

Ms. Kathleen Bradley-Colwell
Planning Division Director
Department of Economic and Community Development
City of Methuen
41 Pleasant Street
Methuen, MA 01844

October 7, 2024

Re: Brookview Heights Subdivision, Methuen, MA
Civil Engineering Peer Review

Dear Ms. Bradley-Colwell and Members of the Planning Board:

On behalf of the City of Methuen, TEC, Inc. (TEC) has reviewed documents as part of the civil engineering peer review for the proposed subdivision project located at Lots 53C, 66B, 66D, and 67E of Map 908 Block 78E. Greenman-Pedersen, Inc., ("Applicant") submitted the following supplemental documentation which were reviewed by TEC for conformance with the applicable sections of the City of Methuen Zoning Ordinance, Stormwater Management Rules and Regulations, and Subdivision Regulations. The submission was also reviewed for conformance with the Massachusetts DEP Stormwater Standards and generally accepted industry standards:

- *Brookview Heights Subdivision TEC Civil Engineering Peer Review Comment Response Letter*, prepared by Greenman-Pedersen, Inc., dated October 1, 2024
- *Definitive Subdivision Plans*, prepared by Greenman-Pedersen, Inc., last revised September 26, 2024

For consistency, the original comment numbers have been retained from the previous TEC Peer Review Letter dated April 4, 2024. Comments that have been noted as addressed have been removed from the list. The Applicant's responses to the comments are shown as **bold**; TEC's new responses are shown as *italic*.

Upon review of the documents and plans, TEC has compiled the following comments for the Board's consideration:

Waiver Requests

4. **Section 5.7.1 Sidewalk Location – 5' wide sidewalks along both sides required, sidewalk on only one side proposed** – TEC understands that there are no sidewalks proposed on the extension of Washington Street. TEC has provided recommendations within the Traffic Impact and Traffic Engineering Site Plan Review comments herein to address this. See comments #31 and 32.

GPI 8/5/24: Our responses related to sidewalks within Washington Street are within the Traffic Impact and Engineering Site Plan Review section.

TEC 9/3/24: TEC continues to recommend the addition of a sidewalk on at least one side of Washington Street. TEC defers to the opinion of the board.

GPI 10/1/24: Following a discussion about this with the Community Development Board at their September 11th meeting, it was agreed that a sidewalk would be provided along one side of Washington Street. The revised plans show a sidewalk along the east side of Washington Street.

TEC 10/7/24: Comment addressed.

Subdivision Rules and Regulations

5. Pursuant to section 4.2.4.1 for maximum centerline slope, station 5+00 to 11+00 of Washington street exceeds the maximum allowable slope. The applicant has designed a portion of Washington Street at an 11.25% grade with driveways that will be very difficult to safely transition at Lots 1 through 4 and Lots 28 and 29. TEC recommends that the applicant review alternatives to comply with the requirement of the regulations.

GPI 8/5/24: Washington Street is currently a public way, and the proposed road grade matches the grade that is out there today. Compliance with the 8% maximum grade for new subdivision streets would require significant amounts of fill, large retaining walls within the public right-of-way down near Edgewater Drive to avoid impacting wetlands on both sides of the road, and would render the land on either side of Washington Street inaccessible.

TEC 9/3/24: TEC understands the concerns presented by the applicant, though we remain concerned about the proposed driveway connections and recommend that the applicant consider placement of the driveways such that they are situated in areas where the centerline remains in compliance with the regulations. An additional waiver request of section 4.2.4.1 is required if this regulation cannot be met.

GPI 10/1/24: Waiver request number 3 on Sheet 2 addresses the centerline grade issue. In addition, it was explained to the CD Board that at time of building permit application, plot plans with detailed grading information for the driveways will be submitted for review.

TEC 10/7/24: TEC recommends that the board include a condition of approval stating, “The submission of detailed grading and drainage plans shall be submitted and approved by City of Methuen staff or their peer review agent for parcels 1, 2, 3, 4, 28, and 29 upon submission of building permit application and prior to construction.”

Site Plan Review

9. A fire truck turning plan should be provided to verify access is adequate for emergency vehicles. Approval of the fire truck turning plan should be provided by the Fire Department.

GPI 8/5/24: A fire truck turning exhibit has been prepared and forwarded to the Methuen Fire Department for their review and approval.

TEC 9/3/24: TEC defers to the Fire Department for approval.

TEC 10/7/24: TEC recommends that the board include a condition of approval stating, "The applicant shall address all comments provided by the Fire Department."

10. TEC recommends that the applicant update the profile to identify crossing utilities and separation distances. The applicant should include protection requirements of the proposed sanitary line, if necessary.

GPI 8/5/24: We have revised the location of several utilities to provide a better layout and required horizontal separation. We are currently evaluating vertical separation distances and will provide that information on a subsequent update to the plans.

TEC 9/3/24: TEC will provide review of the utility layout on the subsequent plans.

GPI 10/1/24: As a follow up to the horizontal utility layout revisions shown on the previously submitted plans, the Plan & Profile sheets have been revised to include utility crossing labels on the plan.

