June 28, 2022 22-0141

Mr. Dennis Audette, Chairman
New Bedford Conservation Agent
New Bedford City Hall
133 William Street
New Bedford, MA 02740

RE: Nitsch Engineering Notice of Intent Filing for East Beach

Dear Mr. Chairman:

This letter is regarding the review of the integrity and capacity of the stormwater control structures and calculations associated with the Notice of Intent (NOI) submitted for the stormwater improvements associated with the public parking lots at East Beach, New Bedford. The Woods Hole Group, Inc. received and reviewed the following documents:

- Notice of Intent for East Beach Parking Lot Green Infrastructure Retrofit, New Bedford, MA, by Nitsch Engineering, dated 04/06/2022 (51 Pages).
- Stormwater Report for East Beach Parking Lot Green Infrastructure Retrofit, New Bedford, MA, by Nitsch Engineering, dated 04/06/2022, revised 06/16/2022 (244 Pages).
- Plans entitled "East Beach Park Parking Lot Green Infrastructure Retrofit, New Bedford, MA" prepared by Nitsch Engineering, dated 03/XX/2022 (21 Sheets).
- Plan entitled "Construction Phasing Plan" prepared by Nitsch Engineering, dated 06/14/2022 (1 Sheet).
- Stormwater Report for East Beach Parking Lot Green Infrastructure Retrofit, New Bedford, MA, by Nitsch Engineering, dated 04/06/2022, revised 06/16/2022 (244 Pages).
- Memorandum from Nitsch Engineering to New Bedford Conservation Commission dated 06/17/2022 (1 Page).
- StormTech Isolator Row performance sheet from the University of New Hampshire Stormwater Center 2009 biannual report.

The Project involves the modification of three existing parking lots across a roadway from a public beach. The removal of portions of the paved parking will reduce the impervious surface at the site and qualify the work as a redevelopment project as defined in the Massachusetts Department of Environmental Protection (DEP) Stormwater Management Standards. The Applicant is proposing to construct new stormwater management systems to handle the runoff from the site and incorporate treatment for some existing roadway drainage as well.

As requested, Woods Hole Group is providing comments based on our review of the Project materials in regards to the DEP Stormwater Management Standards. The Applicant has included efforts to exceed some of those standards in order to meet goals of the upcoming City of New Bedford Green Infrastructure Plan.

Stormwater Report Comments:

1. Bioretention basins are listed as Treatment BMP's in Volume 2 Chapter 2 of the MA DEP Stormwater Standards. The Standards indicate that a constraint of the use of those is that they should not be used near bathing beaches, a designated Critical Area. No additional guidance is included in the Standards on what distance is adequately far enough away to alleviate that concern. The closest infiltrating bioretention basin at this site appears to be approximately 60 feet from the bulkhead bordering the beach. The Applicant should provide additional information regarding the use of bioretention basins in such close proximity to a Critical Area.

2. Sediment forebays prior to the bioretention basins are proposed within the Stormwater Report and a credit for their TSS removal is taken in the TSS calculations sheets. There is one label within Bioretention Basin #6b on sheet C5.3, but no further details other than what appears to be detailed as "Curb Break Detail For Vertical Granite Curb" on sheet C6.3. There is not enough information for the sediment forebays on the plans (grading, dimensions, etc.) to determine if they provide the required volume to handle the minimum 0.1 inch per impervious acre designated in the Structural BMP section of the MA DEP Stormwater Standards prior to discharge to the bioretention basin for further treatment. The Applicant should include further details and may want to include additional vertical curb check dams at the curb inlet points within the bioretention basins in order to provide the required volume control for a sediment forebay isolated from the remainder of the basin.

3. Soil testing follows the method used for Title 5 septic system site evaluations which identified the infiltration soils as sandy loam while the NRCS Web Soil Survey maps the hyrologic soil group at the site as Urban. The soils report does not indicate that the person who conducted the testing is a licensed soil evaluator.

4. The soils tests indicate a "Groundwater Elevation" which is actually a depth below grade. The measured groundwater table elevation should be shown for each test and the seasonal high groundwater table elevation should be calculated. The Applicant should confirm that there is a 2-foot separation between the bottom of the stormwater infiltration systems and the seasonal high groundwater table, per the Massachusetts Stormwater Standards.

5. Buoyancy calculations for structures that extend below the seasonal groundwater table elevation should be included.

6. Piping connections below the seasonal high groundwater table elevation should be mortared\sealed to prevent inflow into the drainage system.

7. TSS calculations for Treatment Trains C and D list the Isolator Row as having a TSS removal rate of 81%. The UNHSC report states the median annual removal efficiency at 80%. These calculations should be corrected

Plan Set Comments:

General Plan Set Comments:

8. Plans are not stamped by a Professional Engineer or Professional Land Surveyor.

9. Text and labels overlap in many areas and are difficult to read. We recommend using text masking and/or relocating labels and turning off unnecessary background information to help focus the important information on each of the plan sheets.

10. Stray labels such as pipe diameters on a sheet where the pipe isn't being shown should be removed.

11. Text information is clipped off the edge of the plan view (viewport) on some sheets (i.e., C5.1 Site Drainage Plan – Lot A: DMH1 invert values)

12. The proposed

Plan Sheet C5.1 Site Drainage Plan – Lot A

13. Area labeled as "Ponding Basin with Bioretention Soil Mix" does not show up anywhere in the calculations or details. We believe this should be labeled "Bioretention Basin #2A" but the Applicant should correct the information as needed.
14. Inspection ports are shown and labeled within the Isolator Rows and StormTech infiltration systems. A typical detail of the construction of those would be helpful for a contractor.

Plan Sheet C6.2 Site Details Sheet II

15. Isolator Row Section Detail:
    a. Non-woven filter fabric should be shown surrounding the entire Isolator Row between the chambers and stone as required by manufacturer.
    b. Piping to the Isolator row(s) should be modified to include an overflow in the initial catchment basin (DMH2, DMH12, & DMH33). An outlet pipe from each structure should be piped to allow the water quality volume storm flow only to the isolator row. An overflow pipe or control weir within the basin structure should be set at a higher elevation to allow larger storm flows to directly feed a header pipe that feeds the additional StormTech chamber rows to allow infiltration throughout the system as directed by the manufacturer.
    c. Isolator rows connected to the lined bioretention systems should have an overflow pipe connecting from the top of the last chamber to the outlet structure (DMH10, DMH20, & DMH31) that directs stormwater to partially bypass the system in the event that the infiltration through the system to the underdrain becomes reduced due to clogging at the stone\geotextile interface.
    d. Isolator Row detail shows an underdrain connected to the same manhole as inlet pipe. Plans show underdrain connecting to a downstream collection manhole. The detail should be edited to note/show the proper connection per manufacturer's specifications.
    e. We recommend adding a layer of filter fabric between the pea gravel and crushed stone in the bioretention basin cross section details.

If you have any questions, please give me a call at 508-495-6235. Thank you.

Sincerely,

Joel R. Kubick, PE, PLS, CFM
Civil/Coastal Engineer

cc: _____