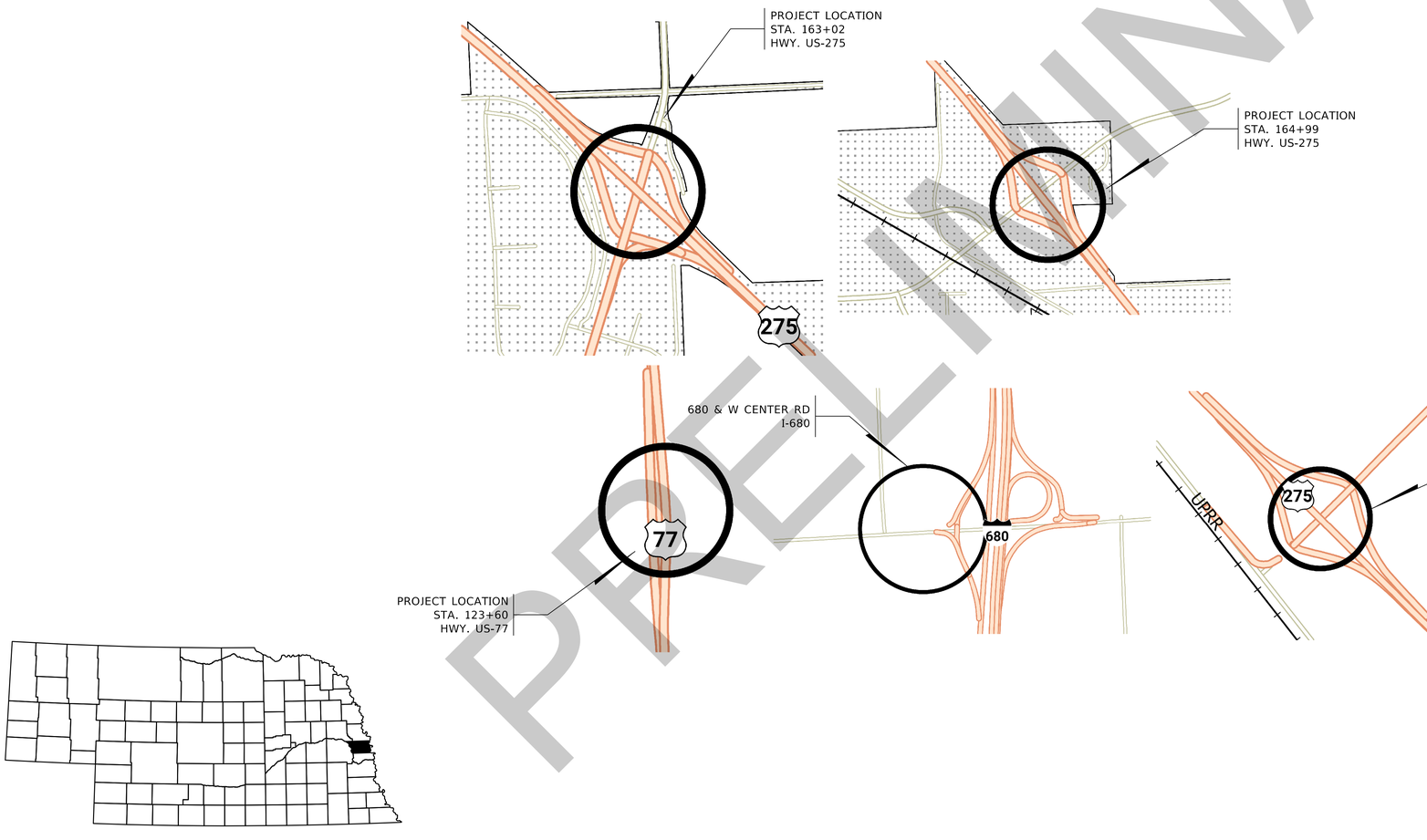
STATE OF NEBRASKA
DEPARTMENT OF TRANSPORTATION
PLANS FOR CONSTRUCTION

DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

DOUGLAS COUNTY



WORK ON THIS PROJECT IS AUTHORIZED PURSUANT TO THE CONDITIONS STIPULATED IN THE ARMY CORPS OF ENGINEERS GENERAL/NATIONWIDE/INDIVIDUAL PERMIT.

This Project Incorporates Stormwater Treatment BMPS to Comply with Conditions Included in NDOT's Municipal Separate Storm Sewer System (MS4) Permit

THE WORK ON THIS PROJECT CONSISTS OF GROUPS
8B - ELECTRICAL & 10 - GENERAL ITEMS

◣ GROUPS 8B & 10 ARE INCLUDED IN THE LETTING OF OCTOBER 2, 2025

▲ GROUPS _____ ARE INCLUDED IN THE LETTING OF _____

■ GROUPS _____ ARE INCLUDED IN THE LETTING OF _____

THE 2017 EDITION OF THE NEBRASKA STANDARD SPECIFICATIONS AND THE SPECIAL PROVISIONS APPLY TO THIS PROJECT.

DESIGN DESIGNATION	DESIGN DESIGNATION
US-275	US-275
STA. 158+48	STA. 163+02
MAINTENANCE	MAINTENANCE
TRAFFIC	TRAFFIC
YEAR: 2026	YEAR: 2026
ADT: 20,840	ADT: 23,195

DESIGN DESIGNATION	DESIGN DESIGNATION
US-275	US-77
STA. 164+99	STA. 123+60
MAINTENANCE	MAINTENANCE
TRAFFIC	TRAFFIC
YEAR: 2026	YEAR: 2026
ADT: 28,220	ADT: 11,915

DESIGN DESIGNATION
I-680
MAINTENANCE
TRAFFIC
YEAR: 2026
ADT: 42,790

A1

Project Number
STP-275-7
(210)

◣C.N. 22898

▲C.N.

■C.N.

REFERENCE POST NO. 158.48

NEBRASKA
Good Life. Great Journey.
DEPARTMENT OF TRANSPORTATION

Construction Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4532

PROFESSIONAL CIVIL ENGINEER
BRANDIE S. NEEMANN
E-11829
STATE OF NEBRASKA

I, Brandie Neemann, am the Coordinating Professional on the District 2- A High Mast Tower Replacement

COMPUTER: BG0419M257
DATE: 6-MAY-2025 12:09
FILE: 22898_NDOT_Title_and_Index_US_FT.dgn

SHEET NO.

A1	TITLE PAGE
A2	INDEX OF SHEETS
C1	SUMMARY OF QUANTITIES
E1 - E5	ENVIRONMENTAL
F1 - F18	HORIZONTAL ALIGNMENT & ORIENTATION
N1 - N10	LIGHTING

STANDARD PLANS

914-R9	(3 SHEETS) PULL BOX DETAIL
920-R7	(3 SHEETS) TRAFFIC CONTROL, CONSTRUCTION AND MAINTENANCE
926	(2 SHEETS) TYPICAL LANE CLOSURE PLAN FOR MULTILANE ROADWAYS

FILE: 22898_NDOT_Title_and_Index_US_FT.dgn DATE: 6-MAY-2025 13:53 COMPUTER: BG04190257

A2

Project Number
275-7(210)

C.N. 22898

DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

INDEX OF SHEETS

NEBRASKA
Good LIfe. Great Journey.
DEPARTMENT OF TRANSPORTATION

Construction Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4532

COMPACTION REQUIREMENTS
Class III (See Specifications)

	SOIL TYPE	DEPTH BELOW FINISH SUBGRADE	PERCENT DENSITY	MOISTURE REQUIREMENTS MINIMUM	MAXIMUM
Embankment / Roadway Grading, including driveways, to receive concrete pavement	Silt-Clay	Upper 3 feet	98 Min.	Opt. -3%	Opt. +2%
	Silt-Clay	At depths greater than 3 feet	95 Min.	Opt. -3%	Opt. +2%
	Granular	All depths	100 Min.	**	**
Embankment / Roadway Grading, including detours, temporary roads, and driveways, to receive flexible pavement	Silt-Clay	Upper 3 feet	100 Min.	Opt. -2%	Opt. +1%
	Silt-Clay	At depths greater than 3 feet	95 Min.	Opt. -3%	Opt. +2%
	Granular	All depths	100 Min.	**	**
Embankment / Roadway Grading not to be surfaced	All	All depths	95 Min.	Opt. -3%	Opt. +2%
Embankment / Roadway Grading to receive gravel surfacing / crushed rock embedment	All	All depths	95 Min.	**	**
Subgrade Preparation, Shoulder Subgrade Preparation (Concrete Pavement)	Silt-Clay	The upper 6 inches of subgrade soil	98 Min.	Opt. -3%	Opt. +2%
	Granular	The upper 6 inches of subgrade soil	100 Min.	**	**
Subgrade Preparation, Shoulder Subgrade Preparation (Flexible Pavement)	Silt-Clay	The upper 6 inches of subgrade soil	100 Min.	Opt. -2%	Opt. +1%
	Granular	The upper 6 inches of subgrade soil	100 Min.	**	**
Trench Widening	--	--	(See Special Provisions)		
Bituminous Pavement Patching	All	Underlying Material	100 Min.	(See Specifications)	
Foundation Course / Subgrade Stabilization	--	--	100 Min.	(See Specifications)	
Stabilized Subgrade (ie Lime, Flyash, etc.)	--	--	100 Min.	(See Special Provisions)	
Granular Structural Fill (MSE Walls, Granular Fill for bridges, Culverts, etc)	Granular	All depths	100 Min.	Opt. -3%	Opt. +3%

** Moisture as necessary to obtain density.
(A moisture target value at maximum density shall be established in the field by the Contractor during the compaction process. The acceptable moisture content shall be ± 2% of the target value.)

****

C1

Project Number
275-7(210)

C.N. 22898

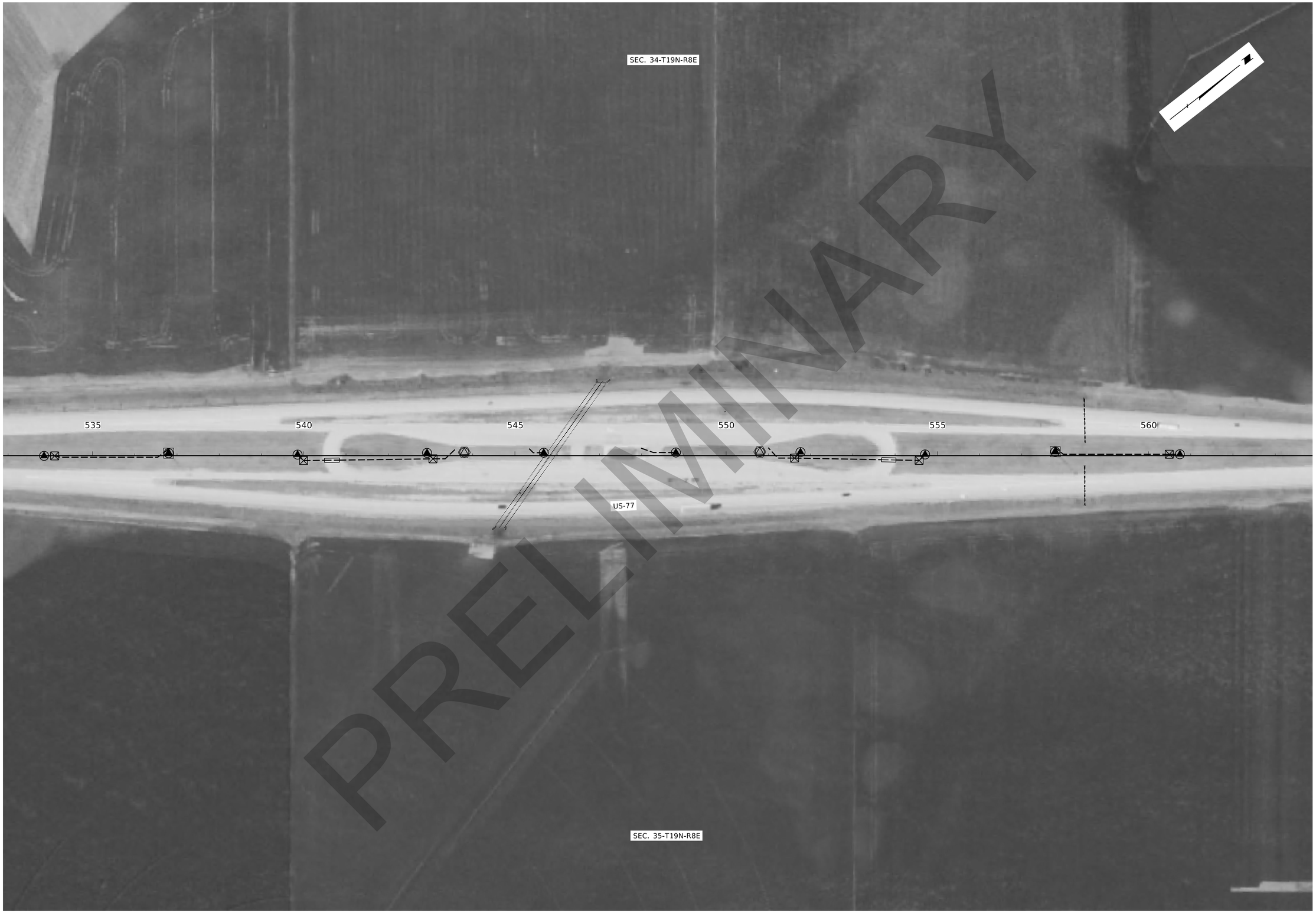
DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

SUMMARY OF QUANTITIES

NEBRASKA
Good Life. Great Journey.
DEPARTMENT OF TRANSPORTATION

Construction Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4532

COMPUTER: BG0419M257
DATE: 6-MAY-2025 13:40
FILE: 22898_NDOT_Summary_of_Quantities_US_FT.dgn



E1

Project Number
275-7(210)

C.N. 22898

DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

DATE: 2022
FLIGHT: NAIP

LEGEND

- LIMITS OF CONSTRUCTION
- WETLANDS - DO NOT DISTURB -
- IMPACTED WETLANDS
- TEMPORARY IMPACTED WETLANDS
- SEN — SENSITIVE AREA
- TRAIL — SENSITIVE TRAIL

ENVIRONMENTAL

NEBRASKA
Good Life. Great Journey.
DEPARTMENT OF TRANSPORTATION

Roadway Design Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4601

COMPUTER: BG0419M257
DATE: 7-APR-2025 13:03
FILE: 22898Sheets Enviro_US_FT.dgn

COMPUTER: BG0419M257
DATE: 7-APR-2025 13:04
FILE: 22898Sheets Enviro_US_FT.dgn

E2

Project Number
275-7(210)

C.N. 22898

DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

DATE: 2022
FLIGHT: NAIP

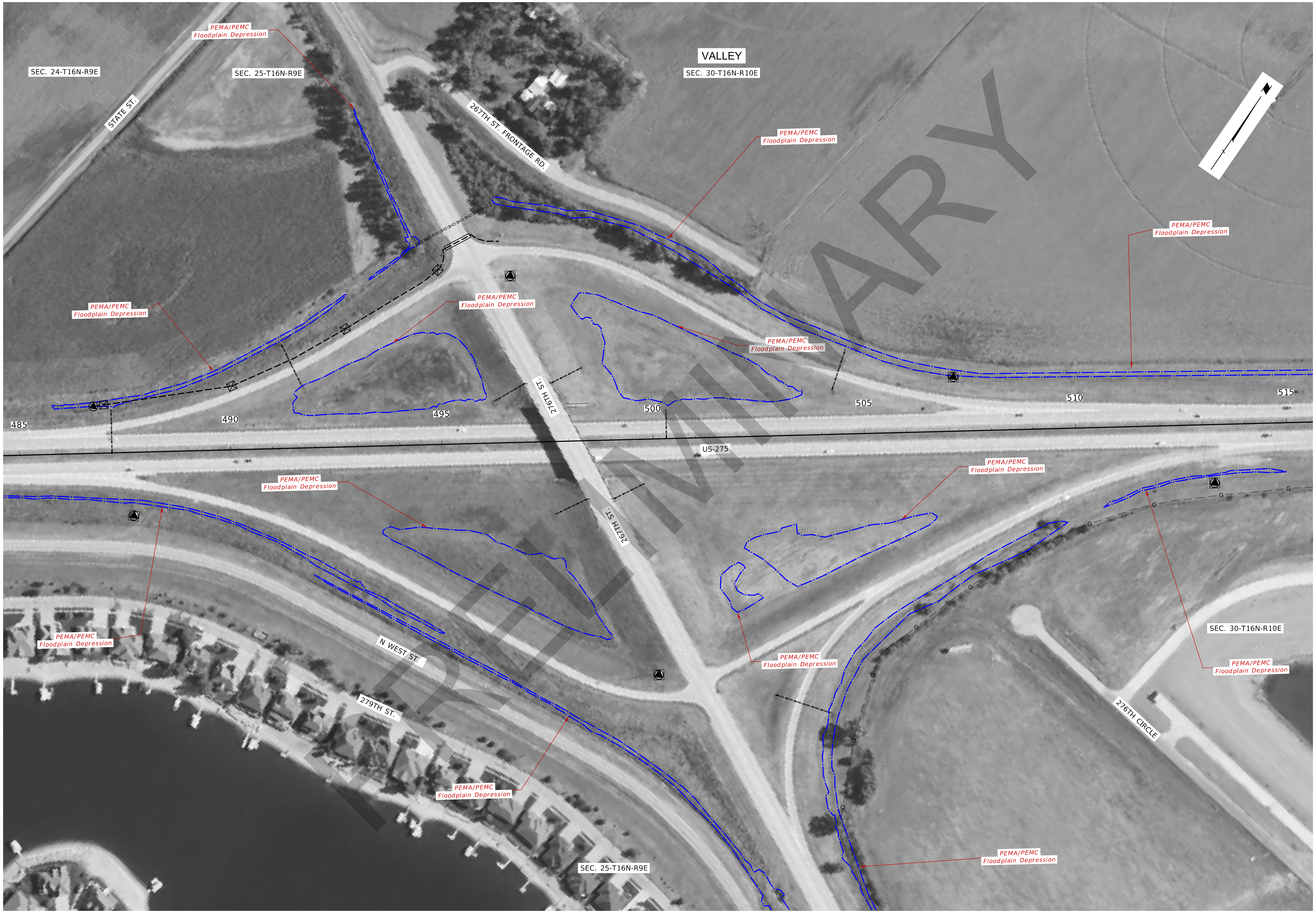
LEGEND

- LIMITS OF CONSTRUCTION
- WETLANDS - DO NOT DISTURB -
- IMPACTED WETLANDS
- TEMPORARY IMPACTED WETLANDS
- — SEN — SENSITIVE AREA
- — TRAIL — SENSITIVE TRAIL

ENVIRONMENTAL

NEBRASKA
Good Life. Great Journey.
DEPARTMENT OF TRANSPORTATION

Roadway Design Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4601



E3

Project Number
275-7(210)

