ENVIRONMENTAL INFORMATION REQUEST RESPONSE ATTACHMENTS

Resource Report 1 Request No. 13 Attachment

Updated Appendix 1B, Alignment Sheets (Filed separately due to FERC eFiling file size limitations)

WBI ENERGY TRANSMISSION, INC
WAHPETON EXPANSION PROJECT

HSE INC.
HARNED SURVEYING & ENGINEERING, INC.
11815 ROBINDALE ROAD
LOUISVILLE, KY 40243
OFFICE (502) 254-3921
FAX (502) 254-6093

WBI ENERGY TRANSMISSION
An MDU Resources Group company

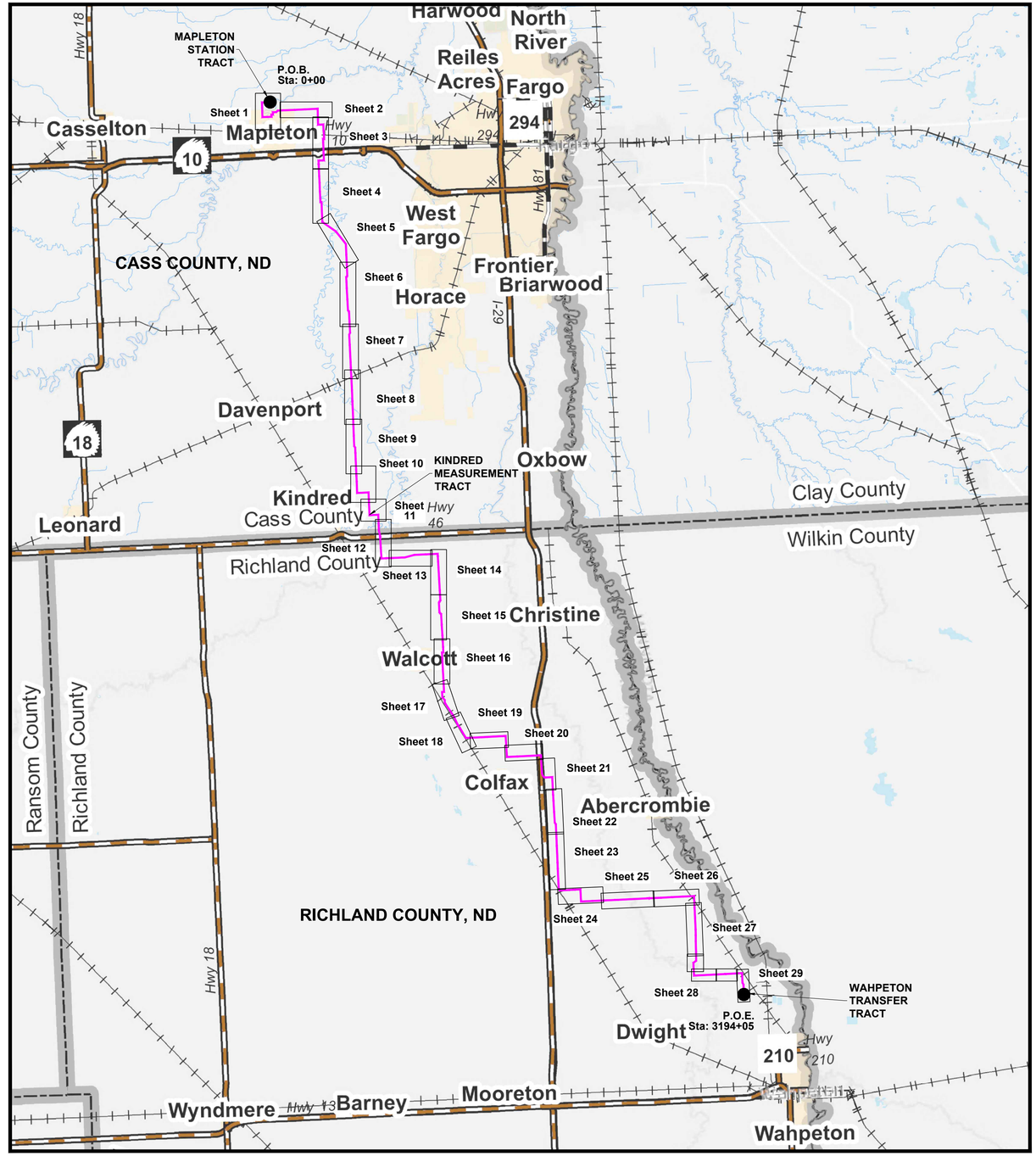
WAHPETON
EXPANSION PROJECT

Horizontal Project Length	Revision
319,405' / 60.49 mi	R1
Drawing Date	01/19/22

WAHPETON EXPANSION PROJECT

Cass County, North Dakota
Richland County, North Dakota

Sheet Index	
Sheet 1	Sta 1+00 - 120+00
Sheet 2	Sta 120+00 - 220+00
Sheet 3	Sta 220+00 - 360+00
Sheet 4	Sta 360+00 - 500+00
Sheet 5	Sta 500+00 - 630+00
Sheet 6	Sta 630+00 - 760+00
Sheet 7	Sta 760+00 - 870+00
Sheet 8	Sta 870+00 - 980+00
Sheet 9	Sta 980+00 - 1090+00
Sheet 10	Sta 1090+00 - 1200+00
Sheet 11	Sta 1200+00 - 1270+00
Sheet 12	Sta 1270+00 - 1370+00
Sheet 13	Sta 1370+00 - 1470+00
Sheet 14	Sta 1470+00 - 1580+00
Sheet 15	Sta 1580+00 - 1700+00
Sheet 16	Sta 1700+00 - 1800+00
Sheet 17	Sta 1800+00 - 1880+00
Sheet 18	Sta 1880+00 - 1970+00
Sheet 19	Sta 1970+00 - 2060+00
Sheet 20	Sta 2060+00 - 2170+00
Sheet 21	Sta 2170+00 - 2270+00
Sheet 22	Sta 2270+00 - 2380+00
Sheet 23	Sta 2380+00 - 2500+00
Sheet 24	Sta 2500+00 - 2640+00
Sheet 25	Sta 2640+00 - 2750+00
Sheet 26	Sta 2750+00 - 2860+00
Sheet 27	Sta 2860+00 - 2980+00
Sheet 28	Sta 2980+00 - 3080+00
Sheet 29	Sta 3080+00 - 3194+05



HSE INC.
HARNED SURVEYING & ENGINEERING, INC.
11815 ROBINDALE ROAD
LOUISVILLE, KY 40243
OFFICE (502) 254-3921
FAX (502) 254-6093

Date Surveyed:	JULY 2021
Surveyed By:	AL
Drawing Date:	7/12/21
Drawn By:	D. Smith
Checked By:	J. Harned
Revision No.:	R1
Revision Date:	4-18-22

HSE Project #: 19-21

Coversheet

811
Know what's **below**
Call before you dig.
MT - 1-800-424-5555
ND - 1-800-795-0555

15,000 0 15,000 30,000
scale 1" = 15,000' feet

LEGEND
Proposed Pipeline Corridor

WBI ENERGY TRANSMISSION
An MDU Resources Group company

WAHPETON EXPANSION PROJECT

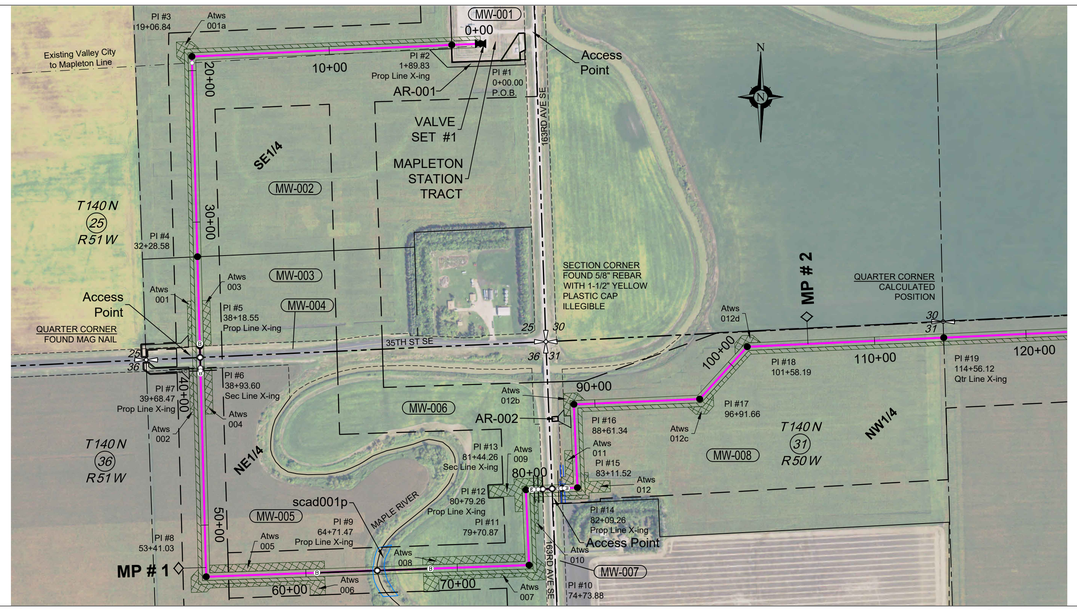
Co, State	SECTIONS 25, 36, T140N, R51W, SECTION 31, T140N, R50W, CASS COUNTY, NORTH DAKOTA							
	MW-001	**MW-002**	**MW-003**	**MW-004**	**MW-005**	**MW006**	**MW-007**	**MW-008**
OWNER	LOT 1, BLOCK 1, MINOR SUB SEC. 25, T140N, R51W 190' Uncultivated	PART OF N1/2 OF SE1/4 & N1/2 OF S1/2 OF SE1/4 LESS R/W, SEC. 25, T140N, R51W 3039' Cultivated	PART OF S1/2 OF S1/2 OF SE1/4 LESS R/W, SEC. 25, T140N, R51W 590' Cultivated	SEC. 25, 36, T140N, R51W 150' Uncultivated	GOVT LOT 1 OF NE 1/4 LESS R/W SEC. 36, T140N, R51W 2382' Cultivated - 121' Uncultivated	GOVT LOT 2 OF NE 1/4 LESS R/W SEC. 36, T140N, R51W 1491' Cultivated - 116' Uncultivated	SEC. 36, T140N, R51W SEC. 31, T140N, R50W 130' Uncultivated	N1/2 OF NW1/4 WITH EXCEPTIONS LESS R/W, SEC. 31, T140N, R50W 3219' Cultivated - 28' Uncultivated
RODDAGE	189.83' / 11.50 Rods	3038.74' / 184.17 Rods	589.98' / 35.76 Rods	149.92' / 9.09 Rods	2503.00' / 151.70 Rods	1607.79' / 97.44 Rods	130.00' / 7.87 Rods	3246.86' / 196.78 Rods

1+90 32+29 38+19 39+68 64+71 80+79 82+09 114+56

PIPE SCHMATIC

FEATURES

ALIGN

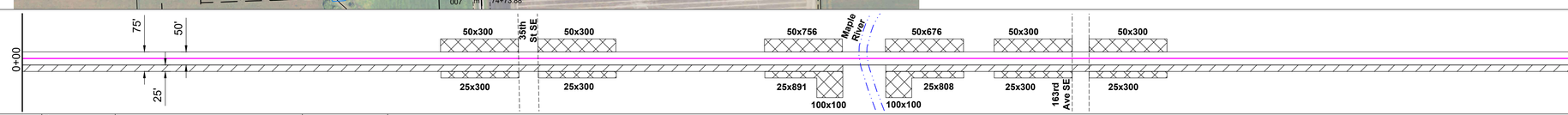


PI TABLE		
PI #	STATION	DEFLECTION
PI #1	0+00.00	00°00'
PI #2	1+89.83	00°00'
PI #3	19+06.84	89°00'L
PI #4	32+28.58	00°00'
PI #5	38+18.55	00°00'
PI #6	38+93.60	00°00'
PI #7	39+68.47	00°00'
PI #8	53+41.03	90°00'L
PI #9	64+71.47	00°00'
PI #10	74+73.88	90°00'L
PI #11	79+70.87	90°00'R
PI #12	80+79.26	00°00'
PI #13	81+44.26	00°00'
PI #14	82+09.26	00°00'
PI #15	83+11.52	90°00'L
PI #16	88+61.34	90°00'R
PI #17	96+91.66	45°00'L
PI #18	101+58.19	45°00'R
PI #19	114+56.12	00°00'

NOTE:
See Bore Surveys, Typical Bore and Typical Section Crossing sheets for Crossing Details.

- *Wetlands*
- *Waterbodies*
- *Noxious Weeds*
- *Saline Soil*

WORK SPACE N.T.S.



- *Permanent Easement*
- *Temporary Workspace*
- *Additional Temp. Workspace*
- *Survey Corridor*

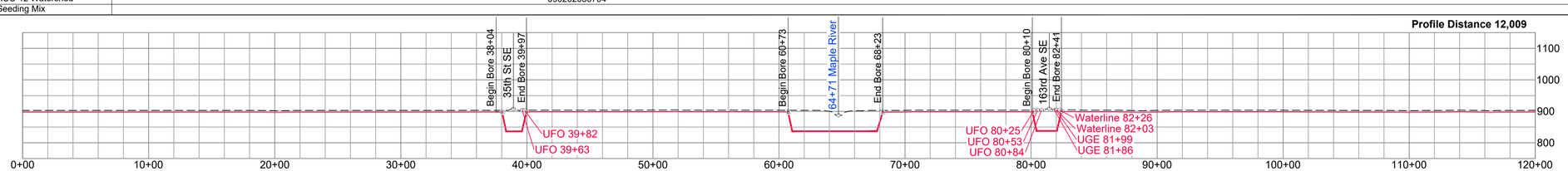
ENVIRO

Water Crossing	Name		scad001p
	Crossing Method		Bore
	Bridge		
Wetland Crossing	Name		
	Survey Extent		64+71
Environmental Feature			Intermediate
Miscellaneous/Comments			Approx. 150' ECD
			Approx. 100' mats
HUC-12 Watershed		090202050704	
Seeding Mix			

ENVIRONMENTAL NOTES:
1. *Wetlands depicted on these sheets represent actual field survey data or NWI.*
2. *Actual wetland or stream width may vary at time of construction.*

* *Open ("WET") trench if no distinguishable flow at the time of construction, dry crossing method if distinguishable flow at time of construction*

PROFILE



Ref. Dwgs. *Aerial Image: NAIP 2021*

HSE INC
HARNED SURVEYING & ENGINEERING, INC.
11815 ROBINDALE ROAD
LOUISVILLE, KY 40243
OFFICE (502) 254-3921
FAX (502) 254-6093

HSE Project # 19-21

SURVEY DATUM

North Dakota North (NAD 83)(2011)
International Foot
**Distances are Grid Distances.*
Combined Scale Factor = 0.99989766
Grid Dist. x 1.00010235 = Ground Dist.

Drawing Date:	*01-19-2022*
Drawn By:	*D. Smith*
Checked by:	*J. Harned*

LEGEND:

- *Proposed Block Valve*
- *Proposed Bore*
- *Alignment PI*
- *Utility Pole*
- *Well*
- *Valve*
- *Alignment*
- *Section Line*
- *Quarter Line*
- *Fence Line*
- *UG Fiber Optic*
- *UG Electric*
- *Overhead Elec*
- *Existing Pipeline*
- *Dirt Road*

SUMMARY of MATERIALS

Mark	Quantity	Description
1	10,636	*12.75" OD, .250" WT, X65, FBE, TRL*
2	1174	*12.75" OD, .312" WT, X65, FBE w/ARO, TRL*
3	190	*12.75" OD, .375" WT, X65, FBE, TRL*

REVISIONS

No.	Date	Description

WAHPETON EXPANSION PROJECT

500 0 500 1000
scale 1" = 500' - 22 x 34 feet
1" = 1000' - 11 x 17

1" = 500' HORIZ.
1" = 200' VERT.

WBI ENERGY TRANSMISSION
An MDU Resources Group company

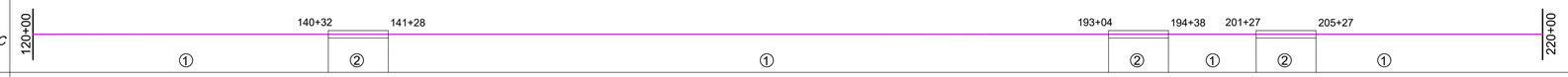
Sec. 25, 36, T140N, R51W,
Sec. 31, T140N, R50W,
5th P.M., Cass Co., North Dakota

Sheet 1 | *R1*

Co, State	SECTIONS 31, 32, 33, T140N, R50W, CASS COUNTY, NORTH DAKOTA			
OWNER	**MW-009** NE1/4 SEC. 31, T140N, R50W 2591' Cultivated - 33' Uncultivated	**MW-010** NW1/4 SEC. 32, T140N, R50W 2613' Cultivated - 34' Uncultivated	**MW-011** NE1/4 SEC. 32, T140N, R50W 2597' Cultivated - 50' Uncultivated	**MW-012** NW1/4 SEC. 33, T140N, R50W 2558' Cultivated - 75' Uncultivated
RODDAGE	2624.06' / 159.03 Rods	2646.91' / 160.42 Rods	2646.86' / 160.42 Rods	2632.65' / 159.55 Rods

140+80 | 167+26 | 193+73 | 220+06

PIPE SCHMATIC



FEATURES

140+32 Begin Bore
140+80 164th Ave SE
141+28 End Bore
193+04 Begin Bore
193+73 165th Ave SE
194+21 Cenex Line
194+38 End Bore
201+27 Begin Bore
203+27 Irr Unit
205+27 End Bore

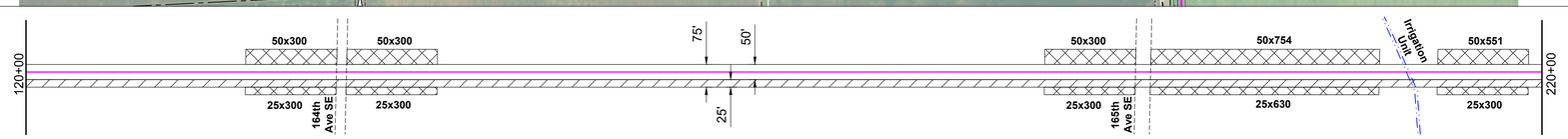
ALIGN

PI TABLE		
PI #	STATION	DEFLECTION
PI #20	140+80.18	00°00'
PI #21	167+26.47	00°00'
PI #22	193+73.24	00°00'
PI #23	194+96.29	91°00'R
PI #24	220+05.90	00°00'

NOTE:
See Bore Surveys, Typical Bore and Typical Section Crossing sheets for Crossing Details.

Wetlands
Waterbodies
Noxious Weeds
Saline Soil

WORK SPACE N.T.S.



Permanent Easement
Temporary Workspace
Additional Temp. Workspace
Survey Corridor

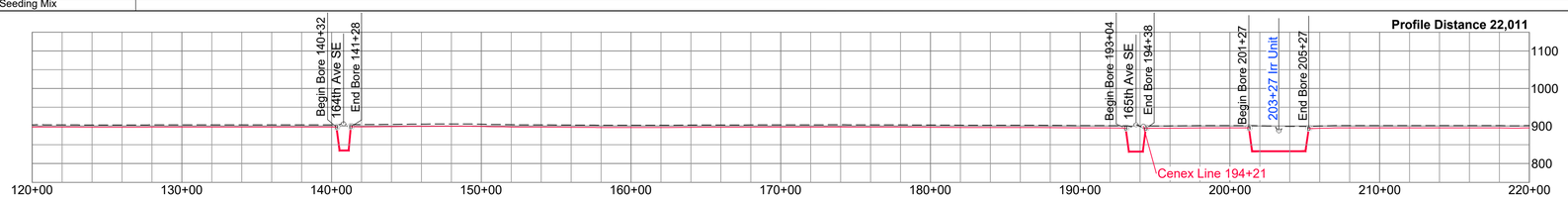
ENVIRO

Water Crossing	Name		scaa002e
	Crossing Method		Bore
	Bridge		Yes
Wetland Crossing	Name		
	Survey Extent		203+27
Environmental Feature			Intermediate
Miscellaneous/Comments			Approx. 150' ECD
			Approx. 50' mats
HUC-12 Watershed	090202050704	090202050603	
Seeding Mix			

ENVIRONMENTAL NOTES:
1. Wetlands depicted on these sheets represent actual field survey data or NWI.
2. Actual wetland or stream width may vary at time of construction.

* Open ("WET") trench if no distinguishable flow at the time of construction, dry crossing method if distinguishable flow at time of construction

PROFILE



Ref. Dwgs. Aerial Image: NAIP 2021

HSE INC
HARNED SURVEYING & ENGINEERING, INC.
11815 ROBINDALE ROAD
LOUISVILLE, KY 40243
OFFICE (502) 254-3921
FAX (502) 254-6093

HSE Project # 19-21

SURVEY DATUM

North Dakota North (NAD 83)(2011)
International Foot
*Distances are Grid Distances.
Combined Scale Factor = 0.99989766
Grid Dist. x 1.00010235 = Ground Dist.

Drawing Date:	01-19-2022
Drawn By:	D. Smith
Checked by:	J. Harned

LEGEND:

- Proposed Block Valve
- Proposed Bore
- Alignment PI
- Utility Pole
- Well
- Valve
- Alignment
- Section Line
- Quarter Line
- Fence Line
- UG Fiber Optic
- UG Electric
- Overhead Elec
- Existing Pipeline
- Dirt Road

SUMMARY of MATERIALS

Mark	Quantity	Description
1	9,466	12.75" OD, .250" WT, X65, FBE, TRL
2	534	12.75" OD, .312" WT, X65, FBE w/ARO, TRL

REVISIONS

No.	Date	Description

WAHPETON EXPANSION PROJECT

500 0 500 1000
scale 1" = 500' - 22 x 34 feet
1" = 1000' - 11 x 17

1" = 500' HORIZ.
1" = 200' VERT.

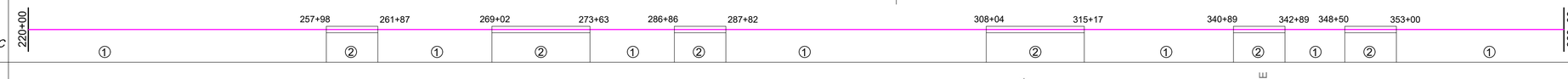
WBI ENERGY TRANSMISSION
An MDU Resources Group company

Sec. 31, 32, 33, T140N, R50W,
5th P.M., CASS Co., North Dakota

Sheet 2 | R1

Co, State	SECTION 33, T140N, R50W, SECTIONS 4, 8, 9, T139N, R50W, CASS COUNTY, NORTH DAKOTA												
OWNER	MW-013 N1/2 OF THE SW1/4 SEC. 33, T140N, R50W 2544' Cultivated 245+50	MW-014 PART OF THE S1/2 OF SW1/4 SEC. 33, T140N, R50W 1264' Cultivated 258+13	MW-015 SEC. 33, T140N, R50W SEC. 4, T139N, R50W 130' Uncultivated 259+43	MW-016 PART OF THE N1/2 LYING NORTH OF RAILROAD R/W SEC. 4, T139N, R50W 821' Cultivated - 168' Uncultivated 269+32	MW-017 SEC. 4, T139N, R50W 159' Cultivated - 243' Uncultivated 273+34	MW-018 LOT 1, BLOCK 1, KINDRED I94 EXIT SUBD SEC. 4, T139N, R50W 1395' Cultivated - 39' Uncultivated 287+68	MW-019 SW1/4 WITH EXCEPTION LESS R/W SEC. 4, T139N, R50W 2141' Cultivated 309+09	MW-020 SEC. 4 & 9, T139N, R50W 60' Cultivated - 515' Uncultivated 314+84	MW-021 LOT 1, BLOCK 1, LEO'S SUBD WITH EXCEPTIONS SEC. 9, T139N, R50W 2620' Cultivated 341+04	MW-022 SEC. 8 & 9, T139N, R50W 30' Cultivated - 140' Uncultivated 342+74	MW-023 PART OF NE1/4 WITH EXCEPTIONS SEC. 8, T139N, R50W 808' Cultivated 350+82	MW-024 PART OF NE1/4 SEC. 8, T139N, R50W 100' Cultivated 351+82	MW-025 PART OF NE1/4 WITH EXCEPTIONS SEC. 8, T139N, R50W 148' Cultivated 353+30
RODDAGE	2543.88' / 154.17 Rods	1263.50' / 76.58 Rods	130.00' / 7.88 Rods	988.54' / 59.91 Rods	402.11' / 24.37 Rods	1434.04' / 86.91 Rods	2141.34' / 129.78 Rods	575.01' / 34.85 Rods	2619.77' / 158.77 Rods	170.00' / 10.30 Rods	807.91' / 48.96 Rods	99.85' / 6.05 Rods	147.76' / 8.96 Rods

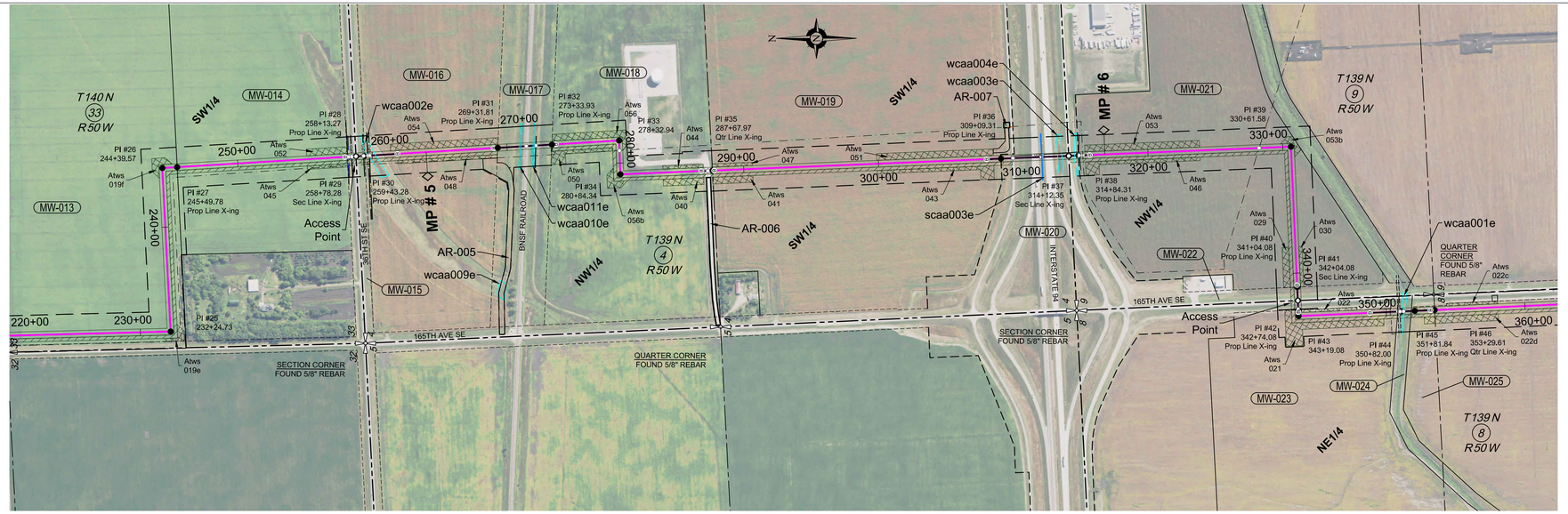
PIPE SCHMATIC



FEATURES

257+98 Begin Bore
258+16 OHE
258+22 Waterline
258+25 Nustar Line
258+46 UFO
258+78 36th St SE
259+35 UFO
259+66 UFO
259+80 UFO
261+87 End Bore
269+02 Begin Bore
271+43 BNSF RR
272+15 UFO
273+63 End Bore
279+08 Cenex Line
286+86 Begin Bore
287+34 Driveway
287+82 End Bore
308+04 Begin Bore
309+98 Access Rd
312+09 Interstate 94
314+12 Access Rd
314+90 UGE
315+17 Cenex Line
315+70 End Bore
328+25 Cenex Line
340+89 Begin Bore
342+04 165th Ave SE
342+68 UFO
342+89 End Bore
348+50 Begin Bore
350+57 Culvert 14
350+72 Culvert 14
350+99 Ex Drn 14
353+00 End Bore

ALIGN

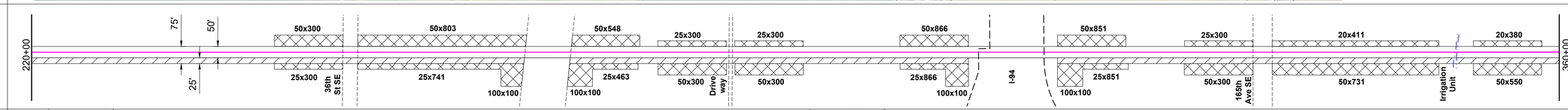


NOTE:
See Bore Surveys, Typical Bore and Typical Section Crossing sheets for Crossing Details.

Wetlands
Waterbodies
Noxious Weeds
Saline Soil

PI TABLE		
PI #	STATION	DEFLECTION
PI #25	232+24.73	91°30'L
PI #26	244+39.57	89°30'R
PI #27	245+49.78	00°00'
PI #28	258+13.27	00°00'
PI #29	258+78.28	00°00'
PI #30	259+43.28	00°00'
PI #31	269+31.81	00°00'
PI #32	273+33.93	00°00'
PI #33	278+32.94	91°30'R
PI #34	280+84.34	90°00'L
PI #35	287+67.97	00°00'
PI #36	309+09.31	00°00'
PI #37	314+12.35	00°00'
PI #38	314+84.31	00°00'
PI #39	330+61.58	90°00'R
PI #40	341+04.08	00°00'
PI #41	342+04.08	00°00'
PI #42	342+74.08	00°00'
PI #43	343+19.08	90°00'L
PI #44	350+82.00	00°00'
PI #45	351+81.84	00°00'
PI #46	353+29.61	00°00'

WORK SPACE N.T.S.



Permanent Easement
Temporary Workspace
Additional Temp. Workspace
Survey Corridor

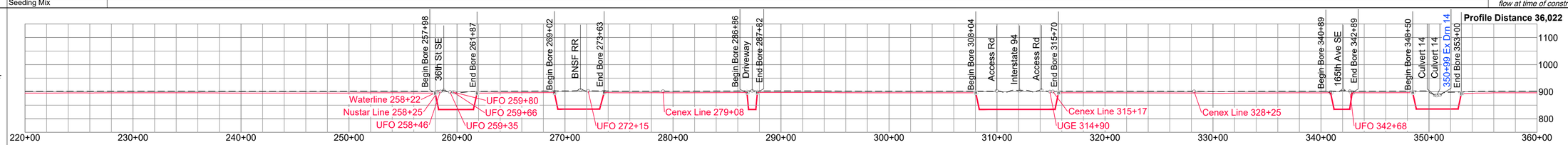
ENVIRO

Water Crossing	Name							scaa003e				
	Crossing Method							Bore				
	Bridge											
Wetland Crossing	Name		wcaa002e	wcaa009e	wcaa010e	wcaa011e			wcaa003e	wcaa004e		wcaa001e
	Survey Extent	259+66 260+24		269+00	271+00	271+98		312+12	313+47	314+68		350+99
Environmental Feature			Wetland	Wetland	Wetland	Wetland		Minor	Wetland	Wetland		Wetland
Miscellaneous/Comments			Approx. 175' ECD Approx. 100' mats		Approx. 100' ECD Approx. 100' mats	Approx. 200' mats		Approx. 100' ECD Approx. 50' mats	Approx. 100' ECD Approx. 50' mats	Approx. 100' ECD Approx. 50' mats		Approx. 100' ECD Approx. 50' mats
HUC-12 Watershed		090202050603										
Seeding Mix												

ENVIRONMENTAL NOTES:
1. Wetlands depicted on these sheets represent actual field survey data or NWI.
2. Actual wetland or stream width may vary at time of construction.

* Open ("WET") trench if no distinguishable flow at the time of construction, dry crossing method if distinguishable flow at time of construction

PROFILE



Ref. Dwgs. Aerial Image: NAIP 2021

HSE INC
HARNED SURVEYING & ENGINEERING, INC.
11815 ROBINDALE ROAD
LOUISVILLE, KY 40243
OFFICE (502) 254-3921
FAX (502) 254-6093

HSE Project # 19-21

SURVEY DATUM

North Dakota North (NAD 83)(2011)
International Foot
*Distances are Grid Distances.
Combined Scale Factor = 0.99989766
Grid Dist. x 1.00010235 = Ground Dist.

