



# **Bison II Wind Project Post-Construction Inspection Report PU-11-57**



Prepared for:

## **NORTH DAKOTA PUBLIC SERVICE COMMISSION**

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# 1.0 Executive Summary

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The North Dakota Public Service Commission (PSC) retained Wenck Associates, Inc. (Wenck) to complete a construction inspection of the Bison II Wind Project (Project) in Morton and Oliver Counties, North Dakota (ND), owned and operated Minnesota Power, an operating division of ALLETE, Inc (Allete). Construction for the Project began on 15 August 2011 and was commissioned in mid-December 2012. Wenck reviewed all Project documents to identify those aspects which required compliance and visually inspected the Project area on 2 May 2012 and 7 November 2012.

The Project was well-maintained and appeared to have been constructed as planned with numerous efforts to minimize impacts. However, there were several non-critical issues that may need to be resolved for the Project to be considered complete and in full compliance, including 1) written verification of some items, 2) final reclamation. Wenck expects follow-up actions taken by Minnesota Power to address these particular issues can be corroborated in writing or photos and will not require a subsequent site visit. Wenck recommends the PSC take the following steps to resolve these issues.

## **Recommended Action Steps**

### **→ Request Now**

- Written verification of “necessary” items (refer to list in Section 4.1).

### **→ Review Internally, Clarify, Then Request if Needed**

- Several “potential” items may need written verification, but the PSC should review first since some of them may not be needed or may be best verified in some other way (refer to list in Section 4.1).

### **→ Expect Later, Request if Needed**

- As-builts engineering drawings and associated GIS files for the Project, which should be submitted within 3 months of Project completion (March 2013).
- Documentation that final reclamation of the laydown yard and other temporary areas is complete when demobilization is complete and vegetation is established.

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## 2.0 Background & Scope

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### 2.1 INTRODUCTION

The Bison II Wind Project (Project) was completed in 2012 in Morton and Oliver Counties, North Dakota approximately 9 miles to the west and 8 miles to the north of the town of New Salem (**Figure 1**). The Project is operated by Minnesota Power, a subsidiary of ALLETE, Inc. (Allete). The Project had a proposed capacity of 105-megawatts (MW) comprised of 35 turbines. 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-11-57 on August 10, 2011, granting a Certificate of Site Compatibility for Energy Conversion Facility, Certificate No. 24, for the Project.

### 2.2 PURPOSE

The North Dakota Energy Conversion and Transmission Facility Act (North Dakota Century Code Chapter 49-22) authorizes 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. Post-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 Findings of Fact, Conclusions of Law, and Order (Order). The North Dakota PSC retained Wenck Associates, Inc. (Wenck) to complete a construction inspection of the Project.

### 2.3 METHODS AND SCOPE OF INSPECTION

#### 2.3.1 Project Compliance Items Identified

Wenck identified a list of “Project Specifications”, which the company was obligated or responsible to follow and that can be verified either in written documentation or by an on-site inspection. These items were taken from 1) siting laws and rules, 2) Project activities or specifications proposed in the Application, 3) Project plans described in the Findings of Fact, 4) Orders, and 5) recommendations by other agencies. These Project specifications are listed in Table 2.1 within 7 categories: Siting & Location; Project Design & Engineering; Pre-Construction; Cultural Resources; Natural Resources; Construction, Reclamation & Soils; and Operation.

#### 2.3.2 Document Review

Wenck staff reviewed publicly-available Project documents in the PSC Online Case Search (ND PSC 2013) to find written verification of compliance for the Project specifications listed in Table 2.1. If written verification was filed, the findings are described in Section 3 and the source and name of the documentation is listed in Table 2.1, Column 3 (Written Verification). Shaded boxes in the table represent Project specifications that are potentially non-compliant because they have no written verification.

### 2.3.3 On-Site Inspection

Luke Toso, Wenck botanist and natural resource scientist, visited the Project 7 November 2012. Daniel McCartney, Environmental Compliance Coordinator, and Mike Pontious, Project Manager, both with Minnesota Power, accompanied Wenck staff during the site visit and assisted with navigation, pointed out problem areas, and answered questions.

The Project was inspected visually using a combination of driving and walking the entire area, including the substation, utility line routes, access roads and wind turbines. Digital photographs (Canon Power Shot SD1300 IS, 12 megapixel) were taken showing typical Project infrastructure and documenting problem areas (**Appendix A**). Geographic coordinates were recorded at observation points or potential problem areas using a handheld Global Positioning System (GPS) (Garmin GPSMAP 60CSx; <10m accuracy; NAD83 datum) (**Figure 1; Appendix B**).

If on-site inspection of a Project specification was completed, the findings are described in Section 3 and referenced in Table 2.1, Column 4 (Site Verification). Shaded boxes in the table represent Project specifications that are potentially non-compliant based on site verification.

