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March 9, 2018

Ms. Emily Wentworth, Senior Planner/Zoning Administrator
Hingham Zoning Board of Appeals
Town Hall
210 Central Street
Hingham, MA 02043

**Re: Engineering Peer Review
Comprehensive Permit Plan known as "River Stone"
Viking Lane and Ward Street, Hingham MA
Assessors Map 124, Lots 70-75 & Lot 26
Applicant: River Stone, LLC**

Dear Ms. Wentworth:

This letter is in response to questions and comments in a review letter dated February 6, 2018 from Patrick G. Brennan, P.E. of Amory Engineers, P.C. and a letter dated February 6, 2018 from Jeffrey S. Dirk, P.E., PTOE, FITE of Vanasse & Associates, Inc. for the above referenced project.

Enclosed herewith are the following:

- Four (4) copies of the report entitled "Preliminary Hydrologic Analysis for Comprehensive Plan for River Stone" prepared by McKenzie Engineering Group, Inc., (MEG) with the latest revision date of March 9, 2018.
- Eight (8) sets Plans entitled "Comprehensive Permit Plan known as River Stone" prepared by McKenzie Engineering Group, Inc. (MEG) with the latest revision date of March 9, 2018.

The revised plan set involves a relocation of the principal access to the project at Ward Street to a location that is approximately 650 feet south of the present intersection of Viking Lane and Ward Street. The design change was accomplished to ensure that adequate sight distances could be maintained at the proposed intersection at Ward Street. The results of a speed study conducted by Sergeant David Horte of the Hingham Police Department from January 29 to February 4, 2018 indicated that the 85th percentile speeds were considerably higher on Ward Street than those observed by the applicant's traffic consultant Ron Mueller and Associates (RMA). As a result the site distances required by AASHTO are greater than those presented in RMA's traffic report. Although the sight distances required by AASHTO for both speed studies are available at the present time, the sight triangles encroach beyond the limit of the Ward Street layout into private property and therefore the project proponent has no assurance to ensure that these areas are maintained to provide the required sight distance. The relocation of the principal access to the project necessitated a reconfiguration of some of the buildings and redesign of the stormwater management system.

Responses by McKenzie Engineering Group, Inc. (MEG) correspond to the outline of the review letters and are in *italics*. Text in gray represents peer review comments.

Amory Engineers Comments

The following six comments from our January 9, 2018 letter are restated in plain text, followed by the current status of each in **bold text**:

1. The list of requested waivers in the application materials includes many 'general waivers' from various regulations. The waivers should explain the exact regulation from which relief is being requested so that the Board fully understands the implications of each requested waiver. **It is stated in the MEG response letter that "a revised waiver list will be submitted at a later date."**
2. Updated plans to include the following:
 - a. Grading and drainage plan – **Received.**
MEG 3/9/18 response: No response required.
 - b. Utilities plan – **Received.**
MEG 3/9/18 response: No response required.
 - c. Landscaping plan – **Received.**
MEG 3/9/18 response: No response required.
 - d. Construction details – **Received.**
MEG 3/9/18 response: No response required.
 - e. Exterior lighting plan with photometrics. **MEG response indicated that "light posts will be provided at every house equipped with a photosensitive cell to operate dusk to dawn, therefore; an exterior lighting plan with photometrics is not required. No lighting plan received to date."**
3. Stormwater management report and drainage calculations. **Received.**
MEG 3/9/18 response: No response required.
4. Soil information including test pits logs. We note that some test pit logs and locations are included in the Preliminary Hydrologic Analysis received today. However, there are none located within the footprint of the detention basin and many of the subsurface infiltration systems shown on the plan set received today. **See technical comments below.**
MEG 3/9/18 response: No response required.
5. Documentation to demonstrate that adequate water supply is available for domestic use and fire protection. We note that two fire hydrants are shown on the plan set received today and suggest the Applicant consult with the Fire Department about the location and number of hydrants. **Not addressed to date.**
MEG 3/9/18 response: has contacted Aquarion Water Company and they indicated that they do not have hydrant flow testing information at the project location. They also indicated that they will not authorize hydrant testing until March 1. MEG is in the process of coordinating these tests with Aquarion.
6. Sizing calculations for the septic soil absorption system to demonstrate that there is sufficient area for the system and required reserve area. **Addressed – sizing calculations, dated January 23, 2018, for the soil absorption system have been submitted and sufficient area is provided.**
MEG 3/9/18 response: No response required.

