



Registered Land Surveyors  
& Civil Engineers

13 December, 2022  
Response to peer review comments with regard to Civil  
Engineering.

Zoning Board of Appeals  
Scituate Town Hall  
Town of Scituate  
600 Chief Justice Cushing Highway  
Scituate, MA 02066

RE: Response to comments for The Cottages of Old Oaken Bucket Road  
A Comprehensive Permit development  
279-281 Old Oaken Bucket Rd.  
Scituate, MA

Members of the Board,

We hereby submit these responses to comments provided by Merrill Engineering and Land Surveying in a letter to the Board dated August 1, 2022 regarding the plans of the proposed Comprehensive Permit development entitled The Cottages of Old Oaken Bucket Road located at 279-281 Old Oaken Bucket Rd. Scituate, MA

**Regarding General Comment 3.01 a)**

*...The property information on the Cover Sheet and Existing Conditions Plan should be updated to reference the current deed and plan information. The FEMA Flood Zone reference should also be updated to the current 2021 map reference. Please update the Prepared For information in the Title Block for consistency. The dimensions and materials for the roadway are show on the Detail Sheet. There is a 1 ft wide strip proposed between the back of berm/road and the sidewalk. Is this sufficient separation to provide pedestrian safety and what will be the surface treatment of this strip? The site plan shows that the existing #281 dwelling is to be retained. If this is the case, this is extremely close to the proposed Unit 3/4 Building and the private septic system that is indicated will serve this dwelling is not shown. Additional information should be provided....*

**We have revised the applicant information and updated the flood map information on the plans. 281 Old Oaken Bucket Rd. will be demolished along with the existing septic system.**

*The dimensions and materials for the roadway are show on the Detail Sheet. There is a 1 ft wide strip proposed between the back of berm/road and the sidewalk. Is this sufficient separation to provide pedestrian safety and what will be the surface treatment of this strip? The site plan shows that the existing #281 dwelling is to be retained. If this is the case, this is extremely close to the proposed Unit 3/4 Building and the private septic system that is indicated will serve this dwelling is not shown. Additional information should be provided.*

**#281 Old Oaken Bucket Road will be demolished along with the existing septic system to accommodate the new development layout. The 1 foot lawn strip is still proposed.**

*Grading is proposed immediately adjacent to abutting properties at a number of locations. We recommend that a vegetated buffer be provided for those areas of the project abutting residential dwellings. Retaining walls are proposed, many over 4 ft in height very close to buildings, wetland areas and property lines. Additional setback distances and further detail on how these walls will be constructed should be provided.*

**Retaining walls are proposed and fencing is proposed in areas where walls are 4 feet or higher.**

- *Distance between buildings*
- *Minimum distance along driveway from edge of sidewalk and or pavement to garages*
- *Distance from the stormwater basin to units, wetland boundary and property line*

**A chart showing minimum distances requested are shown on Sheet 1 for clarity.**

- *Roof drain leader systems*

**Provided**

- *Designated Open Areas, if any*

**The large island where the septic system is located can be used for recreational use.**

- *Additional Landscaping details, in particular for the areas in close proximity to abutting property and around the septic system – species and sizes of plantings etc. The stone seatwall with ornamental tree locations seem to conflict with the proposed septic system leaching field locations.*

**Landscaping to be provided under separate cover.**

- *Estimated earthwork quantities*

**Provided on final sheet**

- *Label Roads and locate roadway intersections on the road profiles*

**Provided**

- *Pavement markings, cross walk and signage at intersections, including details*

**Provided**

- *Sight distance analysis to provide Sight Distance triangles at the intersections.*

## **Provided**

• *The type of curbing and all curb radii specified on site layout plan. Road Section Detail indicates 12" cape cod berm.*

## **Provided**

• *Topographic and utility information on Old Oaken Bucket Road adjacent to the site. The plans propose gas and water mains within the project site. Please provide information on gas and water mains within Old Oaken Bucket Road and how the project will connect to these utilities.*

**The water and gas mains are provided graphically on Old Oaken Bucket Road. An 8" water connection is already provided off Old Oaken Bucket Road pavement at the entrance of the development to serve the development.**

• *Street light pole locations should be added to the plan*

## **Provided**

• *Will there be provisions for Visitor or Accessible Parking Spaces?*

**Provided with extra spaces on the driveway of each unit.**

• *The vehicle template used for the Emergency Vehicle Movement Plan should be indicated on the plan set*

