



**TETRA TECH**

November 12, 2013

Needham Board of Appeals  
Needham Public Safety Administration Building  
500 Dedham Avenue  
Needham, MA 02492

**RE: Needham Mews (the "Project")  
692 & 744 Greendale Avenue (the "Project Site")  
Response to Comments**

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Dear Members of the Board,

In response to the Town Engineer's project review comments letter dated October 11, 2013, Tetra Tech offers the following responses and information. In addition to this letter, we met with the Town Engineer on October 11, 2013 to review his comments and had a site walk with the Town Engineer on October 29, 2013. For ease of reference, the Engineer's comments are printed in italics and our specific response to each follows in regular type. A revised set of plans and calculations as referenced in this response letter is being submitted to the Town Engineer and the Zoning Board of Appeals concurrently with this letter.

**General Comments**

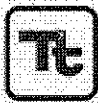
1. *We have not received a revised Zoning waiver request reflecting the new design. Fourteen zoning related waivers were requested under the original design.*

Response: An updated list of zoning waivers will be submitted with the final revised plans. They are not anticipated to change substantially from those initially requested.

2. *The applicant proposes to construct a reinforced concrete "culvert" within the limits of the existing sewer easement. Permission would be required from the Board of Selectmen to allow construction of the structure within the limits of the sewer easement. Based on the design provided, the culvert would interfere with the Town's ability to own, operate and maintain the existing sewer main and therefore permission cannot be granted.*

Response: Permission is not required from the Board of Selectmen to construct the proposed reinforced concrete culvert within the sewer easement area. The sewer

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easement provides that “no building, structure, foundation of building or structure to be used for habitation shall hereafter be erected or maintained upon the [sewer easement area] except in a manner satisfactory to the Selectmen.” Because the culvert is not to be used for habitation, it can be placed in the sewer easement area without requiring any permission from the Selectmen.

In our meeting on October 11, 2013, the Town Engineer said the Director of Public Work had a concern with not having sufficient clearance for a backhoe to gain access to the sewer line and work beneath the culvert. In response, the culvert design and grading have been revised to increase the clearance height from 12.5 to 14.5 feet. This increased clearance height is maintained as a minimum throughout the full length of the culvert over the sewer line. These revisions to the culvert design to allow a clearance height of 14’-6” will clearly allow the Town to access, maintain, operate, repair and replace the sewer line, as necessary. This is consistent with the express language of the easement document, which permits the easement area to be used “for all legal purposes not inconsistent with the construction, maintenance, operation and repair and renewal of said sewer or drain.” We also note the letter submitted by the Town Engineer to the Zoning Board of Appeals (“ZBA”) on August 15, 2013, which letter confirmed the sewer line is intact and structurally sound.

- 3. We have not received a revised General Bylaw waiver request reflecting the new design. Eight “waivers” were requested from the General Bylaws under the original design. To the extent that the original waiver requests apply to the new design; we do not recommend that the “waivers” regarding fire lane width, signs, monument signs, and storage of flammable materials be granted. We recommend that a revised waiver request be submitted reflecting the new design. We also recommend that the Boards and Town Officials most familiar with and knowledgeable of each area of the General Bylaws dealing with each request review and comment on each “waiver”.*

Response: An updated list of General Bylaw waivers will be submitted with the final revised plans. They are not anticipated to change substantially from those initially requested. In some instances, the Project is not seeking waivers from the substantive provisions of the General Bylaws but only from the requirement to seek a separate permit, approval or license from another Town board, commission or department. Chapter 40B provides that the ZBA, as the comprehensive permit granting authority, may grant such permits, approvals or licenses.

- 4. We recommend that the applicant be required to comply with the Town’s Street Permit requirements and Trench Permit bylaws and regulations.*

Response: We concur.