Technical Comments

The following comments from our January 18, 2018 letter are restated in plain text, followed by the current status of each in **bold text**:

General/Roadway Comments

1. There are proposed retaining walls shown on the plan which will be greater than four feet in height. Walls over four feet in height require a building permit and design by a registered structural engineer. Details of retaining wall design should be shown on the plans. A railing or an alternative protective barrier should be included on the top of the walls. A guardrail should be provided along the wall adjacent to Road B. **A modular block retaining wall detail has been added to Sheet C-5. The detail shows either a fence or guardrail on top of the wall and notes that wall design "shall be by a professional civil structural engineer registered in the Commonwealth of Massachusetts."**

MEG 3/9/18 response: No response required.

2. We note that the proposed retaining wall between Units 24-26 on the subject site and 64 Ward Street will be up to fifteen feet high and it is shown about five feet from the property line. The wall would retain the earth between the wall and the 64 Ward Street property line. We question whether this wall could be constructed without encroachment onto the 64 Ward Street property. We note that a wall of this height will present visual (on site) and safety (64 Ward Street) concerns. **As noted above, a modular block retaining wall detail has been added to Sheet C-5. However, our concerns related the visual impact, safety and constructability remain.**

MEG 3/9/18 response: No response required.

3. Sidewalks are shown at four feet wide and are adjacent to the Cape Cod berm. To enhance public safety the sidewalks should be five-foot wide and they should be separated from the travel way with something more than a Cape Cod berm. We are in agreement with Mr. Jeffrey S. Dirk, P.E. that a vertical curb or grass strip of sufficient width should be provided. **A two-foot wide grass strip, as suggested by Mr. Dirk, is now proposed between the back of the Cape Cod berm and the sidewalks. However, sidewalks are still shown to be four feet wide.**

MEG 3/9/18 response: The plans have been revised to eliminate the two-foot wide grass strip and to incorporate five-foot wide sidewalks and sloped granite curbing.

4. We also agree with Mr. Dirk that a sidewalk should be provided along Viking Lane between Road B and Ward Street. **Addressed – a sidewalk is shown in this location.**

MEG 3/9/18 response: The principal access to Viking Lane has been eliminated so there are no sidewalks proposed in this location. The sidewalk on Road C has been extended to Ward Street.

5. We concur with Mr. Dirk's comment that the roadway widths should be a minimum of 24-feet in accordance with MassDOT standards. **It is stated in the MEG response that they "strongly believe that a 20-foot-wide roadway with 1-foot Cape Cod berms on either side can adequately accommodate the subdivision."** MEG has also included two truck turning plans **"which illustrate that the Hingham Fire Department (Ladder) truck and a Single Unit (SU) truck can adequately negotiate the site."** It appears that the turning plan for the Hingham Fire truck shows that some movements require the truck to exit the pavement. However, we defer comment to Mr. Dirk.

MEG 3/9/18 response: MEG has prepared a revised AutoTurn Analysis that indicates that the Hingham Fire Department (Ladder) Truck can negotiate the site roadway network without the truck's overhang encroaching over the pavement limits. Traffic Engineer Ron Mueller of Ron Mueller and Associates indicated the following in his January 25, 2018 letter to Ms. Emily Wentworth: "The American Association of State Highway and Transportation Officials (AASHTO)¹ specifies that very low volume, low speed residential roads (defined as roads with 400 vehicles per day or less and speeds of less than 40

¹ *Geometric Design of Very Low-Volume Local Roads*; American Association of State Highway and Transportation Officials; 2001. Chapter 4 - Design Guidelines.

mph) should provide a minimum roadway width of 18 feet. The Massachusetts Department of Transportation (MassDOT) Project Development and Design Guide² specifies that shared use of the roadway is “appropriate where user demands and motor vehicle speeds are very low or where severe constraints limit the feasibility of providing separate accommodation.” Based on the Institute of Transportation Engineers (ITE) Trip Generation Manual,³ the 20 existing homes on Autumn Circle generate 240 daily vehicle trips. The project is expected to add 30 daily vehicle trips to portions of Autumn Circle (15% of 200 total daily vehicle trips). Therefore, the total volume of traffic on any portion of Autumn Circle is expected to be 270 vehicles per day, well below the 400 vehicle per day threshold qualifying as a very low-volume roadway. Although a vehicle speeds study was not performed along Autumn Circle, given the horizontal and vertical alignment of the street, speeds are likely in the 15 to 25 mph range, also well below the 40 mph threshold qualifying as a low-speed roadway.”

