



# NORFOLK ENVIRONMENTAL

## CIVIL AND SANITARY ENGINEERING

### Civil Engineering, Wastewater System Upgrade Pembroke, MA

A local 100-bed hospital, serving residents of Southeastern, MA, had a septic system failure, which required an emergency response to upgrade the on-site wastewater treatment system. The leaching field, 200i x 230i, required alternative technology to decrease the size requirements. This unique situation required a system that was retrofitted to treat wastewater prior to its release. Hydrogeologic modeling, an evaluation of areas where effluent discharge could occur and a mounding analysis that factors in conductivity and resistivity were performed to initiate construction of the required system.

Norfolk Environmental conducted the pre-construction analysis and designed plans and specifications, which were presented to the state and approved. After issuance of a state permit solicitation of construction contract bids was initiated. Norfolk evaluated the lowest qualified bidder, checked references on past performance, financial and bonding status resulting in a contract award. The septic system upgrade was completed within an acceptable tolerance of the emergency schedule established by the state and without a single extra. Norfolk has provided engineering for O & M and performance monitoring since installation.



760LF PVC vent pipe for venting of leaching field

### Scope of Services

Norfolk Environmental, in an effort to design and construct a septic system upgrade, performed the following tasks to obtain a cost-effective solution to an emergency response situation.

- Performed required hydraulic conductivity testing, with rising head tests in three wells located in the proposed leaching area.
- Submitted design plans and specifications to obtain a permit from the State agency.
- Installed a large pressure distribution-leaching field that included a duplex pump station, two package treatment modules and sewer line with several manholes connecting to the existing system.
- Managed construction of system upgrade, requiring oversight of clearing and grubbing, control of erosion and siltation, demolition and removals, excavation, backfill, paving and pavement replacement, loam borrow, topsoiling and seeding.

*Please see other side*



Pumping chamber with pumps, controls and alarms.



*Septic system's leaching field with Coltec infiltration chambers*

### **Norfolk Mission Statement**

Norfolk Environmental, a Division of Norfolk International Corporation, is an engineering, consulting and project management firm specializing in comprehensive environmental management for industrial and real estate clients, municipal and government agencies, and the military. The company's capabilities include regulatory compliance, environmental permitting, environmental due diligence, site assessment, remedial design and construction, site remediation and waste minimization

Norfolk's priority goal is to provide clients with immediate response, full service commitment, high quality consulting and cost effective solutions to their environmental concerns.

*Norfolk is one of the first environmental consulting firms to include Licensed Site Professionals under the new Massachusetts Contingency Plan and Chapter 21E of the Massachusetts General Laws. Norfolk also has Licensed Title V Inspectors, Certified Soil Evaluators, and Toxic Use Reduction (TURP) Planners on staff.*

### **Core Service Areas**

- Civil and Sanitary Engineering
- Industrial Environmental Consulting
- Site Assessment and Remediation
- Forensic Environmental Investigations

### **Contact Information**

For more information of Norfolk Environmental Services, please contact:

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