C.N. 22898

DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

DATE: 2022
FLIGHT: NAIP

LEGEND

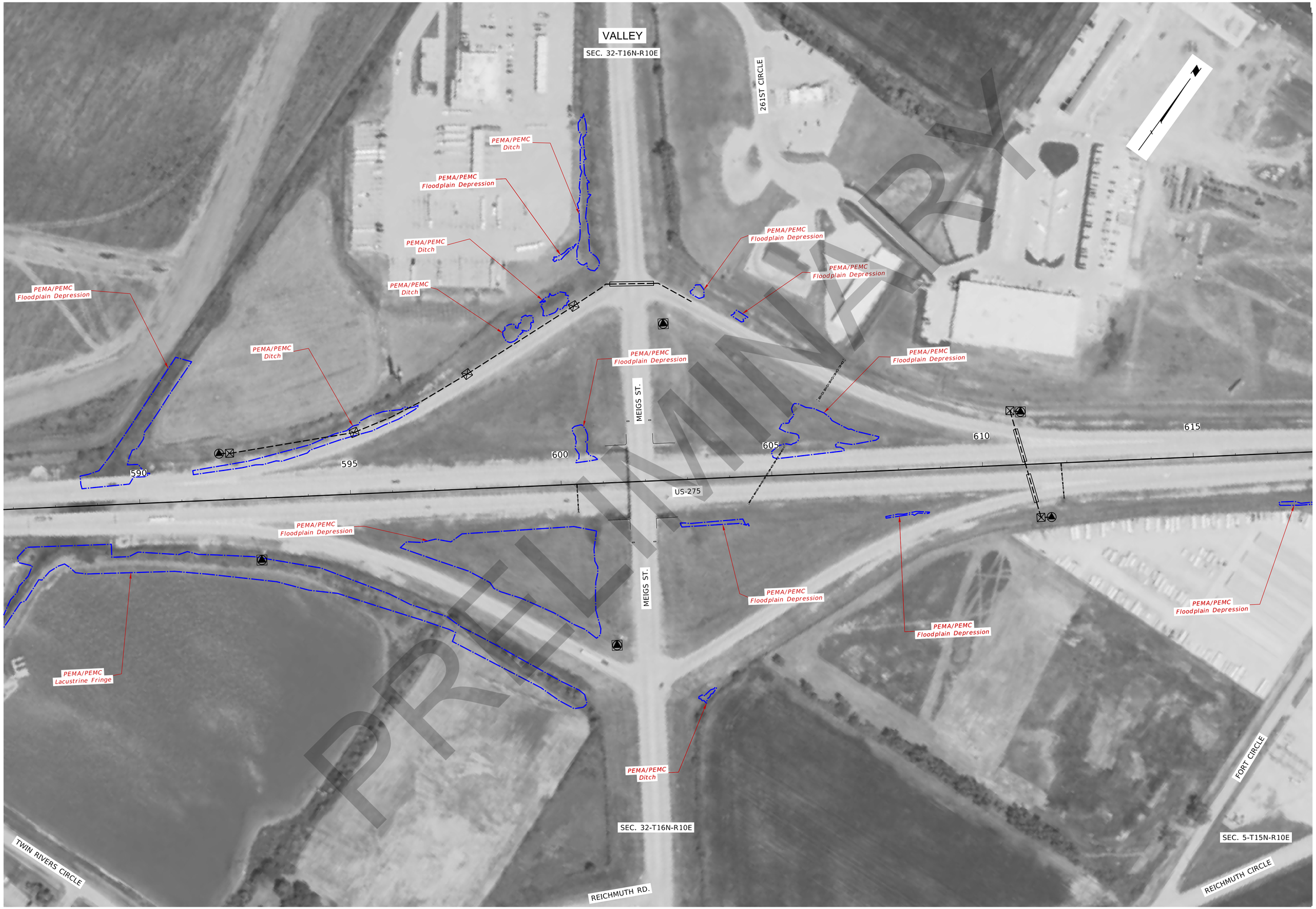
LIMITS OF CONSTRUCTION
WETLANDS - DO NOT DISTURB -
IMPACTED WETLANDS
TEMPORARY IMPACTED WETLANDS
— SEN — SENSITIVE AREA
— TRAIL — SENSITIVE TRAIL

ENVIRONMENTAL

NEBRASKA
Good Life. Great Journey.
DEPARTMENT OF TRANSPORTATION

Roadway Design Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4601

FILE: 22898Sheets Enviro_US_FT.dgn
DATE: 7-APR-2025 13:09
COMPUTER: BG0419M257



COMPUTER: BG0419M257
DATE: 7-APR-2025 13:09
FILE: 22898Sheets Enviro_US_FT.dgn

E4

Project Number
275-7(210)

C.N. 22898

DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

DATE: 2022
FLIGHT: NAIP

LEGEND

- LIMITS OF CONSTRUCTION
- WETLANDS - DO NOT DISTURB -
- IMPACTED WETLANDS
- TEMPORARY IMPACTED WETLANDS
- — SEN — SENSITIVE AREA
- — TRAIL — SENSITIVE TRAIL

ENVIRONMENTAL

NEBRASKA
Good Life. Great Journey.
DEPARTMENT OF TRANSPORTATION

Roadway Design Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4601

SEC. 29-T15N-R12E

SEC. 28-T15N-R12E

5140

5135

5130

5125

I-680

PEMA/PEMC
Floodplain Depression

PEMA/PEMC
Floodplain Depression

PEMA/PEMC
Floodplain Depression

PEMA/PEMC
Floodplain Depression

PEMA/PEMC
Floodplain Depression

PEMA/PEMC
Riverine Channel

Intermittent

PEMA/PEMC
Floodplain Depression

PFOA
Floodplain Depression

Intermittent

PEMA/PEMC
Riverine Channel

PEMA/PEMC
Riverine Channel

195 200 205 210 215

W CENTER RD.

180TH ST.

SEC. 32-T15N-R12E

SEC. 33-T15N-R12E

E5

Project Number
275-7(210)

C.N. 22898

DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

DATE: 2024
FLIGHT: NAIP

LEGEND

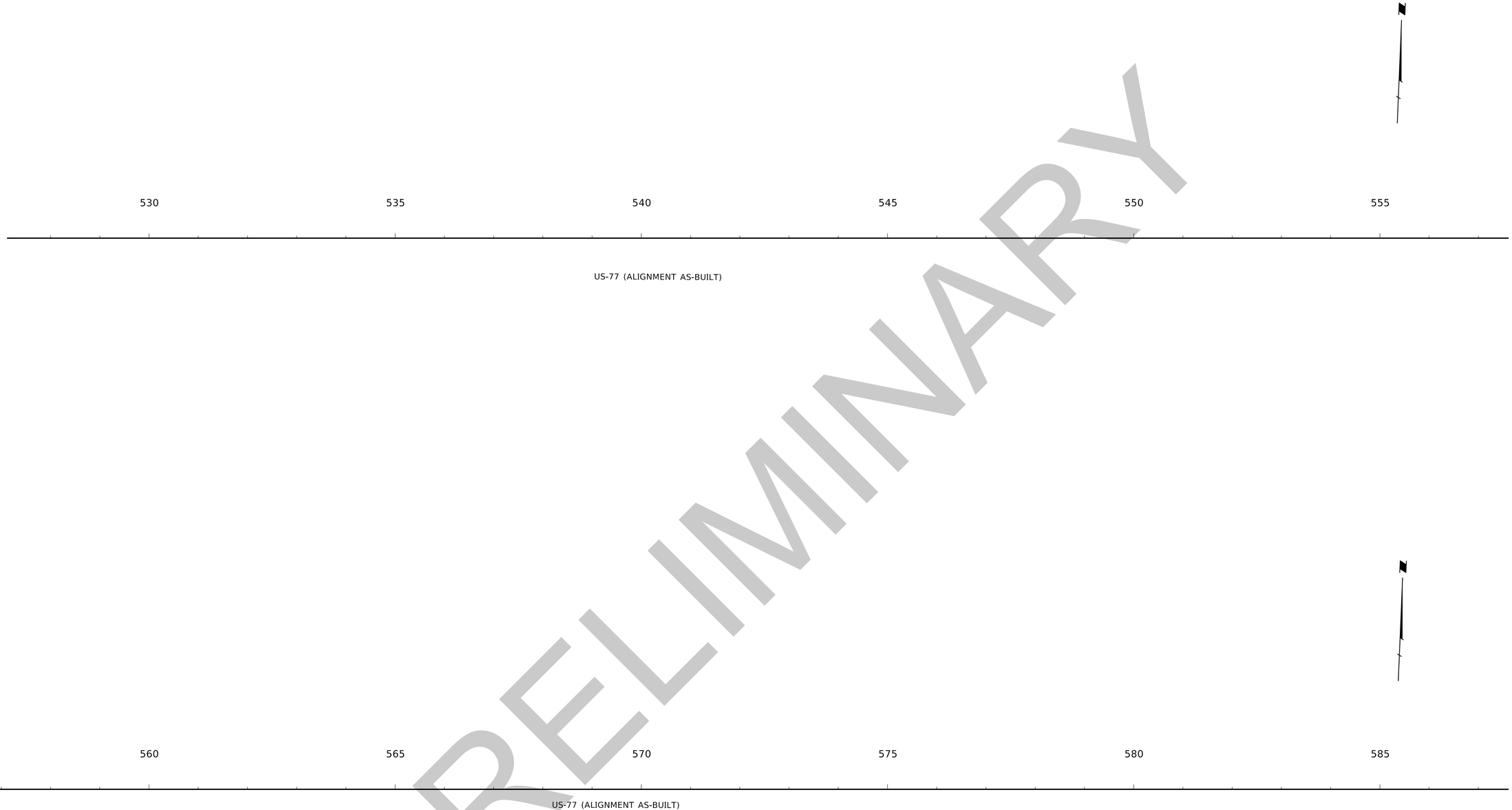
- LIMITS OF CONSTRUCTION
- WETLANDS - DO NOT DISTURB -
- IMPACTED WETLANDS
- TEMPORARY IMPACTED WETLANDS
- — SEN — SENSITIVE AREA
- — TRAIL — SENSITIVE TRAIL

ENVIRONMENTAL

NEBRASKA
Good Life. Great Journey.
DEPARTMENT OF TRANSPORTATION

Roadway Design Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4601

FILE: 22898Sheets Enviro_US_FT.dgn
DATE: 5-MAY-2025 10:11
COMPUTER: BG0419M257



ALIGNMENT INFORMATION		
SEGMENT	ALIGNMENT	PROFILE
US-77	AS-BUILT	-
US-275	US275	-
I-680	I680A	-

NOTE: ALIGNMENT HAS BEEN CREATED FROM ASBUILT INFORMATION AND MODIFIED TO REPRESENT THE FIELD SURVEY DATA COLLECTED.

F1

Project Number
275-7(210)

C.N. 22898

DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

HORIZONTAL ALIGNMENT & ORIENTATION

NEBRASKA
Good LIfe. Great Journey.
DEPARTMENT OF TRANSPORTATION

Roadway Design Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4601

FILE: 22898 Sheets Horiz Align_US_FT.dgn
DATE: 7-APR-2025 14:14
COMPUTER: BG04191M257

590

US-77 (ALIGNMENT AS-BUILT)

F2

Project Number
275-7(210)

C.N. 22898

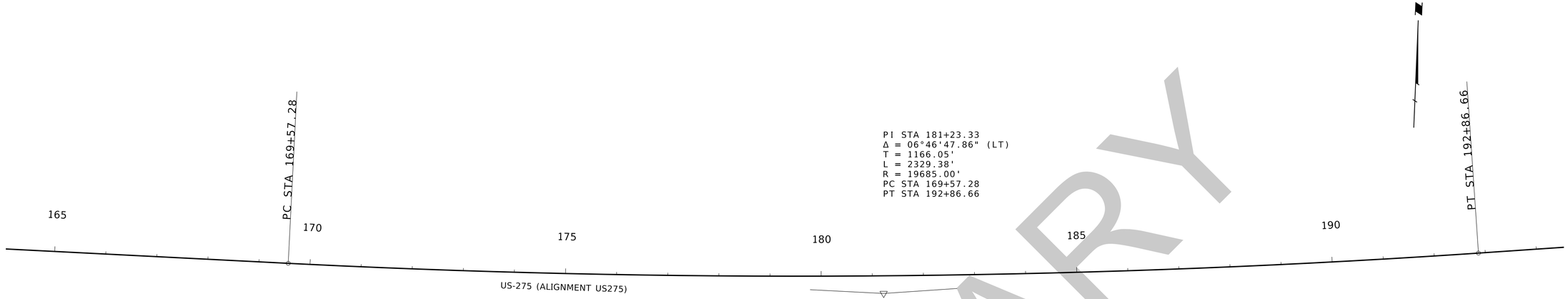
DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

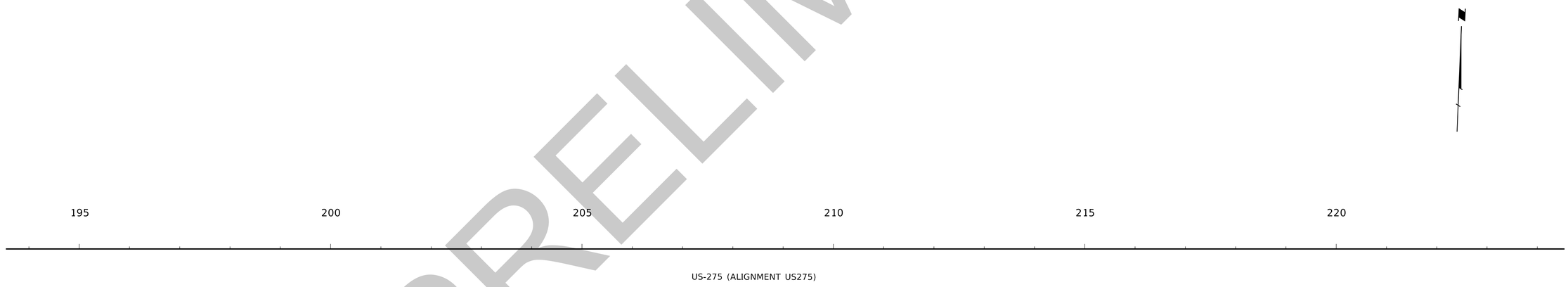
HORIZONTAL ALIGNMENT & ORIENTATION

NEBRASKA
Good LIfe. Great Journey.
DEPARTMENT OF TRANSPORTATION

Roadway Design Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4601

FILE: 22898 Sheets Horiz Align_US_FT.dgn DATE: 7-APR-2025 14:15 COMPUTER: BG04190257





F3

Project Number
275-7(210)

C.N. 22898

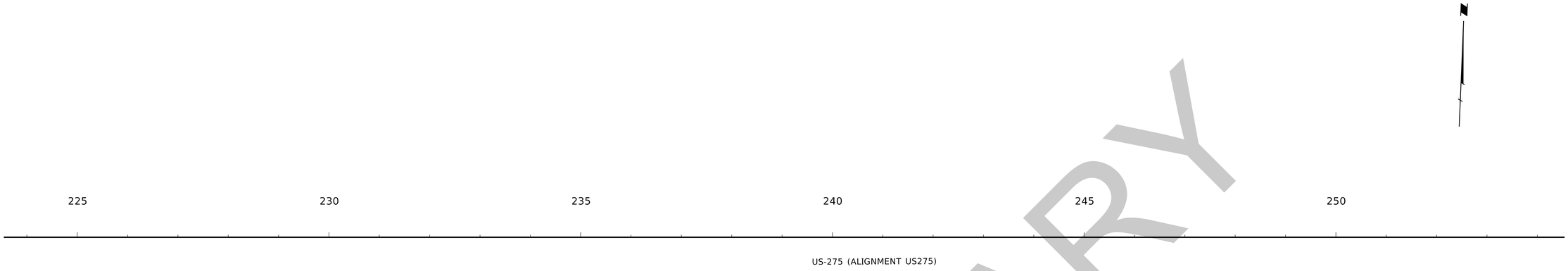
DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

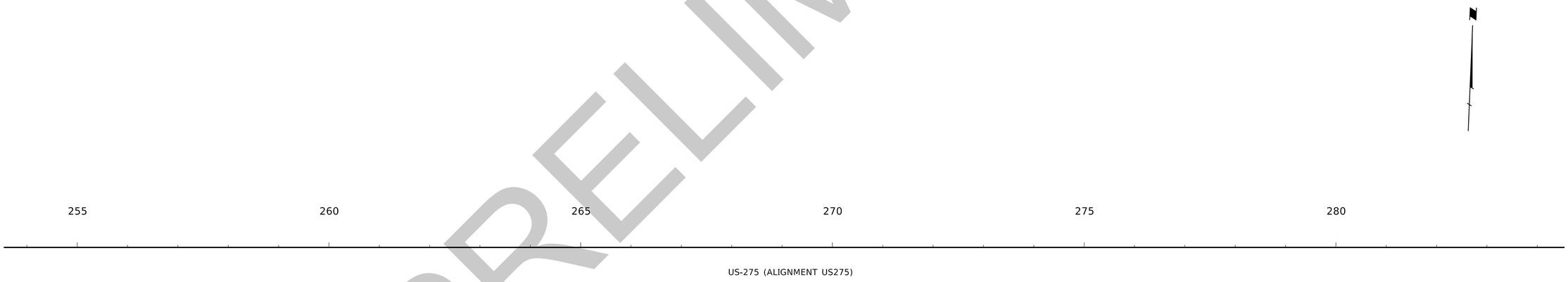
HORIZONTAL ALIGNMENT & ORIENTATION

NEBRASKA
Good LIfe. Great Journey.
DEPARTMENT OF TRANSPORTATION

Roadway Design Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4601

FILE: 22898 Sheets Horiz Align_US_FT.dgn
DATE: 7-APR-2025 14:16
COMPUTER: BG04190M257





F4

Project Number
275-7(210)

C.N. 22898

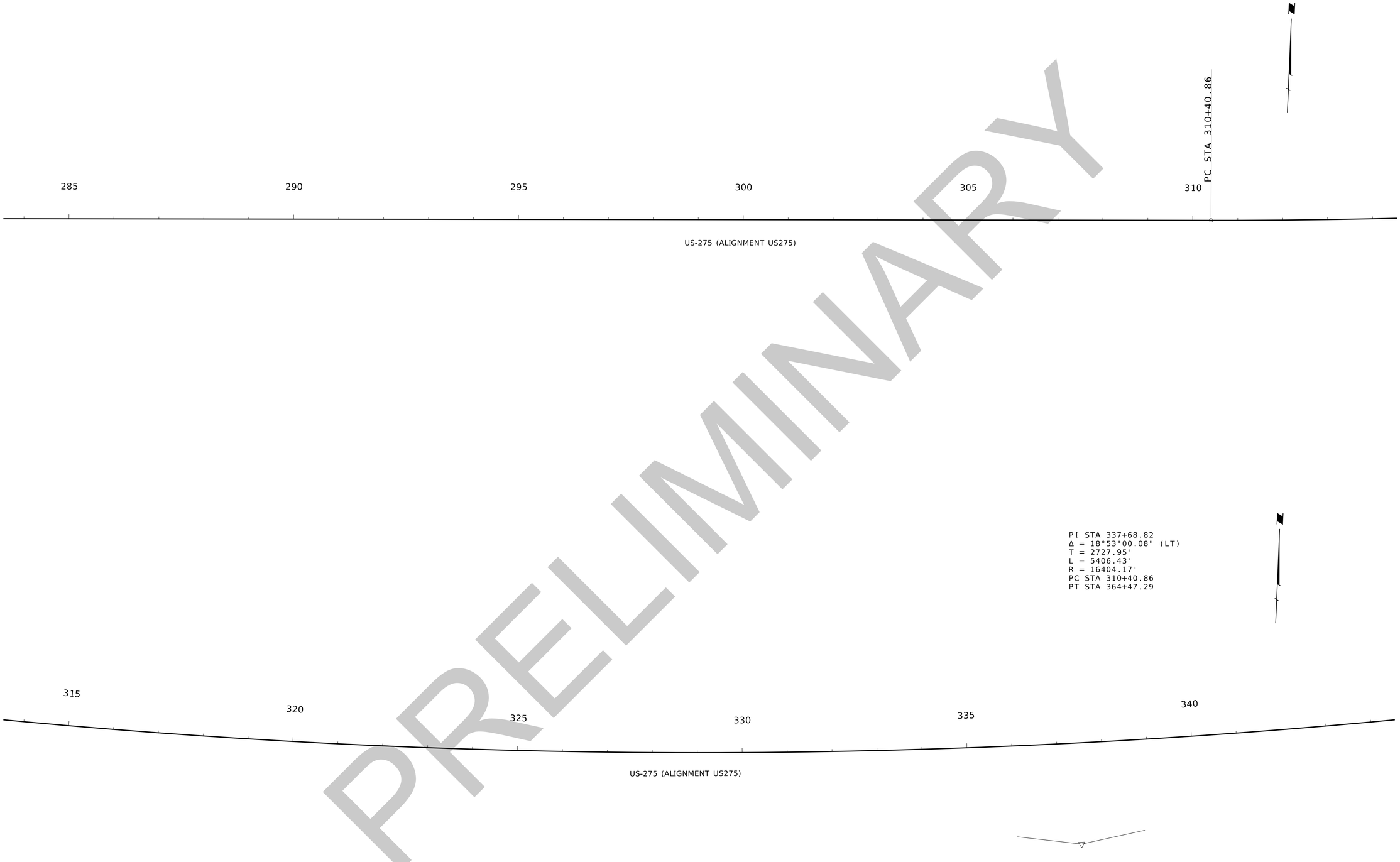
DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