- 5. We recommend that the applicant list any other waivers that they may be seeking for the new design.*



Response: As noted above, an updated list of waivers will be submitted with the final revised plans. Based on the Town Engineer's requirement stated at the October 29<sup>th</sup> site meeting, the Site Plan has been modified so that the proposed sidewalk within the Greendale Avenue right-of-way is set back from the edge of street by 8 feet with a grass strip in between. The sidewalk was initially proposed at the back of sidewalk. Shifting the sidewalk will result in the removal and/or trimming of trees and shrubs within the town's right-of-way. Accordingly, to accommodate this requirement, the Project requires a waiver from Section 9 of the Street Permit Procedures and Regulations to allow cutting down, trimming or otherwise injuring shade trees. The Project also requires an additional waiver from the requirement to seek a permit from the Tree Warden or Board of Selectmen to cut, trim or remove a public shade tree.

- 6. The MassHousing Project Eligibility (Site Approval) Application letter submitted reflecting the original design requires that the applicant comply with the Commonwealth's Sustainable Development Principles embraced by the DHCD as part of their Final Approval application submittal. No revised information has been submitted reflecting the new design. The applicant should submit a revised narrative showing how the revised development design will advance the sustainable development principles adopted by the Commonwealth of Massachusetts. The applicant informed the Town (verbally) that the revised narrative information was included on the revised design plans. No revised narrative information has been included on any of the plans or documents submitted for our review. According to our review of the information submitted, the revised development design will not advance the principles for the following reasons:*

Response: The review of the Proponent's project eligibility application and issuance of the Project Eligibility letter is solely within the purview of MassHousing. The Proponent will have to obtain Final Site Approval from MassHousing after issuance of the Comprehensive Permit, at which point MassHousing will determine whether the Project continues to further the Sustainable Development Principles.

#### **Property Lot Consolidation Plan**

- 1. Lot consolidation Plan of Land Sheet 1 has been revised to comply with the Registry of Deeds recordable format. The plan must be revised to provide the signature block for the members of the Planning Board to sign the plan. The revised plan has not been stamped and signed by a Registered Professional Surveyor.*

Response: A signature block with the required five lines has been added to the plan. The plan is stamped and signed by a Registered Land Surveyor.

- 2. The portion of Hardy Street along the Northwesterly property boundary may not be passable by some motor vehicles, but is passable by others. It is also passable*



*by pedestrians. The note should be revised to reflect the current condition of Hardy Street.*

Response: The note has been revised accordingly.

3. *The Flood Plain referenced information has been corrected.*

Response: No response necessary.

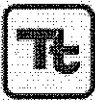
4. *The total property area shown as 6.02 Acres does not match the existing record information.*

Response: The total lot area shown on the plan as 6.02 acres may not match the Town assessors' record information; however, it is an accurate calculation of the total lot area based on an accurate property boundary survey. It is not uncommon for property areas shown on Town Assessors Maps or listed on Assessors cards to sometimes be labeled inaccurately based on when or how the information was inputted and when it was last updated. Property areas listed in Assessors records are not relied on as accurate record information. The total property area of 6.02 acres shown on the plan is based on an on-the-ground boundary survey, utilizing record plan information of the locus properties and adjacent properties and non-record plans.

5. *The plan appears to "claim" a portion of the abandoned section of Hardy Street along the southeasterly corner of the property. No recorded deed or plan information exists to support the claim. The bearings and or distances in the south easterly corner of the property do not conform to any plan of record.*

Response: The Proponent's title insurance company has confirmed that the 1988 Town Meeting vote to abandon Hardy Street resulted in the abandonment of Hardy Street, upon which, the fee under the roadway automatically reverted to the adjoining property owners without any requirement of a separate instrument. As such, the Project Site includes that portion of abandoned Hardy Street abutting the southeast corner of the Project Site out to the centerline of such abandoned roadway. Therefore, the Consolidation Plan has been properly drawn to include this portion of abandoned Hardy Street. The title insurance company has agreed to provide insurance covering that portion of the abandoned Hardy Street as part of the Project Site.

