



Thunder Spirit Wind, LLC | 30 West Superior Street | Duluth, MN 55802-2093  
218-355-3232 | alletecleanenergy.com

**Daniel P. McCourtney**

218-355-3515

E-mail: [dmccourtney@mnpower.com](mailto:dmccourtney@mnpower.com)

October 9, 2018

Mr. Jerry Lein  
North Dakota Public Service Commission  
Public Utilities Division  
600 E Boulevard Ave, Dept. 408  
Bismarck, ND 58505-0480

Subject: Clean Energy 1 Wind Project  
Submittal of Engineering Drawings (Mercer County)  
**Case No. PU-11-662**

Dear Mr. Lein,

On August 29, 2012 the North Dakota Public Service Commission (PSC) approved a Certificate of Site Compatibility (Certificate) to ALLETE Clean Energy for the Clean Energy 1 Wind Project (Project). The Certificate was subsequently amended on September 6, 2018. ALLETE Clean Energy will be continuing Project construction throughout 2018 in Mercer County, ND in accordance with the attached engineering drawings.

If any additional information is required by the PSC for approval please contact me at 218.355.3515 or electronically at [dmccourtney@allete.com](mailto:dmccourtney@allete.com).

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Daniel McCourtney", written in a cursive style.

Daniel McCourtney

DPM:sr

cc: Wells McGiffert  
John Hollingsworth  
David Moeller

22 PU-17-302 Filed 10/09/2018 Pages: 17  
Engineering Drawings  
Allete Clean Energy, Inc.  
Daniel McCourtney

# Civil Construction Plans

for  
**Wind Turbines, Access Roads,  
 Drainage, and Erosion Control**

**Glen Ullin Energy Center**  
 Mercer and Morton Counties, North Dakota

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17	CIVIL PLAN SET 10 11 17
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24	CIVIL PLAN SET 16 28
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26	CIVIL PLAN SET 35 36 37 38
27	CIVIL PLAN SET 22 27
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29	CIVIL PLAN SET 4
30	CIVIL PLAN SET 33 34

Designed: **DJP**  
 Checked: **DJP**  
 Drawn: **GNK**

**As-Built Drawings**

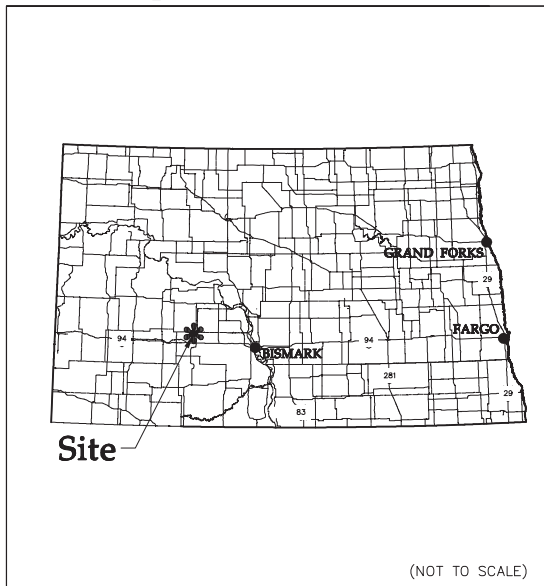
Revision	Date	Description
A	08/22/18	30% CIVIL PLANS
B	09/19/18	30% CIVIL PLANS REVISED
C	09/26/18	ISSUED FOR PERMITTING
D	10/02/18	60% CIVIL PLANS

Prepared for:

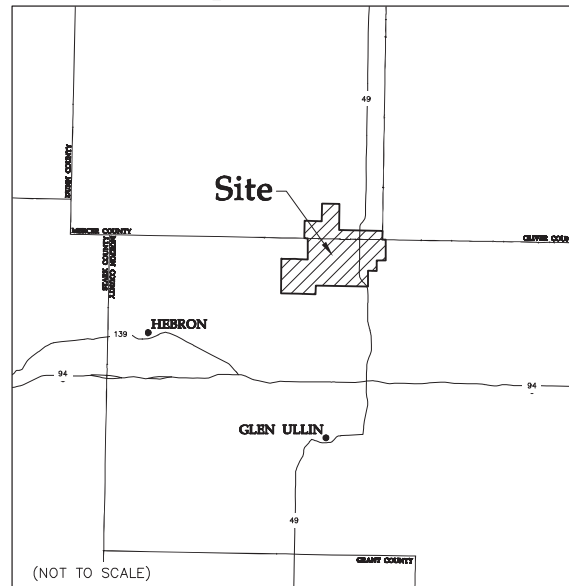
**WANZEK**  
 a M&T company

3028 2nd Avenue NW  
 West Fargo, ND 58078

State Map



Vicinity Map



**Glen Ullin Energy Center**  
 Mercer and Morton Counties,  
 North Dakota

Cover

**60% Completion  
 NOT FOR CONSTRUCTION**

Date: **10/02/18**

Sheet: **1 OF 30**

DATA SET INFORMATION			
BASE FILE	FILE NAME / NOTES	PROVIDER	DATE
AERIAL IMAGE	World_IMG_Dt_2018_08_02.jp2	ESRI	9/6/2017
LAND CONTROL	CE3_Project_Boundary_Current.shp	Wanzek	7/27/2017
TOPOGRAPHY	MAP_L02M.txd	NRCS North Dakota Lidar	1/1/2016
TURBINE ARRAY	20180925_GUC_Renumbered_Coordinates.xlsx	Wanzek	9/27/2018
UNDERGROUND COLLECTION	Glen Ullin Energy Center Collection Layout_09_28_20	Wanzek	9/28/2018
STREAMS/WETLANDS	hydrography_NHD24K_nd057_3612803_02.zip	NHD	8/2/2018
FEMA INFO	FEMA_NO_X.shp	FEMA	1/1/2018

**LEGEND:**

- TURBINE LOCATION
- XXX TURBINE NUMBER
- ALTERNATE TURBINE LOCATION
- XXX ALTERNATE TURBINE NUMBER
- EXISTING PTC ACCESS ROAD
- PROPOSED ACCESS ROAD
- ALTERNATE PROPOSED ACCESS ROAD
- PROPOSED CRANE PATH
- EXISTING ROAD
- ▨ OUTSIDE OF PROJECT BOUNDARY

XX SHEET NUMBER

ITEM	LENGTH
ACCESS ROAD	13.5 mi
CRANE PATH	7.6 mi
PTC ACCESS ROAD	1.1 mi

\*ACCESS ROAD LENGTH INCLUDES SPUR ROADS

Designed: **DFP**  
 Checked: **DFP**  
 Drawn: **DFP**

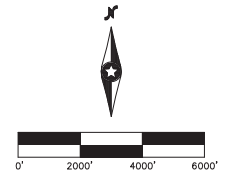
**As-Built Drawings**

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Prepared for:

**WANZEK**  
 a MasTec company

2025 2nd Avenue NW  
 West Fargo, ND 58078

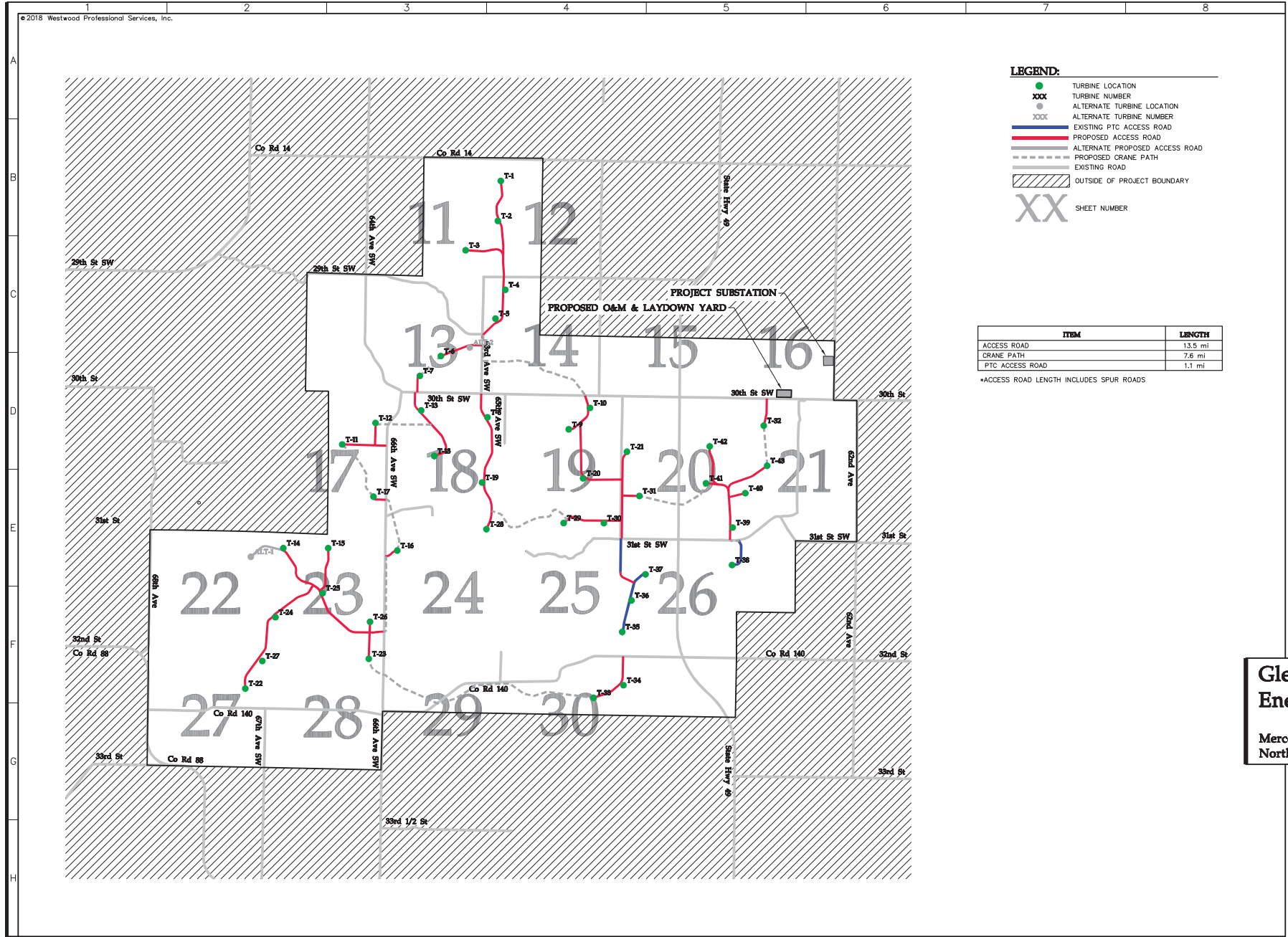


**Glen Ullin Energy Center**  
 Mercer and Morton Counties,  
 North Dakota

Overall Site Plan

60% Completion  
**NOT FOR CONSTRUCTION**

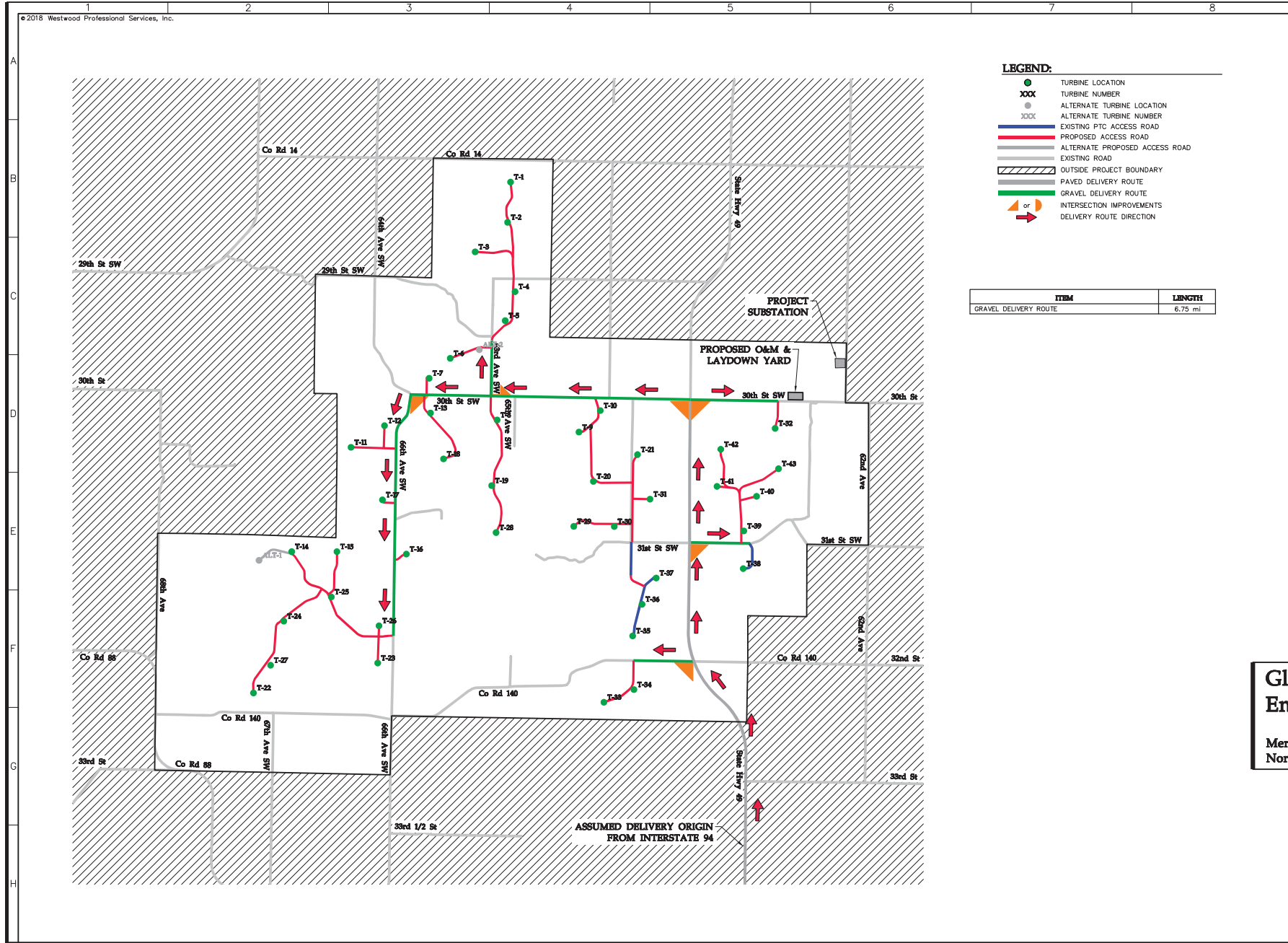
Date: **10/02/18**  
 Sheet: **2 OF 30**



