



MARYLAND DEPARTMENT OF THE ENVIRONMENT

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BAT CLASS IV: AT-GRADE MOUND SYSTEMS

The at-grade mound system is an on-site sewage disposal system that utilizes a raised bed of gravel or stone over the natural soil surface with a pressure distribution system constructed to equally distribute the pretreated effluent along the length of the gravel bed.

Pretreatment of sewage occurs in an advanced pretreatment unit, and additional treatment occurs as the effluent moves downward through the underlying natural soil. The purpose of the design is to overcome site limitations that prohibit the use of conventional trench on-site sewage disposal systems.

At-grade mound design and construction is covered through Code of Maryland Regulation 26.04.02.05. All practices and criteria listed in this regulation must be applied when installing an at-grade as BAT in addition to any supplemental installation guidance and policy issued by MDE. All installation contractors of at-grade mounds must be certified by the Department.

➤ **Criteria for BAT Class IV at-grade mound approval:**

Minimum design and installation criteria for the At Grade Systems is based on the MDE Design and Construction Manual for At Grade Systems, January 2015 or latest edition published. Any additional or supplemental design guidance issued by MDE but not included in the manual must also be followed.

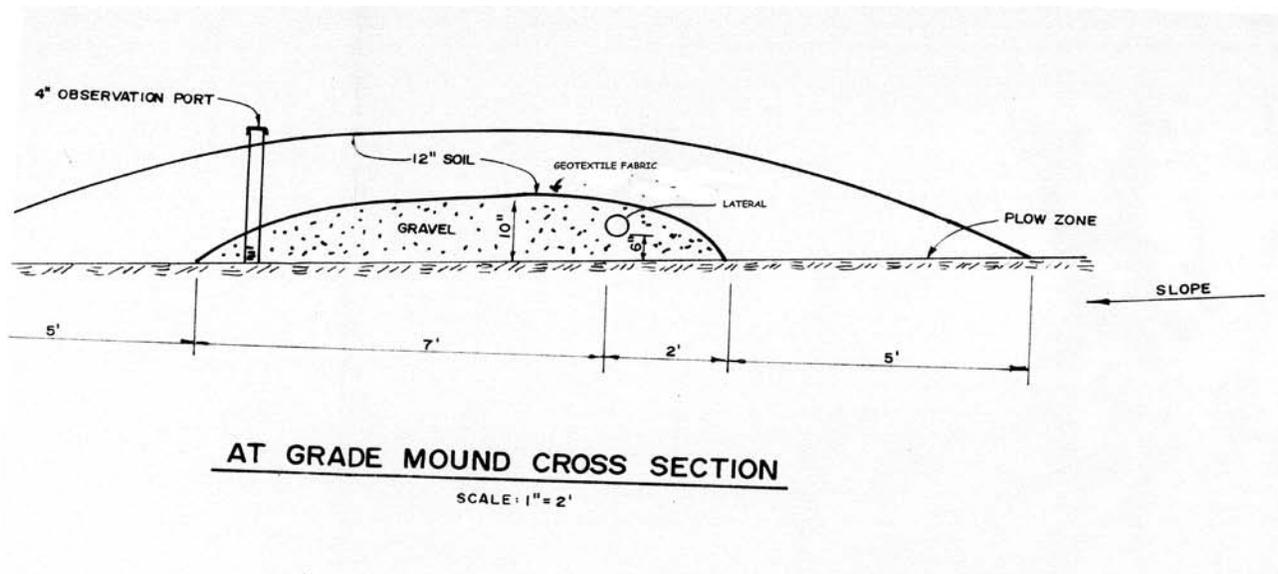
- The system must be installed over a natural surface A or B soil horizon.
- No BAT credit is given to at-grade systems installed over soils with a sand or loamy sand texture within 12 inches of the ground surface. Approving Authorities must field verify with a soil description subject to MDE review that the proper soil textures are present.
- For sloping sites, the At Grade mound and piping must be placed on contour, and the linear loading rate across the slope must be minimized. The linear loading rate is limited to 5 gpd/lf on sites with limiting horizons.
- Pipe diameters, perforation diameters, and perforation spacing are selected such that there is less than a 10% differential in flow rate between any two holes in a lateral and less than a 10% differential in flow rate between any two laterals of equal length on sites that encounter slopes.
- Landscape position is also a necessary consideration. Systems may not be sited within a closed depression, or where water tends to pond during heavy rainfall events. Refer to MDE's Site Evaluation Manual for additional details on proper landscape position
- Per COMAR requirements, sufficient unsaturated soil must exist below the piping to allow for movement of the applied wastewater from the site.
- Perforation spacing of the design of this system must be 2'-4'.
- Observation pipes must be properly installed within the at grade at designated locations, a minimum of 2 is required, one placed in the gravel bed just upslope of the soil berm, the other in the gravel bed just below the distribution lateral.
- Small, frequent, timed doses of effluent must be dosed to the media through a pressurized distribution system. Pump chambers, floats and panels must be set up properly for timed dosing.
- An event counter and an elapsed time meter are required in the control panel.
- Co review with MDE's Regional Consultant is required for Innovative at grade mounds.

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Annual Inspection Checklist

- Inspect the pump chamber for proper function. Confirm that the dosing volume and dosing frequency comply with the original design parameters. Confirm that the volume of effluent dosed per unit of time conforms to the system design and existing and the start up pressure head conditions.
- Check the pump chamber for solids carryover and remove the solids if needed.
- Verify the dosing volumes and flush the laterals if volume pumped per unit of time decreases or pressure head is substantially increased over start up conditions and reset the pressure head if needed.
- Examine all observation ports and check for ponding and leakage from the system.
- Conduct maintenance in accordance with the manufacturer's or designer's requirements of the treatment unit prior to dispersal field, More frequent visits might be necessary to maintain proper function.
- Conduct other generic operation and maintenance procedures
 - Measure sludge / scum levels in septic tank (trash tank?)
 - Pump septic tank as needed?
 - Clean effluent filter / screen
 - Walk dispersal fields and inspect for leakage or runoff.
 - Etc.



07/01/2015

