

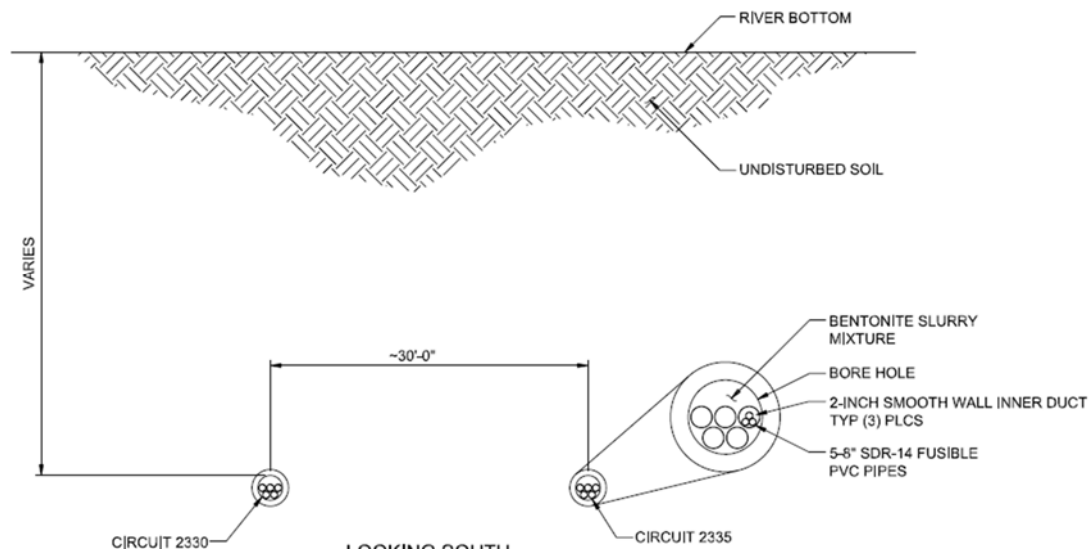
Installation and commissioning of Patuxent River Crossing (HDD, 1.4 km) Project in US

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Southern Maryland Electric Cooperative (SMECO) planned and designed the Holland Cliff to Hewitt Road 230kV transmission line project which is part of SMECO's overall Southern Maryland Reliability Project (SMRP). The SMRP includes a segment of underground transmission line crossing the Patuxent River using 230kV high voltage solid dielectric (XLPE) cables. The initial installation was planned for a single circuit 230kV XLPE cable system with provisions for a second circuit to be installed in the future. The land based portion of the route will be installed in concrete encased duct bank with conduit provisions for a future circuit. The Patuxent River crossing portion of the route was installed in a Horizontal Directional Drill (HDD) with a separate parallel HDD with conduit installed for a future second circuit

The Patuxent River Crossing consists of two separate parallel 1.4 km HDDs and 3~4 f-PVC conduits for each HDD. This length of HDD is one of the longest HDD cable pulling method in US. As a result there was some technical issues (such as conduit installation, cable pulling, etc.) should be solved prior to the installation.



As a prime contractor, LS Cable & System supplied and installed 230kV XLPE 1600SQ copper conductor cable and accessories with various technique and method to install into the 1.4 km HDD. As a result it was successfully commissioned in Oct. 2014 and commercially operated in Nov. 2014.

This paper covers the philosophy and the techniques to install the cable through the long length (1.4 km) HDD as below.

- Manufacturing and transportation long length cable drum (1.4 km)
- Conduit installation and jointing process including debanding at joint area
- Cable pulling process including friction coefficient testing
- Sheath bonding method (hybrid, cross bonding) and related current rating
- Commissioning test