**Table 2-1: Project Specifications with Written or Site Verification Information**

Source of Project Specification	Description of Project Specification	Written Verification*	Site Verification*
<b>SITING &amp; LOCATION</b>			
Findings of Fact 3, 4; Order 2, 3	Designated location in Morton and Oliver Co. Associated facilities to include access roads, underground electrical and feeder lines, additions to an existing electrical substation, meteorological towers, wind monitoring stations, and operations and maintenance buildings.	None.	Section 3.1.1
Findings of Fact 5	Compliance with county/city land use, zoning, rules, regulations, ordinances. Zoning permit from Morton and Oliver Co.	Docket #59, Conditional Use Permit Oliver and Morton County	N/A
ND Admin. Code Article 69-06-08; Findings of Fact 19, App. p. 3-2 – 3-6; Findings of Fact 17	Siting Criteria analysis – exclusion, avoidance, selection, policy. Avoidance areas: historical resources, woodlands, wetlands.	Docket #8, Application	Section 3.1.3
Findings of Fact 18, 19; App. p. 7-16	Total land disturbance about 54 acres. Project will impact approx. 54 acres of agricultural production. Negligible disturbance to prime farmland. No impacts to quality of cropland anticipated. Soil compaction addressed as necessary.	None.	Section 3.1.4
Findings of Fact 22; App. p. 7-2, 7-3	No adverse impacts foreseen to surrounding community, public services, safety. Expected economic benefit.	None.	Section 3.1.5
Findings of Fact 34, 35; App. p. 4-2	Turbine setbacks: 1,400ft. from occupied residence; 471ft. from existing transmission lines, public roads, railroads, non-participant property boundaries.	Docket #8, Application, Exclusion and Avoidance Areas Map	Section 3.1.6
<b>PROJECT DESIGN &amp; ENGINEERING</b>			
Findings of Fact 6; Amended App. Docket 28	Authorized 35 3.0 MW turbines, with a nameplate generation of 105 MW.	None.	Section 3.2.1
Findings of Fact 6- 8 App. p. 6-1 – 6-2, 6-4	Siemens 3.0 MW turbines, 80m hub height, 101m rotor diameter. Turbines with concrete foundation, lighting according to FAA, control panel in turbine base, pad-mounted transformer steps down to collection lines. Turbines to have SCADA and lightning protection.	None.	Section 3.2.2
Findings of Fact 10; App. p. 3-7, 4-1	Collection line system delivers electricity to substation, stepped up to existing 230kV transmission line.	None.	Section 3.2.3
ND Century Code Ch. 49-22-24; Findings of Fact 16; App. p. 6-3	Compliance with National Electric Safety Code.	None.	N/A
Order 34	As-built engineering design drawings and GIS files within 6mo.	None	N/A

Source of Project Specification	Description of Project Specification	Written Verification*	Site Verification*
	<b>PRE-CONSTRUCTION</b>		
ND Century Code Ch. 49-22-04; ND Admin. Code Article 69-06-02	Ten-year plan (submit before July 1)	Docket #1, Case No. PU-12-440	N/A
ND Century Code Ch. 49-22-07	Certificate of site compatibility or route permit	Docket #46, Certificate 24, 8-10-2011	N/A
ND Century Code Ch. 49-22-07.1; ND Admin. Code Article 69-06-03	Letter of intent	Docket #1, Letter of Intent	N/A
ND Century Code Ch. 49-22-08; ND Admin. Code Article 69-06-04	Application for a certificate of site or corridor compatibility	Docket #8, Application and Docket #28, Amendments to Application	N/A
Order 3, 4	Permits and approvals from other agencies and provide copies.	Docket #59, Conditional Use Permit Oliver and Morton County	N/A
Order 2, 5	Conduct pre-construction conference. Provide notice of intent to start construction.	Docket #47, Notes from Pre-Construction, Notice of Construction Commencement Date	N/A
Order 33	Inform PSC of plans to modify facility and obtain approval.	None filed to date.	N/A
	<b>CULTURAL RESOURCES</b>		
Findings of Fact 25, 26; ND SHPO request (3/22/2011)	Obtain SHPO concurrence of archeologist's report. Provide copy to Commission.	Docket #29, 98 SHPO concurrence letters	N/A
Findings of Fact 25, 26; Order 9	Avoidance of all identified sites potentially eligible for National Register of Historic Places. Avoidance of all cultural resource features during construction.	None.	Section 3.4.2
Order 11	Report discovery of cultural, archeological, historic sites. Construction stopped, SHPO consulted and clearance required, report to Commission filed.	None reported to date.	N/A
	<b>NATURAL RESOURCES</b>		
Findings of Fact 31	Concerns of USFWS regarding migrating whooping cranes addressed: bury new power lines or mark lines near adequate stopover habitat.	None reported to date.	3.5.1
App. p. 7-27; USFWS (4-15-2011); NDPR (3-24-2011)	Concerns of USFWS regarding wildlife resources addressed: Avoid construction Feb 1-July 15; self-standing MET towers. NDPR request: avoid impacts to wildlife and habitats and Yellow bullhead ( <i>Ameiurus natalis</i> ) habitat	Docket #97 and 112, Weekly Construction Activities.	Section 3.5.2

