



## PROJECT PROFILE CONSTRUCTION

**CLIENT**  
Colorado Springs Utilities

# PIPELINE AND WATER SYSTEM DESIGN AND CONSTRUCTION

Pueblo, CO

### SITUATION:

Colorado Springs, CO is the county seat and the largest city in El Paso County in Southern Colorado. El Paso County's population is anticipated to grow at a rate of 1.9 percent a year through 2030, or 350,000 additional people. To satisfy their growing need for municipal water, Colorado Springs and their partners have chosen to invest in their future and have developed plans to construct the Southern Delivery System to utilize their water rights from the Arkansas River. To do so, they are in the process of designing and constructing a 66 inch welded steel pipeline and water system that will transport raw water 47 miles from Pueblo Reservoir to the future Colorado Springs water treatment plant.

Included in the system are a dam connection, raw water pump stations, 47 miles of 66 inch raw water pipeline, a treatment plant initially capable of treating 50 million gallons per day expandable to 100 million gallons per day, finished water pump stations, and approximately 9 miles of 42 inch to 54 inch finished water pipeline, at a Phase I cost of approximately \$1 billion financed with 40 year bonds. Due to the magnitude of the overall project it is being designed and constructed in phases and segments.

### SOLUTION:

Layne contracted with Colorado Springs Utilities to construct Segment 3, approximately 7.6 miles, of the 66 inch raw water pipeline. The southern end of Segment 3 is located just north of Pueblo West, and the alignment runs north the 7.6 miles to the Pueblo County / El Paso County line. The southerly 5.3 miles of the alignment is through an environmentally sensitive working cattle ranch and the northerly 2.3 miles are through a ranchette community. The majority of the project was installed in sandy material, but there was also 7,350 cy of rock that had to be excavated for installation of the pipeline. The depth of excavation ranged from approximately 14 feet to 45 feet.

In the deeper areas, the 150 foot wide construction easement is very tight, but due to the environmentally sensitive nature of the surrounding lands it was critical to stay within the easement. The lower 70% of the pipeline was backfilled with CLSM, and the upper 30% percent was backfilled with select native materials. A batch plant was set up on the project site, and CLSM was produced using the native soils as aggregate, but due to the quantity of CLSM offsite sources also were required.

The pipeline has been installed and is being filled for testing. The finishing touches are being completed on the pipeline appurtenances.

### SERVICES EMPLOYED:

- + Pipeline Construction
- + Water Main Construction

