

Highland Crude, LLC.

New Town Expansion
Crude Oil Pipeline Project
Mountrail County
PU-15-416
KLJ#1216125

December 8, 2016

Prepared for:

North Dakota Public Service Commission
600 East Boulevard Ave
Bismarck, ND 58505-0480





TABLE OF CONTENTS

Executive Summary	1-2
Background and Scope.....	3
Introduction.....	3
Regulatory Purpose and Scope of Work.....	3-4
Background.....	4
Findings of Site Inspection.....	5
Methods	5
On-Site Inspection Observations and Findings.....	5-6
Issues to Resolve and Recommendations	7
Project Specifications Needing Written Verification.....	7
Topsoil/Subsoil Segregation Areas.....	7
Pipeline Depths	7
Revegetation and Crop Production.....	7
Conclusion	8
References	9
Signatures	10
 <u>APPENDICES</u>	
Appendix A: Figure 3.A.1 - Map of Project and Observation Points.....	11-12
Drone Photo Locations	13-28
Appendix B: Drone Photographs 13 Oct.2016	29-53



EXECUTIVE SUMMARY

The North Dakota Public Service Commission, (PSC) File Case Number PU-15-416, retained KLJ to complete a reclamation and revegetation inspection during construction of the 8" crude oil line known as New Town Expansion (Project) in Mountrail County, North Dakota (ND), constructed by Hiland Crude, LLC. The purpose of the inspections was to ensure the project was constructed in compliance with the siting laws and rules and the applicable PSC Orders for the Project, which includes a determination whether the Right of Way areas affected by construction activities has been restored as near as practicable to the condition as it existed prior to the start of construction.

Construction of the 42.5-mile pipeline project began 30 May, 2016. During this time, contractor started stripping topsoil. KLJ reviewed project documents to become familiar with the Project and PSC Orders for the Project. KLJ did not inspect the construction right of way on 30 May, 2016, but observed inspection findings and concerning issues requiring resolution and recommendations expressed by the contractor on Right of Way easement. For second inspection, KLJ visually inspected the Project right of way area on 13 October, 2016. These site visit inspections were conducted to observe the completion of the soil removal, done by the contractor, and verification of the affected areas of construction had been restored as near as practicable to the condition as it existed prior to the removal of topsoil. Overall the soil removal processes were done to contract requirements and the work was satisfactory. The project was well maintained and appeared to have been constructed as planned with numerous efforts to minimize impacts. There were minor noteworthy issues that need to be resolved for the project to be considered complete and in full compliance which include 1) A drone was flown over Right of Way, and photos were taken to verify topsoil and subsoil piles were not touching 2) written verification of some items in particular, which include documentation of associated GIS files 3) Vegetation established throughout the project due to no seeding being done this fall. Follow up actions taken by Hiland Crude, LLC, to address these issues that can be confirmed in writing, with photos that will not require a subsequent site visit, or a reclamation and revegetation inspection showing the state of completion of fertilization and seeding.

Recommended Action Steps:

Issue 1) - Contractor relocated top and subsoil piles, from drone photos to a wider distance, so touching of soil piles was no longer a problem.



Issue 2) - Written verification-Review internally, clarify, then request if needed. Some items may need written verification, if so, the PSC should review items, needed and best verified for proper execution of the project.

Issue 3) - Written documentation, requested if needed, on satisfactory establishments of vegetation throughout the project, as at time of inspection, seeding had not been completed. Soil amendments or reseeding maybe necessary if former land uses cannot be attained in the next couple years. The contractor needs to perform and document a reclamation and revegetation inspection report, to PSC, after the fall growing season, but not less than one year from anniversary date of completion of fertilization and seeding.



BACKGROUND AND SCOPE

Introduction

The Hiland Crude Pipeline Company, LLC (Project), also known as the “New Town Extension Pipeline Project” connects to Hiland’s market center pipeline system. The New Town Pipeline originates five (5) miles southwest of Ross, North Dakota at Hiland’s White Earth injection station in Mountrail County, and extends 42.5 miles to south/southwest terminating at the Dakota Plains Holding, Inc.’s Pioneer Rail Terminal, approximately 1.5 miles southeast of New Town, North Dakota. (Appendix A, Figure 3.A.1). The Project will be constructed and operated by Hiland Crude Pipeline Company, LLC. The Project includes an 8-inch diameter underground crude oil pipeline with a total length of approximately 42.5 miles. The Project is under the jurisdiction of the North Dakota Public Service Commission (PSC), which issued its Findings of Fact, Conclusions of Law, and Order in Case No. PU-15-416 on 20 January, 2016, granting a Certificate of Corridor Compatibility No. 178 and Route Permit No. 190, to Hiland Crude LLC, for the New Town Expansion Project, (Project).

Regulatory Purpose and Scope of Work

The North Dakota Energy Conversion and Transmission Facility Act (North Dakota Century Code Chapter 49-22) authorized the Public Service Commission to determine 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. Construction inspections ensure that such projects are constructed 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.

The North Dakota PSC retained KLJ to complete construction inspections of the Project. The inspection process included a review of the Application for Corridor Compatibility and Route Permit, Order, and other applicable documents. PSC Order #11 states: “Contractor understands and agrees that the pipeline will be buried to a minimum depth from the ground surface to the top of the pipe of 48 inches in range land, 48 inches for cultivated land, 48 inches at the bottom of the ditch for road crossings, and 72 inches across undeveloped section lines.” PSC Order #12 for the Project states: “Contractor understands and agrees that all topsoil, up to 12 inches, or topsoil to the depth of cultivation, whichever is greater, over and along trench areas where cuts will be made, must be stripped and segregated from the subsoil. Any area on which excavated subsoil will be placed must also be stripped of topsoil. After backfilling is completed, any excess subsoil must be placed over the excavation area, blending the grade in existing topography. Topsoil must be replaced over areas from which it was stripped only after the subsoil is replaced.”

KLJ’s scope of work was to perform and document on-site inspections which apply engineering and science principals for the purpose of ensuring that energy conversion and transmission facilities are constructed in compliance with the siting laws, siting rules and are applicable by Commissions orders for the project. Also, verify the pipeline has been installed with the depth of cover as required by the Commissions orders, for proper execution of the project.





The number of on-site inspections were to be based on KLJ's determination that contractor demonstrated proficiencies of construction in compliance with the Commission's Order. This report includes, but is not limited to, documentation of site visit observations and a summary of findings and issues that have been addressed for the Project to be considered complete and in full compliance.

Background

During pipeline installation and excavation work in general, the separation of topsoil and subsoil was noted. Topsoil has biological, physical and chemical properties that are critical to recovery of a site. Topsoil, also known as the A horizon, should be stripped to the correct depth according to natural variations in the depth of the top layer of soil. Distinguishing the horizon boundaries can be difficult as they vary in distinctiveness and topography. Most boundaries are zones of transitions rather than sharp lines of division. Boundary distinctiveness is the vertical distance over which one horizon transitions into another which shape of the contact between the horizons which can be smooth, wavy, irregular or broken.

Topsoil generally has physical and chemical properties that are conducive to good plant growth. To prevent soil mixing during construction, topsoil will be segregated in selected areas where soil productivity is an important consideration. These areas include cropland, hay fields, pasture, residential areas and other areas as requested by the land owner. Topsoil will not be used to construct trench breakers or to pad pipe.



FINDINGS OF SITE INSPECTION

Methods

Arnie Siverson, Lead Inspector, visited the Project site on 30 May 2016. The purpose of the visit contributed to the contractor's request to identify locations concerning issues and areas of concern within right of way. A representative from Hiland Crude accompanied Arnie Siverson, KLJ, during the topsoil inspection site visit. Hiland Crude's superintendent and project foreman were present during the start of stripping topsoil off right of way.

The site was inspected by everyone in attendance, to visually inspect the construction areas on project Right of Way. The inspection began at Station 0+00, located in NE¼ of Section 20, T152N, R92W, Mountrail County. It was observed on the Right of Way, that the stripping of top soil was underway. Dozer cats and graders were used to clear topsoil within Right of Way. After the removal of vegetation, the operators stayed well within the Right of Way during the topsoil removal phase. As noted from the topsoil removed, it was piled along edge of Right of Way and kept segregated from the subsoil. It was noted from inspection, that the depth of topsoil removed was around 12 inches deep.

Scott Hummel, KLJ personnel, visited the site for a second Right of Way reclamation and revegetation inspection on 13 October, 2016. The stripping of topsoil was complete, with pipeline installed and backfilled. Pipeline contractor had verified depth of trench at PSC's requirements while reclamation work was under way. A drone was flown over Right of Way and took photos of entire 42.5 mile pipeline easement. Drone used during inspection was a DJI Phantom 4 with built in GPS and 12 megapixel digital camera, showing typical project infrastructure areas. (**Appendix B, Drone Photos**)

On-Site Inspection Observations and Findings

Construction for the Project began 30 May 2016. At the time of inspection, by KLJ, construction procedures were discussed, with contractor. Equipment operators started by stripping the topsoil using a grader, which went to a depth of approximately 4 inches though out the pipeline right of way. After this procedure was completed equipment operators started ripping the topsoil well within right of way easement, further down to the appropriate depth. This depth consisted averaging around 12 inches deep.

The contractors/equipment operators seemed competent during the topsoil stripping operation. Contractors removed topsoil according to the color change in the soil rather than to fixed 12-inch depth throughout the pipeline right of way. Overall the contractor has done a good job to the areas affected by construction activities.

As required by contract requirements, the pipeline must be buried 48 inches deep in range land and 48 inches deep at the bottom of ditch for road crossings. The route application specified minimum of 4 feet soil cover. KLJ did not visually confirm the depth of the pipeline, but project superintendent stated that the pipeline was buried to the specified depth and deeper where bored under roads.





