



## Purple Line, MD (USA) Sheet Waterproofing

<b>Country</b>	USA, Maryland (MD)
<b>Type</b>	Rail Tunnel
<b>Client</b>	Purple Line Transit Partners LLC/MDOT/MTA
<b>Main Contractor</b>	Fluor, Lane Construction, Traylor Brothers
<b>Execution of the work</b>	Renesco Inc.
<b>Designer</b>	Atkins, Mott MacDonald
<b>Construction Period</b>	2019-2020

## Project Description

The Purple Line project (Finance, Design-Build, Operate & Maintain contract) is a 16-mile light rail line that will extend from Bethesda in Montgomery County to New Carrollton in Prince George's County. It will connect to four branches of the Metro rail system at Bethesda, Silver Spring, College Park and New Carrollton, as well as all three MARC commuter rail lines, and Amtrak. Twenty-one stations are being constructed along the alignment. This also includes the 1,208-foot cut-and-cover/ sequential excavation method (SEM) tunnel, one underground station, and a deep shaft/ cavern in rock. The 36-foot-wide, 29-foot-tall single tube tunnel will accommodate both trains and all supporting equipment.

The entry/ exit ramp was constructed by open cut and the mined tunnel by SEM. A bulldozer with a ripper was utilized until hard rock was encountered. At that point, blasting was utilized 60 to 120 feet at a time. In the Plymouth tunnel, an invert concrete was constructed, followed by installation of a waterproofing sheet membrane (360°, full round) and secondary in-situ final spray-applied concrete/ shotcrete liner.

Double Shell Permanent Lining with first layer of permanent shotcrete, a PVC-P waterproofing followed by a second layer of permanent layer, mesh optimized.

## Scope of Service

Contractor shall furnish and install waterproofing complete for the Plymouth Tunnel Sequential Excavation Method (SEM) Section, Cut-and-Cover underground station box, Portal Section, Elevator Shaft, Manchester Place Station and Bethesda Station South Entrance. Work includes the waterproofing membrane, geotextile fabric, geodrain, BA-anchors, remedial control & grouting tubes and membrane protection layer.

- 2.5mm, PVC-P sheet membrane
- Polypropylene (PP) geotextile, 22oz/sq yd
- PVC-P water barriers, 16-inches, rib height 1 1/4 inch.
- Geodrain
- BA-Anchors
- Remedial control & grouting tubes
- Membrane protection layer, PVC-P



1. Cut-and-Cover Section
2. Plymouth Tunnel Sequential Excavation Method (SEM) Section
3. Secondary in-situ Final Shotcrete Lining