

## **PSC Case No. PU-17-48**

### **Arrow Field Services LLC**

### **10" Residue Gas and 8" Natural Gas Liquid Pipelines - McKenzie County**

### **Construction Inspection Field Notes - 09/13/2017**

Bartlett & West (BW) inspector Dan Christenson conducted a construction inspection of the Arrow Field Services 10" Residue Gas and 8" Natural Gas Liquid Pipelines (Case No. PU-17-48) on September 13, 2017. Construction progress is now being made along the entire length of the project route. Permit regulations and construction progress was reviewed along the length of the right of way without any compliance issues encountered.


Actual construction work commenced on Friday August 25<sup>th</sup>, 2017. The type of work completed thus far includes survey staking, topsoil removal, construction matting, tree removal, utility locates, potholing, sub-grade excavation, pipe stringing/welding/lowering, and erosion control measures. The pipeline right of way has survey stakes placed for the remaining pipeline alignment and subgrade removal operations. Top soil has been stripped and stockpiled within the pipeline right of way limits for the entire length of the project. A few large boulders were encountered during the remaining top soil removal and are currently being stored on the right of way. The depth of topsoil being stripped was measured at various locations and the depth measured was consistently ( $\pm$ ) 12 inches. Sub-grade excavation began on Tuesday September 12<sup>th</sup>. As of September 13<sup>th</sup> sub-grade has been excavated from Figure 2 (see attached map) to 20<sup>th</sup> Street NW with both pipelines lowered in. The sub-grade excavated thus far is being kept segregated from the topsoil per the PSC Order and is being stockpiled on the opposite side of the right of way. The pipeline section currently installed exists under cultivated land which has a minimum depth of cover requirement of 48 inches per the PSC Order. The depth of cover for the 8" and 10" pipelines for this segment was measured at ( $\pm$ ) 7.5 feet. Erosion control measures have been constructed since the previous topsoil removal inspection. Erosion control work includes silt fencing, straw blanketing, and stock pile drainage swales. The stripped top soil is generally being piled near the edge of the high elevation side of the right of way which will help minimize the effects of water erosion on the stockpiles. Per the Public Service Commission Order for the project, the topsoil is not being stockpiled in natural drainages and is protected from compaction by heavy machinery. Arrow Field Services is taking the appropriate

# Bartlett & West

Driving Community and Industry Forward, Together.

steps to protect wetlands by limiting access and installing temporary construction mats. The right of way has minimal garbage present and a few workers were cleaning up debris during the inspection.

At this point it appears that the project is being constructed in compliance with the siting laws and rules, and the PSC Order for the project. The pages following include photographs taken during the construction inspection and a location map.



---

James Landenberger, Project Manager



Figure 1. View of right of way progress from County Road 37, looking south.



Figure 2. View looking south at subgrade stockpiled within right of way limits.



Figure 3. View of installed 10" and 8" pipelines looking south. Two feet of separation between pipelines and 7.5' depth of cover.

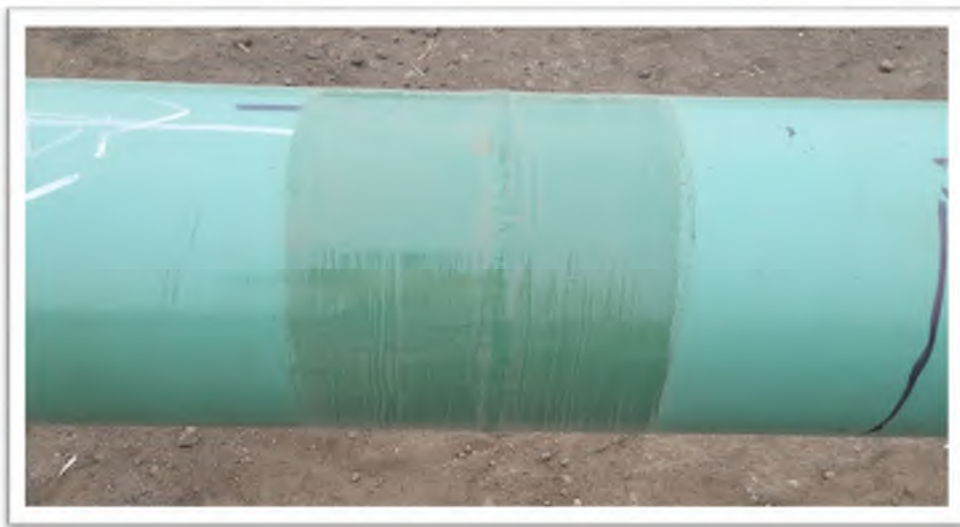


Figure 4. View of completed weld on 10" pipeline assembled above ground.



Figure 5. View from pipeline right of way looking north. Topsoil stockpiled along western edge of right of way.



Figure 6. Boulder encountered during topsoil removal operations.



Figure 7. View from western pipeline right of way edge looking south. Topsoil stockpiled along western edge of right of way.



Figure 8. Drainage swale cut out of topsoil stock pile.

