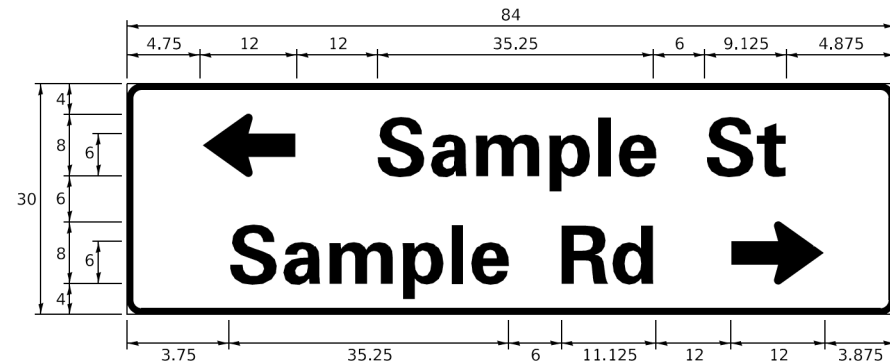
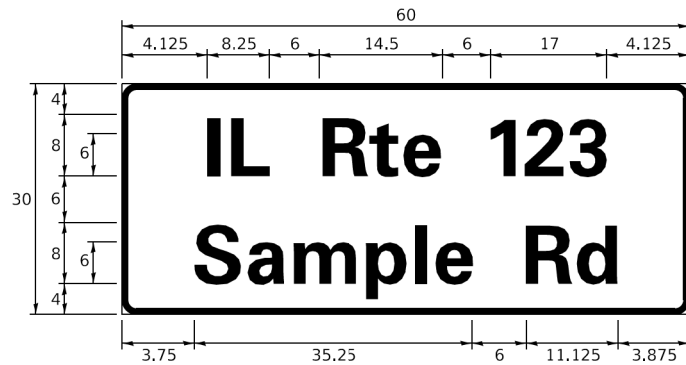
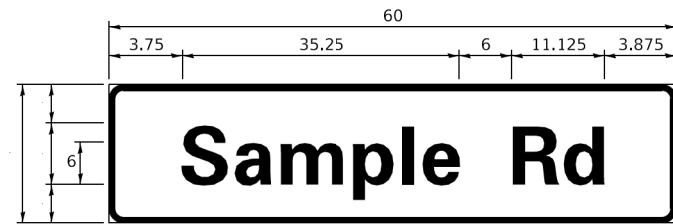




**SIGN PANEL – TYPE 1 OR TYPE 2**



DESIGN SERIES	AREA (SQ FT)	SIGN PANEL TYPE	SHEETING TYPE	QTY. REQUIRED
D OR C	-	1 OR 2	ZZ	-

**COMMON STREET NAME ABBREVIATIONS AND WIDTHS**

NAME	ABBREVIATION	WIDTH (INCH)	
		SERIES "C"	SERIES "D"
AVENUE	Ave	15.000	18.250
BOULEVARD	Blvd	17.125	20.000
CIRCLE	Cir	11.125	13.000
COURT	Ct	8.250	9.625
DRIVE	Dr	8.625	10.125
HIGHWAY	Hwy	18.375	22.000
ILLINOIS	IL	7.000	8.250
LANE	Ln	9.125	10.750
PARKWAY	Pkwy	23.375	27.375
PLACE	Pl	7.125	7.750
ROAD	Rd	9.625	11.125
ROUTE	Rte	12.625	14.500
STREET	St	8.000	9.125
TERRACE	Ter	12.625	14.625
TRAIL	Tr	7.750	9.125
UNITED STATES	US	10.375	12.250

**GENERAL NOTES**

- WHERE MAST ARM MOUNTED STREET NAME SIGNS ARE SPECIFIED, THE MAST ARM ASSEMBLY AND POLES SHALL BE DESIGNED TO SUPPORT THE LOADINGS CALLED FOR ON STANDARDS 877001, 877002, 877006, 877011 AND 877012. AS APPLICABLE, PLUS TWO (2) SIGN PANELS 2'-6" x 8'-0" MOUNTED AS SHOWN. THE DESIGN SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS" AS PUBLISHED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS FOR 80 M.P.H. WIND VELOCITY.
- ALL SIGNS SHALL CONSIST OF A WHITE LEGEND AND BORDER (TYPE ZZ SHEETING) ON A GREEN BACKGROUND (TYPE ZZ SHEETING)
- THE SIGN LENGTH SHALL BE IN 6-INCH INCREMENTS, BUT THE OVERALL LENGTH SHALL NOT EXCEED 8'-0". ALL BORDERS IF POSSIBLE, BUT MAY BE REDUCED TO 5" WHEN SPACING IS CRITICAL. A MINIMUM OF 2-1/2" SHALL BE INCLUDED BETWEEN THE WORD AND THE RIGHT AND LEFT EDGES OF THE SIGN.
- A PREFERRED METHOD FOR THE SIGN DESIGN IS TO USE SERIES "D" LETTER ON A ONE-LINE SIGN 18" IN HEIGHT AND A MAXIMUM OF 8'-0" IN WIDTH. IF SERIES "D" DOES NOT FIT ON A 8'-0" SIGN, THEN SERIES "C" SHOULD BE TRIED. IF SERIES "C" DOES NOT FIT ON A 8'-0" SIGN, A 30" HIGH TWO-LINE SIGN CAN BE USED. THE CROSSROAD DESIGNATION AS TO STREET, AVENUE, ETC. SHOULD BE SPELLED OUT ON THE SECOND LINE, IF THE ABBREVIATION CANNOT FIT ON THE FIRST LINE.
- LED ILLUMINATED STREET NAME SIGNS CAN BE USED IN PLACE OF REGULAR SIGN PANELS BUT ANY SPECIAL WORDING AND SYMBOLOGY MUST BE APPROVED BY THE DEPARTMENT. GENERAL DESIGN REQUIREMENT AS LISTED ABOVE (COLOR, FONT, SIZE, ETC.) MUST BE FOLLOWED.
- SIGNFIX ALUMINUM CHANNEL FRAMING SYSTEM SHALL BE USED FOR ALL SIGNS ATTACHED TO SIGNAL POLES AND POSTS.

**LOCAL SUPPLIERS:**

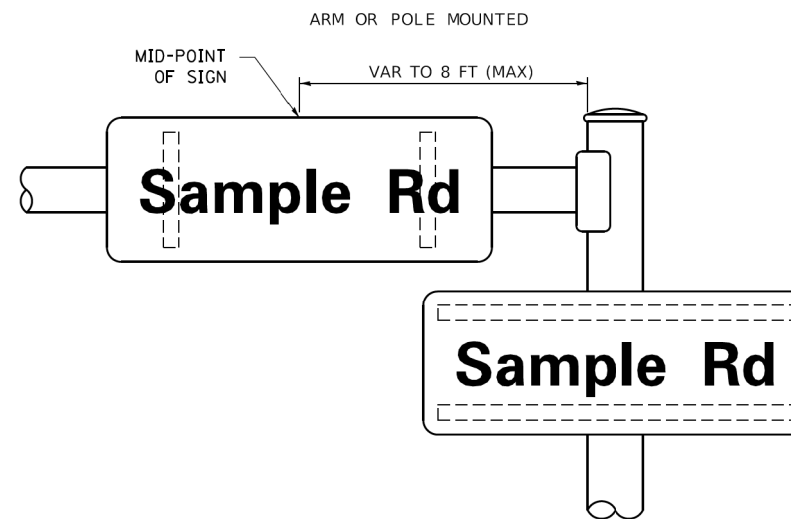
- J.O. HERBERT COMPANY, INC  
MIDLOTHIAN, VA
- WESTERN REMAC, INC.  
WOODRIDGE, IL

**PARTS LISTING:**

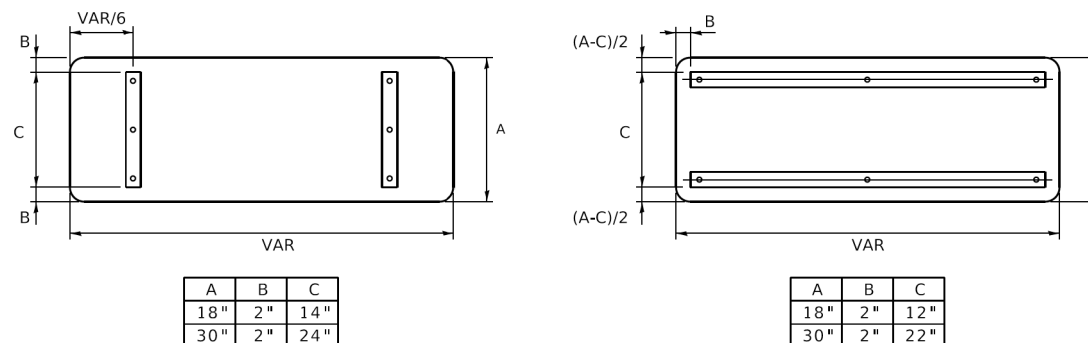
- SIGN CHANNEL PART #HPN053 (MED. CHANNEL)
- SIGN SCREWS 1/4" x 14 x 1" H.W.H. #3
- BRACKETS SELF TAPPING WITH NEOPRENE WASHER
- CHANNEL CLAMPS WITH STAINLESS STEEL STRAPPING PART #HPN034 (UNIVERSAL)

OTHER BRANDS OF MOUNTING HARDWARE ARE ACCEPTABLE, BASED UPON THE DEPARTMENT'S APPROVAL AND COMPATIBILITY WITH THE CHANNEL/BACKET OF THE ABOVE PRODUCT.

**MOUNTING LOCATION**



**SUPPORTING CHANNELS**



**STANDARD ALPHABETS SPACING CHART**

(8") UPPER CASE AND (6") LOWER CASE

FHWA SERIES "C"				FHWA SERIES "D"			
CHARACTER	LEFT SPACING (INCH)	WIDTH (INCH)	RIGHT SPACING (INCH)	CHARACTER	LEFT SPACING (INCH)	WIDTH (INCH)	RIGHT SPACING (INCH)
A	0.240	5.122	0.240	A	0.240	6.804	0.240
B	0.880	4.482	0.480	B	0.960	5.446	0.400
C	0.720	4.482	0.720	C	0.800	5.446	0.800
D	0.880	4.482	0.720	D	0.960	5.446	0.800
E	0.880	4.082	0.480	E	0.960	4.962	0.400
F	0.880	4.082	0.240	F	0.960	4.962	0.240
G	0.720	4.482	0.720	G	0.800	5.446	0.800
H	0.880	4.482	0.880	H	0.960	5.446	0.960
I	0.880	1.120	0.880	I	0.960	1.280	0.960
J	0.240	4.082	0.880	J	0.240	5.122	0.960
K	0.880	4.482	0.480	K	0.960	5.604	0.400
L	0.880	4.082	0.240	L	0.960	4.962	0.240
M	0.880	5.284	0.880	M	0.960	6.244	0.960
N	0.880	4.482	0.880	N	0.960	5.446	0.960
O	0.720	4.722	0.720	O	0.800	5.684	0.800
P	0.880	4.482	0.720	P	0.960	5.446	0.240
Q	0.720	4.722	0.720	Q	0.800	5.684	0.800
R	0.880	4.482	0.480	R	0.960	5.446	0.400
S	0.480	4.482	0.480	S	0.400	5.446	0.400
T	0.240	4.082	0.240	T	0.240	4.962	0.240
U	0.880	4.482	0.880	U	0.960	5.446	0.960
V	0.240	4.962	0.240	V	0.240	6.084	0.240
W	0.240	6.084	0.240	W	0.240	7.124	0.240
X	0.240	4.722	0.240	X	0.400	5.446	0.400
Y	0.240	5.122	0.240	Y	0.240	6.884	0.240
Z	0.480	4.482	0.480	Z	0.400	5.446	0.400
a	0.320	3.842	0.640	a	0.400	4.562	0.720
b	0.720	4.082	0.480	b	0.800	4.802	0.480
c	0.480	4.002	0.240	c	0.480	4.722	0.240
d	0.480	4.082	0.720	d	0.480	4.802	0.800
e	0.480	4.082	0.320	e	0.480	4.722	0.320
f	0.320	2.480	0.160	f	0.320	2.882	0.160
g	0.480	4.082	0.720	g	0.480	4.802	0.800
h	0.720	4.082	0.640	h	0.800	4.722	0.720
i	0.720	1.120	0.720	i	0.800	1.280	0.800
j	0.000	2.320	0.720	j	0.000	2.642	0.800
k	0.720	4.322	0.160	k	0.800	5.122	0.160
l	0.720	1.120	0.720	l	0.800	1.280	0.800
m	0.720	6.724	0.640	m	0.800	7.926	0.720
n	0.720	4.082	0.640	n	0.800	4.722	0.720
o	0.480	4.082	0.480	o	0.480	4.882	0.480
p	0.720	4.082	0.480	p	0.800	4.802	0.480
q	0.480	4.082	0.720	q	0.480	4.802	0.800
r	0.720	2.642	0.160	r	0.800	3.042	0.160
s	0.320	3.362	0.240	s	0.320	3.762	0.240
t	0.080	2.882	0.080	t	0.080	3.202	0.080
u	0.640	4.082	0.720	u	0.720	4.722	0.800
v	0.160	4.722	0.160	v	0.160	5.684	0.160
w	0.160	7.524	0.160	w	0.160	9.046	0.160
x	0.000	5.202	0.000	x	0.000	6.244	0.000
y	0.160	4.962	0.160	y	0.160	6.004	0.160
z	0.240	3.362	0.240	z	0.240	4.002	0.240
1	0.720	1.680	0.880	1	0.800	2.000	0.960
2	0.480	4.482	0.480	2	0.800	5.446	0.800
3	0.480	4.482	0.480	3	1.440	5.446	0.800
4	0.240	4.962	0.720	4	0.160	6.004	0.960
5	0.480	4.482	0.480	5	0.800	5.446	0.800
6	0.720	4.482	0.720	6	0.800	5.446	0.800
7	0.240	4.482	0.720	7	0.560	5.446	0.560
8	0.480	4.482	0.480	8	0.800	5.446	0.800
9	0.480	4.482	0.480	9	0.800	5.446	0.800
0	0.720	4.722	0.720	0	0.800	5.684	0.800
-	0.240	2.802	0.240	-	0.240	2.802	0.240

TS SHT NO. 8

MODEL: Default  
FILE NAME: P:\010848\BENTLEY\Illinois.gov\WIDOT\Documents\DOT\_Offices\District 1\Projects\Dist1\2015\23-21\CADD\01\CAD\sheet\ts02.dgn

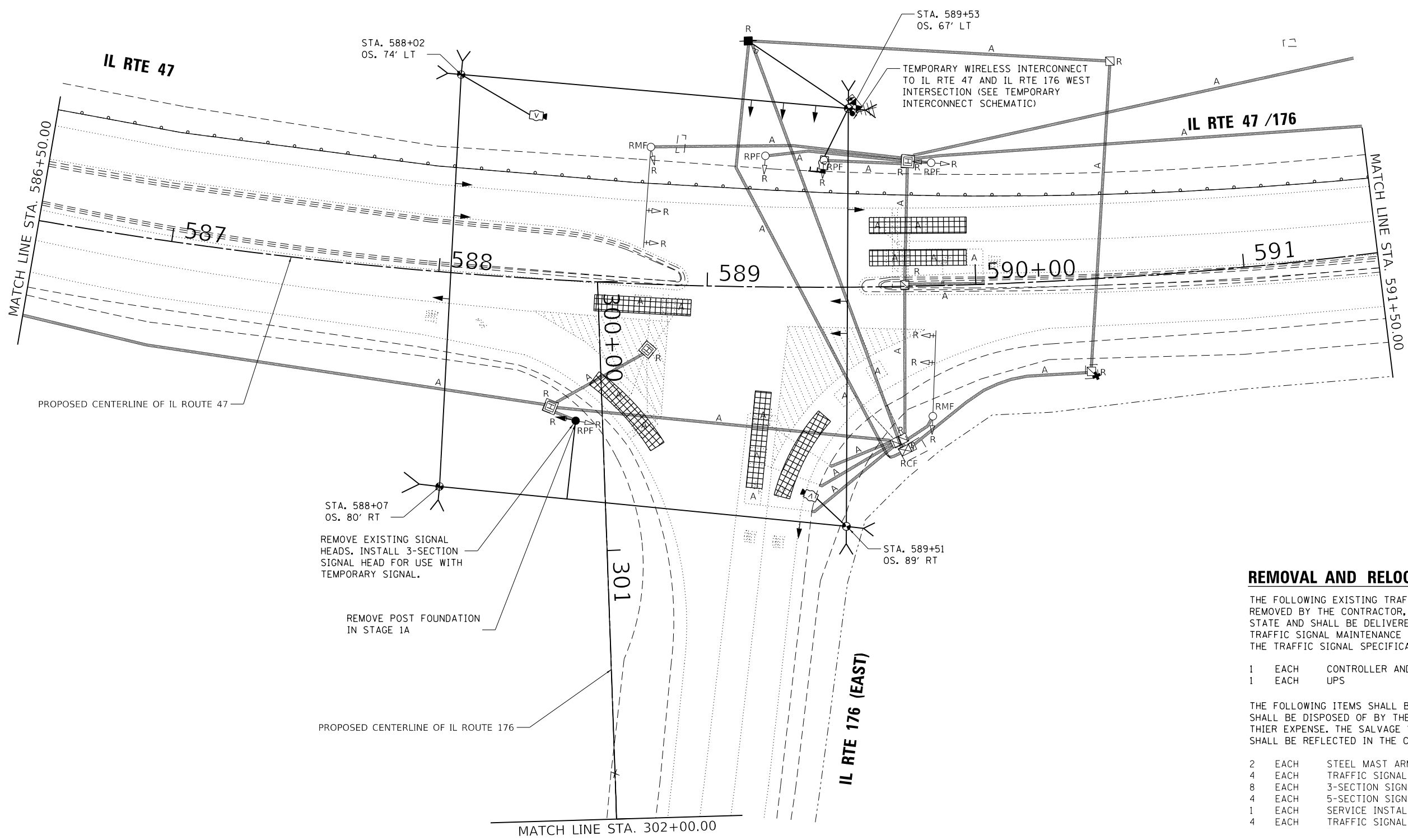
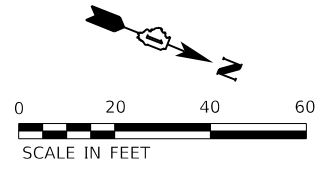
USER NAME = footemj	DESIGNED - LP/IP	REVISED - LP 07/01/2015
PLOT SCALE = 50.0000' / 1"	CHECKED - IP	REVISED -
PLOT DATE = 3/4/2019	DATE - 10/01/2014	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**DISTRICT ONE  
MAST ARM MOUNTED STREET NAME SIGNS**

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.P. RTE. 326	SECTION 105-N-2(15)	COUNTY MCHENRY	TOTAL SHEETS 803	SHEET NO. 502
TS-02		CONTRACT NO. 62B43		
ILLINOIS FED. AID PROJECT				



REMOVE EXISTING SIGNAL HEADS. INSTALL 3-SECTION SIGNAL HEAD FOR USE WITH TEMPORARY SIGNAL.

REMOVE POST FOUNDATION IN STAGE 1A

**REMOVAL AND RELOCATION NOTES:**

THE FOLLOWING EXISTING TRAFFIC SIGNAL EQUIPMENT SHALL BE REMOVED BY THE CONTRACTOR, SHALL REMAIN THE PROPERTY OF THE STATE AND SHALL BE DELIVERED BY CONTRACTOR TO THE STATE'S TRAFFIC SIGNAL MAINTENANCE CONTRACTOR'S MAIN FACILITY AS PER THE TRAFFIC SIGNAL SPECIFICATIONS:

- 1 EACH CONTROLLER AND CABINET (COMPLETE)
- 1 EACH UPS

THE FOLLOWING ITEMS SHALL BE REMOVED BY THE CONTRACTOR AND SHALL BE DISPOSED OF BY THEM OUTSIDE THE RIGHT-OF-WAY AT THEIR EXPENSE. THE SALVAGE VALUE OF THE REMOVED EQUIPMENT SHALL BE REFLECTED IN THE CONTRACT BID PRICE.

- 2 EACH STEEL MAST ARM ASSEMBLY AND POST
- 4 EACH TRAFFIC SIGNAL POST
- 8 EACH 3-SECTION SIGNAL HEAD
- 4 EACH 5-SECTION SIGNAL HEAD
- 1 EACH SERVICE INSTALLATION
- 4 EACH TRAFFIC SIGNAL BACKPLATE

ALL ITEMS LISTED IN THE ABOVE NOTES ARE INCLUDED IN THE REMOVE EXISTING TRAFFIC SIGNAL BID ITEM.

TS SHT NO. 9

MODEL: D:\m\1170 SOUTH HOUBOLT ROAD\1170\_SHT\_09.dgn  
FILE NAME: S:\01\1170-09\1170\_SHT\_09.dwg  
SHEET: 1 OF 2



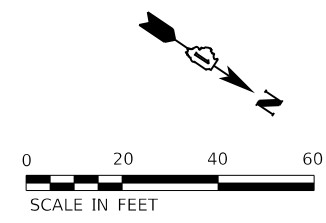
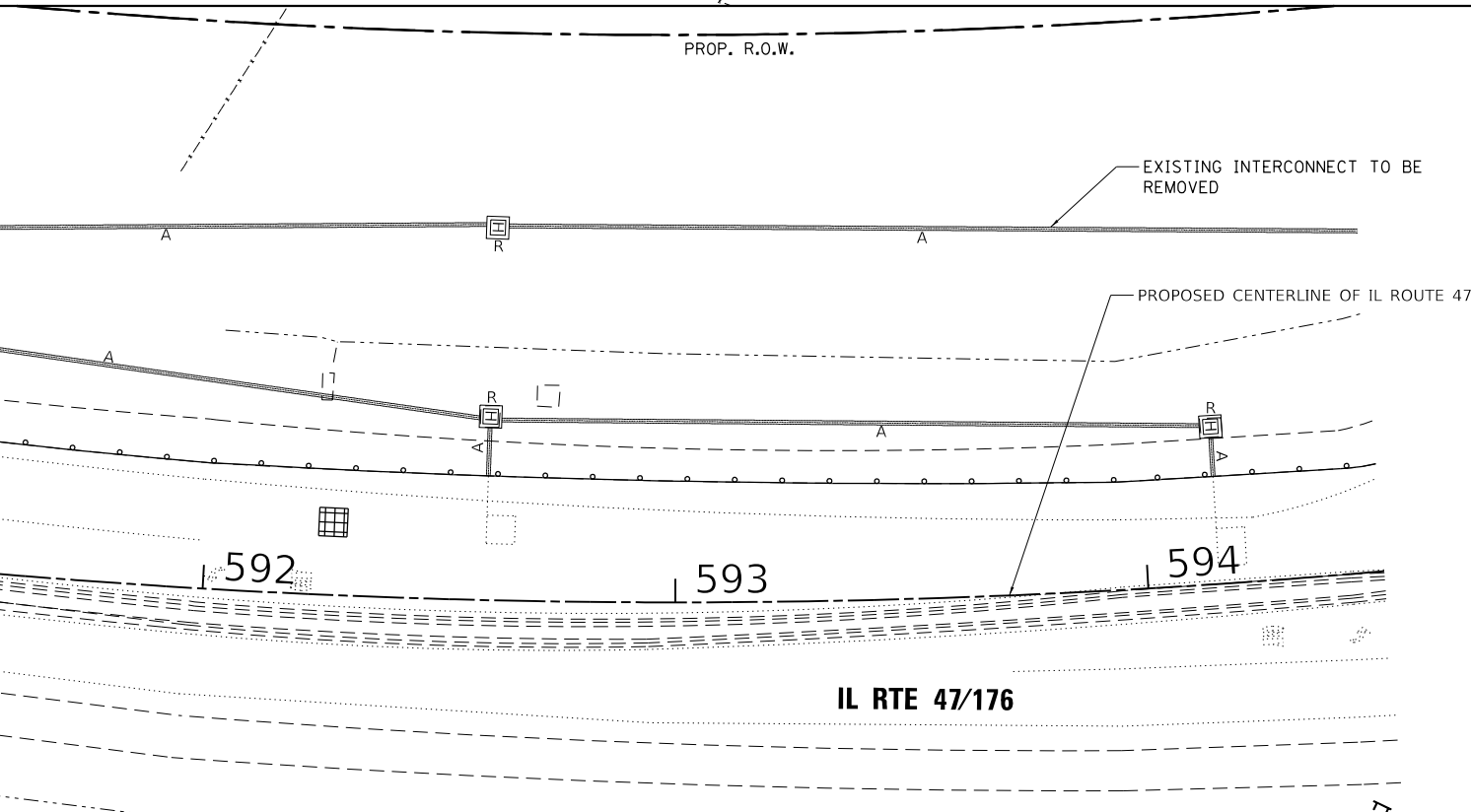
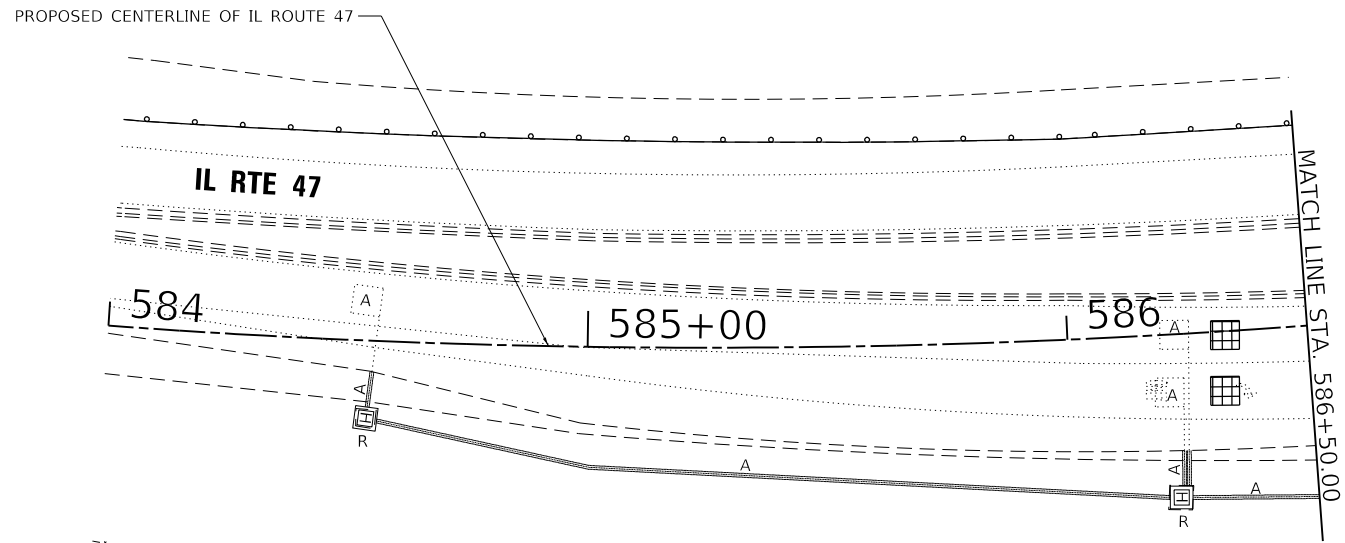
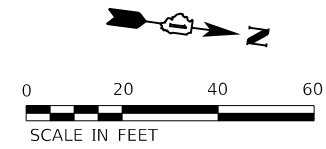
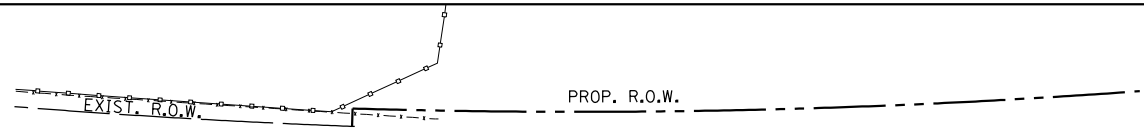
USER NAME = StevenB	DESIGNED - MAG	REVISED -
DRAWN - DJW	REVISIONS -	
PLOT SCALE = 40.0000' / in.	CHECKED - SJG	REVISED -
PLOT DATE = 12/18/2023	DATE - 12/15/2023	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

TEMPORARY TRAFFIC SIGNAL INSTALLATION PLAN (PRE-STAGE) AND  
REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT PLAN (SHEET 1 OF 2)  
IL ROUTE 47 AND IL ROUTE 176 (S. JUNCTION)/PLEASANT VALLEY ROAD  
SCALE: 1"=20' SHEET 1 OF 11 SHEETS STA. 583+00.00 TO STA. 596+00.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	503
			CONTRACT NO. 62B43	
ILLINOIS FED. AID PROJECT				

TS 21240  
ECON 22



TS SHT NO. 10

MODEL: D:\m\1170\1170.dwg  
 FILE NAME: S:\01\1170\1170.dwg  
 STRAND ASSOCIATES

**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = StevenB	DESIGNED - MAG	REVISED -
DRAWN - DJW	REVISOR -	
PLOT SCALE = 40.0000' / in.	CHECKED - SJG	REVISED -
PLOT DATE = 12/18/2023	DATE - 12/15/2023	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**TEMPORARY TRAFFIC SIGNAL INSTALLATION PLAN AND  
 REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT PLAN (SHEET 2 OF 2)  
 IL ROUTE 47 AND IL ROUTE 176 (S. JUNCTION)/PLEASANT VALLEY ROAD**

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	504
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				

**TS 21240  
 ECON 22**



TS SHT NO. 11

MODEL: D:\m\1170\_SOUTH\_HOUBOLT\_ROAD\1170\_SOUTH\_HOUBOLT\_ROAD.dwg  
 FILE NAME: 1170\_SOUTH\_HOUBOLT\_ROAD\1170\_SOUTH\_HOUBOLT\_ROAD.dwg

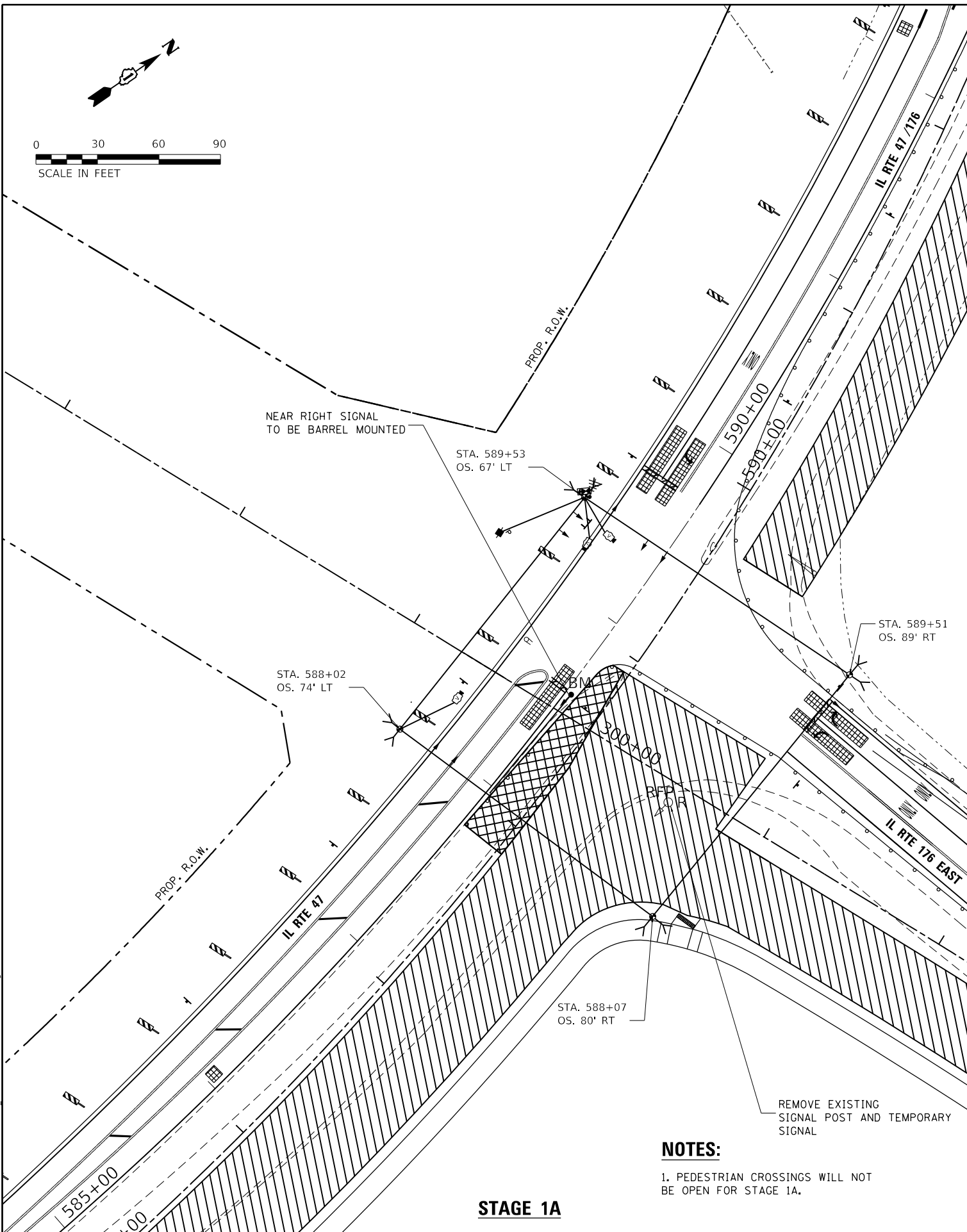


USER NAME = StevenB	DESIGNED - MAG	REVISED -
PLOT SCALE = 60.0000 ' / in.	DRAWN - DJW	REVISED -
PLOT DATE = 12/18/2023	CHECKED - SJG	REVISED -
	DATE - 12/15/2023	REVISED -

**NOTES:**

- 1. PEDESTRIAN CROSSINGS WILL NOT BE OPEN FOR STAGE 1A.

**STAGE 1A**

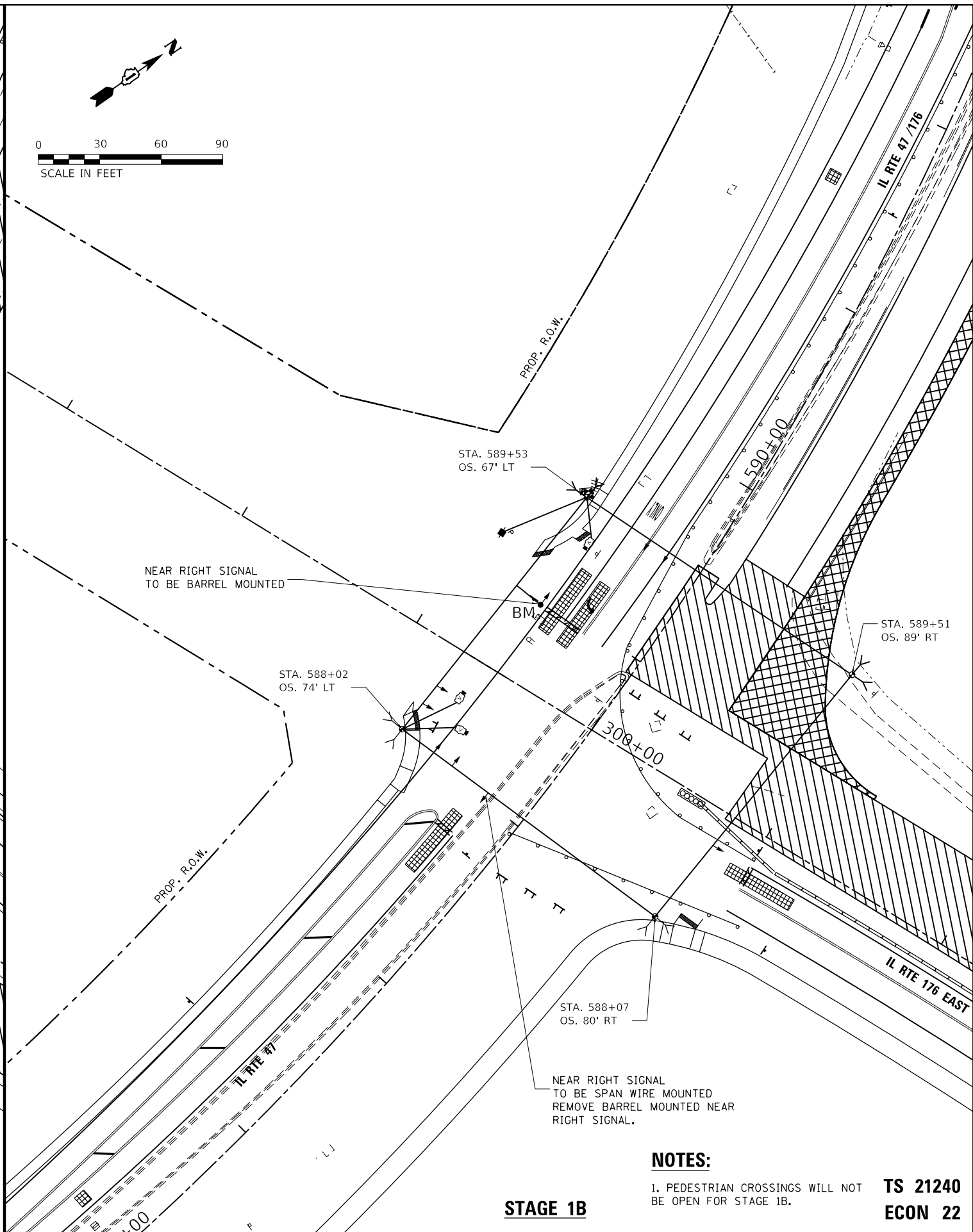


TEMPORARY TRAFFIC SIGNAL INSTALLATION (STAGE 1A AND STAGE 1B) IL ROUTE 47 AND IL ROUTE 176 (S. JUNCTION)/PLEASANT VALLEY ROAD			
SCALE: 1" = 30'	SHEET 3	OF 11 SHEETS	STA. 583+00.00 TO STA. 596+00.00

**NOTES:**

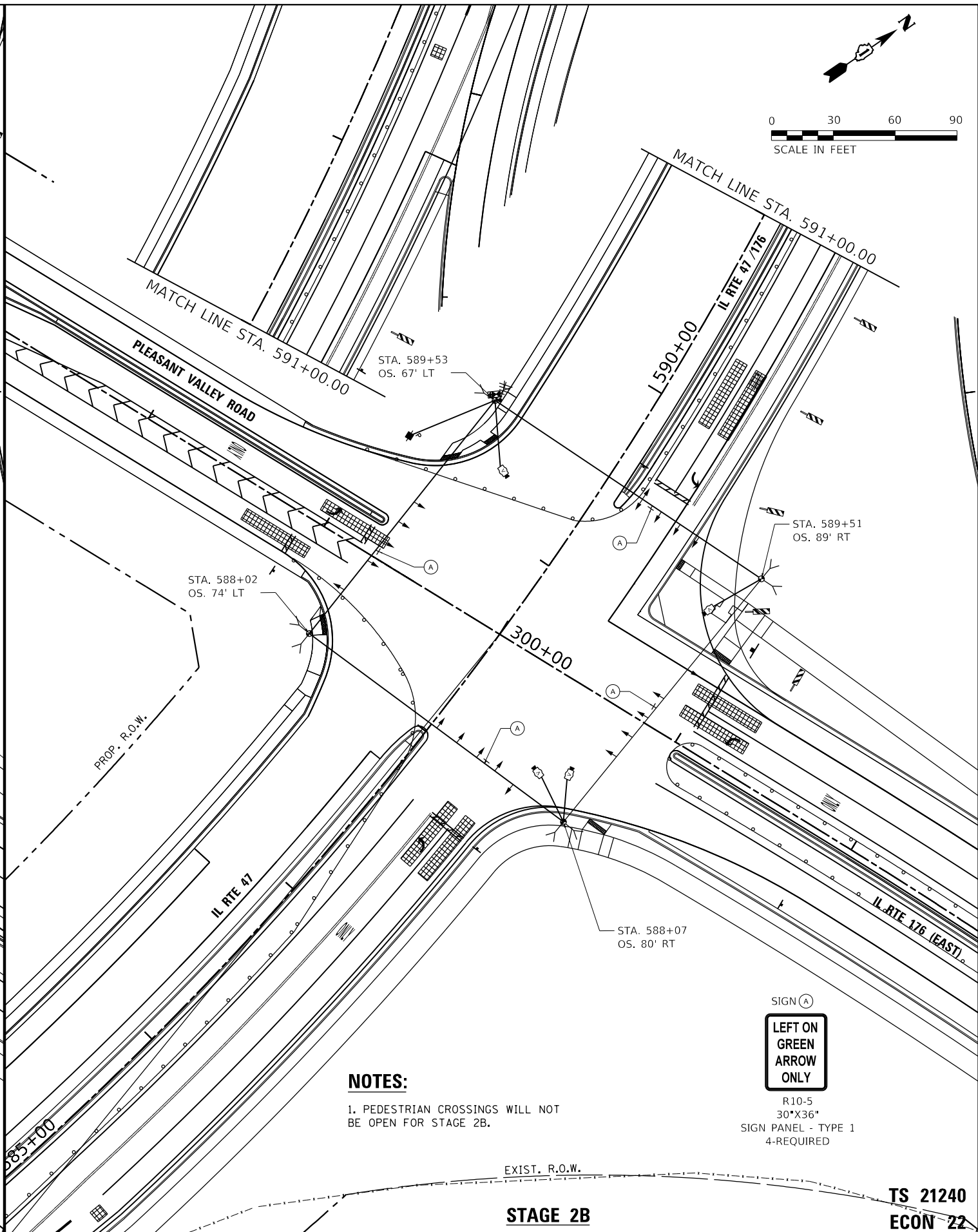
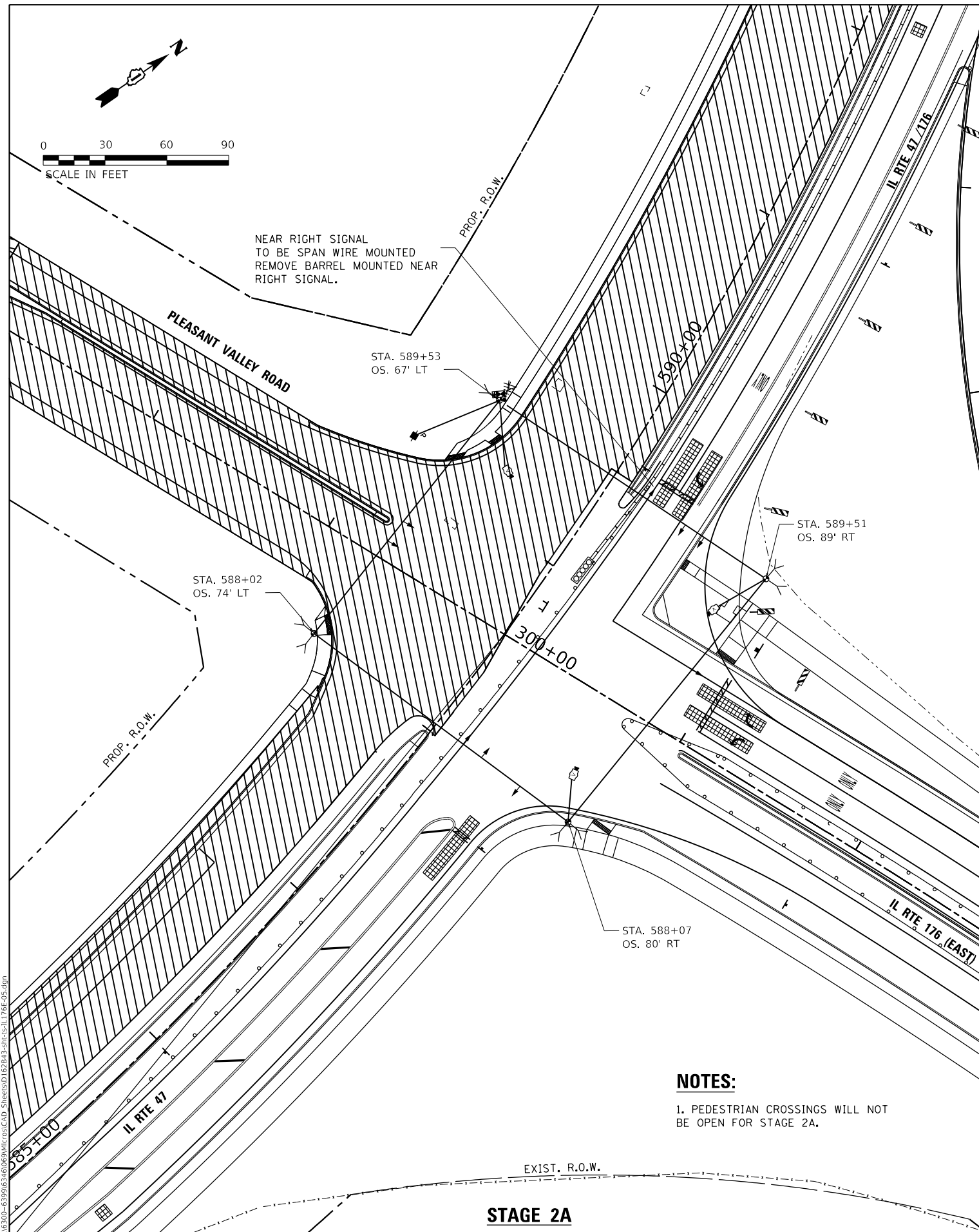
- 1. PEDESTRIAN CROSSINGS WILL NOT BE OPEN FOR STAGE 1B.

