XCEL ENERGY
ELECTRICAL TRANSMISSION LINE
MCHENRY (MCH) SUBSTATION TO MAGIC CITY (MGC) SUBSTATION
LINE NUMBER 0924 - 230kV
LINE NUMBER 5572 - 115kV

TRANSMISSION LINE
LEGEND

- ANCHOR
- ANCHOR REMOVE
- PUSH BRACE
- SOIL BORING
- SWITCH
- TRANSMISSION POLE
- TRANSMISSION POLE REMOVE
- TRANSMISSION TOWER
- TRANSMISSION TOWER REMOVE

WOOD POLE DESCRIPTION ON PROFILE VIEW:
PXX-XXX-XXX

- STRUCTURE HEIGHT
- CLASS = 2, 1, H1, H2, ETC.
- SPECIES = DF, SP, WC, ETC.
- POLE

STEEL POLE DESCRIPTION ON PROFILE VIEW:
PST-XXX-XXX

- STRUCTURE HEIGHT
- FND = ON FOUNDATION
  EMB = DIRECT EMBEDDED
- POLE - STEEL

GENERAL NOTES

1. COORDINATES ARE UTM ZONE 14N (WGS84)
2. PLS-CADD MODEL NAME(S) USED TO CREATE THESE P&P DRAWINGS:
   0924-5572_MCH-MGC

DRAWING REFERENCE

LINE RATING SHEET	NH-271139
PHASING DIAGRAM	NH-270901
SAG TABLE - CONDUCTOR	NH-270925
SAG TABLE - SHIELD WIRE (FIBER)	NH-270926
SAG TABLE - SHIELD WIRE (STEEL)	NH-270927
SOIL BORING REPORT	NX-270865
SUBASSEMBLY INDEX	NL-270924

REGISTERED PROFESSIONAL ENGINEER
JEFFREY D MARQUARDT
PE-10846
DATE
NORTH DAKOTA

ISSUED BY ENGINEERING DEPT FOR: RECORD

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80 PU-17-102 Filed 02/11/2019 Pages: 32
Plan and Profile Maps
Northern States Power Company

230kV

Xcel Energy®

NH-270850-1

SCALE: NONE

REV: 3

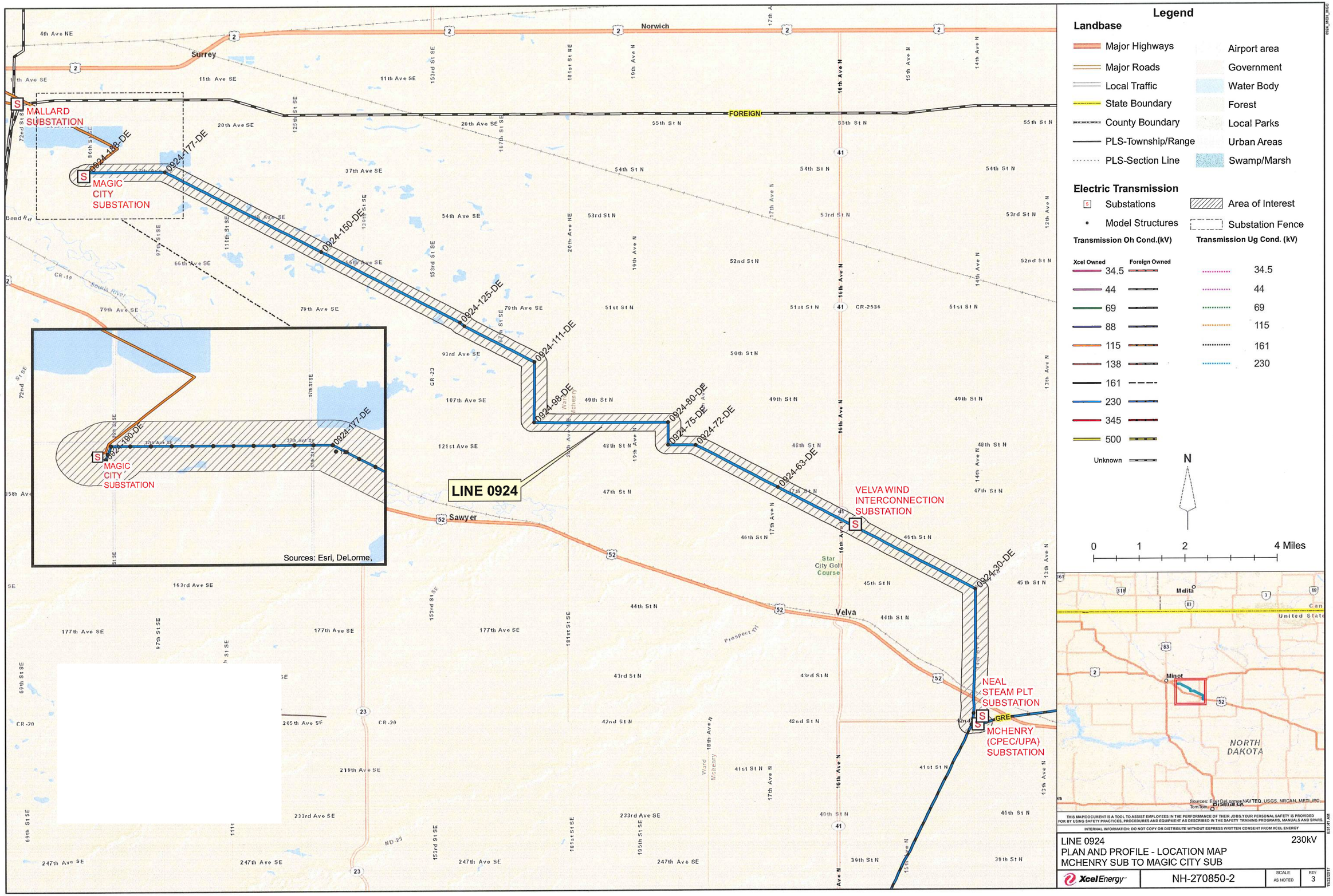
REV	DATE	WBS 4	REVISION DESCRIPTION

REV	DATE	WBS 4	REVISION DESCRIPTION
1	12/11/2017	A.0000594.016.001.001	ADDED NOTE TO UPDATE STRUCTURE NUMBERS FOR STR 49-1 AND 49.2 IN THE FIELD

REV	DATE	WBS 4	REVISION DESCRIPTION
2	11/20/2018	A.0000594.016.001.001	ADD FOUNDATION DRAWING CALLOUT TO STR 5572-1-2
3	01/16/2019	A.0000594.016.001.001	AS BUILT

NH-270850-1.DGN

1/16/2019 4:13:41 PM


MALLARD SUBSTATION
MAGIC CITY SUBSTATION
0924-188-DE
0924-177-DE
0924-150-DE
0924-125-DE
0924-111-DE
0924-98-DE
0924-80-DE
0924-75-DE
0924-72-DE
0924-63-DE
0924-30-DE
0924-190-DE
LINE 0924
VELVA WIND INTERCONNECTION SUBSTATION
NEAL STEAM PLT SUBSTATION
MCHENRY (CPEC/UPA) SUBSTATION
GRE
Norwich
Surrey
Sawyer
Velva
FOREIGN
Star City Golf Course
Sources: Esri, DeLorme,
Legend
Landbase
Major Highways
Major Roads
Local Traffic
State Boundary
County Boundary
PLS-Township/Range
PLS-Section Line
Airport area
Government
Water Body
Forest
Local Parks
Urban Areas
Swamp/Marsh
Electric Transmission
Substations
Model Structures
Area of Interest
Substation Fence
Transmission Oh Cond.(kV)
Transmission Ug Cond. (kV)
Xcel Owned
Foreign Owned
34.5
44
69
88
115
138
161
230
345
500
Unknown
N
0 1 2 4 Miles
Melita
United States
Minot
NORTH DAKOTA
Sources: Esri, DeLorme, NAVTEQ, USGS, NRCAN, METI, IEC, TomTom
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LINE 0924
230kV
PLAN AND PROFILE - LOCATION MAP
MCHENRY SUB TO MAGIC CITY SUB
Xcel Energy
NH-270850-2
SCALE AS NOTED
REV 3

LINE NUMBER	START STRUCTURE NUMBER	END STRUCTURE NUMBER	RULING SPAN (FT)	SECTION LENGTH (FT)	WIRE TYPE DESCRIPTION	VOLTAGE (KV)	NUMBER OF PHASES	WIRES PER PHASE	NESC 250B TENSION (LBS)	MAXIMUM RATED OPERATING TEMP. (°F)	DISPLAY WEATHER CASE	DISPLAY CONDITION	DISPLAY COLOR
0924	0924-MCH-SUB1	0924-1-DE	390	393	sfp-sfsj-48f-ogw091_2000.wir	0	1	1	1918	---	-20° F	Initial RS	Orange
0924	0924-190-DE	0924-MGC-SUB1	456	446	sfp-sfsj-48f-ogw091_2500.wir	0	1	1	2163	---	-20° F	Initial RS	Orange
0924	0924-188-DE	0924-189-DE	284	293	sfp-sfsj-48f-ogw091_2800.wir	0	1	1	2070	---	-20° F	Initial RS	Orange
0924	0924-189-DE	0924-190-DE	199	199	sfp-sfsj-48f-ogw091_2800.wir	0	1	1	2715	---	-20° F	Initial RS	Orange
0924	0924-49-DE	0924-63-DE	523	7287	sfp-sfsj-48f-ogw091_4400.wir	0	1	1	4226	---	-20° F	Initial RS	Orange
0924	0924-75-DE	0924-80-DE	521	2598	sfp-sfsj-48f-ogw091_4400.wir	0	1	1	4257	---	-20° F	Initial RS	Orange
0924	0924-111-DE	0924-124-DE	524	6786	sfp-sfsj-48f-ogw091_4400.wir	0	1	1	4145	---	-20° F	Initial RS	Orange
0924	0924-124-DE	0924-125-DE	535	536	sfp-sfsj-48f-ogw091_4400.wir	0	1	1	3436	---	-20° F	Initial RS	Orange
0924	0924-98-DE	0924-111-DE	537	6952	sfp-sfsj-48f-ogw091_4450.wir	0	1	1	4358	---	-20° F	Initial RS	Orange
0924	0924-177-DE	0924-188-DE	536	5897	sfp-sfsj-48f-ogw091_4450.wir	0	1	1	4330	---	-20° F	Initial RS	Orange
0924	0924-3-DE	0924-30-DE	546	14286	sfp-sfsj-48f-ogw091_4500.wir	0	1	1	4287	---	-20° F	Initial RS	Orange
0924	0924-125-DE	0924-150-DE	554	13493	sfp-sfsj-48f-ogw091_4550.wir	0	1	1	4586	---	-20° F	Initial RS	Orange
0924	0924-1-DE	0924-2-DE	572	586	sfp-sfsj-48f-ogw091_4600.wir	0	1	1	4599	---	-20° F	Initial RS	Orange
0924	0924-80-DE	0924-98-DE	593	10376	sfp-sfsj-48f-ogw091_4700.wir	0	1	1	4513	---	-20° F	Initial RS	Orange
0924	0924-150-DE	0924-177-DE	603	15209	sfp-sfsj-48f-ogw091_4750.wir	0	1	1	4643	---	-20° F	Initial RS	Orange
0924	0924-30-DE	0924-49-DE	664	11944	sfp-sfsj-48f-ogw091_4800.wir	0	1	1	4742	---	-20° F	Initial RS	Orange
0924	0924-2-DE	0924-3-DE	754	753	sfp-sfsj-48f-ogw091_4900.wir	0	1	1	4772	---	-20° F	Initial RS	Orange
0924	0924-72-DE	0924-75-DE	733	2119	sfp-sfsj-48f-ogw091_5200.wir	0	1	1	4998	---	-20° F	Initial RS	Orange
0924	0924-63-DE	0924-72-DE	899	8030	sfp-sfsj-48f-ogw091_5650.wir	0	1	1	5521	---	-20° F	Initial RS	Orange
0924	0924-75-DE	0924-80-DE	521	2598	hawk_acsr-t2_xcel_10400.wir	230	3	1	10714	212	212° F	Max Sag RS	Light Green
5572	0924-75-DE	0924-80-DE	520	2598	hawk_acsr-t2_xcel_10400.wir	115	3	1	10674	212	212° F	Max Sag RS	Magenta
0924	0924-49-DE	0924-63-DE	523	7287	hawk_acsr-t2_xcel_10450.wir	230	3	1	12752	212	212° F	Max Sag RS	Light Green
5572	0924-49-DE	0924-63-DE	522	7287	hawk_acsr-t2_xcel_10450.wir	115	3	1	11856	212	212° F	Max Sag RS	Magenta
0924	0924-111-DE	0924-124-DE	524	6786	hawk_acsr-t2_xcel_10450.wir	230	3	1	12827	212	212° F	Max Sag RS	Light Green
5572	0924-111-DE	0924-124-DE	525	6786	hawk_acsr-t2_xcel_10450.wir	115	3	1	12625	212	212° F	Max Sag RS	Magenta
0924	0924-124-DE	0924-125-DE	535	536	hawk_acsr-t2_xcel_10450.wir	230	3	1	10652	212	212° F	Max Sag RS	Light Green
5572	0924-124-DE	0924-125-DE	535	536	hawk_acsr-t2_xcel_10450.wir	115	3	1	10806	212	212° F	Max Sag RS	Magenta
0924	0924-177-DE	0924-188-DE	535	5897	hawk_acsr-t2_xcel_10500.wir	230	3	1	12048	212	212° F	Max Sag RS	Light Green
5572	0924-177-DE	0924-188-DE	538	5897	hawk_acsr-t2_xcel_10500.wir	115	3	1	12325	212	212° F	Max Sag RS	Magenta
0924	0924-98-DE	0924-111-DE	537	6952	hawk_acsr-t2_xcel_10550.wir	230	3	1	12114	212	212° F	Max Sag RS	Light Green
5572	0924-98-DE	0924-111-DE	536	6952	hawk_acsr-t2_xcel_10550.wir	115	3	1	11872	212	212° F	Max Sag RS	Magenta
0924	0924-1-DE	0924-2-DE	563	586	hawk_acsr-t2_xcel_10600.wir	230	3	1	11430	212	212° F	Max Sag RS	Light Green
0924	0924-2-DE	0924-3-DE	754	753	hawk_acsr-t2_xcel_10600.wir	230	3	1	11269	212	212° F	Max Sag RS	Light Green
5572	0924-2-DE	0924-3-DE	748	753	hawk_acsr-t2_xcel_10600.wir	115	3	1	10695	212	212° F	Max Sag RS	Magenta
0924	0924-3-DE	0924-30-DE	546	14286	hawk_acsr-t2_xcel_10600.wir	230	3	1	12262	212	212° F	Max Sag RS	Light Green
5572	0924-3-DE	0924-30-DE	547	14286	hawk_acsr-t2_xcel_10600.wir	115	3	1	13256	212	212° F	Max Sag RS	Magenta
0924	0924-30-DE	0924-49-DE	663	11944	hawk_acsr-t2_xcel_10600.wir	230	3	1	11299	212	212° F	Max Sag RS	Light Green
5572	0924-30-DE	0924-49-DE	664	11944	hawk_acsr-t2_xcel_10600.wir	115	3	1	11659	212	212° F	Max Sag RS	Magenta
0924	0924-125-DE	0924-150-DE	554	13493	hawk_acsr-t2_xcel_10600.wir	230	3	1	13459	212	212° F	Max Sag RS	Light Green
5572	0924-125-DE	0924-150-DE	554	13493	hawk_acsr-t2_xcel_10600.wir	115	3	1	12976	212	212° F	Max Sag RS	Magenta
0924	0924-80-DE	0924-98-DE	593	10376	hawk_acsr-t2_xcel_10900.wir	230	3	1	10904	212	212° F	Max Sag RS	Light Green
5572	0924-80-DE	0924-98-DE	593	10376	hawk_acsr-t2_xcel_10900.wir	115	3	1	10909	212	212° F	Max Sag RS	Magenta
0924	0924-150-DE	0924-177-DE	603	15209	hawk_acsr-t2_xcel_11000.wir	230	3	1	12960	212	212° F	Max Sag RS	Light Green
5572	0924-150-DE	0924-177-DE	604	15209	hawk_acsr-t2_xcel_11000.wir	115	3	1	12749	212	212° F	Max Sag RS	Magenta
0924	0924-72-DE	0924-75-DE	733	2119	hawk_acsr-t2_xcel_11600.wir	230	3	1	13379	212	212° F	Max Sag RS	Light Green
5572	0924-72-DE	0924-75-DE	735	2119	hawk_acsr-t2_xcel_11600.wir	115	3	1	13260	212	212° F	Max Sag RS	Magenta
0924	0924-63-DE	0924-72-DE	899	8030	hawk_acsr-t2_xcel_12250.wir	230	3	1	13217	212	212° F	Max Sag RS	Light Green
5572	0924-63-DE	0924-72-DE	900	8030	hawk_acsr-t2_xcel_12250.wir	115	3	1	13347	212	212° F	Max Sag RS	Magenta
5572	5572-MCH-SUB1	5572-1-2-DE	163	337	hawk_acsr-t2_xcel_2000.wir	115	3	1	2002	212	212° F	Max Sag RS	Magenta
5572	0924-189-DE	5572-MGC-SUB1	232	479	hawk_acsr-t2_xcel_2000.wir	115	3	1	2128	212	212° F	Max Sag RS	Magenta
0924	0924-MCH-SUB1	0924-1-DE	385	393	hawk_acsr-t2_xcel_3000.wir	230	3	1	2854	212	212° F	Max Sag RS	Light Green
5572	0924-49-DE	5572-49-1-DE	49	63	hawk_acsr-t2_xcel_500.wir	115	3	1	485	212	212° F	Max Sag RS	Magenta
5572	0924-49-DE	5572-49-1-DE	50	63	hawk_acsr-t2_xcel_500.wir	115	3	1	487	212	212° F	Max Sag RS	Magenta
0924	0924-190-DE	0924-MGC-SUB1	451	446	hawk_acsr-t2_xcel_5000.wir	230	3	1	4995	212	212° F	Max Sag RS	Light Green
0924	0924-188-DE	0924-189-DE	277	293	hawk_acsr-t2_xcel_7700.wir	230	3	1	8285	212	212° F	Max Sag RS	Light Green
5572	0924-188-DE	0924-189-DE	306	293	hawk_acsr-t2_xcel_7700.wir	115	3	1	7766	212	212° F	Max Sag RS	Magenta
0924	0924-189-DE	0924-190-DE	198	199	hawk_acsr-t2_xcel_7700.wir	230	3	1	3783	212	212° F	Max Sag RS	Light Green
5572	5572-1-2-DE	0924-2-DE	405	419	hawk_acsr-t2_xcel_9200.wir	115	3	1	9196	212	212° F	Max Sag RS	Magenta
5572	5572-49-1-DE	5572-49-2-DE	112	127	336.4 ACSR 26/7 LINNET	115	3	1	1693	212	212° F	Max Sag RS	Magenta
5572	5572-49-2-DE	5572-VEL-SUB1	52	55	336.4 ACSR 26/7 LINNET	115	3	1	1614	212	212° F	Max Sag RS	Magenta
5572	5572-MCH-SUB1	5572-1-1-SWDE	157	159	3-8_7-strand_ehs_steel_xcel_1000.wir	0	2	1	997	---	-20° F	Initial RS	Cyan

NOTES:
1. WIRE TENSIONS SHOWN INDICATE THE TOTAL LOAD WITH THE WIRE IN INITIAL CONDITION UNDER NESC HEAVY LOAD CONDITIONS (0.5" RADIAL ICE THICKNESS, 4 LB/FT^2 HORIZONTAL WIND PRESSURE, 0°F WIRE TEMPERATURE, ADDITIVE CONSTANT = 0.3 LB/FT).
2. WIRE TENSION SHOWN IS FOR THE HIGHEST TENSION WIRE OF EACH SET.
3. FOR BUNDLED CONDUCTORS, WIRE TENSIONS SHOWN ARE FOR A SINGLE SUBCONDUCTOR.
4. SECTION LENGTH DISPLAYED AS STATION DISTANCE.

