



May 23, 2022

VIA EMAIL

Mr. Nazih Elkallassi, Chair
Wareham Zoning Board of Appeals
Wareham Memorial Town Hall
54 Marion Road
Wareham, Massachusetts 02571Re:

RE: Response to 2/3/2021 Green Seal Environmental Peer Review Letter
Comprehensive Permit Application by Pennrose, LLC
4 Littleton Drive, Wareham, MA

Dear Mr. Elkallassi and Board Members:

On behalf of our client, Pennrose LLC we offer the following responses to the above referenced peer review letter prepared by your consultant, Green Seal Environmental, Inc. (GSE). As referenced in the Green Seal letter, these responses are being provided ahead of the Building Permit plan submission which is anticipated for June 2022. We have arranged our response to first list comments from GSE in *italicized font*, followed by our response in underlined regular font.

In addition to this letter, we are resubmitting the following for your review in preparing the decision following the January 13, 2021 public hearing for the above referenced project:

- Revised Civil/Site plans, including landscape plans for Littleton Drive, Littleton Drive Senior Building; March 25, 2022.
- Revised “Stormwater Analysis and Drainage Report,” and associated appendices, dated January 20, 2022.

Please note that the plan sets have been split into two separate sets for funding purposes. The version transmitted for review is noted as “Senior Building” in the title block. These plans are identical for Civil and Landscape design to the “Family Buildings” plan set.

General Comments

The new civil site plans submitted are labeled “Not for Construction” and are also identified as “For Permitting Only”. They address many of the comments in the previous reviews. For other comments, such as final sewer and water infrastructure design, the response letter states: “These recommendations will be addressed prior to the development of construction-level drawings as necessary to clearly show all the necessary design and construction elements. Copies of the final construction plans will be provided to the Building Department for review and approval prior to construction.” GSE takes no exception to this approach and recommends that the

Zoning Board of Appeals decision incorporates a final review of the plans provided to the Building Department prior to the issuance of building permits to ensure consistency with the approved plans.

No response necessary.

Comprehensive Permit Rules

The Town Planner, Mr. Kenneth Buckland, has provided Comprehensive Permit Rules of the Wareham Zoning Board of Appeals since the previous review. These regulations, adopted February 8, 2006, include required technical submittals along with administrative requirements.

The 1/11/2021 GSE review letter identified a number of requirements that were not met with the previous submittal. The HW response and accompanying plans address these missing items in accordance with the Rules.

Note that mention is made of a proposed bus shelter opposite Littleton Drive on Swift's Beach Drive. It is stated in the letter that it is shown on the plans, but GSE did not find it on the plans.

The bus shelter location has been added to the plan set and is shown on the Site Plan and Grading Plan.

HW Response Letter to Civil Comments

The HW response letter includes a detailed point-by-point response to each of GSE's previous comments. The comments addressed by plan revisions have been adequately addressed. The applicant proposes to address a number of the comments later when construction documents are prepared. The specific areas of comments that the applicant proposes to address in this manner are:

- *Site-related plans to same scale/same sheet size*
- *Roof drainage details*
- *Sewer system details to meet Wareham Sewer Department requirements*
- *Water system, hydrants, and fire alarm boxes to meet Wareham Fire District Water Department requirements*
- *Fire protection requirements*
- *Electrical layout for site lighting*
- *Demolition plan*
- *Final design of sidewalk connection to Swift's Beach Road*

- *Stop sign at Swift's Beach Road*

As noted previously GSE takes no exception to this approach and suggests that a final review of the construction plans be done prior to building permits being issued.

The revised plans include the following to address previous comments from GSE.

- A Layout & Marking Plan (C-5) has been added to show signage and the bus shelter proposed on Swifts Beach Road.
- Detailed Grading & Drainage Plans (C-7 – C-10) have been added.
- Roof downspout locations and a connection detail has been added to the Grading Plans (C-6 – C-10) and the details on sheet C-14. All roof runoff, except for Buildings 1, 2 & 3 is designed to sheet flow overland to the proposed bioretention areas or infiltration basins. Buildings 1, 2 & 3 downspouts are piped directly to Underground Chamber System C-4.
- Sheet C-16 has been added to incorporate detailed sewage lift station layout and details. The drawings will be submitted to the Wareham Sewer Department for review and approval.
- The watermain has been adjusted to maintain 10-feet from the sewer manholes. Hydrant locations have been approved by the Wareham Fire Department as noted in the review letter dated March 2, 2021.
- Pole and bollard Site lighting is shown on the Landscape Materials Plan, sheet L-200.
- Demolition notes have been added to the Site Preparation & Erosion Control Plan, C-3.
- HW has coordinated the layout of the water system with the Wareham Fire Water District.
- The Fire Protection Engineer has reviewed the fire flow requirements and available flow. Domestic and fire service connections are shown on the Utility Plan, sheet C-11. Fire protection design MEP Engineer .

