



10 New Driftway
Suite 303
P.O. Box 92
Scituate, MA 02066
(781) 545-0895

Registered Professional Engineers,
Project Managers & Environmental Consultants

March 2, 2020

Pembroke Planning Board
Town Hall
100 Center Street
Pembroke, MA 02359

Re: 50 Mattakeesett Street
Response to Engineering Peer Review Comments
Applicant: Mike Bulman

Dear Matthew and Members of the Board,

This letter is intended to address comments on the above referenced project expressed in a peer review letter by Merrill Engineers and Land Surveyors dated February 19, 2020.

Submitted herewith are the following:

- (6) Six Copies of Proposed Site Plan revised March 2, 2020.
- (3) Three Copies of Stormwater Report & Calculations revised March 2, 2020.

The following are responses to comments expressed in the Peer Review Letter by Merrill Engineers and Land Surveyors dated February 19, 2020 (*Comments made by Merrill Engineers and Land Surveyors are in Italics and The Morse Engineering responses are in Green*):

ZONING BYLAWS

Section IV. Use and Dimensional Regulations

7.A. *The project proposes to construct a 4,000 square foot warehouse at the southerly side of the existing parking area. The Planning Board should determine whether this is an allowed use in the Center Protection District.*

No response required.

7.D.11. *"Along any rear or side lot line that abuts a residential or municipal use there shall be planted a natural hedge greater than six (6) feet in height and located within ten (10) feet of said lot line except by special permit." The limit of clearing associated with the construction of the proposed rain garden is approximately 20 feet from the side property line and adjacent residential uses on Grove Street. The Planning Board should determine if additional screening is necessary.*

No response required.

Section IV. Use and Dimensional Regulations

4.A. *"All new or substantially altered uses or structures shall be provided with paved offstreet automobile parking facilities..." The purpose of the 17 foot wide gravel drive adjacent to the storage units is unclear and the Planning Board should determine if the use of gravel instead of bituminous concrete pavement is acceptable.*

The purpose of the 17 foot wide gravel drive adjacent to the storage units is to provide emergency access to the rear of the proposed warehouse and to offer access for the maintenance of the proposed rain garden.

7.F.9. *An approved site plan shall be recorded with the Plymouth County Registry of Deeds and consequently needs to be prepared to Registry standards. There are a number of instances where this plan is not in compliance with the Registry Plan Regulations and should be revised as necessary.*

The plan has been revised and is now in compliance with the Registry Plan Regulations.

RULES AND REGULATIONS GOVERNING SITE PLAN APPROVAL**Summary of Requested Waivers**

We recommend that all waivers that are granted by the Planning Board be specified on the cover sheet of the approved Site Plans.

All waivers being requested from the Planning Board have been specified on the cover sheet of the Proposed Site Plans.

Section IV. Site Plan Content

4.7 *No Landscaping Plan prepared by a Registered Landscape Architect has been provided as required by the Regulations.*

A waiver is requested from the requirement of the Landscaping Plan to be prepared by a Registered Landscape Architect. See sheet 5 of the Proposed Site Plan for the Landscape Plan prepared by Morse Engineering Company, Inc.

4.8 *The location of the electric service, water service and sanitary sewer for the proposed warehouse building should be shown on the plan. If no sanitary facilities are proposed, it should be stated on the plan.*

The locations of the proposed electric and water services have been added to the plan. A note has been added to the plan stating that no sanitary facilities are proposed.

4.9 *A Zoning Table is presented on sheet 3 of the plans as required.*

No response required.

4.10 *Plans showing front, rear and side elevations of the proposed warehouse has been submitted. We recommend that building materials and colors also be specified.*

Notes regarding the building materials have been added to the plan, but colors are still to be decided.

4.11 *The plans show the location of the existing dumpster at the easterly end of the parking area. It is assumed that this dumpster will be utilized by people using the warehouse if necessary. We recommend that the applicant address the method of trash removal.*

A note has been added to the plan that addresses the method of trash removal.

