

June 22, 2022

Pembroke Planning Board  
Town Hall  
100 Center Street  
Pembroke, MA 02359

ATTN: Matthew Heins, Planning Board Assistant

**RE: Proposed Community Center Redevelopment  
128 Center Street  
Applicant: Town of Pembroke, William Chenard, Town Manager**

Dear Matthew and Board Members:

Attached please find 3 sets of revised plans and calculations for the above referenced project. Since the revisions did not change any stormwater calculations, no revised Stormwater Report has been submitted.

The revisions have been made in response to the Planning Board Public Hearings and the peer review comments from Thomas C. Houston, P.E., AICP, Consulting Engineer, dated June 10, 2022. Our responses to the review comments are presented below and follow the format of the peer review report. The original review comments are presented in *italic* text and our responses are presented in ***bold italic text***.

#### ZONING BYLAWS

##### Section IV Use and Dimensional Regulations

###### Residence A District

1. *Petition the Zoning Board of Appeals for relief from the provisions of Section IV 1.D.1 which limits buildings of primary use to one building per lot.*

***The Building Commissioner has reviewed this issue with Planning Board Assistant, Matthew Heins and it is our understanding that a variance is not necessary due to the fact that the existing structures on the property constitute a preexisting nonconforming use and the proposed structure will be for the same use, in a similar location.***

##### Section V, Special Provisions, Standards and Procedures.

###### Signs

2. *Petition the Zoning Board of Appeals for relief from the provisions of Section V I.E.1 to allow a setback to an accessory sign of approximately 5-ft., where a minimum setback of 25-ft. is required.*

***The sign has been moved to be 26 feet to meet the minimum setback requirements.***

3. *Petition the Inspector of Buildings/Zoning Enforcement Officer to issue a permit for the proposed accessory sign which is believed to exceed 2-sq.-ft. in area.*

***This will be reviewed with the Applicant and applied for as necessary.***



HANOVER OFFICE:  
427 Columbia Road  
Hanover, MA 02339  
781-826-9200

NORWELL OFFICE:  
687 Main Street  
Norwell, MA 02061  
781-659-8187

PLYMOUTH OFFICE:  
40 Court Street, Ste 2A  
Plymouth, MA 02360  
508-746-6060

MARINE DIVISION:  
26 Union Street  
Plymouth, MA 02360  
508-746-6060

[merrillinc.com](http://merrillinc.com)



Merrill Engineers and Land Surveyors  
& Cavanaro Consulting are divisions  
of the Merrill Corporation.

## Prevention of Light Pollution

4. *Provide a photometric plan to facilitate determination of compliance with requirements for light intensity and light trespass (§V.8.E) (§V.8.F).*

***A Site Lighting Plan-Photometric Plan is included as SLP1 or page 23 of the plan set.***

5. *Specify that light controls provide for dimming exterior lights at night after hours when the building is closed (§V.8.F).*

***The Applicant requests that this be a condition of approval to allow the Police Department and the Applicant to work together to determine what is best for lighting/safety around the proposed building.***

6. *Specify energy efficient LED fixtures*

***A lighting schedule is shown on SLP1 (sheet 23) of the plan set which includes specifications for the proposed light fixtures. The project's Electrical Engineer has confirmed that all lighting will be LED.***

7. *Specify lumens for light fixtures.*

***(see above response)***

## RULES AND REGULATIONS GOVERNING SITE PLAN APPROVAL

### Section IV Site Plan Content

8. *Provide information on the capacity of abutting utilities: specifically provide a fire flow test. A fire flow test obtained from Fire Department records is acceptable (RRSPA § IV, 4.8).*

***A Fire Flow Test Report prepared by John Hoadley and Sons has been attached to this letter (and forwarded to the Fire Department).***

9. *Submit documentation and samples of building façade and roof materials, finishes, and colors (RRSPA § IV, 4.10).*

***Sheets A-200 and A-201, Exterior Elevations include a list of materials, In addition, the Materials sheet that was presented to the Historical Commission has been attached to this letter.***

10. *Determine available water pressure and flow (RRSPA § IV, 4.19):*
  - a. *Provide a fire flow test. Show compliance of deliverable flow with NFPA and Fire Department requirements.*  
***(See above response to #8)***
  - b. *Confer with the Fire Department and determine if an on-site fire hydrant is required. A hydrant detail is provided on the detail sheets but not shown in plan view.*

***The Plans and Fire Flow test were sent to the Fire Department along with the proposed location for the hydrant as shown on the attached***

**plans. We have not heard back from the Fire Chief to confirm the location shown and request the Board make this a condition of approval.**

11. Label the proposed 8-in. diameter water line as CLDIP Class 52.

**The water line has been labeled as requested.**

12. Provide information on any project signs that are proposed (RRSPA §IV, 4.19).

c. Show the height and surface area.