6. There are six, presumably visitor, parking spaces shown on the south side of Road B over the septic leaching area. The sidewalk passes through these spaces which would require a pedestrian to step into Road B if a vehicle is parked in any of those spaces. **Addressed – parking spaces have been adjusted and labeled accordingly.**

MEG 3/9/18 response: No response required.

7. Roadway profiles are shown on Sheet C-3. However, the profiles show only the existing and proposed centerline grade of the roads. The profiles should show sewer, drain and water utilities (including sewer and drain structure rim and invert elevations). This information is required to verify that the proposed utilities may be installed without conflict. **Addressed – utilities and sewer and drain rim/invert elevations are shown on the roadway profiles.**

MEG 3/9/18 response: No response required.

8. We note that the Applicant has request waivers from ZBL Section IV-A to reduce the required front, side and rear setbacks to fifteen feet. However, at the rear of each unit is what is labeled as a proposed ‘deck or patio.’ If these will be decks (structures) then the setback would be as little as eight feet on Units 2-4, 6-9 and 18-21. **As noted above, the MEG response letter indicates that “a revised waiver list will be submitted at a later date.”**

MEG 3/9/18 response: A revised waiver list was submitted to the Board under separate cover.

9. We note that the Applicant has requested a blanket waiver from ZBL Section IV-E.1.m, which requires roadways in multi-family developments to comply with the Planning Board Rules and Regulations Adopted Under the Subdivision Control Law (R&R). The Applicant has also requested a blanket waiver from the R&R. As noted above, waiver requests should identify each particular regulation for which the development will not comply. We believe that it is extremely important to identify where the project will not comply with Section 4 – Design Standards and Section 5 – Specifications for Construction of Required Improvements of the R&R. This is required to determine if the design complies with generally accepted public safety requirements and good engineering practice. **As noted above, the MEG response letter indicates that “a revised waiver list will be submitted at a later date.”**

MEG 3/9/18 response: A revised waiver list was submitted to the Board under separate cover.

² *Project Development & Design Guide*; Massachusetts Highway Department; 2006. Chapter 5 - Cross Section and Roadside Elements.

³ *Trip Generation Manual, 10th Edition*; Institute of Transportation Engineers; Washington, DC; 2017. Land Use Code 210.

Drainage and Utilities

1. Drainage pipe sizing calculations should be provided along with rim and invert elevations for manholes and catch basins. **Addressed – pipe sizing calculations have been provided.**

MEG 3/9/18 response: No response required.

2. Figures 1-4 are missing from the Preliminary Hydrologic Analysis. **Addressed – Figures 1-4 are included in the revised Preliminary Hydrologic Analysis.**

MEG 3/9/18 response: No response required.

3. Some test pit data has been provided. However, the information indicates varying seasonal high groundwater levels throughout the site. Because of the varying groundwater levels, additional test holes are required at each of the proposed infiltration systems to verify that adequate separation from groundwater will be provided and that soils are suitable for infiltration. Test holes should be witnessed by an agent of the Town. **It is stated in the MEG response that “we believe there is sufficient soil data to support the design as proposed. Test pits have been excavated in close proximity to the subsurface infiltration systems and the highest observed groundwater elevation at those locations were used to establish the 4-foot separation to groundwater. Additional location specific soil testing will be performed in conjunction with the development of final construction plans.”** We believe that testing at this point would be a safer course of action for the developer. However, the additional soil testing could be incorporated into a condition should the Board approve the project.

MEG 3/9/18 response: We stand by our initial response and believe that additional soil testing could be incorporated into a condition as suggested.

