

Wastewater Garden Treatment System With Landscape Integration

A wastewater system incorporated into a public garden protects local resources

Old Manse – Concord, Massachusetts

Project Background

The Old Manse is a historic 19th century house that was once home to famous American authors Ralph Waldo Emerson and Nathaniel Hawthorne. Today, it is owned by the Trustees of Reservations (TOR), which operates daily public tours of the house. When the Old Manse's gift shop and offices were expanded, an upgrade was required to the existing septic system. Due to the site's archaeological features and its proximity to the Concord River, an advanced wastewater system was required by the local board of health.

Project Description

Trustees of Reservations hired Sustainable Strategies, a subsidiary of the Ecological Engineering Group (EEG) to design and permit a wastewater garden treatment system. EEG designed and secured permits for a system that treats blackwater and graywater separately.

The system includes a one-pint flush toilet which flushes to an EcoTech Carousel composting toilet system. Graywater and composting toilet leachate are pressure dosed to a wastewater garden treatment system which provides liquid and nutrient removal prior to subsurface discharge. TOR was able to maintain aesthetic characteristics of the Old Manse surroundings by planting the wastewater garden as a 19th century period garden adjacent to the Old Manse structure. The public is encouraged to tour the garden.



Unique System Features

- System serves as a theme garden which also provides treatment
- A composting toilet system is used with design similar to a conventional toilet
- The majority of wastewater effluent flow is used by specially selected garden plants
- Extremely low blackwater flow eliminates need for septic tank



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