Abandoned Hardy Street is depicted on two of the plan references that are listed on the Lot Consolidation Plan. These two ANR Plans were prepared by Needham Survey Associates, Inc. based on property boundary surveys and stamped and signed by a Registered Land Surveyor and endorsed by the Needham Planning Board in 2000 and 2002. The non-record ANR plans were obtained from the Planning Board files. The regulations governing surveyors allow the use of non-record plans, which is a standard surveyor practice. Those plans identified the former Hardy Street centerline as the property line at the southeasterly corner of the parcel of land known



as Assessors Map 18, Parcel 43. Abandoned Hardy Street is shown accurately and the Consolidation Plan correctly includes that portion of abandoned Hardy Street abutting the Project Site.

- 6. The property within the boundaries of Hardy Street may be owned, "in fee" by the Town of Needham. We recommend that Town Counsel be consulted regarding the disposition of Hardy Street.*

Response: See Response to Comment 5 above.

- 7. The reference information regarding the "Drain Easement to be Acquired" plan does not about the subject property and the consolidation plan provides no mathematical relationship to the drain easement shown on the plan.*

Response: The plan referenced as "Plan of Land in Needham, Mass. Showing Drain Easement to be Acquired by the Town", dated October 26, 1990 by Cheney Engineering Co., Inc., Norfolk Registry of Deeds Plan Book 395, No. 791-1990, is for the property identified as Assessors Map 18, Lot 41. The lot shown on this plan immediately abuts the Project Site; therefore, no mathematical tie is necessary to be shown on the plan.

- 8. The two referenced plans by Needham Survey Associates, Inc., do not appear to be recorded at the Registry of Deeds.*

Response: Both plans were prepared by Needham Survey Associates, Inc. based on property boundary surveys stamped and signed by a registered land surveyor. Both plans were endorsed by the Needham Planning Board and filed in the Planning Board files. The plan references have been modified to reflect this information. As noted above, surveying regulations and standards allow reliance on such non-record plans.

- 9. Based on the above, the property boundaries and the area have not been established for the property to support the proposed development.*

Response: As noted above, the boundary lines and area for the Project Site are accurately shown on the Consolidation Plan as confirmed by the Applicant's title insurance company. The Consolidation Plan will be recorded at the Norfolk Registry of Deeds which will create, on record, the boundary lines and area of the Project Site.

**Stormwater Report and Plans:**

- 1. The applicant has prepared revised stormwater calculations that are not consistent with standard engineering practice. No report including a description, analysis, conclusions or recommendations has been submitted. The applicant has not documented compliance with stormwater and drainage requirements for both predevelopment and postdevelopment. The proposed development may result in flooding on the adjacent State Highway property and may increase*



*flooding on land N/F Town of Needham and land N/F Greendale Avenue Worship Center.*

Response: We do not agree with the Town Engineer's comment that the revised stormwater calculations are not consistent with standard engineering practice. From our meetings with the Town Engineer, we understand that some of the design assumptions made in the hydrological analysis and the location of Design Point 1R differ from the Town Engineer's view; however, the stormwater calculations are consistent with standard engineering practice and the overall design is in conformance with DEP Stormwater Management Standards. The Stormwater Management Report and Environmental Impact Analysis, initially submitted with the Comprehensive Permit application filing, have been updated and are provided with this letter. The report and calculations have been revised to reflect many of the Town Engineer's comments; however, we disagree with some comments, as stated in our responses that follow. In addition, at this stage of the design process, the stormwater management design is by necessity at an interim stage and will not be finalized until the Site Plan is otherwise finalized.

- 2. Some of the existing sub-catchment areas shown on the pre development collection of stormwater are arbitrarily designated. As a result the applicant's revised analysis skews the existing flow off the property. The predevelopment catchment areas need to be redrawn.*

Response: We do not agree with the Town Engineer's comment that some of the existing sub-catchment areas shown on the Existing Watershed Map are arbitrarily designated. The watershed sub-catchment areas are accurately depicted based on the topography of the Project Site. Utilizing design methods which are consistent with standard engineering practice, the analysis accurately accounts for the entire watershed area, analyzing runoff generated from the Project Site and abutting land (regardless of property lines). However, in response to the comment, the Existing Conditions Watershed Plan has been modified by relocating Design Point 1R and revising some sub-catchment areas as suggested during our meeting with the Town Engineer on October 11, 2013. The drainage design functions as initially designed and as revised.

