

Stormwater Pollution Prevention Plan – Table of Contents

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SECTION 1 – Introduction

This Stormwater Pollution Prevention Plan (SWPPP) has been developed by The Town of Braintree to address the requirements of the United States Environmental Protection Agency's (USEPA's) 2016 National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4) in Massachusetts, hereafter referred to as the 2016 Massachusetts MS4 Permit.

The 2016 Massachusetts MS4 Permit requires that each permittee, or regulated community, address six Minimum Control Measures. These measures include the following:

1. Public Education and Outreach
2. Public Involvement and Participation
3. Illicit Discharge Detection and Elimination Program
4. Construction Site Stormwater Runoff Control
5. Stormwater Management in New Development and Redevelopment (Post Construction Stormwater Management); and
6. Good Housekeeping and Pollution Prevention for Permittee Owned Operations.

Under Measure 6, Good Housekeeping and Pollution Prevention for Permittee Owned Operations, the permittee is required, per Section 2.3.7.b of the 2016 Massachusetts MS4 Permit (page 50-54), to:

... develop and fully implement a SWPPP for each of the following permittee-owned or operated facilities: maintenance garages, public works yards, transfer stations, and other waste handling facilities where pollutants are exposed to stormwater as determined by the permittee.

The SWPPP shall contain the following elements:

1. *Pollution Prevention Team*
2. *Description of the facility and identification of potential pollutant sources.*
3. *Identification of stormwater controls*
4. *Management practices including: minimize or prevent exposure, good housekeeping, preventative maintenance, spill prevention and response, erosion and sediment control, management of runoff, management of salt storage piles or piles containing salt, employee training, and maintenance of control measures.*
5. *Site inspections*

This SWPPP accomplishes these requirements by:

- Providing an inventory of the materials and equipment at the facility that have the potential to cause stormwater pollution, and identifying locations where these materials are stored;
- Describing how stormwater is managed at the facility, including: engineered storm drain system conveyance; on-site pretreatment, treatment and infiltration systems; and discharges to surface water directly from the site;
- Reviewing activities that occur at the facility that represent a potential for stormwater pollution;
- Describing the Best Management Practices (BMPs) that should be implemented at the facility to reduce, eliminate and prevent the discharge of pollutants to stormwater;
- Identifying the employees responsible for developing, implementing, maintaining, and revising, as necessary, this SWPPP;
- Establishing a schedule and description of site inspections that should be conducted at the facility to determine if the SWPPP is effective in preventing the discharge of pollutants;
- Serving as a tool for the facility employees, including a place to maintain recordkeeping associated with these requirements.

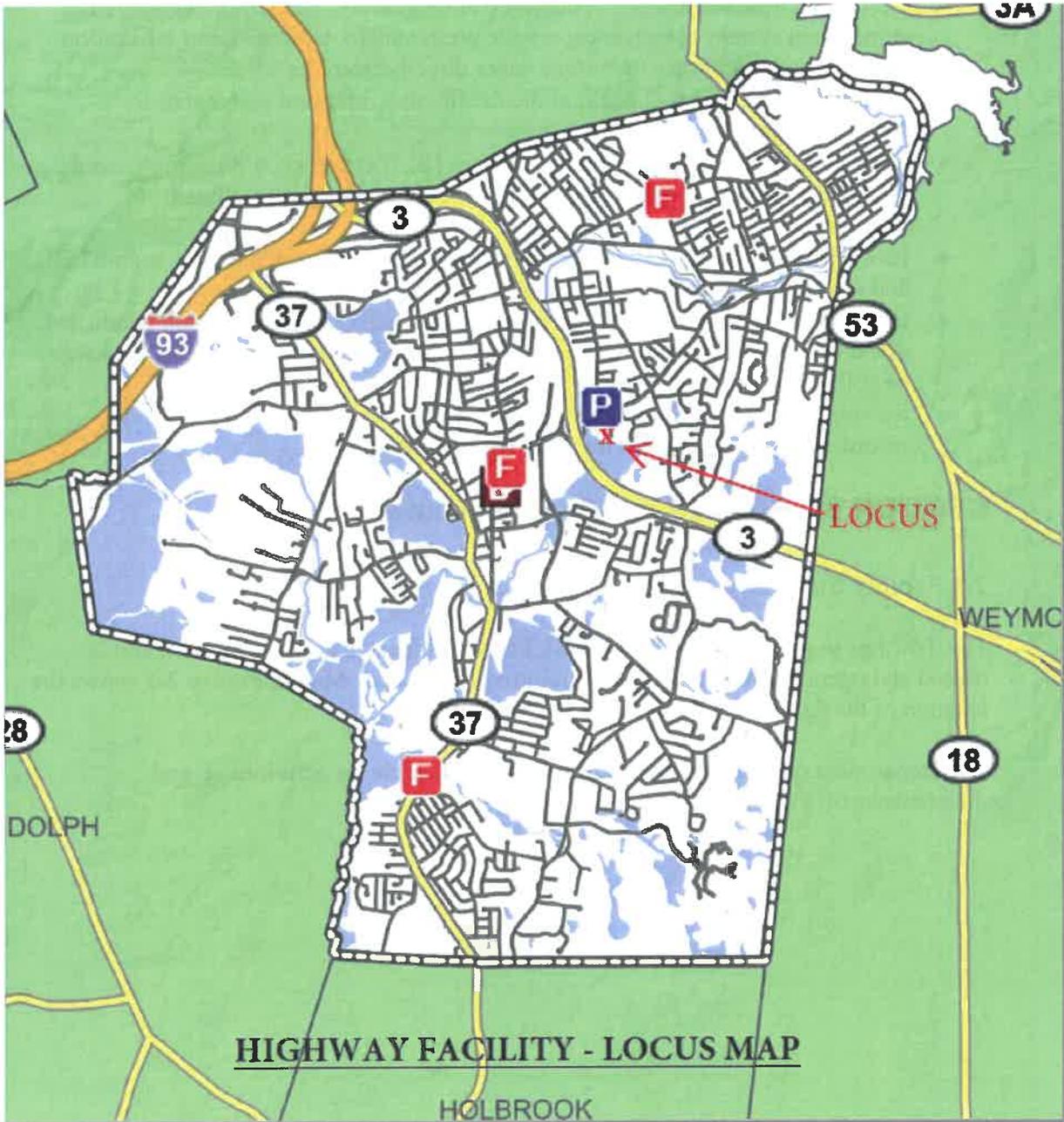
SECTION 2 – Detailed Facility Assessment

2.1 Facility Summary

The Town of Braintree & DPW Union St. Facility is located at 245 Union St. and is owned and operated by The Town of Braintree. The Locus Map in **Figure 2-1** shows the location of the facility within the Town of Braintree.

The Department of Public Works is primarily responsible for activities at, and maintenance of, the facility.

Figure 2-1. Locus Map



2.2 Site Inspection

The site inspection associated with the development of this SWPPP was completed on April 30, 2020. The inspection was conducted by Tyler Clouse.

During the site inspection, information related to activities at the site, vehicles stored at the site, fueling operations, material storage, transport of oil and other materials, and spill history was gathered.

2.3 Pollution Prevention Team

A Pollution Prevention Team for Town of Braintree & DPW Union St. Facility has been prepared and designated the task of developing, implementing, maintaining, and revising, as necessary, the SWPPP for this facility. Listed below are Pollution Prevention Team members and their respective responsibilities.

Responsibilities assigned to one or more members of the Pollution Prevention Team include:

- Implementing, administering and revising the SWPPP
- Regularly inspecting stormwater control structures
- Conducting stormwater training
- Recordkeeping

Leader: Tyler Clouse
Title: Stormwater Outreach Coordinator

Office Phone: 781.794.8947
Cell Phone: N/A

Responsibilities: Considers all stages of plan development, inspections, and implementation; coordinates employee training programs; maintains all records and ensures that reports are submitted; generates work orders for stormwater assets; leads facility inspection.

Member: Benjamin Hulke
Title: Assistant Director of Public Works

Office Phone: 781.794.8959

Cell Phone: N/A

Responsibilities: Implements the preventative maintenance program; oversees good housekeeping activities; serves as spill response coordinator; coordinates bmp maintenance with field staff; assists with employee training programs; conducts visual monitoring; serves as primary contact for facility questions; maintains spill kits at Town of Braintree DPW Union St. Facility.

Member: Richard Digaetano
Title: Water & Sewer Foreman

Office Phone: 781.794.8258

Cell Phone: N/A

Responsibilities: Assists in all components of the stormwater program, as needed.

Member: James Arsenault
Title: DPW Director

Office Phone: 781-794-8254
Cell Phone: 781-980-2289

Responsibilities: Responsible for certifying the completeness and accuracy of the SWPPP.

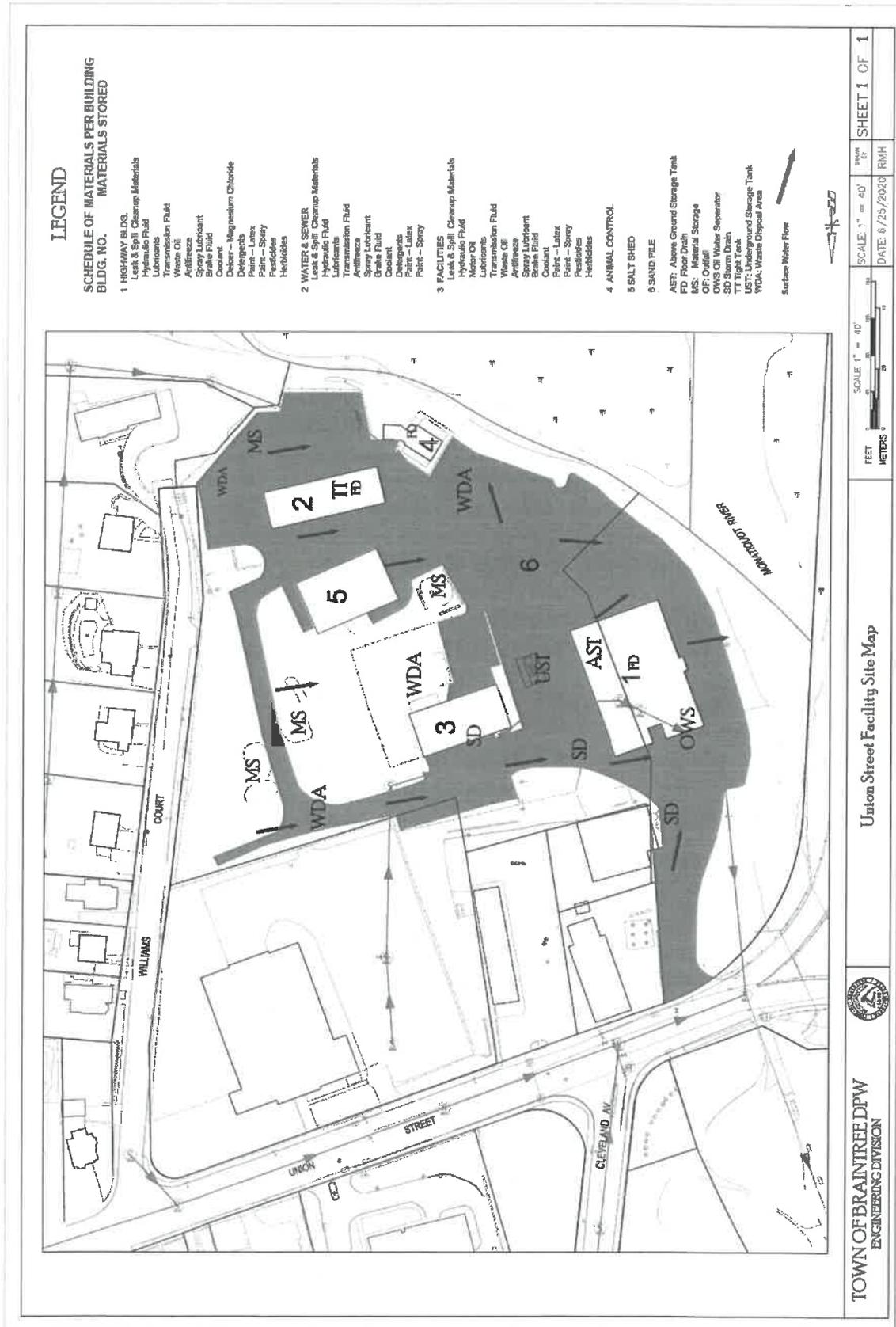
2.4 Facility Description

The primary purpose of the DPW Union St. Facility is to provide a base location for public works activities. Activities at the site are described in **SECTION 2.7**

The facility covers approximately 6.4 acres, and contains the structures and other features shown on the Site Map in **Figure 2-2** and described in detail in the following sections. Components shown on the site map include:

- Location of the engineered drainage system, including catch basins, ditches, drain manholes, and treatment BMPs
- Outfalls to a receiving water, and the name of the receiving water
- Direction of surface water flow
- Structural stormwater pollution control measures
- Location of floor drains
- Vehicle fueling areas
- Aboveground storage tanks (indoors and outdoors)
- Underground storage tanks
- Chemical storage areas
- Pesticide and fertilizer storage areas
- Salt storage areas
- Materials stockpiles
- Waste disposal areas

Figure 2-2. Site Map



2.5 Facility Structures

Buildings

Buildings at the DPW Union St. Facility are used to provide The Town of Braintree personnel with heated, covered areas in which to complete minor maintenance, oil changes and preparation of vehicles, store equipment and tools for use at locations around the Town of Braintree.

The Highway building (#1) is located at the north-west portion of the property. Activities in this structure include storage of supplies and vehicles for public works activities. This building contains 2 floor drains, which discharge to an oil/water separator. Flammable products are properly stored in flammable materials storage cabinets.

The Water and Sewer building (#2) is located at the southernmost portion of the property. Activities in this structure include storage of supplies and vehicles for public works activities. This building contains 2 floor drains, which discharge to an underground waste oil storage tank. An auxiliary job trailer is located South of the buildings serving as an office space. No engineered structures or connections to the MS4 or sewer are present.

The Facilities & Grounds building (#3) is located at the north portion of the property. Activities in this structure include storage of supplies for public works activities as well as vehicle maintenance operations. This building contains no floor drains and is fully enclosed. Latex paint, spray paint, and similar products are stored in the Facilities building. These products are properly stored in flammable materials storage cabinets.

The Animal Control building (#4) is located southwest of the Water and Sewer Building. Activities in this structure include handling and temporary shelter of found animals. This building contains 4 basins, which discharge to the Monatiquot River.

Storage of Deicing Materials

Road salt at the DPW Union St. Facility is stored in a Salt Shed (#5). This structure is between the Facilities and Water & Sewer buildings and is covered and the materials are fully contained within the building. The good housekeeping measure used to minimize the exposure resulting from adding to or removing stored materials is to sweep the loading area regularly or when salt has accumulated on the paved surface. Liquid Magnesium Chloride is stored in tanks inside the Highway building. The materials are fully contained within the building.

Storage of Road Deicing Equipment

The Town of Braintree utilizes a number of salt spreaders and plows on its vehicles to adequately maintain roads. During winter operations, all sanders are kept in the Highway building mounted in trucks. During non-winter operations, sanders are thoroughly

cleaned and suspended off the ground so they can easily be cleaned, inspected, and maintained.

2.5.1 Additional Site Features

Aboveground Storage Tanks

Aboveground storage tanks (ASTs) at DPW Union St. Facility are used for storage of Liquid Magnesium Chloride, bulk motor oil and bulk hydraulic fluid. An inventory of significant materials is included in **SECTION 2.12**.

One AST is located in the Highway building for storage of motor oil. One AST is located in the Highway building for storage of hydraulic oil. Two ASTs are located in the Highway building for storage of Liquid Magnesium chloride. One AST is located in the Facilities building for storage of motor oil. All of the AST's are inside and covered.

Fuel Islands

An island containing 4 fuel pumps for gasoline and diesel is located between the Highway and Facilities buildings, and is used on a 24-hour basis for fueling of all the Town of Braintree vehicles. The island is covered, and roof drainage discharges to the north and south. Access to these fuel pumps is restricted by fuel FOBs, unique pin numbers and is monitored by security cameras.

Emergency Generators

An emergency generator located at the Highway building provides backup power to the facility during outages. It is an ONAN Electric Gen Set. Model # 30EK-15R1699K. The generator is natural gas powered and is located indoors mounted to a concrete pad.

Oil/Water Separators & Tight Tank

The Town of Braintree maintains one oil/water separator (OWS) and one tight tank at the DPW Union St. Facility. Oil/water separator is inspected weekly for visual evidence of petroleum bypassing the OWS and for leaks quarterly. Additional information for inspection procedures can be found in SOP 11 – Oil Water Separator. Spill cleanup materials are maintained in the area serving the OWS.

Oil/water separator 1 is located in front of the Highway building. This pretreatment structure has a cleanout manhole, and is pumped on an annual basis. The Highway Department is responsible for contracting this work, and maintains records on the pumpout activities. This oil/water separator provides treatment of flow from floor drains in the Highway building. Floor drains in the Highway Building where oil materials are used and/or where vehicles are stored receive pretreatment via this oil/water separator.

Tight Tank 1 is located inside the Water & Sewer building. This structure has a cleanout manhole, and is pumped on an annual basis. The Water & Sewer Department is responsible for contracting this work, and maintains records on the pumpout activities. This tight tank catches any oil spilled during vehicle and equipment activities. The floor drain is kept free of debris.

Parking Areas

There are several designated parking areas at the DPW Union St. Facility with most parking spaces on impervious surfaces. These parking lots are used primarily for visitors to the DPW Facility, the Town of Braintree-owned cars for daily use by DPW employees, and employees' personal vehicles.

The Highway Building contains parking for 30 vehicles. The Facilities building contains parking for 15 vehicles. The Water & Sewer building contains parking for 15 vehicles. The total number of parking spaces at the DPW Union St. Facility is approximately 60.

2.6 Site Drainage

Stormwater from adjacent parcel 1001 0 2B enters a stormdrain near the entrance of the DPW Union St. Facility from the North East.

Sheet Flow

Drainage from the impervious surfaces at the DPW Union St. Facility is directed partially to western and southwestern areas of the facility. Drainage from the northern entrance flows west into the grassed area adjacent to the Monatiquot River. Drainage from the high point of the facility travels across impervious pavement and into the riparian buffer of the Monatiquot River following the contours of the site west, southwest and south.

Engineered Drainage

Engineered drainage at the DPW Union St. Facility includes 3 catch basins and 1 manhole. Maintenance of the catch basin structures, including sediment removal, is completed by the Highway Department. Engineered drainage assets are inspected quarterly during the facility inspection. If found to be over 50% full a work order is generated for maintenance.

2.6.1 Receiving Waters

The final point of discharge for stormwater from this site is the Monatiquot River. The Monatiquot has been categorized as a 303(d) List (Impaired) surface water. The impairment of this river, assigned the unique identifier MA74-08_2008, is considered a Category 5, meaning that more than one designated use is impaired and that a TMDL will be required.

Impairments of this water body are shown in **Table 2-1**, below.

**Table 2-1. Impaired Waters Receiving Drainage from the Facility
DPW Union St. Facility**

Water Body Name	ID	Category	Impairment(s)
Monatiquot River	MA74-08_2008	5	Pathogen

The types of impairments documented for this surface water body are related to Pathogen (E. Coli.). The activities and stored materials at the DPW Union St. Facility do not have the potential to affect these impairments.

The good housekeeping practices, preventative maintenance and Best Management Practices implemented at the facility are methods to limit potential negative impacts to stormwater. These practices are discussed in **SECTION 3** of this SWPPP.

2.6.2 Applicable TMDLS

Water bodies identified as Category 5, as shown in **Table 2-1**, are impaired or threatened for the defined uses. Total Maximum Daily Loads (TMDLs) are required for the impairment shown. At the effective date of the MS4 permit no TMDL had been established therefore no TMDL is applicable.

2.7 Site Activities

The following activities occur at the facility:

- Sheltering of lost animals
- Facility or Building Maintenance
- Fueling Operations
- Chemical unloading, handling, and storage (including paint, flammables, fertilizers, and pesticides)
- Sand storage
- Salt storage
- Tool storage
- Vehicle and equipment storage
- Vehicle and equipment maintenance/repair (including oil changes)
- Vehicle and equipment washing
- Waste Handling and Disposal
- Waste oil storage

Below is a discussion of site activities and the potential pollutant sources associated with each, as well as measures taken to minimize pollution. Locations of each activity are shown on the Site Plan (**Figure 2-1**).

The DPW Union St. Facility does not store hazardous materials other than those noted previously. The Town of Braintree Police Department stores impounded vehicles on the Southwest portion of the property on bare soil.

No solvent-based parts washers were observed in any structure at the DPW Union St. Facility. Any hazardous materials are either collected by a third party vendor contracted by the Town of Braintree on an annual basis, or collected at the two annual Household Hazardous Waste Day (HHHD) that are hosted for the benefit of The Town of Braintree residents in the Spring and Fall. Waste materials from DPW Union St. Facility operations that may be collected at the annual HHHW Day include used motor vehicle fluids that cannot be utilized for the waste oil burner, such as used antifreeze and brake fluid. Any oil that may be contaminated with antifreeze, brake fluid, paint, or other additive that makes it unburnable in the waste oil furnace is also collected on the HHHW Day instead of being used in the waste oil furnace. These materials are properly labeled and stored using appropriate Best Management Practices between the time of generation and disposal.

2.7.1 Stockpiles and Sand Storage **Potential Sources of Stormwater Pollution**

Sand stored in piles for use during construction and during winter plowing and deicing activities represents a potential source to stormwater pollution. Stockpiled materials such as gravel, loam, and crushed rock represent a similar source of pollution. When stored unprotected outdoors, sand piles and material stockpiles are exposed to precipitation. When the resulting eroded material enters the stormwater system, the sediment can quickly fill the sumps of catch basin structures, rendering them ineffective.

Mixing sand and salt for use in deicing activities poses an additional element of stormwater pollution, particularly if the mixing area is not fully enclosed and protected from the elements.

Pollution Prevention

To avoid contamination of stormwater by sand and other stockpiled materials, erosion and sediment control measures should be implemented at each storage site. When planning a location for a stockpile, a relatively level site away from slopes and water features should be selected.

Stockpiles can be stabilized by seeding or mulching if they are to remain exposed for more than two weeks, or can be covered with impermeable sheeting to protect the material from rainwater. If the stockpile location becomes a permanent storage site for sand, a roofed structure should be considered to reduce erosion.

Sediment barriers should be placed around the perimeter of the storage site to prevent any runoff carrying sand from entering storm drains and surface waters. If the weather becomes dry and windy, regular light watering of the stockpile and surrounding area will

provide effective dust control. Please refer to SOP 6, "Erosion and Sedimentation Control," included in **Appendix A**, for more information.

Sand is mixed with salt under cover using buckets to mix within the spreader equipment. Under no circumstances should loose salt/sand mix be stored outside and unprotected. All mixing of salt and sand takes place within the salt shed or other covered, enclosed area.

Storage areas should be swept regularly and visually inspected for any runoff or drift of materials that may enter the stormwater system or surface waters. If there is visual evidence of runoff, measures should be taken to prevent runoff from entering waterways or the storm system.

2.7.2 Salt Storage

Potential Sources of Stormwater Pollution

Salt stored in piles for use during winter plowing and deicing operations represents a potential major contributor to stormwater pollution. When stored unprotected outdoors, salt is exposed to precipitation, causing leachate with high chloride that can be discharged to the receiving water. Salt delivery and loading activities can contribute pollutants to stormwater if the material is not handled with care, and if spills from handling operations are not promptly cleaned up.

Pollution Prevention

To prevent stormwater pollution, the salt pile is stored under cover.

During delivery and loading activities, salt is transferred to and from vehicles within the salt shed, whenever possible. Any spills during unloading and loading events should be tended to without delay. Ensuring that the salt storage area is regularly swept and kept clean is an important good housekeeping practice.

Under no circumstances should loose salt be stored outside and exposed to precipitation.

The area should not be hosed down as a cleaning method unless contaminated water is collected and disposed of in the sewer system.

2.7.3 Solid Waste Management

Potential Sources of Stormwater Pollution

Solid waste production and storage locations present the threat to contaminate stormwater with pathogens, including bacteria and viruses, nutrients, including phosphorus and nitrogen, metals and sediments.

Solid waste may be classified as both hazardous and non-hazardous waste consisting of agricultural, construction and demolition, dead animals, industrial, municipal, and tire waste.

Pollution Prevention

To prevent or reduce the potential for stormwater pollution from solid waste management practices the following preventative maintenance procedures are recommended:

1. All staff should be properly trained in correct solid waste management practices, including waste disposal and spill prevention and response. All employees should also be knowledgeable of the potential hazards associated with solid waste handling and storage.
2. Each waste storage location should be properly labeled and all significant sources of pollution should be kept in a secure, covered and contained area.
3. The facility and storage containers shall remain locked at all times other than during normal hours of operation.
4. All waste storage containers and waste handling equipment should be routinely inspected for signs of spills, leaks, corrosion or general deterioration.
5. The facility should maintain spill response materials in accordance with SOP 4 - Spill Response and Cleanup.
6. The Animal Control Building drains should be capped to prevent pet waste & wash water from entering the Monatanquot River.
7. 55 gallon trash bins from parks should be emptied at the transfer station the same day they are received or covered and inspected for any leaks. Trash bins with holes or leaks should be emptied and replaced.
8. Used 55 gallon barrels of potentially hazardous materials should be stored under cover.
9. Large trash containers should be covered when not in use and inspected monthly for leaks. Any containers found to have leaks should be replaced or covered and should not be used to store any material that may cause contamination to local waterways.

2.7.4 Use or Storage of Pesticides or Fertilizers

Potential Sources of Stormwater Pollution

Improper use and storage of fertilizers and pesticides can contribute to loadings of nutrients and toxic compounds to stormwater. Applying fertilizers and pesticides in quantities exceeding the manufacturer's recommendations does not make the product more effective. Rather, excess fertilizer and pesticide will be washed away during precipitation events, entering directly into stormwater and surface waters. The risk of incorrect use or spilling of fertilizers and pesticides increases when the chemicals are not handled by properly trained personnel. Contamination of stormwater can also occur during storage, when the pesticides and fertilizers are not being directly used. Leaks and spills from faulty containers can migrate to the storm drain system if not promptly

controlled. Fires may break out if pesticides and fertilizers are not stored in the appropriate facilities.

Pollution Prevention

To avoid contamination of stormwater by fertilizers and pesticides during application, all products should be used in strict accordance with the manufacturer's instructions and with local regulations. Soil testing should be performed before evaluating and selecting a fertilizer. Using the right type and amount of fertilizer for the location will help ensure that the proper nutrients are absorbed by the plants and will reduce runoff. Efficient use of pesticides is maximized when pesticides are applied at the life stage when the pest is most vulnerable. Pesticides must be handled and applied by individuals licensed with the Massachusetts Department of Agricultural Resources.

Fertilizers and pesticides should be stored indoors in well-ventilated, dry locations. Floors of storage areas should be water tight, impervious, and provide spill containment. In case a spill or leak does occur, storage areas and any vehicles transporting fertilizers and pesticides should be equipped with a spill response kit. For more information, please refer to SOP 4 - Spill Response and Cleanup Procedures and SOP 12 - Storage and Use of Pesticides and Fertilizer, both included in **Appendix A**.

2.7.5 Vehicle and Equipment Storage

Potential Sources of Stormwater Pollution

Vehicle and equipment storage activities are a potential source of pollution due to the diesel fuel, gasoline, oil, hydraulic fluid, antifreeze and similar hazardous material or fuel the machinery may contain. In addition, vehicles or machinery may pick up pollutants during the course of offsite activities or at other facilities, and then deposit these pollutants at the storage facility.

Pollution Prevention

Regular visual inspection and maintenance of vehicles and equipment can greatly reduce the potential for pollution by finding and addressing leaks before pollution of the environment occurs. When in storage, vehicles and equipment should be kept on a covered slab or within a building with a common drain. Discharge to this drain shall be managed by an oil/ water separator (refer to SOP 11 - Oil/Water Separator Maintenance, included in **Appendix A**) to remove oils and gasoline. Vehicle washing activities should not be completed in areas served by an oil/water separator.

No equipment should be kept in an area where leaks could result in pollutants entering catch basins, channels leading to outfalls, or the engineered storm drain system. Vehicles and equipment stored outside should be inspected visually for any signs of leaks or spills. If any leaks or spills are observed they should be cleaned in accordance with SOP 4 – Spill Response.

Obsolete vehicles and equipment should be disposed of in a timely manner in accordance with all applicable laws.

2.7.6 Vehicle and Equipment Maintenance/Repair

Potential Sources of Stormwater Pollution

Vehicle and equipment maintenance and repair often requires the use of harmful liquids such as fuels, oils, and lubricants, and has the potential for producing dust, scrap and by-products that may contain pollutants. Both accidental and purposeful spillage, i.e., a leaky oil pan needing repair vs. draining the pan during an oil change, can lead to situations where pollutants can potentially enter stormwater runoff if the situations are not approached properly. Although there is little potential for effecting stormwater, it should be noted that hazardous gases can be produced during maintenance and repair as well.

Pollution Prevention

Proper maintenance and repair for vehicles and equipment should include a preliminary assessment of potential pollutant sources. This assessment should be used to determine the best means of containing any potential spills or by-products of the situation at hand. Approved containers should be used to capture hazardous liquids to then be disposed of according to applicable MassDEP and USEPA guidelines. If the project may produce hazardous dust that could come in contact and mix with any liquids, the proper containment should be utilized.

Due to heavy metal accumulation in antifreeze, brake fluid, transmission fluid, and hydraulic oils, it is not recommended that any of these liquids be disposed of in the sanitary sewer system. Contaminated parts removed or replaced on any vehicles or equipment shall be disposed of properly.

All work takes place within the facility buildings. Discharge to drains should be managed by an oil/ water separator (refer to SOP 11, "Oil/Water Separator Maintenance", included in **Appendix A**) to remove oils and gasoline.

Maintenance and repairs should not take place in areas prone to stormwater runoff or where pollutants could enter catch basins, channels leading to outfalls, or an engineered storm drain system. All catch basins or engineered drainage systems on site that could be affected by accidental spills should include devices intended to remove oils and sediments prior to entering the system. These treatment devices are inspected on a visual basis weekly and quarterly as part of the facility inspection.

2.7.7 Vehicle and Equipment Washing

Potential Sources of Stormwater Pollution

Vehicle and equipment washing activities are a potential source of pollution not only from petroleum products and pollutants deposited on the exterior of the equipment, but also from nutrients and sediment being washed into water bodies from the act of washing itself. Although some cleaning agents are becoming environmentally friendly, many still contain regulated contaminants. Due to the possibility for multiple types of pollutants, vehicle and equipment washing activities have a high potential for degrading stormwater quality.

Pollution Prevention

Outdoors, the use of a tight tank or other similar structure that can contain the wash water is ideal. If the wash water cannot be contained, it should not be allowed to directly enter water bodies. Phosphate free detergents that do not contain regulated contaminants should be used. Use of solvents should be avoided where the wash water may enter a sanitary sewer. Pervious surfaces may be used to promote infiltration and treatment before wash water enters the groundwater, but wash water coming from impervious pavement should be treated to remove nutrients and petroleum products before entering an engineered storm drain system. Infiltration should not be used within wellhead protection areas, surface drinking water Zone A protection areas, wetland buffers, or riparian buffers of surface waters. Interior areas of the facility, north of the salt shed, should be used for infiltration and monitored for erosion. Any visible areas of erosion should be reseeded and stabilized to retain wash water. Power washing, steam cleaning and engine and undercarriage washing should not occur outdoors. Heavily soiled vehicles or vehicles dirtied from salting should not be washed outdoors. All adjacent drains should be capped to prevent contaminants from directly entering water bodies (refer to SOP 3, "Catch Basin Inspection and Cleaning", included in **Appendix A**). All debris and particulate accumulation should be removed and swept clean in all outdoor washing areas.

For all washing, absorbent pads and drip pans should be maintained to collect spills and leaks observed during washing activities. Refer to SOP 4 - Spill Response and Cleanup Procedures included in **Appendix A** for more information.

2.7.8 Waste Handling and Disposal

Potential Sources of Stormwater Pollution

Waste handling and disposal facilities and activities present a potential to contaminate stormwater with pathogens (including bacteria and viruses), nutrients, including phosphorus and nitrogen, fertilizers, pesticides and sediments.

There are several classifications of waste which contribute to stormwater pollution, including:

1. Solid Waste
2. Hazardous Materials and Waste

3. Pesticides and Fertilizers
4. Petroleum Products
5. Detergents

Pollution Prevention

A variety of measures are considered appropriate to prevent pollution from waste handling and disposal activities, based on the waste classifications noted previously.

Solid Waste

1. All solid waste containers should be covered with lids or stored indoors.
2. Solid waste materials should be removed weekly and taken to the transfer station.
3. Spills should be cleaned up immediately and in accordance with SOP 4 - Spill Response and Cleanup Procedures included in **Appendix A**.

Hazardous Materials and Wastes

1. To prevent leaks, hazardous waste containers should be emptied and cleaned before disposing of them.
2. The original product labels from the container should not be removed. Follow the manufacturer's recommended method of disposal, printed on the label.
3. Excess products should not be mixed when disposing of them, unless specifically recommended by the manufacturer.
4. Spills should be cleaned up immediately and in accordance with SOP 4 "Spill Response and Cleanup".
5. Hazardous waste containers should be stored under cover and inspected weekly for leaks or deterioration. Any containers found to be leaking should be removed disposed of immediately or stored indoors with secondary containment.

Pesticides, Fertilizers and Petroleum Products

1. Materials should not be handled more than necessary.
2. Materials should be stored in a dry, covered, contained area.
3. Liquid pesticide containers should be rinsed three times when emptied. The rinse material should be poured into a spray tank and applied to a registered site. Triple-rinsed containers are considered non-hazardous and should be disposed of according to state recommendations.
4. Pesticide, Fertilizer, and Petroleum product containers should be disposed of according to the instructions provided on the label, SDS, and according to state and federal requirements.
5. Spills should be cleaned up immediately and in accordance with SOP 4, "Spill Response and Cleanup".

Detergents

1. Wastes containing detergents should never be dumped into a storm drain system. All wastes containing detergents should be directed to a sanitary sewer system for treatment at a wastewater treatment plant.

In addition to the pollution prevention requirements additional annual training and signage is recommended. Employee training should coincide with other stormwater training. Signage informing individuals of the hazards associated with improper storage, handling and disposal of wastes should be placed adjacent to disposal areas. It is recommended that all employees be properly trained and follow the correct procedures to reduce or eliminate stormwater pollution. Routine visual inspection of storage and use areas is critical. The visual inspection process should include identification of containers or equipment which could malfunction and cause leaks or spills. The equipment and containers should be inspected for the following:

1. Leaks
2. Corrosion
3. Support or Foundation Failure
4. Other Deterioration

In the case where a defect is found, it should be immediately repaired or replaced.

2.7.9 Waste Oil Storage

Potential Sources of Stormwater Pollution

When not stored properly, waste oil can be a potential source of petroleum in stormwater. Waste oil containers can leak, and spills can occur while during transportation activities.

Pollution Prevention

All waste oil containers are properly labeled and stored inside. Containers are regularly inspected for rust, leaks, or other signs of deterioration. Defective containers should be promptly removed and replaced. A spill response kit should be located wherever waste oil is stored. Facility personnel should know where the spill kit is located and be familiar with the procedures outlined in SOP 4 - Spill Response and Cleanup Procedures in **Appendix A**. Used oil filters should also be properly disposed.

Care should be taken when transferring used oil to and from storage containers. For additional information see SOP 7 “Fuel and Oil Handling Procedures” found in **Appendix A**.

Floor drains in waste oil storage areas drain to an oil/water separator rather than the storm drain system. See SOP 11 “Oil/Water Separator Maintenance” in **Appendix A** for further information.

Waste oil is visually inspected for capacity. When waste oil capacity reaches 75% it is removed by a third party contractor.

2.8 Vehicle and Equipment Inventory

Vehicles and major equipment stored and maintained at the facility are shown in **Appendix E Vehicle and Equipment Inventory**.

2.9 Location of Leak and Spill Cleanup Materials

Leak and spill cleanup materials are stored at DPW Union St. Facility in order to facilitate rapid response. Locations and types of leak and spill cleanup materials are identified in **Table 2-2**.

Table 2-2. Leak and Spill Cleanup Materials

Building or Area	Location	Materials Available
Highway Building	Multiple throughout building	“Speedi Dri” Absorbent, “Pig” Mats
Water & Sewer Building	Multiple throughout building	“Speedi Dri” Absorbent, “Pig” Mats
Facilities Building	Multiple throughout building	“Speedi Dri” Absorbent, “Pig” Mats

2.10 Allowable Non-Stormwater Discharges

A non-stormwater discharge is defined as any discharge or flow to the engineered storm drain system that is not composed entirely of stormwater runoff.

Allowable non-stormwater discharges that occur at this facility include:

- Water line flushing
- Uncontaminated ground water infiltration (as defined at 40 CFR § 35.2005(20))
- Foundation drains
- Air conditioning condensation
- Footing drains

It has been determined that the above non-stormwater discharges at the DPW Union St. Facility do not represent a significant contribution of pollution to the MS4 or the waters of the United States. Therefore, these are considered to be authorized under the current MS4 permit.

2.11 Significant Material Inventory

Materials stored include those specified in **SECTION 2.7**, “Site Activities”. An inventory of these materials at DPW Union St. Facility is included in **Table 2-3**, which also reviews the likelihood for each identified material to come in contact with stormwater. The type of container has also been identified. Oil, gasoline, and other petroleum-based materials are listed separately in the table.

The locations of these material storage areas are provided on the Site Plan in **Figure 2-2**.

**Table 2-3. Significant Material Inventory
DPW Union St. Facility**

Material	Storage Location	Quantity	Potential Pollutant	Covered (C) or Enclosed (E)	Likelihood of Contact with Stormwater
Petroleum-Based Compounds					
Diesel fuel	Underground	3000 Gal	Petroleum hydrocarbons	E	Low
Gasoline	Underground	5000 Gal	Petroleum hydrocarbons	E	Low
Hydraulic Fluid	AST –Highway Facilities Water & Sewer	250 Gal	Petroleum hydrocarbons	E	Low
Motor Oil	AST - Highway AST - Facilities	250 Gal 200 Gal	Petroleum hydrocarbons	E	Low
Lubricants	Highway Facilities Water & Sewer	5 Gal Pails	Petroleum hydrocarbons	E	Low
Transmission Fluid	Highway Facilities Water & Sewer	<55 Gal Drums	Petroleum hydrocarbons	E	Low
Waste Oil	AST - Highway AST - Facilities	250 Gal 100 Gal	Petroleum hydrocarbons	E	Low
Other:					
Total Volume of Oil At Facility = 1400 Gal at 3 Buildings					
Non-Petroleum Significant Materials					
Antifreeze	Highway Facilities Water & Sewer	1 Gal Jugs	Ethylene glycol; potential source of BOD	E	Low
Spray Lubricant	Highway Facilities Water & Sewer	Various Cans	Petroleum hydrocarbons	E	Low
Aggregates	Sand Pile Dense Grade	200 Ton 1000 Ton	Sediments		Medium
Brake Fluid	Highway Facilities Water & Sewer	1 Gal Jugs	Volatile organic compounds; non-petroleum based oil	E	Low
Coolant (new or used)	Highway Facilities Water & Sewer	1 Gal Jugs	Volatile organic compounds	E	Low

Material	Storage Location	Quantity	Potential Pollutant	Covered (C) or Enclosed (E)	Likelihood of Contact with Stormwater
Deicer- Magnesium Chloride (liquid)	AST - Highway	3000 Gal 2500 Gal	Chlorides	E	Low
Deicer- Road Salt	Salt Shed	3000 Ton	Chlorides	C/E	Medium
Detergents	Highway Facilities Water & Sewer	1 Gal Jugs	Surfactants	E	Low
Paint, Latex	Highway Facilities Water & Sewer	200 Gal 100 Gal <5 Gal	Petroleum constituents, including volatile and semivolatile organic compounds	E	Low
Paint, Spray	Highway Facilities Water & Sewer	<2 Cases of cans	Petroleum constituents, including volatile and semivolatile organic compounds	E	Low
Pesticides	Highway Facilities	<5 Gal	Volatile and semivolatile organic compounds	E	Low
Herbicides	Highway Facilities	<5 Gal	Volatile and semivolatile organic compounds	E	Low
Spill response material (Speedi Dri or similar)	Highway Facilities Water & Sewer	1 Palette	Particulate matter, solids, residual oil.	E	Low

2.12 Applicability of Spill Prevention, Control and Countermeasure (SPCC) Requirements

Under federal regulations 40 CFR Part 112 (and Amendments), a Spill Prevention, Control, and Countermeasure (SPCC) Plan is required when a facility has an aboveground oil storage capacity greater than 1,320 gallons, when including containers with a capacity of 55 gallons or more. The DPW Union St. Facility does have aboveground oil storage capacity that exceeds 1,320 gallons.

2.13 Description of Significant Material Storage Areas

Many activities at the DPW Union St. Facility which involve the materials included in **Table 2-3** occur within contained garages or bays. These activities may include minor equipment/vehicle repair, oil changes, repainting, lubrication, and parts replacement.

Fueling of all The Town of Braintree vehicles occurs at the Fuel Island located at the DPW Union St. Facility.

The Highway building emergency generator is fueled with natural gas as needed (hard piped from street).

Waste oil and other used motor fluids are stored in the Highway, Facilities, and Water & Sewer Buildings. Waste oil is stored in tanks and drums, all of which have internal containment or are located on appropriate containment pallets. All delivery of waste oil to the facility occurs within the building and is monitored by a building representative.

Within the Highway building, deicing materials including Liquid Magnesium Chloride are stored. Delivery of deicing materials to the Highway building is monitored by a Highway building employee.

2.14 List of Significant Leaks or Spills

No significant leaks or spills have occurred at the DPW Union St. Facility in the last three years. Significant leaks or spills are documented. The SWPPP shall be updated annual to include any new significant leaks or spills.

Forms included in **Appendix B** will be used to document any spill or leak that occurs at the facility in the future.

2.16 Structural BMPs

Structural BMPs include onsite constructed systems that provide pretreatment or treatment of stormwater flows. The following structural BMPs are presently used at the DPW Union St. Facility to maintain water quality.

2.16.1 Pretreatment Structural BMPs

- Oil/Water Separators
In front of Highway building

2.17 Sediment and Erosion Control

Site topography at the DPW Union St. Facility allows drainage of stormwater and any associated sedimentation to discharge through surface flow to the Monaquot River. Two OWS, 3 catch basins, and 1 manhole are located at the facility. Stormwater sheet flows from the facility over impervious surfaces into the riparian buffer zone of the Monaquot River. Erosion is present in the west, southwest, and south riparian buffer zone.

Pollution Prevention

Areas of erosion should be shored with wattles and revegetated using suitable native plants. A 15 ft. riparian buffer of vegetation should be restored, where feasible, along the perimeter of the property. Invasive vegetation should be removed bi-annually using best management practices for the identified pest species. Mowing should occur only when grass has reached at least 3 inches to increase infiltration.

SECTION 3 – Non-Structural Controls

3.1 Good Housekeeping

Good housekeeping practices are activities, often conducted daily, that help maintain a clean facility and prevent stormwater pollution problems. The following is a list of good housekeeping measures that are practiced at the facility:

- Fueling of small equipment is completed indoors.
- All floor drains present within garage bays drain to an oil/water separator or other fully contained structure.
- Spill materials and cleanup kits are maintained at all locations where oil materials are used, stored, or may be present, including at Fuel Islands.
- Used spill cleanup materials are disposed of properly.
- Lead-acid batteries are stored indoors and within secondary containment.
- Hazardous materials storage lockers with spill containment are used. Storage areas are located away from vehicle and equipment paths to reduce the potential of accident related leaks and spills.
- Oil/water separators and catch basins are maintained in accordance with applicable SOPs
- Speedi Dri (or similar absorbent) is readily available and used for appropriate spills.
- Spill kits are located in areas where fluids are stored or where activities may result in a spill.
- Tools and materials are returned to designated storage areas after use.
- Waste materials are properly collected and disposed of.
- Different types of wastes are separated as appropriate.
- Regular waste disposal is arranged.
- Work areas are clean and organized.

- Work areas are regularly swept or vacuumed to collect metal, wood, and other particulates and materials.
- Obtain only the amount of materials required to complete a job.
- Materials are recycled when possible.
- Staff is familiar with manufacturer directions for proper use of materials and associated Safety Data Sheets (SDSs).
- Staff is familiar with proper use of equipment.
- Bollards, berms, and containment features are in place around areas and structures where fluids are stored.
- Drip pans are used for maintenance operations involving fluids and under leaking vehicles and equipment waiting repair.

The facility maintains a supply of spill cleanup materials at many buildings on site, and will maintain this inventory. An inventory of spill containment, control, and cleanup materials and spill kits maintained at the DPW Union St. Facility was shown in **Table 2-2**.

3.2 Preventative Maintenance

Preventative Maintenance can minimize the occurrence of stormwater pollution by addressing issues before they become problems. Vehicles and equipment should be regularly inspected to prevent leaks of fuel, oil, and other liquids. Structural stormwater controls should be regularly maintained to prevent inadequate performance during storm events.

The following is a list of preventative maintenance procedures practiced at the facility

- All staff members are aware of spill prevention and response procedures.
- All equipment fueling procedures are completed by qualified personnel trained in spill response procedures.
- Hydraulic equipment is kept in good repair to prevent leaks.
- Material storage tanks and containers are regularly inspected for leaks.
- All waste oil is fully contained and the containers are inspected regularly.

3.3 Best Management Practices

In a SWPPP, existing and planned BMPs are identified that will prevent or reduce the discharge of pollutants in stormwater runoff for each area of concern listed in **SECTION 2**.

To prevent or reduce the potential of stormwater contamination from petroleum products, the following BMPs should continue to be followed:

1. Follow Standard Operating Procedures (s) during delivery of waste oil to the equipment/waste oil storage bay. These SOPs are included in **Appendix A**.

2. Follow Standard Operating Procedures during delivery of bulk oil to the emergency generator and bulk fuel to the Fuel Island. These SOPs are included in **Appendix A**.
3. Minimize the volume of gasoline stored within the buildings and on the site.
4. Clean up any oil spills observed in the parking lot, garages, or other surfaces in a timely manner.
5. Monitor all material deliveries.
6. Inspect all storage tanks prior to filling activities for spills, leaks and corrosion.

3.4 Spill Prevention and Response

The following procedures apply to the facility:

- All personnel should be instructed in location, use, and disposal of spill response equipment and supplies maintained at the site such as oil absorbent materials.
- The Pollution Prevention Team leader should be advised immediately of all spills of hazardous materials or regulated materials, regardless of quantity.
- Spills should be evaluated to determine the necessary response. If there is a health hazard, fire or explosion potential, 911 will be called. If a spill exceeds five gallons or threatens surface waters, including the storm drain system, state or federal emergency response agencies will be informed by the Fire Department Hazmat Officer.
- Spills should be contained as close to the source as possible with oil-absorbent materials. Additional materials or oil-absorbent socks will be utilized to protect adjacent catch basins.

SECTION 4 – Plan Implementation

4.1 Employee Training

Regular employee training should be required for employees who work in areas where materials or activities are exposed to stormwater, or who are responsible for implementing activities identified in the SWPPP, including all members of the Pollution Prevention Team.

Department of Public Works Stormwater Outreach Coordinator is responsible for training for DPW Union St. Facility employees. This position coordinates training related to stormwater management on at least an annual basis to review specific responsibilities for implementing this SWPPP, what and how to accomplish those responsibilities, including BMP implementation.

All employees responsible for the fueling or lubrication of vehicles or equipment stored at the facility should be trained regularly (preferably annually). The topics below will be covered at employee training sessions.

1. Spill prevention and response.
2. Good housekeeping.
3. Materials management practices.

Pollution Prevention Team members should meet at least twice a year to discuss the effectiveness of and improvement to the SWPPP. **Appendix C** contains copies of training documentation from these training activities including attendance sheets, instructor name and affiliation, date, time, and location of the training.

4.2 Site Inspection Requirements

It is required that the entire DPW Union St. Facility be inspected at least once each calendar quarter when the facility is in operation (at least one inspection must be conducted during a period when stormwater discharge is occurring). The Stormwater Outreach Coordinator is responsible for completing this inspection.

The inspection must check for evidence of pollution, evaluate non-structural controls in place at the site, and inspect equipment. The site inspection report should include:

- The inspection date and time
- The name of the inspector
- Weather information and a description of any discharge occurring at the time of the inspection
- Identification of any previously unidentified discharges from the site
- Any control measures needing maintenance or repair
- Any failed control measures that need replacement
- Any SWPPP changes required as a result of the inspection
- Signed certification statement.

The inspection form for these inspections, and copies of completed inspection forms, are included in **Appendix D**.

Corrective actions may be required based on evidence of past stormwater pollution or the high potential for future stormwater pollution to occur. Information about any issues and the respective corrective actions should be included in a Compliance Evaluation report. The permittee should repair or replace control measures in need of repair or replacement before the next anticipated storm event if possible, or as soon as practicable. In the interim, the permittee should have back-up measures in place. The Compliance Evaluation report must be kept with the SWPPP and should state the problem, the solution, and when the solution was implemented.

4.3 Recordkeeping and Reporting

The permittee must keep a written record (hardcopy or electronic) of all activities required by the SWPPP including but not limited to maintenance, inspections, and training for a period of at least five years.

This SWPPP shall be kept at the DPW Highway Building and on the server. Department of Public Works Stormwater Division and shall be updated if any of the conditions in **SECTION 2.21** occur. The SWPPP and records shall be made available to state or federal inspectors and the general public upon request.

The 2016 Massachusetts MS4 Permit requires that each permittee report on the findings from Site Inspections in the annual report to USEPA and MassDEP.

Inspections of the DPW Union St. Facility are performed at least quarterly (at least one during stormwater discharge) and described in the Annual Report, including any corrective actions taken, to demonstrate that operation of the DPW Union St. Facility is in compliance with the 2016 Massachusetts MS4 Permit.

4.4 Triggers for SWPPP Revisions

The Town of Braintree shall review this SWPPP regularly to determine if any update or revision is required. Changes that may trigger revision include:

- An increase in the quantity of any potential pollutant stored at the facility;
- The addition of any new potential pollutant (not already addressed in this SWPPP) to the list of materials stored or used at the facility;
- Physical changes to the facility that expose any potential pollutant (not presently exposed) to stormwater;
- Presence of a new authorized non-stormwater discharge at the facility; or
- Addition of an activity that introduces a new potential pollutant.

Changes in activity may include an expansion of operations, or changes in any significant material handling or storage practices which could impact stormwater.

The amended SWPPP will describe the new activities that could contribute to increased pollution, as well as control measures that have been implemented to minimize the potential for pollution.

This SWPPP will be amended if a state or federal inspector determines that it is not effective in controlling stormwater pollutants discharged to waterways.

SECTION 5 – SWPPP 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.

Charles C. Kobrows

Authorized Official

Mayor

Title

7-2-2020

Date

Appendix A

Standard Operating Procedures

Town of Braintree

SOP 1 –Dry Weather Outfall Inspections

Approved By:

Date:

Approved By:

Date:

SOP 1: DRY WEATHER OUTFALL INSPECTION

Introduction

Outfalls from an engineered storm drain system can be in the form of pipes or ditches. Under current and pending regulations, it is important to inspect and document water quality from these outfalls under both dry weather and wet weather conditions. SOP 2, “Wet Weather Outfall Inspection”, covers the objectives of that type of inspection. This SOP discusses the dry weather inspection objectives, and how they differ from wet weather inspection objectives.

During a dry weather period, it is anticipated that minimal flow from stormwater outfalls will be observed. Therefore, dry weather inspections aim to characterize any/all flow observed during a dry weather period and identify potential source(s) of an illicit discharge through qualitative testing; further described in SOP 13, “Water Quality Screening in the Field”.

Before inspections take place it is important to plan ahead for field work. At least one week prior to conducting field work begin filling out Attachment 1. Field Work Logistics Check-List. During the days leading up to field work, and the morning of, review Attachment 2. Equipment Check-List to verify the team has all of their materials. The team should review the team structure and roles for accountability. Review the safety procedures outlined below before conducting any inspections.

Use mobile data collection device forms when accessible. If data is taken on paper in the field it must be logged on the mobile data collection devices.

Objectives of Dry Weather Inspections

A dry weather period is a time interval during which less than 0.1 inch of rain is observed across a minimum of 72 hours. Unlike wet weather sampling, dry weather inspections are not intended to capture a “first flush” of stormwater discharge, rather they are intended to identify any/all discharges from a stormwater outfall during a period without recorded rainfall. The objective of inspections during a dry weather period is to characterize observed discharges and facilitate detection of illicit discharges.

Team Structure

To ensure safe, efficient, and practical field work procedures are maintained the following field team structure has been developed.

Team Leader - The Team Leader is responsible for planning and making arrangements so that all field equipment is available, including field test kits, rental orders, truck scheduling, scheduling the pre-event meeting, scheduling the event, bottle orders, courier scheduling and coordinating, ensuring the safety of the team, and making field decisions that deviate or are not covered by sampling SOPs. When necessary the Team Leader is also responsible for scheduling police details.

Crew Leader - Each crew shall have a single Crew Leader. For sampling events with multiple crews, there will be multiple Crew Leaders. The Crew Leader is responsible for ensuring the following:

- All of the required equipment is packed
- Team's adherence to the sampling plan
- Team's adherence to the Health and Safety Plan
- Chains of custody are filled out correctly
- Quality and accuracy of electronically and hand recorded data
- Sampling is conducted in accordance with this SOP

The Crew Leader will communicate with the Team Leader in the event that issues arise in the field, including any issues with equipment, sampling times, or deviations from SOPs.

Crew Member - The Crew Members shall serve to support for the Crew and Team Leaders as well as ensuring sampling is conducted in accordance with this SOP and following the Health and Safety plan. (Brown and Caldwell, 2019)

Safety Procedures

The Fieldwork Safety Plan shall be reviewed by all staff and followed at all times. The following safety procedures shall also be followed.

1.1 Vehicle Parking

The following procedures govern the parking of vehicles.

- When not working in a roadway, park in a public parking space if available. If not available, pull the vehicle off the road to the extent possible. If in the roadway or close to the roadway, set up cones to establish a safety area around the truck and the work area. Turn on the warning lights upon arrival. Keep the warning lights on until departure.
- When working in the roadway, park the truck between the work area and the direction of oncoming traffic. Turn on warning lights upon arrival. Keep the warning lights on until departure. Use cones to establish a safety zone in work area and area in front of traffic, facing oncoming traffic.

1.2. Personal Protective Gear

The following personal protective gear must be worn at all times:

- Steel toe boots
- Work pants

- Long sleeved shirt
- Safety vest

The following personal protective gear must be worn under the following circumstances:

- Safety glasses - When handling or coming in contact with sampling equipment, working in proximity to the manhole or a stormwater outfall:
- Nitrile gloves - When handling or coming into contact with sampling equipment
- Hard hat - When opening a manhole, working around the manhole area or closing the manhole
- Work gloves - When walking to and from site as well as opening manholes

1.3. Opening a Manhole

If the manhole is in the roadway, establish a safety zone as described in the Vehicle Parking Section (Section 1.1).

Upon opening the manhole, erect a manhole fall prevention device around the manhole. The manhole fall prevention device must be left in place until the manhole is closed. All observations, sampling, etc. must be performed from the outside of the manhole fall prevention device. If quality photos cannot be taken from outside the manhole fall prevention device, you can take photos from inside the device by opening one of the panels. (Brown and Caldwell, 2019)

Visual Condition Assessment

The attached Dry Weather Outfall Inspection Survey is a tool to assist in documenting observations related to the both quantitative and qualitative characteristics of any/all flows conveyed by the structure during a dry period.

For any visual observation discharge from a stormwater outfall, an investigation into the pollution source should occur, but the following are often true:

1. Foam: indicator of upstream vehicle washing activities, or an illicit discharge.
2. Oil sheen: result of a leak or spill.
3. Cloudiness: indicator of suspended solids such as dust, ash, powdered chemicals and ground up materials.
4. Color or odor: Indicator of raw materials, chemicals, or sewage.
5. Excessive sediment: indicator of disturbed earth of other unpaved areas lacking adequate erosion control measures.
6. Sanitary waste and optical enhancers (fluorescent dyes added to laundry detergent): indicators of illicit discharge.
7. Orange staining: indicator of high mineral concentrations.

Both bacteria and petroleum can create a sheen on the water surface. The source of the sheen can be differentiated by disturbing it, such as with a pole. A sheen caused by oil will remain intact and move in a swirl pattern; a sheen caused by bacteria will separate and appear “blocky”. Bacterial or naturally occurring sheens are usually silver or relatively dull in color and will break up into a number of small patches of sheen. The cause may be presence of iron, decomposition of organic material or presence of certain bacteria. Bacterial sheen is not a pollutant but should be noted.

Many of these observations are indicators of an illicit discharge. Examples of illicit discharges include: cross-connections of sewer services to engineered storm drain systems; leaking septic systems; intentional discharge of pollutants to catch basins; combined sewer overflows; connected floor drains; and sump pumps connected to the system (under some circumstances). Additional guidelines for illicit discharge investigations are included in SOP 10, “Locating Illicit Discharges”. If dry weather flow is present at the outfall, and the flow does not appear to be an obvious illicit discharge (e.g. flow is clear, odorless, etc.) attempt to identify the source of flow (e.g. intermittent stream, wetlands drainage, etc.) and document the discharge for future comparison.

Although many of the observations are indicators of illicit discharge it should be noted that several of these indicators may also occur naturally. Orange staining may be the result of naturally occurring iron, and thus unrelated to pollution. Foam can be formed when the physical characteristics of water are altered by the presence of organic materials. Foam is typically found in waters with high organic content such as bog lakes, streams that originate from bog lakes, productive lakes, wetlands, or woody areas. To determine the difference between natural foam and foam cause by pollution, consider the following:

1. Wind direction or turbulence: natural foam occurrences on the beach coincide with onshore winds. Often, foam can be found along a shoreline and/or on open waters during windy days. Natural occurrences in rivers can be found downstream of a turbulent site.
2. Proximity to a potential pollution source: some entities including the textile industry, paper production facilities, oil industries, and fire fighting activities work with materials that cause foaming in water. If these materials are released to a water body in large quantities, they can cause foaming. Also, the presence of silt in water, such as from a construction site can cause foam.
3. Feeling: natural foam is typically persistent, light, not slimy to the touch.
4. Presence of decomposing plants or organic material in the water.

Optical enhancers, fluorescent dyes added to laundry detergent, are typically detected through the use of clean, white cotton pads placed within the discharge for several days, dried then viewed under a UV light. If the cotton pad displays fluorescent patches, optical enhancers are present. Optical enhancers are occasionally visible as a bluish-purple haze on the water surface; however the testing method should be used to confirm the presence of optical enhancers.

The Dry Weather Outfall Inspection Survey includes fields where these and other specific observations can be noted. The inspector shall indicate the presence of a specific water quality indicator or parameter by marking “Yes”. If “Yes” is marked, provide additional details in the comments section. If the indicator in question is not present, mark “No”.

Within the comments section, provide additional information with regard to recorded precipitation totals, or more detailed descriptions of observations made during the inspection and corrective actions taken.

Measuring Water Quality

Based on the results of the Visual Condition Assessment, it may be necessary to collect additional data about water quality. Water quality samples can be in the form of screening using field test kits and instrumentation, or by discrete analytical samples processed by a laboratory.

Information on selecting and using field test kits and instrumentation is included in SOP 13, “Water Quality Screening in the Field.” The Inspection Survey also provides values for what can be considered an appropriate benchmark for a variety of parameters that can be evaluated in the field.

If the results of screening using field test kits indicate that the outfall’s water quality exceeds the benchmarks provided, collection of discrete analytical samples should be considered.

Analytical Sample Collection

Sample collection methods may vary based on specific outfall limitations, but shall follow test procedures outlined in 40 CFR 136. A discrete manual or grab sample can classify water at a distinct point in time. These samples are easily collected and used primarily when the water quality of the discharge is expected to be homogeneous, or unchanging, in nature. A flow-weighted composite sample will classify water quality over a measured period of time. These samples are used when the water quality of the discharge is expected to be heterogeneous, or fluctuating, in nature. Grab samples are more common for dry weather outfall inspections due to the time-sensitive nature of the process.

Protocols for collecting a grab sample shall include the following:

1. Do not eat, drink or smoke during sample collection and processing.
2. Do not collect or process samples near a running vehicle.
3. Do not park vehicles in the immediate sample collection area, including both running and non-running vehicles.
4. Always wear clean, powder-free nitrile gloves when handling sample containers and lids.
5. Never touch the inside surface of a sample container or lid, even with gloved hands.
6. Never allow the inner surface of a sample container or lid to be contacted by any material other than the sample water.
7. Collect samples while facing upstream and so as not to disturb water or sediments in the outfall pipe or ditch.
8. Do not overfill sample containers, and do not dump out any liquid in them. Liquids are often added to sample containers intentionally by the analytical laboratory as a preservative or for pH adjustment.
9. Slowly lower the bottle into the water to avoid bottom disturbance and stirring up sediment.
10. Do not allow any object or material to fall into or contact the collected water sample.