4.13 *A proposed gravel drive is shown on the easterly and southerly side of the proposed warehouse. It is not clear whether the gravel drive extends in front of the warehouse as well; however, the architectural plans show an overhead door and person door located in the front. The limit of the gravel drive should be clarified. In addition, the architectural plans show an overhead door on the easterly side of the building and the 15 foot wide gravel drive does not appear to provide area for any vehicle turning movements which would be required for entering or exiting in the building. We recommend that this area be reviewed and revised as necessary.*

The area in front the proposed warehouse has been revised to show a proposed paved area that connects to the existing parking lot. The overhead door on the easterly side of the building shall be used for periodic access by employees only.

4.15 *A Development Impact Statement has not been submitted as required. The applicant has requested a waiver of this requirement.*

No response required.

4.16 *The design plans have been stamped and signed by a registered Professional Engineer but not by a registered Professional Land Surveyor as required. A Professional Land Surveyor's certification as to the accuracy of the location of the buildings, etc. has not been presented on the plans as required and should be provided.*

A Professional Land Surveyor's stamp and signature have been added to the plan.

4.18 *The dimensions and square footage of the proposed warehouse building should be presented on the plans as required. In addition, the floor plans should also be provided.*

The dimensions and square footage of the proposed warehouse building have been added to the plan. The floor plans shall be provided under a separate cover.

4.19 *A proposed silt fence erosion control barrier is shown on sheet 4 of the plans. We recommend that this erosion control barrier consist of a silk sock and be extended around the easterly side of the proposed limit of work to include the relocated leaching trench for the septic system as well as the proposed 97 contour.*

The erosion control barrier has been revised and is now proposed as a silt sock that runs along the entirety of the limit of work.

4.21 *Wall Pack lighting is proposed on three (3) corners of the building. A Photometric Plan as well as details of the proposed lighting should be provided.*

A waiver is requested from the requirement of a Photometric Plan.

4.22 A Traffic Impact Study has not been submitted. The applicant has requested a waiver of this requirement. We recommend that, as a minimum, Vehicle Trip Generation Estimates using information from the Institute of Transportation Engineers (ITE) Trip Generation Manual should be submitted for this project.

The proposed warehouse is not expected to generate any new vehicle trips to the site than already exist.

Section V. Requirements

5.1 No Landscaping Plan prepared by a Registered Landscape Architect has been provided as required by the Regulations.

A waiver is requested from the requirement of the Landscaping Plan to be prepared by a Registered Landscape Architect. See sheet 5 of the Proposed Site Plan for the Landscape Plan prepared by Morse Engineering Company, Inc.

5.1.2 The Regulations require a 3 foot wide landscaping strip along foundation walls. Some foundation plantings are shown on one of the architectural plans; however, the plantings do not appear on all architectural plans or on the site plan nor is any other information provided.

A waiver is requested from the requirement of a 3 foot wide landscaping strip along all foundation walls.

5.1.6 A 50 foot landscape buffer to residential properties is not provided as required. The limit of clearing associated with the construction of the proposed rain garden is approximately 20 feet from the side property line and adjacent residential uses on Grove Street. The applicant has requested a waiver of this requirement.

No response required.

5.2 Wall Pack lighting is proposed on sheet 3 of the plans; however, no photometric plan nor specific fixture details are provided as required. This information should be submitted.

A waiver is requested from the requirement of a Photometric Plan.

5.3 A Stormwater Calculations & Report has been submitted in support of the proposed project as required. We offer the following comments regarding the drainage design and analysis:

- We recommend that the time of concentration (Tc) flow paths as well as the soil types be shown on the Watershed Plans.*

The Watershed Plans have been revised to display the Tc flow paths as well as the soil types and their boundaries.

- The NRCS soil map indicate soils with both a Hydrologic Soil Group (HSG) 'A' and HSG 'B' are located on the site. The HydroCAD analysis should be revised to reflect this condition.*

The HydroCAD analysis has been revised to reflect this condition.

- *The Watershed Plans from the December 26, 2018 submittal for this site are still presented in the latest submittal of the Stormwater Calculations & Report and should be removed.*

The Watershed Plans from the December 26, 2018 submittal have been removed from the Stormwater Calculations & Report.

- *A 50 foot setback is not provided from the proposed rain garden to the existing septic soil absorption system on the site. It appears that only one leaching trench of the system is being relocated. The Stormwater Management Regulations require a minimum setback of 50 feet and we recommend that the plans be revised to address this setback requirement.*

The plan has been revised to show the relocation of two leaching trenches of the existing septic system so that the proposed rain garden can maintain a 50 foot setback from the septic.

