

Case Study

Compaction Grouting

DATE: September 2004

PROJECT: Stillaguamish River Bypass

OWNER: Olympic Pipeline Company

LOCATION: Arlington, Washington

The Stillaguamish River Bypass project consisted of 3,400 feet of horizontal directional drill under the Stillaguamish River in Arlington, WA. One contractor made two unsuccessful attempts to make the crossing and needed to replace a section of the Olympic Pipeline. Another contractor was brought in and made one unsuccessful attempt. The decision was made to treat two difficult contact layers along the HDD borepath with grout from the ground surface. The plan consisted of drilling vertical holes 5 feet on either side and one directly in line with the borepath to a depth approximately 10 feet below the anticipated pipe elevation. Hole depths ranged from 60 feet to 105 feet with neat cement grout being placed under pressure from 10 feet below to 10 feet above the proposed borepath elevation.

Northwest Cascade drilled approximately 100 holes with two Klemm drills working simultaneously and pressure grouted with neat cement grout through a pressure cap and 6" casing. The grout was mixed on-site using a High Shear colloidal style grout plant. Approximately 130 cubic yards of grout was used to treat the area surrounding the borepath. A twenty cubic yard void near the ground surface caused from the first HDD attempt was also filled using a bentonite cement mix.

The grouting portion of the project was completed in September of 2004. The HDD contractor began drilling 24 hours after completing the grout placement and was able to successfully complete the hole and place the new gas line. The owner and the general contractor were both very pleased at the results of the grouting operations and Northwest Cascade assistance in completing the project.



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