**The Applicant requests that this be a condition of approval after sign has been finalized and reviewed with the Building Commissioner.**

d. Provide downlighting that is compatible with “dark skies.”

**This information is included in the plan set on sheet SLP1.**

13. Provide a photometric plan (RRSPA §IV, 4.21).

**(See above response to #4)**

## Section V – Requirements

### 5.1 Site Landscaping

14. For 140 parking spaces, 27 trees internal to the parking lot are required; whereas 22 trees internal to the parking lot are provided (§V. 5.1.5).

**The Applicant requests a waiver to this requirement to allow for easier plowing of the parking area for the DPW.**

15. Trees are required to have 4-inch caliper; whereas 2½-3-inch caliper are provided (§V. 5.1.5). Note there are different criteria for caliper measurement.

**The Applicant requests a waiver to this requirement to allow for less expensive trees to be planted to keep construction costs down for the Town.**

16. A minimum of 5% of the area interior to the parking area must be landscaped. Quantify the interior parking lot landscape area (§V. 5.1.5).

**The proposed rear parking area contains landscape area totaling approximately 8% of the total impervious area associated with the parking lot. This has been added to the Landscaping Requirements table on sheet C401.**

### 5.2 Site Lighting

17. Specify fixture cutoff requirements (§V. 5.2.1).

**This information is included in the plan set on sheet SLP1.**

18. Submit a photometric plan that documents total cutoff at the property line (§V. 5.2.2).

**(See above response to #4)**

19. Document that the mounting height of pedestrian area lighting fixtures will not exceed 12-feet (§V. 5.2.3).

***This information is included in the plan set on sheet SLP1.***

20. Document that the maximum foot-candle level directly below fixtures does not exceed 8.0 initial (§V. 5.2.5).

***This information is included in the plan set on sheet SLP1.***

### 5.3 Drainage

Comments based on Standard 8 – Construction Period Pollution Prevention and Erosion and Sedimentation Controls are as follows:

21. Submit a copy of the SWPPP prior to construction.

***The applicant requests that this be a condition of approval.***

22. Specify mulch fill for the erosion sock.

***Mulch fill has been specified in the legend on sheet C301 and added to Note #1 under Erosion and Sediment Control Notes on sheet C302.***

23. Specify strawbales in lieu of haybales to limit the spread of weed seeds.

***Strawbales have been specified in place of haybales as requested in the Erosion and Sediment Control notes and detail.***

24. Specify that erosion controls are to be inspected by the Planning Board staff or agent prior to any other sitework. Alternatively, specify that the engineer of record shall submit a letter to the Planning Board stating that the erosion controls have been inspected.

***This has been added as note #2 in the Erosion and Sediment Control Notes on sheet C302.***

25. The construction phase O&M Plan bare earth stabilization within 14 days of disturbance. We recommend that no bare earth condition will remain for more than 7 days prior to stabilization.

***The O&M Plan has been updated as requested along with the addition of note #17 under General Construction and Erosion Control Notes on sheet C601.***

26. Specify that Center St. will be swept immediately whenever accumulated sediment is visible.

***This is noted under General Construction and Erosion Control note #31 on sheet C601.***

27. Specify that dust control shall consist of the application of clean water.

***This has been added as note #42 under General Construction and Erosion Control notes on sheet C601.***

28. Specify that on-site burial of stumps, demolition debris, construction waste, or other deleterious materials is prohibited.

***This is noted under Removals on sheet C302.***

29. Specify that the building must be inspected for lead paint and remediated by a licensed contractor as required.

***This is noted under Removals note #7 on sheet C302.***

30. If on-site refueling is to be permitted, provide a designated refueling area. Retain an area of existing paving and encircle this area with a bituminous berm.

***A refueling area has been added to sheet C301.***

31. Modify the Stabilized Construction Entrance Detail showing a shallow depression in the center to better contain sediment.

***The Stabilized Construction Entrance Detail on Sheet C302 has been updated.***

32. Include Board of Health requirements for septic system or cesspool abandonment.

***This is noted under Removals note #8 on sheet C302.***

Comments based on Standard 9 – Long-Term Operation and Maintenance (O&M) Plan are as follows:

33. Provide a plan that is drawn to scale and shows the location of all stormwater BMPs in each treatment train along with the discharge point.