Civil Plans

GSE has the following new comments on the revised civil plans, which may be addressed on the Construction Drawings:

- *The location of the overflow weir manhole for subsurface infiltration systems C1, C2, and C3 is not consistent with the Stormtech details showing the Isolator Row. The overflow weir appears to be intended to assure that the infiltration systems fill completely during design storms. GSE requests clarification from the applicant.*

The elevations of the overflow weir and outlet are designed to maximize storage in the infiltration chambers and allow daylighting of the pipe at the surrounding existing elevations.

- *The locations of the isolator rows on each subsurface infiltration system are not designated on the plan views. GSE requests that these be shown.*

The plans have to remove the isolator row as the systems are receiving clean runoff.

- *A Stormtech underdrain detail is provided. It is not clear if this is intended as part of the installation. GSE requests clarification from the applicant.*

An underdrain is not proposed for the subsurface infiltration systems. The detail has been removed from the drawings.

- *A schedule of elevations has been provided for the Stormtech subsurface infiltration systems as requested. The schedule does not include surface elevations or vertical separation to the pavement. The grading shown indicates that portions of subsurface infiltration systems C-1 and C-2 do not appear to have the 18" vertical separation from the top of the chamber to the bottom of the flexible pavement specified by Stormtech.*

Grading at the location of both Chamber Systems C1 & C2 have been adjusted to maintain minimum cover as shown on sheets C-7 & C-8.

- *The Operations & Maintenance note has been revised to more closely reflect the stormwater system proposed. It includes a reference to a "constructed wetland" which is not proposed and should be revised.*

The reference to a constructed wetland has been removed from the Operations & Maintenance notes on sheet C-2.

- *The inspections for the infiltration practices includes the phrase "to ensure that design infiltration rates are being met". GSE suggests that specific inspection criteria be set with reference to the Stormwater Standards.*

Specific inspection requirements for the infiltration practices are included in the Operation & Maintenance Report.

- *The revised plans do not address the existing drainage system that extends into the project site. How this system will be addressed should be included on the construction drawings.*

HW conducted a site visit to Rock Marsh Road to evaluate the existing drainage infrastructure and review potential additional drainage area contributing to the site. Based on our field visit HW confirmed that flow from Rock Marsh Road flow into an existing stormwater system; storms larger than the capacity of the system may outflow into the low-lying wooded area on both the abutting property and the Applicant's undisturbed buffer area, this apparently would happen only during largest of storm events and given the contributing drainage area and storage available, not impacts to the Applicant's drainage system are anticipated. Therefore, it is our assessment that no adjustments to the drainage area are necessary.

- *A 20-foot wide fire access lane is now provided behind Building 12. As shown, a patio will be located within the 20-foot width. The applicant should verify that this is acceptable to the Fire District or revised as needed.*

The location of the fire access lane has been reviewed and approved by the Fire District as noted in the review letter dated March 2, 2021.

- *Several bioretention areas are located close to the driveway. These areas are located at elevations below the roadway and the applicant may consider adding guardrails to discourage vehicles from entering them.*

HW has reviewed the location of the bioretention areas in relation of the roadway and confirmed that the depth and degrees of slope to not trigger the need for a guardrail and the facilities do not present a safety issue. The plans have been adjusted to provide a 2-ft shoulder between the edge of the roadway and bioretention areas.

- *There are short segments of sidewalk within the landscaped islands between parking areas. In most cases these seem to serve no purpose and could be eliminated without affecting pedestrian convenience. Several may be connected via crosswalks to the sidewalk network within the central landscaped areas, providing convenient accessible routes through the site. Some relocation of the sidewalk network may facilitate this. For those segments that remain, ramps should be shown.*

The orientation of the landscape islands and associated walkway locations have been modified to promote better pedestrian flow from the island walkways to the loop walks.

- *The sidewalk behind Building 11 and across from Building 3 shows a segment of the walk sloping at 3H:1V (33%). These sidewalks should be maintained as accessible routes and should be adjusted to meet the 5% maximum slope and other applicable requirements.*

The grade of the walkway that extends to the boardwalk behind building 11 has been revised to not exceed a maximum slope of 5%. Note that a portion of the walkway is boardwalk over the inlet to Bioretention Area 4.