- *Soil testing has been performed at two (2) location on the site. We recommend that an additional soil test be performed within the limits of the rain garden and the roof drywell system to demonstrate that adequate soils are present for recharge and to confirm the Estimated Seasonal High Groundwater Elevation (ESHGW) used in the stormwater calculations.*

Additional soil testing will be performed within the areas of the roof drywell system and rain garden at the time of construction. The existing soil testing is in the immediate vicinity of the drainage systems and adequately displays the elevation of the Estimated Seasonal High Groundwater Elevation.

- *Groundwater separation is less than four (4) feet at the proposed rain garden and the proposed roof drywell system based on the information provided. As specified in the Mass DEP Stormwater Handbook, in order to take credit for exfiltration during the storm for the 10 year and larger storm event, as done in the calculations, either four feet of separation is required or a mounding analysis should be performed.*

A mounding analysis has been performed and is attached to the revised Stormwater Calculations & Report.

- *Elevation information and a cross-sections/details for the proposed roof drywell system is shown on sheet 4 of the plans. The cross-sections/details should specify the elevations of each of the components of the systems as well as the peak water surface elevation for the various storm events. In addition, the Estimated Seasonal High Groundwater Elevation (ESHGW) at the systems should be shown.*

Elevations for each of the components of the system, peak water surface for the various storm events, and ESHGW have been added to the roof drywell cross-sectional detail.

- *The slope and invert information for the overflow pipe from the roof drywell system to the proposed rain garden should be specified on the plan.*

The slope and invert information for the overflow pipe from the roof drywell system to the proposed rain garden have been added to the plan.

- *The site plan shows a 6 inch ADS overflow pipe from the roof drywell system to the proposed rain garden. It does not appear that the HydroCAD model incorporates this overflow pipe into the analysis. This should be reviewed and revised as necessary. In addition, the HydroCAD analysis shows that the overflows will be directed to Design Point 1 (DP-10); however, based on the information shown on the plan these overflows will be directed into the rain garden. The HydroCAD analysis should be revised to take this into consideration.*

The HydroCAD analysis has been revised to incorporate the overflow pipe into the analysis.

- *We recommend that the ADS overflow pipe discharging into the rain garden be equipped with a flared end section with a riprap erosion control pad. We recommend that this be graphically shown on the plan and that a detail of both the flared end section and rip-rap erosion control pad be provided. The detail should include the size and depth of the stone at the flared end section.*

A detail of both the flared end section and riprap erosion control pad have been added to the plan.

- *A detail/cross section of the proposed rip-rap spillway at the rain garden and the rain garden itself should be shown on the plan. We do recommend that the spillways be equipped with concrete weirs to ensure that flow out of the rain gardens does not occur prior to the elevation specified in the design and stormwater calculations.*

A detail of the proposed riprap spillway at the rain garden has been added to the plan.

- *We recommend that the design of the rain garden be reviewed and revised to provide a minimum of 1 foot of freeboard for the 100 year storm event and that the width of the berm be clearly specified. Spot grades of elevation are shown on the plan which indicated that the elevation 94 contour should be shown.*

The HydroCAD analysis has been revised to achieve 1 foot of freeboard for the 100-year storm event and the width of the berm is clearly stated on the plan. The 94 contour has been revised around the area of the proposed rain garden.

- *The site is located in the Water Resource and Groundwater Protection District Zone III and consequently pre-treatment of 44% is required prior to discharge into the rain garden as specified in the Mass DEP Stormwater Regulations.*

Through the use of a peastone diaphragm and sediment forebay, 44% pre-treatment is achieved. See TSS Removal Calculation Worksheet attached to revised Stormwater Calculations & Report.

- *We do not recommend the use of gravel for surface treatment since the proposed may become silted up over time with material from this area.*

Pre-treatment through the use of a peastone diaphragm and sediment forebay is provided. These pre-treatment devices and the proposed rain garden will be maintained in accordance with the operation & maintenance plan attached to the Stormwater Calculations and Report.

