IMPROVING COMMUNITIES TOGETHER

October 15, 2019

Christopher Wider, Chairman

Town of Norfolk – Zoning Board of Appeals
One Liberty Lane
Norfolk, MA 02056

Re: Norfolk, MA – The Residences at Norfolk Station
194 Main Street
Comprehensive Permit Peer Review

Dear Chairman Wider:

BETA Group, Inc. (BETA) has completed its peer review of the civil and stormwater related elements of the site plans and supporting engineering documents for the above-referenced project, based on the following materials:

- Application for Comprehensive Permit, The Residences at Norfolk Station, dated December 13, 2018;
- Stormwater Management Report, The Residences at Norfolk Station, 194 Main Street, Norfolk MA, dated August 23, 2018 prepared by Zenith Engineering Consultants, LLC;
- Comprehensive Permit Plan, The Residences at Norfolk Station. 194 Main Street, Norfolk MA, plan set, twenty (20) sheets, dated August 29, 2018 prepared by Zenith Engineering Consultants, LLC;
- Fire Department Memorandum dated January 9, 2019 from Chief Cole Bushnell, Norfolk Fire Department;
- Fire Department Memo dated September 26, 2018 from Chief Cole Bushnell, Norfolk Fire Department;
- Conservation Commission comment email dated September 18, 2018;
- Norfolk Town Planner letter to the Norfolk ZBA dated October 11, 2018;
- Norfolk Town Planner letter to the MassHousing Comprehensive Permit Program dated June 7, 2018
- MassDEP Stormwater Management Standards (SMS)

The following are our comments on the plans and stormwater management report; please note that we were not provided with any Traffic Impact Study or Analysis for review. Where referenced, the term "applicant" refers to either the applicant itself or its design consultants, and Section references are to the Norfolk 'Rules & Regulations for Subdivision of Land & Site Plan Approval,' amended September 16, 2010 (referred to herein as the Subdivision/Site Plan Regulations) or the 'Zoning Bylaws with Amendments Through May 2014' (referred to herein as the Zoning Bylaws).

Peer review of the landscape design will be provided in a separate letter.

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General

1. The project proposes a 60-unit, non-age restricted housing development under Chapter 40B on a single parcel. A single 24-ft access driveway provides site access from Main Street. 46 parking stalls 9-ft x 18-ft and 2 handicapped stalls 10-ft x 18-ft with a 10-ft wide unloading zone have been provided outside of the building. 56 parking stalls and 4 handicapped parking stalls (similar dimensions) have been provided within the garage under the building.

2. The Applicant is requesting numerous waivers from local zoning and subdivision regulations, as well as other Town by-laws. These waiver requests will be evaluated as the peer review process advances.

3. The plans state that there are no wetlands on site. Please confirm that there are no wetland resources, including off site, within 100 feet of any proposed work (i.e. the 30" outfall northeast of the property).

Stormwater Management

1. The Applicant has requested a waiver from all applicable Subdivision Rules and Regulations of the Town of Norfolk, including Section 4.19 Stormwater Management Systems. Section 4.19 establishes certain requirements for the design of onsite stormwater management systems that are more stringent than the SMS.

2. The HydroCAD report indicates that the proposed stormwater management system provides sufficient mitigation for peak runoff rates and volumes for the 2, 10, 25, 50 and 100 yr design storms under Post Development conditions.

3. The Applicant proposes two surface stormwater infiltration basins (Basins 1P and 2P) and one subsurface infiltration chamber system (Pond 3P). Only one test pit has been conducted within Basin 1P (TP D-1) while no test pits appear to have been done in either of the other two stormwater basins. The SMS requires one test pit per 5,000 SF of area for infiltration Best Management Practices (BMPs).

   Recommendation: The applicant should conduct at least one test pit in Basins 2P and 3P and at least one additional test pit in Basin 1P to verify the existing soils/groundwater conditions and confirm the basins will function as modeled in the stormwater report.

4. Basin 1P is proposed on the east end of the project site at an existing low-lying depression which appears to function as a collection point for site generated surface runoff. The existing survey contours indicate the bottom of this depression is at elevation 208, while the HydroCAD model for the Pre-Development site lists the bottom of this depression at elevation 207. Either way, the bottom elevation of the proposed Basin 1P is 209.5, which indicates that a portion of Basin 1P is to be constructed in fill. The SMS and good engineering practice recommend against constructing stormwater BMPs in fill.

