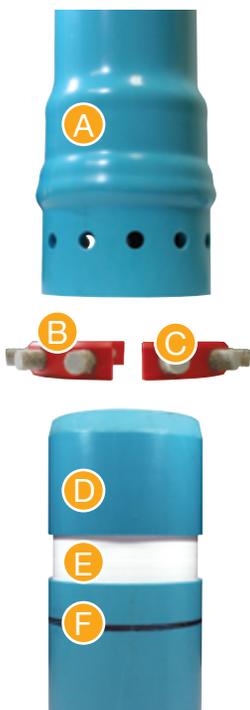


Signal Hill Slip Line – St. John’s, Newfoundland



- A Extended Lip Bell
- B Plastic Ring for Pins
- C Non-metallic Pins
- D Grooved and Thickened Spigot
- E Inner Groove
- F Insertion Line

The mantra for real estate agents is “location, location, location.” Those words also had a lot to do with the decisions around what kind of pipe was going to be installed along the two lane road leading to one of Newfoundland’s National Historic sites, Signal Hill with Cabot Tower at its peak.

The City of St. John’s wanted an existing 20” (500mm) cast iron water main leading from George’s Pond to be replaced with a smaller sized line. Since much of the original demand from George’s Pond had been greatly reduced when the city began sourcing water from Windsor Lake Water Treatment Plant, an 8” (200mm) diameter pipe was deemed adequate for current and future demand.

“TerraBrute® CR was an ideal product for the job. The self-restrained bell and spigot connections allowed the assembled replacement main to be easily pulled through the host pipe from pit to pit, and the “Ring and Pin” design allowed for easy assembly of joints using very basic tools.”

Technical Sales Rep, James McDonald explains, “Open trench excavation was not an ideal option for pipe replacement since it would have meant either closing the road to Signal Hill, or greatly reducing traffic flow. Since the replacement main was 8” (200mm), and the existing pipe was



To reduce friction, and to ensure that the TerraBrute CR wouldn't be damaged during the pull, three casing spacers with polyester runners were attached to each length of pipe.

20" (500mm), slip lining was a very attractive option. Only two access pits had to be cut, and the project proceeded with little impact on traffic. TerraBrute® CR was an ideal product for the job. The self-restrained bell and spigot connections allowed the assembled replacement main to be easily pulled through the host pipe from pit to pit, and the "Ring and Pin" design allowed for easy assembly of joints using very basic tools."

TerraBrute CR was a new product for the contractors, Modern Paving, so McDonald trained the project manager on installation procedures.

"Just after the pipe was ordered, the project Manager and I reviewed the technical aspects of installation, mostly regarding the pipe's recommended physical limitations. We also covered some practical considerations regarding pull head fabrication, and what to do if something were to go wrong. Once work began on site, I made a trip to Signal Hill to review the same material with the project's foreman. Modern hadn't used TerraBrute CR prior to the Signal Hill project, but at the end of the day they were very pleased with how easy it was to work with and install."

Before slip lining could begin, the host pipe first needed to be video inspected and cleaned with a high pressure nozzle. The contractors also constructed a temporary potable water system to eliminate service interruptions during the project. A pull head was fabricated from steel using drawings provided by IPEX, and attached to the leading TerraBrute CR pipe length. Next, the pull head was connected to a synthetic rope with a maximum breaking strength of 1,400 lb, which was then connected to a 1,200 lb winch on an excavator arm.

To reduce friction, and to ensure that the TerraBrute CR wouldn't be damaged during the pull, three casing spacers with polyester runners were attached to each length of pipe. These spacers greatly reduced contact area with the host pipe, and created a 360° annular space to accommodate cement during the project's grouting stage.

Fortunately, for the project, the weather cooperated, ensuring that there were no delays caused by the pipe or access pits filling with water during installation. "In total, it took two days to pull the new 250m TerraBrute CR assembly through the existing main." said McDonald.

"After attaching the pull head to the leading length of pipe, the new main was assembled piece by piece as pulling took place. As each piece was pulled into the host pipe, a new piece was attached. This process was repeated until the entire 8" (200mm) main had been assembled and pulled through the host pipe. The project went very smoothly."

McDonald concludes, "This was one of St. John's first trenchless water main installations, and its success should set a precedent for other trenchless projects in the future."