For the majority of the project, the topsoil pile was placed on the opposite side on right of way, from the subsoil pile. Any bell holes for bore pits were enlarged at the trench over a given distance, to provide space for installing pipe tie-ins, valves, fittings, etc.

At locations along Right of Way, the contractor was notified about the potential of soil piles touching. Right of Way construction was observed by contractor along with KLJ inspection, noted soil type placements were not an issue environmentally.



ISSUES TO RESOLVE AND RECOMMENDATIONS

Project Specifications Needing Written Verification

Several components of the project were asserted in the application of construction and need to be verified in writing and filed with the PSC where applicable and necessary. KLJ does not consider any of these items to be critical for project compliance. However, KLJ suggests they are on file with the PSC to confirm compliance, and recommends the PSC request from Hiland Crude LLC necessary GIS files, documentation of their ten-year plan, and participated in North Dakota One-Call.

Topsoil/Subsoil Segregation Areas

. KLJ advises contractor to take special care along right of way soil deposit areas, not to mix both topsoil and sub soils together. KLJ recommends that the PSC require monitoring and documentation from Hiland Crude LLC on these areas after reclamation has been completed and re-vegetation has been established.

Pipeline Depths

KLJ suggests that the PSC request written verification from Hiland Crude LLC that all as-built depths are indeed 48 inches deep for cultivated land, 48 inches deep at the bottom of the ditch for road crossings and 72 inches deep across undeveloped section lines, as applicable from commission orders.

Revegetation and Crop Production

KLJ recommends the PSC request monitoring and documentation from contractor, to ensure the reclamation and vegetation reseeding inspection is established and has been completed throughout the project. Inspection should occur after one full growing season but not less than one year from the anniversary date of completion of fertilization and seeding. This includes replanting trees and shrubs as noted from the mitigation plan.



CONCLUSIONS

Overall, the Project appeared to have been constructed as designed, with minimal impacts to the surrounding natural or human environment. The pipeline project was completed as stated in Hiland Crude LLC's application and in compliance with the PSC guidelines. The project site was well-maintained and in satisfactory condition. There were a few minor issues that occurred during construction along Right of Way. The contractor corrected these issues as noted from inspection observations to avoid any other problems. As required by contract requirements, the pipeline was buried 48 inches deep in range land and 48 inches deep at bottom of ditch for road crossings. The route application specified a minimum of 4 feet soil cover. Contractor verified that the pipeline was buried to at least the specified depth and deeper where bored under roads. KLJ suggests that the PSC request written verification from Hiland Crude LLC that all as-built depths are indeed 48 inches deep for cultivated lands, 48 inches deep at bottom of the ditch for road crossings and 72 inches deep across undeveloped section lines.

All required Right of Way work, including construction activities, were done by the contractor, who stayed within Hiland Crude LLC's easement. All access on and off Right of Way was completed at access points specifically used on easement.

It does appear that there are several remaining items that Hiland Crude LLC needs to follow up with before the project can be considered in full compliance. KLJ recommends PSC to continually monitor and check with Hiland Crude LLC that the reclamation and revegetation of reseeding Right of Way is complete and has been established and maintained in satisfactory condition after reclamation. The reclamation and revegetation report should be on file after one full growing season, but not less than one year from the anniversary date of completion of fertilization and reseeding. It is suggested the PSC requests Hiland Crude LLC to submit all fully executed permits for their records as well as all other supporting documentation. It is also recommended the PSC require written verification that any settlement areas will be repaired and the remaining trees and shrubs will be replanted per the mitigation plan.



REFERENCES

North Dakota Public Service Commission (ND PSC). 2015. Online Case Search. Available from: http://www.psc.nd.gov/database/company_case_list.php. Accessed November 2015-December 2015

William E Wolf. 2016. Hiland Crude LLC. Personal Communication: Discussions during site visits on May 30, and July 30, 2016.

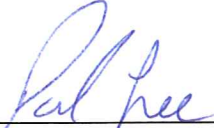
Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service, U.S. Department of Agriculture Handbook.



SIGNATURES

The services performed by KLJ staff for this project have been conducted in a manner consistent with the degree of care and technical skill appropriately exercised by professionals currently practicing in this area under similar time and budget constraints. Recommendations and findings contained in this report represent our professional judgement and are based upon available information and technically accepted practices at the present time and location. Other than this, no warranty is implied or expressed.

Lead Project Manager, Paul Lee, and Environmental Field Inspector, Arnie E. Siverson,



Paul Lee, PLS, Project Manager

1-04-17
Date



Arnie E. Siverson, Field Inspector

1-04-17
Date



APPENDIX A:

Maps of Project and Observation Points



Hiland Crude, LLC
Route Application
New Town Expansion Project

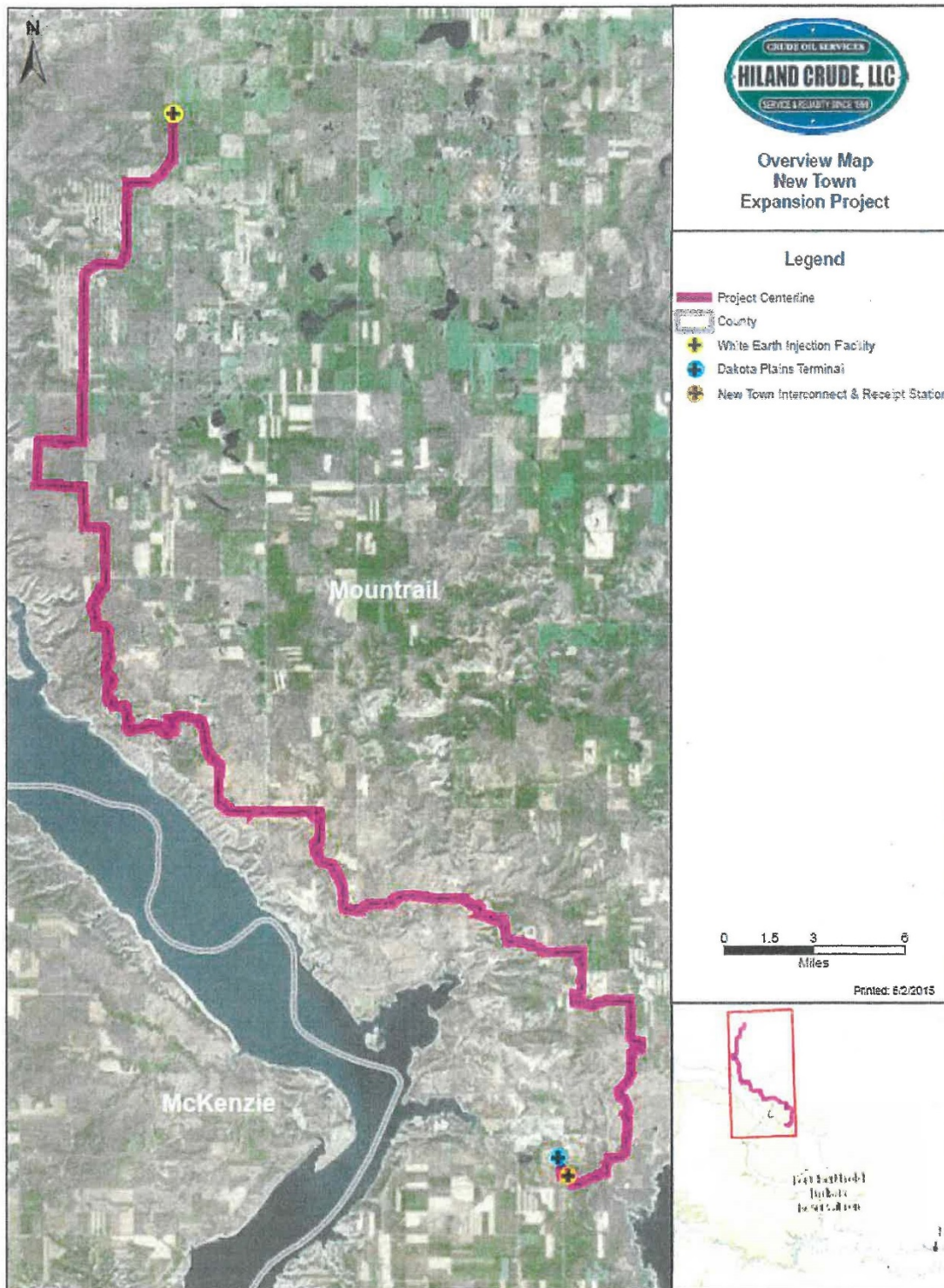
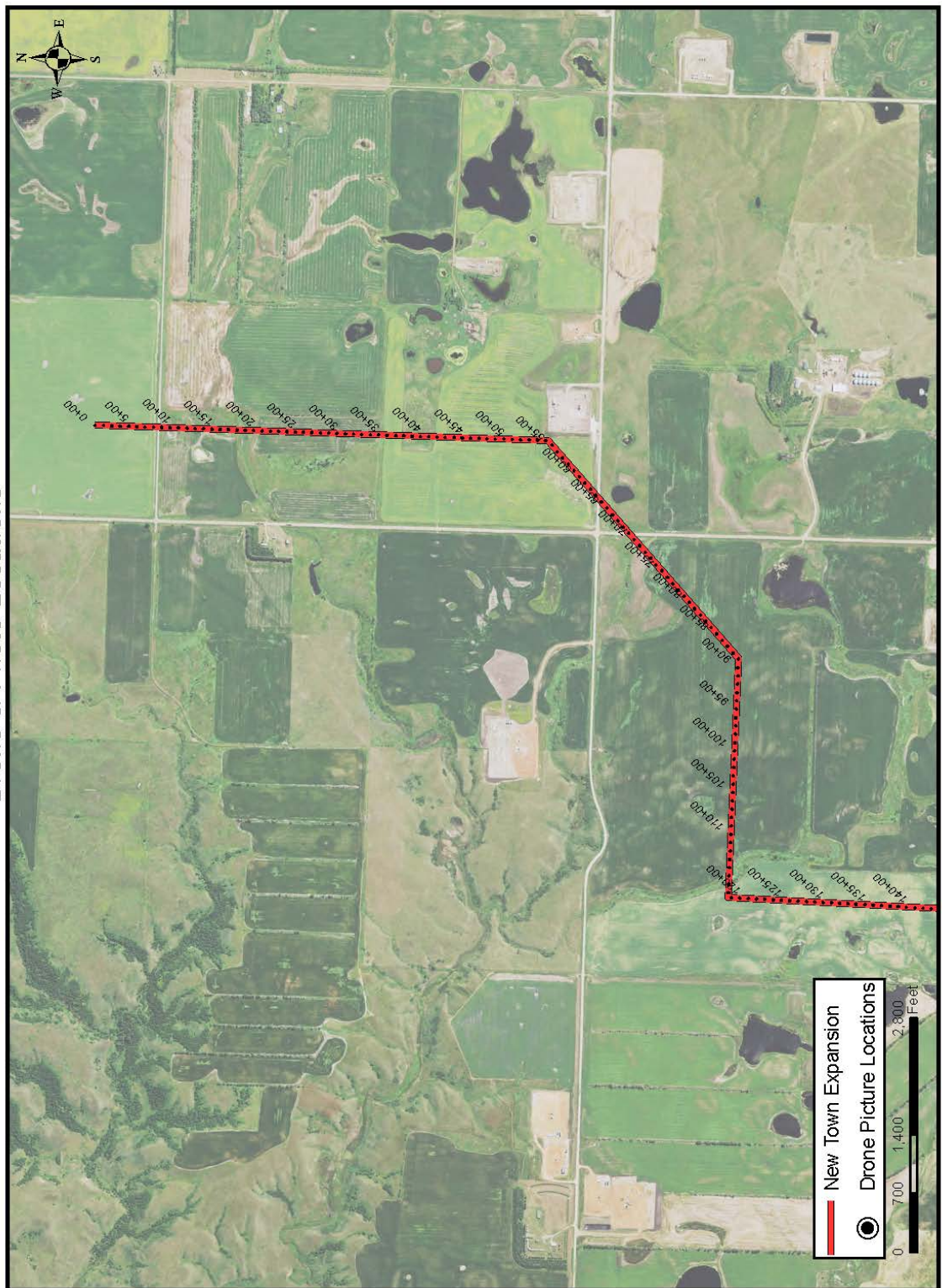