   Also, the proposed top of berm appears to be the 213 contour. The 213 contour is shown connecting to the existing 212 contour at the east property line. This grading should be adjusted. Confirm that all proposed grading can be accomplished without encroaching on the adjacent town of Norfolk parcel.

Lastly, the overflow stone spillway is set at elevation 211.60. Per the HydroCAD report, design storms greater than the 2-yr event fill the basin and activate the spillway. Elevation 211.6 is located within 6-feet to the building foundation at several locations along the easterly side of the building. The SMS recommends a 10-ft minimum offset for infiltration basins to building foundations.

Recommendation: The applicant should redesign Basin 1P to rectify these issues.

5. The existing survey shows a catch basin located adjacent to the 208 contour of the depression. The rim and invert elevations are listed as 208.0± and 205.1±, respectively. Are these rim/invert elevations approximate or were they field verified? If the rim elevation is in fact higher than elevation 208, then more stormwater would be retained which would reduce the calculated peak rate and volume of stormwater discharging from the site under existing conditions.

   Recommendation: The applicant should confirm the rim elevation of the existing CB at the east end of the site and revise the existing HydroCAD model if necessary.

6. The Applicant proposes to install an inlet model Stormceptor 450i water quality treatment chamber to service Basin 1P. The Stormceptor is intended to capture and pre-treat stormwater from the proposed paved parking/access drive area prior to discharge into the basin. The contributing catchment area to the Stormceptor (labeled STC-2) is 1.08 acres, with 0.6 acres of impervious area. The inlet model Stormceptor 450i is designed for treatment of small catchment areas only, generally 0.25 acres or less of impervious area. The Stormceptor sizing software does state a TSS removal rate in excess of 80% for the 450i model, however, a larger Stormceptor (model 900) is recommended.

   In addition, the Catch Basins in Depressions calculations included in the Stormwater Report list a contributing peak flow of 4.5 CFS to STC-2. The calculations list an inlet capacity of 8.85 CFS with a double grate, however, STC-2 is shown on the plans with a single grate. Is a double grate configuration proposed for STC-2, and is a double grate configuration available for a Stormceptor 450i?

   Recommendation: The applicant should utilize a larger manhole style Stormceptor model for pretreatment at Basin 1P. A manhole style Stormceptor would require a separate CB for stormwater collection, likely a 5-ft diameter structure with double grate.

7. Infiltration Basin 2P is located adjacent to the southwest end of the proposed building. The elevation of the garage floor at this location is 220.0, which is lower than the bottom elevation of Basin 2P at 222.0.

   Recommendation: The applicant should confirm that waterproofing will be applied to the exterior foundation wall for the length of Basin 2P.

8. Stormwater Management Report – Section 3.4 Removal of 80% TSS: The applicant has proposed two Stormceptor 450i inlet model treatment chambers to provide all of the 80% TSS removal for site generated stormwater runoff while taking no credit for TSS removal via the infiltration BMPs.

   Recommendation: Refer to Item #5. The proposed Stormceptors in conjunction with the infiltration BMPs will likely provide in excess of 80% TSS removal from the site.

9. Stormwater Management Systems Long Term O & M Plan: The applicant has provided the name and address for the party responsible for the stormwater management system.

   Recommendation: The applicant should provide a contact telephone # for the party responsible for the stormwater management system.

10. Drainage Summary – The Drainage Summary page of the Stormwater Report lists the Pre and Post Development peak runoff rates and volumes discharging from the project site. After reviewing the results of the HydroCAD models, it appears the Pre/Post peak rates and volumes listed are those going to the "existing depression with catch basin" node, not the Pre/Post peak rates and volumes actually discharging from the project site.

    Recommendation: The applicant should revise the Pre/Post drainage summary page to list the correct peak rates and volumes discharging from the project site.

Plans

1. The Existing Conditions Plan shows an existing drainage easement running along the south/easterly side of the parcel. An existing drain line along with several drainage structures are shown within the easement. The size or material of the drain line is not listed. At least one of the drain manholes appears to be shown as approximate, while the rim/invert elevations for one of the catch basins is labeled "plus/minus". The existing drainage structures are shown using several different symbols which are not included in the Legend, the reason for the different symbols is unknown.