11. Do not allow rainwater to drip from rain gear or other surfaces into sample containers.
12. Replace and tighten sample container lids immediately after sample collection.
13. Accurately label the sample with the time and location.
14. Document on the Wet Weather Outfall Inspection Survey that analytical samples were collected, specify parameters, and note the sample time on the Inspection Survey. This creates a reference point for samples.

Analytical Sample Quality Control and Assurance

Upon completion of successful sample collection, the samples must be sent or delivered to a MassDEP-approved laboratory for analytical testing. Quality control and assurance are important to ensuring accurate analytical test results.

Sample preservation is required to prevent contaminate degradation between sampling and analysis, and should be completed in accordance with 40 CFR 136.3.

Maximum acceptable holding times are also specified for each analytical method in 40 CFR 136.3. Holding time is defined as the period of time between sample collection and extraction for analysis of the sample at the laboratory. Holding time is important because prompt laboratory analysis allows the laboratory to review the data and if analytical problems are found, re-analyze the affected samples within the holding times.

Chain of custody forms are designed to provide sample submittal information and document transfers of sample custody. The forms are typically provided by the laboratory and must be completed by the field sampling personnel for each sample submitted to the lab for analysis. The document must be signed by both the person releasing the sample and the person receiving the sample every time the sample changes hands. The sampling personnel shall keep one copy of the form and send the remaining copies to the laboratory with the samples. Custody seals, which are dated, signed and affixed to the sample container, may be used if the samples are shipped in a cooler via courier or commercial overnight shipping.

Upstream Source Tracking

If an outfall is suspected of sewage contamination, upstream manhole inspections should be initiated. The inspections should be performed during dry weather. The purpose of the upstream manhole inspections is to track the sewage contamination to the stormwater drain pipe where the contamination is entering the system. Attachment 6: Figure 2 presents a flow diagram of the upstream source tracking procedure.

The basic idea behind the manhole inspections is that you start at the downstream end of the drain system and work your way upstream, methodically tracking pipes suspected of having contamination. The tracking continues until an upstream pipe is not contaminated, thereby isolating the illicit source to the last downstream pipe.

Pipe contamination is assessed based on observations of the pipe inlets in the manhole. Pipe inlets that are dry are eliminated from further upstream tracking. Pipe inlets with flow are tested for contamination using field test kits. Pipe inlets with ammonia, surfactant and chlorine concentrations below the contamination thresholds shown in SOP 13: Water Quality Screening in the Field are considered negative for sewage contamination and are also eliminated from further upstream tracking. Pipe inlets exceeding the contamination thresholds are considered positive for contamination and the inspection proceeds to that pipe inlet's upstream manhole. Visual and olfactory observation may also be used to make a determination of pipe contamination.

Use the Manhole Inspection form (see Attachment 4) to document the manhole inspection. Create a new inspection using the form even if you can't find or open the manhole and indicate the result of the inspection accordingly (i.e., manhole not found, manhole could not be opened, etc.). Take multiple pictures of the manhole, including at least one picture showing the surrounding surface area and the interior of the manhole.

Manholes are often present in active roadways. Special care should be taken in assessing the potential risks at each manhole site. The use of police details should be considered for roadways with heavy traffic or other safety risks. (Brown and Caldwell, 2019)

Attachments

1. Field Work Logistics Check-List
2. Equipment Check-List
3. Outfall Inspection Form
4. Upstream Source Tracking Manhole Inspection Form
5. Figure 1. Outfall Inspection Procedures (Brown and Caldwell, 2019)
6. Figure 2. Upstream Source Tracking Procedures (Brown and Caldwell, 2019)

References

1. Brown and Caldwell. (2019) *Appendix E: Outfall Inspection and Dry Weather Sampling SOP*

Related Standard Operating Procedures

1. SOP 2, Wet Weather Outfall Inspection
2. SOP 10, Locating Illicit Discharges
3. SOP 13, Water Quality Screening in the Field

1. SOP 2, Wet Weather Outfall Inspection
2. SOP 10, Locating Illicit Discharges
3. SOP 13, Water Quality Screening in the Field

Attachment 1
Field Work Logistics Check-List

Attachment 1. Field Work Logistics Check-List

One Week Prior to Sampling

- Order bottles – The Team Leader must order bottles. Request delivery for three days prior to sampling. E. Coli cups are good for 6 months before they expire, if we do not have 20 bottles in stock before an event please request these bottles.
- Equipment rental – The Team Leader must rent any needed equipment including a portable multiprobe for measuring pH, temperature, specific conductivity, and salinity. Schedule the equipment to be dropped off the day before the event.
- Field test kits – The Team Leader must make sure field test kits are available. Check in-stock availability of the field test kits. Have at least 20 test kits available to sample for surfactants, ammonia, and chlorine. Refill test kit codes for ordering are R-9400 Detergents, R-2504 chlorine, and R-1501 ammonia. Available at <https://www.chemetrics.com/>. **Some manufacturers have kits that contain Hazardous material and should only be handled by those with proper training.**
- Schedule truck – The Team Leader must schedule the truck for the sampling event.

72 Hours Prior to Sampling

- Review procedures - Each Crew Member must review the procedures. These procedures will also be in the hard copy field binder for reference in the field.
- Review sample bottles – The Team Leader must review the sample bottles. If there are any problems, notify the laboratory.

48 Hours Prior to Sampling

- Police details - If accessing the outfalls will require a police detail, the Team Leader must schedule police detail 48 hours in advance. Contact the Traffic Division, Officer Joseph Tosone at 781-794-8749.
- Courier Pickup – The Team Leader must schedule the courier 48 hours before the event. Schedule two courier pickups with the lab. E. Coli samples have a short hold time so two pickups are necessary. If starting at 7 AM, schedule pickups for 11 AM and 5 PM. If no samples need to be collected call and email lab in advance (generally 2 hours) of scheduled pickup time to cancel the pickup.
- Truck availability – The Team Leader must confirm truck availability.

Day before the event

- Internal coordination meeting – The Team Leader must conduct a meeting with Team Leader and Crew Members the day before the event to coordinate the arrival time, meeting location, responsibilities, and equipment packing.
- Inspect rental equipment – The Team Leader must inspect the rental equipment once it arrives to make sure that it is fully functional.

Day of event, before commencing work

- Notification – The Team Leader must email/text/call the project manager when everyone has arrived on site and you are ready to begin the tailgate meeting
- Tailgate meeting – The Team Leader must conduct the tailgate meeting prior to field work with all sample staff.
- Confirm courier schedule - Following the tailgate meeting, the Team Leader must send email to lab confirming courier pickup locations and times.

Day of event, before submitting samples

- Check bottles - Confirm that the bottles are properly filled and that the dates, sample IDs, and times match those listed in the field book.
- Chains of Custody - Note on the Chains of Custody that the samples should be billed to Town person and results emailed to you (whoever is filling out the chain) and the Team Leader

Day of event, after completing field work

- Notification – The Team Leader must email/text/call the project managers when all sampling has been concluded.

Attachment 2
Equipment Check-List

Attachment 2. Equipment Check-List

- Truck with warning beacon
- Sample bottles with coolers and blanks and Chains of Custody forms
- Ice for ice cooler
- Field test kits (be sure the following is included: colorimeters, instructions, supplies for disposal)
- Portable multiprobe (e.g., YSI)
- Manhole hook and Crowbar
- 12 cones (minimum)
- Flathead screw driver
- Clipboard and sufficient inspection forms
- Tablet, phone or camera for taking pictures (and recording inspections if using a mobile data collection app like Fulcrum).
- Shovel
- Manhole fall prevention device
- Safety vest, hard hat, work gloves, nitrile gloves (multiple sizes), clear safety glasses, safety boots, long sleeve shirt, work pants for all field personnel.
- Extendable sample pole
- 3 gallons of distilled water
- Hazardous waste bag and container for field test kits
- Flashlight with spare batteries
- Field book
- First aid kit

- Fieldwork Safety Plan
- Car phone/tablet charger or battery bank (with connector)
- Spare Cooler
- Ruler
- 3-foot ruler
- Foldable meter stick
- Project binder
- 2 pencils, 2 pens, 2 sharpies, 2 fine point sharpies
- 2 Ziploc bags
- 2 sampling backpacks
- 2 five-gallon buckets
- 2 trash bags
- Duct Tape

Attachment 3
Outfall Inspection Form

Outfall ID: _____ **Town:** _____
Inspector: _____ **Date:** _____
Street Name _____
Last rainfall event _____



DRY WEATHER OUTFALL INSPECTION SURVEY

Type of Outfall (check one):		Pipe Outfall <input type="checkbox"/>	Open Swale Outfall <input type="checkbox"/>
Outfall Label:		Stencil <input type="checkbox"/>	Ground Inset <input type="checkbox"/> Sign <input type="checkbox"/> None <input type="checkbox"/> Other _____
Pipe Material:	Concrete <input type="checkbox"/> Corrugated metal <input type="checkbox"/> Clay Tile <input type="checkbox"/> Plastic <input type="checkbox"/> Other: <input type="checkbox"/>	Pipe Condition:	Good <input type="checkbox"/> Poor <input type="checkbox"/> Fair <input type="checkbox"/> Crumbling <input type="checkbox"/>
Swale Material:	Paved (asphalt) <input type="checkbox"/> Concrete <input type="checkbox"/> Earthen <input type="checkbox"/> Stone <input type="checkbox"/> Other: Animal Shelter <input type="checkbox"/>	Swale Condition:	Good <input type="checkbox"/> Poor <input type="checkbox"/> Fair <input type="checkbox"/> Crumbling <input type="checkbox"/>
Shape of Pipe/Swale (check one)			
 <input type="checkbox"/>	 <input type="checkbox"/>	 <input type="checkbox"/>	 <input type="checkbox"/>
Rounded Pipe/Swale		Rectangular Pipe/Swale	Triangular Swale
Pipe Measurements:		Swale Measurements:	Is there a headwall?
Inner Dia. (in): d= _____	Swale Width (in): T= _____	Yes <input type="checkbox"/> No <input type="checkbox"/>	Location Sketch
Outer Dia. (in): D= _____	Flow Width (in): t= _____	Condition:	
Pipe Width (in): T= _____	Swale Height (in): H= _____	Good <input type="checkbox"/> Poor <input type="checkbox"/>	
Pipe Height (in): H= _____	Flow Height (in): h= _____*	Fair <input type="checkbox"/> Crumbling <input type="checkbox"/>	
Flow Width (in): h= _____*	Bottom Width (in): b= _____		
Description of Flow: Heavy <input type="checkbox"/> Moderate <input type="checkbox"/> Trickling <input type="checkbox"/> Dry <input type="checkbox"/>			
If the outlet is submerged check yes and indicate approximate height of water above the outlet invert. h above invert (in): _____ <input type="checkbox"/>			Circle All Materials Present:
Odor: Yes <input type="checkbox"/> No <input type="checkbox"/>	Optical enhancers suspected? Yes <input type="checkbox"/> No <input type="checkbox"/>	Has channelization occurred? Yes <input type="checkbox"/> No <input type="checkbox"/>	Rip rap <input type="checkbox"/>
Has scouring occurred below the outlet? Yes <input type="checkbox"/> No <input type="checkbox"/>			Excessive sediment <input type="checkbox"/>
Required Maintenance:	Tree Work	Remove Trash/Debris	Sanitary Waste <input type="checkbox"/>
	Ditch Work	Blocked Pipe	Orange Staining <input type="checkbox"/>
	Structural Corrosion	Erosion at Structure	
	N/A	Other	
Comments:			Sheen: <input type="checkbox"/> Bacterial <input type="checkbox"/> Sheen: Petroleum <input type="checkbox"/> Floatables <input type="checkbox"/> Algae <input type="checkbox"/> Excessive Vegetation <input type="checkbox"/>

Attachment 4
Upstream Source Tracking Manhole
Inspection Form

Inlet 2

Orientation (clock position w/ downstream @ 12:00)		Samples Collected? (select only one)	
_____		<input type="checkbox"/> Yes	
		<input type="checkbox"/> No	
Flow condition	<input type="checkbox"/> No Flow	<input type="checkbox"/> Trickle	<input type="checkbox"/> Moderate <input type="checkbox"/> Heavy
Sample Measurements			
Ammonia: _____ mg/l	Surfactants: _____ mg/l		
Chlorine: _____ mg/l	Temp: _____ °F		
Suspected of Contamination?		<input type="checkbox"/> Yes	<input type="checkbox"/> No

Inlet 3

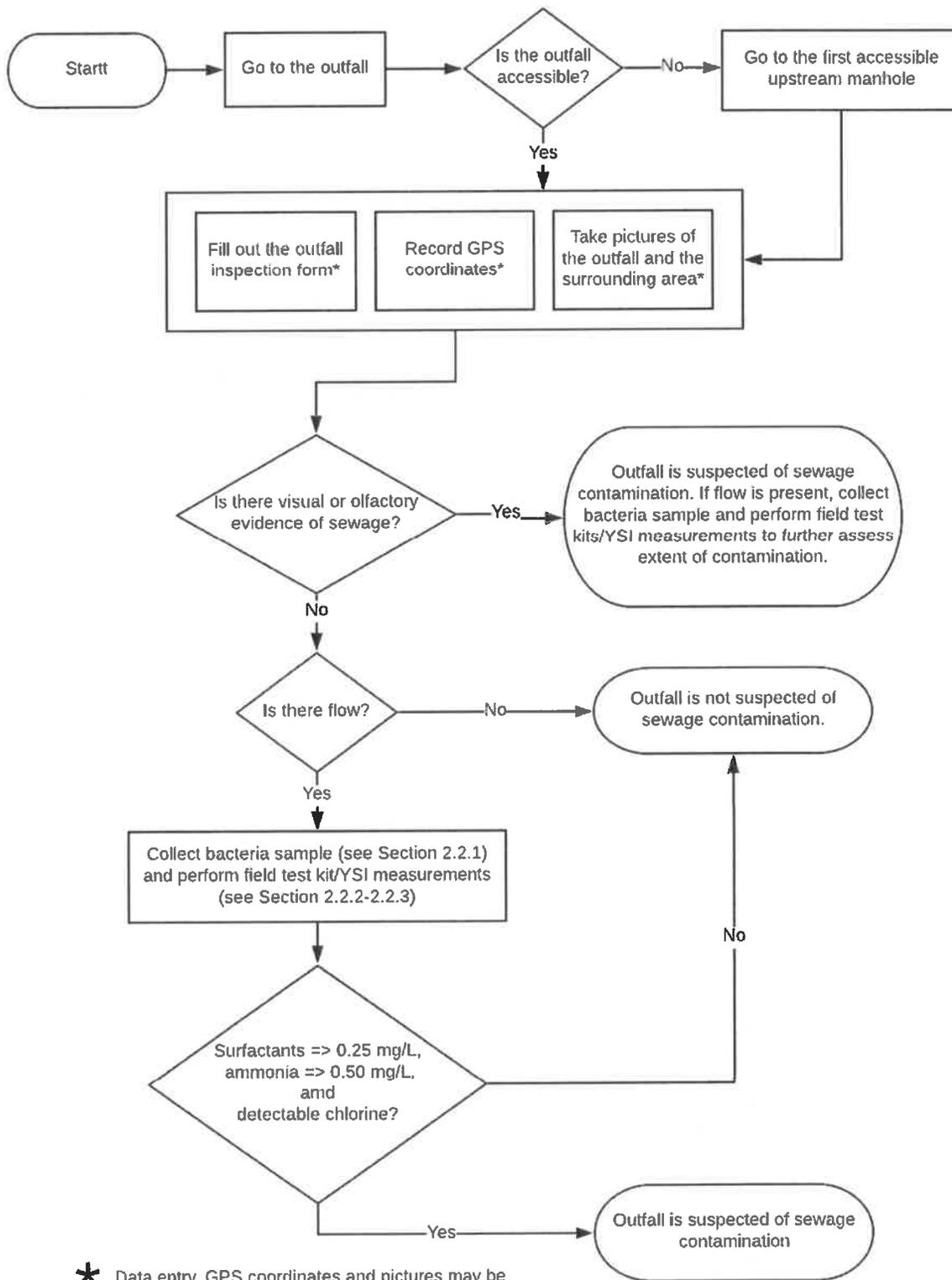
Orientation (clock position w/ downstream @ 12:00)		Samples Collected? (select only one)	
_____		<input type="checkbox"/> Yes	
		<input type="checkbox"/> No	
Flow condition	<input type="checkbox"/> No Flow	<input type="checkbox"/> Trickle	<input type="checkbox"/> Moderate <input type="checkbox"/> Heavy
Sample Measurements			
Ammonia: _____ mg/l	Surfactants: _____ mg/l		
Chlorine: _____ mg/l	Temp: _____ °F		
Suspected of Contamination?		<input type="checkbox"/> Yes	<input type="checkbox"/> No

Inlet 4

Orientation (clock position w/ downstream @ 12:00)		Samples Collected? (select only one)	
_____		<input type="checkbox"/> Yes	
		<input type="checkbox"/> No	
Flow condition	<input type="checkbox"/> No Flow	<input type="checkbox"/> Trickle	<input type="checkbox"/> Moderate <input type="checkbox"/> Heavy
Sample Measurements			
Ammonia: _____ mg/l	Surfactants: _____ mg/l		
Chlorine: _____ mg/l	Temp: _____ °F		
Suspected of Contamination?		<input type="checkbox"/> Yes	<input type="checkbox"/> No

Attachment 5

Figure 1. Outfall Inspection Procedures



* Data entry, GPS coordinates and pictures may be recorded with mobile data entry platform such as Fulcrum.

Figure 1. Outfall Inspection Procedures

Attachment 6

Figure 2. Upstream Source Tracking Procedures

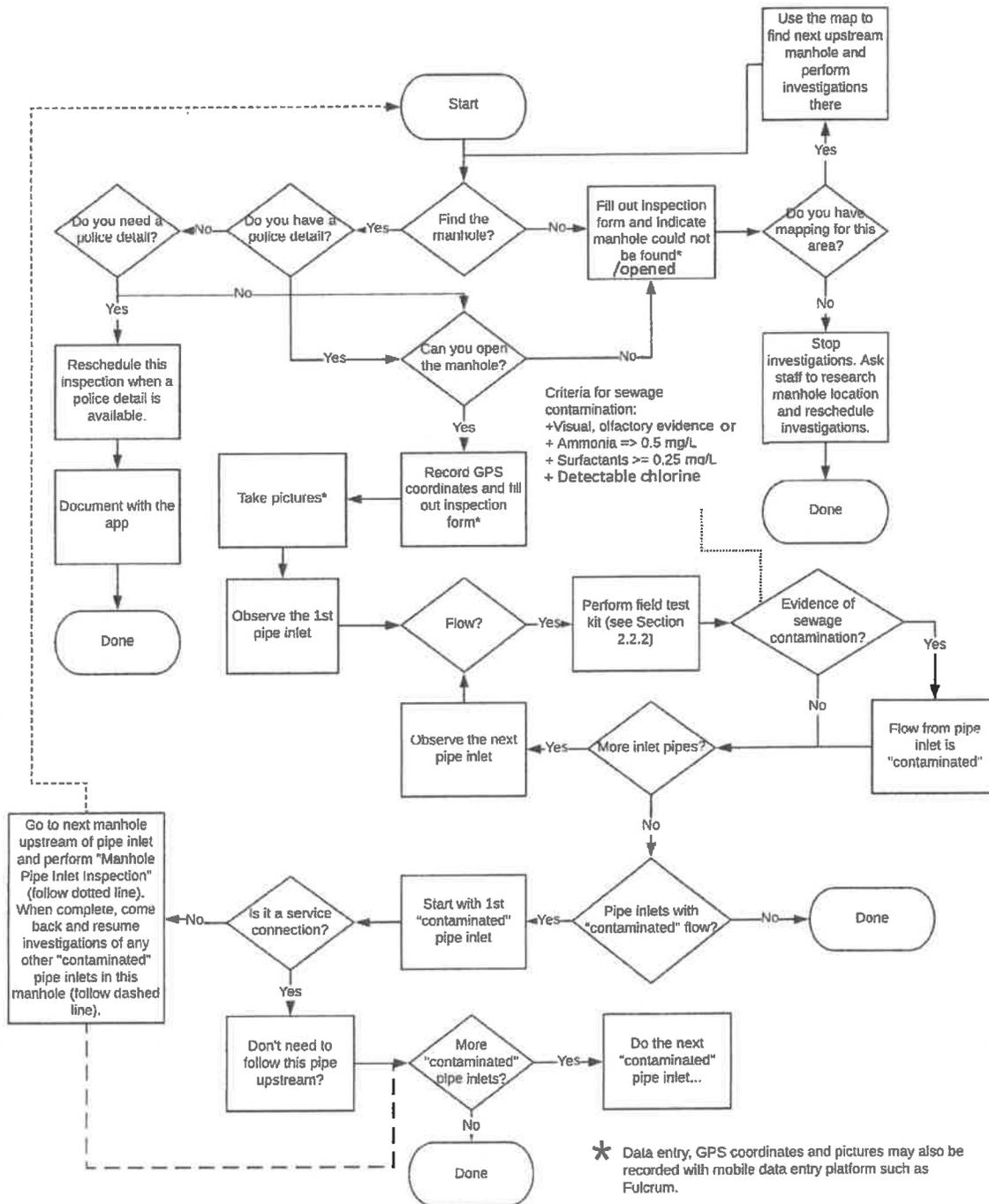


Figure 2. Upstream Source Tracking Procedures

Town of Braintree

SOP 2 –Wet Weather Outfall Inspections

Approved By:

Date:

Approved By:

Date:

SOP 2: WET WEATHER OUTFALL INSPECTION

Introduction

Outfalls from an engineered storm drain system can be in the form of pipes or ditches. Under current and pending regulations, it is important to inspect and document water quality from these outfalls under both dry weather and wet weather conditions. SOP 1, “Dry Weather Outfall Inspection”, covers the objectives of that type of inspection. This SOP discusses wet weather inspection objectives and how they differ from dry weather inspection objectives. The primary difference is that wet weather inspection aims to describe and evaluate the first flush of stormwater discharged from an outfall during a storm, representing the maximum pollutant load managed by receiving water.

Definition of Wet Weather

A storm is considered a representative wet weather event if greater than 0.1 inch of rain falls and occurs at least 72 hours after the previously measurable (greater than 0.1 inch of rainfall) storm event. In some watersheds, based on the amount of impervious surface present, increased discharge from an outfall may not result from 0.1 inch of rain. An understanding of how outfalls respond to different events will develop as the inspection process proceeds over several months, allowing the inspectors to refine an approach for inspections.

Ideally, the evaluation and any samples collected should occur within the first 30 minutes of discharge to reflect the first flush or maximum pollutant load.

Typical practice is to prepare for a wet weather inspection event when weather forecasts show a 40% chance of rain or greater. If the inspector intends to collect analytical samples, coordination with the laboratory for bottleware and for sample drop-off needs to occur in advance.

Visual Condition Assessment

PeopleGIS QuickAsset should be used to document observations related to the quality of stormwater conveyed by the structure. Select the outfall being inspected using the QuickAsset program, add an inspection, and fill in all information required. The attached Wet Weather Outfall Inspection Survey can be used in the field. Observations taken using the paper survey must be logged in QuickAsset no later than one month after data collection. Observations such as the following can indicate sources of pollution within the storm drain system:

- Oil sheen
- Discoloration
- Trash and debris

For any visual observation of pollution in a stormwater outfall discharge, an investigation into the pollution source should occur, but the following are often true:

1. Foam: indicator of upstream vehicle washing activities, or an illicit discharge.
2. Oil sheen: result of a leak or spill.
3. Cloudiness: indicator of suspended solids such as dust, ash, powdered chemicals and ground up materials.
4. Color or odor: Indicator of raw materials, chemicals, or sewage.
5. Excessive sediment: indicator or disturbed earth of other unpaved areas lacking adequate erosion control measures.
6. Sanitary waste and optical enhancers (fluorescent dyes added to laundry detergent): indicators of illicit discharge.
7. Orange staining: indicator of high mineral concentrations.

Many of these observations are indicators of an illicit discharge. Examples of illicit discharges include: cross-connections of sewer services to engineered storm drain systems; leaking septic systems; intentional discharge of pollutants to catch basins; combined sewer overflows; connected floor drains; and sump pumps connected to the system (under some circumstances). Additional guidelines for illicit discharge investigations are included in SOP 10, "Locating Illicit Discharges".

Although many of the observations are indicators of illicit discharge it should be noted that several of these indicators may also occur naturally. Orange staining may be the result of naturally occurring iron, and thus unrelated to pollution. Foam can be formed when the physical characteristics of water are altered by the presence of organic materials. Foam is typically found in waters with high organic content such as bog lakes, streams that originate from bog lakes, productive lakes, wetlands, or woody areas. To determine the difference between natural foam and foam cause by pollution, consider the following:

1. Wind direction or turbulence: natural foam occurrences on the beach coincide with onshore winds. Often, foam can be found along a shoreline and/or on open waters during windy days. Natural occurrences in rivers can be found downstream of a turbulent site.
2. Proximity to a potential pollution source: some entities including the textile industry, paper production facilities, oil industries, and fire fighting activities work with materials that cause foaming in water. If these materials are released to a water body in large quantities, they can cause foaming. Also, the presence of silt in water, such as from a construction site can cause foam.
3. Feeling: natural foam is typically persistent, light, not slimy to the touch.
4. Presence of decomposing plants or organic material in the water.

Both bacteria and petroleum can create a sheen on the water surface. The source of the sheen can be differentiated by disturbing it, such as with a pole. A sheen caused by oil will remain intact and move in a swirl pattern; a sheen caused by bacteria will separate and appear "blocky". Bacterial or naturally occurring sheens are usually silver or relatively dull in color and will break up into a number of small patches of sheen. The cause may be presence of iron, decomposition of organic material or presence of certain bacteria. Bacterial sheen is not a pollutant but should be noted.

Optical enhancers, fluorescent dyes added to laundry detergent, are typically detected through the use of clean, white cotton pads placed within the discharge for several days, dried then viewed under a UV light.

If the cotton pad displays fluorescent patches, optical enhancers are present. Optical enhancers are occasionally visible as a bluish-purple haze on the water surface; however the testing method should be used to confirm the presence of optical enhancers.

The Wet Weather Outfall Inspection Survey includes fields where these and other specific observations can be noted. The inspector shall indicate the presence of a specific water quality indicator or parameter by marking “Yes”. If “Yes” is marked, provide additional details in the comments section. If the indicator in question is not present mark “No”.

Within the comments section, provide additional information with regard to recorded precipitation totals, or more detailed descriptions of observations made during the inspection and corrective actions taken.

Measuring Water Quality

Based on the results of the Visual Condition Assessment, it may be necessary to collect additional data about water quality. Water quality samples can be in the form of screening using field test kits or by discrete analytical samples processed by a laboratory.

Information on how to use field test kits is included in SOP 13, “Water Quality Screening with Field Test Kits”, and the Wet Weather Outfall Inspection Survey includes fields to document the results of such screening. The Inspection Survey also provides values for what can be considered an appropriate benchmark for a variety of parameters that can be evaluated with field test kits.

If the results of screening using field test kits indicate that the outfall’s water quality exceeds the benchmarks provided, collection of discrete analytical samples should be considered.

Analytical Sample Collection

Sample collection methods may vary based on specific outfall limitations but shall follow test procedures outlined in 40 CFR 136. A discrete manual or grab sample can classify water at a distinct point in time. These samples are easily collected and used primarily when the water quality of the discharge is expected to be homogeneous, or unchanging, in nature. A flow-weighted composite sample will classify water quality over a measured period of time. These samples are used when the water quality of the discharge is expected to be heterogeneous, or fluctuating, in nature. Grab samples are more common for wet weather outfall inspections due to the time-sensitive nature of the process.

Protocols for collecting a grab sample shall include the following:

1. Do not eat, drink or smoke during sample collection and processing.
2. Do not collect or process samples near a running vehicle.
3. Do not park vehicles in the immediate sample collection area, including both running and non-running vehicles.
4. Always wear clean, powder-free nitrile gloves when handling sample containers and lids.
5. Never touch the inside surface of a sample container or lid, even with gloved hands.

6. Never allow the inner surface of a sample container or lid to be contacted by any material other than the sample water.
7. Collect samples while facing upstream and so as not to disturb water or sediments in the outfall pipe or ditch.
8. Do not overfill sample containers, and do not dump out any liquid in them. Liquids are often added to sample containers intentionally by the analytical laboratory as a preservative or for pH adjustment.
9. Slowly lower the bottle into the water to avoid bottom disturbance and stirring up sediment.
10. Do not allow any object or material to fall into or contact the collected water sample.
11. Do not allow rainwater to drip from rain gear or other surfaces into sample containers.
12. Replace and tighten sample container lids immediately after sample collection.
13. Accurately label the sample with the time and location.
14. Document on the Wet Weather Outfall Inspection Survey that analytical samples were collected, specify parameters, and note the sample time on the Inspection Survey. This creates a reference point for samples.

Analytical Sample Quality Control and Assurance

Upon completion of successful sample collection, the samples must be sent or delivered to a MassDEP-approved laboratory for analytical testing. Quality control and assurance are important to ensuring accurate analytical test results.

Sample preservation is required to prevent contaminant degradation between sampling and analysis and should be completed in accordance with 40 CFR 136.3.

Maximum acceptable holding times are also specified for each analytical method in 40 CFR 136.3. Holding time is defined as the period of time between sample collection and extraction for analysis of the sample at the laboratory. Holding time is important because prompt laboratory analysis allows the laboratory to review the data and if analytical problems are found, re-analyze the affected samples within the holding times.

Chain of custody forms are designed to provide sample submittal information and document transfers of sample custody. The forms are typically provided by the laboratory and must be completed by the field sampling personnel for each sample submitted to the lab for analysis. The document must be signed by both the person releasing the sample and the person receiving the sample every time the sample changes hands. The sampling personnel shall keep one copy of the form and send the remaining copies to the laboratory with the samples. Custody seals, which are dated, signed and affixed to the sample container, may be used if the samples are shipped in a cooler via courier or commercial overnight shipping.

Attachments

1. Wet Weather Outfall Inspection Form

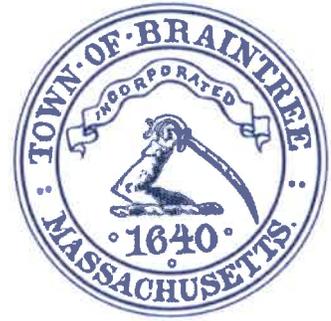
Related Standard Operating Procedures

1. SOP 1, Dry Weather Outfall Inspection
2. SOP 10, Locating Illicit Discharges
3. SOP 13, Water Quality Screening in the Field

Attachment 1

Wet Weather Outfall Inspection Form

Outfall I.D.: _____ **Date:** _____
Inspector: _____
Time of Inspection: _____
Street Name _____
Last rainfall event _____



WET WEATHER OUTFALL INSPECTION SURVEY

Visual Inspection:	Yes	No	Comments (Include probable source of observed contamination):
Color	<input type="checkbox"/>	<input type="checkbox"/>	
Odor	<input type="checkbox"/>	<input type="checkbox"/>	
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	
Excessive Sediment	<input type="checkbox"/>	<input type="checkbox"/>	
Sanitary Waste	<input type="checkbox"/>	<input type="checkbox"/>	
Pet Waste	<input type="checkbox"/>	<input type="checkbox"/>	
Floatable Solids	<input type="checkbox"/>	<input type="checkbox"/>	
Oil Sheen	<input type="checkbox"/>	<input type="checkbox"/>	
Bacterial Sheen	<input type="checkbox"/>	<input type="checkbox"/>	
Foam	<input type="checkbox"/>	<input type="checkbox"/>	
Algae	<input type="checkbox"/>	<input type="checkbox"/>	
Orange Staining	<input type="checkbox"/>	<input type="checkbox"/>	
Excessive Vegetation	<input type="checkbox"/>	<input type="checkbox"/>	
Optical Enhancers	<input type="checkbox"/>	<input type="checkbox"/>	
Other _____			

Sample Parameters	Analytical Test Method	Benchmark*	Field Screening Result	Full Analytical?
Ammonia ¹	EPA 350.2/SM4500-NH3C	>50.0 mg/L		<input type="checkbox"/> Yes <input type="checkbox"/> No
Specific Conductance ¹	SM 2510B	>2,000		<input type="checkbox"/> Yes <input type="checkbox"/> No
Detergents & Surfactants ²	EPA 425.1/SM5540C	> 0.25 mg/L		<input type="checkbox"/> Yes <input type="checkbox"/> No
Fluoride ²	EPA 300.0	>0.25 mg/L		<input type="checkbox"/> Yes <input type="checkbox"/> No
pH ¹	EPA 150.1/SM 4500H	<5		<input type="checkbox"/> Yes <input type="checkbox"/> No
Potassium ¹	EPA 200.7	>20 mg/L		<input type="checkbox"/> Yes <input type="checkbox"/> No

Comments:

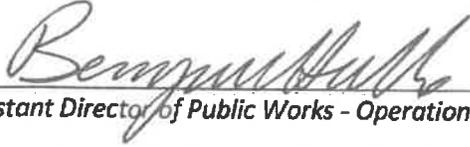
¹ – *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments*, Center for Watershed Protection and Robert Pitt of University of Alabama, 2004, p. 134, Table 45.

² – *Appendix I – Field Measurements, Benchmarks and Instrumentation*, Draft Massachusetts North Coastal Small MS4 General Permit, 2009.

Standard Operating Procedures
Town of Braintree
Department of Public Works
Catch Basin Inspection and Cleaning

Issue Date:
6/29/2019

Approved by:



Assistant Director of Public Works - Operations

Purpose of SOPs:

Procedures for the inspection and maintenance of catch basins, frequency of cleaning, disposal of debris, and recordkeeping to prevent pollution from entering the stormwater sewer systems.

MA Small MS4 General Permit Requirement Summary:

Part 2.3.7.a.iii.2.

The permittee shall optimize routine inspections, cleaning and maintenance of catch basins such that the following conditions are met:

- Prioritize inspection and maintenance for catch basins located near construction activities (roadway construction, residential, commercial, or industrial development or redevelopment). Clean catch basins in such areas more frequently if inspection and maintenance activities indicate excessive sediment or debris loadings.
- Establish a schedule with a goal that the frequency of routine cleaning will ensure that no catch basin at anytime will be more than 50 percent full.
- If a catch basin sump is more than 50 percent full during two consecutive routine inspections/cleaning events, the permittee shall document that finding, investigate the contributing drainage area for sources of excessive sediment loading, and to the extent practicable, abate contributing sources. The permittee shall describe any actions taken in its annual report.
- For the purposes of this part, an excessive sediment or debris loading is a catch basin sump more than 50 percent full. A catch basin sump is more than 50 percent full if the contents within the sump exceed one half the distance between the bottom interior of the catch basin to the invert of the deepest outlet of the catch basin.
- The permittee shall document in the SWMP and in the first annual report its plan for optimizing catch basin cleaning, inspection plans, or its schedule for gathering information to develop the optimization plan. Documentation shall include metrics and other information used to reach the determination that the established plan for cleaning and maintenance is optimal for the MS4. The permittee shall keep a log of catch basins cleaned or inspected.
- The permittee shall report in each annual report the total number of catch basins, number inspected, number cleaned, and the total volume or mass of material removed from all catch basins.

Part 2.3.a.iii.4.

The permittee shall ensure proper storage of catch basin cleanings and street sweepings prior to disposal or reuse such that they do not discharge to receiving waters.

Standard Operating Procedures
Town of Braintree
Department of Public Works
Catch Basin Inspection and Cleaning

Issue Date:
6/29/2019

Equipment Inventory:

The following is a list of street sweeping equipment:

Equipment Number	Make	Description
#32	International 7400	2012 Vactor – Rodder/Vacuum Truck
#5	International 40S490	1999 Dump truck with clam shell bucket crane
#1	International 40S490	2000 Dump truck with clam shell bucket crane

Operations

1. Operate all equipment according to the manufacturer’s recommended settings, standards, and procedures.
2. If spills occur or illegal discharges are seen, report to immediate supervisor.

Maintenance

1. Equipment will be checked for leaks during daily vehicle inspection. Immediately contain and properly clean up any spills.
2. Regular preventative maintenance to prolong equipment use (such as greasing moving parts and minor adjustments) occur weekly.
3. Parts are replaced as necessary.
4. Equipment is washed at DPW – Highway Yard located at 245 Union St to trap grease, oils and sediment.

Standard Operating Procedures

Town of Braintree

Department of Public Works

Catch Basin Inspection and Cleaning

Issue Date:

6/29/2019

Cleaning Procedure

Catch basin inspection cleaning procedures should address both the grate opening and the basin's sump. Document any and all observations about the condition of the catch basin structure and water quality on the Catch Basin Inspection Form (attached).

Catch basin inspection and cleaning procedures include the following:

1. Work upstream to downstream.
2. Clean sediment and trash off grate.
3. Visually inspect the outside of the grate.
4. Visually inspect the inside of the catch basin to determine cleaning needs.
5. Inspect catch basin for structural integrity.
6. Determine the most appropriate equipment and method for cleaning each catch basin.
 - a. Manually use a shovel to remove accumulated sediments, or
 - b. Use a bucket loader to remove accumulated sediments, or
 - c. Use a high pressure washer to clean any remaining material out of catch basin while capturing the slurry with a vacuum.
 - d. If necessary, after the catch basin is clean, use the rodder of the vacuum truck to clean downstream pipe and pull back sediment that might have entered downstream pipe.
7. If contamination is suspected, chemical analysis will be required to determine if the materials comply with the Massachusetts DEP Hazardous Waste Regulations, 310 CMR 30.000 (<http://www.mass.gov/dep/service/regulations/310cmr30.pdf>). Chemical analysis required will depend on suspected contaminants. Note the identification number of the catch basin on the sample label, and note sample collection on the Catch Basin Inspection Form.
8. Properly dispose of collected sediments. See following section for guidance.
9. If illicit discharges are observed or suspected, notify the appropriate Department.
10. At the end of each day, document location and number of catch basins cleaned, amount of waste collected, and disposal method for all screenings.
11. Report additional maintenance or repair needs to the appropriate Department.

Storage and Disposal

1. Temporary storage of solid sweeping debris is on an impervious surface or in a truck/dumpster that is protected from runoff. The storage location(s) is/are DPW Highway Yard and Leaf Compost Site
2. Solid catch basin cleaning debris is brought to SEMASS for permanent disposal.

<p>Standard Operating Procedures <i>Town of Braintree</i> <i>Department of Public Works</i> Catch Basin Inspection and Cleaning</p>	<p>Issue Date: 6/29/2019</p>
<p>Training</p> <ol style="list-style-type: none"> 1. Employees are trained yearly on this procedure and the proper operation of equipment. Employees are also trained on stormwater pollution prevention, spill and response, and illicit discharge detection and elimination procedures. 	
<p>Record Keeping</p> <ol style="list-style-type: none"> 1. Records are kept at the DPW Highway Division Office. 2. Approximate cubic yards of debris removed are recorded at the end of each day. 3. Document location and number of catch basins cleaned at the end of each day. 4. Catch Basin inspection logs are filed daily. 5. A list of employees implementing the SOPs and the completion of their training(s) can be found at the DPW Highway Division Office at 245 Union St. 	
<p>Revising the SOPs</p> <ol style="list-style-type: none"> 1. These procedures are reviewed yearly and updated as needed. 	

CATCH BASIN INSPECTION AND CLEANING

Catch basins help minimize flooding and protect water quality by removing trash, sediment, decaying debris, and other solids from stormwater runoff. These materials are retained in a sump below the invert of the outlet pipe. Catch basin cleaning reduces foul odors, prevents clogs in the storm drain system, and reduces the loading of suspended solids, nutrients, and bacteria to receiving waters.

During regular cleaning and inspection procedures, data can be gathered related to the condition of the physical basin structure and its frame and grate and the quality of stormwater conveyed by the structure. Observations such as the following can indicate sources of pollution within the storm drain system:

- Oil sheen
- Discoloration
- Trash and debris

Both bacteria and petroleum can create a sheen on the water surface. The source of the sheen can be differentiated by disturbing it, such as with a pole. A sheen caused by an oil will remain intact and move in a swirl pattern; a sheen caused by bacteria will separate and appear “blocky”. Bacterial sheen is not a pollutant but should be noted.

Observations such as the following can indicate a potential connection of a sanitary sewer to the storm drain system, which is an illicit discharge.

- Indications of sanitary sewage, including fecal matter or sewage odors
- Foaming, such as from detergent
- Optical enhancers, fluorescent dye added to laundry detergent

Each catch basin should be cleaned and inspected at least annually. Catch basins in high-use areas may require more frequent cleaning. Performing street sweeping on an appropriate schedule will reduce the amount of sediment, debris, and organic matter entering the catch basins, which will in turn reduce the frequency with which structures need to be cleaned.

CATCH BASIN INSPECTION FORM

Catch Basin I.D.		Final Discharge from Structure? Yes <input type="checkbox"/> No <input type="checkbox"/> If Yes, Discharge to Outfall No: _____	
Catch Basin Label:	Stencil <input type="checkbox"/>	Ground Inset <input type="checkbox"/>	Sign <input type="checkbox"/> None <input type="checkbox"/> Other _____
Basin Material:	Concrete <input type="checkbox"/> Corrugated metal <input type="checkbox"/> Stone <input type="checkbox"/> Brick <input type="checkbox"/> Other: <input type="checkbox"/>	Catch Basin Condition:	Good <input type="checkbox"/> Poor <input type="checkbox"/> Fair <input type="checkbox"/> Crumbling <input type="checkbox"/>
Pipe Material:	Concrete <input type="checkbox"/> HDPE <input type="checkbox"/> PVC <input type="checkbox"/> Clay Tile <input type="checkbox"/> Other: _____	Pipe Measurements:	Inlet Dia. (in): d= _____ Outlet Dia. (in): D= _____
Required Maintenance/ Problems (check all that apply):			
<input type="checkbox"/> Tree Work Required <input type="checkbox"/> New Grate is Required <input type="checkbox"/> Pipe is Blocked <input type="checkbox"/> Frame Maintenance is Required <input type="checkbox"/> Remove Accumulated Sediment <input type="checkbox"/> Pipe Maintenance is Required <input type="checkbox"/> Basin Undermined or Bypassed		<input type="checkbox"/> Cannot Remove Cover <input type="checkbox"/> Ditch Work <input type="checkbox"/> Corrosion at Structure <input type="checkbox"/> Erosion Around Structure <input type="checkbox"/> Remove Trash & Debris <input type="checkbox"/> Need Cement Around Grate Other: _____	
Catch Basin Grate Type :	Sediment Buildup Depth :	Description of Flow:	Street Name/ Structure Location:
Bar: <input type="checkbox"/> Cascade: <input type="checkbox"/> Other: _____ Properly Aligned: Yes <input type="checkbox"/> No <input type="checkbox"/>	0-6 (in): _____ 6-12(in): _____ 12-18 (in): _____ 18-24 (in): _____ 24 + (in): _____	Heavy <input type="checkbox"/> Moderate <input type="checkbox"/> Slight <input type="checkbox"/> Trickling <input type="checkbox"/>	
*If the outlet is submerged check yes and indicate approximate height of water above the outlet invert. h above invert (in): _____		Yes <input type="checkbox"/>	No <input type="checkbox"/>
<input type="checkbox"/> Flow <input type="checkbox"/> Standing Water (check one or both)	Observations: Color: _____ Odor: _____	Circle those present:	
Weather Conditions : Dry > 24 hours <input type="checkbox"/> Wet <input type="checkbox"/>		Sanitary Waste	Bacterial Sheen
Sample of Screenings Collected for Analysis? Yes <input type="checkbox"/> No <input type="checkbox"/>		Orange Staining	Floatables
Comments:		Excessive sediment	Pet Waste
		Other: _____	Optical Enhancers

Inspector: _____

Date: _____

Town of Braintree

SOP 4 –Spill Response

Approved By:

Date:

Approved By:

Date:

SOP 4: Spill Response and Cleanup

Introduction

Municipalities are responsible for any contaminant spill or release that occurs on property that they own or operate. Particular areas of concern include any facilities that use or store chemicals, fuel oil, or hazardous waste, including schools, garages, and landfills. Implementation of proper spill response and cleanup procedures can help to mitigate the effects of a contaminant release. The goal of this written Standard Operating Procedure (SOP) is to provide guidance to municipal employees to help reduce the discharge of pollutants through preparedness, planning, and response.

The Town of Braintree should undertake various precautions with spill response and cleanup procedures.

Procedures

The Town of Braintree should implement the following spill response and cleanup procedures to reduce the discharge of pollutants from the MS4:

Responding to a Spill

Employees should be trained yearly in proper spill response specific to the materials used at their site and appropriate personal protective equipment (PPE). Training will be coordinated by the Stormwater Division. In the event of a spill, these spill response and cleanup procedures should be followed:

- If the facility has a Stormwater Pollution Prevention Plan (SWPPP), notify a member of the facility's Pollution Prevention Team, the facility supervisor, and/or the facility safety officer (fill out the attached spill response contact list). If not, continue to follow the procedures outlined below.
- Assess the contaminant release site for potential safety issues and for direction of flow.
- Complete the following:
 - Stop the contaminant release.
 - Contain the contaminant release through the use of spill containment berms or absorbents.
 - Protect all drains and/or catch basins with the use of absorbents, booms, berms or drain covers.
 - Clean up the spill.
 - Dispose of all contaminated products in accordance with applicable federal, state and local regulations.
 - i. Soil contaminated with petroleum should be handled and disposed of as described in MassDEP policy WCS-94-400, Interim Remediation Waste Management Policy for Petroleum Contaminated Soils (<https://www.mass.gov/files/documents/2016/08/mq/94-400.pdf>).
 - ii. Products saturated with petroleum products or other hazardous chemicals require special handling and disposal by licensed transporters. Licensed transporters will pick up spill contaminated materials for recycling or disposal. Save the shipping records for at least three years.
 - iii. Waste oil contaminated industrial wipes and sorptive minerals:
 1. Perform the "one drop" test to ensure absorbents do not contain enough oil to be considered hazardous, as described in the MassDEP Waste Oil

Management Guide

(<https://www.mass.gov/files/documents/2018/12/18/oiltwiper.pdf>).

2. Wring absorbents through a paint filter. If doing so does not generate one drop of oil, the materials are not hazardous.
 3. If absorbents pass the “one drop” test they may be discarded in the trash unless contaminated with another hazardous waste.
 - a. It is acceptable to mix the following fluids and handle them as waste oil:
 - i. Waste motor oil
 - ii. Hydraulic fluid
 - iii. Power steering fluid
 - iv. Transmission fluid
 - v. Brake fluid
 - vi. Gear oil
 - b. **Do not mix** the following materials with waste oil. Store each separately:
 - i. Gasoline
 - ii. Antifreeze
 - iii. Brake and carburetor cleaners
 - iv. Cleaning solvents
 - v. Other hazardous wastes
 4. If absorbents do not pass the “one drop” test they should be placed in separate metal containers with tight fitting lids, labeled “Oily Waste Absorbents Only.”
- If you need assistance containing and/or cleaning up the spill, or preventing it from discharging to a surface water (or an engineered storm drain system), contact your local fire department using the number listed below. **In the case of an emergency call 911.**
 - Braintree Fire Department: (781) 843-3600
 - Contact the MassDEP 24-hour spill reporting notification line, toll-free at **(888) 304-1133**;
 - The following scenarios **are exempt** from MassDEP reporting requirements (see the MassDEP factsheet on oil and hazardous materials handling for more information: <https://www.mass.gov/files/documents/2016/08/xm/spillmgm.pdf>).
 - i. Spills that are less than 10 gallons of petroleum and do not impact a water body
 - ii. Spills that are less than one pound of hazardous chemicals and do not present an imminent health or safety hazard
 - iii. Fuel spills from passenger vehicle accidents
 - iv. Spills within a vault or building with a watertight floor and walls that completely contain all released chemicals

Reporting a Spill/SSO

Employees shall report spills to their supervisor who shall inform the Fire Department Hazmat Officer as soon as possible. Any spill in excess of 10 gallons shall be reported to the Fire Department Hazmat Officer. The Hazmat Officer will inform all contacts listed in Attachment A: Spill Response and Cleanup Contact List Table 1 within 24 hours of the spill. Additionally, when responding to an SSO all individuals in Attachment A: Spill Response and Cleanup Contact List Table 2 should be contacted verbally. When contacting

emergency response personnel or a regulatory agency, or when reporting the contaminant release, be prepared to provide the following information:

1. Your name and the phone number you are calling from.
2. The exact address and location of the contaminant release.
3. Specifics of release, including:
 - a. What was released;
 - b. How much was released, which may include:
 - i. Pounds
 - ii. Gallons
 - iii. Number of containers
4. Where was the release sent/what was contaminated, addressing:
 - a. Pavement
 - b. Soil
 - c. Drains
 - d. Catch basins
 - e. Water bodies
 - f. Public streets
 - g. Public sidewalks
5. The concentration of the released contaminant.
6. What/who caused the release.
7. Is the release being contained and/or cleaned up or is the response complete.
8. Type and amount of petroleum stored on site, if any.
9. Characteristics of contaminant container, including:
 - a. Tanks
 - b. Pipes
 - c. Valves

Maintenance and Prevention Guidance

Prevention of spills is preferable to even the best response and cleanup. To mitigate the effects of a contaminant release, proper maintenance and inspection should be provided at each facility. To protect against contaminant release the following guidance should be adhered to:

- All employees should be properly trained to respond in the case of a spill, understand the nature and properties of the contaminant, and understand the spill control materials and personnel safety equipment. Maintain training records of current personnel on site and retain training records of former personnel for at least three years from the date last worked at the facility. Such training should be coordinated by the Stormwater Division.
- Yearly maintenance and inspection should be performed at all municipal facilities, paying particular attention to underground storage tanks. Maintain maintenance and inspection records on site.
- Good management practices should be implemented where chemicals and hazardous wastes are stored:
 - a. Ensure storage in closed containers inside a building and on an impervious surface wherever possible.
 - b. If storage cannot be provided inside, ensure secondary containment for 110 percent of the maximum volume of the storage container.
 - c. Locate storage areas near maintenance areas to decrease the distance required for transfer.

- d. Provide accurate labels, Material Safety Data Sheets (MSDS) information, and warnings for all stored materials.
 - e. Regularly inspect storage areas for leaks.
 - f. Ensure secure storage locations, preventing access by untrained or unauthorized persons.
 - g. Maintain accurate records of stored materials.
- Traditional hazardous materials such as pesticides and cleansers should be replaced with non-hazardous products such as bio-lubricants which can reduce response costs in the case of a spill.
 - Spill kits shall be present and maintained at all fueling and storage areas.
 - Crash protection shall be installed where flammables and hazardous materials are stored.
 - Fire Extinguishers shall be present in all areas where fueling is done and where flammables are stored.

Appropriately stocked spill response kits should be maintained at each facilities and locations where oil, chemicals, or other hazardous materials are handled and stored.

Employee Training

- Employees who perform work with potential stormwater pollutants should be trained once per year on proper spill procedures. Such training should be coordinated by the Stormwater Division.
- Employees should also trained on stormwater pollution prevention and illicit discharge detection and elimination (IDDE) procedures.
- If services are contracted, the contractor should be given a copy of this and any applicable SOPs to ensure compliance with MS4 regulations.

Attachments

1. Spill Response and Cleanup Contact List

Attachment 1
Spill Response Contact List

Spill Response and Cleanup Contact List
Table 1

Contact	Phone Number	Date and Time Contacted
Safety Officer: _____		
Braintree Stormwater Department	781-794-8945	
Fire Department: Hazmat Officer	(781) 843-3600	
MassDEP 24-Hour Spill Reporting	(888)-304-1133	
MassDEP Regional Offices:		
Northeast Regional Office	(978) 694-3200	
Southeast Regional Office	(508) 946-2700	
Central Regional Office	(508) 792-7650	
Western Regional Office	(413) 784-1100	
Hazardous Waste Compliance Assistance Line	(617) 292-5898	
Household Hazardous Products Hotline	(800) 343-3420	
Massachusetts Department of Fire Services	(978) 567-3100 or (413) 587-3181	
Licensed Site Professionals Association (Wakefield, MA)	(781) 876-8915 (617) 556-1091	
Licensed Site Professionals Board		

SSO Response Contact List
Table 2

Name	Agency	Phone Number	Fax Number	Email Address
Davids Burns	Mass DEP	(508) 946-2738	(508) 947-6557	david.burns@state.ma.us
Douglas Koopman	US EPA	(617) 918-1747	(617) 918-0747	koopman.douglas@epa.gov
Stephen Cullen	MWRA	(617) 305-5921	(617) 371-1627	Stephen.Cullen@mwra.com
Marybeth McGrath	Braintree Board of Health Department	(781)794-8090	(781) 794-8098	mmcgrath@braintreema.gov
Paul Milone	Weymouth Harbormaster	(617) 947-5667	(781)331-8215	pmilone@weymouth.ma.us

Town of Braintree
SOP 5 –Construction Inspection
Procedures

Approved By:

Date:

Approved By:

Date:

SOP 5: CONSTRUCTION SITE INSPECTION

Construction sites that lack adequate stormwater controls can contribute a significant amount of sediment to nearby bodies of water. This Standard Operating Procedure describes the major components of a municipal Stormwater Construction Inspection Plan, as well as procedures for evaluating compliance of stormwater controls at construction sites.

Stormwater Construction Inspection Plan

A stormwater Construction Site Inspection program is a program developed by municipalities to track, inspect, and enforce local stormwater requirements at construction sites.

This SOP shall be used during construction site inspections pursuant to the Town of Braintree Stormwater Management Regulations 2019. This legal authority requires construction site operators to submit stormwater management measures for new impervious areas and limit of work boundary, erosion control measures to prevent sediment from entering the MS4 system, and details of an on-going maintenance program for the stormwater management measures. The legal authority also gives inspectors the authority to enter the site.

The municipal stormwater Construction Site Inspection program includes and addresses the following:

1. Construction Site Inventory
 - A tracking system to inventory projects and identify sites for inspection.
 - Track the results of inspection and prioritize sites based on factors such as proximity to waterways, size, slope, and history of past violations.
2. Construction Requirements and BMPs
 - Municipalities provide contractors with guidance on the appropriate selection and design of stormwater BMPs. Low Impact Development strategies are prioritized.
3. Plan Review Procedures
 - Submitted plans must be reviewed to ensure they address local requirements and protect water quality.
4. Public Input
 - Per the 2003 Massachusetts MS4 Permit, a program must allow the public to provide comment on inspection procedures, and must consider information provided by the public.
5. Construction Site Inspections
 - Identify an inspection frequency for each site.
 - See more detailed information below.
6. Enforcement Procedures
 - A written progressive enforcement policy for the inspection program.

- Sanctions, both monetary and non-monetary, shall be utilized to ensure compliance with the program.
7. Training and Education
- Municipal staff conducting inspections should receive training on regulatory requirements, BMPs, inspections, and enforcement.

Conducting Stormwater Inspections at Construction Sites

The role of the construction inspector is to ensure that site operations match the approved site plans and the Stormwater Pollution Prevention Plan (SWPPP) for the project, and that all precautions are taken to prevent pollutants and sediment from the construction site from impacting local waterways. The inspector is also expected to determine the adequacy of construction site stormwater quality control measures.

The attached Construction Site Stormwater Inspection Report shall be used by the inspector during site visits. Construction site inspectors should abide by the following guidelines:

1. Inspections to monitor stormwater compliance should be performed at least once per month at each active construction site, with priority placed on sites that require coverage under the USEPA 2012 Construction General Permit (i.e., that disturb one or more acres), and sites that are located in the watershed of any 303(d) water bodies.
2. The inspection shall begin at a low point and work uphill, observing all discharge points and any off-site support activities.
3. Written and photographic records shall be maintained for each site visit.
4. During the inspection, the inspector should ask questions of the contractor. Understanding the selection, implementation, and maintenance of BMPs is an important goal of the inspection process, and requires site-specific input.
5. The inspector should not recommend or endorse solutions or products. The inspector may offer appropriate advice, but all decisions must be made by the contractor.
6. The inspector shall always wear personal protective equipment appropriate for the site.
7. The inspector shall abide by the contractor's site-specific safety requirements.
8. The inspector has legal authority to enter the site. However, if denied permission to enter the site, the inspector should never force entry.

Prior to planning a site visit, the inspector shall determine if the project is subject to USEPA's 2012 Construction General Permit, which is true if the project disturbs one or more acres, total. The 2012 Construction General Permit replaces the 2008 Construction General Permit, which expired on February 15, 2012. Operators of sites that required coverage under the USEPA's 2008 Construction General Permit but continue to be active should have submitted a new Notice of Intent (NOI) under the 2012 Permit.

If the site requires this coverage, the inspector shall visit the USEPA Region 1 eNOI website (<http://cfpub.epa.gov/npdes/stormwater/cgpenoi.cfm> or <http://cfpub.epa.gov/npdes/stormwater/noi/noisearch.cfm>) to determine if the contractor filed for coverage under the 2012 and/or 2008 Construction General Permits, respectively. Print a copy of the project's NOI.

If the project disturbs one or more acres and is under construction, but does not show up in either database, the project is in violation of the Construction General Permit. Call the contractor to determine if the NOI process has been started. If not, notify the contractor verbally of this requirement and the violation. Work cannot proceed on the site until a Notice of Intent (NOI) for coverage under the 2012 Construction General Permit has been approved by USEPA. The inspector may choose to print instructions on how to file an NOI and meet with the contractor to review these. Issue a written Stop Work Order until the NOI has been approved by USEPA.

Once it has been determined that the site is in compliance with the 2012 Construction General Permit, the site inspection process can continue. The Construction Site Inspection process shall include the following:

1. Plan the inspection before visiting the construction site
 - a. Obtain and review permits, site plans, previous inspection reports, and any other applicable information.
 - b. Print the approved NOI from the USEPA 2012 Construction General Permit NOI website, listed previously.
 - c. Inform the contractor of the planned site visit.
2. Meet with the contractor
 - a. Review the Construction SWPPP (if the site includes over one acre of disturbance) or other document, as required by the municipality's legal authority. Compare BMPs in the approved site plans with those shown in the SWPPP.
 - b. Review the project's approved NOI and confirm that information shown continues to be accurate.
 - c. Get a general overview of the project from the contractor.
 - d. Review inspections done by the contractor.
 - e. Review the status of any issues or corrective actions noted in previous inspection reports.
 - f. Discuss any complaints or incidents since the last meeting.
3. Inspect perimeter controls
 - a. Examine perimeter controls to determine if they are adequate, properly installed, and properly maintained.
 - b. For each structural BMP, check structural integrity to determine if any portion of the BMP needs to be replaced or requires maintenance.
4. Inspect slopes and temporary stockpiles
 - a. Determine if sediment and erosion controls are effective.
 - b. Look for slumps, rills, and tracking of stockpiled materials around the site.
5. Compare BMPs in the site plan with the construction site conditions

- a. Determine whether BMPs are in place as specified in the site plan, and if the BMPs have been adequately installed and maintained.
 - b. Note any areas where additional BMPs may be needed which are not specified in the site plans.
6. Inspect site entrances/exits
 - a. Determine if there has been excessive tracking of sediment from the site.
 - b. Look for evidence of additional entrances/exits which are not on the site plan and are not properly stabilized.
7. Inspect sediment basins
 - a. Look for signs that sediment has accumulated beyond 50% of the original capacity of the basin.
8. Inspect pollution prevention and good housekeeping practices
 - a. Inspect trash areas and material storage/staging areas to ensure that materials are properly maintained and that pollutant sources are not exposed to rainfall or runoff.
 - b. Inspect vehicle/equipment fueling and maintenance areas for the presence of spill control measures and for evidence of leaks or spills.
9. Inspect discharge points and downstream, off-site areas
 - a. Walk down the street and/or in other directions off-site to determine if erosion and sedimentation control measures are effective in preventing off-site impacts.
 - b. Inspect down-slope catch basins to determine if they are protected, and identify whether sediment buildup has occurred.
10. Meet with the contactor again prior to leaving
 - a. Discuss the effectiveness of current controls and whether modifications are needed.
 - b. Discuss possible violations or concerns noted during the site inspection, including discrepancies between approved site plans, the SWPPP, and/or the implementation of stormwater controls.
 - c. Agree on a schedule for addressing all discrepancies, and schedule a follow-up inspection.
11. Provide a written copy of the inspection report to the contractor.
12. Follow up, as determined, and provide copy of subsequent inspection to the contractor.
13. Use Stop Work orders, as needed, until compliance with the 2012 Construction General Permit and/or other document, as required by the municipality's legal authority, can be achieved.

