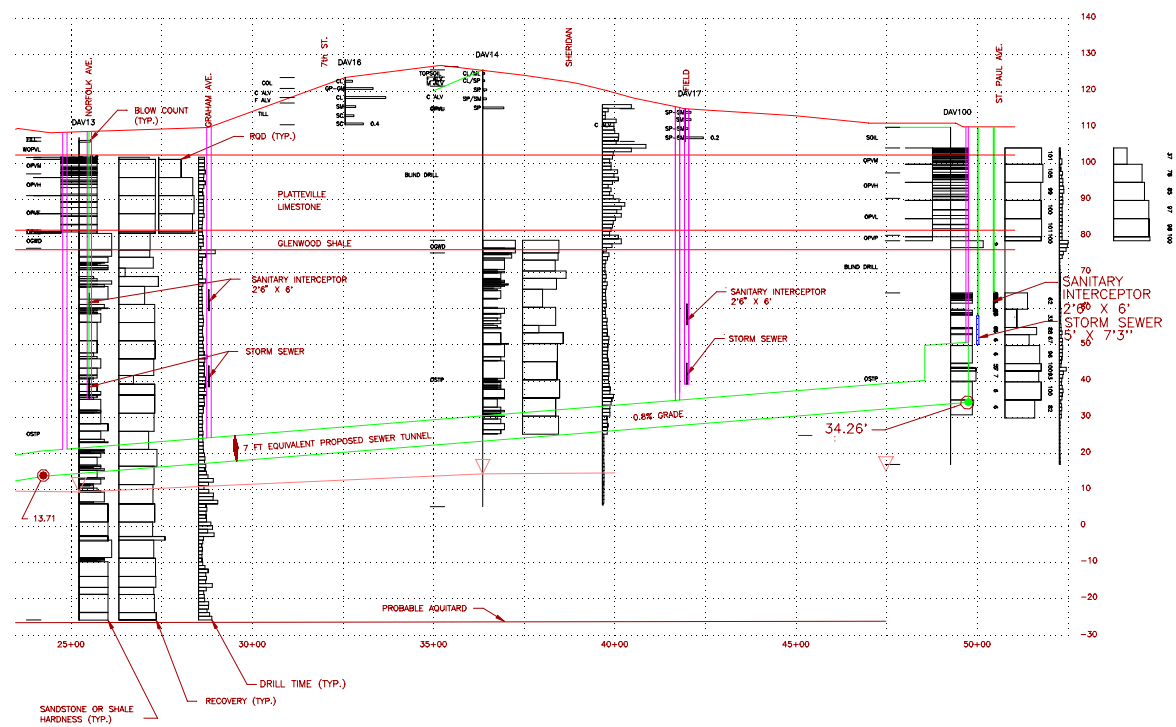


Hennepin County Light Rail Tunnel Study

The project incorporated 10,000 feet of mined tunnel, three mined stations and two cut-and-cover stations beneath the Minneapolis central business district. The tunnel would be constructed in a sedimentary formation consisting of glacial soils, limestone, shale and sandstone an average of 60 to 90 feet below ground surface. CNA, as the tunnel consultant, provided the following services:

- Geotechnical exploration program and report.
- Evaluate alignment alternatives.
- Geostuctural engineering and cost estimate for the tunnel and station excavations, initial support requirements and final lining.
- Analysis of groundwater conditions.
- Preparation of underground construction for EIS.



Owner — Hennepin County Regional Railroad Authority

Completion Date – 1992

Construction Cost \$140 million

CNA
Consulting
Engineers

2800 University Ave. SE
Minneapolis, MN 55414
Ph: (612) 379-8805
Fax: (612) 379-8160
E-mail: bkn@cnaengineers.com