Source of Project Specification	Description of Project Specification	Written Verification*	Site Verification*
Findings of Fact 28; App. p. 7-25; NDGF (4-12-2011); USFWS (4-15-2011)	Minimal disturbance of native prairie. Concerns of NDGF and USFWS.	None.	Section 3.5.3
Findings of Fact 32; App. p. 7-28; NDGF (4-12-2011); USFWS (4-15-2011); NDPR (3-24-2011); NRCS (5-11-11)	All wetlands will be avoided during construction. NDGF, USFWS, NDPR, NRCS concern.	None	Section 3.5.4
Order 9; Findings of Fact 32; App. p. 7-17; NDGF (4-12-2011); USFWS (4-15-2011); NDPR (3-24-2011)	Report presence of T+E species, bald or golden eagles during construction and operation. NDGF: suggest monitoring bat and avian mortality throughout the life of the facility.	Docket #114, Minnesota Power 2012 Wildlife Incident Report	N/A
Order 17; App. p. 7-23, 7-24; USFWS (4-15-2011); NDPR (3/22/2011)	Reclamation, fertilization, and reseeded according to NRCS (or landowner if approved). USFWS, NDPR request: reseed with native species.	None.	Section 3.5.6
Order 20; App. p. 3-6	Compliance with "Tree and Shrub Mitigation Specifications".	Docket #77, Mitigation Plan; Docket 103, Commission Approval of Plan; Docket 100, 2012 Tree and Shrub Survival Report	Section 3.5.7
<b>CONSTRUCTION, RECLAMATION &amp; SOILS</b>			
Order 8, 5, 14	Construct and operate in accordance with Application and safety requirements. Construction suspended during adverse weather conditions. Provide weekly construction reports.	Docket #58, 61, 64 Work stoppage due to rain Docket #51, 54, 56-73, 76, 78-85, 87, 88, 90-95, 97, 99, 101, 104, 105, 107, 112 Weekly Construction Reports	N/A
Findings of Fact 37; NDDH (5/26/2011)	Soil erosion minimized by use of BMPs during and after construction to protect groundwater and soils/topsoils. NDDH concerns: minimize fugitive dust, degradation of waterways, storm water management, and noise.	Docket #81, 82 Report of BMPS being repaired/maintained. Docket #95, 97, 99, 101, 104 Report controlling erosion via spraying with water trucks.	Section 3.6.2
Order 15, 37	Only land needed for facility will be impacted. Staging areas not located on cultivated land unless negotiated with landowners. Topsoil segregated and replaced.	None.	Section 3.6.3
Findings of Fact 39; Order 12	Utility line crossings of graded roads bored. Utility lines buried to minimum 42in.	Bore Plan – Project Overview (Provided during inspection)	Section 3.6.4
App. p. 7-28	Noxious weeds controlled within vicinity of turbines.	None.	Section 3.6.5

Source of Project Specification	Description of Project Specification	Written Verification*	Site Verification*
Order 13, 26, 37	Temporarily disturbed areas will be restored. Pre-existing roads restored to satisfactory condition. Temporary roads removed. Area around each turbine restored promptly. Working areas used during construction repaired or restored equal to or better than condition prior to construction.	Docket #99, 101, 104 Weekly Construction Reports indicating restoration of area.	Section 3.6.6
Order 21, 22, 26	Repair/replace all damaged fences and gates. Repair/replace damaged drainage tile. Waste removed & disposed regularly.	None.	Section 3.6.7
<b>OPERATION</b>			
Order 7, 8, 29	Construct and operate in accordance with Application and safety requirements. Extraordinary events (e.g. tower/turbine failure, injuries, wildlife fatalities) reported within 5 business days. Maintain records of compliance with Order and Certificate of Site Compatibility.	None reported to date.	Section 3.7.1
Order 25, 26	Reclamation and maintenance throughout life of facility. Waste removed & disposed regularly.	None.	Section 3.7.2
Order 27, 28, 31, 23	Educational materials, as requested, and notification of possible dangers to landowners. Safety measures for traffic control or to restrict public access. Procedure for handling complaints. Cooperation with landowners/residents to mitigate adverse effects.	None to date.	Section 3.7.3
Pre. Const. Conf. 35, App. p. 6-10	Decommissioning plan in place prior to Project placed in-service.	None	N/A

**\*Note: Shaded boxes represent non-compliance or potential non-compliance issues.**

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## 3.0 Findings

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### 3.1 SITING & LOCATION OF FACILITY

#### 3.1.1 Designated Location and Facilities

The Project was built as proposed in the designated project area described in the Application and Order (**Figure 1**). Wenck observed 35 wind turbines; 28 turbines were located in Morton County and 7 turbines in Oliver County. Associated facilities observed during the site visit included access roads, additions to an electrical substation, metrological towers and wind monitoring stations, markers indicating the location of underground electrical and feeder lines, and operations and maintenance buildings (**Appendix A; Appendix B**).

A few minor differences in the proposed Project layout (Supplemental Application Materials, dated 6-28-11) compared to the built facility were noted. These include the following:

- In the northeast portion of the project area, alternative Structures 240, 241, and 239 were not built.
- In the southwest portion of the project area, alternative Structures 237 and 238 were not built.
- Alternative Structure 236 in the NE  $\frac{1}{4}$  of Section 30, T140N, R86W, was built.

These changes were due to final decisions of planned/alternate turbines and adjustments in access roads and were allowed within the issued Certificate of Site Compatibility. No turbine locations were adjusted.

#### 3.1.2 County/City Regulations

Conditional Use Permits (CUPs) were documented for Oliver and Morton Counties (Docket #59). Oliver County also required a building permit, which was on file (Docket #59, Permit #620). The CUP for Morton County allowed 28 turbines to be constructed, and improvements to section line roads.

#### 3.1.3 Siting Issues

Siting criteria were analyzed in detail in the Application for the Project (Docket #8). Wenck confirmed during the site inspection that exclusion and avoidance areas were avoided as described in the Application, to the extent possible. Historical/cultural resources were avoided (see Section 3.4.2). No natural woodlands or shelterbelts were impacted. Wetlands were avoided (see Section 3.5.4). Wenck also confirmed that impacts to selection and policy criteria were considered and kept at a minimum.

#### 3.1.4 Land & Agricultural Impacts

The Project was built as proposed within the estimated construction limits and right-of-ways. It appeared that the extent of construction and disturbance were within the maximum acreages estimated in the Application. Minor changes from the proposed facility (see Section 3.1.1) would not have greatly altered the extent of disturbance. During the interim inspection, Wenck verified topsoil was segregated and safely stored for final reclamation (**Appendix A, Photo 11**). During the post-construction inspection, crop production did not appear to be reduced surrounding the turbines, access roads, or along collection line routes that had been reclaimed (**Appendix A, Photos 1, 7, 9**), indicating that topsoil replacement and soil compaction were satisfactory. The Minnesota Power staff noted that any issues or

landowner concerns related to agriculture or cropland are addressed promptly to maintain good rapport with the community.