TEC 10/7/24: TEC recommends that the Applicant provide a minimum of 18 inches of vertical separation from sanitary sewer or water lines to drainage lines where possible. Where this is not feasible, insulation shall be required between the utilities for frost protection.

12. There appears to be several areas where the proposed water line conflicts with other structures, including CB-9, CB-7, CB-5, and CB-3.

GPI 8/5/24: We are currently evaluating any water line conflicts with other utilities and will make any necessary adjustments on a subsequent update to the plans.

TEC 9/3/24: TEC will provide review of the utility layout on the subsequent plans.

GPI 10/1/24: The horizontal utility layout has been revised to eliminate these conflicts.

TEC 10/7/24: Comment addressed.

18. The profile does not include the proposed sewer force main. It is not clear if air/vacuum valves are required.

GPI 8/5/24: The locations for an air/vacuum valve manhole at the sewer force main high point and a cleanout manhole at the sewer force main low point have been added to the plan view on Sheet 21.

TEC 9/3/24: Comment addressed, although there is a utility conflict at approximate station 2+30 with the existing hydrant scheduled to remain, please revise.

GPI 10/1/24: The force main layout has been revised to avoid the existing hydrant to remain.

TEC 10/7/24: It appears that this comment has been addressed. The existing water utility information is no longer shown on the Plan & Profile sheets. The plans should be updated to include this information.

21. TEC recommends that the plans be updated to provide the following details: level spreader, pavement tie-in at sawcut locations, yard drains, guardrail, retaining wall, and overflow spillways.

GPI 8/5/24: These details have been added to the plans as requested.

TEC 9/3/24: Comment addressed. However, the yard drain detail specifies a frame and cover, whereas a frame and grate appear to be appropriate for the design.

GPI 10/1/24: The yard drain detail has been revised to specify a frame and grate.

TEC 10/7/24: Comment addressed.

Stormwater Management Review

25. Pursuant to Massachusetts Stormwater Handbook Chapter 3 regarding stormwater recharge and depth to the estimate seasonal high ground water table, it appears that Infiltration Basin #3 (INF-3) has a ESHWT within 4' of the bottom of the proposed infiltration basin, requiring a mounding analysis. Please provide a mounding analysis for INF-3.

GPI 8/5/24: A mounding analysis has been performed for INF-3 and is included in the revised stormwater management report.

TEC 9/3/24: TEC recommends that the applicant provide clear documentation to illustrate how all the variables were determined for the mounding analysis.

GPI 10/1/24: A description of the variables used in the mounding analysis calculations has been provided with the resubmission.

TEC 10/7/24: TEC was not able to locate this information within the provided submission documents.

29. Ownership of required maintenance for stormwater features shall be coordinated with the City and the Operations & Maintenance.

GPI 8/5/24: We have confirmed with the city that the roadway drainage system along with the outfalls and stormwater basins associated with that system will be maintained by the city. All other drainage facilities shown on the plans will be maintained by the homeowner's association. The O&M plan has been updated to identify who is responsible for each drainage system.

TEC 9/3/24: It is still not clear what entity is responsible for each BMP proposed. The applicant provided a color-coded exhibit in Section 4 of the O&M manual, though, it appears that a color key would benefit this plan. There are also some discrepancies between the exhibits provided, please revise as required.

GPI 10/1/24: We are continuing to work with the Methuen Department of Public Works to identify BMP maintenance responsibilities. A final O&M plan acceptable to the City will be provided prior to endorsement of the plans.

TEC 10/7/24: TEC recommends that the board include a condition of approval stating, "The Applicant shall coordinate as necessary with the Methuen City staff or their peer review agent to finalize the Stormwater Operation & Maintenance Plan prior to the start of construction."

30. Massachusetts DEP Stormwater Standards

- a. Standard 2 – This standard requires that the proposed project does not increase the stormwater peak runoff rates from the existing conditions. The project has minor stormwater calculation revisions that will be required to verify that the project fully complies with this standard.

TEC 9/3/24: In section 3 of the stormwater management report, the applicant explains that the project is in full compliance with Standard 2. The applicant continues to explain that the 2 year post-development peak flow exceeds the pre-development peak flow for Design Point 2, which makes the project not in compliance with Standard 2. There are discrepancies between that statement and Table 1 of the report. Based on the HydroCAD calculations, it appears that the project is in compliance, please verify and update the report as required.

GPI 10/1/24: Section 3 of the stormwater report has been revised to properly state that the project is in compliance with Standard 2.

TEC 10/7/24: TEC was not able to locate this information within the provided submission documents.

Traffic Impact and Traffic Engineering Site Plan Review

Based on the review of the Site Development Overview Plan, the subdivision includes 29 single family homes. TEC reviewed the Institute of Transportation Engineers the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition, Land Use Code (LUC) 220 – Single-Family Detached Housing. The proposed development is expected to generate 18 vehicle trips during weekday morning peak hour and 11 vehicle trips during weekday evening peak hour. This is an increase of one (1) vehicle every 2 minutes along Washington Street. Therefore, based on the minimal impact of the project, TEC concurs that a Transportation Impact Assessment (TIA) is not necessary as part of the project. However, TEC compiled the following traffic-related comments regarding the site plan:

31. Although Washington Street does not have sidewalks along either side of the roadway, the Applicant should provide a sidewalk on at least one side of Washington Street.

