

Case Study: Utilities

PROJECT DETAILS

Renewal of 1,007 feet of 24" RCP raw water inverted siphon

LOCATION

Dillon, Colorado

ALLIANCE PARTNER

Murphy Pipeline Contractors

COMPLETION DATE

July 2012



Challenge

- Client needed to protect the life of 1,007 feet of existing 24" RCP Raw Water Inverted Siphon.
- The area faces water supply challenges despite the fact it is a headwaters county. Much of the water in the county belongs to senior water rights holders such as Denver Water. As the siphon moves mountain runoff to the reservoir, the pipeline is a necessity of life for town residents.
- Pipeline located in environmentally sensitive area starting from Salt Lick Gulch on the north side of I-70, and then travels through the inverted siphon located under I-70, a major freeway.
- The inverted siphon consisted of bends that could not be accessed. It was vital that the installation be completed in one continuous pull.
- The siphon could only be renewed during a limited period of time during the summer dry season.

Solution

- Several construction methods were evaluated, with Swagelining™ being selected to maximize flow capacity and still travel through the bends of the inverted siphon. Additional selection criteria included limiting excavation, following the existing utility path and speed of installation.
- 1,007 feet of the siphon was renewed using the Swagelining™ technology with DR 32.5 HDPE PE 4710 pipe.
- Murphy Pipelines were able to design the project with Swagelining Limited's assistance to complete the project in a single pull, through the inverted siphon.

Impact

- The small footprint of utilizing the Swagelining™ technology resulted in a significant reduction in social and environmental costs.
- Excavation was 90% less than what open cut trenching would have required.
- 'Tight' fitting polyethylene liner provides long term design life to ensure the water supply of the siphon to the reservoir.
- The rapid installation and small footprint was a key element in minimizing the impact to the area, including a recommendation by the Department of Transportation to use the method under interstate highways for future pipeline projects.



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