**STAGE 1B**



F.A.P. RTE. 326	SECTION 105-N-2(15)	COUNTY MCHENRY	TOTAL SHEETS 803	SHEET NO. 505
CONTRACT NO. 62B43			ILLINOIS FED. AID PROJECT	

**TS 21240  
ECON 22**



**NOTES:**  
1. PEDESTRIAN CROSSINGS WILL NOT BE OPEN FOR STAGE 2A.

**NOTES:**  
1. PEDESTRIAN CROSSINGS WILL NOT BE OPEN FOR STAGE 2B.

SIGN (A)  
**LEFT ON GREEN ARROW ONLY**  
R10-5  
30"x36"  
SIGN PANEL - TYPE 1  
4-REQUIRED

TS SHT NO. 12

TS 21240  
ECON 22

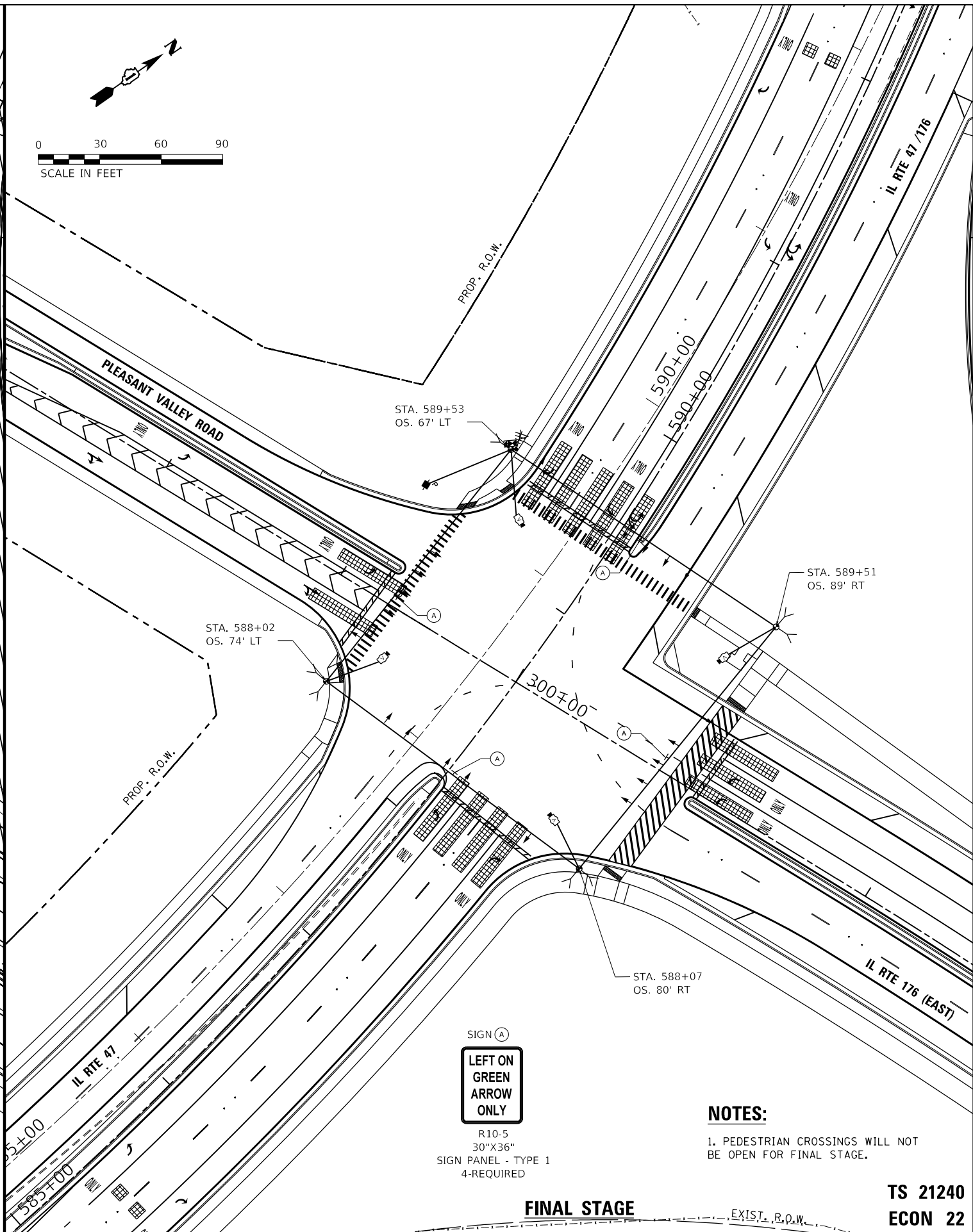
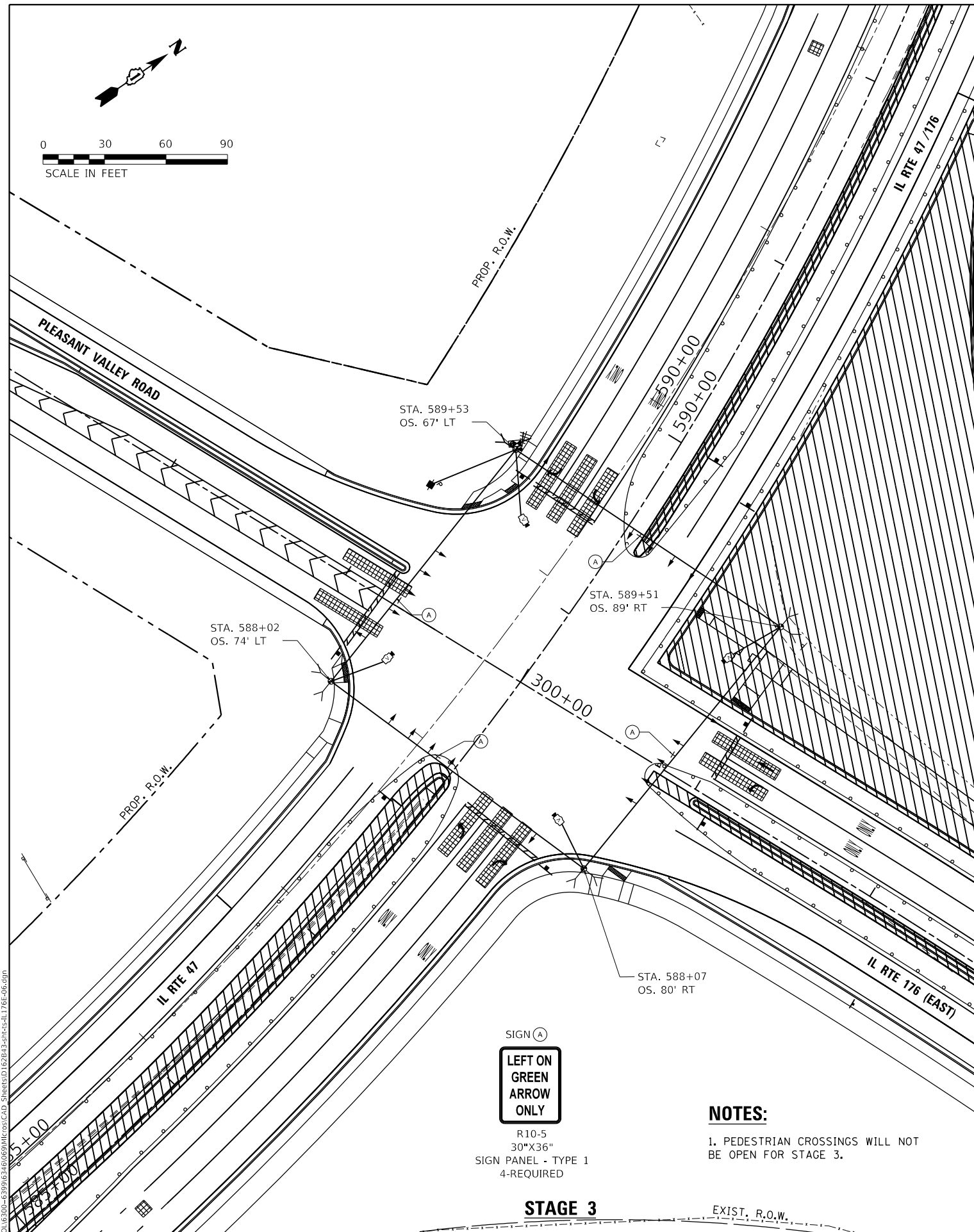
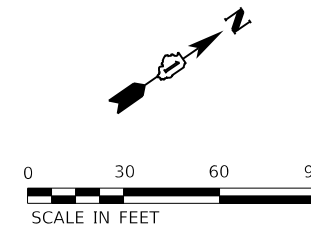
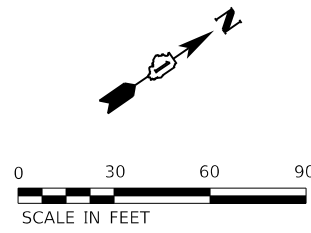


USER NAME = StevenB	DESIGNED - MAG	REVISED -
PLOT SCALE = 60.0000' / in.	DRAWN - DJW	REVISED -
PLOT DATE = 12/18/2023	CHECKED - SJG	REVISED -
	DATE - 12/15/2023	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

TEMPORARY TRAFFIC SIGNAL INSTALLATION (STAGE 2A AND STAGE 2B)  
IL ROUTE 47 AND IL ROUTE 176 (S. JUNCTION)/PLEASANT VALLEY ROAD  
SCALE: 1" = 30' SHEET 4 OF 11 SHEETS STA. 583+00.00 TO STA. 596+00.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	506
			CONTRACT NO. 62B43	
		ILLINOIS	FED. AID PROJECT	



SIGN (A)  
**LEFT ON GREEN ARROW ONLY**  
 R10-5  
 30"X36"  
 SIGN PANEL - TYPE 1  
 4-REQUIRED

**NOTES:**

1. PEDESTRIAN CROSSINGS WILL NOT BE OPEN FOR STAGE 3.

SIGN (A)  
**LEFT ON GREEN ARROW ONLY**  
 R10-5  
 30"X36"  
 SIGN PANEL - TYPE 1  
 4-REQUIRED

**NOTES:**

1. PEDESTRIAN CROSSINGS WILL NOT BE OPEN FOR FINAL STAGE.

**STAGE 3**

**FINAL STAGE**

TS SHT NO. 13

TS 21240  
 ECON 22



USER NAME = StevenB	DESIGNED - MAG	REVISED -
PLOT SCALE = 60.0000 ' / in.	DRAWN - DJW	REVISED -
PLOT DATE = 12/18/2023	CHECKED - SJG	REVISED -
	DATE - 12/15/2023	REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

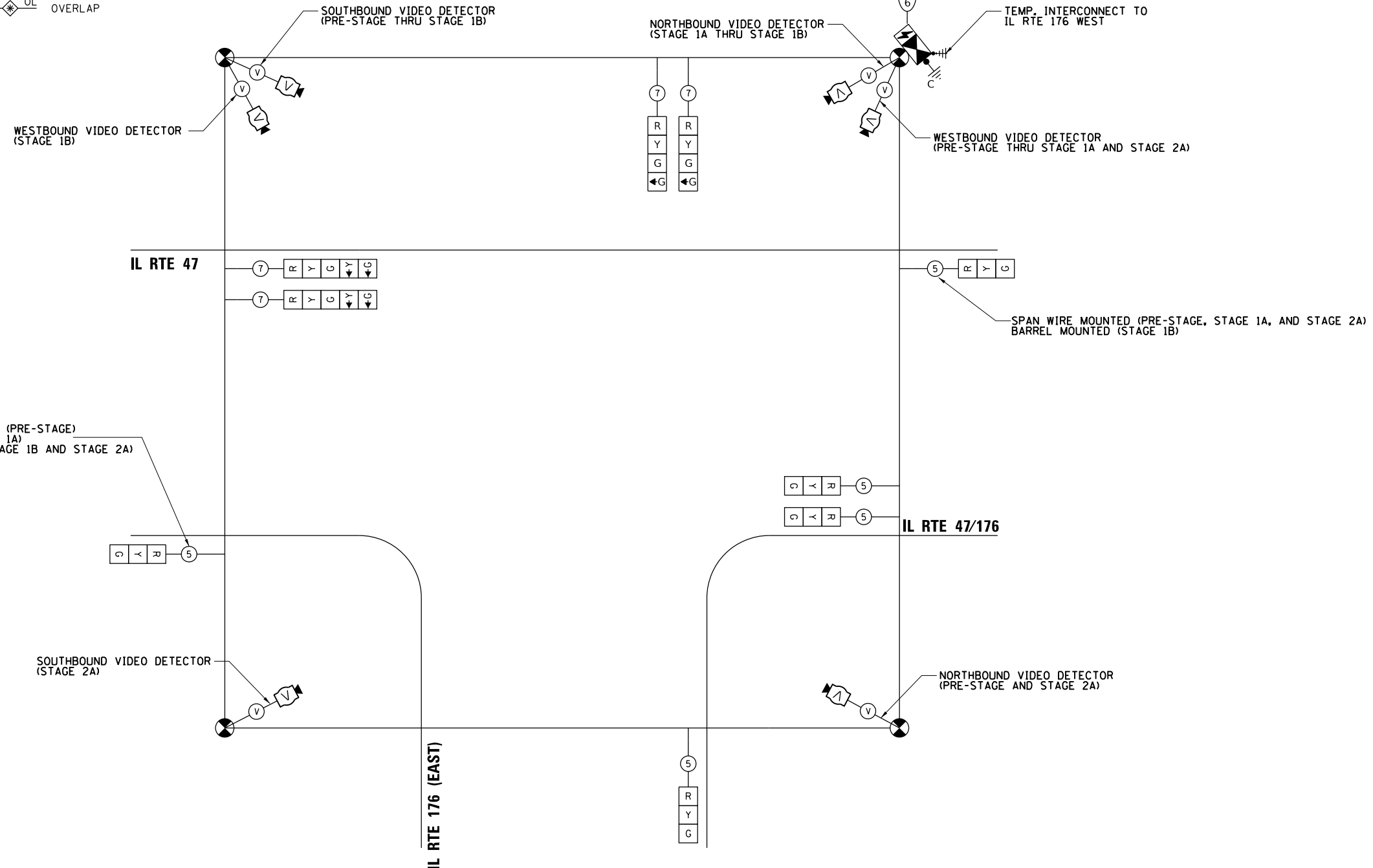
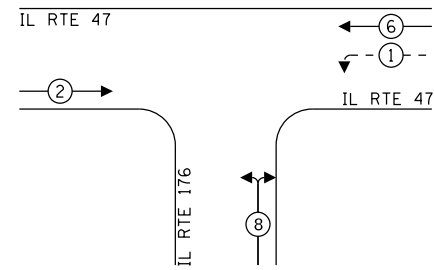
TEMPORARY TRAFFIC SIGNAL INSTALLATION (STAGE 3 AND FINAL STAGE)  
 IL ROUTE 47 AND IL ROUTE 176 (S. JUNCTION)/PLEASANT VALLEY ROAD  
 SCALE: 1" = 30' SHEET 5 OF 11 SHEETS STA. 583+00.00 TO STA. 596+00.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	507
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				

# TEMPORARY CONTROLLER SEQUENCE

## LEGEND:

- ← ⊙ → PROTECTED PHASE
- ← ⊙ - PROTECTED/PERMITTED PHASE
- ← ⊙ → PEDESTRIAN PHASE
- ← ⊙ OL OVERLAP



EXISTING POST MOUNTED (PRE-STAGE)  
BARREL MOUNTED (STAGE 1A)  
SPAN WIRE MOUNTED (STAGE 1B AND STAGE 2A)

TRAFFIC SIGNAL ELECTRIC SERVICE REQUIREMENTS			
TYPE	QUANTITY	UNIT	TOTAL WATTAGE
SIGNAL HEAD 3-SECTION	5	11	55
4-SECTION	2	14	28
5-SECTION	2	13	26
PROGRAMMABLE SIGNALS			
3-SECTION	-	22	-
4-SECTION	-	32	-
5-SECTION	-	28	-
PED. SIGNAL			
CONTROLLER	1	150	150
MASTER CONTROLLER	1	100	100
UPS	1	25	25
DETECTION RADAR	-	20	-
VIDEO	4	20	120
BLANK-OUT SIGN	-	25	-
NETWORK SWITCH II OR III	-	35	-
CELLULAR MODEM	-	15	-
<b>TOTAL UPS SIZING</b>			<b>505</b>
UPS CHARGING	1	225	225
BATTERY HEATER MAT	-	180	-
CABINET HEATER	-	200	-
FLASHER	-	15	-
LED STREET NAME SIGN	-	120	-
LUMINAIRE	-	240	-
<b>TOTAL SERVICE WIRE SIZING</b>			<b>730</b>

ENERGY COSTS TO:  
**ILLINOIS DEPARTMENT OF TRANSPORTATION**  
 DIVISION OF HIGHWAY/DISTRICT 1  
 201 WEST CENTER COURT/SCHAUMBURG, ILLINOIS 60196-1096  
 ENERGY SUPPLY: CONTACT: GENEVA MORROW  
 PHONE: (847) 608-2371  
 COMPANY: COMMONWEALTH EDISON

## TEMPORARY CABLE PLAN (NOT TO SCALE)

TS SHT NO. 14

MODEL: D:\m\1170 SOUTH HOUBOLT ROAD  
FILE NAME: S:\01\15300-6399\15300-6399\15300-6399\CAD\_SHEET\1170-07.dwg



USER NAME = StevenB	DESIGNED - MAG	REVISED -
PLOT SCALE = 20.0000 ' / in.	DRAWN - DJW	REVISED -
PLOT DATE = 12/18/2023	CHECKED - SJG	REVISED -
	DATE - 12/15/2023	REVISED -

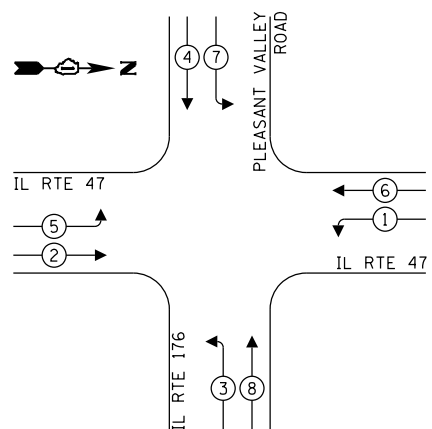
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

TEMPORARY CABLE PLAN AND PHASE DESIGNATION  
DIAGRAM (PRE-STAGE TO STAGE 2A)  
IL ROUTE 47 AND IL ROUTE 176 (S. JUNCTION)/PLEASANT VALLEY ROAD  
SCALE: SHEET 6 OF 11 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	508
				CONTRACT NO. 62B43
ILLINOIS FED. AID PROJECT				

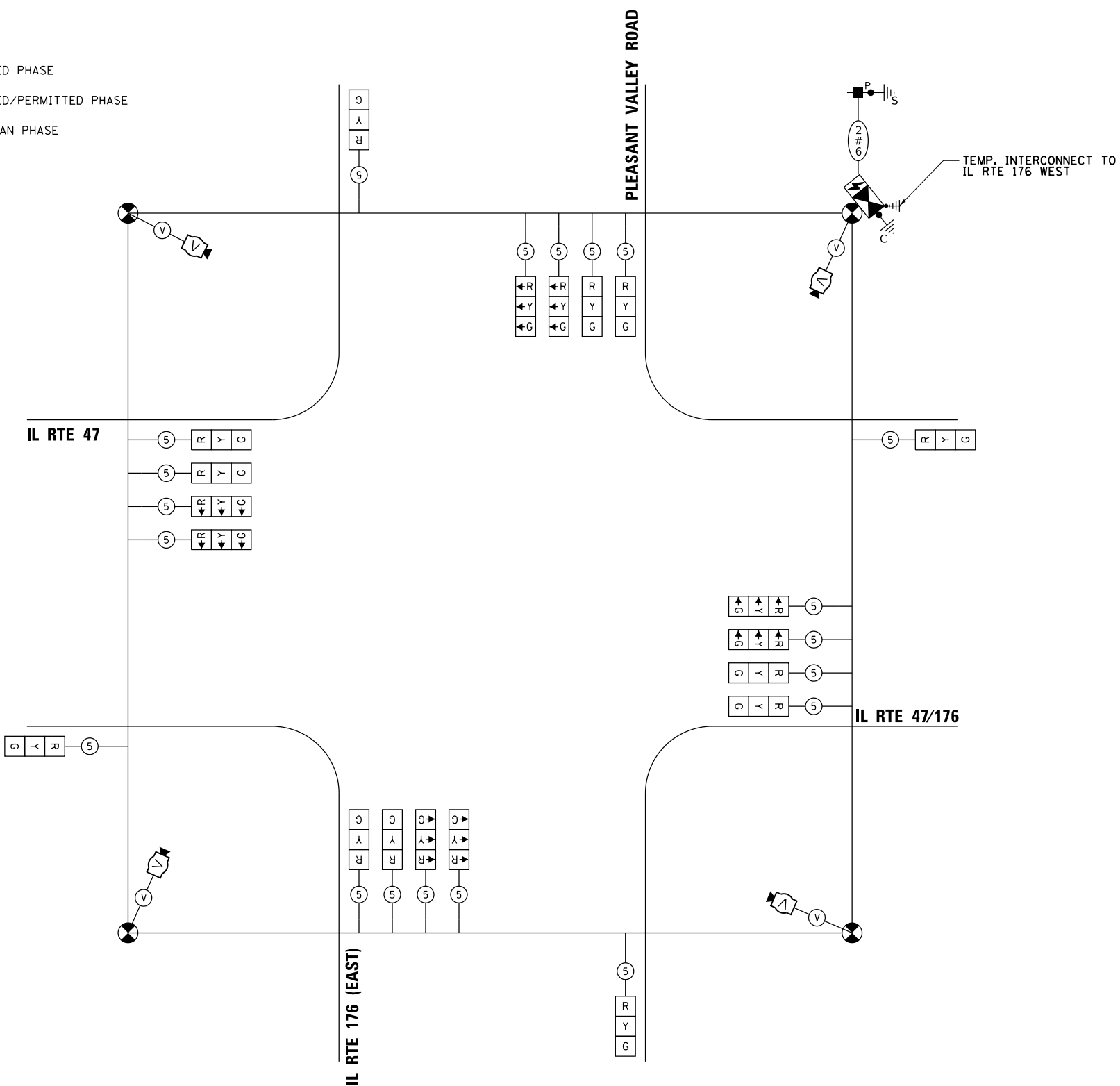
TS 21240  
ECON 22

**TEMPORARY CONTROLLER SEQUENCE**



**LEGEND:**

- ← ⊙ ← PROTECTED PHASE
- ← ⊙ - PROTECTED/PERMITTED PHASE
- ← ⊙ → PEDESTRIAN PHASE
- ← ⊙ OL OVERLAP



TRAFFIC SIGNAL ELECTRIC SERVICE REQUIREMENTS			
TYPE	QUANTITY	UNIT WATTAGE	TOTAL WATTAGE
SIGNAL HEAD 3-SECTION	20	11	220
4-SECTION	-	14	-
5-SECTION	-	13	-
PROGRAMMABLE SIGNALS			
3-SECTION	-	22	-
4-SECTION	-	32	-
5-SECTION	-	28	-
PED. SIGNAL			
CONTROLLER	1	150	150
MASTER CONTROLLER	1	100	100
UPS	1	25	25
DETECTION RADAR	-	20	-
VIDEO	4	20	80
BLANK-OUT SIGN	-	25	-
NETWORK SWITCH II OR III	-	35	-
CELLULAR MODEM	-	15	-
<b>TOTAL UPS SIZING</b>			<b>575</b>
UPS CHARGING	1	225	225
BATTERY HEATER MAT	-	180	-
CABINET HEATER	-	200	-
FLASHER	-	15	-
LED STREET NAME SIGN	-	120	-
LUMINAIRE	-	240	-
<b>TOTAL SERVICE WIRE SIZING</b>			<b>800</b>

ENERGY COSTS TO:  
**ILLINOIS DEPARTMENT OF TRANSPORTATION**  
 DIVISION OF HIGHWAY/DISTRICT 1  
 201 WEST CENTER COURT/SCHAUMBURG, ILLINOIS 60196-1096

ENERGY SUPPLY: CONTACT: GENEVA MORROW  
 PHONE: (847) 608-2371  
 COMPANY: COMMONWEALTH EDISON

**TEMPORARY CABLE PLAN**  
(NOT TO SCALE)

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

TEMPORARY CABLE PLAN AND PHASE DESIGNATION  
 DIAGRAM (STAGE 2B TO FINAL STAGE)  
 IL ROUTE 47 AND IL ROUTE 176 (S. JUNCTION)/PLEASANT VALLEY ROAD

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	509
			CONTRACT NO. 62B43	

**TS 21240**  
**ECON 22**

TS SHT NO. 15

MODEL: D:\m\ts\1170 SOUTH HOUBOLT ROAD	USER NAME = StevenB	DESIGNED - MAG	REVISED -
FILE NAME: S:\01\10300-6399\34606\m\ts\1170 SOUTH HOUBOLT ROAD\CAD_SHEET\1170E-00.dwg		DRAWN - DJW	REVISED -
STRAND ASSOCIATES®	PLOT SCALE = 20.0000 "/> <td>CHECKED - SIG</td> <td>REVISED -</td>	CHECKED - SIG	REVISED -
	PLOT DATE = 12/18/2023	DATE - 12/15/2023	REVISED -

SCALE: SHEET 7 OF 11 SHEETS STA. TO STA.

ILLINOIS FED. AID PROJECT

USER NAME = StevenB	DESIGNED - MAG	REVISED -
PLOT SCALE = 40.0000 "/in.	DRAWN - DJW	REVISED -
PLOT DATE = 12/18/2023	CHECKED - SJG	REVISED -
	DATE - 12/15/2023	REVISED -

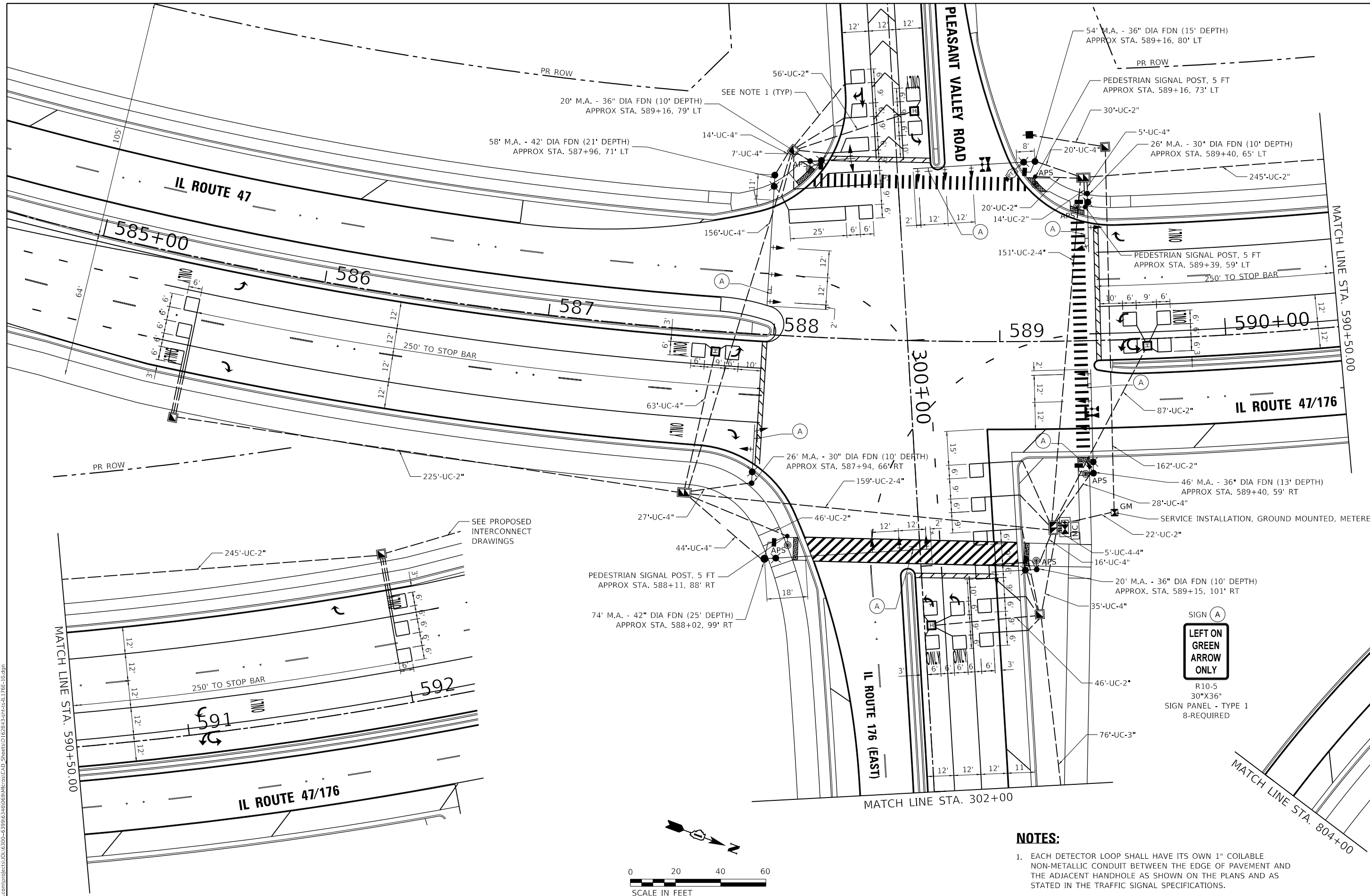
**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**



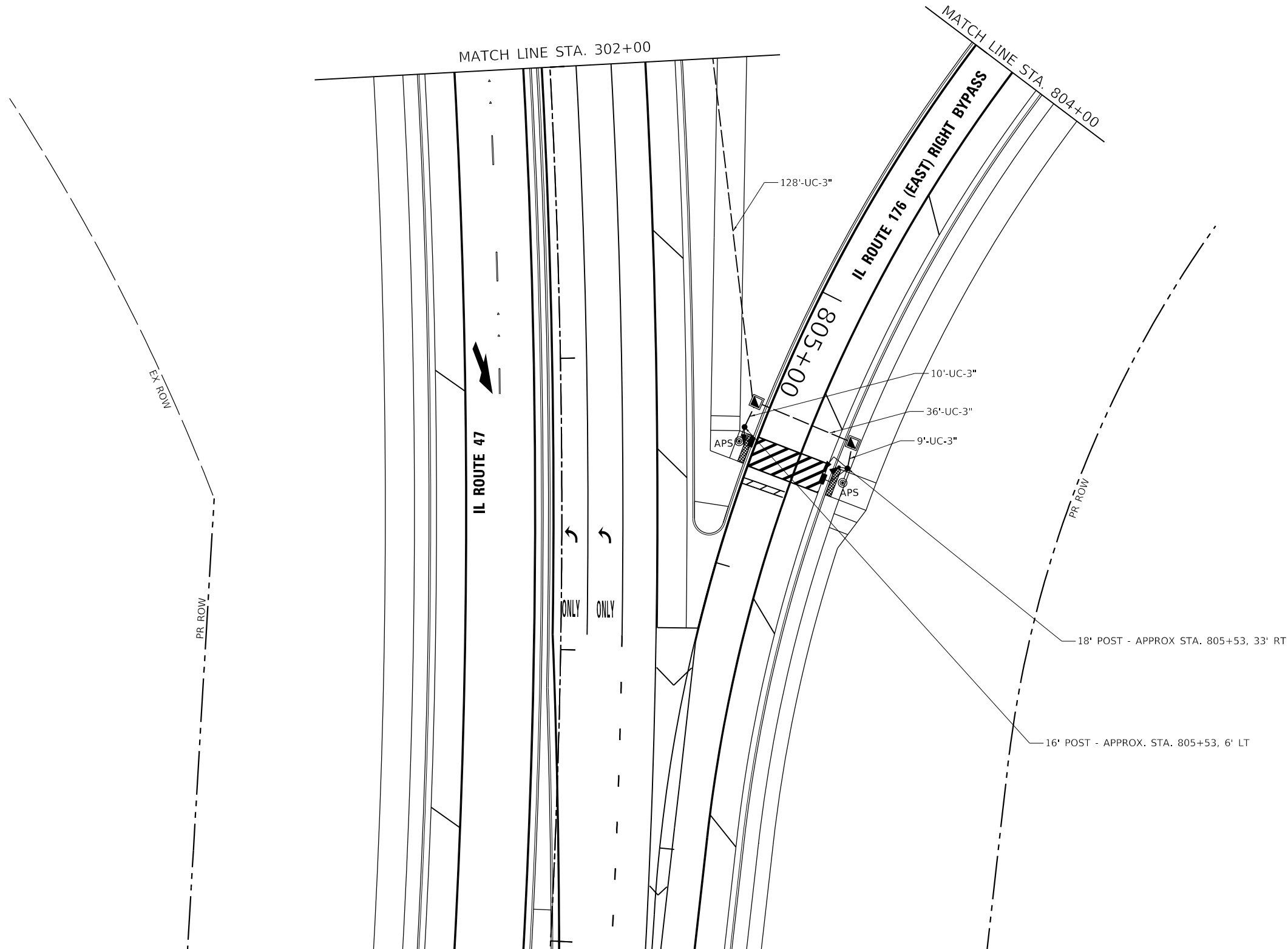
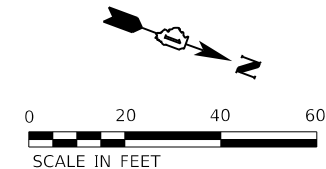
**TRAFFIC SIGNAL MODERNIZATION PLAN  
 IL ROUTE 47 AND IL ROUTE 176 (S. JUNCTION)/PLEASANT VALLEY ROAD**

SCALE: 1" = 20' SHEET 8 OF 11 SHEETS STA. TO STA.

F.A.P. RTE. 326	SECTION 105-N-2(15)	COUNTY MCHENRY	TOTAL SHEETS 803	SHEET NO. 510
ILLINOIS FED. AID PROJECT			CONTRACT NO. 62B43	



- NOTES:**
- EACH DETECTOR LOOP SHALL HAVE ITS OWN 1" COILABLE NON-METALLIC CONDUIT BETWEEN THE EDGE OF PAVEMENT AND THE ADJACENT HANDHOLE AS SHOWN ON THE PLANS AND AS STATED IN THE TRAFFIC SIGNAL SPECIFICATIONS.