### **3.1.5 Surrounding Community, Public Services, Safety**

There were no indications during the site inspection that the surrounding community or public were being impacted negatively due to the operation and infrastructure of the wind facility. All turbines were placed along access roads which spurred from main public roads. Roads were safe and appropriate signage was observed during the interim and post-construction inspections (**Appendix A, Photos 1-4, 5, 13**). The wind facility provides jobs for several people who reside in nearby towns.

### **3.1.6 Turbine Setbacks**

Wenck verified during the inspection that turbines were built at least 1,400 feet from occupied residences. Minnesota Power proposed setbacks of 471 feet from existing transmission lines, publicly improved and maintained road right-of-ways, railroads, and non-participant property boundaries. During the field inspections, it appeared that these setbacks were followed.

## **3.2 PROJECT DESIGN & ENGINEERING**

### **3.2.1 Capacity**

The Project was authorized to build up to 35 3.0MW turbines for a total capacity of 105 MW. A news release by Minnesota Power (Docket #113) regarding the commissioning of Bison II was consistent with what was authorized. The 35 turbines were inspected during the site visit (**Appendix A; Appendix B**).

### **3.2.2 Turbine Specifications**

All turbines were constructed as specified, 3.0 MW, 80 m hub height, 101 m rotor diameter. Each turbine had a concrete foundation, a control panel in the tower base, a pad-mounted transformer, and lightning protection (**Appendix A, Photos 1, 5-8**). Turbines were connected to a SCADA system, observed in the O & M Building control area. Lighting was not confirmed since the inspection took place during daylight hours but is assumed to be in compliance with the FAA since FAA approval was granted (Daniel McCourtney, pers. comm. 2012).

### **3.2.3 Collection Line & Substation**

Several points along the collection line system were observed and it appeared to be constructed generally where proposed (**Appendix B**). Points where the collection lines were bored under major roads were observed and no concerns were noted. Markers were in place (**Appendix B, Photo 7**). The collection line tied into a 230kV transmission line at the substation, as proposed.

### **3.2.4 National Electric Safety Code**

There was no written verification or certification of compliance with the National Electric Safety Code.

### **3.2.5 As-built Drawings and GIS Files**

As-built engineering design drawings and electronic GIS files had not been submitted at the time of this report. However, as-builts should be submitted 3 months after completion of construction activities. Construction was completed the week of 9 December 2012 (Docket 112, Final weekly construction report); therefore as-builts should be submitted by 9 March 2013. If they are not received by this time, Wenck recommends the PSC request them from Minnesota Power.

### **3.3 PRE-CONSTRUCTION**

#### **3.3.1 PSC-Required Documents**

A letter of intent was received 7 February 2011 (Docket #1). An Application for a Certificate of Site Compatibility was submitted 4 April 2011 (Docket #8) and amended 28 June 2011 (Docket #28). Certificate of Site Compatibility 24 was issued on 10 August 2011 (Docket #46). There was not a ten-year plan on file in the Project docket, but searching the PSC website showed a 10-year plan submitted on 28 June 2012 by Minnesota Power filed under Case # PU-12-440.

#### **3.3.2 Permits and Approvals from Other Agencies**

Several permits and approvals were identified in the Application as potentially required for the Project. Federal approvals were required by the Federal Aviation Administration (FAA) for potential construction of structures over 200 feet (Form 7460-1) and as-builts of constructed structures (Form 7460-2). A copy of these permits was not on file with the PSC. The Environmental Protection Agency (EPA) required a Spill Prevention Control and Countermeasure (SPCC) Plan for the facility. Minnesota Power staff confirmed that a plan was in place for the substation, although this plan was not on file with the PSC (Daniel McCourtney, pers. comm. 2012).

Submitted state and local approvals on file included the Conditional Use Permits for Morton and Oliver Counties (Docket #59). Several other permits were identified as necessary but were not on file, including a ND Department of Health ND PES Permit, the ND Department of Transportation Utility Permit, ND Highway Patrol Overheight/Overweight Permit, and a ND Division of Emergency Management Emergency Planning and Community Right-to-Know Act Tier II report. The notes from the Preconstruction Conference (Docket 47) did note that all permits were obtained, including mention of the stormwater plan certification filed with the ND Department of Health on 9 August 2012.

#### **3.3.3 Pre-Construction Conference/Notice of Intent to Start Construction**

Record of the pre-construction meeting and notice of intent to start construction was on file (Docket #47).

#### **3.3.4 PSC Approval of Modifications**

There were no notifications to modify the facility filed to date. None of the minor changes made to the facility after the Project was approved were beyond the scope of the issued Certificate of Site Compatibility (refer to Section 3.1.1).

### **3.4 CULTURAL RESOURCES**

#### **3.4.1 SHPO Concurrence**

SHPO concurrence of all archeology reports was provided to the PSC (Dockets #29, 98).

#### **3.4.2 Cultural Site Avoidance**

Class I-III cultural resources surveys were recommended by the ND SHPO. Based on the Class I cultural resources inventory, 13 known cultural resources were identified within 1 mile of the Project boundaries (Docket 8, Application). It appears that a Class II and III Cultural Resources Report was completed for the project, and was part of the table of contents for Compiled Amendments to the Application (Docket #28), but no report was part of the document, perhaps for confidentiality reasons. No cultural resources maps were part of the Application or Amendments. The Application described measures that would be taken to avoid the potentially eligible features, including reroutes, turbine shifts, and fencing during

construction. Although no archeological maps were available during the site visit, Minnesota Power staff directed Wenck to several archeological sites that were avoided during project construction.

