

# **NuStar 10" Pipeline Relocation Project**

## ***Construction Inspection Report***

***Docket Number: PU-20-381***

Prepared for North Dakota Public Service Commission



July 2021

# Construction Inspection Report

July 2021

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# 1 Executive Summary

The North Dakota Public Service Commission (PSC) retained Barr Engineering Co. (Barr) to complete site inspections for the construction of the North System Pipeline Relocation project in Cass County, North Dakota, constructed by NuStar Pipeline Operating Partnership L.P. (NuStar). The purpose of the inspections is to ensure the project is constructed in compliance with siting laws and rules and the applicable PSC Orders for the project.

A pre-construction conference call was held for the Project on 26 May 2021. Barr attended the call and reviewed project documents to become familiar with the Project and PSC Orders for the Project. Construction involving soil disturbance began 9 June 2021. A Topsoil Removal Inspection Report was previously submitted to the PSC.

Construction inspections were conducted on 13 July 2021. Pipe depth was documented at multiple locations and the pipeline was found to be installed with the depth of cover required per the Commission's Order. During construction site inspection some isolated incidents of soil segregation issues were observed. These were brought to the attention of the NuStar representative. To resolve these issues, Barr recommended installing silt fence between subsoil and topsoil stockpiles or increasing the distance between topsoil and subsoil stockpiles to ensure proper soil segregation. Overall, project construction appears to be in compliance with the applicable siting laws, rules, and PSC orders.

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## 2 Background and Scope

### 2.1 Introduction

The North System Pipeline is a 10-inch pipeline originating at the Marathon Petroleum refinery located in Mandan, North Dakota that carries refined petroleum products to Fargo, North Dakota, and locations further east. A section of the pipeline, 2.21 miles long, will be relocated to go south from the project start point, then turn west until it reaches the project end point. Refer to project siting application for detailed route information.

The pipe for the Project is designed to carry up to 3,000 barrels per hour of refined petroleum products (gasoline, diesel, etc.). The maximum allowable operating pressure for each pipeline will be 1,440 pounds per square inch gauge (psig), at a design temperature of 100 degrees Fahrenheit. The Project is under the jurisdiction of the North Dakota PSC, which issued its Findings of Fact, Conclusions of Law, and Order in Case No. PU-20-381 on 6 January 2021, granting Certificates of Corridor Compatibility No. 220, and Route Permit No. 230 for the Project.

### 2.2 Regulatory Purpose and Need

The North Dakota Energy Conversion and Transmission Facility Act (North Dakota Century Code Chapter 49-22) charges the Public Service Commission with determining that the location, construction, and operation of jurisdictional energy conversion and transmission facilities will produce minimal adverse effects on the environment and the welfare of citizens of North Dakota. Inspections during construction ensure that such projects are built in compliance with the siting laws (North Dakota Century Code Chapter 49-22) and rules (North Dakota Administrative Code Article 69-06) and the applicable Commission Orders.

### 2.3 Scope of Work

The North Dakota Public Service Commission retained Barr Engineering Co. to perform construction inspections of the Project. Barr's scope of work was to complete and document an on-site construction inspection during the construction phase of the project to verify the project was constructed in compliance with the siting laws, rules, and applicable Commission Orders and to verify the pipeline was installed with the depth of cover required in compliance with the Commission's Order. This report contains site visit observations and a summary of findings and issues that should be addressed for the Project to be considered complete and in full compliance.

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## 3 Findings of Site Inspection

### 3.1 Methods

Monty Johnson, Field Inspector for Barr, visited the Project site on 13 July 2021 to conduct construction inspections. Eric Callahan, chief on-site inspector for NuStar, accompanied Barr staff on the visit. Mr. Callahan oversees daily work by construction contractors to ensure the work is being completed according to applicable codes and approved work plans and procedures.

The site was visually inspected by driving to the equipment staging area then walking the portion of the Project right-of-way (ROW) where construction activities were being conducted by Rig Masters, Inc. (Rig Masters), the contractor constructing the pipeline for NuStar. Contractor equipment operators and spotters were observed during trench excavation and backfilling operations to ensure that subsoil was being properly stockpiled and segregated from the current topsoil stockpiles. Digital photographs were taken at observation points showing typical soil removal, pipe depths, or potential problem areas. Geographic coordinates were recorded at observation points using a handheld Global Navigation Satellite System (GLONASS) device (iPhone SE; <5m accuracy; WGS84 datum).

### 3.2 On-Site Inspection Observations

Mr. Johnson met with Mr. Callahan at the NuStar pump station. Mr. Callahan and Mr. Johnson then proceeded to the Project construction area. Rig Masters were in the process of backfilling a section of installed pipeline that runs north to south along the western project boundary as well as excavating the pipeline trench running west to east on the west side of 166<sup>th</sup> Ave SE. In all locations measured, pipe in trench was at or below required depth of cover. Trench wall profiles showed that topsoil had been stripped appropriately, however there were isolated instances where small amounts of topsoil was observed in the subsoil stockpile during active trench excavation as shown on Map 12 of Appendix A. Since Rig Masters ceased stripping topsoil once subsoil was encountered, some topsoil of less than one inch remained in place to ensure that subsoil would not be mixed with the topsoil stockpiles (Map 11 of Appendix A). Observations were made that environmentally sensitive areas were marked to avoid construction impacts. There were some isolated instances where adequate spacing or physical barriers were not present between topsoil stockpiles and small subsoil stockpiles (Map 3 of Appendix A). These were brought to the attention of Mr. Callahan and he stated that the issues will be resolved.

The contractors appear to have done a satisfactory job stripping topsoil and constructing the project to meet all siting laws, rules, and Commission Orders. Mr. Callahan with NuStar appeared to have a strong relationship with the contractor and was involved in ensuring soil was segregated and stored properly. Work areas visited during the inspection were kept free of debris and waste, and movement of vehicles was kept within ROW boundaries.

## 4 Issues to Resolve and Recommendations

Construction inspection of the North System Pipeline project verified that the project is being constructed in compliance with the siting laws, rules, and applicable Commission Orders. No major issues were observed during

the construction inspection. However, Barr makes the following recommendations to alleviate minor issues observed at the project:

Issues	Recommendations
<b>Isolated locations of inadequate physical separation of subsoil and topsoil</b>	Create further separation of stockpiles. Where this is not feasible, install silt fence to separate piles until soils are replaced.
<b>Isolated locations of small amounts of topsoil remaining in place during trench excavation.</b>	Ensure that all topsoil has been stripped before excavating and stockpiling subsoil through increased inspections.

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## 5 Signatures

The services performed by Barr staff for this project have been conducted in a manner consistent with the technical skill and degree of care exercised by professionals currently practicing in this discipline under similar time and budget constraints. Findings and recommendations represent our professional judgement and are based on available information and accepted practices. No warranty is implied or expressed beyond this.



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Andrew Unbehau, Project Manager

July 29, 2021

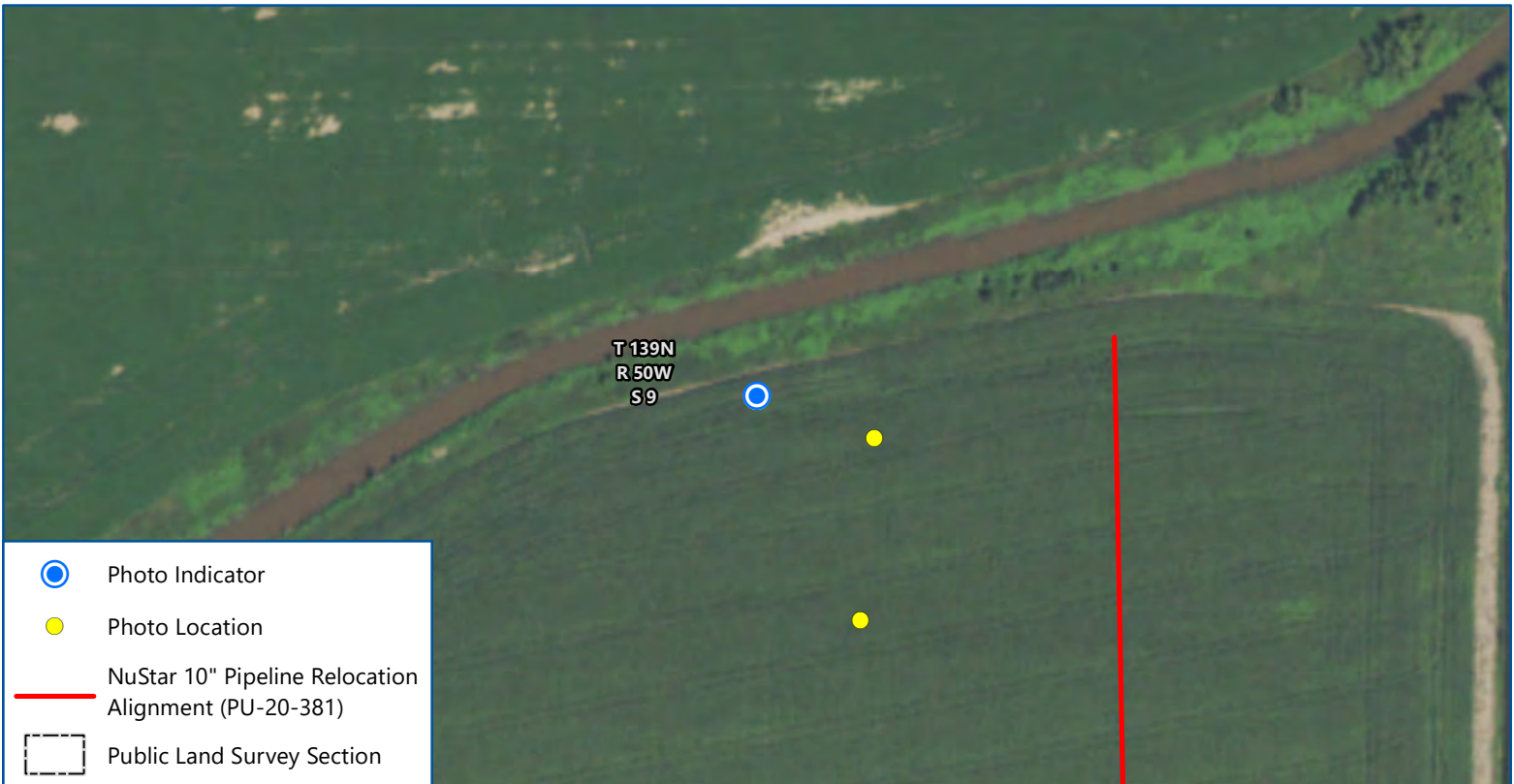
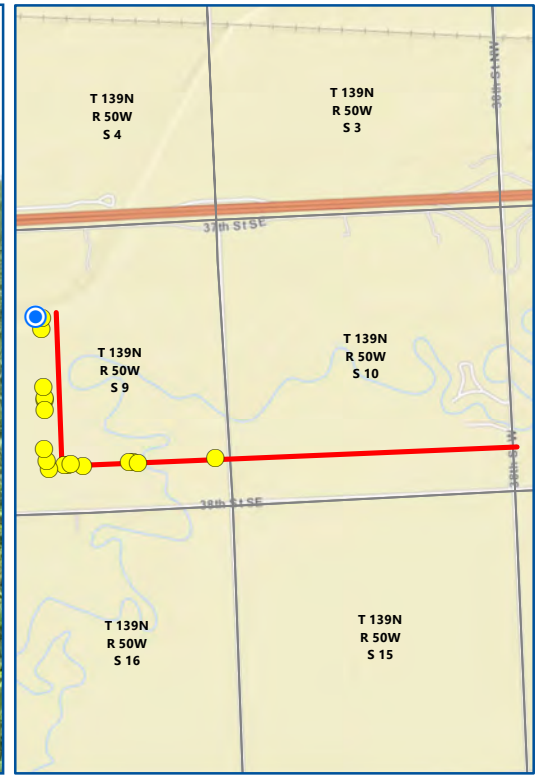
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Date

