



## Port of Miami Tunnel Florida Department of Transportation

**Location:** Miami, Florida

**Date:** 2011 – 2012

**Structure:** Highway Tunnel

**Length:** Two (2) Bores, Each 4,200 feet (1,280 meters) Long and 41 feet (12.5 meters) in Diameter

**Geology:** Fill and Marine Deposits Overlying the Tamiami, Hawthorne and Avon Park Formations which Consist of Oolitic Limestone, Sandstones, Sands, Cemented Sands, Sandy Limestones, Siltstones and Claystones

**Cost:** Approximately \$1 Billion

**Client:** Bouygues Civil Works Florida

**Owner:** Florida Department of Transportation (FDOT)



**Figure 1.** West Portal and Eastbound TBM launch location on Watson Island. (Courtesy of FDOT)



**Figure 2.** Existing structures on Dodge Island overlying twin TBM tunnels.

### Assessment of Tunneling Induced Effects on Dodge Island Structures:

The only access to the Port of Miami for shipping traffic involved navigating downtown city streets. These restrictions caused traffic congestion and limited the economic development of the northern portion of Miami's Central Business District. To alleviate these issues, the Port of Miami Tunnel was under construction, providing a direct underground connection from the Port of Miami at Dodge Island via Watson Island to I-95 and other highways.

The twin tunnels were constructed by a 43 feet (13 meters) diameter Earth Pressure Balance Tunnel Boring Machine (EPBM) designed specifically for the geotechnical conditions on site.

The EPBM passed beneath a number of existing structures on Dodge Island including the Shed #2 building, the seawall and bulkhead, a pedestrian bridge and gantry, the Port Boulevard cargo bridge, the Seaman's Center, and a swimming pool.

Gall Zeidler Consultants (GZ) provided independent consulting services for the project including independent two and three-dimensional ground-structural numerical analyses to evaluate tunneling induced settlement impacts on the Dodge Island structures. GZ was also involved with developing response levels for the extensive instrumentation installed on the structures.