TS SHT NO. 17

MODEL: Default  
 FILE NAME: \\strand.com\projects\1016700-6379\06340699\ME\cadd\_Sheets\1162813-211-cs-41176E-10.dgn



USER NAME = StevenB	DESIGNED - MAG	REVISED -
DRAWN - DJW	REVISIONS -	
PLOT SCALE = 40.0000 ' / in.	CHECKED - SJG	REVISED -
PLOT DATE = 12/18/2023	DATE - 12/15/2023	REVISED -

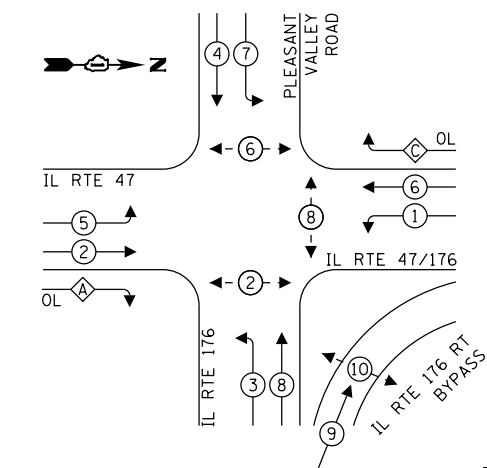
STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

TRAFFIC SIGNAL MODERNIZATION PLAN  
 IL ROUTE 47 AND IL ROUTE 176 (S. JUNCTION)/PLEASANT VALLEY ROAD  
 SCALE: 1" = 20' SHEET 9 OF 11 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	511
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				

TS 21240  
 ECON 22

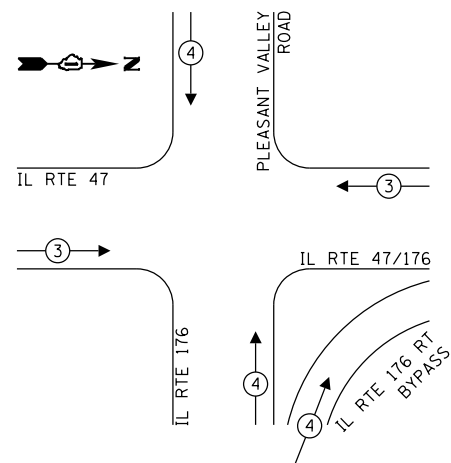
**PROPOSED CONTROLLER SEQUENCE**



**LEGEND:**

- ← ⊙ ← PROTECTED PHASE
- ← ⊙ ← PROTECTED/PERMITTED PHASE
- ← ⊙ ← PEDESTRIAN PHASE
- ← ⊙ ← OVERLAP

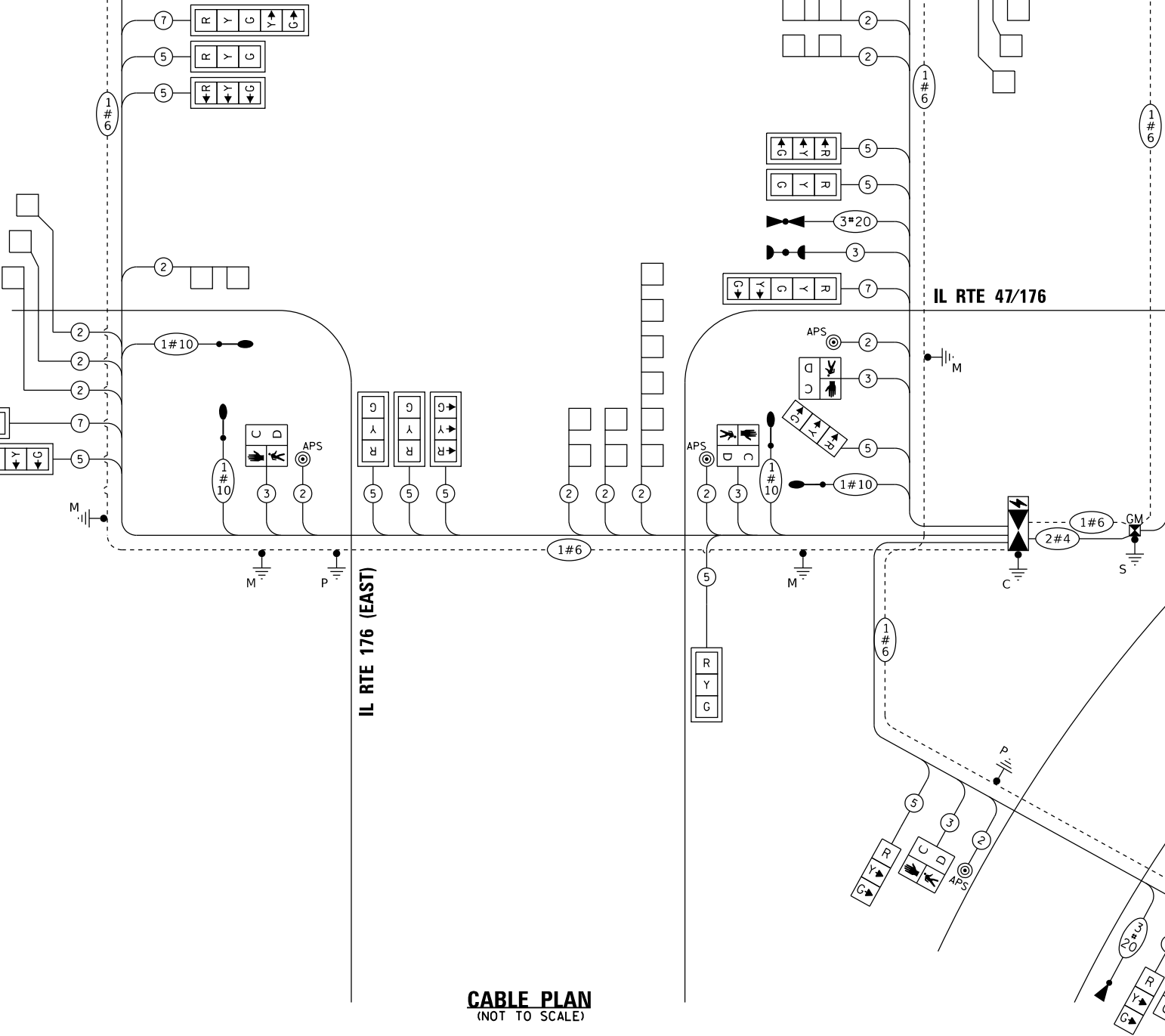
**PROPOSED EMERGENCY VEHICLE PREEMPTION SEQUENCE**



**RIGHT TURN OVERLAP PHASE DESIGNATION:**

OVERLAP LETTER	PERMISSIVE PHASE	PROTECTED PHASE
A	= 2 + 3	
C	= 6 + 7	

IL RTE 47



**CABLE PLAN**  
(NOT TO SCALE)

**TRAFFIC SIGNAL ELECTRIC SERVICE REQUIREMENTS**

TYPE	QUANTITY	UNIT WATTAGE	TOTAL WATTAGE
SIGNAL HEAD 3-SECTION	18	11	198
4-SECTION	-	14	-
5-SECTION	4	13	52
<b>PROGRAMMABLE SIGNALS</b>			
3-SECTION	-	22	-
4-SECTION	-	32	-
5-SECTION	-	28	-
PED. SIGNAL CONTROLLER	8	15	120
MASTER CONTROLLER	1	150	150
UPS	1	100	100
DETECTION RADAR	-	20	-
VIDEO	-	20	-
BLANK-OUT SIGN	-	25	-
NETWORK SWITCH II OR III	1	35	35
CELLULAR MODEM	1	15	15
<b>TOTAL UPS SIZING</b>			<b>695</b>
UPS CHARGING	1	225	225
BATTERY HEATER MAT	-	180	-
CABINET HEATER	-	200	-
FLASHER	-	15	-
LED STREET NAME SIGN	-	120	-
LUMINAIRE	8	240	1920
<b>TOTAL SERVICE WIRE SIZING</b>			<b>2840</b>

**ENERGY COSTS TO:**

**ILLINOIS DEPARTMENT OF TRANSPORTATION**  
DIVISION OF HIGHWAY/DISTRICT 1  
201 WEST CENTER COURT/SCHAUMBURG, ILLINOIS 60196-1096

ENERGY SUPPLY: CONTACT: GENEVA MORROW  
PHONE: (847) 608-2371  
COMPANY: COMMONWEALTH EDISON

TS SHT NO. 18

MODEL: D:\m\11...  
FILE NAME: S:\01\12300-12300\12300\CAD\_Schematic\12300\12300-11.dwg



USER NAME = StevenB	DESIGNED - MAG	REVISED -
PLOT SCALE = 20.0000 "/>		
PLOT DATE = 12/18/2023	DATE - 12/15/2023	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

CABLE PLAN AND PHASE DESIGNATION DIAGRAM  
IL ROUTE 47 AT IL ROUTE 176 (S. JUNCTION)/PLEASANT VALLEY ROAD

SCALE: N.T.S. SHEET 10 OF 11 SHEETS STA. TO STA.

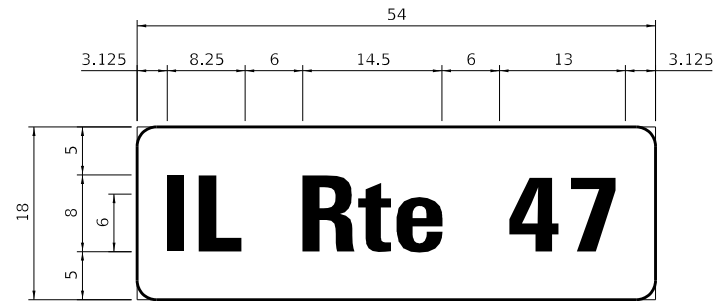
F.A.P. RTE. 326	SECTION 105-N-2(15)	COUNTY MCHENRY	TOTAL SHEETS 803	SHEET NO. 512
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				

TS 21240  
ECON 22



**SIGN PANEL – TYPE 1 OR TYPE 2**

ALL DIMENSIONS ARE IN INCHES UNLESS NOTED OTHERWISE



DESIGN SERIES	AREA (SQ FT)	SIGN PANEL TYPE	SHEETING TYPE	QTY. REQUIRED
D	6.75	1	ZZ	2



DESIGN SERIES	AREA (SQ FT)	SIGN PANEL TYPE	SHEETING TYPE	QTY. REQUIRED
D	12.5	2	ZZ	2

**SCHEDULE OF QUANTITIES**

SIGN PANEL - TYPE 1	SQ. FT.	14
SIGN PANEL - TYPE 2	SQ. FT.	25
UNDERGROUND CONDUIT, GALVANIZED STEEL, 2" DIA.	FOOT	513
UNDERGROUND CONDUIT, GALVANIZED STEEL, 3" DIA.	FOOT	247
UNDERGROUND CONDUIT, GALVANIZED STEEL, 4" DIA.	FOOT	1140
HANDHOLE	EACH	7
HEAVY-DUTY HANDHOLE	EACH	4
DOUBLE HANDHOLE	EACH	3
MASTER CONTROLLER	EACH	1
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 2C	FOOT	1933
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 3C	FOOT	1606
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	6844
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C	FOOT	1013
ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 14 1 PAIR	FOOT	2847
ELECTRIC CABLE IN CONDUIT, SERVICE, NO. 4 2C	FOOT	253
ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1C	FOOT	2256
TRAFFIC SIGNAL POST, GALVANIZED STEEL 16 FT.	EACH	1
TRAFFIC SIGNAL POST, GALVANIZED STEEL 18 FT.	EACH	1
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 20 FT.	EACH	2
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 26 FT.	EACH	2
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 46 FT.	EACH	1
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 54 FT.	EACH	1
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 58 FT.	EACH	1
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 74 FT.	EACH	1
CONCRETE FOUNDATION, TYPE A	EACH	12
CONCRETE FOUNDATION, TYPE C	FOOT	4
CONCRETE FOUNDATION, TYPE E 30-INCH DIAMETER	FOOT	40
CONCRETE FOUNDATION, TYPE E 36-INCH DIAMETER	FOOT	28
CONCRETE FOUNDATION, TYPE E 42-INCH DIAMETER	FOOT	46
SIGNAL HEAD, LED, 1-FACE, 3-SECTION, MAST-ARM MOUNTED	EACH	15
SIGNAL HEAD, LED, 1-FACE, 3-SECTION, BRACKET MOUNTED	EACH	3
SIGNAL HEAD, LED, 1-FACE, 5-SECTION, MAST-ARM MOUNTED	EACH	4
PEDESTRIAN SIGNAL HEAD, LED, 1-FACE, BRACKET MOUNTED WITH COUNT DOWN TIMER	EACH	8
TRAFFIC SIGNAL BACKPLATE, LOUVERED, FORMED PLASTIC	EACH	19
INDUCTIVE LOOP DETECTOR	EACH	14
DETECTOR LOOP, TYPE 1	FOOT	1110
*LIGHT DETECTOR	EACH	2
*LIGHT DETECTOR AMPLIFIER	EACH	1
TEMPORARY TRAFFIC SIGNAL INSTALLATION	EACH	1
REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT	EACH	1
REMOVE EXISTING HANDHOLE	EACH	10
REMOVE EXISTING DOUBLE HANDHOLE	EACH	1
REMOVE EXISTING CONCRETE FOUNDATION	EACH	7
*EMERGENCY VEHICLE PRIORITY SYSTEM LINE SENSOR CABLE, NO. 20 3/C	FOOT	555
CELLULAR MODEM	EACH	1
OUTDOOR RATED NETWORK CABLE	FOOT	237
FULL-ACTUATED CONTROLLER AND TYPE SUPER R CABINET (SPECIAL)	EACH	1
SERVICE INSTALLATION, GROUND MOUNTED, METERED	EACH	1
REMOTE CONTROLLED VIDEO SYSTEM	EACH	1
LAYER II (DATALINK) SWITCH	EACH	1
PEDESTRIAN SIGNAL POST, 5 FT	EACH	3
UNINTERRUPTABLE POWER SUPPLY, SPECIAL	EACH	1
ACCESSIBLE PEDESTRIAN SIGNALS	EACH	8
CONCRETE FOUNDATION, TYPE A 12-INCH DIAMETER	FOOT	12
TEMPORARY TRAFFIC SIGNAL TIMING	EACH	1

\* 100% COST TO THE VILLAGE OF LAKEWOOD

TS SHT NO. 19

MODEL: D:\m\1170 SOUTH HOUBOLT ROAD\1170\_SHT19.dgn  
 FILE NAME: S:\01\1170-03\1170-03\1170-03\CAD\_Sheets\1170-03\1170-12.dgn



USER NAME = StevenB	DESIGNED - MAG	REVISED -
	DRAWN - DJW	REVISED -
PLOT SCALE = 40.0000 ' / in.	CHECKED - SJG	REVISED -
PLOT DATE = 12/18/2023	DATE - 12/15/2023	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

MAST ARM MOUNTED STREET NAME SIGNS AND SCHEDULE OF QUANTITIES  
IL ROUTE 47 AND IL ROUTE 176 (S. JUNCTION)/PLEASANT VALLEY ROAD

SCALE: 1"=20' SHEET 11 OF 11 SHEETS STA. 583+00.00 TO STA. 596+00.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	513
				CONTRACT NO. 62B43
		ILLINOIS	FED. AID PROJECT	

TS 21240  
ECON 22

**REMOVAL AND RELOCATION NOTES:**

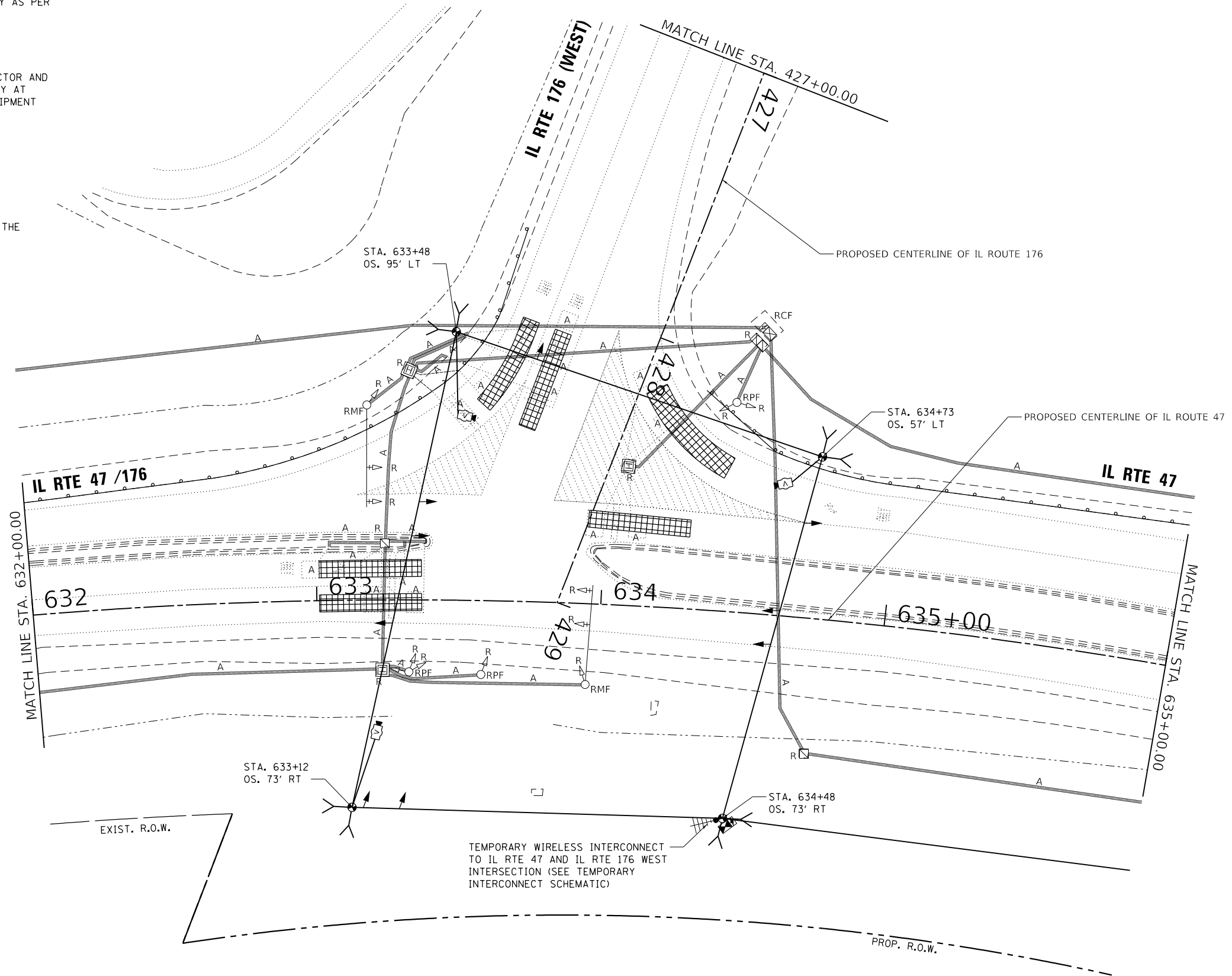
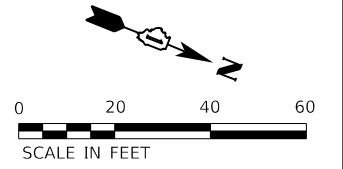
THE FOLLOWING EXISTING TRAFFIC SIGNAL EQUIPMENT SHALL BE REMOVED BY THE CONTRACTOR, SHALL REMAIN THE PROPERTY OF THE STATE AND SHALL BE DELIVERED BY CONTRACTOR TO THE STATE'S TRAFFIC SIGNAL MAINTENANCE CONTRACTOR'S MAIN FACILITY AS PER THE TRAFFIC SIGNAL SPECIFICATIONS:

- 1 EACH CONTROLLER AND CABINET (COMPLETE)
- 1 EACH UPS

THE FOLLOWING ITEMS SHALL BE REMOVED BY THE CONTRACTOR AND SHALL BE DISPOSED OF BY THEM OUTSIDE THE RIGHT-OF-WAY AT THEIR EXPENSE. THE SALVAGE VALUE OF THE REMOVED EQUIPMENT SHALL BE REFLECTED IN THE CONTRACT BID PRICE.

- 2 EACH STEEL MAST ARM ASSEMBLY AND POST
- 3 EACH TRAFFIC SIGNAL POST
- 8 EACH 3-SECTION SIGNAL HEAD
- 4 EACH 5-SECTION SIGNAL HEAD
- 1 EACH SERVICE INSTALLATION
- 4 EACH TRAFFIC SIGNAL BACKPLATE

ALL ITEMS LISTED IN THE ABOVE NOTES ARE INCLUDED IN THE REMOVE EXISTING TRAFFIC SIGNAL BID ITEM.



TS SHT NO. 19

MODEL: D:\m\1170\1170.dwg  
FILE NAME: S:\01\6300-6399\6348\6348\6348.dwg  
PROJECT: 1170\1170.dwg



USER NAME = StevenB	DESIGNED - MAG	REVISED -
DRAWN - DJW	REVISED -	
PLOT SCALE = 40.0000' / in.	CHECKED - SJG	REVISED -
PLOT DATE = 12/18/2023	DATE - 12/15/2023	REVISED -

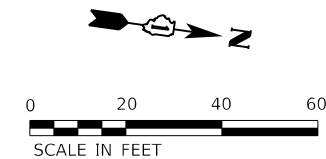
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

TEMPORARY TRAFFIC SIGNAL INSTALLATION PLAN (PRE-STAGE) AND  
REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT PLAN (SHEET 1 OF 2)  
IL ROUTE 47 AND IL ROUTE 176 (N. JUNCTION)

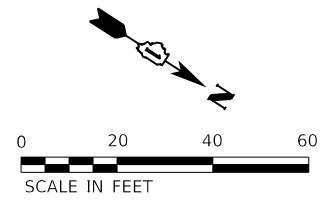
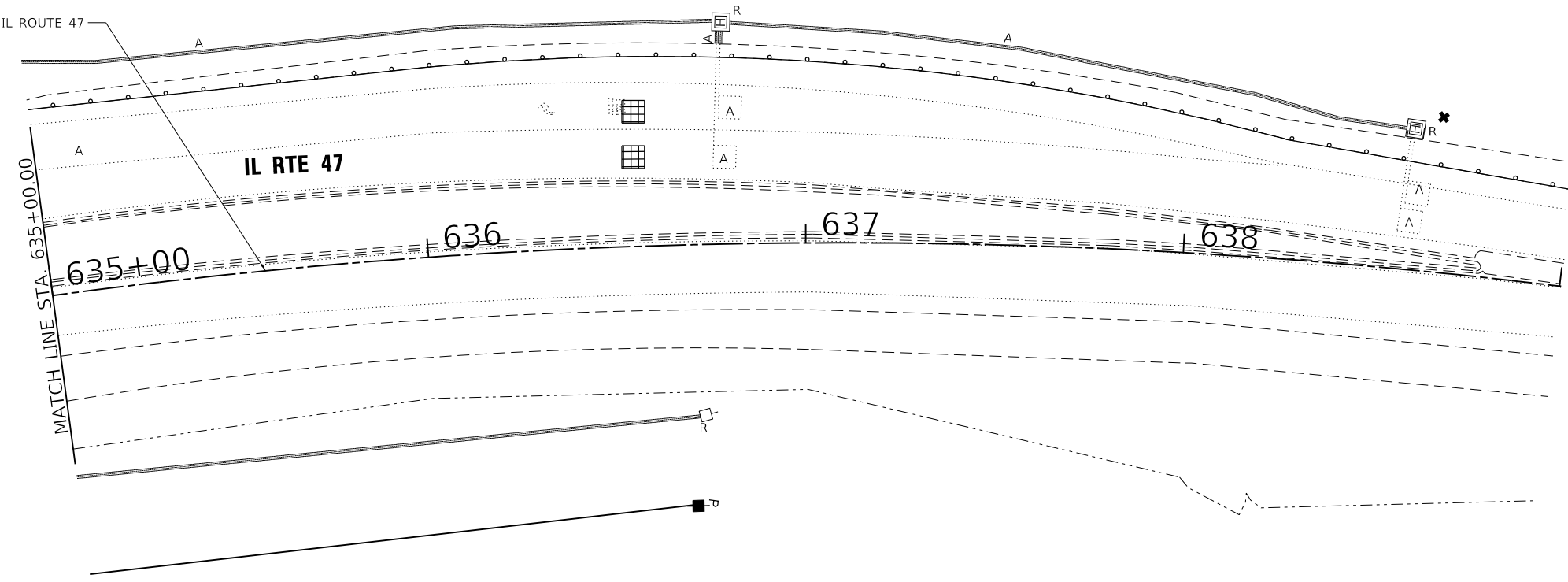
SCALE: 1"=20' SHEET 1 OF 10 SHEETS STA. 583+00.00 TO STA. 596+00.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	514
			CONTRACT NO. 62B43	
ILLINOIS FED. AID PROJECT				

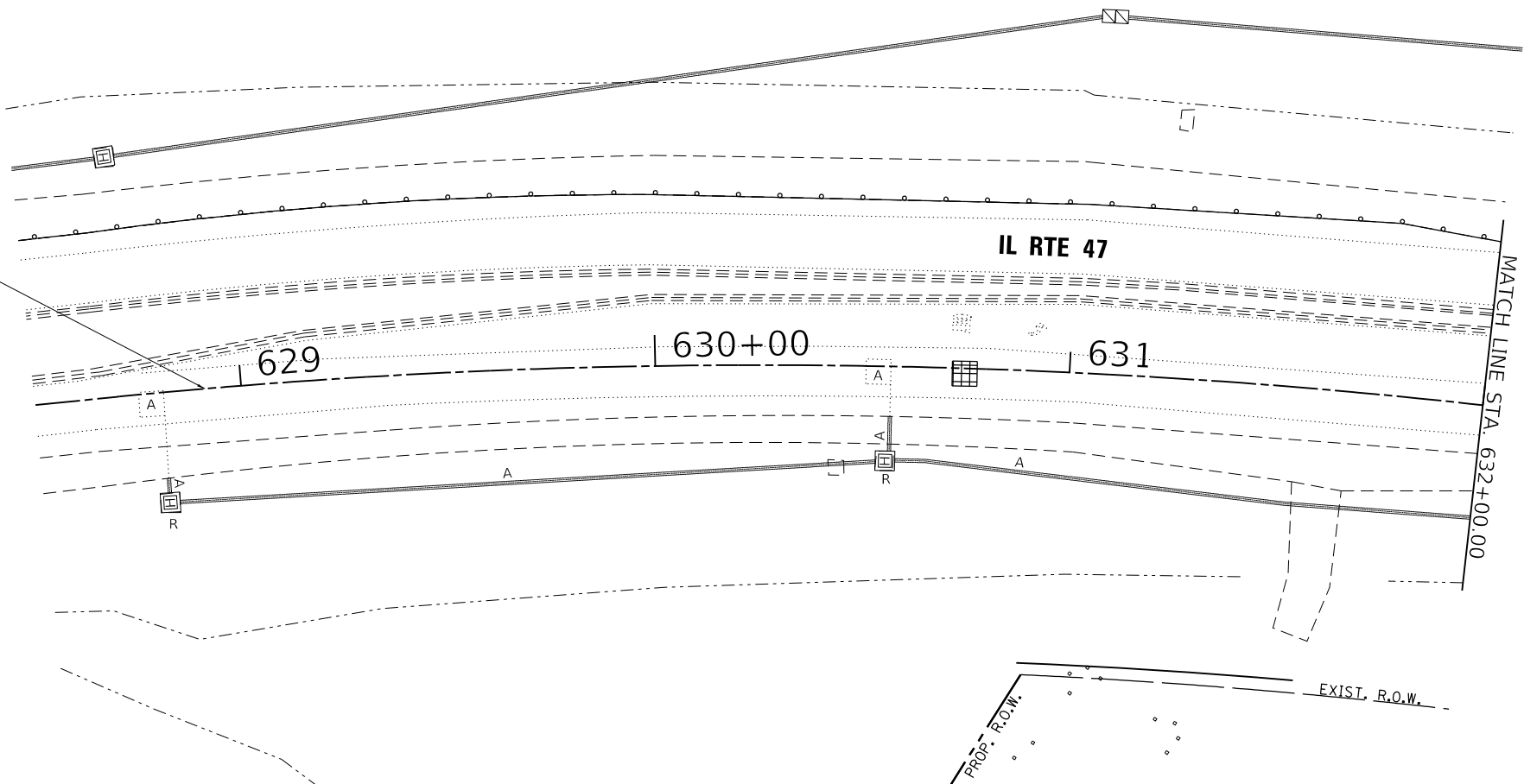
TS 21241  
ECON 22



PROPOSED CENTERLINE OF IL ROUTE 47



PROPOSED CENTERLINE OF IL ROUTE 47



MATCH LINE STA. 632+00.00

TS SHT NO. 21

MODEL: D:\m\1170\1170.dwg  
 FILE NAME: S:\01\6300-6399\6346\06\06\1170\1170.dwg



USER NAME = StevenB	DESIGNED - MAG	REVISED -
DRAWN - DJW	REVISIONS -	
PLOT SCALE = 40.0000 ' / in.	CHECKED - SJG	REVISED -
PLOT DATE = 12/18/2023	DATE - 12/15/2023	REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

TEMPORARY TRAFFIC SIGNAL INSTALLATION PLAN (PRE-STAGE) AND  
 REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT PLAN (SHEET 2 OF 2)  
 IL ROUTE 47 AND IL ROUTE 176 (N. JUNCTION)

SCALE: 1"=20' SHEET 2 OF 10 SHEETS STA. N/A TO STA. N/A

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	515
			CONTRACT NO. 62B43	
ILLINOIS FED. AID PROJECT				

TS 21241  
 ECON 22

TS SHT NO. 22

MODEL: Default  
 FILE NAME: \\p01001\projects\1016700-63799\6340\6399\MK\CA\CD\_Sheets\11628\13-21-23-24-25-26-27-28-29-30-31-32-33-34-35-36-37-38-39-40-41.dgn



USER NAME = StevenB	DESIGNED - MAG	REVISED -
DRAWN - DJW	REVISED -	
PLOT SCALE = 60.0000 ' / in.	CHECKED - SJG	REVISED -
PLOT DATE = 12/18/2023	DATE - 12/15/2023	REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

TEMPORARY TRAFFIC SIGNAL INSTALLATION (STAGE 1A AND STAGE 1B)  
 IL ROUTE 47 AND IL ROUTE 176 (N. JUNCTION)

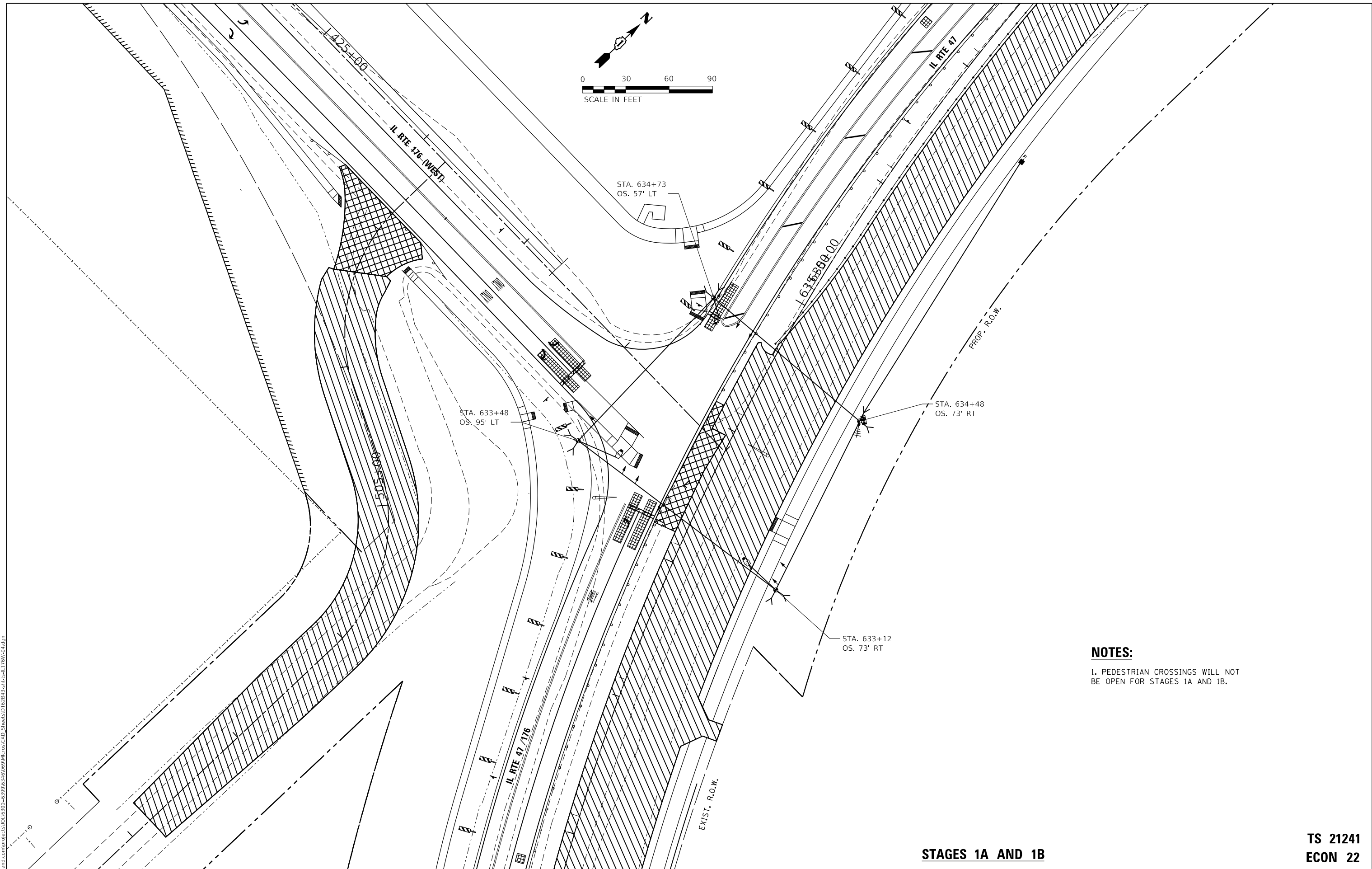
SCALE: 1" = 30' SHEET 3 OF 10 SHEETS STA. 583+00.00 TO STA. 596+00.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	516
			CONTRACT NO. 62B43	
		ILLINOIS FED. AID PROJECT		

TS 21241  
 ECON 22

**NOTES:**

1. PEDESTRIAN CROSSINGS WILL NOT BE OPEN FOR STAGES 1A AND 1B.



TS SHT NO. 23

MODEL: D:\m\1170\1170.dwg  
 FILE NAME: S:\01\6300-6300\6300\6300\6300\CAD\_Sheet\1170B43.dwg  
 PROJECT: ILLINOIS 60431



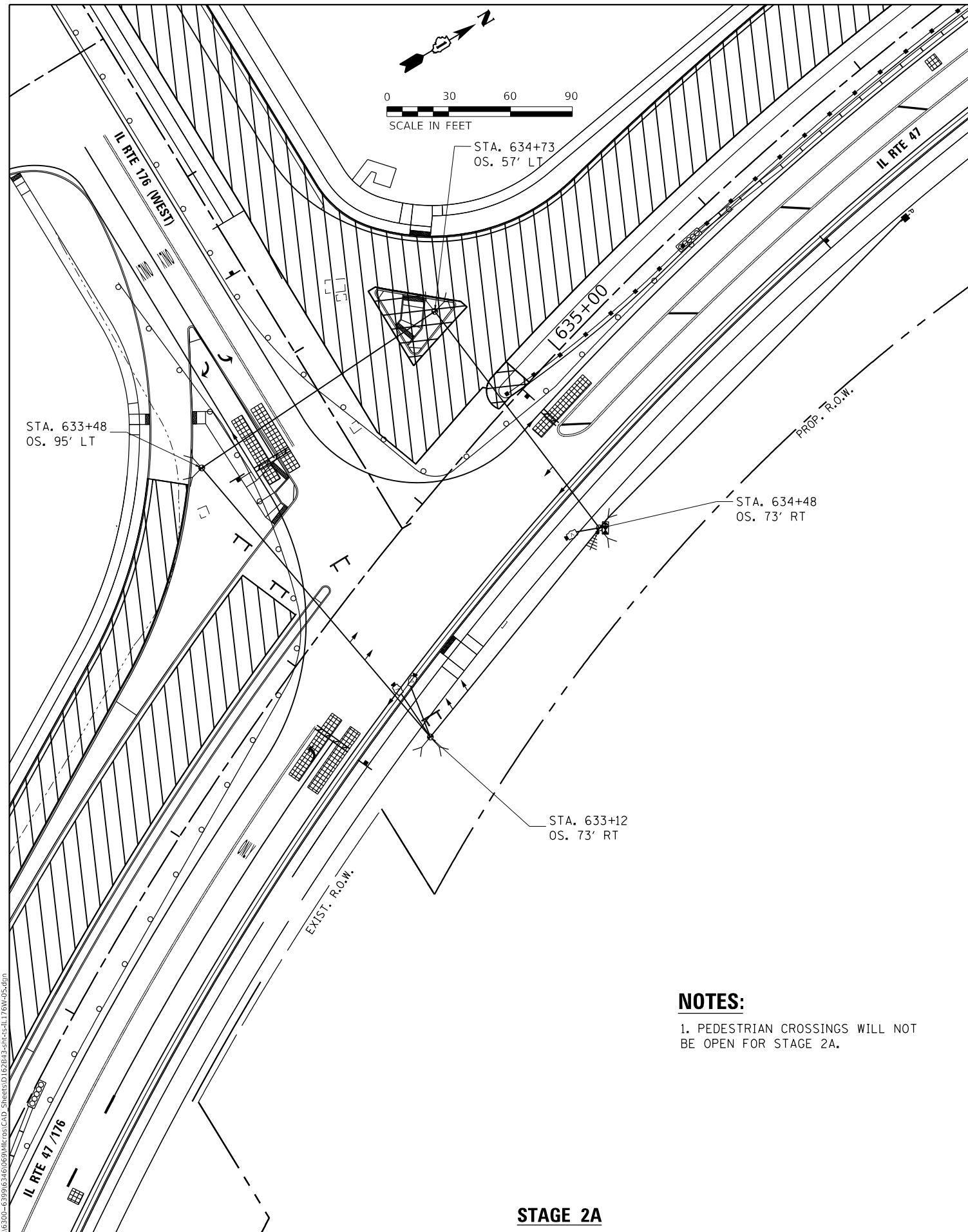
USER NAME = StevenB	DESIGNED - MAG	REVISED -
DRAWN - DJW	REVISED -	
PLOT SCALE = 60.0000 ' / in.	CHECKED - SJG	REVISED -
PLOT DATE = 12/18/2023	DATE - 12/15/2023	REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

TEMPORARY TRAFFIC SIGNAL INSTALLATION (STAGE 2A AND STAGE 2B)  
 IL ROUTE 47 AND IL ROUTE 176 (N. JUNCTION)

SCALE: 1" = 30' SHEET 4 OF 10 SHEETS STA. 583+00.00 TO STA. 596+00.00

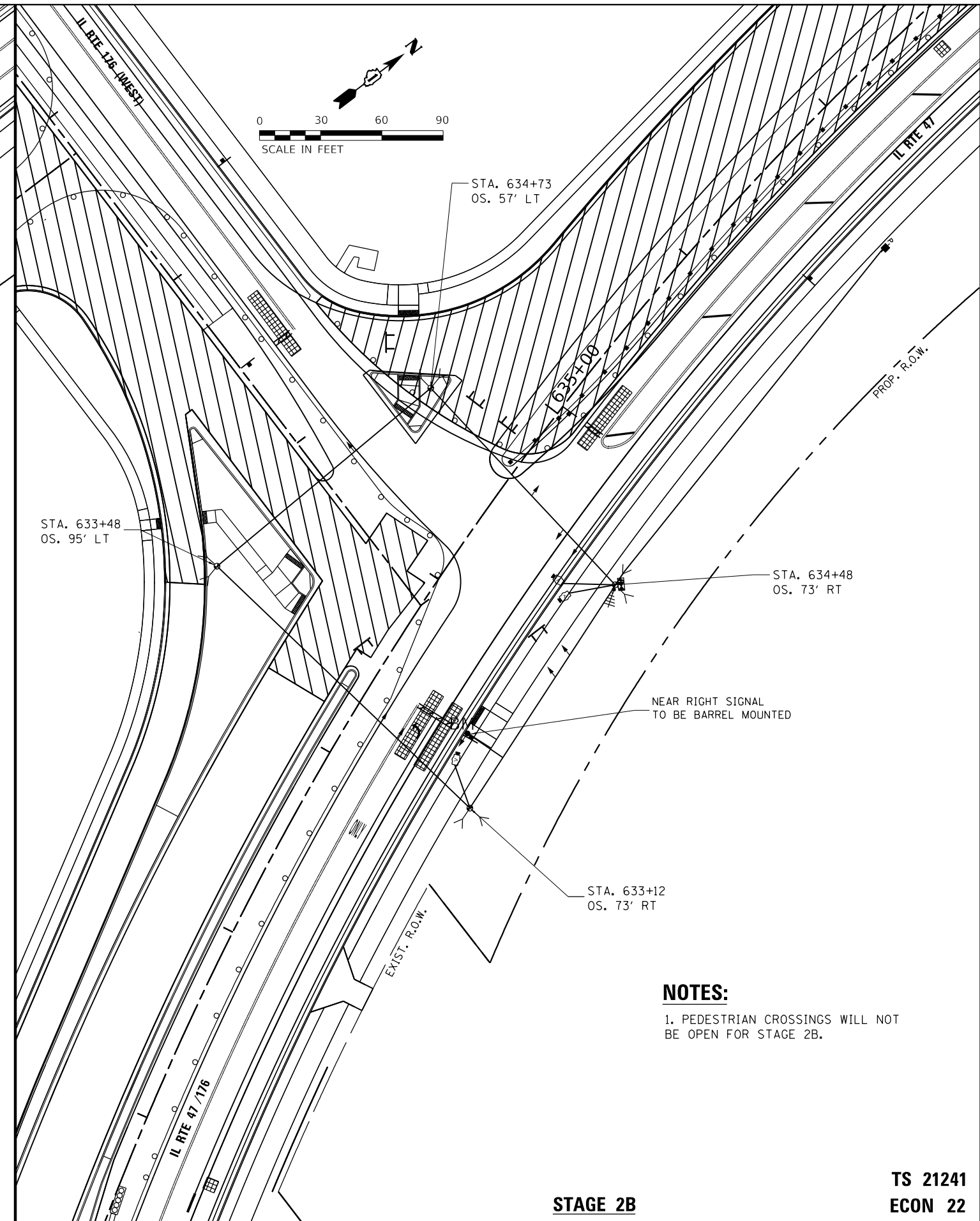
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	517
			CONTRACT NO. 62B43	
ILLINOIS FED. AID PROJECT				



STAGE 2A

**NOTES:**

1. PEDESTRIAN CROSSINGS WILL NOT BE OPEN FOR STAGE 2A.



STAGE 2B

**NOTES:**

1. PEDESTRIAN CROSSINGS WILL NOT BE OPEN FOR STAGE 2B.

TS 21241  
 ECON 22

TS SHT NO. 24

MODEL: D:\m\ts\1170\1170.dwg  
 FILE NAME: S:\01\1170\1170.dwg  
 PROJECT: 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200



