

## Toronto General Hospital

Toronto, Ontario, Canada

Keller used an innovative three-phase drilling process to guarantee the safety of the existing tunnel and the quality of the access shafts.



### The project

In downtown Toronto, several office towers and hospitals rely on Enwave's deep lake water system to provide heating and cooling. This technology uses cold water from Lake Ontario as a clean, renewable and reliable cooling source. Toronto General Hospital needed to establish a direct connection to the Enwave tunnel to provide clean heating and cooling to the building.

## The challenge

The client's design required two access shafts be drilled to make a connection to the existing 3.05m diameter Enwave tunnel. Restricted headroom was a challenge as all work had to be performed in the loading bay area of the Hospital.

## The solution

Keller proposed and conducted an innovative three-phase drilling process for the construction of the access shafts. First, bedrock was located to verify layout and alignment of proposed shafts. Second, temporary drill casing was effectively sealed into bedrock using a tremie grout plug. Lastly, an LP Drill and the reverse circulation (RC) drilling process were utilized to advance a hole into the bedrock and penetrate the existing Enwave tunnel. The use of the RC drilling technique guaranteed minimal drilling cuttings being disposed into the existing tunnel and outside of the shafts and maintained the hole alignment.

## Project facts

### Owner(s)

Toronto General Hospital

### Keller business unit(s)

Keller

### Main contractor(s)

Aecon Utilities

### Engineer(s)

R.V. Anderson Associates Ltd.

### Solutions

Underpinning

### Markets

Institutional  
Healthcare

### Techniques

Drilled shafts

### Email address

[info@keller-na.com](mailto:info@keller-na.com)

### Phone number

1 (800) 456-6548