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December 19, 2014

Town of Foxborough Conservation Commission
Attn: Ms. Jane Sears Pierce, Conservation Manager
40 South Street
Foxborough, Massachusetts

RE: Peer Review
Forge Estates of Foxborough
204 East Street
Foxborough, Massachusetts

Dear Conservation Commission Members and Ms. Pierce:

BSC Group has completed its review of the Notice of Intent (NOI) and supporting documentation for the proposed Forge Estates of Foxborough subdivision at 204 East Street in Foxborough, Massachusetts. This letter report summarizes our findings and presents comments and questions that we have formed as a result of the review. This review encompasses the Project's compliance with the Massachusetts Wetlands Protection Act and implementing regulations (together referred to as "WPA"), the Town of Foxborough Wetlands Protection Bylaw and Wetlands and Groundwater Protection Regulations (together referred to as "the Bylaw), the Massachusetts Department of Environmental Protection's (DEP) Massachusetts Stormwater Handbook ("the Handbook"), and general engineering design and best development practices.

Project Summary and Information Reviewed

The Project includes the construction of a 12-lot open space residential subdivision including a new approximately 950-foot long subdivision road with cul-de-sac on the current property of 204 East Street. The proposed subdivision roadway requires a bridge crossing over an isolated wetland adjacent to the Canoe River where the River flows through a culvert beneath East Street. The Project also includes construction of utilities for the subdivision including stormwater management systems. Resource areas on site protected by the WPA and/or the Bylaw include: Inland Bank (Bank), Bordering Vegetated Wetlands (BVW), Land Under Water Bodies and Waterways (LUWW), Bordering Land Subject to Flooding (BLSF), Riverfront Area (RFA), Freshwater Wetlands (FW), and the Adjacent Upland Resource Area (AURA).

To prepare this report, BSC Group reviewed the "Notice of Intent, Forge Estates of Foxborough, 204 East Street, Foxborough, Massachusetts," prepared by Lucas Environmental, LLC, dated November 6, 2014, the plan set "Forge Estates of Foxborough, Open Space Residential Development, 204 East Street, Foxborough, Massachusetts 02035," prepared by Coneco Engineers & Scientists, Incorporated, dated October 30, 2014, and "Stormwater Management Report, Project Site: Forge Estates of Foxborough," prepared by

Engineers
Environmental Scientists
GIS Consultants
Landscape Architects
Planners
Surveyors

Coneco Engineers & Scientists, Incorporated, dated October 30, 2014. Additionally, BSC reviewed a letter to the Conservation Commission dated November 24, 2014, from Ms. Amy M. Ball of the Horsley Witten Group, Inc. on behalf of Mr. Colin Browning. Based on our review of the above information, BSC offers the following comments and questions for the Conservation Commission ("the Commission").

1. As required by the Town of Foxborough Notice of Intent Application Checklist, the NOI should include a "Detailed mitigation plan for activities in the buffer zone to prevent long term, indirect impacts to adjacent resource areas".

2. The Applicant has requested that the Commission review this project as a Limited Project per 310 CMR 10.53(3)(e), which allows for (in part) "The construction and maintenance of a new roadway or driveway….where reasonable alternative means of access from a public way to an upland area of the same owner is unavailable." This limited project provision requires, however, that the Applicant "utilize access over an adjacent parcel of land currently or formerly owned by the applicant, or in which the applicant has, or can obtain an ownership interest." The NOI includes letters provided to direct abutters only 16 days prior to the submission of the project filing intended to explore alternative access options for the project. The Applicant should clarify if there has been any correspondence regarding alternative access options for the project beyond the correspondence provided within these letter. BSC recommends that more information be provided to demonstrate that off-site access alternatives have been exhausted. BSC agrees that this project may qualify as a Limited Project, however it is our opinion that because the project site is situated within an ACEC, additional scrutiny is warranted by the Commission during project review. An adequate demonstration of Project Alternatives, through an Alternatives Analysis (See comment below) will satisfy this requirement.