***The Applicant requests this be a condition of approval.***

34. Provide an estimated operations and maintenance budget.

***A maintenance cost has been added to the Long-Term Source Control/Pollution Prevention Plan and Operation and Maintenance Plan.***

#### Qualifying Pervious Area

35. We recommend that the area subject to pavement runoff be excluded from the area used for the children's playground due to the contaminants found in stormwater from vehicular areas.

***The grading has been adjusted to provide a flat pervious area that allows for infiltration and directs water from the larger storm events to the existing catch basin in this area.***

36. Revise the contour immediately upgradient from the catchbasin that collects runoff from the playground area to focus flow toward the catchbasin.

***(see above response)***

## Stormwater Collection System

37. Provide pipe flow calculations.

**The pipe flow calculations will be sent separately.**

38. Include provision for camera inspection of existing corrugated metal pipes in the construction contract documents.

**There are notes on C501 directing the contractor to inspect the existing drain line and remove sediment/debris as necessary. If the Planning Board wishes to require a camera inspection the Applicant requests that this be a condition of approval.**

39. Retrofit all catchbasins with hoods as required.

**This has been noted on sheet C501.**

## Cultec Recharger R-902 HD Infiltration System

40. Add requirements to remove the fill, the A/b horizon loamy sand, and the B/C loamy sand layer exposing the C layer Medium Sand. If the Medium Sand falls below the bottom of stone for the Cultec system, backfill with Title 5 sand.

**The soils logs have "Remove and Replace" limits noted on them and "Infiltration System Notes" have been added below in the R-902 detail as requested.**

## Erosion

41. Modify each discharge as required in order to eliminate erosion potential:

a. Examine each discharge for evidence of erosion.

**Erosion has been occurring at the two rear outlet locations for many years. The reduction of impervious area on site and routing the runoff from the proposed roof to a subsurface infiltration system will substantially reduce the existing erosion problem.**

b. Compute the discharge velocity and the potential for erosion based on soil type.

**An initial calculation shows the velocity from the pipe by the baseball field to be 5.69 fps and the outlet by the existing playground to be lower at 2.42 fps.**

c. Provide a rip rap pad or a level spreader at each location as warranted. **Based on the above information, a flow dissipator has been proposed at each outlet location.**

d. Provide check dams or other velocity controls downgradient of the discharge extending downhill as required until the potential for erosion is eliminated.

**The reduction in flow from the two existing outlets is pretty substantial and the construction of flow dissipators should reduce velocities even more, resulting in less erosion. If the Board requires this, the Applicant requests this be a condition of approval.**

## 5.5 Service Facilities

42. Provide screening for the generator and transformer (§V.5.5).

***The Landscape Architect will provide screening as requested but will need to coordinate with the utility company which will take time. The Applicant requests that this be a condition of approval.***

We feel that the attached revised plans and calculations address all of the comments in Mr. Houston's peer review letter. With this in mind, the Applicant requests that the Board vote to approve the project to allow the Town to continue moving forward towards construction.

Should you have any questions, please do not hesitate to contact this office.

Very truly yours,

MERRILL ENGINEERS AND LAND SURVEYORS



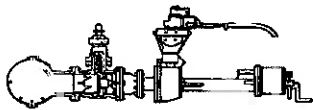
Dana Altobello, PE

Senior Project Manager

CC: Joel Bargmann & Brad McCord  
William Chenard

H:\17-199.2\Documents\Planning Board\17-199.2 LTR - PB Response 6-22-22.docx





# John Hoadley and Sons, Inc.

- Water Works Specialist-

672 Union Street  
Rockland, MA. 02370  
T: (781) 878-8098  
F: (781) 878-5298

## FLOW TEST REPORT

Town of: Pembroke, MA

Name of Applicant: Merrill Engineers Phone Number: 781-826-9200  
Address: 427 Columbia Road City: Hanover State: MA  
Date: 12/21/2021 Time of Test: 10:00pm  
Location of Test: 128 Center Street

Distance between Hydrant # 1 and Hydrant # 2 is 942 feet.  
Elevation of Hydrant # 1 \_\_\_\_\_ Elevation of Hydrant # 2 \_\_\_\_\_  
Coefficient: \_\_\_\_\_ Size of Main : 16"

