



## HORIZONTAL DIRECTIONAL DRILLING

### PROBLEM OVERVIEW

CUES was contacted by a contractor that had complications during a horizontal directional drill (HDD) of a 1,600ft 36in steel gas transmission pipeline. During the installation process of the pipeline, the contractor had to pull back and reinsert the pipe multiple times. The objective for the AMP™ in this scenario was to map the pipeline and provide the engineers bend radii data to verify the pipeline met the required bend radius specifications.

### CUES APPROACH

CUES used this opportunity to verify newly developed pulling reels that allowed efficient setup and simple operation. In order to keep the AMP™ in the centerline of the pipe, the mule tape that was attached to the probe on either end was setup to be pulled directly through the center of the pipe. At the entry location, the reel was located on a dirt mound to give it the proper angle and at the exit location (ref. Figure 1), CUES rigged a hook on the end of the pipe to ensure the tape would be pulled through the center of the pipe. The newly designed reels were very successful at pulling consistently and smoothly

at the desired rate. CUES performed 2 runs (entry to exit and exit to entry for each run) with no issues and received quality data that showed consistency and repeatability.

### RESULTS

View the Google Earth image of the mapped pipeline (ref. Figure 2).

CUES sent the customer the requested Plan, Profile and Bend Radii data (ref. Appendix A) the same day the mapping was performed. As you can see from the Profile graph in Appendix A, an upward bend creating a concave section can be found between 1,000ft and 1,200ft. Also, bend radii data in Appendix A details that under the 30ft intervals the bend radius exceeds the minimum 1,800ft (client specified), however the 60 and the 90ft interval fall within the specifications. The customer informed CUES that the bend radius is calculated over three drill stems, which is equal to 90ft (industry standard). Findings such as the concave section and bend radii have shown the customer the invaluable data that can be obtained by utilizing the CUES AMP™.



Operational range of 3.5in ID (90mm) to 58in ID (1473mm). Whether the pipeline is made of steel, concrete, PE, or PVC, this mapping system can be used to accurately locate any pipe.

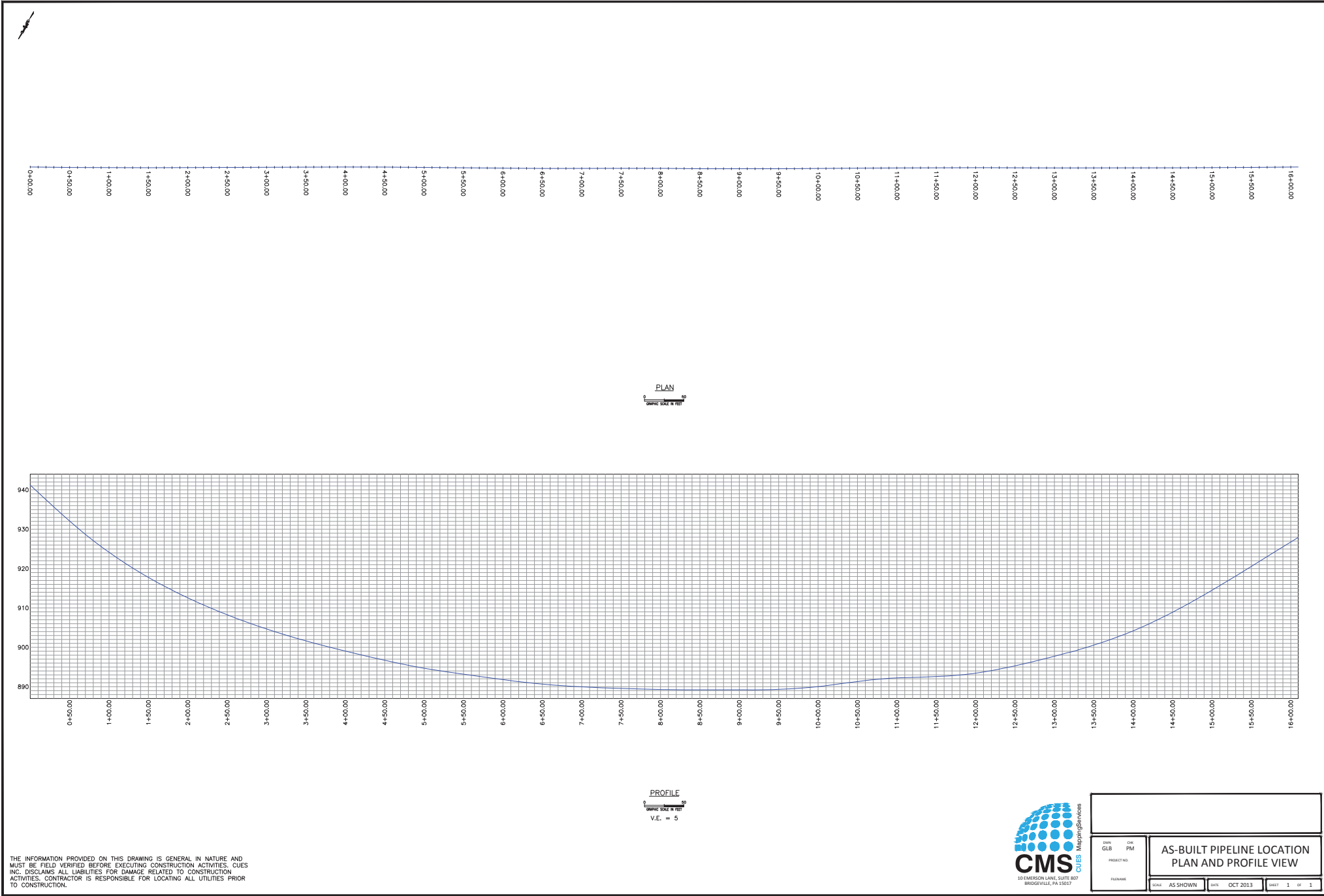




Figure 1: Exit Location Configuration



Figure 2: Mapped Pipeline



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FILENAME		AS-BUILT PIPELINE LOCATION PLAN AND PROFILE VIEW	
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Appendix A - Bend Radii Data

