

# GeoStructures Completes Another BRAC Project at Fort Lee

## Impact® System Paves Way for Construction of U.S. Army Lodging Facility

PURCELLVILLE, Va., November 19, 2010 – U.S. Army Soldiers and their families at Fort Lee, Virginia will now have access to new temporary living quarters in 2012 as construction has begun on The Lodge at Fort Lee, a [LEED-Silver](#), 1000-room facility that utilized the ground improvement design-build services of specialty contractor [GeoStructures](#).

The owner's design-build team faced some of the same challenges on the Lodge site as with other projects on the base; an area comprised of soft, compressible coastal plain soils that are susceptible to substantial settlement from the load applied by new structures. For example, Logistics University and the five-building Central Campus complex, also used GeoStructures' design-build services to reinforce the soft underlying soils to support the new construction.

"The consolidation characteristics of the alluvial clays, the shallow groundwater table, and the large surcharge loads associated with fill grading requirements would have caused settlement problems," confirms Scot Harrell of [Atlantic Geotechnical Services](#), which assessed the subsurface conditions for the seven-story structure. "We told the general contractor that placing fill and surcharging the site to pre-consolidate the in-situ soils would take up to three months, or they could deploy a ground improvement system to both strengthen these soils and allow them to compress in less than three weeks."

To address the settlement concerns and expedite construction, general contractor [The Korte Company](#) contracted GeoStructures to design the ground improvement system. The plan called for Geopier® technology to reinforce the in-situ soils with the [Impact Rammed Aggregate Pier \(RAP\) system](#). The roughly 2,500 RAP elements were used in both traditional and innovative ways.

The company put in place RAP elements as direct support for shallow spread footings over approximately one-fourth of the building's footprint. However, the majority of the site was characterized by a low-lying area that required as much as 10 feet of new structural fill to reach the design subgrade elevation. To remedy the problems of the consolidation of the soft underlying soils, and any post-construction settlement, the Impact system was installed on a grid pattern prior to placement of the new fill. This enabled reinforcement of the soils, accelerated consolidation of the soft underlying soils, and provided better management of the post-construction settlement potential within the structure's design tolerances.

"We designed the RAP system to achieve two goals; provide the necessary soil reinforcement to support the new structure plus the weight of the new fill mass and to allow the building construction to proceed without delay," says Nyle Hothem, P.E., regional manager for GeoStructures.

"Situations like this, where site development challenges lead to innovation, while still adhering to cost and schedule requirements, are why our design-build approach works so well."

### About GeoStructures

GeoStructures is a design-build contractor with solutions for integrated foundation improvement, earth support and wall construction on commercial, industrial and transportation projects. By

deploying its engineering expertise at the design stage, the company efficiently addresses unique site-development challenges and makes the best use of construction schedules and budgets.