4. Comparing proposed grading to the HydroCAD model in the Preliminary Hydrologic Analysis, portions of subsurface infiltration systems (SSI's) P5, P6 and P15 will be above ground. SSI's P3, P7, P11 and P16 would have very limited cover and SSI P11 is located under the hammerhead turnaround which will be subject to traffic loading. As noted above, test holes are required at each of the eighteen SSI's to verify seasonal high groundwater elevation. We suspect that many of the SSI's will need to be redesigned based on groundwater and cover constraints. **All systems are now shown to have adequate cover, except perhaps system P11, under the hammerhead turnaround, which may require additional cover depending on Hingham Fire apparatus loading (see Comment 15 below). Redesign of some systems may still be required based on additional soil testing.**

MEG 3/9/18 response: System P11 has been relocated so it's not under the pavement and the hammerhead turnaround has been eliminated.

5. SSI P12 is modeled with 24 Cultec R-330XLHD chambers, yet only 22 chambers are shown on the plan. **Addressed – the number of chambers is consistent between the model and plans.**

MEG 3/9/18 response: No response required.

6. Invert elevations should be shown for the roof drain piping, especially for the piping for Units 1-4, 6-9 and 25-28, to verify that there is adequate pitch to convey the roof runoff through the piping to the SSI's. **Invert elevations have been added to Sheet C-2, however, the invert at Unit 25 appears to be incorrect.**

MEG 3/9/18 response: The invert at Unit 25 has been corrected.

7. The infiltration rates used for depressions D-3 and D-4 should be modeled in inches per hour (in/hr) and not cubic feet per second (cfs). We note that the infiltration rates used for depressions D-1 and D-2 are modeled in in/hr. **Addressed – infiltration rates are modeled consistently in inches per hour.**

MEG 3/9/18 response: No response required.

8. All four of the depressions are modeled with a 24-foot long by 3-foot breadth broad- crested weir. These should be modeled with weirs that reflect the actual geometry of the depressions. **The model has been revised to eliminate the broad-crested weirs.**

MEG 3/9/18 response: No response required.

9. The storage in depression D-2 does not appear to be correct as there is an El. 57 contour shown on the plan and the storage in the model starts at El. 58. **Addressed – the storage has been corrected.**

MEG 3/9/18 response: No response required.

10. The outlets for depression D-4 are modeled at the wrong elevations. **Addressed – elevations have been corrected.**

MEG 3/9/18 response: No response required.

11. A detail should be provided for the existing (or proposed) outlet control structure for the detention basin so that we may verify that it is modeled correctly. **A detail has been provided for the proposed outlet control structure. However, the structure is not modeled correctly in the HydroCAD model. Either the model or the detail needs to be revised to correctly model the outlet.**

MEG 3/9/18 response: The outlet control detail has been revised.

12. The Detention Basin Section on Sheet C-6 shows a sediment forebay. However, there is no sediment forebay defined on the grading plan, Sheet C-2. **Addressed – sediment forebays are now shown on the grading plan, Sheet C-2.**

MEG 3/9/18 response: No response required.

13. To more clearly show that a foot of freeboard will be provided in the detention basin during a 100-year storm event, the El. 62 contour should wrap around the north and east sides of the basin. **Addressed – the grading has been revised accordingly.**

MEG 3/9/18 response: No response required.

14. All flared end sections and headwalls should be equipped with trash racks. **Addressed – a note has been added to Sheet C-6 specifying trash racks.**

MEG 3/9/18 response: No response required.

15. Components of the proposed septic system, including tanks and the soil absorption system are shown under proposed roadways. Information should be provided to document that the components are designed for loading as required by the Fire

Department apparatus. **It is stated in the MEG response that the piping in the soil absorption system is designed for H-20 loading. However, we understand that the Hingham Fire Department's heaviest apparatus weighs 82,000 pounds. MEG should verify that all septic components under roadways are designed for this loading.**

MEG 3/9/18 response: Additional information will be provided under separate cover.

16. Full septic system design information will be required to verify compliance with Title 5 (310 CMR 15) and to determine where the project will not comply with the Hingham Board of Health Supplementary Rules and Regulations for the Disposal of Sanitary Sewage. **It is stated in the MEG response that "full septic system design plans will be submitted in conjunction with the development of final construction plans." Again, without the full design we cannot determine where the project will not comply with state and local regulations.**

MEG 3/9/18 response: No response required.

