

Client:

Dragados USA Inc.

Schiavone Construction
Company LLC

Location:

Annapolis, MD

Value Provided:

- Establish baseline performance of existing facilities prior to construction in order to differentiate seasonal movement versus construction impacts on the existing tunnel
- Provide real-time data to evaluate construction effects on existing tunnel and minimize risk of damage
- Verify performance assumptions used in the design of the support of excavation system

Background & Project Challenges

The Parallel Thimble Shoal Tunnel Project in Chesapeake Bay (CBBT), Virginia involves the construction of a new bored 1-mile, two-lane tunnel under Thimble Shoal Channel next to the existing two-lane tunnel. The new tunnel, 42 feet in diameter, will expand capacity and improve safety for travelers who use the CBBT

The new tunnel will be constructed using a tunnel boring machine (TBM) that will advance from the new man-made portal island. For this project, Geocomp is providing the instrumentation and monitoring to monitor the existing facilities, as well as the temporary construction element needed to perform the tunneling in this unique environment.



Geocomp Role & Accomplishments

Geocomp is engaged in two major roles. The first is to monitor the existing manmade Portal Island and tunnel before construction. This baseline monitoring period is specified to understand the performance of the existing facilities. The monitoring system consists of 16 Robotic Total Stations (RTS) installed on the portal islands and within the existing tunnel, as well as numerous tilt meters, piezometers, crack meters, and seismographs. The data collected from this early monitoring will be used to help engineers understand and model the movement trends before construction of the new tunnel began.

Geocomp's second role, during the construction of the new tunnel, includes the instrumentation and monitoring of the temporary facilities necessary for the construction of the TBM launch and retrieval shafts.

For both roles, we will use our geographic information system (GIS) web-based software, *iSiteCentral*[™], to provide real-time assessment of construction-related activity. *iSiteCentral* will integrate data from more than 500 sensors, including automated MPBXs, inclinometers, strain gages, and tilt meters. The instrumentation and monitoring system is vital to ensuring the stability of the existing tunnel during construction, verifying the design performance assumptions of various components, and minimizing the risk of project delay from unexpected performance. Work began in early 2017 and will continue through late 2022.

For More Information Contact:

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