## Appendices

## **Appendix A**

### **Photo Log and Observation Maps**



Map 1 of 18

### NUSTAR 10" PIPELINE RELOCATION CONSTRUCTION INSPECTION PU-20-381

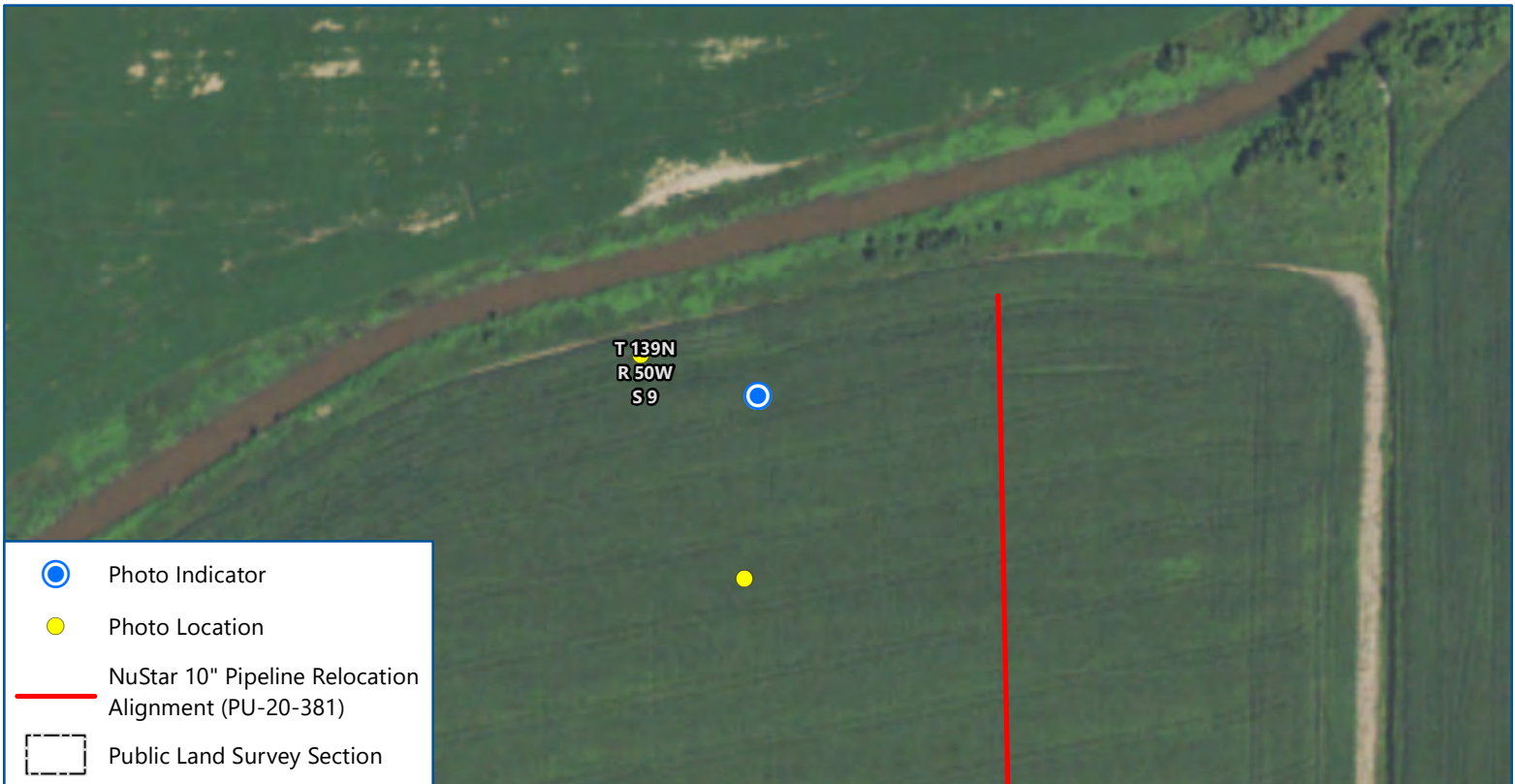
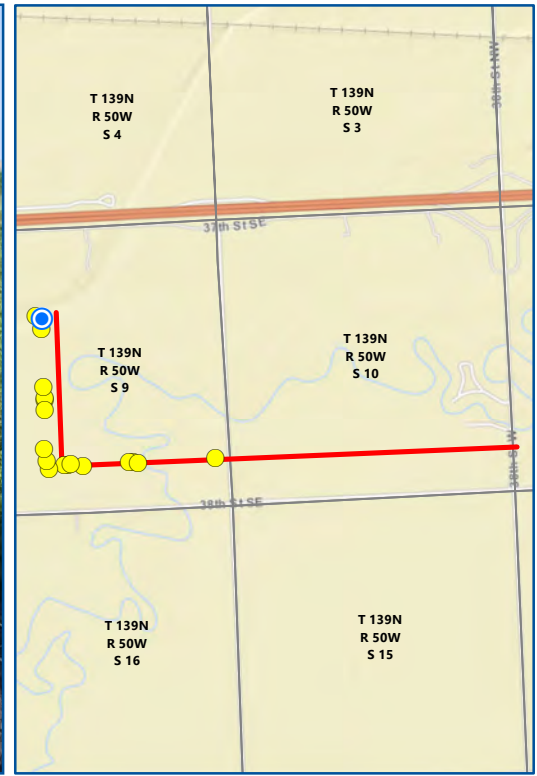
North Dakota Public Service Commission  
Cass County, North Dakota

Imagery: USDA FSA (2020)

Date: 7/13/2021  
 Photo Direction: South  
 Comment: Silt fence near topsoil stockpile;  
 no erosion observed

Latitude: 46.872559  
 Longitude: -97.003784  
 Coordinates are in the WGS84 datum.





Map 2 of 18

**NUSTAR 10" PIPELINE RELOCATION  
CONSTRUCTION INSPECTION**

**PU-20-381**

North Dakota Public Service Commission  
Cass County, North Dakota

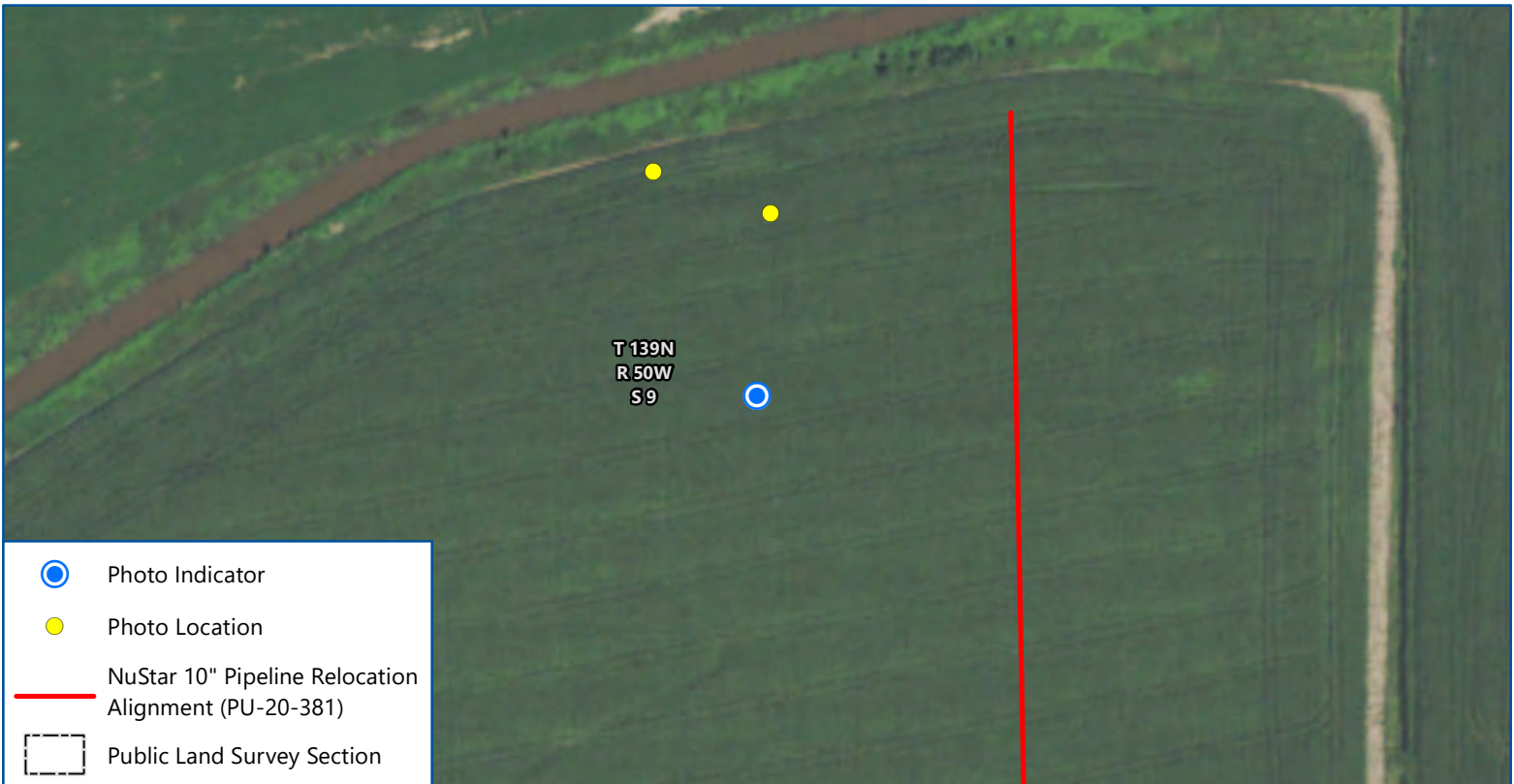
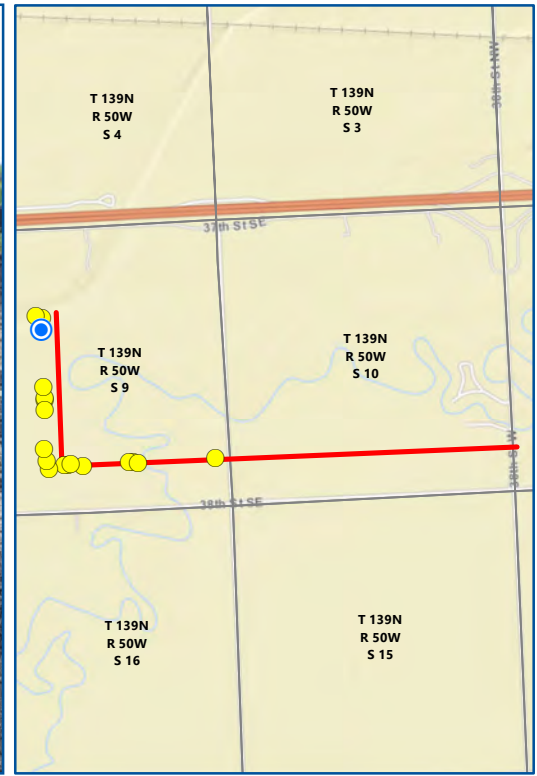
0 200  
Feet

Imagery: USDA FSA (2020)

Date: 7/13/2021  
 Photo Direction: North  
 Comment: Silt fence at south end of drilling stage area; no erosion observed

Latitude: 46.872427  
 Longitude: -97.003286  
 Coordinates are in the WGS84 datum.