Attachments

1. Construction Site Stormwater Inspection Form
2. Town of Braintree Stormwater Management Regulations 2019

Related Standard Operating Procedures

1. SOP 9, Inspecting Constructed Best Management Practices

Attachment 1
Construction Inspection Form

(continued)

	BMP Description	Installed and Operating Properly?	Corrective Action Needed
3		Yes <input type="checkbox"/> No <input type="checkbox"/>	
4		Yes <input type="checkbox"/> No <input type="checkbox"/>	
5		Yes <input type="checkbox"/> No <input type="checkbox"/>	
6		Yes <input type="checkbox"/> No <input type="checkbox"/>	
7		Yes <input type="checkbox"/> No <input type="checkbox"/>	
8		Yes <input type="checkbox"/> No <input type="checkbox"/>	
9		Yes <input type="checkbox"/> No <input type="checkbox"/>	
10		Yes <input type="checkbox"/> No <input type="checkbox"/>	
11		Yes <input type="checkbox"/> No <input type="checkbox"/>	
12		Yes <input type="checkbox"/> No <input type="checkbox"/>	
13		Yes <input type="checkbox"/> No <input type="checkbox"/>	
14		Yes <input type="checkbox"/> No <input type="checkbox"/>	
15		Yes <input type="checkbox"/> No <input type="checkbox"/>	
16		Yes <input type="checkbox"/> No <input type="checkbox"/>	
17		Yes <input type="checkbox"/> No <input type="checkbox"/>	
18		Yes <input type="checkbox"/> No <input type="checkbox"/>	
19		Yes <input type="checkbox"/> No <input type="checkbox"/>	
20		Yes <input type="checkbox"/> No <input type="checkbox"/>	

Erosion and Sedimentation Control

Document any of the following issues found on the construction site, and the corrective action(s) required for each.

Issue	Status	Corrective Action Needed
Have all ESC features been constructed before initiating other construction activities?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is the contractor inspecting and maintaining ESC devices regularly?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is existing vegetation maintained on the site as long as possible?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is construction staged so as to minimize exposed soil and disturbed areas?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are disturbed areas restored as soon as possible after work is completed?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is clean water being diverted away from the construction site?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are sediment traps and sediment barriers cleaned regularly?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are vegetated and wooded buffers protected and left undisturbed?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are soils stabilized by mulching and/or seeding when they are exposed for a long time?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Has vegetation been allowed to establish itself before flows are introduced to channels?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is regular, light watering used for dust control?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is excessive soil compaction with heavy machinery avoided, to the extent possible?	Yes <input type="checkbox"/> No <input type="checkbox"/>	

(continued)

Issue	Status	Corrective Action Needed
Are erosion control blankets used when seeding slopes?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are trees and vegetation that are to be retained during construction adequately protected?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are areas designated as off-limits to construction equipment flagged or easily distinguishable?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
If excavated topsoil has been salvaged and stockpiled for later use on the project, are stockpiles adequately protected?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are temporary slope drains or chutes used to transport water down steep slopes?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Do all entrances to the storm sewer system have adequate protection?	Yes <input type="checkbox"/> No <input type="checkbox"/>	

Overall Site Conditions

Document any of the following issues found on the construction site, and the corrective action(s) required for each.

Issue	Status	Corrective Action Needed
Are slopes and disturbed areas not being actively worked properly stabilized?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are material stockpiles covered or protected when not in use?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are natural resource areas protected with sediment barriers or other BMPs?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are perimeter controls and sediment barriers installed and maintained?	Yes <input type="checkbox"/> No <input type="checkbox"/>	

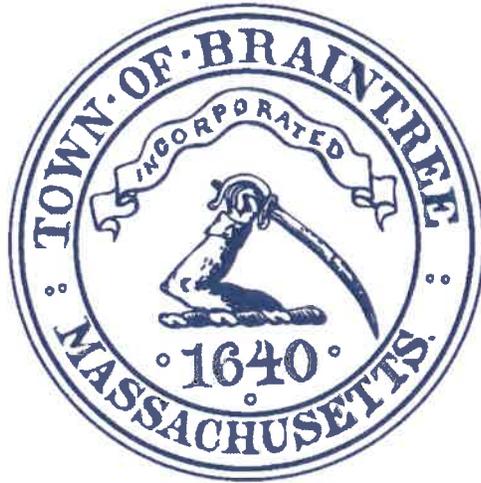
(continued)

Issue	Status	Corrective Action Needed
Are discharge points and receiving waters free of sediment deposits and turbidity?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are storm drain inlets properly protected?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is there evidence of sediment being tracked into streets?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is trash/litter from the construction site collected and placed in dumpsters?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are vehicle/equipment fueling and maintenance areas free of spills and leaks?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are potential stormwater contaminants protected inside or under cover?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is dewatering from site properly controlled?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are portable restroom facilities properly sited and maintained?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are all hazardous materials and wastes stored in accordance with local regulations?	Yes <input type="checkbox"/> No <input type="checkbox"/>	

Non-Compliance Actions

The municipality shall provide the site operator with a copy of this report, and notice of the corrective action(s) to be taken. The site operator shall have thirty days from the receipt of the notice to commence curative action of the violation.

Attachment 2
Braintree Stormwater Regulations



Town of Braintree

Stormwater Management Regulations

Department of Public Works
2019

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ARTICLE I
Authority and Purpose

Section 1 - Reference to Regulations. These regulations may be referred to as the Town of Braintree's Stormwater Management Regulations.

Section 2 - Authority. Under the Authority of G.L. c. 83, Section 10 and Title 2, Chapters 2.220 and 13.14. of the Town's Ordinances, the Braintree Department of Public Works has established the following regulations governing Stormwater Management Facilities in the Town of Braintree.

Section 3 - Effect on other Town Ordinances. With respect to Stormwater Management Facilities, these Regulations supplement Section X Design Standards – Storm Drainage of the Town of Braintree's Subdivision Rules and Regulations.

Section 4 - Purpose. These Regulations are intended to protect, maintain and enhance the public health, safety and welfare and the environment by establishing minimum requirements and procedures to control the adverse effects of increased post-development stormwater runoff, decreased groundwater recharge and non-point source pollution associated with new development and re-development, to ensure proper and safe operation of the Town's Stormwater Management Facilities and to implement the requirements of the National Pollutant Discharge Elimination System General Permit for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems issued by the U.S. EPA by regulating land disturbance activities that may result in soil erosion and sedimentation and stormwater runoff directed to the Town's stormwater management system or the waters of the United States and/or Commonwealth of Massachusetts.

Section 5 - Severability. The provisions of these Regulations are severable. If any provision of these Regulations or any specific application to any person or circumstance is held invalid, such invalidity shall not affect the other provisions or application of said Regulations to the extent permitted by law.

Section 6 - Applicability These Stormwater Management Regulations shall apply to all activities in accordance with Chapter 13.14 of the Town of Braintree General Ordinances.

Section 7 - Right to Amend Regulations. The Department of Public Works reserves the right to amend these Regulations in any manner and to establish more stringent limitations or requirements as are deemed necessary or appropriate.

Section 8 - Required Applications and Permits.

- (a) Applications and permits required in Article V. of these Regulations are in addition to applications and permits that may be required by other federal, state and local laws or regulations. Stormwater Management Permits are required by these Regulations and issued by the Stormwater Division of the Department of Public Works as they apply:
 - i. Building/Drain Connection Permit
 - ii. Stormwater Management Permit - Minor Project

iii. Stormwater Management Permit - Major Project

- (b) These Regulations shall not be construed to require the Town to permit itself or those in its employ for activities done to carry out the Town's responsibilities under any federal or state laws, regulations, or requirements.

Section 9 - Stormwater Enterprise Fee. Pursuant to Title 13 Chapter 13.14 of the Town of Braintree General Ordinances, the Town has established a Stormwater Enterprise Fee for the purposes of funding the Town's stormwater management facilities and services.

Section 10 - The Department of Public Works shall enforce, pursuant to Article VII. of these Regulations and other applicable local, state, and federal laws, these regulations and the terms and conditions of a permit issued under these Regulations.

ARTICLE II
Use of Municipal Stormwater Management System

Section 1 - Municipal Stormwater Management Facilities/MS4 (Municipal Separate Storm Sewer System). The use of all MS4 Facilities in the Town shall be controlled by the Department. No person shall uncover, excavate over, block access to, or make any connection with or opening into, use, alter, or disturb any municipal stormwater management facility or appurtenance thereof within the Town's stormwater management system, without a permit issued by the Department.

No person shall maliciously, willfully or negligently break, damage, destroy, uncover, deface or tamper with any structure, appurtenance, or equipment which is part of the Town's MS4 system. Any person violating this provision shall be subject to immediate arrest under charge of disorderly conduct.

Section 2 - Permit Required. No person shall make any connection to the Town's MS4 system without first obtaining a Stormwater Management Permit from the Department pursuant to Article V.

Section 3 - Private Stormwater Management Facilities.

- (a) All private Stormwater Management Facilities that connect directly or indirectly to the Town's MS4 system shall be controlled as to discharge by the Department, but constructed, installed, maintained, repaired, and operated by their owners, at the owner's expense. All private Stormwater Management Facilities that connect to the Town's MS4 system shall be constructed, installed, maintained, repaired, and operated to the satisfaction of the Department.
- (b) Repairs to private Stormwater Management Facilities in the Town, including repairs required to comply with these Regulations, shall be made by a contractor on the Water and Sewer Division's approved list.

Section 4 - Ownership and Maintenance of Private Stormwater Management Facilities.

- (a) Private Stormwater Management Facilities, whether located on public or private property, are owned by the owner of the premises served. In the case where more than one premise is connected to the same building storm drain, the owners of the respective premises shall be jointly and severally responsible for the maintenance and repair of the building storm drain.
- (b) The owner of a Private storm drain shall at all times keep such drains clean and in good repair in order not to cause depletion of groundwater, damage to property, odor, or harm to the Town's Stormwater Management Facilities.
- (c) The owner shall maintain, repair, modify or replace an existing Private storm drain whenever it is determined by the Department that such drains may endanger public health, create a public nuisance, result in public or private property damage, or impair water quality or the environment and in such other circumstances as the Department deems appropriate.
- (d) The owner shall develop mechanisms and procedures designed to prevent spills whenever the Department determines that it is necessary. This includes identification of spills, reporting and containment procedures, documentation and training.

ARTICLE III
General Requirements

A. PROHIBITED ACTIVITIES

Section 1 - Illicit discharge. No person shall dump, discharge, cause or allow to be discharged any contaminated water or non-stormwater discharge (except as exempted in B. § 1 below) into the MS4 system, into a watercourse, or into the waters of the Commonwealth.

Section 2 - Illicit connection. No person shall construct, use, allow, maintain or continue an illicit connection to the municipal storm drain system, regardless of whether the connection was permissible under applicable law, regulation or custom at the time of connection.

Section 3 - Roof Leader connections. No person shall connect building roof leaders directly to the municipal storm drain system.

B. AUTHORIZED DISCHARGES

Section 1 - Authorized Discharges to MS4 Facilities.

Discharges to MS4 Facilities which are authorized by these regulations are as follows:

- (a) Unless otherwise determined by the Department, discharges composed entirely of stormwater that were connected prior to the enactment of these regulations.

- (b) Discharges composed entirely of stormwater that are free from sediments related to erosion from construction sites.
- (c) Discharges for which the owner has obtained a Stormwater Management Permit from the Department, are in compliance with any requirements contained in the Town's Stormwater Management Plan, and if appropriate, an Industrial Activity Permit, Construction Activity Permit, or a NPDES Permit Exclusion from EPA.
- (d) Discharges from the following sources:
 - (i) Department of Public Works ice and snow control operations;
 - (ii) Flow resulting from firefighting activities;
 - (iii) Street and pavement wash waters;
 - (iv) Natural flow from riparian habitats and wetlands;
 - (v) Diverted tide, river or stream flows;
 - (vi) Water main, hydrant flushing and other discharges from potable water sources associated with routine maintenance of the water distribution system;
 - (vii) Uncontaminated groundwater or infiltration of groundwater;
 - (viii) Uncontaminated springs;
 - (ix) Rising groundwater;
 - (x) Uncontaminated water from sump pumps and other pumps that remove floodwaters from basements;
 - (xi) Water discharge from irrigation or watering of lawns, trees, landscaping and gardens;
 - (xii) Noncommercial car washing;
 - (xiii) Waters from residential property management activities, including washing walkways, patios, house siding and windows, provided the wash water does not contain detergents and
 - (xiv) Swimming pool discharges that have been de-chlorinated.

C. REQUIREMENTS FOR ALL STORMWATER DISCHARGES

Section 1 - Notification of Changed Discharge. Every property owner who directly or indirectly discharges stormwater to the Town's stormwater management system shall notify the Department in writing in advance of:

- (a) Any substantial change in the rate and/or volume of discharge; and
- (b) Any change in the location of the discharge to a different storm drain connection.
- (c) Any change in the total amount of impervious cover of areas connected to the storm drain.

Existing discharges authorized in Article III.B. may be required to obtain a Stormwater Management Permit as a result of the above changes.

Section 2 - Notification of Violations.

- (a) Property owners shall notify the Department by telephone or email immediately upon discharging stormwater in violation of these Regulations or their permits and of any upset, or spill that may reasonably be expected to discharge to the storm drainage system.
- (b) Each notification shall be followed within 10 business days of the date of occurrence by a detailed written statement addressed to the Department describing the causes of the discharge and the measures being taken to prevent a recurrence. Such notification will not relieve property owners of liability for any expense, loss or damage to the Town stormwater management system or for any fines imposed on the Town due to such discharge.

Section 3 - Preventive Measures. Each property owner shall provide reasonable and appropriate protection from any discharge, including accidental discharges, in violation of these Regulations.

Section 4 - NPDES Notice of Intent and Permit. Every person who is required to be covered under an Industrial Activity Permit shall submit to the Department a copy of the completed Notice of Intent or individual application as submitted to EPA, and the information identified in items (a) through (h) below, as applicable.

- (a) Address of the building (or premises) where the discharge will take place and the name and address of the building (or premises) owner;
- (b) Name of a contact person, title and phone number;
- (c) A site plan or sketch which shows the location of the connection of the building storm drain or the point(s) of discharge to the Town's storm drainage system, including the street name, and the size of the storm drain to which the stormwater will discharge;

- (d) Standard Industrial Code (SIC Code) of the facility;
- (e) A description of the product or services provided by the facility;
- (f) A description of the nature of the discharge;
- (g) Existing NPDES permit number, if any;
- (h) Facility's Assessor's Map and Parcel Number.

Section 5 - Compliance with Treatment Standards. Every property owner, if so directed by the Department, must implement structural and non-structural stormwater BMPs that are consistent with the Town's Stormwater Plan. BMPs must be selected and designed using the appropriate criteria from the most recent Massachusetts Stormwater Handbook, as amended.

ARTICLE IV

Private Storm Drains and Stormwater Runoff Facilities, Connections and Appurtenances

Section 1 - Separate Building Sewers and Building Storm Drains. Separate and independent building sewers and building storm drains shall be provided for all new or substantially rehabilitated buildings.

Section 2 - Gravity Discharge to Storm Drains. No building storm drains shall discharge by gravity to the Town storm drains. In all buildings in which the building storm drain is lower than the street grade in front of the building, stormwater shall be lifted by an approved means to a manhole or catch basin in the Town storm drain system.

Section 3 - Connections to Manholes. Private storm drain connections for new or substantially rehabilitated buildings shall be made directly to Town-owned manholes or catch basins unless otherwise approved by the Department.

Section 4 - Wastewater-Stormwater Separation.

- (a) The plumbing of any existing or new building shall be so constructed as to keep all stormwater, surface water, groundwater, roof and surface runoff, subsurface drainage, uncontaminated cooling water, and uncontaminated industrial process water, non-contact cooling water, and non-contact industrial process water separate from sanitary sewage and industrial wastes, and from the building sewer.
- (b) The building drain conveying wastewater from plumbing fixtures within the building shall discharge to a building sewer, while the building drain conveying stormwater and other drainage listed in (a) shall discharge to a building storm drain.
- (c) In accordance with Town Ordinances, on-site disposal of stormwater is required to the extent feasible. Where separate storm drains and sanitary sewers are provided, and site conditions do not permit on-site disposal of the required amount of stormwater, the

Town will allow treated stormwater or a treated overflow from the on-site system which shall be connected to a storm drain. Connection of a private storm drain to a sanitary sewer is prohibited.

- (d) Connection of a building sewer to a storm drain is prohibited.
- (e) The Department shall require an owner to eliminate a discharge to the storm drain whenever the Director determines that the discharge violates the provisions of Article III.

Section 5 - Cleanouts. Where a new building is to be constructed which is set back from the property line, the Department may require the owner to install a clean-out on the owner's property at every 100 linear feet of pipe length and at every 22 1/2° or greater change in direction.

Section 6 - Floor Drains. Floor drains shall be connected to the building sewer.

ARTICLE V

Permit Procedures and Requirements

All permits issued by the Department pursuant to Ch. 13.14 will be referred to as “Stormwater Management Permits”.

Section 1 - General

- (a) **Timing of Application.** A Stormwater Management Permit (“Permit”) must be obtained prior to the commencement of any activity for which a Permit is required under Ch. 13.14 Stormwater Management or these regulations.
- (b) **Owner Responsibility.** While application may be made by a representative, the permittee must be the Owner of the property. If the applicant has less than a fee interest in all parcels on which work will occur, the applicant shall provide written consent from the fee owner of each affected parcel, or evidence of an interest in the parcels sufficient to establish the applicant’s right to conduct the work. It is the property Owner or agent’s responsibility to determine if other Town, state or federal permits or applications are required and to secure them.
- (c) **Burden of Proof.** It is the applicant’s responsibility to be aware of and meet the requirements of the Stormwater Management Ordinance and the Regulations. The applicant has the burden of proving that the proposed project or activity will comply with the Ordinance and the Regulations.
- (d) With the exception of discharges authorized under Article III. B, no person shall cause or allow any new stormwater discharges to the Town's storm drainage system without having first obtained all necessary approvals from the Planning Board and Conservation Commission and a Stormwater Management Permit from the Department. The decision

to issue a Stormwater Management Permit rests entirely with the Department. Such discharges shall comply with all other applicable federal, state and local requirements.

- (e) The Stormwater Management Permit issued to an applicant may stipulate Special Conditions and terms as deemed necessary or appropriate by the Department. These may include start and completion dates.
- (f) The Department may deny a permit for any discharge which it believes can reasonably be expected to result in significant harm to public health, safety, the environment, to the Town's MS4 system or a tributary to the Town's storm drainage system.
- (g) An applicant may request reconsideration of the terms and conditions in an issuance, renewal, or modification of a permit issued by the Town, and an applicant may request reconsideration of the denial of a permit by the Town.
- (h) A Stormwater Management Permit may be revoked, suspended or reissued with additional Special Conditions if the Department determines that the discharge, whether singly or in combination with others, is contributing to a water quality problem, is causing violation of the Town's MS4 Permit or has not been executed in compliance with the conditions of the Permit.
- (i) All Stormwater Management Permit applications shall include the appropriate fee as provided in Article VIII.

Section 2 – Pre-Application Meeting

Applicants are strongly encouraged to schedule a pre-application meeting with the Department at the earliest feasible time for the following purposes:

- (a) Discussion of the proposed development plans and requirements for a Permit and the anticipated fees.
- (b) Advise the engineer and/or applicant of the Town's design standards (see Appendices), goals with respect to stormwater management at the site, and to the extent practicable, of any known concerns or issues regarding stormwater management at the site.
- (c) Advise the engineer and/or applicant of application submission requirements or of additional information needed as part of the application at the time of filing.
- (d) Encourage the use of Low Impact Development (LID) Best Management Practices and Green Infrastructure in the proposed stormwater management design. Unlike conventional development and stormwater controls, an LID approach to design begins with an assessment of environmental and hydrologic conditions at the site and how best to address these conditions. Green Infrastructure includes water treatment systems that use vegetation, soils, and other nature-based elements to filter and treat polluted

stormwater runoff before it is discharged into a local water body. Applicants are reminded that the objectives of the LID approach are to:

1. Develop a site plan that reflects natural hydrology
2. Minimize impervious surfaces
3. Treat stormwater in numerous small, decentralized structures
4. Use natural topography for drainage ways and storage areas
5. Preserve portions of the site in undisturbed, natural conditions
6. Lengthen travel paths to increase time of concentration and attenuate peak rates

Section 3 - Application Procedure

(a) Building/Drain Connection Applications

1. Any new connection to the Town's MS4 storm drain system involving sump pump or groundwater discharge shall require approval from the Department.

(b) Minor Applications which involve either:

1. Land Disturbance of more than 2,500 square feet but less than 5,000 square feet and less than 150 cubic yards of imported or exported material, or
2. Land disturbance greater than 5,000 square feet but less than 1 acre or greater than 150 cubic yards of imported or exported material with Site Plan Approval or a Grading Permit from the Planning Board.
3. Any proposed connection to the MS4 system

Minor Permit Requirements

At least 30 days prior to initiating any work the applicant shall submit two copies of the completed Stormwater Management Permit – Minor Project application form along with the following:

1. Copy of Site Plan Approval or a Grading Permit from the Planning Board (if required)
2. A sketch plan illustrating:
 - a. Existing features of the site including structures, pavement and landscaped areas

- b. Proposed areas of land disturbance, stormwater management measures for new impervious areas and limit of work boundary
- c. Erosion control measures to prevent sediment from entering the MS4 system
- d. Details of an on-going maintenance program for the stormwater management measures with the name and contact information of the person responsible

(c) Major Permits

Major projects are those which involve either:

- a. Land disturbance greater than 5,000 square feet but less than 1 acre not requiring Site Plan Approval from the Planning Board or
- b. Land Disturbance greater than one acre, or
- c. Existing or new connections required to implement structural and non-structural BMPs to be consistent with the Town's Stormwater Plan.
- d. Extensions or relocations of a Town storm drain

At least 60 days prior to initiating any work the applicant shall submit two hard copies and one digital copy of the completed Stormwater Management Permit – Major Project application form along with the following:

- a. Copies of any approvals received from the Conservation Commission.
- b. Project Narrative describing existing conditions, proposed development and methods used to mitigate stormwater impacts as well as an evaluation and implementation of Low Impact Development Best Management Practices
- c. Stormwater Management Plan in accordance with Appendix B that includes:
 - 1. Existing Conditions Plan with property line information, existing topography (2 foot contour interval), existing utilities, drainage, tree line, wetland boundaries, stamped and signed by a MA registered Professional Land Surveyor
 - 2. Site Plan with site layout, proposed grading (2 foot contour interval) proposed utilities, proposed clearing, stormwater management measures, soil testing data and limit of work line, signed and stamped by a MA registered Professional Engineer

- d. Erosion and Sedimentation Control Plan in accordance with Appendix C
- e. Construction Sequence
- f. Stormwater Report that includes
 - 1. Completed Mass DEP Stormwater Checklist signed and stamped by a MA registered Professional Engineer
 - 2. Pre and Post-development hydrologic calculations in accordance with Article VI of these Regulations
 - 3. Operations and Maintenance Plan in accordance with Appendix D

Section 4 – Peer Reviews

In accordance with MGL Ch. 44 § 53G, the Department may impose reasonable fees for the employment of outside consultants to assist the Department in its review of permit applications and may deposit such fees in a special account. Any such account shall be established by the Town Treasurer in the Town treasury and shall be kept separate and apart from other monies. The special account, including accrued interest, if any, shall be expended at the direction of the Department without further appropriation; provided, however, that such funds are to be expended by it only in connection with carrying out its responsibilities under the Ordinance and these regulations to review the particular permit application. Any excess amount in the account shall be repaid to the applicant or to the applicant's successor in interest at the conclusion of the application review. The applicant may appeal the selection of the consultant to the Town Council, but solely on grounds that the consultant has a conflict of interest or lacks necessary qualifications to undertake the review. The Department's determination that consultant review is necessary is not subject to appeal.

Section 5 – Inspections

Minor Permit

Inspections shall be conducted by the Department or its agent at the following stages

- (a) After the erosion control measures have been installed
- (b) During the installation of stormwater management measures as required by the conditions of the permit
- (c) After the work has been completed and the site is stabilized

Major Permit

- (a) Pre-construction Meeting

Prior to the commencement of land disturbance, clearing, excavation, or construction, the applicant, the applicant's technical representative, the general contractor and any other person with authority to make changes to the project, shall meet with the Stormwater Manager to review the permitted plans and their implementation. A copy of the Stormwater Management Permit and approved plans shall be kept on the project site during the progress of the work. A copy of the NPDES Construction General Permit and Stormwater Pollution Prevention Plan (for projects greater than 1 acre) shall be kept at the site as well. This meeting may be combined with pre-construction meetings required by other town Boards and officials.

(b) Inspections

The Department or its agent shall perform inspections as listed below, and shall either approve that portion of the work completed or shall notify the permittee of any noncompliance with Permit requirements. In order to obtain inspections, the permittee shall notify the Department at least two business days prior to the requested inspection. Inspections shall occur at the following stages:

- 1) Erosion and sediment control measures are in place and stabilized
- 2) Site clearing has been substantially completed
- 3) Stormwater Management System
 - i) Rough grading has been substantially completed
 - ii) Subsurface Infiltration Systems
 - iii) Excavation of area for system
 - iv) Placement of stone below system and installation of filter fabric
 - v) Backfilling and installation of inspection port(s)
 - vi) Final grading has been substantially completed
 - vii) Final Landscaping (permanent stabilization) and project final completion

(c) Final Inspection and "As-built" Plans

- 1) Within one year of the completion of the project, after the stormwater management system has been constructed, the permittee shall submit an "as-built" plan for any stormwater management facilities or practices to the Department. This plan shall be accompanied by an Engineer's Certification, stamped and signed by a Professional Engineer registered in the Commonwealth of Massachusetts, stating that the stormwater management system has been inspected during a storm event, is functional as designed and that the completed project complies with all aspects of the Permit. Any discrepancies between the approved plan and the "as-built" plan must be described in the Engineer's Certification.
- 2) "As-built" plans shall be full-sized plans which reflect the "as-built" conditions, including all final grades and pipe inverts. All work deleted, correction in elevations and changes in materials shall be shown on the "as-built" plan.

- 3) If the stormwater system is found to be inadequate by virtue of physical evidence of operational failure, even though it was built as called for in the approved plans, the deficiencies shall be addressed and corrected by the permittee before any performance guarantee is released and a Certificate of Completion is issued.

Section 6– Certificate of Completion

Prior to the request for Certificate of Completion, the permittee shall provide to the Department for its review and written approval, a revised Operations and Maintenance Plan of all “as-built” structural BMP systems, as well as anticipated non-structural BMPs, such as sweeping, and applications of winter de-icing agents. The O&M plan, at a scale of 1” = 20’, or as approved of in advance by the Department, shall include a depiction of each structural BMP element. The O&M Plan shall also indicate those areas within which applications of fertilizers, herbicides and pesticides are anticipated, and those areas to be designated as chemical and/or fertilizer free. Materials, application rates and total amounts to be used of each material shall be provided. The permittee shall also provide some documentation to the Department of adequate funding for required maintenance.

Section 7– Continuing Conditions

- (a) Adherence to the provisions of the approved O&M Plan is a continuing requirement of the Permit. Failure to adhere to these provisions will constitute a violation of the Stormwater Management Ordinance and these Regulations, and be subject to enforcement action.
- (b) A request to modify the requirements of the O&M Plan shall be submitted to the Department, which may approve the requested modification if it is determined to be an insignificant change. If the Department determines that the requested modification is significant, it may require that the permittee submit a request to amend the Permit, which shall be subject to the formal review procedures set forth in these Regulations.
- (c) The licensed contractor responsible for the operation and maintenance of a stormwater facility shall make and keep a record of all operation and maintenance activities showing compliance with the O&M Plan and shall submit a detailed annual report to the Department no later than January 31 each year.

ARTICLE VI Post-Development Stormwater Management Criteria

At a minimum, all projects subject to a Major Stormwater Management Permit shall comply with the criteria, specifications and performance standards of the most recent version of the Massachusetts Stormwater Management Standards and accompanying Stormwater Management Handbook, as well as the criteria contained herein. The following general performance criteria shall be applicable to all stormwater management plans, unless otherwise provided for in these Regulations

Section 1 – Low Impact Design and Green Infrastructure

- (a) The design of the project shall, to the maximum extent feasible, employ environmentally sensitive site design as outlined in the Mass. DEP Stormwater Handbook, as amended, and shall attempt to reproduce natural hydrologic conditions with respect to ground and surface waters.
- (b) Evaluation of Low Impact Development practices is required and implementation of such practices to the maximum extent practicable is encouraged. If the proposed stormwater management system design does not fully utilize Low Impact Development techniques, the applicant shall provide written documentation of which Low Impact Development Best Management Practices were evaluated for the proposed project and the reasons such practices were found to be infeasible. Guidance on these practices is provided in the 2008 Mass DEP Stormwater Management Handbook.
- (c) In order to conserve potable water supplies and maximize recharge, it may be appropriate on some sites to store clean runoff (e.g. from roofs) for reuse on the site for irrigation or other gray water purposes. This can be accomplished, through the use of cisterns and rain barrels. Where appropriate, a water budget may be required to be prepared to determine applicability.

Section 2 – Hydrologic and Hydraulic Criteria

- (a) Hydrologic analyses using TR-55/TR-20 methodology shall be performed on the entire project site and include any off-site areas that drain to or through the project site.
- (b) The analyses shall be performed for the 2, 10, 25 and 100-year design storms under pre-development and post-development conditions. The specified design storms shall be defined as a 24-hour storm using the most recent rainfall distribution recommended by the National Oceanic and Atmospheric Administration Atlas 14, as amended.
- (c) The post-development peak discharge rate shall be equal to or less than the pre-development peak discharge rate, based on 2-year, 10-year, 25-year and 100-year 24-hour storms.
- (d) Hydrologic analyses are to be performed in a pre and post sub-watershed basis with designated control points at each location where runoff leaves the site or enters a water body.

- (e) The same land area shall be used in the analysis to facilitate comparison of existing and proposed conditions.
- (f) The total volume of discharge, as well as peak rate, shall be evaluated at each control point.
- (g) The site shall be designed to ensure that all runoff from the site up to the 100-year storm enters the control structure. For example, the drainage system may only be sized to handle a 25-year storm, with larger storms flooding the distribution system and traveling overland. This overland flow, or overflow, must be directed into the peak control structure or otherwise managed to attenuate flow.
- (h) For purposed of computing runoff, all pervious lands on the site shall be assumed, prior to development, to be in “good” condition regardless of conditions existing at the time of computation.
- (i) Off-site areas should be modeled as their present land use condition in good hydrologic condition.
- (j) The length of overland sheet flow used in time of concentration (TC) calculations shall be limited to nor more than 50 feet for pre and post development conditions.
- (k) Stormwater Management Systems shall be designed to retain and/or treat the first one inch (1”) of runoff from all impervious surfaces on the site. The portion of the first one inch (1”) which cannot be feasibly retained and/or infiltrated shall be treated using treatment methods consistent with the Final Total Maximum Daily Loads for affected receiving waters and any additional treatment requirements in the Town of Braintree’s MS4 Permit. Pre-treatment of runoff from paved surfaces is required to remove 44% of the Total Suspended Solids prior to infiltration. Driveways associated with applications for single-family dwellings are exempt from this requirement as per the 2008 Mass DEP Stormwater Handbook, but to the extent practicable, runoff from such driveways shall be directed to adjacent pervious surfaces.
- (l) Stormwater outlets shall be designed to prevent erosion.
- (m) For other structural stormwater controls not included in the Mass DEP Stormwater Handbook, or for which pollutant removal rates have not been provided, the effectiveness and pollutant removal of the structural control must be documents through third party studies and receive approval from the Department before being included in the design of a stormwater management system.

Section 3 – Segmentation

Proposed residential, commercial or industrial subdivisions shall apply these stormwater management criteria to the land development as a whole. Individual lots in new subdivision shall not be considered separate land development projects, but rather the entire subdivision shall be considered a single land development project. Hydrologic parameters shall reflect the ultimate land development and shall be used in all engineering calculations.

Section 4 – Sensitive Areas

Stormwater discharges to critical areas with sensitive resources (i.e. shellfish beds, swimming beaches, aquifer recharge areas, water supply reservoirs, Areas of Critical Environmental Concern) may be subject to additional criteria, or may need to utilize or restrict certain stormwater management practices at the discretion of the Department.

ARTICLE VII Enforcement

The Department or an authorized agent of the Department shall enforce these Regulations and may pursue all civil, criminal, and non-criminal remedies for violations of said Regulations.

A. INSPECTIONS

Section 1 - Right of Access.

- (a) To the extent permitted by law or with the consent of the property owner, duly authorized representatives of the Town may inspect the property or facilities of any property owner (including facilities under construction) to ascertain compliance with these Regulations or compliance with any permit issued pursuant to these Regulations.
- (b) Owners or occupants of premises where stormwater is either generated or discharged shall allow properly identified Town representatives safe and ready access, at all reasonable times during normal business hours and at such other times as the Town reasonably suspects that a violation of these Regulations or a permit issued pursuant to these Regulations may be occurring. Access shall be allowed to all such parts of the premises as would enable Town personnel to inspect, observe, measure, sample and test all such other facilities as the Town reasonably believes may be contributing to a violation of these Regulations or a permit issued pursuant to these Regulations.
- (c) The Town may conduct routine, periodic inspections of facilities such as building storm drains, catch basins, treatment systems, pre-treatment facilities or other stormwater components. Owners or occupants shall provide any labor or equipment needed by Town personnel to open, inspect, and operate such facilities.

B. MONETARY LIABILITY

Section 1 - Penalties.

Any person who violates any provision of these Regulations or a permit issued pursuant to these Regulations shall forfeit and pay to the Town an amount set forth in Chapter 13.14.0501 of the Town's Ordinances. For purposes of this section, each day of a continuous violation shall be deemed to be a separate violation. If a violation is intermittent, each occurrence shall be deemed to be a separate violation.

Section 2 - Reimbursement for Costs to the Town.

Failure to comply with any portion of these Regulations, or with any permit or order issued thereunder, shall be sufficient cause for the Town to levy on and collect from each violator any additional cost for any expense, loss, or damage occasioned by such violation, including assessments or penalties levied or imposed on the Town by any state or federal agency.

C. ENFORCEMENT ACTIONS

Section 1 - Multiple Alternatives. When the Department determines that a person has a violation the Town may take any one or more of the following actions, in any sequence or simultaneously:

- (i) The Town may issue a request or an order to cease and desist any such violation or any actions that cause or threaten to cause a violation, and/or an implementation schedule for undertaking specific actions or practices.
- (ii) The Town may require the person to obtain a storm drain connection permit.
- (iii) The Town may require the person in question to submit a detailed time schedule setting forth specific actions to be taken and specific dates upon which such actions will be undertaken in order to prevent or correct a violation. The Town may issue an implementation schedule containing or modifying such specific actions and time schedule, or requiring such other actions within such times as the Town deems appropriate.
- (iv) The Town may issue an order directing the person to pay to the Department penalties and costs in accordance with Section C.
- (v) The Town may revoke, modify, deny, suspend, or refuse to renew a permit issued to the person under these Regulations.
- (vi) The Town may take direct enforcement action by filing suit in any court of competent jurisdiction for civil or criminal fines and reimbursement of costs or damages resulting from the violation or threatened violation and/or injunctive relief.
- (vii) The Town may take any other action available to it under any applicable statute or regulation.

**ARTICLE VIII
Permit Fees
STORMWATER PERMIT FEE SCHEDULE**

Section 1 – Each Stormwater Management Permit application must include the required filing fee.

a) Application Fee

- (1) An Application Fee is payable at the time of application. It is non-refundable.
- (2) The purpose of the Application Fee is to offset the Department’s costs incurred by the Town in reviewing, approving and monitoring the permit and compliance therewith.
- (3) The Application Fee is in addition to any other local or state fees that may be charged under any other law or ordinance.
- (4) The Application Fee shall be paid according to the following schedule:

<u>Activity</u>	<u>Application Fee</u>
Existing Building/Drain Connection	No charge
Land Disturbance more than 2,500 SF but less than 6,000 SF	\$100.00
New or Re-developed Single/Two Family House	\$250.00
Residential Development other than SF House	
Residential Subdivision	
2 – 3 Lots	\$300.00
4 – 10 Lots	\$1,000.00
11 or more Lots	\$1,500.00
Multi-Family Structures (townhouses, condominiums, apartments larger than 2 units per building)	
3 – 10 Units	\$700.00
11 – 23 Units	\$900.00
24 – 40 Units	\$2,000.00
41 or more Units	\$2,750.00
Commercial and Industrial Projects	
Disturbance of 2,500 SF to 5,000	\$400.00
Disturbance of 5,001 SF to 21,779 (1/2 AC)	\$500.00
Disturbance of 21,780 SF (1/2 AC) – 1 AC	\$600.00
Disturbance of 1.1 to 2 AC	\$700.00
Disturbance of 2.1 to 10 AC	\$1,000.00
Disturbance of more than 10 AC	\$1,500.00

Request for Certificate of Completion	
Single or Two Family House	\$100.00
All others	\$200.00

b) Review Fee

- (1) A Review Fee may be charged to cover outside professional consultant review services for a project if the Department, after consultation with the Town Engineer, determines that such services are necessary due to the scope and complexity of the project. The consultant services may include, but are not limited to review by engineers, hydrologists, attorneys, or other professionals for hydrologic and drainage analysis, stormwater quality analysis, site inspections, as-built plan review , and analysis of legal issues.
- (2) The applicant will be provided with an estimate of the Review Fee as determined by the Department and the Town Engineer. This estimated fee must be paid to the town prior to the start of the review process, unless the Department approves other arrangements for the applicant to pay consultants directly when services are provided.

c) Inspection Fees

An Inspection Fee of fifty (50) dollars shall be paid by the applicant for each site inspection conducted by Town personnel during the construction of the project. The cost of any inspection conducted by a professional consultant shall be paid for by the applicant as provided in Section 1.b).

ARTICLE IX
Adoption

Section 1 - Effective Date.

These Regulations shall be in full force and effect after their adoption in accordance with Section 8-4 of the Town Charter.

END

APPENDIX A - DEFINITIONS

Definitions. Terms which are not defined herein shall be interpreted as commonly used. Throughout these Regulations, *shall* is mandatory, and *may* is permissive. Definitions shown in italics are taken from Chapter 13.14 of the Town of Braintree Ordinances. Unless the content specifically indicates otherwise, the meaning of the terms used in these Regulations shall be as follows:

Alter: Any activity which will measurably change the ability of a ground surface area to absorb water or will change existing surface drainage patterns. Alter may be similarly represented as “alteration of drainage characteristics”, and “conducting land disturbance activities.”

Applicant: Any person, individual, partnership, association, firm, company, corporation, trust, authority, agency, department, or political subdivision of the Commonwealth or the Federal government (to the extent permitted by law), requesting a Stormwater Management Permit.

Best Management Practices (BMPs): Structural, non-structural and managerial techniques that are recognized to be the most effective and practical means to prevent and/or reduce increases in stormwater volumes and flows, reduce point source and non-point source pollution, and promote stormwater quality and protection of the environment. “Structural” BMPs are devices that are engineered and constructed to provide the temporary storage and treatment of stormwater runoff. “Non-structural” BMPs use natural measures to reduce pollution levels, do not require extensive construction efforts, and/or promote pollutant reduction by eliminating the pollutant source

Building Storm Drain: The pipe which connects a building drain conveying stormwater to a storm drain or other place of disposal. The building storm drain begins 10 feet outside the inner face of the building foundation wall and extends to and includes the connection to the Town's storm drain. It may include leaders from roof drains, downspouts, trench drains or similar, but not floor drains collecting flow considered to be sewage.

Certified Professional I Erosion and Sediment Control (CPESC): a certified specialist in soil erosion and sediment control. This certification program, sponsored by the Soil and Water Conservation Society in cooperation with the American Society of Agronomy, provides the public with evidence of professional qualifications.

Cleanout: A device or structure designed to provide access to a building storm drain for the purpose of eliminating blockages and removing deposited or accumulated materials.

Clean Water Act: *The Federal Water Pollution Control Act (33 U.S.C. § 1251 et seq.) as it is amended from time to time.*

Conservation Commission: Town of Braintree Conservation Commission through its staff within the Department of Planning and Community Development.

Construction Activity Stormwater Permit: An EPA NPDES General Permit for the discharge of pollutants in stormwater runoff from areas where the soil disturbing activities, construction materials, or equipment storage or maintenance, or other industrial stormwater directly related to the construction process are located.

Conveyance: Any structure or device including pipes, drains, culverts, curb breaks, paved swales or man-made swales of all types designed or utilized to move or direct stormwater runoff or existing water flow.

Cooling water: The water discharged from any system of condensation, air conditioning, cooling, refrigeration, or other system of heat transfer.

DEP: The Massachusetts Department of Environmental Protection.

Department: The Braintree Department of Public Works.

Dewatering Discharge: Groundwater or surface water which is removed from a site and discharged beyond the limits of the site by means of gravity or pumping.

Director: The Director of the Braintree Department of Public Works, or his/her designee.

Discharge of Pollutants: The addition, from any source, of any pollutant or combination of pollutants into the MS4 or into the waters of the United States or Commonwealth from any source.

Drainage Easement: A legal right granted by a landowner to a grantee allowing the use of private land for stormwater management purposes.

EPA: The United States Environmental Protection Agency.

Erosion: The wearing away of the land surface by natural or artificial forces such as wind, water, ice, gravity or vehicle traffic and the subsequent detachment and transportation of soil particles.

Erosion Control: The prevention or reduction of the movement of soil particles or rock fragments.

Erosion and Sediment Control Plan: A plan that shows the location and construction detail(s) of the erosion and sediment reduction controls to be utilized for a construction site.

Flood Control: The prevention or reduction of flooding and flood damage.

Flooding: A local and temporary inundation or a rise in the surface of a body of water such that it covers land not usually under water.

Floor drain: An intended drainage point in an otherwise impervious floor which serves as the point of entry into any subsurface drainage, sewage, treatment, disposal, containment, or other plumbing system.

General Permit: *The National Pollutant Discharge Elimination System General Permit for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems issued by the United States Environmental Protection Agency.*

Grading: Changing the level or shape of the ground surface.

Groundwater: All water beneath any land surface including water in the soil and bedrock beneath water bodies.

Hazardous Waste: A waste, or combination of wastes, that at the time of discharge:

- (a) Is identified as a hazardous waste by EPA pursuant to the *Resource Conservation and Recovery Act, 42 USC 6901, et seq.*, and is listed in *40 CFR Part 261*, as amended from time to time;
- (b) Has any of the hazardous waste characteristics identified by EPA in *40 CFR Part 261* as amended from time to time;
- (c) Has been identified by DEP as a hazardous waste pursuant to M.G.L. c. 21C and is listed in 310 CMR 30.000; as amended from time to time; or
- (d) Has any of the hazardous waste characteristics identified by DEP in 310 CMR 30.000, as amended from time to time.
- (e) A waste that would be a hazardous waste pursuant to the EPA or DEP criteria but for the fact that it is discharged to the sanitary sewer system shall be, for purposes of this definition, a hazardous waste.

Hotspot: Land uses or activities with higher potential pollutant loadings, including but not limited to auto salvage yards, auto fueling facilities, fleet storage yards, commercial parking lots with high intensity use, road salt storage areas, commercial nurseries and landscaping companies, marinas and boat yards, outdoor storage and loading areas of hazardous substances.

Illicit Connection: *Any surface or subsurface drain or conveyance which allows an illicit discharge into a storm drain, including without limitation, sewage, process wastewater, or wash water and any connections from indoor drains, sinks, or toilets regardless of whether said connection was previously allowed, permitted, or approved before the effective date of this regulation.*

Illicit Discharge: *the dumping or discharging of any pollutant or non-stormwater discharge into the municipal storm drain system, into a watercourse, or into waters of the United States and/or the Commonwealth, except as exempted in § 13.14.030.*

Impaired Water : A water body that does not meet the quality standards for one or more of its designated uses and is therefore listed in categories 4 or 5 of the five part categorization approach used for classifying the water quality standards attainment status for water segments under the TMDL program.

Impervious Surface: Any material or structure on or above the ground that prevents water from infiltrating through the underlying soil. Impervious surface is defined to include, without limitation: paved parking lots, sidewalks, rooftops, driveways, patios and paved, gravel and compacted dirt surfaced roads.

Industrial Activity Stormwater Permit: An EPA NPDES General Permit for the discharge from any conveyance activity that is used for collecting and conveying stormwater that is directly related to manufacturing, processing or raw materials storage areas at an industrial plant.

Infiltration: The act of conveying surface water into the ground to permit groundwater recharge and the reduction of stormwater runoff from a project site.

Land Disturbance: *Any activity that removes the surface cover from land, changes the grade or exposes soil to the potential influence of stormwater.*

Massachusetts Stormwater Standards: *The performance standards issued by the Massachusetts Department of Environmental Protection (DEP), codified in the regulations at 310 CMR 10.05(6)(k)-(q), and further defined and specified in the Massachusetts Stormwater Handbook issued by the DEP.*

Municipal Storm Drain System or Municipal Separate Storm Sewer System (MS4): *The system of conveyances designed or used for collecting or conveying stormwater, including any road with a drainage system, street, gutter, curb, inlet, piped storm drain, pumping facility, retention or detention basin, natural or man-made or altered drainage channel, reservoir, and other drainage structure that together comprise the storm drainage system owned or operated by the Town.*

National Pollutant Discharge Elimination System (NPDES) Permit: The permit required and issued by EPA and/or DEP to control point source discharges of pollutants to waters of the United States or separate storm drain systems. It shall also mean the permit issued to the Town by the EPA and/or DEP for its combined sewer and stormwater discharges.

New Development: Any construction or land disturbance of a parcel of land that is currently in a natural vegetated state and does not contain alteration by man-made activities.

Non-point Source Pollution: Pollution from many diffuse sources caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into water resource areas.

NPDES Notice of Intent (NOI): The form completed and submitted to the EPA by a person seeking to include a discharge under an NPDES General Permit.

Oil trap: Shall mean a receptacle designed to separate petroleum-based oil and grease, from water. Also called a separator in the Uniform State Plumbing Code, 248 CMR 2.00.

Operation and Maintenance (O&M) Plan: A plan that defines the functional, financial and organizational mechanisms for the ongoing operation and maintenance for a stormwater management system to ensure that it continues to function as designed.

Outfall: The point at which stormwater flows out from a point source into the waters of the United States and/or Commonwealth.

***Owner :** A person who alone or jointly or severally with others has the legal title to any premises or has care, charge or control of any premises as agent, executor, administrator, trustee, lessee or guardian of the estate of the holder of legal title.*

***Person:** An individual, partnership, association, firm, company, trust, corporation, agency, authority, department or political subdivision of the Commonwealth or the Federal government, to the extent permitted by law, and any officer, employee, or agent of such person.*

Planning Board: The Planning Board within the Braintree Department of Planning and Community Development.

Point Source: Any discernible, confined and discrete conveyance, including but not limited to: any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, or container from which pollutants are or may be discharged.

Pollutant(s): Any element or property of sewage, residential, agricultural, industrial, or commercial waste, runoff, leachate, heated effluent, or other matter whether originating at a point or non-point source, that is or may be introduced into any storm drain system, waters of the United States, and/or Commonwealth. Pollutants shall include without limitation:

1. paints, varnishes, solvents;
2. oil, grease, antifreeze, other automotive fluids and/or products;
3. non-hazardous liquid and solid wastes;
4. refuse, garbage, litter, rubbish, yard wastes, or other discarded or abandoned objects, ordnances, accumulations and floatables;
5. pesticides, herbicides and fertilizers;
6. hazardous materials and wastes;
7. sewage;

8. dissolved and particulate metals;
9. metal objects or materials;
10. animal wastes;
11. rock, sand, salt, soils, or other products/materials that mobilize in surface water runoff;
12. construction wastes and/or residues.
13. And any substance that causes or contributes to the impairment of the waters of the Commonwealth.

Pollutant of Concern: A pollutant which causes or contributes to a violation of a water quality standard, including a pollutant which is identified as causing impairment in the State’s Integrated List of Waters (303(d) list).

Pre-Development: The conditions that exist at the time that plans for the land development of a tract of land are submitted to the Department. Where phased development or plan approval occurs (preliminary grading, roads and utilities, et.) the existing conditions at the time prior to the first plan submission shall establish pre-development conditions.

Post-Development: The conditions that reasonably may be expected or anticipated to exist after completion of the land development activity on a specific site or tract of land. Post-development refers to the phase of a new development or redevelopment project after completion and does not refer to the construction phase of a project.

Private storm drain: A storm drain and components which are not owned by the Town. Private Storm Drains and stormwater runoff facilities include, but are not limited to, building storm drains, drains, catch basins and manholes located on private property and not located within an easement held by the Town, and storm drains owned by other municipalities and public agencies. The connection from a private storm drain to the public storm drain system is also owned and maintained by the owner of the private storm drain.

Receiving waters shall mean any watercourse, river, pond, wetland, ditch, lake, aquifer, ocean or other body of surface water or groundwater that receives a discharge of stormwater.

Recharge: The replenishment of underground water reserves.

Redevelopment: Development, rehabilitation, expansion, demolition or phased projects that disturb the ground surface on previously developed sites.

Runoff: Rainfall, snowmelt, or irrigation water flowing over the ground surface.

Sanitary Sewer or Sewer: A pipe designed to carry wastewater, including but not limited to sanitary sewage and industrial wastes.

Sediment: Mineral or organic soil material that is transported by wind or water, from its origin to another location; the product of erosion processes.

Sedimentation: The process or act of deposition of sediment.

Site: The parcel of land being developed, or a designated planning area in which the land development project is located.

Stabilization: The use, singly or in combination, of mechanical, structural or vegetative methods, to prevent or retard erosion.

State Clean Water Act: *Massachusetts General Laws Chapter 21.*

Storm drain: A pipe or conduit designed to carry stormwater, surface water or runoff.

Stormwater: *Stormwater runoff, snow melt runoff and drainage of any water resulting from rainfall or other precipitation that runs off surfaces during or after a storm. and surface runoff and drainage.*

Stormwater Authority: The Braintree Department of Public Works or its authorized agent(s). The Department of Public Works is responsible for coordinating the review, approval and permit process as defined in these Regulations. Other Boards and/or departments participate in the review process as defined in these regulations.

Stormwater Management: The use of structural or non-structural practices that are designed to reduce stormwater runoff, pollutant loads, discharge volumes, and/or peak flow discharge rates.

Stormwater Management Permit (SMP): The permit required and issued by the Department authorizing the connection the Town's storm drainage systems.

Stormwater Management Permit Application: The form provided by the Department and completed and submitted, along with any required attachments, to the Department by the property owner or by the owner's agent prior to construction, reconstruction, repair or modification of a connection or an appurtenance to the Town's storm drains and stormwater runoff facilities.

Surface water: All water appearing on the earth's surface exposed to the atmosphere, such as rivers, lakes, streams, and oceans.

Total Maximum Daily Load (TMDL): A calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards.

Town: The Town of Braintree.

Treatment system or pretreatment system: Any and all devices, equipment, or works, including Best Management Practices, used in the pumping, storing, treating, recycling, and reclaiming of stormwater.

TSS: Total Suspended Solids.

Watercourse: A natural or man-made channel through which water flows or a stream of water, including a river, brook or underground stream.

Water Quality Standards: The standards contained in 314 CMR 4.00 that define the water goals of a water body, or portion thereof, by designating the use or uses to be made of the water and by setting criteria necessary to protect the uses.

Water Quality Volume (WQV): The volume of runoff that must be used to determine the design of a Best Management Practice (or series of practices) to achieve a specified level of treatment (in this case 80% removal of total suspended solids – TSS) under the Massachusetts DEP Stormwater Management Policy.

APPENDIX B – STORMWATER MANAGEMENT PLAN DESIGN CRITERIA

The following additional requirements apply to all Major Projects unless otherwise determined by the Department:

Section 1- Treatment Requirements.

Every property owner who directly or indirectly discharges stormwater to the Town stormwater system or a private infiltration system shall provide the treatment system necessary to ensure that the discharge complies with the requirements of the Planning Board, Conservation Commission and these Regulations including but not limited to: Stormwater management systems designed on sites with documented soil contamination or systems designed on industrial sites shall not include BMPs that promote infiltration and shall instead require use of treatment BMPs on site.

Stormwater management systems designed to include infiltration near environmentally sensitive areas, including public water supplies, Interim Wellhead Protection Areas, and Zones II, A, B, and C, swimming beaches, and cold water fisheries, shall incorporate designs that allow for shutdown and containment where appropriate to isolate the system in the event of an emergency spill or other unexpected event. In order to protect these resources, any stormwater management system designed to infiltrate stormwater near environmentally sensitive areas must, prior to infiltration, provide the level of pollutant removal equal to or greater than the level provided through the use of bio-filtration of the same volume of runoff.

Treatment systems shall be designed to avoid disturbance of areas susceptible to erosion and sediment loss.

All BMPs installed as part of the sites stormwater treatment system shall be selected and constructed in accordance with the Massachusetts Stormwater Handbook Volume 2 Chapter 2, as amended.

Section 2 – Treatment Standards for New Development and Re-development.

Stormwater Management Systems shall be designed to retain and/or treat the first one inch (1") of runoff from all impervious surfaces on the site. The portion of the first one inch (1") which cannot be feasibly retained and/or infiltrated shall be treated using treatment methods consistent with the Draft or Final Total Maximum Daily Loads for affected receiving waters and any additional treatment requirements in the Town of Braintree's MS4 Permit. Pre-treatment of runoff from paved surfaces is required to remove 44% of the Total Suspended Solids prior to infiltration. Driveways associated with applications for single-family dwellings are exempt from this requirement as per the 2008 Mass DEP Stormwater Handbook, but to the extent practicable, runoff from such driveways shall be directed to adjacent pervious surfaces.

These standards shall be met through a combination of practices designed to retain runoff on site (environmentally sensitive site design, low impact development techniques, green infrastructure) where technically feasible, and stormwater BMPs designed to treat the remainder of the runoff that cannot be retained on site due to site constraints. The level of pollutant removal from BMPs shall

be calculated consistent with EPA Region 1's BMP Performance Extrapolation Tool. BMPs must be chosen to maximize reduction of pollutants identified in the approved TMDL. BMPs must be selected and designed using the appropriate criteria from the most recent Massachusetts Stormwater Handbook. For other structural stormwater controls not included in the Handbook or for which approximate pollutant removal capabilities have not been provided, the pollutant removal effectiveness must be documented through prior studies, literature reviews, or other means and must receive approval from the Department. The Department may issue one or more Guidances identifying BMPs or combinations of BMPs that will maximize reduction of each pollutant of concern.

Section 3 – Major Permit Conditions.

The Department may condition permits as it deems necessary. All major permits will, at a minimum, include the following conditions:

- 1) The treatment system shall include the development of a long term Operation and Maintenance plan to inspect and repair installed BMPs to ensure that they are functioning according to manufacturer or design specifications. Any subsequent proposed changes in a treatment system or method of operation shall be approved by the Director before modification of such a facility.
- 2) Permittees shall submit as-built drawings no later than one year after completion of construction projects. The as-built drawings must depict all on site controls, both structural and non-structural, designed to manage stormwater associated with the completed site.
- 3) The treatment system shall be continuously maintained in satisfactory and effective operation. All costs associated with treatment system planning, design, construction, operation and maintenance shall be borne by the owner or property owner. The Town shall have the right to inspect such facilities in accordance with Article VII of these Regulations.

Section 4 – NPDES Notice of Intent and Permit.

Every person who is required to be covered under a Construction Activity Permit shall submit to the Department a copy of the completed Notice of Intent or individual application as submitted to EPA, and the information identified in items 1 through 5 below, as applicable.

- 1) Address of the building (or premises) where the discharge will take place and the name and address of the building (or premises) owner;
- 2) Name of a contact person, title and phone number;
- 3) A site plan or sketch which shows the location of the connection of the building storm drain or the point(s) of discharge to the Town's storm drainage system, including the street name, and the size of the storm drain to which the Stormwater will discharge;

- 4) Existing NPDES permit number, if any;
- 4) Facility's Assessor's Parcel Number

Section 5 – Storm Drain Extensions.

Any person may propose an extension, replacement or relocation of a Town storm drain to serve a new or rehabilitated building. At least 60 days prior to initiating any work the applicant shall submit two copies of the Stormwater Management Permit – Major Project application form. Every extension, replacement or relocation of a Town storm drain shall be designed and constructed in accordance with the Department's design requirements, specifications and standard details. Any tests, studies, investigations and inspections required for design and construction shall be conducted in accordance with the Department's requirements. All expenses incurred pursuant to the extension, replacement or relocation of a Town storm drain including but not limited to application, engineering, legal, permitting, construction and inspection costs, shall be borne by the applicant.

After constructing a Town approved public storm drain extension, replacement or relocation, the owner shall, upon approval and acceptance by the Director, transfer ownership of the storm drain to the Town through a Release Agreement in a form prescribed by the Town. The Release Agreement shall be accompanied with as-built plans for the extended, replaced or relocated storm drain and any other information required by the Town. Until such time as the Release Agreement is signed by the Town, the extended, replaced or relocated storm drain shall be considered to be privately owned by the applicant and shall be subject to the requirements pertaining to private Storm Drains and Stormwater Runoff Facilities contained in these Regulations.

APPENDIX C – EROSION AND SEDIMENT CONTROL PLAN REQUIREMENTS

1. General

The application for a Stormwater Permit (**Major**) shall include an Erosion and Sediment Control Plan (ESCP) to describe the nature and purpose of the proposed development, pertinent conditions of the site and the adjacent areas, and proposed erosion and sediment controls. The applicant shall submit such material as is necessary to show that the proposed development will comply with the design requirements as specified herein and in accordance with the Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas – A Guide for Planners, Designers and Municipal Officials, latest edition. The applicant may submit the SWPPP in place of the ESCP, if the NPDES General Permit for Discharges for Construction Activities applies.

2. Applicability

Single-family Applicants – Single-family applicants shall submit the ESCP as outlined in this section. However, the requirement for stamped and certified plans shall not apply to single-family applicants.

Commercial and Other Non-Single-Family Applicants – Commercial and other non-single-family applicants shall submit the ESCP as outlined in this section.

3. Contents

The ESCP shall include the following:

- (a) Contact Information. Names, addresses and telephone numbers of the property owner/applicant, and applicant's technical representative(s) or firms(s) preparing the ESCP, if different from the Permit.
- (b) Drainage patterns of surface runoff and approximate slopes anticipated after major grading activities (Construction Phase Grading Plans)
- (c) Location and details of erosion and sediment control measures with a narrative of the construction sequence/phasing of the project, including both operation and maintenance for structural and non-structural measures, interim grading and construction and waste material stockpiling areas.
- (d) Path and mechanism to divert uncontaminated water around disturbed areas, to the maximum extent practicable.
- (e) Location and description of an implementation schedule for temporary and permanent seeding, vegetative controls and other stabilization measures.

- (f) A description of construction and waste materials expected to be stored on-site and intended disposal methods. The ESCP shall include a description of controls to reduce pollutants from these materials, include a description of controls to reduce pollutants for these materials, including storage practices to minimize exposure of the materials to stormwater and spill prevention and response.
- (g) Plan must be stamped and certified by a Professional Engineer registered in the Commonwealth of Massachusetts or a Certified Professional in Erosion and Sediment Control (CPESC)
- (h) Such other information as is required by the Department.

APPENDIX D – OPERATIONS AND MAINTENANCE PLAN REQUIREMENTS

1. General

An Operation and Maintenance Plan (O&M Plan) is required at the time of application for all **Major** projects. Once approved by the Department the O&M Plan shall be recorded at the Norfolk County Registry of Deeds, shall remain on file with the Department and shall be an ongoing requirement.

2. Applicability

Single-family Applicants – Single-family applicants shall be exempt from submitting the O&M Plan as outlined in this section.

Commercial and other Non-single-family Applicants – Commercial and other non-single-family applicants shall submit the O&M Plan as outlined in this section.

3. Contents

The O&M Plan shall include:

- (a) The names(s) of the property owner(s) for all components of the system.
- (b) Maintenance agreements that specify:
 - i. The names and addresses of the person(s) responsible for operation and maintenance.
 - ii. The person(s) responsible for financing maintenance and emergency repairs.
 - iii. A Maintenance Schedule listing actions to be taken and a timeline for all drainage structures, include swales and ponds.
 - iv. A listing of easements with the purpose and location of each.
 - v. The signature(s) of the owner(s).
 - vi. Requirement to notify the Department in writing of changes in ownership or assignment of financial responsibility.

4. Modifications

Amendments to the O&M Agreement shall be made in writing to the Department and shall be signed by the responsible parties. The amended O&M Plan shall then be filed at the Norfolk County Registry of Deeds when approved.

5. Reporting

Annual reports with maintenance logs shall be sent to the Department by January 31 of each calendar year. Failure to comply with the reporting requirement shall be considered a violation of these regulations and may be subject to fines as per Ch. 13.14.050.D.

Town of Braintree
SOP 6 –Erosion and Sedimentation
Inspection Procedures

Approved By:

Date:

Approved By:

Date:

SOP 6: EROSION AND SEDIMENTATION CONTROL

Erosion and sedimentation from land-disturbing human activities can be a significant source of stormwater pollution. This Standard Operating Procedure describes methods for reducing or eliminating pollutant loading from such activities.