- 3. Drainage appears to be entering the site from Greendale Avenue at two locations. Provisions must be made to accommodate this stormwater flow.*

Response: This comment was initially discussed during our meeting with the Town Engineer, Assistant Town Engineer and the Director of Planning & Community Development on October 11<sup>th</sup>. The Town Engineer stated that his site visit indicated two specific locations along the Project Site frontage where runoff from Greendale Avenue not otherwise captured by the catchbasins in Greendale Avenue flows up and over curbing or berms and then flows onto the Project Site. The Town Engineer identified the two locations on the Town Drainage Map.



The Assistant Town Engineer provided us with a copy of the Town Drainage Map and we conducted a site visit to verify this situation. From a site visit we made on October 16<sup>th</sup>, there are no locations along Greendale Avenue where stormwater runoff enters the Project Site from the street. Evidence of runoff from a street onto a property would typically evidence itself with areas showing scouring, gullies, overwash or other evidence of overflow. No such evidence exists in the two areas along the Project Site frontage identified by the Town.

In addition, the Town's closed drainage system in Greendale Avenue, consisting of curb and/or gutter, catch basins and drain pipe collects and conveys the street runoff along Greendale Avenue from the front of the Project Site downstream through the town's stormdrain system. Because of the street's curb and gutter system and the topographical berm that runs along the majority of the Project Site's frontage, no runoff can enter the Project Site from Greendale Avenue.

In an effort to clarify the Town Engineer's comment, the project team met with the Town Engineer at the Project Site on October 29<sup>th</sup>. We discussed whether any runoff can enter the Project Site at any point along Greendale Avenue under existing conditions. We also clarified that the Project is designed so that no runoff from Greendale Avenue is allowed to enter the Project Site. Despite a difference of opinion on whether stormwater from Greendale Avenue flows onto the Project Site in a catch basin overflow event, it was agreed by both parties that the Proponent will propose to replace one existing catch basin with a new double-grate catch basin and some new curbing. This replacement is proposed utilizing a "fair share" allocation of costs, as the stormwater conditions and catch basins in Greendale Avenue, to the extent they overflow onto the Project Site from time to time, are an existing condition not caused by the Project. It was also agreed that the drainage analysis does not need to include the up-gradient neighborhoods.

4. *The applicant has adjusted the pond configurations based on revised topography.*

Response: No response necessary.

5. *One of the existing sub-catchment design points (1R) is located beyond the property thereby skewing the report to reflect post-development mitigated flow conditions that the applicant has no control over.*

Response: Analyzing *entire* watershed sub-catchment areas based on topographical information (regardless of property lines) is consistent with standard engineering practice; however, based on the Town Engineer's comment, we have modified the location of Design Point 1R.

6. *The revised analysis indicates that the existing "Soil Hydrologic Group" categories on the site have been corrected.*

Response: No response necessary.



7. *Time of concentration used for post development conditions were direct entry values. The report should provide some justification for the time of concentration used or show the direct entry values were calculated.*

Response: The report has been modified to show how the time of concentration was determined. The HydroCAD analysis for Proposed Conditions now depicts a detailed Tc (Time of Concentration) calculation for Roof Sheet Flow, with inputs for a typical 30 feet travel length and a slope of 0.5 ft/ft, resulting in Tc for Roof Sheet Flow equal to 0.1 minute. A minimum value of 0.1 hour (6 minutes) is applied in the total Tc calculation based on long established criteria from TR-55 Manual, Urban Hydrology for Small Watersheds.