Drawing Date:	01-19-2022
Drawn By:	D. Smith
Checked by:	J. Harned

LEGEND:

Proposed Block Valve
Proposed Bore
Alignment PI
Utility Pole
Well
Valve
Alignment
Section Line
Quarter Line
Fence Line
UG Fiber Optic
UG Electric
Overhead Elec
Existing Pipeline
Dirt Road

SUMMARY of MATERIALS

Mark	Quantity	Description
1	11,639	12.75" OD, .250" WT, X65, FBE, TRL
2	1595	12.75" OD, .312" WT, X65, FBE w/ARO, TRL
3	766	12.75" OD, .500" WT, X65, FBE w/ARO, TRL (I-94)

REVISIONS

No.	Date	Description

WAHPETON EXPANSION PROJECT

500 0 500 1000
scale 1" = 500' - 22 x 34 feet
1" = 1000' - 11 x 17

1" = 500' HORIZ.
1" = 200' VERT.

WBI ENERGY TRANSMISSION
An MDU Resources Group company

Sec. 33, T140N, R50W,
Sec. 4, 8, 9, T139N, R50W,
5th P.M., Cass Co., North Dakota

Sheet 3 R1

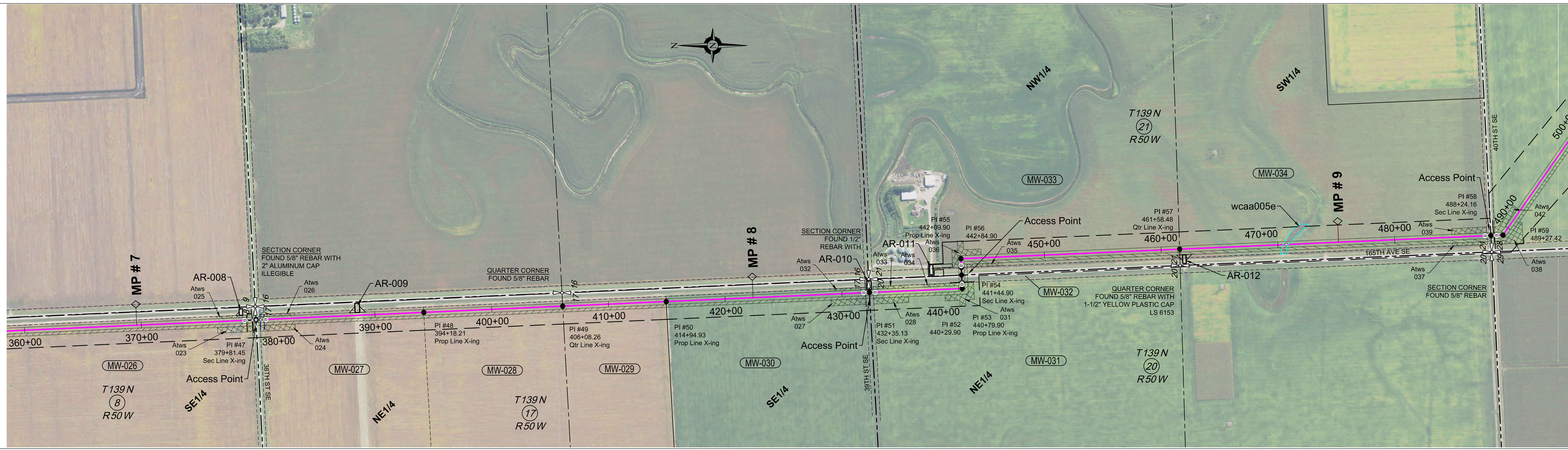
Co, State	SECTION 8, 17, 20, 21, 28, T139N, R50W, CASS COUNTY, NORTH DAKOTA								
OWNER	**MW-026** PART OF SE1/4 WITH EXCEPTIONS SEC. 8, T139N, R50W 2619' Cultivated - 33' Uncultivated (379+81)	**MW-027** PART OF NE1/4 WITH EXCEPTIONS SEC. 17, T139N, R50W 1283' Cultivated - 154' Uncultivated (394+18)	**MW-028** PART OF SOUTH 72 RODS WITH EXCEPTIONS SEC. 17, T139N, R50W 1190' Cultivated (406+08)	**MW-029** AUDITORS LOT 3 OF SOUTH HALF SEC. 17, T139N, R50W 887' Cultivated (414+95)	**MW-030** AUDITORS LOT 1 OF SE1/4 SEC. 17, T139N, R50W 1707' Cultivated - 33' Uncultivated (432+35)	**MW-031** NE1/4 SEC. 20, T139N, R50W 845' Cultivated (440+80)	**MW-032** SEC. 21 & 22, T139N, R50W 130' Uncultivated (442+10)	**MW-033** NW1/4 SEC. 21, T139N, R50W 1949' Cultivated (461+58)	**MW-034** PART OF THE SW 1/4 LESS R/W SEC. 21, T139N, R50W 2518' Cultivated - 148' Uncultivated (488+24)
RODDAGE	2651.84' / 160.72 Rods	1436.77' / 87.08 Rods	1190.04' / 72.12 Rods	886.67' / 53.74 Rods	1740.20' / 105.47 Rods	844.78' / 51.20 Rods	130.00' / 7.88 Rods	1948.58' / 118.10 Rods	2665.68' / 161.56 Rods

PIPE SCHEMATIC: 360+00 ① 378+87 ② 380+65 ① 431+87 ② 432+83 ① 440+65 ② 442+25 ① 487+76 ② 488+72 ① 500+00

FEATURES: 378+87 End Bore; 379+02 UFO; 379+53 UFO; 379+81 38th St SE; 380+19 Water Line; 380+50 OHE; 380+65 End Bore; 431+87 Begin Bore; 432+02 OHE; 432+39 39th St SE; 432+83 End Bore; 440+65 Begin Bore; 440+84 UFO; 441+45 165th Ave SE; 442+25 End Bore; 470+72 Watercourse; 487+76 Begin Bore; 488+24 40th St SE; 488+50 UFO; 488+72 End Bore

PI TABLE		
PI #	STATION	DEFLECTION
PI #47	379+81.45	00°00'
PI #48	394+18.21	00°00'
PI #49	406+08.26	00°00'
PI #50	414+94.93	00°00'
PI #51	432+35.13	00°00'
PI #52	440+29.90	90°00'L
PI #53	440+79.90	00°00'
PI #54	441+44.90	00°00'
PI #55	442+09.90	00°00'
PI #56	442+84.90	90°00'R
PI #57	461+58.48	00°00'
PI #58	488+24.16	00°00'
PI #59	489+27.42	52°30'L

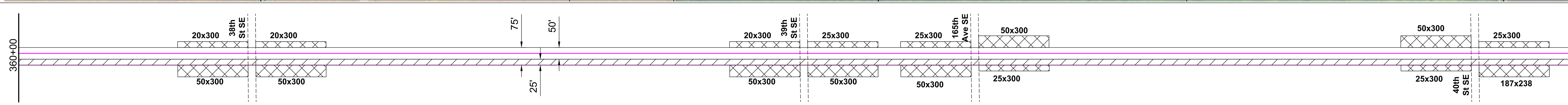
ALIGN



NOTE: See Bore Surveys, Typical Bore and Typical Section Crossing sheets for Crossing Details.

Wetlands
Waterbodies
Noxious Weeds
Saline Soil

WORK SPACE N.T.S.



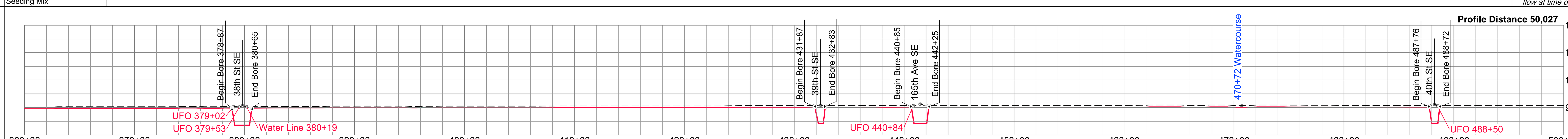
Permanent Easement
Temporary Workspace
Additional Temp. Workspace
Survey Corridor

ENVIRO			
Water Crossing	Name		
	Crossing Method		
	Bridge		
Wetland Crossing	Name		wcaa005e
	Survey Extent		470+72
Environmental Feature			Wetland
Miscellaneous/Comments			Approx. 100' ECD Approx. 50' mats
HUC-12 Watershed		090202050603 / 090202050602 / 090202040605	
Seeding Mix			

ENVIRONMENTAL NOTES:
1. Wetlands depicted on these sheets represent actual field survey data or NWI.
2. Actual wetland or stream width may vary at time of construction.

* Open ("WET") trench if no distinguishable flow at the time of construction, dry crossing method if distinguishable flow at time of construction

PROFILE



Ref. Dwgs. Aerial Image: NAIP 2021

HSE INC.
HARNED SURVEYING & ENGINEERING, INC.
11815 ROBINDALE ROAD
LOUISVILLE, KY 40243
OFFICE (502) 254-3921
FAX (502) 254-6093

HSE Project # 19-21

SURVEY DATUM
North Dakota North (NAD 83)(2011)
International Foot
*Distances are Grid Distances.
Combined Scale Factor = 0.99989766
Grid Dist. x 1.00010235 = Ground Dist.

Drawing Date: 01-19-2022
Drawn By: D. Smith
Checked by: J. Harned

LEGEND:
Proposed Block Valve — Alignment
Proposed Bore — Section Line
Alignment PI — Quarter Line
Utility Pole — Fence Line
Well — UG Fiber Optic
Valve — UG Electric
Overhead Elec
Existing Pipeline
Dirt Road

SUMMARY of MATERIALS		
Mark	Quantity	Description
1	13,469	12.75" OD, .250" WT, X65, FBE, TRL
2	531	12.75" OD, .312" WT, X65, FBE w/ARO, TRL

REVISIONS		
No.	Date	Description

scale 500 0 500 1000 feet
1" = 500' - 22 x 34
1" = 1000' - 11 x 17

1" = 500' HORIZ.
1" = 200' VERT.

WAHPETON EXPANSION PROJECT

WBI ENERGY TRANSMISSION
An MDU Resources Group company

Sec. 8, 17, 20, 21, 28, T139N, R50W,
5th P.M., Cass Co., North Dakota

Sheet 4 R1

Co, State	SECTIONS 28, 33, 34, T139N, R50W, SECTIONS 3, T138N, R50W, CASS COUNTY, NORTH DAKOTA						
	MW-035	**MW-036**	**MW-037**	**MW-038**	**MW-038A**	**MW-038B**	**MW-041**
OWNER	NW1/4 LESS PARCELS SEC. 28, T139N, R50W 3220' Cultivated - 33' Uncultivated	NE1/4 SEC. 28, T139N, R50W 878' Cultivated - 58' Uncultivated	SE1/4 SEC. 28, T139N, R50W 3191' Cultivated - 71' Uncultivated	NE1/4 SEC. 33, T139N, R50W 70' Uncultivated	NW1/4 SEC. 34, T139N, R50W 2594' Cultivated - 33' Uncultivated	SW1/4 SEC. 34, T139N, R50W 2613' Cultivated - 33' Uncultivated	NW1/4 SEC. 3, T138N, R50W 2440' Cultivated - 98' Uncultivated
RODDAGE	3253.52' / 197.18 Rods	935.55' / 56.70 Rods	3261.75' / 197.68 Rods	69.93' / 4.24 Rods	2626.89' / 159.21 Rods	2646.29' / 160.38 Rods	2537.84' / 153.81 Rods

520+78 530+13 562+75 563+45 589+72 616+18

PIPE SCHMATIC: 500+00 — 527+91 — 531+13 — 562+01 — 564+27 — 615+70 — 616+66 — 630+00

FEATURES: 527+91 Begin Bore; 529+32 Drain; 531+13 End Bore; 562+01 Begin Bore; 562+23 UGT; 562+75 41st St SE; 563+14 Strm Pipe; 563+23 Strm Pipe; 563+36 Strm Pipe; 563+45 166th Ave SE; 564+27 End Bore; 615+70 Begin Bore; 616+18 42nd St SE; 616+66 End Bore

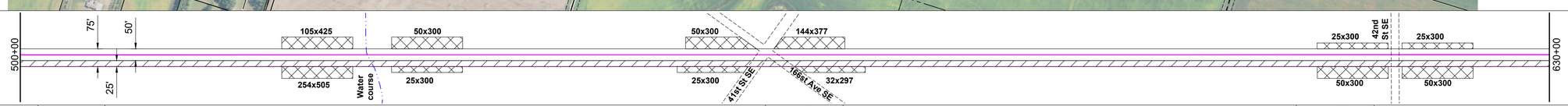
ALIGN

PI TABLE		
PI #	STATION	DEFLECTION
PI #60	520+77.68	00°00'
PI #61	527+91	16°30'R
PI #62	530+13.23	00°00'
PI #63	562+74.98	00°00'
PI #64	563+44.91	00°00'
PI #65	565+41.59	36°00'R
PI #66	589+71.80	00°00'
PI #67	616+18.09	00°00'

NOTE:
See Bore Surveys, Typical Bore and Typical Section Crossing sheets for Crossing Details.

- Wetlands
- Waterbodies
- Noxious Weeds
- Saline Soil

WORK SPACE N.T.S.



- Permanent Easement
- Temporary Workspace
- Additional Temp. Workspace
- Survey Corridor

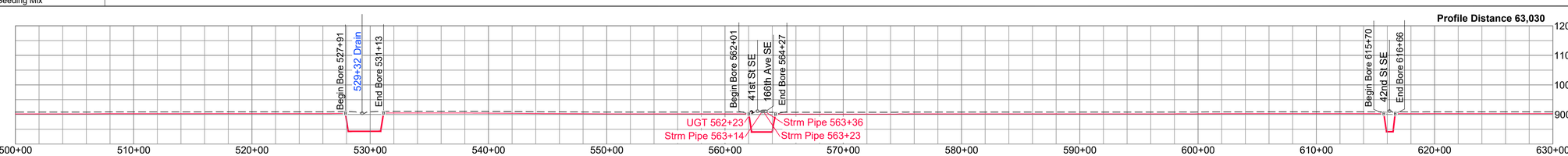
ENVIRO

Water Crossing	Name				scab001e		scab002e
	Crossing Method				Bore		
	Bridge				Yes		
Wetland Crossing	Name	DSK_WL_04	wcaa006e	wcaa007e			
	Survey Extent	529+32	529+32	529+32	563+01 590+87		616+46 617+89
Environmental Feature		Wetland	Wetland	Wetland	Minor		Minor
Miscellaneous/Comments		Approx. 150' ECD Approx. 100' mats					
HUC-12 Watershed		090202040605					
Seeding Mix							

ENVIRONMENTAL NOTES:
1. Wetlands depicted on these sheets represent actual field survey data or NWI.
2. Actual wetland or stream width may vary at time of construction.

* Open ("WET") trench if no distinguishable flow at the time of construction, dry crossing method if distinguishable flow at time of construction

PROFILE



Ref. Dwgs. Aerial Image: NAIP 2021

HSE INC
HARNED SURVEYING & ENGINEERING, INC.
11815 ROBINDALE ROAD
LOUISVILLE, KY 40243
OFFICE (502) 254-3921
FAX (502) 254-6093

HSE Project # 19-21

SURVEY DATUM

North Dakota North (NAD 83)(2011)
International Foot
*Distances are Grid Distances.
Combined Scale Factor = 0.99989766
Grid Dist. x 1.00010235 = Ground Dist.

Drawing Date:	01-19-2022
Drawn By:	D. Smith
Checked by:	J. Harned

LEGEND:

- Proposed Block Valve
- Proposed Bore
- Alignment PI
- Utility Pole
- Well
- Valve
- Alignment
- Section Line
- Quarter Line
- Fence Line
- UG Fiber Optic
- UG Electric
- Overhead Elec
- Existing Pipeline
- Dirt Road

SUMMARY of MATERIALS

Mark	Quantity	Description
1	12,356	12.75" OD, .250" WT, X65, FBE, TRL
2	644	12.75" OD, .312" WT, X65, FBE w/ARO, TRL

REVISIONS

No.	Date	Description

500 0 500 1000
scale 1" = 500' - 22 x 34 feet
1" = 1000' - 11 x 17

1" = 500' HORIZ.
1" = 200' VERT.

WAHPETON EXPANSION PROJECT

WBI ENERGY TRANSMISSION
An MDU Resources Group company

Sec. 28, 33, T139N, R50W,
Sec. 3, 4, T138N, R50W,
5th P.M., Cass Co., North Dakota

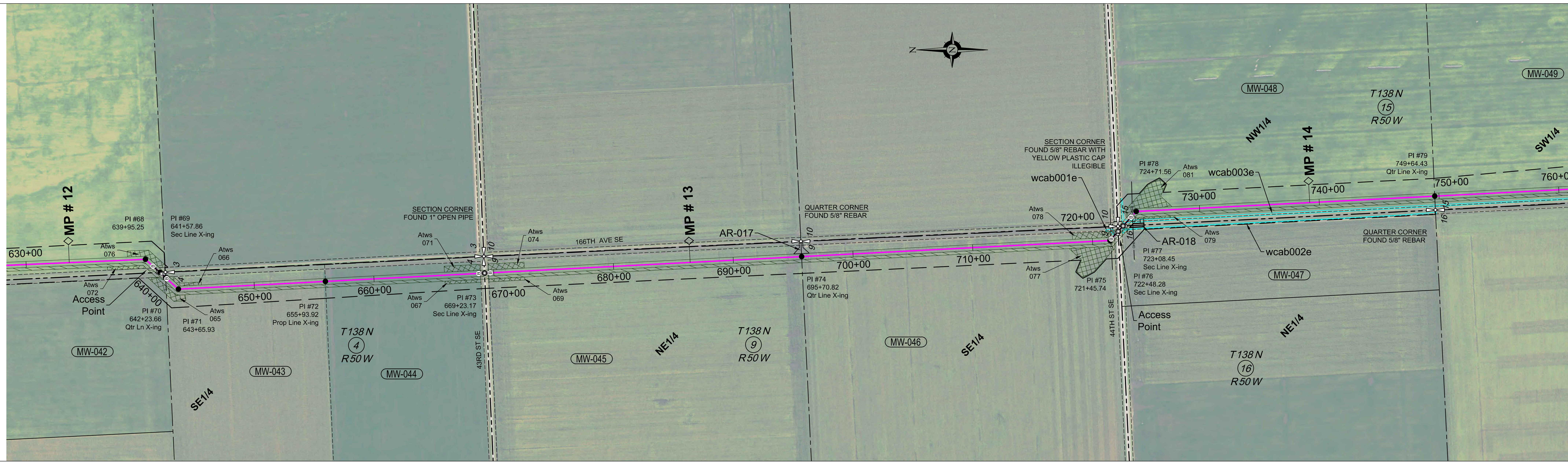
Sheet 5 R1

Co, State	SECTIONS 4, 9, 15, 16, T138N, R50W, CASS COUNTY, NORTH DAKOTA							
	MW-042	MW-043	MW-044	MW-045	MW-046	MW-047	MW-048	MW-049
OWNER	641+58 GOVT LOT 4 & SE1/4 OF THE NE1/4 SEC. 4, T138N, R50W 66' Uncultivated	642+24 N1/2 OF THE SE1/4 SEC. 4, T138N, R50W 1370' Cultivated	655+94 S1/2 OF THE SE1/4 WITH EXCEPTION SEC. 4, T138N, R50W 1296' Cultivated - 33' Uncultivated	669+23 NE1/4 SEC. 9, T138N, R50W 2615' Cultivated - 33' Uncultivated	695+71 SE1/4 SEC. 9, T138N, R50W 2630' Cultivated - 47' Uncultivated	722+48 E1/2 OF THE E1/2 OF THE NE1/4 SEC. 16, T138N, R50W 60' Uncultivated	723+08 NW1/4 SEC. 15, T138N, R50W 2609' Cultivated - 47' Uncultivated	749+64 SW1/4 SEC. 15, T138N, R50W 2616' Cultivated - 49' Uncultivated
RODDAGE	65.79' / 3.99 Rods	1370.27' / 83.05 Rods	1329.25' / 80.56 Rods	2647.65' / 160.46 Rods	2677.46' / 162.27 Rods	60.17' / 3.65 Rods	2655.99' / 160.97 Rods	2665.36' / 161.54 Rods

PIPE SCHMATIC: 630+00 ① 640+80 ② 642+36 ① 668+75 ② 669+71 ① 721+62 ② 724+07 ① 760+00

FEATURES:
640+80 Begin Bore
641+77 166th Ave SE
642+36 End Bore
668+75 Begin Bore
669+23 43rd St SE
669+71 End Bore
721+62 Begin Bore
721+59 OHE
722+44 Strm Pipe
722+48 44th St SE
723+08 166th Ave SE
723+08 Strm Pipe
724+07 End Bore
724+26 OHE

ALIGN

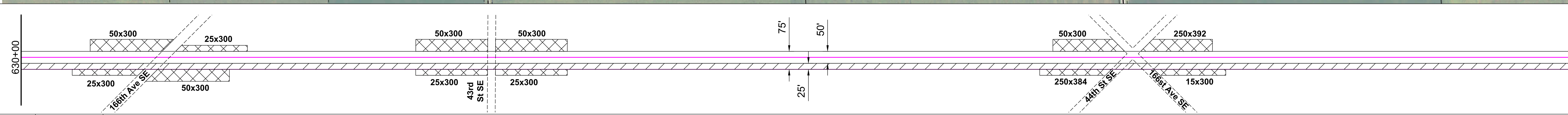


PI TABLE		
PI #	STATION	DEFLECTION
PI #68	639+95.25	45°00'R
PI #69	641+57.86	00°00'
PI #70	642+23.66	00°00'
PI #71	643+65.93	45°00'L
PI #72	655+93.92	00°00'
PI #73	669+23.17	00°00'
PI #74	695+70.82	00°30'
PI #75	721+45.74	45°00'L
PI #76	722+48.28	00°00'
PI #77	723+08.45	00°00'
PI #78	724+71.56	45°00'R
PI #79	749+64.43	1°30'L

NOTE:
See Bore Surveys, Typical Bore and Typical Section Crossing sheets for Crossing Details.

Wetlands
Waterbodies
Noxious Weeds
Saline Soil

WORK SPACE N.T.S.



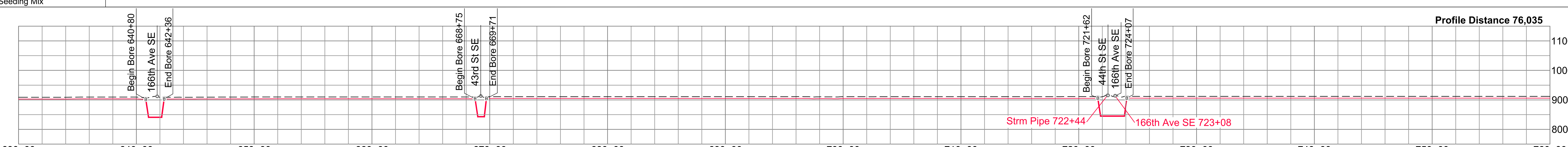
Permanent Easement
Temporary Workspace
Additional Temp. Workspace
Survey Corridor

ENVIRO

Water Crossing	Name				
	Crossing Method				
	Bridge				
Wetland Crossing	Name	wcab001e	wcab002e	wcab003e	
	Survey Extent	721+17 722+18	722+63 749+69	723+32 776+21	
Environmental Feature		Wetland	Wetland	Wetland	
Miscellaneous/Comments		Approx. 50' ECD Approx. 40' mats		Approx. 50' ECD Approx. 40' mats	
HUC-12 Watershed		090202040605			
Seeding Mix					

ENVIRONMENTAL NOTES:
1. Wetlands depicted on these sheets represent actual field survey data or NWI.
2. Actual wetland or stream width may vary at time of construction.
* Open ("WET") trench if no distinguishable flow at the time of construction, dry crossing method if distinguishable flow at time of construction

PROFILE



Ref. Dwgs. Aerial Image: NAIP 2021

HSE INC.
HARNED SURVEYING & ENGINEERING, INC.
11815 ROBINDALE ROAD
LOUISVILLE, KY 40243
OFFICE (502) 254-3921
FAX (502) 254-6093

HSE Project # 19-21

SURVEY DATUM
North Dakota North (NAD 83)(2011)
International Foot
*Distances are Grid Distances.
Combined Scale Factor = 0.99989766
Grid Dist. x 1.00010235 = Ground Dist.

Drawing Date: 01-19-2022
Drawn By: D. Smith
Checked by: J. Harned

LEGEND:
Proposed Block Valve
Proposed Bore
Alignment PI
Utility Pole
Well
Valve
Alignment
Section Line
Quarter Line
Fence Line
UG Fiber Optic
UG Electric
Overhead Elec
Existing Pipeline
Dirt Road

SUMMARY of MATERIALS

Mark	Quantity	Description
1	12,503	12.75" OD, .250" WT, X65, FBE, TRL
2	497	12.75" OD, .312" WT, X65, FBE w/ARO, TRL

REVISIONS

No.	Date	Description

scale 500 0 500 1000 feet
1" = 500' - 22 x 34
1" = 1000' - 11 x 17

1" = 500' HORIZ.
1" = 200' VERT.

WAHPETON EXPANSION PROJECT

WBI ENERGY TRANSMISSION
An MDU Resources Group company

Sec. 4, 9, 15, 16, T138N, R50W,
5th P.M., Cass Co., North Dakota

Sheet 6 R1

SECTIONS 15, 21, 22, 28, T138N, R50W, CASS COUNTY, NORTH DAKOTA

Co, State											
OWNER	776+30	MW-050 NW1/4 SEC. 22, T138N, R50W 115' Uncultivated	777+45	MW-051 NE1/4 SEC. 21, T138N, R50W 2664' Cultivated - 33' Uncultivated	803+90	MW-052 SE1/4 SEC. 21, T138N, R50W 2629' Cultivated - 33' Uncultivated	830+52	MW-053 N1/2 OF THE NE1/4 SEC. 28, T138N, R50W 1294' Cultivated - 33' Uncultivated	843+78	MW-054 S1/2 OF THE NE1/4 SEC. 28, T138N, R50W 1327' Cultivated	857+05 MW-055 SE1/4 LESS R/W SEC. 28, T138N, R50W 2350' Cultivated
RODDAGE		115.43' / 7.00 Rods		2589.13' / 156.92 Rods		2661.93' / 161.33 Rods		1326.57' / 80.40 Rods		1326.57' / 80.40 Rods	2349.51' / 142.39 Rods

PIPE SCHMATIC

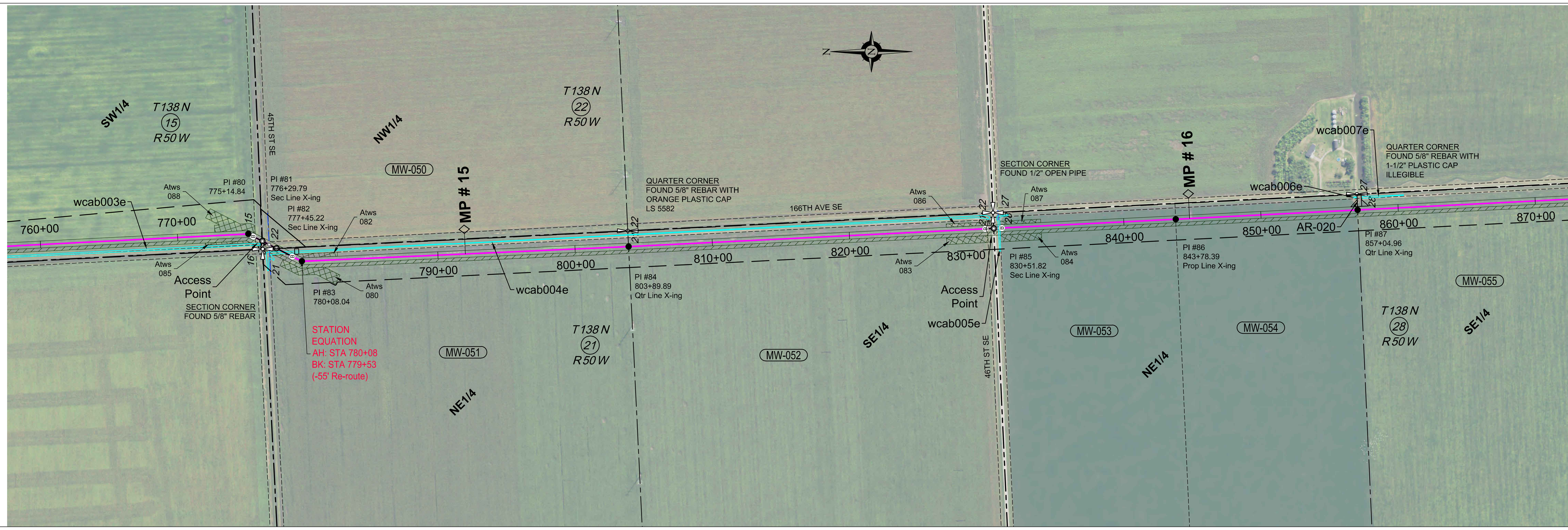
760+00 — ① — 775+66 — ② — 778+78 — ① — 829+92 — ② — 831+12 — ① — 870+00

FEATURES

775+55 Begin Bore
776+30 45th St SE
776+86 Waterline
777+45 166th Ave SE
778+76 End Bore
829+92 Begin Bore
830+52 46th St SE
830+87 Waterline
831+12 End Bore

PI TABLE		
PI #	STATION	DEFLECTION
PI #80	775+14.84	30°00'R
PI #81	776+29.79	00°00'
PI #82	777+45.22	00°00'
PI #83	780+08.04	30°00'L
PI #84	803+89.89	00°00'
PI #85	830+51.82	00°00'
PI #86	843+78.39	00°00'
PI #87	857+04.96	00°00'

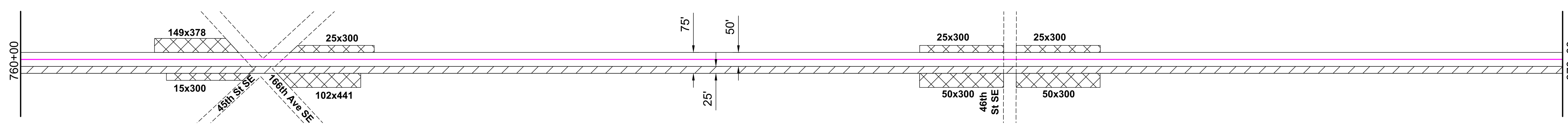
ALIGN



NOTE:
See Bore Surveys, Typical Bore and Typical Section Crossing sheets for Crossing Details.

Wetlands
Waterbodies
Noxious Weeds
Saline Soil

WORK SPACE N.T.S.



Permanent Easement
Temporary Workspace
Additional Temp. Workspace
Survey Corridor

ENVIRO

Water Crossing	Name											
	Crossing Method											
	Bridge											
Wetland Crossing	Name	wcab003e		wcab004e		wcab005e		wcab006e		wcab007e		
	Survey Extent	723+32	776+21	776+93	830+28	830+80	831+65	856+90	857+47	860+46		
Environmental Feature		Wetland		Wetland		Wetland		Wetland		Wetland		
Miscellaneous/Comments		Approx. 50' ECD Approx. 40' mats		Approx. 50' ECD Approx. 40' mats		Approx. 100' ECD Approx. 40' mats		Approx. 50' ECD Approx. 40' mats		Approx. 50' ECD		
HUC-12 Watershed		090202040605										
Seeding Mix												

ENVIRONMENTAL NOTES:
1. Wetlands depicted on these sheets represent actual field survey data or NWI.
2. Actual wetland or stream width may vary at time of construction.
* Open ("WET") trench if no distinguishable flow at the time of construction, dry crossing method if distinguishable flow at time of construction

PROFILE

Ref. Dwgs. Aerial Image: NAIP 2021

HSE INC.
HARNED SURVEYING & ENGINEERING, INC.
11815 ROBINDALE ROAD
LOUISVILLE, KY 40243
OFFICE (502) 254-3921
FAX (502) 254-6093

HSE Project # 19-21

SURVEY DATUM
North Dakota North (NAD 83)(2011)
International Foot
*Distances are Grid Distances.
Combined Scale Factor = 0.99989766
Grid Dist. x 1.00010235 = Ground Dist.

Drawing Date: 01-19-2022
Drawn By: D. Smith
Checked by: J. Harned

LEGEND:
Proposed Block Valve
Proposed Bore
Alignment PI
Utility Pole
Well
Valve
Alignment
Section Line
Quarter Line
Fence Line
UG Fiber Optic
UG Electric
Overhead Elec
Existing Pipeline
Dirt Road

SUMMARY of MATERIALS

Mark	Quantity	Description
1	10,568	12.75" OD, .250" WT, X65, FBE, TRL
2	432	12.75" OD, .312" WT, X65, FBE w/ARO, TRL

REVISIONS

No.	Date	Description

500 0 500 1000
scale feet
1" = 500' - 22 x 34
1" = 1000' - 11 x 17

1" = 500' HORIZ.
1" = 200' VERT.