REGISTERED PROFESSIONAL ENGINEER
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PE-10846
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LINE 0924
PLAN AND PROFILE - SECTIONS TABLE
0924-5572_MCH-MGC

Xcel Energy®

NH-270850-3	SCALE NONE	REV 3

LINE NUMBER	START STRUCTURE NUMBER	END STRUCTURE NUMBER	RULING SPAN (FT)	SECTION LENGTH (FT)	WIRE TYPE DESCRIPTION	VOLTAGE (KV)	NUMBER OF PHASES	WIRES PER PHASE	NESC 250B TENSION (LBS)	MAXIMUM RATED OPERATING TEMP. (°F)	DISPLAY WEATHER CASE	DISPLAY CONDITION	DISPLAY COLOR
5572	5572-190	5572-MGC-SUB1	217	219	3-8_7-strand_ehs_steel_xcel_1000.wir	0	2	1	784	---	-20° F	Initial RS	Cyan
5572	0924-49-DE	5572-49-1-DE	56	63	3-8_7-strand_ehs_steel_xcel_1500.wir	0	1	1	1496	---	-20° F	Initial RS	Cyan
5572	5572-49-1-DE	5572-49-2-DE	118	127	3-8_7-strand_ehs_steel_xcel_1500.wir	0	1	1	1495	---	-20° F	Initial RS	Cyan
5572	0924-189-DE	5572-190	251	260	3-8_7-strand_ehs_steel_xcel_1800.wir	0	1	1	1339	---	-20° F	Initial RS	Cyan
5572	5572-1-1-SWDE	5572-1-2-DE	175	178	3-8_7-strand_ehs_steel_xcel_2000.wir	0	1	1	1999	---	-20° F	Initial RS	Cyan
0924	0924-MCH-SUB1	0924-1-DE	389	393	3-8_7-strand_ehs_steel_xcel_2000.wir	0	1	1	1628	---	-20° F	Initial RS	Cyan
0924	0924-188-DE	0924-189-DE	299	293	3-8_7-strand_ehs_steel_xcel_2150.wir	0	1	1	1665	---	-20° F	Initial RS	Cyan
0924	0924-190-DE	0924-MGC-SUB1	461	446	3-8_7-strand_ehs_steel_xcel_2500.wir	0	1	1	2148	---	-20° F	Initial RS	Cyan
5572	5572-1-2-DE	0924-2-DE	403	419	3-8_7-strand_ehs_steel_xcel_2800.wir	0	1	1	2456	---	-20° F	Initial RS	Cyan
0924	0924-49-DE	0924-63-DE	523	7287	3-8_7-strand_ehs_steel_xcel_3400.wir	0	1	1	3171	---	-20° F	Initial RS	Cyan
0924	0924-75-DE	0924-80-DE	520	2598	3-8_7-strand_ehs_steel_xcel_3400.wir	0	1	1	2967	---	-20° F	Initial RS	Cyan
0924	0924-111-DE	0924-124-DE	525	6786	3-8_7-strand_ehs_steel_xcel_3400.wir	0	1	1	3070	---	-20° F	Initial RS	Cyan
0924	0924-124-DE	0924-125-DE	535	536	3-8_7-strand_ehs_steel_xcel_3400.wir	0	1	1	2626	---	-20° F	Initial RS	Cyan
0924	0924-98-DE	0924-111-DE	536	6952	3-8_7-strand_ehs_steel_xcel_3450.wir	0	1	1	3129	---	-20° F	Initial RS	Cyan
0924	0924-177-DE	0924-188-DE	538	5897	3-8_7-strand_ehs_steel_xcel_3450.wir	0	1	1	3028	---	-20° F	Initial RS	Cyan
0924	0924-3-DE	0924-30-DE	546	14286	3-8_7-strand_ehs_steel_xcel_3500.wir	0	1	1	3126	---	-20° F	Initial RS	Cyan
0924	0924-125-DE	0924-150-DE	554	13493	3-8_7-strand_ehs_steel_xcel_3550.wir	0	1	1	3318	---	-20° F	Initial RS	Cyan
0924	0924-80-DE	0924-98-DE	593	10376	3-8_7-strand_ehs_steel_xcel_3650.wir	0	1	1	3397	---	-20° F	Initial RS	Cyan
0924	0924-150-DE	0924-177-DE	604	15209	3-8_7-strand_ehs_steel_xcel_3700.wir	0	1	1	3474	---	-20° F	Initial RS	Cyan
0924	0924-30-DE	0924-49-DE	664	11944	3-8_7-strand_ehs_steel_xcel_3800.wir	0	1	1	3487	---	-20° F	Initial RS	Cyan
0924	0924-2-DE	0924-3-DE	748	753	3-8_7-strand_ehs_steel_xcel_3900.wir	0	1	1	3591	---	-20° F	Initial RS	Cyan
0924	0924-72-DE	0924-75-DE	734	2119	3-8_7-strand_ehs_steel_xcel_4100.wir	0	1	1	3835	---	-20° F	Initial RS	Cyan
0924	0924-63-DE	0924-72-DE	900	8030	3-8_7-strand_ehs_steel_xcel_4500.wir	0	1	1	4309	---	-20° F	Initial RS	Cyan

NOTES:
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LINE 0924
PLAN AND PROFILE - SECTIONS TABLE
0924-5572_MCH-MGC

Xcel Energy®

NH-270850-4	SCALE NONE	REV 3

STRUCTURES

STRUCTURE NUMBER	AHEAD SPAN (FT)	STATION (FT)	LINE ANGLE (DEG)	STRUCTURE ASSEMBLY	LOAD & DESIGN DETAILS	STEEL or TOWER DETAILS	FOUNDATION DETAILS	COMMENTS
5572-MCH-SUB1	158.9	0+21.00	-0° 28' 0.0"	STR NH-271117-2	---	---	---	---
5572-1-1-SWDE	178.5	1+79.87	-0° 50' 0.0"	STR NH-271101-2	---	---	---	R=8.1 OHMS
5572-1-2-DE	419.0	3+58.34	64° 2' 0.0"	STR NH-270926-1	LD NH-270914	STL ND-270917-PST15011	FDN NH-271138-ABC169	R=9.6 OHMS
0924-MCH-SUB1	393.1	14+90.43	1° 13' 0.0"	STR NH-270918-1	---	---	---	---
0924-1-DE	585.8	18+83.55	100° 30' 0.0"	STR NH-270930-1	LD NH-270912	STL ND-270917-PST15009	FDN NH-270903-ABC177	R=9.9 OHMS
0924-2-DE	752.7	24+69.38	-0° 23' 0.0"	STR NH-270925-1 STR NH-270925-2	LD NH-270913	STL ND-270917-PST15010	FDN NH-270903-ABC168 FDN NH-270903-ABC169	R= L=10 M=10 L=8.6 OHMS
	752.7							
	752.7							
0924-3-DE	748.1	32+22.05	-1° 19' 0.0"	STR NH-270924-1 STR NH-270924-2	LD NH-270909	STL ND-270917-PST15002	FDN NH-270903-ABC223	R=24.5 OHMS
0924-4	746.5	39+70.10	-9° 40' 0.0"	STR NH-270923-1 STR NH-270923-2	LD NH-270908	STL ND-270917-PST14978	FDN NH-270903-ABC163	R=3.4 OHMS
0924-5	552.4	47+16.60	6° 29' 0.0"	STR NH-270923-1 STR NH-270923-2	LD NH-270908	STL ND-270917-PST14977	FDN NH-270903-ABC163	R=8.9 OHMS
0924-6	551.9	52+69.01	-0° 22' 0.0"	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14966	---	R=11.9 OHMS
0924-7	496.0	58+20.88	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14966	---	R=9.1 OHMS
0924-8	495.8	63+16.86	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14966	---	R=9 OHMS
0924-9	482.5	68+12.64	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=19.6 OHMS
0924-10	504.6	72+95.15	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=23.6 OHMS
0924-11	486.6	77+99.78	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=16.3 OHMS
0924-12	418.8	82+86.37	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=14.3 OHMS
0924-13	416.1	87+05.17	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=16.1 OHMS
0924-14	536.0	91+21.26	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14966	---	R=14.6 OHMS
0924-15	426.3	96+57.25	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=24.9 OHMS
0924-16	421.1	100+83.52	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14963	---	R=23.2 OHMS
0924-17	543.5	105+04.63	-1° 17' 0.0"	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=21.4 OHMS
0924-18	548.0	110+48.16	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=18.6 OHMS
0924-19	550.2	115+96.14	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=21.7 OHMS
0924-20	549.1	121+46.31	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=24.7 OHMS
0924-21	549.3	126+95.40	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=24.2 OHMS
0924-22	548.4	132+44.74	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=24.3 OHMS
0924-23	550.7	137+93.09	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=23.7 OHMS
0924-24	549.3	143+43.76	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=13.5 OHMS
0924-25	548.4	148+93.10	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=5.5 OHMS
0924-26	536.8	154+41.51	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=11.4 OHMS
0924-27	535.0	159+78.31	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=5.5 OHMS
0924-28	521.0	165+13.27	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14966	---	---

STRUCTURE COMPONENTS

POSITION LABEL	DESCRIPTION	LENGTH (FT)	EMBEDMENT (FT)
STR_HUB	DUMMY STRUCTURE, POLE INFORMATION UNKNOWN	UNK	UNK
CENTER	POLE, DOUGLAS FIR, 90', CLASS 1	90	14.1
CENTER	POLE, STEEL, WEATHERING, SINGLE CIRCUIT, VERTICAL	95	---
STR_HUB	DUMMY STRUCTURE, POLE INFORMATION UNKNOWN	UNK	UNK
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	115.5	---
LEFT	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	125	---
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	95	---
RIGHT	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	125	---
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	110.5	---
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	120	---
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	115.5	---
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	120.5	17.0
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	120.5	15.5
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	120.5	16.0
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.8
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	17.0
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.5
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.4
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	16.5
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	120.5	16.0
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	17.2
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	105.5	16.3
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.5
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	17.3
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.5
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.9
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	17.1
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	17.1
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	15.8
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	17.3
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.7
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.8
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	15.6
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	120.5	17.7

NOTES:

1. ALL LINE ANGLES LESS THEN 0.25 DEGREES ARE OMITTED FROM THIS TABLE.
2. LINE ANGLES ARE DISPLAYED AS POSITIVE VALUES FOR RIGHT HAND TURNS AND NEGATIVE VALUES FOR LEFT HAND TURNS. ALIGNMENT IS DEFINED IN ASCENDING STRUCTURE ORDER.

REGISTERED PROFESSIONAL ENGINEER
JEFFREY D MARQUARDT
PE-10846
DATE
NORTH DAKOTA

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LINE 0924 0KV
PLAN AND PROFILE - STRUCTURES TABLE
0924-5572_MCH-MGC

Xcel Energy® | NH-270850-5 | SCALE NONE | REV 3

STRUCTURES

STRUCTURE COMPONENTS

STRUCTURE NUMBER	AHEAD SPAN (FT)	STATION (FT)	LINE ANGLE (DEG)	STRUCTURE ASSEMBLY	LOAD & DESIGN DETAILS	STEEL or TOWER DETAILS	FOUNDATION DETAILS	COMMENTS	POSITION LABEL	DESCRIPTION	LENGTH (FT)	EMBEDMENT (FT)
0924-29	474.0	170+34.21	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=8.1 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	17.0
0924-30-DE	724.9	175+08.19	-52° 43' 0.0"	STR NH-270924-1 STR NH-270924-2	LD NH-270910	STL ND-270917-PST15004	FDN NH-270903-ABC244	R=7.2 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	115.5	---
0924-31	748.9	182+33.13	---	STR NH-270921-1 STR NH-270921-2	LD NH-270906	STL ND-270917-PST14972	FDN NH-270903-ABC158	R=6.0 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	115	---
0924-32	737.0	189+81.99	---	STR NH-270921-1 STR NH-270921-2	LD NH-270906	STL ND-270917-PST14969	FDN NH-270903-ABC158	R=16.5 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	100	---
0924-33	825.2	197+18.95	---	STR NH-270921-1 STR NH-270921-2	LD NH-270906	STL ND-270917-PST14971	FDN NH-270903-ABC158	R=10.0 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	110	---
0924-34	810.5	205+44.17	---	STR NH-270921-1 STR NH-270921-2	LD NH-270906	STL ND-270917-PST14970	FDN NH-270903-ABC158	R=19.3 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	105	---
0924-35	800.3	213+54.66	---	STR NH-270921-1 STR NH-270921-2	LD NH-270906	STL ND-270917-PST14972	FDN NH-270903-ABC158	R=7.6 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	115	---
0924-36	813.0	221+54.99	---	STR NH-270921-1 STR NH-270921-2	LD NH-270906	STL ND-270917-PST14972	FDN NH-270903-ABC158	---	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	115	---
0924-37	516.9	229+67.99	---	STR NH-270921-1 STR NH-270921-2	LD NH-270906	STL ND-270917-PST14971	FDN NH-270903-ABC158	R=24.9 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	110	---
0924-38	483.7	234+84.93	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=6.09 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	15.7
0924-39	597.9	239+68.66	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=24.6 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.0
0924-40	590.1	245+66.54	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=21.7 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	16.8
0924-41	519.1	251+56.60	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=19 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	16.5
0924-42	498.5	256+75.74	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=24.1 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	16.5
0924-43	549.8	261+74.26	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=15.9 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.0
0924-44	550.6	267+24.03	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=9.3 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.6
0924-45	608.1	272+74.63	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=15.4 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	16.3
0924-46	520.9	278+82.75	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=12.0 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	17.0
0924-47	530.8	284+03.66	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=13.2 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	17.1
0924-48	518.3	289+34.42	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=5.7 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	16.9
0924-49-DE	NA	294+52.67	NA	STR NH-270927-1 STR NH-270927-2	LD NH-270915	STL ND-270917-PST15012	FDN NH-270903-ABC190	R=12.8 OHMS	CENTER	POLE, STEEL, WEATHERING, TRIPLE CIRCUIT, VERTICAL	105	---
0924-50	478.5	299+28.03	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=8.3 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	17.2
0924-51	443.1	304+06.55	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14962	---	R=24.9 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	100.5	15.5
0924-52	535.6	308+49.65	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14966	---	R=10.9 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	120.5	17.0
0924-53	527.7	313+85.29	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=10.3 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.0
0924-54	530.0	319+12.98	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=14.1 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.0
0924-55	531.6	324+42.96	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=7.1 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	17.2
0924-56	534.0	329+74.53	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=6.4 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.4
0924-57	517.3	335+08.57	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=12.3 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.0
0924-58	527.1	340+25.84	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=7.9 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.8
0924-59	547.9	345+52.92	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=9.6 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	16.0
0924-60	546.6	351+00.82	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=7.0 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	16.8
0924-61	544.2	356+47.46	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14966	---	---	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	120.5	17.4
0924-62	547.8	361+91.61	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=3.8 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	17.0
0924-63-DE	757.1	367+39.36	---	STR NH-270924-1 STR NH-270924-2	LD NH-270909	STL ND-270917-PST15001	FDN NH-270903-ABC223	R=4.2 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	105.5	---
0924-64	851.0	374+96.47	---	STR NH-270921-1 STR NH-270921-2	LD NH-270906	STL ND-270917-PST14972	FDN NH-270903-ABC158	R=4.9 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	115	---

NOTES:

1. ALL LINE ANGLES LESS THEN 0.25 DEGREES ARE OMITTED FROM THIS TABLE.
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JEFFREY D MARQUARDT
PE-10846
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NORTH DAKOTA