HORIZONTAL ALIGNMENT & ORIENTATION

NEBRASKA
Good LIfe. Great Journey.
DEPARTMENT OF TRANSPORTATION

Roadway Design Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4601

FILE: 22898 Sheets Horiz Align_US_FT.dgn
DATE: 7-APR-2025 14:16
COMPUTER: BG04190257



F5

Project Number
275-7(210)

C.N. 22898

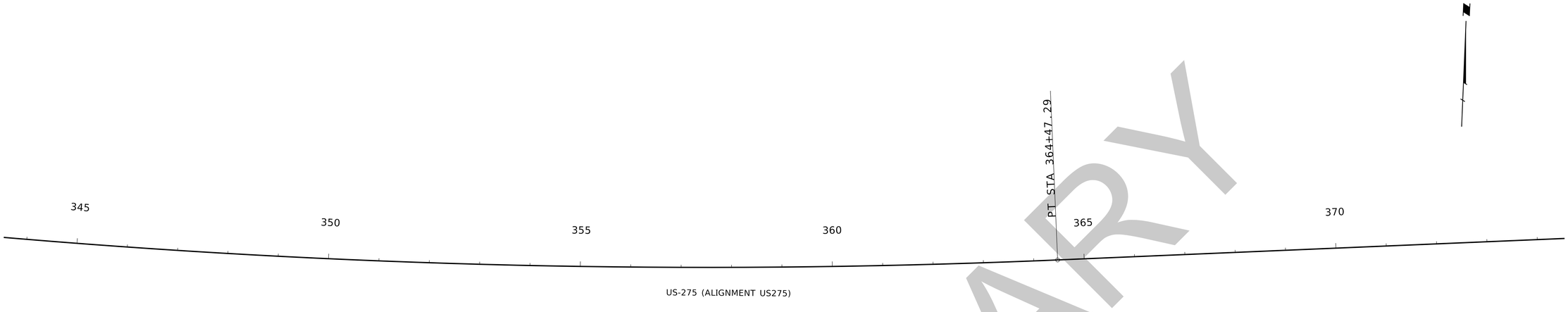
DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

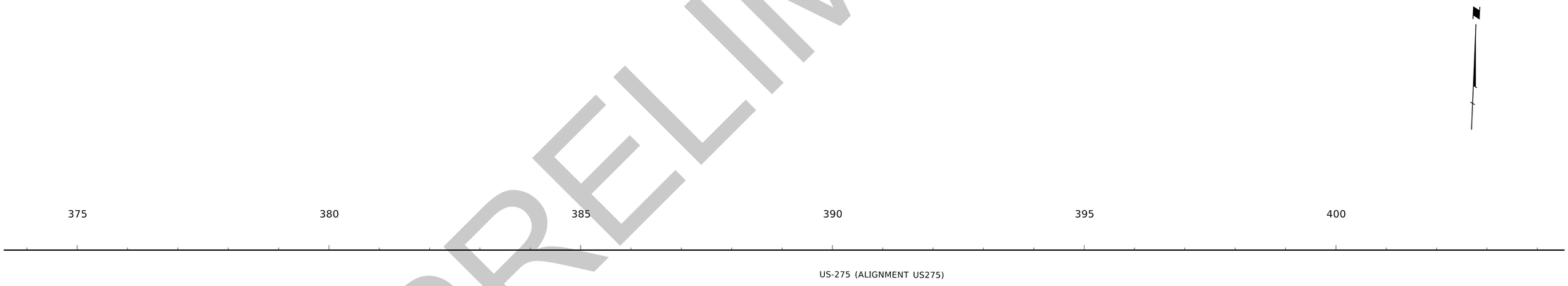
HORIZONTAL ALIGNMENT & ORIENTATION

NEBRASKA
Good LIfe. Great Journey.
DEPARTMENT OF TRANSPORTATION

Roadway Design Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4601

FILE: 22898 Sheets Horiz Align_US_FT.dgn
DATE: 7-APR-2025 14:17
COMPUTER: BG0419M257





F6

Project Number
275-7(210)

C.N. 22898

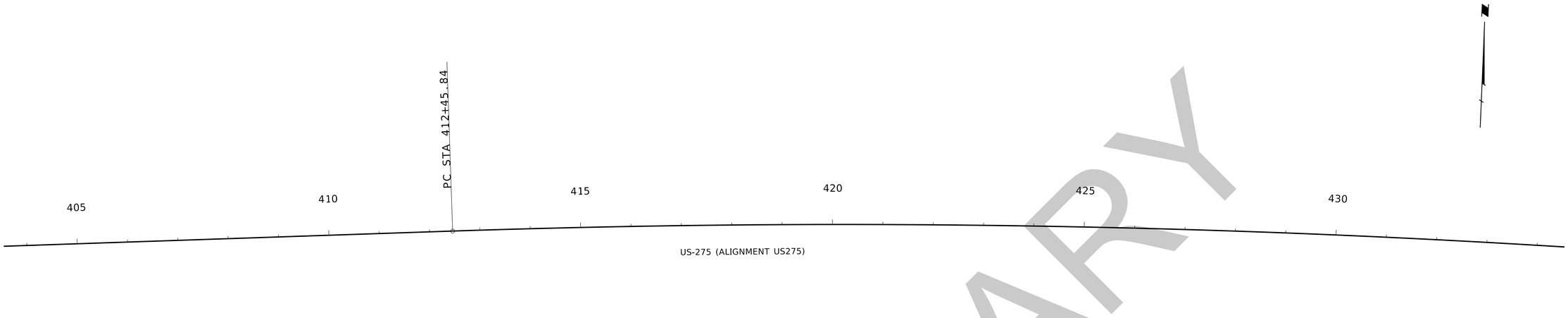
DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

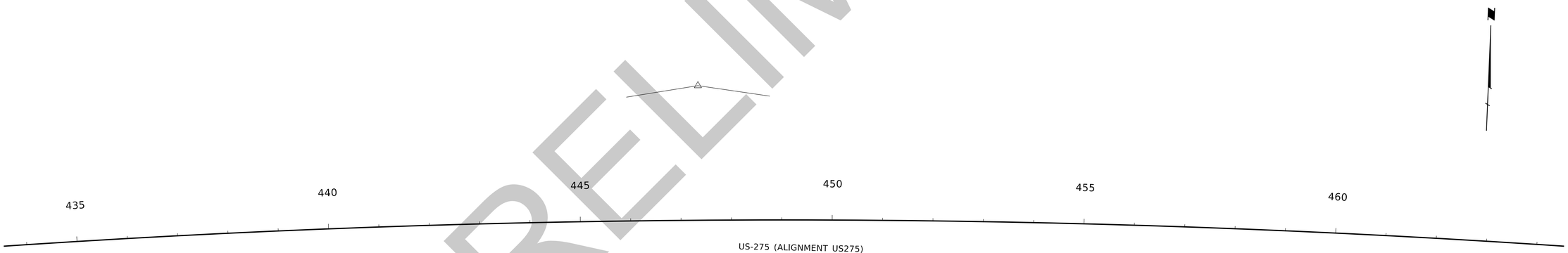
HORIZONTAL ALIGNMENT & ORIENTATION

NEBRASKA
Good LIfe. Great Journey.
DEPARTMENT OF TRANSPORTATION

Roadway Design Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4601

FILE: 22898 Sheets Horiz Align_US_FT.dgn
DATE: 7-APR-2025 14:18
COMPUTER: BG04190M257





PI STA 447+62.52
Δ = 17°24'42.28" (RT)
T = 3516.68'
L = 6979.14'
R = 22965.83'
PC STA 412+45.84
PT STA 482+24.98

F7

Project Number
275-7(210)

C.N. 22898

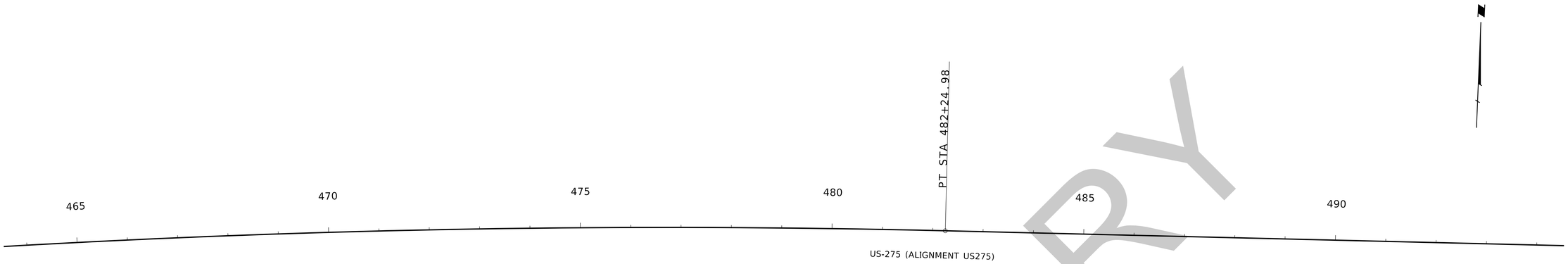
DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

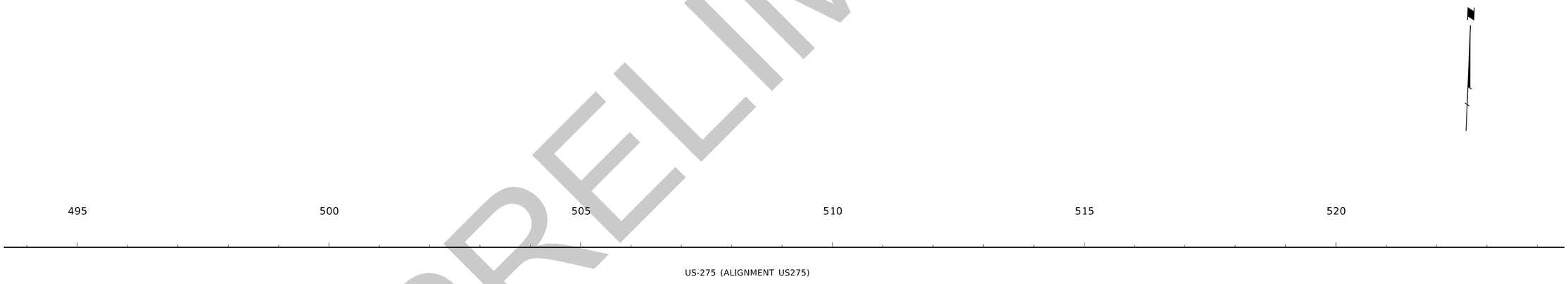
HORIZONTAL ALIGNMENT & ORIENTATION

NEBRASKA
Good LIfe. Great Journey.
DEPARTMENT OF TRANSPORTATION

Roadway Design Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4601

FILE: 22898 Sheets Horiz Align_US_FT.dgn
DATE: 7-APR-2025 14:18
COMPUTER: BG04190M257





F8

Project Number
275-7(210)

C.N. 22898

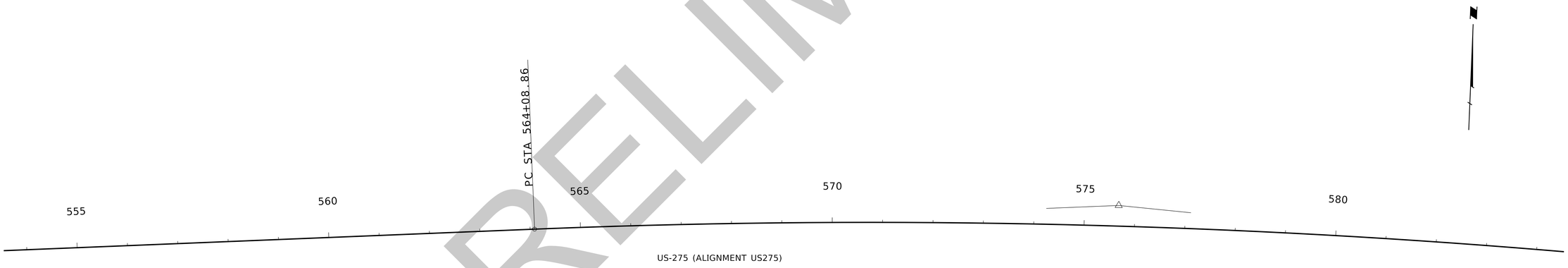
DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

HORIZONTAL ALIGNMENT & ORIENTATION

NEBRASKA
Good LIfe. Great Journey.
DEPARTMENT OF TRANSPORTATION

Roadway Design Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4601

FILE: 22898 Sheets Horiz Align_US_FT.dgn
DATE: 7-APR-2025 14:19
COMPUTER: BG04190257



PI STA 575+69.55
Δ = 08°05'40.29" (RT)
T = 1160.69'
L = 2317.52'
R = 16404.17'
PC STA 564+08.86
PT STA 587+26.38

F9

Project Number
275-7(210)

C.N. 22898

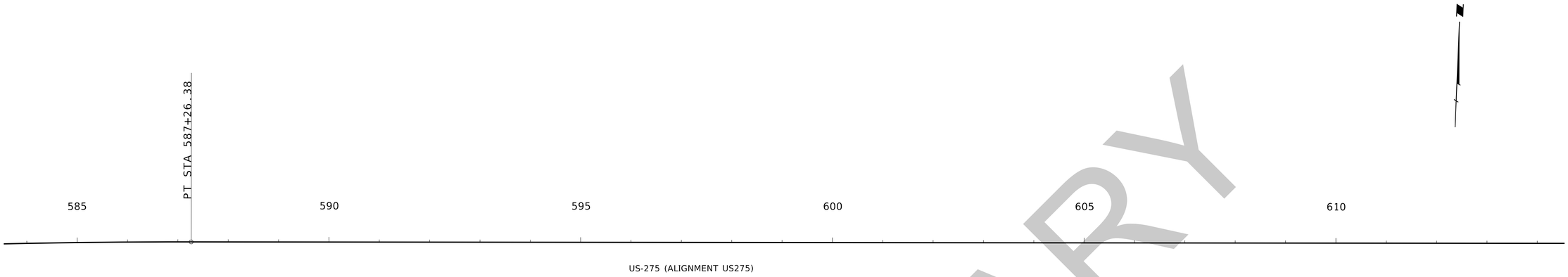
DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

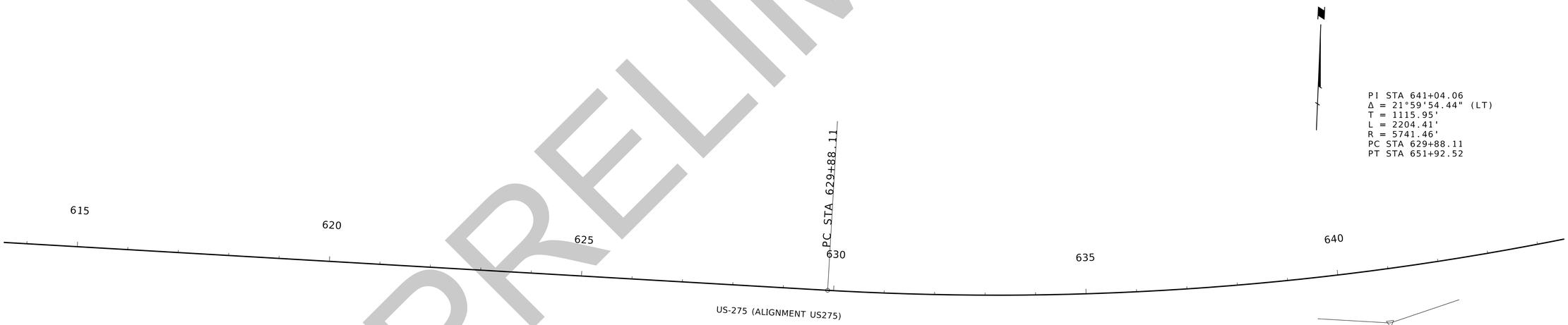
HORIZONTAL ALIGNMENT & ORIENTATION

NEBRASKA
Good Life. Great Journey.
DEPARTMENT OF TRANSPORTATION

Roadway Design Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4601

FILE: 22898 Sheets Horiz Align_US_FT.dgn
DATE: 7-APR-2025 14:19
COMPUTER: BG04191M257





F10

Project Number
275-7(210)

C.N. 22898

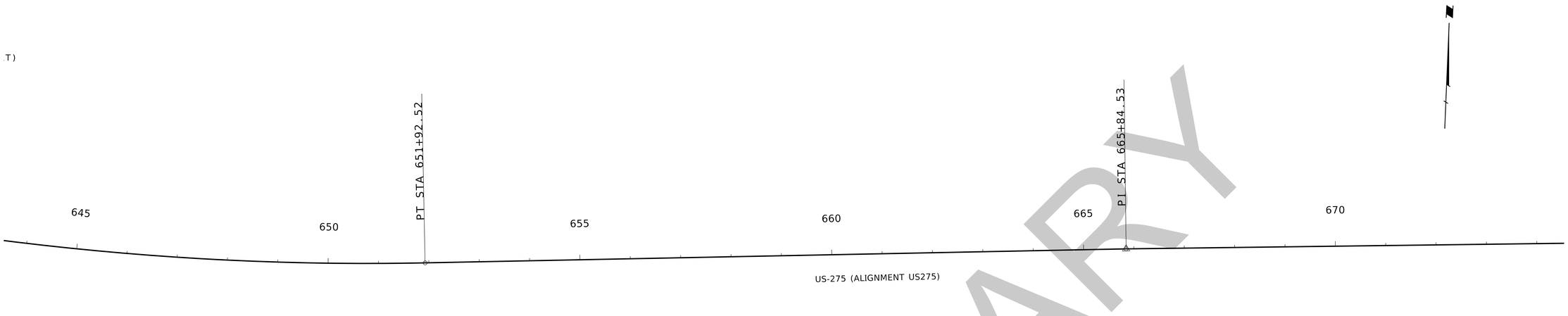
DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