WAHPETON EXPANSION PROJECT

WBI ENERGY TRANSMISSION
An MDU Resources Group company

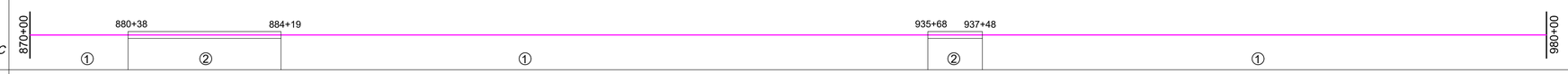
Sec. 15, 21, 22, 28, T138N, R50W,
5th P.M., Cass Co., North Dakota

Sheet 7 R1

Co, State	SECTION 28, 33, T138N, R50W, SECTION 4, T137N, R50W, CASS COUNTY, NORTH DAKOTA								
OWNER	MW-056 SEC. 28, T138N, R50W 107' Uncultivated	MW-057 SE1/4 LESS R/W SEC. 3, T138N, R50W 198' Uncultivated	MW-058 NE1/4 SEC. 33, T138N, R50W 2246' Cultivated - 304' Uncultivated	MW-059 SE1/4 SEC. 33, T138N, R50W 2229' Cultivated - 346' Uncultivated	MW-060 SEC. 33, T138N, R50W 150' Uncultivated	MW-061 NE1/4 LESS R/W SEC. 4, T137N, R50W 2378' Cultivated - 254' Uncultivated	MW-062 N1/2 OF THE NE1/4 LESS R/W SEC. 4, T137N, R50W 1065' Cultivated - 263' Uncultivated	MW-063 S1/2 OF THE SE1/4 SEC. 4, T137N, R50W 1031' Cultivated - 263' Uncultivated	
RODDAGE	106.82' / 6.47 Rods	197.58' / 11.97 Rods	2549.59' / 160.58 Rods	2574.86' / 156.05 Rods	150.00' / 9.09 Rods	2631.52' / 159.49 Rods	1328.30' / 80.50 Rods	1294.16 / 78.43 Rods	

880+54 881+61 883+59 910+08 935+83 937+33 963+65 976+93

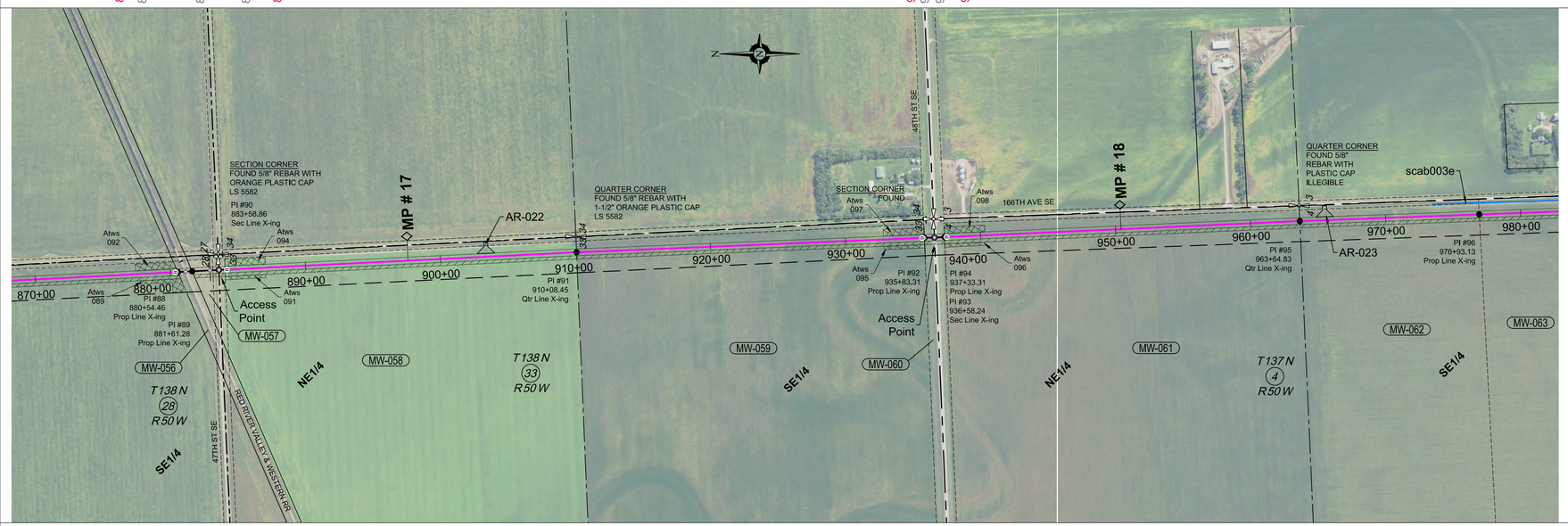
PIPE SCHMATIC



FEATURES

880+38 Begin Bore
881+13 Railroad
882+93 OHE
883+59 47th St SE
884+19 End Bore
935+68 Begin Bore
935+84 OHE
936+58 48th St SE
937+48 End Bore

ALIGN

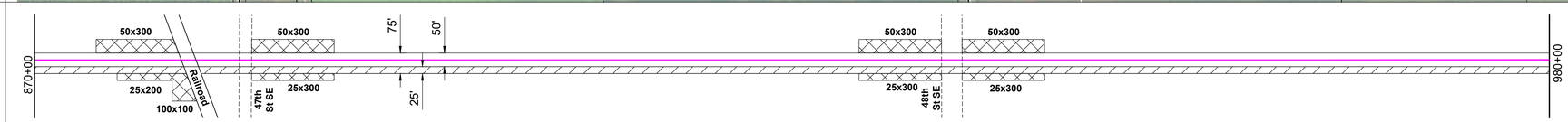


PI TABLE		
PI #	STATION	DEFLECTION
PI #88	880+54.46	00°00'
PI #89	881+61.28	00°00'
PI #90	883+58.86	00°00'
PI #91	910+08.45	00°00'
PI #92	935+83.31	00°00'
PI #93	936+58.24	00°00'
PI #94	937+33.31	00°00'
PI #95	963+64.83	00°00'
PI #96	976+93.13	00°00'

NOTE:
See Bore Surveys, Typical Bore and Typical Section Crossing sheets for Crossing Details.

- Wetlands
- Waterbodies
- Noxious Weeds
- Saline Soil

WORK SPACE N.T.S.



- Permanent Easement
- Temporary Workspace
- Additional Temp. Workspace
- Survey Corridor

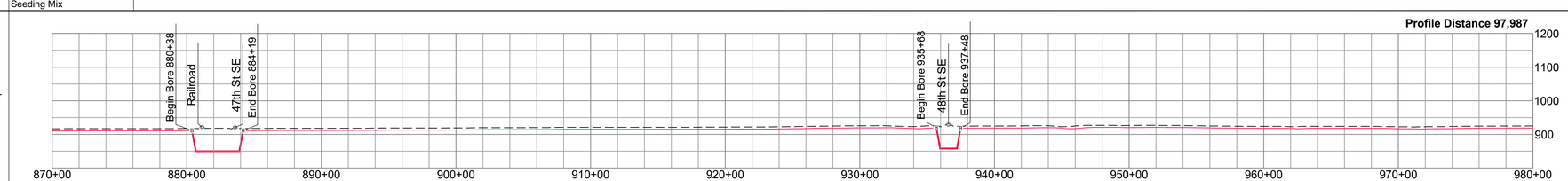
ENVIRO

Water Crossing	Name		scab003e
	Crossing Method		
	Bridge		
Wetland Crossing	Name		
	Survey Extent	973+51	983+66
Environmental Feature			Minor
Miscellaneous/Comments			
HUC-12 Watershed		090202040605	
Seeding Mix			

ENVIRONMENTAL NOTES:
1. Wetlands depicted on these sheets represent actual field survey data or NWI.
2. Actual wetland or stream width may vary at time of construction.

* Open ("WET") trench if no distinguishable flow at the time of construction, dry crossing method if distinguishable flow at time of construction

PROFILE



Ref. Dwgs. Aerial Image: NAIP 2021

HSE INC
HARNED SURVEYING & ENGINEERING, INC.
11815 ROBINDALE ROAD
LOUISVILLE, KY 40243
OFFICE (502) 254-3921
FAX (502) 254-6093

HSE Project # 19-21

SURVEY DATUM

North Dakota North (NAD 83)(2011)
International Foot
*Distances are Grid Distances.
Combined Scale Factor = 0.99989766
Grid Dist. x 1.00010235 = Ground Dist.

Drawing Date:	01-19-2022
Drawn By:	D. Smith
Checked by:	J. Harned

LEGEND:

- Proposed Block Valve
- Proposed Bore
- Alignment PI
- Utility Pole
- Well
- Valve
- Alignment
- Section Line
- Quarter Line
- Fence Line
- UG Fiber Optic
- UG Electric
- Overhead Elec
- Existing Pipeline
- Dirt Road

SUMMARY of MATERIALS

Mark	Quantity	Description
1	10,561	12.75" OD, .250" WT, X65, FBE, TRL
2	439	12.75" OD, .312" WT, X65, FBE w/ARO, TRL

REVISIONS

No.	Date	Description

WAHPETON EXPANSION PROJECT

500 0 500 1000
scale 1" = 500' - 22 x 34 feet
1" = 1000' - 11 x 17

1" = 500' HORIZ.
1" = 200' VERT.

WBI ENERGY TRANSMISSION
An MDU Resources Group company

Sec. 28, 33, T138N, R50W,
Sec. 4, T137N, R50W,
5th P.M., Cass Co., North Dakota

Sheet 8 R1

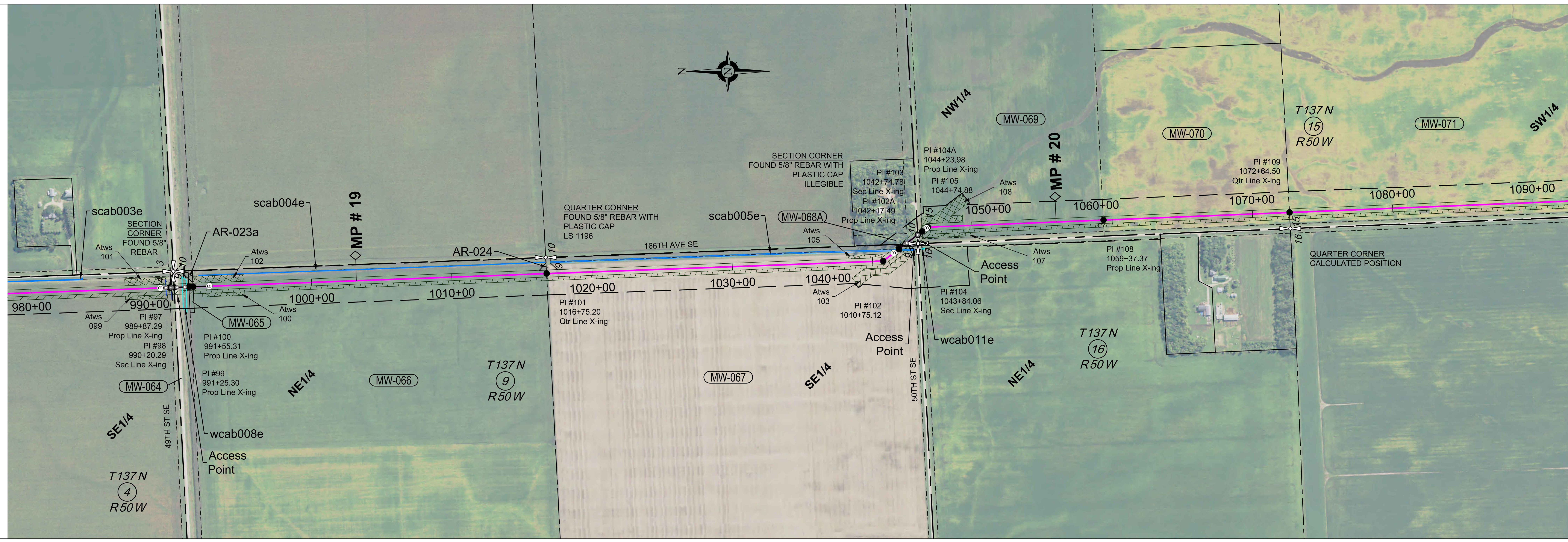
Co, State: SECTIONS 4, 9, 15, 16, T137N, R50W, CASS COUNTY, NORTH DAKOTA

	MW-064	MW-065	MW-066	MW-067	MW-068A	MW-069	MW-070	MW-071
OWNER	S1/2 OF THE SE1/4 SEC. 4, T137N, R50W 138' Uncultivated	PART OF THE NE1/4 SEC. 9, T137N, R50W 30' Uncultivated	E1/2 OF THE NE1/4 WITH EXCEPTIONS SEC. 9, T137N, R50W 2351' Cultivated - 169' Uncultivated	SE1/4 WITH EXCEPTIONS SEC. 9, T137N, R50W 2494' Cultivated - 48' Uncultivated	NE1/4 WITH EXCEPTIONS SEC. 16, T137N, R50W 206' Uncultivated	N1/2NW1/4 SEC. 15 T137N, R50W 1513' Cultivated	SW1/4 OF THE NW1/4 SEC. 15, T137N, R50W 1327' Cultivated	SW1/4 SEC. 15, T137N, R50W 2594' Cultivated - 60' Uncultivated
Stations	989+87 – 991+25	991+25 – 991+55	991+55 – 1016+75	1016+75 – 1042+17	1042+17 – 1044+24	1044+24 – 1059+37	1059+37 – 1072+65	1072+65 –
RODDAGE	138.01' / 8.36 Rods	30.01' / 1.82 Rods	2519.89' / 152.72 Rods	2542.29' / 154.08 Rods	206.49' / 12.51 Rods	1513.39' / 91.72 Rods	1327.14' / 80.43 Rods	2654.39' / 160.87 Rods

PIPE SCHMATIC: 980+00 – ① – 989+22 ② 992+72 – ① – 1042+86 ② 1043+82 – ① – 1090+00

FEATURES:
989+22 Begin Bore
989+61 Waterline
990+00 Waterline
990+00 UFO
990+02 OHE
990+41 49th St SE
990+96 Drain
992+72 End Bore
1041+71 Begin Bore
1042+75 166th Ave SE
1042+86 UGE
1043+84 50th St SE
1044+65 End Bore

ALIGN



PI TABLE		
PI #	STATION	DEFLECTION
PI #97	989+87.29	00°00'
PI #98	990+20.29	00°00'
PI #99	991+25.30	00°00'
PI #100	991+55.31	00°00'
PI #101	1016+75.20	00°00'
PI #102	1040+75.12	35°00'L
PI #102A	1042+17.49	00°00'
PI #103	1042+74.78	00°00'
PI #104	1043+84.06	00°00'
PI #104A	1044+23.98	00°00'
PI #105	1044+74.88	35°00'R
PI #108	1059+37.37	00°00'
PI #109	1072+64.50	00°00'

NOTE:
See Bore Surveys, Typical Bore and Typical Section Crossing sheets for Crossing Details.

- Wetlands
- Waterbodies
- Noxious Weeds
- Saline Soil

WORK SPACE N.T.S.: 980+00; 50x300; 25x300; 49th St SE; 50x300; 25x300; 75'; 50'; 25'; 50x300; 102x417; 50th St SE; 166th Ave SE; 173x373; 50x300; 1090+00

- Permanent Easement
- Temporary Workspace
- Additional Temp. Workspace
- Survey Corridor

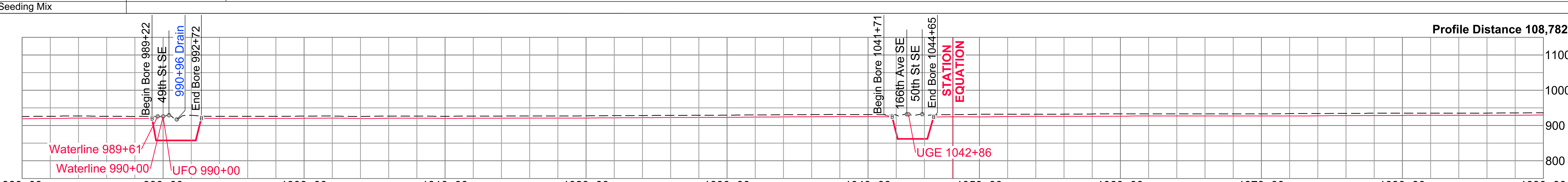
ENVIRO

Water Crossing	Name	scab003e		scab004e	scab005e	
	Crossing Method				Bore	
	Bridge				Yes	
Wetland Crossing	Name		wcab008e			
	Survey Extent	973+51 – 983+66	990+92	991+98 – 1016+67	1017+07 – 1043+09	
Environmental Feature		Minor	Wetland	Intermediate	Intermediate	
Miscellaneous/Comments			Approx. 150' ECD Approx. 50' mats			
HUC-12 Watershed		090202040605			090202040604	
Seeding Mix						

ENVIRONMENTAL NOTES:
1. Wetlands depicted on these sheets represent actual field survey data or NWI.
2. Actual wetland or stream width may vary at time of construction.
* Open ("WET") trench if no distinguishable flow at the time of construction, dry crossing method if distinguishable flow at time of construction

PROFILE

Profile Distance 108,782



Ref. Dwgs. Aerial Image: NAIP 2021

HSE INC.
HARNED SURVEYING & ENGINEERING, INC.
11815 ROBINDALE ROAD
LOUISVILLE, KY 40243
OFFICE (502) 254-3921
FAX (502) 254-6093

HSE Project # 19-21

SURVEY DATUM
North Dakota North (NAD 83)(2011)
International Foot
*Distances are Grid Distances.
Combined Scale Factor = 0.99989766
Grid Dist. x 1.00010235 = Ground Dist.

Drawing Date: 01-19-2022
Drawn By: D. Smith
Checked by: J. Harned

LEGEND:
- Proposed Block Valve
- Proposed Bore
- Alignment PI
- Utility Pole
- Well
- Valve
- Alignment
- Section Line
- Quarter Line
- Fence Line
- UG Fiber Optic
- UG Electric
- Overhead Elec
- Existing Pipeline
- Dirt Road

SUMMARY of MATERIALS

Mark	Quantity	Description
1	10,458	12.75" OD, .250" WT, X65, FBE, TRL
2	542	12.75" OD, .312" WT, X65, FBE w/ARO, TRL

REVISIONS

No.	Date	Description

WAHPETON EXPANSION PROJECT

WBI ENERGY TRANSMISSION
An MDU Resources Group company

scale 500 0 500 1000 feet
1" = 500' - 22 x 34
1" = 1000' - 11 x 17

1" = 500' HORIZ.
1" = 200' VERT.

Sec. 4, 9, 15, 16, T137N, R50W,
5th P.M., Cass Co., North Dakota

Sheet 9 R1

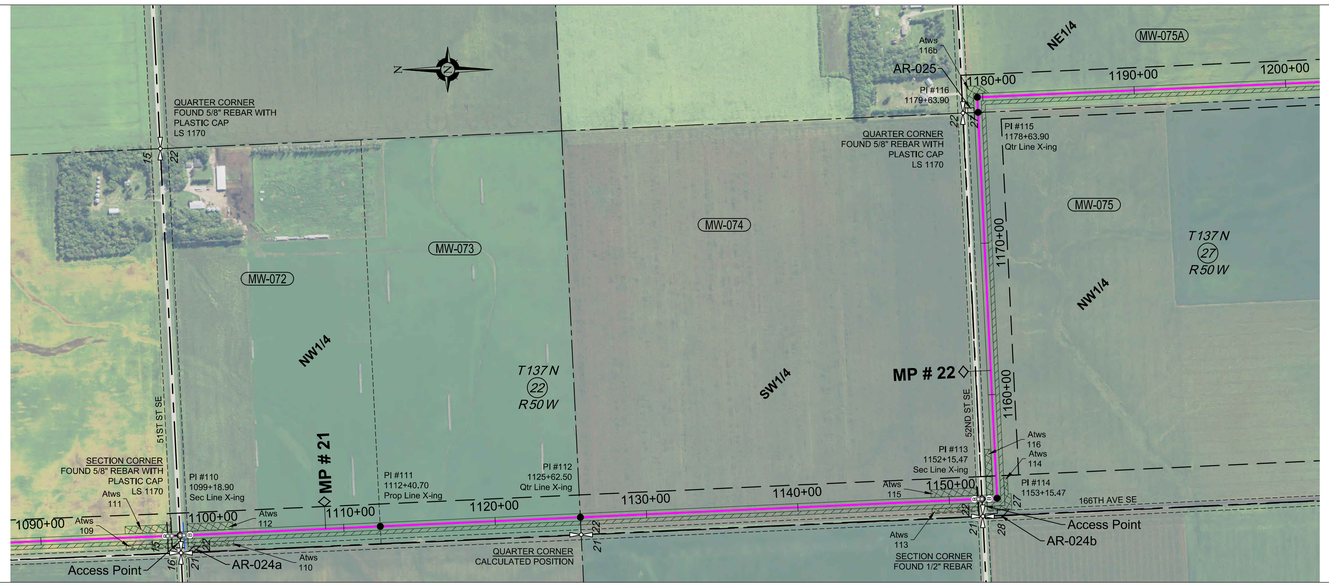
Co, State	SECTIONS 22, 27, T137N, R50W, CASS COUNTY, NORTH DAKOTA										
OWNER	1099+19	MW-072 N1/2NW1/4 SEC. 22, T137N, R50W 1289' Cultivated - 33' Uncultivated	1112+41	MW-073 S1/2 OF THE NW1/4 SEC. 22, T137N, R50W 1322' Cultivated	1125+63	MW-074 SW1/4 SEC. 22, T137N, R50W 2620' Cultivated - 33' Uncultivated	1152+15	MW-075 PART OF THE NW1/4 SEC. 27, T137N, R50W 2615' Cultivated - 33' Uncultivated	1178+64	MW-075A NE1/4 SEC. 27, T137N, R50W 2650' Cultivated	
RODDAGE		1321.80' / 80.11 Rods		1321.80' / 80.11 Rods		2652.98' / 160.79 Rods		2648.42' / 160.51 Rods		2649.80' / 160.59 Rods	

PIPE SCHMATIC

FEATURES

1098+22 Begin Bore
1098+37 UFO
1098+64 OHE
1099+19 51st St SE
1099+44 Waterline
1099+84 End Bore
1151+67 Begin Bore
1151+88 UFO
1151+92 UFO
1152+15 52nd St SE
1152+63 End Bore

ALIGN

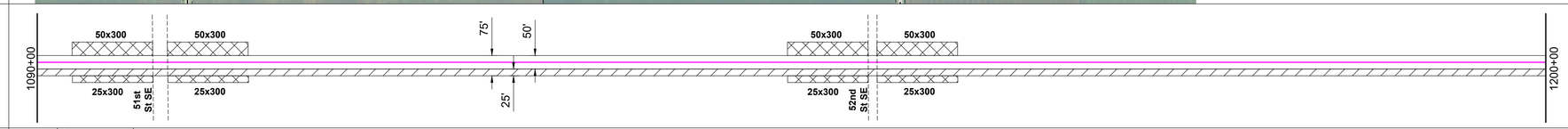


PI TABLE		
PI #	STATION	DEFLECTION
PI #110	1099+18.90	00°00'
PI #111	1112+40.70	00°00'
PI #112	1125+62.50	00°00'
PI #113	1152+15.47	00°00'
PI #114	1153+15.47	90°00'L
PI #115	1178+63.90	00°00'
PI #116	1179+63.90	90°00'R

NOTE:
See Bore Surveys, Typical Bore and Typical Section Crossing sheets for Crossing Details.

Wetlands
Waterbodies
Noxious Weeds
Saline Soil

WORK SPACE N.T.S.



Permanent Easement
Temporary Workspace
Additional Temp. Workspace
Survey Corridor

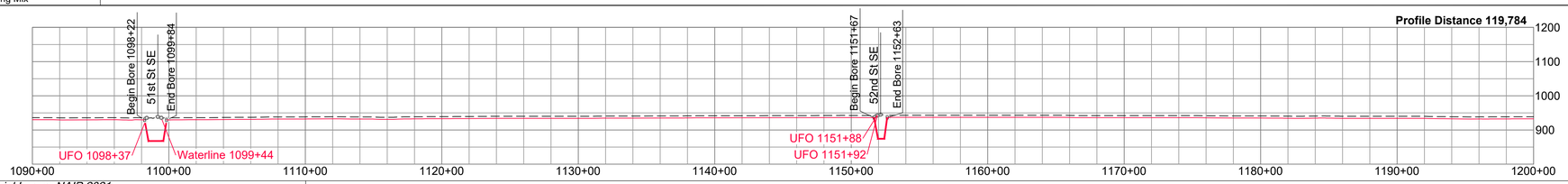
ENVIRO

Water Crossing	Name	
	Crossing Method	
	Bridge	
Wetland Crossing	Name	
	Survey Extent	
Environmental Feature		
Miscellaneous/Comments		
HUC-12 Watershed		090202040604
Seeding Mix		

ENVIRONMENTAL NOTES:
1. *Wetlands depicted on these sheets represent actual field survey data or NWI.*
2. *Actual wetland or stream width may vary at time of construction.*

* *Open ("WET") trench if no distinguishable flow at the time of construction, dry crossing method if distinguishable flow at time of construction*

PROFILE



Ref. Dwgs. Aerial Image: NAIP 2021

HSE INC
HARNED SURVEYING & ENGINEERING, INC.
11815 ROBINDALE ROAD
LOUISVILLE, KY 40243
OFFICE (502) 254-3921
FAX (502) 254-6093

HSE Project # 19-21

SURVEY DATUM

North Dakota North (NAD 83)(2011)
International Foot
*Distances are Grid Distances.
Combined Scale Factor = 0.99989766
Grid Dist. x 1.00010235 = Ground Dist.

Drawing Date:	01-19-2022
Drawn By:	D. Smith
Checked by:	J. Harned

LEGEND:

- Proposed Block Valve
- Proposed Bore
- Alignment PI
- Utility Pole
- Well
- Valve
- Alignment
- Section Line
- Quarter Line
- Fence Line
- UG Fiber Optic
- UG Electric
- Overhead Elec
- Existing Pipeline
- Dirt Road

SUMMARY of MATERIALS

Mark	Quantity	Description
1	10,742	12.75" OD, .250" WT, X65, FBE, TRL
2	258	12.75" OD, .312" WT, X65, FBE w/ARO, TRL

REVISIONS

No.	Date	Description

WAHPETON EXPANSION PROJECT

500 0 500 1000
scale 1" = 500' - 22 x 34 feet
1" = 1000' - 11 x 17

1" = 500' HORIZ.
1" = 200' VERT.

WBI ENERGY TRANSMISSION
An MDU Resources Group company

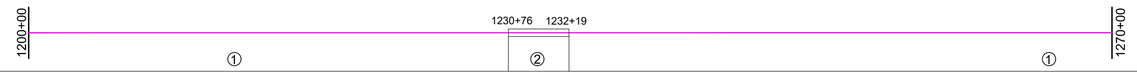
Sec. 22, 27, T137N, R50W,
5th P.M., Cass Co., North Dakota

Sheet 10 | R1

Co, State	SECTIONS 27, 34, T137N, R50W, CASS COUNTY, NORTH DAKOTA			
OWNER	MW-075B N1/2SE1/4 SEC. 27, T137N, R50W 1330' Uncultivated	MW-075C SW1/4SE1/4 SEC. 27, T137N, R50W 1247' Uncultivated	MW-077A SOUTH 80 FEET OF THE SW1/4 SEC. 27, T137N, R50W 80' Uncultivated	MW-079 PART OF NE1/4 NORTH OF RIVER SEC. 34, T137N, R50W 4117' - 203' Uncultivated
RODDAGE	1330.24' / 80.62 Rods	1246.57' / 75.55 Rods	80.00' / 4.85 Rods	4319.94' / 261.81 Rods

1205+14 1218+44 1230+91 1231+71

PIPE SCHMATIC

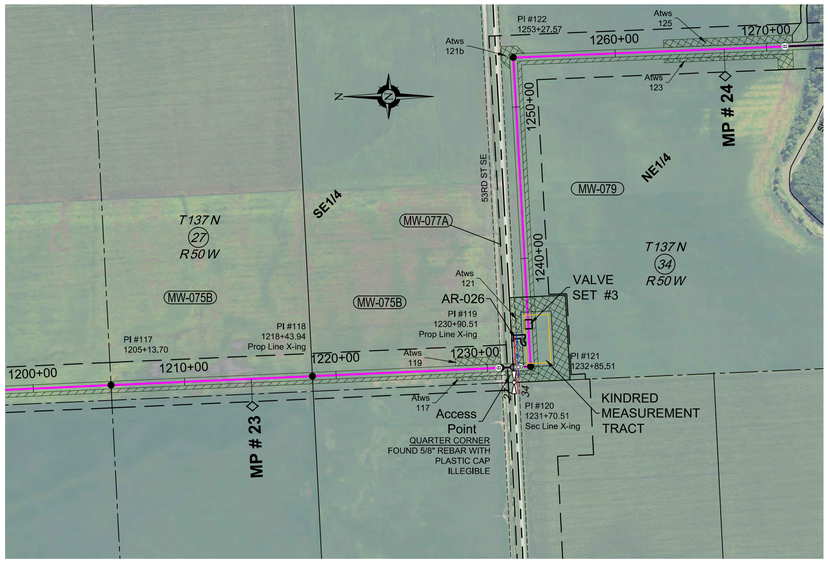


FEATURES

1230+76 Begin Bore
1231+71 53rd St SE
1231+89 UGT
1232+04 Water
1232+19 End Bore

PI TABLE		
PI #	STATION	DEFLECTION
PI #117	1205+13.70	00°00'
PI #118	1218+43.94	00°00'
PI #118	1218+43.94	00°00'
PI #119	1230+90.51	00°00'
PI #120	1231+70.51	00°00'
PI #121	1232+85.51	90°00'L
PI #122	1253+27.57	90°00'R

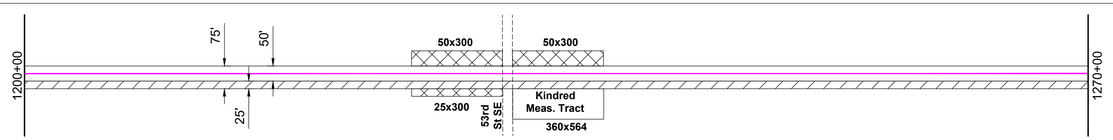
ALIGN



NOTE:
See Bore Surveys, Typical Bore and Typical Section Crossing sheets for Crossing Details.

- Wetlands
- Waterbodies
- Noxious Weeds
- Saline Soil

WORK SPACE N.T.S.



- Permanent Easement
- Temporary Workspace
- Additional Temp. Workspace
- Survey Corridor

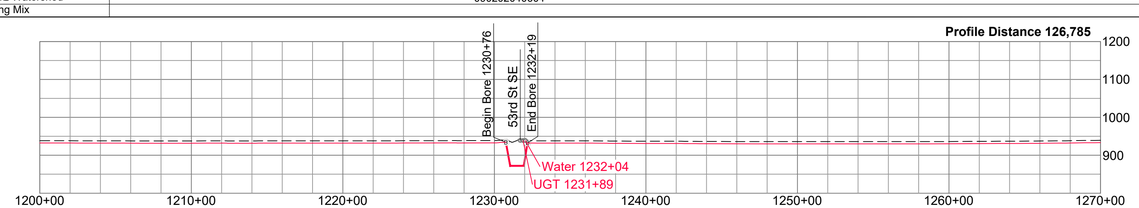
ENVIRO

Water Crossing	Name	
	Crossing Method	
	Bridge	
Wetland Crossing	Name	
	Survey Extent	
Environmental Feature		
Miscellaneous/Comments		
HUC-12 Watershed		090202040604
Seeding Mix		

ENVIRONMENTAL NOTES:
1. Wetlands depicted on these sheets represent actual field survey data or NWI.
2. Actual wetland or stream width may vary at time of construction.

* Open ("WET") trench if no distinguishable flow at the time of construction, dry crossing method if distinguishable flow at time of construction

PROFILE



Ref. Dwgs. Aerial Image: NAIP 2021

HSE INC
HARNED SURVEYING & ENGINEERING, INC.
11815 ROBINDALE ROAD
LOUISVILLE, KY 40243
OFFICE (502) 254-3921
FAX (502) 254-6093

HSE Project # 19-21

SURVEY DATUM

North Dakota North (NAD 83)(2011)
International Foot
*Distances are Grid Distances.
Combined Scale Factor = 0.99989766
Grid Dist. x 1.00010235 = Ground Dist.