Controlling Erosion and Sediment through Design and Planning

Prevention of erosion and sedimentation is preferable to installing treatment devices. Consistent application and implementation of the following guidelines during the design and review phases can prevent erosion and sedimentation:

1. Avoid sensitive areas, steep slopes, and highly erodible soils to the maximum extent possible when developing site plans.
2. Identify potential problem areas before the site plan is finalized and approved.
3. Plan to use sediment barriers along contour lines, with a focus on areas where short-circuiting (i.e., flow around the barrier) may occur.
4. Use berms at the top of a steep slopes to divert runoff away from the slope's edge.
5. Design trapezoidal or parabolic vegetated drainage channels, not triangular.
6. Use native vegetated channels with rip rap check dams, instead of impervious pavement or concrete, to reduce the water velocity of the conveyance system.
7. Design a check dam or sediment forebay with level spreader at the exit of outfalls to reduce water velocity of the discharge and collect sediment.
8. Use turf reinforcement matting to stabilize vegetated channels, encourage native vegetation establishment, and withstand flow velocities without scouring the base of the channel.
9. Plan open channels to follow land contours so natural drainage is not disrupted.
10. Use organic matting for temporary slope stabilization and synthetic matting for permanent stabilization.
11. Seed bare ground areas with native seed mix to promote vegetation establishment.
12. Provide a stable channel, flume, or slope drain where it is necessary to carry water down slopes.
13. Provide detailed sediment cover control plans to reduce stormwater runoff to surface waters and drains

Controlling Erosion and Sediment on Construction Sites

During the construction phase, it is important to inspect active sites regularly to ensure that practices are consistent with approved site plans and the site's Stormwater Pollution Prevention Plan (SWPPP) or other document, as required by the municipality's legal authority. The following guidelines apply:

1. Erosion and sediment control features should be constructed before initiating activities that remove vegetated cover or otherwise disturb the site. These shall be installed consistent with the approved site plans and with manufacturer's instructions.
2. Erosion and sediment control devices shall be inspected by the contractor regularly, and maintained as needed to ensure function.
3. In the SWPPP or other document, the contractor shall clearly identify the party responsible for maintaining erosion and sediment control devices.
4. An inspection should be completed of active construction sites every month, at a minimum, to check the status of erosion and sedimentation controls. Refer to SOP 5, "Construction Site Inspection", for construction site stormwater inspection procedures.
5. Existing vegetation should be maintained on site as long as possible.
6. Construction should proceed progressively on the site in order to minimize exposed soil, and disturbed areas should be restored as soon as possible after work has been completed.
7. Stockpiles shall be stabilized by seeding or mulching if they are to remain for more than two weeks.
8. Stockpiles shall be covered if they are to remain for more than 1 week. Stockpiles within 50 ft. of surface waters will be covered when not in use.
9. Disturbed areas shall be protected from stormwater runoff by using protective Best Management Practices (BMPs).
10. Clean water shall be diverted away from disturbed areas on construction sites to prevent erosion and sedimentation.
11. Sediment traps and sediment barriers should be cleaned out regularly to reduce clogging and maintain design function.
12. Vegetated and wooded buffers shall be protected.
13. Soils shall be stabilized by mulching and/or seeding of native plants when they would be exposed for more than one week during the dry season, or more than two days during the rainy season.
14. Vegetation shall be allowed to establish before introducing flows to channels.
15. Regular light watering shall be used for dust control, as this is more effective than infrequent heavy watering.
16. Excessive soil compaction with heavy machinery shall be avoided, to the extent possible.
17. Construction activities during months with higher runoff rates shall be limited, to the extent possible.

Controlling Erosion and Sediment by Proper Maintenance of Permanent BMPs

Many construction phase BMPs can be integrated into the final site design, but ongoing inspection and maintenance are required to ensure long-term function of any permanent BMP. Refer to SOP 9, "Inspection of Constructed Best Management Practices", for more information. The following guidelines summarize the requirements for long-term maintenance of permanent BMPs.

1. Responsibility for maintaining erosion and sediment control devices shall be clearly identified.

2. Erosion and sediment control devices shall be inspected following heavy rainfall events to ensure they are working properly.
3. Erosion control blankets shall be utilized when seeding slopes.
4. Vegetated and wooded buffers shall be protected, and left undisturbed to the extent possible.
5. Disturbance of vegetated and wooded buffers within 25 ft. of surface waters is prohibited unless specifically approved.
6. Runoff shall not be diverted into a sensitive area unless this has been specifically approved.
7. Sedimentation basins shall be cleaned out once sediment reaches 50% of the basin's design capacity.
8. Snow shall not be plowed into, or stored within, retention basins, rain gardens, vegetated areas or other BMPs.
9. Easements and service routes shall be maintained, to enable maintenance equipment to access BMPs for regular cleaning.

Related Standard Operating Procedures

1. SOP 5, Construction Site Inspection
2. SOP 9, Inspection of Constructed Best Management Practices

Attachment 1
Erosion and Sedimentation Inspection
Form

EROSION AND SEDIMENTATION CONTROL INSPECTION REPORT

General Information

Project Name			
Project Location			
Inspector's Name			
Site Operator			
Date of Inspection		Date of Last Inspection	
Start Time		End Time	
Subject to USEPA Construction General Permit? Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, has NOI been approved? Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, attach approved NOI to this report. <p style="text-align: center;">If no, contact contractor immediately to determine status of NOI.</p>			
Type of Inspection: Regular <input type="checkbox"/> Pre-Storm Event <input type="checkbox"/> During Storm Event <input type="checkbox"/> Post-Storm Event <input type="checkbox"/>			
Describe the weather conditions at time of inspection			
Describe the current phase of construction			

Erosion and Sediment Control (ESC) on Construction Sites

Document any of the following issues found on the construction site, and the corrective action(s) required for each.

Issue	Status	Corrective Action Needed
Have all ESC features been constructed before initiating other construction activities?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is the contractor inspecting and maintaining ESC devices regularly?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is existing vegetation maintained on the site as long as possible?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is construction staged so as to minimize exposed soil and disturbed areas?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are disturbed areas restored as soon as possible after work is completed?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is clean water being diverted away from the construction site?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are sediment traps and sediment barriers cleaned regularly?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are vegetated and wooded buffers protected and left undisturbed?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are soils stabilized by mulching and/or seeding when they are exposed for a long time?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Has vegetation been allowed to establish itself before flows are introduced to channels?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is regular, light watering used for dust control?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is excessive soil compaction with heavy machinery avoided, to the extent possible?	Yes <input type="checkbox"/> No <input type="checkbox"/>	

(continued)

Issue	Status	Corrective Action Needed
Are erosion control blankets used when seeding slopes?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are trees and vegetation that are to be retained during construction adequately protected?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are areas designated as off-limits to construction equipment flagged or easily distinguishable?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
If excavated topsoil has been salvaged and stockpiled for later use on the project, are stockpiles adequately protected?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are temporary slope drains or chutes used to transport water down steep slopes?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Do all entrances to the storm sewer system have adequate protection?	Yes <input type="checkbox"/> No <input type="checkbox"/>	

Non-Compliance Actions

The municipality shall provide the site operator with a copy of this report, and notice of the corrective action(s) to be taken. The site operator shall have thirty days from the receipt of the notice to commence curative action of the violation.

Town of Braintree

SOP 7 –Fuel and Oil Handling Procedures

Approved By:

Date:

Approved By:

Date:

SOP 7: Fuel and Oil Handling

Introduction

Spills, leaks, and overfilling can occur during handling of fuels and petroleum-based materials, representing a potential source of stormwater pollution, even in small volumes. The goal of this written Standard Operating Procedure (SOP) is to provide guidance to municipal employees on a variety of ways by which fuels and petroleum-based materials can be delivered, as well as steps to be taken when petroleum products (such as waste oil) are loaded onto vehicles for offsite disposal or recycling. Delivery, unloading, and loading of waste oils are hereafter referred to as “handling.”

The Town of Braintree should undertake various procedures and precautions in handling fuel and oil.

Procedures

The Town of Braintree should implement the following fuel and oil handling procedures to help reduce the discharge of pollutants from the MS4:

General Guidelines

For all manners of fuel and oil handling described below, a member of the facility’s Pollution Prevention Team or another knowledgeable person familiar with the facility should be present, if possible, during handling procedures. This person should ensure that the following are observed:

- There is no smoking while fuel handling is in process or underway.
- Sources of flame are kept away while fuel handling is being completed. This includes smoking, lighting matches, carrying any flame, or carrying a lighted cigar, pipe, or cigarette.
- The delivery vehicle’s hand brake is set and wheels are chocked while the activity is being completed.
- Catch basins and drain manholes are adequately protected.
- No tools are to be used that could damage fuel or oil containers or the delivery vehicle.
- No flammable liquid should be unloaded from any motor vehicle while the engine is operating, unless the engine of the motor vehicle is required to be used for the operation of a pump.
- Ensure that local traffic does not interfere with fuel transfer operations. If it does, make appropriate accommodations.
- The attending persons should watch for any leaks or spills:
 - Any small leaks or spills should be immediately stopped, and spilled materials absorbed and disposed of properly. Follow the procedures in SOP 4: Spill Response and Cleanup.
 - In the event of a large spill or one that discharges to surface waters or an engineered storm drain system, the facility representative should activate the facility’s Stormwater Pollution Prevention Plan (SWPPP) and report the incident as specified in the document.

Delivery by Bulk (Tanker) Truck

Procedures for the delivery of bulk fuel should, if possible, include the following:

- The truck driver should check in with the facility upon arrival.
- The truck driver should both remain with the vehicle during the delivery process.
- The truck driver should inspect all visible lines, connections, and valves for leaks.

- When delivery is complete and the hoses are removed, buckets should be placed underneath connection points to catch drippings.
- The delivery vehicle should be inspected prior to departure to ensure that the hose is disconnected from the tank.
- Delivery slips should be maintained as well as a log of the quantity of fuel delivered.

Delivery of Drummed Materials

Drummed materials may include motor oil, hydraulic fluid, transmission fluid, or waste oil from another facility (as approved). Procedures for the delivery of drummed materials should include the following:

- The truck driver should check in with the facility upon arrival.
- The facility representative should ensure that the appropriate spill cleanup and response equipment and personal protective equipment are readily available and easily accessible. Refer to SOP 4: Spill Response and Cleanup for examples of spill cleanup and response materials. The facility representative should closely examine the shipment for damaged drums.
 - If damaged drums are found, they should be closely inspected for leaks or punctures.
 - Breached drums should be removed to a dry, well-ventilated area and the contents transferred to other suitable containers.
 - Drums should be disposed of in accordance with all applicable regulations.
- Drummed materials should not be unloaded outdoors during wet weather events.
- The truck driver and the facility representative should both remain with the vehicle during the delivery process.
- Drums should be handled and unloaded carefully to prevent damage.
- Upon completion of unloading, the facility representative should inspect the unloading point and the drums to verify that no leaks have occurred, that any leaked or spilled material has been cleaned up and disposed of properly, and that the unloaded drums are not leaking.
- The facility representative should check to ensure that the proper amount of fuel or other material is delivered, and collect a receipt from the truck driver.

Removal of Waste Oil from the Facility

When waste oil or similar oil products need to be removed from the premises, only haulers certified to transport waste oil should be utilized. Procedures should include the following:

- The disposal truck driver should check in with the facility upon arrival.
- The facility representative should ensure that the appropriate spill cleanup and response equipment and personal protective equipment are readily available and easily accessible. Refer to SOP 4: Spill Response and Cleanup for examples of spill cleanup and response materials. The truck driver and the facility representative should both remain with the vehicle during the tank draining process.
- When draining is complete and the hoses are removed, buckets should be placed underneath connection points to catch drippings.
- The facility representative should inspect the loading point and the tank to verify that no leaks have occurred, or that any leaked or spilled material has been cleaned up and disposed of properly.
- The facility representative should collect a receipt from the truck driver.
- When draining bulk oil tanks:

- The facility representative should verify that the volume of waste oil in the tank does not exceed the available capacity of the disposal hauler's vehicle.
- The disposal hauler vehicle should be inspected prior to departure to ensure that the hose is disconnected from the tank.

Employee Training

- Employees who handle or deliver fuel and/or oil should be trained once per year on proper procedures. Such training should be coordinated by the Stormwater Division.
- Employees should also be trained on stormwater pollution prevention, illicit discharge detection and elimination (IDDE) procedures, and spill and response procedures.
- If services are contracted, the contractor should be given a copy of this and any applicable SOPs to ensure compliance with MS4 regulations.

Related Standard Operating Procedures

- SOP 4: Spill Response and Cleanup

Attachment 1
Fuel Delivery Checklist

Fuel Delivery Checklist

Date: _____
Time of Arrival: _____
Time of Departure: _____
Truck Number: _____
Name of Truck Driver: _____
Name of Town Employee: _____

BEFORE UNLOADING:

Is all spill response equipment and personal protective equipment in place?

Yes No

In the case of bulk fuel delivery, does tank capacity exceed the amount of delivery?

Yes No N/A

In the case of drum fuel delivery, are all drums free of leaks and punctures?

Yes No N/A

COMMENCE UNLOADING. REMAIN WITH VEHICLE AT ALL TIMES.

AFTER UNLOADING IS COMPLETE:

Have all fuel containers, including the vehicle, been inspected for leaks?

Yes No

Has the ground at the unloading point been inspected for evidence of leaks?

Yes No

If there are any leaks or spills, has the material been properly cleaned?

Yes No

Has the correct amount of fuel been delivered?

Yes No

Has a receipt been collected?

Yes No

DELIVERY IS COMPLETE.

Standard Operating Procedures

Town of Braintree

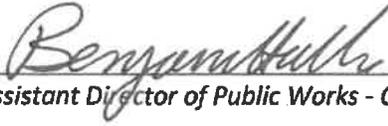
Department of Public Works

Stormwater Treatment Structures Inspection & Maintenance

Issue Date:

6/29/2019

Approved by:



Assistant Director of Public Works - Operations

Purpose of SOPs:

INSPECTING CONSTRUCTED BEST MANAGEMENT PRACTICES

Best Management Practices (BMPs) are policies, procedures and structures designed to reduce stormwater pollution, prevent contaminant discharges to natural water bodies, and reduce stormwater facility maintenance costs. Constructed BMPs are permanent site features designed to treat stormwater before infiltrating it to the subsurface or discharging it to a surface water body.

This Standard Operating Procedure provides a general summary of inspection procedures for three common constructed BMPs, including:

1. Bioretention Areas and Rain Gardens
2. Extended Dry Detention Basins
3. Infiltration Basins

MA Small MS4 General Permit Requirement Summary:

Part 2.3.7.a.iii.6.

The permittee shall establish and implement inspection and maintenance frequencies and procedures for all stormwater treatment structures such as water quality swales, retention/detention basins, infiltration structures, proprietary treatment devices or other similar structures. All permittee-owned stormwater treatment structures (excluding catch basins) shall be inspected annually at a minimum.

Standard Operating Procedures

Town of Braintree

Department of Public Works

Stormwater Treatment Structures Inspection & Maintenance

Issue Date:

6/29/2019

Bioretention Areas and Rain Gardens

Bioretention areas and rain gardens are shallow depressions filled with sandy soil, topped with a thick layer of mulch and planted with dense native vegetation. There are two types of bioretention cells:

1. Filtering bioretention area: Areas that are designed solely as an organic filter; and
2. Exfiltration bioretention area: Areas that are configured to recharge groundwater in addition to acting as a filter.

Inspection & Maintenance

Regular inspection and maintenance are important to prevent against premature failure of bioretention areas or rain gardens. Regular inspection and maintenance of pretreatment devices and bioretention cells for sediment buildup, structural damage and standing water can extend the life of the soil media.

Maintenance Schedule: Bioretention Areas and Rain Gardens

Activity	Time of Year	Frequency
Inspect for soil erosion and repair	Year round	Monthly
Inspect for invasive species and remove if present	Year round	Monthly
Remove trash	Year round	Monthly
Mulch Void Areas	Spring	Annually
Remove dead vegetation	Fall and Spring	Bi-Annually
Replace dead vegetation	Spring	Annually
Prune	Spring or Fall	Annually
Replace all media and vegetation	Late Spring/Early Summer	As Needed

When failure is discovered, excavate the bioretention area, scarify the bottom and sides, replace the filter fabric and soil, replant vegetation and mulch the surface.

Never store snow within a bioretention area or rain garden. This would prevent required water quality treatment and the recharge of groundwater.

Extended Dry Detention Basins

Extended dry detention basins are designed to control both stormwater quantity and quality. These BMPs are designed to hold stormwater for at least 24 hours, allowing solids to settle and to reduce local and downstream flooding. Pretreatment is required to reduce the potential for overflow clogging. The outflow may be designed as either fixed or adjustable. Additional nutrient removal may be achieved by a micropool or shallow marsh.

Standard Operating Procedures

Town of Braintree

Department of Public Works

Stormwater Treatment Structures Inspection & Maintenance

Issue Date:

6/29/2019

Inspection & Maintenance

Annual inspection of extended dry detention basins is required to ensure that the basins are operating properly. Potential problems include: erosion within the basin and banks, tree growth on the embankment, damage to the emergency spillway and sediment accumulation around the outlet. Should any of these problems be encountered, necessary repairs should be made immediately.

Maintenance Schedule: Extended Dry Detention Basins

Activity	Time of Year	Frequency
Inspect basins	Spring and Fall	Bi-Annually, and during and after major storms
Examine outlet structure for clogging or high outflow release velocities	Spring and Fall	Bi-Annually
Mow upper stage, side slopes, embankment and emergency spillway	Spring through Fall	Bi-Annually
Remove trash and debris	Spring	Bi-Annually
Remove sediment from basin	Year round	At least once every 5 years

Infiltration Basins

Infiltration basins are designed to contain stormwater quantity and provide groundwater recharge. Pollution prevention and pretreatment are required to ensure that contaminated stormwater is not infiltrated. Infiltration basins reduce local flooding and preserve the natural water balance of the site, however high failure rates often occur due to improper siting, inadequate pretreatment, poor design and lack of maintenance.

Inspection & Maintenance

Regular maintenance is required to prevent clogging, which results in infiltration basin failure. Clogging may be due to upland sediment erosion, excessive soil compaction or low spots. Inspections should include signs of differential settlement, cracking, erosion, leakage in the embankments, tree growth on the embankments, riprap condition, sediment accumulation and turf health.

Maintenance Schedule: Infiltration Basins

Activity	Time of Year	Frequency
Preventative maintenance	Spring and Fall	Bi-Annually
Inspection	Spring and Fall	After every major storm for the first 3 months after construction completion. Bi-annually thereafter and discharges through the high outlet orifice.
Mow/rake buffer area, side slopes and basin bottom	Spring and Fall	Bi-Annually
Remove trash, debris and organic matter	Spring and Fall	Bi-Annually

Standard Operating Procedures <i>Town of Braintree</i> <i>Department of Public Works</i> Stormwater Treatment Structures Inspection & Maintenance	Issue Date: 6/29/2019
Training <ol style="list-style-type: none">1. Employees are trained yearly on this procedure and the proper operation of equipment. Employees are also trained on stormwater pollution prevention, spill and response, and illicit discharge detection and elimination procedures.	
Record Keeping <ol style="list-style-type: none">1. Records are kept at the DPW Highway Division Office.	
Revising the SOPs These procedures are reviewed yearly and updated as needed.	

INSPECTION OF BIORETENTION AREAS / RAIN GARDENS

General Information

BMP Description	Bioretention Area / Rain Garden		
BMP Location			
Inspector's Name			
Date of Inspection		Date of Last Inspection	
Start Time		End Time	
Type of Inspection: Regular <input type="checkbox"/> Pre-Storm Event <input type="checkbox"/> During Storm Event <input type="checkbox"/> Post-Storm Event <input type="checkbox"/>			
Describe the weather conditions at time of inspection			

Specific Information

Maintenance Activity	Maintenance Frequency	Is Status of BMP Satisfactory?	Corrective Action Needed
Inspect for soil erosion and repair	Monthly	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Inspect for invasive species and remove if present	Monthly	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Remove trash	Monthly	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Mulch void areas	Annually	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Remove dead vegetation	Bi-Annually	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Replace dead vegetation	Annually	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Prune	Annually	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Replace all media and vegetation	As Needed	Yes <input type="checkbox"/> No <input type="checkbox"/>	

INSPECTION OF EXTENDED DRY DETENTION BASINS

Inspections should be conducted bi-annually, and during and after major storm events.

General Information

BMP Description	Extended Dry Detention Basin		
BMP Location			
Inspector's Name			
Date of Inspection		Date of Last Inspection	
Start Time		End Time	
Type of Inspection: Regular <input type="checkbox"/> Pre-Storm Event <input type="checkbox"/> During Storm Event <input type="checkbox"/> Post-Storm Event <input type="checkbox"/>			
Describe the weather conditions at time of inspection			

Specific Information

Maintenance Activity	Maintenance Frequency	Is Status of BMP Satisfactory?	Corrective Action Needed
Examine outlet structure for clogging or high outflow release velocities	Bi-Annually	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Mow upper stage, side slopes, embankment and emergency spillway	Bi-Annually	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Remove trash and debris	Bi-Annually	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Remove sediment from basin	At least once every 5 years	Yes <input type="checkbox"/> No <input type="checkbox"/>	

INSPECTION OF OTHER BMP

General Information

BMP Description			
BMP Location			
Inspector's Name			
Date of Inspection		Date of Last Inspection	
Start Time		End Time	
Type of Inspection: Regular <input type="checkbox"/> Pre-Storm Event <input type="checkbox"/> During Storm Event <input type="checkbox"/> Post-Storm Event <input type="checkbox"/>			
Describe the weather conditions at time of inspection			

Specific Information

Maintenance Activity	Maintenance Frequency	Is Status of BMP Satisfactory?	Corrective Action Needed
		Yes <input type="checkbox"/> No <input type="checkbox"/>	
		Yes <input type="checkbox"/> No <input type="checkbox"/>	
		Yes <input type="checkbox"/> No <input type="checkbox"/>	
		Yes <input type="checkbox"/> No <input type="checkbox"/>	
		Yes <input type="checkbox"/> No <input type="checkbox"/>	
		Yes <input type="checkbox"/> No <input type="checkbox"/>	
		Yes <input type="checkbox"/> No <input type="checkbox"/>	

Town of Braintree
SOP 10 –Locating Illicit Discharge
Procedures

Approved By:

Date:

Approved By:

Date:

SOP 10: LOCATING ILLICIT DISCHARGES

Introduction

An “illicit discharge” is any discharge to an engineered storm drain system that is not composed entirely of stormwater unless the discharge is defined as an allowable non-stormwater discharge under the 2016 Massachusetts MS4 Permit. Illicit discharges may enter the engineered storm drain system through direct or indirect connections, such as: cross-connections of sewer services to engineered storm drain systems; leaking septic systems; intentional discharge of pollutants to catch basins; combined sewer overflows; connected floor drains; and sump pumps connected to the system (under some circumstances). Illicit discharges can contribute high levels of pollutants, such as heavy metals, toxics, oil, grease, solvents, nutrients, and pathogens to receiving streams.

Illicit discharges can be located by several methods, including routine dry weather outfall inspections and catch basin inspections, which are described in detail in SOP 1, “Dry Weather Outfall Inspection” and SOP 3, “Catch Basin Inspection and Cleaning”, respectively, as well as from citizen reports.

This SOP assumes that the municipality has legal authority (i.e., a bylaw or ordinance) in place, per the requirements of the 2016 Massachusetts MS4 Permit, to prohibit the connection of non-stormwater discharges into the storm drain system. The authority or department for addressing illicit discharge reports would be clearly identified in the municipality’s legal authority. In Massachusetts, this is typically a combination of the Board of Health, the Department of Public Works (or Highway Department), and the local sanitary sewer department or commission. In some communities, the Conservation Commission may also play a role. This SOP refers to “appropriate authority” generically to reflect differences in how municipalities have identified these roles.

Identifying Illicit Discharges

The following are often indicators of an illicit discharge from stormwater outfall:

1. Foam: indicator of upstream vehicle washing activities, or an illicit discharge.
2. Oil sheen: result of a leak or spill.
3. Cloudiness: indicator of suspended solids such as dust, ash, powdered chemicals and ground up materials.
4. Color or odor: Indicator of raw materials, chemicals, or sewage.
5. Excessive sediment: indicator of disturbed earth of other unpaved areas lacking adequate erosion control measures.
6. Sanitary waste and optical enhancers (fluorescent dyes added to laundry detergent): indicator of the cross-connection of a sewer service.
7. Orange staining: indicator of high mineral concentrations.

Both bacteria and petroleum can create a sheen on the water surface. The source of the sheen can be differentiated by disturbing it, such as with a pole. A sheen caused by oil will remain intact and move in

a swirl pattern; a sheen caused by bacteria will separate and appear “blocky”. Bacterial sheen is not a pollutant but should be noted.

Citizen Call in Reports

Reports by residents and other users of a water body can be effective tools in identifying the presence of illicit discharges. Many communities have set up phone hotlines for this purpose, or have provided guidance to local police departments and dispatch centers to manage data reported in this manner. Municipal employees and the general public should receive education to help identify the signs of illicit discharges and should be informed how to report such incidents annually.

When a call or seeclickfix is received about a suspected illicit discharge, the attached IDDE Incident Tracking Sheet shall be used to document appropriate information. Alternatively, the suspected illicit discharge can be entered as a work order in PeopleGIS for follow up. Subsequent steps for taking action to trace, document, and eliminate the illicit discharge are described in the following sections.

Potential illicit discharges reported by citizens should be reviewed on an annual basis to locate patterns of illicit discharges, identify high-priority catchments, and evaluate the call-in inspection program.

Tracing Illicit Discharges

Whenever an illicit discharge is suspected, regardless of how it was identified, the attached IDDE Incident Tracking Sheet should be utilized. The Incident Tracking Sheet shall be provided to the appropriate authority (i.e., Board of Health, Department of Public Works, etc.), which shall promptly investigate the reported incident.

If the presence of an illicit discharge is confirmed by the authority, but its source is unidentified, additional procedures to determine the source of the illicit discharge should be completed.

1. Review and consider information collected when illicit discharge was initially identified, for example, the time of day and the weather conditions for the previous 72 hours. Also consider and review past reports or investigations of similar illicit discharges in the area.
2. Obtain storm drain mapping for the area of the reported illicit discharge. If possible, use a tracking system that can be linked to your system map, such as GIS.
3. Document current conditions at the location of the observed illicit discharge point, including odors, water appearance, estimated flow, presence of floatables, and other pertinent information. Photograph relevant evidence.
4. If there continues to be evidence of the illicit discharge, collect water quality data using the methods described in SOP 13, “Water Quality Screening in the Field”. This may include using field test kits or instrumentation, or collecting analytical samples for full laboratory analysis.
5. Move upstream from the point of observation to identify the source of the discharge, using the system mapping to determine infrastructure, tributary pipes, and drainage areas that contribute. At each point, survey the general area and surrounding properties to identify potential sources of the illicit discharge. Document observations at each point on the IDDE Incident Tracking Sheet as well as with photographs or using the PeopleGIS IDDE Investigation tool.

6. Continue this process until the illicit discharge is no longer observed, which will define the boundaries of the likely source. For example if the illicit discharge is present in catch basin 137 but not the next upstream catch basin, 138, the source of the illicit discharge is between these two structures.

If the source of the illicit discharge could not be determined by this survey, consider using dye testing, smoke testing, or closed-circuit television inspection (CCTV) to locate the illicit discharge.

Dye Testing

Dye testing is used to confirm a suspected illicit connection to a storm drain system. Prior to testing, permission to access the site should be obtained. Dye is discharged into the suspected fixture, and nearby storm drain structures and sanitary sewer manholes observed for presence of the dye. Each fixture, such as sinks, toilets, and sump pumps, should be tested separately. A third-party contractor may be required to perform this testing activity.

Smoke Testing

Smoke testing is a useful method of locating the source of illicit discharges when there is no obvious potential source. Smoke testing is an appropriate tracing technique for short sections of pipe and for pipes with small diameters. Smoke added to the storm drain system will emerge in connected locations. A third-party contractor may be required to perform this testing activity.

Closed Circuit Television Inspection (CCTV)

Televised video inspection can be used to locate illicit connections and infiltration from sanitary sewers. In CCTV, cameras are used to record the interior of the storm drain pipes. They can be manually pushed with a stiff cable or guided remotely on treads or wheels. A third-party contractor may be required to perform this testing activity.

If the source is located, follow steps for removing the illicit discharge. Document repairs, new sanitary sewer connections, and other corrective actions required to accomplish this objective. If the source still cannot be located, add the pipe segment to a future inspection program.

This process is demonstrated visually in Attachment 3

Removing Illicit Discharges

Proper removal of an illicit discharge will ensure it does not recur. Refer to Attachment 2 Notification and Removal Procedures for Illicit Discharges into the Municipal Separate Storm Sewer System for examples of the notification process.

In any scenario, conduct a follow up inspection to confirm that the illicit discharge has been removed. Suspend access to the storm drain system if an “imminent and substantial danger” exists or if there is a threat of serious physical harm to humans or the environment.

Attachments

1. Illicit Discharge Incident Tracking Sheet
2. Notification and Removal Procedures for Illicit Discharges

Related Standard Operating Procedures

1. SOP 1: Dry Weather Outfall Inspection
2. SOP 2: Wet Weather Outfall Inspection
3. SOP 3: Catch Basin Inspection
4. SOP 13: Using Field Test Kits For Outfall Screening
5. SOP 15: Private Drainage Connections

¹ – *Guidelines and Standard Operating Procedures: Illicit Discharge Detection and Elimination and Pollution Prevention/Good Housekeeping for Stormwater Phase II Communities in New Hampshire, New Hampshire Estuary Project, 2006, p. 25, Figure 2-1.*

Attachment 1
Illicit Discharge Tracking Sheet

Illicit Discharge Incident Tracking Sheet

Incident ID:			
Responder Information (for Citizen-Reported issues)			
Call Taken By:		Call Date:	
Call Time:		Precipitation (inches) in past 24-48 hours:	
Observer Information			
Date and Time of Observation:		Observed During Regular Maintenance or Inspections? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Caller Contact Information (optional) or Municipal Employee Information:			
Observation Location: (complete one or more below)			
Latitude and Longitude:			
Stream Address or Outfall #:			
Closest Street Address:			
Nearby Landmark:			
Primary Location Description		Secondary Location Description:	
<input type="checkbox"/> Stream Corridor (In or adjacent to stream)		<input type="checkbox"/> Outfall	<input type="checkbox"/> In-stream Flow <input type="checkbox"/> Along Banks
<input checked="" type="checkbox"/> Upland Area (Land not adjacent to stream)		<input type="checkbox"/> Near Storm Drain	<input type="checkbox"/> Near other water source (stormwater pond, wetland, ect.):
Narrative description of location:			
Upland Problem Indicator Description			
<input type="checkbox"/> Dumping		<input type="checkbox"/> Oil/Solvents/Chemicals	<input checked="" type="checkbox"/> Sewage
<input type="checkbox"/> Detergent, suds, etc.		<input type="checkbox"/> Other: _____	
Stream Corridor Problem Indicator Description			
Odor	<input type="checkbox"/> None	<input type="checkbox"/> Sewage	<input type="checkbox"/> Rancid/Sour <input type="checkbox"/> Petroleum (gas)
	<input type="checkbox"/> Sulfide (rotten eggs); natural gas	<input type="checkbox"/> Other: Describe in "Narrative" section	
Appearance	<input type="checkbox"/> "Normal"	<input type="checkbox"/> Oil Sheen	<input type="checkbox"/> Cloudy <input type="checkbox"/> Foam
	<input type="checkbox"/> Optical enhancers <input type="checkbox"/> Discolored		
	<input type="checkbox"/> Other: Describe in "Narrative" section		
Floatables	<input type="checkbox"/> None	<input type="checkbox"/> Sewage (toilet paper, etc)	<input type="checkbox"/> Algae <input type="checkbox"/> Trash or debris
	<input type="checkbox"/> Other: Describe in "Narrative" section		
Narrative description of problem indicators:			
Suspected Source (name, personal or vehicle description, license plate #, address, etc.):			

Attachment 2
Notification and Removal Procedures

**Notification and Removal Procedures for Illicit Discharges
into the Municipal Separate Storm Sewer System**

Financially Responsible	Source Identified	Enforcement Authority	Procedure to Follow
Private Property Owner	One-time illicit discharge (e.g. spill, dumping, etc.)	Ordinance enforcement authority (e.g. Code Enforcement Officer)	<ul style="list-style-type: none"> • Contact Owner • Issue Notice of Violation • Issue fine
Private Property Owner	Intermittent or continuous illicit discharge from legal connection	Ordinance enforcement authority (e.g. Code Enforcement Officer)	<ul style="list-style-type: none"> • Contact Owner • Issue Notice of Violation • Determine schedule for removal • Confirm removal
Private Property Owner	Intermittent or continuous illicit discharge from illegal connection or indirect (e.g. infiltration or failed septic)	Plumbing Inspector or ordinance enforcement authority	<ul style="list-style-type: none"> • Notify plumbing inspector
Municipal	Intermittent or continuous illicit discharge from illegal connection or indirect (e.g. failed sewer line)	Ordinance enforcement authority (e.g. Code Enforcement Officer)	<ul style="list-style-type: none"> • Issue work order • Schedule removal • Remove connection • Confirm removal
Exempt 3 rd Party	Any	USEPA	<ul style="list-style-type: none"> • Notify exempt third party and USEPA of illicit discharge

Attachment 3
Upstream Source Tracking Procedures
Diagram

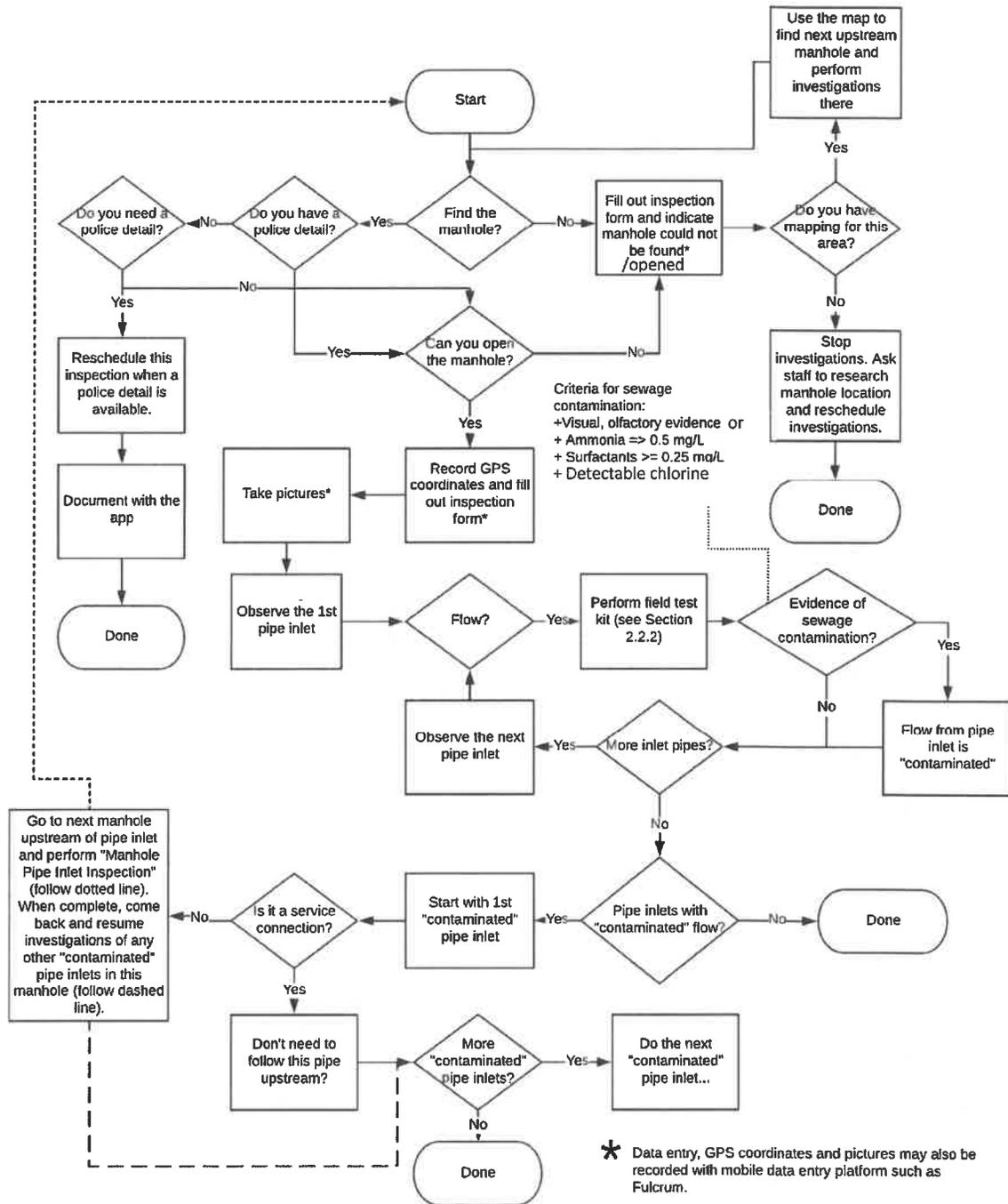


Figure 2. Upstream Source Tracking Procedures

Town of Braintree
SOP 11 –Oil Water Separator
Maintenance Procedures

Approved By:

Date:

Approved By:

Date:

SOP 11: OIL/WATER SEPARATOR (OWS) MAINTENANCE

Oil/water separators (OWS), also known as gas/oil separators, are structural devices intended to provide pretreatment of floor drain water from industrial and garage facilities. An OWS allows oils (and substances lighter than water) to be intercepted and be removed for disposal before entering the sanitary sewer system. Substances heavier than water settle into sludge at the bottom of the unit. The remaining water passes through the unit into the sanitary sewer system.

OWS units are generally required where petroleum-based products, wastes containing petroleum, or oily and/or flammable materials are used, produced, or stored. OWS units should not be used to manage stormwater or flow from vehicle washing facilities. High flow rates through an OWS will reduce the structure's ability to separate materials. Detergents and solvents can emulsify oil and grease, allowing the particles to enter the sewer, so these should not be disposed of in drains entering the OWS.

General OWS Maintenance Requirements

1. Each OWS at a facility may receive different materials in different quantities, so the cleanout schedule may not be the same for every OWS at a facility.
2. Employees performing inspections of an OWS must be properly trained and be familiar with the maintenance of that specific structure, since function can vary based on design. Third-party firms may be utilized to perform quarterly inspections.
3. Do not drain petroleum, oil, or lubricants directly to an OWS. The structures are designed to manage these materials at low and medium concentrations in sanitary sewage, not as slug loads.
4. Do not drain antifreeze, degreasers, detergents, fuels, alcohols, solvents, coolant, or paint to the OWS.
5. Separator compartment covers should be tightly sealed to ensure floor drainage only enters the first compartment of the OWS.
6. Drains should be kept free of debris and sediment to the maximum extent practicable.
7. Spill cleanup materials should be maintained in the area served by the OWS. For more information on spill cleanup and response materials, refer to SOP 4, "Spill Response and Cleanup Procedures".

OWS Inspection Procedures

Daily inspection of an OWS should include a visual examination of the area served by the OWS for evidence of spills or leaks.

Weekly inspections of an OWS should include the following:

1. Visually examine the area served by the OWS for evidence of spills or leaks.
2. Inspect the point of discharge (i.e., sewer manhole) for evidence of petroleum bypassing the OWS.
3. Inspect drains for any signs of unauthorized substances entering the OWS.
4. Examine the OWS for signs of leaks or any malfunction.

Quarterly inspections of an OWS should include the following:

1. Complete tasks noted as appropriate for daily and weekly inspection.
2. Complete the Quarterly OWS Inspection Checklist, attached, during the inspection.
3. Take the following measurements to benchmark function of the OWS:
 - A. Distance from rim of access cover to bottom of structure
 - B. Distance from rim of access cover to top of sludge layer
 - C. Depth of sludge layer ($C = A - B$)
 - D. Distance from rim of access cover to the oil/water interface
 - E. Distance from rim of access cover to the top of the liquid surface
 - F. Depth of oil layer ($F = D - E$)

Work orders for OWS inspections and maintenance shall be submitted via PeopleGIS QuickAssets with incremental reoccurrence established by this SOP. Upon completion of inspections and maintenance the work order shall be completed, relevant documents shall be uploaded to the server, and further work orders shall be submitted as needed based upon maintenance requirements.

OWS Cleaning Procedures

Cleaning of the OWS is required when there has been a spill to the OWS that exceeds ten gallons of oil, one gallon of detergent or solvent, or any material prohibited by the owner of the sanitary sewer. Cleaning is also required when the levels of accumulated sludge and/or oil meet the manufacturer's recommended levels for cleaning. This will vary based on the manufacturer of the OWS. If the manufacturer's recommendations are unknown, the following guidelines are appropriate for determining when to clean:

1. When sludge accumulates to 25% of the wetted height of the separator compartment; or
2. When oil accumulates to 5% of the wetted height of the separator compartment; or
3. When 75% of the retention capacity of the OWS is filled.

Cleaning should be performed a minimum of once per year. When cleaning is required, it shall be performed by licensed OWS maintenance companies. Materials removed from the OWS must be disposed of in accordance with Massachusetts Hazardous Waste Regulations, 310 CMR 30.00.

Documentation of Cleaning and Service

The operator of the premises where the OWS is located shall maintain a log describing the date and type of all inspections, service and maintenance performed in connection with the Separator. Documentation shall include the identity of the inspector (or the identity of the person or entity that performed the service and/or maintenance). Records shall also document the amount of residue removed from the OWS each time it was cleaned, and how removed materials were disposed. This documentation shall be maintained for a minimum of six years.

Attachments

1. Quarterly OWS Inspection Checklist

Related Standard Operating Procedures

1. SOP 4, Spill Response and Cleanup Procedures

Attachment 1
OWS Quarterly Inspection Form

**OIL/WATER SEPARATOR (OWS)
QUARTERLY INSPECTION CHECKLIST**

Facility: _____

OWS Location: _____

Inspected By: _____

Date: _____

Visual Inspection	Are there any signs of spills or leaks in the general area?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Is there any evidence of petroleum bypassing the OWS?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Are there any unauthorized substances entering the OWS?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Does the OWS exhibit any signs of leaks or malfunctions?	Yes <input type="checkbox"/>	No <input type="checkbox"/>

If you answered “Yes” to any of the above questions, further inspection, repair, and/or cleaning may be necessary.

Measurements	A	Distance from rim of access cover to bottom of structure	
	B	Distance from rim of access cover to top of sludge layer	
	C = A - B	Depth of sludge layer	
	D	Distance from rim of access cover to the oil/water interface	
	E	Distance from rim of access cover to the top of the liquid surface	
	F = D - E	Depth of oil layer	

If the values for “C” and/or “F” are greater than those in the manufacturer’s recommendations, the OWS must be cleaned by a licensed OWS maintenance company.



Town of Braintree
SOP 12 –Storage and Use of Pesticides
and Fertilizers

Approved By:

Date:

Approved By:

Date:

SOP 12: Storage and Use of Pesticides and Fertilizer

Introduction

The use and improper storage of pesticides, herbicides, and fertilizers can contribute to the discharge of nutrients and toxic compounds to the municipal storm drainage system and surface waters. The goal of this Standard Operating Procedure (SOP) is to provide guidance on municipal employees on proper handling and storage of pesticides, herbicides, and fertilizers to prevent the discharge of pollutants from the MS4.

Procedures

Below are procedures for the storage and use of fertilizers, pesticides, and herbicides by municipal employees. In this section, the term “pesticide” include products used as herbicides. Refer to SOP 4: Spill Response and Cleanup and SOP 17: Hazardous Materials Storage and Handling for information on and handling spills and hazardous materials.

Storage

- Pesticides and fertilizers should be stored in high, dry locations in accordance with the manufacturer’s specifications.
- Store in cool, well-ventilated, and insulated areas to protect against temperature extremes.
- Store in areas that have been constructed in accordance with local fire codes for storing flammable or combustible materials.
 - Flammable products should be stored separately from non-flammable products, preferably in a fire-proof cabinet.
 - Small quantities (less than 500 lbs. or 220 gallons) of pesticides can be stored in cabinets constructed of double-walled 18-gauge sheet metal.
 - Large quantities (greater than 500 lbs. or 220 gallons) of pesticides can be stored in a prefabricated Hazardous Material Storage building or in a purpose-built storage facility. It is not anticipated that many municipal facilities will store quantities in excess of 500 lbs. or 220 gallons of pesticides.
 - Building walls should have a two-hour fire rating and be impervious to the stored materials.
 - Floors should be watertight, impervious, and provide spill containment.
- Materials should be stored in an enclosed area or in covered, impervious containment, such as a locked cabinet. The cabinet should be located in a first story room or one that has direct access to the outdoors. Storage areas should be equipped with easily accessible spill cleanup materials and portable firefighting equipment. Regularly inspect storage areas for leaks and spills. Emergency eyewash stations and emergency drench showers should be located near the storage area.
- For pesticides, storage cabinets should be kept locked and the door to the storage area should contain a weather proof sign that warns of the existence and danger of the pesticides inside. The door should be kept locked. The sign should be visible at a distance of 25 feet and should read as follows:

DANGER
PESTICIDE STORAGE AREA
ALL UNAUTHORIZED PERSONS KEEP OUT
KEEP DOORS LOCKED WHEN NOT IN USE

The sign should be posted in both English and any other language used by maintenance workers.

- Pesticides should not be stored in the same place as ammonium nitrate fertilizer.
- Pesticides and fertilizers should be separated from other chemical storage and other flammable materials.
- Label all containers with date of purchase. Clearly label all secondary containers. Use older materials first.
- Order for delivery should be made as close to the time of use as possible to reduce the amount of chemicals stored at the facility.
- Only the amount of materials needed should be ordered to minimize excess or obsolete materials, which require storage and disposal.
- Unlabeled or unstable pesticides and fertilizers should not be left in uncontrolled locations.
- A current written inventory of all pesticides and fertilizers should be maintained at the storage site.
- Contaminated waste materials should be kept in designated containers and stored in labeled, designated, covered, and contained areas.
- Excess or obsolete pesticides/fertilizers and associated waste materials should be disposed of in accordance with the manufacturer's specification and all applicable regulations.

Use and Application of Fertilizers

- All applications of plant nutrients should comply with Massachusetts Plant Nutrient Regulations for Non-Agricultural Turf and Lawns. See Attachment 1
- All fertilizer products manufactured or distributed in the State of Massachusetts must be registered with the Department of Agricultural Resources.
- Perform soil testing before choosing a fertilizer. The quantity of available nutrients already present in the soil will determine the type and amount of fertilizer that is recommended. The soil test will also determine the soil pH, humic matter, texture, and exchangeable acidity, which will indicate whether pH adjustment is required for fertilizer to work efficiently. A soil test should be completed at each facility, as soil type can vary widely within a single community.
 - Soil tests are recommended every 3-4 years for turf and plantings (more frequently for problem or newly planted areas) and every year for soil where phosphorus-containing fertilizers are used. Soil pH tests should be conducted every year for all sites.
 - When collecting soil samples, take multiple samples for each target area at a four-inch depth; mix the samples together in a container and properly label the sample with property information and site use type. Separately sample areas that have discoloration, abnormal plant growth, or other problems. Take the sample at approximately the same time every year. If the area has been fertilized, wait eight weeks after fertilizing to test the soil to ensure nutrients have been absorbed.
- When selecting the optimal type of fertilizer to use on an area, consider the soil test results, type of turf, and type of turf use. Slow-use fertilizer should be used for turf grass.

- Calibrate application equipment regularly to ensure proper application and loading rates.
- Mix fertilizers using clean application equipment under cover in an area where accidental spills will not enter surface water or groundwater and will not contaminate the soil.
- Fertilizers shall only be applied by properly trained personnel.
- Never apply fertilizers in quantities exceeding the manufacturer's instructions. Instead, apply small amounts throughout the growing season.
- Time fertilizer application methods for maximum plant uptake, usually in the fall and spring (e.g., between April 15 and October 15). When applying at the beginning and end of planting season, take into consideration the slower uptake rate of fertilizer by plants and adjust the fertilizer application accordingly.
- Never apply fertilizer during a drought, when the soil is dry or frozen, when it is raining, or immediately before expected rain.
- Fertilizer should be applied when the ground temperature is above 55° F.
- Apply fertilizers in amounts appropriate for the type of vegetation to minimize losses to surface water and groundwater. Use the results of the soil test to determine optimal fertilizer timing and application rates.
- Where applicable, till fertilizers into the soil rather than dumping or broadcasting (proper application techniques will depend on the type of soil and vegetation).
- Do not hose down paved areas after fertilizer application if drainage will enter into an engineered storm drain system or drainage ditch.
- Limit irrigation after fertilizer application to prevent runoff (approximately ½ inch of water per application for a week following application).
- Turn off irrigation systems during periods of adequate rainfall.
- Do not over-apply fertilizer in late fall to “use it up” before winter. The effectiveness of fertilizer does not reduce when stored.
- If phosphorus fertilizer is used when re-seeding, mix the phosphorus into the root zone. Do not apply directly to the soil surface.
- Combined products such as “weed and feed,” which do not target specific problems at the appropriate time, will not be used.
- Pursuant to 330 CMR 31.05 *Limitations on the Application of Phosphorous Containing Fertilizer; Requirements for the Application of Plant Nutrients and Phosphorous Containing Fertilizer to Non-Agricultural Turf and Lawns*
 - (2) The following shall apply to Animal Manure, Fertilizer, Organic Compost, Natural Organic Fertilizer, Biosolids, Agricultural Byproducts, Digestate, or combination thereof:
 - (a) The amount of nitrogen and phosphorus must be known and accounted for;
 - (b) A Soil Test is taken prior to the initial application;
 - (c) Application of these materials shall not exceed the maintenance phosphorus rates for Non-agricultural Turf or Lawn as specified in UMass Guidelines; and
 - (d) The requirement in 330 CMR 31.05(2)(a), (b), and (c) shall not apply to:
 - 1. A single application made within a 12 month period at an application rate not to exceed 0.25lbs of P O per 1,000 square feet; or 25
 - 2. Any product used containing 0.67% or less available P O .25

(3) In addition to the requirements of 330 CMR 31.00, any application of Biosolids to Non-agricultural Turf and Lawns shall comply with the requirements of 310 CMR 32.00: Land Application of Sludge and Septage.

(4) For applications of Plant Nutrients, including Phosphorus Containing Fertilizer, to Non-agricultural Turf and Lawns, no applications shall be made:

- (a) To Frozen Soil, Snow Covered Soil, Saturated Soil, Frequently Flooded Soils, or soils when flooding is expected. An expectation of flooding includes, but is not limited to a prediction of Heavy Rain;
- (b) Within 20 feet of Surface Waters, if using a broadcast application method,
- (c) Within ten feet of Surface Waters, if using a drop spreader or rotary spreader with a deflector or a targeted spray;
- (d) Within a Zone I of a Public Water Supply Well;
- (e) Within 100 feet of Surface Waters that are used for public water supplies;
- (f) In an amount that is inconsistent with the annual recommended rate established by the UMass Guidelines for turf;
- (g) To any Impervious Surface, including parking lots, roadways, and sidewalks, by means of direct application, spills, overspray, or run-off to impervious areas;
 1. if such direct application, spills, overspray, or run-off occurs, the product material must be cleaned completely from the surface and be either:
 2. contained or disposed of legally; or
 3. applied to Non-agricultural Turf or Lawn as allowed.
- (h) For the purpose of de-icing Impervious Surfaces; or
- (i) To drought dormant, cold dormant, inactive or otherwise brown turf.

Use and Application of Pesticides and Herbicides

The State of Massachusetts has a stringent program for registration of pesticides and certification of those authorized to apply them. Once a pesticide has been approved for use by the USEPA, it must be registered by the Massachusetts Pesticide Board Subcommittee prior to being distributed, purchased, or used in Massachusetts. Pesticide classification in Massachusetts is based on the potential adverse effects the pesticide may have on humans or the environment. "Restricted Use" pesticides can only be sold by Licensed Dealers to Certified Applicators, while "State Limited Use" pesticides may be restricted to use by certain individuals or require written permission from the Department of Agricultural Resources prior to use. Legal application of pesticides must be performed by an individual licensed or certified by the Massachusetts Department of Agricultural Resources. A Commercial Applicator License is required for applying general use pesticides, and a Commercial Applicator Certification is required for applying restricted and state limited use products.

Use and Application of Pesticides

- Pesticides should only be applied by licensed or certified applicators.

- Calibrate application equipment regularly to ensure proper application and loading rates.
- Ensure that pesticide application equipment is capable of immediate shutoff in case of emergency.
- Conduct spray applications according to specific label directions and applicable local regulations.
- Never apply pesticides in quantities exceeding the manufacturer's instructions.
- Apply pesticides at the life stage when the pest is most vulnerable.
- Never apply pesticides if it is raining or immediately before expected rain unless otherwise specified on the label
- Establish setback distances from pavement, storm drains, and waterbodies, which act as buffers from pesticide application, with disease-resistant plants and minimal mowing.
- Do not apply pesticides within 100 feet of open waters or of drainage channels.
- Pesticides applied within 10 ft. of open waters or of drainage channels must be aquatically safe.
- Spot treat infected areas instead of the entire location.
- Mix pesticides and clean application equipment under cover in an area where accidental spills will not enter surface water or groundwater and will not contaminate soil.
- Do not hose down paved areas after pesticide application to a storm drain or drainage ditch.
- Recycle rinsate from equipment cleaning back into product.
- Choose the least toxic pesticide that is still capable of reducing the infestation to acceptable levels.
- Use alternatives to pesticides, such as manual weed control, biological controls, and Integrated Pest Management strategies (learn more at: <https://www.mass.gov/files/documents/2016/08/wk/ipm-kit-for-bldg-mgrs.pdf>).
- For the use of herbicides, reduce seed release of weeds by timing cutting and pesticide application at seed set. Select vegetation and landscaping that is low-maintenance in order to tolerate low levels of weeds without interfering with aesthetics.

Employee Training

- Employees who handle pesticides, fertilizers, and herbicides should be trained once per year in the spring on proper handling and storage procedures. Such training will be coordinated by the Stormwater Division.
- Employees should also be trained on stormwater pollution prevention, illicit discharge detection and elimination (IDDE) procedures, and spill and response procedures.
- If services are contracted, the contractor should be given a copy of this and any applicable SOPs to ensure compliance with MS4 regulations.

Attachments

1. 330 CMR 31 Plant Nutrient Regulations

Related Standard Operating Procedures

- SOP 4: Spill Response and Cleanup
- SOP 17: Hazardous Materials Storage and Handling

Attachment 1
330 CMR 31 Plant Nutrient
Regulations

330 CMR: DEPARTMENT OF AGRICULTURAL RESOURCES

330 CMR 31.00: PLANT NUTRIENT APPLICATION REQUIREMENTS FOR AGRICULTURAL LAND AND NON-AGRICULTURAL TURF AND LAWNS

Section

- 31.01: Purpose
- 31.02: Definitions
- 31.03: Plant Nutrient Application Requirements for Agricultural Land
- 31.04: Requirements for Nutrient Management Plan and Testing for Agricultural Land
- 31.05: Limitations on the Application of Phosphorus Containing Fertilizer; Requirements for the Application of Plant Nutrients and Phosphorus Containing Fertilizer to Non-agricultural Turf and Lawns
- 31.06: Soil Testing for the Application of Plant Nutrients, Including Phosphorus Containing Fertilizer, to Non-agricultural Turf and Lawns
- 31.07: Record Keeping Requirements for Applications of Plant Nutrients or Phosphorus Containing Fertilizer to Non-agricultural Turf and Lawns
- 31.08: Retailer Requirements
- 31.09: Enforcement; Assessment of Civil Penalty
- 31.10: Appeal
- 31.11: Exemptions

31.01: Purpose

330 CMR 31.00 establishes limitations on the application of plant nutrients to lawns and non-agricultural turf to prevent these non-point source pollutants from entering the surface and groundwater resources of the Commonwealth of Massachusetts. These state-wide limitations on plant nutrient applications will enhance the ability of municipalities to maximize the credits provided in the National Pollution Discharge Elimination System permits issued by the United States Environmental Protection Agency. 330 CMR 31.00 further ensure that plant nutrients are applied to agricultural land in an effective manner to provide sufficient nutrients for plant growth while minimizing the impacts of the nutrients on water resources in order to protect human health and the environment.

31.02: Definitions

As used throughout 330 CMR 31.00, the following terms shall have the following meanings, unless the context clearly indicates otherwise:

Agricultural Byproducts. Secondary organic materials produced from the raising of animals and crops as part of agronomic, horticultural, silvicultural, or livestock operations including, but not limited to, animal manure, liquid manure, bedding materials, plant stalks, leaves, and other vegetative matter and byproducts from the on-farm processing of fruits, vegetables, dairy and other food products.

Agricultural Land. Land used for agriculture or farming as defined in M.G.L. c. 128, § 1A.

Agricultural Operation. A business engaged in agriculture or farming as defined in M.G.L. c. 128, § 1A. For the purposes of 330 CMR 31.00, an agricultural operation shall include all operations, whether conducted on one or more parcels of land within the Commonwealth, which are owned or operated by the same person.

Agricultural Process Water. Process water that is generated as a byproduct from Agricultural Operation activities and processing of agricultural products. Agricultural Process Water includes, but is not limited to, water generated as a byproduct in a milking parlor, milkhouse, or bottling operation.

Animal Manure. Animal excrement which is produced at an agricultural operation. Animal Manure includes materials such as bedding, milking parlor process water, milkhouse process water and other materials after commingling with that excrement.

330 CMR: DEPARTMENT OF AGRICULTURAL RESOURCES

31.02: continued

Applicator. A person who applies any type of plant nutrient whether for hire or as the owner or operator of the agricultural operation or land.

Biosolids. Any thickened liquid, suspended or settled solid, or dried residue extracted from sewage at a sewage treatment plant, including domestic sewage, that:

- (a) contains recognized plant nutrients, or liquid byproducts, that meet federal and state regulations for beneficial use by land application or other methods; and
- (b) is regulated as sewage sludge and septage pursuant to 310 CMR 32.00: *Land Application of Sludge and Septage*.

Bottling Process Water. Process water that is generated with the washing and rinsing associated with the bottling of agricultural products. Bottling process water does not include process water from bottling operations not directly associated with, and located on the same property of, the agricultural operation performing the bottling, or stand alone bottling operations.

Buffer or Vegetated Buffer. A permanent strip of dense perennial vegetation established parallel to the contours of, and perpendicular to, the dominant slope of the field for the purposes of slowing water runoff, enhancing water infiltration and minimizing the risk of any potential nutrients from leaving the field and reaching surface waters.

Coarse Textured Soil. A soil identified by the United States Department of Agriculture as having textures of loamy fine sand, loamy sand, or sand.

Crop Nutrient Needs. The primary nutrient requirements of a crop determined as pounds of nitrogen (N), phosphorus (P₂O₅), and potassium (K₂O) required for production of a crop yield unit.

Department. The Massachusetts Department of Agricultural Resources.

Digestate. The material remaining after the anaerobic digestion process comprised of undigested solids and the liquid fraction of the input material.

Fertilizer. Commercially produced fertilizers used as soil and plant amendments, containing a guaranteed analysis of primary nutrients; does not include a product blended from organic compost or natural organic fertilizer.

Frequently Flooded Soils. A frequency class in which flooding, ponding, or saturation is likely to occur often under usual weather conditions (more than 50% chance in any year, or more than 50 times in 100 years).

Frozen Soil. Soil that is frozen at least two inches deep.

Gravelly Soil. Soil containing material that is 15% to 50%, by volume, rounded or angular rock fragments, not prominently flattened, up to three inches in diameter.

Growing Season. The part of the year during which climatic conditions allow plants to grow in an outdoor environment. This period of time may not exceed 12 months from the date of an application of Phosphorus Containing Fertilizer.

Heavy Rain. Rainfall greater than or equal to two inches in a 24 hour period and the weather forecast keyword is "likely".

Impervious Surface. Any structure, surface, or improvement that reduces or prevents absorption of storm water into land, and includes concrete, asphalt, paver blocks, gravel, decks, patios, elevated structures, and other similar structures, surfaces, or improvements.

Incorporation. The mixing of fertilizer or other materials with the surface soil using standard agricultural practices, such as tillage.

31.02: continued

In-field Stacking. The practice of stacking solid animal manure or agricultural byproducts on cropland, hayland and pasture areas to be applied at a later time to the agricultural land as plant nutrients.

Label. The display of all written, printed, or graphic matter on the immediate container or a statement accompanying a fertilizer or soil conditioner.

Lawn Patch Product. A premixed blend of grass seed, fertilizer, and mulch.

Management Unit. An area sharing common characteristics, including soil type, nutrient content, and plant type or crop produced, so that nutrients can be recommended and managed in a uniform and consistent manner.

Milkhouse Process Water. Residual milk and wash water that is generated with the normal operation of a milkhouse. Milkhouse process water does not include the process water containing large volumes of milk or contamination resulting from bulk tank failure or other operation failures, which shall not be land applied.

Natural Organic Fertilizer. A fertilizer product that is derived from either a plant or animal product containing one or more elements, other than carbon, hydrogen and oxygen, which are essential for plant growth. These materials may be subject to biological degradation processes under normal conditions of aging, rainfall, sun-curing, air drying, composting, rotting, enzymatic or anaerobic or aerobic bacterial action or any combination of those conditions. These materials shall not be mixed with synthetic materials or changed in any physical or chemical manner from the material's initial state except by manipulations such as drying, cooking, chopping, grinding, shredding, hydrolysis or pelleting.