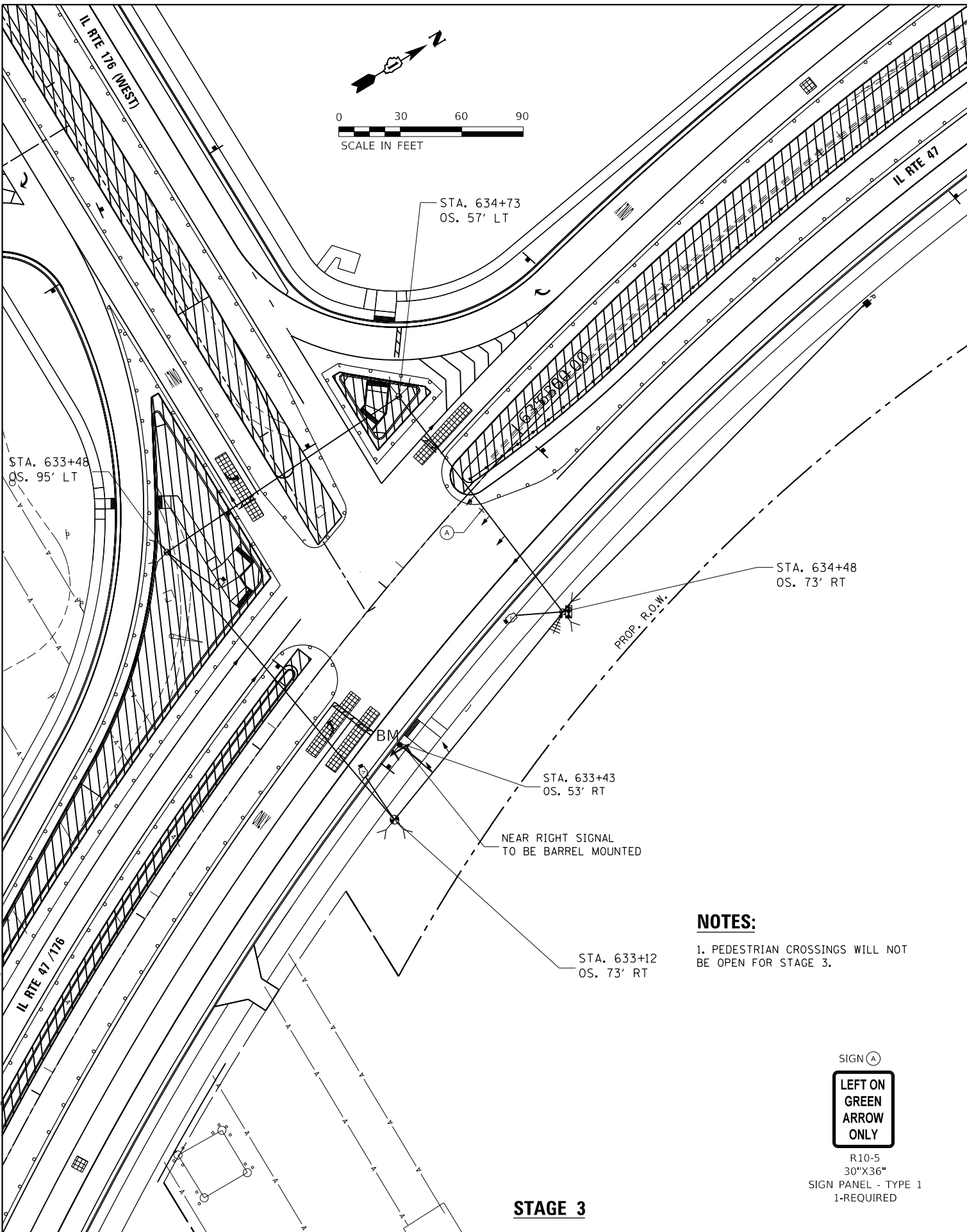
USER NAME = StevenB	DESIGNED - MAG	REVISED -
PLOT SCALE = 60.0000 "/>		

DATE - 12/15/2023	REVISED -
-------------------	-----------

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

TEMPORARY TRAFFIC SIGNAL INSTALLATION (STAGE 3 AND FINAL STAGE)  
 IL ROUTE 47 AND IL ROUTE 176 (N. JUNCTION)

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	518
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				

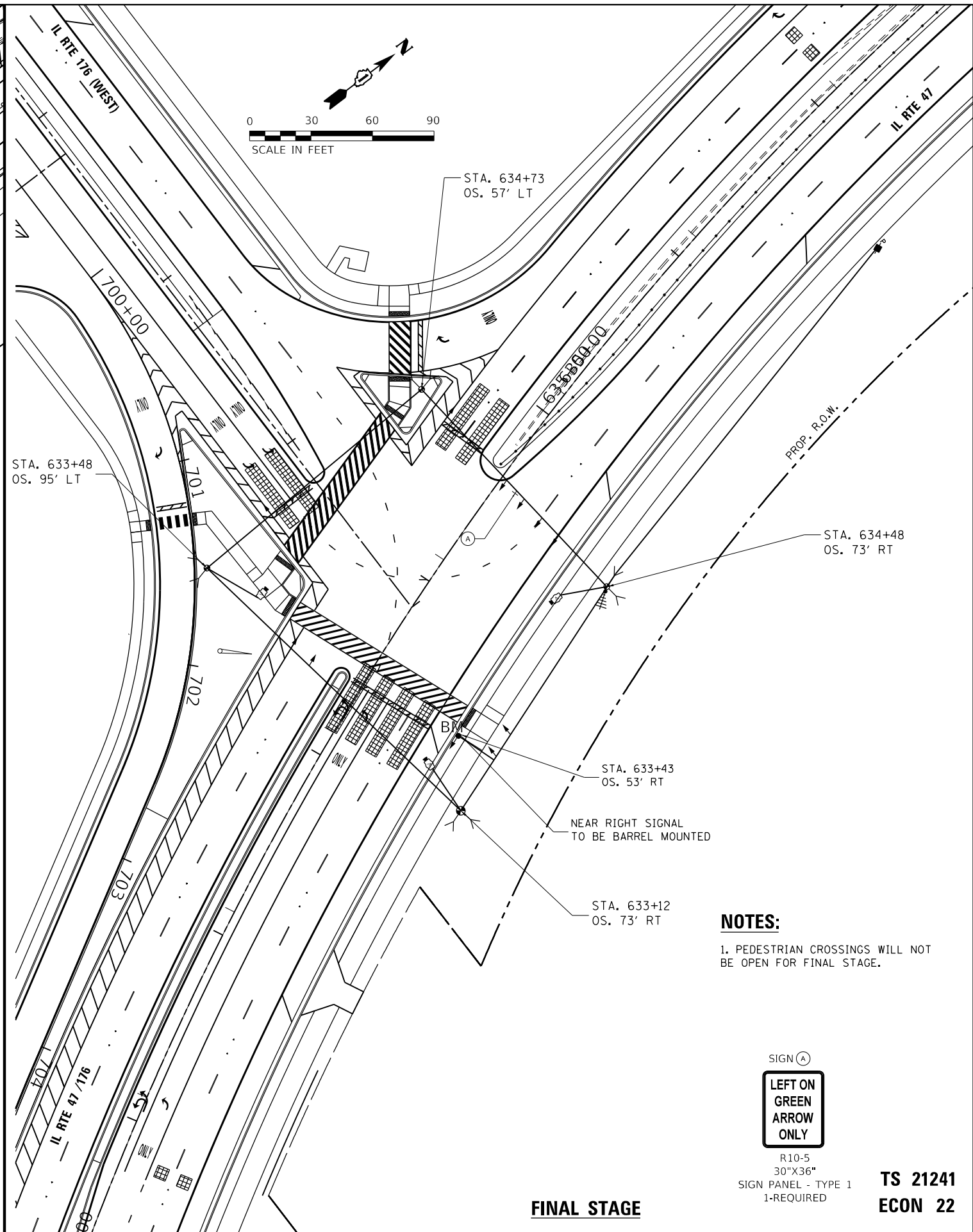


STAGE 3

**NOTES:**

- 1. PEDESTRIAN CROSSINGS WILL NOT BE OPEN FOR STAGE 3.

SIGN (A)  
 LEFT ON GREEN ARROW ONLY  
 R10-5  
 30"X36"  
 SIGN PANEL - TYPE 1  
 1-REQUIRED



FINAL STAGE

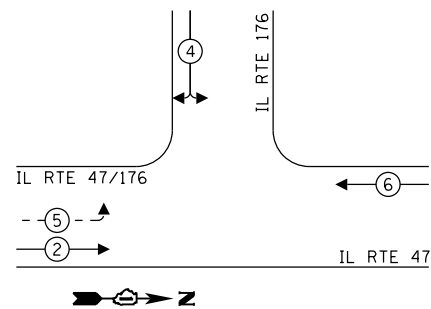
**NOTES:**

- 1. PEDESTRIAN CROSSINGS WILL NOT BE OPEN FOR FINAL STAGE.

SIGN (A)  
 LEFT ON GREEN ARROW ONLY  
 R10-5  
 30"X36"  
 SIGN PANEL - TYPE 1  
 1-REQUIRED

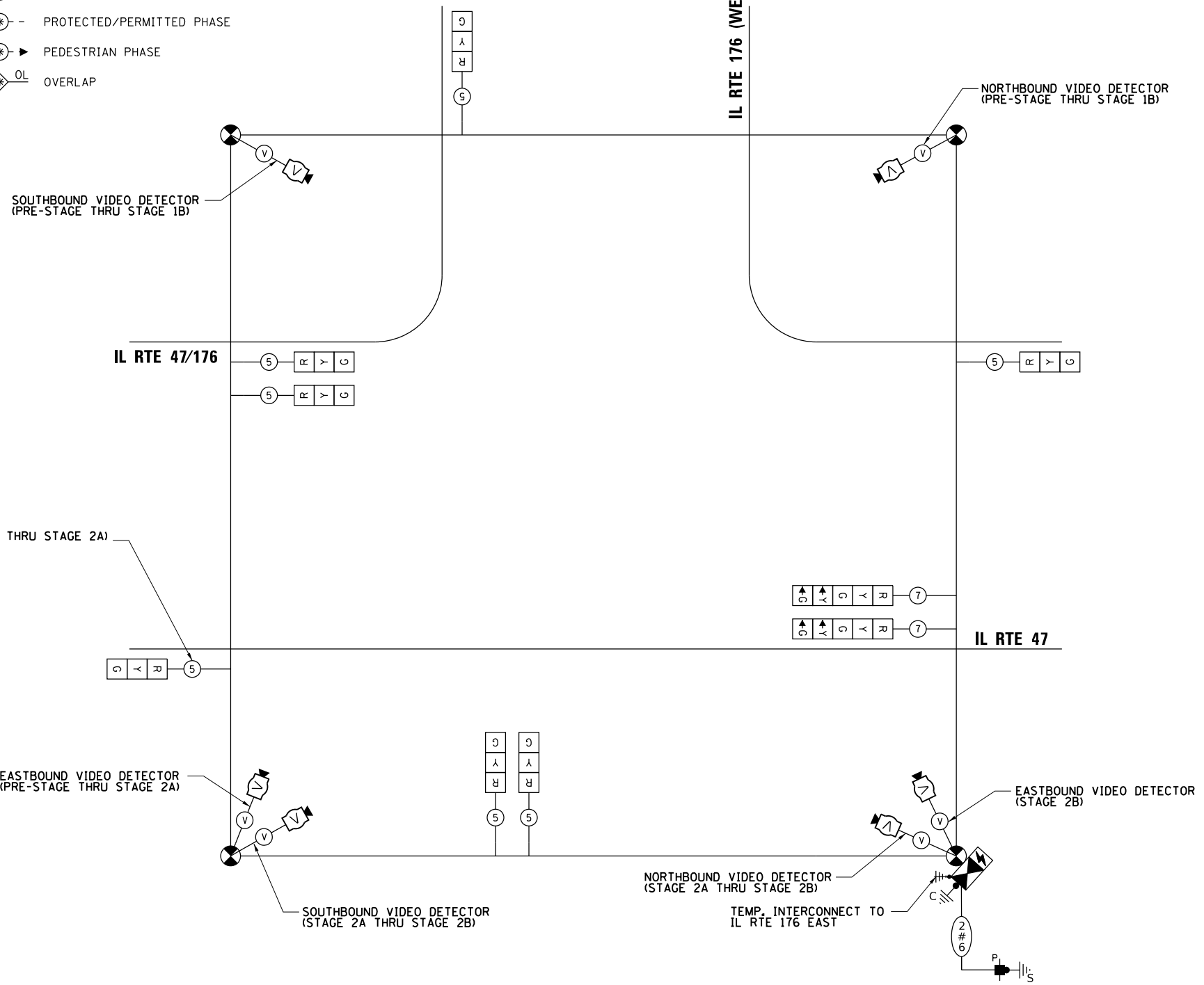
TS 21241  
 ECON 22

**TEMPORARY CONTROLLER SEQUENCE**



**LEGEND:**

- ← ⊙ → PROTECTED PHASE
- ← ⊙ - PROTECTED/PERMITTED PHASE
- ← ⊙ → PEDESTRIAN PHASE
- ← ⊙ OL → OVERLAP



SPAN WIRE MOUNTED (PRE-STAGE THRU STAGE 2A)  
BARREL MOUNTED (STAGE 2B)

TRAFFIC SIGNAL ELECTRIC SERVICE REQUIREMENTS			
TYPE	QUANTITY	UNIT WATTAGE	TOTAL WATTAGE
SIGNAL HEAD 3-SECTION	7	11	77
4-SECTION	-	14	-
5-SECTION	2	13	26
PROGRAMMABLE SIGNALS			
3-SECTION	-	22	-
4-SECTION	-	32	-
5-SECTION	-	28	-
PED. SIGNAL			
CONTROLLER	1	150	150
MASTER CONTROLLER	1	100	100
UPS	1	25	25
DETECTION RADAR	-	20	-
VIDEO	3	20	120
BLANK-OUT SIGN	-	25	-
NETWORK SWITCH II OR III	-	35	-
CELLULAR MODEM	-	15	-
<b>TOTAL UPS SIZING</b>			<b>498</b>
UPS CHARGING	1	225	225
BATTERY HEATER MAT	-	180	-
CABINET HEATER	-	200	-
FLASHER	-	15	-
LED STREET NAME SIGN	-	120	-
LUMINAIRE	-	240	-
<b>TOTAL SERVICE WIRE SIZING</b>			<b>723</b>

ENERGY COSTS TO:  
**ILLINOIS DEPARTMENT OF TRANSPORTATION**  
 DIVISION OF HIGHWAY/DISTRICT 1  
 201 WEST CENTER COURT/SCHAUMBURG, ILLINOIS 60196-1096  
 ENERGY SUPPLY: CONTACT: GENEVA MORROW  
 PHONE: (847) 608-2371  
 COMPANY: COMMONWEALTH EDISON

**TEMPORARY CABLE PLAN**  
(NOT TO SCALE)

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

TEMPORARY CABLE PLAN AND PHASE DESIGNATION  
DIAGRAM (PRE-STAGE TO STAGE 2B)  
IL ROUTE 47 AND IL ROUTE 176 (N. JUNCTION)

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	519
CONTRACT NO. 62B43				

TS SHT NO. 25



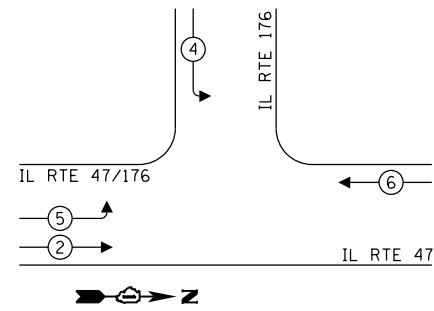
1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
(815) 744-4200

USER NAME = StevenB	DESIGNED - MAG	REVISED -
PLOT SCALE = 20.0000 ' / in.	CHECKED - SIG	REVISED -
PLOT DATE = 12/18/2023	DATE - 12/15/2023	REVISED -

SCALE: SHEET 6 OF 10 SHEETS STA. TO STA.

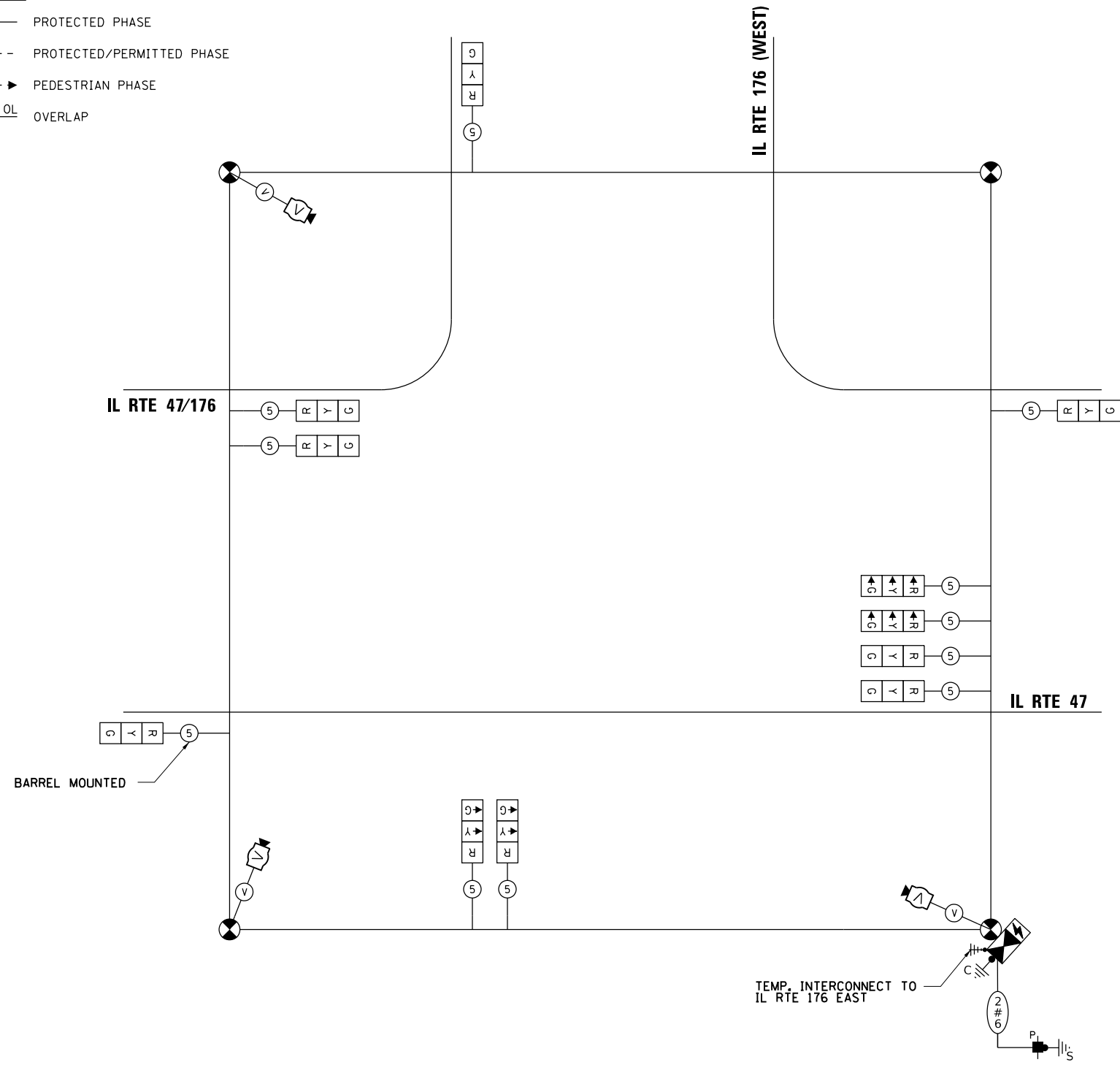
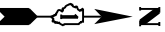
TS 21241  
ECON 22

# TEMPORARY CONTROLLER SEQUENCE



## LEGEND:

- ← (⊛) ← PROTECTED PHASE
- ← (⊛) ← PROTECTED/PERMITTED PHASE
- ← (⊛) → PEDESTRIAN PHASE
- ← (⊛) OL OVERLAP



TRAFFIC SIGNAL ELECTRIC SERVICE REQUIREMENTS			
TYPE	QUANTITY	UNIT WATTAGE	TOTAL WATTAGE
SIGNAL HEAD 3-SECTION	11	11	121
4-SECTION	-	14	-
5-SECTION	-	13	-
PROGRAMMABLE SIGNALS			
3-SECTION	-	22	-
4-SECTION	-	32	-
5-SECTION	-	28	-
PED. SIGNAL			
CONTROLLER	1	150	150
MASTER CONTROLLER	1	100	100
UPS	1	25	25
DETECTION RADAR	-	20	-
VIDEO	3	20	120
BLANK-OUT SIGN	-	25	-
NETWORK SWITCH II OR III	-	35	-
CELLULAR MODEM	-	15	-
<b>TOTAL UPS SIZING</b>			<b>516</b>
UPS CHARGING	1	225	225
BATTERY HEATER MAT	-	180	-
CABINET HEATER	-	200	-
FLASHER	-	15	-
LED STREET NAME SIGN	-	120	-
LUMINAIRE	-	240	-
<b>TOTAL SERVICE WIRE SIZING</b>			<b>741</b>

ENERGY COSTS TO:  
**ILLINOIS DEPARTMENT OF TRANSPORTATION**  
 DIVISION OF HIGHWAY/DISTRICT 1  
 201 WEST CENTER COURT/SCHAUMBURG, ILLINOIS 60196-1096

ENERGY SUPPLY: CONTACT: GENEVA MORROW  
 PHONE: (847) 608-2371  
 COMPANY: COMMONWEALTH EDISON

## TEMPORARY CABLE PLAN (NOT TO SCALE)

TS SHT NO. 26



USER NAME = StevenB	DESIGNED - MAG	REVISED -
PLOT SCALE = 20.0000 ' / in.	CHECKED - SJG	REVISED -
PLOT DATE = 12/18/2023	DATE - 12/15/2023	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

TEMPORARY CABLE PLAN AND PHASE DESIGNATION  
DIAGRAM (STAGE 3 TO FINAL STAGE)  
IL ROUTE 47 AND IL ROUTE 176 (N. JUNCTION)

SCALE: SHEET 7 OF 10 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	520
				CONTRACT NO. 62B43

TS 21241  
ECON 22

ILLINOIS FED. AID PROJECT



TS SHT NO. 27

MODEL: D:\...  
 FILE: ...  
 STRAND ASSOCIATES

1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = StevenB	DESIGNED - MAG	REVISED -
PLOT SCALE = 40.0000' / in.	DRAWN - DJW	REVISED -
PLOT DATE = 12/18/2023	CHECKED - SIG	REVISED -
	DATE - 12/15/2023	REVISED -

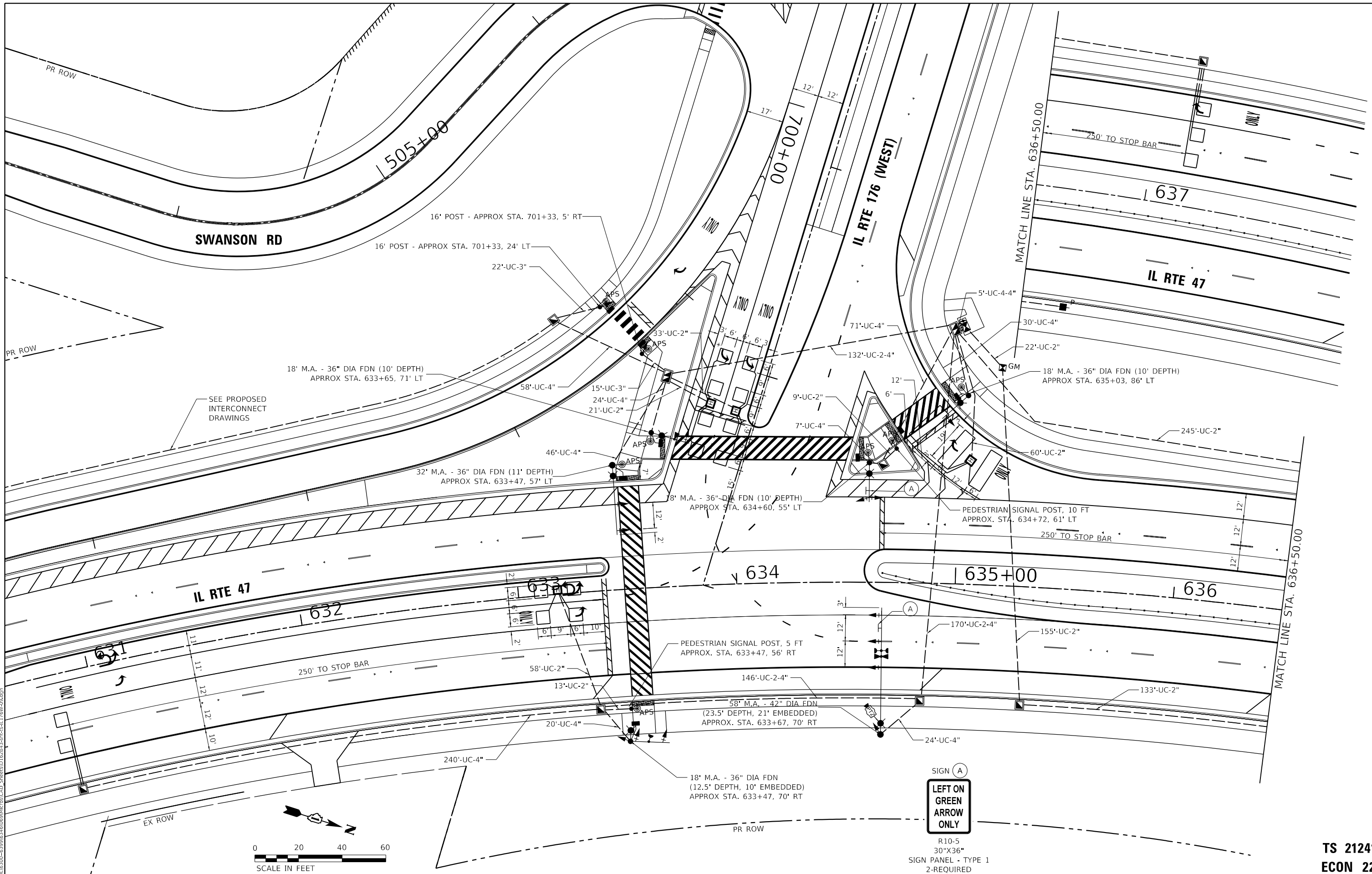
STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

TRAFFIC SIGNAL MODERNIZATION PLAN  
 IL ROUTE 47 AT IL ROUTE 176 (N. JUNCTION)

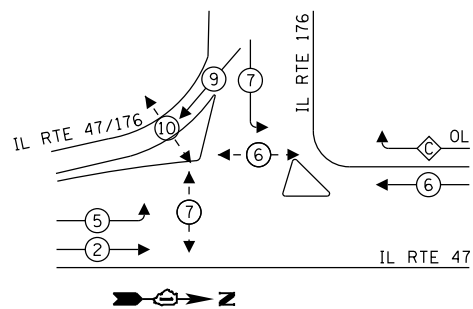
SCALE: 1" = 20' SHEET 8 OF 10 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	521
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				

TS 21241  
 ECON 22



**PROPOSED CONTROLLER SEQUENCE**



**LEGEND:**

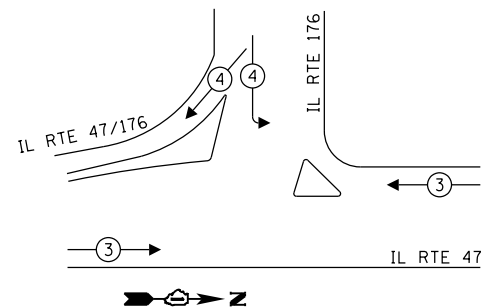
- ⊙ \* ← PROTECTED PHASE
- ⊙ \* ← PERMITTED PHASE
- ⊙ \* ← PEDESTRIAN PHASE
- ⊙ \* ← OVERLAP

PROP. INTERCONNECT TO IL RTE 176 WEST  
PROP. TRACER CABLE

**RIGHT TURN OVERLAP PHASE DESIGNATION:**

OVERLAP LETTER	PERMISSIVE PHASE	PROTECTED PHASE
C	6	7

**PROPOSED EMERGENCY VEHICLE PREEMPTION SEQUENCE**



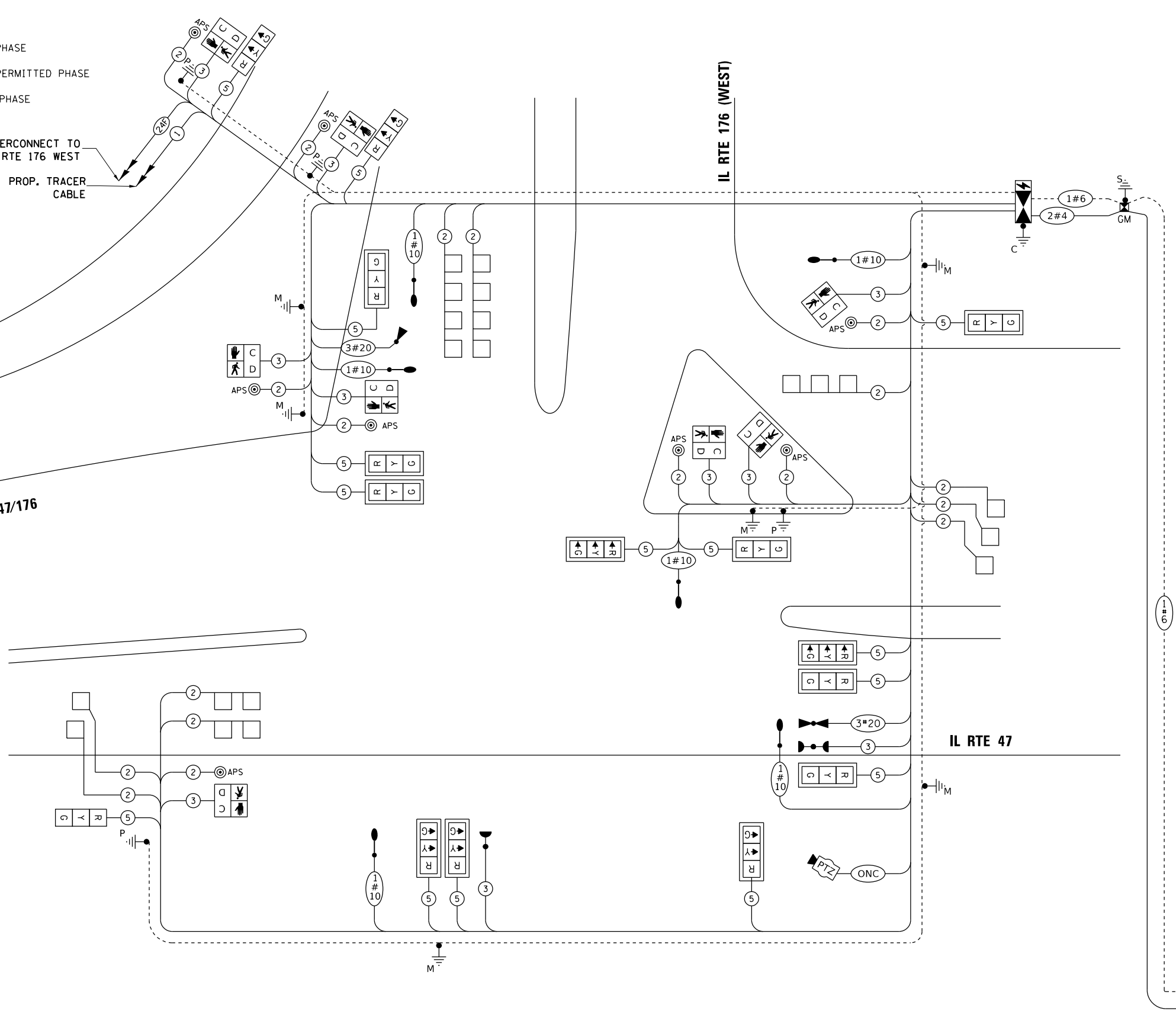
IL RTE 47/176

IL RTE 176 (WEST)

IL RTE 47

TRAFFIC SIGNAL ELECTRIC SERVICE REQUIREMENTS			
TYPE	QUANTITY	UNIT WATTAGE	TOTAL WATTAGE
SIGNAL HEAD 3-SECTION	15	11	165
4-SECTION	-	14	-
5-SECTION	-	13	-
PROGRAMMABLE SIGNALS			
3-SECTION	-	22	-
4-SECTION	-	32	-
5-SECTION	-	28	-
PED. SIGNAL CONTROLLER	8	15	120
MASTER CONTROLLER	1	150	150
UPS	-	100	-
DETECTION RADAR	1	25	25
VIDEO	-	20	-
BLANK-OUT SIGN	-	25	-
NETWORK SWITCH II OR III	1	35	35
CELLULAR MODEM	-	15	-
<b>TOTAL UPS SIZING</b>			<b>495</b>
UPS CHARGING	1	225	225
BATTERY HEATER MAT	-	180	-
CABINET HEATER	-	200	-
FLASHER	-	15	-
LED STREET NAME SIGN	-	120	-
LUMINAIRE	6	240	1680
<b>TOTAL SERVICE WIRE SIZING</b>			<b>2400</b>

ENERGY COSTS TO:  
**ILLINOIS DEPARTMENT OF TRANSPORTATION**  
 DIVISION OF HIGHWAY/DISTRICT 1  
 201 WEST CENTER COURT/SCHAUMBURG, ILLINOIS 60196-1096  
 ENERGY SUPPLY: CONTACT: GENEVA MORROW  
 PHONE: (847) 608-2371  
 COMPANY: COMMONWEALTH EDISON



**CABLE PLAN**  
(NOT TO SCALE)

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

CABLE PLAN AND PHASE DESIGNATION DIAGRAM  
IL ROUTE 47 AT IL ROUTE 176 (N. JUNCTION)  
SCALE: N.T.S. SHEET 9 OF 10 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	522
CONTRACT NO. 62B43				

TS 21241  
ECON 22

TS SHT NO. 28

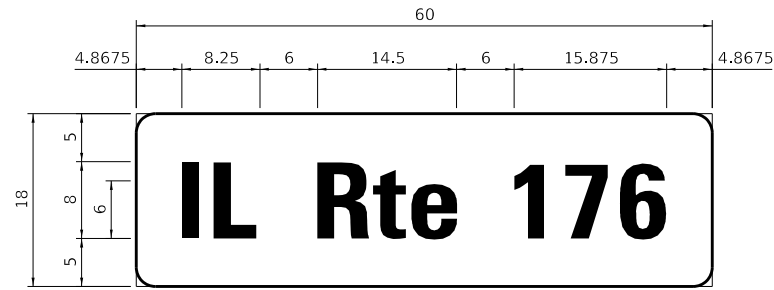
MODEL: D:\m\1170 SOUTH HOUBOLT ROAD	USER NAME = StevenB	DESIGNED - MAG	REVISED -
FILE NAME: S:\01\1170\1170-10.dwg		DRAWN - DJW	REVISED -
STRAND ASSOCIATES	PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
	PLOT DATE = 12/18/2023	DATE - 12/15/2023	REVISED -



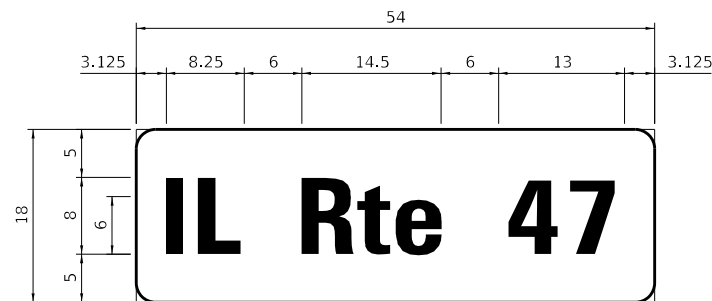
ILLINOIS FED. AID PROJECT

**SIGN PANEL - TYPE 1**

ALL DIMENSIONS ARE IN INCHES UNLESS NOTED OTHERWISE



DESIGN SERIES	AREA (SQ FT)	SIGN PANEL TYPE	SHEETING TYPE	QTY. REQUIRED
D	7.5	1	ZZ	2



DESIGN SERIES	AREA (SQ FT)	SIGN PANEL TYPE	SHEETING TYPE	QTY. REQUIRED
D	6.75	1	ZZ	1

**SCHEDULE OF QUANTITIES**

ITEM	UNIT	TOTAL QTY
SIGN PANEL - TYPE 1	SQ FT	22
UNDERGROUND CONDUIT, GALVANIZED STEEL, 2" DIA.	FOOT	769
UNDERGROUND CONDUIT, GALVANIZED STEEL, 3" DIA.	FOOT	42
UNDERGROUND CONDUIT, GALVANIZED STEEL, 4" DIA.	FOOT	964
HANDHOLE	EACH	7
HEAVY-DUTY HANDHOLE	EACH	4
DOUBLE HANDHOLE	EACH	2
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 2C	FOOT	2847
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 3C	FOOT	2176
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	6050
ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 14 1 PAIR	FOOT	3687
ELECTRIC CABLE IN CONDUIT, SERVICE, NO. 4 2C	FOOT	364
ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1C	FOOT	2371
TRAFFIC SIGNAL POST, GALVANIZED STEEL 16 FT.	EACH	2
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 18 FT.	EACH	4
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 32 FT.	EACH	1
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 58 FT.	EACH	1
CONCRETE FOUNDATION, TYPE A	EACH	12
CONCRETE FOUNDATION, TYPE C	FOOT	4
CONCRETE FOUNDATION, TYPE E 30-INCH DIAMETER	FOOT	43
CONCRETE FOUNDATION, TYPE E 36-INCH DIAMETER	FOOT	11
CONCRETE FOUNDATION, TYPE E 42-INCH DIAMETER	FOOT	24
SIGNAL HEAD, LED, 1-FACE, 3-SECTION, MAST-ARM MOUNTED	EACH	11
SIGNAL HEAD, LED, 1-FACE, 3-SECTION, BRACKET MOUNTED	EACH	4
PEDESTRIAN SIGNAL HEAD, LED, 1-FACE, BRACKET MOUNTED WITH COUNT DOWN TIMER	EACH	8
TRAFFIC SIGNAL BACKPLATE, LOUVERED, FORMED PLASTIC	EACH	11
INDUCTIVE LOOP DETECTOR	EACH	10
DETECTOR LOOP, TYPE 1	FOOT	830
*LIGHT DETECTOR	EACH	2
*LIGHT DETECTOR AMPLIFIER	EACH	1
TEMPORARY TRAFFIC SIGNAL INSTALLATION	EACH	1
REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT	EACH	1
REMOVE EXISTING HANDHOLE	EACH	9
REMOVE EXISTING DOUBLE HANDHOLE	EACH	1
REMOVE EXISTING CONCRETE FOUNDATION	EACH	6
*EMERGENCY VEHICLE PRIORITY SYSTEM LINE SENSOR CABLE, NO. 20 3/C	FOOT	685
OUTDOOR RATED NETWORK CABLE	FOOT	250
FULL-ACTUATED CONTROLLER AND TYPE SUPER R CABINET (SPECIAL)	EACH	1
SERVICE INSTALLATION, GROUND MOUNTED, METERED	EACH	1
REMOTE CONTROLLED VIDEO SYSTEM	EACH	1
LAYER II (DATALINK) SWITCH	EACH	1
PEDESTRIAN SIGNAL POST, 10 FT	EACH	1
PEDESTRIAN SIGNAL POST, 5 FT	EACH	1
UNINTERRUPTABLE POWER SUPPLY, SPECIAL	EACH	1
ACCESSIBLE PEDESTRIAN SIGNALS	EACH	8
CONCRETE FOUNDATION, TYPE A 12-INCH DIAMETER	FOOT	8
TEMPORARY TRAFFIC SIGNAL TIMING	EACH	1

\* 100% COST TO THE VILLAGE OF LAKEWOOD

TS SHT NO. 29

MODEL: D:\64\11...  
FILE NAME: S:\01\16300-6399\16300\6399\16300\CAD\_Sheets\16300-6399-11.dgn