Drawing Date:	01-19-2022
Drawn By:	D. Smith
Checked by:	J. Harned

LEGEND:

- Proposed Block Valve
- Proposed Bore
- Alignment PI
- Utility Pole
- Well
- Valve
- Alignment
- Section Line
- Quarter Line
- Fence Line
- UG Fiber Optic
- UG Electric
- Overhead Elec
- Existing Pipeline
- Dirt Road

SUMMARY of MATERIALS

Mark	Quantity	Description
1	6,857	12.75" OD, .250" WT, X65, FBE, TRL
2	143	12.75" OD, .312" WT, X65, FBE w/ARO, TRL

REVISIONS

No.	Date	Description

WAHPETON EXPANSION PROJECT

500 0 500 1000
scale 1" = 500' - 22 x 34 feet
1" = 1000' - 11 x 17

1" = 500' HORIZ.
1" = 200' VERT.

WBI ENERGY TRANSMISSION
An MDU Resources Group company

Sec. 27, 34, T137N, R50W,
5th P.M., Cass Co., North Dakota

Sheet 11 R1

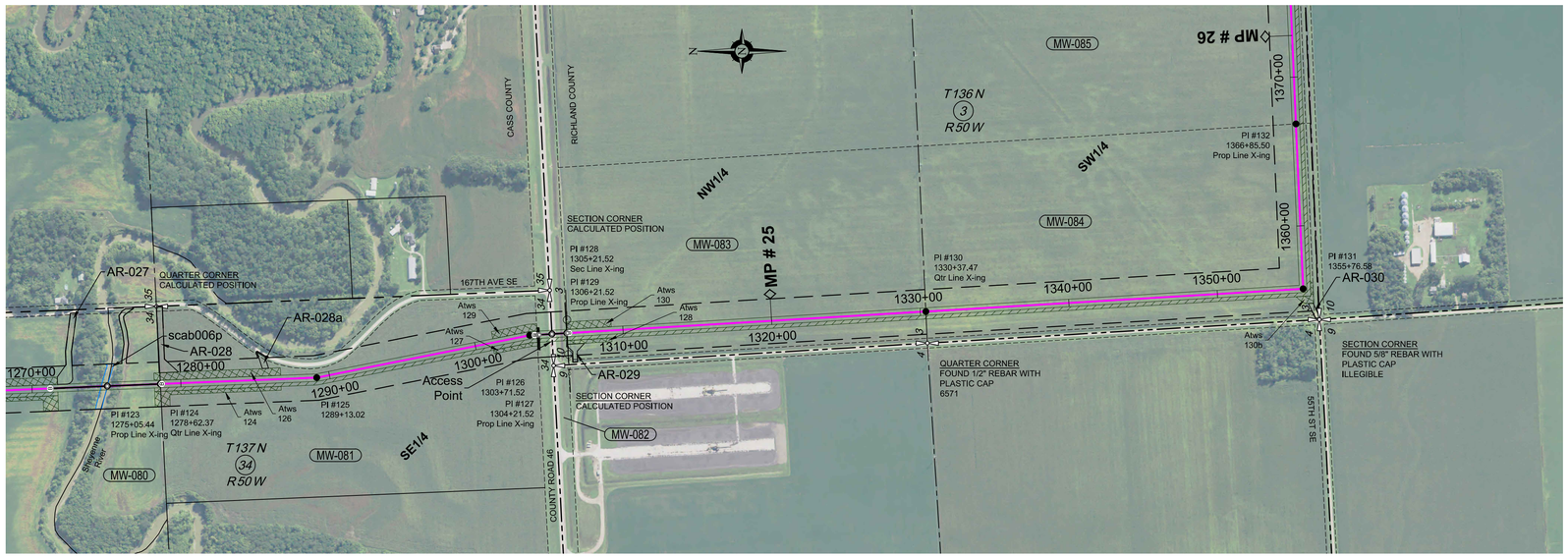
Co, State	SECTION 34, T137N, R50W, CASS COUNTY, SECTION 3, T136N, R50W, RICHLAND COUNTY, NORTH DAKOTA						
OWNER	MW-080 PART OF NE1/4 SOUTH OF RIVER SEC. 34, T137N, R50W 261' Cultivated - 93' Uncultivated	MW-081 E1/2 OF THE SE1/4 SEC. 34, T137N, R50W 2555' Cultivated	MW-082 SEC. 3, T136N, R50W SEC. 34, T137N, R50W 201' Uncultivated	MW-083 GOVT LOT 4 & SW1/4 OF THE NW1/4 EXCEPT HIGHWAY SEC. 3, T136N, R50W 2416' Cultivated	MW-084 W1/2 OF THE SW1/4 SEC. 3, T136N, R50W 3648' Cultivated	MW-085 E1/2 OF THE SW1/4 SEC. 3, T136N, R50W 1322' Cultivated	
RODDAGE	356.93' / 21.63 Rods	2555.09' / 154.85 Rods	201.48' / 12.12 Rods	2416.27' / 146.44 Rods	3648.03' / 221.09 Rods	1321.51' / 80.09 Rods	

1275+05 1278+62 1304+22 1302+22 1330+37 1366+85

PIPE SCHMATIC: 1270+00 — 1271+22 — 1278+72 — 1304+07 — 1306+37 — 1370+00; ② ① ② ①

FEATURES: 1271+22 Begin Bore; 1275+05 Sheyenne Rvr; 1278+72 End Bore; 1304+07 Begin Bore; 1304+25 UFO; 1304+30 UFO; 1304+37 UFO; 1305+22 Co Rd 46; 1306+21 UFO; 1306+26 OHE; 1306+37 End Bore

ALIGN



PI TABLE		
PI #	STATION	DEFLECTION
PI #123	1275+05.44	00°00'
PI #124	1278+62.37	00°00'
PI #125	1289+13.02	9°00'L
PI #126	1303+71.52	8°00'R
PI #127	1304+21.52	00°00'
PI #128	1305+21.52	00°00'
PI #129	1306+21.52	00°00'
PI #130	1330+37.47	00°00'
PI #131	1355+76.58	89°00'L
PI #132	1366+85.50	00°00'

NOTE:
See Bore Surveys, Typical Bore and Typical Section Crossing sheets for Crossing Details.

Wetlands
Waterbodies
Noxious Weeds
Saline Soil

WORK SPACE N.T.S.

1270+00 — 50x850 — 25x850 — 100x100 — Sheyenne River — 100x100 — 25x850 — 50x850 — 50x300 — 25x300 — Co Rd 46 — 25x300 — 50x300 — 75' — 50' — 25' — 1370+00

Permanent Easement
Temporary Workspace
Additional Temp. Workspace
Survey Corridor

ENVIRO

Water Crossing	Name		scab006e
	Crossing Method		Bore
	Bridge		
Wetland Crossing	Name		
	Survey Extent		1275+05
Environmental Feature			Intermediate
Miscellaneous/Comments			
HUC-12 Watershed		090202040604	090201051005
Seeding Mix			

ENVIRONMENTAL NOTES:
1. Wetlands depicted on these sheets represent actual field survey data or NWI.
2. Actual wetland or stream width may vary at time of construction.

* Open ("WET") trench if no distinguishable flow at the time of construction, dry crossing method if distinguishable flow at time of construction

PROFILE

Profile Distance 136,800

Begin Bore 1271+22; 1275+05 Sheyenne Rvr; End Bore 1278+72; Begin Bore 1304+07; Co Rd 46; End Bore 1306+37

UFO 1304+25; UFO 1304+30; UFO 1304+37; UFO 1306+21

1200; 1100; 1000; 900

1270+00 1280+00 1290+00 1300+00 1310+00 1320+00 1330+00 1340+00 1350+00 1360+00 1370+00

Ref. Dwgs. Aerial Image: NAIP 2021

HSE INC
HARNED SURVEYING & ENGINEERING, INC.
11815 ROBINDALE ROAD
LOUISVILLE, KY 40243
OFFICE (502) 254-3921
FAX (502) 254-6093

HSE Project # 19-21

SURVEY DATUM
North Dakota North (NAD 83)(2011)
International Foot
*Distances are Grid Distances.
Combined Scale Factor = 0.99989766
Grid Dist. x 1.00010235 = Ground Dist.

Drawing Date:	01-19-2022
Drawn By:	D. Smith
Checked by:	J. Harned

LEGEND:

Proposed Block Valve
Proposed Bore
Alignment PI
Utility Pole
Well
Valve
Alignment
Section Line
Quarter Line
Fence Line
UG Fiber Optic
UG Electric
Overhead Elec
Existing Pipeline
Dirt Road

SUMMARY of MATERIALS

Mark	Quantity	Description
1	9,020	12.75" OD, .250" WT, X65, FBE, TRL
2	980	12.75" OD, .312" WT, X65, FBE w/ARO, TRL

REVISIONS

No.	Date	Description

WAHPETON EXPANSION PROJECT

500 0 500 1000
scale 1" = 500' - 22 x 34 feet
1" = 1000' - 11 x 17

1" = 500' HORIZ.
1" = 200' VERT.

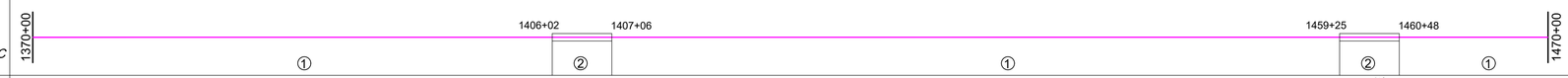
WBI ENERGY TRANSMISSION
An MDU Resources Group company

Sec. 34, T137N, R50W, Cass County
Sec. 3, T136N, R50W, Richland County
5th P.M., North Dakota

Sheet 12 R1

Co, State	SECTIONS 1, 2, 3, T136N, R50W, RICHLAND COUNTY, NORTH DAKOTA									
OWNER	1378+59	**MW-086** SE 1/4, EXCEPT 1.5 AC DRAIN SEC. 3, T136N, R50W 2610' Cultivated - 33' Uncultivated	1405+02	**MW-087** SW1/4, WITH EXCEPTIONS SEC. 2, T136N, R50W 2667' Cultivated - 33' Uncultivated	1433+50	**MW-088** SE1/4, WITH EXCEPTIONS SEC. 2, T136N, R50W 2590' Cultivated - 24' Uncultivated	1459+39	**MW-090A** 3.10 AC DRAIN IN SE1/4 SEC. 2, T136N, R50W 37' Uncultivated	1460+00	**MW-091** SW1/4 OF THE SW1/4 SEC. 1, T136N, R50W 1300' Cultivated - 33' Uncultivated
RODDAGE		2643.02' / 160.18 Rods		2699.59' / 163.61 Rods		2613.54' / 158.40 Rods		36.83' / 2.23 Rods		1332.62' / 80.76 Rods

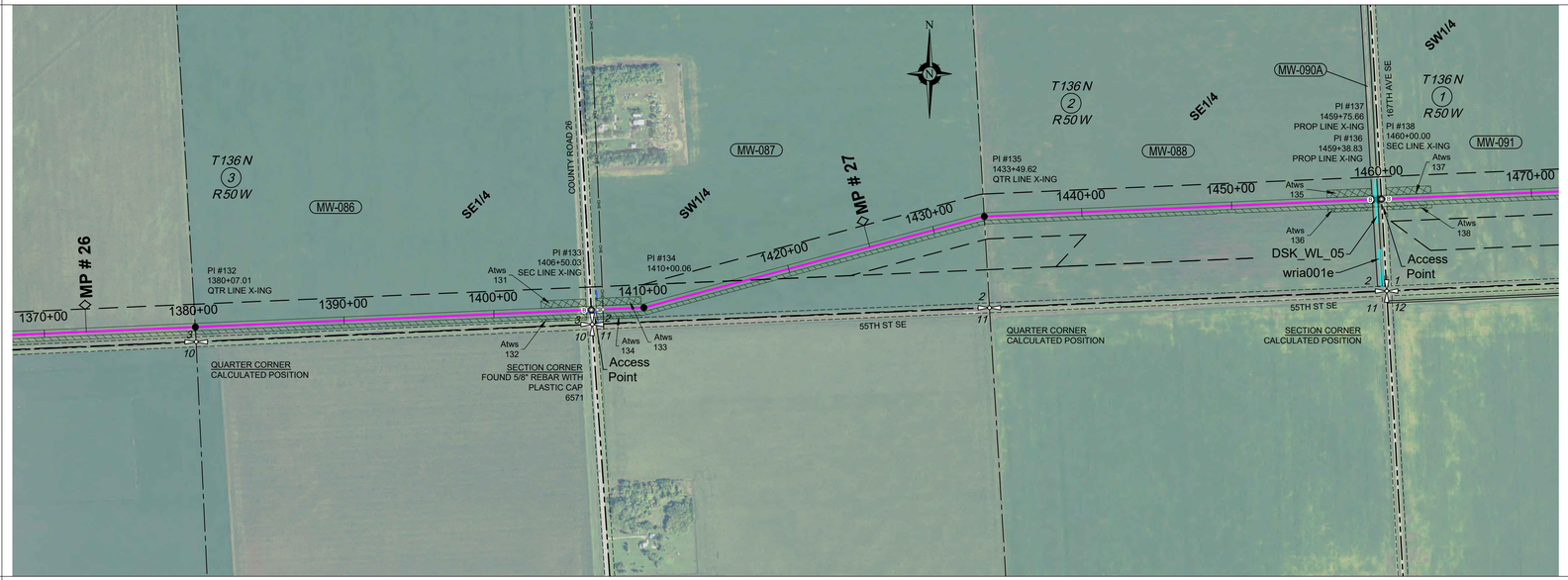
PIPE SCHMATIC



FEATURES

1406+02 Begin Bore
1406+50 Co Rd 26
1406+91 Waterline
1407+06 End Bore
1407+28 OHE
1459+25 Begin Bore
1460+00 167th Ave SE
1460+48 End Bore

ALIGN

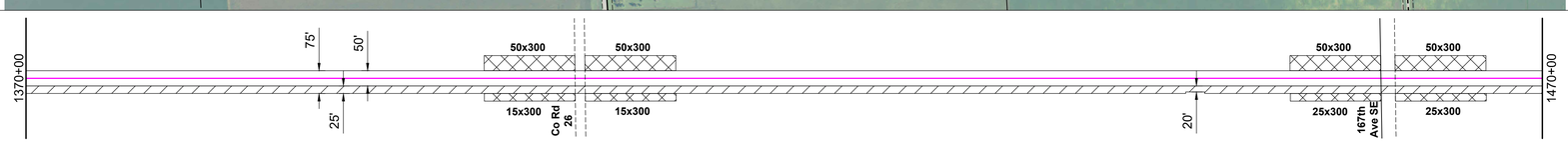


PI TABLE		
PI #	STATION	DEFLECTION
PI #132	1380+07.01	00°00'
PI #133	1406+50.03	00°00'
PI #134	1410+00.06	12°30'L
PI #135	1433+49.62	12°30'R
PI #136	1459+38.83	00°00'
PI #137	1459+75.66	00°00'
PI #138	1460+00.00	00°00'

NOTE:
See Bore Surveys, Typical Bore and Typical Section Crossing sheets for Crossing Details.

Wetlands
Waterbodies
Noxious Weeds
Saline Soil

WORK SPACE N.T.S.



Permanent Easement
Temporary Workspace
Additional Temp. Workspace
Survey Corridor

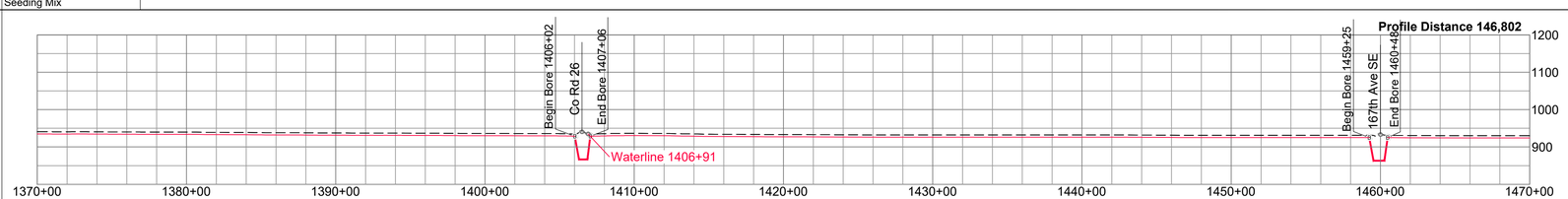
ENVIRO

Water Crossing	Name		
	Crossing Method		
	Bridge		
Wetland Crossing	Name		DSK_WL_05
	Survey Extent		1459+61
Environmental Feature			Wetland
Miscellaneous/Comments			Approx. 150' ECD Approx. 100' mats
HUC-12 Watershed		090201051005	
Seeding Mix			

ENVIRONMENTAL NOTES:
1. Wetlands depicted on these sheets represent actual field survey data or NWI.
2. Actual wetland or stream width may vary at time of construction.

** Open ("WET") trench if no distinguishable flow at the time of construction, dry crossing method if distinguishable flow at time of construction*

PROFILE



Ref. Dwgs. *Aerial Image: NAIP 2021*

HSE INC
HARNED SURVEYING & ENGINEERING, INC.
11815 ROBINDALE ROAD
LOUISVILLE, KY 40243
OFFICE (502) 254-3921
FAX (502) 254-6093

HSE Project # 19-21

SURVEY DATUM

North Dakota North (NAD 83)(2011)
International Foot
**Distances are Grid Distances.*
Combined Scale Factor = 0.99989766
Grid Dist. x 1.00010235 = Ground Dist.

Drawing Date:	*01-19-2022*
Drawn By:	*D. Smith*
Checked by:	*J. Harned*

LEGEND:

Proposed Block Valve
Proposed Bore
Alignment PI
Utility Pole
Well
Valve
Alignment
Section Line
Quarter Line
Fence Line
UG Fiber Optic
UG Electric
Overhead Elec
Existing Pipeline
Dirt Road

SUMMARY of MATERIALS

Mark	Quantity	Description
1	9,773	12.75" OD, .250" WT, X65, FBE, TRL
2	227	12.75" OD, .312" WT, X65, FBE w/ARO, TRL

REVISIONS

No.	Date	Description

WAHPETON EXPANSION PROJECT

WBI ENERGY TRANSMISSION
An MDU Resources Group company

500 0 500 1000
scale *1" = 500' - 22 x 34* *feet*
1" = 1000' - 11 x 17

1" = 500' HORIZ.
1" = 200' VERT.

Sec. 1, 2, 3, T136N, R50W,
5th P.M., Richland Co., North Dakota

Sheet 13 *R1*

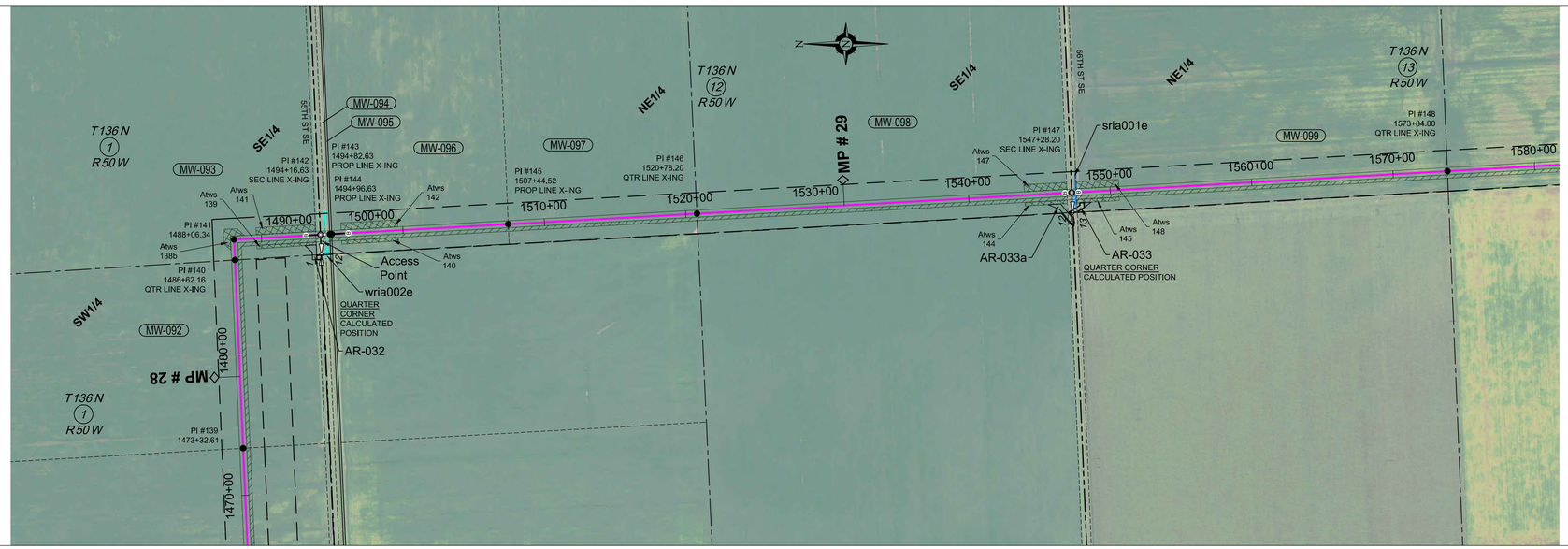
Co, State	SECTIONS 1, 12, 13, T136N, R50W, RICHLAND COUNTY, NORTH DAKOTA							
OWNER	**MW-092** E1/2 OF THE SW1/4 SEC. 1, T136N, R50W 1330' Cultivated	**MW-093** SE1/4, WITH EXCEPTIONS SEC. 1, T136N, R50W 751' Cultivated - 33' Uncultivated	**MW-094** N1/2 OF THE NE1/4 WITH EXCEPTIONS SEC. 12, T136N, R50W 66' Uncultivated	**MW-095** S14' OF N80' OF THE N1/2 OF THE NE1/4 SEC. 12, T136N, R50W 14' Uncultivated	**MW-096** N1/2 OF THE NE1/4 WITH EXCEPTIONS SEC. 12, T136N, R50W 1248' Cultivated	**MW-097** S1/2 OF THE NE1/4 SEC. 12, T136N, R50W 1334' Cultivated	**MW-098** SE1/4 SEC. 12, T136N, R50W 2650' Cultivated	**MW-099** NE1/4, WITH EXCEPTIONS SEC. 13, T136N, R50W 2596' Cultivated - 60' Uncultivated
RODDAGE	1329.54' / 80.58 Rods	754.47' / 45.73 Rods	66.00' / 4.00 Rods	14.00' / 0.85 Rods	1247.88' / 75.63 Rods	1333.69' / 80.83 Rods	2650.00' / 160.61 Rods	2655.80' / 160.96 Rods

1486+62 | 1494+17 | 1494+83 | 1494+97 | 1507+45 | 1520+78 | 1547+28 | 1573+84

PIPE SCHMATIC: 1470+00 — 1493+14 — 1496+14 — 1546+80 — 1547+76 — 1580+00; ① ② ① ② ①

FEATURES: 1493+14 Begin Bore; 1494+17 55th St SE; 1494+48 DRAIN; 1496+14 End Bore; 1546+80 Begin Bore; 1547+28 56th St SE; 1547+76 End Bore

ALIGN

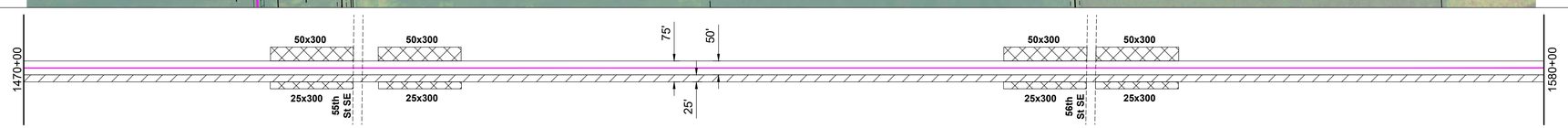


PI TABLE		
PI #	STATION	DEFLECTION
PI #139	1473+32.61	00°00'
PI #140	1486+62.16	00°00'
PI #141	1488+06.34	89°30'R
PI #142	1494+16.63	00°00'
PI #143	1494+82.63	00°00'
PI #144	1494+96.63	00°00'
PI #145	1507+44.52	00°00'
PI #146	1520+78.20	00°00'
PI #147	1547+28.20	00°00'
PI #148	1573+84.00	00°00'

NOTE:
See Bore Surveys, Typical Bore and Typical Section Crossing sheets for Crossing Details.

- Wetlands
- Waterbodies
- Noxious Weeds
- Saline Soil

WORK SPACE N.T.S.



- Permanent Easement
- Temporary Workspace
- Additional Temp. Workspace
- Survey Corridor

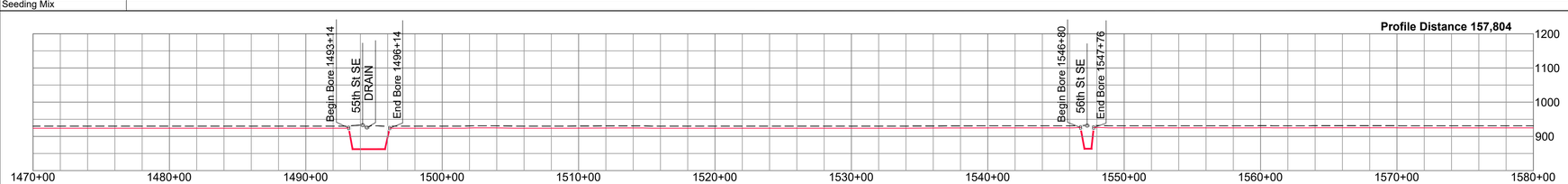
ENVIRO

Water Crossing	Name		sria001e
	Crossing Method		Bore
	Bridge		Yes
Wetland Crossing	Name	wria002e	
	Survey Extent	1494+48	1547+58
Environmental Feature		Wetland	Minor
Miscellaneous/Comments		Approx. 150' ECD	Approx. 80' ECD
		Approx. 50' mats	Approx. 40' mats
HUC-12 Watershed		090201051005	
Seeding Mix			

ENVIRONMENTAL NOTES:
1. *Wetlands depicted on these sheets represent actual field survey data or NWI.*
2. *Actual wetland or stream width may vary at time of construction.*

* *Open ("WET") trench if no distinguishable flow at the time of construction, dry crossing method if distinguishable flow at time of construction*

PROFILE



Ref. Dwgs. Aerial Image: NAIP 2021

HSE INC
HARNED SURVEYING & ENGINEERING, INC.
11815 ROBINDALE ROAD
LOUISVILLE, KY 40243
OFFICE (502) 254-3921
FAX (502) 254-6093

HSE Project # 19-21

SURVEY DATUM
North Dakota North (NAD 83)(2011)
International Foot
*Distances are Grid Distances.
Combined Scale Factor = 0.99989766
Grid Dist. x 1.00010235 = Ground Dist.

Drawing Date:	01-19-2022
Drawn By:	D. Smith
Checked by:	J. Harned

LEGEND:
- Proposed Block Valve
- Proposed Bore
- Alignment PI
- Utility Pole
- Well
- Valve
- Alignment
- Section Line
- Quarter Line
- Fence Line
- UG Fiber Optic
- UG Electric
- Overhead Elec
- Existing Pipeline
- Dirt Road

SUMMARY of MATERIALS

Mark	Quantity	Description
1	10,604	12.75" OD, .250" WT, X65, FBE, TRL
2	396	12.75" OD, .312" WT, X65, FBE w/ARO, TRL

REVISIONS

No.	Date	Description

WAHPETON EXPANSION PROJECT

500 0 500 1000
scale 1" = 500' - 22 x 34 feet
1" = 1000' - 11 x 17

1" = 500' HORIZ.
1" = 200' VERT.

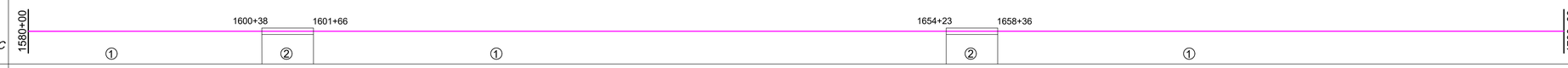
WBI ENERGY TRANSMISSION
An MDU Resources Group company

Sec. 1, 12, 13, T136N, R50W,
5th P.M., Richland Co., North Dakota

Sheet 14 | R1

Co, State	SECTIONS 13, 24, 25, T136N, R50W, RICHLAND COUNTY, NORTH DAKOTA								
	MW-100	**MW-101**	**MW-102**	**MW-103**	**MW-104**	**MW-106**	**MW-105**	**MW-108**	**MW-109**
OWNER	SE1/4, WITH EXCEPTIONS SEC. 13, T136N, R50W 2120' Cultivated - 448' Uncultivated	WITH EXCEPTIONS SEC. 13, T136N, R50W 103' Cultivated - 47' Uncultivated	E1/2 OF THE NW1/4 SEC. 24, T136N, R50W 2676' Cultivated - 87' Uncultivated	SW1/4 SEC. 24, T136N, R50W 84' Cultivated	SE1/4, WITH EXCEPTIONS SEC. 24, T136N, R50W 2594' Cultivated - 50' Uncultivated	SEC. 24, T136N, R50W 66' Uncultivated	NE1/4, WITH EXCEPTIONS SEC. 24, T136N, R50W 2550' Cultivated	N1/2 OF THE SE1/4, WITH EXCEPTIONS SEC. 25, T136N, R50W 1322' Cultivated	S1/2 OF THE SE1/4, WITH EXCEPTIONS SEC. 25, T136N, R50W 1291' Cultivated - 33' Uncultivated
RODDAGE	2567.68' / 155.62 Rods	150.06' / 9.09 Rods	2762.97' / 167.45 Rods	83.69' / 5.07 Rods	2643.92' / 160.24 Rods	66.00' / 4.00 Rods	2550.47' / 154.57 Rods	1321.81' / 80.11 Rods	1323.75' / 80.23 Rods

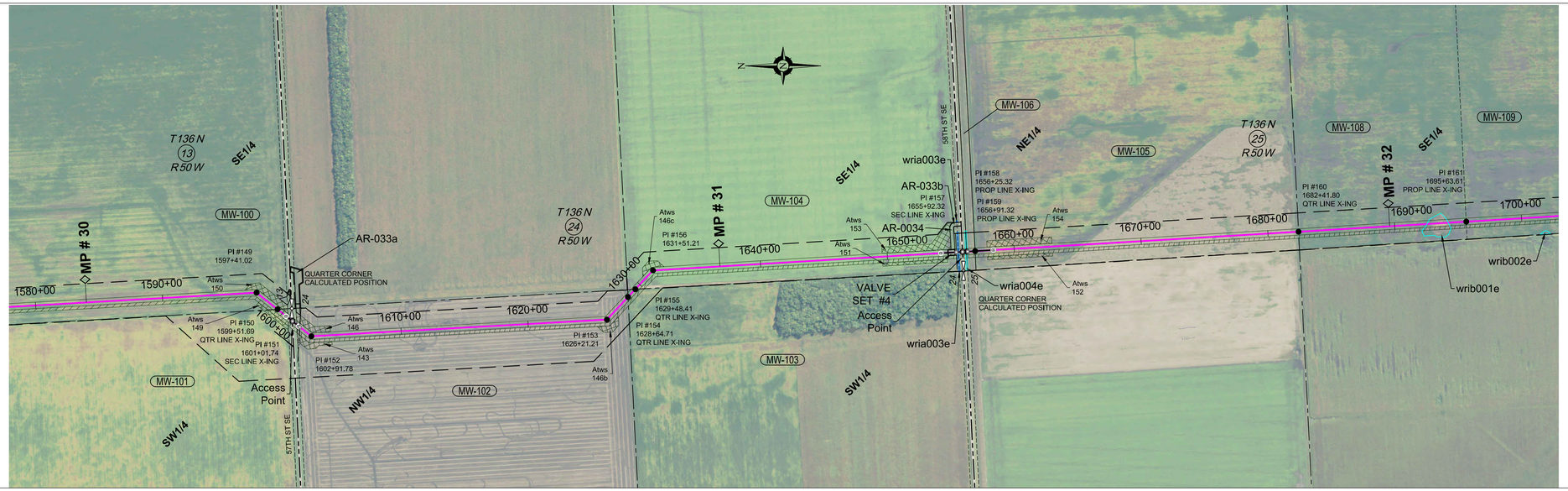
PIPE SCHMATIC



FEATURES

1600+38 Begin Bore
1601+02 57th St SE
1601+66 End Bore
1601+76 OHE
1654+23 Begin Bore
1655+44 OHE
1655+92 58th St SE
1656+32 DRAIN
1658+36 End Bore

ALIGN

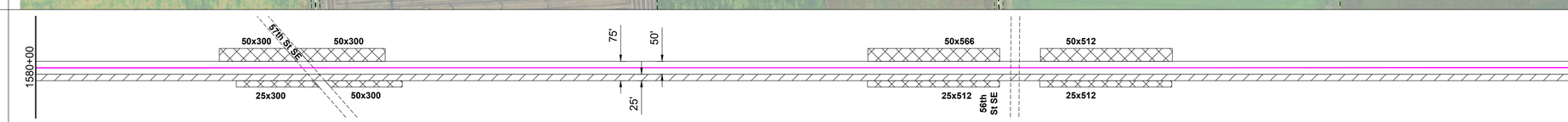


PI TABLE		
PI #	**STATION**	DEFLECTION
PI #149	1597+41.02	41°30'R
PI #150	1599+51.69	00°00'
PI #151	1601+01.74	00°00'
PI #152	1602+91.78	41°30'L
PI #153	1626+21.21	43°30'L
PI #154	1628+64.71	00°00'
PI #155	1629+48.41	00°00'
PI #156	1631+51.21	43°30'R
PI #157	1655+92.32	00°00'
PI #158	1656+25.32	00°00'
PI #159	1656+91.32	00°00'
PI #160	1682+41.80	00°00'
PI #161	1695+63.61	00°00'

NOTE:
See Bore Surveys, Typical Bore and Typical Section Crossing sheets for Crossing Details.

