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July 13, 2022

To: Community Development
City of Methuen

From: Stephen J. Gagnon, PWM
Engineering Department Administrator

Subject: 46 Old Ferry Road
Site Plan Review

As requested, I have reviewed the revised plan set dated May 29, 2022, Stormwater Management Report dated May 28, 2022, and letter dated June 1, 2022, prepared by Fieldstone Land Consultants, PLLC (FLC).

My comments from June 8, 2022, are in plain text, the Project Engineer's response is in italics and my current comments are in bold type.

SITE

1. The intersection of Old Ferry Road and the site drive has been revised such that travel on Old Ferry Road will not be possible north of the site drive. Where Old Ferry Road is an accepted City Street and the city is considering its use in support of two separate projects, I recommend the site drive intersection be redesigned to allow use of Old Ferry Road.

   FLC – The intersection of Old Ferry Road and the site drive has been revised to allow for future use of Old Ferry Road beyond the subject site.

   The intersection has been redesigned as requested. However, the new design proposes centerline slopes of approximately 10% on Old Ferry Road. The slope exceeds the city's design standard of 8% maximum, therefore is not acceptable.

2. As stated in previous memo(s), the site drive should enter Old Ferry Road as close to 90° as possible. The plan should be revised accordingly.

FLC – The entrance has been revised per your request to enter Old Ferry Road at 90+/- degrees.

The intersection has been redesigned as requested. The proposed design has a large area of pavement, on the east side of the intersection, to accommodate tractor-trailer turning radius. The additional pavement area is depicted with pavement markings to properly align smaller vehicles to the intersection. I recommend the painted area be replaced with scored concrete to discourage vehicles from cutting the corner.

3. The plan depicts several retaining walls on the site, as high as 32'. A design of the walls should be provided. The design should consider the effects of stormwater features proposed adjacent to the walls, particularly at the south end of the site. Further, the wall design should also consider the proposed guardrail.

FLC – Note #24 on sheet MP-1 states "The proposed retaining walls will be designed by a licensed structural engineer prior to the issuance of a building permit." The design of the walls will consider nearby features such as the stormwater chamber system and guardrails.

Comment addressed. I recommend this issue be incorporated in the conditions of approval.

OFF-SITE

1. Approximately 800' south of the site drive, Old Ferry Road has a pinch point where the pavement is less than 15', insufficient for truck traffic. The Applicant should be part of the resolution of this issue.

WATER

1. The revised plan set does not depict the proposed water system. The plan should be revised accordingly.

FLC – The proposed water system is detailed on the revised plan set and includes a profile showing crossing details on sheet UT-1.

Comment addressed.

2. It is my understanding a fire flow study was completed in the project area. This data should be provided for review.

FLC - The fire flow study is attached for review.

The documentation provided is inadequate to demonstrate the proposed water system will provide adequate volume and pressure to satisfy domestic and firefighting water demands. The documentation should be prepared and sealed by an appropriate professional.

SEWER

1. The revised plan set does not depict the proposed sanitary sewer system. The plan should be revised accordingly.

FLC – The proposed sewer system design is included in the revised plan set.

Comment addressed – It should be noted the septic system will be reviewed by the Health Department.

DRAINAGE

1. A stormwater analysis was not provided.

FLC – A stormwater report was submitted to the city and peer review engineer. It has been revised per the peer review engineer's comments and is attached for your review.

Comment addressed.

2. Some of the drainage features lack pertinent data such as diameter, elevation, length, etc.

FLC – The drainage features located around the proposed building and along the access drive are detailed on sheets GR-1 and GR-2.

Comment addressed.

3. Several segments of the drainage system are depicted with a slope of 0.005. A pipe analysis should be provided to confirm minimum velocity is achieved.

FLC – A pipe analysis for pipes in the design storm is provided, confirming minimum velocity is achieved.

Comment partly addressed. The requested information has been provided, however the documentation provided indicates the velocity in some of the pipes does not fall within the 3.0 FPS

minimum and 10 FPS maximum. The pipes should be adjusted accordingly.

4. At some locations drainpipes are less than 10' from the building, consequently in the jurisdiction of the Plumbing Code. The Engineer should confirm these features comply with the Plumbing Code.

FLC - The drainpipes have been revised to be located a distance of 10 feet or greater from the building.

Comment addressed.

NEW COMMENTS

1. Reach R2 does not appear to have sufficient capacity to pass the 100-year storm flow, required for cross culverts.

2. Each drainage basin is required to have an emergency outlet capable of passing 100% of the 100-year storm inflow to the basin. Pond 19 appears to utilize the top of the outlet structure as an emergency outlet. Consequently, all the piping downstream of the outlet structure must have sufficient capacity to pass the emergency outlet discharge plus their contributing discharge. The pipes downstream of P-19 do not appear to have sufficient capacity.

3. The Stormwater Calculation indicate the top of the chambers in P-16 are at elevation 235.50, however the peak water surface elevation is 237.90. The peak water surface elevation should be within the chamber.

4. The Stormwater Calculation indicate the top of the chambers in P-14 are at elevation 238.00, however the peak water surface elevation is 240.77. The peak water surface elevation should be within the chamber.

5. The elevation of Device 4 in the Pond 19 outlet structure does not agree in the calculations and the detail in the plan set.

The Project Engineer should address these issues in writing.