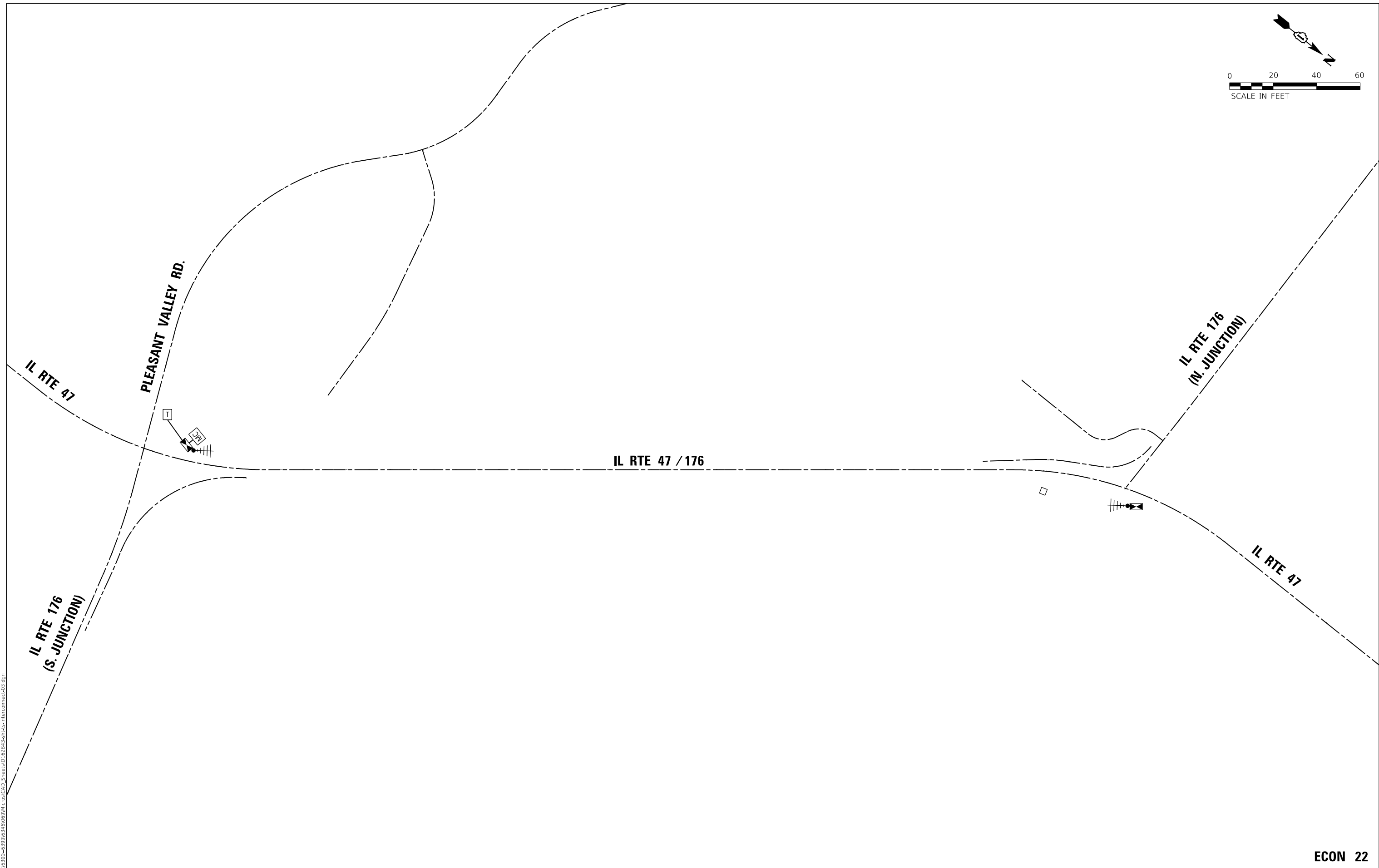
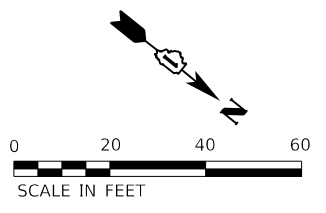
USER NAME = StevenB	DESIGNED - MAG	REVISED -
	DRAWN - DJW	REVISED -
PLOT SCALE = 40.0000 ' / in.	CHECKED - SJG	REVISED -
PLOT DATE = 12/18/2023	DATE - 12/15/2023	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

MAST ARM MOUNTED STREET NAME SIGNS AND SCHEDULE OF QUANTITIES	
IL ROUTE 47 AND IL ROUTE 176 (N. JUNCTION)	
SCALE: 1"=20'	SHEET 10 OF 10 SHEETS STA. 583+00.00 TO STA. 596+00.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	523
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				

TS 21241  
ECON 22



TS SHT NO. 30

MODEL: D:\d\m...  
 FILE NAME: S:\01\16300-6399\16300\06\06\06\06\CAD\_Sheets\16300-6399-16300-6399-Interconnect-03.dgn

**SA STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = StevenB	DESIGNED - MAG	REVISED -
	DRAWN - DJW	REVISED -
PLOT SCALE = 400,0000 ' / in.	CHECKED - SJG	REVISED -
PLOT DATE = 12/18/2023	DATE - 12/15/2023	REVISED -

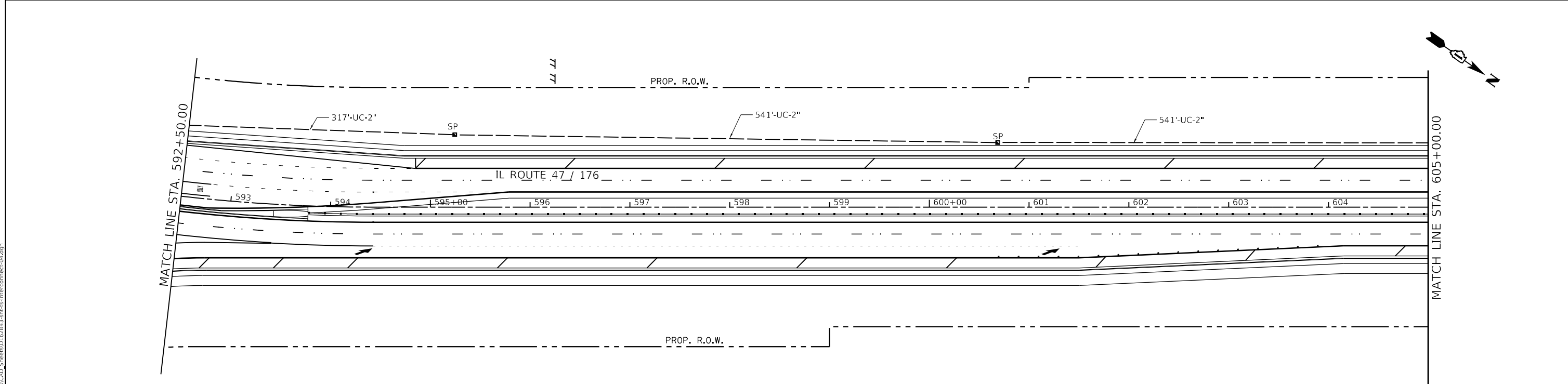
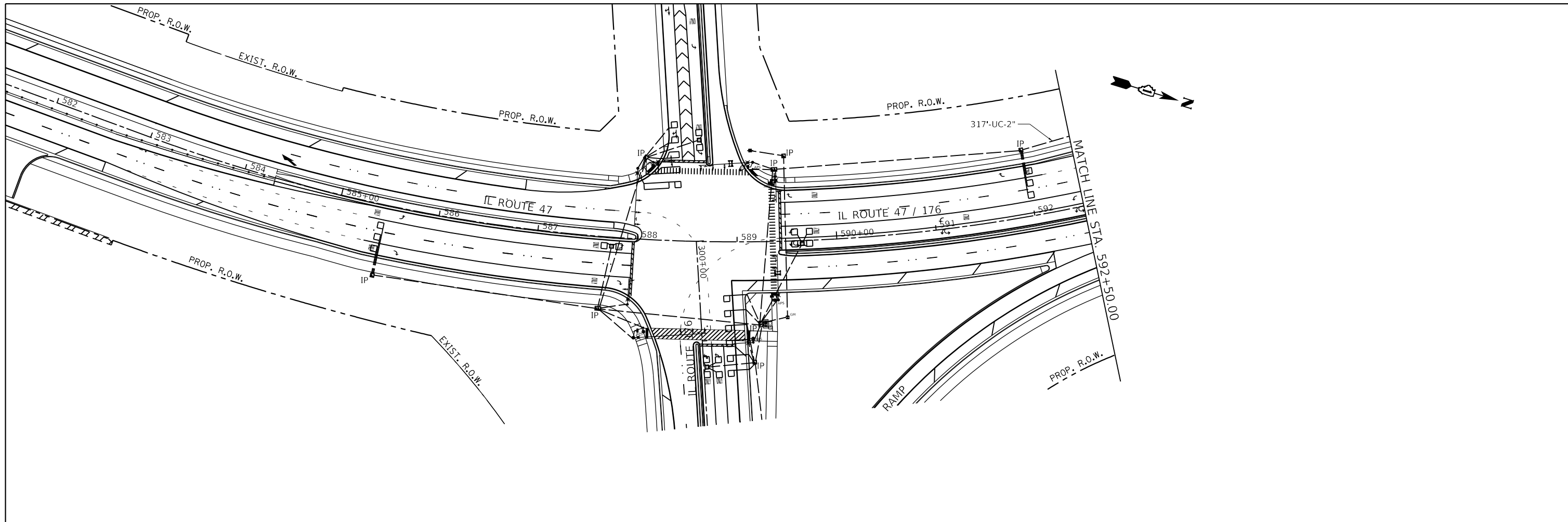
STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

TEMPORARY INTERCONNECT SCHEMATIC  
 IL ROUTE 47 FROM IL ROUTE 176 (S. JUNCTION)  
 TO IL ROUTE 176 (N. JUNCTION)

SCALE: 1" = 200' SHEET 1 OF 1 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	524
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				

ECON 22



TS SHT NO. 31

MODEL: D:\m\ts\1170\_SOUTH\_HOUBOLT\_ROAD\1170\_SOUTH\_HOUBOLT\_ROAD.dwg  
 FILE NAME: 1170\_SOUTH\_HOUBOLT\_ROAD\1170\_SOUTH\_HOUBOLT\_ROAD.dwg  
 STRAND ASSOCIATES

**SA**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200  
 STRAND ASSOCIATES

USER NAME = StevenB	DESIGNED - MAG	REVISED -
DRAWN - DJW	REVISED -	
PLOT SCALE = 100.0000' / in.	CHECKED - SJG	REVISED -
PLOT DATE = 12/18/2023	DATE - 12/15/2023	REVISED -

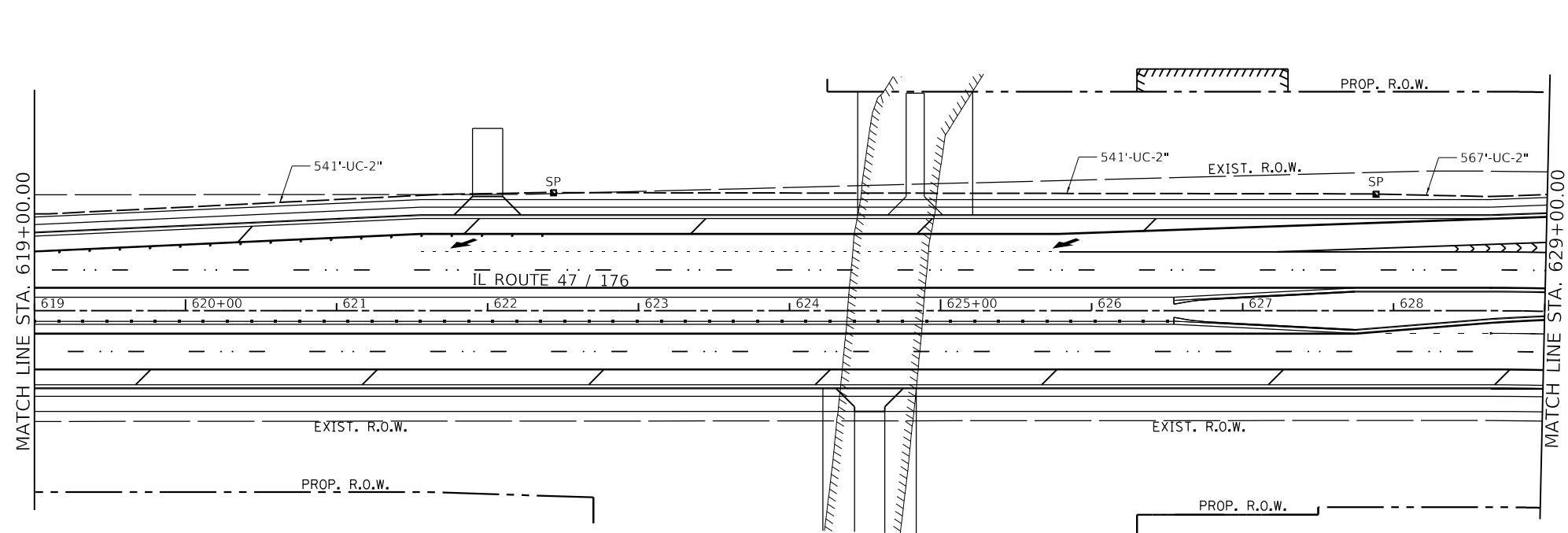
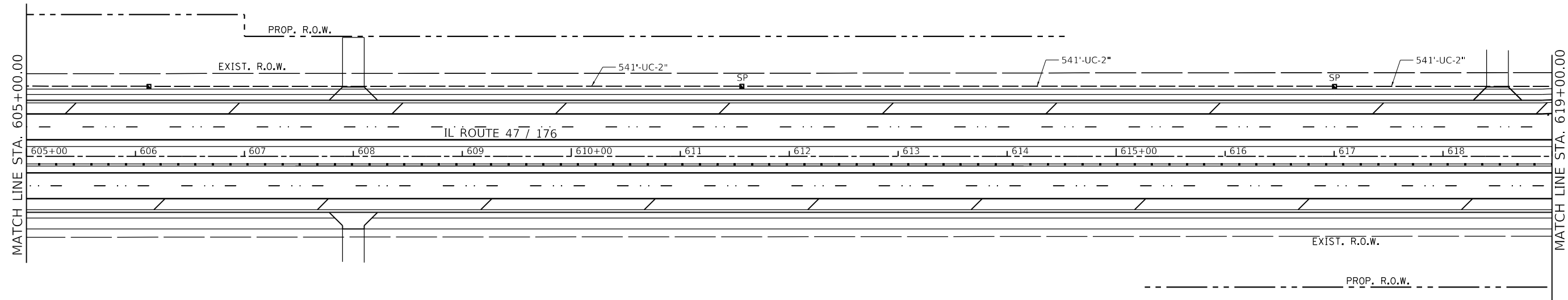
STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

INTERCONNECT PLAN  
 IL ROUTE 47 FROM IL ROUTE 176 (S. JUNCTION)  
 TO IL ROUTE 176 (N. JUNCTION)

SCALE: 1" = 50' SHEET 1 OF 3 SHEETS STA. 586+00.00 TO STA. 605+00.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	525
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				

ECON 22



TS SHT NO. 32

MODEL: D:\m\1170 SOUTH HOUBOLT ROAD\1170 SOUTH HOUBOLT ROAD\CAD\_Sheets\1170 SOUTH HOUBOLT ROAD\Interconnect-05.dgn

**SA STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = StevenB	DESIGNED - MAG	REVISED -
DRAWN - DJW	REVISIONS -	
PLOT SCALE = 100.0000' / in.	CHECKED - SJG	REVISED -
PLOT DATE = 12/18/2023	DATE - 12/15/2023	REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

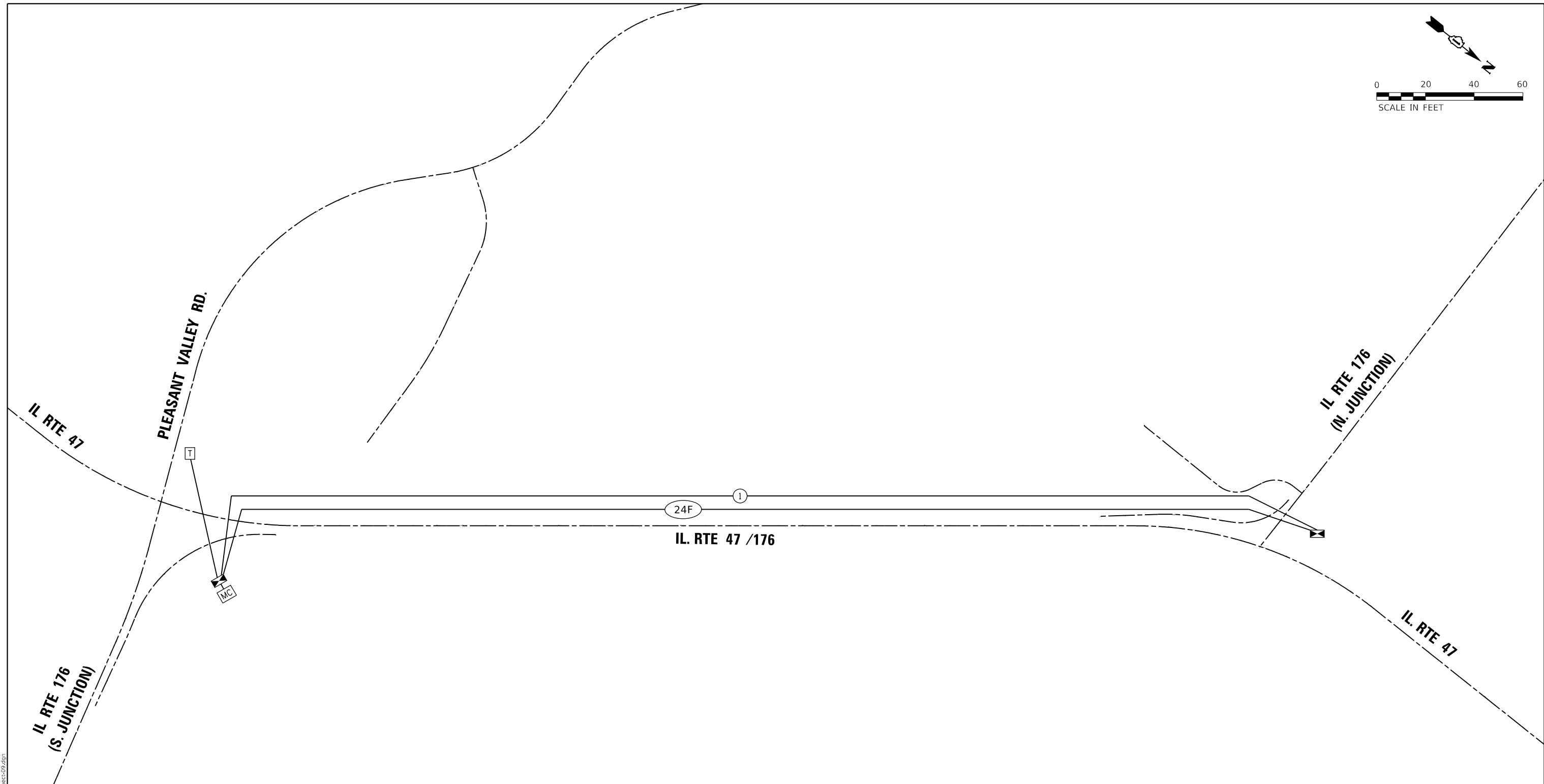
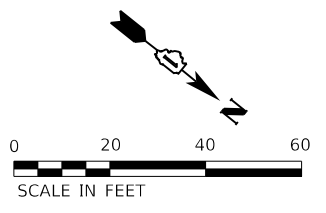
**INTERCONNECT PLAN  
 IL ROUTE 47 FROM IL ROUTE 176 (S. JUNCTION)  
 TO IL ROUTE 176 (N. JUNCTION)**

SCALE: 1" = 50' SHEET 2 OF 3 SHEETS STA. 605+00.00 TO STA. 629+00.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	526
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				

ECN 22





**SCHEDULE OF QUANTITIES**

ITEM	UNIT	TOTAL QTY
UNDERGROUND CONDUIT, GALVANIZED STEEL, 2" DIA.	FOOT	4121
HANDHOLE	EACH	8
ELECTRIC CABLE IN CONDUIT, TRACER, NO. 14 1C	FOOT	4353
FIBER OPTIC CABLE 24 FIBERS, SINGLE MODE	FOOT	5415
REMOVE EXISTING HANDHOLE	EACH	8
OPTIMIZE TRAFFIC SIGNAL SYSTEM	EACH	1
TERMINATE FIBER IN CABINET	EACH	2
SPLICE FIBER IN CABINET	EACH	4
CENTRACS LICENSE EXPANSION	EACH	2

**EXISTING INTERCONNECT EQUIPMENT REMOVAL SCHEDULE**

ITEM	STATION	OFFSET
HANDHOLE 1	595+61	79' LT
HANDHOLE 2	598+76	43' LT
HANDHOLE 3	604+71	36' LT
HANDHOLE 4	610+72	39' LT
HANDHOLE 5	616+73	40' LT
HANDHOLE 6	622+72	45' LT
HANDHOLE 7	628+72	58' LT
DOUBLE HANDHOLE	631+07	88' LT

**ECON 22**

TS SHT NO. 34

MODEL: D:\m\1170\_SOUTH\_HOUBOLT\_ROAD\1170\_SOUTH\_HOUBOLT\_ROAD.dwg  
 FILE NAME: 1170\_SOUTH\_HOUBOLT\_ROAD.dwg  
 SHEET: 6 OF 6  
 DATE: 12/18/2023

1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = StevenB	DESIGNED - MAG	REVISED -
	DRAWN - DJW	REVISED -
PLOT SCALE = 400.0000' / in.	CHECKED - SJG	REVISED -
PLOT DATE = 12/18/2023	DATE - 12/15/2023	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**PROPOSED INTERCONNECT SCHEMATIC AND SCHEDULE OF QUANTITIES  
 IL ROUTE 47 FROM IL ROUTE 176 (S. JUNCTION)  
 TO IL ROUTE 176 (N. JUNCTION)**

SCALE: 1" = 200'    SHEET 6 OF 6 SHEETS    STA.    TO STA.

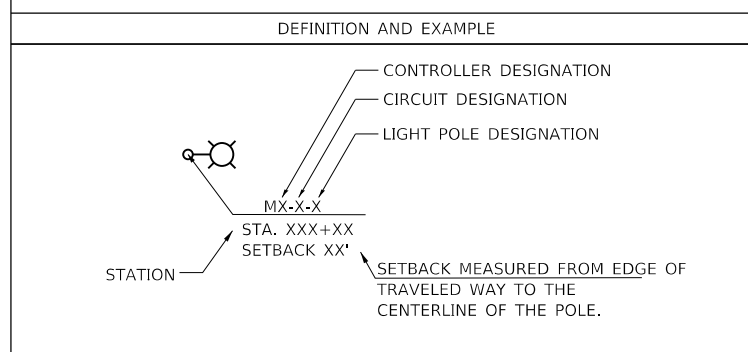
F.A.P. RTE. 326	SECTION 105-N-2(15)	COUNTY MCHENRY	TOTAL SHEETS 803	SHEET NO. 528
			CONTRACT NO. 62B43	
		ILLINOIS FED. AID PROJECT		



## LIGHTING AND ELECTRICAL LEGEND

SYMBOL	DESCRIPTION
	IDOT LIGHT POLE, ALUMINUM 47.5 FT M.H. 15 FT MAST ARM, LIGHT POLE FOUNDATION, 24" DIAMETER, 29,000 LUMENS (220 W), OUTPUT DESIGNATION H
	EXISTING LIGHT POLE TO BE REMOVED
	TEMPORARY LIGHT POLE, 60 FT. 50 FT M.H. 15 FT MAST ARM, CLASS 4 WOOD POLE, TYPE III DISTRIBUTION, 29,000 LUMENS (220 W), OUTPUT DESIGNATION H
	IDOT COMBINATION LIGHT POLE, 45 FT M.H. 29,000 LUMENS (220 W), OUTPUT DESIGNATION H
	PROPOSED UNIT DUCT, 600V, 3-1C NO.6, 1/2 NO.6 GROUND, (XLP-TYPE USE), 1 1/4" DIA. POLYETHYLENE
	ELECTRICAL CABLE IN CONDUIT 600V (XLP-TYPE USE) 1/C NO.2
	PROPOSED CABLE OR UNIT DUCT IN CONCEALED CONDUIT, SIZE AND TYPE AS NOTED
	TEMPORARY AERIAL CABLE WITH MW
	PROPOSED UTILITY SERVICE CONNECTION, POLE MOUNTED
	EXISTING IDOT LIGHTING CONTROLLER
	TEMPORARY IDOT LIGHTING CONTROLLER
	PROPOSED IDOT LIGHTING CONTROLLER

## CALL-OUT SAMPLE



## ABBREVIATIONS

ABBREVIATION	DESCRIPTION
AC	ALTERNATING CURRENT
A/C	AERIAL CABLE
AFG	ABOVE FINISHED GRADE
BOC	BACK OF CURB
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CM	CENTIMETER
CP	CONTROL PANEL
CT	CURRENT TRANSFORMER
DA	DAVIT ARM
DC	DIRECT CURRENT
DIA	DIAMETER
DP	DISTRIBUTION PANEL
E	EXISTING UNIT TO REMAIN
ECA	ELECTRIC CABLE ASSEMBLY
EOP	EDGE OF PAVEMENT
EOTW	EDGE OF TRAVELED WAY
FT	FEET OR FOOT
FU	FUSE
GND	GROUND
HID	HIGH INTENSITY DISCHARGE
HPS	HIGH PRESSURE SODIUM
JB	JUNCTION BOX
KVA	KILOVOLT-AMPERE
KW	KILOWATTS
LTFM	LIQUID TIGHT FLEXIBLE METALLIC
LPS	LOW PRESSURE SODIUM
M	METER
MA	MAST ARM
MM	MILLIMETER
M.H.	MOUNTING HEIGHT
MW	MESSENGER WIRE
NO. #	NUMBER
P	PROPOSED
PB	PUSH BUTTON
PNL	PANEL
PVC	POLYVINYL CHLORIDE
PVCC RGC	PVC COATED RIGID GALVANIZED CONDUIT
PT	POTENTIAL TRANSFORMER
R	EXISTING UNIT TO BE REMOVED (OWNER SALVAGED U.N.O.)
RR	EXISTING UNIT TO BE REMOVED AND REINSTALLED
RECP	RECEPTACLE
RGC	RIGID GALVANIZED CONDUIT
SEL SW	SELECTOR SWITCH
SPARE	SPARE
SPACE	SPACE
SS	STAINLESS STEEL
STA	STATION
XFMR	TRANSFORMER
UD	UNIT DUCT
U.N.O.	UNLESS NOTED OTHERWISE
UGC, GS	UNDERGROUND CONDUIT, GALVANIZED STEEL
WP	WOOD POLE

## GENERAL NOTES

- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ASCERTAIN EXISTING FIELD CONDITIONS BEFORE BIDDING ON THIS PROJECT, SPECIFICALLY AS THEY RELATE TO LUMP SUM ITEMS AND UNIT PRICE ITEMS.
- ALL NEW CONDUITS, UNIT DUCTS AND APPURTENANCES ARE INDICATED DIAGRAMMATICALLY ON THE DRAWINGS. THE ACTUAL LOCATIONS IN THE FIELD SHALL BE APPROVED BY THE ENGINEER.
- THE ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST CODES, STANDARDS AND THE IDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION ADOPTED JANUARY 1, 2022, AND SUPPLEMENTAL SPECIFICATIONS AND RECURRING SPECIAL PROVISIONS ADOPTED JANUARY 1, 2022.
- IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO MARK THE PROPOSED LOCATIONS OF ALL THE LIGHT POLES FOR EXAMINATION AND CONFIRMATION WITH THE ENGINEER AT THE PRE CONSTRUCTION INSPECTION. THE EXACT LOCATION OF ALL ITEMS SHALL BE CONFIRMED WITH THE ENGINEER PRIOR TO STARTING WORK.
- GROUNDING CONNECTIONS AT THE FOUNDATION SHALL BE EXOTHERMICALLY WELDED, AS SPECIFIED, AND SHALL BE OBSERVED AND APPROVED BY THE ENGINEER PRIOR TO CONCRETE POURING OR BACKFILLING, AS APPLICABLE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ESTABLISHMENT OF THE FINISHED GRADE. THE ENGINEER MAY ASSIST THE CONTRACTOR, AS APPLICABLE, BUT THE RESPONSIBILITY FOR COORDINATION OF THE FINISHED GRADE WITH THE TOP OF THE FOUNDATION HEIGHTS SHALL REMAIN WITH THE CONTRACTOR.
- ALL LUMINAIRES SHALL BE ORIENTED WITH THE OPTICS PERPENDICULAR TO THE ROADWAY UNLESS NOTED OTHERWISE OR DIRECTED BY THE ENGINEER. THE LUMINAIRES MAY REQUIRE NIGHT-TIME OPTICAL ADJUSTMENT UPON INSPECTION BY THE ENGINEER.
- CONDUITS AND UNIT DUCTS SHALL BE INSTALLED AT A MINIMUM 30 INCH DEPTH BELOW GRADE AND POSITIONED IN THE FIELD TO AVOID CONFLICT WITH ROADWAY UNDERDRAINS AND OTHER EXISTING AND PROPOSED UTILITIES. THE CONTRACTOR SHALL INCREASE DEPTH OF UNIT DUCT AND CONDUIT AS REQUIRED. THE CONTRACTOR SHALL COORDINATE RACEWAY DEPTH WITH THE ELECTRICAL DETAILS AND THE ENGINEER.
- THE CONTRACTOR SHALL MAKE SPECIAL NOTE OF THE SPECIFIED REQUIREMENTS FOR BURIED WARNING TAPE AS PART OF THE UNDERGROUND CONDUIT OR UNIT DUCT. THE INSTALLATION OF THE TAPE SHALL BE OBSERVED BY THE ENGINEER PRIOR TO BACKFILLING OR DURING PLOWING OPERATIONS, AS APPLICABLE.
- WHERE THE CONTRACTOR EXCAVATION MEETS AN OBSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER FOR DIRECTION IN WRITING PRIOR TO FURTHER EXCAVATION. THE CONTRACTOR SHALL RESTORE ANY DAMAGE TO EXISTING SYSTEMS OR UTILITIES AND REMOVE EXISTING OBSTRUCTIONS AND FOUNDATIONS TO THE SATISFACTION OF THE ENGINEER.
- THE CONTRACTOR SHALL COORDINATE INSTALLATION OF CONDUITS, FOUNDATIONS AND UNIT DUCTS WITH THE ROADWAY, DRAINAGE, CURB, AND SIDEWALK WORK AND UNDERGROUND UTILITIES.
- NO POLES SHALL BE ERECTED UNTIL THE RESPECTIVE FOUNDATIONS HAVE BEEN CURED FOR 10 DAYS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- SPLICING OF CONDUCTORS SHALL BE IN POLE BASES OR ABOVE-GRADE WEATHER TIGHT JUNCTION BOXES ONLY. SPLICES BELOW GRADE WILL NOT BE PERMITTED.
- ALL MEASUREMENTS ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY MEASUREMENTS IN THE FIELD.
- INSTALL ELECTRIC UTILITY SERVICES PER IDOT D1 STANDARD DETAIL BE-220 ELECTRIC SERVICE INSTALLATION AERIAL, REMOTE DISCONNECT, TYPE B.
- THE CONTRACTOR SHALL COORDINATE TO ENSURE AT NO TIME SHALL THE ROADWAY BE LEFT UNLIT DURING NIGHTTIME HOURS.
- CONTRACTOR SHALL BE RESPONSIBLE TO SALVAGE REMOVED LIGHTING CONTROLLERS AND LIGHTING UNITS WHICH SHALL BE SALVAGED TO IDOT DISTRICT ONE ELECTRICAL MAINTENANCE IN OAK PARK, IL. CONTACT MEADE ELECTRIC CO. IDOT DISTRICT ONE ELECTRICAL MAINTENANCE CONTRACTOR (773-287-7672) TO COORDINATE DELIVERY LOCATION FOR SALVAGED ELECTRICAL EQUIPMENT AND TO COORDINATE MARKING OF UNDERGROUND IDOT CABLING.

## BILL OF MATERIALS

ITEM	UNIT	TOTAL QUANTITY
ELECTRIC SERVICE INSTALLATION	EACH	2
* ELECTRIC UTILITY SERVICE CONNECTION	L SUM	1
UNDERGROUND CONDUIT, GALVANIZED STEEL, 1 1/4" DIA.	FOOT	185
UNDERGROUND CONDUIT, GALVANIZED STEEL, 3" DIA.	FOOT	1360
CONDUIT ATTACHED TO STRUCTURE, 1 1/4" DIA., PVC COATED GALVANIZED STEEL	FOOT	30
UNIT DUCT, 600V, 3-1C NO.6, 1/2 NO.6 GROUND, (XLP-TYPE USE), 1 1/4" DIA. POLYETHYLENE	FOOT	14,100
ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE) 1/C NO. 2	FOOT	825
LIGHTING CONTROLLER, BASE MOUNTED, 480VOLT, 100AMP	EACH	2
LIGHT POLE, ALUMINUM, 47.5 FT. M.H., 15 FT. MAST ARM	EACH	69
LIGHT POLE FOUNDATION, METAL, 15" BOLT CIRCLE, 10" X 8"	EACH	69
BREAKAWAY DEVICE, TRANSFORMER BASE, 15 INCH BOLT CIRCLE	EACH	69
REMOVAL OF LIGHTING UNIT, SALVAGE	EACH	20
LUMINAIRE, LED, ROADWAY, OUTPUT DESIGNATION H	EACH	83
* REMOVE TEMPORARY WOOD POLE	EACH	23
* MAINTENANCE OF LIGHTING SYSTEM	CAL MO	24
* LUMINAIRE SAFETY CABLE ASSEMBLY	EACH	69
* TEMPORARY WOOD POLE, 60 FT., CLASS 4, 15 FT. MAST ARM	EACH	23
* TEMPORARY LUMINAIRE, LED, ROADWAY, OUTPUT DESIGNATION H	EACH	23
* TEMPORARY AERIAL CABLE WITH MESSENGER WIRE	FOOT	3600
* TEMPORARY LIGHTING CONTROLLER	EACH	3
REMOVAL OF TEMPORARY LIGHTING CONTROLLER, NO SALVAGE	EACH	3
REMOVAL OF LIGHTING CONTROLLER	EACH	2

\* INDICATES SPECIAL PROVISION

## INDEX OF DRAWINGS:

DRAWING NO.	TITLE
515	LEGEND, GENERAL NOTES, AND INDEX OF DRAWINGS
516-519	EXISTING, TEMPORARY, AND REMOVAL LIGHTING PLANS
520-526	PROPOSED LIGHTING PLANS
527-528	SINGLE LINE DIAGRAMS
529-537	LIGHTING DETAILS

## IDOT DISTRICT 1 STANDARD DETAILS

BE-215	LIGHTING CONTROLLER, SINGLE DOOR
BE-220	ELECTRIC SERVICE INSTALLATION AERIAL, REMOTE DISCONNECT
BE-240	COMBINATION LIGHTING, TRAFFIC SIGNAL SCHEMATIC
BE-305	LIGHT POLE FOUNDATION, METAL
BE-400	ALUMINUM LIGHT POLE 47'-6" MOUNTING HEIGHT
BE-701	LUMINAIRE SAFETY CABLE ASSEMBLY
BE-702	MISC. ELECTRICAL DETAILS SHEET A
BE-800	TEMPORARY LIGHT POLE DETAILS
BE-801	TEMPORARY AERIAL CABLE INSTALLATION

MODEL: D:\64bit... FILE NAME: S:\01\15300-03\99\15300-03\06\96\96\96\CAD\_Sheets\15300-03-15-light-ctrls.dgn



1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
(815) 744-4200

USER NAME = StevenB	DESIGNED - MAG	REVISED -
	DRAWN - DJW	REVISED -
PLOT SCALE = 2.0000' / in.	CHECKED - SJG	REVISED -
PLOT DATE = 12/18/2023	DATE - 12/15/2023	REVISED -

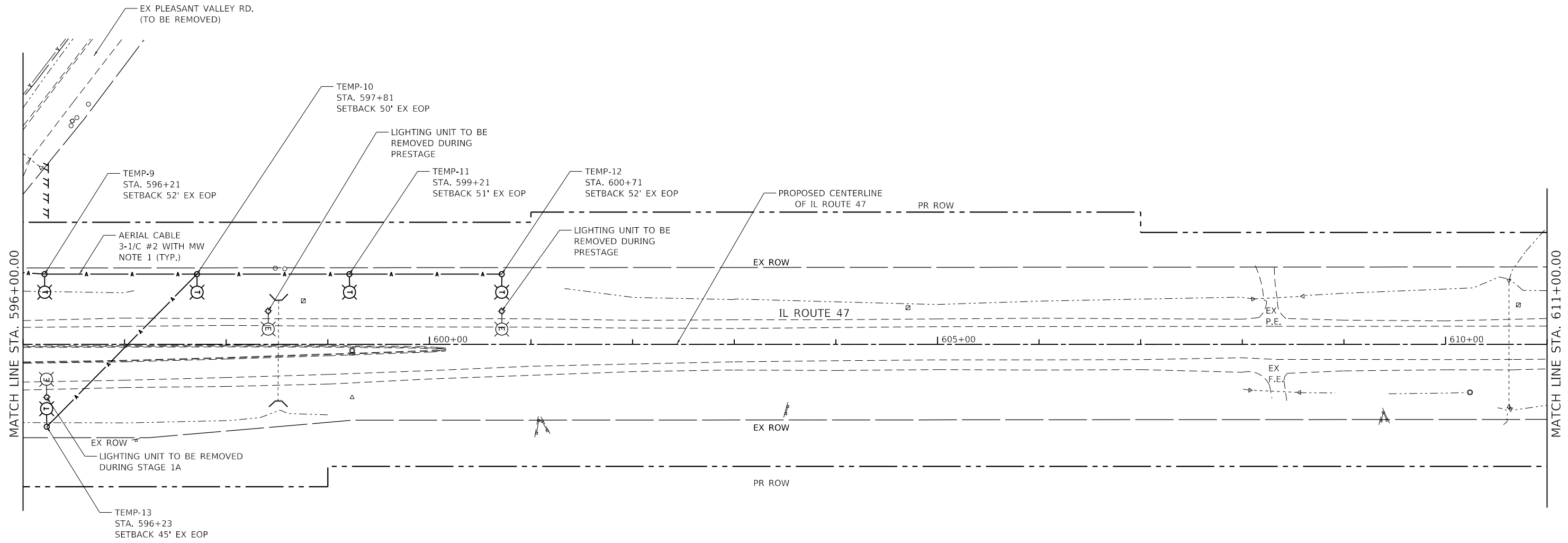
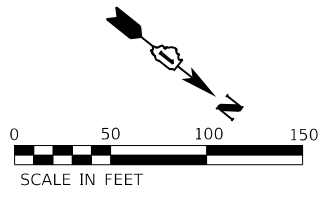
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

LIGHTING  
LEGEND, GENERAL NOTES, AND INDEX OF DRAWINGS

SCALE: N/A SHEET 1 OF 1 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	529
CONTRACT NO. 62B43				
ILLINOIS		FED. AID PROJECT		





- NOTES:**
1. AERIAL CABLES SHALL BE INSTALLED SUCH THAT THE MINIMUM CLEARANCE ON GROUND IS NOT LESS THAN 20 FEET AND A MINIMUM 10 FEET AWAY FROM OVERHEAD UTILITY LINES.
  2. TEMPORARY LIGHTING UNITS SHALL NOT BE REMOVED UNTIL PERMANENT LIGHTING SYSTEM IS IN PLACE IN APPROVED OPERATION.
  3. CONTRACTOR IS RESPONSIBLE FOR OPERATION AND MAINTENANCE OF TEMPORARY LIGHTING SYSTEM AND SHALL ENSURE CONTINUOUS OPERATION DURING NIGHT-TIME HOURS.