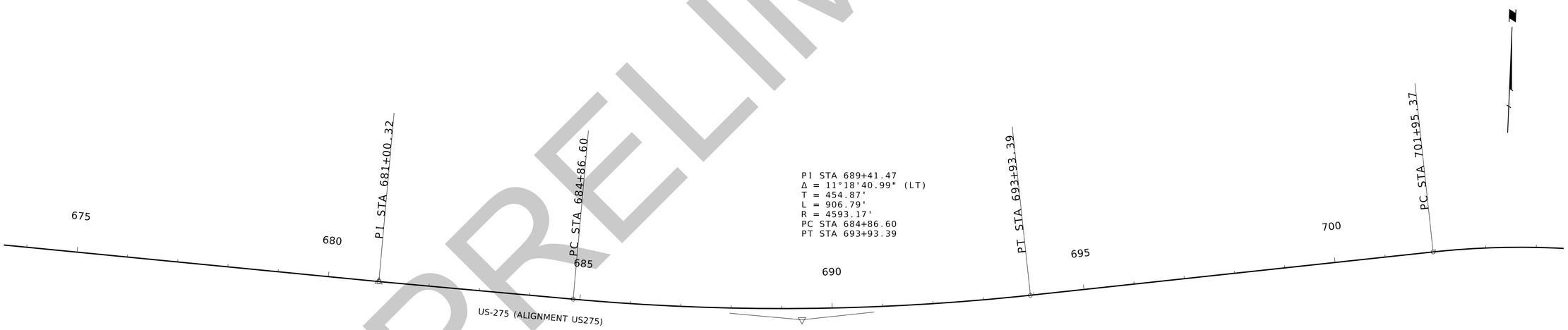
HORIZONTAL ALIGNMENT & ORIENTATION

NEBRASKA
Good Life. Great Journey.
DEPARTMENT OF TRANSPORTATION

Roadway Design Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4601

FILE: 22898 Sheets Horiz Align_US_FT.dgn
DATE: 7-APR-2025 14:20
COMPUTER: BG04191M257





F11

Project Number
275-7(210)

C.N. 22898

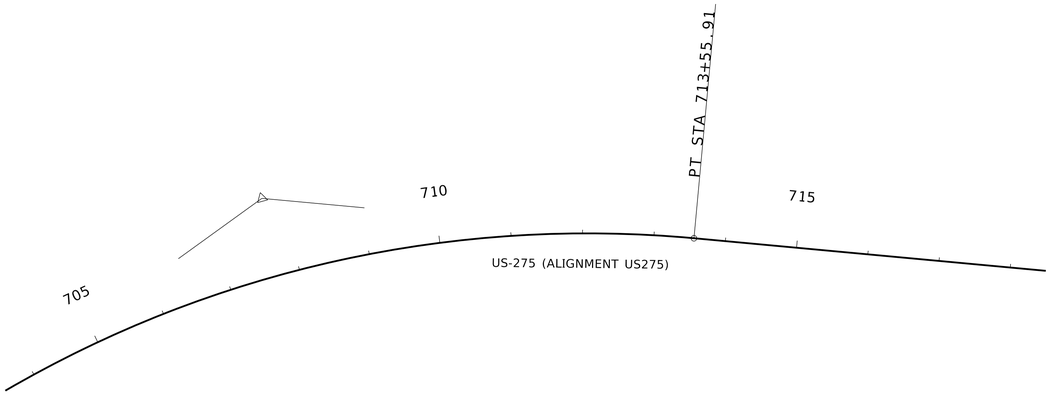
DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

HORIZONTAL ALIGNMENT & ORIENTATION

NEBRASKA
Good LIfe. Great Journey.
DEPARTMENT OF TRANSPORTATION

Roadway Design Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4601

FILE: 22898 Sheets Horiz Align_US_FT.dgn
DATE: 7-APR-2025 14:20
COMPUTER: BG04190M257



PI STA 708+01.93
Δ = 41°08'48.35" (RT)
T = 606.56'
L = 1160.54'
R = 1616.02'
PC STA 701+95.37
PT STA 713+55.91

FILE: 22898 Sheets Horiz Align_US_FT.dgn DATE: 7-APR-2025 14:22 COMPUTER: BG04190257

F12

Project Number
275-7(210)

C.N. 22898

DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

HORIZONTAL ALIGNMENT & ORIENTATION

NEBRASKA
Good LIfe. Great Journey.
DEPARTMENT OF TRANSPORTATION

Roadway Design Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4601

F13

Project Number
275-7(210)

C.N. 22898

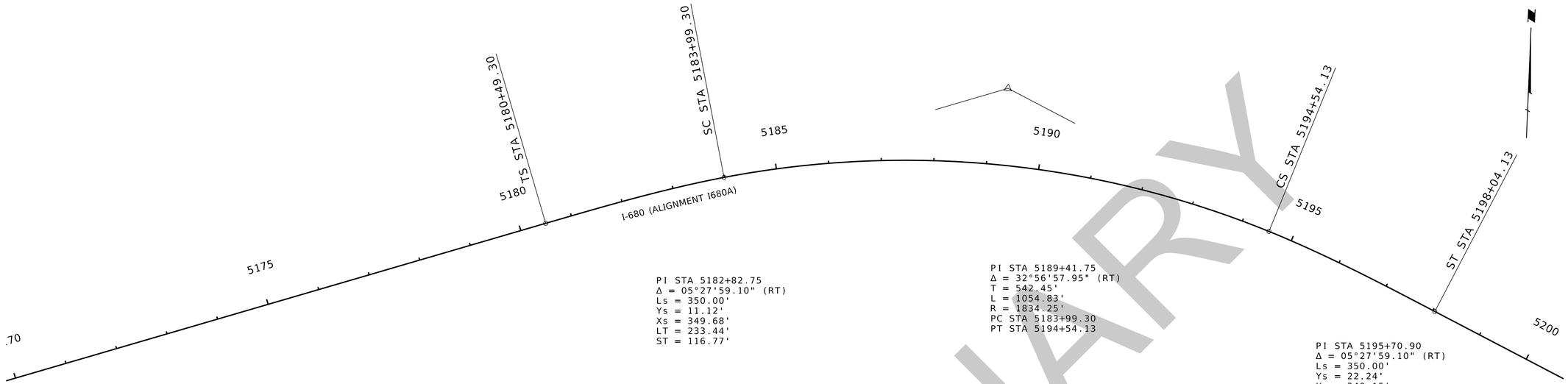
DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

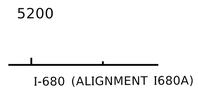
HORIZONTAL ALIGNMENT & ORIENTATION

NEBRASKA
Good Life. Great Journey.
DEPARTMENT OF TRANSPORTATION

Roadway Design Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4601

FILE: 22898 Sheets Horiz Align_US_FT.dgn
DATE: 7-APR-2025 14:23
COMPUTER: BG04190M257





FILE: 22898 Sheets Horiz Align_US_FT.dgn
DATE: 7-APR-2025 14:23
COMPUTER: BG0419M257

F14

Project Number
275-7(210)

C.N. 22898

DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

HORIZONTAL ALIGNMENT & ORIENTATION

NEBRASKA
Good LIfe. Great Journey.
DEPARTMENT OF TRANSPORTATION

Roadway Design Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4601

Alignment Name:	As-built		
Alignment Description:			
Alignment Style:	Alignment\Survey		
	Station	X	Y
Element: Linear			
START	527+11.54	2,598,084.58	651,335.53
END	590+99.84	2,597,817.96	657,718.27
Tangential Direction:	357°36'28.95"		
Tangential Length:	6,388.30		

Alignment Name:	US275		
Alignment Description:			
Alignment Style:	Alignment\Survey		
	Station	X	Y
Element: Linear			
START	164+04.17	2,617,449.37	587,942.64
PC	169+57.28	2,617,791.60	587,508.12
Tangential Direction:	141°46'33.80"		
Tangential Length:	553.11		
Element: Circular			
PC	169+57.28	2,617,791.60	587,508.12
HPI	181+23.33	2,618,513.07	586,592.07
CC		2,633,256.10	599,687.95
PT	192+86.66	2,619,337.65	585,767.61
Radius:	19,685.00		
Delta:	6°46'47.86"	Left	
Degree of Curvature (Arc):	0°17'27.83"		
Length:	2,329.38		
Tangent:	1,166.05		
Chord:	2,328.02		
Middle Ordinate:	34.45		
External:	34.51		
Tangent Direction:	141°46'33.80"		
Radial Direction:	231°46'33.80"		
Chord Direction:	138°23'09.87"		
Radial Direction:	224°59'45.94"		
Tangent Direction:	134°59'45.94"		
Element: Linear			
PT	192+86.66	2,619,337.65	585,767.61
PC	310+40.86	2,627,649.70	577,456.69
Tangential Direction:	134°59'45.94"		
Tangential Length:	11,754.21		
Element: Circular			
PC	310+40.86	2,627,649.70	577,456.69
HPI	337+68.82	2,629,578.78	575,527.87
CC		2,639,248.40	589,056.98
PT	364+47.29	2,632,028.29	574,327.19
Radius:	16,404.17		
Delta:	18°53'00.08"	Left	
Degree of Curvature (Arc):	0°20'57.39"		
Length:	5,406.43		
Tangent:	2,727.95		
Chord:	5,382.00		
Middle Ordinate:	222.23		
External:	225.28		
Tangent Direction:	134°59'45.94"		
Radial Direction:	224°59'45.94"		
Chord Direction:	125°33'15.90"		
Radial Direction:	206°06'45.86"		
Tangent Direction:	116°06'45.86"		
Element: Linear			
PT	364+47.29	2,632,028.29	574,327.19
PC	412+45.84	2,636,337.06	572,215.17
Tangential Direction:	116°06'45.86"		
Tangential Length:	4,798.55		
Element: Circular			
PC	412+45.84	2,636,337.06	572,215.17
HPI	447+62.52	2,639,494.78	570,667.34
CC		2,626,228.90	551,593.46
PT	482+24.98	2,642,044.65	568,245.53
Radius:	22,965.83		
Delta:	17°24'42.28"	Right	
Degree of Curvature (Arc):	0°14'58.14"		
Length:	6,979.14		
Tangent:	3,516.68		
Chord:	6,952.31		
Middle Ordinate:	264.6		
External:	267.69		
Tangent Direction:	116°06'45.86"		
Radial Direction:	206°06'45.86"		
Chord Direction:	124°49'07.00"		
Radial Direction:	223°31'28.14"		
Tangent Direction:	133°31'28.14"		
Element: Linear			
PT	482+24.98	2,642,044.65	568,245.53
PC	564+08.86	2,647,978.62	562,609.59
Tangential Direction:	133°31'28.14"		

Tangential Length:	8,183.88		
Element: Circular			
PC	564+08.86	2,647,978.62	562,609.59
HPI	575+69.55	2,648,820.21	561,810.26
CC		2,636,681.65	550,715.25
PT	587+26.38	2,649,540.87	560,900.40
Radius:	16,404.17		
Delta:	8°05'40.29"	Right	
Degree of Curvature (Arc):	0°20'57.39"		
Length:	2,317.52		
Tangent:	1,160.69		
Chord:	2,315.59		
Middle Ordinate:	40.91		
External:	41.01		
Tangent Direction:	133°31'28.14"		
Radial Direction:	223°31'28.14"		
Chord Direction:	137°34'18.28"		
Radial Direction:	231°37'08.43"		
Tangent Direction:	141°37'08.43"		
Element: Linear			
PT	587+26.38	2,649,540.87	560,900.40
PC	629+88.11	2,652,186.93	557,559.63
Tangential Direction:	141°37'08.43"		
Tangential Length:	4,261.73		
Element: Circular			
PC	629+88.11	2,652,186.93	557,559.63
HPI	641+04.06	2,652,879.81	556,684.84
CC		2,656,687.66	561,124.43
PT	651+92.52	2,653,849.92	556,133.28
Radius:	5,741.46		
Delta:	21°59'54.44"	Left	
Degree of Curvature (Arc):	0°59'52.55"		
Length:	2,204.41		
Tangent:	1,115.95		
Chord:	2,190.89		
Middle Ordinate:	105.47		
External:	107.45		
Tangent Direction:	141°37'08.43"		
Radial Direction:	231°37'08.43"		
Chord Direction:	130°37'11.20"		
Radial Direction:	209°37'13.98"		
Tangent Direction:	119°37'13.98"		
Element: Linear			
PT	651+92.52	2,653,849.92	556,133.28
HPI	665+84.53	2,655,060.02	555,445.27
Tangential Direction:	119°37'13.98"		
Tangential Length:	1,392.02		
Element: Linear			
HPI	665+84.53	2,655,060.02	555,445.27
HPI	681+00.32	2,656,372.34	554,686.69
Tangential Direction:	120°01'47.22"		
Tangential Length:	1,515.79		
Element: Linear			
HPI	681+00.32	2,656,372.34	554,686.69
PC	684+86.60	2,656,708.14	554,495.77
Tangential Direction:	119°37'13.54"		
Tangential Length:	386.29		
Element: Circular			
PC	684+86.60	2,656,708.14	554,495.77
HPI	689+41.47	2,657,103.57	554,270.95
CC		2,658,978.32	558,488.70
PT	693+93.39	2,657,535.41	554,128.05
Radius:	4,593.17		
Delta:	11°18'40.99"	Left	
Degree of Curvature (Arc):	1°14'50.69"		
Length:	906.79		
Tangent:	454.87		
Chord:	905.32		
Middle Ordinate:	22.36		
External:	22.47		
Tangent Direction:	119°37'13.54"		
Radial Direction:	209°37'13.54"		
Chord Direction:	113°57'53.05"		
Radial Direction:	198°18'32.55"		
Tangent Direction:	108°18'32.55"		
Element: Linear			
PT	693+93.39	2,657,535.41	554,128.05

F15

Project Number
275-7(210)

C.N. 22898

DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

HORIZONTAL ALIGNMENT & ORIENTATION

NEBRASKA
Good Life. Great Journey.
DEPARTMENT OF TRANSPORTATION

Roadway Design Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4601

FILE: 22898 Sheets Horiz Align_US_FT.dgn DATE: 7-APR-2025 14:24 COMPUTER: BG0419M257

Alignment Name:	US275		
PC	701+95.37	2,658,296.80	553,876.12
Tangential Direction:	108°18'32.55"		
Tangential Length:	801.98		
Element: Circular			
PC	701+95.37	2,658,296.80	553,876.12
HPI	708+01.93	2,658,872.65	553,685.57
CC		2,657,789.14	552,341.91
PT	713+55.91	2,659,180.91	553,163.18
Radius:	1,616.02		
Delta:	41°08'48.35"	Right	
Degree of Curvature (Arc):	3°32'43.78"		
Length:	1,160.54		
Tangent:	606.56		
Chord:	1,135.76		
Middle Ordinate:	103.06		
External:	110.09		
Tangent Direction:	108°18'32.55"		
Radial Direction:	198°18'32.55"		
Chord Direction:	128°52'56.72"		
Radial Direction:	239°27'20.90"		
Tangent Direction:	149°27'20.90"		
Element: Linear			
PT	713+55.91	2,659,180.91	553,163.18
END	718+49.84	2,659,431.93	552,737.78
Tangential Direction:	149°27'20.90"		
Tangential Length:	493.94		

Alignment Name:	I680A		
Alignment Description:			
Alignment Style:	Alignment\Mainline		
	Station	X	Y
Element: Linear			
START	5110+48.19	2,717,047.57	532,604.43
PC	5115+67.84	2,717,054.19	533,124.03
Tangential Direction:	0°43'49.88"		
Tangential Length:	519.65		
Element: Circular			
PC	5115+67.84	2,717,054.19	533,124.03
HPI	5117+15.01	2,717,056.07	533,271.19
CC		2,728,512.42	532,977.93
PT	5118+62.17	2,717,061.72	533,418.26
Radius:	11,459.16		
Delta:	1°28'17.93"	Right	
Degree of Curvature (Arc):	0°30'00.00"		
Length:	294.33		
Tangent:	147.17		
Chord:	294.32		
Middle Ordinate:	0.94		
External:	0.95		
Tangent Direction:	0°43'49.88"		
Radial Direction:	90°43'49.88"		
Chord Direction:	1°27'58.85"		
Radial Direction:	92°12'07.81"		
Tangent Direction:	2°12'07.81"		
Element: Linear			
PT	5118+62.17	2,717,061.72	533,418.26
PC	5123+09.48	2,717,078.91	533,865.24
Tangential Direction:	2°12'07.81"		
Tangential Length:	447.31		
Element: Circular			
PC	5123+09.48	2,717,078.91	533,865.24
HPI	5124+08.78	2,717,082.73	533,964.46
CC		2,722,804.26	533,645.08
PT	5125+08.05	2,717,089.98	534,063.49
Radius:	5,729.58		
Delta:	1°59'08.62"	Right	
Degree of Curvature (Arc):	1°00'00.00"		
Length:	198.57		
Tangent:	99.3		
Chord:	198.56		
Middle Ordinate:	0.86		
External:	0.86		
Tangent Direction:	2°12'07.81"		
Radial Direction:	92°12'07.81"		
Chord Direction:	3°11'42.12"		
Radial Direction:	94°11'16.44"		
Tangent Direction:	4°11'16.44"		
Element: Linear			
PT	5125+08.05	2,717,089.98	534,063.49
PC	5139+73.80	2,717,197.02	535,525.33
Tangential Direction:	4°11'16.44"		
Tangential Length:	1,465.75		
Element: Circular			
PC	5139+73.80	2,717,197.02	535,525.33
HPI	5143+34.20	2,717,223.34	535,884.77
CC		2,709,577.98	536,083.22
PT	5146+94.07	2,717,215.70	536,245.09
Radius:	7,639.44		
Delta:	5°24'07.23"	Left	
Degree of Curvature (Arc):	0°45'00.00"		
Length:	720.27		
Tangent:	360.4		
Chord:	720		
Middle Ordinate:	8.49		
External:	8.5		
Tangent Direction:	4°11'16.44"		
Radial Direction:	94°11'16.44"		
Chord Direction:	1°29'12.82"		
Radial Direction:	88°47'09.21"		
Tangent Direction:	358°47'09.21"		
Element: Linear			
PT	5146+94.07	2,717,215.70	536,245.09
PC	5151+24.78	2,717,206.58	536,675.71
Tangential Direction:	358°47'09.21"		

Tangential Length:	430.71		
Element: Circular			
PC	5151+24.78	2,717,206.58	536,675.71
HPI	5154+65.30	2,717,199.36	537,016.14
CC		2,728,663.16	536,918.51
PT	5158+05.61	2,717,212.37	537,356.41
Radius:	11,459.16		
Delta:	3°24'14.83"	Right	
Degree of Curvature (Arc):	0°30'00.00"		
Length:	680.82		
Tangent:	340.51		
Chord:	680.72		
Middle Ordinate:	5.06		
External:	5.06		
Tangent Direction:	358°47'09.21"		
Radial Direction:	88°47'09.21"		
Chord Direction:	0°29'16.62"		
Radial Direction:	92°11'24.04"		
Tangent Direction:	2°11'24.04"		
Element: Linear			
PT	5158+05.61	2,717,212.37	537,356.41
TS	5180+49.30	2,717,298.11	539,598.46
Tangential Direction:	2°11'24.04"		
Tangential Length:	2,243.69		
Element: Spiral			
TS	5180+49.30	2,717,298.11	539,598.46
SPI	5182+82.75	2,717,307.03	539,831.73
SC	5183+99.30	2,717,322.59	539,947.46
Entrance Radius:	0		
Exit Radius:	1,834.25		
Length:	350		
Angle:	5°27'59.10"	Right	
Long Tangent:	233.44		
Short Tangent:	116.77		
Long Chord:	349.86		
Xs:	349.68		
Ys:	11.12		
P:	2.78		
K:	174.95		
Back Tangent Direction:	2°11'24.04"		
Chord Direction:	4°00'43.23"		
Ahead Tangent Direction:	7°39'23.14"		
Element: Circular			
SC	5183+99.30	2,717,322.59	539,947.46
HPI	5189+41.75	2,717,394.86	540,485.07
CC		2,719,140.49	539,703.08
CS	5194+54.13	2,717,747.92	540,896.90
Radius:	1,834.25		
Delta:	32°56'57.95"	Right	
Degree of Curvature (Arc):	3°07'25.20"		
Length:	1,054.83		
Tangent:	542.45		
Chord:	1,040.36		
Middle Ordinate:	75.31		
External:	78.53		
Tangent Direction:	7°39'23.14"		
Radial Direction:	97°39'23.14"		
Chord Direction:	24°07'52.11"		
Radial Direction:	130°36'21.09"		
Tangent Direction:	40°36'21.09"		
Element: Spiral			
CS	5194+54.13	2,717,747.92	540,896.90
SPI	5195+70.90	2,717,823.91	540,985.55
ST	5198+04.13	2,717,992.04	541,147.51
Entrance Radius:	1,834.25		
Exit Radius:	0		
Length:	350		
Angle:	5°27'59.10"	Right	
Long Tangent:	233.44		
Short Tangent:	116.77		
Long Chord:	349.86		
Xs:	349.68		
Ys:	11.12		
P:	2.78		
K:	174.95		
Back Tangent Direction:	40°36'21.09"		
Chord Direction:	44°15'00.99"		

