



ENGINEERING,  
INC.



ENGINEERS  
SURVEYORS

August 10, 2020

Town of Wareham Planning Board  
Memorial Town Hall  
54 Marion Road  
Wareham, MA 02571

Re: Site Plan Review for  
Master Millwork, Inc.  
55 Charlotte Furnace Road  
Response to Peer Review  
G.A.F. Job No. 19-9342

Attention: George Barrett, Chairman

Dear Chairman Barrett:

G.A.F. Engineering, Inc. on behalf of our client Master Millwork, Inc., has prepared revised plans and respectfully submits the following responses to the peer review letter submitted by Charles L. Rowley, P.E., P.L.S. dated August 4, 2020.

This letter has been formatted for clarity by listing the review comment first in standard type followed by the G.A.F. response in bold type.

The following comments are based on the information contained in the plan set.

General

1. The project is an expansion of a previously approved site for the manufacture of light interior building materials. The existing building and site work were authorized by Special Permit of the Planning Board on March 2, 2016. Existing features of the site are shown on page 3 of the current plan set.

**RESPONSE: *Informational. No response required.***

2. An inspection of the site suggests that all of the landscape features that are shown on Sheet C-4 of the previous plan set by Green Seal Environmental, Inc. may not have been installed. However, some plantings along the existing southerly portion of the site may need to be removed or replaced in the event of approval of the current plan.

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**RESPONSE: *Informational. No response required.***

3. The previously approved site plans did not show the significant outside duct work that is on the southerly side of the existing building.

**RESPONSE: *A Building Permit was issued for the installation of the duct work. Exterior duct work does not appear to be included as an element of Site Plan Review.***

4. The previous Special Permit required that the applicant should make a good faith effort to provide certain landscape amenities on abutting properties across Charlotte Furnace Road from the existing entrance. Evidence that this effort was made should be provided to the Planning Board.

**RESPONSE: *Will comply.***

5. The project appears to meet all of the space requirements of the Wareham Zoning By-Law according to the table listed on sheet 1 of the plan set.

**RESPONSE: *Informational. No response required.***

#### Project Narrative

1. The narrative indicates on Page 1 that the new space will be devoted to manufacturing. Will this process include the expansion of current air handling equipment or extensive additional ductwork such as what is presently on site? If so, where would it be located?

**RESPONSE: *All air handling & dust collection equipment for the new building will be located inside the building. Site Plan Review usually focuses on parking, traffic, drainage, roadway construction, signage, utilities, screening, and other aspects of the proposal to arrive at the best design for the location. Refer to General Standards section 450.3 of the Zoning Bylaw.***

2. The narrative indicates that fire access is provided to three sides of the new building. Evidence that curb radii, width of access, proximity to the building face, turning areas and other features are acceptable to the Wareham Fire Department. A letter from the Fire Department to the Wareham Planning Board should be provided indicating approval of these features. It should be noted that the access from Charlotte Furnace Road is not included in this comment.

**RESPONSE:** *A plan showing fire apparatus path of travel was submitted to the Wareham Fire Department for review and approval. This plan has been updated based on the Fire Department request to include a turnaround at the north end of the rear access drive for the new building. A letter from the Fire Department is expected to be forthcoming.*

3. The narrative indicates that a new access drive is to be provided for truck access and maneuvering to the proposed loading docks. The plans indicate that this would be a truck and employee entrance only.
  - a. The Planning Board may wish to consider whether this second access road is essential given the width and location of the existing entrance. It is sufficiently wide to allow for standard box-type trucks to enter easily and without the necessity of turning into on-coming lanes on Charlotte Furnace Road to make the turn.
  - b. In reviewing the proposed site layout, turns to the proposed loading docks can be made easily from either access point since proposed parking is the same distance away coming from either direction and the access aisle is adequate.
  - c. The applicant should present evidence that this second driveway is essential to the success of the project in general. Some consideration might be given also to making modifications to the existing entrance drive that would reduce the site impacts from Charlotte Furnace Road and abutting properties. Clearing of the second access will open up a large expanse that will emphasize the scale of the new addition.

**RESPONSE:** *The existing and proposed Master Millworks complex is a manufacturing/office hybrid building form. As business expanded and grew so did the need for additional manufacturing space. The front exposure is generally limited to customer access and administrative offices, along with pedestrian access and proximate parking.*

*The utility or service side of the facility will be focused at the rear of the site in the area of the proposed building. This service side of the facility is best served utilizing a service drive (we have termed this a truck/employee entrance.*

*This drive is intended to separate administration areas from the truck delivery, shipping, and manufacturing employee parking areas. The service entrance pavement is designed to accommodate the daily truck traffic and to provide access to the loading docks and service bays.*

*This type of arrangement best facilitates the use of the site and separates the manufacturing side of the site from the administrative portion.*

4. The previous project included a traffic study for the project. No study for the expansion has been included. The narrative notes that there may be as many as 50 employees per shift. How many shifts are anticipated and how many vehicle trips per day might be expected?