8. *For post-development stormwater mitigation, the analysis indicates that a greater storage capacity was used in the infiltration chamber calculations than that provided for on the plans and details. Furthermore, it appears that the design is relying on storage above the actual discharge points, indicating that the system is designed to surcharge. The stormwater analysis must be revised so they do not conflict with each other. The stormwater storage system should not be designed to surcharge.*

Response: The revised drainage calculations have been checked against the plans and details to make sure that the storage capacities for each infiltration area match appropriately. A table has been added to Detail Sheet C-8 listing each infiltration area and comparing the outlet pipe invert elevation to the design storm peak elevations to ensure that the systems provide storage capacity below the discharge points. The systems are designed not to surcharge.

9. *The void space percentage used in the storage calculations should not exceed 35% based on the proposed crushed stone gradation.*

Response: 40% porosity is an industry standard commonly used for clean, open graded, angular aggregate material. The 40% porosity value is given in the design information for 1" to 2" diameter washed crushed stone provided by Cultec, StormTech and other manufacturers of open-bottom infiltration chambers, such as those being used in this design. In addition, 40% is the value supported by HydroCAD for crushed stone used in design of infiltration chamber systems.

10. *Post construction catchment areas do not conform to standard engineering practice and must be designed to determine whether the post development condition will result in flooding offsite for all storm events analyzed. Roof lines must be considered and drainage must be provided in the courtyard and pool areas.*

Response: The sub-catchment areas that were shown in the proposed conditions analysis account for runoff from all Project areas, including all building





roof, courtyard and pool areas. However, in response to the comment, we have modified the Grading & Drainage Plan by adding more detailed drainage design information, i.e., roof ridge lines, roof drain connections and yard drains and pipe connections, and the drainage calculations have been modified accordingly. The hydrological analysis and proposed stormwater management system provide complete infiltration of stormwater in the proposed condition for all design storm events. Therefore, no discharge from the Project Site and no flooding offsite will occur during the design storm events.

*11. As part of the NPDES requirements, the applicant must comply with the Public Outreach & Education and Public Participation & Involvement control measures. The applicant shall submit a letter to the town identifying the measures selected and dates by which the measures will be completed in order to incorporate it into the Zoning Board's decision.*

Response: The Proponent concurs and will do so prior to construction commencement as required by NPDES.

*12. The applicant is required to comply with the Memorandum of Understanding signed by the Town with the EPA. The Massachusetts Stormwater Management Policy applies.*

Response: The Proponent concurs and the Project designed has been engineered to comply.

**Town Engineer Supplemental Stormwater Comment**

*1. On October 30, 2013, the Town Engineer notified Tetra Tech via email that he had reviewed a set of plans entitled, "MassDOT Highway Division, Plans & Profiles of I-95/93 (Route 128) TIP – Bridge V In The Towns Of Needham – Wellesley Norfolk County, 100% Design Submission April 30, 2013" and commented that the plans show a proposed discharge of stormwater to the low area of the Needham Mews Site straddling the Route 128 right-of-way and the Needham Mews property line. He concluded his email by stating that accommodations will have to be made for the proposed Route 128 design.*

Response: We reviewed the pertinent plan sheets showing the Route 128 improvements adjacent to the Project Site. The proposed MassDOT drainage improvements show drainage entirely within the State Layout that will not affect the Project. The Route 128 drainage improvements include several proposed catch basins along the gutter line edge of the southbound lanes. In particular, one catch basin collects runoff from an approximately 1/3-acre portion of the highway, where it is then conveyed to a proposed leaching catch basin and infiltrated into the ground. An overflow pipe from the leaching basin discharges to a proposed flared end section with stone. All of these highway improvements are located within the State Highway Layout adjacent to the Project Site.