Hydrant # 1 Static: 72 PSI Residual: 65 PSI  
Location: Front of Fire Station - 172 Center Street  
Manufacture/ Type of Hydrant : Mueller Size: 5 1/4" Year: 1988  
Flow Hydrant # 2 Static: 72 PSI Residual: 60 PSI  
Location: Front of 128 Center Street  
Manufacture/ Type of Hydrant : Mueller Size: 5 1/4" Year: 1988  
Pitot Tube 1300 GPM Time Flow: 1 Minute

Test Conducted by: Ryan Hoadley & Ryan Daly



## PEMBROKE COMMUNITY CENTER

### Materials

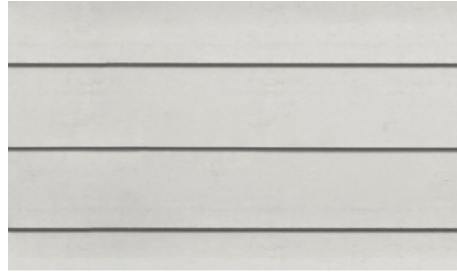


**Cement Fiber Board - Board & Batten and Panels**

Manufacture and Product: James Hardie

Color: Arctic White

Finish: Smooth



**Cement Fiber Board - Lap Siding**

Manufacture and Product: James Hardie

Color: Arctic White

Finish: Smooth



**Cement Fiber Board - Trim (Varying Widths)**

Manufacture and Product: James Hardie

Color: Arctic White

Finish: Smooth



**Ground Face Masonry Units at Watertable**

Manufacture and Product: Jandris & Sons

Color: 9301



**Asphalt Roof Shingles**

Manufacture and Product: Certainteed Landmark

Color: Crystal Grey



**Membrane Roof**

Manufacture and Product: Firestone UltraPly TPO

Color: Grey



**Fiberglass Window**

Manufacture and Product: Marvin Essential

Color: Stone White



**Exterior Storefront**

Manufacture and Product: Kawneer 601

Color: Brushed Aluminum

## **OPERATION AND MAINTENANCE PLAN**

### **PROPOSED DRAINAGE SYSTEM – DURING CONSTRUCTION**

May 9, 2022

**128 Center Street  
Pembroke, MA 02339**

**Owner:** Town of Pembroke  
128 Center Street  
Pembroke, MA 02339

**Party Responsible for Operation and Maintenance:**

Town of Pembroke DPW  
Attn: Eugene Fulmine  
100 Center Street  
Pembroke, MA 02339

**Source of Funding:**

Operation and Maintenance of this stormwater management system will be the responsibility of the property owner to include its successor and/or assigns, as the same may appear on record with the appropriate register of deeds.

**During Construction:**

Construction activities shall follow the Construction Sequence shown on the approved plan. During periods of active construction, the stormwater management system shall be inspected on a weekly basis and within 24 hours of a storm event of greater than 1/2". Maintenance tasks shall be performed monthly or after significant rainfall events of 1" of rain or greater. During construction, silt laden runoff shall be prevented from entering the existing street drainage system(s) and off-site properties.

All erosion and sedimentation control measures shall be in place prior to the commencement of any site work or earthwork operations, shall be maintained during construction, and shall remain in place until all site work is complete and ground cover is established. All erosion and sedimentation control measures shall be constructed in accordance with the Massachusetts erosion and sediment control guidelines for urban and suburban areas dated March 1997 and all municipal regulations. The location of erosion control measures shall be field verified during site preparation operation by the design engineer. The contractor shall keep on site at all time additional erosion control measures for installation at the

direction of the engineer or town officials to mitigate any emergency conditions. The contractor shall anticipate and modify erosion control measures based on past and current weather conditions, season and expected future construction activities.

Sediment at the silt sock erosion control barriers shall be removed once the volume reaches  $\frac{1}{4}$  to  $\frac{1}{2}$  the height of the silt sock and shall be maintained throughout the project. Disposal of sediment shall be the responsibility of the contractor in accordance with applicable local, state, and federal guidelines and regulations.

The stabilized construction entrance shall be placed at the project street entrance and shall consist of  $\frac{3}{4}$ " to 1  $\frac{1}{2}$ " stone and be constructed as shown on the approved plans. The stabilized construction entrance shall be maintained in a condition that will prevent tracking or flowing of sediment outside the construction area. All sediment dropped, washed or tracked onto the public right-of-way must be removed immediately. Dust shall be controlled on site.