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LINE 0924 0KV

PLAN AND PROFILE - STRUCTURES TABLE

0924-5572_MCH-MGC

Xcel Energy® | NH-270850-6 | SCALE: NONE | REV: 3

STRUCTURES

STRUCTURE NUMBER	AHEAD SPAN (FT)	STATION (FT)	LINE ANGLE (DEG)	STRUCTURE ASSEMBLY	LOAD & DESIGN DETAILS	STEEL or TOWER DETAILS	FOUNDATION DETAILS	COMMENTS
0924-65	885.3	383+47.46	---	STR NH-270921-1 STR NH-270921-2	LD NH-270906	STL ND-270917-PST14973	FDN NH-270903-ABC158	R=9.9 OHMS
0924-66	865.6	392+32.74	---	STR NH-270921-1 STR NH-270921-2	LD NH-270906	STL ND-270917-PST14972	FDN NH-270903-ABC158	R=6.2 OHMS
0924-67	846.9	400+98.33	---	STR NH-270921-1 STR NH-270921-2	LD NH-270906	STL ND-270917-PST14971	FDN NH-270903-ABC158	R=10.0 OHMS
0924-68	949.8	409+45.27	---	STR NH-270921-1 STR NH-270921-2	LD NH-270906	STL ND-270917-PST14972	FDN NH-270903-ABC158	R=4.0 OHMS
0924-69	955.3	418+95.02	---	STR NH-270921-1 STR NH-270921-2	LD NH-270906	STL ND-270917-PST14973	FDN NH-270903-ABC158	R=4.9 OHMS
0924-70	963.1	428+50.27	---	STR NH-270921-1 STR NH-270921-2	LD NH-270906	STL ND-270917-PST14973	FDN NH-270903-ABC158	R=4.1 OHMS
0924-71	956.4	438+13.41	---	STR NH-270921-1 STR NH-270921-2	LD NH-270906	STL ND-270917-PST14972	FDN NH-270903-ABC158	R=3.7 OHMS
0924-72-DE	799.6	447+69.76	-37° 19' 0.0"	STR NH-270924-1 STR NH-270924-2	LD NH-270910	STL ND-270917-PST15005	FDN NH-270903-ABC193	R=8.9 OHMS
0924-73	779.4	455+69.40	---	STR NH-270921-1 STR NH-270921-2	LD NH-270906	STL ND-270917-PST14971	FDN NH-270903-ABC158	R=5.2 OHMS
0924-74	540.5	463+48.79	---	STR NH-270921-1 STR NH-270921-2	LD NH-270906	STL ND-270917-PST14970	FDN NH-270903-ABC158	R=5.4 OHMS
0924-75-DE	530.2	468+89.24	89° 43' 0.0"	STR NH-270924-1 STR NH-270924-2	LD NH-270911	STL ND-270917-PST15008	FDN NH-270903-ABC193	R=9.0 OHMS
0924-76	536.1	474+19.48	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=6.2 OHMS
0924-77	535.6	479+55.61	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=6.4 OHMS
0924-78	505.0	484+91.21	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=8.4 OHMS
0924-79	491.2	489+96.17	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=10.5 OHMS
0924-80-DE	574.6	494+87.39	-89° 50' 0.0"	STR NH-270924-1 STR NH-270924-2	LD NH-270911	STL ND-270917-PST15007	FDN NH-270903-ABC192	R=11.2 OHMS
0924-81	751.1	500+62.03	---	STR NH-270921-1 STR NH-270921-2	LD NH-270906	STL ND-270917-PST14970	FDN NH-270903-ABC158	R=13.0 OHMS
0924-82	742.6	508+13.16	---	STR NH-270921-1 STR NH-270921-2	LD NH-270906	STL ND-270917-PST14971	FDN NH-270903-ABC158	R=6.6 OHMS
0924-83	736.3	515+55.79	---	STR NH-270921-1 STR NH-270921-2	LD NH-270906	STL ND-270917-PST14971	FDN NH-270903-ABC158	R=7.1 OHMS
0924-84	519.8	522+92.07	---	STR NH-270921-1 STR NH-270921-2	LD NH-270906	STL ND-270917-PST14970	FDN NH-270903-ABC158	R=7.32 OHMS
0924-85	539.2	528+11.91	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	---
0924-86	539.9	533+51.09	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	---
0924-87	533.2	538+90.94	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	---
0924-88	507.9	544+24.09	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	---
0924-89	526.6	549+32.03	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=14.2 OHMS
0924-90	531.5	554+58.65	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=11.6 OHMS
0924-91	532.1	559+90.17	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=2.9 OHMS
0924-92	536.2	565+22.26	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=11.3 OHMS
0924-93	577.8	570+58.48	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=9.3 OHMS
0924-94	583.1	576+36.26	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=7.8 OHMS
0924-95	549.1	582+19.33	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=7.9 OHMS
0924-96	549.1	587+68.45	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=8.3 OHMS
0924-97	545.7	593+17.52	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=8.7 OHMS
0924-98-DE	561.7	598+63.25	90° 1' 0.0"	STR NH-270924-1 STR NH-270924-2	LD NH-270911	STL ND-270917-PST15008	FDN NH-270903-ABC193	R=9.8 OHMS
0924-99	565.2	604+24.94	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=10.5 OHMS
0924-100	571.4	609+90.09	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=11.5 OHMS

STRUCTURE COMPONENTS

POSITION LABEL	DESCRIPTION	LENGTH (FT)	EMBEDMENT (FT)
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	120	---
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	115	---
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	110	---
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	115	---
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	120	---
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	120	---
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	115	---
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	120.5	---
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	110	---
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	105	---
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	105.5	---
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.2
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.2
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.5
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	15.7
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	100.5	---
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	105	---
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	110	---
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	110	---
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	105	---
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	16.8
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	17.3
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.5
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.6
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	15.8
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	17.3
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	17.3
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	17.0
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	16.8
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.8
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	17.5
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.6
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.5
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	105.5	---
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.8
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	17.3

NOTES:

1. ALL LINE ANGLES LESS THEN 0.25 DEGREES ARE OMITTED FROM THIS TABLE.
2. LINE ANGLES ARE DISPLAYED AS POSITIVE VALUES FOR RIGHT HAND TURNS AND NEGATIVE VALUES FOR LEFT HAND TURNS. ALIGNMENT IS DEFINED IN ASCENDING STRUCTURE ORDER.

REGISTERED PROFESSIONAL ENGINEER
JEFFREY D MARQUARDT
PE-10846
DATE
NORTH DAKOTA

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LINE 0924 0KV

PLAN AND PROFILE - STRUCTURES TABLE

0924-5572_MCH-MGC

Xcel Energy®

NH-270850-7

SCALE: NONE

REV: 3

STRUCTURES

STRUCTURE NUMBER	AHEAD SPAN (FT)	STATION (FT)	LINE ANGLE (DEG)	STRUCTURE ASSEMBLY	LOAD & DESIGN DETAILS	STEEL or TOWER DETAILS	FOUNDATION DETAILS	COMMENTS
0924-101	476.2	615+61.50	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=17.3 OHMS
0924-102	538.0	620+37.70	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14966	---	R=11.2 OHMS
0924-103	518.5	625+75.73	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=8.7 OHMS
0924-104	532.8	630+94.26	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=8.2 OHMS
0924-105	536.2	636+27.01	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=8.3 OHMS
0924-106	537.4	641+63.17	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=6.2 OHMS
0924-107	532.0	647+00.60	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	---
0924-108	522.2	652+32.55	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=10.0 OHMS
0924-109	535.8	657+54.77	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=6.5 OHMS
0924-110	525.1	662+90.55	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=11.2 OHMS
0924-111-DE	567.4	668+15.67	-52° 34' 0.0"	STR NH-270924-1 STR NH-270924-2	LD NH-270910	STL ND-270917-PST15003	FDN NH-270903-ABC191	R=7.6 OHMS
0924-112	555.7	673+83.09	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=5.5 OHMS
0924-113	557.6	679+38.80	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=6.7 OHMS
0924-114	559.0	684+96.40	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=5.9 OHMS
0924-115	499.8	690+55.39	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=6.4 OHMS
0924-116	538.5	695+55.15	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=6.3 OHMS
0924-117	494.7	700+93.66	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=15.3 OHMS
0924-118	490.2	705+88.40	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=6.0 OHMS
0924-119	515.6	710+78.64	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	---
0924-120	517.3	715+94.24	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	---
0924-121	494.5	721+11.56	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=9.6 OHMS
0924-122	491.1	726+06.01	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=5.8 OHMS
0924-123	504.8	730+97.10	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=6.3 OHMS
0924-124-DE	536.2	736+01.87	13° 27' 0.0"	STR NH-270924-1 STR NH-270924-2	LD NH-270909	STL ND-270917-PST15000	FDN NH-270903-ABC184	R=7.54 OHMS
0924-125-DE	475.4	741+38.03	-13° 29' 0.0"	STR NH-270924-1 STR NH-270924-2	LD NH-270909	STL ND-270917-PST15001	FDN NH-270903-ABC223	R=7.79 OHMS
0924-126	488.6	746+13.42	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=7.0 OHMS
0924-127	511.5	751+02.05	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=8.1 OHMS
0924-128	504.9	756+13.57	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=7.9 OHMS
0924-129	508.1	761+18.48	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=6.2 OHMS
0924-130	514.2	766+26.60	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14966	---	R=6.1 OHMS 76275.445
0924-131	475.9	771+40.81	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14966	---	---
0924-132	501.9	776+16.67	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	23.4 OHMS
0924-133	496.8	781+18.54	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=20.4 OHMS
0924-134	528.6	786+15.29	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=22.0 OHMS
0924-135	536.7	791+43.93	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=23.4 OHMS
0924-136	835.6	796+80.66	---	STR NH-270921-1 STR NH-270921-2	LD NH-270906	STL ND-270917-PST14972	FDN NH-270903-ABC158	R=17.9 OHMS

STRUCTURE COMPONENTS

POSITION LABEL	DESCRIPTION	LENGTH (FT)	EMBEDMENT (FT)
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	17.6
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	120.5	17.0
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.3
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	15.8
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.3
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	17.0
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	15.6
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.2
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.2
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.3
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	105.5	---
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	16.7
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	16.9
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	17.3
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.1
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.0
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.3
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.6
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.2
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.0
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.3
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.1
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.0
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	100.5	---
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	105.5	---
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.1
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	15.8
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.3
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.5
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	120.5	17.0
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	120.5	17.0
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	17.2
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.9
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	17.1
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	17.4
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	115	---

NOTES:

1. ALL LINE ANGLES LESS THEN 0.25 DEGREES ARE OMITTED FROM THIS TABLE.
2. LINE ANGLES ARE DISPLAYED AS POSITIVE VALUES FOR RIGHT HAND TURNS AND NEGATIVE VALUES FOR LEFT HAND TURNS. ALIGNMENT IS DEFINED IN ASCENDING STRUCTURE ORDER.

REGISTERED PROFESSIONAL ENGINEER
JEFFREY D MARQUARDT
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LINE 0924 0KV

PLAN AND PROFILE - STRUCTURES TABLE

0924-5572_MCH-MGC

Xcel Energy® | NH-270850-8 | SCALE NONE | REV 3

STRUCTURES									STRUCTURE COMPONENTS			
STRUCTURE NUMBER	AHEAD SPAN (FT)	STATION (FT)	LINE ANGLE (DEG)	STRUCTURE ASSEMBLY	LOAD & DESIGN DETAILS	STEEL or TOWER DETAILS	FOUNDATION DETAILS	COMMENTS	POSITION LABEL	DESCRIPTION	LENGTH (FT)	EMBEDMENT (FT)
0924-137	567.8	805+16.28	---	STR NH-270921-1 STR NH-270921-2	LD NH-270906	STL ND-270917-PST14971	FDN NH-270903-ABC158	R=6.9 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	110	---
0924-138	568.7	810+84.10	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=7.2 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.3
0924-139	573.1	816+52.81	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=8.0 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.3
0924-140	572.4	822+25.87	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=16.8 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	17.2
0924-141	569.8	827+98.22	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=10.5 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	16.8
0924-142	553.7	833+68.00	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=10.6 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	15.8
0924-143	486.4	839+21.74	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=10.0 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.3
0924-144	539.5	844+08.10	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=5.2 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.0
0924-145	545.5	849+47.56	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=5.1 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.1
0924-146	537.5	854+93.07	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=5.9 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	15.5
0924-147	542.0	860+30.53	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=5.9 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	15.6
0924-148	512.4	865+72.50	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=4.9 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.1
0924-149	546.4	870+84.92	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=5.4 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	16.6
0924-150-DE	846.5	876+31.29	---	STR NH-270924-1 STR NH-270924-2	LD NH-270909	STL ND-270917-PST15002	FDN NH-270903-ABC223	R=5.0 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	110.5	---
0924-151	883.8	884+77.79	---	STR NH-270921-1 STR NH-270921-2	LD NH-270906	STL ND-270917-PST15097	FDN NH-270903-ABC159	R=4.5 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	125	---
0924-152	905.0	893+61.57	---	STR NH-270921-1 STR NH-270921-2	LD NH-270906	STL ND-270917-PST15097	FDN NH-270903-ABC159	R=5.4 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	125	---
0924-153	549.5	902+66.55	---	STR NH-270921-1 STR NH-270921-2	LD NH-270906	STL ND-270917-PST14972	FDN NH-270903-ABC158	R=6.9 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	115	---
0924-154	549.6	908+16.08	---	STR NH-270920-1 STR NH-270920-2	LD NH-270905	STL ND-270917-PST14968	---	R=6.3 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	120	16.6
0924-155	507.8	913+65.65	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=7.4 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.3
0924-156	509.2	918+73.46	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14963	---	R=6.3 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	105.5	15.8
0924-157	486.6	923+82.70	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=9.4 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.6
0924-158	473.7	928+69.25	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14963	---	R=7.7 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	105.5	15.3
0924-159	615.8	933+42.96	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=7.5 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	15.9
0924-160	491.0	939+58.71	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=18.7 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	16.5
0924-161	493.9	944+49.75	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=6.2 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.1
0924-162	524.7	949+43.65	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=5.9 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.0
0924-163	543.2	954+68.33	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=6.3 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	15.5
0924-164	548.9	960+11.52	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=6.2 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.5
0924-165	546.0	965+60.39	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=8.5 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	17.2
0924-166	550.0	971+06.37	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=8.6 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	17.2
0924-167	529.4	976+56.38	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=6.7 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.0
0924-168	533.0	981+85.74	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=7.5 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.3
0924-169	534.8	987+18.72	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=5.9 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	17.0
0924-170	531.3	992+53.48	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=8.2 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.6
0924-171	534.8	997+84.82	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	---	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.5
0924-172	539.1	1003+19.63	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=10.9 OHMS	CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.3

NOTES:

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REGISTERED PROFESSIONAL ENGINEER
JEFFREY D MARQUARDT
PE-10846
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NORTH DAKOTA

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LINE 0924 0KV

PLAN AND PROFILE - STRUCTURES TABLE

0924-5572_MCH-MGC

Xcel Energy® | NH-270850-9 | SCALE: NONE | REV: 3

STRUCTURES

STRUCTURE NUMBER	AHEAD SPAN (FT)	STATION (FT)	LINE ANGLE (DEG)	STRUCTURE ASSEMBLY	LOAD & DESIGN DETAILS	STEEL or TOWER DETAILS	FOUNDATION DETAILS	COMMENTS
0924-173	547.9	1008+58.72	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=6.6 OHMS
0924-174	546.6	1014+06.62	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=5.6 OHMS
0924-175	443.8	1019+53.19	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14963	---	R=6.1 OHMS
0924-176	442.9	1023+96.97	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14963	---	R=6.5 OHMS
0924-177-DE	508.9	1028+39.88	-37° 30' 0.0"	STR NH-270924-1 STR NH-270924-2	LD NH-270910	STL ND-270917-PST15003	FDN NH-270903-ABC191	R=5.6 OHMS
0924-178	503.2	1033+48.79	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=7.7 OHMS
0924-179	542.0	1038+52.03	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=5.4 OHMS
0924-180	542.4	1043+94.01	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=5.6 OHMS
0924-181	545.2	1049+36.41	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=6.1 OHMS
0924-182	541.5	1054+81.63	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=6.3 OHMS
0924-183	552.4	1060+23.14	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14966	---	R=8.4 OHMS
0924-184	550.4	1065+75.54	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=5.6 OHMS
0924-185	549.7	1071+25.95	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=7.4 OHMS
0924-186	550.5	1076+75.61	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14964	---	R=8.4 OHMS
0924-187	510.7	1082+26.10	---	STR NH-270919-1 STR NH-270919-2	LD NH-270904	STL ND-270917-PST14965	---	R=8.7 OHMS
0924-188-DE	292.9	1087+36.76	-89° 55' 0.0"	STR NH-270924-1 STR NH-270924-2	LD NH-270911	STL ND-270917-PST15006	FDN NH-270903-ABC224	R=8.1 OHMS
0924-189-DE	NA	1090+29.70	NA	STR NH-270922-1 STR NH-270922-2	LD NH-270907	STL ND-270917-PST15098	FDN NH-270903-ABC176	R=8.6 OHMS
0924-190-DE	445.6	1092+28.83	84° 20' 0.0"	STR NH-270926-1	LD NH-270914	STL ND-270917-PST15011	FDN NH-270903-ABC163	R=6.37 OHMS
0924-MGC-SUB1	---	1096+74.44	5° 59' 0.0"	STR NH-270928-1	---	---	---	---
5572-190	218.6	1106+62.74	---	STR NH-271343-2	---	---	---	---
5572-MGC-SUB1	---	1108+81.31	2° 58' 0.0"	STR NH-271119-2	---	---	---	---
5572-49-1-DE	127.5	1116+75.67	---	STR NH-201860-1 STR NH-201860-2 STR NH-201860-2	LD NH-201853	---	---	SWT NX-74330 SWT-115.0-3WY-AO1-1200-008 FORMERLY STR 41
5572-49-2-DE	55.0	1118+03.16	52° 34' 0.0"	STR TD0707 (B)	---	---	---	FORMERLY STR 41A
5572-VEL-SUB1	---	1118+58.17	---	---	---	---	---	---

STRUCTURE COMPONENTS

POSITION LABEL	DESCRIPTION	LENGTH (FT)	EMBEDMENT (FT)
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	16.5
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.3
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	105.5	16.0
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	105.5	15.7
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	105.5	---
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.3
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	16.9
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.4
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.3
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	17.1
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	120.5	16.7
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.7
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.9
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	110.5	16.6
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, BRACED POST	115.5	17.3
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	95.5	---
CENTER	POLE, STEEL, WEATHERING, DOUBLE CIRCUIT, DAVIT ARM	105.5	---
CENTER	POLE, STEEL, WEATHERING, SINGLE CIRCUIT, VERTICAL	95.5	---
STR_HUB	DUMMY STRUCTURE, POLE INFORMATION UNKNOWN	UNK	UNK
CENTER	POLE, DOUGLAS FIR, 100', CLASS 1	100	15.0
STR_HUB	DUMMY STRUCTURE, POLE INFORMATION UNKNOWN	UNK	UNK
CENTER	POLE, W RED CEDAR, 125', CLASS H6	125	17.2
CENTER	POLE, W RED CEDAR, 70', CLASS 3	70	9.0
STR_HUB	DUMMY STRUCTURE, POLE INFORMATION UNKNOWN	UNK	UNK