- *Wetlands*
- *Waterbodies*
- *Noxious Weeds*
- *Saline Soil*

WORK SPACE N.T.S.



- *Permanent Easement*
- *Temporary Workspace*
- *Additional Temp. Workspace*
- *Survey Corridor*

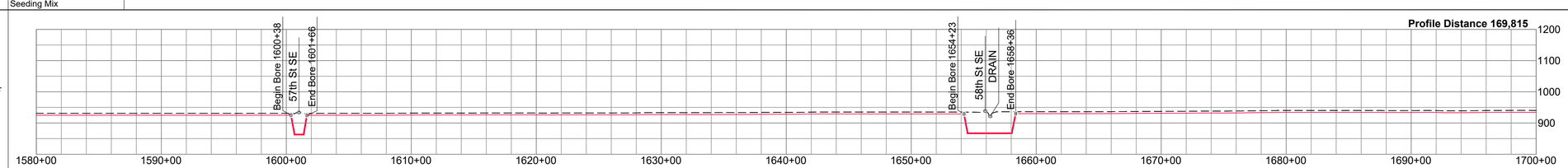
ENVIRO

Water Crossing	Name			wria003e					
	Crossing Method			Bore					
	Bridge								
Wetland Crossing	Name				wria004e		wrib001e		wrib002e
	Survey Extent			1655+59	1656+22	1692+52	1694+26		1701+84
Environmental Feature				Drain	Wetland		Wetland		Wetland
Miscellaneous/Comments				Approx. 150' ECD Approx. 40' mats			Approx. 500' ECD Approx. 250' mats		Approx. 100' ECD
HUC-12 Watershed		090201051005							
Seeding Mix									

ENVIRONMENTAL NOTES:
1. *Wetlands depicted on these sheets represent actual field survey data or NWI.*
2. *Actual wetland or stream width may vary at time of construction.*

* *Open ("WET") trench if no distinguishable flow at the time of construction, dry crossing method if distinguishable flow at time of construction*

PROFILE



Ref. Dwgs. *Aerial Image: NAIP 2021*

HSE INC
HARNED SURVEYING & ENGINEERING, INC.
11815 ROBINDALE ROAD
LOUISVILLE, KY 40243
OFFICE (502) 254-3921
FAX (502) 254-6093

HSE Project # 19-21

SURVEY DATUM

North Dakota North (NAD 83)(2011)
International Foot
*Distances are Grid Distances.
Combined Scale Factor = 0.99989766
Grid Dist. x 1.00010235 = Ground Dist.

Drawing Date:	01-19-2022
Drawn By:	D. Smith
Checked by:	J. Harned

LEGEND:

- *Proposed Block Valve*
- *Proposed Bore*
- *Alignment PI*
- *Utility Pole*
- *Well*
- *Valve*
- *Alignment*
- *Section Line*
- *Quarter Line*
- *Fence Line*
- *UG Fiber Optic*
- *UG Electric*
- *Overhead Elec*
- *Existing Pipeline*
- *Dirt Road*

SUMMARY of MATERIALS

Mark	Quantity	Description
1	11,459	*12.75" OD, .250" WT, X65, FBE, TRL*
2	541	*12.75" OD, .312" WT, X65, FBE w/ARO, TRL*

REVISIONS

No.	Date	Description

WAHPETON EXPANSION PROJECT

500 0 500 1000
scale 1" = 500' - 22 x 34 feet
1" = 1000' - 11 x 17

1" = 500' HORIZ.
1" = 200' VERT.

WBI ENERGY TRANSMISSION
An MDU Resources Group company

Sec. 13, 24, 25, T136N, R50W, 5th P.M., Richland Co., North Dakota

Sheet 15 | *R1*

Co, State: SECTION 36, T136N, R50W, SECTION 1, T135N, R50W, RICHLAND COUNTY, NORTH DAKOTA

	MW-110	MW-111	MW-112	MW-113	MW-114	MW-115
OWNER	1708+87 – 1715+48 N1/2 OF THE N1/2, OF THE NE1/4 SEC. 36, T136N, R50W 628' Cultivated - 33' Uncultivated	1715+48 – 1722+70 S1/2 OF THE N1/2,OF THE NE1/4 SEC. 36, T136N, R50W 721' Cultivated	1722+70 – 1725+29 N1/2 OF THE NW1/4 SEC. 36, T136N, R50W 260' Uncultivated	1725+29 – 1738+51 S1/2 OF THE NW1/4, WITH EXCEPTIONS, SEC. 36, T136N, R50W 929' Cultivated - 393' Uncultivated	1738+51 – 1764+87 SW1/4, WITH EXCEPTIONS SEC. 36, T136N, R50W 2529' Cultivated - 107' Uncultivated	1764+87 – 1791+87 GOVT LOT 3 & SE1/4 OF THE NW1/4 SEC. 1, T135N, R50W 2625' Cultivated - 75' Uncultivated
RODDAGE	660.99' / 40.06 Rods	721.17' / 43.71 Rods	259.83' / 15.75 Rods	1321.87' / 80.11 Rods	2636.14' / 159.77 Rods	2699.55' / 163.61 Rods

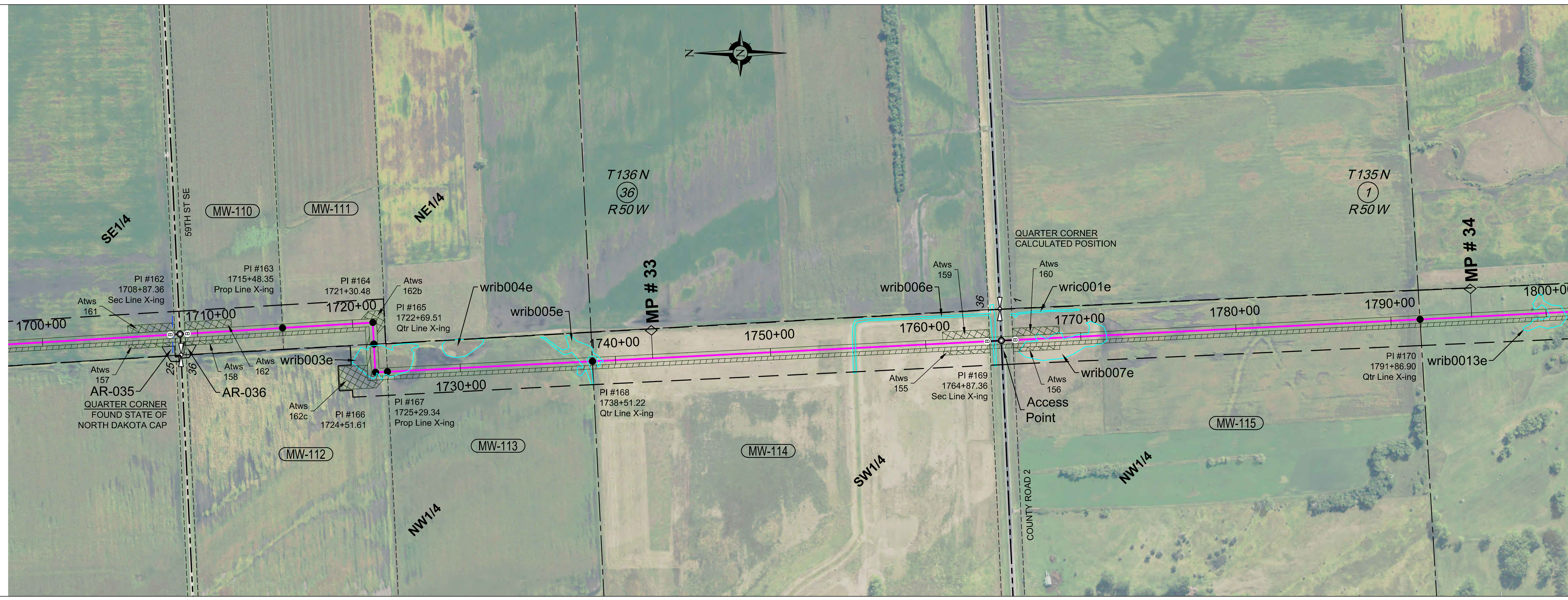
PIPE SCHMATIC: 1700+00 ① 1708+24 ② 1709+35 ① 1763+97 ② 1765+77 ① 1800+00

FEATURES:
- 1708+24 Begin Bore
- 1708+39 Waterline
- 1708+87 59th St SE
- 1709+35 End Bore
- 1763+97 Begin Bore
- 1764+87 Co Rd 2
- 1765+77 End Bore

PI TABLE

PI #	STATION	DEFLECTION
PI #162	1708+87.36	00°00'
PI #163	1715+48.35	00°00'
PI #164	1721+30.48	90°30'R
PI #165	1722+69.51	00°00'
PI #166	1724+51.61	90°00'L
PI #167	1725+29.34	00°00'
PI #168	1738+51.22	00°00'
PI #169	1764+87.36	00°00'
PI #170	1791+86.90	00°00'

ALIGN



NOTE: See Bore Surveys, Typical Bore and Typical Section Crossing sheets for Crossing Details.

- Wetlands
- Waterbodies
- Noxious Weeds
- Saline Soil

WORK SPACE N.T.S.

1700+00 — 50x300, 50x300 / 25x300, 59th St SE, 25x300 — 75', 50', 25' — 50x300, 50x300 / 25x300, Co Rd 2, 25x300 — 1800+00

- Permanent Easement
- Temporary Workspace
- Additional Temp. Workspace
- Survey Corridor

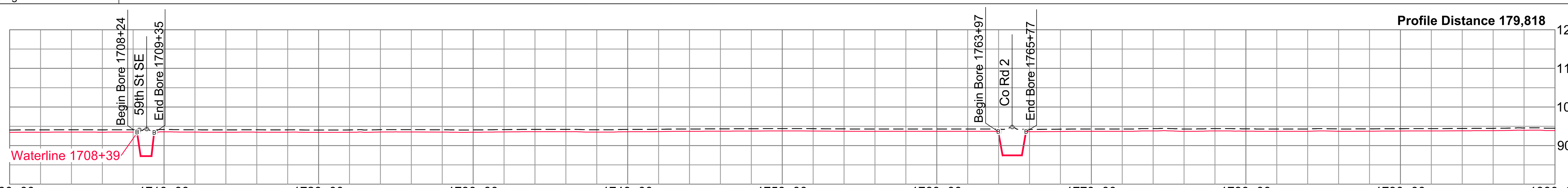
ENVIRO

ENVIRO								
Water Crossing	Name							
	Crossing Method							
	Bridge							
Wetland Crossing	Name	wrib003e	wrib004e	wrib005e	wrib006e	wrib007e	wric001e	wrib013e
	Survey Extent	1722+82 – 1726+72	1728+94 – 1731+56	1737+68 – 1739+19	1755+39 – 1764+42	1767+12 – 1771+65	1765+59 – 1770+00	1800+15 – 1801+18
Environmental Feature		Wetland	Wetland	Wetland	Wetland	Wetland	Wetland	Wetland
Miscellaneous/Comments		Approx. 200' ECD Approx. 425' mats	Approx. 200' ECD	Approx. 100' ECD Approx. 75' mats	Approx. 200' ECD Approx. 80' mats	Approx. 100' ECD Approx. 600' mats		Approx. 100' ECD Approx. 125' mats
HUC-12 Watershed		090201051005						
Seeding Mix								

ENVIRONMENTAL NOTES:
1. Wetlands depicted on these sheets represent actual field survey data or NWI.
2. Actual wetland or stream width may vary at time of construction.

* Open ("WET") trench if no distinguishable flow at the time of construction, dry crossing method if distinguishable flow at time of construction

PROFILE



Ref. Dwgs. Aerial Image: NAIP 2021

HSE INC.
HARNED SURVEYING & ENGINEERING, INC.
11815 ROBINDALE ROAD
LOUISVILLE, KY 40243
OFFICE (502) 254-3921
FAX (502) 254-6093

HSE Project # 19-21

SURVEY DATUM
North Dakota North (NAD 83)(2011)
International Foot
*Distances are Grid Distances.
Combined Scale Factor = 0.99989766
Grid Dist. x 1.00010235 = Ground Dist.

Drawing Date: 01-19-2022
Drawn By: D. Smith
Checked by: J. Harned

LEGEND:
- Proposed Block Valve
- Proposed Bore
- Alignment PI
- Utility Pole
- Well
- Valve
- Alignment
- Section Line
- Quarter Line
- Fence Line
- UG Fiber Optic
- UG Electric
- Overhead Elec
- Existing Pipeline
- Dirt Road

SUMMARY of MATERIALS

Mark	Quantity	Description
1	9,709	12.75" OD, .250" WT, X65, FBE, TRL
2	291	12.75" OD, .312" WT, X65, FBE w/ARO, TRL

REVISIONS

No.	Date	Description

scale 500 0 500 1000 feet
1" = 500' - 22 x 34
1" = 1000' - 11 x 17

WAHPETON EXPANSION PROJECT

1" = 500' HORIZ.
1" = 200' VERT.

WBI ENERGY TRANSMISSION
An MDU Resources Group company

Sec. 36, T136N, R50W,
Sec. 1, T135N, R50W,
5th P.M., Richland Co., North Dakota

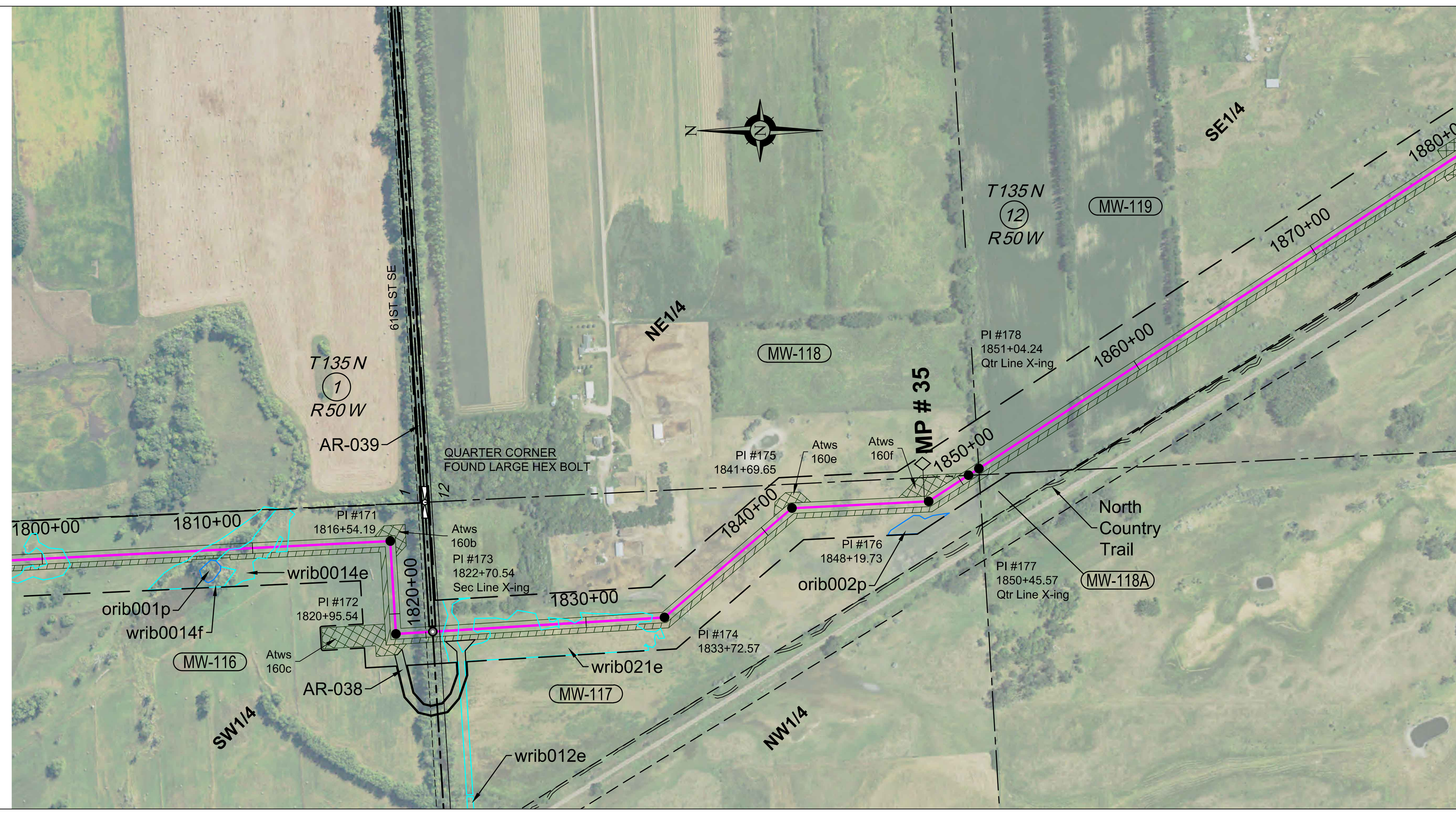
Sheet 16 R1

Co, State	SECTIONS 1, 12, T135N, R50W, RICHLAND COUNTY, NORTH DAKOTA			
OWNER	**MW-116** SW1/4, EXCEPT RAILROAD SEC. 1, T135N, R50W 713' Cultivated - 2371' Uncultivated 1822+71	**MW-117** PART OF NW1/4 LYING NE OF RAILROAD SEC. 12, T135N, R50W 1036' Cultivated - 1739' Uncultivated 1850+46	**MW-118** NE1/4, WITH EXCEPTIONS SEC. 12, T135N, R50W 59' Uncultivated 1851+04	**MW-119** SE1/4 LYING EAST OF RAILROAD SEC. 12, T135N, R50W 1037' Cultivated - 1997' Uncultivated 1881+38
RODDAGE	3083.64' / 186.89 Rods	2775.02' / 168.18 Rods	58.67' / 3.56 Rods	3033.52' / 183.85 Rods

PIPE SCHMATIC: 1800+00 — ① — 1880+00

FEATURES: 1822+71 61st St SE

ALIGN

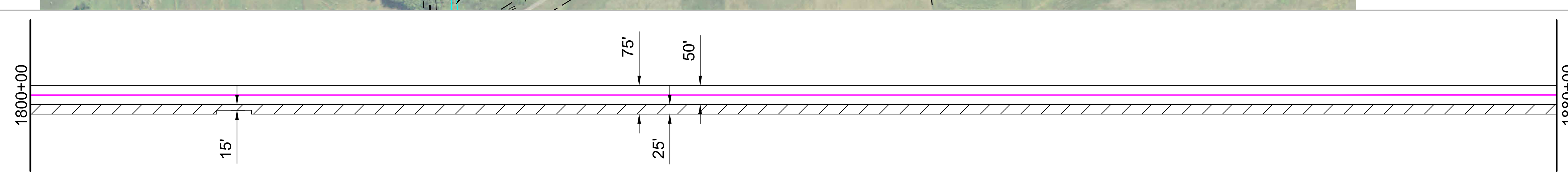


PI TABLE		
PI #	**STATION**	DEFLECTION
PI #171	1816+54.19	89°30'R
PI #172	1820+95.54	90°00'L
PI #173	1822+70.54	00°00'
PI #174	1833+72.57	37°00'L
PI #175	1841+69.65	38°00'R
PI #176	1848+19.73	30°30'L
PI #177	1850+45.57	00°00'
PI #178	1851+04.24	00°00'

NOTE:
See Bore Surveys, Typical Bore and Typical Section Crossing sheets for Crossing Details.

Wetlands
Waterbodies
Noxious Weeds
Saline Soil

WORK SPACE N.T.S.



Permanent Easement
Temporary Workspace
Additional Temp. Workspace
Survey Corridor

ENVIRO

Water Crossing	Name		orib001p				orib002p	
	Crossing Method							
	Bridge							
Wetland Crossing	Name	wrib014f		wrib014e	wrib012e	wrib021e		
	Survey Extent	1807+50 – 1809+16	1808+01	1809+16 – 1811+67	1823+97	1823+21 – 1833+12	1846+20 – 1848+70	
Environmental Feature		Wetland	Pond	Wetland	Wetland	Wetland	Pond	
Miscellaneous/Comments				Approx. 50' ECD Approx. 40' mats		Approx. 100' ECD Approx. 1000' mats	Approx. 175' ECD	
HUC-12 Watershed		090201051005						
Seeding Mix								

ENVIRONMENTAL NOTES:
1. Wetlands depicted on these sheets represent actual field survey data or NWI.
2. Actual wetland or stream width may vary at time of construction.

** Open ("WET") trench if no distinguishable flow at the time of construction, dry crossing method if distinguishable flow at time of construction*

PROFILE

Ref. Dwgs. *Aerial Image: NAIP 2021*

HSE INC.
HARNED SURVEYING & ENGINEERING, INC.
11815 ROBINDALE ROAD
LOUISVILLE, KY 40243
OFFICE (502) 254-3921
FAX (502) 254-6093

HSE Project # 19-21

SURVEY DATUM
North Dakota North (NAD 83)(2011)
International Foot
**Distances are Grid Distances.*
Combined Scale Factor = 0.99989766
Grid Dist. x 1.00010235 = Ground Dist.

Drawing Date:	*01-19-2022*
Drawn By:	*D. Smith*
Checked by:	*J. Harned*

LEGEND:
Proposed Block Valve
Proposed Bore
Alignment PI
Utility Pole
Well
Valve
Alignment
Section Line
Quarter Line
Fence Line
UG Fiber Optic
UG Electric
Overhead Elec
Existing Pipeline
Dirt Road

SUMMARY of MATERIALS

Mark	*Quantity*	*Description*
1	8,000	*12.75" OD, .250" WT, X65, FBE, TRL*

REVISIONS

No.	*Date*	*Description*

WAHPETON EXPANSION PROJECT

WBI ENERGY TRANSMISSION
An MDU Resources Group company

500 0 500 1000
scale *feet*
1" = 500' - 22 x 34
1" = 1000' - 11 x 17

1" = 500' HORIZ.
1" = 200' VERT.

Sec. 1. 12, T135N, R50W,
5th P.M., Richland Co., North Dakota

Sheet 17 *R1*

Co, State: SECTION 13, T135N, R50W, SECTIONS 18, 19, T135N, R49W, RICHLAND COUNTY, NORTH DAKOTA

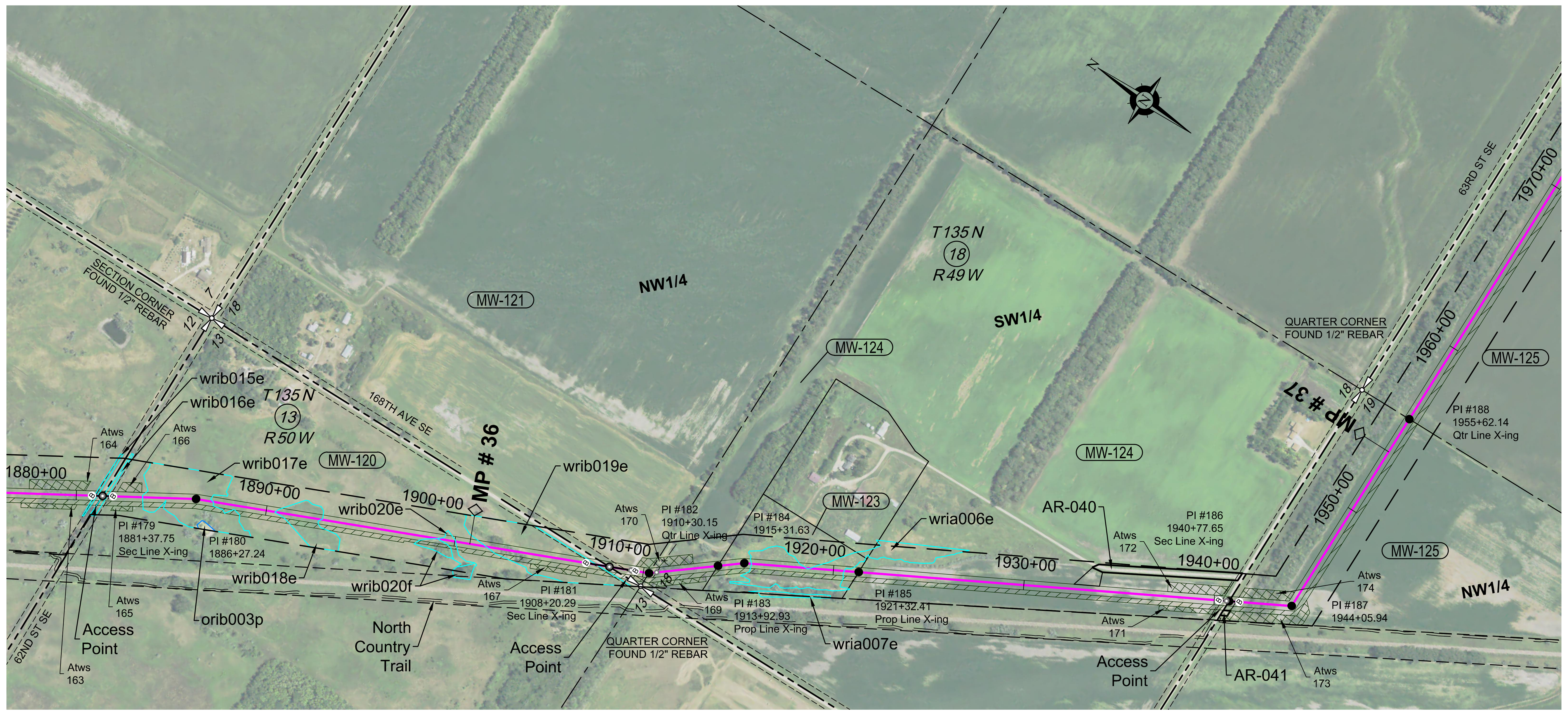
	MW-120	MW-121	MW-123	MW-124	MW-125
OWNER	1881+38 NE1/4 LYING EAST OF RAILROAD WITH EXCEPTIONS SEC. 13, T135N, R50W 2683' Uncultivated 1908+20	GOVT LOT 2 & SE1/4 OF THE NE1/4 SEC. 18, T135N, R49W 210' Uncultivated 1910+30	PART OF THE SW1/4 SEC. 18, T135N, R49W 739' Uncultivated 1921+32	GOVT LOTS 3-4 & E1/2 OF THE SW1/4 WITH EXCEPTIONS SEC. 18, T135N, R49W 2308' Uncultivated 1940+78	ALL LYING EAST OF RAILROAD WITH EXCEPTIONS SEC. 19, T135N, R49W 3507' Cultivated - 619' Uncultivated
RODDAGE	2682.54' / 162.58 Rods	209.85' / 12.72 Rods	739.49' / 44.82 Rods	2308.01' / 139.88 Rods	4126.49' / 250.27 Rods

PIPE SCHMATIC: 1880+00; 1880+82 – 1881+93; 1906+96 – 1909+59; 1940+23 – 1941+32; 1970+00; ① ② ① ② ① ② ①

FEATURES:
- 1880+82 Begin Bore
- 1881+38 62nd St SE
- 1881+93 End Bore
- 1906+96 Begin Bore
- 1908+20 168th Ave SE
- 1909+34 Driveway
- 1909+59 End Bore
- 1910+70 Fence
- 1940+23 Begin Bore
- 1940+32 Fence
- 1940+64 63rd St SE
- 1941+32 End Bore

PI TABLE		
PI #	STATION	DEFLECTION
PI #179	1881+37.75	00°00'
PI #180	1886+27.24	7°30'R
PI #181	1908+20.29	00°00'
PI #182	1910+30.15	15°30'L
PI #183	1913+92.93	00°00'
PI #184	1915+31.63	10°30'R
PI #185	1921+32.41	00°00'
PI #186	1940+77.65	00°00'
PI #187	1944+05.94	62°30'L
PI #188	1955+62.14	00°00'

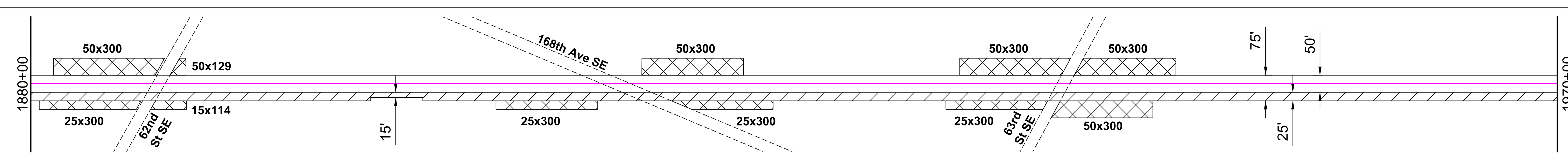
ALIGN



NOTE:
See Bore Surveys, Typical Bore and Typical Section Crossing sheets for Crossing Details.

- Wetlands
- Waterbodies
- Noxious Weeds
- Saline Soil

WORK SPACE N.T.S.



- Permanent Easement
- Temporary Workspace
- Additional Temp. Workspace
- Survey Corridor

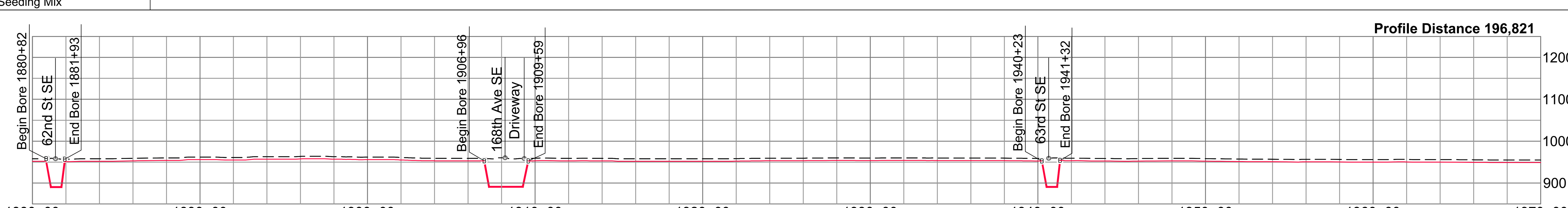
ENVIRO

Water Crossing	Name				orib003e																	
	Crossing Method																					
	Bridge																					
Wetland Crossing	Name	wrib015e	wrib016e	wrib017e		wrib018e		wrib020f		wrib020e		wrib019e		wria006e		wria007e						
	Survey Extent	1881+08	1801+53	1883+48 – 1887+16	1886+73	1890+50 – 1892+92		1897+92 – 1901+36		1899+08 – 1901+18		1901+68 – 1909+47		1915+68 – 1926+90		1915+71 – 1919+96						
Environmental Feature		Wetland	Wetland	Wetland	Pond	Wetland		Wetland		Wetland		Wetland		Wetland		Wetland						
Miscellaneous/Comments		Approx. 100' ECD Approx. 40' mats	Approx. 100' ECD Approx. 40' mats	Approx. 100' ECD Approx. 400' mats		Approx. 100' ECD Approx. 275' mats		Approx. 50' ECD Approx. 40' mats		Approx. 100' ECD Approx. 200' mats		Approx. 100' ECD Approx. 625' mats		Approx. 100' ECD Approx. 500' mats								
HUC-12 Watershed		090201051005			090201051004																	
Seeding Mix																						

ENVIRONMENTAL NOTES:
1. Wetlands depicted on these sheets represent actual field survey data or NWI.
2. Actual wetland or stream width may vary at time of construction.

* Open ("WET") trench if no distinguishable flow at the time of construction, dry crossing method if distinguishable flow at time of construction

PROFILE



Ref. Dwgs. Aerial Image: NAIP 2021

HSE INC.
HARNED SURVEYING & ENGINEERING, INC.
11815 ROBINDALE ROAD
LOUISVILLE, KY 40243
OFFICE (502) 254-3921
FAX (502) 254-6093

HSE Project # 19-21

SURVEY DATUM
North Dakota North (NAD 83)(2011)
International Foot
*Distances are Grid Distances.
Combined Scale Factor = 0.99989766
Grid Dist. x 1.00010235 = Ground Dist.