F16

Project Number
275-7(210)

C.N. 22898

DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

HORIZONTAL ALIGNMENT & ORIENTATION

NEBRASKA
Good Life. Great Journey.
DEPARTMENT OF TRANSPORTATION

Roadway Design Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4601

FILE: 22898 Sheets Horiz Align_US_FT.dgn DATE: 7-APR-2025 14:24 COMPUTER: BG04139M257

Alignment Name:	I680A		
Ahead Tangent Direction:	46°04'20.19"		
Element: Linear			
ST	5198+04.13	2,717,992.04	541,147.51
END	5201+77.44	2,718,260.90	541,406.49
Tangential Direction:	46°04'20.19"		
Tangential Length:	373.3		

FILE: 22898 Sheets Horiz Align_US_FT.dgn DATE: 7-APR-2025 14:24 COMPUTER: BG04190257

F17

Project Number
275-7(210)

C.N. 22898

DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

HORIZONTAL ALIGNMENT & ORIENTATION

NEBRASKA
Good LIfe. Great Journey.
DEPARTMENT OF TRANSPORTATION

Roadway Design Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4601

DATUM INFORMATION

HORIZONTAL	VERTICAL
NAD 83 (1995)	NAVD 88

D.A.F. = 1.0003938

UNITS = US SURVEY FEET

CONTROL POINT DATA

CONTROL POINT	X	Y	Z	STATION	OFFSET	OBJECT USED FOR STATION
CP 157-924	2620351.1440	584905.3160	1174.9480	206+13.04	-106.8247	CONC. MONU. & ALUM. CAP
CP 0-900	2624099.1840	581011.6950	1193.4100	260+16.51	-3.5100	CONC. MONU. & ALUM. CAP
CP 159-922	2629819.8650	575781.6630	1162.6060	337+93.00	-121.3083	CONC. MONU. & ALUM. CAP
CP 161-921	2634648.3890	573170.4640	1155.0010	393+09.08	-114.5434	CONC. MONU. & ALUM. CAP
CP 161-920	2638943.3870	570847.1810	1149.2890	441+82.58	-107.1793	CONC. MONU. & ALUM. CAP
CP 56-904	2643245.9760	567494.2020	1168.2820	496+13.45	-282.5340	REBAR & CAP
CP 163-918	2645881.7850	564441.8820	1140.6570	536+26.65	115.4547	REBAR & CAP
CP 164-917	2649710.8910	560879.0680	1133.8230	588+48.66	-120.0356	CONC. MONU. & ALUM. CAP
CP 165-916	2652826.9840	556730.7760	1129.9030	640+21.59	107.3842	CONC. MONU. & ALUM. CAP

DATUM INFORMATION

HORIZONTAL	VERTICAL
NAD 83 (1995)	NAVD 88

D.A.F. = 1.0003969

UNITS = US SURVEY FEET

CONTROL POINT DATA

CONTROL POINT	X	Y	Z	STATION	OFFSET	OBJECT USED FOR STATION
CP 125-905	2597714.6900	660781.6470	1278.7150	-	-	CONC. MONU. & ALUM. CAP
CP 124-904	2598005.9550	655579.2230	1280.9000	569+54.81	98.5570	CONC. MONU. & ALUM. CAP

DATUM INFORMATION

HORIZONTAL	VERTICAL
NAD 83 (1995)	NAVD 88

D.A.F. = 1.0003828

UNITS = US SURVEY FEET

CONTROL POINT DATA

CONTROL POINT	X	Y	Z	STATION	OFFSET	OBJECT USED FOR STATION
UPRR 2	2715970.2990	530245.1230	1195.6800	-	-	CONC. MONU. & ALUM. CAP
CP 1-904	2717358.7280	535775.0070	1128.7670	5142+29.73	147.4135	CONC. MONU. & ALUM. CAP

NOTE: CONTROL POINT INFORMATION AVAILABLE UPON REQUEST.

F18

Project Number
275-7(210)

C.N. 22898

DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

CONTROL POINT TIES
HORIZONTAL ALIGNMENT & ORIENTATION

NEBRASKA
Good LIfe. Great Journey.
DEPARTMENT OF TRANSPORTATION

Roadway Design Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4601

NOTES

- The locations of all aerial and underground utility facilities may not be indicated in these plans. Underground utilities, whether indicated or not will be located and flagged by the Utilities at the request of the Contractor.

  No excavation will be permitted in the area of underground utility facilities until all such facilities have been located and identified to the satisfaction of all parties. The excavation must be accomplished with extreme care in order to avoid any possibility of damage to the utility facility.

DESCRIPTION OF EXISTING FACILITIES

- The following descriptions are for information only. Accuracy or completeness is not guaranteed. The contractor should verify essential data before ordering materials or beginning work.

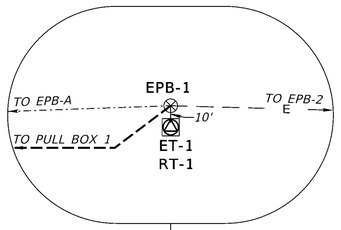
  There are sixteen High Mast lighting units (ET-1 and ET-4 thru ET-18) scheduled for replacement under this project. Two (ET-1 and ET-4) consist of a 120 ft. Galvanized Steel High Mast Tower with 10-1000 Watt HPS luminaires. Thirteen (ET-5 thru ET-17) consist of a 100 ft. Galvanized Steel High Mast Tower with 6-1000 Watt HPS luminaires. One (ET-18) consists of a 140 ft. Galvanized Steel High Mast Tower with 6-1000 Watt HPS luminaires.

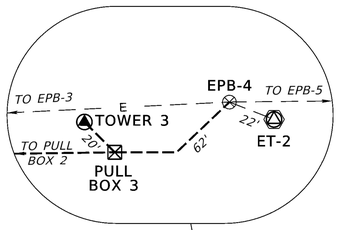
DESCRIPTION OF EXISTING FACILITIES (CONTINUED)

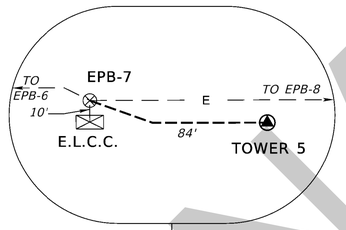
There are two High Mast lighting units (ET-2 and ET-3) scheduled for removal under this project. They consist of a 120 ft. Galvanized Steel High Mast Tower with 10-1000 Watt HPS luminaires.

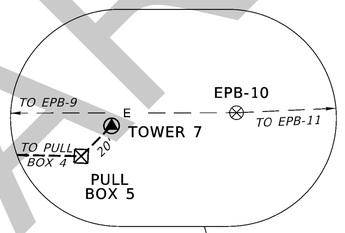
The existing circuits to the towers are single phase, 240 volt, 2 wire with ground the existing conductors are either No. 2 AWG or No. 6 AWG in 1½", 2" or 2½" conduit. Each existing tower is fed by two circuits

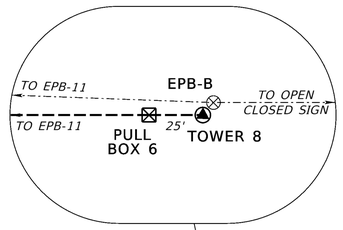
SEC. 34-T19N-R8E

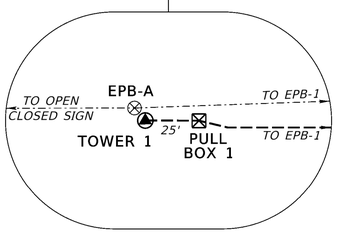


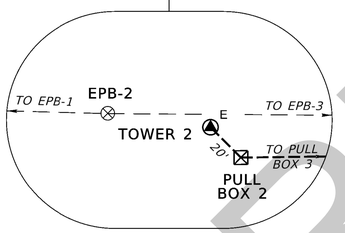


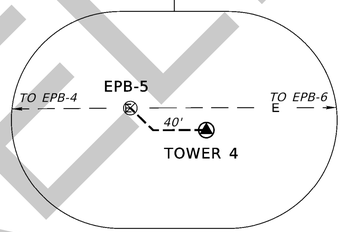


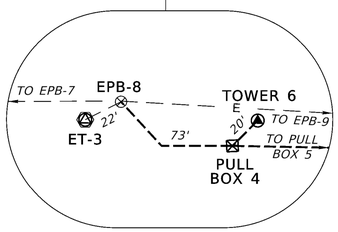


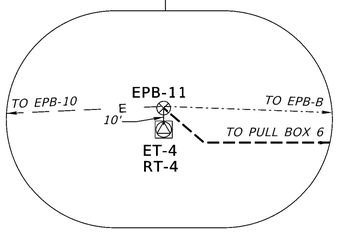












LEGEND

EXISTING LIGHTING CONTROL CENTER	NEW PULL BOX
NEW HIGH MAST TOWER	EXISTING PULL BOX
EXISTING HIGH MAST TOWER	CONDUIT IN TRENCH
REPLACE EXISTING HIGH MAST TOWER	CONDUIT JACKED
REMOVE EXISTING HIGH MAST TOWER	EXISTING LIGHTING AND OPEN CLOSED SIGN CIRCUITS
EXISTING UNDERDECK LIGHTING UNIT	EXISTING OPEN CLOSED SIGN CIRCUIT
	MAJOR AXIS OF LUMINAIRE DISTRIBUTION

SPARE BEND

SEC. 35-T19N-R8E

N1

Project Number
275-7(210)

C.N. 22898

DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

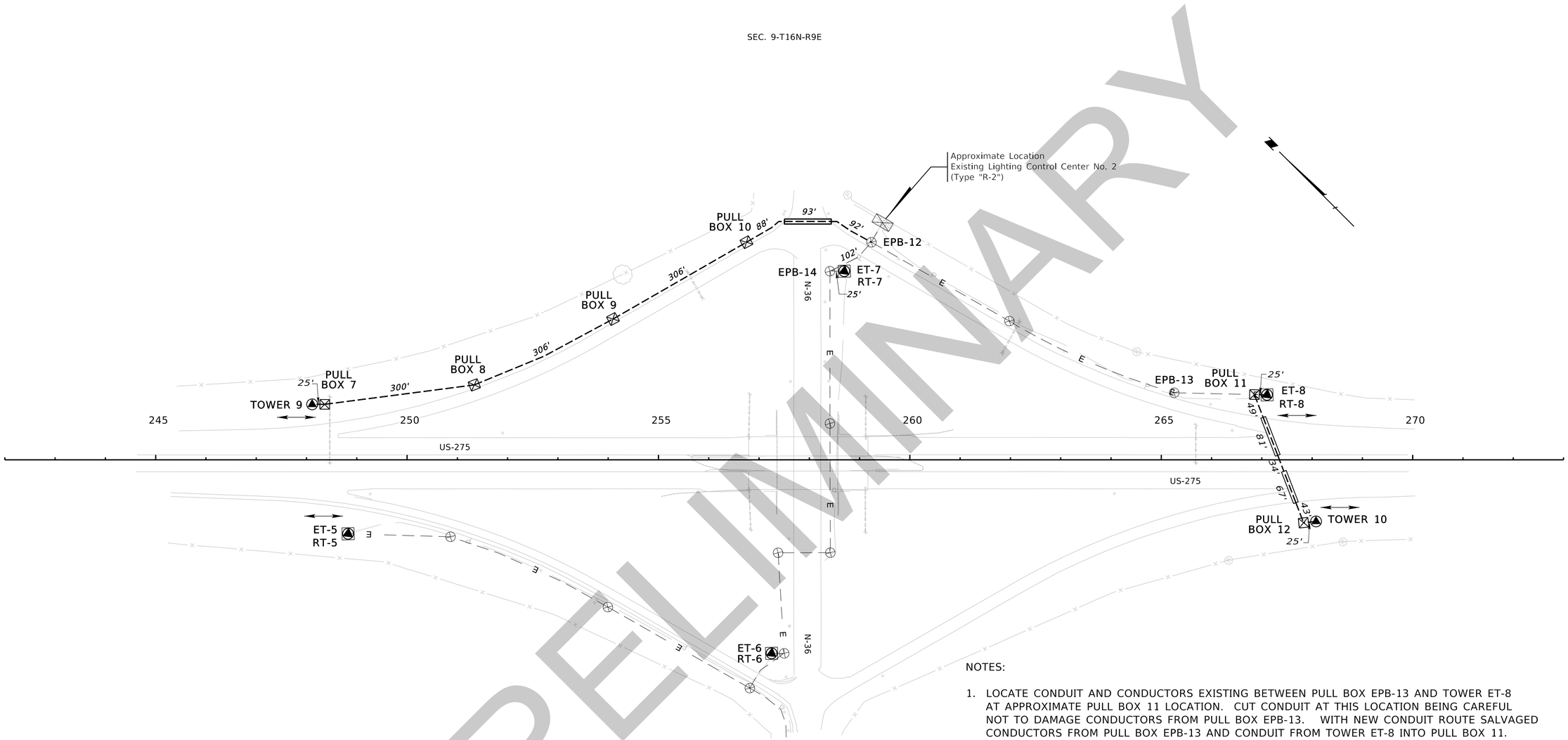
NICKERSON WEIGH STATION
LIGHTING

NEBRASKA
Good Life. Great Journey.
DEPARTMENT OF TRANSPORTATION

Roadway Design Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4601

COMPUTER: BG0419M257
DATE: 14-APR-2025 09:55
FILE: 22898 Sheets Lighting_US_FT.dgn

SEC. 9-T16N-R9E



NOTES:

1. LOCATE CONDUIT AND CONDUCTORS EXISTING BETWEEN PULL BOX EPB-13 AND TOWER ET-8 AT APPROXIMATE PULL BOX 11 LOCATION. CUT CONDUIT AT THIS LOCATION BEING CAREFUL NOT TO DAMAGE CONDUCTORS FROM PULL BOX EPB-13. WITH NEW CONDUIT ROUTE SALVAGED CONDUCTORS FROM PULL BOX EPB-13 AND CONDUIT FROM TOWER ET-8 INTO PULL BOX 11.
2. PERFORM ALL OTHER LIGHTING WORK SHOWN.
3. MAKE ALL NECESSARY ELECTRICAL CONNECTIONS

SEC. 9-T16N-R9E

N2

Project Number
275-7(210)

C.N. 22898

DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

US-275/N-36 INTERCHANGE
LIGHTING

NEBRASKA
Good LIfe. Great Journey.
DEPARTMENT OF TRANSPORTATION

Roadway Design Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4601

COMPUTER: BG0419M257
DATE: 14-APR-2025 10:09
FILE: 22898 Sheets Lighting_US_FT.dgn

SEC. 25-T16N-R9E

SEC. 30-T16N-R10E

Approximate Location
Existing Lighting Control Center No. 3
(Type "R-2")

TOWER 11

PULL BOX 13

PULL BOX 14

PULL BOX 15

PULL BOX 16

EPB-15

EPB-16

ET-10
RT-10

ET-11
RT-11

ET-12
RT-12

ET-13
RT-13

ET-9
RT-9

25'
306'
301'
260'
58'
66'
72'
93'
20'

E

N-64

485 490 495 500 505 510 515

US-275

US-275

SEC. 25-T16N-R9E

SEC. 30-T16N-R10E

N3
Project Number 275-7(210)
C.N. 22898
DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

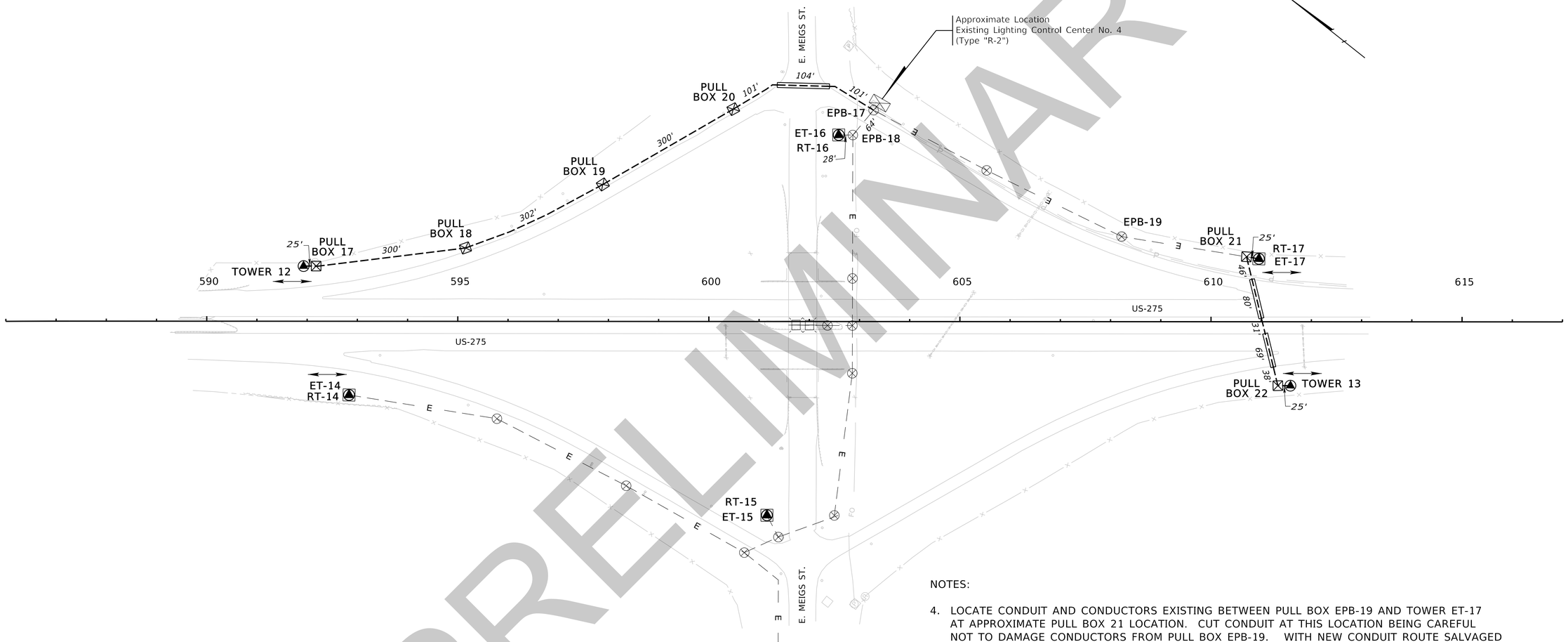
US-275/N-64 INTERCHANGE
LIGHTING

NEBRASKA
Good Life. Great Journey.
DEPARTMENT OF TRANSPORTATION

Roadway Design Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4601

COMPUTER: BG0419M257
DATE: 14-APR-2025 10:11
FILE: 22898 Sheets Lighting_US_FT.dgn

SEC. 32 T16N-R10E



NOTES:

4. LOCATE CONDUIT AND CONDUCTORS EXISTING BETWEEN PULL BOX EPB-19 AND TOWER ET-17 AT APPROXIMATE PULL BOX 21 LOCATION. CUT CONDUIT AT THIS LOCATION BEING CAREFUL NOT TO DAMAGE CONDUCTORS FROM PULL BOX EPB-19. WITH NEW CONDUIT ROUTE SALVAGED CONDUCTORS FROM PULL BOX EPB-19 AND CONDUIT FROM TOWER ET-17 INTO PULL 21.