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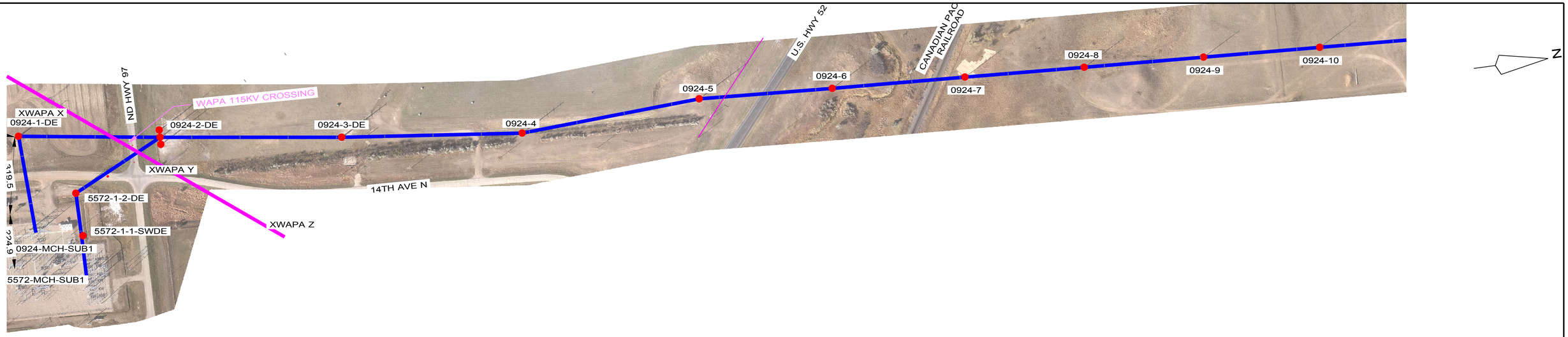
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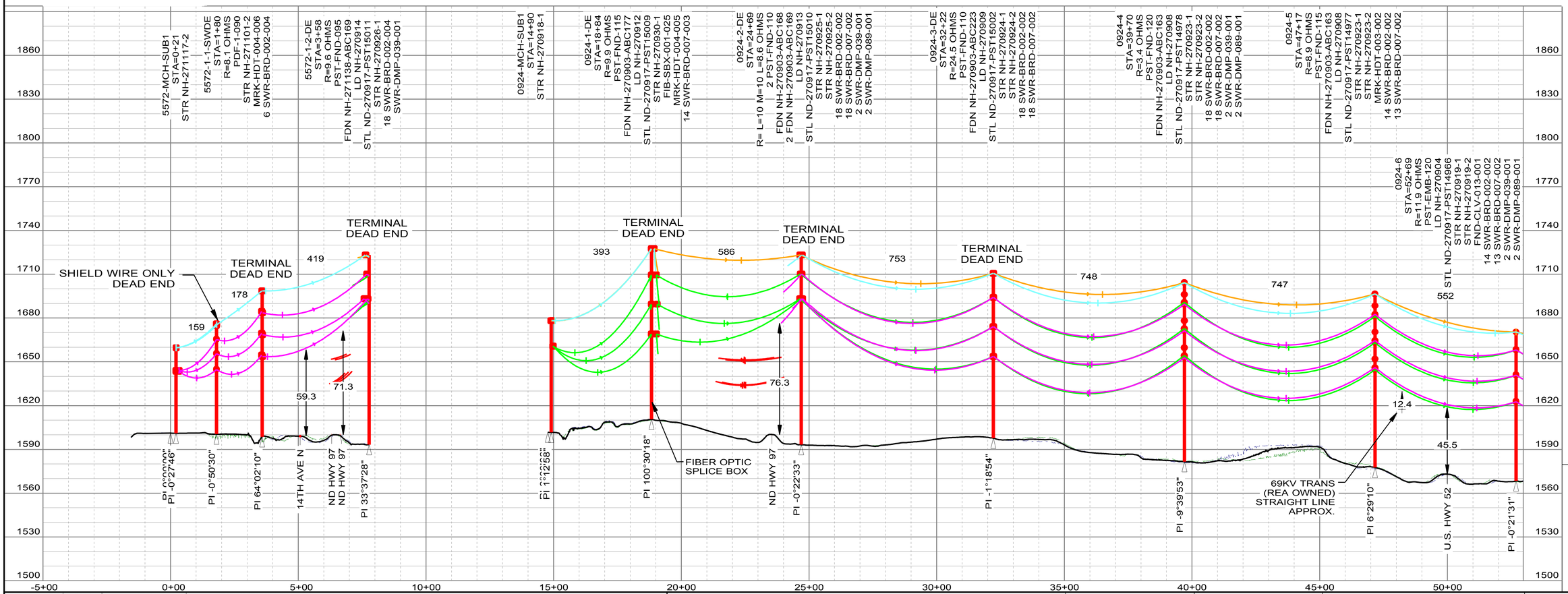
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LINE 0924 0KV
PLAN AND PROFILE - STRUCTURES TABLE
0924-5572_MCH-MGC

Xcel Energy®

NH-270850-10	SCALE: NONE	REV: 3





REV	DATE	WBS4	REVISION DESCRIPTION
0	11/20/2017	A.0000594.016.001.001	0924 MCH TO MGC NEW 230KV LINE
1	12/11/2018	A.0000594.016.001.001	ADDED NOTE TO UPDATE STRUCTURE NUMBERS FOR STR 49-1 AND 49-2 IN THE FIELD
2	11/20/2018	A.0000594.016.001.001	ADD FOUNDATION DRAIWNG CALLOUT TO STR 5572-1-2
3	1/9/2019	A.0000594.016.001.001	AS-BUILT

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LINE 0924
MCH SUB TO MGC SUB

230 KV

5572-MCH-SUB1 TO 0924-6

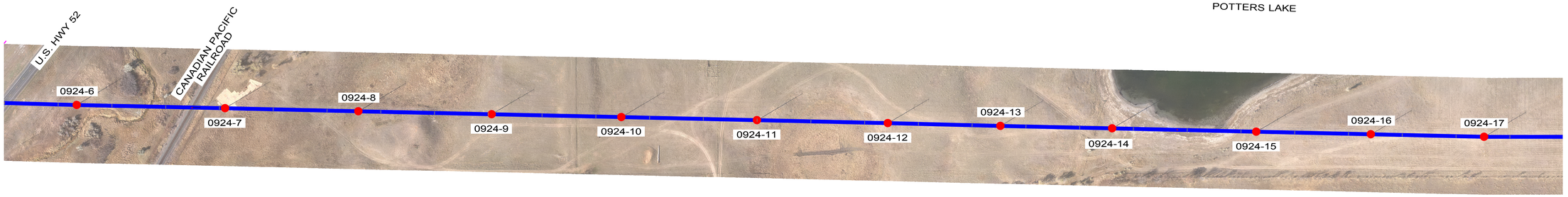
NH-270850-11

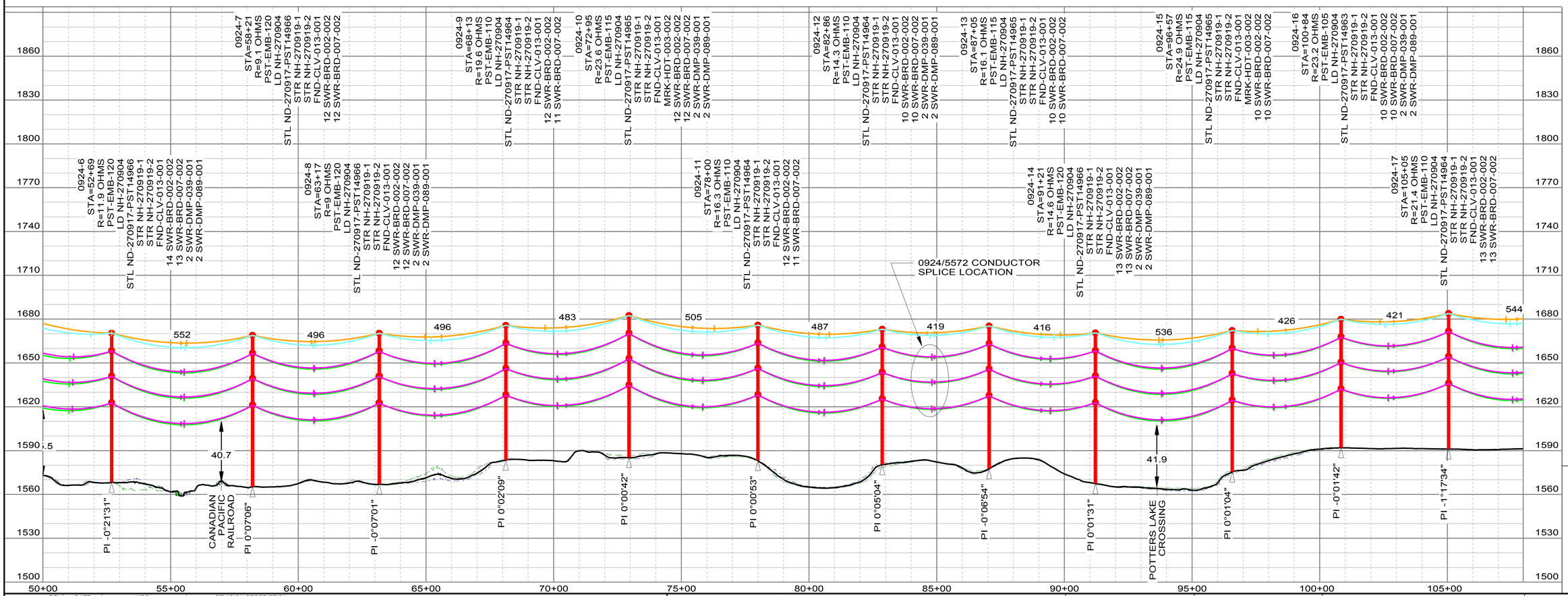
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REV 3

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0924-5572_MCH-MGC 1/28/2019





REV	DATE	WBS4	REVISION DESCRIPTION
0	11/20/2017	A.0000594.016.001.001	0924 MCH TO MGC NEW 230KV LINE
1	12/11/2018	A.0000594.016.001.001	ADDED NOTE TO UPDATE STRUCTURE NUMBERS FOR STR 49-1 AND 49-2 IN THE FIELD
2	11/20/2018	A.0000594.016.001.001	ADD FOUNDATION DRAIWNG CALLOUT TO STR 5572-1-2
3	1/9/2019	A.0000594.016.001.001	AS-BUILT

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LINE 0924
MCH SUB TO MGC SUB

230 KV

0924-6 TO 0924-17

NH-270850-12

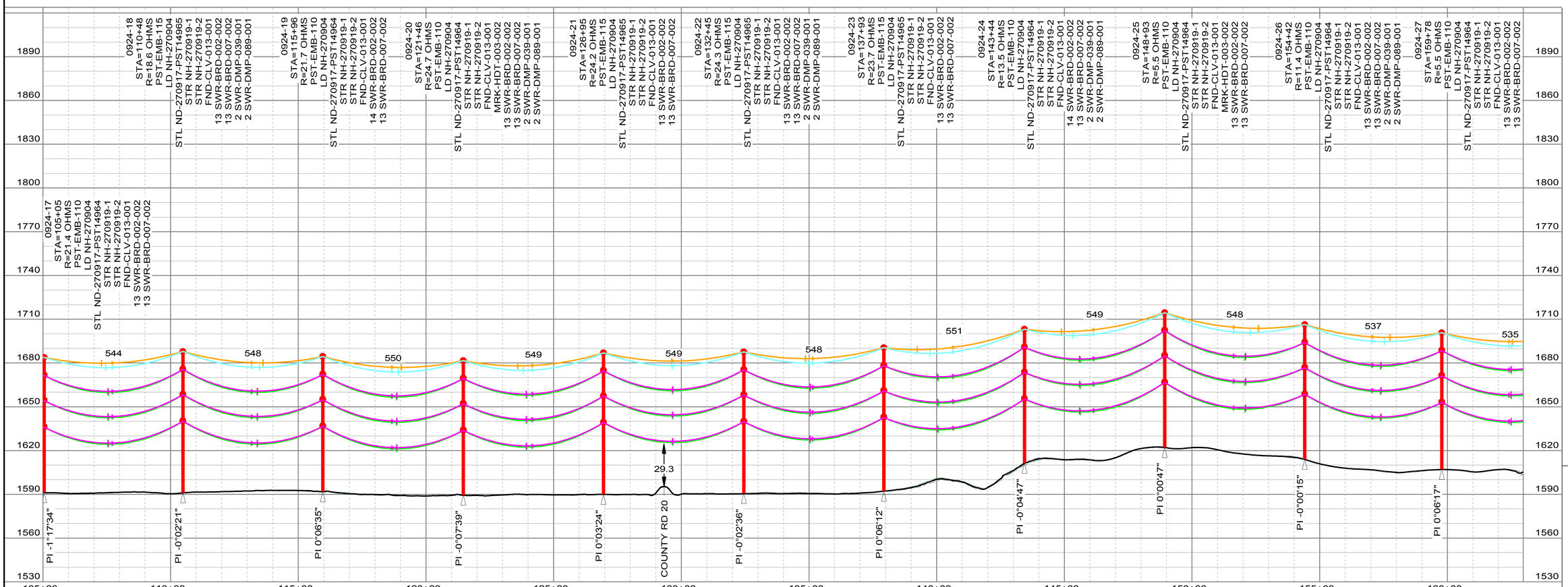
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REV 3

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0924-5572_MCH-MGC 1/28/2019





REV	DATE	WBS4	REVISION DESCRIPTION
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1	12/11/2018	A.0000594.016.001.001	ADDED NOTE TO UPDATE STRUCTURE NUMBERS FOR STR 49-1 AND 49-2 IN THE FIELD
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3	1/9/2019	A.0000594.016.001.001	AS-BUILT

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LINE 0924
MCH SUB TO MGC SUB

230 KV

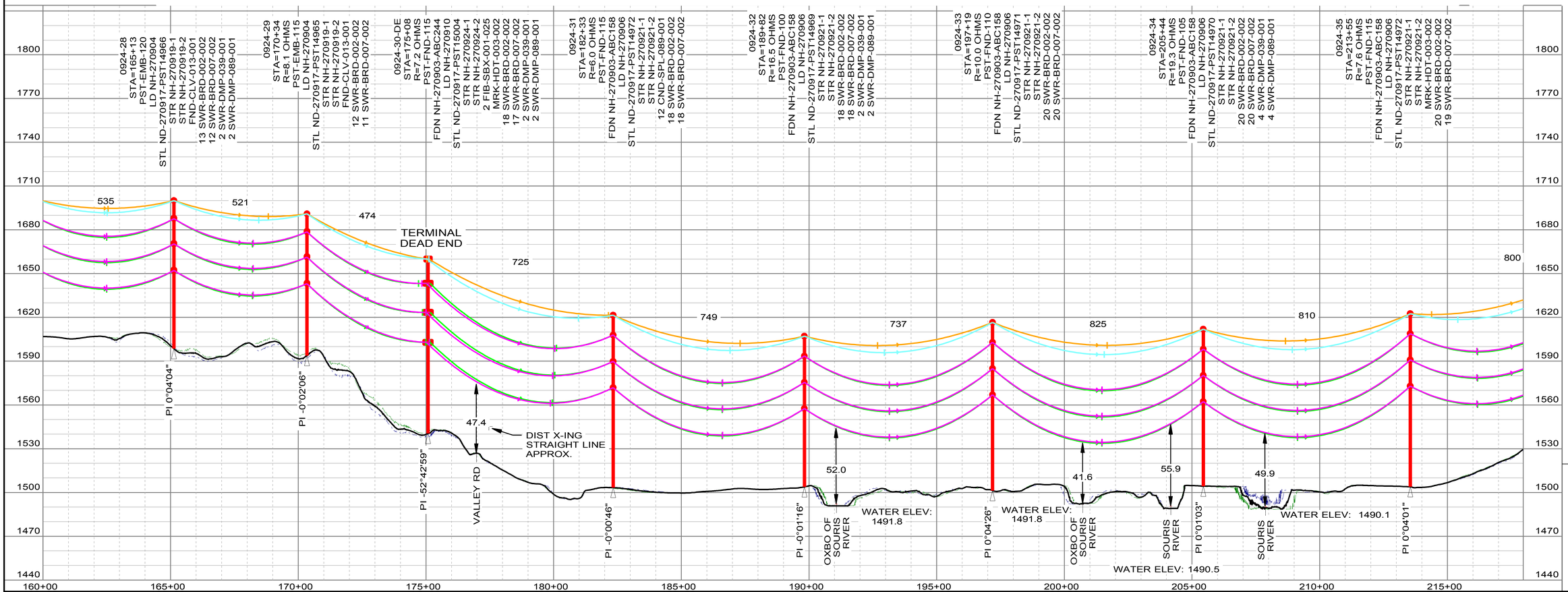
0924-17 TO 0924-27

NH-270850-13

OF 32 | REV 3

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REV	DATE	WBS4	REVISION DESCRIPTION
0	11/20/2017	A.0000594.016.001.001	0924 MCH TO MGC NEW 230KV LINE
1	12/11/2018	A.0000594.016.001.001	ADDED NOTE TO UPDATE STRUCTURE NUMBERS FOR STR 49-1 AND 49-2 IN THE FIELD
2	11/20/2018	A.0000594.016.001.001	ADD FOUNDATION DRAIWNG CALLOUT TO STR 5572-1-2
3	1/9/2019	A.0000594.016.001.001	AS-BUILT