FIGURE 3.A.1 – General New Town Expansion Project Location Map



New Town Expansion

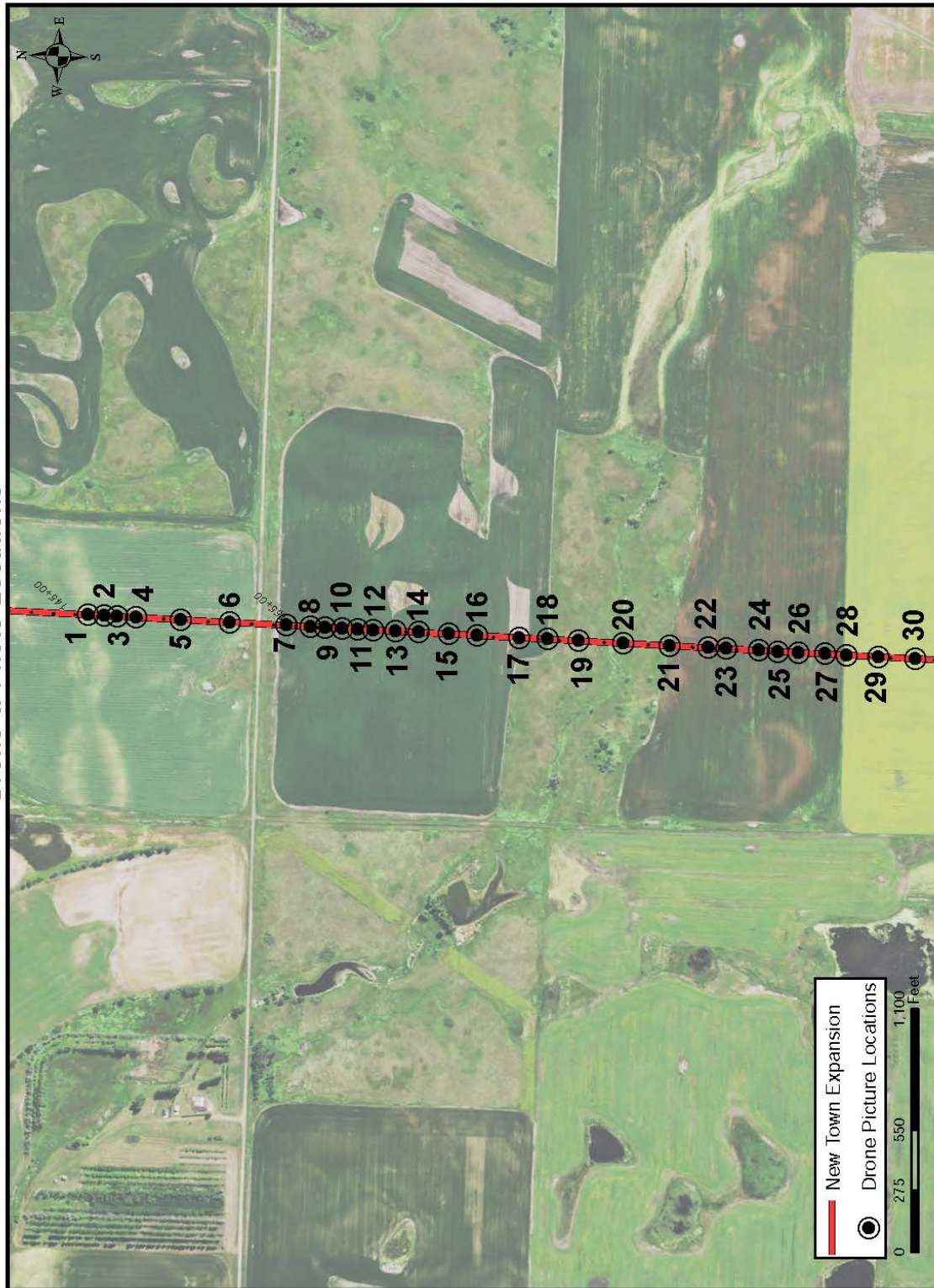
Drone & Photo Locations





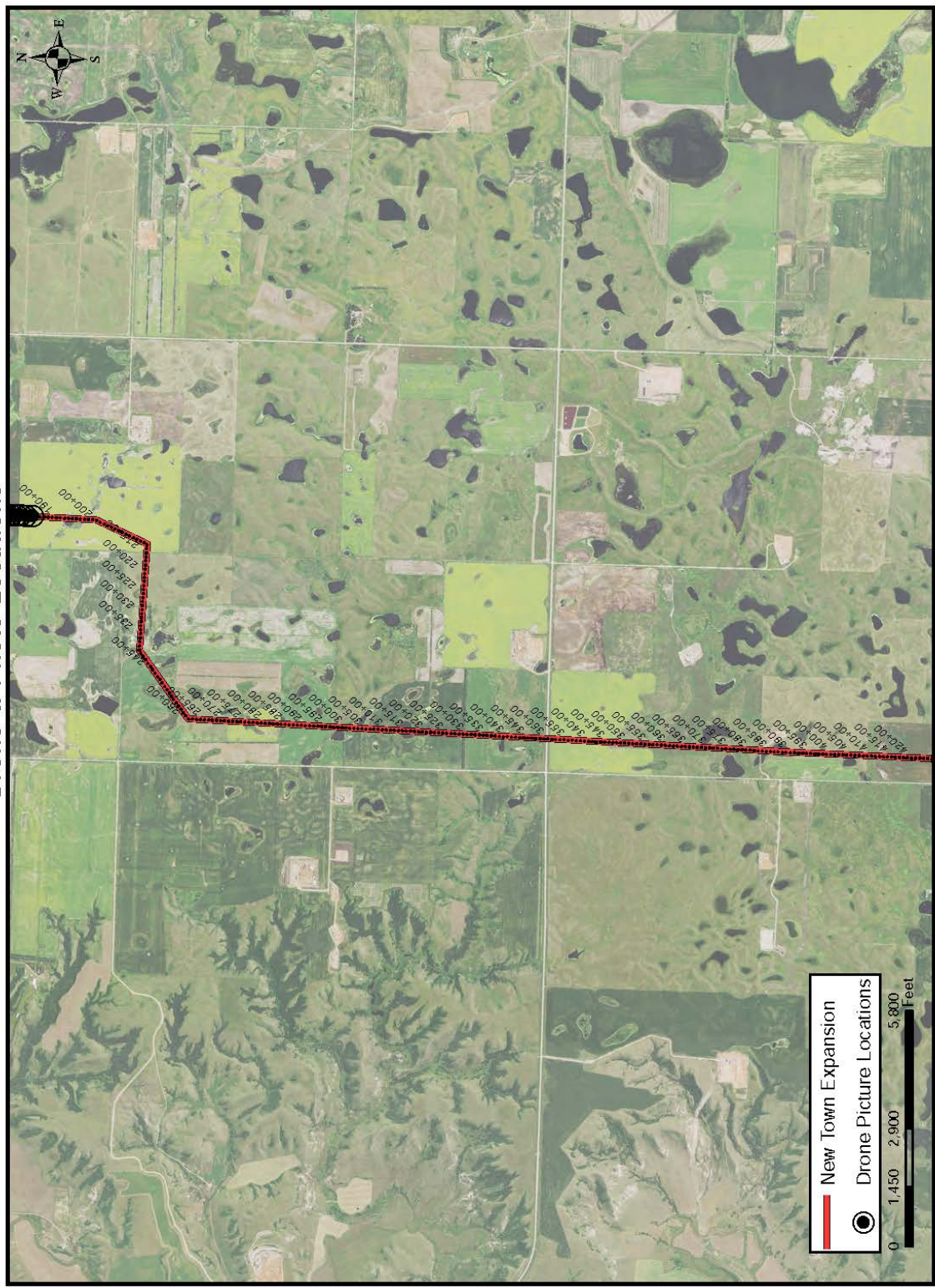
New Town Expansion

Drone & Photo Locations

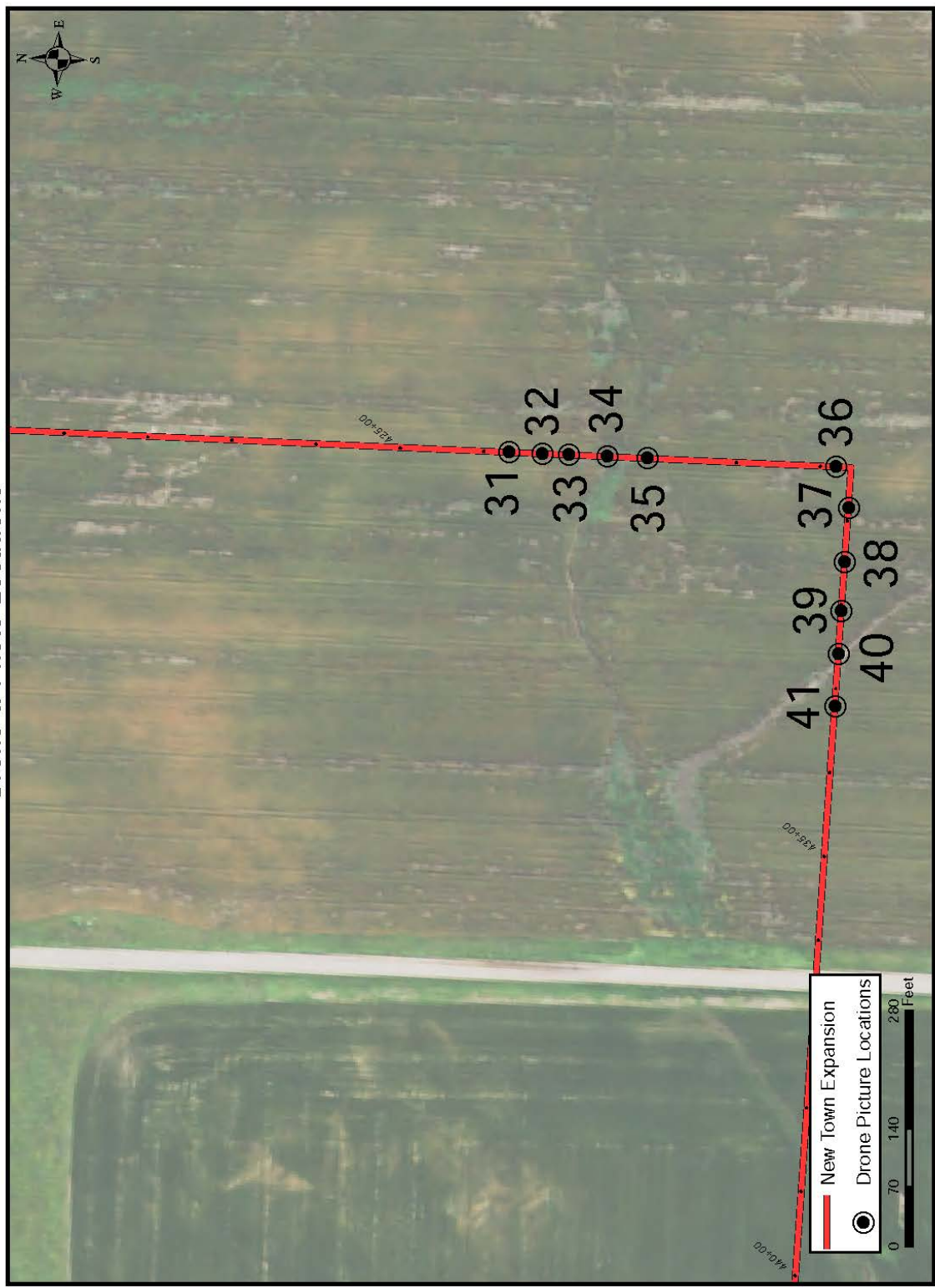