**LEGEND:**

- TURBINE LOCATION
- TURBINE NUMBER
- ALTERNATE TURBINE LOCATION
- ALTERNATE TURBINE NUMBER
- EXISTING PTO ACCESS ROAD
- PROPOSED ACCESS ROAD
- ALTERNATE PROPOSED ACCESS ROAD
- EXISTING ROAD
- EXISTING ROAD
- OUTSIDE PROJECT BOUNDARY
- PAVED DELIVERY ROUTE
- GRAVEL DELIVERY ROUTE
- ↔ INTERSECTION IMPROVEMENTS
- ↔ DELIVERY ROUTE DIRECTION

ITEM	LENGTH
GRAVEL DELIVERY ROUTE	6.75 mi



Designed: **DP**  
 Checked: **DP**  
 Drawn: **DK**

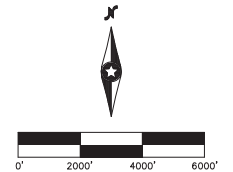
As-Built Drawings

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Prepared for:

**WANZEK**  
 a MasTec company

3025 2nd Avenue NW  
 West Fargo, ND 58078

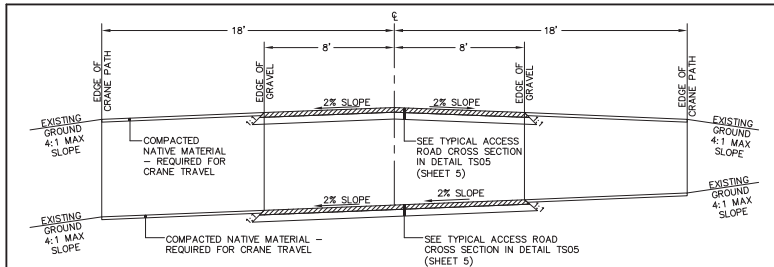


**Glen Ullin Energy Center**  
 Mercer and Morton Counties,  
 North Dakota

**Delivery Flow Plan**

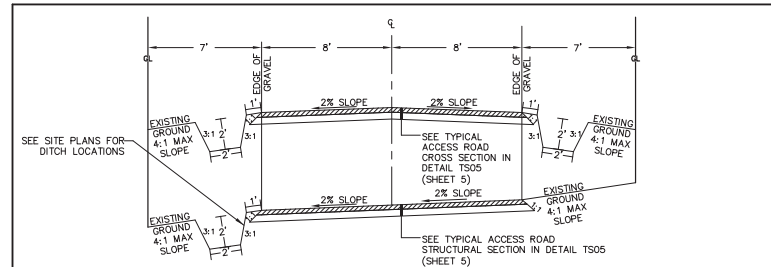
**60% Completion**  
**NOT FOR CONSTRUCTION**

Date: **10/02/18**  
 Sheet: **3 OF 30**



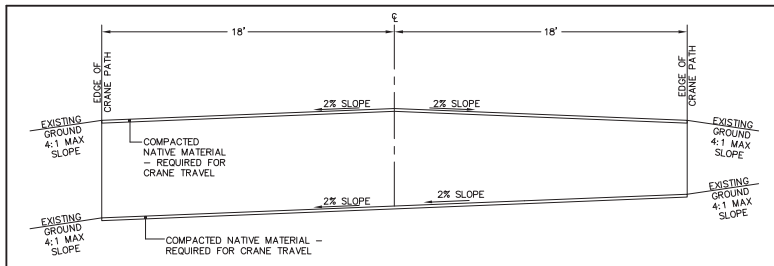
- NOTES:**
1. CONTRACTOR SHALL CONSTRUCT CROSS-SLOPE ROAD SECTION WHERE ACCESS ROADS ARE CONSTRUCTED ON A SIDE SLOPE, AND WHERE OTHERWISE NOTED ON PLANS, TO ENSURE THAT ROADS AND SHOULDERS REMAIN WELL DRAINED AT ALL TIMES.
  2. MAXIMUM CROSS SLOPE FOR CRANE TRAVEL IS 2.0%.
  3. WHEN CRANE PATH IS NOT NEEDED, MATCH THE ACCESS ROAD DIRECTLY INTO EXISTING GROUND SURFACE.
  4. ROADS TO GENERALLY FOLLOW EXISTING CONTOURS EXCEPT IF GRADES EXCEED TURBINE DELIVERY VEHICLE CAPABILITIES, IF THIS OCCURS GENERAL CONTRACTOR MAY PROVIDE ASSIST VEHICLE OR MODIFY GRADE.

Westwood TYPICAL TURBINE ACCESS ROAD AND CRANE PATH LAST REVISED: 04/29/11 R001-A



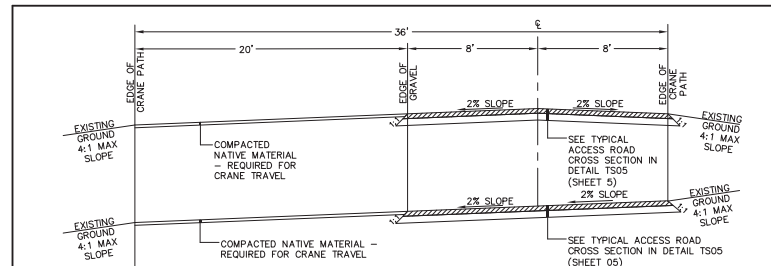
- NOTES:**
1. CONTRACTOR SHALL CONSTRUCT CROSS-SLOPE ROAD SECTION WHERE ACCESS ROADS ARE CONSTRUCTED ON A SIDE SLOPE, AND WHERE OTHERWISE NOTED ON PLANS, TO ENSURE THAT ROADS AND SHOULDERS REMAIN WELL DRAINED AT ALL TIMES.
  2. ROADS TO GENERALLY FOLLOW EXISTING CONTOURS EXCEPT IF GRADES EXCEED TURBINE DELIVERY VEHICLE CAPABILITIES, IF THIS OCCURS GENERAL CONTRACTOR MAY PROVIDE ASSIST VEHICLE OR MODIFY GRADE.

Westwood TYPICAL TURBINE ACCESS ROAD SECTION LAST REVISED: 3/27/12 R001-B



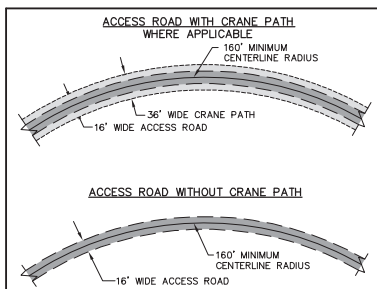
- NOTES:**
1. CONTRACTOR SHALL CONSTRUCT CROSS-SLOPE WHERE CRANE PATHS ARE CONSTRUCTED ON A SIDE SLOPE, AND WHERE OTHERWISE NOTED ON PLANS, TO ENSURE THAT CRANE PATH REMAINS WELL DRAINED AT ALL TIMES.
  2. MAXIMUM CROSS SLOPE FOR CRANE TRAVEL IS 2.0%.

Westwood TYPICAL CRANE PATH LAST REVISED: 04/29/11 R001-C



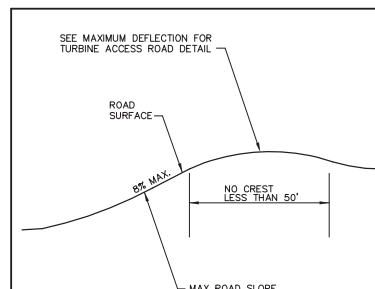
- NOTES:**
1. CONTRACTOR SHALL CONSTRUCT CROSS-SLOPE ROAD SECTION WHERE ACCESS ROADS ARE CONSTRUCTED ON A SIDE SLOPE, AND WHERE OTHERWISE NOTED ON PLANS, TO ENSURE THAT ROADS AND SHOULDERS REMAIN WELL DRAINED AT ALL TIMES.
  2. MAXIMUM CROSS SLOPE FOR CRANE TRAVEL IS 2.0%.
  3. WHEN CRANE PATH IS NOT NEEDED, MATCH THE EDGE OF COMPACTED SHOULDER DIRECTLY INTO EXISTING GROUND SURFACE.
  4. ROADS TO GENERALLY FOLLOW EXISTING CONTOURS EXCEPT IF GRADES EXCEED TURBINE DELIVERY VEHICLE CAPABILITIES, IF THIS OCCURS GENERAL CONTRACTOR MAY PROVIDE ASSIST VEHICLE OR MODIFY GRADE.

Westwood TYPICAL TURBINE ACCESS ROAD AND OFFSET CRANE PATH LAST REVISED: 04/29/11 R001-D



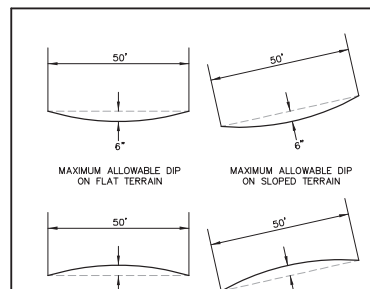
- NOTE:**
1. SOME RADII MAY REQUIRE ADDITIONAL SOIL COMPACTION OR GRAVEL OUTSIDE OF THE WIDTH SHOWN ABOVE TO ACCOMMODATE TRACTORS OR TRAILERS TRACKING OFF THE ACCESS ROAD.

Westwood MINIMUM RADIUS FOR TURBINE ACCESS ROAD LAST REVISED: 04/29/11 R002



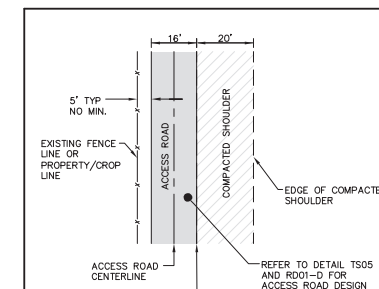
- NOTES:**
1. ROAD SLOPE SHALL NOT EXCEED 8% WITHOUT OWNER APPROVAL.

Westwood MAXIMUM VERT. SLOPE FOR TURBINE ACCESS ROAD/CRANE TRAVEL PATH LAST REVISED: 03/29/08 R003



- NOTES:**
1. COMPACTED SHOULDER SHALL BE RETURNED TO NATIVE CONDITION FOLLOWING TURBINE GENERATOR CONSTRUCTION.
  2. THE ACCESS ROAD MAY NEED TO BE CONSTRUCTED FARTHER FROM THE PROPERTY LINE IF OBSTRUCTIONS SUCH AS TREES FOLLOW THE PROPERTY LINE.

Westwood MAXIMUM DEFLECTION FOR TURBINE ACCESS ROAD LAST REVISED: 03/29/08 R004



- NOTE:**
1. COMPACTED SHOULDER SHALL BE RETURNED TO NATIVE CONDITION FOLLOWING TURBINE GENERATOR CONSTRUCTION.
  2. THE ACCESS ROAD MAY NEED TO BE CONSTRUCTED FARTHER FROM THE PROPERTY LINE IF OBSTRUCTIONS SUCH AS TREES FOLLOW THE PROPERTY LINE.

Westwood TURBINE ACCESS ROAD ALONG FENCE/PROPERTY/CROP LINE LAST REVISED: 3/29/12 R005

**Designed:** DJP  
**Checked:** DJP  
**Drawn:** GJK

**As-Built Drawing:**

Revision	Date	Description
A	08/22/18	30% CIVIL PLANS
B	09/19/18	30% CIVIL PLANS REVISED
C	09/26/18	ISSUED FOR PERMITTING
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Prepared for:

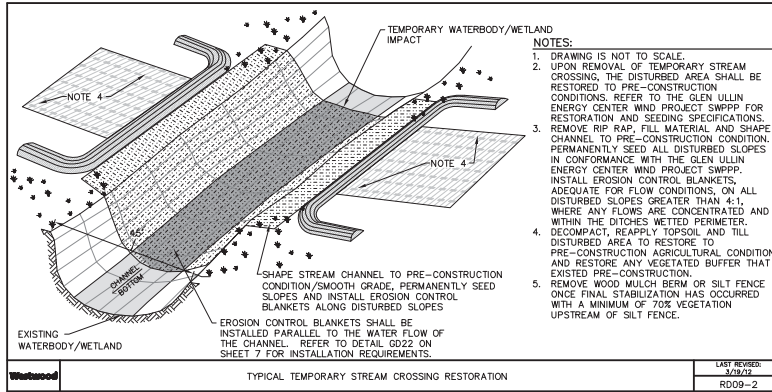
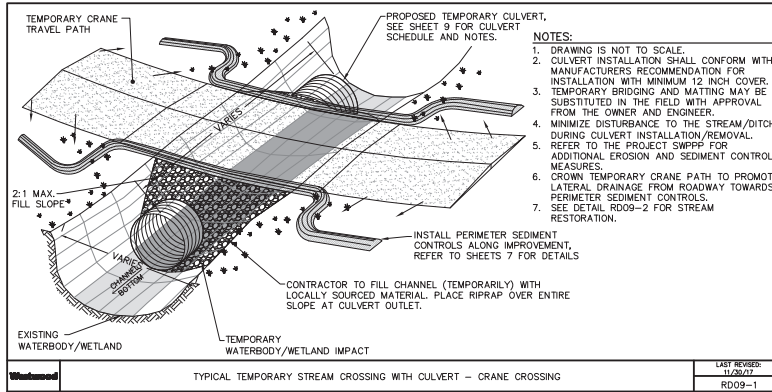
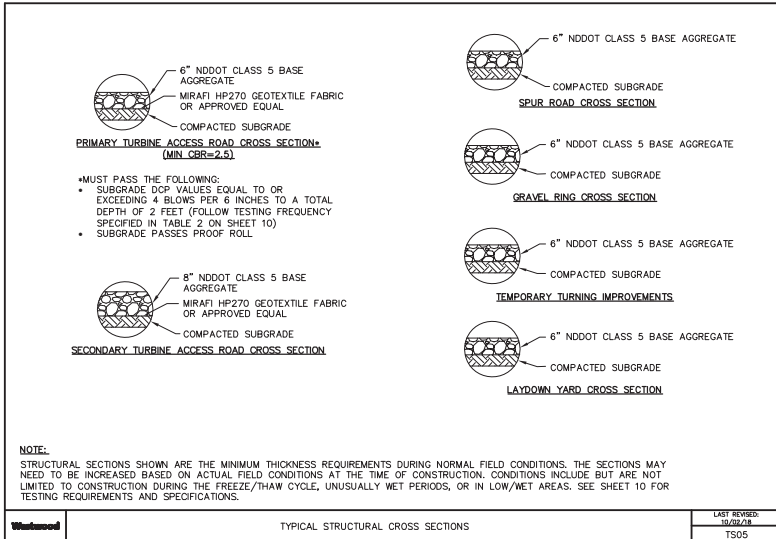
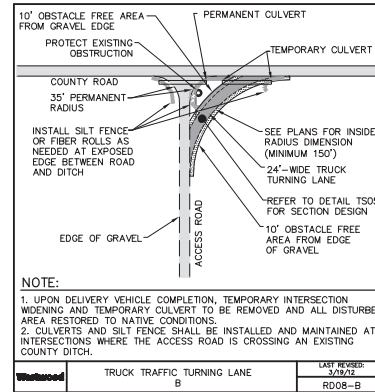
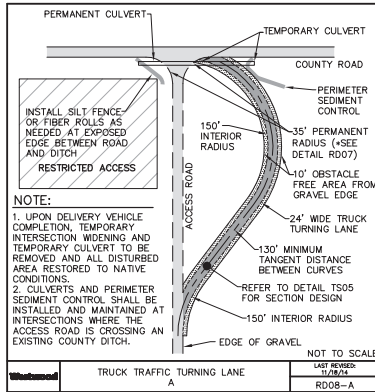
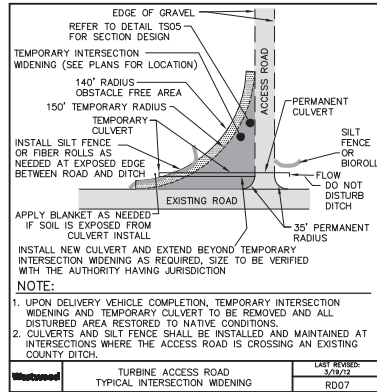
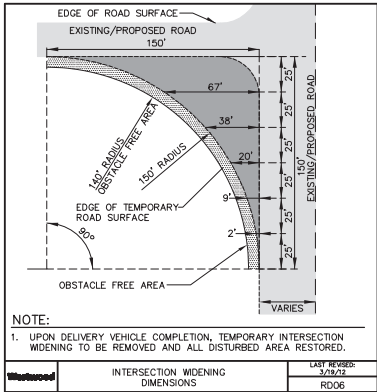
2025 2nd Avenue NW  
 West Fargo, ND 58078

**Glen Ullin Energy Center**  
 Mercer and Morton Counties,  
 North Dakota

Construction Details

60% Completion  
**NOT FOR CONSTRUCTION**

Date: 10/02/18  
 Sheet: 4 OF 30



Designed:	DJP	
Checked:	DJP	
Drawn:	GNK	
As-Built Drawing:		
Revised:	DATE	DESCRIPTION
A	08/22/18	30% CIVIL PLANS
B	09/19/18	30% CIVIL PLANS REVISED
C	09/26/18	ISSUED FOR PERMITTING
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Prepared for:

**WANZEK**  
 a M&E company

2025 2nd Avenue NW  
 West Fargo, ND 58078

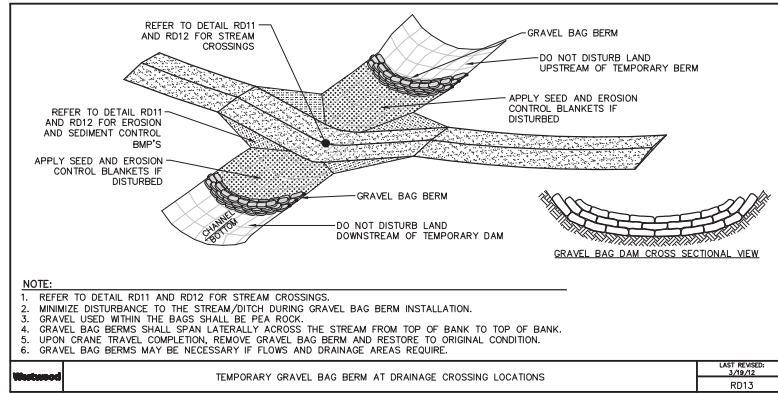
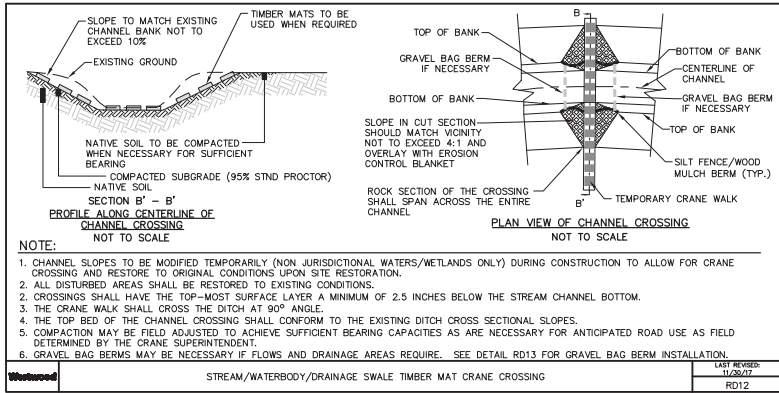
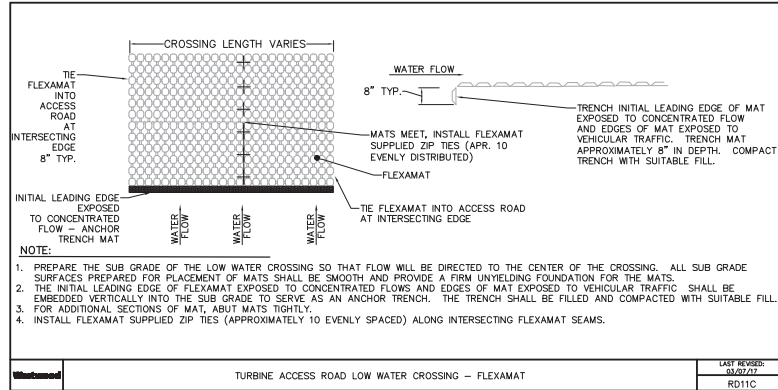
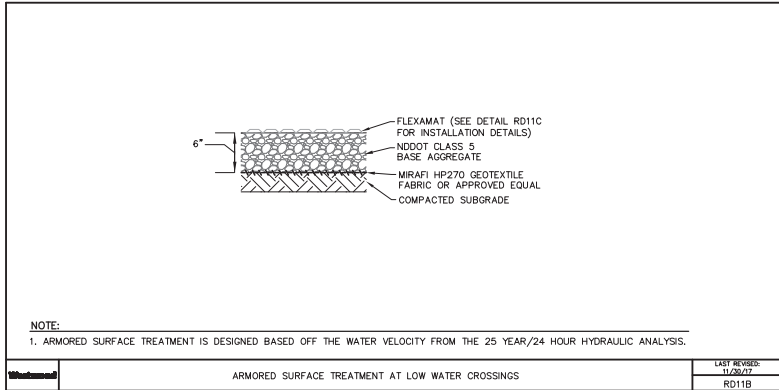
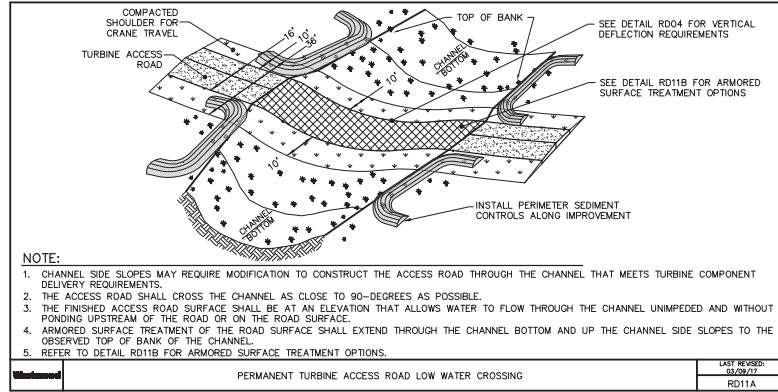
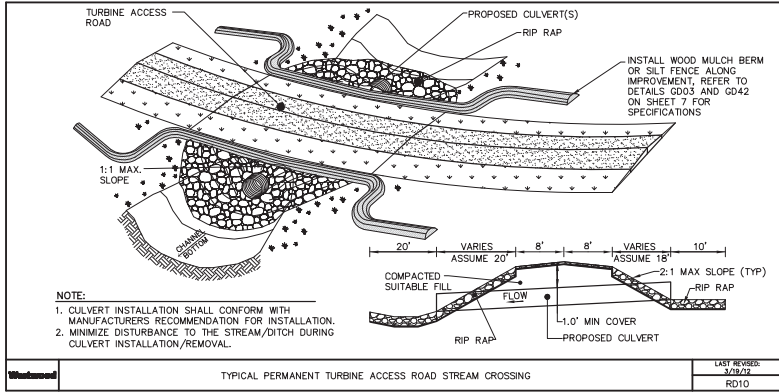
**Glen Ullin Energy Center**

Mercer and Morton Counties, North Dakota

Construction Details

60% Completion  
 NOT FOR CONSTRUCTION

Date: 10/02/18  
 Sheet: 5 OF 30



Designed:	DJP
Checked:	DJP
Drawn:	GNK
As-Built Drawing:	
Revision:	
A	08/22/18 30% CIVIL PLANS
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Prepared for:

2025 2nd Avenue NW  
West Fargo, ND 58078

**Glen Ullin Energy Center**

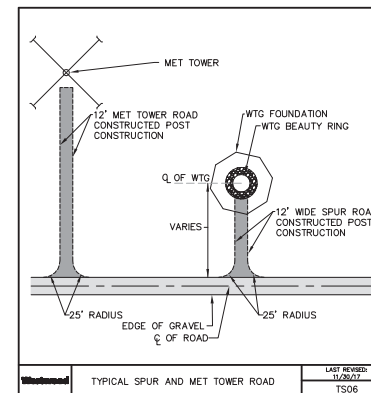
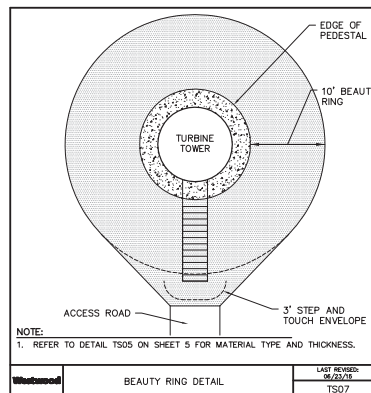
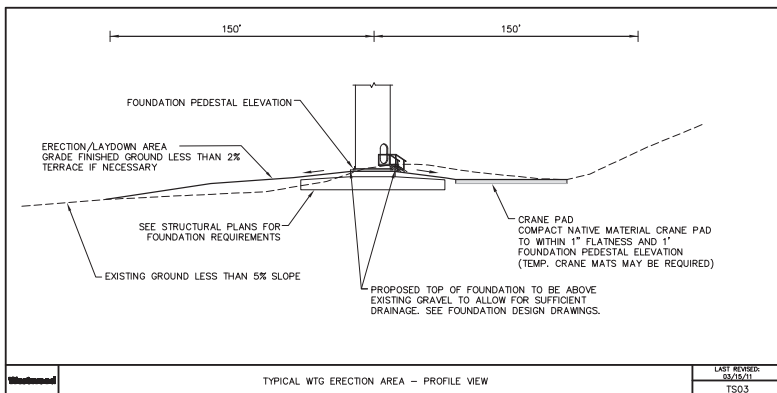
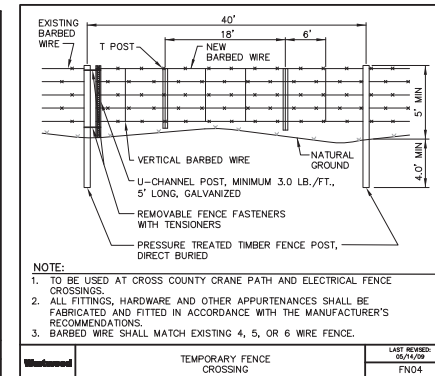
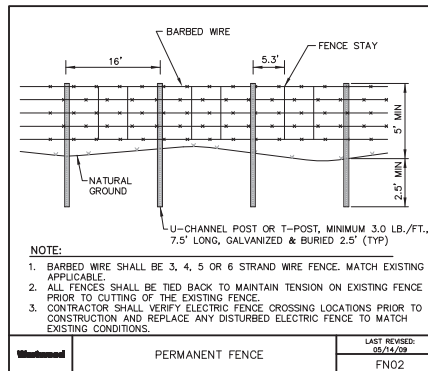
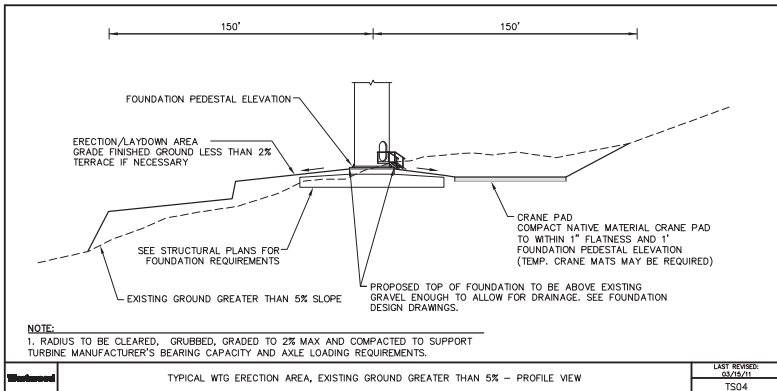
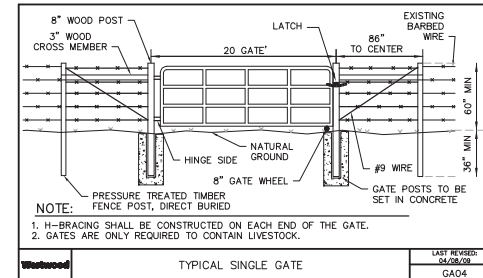
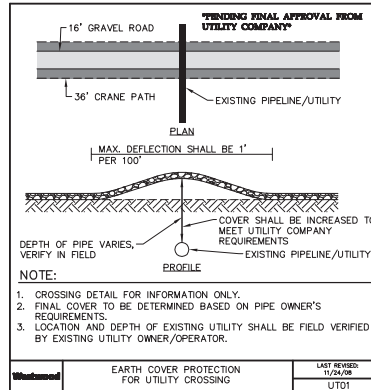
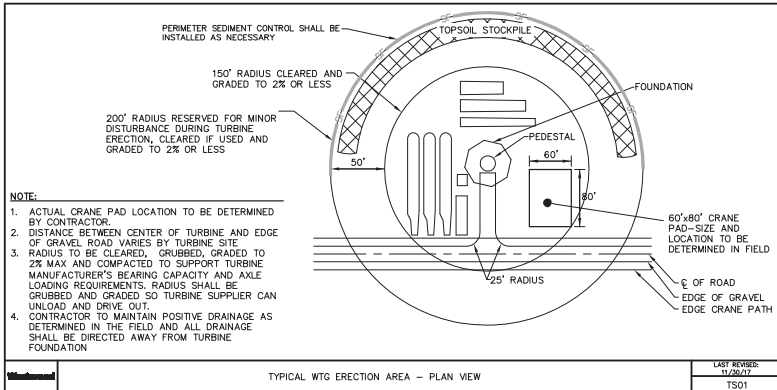
Mercer and Morton Counties, North Dakota