5. PERFORM ALL OTHER LIGHTING WORK SHOWN.

6. MAKE ALL NECESSARY ELECTRICAL CONNECTIONS

SEC. 32 T16N-R10E

N4

Project Number
275-7(210)

C.N. 22898

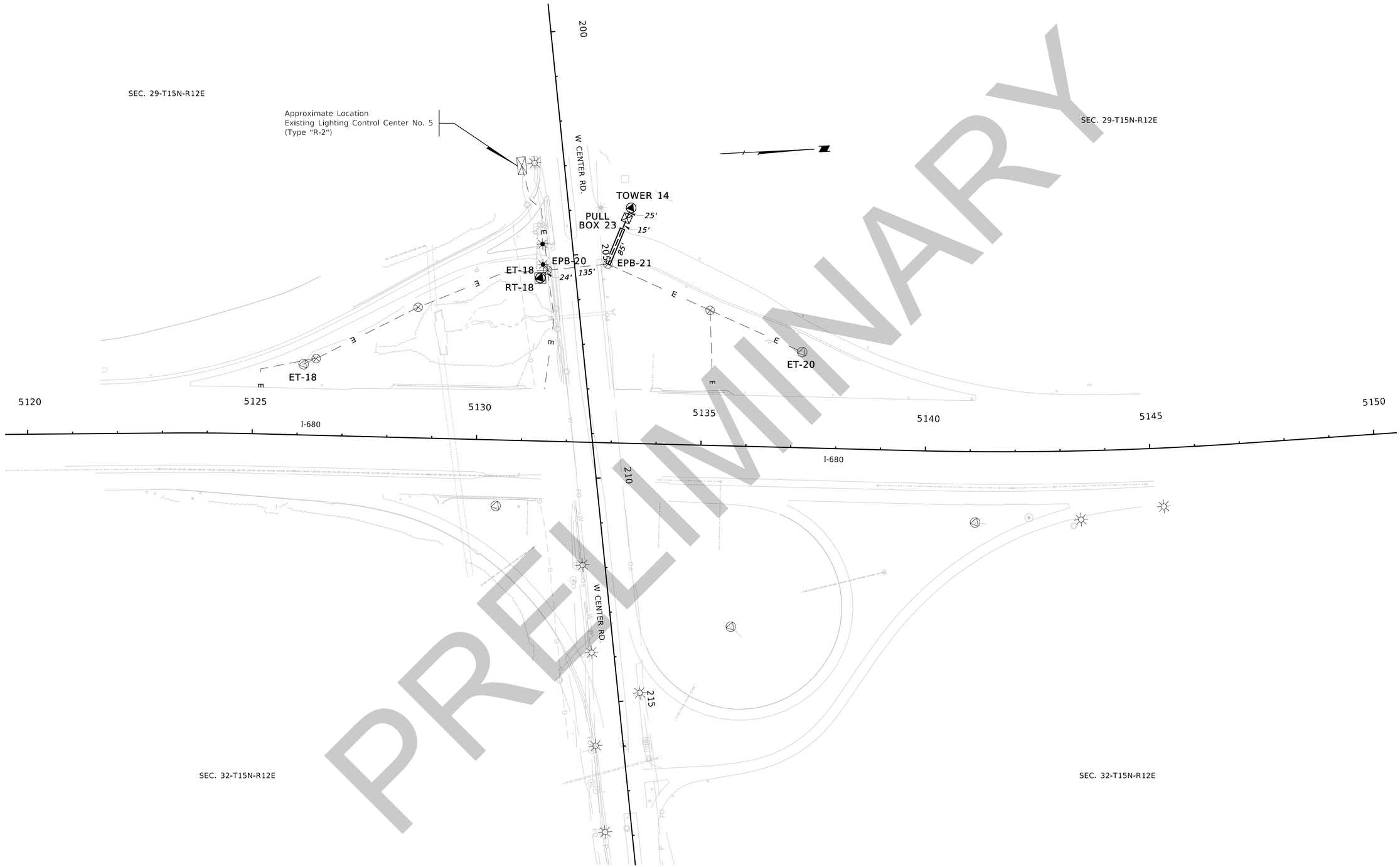
DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

US-275/E MEIGHS STREET INTERCHANGE
LIGHTING

NEBRASKA
Good Life. Great Journey.
DEPARTMENT OF TRANSPORTATION

Roadway Design Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4601

COMPUTER: BG0419M257
DATE: 14-APR-2025 10:11
FILE: 22898 Sheets Lighting_US_FT.dgn



N5

Project Number
275-7(210)

C.N. 22898

DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

I-680/WEST CENTER ROAD INTERCHANGE
LIGHTING

NEBRASKA
Good Life. Great Journey.
DEPARTMENT OF TRANSPORTATION

Roadway Design Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4601

FILE: 22898 Sheets Lighting_US_FT.dgn
DATE: 14-APR-2025 10:12
COMPUTER: BG0419M257

GENERAL NOTES:

1. A 72 HOUR BURN IS NOT REQUIRED ON INSTALLATIONS USING LED LUMINAIRES.

2. FOR PULL BOX DETAILS, SEE STANDARD PLAN 914. ALL PULL BOXES WITH METAL FRAME AND LID SHALL BE GROUNDED, UNLESS INDICATED OTHERWISE.

3. ALL CONNECTIONS IN PULL BOXES WILL BE MADE USING SUBMERSIBLE SECONDARY CONNECTORS MEETING ANSI C119.1 REQUIREMENTS.

4. ELECTRICAL CONNECTIONS IN POLE OR TRANSFORMER BASE SHALL BE MADE USING U.L. APPROVED, MULTI-CABLE, DUAL RATED, MECHANICAL CONNECTOR BLOCKS WITH ALLEN HEAD SET SCREWS. THE CONNECTOR BLOCK SHALL BE COMPLETELY ENCASED IN A SILICONE GEL OR FULLY SURROUNDED BY A MOLDED INSULATING COVER. CONNECTORS SHALL BE RATED 600 VOLTS. COMPRESSION TAPS AND TAPING WILL NOT BE ALLOWED.

   THE CONNECTOR BLOCK MUST CONTAIN THE CORRECT NUMBER OF CABLE ENTRANCES TO ALLOW ONE CONDUCTOR PER WIRE HOLE AND MUST BE RATED FOR THE SIZE(S) AND TYPE(S) OF CABLE BEING USED. ANTIOXIDANT COMPOUND SHALL BE USED AND PROPER PROCEDURES FOLLOWED.

   THE ELECTRICAL CONNECTION, WHEN COMPLETE, SHALL BE FULLY INSULATED TO PREVENT ACCIDENTAL CONTACT WITH LIVE COMPONENTS.

5. AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE BONDED:

   (A) TO ALL POLES OR TRANSFORMER BREAKAWAY BASES.

   (B) AT ALL CONTROL CENTER SERVICE LOCATIONS.

   (C) TO ALL METALLIC NONCURRENT CARRYING COMPONENTS.

   (D) TO ALL GROUND RODS.

6. IN PULL BOXES, POLE BASES, JUNCTION BOXES AND CONTROL CABINETS, THE DIRECTION OF EACH CABLE RUN SHALL BE INDICATED BY ATTACHING A PERMANENT TAG OF RIGID PLASTIC OR NON-FERROUS METAL TO THE CONDUIT. TAGS SHALL BE EMBOSSED, STAMPED OR ENGRAVED WITH LETTERS 3/16'' OR GREATER IN HEIGHT AND SECURED TO THE CONDUIT WITH NYLON OR PLASTIC TIES.

   IN INSTANCES WHERE THE CONDUIT OR CONDUIT ENTRANCES ARE NOT VISIBLE OR ACCESSIBLE, AS IN ANCHOR BASE INSTALLATIONS, A DIRECTION TAG SHALL BE ATTACHED TO EACH CABLE.

7. CONDUIT SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 405 OF THE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION".

8. ALL METALLIC AND NONMETALLIC CONDUIT SHALL BEAR THE U.L. LABEL.

9. UNLESS INDICATED OTHERWISE IN THE PLANS:

   (A) ALL CONDUIT SHALL BE 1 1/2".

   (B) CONDUIT PLACED IN TRENCH OR UNDER THE ROADWAY SHALL BE NONMETALLIC AND OF THE FOLLOWING TYPES AS DEFINED IN THE SPECIFICATIONS: PVC, FRE, CID OR HDPE.

   (C) NONMETALLIC CONDUIT SURFACE MOUNTED ON STRUCTURES OR USED AS RISERS SHALL BE SCHEDULE 80 PVC.

   (D) METALLIC CONDUIT WHEN USED SHALL BE TYPE GRS OR IMC.

   (E) GALVANIZED INTERMEDIATE METAL CONDUIT (IMC) MAY BE USED IN LIEU OF GALVANIZED RIGID STEEL CONDUIT (GRS).

   (F) CONDUIT PLACED IN GROUND SHALL HAVE A MINIMUM EARTH COVER OF 30" UNLESS INDICATED OTHERWISE.

   (G) ALL UNDERGROUND CONDUIT RACEWAYS TERMINATING IN PULL BOXES, LIGHT POLE BASES, BREAKAWAY TRANSFORMER BASES, PEDESTAL BASES, LIGHTING CONTROL CENTER CABINETS OR OTHER IN GROUND OR GROUND MOUNTED ENCLOSURES, SHALL ENTER THE ENCLOSURE VERTICAL TO THE EARTH'S SURFACE. ALL CONDUIT ENDS SHALL BE EQUIPPED WITH BELLS OR BUSHINGS TO PROTECT THE CABLE THEY CARRY FROM CHAFING OR ABRASION.

10. CONDUIT UNDER ROADWAY SHALL BE MEASURED FOR PAYMENT AS EXTENDING 1 FT. BEYOND THE EDGE OF THE ROADWAY SURFACE (INCLUDING SURFACED SHOULDERS).

11. JACKED CONDUIT MAY BE EITHER METALLIC OR NONMETALLIC.

12. TRENCHING SHALL BE KEPT A MINIMUM OF 5 FT. FROM THE TRUNK OF EXISTING TREES. JACKING MAY BE REQUIRED UNDER THE CENTER OF LARGE TREES IN LIMITED SPACE.

13. ROUTING OF CONDUIT AND CABLE MAY BE ALTERED BY THE PROJECT ENGINEER, IF NECESSARY, TO SUIT FIELD CONDITIONS.

14. INSTALL SPARE BENDS AS SHOWN ON PLANS. SPARE BENDS MUST BE SECURELY CAPPED OR PLUGGED AT BOTH ENDS WITH FITTINGS OF THE CORRECT SIZE AND TYPE FOR THE CONDUIT BEING USED.

15. CONDUIT DRAINS ARE NOT REQUIRED.

16. LIGHTING CONDUIT AND TRAFFIC SIGNAL CONDUIT MAY BE LAID IN THE SAME TRENCH.

17. LUMINAIRES SHALL BE LEVELED AFTER POLE HAS BEEN INSTALLED ON FOUNDATION. LUMINAIRE MOUNTING BOLTS SHALL BE TORQUED TO MANUFACTURERS SPECIFICATIONS.

18. ROADWAY LIGHTING SYSTEM:

   (A) A PROJECTS LIGHTING SYSTEM MUST MEET THE PROJECT ENGINEERS FINAL INSPECTION.

   (B) ELECTRICAL WORK PERFORMED ON THE SERVICE CONNECTION(S) OF A NEW OR EXISTING HIGHWAY LIGHTING SYSTEM SHALL REQUIRE A PERMIT AND ELECTRICAL INSPECTION. ALL OTHER TYPES OF ELECTRICAL WORK PERFORMED ON THE HIGHWAY LIGHTING SYSTEM MAY BE PERFORMED WITHOUT A PERMIT OR ELECTRICAL INSPECTION.

   (C) ELECTRICAL WORK OF ANY TYPE, PERFORMED ON A NEW OR EXISTING REST AREA OR WEIGH STATION SHALL REQUIRE A PERMIT AND FINAL INSPECTION BY THE STATE ELECTRICAL INSPECTOR.

19. CONTACT UTILITY THREE WORKING DAYS PRIOR TO REQUIRING SERVICE CONNECTION OR DISCONNECT.

20. GROUNDING CONNECTIONS IN PULL BOXES AND JUNCTION BOXES SHALL BE MADE USING MECHANICAL CONNECTORS SPECIFICALLY DESIGNED FOR THE PURPOSE.

21. UNLESS INDICATED OTHERWISE IN THE PLANS:

   (A) CONVENTIONAL LIGHTING UNITS MAY BE INSTALLED USING EITHER CONCRETE OR POWER DRIVEN FOUNDATIONS.

   (B) ALL FOUNDATIONS USED ON A PROJECT SHALL BE OF ONE TYPE.

22. A LEGIBLE POLE IDENTIFICATION NUMBER CONSISTING OF THE POLE TYPE (EXAMPLE: SL-BT-40-12) TOGETHER WITH THE POLE MANUFACTURER'S NAME AND THE DATE OF MANUFACTURE (MONTH AND YEAR) WILL BE REQUIRED ON ALL NEW LIGHT POLES. THE POLE IDENTIFICATION NUMBER SHALL BE APPLIED TO THE POLE BY EITHER OF THE FOLLOWING TWO METHODS.

   (A) THE TOP OF THE POLE BASE SHALL BE STAMPED OR ENGRAVED WITH THE REQUIRED INFORMATION. (PRIOR TO GALVANIZING IN THE CASE OF STEEL POLES).

   (B) A DURABLE METAL TAG, STAMPED WITH THE REQUIRED INFORMATION, SHALL BE SECURELY ATTACHED TO THE POLE BASE OR POLE SHAFT. THE TAG AND ITS METHOD OF ATTACHMENT MUST BE APPROVED BY THE LIGHTING ENGINEER.

Replace High Mast Tower schedule

Existing High Mast Tower								New High Mast Tower						
Unit No.	Station	Offset	Side	Tower Height	Number of Luminaires	Photometric Spread	High Mast LED Type	Unit No.	Tower Replacement Type (See Special Provisions)	Type	Tower Height	Number of Luminaires	High Mast LED Type	Photometric Spread	Remarks
ET-1	536+80.21	6'	Lt.	120'	10	Assymetrical	1000 HPS	RT-1	B	T-80	80'	8	HML-V-LED40	Symetrical	US-275
ET-4	557+79.24	9'	Lt.	120'	10	Assymetrical	1000 HPS	RT-4	B	T-80	80'	8	HML-V-LED40	Symetrical	US-275
ET-5	248+87.12	140'	Rt.	100'	6	Assymetrical	1000 HPS	RT-5	A	T-80	80'	8	HML-A-LED40	Assymetrical	US-275
ET-6	257+29.45	378'	Rt.	100'	6	Symetrical	1000 HPS	RT-6	A	T-80	80'	8	HML-V-LED40	Symetrical	US-275
ET-7	258+74.00	382'	Lt.	100'	6	Symetrical	1000 HPS	RT-7	A	T-80	80'	8	HML-V-LED40	Symetrical	US-275
ET-8	267+14.71	136'	Lt.	100'	6	Assymetrical	1000 HPS	RT-8	A	T-80	80'	8	HML-A-LED40	Assymetrical	US-275
ET-9	487+71.51	143'	Rt.	100'	6	Assymetrical	1000 HPS	RT-9	A	T-80	80'	8	HML-A-LED40	Assymetrical	US-275
ET-10	496+76.49	401'	Lt.	100'	6	Symetrical	1000 HPS	RT-10	A	T-80	80'	8	HML-V-LED40	Symetrical	US-275
ET-11	500+04.05	552'	Rt.	100'	6	Symetrical	1000 HPS	RT-11	A	T-80	80'	8	HML-V-LED40	Symetrical	US-275
ET-12	507+18.65	135'	Lt.	100'	6	Assymetrical	1000 HPS	RT-12	A	T-80	80'	8	HML-A-LED40	Assymetrical	US-275
ET-13	513+31.35	131'	Rt.	100'	6	Assymetrical	1000 HPS	RT-13	A	T-80	80'	8	HML-A-LED40	Assymetrical	US-275
ET-14	592+87.12	139'	Rt.	100'	6	Assymetrical	1000 HPS	RT-14	A	T-80	80'	8	HML-A-LED40	Assymetrical	US-275
ET-15	601+19.46	378'	Rt.	100'	6	Symetrical	1000 HPS	RT-15	A	T-80	80'	8	HML-V-LED40	Symetrical	US-275
ET-16	602+62.06	379'	Lt.	100'	6	Symetrical	1000 HPS	RT-16	A	T-80	80'	8	HML-V-LED40	Symetrical	US-275
ET-17	610+98.95	133'	Lt.	100'	6	Assymetrical	1000 HPS	RT-17	A	T-80	80'	8	HML-A-LED40	Assymetrical	US-275
ET-18	205+43.29	79'	Rt.	140'	6	Symetrical	1000 HPS	RT-18	C	T-80	80'	8	HML-V-LED40	Symetrical	W. CENTER RD.

High Mast Tower Schedule

Unit No.	Station	Offset	Side	Type	Tower Height	Number of Luminaires	Photometric Spread	High Mast LED Type	Remarks
TOWER 1	533+85.26	1'	Rt.	T-80	80'	8	Symetrical	HML-V-LED40	US-275
TOWER 2	539+85.40	2'	Lt.	T-80	80'	8	Symetrical	HML-V-LED40	US-275
TOWER 3	542+91.86	6'	Lt.	T-80	80'	8	Symetrical	HML-V-LED40	US-275
TOWER 4	545+68.26	7'	Lt.	T-80	80'	8	Symetrical	HML-V-LED40	US-275
TOWER 5	548+81.09	7'	Lt.	T-80	80'	8	Symetrical	HML-V-LED40	US-275
TOWER 6	551+76.09	8'	Lt.	T-80	80'	8	Symetrical	HML-V-LED40	US-275
TOWER 7	554+71.09	3'	Lt.	T-80	80'	8	Symetrical	HML-V-LED40	US-275
TOWER 8	560+74.28	3'	Lt.	T-80	80'	8	Symetrical	HML-V-LED40	US-275
TOWER 9	248+15.67	117'	Lt.	T-80	80'	8	Assymetrical	HML-A-LED40	US-275
TOWER 10	268+12.27	115'	Rt.	T-80	80'	8	Assymetrical	HML-A-LED40	US-275
TOWER 11	486+81.95	118'	Lt.	T-80	80'	8	Assymetrical	HML-A-LED40	US-275
TOWER 12	591+96.46	117'	Lt.	T-80	80'	8	Assymetrical	HML-A-LED40	US-275
TOWER 13	611+61.85	120'	Rt.	T-80	80'	8	Assymetrical	HML-A-LED40	US-275
TOWER 14	204+08.14	138'	Lt.	T-80	80'	8	Symetrical	HML-V-LED40	W. CENTER RD.