Drawing Date: 01-19-2022
Drawn By: D. Smith
Checked by: J. Harned

LEGEND:
- Proposed Block Valve
- Proposed Bore
- Alignment PI
- Utility Pole
- Well
- Valve
- Alignment
- Section Line
- Quarter Line
- Fence Line
- UG Fiber Optic
- UG Electric
- Overhead Elec
- Existing Pipeline
- Dirt Road

SUMMARY of MATERIALS

Mark	Quantity	Description
1	8,518	12.75" OD, .250" WT, X65, FBE, TRL
2	482	12.75" OD, .312" WT, X65, FBE w/ARO, TRL

REVISIONS

No.	Date	Description

scale 500 0 500 1000 feet
1" = 500' - 22 x 34
1" = 1000' - 11 x 17

WAHPETON EXPANSION PROJECT

1" = 500' HORIZ.
1" = 200' VERT.

WBI ENERGY TRANSMISSION
An MDU Resources Group company

Sec. 13, T135N, R50W,
Sec. 18, 19, T135N, R49W,
5th P.M., Richland Co., North Dakota

Sheet 18 R1

Co, State	SECTIONS 20, 21, T135N, R49W, RICHLAND COUNTY, NORTH DAKOTA

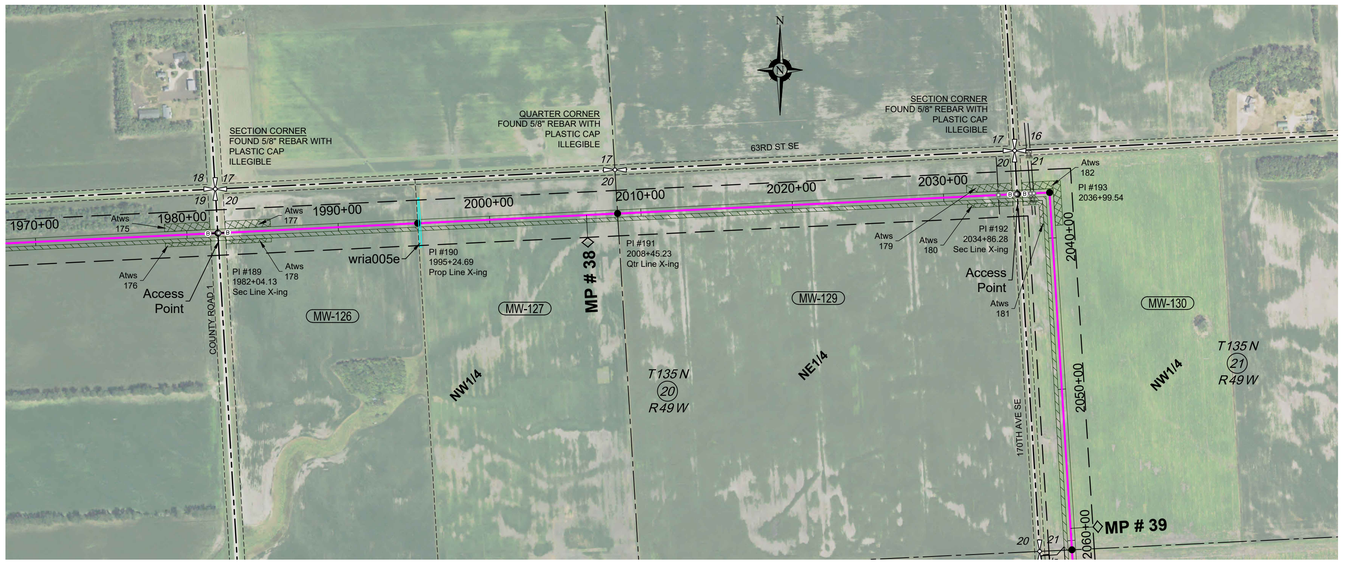
OWNER	MW-126	MW-127	MW-129	MW-130
	W1/2 OF THE W1/2 SEC. 20, T135N, R49W 1288' Cultivated - 33' Uncultivated	E1/2 OF THE W1/2, WITH EXCEPTIONS SEC. 20, T135N, R49W 1321' Cultivated	NE1/4 SEC. 20, T135N, R49W 2608' Cultivated - 33' Uncultivated	W1/2 OF THE NW1/4 SEC. 21, T135N, R49W 2542' Cultivated - 33' Uncultivated
RODDAGE	1320.55' / 80.03 Rods	1320.55' / 80.03 Rods	2641.04' / 160.06 Rods	2575.35' / 156.08 Rods

1982+04 1995+25 2008+45 2034+86

PIPE SCHMATIC: 1970+00 — 1981+39 — 1982+69 — 2034+38 — 2035+34 — 2060+00; ① ② ① ② ①

FEATURES: 1981+39 Begin Bore; 1982+09 Co Rd 1; 1982+69 End Bore; 2033+61 OHE; 2034+38 Begin Bore; 2034+80 170th Ave SE; 2035+34 End Bore; 2035+74 OHE; 2035+95 OHE

ALIGN

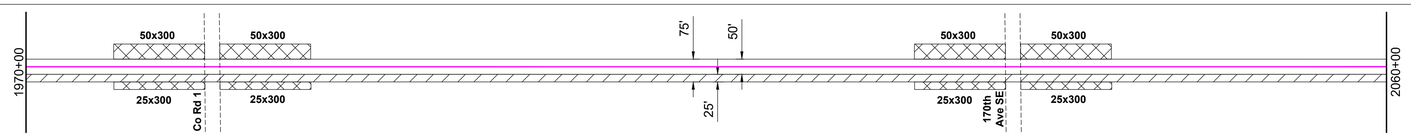


PI TABLE		
PI #	STATION	DEFLECTION
PI #189	1982+04.13	00°00'
PI #190	1995+24.69	00°00'
PI #191	2008+45.23	00°00'
PI #192	2034+86.28	00°00'
PI #193	2036+99.54	89°00'R

NOTE:
See Bore Surveys, Typical Bore and Typical Section Crossing sheets for Crossing Details.

Wetlands
Waterbodies
Noxious Weeds
Saline Soil

WORK SPACE N.T.S.



Permanent Easement
Temporary Workspace
Additional Temp. Workspace
Survey Corridor

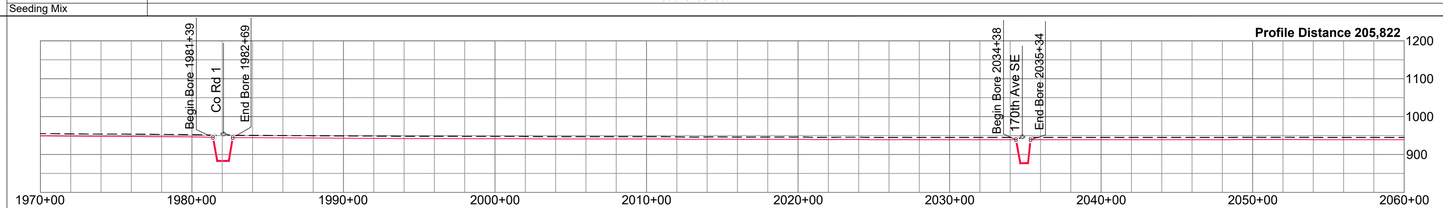
ENVIRO

Water Crossing	Name		
	Crossing Method		
	Bridge		
Wetland Crossing	Name	wria005e	
	Survey Extent	1995+37	
Environmental Feature		Wetland	
Miscellaneous/Comments		Approx. 100' ECD	
		Approx. 40' mats	
HUC-12 Watershed		090201051004	
Seeding Mix			

ENVIRONMENTAL NOTES:
1. Wetlands depicted on these sheets represent actual field survey data or NWI.
2. Actual wetland or stream width may vary at time of construction.

* Open ("WET") trench if no distinguishable flow at the time of construction, dry crossing method if distinguishable flow at time of construction

PROFILE



Ref. Dwgs. Aerial Image: NAIP 2021

HSE INC
HARNED SURVEYING & ENGINEERING, INC.
11815 ROBINDALE ROAD
LOUISVILLE, KY 40243
OFFICE (502) 254-3921
FAX (502) 254-6093

HSE Project # 19-21

SURVEY DATUM
North Dakota North (NAD 83)(2011)
International Foot
*Distances are Grid Distances.
Combined Scale Factor = 0.99989766
Grid Dist. x 1.00010235 = Ground Dist.

Drawing Date:	01-19-2022
Drawn By:	D. Smith
Checked by:	J. Harned

LEGEND:

Proposed Block Valve	Alignment
Proposed Bore	Section Line
Alignment PI	Quarter Line
Utility Pole	Fence Line
Well	UG Fiber Optic
Valve	UG Electric
	Overhead Elec
	Existing Pipeline
	Dirt Road

SUMMARY of MATERIALS

Mark	Quantity	Description
1	8,774	12.75" OD, .250" WT, X65, FBE, TRL
2	226	12.75" OD, .312" WT, X65, FBE w/ARO, TRL

REVISIONS

No.	Date	Description

500 0 500 1000
scale 1" = 500' - 22 x 34 feet
1" = 1000' - 11 x 17

WAHPETON EXPANSION PROJECT

1" = 500' HORIZ.
1" = 200' VERT.

WBI ENERGY TRANSMISSION
An MDU Resources Group company

Sec. 20, 21, T135N, R49W,
5th P.M., Richland Co., North Dakota

Sheet 19 R1

Co, State	SECTIONS 21, 22, 27, T135N, R49W, RICHLAND COUNTY, NORTH DAKOTA						
OWNER	MW-131 SW1/4 SEC. 21, T135N, R49W 4981' Cultivated	MW-132 S1/2 OF THE S1/2 OF THE SE1/4 SEC. 21, T135N, R49W 2592' Cultivated - 53' Uncultivated	MW-133 SW1/4, WITH EXCEPTIONS SEC. 22, T135N, R49W 2324' Cultivated - 33' Uncultivated	MW-140 SEC. 22, T135N, R49W 400' Uncultivated	MW-135 SE1/4 EXC 1-29 ROW SEC. 22, T135N, R49W 200' Cultivated	MW-137 S75' OF N108.5' LESS E33' & W116.8' OF NE1/4 SEC. 27, T135N, R49W 75' Uncultivated	
RODDAGE	4980.78' / 301.87 Rods	2645.44' / 160.33 Rods	2356.79' / 142.84 Rods	400.04' / 24.24 Rods	199.69' / 12.10 Rods	75.25' / 4.56 Rods	

2060+62 2110+42 2136+88 2160+45 2164+45 2166+44 2167+53

PIPE SCHMATIC

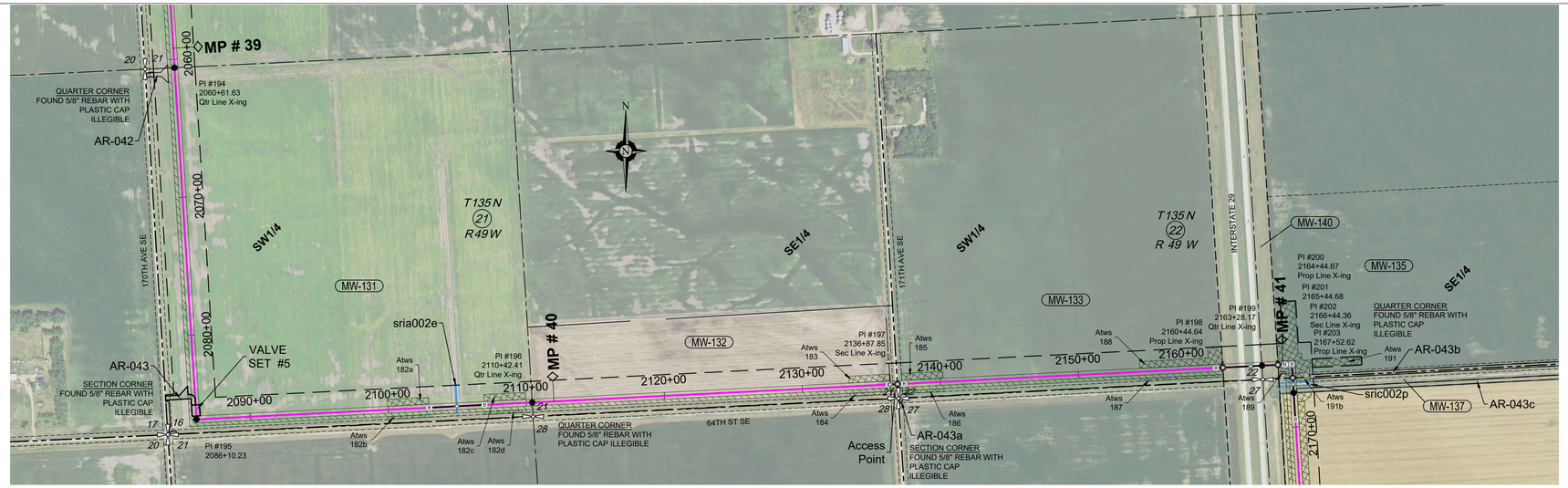
2060+00 2102+97 2106+97 2136+25 2137+36 2159+95 2164+95 2165+45 2168+45 2170+00

① ② ① ② ① ② ① ② ①

FEATURES

2102+97 Begin Bore
2104+97 Irr Unit
2106+97 End Bore
2136+25 Begin Bore
2136+35 OHE
2136+88 171st Ave SE
2137+36 End Bore
2159+95 Begin Bore
2160+46 Fence
2162+45 Interstate 29
2164+43 Fence
2164+95 End Bore
2165+45 Begin Bore
2166+44 64th St SE
2166+91 Irr Unit

ALIGN



PI TABLE		
PI #	STATION	DEFLECTION
PI #194	2060+61.63	00°00'
PI #195	2086+10.23	89°30'L
PI #196	2110+42.41	00°00'
PI #197	2136+87.85	00°00'
PI #198	2160+44.64	00°00'
PI #199	2163+28.17	00°00'
PI #200	2164+44.67	00°00'
PI #201	2165+44.68	89°30'R
PI #202	2166+44.36	00°00'
PI #203	2167+52.62	00°00'

NOTE:
See Bore Surveys, Typical Bore and Typical Section Crossing sheets for Crossing Details.

Wetlands
Waterbodies
Noxious Weeds
Saline Soil

WORK SPACE N.T.S.

2060+00 75' 50' 25' 50x300 Irrigation Unit 50x300 50x300 50x300 100x100 50x500 I-29 100x100 50x217 433x730 2170+00

20x300 170th Ave SE 20x300 20x300 171st Ave SE 20x300 20x600 20x50 25x576

Permanent Easement
Temporary Workspace
Additional Temp. Workspace
Survey Corridor

ENVIRO

Water Crossing	Name	sria002e	sric002p
	Crossing Method	Bore	Bore
	Bridge	Yes	Yes
Wetland Crossing	Name		
	Survey Extent	2104+97	2166+91
Environmental Feature		Minor	Intermediate
Miscellaneous/Comments		Approx. 100' ECD Approx. 40' mats	Approx. 100' ECD Approx. 40' mats
HUC-12 Watershed		090201051004	090201051003
Seeding Mix			

ENVIRONMENTAL NOTES:
1. Wetlands depicted on these sheets represent actual field survey data or NWI.
2. Actual wetland or stream width may vary at time of construction.

* Open ("WET") trench if no distinguishable flow at the time of construction, dry crossing method if distinguishable flow at time of construction

PROFILE

Profile Distance 216,829

Begin Bore 2102+97 | 2104+97 Irr Unit | End Bore 2106+97 | Begin Bore 2136+25 | 171st Ave SE | End Bore 2137+36 | Begin Bore 2159+95 | Interstate 29 | End Bore 2164+95 | Begin Bore 2165+45 | 64th St SE | 2166+91 Irr Unit | End Bore 2169+45

1200 1100 1000 900

2060+00 2070+00 2080+00 2090+00 2100+00 2110+00 2120+00 2130+00 2140+00 2150+00 2160+00 2170+00

Ref. Dwgs. Aerial Image: NAIP 2021

HSE INC
HARNED SURVEYING & ENGINEERING, INC.
11815 ROBINDALE ROAD
LOUISVILLE, KY 40243
OFFICE (502) 254-3921
FAX (502) 254-6093

HSE Project # 19-21

SURVEY DATUM

North Dakota North (NAD 83)(2011)
International Foot
*Distances are Grid Distances.
Combined Scale Factor = 0.99989766
Grid Dist. x 1.00010235 = Ground Dist.

Drawing Date:	01-19-2022
Drawn By:	D. Smith
Checked by:	J. Harned

LEGEND:

Proposed Block Valve
Proposed Bore
Alignment PI
Utility Pole
Well
Valve
Alignment
Section Line
Quarter Line
Fence Line
UG Fiber Optic
UG Electric
Overhead Elec
Existing Pipeline
Dirt Road

SUMMARY of MATERIALS

Mark	Quantity	Description
1	9,689	12.75" OD, .250" WT, X65, FBE, TRL
2	811	12.75" OD, .312" WT, X65, FBE w/ARO, TRL
3	500	12.75" OD, .500" WT, X65, FBE , TRL

REVISIONS

No.	Date	Description

500 0 500 1000
scale 1" = 500' - 22 x 34 feet
1" = 1000' - 11 x 17

1" = 500' HORIZ.
1" = 200' VERT.

WAHPETON EXPANSION PROJECT

WBI ENERGY TRANSMISSION
An MDU Resources Group company

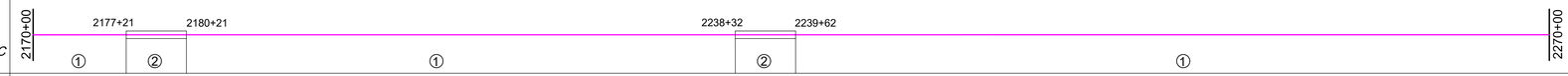
Sec. 21, 22, 27, T135N, R49W,
5th P.M., Richland Co., North Dakota

Sheet 20 R1

Co, State	SECTIONS 27, 34, T135N, R49W, RICHLAND COUNTY, NORTH DAKOTA		
OWNER	**MW-138** NE1/4 EXC 4.49A DRN, 6.62A 1-29 ROW & 10.89A SEC. 27, T135N, R49W 2420' Cultivated - 152' Uncultivated	**MW-141** SE1/4 EXC 1-29 ROW SEC. 27, T135N, R49W 4572' Cultivated - 33' Uncultivated	**MW-142** NE1/4 EXC 1-29 ROW & 6.61A SEC. 34, T135N, R49W 2568' Cultivated - 80' Uncultivated
RODDAGE	2572.36' / 155.90 Rods	4604.77' / 279.08 Rods	2647.86' / 160.48 Rods

2192+92 | 2238+97 | 2265+45

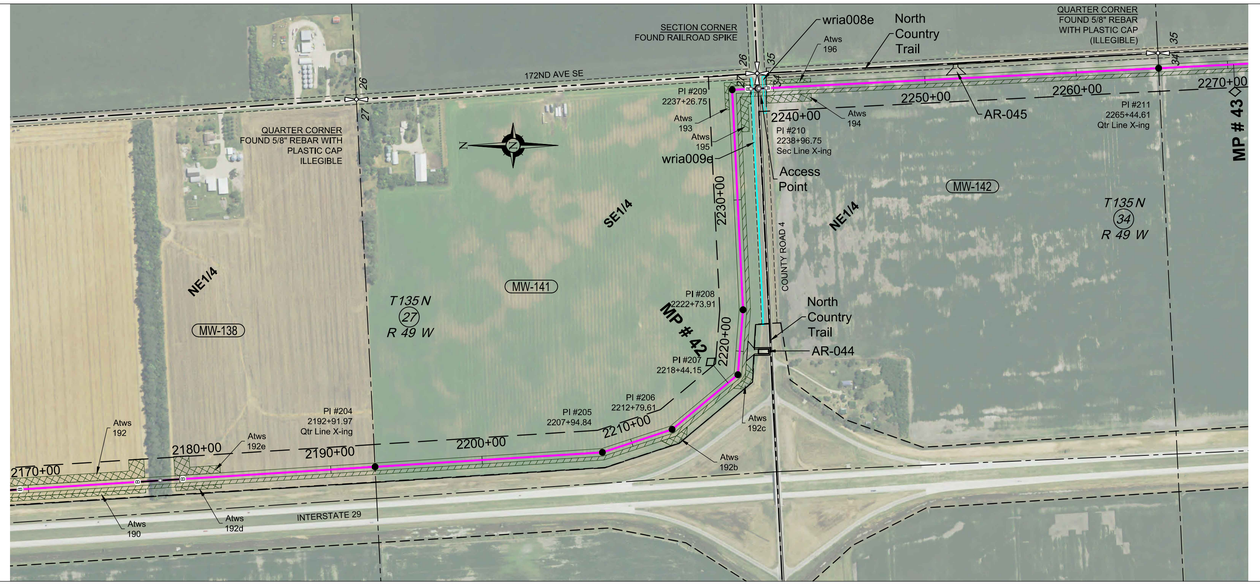
PIPE SCHMATIC



FEATURES

2177+21 Begin Bore
2178+71 Shelter Belt
2180+21 End Bore
2238+32 Begin Bore
2238+50 UFO
2238+97 Co Rd 4
2239+04 Trail
2239+52 OHE
2239+62 End Bore

ALIGN



PI TABLE		
PI #	STATION	DEFLECTION
PI #204	2192+91.97	00°00'
PI #205	2207+94.84	14°30'L
PI #206	2212+79.61	21°30'L
PI #207	2218+44.15	45°30'L
PI #208	2222+73.91	7°30'L
PI #209	2237+26.75	90°00'R
PI #210	2238+96.75	00°00'
PI #211	2265+44.61	00°00'

NOTE:
See Bore Surveys, Typical Bore and Typical Section Crossing sheets for Crossing Details.

Wetlands
Waterbodies
Noxious Weeds
Saline Soil

WORK SPACE N.T.S.

Permanent Easement
Temporary Workspace
Additional Temp. Workspace
Survey Corridor

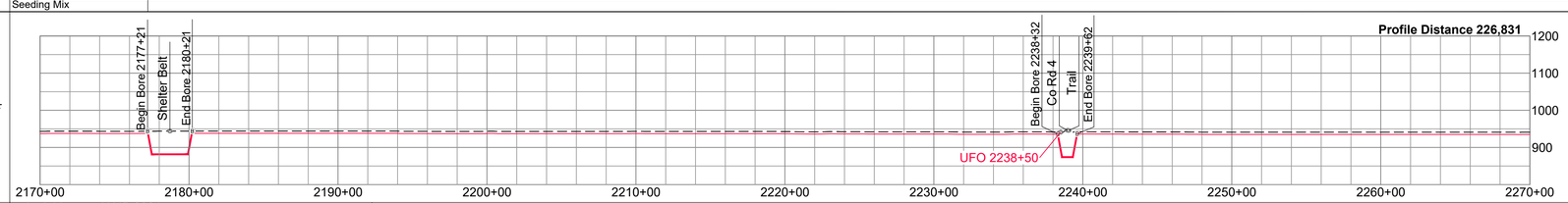
ENVIRO

Water Crossing	Name			
	Crossing Method			
	Bridge			
Wetland Crossing	Name		wria009e	wria008e
	Survey Extent		2238+59	2239+38
Environmental Feature			Wetland	Wetland
Miscellaneous/Comments			Approx. 100' ECD Approx. 40' mats	Approx. 100' ECD Approx. 40' mats
HUC-12 Watershed		090201051003		
Seeding Mix				

ENVIRONMENTAL NOTES:
1. Wetlands depicted on these sheets represent actual field survey data or NWI.
2. Actual wetland or stream width may vary at time of construction.

* Open ("WET") trench if no distinguishable flow at the time of construction, dry crossing method if distinguishable flow at time of construction

PROFILE



Ref. Dwgs. Aerial Image: NAIP 2021

HSE INC
HARNED SURVEYING & ENGINEERING, INC.
11815 ROBINDALE ROAD
LOUISVILLE, KY 40243
OFFICE (502) 254-3921
FAX (502) 254-6093

HSE Project # 19-21

SURVEY DATUM

North Dakota North (NAD 83)(2011)
International Foot
*Distances are Grid Distances.
Combined Scale Factor = 0.99989766
Grid Dist. x 1.00010235 = Ground Dist.

Drawing Date:	01-19-2022
Drawn By:	D. Smith
Checked by:	J. Harned

LEGEND:

- Proposed Block Valve
- Proposed Bore
- Alignment PI
- Utility Pole
- Well
- Valve
- Alignment
- Section Line
- Quarter Line
- Fence Line
- UG Fiber Optic
- UG Electric
- Overhead Elec
- Existing Pipeline
- Dirt Road

SUMMARY of MATERIALS

Mark	Quantity	Description
1	9,570	12.75" OD, .250" WT, X65, FBE, TRL
2	430	12.75" OD, .312" WT, X65, FBE w/ARO, TRL

REVISIONS

No.	Date	Description

WAHPETON EXPANSION PROJECT

500 0 500 1000
scale 1" = 500' - 22 x 34 feet
1" = 1000' - 11 x 17

1" = 500' HORIZ.
1" = 200' VERT.

WBI ENERGY TRANSMISSION
An MDU Resources Group company

Sec. 27, 34, T135N, R49W,
5th P.M., Richland Co., North Dakota

Sheet 21 | R1

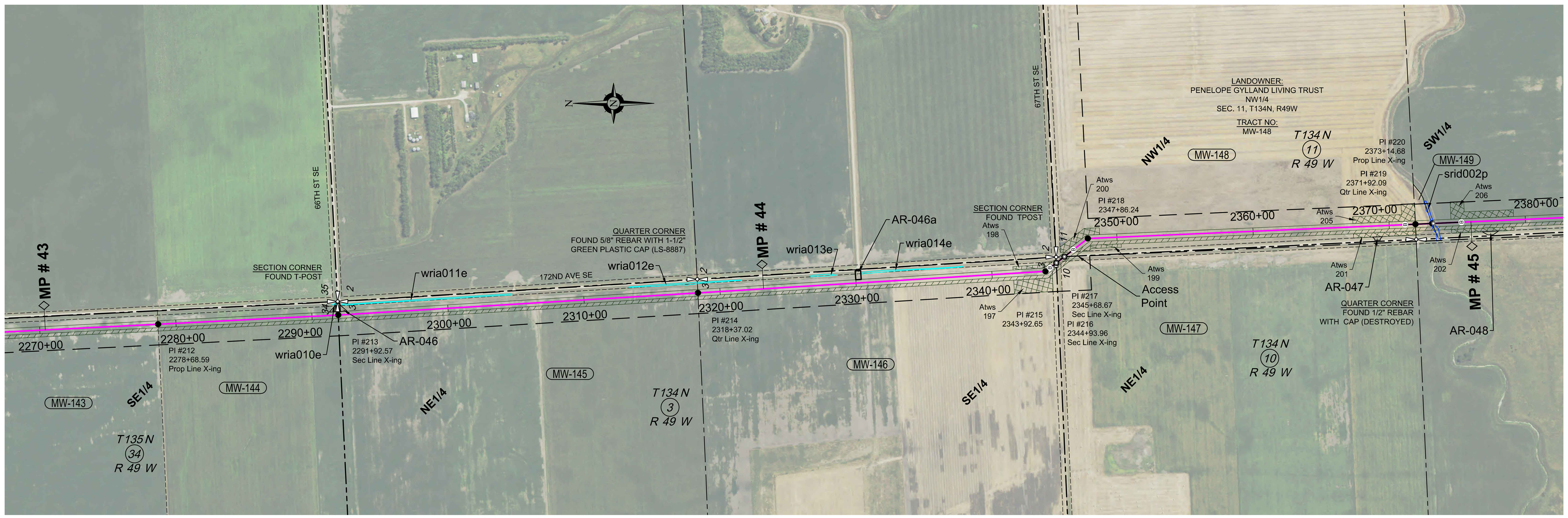
Co, State	SECTION 34, T135N, R49W, SECTIONS 3, 10, 11, T134N, R49W, RICHLAND COUNTY, NORTH DAKOTA						
OWNER	MW-143 N1/2SE1/4 EXC 1-29 ROW SEC. 34, T135N, R49W 1324' Cultivated	MW-144 S1/2SE1/4 EXC 1-29 ROW SEC. 34, T135N, R49W 1324' Cultivated	MW-145 NE1/4 EXC 1-29 ROW SEC. 3, T134N, R49W 2644' Cultivated	MW-146 SE1/4 EXC 1-29 ROW SEC. 3, T134N, R49W 2638' Cultivated	MW-147 NE1/4 EXC 1-29 ROW SEC. 10, T134N, R49W 168' Cultivated - 33' Uncultivated	MW-148 NW1/4 SEC. 11, T134N, R49W 2617' Cultivated - 33' Uncultivated	MW-149 PART OF SW1/4 SEC. 11, T134N, R49W 83' Cultivated - 40' Uncultivated
Station (end)	2278+69	2291+93	2318+37	2344+94	2345+69	2371+92	2373+15
RODDAGE	1323.98' / 80.24 Rods	1323.98' / 80.24 Rods	2644.45' / 160.27 Rods	2638.31' / 159.90 Rods	201.16' / 12.19 Rods	2649.96' / 160.60 Rods	122.64' / 7.43 Rods

PIPE SCHEMATIC: 2270+00 — ① — 2344+35 — ② — 2346+52 — ① — 2371+18 — ② — 2375+31 — ① — 2380+00

FEATURES: 2344+35 Begin Bore; 2344+94 67th St SE; 2345+69 172nd St SE; 2346+52 End Bore; 2371+18 Begin Bore; 2373+24 Pitcarin Crk; 2375+31 End Bore

PI TABLE		
PI #	STATION	DEFLECTION
PI #212	2278+68.59	00°00'
PI #213	2291+92.57	00°00'
PI #214	2318+37.02	00°00'
PI #215	2343+92.65	34°30'L
PI #216	2344+93.96	00°00'
PI #217	2345+68.67	00°00'
PI #218	2347+86.24	35°30'R
PI #219	2371+92.09	00°00'
PI #220	2373+14.68	00°00'

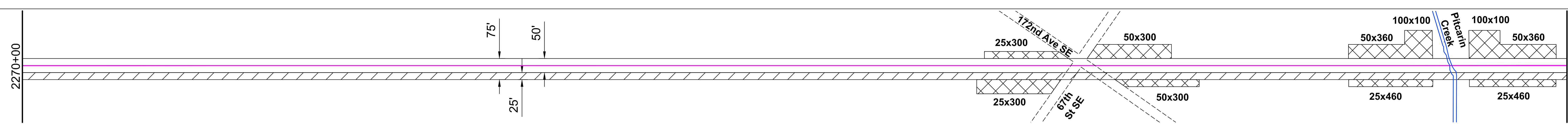
ALIGN



NOTE:
See Bore Surveys, Typical Bore and Typical Section Crossing sheets for Crossing Details.

Wetlands
Waterbodies
Noxious Weeds
Saline Soil

WORK SPACE N.T.S.



Permanent Easement
Temporary Workspace
Additional Temp. Workspace
Survey Corridor

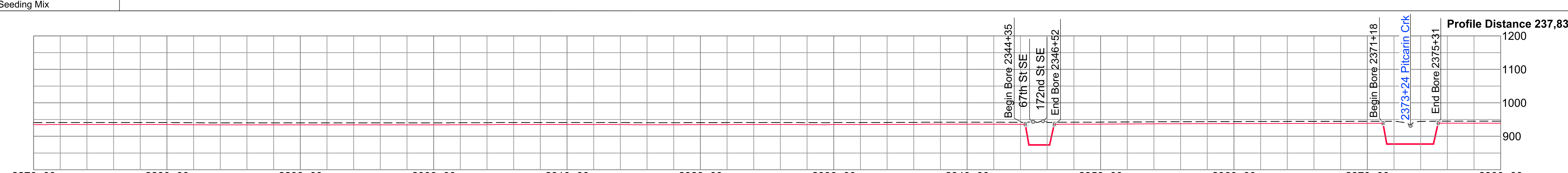
ENVIRO

Water Crossing	Name							srid002p
	Crossing Method							Bore
	Bridge							Yes
Wetland Crossing	Name	wria010e	wria011e	wria012e	wria013e	wria014e		
	Survey Extent	2291+71 / 2292+22	2304+72	2313+36 / 2321+63	2326+71 / 2328+63	2330+38 / 2337+88		2373+34
Environmental Feature		Wetland	Wetland	Wetland	Wetland	Wetland		Intermediate
Miscellaneous/Comments								Approx. 100' ECD Approx. 40' mats
HUC-12 Watershed		090201051003	090201051002					
Seeding Mix								

ENVIRONMENTAL NOTES:
1. Wetlands depicted on these sheets represent actual field survey data or NWI.
2. Actual wetland or stream width may vary at time of construction.