- *A planting plan should be provided for the rain garden specifying plant number, size and species.*

A planting plan has been provided for the rain garden specifying plant number, size and species.

- *We recommend that additional spot grades be presented on the plan to clearly show the direction of the intended stormwater runoff flow paths.*

Additional spot grades have been added to the plan to clearly show the direction of intended stormwater runoff flow paths.

- *We recommend that the Stormwater Calculations & Report contain a MassDEP "Checklist for Stormwater Report".*

The MassDEP "Checklist for Stormwater Report" has been added to the revised Stormwater Calculations and Report.

Standard 1 – Untreated Stormwater

Additional Information required.

See responses above.

Standard 2 – Post Development Peak Discharge Rates

Additional Information required.

See responses above.

Standard 3 – Recharge to Groundwater

Additional Information required.

See responses above.

Standard 4 – 80% Total Suspended Solids (TSS) Removal

Calculations have not been submitted demonstrating that a TSS removal of 80% is provided for the proposed stormwater system. The site is located in the Water Resource and Groundwater Protection District Zone III and consequently pre-treatment of 44% and is required prior to discharge into the rain garden as specified in the Mass DEP Stormwater Regulations. Also, the calculations use 0.5 inches of runoff for the calculation of the required Water Quality Treatment Volume; however, 1.0 inch of runoff should be used and the calculations should be revised as necessary. Additional information required.

As discussed above 44% of pre-treatment is now achieved. The Water Quality Treatment Volume Calculation has been revised and now uses 1.0 inch of runoff in the calculation.

Standard 5 – Higher Potential Pollutant Loads

This project is not considered a source of higher pollutant loads. This standard is not applicable.

No response required.

Standard 6 – Protection of Critical Areas

The site is located in the Water Resource and Groundwater Protection District Zone III and consequently additional treatment is required. See comments in other sections of this report. Additional information required.

See responses above.

Standard 7 – Redevelopment Projects

This project is not considered a redevelopment project and consequently this standard is not applicable.

No response required.

Standard 8 – Erosion/Sediment Control

A proposed silt fence erosion control barrier is shown on sheet 4 of the plans. We recommend that this erosion control barrier consist of a silk sock and be extended around the easterly side of the proposed limit of work to include the relocated leaching trench for the septic system as well as the proposed 97 contour. Additional Information required.

See responses above.

Standard 9 – Operation and Maintenance Plan

An Operation and Maintenance Plan has been provided as required. This Standard has been met.

No response required.

Standard 10 – Illicit Discharges

In order to meet this standard, an "Illicit Discharge Compliance Statement" meeting the requirements specified in the Stormwater Management Regulations has been submitted. This Standard has been met.

No response required.

5.6 The plan proposes a gravel drive along the easterly and southerly side of the proposed warehouse building and we recommend that the plan be revised to show that the drive be bituminous concrete. The use of a bituminous concrete berm may be appropriate at this location but would require a waiver. The Regulations require that curbing be placed at the edges of all paved surfaces and that the curbing not be bituminous concrete.

The applicant wishes to proceed with a gravel drive along the edge of the proposed warehouse.

Section V. Requirements

A Development Impact Statement has not been submitted as required. The applicant has requested a waiver of this requirement.

No response required.

Additional Comments

1. We recommend that the proposed tree line be revised to account for the proposed relocated leaching trench for the subsurface sewage disposal system.

The tree line has been revised to account for the proposed relocated leaching trenches for the subsurface sewage disposal system.

2. The plan shows the proposed 97 contour in front of the warehouse building extending into the existing pavement. If this is case, we recommend that a saw cut line be shown on the plan to delineate the limit of construction within the existing pavement.

The plan has been revised and the above referenced proposed 97 contour has been eliminated.

3. The plans should be reviewed by the Pembroke Fire Department relative to access and fire protection.

The plan is to be reviewed by the Pembroke Fire Department.

4. The design of the proposed septic system will need to be reviewed and approved by the Pembroke Board of Health.

The plan is to be reviewed by the Pembroke Board of Health.

It is our opinion that this letter addresses all comments.

If you have any questions, please do not hesitate to call.

Very truly yours,

MORSE ENGINEERING COMPANY, INC.



Jeffrey M. Hassett, P.E.