Two Outfalls in Puget Sound (USA) Face Very Different Construction Challenges

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ABSTRACT

A review of the construction challenges of two recent outfall designs. The first is a 1,400mm diameter x 92m (54-in diameter x 500-ft) long HDPE marine pipeline completed in 2019. Usage is pending the completion of the pump station. This site is constricted by the bascule piers and fendering system in the Duwamish (river) requiring the pipe string to be threaded through a narrow slot while dealing with superfund contaminated sediment issues and encountering buried concrete panels and debris along the trench section. The second is a 1,000mm diameter x 370m (42-in diameter x 1,100-ft) long HDPE marine pipeline currently in the early stages of construction. This outfall is located in the Guemes Channel which experiences high current velocity and includes glacial erratics consisting of large, scattered boulders and cobbles in the offshore section and a layered cake dredge prism of 600 to 900mm (2-ft to 3-ft) of wood waste contaminated sediments over glacial deposits of over 80 blow counts therefore requiring two different dredging methods.

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