   Recommendation: The drainage easement and most of the existing structures and drainpipe are to remain as part of the project. The pipe size and material should be identified, the rim/invert elevations for any existing structures to remain should be provided to confirm whether any utility conflicts may exist. If different symbols are to be used for the drainage structures, they should all be included in the Legend.

2. The Grading and Utilities Plan does not show any drainage system for the building garage floors. Building garage floors typically feature floor drains to collect vehicle drippage connected to oil/grit chambers which then connect to the building sewer system.

   Recommendation: The applicant should discuss how vehicle drippage within the building garage will be managed.

3. The limits for the proposed subsurface sewage disposal system are only shown on the Landscaping Plan as dashed squares. No actual septic field or septic system components are shown.

   Recommendation: The applicant should consider adding the septic system component locations to the Grading and Utilities Plan to confirm that no conflicts exist with other site utilities. Appropriate setback dimensions should also be considered to confirm that the system components will fit within their designated area(s).

4. Infiltration Chamber System 3P is located approximately 6-ft off the west property line. The south end of the system requires a 6-ft cut below existing grade, given the close proximity to the property line will a temporary construction easement be required?

5. STC-1 almost touches the west property line. Graphically it is shown as a 4-ft diameter structure; however, it is in fact a 6-ft diameter structure including the anti-floatation concrete shelf at the base. Given the close proximity to the property line will a temporary construction easement be required?

   Recommendation: The applicant should confirm if a temporary construction easement from the adjacent property will be required to construct Infiltration Chamber System 3P or to install Stormceptor STC-1.

6. The Grading and Utilities Plan shows the proposed Water and Fire services connecting to the southwest corner of the building from the existing water main in Main Street. This appears to be the only water services currently shown. In the Sept 26, 2018 Memo from Fire Chief Bushnell , Comment C specifically requests a fire hydrant be located "at the driveway to the Maintenance Building".

   Recommendation: The applicant should add a fire hydrant and all other associated water/fire services to the plan as requested by the Norfolk Fire Dept. In addition, water connection features including tapping sleeves, gate valves, bends, etc. should be added to the plan.

7. The Applicant is required to submit a site design checklist to the Norfolk Fire Department for review. The checklist includes relevant design information such as vehicle turning radii and general site accessibility for emergency vehicles.

   Recommendation: We would request that emergency vehicle access and turning radii design information be provided for review as the proposed site has only a single access driveway.

8. The Layout Plan depicts a 24-foot access driveway entrance on the west side of the site; the proposed edge treatment is depicted as 12" Cape Cod bituminous berm. The hatch pattern used for proposed bituminous concrete extends all the way to the interface with Main Street, which appears to indicate that the existing cement concrete sidewalk across the driveway is to be replaced with bituminous concrete. Therefore, the proposed driveway modifications as depicted will not mesh with the existing conditions at that location.

   Recommendation: The applicant should revise the proposed work at the western driveway to conform to the actual existing conditions, and clearly identify the nature and extent of the work that will be performed on the Main Street roadway, the existing granite curbing, and the cement concrete sidewalk.

9. The Layout Plan does not show any designated snow storage area(s).

   Recommendation: Designated snow storage area(s) should be added to the plan.

10. The Layout Plan does not show any dimensions for parking and drive aisles within the parking garage.

    Recommendation: Dimensions for parking and drive aisles should be added for the parking garage.

11. The proposed site grading indicates the site will require importing fill.

    Recommendation: The applicant should provide earthwork calculations for review.

12. The Site Lighting Plan indicates that most of the pedestrian walk along the north side of the building will not be properly illuminated by the proposed site lighting.

    Recommendation: The proposed site lighting should be modified to properly illuminate the pedestrian walkway along the north side of the building.

13. The plans do not show any pedestrian walks to the site amenities (Pickleball / Bocce courts and dog play area).

    Recommendation: The applicant should consider providing ADA accessible pedestrian walkways to the proposed site amenities (Pickleball / Bocce courts and dog play area).

If you have questions about any of the preceding comments, please feel free to contact either Bill McGrath or myself at (401) 333-2382.

Very truly yours,

BETA Group, Inc.

Todd Undzis, P.E.
Project Manager

cc: Bill McGrath, P.E. – BETA Senior Associate