



MILLENNIUM ENGINEERING, INC.
Land Surveyors and Civil Engineers

November 23, 2021

Methuen Community Development Board
City Hall, Searles Building
41 Pleasant Street
Methuen, MA. 01844

Re: Definitive Subdivision at 23 Hampstead St, Methuen, MA Response to Engineering Department provided by Stephen Gagnon dated October 19, 2021, and Peer Review Comments provided by TEC, Inc, dated November 2, 2021

Members of the Board,

The following provides our response to peer review comments referenced above. We have included the peer review comments and our response to facilitate the Commission's review.

<i>Comment / Response</i>	
Engineering Department Review	
<i>Comment 1:</i>	<i>The intended final ownership of the subdivision should be identified, i.e., City or Homeowners Association.</i>
<i>Response:</i>	The intention is for the Road to become a public road.
<i>Comment 2:</i>	<p><i>The cover sheet of the plan set requests the following waivers from the Subdivision Rules and Regulations:</i></p> <ul style="list-style-type: none"><i>a. Section 4.2.2.8 - Dead end streets.</i><i>b. Section 5.7.1 - Sidewalks.</i><i>c. Section 5.6.1 - Looped water main.</i><i>d. Section 5.6.1 - 8" diameter water main.</i> <p><i>I suggest in exchange for waivers a. and b. the Developer provide an additional inch of pavement thickness to the roadway, to increase its longevity and ultimately reduce future costs to the residents.</i></p> <p><i>I do not recommend waiver c. be granted. This waiver is contrary to the MassDEP Water Distribution regulations the city must follow.</i></p> <p><i>Annually, MassDEP completes a detailed audit of the City's water distribution system. Each year our score is adversely impacted due to dead end water mains. The proposed water main could be easily looped to</i></p>



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	<p><i>Applewood Ln. or Stoneybrook Rd., preventing the creation of a new dead-end water main and eliminating an existing dead end main.</i></p> <p><i>Waived d. cannot be granted, as DEP requires every water main which serves a fire hydrant to be a minimum of 8" diameter.</i></p>
Response:	<p>Waivers A and B: We agree to the additional inch of pavement based on the approval of the waivers for pavement width and bituminous curb.</p> <p>Waiver C: There is currently no means of looping the proposed water main as no easements are in place. Furthermore, the cost associated with potentially looping the water main is significantly more than the cost to install the water main to serve the project and is cost prohibitive to the project.</p> <p>Waiver D: This waiver has been removed and 8" water main is proposed.</p> <p>Additional waivers have been added to the list.</p>
Comment 3:	<p><i>Section 4.2.2.4 of the Subdivision Rules and Regulations requires roadway centerline offsets to be a minimum of 125'. The proposed roadway is offset only 110' from the private way known as Old Hampstead Street.</i></p>
Response:	A waiver has been requested for this section.
Comment 4:	<p><i>Section 4.2.4.3 of the Subdivision Rules and Regulations requires a minimum length of 75' to be substantially level approaching an intersection. Approximately 25' has been provided.</i></p>
Response:	The grading of the roadway has been revised to provide an average grade of less than 2% for 75'.
Comment 5:	<p><i>An analysis of the sight distance, at the intersection of the proposed road and Hampstead Street, should be provided.</i></p>
Response:	A Traffic Memo which includes a sight distance analysis has been provided.
Comment 6:	<p><i>The proposed roadway will bisect the existing sidewalk on Hampstead Street. ADA/ABB compliant wheelchair ramps must be provided at each side of the proposed roadway.</i></p>
Response:	ADA compliant ramps have been added to each side of the proposed roadway.
Comment 7:	<p><i>Subdrains should be provided along the roadway where the cut profile exceeds one foot.</i></p>
Response:	A note has been added requiring the installation of a subdrain as required in the field.
Comment 8:	<p><i>It is not clear if the existing water mains in Hampstead Street are labeled correctly on the plan set. Regardless of the representation, the water connection for the subdivision must be made to the 12" diameter water main.</i></p>



