

# 9<sup>th</sup> Line/16<sup>th</sup> Avenue Sanitary Sewer

**MARKHAM, ONTARIO**

Design-Build Trunk Sanitary Sewer



**COMPLETION DATE**

October 2002

**VALUE OF CONTRACT**

\$55,000,000.00

**OWNER**

Regional Municipality of York  
Contact: Mr. Nitty Subramaniam  
905-895-1200

**CONSULTANT**

MacViro Consultants Limited  
Contact: Mr. Stan Holden  
905-475-7270



## Project Description

**TUNNEL MINING DIMENSIONS**

6700m of 3.5m Ø  
1600m of 2.40m Ø Tunnel

**EXCAVATION METHOD**

Lovat Tunnel Boring Machine –  
3.5m Ø  
Lovat Tunnel Boring Machine –  
2.4m Ø

**GEOLOGY**

Silty Clay/ Silty Sand Till/ High  
Water Table/ Extensive Dewatering

**TUNNEL INITIAL SUPPORT**

4 @ 13 Steel Ribs and 3" Hardwood  
Lagging

**TUNNEL FINAL LINING**

1600m of 1.65m Ø Cast-in Place  
Concrete Lining  
6700m of 2.65m Ø Cast-in Place  
Concrete Lining