### **3.4.3 Reporting**

No new discoveries of cultural, archeological, or historic sites have been reported to the PSC to date. Presumably no new sites were encountered during construction of the Project.

## **3.5 NATURAL RESOURCES**

### **3.5.1 Whooping Cranes**

Measures identified specifically to minimize potential Project impacts to whooping cranes included: stop-work within two miles of whooping cranes observed during construction; curtailments of turbines within two miles of whooping cranes observed during operation; and bury new power lines or mark power lines within 1 mile of potential stopover habitat (e.g. wetlands). No reports of whooping cranes to the USFWS have been filed with the PSC to date; presumably none have been observed within the project area during this time. Minnesota Power has submitted an annual Wildlife Incident Report for the Project, and no whooping cranes were observed or directly impacted. Finally, all feeder lines were buried.

### **3.5.2 Wildlife**

Additional measures were proposed to minimize impacts to other wildlife in the Project area and Wenck verified several of these measures. All collection lines were buried to avoid bird collisions (**Appendix A, Photos 6, 7**). No additional transmission lines were constructed for the Project. Wetland habitat impacts were avoided by siting and boring under wetlands (**Appendix A, Photos 8-10**). The USFWS suggested that implementation of an Avian or Bat Protection Plan was an act of good faith and Minnesota Power has submitted a Wildlife Incident Report (Docket #114) detailing any wildlife mortality observed on the Project site. Finally, The NDPR requested that habitat for the yellow bullhead (*Ameiurus natalis*) be avoided. Wenck confirmed that this habitat was not impacted by the Project.

Two non-compliance issue regarding wildlife were note. The MET towers were not self-standing as recommended by the USFWS, though they did have bird deterrents on the guy wires to help prevent bird collisions. Most construction occurred outside of the migratory bird nesting season (Feb-1-July 15), but some did occur during this period. However, initial site disturbance occurred in the fall, and when construction began again in the spring, most habitat had already been degraded as to prevent migratory bird nesting.

### **3.5.3 Native Prairie**

All of the turbines were placed in cultivated lands or hayland, and it appeared that native prairie had been avoided to the extent possible.

### **3.5.4 Wetlands**

During the construction inspection, Wenck confirmed that wetlands were avoided in the Project design (**Appendix A, Photos 8-10**). No stream crossings or wetland basins were impacted by Project infrastructure. Locations of jurisdictional wetlands were avoided by boring underneath them to install collection lines (Bore Plan, provided during inspection). It did not appear that the vegetation along these wetland margins had been disturbed.

### **3.5.5 Reporting**

Minnesota Power utilizes a Wildlife Incident Report System to monitor, report, and document any wildlife fatalities observed. These reports are documented on a monthly basis, and a yearly report summarizes these findings and is on file with the PSC (Docket 114). There were no reports filed to date of the presence of threatened or endangered species or bald or golden eagles during construction or operation to date.

### **3.5.6 Reclamation & Reseeding**

Wenck observed that most disturbed areas in non-cropped lands were reclaimed and reseeded after construction. Erosion was not a concern, and no annual weed outbreaks were noted. Minnesota Power staff verified that a native seed mix, approved by the NRCS, was used on all non-cropped areas. Since the Project was recently completed, some reclamation activities were ongoing at the time of the inspection (**Appendix A, Photo 4**), and it was too early to verify the composition of revegetated areas. Wenck recommends that the PSC continue to monitor reclamation efforts to ensure they are completed satisfactorily.

### **3.5.7 Tree & Shrub Mitigation**

There were no natural woodlands or planted shelterbelts within the Project area that were impacted by construction of the Project. Although a tree and shrub mitigation plan is on file for the Project (Docket 77), it outlines mitigation for the Bison 1A and 1B facilities and not for the Bison II facility.

## **3.6 CONSTRUCTION, RECLAMATION & SOILS**

### **3.6.1 Construction Management & Safety**

Weekly Construction Reports were submitted in fulfillment of the Order to provide weekly construction reports and these submissions indicated that construction of the Project proceeded in accordance to the Application and safety requirements (Docket #51, 54, 56-73, 76, 78-85, 87, 88, 90-95, 97, 99, 101, 104, 105, 107, 112). Construction was suspended three times during adverse weather conditions, as ordered by the PSC, due to rain (Docket #58, 61, 64).

### **3.6.2 Erosion & Sedimentation**

Best Management Practices (BMPs) were used as part of the construction and maintenance of the Project to minimize erosion and control sediment (**Appendix A, Photos 10, 11, 13**). Weekly Construction Reports for the Project (Docket #81, 82) documented repairing/maintaining erosion control structures. Culverts were installed where necessary to allow for the natural flow of drainage (**Appendix A, Photos 13**). No erosion problems were observed around the utility junction boxes; cement bollards and gravel were in place around each (**Appendix A, Photos 12**). In general, erosion problems were not an issue and infrastructure of the Project area was well-maintained.

### **3.6.3 Minimization of Impacts**

In general it appeared during the site visit that measures were taken to minimize the overall impact of the Project and the extent of land and soil disturbance. Areas that would have been disturbed during construction of the Project were agricultural fields. Crops were harvested at the time of the survey but showed no indication of poor development or production in areas where the soils would have been disturbed compared to areas not disturbed. The laydown yard for the Project had been reclaimed (**Appendix A, Photos 14**). The cropland had been satisfactorily reclaimed, supported by the fact that the cropland was in use and appeared to be in good condition compared to areas that had not been disturbed. Wenck observed that all topsoil appeared to be replaced to the required depth.