ISSUED BY ENGINEERING DEPT FOR: RECORD

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35.0 FT. VERT. SCALE

LINE 0924
MCH SUB TO MGC SUB

230 KV

0924-28 TO 0924-35

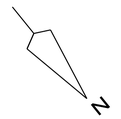
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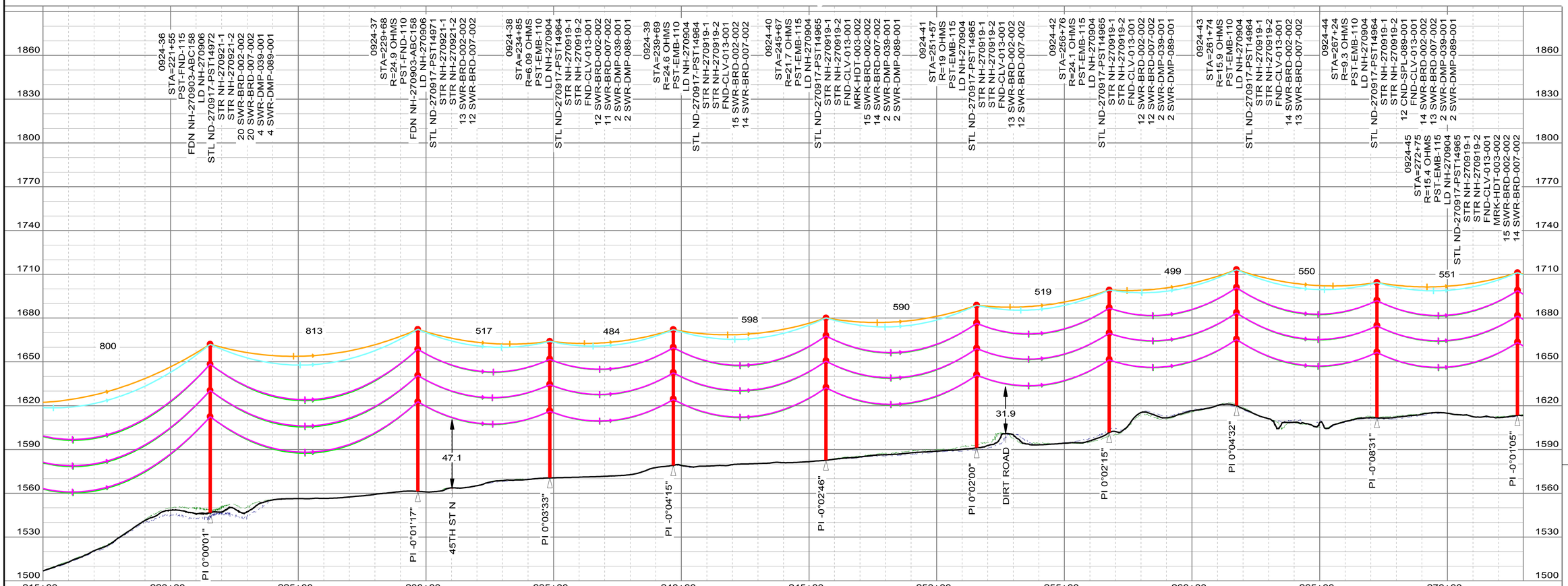
OF 32 | REV 3

REGISTERED PROFESSIONAL ENGINEER
JEFFREY D MARQUARDT
PE-10846
DATE
NORTH DAKOTA

0924-5572_MCH-MGC 1/28/2019







REV	DATE	WBS4	REVISION DESCRIPTION
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LINE 0924
MCH SUB TO MGC SUB

230 KV

0924-36 TO 0924-45

NH-270850-15

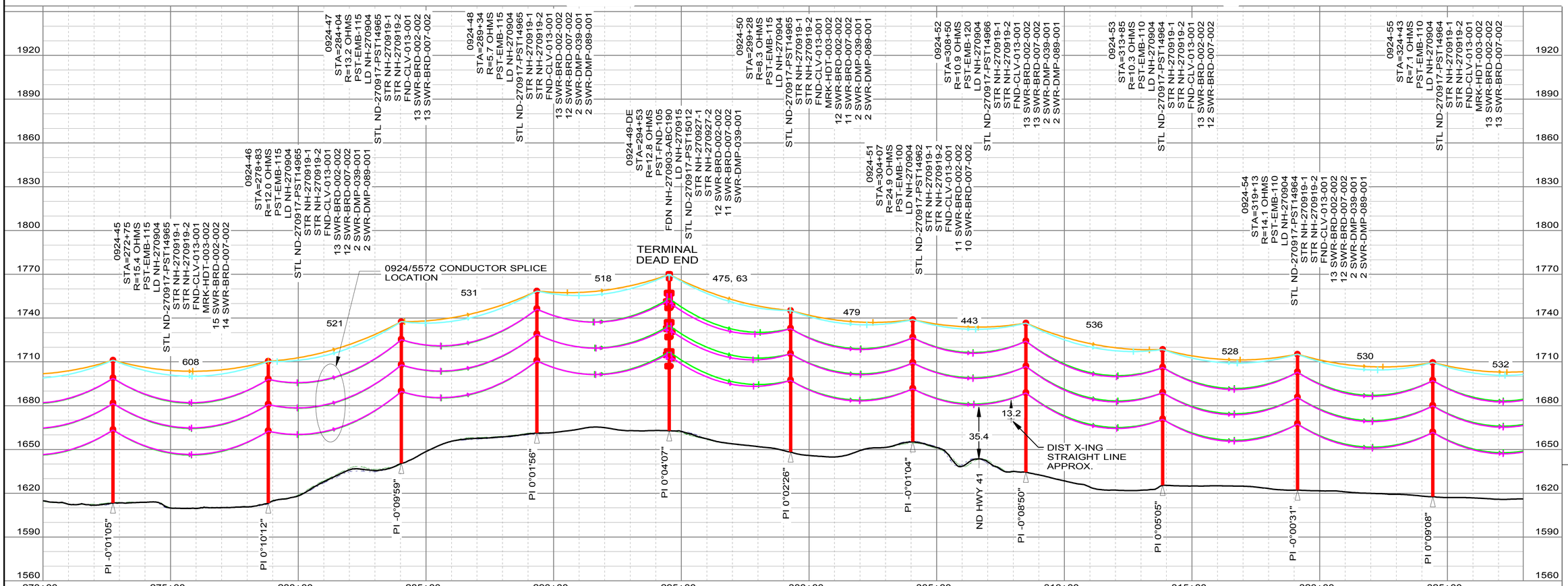
OF 32

REV 3

REGISTERED PROFESSIONAL ENGINEER
JEFFREY D MARQUARDT
PE-10846
DATE
NORTH DAKOTA

0924-5572_MCH-MGC 1/28/2019





REGISTERED PROFESSIONAL ENGINEER
JEFFREY D MARQUARDT
PE-10846
DATE
NORTH DAKOTA

REV	DATE	WBS4	REVISION DESCRIPTION
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35.0 FT. VERT. SCALE

LINE 0924
MCH SUB TO MGC SUB

230 KV

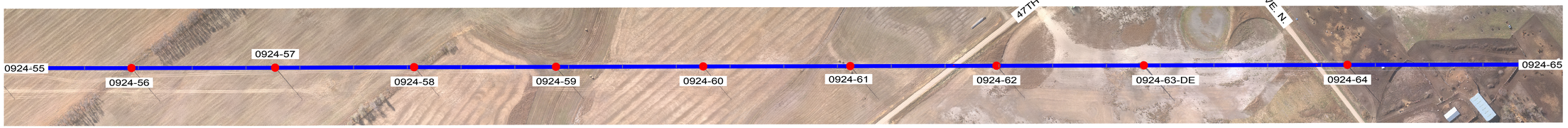
0924-45 TO 0924-55

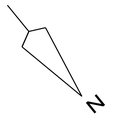
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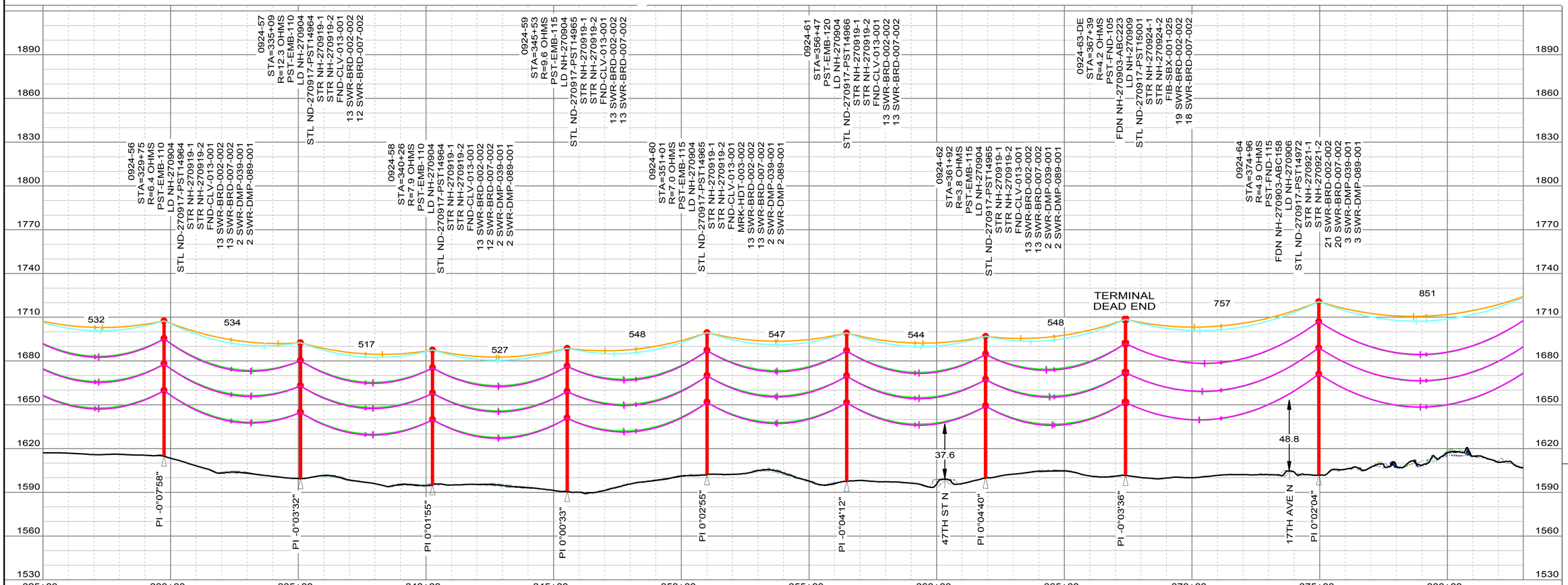
OF 32

REV 3

0924-5572_MCH-MGC 1/28/2019







REV	DATE	WBS4	REVISION DESCRIPTION
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LINE 0924
MCH SUB TO MGC SUB

230 KV

0924-56 TO 0924-64

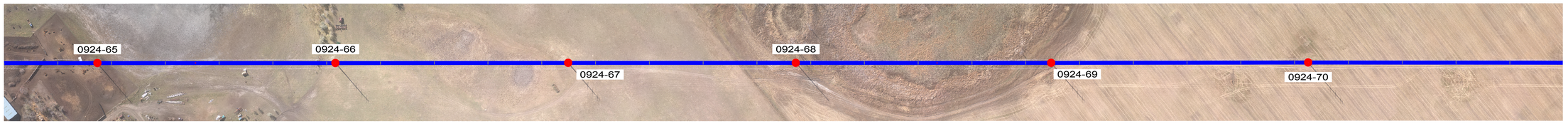
OF 32

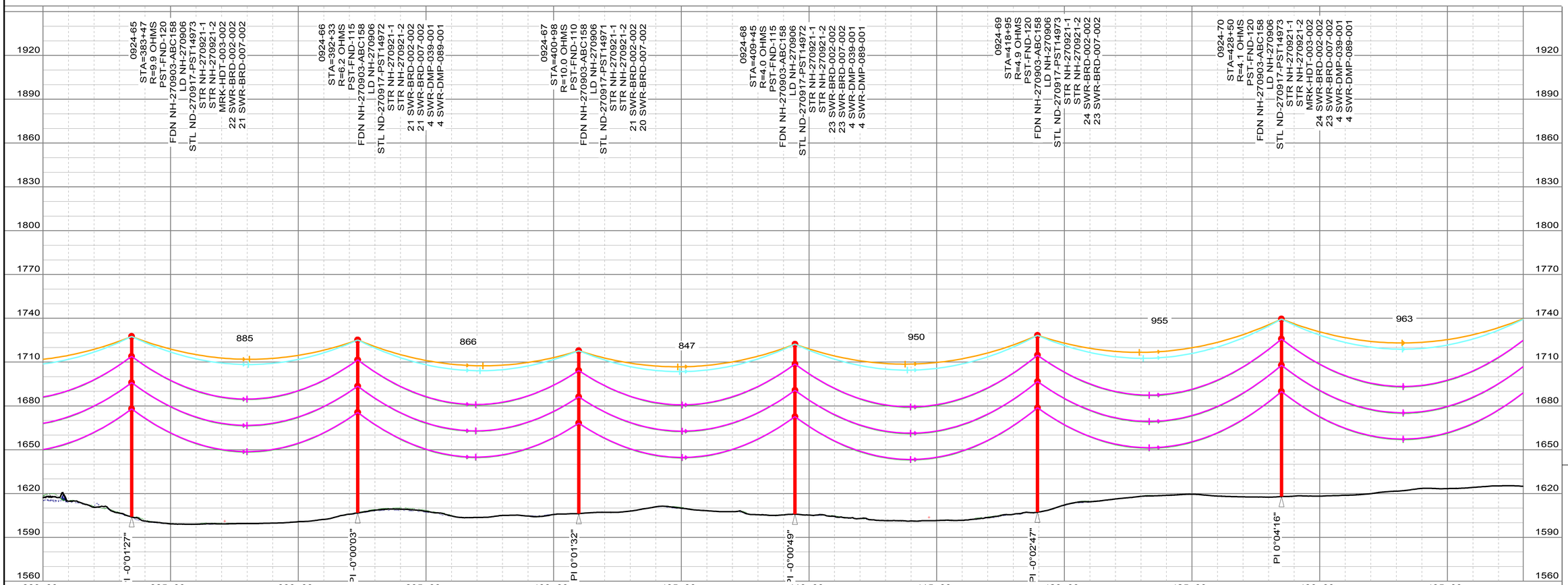
NH-270850-17

REV 3

REGISTERED PROFESSIONAL ENGINEER
JEFFREY D MARQUARDT
PE-10846
DATE
NORTH DAKOTA

PLS-CADD DRAWING





REV	DATE	WBS4	REVISION DESCRIPTION
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LINE 0924
MCH SUB TO MGC SUB

230 KV

0924-65 TO 0924-70

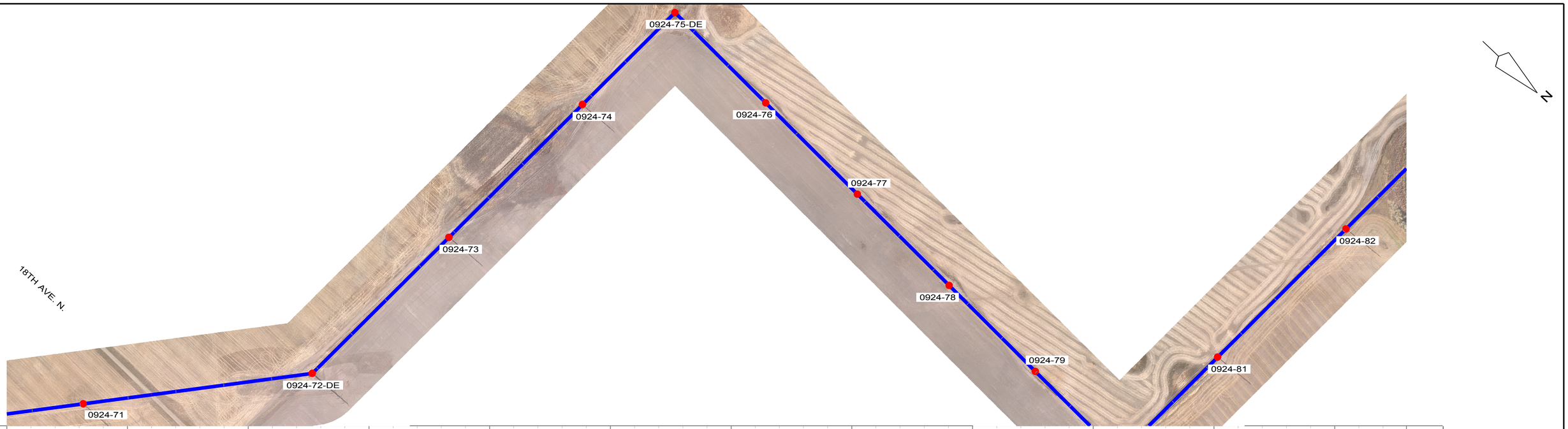
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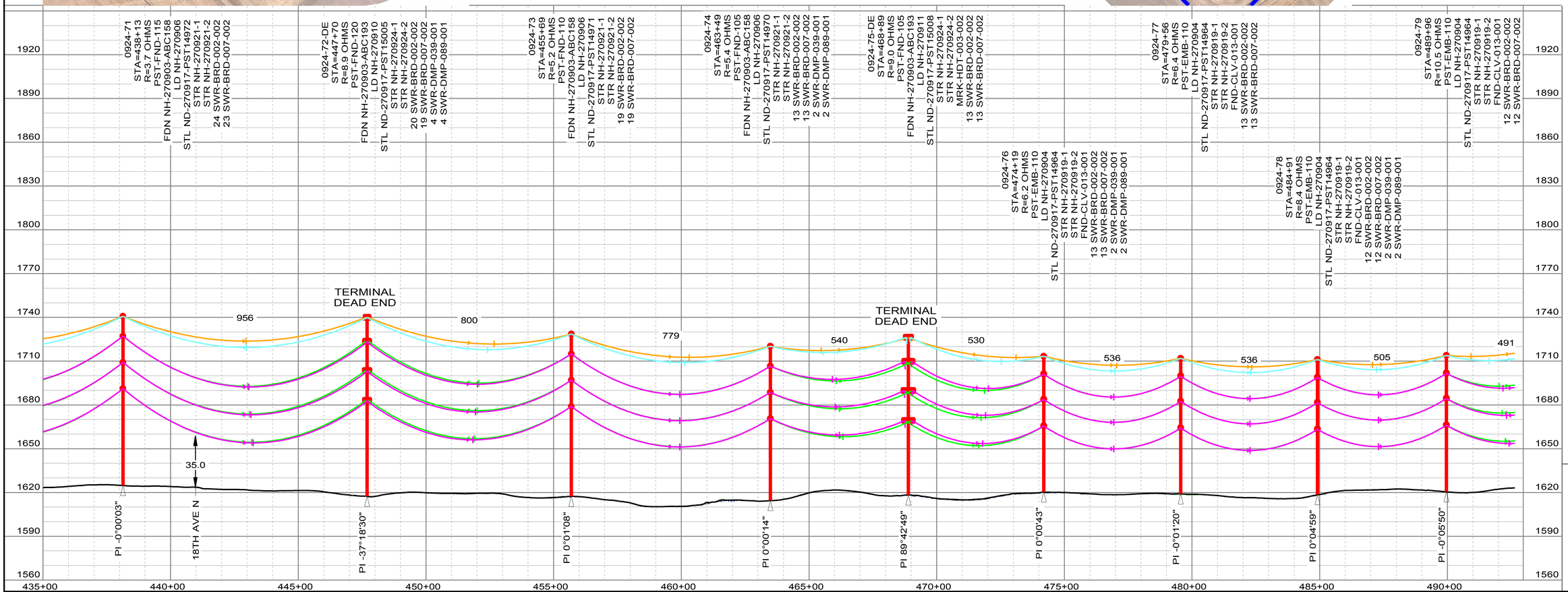
OF 32

