

# HANCOCK ASSOCIATES

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22422

January 20, 2020

Ms. Lisa Chandler  
Assistant City Engineer  
City Hall  
191 Cabot Street  
Beverly, MA 01915

Re: Stormwater Memo  
Definitive Subdivision Plan  
21 Porter Terrace

Dear Ms. Chandler:

This project is a Definitive Subdivision plan for the explicit use of a single family home. Under the Massachusetts DEP Stormwater Handbook, single family homes are exempt from these standards. The state request that BMP's be designed to the "maximum extent practicable". The current property consists of 15,000 SF. The proposed subdivision will create two (2) separate lots. Lot 1 will consist of 5,000 SF which currently has a single family home with frontage on Porter Terrace. Lot 2 will consist of 10,000 SF with frontage on Livingstone Ave. Extension. Livingstone Ave. will be extended 110'. The roadway extension will be a 24' wide crowned paved road with a stone drainage swale on the northly side of the street and a drywell on the southerly side of the proposed roadway extension.

As recommended by the engineering department, we have analyzed the 10 year event and controlled post development flows towards Livingstone Ave. We have also analyzed the 100 year event and reduced the post peak development volumes within the 24 hour storm events. The runoff from the future home will need to be mitigated on-site.

The following table compares the peak rates and volumes of runoff in a 24 hr. period under the existing and proposed conditions. We were able to manage and reduce runoff post development for the 25 yr. storm event. Please see the attached HydroCAD summary for more information.

Discharge Point	2-Year Storm (3.1" Rainfall Depth)		10-Year Storm (4.55" Rainfall Depth)		25-Year Storm (5.4" Rainfall Depth)		100-Year Storm (6.5" Rainfall Depth)	
	Existing (cfs)	Proposed (cfs)	Existing (cfs)	Proposed (cfs)	Existing (cfs)	Proposed (cfs)	Existing (cfs)	Proposed (cfs)
Peak Rate (cfs)	0.08	0.00	0.18	0.01	0.24	0.17	0.33	0.71
Volume (cf)	289	0.00	618	12	835	127	1,134	660

*cfs - Cubic Feet per Second*

### **Construction Period Pollution Prevention and Erosion & Sedimentation Control**

Best management practices (BMP) for erosion and sedimentation control consist of siltation barriers, such as straw wattles, and hydro seeding. Many stormwater BMP technologies (e.g., infiltration technologies) are not designed to handle the high concentrations of sediments typically found in construction runoff and must be protected from construction-related sediment loadings. Construction BMPs **must** be maintained.

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## ***Pre-Construction***

- The contractor shall install a siltation barrier as approved by the City of Beverly.
- The contractor shall have a stockpile of materials required to control erosion on-site to be used to supplement or repair erosion control devices. These materials shall include, but are not limited to, crushed stone, straw wattles and silt fencing.
- The contractor is responsible for erosion control on site and shall utilize erosion control measures where needed, regardless of whether the measures are specified on the plan or in the order of conditions.

## ***Preliminary Site Work***

- Contractor shall be responsible to minimize the transport of sediment onto the adjacent roadway. If any material enters the surrounding roadways the contractor shall sweep the area.
- Excavated materials should be stockpiled, separating the topsoil for future use on the site. All stockpiled materials shall be surrounded by siltation barriers. Any soil stockpiles shall be seeded if left for more than 14 days.
- If intense rainfall is anticipated, the installation of supplemental filter socks, hay bale dikes, silt fences, or armored dikes shall be considered.
- Unsuitable excavated material shall be removed from the site.

## ***Ongoing Site Work***

- Erosion control measures shall be regularly inspected and replaced as needed.
- Dewatering shall be done in a manner so as not to transmit silt, sand or particulate matter to the receiving water or existing drainage system.

## ***Drainage System***

- The drainage swale and drywell shall be installed immediately following site clearing.
- The contractor shall be responsible for monitoring sediment accumulation at the swale and drywell.
- At the end of all construction activity, the drainage swale and drywell shall be inspected and cleaned of all sediment and debris.

## ***Landscaping***

- Planting shall occur as soon as possible to provide permanent stabilization of disturbed surfaces.
- If the season or adverse weather conditions do not allow the establishment of vegetation, temporary mulching with straw, wood chips weighted with snow fence or branches, or other methods shall be provided.
- The use of herbicides is strongly discouraged.

If you have any questions, I can be reached at 978-777-3050 or by email @ [dcolbert@hancockassociates.com](mailto:dcolbert@hancockassociates.com) .

Sincerely,



Deborah L. Colbert, R.E.  
Senior Project Manager  
Hancock Associates

## **HydroCAD Output**

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