3. The proposed project is located entirely within the Canoe River Aquifer, Snake River, Watson Pond, and Lake Sabatia ACEC. The project involves approximately 29,215 (0.67 acres) of temporary and permanent impact to the 200-foot Riverfront Area. To demonstrate compliance with the performance Standards set forth for new development within RFA, the Applicant must demonstrate No Significant Adverse Impact per 310 CMR 10.58 (4)(d). This performance standard allows the Commission the authority to alter up to 5000 square feet or 10% of the Riverfront Area within the lot, whichever is greater. The total square footage of RFA on the lot remains unclear as the project site is a combination of 3 lots. The Applicant should clarify the amount of RFA impacts on each lot to determine whether this project complies with this Performance Standard for new development.

4. Lucas Environmental, LLC (LEC) re-established wetland flagging in the field as part of this permit application. In doing so, LEC identified a discrepancy from the approved Superseding Order of Resource Area Delineation (SORAD) (issued September 25, 2009 – DEP File #157-467) and current field conditions. This discrepancy is called out within the Application's Project Narrative. It appears that the wetland boundary from the SORAD, and the newly identified wetland boundary are each identified on the project plan set. A single wetland resource area boundary clearly identified on the project site plans should be depicted to facilitate administrative review of the project.

5. In addition to the above comment, the Applicant should clarify whether the resource area and impact calculations provided are based upon the SORAD or their field observations. If the calculations are not based on the SORAD, the Applicant should provide further

documentation supporting the use of their field observations as well as plans showing their field observed delineations compared to the SORAD.

6. Given the sensitivity of the subject property with regard to ecological resources (e.g. wetland resources, ACEC, nearby Certified Vernal Pool), it is important that the Applicant demonstrates that the project has exhausted alternative design options to reduce, minimize, and mitigate impacts to the environment to the maximum extent practicable. This can be accomplished through a detailed Project Alternatives Analysis. It is BSC's opinion that the Applicant has failed to meet this requirement through the Alternatives Analysis presented within this NOI. BSC recommends that the Applicant provide a revised Alternatives Analysis that adequately demonstrates that the project has evaluated Practicable and Substantially Equivalent Economic Alternatives. This is accomplished through the following:

   - A Practicable Alternative per 310 CMR 10.58(4)(1) must evaluate project costs, existing technology, the proposed use, and logistics. It BSC's opinion that this application has failed to meet this requirement. Have other properties in the town of Foxborough been evaluated for a similar development in size and scope? It appears that the purchase of abutting land for access is not cost prohibitive to the applicant. Has this option been adequately exhausted? Additionally, without a bridge design, it is unclear whether the most effective design/engineering technology is being applied for circumstances associated with the proposed wetland crossing.

   - A Scope of Alternatives per 310 CMR 10.58(4)(2) requires that the alternatives under consideration shall be commensurate with the type and size of the project. As such, it is BSC's opinion that a more developed scope of alternatives should be documented for the Preferred Alternative (Section 5.4, Alternative 4: Open Space Design). The inclusion of a larger "conventional subdivision design" within the Alternatives Analysis (Section 5.2, Alternative 2: Conventional Subdivision) fails to meet the intent of this requirement. As a residential subdivision, the economic viability of the project should be weighed against the alternatives evaluated for the preferred design.

   - An Evaluation of Alternatives per 310 CMR 10.58(4)(3) requires the Applicant demonstrate that there are no practicable and substantially equivalent economic alternatives for the project. This is accomplished through a demonstration that alternative project locations and alternative design configurations have been evaluated. It is BSC's opinion that the NOI Application has failed to meet this requirement.

