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Ms. Juliet T. H. Walker, AICP
Planning Director
Planning Department
1 Junkins Avenue
Portsmouth, NH 03801

May 14, 2019

Ref. T0884

Re: Cate Street Extension & West End Yards Site Stormwater Peer Review

Dear Ms. Walker:

On behalf of the City of Portsmouth, TEC, Inc. (TEC) has completed an engineering peer review of the Cate Street Extension and West End Yards site stormwater management system. This review supplements the Cate Street Extension Roadway Design Peer review conducted by TEC, and dated May 13, 2019. The following details the results of the stormwater review:

Reference Documents:

The following documents obtained from the Planning Department's project website were included as part of our review:

- *West End Yards Site Plans,* prepared by Fuss & O'Neill – dated March 2019
- *Wetlands Conditional Use Permit Application*, prepared by Gore Environmental Services, Inc. – March 21, 2019 submission
- *Stormwater Management Report - West End Yards,* prepared by Fuss & O'Neill – dated November 19, 2018
- *State Wetlands Submission,* prepared by Gore Environmental Services, Inc. – February 13, 2019 submission
- Meeting minutes for various public meetings (Neighborhood Listening Session, Planning Board, Conservation Commission, Technical Advisory Committee)

Field Reconnaissance:

TEC visited the project site on April 23, 2019 to observe existing conditions and elements of the site vicinity that may be impacted by or are adjacent to the proposed development. Items observed in the field included:

- Existing roadways and intersections at Cate Street, Bartlett Street, Islington Street, Cottage Street, US Route 1 Bypass, and Borthwick Avenue

- Existing drainage infrastructure, including pipes currently draining into Hodgson Brook
- Existing landscaping along Hodgson Brook and the brook's bank adjacent to the Site

After review of the reference documents cited above and field reconnaissance performed, TEC offers the following comments and recommendations to be addressed by the Applicant, at the discretion and direction of the City:

Stormwater Management Review:

1. It is noted that the Site Plans and Stormwater Management Report cited under the Reference Documents section above are not yet complete/finalized and those documents shall be resubmitted by the Applicant for review/approval, when finalized, prior to project approval.

2. It is understood that the Applicant is in the process of procuring a City Conditional Use Permit as required by the City of Portsmouth due to disturbance within the wetland buffer zone. Construction shall not commence before such permit is granted.

3. The hydrologic analysis calculations shall be revised to utilize the design storm rainfall data published by the Northeast Regional Climate Center at Cornell University, with an additional 15% factor added, as required by the NHDES AOT Regulation ENV-Wq 1503.08 (l).

4. The Executive Summary notes in Section 2.1 that test pits will be performed to confirm site geotechnical conditions, including Hydraulic Conductivity and ESHWT (Estimated Seasonal High Water Table). Test pits shall be performed by the Applicant at all proposed locations of stormwater management practices in order to complete the proposed stormwater management design and verify compliance with City of Portsmouth and NHDES standards.

5. Label all proposed stormwater infrastructure shown on the Grading, Drainage, & Erosion Control Plans, including subsurface infiltration basins (SSIBs), for clarity; and provide all dimensions and design details in the plan set for all proposed stormwater management practices.

6. Subcatchments T9 and T10 appear to drain toward the storm drain system Pond AP2. However, the HydroCAD routing diagram appears to show subcatchments T9 and T10 draining toward Hodgson Brook, Pond AP1. The Applicant should review and revise the drainage design if necessary to confirm compliance with City of Portsmouth and NHDES standards.

7. The Applicant shall confirm via a qualified hydrogeologist that the proposed drainage system additions do not result in any "adverse effect on other public or private groundwater sources", as required by the City of Portsmouth Site Plan Regulations, Section 7.2.4.

8. The Applicant should review Tables 1.1 and 2.1 of the Executive Summary and revise as necessary. The Net Change in the 50-year AP1 and 10-year AP2 peak flows appear to be incorrect based on the Existing and Proposed Flows cited.

9. 4" perforated underdrain pipe is proposed in the Bioretention System details. NHDES Stormwater Manual Volume II requires ≥ 6" pipe.

10. Deep sump catch basins are proposed throughout the design. The Applicant shall confirm that each deep sump catch basin has a contributing impervious drainage area of ≤ 0.25 acres, as parametrized by NHDES Stormwater Manual Volume II.

11. There appears to be a slight (±3 SF) discrepancy in total area between the pre/post HydroCAD conditions. Please consider revising.

12. Groundwater Recharge Volume Calculations, BMP worksheets and calculations, Infiltration Feasibility Report, UIC Registration, and I&M Manual are noted as "pending" items. "Pending" items have not been reviewed by TEC and shall be completed prior to final approval.

13. Consider revising the location of proposed catch basins 5 & 6. Catch basins should be located at the low point (Station 2+78).

14. Consider revising catch basin locations throughout Cate Street / Cate Street Extension to provide a minimum spacing of 300'.

15. Show and label proposed curb openings to bioretention basins on the applicable plan sheets. The detail shows a curb opening to the BMP but the plans do not shown such information.

16. Adjust existing catch basin #1346 at the southeast corner of the US Route 1 Bypass / Cate Street Extension intersection to proposed final grade. Currently this catch basin is raised above the existing pavement and is not currently proposed to be adjusted.

Upon the receipt of additional, revised, and/or new documentation for the project, TEC reserves the right to provide additional comments as needed. Please do not hesitate to contact us directly at 978-794-1792 if you should have any questions concerning this peer review. Thank you for your consideration.

Sincerely,
TEC, Inc.
*"**T**he **E**ngineering **C**orporation"*

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