Tetra Tech has analyzed the potential discharge rates associated with the future MassDOT drainage improvements to see what effect, if any, the new point of discharge within the State Layout may have on the Project Site. Please refer to Appendix C attached to the revised Stormwater Management Report and Environmental Impact submitted with this letter, which includes runoff calculations with future MassDOT improvements. Compared with the existing Route 128 drainage system (without the future improvements), the future Route 128 drainage system abutting the Project Site collects highway runoff from a slightly larger contributing area (from 0.23 acre to 0.36 acre) and therefore results in a slight increase in potential discharge towards the Project Site. However, this potential slight increase is not significant, because the well-draining A-type soils in the area of the Project Site are capable of infiltrating the proposed Route 128 discharge entirely within the State Highway Layout, and the discharge therefore will not affect the Project.

As noted above, the Project infiltrates its stormwater entirely on the Project Site. Therefore, the only land area contributing runoff to the drainage swale and culvert (located within the State Highway Layout) is the highway and its embankments. To ensure that the MassDOT design will not result in flooding at the 15" diameter culvert, we calculated the culvert depth of flow for the current Route 128 drainage system versus the future Route 128 condition with drainage improvements. Because of the slightly larger contributing area and slight increase in rate of discharge from the highway, the depth during the 100-year storm event in the 15" diameter culvert increases slightly, from 4" to 5". The results of the analysis conclude that there is no impact on the drainage swale or culvert from either the future improvements to Route 128 or from the Project.

**Layout Plan Sheet C-2:**

1. *The Layout Plan has been revised to show the Town's existing 20' wide sewer easement crossing the properties.*

Response: No response necessary.

2. *The boundary lines and area of the properties have not been established.*

Response: Please refer to Responses in the *Property Lot Consolidation Plan* section above.

3. *A reinforced concrete culvert is proposed within a portion of the existing sewer easement. The culvert will prevent access to the Town's sewer main.*

Response: Please refer to Response No. 2 in the General Comments section above.

4. *The driveway width has been increased to 24 ft. (18 ft minimum where no parking is allowed)*



Response: No response necessary.

5. *The revised design provides the ability for fire truck based on a 50' design vehicle at various hinge points on site. (horizontally)*

Response: No response necessary.

6. *Overall dimensions of the proposed buildings have been provided on the revised plans.*

Response: No response necessary.

7. *The driveway curb roundings are too sharp to accommodate the speed of traffic on Greendale Avenue (50 mph).*

Response: The curb roundings at the access driveways from Greendale Avenue have been increased to Radius = 30'.

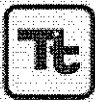
### **Grading and Drainage Plan Sheet C-3:**

1. *The grade of the two driveway accesses from Greendale Avenue to the main site drive is unsafe. The slope is too steep for emergency vehicles to access under emergency conditions. The two access drives from Greendale Avenue to the main site drive must be redesigned.*

Response: The design grades used for this Project were informed by the Needham Subdivision Regulations, as well as review by the civil and traffic engineers working on the Project to ensure a safe design. Section 5, page 33 of the Needham Subdivision Regulations lists a maximum allowable grade of 8% for "accepted town streets" and for "primary access for private ways". In early Project meetings, the Town Engineer stated that a 4% maximum grade is allowed for the initial 50 feet of the Project Site driveways, thereby providing leveling areas for adequate site distance at the intersection with Greendale Avenue. These design parameters, following the town requirements, were implemented in the design of these private access driveways.

In our October 11<sup>th</sup> meeting with the Town Engineer, we presented the Project Site driveway profile views with fire trucks to the Town Engineer; at that point he suggested that the driveways be redesigned using vertical curve lengths and other design criteria typically reserved for public roadway design. Therefore, in response, the project transportation engineer, Vanasse Associates, Inc. (VAI), has redesigned the two site access driveways, utilizing roadway design criteria as suggested by the Town Engineer. Please refer to Plan Sheet C-13.