Non-agricultural Turf or Lawn. Any non-agricultural land area that is covered by any grass species, excluding flower or vegetable gardens, pasture, hay land, trees, shrubs, turf grown on turf farms or any form of agricultural production or use.

Non-professional. Any person who applies a plant nutrient and is not for-hire or does not perform the application as part of his or her employment.

NRCS. The Natural Resources Conservation Services of the United States Department of Agriculture.

Nutrient Application Rate. The quantity of primary nutrients, expressed as total nitrogen (N), available phosphate (P_2O_5), and soluble potash (K_2O) used to supply crop or plant nutrient needs.

Nutrient Content. The percentage by weight of any primary nutrient, expressed as total nitrogen (N), available phosphate (P_2O_5), or soluble potash (K_2O), in any type or source of plant nutrients.

Operator. A person who manages and/or owns an agricultural operation.

Organic Compost. The biologically stable humus-like material derived from composting or the aerobic, thermophilic decomposition of organic matter.

Person. Any individual, partnership, corporation, firm, association, authority, trust or group, including, but not limited to, a municipality, county, the Commonwealth and its agencies, and the federal government.

Phosphorus Containing Fertilizer. Fertilizer labeled for use on lawn or non-agricultural turf in which the available phosphate content is greater than 0.67% by weight, excluding organic compost and natural organic fertilizer.

Plan or Nutrient Management Plan. A written plan to manage the amount, placement, timing, and application of plant nutrient materials in order to minimize nutrient loss or runoff and to maintain the productivity of soil when growing agricultural products.

330 CMR: DEPARTMENT OF AGRICULTURAL RESOURCES

31.02: continued

Plant Nutrient. Substance that contains one or more of the primary nutrients of nitrogen, phosphorus, or potassium, including but not limited to, animal manure, fertilizer, organic compost, natural organic fertilizer, agricultural byproducts, digestate, biosolids or combinations thereof.

Primary Nutrient. The macronutrients elements for plant growth which are total nitrogen (N), phosphorus (P), and potassium (K).

Retailer. Any person who sells fertilizer.

Renovation. The process of replacing the turf plants on a site without making changes to the soil or grade, which does not normally include total removal of existing vegetation, but may include eradication of the existing stand with non-selective herbicides or extended covering. Renovation may include the use of superficial cultivation with aeration, dethatching, overseeding or similar pieces of equipment to insure good seed to soil contact and enhance the renovation process

Saturated Soil. Soil soaked with moisture to the point that it cannot absorb any more liquid.

Snow Covered Soil. Soil covered by one inch or more of snow or by ½ inch or more of ice.

Soil Test. A technical analysis of soil conducted by a laboratory using methods and procedures recommended by the University of Massachusetts Amherst Extension as appropriate for Commonwealth soils.

Stackable Agricultural Byproduct. Agricultural byproducts material with equal or less than 60% moisture content.

Surface Waters. As defined by 314 CMR. 4.00: *Massachusetts Surface Water Quality Standards*, all waters other than groundwaters within the jurisdiction of the Commonwealth, including, without limitation, rivers, streams, lakes, ponds, springs, impoundments, estuaries, wetlands, coastal waters and vernal pools. For the purpose of 330 CMR 31.00, Surface waters shall not include areas where the sole purpose is to grow crops, including but not limited to, interior ditches, channels, canals, irrigation ponds or tailwater recovery ponds, provided that the application of plant nutrients are done in accordance with *UMass Guidelines* for such crop growing system.

UMass. The University of Massachusetts Amherst Extension.

UMass Guidelines. The University of Massachusetts Amherst Extension published guidelines and/or materials developed by UMass for agricultural crops, Animal Manure management, Plant Nutrient use and application, and turf, which have been established by the University of Massachusetts Amherst Extension.

USDA. United States Department of Agriculture.

Waters of the Commonwealth. All waters within the jurisdiction of the Commonwealth, including, without limitation, rivers, streams, lakes, ponds, springs, impoundments, estuaries, wetlands, coastal waters, ground waters, and vernal pools, as defined by 314 CMR 5.00: *Ground Water Discharge Permit Program*.

Zone A. The land area between the surface water source and the upper boundary of the bank; the land area within a 400 foot lateral distance from the upper boundary of the bank of a Class A surface water source, as defined in 314 CMR 4.05(3)(a): *Class A*; and the land area within a 200 foot lateral distance from the upper boundary of the bank of a tributary or associated surface water body, as defined by 310 CMR 22.00: *Drinking Water*.

31.02: continued

Zone I of a Public Water Supply Well. The protective radius required around a public water supply well or wellfield regulated by 310 CMR 22.00: *Drinking Water*. For public water system wells with approved yields of 100,000 gpd or greater, the protective radius is 400 feet. Tubular wellfields require a 250-foot protective radius. Protective radii for all other public water system wells are determined by the following equation: Zone I radius in feet = $(150 \times \log \text{ of pumping rate in gpd}) - 350$. This equation is equivalent to the chart in the Guidelines and Policies for Public Water Systems. A default Zone I radius or a Zone I radius otherwise computed and determined by the Department shall be applied to transient non-community (TNC) and non-transient non-community (NTNC) wells when there is no metered rate of withdrawal or no approved pumping rate. In no case shall the Zone I radius be less than 100 feet.

31.03: Plant Nutrient Application Requirements for Agricultural Land

(1) Any Person who applies, or authorizes any Person by way of service contract or other arrangement to apply, Plant Nutrients to Agricultural Land shall:

- (a) Apply Plant Nutrients according to *UMass Guidelines*, if available;
- (b) Not apply Plant Nutrients directly to Surface Water;
- (c) Not apply Plant Nutrients to Saturated Soil unless normal operation requires activities to take place at a time when such a condition exists;
- (d) Not apply to Frequently Flooded Soils during a period when flooding is expected;
- (e) Not apply Plant Nutrients to Frozen Soil or Snow Covered Soil, except for the conditions outlined in 330 CMR 31.03(3); and
- (f) In addition to the requirements of 330 CMR 31.00, applications of Biosolids must be made in accordance with the requirements of 310 CMR 32.00: *Land Application of Sludge and Septage*.

(2) Application Setbacks.

- (a) No application of Plant Nutrients shall be made:
 1. within 100 feet of Surface Waters used for public water supplies;
 2. in a Zone I of a Public Water Supply Well;
 3. using a broadcast method either with or without Incorporation within 50 feet from Surface Waters unless a Vegetated Buffer is present, in which case a setback of 25 feet applies;
 4. by band or side dress application or Injection of Plant Nutrients within ten feet from Surface Waters; or
 5. on pastures and hayfields within ten feet from Surface Waters.
- (b) Except for the application setback in a Zone I, the setbacks in 330 CMR 31.03(2)(a) shall not apply to crop growing systems that operationally require proximity to Surface Waters, provided such applications are done in accordance with *UMass Guidelines* for such crop growing systems.
- (c) These application setbacks shall not prevent activities that are allowed as Normal Maintenance of Land in Agricultural Use, as defined by the Massachusetts Wetlands Protection Act M.G.L. c. 131, § 40 and 310 CMR 10.00: *Wetlands Protection*.

(3) Limitations on the Applications of Agricultural Byproducts or Agricultural Process Water to Frozen Soil or Snow Covered Soil.

- (a) Applications of Agricultural Byproducts and Agricultural Process Water to Frozen Soil or Snow Covered Soil shall only be made if:
 1. the Agricultural Operation has inadequate storage and anticipates exceeding the available storage capacity limit during the time of the year that Frozen Soils and Snow Covered Soils typically occur;
 2. the Agricultural Byproduct is not a Stackable Agricultural Byproduct; and
 3. there is no other reasonable management option.
- (b) All applications of Agricultural Byproduct or Agricultural Process Water to Frozen Soil or Snow Covered Soil shall:
 1. not be made to areas where slopes are greater than 7% when applying solid materials;
 2. not be made to areas where slopes are greater than 2% when applying liquid materials;

31.03: continued

3. not be made within 200 feet of Surface Waters;
 4. minimize the rates of application and available acreage used to the greatest extent practical; and
 5. not be made unless there is at least 30% crop residue or a vegetative cover present in the field receiving the application.
- (c) The restrictions set forth in 330 CMR 31.03(3)(a) shall not apply to:
1. Animal Manure deposited directly by livestock; or
 2. a livestock operation generating less than 50,000 gallons of Animal Manure or less than 270 cubic yards of solid Animal Manure, which corresponds to estimated Animal Manure production of 15 lactating dairy cows housed in a barn for 6½ months per year.
- (4) Temporary In-field Stacking of Stackable Agricultural Byproduct as a part of land application of this material is permissible throughout the year provided the following conditions are met:
- (a) Animal Manure stacked in a temporary field stockpile shall be land applied in the first spring season following the placement of the stockpile; and
 - (b) The stacks shall be constructed using *UMass Guidelines*, or if none are available, then the following conditions must be met:
 1. placed on appropriate soils, excluding Coarse Textured Soils or Gravelly Soils;
 2. at least 100 feet from any Surface Waters or, if a Vegetated Buffer is in place, at least 35 feet from Surface Waters;
 3. outside the Zone I of a Public Water Supply well;
 4. at least 200 feet from any residence not owned or leased by the Operator;
 5. outside of Frequently Flooded Soils;
 6. of shape and size that minimizes absorption of rainfall; and
 7. covered when placed in a Zone A to minimize runoff.
- (5) Should *UMass Guidelines* not be available when referenced in this 330 CMR 31.00, the applicator or operator must follow the equivalent extension service standards or standard industry practices until such time that *UMass Guidelines* become available.

31.04: Requirements for Nutrient Management Plan and Testing for Agricultural Land

- (1) Regardless of the number of acres, any Person who applies Plant Nutrients to Agricultural Land shall comply with the Plan guidance set forth within the *UMass Guidelines* for the agricultural commodity. This may include multiple *UMass Guidelines* specific to the commodity being grown. The information maintained as part of any *UMass Guideline* recommendation shall constitute the Plan for the Agricultural Operation.
- (2) In the event that *UMass Guidelines* are not available, a Plan containing the information shall be maintained by the Operator of the Agricultural Operation for all Plant Nutrient applications made to ten or more acres of Agricultural Land:
 - (a) Plan identification, which shall include:
 1. Operator name and address;
 2. location of all land under the Plan;
 3. date the Plan was prepared or updated;
 4. period of time the Plan covers; and
 5. name and contact information of the Person responsible for the Plan development.
 - (b) Map or aerial photograph, which shall include:
 1. one or more maps or aerial photographs that identify the location and boundaries of fields or Management Unit;
 2. field or Management Unit number or identifier;
 3. acreage of each field or Management Unit;
 4. location of Surface Waters, Zone A, if present, and Zone I of Public Water Supply Wells, if present; and
 5. identification of the areas where Plant Nutrient applications are restricted based on setbacks set forth in 330 CMR 31.03.

31.04: continued

- (c) If applicable, an inventory of generated and stored Agricultural Byproducts and Agricultural Process Water to be land-applied must be kept. A determination of available Plant Nutrients from these sources should be based on sample analysis results of Plant Nutrient in stored Agricultural Byproducts and Agricultural Process Water or book values for Plant Nutrient content in Agricultural Byproducts and process waters as published in the *UMass Guidelines*.
- (d) Current and/or planned crop and crop rotation for each field or Management Unit.
- (e) Determination of the planned Plant Nutrient Application Rates on individual fields or Management Units, which shall be based on:
1. Crop Nutrient Needs based on crop removal rate and yield goals;
 2. Soil Test or plant tissue test results;
 3. application of all sources of Plant Nutrients;
 4. results of phosphorus soil level assessment, if applicable;
 5. nutrient credits from previous crops and Animal Manure applications, if applicable;
 6. environmental factors such as setbacks and Buffers;
 7. *UMass Guidelines*; and
 8. the best information available at the time a Plan is prepared.
- (f) If applicable, determination of whether a Nutrient Application Rate should be based on nitrogen or phosphorus as a limiting factor.
1. high, above optimum or excessive phosphorus soils: Recommendations for fields with soils containing a high, above optimum or excessive phosphorus level shall follow *UMass Guidelines* for high-phosphorus soils.
 2. optimum or less than optimum phosphorus soils: Nutrient Application Rates on fields with soil phosphorus levels that are optimum or less may be based on nitrogen;
- (g) Application records shall include the following:
1. Soil Test results and recommended Nutrient Application Rates;
 2. quantities, analyses, and sources of Plant Nutrients applied;
 3. dates and method(s) of nutrient application;
 4. crops planted and estimated yields; and
 5. all activities or protocols recommended or required by the Plan.
- (h) Guidance for implementation, operation and maintenance, and record keeping.
- (3) Record Keeping for Agricultural Land under ten acres and for which no *UMass Guidelines* are available. The following must be kept by any Operator or Person that does not meet the Plan requirements set forth in 330 CMR 31.04(1) or (2). Records shall be maintained by the Operator or Person and shall include:
- (a) Soil Test results and recommended Nutrient Application Rates;
 - (b) Quantities, analyses, and sources of Plant Nutrients applied;
 - (c) Dates and method(s) of Plant Nutrient application; and
 - (d) Crops planted and estimated yields.
- (4) Plan Updates and Revisions. For Agricultural Operations that are required to keep a plan, updates and revisions of a Plan shall be made based on review of crop-year specific information and operation specific information. Information used to develop crop-year specific field-based plans shall be reviewed and updated annually, if necessary. Operation-specific information shall be reviewed and updated every three years, or as necessary when changes occur, including, but not limited to, the following:
- (a) If the planned crop or cropping rotation, or introduction of a new crop is not currently addressed in an existing Plan, unless the new crop will have fertility management similar to that crop originally planned;
 - (b) If nutrient source or Soil Test results indicate a change in nutrient recommendations;
 - (c) If 10% or greater change in acreage managed, or 30 acres, whichever is less; or
 - (d) If a change in Animal Manure production is 10% or greater, and will require significant management adjustments.
- (5) All testing of soils, plant tissue, Agricultural Byproducts, and Agricultural Process Water done in accordance with 330 CMR 31.04 shall comply with the following:

31.04: continued

(a) Each field, or group of fields with similar soils and crops and history of lime and Fertilizer applications, shall be Soil Tested at least every three years. Soil Tests shall include analyses for phosphorus, potassium, pH, and soil organic matter. Standard Soil Test analyses shall be conducted in accordance with *UMass Guidelines*;

(b) Sampling and testing of Agricultural Byproducts and Agricultural Process Water shall comply with the following, unless *UMass Guidelines* require an alternative sampling and testing requirement:

1. materials shall be analyzed for nitrogen (total nitrogen, and ammonia-N), total phosphorus, total potassium, percent solids;
2. if there is no prior sampling history, testing shall be done annually for a minimum of three consecutive years. The average of the results shall be used as a basis for nutrient allocation to fields. Materials shall then be tested every three years;
3. samples of these materials shall be collected, prepared, stored, shipped and tested following *UMass Guidelines*; and
4. tests shall be performed whenever there is a significant change in animal numbers, species, diet, storage method, bedding materials, or additions of other Agricultural Byproducts, including those from offsite.

(c) Plant tissue testing shall be done in accordance with *UMass Guidelines*.

(6) All Plan and record keeping information required under 333 CMR 31.04 shall be kept for three years in either electronic or hard copy format and shall be made available for inspection by the Department upon request.

(7) The application of Plant Nutrients must follow any Plan required by 330 CMR 31.04.

(8) Should *UMass Guidelines* not be available when referenced in 330 CMR 31.00, the Applicator or Operator must follow the equivalent extension service standards or standard industry practices until such time that *UMass Guidelines* have become available.

31.05: Limitations on the Application of Phosphorus Containing Fertilizer; Requirements for the Application of Plant Nutrients and Phosphorus Containing Fertilizer to Non-agricultural Turf and Lawns

(1) The following shall apply to Phosphorus Containing Fertilizer:

(a) No Person may purchase and apply, or authorize any Person, by way of service contract or other arrangement, to apply any Phosphorus Containing Fertilizer on Non-agricultural Turf or Lawns except under the following conditions:

1. Soil Test, taken not more than three years before the application, indicates that additional phosphorus is needed for growth; or
2. The Phosphorus Containing Fertilizer is used to establish new Lawn or new Non-agricultural Turf area.

A new Lawn or Non-agricultural Turf area shall be defined as bare ground or as part of a Renovation. The use of phosphorus for these purposes shall be limited to the first growing season.

(2) The following shall apply to Animal Manure, Fertilizer, Organic Compost, Natural Organic Fertilizer, Biosolids, Agricultural Byproducts, Digestate, or combination thereof:

- (a) The amount of nitrogen and phosphorus must be known and accounted for;
- (b) A Soil Test is taken prior to the initial application;
- (c) Application of these materials shall not exceed the maintenance phosphorus rates for Non-agricultural Turf or Lawn as specified in *UMass Guidelines*; and
- (d) The requirement in 330 CMR 31.05(2)(a), (b), and (c) shall not apply to:

1. A single application made within a 12 month period at an application rate not to exceed 0.25lbs of P₂O₅ per 1,000 square feet; or
2. Any product used containing 0.67% or less available P₂O₅.

(3) In addition to the requirements of 330 CMR 31.00, any application of Biosolids to

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Non-agricultural Turf and Lawns shall comply with the requirements of 310 CMR 32.00: *Land Application of Sludge and Septage*.

31.05: continued

(4) For applications of Plant Nutrients, including Phosphorus Containing Fertilizer, to Non-agricultural Turf and Lawns, no applications shall be made:

- (a) To Frozen Soil, Snow Covered Soil, Saturated Soil, Frequently Flooded Soils, or soils when flooding is expected. An expectation of flooding includes, but is not limited to a prediction of Heavy Rain;
- (b) Within 20 feet of Surface Waters, if using a broadcast application method,
- (c) Within ten feet of Surface Waters, if using a drop spreader or rotary spreader with a deflector or a targeted spray;
- (d) Within a Zone I of a Public Water Supply Well;
- (e) Within 100 feet of Surface Waters that are used for public water supplies;
- (f) In an amount that is inconsistent with the annual recommended rate established by the *UMass Guidelines* for turf;
- (g) To any Impervious Surface, including parking lots, roadways, and sidewalks, by means of direct application, spills, overspray, or run-off to impervious areas;
 1. if such direct application, spills, overspray, or run-off occurs, the product material must be cleaned completely from the surface and be either:
 2. contained or disposed of legally; or
 3. applied to Non-agricultural Turf or Lawn as allowed.
- (h) For the purpose of de-icing Impervious Surfaces; or
- (i) To drought dormant, cold dormant, inactive or otherwise brown turf.

(5) Should *UMass Guidelines* not be available when referenced in 330 CMR 31.00, the applicator or operator must follow the equivalent extension service standards or standard industry practices until such time that *UMass Guidelines* become available.

31.06: Soil Testing for the Application of Plant Nutrients, Including Phosphorus Containing Fertilizer, to Non-agricultural Turf and Lawns

(1) Soil Tests shall be valid for three years and only for the Management Unit on which the sample was collected. Any subsequent phosphorus applications to the same Management Unit shall be based on the results of a valid Soil Test.

(2) Standard Soil Test analyses shall be conducted by a laboratory using methods and procedures recommended by *UMass Guidelines*.

31.07: Record Keeping Requirements for Applications of Plant Nutrients or Phosphorus Containing Fertilizer to Non-agricultural Turf and Lawns

(1) Any Person who applies Plant Nutrients or Phosphorus Containing Fertilizer to Non-agricultural Turf or Lawns shall maintain records of each application. The following information shall be recorded electronically or *via* hard copy:

- (a) Name of Applicator;
- (b) Date of application;
- (c) Address or location description of the application site;
- (d) Soil Test results for the property or Management Unit;
- (e) Name of product applied;
- (f) Size of the area on which the application is made;
- (g) Representative nutrient value or analyzed values, or guaranteed analysis;
- (h) Method and rate of application; and
- (i) Total amount used.

(2) Records shall be kept for at least three years, may be kept electronically or in hard copy format, and shall be made available for inspection by the Department upon request.

(3) The record keeping requirements in 330 CMR 31.07 shall not apply to any Person making Non-professional applications of Plant Nutrients.

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31.08: Retailer Requirements

Any Retailer who sells, or offers for sale, Phosphorus Containing Fertilizer shall:

- (a) Display the product separately from non-phosphorus Plant Nutrients; and
- (b) Post in a location where Phosphorus Containing Fertilizer is displayed a clearly visible sign, at least 11" x 17" in dimension, which reads as follows: "PHOSPHORUS RUNOFF POSES A THREAT TO WATER QUALITY. THEREFORE, UNDER MASSACHUSETTS LAW, PHOSPHORUS CONTAINING FERTILIZER MAY ONLY BE APPLIED TO LAWN OR NON-AGRICULTURAL TURF WHEN (I) A SOIL TEST INDICATES THAT ADDITIONAL PHOSPHORUS IS NEEDED FOR THE GROWTH OF THAT LAWN OR NON-AGRICULTURAL TURF; OR (II) IS USED FOR NEWLY ESTABLISHED LAWN OR NON-AGRICULTURAL TURF DURING THE FIRST GROWING SEASON."

31.09: Enforcement: Assessment of Civil Penalty

- (1) The Department may impose a fine on any Person who violates any provision of 330 CMR 31.00 as follows:
 - (a) Not more than \$250 for a first violation, \$500 for a second violation, and \$1,000 for a third or subsequent violation; and
 - (b) Each day a violation occurs under 330 CMR 31.00 is a separate violation.
- (2) In assessing a fine imposed under 330 CMR 31.09(1), the Department shall give consideration to the following:
 - (a) The willfulness of the violation, the extent to which the existence of the violation was known to the violator, but uncorrected by the violator, and the extent to which the violator exercised reasonable care;
 - (b) Any actual harm to human health and safety or to the environment, including injury to, or impairment of, the use of the waters or the natural resources of the Commonwealth;
 - (c) The nature and degree of injury to, or interference with, general welfare, health, and property;
 - (d) The extent to which the location of the violation, including location near areas of human population, creates the potential for harm to the environment or to human health and safety; and
 - (e) The extent to which the current violation is part of a recurrent pattern of the same or similar type of violation committed by the violator.

31.10: Appeal

Any Person aggrieved by any decision of the Department over the assessment of a fine imposed under 330 CMR 31.00 may appeal by filing a notice of appeal with the division of administrative law appeals within ten days of receipt of the notice of the fine pursuant to the provisions set forth in M.G.L. c. 128, § 2(k).

31.11: Exemptions

Educational institutions and researchers may apply to the Department for an exemption to 330 CMR 31.00 for research, education, and demonstration purposes.

REGULATORY AUTHORITY

330 CMR 31.00: M.G.L. c. 128, §§ 2(k) and 65(A).

Town of Braintree
SOP 13 –Water Quality Screening with
Field Kits

Approved By:

Date:

Approved By:

Date:

SOP 13: WATER QUALITY SCREENING IN THE FIELD

Introduction

Outfalls from an engineered storm drain system can be in the form of pipes or ditches. Under current and pending regulations, it is important to inspect and document water quality within the MS4 system under both dry weather and wet weather conditions. SOP 1, “Dry Weather Outfall Inspection” and SOP 2, “Wet Weather Outfall Inspection”, cover the objectives of these activities and how water quality parameters can be collected during both types of inspections. SOP 3, “Catch Basin Inspection and Cleaning”, describes how this operations and maintenance activity can serve as an additional opportunity to collect water quality data.

SOP 2 included detailed information on how to collect discrete analytical samples to be processed by a laboratory. In contrast, this SOP addresses screening-level measurements that can be collected at outfalls, catch basins, receiving waters, or other water bodies. The measurements can be collected with field test kits or with portable meters.

Water quality screening data collected in this manner can feed into an illicit discharge detection and elimination investigation, like the process described in SOP 10, “Locating Illicit Discharges”.

Visual Condition Assessment

SOP 1, SOP 2, and SOP 3 describe a Visual Condition Assessment to collect observations related to the quality of stormwater conveyed by an engineered storm drain system. These observations may include such visual evidence and/or potential pollutants as:

- Foaming (detergents)
- Discoloration
- Evidence of sanitary waste
- Optical enhancers (fluorescent dyes added to laundry detergent); and
- Turbidity

If a Visual Condition Assessment indicates the presence of these pollutants, it may be necessary to quantify the extent of each, and gather data on other parameters that cannot be visually observed but can be measured using field kits or meters. These parameters include:

- Ammonia
- Bacteria (E. Coli and
- Chloride (present in treated drinking water but not groundwater)
- Conductivity
- Fluoride
- pH
- Potassium

Field Kits and Sampling Methods Available

In recent drafts of new MS4 Permits, U.S. EPA Region 1 has identified several test kits that are acceptable for use in the field, and other regulatory agencies have also completed similar reviews. The following table shows example field test kits and portable meters that can be used for screening parameters.

**Table SOP 13-1
Field Measurements, Test Kits, and Instrumentation**

Analyte or Parameter	Instrumentation (Portable meter)	Field Test Kit
Ammonia	CHEMetrics™ V-2000 Colorimeter Hach™ DR/890 Colorimeter Hach™ Pocket Colorimeter™ II	CHEMetrics™ K-1410 CHEMetrics™ K-1510 (series)
Bacteria	Bacteria field test kits require 24-hour window	
Boron	N/A	Hanna™ HI 38074 Taylor™ K-1541
Chloride	CHEMetrics™ V-2000 Colorimeter Hach™ Pocket Colorimeter™ II LaMotte™ DC1200 Colorimeter	CHEMetrics™ K-2002 through K-2070 Hach™ CDS-DT Hach™ Chloride QuanTab® Test Strips
Color		Hach™ ColorDisc
Conductivity	CHEMetrics™ I-1200	N/A
Detergents (Surfactants)	CHEMetrics™ I-2017 CHEMetrics™ V-2000 Colorimeter Hach™ Pocket Colorimeter™ II	CHEMetrics™ K-9400 and K-9404 Hach™ DE-2
Fluoride		N/A
Hardness	N/A	CHEMetrics™ K-1705 and K-1710 CHEMetrics™ K-4502 through K-4530 Hach™ HA-DT Hach™ Hardness Test Strips
Optical enhancers	Field tests still under development	
pH	CHEMetrics™ I-1000	Hach™ 17J through 17N Hach™ pH Test Strips
Potassium	Horiba™ Cardy C-131	LaMotte™ 3138 KIW
Turbidity	CHEMetrics™ I-1300	N/A

Each field test kit will include instructions specific to that test kit, and most kits are available in configurations that detect different ranges of the parameter. For example, the CHEMetrics™ detergents kit K-9400 shown above detects concentrations of 0 to 3 milligrams per liter (mg/L) while the K-9404 kit detects concentrations of 0 to 1,400 mg/L.

The table below shows values identified by the U.S. EPA and the Center for Watershed Protection as typical screening values for select parameters.

The bacteria water quality criteria for freshwater is based upon E. Coli and the threshold is 235 cfu/100 ml. For brackish and marine waters, the water quality standard is based upon bacteria and the threshold is 61cfu/100 ml. These represent the typical concentration (or value) of each parameter expected to be found in stormwater. Screening values that exceed these benchmarks may be indicative of pollution and/or illicit discharges.

The MS4 permit requires that ammonia, surfactants, and bacteria exceed specific thresholds to indicate contamination. For the purpose of Braintree, exceedance of bacteria and either ammonia or surfactants will be used to indicate contamination.

If any of the conditions below are met the outfall is consider to be potentially contaminated with sewage:

- Olfactory of visual evidence of sewage
- Ammonia ≥ 0.5 mg/l or surfactants ≥ 0.25 mg/l, and bacteria levels greater than the water quality criteria applicable to the receiving water
- Ammonia ≥ 0.5 mg/l, surfactants ≥ 0.25 mg/l, and detectable levels of chlorine
- Bacteria levels greater than four times the water quality criteria applicable to the receiving water

(Brown and Caldwell, 2019)

**Table SOP 13-2
Water Quality Criteria & Threshold Levels**

Analyte or Parameter	Benchmark
Ammonia	≥ .5 mg/l
Bacteria (E. Coli.)	Freshwater: 235 cfu/100 ml
Bacteria (Enterococci)	Brackish: 61 cfu/ 100 ml
Chlorine	> Reporting Limit
Conductivity	>2,000
Detergents (Surfactants)	≥ 0.25 mg/L
Fluoride	>0.25 mg/L
pH	<5
Potassium	>20 mg/L

Note: Adapted from EPA New England Bacterial Source Tracking Protocol (2012). Retrieved from <https://www3.epa.gov/region1/npdes/stormwater/ma>

If and when water quality screening samples, whether using field test kits or portable meters, exceed these benchmark concentrations, the inspector should consider collecting analytical samples for laboratory analysis. Additionally, the source of the pollution should be investigated by following SOP 10 Locating Illicit Discharges.

Advantages and Disadvantages of Field Testing

Field test kits can be convenient for use as a screening tool, initial purchase costs are low (typically \$0.50 to \$5.00 for the kits included in Table SOP 13-1), and the costs are far less than full analyses at a laboratory. However, some disadvantages of this screening method include:

- Limited shelf life
- Labor cost associated with inspector's time
- Generation of wastes, including glass vials and used reagent
- Steps and processes for each kit can vary widely, resulting in errors
- Trained staff are required in order to effectively utilize kits
- Not all kits are accepted by all regulatory agencies
- Limited useful detection range

Portable instrumentation such as the colorimeters shown in Table SOP 13-1 have the benefit of providing accurate readings, measure to low detection limits, and can be purchased pre-programmed to measure concentrations of most parameters required. Disadvantages of portable instrumentation include:

- High initial purchase cost
- Requirement for ongoing calibration and maintenance
- Individual probes require periodic replacement
- Specific storage requirements to maintain calibration
- Trained staff are required in order to effectively utilize meters

References

1. Brown and Caldwell. (2019) *Appendix E: Outfall Inspection and Dry Weather Sampling SOP*
2. EPA. (2012) *EPA New England Bacterial Source Tracking Protocol*

Related Standard Operating Procedures

1. SOP 1, Dry Weather Outfall Inspection
2. SOP 2, Wet Weather Outfall Inspection
3. SOP 3, Catch Basin Cleaning and Inspection
4. SOP 10, Locating Illicit Discharges

Attachment 1
Water Quality Screening Form

WATER QUALITY SCREENING FORM

Outfall I.D.			
Outfall Location			
Inspector's Name			
Date of Inspection		Date of Last Inspection	
Start Time		End Time	
Type of Inspection:	Regular <input type="checkbox"/>	Pre-Storm Event <input type="checkbox"/>	During Storm Event <input type="checkbox"/> Post-Storm Event <input type="checkbox"/>
Most Recent Storm Event			

FIELD WATER QUALITY SCREENING RESULTS

Sample Parameter	Field Test Kit or Portable Instrument Meter	Benchmark	Field Screening Result	Full Analytical Required?
Ammonia ¹		> 50.0 mg/L		<input type="checkbox"/> Yes <input type="checkbox"/> No
Boron ¹		> 0.35 mg/L		<input type="checkbox"/> Yes <input type="checkbox"/> No
Chloride ²		230 mg/L		<input type="checkbox"/> Yes <input type="checkbox"/> No
Color ¹		> 500 units		<input type="checkbox"/> Yes <input type="checkbox"/> No
Specific Conductance ¹		> 2,000 µS/cm		<input type="checkbox"/> Yes <input type="checkbox"/> No
Detergents & Surfactants ³		> 0.25 mg/L		<input type="checkbox"/> Yes <input type="checkbox"/> No
Fluoride ³		> 0.25 mg/L		<input type="checkbox"/> Yes <input type="checkbox"/> No
Hardness ¹		< 10 mg/L or > 2,000 mg/L		<input type="checkbox"/> Yes <input type="checkbox"/> No
pH ¹		< 5		<input type="checkbox"/> Yes <input type="checkbox"/> No
Potassium ¹		> 20 mg/L		<input type="checkbox"/> Yes <input type="checkbox"/> No
Turbidity ¹		> 1,000 NTU		<input type="checkbox"/> Yes <input type="checkbox"/> No

¹ – *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments*, Center for Watershed Protection and Robert Pitt of University of Alabama, 2004, p. 134, Table 45.

² – *Env-Ws 1703.21 Water Quality Criteria for Toxic Substances*, State of New Hampshire Department Surface Water Quality Regulations.

³ – *Appendix I – Field Measurements, Benchmarks and Instrumentation*, Draft Massachusetts North Coastal Small MS4 General Permit, 2009.



FULL ANALYTICAL TESTING WATER QUALITY RESULTS

Sample Parameter	Analytical Test Method	Sample Collection (Time/Date)	Testing Lab	Analytical Testing Result
Ammonia	EPA 350.2/SM4500-NH3C			
Bacteria	E coli: 1103.1; 1603 Enterococcus: 1106.1; 1600			
Boron	EPA 212.3			
Chloride	EPA 9251			
Color	EPA 110.2			
Specific Conductance	SM 2510B			
Detergents & Surfactants	EPA 425.1/SM5540C			
Fluoride	EPA 300.0			
Hardness	EPA 130.1/SM 2340B			
Optical Enhancers	N/A*			
pH	EPA 150.1/SM 4500H			
Potassium	EPA 200.7			
Turbidity	SM 2130B			

*- There is presently no USEPA Standard Method for analysis of optical enhancers. Typically, sample pads are described as with "Present" or "Not Present" for fluorescing dye when exposed to UV light or a fluorometer.



Town of Braintree

SOP 14 –Municipal Vehicle Washing

Approved By:

Date:

Approved By:

Date:

SOP 14: MUNICIPAL VEHICLE WASHING PROCEDURES

Introduction

Vehicle washing activities can result in the discharge of nutrients, sediment, petroleum products, and other contaminants to a surface water body or to an engineered drainage system.

Consistent with the 2016 USEPA NPDES Phase II Small Municipal Separate Storm Sewer System (MS4) Permit, municipal vehicle washing activities are not authorized to discharge to the municipal storm sewer system or to surface waters.

Outdoor Vehicle Washing Procedures

Outdoor washing of municipal vehicles should be avoided unless wash water is contained in a tight tank or similar structure. Where no alternate wash system is available, and full containment of wash water cannot be achieved, the following procedures shall be followed:

1. Avoid discharge of any wash water directly to a surface water (e.g., stream, pond, drainage swale, etc.)
2. Minimize use of water to the extent practical.
3. Where use of detergent cannot be avoided, use products that do not contain regulated contaminants. Use of a biodegradable, phosphate-free detergent is preferred.
4. Do not use solvents except in dedicated solvent parts washer systems or in areas not connected to a sanitary sewer.
5. Do not power wash, steam clean or perform engine cleaning or undercarriage cleaning.
6. Grassy and pervious (porous) surfaces may be used to promote direct infiltration of wash water, providing treatment before recharging groundwater and minimizing runoff to an adjacent stormwater system. Pervious surfaces or other infiltration-based systems shall not be used within wellhead protection areas or within other protected resources. Washing on pervious surfaces or other infiltration-based systems must be at least 50 ft. from surface waters.
7. Impervious surfaces discharging to engineered storm drain systems shall not discharge directly to a surface water unless treatment is provided. Treatment can include a compost-filled sock designed specifically for removal of petroleum and nutrients, such as the Filtrexx™ FilterSoxx product, or equal. The treatment device shall be positioned such that all drainage must flow through the device, preventing bypassing or short-circuiting.
8. All adjacent engineered storm drain system catch basins shall have a sump. These structures shall be cleaned periodically (refer to SOP 3, "Catch Basin Inspection and Cleaning").
9. Solids and particulate accumulation from the washing area shall be completed through periodic sweeping and/or cleaning.
10. Maintain absorbent pads and drip pans to capture and collect spills or noticeable leaks observed during washing activities. Clean up any spills using the procedures described in SOP 4, "Spill Response and Cleanup Procedures".

Heavily soiled vehicles or vehicles dirtied from salting, mowing, pesticide/fertilizer application or storage, or snow removal efforts shall not be washed outside, without exception.

Indoor Vehicle Washing Procedures

Indoor vehicle washing procedures shall include the following:

1. Where use of detergent cannot be avoided, use products that do not contain regulated contaminants. Use of a biodegradable, phosphate-free detergent is preferred.
2. Detergents shall not be used in areas where oil/water separators provide pre-treatment of drainage (refer to SOP 11, "Oil/Water Separator Maintenance", for more information).
3. Floor drains shall be connected to a sanitary sewer or tight tank. Floor drains discharging to adjacent surface water bodies or engineered storm drain systems shall be permanently plugged or otherwise abandoned before any vehicle wash activities are completed.
4. Designate separate areas for routine maintenance and vehicle cleaning. This helps prevent contamination of wash water by motor oils, hydraulic lubricants, greases, etc.
5. Dry clean-up methods, such as sweeping and vacuuming, are recommended within garage facilities. Do not wash down floors and work areas with water.
6. Bring smaller vehicles to commercial washing stations.
7. Maintain absorbent pads and drip pans to capture and collect spills or noticeable leaks observed during washing activities. Clean up any spills using the procedures described in SOP 4, "Spill Response and Cleanup Procedures".

Heavy Equipment Washing Procedures

Heavy equipment washing procedures shall include the following:

1. Mud and heavy debris removal shall occur on impervious pavement or within a retention area.
2. Maintain these areas with frequent mechanical removal and proper disposal of spoils.
3. All adjacent engineered storm drain system components shall have a sump. These structures shall be cleaned periodically (refer to SOP 3, "Catch Basin Inspection and Cleaning").
4. Impervious surfaces with engineered storm drain systems shall not discharge directly to a surface water.
5. Floor drains shall be connected to a sanitary sewer or tight tank. Floor drains discharging to adjacent surface water bodies or engineered storm drain systems shall be permanently plugged or otherwise abandoned before any vehicle wash activities are completed.
6. Where use of detergent cannot be avoided, use products that do not contain regulated contaminants. Use of a biodegradable, phosphate-free detergent is preferred.
7. Detergents shall not be used in areas where oil/water separators provide pre-treatment of drainage (refer to SOP 11, "Oil/Water Separator Maintenance", for more information).
8. Maintain absorbent pads and drip pans to capture and collect spills or noticeable leaks observed during washing activities. Clean up any spills using the procedures described in SOP 4, "Spill Response and Cleanup Procedures".

Engine Washing and Steam Washing Procedures

Engine and steam washing procedures shall include the following:

1. Do not wash parts outdoors.
2. Maintain drip pans and smaller containers to contain motor oils, hydraulic lubricants, greases, etc. and to capture and collect spills or noticeable leaks observed during washing activities, to the extent practicable. Clean up any spills using the procedures described in SOP 4, "Spill Response and Cleanup Procedures".
3. Where use of detergent cannot be avoided, use products that do not contain regulated contaminants. Use of a biodegradable, phosphate-free detergent is preferred.
4. Avoid cleaning with solvents except in dedicated solvent parts washer systems. Make use of pressure washing and steam cleaning.
5. Recycle clean solutions and rinse water to the extent practicable.
6. Wash water shall discharge to a tight tank or a sanitary sewer via an oil/water separator. Detergents shall not be used in areas where oil/water separators provide pre-treatment of drainage (refer to SOP 11, "Oil/Water Separator Maintenance", for more information).

Related Standard Operating Procedures

1. SOP 3, Catch Basin Inspection and Cleaning
2. SOP 4, Spill Response and Cleanup Procedures
3. SOP 11, Oil/Water Separator Maintenance

Standard Operating Procedures
 Town of Braintree
 Department of Public Works
Sweeping Streets and Parking Lots

Issue Date:
 6/29/2019

Approved by:


 Assistant Director of Public Works - Operations

Purpose of SOPs:

Procedures for the operation and maintenance of street sweepers, frequency of sweeping, disposal of debris, and recordkeeping to prevent pollution from entering the stormwater sewer systems.

MA Small MS4 General Permit Requirement Summary:

Part 2.3.7.a.iii.3.

The permittee shall establish and implement procedures for sweeping and/or cleaning streets, and permittee-owned parking lots. All streets with the exception of rural uncurbed roads with no catch basins or high speed limited access highways shall be swept and/or cleaned a minimum of once per year in the spring (following winter activities such as sanding). The procedures shall also include more frequent sweeping of targeted areas determined by the permittee on the basis of pollutant load reduction potential, based on inspections, pollutant loads, catch basin cleaning or inspection results, land use, water quality limited or TMDL waters or other relevant factors as determined by the permittee. The permittee shall report in each annual report the number of miles cleaned or the volume or mass of material removed. For rural uncurbed roadways with no catch basins and limited access highways, the permittee shall either meet the minimum frequencies above, or develop and implement an inspection, documentation and targeted sweeping plan with two (2) years of the effective date of the permit, and submit such plan with its year one annual report.

Part 2.3.a.iii.4.

The permittee shall ensure proper storage of catch basin cleanings and street sweepings prior to disposal or reuse such that they do not discharge to receiving waters.

Equipment Inventory:

The following is a list of street sweeping equipment:

Equipment Number	Make	Description	Sweeper Speed (or other notes)
#24	Elgin Pelican Sweeper	2005	5 MPH
#22	Elgin Pelican Sweeper	2008	5 MPH
#23	Elgin Pelican Sweeper	2016	5 MPH

Standard Operating Procedures
Town of Braintree
Department of Public Works
Sweeping Streets and Parking Lots

Issue Date:
6/29/2019

Operations

1. Operate all sweepers and equipment according to the manufacturer’s recommended settings, standards, and procedures.
2. While sweeping, drive between the optimal sweeping speed limit, as recorded in the equipment list above.
3. Sweeping will not take place during moderate or heavy rain.
4. If spills occur or illegal discharges are seen, report to immediate supervisor.

Maintenance

1. Sweepers will be checked for leaks during daily vehicle inspection. Immediately contain and properly clean up any spills.
2. Regular preventative maintenance to prolong equipment use (such as greasing moving parts and minor adjustments) occur weekly.
3. Parts are replaced as necessary. Brushes are replaced when bristle length is less than 4 inches.
4. Equipment is washed at DPW – Highway Yard located at 245 Union St to trap grease, oils and sediment.

Schedule

1. Street sweeping will primarily take place between the months of April and November.
2. All streets with curbing and/or catch basins shall be swept a minimum of once per year in the spring (following winter activities such as sanding). Streets are swept according to the street list and schedule located in the Highway Division Office.
3. Priority roads and parking lots are identified on the basis of pollutant load reduction potential, based on inspections, pollutant loads, catch basin cleaning or inspection results, land use, impaired or TMDL waters or other relevant factors. These roads and parking lots are listed below and will be swept more frequently as indicated in the table.

These roads/parking lots may be grouped by road category as long as the town’s list of streets and parking lots also indicates the applicable road category (e.g. main arterials, residential areas, commercial areas, downtown areas, municipal parking lots, industrial areas, etc.).

Priority Road/ Parking Lot Name (or Category)	Frequency of Sweeping
South Braintree Square & Municipal Lot	2 times per month or as needed (trash)
Braintree Square & Municipal Lot	2 times per month or as needed (trash)
The Landing	2 times per month or as needed (trash)
Capens Bridge Intersection and Islands	1 time per month

Standard Operating Procedures

Town of Braintree

Department of Public Works

Sweeping Streets and Parking Lots

Issue Date:

6/29/2019

4. A list of employees implementing the SOPs and the completion of their training(s) can be found at the DPW Highway Division Office at 245 Union St.

Revising the SOPs

1. These procedures are reviewed yearly and updated as needed.

Town of Braintree
**SOP 17 –Hazardous Materials Storage
and Handling**

Approved By:

Date:

Approved By:

Date:

SOP 17: Hazardous Materials Storage and Handling

Introduction

A hazardous material is any biological, chemical, or physical material with properties that make it dangerous or potentially harmful to human health or the environment. Hazardous materials can be released to the environment in a variety of ways. When hazardous materials come into contact with rain or snow, the pollutants are washed into the storm sewer system and to surface waterbodies and/or groundwater. Hazardous materials associated with municipal facilities and their operations include, but are not limited to, oil, gasoline, antifreeze, fertilizers, pesticides, and de-icing agents and additives.

Municipally owned or managed facilities where hazardous materials are commonly stored and handled include:

- Equipment storage and maintenance yards
- Hazardous waste disposal facilities
- Hazardous waste handling and transfer facilities
- Composting facilities
- Materials storage yards
- Municipal buildings and facilities (e.g., schools, libraries, police and fire departments, town offices, municipal pools, and parking garages)
- Public works yards
- Solid waste handling and transfer facilities
- Vehicle storage and maintenance yards
- Water and wastewater facilities

Minimizing or eliminating contact of hazardous materials with stormwater can significantly reduce pollution of receiving waters. Proper hazardous material handling and storage also contributes to employee health, an organized workplace, and efficient operations. The goal of this written Standard Operating Procedure (SOP) is to provide guidance to municipal employees to help prevent stormwater pollution resulting from the handling and storage of hazardous materials. If services are contracted, this SOP should be provided to the contractor. The contract should also specify that the contractor is responsible for compliance with all applicable laws.

The Town of Braintree undertakes various activities in regards to handling and storing hazardous materials.

Procedures

The Town of Braintree will implement the following procedures for handling and storing hazardous materials to reduce the discharge of pollutants to the MS4:

Handling, Loading, and Unloading

- Avoid loading/unloading materials in the rain and/or provide cover.
- Retrace areas where materials have been transferred to identify spills. If spills are found, immediately clean them up. Follow procedures in SOP 4: Spill Response and Cleanup.
- Time delivery and handling of materials during favorable weather conditions whenever possible (e.g.,

avoid receiving loads of sand during windy weather).

- Inspect containers for material compatibility and structural integrity prior to loading/unloading any raw or waste materials.
- Use dry cleanup methods (e.g., squeegee and dust pan, sweeping, and absorbents as last step) rather than hosing down surfaces.

Material Storage

- Confine material storage indoors whenever possible. Plug or disconnect floor drains that lead to the stormwater system.
- Confine outdoor material storage to designated areas that are covered, on impervious surfaces, away from high traffic areas, and outside of drainage pathways. Outdoor material storage must be at least 50 ft. from surface waters.
- Store containers on pallets or equivalent structures to facilitate leak inspection and to prevent contact with wet floors that can cause corrosion. This technique also reduces incidences of container damage by insects and rodents.
- Store materials and waste in materially compatible containment units.
- Keep hazardous materials in their original containers.
- If materials are not in their original containers, clearly label all storage containers with the name of the chemical, the expiration date, and handling instructions.
- Maintain an inventory of all raw and waste materials to identify leakage. Order new materials only when needed.
- Provide secondary containment for storage tanks and drums with sufficient volume to store 110 percent of the volume of the material.
- Provide sufficient aisle space to allow for routine inspections and access for spill cleanup.
- Inspect storage areas for spills or leaks and containment units for corrosion or other failures.

Waste Treatment, Disposal, and Cleanup

- Adopt a regular schedule for the pick-up and disposal of waste materials.
- Recycle leftover materials whenever possible.
- Substitute nonhazardous or less-hazardous materials for hazardous materials whenever possible.
- Protect empty containers from exposure to stormwater and dispose of them regularly to avoid contamination from container residues.

Employee Training

- Employees who handle and use hazardous materials are trained once per year on these procedures.
- Employees are also trained on stormwater pollution prevention, illicit discharge detection and elimination (IDDE) procedures, and spill and response procedures.
- If services are contracted, the contractor should be given a copy of this and any applicable SOPs to ensure compliance with MS4 regulations.

Related Standard Operating Procedures

1. SOP 4: Spill Response and Cleanup

Standard Operating Procedures

Town of Braintree

Department of Public Works

Winter Road Maintenance – Snow Removal & De-Icing

Issue Date:

6/29/2019

Approved by:



Assistant Director of Public Works - Operations

Purpose of SOPs:

Procedures for the maintenance of roadways in the winter, salt and sand storage and use, and recordkeeping to prevent pollution from entering the stormwater sewer systems.

MA Small MS4 General Permit Requirement Summary:

Part 2.3.7.a.iii.5.

The permittee shall establish and implement procedures for winter road maintenance including the use and storage of salt and sand; minimize the use of sodium chloride and other salts, and evaluate opportunities for use of alternative materials; and ensure that snow disposal activities do not result in disposal of snow into waters of the United States. For purposes of this MS4 Permit, salt shall mean any chloride-containing material used to treat paved surfaces for deicing, including sodium chloride, calcium chloride, magnesium chloride, and brine solutions.

Equipment

The municipality owns and maintains ice control and snow removal equipment. Equipment maintenance shall be conducted consistent with the Vehicles and Equipment manufacturers recommended maintenance.

Plowing

When conditions warrant, plows are installed on the larger trucks to move snow from the main roadways.

Average time to install a plow is approximately 15 minutes. When deemed necessary, plows will be installed before the start of the snow event. Smaller trucks are available for plowing of residential streets and clearing public lots.

Plows for smaller vehicles are installed before the event.

Salt Spreaders and Pre-Wetting Devices

When conditions warrant, salt spreaders installed on the larger trucks are dispatched to spread salt on the traveled roadway. Each salt spreader is maintained and calibrated prior to the deicing season and periodically, based on use throughout the season. Trucks equipped with pre-wetting or liquid deicer are calibrated prior to the deicing season and periodically, based on use throughout the season.

Standard Operating Procedures

Town of Braintree

Department of Public Works

Winter Road Maintenance – Snow Removal & De-Icing

Issue Date:

6/29/2019

Materials

The major materials are used in snow and ice control are coarse sand, coarse salt, anti-icing agent. These materials are stockpiled in advance of an event and are immediately available when needed and stocks are replenished between events.

Salt

Salt is used to expedite the melting of snow and ice from the street surface and also to keep the ice from forming a bond to the street surface. Salt is stored in the covered facility located at the DPW Highway Yard at 245 Union St. Loading areas and yards are swept as needed to prevent salt build-up and run-off.

Sand

Sand is used as an abrasive for traction on slick roadways. Sand is stored at the DPW Highway Yard at 245 Union St. Loading areas and yards are swept as needed to prevent sand build-up and run-off.

Anti-icing and Pre-Wetting Chemical

These chemicals are stored in the DPW Highway Building at 245 Union St. in 2-2500 gallon storage tanks.

Procedures

Anti-Icing

1. Whenever possible, the anti-icing product is applied to the roadway prior to the beginning of a storm to prevent snow from bonding to the roadway surface, and also used when heavy frost or black ice is expected to be an issue for commuters. DPW Director or his designee will instruct staff when anti icing is appropriate. Anti-icing will not be done prior to freezing rain.
2. Prior to anti-icing application, equipment will be checked to ensure proper working order and ensure proper calibration of equipment. All fluid levels will be checked and filled to proper levels, all lights must be in working order. A visual walk-around inspection of the truck or equipment must be made. Any repairs must be made and reported to a supervisor or mechanic before leaving the yard.
3. Before parking any truck or equipment after use, all fluid levels will be checked and filled. All minor repairs will be done by the operator. Any repairs the operator cannot perform will be written up on the proper forms and turned in to the mechanic or supervisor on duty. Facilities Vehicle Superintendent will determine importance and will assign the repairs according to schedule. All deicing chemical will be washed from equipment at the designated wash area.

Salt Application

1. Whenever conditions warrant, salt is applied to the roadway prior to accumulation of snow to prevent compacted snow from bonding to the roadway surface. DPW Director or his designee will instruct staff when salt application is appropriate.
2. Prior to salt application, equipment will be checked to ensure proper working order and ensure proper calibration of equipment. All fluid levels will be checked and filled to proper levels, all lights must be in working order. A visual walk-around inspection of the truck or equipment must be made. Any repairs must be made and reported to a supervisor or mechanic before leaving the yard.
3. The standard salt application speed is 20 mph or less due to conditions.
4. Follow the prioritized route or schedule. The routes are located in the DPW Highway Division Office.

Standard Operating Procedures

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Winter Road Maintenance – Snow Removal & De-icing

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5. Before parking any truck or equipment after use, all fluid levels will be checked and filled. All minor repairs will be done by the operator. Any repairs the operator cannot perform will be written up on the proper forms and turned in to the mechanic or supervisor on duty. Facilities Vehicle Superintendent will determine importance and will assign the repairs according to schedule. All deicing chemical will be washed from equipment at the designated wash area.

Snow Plowing

1. As the storm develops and 2 to 4 inches of snow has accumulated, all of the drivers and available equipment will begin to plow their assigned routes.
2. Prior to plowing operations, equipment will be checked to ensure proper working order. All fluid levels will be checked and filled to proper levels, all lights must be in working order. A visual walk-around inspection of the truck or equipment must be made. Any repairs must be made and reported to a supervisor or mechanic before leaving the yard.
3. Avoid plowing, pushing, blowing or storing excess snow, deicer, or other debris in or near creeks, watercourses or storm drainage systems.
4. Reduce plowing speed in sensitive areas (near creeks, wetlands or other water courses) to prevent snow and deicing materials from entering waterways.
5. The standard plowing speed is: no more than 15 mph.
6. Follow the prioritized route or schedule. The routes are located in the DPW Highway Division Office.
7. Before parking any truck or equipment after use, all fluid levels will be checked and filled. Check plow for blades or bolts that need replacing. Notify Welder/Fabricator or mechanic. Note tire chains if used that need repairs. All minor repairs will be done by the operator. Any repairs the operator cannot perform will be written up on the proper forms and turned in to the mechanic or supervisor on duty. Facilities Vehicle Superintendent will determine importance and will assign the repairs according to schedule.

Sand Application

1. Whenever conditions warrant, sand is applied to the roadway to increase traction. DPW Director or his designee will instruct staff when sand application is appropriate.
2. Prior to sand application, equipment will be checked to ensure proper working order and ensure proper calibration of equipment. All fluid levels will be checked and filled to proper levels, all lights must be in working order. A visual walk-around inspection of the truck or equipment must be made. Any repairs must be made and reported to a supervisor or mechanic before leaving the yard.
3. The standard sanding speed is 20 mph or less due to conditions. Follow the prioritized route or schedule. This schedule is located in the DPW Highway Division Office.
4. Before parking any truck or equipment after use, all fluid levels will be checked and filled. All minor repairs will be done by the operator. Any repairs the operator cannot perform will be written up on the proper forms and turned in to the mechanic or supervisor on duty. Facilities Vehicle Superintendent will determine importance and will assign the repairs according to schedule.

Standard Operating Procedures

Town of Braintree

Department of Public Works

Winter Road Maintenance – Snow Removal & De-Icing

Issue Date:

6/29/2019

Record Keeping and Documentation

1. Maintain a master schedule of prioritized snow and sanding routes and the miles or roads plowed or sanded.
2. Keep copies of manufacturer’s recommendations for equipment calibration, plowing speed and salt/sand application rates.
3. Keep records of the amounts of salt, sand, liquid deicer, and salt alternatives applied per season.
4. Keep a list of all employees trained in the facility’s Stormwater Pollution Prevention binder or computer file.

Records are kept at the DPW Highway Division Office.

Revising the SOPs

These procedures are reviewed yearly and updated as needed.

Town of Braintree

SOP 19 –O&M of Parks and Open Spaces

Approved By:

Date:

Approved By:

Date:

SOP 19: Operations and Maintenance of Parks and Open Spaces

Introduction

Parks and open space operations and maintenance activities commonly involve the operation of equipment such as mowers and tractors; disposal of waste from mowing, planting, weeding, raking, pruning, and trash collection; application of pesticides, herbicides, and fertilizers; cleaning and maintenance of park amenities such as play equipment, restrooms, and structures; and snow removal. These activities have the potential to generate contaminants such as sediments and toxic chemicals that may be picked up by rainwater, thereby entering the storm drainage system and receiving waters. The goal of this written Standard Operating Procedure (SOP) is to provide guidance to municipal employees to reduce the discharge of pollutants from the MS4 and to receiving waters as a result of parks and open space operations and maintenance. If services are contracted, this SOP should be provided to the contractor. The contract should specify that the contractor is responsible for compliance with all applicable laws.

The Town of Braintree keeps an inventory of all municipally owned facilities and activities that may contribute pollution to the MS4 system. This inventory is reviewed and updated yearly.

Procedures

The Town of Braintree should implement the following procedures at municipal parks and open spaces to reduce the discharge of pollutants from the MS4:

General

- Repair damage to landscaped or mulch or vegetated bare areas as soon as possible to prevent erosion. If there are areas of erosion or poor vegetation, repair them as soon as possible, especially if they are within 50 feet of a surface water (e.g., pond, lake, or river).
- Remove (sweep or shovel) materials such as soil, mulch, and grass clippings from parking lots, streets, curbs, gutters, sidewalks, and drainage-ways.
- Do not clean up any unidentified or possibly hazardous materials found during maintenance; notify a supervisor immediately.

Maintenance

- Wastewater from power washing signs, structures, or bleachers should not be discharged into the stormwater system.
- When painting park equipment, use a drop cloth and clean up any spills immediately.
- Open containers should not be left on the ground where they may accidentally tip over.
- Sweep parking lots with a street sweeper and dispose of street sweepings in designated areas (see SOP 16: Streets and Parking Lots).
- Never wash debris from parking lots into the storm drain.

Mowing

- Remove debris and trash from landscaped areas prior to mowing.
- Collect grass clippings and leaves after mowing or leave them on the field. Clippings should not be blown or washed into the street, gutter, or storm drains.
- Properly recycle or dispose of organic waste after mowing, weeding, and trimming.
- Where feasible, a 25 ft. low/no-mow area vegetation area will be maintained between surface waters and open spaces.
- Reduce mowing frequencies wherever possible by establishing low/no-mow areas in lesser-used spaces and mowing only when grass has grown to 2 inches or more.
- Yearly Spring mowing of wildflower areas and reseeding of native plants should occur where necessary to maintain vegetation
- Brush off mowers (reels and decks) and tractors over grassy areas or in contained washout areas.
- Clippings should be left on grassy areas or disposed of by composting at the Braintree Compost Facility or Braintree Municipal Golf Course compost site.
- Mowers should not be hosed off over paved areas that drain into the MS4 or directly to surface waters.
- Proper vehicle and equipment maintenance procedures should be followed in order to prevent leaks (see SOP 21: Operations and Maintenance of Municipal Vehicles and Equipment)
- Grease from mowers should not be allowed to fall onto areas where they can be washed into the stormwater system.

Irrigation

- Broken sprinkler heads should be repaired as soon as possible.
- Irrigation should occur at a rate that can infiltrate into the soil to limit run-off.
- Irrigation close to impervious surfaces such as parking lots and sidewalks should be avoided.

Landscaping

- When establishing new plantings, alternative landscaping materials, such as drought resistant native plants, should be used to reduce the need for irrigation and extensive application of fertilizers and pesticides. Contact the Conservation Commission or Stormwater Division for recommendations.
- Proper fueling procedures for all equipment should be followed to ensure that petroleum products do not enter the stormwater system (see SOP 7: Fuel and Oil Handling Procedures).
- Bi-Annual maintenance of vegetation should include removal of invasive species in accordance with BMPs established by the Massachusetts Invasive Plant Advisory Group
- Fertilizers, herbicides, and pesticides should be properly used, stored, and handled (see SOP 12: Storage and Use of Pesticides and Fertilizer).
- The Town of Braintree discharges into the following Bacteria/Pathogen Impaired waterbodies: Cochato River (MA74-06), Farm River (MA74-07), Monatiquot River (MA74-08), Town Brook (MA74-009), Weymouth Fore River (MA74-14). Under MS4 Permit requirements, the Town of Braintree acknowledges that blowing organic waste material (grass cuttings, leaf litter) is strictly prohibited.

Snow Removal

- Salt or sand for snow removal should be stored indoors under a roof or in a covered container and on impervious surfaces.
- See SOP 18: Winter Road Maintenance for more information on proper snow disposal and storage procedures.
- Any damage done to vegetated areas caused by plows or deicing materials should be repaired as early as possible in the spring.

Trash Management

- All waste and recycling containers should be leak-tight with tight-fitting lids or covers.
- Place waste and recycling containers indoors or under a roof or overhang whenever possible.
- Clean and sweep up around outdoor waste containers regularly.
- Waste and recycling are collected either daily or as often as feasible based on location.
- Waste or recycling containers should not be washed out outdoors or in a parking lot.
- Conduct periodic inspections of waste areas to check for leaks and spills.
- Ensure there are enough trash and recycling containers at appropriate areas.
- Monitor waste and recycling containers at heavily-used sites and on holidays to ensure that there is no overflow.
 - The following sites are known to have higher frequency of use or need more frequent inspection to prevent trash overflow: Hollingsworth Park & Sunset Lake.

Other Activities

- All portable toilets should be staked down in flat, secure locations where they are less likely to be knocked down or blown over. They should be placed in a location that would retain any spillage from washing into the MS4 or receiving waters. Ensure routine maintenance and cleaning of portable toilets.
- Identify undesirable waterfowl congregation areas and take steps to prevent waterfowl droppings from entering the stormwater system or surrounding waterbodies.
 - Take measures to discourage congregation near waterbodies and the storm system (e.g., use strobe lights or reflective tape, establish no-mow zones to reduce available feeding areas, or plant thick vegetation along waterlines). If waterfowl congregation cannot be managed, then isolate the drainage from congregation areas away from the storm system and waterbodies.

