



PROJECT BRIEF

Woodrow Wilson Bridge Instrumentation & Monitoring

PROJECT PROFILE

CLIENT:

State of Maryland and
Commonwealth of Virginia

LOCATION:

Washington, DC

VALUE:

- Elimination of trenching wires increased the longevity and reliability of the instruments

SERVICES PROVIDED:

- Installed automated data loggers to allow multiple daily readings in critical areas of construction

“The auto-logged data were collected automatically through two cellular modems on site, using Geocomp’s *iSiteCentral*® web-based data management system making the results available to all relevant parties in



INSTALLATION OF GEOTECHNICAL INSTRUMENTS & DATA AUTOMATION

The work included installation of thousands of wick drains, placement of earth surcharges at various elevations, and installation of multiple layers of high strength geotextile fabrics. The underlying soils were extremely soft and the construction of the new retaining structures required monitoring to validate stability and performance. Geocomp installed a wireless network of 25 data loggers to collect and transmit data from piezometers in the soft soils, and from strain gauge and rod extensometer instruments mounted on the reinforcing geotextiles at the embankment base. These automated instruments were complemented by manually-read inclinometers, probe extensometers, and settlement plates used to monitor vertical and horizontal movements. The auto-logged data were collected automatically through two cellular modems on site, using Geocomp’s *iSiteCentral*® web-based data management system making the results available to all relevant parties in real-time.



BACKGROUND

Located in the Washington D.C. Metropolitan Area, the Woodrow Wilson Bridge is one of the busiest east coast interstate highways. The original bridge was constructed in 1961, and was designed to carry up to 75,000 vehicles a day; today it carries nearly 200,000. Traffic congestion is one of the worst in the U.S. where the eight-lane Capital Beltway narrows to six lanes, and the bridge is raised for river traffic 260 times each year. The new 12-lane box girder bascule draw bridge project area covers 7.5 miles and involves constructing a replacement draw bridge and improving 4 major interchanges to increase traffic flow. Raising of the new bridge will be reduced to 60 times each year. Rosalie Island Pre-Consolidation, part of the improvements to the I-295 interchange and approach ramp to the new bridge, includes mass grading, preconsolidation of existing soft soils, and construction of retaining walls (both permanent and temporary).