In a meeting on October 10<sup>th</sup>, the Fire Chief and his staff also raised a question about the ability of large fire apparatus being able to access the Project Site. The Chief's primary concern was the ability to access the Project Site with larger fire



trucks without the front and rear truck extensions hitting the pavement. To address the concern, we prepared scaled profile views of the two Project Site access driveways (utilizing design grades of 4% and 8% maximum), and showing to scale the largest and longest of the Needham Fire trucks. The scaled profile views, copies of which are attached, demonstrate that the apparatus can safely navigate the slope of the driveways with a substantial "gap" between the front and rear truck extensions and the pavement so that the trucks will not bottom out.

- 2. There is a proposed puddle in front of the townhouse located northerly of the southernmost driveway access.*

Response: The grading has been modified to eliminate that puddle effect.

- 3. There is a proposed 1:2 (Vertical : Horizontal) slope proposed immediately adjacent to the access drive near Route 128 at the sewer easement. The design creates a safety problem for pedestrians and inhibits access to the trail network.*

Response: A safe pedestrian access connection from the Project Site to the Greendale Trail has been provided.

- 4. The handicap accessible surface parking space and accessible route exceeds 2% slopes near the southerly access drive entering the site.*

Response: Spot grade elevations have been added to all corners of handicap accessible parking spaces, depicting that these spaces meet the ADA/AAB requirement for 2% maximum slope requirement. A note has also been added adjacent to each handicap space: 2% Max Slope All Directions at Handicap Space.

- 5. No details have been provided for the retaining wall adjacent to Building A. The wall is structurally significant and will require a building permit to construct. The wall and building is likely to be impacted by access to the sewer main.*

Response: As part of preparing the building permit plan set, the building footings will be coordinated and designed by a Massachusetts registered structural engineer to ensure the footings do not impart a load on the existing sewer pipe and to allow for access to the pipe without undermining the building footings. Conceptual cross section views through the easement area, prepared by the project architect, demonstrate the relationship of the buildings to the sewer pipe and easement area. Please see Sheet A5.02. Structural design plans of the retaining wall adjacent to Building A, as well as all site retaining walls over four feet in height, will be prepared, stamped and signed by a Massachusetts registered structural engineer and submitted to the town in connection with the application for a building permit.

- 6. The design indicates that grading and public shade tree removal will be required within the Greendale Avenue public right of way to support the proposed design (at the site drive entrances).*



Response: See Response No. 5 in the General Comments section above.

- 7. There is a proposed point source stormwater discharge from the property onto Route 128. No easement has been provided to accommodate the discharge.*

Response: The Project Site grading and drainage does not support this statement and no easement is necessary. There are two point discharges proposed for the stormwater management system, both completely located on the Project Site and in locations where topographical swales currently accept runoff from the Project Site and Route 128. The stormwater management system, designed in accordance with DEP Stormwater Management Standards, together with the excellent soils at the Project Site, provide maximum groundwater recharge during all design storm events. Therefore, the two point discharges located on the Project Site are just overflow discharges for the recharge systems, and in any case are located on the Project Site. In addition, any overflow is expected to recharge on the Project Site given the well drained soils.

**Utility Plan Sheet C-4:**

- 1. The gas lines must be located away from the electric lines by at least 5 feet.*

Response: This revision has been incorporated.

- 2. The water, drain, sewer, gas and electric lines must be separated by at least 5 feet. Water and sewer lines must be separated by at least 10 feet.*

Response: This revision has been incorporated.

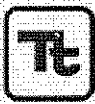
- 3. Plans do not call for emergency generators or transformers. If emergency generators and transformers are proposed, they should indicated on the plans*

Response: This revision has been incorporated.

**Landscape Plans Sheet L-1:**

- 1. Landscape plans show existing trees to be removed in the Right of Way of Greendale Avenue and replaced with proposed trees. Public shade tree removals require permission from the Tree Warden and Board of Selectmen to be removed.*

Response: Existing trees in the public right-of-way are to remain and be protected, except for the two proposed access driveway locations and, as noted above, where the new Greendale Avenue sidewalk is proposed from the Project Site to the new crosswalk to the Greendale Avenue/Bird Street intersection.