REV 3

REGISTERED PROFESSIONAL ENGINEER
JEFFREY D MARQUARDT
PE-10846
DATE
NORTH DAKOTA

0924-5572_MCH-MGC 1/28/2019





REV	DATE	WBS4	REVISION DESCRIPTION
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LINE 0924
MCH SUB TO MGC SUB

230 KV

0924-71 TO 0924-79

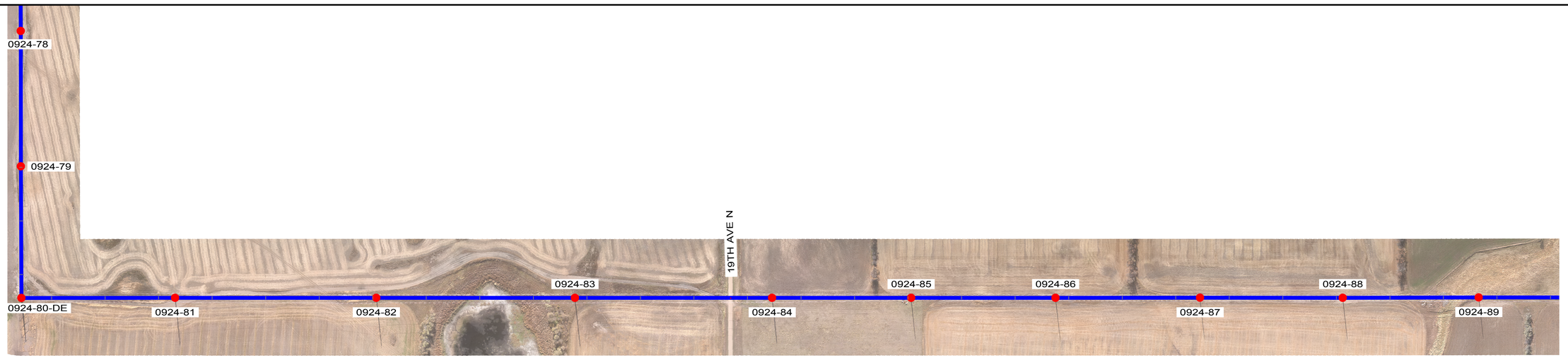
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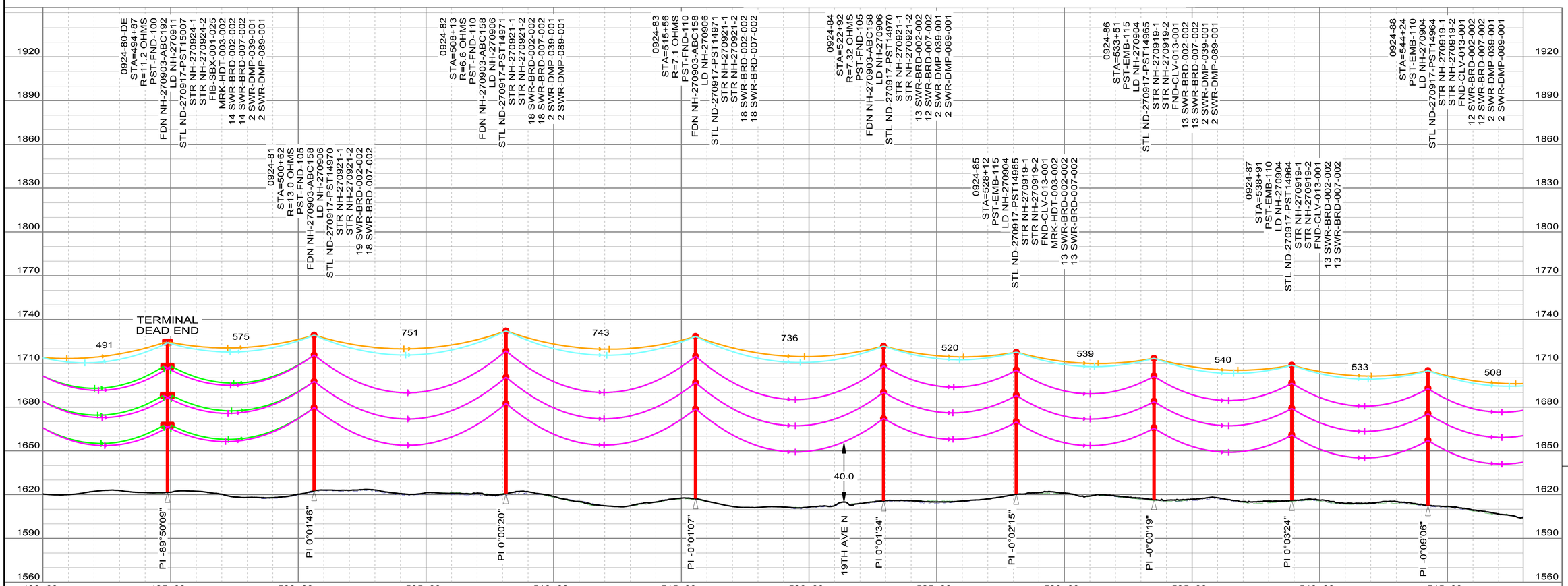
OF 32

REV 3

REGISTERED PROFESSIONAL ENGINEER
JEFFREY D MARQUARDT
PE-10846
DATE
NORTH DAKOTA

0924-5572_MCH-MGC 1/28/2019





REV	DATE	WBS4	REVISION DESCRIPTION
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LINE 0924
MCH SUB TO MGC SUB

230 KV

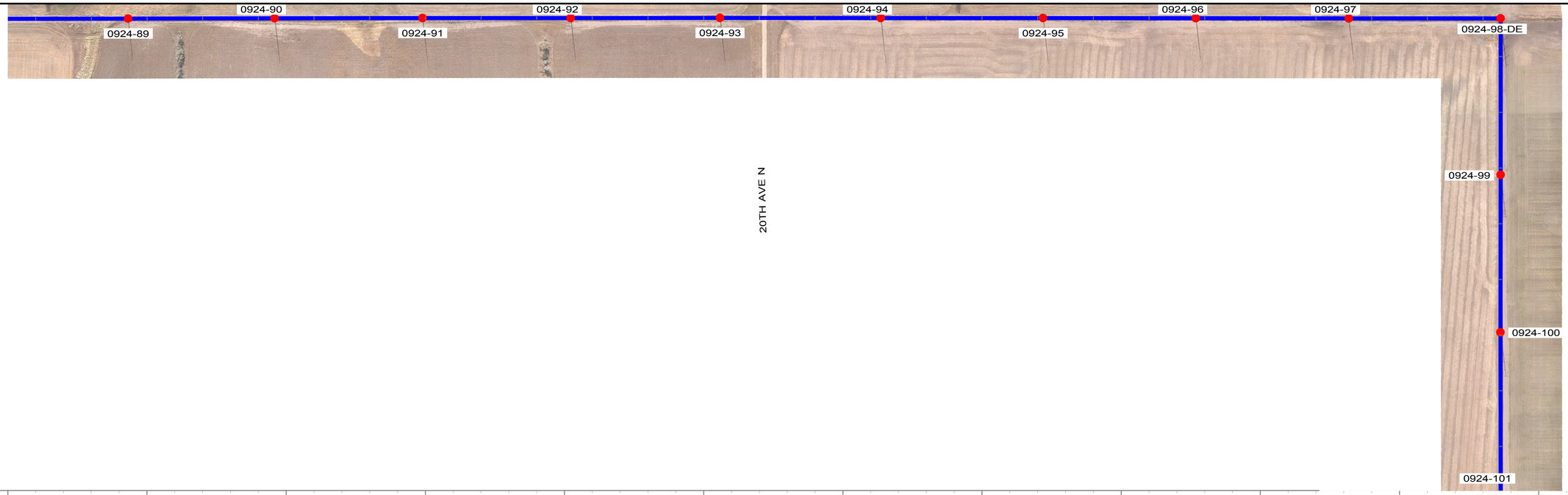
0924-80-DE TO 0924-88

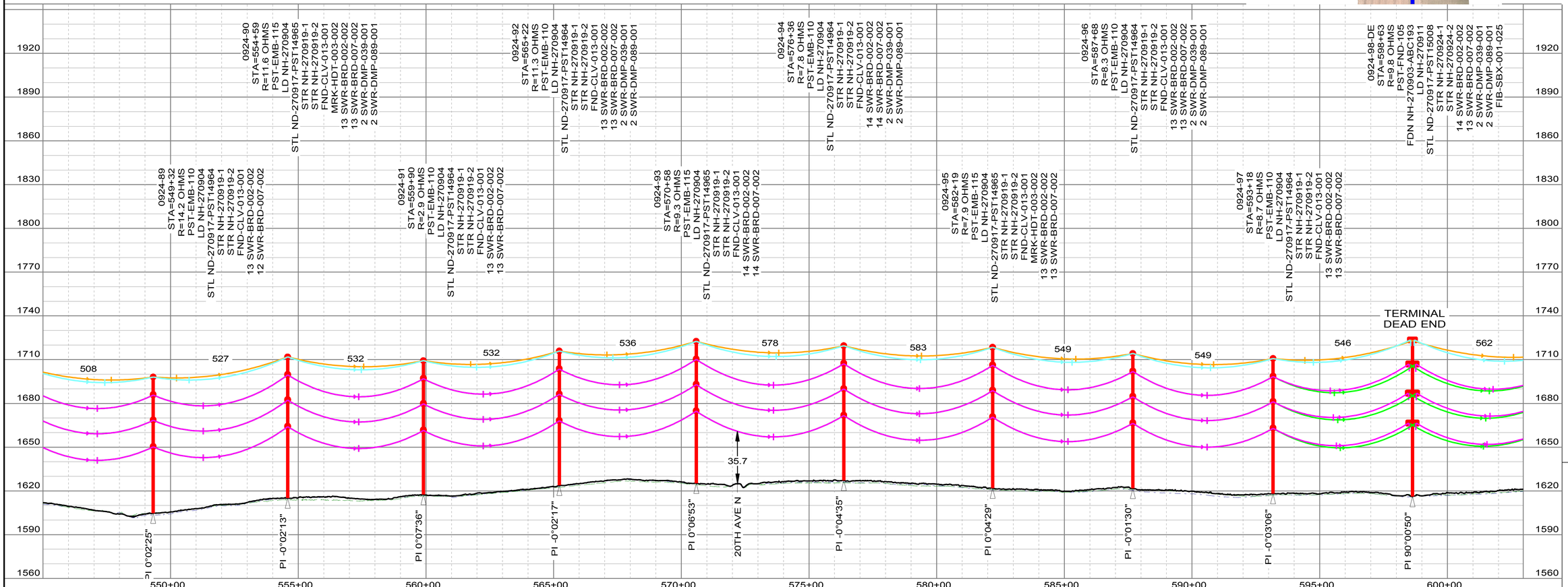
OF 32

NH-270850-20

REV 3

REGISTERED PROFESSIONAL ENGINEER
JEFFREY D MARQUARDT
PE-10846
DATE
NORTH DAKOTA





REV	DATE	WBS4	REVISION DESCRIPTION
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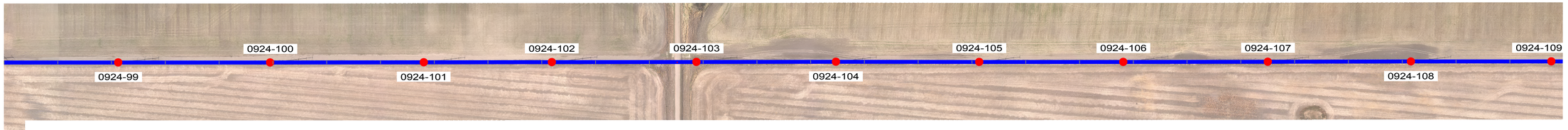
LINE 0924 230 KV
MCH SUB TO MGC SUB

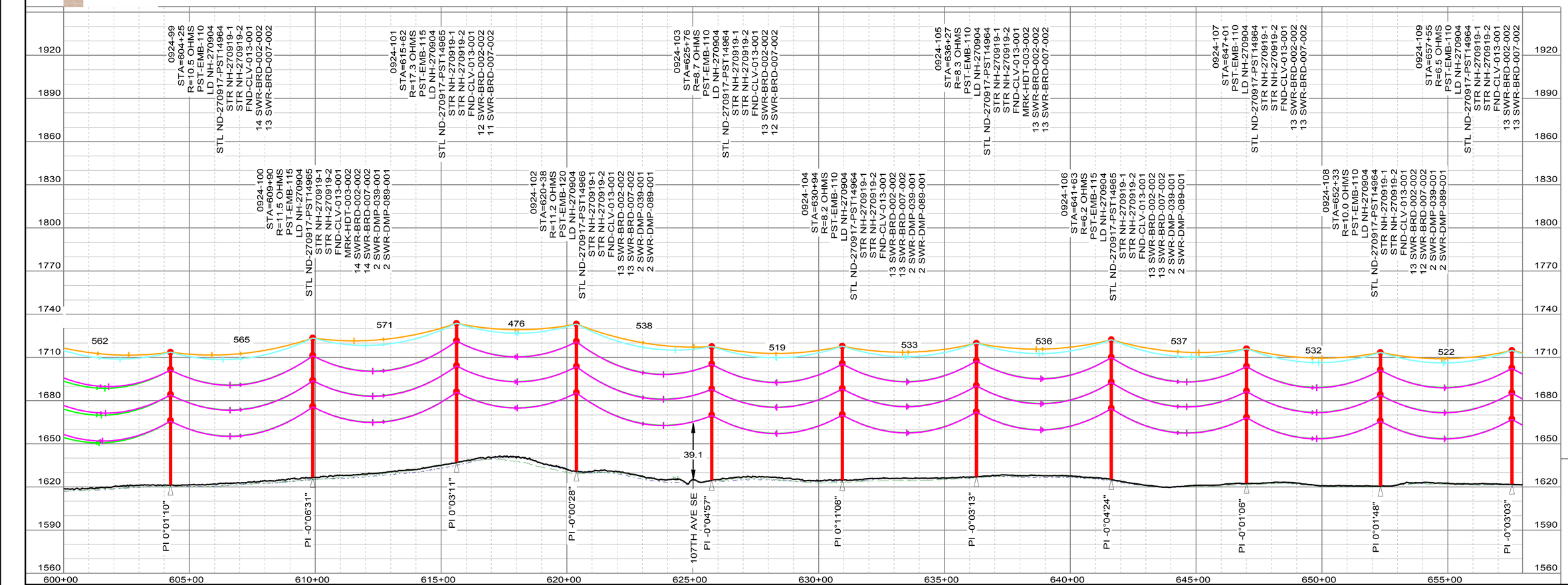
0924-89 TO 0924-98-DE

NH-270850-21

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REGISTERED PROFESSIONAL ENGINEER
JEFFREY D MARQUARDT
PE-10846
DATE
NORTH DAKOTA





REV	DATE	WBS4	REVISION DESCRIPTION
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LINE 0924
MCH SUB TO MGC SUB

230 KV

0924-99 TO 0924-109

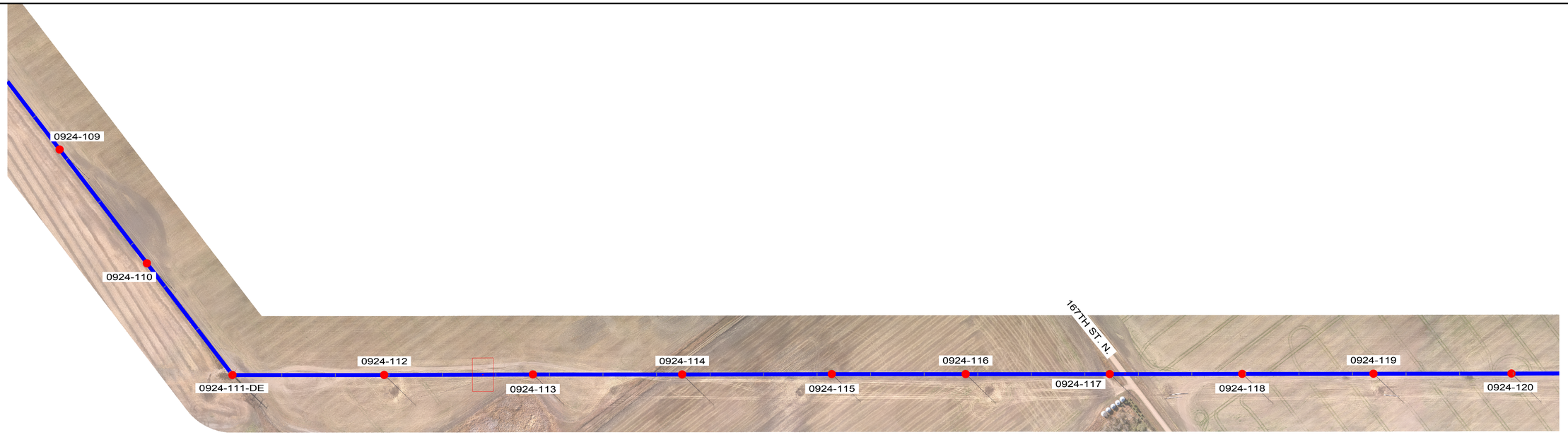
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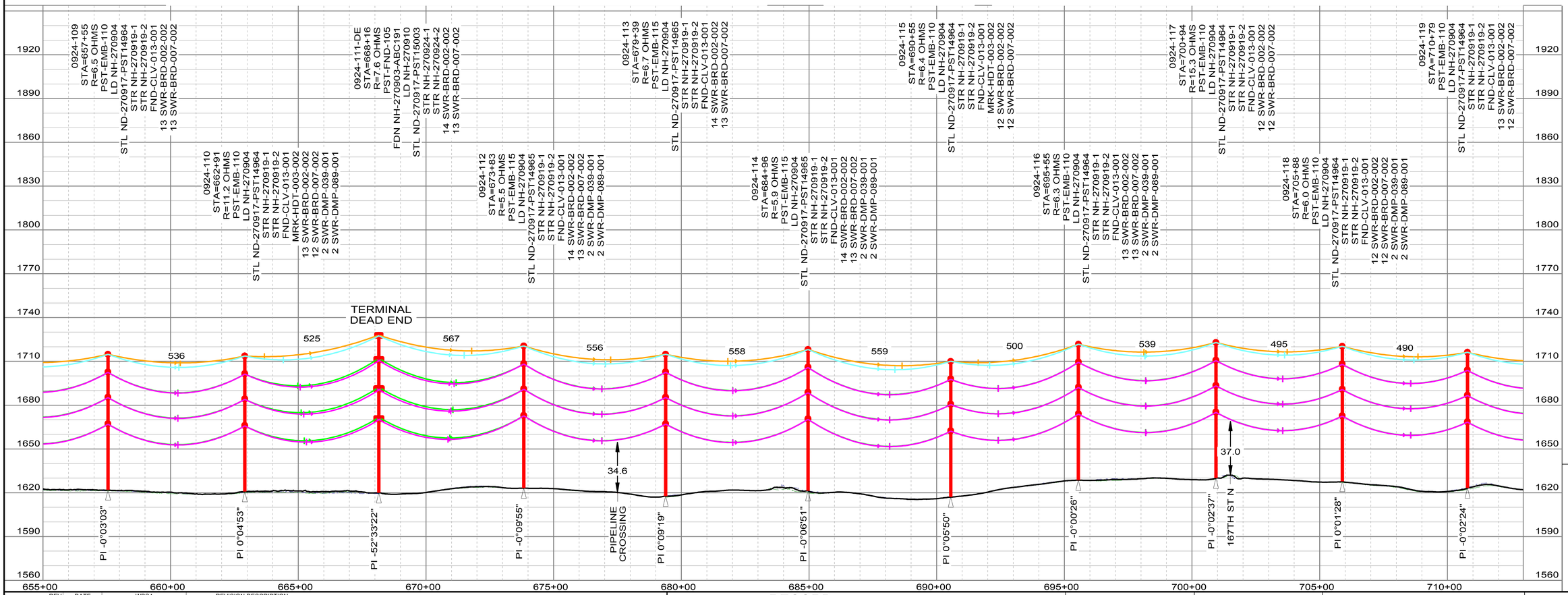
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REV 3