### **3.6.4 Utility Lines**

Wenck verified that all county road and highway crossings had been directionally bored, with the route of the underground utility line indicated by red markers in all locations (**Appendix A, Photos 7**).

Minnesota Power reported that the bore for each of these crossings began and ended further out in adjacent agricultural fields, not in the road ditches. The vegetation in the ditches did not appear to have been disturbed. The crossings include 31<sup>st</sup> St., 52<sup>nd</sup> St., 32<sup>nd</sup> St., 86<sup>th</sup> Ave., and County Road 140<sup>th</sup> West. All utility lines appeared to be buried at the properly required depth.

### **3.6.5 Noxious Weeds**

Minnesota Power indicated annual and noxious weeds are controlled with herbicide on a regular basis several times throughout the summer months around turbines and the substation. Wenck did not observe any weed outbreaks or problem areas of noxious weeds. Vegetation was sprayed around the base of each turbine on the gravel pad and at the substation to control weeds.

### **3.6.6 Reclamation & Roads**

Most of the areas of the Project which had been disturbed during construction appeared to be properly restored, with some reclamation in progress. In particular, one temporary road used for crane mobilization had not yet been reclaimed, and the laydown yard was reseeded, but not yet established (**Appendix A, Photo 14**). During the construction inspection, Wenck noted that all county roads and highways within the Project area appeared to be in good condition and properly maintained. The gravel pads surrounding the tower structures were all well-maintained and in excellent condition (**Appendix A, Photos 4, 9, 29, 46**). They appeared to have been constructed properly. There was no soil slumping or settling, no open trenches, and no areas of erosion, though there was some ponding water which could be addressed with more gravel or improving grade. Crops were planted as close as possible to the tower bases. None of the crops showed visible signs of poorer production or vigor, which would indicate improper topsoil replacement. Also refer to Section 3.5.6 Reclamation and Reseeding, 3.6.2 Erosion & Sedimentation, and 3.6.3 Minimization of Impacts.

### **3.6.7 Repairs & Waste**

All fences and gates were in place and fully operable. Numerous new gates had been installed for the Project where access roads crossed fencelines (**Appendix A, Photos 3, 5**). Cattle guards were installed at the gates when necessary. Minnesota Power reported there had not been any agricultural fields with drainage tile impacted by construction of the Project. There was no waste, debris, or abandoned equipment observed during the inspection. The site appeared to be regularly maintained and no remnants of the construction phase were noted.

## **3.7 OPERATION**

### **3.7.1 Safety & Record-keeping**

No concerns were identified during the site review that would indicate that Project operation was out of compliance with the Application or safety regulations, other than the minor concerns noted in this report. Examples of operational safety measures observed at the site include: use of personal protective equipment, signs marking safety hazards for employees at the O & M building and at towers, and vehicle safety measures. No reports of extraordinary events were filed to date with the PSC.

### **3.7.2 Maintenance**

Wenck observed that Minnesota Power has in place an on-going maintenance schedule. The primary maintenance issue was upkeep of tower access roads and erosion control, which was discussed in Section 3.6.2. Wenck noted that the gravel pads surrounding the tower structures were all well-maintained and in good condition. Annual weeds were sprayed regularly to keep them under control. Wenck did not observe any areas of exposed soil remaining from construction activity or the on-going operation of the Project that were in need of reclamation. There was no waste, debris, or abandoned equipment observed during the inspection. The site appeared to be regularly maintained.

### **3.7.3 Public Contact & Safety**

No examples of educational materials for landowners or the public were noted at the Project Site or on file with the PSC. However, Wenck observed that danger/safety warnings were in place on junction boxes, tower doors and electric boxes, surrounding the substation, and on markers indicating buried utility lines (**Appendix A, Photos 5**). Minnesota Power reported that there are no security systems in place on the doors to the towers. However the doors are locked and regularly monitored. There was a security fence in place surrounding the substation. Wenck did not identify any areas where traffic control signs were necessary within the Project area. There were public access “No Trespassing” signs at all entrances to tower access roads at each intersection with a county road or highway; none were missing or damaged. These signs also denoted the tower identification numbers for the towers in each string. No formal complaints have been filed with the PSC to date. Wenck received verbal confirmation from Minnesota Power staff that landowner and resident concerns are addressed promptly and that Minnesota Power makes every reasonable attempt to alleviate problems caused by the facility. However there were no formal procedures on file for how Minnesota Power handles complaints or explains of the process for mitigating landowner/resident concerns.

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## 4.0 Issues to Resolve and Recommendations

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### 4.1 PROJECT SPECIFICATIONS NEEDING WRITTEN VERIFICATION

Several components of the Project were asserted in the Application or proposed construction and could be verified in writing, but have not been filed with the PSC. Table 2-1 summarizes these items, which are indicated as those shaded in the “Written Verification” column, indicating no written verification was provided where applicable and necessary. Wenck does not consider any of these items to be critical for Project compliance. However some were more important than others and Wenck suggests they be on file with the PSC to confirm compliance. Wenck recommends the PSC request from Minnesota Power the following list of “Necessary” items, and if the PSC deems appropriate, the list of “Potential” items could also be requested.

