

## **1.0 PROJECT LOCATION**

The 32 Alice Street Subdivision is located on Alice Street, and sits on approximately 0.467 acres of land identified as parcel number 6054-47-320616 on the City of Beacon Tax Maps.

## **2.0 SUMMARY OF STORMWATER MANAGEMENT SYSTEM**

The project consists of the subdivision of the existing 0.467-acre lot with the existing single-family residence to two lots with a proposed single-family residence. This report summarizes all data and information necessary for the operation and maintenance of the stormwater infrastructure that will serve the newly created lots.

Lot 1 contains the existing single-family residence. Stormwater generated from a portion of the impervious roof top will be collected by a gutter and downspout system to drain basins along the western side of the residence. The drain basin conveys stormwater to a proposed rain garden to the rear of the residence via culvert piping in trench.

Lot 2 contains the proposed single-family residence and garage. Stormwater collected on a portion of the impervious roof top will be collected by a gutter and downspout system to drain basins along the eastern side of the residence and conveyed to a yard drain in the rear of the residence to the east of the proposed garage. Stormwater collected on the impervious driveway will travel via sheet flow to the yard basin via driveway grading. The runoff collected in the yard basin will outlet to a proposed underground infiltration system located in the rear yard.

## **2.0 STORMWATER SYSTEM COMPONENTS**

### **2.1 Yard Drains**

One Yard Drain is located on Lot 2. Yard drains are pre-cast concrete structures located below grade that collect site runoff from the surface via a grate inlet, or from other portions of the site via pipe inlet. Yard drains are equipped with a sump to capture sediment. All yard drains have an outlet culvert pipe that conveys the runoff to its designed outlet.

### **2.2 Culvert Piping**

Culvert piping consists of smooth interior corrugated HPDE pipe. The culvert pipe for roof leaders on Lots 1 and 2 is 8" diameter HDPE.

### **2.3 Underground Infiltration System**

The proposed underground infiltration system on Lot 2 is comprised of 15 parabolic HDPE chambers manufactured by Stormtech, Model SC-310 Infiltrators. Each chamber unit measures 34 inches in width, 16 inches in height, and 7.1 feet in length. The chambers are embedded in stone with a depth of 6 inches below the open bottom structures, 14 inches above the top of the structures and 12 inches surrounding the outermost edge of the structures. The open bottom chambers are constructed of HDPE and are perforated around their periphery allowing stormwater to infiltrate through the outside wall of the chamber. The parabolic arch

allows for a higher storage volume per linear foot as opposed to a circular pipe of the same size. The stone that surrounds the chambers is a 1-2" washed crushed stone with 40% void space that provide for additional storage. Every starting and end chamber for each row is provided with a 6" diameter inspection port raised to grade for monitoring and maintenance purposes.

#### **2.4 Drain Basins**

Drain basins are HDPE structures located below grade that act as collection points for roof leader downspouts and allow changes in culvert pipe direction or as junctions for multiple culvert pipes being combined. Two drain basins per roof leader system for each lot is provided for this project.

#### **2.5 Rain Gardens**

Rain Gardens are shallow excavated stormwater areas used to promote stormwater infiltration and stormwater uptake from plantings. The bottom of the basin is typically mulched or grassed with plantings specifically spaced throughout Rain Garden to promote filtration. Small volumes of runoff are directed into the rain gardens from residential roof drains, driveways and other hard surfaces and seeps into the soil over a period of two days.

### **3.0 MAINTENANCE**

#### **3.1 Responsibility for Maintenance**

The owner of record for each respective lot shall be responsible for the periodic maintenance and overall condition of the respective stormwater management system.

#### **3.2 Maintenance Requirements**

##### **3.2.1 Culvert Piping, Yard Drains, and Drain Basins**

<b>Frequency</b>	<b>Observation</b>	<b>Maintenance Activity</b>
Spring and Fall	Inspect all culvert inlets and outlets. Look for obstructions, vegetation, debris, litter, sediment, etc.	Remove obstructions, etc.

##### **3.2.2 Rain Gardens**

Rain Gardens shall be inspected monthly for sediment and debris accumulation. Inflow pipes should also be inspected for sediment and debris monthly. Any accumulated sediment or debris should be removed as necessary. After storm events, the rain gardens dewatering duration should also be monitored. Sediment shall be cleaned out of the rain garden annually.

Frequency	Observation	Maintenance Activity
After several storm events or after an extreme storm event	Inspect outfalls and other areas for signs of erosion, signs of mulch movement out of the treatment area, signs of damaged plants or dead or diseased vegetation. Observe dewatering capability.	Replace mulch as needed, repair areas of erosion and replace dead, diseased or damage plants. Full dewatering in 24 hours.
Spring and Fall	Inspect inflow points for erosion or clogging. Inspect shrubs and other vegetation to evaluate their health and replace any dead or diseased vegetation. Inspect surrounding drainage area for erosion or signs of sediment delivery to the rain garden.	Remove any invasive plant species. Remove clogs from the stormwater system inflow and outflow components.
2 to 3 years		Replace mulch over entire area. If dewatering is a problem, core aeration of cultivating un-vegetated areas may be required to ensure adequate filtration.

### 3.2.3 Underground Infiltration System

The underground detention system shall be inspected prior to being placed into operation. Any accumulated sediment within the chambers shall be removed via hydraulic jet and vacuum truck. After being placed into operation, the following is a general guideline for inspection and maintenance, which may be adjusted by the operator periodically based on site conditions and subsequent system evaluations. Start with measurement of sediment at the inspection port for the first row of chambers via stadia rod, or inspection by CCTV. If the depth of sediment is in excess of 3 inches, then the row should be cleaned with high pressure water through a culvert cleaning nozzle, carried out through the hydrodynamic pretreatment device.

Frequency	Observation	Maintenance Activity
Year 1: Monthly	Inspect inlets and outlets monthly for any clogging. Inspect the surface around the chambers for any depressions.	Remove obstructions as necessary. Contact a licensed professional engineer if depressions develop.
Year 2 and after: bi-annually (spring and fall)	Inspect inlets and outlets monthly for any clogging.  Dewatering shall be monitored at least once per year. Inspect the surface around the chambers for any depressions.	Remove debris as necessary as described in the narrative. Contact a licensed professional engineer if dewatering is not occurring or if depressions develop.