REGISTERED PROFESSIONAL ENGINEER
JEFFREY D MARQUARDT
PE-10846
DATE
NORTH DAKOTA

0924-5572_MCH-MGC 1/28/2019





REGISTERED PROFESSIONAL ENGINEER
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LINE 0924
MCH SUB TO MGC SUB

230 KV

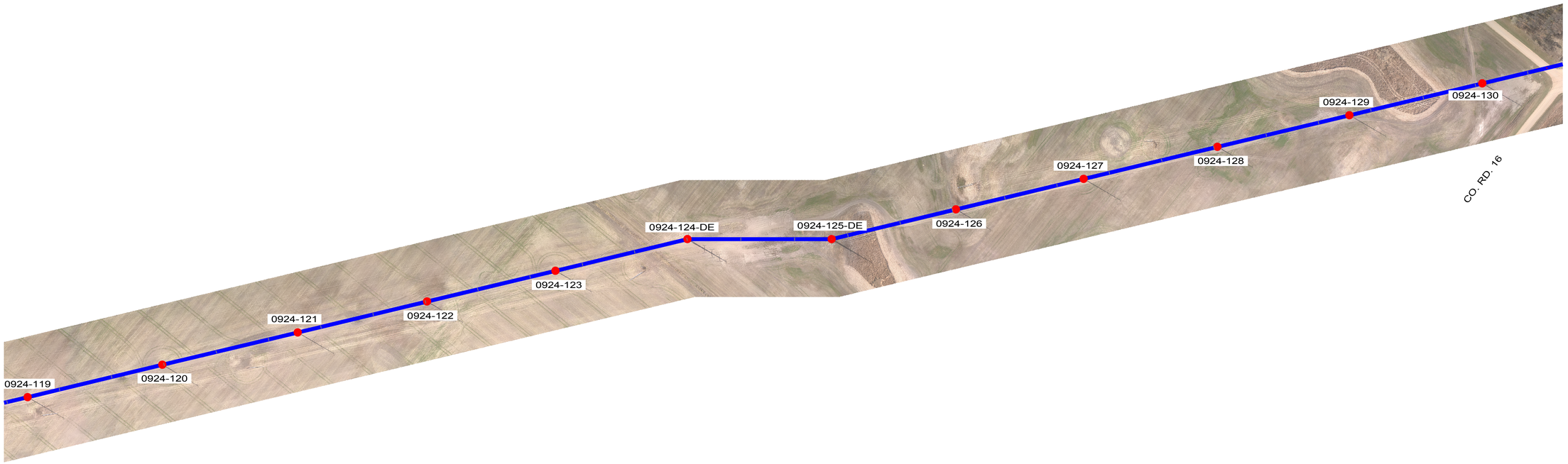
0924-109 TO 0924-119

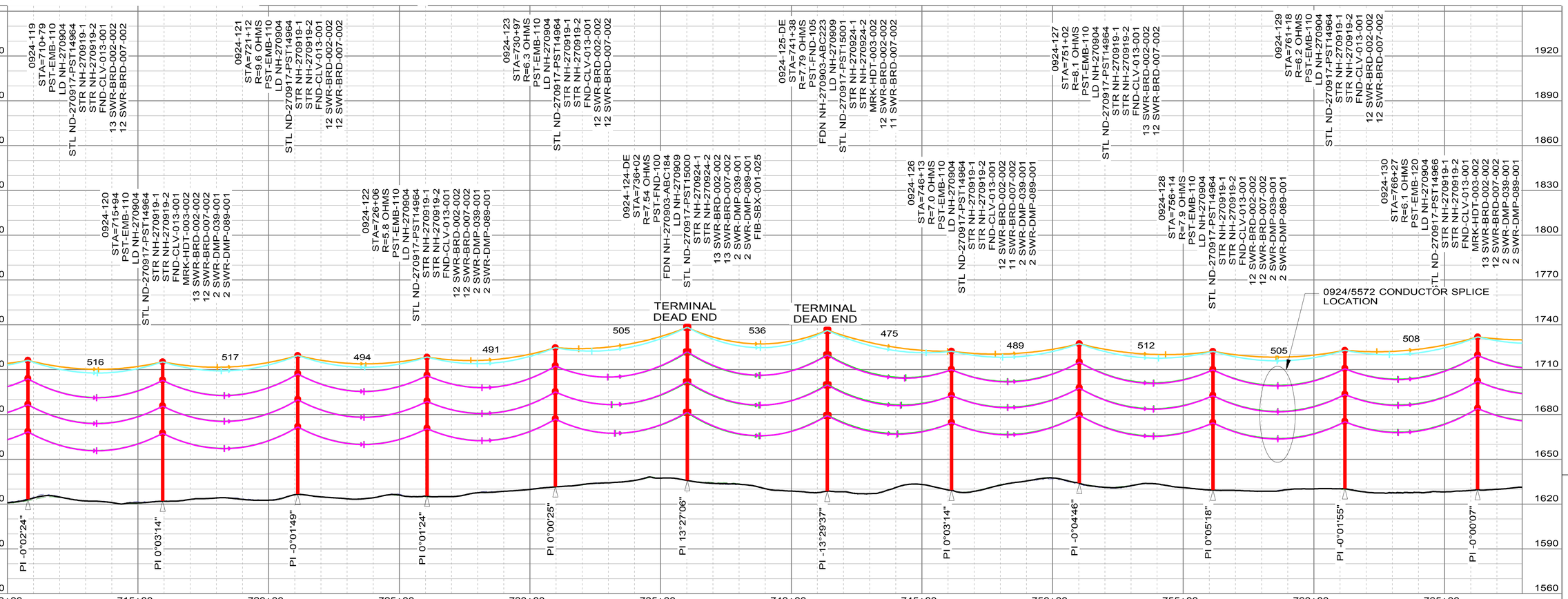
NH-270850-23

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REV 3

0924-5572_MCH-MGC 1/28/2019





REGISTERED PROFESSIONAL ENGINEER
JEFFREY D MARQUARDT
PE-10846
DATE
NORTH DAKOTA

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35.0 FT. VERT. SCALE

LINE 0924
MCH SUB TO MGC SUB

230 KV

0924-119 TO 0924-130

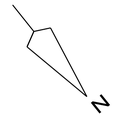
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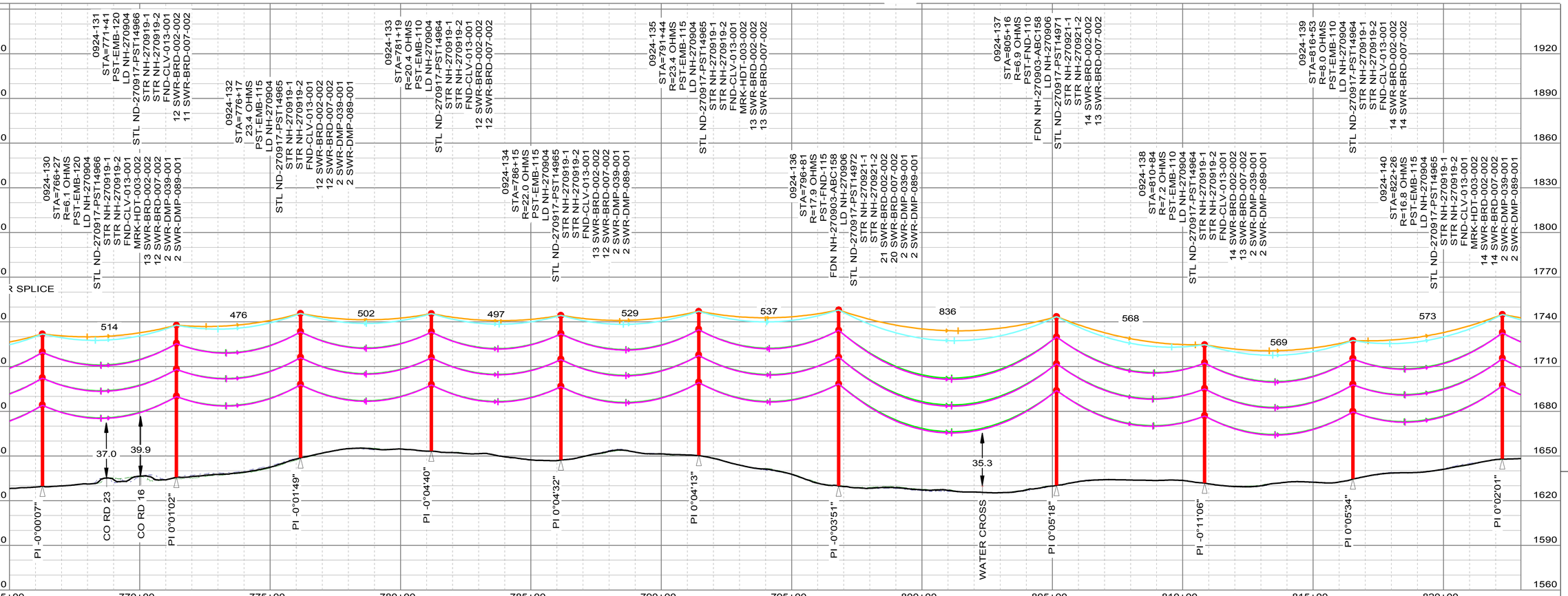
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REV 3

0924-5572_MCH-MGC 1/28/2019









REV	DATE	WBS4	REVISION DESCRIPTION
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35.0 FT. VERT. SCALE

LINE 0924
MCH SUB TO MGC SUB

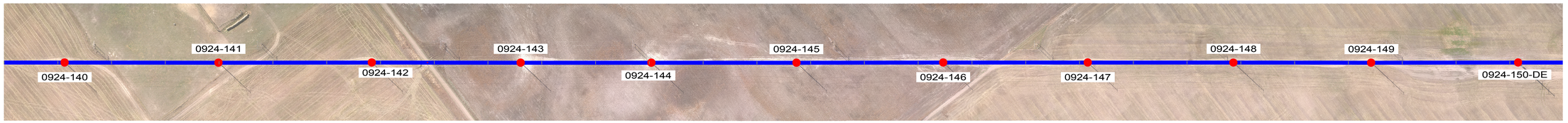
230 KV

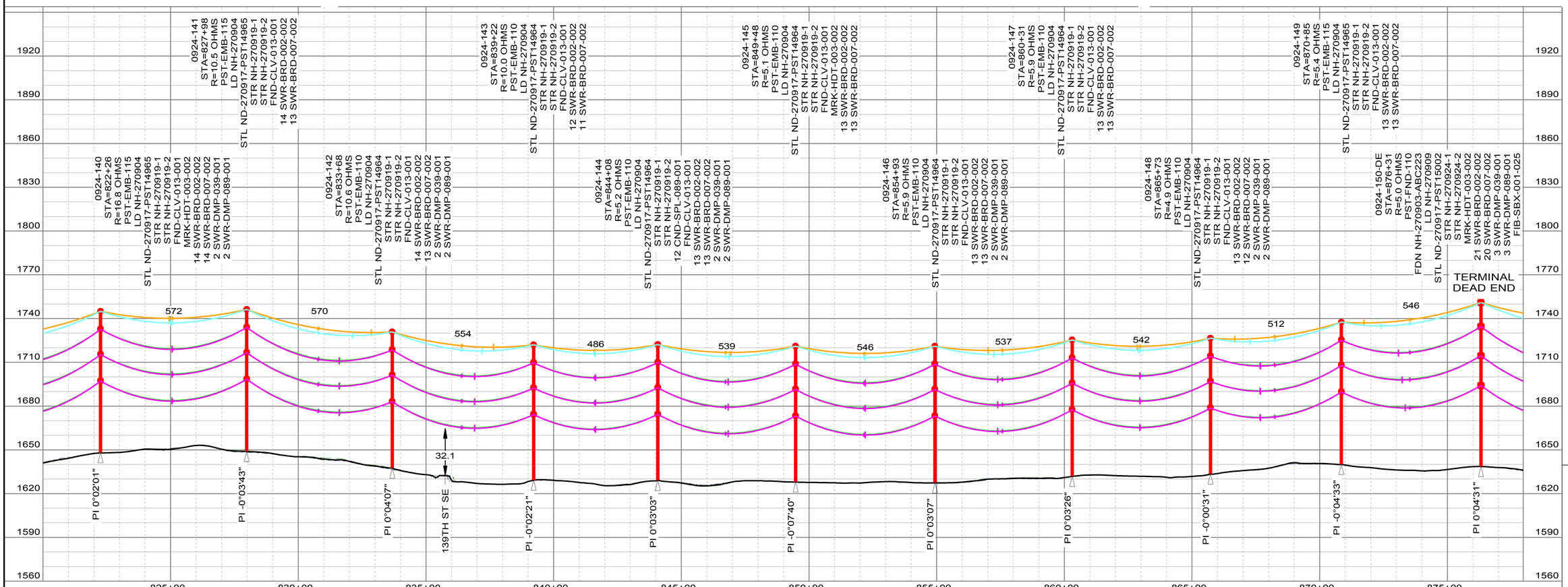
0924-130 TO 0924-140

NH-270850-25

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0924-5572_MCH-MGC 1/28/2019





REGISTERED PROFESSIONAL ENGINEER
JEFFREY D MARQUARDT
PE-10846
DATE
NORTH DAKOTA

REV	DATE	WBS4	REVISION DESCRIPTION
0	11/20/2017	A.0000594.016.001.001	0924 MCH TO MGC NEW 230KV LINE
1	12/11/2018	A.0000594.016.001.001	ADDED NOTE TO UPDATE STRUCTURE NUMBERS FOR STR 49-1 AND 49-2 IN THE FIELD
2	11/20/2018	A.0000594.016.001.001	ADD FOUNDATION DRAWNG CALLOUT TO STR 5572-1-2
3	1/9/2019	A.0000594.016.001.001	AS-BUILT

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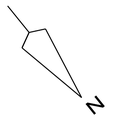
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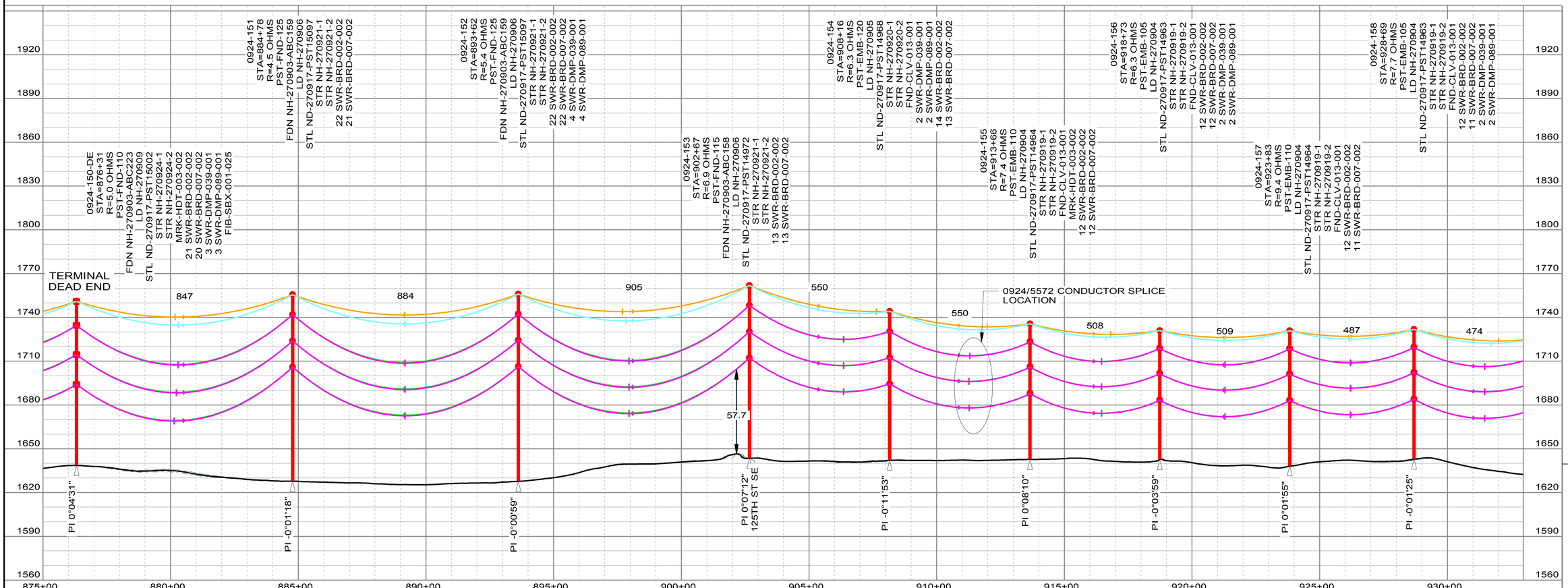
LINE 0924
MCH SUB TO MGC SUB
230 KV