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Response:	The approximate location of the existing 12" main has been added to the plans. The connection of the proposed water main has been revised to connect to the existing 12" main.
Comment 9:	<i>The plan should be revised to depict three gates at each connection to a water main.</i>
Response:	Three gate valves have been shown at the connection of the proposed water main.
Comment 10:	<i>The proposed sewer service connections are depicted as 4" diameter on sheet 6 of the plan set. The plan should be revised to depict 6" diameter sewer service connections.</i>
Response:	The sewer service connections have been revised to 6" services.
Comment 11:	<i>The plan set depicts approximately 125' of the roadway draining uncontrolled onto Hampstead Street. Catch basins should be provided to collect the stormwater before it reaches Hampstead Street.</i>
Response:	Catch basins have been added at the entrance of the proposed roadway.
Comment 12:	<i>The proposed route maintenance vehicles are to access the infiltration basin should be identified on the plan set.</i>
Response:	The maintenance route has been added to the plan set.
Comment 13:	<i>An underdrain should be provided in the infiltration basin so it can be dewatered for maintenance.</i>
Response:	An underdrain has been provided in the infiltration basin.
Comment 14:	<i>The plan depicts the infiltration chamber outlet pipe discharging directly to Hampstead St. This is not acceptable as it will cause icing of the roadway and sidewalk in cold weather.</i>
Response:	The outlet from the subsurface infiltration area has been removed from the design.
Comment 15:	<i>In the profile view, the pipes entering DMH-1 from CB-1 & CB-2 are lower than the pipe exiting DMH-1. The plan should be revised accordingly.</i>
Response:	The profile has been revised to accurately depict the inverts of the drainage system.
Comment 16:	<i>The elevation of the flared end section on the infiltration pond outlet pipe does not agree in the plan set and the Stormwater Management Report.</i>
Response:	The elevation of the flared end has been revised.
Comment 17:	<i>The Stormwater Management Report indicates Subcatchment P1B will flow overland before discharging directly into the infiltration chambers. The plan should be revised to provide pretreatment for the overland flow.</i>
Response:	The drainage design has been revised and no overland flow enters into the subsurface infiltration area.
Comment 18:	<i>The plan depicts an existing 12" CMP entering the subject property from a catch basin on Hampstead Street. This pipe should be investigated,</i>



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	<i>and its source determined.</i>
Response:	Additional detail was provided regarding the drainage system in Hampstead Street. No information was found regarding the pipe exiting the site.
Comment 19:	<i>The soil logs provided in the Stormwater Management Report should be revised to provide an elevation for ESHGW and refusal.</i>
Response:	The soil logs have been added to the plan set and the elevation of the ESHGW have been added.
Comment 20:	<i>The Operation and Maintenance Plan provided exceeds the ability of the Methuen DPW, should the Applicant wish the subdivision to be accepted by the city.</i>
Response:	No response required.
Comment 21:	<i>Under the heading of Infiltration Chambers, the Operation and Maintenance Plan states the Condo Association is the responsible party. Is this correct or a typographical error?</i>
Response:	The O&M has been revised to require the homeowner to be responsible for the maintenance of the subsurface infiltration area.
Comment 22:	<i>The Applicant should consider installing a landscaped island in the cul-de-sac to reduce pavement costs and reduce impervious area and stormwater runoff.</i>
Response:	A landscape island has been added to the cul-de-sac.
Comment 23:	<i>The plan depicts proposed grading adjacent to the east property line of Lot 4. A detail of this grading should be provided.</i>
Response:	A detail of the grading has been provided.

TEC Review Comments

Site Plan & Application – Definitive Subdivision Regulations	
Comment 1:	<i>A discrepancy in the total lot area was noted in the Definitive Subdivision Application and Plans. The Application details a total lot area of 5.17 acres (as noted on the City of Methuen GIS), while the Definitive Subdivision Plans details a total site area of 4.87 acres.</i>
Response:	The correct area of the project is 4.87 acres.
Comment 2:	<i>As stated in Section 3.2.2.5 of the City of Methuen Subdivision Rules and Regulations (abbreviated further as MSRR), the proposed street name should be added to the plans.</i>
Response:	A road name of “Geramat Way” has been added to the plan set.
Comment 3:	<i>TEC acknowledges the waivers requests in the Application and on Sheet 1 of the Definitive Subdivision Plans. TEC concurs with the terms of agreement for the two waivers (Sections 4.2.2.8 & 5.7.1) stated in the letter by Stephen J. Gagnon dated October 19, 2021. TEC also concurs with the statements regarding denial of the remaining two waivers based around the proposed water main.</i>
Response:	Waivers A and B: We agree to the additional inch of pavement based on the approval of the waivers for pavement width and bituminous curb.
	Waiver C: There is currently no means of looping the proposed water main as no easements are in place. Furthermore, the cost associated with potentially looping the