7. We recommend that the Applicant provide a plan explicitly showing the proposed resource area impacts.

8. Section 4.2 of the NOI describes construction sequencing for the wetland crossing that references staging a crane either on the existing cart path or a "suitable upland area". It is our opinion that the cart path, even if temporarily stabilized as proposed, is not large enough to stage a crane for construction of the crossing. Therefore, we recommend that the Applicant submit a temporary crane staging plan showing from where the crane will operate, what temporary grading is required, and how the upland area will be temporarily and permanently stabilized to prevent impacts to adjacent resource areas.

9. BSC commends the Applicant's willingness to preserve, in perpetuity, approximately eight acres of land situated within the southwestern half of the subject property as part of this Project. According to the NOI, this area was selected because of its non-fragmented

expanse of upland area within the Critical Terrestrial Habitat of the off-site Certified Vernal Pool. BSC agrees with this open space approach, and recommends that the Conservation Commission recognize this mitigation measure in their review of the Project.

10. BSC is supportive of the proposed Wetland Mitigation Plan. We do however suggest that the area be enlarged to greater than 2:1 impact to replication ratio. It appears the area of proposed mitigation is suitable for enlargement. A total of 3 red maple trees, 3 highbush blueberry shrubs, and 3 silky dogwood shrubs are proposed for planting within the mitigation area. The total number of mitigation plantings should be increased, especially for shrubs. A densely vegetated area will increase the likelihood of invasive species resiliency within the mitigation area.

11. It appears that the access roadway and bridge will be constructed prior to the wetland mitigation area. As such, it remains unclear how the contractor will access the proposed mitigation area with heavy machinery without entering wetland resource areas and causing further disturbance.

12. While a monitoring plan has been established for the mitigation area, we recommend the Commission require that a successful mitigation area will be free of invasive species after an established amount of time (e.g. 5 years).

13. Erosion and Sedimentation Control is the only listed Best Management Practice (BMP) identified for the Project. An Erosion and Sedimentation Control Plan is not provided within the Project Plan Sheets. At a minimum, the Conservation Commission should require an Erosion and Sedimentation Control Plan as part of a Project Specific Order of Conditions. Because of the proximity of proposed project activities to sensitive wetland resource areas, it is recommended that frequent compliance monitoring, inspections, and reporting occur as a Permit Requirement.

14. The NOI does not identify a dewatering practice for the project. The proximity of project activities, most notably the installation or construction of bridge footings to sensitive wetland resource areas (most notably the Canoe River) will likely require a significant amount of dewatering. The steep topography within this location will make dewatering far enough away from wetland resource areas a challenge. Additionally, without a bridge design, it remains unclear how the contractor will prevent the bridge footing trench from caving in on itself, a problem frequently encountered when digging trenches within close proximity to a wetland boundary. BSC recommends a Dewatering Plan be created for the project.

15. Section 7.1 of the NOI states that Freshwater Wetlands impacts will be limited to vegetation removal. However, it is our opinion that installing the proposed crossing over this wetland will result in a permanent impact due to shading. While the proposed crossing includes a 5-foot wide open median, we do not believe that this will provide sufficient light to maintain current wetland functionality.

16. Limits of the BLSF should be shown on the plans based upon the actual elevations documented in the appropriate FEMA Flood Study that includes this portion of the Canoe River. Without this information, we are unable to determine if the full impacts to BLSF and, therefore, the appropriate mitigation have been provided.

17. The proposed rip-rap slope above the compensatory flood storage and wetland replication area does not appear to be in conformance with the requirements of the Bylaw within the

25-foot buffer/no activity zone. The Bylaw defines this zone as "A no-disturb zone of continuous cover of vegetation…".

18. No details of the proposed wetland crossing or the associated abutments have been provided. As different types of bridge systems require different types of abutments and will require different construction staging and installation impacts, it is our opinion that the actual temporary and permanent resource area impacts cannot be calculated without specific information on the bridge system to be used.