0924-140 TO 0924-150-DE
NH-270850-26
OF 32
REV 3

0924-5572_MCH-MGC 1/28/2019







REV	DATE	WBS4	REVISION DESCRIPTION
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35.0 FT. VERT. SCALE

LINE 0924
MCH SUB TO MGC SUB

230 KV

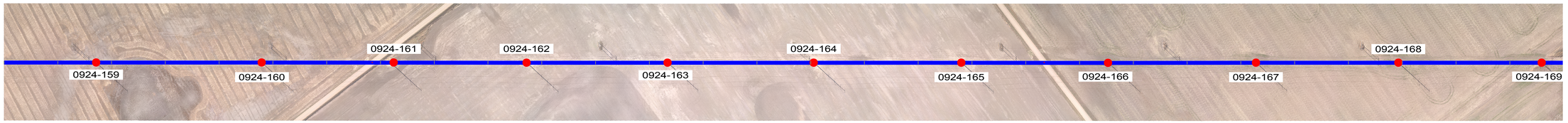
0924-150-DE TO 0924-158

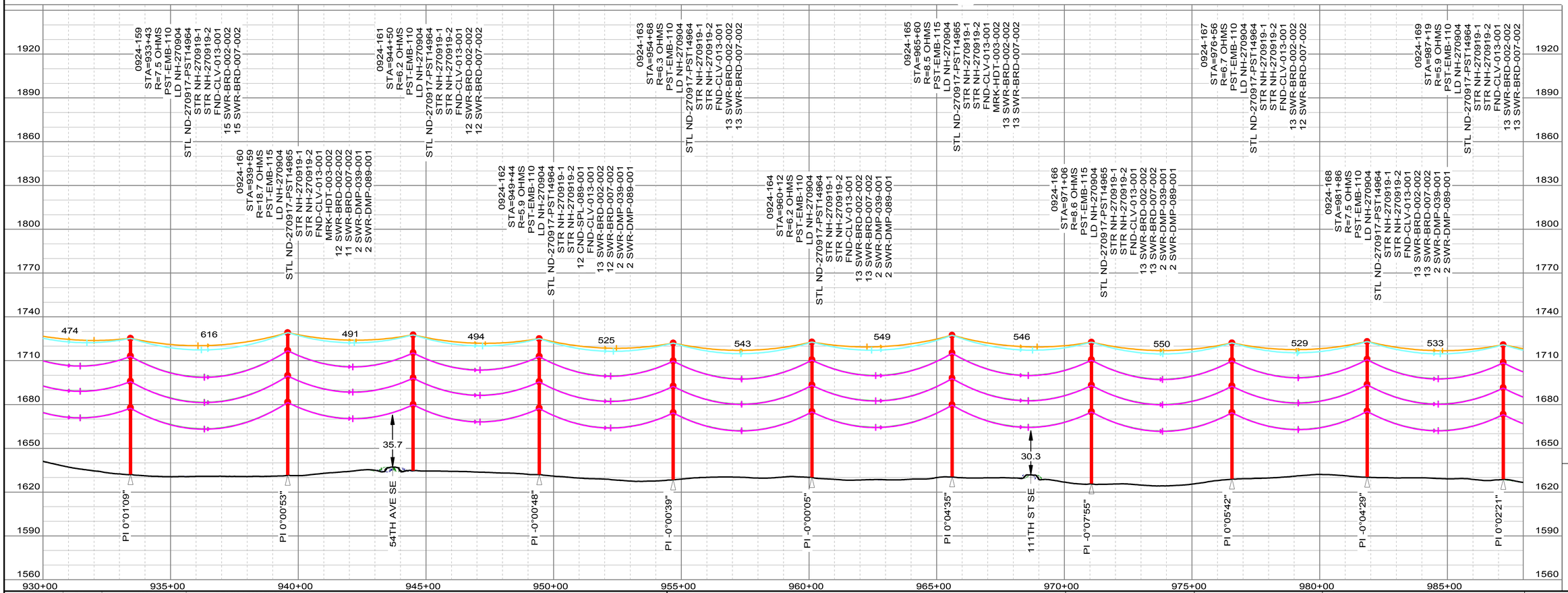
NH-270850-27

OF 32

REV 3

REGISTERED PROFESSIONAL ENGINEER
JEFFREY D MARQUARDT
PE-10846
DATE
NORTH DAKOTA





REGISTERED PROFESSIONAL ENGINEER
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PE-10846
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LINE 0924
MCH SUB TO MGC SUB

230 KV

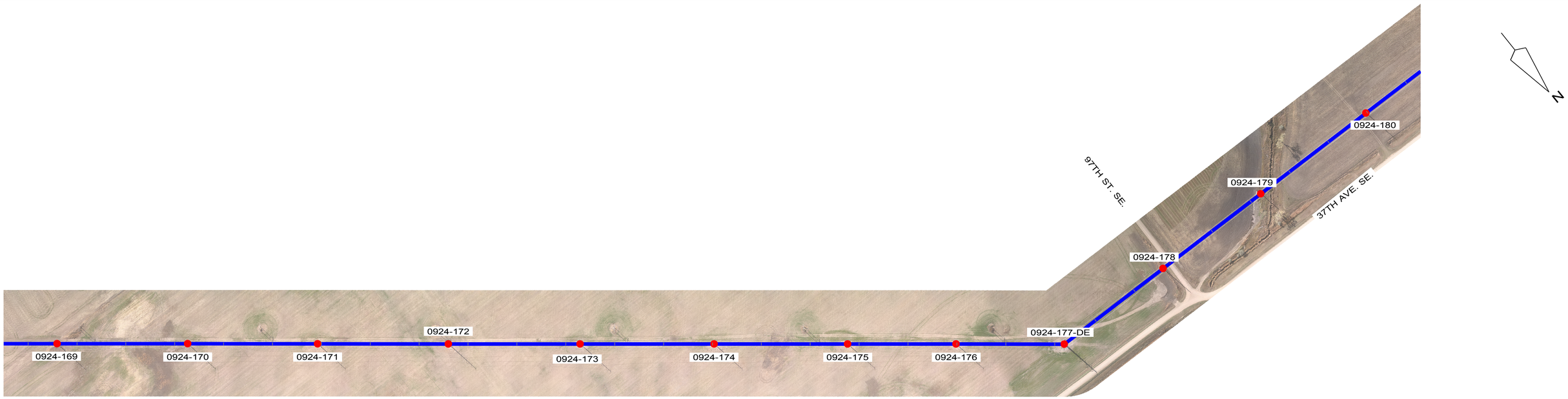
0924-159 TO 0924-169

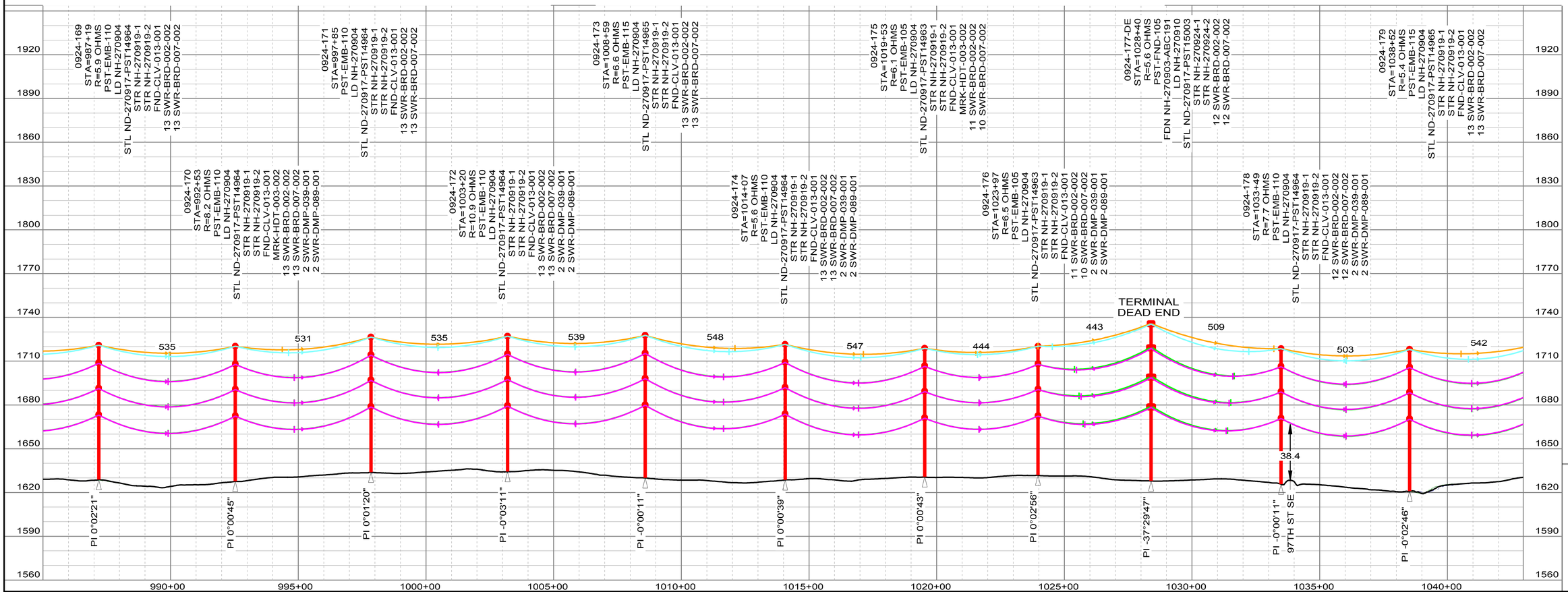
NH-270850-28

OF 32

REV 3

0924-5572_MCH-MGC 1/28/2019





REV	DATE	WBS4	REVISION DESCRIPTION
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LINE 0924
MCH SUB TO MGC SUB

230 KV

0924-169 TO 0924-179

NH-270850-29

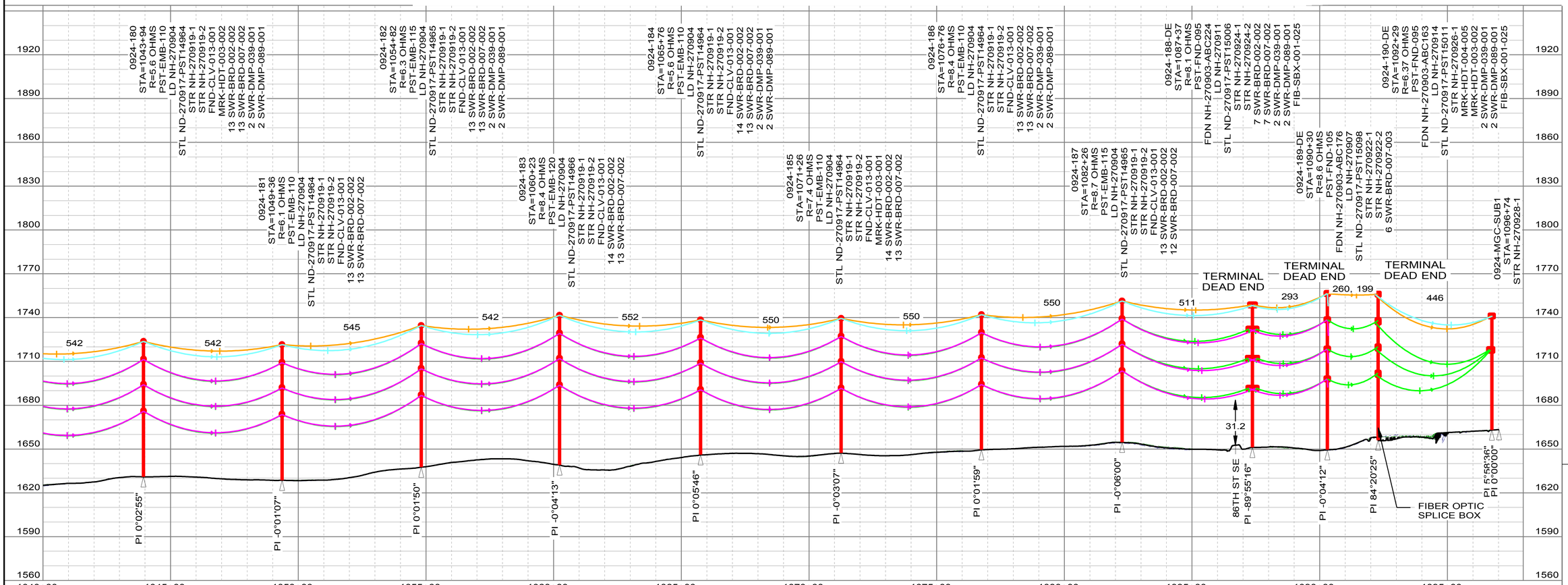
OF 32

REV. 3

REGISTERED PROFESSIONAL ENGINEER
JEFFREY D MARQUARDT
PE-10846
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0924-5572_MCH-MGC 1/28/2019





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LINE 0924
MCH SUB TO MGC SUB

230 KV

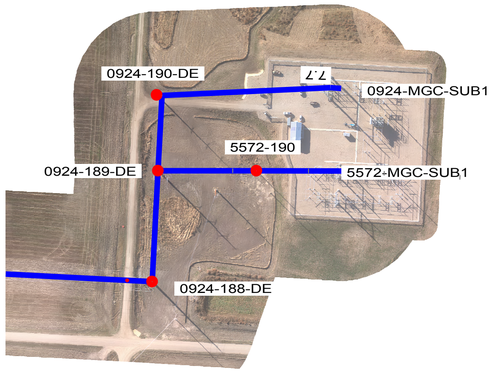
0924-180 TO 0924-MGC-SUB1

NH-270850-30

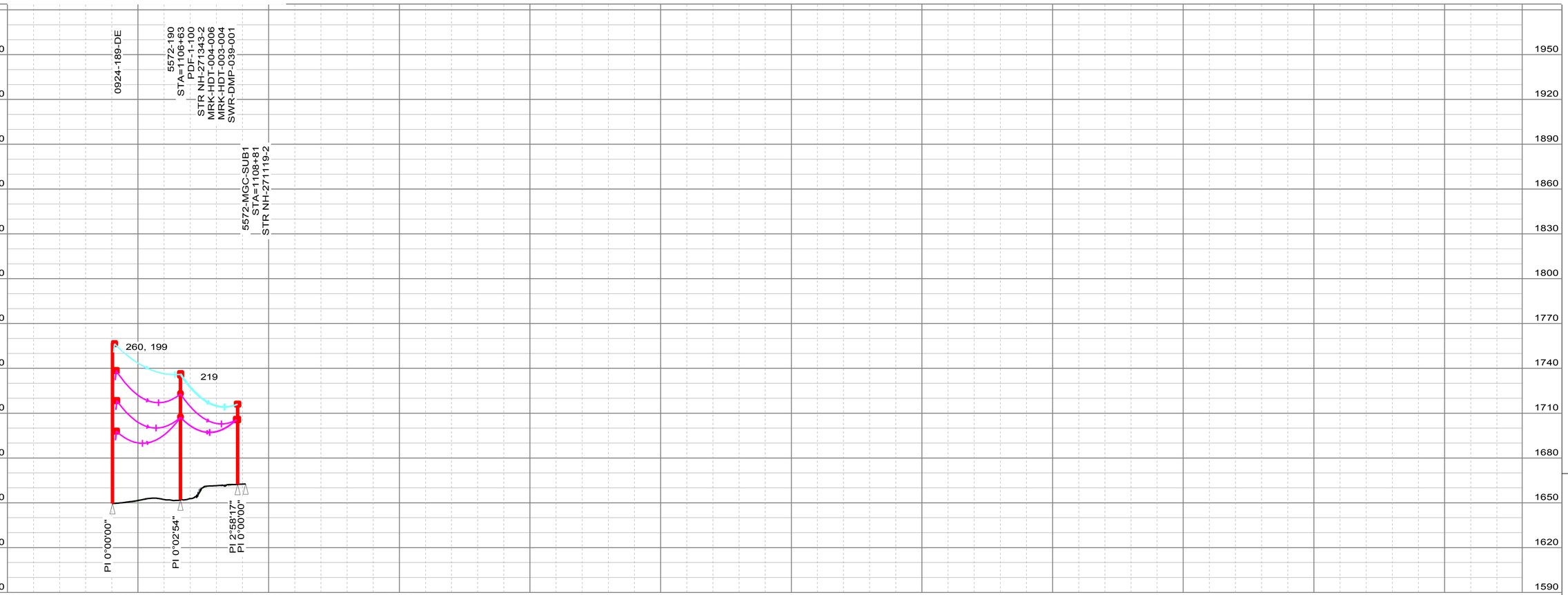
OF 32

REV 3

0924-5572_MCH-MGC 1/28/2019



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REGISTERED PROFESSIONAL ENGINEER
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LINE 0924
MCH SUB TO MGC SUB

230 KV

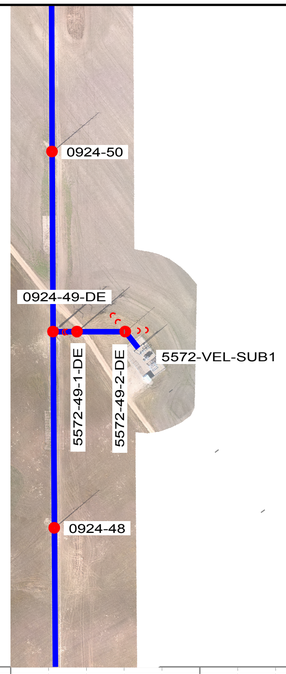
5572-190 TO 5572-MGC-SUB1

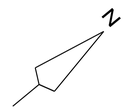
NH-270850-31

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REV 3

0924-5572_MCH-MGC 1/28/2019







REV	DATE	WBS4	REVISION DESCRIPTION
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LINE 0924
MCH SUB TO MGC SUB

230 KV

5572-49-1-DE TO 5572-VEL-SUB1

NH-270850-32

OF 32

REV 3

REGISTERED PROFESSIONAL ENGINEER
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