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Subsurface Wastewater Unit

Department of Health and Human Services
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August 30, 2013

Pinkham & Greer Consulting Engineers
Attn.: Thomas Greer, P.E.
28 Vannah Avenue
Portland, ME 04019

Subject: Approval, Cliff Island Septic System Association, Cliff Island, Cumberland

Dear Mr. Greer:

The Division of Environmental Health has completed a review of a design for an engineered subsurface sewage disposal system design, to serve Cliff Island Septic System Association. The HHE-200 Form dated 09/27/12 was prepared by Mark Hampton, S.E. The system was designed by Pinkham & Greer Consulting Engineers, with plans signed and stamped by you. The application was complete for processing on 08/08/13.

Hereafter, the term "design engineer" must refer collectively to Pinkham & Greer Consulting Engineers, its staff, and its representatives unless otherwise specified; and the term "owner" must refer collectively to Cliff Island Septic System Association, its staff, and its representatives unless otherwise specified.

Design Flow

The design flow is 5,120 gallons per day (gpd), based upon 22 residences rated at 50 gpd/person, with 3 persons per residence. Water use is proposed to be monitored to document actual use. The design flow of 5,120 gpd is approved with the notation that the suitability of the design flow is the responsibility of the design engineer.

Treatment Tank(s)

The design includes individual septic tanks at each residence sized pursuant to the Subsurface Wastewater Disposal Rules (Rules). Effluent would be collected at a central lift station for transport to the proposed disposal area.

Disposal Areas

The proposed disposal area consists of two groups of Eljen GSF units. Each group would consist of 16 rows of 11 units arranged in trench configuration. The disposal areas would be covered with four to six inches of wood chips in lieu of standard cover soil.

Soils

The soils are shown as 2-AIII per the Rules on the HHE-200 Form prepared by Mark Hampton, S.E.

Well Setback

There are no potable water supply wells reported within 300 feet of the proposal.

Mounding Analysis

The proposed system will not result in groundwater mounding sufficient to intrude into the disposal area, according to the calculations provided by the design engineer.

Site Transmission Analysis

The proposed system design demonstrates that there are sufficient soils down-gradient to prevent the effluent from surfacing within 50 feet of the disposal field, according to the calculations provided by the design engineer. The design engineer proposes to extend the wood chip cover approximately 250 feet from Disposal bed #1 so-called, terminating at the edge of a wetland, to mitigate potential effluent surfacing. Two monitoring wells are also proposed.

Interagency Review

The Maine Department of Environmental Protection (MDEP) has reviewed the application and stated that no reason was found to believe the proposal would cause unreasonable adverse impact on resources and uses in the area likely to be affected; the project site is not located on a mapped sand and gravel aquifer; the project site is not located in the watershed of a waterbody most at risk from development, and no wetlands as mapped by the National Wetlands Inventory will be adversely affected. MDEP also provided comments regarding interpretation of the Subsurface Wastewater Disposal Rules.

MDEP commented that no bedrock depth/elevation data was found to verify there will be a 2.96-foot bedrock/disposal field bottom separation distance as recommended by the mounding analysis. Soil data from two test pits was provided, but locations of the pits are not identified in the plans - additional observation holes appear to be warranted at the uphill edge of the proposed disposal fields to determine bedrock depth/elevation. Due to results of the transmissivity analysis, it is critical to insure this separation distance is maintained to minimize potential of a down gradient effluent breakout.

Transmissivity analysis predicts the possibility of effluent surfacing within 310 feet of disposal field #1, the reason for placing a 1-foot layer of woodchips down gradient of the disposal field. To ensure that the woodchip layer will function as intended, and to avoid a possible violation of 38 MRS §413 or other applicable statutes/regulations, the O&M manual should include a provision for periodic inspection and maintenance of the woodchip area. In addition, the O&M manual should include protocols for groundwater monitoring, as was recommended by the mounding and transmission analysis report.

The nearest wetlands are located approximately 260 feet to the southeast of the proposed engineered disposal fields. It is not anticipated that wetlands will be adversely impacted or altered from installation of the engineered disposal system, provided that appropriate erosion control measures are employed during system construction to minimize any risk, and provided the woodchip layer functions as intended, and is inspected and maintained periodically.

Findings

The system meets the Rules, unless otherwise noted. Therefore, the design is approved with the following conditions and comments:

1. Prior to issuance of a permit to install the system, the design engineer must amend the site plan(s) to show that test pits are located within the disposal areas, and amend the O&M Manual to include periodic inspection and maintenance of the woodchip cover. Copies of these amended documents must be provided to the LPI and

Division.

2. The owner must retain the design engineer to oversee construction. The constructed system may not be used unless all pertinent requirements of the Rules have been met.
3. Construction must not commence until the owner has obtained the necessary plumbing permit from the Local Plumbing Inspector (LPI).
4. The design engineer must provide sufficient supervision to assure that the system is constructed as designed and in accordance with the code and other regulations. Attention must be given to site preparation, fill selection and placement, installation of pipes, mechanical and electrical systems.
5. The design engineer must provide the owner and this office with a brief report on the construction including any unexpected conditions encountered and any changes made from the approved drawings. The LPI must not issue the Certificate of Approval until the LPI has received the aforementioned report from the design engineer.
6. The design engineer must test all systems prior to acceptance by the owner. The testing must determine whether the components were correctly installed and whether they function as designed. This includes confirmation that flow dividing devices or configurations function as intended.
7. The design engineer, with the concurrence of the LPI must determine when the site conditions are suitable for construction.
8. Construction must cease whenever the design engineer determines that the site conditions, or workmanship, or materials are unacceptable.
9. The owner and design engineer must inform the LPI of the proposed construction schedule and must also inform the LPI of the progress of construction. They must cooperate fully with the LPI in scheduling any inspections and providing any equipment necessary for the inspection.
10. The design engineer must provide the owner with an Operations and Maintenance Manual containing written recommendations for the operation and maintenance of the system including inspection and pumping schedules and record keeping procedures.
11. The owner must operate the system within the requirements of Rules and the limitations of this design.
12. The owner must inform the LPI and the design engineer of any operational problem and/or malfunction.
13. The Local Plumbing Inspector must inspect the engineered disposal system in accordance with Section 10.D.2 of the Rules. In addition, the property owner must retain the design engineer to inspect the construction of the system. The inspection must be sufficient for the design engineer to determine that the system was installed as designed.
14. This approval is only for the rules administered by this office and it does not consider other federal, state or local regulations. The owner is responsible for compliance with any other pertinent regulations.
15. By accepting this approval and the associated plumbing permit, the owner agrees to comply fully with the conditions of approval and the Subsurface Wastewater Disposal Rules.

Based upon this approval of the design, the LPI may issue the permit required for an engineered system.

Because installation and owner maintenance has a significant effect on the working order of onsite sewage disposal systems, including their components, the Division makes no representation or guarantee as to the efficiency and/or operation of the system.

Should you have any questions, please feel free to contact me at (207) 287-5695, or by fax at (207) 287-4172.

Sincerely,



James A. Jacobsen
Project Manager, Webmaster
Division of Environmental Health
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