GPI 8/5/24: This has been discussed with City staff and while the plans include the grading necessary to install sidewalks, no sidewalks are proposed along Washington Street at this time.

TEC 9/3/24: TEC continues to recommend the addition of a sidewalk on at least one side of Washington Street because it is the main access point to the proposed 29 new lots. TEC defers to the opinion of the board and city staff.

GPI 10/1/24: A noted under item 4 above, sidewalk has been added to the easterly side of Washington Street.

TEC 10/7/24: Comment addressed.

33. The Applicant should install signage to notify motorists about the dead end roadway condition on Washington Street, just north of Edgewater Drive. The applicant's team should discuss the end treatment for Washington Street, including any potential gates or parking restrictions with City staff. TEC recommends that any fixed objects be buffered from the end of the paved portion of the roadway given the potential for sliding vehicles on the proposed steep roadway grade approaching the dead end during winter conditions.

GPI 8/5/24: We have revised the plans to include a “Pavement Ends” sign on Washington Street, just after the intersection with Edgewater Drive. We have also added a section of guardrail 8 feet beyond the end of pavement to prohibit vehicles from driving down the portion of Washington Street that will remain unimproved.

TEC 9/3/24: TEC recommends that the applicant add a “Dead End Ahead” sign on Washington Street approximately 30 feet northeast of the Old Ferry Road intersection to notify motorists of the dead end condition. The proposed end condition shall be approved by City staff.

GPI 10/1/24: A “Pavement Ends” sign has been added to the plans as recommended.

TEC 10/7/24: TEC recommends that the board include a condition of approval stating, “Prior to the start of construction, the Applicant shall review the end condition of Washington Street with Methuen City staff or their peer review agent and update as necessary.”

35. The Applicant should verify Stopping Sight Distance (SSD) and Intersection Sight Distance (ISD) at the Edgewater Drive intersection with Washington Street, considering the *limited* potential for a future extension of Washington Street to the north for any municipal conservation access opportunities near Hawkes Brook. Sight triangle areas should be shown on the Site Plans, along with a note indicating: "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. The proposed side slope grading and layout of the consideration easement on Lot 5 (southeast corner of Washington Street / Edgewater Drive) should consider the maintenance needs related to the sight lines.

GPI 8/5/24: The plans have been revised to include a stop sign and stop bar at the end of Edgewater Drive. Preliminary review of the grading at the northwest corner of Lot 5 suggests that adequate sightlines are provided. As part of a subsequent revision to these plans to address any remaining comments or conditions of approval, we will look at opportunities for pulling the cut slope on Lot 5 back even further to account for snow in that area.

TEC 9/3/24: TEC continues to recommend showing sight triangles on the plans as indicated in the previous comment. TEC recommends using the posted speed limit plus five miles per hour to evaluate the sight lines.

GPI 10/1/24: A Sight Line Plan has been added to the plan set (Sheet 1 of 1 at the end of the plan set). The referenced side slope grading on Lot 5 has been adjusted slightly for sight line compliance. The requested note has been added to the Sight Line Plan as well as the General Notes Sheet.

TEC 10/7/24: Comment addressed.

37. The Applicant's team should verify the sight line characteristics for the stopped condition for motorists on Old Ferry Street westbound where it meets Washington Street and confirm that AASHTO criteria can be satisfied given the introduction of new through traffic associated with the proposed subdivision.

GPI 8/5/24: A stop sign and stop bar have been added at the end of Washington Street where it meets Old Ferry Drive. This section of Washington Street is not intended to be open to through traffic.

TEC 9/3/24: TEC continues to recommend that sight line characteristics are verified for the stopped condition for motorists on Old Ferry Street, particularly for northbound traffic on Washington Street. The applicant should review any features and vegetation that may impact sight lines and work with the city to remove them if necessary.

GPI 10/1/24: A review of Google Streetview imagery from 2019 suggests that existing trees along Washington street south of the intersection with Old Ferry Drive limits sight lines. Further discussion with the city is necessary to identify possible remedies, including whether additional traffic movement controls (stop signs) are warranted.

TEC 10/7/24: TEC agrees with this finding and recommends that the board include a condition of approval stating, "Prior to construction, the Applicant shall review sight line characteristics for motorists on Old Ferry Street, particularly for northbound traffic on Washington Street with Methuen City staff or their peer review agent. The applicant should review any features and vegetation that may impact sight lines and work with the city to remove them if necessary."

Please do not hesitate to contact me directly if you have any questions concerning our comments at 978-794-1792. Thank you for your consideration.

Sincerely,
TEC, Inc.
"The ***Engineering Corporation***"



Alexander Sellar, PE
Senior Project Manager