Employee Training

- Employees who perform maintenance or other applicable work at municipal parks and open spaces should be trained once per year on these procedures and the proper operation of related equipment. Such training should be coordinated by the Stormwater Division.
- Employees should also be trained on stormwater pollution prevention, illicit discharge detection and elimination (IDDE) procedures, and spill and response procedures. Such training should be coordinated by the Stormwater Division.
- If services are contracted, the contractor should be given a copy of this and any applicable SOPs to ensure compliance with MS4 regulations.

Attachments

1. Inventory of Municipal Parks and Open Spaces

Related Standard Operating Procedures

- SOP 4: Spill Response
- SOP 7: Fuel and Oil Handling Procedures
- SOP 12: Storage and Use of Pesticides and Fertilizer
- SOP 16: Streets and Parking Lots
- SOP 17: Hazardous Materials Storage and Handling
- SOP 18: Winter Road Maintenance
- SOP 20: O&M of Municipal Buildings and Facilities
- SOP 21: O&M of Municipal Vehicles and Equipment
- SOP 22: Construction Site Runoff Control

Attachment 1
Inventory of Municipal Parks and
Open Spaces

OWNER/JURIDICTION	PID1	MS4 Category	Facility Name
BRAINTREE TOWN OF /	100302A	P&OS	Union St. Open Space
BRAINTREE TOWN OF /	1006072	P&OS	End Meadowbrook Rd. Open Space
BRAINTREE TOWN OF /	1008030	P&OS	Rear Washington St. Open Space
BRAINTREE TOWN OF /	1008031	P&OS	Rear Washington St. Open Space
BRAINTREE TOWN OF / PARKS + PLAYGROUNDS	1011040	P&OS	Corner Open Space
BRAINTREE TOWN OF / PARKS + PLAYGROUNDS	101801	P&OS	Tremont St. Triangle
BRAINTREE TOWN OF / PARKS + PLAYGROUNDS	101809	P&OS	Elmwood Ave Triangle
BRAINTREE TOWN OF /	102104	P&OS	Braintree High School Open Space
BRAINTREE TOWN OF /	102104A	P&OS	Braintree High School Open Space
BRAINTREE TOWN OF / SCHOOL DEPT	102104D	P&OS	Sunset Lake Open Space
BRAINTREE TOWN OF / LAND OF LOW VALUE	1025070A	P&OS	Kendall Ave. Street Frontage
BRAINTREE TOWN OF / PARKS + PLAYGROUNDS	1026010	P&OS	Mattulina Playground
BRAINTREE TOWN OF /	102701	P&OS	Rock Ave. Open Space
BRAINTREE TOWN OF /	1027031	P&OS	Rock Ave. Open Space
BRAINTREE TOWN OF /	1027067	P&OS	Rock Ave. Open Space
BRAINTREE TOWN OF /	1027068	P&OS	Rock Ave. Open Space
BRAINTREE TOWN OF / LAND LOW VALUE	1028062B	P&OS	Rear Pearl St. Open Space
BRAINTREE TOWN OF / LAND LOW VALUE	1028081	P&OS	Victoria Ave. Open Space

BRAINTREE TOWN OF / WATER DEPT	103403	P&OS	Great Pond Reservoir Open Space
BRAINTREE TOWN OF / FROM HAWES	103404	P&OS	Great Pond Reservoir Open Space
BRAINTREE TOWN OF / WATER DEPT	103502	P&OS	Great Pond Reservoir Open Space
BRAINTREE TOWN OF / WATER DEPT	103503	P&OS	Great Pond Reservoir Open Space
BRAINTREE TOWN OF / WATER DEPT	103504	P&OS	Great Pond Reservoir Open Space
BRAINTREE TOWN OF / CONSERVATION COMMISSION	103601	P&OS	Braintree High School Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMISSION	103602	P&OS	Braintree High School Conservation Land
BRAINTREE TOWN OF / WATER DEPT	1038010C	P&OS	Great Pond Reservoir Open Space
BRAINTREE TOWN OF / WATER DEPT	1038013	P&OS	Great Pond Reservoir Open Space
BRAINTREE TOWN OF / WATER DEPT	1038014	P&OS	Great Pond Reservoir Open Space
BRAINTREE TOWN OF / TREASURERS DEED	103802C	P&OS	Rear Rome Dr. Street Frontage
BRAINTREE TOWN OF /	103806D	P&OS	Great Pond Reservoir Open Space
BRAINTREE TOWN OF / LAND OF LOW VALUE	103806F	P&OS	Great Pond Reservoir Open Space
BRAINTREE TOWN OF / LAND OF LOW VALUE	1038080	P&OS	Great Pond Reservoir Open Space
BRAINTREE TOWN OF / WATER DEPT	103901	P&OS	Great Pond Reservoir Open Space
BRAINTREE TOWN OF / WATER DEPT	103902	P&OS	Great Pond Reservoir Open Space

BRAINTREE TOWN OF / WATER DEPT	103903	P&OS	Great Pond Reservoir Open Space
BRAINTREE TOWN OF /	104009	P&OS	Pond St. Open Space
BRAINTREE TOWN OF /	1041088	P&OS	Sherman Rd. Open Space
TOWN OF BRAINTREE / CONSERVATION COMMISSION	104108A	P&OS	Sunset Lake Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMISSION	1044014	P&OS	Golf Course Conservation Land
BRAINTREE TOWN OF / PARKS + PLAYGROUNDS	104408	P&OS	Golf Course Open Space
BRAINTREE TOWN OF / PARKS + PLAYGROUNDS	104409	P&OS	Golf Course Open Space
BRAINTREE TOWN OF / GOLF COURSE	104501	P&OS	Golf Course
BRAINTREE TOWN OF / LAND OF LOW VALUE	1045042A	P&OS	Shepard Rd. Open Space
BRAINTREE TOWN OF / PARK DEPARTMENT	1045049	P&OS	Dyer Hill Playground
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	1046035	P&OS	Hancock St. Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	1046036	P&OS	Hancock St. Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	1046037	P&OS	Hancock St. Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	1046041	P&OS	Hancock St. Conservation Land

BRAINTREE TOWN OF / CONSERVATION COMMITTEE	1046043	P&OS	Hancock St. Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	1046044	P&OS	Hancock St. Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMISSION	1046045	P&OS	Hancock St. Conservation Land
BRAINTREE TOWN OF / LAND OF LOW VALUE	1047031	P&OS	Dyer Height Cemetery Access
BRAINTREE TOWN OF /	104902E	P&OS	Rear Washington St. Open Space
BRAINTREE TOWN OF /	104902F	P&OS	Rear Washington St. Open Space
TOWN OF BRAINTREE /	104902G	P&OS	Rear Washington St. Open Space
TOWN OF BRAINTREE /	104902H	P&OS	Rear Washington St. Open Space
TOWN OF BRAINTREE /	1053012E	P&OS	Golf Course Open Space
TOWN OF BRAINTREE /	1053012F	P&OS	Golf Course Open Space
TOWN OF BRAINTREE /	1053012G	P&OS	Golf Course Open Space
TOWN OF BRAINTREE /	1054011A	P&OS	Cochato River Open Space
TOWN OF BRAINTREE /	1054011B	P&OS	Richardi Reservoir Open Space
TOWN OF BRAINTREE /	105409	P&OS	Washington St. Open Space
BRAINTREE TOWN OF /	10550100	P&OS	Plymouth Ave. Open space
BRAINTREE TOWN OF /	10550102	P&OS	Beals Rd. Open Space
BRAINTREE TOWN OF / CONSERVATION COMMISSION	10550144	P&OS	Richardi Reservoir Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMISSION	10550145	P&OS	Cochato River Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	10550146	P&OS	Cochato River Conservation Land

BRAINTREE TOWN OF / CONSERVATION COMMITTEE	1055018	P&OS	Cochato River Conservation Land
BRAINTREE TOWN OF /	1055099	P&OS	Plymouth Ave. Open space
TOWN OF BRAINTREE / CONSERVATION COMMISSION	1056063	P&OS	South Street Conservation Area
BRAINTREE TOWN OF / CONSERVATION / PLANNING	1056065	P&OS	Cochato River Conservation Land
BRAINTREE TOWN OF / SCHOOL DEPT	1056067	P&OS	Cochato River Open Space
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	105702	P&OS	South Street Conservation Area
TOWN OF BRAINTREE /	1057032	P&OS	Old Country Wy Open Space
BRAINTREE TOWN OF /	1057035	P&OS	Old Country Wy Open Space
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	105705	P&OS	South Street Conservation Area
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	105706	P&OS	South Street Conservation Area
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	105801B	P&OS	South Street Conservation Area
TOWN OF BRAINTREE /	105801D	P&OS	South Street Conservation Area
BRAINTREE TOWN OF / WATER DEPT	105903O	P&OS	Great Pond Reservoir Open Space
BRAINTREE TOWN OF / WATER DEPT	105903R	P&OS	Great Pond Reservoir Open Space
BRAINTREE TOWN OF / WATER DEPT	105907A	P&OS	Great Pond Reservoir Open Space
BRAINTREE TOWN OF / WATER DEPT	105908	P&OS	Great Pond Reservoir Open Space

BRAINTREE TOWN OF / WATER DEPT	106001	P&OS	Great Pond Reservoir Open Space
BRAINTREE TOWN OF / WATER DEPT	10600135	P&OS	Great Pond Reservoir Open Space
BRAINTREE TOWN OF / WATER DEPT	10600184	P&OS	Great Pond Reservoir Open Space
BRAINTREE TOWN OF / WATER DEPARTMENT	106002	P&OS	Great Pond Reservoir Open Space
BRAINTREE TOWN OF / WATER DEPT	1060020	P&OS	Great Pond Reservoir Open Space
BRAINTREE TOWN OF / WATER DEPT	1060022	P&OS	Great Pond Reservoir Open Space
BRAINTREE TOWN OF / WATER DEPT	10600238	P&OS	Great Pond Reservoir Open Space
BRAINTREE TOWN OF / WATER DEPT	10600283	P&OS	Great Pond Reservoir Open Space
BRAINTREE TOWN OF / WATER DEPT	10600316	P&OS	Great Pond Reservoir Open Space
BRAINTREE TOWN OF / WATER DEPT	1060036	P&OS	Great Pond Reservoir Open Space
BRAINTREE TOWN OF / WATER DEPT	106004	P&OS	Great Pond Reservoir Open Space
BRAINTREE TOWN OF / WATER DEPT	106005	P&OS	Great Pond Reservoir Open Space
BRAINTREE TOWN OF / WATER DEPT	1060057	P&OS	Great Pond Reservoir Open Space
BRAINTREE TOWN OF / WATER DEPT	106006	P&OS	Great Pond Reservoir Open Space
BRAINTREE TOWN OF / WATER DEPT	1060085	P&OS	Great Pond Reservoir Open Space
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	10620152	P&OS	Logan Rd. Conservation Land

BRAINTREE TOWN OF / CONSERVATION COMMITTEE	10620153	P&OS	Sherman Rd. Conservation Land
BRAINTREE TOWN OF /	1062047	P&OS	Sheridan Rd. Open Space
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	1062052	P&OS	Wayne Ave. Conservation Land
BRAINTREE TOWN OF / TOWN HALL	1062078	P&OS	Logan Rd. Open Space
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	1062093	P&OS	Wayne Ave. Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	1062099	P&OS	Logan Rd. Conservation Land
BRAINTREE TOWN OF /	10650100	P&OS	Golf Course Open Space
BRAINTREE TOWN OF / LAND OF LOW VALUE	10650101	P&OS	Golf Course Open Space
BRAINTREE TOWN OF /	1065099	P&OS	Golf Course Open Space
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	1068034	P&OS	Richardi Reservoir Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	1068035	P&OS	Richardi Reservoir Conservation Land
TOWN OF BRAINTREE / CONSERVATION COMMISSION	106805	P&OS	Richardi Reservoir Conservation Land
BRAINTREE TOWN OF / WATER DEPARTMENT	1070011	P&OS	Richardi Reservoir Open Space
BRAINTREE TOWN OF / WATER DEPARTMENT	107004	P&OS	Golf Course
BRAINTREE TOWN OF / WATER DEPT	107007	P&OS	Golf Course

BRAINTREE TOWN OF / WATER DEPARTMENT	107008	P&OS	Richardi Reservoir Open Space
BRAINTREE TOWN OF / WATER DEPT TAKING BY COMM	1071024B	P&OS	Richardi Reservoir Open Space
BRAINTREE TOWN OF / WATER DEPARTMENT	1071025	P&OS	Richardi Reservoir Open Space
BRAINTREE TOWN OF /	1074019A	P&OS	Braintree Town Forest
BRAINTREE TOWN OF /	107801	P&OS	Memorial Open Space
BRAINTREE TOWN OF /	1080057	P&OS	Joseph P. O'Connell Memorial Crossing
TOWN OF BRAintree /	1082010B	P&OS	Plain St. Open Space
BRAINTREE TOWN OF /	108201C	P&OS	Braintree Cemetery Open Space
BRAINTREE TOWN OF / HIGHWAY DEPT	108306A	P&OS	Liberty St. Open Space
BRAINTREE TOWN OF /	108405	P&OS	Grove St. Open Space
BRAINTREE TOWN OF /	108407A	P&OS	Grove St. Open Space
BRAINTREE TOWN OF CON COMM / LAND OF LOW VALUE	1085010	P&OS	Cedar Swamp Conservation Land
BRAINTREE TOWN OF / LAND OF LOW VALUE	1085010A	P&OS	Cedar Swamp Conservation Land
BRAINTREE TOWN OF / ART 33 ANNUAL T M 3-16-70	1085011	P&OS	Cedar Swamp Conservation Land
BRAINTREE TOWN OF / ART 33 TOWN MEETING 3-16-70	1085012	P&OS	Cedar Swamp Conservation Land
BRAINTREE TOWN OF / CONSERVATION COM	1085012A	P&OS	Cedar Swamp Conservation Land

BRAINTREE TOWN OF / LAND OF LOW VALUE	108506	P&OS	Cedar Swamp Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMISSION	108507	P&OS	Cedar Swamp Conservation Land
BRAINTREE TOWN OF / LAND OF LOW VALUE	108508	P&OS	Cedar Swamp Conservation Land
BRAINTREE TOWN OF /	108509	P&OS	Cedar Swamp Conservation Land
TOWN OF BRAINTREE /	1086029	P&OS	Cedar Swamp Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMISSION	1086030	P&OS	Cedar Swamp Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMISSION	1086031	P&OS	Cedar Swamp Conservation Land
BRAINTREE TOWN OF /	1086032	P&OS	Cedar Swamp Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITEE	1086033	P&OS	Cedar Swamp Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMISSION	1086034	P&OS	Cedar Swamp Conservation Land
BRAINTREE TOWN OF CON COMM / LAND OF LOW VALUE	1086035	P&OS	Cedar Swamp Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMISSION	1086036	P&OS	Cedar Swamp Conservation Land
BRAINTREE TOWN OF /	1086037	P&OS	Cedar Swamp Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMISSION	1086038	P&OS	Cedar Swamp Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMISSION	1086039	P&OS	Cedar Swamp Conservation Land

BRAINTREE TOWN OF / CONSERVATION COMMISSION	1086040	P&OS	Cedar Swamp Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMISSION	1086046	P&OS	Cedar Swamp Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMISSION	10870155	P&OS	Cedar Swamp Conservation Land
BRAINTREE TOWN OF /	1087020	P&OS	Cedar Swamp Conservation Land
BRAINTREE TOWN OF / TOWN FOREST	108805	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / PARKS + PLAYGROUNDS	108901	P&OS	Carolyne Ave Open Space
BRAINTREE TOWN OF / TOWN FOREST	10890101	P&OS	Carolyne Ave Open Space
BRAINTREE TOWN OF / PARKS + PLAYGROUND	1089017	P&OS	Carolyne Ave Open Space
BRAINTREE TOWN OF / PARKS + PLAYGROUND	1089026	P&OS	Carolyne Ave Open Space
BRAINTREE TOWN OF / PARKS + PLAYGROUND	1089033	P&OS	Carolyne Ave Open Space
BRAINTREE TOWN OF / PARKS + PLAYGROUNDS	1089036	P&OS	Carolyne Ave Open Space
BRAINTREE TOWN OF / PARKS + PLAYGROUNDS	1089041	P&OS	Carolyne Ave Open Space
BRAINTREE TOWN OF / PARKS AND PLAYGROUNDS	1089049	P&OS	Carolyne Ave Open Space
BRAINTREE TOWN OF / PARKS AND PLAYGROUNDS	108906	P&OS	Carolyne Ave Open Space

BRAINTREE TOWN OF / PARKS AND PLAYGROUND	1089077	P&OS	Carolyne Ave Open Space
BRAINTREE TOWN OF / TOWN FOREST	1089091	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST	109001	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST	10900104	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST	10900110	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST	1090025	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / C/O ANNUAL TOWN MEETING	1090031	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST	1090036	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST	1090040	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST	1090042	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / C/O TOWN MEETING 1942	1090052	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / C/O TOWN MEETIN 1942	1090056	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / C/O TOWN MEETING 1942	1090060	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST C/O TOWN MEETING	1090067	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST	1090088	P&OS	Braintree Town Forest

BRAINTREE TOWN OF / TOWN FOREST	1090093	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST	1090095	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST	1090098	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST	1091019	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST	1091028	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST-TOWN MEETING	1091034	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST TOWN MEETING	1091046	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST	1091049	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST	1091052	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST	1091063	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST	1091069	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST	109201	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST	109202	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST	1093010	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST	109401	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST	1094021A	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST	1094022	P&OS	Braintree Town Forest

TOWN OF BRAINTREE / CONSERVATION COMMISSION	1094073	P&OS	Ashworth Ave Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	1095022	P&OS	Aspinwall Rd. Conservation Land
BRAINTREE TOWN OF CON COMM / LAND OF LOW VALUE	1095026	P&OS	Aspinwall Rd. Open Space
BRAINTREE TOWN OF CON COMM / LAND TAKING	1095043	P&OS	Aspinwall Rd. Open Space
BRAINTREE TOWN OF CON COMM / EASEMENT	1095058	P&OS	Aspinwall Rd. Open Space
BRAINTREE TOWN OF CON COMM / LAND OF LOW VALUE	1095059	P&OS	Aspinwall Rd. Open Space
BRAINTREE TOWN OF CON COMM / LAND OF LOW VALUE	1095066	P&OS	Aspinwall Rd. Open Space
BRAINTREE TOWN OF CON COMM / LAND OF LOW VALUE	1095072	P&OS	Aspinwall Rd. Open Space
BRAINTREE TOWN OF /	1095084	P&OS	Aspinwall Rd. Open Space
BRAINTREE TOWN OF CON COMM / LAND TAKING	1095088	P&OS	Aspinwall Rd. Open Space
BRAINTREE TOWN OF / TOWN FOREST	1096015	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST	1096018	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST	1096023	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST	1096023A	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST	1096035	P&OS	Braintree Town Forest

BRAINTREE TOWN OF / TOWN FOREST	1096041A	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST	1096045	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST	1096045A	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST	109608	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST	1097014	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST	10970143	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST	1097061	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / TOWN FOREST	1097069	P&OS	Braintree Town Forest
BRAINTREE TOWN OF / SCHOOL DEPT	109804	P&OS	Liberty School Open Space
BRAINTREE TOWN OF / SCHOOL DEPT	109805B	P&OS	Liberty School Open Space
BRAINTREE TOWN OF /	109901	P&OS	Cranberry Pond Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMISSION	1099015	P&OS	Cranberry Pond Conservation Land
BRAINTREE TOWN OF / LAND OF LOW VALUE	1099023	P&OS	Braemore Rd. Open Space
BRAINTREE TOWN OF /	1099034	P&OS	Cranberry Pond Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMISSION	109908	P&OS	Cranberry Pond Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMISSION	110001	P&OS	Cranberry Pond Conservation Land
BRAINTREE TOWN OF /	11000101	P&OS	Cranberry Pond Conservation Land

BRAINTREE TOWN OF / CONSERVATION COMMISSION	1100012	P&OS	Cranberry Pond Conservation Land
TOWN OF BRAINTREE /	1100030	P&OS	Cranberry Pond Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMISSION	1100036	P&OS	Cranberry Pond Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMISSION	1100049	P&OS	Cranberry Pond Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMM	1100052	P&OS	Cranberry Pond Conservation Land
BRAINTREE TOWN OF /	1100066	P&OS	Cranberry Pond Conservation Land
TOWN OF BRAINTREE /	110008	P&OS	Cranberry Pond Conservation Land
BRAINTREE TOWN OF / SCHOOL DEPT	110101	P&OS	Cranberry Pond Conservation Land
BRAINTREE TOWN OF / BOARD OF SELECTMEN	110101A	P&OS	Cranberry Pond Conservation Land
BRAINTREE TOWN OF /	1101055	P&OS	Cranberry Pond Conservation Land
BRAINTREE TOWN OF /	1101064	P&OS	Cranberry Pond Conservation Land
TOWN OF BRAINTREE /	1101067	P&OS	Cranberry Pond Conservation Land
TOWN OF BRAINTREE /	1101072	P&OS	Cranberry Pond Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMISSION	1101076	P&OS	Cranberry Pond Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	110301	P&OS	Cranberry Pond Conservation Land
TOWN OF BRAINTREE / CONSERVATION LAND	110302	P&OS	Cranberry Pond Conservation Land
BRAINTREE TOWN OF /	110403	P&OS	Cranberry Pond Conservation Land

BRAINTREE TOWN OF / LAND OF LOW VALUE	1105049	P&OS	Cranberry Pond Conservation Land
BRAINTREE TOWN OF /	1112026	P&OS	Forest St. Conservation Land
TOWN OF BRAINTREE / CONSERVATION COMMISSION	1113033	P&OS	Forest St. Conservation Land
TOWN OF BRAINTREE / CONSERVATION COMMISSION	111506	P&OS	Forest St. Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMISSION	111507	P&OS	Forest St. Conservation Land
BRAINTREE TOWN OF / LAND OF LOW VALUE	111806	P&OS	Forest St. Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	1119034	P&OS	Forest St. Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	112001	P&OS	Forest St. Conservation Land
BRAINTREE TOWN OF /	112002	P&OS	Cedar Swamp Conservation Land
BRAINTREE TOWN OF /	112003	P&OS	Cedar Swamp Conservation Land
BRAINTREE TOWN OF CON COMM / LAND OF LOW VALUE	112004	P&OS	Cedar Swamp Conservation Land
BRAINTREE TOWN OF CON COMM / LAND OF LOW VALUE	112005	P&OS	Cedar Swamp Conservation Land
BRAINTREE TOWN OF CON COMM / LAND OF LOW VALUE	112006	P&OS	Cedar Swamp Conservation Land
BRAINTREE TOWN OF CON COMM / LAND OF LOW VALUE	112007	P&OS	Cedar Swamp Conservation Land
BRAINTREE TOWN OF /	112102E	P&OS	Rear Liberty St. Open Space

BRAINTREE TOWN OF /	1127033	P&OS	Alida Rd. Open Space
BRAINTREE TOWN OF /	200201	P&OS	Elm St. Open Space
BRAINTREE TOWN OF /	200601A	P&OS	Elm St. Open Space
BRAINTREE TOWN OF / SCHOOL DEPT	2011015	P&OS	East Middle School Open Space
TOWN OF BRAINTREE /	2013074	P&OS	Greenleaf Ave. Open Space
BRAINTREE TOWN OF /	2013082	P&OS	Greenleaf Ave. Open Space
BRAINTREE TOWN OF /	2013084	P&OS	Greenleaf Ave. Open Space
BRAINTREE TOWN OF /	2014022	P&OS	Rear Bradley Road Ex. Open Space
BRAINTREE TOWN OF / CONSERVATION COMMISSION	2015031A	P&OS	Rear Harrison Ave. Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMISSION	2015038C	P&OS	Chestnut Ave. Conservation Land
BRAINTREE TOWN OF /	2015039A	P&OS	94 Cleveland Ave. Open Space
BRAINTREE TOWN OF / PARKS + PLAYGROUNDS	2016022	P&OS	Jersey Ave Open Space
BRAINTREE TOWN OF / CONSERVATION COMMISSION	2016093	P&OS	Cabot Ave. Conservation Land
BRAINTREE TOWN OF / SEWER DEPT	201802	P&OS	Cleveland Ave. Open Space
BRAINTREE TOWN OF / BRAINTREE ELECTRIC LIGHT DEPT	201802A	P&OS	Cleveland Ave. Open Space
BRAINTREE TOWN OF / PARKS + PLAYGROUNDS	202002A	P&OS	Daily Soccer Field
BRAINTREE TOWN OF / PARKS + PLAYGROUNDS	202003A	P&OS	Daily Soccer Field

BRAINTREE TOWN OF / PARKS + PLAYGROUNDS	202004B	P&OS	Daily Soccer Field
BRAINTREE TOWN OF / PARKS + PLAYGROUND	202006	P&OS	Daily Soccer Field
BRAINTREE TOWN OF / LAND OF LOW VALUE	2023035	P&OS	Wilmarth Rd. Open Space
BRAINTREE TOWN OF /	2024014	P&OS	Railroad St. Street Frontage
BRAINTREE TOWN OF /	202409	P&OS	Hooker St. Street Frontage
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	2027060	P&OS	Rear Dickerman Ln Conservation Land
BRAINTREE TOWN OF /	2027081	P&OS	Prospect St. North Open Space
BRAINTREE TOWN OF /	2027082	P&OS	Prospect St. North Open Space
BRAINTREE TOWN OF /	2027083	P&OS	Prospect St. North Open Space
BRAINTREE TOWN OF / CONSERVATION COMMISSION	2028016A	P&OS	Washington St. Conservation Land
BRAINTREE TOWN OF /	2028033	P&OS	Prospect St. North Open Space
BRAINTREE TOWN OF /	203201	P&OS	Prospect St. North Open Space
BRAINTREE TOWN OF /	20320116	P&OS	Dickerman Ln. Open Space
BRAINTREE TOWN OF /	203202	P&OS	Prospect St. North Open Space
BRAINTREE TOWN OF / WATER DEPT	2046049	P&OS	Water Tank
BRAINTREE TOWN OF / SCHOOL FUND	2048034	P&OS	Granite St. Open Space
TOWN OF BRAINTREE / SCHOOL DEPARTMENT	2048040	P&OS	Granite St. Open Space
TOWN OF BRAINTREE / CONSERVATION COMMISSION	204903B	P&OS	Granite St. Conservation Land

BRAINTREE TOWN OF / WATER DEPARTMENT	205101	P&OS	Great Pond Reservoir Open Space
TOWN OF BRAINTREE /	2053A05	P&OS	Grandview Rd. Open Space
TOWN OF BRAINTREE /	2053A06	P&OS	Grandview Rd. Open Space
BRAINTREE TOWN OF / WATER DEPARTMENT	205401	P&OS	Great Pond Reservoir Open Space
BRAINTREE TOWN OF / WATER DEPARTMENT	205403	P&OS	Great Pond Reservoir Open Space
BRAINTREE TOWN OF / LAND OF LOW VALUE	2057016	P&OS	Granite St. Street Frontage
BRAINTREE TOWN OF / WATER DEPARTMENT	205905	P&OS	Flaherty School Open Sace
BRAINTREE TOWN OF / WATER DEPARTMENT	205905A	P&OS	Flaherty School Open Sace
TOWN OF BRAINTREE /	20600221	P&OS	Flaherty School Open Sace
BRAINTREE TOWN OF / HIGHWAY DEPT	2062014	P&OS	Washington St. Open Space
BRAINTREE TOWN OF /	206307	P&OS	Cherry St. Open Space
BRAINTREE TOWN OF /	206405C	P&OS	Church St. Open Space
BRAINTREE TOWN OF /	2070050	P&OS	Rear Robert St. Open Space
BRAINTREE TOWN OF / WATER DEPT	2073019A	P&OS	Water Tank
BRAINTREE TOWN OF / LAND TAKING	2075044	P&OS	Burroughs Rd. Open Space
BRAINTREE TOWN OF /	2076070	P&OS	Elm St. Open Space
BRAINTREE TOWN OF / CONSERVATION COMMISSION	207806	P&OS	Adams St. Conservation Land

BRAINTREE TOWN OF / LAND OF LOW VALUE	2087016	P&OS	Walnut St. Open Space
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	208801	P&OS	Old Quincy Reservoir Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	208804A	P&OS	Old Quincy Reservoir Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	208805	P&OS	Old Quincy Reservoir Conservation Land
BRAINTREE TOWN OF / FROM MCGEE	3004039	P&OS	Allen St. Open Space
BRAINTREE TOWN OF / TREAS DEED	3005025	P&OS	Brookside Rd. Open Space.
BRAINTREE TOWN OF / CONSERVATION COMMISSION	3009086	P&OS	Prospect St. Conservation Land
BRAINTREE TOWN OF /	3012072A	P&OS	Rear Linden St. Open Space
BRAINTREE TOWN OF / TREAS DEED	3013034	P&OS	Magnolia St. Street Frontage
TOWN OF BRAINTREE /	3013052	P&OS	Adams St. Open Space
BRAINTREE TOWN OF / PARKS AND PLAYGROUNDS	3013053	P&OS	Adams Playground
TOWN OF BRAINTREE /	3013056	P&OS	Commercial St. Conservation Land
TOWN OF BRAINTREE / CONSERVATION COMMISSION	3013057	P&OS	Commercial St. Conservation Land
TOWN OF BRAINTREE / CONSERVATION COMMISSION	3020063	P&OS	Elliot St. Conservation Land
BRAINTREE TOWN OF /	3020097	P&OS	Elliot St. Street Frontage
BRAINTREE TOWN OF / TREAS DEED	3021071	P&OS	Brookside Rd. Open Space

BRAINTREE TOWN OF / CONSERVATION COMMITTEE	3021072	P&OS	Brookside Rd. Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	3021073	P&OS	Brookside Rd. Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	3021074	P&OS	Brookside Rd. Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	3021075	P&OS	Brookside Rd. Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	3021076	P&OS	Brookside Rd. Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	3021077	P&OS	Brookside Rd. Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	3021078	P&OS	Brookside Rd. Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	3021079	P&OS	Brookside Rd. Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	3021080	P&OS	Brookside Rd. Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	3021085	P&OS	Brookside Rd. Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	3021086	P&OS	Brookside Rd. Conservation Land
TOWN OF BRAINTREE /	3021087	P&OS	Brookside Rd. Conservation Land
TOWN OF BRAINTREE /	3021088	P&OS	Brookside Rd. Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	3021089	P&OS	Brookside Rd. Conservation Land

BRAINTREE TOWN OF / CONSERVATION COMMITTEE	3021090	P&OS	Brookside Rd. Conservation Land
BRAINTREE TOWN OF / PARKS + PLAYGROUNDS	302301	P&OS	Commercial St. Open Space
WEYMOUTH BRAINTREE REGIONAL / RECREATION CONSERVATION DIS	302402	P&OS	Stetson St. Conservation Land
BRAINTREE TOWN OF / SCHOOL DEPT	302501H	P&OS	Eldrige School Open Space
TOWN OF BRAINTREE / CONSERVATION LAND	302502N	P&OS	Whites Hill Conservation Land
TOWN OF BRAINTREE / CONSERVATION LAND	302503B	P&OS	Whites Hill Conservation Land
TOWN OF BRAINTREE / CONSERVATION LAND	302503C	P&OS	Whites Hill Conservation Land
TOWN OF BRAINTREE / CONSERVATION LAND	302503D	P&OS	Whites Hill Conservation Land
TOWN OF BRAINTREE / CONSERVATION LAND	302503E	P&OS	Whites Hill Conservation Land
TOWN OF BRAINTREE / CONSERVATION LAND	302503F	P&OS	Whites Hill Conservation Land
TOWN OF BRAINTREE / CONSERVATION LAND	302503G	P&OS	Whites Hill Conservation Land
TOWN OF BRAINTREE / CONSERVATION LAND	302503H	P&OS	Whites Hill Conservation Land
TOWN OF BRAINTREE / CONSERVATION LAND	302503I	P&OS	Whites Hill Conservation Land

BRAINTREE TOWN OF / WATER DEPT	302506	P&OS	Whites Hill Water Tank
BRAINTREE TOWN OF / SCHOOL DEPT	302507E	P&OS	Eldrige School Open Space
BRAINTREE TOWN OF /	302507M	P&OS	Eldrige School Open Space
BRAINTREE TOWN OF /	302702J	P&OS	Rear Union St. Open Space
BRAINTREE TOWN OF /	302702N	P&OS	Off Union St. Open Space
BRAINTREE TOWN OF /	302706N	P&OS	Lisle St. Open Space
BRAINTREE TOWN OF /	302706P	P&OS	Lisle St. Open Space
BRAINTREE TOWN OF /	3028A025B	P&OS	Rear Liberty St. Open Space
BRAINTREE TOWN OF /	3028A025C	P&OS	Rear Liberty St. Open Space
BRAINTREE TOWN OF /	3028C03C	P&OS	Rear Liberty St. Open Space
BRAINTREE TOWN OF /	3029012	P&OS	Essex Rd. Open Space
BRAINTREE TOWN OF /	3029014	P&OS	Essex Rd. Open Space
BRAINTREE TOWN OF /	302902338	P&OS	Doris Rd. Street Frontage
BRAINTREE TOWN OF /	3030010	P&OS	Morrison Elementary School Open Space
WEYMOUTH BRAINTREE REGIONAL / RECREATION CONSERVATION DIS	303009	P&OS	Pond Meadow Park Conservation Land
WEYMOUTH BRAINTREE REGIONAL / RECREATION CONSERVATION DIS	303101	P&OS	Pond Meadow Park Conservation Land
WEYMOUTH BRAINTREE REGIONAL / RECREATION CONSERVATION DIS	303104	P&OS	Pond Meadow Park Conservation Land
BRAINTREE TOWN OF /	303105	P&OS	Pond Meadow Park Open Space

WEYMOUTH BRAINTREE REGIONAL / RECREATION CONSERVATION DIS	303107	P&OS	Pond Meadow Park Conservation Land
WEYMOUTH BRAINTREE REGIONAL / CONSERVATION BOARD	303108	P&OS	Pond Meadow Park Conservation Land
WEY BRA REGIONAL REC CONS / DISTRICT BOARD	303109	P&OS	Pond Meadow Park Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMISSION	3031A014	P&OS	Pond Meadow Park Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMISSION	3031A039	P&OS	Pond Meadow Park Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMISSION	3031A057	P&OS	Pond Meadow Park Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMISSION	3031A058	P&OS	Pond Meadow Park Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMISSION	3031A059	P&OS	Pond Meadow Park Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMISSION	3031A060	P&OS	Pond Meadow Park Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMISSION	3031A061	P&OS	Pond Meadow Park Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMISSION	3031A062	P&OS	Pond Meadow Park Conservation Land
WEYMOUTH BRAINTREE REGIONAL / RECREATION CONSERVATION DIS	303201	P&OS	Pond Meadow Park Conservation Land

WEYMOUTH BRAintree REGIONAL / RECREATION CONSERVATION DIS	303202	P&OS	Pond Meadow Park Conservation Land
WEYMOUTH BRAintree REGIONAL / RECREATION CONSERVATION DIS	303203	P&OS	Pond Meadow Park Conservation Land
WEYMOUTH- BRAintree REGIONAL / RECREATION CONSERVATION DIS	3033010	P&OS	Pond Meadow Park Conservation Land
WEYMOUTH- BRAintree REGIONAL / RECREATION CONSERVATION DIS	3033011	P&OS	Pond Meadow Park Conservation Land
WEYMOUTH- BRAintree REGIONAL / CONSERVATION DISTRICT	303305A	P&OS	Pond Meadow Park Conservation Land
WEYMOUTH- BRAintree REGIONAL / CONSERVATION DISTRICT	303305B	P&OS	Pond Meadow Park Conservation Land
WEYMOUTH BRAintree REGIONAL / RECREATION CONSERVATION DIS	303307	P&OS	Pond Meadow Park Conservation Land
WEYMOUTH BRAintree REGIONAL / RECREATION CONSERVATION DIS	303401	P&OS	Pond Meadow Park Conservation Land
WEYMOUTH BRAintree REGIONAL / RECREATION CONSERVATION DIS	303402	P&OS	Pond Meadow Park Conservation Land

WEYMOUTH BRAintree REGIONAL / RECREATION CONSERVATION DIS	303403	P&OS	Pond Meadow Park Conservation Land
WEYMOUTH BRAintree REGIONAL / RECREATION CONSERVATION DIS	303503	P&OS	Pond Meadow Park Conservation Land
WEYMOUTH BRAintree REGIONAL / RECREATION CONSERVATION DIS	303507	P&OS	Pond Meadow Park Conservation Land
WEYMOUTH BRAintree REGIONAL / CONSERVATION DISTRICT	303507E	P&OS	Pond Meadow Park Conservation Land
WEYMOUTH BRAintree REGIONAL / RECREATION CONSERVATION DIS	303508B	P&OS	Pond Meadow Park Conservation Land
WEYMOUTH BRAintree REGIONAL / RECREATION CONSERVATION DIS	303508C	P&OS	Pond Meadow Park Conservation Land
WEY BRA REGIONAL RECREATION / CONSERVATION DISTRICT OF WEY+B	303509B	P&OS	Pond Meadow Park Conservation Land
BRAintree TOWN OF / ELECTRIC LIGHT DEPT	3037061A	P&OS	BELD Tower
BRAintree TOWN OF / PARKS + PLAYGROUNDS	3037063	P&OS	Smith Beach
BRAintree TOWN OF / PARKS + PLAYGROUNDS	3037064	P&OS	Smith Beach

BRAINTREE TOWN OF / PARKS + PLAYGROUNDS	3037065	P&OS	Smith Beach
BRAINTREE TOWN OF / LAND TAKING	3037066	P&OS	Smith Beach
BRAINTREE TOWN OF / PARKS AND PLAYGROUNDS COMM	3037067	P&OS	Smith Beach
BRAINTREE TOWN OF /	3037076	P&OS	Gordon Rd. Open Space
BRAINTREE TOWN OF /	3037077	P&OS	Gordon Rd. Open Space
BRAINTREE TOWN OF /	3037079	P&OS	Gordon Rd. Open Space
BRAINTREE TOWN OF / PARKS + PLAYGROUNDS	3038036	P&OS	Smith Beach (Lot)
BRAINTREE TOWN OF / PARKS + PLAYGROUNDS	3038049	P&OS	Smith Beach (Lot)
BRAINTREE TOWN OF / PARKS + PLAYGROUNDS	3038057	P&OS	Smith Beach
BRAINTREE TOWN OF /	30390124	P&OS	Arborway Dr. Open Space
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	30400114	P&OS	Audubon Ave Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	30400115	P&OS	Audubon Ave Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	30400116	P&OS	Audubon Ave Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	30400117	P&OS	Audubon Ave Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	30400139	P&OS	Audubon Ave Conservation Land

BRAINTREE TOWN OF / CONSERVATION COMMITTEE	30400140	P&OS	Audubon Ave Conservation Land
BRAINTREE TOWN OF / CONSERVATION DEPT	3040026	P&OS	Audubon Ave Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	3040030	P&OS	Audubon Ave Conservation Land
BRAINTREE TOWN OF / CONSERVATION DEPT	3040032	P&OS	Audubon Ave Conservation Land
BRAINTREE TOWN OF / CONSERVATION DEPT	3040041	P&OS	Audubon Ave Conservation Land
BRAINTREE TOWN OF / CONSERVATION DEPT	3040051	P&OS	Audubon Ave Conservation Land
BRAINTREE TOWN OF / CONSERVATION DEPT	3040063	P&OS	Audubon Ave Conservation Land
BRAINTREE TOWN OF / CONSERVATION DEPT	3040081	P&OS	Audubon Ave Conservation Land
BRAINTREE TOWN OF /	3040083A	P&OS	Audubon Ave. Open space
BRAINTREE TOWN OF /	3040089	P&OS	Audubon Ave. Open space
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	3040091	P&OS	Audubon Ave Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	3040092	P&OS	Audubon Ave Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	3040093	P&OS	Audubon Ave Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	3040094	P&OS	Audubon Ave Conservation Land

BRAINTREE TOWN OF /	30410164	P&OS	Trefton Dr. Open Space
BRAINTREE TOWN OF / ELECTRIC LIGHT DEPT	30410183	P&OS	Ferncroft Rd. Open Space
BRAINTREE TOWN OF / ELECTRIC LIGHT DEPT	30410184	P&OS	Ferncroft Rd. Open Space
BRAINTREE TOWN OF / ELECTRIC LIGHT DEPT	3041044	P&OS	Ferncroft Rd. Open Space
BRAINTREE TOWN OF / ELECTRIC LIGHT DEPT	304105	P&OS	Potter Dr. Rd.
BRAINTREE TOWN OF / ELECTRIC LIGHT DEPT	304108	P&OS	Potter Dr. Rd.
BRAINTREE TOWN OF / LAND TAKING	3042077	P&OS	Edgehill Rd. Open space
BRAINTREE TOWN OF / SEWER DEPT	3044013	P&OS	Potter Dr. Open Space
BRAINTREE TOWN OF / ELECTRIC LIGHT DEPT	3044021	P&OS	Potter Dr. Rd.
BRAINTREE TOWN OF / ELECTRIC LIGHT DEPT	3044022	P&OS	Potter Dr. Rd.
BRAINTREE TOWN OF /	3044029	P&OS	Potter Dr. Open Space
BRAINTREE TOWN OF / LAND TAKING	3044031	P&OS	Potter Dr. Open Space
BRAINTREE TOWN OF / LAND TAKING	3044034	P&OS	Potter Dr. Open Space
BRAINTREE TOWN OF / ELECTRIC LIGHT DEPT	304501D	P&OS	Potter Dr. Rd.
BRAINTREE TOWN OF / PARK DEPT	30500113	P&OS	Berrick St. Open Space
BRAINTREE TOWN OF /	3050016	P&OS	Dewey Rd. Open Space

BRAINTREE TOWN OF /	3050017	P&OS	Dewey Rd. Open Space
BRAINTREE TOWN OF / LAND TAKING	3052010	P&OS	Cotton Ave. Open Space
BRAINTREE TOWN OF / LAND TAKING	3052066	P&OS	Bickford Rd. Open Space
BRAINTREE TOWN OF / LAND TAKING	305208	P&OS	Cotton Ave. Open Space
BRAINTREE TOWN OF /	3052095B	P&OS	Quincy Ave. Open Space
BRAINTREE TOWN OF /	3053097	P&OS	Cotton Ave. Open Space
BRAINTREE TOWN OF / PARKS + PLAYGROUND	3061026	P&OS	Adams Playground
BRAINTREE TOWN OF / CONSERVATION COMMISSION	3062038	P&OS	Echo Creek Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	3063012	P&OS	Echo Creek Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMISSION	3063012B	P&OS	Rear Connell St. Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMISSION	3063013	P&OS	Off Connell St. Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMITTEE	306305C	P&OS	Echo Creek Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMM	306305E	P&OS	Howard Ct Conservation Land
BRAINTREE TOWN OF / CONSERVATION COMMISSION	3064012A	P&OS	Echo Creek Conservation Land
BRAINTREE TOWN OF /	3064040	P&OS	Rear Commercial St. Open Space
BRAINTREE TOWN OF / CONSERVATION COMMISSION	306406	P&OS	Echo Creek Conservation Land

BRAINTREE TOWN OF / CONSERVATION COMMITTEE	306407	P&OS	Echo Creek Conservation Land
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Town of Braintree
SOP 20 –O&M of Municipal Buildings
and Facilities

Approved By:

Date:

Approved By:

Date:

SOP 20: Operations and Maintenance of Municipal Buildings and Facilities

Introduction

Municipal buildings and facilities (schools, municipal offices, police and fire stations, municipal pools, parking garages, etc.) often house various chemicals, such as petroleum products and hazardous materials. As a result, these buildings and facilities are potential sources of pollutant discharges to the storm drainage system. The goal of this written Standard Operating Procedure (SOP) is to provide guidance to municipal employees on the use, storage, and disposal of chemicals and other stormwater pollutants to reduce the discharge of pollutants from the MS4. If services are contracted, this SOP should be provided to the contractor. The contract should specify that the contractor is responsible for compliance with all applicable laws.

The Town of Braintree performs a variety of operations and maintenance activities at its municipally owned and operated buildings.

Within two years of the effective date of the MS4 Permit, the Town of Braintree will create an inventory of all municipal buildings and facilities and update this inventory annually (refer to the attached buildings and facilities inventory sheet).

Procedures

The Town of Braintree will implement the following procedures for municipally owned or operated buildings and facilities to reduce the discharge of pollutants from the MS4:

Handling, Storage, Transfer, and Disposal of Trash and Recyclables

All liquid and solid waste must be disposed of properly. Some of the most common sources of pollution at municipal facilities are a result of littering, improper collection of debris, and improper disposal of solid or liquid waste.

- All waste and recycling receptacles must be leak-tight with tight-fitting lids or covers. Any receptacles not meeting these standards will be modified or replaced to meet the standards in a timely manner.
- Keep lids on dumpsters and containers closed at all times unless adding or removing material. If using an open-top roll-off dumpster, cover it and tie it down with a tarp unless adding materials.
- Place waste or recycling receptacles indoors or under a roof or overhang whenever possible.
- Locate dumpsters on a flat, paved surface and, where feasible, install berms or curbs around the storage area to prevent run-on and run-off.
- Do not locate dumpsters over or adjacent to catch basins.
- Prior to transporting waste, trash, or recycling, ensure that containers are not leaking (double bag if needed) and properly secure containers to the vehicle.
- Clean and sweep up around outdoor waste containers regularly.
- Clean up any liquid leaks or spills with dry cleanup methods. Where to be stored (talk with sunrise)
- Arrange for waste or recycling to be picked up regularly and disposed of at approved disposal facilities.

Standard Operating Procedures

SOP 20: Operations and Maintenance of Municipal Buildings and Facilities

- Never place hazardous materials, liquids, or liquid-containing wastes in a dumpster or recycling or trash container (see SOP 17: Hazardous Materials Storage and Handling). (Only on hazardous waste days. Containers provided by Sunrise and Cleanwaters Handles liquids. Open top containers to be surveyed on April 25th)
- Do not wash trash or recycling containers outdoors or in parking lots.
- Conduct periodic inspections of solid and liquid waste storage areas to check for leaks and spills.
- Conduct periodic inspections of work areas to ensure that all wastes are being disposed of properly.
- In dumpster areas, regularly pick up surrounding trash and debris and regularly sweep the area.
- In compactor areas, regularly check the hydraulic fluid hoses and reservoir to ensure that there are no cracks or leaks. Regularly sweep the area. (Town owns one)

Building Maintenance

- When power washing buildings and facilities, ensure that the washwater does not flow into the storm system. Containment or filtering systems should be provided.
- Paint and other chemicals should not be applied on the outside of buildings when it is raining or prior to expected rain.
- When sanding, painting, power washing, etc., ensure that sites are properly prepared (e.g., use tarps) and cleaned (e.g., use dry cleaning methods) especially if they are near storm drains. Protect catch basins when maintenance work is conducted upgradient of them.
- When painting, use a drop cloth and clean up any spills immediately.
- Do not leave open containers on the ground where they may accidentally tip over.
- Buildings should be routinely inspected for areas of potential leaks.
- Do not discharge chlorinated pool water into the stormwater system. Water must be properly dechlorinated and tested before it is discharged.
- Streets and parking lots surrounding municipal buildings and facilities should be swept and kept clean to reduce runoff of pollutants and debris to the stormwater system.
- Streets and parking lots around buildings and facilities will be swept in accordance with the procedures in SOP 16: Streets and Parking Lots.

Storage of Petroleum Products and Potential Pollutants

- Floor drains in storage areas should be disconnected from the stormwater system.
- Routinely inspect buildings and facilities for areas of potential leaks.
- For storage and handling procedures of petroleum products and potential pollutants, refer to SOP 17: Hazardous Materials Storage and Handling and SOP 7: Fuel and Oil Handling Procedures.
- For storage and handling procedures for fertilizers, pesticides, and herbicides, refer to SOP 12: Fertilizers, Pesticides, and Herbicides.
- All municipal buildings and facilities should be periodically inspected to address potential pollutant sources (e.g., leaks).

Spill Prevention Plan

- Spill prevention plans such as Spill Prevention Control and Countermeasures (SPCC) Plans should be in place where applicable, based on inventories of material storage and potential pollutants. Coordinate with the local fire department if necessary.
- Spill SOPs are outlined in SOP 4: Spill Response and Cleanup.

Employee Training

- Employees who perform maintenance or other applicable work at municipal buildings and facilities are trained once per year on these procedures and the proper operation of related equipment.
- Employees are also trained on stormwater pollution prevention, illicit discharge detection and elimination (IDDE) procedures, and spill and response procedures.
- If services are contracted, the contractor should be given a copy of this and any applicable SOPs to ensure compliance with MS4 regulations.

Attachments

1. Inventory of Municipal Buildings and Facilities

Related Standard Operating Procedures

1. SOP 4: Spill Response and Cleanup
2. SOP 7: Fuel and Oil Handling
3. SOP 12: Storage and Use of Pesticides and Fertilizer
4. SOP 16: Streets and Parking Lots
5. SOP 17: Hazardous Material Storage and Handling

Attachment 1
Inventory of Municipal Buildings and
Facilities

OWNER/JURIDIC TION	PID1	MS4 Category	Facility Name
BRAINTREE TOWN OF /	3020083	B&F	Abandoned Building
BRAINTREE TOWN OF /	3020083A	B&F	Abandoned Building
BRAINTREE TOWN OF / BRAINTREE SCHOOL DEPT	305504	B&F	Abraham Lincoln Park
BRAINTREE TOWN OF / SCHOOL DEPT	305505	B&F	Abraham Lincoln Park
BRAINTREE TOWN OF / GOLF COURSE	1008012	B&F	Golf Course
BRAINTREE TOWN OF / ELECTRIC LIGHT DEPT	300408	B&F	Allen St. Building
BRAINTREE TOWN OF / ELECTRIC LIGHT DEPT	300409	B&F	Allen St. Building
BRAINTREE TOWN OF / AMERICAN LEGION POST 86	2028013	B&F	American Legion Post 86
BRAINTREE TOWN OF /	1056068	B&F	Braintree Arts Center
BRAINTREE TOWN OF / TOWN CEMETERY	1082010A	B&F	Braintree Cemetery
BRAINTREE TOWN OF / TOWN CEMETERY	1082011	B&F	Braintree Cemetery
BRAINTREE TOWN OF / CEMETERY	1082012	B&F	Braintree Cemetery
BRAINTREE TOWN OF / CEMETERY DEPARTMENT	108205	B&F	Braintree Cemetery
BRAINTREE TOWN OF / SCHOOL DEPT	104201	B&F	Braintree High School
BRAINTREE TOWN OF / SCHOOL DEPT	104202	B&F	Braintree High School

BRAINTREE TOWN OF / SCHOOL DEPT	104301	B&F	Braintree High School
BRAINTREE TOWN OF / SCHOOL DEPARTMENT	1067058	B&F	Braintree High School
BRAINTEEE TOWN OF / SEWER DEPT	3005034F	B&F	Brookside Pump Station (Sewer)
BRAINTREE TOWN OF / GOLF COURSE	106301	B&F	Golf Course
BRAINTREE TOWN OF / CEMETERY COMM	1082016	B&F	Cemetery
BRAINTREE TOWN OF / PARKS + PLAYGROUNDS	1010013	B&F	Charles Furlong Park
BRAINTREE TOWN OF / SEWER DEPARTMENT	203705	B&F	Common St. Pump Station (Sewer)
BRAINTREE TOWN OF / SCHOOL DEPT	2017016	B&F	Council on Aging (Lot)
BRAINTREE TOWN OF /	2017018	B&F	Council on Aging Building
BRAINTREE TOWN OF / SCHOOL DEPT	202202A	B&F	Daughraty Gym
BRAINTREE TOWN OF /	3022047	B&F	Davis Park
BRAINTREE TOWN OF /	3022049	B&F	Davis Park
BRAINTREE TOWN OF /	3022050	B&F	Davis Park
BRAINTREE TOWN OF / PARKS + PLAYGROUNDS	3022065	B&F	Davis Park
BRAINTREE TOWN OF /	300101A	B&F	DPW Building
BRAINTREE TOWN OF /	100103	B&F	DPW/Highway Complex

BRAINTREE TOWN OF / DYER HEIGHTS CEMETERY	1047051	B&F	Dyer Height Cemetery
BRAINTREE TOWN OF / FIRE DEPT	305701	B&F	East Braintree Fire Department Station
BRAINTREE TOWN OF / SCHOOL DEPT	2009014	B&F	East Middle School
BRAINTREE TOWN OF / SCHOOL DEPT	302508	B&F	Eldrige School
BRAINTREE TOWN OF / FIRST PARISH CEMETARY ASSOC	2024018	B&F	Elm Street Cemetery
BRAINTREE TOWN OF / HIGHWAY DEPT	201801	B&F	Equipment Staging Lot
TOWN OF BRAINTREE /	1054010B	B&F	Fire Department Highland Station
BRAINTREE TOWN OF / CENTRAL STATIONS	1005029	B&F	Fire Department HQ
BRAINTREE TOWN OF /	100507A	B&F	Fire Department HQ (Lot)
BRAINTREE TOWN OF / SCHOOL DEPT	203901	B&F	Flaherty School
BRAINTREE TOWN OF / GOLF COURSE	105201	B&F	Golf Course
BRAINTREE TOWN OF / GOLF COURSE	105202	B&F	Golf Course
BRAINTREE TOWN OF / GOLF COURSE	105203	B&F	Golf Course
BRAINTREE TOWN OF / GOLF COURSE	105204	B&F	Golf Course
BRAINTREE TOWN OF / GOLF COURSE	105205	B&F	Golf Course

BRAINTREE TOWN OF / SEWER DEPT	112106F	B&F	Grove St. Pump Station (Sewer)
BRAINTREE TOWN OF / SEWER DEPT	112106G	B&F	Grove St. Pump Station (Sewer)
BRAINTREE TOWN OF / SCHOOL DEPT	1056060	B&F	Habilitation Assistance Corp. Building
BRAINTREE TOWN OF / PARKS + PLAYGROUNDS	2074040	B&F	Harris Park
BRAINTREE TOWN OF / SCHOOL DEPT	109301	B&F	Highlands Elementary School
BRAINTREE TOWN OF / PARKS AND PLAYGROUNDS	106803A	B&F	Hollingsworth Park
BRAINTREE TOWN OF / SCHOOL DEPT	106804	B&F	Hollingsworth Park Open Space
BRAINTREE TOWN OF / SCHOOL DEPT	202304	B&F	Hollis Elementary School
BRAINTREE TOWN OF / PARKS + PLAYGROUNDS	202201	B&F	Hollis Elementary School (Lot)
BRAINTREE TOWN OF / SCHOOL DEPT	202303	B&F	Hollis Elementary School (Playground)
BRAINTREE TOWN OF /	2085010	B&F	Home Park Rd. Street Frontage
BRAINTREE TOWN OF / SEWER DEPT	304902A	B&F	Howard St. Pump Station (Sewer)
BRAINTREE TOWN OF / SCHOOL DEPT	302203	B&F	Jonas Perkins Park
BRAINTREE TOWN OF /	3023050	B&F	Jonas Perkins Park
BRAINTREE TOWN OF /	3023050A	B&F	Jonas Perkins Park
BRAINTREE TOWN OF / PARK DEPT	3023054	B&F	Jonas Perkins Park

BRAINTREE TOWN OF / SCHOOL DEPT	109803	B&F	Liberty School
BRAINTREE TOWN OF / SCHOOL DEPARTMENT	203107	B&F	Meetinghouse Montessori School
BRAINTREE TOWN OF / SCHOOL DEPARTMENT	2031024	B&F	Meetinghouse Montessori School (Lot)
BRAINTREE TOWN OF / SCHOOL DEPT	303001	B&F	Morrison Elementary School
TOWN OF BRAINTREE /	105801E	B&F	Norfolk County Sheriff Office
BRAINTREE TOWN OF / PARKING AREA	1011041A	B&F	Parking Lot
BRAINTREE TOWN OF / PARKING AREA	1011047	B&F	Parking Lot
BRAINTREE TOWN OF / HIGHWAY DEPT INCINERATOR	1029012	B&F	Parking Lot
BRAINTREE TOWN OF / HIGHWAY DEPT	108306	B&F	Parking Lot
BRAINTREE TOWN OF / PARKINGWAY	2028021A	B&F	Parking Lot
BRAINTREE TOWN OF / PARKINGWAY	2028022C	B&F	Parking Lot
BRAINTREE TOWN OF / PARKINGWAY	2028023A	B&F	Parking Lot
BRAINTREE TOWN OF / TOWN PARKING AREA	3006012C	B&F	Parking Lot
BRAINTREE TOWN OF / TREAS DEED	3009081D	B&F	Parking Lot

BRAINTREE TOWN OF / ART 75 APR 2 1973	3022065A	B&F	Parking Lot
BRAINTREE TOWN OF / PARKS + PLAYGROUNDS	3038037	B&F	Parking Lot
BRAINTREE TOWN OF / SEWER DEPT	3064026A	B&F	Parking Lot
BRAINTREE TOWN OF /	102301	B&F	Parks and Rec Building
BRAINTREE TOWN OF / SEWER DEPT	102401B	B&F	Pearl St. Pump Station (Sewer)
BRAINTREE TOWN OF / CONSERVATIO N COMMISSION	201701	B&F	Penniman Park
BRAINTREE TOWN OF / SCHOOL DEPT	2017016	B&F	Penniman Park
BRAINTREE TOWN OF / SCHOOL DEPT	2017027	B&F	Penniman Park
BRAINTREE TOWN OF / CONSERVATIO N COMMISSION	201704	B&F	Penniman Park
TOWN OF BRAINTREE / WATER & SEWER	108303E	B&F	Plain St. Pump Station (Sewer)
BRAINTREE TOWN OF / POLICE DEPT	20130108	B&F	Police Department HQ
BRAINTREE TOWN OF /	20130107	B&F	Police Department HQ (Lot)
WEYMOUTH- BRAINTREE REGIONAL / RECREATION CONSERVATIO N DIST	112304	B&F	Pond Meadow Park

WEY-BRA REGIONAL RECREATION CO / DISTRICT OF WEYMOUTH + BRAINTR	112401	B&F	Pond Meadow Park
BRAINTREE TOWN OF / RECREATION CONSERVATIO N DIST	112402	B&F	Pond Meadow Park
WEYMOUTH- BRAINTREE REGIONAL / RECREATION CONSERVATIO N DIST	112402D	B&F	Pond Meadow Park
BRAINTREE TOWN OF / LANGLEY TOMB	112405	B&F	Pond Meadow Park
WEYMOUTH BRAINTREE REGIONAL / RECREATION CONSERVATIO N DIST	1125016	B&F	Pond Meadow Park
WEYMOUTH BRAINTREE REGIONAL / RECREATION CONSERVATIO N DIS	303305	B&F	Pond Meadow Park
WEYMOUTH BRAINTREE REGIONAL / RECREATION CONSERVATIO N DIS	303106	B&F	Pond Meadow Park
WEYMOUTH BRAINTREE REGIONAL / RECREATION CONSERVATIO N DIS	303601	B&F	Pond Meadow Park (Lot)
BRAINTREE TOWN OF / POND ST CEMETERY	102302	B&F	Pond St. Cemetery

BRAINTREE TOWN OF / ELECTRIC LIGHT DEPT	304101	B&F	Potter Dr. Rd.
BRAINTREE TOWN OF /	3041011	B&F	Potter Dr. Rd.
BRAINTREE TOWN OF / ELECTRIC LIGHT DEPT	3041013	B&F	Potter Dr. Rd.
BRAINTREE TOWN OF / ELECTRIC LIGHT DEPT	304103	B&F	Potter Dr. Rd.
BRAINTREE TOWN OF /	304401	B&F	Potter Dr. Rd.
BRAINTREE TOWN OF / SEWER DEPT	104909	B&F	Pump Station (Sewer)
BRAINTREE TOWN OF / WATER DEPARTMENT	1070012	B&F	Richardi Pump Station (Water)
BRAINTREE TOWN OF / SCHOOL DEPT	306401	B&F	Ross Elementary School
BRAINTREE TOWN OF / SCHOOL DEPARTMENT	106803	B&F	School Admin Building
BRAINTREE TOWN OF / PARKS + PLAYGROUNDS	3037062	B&F	Smith Beach Bathroom
BRAINTREE TOWN OF / SCHOOL DEPT	109801C	B&F	South Middle School
BRAINTREE TOWN OF / SCHOOL DEPT	109801G	B&F	South Middle School
BRAINTREE TOWN OF / SCHOOL DEPT	109802	B&F	South Middle School
BRAINTREE TOWN OF / SCHOOL DEPT	1098060	B&F	South Middle School
BRAINTREE TOWN OF / PARK DEPT	1012040	B&F	Sunset Lake
BRAINTREE TOWN OF / MAIN LIBRARY	1005061	B&F	Thayer Public Library

BRAINTREE TOWN OF /	101301	B&F	Town Hall
BRAINTREE TOWN OF / WATER DEPT	103501	B&F	Treatment Plant (Water)
BRAINTREE TOWN OF / WATER DEPARTMENT	205102	B&F	Treatment Plant (Water)
BRAINTREE TOWN OF /	104008	B&F	Vacant Building
BRAINTREE TOWN OF / HIGHWAY DEPT	3038043	B&F	Vinedale Rd. Street Frontage
BRAINTREE TOWN OF / WATER DEPT	105301	B&F	Washington St. Booster Station
BRAINTREE TOWN OF /	300101B	B&F	Watson Park
BRAINTREE TOWN OF / SEWER DEPT	205005C	B&F	West St. Pump Station (Sewer)

Town of Braintree

SOP 21 –Inventory of Municipal Vehicles and Equipment

Approved By:

Date:

Approved By:

Date:

SOP 21: Operations and Maintenance of Municipal Vehicles and Equipment

Introduction

Regular maintenance of both municipal and contracted vehicles and heavy equipment not only prolongs the life of municipal assets but also helps reduce the potential for leaking of fluids associated with normal wear and tear. Potential pollutants include fuels, oil, antifreeze, brake fluid, solvents, and battery acid. The goal of this written Standard Operating Procedure (SOP) is to provide guidance to municipal employees to help reduce the discharge of pollutants from the MS4 as a result of leaks from vehicles and equipment. If services are contracted with respect to vehicles and equipment, this SOP should be provided to the contractor. The contract should also specify that the contractor is responsible for compliance with all applicable laws.

