Differential Settlement of Landfill Foundations Modeled Using Random Fields

Kevin Foye, Ph.D., P.E.
Project Engineer
CTI and Associates, Inc.

Wednesday February 2, 2011
4:30 – 5:30

CEE Conference Room ~ 2355 GG Brown Lab

The long-term functionality of composite landfill final cover systems and composite floor liner systems depends on the distortions imposed on these systems by differential settlement. The evaluation of differential settlement is particularly challenging for final cover systems because of the heterogeneity of waste, and for floor liners over highly variable subgrades (e.g. existing waste, mine spoil, etc.). Deterministic approaches to landfill settlement prediction are not able to capture the spatial variability in the waste mass and subgrade properties which control differential settlement. An alternative, probabilistic solution is to use random fields to model the waste and subgrade properties. This presentation discusses the application of a random field model to the design of landfill final cover and floor liner systems. The presentation suggests an approach to select acceptable probabilistic criteria for design.

****** Everyone is invited – refreshments will be served ******