Pull Box Schedule

Unit No.	Station	Offset	Side	Type	Remarks
PULL BOX 1	534+10.26	1'	Rt.	PB-5	US-275
PULL BOX 2	539+99.54	12'	Rt.	PB-5	US-275
PULL BOX 3	543+06.00	8'	Rt.	PB-5	US-275
PULL BOX 4	551+61.95	6'	Rt.	PB-5	US-275
PULL BOX 5	554+56.95	11'	Rt.	PB-5	US-275
PULL BOX 6	560+49.24	3'	Lt.	PB-5	US-275
PULL BOX 7	248+40.67	117'	Lt.	PB-6	US-275
PULL BOX 8	251+38.14	156'	Lt.	PB-6	US-275
PULL BOX 9	254+13.93	287'	Lt.	PB-6	US-275
PULL BOX 10	256+79.35	440'	Lt.	PB-6	US-275
PULL BOX 11	266+89.71	137'	Lt.	PB-6	US-275
PULL BOX 12	267+87.40	118'	Rt.	PB-6	US-275
PULL BOX 13	487+06.75	121'	Lt.	PB-6	US-275
PULL BOX 14	490+10.79	158'	Lt.	PB-6	US-275
PULL BOX 15	492+82.87	286'	Lt.	PB-6	US-275
PULL BOX 16	495+05.29	420'	Lt.	PB-6	US-275
PULL BOX 17	592+21.46	117'	Lt.	PB-6	US-275
PULL BOX 18	595+18.84	154'	Lt.	PB-6	US-275
PULL BOX 19	597+92.32	280'	Lt.	PB-6	US-275
PULL BOX 20	600+52.08	430'	Lt.	PB-6	US-275
PULL BOX 21	610+74.27	137'	Lt.	PB-6	US-275
PULL BOX 22	611+36.85	120'	Rt.	PB-6	US-275
PULL BOX 23	204+30.16	126'	Lt.	PB-5	W. CENTER RD.

SCHEDULE OF WIRING MATERIALS

WIRE & CABLE

THE ELECTRICAL, MECHANICAL AND PHYSICAL PROPERTIES OF THE CONDUCTORS LISTED IN THE FOLLOWING SCHEDULE ESTABLISH THE MINIMUM ACCEPTABLE REQUIREMENTS FOR EACH OF THE LISTED APPLICATIONS. CONDUCTORS WHICH HAVE PROPERTIES THAT EXCEED THESE MINIMUM REQUIREMENTS MAY BE FURNISHED, AT THE CONTRACTORS OPTION, WITH THE ENGINEERS' APPROVAL. NO ADJUSTMENT IN THE CONTRACT PRICE WILL BE ALLOWED.

UNLESS INDICATED OTHERWISE ALL CONDUCTORS SHALL BE SINGLE CONDUCTOR, STRANDED COPPER U.L. LISTED, 600V. WITH SIZE OF CONDUCTOR AND TYPE AND COLOR OF INSULATION AS LISTED BELOW.

ONE PHASE CONDUCTOR MUST, AT THE TIME OF INSTALLATION, BE PERMANENTLY IDENTIFIED AS THE LINE 2 (RED) CONDUCTOR AT EACH END AND AT EVERY POINT WHERE THE CONDUCTOR IS ACCESSIBLE, IDENTIFICATION WILL BE ACCOMPLISHED BY (A) COLORING THE EXPOSED INSULATION RED (B) MARKING THE EXPOSED INSULATION WITH RED TAPE.

EQUIPMENT GROUND:	BARE OR INSULATED, NO. 6 AWG
POLE:	NO. 12 AWG, THW OR THWN.
BRANCH CIRCUIT FEEDERS, INCLUDING NEUTRALS:	USE OR XHHW (IF PLACED IN CONDUIT) USE OR UF (IF DIRECT BURIED). NO. 2 AND NO. 6 AWG AS SHOWN ON PLANS
COLOR CODES:	''NEUTRAL'' - WHITE OR GREY; ''INSULATED EQUIPMENT GROUND'' - GREEN. "LINE 1" - BLACK "LINE 2" - RED

Remove High Mast Tower Schedule

Unit No.	Station	Offset	Side	Tower Height	Number of Luminaires	Photometric Spread	High Mast LED Type	Remarks
ET-2	543+80.16	8'	Lt.	120'	10	Assymetrical	1000 HPS	US-275
ET-3	550+79.77	9'	Lt.	120'	10	Assymetrical	1000 HPS	US-275

LED LUMINAIRE REQUIREMENTS

UNIT NO.	LUMINAIRE TYPE	SPECIFICATION AND PERFORMANCE CRITERIA
All	LED40	SEE LED HIGH MAST LUMINAIRE SPECIAL PROVISION

N6

Project Number
275-7(210)

C.N. 22898

DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

LIGHTING

NEBRASKA
Good Life. Great Journey.
DEPARTMENT OF TRANSPORTATION

Roadway Design Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4601

COMPUTER: BG0419M257
DATE: 14-APR-2025 10:13
FILE: 22898 Sheets Lighting_US_FT.dgn

LIGHTING CONTROL CENTER NO. 1
CIRCUIT SCHEDULE
NICKERSON WEIGH SCALE

	SINGLE POLE SPACES	SERVICE TO	EXISTING BRANCH BREAKER
1	1	TOWER 1	2 POLE-60 AMP
	2		
2	3	RT-1	2 POLE-60 AMP
	4		
3	5	TOWER 2	2 POLE-60 AMP
	6		
4	7	TOWER 3	2 POLE-60 AMP
	8		
5	9	TOWER 4	2 POLE-60 AMP
	10		
6	11	TOWER 5	2 POLE-60 AMP
	12		
7	13	TOWER 6	2 POLE-60 AMP
	14		
8	15	TOWER 7	2 POLE-60 AMP
	16		
9	17	RT-4	(*)
	18		
10	19	TOWER 8	(*)
	20		

(*) FURNISH AND INSTALL 2 POLE-30A BREAKER

CONDUIT SIZE AND FILL

RUN	CONDUIT DIAMETER	CONDUIT FILL
NICKERSON WEIGH STATION		
EPB-1 TO TOWER 1	1½"	2-1/C NO. 2 & NO. 6 GND
EPB-4 TO PULL BOX 3	1½"	4-1/C NO. 6 & NO. 6 GND
PULL BOX 3 TO TOWER 2	1½"	2-1/C NO. 6 & NO. 6 GND
PULL BOX 3 TO TOWER 3	1½"	2-1/C NO. 6 & NO. 6 GND
EPB-5 TO TOWER 4	1½"	2-1/C NO. 6 & NO. 6 GND
EPB-7 TO TOWER 5	1½"	2-1/C NO. 6 & NO. 6 GND
EPB-8 TO PULL BOX 4	1½"	4-1/C NO. 6 & NO. 6 GND
PULL BOX 4 TO TOWER 6	1½"	2-1/C NO. 6 & NO. 6 GND
PULL BOX 4 TO TOWER 7	1½"	2-1/C NO. 6 & NO. 6 GND
EPB-11 TO TOWER 8	1½"	2-1/C NO. 2 & NO. 6 GND

MODIFY LIGHTING CIRCUIT

RUN	MODIFICATION
NICKERSON WEIGH STATION	
EPB-1 TO RT-1	"A"
EPB-4 TO ET-2	"B"
ELCC TO EPB-7	"C"
EPB-7 TO EPB-6	"D"
EPB-6 TO EPB-5	"D"
EPB-8 TO ET-3	"B"
EPB-11 TO RT-4	"A"

LIGHTING CONTROL CENTER NO. 2
CIRCUIT SCHEDULE
US-275/N-36 INTERCHANGE

	SINGLE POLE SPACES	SERVICE TO	EXISTING BRANCH BREAKER
1	1	RT-8	2 POLE-30 AMP
	2		
2	3	TOWER 10	2 POLE-30 AMP
	4		
3	5	RT-7	2 POLE-30 AMP
	6		
4	7	TOWER 9	2 POLE-30 AMP
	8		
5	9	RT-6	2 POLE-30 AMP
	10		
6	11	RT-6	2 POLE-30 AMP
	12		
7	13	RT-5	2 POLE-30 AMP
	14		
8	15	RT-5	2 POLE-30 AMP
	16		
9	17	SPARE	--
	18		
10	19	SPARE	--
	20		

CONDUIT SIZE AND FILL

RUN	CONDUIT DIAMETER	CONDUIT FILL
US-275/N-36 INTERCHANGE		
EPB-12 TO TOWER 9	2"	2-1/C NO. 2 & NO. 6 GND
PULL BOX 11 TO TOWER 10	2"	2-1/C NO. 2 & NO. 6 GND
PULL BOX 11 TO RT-8	2" (EXISTING)	2-1/C NO. 2 & NO. 6 GND

MODIFY LIGHTING CIRCUIT

RUN	MODIFICATION
US-275/N-36 INTERCHANGE	
EPB-12 TO EPB-14	"A"
EPB-14 TO RT-7	"A"

LIGHTING CONTROL CENTER NO. 3
CIRCUIT SCHEDULE
US-275/N-64 INTERCHANGE

	SINGLE POLE SPACES	SERVICE TO	EXISTING BRANCH BREAKER
1	1	RT-10	2 POLE-30 AMP
	2		
2	3	TOWER 11	2 POLE-30 AMP
	4		
3	5	RT-11	2 POLE-30 AMP
	6		
4	7	RT-11	2 POLE-30 AMP
	8		
5	9	RT-5	2 POLE-30 AMP
	10		
6	11	RT-5	2 POLE-30 AMP
	12		
7	13	RT-13	2 POLE-30 AMP
	14		
8	15	RT-13	2 POLE-30 AMP
	16		
9	17	RT-12	2 POLE-30 AMP
	18		
10	19	RT-12	2 POLE-30 AMP
	20		

CONDUIT SIZE AND FILL

RUN	CONDUIT DIAMETER	CONDUIT FILL
US-275/N-64 INTERCHANGE		
EPB-15 TO TOWER 11	2"	2-1/C NO. 2 & NO. 6 GND

MODIFY LIGHTING CIRCUIT

RUN	MODIFICATION
US-275/N-64 INTERCHANGE	
EPB-15 TO EPB-16	"A"
EPB-16 TO RT-10	"A"

LIGHTING CONTROL CENTER NO. 4
CIRCUIT SCHEDULE
US-275/E. MEIGS ST. INTERCHANGE

	SINGLE POLE SPACES	SERVICE TO	EXISTING BRANCH BREAKER
1	1	RT-17	2 POLE-30 AMP
	2		
2	3	TOWER 13	2 POLE-30 AMP
	4		
3	5	RT-14	2 POLE-30 AMP
	6		
4	7	RT-14	2 POLE-30 AMP
	8		
5	9	RT-15	2 POLE-30 AMP
	10		
6	11	RT-15	2 POLE-30 AMP
	12		
7	13	RT-16	2 POLE-30 AMP
	14		
8	15	TOWER 12	2 POLE-30 AMP
	16		
9	17	SPARE	--
	18		
10	19	SPARE	--
	20		

CONDUIT SIZE AND FILL

RUN	CONDUIT DIAMETER	CONDUIT FILL
US-275/E. MEIGS ST. INTERCHANGE		
EPB-17 TO TOWER 12	2"	2-1/C NO. 2 & NO. 6 GND
PULL BOX 21 TO TOWER 13	2"	2-1/C NO. 2 & NO. 6 GND
PULL BOX 21 TO RT-17	2" (EXISTING)	2-1/C NO. 2 & NO. 6 GND

MODIFY LIGHTING CIRCUIT

RUN	MODIFICATION
US-275/E. MEIGS ST. INTERCHANGE	
EPB-17 TO EPB-18	"A"
EPB-18 TO RT-16	"A"

LIGHTING CONTROL CENTER NO. 5
CIRCUIT SCHEDULE
I-680/W. CENTER RD. INTERCHANGE

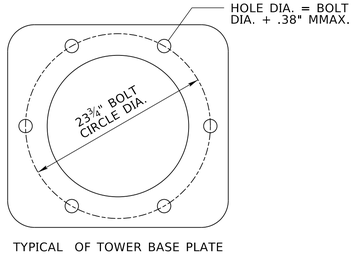
	SINGLE POLE SPACES	SERVICE TO	EXISTING BRANCH BREAKER
1	1	ET-20	2 POLE-60 AMP
	2		
2	3	ET-20	2 POLE-60 AMP
	4		
3	5	ET-19	2 POLE-60 AMP
	6		
4	7	TOWER 14	2 POLE-60 AMP
	8		
5	9	ET-18	2 POLE-60 AMP
	10		
6	11	ET-18	2 POLE-60 AMP
	12		
7	13	TRAFFIC SIGNALS	2 POLE-30 AMP
	14		
8	15	SPARE	--
	16		

CONDUIT SIZE AND FILL

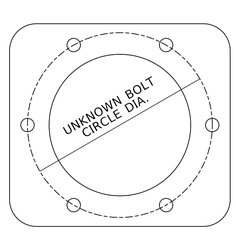
RUN	CONDUIT DIAMETER	CONDUIT FILL
I-680/W. CENTER RD. INTERCHANGE		
EPB-21 TO TOWER 14	1½"	2-1/C NO. 6 & NO. 6 GND

MODIFY LIGHTING CIRCUIT

RUN	MODIFICATION
I-680/W. CENTER RD. INTERCHANGE	
EPB-20 TO EPB-21	"D"
EPB-20 TO RT-18	"E"



TYPICAL OF TOWER BASE PLATE
(TOWERS ET-5 THRU ET-17)
CONTRACTOR SHALL FEILD VERIFY



TYPICAL OF TOWER BASE PLATE
(TOWERS ET-1, ET-4, AND ET-18)
CONTRACTOR SHALL MEASURE
IN THE FEILD

N7

Project Number
275-7(210)

C.N. 22898

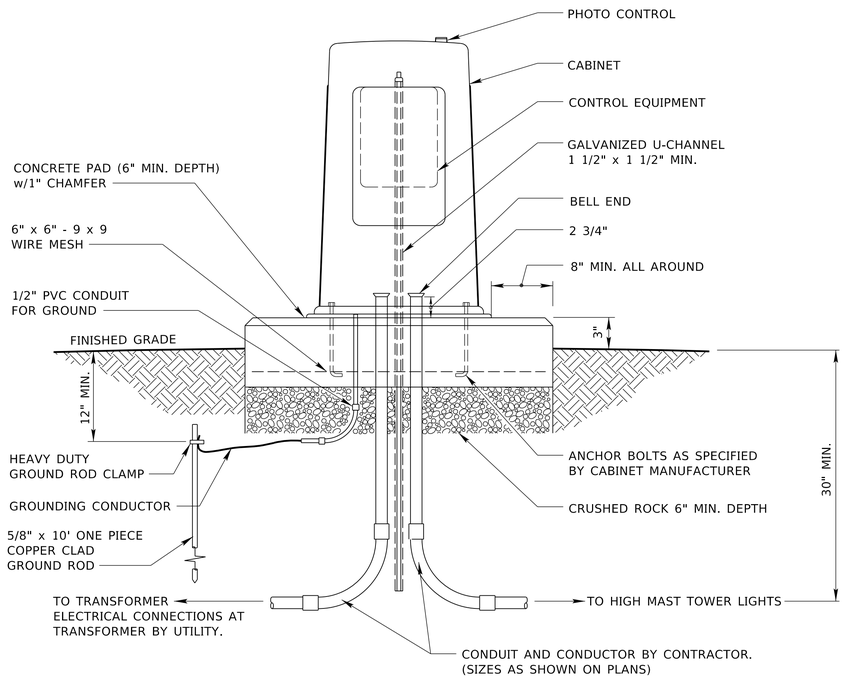
DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

LIGHTING

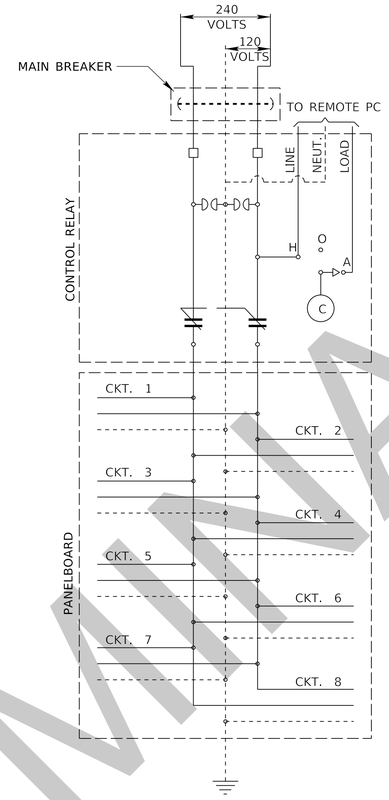
NEBRASKA
Good Life. Great Journey.
DEPARTMENT OF TRANSPORTATION

Roadway Design Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4601

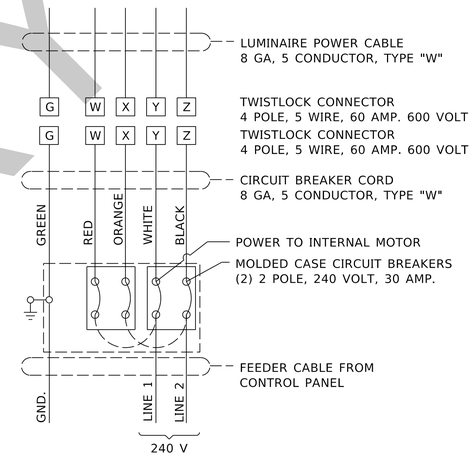
COMPUTER: BG0419M257
DATE: 14-APR-2025 10:14
FILE: 22898 Sheets Lighting_US_FT.dgn



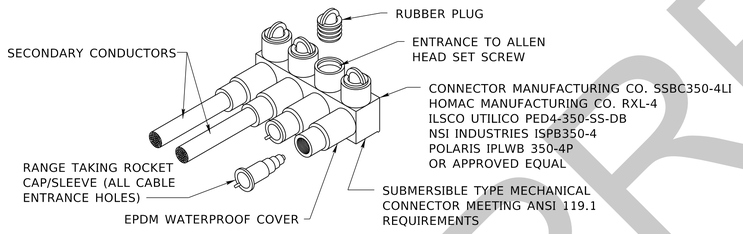
TYPICAL LIGHTING CONTROL CENTER, (TYPE R-2)



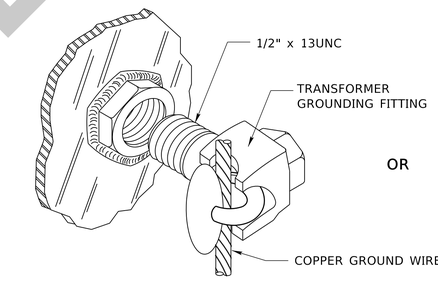
TYPICAL LIGHTING CONTROL CENTER SCHEMATIC, (TYPE R-2)



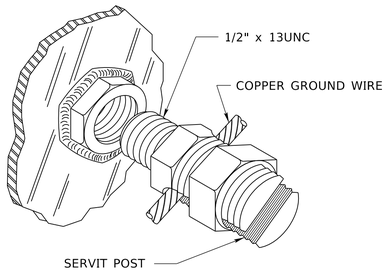
TYPICAL TOWER WIRING SCHEMATIC
(SINGLE CIRCUIT SERVICE TO TOWER)