* Open ("WET") trench if no distinguishable flow at the time of construction, dry crossing method if distinguishable flow at time of construction

PROFILE



Ref. Dwgs. Aerial Image: NAIP 2021

HSE INC.
HARNED SURVEYING & ENGINEERING, INC.
11815 ROBINDALE ROAD
LOUISVILLE, KY 40243
OFFICE (502) 254-3921
FAX (502) 254-6093

HSE Project # 19-21

SURVEY DATUM
North Dakota North (NAD 83)(2011)
International Foot
*Distances are Grid Distances.
Combined Scale Factor = 0.99989766
Grid Dist. x 1.00010235 = Ground Dist.

Drawing Date: 01-19-2022
Drawn By: D. Smith
Checked by: J. Harned

LEGEND:
Proposed Block Valve — Alignment
Proposed Bore — Section Line
Alignment PI — Quarter Line
Utility Pole — Fence Line
Well — UG Fiber Optic
Valve — UG Electric
Overhead Elec
Existing Pipeline
Dirt Road

SUMMARY of MATERIALS

Mark	Quantity	Description
1	?	12.75" OD, .250" WT, X65, FBE, TRL
2	?	12.75" OD, .312" WT, X65, FBE w/ARO, TRL

REVISIONS

No.	Date	Description

scale 500 0 500 1000 feet
1" = 500' - 22 x 34
1" = 1000' - 11 x 17

WAHPETON EXPANSION PROJECT

1" = 500' HORIZ.
1" = 200' VERT.

WBI ENERGY TRANSMISSION
An MDU Resources Group company

Sec. 34, T135N, R49W,
Sec. 3, 10, 11, T134N, R49W,
5th P.M., Richland Co., North Dakota

Sheet 22 R1

SECTIONS 11, 14, 23, T134N, R49W, RICHLAND COUNTY, NORTH DAKOTA

Co, State	MW-150	MW-151	MW-152	MW-153	MW-154	MW-155
OWNER	SW1/4, WITH EXCEPTIONS SEC. 11, T134N, R49W 2490' Cultivated - 33' Uncultivated	NW1/4 SEC. 14, T134N, R49W 2601' Cultivated - 33' Uncultivated	N 1/2 OF THE SW1/4 SEC. 14, T134N, R49W 1323' Cultivated	S 1/2 OF THE SW1/4 SEC. 14, T134N, R49W 1278' Cultivated - 35.3' Uncultivated	NW1/4 SEC. 23, T134N, R49W 2510' Cultivated - 135' Uncultivated	SW1/4 EXC 1-29 ROW SEC. 23, T134N, R49W 4771' Cultivated - 73' Uncultivated
RODDAGE	2522.70' / 152.89 Rods	2633.83' / 159.63 Rods	1322.68' / 80.16 Rods	1311.20' / 79.47 Rods	2644.54' / 160.28 Rods	4844.63' / 296.28 Rods

Ownership breaks: 2398+37, 2424+71, 2437+94, 2451+05, 2477+50

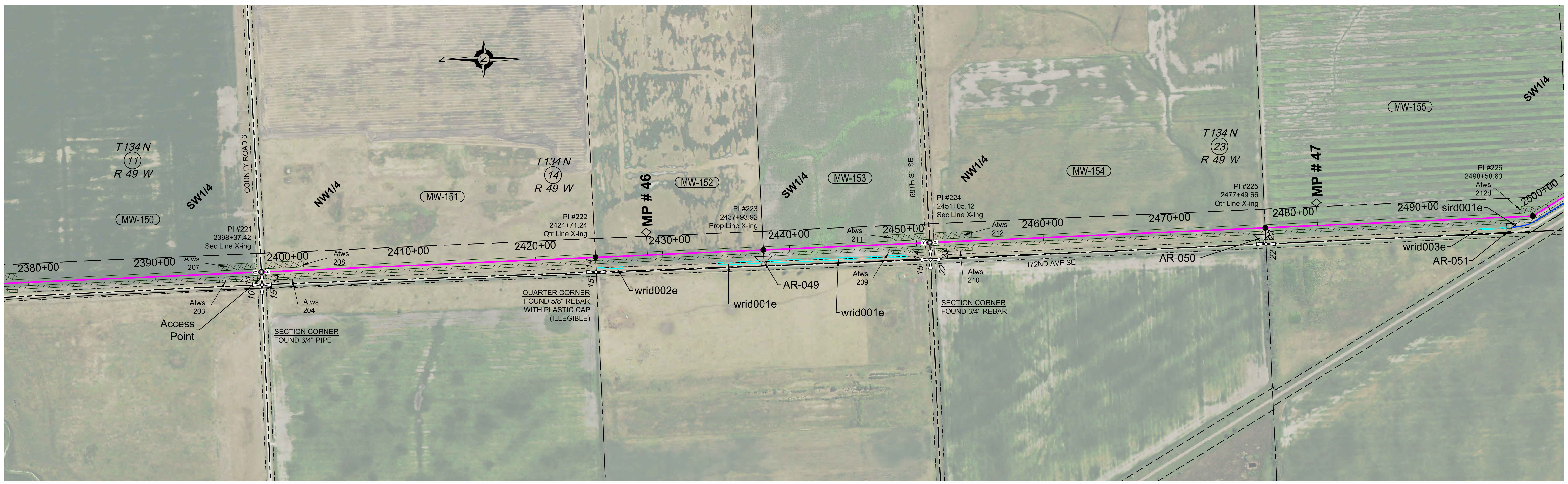
PIPE SCHMATIC: 2380+00 — ① — 2397+89 ② 2398+85 — ① — 2450+57 ② 2451+53 — ① — 2500+00

FEATURES: 2397+89 Begin Bore; 2398+37 Co Rd 6; 2398+85 End Bore; 2450+57 Begin Bore; 2451+05 69th St SE; 2451+53 End Bore

PI TABLE

PI #	STATION	DEFLECTION
PI #221	2398+37.42	00°00'
PI #222	2424+71.24	00°00'
PI #223	2437+93.92	00°00'
PI #224	2451+05.12	00°00'
PI #225	2477+49.66	00°00'
PI #226	2498+58.63	29°00'L

ALIGN



NOTE: See Bore Surveys, Typical Bore and Typical Section Crossing sheets for Crossing Details.

Wetlands
Waterbodies
Noxious Weeds
Saline Soil

WORK SPACE N.T.S.: 2380+00; 50x300, 50x300 / 20x300, 20x300 at Co Rd 6; 75', 50', 25'; 50x300, 50x300 / 25x300, 25x300 at 69th St SE; 2500+00

Permanent Easement
Temporary Workspace
Additional Temp. Workspace
Survey Corridor

ENVIRO

Water Crossing	Name					srid001e	
	Crossing Method					open-cut	
	Bridge						
Wetland Crossing	Name	wrid002e	wrid001e	wrid003e			
	Survey Extent	2424+88 – 2426+89	2434+27 – 2449+15	2493+96 – 2496+60		2496+89 – 2552+20	
Environmental Feature		Wetland	Wetland	Wetland		Minor	
Miscellaneous/Comments			Approx. 50' ECD	Approx. 50' ECD		Approx. 50' ECD	
HUC-12 Watershed		090201051002	090201051001				
Seeding Mix							

ENVIRONMENTAL NOTES:
1. Wetlands depicted on these sheets represent actual field survey data or NWI.
2. Actual wetland or stream width may vary at time of construction.
* Open ("WET") trench if no distinguishable flow at the time of construction, dry crossing method if distinguishable flow at time of construction

PROFILE

Ref. Dwgs. Aerial Image: NAIP 2021

HSE INC.
HARNED SURVEYING & ENGINEERING, INC.
11815 ROBINDALE ROAD
LOUISVILLE, KY 40243
OFFICE (502) 254-3921
FAX (502) 254-6093
HSE Project # 19-21

SURVEY DATUM
North Dakota North (NAD 83)(2011)
International Foot
*Distances are Grid Distances.
Combined Scale Factor = 0.99989766
Grid Dist. x 1.00010235 = Ground Dist.

Drawing Date: 01-19-2022
Drawn By: D. Smith
Checked by: J. Harned

LEGEND:
Proposed Block Valve
Proposed Bore
Alignment PI
Utility Pole
Well
Valve
Alignment
Section Line
Quarter Line
Fence Line
UG Fiber Optic
UG Electric
Overhead Elec
Existing Pipeline
Dirt Road

SUMMARY of MATERIALS

Mark	Quantity	Description
1	?	12.75" OD, .250" WT, X65, FBE, TRL
2	?	12.75" OD, .312" WT, X65, FBE w/ARO, TRL

REVISIONS

No.	Date	Description

WAHPETON EXPANSION PROJECT

WBI ENERGY TRANSMISSION
An MDU Resources Group company

500 0 500 1000
scale feet
1" = 500' - 22 x 34
1" = 1000' - 11 x 17

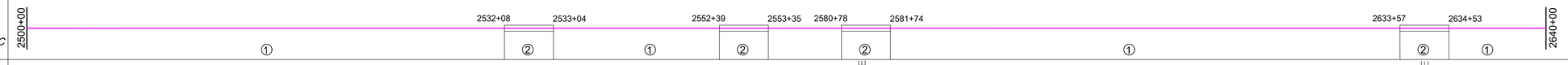
1" = 500' HORIZ.
1" = 200' VERT.

Sec. 11, 14, 23, T134N, R49W,
5th P.M., Richland Co., North Dakota

Sheet 23 R1

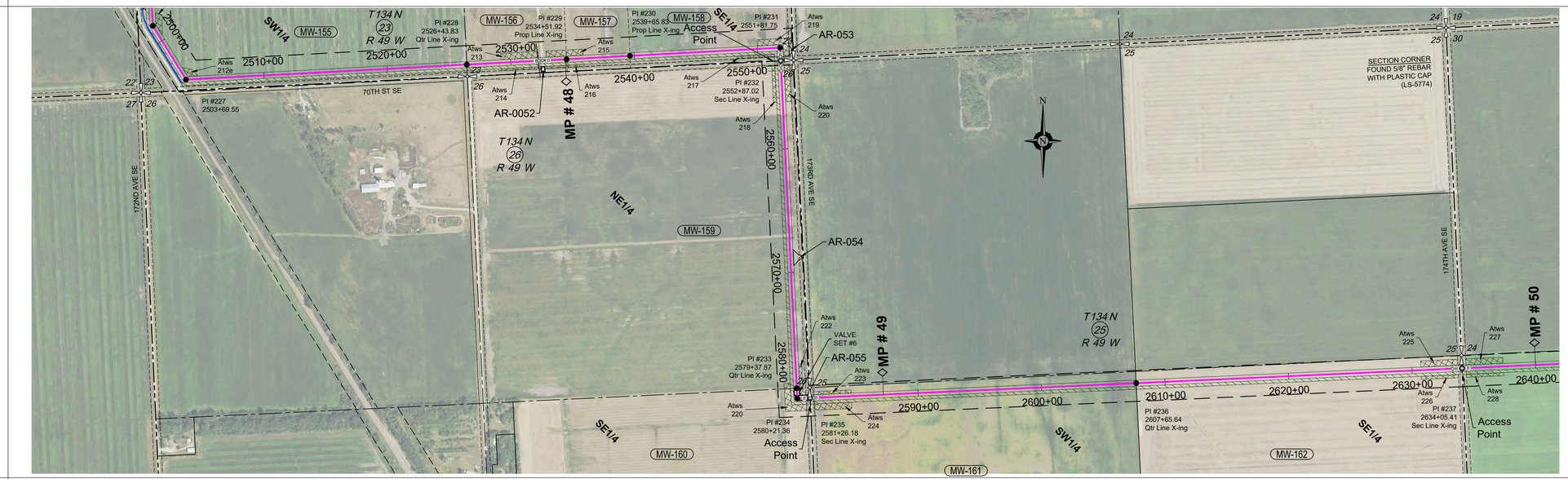
Co, State	SECTIONS 23, 25, 26, T134N, R49W, RICHLAND COUNTY, NORTH DAKOTA							
OWNER	**MW-155** SW1/4 EXC 1-29 ROW SEC. 23, T134N, R49W 4771' Cultivated - 73' Uncultivated	**MW-156** PART OF THE SE1/4 SEC. 23, T134N, R49W 781' Cultivated - 27' Uncultivated	**MW-157** W1/2 OF THE SE1/4 WITH EXCEPTIONS 1744' Cultivated - 86' Uncultivated	**MW-158** E1/2 SE1/4 SEC. 23, T134N, R49W 1744' Cultivated - 86' Uncultivated	**MW-159** NE1/4 SEC. 26, T134N, R49W 2616' Cultivated - 33' Uncultivated	**MW-160** SE1/4, WITH EXCEPTIONS SEC. 26, T134N, R49W 155' Cultivated - 33' Uncultivated	**MW-161** SW1/4 SEC. 25, T134N, R49W 2592' Cultivated - 33' Uncultivated	**MW-162** SE1/4 SEC. 25, T134N, R49W 2605' Cultivated - 33' Uncultivated
RODDAGE	4844.63' / 296.28 Rods	808.07' / 48.97 Rods	1829.81' / 110.90 Rods	1829.81' / 110.90 Rods	2650.85' / 160.66 Rods	188.30' / 11.41 Rods	2625.01' / 159.09 Rods	2637.99' / 159.88 Rods

PIPE SCHMATIC



FEATURES

ALIGN

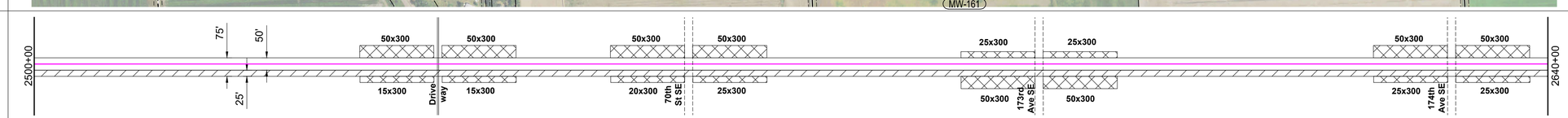


PI TABLE		
PI #	STATION	DEFLECTION
PI #227	2503+69.55	61°30'L
PI #228	2526+43.83	00°00'
PI #229	2534+51.92	00°00'
PI #230	2539+65.83	00°00'
PI #231	2551+81.75	90°00'R
PI #232	2552+87.02	00°00'
PI #233	2579+37.87	00°00'
PI #234	2580+21.36	90°00'L
PI #235	2581+26.18	00°00'
PI #236	2607+65.64	00°00'
PI #237	2634+05.41	00°00'

NOTE:
See Bore Surveys, Typical Bore and Typical Section Crossing sheets for Crossing Details.

- Wetlands
- Waterbodies
- Noxious Weeds
- Saline Soil

WORK SPACE N.T.S.



- Permanent Easement
- Temporary Workspace
- Additional Temp. Workspace
- Survey Corridor

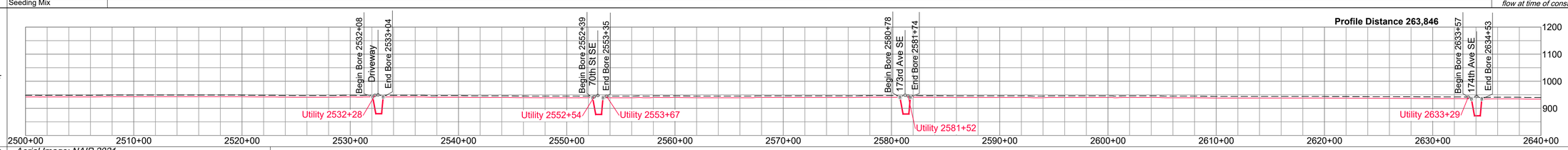
ENVIRO

Water Crossing	Name	
	Crossing Method	
	Bridge	
Wetland Crossing	Name	
	Survey Extent	
Environmental Feature		
Miscellaneous/Comments		
HUC-12 Watershed		090201051001
Seeding Mix		

ENVIRONMENTAL NOTES:
1. *Wetlands depicted on these sheets represent actual field survey data or NWI.*
2. *Actual wetland or stream width may vary at time of construction.*

* *Open ("WET") trench if no distinguishable flow at the time of construction, dry crossing method if distinguishable flow at time of construction*

PROFILE



Ref. Dwgs. Aerial Image: NAIP 2021

HSE INC
HARNED SURVEYING & ENGINEERING, INC.
11815 ROBINDALE ROAD
LOUISVILLE, KY 40243
OFFICE (502) 254-3921
FAX (502) 254-6093

HSE Project # 19-21

SURVEY DATUM

North Dakota North (NAD 83)(2011)
International Foot
*Distances are Grid Distances.
Combined Scale Factor = 0.99989766
Grid Dist. x 1.00010235 = Ground Dist.

Drawing Date:	01-19-2022
Drawn By:	D. Smith
Checked by:	J. Harned

LEGEND:

- Proposed Block Valve
- Proposed Bore
- Alignment PI
- Utility Pole
- Well
- Valve
- Alignment
- Section Line
- Quarter Line
- Fence Line
- UG Fiber Optic
- UG Electric
- Overhead Elec
- Existing Pipeline
- Dirt Road

SUMMARY of MATERIALS

Mark	Quantity	Description
1	?	12.75" OD, .250" WT, X65, FBE, TRL
2	?	12.75" OD, .312" WT, X65, FBE w/ARO, TRL

REVISIONS

No.	Date	Description

500 0 500 1000
scale 1" = 500' - 22 x 34 feet
1" = 1000' - 11 x 17

1" = 500' HORIZ.
1" = 200' VERT.

WAHPETON EXPANSION PROJECT

WBI ENERGY TRANSMISSION
An MDU Resources Group company

Sec. 23, 25, 26, T134N, R49W,
5th P.M., Richland Co., North Dakota

Sheet 24 | R1

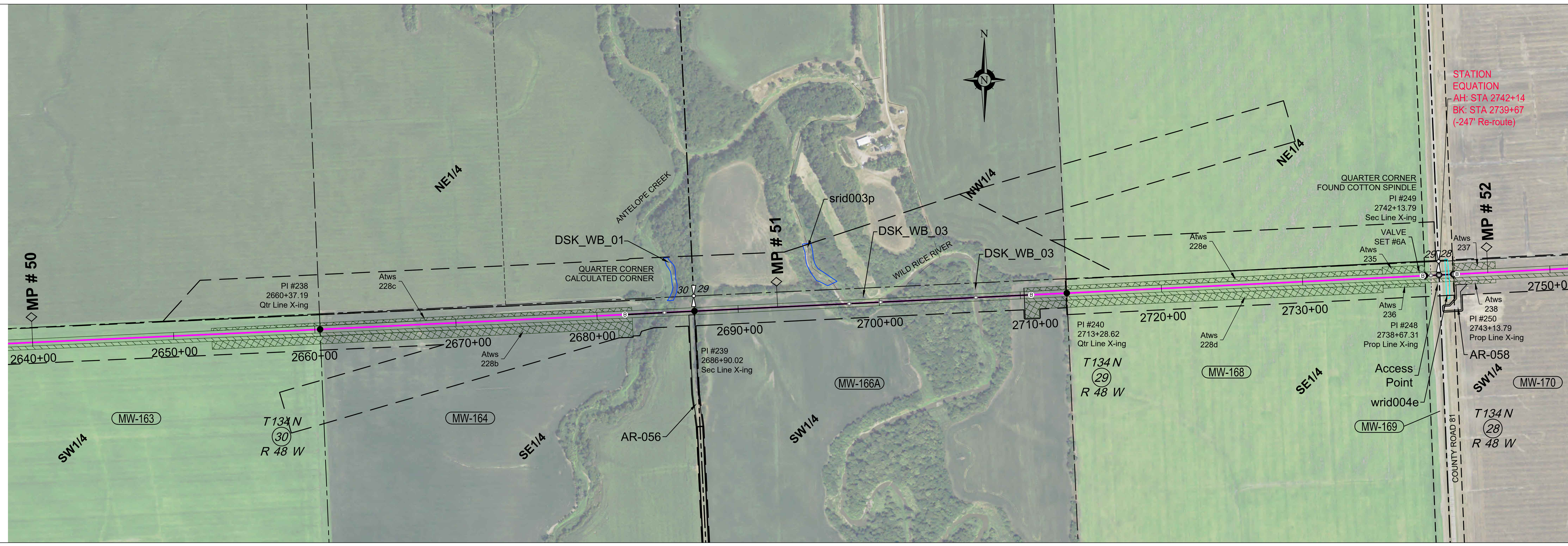
Co, State	SECTIONS 28, 29, 30, T134N, R48W, RICHLAND COUNTY, NORTH DAKOTA					
OWNER	**MW-163** SW1/4, WITH EXCEPTION SEC. 30, T134N, R48W 2599' Cultivated - 33' Uncultivated	**MW-164** SE1/4 SEC. 30, T134N, R48W 2301' Cultivated - 352' Uncultivated	**MW-166A** SW1/4 SEC. 29, T134N, R48W 1161' Cultivated - 1478' Uncultivated	**MW-168** SE1/4 SEC. 29, T134N, R48W 2539' Cultivated	**MW-169** NE1/4 SEC. 29, T134N, R48W 200' Uncultivated	**MW-170** SE1/4 SEC. 29, T134N, R48W 1892' Cultivated
	2660+37	2686+90	2713+29	2738+67	2742+14	
RODDAGE	2631.77' / 159.50 Rods	2652.83' / 160.78 Rods	2638.60' / 159.92 Rods	2538.69' / 153.86 Rods	200.00' / 12.12 Rods	1892.23' / 114.68 Rods

PIPE SCHMATIC: 2640+00 ① 2681+98 ② 2710+77 ① 2738+52 ② 2743+41 ① 2750+00

FEATURES:
2681+98 Begin Bore
2684+78 Antelope Crk
2697+87 Wild Rice Rvr
2700+10 Wild Rice Rvr
2706+85 Wild Rice Rvr
2710+77 End Bore
2738+52 Begin Bore
2739+10 Utility
2742+14 Co Rd 81
2743+18 OHE
2743+26 Utility
2743+41 End Bore

PI TABLE		
PI #	STATION	DEFLECTION
PI #238	2660+37.19	00°00'
PI #239	2686+90.02	00°00'
PI #240	2713+28.62	00°00'
PI #248	2738+67.31	00°00'
PI #249	2742+13.79	00°00'
PI #250	2743+13.79	00°00'

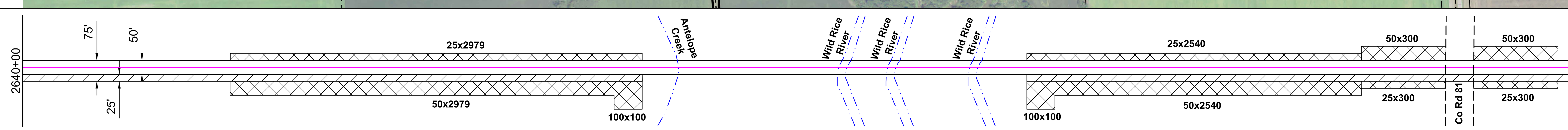
ALIGN



NOTE: See Bore Surveys, Typical Bore and Typical Section Crossing sheets for Crossing Details.

Wetlands
Waterbodies
Noxious Weeds
Saline Soil

WORK SPACE N.T.S.



Permanent Easement
Temporary Workspace
Additional Temp. Workspace
Survey Corridor

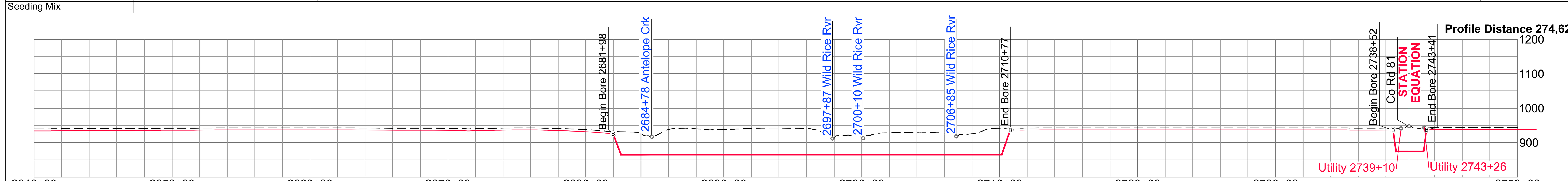
ENVIRO

Water Crossing	Name	DSK_WB_01	srid003p	DSK_WB_02	DSK_WB_02	
	Crossing Method			Bore	Bore	
	Bridge					
Wetland Crossing	Name					wrid004e
	Survey Extent	2684+78	2697+87	2697+87	2706+85	2742+21
Environmental Feature		Creek	River	Intermediate	Major	Wetland
Miscellaneous/Comments						Approx. 50' ECD Approx. 40' mats
HUC-12 Watershed		090201051001 / 090201050906 / 090201050907		090201050805		090201040401
Seeding Mix						

ENVIRONMENTAL NOTES:
1. Wetlands depicted on these sheets represent actual field survey data or NWI.
2. Actual wetland or stream width may vary at time of construction.

* Open ("WET") trench if no distinguishable flow at the time of construction, dry crossing method if distinguishable flow at time of construction

PROFILE



Ref. Dwgs. Aerial Image: NAIP 2021

HSE INC.
HARNED SURVEYING & ENGINEERING, INC.
11815 ROBINDALE ROAD
LOUISVILLE, KY 40243
OFFICE (502) 254-3921
FAX (502) 254-6093

HSE Project # 19-21

SURVEY DATUM
North Dakota North (NAD 83)(2011)
International Foot
*Distances are Grid Distances.
Combined Scale Factor = 0.99989766
Grid Dist. x 1.00010235 = Ground Dist.

Drawing Date: 01-19-2022
Drawn By: D. Smith
Checked by: J. Harned

LEGEND:
Proposed Block Valve
Proposed Bore
Alignment PI
Utility Pole
Well
Valve
Alignment
Section Line
Quarter Line
Fence Line
UG Fiber Optic
UG Electric
Overhead Elec
Existing Pipeline
Dirt Road

SUMMARY of MATERIALS

Mark	Quantity	Description
1	7,618	12.75" OD, .250" WT, X65, FBE, TRL
2	3,136	12.75" OD, .312" WT, X65, FBE w/ARO, TRL

REVISIONS

No.	Date	Description

scale 500 0 500 1000 feet
1" = 500' - 22 x 34
1" = 1000' - 11 x 17

WAHPETON EXPANSION PROJECT

1" = 500' HORIZ.
1" = 200' VERT.

WBI ENERGY TRANSMISSION
An MDU Resources Group company

Sec. 28, 29, 30, T134N, R48W, 5th P.M., Richland Co., North Dakota

Sheet 25 R1

Co, State	SECTIONS 27, 28, T134N, R48W, RICHLAND COUNTY, NORTH DAKOTA			
OWNER	MW-171 PART OF THE SW1/4 SEC. 28, T134N, R48W 657' Cultivated	MW-172 SE1/4 SEC. 28, T134N, R48W 2597' Cultivated - 33' Uncultivated	MW-173 SW1/4 SEC. 27, T134N, R48W 2597' Cultivated - 33' Uncultivated	MW-174 SE1/4 SEC. 27, T134N, R48W 5045' Cultivated - 66' Uncultivated
	2762+06 – 2768+63	2768+63 – 2794+94	2794+94 – 2821+40	2821+40 –
RODDAGE	657.36' / 39.84 Rods	2630.33' / 159.41 Rods	2646.41' / 160.39 Rods	5110.65' / 309.74 Rods

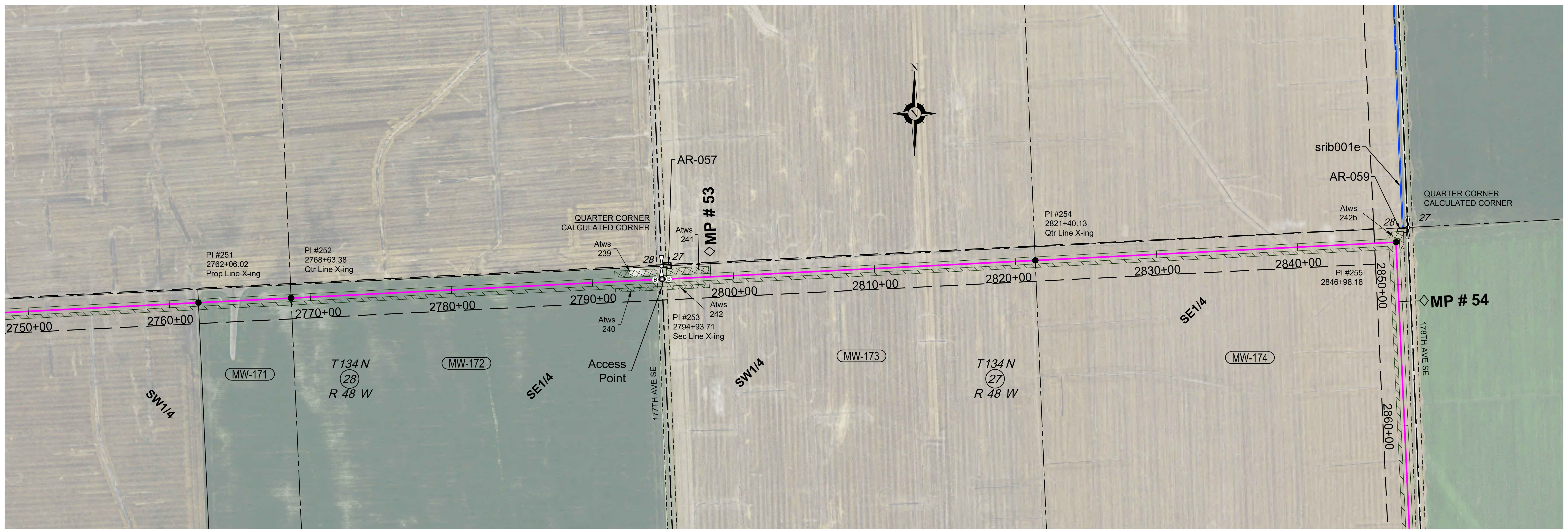
PIPE SCHMATIC: 2750+00 ① 2794+46 ② 2795+42 ① 2860+00

FEATURES: 2794+46 Begin Bore; 2794+94 177th Ave SE; 2795+42 End Bore

PI TABLE

PI #	STATION	DEFLECTION
PI #251	2762+06.02	00°00'
PI #252	2768+63.38	00°00'
PI #253	2794+93.71	00°00'
PI #254	2821+40.13	00°00'
PI #255	2846+98.18	90°00'R

ALIGN



NOTE:
See Bore Surveys, Typical Bore and Typical Section Crossing sheets for Crossing Details.

- Wetlands
- Waterbodies
- Noxious Weeds
- Saline Soil

WORK SPACE N.T.S.: 2750+00; 75'; 50'; 25'; 50x300; 50x300; 25x300; 25x300; 177th Ave SE; 2860+00

- Permanent Easement
- Temporary Workspace
- Additional Temp. Workspace
- Survey Corridor

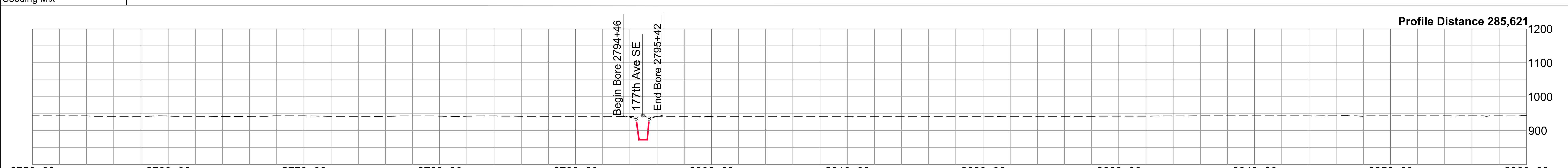
ENVIRO

Water Crossing	Name		srib001e
	Crossing Method		
	Bridge		
Wetland Crossing	Name		
	Survey Extent		3046+23
Environmental Feature			Ditch
Miscellaneous/Comments			Approx. 50' ECD
HUC-12 Watershed		090201040401	
Seeding Mix			

ENVIRONMENTAL NOTES:
1. Wetlands depicted on these sheets represent actual field survey data or NWI.
2. Actual wetland or stream width may vary at time of construction.

* Open ("WET") trench if no distinguishable flow at the time of construction, dry crossing method if distinguishable flow at time of construction

PROFILE



Ref. Dwgs. Aerial Image: NAIP 2021

HSE INC.
HARNED SURVEYING & ENGINEERING, INC.
11815 ROBINDALE ROAD
LOUISVILLE, KY 40243
OFFICE (502) 254-3921
FAX (502) 254-6093

HSE Project # 19-21

SURVEY DATUM
North Dakota North (NAD 83)(2011)
International Foot
*Distances are Grid Distances.
Combined Scale Factor = 0.99989766
Grid Dist. x 1.00010235 = Ground Dist.

