

# CASE STUDY

## Virginia Military Institute

Lexington, VA



**Situation:** The Virginia Military Institute, established in 1839 and located in the scenic Shenandoah Valley Town of Lexington, Virginia, started a multi-million dollar renovation in late 2003. This Renovation would include major remodeling of existing structures, the addition of new buildings and a facelift of the grounds and athletic facilities. The Architectural Engineering firm of Hayes, Seay, Mattern and Mattern was contracted for the design and engineering of the project. Lt Col Dale R. Brown, P.E., a graduate of Norwich University with a Bachelor of Science in Mechanical Engineering and Master of Science in Engineering management from the University of Alaska, Anchorage, was assigned as Project Engineer.



**Solution:** The renovation included many phases that enlisted the specialties of several firms. Ram Jack of Virginia, LLC, was involved in a total of five phases on this project. They were contacted to supply the anchors for the new Mega-Tron sign for the football stadium renovation. These anchors required both a tension and compression capacity to resist combined structural and wind loading on the sign. Ram Jack of Virginia, LLC, along with Bob Oliver P.E., an engineer that they have worked closely with on many projects in the past, and the Ram Jack® Technical- Engineering Team, were able to design a helical foundation made up of 3.5" diameter shafts with a multi-helix configuration to meet the design load requirements for the project. The second phase of the renovation for Ram Jack of Virginia was the shoring and tieback systems of the excavated embankment for the Construction of the new Barracks and renovation of Barracks Three. The third phase included the support of the foundation on Barracks Three so that the soil could be removed directly beside the foundation to the depth of the new foundation, approximately 6 feet below the existing foundation. The design required the support of the 10,000 pound per foot weight of the structure with the shaft of the pier being unconfined for 6 feet along with the column weights of 20,000 per linear foot. The Ram Jack® Deep Driven Steel with an Extended Guide Sleeve was the product used to meet the design criteria. The ability of Ram Jack® to provide a Variable Length Guide Sleeve gives Engineers and Contractors a reliable Piering System for a variety of soil and load conditions. With limited access, Ram Jack of Virginia, LLC was able to perform the job by spacing the piers on the wall of the structure 3 feet apart and the piers on the columns 1.5 feet apart giving each pier a working load of 30,000 pounds. The first four feet of the strata was rock and required the pre-drilling of each hole through the rock for the installation of each pier. These piers proved to provide the needed support for the existing foundation during the excavation for and the placement of the new Barracks foundation.



**Conclusion:** Because Ram Jack of Virginia, LLC, is a full service company and was able to fulfill the requirements of all the projects assigned to them they were also contracted for two additional phases of the project involving waterproofing.

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