**RESPONSE:** *One work shift is anticipated to be required. We estimate that an additional 125 vehicle trips will be derived from this project.*

5. The narrative indicates the domestic water need is limited to 750-1000 gallons of water per day. There is no information with respect to the water main being adequate for fire protection. Available fire flow and demand should be included for review and approval by the Wareham Fire Department with a summary provided to the Board.

**RESPONSE:** *A fire flow test was done for the original building sprinkler design. A hydrant is proposed to be located in the north end of the new parking lot. A new fire flow test will be done prior to the designing of the new sprinkler system.*

6. Fire protection to the rear of the building consists of a 20-foot wide access driveway. The driveway is partially paved and partially of 1-1/2" crushed stone. A depth of 12" of stone is not recommended. A more appropriate surface for durability and snow plowing would be reclaimed asphalt of a similar depth.

The curb radii are sharp and the backing area is small. In addition, vertical curb is proposed on each side of the paved portion of the driveway. The curb will make it more difficult for the placement of apparatus or for making turning movements. Cape Cod berms are recommended which can be mounted without tire damage.

It is also of concern that the fire access drive is close to the long building face. The applicant should inquire of the Wareham Fire Department as to safety concerns related to the placement of apparatus this close to a large structure in the event of a fire emergency.

**RESPONSE:** *Access for fire protection has been reviewed by the Wareham Fire Department with comments provided to the Planning Board.*

7. The narrative includes a lighting plan but because of the small size it is difficult to read. A full-size plan should be presented.

**RESPONSE:** *A full-size print of the lighting plan has been included with this submittal.*

## Plans

1. The proposed loading dock ramp is approximately 6.67% in grade. The applicant should check to see that this grade is such that there will be appropriate transition from the truck to the interior dock without hitting the building by the top of the truck body. Given the flat grade at the building a trench drain might be a better choice rather than a single catch basin.

**RESPONSE:** *We have adjusted the grades for the ramp which results in a proposed grade of -4.5%. The deep sump catch basin is necessary to provide an initial 25% TSS removal rate prior to discharge to the oil/grit camber. The combination of these two units provides the required 44% TSS removal prior to infiltration. Sloping the area to the catch basin will be required.*

2. There is no detail of the vertical curb that is proposed around the new parking area or to the rear of the building.

**RESPONSE:** *A vertical concrete curb detail has been added to sheet 7.*

3. Curb radii should be adjusted according to Fire Department needs in those areas where FD access is required.

**RESPONSE:** *Proposed curb radii have been specified as 25' minimum in accordance with Fire Department access requirements.*

4. The unpaved fire access road at the rear of the building should be changed from 12" of crushed stone to reclaimed asphalt.

**RESPONSE:** *We have revised the surface treatment for the access road to reclaimed asphalt.*

5. It is recommended that the 4" of dense graded stone shown in the pavement cross section be removed unless it can be successfully placed by a box spreader. With a total bituminous thickness of 5", this added layer of base material appears to be unnecessary.

**RESPONSE:** *The 4" of dense graded crushed stone is an important component of the proposed pavement cross section. It does not require placement by a box spreader. The dense graded crushed stone provides an important function in our pavement cross section.*

6. There is no indication that there is sufficient base material in the existing gravel parking area for asphalt mix. Existing depth of material should be checked at several locations to show that it is sufficient.

**RESPONSE:** *We have specified removal of the existing base material and replacement consistent with the proposed cross section.*

7. Show the proposed thickness of pavement that will be used in the area referenced in Item 6.

**RESPONSE:** *The proposed pavement thickness is the same for all areas of the site.*

8. The detail plans show a dumpster pad. Is a new pad location proposed and if so where?

**RESPONSE:** *An additional dumpster for the new building is not necessary therefore we have removed the dumpster pad detail.*

9. Will bollards be used in front of the 12' overhead door? If not, it is assumed that there are floor drains in the building and that the tight tank is for floor runoff collection.

**RESPONSE:** *The proposed tight tank is for the collection of floor drain runoff inside the drive-in garage bays. No bollards will be placed in front of the 12' overhead door.*

10. Gas/oil traps in all catch basin structures should extend a minimum of 12" below the flow line of the outlet pipe. A pipe tee or elbow with a 2" diameter anti-siphon hole is a preferable substitute for the type shown because of minimum depth preference.

