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July 2, 2020

Ms. Marcia Gasses
Town of Barrington
333 Calef Highway
PO Box 360
Barrington, New Hampshire 03825

Subject: Barrington Storage-Office
Tax Map 220, Lots 54-7-1 & 54-7-2
Calef Highway
Barrington, New Hampshire
Job No. 19107

Dear Marcia,

We have reviewed the peer review completed by Dubois & King dated June 23, 2020. Below please find their comments along with our responses, in blue text.

1. We recommend that the applicant add a note to the plans indicating the pending NHDES Alteration of Terrain Permit, No. 20200605-079.

   Note number 14 on sheet SP-1 has been modified to include the AoT application as pending.

2. There are discrepancies in the stormwater pipe labels on Sheet SP-4A and Sheet C2. For example, the pipe between DMH-2 and FES-1 is labeled as P-8 on C-2, however it is labeled as P4 on Sheet SP-4A. We recommend that the applicant review and verify all of the stormwater pipe labels for consistency.

   Labelling on Sheet SP-4A has been corrected as request.

3. Sheet SP-7 Construction Details. Storm Drainage & Sewer Pipe Trench. The HydroCAD modeling in the drainage analysis indicates that the proposed solid drainage pipes to be "CPP". We recommend that the applicant adds a note on the plans that indicates the proposed pipe type is high-density polyethylene, dual wall N-12 corrugated pipe in accordance with Barrington Site Plan Review Regulations 4.7.7(5).

   Note number 12 has been added to the general construction notes on Sheet SP-2.

4. Sheet C-3. Drain Pipe Table. The following drainage pipes have discrepancies with the HydroCAD model:
   a. Pipe P-8 length
   b. Pipe P-2 length
   c. Pipe P-4 end invert
   d. Pipe P-9 start invert, end invert, length.
   e. FES-2 invert-in elevation

   The Hydrocad Model has been corrected to coincide with the drawings.

5. Sheet C-3. Bioretention Plan and Details. The following was noted for the proposed outlet pipe for the outlet structure associated with the bioretention pond:
   a. The proposed diameter is 12 inches. We recommend that the applicant revise the proposed drainage pipe to have a minimum diameter of 15 inches in accordance with Barrington Site Plan Review Regulations 4.7.7(1).

      The plans and hydrocad model have been revised to indicate a 15 inch diameter outlet pipe.

   b. The detail shows a length of 40', however the HydroCAD model lists 30'. We recommend that the applicant address this discrepancy.

      The plans and hydrocad model have been revised to indicate a 40 foot long outlet pipe.

6. Sheet C-3. Drain Pipe Table. Pipe "P-1" has a proposed length of 302'. We recommend that the applicant reduce the proposed length of the pipe to a maximum of 300' to meet the requirements of Barrington Site Plan Review Regulations 4.7.7(6).

   The plans and hydrocad model have been revised to indicate that pipe P-1 is 300 feet long.

7. Sheet C-3. Drain Pipe Table. Pipes P-1, P-5, P-6, and "Cross-Culvert" appear to have proposed pipe covers that are less than 3'. We recommend that the applicant revise the proposed invert elevations of the storm pipes to have a minimum cover of 3 feet in accordance with Barrington Site Plan Review Regulations 4.7.7(3).

   The design, plans and hydrocad model have been revised so that all the drainage pipes have a minimum of 3 feet of cover as required.

8. Sheet C-3. Bioretention Pond Detail. We recommend that the applicant provide a low-permeability fill embankment material gradation and compaction requirements for the proposed embankment.

   The embankment materials and placement specifications have been added to Sheet C-3.

9. Drainage Analysis. Pond BIO-1. Outlet Device #2. The number of columns for the horizontal orifice does not match the catch basin frame and grate detail shown on Sheet SP-7 Construction Details. We recommend that the applicant revise the HydroCAD analysis parameters for Device #2 to match the proposed catch basin grate.

   The make and model of the frame & grate at DMH #4 have been revised on the plans and in the hydrocad model.

10. Drainage Analysis. The HydroCAD analysis includes infiltration rates of 3.00 inches per hour for the proposed stone drip edges and 6.00 inches per hour for the proposed bioretention area. We recommend that the applicant provide a brief narrative in the drainage analysis that provides describes how these values were determined.

    The bioretention area is lined with an impermeable liner. The 6.00 inches per hour is within the range recommend by the UNH Stormwater Center for the media we have specified.

    Stone drip edges were only used where the associated building is proposed to be in a fill condition and the required separation to SHWT was achieved. As these areas will have clean fill above moderately well drained underlying soil, a design rate of 3.00 inches per hour was used for the stone drip edges.

11. Drainage Analysis. Sheet D-2 Postconstruction Drainage Plan. The subcatchment delineations for several subcatchments included in the analysis are not shown. We recommend that the applicant revise the drainage plan to show all subcatchments that are include in the drainage analysis.

    Sheet D-3 has been added to the drainage package in order to clearly depict the subcatchments that were omitted from the original submission.

12. Drainage Analysis. Although referenced in the table of contents, rip-rap apron design calculations were not included. We recommend that the applicant provide riprap apron and stone sizing calculations for the outlet aprons in the drainage analysis in accordance with Site Plan Review Regulations 4.7.2(11).

    The updated drainage package includes the riprap sizing calculations that were inadvertently omitted from the original submission.

13. Drainage Analysis. The HydroCAD model does not include a node for the Drop Inlet DI-1 associated with Subcatchment 102. We recommend that the applicant revise the analysis to include the drop inlet.

    A new node has been added to the hydrocad model as requested.

    The DI-1 has been replaced with a catch basin (CB-6) and the cross culvert has been modified to pipe P-10.

    Additional nodes were also added to model the flow from P-10 to the analysis point.

14. Drainage Analysis. Several subcatchment nodes have time of concentration (TOC) values that are less than 6.0 minutes. We recommend that the applicant revise the analysis to have minimum TOC values of 6.0 minutes.

    The hydrocad model has been revised as requested

Enclosed please find:

- Three (3) Full Size copies of the revised Plan Set.
- Twelve (12) 11 X 17 copy of the revised Plan Set.

Please advise should you have any questions.

Very truly yours,

TRITECH ENGINEERING CORP.

Robert J. Stowell, P.E., L.L.S.
President

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Enclosures
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