In July 2010, the construction of an 8,000-ft long, 70-ft high mechanically stabilized earth (MSE) berm was completed at the Cherry Island Landfill site, which is owned by the Delaware Solid Waste Authority. The completion of this two-million yd$^3$ MSE berm represents a significant engineering achievement considering the size of the embankment and the deep layer of very soft soils under the berm. A novel design methodology, the Hybrid Drained-Undrained (HDU) Model, was used to analyze the strength characteristics of the soft foundation soils during construction. The United States Corps of Engineers used the site as a dredge disposal site. The dredge and the underlying alluvium deposit form a 60-100-ft thick foundation of extremely weak and low-permeability soils having undrained shear strengths as low as 200 pounds per square foot (psf). In this seminar, the geometric and loading constraints used in the design of the landfill expansion will be explored. In addition, the main challenges involved in landfill design, in particular involving vertical expansion over soft clays, will be discussed. Numerical analysis using Finite Element Method models used during the design stage of the landfill expansion, predictions of settlement and horizontal deformation, and analysis used during the erection of the wall to determine a safe rate of soil placement will be presented.

Thursday, February 24, 2011
JHU Homewood Campus
Hodson 311
12:00 – 12:45 pm

Seminar is FREE. For parking please see link for visitors at www.jhu.edu and select information on Homewood Campus.

One Professional Development Hour (PDH) will be awarded to attendees.