  
SYSTEM OPERATION AND MAINTENANCE PLAN**

**APPENDIX - B**

**BMP INSPECTION CHECKLISTS**



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### Infiltration System Operation, Maintenance, and Management Inspection Checklist

Project:

Location:

Site Status:

Date:

Time:

Inspector:

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
1. Debris Cleanout (Annual)		
Trench/chamber or basin surface clear of debris		
Inflow pipes clear of debris		
Overflow spillway clear of debris		
Inlet area clear of debris		
2. Sediment Traps or Forebays (Annual)		
Obviously trapping sediment		
Greater than 50% of storage volume remaining		
3. Dewatering (Annual)		
Trench/chamber or basin dewateres between storms		
4. Sediment Cleanout of Trench/Chamber or Basin (Annual)		

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
No evidence of sedimentation in trench/chamber or basin		
Sediment accumulation doesn't yet require cleanout		
5. Inlets (Annual)		
Good condition		
No evidence of erosion		
6. Outlet/Overflow Spillway (Annual)		
Good condition, no need for repair		
No evidence of erosion		
7. Aggregate Repairs (Annual)		
Surface of aggregate clean		
Top layer of stone does not need replacement		
Trench/Chamber or basin does not need rehabilitation		

Comments:

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Actions to be Taken:

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### Sand/Organic Filter Operation, Maintenance, and Management Inspection Checklist

Project:

Location:

Site Status:

Date:

Time:

Inspector:

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
1. Debris Cleanout (Annual, After Major Storms)		
Contributing areas clean of debris		
Filtration facility clean of debris		
Inlet and outlets clear of debris		
2. Oil and Grease (Annual, After Major Storms)		
No evidence of filter surface clogging		
Activities in drainage area minimize oil and grease entry		
3. Vegetation (Semi-annually)		
Contributing drainage area stabilized		
No evidence of erosion		
Area mowed and clipping removed		

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
4. Water Retention Where Required (Annual, After Major Storms)		
Water holding chambers at normal pool		
No evidence of leakage		
5. Sediment Deposition (Annual, After Major Storms)		
Filter chamber free of sediments		
Sedimentation chamber not more than half full of sediments		
6. Structural Components (Annual, After Major Storms)		
No evidence of structural deterioration		
Any grates are in good condition		
No evidence of spalling or cracking of structural parts		
7. Outlet/Overflow Spillway (Annual, After Major Storms)		
Good condition, no need for repairs		
No evidence of erosion (if draining into natural channel)		
8. Overall Function of Facility (Annual, After Major Storms)		
Evidence of flow bypassing facility		
No noticeable odors		

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Comments:

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Actions to be Taken:

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