- *A walk at the northwest corner of Building 12 shows a ramp symbol sloping in the opposite direction of the walk slope, which slopes down from the level area. A ramp may not be needed.*

HW has reviewed the walkways around the northwest portion of Building 12 and ramps are needed to transition from the 6-inch curb to the roadway and handicap parking area.

Landscaping Plans

GSE has reviewed the Landscaping Plans for conformance with Article 10 of the Zoning Bylaw and for coordination with the Civil Plans. The Landscaping Plans include the required Plan Components (Section 1032) in the Bylaw and generally meet the other applicable requirements of Article 10. Notably, Section 1042 requires a 10-foot buffer between a new multifamily project and existing single family homes; a greater buffer is provided around most of the periphery of

the project site. Where the existing homes on Nicholas Drive, Camardo Drive, and Dennis Lane are close to the project site, the buffer is augmented with a screen of closely spaced evergreen trees.

GSE has the following comments on the Landscaping Plans, which may be addressed on the Construction Drawings:

- *Sheet L-100. Only a portion of the existing trees on the site is shown, and only a portion of the trees to be preserved are shown. The majority of the trees to be preserved are located between the limit of work and the property boundary and therefore there is no need to locate them individually on the plan. Trees to be preserved within the limit of work are shown. GSE believes that this meets the intent of Article 10 as applied to this site.*

Tree protection details are provided both on this sheet, and on the Civil Plans. Either are acceptable.

- *Sheet L-200. The fire access lane behind Building 12 is labeled as "CBP". GSE could not identify that label in the legend; it may be intended to be Grass Pavers (GP), which refers to a detail on the Civil Plans. GSE could not find a grass paver detail on the Civil Plans. Site lighting locations are shown. A number of light poles along the proposed driveways appear to be located where subsurface utilities are proposed. As these poles have substantial foundations, their locations should be coordinated to avoid utility conflicts.*

Fire lane will be Grass Pavers and will be detailed by civil engineer. Light pole locations will be adjusted to avoid utility conflicts.

The play areas across from Building 3 do not match the configuration shown on the Civil Plans.

Play area has been adjusted in landscape plans. Civil plans will be revised to match.

Sheet L-300. The locations of plantings are shown, and a planting schedule is provided. The locations of trees should be coordinated with proposed utility locations to avoid conflicts.

Tree locations will shift to avoid utility conflicts.

The plantings shown generally meet the size requirements (height/caliper) of Section 1051.3, provided that the higher value in the range specified on the Plans is used. GSE suggests that the schedule be revised to reflect these values on the Construction Drawings. GSE takes no exception to the plantings proposed, and notes that they are species commonly used in landscape design in southeastern Massachusetts.

A scarlet oak is erroneously shown in the paved parking lot east of Building 12 and should be relocated.

Location of scarlet oak is old and has been moved. As for adjusting all the trees to the higher value, a majority of the trees called out are restoration grade small trees in the large areas of disturbance for the civil work. All trees around the houses and in the central green will be provided at the higher caliper range.

- *Sheet L-500. GSE suggests that maximum cross slopes be added to the various walk details shown to aid the contractor in complying with accessibility codes and to ensure proper drainage.*

Max. cross slopes will be added to details. Not to exceed 2%.

- *Sheet L-502. GSE suggests that the bollard detail shown be modified to minimize the potential for the steel pipe from corroding from the inside. Either a rounded top of concrete or a plastic sleeve may be considered.*

Rounded concrete top has been provided.

The split rail fence detail does not specify a wood type.

Split rail fence to be pressure treated wood or cedar. Final determination will depend on budget.

A detail of an attractive wooden trash enclosure is shown. GSE's experience is that these are subject to damage and frequent replacement. A black vinyl clad chain link fence with slats may be considered as a more durable alternative.

Trash enclosure is per Pennrose standards and has not been modified.

Stormwater Analysis and Drainage Report

The revised Stormwater Report generally addresses the comments made in GSE's 1/11/2021 review letter. It also incorporates changes to address emergency and fire access requirements that were discussed at the last hearing. GSE has the following comments on the revised report:

- *The fire access behind Building 12 appears to be intended to be grass pavers (see earlier comment) and a curve number for "dirt road" was used. This is a conservative value if grass pavers are used.*

The fire access road is intended to be grass pavers.