MODEL: D:\64\11  
 FILE NAME: S:\01\15300-6399\15346\069\MM\road\CAD\_Sheets\15346\15346-light-exist-ilr47.dwg  
 SHEET: 2 OF 4



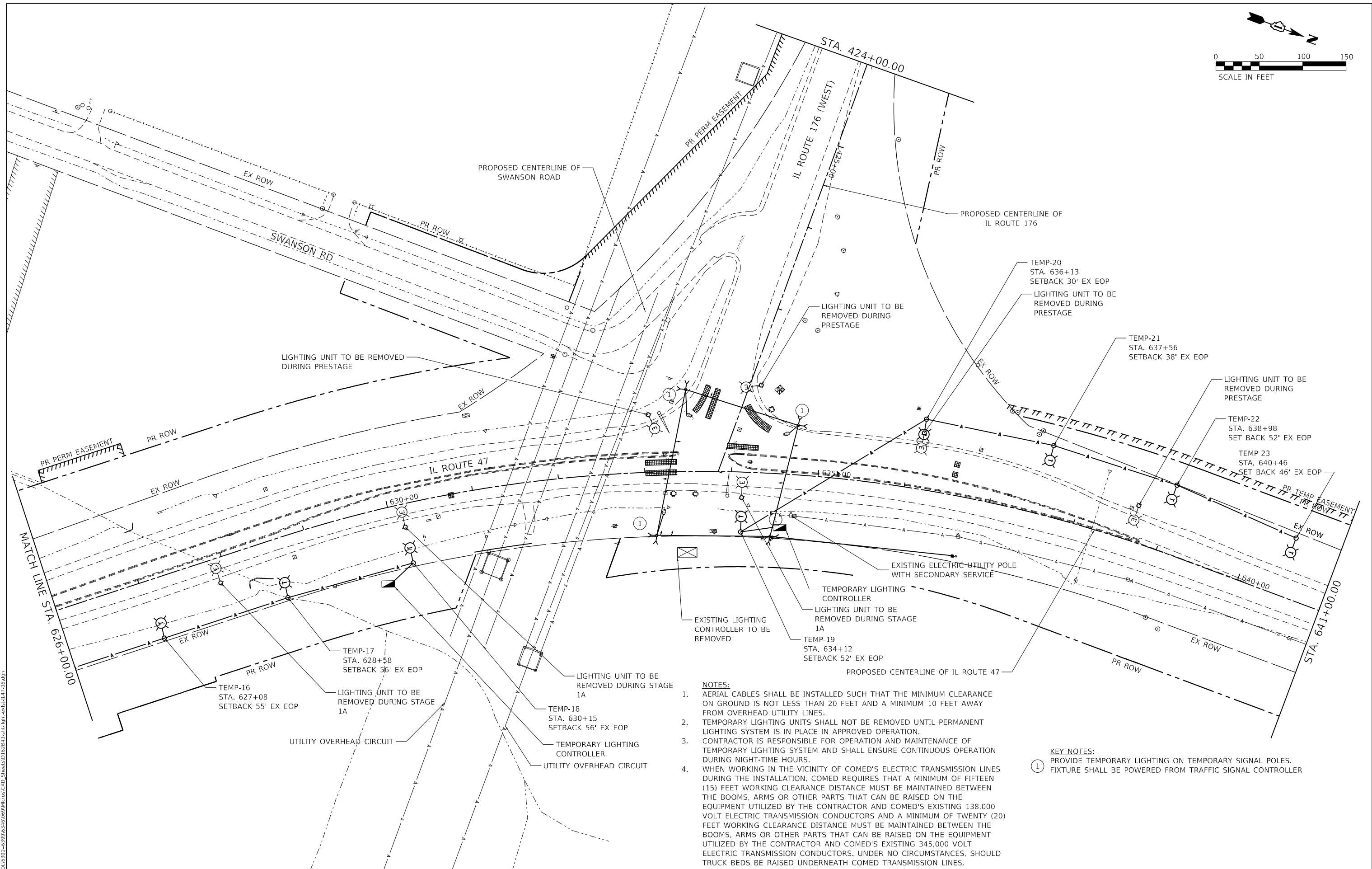
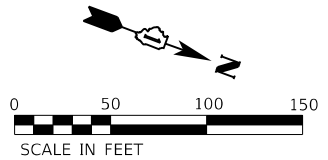
USER NAME = StevenB	DESIGNED - MAG	REVISED -
DRAWN - DJW	REVISIONS -	
PLOT SCALE = 100.0000' / in.	CHECKED - SJG	REVISIONS -
PLOT DATE = 12/18/2023	DATE - 12/15/2023	REVISIONS -

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47**  
**EXISTING, TEMPORARY, AND REMOVAL LIGHTING PLAN**  
 SCALE: 1" = 50'    SHEET 2 OF 4 SHEETS    STA. 596+00.00 TO STA. 611+00.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	531
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				





- NOTES:**
1. AERIAL CABLES SHALL BE INSTALLED SUCH THAT THE MINIMUM CLEARANCE ON GROUND IS NOT LESS THAN 20 FEET AND A MINIMUM 10 FEET AWAY FROM OVERHEAD UTILITY LINES.
  2. TEMPORARY LIGHTING UNITS SHALL NOT BE REMOVED UNTIL PERMANENT LIGHTING SYSTEM IS IN PLACE IN APPROVED OPERATION. CONTRACTOR IS RESPONSIBLE FOR OPERATION AND MAINTENANCE OF TEMPORARY LIGHTING SYSTEM AND SHALL ENSURE CONTINUOUS OPERATION DURING NIGHT-TIME HOURS.
  3. WHEN WORKING IN THE VICINITY OF COMED'S ELECTRIC TRANSMISSION LINES DURING THE INSTALLATION, COMED REQUIRES THAT A MINIMUM OF FIFTEEN (15) FEET WORKING CLEARANCE DISTANCE MUST BE MAINTAINED BETWEEN THE BOOMS, ARMS OR OTHER PARTS THAT CAN BE RAISED ON THE EQUIPMENT UTILIZED BY THE CONTRACTOR AND COMED'S EXISTING 138,000 VOLT ELECTRIC TRANSMISSION CONDUCTORS AND A MINIMUM OF TWENTY (20) FEET WORKING CLEARANCE DISTANCE MUST BE MAINTAINED BETWEEN THE BOOMS, ARMS OR OTHER PARTS THAT CAN BE RAISED ON THE EQUIPMENT UTILIZED BY THE CONTRACTOR AND COMED'S EXISTING 345,000 VOLT ELECTRIC TRANSMISSION CONDUCTORS. UNDER NO CIRCUMSTANCES, SHOULD TRUCK BEDS BE RAISED UNDERNEATH COMED TRANSMISSION LINES.

**KEY NOTES:**  
 ① PROVIDE TEMPORARY LIGHTING ON TEMPORARY SIGNAL POLES. FIXTURE SHALL BE POWERED FROM TRAFFIC SIGNAL CONTROLLER

MODEL: D:\m\p\1170 SOUTH HOUBOLT ROAD\1170 SOUTH HOUBOLT ROAD\CAD\_Sheets\1170 SOUTH HOUBOLT ROAD\1170 SOUTH HOUBOLT ROAD.dwg  
 FILE NAME: 1170 SOUTH HOUBOLT ROAD.dwg  
 PLOT DATE: 12/18/2023

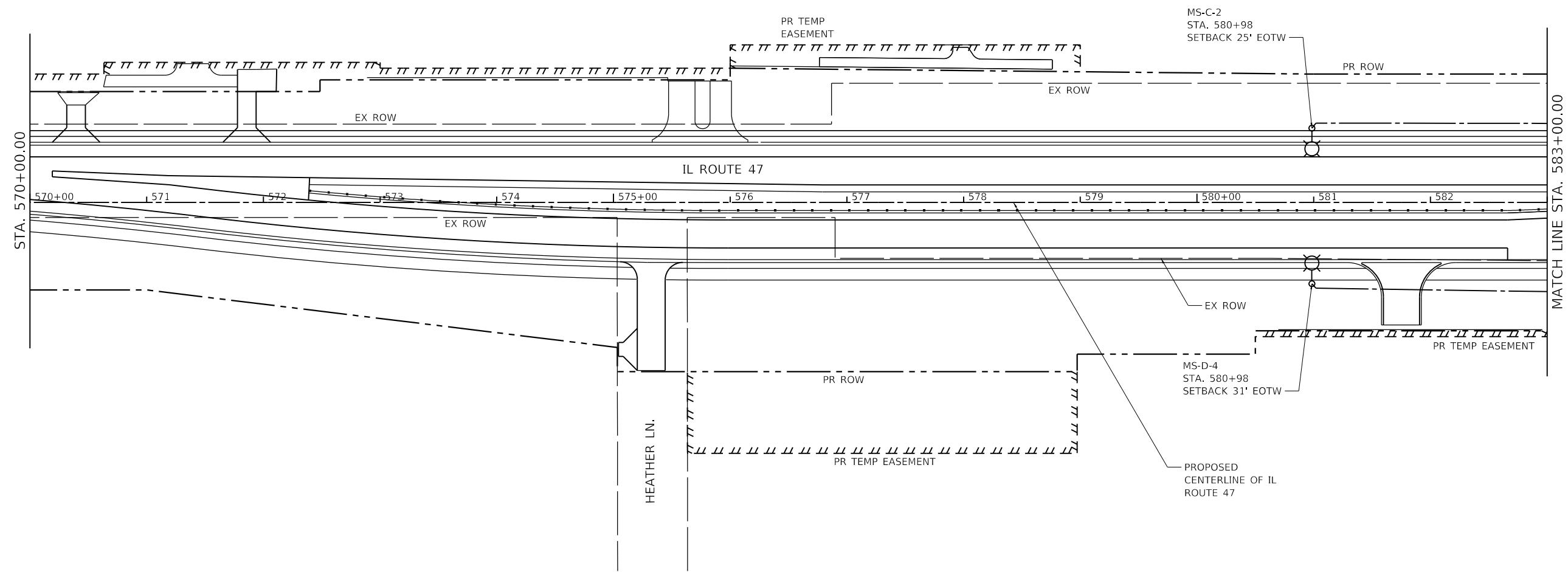
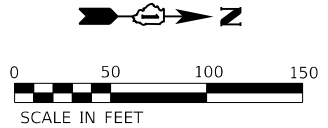


USER NAME = StevenB	DESIGNED - MAG	REVISED -
	DRAWN - DJW	REVISED -
PLOT SCALE = 100.0000' / in.	CHECKED - SJG	REVISED -
PLOT DATE = 12/18/2023	DATE - 12/15/2023	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

<b>IL ROUTE 47</b>	
<b>EXISTING, TEMPORARY, AND REMOVAL LIGHTING PLAN</b>	
SCALE: 1" = 50'	SHEET 4 OF 4 SHEETS
STA. 626+00.00 TO STA. 641+00.00	

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	533
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				



MODEL: D:\4641\1170 SOUTH HOUBOLT ROAD\1170 SOUTH HOUBOLT ROAD\CAD\_Sheets\1170 SOUTH HOUBOLT ROAD\CAD\_Sheets\1170 SOUTH HOUBOLT ROAD\1170-02.dgn  
 FILE NAME: 1170 SOUTH HOUBOLT ROAD\CAD\_Sheets\1170 SOUTH HOUBOLT ROAD\CAD\_Sheets\1170 SOUTH HOUBOLT ROAD\1170-02.dgn


**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = StevenB	DESIGNED - MAG	REVISED -
DRAWN - DJW	REVISIONS -	
PLOT SCALE = 100.0000' / in.	CHECKED - SJG	REVISED -
PLOT DATE = 12/18/2023	DATE - 12/15/2023	REVISED -

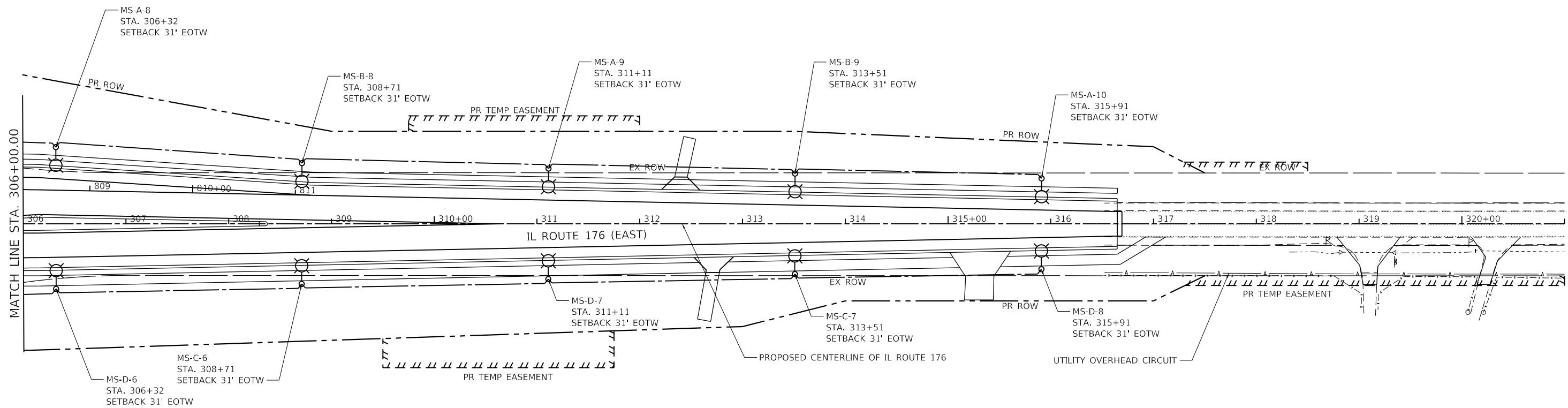
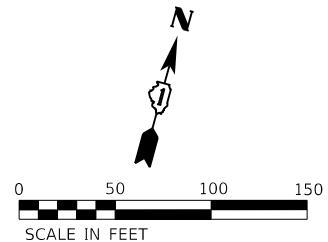
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47**  
**PROPOSED LIGHTING PLAN**

SCALE: 1" = 50'    SHEET 1 OF 7 SHEETS    STA. 570+00.00 TO STA. 583+00.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	534
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				





**NOTES:**  
 WHEN WORKING IN THE VICINITY OF COMED'S ELECTRIC TRANSMISSION LINES DURING THE INSTALLATION, COMED REQUIRES THAT A MINIMUM OF FIFTEEN (15) FEET WORKING CLEARANCE DISTANCE MUST BE MAINTAINED BETWEEN THE BOOMS, ARMS OR OTHER PARTS THAT CAN BE RAISED ON THE EQUIPMENT UTILIZED BY THE CONTRACTOR AND COMED'S EXISTING 138,000 VOLT ELECTRIC TRANSMISSION CONDUCTORS AND A MINIMUM OF TWENTY (20) FEET WORKING CLEARANCE DISTANCE MUST BE MAINTAINED BETWEEN THE BOOMS, ARMS OR OTHER PARTS THAT CAN BE RAISED ON THE EQUIPMENT UTILIZED BY THE CONTRACTOR AND COMED'S EXISTING 345,000 VOLT ELECTRIC TRANSMISSION CONDUCTORS. UNDER NO CIRCUMSTANCES, SHOULD TRUCK BEDS BE RAISED UNDERNEATH COMED TRANSMISSION LINES.

MODEL: D:\m\h\1170 SOUTH HOUBOLT ROAD\1170-01.dgn  
 FILE NAME: 1170 SOUTH HOUBOLT ROAD\CAD\_Sheets\1170-01.dgn



USER NAME = StevenB	DESIGNED - MAG	REVISED -
DRAWN - DJW	REVISIONS -	
PLOT SCALE = 100.0000 ' / in.	CHECKED - SJG	REVISED -
PLOT DATE = 12/18/2023	DATE - 12/15/2023	REVISED -

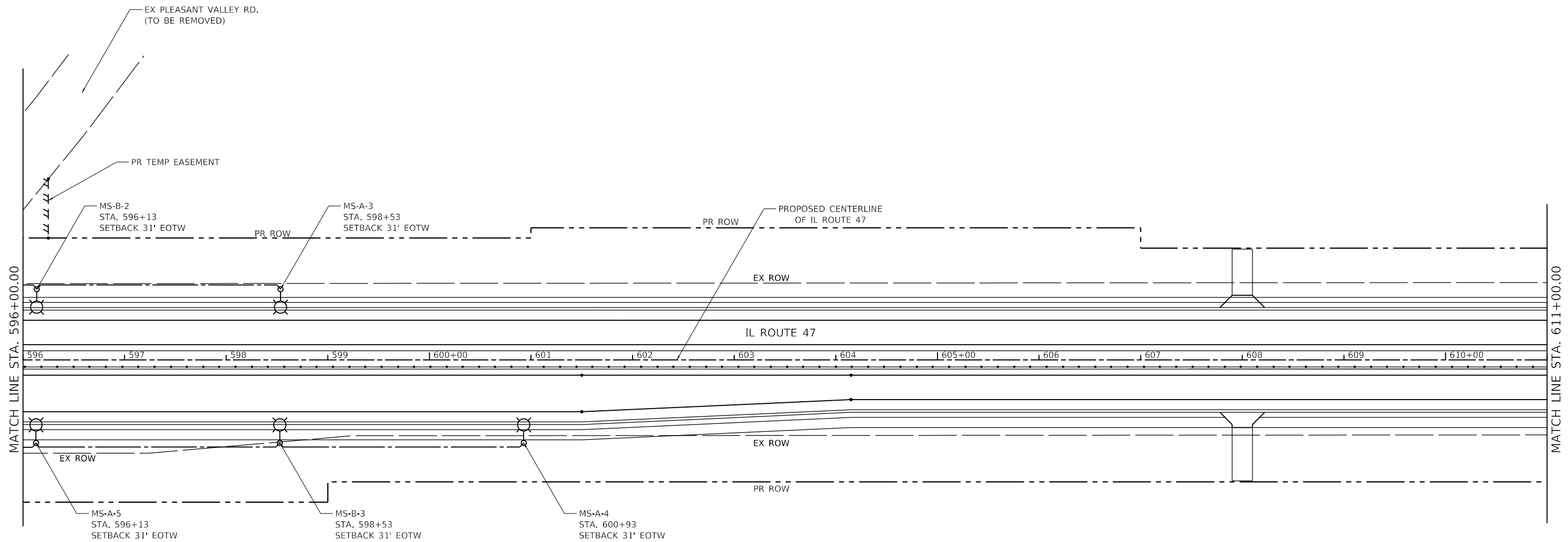
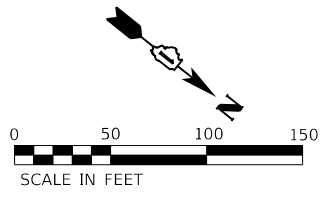
**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 176 (EAST)  
 PROPOSED LIGHTING PLAN**

SCALE: 1" = 50'    SHEET 4 OF 7 SHEETS    STA. 306+00.00 TO STA. 321+00.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	536
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				





MODEL: D:\4641\1170 SOUTH HOUBOLT ROAD\1170 SOUTH HOUBOLT ROAD\CAD\_Sheets\1170 SOUTH HOUBOLT ROAD\1170-04.dgn  
 FILE NAME: 1170 SOUTH HOUBOLT ROAD\CAD\_Sheets\1170 SOUTH HOUBOLT ROAD\1170-04.dgn



USER NAME = StevenB	DESIGNED - MAG	REVISED -
DRAWN - DJW	REVISIONS -	
PLOT SCALE = 100.0000' / in.	CHECKED - SJG	REVISED -
PLOT DATE = 12/18/2023	DATE - 12/15/2023	REVISED -

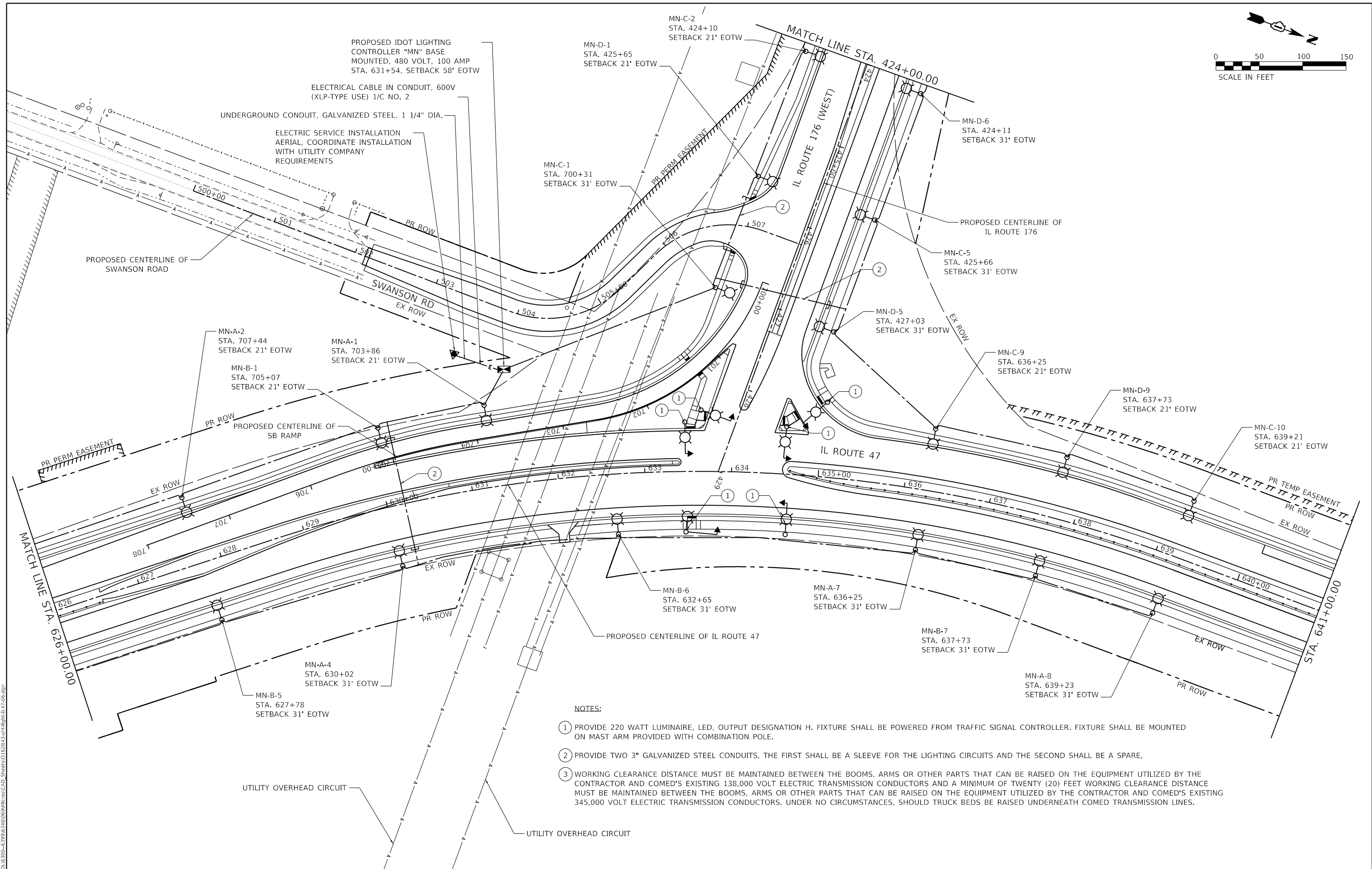
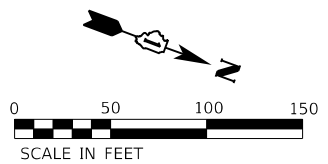
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47**  
**PROPOSED LIGHTING PLAN**

SCALE: 1" = 50'    SHEET 3 OF 7 SHEETS    STA. 596+00.00 TO STA. 611+00.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	537
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				





PROPOSED IDOT LIGHTING CONTROLLER "MN" BASE MOUNTED, 480 VOLT, 100 AMP STA. 631+54, SETBACK 58' EOTW

ELECTRICAL CABLE IN CONDUIT, 600V (XLP-TYPE USE) 1/C NO. 2

UNDERGROUND CONDUIT, GALVANIZED STEEL, 1 1/4" DIA.

ELECTRIC SERVICE INSTALLATION AERIAL, COORDINATE INSTALLATION WITH UTILITY COMPANY REQUIREMENTS

MN-C-1 STA. 700+31 SETBACK 31' EOTW

MN-C-2 STA. 424+10 SETBACK 21' EOTW

MN-D-1 STA. 425+65 SETBACK 21' EOTW

MN-D-6 STA. 424+11 SETBACK 31' EOTW

PROPOSED CENTERLINE OF IL ROUTE 176

MN-C-5 STA. 425+66 SETBACK 31' EOTW

MN-D-5 STA. 427+03 SETBACK 31' EOTW

MN-C-9 STA. 636+25 SETBACK 21' EOTW

MN-D-9 STA. 637+73 SETBACK 21' EOTW

MN-C-10 STA. 639+21 SETBACK 21' EOTW

MN-A-2 STA. 707+44 SETBACK 21' EOTW

MN-A-1 STA. 703+86 SETBACK 21' EOTW

MN-B-1 STA. 705+07 SETBACK 21' EOTW

PROPOSED CENTERLINE OF SB RAMP

MN-B-6 STA. 632+65 SETBACK 31' EOTW

MN-A-7 STA. 636+25 SETBACK 31' EOTW

MN-B-7 STA. 637+73 SETBACK 31' EOTW

MN-A-8 STA. 639+23 SETBACK 31' EOTW

MN-A-4 STA. 630+02 SETBACK 31' EOTW

MN-B-5 STA. 627+78 SETBACK 31' EOTW

**NOTES:**

- ① PROVIDE 220 WATT LUMINAIRE, LED, OUTPUT DESIGNATION H. FIXTURE SHALL BE POWERED FROM TRAFFIC SIGNAL CONTROLLER. FIXTURE SHALL BE MOUNTED ON MAST ARM PROVIDED WITH COMBINATION POLE.
- ② PROVIDE TWO 3" GALVANIZED STEEL CONDUITS. THE FIRST SHALL BE A SLEEVE FOR THE LIGHTING CIRCUITS AND THE SECOND SHALL BE A SPARE.
- ③ WORKING CLEARANCE DISTANCE MUST BE MAINTAINED BETWEEN THE BOOMS, ARMS OR OTHER PARTS THAT CAN BE RAISED ON THE EQUIPMENT UTILIZED BY THE CONTRACTOR AND COMED'S EXISTING 138,000 VOLT ELECTRIC TRANSMISSION CONDUCTORS AND A MINIMUM OF TWENTY (20) FEET WORKING CLEARANCE DISTANCE MUST BE MAINTAINED BETWEEN THE BOOMS, ARMS OR OTHER PARTS THAT CAN BE RAISED ON THE EQUIPMENT UTILIZED BY THE CONTRACTOR AND COMED'S EXISTING 345,000 VOLT ELECTRIC TRANSMISSION CONDUCTORS. UNDER NO CIRCUMSTANCES, SHOULD TRUCK BEDS BE RAISED UNDERNEATH COMED TRANSMISSION LINES.

MODEL: D:\641\1170 SOUTH HOUBOLT ROAD\JOLIET, ILLINOIS 60431\STRAND ASSOCIATES\PROJECTS\62B43\62B43-SP-STR-176-IL-47-06.dgn



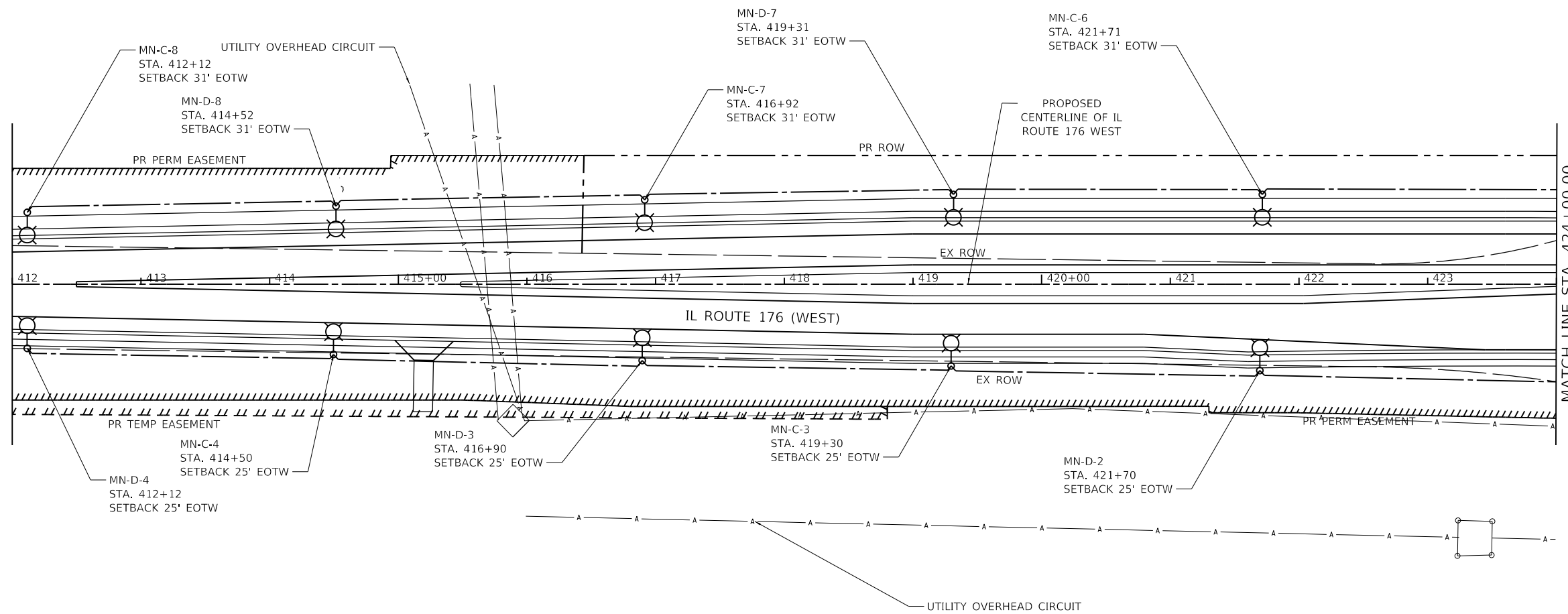
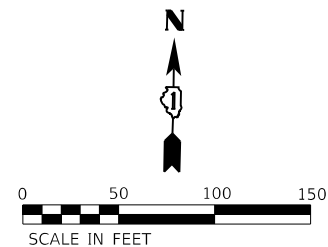
USER NAME = StevenB	DESIGNED - MAG	REVISED -
PLOT SCALE = 100.0000' / in.	DRAWN - DJW	REVISED -
PLOT DATE = 12/18/2023	CHECKED - SJG	REVISED -
	DATE - 12/15/2023	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47  
PROPOSED LIGHTING PLAN**

SCALE: 1" = 50' SHEET 6 OF 7 SHEETS STA. 626+00.00 TO STA. 641+00.00

F.A.P. RTE. 326	SECTION 105-N-2(15)	COUNTY MCHENRY	TOTAL SHEETS 803	SHEET NO. 539
			CONTRACT NO. 62B43	
ILLINOIS FED. AID PROJECT				



**NOTES:**  
 WHEN WORKING IN THE VICINITY OF COMED'S ELECTRIC TRANSMISSION LINES DURING THE INSTALLATION, COMED REQUIRES THAT A MINIMUM OF FIFTEEN (15) FEET WORKING CLEARANCE DISTANCE MUST BE MAINTAINED BETWEEN THE BOOMS, ARMS OR OTHER PARTS THAT CAN BE RAISED ON THE EQUIPMENT UTILIZED BY THE CONTRACTOR AND COMED'S EXISTING 138,000 VOLT ELECTRIC TRANSMISSION CONDUCTORS AND A MINIMUM OF TWENTY (20) FEET WORKING CLEARANCE DISTANCE MUST BE MAINTAINED BETWEEN THE BOOMS, ARMS OR OTHER PARTS THAT CAN BE RAISED ON THE EQUIPMENT UTILIZED BY THE CONTRACTOR AND COMED'S EXISTING 345,000 VOLT ELECTRIC TRANSMISSION CONDUCTORS. UNDER NO CIRCUMSTANCES, SHOULD TRUCK BEDS BE RAISED UNDERNEATH COMED TRANSMISSION LINES.

MODEL: D:\64\11  
 FILE NAME: S:\01\15300-6399\15300-6399\15300-6399\CAD\_Sheets\15300-6399-176M-02.dwg



USER NAME = StevenB	DESIGNED - MAG	REVISED -
PLOT SCALE = 100.0000' / in.	DRAWN - DJW	REVISED -
PLOT DATE = 12/18/2023	CHECKED - SJG	REVISED -
	DATE - 12/15/2023	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

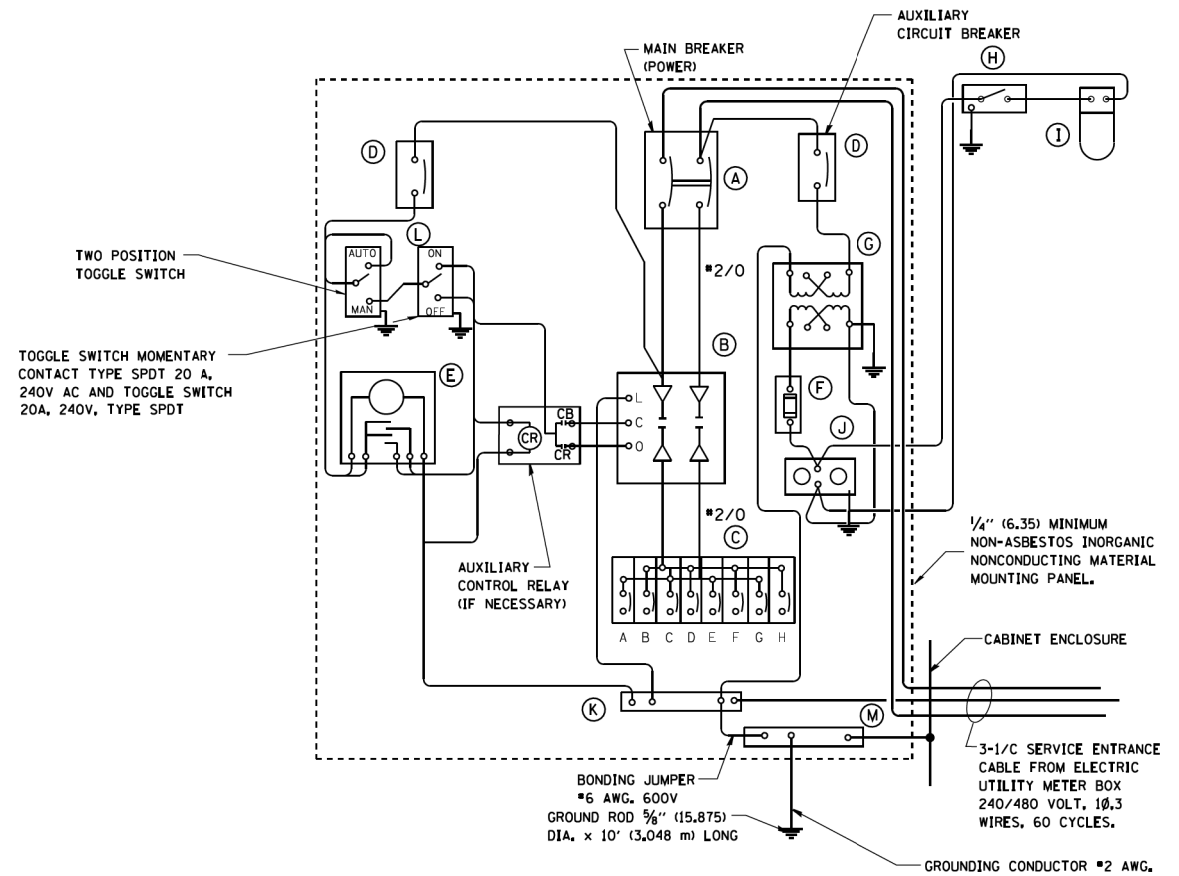
**IL ROUTE 176 (WEST)  
 PROPOSED LIGHTING PLAN**

SCALE: 1" = 50'    SHEET 7 OF 7 SHEETS    STA. 412+00.00 TO STA. 424+00.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	540
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				







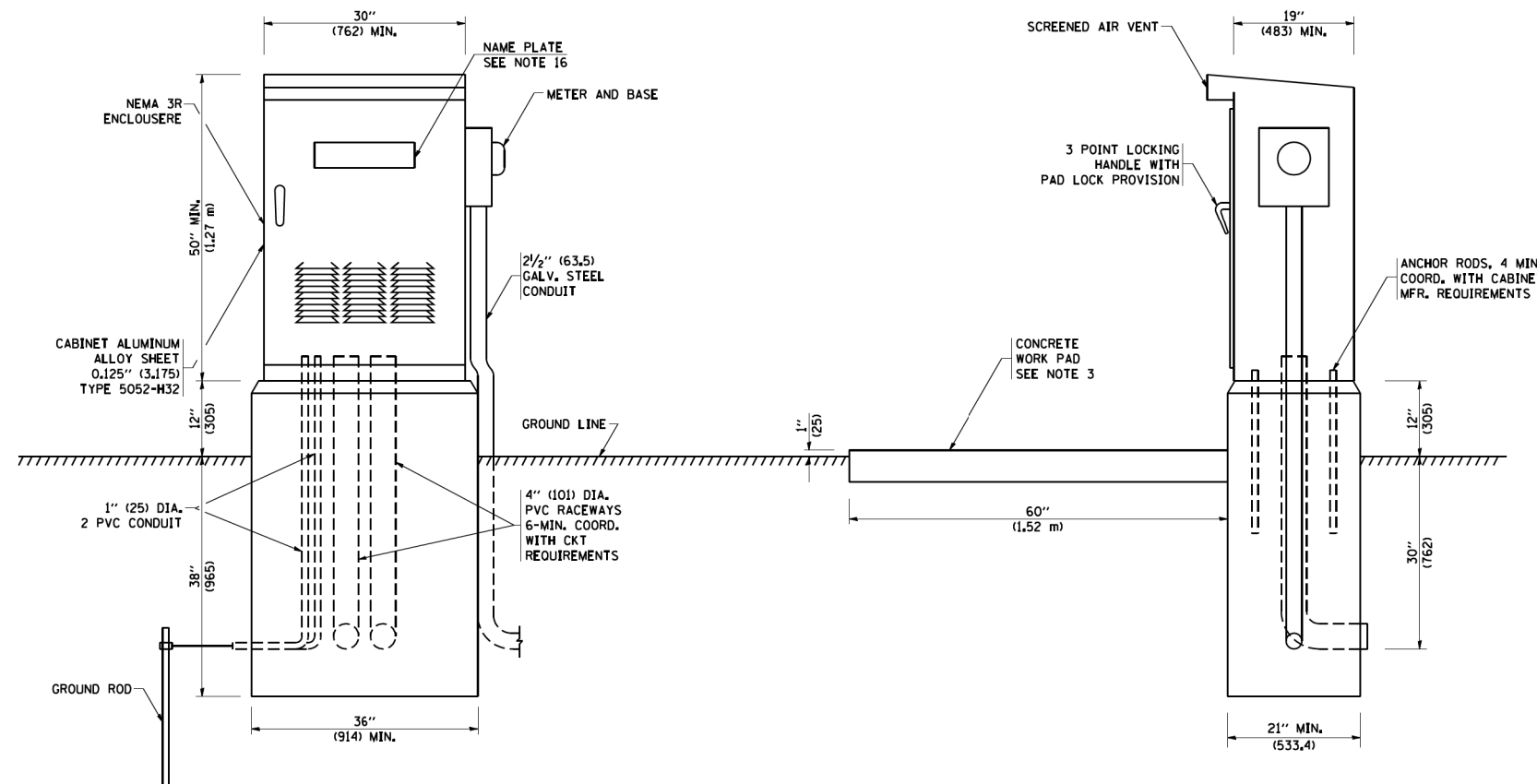
**PANEL WIRING DIAGRAM**

**PANEL EQUIPMENT**

BILL OF MATERIAL		
ITEM	QUANTITY	DESCRIPTION
A	1	MAIN CIRCUIT BREAKER, 2 POLE, 600 VOLT 100 AMP. FRAME, 100 AMP. NON-INTERCHANGEABLE TRIP INTERRUPTING RATING NEMA-22000 AMP. AT 480 VOLT.
B	1	REMOTE CONTROL SWITCH, ELECTRICALLY OPERATED, MECHANICALLY HELD, 2 POLE, SINGLE THROW, 100 AMP., 600 VOLTS CONTROL CIRCUIT 240 VOLT.
C	8	CIRCUIT BREAKERS, 1 POLE, 100AMP. FRAME, 50 AMP. NON-INTERCHANGEABLE TRIP INTERRUPTING RATING NEMA-10,000 AMP. AT 240 V.
D	2	CONTROL CIRCUIT-CIRCUIT BREAKER, 1 POLE, 240 V., 100 AMP. FRAME, 15 AMP. NON-INTERCHANGEABLE TRIP INTERRUPTING RATING NEMA-5000 AMP. AT 240 V.
E	1	ASTRONOMIC MICROPROCESSOR-BASED 2-CHANNEL CONTROLLER [TIME SWITCH].
F	1	20 A., 120 V. FUSE.
G	1	1.5 KVA, SINGLE PHASE, ENCAPSULATED TRANSFORMER 240 X 480 / 120 X 240 VOLT, 60 HZ.
H	1	SPST 20A SWITCH ON DOOR, TO TURN LIGHT ON WHEN DOOR IS OPEN,
I	1	INCANDESCENT LIGHTING FIXTURE ENCLOSED AND GASKETED WITH 60 WATT, 120 V. LAMP.
J	1	20 A., 120 V., DUPLEX RECEPTACLE, GFCI.
K	1	COPPER GROUND BUS 1/4" (6.35) X 1" (25.4) X 12" (304.8 mm) LONG MOUNTED ON PANEL WITH LUGS AND 4 SPARE LUGS
L	1	TOGGLE SWITCHES MOUNTED IN 4" (101.6) X 4" (101.6 mm) BOX.
M	1	COPPER GROUND BUS 1/4" (6.35) X 1" (25.4) X 12" (304.8 mm) LONG MOUNTED ON PANEL WITH LUGS AND SPARE LUGS

**NOTES:**

- ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN.
- FOUNDATION SIZE SHALL BE COORDINATED WITH CABINET SIZE AND MFR.
- IN FRONT OF CONTROL CABINET DOOR, REMOVE VEGETATION AND 2" (50.8 mm) TOP SOIL. LEVEL THE AREA AND ON TOP, PLACE LENGTH WISE PARALLEL TO CONTROL CABINET, A CONCRETE PAD 36" (914.4 mm) x 60" (18,288 m) x 4" (101 mm) MIN. SIZE. THE COST OF LABOR AND MATERIALS ARE INCLUDED IN THE COST OF THE CONTROLLER.
- DOOR SHALL BE CONSTRUCTED FROM SAME TYPE OF MATERIAL AND THICKNESS AS CABINET.
- DOOR SHALL BE EQUIPPED WITH THREE POINT LATCHING MECHANISM WITH NYLON ROLLERS AT TOP THE BOTTOM.
- DOOR HINGE SHALL BE A HEAVY GAUGE CONTINUOUS HINGE WITH A 1/4" (6.35 mm) DIA. STAINLESS STEEL HINGE PIN.
- ALL EXTERNAL HARDWARE SHALL BE STAINLESS STEEL.
- CONTROL WIRING TO BE #12 AWG, 600V, TYPE "SIS" GRAY SWITCH BOARD WIRE, STRANDED COPPER.
- METER BOX SHALL BE MOUNTED ON THE SIDE OF CONTROL CABINET, NEAR TO THE SERVICE POLE.
- CABINETS SHALL BE PRIMED AND PAINTED AS SPECIFIED.
- THE HEADS OF CONNECTORS SCREWS SHALL BE PAINTED WHITE FOR NEUTRAL BAR CONNECTION AND GREEN FOR GROUND BAR CONNECTORS.
- ALL WIRING WITHIN THE CABINET SHALL BE COLOR CODED AS INDICATED.  
R = RED      BL = BLUE      W = WHITE  
B = BLACK      Y = YELLOW      G = GREEN
- PROVIDE SEALING GROMMETS FOR ALL OPEN WIRING EXTENDED FROM DEVICES IN BOXES OR CABINETS WITHIN THE CONTROL CABINET.
- ALL WIRING SHALL BE NEATLY DRESSED AND SUPPORTED.
- THE CONTROLLER SHALL BE CONSTRUCTED TO U.L. STD. 508 AND BEAR THE U.L. LABEL "ENCLOSED INDUSTRIAL CONTROL PANEL".
- 12" (304.8) X 16" (406.4 mm) STAINLESS STEEL EXTERIOR NAMEPLATE SHALL BE ENGRAVED TO "STATE OF ILLINOIS LIGHTING CONTROLS" UNLESS OTHERWISE SPECIFIED.