17. Erosion controls are detailed on Sheet C-10. The locations of erosion control barriers and the construction entrance should also be shown in plan. **Addressed – erosion control locations are shown on Sheet C-2.**

MEG 3/9/18 response: No response required.

18. The Hydrant Detail on Sheet C-9 specifies C-900 PVC pipe. Ductile iron pipe should be specified as noted elsewhere on the plans. **Addressed – ductile iron pipe is specified.**

MEG 3/9/18 response: No response required.

19. All water supply references to the Hingham Water Department or DPW should be changed to the Aquarion Water Company. **Addressed – all references have been changed to Aquarion.**

MEG 3/9/18 response: No response required.

The comments below are based on review of the latest information received and are in addition to comments identified in our earlier letters.

1. The revised roadway profiles and grading show that the low point in the vicinity of the Viking Lane/Autumn Circle interface will now be on the Autumn Circle properties at Sta. 7+13.81, which is 94 feet beyond and about 1.5 feet below the rims of the last set of catch basins on Viking Lane. The previous editions of the plans showed the low point on the proponent's property at the catch basins, which is where it should be to protect the Autumn Circle properties from adverse stormwater impacts.

MEG 3/9/18 response: The roadway has been redesigned to slope in a westerly direction from Autumn Circle to Viking Lane.

2. As noted under Drainage & Utilities comment 11 above, the proposed outlet control structure is not modeled correctly in the post development HydroCAD calculations. The 100-year flood elevation of the basin should also be clarified because it is shown to be El.60.76 in the HydroCAD calculations and listed as El. 61.43 on Sheet C-3.

MEG 3/9/18 response: The HydroCAD Analysis has been revised to correctly model the outlet control structure.

3. The post development HydroCAD results show that volume of stormwater runoff will be increased to the wetland area at the east side of the development. The calculations show that the rate of runoff will be decreased and the level of flooding in the wetland will not be increased. However, we question the modeling of the outlet from the wetland as a 120-foot long by 10-foot breadth broad-crested weir. MEG should verify that the increase in runoff volume will not impact adjacent properties.

MEG 3/9/18 response: Additional information will be forwarded under separate cover.

4. In order to adequately convey the design storm, catch basins 8 and 11 should be equipped with double grates.

MEG 3/9/18 response: The design has been modified to specify double grates for these catch basins.

5. The Hingham online GIS shows that there is a private well at 38 Ward Street (Well No. 796). Depending on the location of this well the proposed soil absorption system for this development may need to be moved to provide for the required 100-foot setback in accordance with Title 5. We also note that the Hingham Board of Health Supplementary Rules and Regulations for the Disposal of Sanitary Sewage require a setback of 250 feet from a private potable well and 100 feet from a non-potable well. The GIS does not specify the type of well. The type of well should be identified and it should be located and shown on the plans.

MEG 3/9/18 response: Please refer to Note 12. Under General Notes on Sheet G-1.

6. As we discussed in the January 25th public hearing, the wetland line on the current plans is different from the wetland line shown on Sheet 3 of 7, Subdivision Grading Plan, Definitive Subdivision of Viking Lane at Ward Street in Hingham MA, revised June 4, 2002, prepared by R.H. Cole Associates and Daylor Consulting Group, Inc. We recommend that the applicant have the wetland line verified by the Conservation Commission.

MEG 3/9/18 response: The Board retained John Zimmer of South River Environmental to review the wetland delineation performed by Environmental Consulting and Restoration LLC (ECR). In his February 23, 2018 letter to the Board, Mr. Zimmer states that he agrees with ECR's limit of the bordering vegetated as shown on the plans. ECR visited the project site and confirmed that there is a bordering vegetated wetland located approximately 15 feet off the pavement on the south side of Ward Street between #64 and 70 that is within 100 feet of the subject property. The plans have been revised to indicate the approximate limit of this BVW and it's associated 100 foot buzzer zone.

Vanasse & Associates, Inc. Comments

For reference, listed below are the comments that were raised in our January 4, 2018 review letter that required additional information or analysis followed by a summary of the response submitted on behalf of the Applicant, with additional comments indicated in **bolded** text for identification.