Map 3 of 18

**NUSTAR 10" PIPELINE RELOCATION  
CONSTRUCTION INSPECTION**

**PU-20-381**

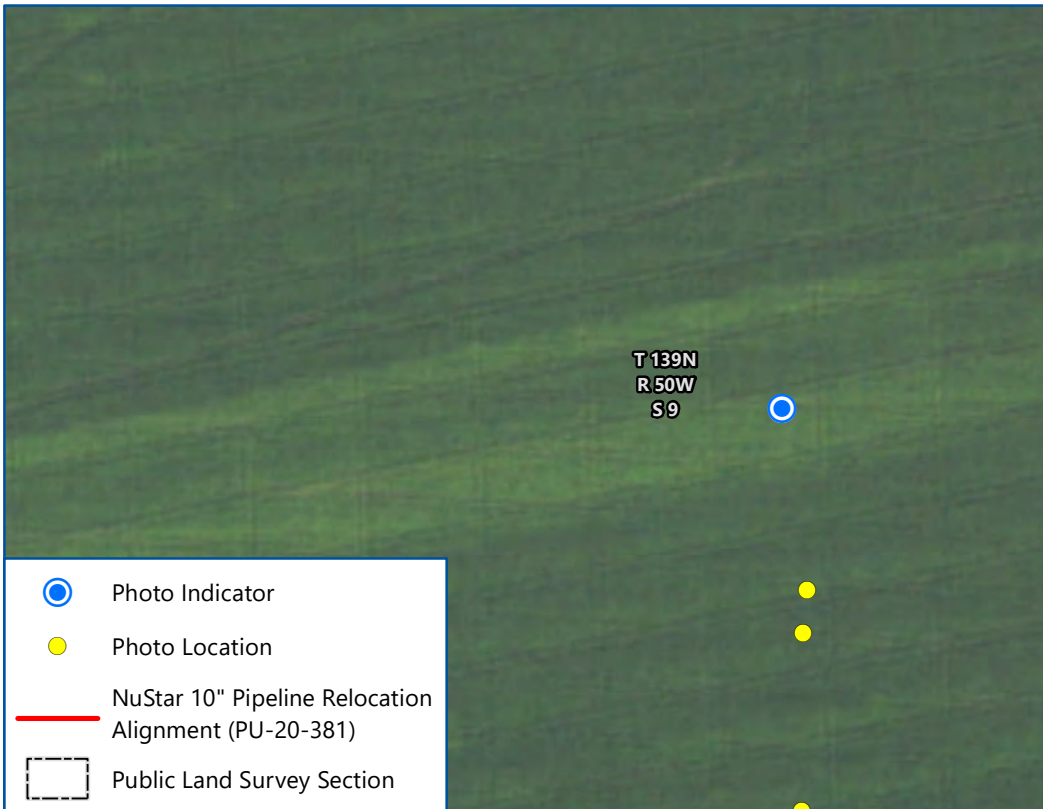
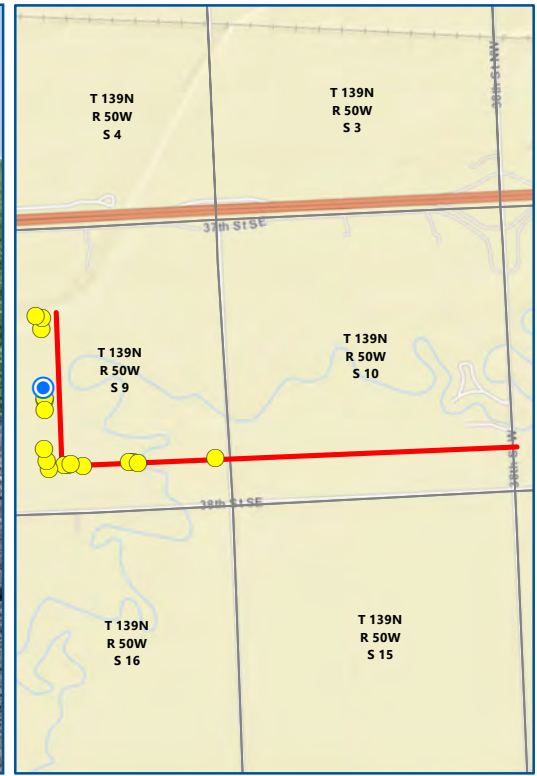
North Dakota Public Service Commission  
Cass County, North Dakota





Imagery: USDA FSA (2020)

Date: 7/13/2021  
 Photo Direction: South  
 Comment: Small subsoil stockpile near  
 topsoil stockpile with inadequate  
 separation

Latitude: 46.871889  
 Longitude: -97.003365  
 Coordinates are in the WGS84 datum.






-  Photo Indicator
-  Photo Location
-  NuStar 10" Pipeline Relocation Alignment (PU-20-381)
-  Public Land Survey Section


Map 4 of 18

## NUSTAR 10" PIPELINE RELOCATION CONSTRUCTION INSPECTION

### PU-20-381

North Dakota Public Service Commission  
Cass County, North Dakota



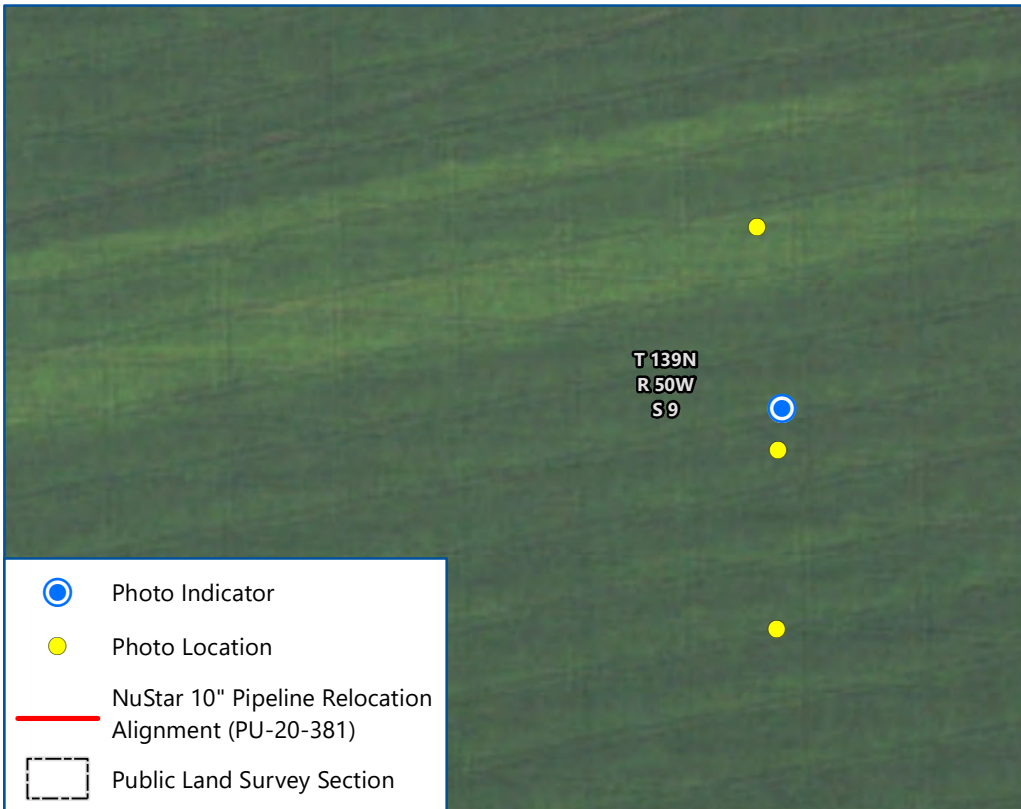
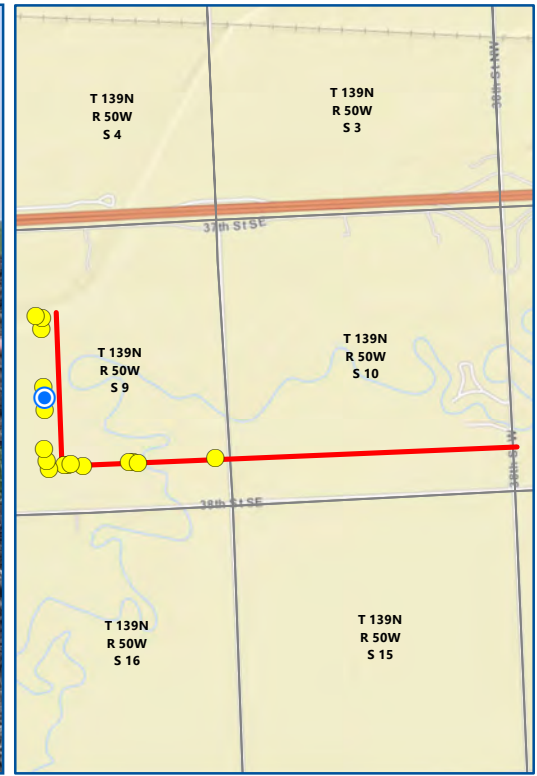


Imagery: USDA FSA (2020)

Date: 7/13/2021  
 Photo Direction: West  
 Comment: Silt fence; no erosion observed

Latitude: 46.8689  
 Longitude: -97.003428  
 Coordinates are in the WGS84 datum.







Map 5 of 18

**NUSTAR 10" PIPELINE RELOCATION  
CONSTRUCTION INSPECTION  
PU-20-381**

North Dakota Public Service Commission  
Cass County, North Dakota



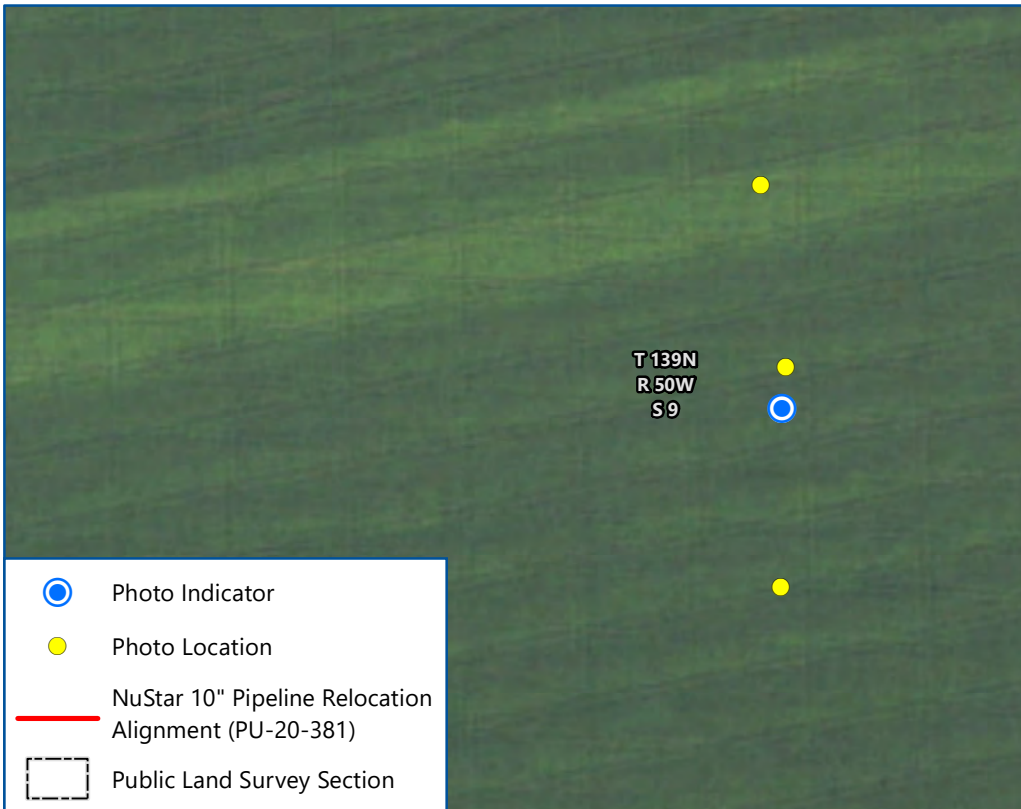
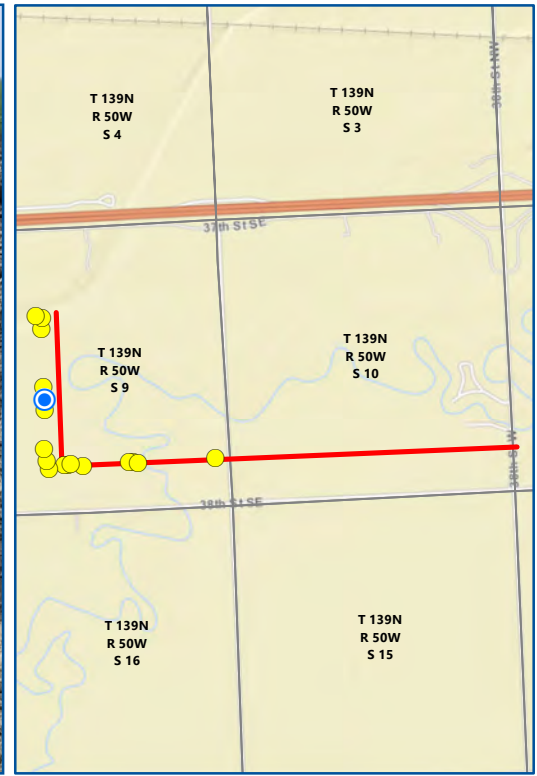






Imagery: USDA FSA (2020)

Date: 7/13/2021  
 Photo Direction: South  
 Comment: Topsoil stockpile with no silt fence due to flat grade; no erosion observed

Latitude: 46.868378  
 Longitude: -97.003344  
 Coordinates are in the WGS84 datum.