New Town Expansion Drone & Photo Locations

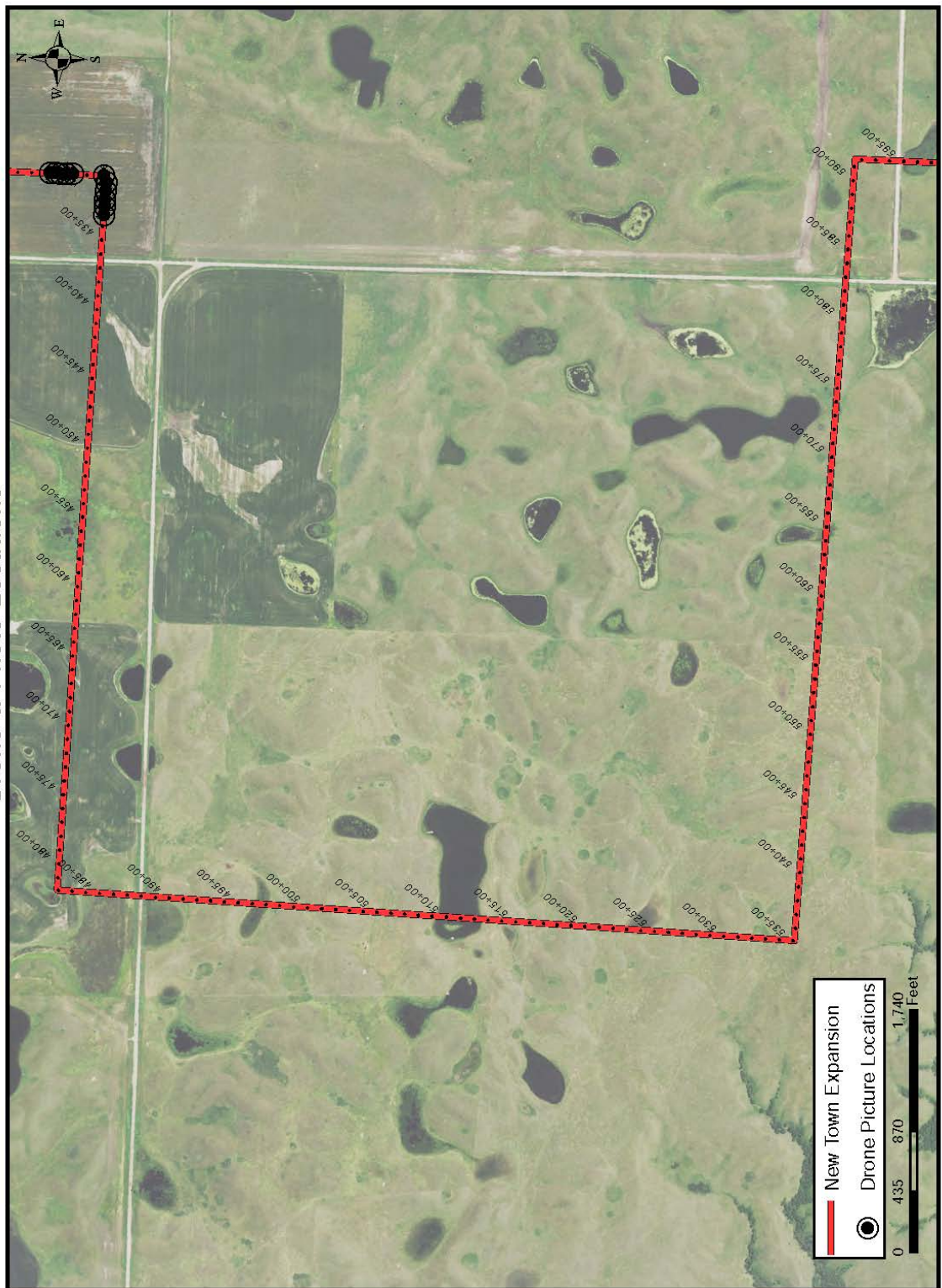


New Town Expansion Drone & Photo Locations





New Town Expansion Drone & Photo Locations





New Town Expansion Drone & Photo Locations





New Town Expansion

Drone & Photo Locations





New Town Expansion