During dewatering operations (if necessary), all water pumped shall be directed to a "dirt bag" pumped sediment removal system (or approved equal) as manufactured by ACF Environmental. The unit shall be placed on a crushed stone blanket. Disposal of such "dirt bag" shall occur when the device is full and can no longer effectively filter sediment or allow water to pass at a reasonable flow rate. Disposal of this unit shall be the responsibility of the contractor in accordance with applicable local, state, and federal guidelines and regulations.

All stockpiles shall be surrounded by erosion controls. The tops of stockpiles shall be covered in such a manner so that stormwater does not infiltrate the materials and thereby render the same unsuitable for fill use. All areas disturbed by construction and not to be paved or otherwise treated as noted on the plan shall be treated with 6" loam, seeded with and straw mulched for erosion control. Where construction activities have permanently ceased or have temporarily been suspended for more than seven days, or when final grades are reached in any portion of the site, stabilization practices shall be implemented within three days.

Earthwork activity on the site shall be done in a manner such that runoff is directed to the line of erosion control measures. Disturbed areas remaining idle for more than 7 days shall be stabilized.

The stormwater infiltration system(s) shall be inspected after every major storm event during construction and cleaned to ensure proper function. The pre-treatment structures shall be inspected after every major storm event during construction and cleaned when sediment exceeds 6" of depth.

Once each structure is in place, it shall be maintained in accordance with the procedures described in the post-construction Operations and Maintenance Plan.

### **Inspections**

The owner shall be responsible to secure the services of a Professional Engineer or similar professional (inspector) on an on-going basis. The inspector shall review the project with respect to the following:

- Proper installation and performance of the Stormwater Management System.
- Review of the controls to determine any damaged or ineffective controls.
- Corrective actions.

The inspector shall prepare and submit a report documenting the findings and should request the required maintenance or repair for the pollution prevention controls when the inspector finds that it is necessary for the control to be effective. The inspector shall notify the Owner to make the changes.

# **LONG TERM SOURCE CONTROL/POLLUTION PREVENTION PLAN AND OPERATION AND MAINTENANCE PLAN**

PROPOSED DRAINAGE SYSTEM – POST CONSTRUCTION

May 9, 2022

Revised: June 20, 2022

**128 Center Street  
Pembroke, MA 02339**

**Owner:** Town of Pembroke  
128 Center Street  
Pembroke, MA 02339

**Party Responsible for Operation and Maintenance:**

Town of Pembroke DPW  
Attn: Eugene Fulmine  
100 Center Street  
Pembroke, MA 02339

Note: Inspection records shall be maintained for a period of three years, on an ongoing basis.

**Source of Funding:**

Operation and Maintenance of this stormwater management system will be the responsibility of the property owner to include its successor and/or assigns, as the same may appear on record with the appropriate register of deeds.

**1.0 Vehicle Washing Controls**

There will be no vehicle washing operations on the site

**2.0 Requirements for Routine Inspections and Maintenance of Stormwater Best Management Practices**

**Note:** The Town shall be notified immediately if a change in ownership or maintenance responsibility occurs at the site.

**Street Sweeping**

Streets and parking areas shall be swept at least twice per year. Sweeping shall be completed during the early spring, no later than May 1<sup>st</sup>, before sediment from winter sanding operations is washed into the drainage system and in the fall after November 1<sup>st</sup>. Disposal of the

accumulated sediment shall be in accordance with applicable local, state, and federal guidelines and regulations.

#### **Drain lines**

After construction, the drain lines shall be inspected after every major storm for the first few months to ensure proper functions. Presence of accumulated sand and silt would indicate more frequent maintenance of the pre-treatment devices is required. Thereafter, the drain lines shall be inspected at least once per year.

#### **Deep sump and hooded Catch Basins**

Catch basin grates shall be checked quarterly and following heavy rainfalls to verify that the inlet openings are not clogged by debris. Debris shall be removed from the grates and disposed of properly. Deep sump catch basins shall be inspected and cleaned bi-annually of all accumulated sediments. Catch basins with hoods shall be inspected annually to check oil build-up and outlet obstructions. Material shall be removed from catch basins and disposed of in accordance with all applicable regulations.

#### **Pre-treatment Structures – First Defense FD-3HC**

The proprietary pretreatment unit shall be inspected and maintained from the surface, without entry into the unit biannually and following heavy rain events defined as a storm event exceeding one inch of rainfall within a twenty-four hour period to verify that the inlet opening is not clogged by debris.