The Town of Braintree should undertake various procedures in regards to its municipal vehicles and equipment.

The Town of Braintree has created an inventory of all municipal vehicles and equipment which is updated annually.

Procedures

The Town of Braintree should implement the following procedures for municipally owned and operated vehicles and equipment to reduce the discharge of pollutants from the MS4:

Vehicle and Equipment Maintenance

Vehicle Storage

- Vehicles and equipment should be monitored for leaks and use drip pans as needed until repairs can be performed.
- When drip pans are used, overtopping should be avoided.
- Fluids should be drained from leaking or wrecked vehicles and parts as soon as possible. Fluids should be disposed of properly.
- Vehicles should be stored and parked on impervious surfaces and/or under cover or indoors whenever possible.
- Vehicles should not be stored within 25 ft. of surface waters

Vehicle Maintenance

- Routine inspections of heavy equipment and vehicles should be conducted to proactively identify maintenance needs or potential leaks.
- Routine preventive maintenance should be performed to ensure heavy equipment and vehicles are operating optimally.
- Waste should be recycled or disposed of properly and promptly.
- Trash and debris should be swept and picked up as needed.
- Liquids or other materials should not be dumped outside, especially near or in storm drains or ditches.

Body Repair and Painting

- All body repair and painting works should be conducted indoors.
- Waste from paints and thinners should be minimized. Calculate paint needs based on surface area.
- Dry cleanup methods (vacuum, sweep) should be used to clean up metal filings and dust and paint chips from grinding, shaving and sanding. Debris should be swept from wet sanding after allowing it to dry overnight on the shop floor. Waste should be disposed of properly; never dump waste into storm or sanitary sewers.
- Sanding tools equipped with vacuum capability should be used to pick up debris and dust.

Fueling

- Fueling areas owned or operated by the municipality should be covered.
- Fueling areas should be evaluated to ensure that pollutants (e.g., gasoline or oil) do not enter the MS4. Follow the procedures in SOP 7: Fuel and Oil Handling.

Material Management

- Materials and waste should be stored in labeled containers under cover and in secondary containment.
- Chemicals should not be combined in containers.
- Hazardous waste must be labeled and stored according to hazardous waste regulations. Follow the procedures in SOP 17: Hazardous Materials Storage and Handling.
- Collected fluids should be carefully transferred from containers into designated storage areas as soon as possible.
- New and used batteries should be stored securely to avoid breakage. Store indoors or in secondary containment to contain potential acid leaks. Recycle used batteries.
- Periodic inspections of storage areas should be conducted to detect possible leaks.
- Storage areas should not be washed or hosed down unless there is prior approval to collect and discharge the water into the sanitary sewer. Dry cleanup methods should be used whenever possible.
- Lids should be kept on containers. They should be stored indoors or under cover to reduce exposure to rain.
- All pretreatment equipment, including interceptors, should be inspected and maintained according to the manufacturer's maintenance schedule and at least once per year.
- Proper spill protocol should be followed to prevent chemicals from entering the stormwater system. Follow the procedures in SOP 4: Spill Response and Cleanup.
- Materials should not be stored within 25 ft. of surface waters unless covered and sealed.

Parts Cleaning

- Designated areas should be used for engine, parts, or radiator cleaning. Parts should not be washed or rinsed outdoors. If parts cleaning equipment is not available parts cleaning fluids should be captured.
- Cleaning solution should be recycled. Never discharge waste to the sanitary sewer or storm sewer.
- Steam cleaning or pressure washing of parts should be used instead of solvent cleaning. Cleaning equipment should be connected to an oil/water interceptor prior entering the sanitary sewer.

- When using solvents for cleaning, parts should be drained over the solvent tank to avoid drips to the floor. Excess solutions should be caught and diverted back to the tank. Parts should be allowed to dry over the tank.

Vehicle and Equipment Washing

Vehicle washing can result in the discharge of nutrients, sediment, petroleum products, and other contaminants to a surface water body or to a stormwater system. The MS4 Permit does not authorize the discharge of municipal vehicle washing byproducts into the MS4.

Outdoor Vehicle Washing Procedures

Outdoor washing of municipal vehicles should be avoided unless wash water is contained in a tight tank or similar structure. Where no alternative wash system is available, and full containment of wash water cannot be achieved, the following procedures should be adhered to:

- Avoid discharge of any wash water directly to the storm drainage system or surface water (e.g., stream, pond, or drainage swale)
- Minimize the use of water to the extent practicable.
- Where the use of detergent cannot be avoided, use products that do not contain regulated contaminants. The use of a biodegradable, phosphate-free detergent is preferred.
- Do not use solvents except in dedicated solvent parts washer systems or in areas not connected to a sanitary sewer.
- Do not power wash, steam clean, or perform engine or undercarriage cleaning.
- Grassy and pervious (porous) surfaces may be used to promote direct infiltration of wash water, providing treatment before recharging groundwater and minimizing runoff to an adjacent stormwater system. Pervious surfaces or other infiltration-based systems should not be used within wellhead protection areas or within other protected resources.
- Impervious surfaces discharging to the storm drainage system should not discharge directly to a surface water unless treatment is provided. The treatment device should be positioned such that all drainage must flow through the device, preventing bypassing or short-circuiting.
- Weekly sweeping and cleaning should be completed to prevent accumulation from forming on the washing area.
- Maintain absorbent pads and drip pans to capture and collect spills or noticeable leaks observed during washing activities. Follow the procedures in SOP 4: Spill Response and Cleanup.
- Heavily soiled vehicles or vehicles dirtied from salting or snow removal efforts should follow the SOPs in the “Heavy Equipment Washing Procedures” below.

Indoor Vehicle Washing Procedures

- Vehicles and equipment should be washed inside whenever possible to reduce runoff to the stormwater system.
- Where the use of detergent cannot be avoided, products should be used that do not contain regulated contaminants. The use of biodegradable, phosphate-free detergent is preferred.
- Detergents should not be used in areas where oil/water separators provide pre-treatment of drainage.
- Floor drains should be connected to a sanitary sewer or tight tank. Floor drains discharging to

adjacent surface water bodies or engineered storm drain systems should be permanently plugged or otherwise abandoned before any vehicle wash activities are completed.

- Designate separate areas for routine maintenance and vehicle cleaning. This helps prevent contamination of wash water by motor oils, hydraulic lubricants, greases, or other chemicals.
- Dry cleanup methods are recommended within garage facilities. Do not wash down floors and work areas with water.
- Bring smaller vehicles to commercial washing stations.
- Maintain absorbent pads and drip pans to capture and collect spills or noticeable leaks observed during washing activities. Follow the procedures in SOP 4: Spill Response and Cleanup.

Heavy Equipment Washing Procedures

- Mud and heavy debris removal should occur on impervious surfaces or within a retention area.
- Maintain these areas with frequent mechanical removal and proper disposal of waste.
- Impervious surfaces with engineered storm drain systems should not discharge directly to a surface water.
- Floor drains should be connected to a sanitary sewer or tight tank. Floor drains discharging to adjacent surface waterbodies or engineered storm drain systems should be permanently plugged or otherwise abandoned before any vehicle wash activities are completed.
- Where the use of detergent cannot be avoided, use products that do not contain regulated contaminants. The use of biodegradable, phosphate-free detergent is preferred.
- Detergents should not be used in areas where oil/water separators provide pre-treatment of drainage.
- Maintain absorbent pads and drip pans to capture and collect spills or noticeable leaks observed during washing activities. Follow the procedures in SOP 4: Spill Response and Cleanup.

Engine and Steam Washing Procedures

- Do not wash parts outdoors.
- Maintain drip pans and smaller containers to contain motor oils, hydraulic lubricants, greases, etc. and to capture and collect spills or noticeable leaks observed during washing activities, to the extent practicable. Follow the procedures in SOP 4: Spill Response and Cleanup.
- Where use of detergent cannot be avoided, use products that do not contain regulated contaminants. The use of a biodegradable, phosphate-free detergent is preferred.
- Avoid cleaning with solvents except in dedicated solvent parts washer systems. Make use of pressure washing and steam cleaning.
- Recycle clean solutions and rinse water to the extent practicable.
- Wash water should discharge to a tight tank or a sanitary sewer via an oil/water separator. Detergents should not be used in areas where oil/water separators provide pre-treatment of drainage.

Employee Training

- Employees who perform work on/with municipal vehicles or equipment should be trained once per year on these procedures and the proper operation of related equipment. Such training should be coordinated by the Stormwater Division.
- Employees should also be trained on stormwater pollution prevention, illicit discharge

detection and elimination (IDDE) procedures, and spill and response procedures.

- If services are contracted, the contractor should be given a copy of this and any applicable SOPs to ensure compliance with MS4 regulations.

Attachments

1. Inventory of Municipal Vehicles and Equipment

Related Standard Operating Procedures

1. SOP 4: Spill Response and Cleanup
2. SOP 7: Fuel and Oil Handling
3. SOP 17: Hazardous Material Storage and Handling

Attachment 1
**Inventory of Municipal Vehicles and
Equipment**

Vehicle #	Department	Assignment	Year	Manufacturer	Model	Body	Vin #	Plate #
1	CEMETERY	Walter Sullivan	1985	KUBOTA	TRACTOR		B8200HBD60443	M39527
2	CEMETERY	Walter Sullivan	1999	FORD	F350		1FDWF37XXEE72736	M63974
3	CEMETERY	Walter Sullivan	2007	JOHN DEERE	BACKHOE		T0310JX146632	M43365
4	CEMETERY	Walter Sullivan	2015	FORD	F550	PICKUP	1FDUF5H4FEB42320	M93473
10	DPW	Ben Hulke	2005	JOHN DEERE	SKID STEER		T00328A108821	M74681
11	DPW	Ben Hulke	2006	ELGIN	PELICAN	SWEEPER	S9415D	M1611D
13	DPW	Ben Hulke	2008	ELGIN	PELICAN	SWEEPER	NS0912D	M78284
14	DPW	Ben Hulke	2009	FORD	F550	SWEEPER	1FDAX57R79EA47815	M82986
15	DPW	Ben Hulke	2010	LOAD RITE	TRAILER		544YNSJ19A2030369	M83593
17	DPW	Ben Hulke	2011	WANCO SOLAR LIGHTS			5F12S1210B1000123	M81904
18	DPW	Ben Hulke	2011	WANCO SOLAR LIGHTS			5F12S1219B1000122	M81905
19	DPW	Ben Hulke	2011	TRACKLESS TRACTOR W/ATTACHMENTS			MT61417	M83790
20	DPW	Ben Hulke	2012	INTERNATIONAL DUMP TRUCK			1HTWDAAR7CJ672849	M83791
21	DPW	Ben Hulke	2012	VOLVO FRONT END LOADER			VCEOL70FA00026643	M82194
22	DPW	Ben Hulke	2012	FORD F250 PICKUP			1FTBF2B68CEC26878	M55604
24	DPW	Ben Hulke	2016	FORD UTILITY			1FDUF4H3GEB26069	M94681
25	DPW	Ben Hulke	2015	FORD F250 PICKUP			1FTBF2B60FEA46721	M90595
254	DPW/CEMETERY	Ben Hulke	2015	FORD LGTCOON PICKUP			1FTZF18W7WNC03256	M80281
26	ENGINEERING	Rob Campbell	1998	FORD TRANSIT VAN			NM0L56BN7CT103905	M57526
33	ENGINEERING	Rob Campbell	2012	FORD ESCAPE			1FMCU9DG1AKB50259	M82983
55	GOLF	Daryn Brown	1984	JOHN DEERE TRACTOR			LV5200D320590	M54172
58	GOLF	Daryn Brown	2000	JOHN DEERE BACKHOE LOADER			T0310EX892470	M65578
59	GOLF	Daryn Brown	2001	FORD EXPLORER			1FMYU70E11UA07542	M63945
60	Grounds	Ben Hulke	2015	FORD F250 PICKUP			1FTBF2B6XFE881561	M91889
61	HIGHWAY	Ben Hulke	1987	HUDSON TRAILER			10HHD100XH1000029	M34467
62	HIGHWAY	Ben Hulke	1989	BAND TRAILER			2821	M19713
63	HIGHWAY	Ben Hulke	1991	INTERNATIONAL 40S490			1HTSDZ7R8MH339640	M38891
64	HIGHWAY	Ben Hulke	1991	INTERNATIONAL 40S490			1HTSDZ7R1MH339639	M41695
65	HIGHWAY	Ben Hulke	1996	JOHN DEERE TRACTOR			DW624GB568988	M19703
66	HIGHWAY	Ben Hulke	1996	MELROE LOADER			512220384	M55614
67	HIGHWAY	Ben Hulke	1996	TOWMASTER TRAILER			4KNUT1629TL161304	M55613
68	HIGHWAY	Ben Hulke	1996	READ CONIS TRAILER			CV40D1607	M56074
69	HIGHWAY	Ben Hulke	1996	CHEVROLET GMT PICKUP			1GC GK24R4TE129184	M83789
70	HIGHWAY	Ben Hulke	1997	INTERNATIONAL TRUCK			1HTSDAAR1VH478200	M56052
71	HIGHWAY	Ben Hulke	1997	CUSTOM UTILITY			1KX411321V1B1T559	M56051
72	HIGHWAY	Ben Hulke	1998	BOMBARDIER TRACTOR			15990388	M39404
73	HIGHWAY	Ben Hulke	1998	BOMBARDIER TRACTOR			15990393	M16524
74	HIGHWAY	Ben Hulke	1998	INTERNATIONAL TRUCK			1HTSDAAR8WH555114	M2106
75	HIGHWAY	Ben Hulke	1998	SRECO UTILITY			4HSHA1518WL982321	M54944
76	HIGHWAY	Ben Hulke	1999	INTERNATIONAL 40S490			1HTSDAAR4XH648262	M2112
77	HIGHWAY	Ben Hulke	1999	SULLIVAN COMPRESSOR TRAILER			004126846	M57983
78	HIGHWAY	Ben Hulke	1999	INTERNATIONAL 40S490			1HTSDAAR2XH648261	M2122
79	HIGHWAY	Ben Hulke	1999	LOAD UTILITY TRAILER			544PVGH28X2000182	M58071
80	HIGHWAY	Ben Hulke	2000	INTERNATIONAL DUMP TRUCK			1HTSDAAR1YH256082	M54162
81	HIGHWAY	Ben Hulke	2000	INTERNATIONAL DUMP TRUCK			1HTSDAAR7YH249251	M62634
82	HIGHWAY	Ben Hulke	2000	FORD F450			1FDXF46S6YEE06730	M63935
84	HIGHWAY	Ben Hulke	2005	INTERNATIONAL 7400 DUMP			1HTWDAAR45J131647	M73491
85	HIGHWAY	Ben Hulke	2005	FORD F550 UTILITY			1FDAF57Y45EA78704	M60213
86	HIGHWAY	Ben Hulke	2006	TRACKLESS MT ROPS CAB			MT513269	M24645
87	HIGHWAY	Ben Hulke	2006	TRACKLESS MT ROPS CAB			MT513267	M39546
88	HIGHWAY	Ben Hulke	2007	FORD F150 PICKUP			1FTPW14537KB02125	M34
89	HIGHWAY	Ben Hulke	2007	FORD F150 PICKUP			1FTPW14577KB14181	M80323
90	HIGHWAY	Ben Hulke	2007	AIRMAN AIR COMPRESSOR			B46B44536	M80322
91	HIGHWAY	Ben Hulke	2008	FORD HEAVY DUTY TRUCK			1FTW31R18EB33338	M80290
92	HIGHWAY	Ben Hulke	2008	FORD HEAVY DUTY TRUCK			1FTW31RX8EB33337	M80291

93	HIGHWAY	Ben Hulke	2011	BIG TEX TRAILER			16VNX1627B2C91305	M41668
94	HIGHWAY	Ben Hulke	2012	ELGIN PELICAN SWEEPER			NP2485D	M82199
95	HIGHWAY	Ben Hulke	2012	INTERNATIONAL VACTOR DUMP TRUCK			1HTWCZR1CJ076899	M82182
96	HIGHWAY	Ben Hulke	2013	PETERBILT DUMP			2NP2HM6X5DM198685	M87037
97	HIGHWAY	Ben Hulke	2014	PETERBILT CONVEN			2NP3LJUBX3EM252941	M90689
98	HIGHWAY	Ben Hulke	2015	FORD F550 DUMP TRUCK			1FDUF5HY1FEA98812	M91888
99	HIGHWAY	Ben Hulke	2015	PETERBILT DUMP TRUCK			2NP3LJ0X0FM306479	M93461
100	HIGHWAY	Ben Hulke	2015	FORD F550 PICKUP			1FDUF5HY8FEB42319	M93460
101	HIGHWAY	Ben Hulke	2015	JOHN DEERE BACKHOE			1T0410KX0FE276846	M92551
102	HIGHWAY	Ben Hulke	2015	PETERBILT QUMP			1NP2HM6X3FM252942	M90683
103	HIGHWAY	Ben Hulke	2015	CARMATE UTILITY TRAILER			5A3C61284FL001697	M92569
104	HIGHWAY	Ben Hulke	2016	PETERBILT 348 ROLLOFF			2NP3LJ0X2GM361162	M93678
259	HIGHWAY	Ben Hulke	2016	TRACKLES MT			MT62057	M95478
260	HIGHWAY	Ben Hulke	2016	VOLVO L120H			VPCL120HPOS632058	M94684
297	HIGHWAY	Ben Hulke	2016	ELGIN PELICAN SWEEPER			NP30780	M95488
110	PARKS	Nelson Chin	1988	VERMEER STUMPER TRAILER			1VRC11147J1000378	M45242
111	PARKS	Nelson Chin	1989	CHEROKEE SRVT TRAILER			9016	M75923
112	PARKS	Nelson Chin	1989	CHEROKEE SRVT TRAILER			9122	M75919
113	PARKS	Nelson Chin	1997	FORD F250			1FTHX26H8VEC50927	M56656
114	PARKS	Nelson Chin	1998	GMC SIERRA			1GDKC34J0WF057546	M56100
115	PARKS	Nelson Chin	1998	GMC SIERRA			1GTFC24M2WZ541002	M56095
116	PARKS	Nelson Chin	2001	WORK ESCALATE UTILITY TRAILER			5CUBES171A00339	M56652
117	PARKS	Nelson Chin	2002	FORD F350			1FDWX37S12EB82923	M55673
118	PARKS	Nelson Chin	2002	GMC R3500			1GDJC341X2E184056	M65654
119	PARKS	Nelson Chin	2002	MILLER STORAGE TRAILER			323409	M49380
120	PARKS	Nelson Chin	2004	KUBOTA TRACTOR			33884	M39544
121	PARKS	Nelson Chin	2005	JOHN DEERE 310SG BACKHOE LOADER			TO310SG951776	M2147
122	PARKS	Nelson Chin	2005	FORD TRUCK			1FDWF36Y65EA61172	M43481
124	PARKS	Nelson Chin	2008	FORD TRUCK			1FDWF37R98EC98279	M77633
125	PARKS	Nelson Chin	2011	TORO GROUND MOWER			311000204	M63926
126	PARKS	Nelson Chin	2012	GROUNDMASTER MOWER			312000177	M42441
239	PARKS	Nelson Chin	1984	HOMEMADE UTILITY TBD				
242	PARKS	Nelson Chin	2002	HALLMARK TRAILER				
	WAT/SEW	Lou Dutton	1999	TOWMASTER	UTILITY TRAILER		16HTS121X2P027811	M44685
	WAT/SEW	Lou Dutton	2002	JOHN DEERE	TRACTOR		4KNIT1216XL160187	M26562
W7	WAT/SEW	Lou Dutton	2005	FORD	RANGER		LV4300H432891	M56533
W17	WAT/SEW	Lou Dutton	2008	FORD	ESCAPE	PICKUP	1FTYR10D95PA01695	M72399
W15	WAT/SEW	Lou Dutton	2006	KOMATSU	EXCAVATOR	SUV	1FMUC93148KB93324	M55603
W10	WAT/SEW	Lou Dutton	2006	FORD	F550	EXCAVATOR	7262	M74720
	WAT/SEW	Lou Dutton	2006	SUPERLINE	E350	Compressor	1FDAF57Y76EB81648	M74700
S1	WAT/SEW	Lou Dutton	2006	FORD	E350	EXCAVATOR	1E9BE16216A283391	M75322
	WAT/SEW	Lou Dutton	2006	SUPER	UTILITY TRAILER	VAN	1FDWE35P16DA62622	M74712
W13	WAT/SEW	Lou Dutton	2007	INTERNATIONAL	DUMP	DUMP	1E9BE16216A283391	M75322
W9	WAT/SEW	Lou Dutton	2007	INTERNATIONAL	DUMP	DUMP	1HTMKAAR07H530160	M80027
W8	WAT/SEW	Lou Dutton	2007	INTERNATIONAL	DUMP	DUMP	1HTMKAAR27H530161	M80028
W4	WAT/SEW	Lou Dutton	2011	FORD	F250	UTILITY	1HTMMAALX7H52771	M74708
W5	WAT/SEW	Lou Dutton	2012	FORD	TRANSIT	PICKUP	1FTBF2B68BEB76093	M85108
W6	WAT/SEW	Lou Dutton	2012	FORD	TRANSIT	VAN	NMOL56BN1CT108307	M54169
W12	WAT/SEW	Lou Dutton	2012	FORD	F550	UTILITY	NMOL56BN9CT107812	M73344
W14	WAT/SEW	Lou Dutton	2012	FORD	F550	Compressor	1FDUF5HY3CEC99185	M67418
W11	WAT/SEW	Lou Dutton	2013	JOHN DEERE	F550	Compressor	1FDUF5HY5CEC99186	M55667
W3	WAT/SEW	Lou Dutton	2015	JOHN DEERE	F250	BACKHOE	1T0410KXJDE250971	M90684
	WAT/SEW	Lou Dutton	2018	JOHN DEERE	F250	PICKUP	1FTBF2B69FEA46720	M90598
W15	WAT/SEW	Lou Dutton	2019	CAM	SUPERLINE	TRAILER	1TC648RACHT051191	M3788A
W1	WAT/SEW	Lou Dutton	2019	Ford	F-550 Hook and Go	Multiple	5JWCCK3535KFP069654	
	WAT/SEW	Lou Dutton	2019	Ford	150	PICKUP		

W2	WAT/SEW	Lou Dutton	2019	Ford	Ranger	PICKUP
W16	WAT/SEW	Lou Dutton	2019	Ford	Ranger	PICKUP

Town of Braintree

SOP 22 – Construction Site Runoff

DRAFT

Approved By:

Date:

Approved By:

Date:

SOP 22: Construction Site Stormwater Runoff Control

Introduction

Construction sites that lack adequate stormwater controls can contribute a significant amount of sediment to nearby bodies of water. This Standard Operating Procedure (SOP) describes procedures for evaluating compliance of stormwater controls at construction sites to minimize or eliminate erosion and sediment transport.

These procedures address Minimum Control Measure 4, Construction Site Stormwater Runoff Control, by documenting the processes that the Town of Braintree will use for inspection and enforcement of sediment and erosion control measures and review, inspection and enforcement of site plans.

In addition to the inspection and enforcement procedures detailed in this SOP it is important to note that construction site operators within the MS4 jurisdiction are required to control construction wastes, including but not limited to, discarded building materials, concrete truck wash out, chemicals, litter, and sanitary wastes. These wastes may not be discharged to the MS4.

Procedures: Site Inspection and Enforcement of Sediment and Erosion Control Measures

Several Town Departments perform routine inspections of sediment and erosion control measures for construction activities, among them the Planning Board, the Conservation Commission and the Stormwater Division. There are overlapping jurisdictions for permits for new construction issued by these entities. Given that the Planning Board and the Conservation Commission are part of the same department, the staff has historically cooperated in inspections of construction sites where both entities have jurisdiction. The Stormwater Division was created in 2018 and since that time has promulgated regulations that include a two-tier Stormwater Permit process for projects that disturb more than 2,500 SF of land area and less than 150 cubic yards of either imported or exported fill. The applicability thresholds are modified if the project requires permits from the Planning Board.

Enforcement of conditions related to sediment and erosion control is authorized by several Town of Braintree Ordinances, among them Chapter 135 Zoning By-law, Chapter 12.2 Wetland By-law and Chapter 13.14 Stormwater Management. In addition to these local Ordinances, MGL Ch. 131 § 40 (the Massachusetts Wetland Protection Act) provides further protections against erosion and sedimentation through the Massachusetts Stormwater Handbook. The staff from all of the listed departments has the authority to enforce sediment and erosion control procedures and/or impose sanctions to ensure compliance when necessary.

Controlling Erosion and Sediment on Construction Sites

During the construction phase, it is important to inspect active sites regularly to ensure that practices are

SOP 22: Construction Site Stormwater Runoff Control

consistent with approved site plans and the site's Stormwater Pollution Prevention Plan (SWPPP) or other documents, as required by the municipality's legal authority. In addition, any project that will disturb more than 1 acre of land area is also subject to an EPA-NPDES Permit. The following guidelines apply:

- Active construction sites should be inspected bi-weekly or monthly to check the status of erosion and sedimentation controls. Inspections should also be conducted after incidents of heavy rainfall (0.25 inches or more in 24 hours).
- Erosion and sediment control features should be constructed before initiating activities that remove vegetated cover or otherwise disturb the site. These should be installed consistent with the approved site plans and with manufacturer's instructions.
- Erosion and sediment control devices should be inspected by the contractor regularly, and maintained as needed to ensure function.
- In the SWPPP or other document, the contractor should clearly identify the party responsible for maintaining erosion and sediment control devices.
- Existing vegetation should be maintained on site as long as possible.
- Construction should proceed progressively on the site in order to minimize exposed soil, and disturbed areas should be restored as soon as possible after work has been completed.
- Stockpiles should be stabilized by seeding or mulching if they are to remain for more than two weeks.
- Disturbed areas should be protected from stormwater runoff by using protective Best Management Practices (BMPs).
- Clean water should be diverted away from disturbed areas on construction sites to prevent erosion and sedimentation.
- Sediment traps and sediment barriers should be cleaned out regularly to reduce clogging and maintain design function.
- Vegetated and wooded buffers should be protected.
- Soils should be stabilized by mulching and/or seeding when they would be exposed for more than one week during the dry season, or more than two days during the rainy season.
- Vegetation should be allowed to establish before introducing flows to channels.
- Regular light watering should be used for dust control, as this is more effective than infrequent heavy watering.
- Excessive soil compaction with heavy machinery should be avoided, to the extent possible.
- Construction activities during months with higher runoff rates should be limited, to the extent possible.

Controlling Erosion and Sediment by Proper Maintenance of Permanent BMPs

Many construction phase BMPs can be integrated into the final site design, but ongoing inspection and maintenance are required to ensure long-term function of any permanent BMP. The Construction Period Operations and Maintenance Plan included as part of the permit approvals for a project should itemize the required maintenance for each BMP used on-site. The following guidelines summarize the requirements for long-term maintenance of permanent BMPs:

SOP 22: Construction Site Stormwater Runoff Control

- Responsibility for maintaining erosion and sediment control devices should be clearly identified.
- Erosion and sediment control devices should be inspected following heavy rainfall events to ensure they are working properly.
- Erosion control blankets should be utilized when seeding slopes steeper than 3:1.
- Vegetated and wooded buffers should be protected, and left undisturbed to the extent possible.
- Runoff should not be diverted into a sensitive area unless this has been specifically approved.
- Sedimentation basins should be cleaned out once sediment reaches 50% of the basin's design capacity.
- Snow should not be plowed into, or stored within, retention basins, rain gardens, or other BMPs.
- Easements and service routes should be maintained, to enable maintenance equipment to access BMPs for regular cleaning.

Inspection Procedures

Construction sites will be inspected to ensure that sediment and erosion control measures are in place consistent with approved site plans. Inspections will be conducted by the Stormwater Division, the Planning Department, the Conservation Administrator or a qualified member of the site crew. Inspections will be conducted in accordance with the Massachusetts Stormwater Handbook. Inspections may include, but are not limited to:

- Inspection during or immediately following initial installation of sediment controls.
- Inspection following severe rainstorms to check for damage to controls.
- Inspection prior to seeding deadlines, particularly in fall.
- Final inspection of projects nearing completion to ensure that temporary controls have been removed, stabilization is complete, drainage ways are in proper condition, and the final contours agree with the proposed contours on the approved plan.

All inspections will be completed using the Erosion and Sediment Control Inspection Report form and/or the Construction Site Stormwater Inspection Report form, included in the attachments. All completed inspection forms will be maintained on file by Town of Braintree in the Stormwater Division office. During inspection the inspector will verify that sediment and erosion control measures are functioning as intended and are being maintained properly. Specific sediment and erosion control measures that will be assessed during inspection are detailed on the inspection forms.

Enforcement Procedures

In the event that a non-compliance issue is discovered during pre-construction or routine inspection, the Stormwater Division will document the occurrence and inform the site operator of the violation and the required corrective action. The Stormwater Division will provide the site operator with a copy of the inspection form, noting the non-compliance and the required corrective action. The site operator will be given a timeframe within which the corrective action must be performed. The Stormwater Division (or other departmental inspector) will revisit the site for inspection at the end of this period to verify that the corrective action was performed and that the site has achieved compliance. Fines may be levied if compliance is not achieved.

Reporting

The following information will be included in each annual report:

- Number of site inspections conducted
- Number of violations issued
- Record of enforcement actions

Employee Training

- Employees who inspect applicable construction sites are trained once per year on these procedures.

Procedures: Site Plan Review, Inspection, and Enforcement

Under the authority of the Town of Braintree's Zoning By-law and Stormwater Management Ordinance, both departments have the authority to perform construction site plan review, inspection and enforcement.

The Town of Braintree will implement the following construction site plan review, inspection and enforcement procedures:

Controlling Erosion and Sediment through Design and Planning

Prevention of erosion and sedimentation is preferable to installing treatment devices. Consistent application and implementation of the following guidelines during the design and review phases can prevent erosion and sedimentation:

- Avoid sensitive areas, steep slopes, and highly erodible soils to the maximum extent possible when developing site plans.
- Identify potential problem areas before the site plan is finalized and approved.
- Plan to use sediment barriers along contour lines, with a focus on areas where short-circuiting (i.e., flow around the barrier) may occur.
- Use berms at the top of steep slopes to divert runoff away from the slope's edge.
- Design trapezoidal or parabolic vegetated drainage channels, not triangular.
- Use vegetated channels with rip rap check dams, instead of impervious pavement or concrete, to reduce the water velocity of the conveyance system.
- Design a check dam or sediment forebay with level spreader at the exit of outfalls to reduce water velocity of the discharge and collect sediment.
- Use turf reinforcement matting to stabilize vegetated channels, encourage vegetation establishment, and withstand flow velocities without scouring the base of the channel.
- Plan open channels to follow land contours so natural drainage is not disrupted.
- Use organic matting for temporary slope stabilization and synthetic matting for permanent stabilization.
- Provide a stable channel, flume, or slope drain where it is necessary to carry water down slopes.

Site Plan Review Procedure

- The applicant will submit site plans to the Planning Board and Stormwater Division for pre-construction review. Review will be conducted by both departments and the Conservation Commission, if the site is jurisdictional for wetlands. Final conditions of approval will incorporate

comments from each department.

- The following standards with regard to water quality protection and stormwater management will be applicable to site plan review:
 - General site design will include appropriate stormwater drainage system details and calculations.
 - Planned construction operations will include adequate Best Management Practices (BMPs) and Sediment and Erosion Control Measures to reduce water quality impacts.
 - Planned BMPs must be designed to the standards found in the Massachusetts Stormwater Handbook. When possible BMPs should promote on-site infiltration of stormwater runoff from impervious surfaces.
 - BMPs will be selected and prioritized to address bacteria, the pollutant identified as the cause of the impairment to Braintree's surface waters.
 - When possible, low impact designs (LID) and/or Green Infrastructure (GI) should be included in site design. If LID/GI are not included in the site plan, the applicable regulations require that the applicant document LID/GI measures that were considered and rejected.

Site Inspection Procedures

Inspections will be conducted, at a minimum, during BMP construction as well as after construction of BMPs to ensure they are working as described in the approved plans. Inspection will be completed by a Professional Engineer or other qualified person with sufficient training, experience, and/or education to be able to adequately read site plans and assess the installation, operation and maintenance of BMPs in accordance with approved plans. An inspection form will be filled out for each site inspection and stored in the Stormwater Division office. A copy of the Inspection Form is available in the attachments.

Inspection Guidelines

- The inspection should begin at a low point and work uphill, observing all discharge points and any off-site support activities.
- Written and photographic records should be maintained for each site visit.
- During the inspection, the inspector should ask questions of the contractor. Understanding the selection, implementation, and maintenance of BMPs is an important goal of the inspection process and require site-specific input.
- The inspector should not recommend or endorse solutions or products. The inspector may offer appropriate advice but all decisions must be made by the contractor or the engineer of record.
- The inspector should always wear personal protective equipment (PPE) appropriate for the site.
- The inspector should abide by the contractor's site-specific safety requirements.
- The inspector has legal authority to enter the site. However, if denied permission to enter the site, the inspector should never force entry.

Prior to planning a site visit, the inspector should determine if the project is subject to USEPA's 2017 Construction General Permit, which replaces USEPA's 2012 Construction General Permit (for more information, visit: https://www.epa.gov/sites/production/files/2019-05/documents/final_2017_cgp.pdf).

Operators of sites that required coverage under the USEPA's 2012 Construction General Permit that

continue to be active should have submitted a new Notice of Intent (NOI) under the 2017 Permit.

If the site requires this coverage, the inspector should visit the USEPA Region 1 eNOI website to determine if the contractor filed for coverage under the 2017 and/or 2012 Construction General Permit. Print a copy of the project's NOI.

If the project disturbs one or more acres and is under construction but does not show up in the database, the project is in violation of the Construction General Permit. The inspector should call the contractor to determine if the NOI process has been started. If not, notify the contractor verbally of his requirement and the violation. Work cannot proceed on the site until a NOI for coverage under the 2017 Permit has been approved by the USEPA. The inspector shall issue a written Stop Work Order until the NOI has been approved by the USEPA. Once it has been determined that the site is in compliance with the 2017 Construction General Permit, site inspection can continue.

Inspection Process

1. Pre-inspection review
 - Obtain and review permits, site plans, previous inspection reports, and any other applicable information.
 - Print the approved NOI from the USEPA 2017 Construction General Permit website.
2. Meet with site contractor
 - Review the construction Stormwater Pollution Prevention Plan (SWPPP) (if the site includes over one acre of disturbance) or other documents, as required by the municipality's legal authority. Compare BMPs in the approved site plans with those shown in the SWPPP.
 - Review the project's approved NOI and confirm that information shown continues to be accurate.
 - Get a general overview of the project from the contractor.
 - Review inspections done by the contractor.
 - Review the status of any issues or corrective actions noted in previous inspection reports.
 - Discuss any complaints or incidents since the last meeting.
3. Inspect perimeter controls
 - Examine perimeter controls to determine if they are adequate, properly installed, and properly maintained.
 - For each structural BMP, check structural integrity to determine if any portion of the BMP needs to be replaced or requires maintenance.
4. Inspect slopes and temporary stockpiles
 - Determine if sediment and erosion controls are effective.
 - Look for slumps rills, and tracking of stockpiled materials around the site.
5. Compare BMPs in the site plan with the construction site conditions
 - Determine whether BMPs are in place as specified in the site plan, and if the BMPs have been adequately installed and maintained.
 - Note any areas where additional BMPs may be needed that are not specified in the site plans.
 - Inspect BMPs prior to and after construction.
6. Inspect site entrances/exits
 - Determine if there has been excessive tracking of sediment from the site.
 - Look for evidence of additional entrances/exits which are not on the site plan and are not

properly stabilized.

7. Inspect sediment basins
 - Look for signs that sediment has accumulated beyond 50% of the original capacity of the basin.
8. Inspect pollution prevention and good housekeeping practices
 - Inspect trash areas and material storage/staging areas to ensure that materials are properly maintained and that pollutant sources are not exposed to rainfall or runoff.
 - Inspect vehicles/equipment fueling and maintenance areas for the presence of spill control measures and for evidence of leaks or spills.
9. Inspect discharge points and downstream, off-site areas
 - Walk down the street and/or in other directions off-site to determine if erosion and sedimentation control measures are effective in preventing off-site impacts.
 - Inspect down-slope catch basins to determine if they are protected, and identify whether sediment buildup has occurred.
10. Meet with the contractor again prior to leaving
 - Discuss the effectiveness of current controls and whether modifications are needed.
 - Discuss possible violations or concerns noted during the site inspection, including discrepancies between approved site plans, the SWPPP, and/or the implementation of stormwater controls.
 - Agree on a schedule for addressing all discrepancies and schedule a follow-up inspection.
11. Provide a written copy of the inspection report to the contractor.
12. Follow up, as determined, and provide copies of subsequent inspections to the contractor.

Enforcement Procedure

In the event that a non-compliance issue is discovered during inspections, the Stormwater Division will document the occurrence and inform the site operator of the violation and the required corrective action. The Stormwater Division will provide the site operator with a copy of the inspection form, noting the non-compliance and the required corrective action with 7 days. The site operator will be given 30 days from receipt of the inspection form within which the corrective action must be performed. If corrective action cannot be achieved in 30 days, a rationale will be given to the department in 7 days and a timeline for corrective action will be submitted within 30 days. The Stormwater Division (or other departmental inspector) will revisit the site for inspection at the end of this period to verify that the corrective action was performed and that the site has achieved compliance. Fines may be levied if compliance is not achieved.

The number of site reviews, inspections and enforcement actions will be tracked electronically by the Stormwater Division. Records will be maintained and included in the MS4 annual report.

Employee Training

- Employees who inspect applicable construction sites are trained once per year on these procedures.

Reporting

The following information will be included in each MS4 annual report:

- Number of site reviews conducted
- Number of site inspections conducted
- Number of violations issued

- Record of enforcement actions

Attachments

1. Erosion and Sedimentation Control Inspection Report
2. Construction Site Stormwater Inspection Report
3. Town of Braintree Stormwater Regulations

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Attachment 1
Erosion and Sedimentation Control
Inspection Report

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EROSION AND SEDIMENTATION CONTROL INSPECTION REPORT

General Information

Project Name			
Project Location			
Inspector's Name			
Site Operator			
Date of Inspection		Date of Last Inspection	
Start Time		End Time	
Subject to USEPA Construction General Permit? Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, has NOI been approved? Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, attach approved NOI to this report. <p style="text-align: center;">If no, contact contractor immediately to determine status of NOI.</p>			
Type of Inspection: Regular <input type="checkbox"/> Pre-Storm Event <input type="checkbox"/> During Storm Event <input type="checkbox"/> Post-Storm Event <input type="checkbox"/>			
Describe the weather conditions at time of inspection	<div style="font-size: 48px; opacity: 0.3; transform: rotate(-45deg); pointer-events: none;">DRAFT</div>		
Describe the current phase of construction			



Erosion and Sediment Control (ESC) on Construction Sites

Document any of the following issues found on the construction site, and the corrective action(s) required for each.

Issue	Status	Corrective Action Needed
Have all ESC features been constructed before initiating other construction activities?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is the contractor inspecting and maintaining ESC devices regularly?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is existing vegetation maintained on the site as long as possible?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is construction staged so as to minimize exposed soil and disturbed areas?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are disturbed areas restored as soon as possible after work is completed?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is clean water being diverted away from the construction site?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Are sediment traps and sediment barriers cleaned regularly?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Are vegetated and wooded buffers protected and left undisturbed?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are soils stabilized by mulching and/or seeding when they are exposed for a long time?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Has vegetation been allowed to establish itself before flows are introduced to channels?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is regular, light watering used for dust control?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is excessive soil compaction with heavy machinery avoided, to the extent possible?	Yes <input type="checkbox"/> No <input type="checkbox"/>	



(continued)

Issue	Status	Corrective Action Needed
Are erosion control blankets used when seeding slopes?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are trees and vegetation that are to be retained during construction adequately protected?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are areas designated as off-limits to construction equipment flagged or easily distinguishable?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
If excavated topsoil has been salvaged and stockpiled for later use on the project, are stockpiles adequately protected?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are temporary slope drains or chutes used to transport water down steep slopes?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Do all entrances to the storm sewer system have adequate protection?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Non-Compliance Actions

The municipality shall provide the site operator with a copy of this report, and notice of the corrective action(s) to be taken. The site operator shall have thirty days from the receipt of the notice to commence curative action of the violation.



Attachment 2
Construction Site Stormwater
Inspection Report

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CONSTRUCTION SITE STORMWATER INSPECTION REPORT

General Information

Project Name			
Project Location			
Site Operator			
Inspector's Name			
Date of Inspection		Date of Last Inspection	
Start Time		End Time	
Subject to USEPA Construction General Permit? Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, has NOI been approved? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, attach approved NOI to this report. <p style="text-align: center;">If no, contact site operator immediately to determine status of NOI.</p>			
Type of Inspection: Regular <input type="checkbox"/> Pre-Storm Event <input type="checkbox"/> During Storm Event <input type="checkbox"/> Post-Storm Event <input type="checkbox"/>			
Describe the weather conditions at time of inspection			
Describe the current phase of construction			



Site-Specific BMPs

Customize the following BMPs to be consistent with the SWPPP for the site being inspected.

	BMP Description	Installed and Operating Properly?	Corrective Action Needed
1		Yes <input type="checkbox"/> No <input type="checkbox"/>	
2		Yes <input type="checkbox"/> No <input type="checkbox"/>	
3		Yes <input type="checkbox"/> No <input type="checkbox"/>	
4		Yes <input type="checkbox"/> No <input type="checkbox"/>	
5		Yes <input type="checkbox"/> No <input type="checkbox"/>	
6		Yes <input type="checkbox"/> No <input type="checkbox"/>	
7		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
8		Yes <input type="checkbox"/> No <input type="checkbox"/>	
9		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
10		Yes <input type="checkbox"/> No <input type="checkbox"/>	
11		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
12		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
13		Yes <input type="checkbox"/> No <input type="checkbox"/>	
14		Yes <input type="checkbox"/> No <input type="checkbox"/>	
15		Yes <input type="checkbox"/> No <input type="checkbox"/>	
16		Yes <input type="checkbox"/> No <input type="checkbox"/>	
17		Yes <input type="checkbox"/> No <input type="checkbox"/>	
18		Yes <input type="checkbox"/> No <input type="checkbox"/>	
19		Yes <input type="checkbox"/> No <input type="checkbox"/>	
20		Yes <input type="checkbox"/> No <input type="checkbox"/>	



Erosion and Sedimentation Control

Document any of the following issues found on the construction site, and the corrective action(s) required for each.

Issue	Status	Corrective Action Needed
Have all ESC features been constructed before initiating other construction activities?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is the contractor inspecting and maintaining ESC devices regularly?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is existing vegetation maintained on the site as long as possible?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is construction staged so as to minimize exposed soil and disturbed areas?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are disturbed areas restored as soon as possible after work is completed?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is clean water being diverted away from the construction site?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are sediment traps and sediment barriers cleaned regularly?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are vegetated and wooded buffers protected and left undisturbed?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are soils stabilized by mulching and/or seeding when they are exposed for a long time?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Has vegetation been allowed to establish itself before flows are introduced to channels?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is regular, light watering used for dust control?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is excessive soil compaction with heavy machinery avoided, to the extent possible?	Yes <input type="checkbox"/> No <input type="checkbox"/>	



(continued)

Issue	Status	Corrective Action Needed
Are erosion control blankets used when seeding slopes?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are trees and vegetation that are to be retained during construction adequately protected?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are areas designated as off-limits to construction equipment flagged or easily distinguishable?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
If excavated topsoil has been salvaged and stockpiled for later use on the project, are stockpiles adequately protected?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are temporary slope drains or chutes used to transport water down steep slopes?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Do all entrances to the storm sewer system have adequate protection?	Yes <input type="checkbox"/> No <input type="checkbox"/>	

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Overall Site Conditions

Document any of the following issues found on the construction site, and the corrective action(s) required for each.

Issue	Status	Corrective Action Needed
Are slopes and disturbed areas not being actively worked properly stabilized?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are material stockpiles covered or protected when not in use?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are natural resource areas protected with sediment barriers or other BMPs?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are perimeter controls and sediment barriers installed and maintained?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are discharge points and receiving waters free of sediment deposits and turbidity?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are storm drain inlets properly protected?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is there evidence of sediment being tracked into streets?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is trash/litter from the construction site collected and placed in dumpsters?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are vehicle/equipment fueling and maintenance areas free of spills and leaks?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are potential stormwater contaminants protected inside or under cover?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is dewatering from site properly controlled?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are portable restroom facilities properly sited and maintained?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are all hazardous materials and wastes stored in accordance with local regulations?	Yes <input type="checkbox"/> No <input type="checkbox"/>	



Non-Compliance Actions

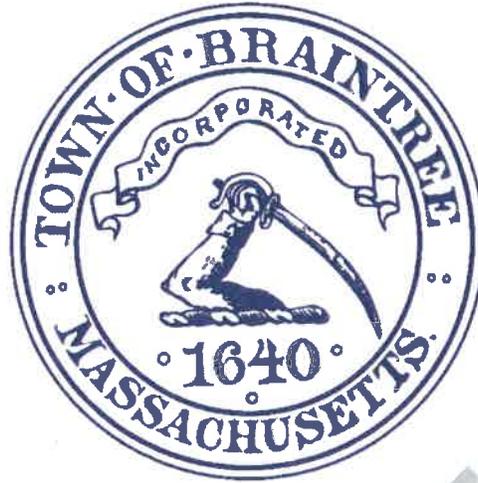
The municipality shall provide the site operator with a copy of this report, and notice of the corrective action(s) to be taken. The site operator shall have thirty days from the receipt of the notice to commence curative action of the violation.

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Attachment 3
Town of Braintree Stormwater
Regulations

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Town of Braintree
Stormwater Management Regulations

Department of Public Works
2019

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ARTICLE I
Authority and Purpose

Section 1 - Reference to Regulations. These regulations may be referred to as the Town of Braintree's Stormwater Management Regulations.

Section 2 - Authority. Under the Authority of G.L. c. 83, Section 10 and Title 2, Chapters 2.220 and 13.14. of the Town's Ordinances, the Braintree Department of Public Works has established the following regulations governing Stormwater Management Facilities in the Town of Braintree.

Section 3 - Effect on other Town Ordinances. With respect to Stormwater Management Facilities, these Regulations supplement Section X Design Standards – Storm Drainage of the Town of Braintree's Subdivision Rules and Regulations.

Section 4 - Purpose. These Regulations are intended to protect, maintain and enhance the public health, safety and welfare and the environment by establishing minimum requirements and procedures to control the adverse effects of increased post-development stormwater runoff, decreased groundwater recharge and non-point source pollution associated with new development and re-development, to ensure proper and safe operation of the Town's Stormwater Management Facilities and to implement the requirements of the National Pollutant Discharge Elimination System General Permit for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems issued by the U.S. EPA by regulating land disturbance activities that may result in soil erosion and sedimentation and stormwater runoff directed to the Town's stormwater management system or the waters of the United States and/or Commonwealth of Massachusetts.

Section 5 - Severability. The provisions of these Regulations are severable. If any provision of these Regulations or any specific application to any person or circumstance is held invalid, such invalidity shall not affect the other provisions or application of said Regulations to the extent permitted by law.

Section 6 - Applicability These Stormwater Management Regulations shall apply to all activities in accordance with Chapter 13.14 of the Town of Braintree General Ordinances.

Section 7 - Right to Amend Regulations. The Department of Public Works reserves the right to amend these Regulations in any manner and to establish more stringent limitations or requirements as are deemed necessary or appropriate.

Section 8 - Required Applications and Permits.

- (a) Applications and permits required in Article V. of these Regulations are in addition to applications and permits that may be required by other federal, state and local laws or regulations. Stormwater Management Permits are required by these Regulations and issued by the Stormwater Division of the Department of Public Works as they apply:
- i. Building/Drain Connection Permit
 - ii. Stormwater Management Permit - Minor Project

iii. Stormwater Management Permit - Major Project

- (b) These Regulations shall not be construed to require the Town to permit itself or those in its employ for activities done to carry out the Town's responsibilities under any federal or state laws, regulations, or requirements.

Section 9 - Stormwater Enterprise Fee. Pursuant to Title 13 Chapter 13.14 of the Town of Braintree General Ordinances, the Town has established a Stormwater Enterprise Fee for the purposes of funding the Town's stormwater management facilities and services.

Section 10 - The Department of Public Works shall enforce, pursuant to Article VII. of these Regulations and other applicable local, state, and federal laws, these regulations and the terms and conditions of a permit issued under these Regulations.

ARTICLE II
Use of Municipal Stormwater Management System

Section 1 - Municipal Stormwater Management Facilities/MS4 (Municipal Separate Storm Sewer System). The use of all MS4 Facilities in the Town shall be controlled by the Department. No person shall uncover, excavate over, block access to, or make any connection with or opening into, use, alter, or disturb any municipal stormwater management facility or appurtenance thereof within the Town's stormwater management system, without a permit issued by the Department.

No person shall maliciously, willfully or negligently break, damage, destroy, uncover, deface or tamper with any structure, appurtenance, or equipment which is part of the Town's MS4 system. Any person violating this provision shall be subject to immediate arrest under charge of disorderly conduct.

Section 2 - Permit Required. No person shall make any connection to the Town's MS4 system without first obtaining a Stormwater Management Permit from the Department pursuant to Article V.

Section 3 - Private Stormwater Management Facilities.

- (a) All private Stormwater Management Facilities that connect directly or indirectly to the Town's MS4 system shall be controlled as to discharge by the Department, but constructed, installed, maintained, repaired, and operated by their owners, at the owner's expense. All private Stormwater Management Facilities that connect to the Town's MS4 system shall be constructed, installed, maintained, repaired, and operated to the satisfaction of the Department.
- (b) Repairs to private Stormwater Management Facilities in the Town, including repairs required to comply with these Regulations, shall be made by a contractor on the Water and Sewer Division's approved list.

Section 4 - Ownership and Maintenance of Private Stormwater Management Facilities.

- (a) Private Stormwater Management Facilities, whether located on public or private property, are owned by the owner of the premises served. In the case where more than one premise is connected to the same building storm drain, the owners of the respective premises shall be jointly and severally responsible for the maintenance and repair of the building storm drain.
- (b) The owner of a Private storm drain shall at all times keep such drains clean and in good repair in order not to cause depletion of groundwater, damage to property, odor, or harm to the Town's Stormwater Management Facilities.
- (c) The owner shall maintain, repair, modify or replace an existing Private storm drain whenever it is determined by the Department that such drains may endanger public health, create a public nuisance, result in public or private property damage, or impair water quality or the environment and in such other circumstances as the Department deems appropriate.
- (d) The owner shall develop mechanisms and procedures designed to prevent spills whenever the Department determines that it is necessary. This includes identification of spills, reporting and containment procedures, documentation and training.

ARTICLE III
General Requirements

A. PROHIBITED ACTIVITIES

Section 1 - Illicit discharge. No person shall dump, discharge, cause or allow to be discharged any contaminated water or non-stormwater discharge (except as exempted in B. § 1 below) into the MS4 system, into a watercourse, or into the waters of the Commonwealth.

Section 2 - Illicit connection. No person shall construct, use, allow, maintain or continue an illicit connection to the municipal storm drain system, regardless of whether the connection was permissible under applicable law, regulation or custom at the time of connection.

Section 3 - Roof Leader connections. No person shall connect building roof leaders directly to the municipal storm drain system.

B. AUTHORIZED DISCHARGES

Section 1 - Authorized Discharges to MS4 Facilities.

Discharges to MS4 Facilities which are authorized by these regulations are as follows:

- (a) Unless otherwise determined by the Department, discharges composed entirely of stormwater that were connected prior to the enactment of these regulations.

- (b) Discharges composed entirely of stormwater that are free from sediments related to erosion from construction sites.
- (c) Discharges for which the owner has obtained a Stormwater Management Permit from the Department, are in compliance with any requirements contained in the Town's Stormwater Management Plan, and if appropriate, an Industrial Activity Permit, Construction Activity Permit, or a NPDES Permit Exclusion from EPA.
- (d) Discharges from the following sources:
 - (i) Department of Public Works ice and snow control operations;
 - (ii) Flow resulting from firefighting activities;
 - (iii) Street and pavement wash waters;
 - (iv) Natural flow from riparian habitats and wetlands;
 - (v) Diverted tide, river or stream flows;
 - (vi) Water main, hydrant flushing and other discharges from potable water sources associated with routine maintenance of the water distribution system;
 - (vii) Uncontaminated groundwater or infiltration of groundwater;
 - (viii) Uncontaminated springs;
 - (ix) Rising groundwater;
 - (x) Uncontaminated water from sump pumps and other pumps that remove floodwaters from basements;
 - (xi) Water discharge from irrigation or watering of lawns, trees, landscaping and gardens;
 - (xii) Noncommercial car washing;
 - (xiii) Waters from residential property management activities, including washing walkways, patios, house siding and windows, provided the wash water does not contain detergents and
 - (xiv) Swimming pool discharges that have been de-chlorinated.

C. REQUIREMENTS FOR ALL STORMWATER DISCHARGES

Section 1 - Notification of Changed Discharge. Every property owner who directly or indirectly discharges stormwater to the Town's stormwater management system shall notify the Department in writing in advance of:

- (a) Any substantial change in the rate and/or volume of discharge; and
- (b) Any change in the location of the discharge to a different storm drain connection.
- (c) Any change in the total amount of impervious cover of areas connected to the storm drain.

Existing discharges authorized in Article III.B. may be required to obtain a Stormwater Management Permit as a result of the above changes.

Section 2 - Notification of Violations.

- (a) Property owners shall notify the Department by telephone or email immediately upon discharging stormwater in violation of these Regulations or their permits and of any upset, or spill that may reasonably be expected to discharge to the storm drainage system.
- (b) Each notification shall be followed within 10 business days of the date of occurrence by a detailed written statement addressed to the Department describing the causes of the discharge and the measures being taken to prevent a recurrence. Such notification will not relieve property owners of liability for any expense, loss or damage to the Town stormwater management system or for any fines imposed on the Town due to such discharge.

Section 3 - Preventive Measures. Each property owner shall provide reasonable and appropriate protection from any discharge, including accidental discharges, in violation of these Regulations.

Section 4 - NPDES Notice of Intent and Permit. Every person who is required to be covered under an Industrial Activity Permit shall submit to the Department a copy of the completed Notice of Intent or individual application as submitted to EPA, and the information identified in items (a) through (h) below, as applicable.

- (a) Address of the building (or premises) where the discharge will take place and the name and address of the building (or premises) owner;
- (b) Name of a contact person, title and phone number;
- (c) A site plan or sketch which shows the location of the connection of the building storm drain or the point(s) of discharge to the Town's storm drainage system, including the street name, and the size of the storm drain to which the stormwater will discharge;

- (d) Standard Industrial Code (SIC Code) of the facility;
- (e) A description of the product or services provided by the facility;
- (f) A description of the nature of the discharge;
- (g) Existing NPDES permit number, if any;
- (h) Facility's Assessor's Map and Parcel Number.

Section 5 - Compliance with Treatment Standards. Every property owner, if so directed by the Department, must implement structural and non-structural stormwater BMPs that are consistent with the Town's Stormwater Plan. BMPs must be selected and designed using the appropriate criteria from the most recent Massachusetts Stormwater Handbook, as amended.

ARTICLE IV

Private Storm Drains and Stormwater Runoff Facilities, Connections and Appurtenances

Section 1 - Separate Building Sewers and Building Storm Drains. Separate and independent building sewers and building storm drains shall be provided for all new or substantially rehabilitated buildings.

Section 2 - Gravity Discharge to Storm Drains. No building storm drains shall discharge by gravity to the Town storm drains. In all buildings in which the building storm drain is lower than the street grade in front of the building, stormwater shall be lifted by an approved means to a manhole or catch basin in the Town storm drain system.

Section 3 - Connections to Manholes. Private storm drain connections for new or substantially rehabilitated buildings shall be made directly to Town-owned manholes or catch basins unless otherwise approved by the Department.

Section 4 - Wastewater-Stormwater Separation.

- (a) The plumbing of any existing or new building shall be so constructed as to keep all stormwater, surface water, groundwater, roof and surface runoff, subsurface drainage, uncontaminated cooling water, and uncontaminated industrial process water, non-contact cooling water, and non-contact industrial process water separate from sanitary sewage and industrial wastes, and from the building sewer.
- (b) The building drain conveying wastewater from plumbing fixtures within the building shall discharge to a building sewer, while the building drain conveying stormwater and other drainage listed in (a) shall discharge to a building storm drain.
- (c) In accordance with Town Ordinances, on-site disposal of stormwater is required to the extent feasible. Where separate storm drains and sanitary sewers are provided, and site conditions do not permit on-site disposal of the required amount of stormwater, the

Town will allow treated stormwater or a treated overflow from the on-site system which shall be connected to a storm drain. Connection of a private storm drain to a sanitary sewer is prohibited.

- (d) Connection of a building sewer to a storm drain is prohibited.
- (e) The Department shall require an owner to eliminate a discharge to the storm drain whenever the Director determines that the discharge violates the provisions of Article III.

Section 5 - Cleanouts. Where a new building is to be constructed which is set back from the property line, the Department may require the owner to install a clean-out on the owner's property at every 100 linear feet of pipe length and at every 22 1/2° or greater change in direction.

Section 6 - Floor Drains. Floor drains shall be connected to the building sewer.

ARTICLE V Permit Procedures and Requirements

All permits issued by the Department pursuant to Ch. 13.14 will be referred to as “Stormwater Management Permits”.

Section 1 - General

- (a) **Timing of Application.** A Stormwater Management Permit (“Permit”) must be obtained prior to the commencement of any activity for which a Permit is required under Ch. 13.14 Stormwater Management or these regulations.
- (b) **Owner Responsibility.** While application may be made by a representative, the permittee must be the Owner of the property. If the applicant has less than a fee interest in all parcels on which work will occur, the applicant shall provide written consent from the fee owner of each affected parcel, or evidence of an interest in the parcels sufficient to establish the applicant’s right to conduct the work. It is the property Owner or agent’s responsibility to determine if other Town, state or federal permits or applications are required and to secure them.
- (c) **Burden of Proof.** It is the applicant’s responsibility to be aware of and meet the requirements of the Stormwater Management Ordinance and the Regulations. The applicant has the burden of proving that the proposed project or activity will comply with the Ordinance and the Regulations.
- (d) With the exception of discharges authorized under Article III. B, no person shall cause or allow any new stormwater discharges to the Town's storm drainage system without having first obtained all necessary approvals from the Planning Board and Conservation Commission and a Stormwater Management Permit from the Department. The decision

to issue a Stormwater Management Permit rests entirely with the Department. Such discharges shall comply with all other applicable federal, state and local requirements.

- (e) The Stormwater Management Permit issued to an applicant may stipulate Special Conditions and terms as deemed necessary or appropriate by the Department. These may include start and completion dates.
- (f) The Department may deny a permit for any discharge which it believes can reasonably be expected to result in significant harm to public health, safety, the environment, to the Town's MS4 system or a tributary to the Town's storm drainage system.
- (g) An applicant may request reconsideration of the terms and conditions in an issuance, renewal, or modification of a permit issued by the Town, and an applicant may request reconsideration of the denial of a permit by the Town.
- (h) A Stormwater Management Permit may be revoked, suspended or reissued with additional Special Conditions if the Department determines that the discharge, whether singly or in combination with others, is contributing to a water quality problem, is causing violation of the Town's MS4 Permit or has not been executed in compliance with the conditions of the Permit.
- (i) All Stormwater Management Permit applications shall include the appropriate fee as provided in Article VIII.