Construction Details

**60% Completion NOT FOR CONSTRUCTION**

Date: 10/02/18  
Sheet: 6 OF 30





**Glen Ullin Energy Center**

Mercer and Morton Counties, North Dakota

Construction Details

**60% Completion NOT FOR CONSTRUCTION**

Date: 10/02/18  
Sheet: 8 OF 30

**TURBINE COORDINATES**

**(HARN/NORTH DAKOTA STATE PLANS - SOUTH ZONE, US FOOT)**

Turbine Number	Northing	Easting
T-1	491808.162609	1637973.452878
T-2	490011.074228	1637840.662097
T-3	488693.640309	1636393.597548
T-4	486917.257223	1638175.666035
T-5	485622.758764	1637734.668893
T-6	483941.535006	1635280.854503
T-7	483051.128518	1634339.339541
T-8	481190.183725	1637373.602488
T-9	480650.073611	1641025.537042
T-10	481609.605985	1641978.862074
T-11	479969.261275	1630852.115757
T-12	480935.885922	1632346.595934
T-13	481500.511555	1634398.635650
T-14	475312.137000	1628206.099996
T-15	475311.797426	1630223.040608
T-16	475203.628600	1633322.704077
T-17	477623.966818	1632255.975298
T-18	479451.460853	1634982.559716
T-19	478259.166684	1637131.319553
T-20	478447.933655	1641668.172032
T-21	479643.863623	1643639.889482
T-22	469003.889092	1626499.150508
T-23	470340.466505	1632044.029034
T-24	472208.751993	1627851.626139
T-25	473289.409860	1629973.147006
T-26	472001.562313	1632100.744736
T-27	470242.204802	1627262.749047
T-28	476162.947167	1637326.394596
T-29	476439.787262	1640794.674136
T-30	476435.104886	1642602.430366
T-31	477656.272065	1644197.043607
T-32	480814.859524	1649781.904563
T-33	468588.624685	1642139.450439
T-34	469155.650320	1643480.226748
T-35	471549.497705	1643424.474355
T-36	472961.679698	1643843.563078
T-37	474135.143740	1644473.913774
T-38	474554.106999	1648356.815784
T-39	476237.322002	1648384.231259
T-40	477780.694015	1648954.335379
T-41	478225.774313	1647187.320095
T-42	479882.493732	1647355.649288
T-43	479013.379367	1649934.586868
ALT-1	474923.590208	1626746.459981
ALT-2	484327.337459	1636579.155231

**CULVERT AND LOW WATER CROSSING SCHEDULE**

**TO BE ADDED AT A LATER DATE**

**PUBLIC ROAD ENTRANCE CULVERTS SCHEDULE**

**TO BE ADDED AT A LATER DATE**

**Westwood**

Phone (888) 937-5150 12701 Whiteoaker Drive, Suite #300  
 Fax (888) 937-5922 Minnetonka, MN 55345  
 Toll Free (888) 937-5150 www.westwoodps.com  
 Westwood Professional Services, Inc.

Designed: DJP  
 Checked: DJP  
 Drawn: GSK

**As-Built Drawings**

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B	09/19/18	30% CIVIL PLANS REVISED
C	09/26/18	ISSUED FOR PERMITTING
D	10/02/18	60% CIVIL PLANS

Prepared for:



2025 2nd Avenue NW  
 West Fargo, ND 58078

**Glen Ullin  
 Energy Center**  
 Mercer and Morton Counties,  
 North Dakota

**Construction Details**

**60% Completion  
 NOT FOR CONSTRUCTION**

Date: 10/02/18

Sheet: 9 OF 30

**ROAD DESIGN PARAMETERS**

- ACCESS ROADS HAVE BEEN DESIGNED TO ACCOMMODATE LIGHT DUTY TRUCKS (PICKUP TRUCKS AND MAINTENANCE VEHICLES) FOR LOW VOLUME USE IN NORMAL OPERATING CONDITIONS AS WELL AS HEAVY DUTY CONSTRUCTION TRAFFIC UNDER DRY CONDITIONS. THE ROAD DESIGN SPECIFIED IS NOT INTENDED FOR ALL WEATHER USE FOR HEAVY DUTY CONSTRUCTION LOADS.
- ROAD MAINTENANCE CAN BE EXPECTED OVER THE LIFE OF THE PERMANENT FACILITY.

**PRODUCTS**

- AGGREGATE BASE SHALL CONSIST OF NDDOT SPECIFICATION 302 AND 816 (AND IN CONFORMANCE WITH THE GRADATION TABLE 1). AGGREGATE MAY BE CRUSHER RUN UPON ENGINEERS APPROVAL. AGGREGATE GRADATIONS SHALL BE SUBMITTED TO ENGINEER FOR REVIEW.
- ROAD SHOULDERS AND CRANE PADS SHALL CONSIST OF COMPACTED NATIVE SOILS.
- CULVERTS: ACCESS ROAD CULVERTS SHALL MEET THE MINIMUM SPECIFICATIONS SET FORTH BY THE NORTH DAKOTA DEPARTMENT OF TRANSPORTATION AND/OR MERCER AND MORTON COUNTIES. ALL CULVERTS ARE PLANNED TO BE A MINIMUM 18" DIAMETER AND MANUFACTURED OF 16-GAUGE CORRUGATED METAL PIPE WITH NO END TREATMENTS UNLESS NOTED OTHERWISE. ACTUAL SIZE WILL BE DETERMINED THROUGH HYDRAULIC ANALYSIS. 4. GEOTECHNICAL MIRAFI HF270 OR APPROVED EQUAL.

**EXECUTION**

- CLEARING AND GRUBBING
  - THE CONTRACTOR SHALL BE REQUIRED TO GRUB ALL TREES, STUMPS, BRUSH, AND DEBRIS WITHIN THE GRADING AREAS SHOWN ON THE PLANS. GRUBBING INCLUDES REMOVAL OF ALL PLANT MATERIAL GREATER THAN 2" INCLUDING STUMPS, BRANCHES, ROOTS, ETC. TO A DEPTH BELOW THE FINAL SUBGRADE. THE CONTRACTOR IS TO REMOVE ONLY THOSE TREES WHICH ARE DESIGNATED BY THE OWNER'S REPRESENTATIVE FOR REMOVAL, AND SHALL EXERCISE EXTREME CARE AROUND EXISTING TREES TO BE SAVED.
- TOPSOIL STRIPPING
  - TOPSOIL, INCLUDING ROOTS LARGER THAN 2" AND LARGE ROOT MASSES, SHALL BE STRIPPED FROM ALL ROADWAY AND FOUNDATION AREAS UP TO 10'. TOPSOIL SHALL NOT BE STRIPPED OUTSIDE OF THE DESIGNATED DISTURBANCE AREAS.
  - ANY TOPSOIL THAT HAS BEEN STRIPPED SHALL BE STOCKPILED FOR POST CONSTRUCTION REVEGETATION. ALL TOPSOIL SHALL BE REDISTRIBUTED TO THE LAND OWNER'S PROPERTY OF WHERE IT ORIGINATED FROM.
- EMBANKMENT CONSTRUCTION.
  - EMBANKMENT CONSTRUCTION SHALL CONSIST OF THE PLACING OF SUITABLE FILL MATERIAL, AFTER TOPSOIL STRIPPING, ABOVE THE EXISTING GRADE. GENERALLY, EMBANKMENTS SHALL HAVE COMPACTED SUPPORT SLOPES OF FOUR FOOT HORIZONTAL TO ONE FOOT VERTICAL, WITH SOME LOCATIONS THROUGHOUT THE PROJECT WITH SLOPES OF TWO FEET HORIZONTAL TO ONE FOOT VERTICAL. THE MATERIAL FOR EMBANKMENT CONSTRUCTION SHALL BE OBTAINED FROM THE ACCESS ROAD/TURBINE EXCAVATION (SEE GEOTECHNICAL REPORT FOR RESTRICTIONS), OR ANY SUITABLE, APPROVED SOIL OBTAINED ONSITE/OFFSITE BY CONTRACTOR, AS DIRECTED OR APPROVED BY THE ENGINEER. THIS MATERIAL SHALL BE PLACED IN LIFTS NOT TO EXCEED 8".
  - SIDE SLOPES GREATER THAN 4:1 WILL NOT BE PERMITTED, UNLESS OTHERWISE NOTED ON THE PLAN.
- ACCESS ROAD CROSS SLOPES SHOWN IN THE PLANS ARE MEANT AS A GUIDE. ACCESS ROAD CROSS SLOPES SHALL NOT EXCEED 2%, CHECK WITH THE ENGINEER IF THE CROSS SLOPE FALLS OUTSIDE OF THIS RANGE.

**STORM WATER DESIGN PARAMETERS**

- SEE SHEET 9 FOR CURVING SIZE AND DESIGN PARAMETERS. CULVERTS HAVE BEEN DESIGNED TO A 25 YEAR/24 HOUR STORM EVENT. CULVERTS SHALL BE MINIMUM 18" CORRUGATED METAL PIPE OR HDPE. ALL TEMPORARY PORTIONS OF THE INSTALLED CULVERTS SHALL BE REMOVED UPON COMPLETION OF THE PROJECT. IT IS EXPECTED THAT CULVERTS WILL BE OVERTOPPED DURING SOME STORMS AND MAINTENANCE WILL BE REQUIRED THROUGH THE LIFE OF THE PROJECT.
- WHEN INSTALLING DRAINAGE CULVERTS THE CONTRACTOR SHALL USE JUDGMENT IN SETTING THE FLOW LINE ELEVATIONS AND CULVERT LONGITUDINAL SLOPE. TYPICALLY THE FLOW LINE ELEVATIONS AND LONGITUDINAL SLOPE OF THE CULVERT SHOULD MATCH THE NATURAL GROUND ELEVATIONS AND SLOPE TO ENSURE POSITIVE DRAINAGE. WHEN POSSIBLE, ALL CULVERTS SHOULD BE PLACED AT A MINIMUM 0.5% GRADE.
- ANTICIPATED CULVERT CROSSINGS TO BE SHOWN ON THE CONSTRUCTION PLAN. ADDITIONAL CULVERTS MAY NEED TO BE INSTALLED IN AREAS WHERE CONCENTRATED FLOW IS EXPECTED DUE TO CONSTRUCTION ACTIVITIES.
- CONSTRUCTION DRAINAGE CROSSINGS TO MAINTAIN EXISTING FLOW CHARACTERISTICS OF THE FEATURES. FEATURES SHALL BE GRADED TO PRECONSTRUCTION CONTOURS.

TABLE 1: NDDOT CLASS 5 BASE AGGREGATE - LOCALLY SOURCED

SIEVE SIZE	PERCENT PASSING
1"	100
3/4"	90-100
NO. 4	35-70
NO. 30	16-40
NO. 200	4-10

MEET FOLLOWING REQUIREMENTS FOR NDDOT CLASS 5 BASE AGGREGATE:

AT LEAST 10 PERCENT BY WEIGHT OF THE AGGREGATE RETAINED ON THE NO. 4 SIEVE HAS AT LEAST ONE MECHANICALLY FRACTURED FACE FOR CLASS 5.

SHALE (MAX %) = 12.0%  
L.A ABRASION (% MAX) = 50%

MAXIMUM PI = 10 - ((% PASSING NO. 40)/10)

GRADATION HAS BEEN OBTAINED FROM THE 2014 NORTH DAKOTA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATION BOOK, SECTION 816.02

**TESTING**

- TESTING SHALL BE PERFORMED BY A DESIGNATED INDEPENDENT TESTING AGENCY.
- SUBMIT ONE SET OF TESTING AND INSPECTION RECORDS SPECIFIED TO THE CIVIL ENGINEER OF RECORD.