## **Provided**

• *Provide location of individual septic system for #281 dwelling, as noted this dwelling will be serviced by a private system*

## **Provided**

• *Provide construction entrance, stockpile areas, construction staging, temporary sedimentation basin and dewatering locations on the Erosion Control Plan. It is recommended to limit the construction activity over the infiltration and septic system locations. Recommend a compost sock for erosion control barrier rather than straw wattle.*

**Provided. We are proposing filtermitt rather than strawwattle.**

*There is conflicting subbase information provided on the Sidewalk Detail, Road B Section Detail and the Cape Cod Berm Detail. The Water Service Detail indicates a 6" DI water main which conflicts with the Road plan and profiles which indicate an 8" PVC water main is proposed. Please correct the Hydrant Detail to reference the Town of Scituate. Please verify the elevations provided Test Pit 22 log.*

**Information has been corrected on details and test pit log.**

## **Regarding General Comment 3.01 b)**

*Soil Logs for soil testing performed between December 2019 through February 2021 are included in the submittal. We recommend that additional soil testing be performed regarding the existing soil conditions and depth to estimated seasonal high groundwater (ESHGW) within the locations of the subsurface infiltration systems for both the closed drainage system and the roof dry well locations since these conditions have a significant impact on the design of the proposed stormwater management system. Additional soil testing should be performed within the upper portion of the primary subsurface sewage disposal system. The existing grade drops approximately 6 ft across the system and there are no test pits in the upper portion while surrounding test pits within similar elevations of the site indicate that SHGW is approximately 2 feet from grade. The depth to groundwater as well as the infiltration capabilities of the soil will have a significant impact on the size and elevation of these systems. This may impact building placement as well as the elevation of the roadway and consequently the total amount of fill which may be necessary for construction as already seen in the site design.*

**Additional test pits have been completed and added to the plan and the drainage calculations and drainage and septic system infrastructure have been revised to reflect the data found from the added test pits, including depth of water table and hydraulic conductivity.**

### **Regarding General Comment 3.01 f)**

*We recommend that additional design information be provided to demonstrate that the size of the subsurface sewage disposal system has been adequately designed to meet the state and local regulations. This additional information should include additional soil testing results and a mounding analysis.*

**The septic system has been resized based on the new test pits, the reduced bedroom count and the mounding analysis, which is included in the drainage report.**

*The access to the proposed septic reserve area includes a wetland crossing. The details of the crossing, impacts and any mitigation should be provided. Please review the grading around the leaching field and the pump station, there may be a need for a retaining wall to address the grade change between the system minimum cover and the Road A grades. Review and update the construction design notes on the Septic Design Plan.*

**Grading around the revised system have been revised.**

### **Regarding Stormwater Management Comments**

*The post development watershed plan indicates that all roof runoff will be directed into multiple proposed subsurface stormwater infiltration systems. We recommend that the roof drains be shown on the plan. The size and material of the roof drains should be specified. We recommend that a detail be provided of the roof leader downspout and connection to the infiltration system.*

**Roof drains are provided along with a detail.**

*We recommend capacity calculations for the roadway stormwater system be provided and that the Roadway Plan & Profile plans be revised to show the pipe size, material, slope and flow arrows for all drain lines.*

**The 25 year storm was calculated with Hydrocad and it shows the capacity of the piping is adequate for the system. Additional detail has been provided on the profile sheets for the drainage and sewer piping.**

*The HydroCAD analysis for the roof chamber systems and the detail are not consistent. Additional information should be provided to clarify the specific dimensions, stone surround width, top and bottom for the two layout configurations. The Roof Drain Chamber Elevation Chart should be reviewed, some elevations look to be incorrect. The roadway chamber systems details are not provided on the plans and should be provided. Chamber Area 1 is proposed as 2 rows of 7 chambers while HydroCAD models the system with a total of 18 units. Please adjust accordingly.*

**Regarding the roof drainage systems, since the development has been revised to single units, the calculations, sizes, number of chambers and the charts have been revised to accommodate the revised development.**

*The HydroCAD analysis uses an infiltration rate of 2.41 in/hr although the majority of the soil test pit data indicates sandy loam. Per the Mass DEP Stormwater Management Handbook, a rate of 1.02 in/hr should be used for sandy loam. As mentioned above, additional soil testing within the location of the subsurface infiltration chamber systems is required to verify the seasonal high groundwater and the soil conditions. The use of the 1982 Rawls Rate Table is acceptable for modeling subsurface systems. However, it is not appropriate to use the conductivity to groundwater model in the HydroCAD analysis for rate control modeling when using the Rawls rate. This option in HydroCAD takes into account the saturated thickness of the soil and is not a constant rate of infiltration as required in the Mass DEP Stormwater Management Handbook.*