-  Photo Indicator
-  Photo Location
-  NuStar 10" Pipeline Relocation Alignment (PU-20-381)
-  Public Land Survey Section


Map 6 of 18

## NUSTAR 10" PIPELINE RELOCATION CONSTRUCTION INSPECTION

### PU-20-381

North Dakota Public Service Commission  
Cass County, North Dakota



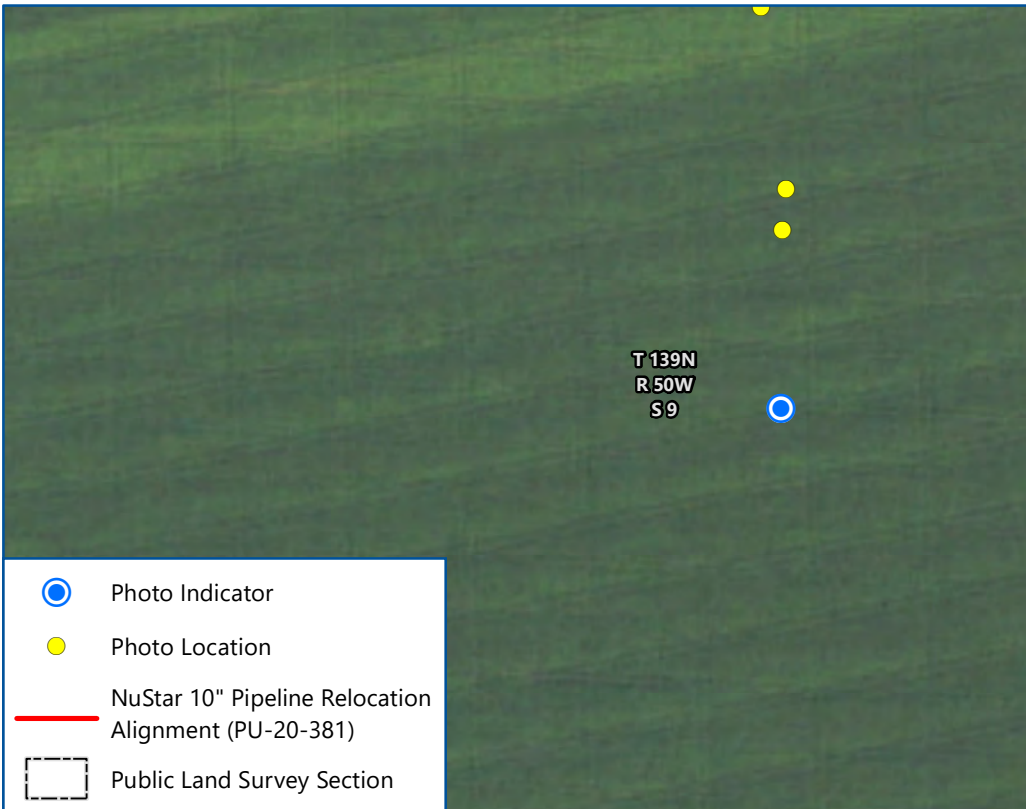
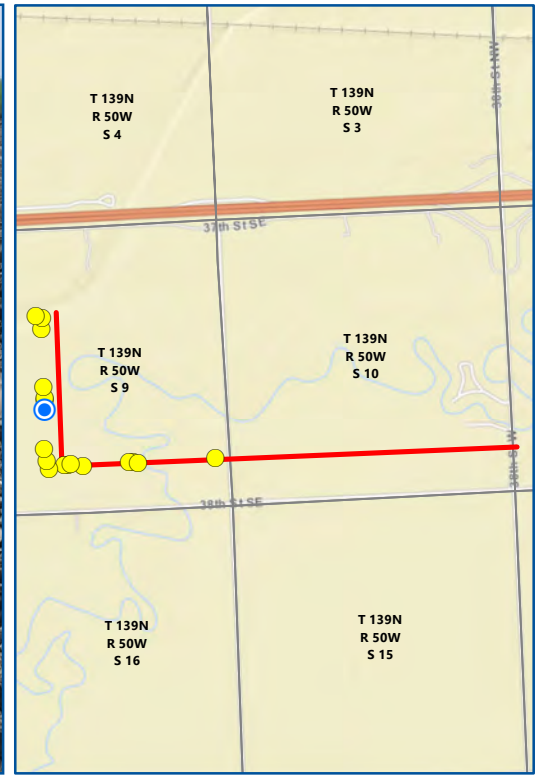






Imagery: USDA FSA (2020)

Date: 7/13/2021  
 Photo Direction: South  
 Comment: Backfilled pipeline 6 feet below ground surface

Latitude: 46.868259  
 Longitude: -97.003364  
 Coordinates are in the WGS84 datum.






-  Photo Indicator
-  Photo Location
-  NuStar 10" Pipeline Relocation Alignment (PU-20-381)
-  Public Land Survey Section


Map 7 of 18

## NUSTAR 10" PIPELINE RELOCATION CONSTRUCTION INSPECTION

**PU-20-381**

North Dakota Public Service Commission  
Cass County, North Dakota





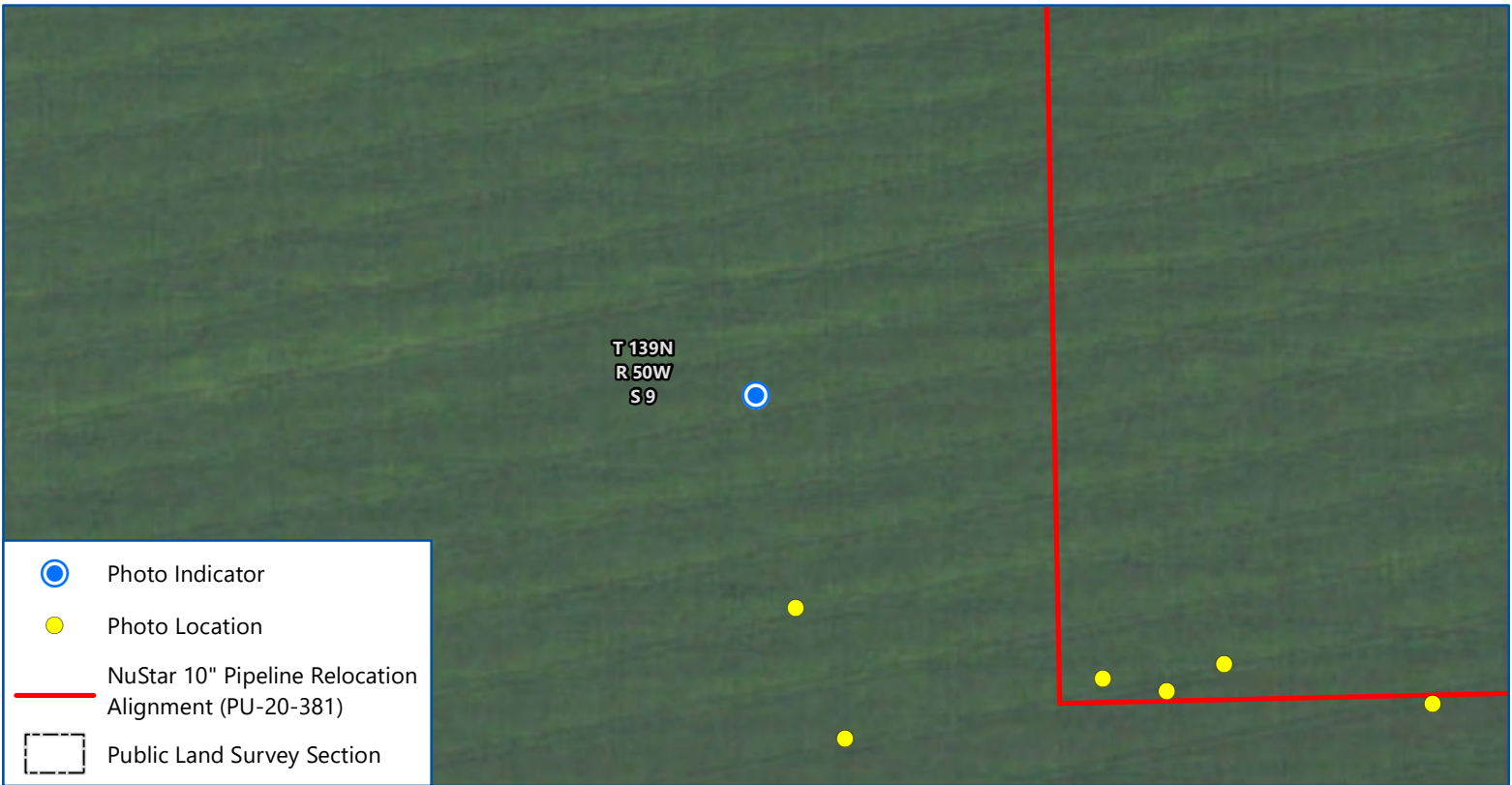
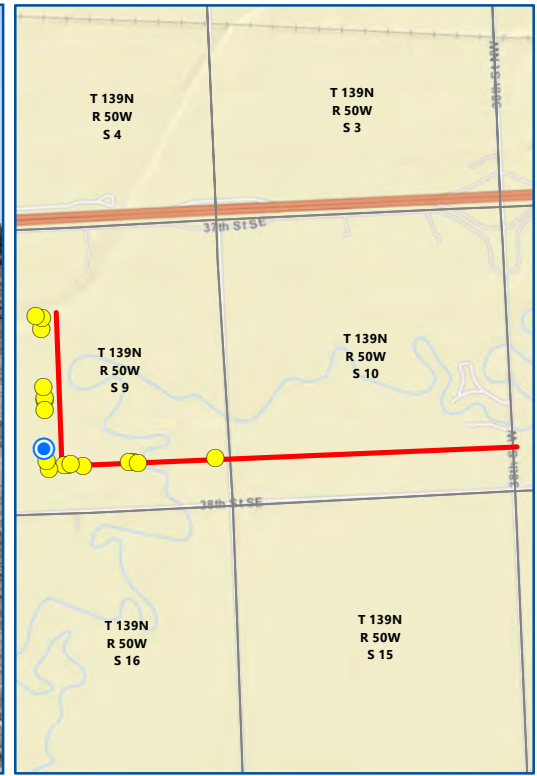
Feet

Imagery: USDA FSA (2020)

Date: 7/13/2021  
 Photo Direction: South  
 Comment: Topsoil and subsoil stockpile segregation next to staged pipeline for boring

Latitude: 46.86775  
 Longitude: -97.003389  
 Coordinates are in the WGS84 datum.





