



East Link Extension - Downtown Bellevue Tunnel Sound Transit

Location: Seattle, USA

Date: 2017 - 2018

Structure: SEM Tunnel, SEM Adit

Length: 1,983 ft

Cross-Section: SEM Tunnel

36.7 ft width x 30.5 ft height

42.3 ft width by 37.7 ft height (Max Dim.)

Adit:

12.8 ft width by 13.3 ft height

Geology: Fill, Vashon Till, Vashon advance outwash, Pre-Vashon glaciolacustrine deposits.

Cost: \$121,000,000

Client: Guy F. Atkinson / Clark Construction

Owner: Sound Transit



Figure 1. Tunnel Portal showing close proximity to existing structures.

On-Site SEM Support Services:

The East Link Extension Project is a 14-mile long light rail (LRT) extension that will provide patrons a fast, frequent and reliable connection from Bellevue and Redmond, the largest population and employment centers east of Lake Washington, to downtown Seattle, Sea-Tac Airport and the University of Washington. While the majority of the East Link alignment will be at-grade or on elevated guideways, one of the most technically challenging components of the project was the Downtown Bellevue Tunnel (DBT) (Contract E330). The DBT is 2,435 ft long and runs underneath 110th Avenue Northeast through downtown Bellevue. The alignment is constrained by utilities and bounded on both sides by buildings, including several high-rise structures and Bellevue City Hall (Figure 1).

Gall Zeidler Consultants provided on-site SEM support services during construction of the 1,983 ft long SEM portion of the DBT (Figure 2). GZ provided coordination of site-specific means and methods of break-out sequences and SEM initial support and pre-support elements, interpretation and assessment of ground conditions, ground improvement methods, interpretation of instrumentation and monitoring results, and face mapping during excavation.



Figure 2. Excavation drifts of SEM portion of Downtown Bellevue Tunnel.