COMPREHENSIVE PERMIT PLAN

Comment 1: A truck turning analysis should be provided for the Town of Hingham Fire Department design vehicle and a single-unit (SU) truck (representative of a maintenance vehicle, trash/refuse truck or similar). The turning analysis should demonstrate that the subject vehicles can access and circulate within the Project site in an unimpeded manner, and that the turn-around area at the end of "Road C" complies with the requirements of NFPA® 1.

Response: A truck turning analysis was provided for the Hingham Fire Department design vehicle and a single-unit truck circulating within the Project site. **Based on our review of the turning analysis, the following comments should be addressed by the Applicant's engineer:**

- 1a. The Applicant should consult with the Hingham Fire Department to determine if the primary response will be from High Street or Ward Street. If the response will be from High Street, a turning analysis should be performed for a vehicle entering at the High Street/Autumn Circle intersection and then proceeding to the Project site.
- 2a. Expand the analysis to include turning maneuvers to/from Ward Street for each design vehicle. The curblines along both sides of Ward Street and the centerline pavement marking should be shown on the turning analysis.
- 3a. The fire truck turning analysis indicates that the bumper/ladder overhang will extend beyond the edge of the pavement in a number of locations. The Applicant should confirm that this is acceptable to the Fire Department and verify that no objects will be located in these areas that would inhibit fire truck maneuverability, including snow windrows.
- 4a. The turning analysis for the turnaround area between Buildings 16 and 17 indicates that the fire truck design vehicle cannot maneuver within the area that is provided. The Applicant's engineer should redesign the turnaround to comply with the requirements of NFPA® 1.

MEG 3/9/18 response: Please see MEG response to Item 5 in the Technical Comments – General Roadway Comments section of Amory Engineers February 6, 2018 letter to the Board.

Comment 2: Internal to the Project site, circulating roads and drive aisles should be a minimum of 24-feet in width for two-way travel and a minimum of 20-feet in width for one-way travel, or as required to accommodate truck access and fire truck turning maneuvers. The Site Plans currently reflect a 20-foot wide roadway with 1-foot wide Cape Cod berm along both sides, which does not comply with MassDOT standards for residential access to aggregations of residential units of 10 or more dwelling units.³

Response: The Applicant's engineer stated that they strongly believe that a 20-foot wide roadway with 1-foot wide Cape Cod berms is adequate to accommodate the Project and further stated that the truck turning analysis that was provided supports this contention.

We disagree with the Applicant's engineer and refer to the engineering standards cited in our original comment pertaining to roadway width and our comments noted herein with regard to the truck turning analysis. The roadways within the Project site should be widened to 24-feet. The Applicant's engineer should also indicate if changes are proposed to the cul-de-sac where the connection to Autumn Circle is proposed, and if traffic control devices are planned at the connection.

MEG 3/9/18 response: Please see MEG response to Item 5 in the Technical Comments – General Roadway Comments section of Amory Engineers February 6, 2018 letter to the Board.

Comment 3: Where a sidewalk is proposed adjacent to the roadway, vertical curb should be provided or the sidewalk should be set back from the edge of the traveled-way by a minimum of 2-feet.

MEG 3/9/18 response: The plans have been revised to eliminate the two-foot wide grass strip and to incorporate five-foot wide sidewalks and sloped granite curbing.

Response: The Comprehensive Permit Plan has been revised to provide a 2-foot wide grass strip/offset between the edge of the traveled-way and the sidewalk. **No further response required.**

The Comprehensive Permit Plan indicates that sidewalks within the Project site will be 4-feet wide. The Public Rights-of-Way Accessibility Guidelines (PROWAG) requires that sidewalks that are less than 5-feet wide provide clear passing zones at intervals of 200-feet (maximum) that shall be 5-feet wide for a distance of 5-feet (R301.3.2). The Comprehensive Permit Plan should be revised to provide sidewalks that are a minimum of 5-feet wide or that comply with the PROWAG.

MEG 3/9/18 response: The plans have been revised to eliminate the two-foot wide grass strip and to incorporate five-foot wide sidewalks and sloped granite curbing.

Comment 4: Vehicles exiting the Project site to Ward Street should be placed under STOP-sign control with a marked STOP-line provided. These accommodations should be shown on the Site Plans.

Response: A STOP-sign and marked STOP-line have been added to the Comprehensive Permit Plan. **No further response required.**

MEG 3/9/18 response: No response required.