**DEFINITIONS:**

- PROOF ROLLING: SHALL BE PERFORMED IN THE PRESENCE OF THE GEOTECHNICAL ENGINEER OR QUALIFIED GEOTECHNICAL REPRESENTATIVE USING A FULLY LOADED TANDEM AXLE DUMP TRUCK OR WATER TRUCK WITH A MINIMUM GROSS WEIGHT OF 25 TONS OR A FULLY LOADED BELLY DUMP WITH AN EQUIVALENT AXLE LOADING. PROOF-ROLLING ACCEPTANCE STANDARDS INCLUDE NO RUTTING GREATER THAN 1.5 INCHES, AND NO "PUMPING" OF THE SOIL BEHIND THE LOADED TRUCK.
- SIEVE ANALYSIS: SHALL BE CONDUCTED IN ACCORDANCE WITH AASHTO T27
- PROCTORS: SHALL BE DETERMINED IN ACCORDANCE WITH AASHTO T99
- ATTERBERG LIMITS: SHALL BE DETERMINED IN ACCORDANCE WITH AASHTO T89 AND T90
- MOISTURE DENSITY (NUCLEAR DENSITY): SHALL BE DONE IN ACCORDANCE WITH AASHTO T310
- DYNAMIC CONE PENETROMETER (DCP) TESTING: SHALL BE DONE IN ACCORDANCE WITH ASTM D6951-03

**REQUIREMENTS:**

- FILL MATERIAL:
  - SOILS USED AS FILL MATERIAL SHALL BE TESTED FOR GRAIN SIZE ANALYSIS, MOISTURE CONTENT, ATTERBERG LIMITS ON FINES CONTENT, AND PROCTOR TESTS.
  - IN ROADWAY CUT AREAS, OR WHERE EMBANKMENT CONSTRUCTION REQUIRES LESS THAN 12 INCHES OF FILL PLACEMENT, COMPACT TO A MINIMUM OF 95 PERCENT OF THE MATERIAL'S MAXIMUM STANDARD PROCTOR DRY DENSITY. THE SCARIFICATION DEPTH SHALL BE ADJUSTED SUCH THAT THE COMBINED THICKNESS OF THE EMBANKMENT FILL MATERIAL AND SCARIFICATION DEPTH SHALL BE 12 INCHES OR GREATER.
- COMPACTED SUBGRADE:
  - THE ENTIRE SUBGRADE SHALL BE PROOF-ROLLED PRIOR TO THE PLACEMENT OF THE AGGREGATE BASE TO IDENTIFY AREAS OF UNSTABLE SUBGRADE
  - PERFORM A MINIMUM OF 3 DYNAMIC CONE PENETROMETER (DCP) TESTS PER ACCESS ROAD, OR ONE FOR EVERY 1,000 LF. OF ROAD, WHICHEVER IS GREATER. ADDITIONAL DCP TESTING MAY BE REQUIRED IN AREAS OF FAILING PROOF ROLL. PRIMARY ACCESS ROAD CROSS SECTION REQUIRES A MINIMUM DCP OF 4 BLOWS PER 6" TO A TOTAL DEPTH OF 2' (MINIMUM CBR=2.5).
  - IF EITHER THE PROOF ROLL OR DCP REQUIREMENTS CANNOT BE ACHIEVED THE FOLLOWING ALTERNATIVES MAY BE IMPLEMENTED:
    - SCARIFY, DRY, AND RECOMPACT SUBGRADE AND PERFORM ADDITIONAL PROOF ROLL AND DCP.
    - REMOVE UNSUITABLE MATERIAL AND REPLACE WITH 3 INCH MINUS CRUSHED AGGREGATE BASE.
  - PROVIDE 3 MOISTURE DENSITY COMPACTION TESTS PER ACCESS ROAD, OR ONE FOR EVERY 1000 LF. OF ROAD LENGTH, WHICHEVER IS GREATER. COMPACTED SUBGRADE MUST BE COMPACTED TO A MINIMUM OF 95% STANDARD PROCTOR.
- AGGREGATE BASE:
  - AGGREGATE BASE SHALL BE PROOF-ROLLED OVER THE ENTIRE LENGTH. IF PROOF ROLLING DETERMINES THAT THE ROAD IS UNSTABLE, ADDITIONAL AGGREGATE SHALL BE ADDED UNTIL THE UNSTABLE SECTION IS ABLE TO PASS A PROOF ROLL.
  - PROVIDE 1 SIEVE ANALYSIS PER 2500 CY OF ROAD BASE PLACED AND LA ABRASION TEST.
  - PROVIDE AT LEAST 1 DCP TEST PER 1000 LF OF ROAD.
- CRANE PADS:
  - MOISTURE DENSITY TESTING SHALL BE PERFORMED AT A MINIMUM OF 2 PER CRANE PAD. CRANE PADS MUST BE COMPACTED TO A MINIMUM OF 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT FOR GRANULAR SOILS AND AT -1 TO +2% OF OPTIMUM MOISTURE CONTENT FOR COHESIVE SOILS.
  - ALL CRANE PADS MUST BE PROOF ROLLED PRIOR TO UTILIZATION.
  - IF THE CRANE PAD CANNOT ACHIEVE PROOF-ROLL ACCEPTANCE AS DETERMINED BY THE GEOTECHNICAL ENGINEER, DCP TEST MAY BE USED. WHEN UTILIZED, DCP TESTING SHALL BE USED AT MINIMUM RATE OF 2 PER CRANE PAD AND ACHIEVE A MAXIMUM OF 24 MM/BLOW.
  - AT THE CONTRACTOR'S DISCRETION, CRANE MATS MAY BE UTILIZED TO PROVIDE ADDITIONAL STABILITY.
- CRANE PATHS / CRANE TRAVEL SHOULDERS
  - CRANE PATHS AND CRANE TRAVEL SHOULDERS SHALL BE PROOF-ROLLED OVER THE ENTIRE LENGTH.
  - WHERE REQUIRED TO SUPPORT CRANE TRAVEL AS DETERMINED BY THE CRANE SUPERINTENDENT, SCARIFY AND COMPACT EXISTING SOILS TO A DEPTH OF 6-INCHES AND TO A MINIMUM OF 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT FOR GRANULAR SOILS AND AT -1 TO +2% OF OPTIMUM MOISTURE CONTENT FOR COHESIVE SOILS.

TABLE 2: TESTING SCHEDULE SUMMARY

LOCATION	TEST	FREQUENCY
STRUCTURAL FILL	GRAIN SIZE ANALYSIS, MOISTURE CONTENT, ATTERBERG LIMITS ON FINES CONTENT, AND PROCTOR	1 PER MAJOR SOIL TYPE
COMPACTED SUBGRADE	PROOF-ROLL	ENTIRE LENGTH
	MOISTURE DENSITY TEST (NUCLEAR DENSITY)	1 PER 1000 FT OR MIN. 3 PER ROAD
AGGREGATE BASE	DCP	1 PER 1000 FT OR MIN. 3 PER ROAD
	PROOF-ROLL	ENTIRE AREA
CRANE PAD	SIEVE ANALYSIS, LL, PL, AND LA ABRASION	1 PER 2,500 CY
	DCP	1 PER 1000 FT OR MIN. 3 PER ROAD
COMPACTED SUBGRADE	PROOF-ROLL	ENTIRE AREA
	MOISTURE DENSITY TEST (NUCLEAR DENSITY)	2 PER PAD
CRANE SHOULDERS	DCP (NOT REQUIRED UNLESS PROOF ROLL FAILS)	2 PER PAD
	PROOF-ROLL	ENTIRE LENGTH

**GENERAL NOTES:**

- THE GROUND SURFACE CONTOURS (AT TWO-FOOT VERTICAL INTERVALS) AND ELEVATIONS ARE BASED ON LIDAR DATA OBTAINED FROM THE STATE OF NORTH DAKOTA. THE ELEVATIONS AND CONTOURS BASED ON THE LIDAR DATA WERE PREPARED FROM AERIAL PHOTOGRAPHY DATA, AND NOT ACTUAL FIELD SURVEYING. AS SUCH, THE ACCURACY OF THE ELEVATIONS AND CONTOURS IS NOT AS HIGH AS INFORMATION GATHERED USING CONVENTIONAL FIELD SURVEYING PROCEDURES. THE CONTRACTOR MAY FIND THAT GROUND ELEVATIONS DETERMINED DURING FIELD STAKING WILL VARY FROM THE GROUND ELEVATIONS SHOWN ON THE DRAWINGS. IF MAJOR DISCREPANCIES ARE FOUND, THE OWNER AND ENGINEER SHALL BE NOTIFIED.
- WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE OWNER SHALL BE NOTIFIED BEFORE SUCH MONUMENTS ARE REMOVED. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL PROPERTY MARKERS AND MONUMENTS UNTIL THE OWNER, AN AUTHORIZED SURVEYOR OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION.
- EFFORTS SHALL BE MADE TO MINIMIZE SOIL DISTURBANCE TO AREAS OUTSIDE OF THE ROAD GRADING LIMITS, CRANE PATHS, AND TURBINE SITES. TYPICAL DISTURBANCE SHALL BE LIMITED TO 10 LF FROM THE EDGE OF PROPOSED GRADING.
- FINALIZE GRADING AROUND THE BASE OF TURBINES IN ACCORDANCE WITH DETAIL TS-03 AND TS-04.
- GRADE ALL PROPOSED ROADS TO A MAXIMUM SLOPE OF 8%. IF 8% SLOPE CANNOT BE ACHIEVED, THE CONTRACTOR MAY UTILIZE ASSISTIVE VEHICLES FOR THE PURPOSE OF DELIVERIES. GRADE ALL PROPOSED CRANE PATHS TO A MAXIMUM OF 8% UNLESS OTHERWISE NOTED IN PLAN SHEETS.
- ANY FACILITIES REMOVED TO ALLOW FOR CONSTRUCTION (MAILBOXES, SIGNS, FENCES, ETC.) SHALL BE REPLACED BY THE CONTRACTOR IN A CONDITION AS GOOD AS EXISTING.
- THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING DRAINAGE THROUGHOUT THE CONSTRUCTION OF THIS PROJECT. CONSTRUCTION ACTIVITIES SHALL NOT BLOCK THE NATURAL OR MANMADE CREEKS OR DRAINAGE SWALES CAUSING RAINWATER TO POND, DEPENDING ON FIELD CONDITIONS, ADDITIONAL CULVERTS IN EXCESS OF THOSE ON THE PLANS MAY BE REQUIRED.
- WHILE BUILDING THE ROADS AND EXCAVATING THE TURBINE FOUNDATIONS, EXCESS SOIL WILL RESULT. THE CONTRACTOR SHALL DISPOSE OF THIS EXCESS SOIL IN AN APPROVED MANNER. EXCESS TOPSOIL SHALL BE DISTRIBUTED INTO A THIN LAYER ON LAND IMMEDIATELY ADJACENT TO WHERE THE TOPSOIL ORIGINATED. ALL EXCESS TOPSOIL SHOULD BE WASTED ONSITE. WHILE DOING SO THE CONTRACTOR SHALL AVOID CAUSING RIDGES OR MOUNDS THAT WOULD MAKE IT DIFFICULT FOR FORMAL WATER RUNOFF TO DRAIN. THE FINAL SURFACE OF THE DISTURBED TOPSOIL SHALL BE SMOOTH AND FOLLOW THE NATURAL CONTOUR OF THE LAND.
- THE CONTRACTOR SHALL NOTIFY NORTH DAKOTA 811 AT LEAST 48 HOURS BEFORE EXCAVATION ACTIVITIES COMMENCE.
- TEMPORARY INTERSECTION WIDENING SHALL, UPON COMPLETION OF ALL PROJECT CONSTRUCTION OR UPON NOTIFICATION OF THE ENGINEER, BE REMOVED AND THE AREA RESTORED TO ITS ORIGINAL LINES AND GRADES WITH TOPSOIL REPLACED, EXCEPT WHERE REQUESTED BY THE TOWNSHIP OR CITY TO PERMANENTLY REMAIN. DISTURBED AREAS OUTSIDE OF THE FINAL ROADWAY SHALL BE SEEDED AND MULCHED.
- TURBINE SETBACKS ARE NOT IDENTIFIED ON THE CONSTRUCTION PLANS. IT SHALL BE THE RESPONSIBILITY OF THE OWNER AND CONTRACTOR TO ENSURE THAT ALL TURBINE SETBACKS MEET PROJECT REQUIREMENTS.
- GEOTECHNICAL REPORTS WITH RECOMMENDATIONS HAVE NOT BEEN PROVIDED. ALL GRADING SHALL CONFORM TO THE GEOTECHNICAL ENGINEERING REPORT AND RECOMMENDATIONS.
- ALL SURVEY WETLAND INFORMATION HAS NOT BEEN PROVIDED. ALL WETLAND DELINEATIONS AND PERMITTING SHALL BE THE RESPONSIBILITY OF OTHERS AND BE COMPLETED PRIOR TO CONSTRUCTION COMMENCING. THE OWNER AND GENERAL CONTRACTOR SHALL VERIFY THAT ALL WETLAND PERMITS HAVE BEEN SUBMITTED AND APPROVED PRIOR TO CONSTRUCTION COMMENCING.
- CULTURAL RESOURCE REPORTS HAS NOT BEEN PROVIDED. CULTURAL RESOURCE LOCATIONS ARE NOT SHOWN ON THE PLANS. INFORMATION WILL BE THE RESPONSIBILITY OF THE OWNER AND GENERAL CONTRACTOR. THE LOCATIONS OF CULTURAL RESOURCE SITES MAY BE CONFIDENTIAL AND PROTECTED BY STATE OR FEDERAL LAW. PUBLIC RELEASE OF SPECIFIC INFORMATION REGARDING THESE RESOURCES MAY BE RESTRICTED.
- AN ENVIRONMENTAL ASSESSMENT HAS NOT BEEN PROVIDED. THE CONTRACTOR SHALL BE FAMILIAR WITH THE REPORT AND REVIEW ALL RECOMMENDATIONS.
- ELECTRICAL INFORMATION SHOWN ON THE PLANS IS FOR REFERENCE ONLY. REFER TO ELECTRICAL CONSULTANT'S PLANS FOR SPECIFIC LOCATIONS AND CONSTRUCTION DETAILS FOR THE UNDERGROUND POWER COLLECTION SYSTEM AND SUBSTATION.
- CRANE PATHS ARE SHOWN ON THE CONSTRUCTION PLANS. IF THE CONTRACTOR PROPOSES ALTERNATE CRANE LOCATIONS, THEY SHALL ENSURE THAT WETLAND AND CULTURAL RESOURCE CORRIDORS ARE NOT DISTURBED. FINAL CRANE PATH ALIGNMENTS SHALL BE DETERMINED BY THE CONTRACTOR BASED ON FIELD CONDITIONS WITHIN THE WETLAND AND CULTURAL RESOURCE CORRIDORS, SPECIAL REQUIREMENTS, AND THE PROJECT BOUNDARY.
- EFFORTS SHALL BE MADE TO MINIMIZE SOIL DISTURBANCE TO AREAS OUTSIDE OF THE ROAD GRADING LIMITS, CRANE PATHS, AND TURBINE SITES. DISTURBANCE SHALL BE LIMITED TO 100 LF WIDTH FOR PROPOSED ACCESS ROADS AND 100 LF FOR CRANE PATHS AND LIMITED TO A 200 LF RADIUS FOR PROPOSED WIND TURBINE GENERATORS. THE GRADING LIMITS SHALL BE CENTERED ON THE ROADWAYS AND WIND TURBINES. THE CONTRACTOR SHALL MAKE ALL EFFORTS TO KEEP ACTIVITIES WITHIN THE ERECTION AREAS SHOWN ON THE PLANS BUT IT IS UNDERSTOOD THAT SOME ACTIVITIES THAT WILL NOT REQUIRE GRADING OR SOIL DISTURBANCE MAY EXTEND BEYOND THE DEFINED LIMITS. DURING ERECTION OF THE ROTOR, TRUCKS AND/OR FORKLIFTS MAY EXTEND BEYOND THESE LIMITS.
- TRUCK TURNAROUNDS ARE NOT SHOWN ON THE PLANS. GENERAL CONTRACTOR TO COORDINATE AND ASSIST WITH TRUCK TURNAROUNDS WHERE NECESSARY.
- AN ALTA SURVEY HAS NOT BEEN PROVIDED. CONTRACTOR AND OWNER ARE RESPONSIBLE FOR LOCATING ALL UTILITIES AND VERIFYING LOCATION OF CONSTRUCTION ACTIVITIES PRIOR TO COMMENCING WORK.
- OFF SITE TEMPORARY INTERSECTION IMPROVEMENTS ARE NOT SHOWN ON THE PLANS.