2. *Landscape plans show proposed trees to be planted directly over the utilities and on top of the walls. The design must be revised to show the trees planted a minimum of 10 feet from the utilities and walls.*

Response: This comment has been incorporated into the revised Planting Plan.

3. *Landscape Plans show trees and other plantings within the area that is designated for snow disposal.*

Response: This comment has been incorporated into the revised Planting Plan.

**Other Comments:**

1. *The design shows a Semi-Public Pool for the site that is subject to Department of Health Regulations requiring showers and sanitary facilities for the pool. These areas have not been shown on the plans. The backwash for the pool is required to employ separators if diatomaceous earth is used, de-chlorination facilities if the discharge is directed to the stormwater system and/or a connection to the sanitary system if approved by the Board of Health and Plumbing Inspector. We recommend that the Board of Health and Plumbing Inspector review the plans to determine compliance requirements.*

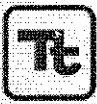
Response: Showers and sanitary facilities are proposed in Building A adjacent to the pool deck area. Final design of the pool mechanical and plumbing system will be prepared and submitted to the Board of Health and Plumbing Inspector for review and issuance of required permits.

2. *No office space, tool/parts storage, or equipment storage has been provided for the proposed development.*

Response: The office area is anticipated to be located within the area designated as "1<sup>st</sup> Floor Commons" on Sheet A1.03. Common area layout will be finalized on the building permit plans. Tool/parts storage is anticipated to be located in the area labeled as "Maint/Stor" at the Building A Lower Garage Level on Sheet A1.01. Final design of the office, tool/part storage and equipment storage as needed for the Project will be shown on the building permit plans.

3. *The design indicates that more than 50,000 GPD will be generated and discharged into the town's sewer system considering the above requirements. A DEP Sewer Connection Permit will be required.*

Response: With 394 bedrooms (126 two-bedroom units and 142 one-bedroom units) at 110 gallons per bedroom per day pursuant to DEP Sewer Connection Regulations, the project would generate 43,340 gallons per day of sewer flow.



4. *The MassHousing Project Eligibility (Site Approval) Application letter recommended that the following issues be addressed in the application to the Board of Appeals for a Comprehensive Permit and prior to the applicant's submission to MassHousing for Final Approval:*

a. *A detailed traffic study assessing potential impacts to the town's roadways and appropriate mitigation. The rest of the traffic study was submitted yesterday to the Board of Appeals. More time for the Town is required to analyze the study.*

Response: No response necessary.

b. *A revised Stormwater Management plan is required to be submitted.*

Response: The revised Stormwater Management Report and Environmental Impact Analysis is part of this submission.

c. *Confirmation of the geotechnical findings of the site since the initial application to MassHousing have not been submitted to the Board of Appeals for review as recommended.*

Response: The draft geotechnical study submitted with the site approval application has now been finalized and is submitted with this letter. It confirms the Project Site's well-drained soils on which the drainage system has been based.

d. *Building and site design measures to address noise exposure and noise attenuation measures have not been submitted for review.*

Response: A noise analysis will be provided including, as necessary, design measures required to meet the U.S. Department of Housing and Urban Development allowable noise levels for residential projects.

e. *Details regarding the site amenities, playgrounds, community rooms, outdoor seating areas and specific information regarding pedestrian links to nearby conservation areas have not been submitted to the Board of Appeals as recommended by MassHousing. There is no walkway to the trail network and a guard rail and steep slope is preventing pedestrian access.*

Response: Information concerning the above has been presented at the ZBA's public meetings and is shown on the Project plans. The Project will include a pool area, outdoor grilling area, walking trail connecting to the existing trails and conservation areas north and south of the Project Site and a clubhouse. The clubhouse includes such amenities as a game room, fitness center and wi-fi.



TETRA TECH

If you have any questions regarding the above, please contact me at 508-903-2312.

Very Truly Yours,  
TETRA TECH, INC.

Glenn K. Dougherty, P.E.  
Senior Project Manager