Map 8 of 18

## NUSTAR 10" PIPELINE RELOCATION CONSTRUCTION INSPECTION PU-20-381

North Dakota Public Service Commission  
Cass County, North Dakota

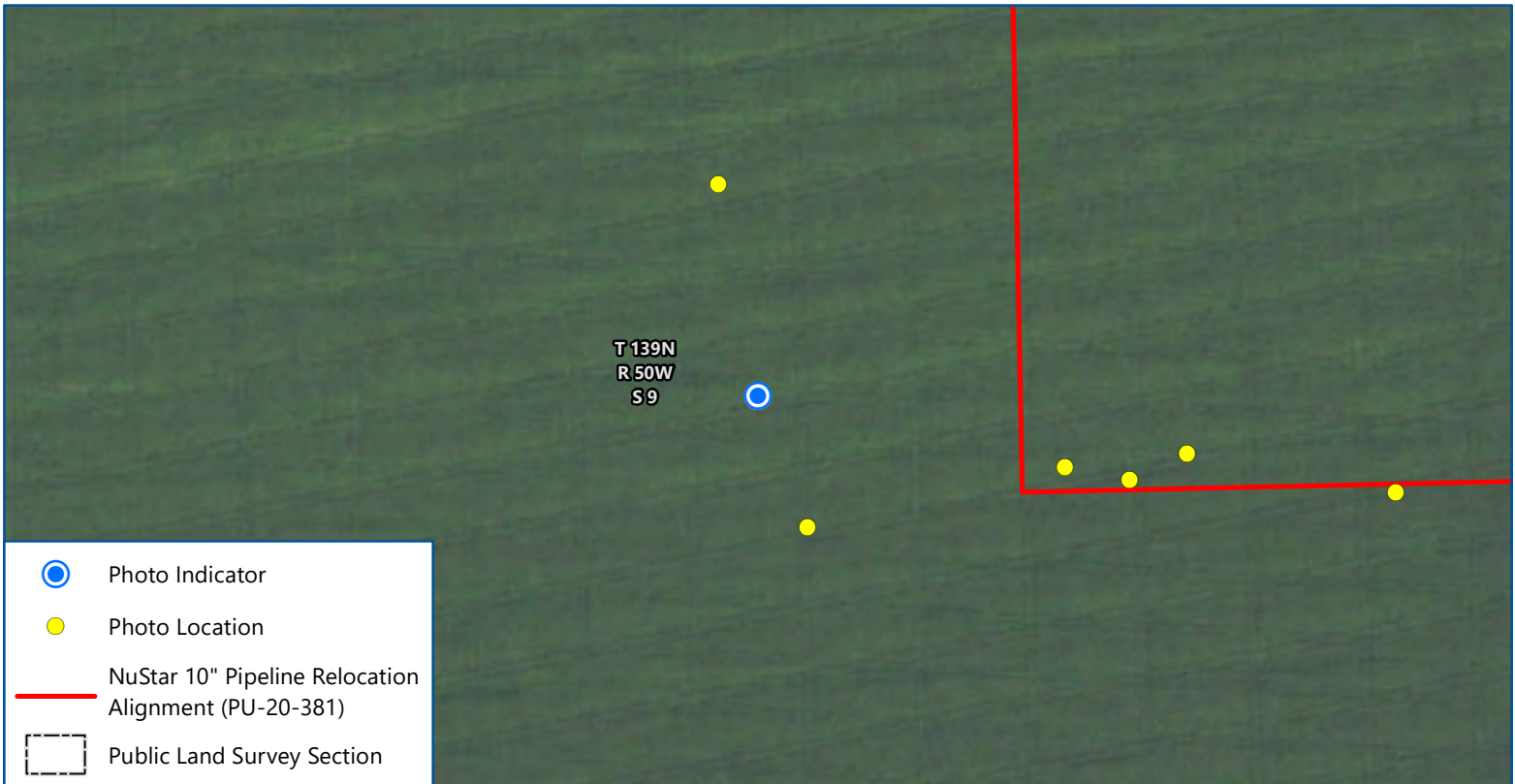
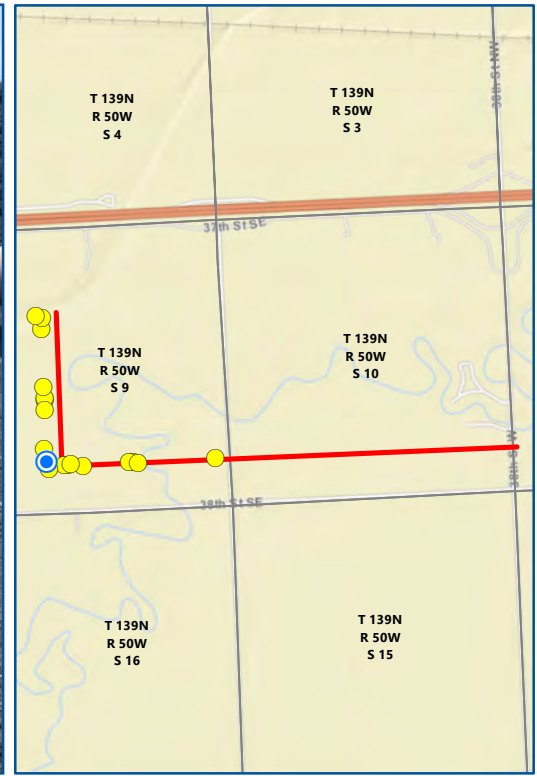
0      200  
Feet

*Imagery: USDA FSA (2020)*

Date: 7/13/2021  
 Photo Direction: North  
 Comment: Erosion berm within excavation footprint

Latitude: 46.865751  
 Longitude: -97.003589  
*Coordinates are in the WGS84 datum.*







Map 9 of 18

### NUSTAR 10" PIPELINE RELOCATION CONSTRUCTION INSPECTION PU-20-381

North Dakota Public Service Commission  
Cass County, North Dakota





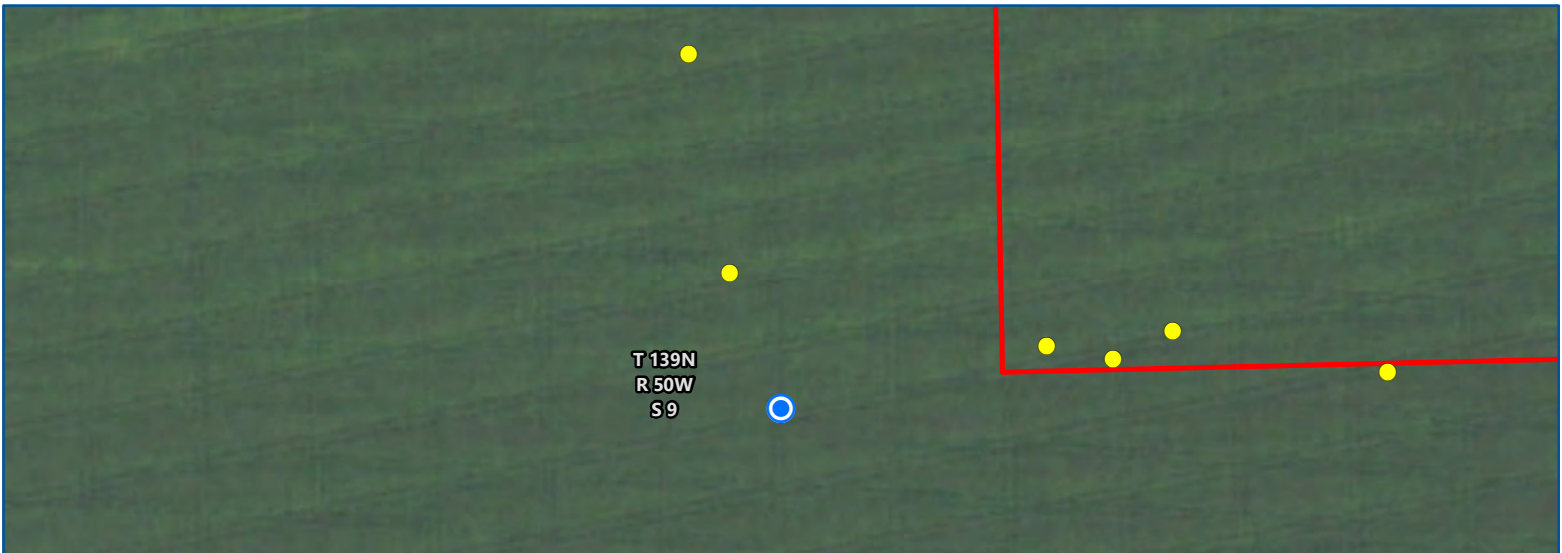
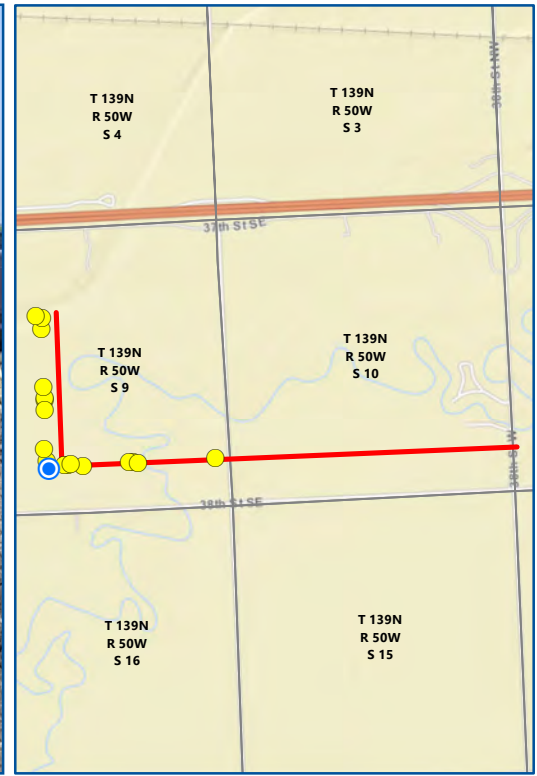
Feet





Imagery: USDA FSA (2020)

Date: 7/13/2021  
 Photo Direction: North  
 Comment: Backfilled pipeline 7 feet below ground surface

Latitude: 46.865123  
 Longitude: -97.003441  
 Coordinates are in the WGS84 datum.






-  Photo Indicator
-  Photo Location
-  NuStar 10" Pipeline Relocation Alignment (PU-20-381)
-  Public Land Survey Section

Map 10 of 18

### NUSTAR 10" PIPELINE RELOCATION CONSTRUCTION INSPECTION PU-20-381

North Dakota Public Service Commission  
Cass County, North Dakota

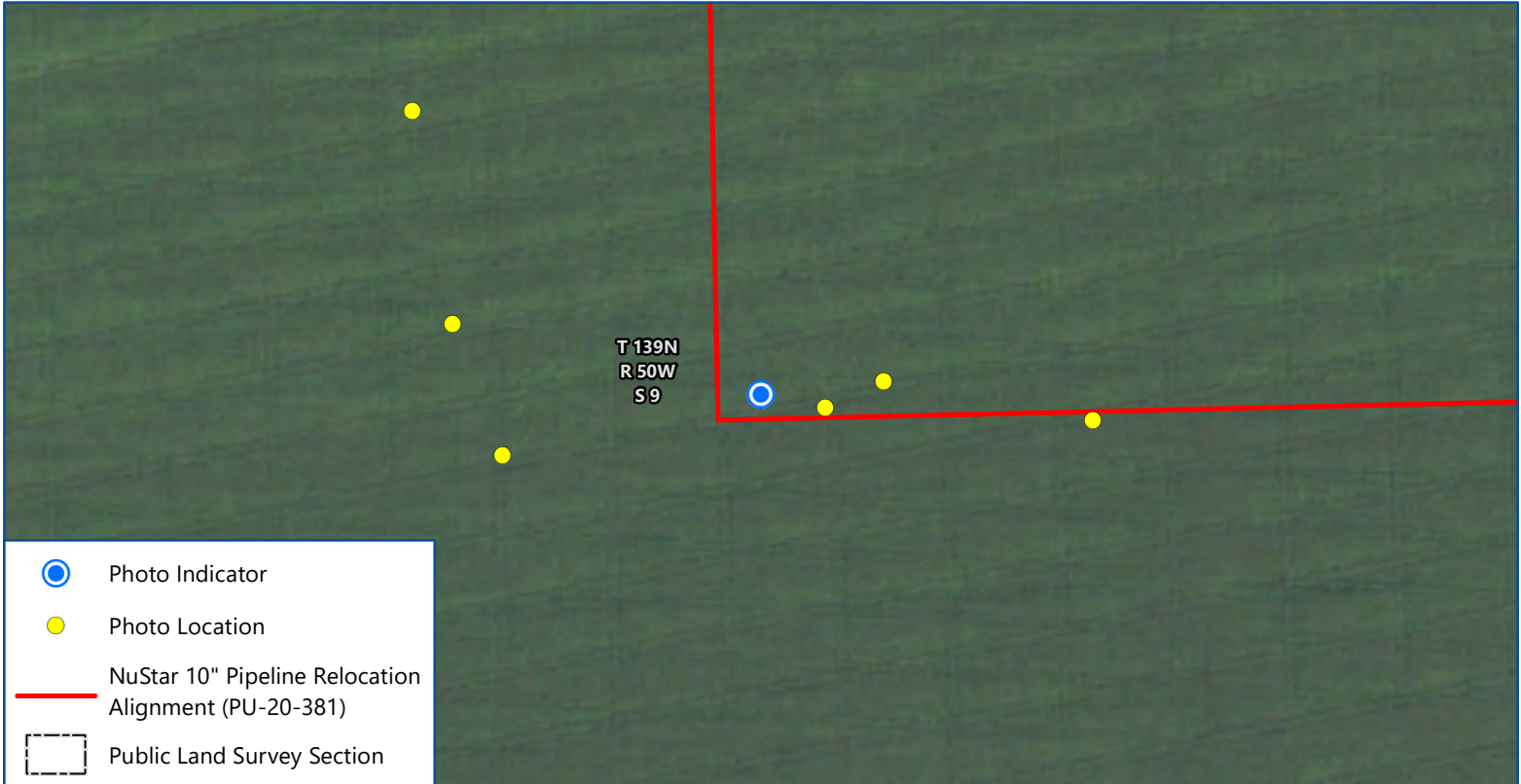
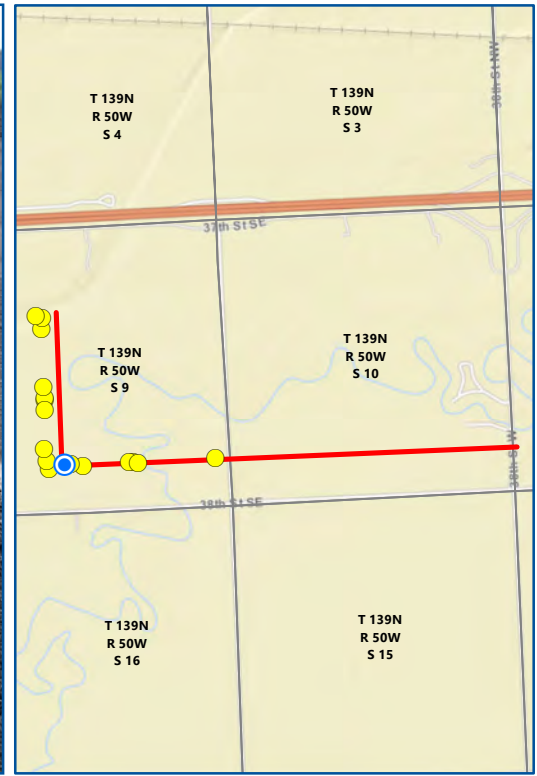


Imagery: USDA FSA (2020)

Date: 7/13/2021  
 Photo Direction: West  
 Comment: Topsoil stockpile without silt fence due to flat grade; no erosion observed

Latitude: 46.864731  
 Longitude: -97.003241  
 Coordinates are in the WGS84 datum.