- *Cover types and curve numbers for some surfaces (bluestone, stone dust, play areas) are not specifically broken out. GSE assumes that they are included in the impervious cover.*

HW has included connected impervious areas, such as the patios, in the curve number for impervious cover. The proposed stone dust pathway circling the site is modeled as bare dirt (for the path itself) and meadow for the adjacent shoulders.

- *The revised calculations use the value for a 100-year return storm from the Northeast Climate Center studies. This value is larger than previously used, and indicates that the stormwater management system proposed will back up to grade in places before the 100-year storm is discharged. The Stormwater Standards require the 100- year storm event to be analyzed so that off-site flooding will be mitigated. The calculations show that both the rates and volume of runoff to Flax Pond will be significantly decreased by the proposed design, meeting this criterion for this design point.*

No further response required.

- *In several areas the calculations show that the 100-year water surface elevation will cause areas of the site, including portions of the driveways and landscaped areas, to be temporarily inundated during the 100-year storm event. This is in part how the overall runoff rates are decreased for the 100-year storm and is consistent with the Stormwater Standards, which do not require 100-year storms to be confined to stormwater structures. **GSE is highlighting this aspect of the design to the Board and Town staff to make them aware that large puddles will develop on the project site during large storms and that this is intended as part of the applicant's design.***

No further response required.

- *GSE notes that the 100-year storm water elevations shown in the calculations have the potential to flood adjacent properties in several places:*

1. *Infiltration basin D1 shows a 100-year water surface elevation of 14.68. The limited offsite topography available indicates that there are areas on the 6A and 8A Rock Marsh Road properties that are below this elevation, potentially connected hydraulically to D1. GSE suggests that the applicant evaluate this potential condition and propose a remedy such as an earthen berm to prevent flooding of these abutting properties.*

See response on Page 4 related to drainage from Rock Marsh Road. To maintain all of the stormwater runoff from the project on-site, HW has increased the volume of infiltration basin D1, added a berm around the basin and provided an overflow outfall pipe system (twin 8" HDPE pipe) from the infiltration basin towards Flax Pond.

2. *The natural depression labeled P0 is modeled to have a 100-year water surface elevation of 14.48. Grades below this elevation occur at 15 Littleton Road and are potentially connected to it hydraulically. GSE suggests that the applicant*

further evaluate potential downgradient flooding and provide a mechanism to prevent flooding on the 15 Littleton Road property.

HW has increased the capacity of the natural depression P0. This depression has been renamed to infiltration basin D2 in the stormwater calculations and on sheet C-7 in the drawings. The infiltration basin has been designed to capture the 100-year storm, eliminating the potential for flooding to the back yard of 15 Littleton Drive for storms up to and including the 100-year storm.

- *The routing diagram in the HydroCAD calculations shows both D1 and P0 watersheds discharging to the design point, Flax Pond. The calculations show no discharge, up to and including the 100-year storm, and an examination of the grading plan indicates that there is no direct connection between these areas and Flax Pond, or any other outlet. GSE suggests that the applicant review the grading and watershed evaluations and determine a means of discharge from these areas that will prevent flooding or runoff onto adjacent properties, should conditions not anticipated in the stormwater calculations occur. The DEP Stormwater Handbook notes that infiltration systems have a high rate of failure and the stormwater systems on this project are highly dependent on infiltration, warranting this additional attention to preventing offsite flooding.*

The design has been updated to show a pipe connection from infiltration basin D1 draining towards Flax Pond, while still reducing peak flows from predevelopment conditions. Additionally, the new infiltration basin (D2) has been designed to capture and retain on-site the entire 100-year storm event. Based on these design updates, HW asserts that the stormwater management system is sufficiently designed to prevent flooding to offsite properties.

Additional Comments/recommendations

The architectural drawings do not specify whether the proposed buildings will have basements. Considering the shallow water table and the presence of infiltrating stormwater practices proposed for the site, any future basement may be impacted by groundwater. GSE suggests the applicant consider these factors in building design.

All buildings are designed to be slab on grade construction.

Should you have any questions or require additional information, please do not hesitate to contact us.

Wareham Zoning Board of Appeals
May 23, 2022
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Sincerely,

Horsley Witten Group, Inc.

A handwritten signature in blue ink, appearing to read "Richard A. Claytor, Jr.", written in a cursive style.

Richard A. Claytor, Jr., P.E.
President

Cc: Green Seal Environmental, Inc.
Town of Wareham Conservation Commission
Pennrose, LLC

Enclosure(s)