Aecon Constructors

Edmonton South LRT Tunnel

Client:

City of Edmonton

Engineer:

UMA Engineering Ltd.

Joint Venture Partners:

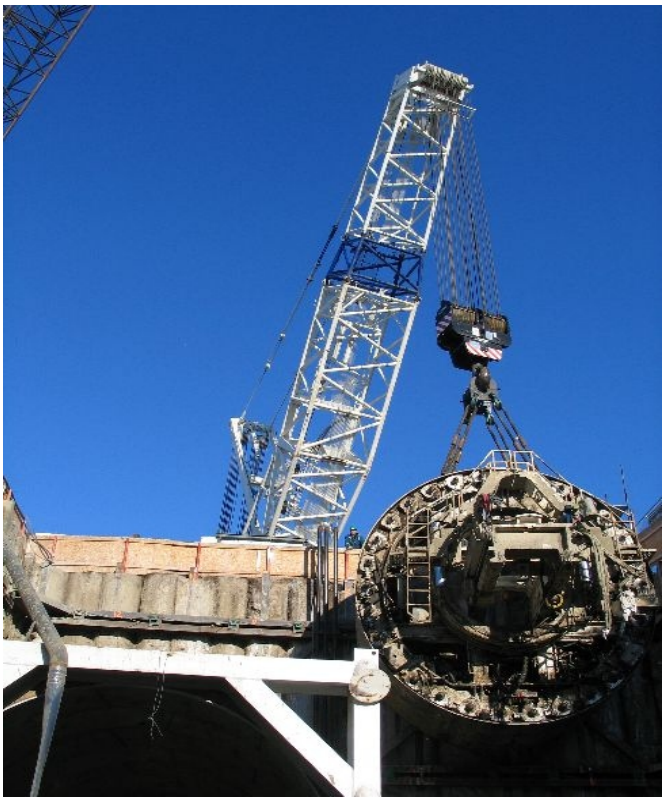
McNally International Inc.

Contract Value:

$20.4 Million

Project Location:

Edmonton, Alberta Canada



Project Description:

This tunnel project was constructed to bring the City of Edmonton's existing LRT system from its current underground termination to the surface which will allow the City to extend their system to the South side of the City. The existing Subway system terminates 26m below ground at a station within The University of Alberta campus. To facilitate the extension, it was necessary to bring the subway from 26m below grade to street level.

The tunnel portion of the project was awarded to the Aecon/McNally JV with a bid value of $20 million, the final value of the project was $20.4 million. Aecon Constructors was the Joint Venture Sponsor and Manager of this project.

The tunneling commenced in May of 2003 and was completed in March of 2004.

The twin LRT tunnels are on a 6% down grade and could only be

Driven in one direction commencing on the surface. The surface congestion and alignment required that most of the entire tunnel lengths would be on a tight radius curve of 250m. Overlying structures demanded extremely stringent settlement control. The tunnels commence in a full face of sand above the water table and pass through glacial tills and eventually into a soft rock below the water table. The tunnels had to be constructed and minimal disruption to the existing University and adjacent Hospital structures.

Aecon/McNally selected a Lovat EPB TBM for the construction of this project with a bored diameter of 6.3m.

Both tunnels pass within 3m vertically of some sensitive structures, so settlement control was paramount. The tunnels commenced above the water table and descended to 6m below by breakthrough. Full EPB was utilized and ground conditioning was necessary throughout the tunneling operation. Settlement was maintained below 15mm.

Aecon/McNally designed and constructed the segmental precast final tunnel liner for this project. The gasketed tunnel segments were 254mm thick, cast to a 5.4m internal diameter with a length of 1.2m for each ring.

AECON