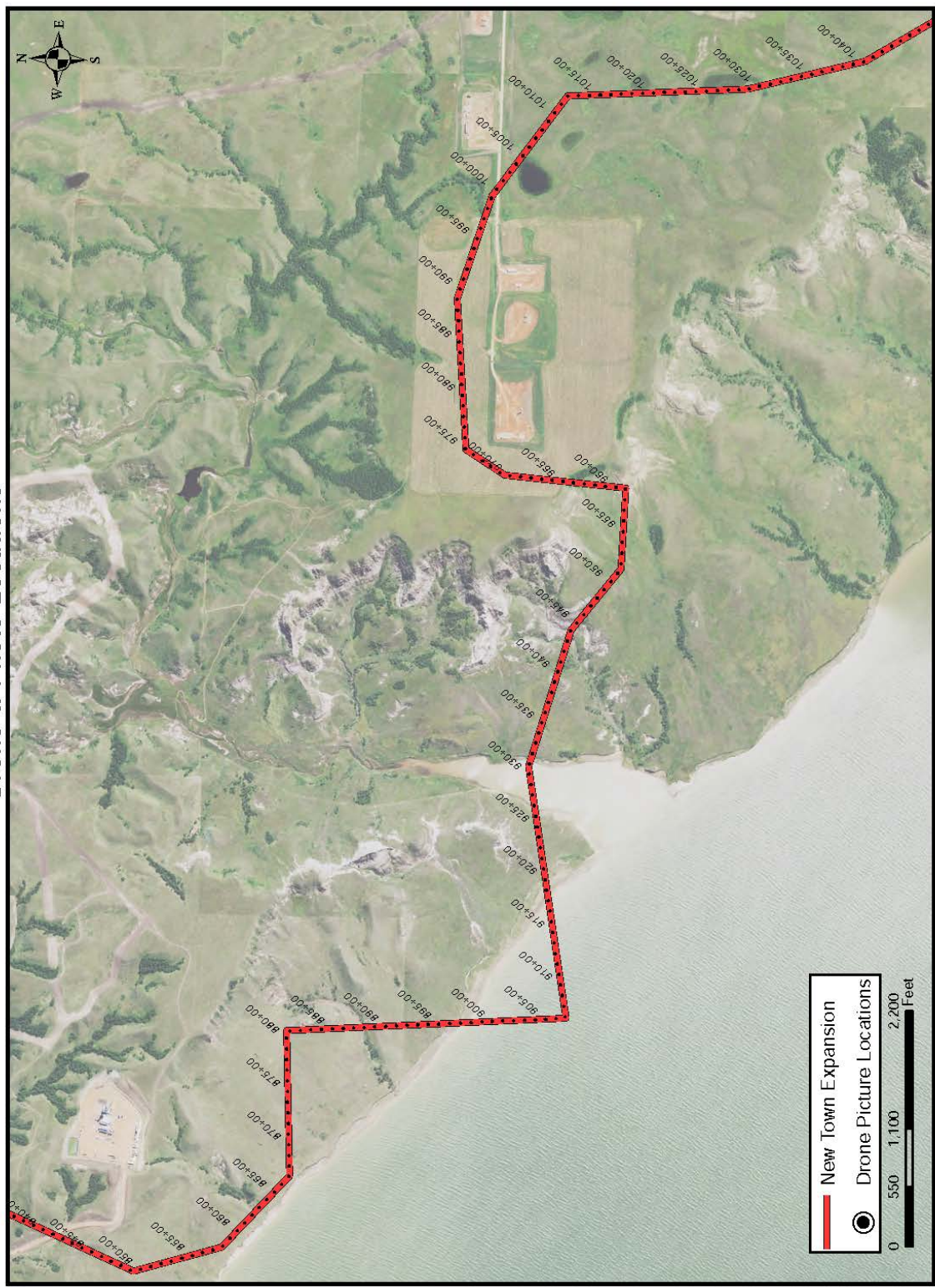
Drone & Photo Locations





New Town Expansion

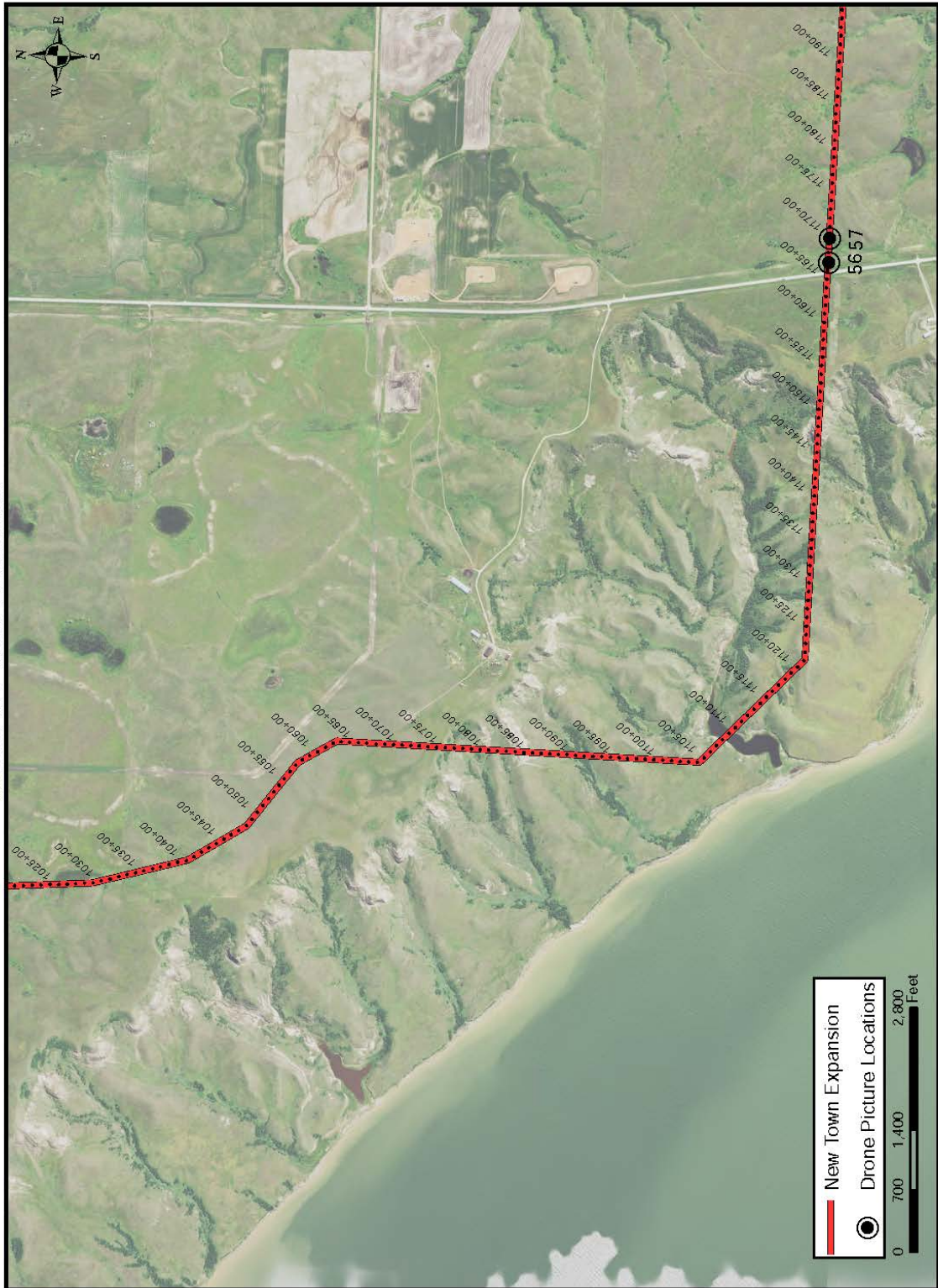
Drone & Photo Locations





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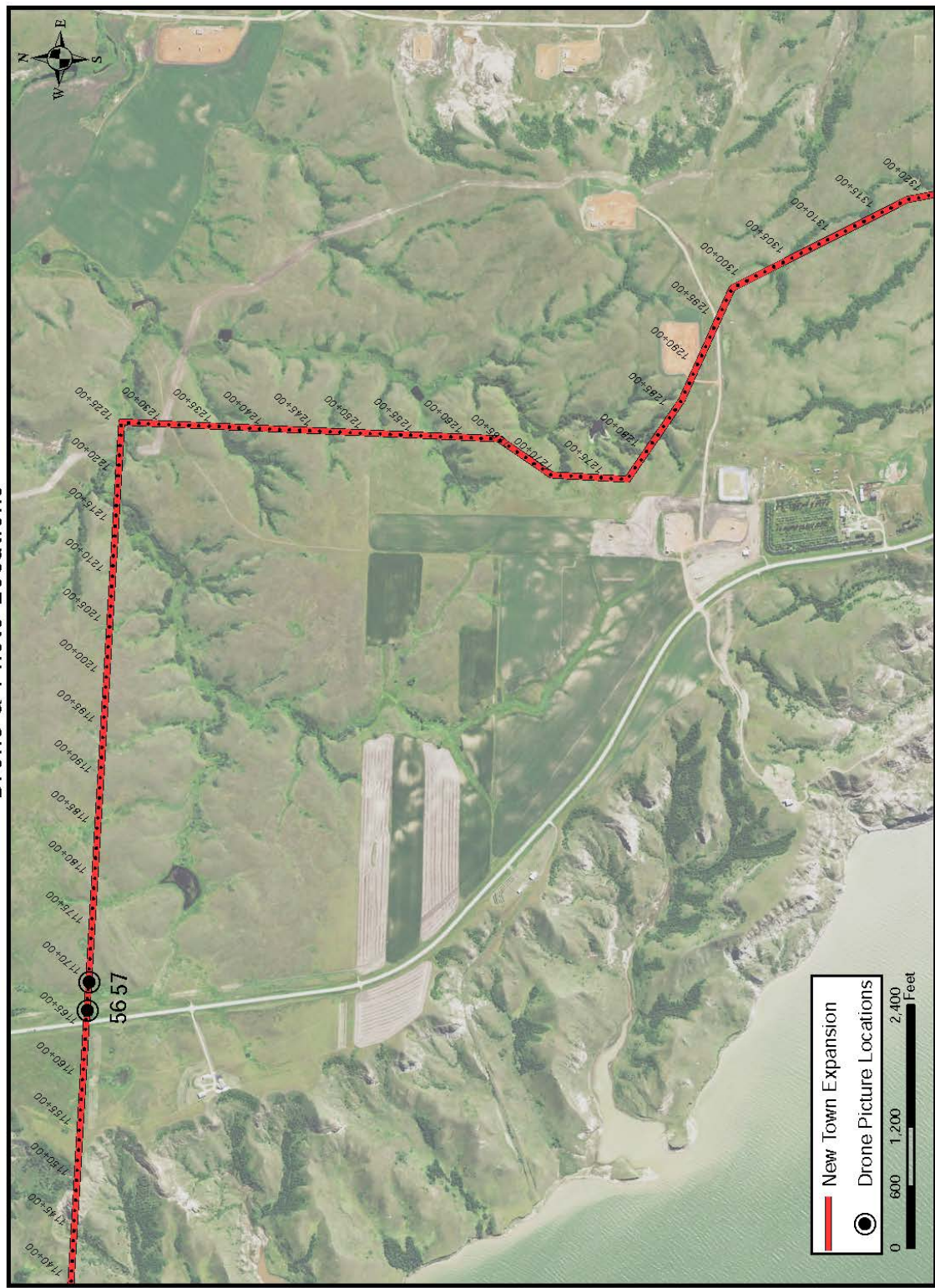
Drone & Photo Locations