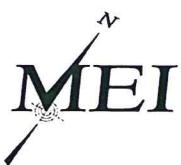
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	water main is significantly more than the cost to install the water main to serve the project and is cost prohibitive to the project.
	Waiver D: This waiver has been removed and 8" water main is proposed.
	Additional waivers have been added to the list.
Comment 4:	<i>The proposed outlet invert is drawn higher than the inlet pipes within DMH 1. The inverts for this structure should be adjusted to be in accordance with Section 4.3.3.7 of the MSSR.</i>
Response:	The profile has been revised to correctly show the inverts of the drainage system.
Comment 5:	<i>Per Sections 4.3.3.6 & 4.4.2.3 of the MSSR, drainage and sewer pipe designs respectfully have specific design velocity requirements. The applicant should provide pipe flow calculations for both systems to prove this design meets these requirements.</i>
Response:	Pipe flow calculations have been included in the Stormwater Report.
Comment 6:	<i>TEC recommends that the sewer service connections be drawn in the profile view on the plan & profile. It appears that the sewer service from Lot 4 may be too low to tie into the sewer main at the proposed location.</i>
Response:	The sewer services have been added to the profile view. Lot 4?
Comment 7:	<i>The sewer service detail calls for a 6" service diameter, but the Plan & Profile call for a 4" service diameter.</i>
Response:	The plans have been revised to depict 6" sewer services.
Comment 8:	<i>Both CB 1 & 2 do not include the proposed use of gutter curb inlets. Per Section 5.3.8 of the MSSR, these catch basins should be revised to include gutter curb inlets.</i>
Response:	A waiver from this requirement has been requested.
Comment 9:	<i>Per Section 5.4.2.2 of the MSSR, all drainage pipes must be constructed of reinforced concrete. On Sheet 6 of the Definitive Subdivision Plan, the connection between CB 1, CB 2, and DMH 1 are detailed as 12" PVC. This should be revised to follow this Section.</i>
Response:	The drainage pipes have been revised to specify RCP.
Comment 10:	<i>The proposed rim to invert elevation for CB 1 is just under 3'. This invert should be revised to have at least 3' of separation per Section 5.4.3.4 of the MSSR.</i>
Response:	The rim to invert separation has been revised to provide at least a 3' separation.
Site Plan - General	
Comment 11:	<i>The typical section calls for sloped granite curbing on both sides of the roadway. The Applicant should confirm that curbing is proposed around the full extents of the roadway, and TEC recommends adding a leader to call out the proposed curbing on the Plan.</i>
Response:	A waiver has been requested to allow for bituminous curbs to be installed. Curbing is proposed along the full extents of the roadway. A label has been added to the Plan and Profile sheet calling out the curbing.
Comment 12:	<i>The maximum building coverage and open area requirements should be added to the zoning table on Sheet 3 of the Definitive Subdivision Plans.</i>
Response:	The maximum building coverage and open space requirements have been added to the table.



