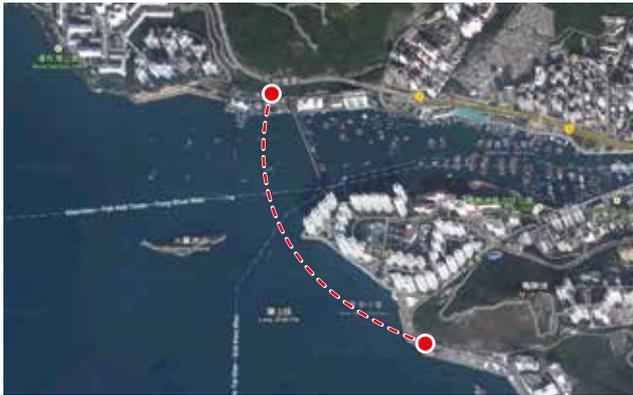




Prime Horizontal



Case History – Aberdeen, Hong Kong



Overview, Aberdeen, Hong Kong



Entry Site



Exit Site

Aberdeen Harbor is the harbor between Aberdeen (town) and Ap Lei Chau, and is one of the nine harbours in Hong Kong. It is well known for its view and is a popular tourist spot. During fishing moratorium and the typhoon weather, it is also the parking spot for fishing vessels owned by local fishermen. The island Ap Lei Chau needed to be connected with a double sewer line coming from Hong Kong.

Total length of the crossing was 1390 meters for the first drill and 1400 meters for the second one.

Covering a water body of more the 1250 meters in hard rock. Drilling 1 rod ($\pm 9.40\text{m}$) in this formation took us 1 to 3 hours. Total amount of drill rods was 146. The horizontal curve was a 1057m long with a radius of 700m, turning 88° in total to the left. Entry side was tight, as well as exit side.

On entry side, the back of the rig was sitting against a mountain. We had to cut down a couple of meters too. No room to move back or forward. Right in front of the rig there was a very busy road that could not be blocked. Traffic had to keep going. On top of this, the seabed goes down rapidly to almost 66 meters.

On entry side we only had 74 meters before getting to the water. Therefore we had an entry angle of 28° . We went to a depth of 103 meters in the horizontal. Water traffic was heavy, lots of boats sailing in or out constantly made it impossible to lay-out a coil or have the Big Beacon on a float. Everything had to be measured from the land. The closest land point was half way the crossing, but still 80 meters horizontal away from the drill. Being 103 meters deep, means that we had to cover a distance of 130 meters. Due to the shape of the island Ap Lei Chau, we could only use the Big Beacon. We tried to layout a double loop coil too, but the water traffic was too much to get good readings. The distance from the tool to the coil was 173 meters and increasing.

On exit side we had 71 meters of land and had to come out with a angle of 23° . Not just a field, it was a construction site. Trucks and excavators were moving all the time. There was armored concrete on the floor, so lots of magnetic interference around us.

For the second drill we had an underground coil through the first pilot hole. The Big Beacon turned out to be a very good tool in areas where it is impossible to lay out a coil or put down any other Magnetic Guidance System.

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