New Town Expansion

Drone & Photo Locations



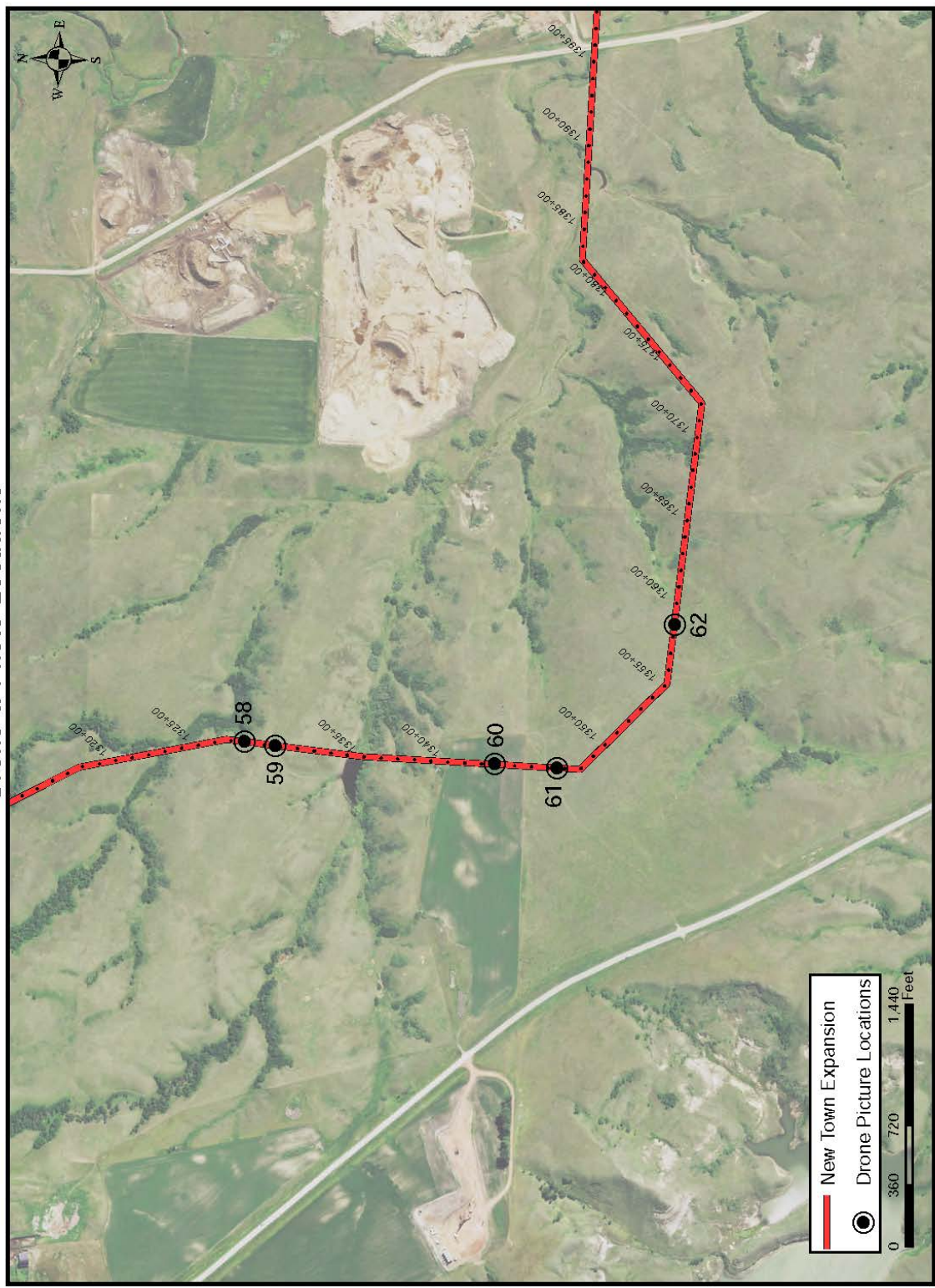
— New Town Expansion
● Drone Picture Locations

0 600 1,200 2,400 Feet



New Town Expansion

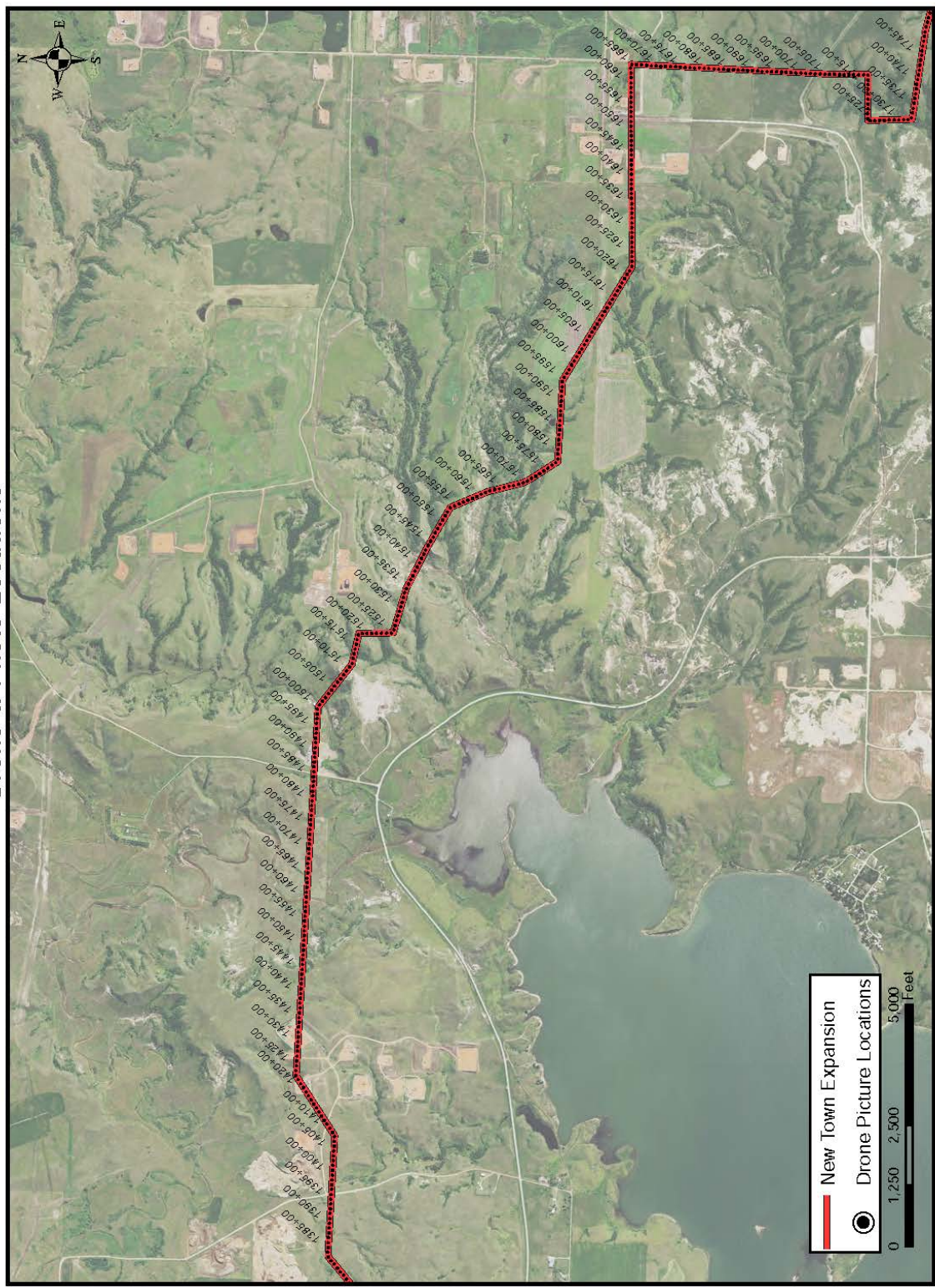
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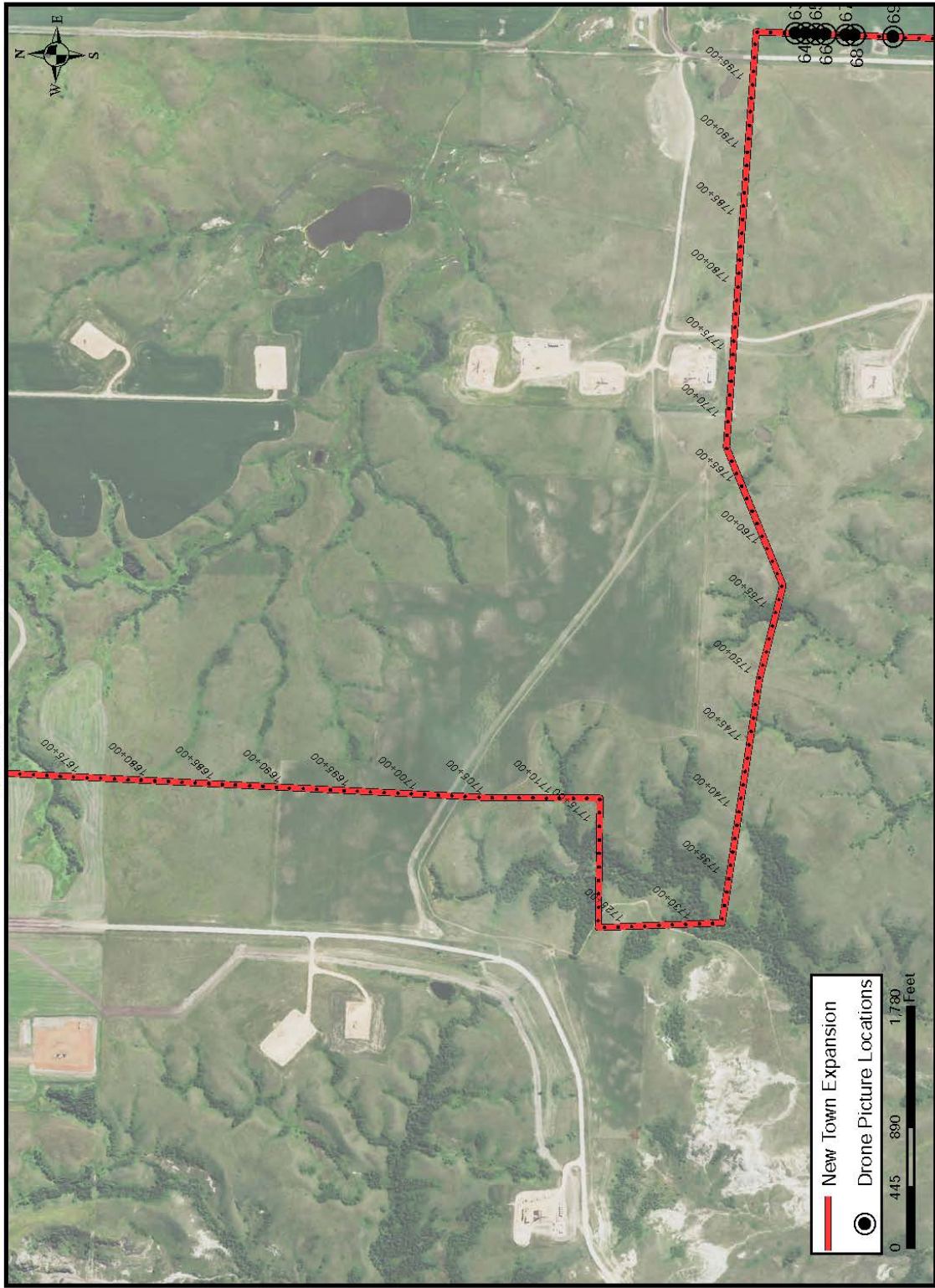
New Town Expansion