ASCERTAIN AND ASSURE CLEARANCE FROM UTILITY SECONDARY SPACE, AS APPLICABLE.

UTILITY GROUND CONNECTION, (AS APPLICABLE), BY UTILITY

UTILITY GROUND, AS APPLICABLE, (BY UTILITY)

APPROXIMATELY 10'-6" (3.2 m)

APPROX. 6" (150 mm)

GRADE

EXOTHERMIC WELD CONNECTION

UTILITY GROUNDING ELECTRODE (AS APPLICABLE), BY UTILITY

CUSTOMER SERVICE RISER GROUND ELECTRODE 5/8" X 10' (15.875 mm X 3.048 m) COPPERCLAD GROUND ROD (IN UNDISTURBED SOIL) SEE NOTE 5.

UTILITY POLE, PRIMARY CUT-OUTS TRANSFORMER(S) (AS APPLICABLE) BY THE ELECTRIC UTILITY. THE CONTRACTOR SHALL COORDINATE AS REQUIRED.

PROVIDE ADEQUATE SLACK FOR DRIP LOOP AND CONNECTION BY THE UTILITY

NON-METALLIC "U" GUARD. FURNISH FOR INSTALLATION BY ELECTRIC UTILITY. LENGTH AS REQUIRED

CONDUIT/CONDUCTOR SEALING BUSHING, SIZE AND CONDUCTOR CONFIGURATION TO MATCH SERVICE. OZ GEDNEY TYPE CSBG OR APPROVED EQUAL, COMPLETE WITH LOCKING COLLAR (SEE DETAIL)

2-HOLE STRAP FOR RIGID CONDUIT, ZINC PLATED STEEL O.Z. GEDNEY TYPE TH-1800 OR APPROVED EQUAL. ATTACHED WITH LAG SCREWS. (TYPICAL)

RIGID STEEL CONDUIT RISER (CONTINUOUS 10' (3 m) LENGTH).

HEAVY DUTY GROUND CLAMP, UNIVERSAL U-CLAMP TYPE, BY O.Z. GEDNEY, T&B OR APPROVED EQUAL.

RIGID GALVANIZED THREADED COUPLING.

PVC-COATED RIGID CONDUIT NIPPLE OR CONDUIT EXTENSION, LENGTH AS REQUIRED

PVC COATED RIGID CONDUIT ELBOW 24" (609.6 mm) RADIUS (MIN.) SEE NOTE 3.

THREADED TRANSITION COUPLING, AS APPLICABLE (SEE NOTE 6)

GROUNDING ELECTRODE CONDUCTOR, BARE COPPER, #1/0 AWG. MINIMUM

GROUND ROD SHALL BE INSTALLED NOT LESS THAN 24" (609 mm) FROM POLE UNLESS APPROVED BY THE ENGINEER

30" MIN - 36" MAX (762.0 mm MIN. - 914.0 mm MAX.) TO TOP OF CONDUIT

EXTENSION TO SERVICE EQUIPMENT

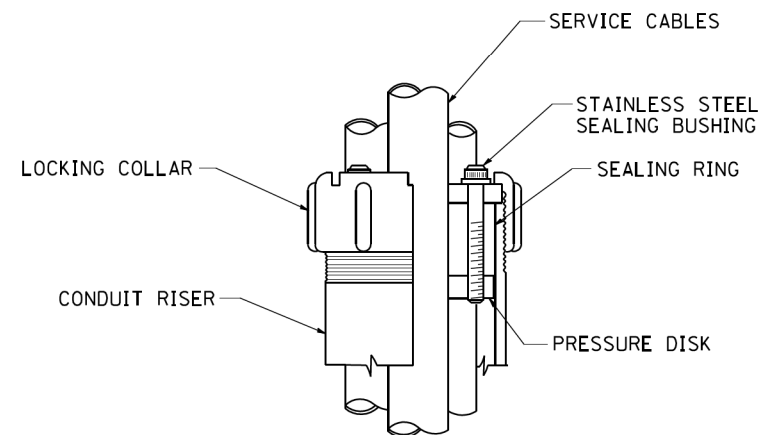
HORIZONTAL ELECTRIC SERVICE CONDUCTOR RACEWAY (SEE NOTE 6)

**APPLICATION**

THIS DETAIL APPLIES FOR LOW VOLTAGE ELECTRIC SERVICE (660 V OR LESS) FROM AN OVERHEAD UTILITY SUPPLY TO SEPERATLY-MOUNTED SERVICE EQUIPMENT.

**NOTES**

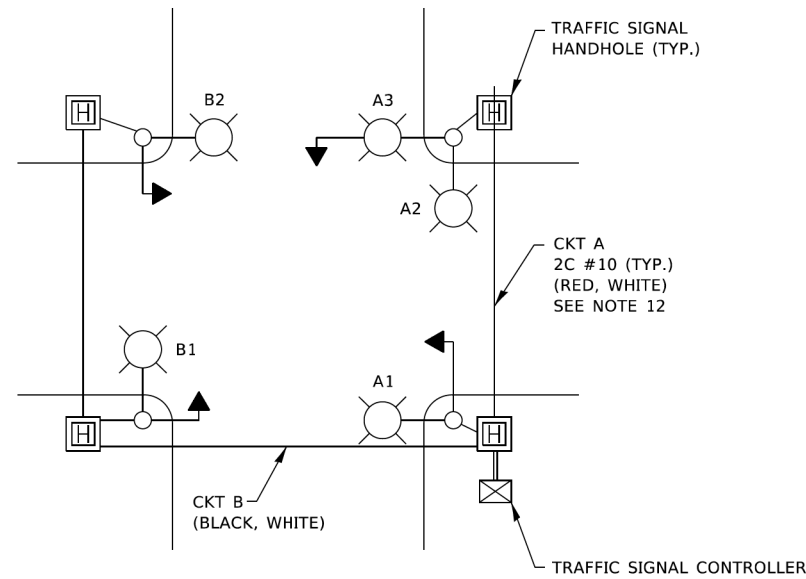
- SERVICE VOLTAGE SHALL BE AS INDICATED ELSEWHERE IN THE DRAWINGS.
- UNLESS OTHERWISE INDICATED, ITEMS AND WORK SHALL BE INCLUDED AND PAID AS PART OF THE ELECTRIC UTILITY SERVICE INSTALLATION PAY ITEM.
- CONDUIT AND CONNECTOR DIAMETER SHALL MATCH THE DIAMETER OF THE SERVICE CONDUCTOR RACEWAY AS INDICATED ON THE PLANS.
- PVC COATED RACEWAYS AND ACCESSORIES SHALL BE CAREFULLY INSTALLED WITH MFR RECOMMENDED TOOLS AND PROCEDURES TO AVOID DAMAGE. ANY DAMAGE SHALL BE REPAIRED WITH COMPATIBLE PVC TOUCH-UP MATERIAL TO THE SATISFACTION OF THE ENGINEER OR THE DAMAGED MATERIAL SHALL BE REPLACED AT NO ADDITIONAL COST.
- THE CONTRACTOR SHALL OBTAIN INSPECTION AND APPROVAL BY THE ENGINEER OF SERVICE RISER GROUND ELECTRODE, RISER ELBOW, NIPPLE AND CONNECTION TO SERVICE CONDUCTOR RACEWAY EXTENSION BEFORE BACKFILL AND SHALL ALSO OBTAIN INSPECTION OF SERVICE RISER AND SEALING BUSHING BEFORE UTILITY "U" GUARD INSTALLATION AND SERVICE CONNECTION.
- THE HORIZONTAL ELECTRIC SERVICE CONDUCTOR RACEWAY SHALL BE AS INDICATED AND SHALL BE MEASURED SEPARATELY FOR PAYMENT. WHEN THE RACEWAY IS PVC-COATED RIGID GALVANIZED STEEL, THE COUPLING SHALL BE THE SAME. WHEN THE RACEWAY IS PVC CONDUIT (IN CONCRETE), THE COUPLING SHALL BE A METALIC TO NON METALIC ADAPTER. WHEN THE RACEWAY IS ENCASED IN CONCRETE, THE CONCRETE SHALL EXTEND TO COVER THE COUPLING.
- PLANS AND DETAILS INDICATE THE GENERAL NATURE AND REQUIREMENTS. THEY DO NOT SHOW EVERY ACCESSORY AND ATTACHMENT, AND THEY DO NOT RELIEVE THE CONTRACTOR OF THE REQUIREMENTS OF THE SPECIFICATIONS AND SPECIAL PROVISIONS TO ASCERTAIN UTILITY REQUIREMENTS AND TO COORDINATE ACCORDINGLY, FURNISHING ALL ITEMS AND WORK NOT PROVIDED BY THE UTILITY, BUT NECESSARY FOR A COMPLETE SERVICE INSTALLATION IS REQUIRED AND SHALL BE INCLUDED IN THE ELECTRIC UTILITY SERVICE INSTALLATION PAY ITEM.



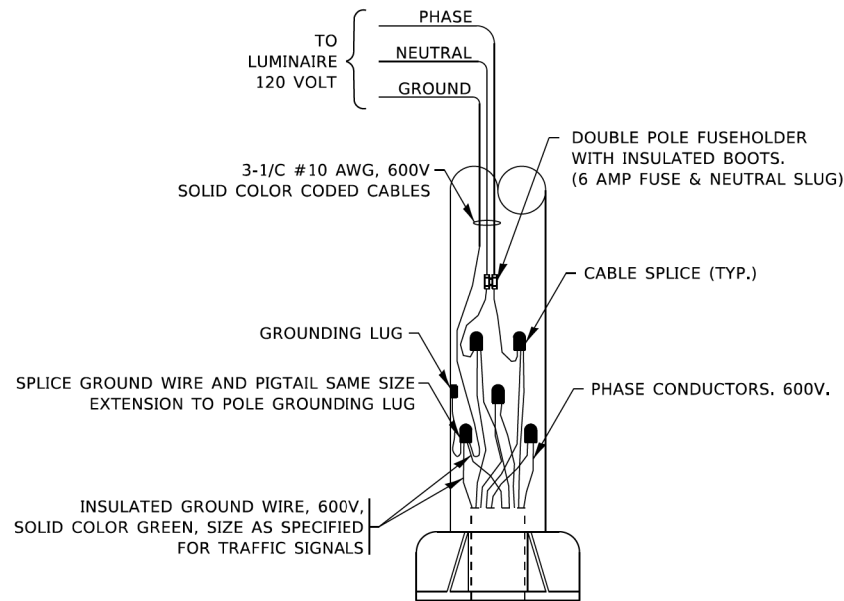
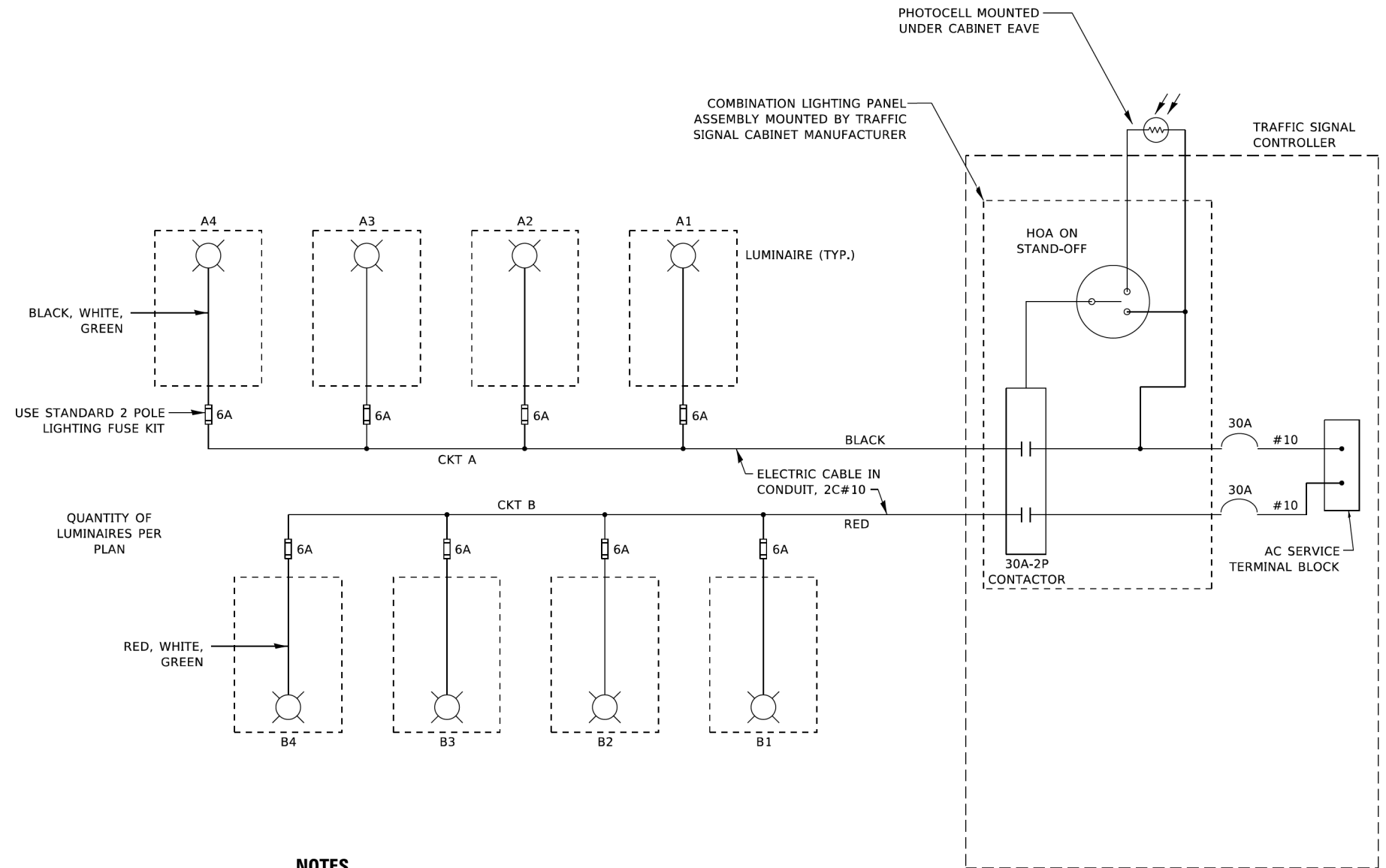
**SEALING BUSHING DETAIL**

FILE NAME = W:\distata\22x34\be228.dgn	USER NAME = gegl1enobt	DESIGNED - DRAWN -	REVISED - 03-03-06 REVISED - REVISED - REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>ELECTRIC SERVICE INSTALLATION AERIAL, REMOTE DISCONNECT</b>		F.A.P. RTE. 326	SECTION 105-N-2(15)	COUNTY MCHENRY	TOTAL SHEETS 803	SHEET NO. 544
PLOT SCALE = 50.0000' / IN. PLOT DATE = 1/4/2008	CHECKED - MEA DATE -	SCALE: NONE	SHEET NO. 1 OF 1 SHEETS		STA.	TO STA.	<b>BE-220</b>		CONTRACT NO. 62B43		FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT





**TYPICAL LIGHTING CIRCUIT**  
(NOT TO SCALE)



**COMBINATION POLE WIRING DETAIL**  
(NOT TO SCALE)

**NOTES**

1. 4 LUMINAIRES PER CIRCUIT, MAXIMUM.
2. TWO #10 (XLP-TYPE USE) CABLES TO BE USED FOR LIGHTING CIRCUITS.
3. ROUTE LIGHTING CIRCUITS IN TRAFFIC SIGNAL CONDUIT SYSTEM.
4. ALL SPLICES AND CONNECTIONS FOR ROADWAY LIGHTING SHALL BE AT POLE BASE ONLY.
5. FOR LIGHTING CIRCUITS, CONNECT TWO CIRCUIT BREAKERS TO AC SERVICE TERMINAL BLOCK.
6. ALL WIRING SHALL BE NEATLY DRESSED, IDENTIFIED BY TAGS, AND SUPPORTED. (UNDERGROUND SPLICING OF LIGHTING CONDUCTORS IS NOT PERMITTED).
7. THE H.O.A. SWITCH SHALL BE LABELED AS "LIGHTING CONTROL" WITH THE POSITIONS "AUTO", "OFF" AND "TEST" WITH ENGRAVED NAME PLATES.
8. LIGHTING CONNECTED TO UPS BYPASS CIRCUIT.
9. COMBINATION LIGHTING MUST BE INSTALLED PRIOR TO SIGNAL TURN ON.
10. LUMINAIRE VOLTAGE SHALL BE 120V
11. POLE WIRING & FUSE KITS ARE INCLUDED IN THE LUMINAIRE PAY ITEM.
12. THE UNDERGROUND EQUIPMENT GROUND WIRE IS SHOWN IN THE TRAFFIC SIGNAL PLANS AND IS INCLUDED IN THE SIGNAL PLANS. IT IS SHARED GROUND BETWEEN SIGNALS AND LIGHTING.

MODEL: Default  
 FILE: \\pww\pww-bentley.com\pww\DOT\Documents\DOT\_Offices\District\_1\Projects\Dist1\23131\CAD\Dist1\CAD\Sheet\ts240.dgn

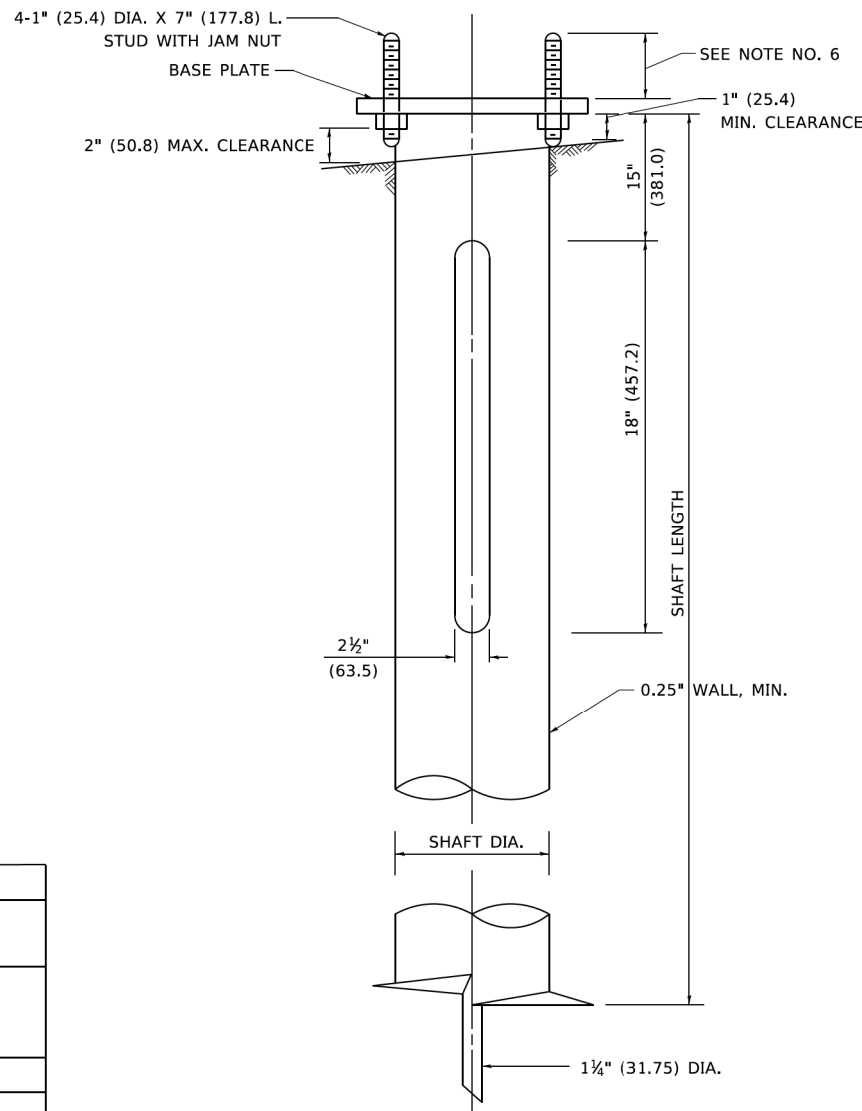
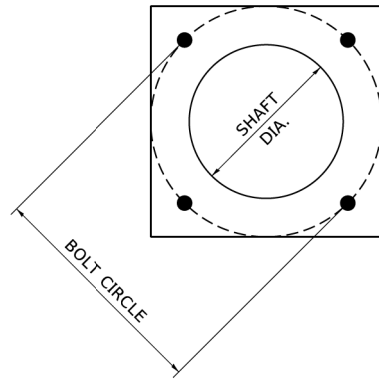
USER NAME = demanchelt	DESIGNED - RT	REVISED - T.G. 4/12/2017
	DRAWN -	REVISED - R. TOMSONS 3/22/18
PLOT SCALE = 100,0000' / in.	CHECKED - RT	REVISED - T.G. 8/03/2021
PLOT DATE = 5/5/2022	DATE - 08/18/2014	REVISED - T.G. 5/05/2022

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**COMBINATION LIGHTING, TRAFFIC SIGNAL SCHEMATIC**

SCALE: NONE SHEET 1 OF 1 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	545
<b>BE-240</b>		CONTRACT NO. 62B43		
ILLINOIS FED. AID PROJECT				



**NOTES**

1. ALL DIMENSION IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN.
2. ALL MATERIAL SHALL BE GALVINIZED ACCORDING TO AASHTO M111, UNLESS OTHERWISE SPECIFIED.
3. ALL WELDS SHALL BE CONTINUOUS AND NOT LESS THAN 1#4" (6.35 mm) FILLET WELDS. THE WELDED FOUNDATION SHALL BE CAPABLE OF WITHSTANDING 10,000 FT/LBS (13558.18 n.m) OF INSTALLATION TORQUE APPLIED ABOUT THE AXIS OF THE FOUNDATION.
4. THE HELIX FOUNDATION SHAFT SHALL BE INSTALLED VERTICAL AND THE BASE PLATE SHALL BE IN LEVEL. THE BREAKAWAY COUPLINGS AND HARDWARE SHALL NOT BE USED TO ALIGN THE POLE INSTALLATION.
5. THE CABLE TRENCH SHALL BE BACKFILLED AND FIRMLY COMPACTED BEFORE THE INSTALLATION OF THE LIGHT POLE.
6. THE CONTRACTOR SHALL COORDINATE EXTENSION OF ANCHOR BOLTS ABOVE TOP OF THE BASE PLATE WITH THE BREAKAWAY DEVICE MANUFACTURER'S REQUIREMENTS.
7. ANY VOIDS WITHIN THE METAL FOUNDATION SHALL BE FILLED WITH FINE AGGREGATE.
8. METAL FOUNDATIONS SHALL BE INSTALLED IN UNDISTURBED SOIL. PREDRILLING A PILOT HOLE AND/OR BACKFILLING AROUND THE FOUNDATION IS NOT ALLOWED.
9. THE METAL FOUNDATION SHALL NOT BE INSTALLED TO A TORQUE WHICH EXCEEDS THE MANUFACTURER'S MAXIMUM TORQUE RATING NOR SHALL IT BE INSTALLED TO AN INSTALLATION TORQUE VALUE OF LESS THAN 3,500 FT LB (4,750 KNM). METAL FOUNDATIONS THAT ARE NOT INSTALLED TO FULL INSTALLATION DEPTH OR DO NOT ACHIEVE THE MINIMUM INSTALLATION TORQUE SHALL BE REMOVED AND REPLACED WITH A CONCRETE FOUNDATION AT NO ADDITIONAL COST.
10. THE BASEPLATE SHALL BE PERPENDICULAR TO THE SHAFT AXIS ( $\pm 1^\circ$ ) AND THE HOLE CENTERLINE SHALL BE CONCENTRIC ( $\pm 0.188$ ) TO THE SHAFT AXIS.
11. THE PILOT POINT AND SHAFT AXIS SHALL BE CONCENTRIC ( $\pm 0.125$ ) AND IN LINE ( $\pm 2^\circ$ ).
12. THE BASEPLATE SHALL BE STAMPED WITH THE MANUFACTURERS NAME AND DATE OF MANUFACTURE.

**HELIX FOUNDATION SIZE**

POLE MOUNTING HEIGHT	BOLT CIRCLE	SHAFT DIAMETER	SHAFT LENGTH	BASEPLATE
30 FT.	11 1/2"	8 5/8"	6 FT.	12"x12"x1"
31 FT.-35 FT.	11 1/2"	8 5/8"	6 FT.	12"x12"x1"
36 FT.-40FT.	15"	8 5/8"	6 FT.	15"x15"x1 1/4"
41 FT.-45 FT.	15"	8 5/8"	6 FT.	15"x15"x1 1/4"
46 FT.-50 FT.	15"	10"	8 FT.	15"x15"x1 1/4"

**METAL HELIX FOUNDATION MATERIALS**

ITEM	MATERIAL REQUIREMENT
BASEPLATE	AASHTO M 270M, GRADE 36 (M270M, GRADE 250)
SHAFT	ASTM A 252, GRADE 2 (PHOSPHOROUS 0.04% MAXIMUM, SULFUR 0.05% MAXIMUM)
HELIX SCREW	AASHTO M 183 (ASTM A 635)
PILOT POINT	AASHTO M 270 (ASTM A 575)
ANCHOR RODS/STUDS	AASHTO M 314 (ASTM F 1554)
HEXAGON NUTS	AASHTO M 291M (ASTM A 563) GRADE DH, OR AASHTO M 292 (ASTM A 194) GRADE 2H
WASHERS	AASHTO M 293 (ASTM F 436)

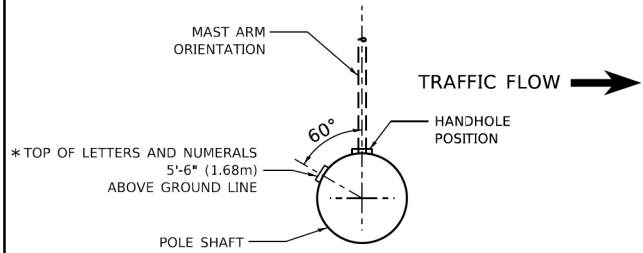
MODEL: Default  
 FILE: M:\etc\proj\plancom\edc\_illinois.gov\PIV\DOT\Documents\DOT\_Offices\District\_1\Projects\Dist5\427231\CADD\ba\CADsheets\ba-305.dgn

USER NAME = footemj	DESIGNED -	REVISED -
	DRAWN - DLB	REVISED -
PLOT SCALE = 50,0000 ' / ft.	CHECKED -	REVISED -
PLOT DATE = 4/19/2019	DATE - 02-27-07	REVISED -

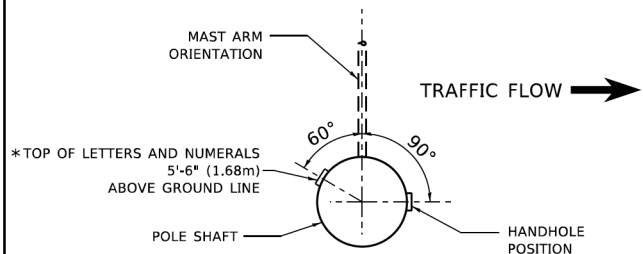
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

<b>LIGHT POLE FOUNDATION, METAL</b>			
SCALE: NONE	SHEET 1	OF 1 SHEETS	STA. TO STA.

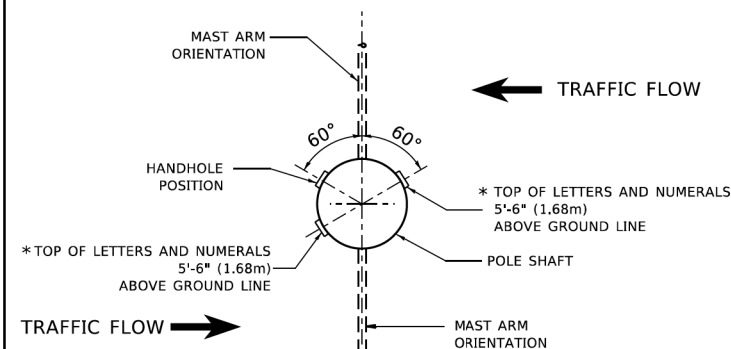
F.A.P. RTE. 326	SECTION 105-N-2(15)	COUNTY MCHENRY	TOTAL SHEETS 803	SHEET NO. 546
<b>BE-305</b>		CONTRACT NO. 62B43		
ILLINOIS FED. AID PROJECT				



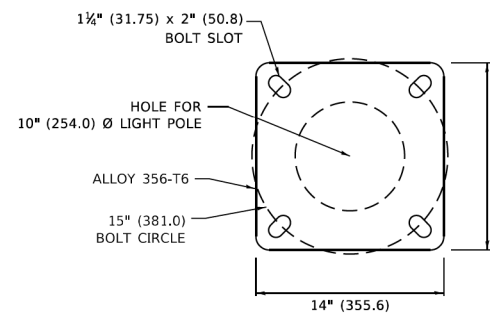
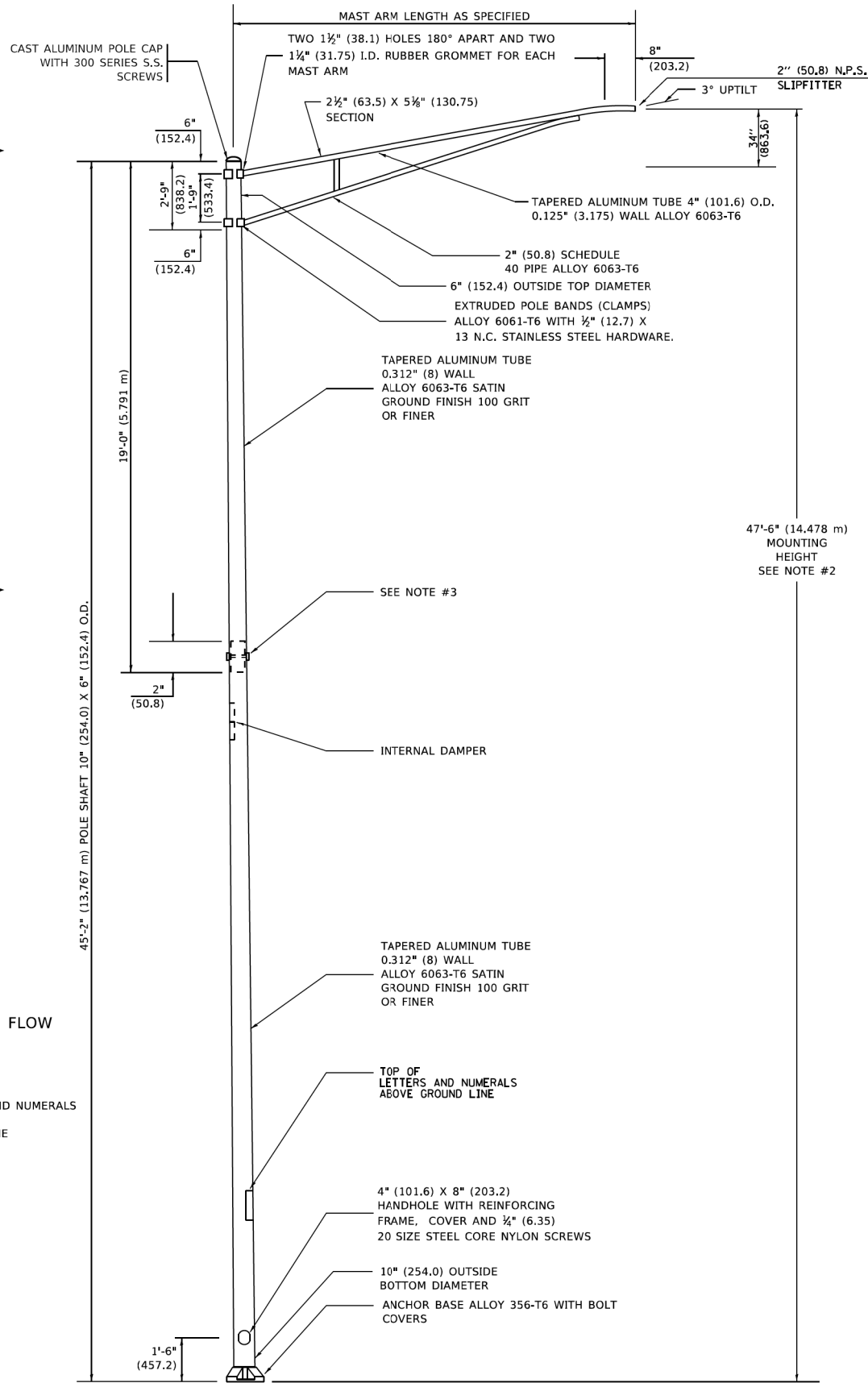
**POSITION OF HANDHOLE AND POLE NUMBER FOR SINGLE MAST ARM POLES MOUNTED ON BRIDGE PARAPET OR BARRIER WALL**



**POSITION OF HANDHOLE AND POLE NUMBER FOR SINGLE MAST ARM POLES**

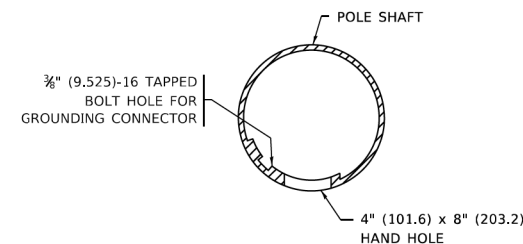


**POSITION OF HANDHOLE AND POLE NUMBER FOR TWIN MAST ARM POLES**



**LIGHT POLE BASE PLATE DETAIL**

15 INCH (381.0) BOLT CIRCLE



**HANDHOLE DETAIL (N.T.S.)**

**NOTES**

1. ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN.
2. MOUNTING HEIGHT IS DEFINED AS THE DISTANCE FROM THE CENTERLINE OF THE TENON TO THE BOTTOM OF THE ANCHOR BASE.
3. TWO PIECE SHAFT WILL BE MATCHED MARKED AND INTERCHANGEABLE BETWEEN DIFFERENT UNITS. FIELD DRILLING OF THE HOLES WILL NOT BE ALLOWED.
4. THE LIGHT POLE WILL MEET AASHTO DESIGN CRITERIA AS SPECIFIED.
5. THE INSTALLING CONTRACTOR WILL PROVIDE A UL LISTED GROUNDING CONNECTOR. BURNDY K2C23, T&B SP4DL OR APPROVED EQUAL.
6. LIGHT POLES WILL NOT BE INSTALLED WITHOUT MAST ARMS AND LUMINAIRES.
7. LIGHT POLES WILL BE SET PLUMB ON THE FOUNDATION WITHOUT THE USE OF LEVELING NUTS, WASHERS OR SHIMS.
8. LIGHTING UNIT IDENTIFICATION NUMBERS SHALL BE INSTALLED BEFORE THE LIGHTING UNIT IS ENERGIZED.

MODEL: Default  
FILE NAME: W:\projects\22234\lba-400.dgn

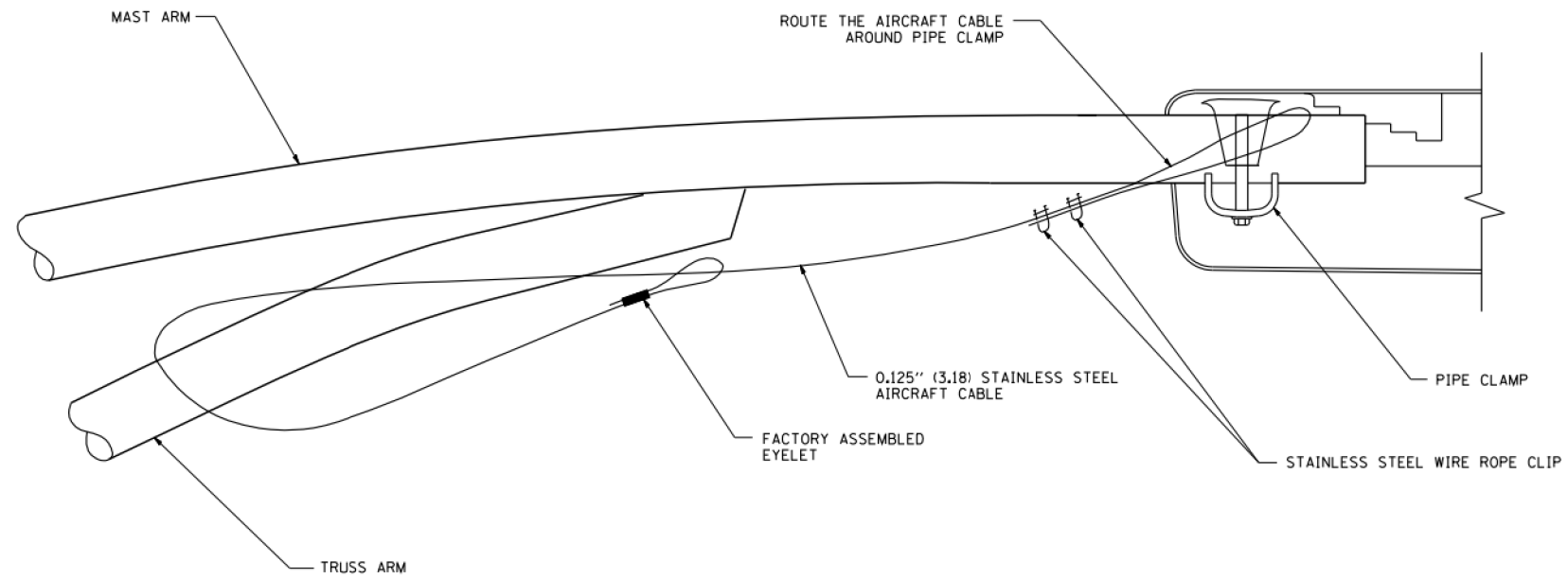
USER NAME = Lawrence,DeManche	DESIGNED -	REVISED - R. TOMSONS 09-03-03
	DRAWN -	REVISED - R. TOMSONS 01-18-13
PLOT SCALE = 100.0000' / in.	CHECKED -	REVISED - R. TOMSONS 03-18-15
PLOT DATE = 6/27/2022	DATE -	REVISED - 06/13/2022 TG

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

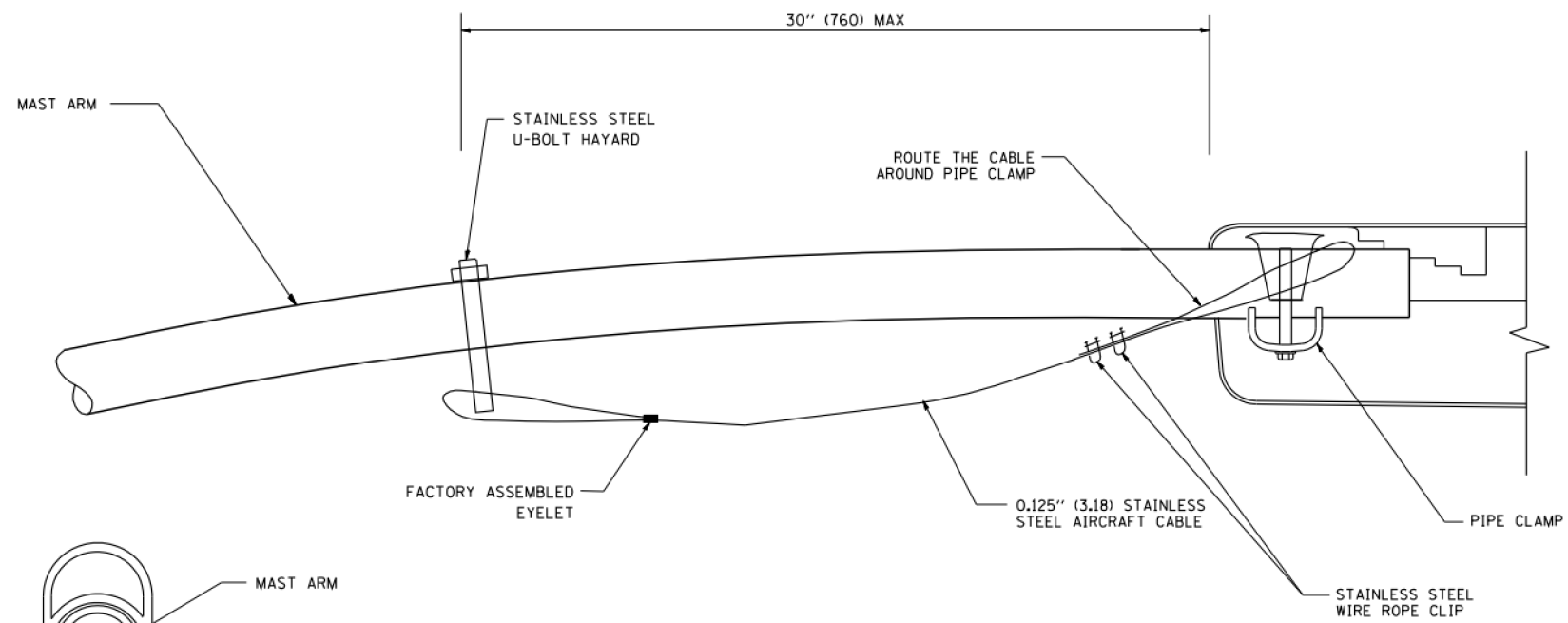
**ALUMINUM LIGHT POLE  
47'-6" (14.478 m) MOUNTING HEIGHT**

SCALE: NONE SHEET 1 OF 1 SHEETS STA. TO STA.