Comment 5: A sidewalk has been provided along one-side of Viking Lane, "Road B" and "Road C" extending to Autumn Circle. The sidewalk should also be extended to Ward Street where a marked crosswalk and Americans with Disabilities Act (ADA) compliant wheelchair ramps and detectable panels should be provided for crossing Viking Lane. In addition, a crossing of "Road B" should also be provided in conjunction with the sidewalk extension to Ward Street.

Response: The proposed sidewalk has been extended to Ward Street and the requested crosswalks and ADA compliant wheelchair ramps have been added to the Comprehensive Permit Plan. **No further response required.**

MEG 3/9/18 response: No response required.

Comment 6 Where pedestrian crossings are proposed, marked crosswalks are shown. The Applicant's engineer should confirm that the crossings will include ADA compliant wheelchair ramps and detectable panels.

Response: A note has been added to the Comprehensive Permit Plan to indicate that all crossings will be ADA compliant. **No further response required.**

MEG 3/9/18 response: No response required.

Comment 7: Sight triangle areas should be shown on the Site Plans along with a note to indicate: "Signs, landscaping and other features located within sight triangle areas shall be designed, installed and maintained so as not to exceed 2.5-feet in height. Snow windrows located within sight triangle areas that exceed 3.5-feet in height or that would otherwise inhibit sight lines shall be promptly removed."

Response: **This comment has not been addressed.**

MEG 3/9/18 response: The site triangles are shown on Sheet C-3A. The triangles indicate that indicates that adequate sight distance as required by AASHTO can be maintained in both directions at Ward Street. The results of a speed study conducted by Sergeant David Horte of the Hingham Police Department from January 29 to February 4, 2018 indicated that the 85th percentile speeds were 38 MPH in the northbound direction and 37 MPH in the southbound direction with 39 MPH observed on February 3 and 4, 2018. These results are considerably higher than those observed in a study conducted by Ron Mueller and Associates in April of 2016. The results of the study correlate to required sight distances by AASHTO of 290 feet for an 85th percentile speed of 39 MPH. The site triangle is located entirely within the subject property and the Ward Street layout.

Comment 8: A note should be added to the Site Plans stating: "All Signs and pavement markings to be installed within the Project site shall conform to the applicable specifications of the Manual on Uniform Traffic Control Devices (MUTCD)."⁴

Response: **This comment has not been addressed.**

MEG 3/9/18 response: The note has been added to the plans as requested.

Comment 9: Where provided, double-yellow centerline pavement markings should consist of two parallel yellow lines.

Response: The Comprehensive Permit Plan does not include centerline pavement markings. **No further response required.**

MEG 3/9/18 response: No response required.

Comment 10: Driveways to individual units should be a minimum of 21-feet long measured between the garage door and the far edge of the sidewalk (edge closest to the residence) where a sidewalk is provided, and 23-feet measured between the garage door and the edge of the traveled-way in locations without a sidewalk.⁵

Response: The Applicant's engineer stated that the driveways will meet the indicated dimensions and typical driveway dimensions have been added to the Comprehensive Permit Plan. **No further response required.**

MEG 3/9/18 response: No response required.

Comment 11: A school bus waiting area should be provided at an appropriate location defined in consultation with the Town of Hingham School Department.

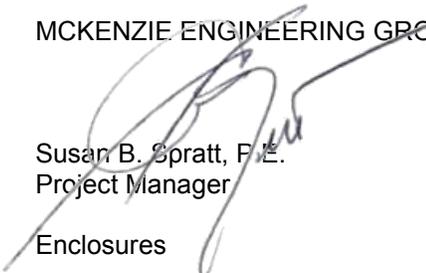
Response: This comment has not been addressed.

MEG 3/9/18 response: Sidewalks have been extended to the intersection at Ward Street and have been widened to a 5-foot width as requested.

We believe that the revisions to the plans and the additional information as noted above adequately address the comments from Amory Engineers, P.C. and Vanasse & Associates, Inc.

Please contact me at your convenience if you have any questions or require additional information.

MCKENZIE ENGINEERING GROUP, INC.



Susan B. Spratt, P.E.
Project Manager

Bradley C. McKenzie, P.E.
President

Enclosures

cc: River Stone, LLC