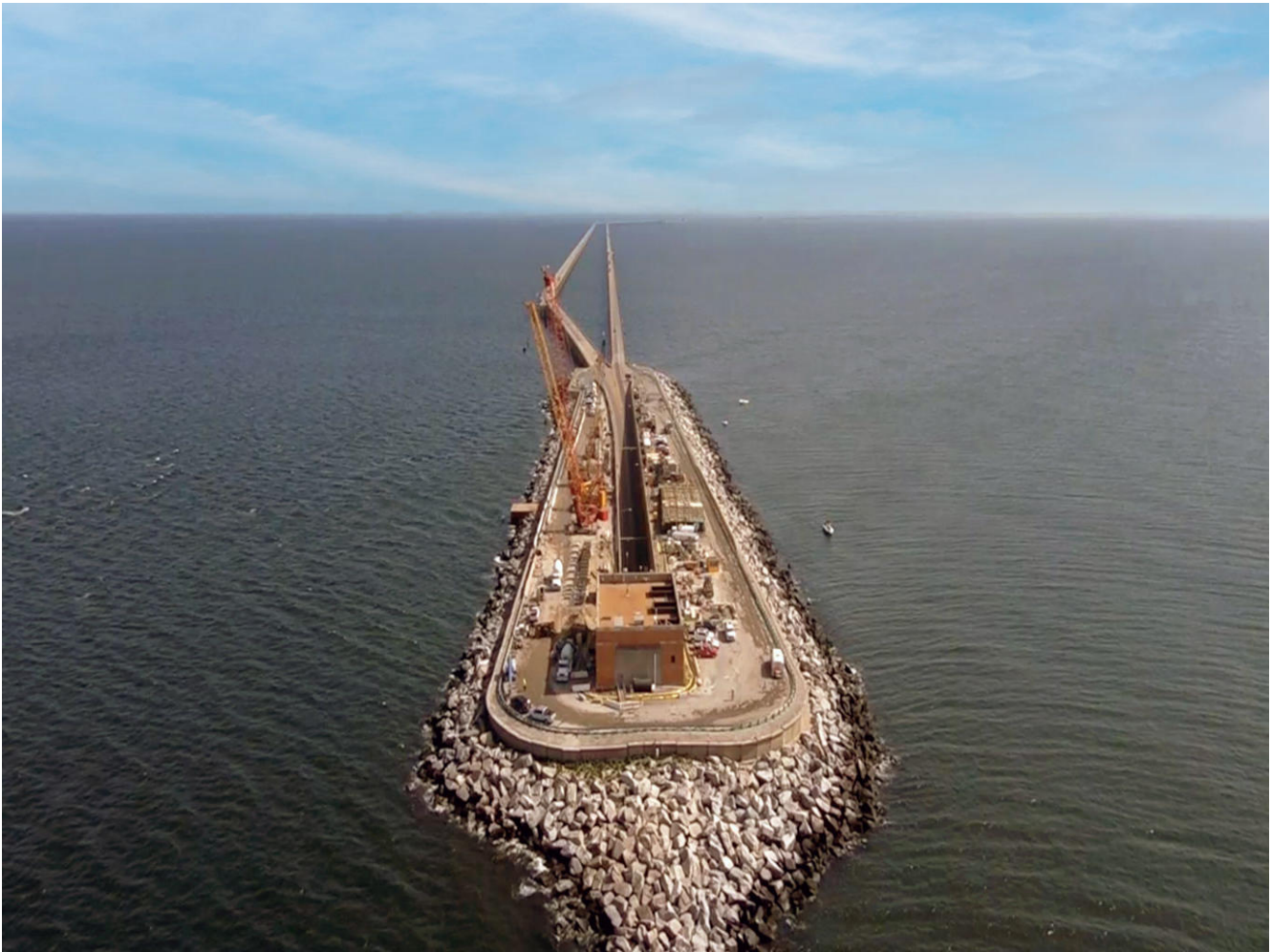


## Parallel Thimble Shoals Tunnel

Virginia Beach, Virginia

Keller's performance and expertise were key to providing deep foundations and excavation support for the area's first bored transportation tunnel.



### The project

The Parallel Thimble Shoals Tunnel is a highway crossing adding two southbound lanes to alleviate traffic delays connecting the Norfolk/Virginia Beach areas to Virginia's eastern shore. Located between two portal islands and adjacent to an existing tunnel, it is the first bored transportation tunnel in the area. It has an outer diameter of 42 ft., a depth of 105 ft. below water surface, and is one mile in length. Soils consisted of sands, silts, and soft clays.

## The challenge

Work was conducted on two small and congested man-made islands with frequent high winds and intense weather that impacted construction activities.

## The solution

Keller was contracted to install 166,047 SF of reinforced slurry walls serving as the foundation system of the launching and retrieval portals and as temporary excavation support. Keller used a hydromill for panel excavation and bentonite slurry as trench support on a primary-secondary panel scheme. Wall elements overlapped 10 in. to 12 in., ensuring adequate waterproofness and high-quality joints between the 48 in. to 60 in. thick panels. Keller also installed a series of grout columns along the existing approach wall to mitigate potential slurry loss.

## Project facts

### Owner(s)

Chesapeake Bay Bridge and Tunnel District

### Keller business unit(s)

Keller

### Main contractor(s)

Chesapeake Tunnel Joint Venture (CTJV; Dragados USA/Schiavone Construction Co.)

### Engineer(s)

Mott McDonald, LLC

### Solutions

Deep foundations  
Support of excavation  
Ground improvement

### Markets

Infrastructure  
Transportation  
Tunnels and shafts

### Techniques

Diaphragm walls  
Jet grouting

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