Drawing Date:	01-19-2022
Drawn By:	D. Smith
Checked by:	J. Harned

LEGEND:
- Proposed Block Valve
- Proposed Bore
- Alignment PI
- Utility Pole
- Well
- Valve
- Alignment
- Section Line
- Quarter Line
- Fence Line
- UG Fiber Optic
- UG Electric
- Overhead Elec
- Existing Pipeline
- Dirt Road

SUMMARY of MATERIALS

Mark	Quantity	Description
1	10,904	12.75" OD, .250" WT, X65, FBE, TRL
2	96	12.75" OD, .312" WT, X65, FBE w/ARO, TRL

REVISIONS

No.	Date	Description

WAHPETON EXPANSION PROJECT

WBI ENERGY TRANSMISSION
An MDU Resources Group company

scale 500 0 500 1000 feet
1" = 500' - 22 x 34
1" = 1000' - 11 x 17

1" = 500' HORIZ.
1" = 200' VERT.

Sec. 27, 28, T134N, R48W,
5th P.M., Richland Co., North Dakota

Sheet 26 R1

Co, State	SECTION 34, T134N, R48W, SECTION 3, T133N, R48W, RICHLAND COUNTY, NORTH DAKOTA

OWNER	MW-175	MW-176	MW-177	MW-178	MW-179
	NE1/4 SEC. 34, T134N, R48W 2615' Cultivated - 33' Uncultivated	SE1/4 SEC. 34, T134N, R48W 2614' Cultivated - 33' Uncultivated	GOVERNMENT LOTS 1-2 SEC. 3, T133N, R48W 1303' Cultivated - 33' Uncultivated	S1/2NE1/4 SEC. 3, T133N, R48W 1336' Cultivated	SE1/4 SEC. 3, T133N, R48W 2619' Cultivated - 33' Uncultivated
RODDAGE	2647.51' / 160.46 Rods	2647.47' / 160.45 Rods	1335.68' / 80.95 Rods	1335.69' / 80.95 Rods	2651.91' / 160.72 Rods

PIPE SCHMATIC: 2860+00 — 2872+51 — 2898+98 — 2925+46 — 2938+81 — 2952+17 — 2978+69 — 2980+00

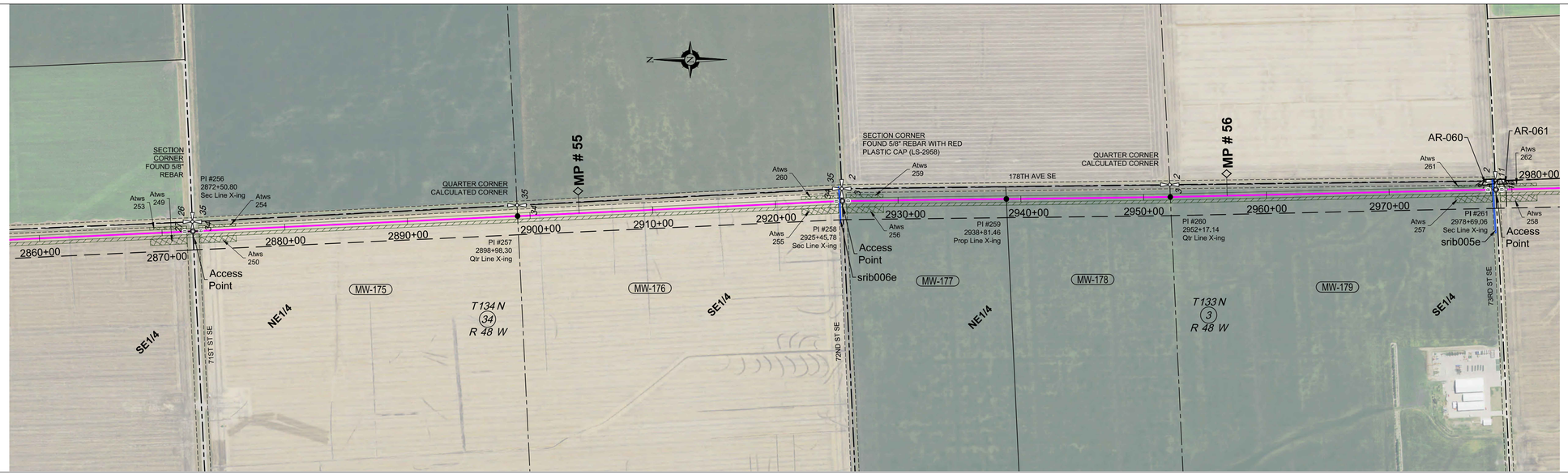
2871+86 — 2873+16 — 2924+98 — 2925+94 — 2978+21 — 2979+17

① ② ① ② ① ② ①

FEATURES: 2871+86 Begin Bore; 2872+51 171st St SE; 2873+16 End Bore; 2924+98 Begin Bore; 2925+46 172nd St SE; 2925+94 End Bore; 2978+08 Begin Bore; 2978+23 UFO; 2978+69 173rd St SE; 2979+17 End Bore; 2979+52 UFO

PI TABLE		
PI #	STATION	DEFLECTION
PI #256	2872+50.80	00°00'
PI #257	2898+98.30	00°00'
PI #258	2925+45.78	2°00'R
PI #259	2938+81.46	00°00'
PI #260	2952+17.14	00°00'
PI #261	2978+69.06	00°00'

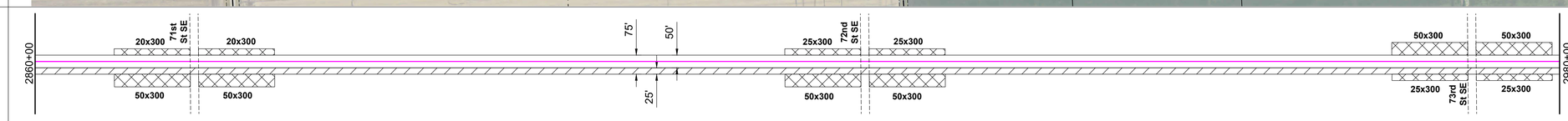
ALIGN



NOTE:
See Bore Surveys, Typical Bore and Typical Section Crossing sheets for Crossing Details.

Wetlands
Waterbodies
Noxious Weeds
Saline Soil

WORK SPACE N.T.S.



Permanent Easement
Temporary Workspace
Additional Temp. Workspace
Survey Corridor

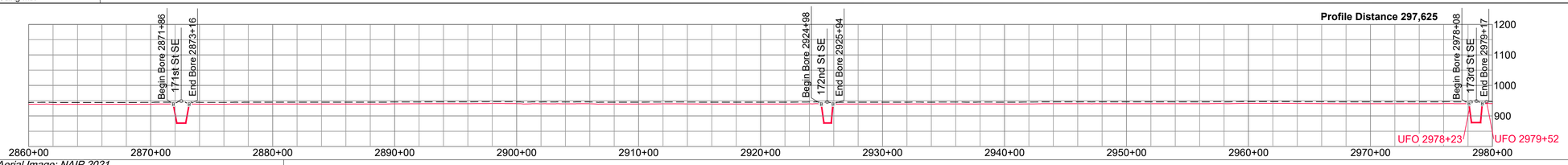
ENVIRO

Water Crossing	Name		srib006e	srib005e
	Crossing Method		Bore	Bore
	Bridge		Yes	Yes
Wetland Crossing	Name			
	Survey Extent		2925+24	2978+46
Environmental Feature			Minor	Minor
Miscellaneous/Comments			Approx. 100' ECD Approx. 40' mats	
HUC-12 Watershed		090201040401		090201050805
Seeding Mix				

ENVIRONMENTAL NOTES:
1. Wetlands depicted on these sheets represent actual field survey data or NWI.
2. Actual wetland or stream width may vary at time of construction.

* Open ("WET") trench if no distinguishable flow at the time of construction, dry crossing method if distinguishable flow at time of construction

PROFILE



Ref. Dwgs. Aerial Image: NAIP 2021

HARNED SURVEYING & ENGINEERING, INC.
11815 ROBINDALE ROAD
LOUISVILLE, KY 40243
OFFICE (502) 254-3921
FAX (502) 254-6093

HSE Project # 19-21

SURVEY DATUM

North Dakota North (NAD 83)(2011)
International Foot
*Distances are Grid Distances.
Combined Scale Factor = 0.99989766
Grid Dist. x 1.00010235 = Ground Dist.

Drawing Date: 01-19-2022
Drawn By: D. Smith
Checked by: J. Harned

LEGEND:

- Proposed Block Valve
- Proposed Bore
- Alignment PI
- Utility Pole
- Well
- Valve
- Alignment
- Section Line
- Quarter Line
- Fence Line
- UG Fiber Optic
- UG Electric
- Overhead Elec
- Existing Pipeline
- Dirt Road

SUMMARY of MATERIALS

Mark	Quantity	Description
1	11,665	12.75" OD, .250" WT, X65, FBE, TRL
2	335	12.75" OD, .312" WT, X65, FBE w/ARO, TRL

REVISIONS

No.	Date	Description

WAHPETON EXPANSION PROJECT

500 0 500 1000
scale 1" = 500' - 22 x 34 feet
1" = 1000' - 11 x 17

1" = 500' HORIZ.
1" = 200' VERT.

WBI ENERGY TRANSMISSION
An MDU Resources Group company

Sec. 34, T134N, R48W,
Sec. 3, T133N, R48W,
5th P.M., Richland Co., North Dakota

Sheet 27 R1

Co, State	SECTIONS 10, 14, 15, T133N, R48W, RICHLAND COUNTY, NORTH DAKOTA						
OWNER	MW-180 NE1/4 SEC. 10, T133N, R48W 2863' Cultivated - 136' Uncultivated	MW-181 SE1/4 SEC. 10, T133N, R48W 2334' Cultivated - 312' Uncultivated	MW-182 W1/2E1/2NE1/4 SEC. 15, T133N, R48W 169' Cultivated - 33' Uncultivated	MW-183 E1/2E1/2NE1/4 SEC. 15, T133N, R48W 392' Cultivated - 228' Uncultivated	MW-184 PART OF THE NW1/4 SEC. 14, T133N, R48W 396' Cultivated - 25' Uncultivated	MW-185 PART OF THE NW1/4 SEC. 14, T133N, R48W 2202' Cultivated - 25' Uncultivated	MW-186 NE1/4 SEC. 14, T133N, R48W 2615' Cultivated - 33' Uncultivated
RODDAGE	2999.07' / 181.76 Rods	2645.67' / 160.34 Rods	202.42' / 12.27 Rods	619.51' / 37.55 Rods	421.17' / 25.53 Rods	2226.62' / 134.95 Rods	2647.60' / 160.46 Rods

3008+98 | 3035+43 | 3037+45 | 3043+65 | 3047+86 | 3070+13

PIPE SCHMATIC

2980+00 — 3006+35 — 3012+65 — 3034+95 — 3035+91 — 3036+72 — 3043+12 — 3047+38 — 3048+34 — 3080+00

① ② ① ② ① ② ① ② ①

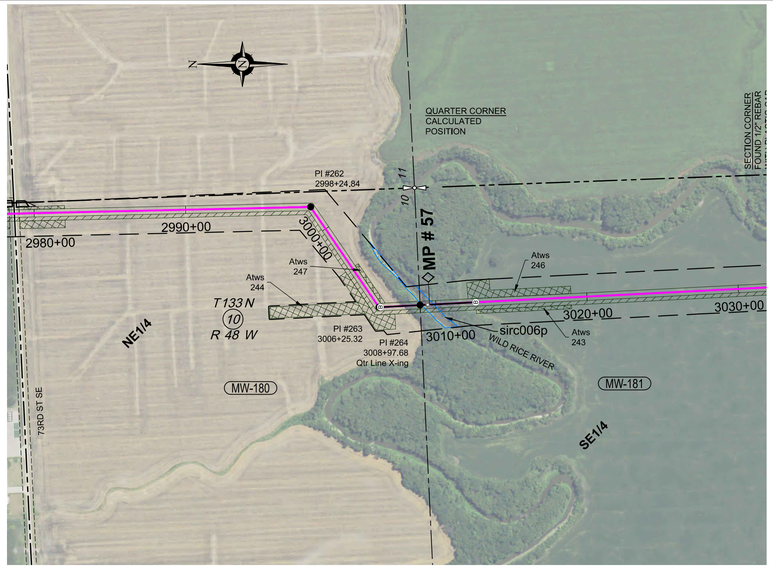
FEATURES

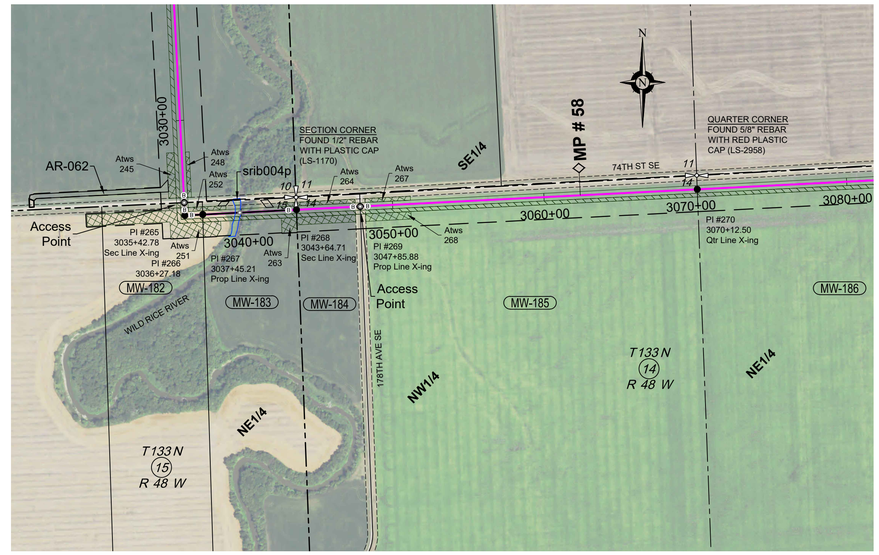
3006+35 Begin Bore
3009+48 Wild Rice Rvr
3012+65 End Bore
3034+95 Begin Bore
3035+43 74th St SE
3035+91 End Bore
3036+72 Begin Bore
3039+90 Wild Rice Rvr
3043+12 End Bore
3047+38 Begin Bore
3047+86 178th Ave SE
3048+34 End Bore

PI TABLE

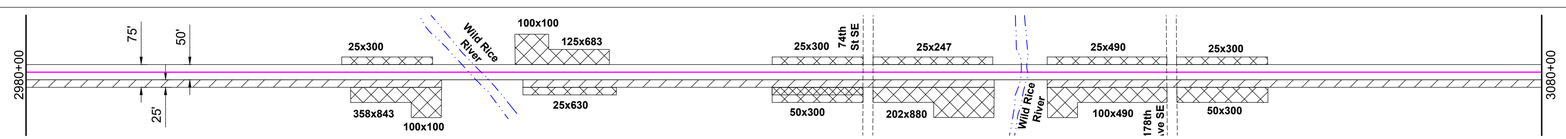
PI #	STATION	DEFLECTION
PI #262	2998+24.84	57°00'R
PI #263	3006+25.32	59°00'L
PI #264	3008+97.68	00°00'
PI #265	3035+42.78	00°00'
PI #266	3036+27.18	90°00'L
PI #267	3037+45.21	00°00'
PI #268	3043+64.71	00°00'
PI #269	3047+85.88	00°00'
PI #270	3070+12.50	00°00'

ALIGN





WORK SPACE N.T.S.



Permanent Easement
Temporary Workspace
Additional Temp. Workspace
Survey Corridor

ENVIRO

Water Crossing	Name			
	Crossing Method		Bore	
	Bridge			
Wetland Crossing	Name			
	Survey Extent		3009+48	
Environmental Feature			Intermediate	
Miscellaneous/Comments			Approx. 100' ECD Approx. 100' mats	
HUC-12 Watershed		090201050805		
Seeding Mix				

Water Crossing	Name			
	Crossing Method		Bore	
	Bridge			
Wetland Crossing	Name			
	Survey Extent		3039+90	
Environmental Feature			Intermediate	
Miscellaneous/Comments			Approx. 100' ECD Approx. 60' mats	
HUC-12 Watershed		090201050805		
Seeding Mix				

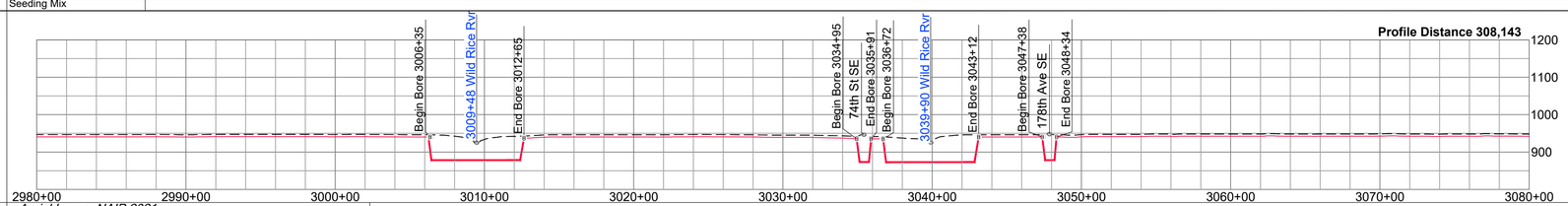
NOTE:
See Bore Surveys, Typical Bore and Typical Section Crossing sheets for Crossing Details.

Wetlands
Waterbodies
Noxious Weeds
Saline Soil

ENVIRONMENTAL NOTES:
1. *Wetlands depicted on these sheets represent actual field survey data or NWI.*
2. *Actual wetland or stream width may vary at time of construction.*

* *Open ("WET") trench if no distinguishable flow at the time of construction, dry crossing method if distinguishable flow at time of construction*

PROFILE



Ref. Dwgs. Aerial Image: NAIP 2021

HSE INC
HARNED SURVEYING & ENGINEERING, INC.
11815 ROBINDALE ROAD
LOUISVILLE, KY 40243
OFFICE (502) 254-3921
FAX (502) 254-6093

HSE Project # 19-21

SURVEY DATUM

North Dakota North (NAD 83)(2011)
International Foot
*Distances are Grid Distances.
Combined Scale Factor = 0.99989766
Grid Dist. x 1.00010235 = Ground Dist.

Drawing Date: 01-19-2022
Drawn By: D. Smith
Checked by: J. Harned

LEGEND:

- Proposed Block Valve
- Proposed Bore
- Alignment PI
- Utility Pole
- Well
- Valve
- Alignment
- Section Line
- Quarter Line
- Fence Line
- UG Fiber Optic
- UG Electric
- Overhead Elec
- Existing Pipeline
- Dirt Road

SUMMARY of MATERIALS

Mark	Quantity	Description
1	8538	12.75" OD, .250" WT, X65, FBE
2	1462	12.75" OD, .312" WT, X65, FBE w/ARO

REVISIONS

No.	Date	Description

500 0 500 1000
scale 1" = 500' - 22 x 34 feet
1" = 1000' - 11 x 17

1" = 500' HORIZ.
1" = 200' VERT.

WAHPETON EXPANSION PROJECT

WBI ENERGY TRANSMISSION
An MDU Resources Group company

Sec. 10, 14, 15, T133N, R48W,
5th P.M., Richland Co., North Dakota

Sheet 28 | R1

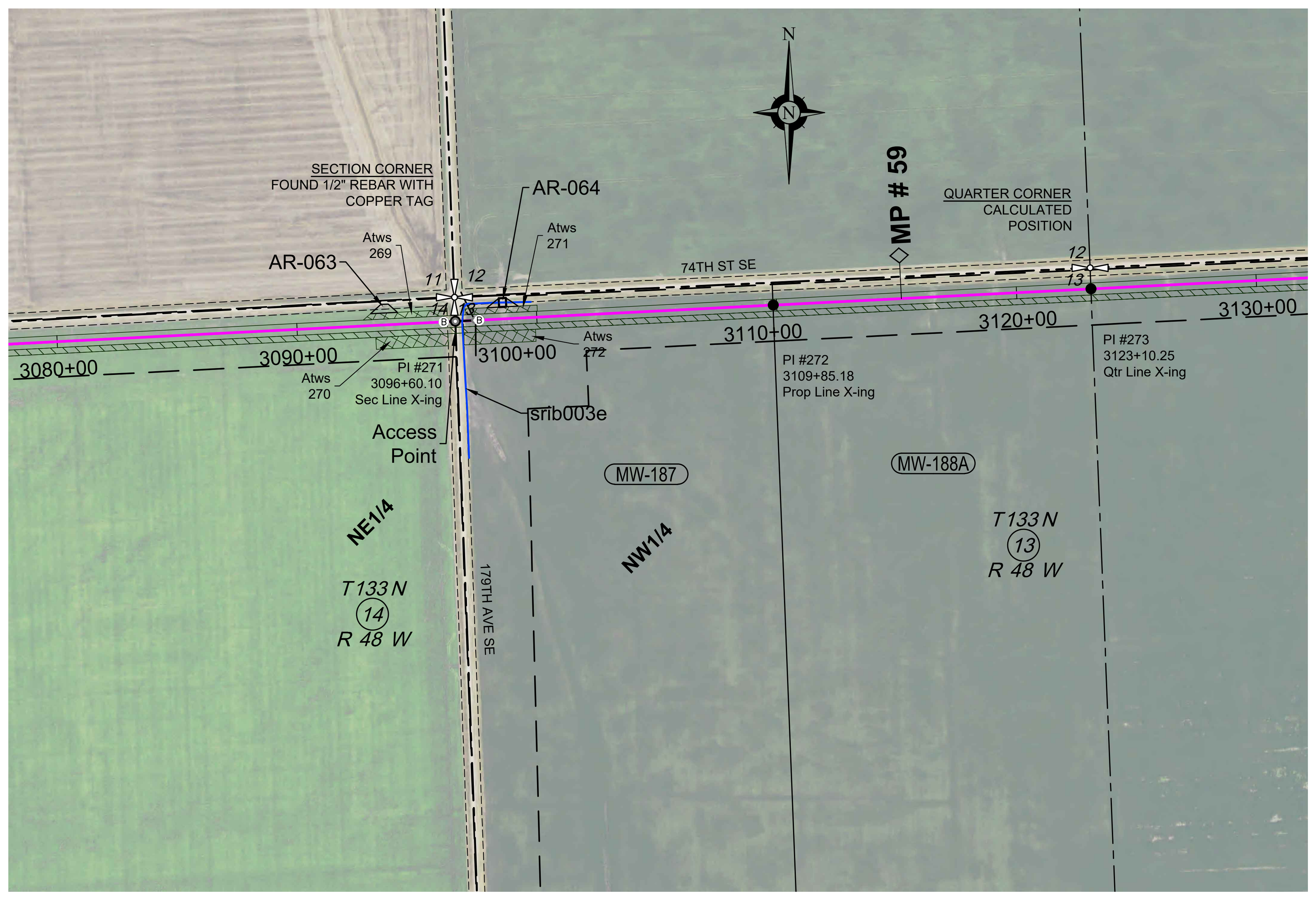
Co, State: SECTIONS 13, 14, T133N, R48W, SECTION 18, T133N, R47W,RICHLAND COUNTY, NORTH DAKOTA

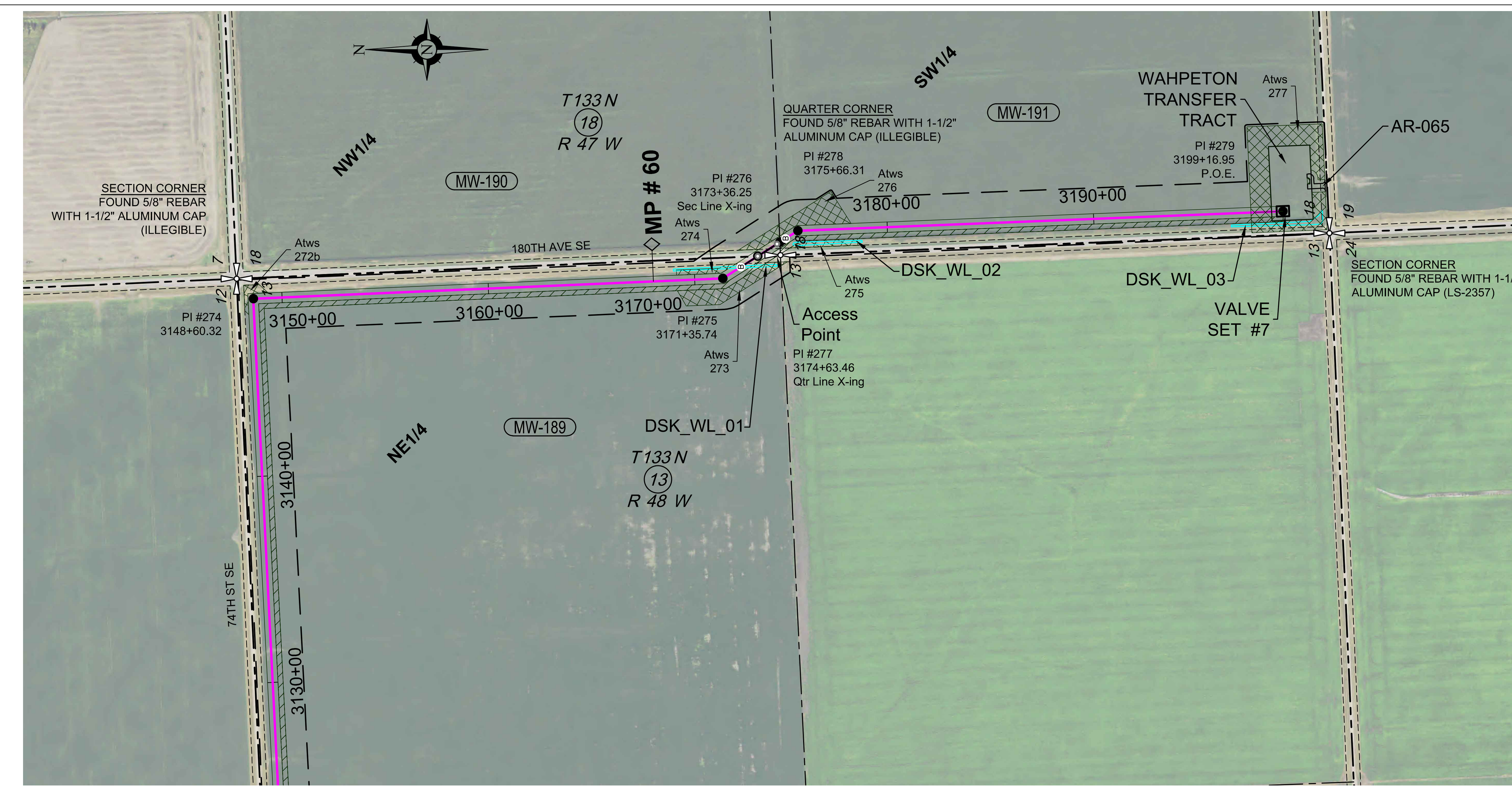
OWNER	MW-187	MW-188A	MW-189	MW-190	MW-191
Station	3096+60 – 3109+85	3109+85 – 3123+10	3123+10 – 3173+36	3173+36 – 3174+63	3174+63 – 3197+85
Description	W1/2NW1/4 SEC. 13, T133N, R48W 1292' Cultivated - 33' Uncultivated	E1/2NW1/4 SEC. 13, T133N, R48W 1325' Cultivated	NE1/4 SEC. 13, T133N, R48W 4993' Cultivated - 33' Uncultivated	EXCEPT ABANDONED RAILROAD PLUS ABANDONED RAILROAD SEC. 18, T133N, R47W 127' Uncultivated	sw1/4 SEC. 18, T133N, R47W 2555' Cultivated
RODDAGE	1325.08' / 80.31 Rods	1325.07' / 80.31 Rods	5026.00' / 304.61 Rods	127.21' / 7.71 Rods	2554.56' / 154.82 Rods

PIPE SCHEMATIC: 3080+00 ① 3096+12 ② 3097+60 ① 3172+40 ② 3174+97 ① 3197+85

FEATURES: 3096+12 Begin Bore; 3096+60 179th Ave SE; 3097+42 UFO; 3097+60 End Bore; 3172+40 Begin Bore; 3173+36 180th Ave SE; 3174+47 CMP; 3174+97 End Bore

ALIGN



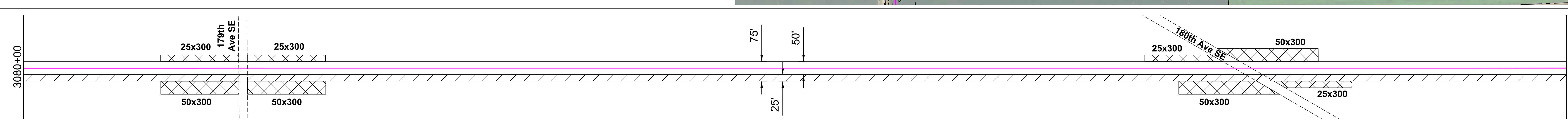


PI #	STATION	DEFLECTION
PI #271	3096+60.10	00°00'
PI #272	3109+85.18	00°00'
PI #273	3123+10.25	00°00'
PI #274	3148+60.32	90°00'R
PI #275	3171+35.74	30°00'L
PI #276	3173+36.25	00°00'
PI #277	3174+63.46	00°00'
PI #278	3175+66.31	30°00'R
PI #279	3199+16.95	00°00'

NOTE: See Bore Surveys, Typical Bore and Typical Section Crossing sheets for Crossing Details.

Wetlands; Waterbodies; Noxious Weeds; Saline Soil

WORK SPACE N.T.S.



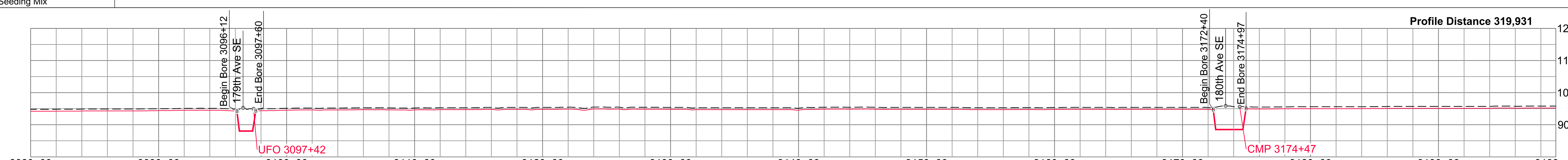
Permanent Easement; Temporary Workspace; Additional Temp. Workspace; Survey Corridor

ENVIRO

Water Crossing	Name	srib003e				
	Crossing Method	Bore				
	Bridge	Yes				
Wetland Crossing	Name		DSK_WL_01	DSK_WL_02	DSK_WL_03	
	Survey Extent	3096+88	3168+97 – 3173+89	3175+10 – 3178+76	3196+65 – 3199+17	
Environmental Feature		Minor	Wetland	Wetland	Wetland	
Miscellaneous/Comments		Approx. 100' ECD; Approx. 40' mats	Approx. 50' ECD	Approx. 50' ECD	Approx. 50' ECD	
HUC-12 Watershed		090201050805	090201040401		090202050601	
Seeding Mix						

ENVIRONMENTAL NOTES:
1. Wetlands depicted on these sheets represent actual field survey data or NWI.
2. Actual wetland or stream width may vary at time of construction.
* Open ("WET") trench if no distinguishable flow at the time of construction, dry crossing method if distinguishable flow at time of construction

PROFILE



Ref. Dwgs. Aerial Image: NAIP 2021

HSE INC. HARNED SURVEYING & ENGINEERING, INC. 11815 ROBINDALE ROAD LOUISVILLE, KY 40243 OFFICE (502) 254-3921 FAX (502) 254-6093

HSE Project # 19-21

SURVEY DATUM
North Dakota North (NAD 83)(2011)
International Foot
*Distances are Grid Distances.
Combined Scale Factor = 0.99989766
Grid Dist. x 1.00010235 = Ground Dist.

Drawing Date: 01-19-2022
Drawn By: D. Smith
Checked by: J. Harned

LEGEND:
Proposed Block Valve; Proposed Bore; Alignment PI; Utility Pole; Well; Valve; Alignment; Section Line; Quarter Line; Fence Line; UG Fiber Optic; UG Electric; Overhead Elec; Existing Pipeline; Dirt Road

SUMMARY of MATERIALS

Mark	Quantity	Description
1	11,512	12.75" OD, .250" WT, X65, FBE
2	405	12.75" OD, .312" WT, X65, FBE w/ARO

REVISIONS

No.	Date	Description

scale 500 0 500 1000 feet
1" = 500' - 22 x 34
1" = 1000' - 11 x 17

WAHPETON EXPANSION PROJECT

1" = 500' HORIZ.
1" = 200' VERT.

WBI ENERGY TRANSMISSION An MDU Resources Group company

Sec. 13, 14, T133N, R48W, Sec. 18, T133N, R47W 5th P.M., Richland Co., North Dakota

Sheet 29 R1