Drone & Photo Locations





New Town Expansion Drone & Photo Locations





New Town Expansion Drone & Photo Locations





APPENDIX B: DRONE PHOTOGRAPHS

Taken October 13, 2016



Photo 1: Station 147+20.00; Latitude: 48°15'24.04"N Longitude: 102°40'26.51"W



Photo 2: Station 147+20.00; Latitude: 48°15'24.05"N Longitude: 102°40'26.48"W



Photo 3: Station 147+20.00; Latitude: 48°15'24.04"N Longitude: 102°40'26.47"W



Photo 4: Station 147+20.00; Latitude: 48°15'24.04"N Longitude: 102°40'26.47"W



Photo 5: Station 149+90.00; Latitude: 48°15'21.66"N Longitude: 102°40'26.78"W



Photo 6: Station 153+10.00; Latitude: 48°15'18.24"N Longitude: 102°40'26.67"W



Photo 7: Station 153+10.00; Latitude: 48°15'18.24"N Longitude: 102°40'26.67"W



Photo 8: Station 157+00.00; Latitude: 48°15'14.58"N Longitude: 102°40'26.65"W



Photo 9: Station 157+10.00; Latitude: 48°15'14.29"N Longitude: 102°40'26.58"W



Photo 10: Station 158+00.00; Latitude: 48°15'13.57"N Longitude: 102°40'26.60"W



Photo 11: Station 159+95.00; Latitude: 48°15'11.66"N Longitude: 102°40'26.63"W



Photo 12: Station 160+50.00; Latitude: 48°15'11.00"N Longitude: 102°40'26.67"W





Photo 13: Station 161+50.00; Latitude: 48°15'10.03"N Longitude: 102°40'26.62"W



Photo 14: Station 162+95.00; Latitude: 48°15'8.77"N Longitude: 102°40'26.87"W

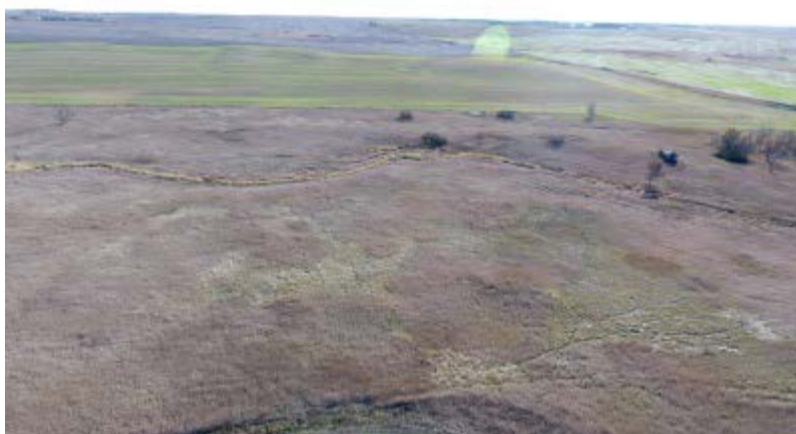


Photo 15: Station 165+00.00; Latitude: 48°15'6.69"N Longitude: 102°40'27.08"W



Photo 16: Station 165+90.00; Latitude: 48°15'5.78"N Longitude: 102°40'26.72"W

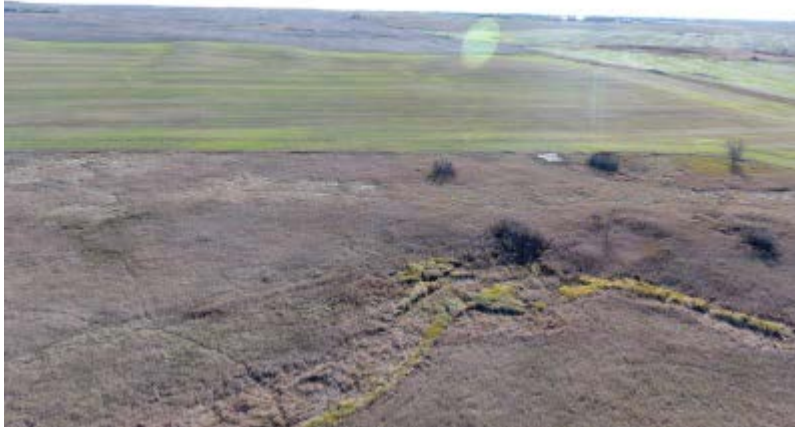


Photo 17: Station 167+70.00; Latitude: 48°15'3.94"N Longitude: 102°40'27.52"W



Photo 18: Station 169+85.00; Latitude: 48°15'1.88"N Longitude: 102°40'27.91"W



Photo 19: Station 172+00.00; Latitude: 48°14'59.79"N Longitude: 102°40'28.33"W



Photo 20: Station 173+70.00; Latitude: 48°14'58.11"N Longitude: 102°40'28.68"W



Photo 21: Station 174+05.00; Latitude: 48°14'57.62"N Longitude: 102°40'27.97"W

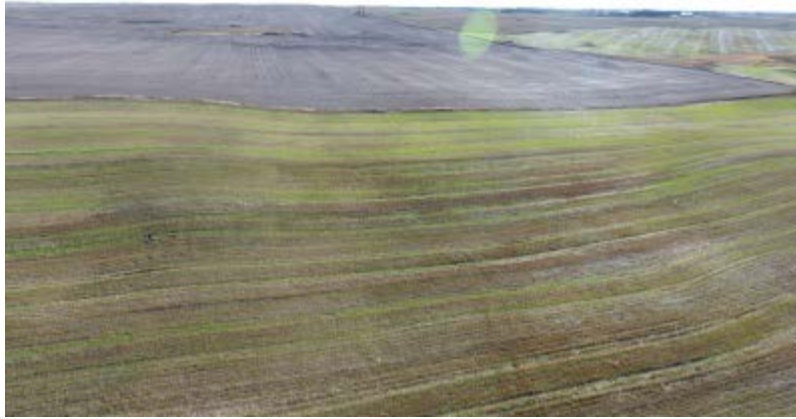


Photo 22: Station 176+00.00; Latitude: 48°14'55.86"N Longitude: 102°40'29.16"W



Photo 23: Station 176+90.00; Latitude: 48°14'54.93"N Longitude: 102°40'28.57"W



Photo 24: Station 177+50.00; Latitude: 48°14'54.27"N Longitude: 102°40'29.36"W



Photo 25: Station 179+00.00; Latitude: 48°14'52.85"N Longitude: 102°40'29.04"W



Photo 26: Station 179+15.00; Latitude: 48°14'52.63"N Longitude: 102°40'29.45"W



Photo 27: Station 180+20.00; Latitude: 48°14'51.52"N Longitude: 102°40'29.40"W



Photo 28: Station 182+40.00; Latitude: 48°14'49.52"N Longitude: 102°40'29.06"W



Photo 29: Station 427+10.00; Latitude: 48°11'4.71"N Longitude: 102°41'46.86"W



Photo 30: Station 427+10.00; Latitude: 48°11'4.71"N Longitude: 102°41'46.85"W



Photo 31: Station 427+15.00; Latitude: 48°11'4.64"N Longitude: 102°41'46.74"W



Photo 32: Station 427+15.00; Latitude: 48°11'4.63"N Longitude: 102°41'46.75"W



Photo 33: Station 427+80.00; Latitude: 48°11'4.12"N Longitude: 102°41'47.01"W

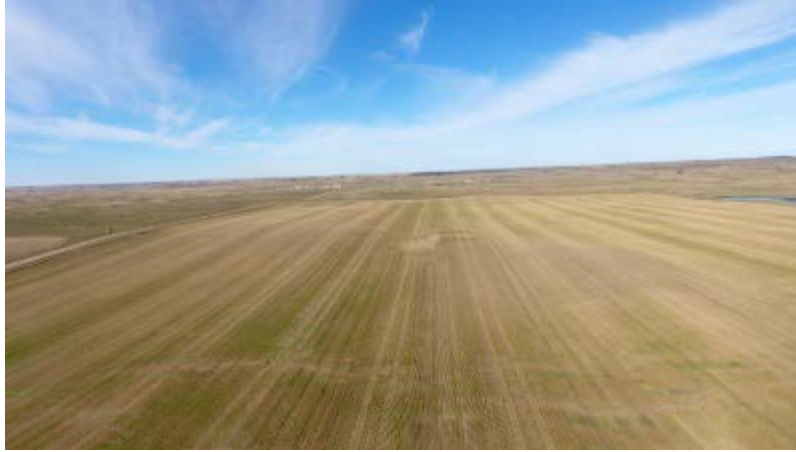


Photo 34: Station 430+20.00; Latitude: 48°11'1.70"N Longitude: 102°41'46.65"W



Photo 35: Station 430+40.00; Latitude: 48°11'1.56"N Longitude: 102°41'46.31"W