URD CONNECTOR IN PULL BOX



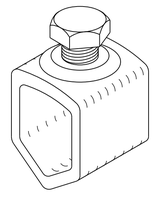
OR



CONNECTOR MANUF. CO. TGC2
BLACKBURN TTC3
BURNDY EQC632C
BURNDY KC22B2TN
OR APPROVED EQUAL

POLE GROUNDING CONNECTORS

GROUND ROD (NOT SHOWN)
ERITECH 615800
BLACKBURN 6260
ROBBINS LIGHTING INC. 94-10
OR APPROVED EQUAL



CONNECTOR MANUF. CO. WB58H
ERITECH HDC58R
BLACKBURN JAB58H
BURNDY GKP635
OR APPROVED EQUAL

GROUND ROD CLAMP

N8

Project Number
275-7(210)

C.N. 22898

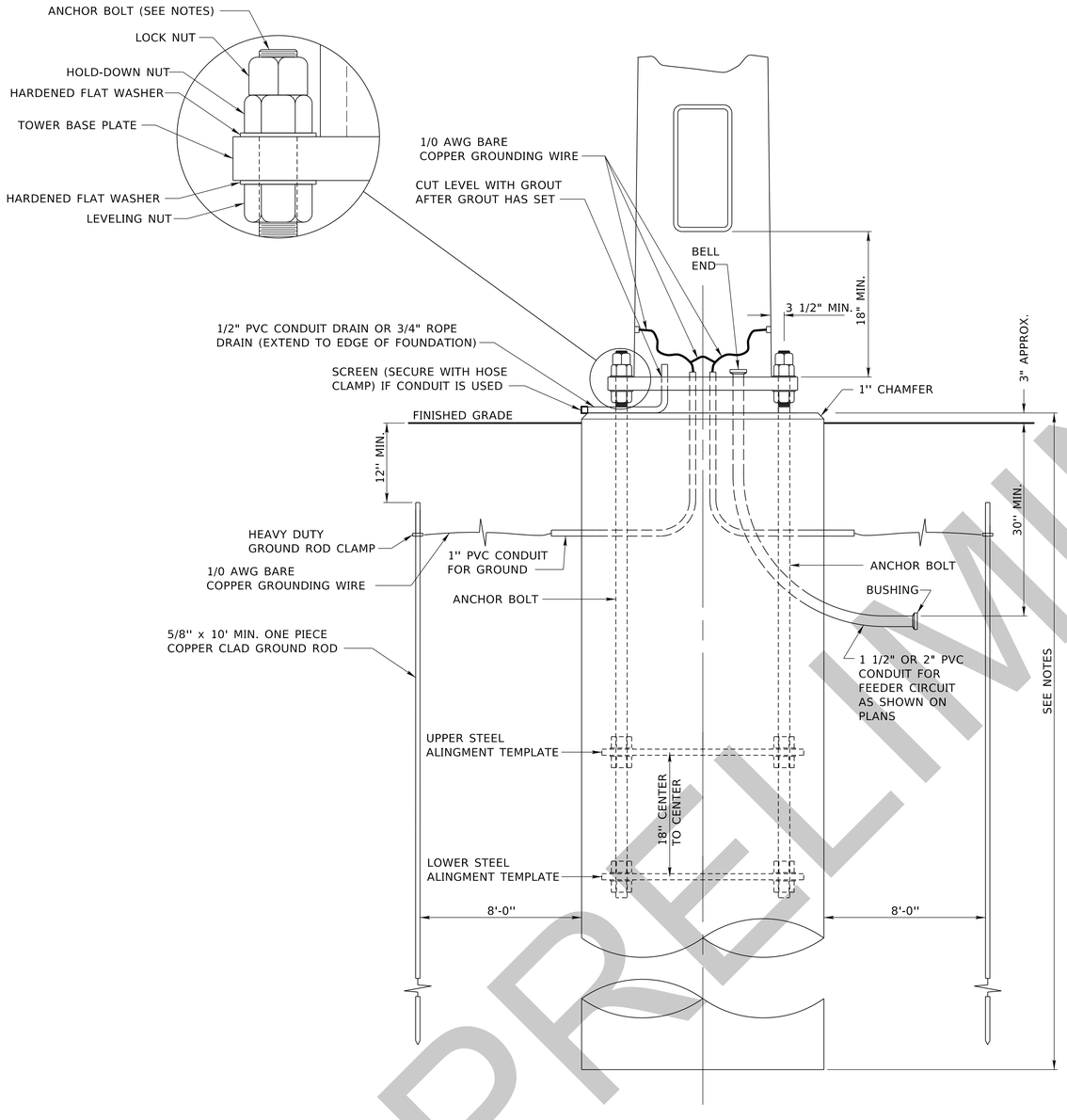
DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

LIGHTING

NEBRASKA
Good Life. Great Journey.
DEPARTMENT OF TRANSPORTATION

Roadway Design Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4601

COMPUTER: BG0419M257
DATE: 14-APR-2025 10:15
FILE: 22898 Sheets Lighting_US_FT.dgn



GROUT NOT SHOWN FOR REASONS OF CLARITY. SEE GROUTING DETAIL FOR PROCEDURES COVERING INSTALLATION OF GROUT.

TOWER FOUNDATION DETAIL
(GROUTED ANCHORAGE)

MATERIAL REQUIREMENTS	
ITEM	DESCRIPTION
ANCHOR BOLT	AASHTO M-314, GRADE 55
HEAVY HEX NUT	ASTM A 563 TYPE 3, C3 OR DH3
HARDENED STEEL FLAT WASHER	ASTM F 436, TYPE 3
ANCHOR BOLT ALIGNMENT TEMPLATE	ASTM A 36 STEEL, MIN. 1/2" THICK
ALL PVC CONDUIT	ASTM D 1785, SCH. 40
ROPE DRAIN	3/4" POLYPROPYLENE

NOTES:

1. THE LENGTH AND DIAMETER OF THE TOWER FOUNDATION WILL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR'S FOUNDATION DESIGN SHALL SHOW THE NUMBER AND SIZE OF ANCHOR BOLTS BEING SUPPLIED BY THE TOWER MANUFACTURER. IN NO CASE, HOWEVER, SHALL THE TOWER MANUFACTURERS DESIGN SHOW AN ANCHORAGE OF LESS THAN EIGHT - 2" DIAMETER AASHTO M-314, GR. 55 ANCHOR BOLTS.

2. THREADS ON ANCHOR BOLTS MUST BE ROLLED. THE USE OF ANCHOR BOLTS WITH CUT THREADS WILL NOT BE ALLOWED. THE TOP AND THE BOTTOM OF EACH ANCHOR BOLT SHALL BE THREADED 24". THE TOP THREADED PORTION OF THE ANCHOR BOLT SHALL BE PAINTED WITH ZINC RICH PAINT BEFORE BEING ASSEMBLED AND/OR SHIPPED TO THE PROJECT SITE. THE ENTIRE ANCHOR BOLT MAY BE PAINTED WITH ZINC RICH PAINT IF THE FABRICATOR SO DESIRES. MINIMUM DRY FILM PAINT THICKNESS SHALL BE 4 MILS.

3. GALVANIZING OF ANCHOR BOLTS, NUTS AND HARDENED FLAT WASHERS WILL NOT BE ALLOWED.

4. ANCHOR BOLTS MUST BE CAGED AND THE CAGE CENTERED IN THE FOUNDATION EXCAVATION. THE INSTALLED CAGE MUST BE INSPECTED BY THE ENGINEER BEFORE CONCRETE MAY BE POURED.

5. AN UPPER AND LOWER STEEL ALIGNMENT TEMPLATE MUST BE INSTALLED IN THE ANCHOR BOLT CAGE AS DETAILED TO INSURE THAT THE ANCHOR BOLTS REMAIN PLUMB (LESS THAN 1/8" OUT OF PLUMB IN 12"). ANCHOR BOLTS MUST BE OF SUFFICIENT LENGTH ABOVE THE TOWER BASE PLATE TO ALLOW FOR THE THICKNESS OF A HARDENED STEEL FLAT WASHER AND THE CAPTURE OF TWO FULL HOLD-DOWN NUTS PLUS 1/2". THE TOWER BASE PLATE SHALL FIT OVER THE COMPLETE SET OF ANCHOR BOLTS WITHOUT HAVING TO BEND ANY OF THE ANCHOR BOLTS.

6. A DISTANCE NO GREATER THAN TWO ANCHOR BOLT DIAMETERS WILL BE ALLOWED BETWEEN THE TOP OF THE CONCRETE FOUNDATION AND THE BOTTOM OF THE TOWER BASE PLATE.

7. A HARDENED STEEL FLAT WASHER WILL BE REQUIRED BETWEEN THE TOWER BASE PLATE AND THE LEVELING NUT AND BETWEEN THE TOWER BASE PLATE AND THE HOLD-DOWN NUT FOR EACH ANCHOR BOLT EMPLOYED.

8. ANCHOR BOLT NUTS SHALL BE EVENLY AND SYSTEMATICALLY TIGHTENED TO PROPER TENSION BY USE OF THE TURN-OF-THE-NUT METHOD AS SPECIFIED IN THE SPECIAL PROVISIONS TITLED "INSTALLATION OF HIGH MAST TOWERS".
THE TOWER BASE PLATE SHALL BE SUPPORTED SOLELY BY NUTS. FILL THE CAVITY BETWEEN THE TOP OF THE CONCRETE FOUNDATION AND THE BOTTOM OF THE TOWER BASE PLATE WITH GROUT IN ACCORDANCE WITH THE GROUTING DETAIL AND GROUTING PROCEDURES.

9. PROVIDE A CAPPED 1 1/2" DIAMETER SPARE CONDUIT BEND IN ALL TOWER FOUNDATIONS.

10. THE ENGINEER OR HIS REPRESENTATIVE MUST BE PRESENT AT ALL TIMES DURING TOWER INSTALLATION AND MUST BE NOTIFIED BY THE CONTRACTOR NO LESS THAN 3 DAYS PRIOR TO TOWER INSTALLATION. TOWERS INSTALLED WITHOUT PROPER INSPECTION WILL NOT BE ACCEPTED FOR FINAL PAYMENT.

N9

Project Number
275-7(210)

C.N. 22898

DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

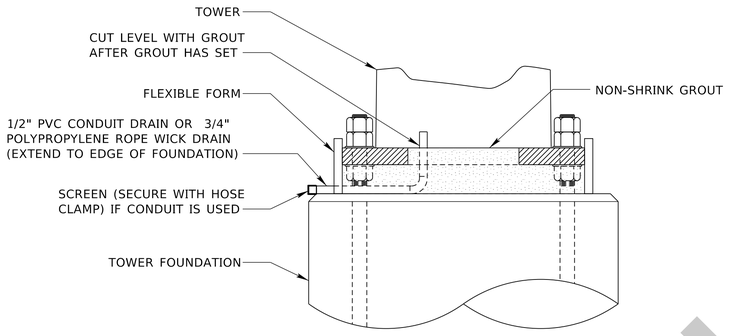
LIGHTING

NEBRASKA
Good Life. Great Journey.
DEPARTMENT OF TRANSPORTATION

Roadway Design Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4601

FILE: 22898 Sheets Lighting_US_FT.dgn DATE: 14-APR-2025 10:15 COMPUTER: BG0419M257

MATERIAL REQUIREMENTS	
ITEM	DESCRIPTION
ROPE DRAIN	3/4" POLYPROPYLENE
CONDUIT DRAIN	1/2", ASTM D 1785, SCH. 40 PVC
NON-SHRINK GROUT	GROUTS ACCEPTABLE FOR USE ARE LISTED ON THE APPROVED PRODUCTS LIST



GROUTING DETAIL

GROUTING PROCEDURES

NOTES:

1. APPLICATION

   HIGH STRENGTH, NON-SHRINK, CEMENTITIOUS GROUTS WILL BE USED TO FILL THE SPACE (CAVITY) BETWEEN THE TOWER BASE PLATE OF THE GALVANIZED STEEL HIGH MAST TOWER AND ITS CONCRETE FOUNDATION. THE GROUT SHALL ALWAYS BE USED TO FILL SPACES (CAVITIES) GREATER IN HEIGHT THAN TWO ANCHOR BOLT DIAMETERS, NO EXCEPTIONS. THE GROUT WILL ENCAPSULATE AND PROTECT THE ANCHOR BOLTS AND LEVELING NUTS, WILL PROVIDE LOAD TRANSFER FROM THE TOWER TO THE CONCRETE FOUNDATION AND WILL KEEP RODENTS FROM ENTERING THE TOWER AND CAUSING DAMAGE TO THE INTERNAL WIRING.

2. ACCEPTABLE PRODUCTS

   HIGH STRENGTH, NON-SHRINK, CEMENTITIOUS GROUTS ACCEPTABLE FOR USE SHALL BE AS LISTED ON THE APPROVED PRODUCTS LIST.

3. FOUNDATION AND TOWER BASE PLATE SURFACE PREPARATION

   THE CONCRETE TOWER FOUNDATION SHALL BE PREPARED FOR GROUTING BY CHIPPING OUT ALL UNSOUND CONCRETE FROM THE TOP OF THE FOUNDATION AND WIRE BRUSHING THE FOUNDATION TO REMOVE ALL DIRT AND LOOSE SCALE. USE COMPRESSED AIR TO REMOVE ALL LOOSE PARTICLES AND DUST. CLEAN THE TOWER BASE PLATE OF ALL GREASE, DIRT, LOOSE RUST, SCALE OR OTHER FOREIGN MATTER TO ENSURE A GOOD BOND WITH THE GROUT. AFTER ROUGHENING AND CLEANING THE CONCRETE FOUNDATION, SATURATE THE SURFACE OF THE FOUNDATION WITH CLEAN WATER FOR 24 HOURS PRIOR TO GROUTING. REMOVE EXCESS WATER FROM THE CONCRETE FOUNDATION JUST BEFORE GROUTING.

4. FORMING FOR GROUT PLACEMENT

   THE CONTRACTOR SHALL PLUG ALL CONDUIT OPENINGS IN THE TOWER BASE TO PREVENT THE ENTRANCE OF GROUT. INSTALL A 1/2" SCHEDULE 40 PVC CONDUIT DRAIN OR 3/4" POLYPROPYLENE ROPE DRAIN AS SHOWN ON THE PLAN DETAIL. THE DRAIN SHALL BE LEVEL WITH THE TOP OF THE GROUT TO ALLOW ANY ACCUMULATED WATER TO DRAIN OUT. CONSTRUCT A FORM OF NON-ABSORBENT MATERIAL THAT FITS TIGHTLY AROUND THE TOWER BASE PLATE. THE FORM SHALL BE CAPABLE OF HOLDING A GROUT OF POURABLE CONSISTENCY WITHOUT LEAKING. THE HEIGHT OF THE FORM SHALL BE SUFFICIENT TO ALLOW FOR A COMPLETE FILL OF GROUT UNDER THE TOWER BASE PLATE. THE FORMWORK SHALL BE ANCHORED SO THAT NO MOVEMENT IS POSSIBLE. THE CONDUIT DRAIN OR WICK DRAIN SHALL EXTEND THROUGH THE FORMWORK AS SHOWN IN THE PLAN DETAIL. THE FORMWORK SHALL BE LEFT IN PLACE A MINIMUM OF 3 DAYS.

5. TEMPERATURE

   THE AMBIENT AND INITIAL TEMPERATURE OF THE GROUT SHALL BE BETWEEN 45 TO 90 DEGREES FAHRENHEIT FOR BOTH MIXING AND PLACING. CONTACT THE GROUT MANUFACTURER FOR INSTRUCTIONS IF TEMPERATURE EXTREMES ARE ANTICIPATED. FOR HOT WEATHER GROUTING FOLLOW THE RECOMMENDATIONS AS OUTLINED IN THE AMERICAN CONCRETE INSTITUTE MANUAL ACI-305 TITLED "HOT WEATHER CONCRETING". FOR COLD WEATHER GROUTING FOLLOW THE RECOMMENDATION AS OUTLINED IN THE AMERICAN CONCRETE INSTITUTE MANUAL ACI-306 TITLED "COLD WEATHER CONCRETING".

6. PROPORTIONS, MIXING AND CONSISTENCY

   THE GROUT SHALL BE INSTALLED ACCORDING TO THE MANUFACTURES RECOMMENDATIONS. THE PROPORTIONS, MIXING AND CONSISTENCY MAY VARY ACCORDING TO THE CLEARANCE OF THE BASE PLATE, THE COMPLEXITY OF THE JOB AND THE METHOD OF GROUT PLACEMENT. THE GROUT USED SHALL RETAIN ITS NON-SHRINK PROPERTIES AT ALL PLACEMENT CONSISTENCIES.

7. PLACEMENT

   THE CONCRETE FOUNDATION SHALL HAVE A DAMP SURFACE FREE OF EXCESS WATER WHEN GROUTING. THE GROUT SHALL BE PLACED BY EITHER THE PUMPING OR GRAVITY FLOW METHOD. THE GROUT SHALL FILL THE ENTIRE SPACE BETWEEN THE FOUNDATION AND BASE PLATE INCLUDING THE AREA IN THE MIDDLE OF THE TOWER. THE GROUT MUST TIGHTLY ENCOMPASS ALL LEVELING NUTS. THE GROUT SHALL BE THOROUGHLY CONSOLIDATED WITHOUT CAUSING SEGREGATION.

8. FINISHING

   STRIKE THE GROUT FILL OFF LEVEL WITH THE TOP OF THE BASE PLATE INSIDE THE TOWER. THE CONDUIT DRAIN OR WICK DRAIN SHALL BE INSTALLED IN ACCORDANCE WITH PLAN DETAILS AND FREE OF GROUT. AFTER THE GROUT HAS SET A MINIMUM OF 6 HOURS THE CONDUIT DRAIN OR WICK DRAIN SHALL BE CUT FLUSH WITH THE GROUT FILL.

9. CURING

   ALL CEMENT BASED GROUTS SHALL BE CAREFULLY AND IMMEDIATELY CURED WITH WET RAGS COVERED WITH PLASTIC SHEETING AND LATER, AFTER THE FORMS HAVE BEEN REMOVED, COATED WITH A HIGH SOLIDS MEMBRANE CURING COMPOUND. THE CURING PROCESS SHALL BEGIN AS SOON AS THE FINISHING PROCESS HAS BEEN COMPLETED.

   THE GROUT SHALL BE PROTECTED FROM TEMPERATURE EXTREMES DURING THE FIRST 72 HOURS AFTER PLACEMENT. GROUT TEMPERATURE SHOULD BE MAINTAINED AT A MINIMUM OF 40 DEGREES FAHRENHEIT DURING THIS TIME.

10. MANUFACTURERS INSTRUCTIONS AND RECOMMENDATIONS

    CERTAIN METHODS, TIMES AND TEMPERATURES MAY BE SPECIFIC TO A PARTICULAR BRAND OF GROUT. SHOULD THERE BE A CONFLICT BETWEEN WHAT IS OUTLINED ABOVE AND THE GROUT MANUFACTURERS INSTRUCTIONS AND RECOMMENDATIONS, THE GROUT MANUFACTURERS INSTRUCTIONS AND RECOMMENDATIONS SHALL GOVERN.

11. PAYMENT

    THE GROUTING OF A HIGH MAST TOWER IN A MANNER AS DESCRIBED ABOVE WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED SUBSIDIARY TO THE ITEM "HIGH MAST LIGHTING UNIT, TYPE ***" FOR WHICH DIRECT PAYMENT IS BEING MADE.

FILE: 22898 Sheets Lighting_US_FT.dgn
DATE: 14-APR-2025 10:18
COMPUTER: BG04190M257

N10

Project Number
275-7(210)

C.N. 22898

DISTRICT 2-A HIGH MAST TOWER REPLACEMENT

LIGHTING

NEBRASKA
Good Life. Great Journey.
DEPARTMENT OF TRANSPORTATION

Roadway Design Division
1500 Nebraska Parkway
Lincoln, NE 68502
Office: 402-479-4601