**STORMWATER POLLUTION PREVENTION PLAN (SWPPP)**

- THE CONTRACTOR SHALL PROVIDE EROSION CONTROL MEASURES AS PLANNED AND SPECIFIED FOLLOWING BEST MANAGEMENT PRACTICES AS OUTLINED BY THE NORTH DAKOTA DEPARTMENT OF HEALTH AND BEING IN CONFORMANCE WITH THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMITTER PERMITS.
- REFER TO THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR THE GLEN ULLIN ENERGY CENTER WIND PROJECT. PREPARED BY WESTWOOD PROFESSIONAL SERVICES, FOR EROSION CONTROL AND RESTORATION SPECIFICATIONS, SEDIMENT AND EROSION CONTROL PROCEDURES, LOCATIONS OF BMPs, DETAILS, AND INSPECTION INFORMATION.
- ALL PASTURES AND DRAINAGE SWALES DISTURBED DURING CONSTRUCTION ACTIVITIES AND NOT COVERED BY ROB SUBSTAKING MATERIALS, SHALL BE SEEDED IN ACCORDANCE WITH THE SWPP PLAN.
- TEMPORARY EROSION CONTROL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE TEMPORARY EROSION CONTROL PLAN SHALL BE IN ACCORDANCE WITH THE NORTH DAKOTA DEPARTMENT OF HEALTH AND THE GLEN ULLIN ENERGY CENTER WIND PROJECT STORMWATER POLLUTION PREVENTION PLAN ON FILE.

**PROJECT CONTACT INFORMATION:**

TITLE	COMPANY	NAME	CONTACT NUMBER
OWNER (PRIMARY)	ALLETTE CLEAN ENERGY	JOHN HOLLINGSWORTH	218-355-3249
PROJECT MANAGER	WESTWOOD	DANI FRANSSSEN	952-906-7493
ENGINEER OF RECORD	WESTWOOD	ROB COPOULS	952-906-7470
CONTRACTOR	WANZEK	TEODHEN CLOUD	701-433-5875
NDDOH			701-328-5150

**Westwood**

Phone (852) 937-5150 12701 Whiteaker Drive, Suite #500  
 Fax (852) 937-5922 Minnetonka, MN 55345  
 Toll Free (888) 937-5150  
 westwoodps.com  
 Westwood Professional Services, Inc.

Revised	By	Description
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Prepared for:



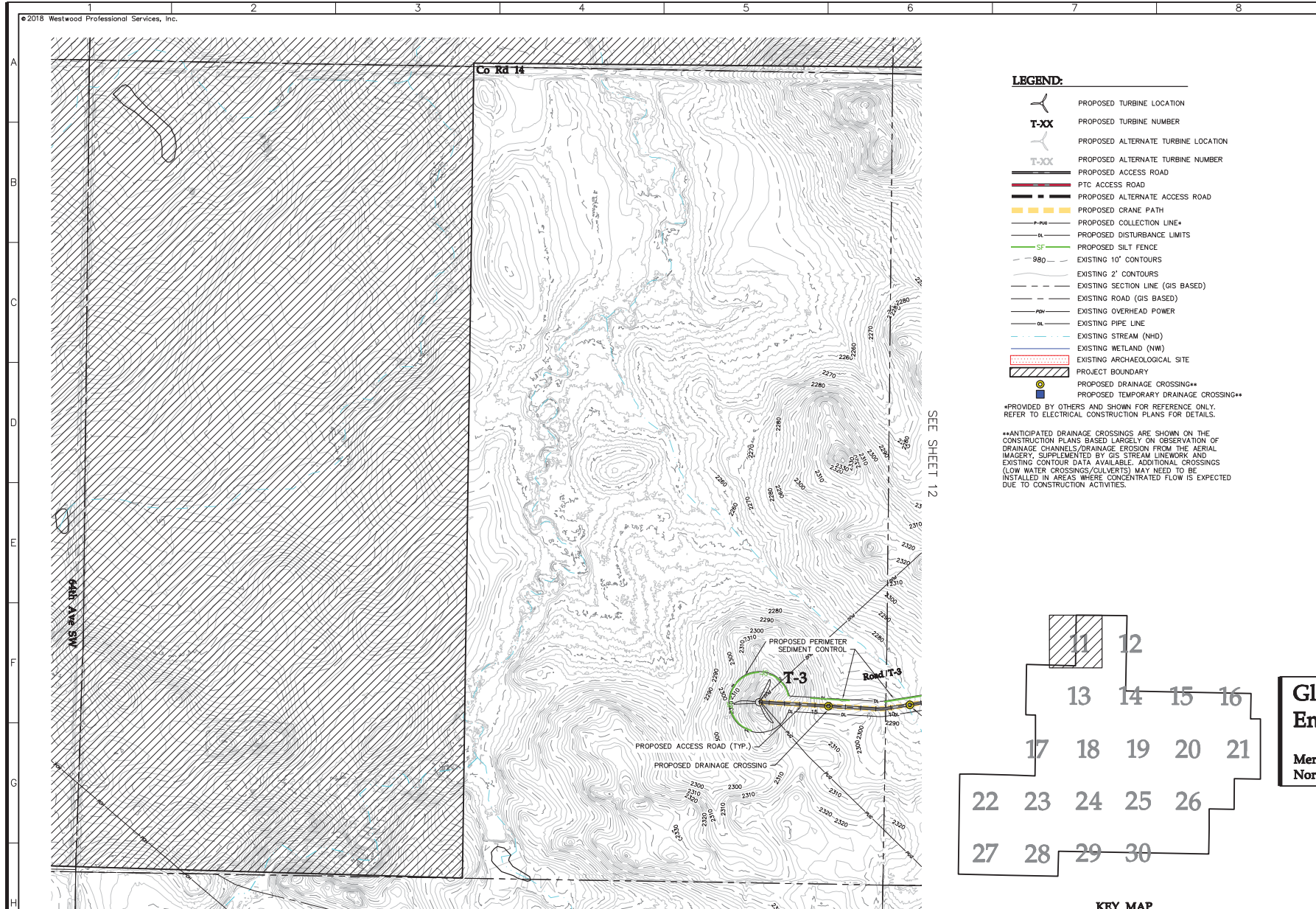
2025 2nd Avenue NW  
 West, Fargo, ND 58103

**Glen Ullin Energy Center**  
 Mercer and Morton Counties, North Dakota

**Construction Notes**

**60% Completion NOT FOR CONSTRUCTION**

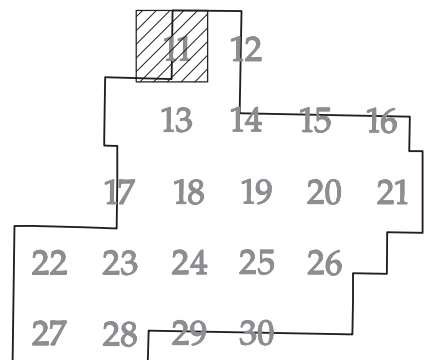
Date: 10/02/18  
 Sheet: 10 OF 30



- LEGEND:**
- PROPOSED TURBINE LOCATION
  - T-XX** PROPOSED TURBINE NUMBER
  - PROPOSED ALTERNATE TURBINE LOCATION
  - T-XX** PROPOSED ALTERNATE TURBINE NUMBER
  - PROPOSED ACCESS ROAD
  - PROPOSED ALTERNATE ACCESS ROAD
  - PROPOSED CRANE PATH
  - PROPOSED COLLECTION LINE\*
  - PROPOSED DISTURBANCE LIMITS
  - PROPOSED SILT FENCE
  - EXISTING 10' CONTOURS
  - EXISTING 2' CONTOURS
  - EXISTING SECTION LINE (GIS BASED)
  - EXISTING ROAD (GIS BASED)
  - EXISTING OVERHEAD POWER
  - EXISTING PIPE LINE
  - EXISTING STREAM (NHD)
  - EXISTING WETLAND (NW)
  - EXISTING ARCHAEOLOGICAL SITE
  - PROJECT BOUNDARY
  - PROPOSED DRAINAGE CROSSING\*\*
  - PROPOSED TEMPORARY DRAINAGE CROSSING\*\*
- \*PROVIDED BY OTHERS AND SHOWN FOR REFERENCE ONLY. REFER TO ELECTRICAL CONSTRUCTION PLANS FOR DETAILS.
- \*\*ANTICIPATED DRAINAGE CROSSINGS ARE SHOWN ON THE CONSTRUCTION PLANS BASED LARGELY ON OBSERVATION OF DRAINAGE CHANNELS/DRAINAGE EROSION FROM THE AERIAL IMAGERY, SUPPLEMENTED BY GIS STREAM LINEWORK AND EXISTING CONTOUR DATA AVAILABLE. ADDITIONAL CROSSINGS (LOW WATER CROSSINGS/CULVERTS) MAY NEED TO BE INSTALLED IN AREAS WHERE CONCENTRATED FLOW IS EXPECTED DUE TO CONSTRUCTION ACTIVITIES.

SEE SHEET 12

SEE SHEET 13



KEY MAP

**Revised:** **DSF**

**Checked:** **DSF**

**Drawn:** **DSF**

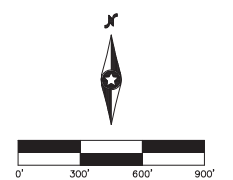
**As-Built Drawing:**

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Prepared for:

**WANZEK**  
 a Maxxam company

2025 2nd Avenue NW  
 West Fargo, ND 58078

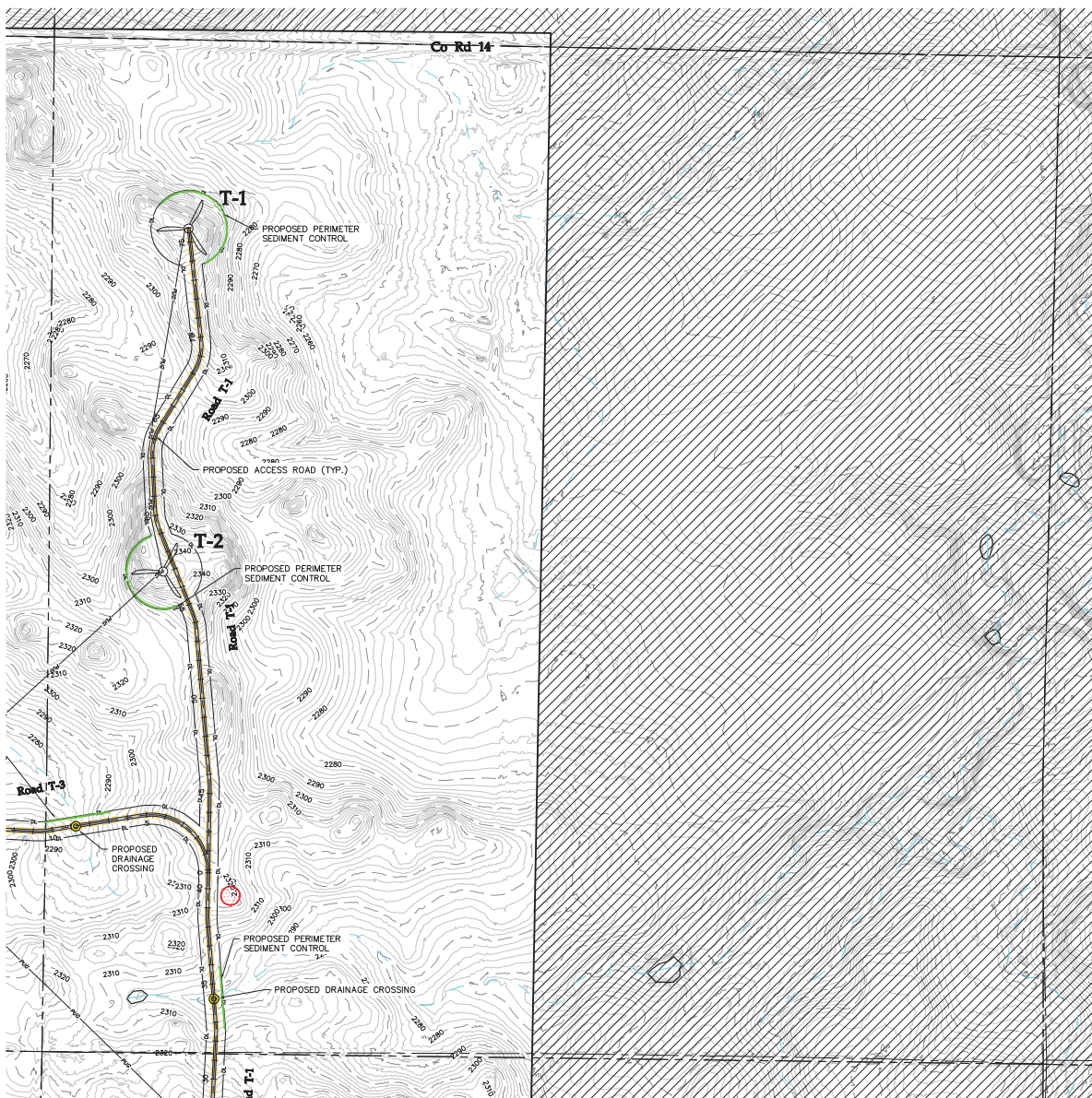


**Glen Ullin Energy Center**  
 Mercer and Morton Counties,  
 North Dakota

Civil Plan Set 3

**60% Completion**  
**NOT FOR CONSTRUCTION**

Date: 10/02/18  
 Sheet: 11 OF 30



Co Rd 14

SEE SHEET 11

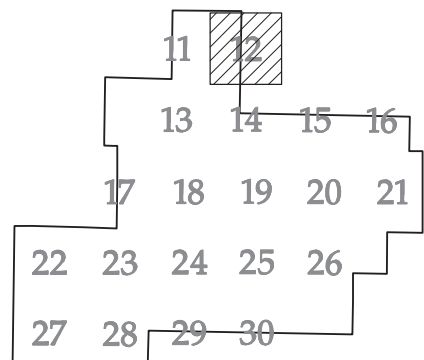
SEE SHEET 14

**LEGEND:**

- PROPOSED TURBINE LOCATION
- T-XX** PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- T-XX** PROPOSED ALTERNATE TURBINE NUMBER
- PROPOSED ACCESS ROAD
- PTC ACCESS ROAD
- PROPOSED ALTERNATE ACCESS ROAD
- PROPOSED CRANE PATH
- PROPOSED COLLECTION LINE\*
- PROPOSED DISTURBANCE LIMITS
- PROPOSED SILT FENCE
- EXISTING 10' CONTOURS
- EXISTING 2' CONTOURS
- EXISTING SECTION LINE (GIS BASED)
- EXISTING ROAD (GIS BASED)
- EXISTING OVERHEAD POWER
- EXISTING PIPE LINE
- EXISTING STREAM (NHD)
- EXISTING WETLAND (NW)
- EXISTING ARCHAEOLOGICAL SITE
- PROJECT BOUNDARY
- PROPOSED DRAINAGE CROSSING\*\*
- PROPOSED TEMPORARY DRAINAGE CROSSING\*\*

\*PROVIDED BY OTHERS AND SHOWN FOR REFERENCE ONLY. REFER TO ELECTRICAL CONSTRUCTION PLANS FOR DETAILS.

\*\*ANTICIPATED DRAINAGE CROSSINGS ARE SHOWN ON THE CONSTRUCTION PLANS BASED LARGELY ON OBSERVATION OF DRAINAGE CHANNELS/DRAINAGE EROSION FROM THE AERIAL IMAGERY, SUPPLEMENTED BY GIS STREAM LINEWORK AND EXISTING CONTOUR DATA AVAILABLE. ADDITIONAL CROSSINGS (LOW WATER CROSSINGS/CULVERTS) MAY NEED TO BE INSTALLED IN AREAS WHERE CONCENTRATED FLOW IS EXPECTED DUE TO CONSTRUCTION ACTIVITIES.



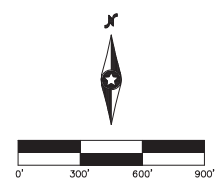
KEY MAP

Designed:	DJP
Checked:	DJP
Drawn:	DKK
As-Built Drawing:	
Revised:	
<b>Revision</b>	<b>Description</b>
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D	10/02/18 60% CIVIL PLANS

Prepared for:



2025 2nd Avenue NW  
 West Fargo, ND 58078



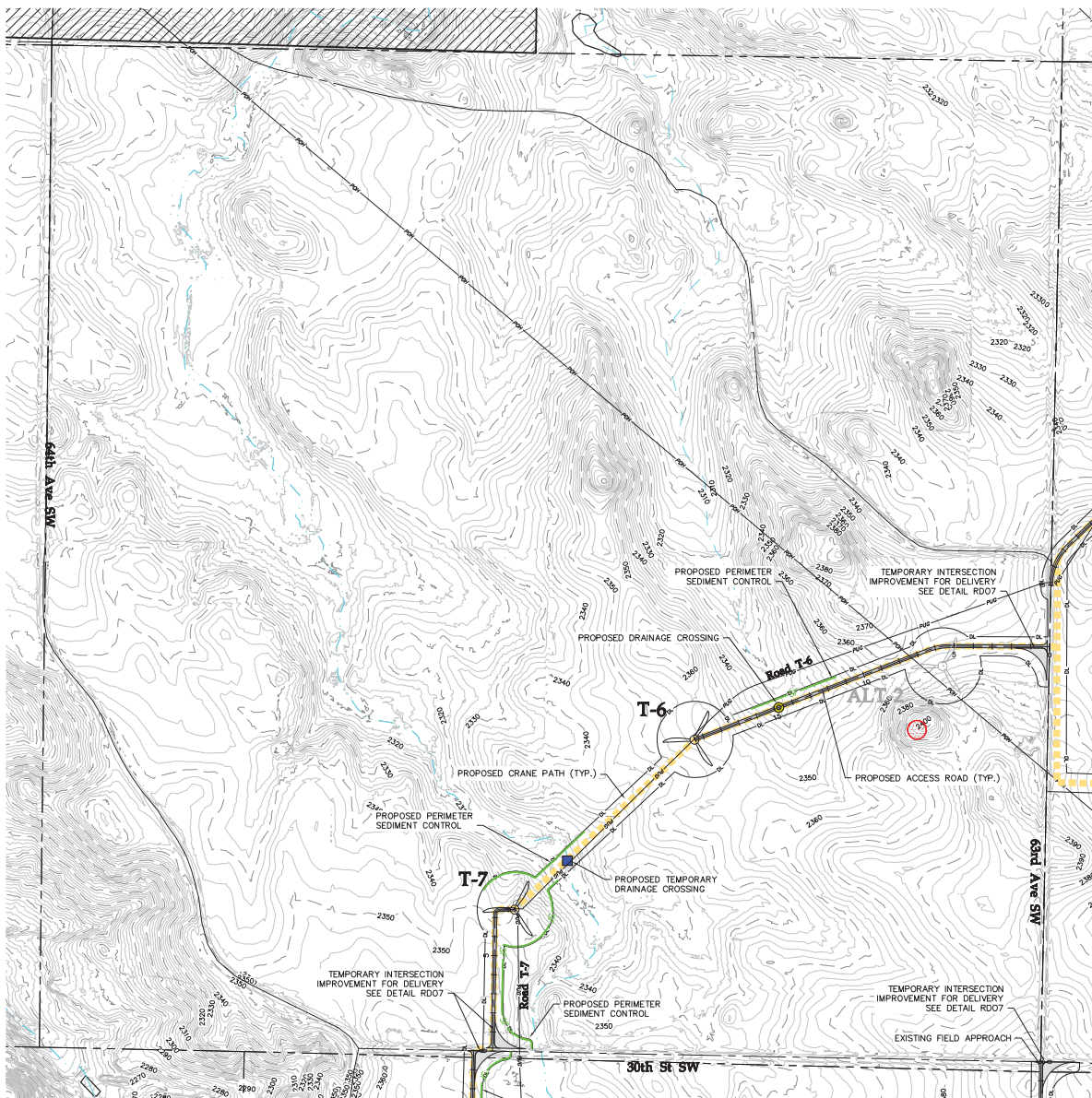
**Glen Ullin Energy Center**  
 Mercer and Morton Counties,  
 North Dakota

Civil Plan Set 1 2

**60% Completion**  
**NOT FOR CONSTRUCTION**

Date: 10/02/18  
 Sheet: 12 OF 30

SEE SHEET 11



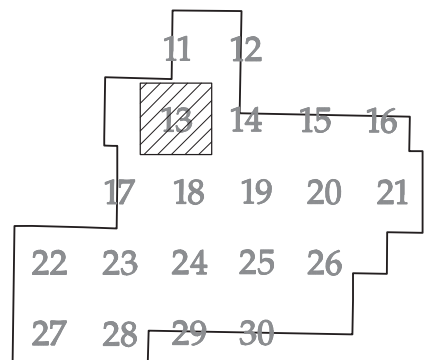
SEE SHEET 18

**LEGEND:**

- PROPOSED TURBINE LOCATION
- T-XX** PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- T-XX** PROPOSED ALTERNATE TURBINE NUMBER
- PROPOSED ACCESS ROAD
- PROPOSED ALTERNATE ACCESS ROAD
- PROPOSED CRANE PATH
- PROPOSED COLLECTION LINE\*
- PROPOSED DISTURBANCE LIMITS
- PROPOSED SILT FENCE
- EXISTING 10' CONTOURS
- EXISTING 2' CONTOURS
- EXISTING SECTION LINE (GIS BASED)
- EXISTING ROAD (GIS BASED)
- EXISTING OVERHEAD POWER
- EXISTING PIPE LINE
- EXISTING STREAM (NHD)
- EXISTING WETLAND (NW)
- EXISTING ARCHAEOLOGICAL SITE
- PROJECT BOUNDARY
- PROPOSED DRAINAGE CROSSING\*\*
- PROPOSED TEMPORARY DRAINAGE CROSSING\*\*

\*PROVIDED BY OTHERS AND SHOWN FOR REFERENCE ONLY. REFER TO ELECTRICAL CONSTRUCTION PLANS FOR DETAILS.

\*\*ANTICIPATED DRAINAGE CROSSINGS ARE SHOWN ON THE CONSTRUCTION PLANS BASED LARGELY ON OBSERVATION OF DRAINAGE CHANNELS/DRAINAGE EROSION FROM THE AERIAL IMAGERY, SUPPLEMENTED BY GIS STREAM LINEWORK AND EXISTING CONTOUR DATA AVAILABLE. ADDITIONAL CROSSINGS (LOW WATER CROSSINGS/CULVERTS) MAY NEED TO BE INSTALLED IN AREAS WHERE CONCENTRATED FLOW IS EXPECTED DUE TO CONSTRUCTION ACTIVITIES.



KEY MAP

**Westwood**  
 Phone (852) 937-5150 12701 Whiteaker Drive, Suite #300  
 Fax (852) 937-5922 Minneapolis, MN 55448  
 Toll Free (888) 937-5150 westwoodps.com  
 Westwood Professional Services, Inc.

**Designed:** DJP  
**Checked:** DJP  
**Drawn:** BJK

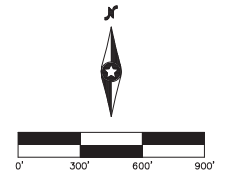
**As-Built Drawing:**

Revision	Description
A	08/22/18 30% CIVIL PLANS
B	09/19/18 30% CIVIL PLANS REVISED
C	09/26/18 ISSUED FOR PERMITTING
D	10/02/18 60% CIVIL PLANS

Prepared for:

**WANZEK**  
 a Maxxam company

2025 2nd Avenue NW  
 West Fargo, ND 58078



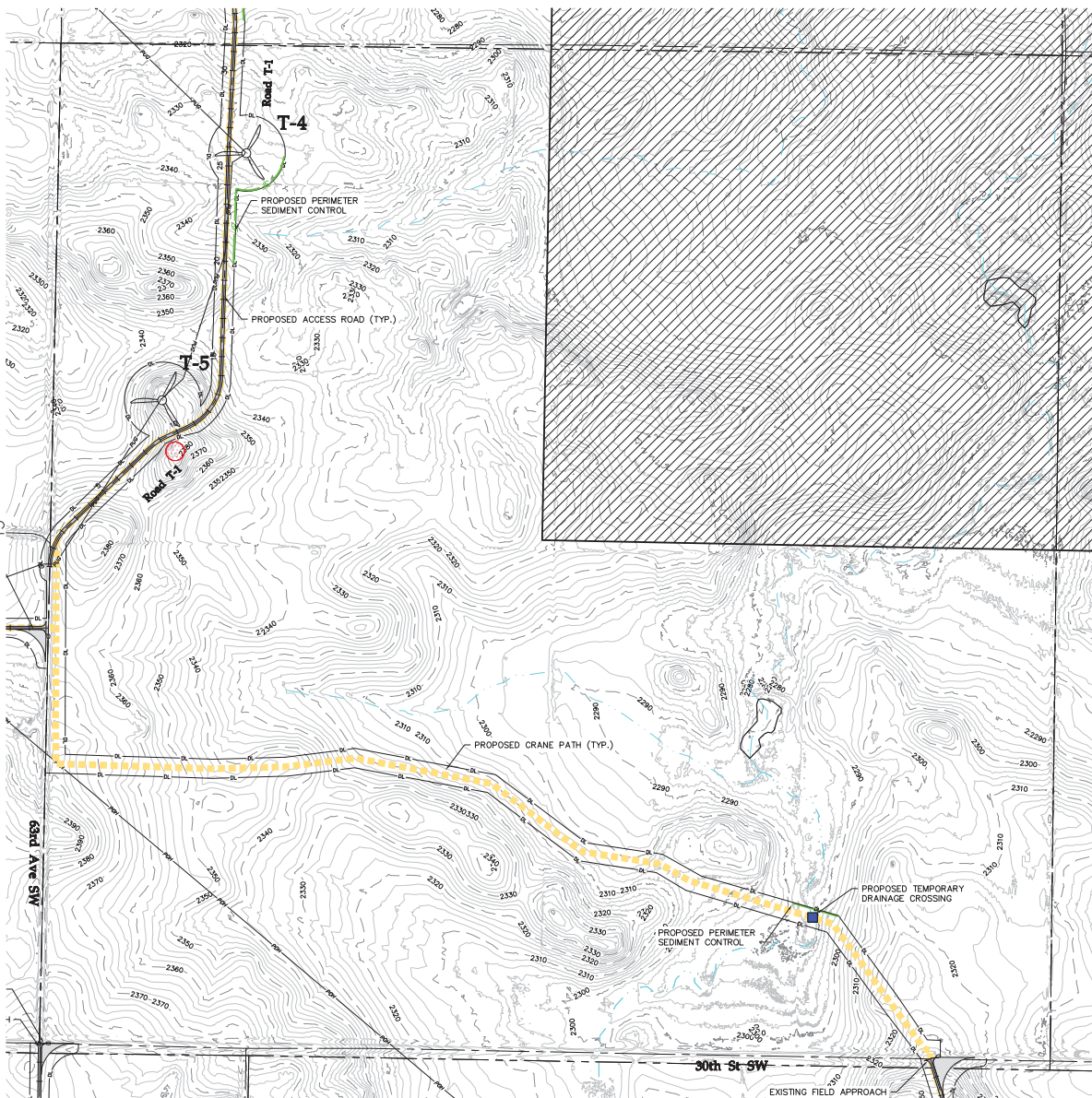
**Glen Ullin Energy Center**  
 Mercer and Morton Counties,  
 North Dakota