During the first year of installation, perform inspection regularly, so an accurate maintenance schedule can be established. Perform oil and floatables removal once per year and immediately in the event of a spill. Oil shall be removed by using a small portable pump and disposed of properly. Perform sediment removal once per year or as needed and following a spill event. Sediment shall be removed from the unit using a vacuum truck. The requirements for the disposal from the unit should be in compliance with all local, state and federal regulations.

Please refer to the attached manufacturer's maintenance manual for additional detail on proper inspection and maintenance of the First Defense unit.

#### **Subsurface Infiltration Chamber System**

Proper maintenance of the subsurface infiltration system is essential to the long-term effectiveness of the infiltration function. After construction, the subsurface infiltration chamber systems shall be inspected for proper function after every major storm event until the site is completely developed and stabilized. After the site has been stabilized, the subsurface infiltration chamber system shall be inspected at least twice per year or if lack of performance is observed and perform necessary

corrective measures to maintain infiltration capacity; as required by the Stormwater Management Policy.

The system shall have inspection ports for proper inspections. Inspections shall include checking the water level in the system after a major storm event, and performing necessary corrective action if water is observed 72 hours following the storm. The owner shall retain a qualified stormwater professional to assess the cause of this condition and develop a corrective action plan for restoring the infiltration function. The owner shall immediately implement the corrective action to restore the infiltration function. Documentation of these actions shall be maintained in the inspection and maintenance records.

#### Inspection and Maintenance Options

A. The CULTEC system may be equipped with an inspection port located on the inlet row. The inspection port is a circular cast box placed in a rectangular concrete collar. When the lid is removed, a 6-inch (150 mm) pipe with a screw-in plug will be exposed. Remove the plug. This will provide access to the CULTEC Chamber row below. From the surface, through this access, the sediment may be measured at this location. A stadia rod may be used to measure the depth of sediment if any in this row. If the depth of sediment is in excess of 3 inches (76 mm), then this row should be cleaned with high pressure water through a culvert cleaning nozzle. This would be carried out through an upstream manhole or through the CULTEC StormFilter Unit (or other pretreatment device). CCTV inspection of this row can be deployed through this access port to determine if any sediment has accumulated in the inlet row.

B. If the CULTEC bed is not equipped with an inspection port, then access to the inlet row will be through an upstream manhole or the CULTEC StormFilter.

1. Manhole Access This inspection should only be carried out by persons trained in confined space entry and sewer inspection services. After the manhole cover has been removed a gas detector must be lowered into the manhole to ensure that there are not high concentrations of toxic gases present. The inspector should be lowered into the manhole with the proper safety equipment as per OSHA requirements. The inspector may be able to observe sediment from this location. If this is not possible, the inspector will need to deploy a CCTV robot to permit viewing of the sediment. 4 OPERATIONS AND MAINTENANCE GUIDELINES For more information, contact CULTEC at (203) 775-4416 or visit [www.cultec.com](http://www.cultec.com). © CULTEC, Inc. CLT057 01-20

2. StormFilter Access Remove the manhole cover to allow access to the unit. Typically a 30-inch (750 mm) pipe is used as a riser from the StormFilter to the surface. As in the case with manhole access, this access point requires a technician trained in confined space entry with

proper gas detection equipment. This individual must be equipped with the proper safety equipment for entry into the StormFilter. The technician will be lowered onto the StormFilter unit. The hatch on the unit must be removed. Inside the unit are two filters which may be removed according to StormFilter maintenance guidelines. Once these filters are removed the inspector can enter the StormFilter unit to launch the CCTV camera robot.

C. The inlet row of the CULTEC system is placed on a polyethylene liner to prevent scouring of the washed stone beneath this row. This also facilitates the flushing of this row with high pressure water through a culvert cleaning nozzle. The nozzle is deployed through a manhole or the StormFilter and extended to the end of the row. The water is turned on and the inlet row is back-flushed into the manhole or StormFilter. This water is to be removed from the manhole or StormFilter using a vacuum truck.

#### Maintenance Guidelines

The following guidelines shall be adhered to for the operation and maintenance of the CULTEC stormwater management system:

- A. The owner shall keep a maintenance log which shall include details of any events which would have an effect on the system's operational capacity.
- B. The operation and maintenance procedure shall be reviewed periodically and changed to meet site conditions.
- C. Maintenance of the stormwater management system shall be performed by qualified workers and shall follow applicable occupational health and safety requirements.
- D. Debris removed from the stormwater management system shall be disposed of in accordance with applicable laws and regulations.