Map 11 of 18

## NUSTAR 10" PIPELINE RELOCATION CONSTRUCTION INSPECTION PU-20-381

North Dakota Public Service Commission  
Cass County, North Dakota



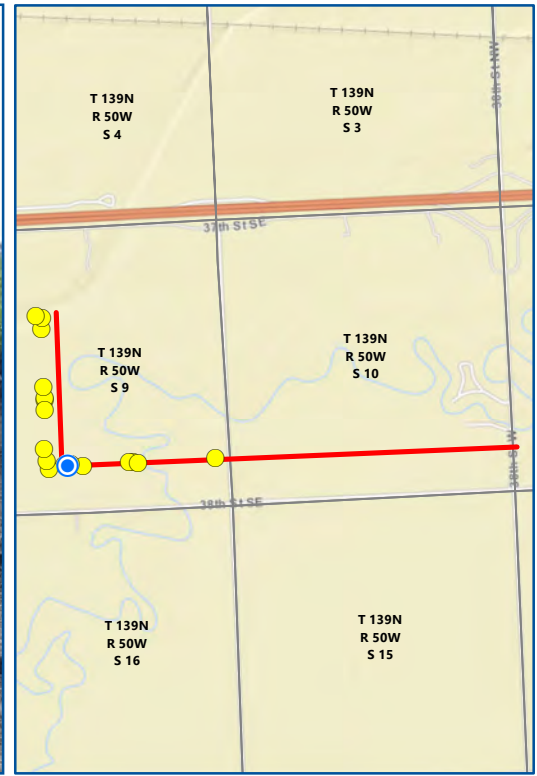
0      200  
Feet





Imagery: USDA FSA (2020)

Date: 7/13/2021  
 Photo Direction: East  
 Comment: Top of subsoil after topsoil stripping

Latitude: 46.864891  
 Longitude: -97.002129  
 Coordinates are in the WGS84 datum.







-  Photo Indicator
-  Photo Location
-  NuStar 10" Pipeline Relocation Alignment (PU-20-381)
-  Public Land Survey Section

Map 12 of 18

### NUSTAR 10" PIPELINE RELOCATION CONSTRUCTION INSPECTION PU-20-381

North Dakota Public Service Commission  
Cass County, North Dakota





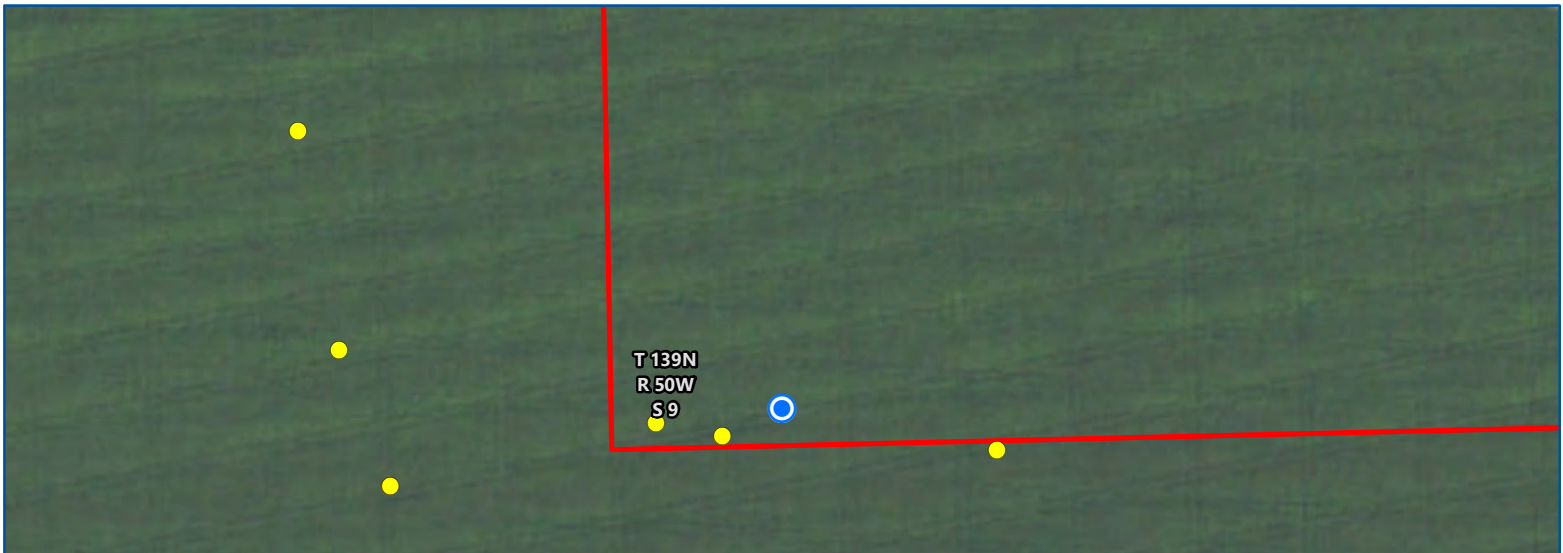
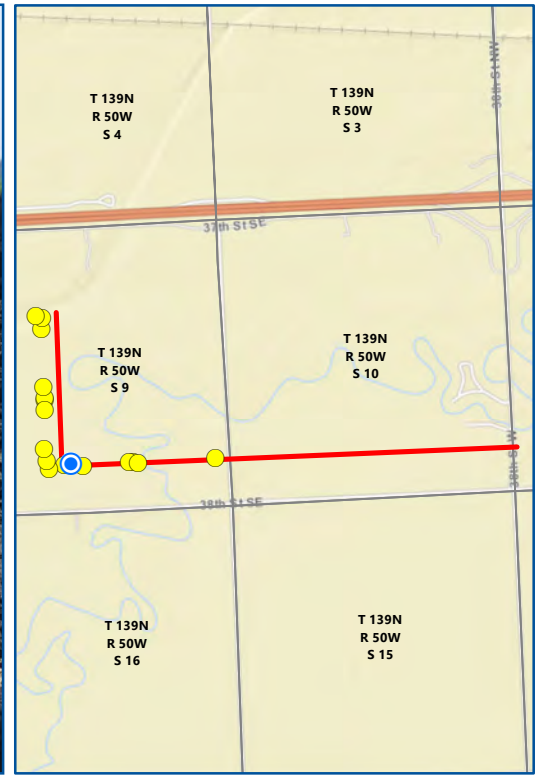
Feet





Imagery: USDA FSA (2020)

Date: 7/13/2021  
 Photo Direction: East  
 Comment: Small amounts of topsoil within subsoil stockpile

Latitude: 46.864849  
 Longitude: -97.001854  
 Coordinates are in the WGS84 datum.






-  Photo Indicator
-  Photo Location
-  NuStar 10" Pipeline Relocation Alignment (PU-20-381)
-  Public Land Survey Section


Map 13 of 18

## NUSTAR 10" PIPELINE RELOCATION CONSTRUCTION INSPECTION

### PU-20-381

North Dakota Public Service Commission  
Cass County, North Dakota



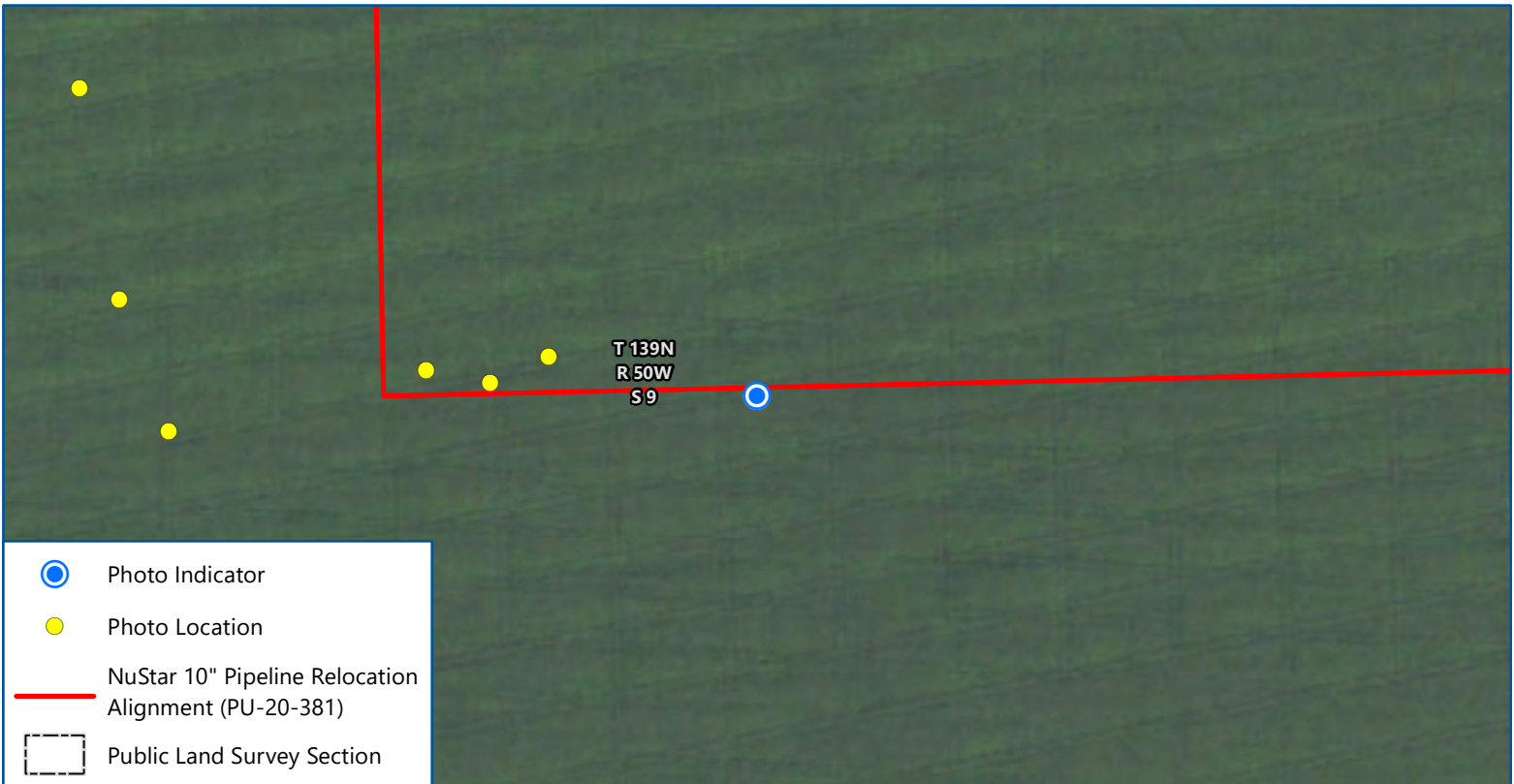
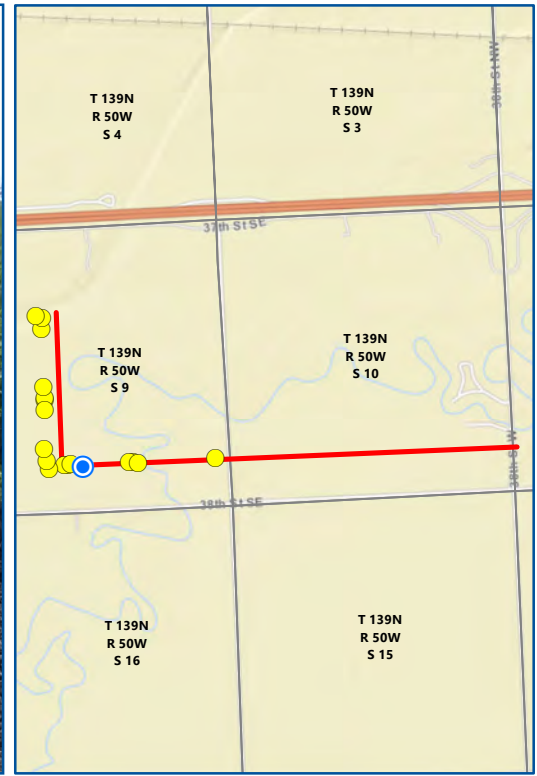


Imagery: USDA FSA (2020)

Date: 7/13/2021  
 Photo Direction: East  
 Comment: Pipeline excavation with topsoil and subsoil segregation

Latitude: 46.864923  
 Longitude: -97.001603  
 Coordinates are in the WGS84 datum.