**The hydraulic conductivity has been revised to the Rawls rate of a constant velocity of 1.02 in/hr for the entire site.**

*As specified in the Mass DEP Stormwater Management Handbook, the following setbacks to infiltration systems shall be provided:*

- o Other surface waters, including wetland areas – 50 ft*
- o Property Lines – 10 ft*
- o Building foundations, including slabs – 10 ft min.*

*We recommend that the subsurface infiltration chamber system locations be reviewed and adjusted to provide the appropriate setbacks.*

**There is a chart on Sheet 1 detailing the minimum distances requested for clarity.**

*As specified in the Mass DEP Stormwater Management Handbook, stormwater infiltration systems shall be designed to exfiltrate in no less than 72 hours. Calculations should be provided to show that the basin meets this requirement.*

**Provided.**

*Mounding analysis is required when the separation from the bottom of an infiltration system to ESHGW is less than four (4) feet and the basin is used to attenuate peak discharges from the 10 year or higher 24 hour storm. This analysis has been provided*



*but we recommend it be updated with any revisions to the infiltration systems as necessary.*

**Provided.**

*We recommend that all outlets be equipped with trash racks/safety grates. The riprap outlet protection is shown but not labeled on the plans and a detail is provided but does not address the 3 to 5 ft elevation drop at the outlet.*

**Details have been provided for the safety bars for the 24" outlet and the plunge pool detail. A piped drop connection is detailed for Chamber Bed 3 to mitigate scouring for the drop of the discharge to the lower existing grade.**

*The calculations provided should be adjusted for chamber systems 2 through 5 to only take into account the available storage below the outlet and as necessary to address comments noted above. The drawdown calculations should evaluate the entire storage volume below the outlet or the entire storage when no outlet is proposed.*

**Calculations have been revised based on the Documenting Compliance document from the DEP. Due to the Rawls rate revision, the site recharge requirements are reduced. The chambers are designed to mitigate the 100 yr storm under the Cornell Method so the system is providing the recharge requirements.**

*One Total Suspended Solids (TSS) calculation worksheet was submitted. A TSS Removal Calculation Worksheet for each of the treatment trains should be submitted.*

*The water quality volume calculations have been provided. Water quality treatment is being addressed by proprietary pretreatment units installed prior to the five (5) infiltration chamber systems attenuating the roadway runoff. The calculations were completed for the First Defense unit (FD-4HC). The detail label on Sheet 11 should be updated.*

*The project is located in a Critical Area based on DEP requirements for an Outstanding Resource Water – Public Water Supply. This standard is applicable under DEP requirements. Stormwater BMPs must be designed for 1" water quality treatment, 44% TSS removal prior to the infiltration BMP and proprietary BMPs may be used for pretreatment only unless verified by TARP or STEP. These requirement have been used in the design.*

**We have provided additional TSS sheets despite the fact they are same for chamber beds. Treatment calculations have been provided for the treatment units for chamber bed. The calculations comply with DEP requirements and call for a 3' diameter First Defense treatment unit, however a 4 ft. diameter is specified on the plans due to availability in the market.**

*We also recommend detailed construction sequencing be provided and that the location of the construction entrance, stockpile areas and temporary sedimentation basins be included. Calculations should be submitted for sizing of the basins and details of the*

*sedimentation basins be provided including the proposed grading as well as the type of outlet control structures.*

**We have revised the Erosion Control Sheet to address these concerns.**

*A Post-Construction Best Management Practices Operation and Maintenance Plan (O&M) and Long-Term Pollution Prevention Plan has been submitted. An estimated operation and maintenance budget and inspection log be provided. We recommend that the O&M be a standalone document with a plan that identifies BMP locations, snow storage areas, locations for landscape debris disposal if proposed, etc.*

**We have revised the Post-Construction Best Management Practices Operation and Maintenance Plan (O&M) and Long-Term Pollution Prevention Plan to address these concerns.**

*In order to meet this standard, an “Illicit Discharge Compliance Statement” meeting the requirements specified in the Stormwater Management Regulations has been submitted. This statement requires a signature.*

**The applicant has no objection to signing the document.**

If you have any questions, please contact us.

Very Truly Yours,

*Anthony Esposito*

Anthony A. Esposito

South Shore Survey Consultants Inc.