Photo 36: Station 430+40.00; Latitude: 48°11'0.65"N Longitude: 102°41'46.85"W

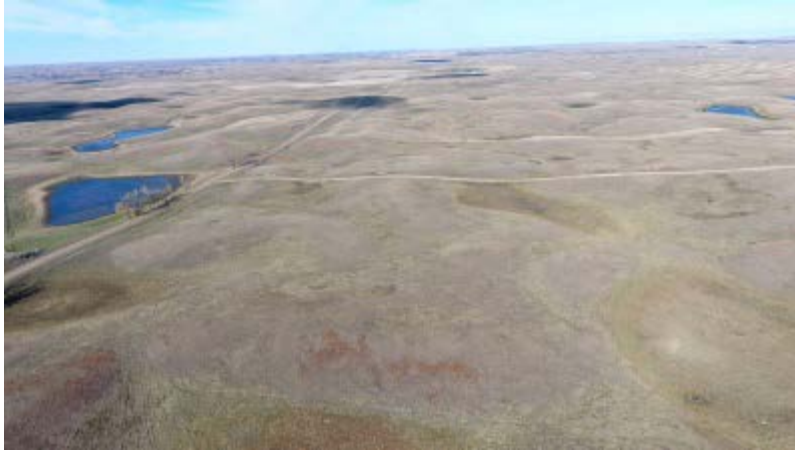


Photo 37: Station 608+00.00; Latitude: 48° 9'52.30"N Longitude: 102° 41'43.58"W

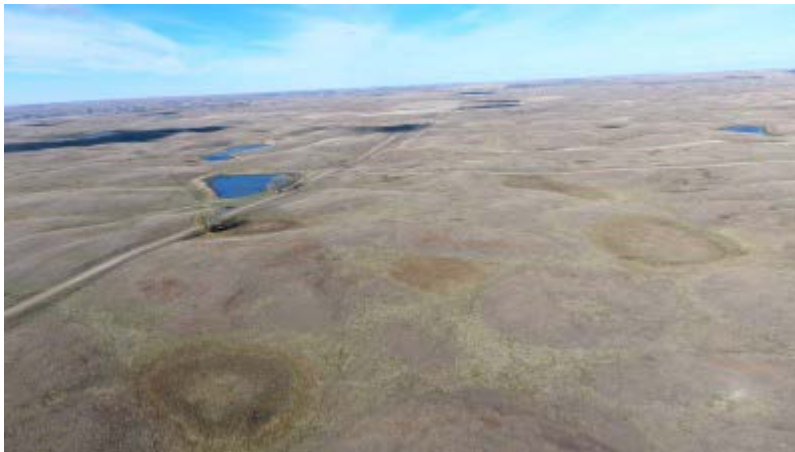


Photo 38: Station 613+60.00; Latitude: 48° 9'46.75"N Longitude: 102° 41'43.03"W



Photo 39: Station 625+50.00; Latitude: 48° 9'23.79"N Longitude: 102° 41'16.94"W



Photo 40: Station 625+50.00; Latitude: 48° 9'20.70"N Longitude: 102° 41'17.10"W



Photo 41: Station 668+20.00; Latitude: 48° 9'14.80"N Longitude: 102° 41'17.35"W



Photo 42: Station 670+70.00; Latitude: 48° 9'12.83"N Longitude: 102° 41'17.19"W



Photo 43: Station 674+00.00; Latitude: 48° 9'9.37"N Longitude: 102°41'15.58"W



Photo 44: Station 698+10.00; Latitude: 48° 8'45.55"N Longitude: 102°41'15.66"W



Photo 45: Station 703+20.00; Latitude: 48° 8'40.61"N Longitude: 102°41'15.77"W



Photo 46: Station 705+20.00; Latitude: 48° 8'38.69"N Longitude: 102° 41'16.07"W



Photo 47: Station 705+50.00; Latitude: 48° 8'38.37"N Longitude: 102° 41'16.04"W



Photo 48: Station 705+50.00; Latitude: 48° 8'38.33"N Longitude: 102° 41'16.73"W



Photo 49: Station 1166+90.00; Latitude: 48° 4'0.67"N Longitude: 102° 36'35.27"W



Photo 50: Station 1169+95.00; Latitude: 48° 4'0.39"N Longitude: 102° 36'30.80"W



Photo 51: Station 1327+90.00; Latitude: 48° 2'32.93"N Longitude: 102° 34'31.24"W



Photo 52: Station 1329+55.00; Latitude: 48° 2'31.16"N Longitude: 102°34'30.95"W



Photo 53: Station 1344+00.00; Latitude: 48° 2'16.94"N Longitude: 102°34'32.62"W



Photo 54: Station 1344+05.00; Latitude: 48° 2'16.93"N Longitude: 102°34'32.61"W



Photo 55: Station 1359+80.00; Latitude: 48° 2'8.08"N Longitude: 102°34'18.21"W



Photo 56: Station 1802+85.00; Latitude: 48° 0'15.87"N Longitude: 102°26'18.14"W



Photo 57: Station 1805+40.00; Latitude: 48° 0'13.25"N Longitude: 102°26'18.09"W



Photo 58: Station 1806+15.00; Latitude: 48° 0'12.47"N Longitude: 102°26'18.09"W



Photo 59: Station 1809+00.00; Latitude: 48° 0'9.62"N Longitude: 102°26'18.13"W



Photo 60: Station 1813+10.00; Latitude: 48° 0'5.53"N Longitude: 102°26'16.17"W



Photo 61: Station 1815+00.00; Latitude: 48° 0'3.73"N Longitude: 102°26'18.11"W



Photo 62: Station 1822+20.00; Latitude: 47°59'56.74"N Longitude: 102°26'19.74"W



Photo 63: Station 1822+20.00; Latitude: 47°59'56.74"N Longitude: 102°26'18.94"W



Photo 64: Station 1822+20.00; Latitude: 47°59'56.75"N Longitude: 102°26'18.93"W



Photo 65: Station 1824+50.00; Latitude: 47°59'54.30"N Longitude: 102°26'16.88"W



Photo 66: Station 1831+20.00; Latitude: 47°59'47.56"N Longitude: 102°26'16.52"W



Photo 67: Station 1837+20.00; Latitude: 47°59'41.82"N Longitude: 102°26'17.74"W



Photo 68: Station 1841+70.00; Latitude: 47°59'37.79"N Longitude: 102°26'19.08"W



Photo 69: Station 1839+90.00; Latitude: 47°59'35.49"N Longitude: 102°26'21.66"W



Photo 70: Station 1841+70.00; Latitude: 47°59'32.84"N Longitude: 102°26'21.48"W



Photo 71: Station 1863+00.00; Latitude: 47°59'31.42"N Longitude: 102°26'24.06"W



Photo 72: Station 1863+50.00; Latitude: 47°59'30.52"N Longitude: 102°26'22.51"W



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