#### Necessary Items

- As-built drawings and associated GIS files for final layout of Project.\
- Federal permits: FAA determinations and EPA SPCC plan, identified as necessary for the project (or indication that the permit was deemed unnecessary).
- State and local permit copies: NDDH NDPEs Permit, NDDOT Utility Permit, ND Highway Patrol Overheight/Overweight Permit, ND Division of Emergency Management Emergency Planning and Community Right-to-Know Act Tier II report, identified as necessary for Project (or indication the permit was deemed unnecessary).
- Decommissioning plan that was required before the Project was placed in service.

#### Potential Items

- Written verification of compliance with National Electric Safety Code.
- Verification that no new discoveries of cultural, archeological, or historic sites were found during construction.
- Summary or example of landowner complaints to date regarding sound, flicker, safety, or other concerns and descriptions of how the issues were handled. Or procedures for how Minnesota Power handles complaints and mitigation of landowner/resident concerns.
- Examples of educational materials to be provided to landowners or the public if requested.

### 4.2 RECLAMATION

During the post-construction inspection, reclamation efforts were still in progress in several areas (**Appendix A, Photo 14**). Much of laydown yard had recently been reseeded and was establishing, but part of the yard was still being used for final demobilization. Additionally, a temporary crane path through an agricultural field had yet to be reclaimed. No erosion was noted in either of these areas. Since the Project was recently completed, this issue does not indicate non-compliance and revegetation will be expected to take several years to establish. Wenck recommends that the PSC request confirmation from Minnesota Power as reclamation continues.

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## 5.0 Conclusions

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Overall, the Project appeared to have been constructed as designed with minimal impacts to the surrounding natural or human environment. The Project site was well-maintained and in good condition. However, Wenck observed several issues that may need to be resolved before the Project is considered complete and in full compliance. This includes provision of written documentation of particular aspects of Project implementation and final reclamation. None of these are critical issues, but the PSC should determine which are necessary for the company to comply with and then notify the company what actions are required on their part.

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## 6.0 References

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North Dakota Public Service Commission (ND PSC). 2013. Online Case Search. Available from:  
[http://www.psc.nd.gov/database/company\\_case\\_list.php](http://www.psc.nd.gov/database/company_case_list.php). Accessed November, January 2013.

McCourtney, Daniel. 2012. Allete Environmental Compliance Specialist. Personal Communication:  
discussion during site visit.

Pontious, Michael. 2012. Minnesota Power Project Manager for Bison II. Personal Communication:  
discussion during site visit.

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## 7.0 Signatures


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The services performed by Wenck scientists 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 judgment 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.

Project Manager, Kevin Magstadt and Luke Toso, Botanist and Natural Resources Specialist, prepared the report.