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### NUSTAR 10" PIPELINE RELOCATION CONSTRUCTION INSPECTION PU-20-381

North Dakota Public Service Commission  
Cass County, North Dakota





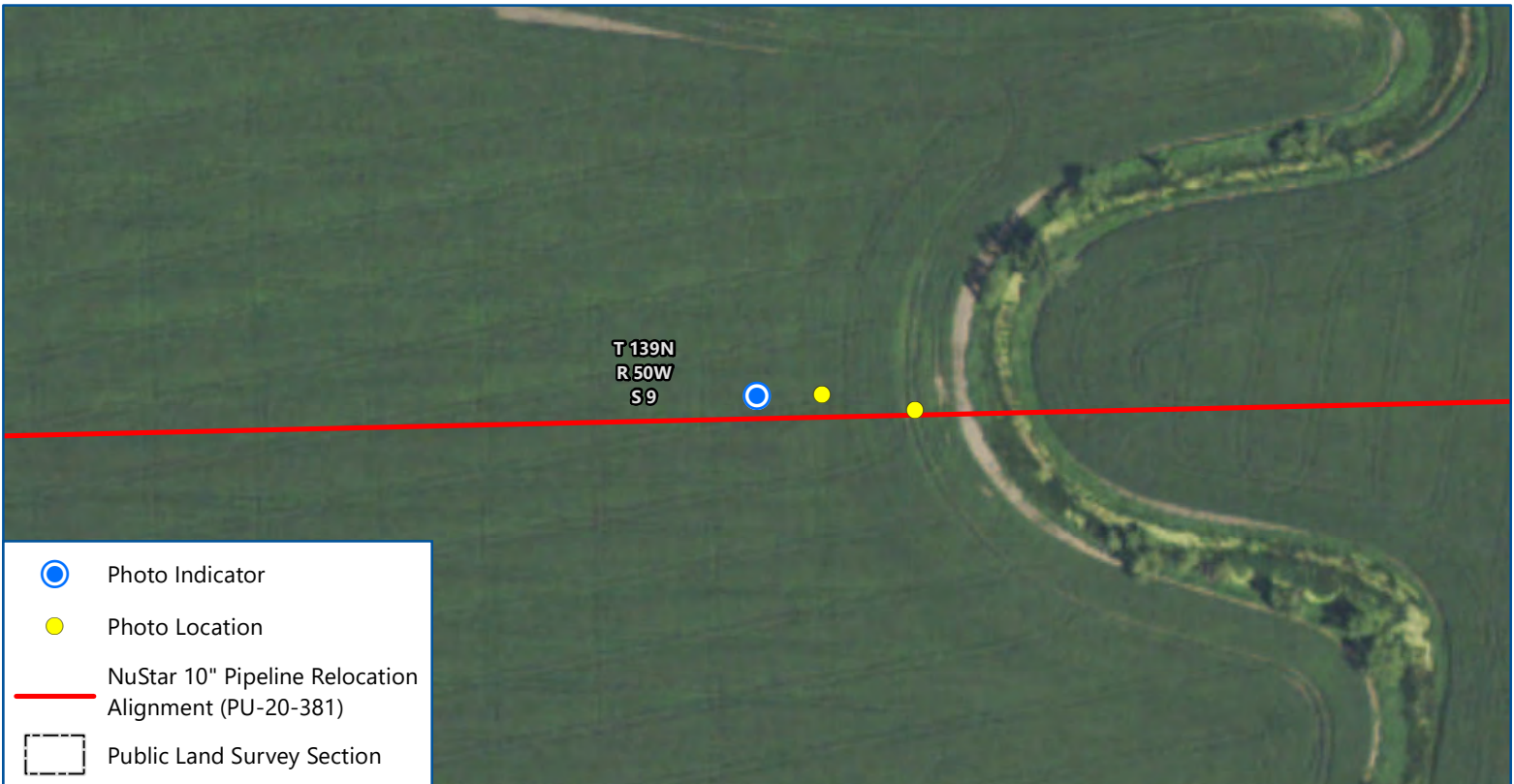
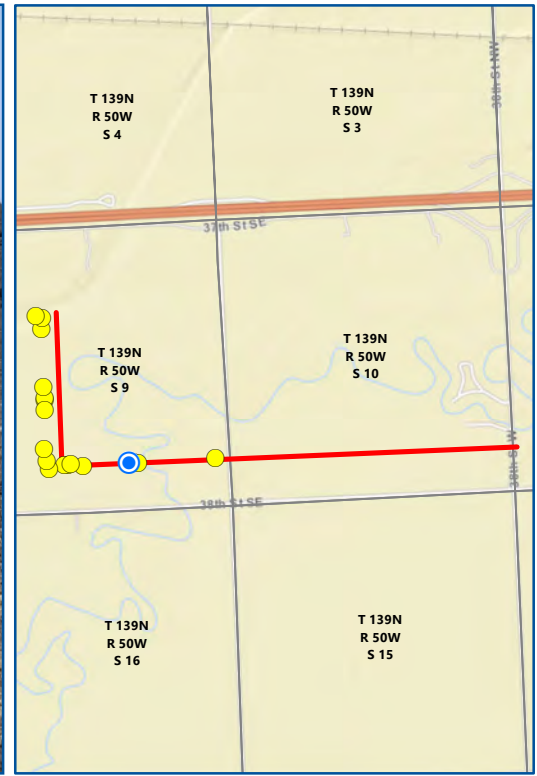
Feet

Imagery: USDA FSA (2020)

Date: 7/13/2021  
 Photo Direction: East  
 Comment: Erosion berm and subsoil stockpile

Latitude: 46.864791  
 Longitude: -97.000711  
 Coordinates are in the WGS84 datum.





Map 15 of 18

**NUSTAR 10" PIPELINE RELOCATION  
CONSTRUCTION INSPECTION**

**PU-20-381**

North Dakota Public Service Commission  
Cass County, North Dakota

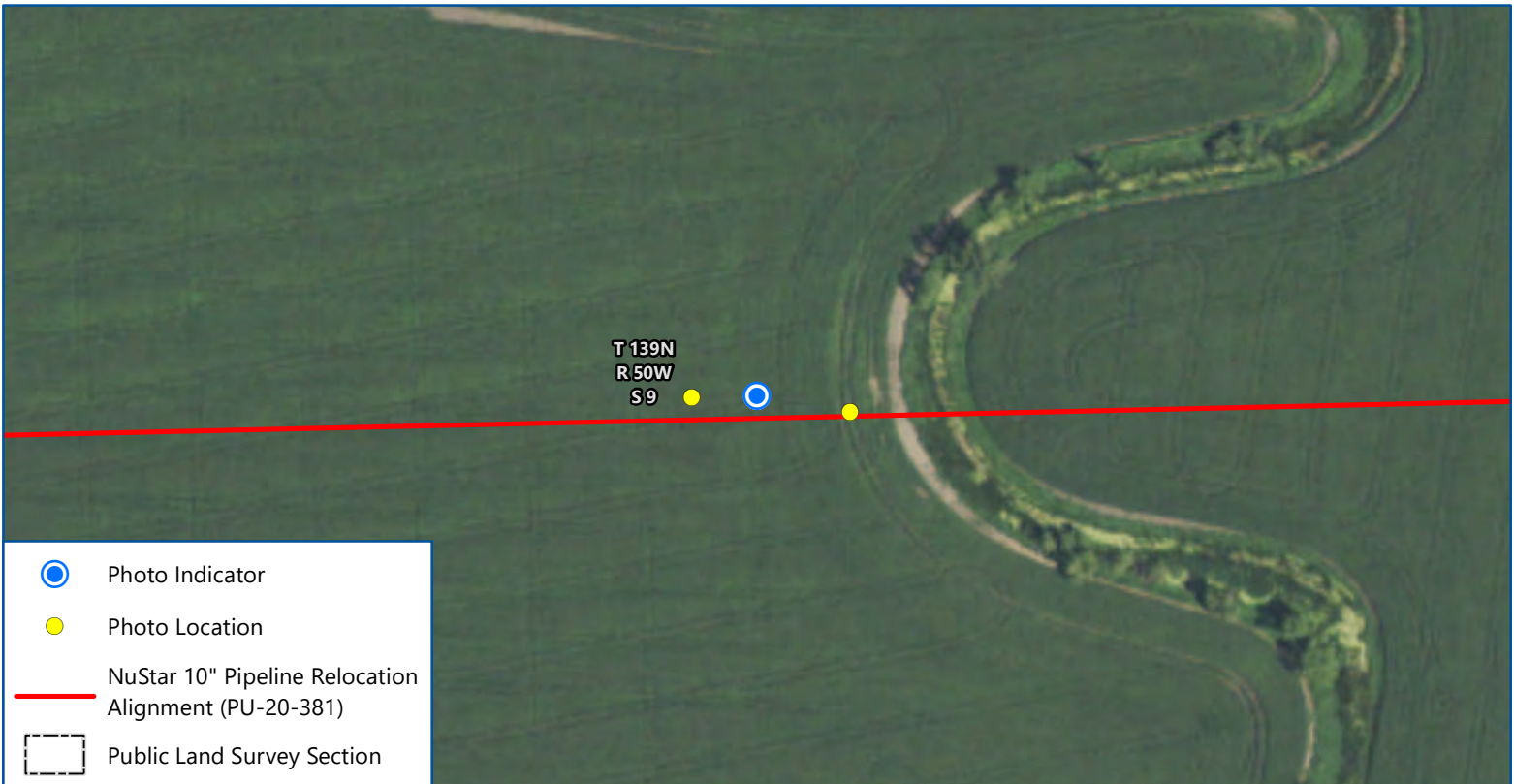
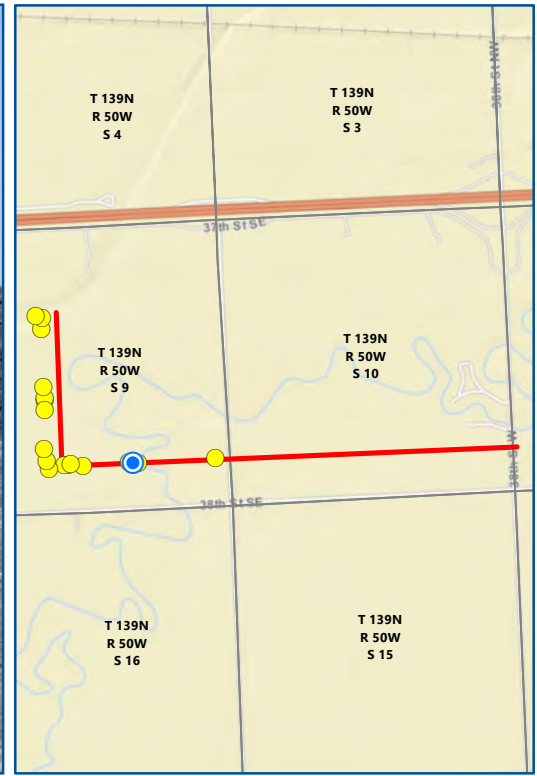
0 200  
Feet

Imagery: USDA FSA (2020)

Date: 7/13/2021  
 Photo Direction: West  
 Comment: Subsoil and topsoil segregation;  
 active excavation 9 feet below ground  
 surface

Latitude: 46.864877  
 Longitude: -96.997289  
 Coordinates are in the WGS84 datum.