#### Suggested Maintenance Schedules

- A. Minor Maintenance The following suggested schedule shall be followed for routine maintenance during the regular operation of the stormwater system:

<u>Frequency</u>	<u>Action</u>
Monthly in first year	Check inlets and outlets for clogging and remove any debris, as required.
Spring and Fall	Check inlets and outlets for clogging and remove any debris, as required.
One year after commissioning and every third year following	Check inlets and outlets for clogging and remove any debris, as required.



#### Inspection & Maintenance Steps

Accumulated sediment must be removed from the bottom of the chambers. Material removed from the systems shall be disposed of in accordance with all applicable local, state, and federal regulations.

### **3.0 Snow Disposal and Plowing Plans**

#### **1. Site Selection**

Snow disposal is to be located adjacent to or on pervious surfaces. At these locations, the snow meltwater can filter in to the soil, leaving behind sand and debris which can be removed in the springtime.

#### **2. Site Preparation and Maintenance**

It is important to prepare and maintain these sites to maximize their effectiveness. The following maintenance measures should be undertaken for all snow disposal sites:

- Some form of a barrier should be placed securely on any down gradient side of the snow disposal site, to prevent snow from migrating beyond the designated disposal area, or over property lines.
- Debris should be cleared from the site prior to using the site for snow disposal.
- Debris should be cleared from the site and properly disposed of at the end of the snow season and no later than May 15.

Any snow that cannot be properly disposed of as outlined above, shall be removed from the site and disposed of in accordance with State, Federal, and Local Regulations.

### **4.0 Provisions for Solid Waste Management**

Waste disposal dumpsters and trailers will be used for the disposal of construction debris, which will be removed from site according to state, local and federal guidelines. Construction debris will include pavement, utility, earth and building materials, which cannot be reused. The dumpsters will be located on-site, covered, and placed well away from the wetland resource areas and catch basins as possible. All machinery will be operated and maintained so as to limit impacts to drainage systems by

avoiding leakage of fuel. If stockpiles of debris materials are necessary, perimeter controls or plastic sheeting/covering will be used if deemed necessary during regular site inspections. A concrete washout area will be established as necessary and utilized.

Portable sanitary units will be placed on-site during construction and will be serviced regularly. They will be placed over 100 feet from resource areas wherever possible.

## **5.0 Spill Prevention**

The Owner shall be aware of, educate occupants of, and enforce the following spill prevention measures:

### Material Management Practices

The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to storm water runoff.

### Good Housekeeping:

The following good housekeeping practices will be followed onsite during the construction project:

- An effort will be made to store only enough product required to do the job.
- All materials stored onsite will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure.
- Products will be kept in their original containers with the original manufacturer's label.
- Substances will not be mixed with one another unless recommended by the manufacturer.
- Whenever possible, all of a product will be used up before disposing of the container
- Manufacturer's recommendations for proper use and disposal will be followed

### Hazardous Products

These practices are used to reduce the risks associated with hazardous materials.

- Exterior storage of deicing chemicals, fertilizers, herbicides, pesticides, or other hazardous materials shall be prohibited.
- Products will be kept in original containers unless they are not resalable.

- Original labels and material safety data will be retained; they contain important product information.
- If surplus product must be disposed of, manufacturers or local State recommended methods for proper disposal will be followed.

### Product Specific Practices

The following product specific practices will be followed onsite:

#### Petroleum Products

All onsite vehicles will be monitored for leaks and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled. Any asphalt substances used onsite will be applied according to the manufacturer's recommendations.

#### Fertilizers

If used, fertilizers used will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked into the soil to limit exposure to storm water. Storage will be in a covered shed; exterior storage shall be prohibited. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

#### Paints

All containers will be tightly sealed and stored when not required for use. Excess paint will not be discharged to the storm sewer system but will be properly disposed of according to manufacturers' instructions or State and local regulations.

#### Spill Control Practices

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup:

- Manufacturers' recommended methods for spill cleanup will be clearly posted and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.
- Materials and equipment necessary for spill cleanup will be kept in the material storage area onsite. Equipment and materials will include but not be limited to brooms, dustpans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and

plastic and metal trash containers specifically for this purpose.

- All spills will be cleaned up immediately after discovery.
- The spill area will be kept well ventilated and personnel will wear appropriate State or local government agency, protective clothing, regardless of the size.
- The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring and how to clean up the spill if there is another one. A description of the spill, what cause it, and the cleanup measures will also be included.

**6.0 Solid Waste**

Solid Waste shall be picked up by a private firm, and solid waste disposed of in accordance with State, Federal, and Local regulations.