  
\_\_\_\_\_  
Kevin Magstadt, P.E., Associate/Regional Manager

\_\_\_\_\_  
1/15/2012  
Date

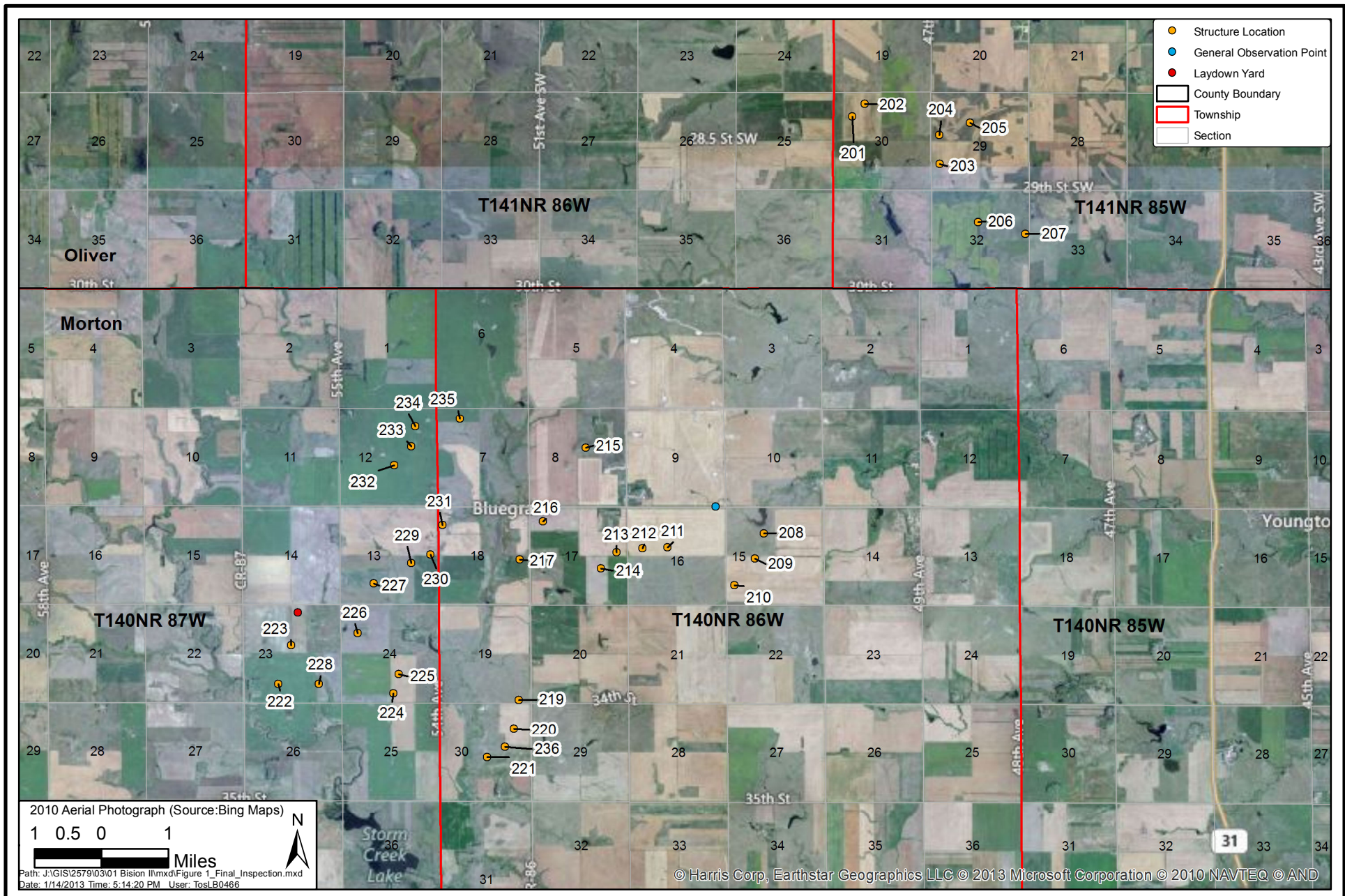
  
\_\_\_\_\_  
Luke Toso, Botanist/Natural Resource Scientist

\_\_\_\_\_  
1/15/2012  
Date

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## Figures

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**NORTH DAKOTA PUBLIC SERVICE COMMISSION**

**Project Area and Field Observations Map**



**Wenck**  
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JAN 2013

Figure 1

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## **Appendix A**

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### **Photographs**



**Photo 1.** Direction: West. View from the access road to Structure 206 (shown, south of crane) and 207 (not shown). Topsoil had been segregated and replaced as evidenced by successful establishment of vegetation. Revegetation along roads was well established, and native species appeared to have been used.



**Photo 2.** Direction: West. Same view as Photo 1, taken during the interim inspection in May 2012. Roads were in excellent condition during both inspections.



**Photo 3.** Direction: South. Intersection of 51<sup>st</sup> Ave and County Road 140 that had been improved, with appropriate stop signs at section lines.



**Photo 4.** Direction: North. View of 52<sup>nd</sup> Ave showing an example of a typical improved section line road. This road accessed Structures 211-214.



**Photo 5.** Direction: Northwest. View from the access road to Structure 215. Note repaired fence and new access gate.



**Photo 6.** Direction: Southwest. From the pad of Structure 209, view shows feeder line scars leading to Structure 210. Reclamation of this area was still ongoing. Other areas where feeder line scars had been reclaimed appeared in good condition, with no impacts to agricultural production.



**Photo 7.** Direction: North. Example of marker indicating location of feeder line along County Road 140, Morton County.



**Photo 8.** Direction: Northwest. View from a wetland area east of Structure 228. No sedimentation or disturbance was observed to the wetland area.



**Photo 9.** Direction: Southwest. View from Structure 226 toward a wetland that was avoided during siting. No sedimentation or disturbance to the wetland was observed.



**Photo 10.** Direction: Northwest. Example silt fence observed during the interim inspection preventing erosion to nearby wetland at Structure 208.



**Photo 11.** Direction: South. Example segregated topsoil pile at Structure 212 observed during the interim inspection. All topsoil was mounded on site, with appropriate erosion controls at all structure locations.



**Photo 12.** Direction: West. Transformer with appropriate safety bollards in place. The access road in this photo had a slight low area during the interim inspection, which had been repaired by the time of the final inspection.



**Photo 13.** Direction: South. Access road to Structures 224 and 225. Note mesh netting and rocks at base of culvert for erosion control.



**Photo 14.** Direction: Southeast. Reclaimed portion of the laydown yard used for the Project. Vegetation was beginning to establish throughout the area. Part of the laydown yard was still being used and would be reclaimed after demobilization.

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## **Appendix B**

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### **Field Observation Points**

**Appendix B: Field Observation Points (GPS Coordinates)**

<b>Description</b>	<b>Latitude*</b>	<b>Longitude*</b>
Structure 201	47.00652318	-101.5066995
Structure 202	47.00840324	-101.5039424
Structure 203	46.99965066	-101.4877801
Structure 204	47.00386504	-101.4878752
Structure 205	47.00561554	-101.4812202
Structure 206	46.99102633	-101.4795089
Structure 207	46.98927536	-101.4692411
Structure 208	46.94509298	-101.5257138
Structure 209	46.94139324	-101.5277103
Structure 210	46.9374985	-101.5320836
Structure 211	46.94308087	-101.5465346
Structure 212	46.94295105	-101.5519537
Structure 213	46.94236688	-101.5575629
Structure 214	46.9399652	-101.5608904
Structure 215	46.95774805	-101.5642179
Structure 216	46.9469103	-101.5734399
Structure 217	46.94126342	-101.5784787
Structure 219	46.92055309	-101.5786689
Structure 220	46.91633213	-101.5797147
Structure 221	46.9120459	-101.585514
Structure 222	46.92295564	-101.6305781
Structure 223	46.92866937	-101.627821
Structure 224	46.92152711	-101.6057644
Structure 225	46.92438413	-101.6046235
Structure 226	46.93042233	-101.6134652
Structure 227	46.93775816	-101.6099475
Structure 228	46.92295564	-101.6218315
Structure 229	46.94074413	-101.6018664
Structure 230	46.94204233	-101.5977783
Structure 231	46.94639107	-101.5951163
Structure 232	46.95515238	-101.6055742
Structure 233	46.95794272	-101.6018664
Structure 234	46.96092757	-101.6010108
Structure 235	46.96203063	-101.5914085
Structure 236	46.91360457	-101.5816161
General Observation Point	46.94905207	-101.5361717
Laydown Yard	46.93347364	-101.626395