**RESPONSE:** *The eliminator catch basin hood is preferred due to the narrow profile which reduces the potential for damage when the catch basin is cleaned out. All proposed deep sump catch basins at this site discharge to other water quality BMP's prior to infiltration. A pipe tee extends too far into the catch basin and interferes with cleaning equipment.*

11. Wheel stops should be placed in each of the parking spaces shown in front of the new building. The sidewalk appears to be flush with the pavement area.

**RESPONSE:** *Wheel stops have been added for the parking spaces along the front of the buildings.*

12. Evidence should be submitted to show that there are no issues with allowing the roof drain lines to run under the floor slab of the new building. This should include as a minimum a written response from the plumbing inspector.

**RESPONSE: Plumbing drawings will be submitted as part of the application for a building permit. The Massachusetts State Plumbing Code allows for under slab roof drain conductor piping.**

Stormwater Calculations.

1. The general methodology used for estimating the stormwater runoff is satisfactory and follows accepted practice. The following concerns are noted.

**RESPONSE: Informational. No response required.**

2. The infiltration basin at the southeasterly corner of the property has been given a runoff curve number of 98, suggesting that this surface is impermeable. Similar numbers are given to roofs and paved areas. That being, an infiltration rate of 8.27"/hour cannot be used to establish the storage level in the basin for the entire surface area. Only the stone filled trench can use that rate since it is in direct contact with the underlying sand. The surface of the basin is lined with 4" of loam and seed which would have a much lower infiltration rate.

One of two alternatives could be considered.

- a. Enlarge the basin using a much slower rate of infiltration for the loam and seed or,
- b. Increase the subsurface infiltration by the use of multiple leach pits or galleys to make up the difference.

The infiltration rate of 8.27"/hr. is acceptable for those portions of the design where structures and/or stone are in direct contact with the subsoil of clean sand as noted in the test pit logs.

**RESPONSE: The bottom of surface basins are generally input with a CN value of 98 not because of permeability, but because 100% of the rain that falls on the water within the basin bottom and stays in the basin until it is infiltrated.**

**The Massachusetts Stormwater Handbook does not specify reduced Rawls rates for grassed bottom infiltration basins. Infiltration basins may be specified with a sand layer on the bottom therefore we have revised the cross section to eliminate the requirement for loam and seed on the bottom of the basin.**

3. The same 8.27"/hr. has been used to determine the recharge rate. Again, the entire surface of the infiltration basin cannot be assumed to have this rate as noted in the calculation presented.

**RESPONSE: See response above.**

4. If the height of stormwater in the infiltration basin remains as noted in the calculations, for 25-year storms and 100-year storms the roof drain line that is under the building will be flooded. The pipe invert is lower than the height of water in the basin.

**RESPONSE:** *We have raised two elevation of the roof drain invert by 6" to minimize this concern. Roof runoff will still be conveyed to the basin during severe storm events due to the head pressure on the piping system.*

#### Detail Sheets

1. Change the fire access road to reclaimed asphalt for durability and ease of plowing in winter months,

**RESPONSE:** *Reclaimed asphalt has been specified as requested.*

2. Remove the 4" of dense graded stone in the pavement cross section.

**RESPONSE:** *The dense graded crushed stone is a critical material within the proposed permanent cross section.*

3. Add a cross section for paving the existing gravel surfaces,

**RESPONSE:** *The typical pavement cross section applies to the existing gravel surface.*

4. Add the dumpster location if there is one.

**RESPONSE:** *An additional dumpster is not required.*

5. Where is the 24" Nyoplast drainage basin used? If not remove from plan.

**RESPONSE:** *The Nyoplast basin provides a connection point for the roof runoff from the existing building.*

6. Add wheel stops as necessary to the site plan.

**RESPONSE:** *Wheel stops have been added.*

7. Show the flared end detail in cross section with stone extending 24" behind the flared end and with sides raised above the flow line.

**RESPONSE:** *A note has been added to the flared end detail to specify the height of stone on the sides.*



8. Provide a concrete curb detail,

**RESPONSE: A concrete curb detail has been added to sheet 7.**

9. Change the concrete seal around the catch basin frame as extending to the top of the binder course of mix, not the bottom of mix. See the leaching pit detail on Sheet 9 of the plan set.

**RESPONSE: The detail has been revised as requested.**

Please contact me directly should you have any questions.

Sincerely,



William F. Madden, P.E.  
WFM/lmf

Cc: Mr. Charles L. Rowley, P.E., P.L. S.  
Captain Chris Smith, Wareham Fire Department  
Master Millwork, Inc.