19. While no permanent fill is proposed within the limits of vegetated wetlands (bordering and isolated), it is BSC's concern that the proposed bridge footings cannot be built without a direct and permanent impact to these wetland resource areas. Better detail regarding bridge design and how it will be constructed is necessary.

20. The pipe outlets from Rain Garden 7 and the underground infiltration system discharge onto the rip-rap slope approximately 4-feet above the compensatory flood storage and wetland replication area. We recommend that these pipe outlets discharge to a level spreader to promote low velocity sheet flow and protect the compensatory flood storage and wetland replication area from erosion.

21. The Applicant should clarify if the proposed rain gardens will be vegetated. The general Rain Garden Cross-Section shown on Sheet 20 of the Site Plans shows a vegetated area, while the specific rain garden details on Sheet 22 appear to be surfaced with stone.

22. The forebay detail provided on Sheet 21 of the Site Plans does not represent the forebays shown on the Proposed Grading, Drainage, & Erosion Control Plan. Details and sizing calculations for the proposed forebays should be provided.

23. While the Applicant has performed numerous soil test pits on site, test pits do not appear to have been performed in the location of all proposed stormwater infiltration BMP's as required by Volume 3, Chapter 1 of the Handbook. Additional information is required to document and confirm compliance with the requirements of Stormwater Standard 3, specifically pertaining to soil types and separation to seasonal high groundwater.

24. As the Project discharges stormwater within a critical area, Stormwater Standard 6 is applicable. Therefore, 44% TSS removal must be achieved prior to discharge to an infiltration BMP. Based on the information provided, this does not appear to be the case for the proposed rain gardens. The Applicant should clarify how the Project will comply with this requirement.

25. Under Stormwater Standard 6, proprietary separators such as Stormceptors are only to be used as pretreatment for an approved treatment BMP (see Tables CA 1 thru 4 in Volume 1, Chapter 1 of the Handbook). Based upon this requirement, the use of a Stormceptor as treatment for the segment of the stormwater management system closest to East Street is not in conformance to Standard 6.

26. The proposed conditions HydroCAD calculations include exfiltration from the roadside swales (Ponds 1, 3, 9, and 10). As swales do not qualify as infiltration BMP's (see Volume 2, Chapter 2 of the Handbook), it is our opinion that including exfiltration from swales is appropriate. The Applicant should update the HydroCAD calculations accordingly.

27. The Stormwater Report and HydroCAD calculations include underground infiltration systems on each lot that will collect and infiltrate runoff from the house roofs. However, the locations of these systems are not shown on the Site Plans. As the Stormwater

Handbook Volume 3, Chapter 1 requires soil test pits at the location of all infiltration BMP's, the locations of these systems should be provided as well as test pit information documenting soil types and separation to seasonal high groundwater.

28. The Applicant should submit calculations showing that all infiltration BMP's will drain within 72-hours in compliance with Volume 3, Chapter 1 of the Handbook.
29. The Applicant should submit sizing calculations for the Stormceptors in accordance with the DEP's Standard Method to Convert Required Water Quality Volume to a Discharge Rate for Sizing Flow Based Manufactured Proprietary Stormwater Treatment Practices.
30. If the Applicant intends to submit the subdivision road for acceptance as a public street, the Town of Foxborough DPW should review and accept the Long Term Pollution Prevention and Operation and Maintenance Plans as the ultimate responsible party.
31. The Operation and Maintenance Plan includes duplicate items for street sweeping under quarterly and annual maintenance. We recommend that street sweeping be performed quarterly and the annual item be removed.

Upon receipt of any additional information requested above and any responses to comments from the Applicant, BSC Group will update this letter report for the Board. We look forward to discussing this project with you further at the Commission's public hearing on the project. Please feel free to contact me at (617) 896-4386 or drinaldi@bscgroup.com should you have any questions on the information in this report.

Sincerely,
BSC GROUP, INC.

Dominic Rinaldi, P.E., LEED AP BD+C
Project Manager/Senior Associate