Section 2 – Pre-Application Meeting

Applicants are strongly encouraged to schedule a pre-application meeting with the Department at the earliest feasible time for the following purposes:

- (a) Discussion of the proposed development plans and requirements for a Permit and the anticipated fees.
- (b) Advise the engineer and/or applicant of the Town's design standards (see Appendices), goals with respect to stormwater management at the site, and to the extent practicable, of any known concerns or issues regarding stormwater management at the site.
- (c) Advise the engineer and/or applicant of application submission requirements or of additional information needed as part of the application at the time of filing.
- (d) Encourage the use of Low Impact Development (LID) Best Management Practices and Green Infrastructure in the proposed stormwater management design. Unlike conventional development and stormwater controls, an LID approach to design begins with an assessment of environmental and hydrologic conditions at the site and how best to address these conditions. Green Infrastructure includes water treatment systems that use vegetation, soils, and other nature-based elements to filter and treat polluted

stormwater runoff before it is discharged into a local water body. Applicants are reminded that the objectives of the LID approach are to:

1. Develop a site plan that reflects natural hydrology
2. Minimize impervious surfaces
3. Treat stormwater in numerous small, decentralized structures
4. Use natural topography for drainage ways and storage areas
5. Preserve portions of the site in undisturbed, natural conditions
6. Lengthen travel paths to increase time of concentration and attenuate peak rates

Section 3 - Application Procedure

(a) Building/Drain Connection Applications

1. Any new connection to the Town's MS4 storm drain system involving sump pump or groundwater discharge shall require approval from the Department.

(b) Minor Applications which involve either:

1. Land Disturbance of more than 2,500 square feet but less than 5,000 square feet and less than 150 cubic yards of imported or exported material, or
2. Land disturbance greater than 5,000 square feet but less than 1 acre or greater than 150 cubic yards of imported or exported material with Site Plan Approval or a Grading Permit from the Planning Board.
3. Any proposed connection to the MS4 system

Minor Permit Requirements

At least 30 days prior to initiating any work the applicant shall submit two copies of the completed Stormwater Management Permit – Minor Project application form along with the following:

1. Copy of Site Plan Approval or a Grading Permit from the Planning Board (if required)
2. A sketch plan illustrating:
 - a. Existing features of the site including structures, pavement and landscaped areas

- b. Proposed areas of land disturbance, stormwater management measures for new impervious areas and limit of work boundary
- c. Erosion control measures to prevent sediment from entering the MS4 system
- d. Details of an on-going maintenance program for the stormwater management measures with the name and contact information of the person responsible

(c) Major Permits

Major projects are those which involve either:

- a. Land disturbance greater than 5,000 square feet but less than 1 acre not requiring Site Plan Approval from the Planning Board or
- b. Land Disturbance greater than one acre, or
- c. Existing or new connections required to implement structural and non-structural BMPs to be consistent with the Town's Stormwater Plan.
- d. Extensions or relocations of a Town storm drain

At least 60 days prior to initiating any work the applicant shall submit two hard copies and one digital copy of the completed Stormwater Management Permit – Major Project application form along with the following:

- a. Copies of any approvals received from the Conservation Commission.
- b. Project Narrative describing existing conditions, proposed development and methods used to mitigate stormwater impacts as well as an evaluation and implementation of Low Impact Development Best Management Practices
- c. Stormwater Management Plan in accordance with Appendix B that includes:
 - 1. Existing Conditions Plan with property line information, existing topography (2 foot contour interval), existing utilities, drainage, tree line, wetland boundaries, stamped and signed by a MA registered Professional Land Surveyor
 - 2. Site Plan with site layout, proposed grading (2 foot contour interval) proposed utilities, proposed clearing, stormwater management measures, soil testing data and limit of work line, signed and stamped by a MA registered Professional Engineer

- d. Erosion and Sedimentation Control Plan in accordance with Appendix C
- e. Construction Sequence
- f. Stormwater Report that includes
 - 1. Completed Mass DEP Stormwater Checklist signed and stamped by a MA registered Professional Engineer
 - 2. Pre and Post-development hydrologic calculations in accordance with Article VI of these Regulations
 - 3. Operations and Maintenance Plan in accordance with Appendix D

Section 4 – Peer Reviews

In accordance with MGL Ch. 44 § 53G, the Department may impose reasonable fees for the employment of outside consultants to assist the Department in its review of permit applications and may deposit such fees in a special account. Any such account shall be established by the Town Treasurer in the Town treasury and shall be kept separate and apart from other monies. The special account, including accrued interest, if any, shall be expended at the direction of the Department without further appropriation; provided, however, that such funds are to be expended by it only in connection with carrying out its responsibilities under the Ordinance and these regulations to review the particular permit application. Any excess amount in the account shall be repaid to the applicant or to the applicant's successor in interest at the conclusion of the application review. The applicant may appeal the selection of the consultant to the Town Council, but solely on grounds that the consultant has a conflict of interest or lacks necessary qualifications to undertake the review. The Department's determination that consultant review is necessary is not subject to appeal.

Section 5 – Inspections

Minor Permit

Inspections shall be conducted by the Department or its agent at the following stages

- (a) After the erosion control measures have been installed
- (b) During the installation of stormwater management measures as required by the conditions of the permit
- (c) After the work has been completed and the site is stabilized

Major Permit

- (a) Pre-construction Meeting

Prior to the commencement of land disturbance, clearing, excavation, or construction, the applicant, the applicant's technical representative, the general contractor and any other person with authority to make changes to the project, shall meet with the Stormwater Manager to review the permitted plans and their implementation. A copy of the Stormwater Management Permit and approved plans shall be kept on the project site during the progress of the work. A copy of the NPDES Construction General Permit and Stormwater Pollution Prevention Plan (for projects greater than 1 acre) shall be kept at the site as well. This meeting may be combined with pre-construction meetings required by other town Boards and officials.

(b) Inspections

The Department or its agent shall perform inspections as listed below, and shall either approve that portion of the work completed or shall notify the permittee of any noncompliance with Permit requirements. In order to obtain inspections, the permittee shall notify the Department at least two business days prior to the requested inspection. Inspections shall occur at the following stages:

- 1) Erosion and sediment control measures are in place and stabilized
- 2) Site clearing has been substantially completed
- 3) Stormwater Management System
 - i) Rough grading has been substantially completed
 - ii) Subsurface Infiltration Systems
 - iii) Excavation of area for system
 - iv) Placement of stone below system and installation of filter fabric
 - v) Backfilling and installation of inspection port(s)
 - vi) Final grading has been substantially completed
 - vii) Final Landscaping (permanent stabilization) and project final completion

(c) Final Inspection and "As-built" Plans

- 1) Within one year of the completion of the project, after the stormwater management system has been constructed, the permittee shall submit an "as-built" plan for any stormwater management facilities or practices to the Department. This plan shall be accompanied by an Engineer's Certification, stamped and signed by a Professional Engineer registered in the Commonwealth of Massachusetts, stating that the stormwater management system has been inspected during a storm event, is functional as designed and that the completed project complies with all aspects of the Permit. Any discrepancies between the approved plan and the "as-built" plan must be described in the Engineer's Certification.
- 2) "As-built" plans shall be full-sized plans which reflect the "as-built" conditions, including all final grades and pipe inverts. All work deleted, correction in elevations and changes in materials shall be shown on the "as-built" plan.

- 3) If the stormwater system is found to be inadequate by virtue of physical evidence of operational failure, even though it was built as called for in the approved plans, the deficiencies shall be addressed and corrected by the permittee before any performance guarantee is released and a Certificate of Completion is issued.

Section 6– Certificate of Completion

Prior to the request for Certificate of Completion, the permittee shall provide to the Department for its review and written approval, a revised Operations and Maintenance Plan of all “as-built” structural BMP systems, as well as anticipated non-structural BMPs, such as sweeping, and applications of winter de-icing agents. The O&M plan, at a scale of 1” = 20’, or as approved of in advance by the Department, shall include a depiction of each structural BMP element. The O&M Plan shall also indicate those areas within which applications of fertilizers, herbicides and pesticides are anticipated, and those areas to be designated as chemical and/or fertilizer free. Materials, application rates and total amounts to be used of each material shall be provided. The permittee shall also provide some documentation to the Department of adequate funding for required maintenance.

Section 7– Continuing Conditions

- (a) Adherence to the provisions of the approved O&M Plan is a continuing requirement of the Permit. Failure to adhere to these provisions will constitute a violation of the Stormwater Management Ordinance and these Regulations, and be subject to enforcement action.
- (b) A request to modify the requirements of the O&M Plan shall be submitted to the Department, which may approve the requested modification if it is determined to be an insignificant change. If the Department determines that the requested modification is significant, it may require that the permittee submit a request to amend the Permit, which shall be subject to the formal review procedures set forth in these Regulations.
- (c) The licensed contractor responsible for the operation and maintenance of a stormwater facility shall make and keep a record of all operation and maintenance activities showing compliance with the O&M Plan and shall submit a detailed annual report to the Department no later than January 31 each year.

ARTICLE VI

Post-Development Stormwater Management Criteria

At a minimum, all projects subject to a Major Stormwater Management Permit shall comply with the criteria, specifications and performance standards of the most recent version of the Massachusetts Stormwater Management Standards and accompanying Stormwater Management Handbook, as well as the criteria contained herein. The following general performance criteria shall be applicable to all stormwater management plans, unless otherwise provided for in these Regulations

Section 1 – Low Impact Design and Green Infrastructure

- (a) The design of the project shall, to the maximum extent feasible, employ environmentally sensitive site design as outlined in the Mass. DEP Stormwater Handbook, as amended, and shall attempt to reproduce natural hydrologic conditions with respect to ground and surface waters.
- (b) Evaluation of Low Impact Development practices is required and implementation of such practices to the maximum extent practicable is encouraged. If the proposed stormwater management system design does not fully utilize Low Impact Development techniques, the applicant shall provide written documentation of which Low Impact Development Best Management Practices were evaluated for the proposed project and the reasons such practices were found to be infeasible. Guidance on these practices is provided in the 2008 Mass DEP Stormwater Management Handbook.
- (c) In order to conserve potable water supplies and maximize recharge, it may be appropriate on some sites to store clean runoff (e.g. from roofs) for reuse on the site for irrigation or other gray water purposes. This can be accomplished, through the use of cisterns and rain barrels. Where appropriate, a water budget may be required to be prepared to determine applicability.

Section 2 – Hydrologic and Hydraulic Criteria

- (a) Hydrologic analyses using TR-55/TR-20 methodology shall be performed on the entire project site and include any off-site areas that drain to or through the project site.
- (b) The analyses shall be performed for the 2, 10, 25 and 100-year design storms under pre-development and post-development conditions. The specified design storms shall be defined as a 24-hour storm using the most recent rainfall distribution recommended by the National Oceanic and Atmospheric Administration Atlas 14, as amended.
- (c) The post-development peak discharge rate shall be equal to or less than the pre-development peak discharge rate, based on 2-year, 10-year, 25-year and 100-year 24-hour storms.
- (d) Hydrologic analyses are to be performed in a pre and post sub-watershed basis with designated control points at each location where runoff leaves the site or enters a water body.

- (e) The same land area shall be used in the analysis to facilitate comparison of existing and proposed conditions.
- (f) The total volume of discharge, as well as peak rate, shall be evaluated at each control point.
- (g) The site shall be designed to ensure that all runoff from the site up to the 100-year storm enters the control structure. For example, the drainage system may only be sized to handle a 25-year storm, with larger storms flooding the distribution system and traveling overland. This overland flow, or overflow, must be directed into the peak control structure or otherwise managed to attenuate flow.
- (h) For purposes of computing runoff, all pervious lands on the site shall be assumed, prior to development, to be in “good” condition regardless of conditions existing at the time of computation.
- (i) Off-site areas should be modeled as their present land use condition in good hydrologic condition.
- (j) The length of overland sheet flow used in time of concentration (TC) calculations shall be limited to not more than 50 feet for pre and post development conditions.
- (k) Stormwater Management Systems shall be designed to retain and/or treat the first one inch (1”) of runoff from all impervious surfaces on the site. The portion of the first one inch (1”) which cannot be feasibly retained and/or infiltrated shall be treated using treatment methods consistent with the Final Total Maximum Daily Loads for affected receiving waters and any additional treatment requirements in the Town of Braintree’s MS4 Permit. Pre-treatment of runoff from paved surfaces is required to remove 44% of the Total Suspended Solids prior to infiltration. Driveways associated with applications for single-family dwellings are exempt from this requirement as per the 2008 Mass DEP Stormwater Handbook, but to the extent practicable, runoff from such driveways shall be directed to adjacent pervious surfaces.
- (l) Stormwater outlets shall be designed to prevent erosion.
- (m) For other structural stormwater controls not included in the Mass DEP Stormwater Handbook, or for which pollutant removal rates have not been provided, the effectiveness and pollutant removal of the structural control must be documented through third party studies and receive approval from the Department before being included in the design of a stormwater management system.

Section 3 – Segmentation

Proposed residential, commercial or industrial subdivisions shall apply these stormwater management criteria to the land development as a whole. Individual lots in new subdivision shall not be considered separate land development projects, but rather the entire subdivision shall be considered a single land development project. Hydrologic parameters shall reflect the ultimate land development and shall be used in all engineering calculations.

Section 4 – Sensitive Areas

Stormwater discharges to critical areas with sensitive resources (i.e. shellfish beds, swimming beaches, aquifer recharge areas, water supply reservoirs, Areas of Critical Environmental Concern) may be subject to additional criteria, or may need to utilize or restrict certain stormwater management practices at the discretion of the Department.

ARTICLE VII Enforcement

The Department or an authorized agent of the Department shall enforce these Regulations and may pursue all civil, criminal, and non-criminal remedies for violations of said Regulations.

A. INSPECTIONS

Section 1 - Right of Access.

- (a) To the extent permitted by law or with the consent of the property owner, duly authorized representatives of the Town may inspect the property or facilities of any property owner (including facilities under construction) to ascertain compliance with these Regulations or compliance with any permit issued pursuant to these Regulations.
- (b) Owners or occupants of premises where stormwater is either generated or discharged shall allow properly identified Town representatives safe and ready access, at all reasonable times during normal business hours and at such other times as the Town reasonably suspects that a violation of these Regulations or a permit issued pursuant to these Regulations may be occurring. Access shall be allowed to all such parts of the premises as would enable Town personnel to inspect, observe, measure, sample and test all such other facilities as the Town reasonably believes may be contributing to a violation of these Regulations or a permit issued pursuant to these Regulations.
- (c) The Town may conduct routine, periodic inspections of facilities such as building storm drains, catch basins, treatment systems, pre-treatment facilities or other stormwater components. Owners or occupants shall provide any labor or equipment needed by Town personnel to open, inspect, and operate such facilities.

B. MONETARY LIABILITY

Section 1 - Penalties.

Any person who violates any provision of these Regulations or a permit issued pursuant to these Regulations shall forfeit and pay to the Town an amount set forth in Chapter 13.14.0501 of the Town's Ordinances. For purposes of this section, each day of a continuous violation shall be deemed to be a separate violation. If a violation is intermittent, each occurrence shall be deemed to be a separate violation.

Section 2 - Reimbursement for Costs to the Town.

Failure to comply with any portion of these Regulations, or with any permit or order issued thereunder, shall be sufficient cause for the Town to levy on and collect from each violator any additional cost for any expense, loss, or damage occasioned by such violation, including assessments or penalties levied or imposed on the Town by any state or federal agency.

C. ENFORCEMENT ACTIONS

Section 1 - Multiple Alternatives. When the Department determines that a person has a violation the Town may take any one or more of the following actions, in any sequence or simultaneously:

- (i) The Town may issue a request or an order to cease and desist any such violation or any actions that cause or threaten to cause a violation, and/or an implementation schedule for undertaking specific actions or practices.
- (ii) The Town may require the person to obtain a storm drain connection permit.
- (iii) The Town may require the person in question to submit a detailed time schedule setting forth specific actions to be taken and specific dates upon which such actions will be undertaken in order to prevent or correct a violation. The Town may issue an implementation schedule containing or modifying such specific actions and time schedule, or requiring such other actions within such times as the Town deems appropriate.
- (iv) The Town may issue an order directing the person to pay to the Department penalties and costs in accordance with Section C.
- (v) The Town may revoke, modify, deny, suspend, or refuse to renew a permit issued to the person under these Regulations.
- (vi) The Town may take direct enforcement action by filing suit in any court of competent jurisdiction for civil or criminal fines and reimbursement of costs or damages resulting from the violation or threatened violation and/or injunctive relief.
- (vii) The Town may take any other action available to it under any applicable statute or regulation.

**ARTICLE VIII
Permit Fees
STORMWATER PERMIT FEE SCHEDULE**

Section 1 – Each Stormwater Management Permit application must include the required filing fee.

a) Application Fee

- (1) An Application Fee is payable at the time of application. It is non-refundable.
- (2) The purpose of the Application Fee is to offset the Department’s costs incurred by the Town in reviewing, approving and monitoring the permit and compliance therewith.
- (3) The Application Fee is in addition to any other local or state fees that may be charged under any other law or ordinance.
- (4) The Application Fee shall be paid according to the following schedule:

<u>Activity</u>	<u>Application Fee</u>
Existing Building/Drain Connection	No charge
Land Disturbance more than 2,500 SF but less than 6,000 SF	\$100.00
New or Re-developed Single/Two Family House	\$250.00
Residential Development other than SF House	
Residential Subdivision	
2 – 3 Lots	\$300.00
4 – 10 Lots	\$1,000.00
11 or more Lots	\$1,500.00
Multi-Family Structures (townhouses, condominiums, apartments larger than 2 units per building)	
3 – 10 Units	\$700.00
11 – 23 Units	\$900.00
24 – 40 Units	\$2,000.00
41 or more Units	\$2,750.00
Commercial and Industrial Projects	
Disturbance of 2,500 SF to 5,000	\$400.00
Disturbance of 5,001 SF to 21,779 (1/2 AC)	\$500.00
Disturbance of 21,780 SF (1/2 AC) – 1 AC	\$600.00
Disturbance of 1.1 to 2 AC	\$700.00
Disturbance of 2.1 to 10 AC	\$1,000.00
Disturbance of more than 10 AC	\$1,500.00

Request for Certificate of Completion

Single or Two Family House	\$100.00
All others	\$200.00

b) Review Fee

- (1) A Review Fee may be charged to cover outside professional consultant review services for a project if the Department, after consultation with the Town Engineer, determines that such services are necessary due to the scope and complexity of the project. The consultant services may include, but are not limited to review by engineers, hydrologists, attorneys, or other professionals for hydrologic and drainage analysis, stormwater quality analysis, site inspections, as-built plan review , and analysis of legal issues.
- (2) The applicant will be provided with an estimate of the Review Fee as determined by the Department and the Town Engineer. This estimated fee must be paid to the town prior to the start of the review process, unless the Department approves other arrangements for the applicant to pay consultants directly when services are provided.

c) Inspection Fees

An Inspection Fee of fifty (50) dollars shall be paid by the applicant for each site inspection conducted by Town personnel during the construction of the project. The cost of any inspection conducted by a professional consultant shall be paid for by the applicant as provided in Section 1.b).

ARTICLE IX
Adoption

Section 1 - Effective Date.

These Regulations shall be in full force and effect after their adoption in accordance with Section 8-4 of the Town Charter.

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APPENDIX A - DEFINITIONS

Definitions. Terms which are not defined herein shall be interpreted as commonly used. Throughout these Regulations, *shall* is mandatory, and *may* is permissive. Definitions shown in italics are taken from Chapter 13.14 of the Town of Braintree Ordinances. Unless the content specifically indicates otherwise, the meaning of the terms used in these Regulations shall be as follows:

Alter: Any activity which will measurably change the ability of a ground surface area to absorb water or will change existing surface drainage patterns. Alter may be similarly represented as “alteration of drainage characteristics”, and “conducting land disturbance activities.”

Applicant: Any person, individual, partnership, association, firm, company, corporation, trust, authority, agency, department, or political subdivision of the Commonwealth or the Federal government (to the extent permitted by law), requesting a Stormwater Management Permit.

Best Management Practices (BMPs): Structural, non-structural and managerial techniques that are recognized to be the most effective and practical means to prevent and/or reduce increases in stormwater volumes and flows, reduce point source and non-point source pollution, and promote stormwater quality and protection of the environment. “Structural” BMPs are devices that are engineered and constructed to provide the temporary storage and treatment of stormwater runoff. “Non-structural” BMPs use natural measures to reduce pollution levels, do not require extensive construction efforts, and/or promote pollutant reduction by eliminating the pollutant source

Building Storm Drain: The pipe which connects a building drain conveying stormwater to a storm drain or other place of disposal. The building storm drain begins 10 feet outside the inner face of the building foundation wall and extends to and includes the connection to the Town's storm drain. It may include leaders from roof drains, downspouts, trench drains or similar, but not floor drains collecting flow considered to be sewage.

Certified Professional I Erosion and Sediment Control (CPESC): a certified specialist in soil erosion and sediment control. This certification program, sponsored by the Soil and Water Conservation Society in cooperation with the American Society of Agronomy, provides the public with evidence of professional qualifications.

Cleanout: A device or structure designed to provide access to a building storm drain for the purpose of eliminating blockages and removing deposited or accumulated materials.

Clean Water Act: *The Federal Water Pollution Control Act (33 U.S.C. § 1251 et seq.) as it is amended from time to time.*

Conservation Commission: Town of Braintree Conservation Commission through its staff within the Department of Planning and Community Development.

Construction Activity Stormwater Permit: An EPA NPDES General Permit for the discharge of pollutants in stormwater runoff from areas where the soil disturbing activities, construction materials, or equipment storage or maintenance, or other industrial stormwater directly related to the construction process are located.

Conveyance: Any structure or device including pipes, drains, culverts, curb breaks, paved swales or man-made swales of all types designed or utilized to move or direct stormwater runoff or existing water flow.

Cooling water: The water discharged from any system of condensation, air conditioning, cooling, refrigeration, or other system of heat transfer.

DEP: The Massachusetts Department of Environmental Protection.

Department: The Braintree Department of Public Works.

Dewatering Discharge: Groundwater or surface water which is removed from a site and discharged beyond the limits of the site by means of gravity or pumping.

Director: The Director of the Braintree Department of Public Works, or his/her designee.

Discharge of Pollutants: The addition, from any source, of any pollutant or combination of pollutants into the MS4 or into the waters of the United States or Commonwealth from any source.

Drainage Easement: A legal right granted by a landowner to a grantee allowing the use of private land for stormwater management purposes.

EPA: The United States Environmental Protection Agency.

Erosion: The wearing away of the land surface by natural or artificial forces such as wind, water, ice, gravity or vehicle traffic and the subsequent detachment and transportation of soil particles.

Erosion Control: The prevention or reduction of the movement of soil particles or rock fragments.

Erosion and Sediment Control Plan: A plan that shows the location and construction detail(s) of the erosion and sediment reduction controls to be utilized for a construction site.

Flood Control: The prevention or reduction of flooding and flood damage.

Flooding: A local and temporary inundation or a rise in the surface of a body of water such that it covers land not usually under water.

Floor drain: An intended drainage point in an otherwise impervious floor which serves as the point of entry into any subsurface drainage, sewage, treatment, disposal, containment, or other plumbing system.

General Permit: *The National Pollutant Discharge Elimination System General Permit for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems issued by the United States Environmental Protection Agency.*

Grading: Changing the level or shape of the ground surface.

Groundwater: All water beneath any land surface including water in the soil and bedrock beneath water bodies.

Hazardous Waste: A waste, or combination of wastes, that at the time of discharge:

- (a) Is identified as a hazardous waste by EPA pursuant to the *Resource Conservation and Recovery Act, 42 USC 6901, et seq.*, and is listed in *40 CFR Part 261*, as amended from time to time;
- (b) Has any of the hazardous waste characteristics identified by EPA in *40 CFR Part 261* as amended from time to time;
- (c) Has been identified by DEP as a hazardous waste pursuant to M.G.L. c. 21C and is listed in 310 CMR 30.000; as amended from time to time; or
- (d) Has any of the hazardous waste characteristics identified by DEP in 310 CMR 30.000, as amended from time to time.
- (e) A waste that would be a hazardous waste pursuant to the EPA or DEP criteria but for the fact that it is discharged to the sanitary sewer system shall be, for purposes of this definition, a hazardous waste.

Hotspot: Land uses or activities with higher potential pollutant loadings, including but not limited to auto salvage yards, auto fueling facilities, fleet storage yards, commercial parking lots with high intensity use, road salt storage areas, commercial nurseries and landscaping companies, marinas and boat yards, outdoor storage and loading areas of hazardous substances.

Illicit Connection: *Any surface or subsurface drain or conveyance which allows an illicit discharge into a storm drain, including without limitation, sewage, process wastewater, or wash water and any connections from indoor drains, sinks, or toilets regardless of whether said connection was previously allowed, permitted, or approved before the effective date of this regulation.*

Illicit Discharge: *the dumping or discharging of any pollutant or non-stormwater discharge into the municipal storm drain system, into a watercourse, or into waters of the United States and/or the Commonwealth, except as exempted in § 13.14.030.*

Impaired Water : A water body that does not meet the quality standards for one or more of its designated uses and is therefore listed in categories 4 or 5 of the five part categorization approach used for classifying the water quality standards attainment status for water segments under the TMDL program.

Impervious Surface: Any material or structure on or above the ground that prevents water from infiltrating through the underlying soil. Impervious surface is defined to include, without limitation: paved parking lots, sidewalks, rooftops, driveways, patios and paved, gravel and compacted dirt surfaced roads.

Industrial Activity Stormwater Permit: An EPA NPDES General Permit for the discharge from any conveyance activity that is used for collecting and conveying stormwater that is directly related to manufacturing, processing or raw materials storage areas at an industrial plant.

Infiltration: The act of conveying surface water into the ground to permit groundwater recharge and the reduction of stormwater runoff from a project site.

Land Disturbance: *Any activity that removes the surface cover from land, changes the grade or exposes soil to the potential influence of stormwater.*

Massachusetts Stormwater Standards: *The performance standards issued by the Massachusetts Department of Environmental Protection (DEP), codified in the regulations at 310 CMR 10.05(6)(k)-(q), and further defined and specified in the Massachusetts Stormwater Handbook issued by the DEP.*

Municipal Storm Drain System or Municipal Separate Storm Sewer System (MS4): *The system of conveyances designed or used for collecting or conveying stormwater, including any road with a drainage system, street, gutter, curb, inlet, piped storm drain, pumping facility, retention or detention basin, natural or man-made or altered drainage channel, reservoir, and other drainage structure that together comprise the storm drainage system owned or operated by the Town.*

National Pollutant Discharge Elimination System (NPDES) Permit: The permit required and issued by EPA and/or DEP to control point source discharges of pollutants to waters of the United States or separate storm drain systems. It shall also mean the permit issued to the Town by the EPA and/or DEP for its combined sewer and stormwater discharges.

New Development: Any construction or land disturbance of a parcel of land that is currently in a natural vegetated state and does not contain alteration by man-made activities.

Non-point Source Pollution: Pollution from many diffuse sources caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into water resource areas.

NPDES Notice of Intent (NOI): The form completed and submitted to the EPA by a person seeking to include a discharge under an NPDES General Permit.

Oil trap: Shall mean a receptacle designed to separate petroleum-based oil and grease, from water. Also called a separator in the Uniform State Plumbing Code, 248 CMR 2.00.

Operation and Maintenance (O&M) Plan: A plan that defines the functional, financial and organizational mechanisms for the ongoing operation and maintenance for a stormwater management system to ensure that it continues to function as designed.

Outfall: The point at which stormwater flows out from a point source into the waters of the United States and/or Commonwealth.

Owner : *A person who alone or jointly or severally with others has the legal title to any premises or has care, charge or control of any premises, as agent, executor, administrator, trustee, lessee or guardian of the estate of the holder of legal title.*

Person: *An individual, partnership, association, firm, company, trust, corporation, agency, authority, department or political subdivision of the Commonwealth or the Federal government, to the extent permitted by law, and any officer, employee, or agent of such person.*

Planning Board: The Planning Board within the Braintree Department of Planning and Community Development.

Point Source: Any discernible, confined and discrete conveyance, including but not limited to: any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, or container from which pollutants are or may be discharged.

Pollutant(s): Any element or property of sewage, residential, agricultural, industrial, or commercial waste, runoff, leachate, heated effluent, or other matter whether originating at a point or non-point source, that is or may be introduced into any storm drain system, waters of the United States, and/or Commonwealth. Pollutants shall include without limitation:

1. paints, varnishes, solvents;
2. oil, grease, antifreeze, other automotive fluids and/or products;
3. non-hazardous liquid and solid wastes;
4. refuse, garbage, litter, rubbish, yard wastes, or other discarded or abandoned objects, ordnances, accumulations and floatables;
5. pesticides, herbicides and fertilizers;
6. hazardous materials and wastes;
7. sewage;

8. dissolved and particulate metals;
9. metal objects or materials;
10. animal wastes;
11. rock, sand, salt, soils, or other products/materials that mobilize in surface water runoff;
12. construction wastes and/or residues.
13. And any substance that causes or contributes to the impairment of the waters of the Commonwealth.

Pollutant of Concern: A pollutant which causes or contributes to a violation of a water quality standard, including a pollutant which is identified as causing impairment in the State's Integrated List of Waters (303(d) list).

Pre-Development: The conditions that exist at the time that plans for the land development of a tract of land are submitted to the Department. Where phased development or plan approval occurs (preliminary grading, roads and utilities, et.) the existing conditions at the time prior to the first plan submission shall establish pre-development conditions.

Post-Development: The conditions that reasonably may be expected or anticipated to exist after completion of the land development activity on a specific site or tract of land. Post-development refers to the phase of a new development or redevelopment project after completion and does not refer to the construction phase of a project.

Private storm drain: A storm drain and components which are not owned by the Town. Private Storm Drains and stormwater runoff facilities include, but are not limited to, building storm drains, drains, catch basins and manholes located on private property and not located within an easement held by the Town, and storm drains owned by other municipalities and public agencies. The connection from a private storm drain to the public storm drain system is also owned and maintained by the owner of the private storm drain.

Receiving waters shall mean any watercourse, river, pond, wetland, ditch, lake, aquifer, ocean or other body of surface water or groundwater that receives a discharge of stormwater.

Recharge: The replenishment of underground water reserves.

Redevelopment: Development, rehabilitation, expansion, demolition or phased projects that disturb the ground surface on previously developed sites.

Runoff: Rainfall, snowmelt, or irrigation water flowing over the ground surface.

Sanitary Sewer or Sewer: A pipe designed to carry wastewater, including but not limited to sanitary sewage and industrial wastes.

Sediment: Mineral or organic soil material that is transported by wind or water, from its origin to another location; the product of erosion processes.

Sedimentation: The process or act of deposition of sediment.

Site: The parcel of land being developed, or a designated planning area in which the land development project is located.

Stabilization: The use, singly or in combination, of mechanical, structural or vegetative methods, to prevent or retard erosion.

State Clean Water Act: *Massachusetts General Laws Chapter 21.*

Storm drain: A pipe or conduit designed to carry stormwater, surface water or runoff.

Stormwater: *Stormwater runoff, snow melt runoff and drainage of any water resulting from rainfall or other precipitation that runs off surfaces during or after a storm. and surface runoff and drainage.*

Stormwater Authority: The Braintree Department of Public Works or its authorized agent(s). The Department of Public Works is responsible for coordinating the review, approval and permit process as defined in these Regulations. Other Boards and/or departments participate in the review process as defined in these regulations.

Stormwater Management: The use of structural or non-structural practices that are designed to reduce stormwater runoff, pollutant loads, discharge volumes, and/or peak flow discharge rates.

Stormwater Management Permit (SMP): The permit required and issued by the Department authorizing the connection the Town's storm drainage systems.

Stormwater Management Permit Application: The form provided by the Department and completed and submitted, along with any required attachments, to the Department by the property owner or by the owner's agent prior to construction, reconstruction, repair or modification of a connection or an appurtenance to the Town's storm drains and stormwater runoff facilities.

Surface water: All water appearing on the earth's surface exposed to the atmosphere, such as rivers, lakes, streams, and oceans.

Total Maximum Daily Load (TMDL): A calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards.

Town: The Town of Braintree.

Treatment system or pretreatment system: Any and all devices, equipment, or works, including Best Management Practices, used in the pumping, storing, treating, recycling, and reclaiming of stormwater.

TSS: Total Suspended Solids.

Watercourse: A natural or man-made channel through which water flows or a stream of water, including a river, brook or underground stream.

Water Quality Standards: The standards contained in 314 CMR 4.00 that define the water goals of a water body, or portion thereof, by designating the use or uses to be made of the water and by setting criteria necessary to protect the uses.

Water Quality Volume (WQV): The volume of runoff that must be used to determine the design of a Best Management Practice (or series of practices) to achieve a specified level of treatment (in this case 80% removal of total suspended solids – TSS) under the Massachusetts DEP Stormwater Management Policy.

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APPENDIX B – STORMWATER MANAGEMENT PLAN DESIGN CRITERIA

The following additional requirements apply to all Major Projects unless otherwise determined by the Department:

Section 1- Treatment Requirements.

Every property owner who directly or indirectly discharges stormwater to the Town stormwater system or a private infiltration system shall provide the treatment system necessary to ensure that the discharge complies with the requirements of the Planning Board, Conservation Commission and these Regulations including but not limited to: Stormwater management systems designed on sites with documented soil contamination or systems designed on industrial sites shall not include BMPs that promote infiltration and shall instead require use of treatment BMPs on site.

Stormwater management systems designed to include infiltration near environmentally sensitive areas, including public water supplies, Interim Wellhead Protection Areas, and Zones II, A, B, and C, swimming beaches, and cold water fisheries, shall incorporate designs that allow for shutdown and containment where appropriate to isolate the system in the event of an emergency spill or other unexpected event. In order to protect these resources, any stormwater management system designed to infiltrate stormwater near environmentally sensitive areas must, prior to infiltration, provide the level of pollutant removal equal to or greater than the level provided through the use of bio-filtration of the same volume of runoff.

Treatment systems shall be designed to avoid disturbance of areas susceptible to erosion and sediment loss.

All BMPs installed as part of the sites stormwater treatment system shall be selected and constructed in accordance with the Massachusetts Stormwater Handbook Volume 2 Chapter 2, as amended.

Section 2 – Treatment Standards for New Development and Re-development.

Stormwater Management Systems shall be designed to retain and/or treat the first one inch (1") of runoff from all impervious surfaces on the site. The portion of the first one inch (1") which cannot be feasibly retained and/or infiltrated shall be treated using treatment methods consistent with the Draft or Final Total Maximum Daily Loads for affected receiving waters and any additional treatment requirements in the Town of Braintree's MS4 Permit. Pre-treatment of runoff from paved surfaces is required to remove 44% of the Total Suspended Solids prior to infiltration. Driveways associated with applications for single-family dwellings are exempt from this requirement as per the 2008 Mass DEP Stormwater Handbook, but to the extent practicable, runoff from such driveways shall be directed to adjacent pervious surfaces.

These standards shall be met through a combination of practices designed to retain runoff on site (environmentally sensitive site design, low impact development techniques, green infrastructure) where technically feasible, and stormwater BMPs designed to treat the remainder of the runoff that cannot be retained on site due to site constraints. The level of pollutant removal from BMPs shall

be calculated consistent with EPA Region 1's BMP Performance Extrapolation Tool. BMPs must be chosen to maximize reduction of pollutants identified in the approved TMDL. BMPs must be selected and designed using the appropriate criteria from the most recent Massachusetts Stormwater Handbook. For other structural stormwater controls not included in the Handbook or for which approximate pollutant removal capabilities have not been provided, the pollutant removal effectiveness must be documented through prior studies, literature reviews, or other means and must receive approval from the Department. The Department may issue one or more Guidances identifying BMPs or combinations of BMPs that will maximize reduction of each pollutant of concern.

Section 3 – Major Permit Conditions.

The Department may condition permits as it deems necessary. All major permits will, at a minimum, include the following conditions:

- 1) The treatment system shall include the development of a long term Operation and Maintenance plan to inspect and repair installed BMPs to ensure that they are functioning according to manufacturer or design specifications. Any subsequent proposed changes in a treatment system or method of operation shall be approved by the Director before modification of such a facility.
- 2) Permittees shall submit as-built drawings no later than one year after completion of construction projects. The as-built drawings must depict all on site controls, both structural and non-structural, designed to manage stormwater associated with the completed site.
- 3) The treatment system shall be continuously maintained in satisfactory and effective operation. All costs associated with treatment system planning, design, construction, operation and maintenance shall be borne by the owner or property owner. The Town shall have the right to inspect such facilities in accordance with Article VII of these Regulations.

Section 4 – NPDES Notice of Intent and Permit.

Every person who is required to be covered under a Construction Activity Permit shall submit to the Department a copy of the completed Notice of Intent or individual application as submitted to EPA, and the information identified in items 1 through 5 below, as applicable.

- 1) Address of the building (or premises) where the discharge will take place and the name and address of the building (or premises) owner;
- 2) Name of a contact person, title and phone number;
- 3) A site plan or sketch which shows the location of the connection of the building storm drain or the point(s) of discharge to the Town's storm drainage system, including the street name, and the size of the storm drain to which the Stormwater will discharge;

4) Existing NPDES permit number, if any;

4) Facility's Assessor's Parcel Number

Section 5 – Storm Drain Extensions.

Any person may propose an extension, replacement or relocation of a Town storm drain to serve a new or rehabilitated building. At least 60 days prior to initiating any work the applicant shall submit two copies of the Stormwater Management Permit – Major Project application form. Every extension, replacement or relocation of a Town storm drain shall be designed and constructed in accordance with the Department's design requirements, specifications and standard details. Any tests, studies, investigations and inspections required for design and construction shall be conducted in accordance with the Department's requirements. All expenses incurred pursuant to the extension, replacement or relocation of a Town storm drain including but not limited to application, engineering, legal, permitting, construction and inspection costs, shall be borne by the applicant.

After constructing a Town approved public storm drain extension, replacement or relocation, the owner shall, upon approval and acceptance by the Director, transfer ownership of the storm drain to the Town through a Release Agreement in a form prescribed by the Town. The Release Agreement shall be accompanied with as-built plans for the extended, replaced or relocated storm drain and any other information required by the Town. Until such time as the Release Agreement is signed by the Town, the extended, replaced or relocated storm drain shall be considered to be privately owned by the applicant and shall be subject to the requirements pertaining to private Storm Drains and Stormwater Runoff Facilities contained in these Regulations.

APPENDIX C – EROSION AND SEDIMENT CONTROL PLAN REQUIREMENTS

1. General

The application for a Stormwater Permit (**Major**) shall include an Erosion and Sediment Control Plan (ESCP) to describe the nature and purpose of the proposed development, pertinent conditions of the site and the adjacent areas, and proposed erosion and sediment controls. The applicant shall submit such material as is necessary to show that the proposed development will comply with the design requirements as specified herein and in accordance with the Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas – A Guide for Planners, Designers and Municipal Officials, latest edition. The applicant may submit the SWPPP in place of the ESCP, if the NPDES General Permit for Discharges for Construction Activities applies.

2. Applicability

Single-family Applicants – Single-family applicants shall submit the ESCP as outlined in this section. However, the requirement for stamped and certified plans shall not apply to single-family applicants.

Commercial and Other Non-Single-Family Applicants – Commercial and other non-single-family applicants shall submit the ESCP as outlined in this section.

3. Contents

The ESCP shall include the following:

- (a) Contact Information: Names, addresses and telephone numbers of the property owner/applicant, and applicant's technical representative(s) or firms(s) preparing the ESCP, if different from the Permit.
- (b) Drainage patterns of surface runoff and approximate slopes anticipated after major grading activities (Construction Phase Grading Plans)
- (c) Location and details of erosion and sediment control measures with a narrative of the construction sequence/phasing of the project, including both operation and maintenance for structural and non-structural measures, interim grading and construction and waste material stockpiling areas.
- (d) Path and mechanism to divert uncontaminated water around disturbed areas, to the maximum extent practicable.
- (e) Location and description of an implementation schedule for temporary and permanent seeding, vegetative controls and other stabilization measures.

- (f) A description of construction and waste materials expected to be stored on-site and intended disposal methods. The ESCP shall include a description of controls to reduce pollutants from these materials, include a description of controls to reduce pollutants for these materials, including storage practices to minimize exposure of the materials to stormwater and spill prevention and response.
- (g) Plan must be stamped and certified by a Professional Engineer registered in the Commonwealth of Massachusetts or a Certified Professional in Erosion and Sediment Control (CPESC)
- (h) Such other information as is required by the Department.

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APPENDIX D – OPERATIONS AND MAINTENANCE PLAN REQUIREMENTS

1. General

An Operation and Maintenance Plan (O&M Plan) is required at the time of application for all **Major** projects. Once approved by the Department the O&M Plan shall be recorded at the Norfolk County Registry of Deeds, shall remain on file with the Department and shall be an ongoing requirement.

2. Applicability

Single-family Applicants – Single-family applicants shall be exempt from submitting the O&M Plan as outlined in this section.

Commercial and other Non-single-family Applicants – Commercial and other non-single-family applicants shall submit the O&M Plan as outlined in this section.

3. Contents

The O&M Plan shall include:

- (a) The names(s) of the property owner(s) for all components of the system.
- (b) Maintenance agreements that specify:
 - i. The names and addresses of the person(s) responsible for operation and maintenance.
 - ii. The person(s) responsible for financing maintenance and emergency repairs.
 - iii. A Maintenance Schedule listing actions to be taken and a timeline for all drainage structures, include swales and ponds.
 - iv. A listing of easements with the purpose and location of each.
 - v. The signature(s) of the owner(s).
 - vi. Requirement to notify the Department in writing of changes in ownership or assignment of financial responsibility.

4. Modifications

Amendments to the O&M Agreement shall be made in writing to the Department and shall be signed by the responsible parties. The amended O&M Plan shall then be filed at the Norfolk County Registry of Deeds when approved.

5. Reporting

Annual reports with maintenance logs shall be sent to the Department by January 31 of each calendar year. Failure to comply with the reporting requirement shall be considered a violation of these regulations and may be subject to fines as per Ch. 13.14.050.D.

Appendix B
Spill Documentation Form

Significant Spills, Leaks or Other Releases

Instructions:

- Include the descriptions and dates of any incidences of significant 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 .
- Provide information, as shown below, for each incident, and attach additional documentation (e.g., photos, spill cleanup records) as necessary. Repeat as necessary by copying and pasting the fields below.

Date of incident:

Location of incident:

Description of incident:

Circumstances leading to release:

Actions taken in response to release:

Measures taken to prevent recurrence:

Date of incident:

Location of incident:

Description of incident:

Circumstances leading to release:

Actions taken in response to release:

Measures taken to prevent recurrence:

Date of incident:

Location of incident:

Description of incident:

Circumstances leading to release:

Actions taken in response to release:

Measures taken to prevent recurrence:

Date of incident:

Location of incident:

Description of incident:

Circumstances leading to release:

Actions taken in response to release:

Measures taken to prevent recurrence:

Appendix C
Training Documentation and
Attendance Sheet

Employee Training

Instructions:

- Keep records of employee training, including the date of the training.
- For in-person training, consider using the tables below to document your employee trainings. For computer-based or other types of training, keep similar records on who was trained and the type of training conducted.

Training Date:	
Training Description (including duration and subjects covered):	
Trainer:	
Employee(s) trained	Employee signature

Training Date:	
Training Description (including duration and subjects covered):	
Trainer:	
Employee(s) trained	Employee signature

Training Date:	
Training Description (including duration and subjects covered):	
Trainer:	
Employee(s) trained	Employee signature

Appendix D
Facility Inspection Form

Site Inspection Reports

Instructions:

- Include in your records copies of all routine facility inspection reports completed for the facility.
- The sample inspection report is consistent with the requirements in the 2016 Massachusetts MS4 Permit relating to site inspections. **If MassDEP provides you with an inspection report, use that form.**

Using the Sample Site Inspection Report

- This inspection report is designed to be customized according to the specific control measures and activities at your facility. For ease of use, you should take a copy of your site plan and number all of the stormwater control measures and areas of industrial activity that will be inspected. A brief description of the control measures and areas that were inspected should then be listed in the site-specific section of the inspection report.
- You can complete the items in the “General Information” section that will remain constant, such as the facility name and inspector (if you only use one inspector). Print out multiple copies of this customized inspection report to use during your inspections.
- When conducting the inspection, walk the site by following your site map and numbered control measures/areas of industrial activity to be inspected. Also note whether the “Areas of Materials or Activities exposed to stormwater” have been addressed (customize this list according to the conditions at your facility). Note any required corrective actions and the date and responsible person for the correction.

Stormwater Site Inspection Report

General Information	
Facility Name	DPW Union St. Facility
Date of Inspection	Start/End Time
Inspector's Name(s)	
Inspector's Title(s)	
Inspector's Contact Information	
Inspector's Qualifications	
Weather Information	
Weather at time of this inspection? <input type="checkbox"/> Clear <input type="checkbox"/> Cloudy <input type="checkbox"/> Rain <input type="checkbox"/> Sleet <input type="checkbox"/> Fog <input type="checkbox"/> Snow <input type="checkbox"/> High Winds <input type="checkbox"/> Other: _____ Temperature: _____	
Have any previously unidentified discharges of pollutants occurred since the last inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, describe: _____	
Are there any discharges occurring at the time of inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, describe: _____	

Control Measures

- Number the structural stormwater control measures identified in your SWPPP on your site map and list them below (add as many control measures as are implemented on-site). Carry a copy of the numbered site map with you during your inspections. This list will ensure that you are inspecting all required control measures at your facility.
- Describe corrective actions initiated, date completed, and note the person that completed the work in the Corrective Action Log.

	Structural Control Measure	Control Measure is Operating Effectively?	If No, In Need of Maintenance, Repair, or Replacement?	Corrective Action Needed and Notes (identify needed maintenance and repairs, or any failed control measures that need replacement)
1	OWS#1	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
2	Tight Tank	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
3		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
4		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
5		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
6		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
7		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance	

	Structural Control Measure	Control Measure is Operating Effectively?	If No, In Need of Maintenance, Repair, or Replacement?	Corrective Action Needed and Notes (identify needed maintenance and repairs, or any failed control measures that need replacement)
			<input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
8		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
9		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
10		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	

Areas of Materials or Activities exposed to stormwater

Below are some general areas that should be assessed during routine inspections. Customize this list as needed for the specific types of materials or activities at your facility.

	Area/Activity	Inspected?	Controls Adequate (appropriate, effective, and operating)?	Corrective Action Needed and Notes
1	Material loading/unloading and storage areas	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
2	Equipment operations and maintenance areas	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3	Fueling areas	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
4	Outdoor vehicle and equipment washing areas	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	
5	Waste handling and disposal areas	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
6	Erodible areas/construction	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
7	Non-stormwater/ illicit connections	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
8	Salt storage piles or pile containing salt	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
9	Dust generation and vehicle tracking	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
10	(Other) Animal Shelter	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

	Area/Activity	Inspected?	Controls Adequate (appropriate, effective, and operating)?	Corrective Action Needed and Notes
11	(Other) Vehicles/Equipment	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
12	(Other)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Non-Compliance

Describe any incidents of non-compliance observed and not described above:

Additional Control Measures

Describe any additional control measures or changes to the SWPPP needed to comply with the permit requirements:

Notes

Use this space for any additional notes or observations from the inspection:

Print inspector name and title:

Tyler Clouse, Stormwater Outreach Coordinator

Signature: _____ **Date:** _____

Quarterly Visual Assessment Reports – additional form when stormwater discharge is occurring

Instructions:

- Include in your records copies of all quarterly visual assessment reports completed for the facility. An example quarterly visual assessment report can be found on the following page.
- At least one quarterly inspection per year must occur while stormwater is discharging.

Quarterly Visual Assessment Form– additional form when stormwater discharge is occurring

(Complete a separate form for each outfall you assess)

Name of Facility: **DPW Union St. Facility**

Outfall Name: "Substantially Identical Outfall"? No Yes (identify substantially identical outfalls):

Person(s)/Title(s) collecting sample:

Person(s)/Title(s) examining sample:

Date & Time Discharge Began (approx.):

Date & Time Visual Sample Collected:

Date & Time Visual Sample Examined:

Nature of Discharge: Rainfall Snowmelt

Parameter

Color None Other (describe):

Odor None Musty Sewage Sulfur Sour Petroleum/Gas _____
 Solvents Other (describe):

Clarity Clear Slightly Cloudy Cloudy Opaque Other

Floating Solids No Yes (describe):

Settled Solids* No Yes (describe):

Suspended Solids No Yes (describe):

Foam (gently shake sample) No Yes (describe):

Oil Sheen None Flecks Globs Sheen Slick
 Other (describe):

Other Obvious Indicators No Yes (describe):
of Stormwater Pollution

* Observe for settled solids after allowing the sample to sit for approximately one-half hour.

Detail any concerns, additional comments, descriptions of pictures taken, and any corrective actions taken below (attach additional sheets as necessary).

A. Name:

B. Title:

C. Signature:

D. Date Signed:

Appendix E
Vehicle and Equipment Inventory



Vehicle Inventory

Braintree, MA

*Vehicles - Equipment
Treasures*

DEPARTMENT: CEMETERY

Nickname	VIN	Year/Make/Model	Plate No.	Mileage	Engine Hrs	Condition
C-1	1FD0X5HYXHED11528	2017 FORD F-550	M98470	1	N/A	Excellent
C-2	1FT7X2B64HEC35510	2017 FORD F-250	M98-456	N/A	N/A	Excellent
C-3	1FDUF5HY4FEB42320	2015 FORD F-550	M93-473	N/A	N/A	
C-4	T0310JX146632	2007 JOHN DEERE	M43365	N/A	N/A	Fair
C-5	B8200HBD60443	1985 KUBOTA	M39527	N/A	N/A	
C-6	5A4YNSJ19A2030369	2010 LOADRITE	M83593	N/A	N/A	

Total Vehicles: 6

DEPARTMENT: FACILITIES

Nickname	VIN	Year/Make/Model	Plate No.	Mileage	Engine Hrs	Condition
M-1	1FMEU7DE7AUA71629	2010 FORD EXPLOER	M98465	N/A	N/A	
M-2	1FMK8ARODGA34122	2013 FORD	M3931A	120000	N/A	
M-3	1FDUF4HY3GEB26089	2016 FORD F-450	M94681	14338	N/A	Excellent
M-4	1FTYR2CM2KKA68925	2019 FORD T250	M5849A	1749	N/A	Excellent
M-5	1FTYR1YM8KKA84386	2019 FORD T150	M5832A	1780	N/A	Excellent
Spare	2FABP7BV2AX140422	2010 FORD CROWN	M98466	N/A	N/A	Fair

Total Vehicles: 6

DEPARTMENT: HIGHWAY

Nickname	VIN	Year/Make/Model	Plate No.	Mileage	Engine Hrs	Condition
H-1	1HTSDAAR7YH249251	2000 INT'L 4900	M82634	38250	N/A	Poor
H-10	1FTWW31R18EB33338	2007 FORD F-350	M80290	101602	12643	Poor
H-11	1HTWDAAR7CJ672849	2012 INT'L 7400	M83791	46829	5519	Fair
H-12	1FT7X2B67KEE70233	2019 FORD F250	M5967A	5451	755	Excellent
H-13	1FDUF5HY1FEA98812	2015 FORD F-550	M91888	42573	5078	Excellent
H-14	2NP2HM6X3FM252942	2015 PETERBILT 337	M90683	25327	3216	Excellent
H-15	1HTSDAAR1YH256082	2000 INT'L 4900	M54162	68428	N/A	Poor
H-16	1FDAF57Y45EA78704	2005 FORD F550	M60213	58699	4348	Fair
H-17	1FTWW31RX8EB33337	2008 FORD F-350	M80291	N/A	N/A	Poor
H-18	2NP3HJ8X3EM252941	2014 PETERBILT	M90689	N/A	N/A	Good
H-19	1FT8X3B66KED45363	2019 FORD F350	M5956A	7776	907	Excellent
H-2	1FTEW1EF9HKD02023	2017 FORD F-150 4	M98460	21514	1763	Excellent
H-20	2NP3HJ8XXJM473141	2018 PETERBILT	M99-837	N/A	N/A	Excellent
H-21	5TBRN34122S273270	2002 TOYOTA	M98-738	N/A	N/A	Fair
H-22	NS0912D	2008 ELGIN PELICAN	M78284	16248	5780	Poor
H-23	NP30780	2016 ELGIN PELICAN	M95-488	12003	3507	Excellent
H-24	S9296D	2005 ELGIN PELICAN	M82-199	17780	5062	Poor
H-25	1HTMMAARX5H109084	2005 INT'L 4300	M97891	N/A	N/A	Good
H-26	VCEL120HP0S632058	2016 VOLVO LI20 H	M94684	N/A	4100	Excellent
H-27	VCEOL70FA00026643	2012 VOLVO L70F	M82194	N/A	7740	Fair
H-28	1TO410KXOFE276846	2015 JOHN DEERE	M92551	N/A	2194	Excellent
H-29	570A005669T	1977 JOHN DEERE	M2127	N/A	N/A	Poor
H-30	1FDXF46S6YEE08730	2000 FORD F-450	M63935	85786	N/A	Fair
H-31	1FDYF80E7WVA33189	1998 FORD RACK	M99-832	N/A	N/A	Good
H-32	1HTWCAZR1CJ076899	2012 INT'L 7400	M82182	N/A	N/A	Excellent
H-33	B46B44536	2007 AIRMAN AIR	M80322	N/A	N/A	Excellent
H-34	1FDXE45L59DA20997	2009 FORD E-SERIES	M7352A	53379	N/A	Good
H-36	15990393	1998 BOMBARDIER	M16524	N/A	N/A	Poor
H-37	15990388	1998 BOMBARDIER	M39404	N/A	N/A	Poor
H-38	1FTNF21L62EB50161	2002 FORD F-250	M16-98A	N/A	N/A	
H-39	512220384	1996 BOBCAT	M55614	N/A	1915	Poor
H-4	1HTWDAAR45J131647	2005 INT'L 7400	M73491	40397	5278	
H-40	1FDUF5HY8FEB42319	2015 FORD F-550	M93460	54871	6042	Good

DEPARTMENT: HIGHWAY

Nickname	VIN	Year/Make/Model	Plate No.	Mileage	Engine Hrs	Condition
H-41	1FDWF37FXXEE72736	1999 FORD F350	M63974	N/A	N/A	
H-49	2NP3LJOX2GM361162	2016 PETERBILT	M93-678	N/A	N/A	
H-5	1HTSDAAR2XH648261	1999 INT'L 4900	M2122	38749	N/A	Poor
H-50	2NP3LJOXOFM306479	2015 PETERBILT 10	M93-461	N/A	N/A	Excellent
H-51	7FHDCO91XHB002508	2017 TORO CEMENT	M16-81A	N/A	N/A	
H-52	2821	1989 BAND TRAILER	M19713	N/A	N/A	
H-53	4H5HA1518WL982321	1998 SRECO UTILITY	M54944	N/A	N/A	Poor
H-54	5A4PVGH28X2000182	1999 LOAD UTILITY	M58071	N/A	N/A	
H-55	010134	2001 ELE VAC	M67-434	N/A	N/A	
H-56	1VRC11147J1000378	1988 VERMEER	M45242	N/A	N/A	
H-57	5A3C612S4FL001697	2015 WORKZONE	M92-569	N/A	N/A	
H-58	4KNUT1629TL161304	1996 TOWMASTER	M55613	N/A	N/A	
H-59	CV40D1607	1996 READ TRAILER	M56074	N/A	N/A	
H-6	1HTSDAAR1VH478200	1997 INT'L 4900	M56052	85578	10272	Poor
H-60	5RSLU1427HT001159	2017 COAST UTILITY	M98-744	N/A	N/A	
H-7	1FDAX57R79EA47815	2009 FORD F550	M82986	59016	6195	Good
H-8	2NP2HM6X5DM198685	2013 PETERBILT	M87037	51762	5631	Good
H-9	1HTSDAAR8WH555114	1998 INT'L 4900	M2106	91987	N/A	Good
H-	130251	2018 Power America		N/A	N/A	
H-Roller	161001	2016 COMPAC T 175		N/A	333	Excellent
H-S1	1HTSDZ7R1MH339639	1991 INT'L 4900	M41695	75045	10779	Poor
H-Shop	R0000768	2001 GARDNER		N/A	N/A	Excellent
H-Stander	103208HY	2018 Wright		N/A	N/A	Excellent
HTL-1	MT5T3269	2006 TRACKLESS MT	M24645	4343	2800	Poor
HTL-2	MT5T3267	2006 TRACKLESS MT	M39546	N/A	N/A	
HTL-3	1417	2011 TRACKLESS	M83790	N/A	N/A	
HTL-4	MT62057	2016 TRACKLESS T/L	M95-478	N/A	N/A	
HTL-5	MT71235	2018 TRACKLESS MT	M26-44A	N/A	N/A	

Total Vehicles: 61

DEPARTMENT: PARK & REC

Nickname	VIN	Year/Make/Model	Plate No.	Mileage	Engine Hrs	Condition
P-1	312000177	2012 TORO	M42441	N/A	N/A	
P-10	1FTHX26H8VEC50927	1997 FORD F-250	M58656	N/A	N/A	
P-11	33884	2004 KUBOTA	M39544	N/A	N/A	
P-12	5CUBES171A00339	2001 SCALATE	M65652	N/A	N/A	
P-13	323409	2002 MILLER	M49380	N/A	N/A	
P-15	9122	2002 CHEVROLET	M75919	N/A	N/A	
P-16	9016	1989 CHEVROLET	M75923	N/A	N/A	
P-17	GDKC34JOWF057546	1998 GMC SIERRA	M56100	N/A	N/A	Poor
P-18	D244-3	Smithco Sweepstar		N/A	N/A	Excellent
P-2	311000204	2011 TOROR	M63926	N/A	N/A	
P-20	11455502	John deere Z950A		N/A	N/A	
P-21	11455501	JOHN DEERE Z950A		N/A	N/A	
P-22	SF4640-2016-108	ABI DURA EDGE		N/A	100	
P-23	11455503	Wolfpac 2500		N/A	N/A	
P-24	11455505	Smithco Super rake		N/A	N/A	
P-25	11455506	Smithco Super rake		N/A	N/A	
P-3	1FTBF2B6XFEB81561	2015 FORD F-250	M91889	50214	31308	Good
P-4	1GTFC24M2WZ541002	1998 GMC SIERRA	M56095	N/A	N/A	Fair
P-5	1FTBF2B68CEC26878	2012 FORD F-250	M55604	N/A	N/A	Good
P-6	1GDJC341X2E184056	2002 GMC R3500	M65654	N/A	N/A	
P-7	1FDWF36Y65EA61172	2005 FORD F-350	M43481	N/A	N/A	Fair
P-8	1FDWF37R98EC98279	2008 FORD PICKUP	M77633	N/A	N/A	
P-9	TO310SG951776	2005 JOHN DEERE	M2147	N/A	N/A	

Total Vehicles: 23

DEPARTMENT: WATER & SEWER

Nickname	VIN	Year/Make/Model	Plate No.	Mileage	Engine Hrs	Condition
S-1	1FDWE35P16DA62622	2006 FORD E350	M74712	N/A	N/A	
S-2	1HTEJ TAR8LH040224	2020	M65658	N/A	N/A	Excellent
W-1	1FTEW1EB5KFC12364	2019 FORD F150	M5969A	N/A	N/A	Excellent
W-10	1FDAF57Y76EB81648	2005 FORD F550	M74700	N/A	N/A	
W-11	1T0410KXJDE250971	2013 BACKHOES	M90684	N/A	N/A	
W-12	1FDUF5HY3CEC99185	2012 FORD F550	M67418	N/A	N/A	
W-13	1HTMKAAR07H530160	2007	M80027	N/A	N/A	Fair
W-14	1FDUF5HY5CEC99186	2012 FORD F550	M55667	41686	N/A	Good
W-15	7262	2006 KOMATSU	M74720	N/A	N/A	
W-16	1FTER4FH4KLA60428	2019 FORD RANGER	M5846A	N/A	N/A	Excellent
W-17	1FMUC93148KB93324	2008 FORD ESCAPE	M55603	36151	N/A	Good
W-18	1FDOW5HT4KED68807	2019 FORD F550	M5835A	N/A	N/A	Excellent
W-19	1FDUF5HY4KDA26230	2019 FORD F550	M6259A	103	N/A	Excellent
W-2	1FTBF2B68BEB76093	2011 FORD F-250	M85108	37409	N/A	Excellent
W-20	1FDUF5HY8KDA26229	2019 FORD F550	M6260A	99	N/A	Excellent
W-21	4KN TT1216XL160187	1999 TOWMASTER	M56533	N/A	N/A	
W-24	004126846	1999 SULLIVAN	M57983	N/A	N/A	
W-25	12345	2000 JOHN DEERE	M74681	N/A	N/A	Good
W-27	1E9BE16216A283391	2006 SUPERLINE	M75322	N/A	N/A	
W-28	16HTS121X2P027811	2002 HALLMARK	M26562	N/A	N/A	
W-3	1FTBF2B69FEA46720	2015 FORD F250	M90598	N/A	N/A	
W-4	1FTER4FH6KLA60429	2019 FORD RANGER	M5952A	N/A	N/A	Excellent
W-5	NMOLS6BN1CT108307	2012 FORD TRANSIT	M54169	N/A	N/A	
W-6	MNOLS6BN9CT107812	2012 FORD TRANSIT	M73344	58306	N/A	Fair
W-7	1FTYR10D95PA01695	2005 FORD RANGER	M72399	N/A	N/A	Fair
W-8	1HTMMAALX7H52771	2007	M74708	N/A	N/A	
W-9	1HTMKAAR27H530161	2007	M80028	N/A	N/A	

Total Vehicles: 27