**7.0 Street Sweeping**

The parking area shall be swept at least four times per year. Sweeping shall be completed during the early spring, no later than May 1<sup>st</sup>, before sediment from winter sanding operations is washed into the drainage system. Disposal of the accumulated sediment shall be in accordance with applicable local, state, and federal guidelines and regulations.

**8. Illicit Discharge Statement**

To the best of our knowledge, there are no current illicit discharges present on the site. No new illicit discharges from the site are proposed.

**The site operator is specifically notified that Illicit Discharges are prohibited.** Below is a list of those non-stormwater discharges allowed by MassDEP.



---

**Dana M. Altobello, P.E.**

## **Allowable Non-Stormwater Discharges**

The following non-storm water discharges are authorized provided it has been determined by the permittee that they are not significant contributors of pollutants to the MS4. If these discharges are identified as significant contributors to the MS4, they must be addressed in the Illicit Discharge Detection and Elimination minimum control measure described in Parts II, III, IV and V.

1. water line flushing,
2. landscape irrigation,
3. diverted stream flows,
4. rising ground waters,
5. uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)),
6. uncontaminated pumped ground water,
7. discharge from potable water sources,
8. foundation drains,
9. air conditioning condensation,
10. irrigation water, springs,
11. water from crawl space pumps,
12. footing drains,
13. lawn watering,
14. flows from riparian habitats and wetlands,
15. dechlorinated swimming pool discharges,
16. street wash water, and
17. Residential building wash waters, without detergents.

Discharges or flows from firefighting activities occur during emergency situations. The permittee is not expected to evaluate firefighting discharges with regard to pollutant contributions. Therefore, these discharges are authorized as allowable non-storm water discharges, unless identified, by EPA, as significant sources of pollutants to Waters of the U.S..

For additional information, refer to Performance, Standards and Guidelines for Stormwater Management in Massachusetts, published by the Department of Environmental Protection.

## **Maintenance Cost**

The maintenance cost shall include BMP inspections, maintenance of subsurface drainage infiltration chambers, first defense unit, catch basins and drain manholes, outlet control structures, street sweeping and minor maintenance repairs. The anticipated maintenance cost \$1,000 per year.

**17-199.2 PWS\_HSG A**

Prepared by MERRILL ENGINEERS AND LAND SURVEYORS

HydroCAD® 10.00-26 s/n 02159 © 2020 HydroCAD Software Solutions LLC

NRCC 24-hr C 25-Year Rainfall=6.19"

Printed 6/22/2022

**Summary for Reach 1R: 12" CMP TO BASEBALL FIELD**

[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 141,475 sf, 62.72% Impervious, Inflow Depth = 2.82" for 25-Year event  
Inflow = 9.85 cfs @ 12.17 hrs, Volume= 33,287 cf  
Outflow = 9.79 cfs @ 12.17 hrs, Volume= 33,287 cf, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs / 3

Max. Velocity= 14.27 fps, Min. Travel Time= 0.1 min

Avg. Velocity = 5.69 fps, Avg. Travel Time= 0.2 min

Peak Storage= 45 cf @ 12.17 hrs

Average Depth at Peak Storage= 0.81'

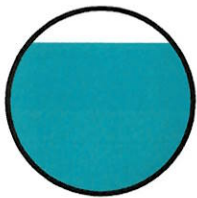
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 9.83 cfs

12.0" Round Pipe

n= 0.021 Corrugated metal

Length= 65.0' Slope= 0.1988 '/'

Inlet Invert= 67.92', Outlet Invert= 55.00'



**Summary for Reach 2R: 12" CMP BY PLAYGROUND**

[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 34,075 sf, 42.28% Impervious, Inflow Depth = 2.40" for 25-Year event  
Inflow = 1.76 cfs @ 12.22 hrs, Volume= 6,815 cf  
Outflow = 1.72 cfs @ 12.23 hrs, Volume= 6,816 cf, Atten= 2%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs / 3  
Max. Velocity= 5.99 fps, Min. Travel Time= 0.3 min  
Avg. Velocity = 2.42 fps, Avg. Travel Time= 0.8 min

Peak Storage= 36 cf @ 12.22 hrs  
Average Depth at Peak Storage= 0.40'  
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.27 cfs

12.0" Round Pipe  
n= 0.025  
Length= 122.7' Slope= 0.0808 '/'  
Inlet Invert= 73.05', Outlet Invert= 63.14'