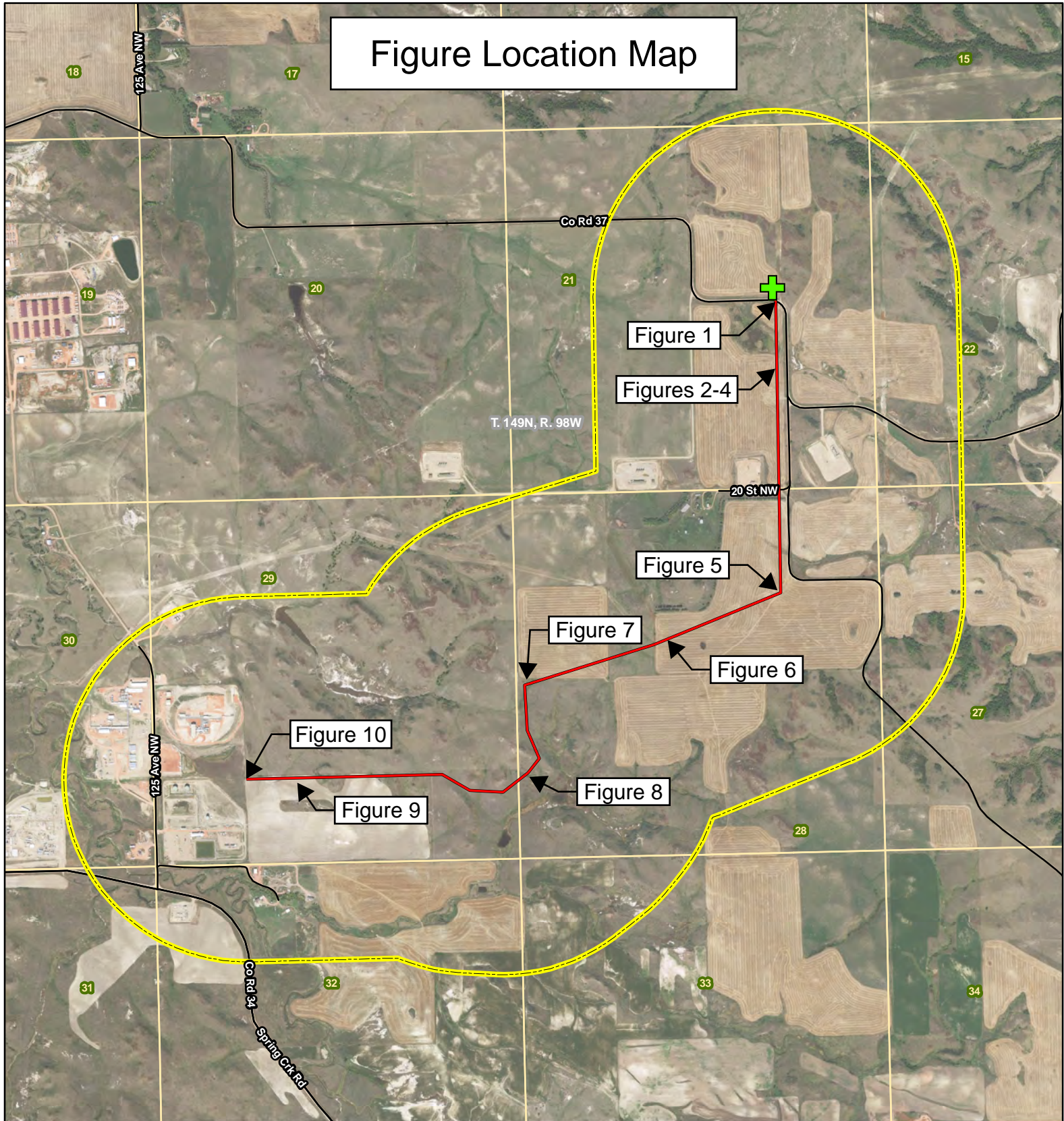


Figure 9. View from pipeline right of way looking east at pipeline string operations. Topsoil stockpiled along northern edge of right of way.








Figure 10. View from end of pipeline route near NGL plant looking east. Topsoil stockpiled along northern edge of right of way.

# Figure Location Map



## Legend

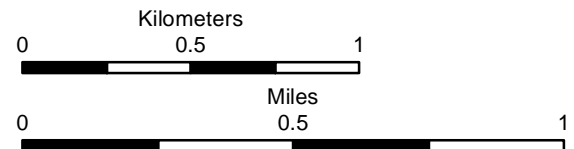
-  Proposed Gas Plant Location
-  Existing Road
-  Proposed Transmission Pipeline
-  1-Mile Wide Analysis Area
-  Section Boundary



116 North 4th Street  
Suite 200  
Bismarck, ND 58501

Phone: 701.258.6622  
Fax: 701.258.5957

[www.swca.com](http://www.swca.com)



Base Map: 2015 Aerial Imagery  
Source: USDA/FSA -  
Aerial Photography Field Office  
Quadrangle: Teepee Buttes (1995),  
Lone Butte NW (1995)  
T. 149N, R. 98W  
McKenzie County, North Dakota  
Projection: NAD 1983 UTM Zone 13N