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Comment 13:	<i>TEC recommends that a building square footage should be added on each proposed building.</i>
Response:	The square footage of each footprint has been added to the plan set.
Comment 14:	<i>There appears to be some existing vegetation at the rear corner of abutting lot 75-3. The plans should identify if this vegetation will be removed or a portion will remain. Location of individual trees may be required in this area in order to preserve the natural buffer.</i>
Response:	The existing vegetation will mostly be removed as the drainage line is proposed through the area of trees.
Comment 15:	<i>It appears that the proposed tree line does not appropriately tie into the existing tree line at the south west property line of Lot 4.</i>
Response:	The tree line has been revised.
Comment 16:	<i>TEC suggests the addition of proposed gas and electric connections to the proposed and existing dwelling(s) on Sheet 6 of the Definitive Subdivision Plans.</i>
Response:	Gas and underground electric have been added to the plan and profile sheet.
Comment 17:	<i>On Sheet 6 of the Definitive Subdivision Plans a few issues were noted regarding the proposed utility profile:</i> <ol style="list-style-type: none">a. <i>Pipe lengths of sewer pipes are labeled in inches, not feet.</i>b. <i>The inverts into DMH 1 should be specified for each CB they connect to.</i>c. <i>The invert out of CB 1 is labeled as an invert in.</i>
Response:	The sewer pipe labels have been revised. The Inverts into DMH 1 have been specified. The label for CB 1 has been revised to show the invert out.
Comment 18:	<i>On Sheet 7 of the Definitive Subdivision Plans a few issues were noted as listed below:</i> <ol style="list-style-type: none">a. <i>Erosion Control barriers are proposed in front of the existing driveways for the existing dwelling. A gap should be provided if this dwelling will be occupied during construction.</i>b. <i>Multiple areas of proposed grading cross the proposed silt sock line across the pxx lots. The silt sock positioning should be adjusted to provide a gap (3' recommended) between the work zone and the protected areas.</i>c. <i>The proposed silt sock crosses directly over the proposed rip rap for the outlet of Outlet Structure 1.</i>
Response:	<ol style="list-style-type: none">a. The existing dwelling is vacant and will ultimately access via the proposed roadway.b. We did not find any areas where the proposed grading crosses the erosion control barrier. The erosion control barrier has been revised to provide a 3' gap between the limit of work and the protected area.c. The erosion control barrier has been revised to avoid crossing the rip-rap.
Comment 19:	<i>A detail should be provided for the inlet structure placed on top of the proposed subsurface infiltration system.</i>
Response:	This structure is no longer part of the stormwater design.
Comment 20:	<i>On Sheet 9 of the Definitive Subdivision Plans, multiple details reference HDPE pipes, but none are referenced on the other sheets.</i>
Response:	All references to HDPE pipe have been revised to specify RCP pipe.
Stormwater Report	



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<i>Comment 21:</i>	<i>Upon adjustment of the proposed catch basin locations (as suggested in the letter by Stephen J. Gagnon dated October 19, 2021), the water quality calculations should be adjusted to include the additional impervious area leading to these catch basins.</i>
<i>Response:</i>	The water quality calculations that were provided accounted for all of the roadway areas.
<i>Comment 22:</i>	<i>TEC suggests the Water quality calculations and TSS removal calculations include information for the proposed subsurface infiltration system.</i>
<i>Response</i>	The design has been revised and the proposed subsurface infiltration area only takes flow directly from the roof of the dwelling on Lot 4. No TSS or water quality calculations are required.
<i>Comment 23:</i>	<i>The contribution to TSS Removal from deep sump hooded catch basins should be added to the TSS removal calculations.</i>
<i>Response:</i>	The TSS removal calculations have been revised to include the catch basins and sediment forebay as pretreatment prior to the infiltration basin.
<i>Comment 24:</i>	<i>The estimated seasonal high water table near the proposed infiltration basin within proposed Lot 2 is less than 2' below the bottom of the proposed basin based on the provided Test Pit 21-9. A revision in design of the basin is required to meet the 2' minimum separation between the estimated seasonal high water table and the bottom of basin per Volume 2 Chapter 2 of the Massachusetts Stormwater Handbook. The ESHWT value on the Infiltration Basin Cross-Section on Sheet 9 of the Definitive Subdivision Plans should also be revised accordingly.</i>
<i>Response:</i>	The infiltration basin has been revised to provide a 2' separation to ESHGW.

We trust this response letter provides the necessary information for the Board's consideration of the request for completeness. If you have any questions or comments, please feel free to contact our office at your convenience.

Sincerely,

Millennium Engineering, Inc.


James Melvin, P.E.
Project Manager

w/ Attachments