Map 16 of 18

### NUSTAR 10" PIPELINE RELOCATION CONSTRUCTION INSPECTION PU-20-381

North Dakota Public Service Commission  
Cass County, North Dakota

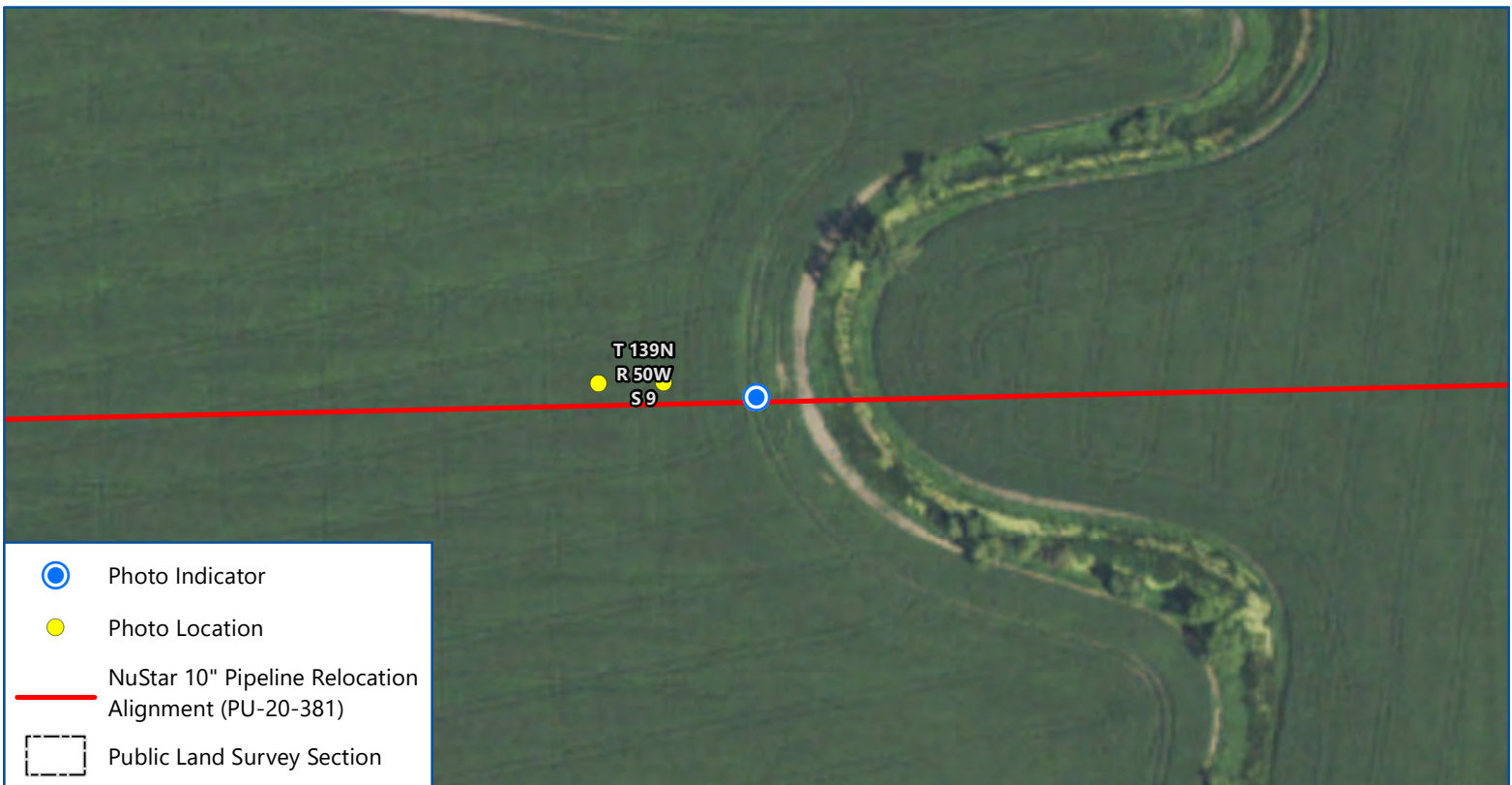
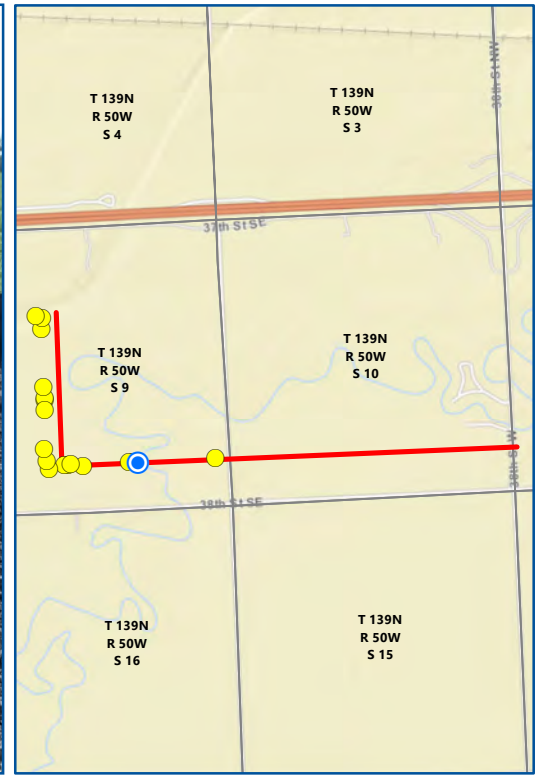
0 200  
Feet

Imagery: USDA FSA (2020)

Date: 7/13/2021  
 Photo Direction: West  
 Comment: Pipeline staging area

Latitude: 46.864875  
 Longitude: -96.997009  
 Coordinates are in the WGS84 datum.





Map 17 of 18

### NUSTAR 10" PIPELINE RELOCATION CONSTRUCTION INSPECTION

**PU-20-381**

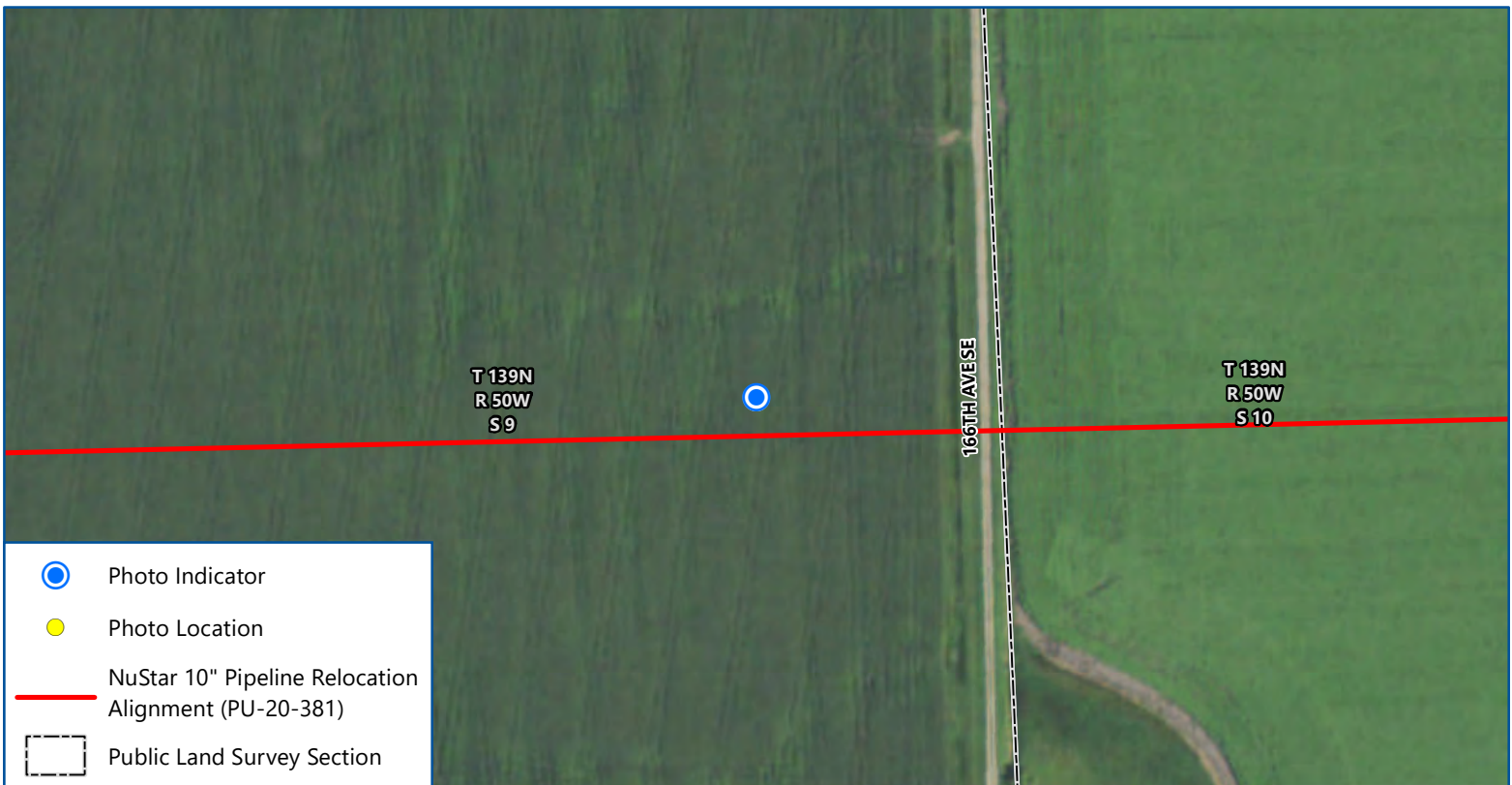
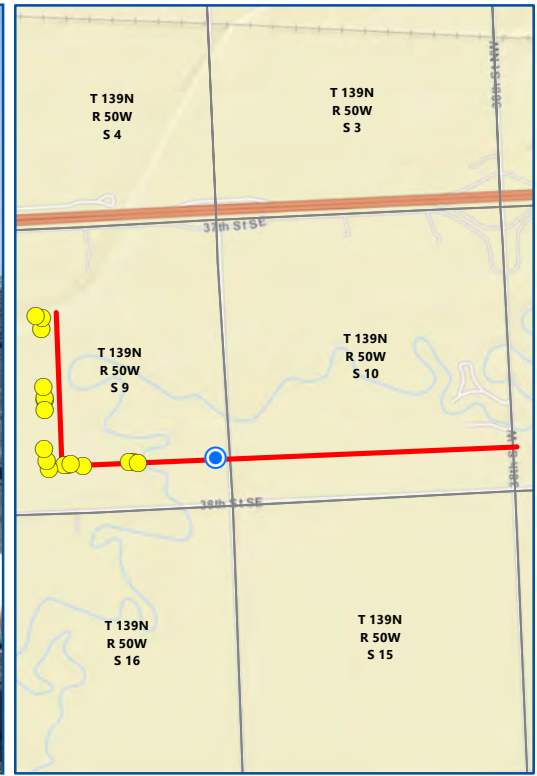
North Dakota Public Service Commission  
Cass County, North Dakota

Imagery: USDA FSA (2020)

Date: 7/13/2021  
 Photo Direction: East  
 Comment: Silt fence up gradient of wetland; no erosion observed

Latitude: 46.864822  
 Longitude: -96.996611  
 Coordinates are in the WGS84 datum.





Map 18 of 18

### NUSTAR 10" PIPELINE RELOCATION CONSTRUCTION INSPECTION PU-20-381

North Dakota Public Service Commission  
Cass County, North Dakota

Imagery: USDA FSA (2020)

Date: 7/13/2021  
 Photo Direction: West  
 Comment: Staged pipeline near topsoil stockpile

Latitude: 46.86491  
 Longitude: -96.990791  
 Coordinates are in the WGS84 datum.