Civil Plan Set 6 7 ALT 2

**60% Completion**  
**NOT FOR CONSTRUCTION**

Date: 10/02/18  
 Sheet: 13 OF 30

SEE SHEET 12



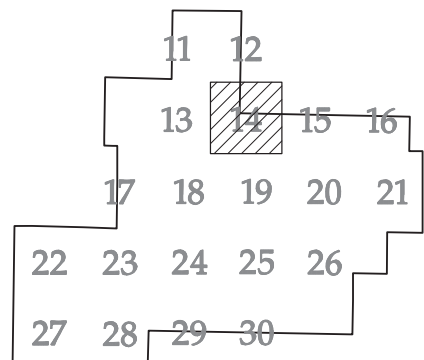
SEE SHEET 19

**LEGEND:**

- PROPOSED TURBINE LOCATION
- T-XX** PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- T-XX** PROPOSED ALTERNATE TURBINE NUMBER
- PROPOSED ACCESS ROAD
- PROPOSED ALTERNATE ACCESS ROAD
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KEY MAP

**Westwood**  
 Professional Services, Inc.  
 Phone: (852) 937-5150 12701 Whitewater Drive, Suite 5500  
 Fax: (852) 937-5522 Marietta, GA 30067  
 Toll Free: (888) 937-5150 www.westwoodps.com  
 Westwood Professional Services, Inc.

**Designed:** DJP  
**Checked:** DJP  
**Drawn:** GJK

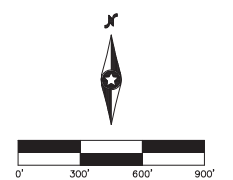
**As-Built Drawings:**

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Prepared for:

**WANZEK**  
 a Maxxam company

2025 2nd Avenue NW  
 West Fargo, ND 58078

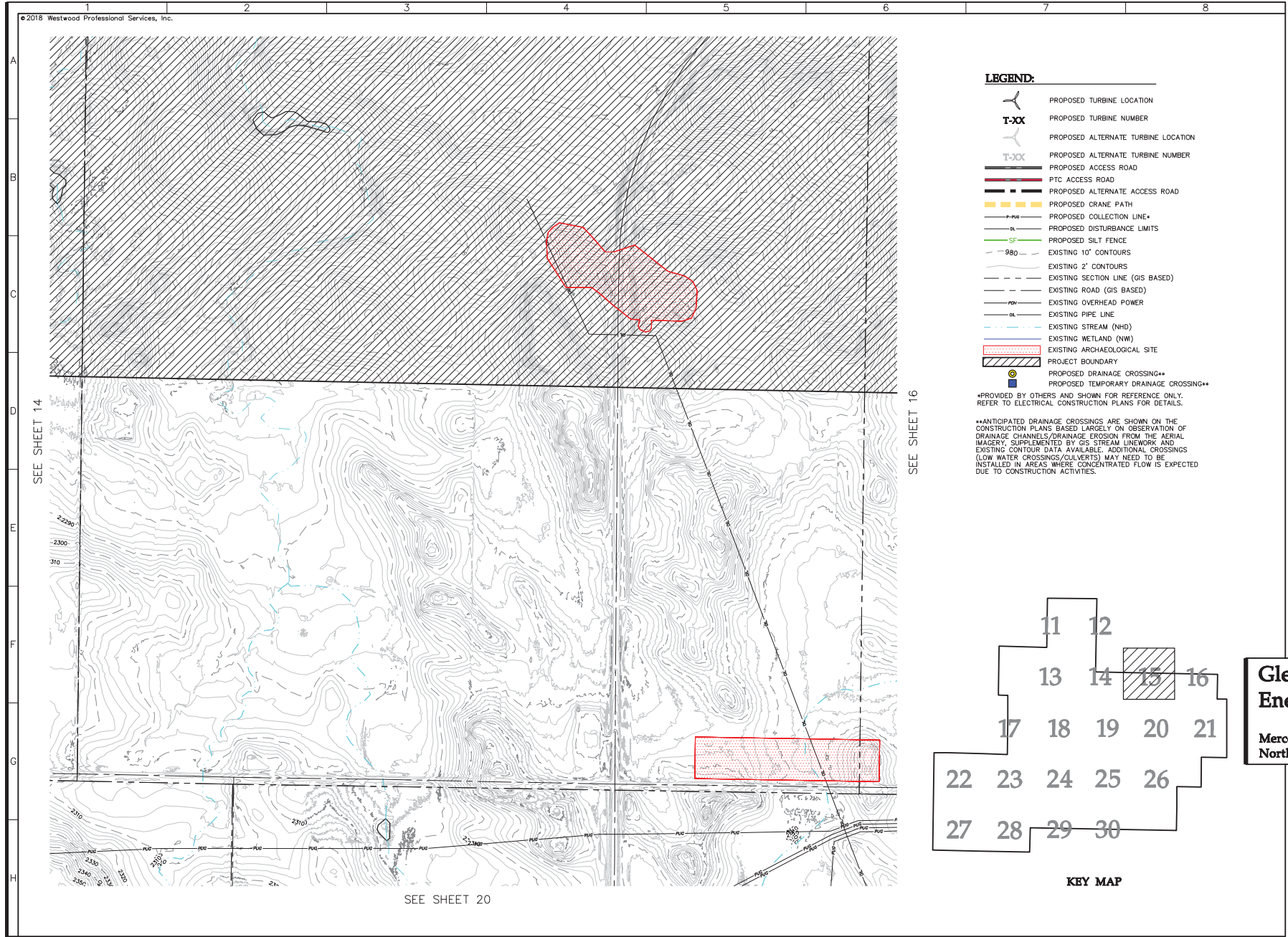


**Glen Ullin Energy Center**  
 Mercer and Morton Counties,  
 North Dakota

Civil Plan Set 4 5

**60% Completion**  
**NOT FOR CONSTRUCTION**

Date: 10/02/18  
 Sheet: 14 OF 30

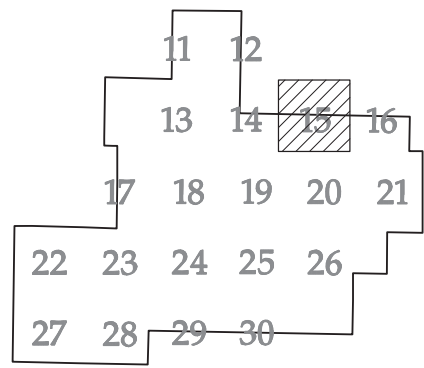


- LEGEND:**
- PROPOSED TURBINE LOCATION
  - T-XX** PROPOSED TURBINE NUMBER
  - PROPOSED ALTERNATE TURBINE LOCATION
  - T-XX** PROPOSED ALTERNATE TURBINE NUMBER
  - PROPOSED ACCESS ROAD
  - PTC ACCESS ROAD
  - PROPOSED ALTERNATE ACCESS ROAD
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SEE SHEET 14

SEE SHEET 16

SEE SHEET 20

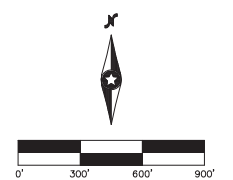


KEY MAP

**Designed:** DJP  
**Checked:** DJP  
**Drawn:** BJK

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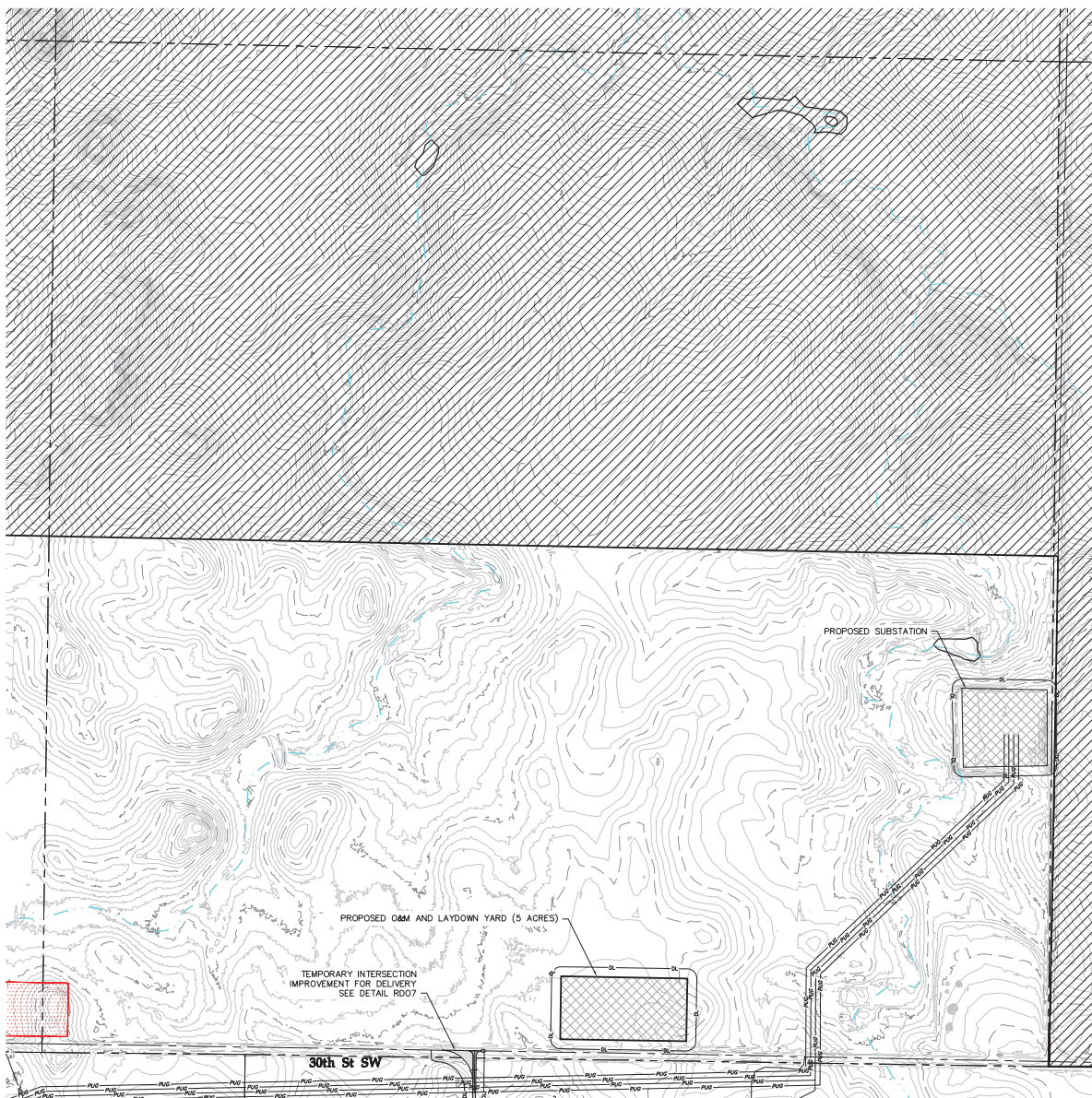


**Glen Ullin Energy Center**  
 Mercer and Morton Counties,  
 North Dakota

Civil Plan Set 1

**60% Completion**  
**NOT FOR CONSTRUCTION**

Date: 10/02/18  
 Sheet: 15 OF 30



SEE SHEET 15

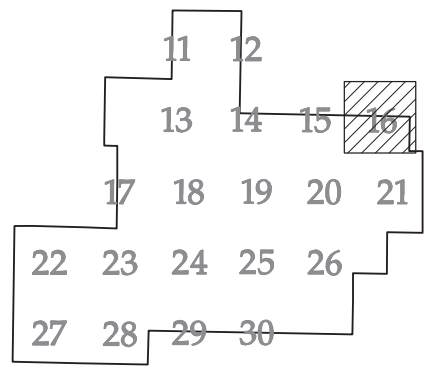
SEE SHEET 21

**LEGEND:**

- PROPOSED TURBINE LOCATION
- T-XX** PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- T-XX** PROPOSED ALTERNATE TURBINE NUMBER
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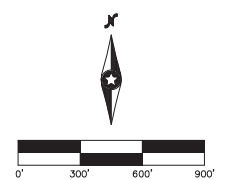
**Designed:** DJP  
**Checked:** DJP  
**Drawn:** BJK

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2025 2nd Avenue NW  
 West Fargo, ND 58078



**Glen Ullin Energy Center**  
 Mercer and Morton Counties,  
 North Dakota

Civil Plan Set O&M &  
 Substation

60% Completion  
**NOT FOR CONSTRUCTION**

Date: 10/02/18  
 Sheet: 16 OF 30