

Russia Wharf Tunnel Segment Massachusetts Bay Transit Authority

Location: Boston, Massachusetts

Date: 1998 – 2004

Structure: Bus and Light Rail Tunnel

Length: Approximately 410 feet
(125 meters)

Cross-Section: Width: 40 feet (12.1 meters)
Height: 30 feet (9.2 meters)

Geology: Shallow Cover of Fill, Organic Silt,
Marine Clay; Groundwater Table Above
the Tunnel Toof

Cost: Approximately \$20 Million

Client: Dr. G. Sauer Corporation

Owner: Massachusetts Bay Transit Authority
(MBTA)



Figure 1. Historic Russia Wharf and Graphic Arts Buildings above tunnel.

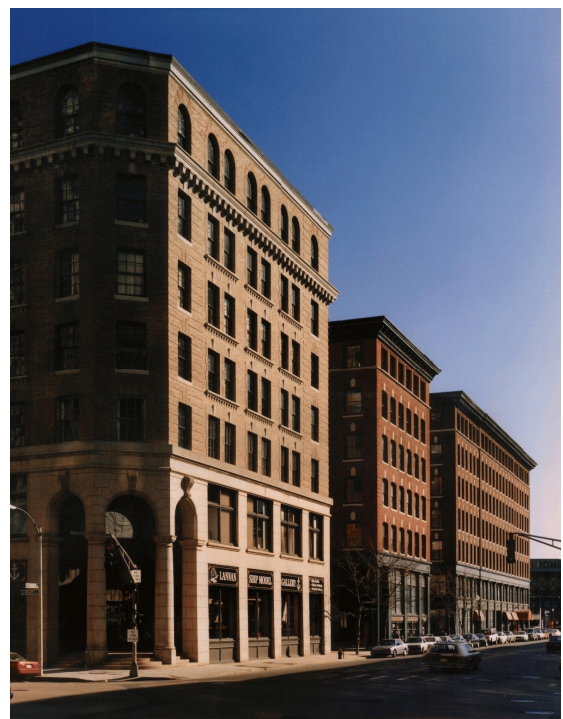


Figure 2. Installation of PVC membrane waterproofing system with water barriers for sectioning in first tunnel drift.

Tunnel Construction Support Services and Consulting:

Gall Zeidler Consultants (GZ) advised on the construction of this binocular bus and light rail tunnel beneath the historic Russia Wharf and Graphic Arts buildings in Boston, Massachusetts. GZ's services included consulting on the contractor's ground freezing program, proposal of a fast ring closure method, shotcrete final lining alternative, and instrumentation and monitoring.

The project involved tunneling through timber foundation piles using the New Austrian Tunneling Method (NATM) with ground freezing for temporary building and tunnel support. The binocular tunnel was waterproofed using a full round PVC membrane and has a shotcrete final lining for permanent tunnel support. Timber piles of the buildings are socketed in the tunnel's shotcrete initial lining and resting on the binocular tunnel which serves as a building foundation long-term.