

LC-SB-034

Conduit End Exit Verification

Scope of Work Summary:

To provide power to the island of Newfoundland, three HVdc submarine cables will be installed across the Strait of Bell Isle. Three conduits will be installed on each side of SOBI for both transitioning the cables from shore to deep water and providing protection from surface ice and icebergs, resulting in a total of six cable conduits. Horizontal directional drilling (HDD) will be used to establish holes for the conduits.

The length of the cable conduits will be approximately 1600 m on the Labrador side and approximately 2200 m on the Newfoundland Island side. The holes are to be drilled from shore and exit the rock into the ocean at a depth of approximately 60 to 80 meters below sea level. The geology in the area consists of sedimentary sandstone, limestone, dolomite, shale, and Precambrian granite. Detailed field condition information will be provided in the request for proposal (RFP) package following the EOI.

The seafloor target for the final drilled exit location will be the center of a 30 X 30m zone. The conduit end exit requires marine verification of actual condition and location due to tolerance allowance within the drilling positioning equipment. The drilling process will consist of two distinct operations, initially drilling the hole through virgin soil with a drill string to the rock – sediment interface below the seafloor, subsequently pushing the conduit through the drilled hole, the sediment and exiting through the seabed onto the seafloor. Marine verification will be required for the drilling on the primary (first 2 - 4) holes on either side of the SOBI. This will validate the reliability of the drilling positioning equipment and verification on the following holes may be deemed unnecessary if drilling tolerance confidence is proven. The succeeding holes may only require marine verification of the conduit exit onto the seafloor. The total marine verification occurrences equal 8 - 10 (2 - 4 drilling and 6 conduit exit).

The primary marine verification of the drilling will require precise position verification and the conduit end exit verification will, as a minimum, consist of as-built video and precise location of the conduit end exit.

The drilling program is anticipated to commence in Q2 2014 and marine verification campaigns will be required on a call off basis from drilling commencement to concluding in Q3 2015. Each campaign will be performed on critical path, delaying further drilling operations and therefore efficiency is paramount. The drilling schedule will include optimization of the verification interface.

Due to the criticality of the work, a trial marine verification campaign may be required to ensure efficiency. The work includes concept development, engineering, troubleshooting, and multiple mobilization / demobilization and campaigns. Development of the solution will require a collaborative effort between Company and the various contractors supporting the conduit installation scope.

The verification scope may include the following verification items:

- Position
- Scale
- Water Depth
- Visual confirmation of condition
- Visual of seabed and seabed interpretation
- Multibeam survey
- Sidescan survey