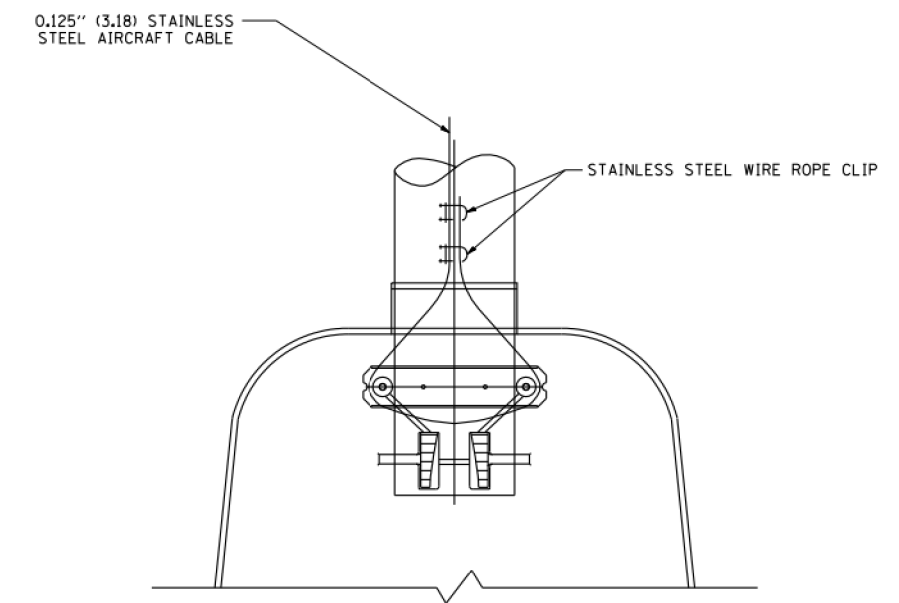
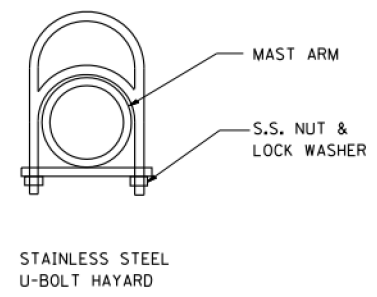
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	547
<b>BE-400</b>		CONTRACT NO. 62B43		
ILLINOIS FED. AID PROJECT				



**SIDE VIEW (TRUSS ARM)**  
N.T.S.



**SIDE VIEW (SINGLE MEMBER OR DAVIT ARM)**  
N.T.S.

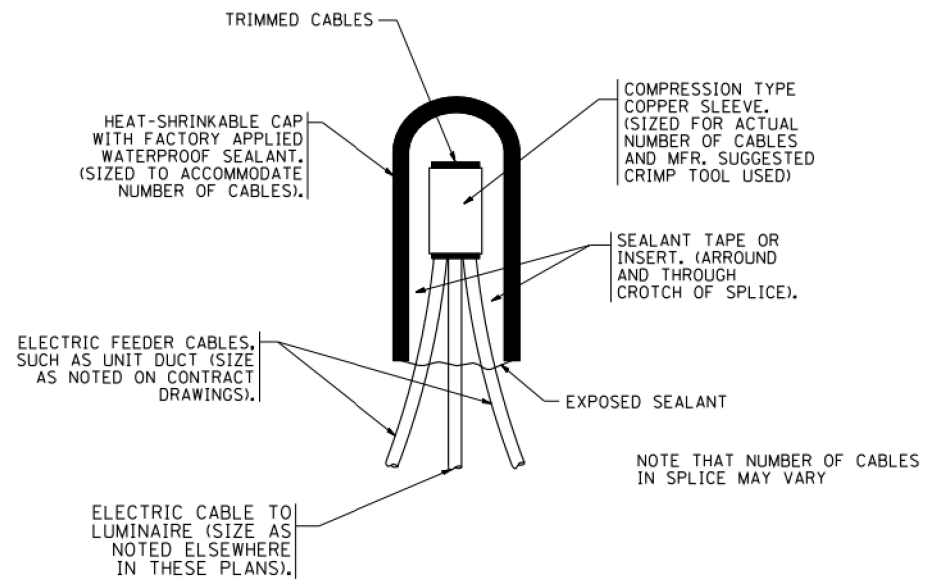


**BOTTOM VIEW**  
N.T.S.

**NOTES:**

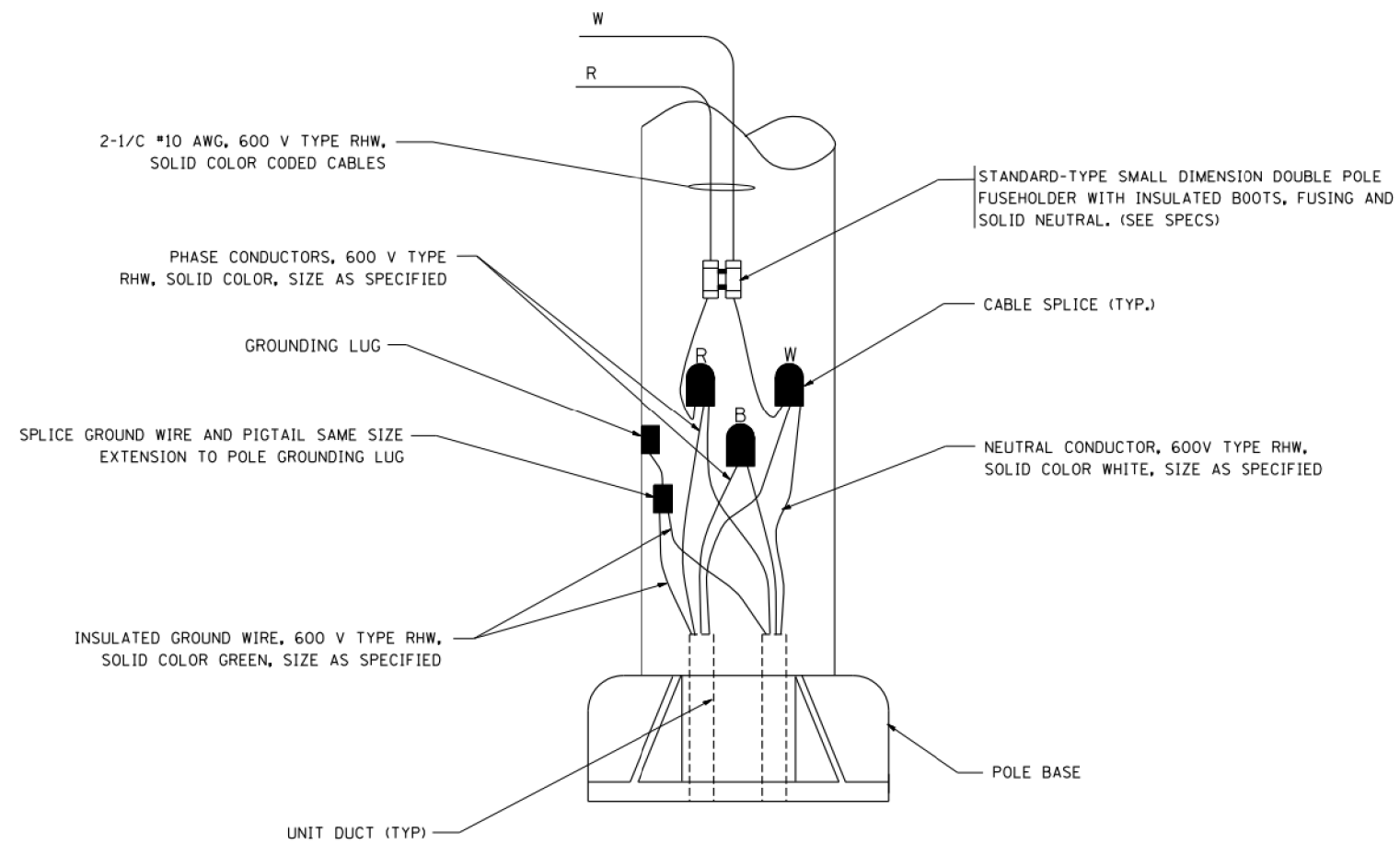
1. ALL DIMENSIONS ARE IN MILLIMETERS (INCHES) UNLESS OTHERWISE SHOWN.
2. CONTRACTOR SHALL ADJUST THE WIRE CLIP TO ELIMINATE ANY SLACK FROM THE WIRE ROPE.
3. THE 0.125" (3.18) STAINLESS STEEL AIRCRAFT CABLE SHALL REMAIN VISIBLE FROM THE GROUND LEVEL.
4. THE BREAKING STRENGTH OF THE CABLE SHALL BE 1700 LBS. MIN.

FILE NAME = W:\diststd\22x34\be701.dgn	USER NAME = gag1zenobt	DESIGNED -	REVISED - 08-08-03	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>LUMINAIRE SAFETY CABLE ASSEMBLY</b>			F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE = 50.000 ' / IN.	CHECKED -	REVISED -					326	105-N-2(15)	MCHENRY	803	548
PLOT DATE = 1/4/2008	DATE -	REVISED -	REVISED -	SCALE: NONE	SHEET NO. 1 OF 1 SHEETS	STA.	TO STA.	<b>BE-701</b>		CONTRACT NO. 62B43		
								FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				



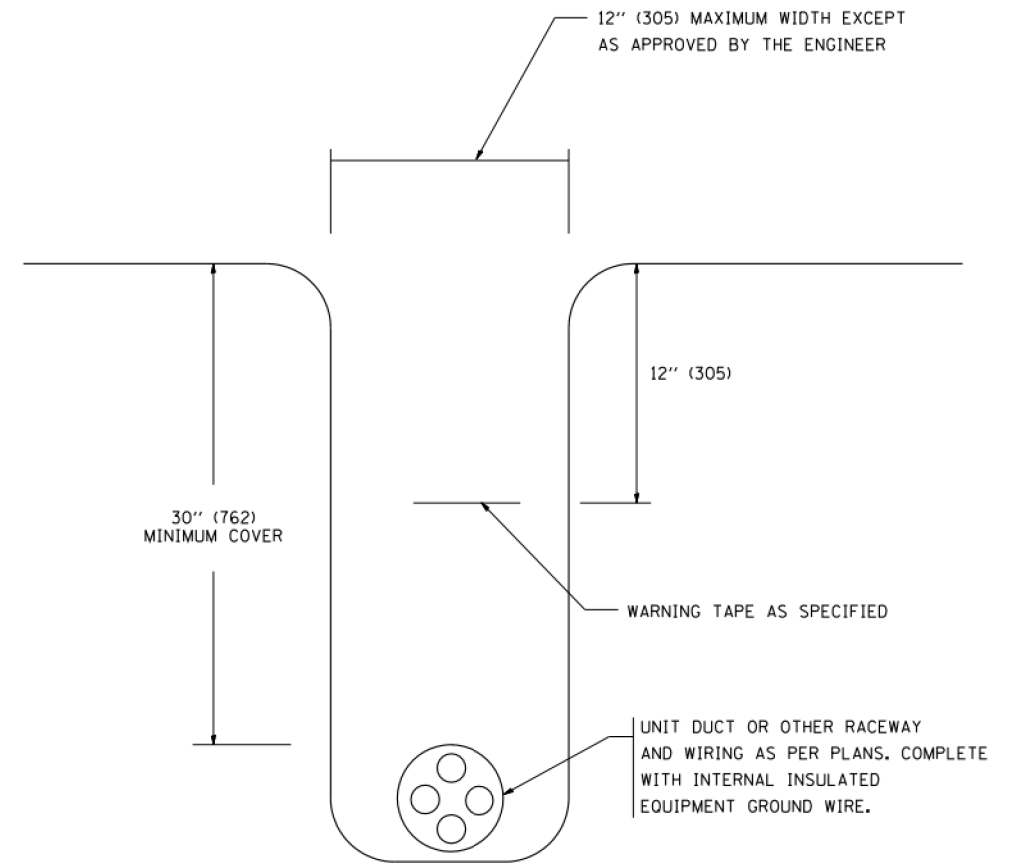
TYPICAL SPLICE DETAIL

N.T.S.



POLE WIRING DETAIL

N.T.S.



TYPICAL WIRING IN TRENCH DETAIL

N.T.S.

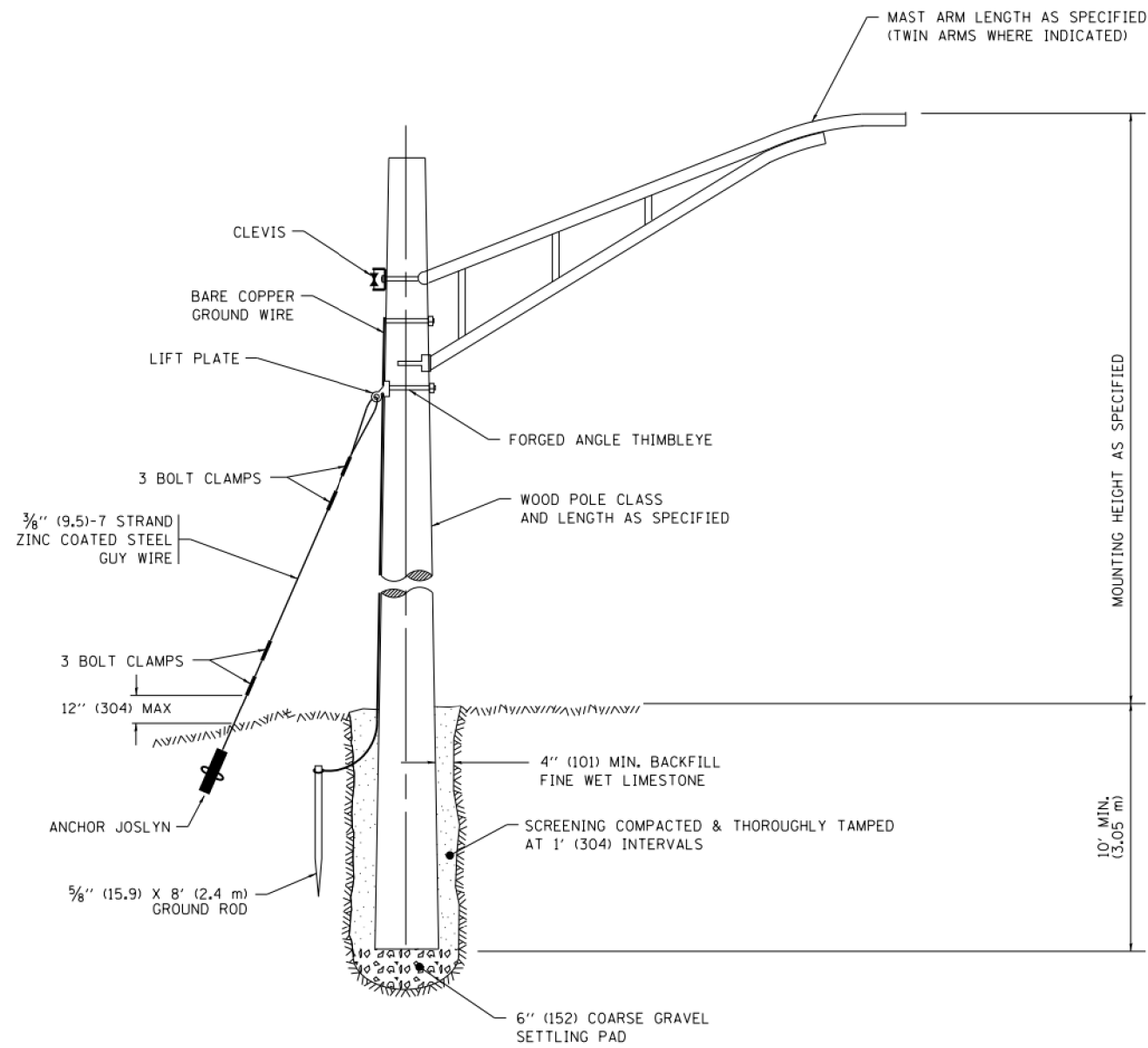
FILE NAME = W:\diststd\22x34\be702.dgn	USER NAME = gaglzenobt	DESIGNED -	REVISED - 08-08-03
		DRAWN -	REVISED -
	PLOT SCALE = 50.000 ' / IN.	CHECKED -	REVISED -
	PLOT DATE = 1/4/2008	DATE -	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

MISC. ELECTRICAL DETAILS  
SHEET A

SCALE: NONE SHEET NO. 1 OF 1 SHEETS STA. TO STA.

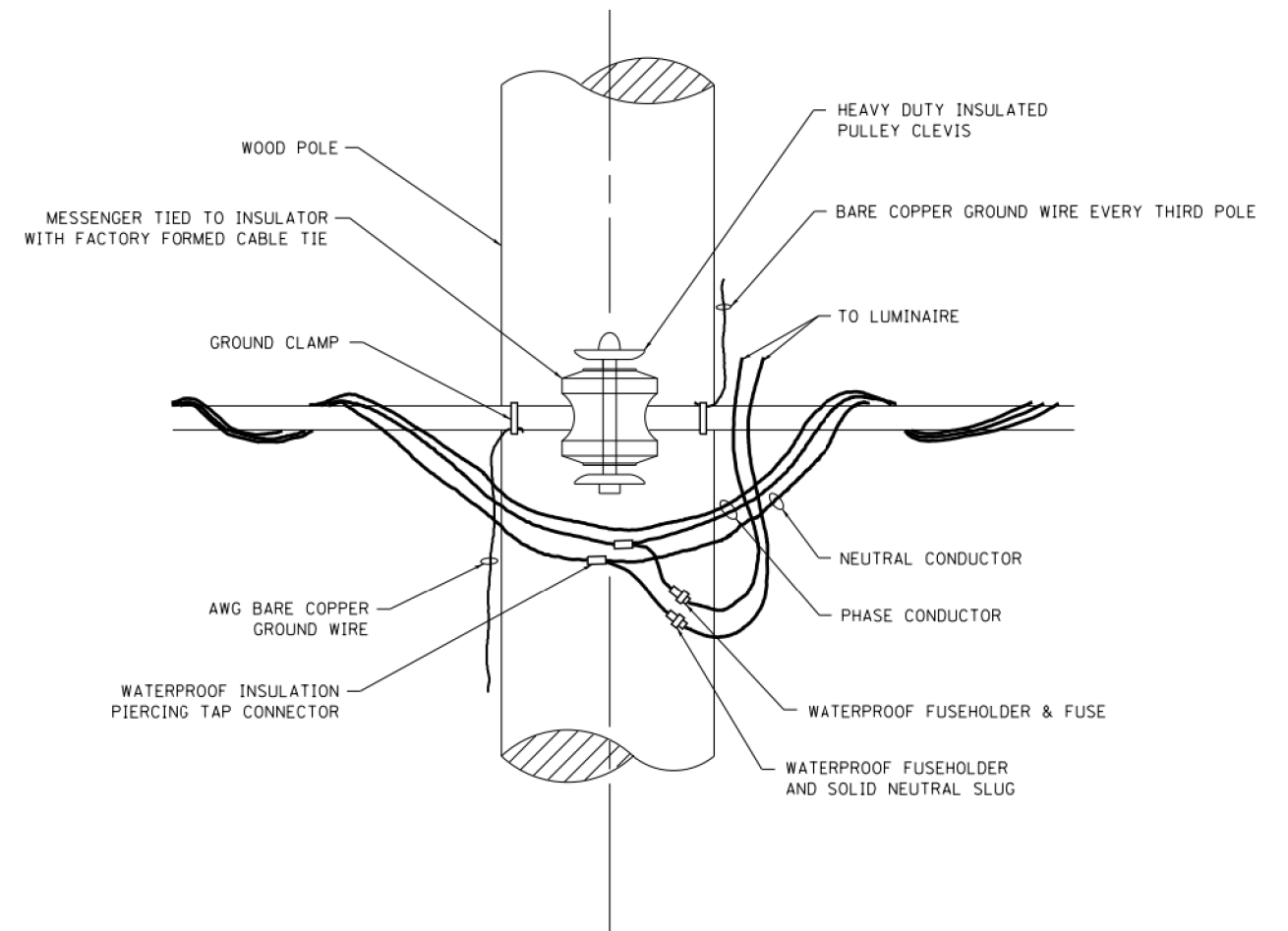
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	549
BE-702		CONTRACT NO. 62B43		
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				



### TEMPORARY LIGHT POLE DETAIL

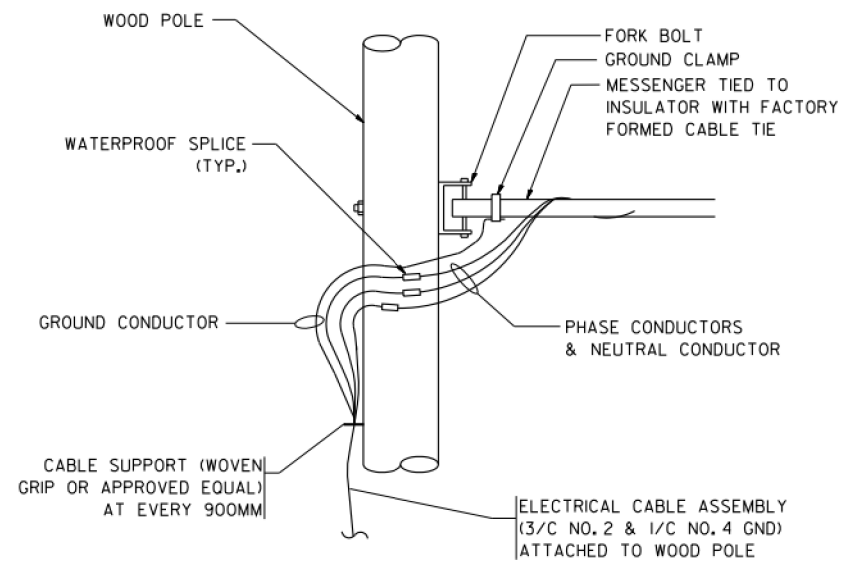
**NOTE:**

1. ALL DIMENSIONS IN INCHES (MILLIMETERS) UNLESS OTHERWISE INDICATED.
2. MAST ARM SHALL BE RATED FOR THE SPECIFIED MOUNTING HEIGHT.

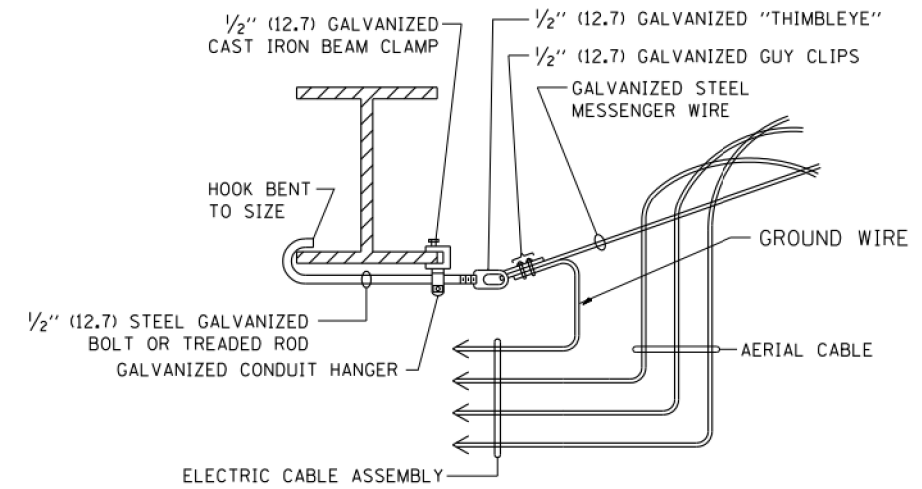


### TEMPORARY LIGHT POLE ATTACHMENT DETAIL

FILE NAME =	USER NAME = footemj	DESIGNED -	REVISED - 08-08-03	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>TEMPORARY LIGHT POLE DETAILS</b>			F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
pw\ill084EBIDINTEG\illinois.gov\PIDOT\Documents\IDOT Offices\District 1\Projects\Dist 02\DWG\CADDData\CADsheets\be800.dgn		REVISOR -	R.T. 07-26-16					326	105-N-2(15)	MCHENRY	803	550
Default	PLOT SCALE = 50.000' / in.	CHECKED -	REVISOR -		<b>BE-800</b>			CONTRACT NO. 62B43				
	PLOT DATE = 9/1/2016	DATE -	REVISOR -		SCALE: NONE	SHEET 1	OF 1	SHEETS	STA. TO STA.	ILLINOIS FED. AID PROJECT		



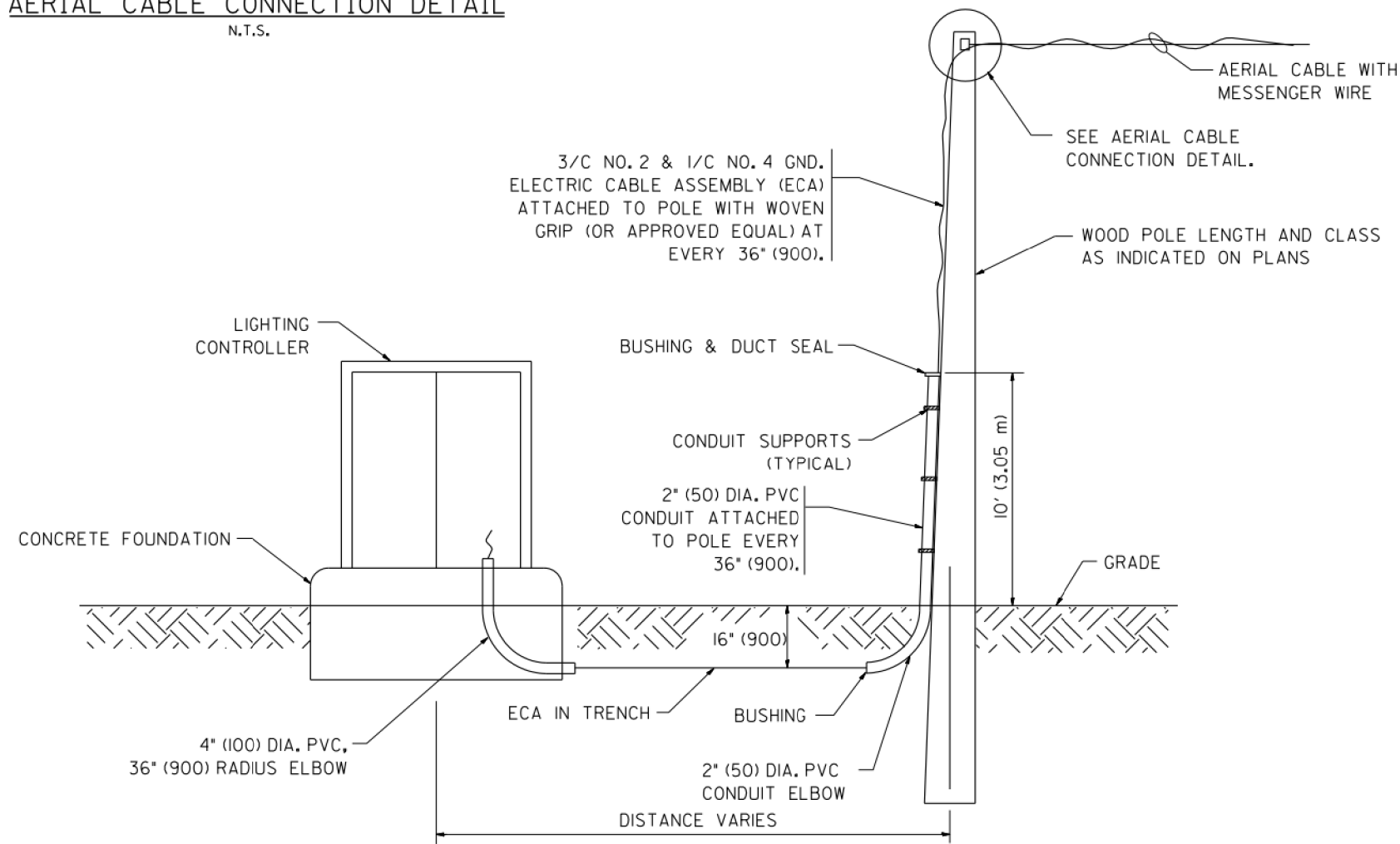
**AERIAL CABLE CONNECTION DETAIL**  
N.T.S.



**AERIAL CABLE ATTACHED TO STRUCTURE**  
NOT TO SCALE

**NOTES:**

1. ALL DIMENSIONS IN INCHES (MILLIMETERS) UNLESS OTHERWISE INDICATED.
2. SEE PROPOSED LIGHTING PLAN FOR CONDUIT, CABLE AND ROUTING.
3. THE CONTRACTOR SHALL PROVIDE INTERMEDIATE SUPPORTS TO MAINTAIN MINIMUM CLEARANCES. REFER TO AERIAL AERIAL CABLE ATTACHED TO STRUCTURE DETAIL.
4. COST OF SPLICES AND MOUNTING HARDWARE SHALL BE INCLUDED IN THE UNIT PRICE FOR AERIAL CABLE.



**WOOD POLE TO LIGHTING CONTROLLER WIRING CONNECTION DETAIL**  
N.T.S.

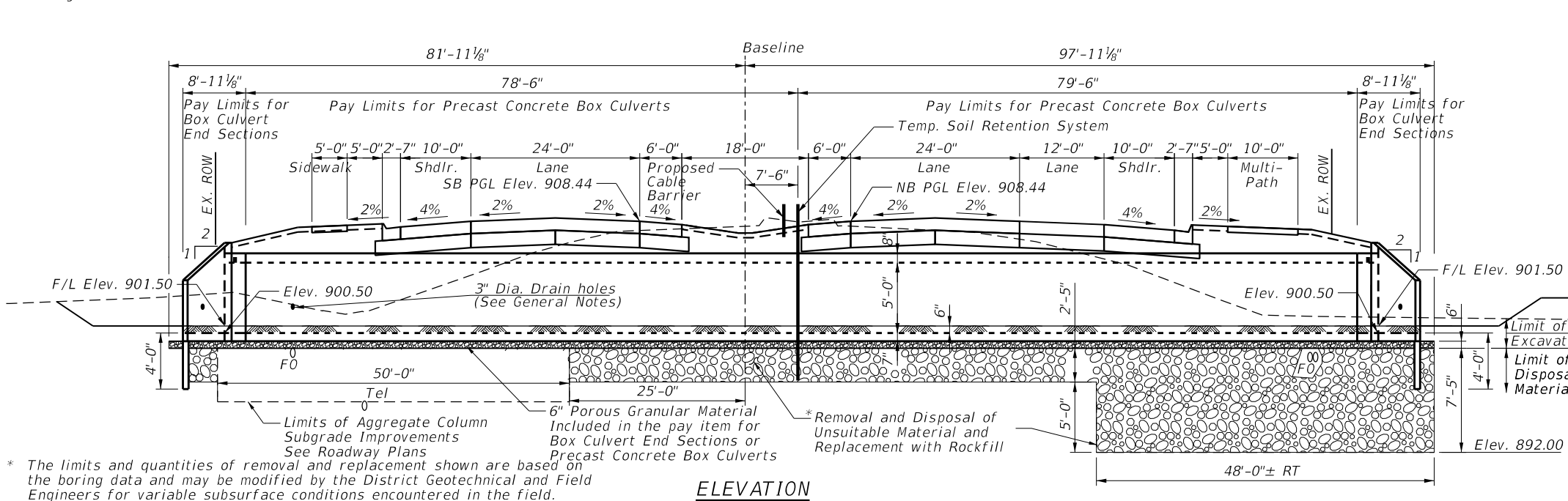
FILE NAME = W:\diststd\22x34\be001.dgn	USER NAME = gag1enobt	DESIGNED -	REVISED - 08-08-03	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>TEMPORARY AERIAL CABLE INSTALLATION</b>			F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE = 50.000' / IN.	DRAWN -	REVISED -					326	105-N-2(15)	MCHENRY	803	551
	PLOT DATE = 1/4/2008	CHECKED -	REVISED -		<b>BE-801</b>		CONTRACT NO. 62B43					
		DATE -	REVISED -		SCALE: NONE	SHEET NO. 1 OF 1 SHEETS	STA.	TO STA.	FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT			

Benchmark: BM #6, Set cut square on light pole base along Illinois Rte. 47  
130± North of intersection of Pleasant Valley Road. Elev. 908.52

Traffic Control: Traffic to be maintained utilizing Stage Construction.

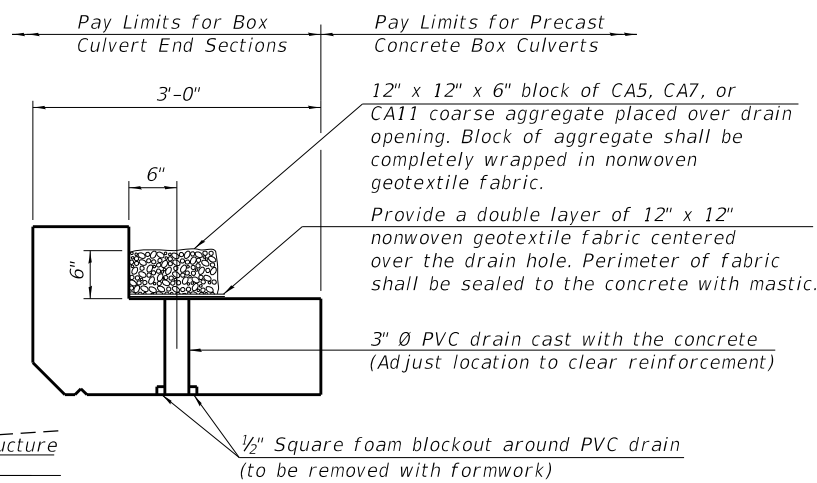
Existing Structure: None

Salvage: None

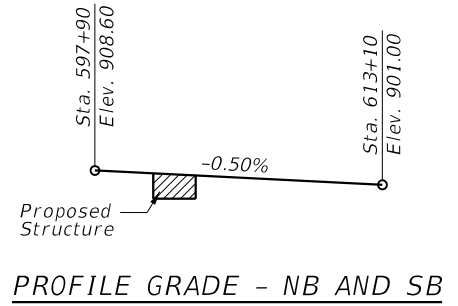
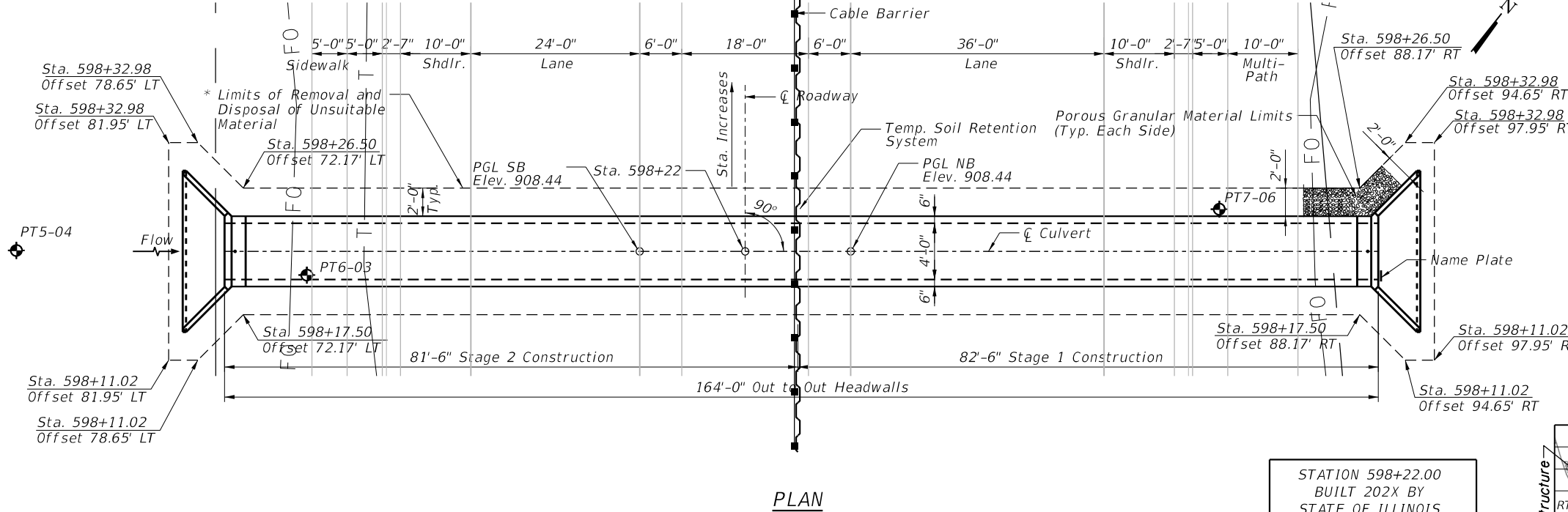


\* The limits and quantities of removal and replacement shown are based on the boring data and may be modified by the District Geotechnical and Field Engineers for variable subsurface conditions encountered in the field.

The Rockfill shall be capped with 6 in. of CA7 and satisfy the Standard Specifications unless otherwise indicated in the Special Provisions. The cost of the capping material shall be included in the pay item for Box Culvert End Sections or Precast Concrete Box Culverts.



(All costs associated with furnishing and constructing the above drain detail will not be measured for payment but shall be included in the contract unit price for the associated work.)



**DESIGN SPECIFICATIONS**

2020 AASHTO LRFD Bridge Design Specifications 9th Edition

**LOADING HL-93**

Allow 50 #/sq. ft. for future wearing surface

**PRECAST UNITS**

f'c = 5,000 psi

fy = 65,000 psi (Welded Wire Reinforcement)

**GENERAL PLAN AND ELEVATION**

**IL RTE. 47 ANIMAL CROSSING**

**F.A.P. RTE. 326 SEC 105-N-2(15)**

**McHENRY COUNTY**

**STATION 598+22.00**

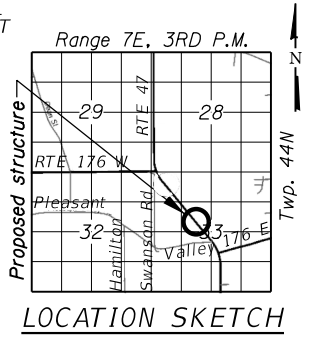
**S.N. 056-C001**

**NAME PLATE**

See Std. 515001

\*year on nameplate shall be year culvert is constructed

STATION 598+22.00  
BUILT 202X BY  
STATE OF ILLINOIS  
F.A.P. RT. 326  
SEC. 105-N-2(15)  
LOADING HL-93  
STR. NO. 056-C001



MODEL: D:\m\170353\CBBEL\Struct\170353-GRF-DEER-CULVERT.dwg

**CB** ENGINEERING, LTD.  
9575 W. HOGANS ROAD, SUITE 600  
ROSEMONT, ILLINOIS 60018  
(847) 823-0500

USER NAME = jbornett	DESIGNED - AS	REVISED -
PLOT SCALE = 20.0000' / in.	DRAWN - PDR	REVISED -
PLOT DATE = 12/14/2023	CHECKED - MM	REVISED -
	DATE - SPLANDATES	REVISED -

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**GENERAL PLAN AND ELEVATION**  
**PROPOSED ANIMAL CROSSING - STRUCTURE NO. 056-C001**

SCALE: N.T.S. SHEET 1 OF 7 SHEETS STA. 598+22 TO STA. ---

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	McHENRY	803	552
ILLINOIS FED. AID PROJECT			CONTRACT NO. 62B43	



**GENERAL NOTES**

- 1 The design fill height for this box is between 1'-7" and 2'-6". The precast box culvert sections shall conform to the requirements of ASTM C 1577.
- 2 Drain holes shall be provided on exterior culvert walls for each precast box segment with a clear rise greater than 3 ft. The drain hole shall be located within 1/3 of the clear rise of the box culvert, shall not intercept the haunch, and shall conform to the requirements of Article 503.11 of the Standard Specification.
- 3 Nonwoven geotextile fabric shall conform to the requirements of Art. 1080.01 of the Standard Specifications. The minimum weight of the fabric shall be 6 ounces per square yard.
- 4 Precast concrete box culverts and box culvert end sections shall be backfilled with Porous Granular Embankment in the required excavation areas on the sides of the box culvert from the top of the box culvert to the bottom of the box culvert. This area of PGE is included in the Porous Granular Embankment pay item. The 6-inch thick layer of porous granular material required under the precast box culvert, according to Section 540.06 of the Standard Specifications, shall also apply to the End Sections. Cost of this porous granular material will not be paid for separately but shall be included in the unit price of the work for which it is required.

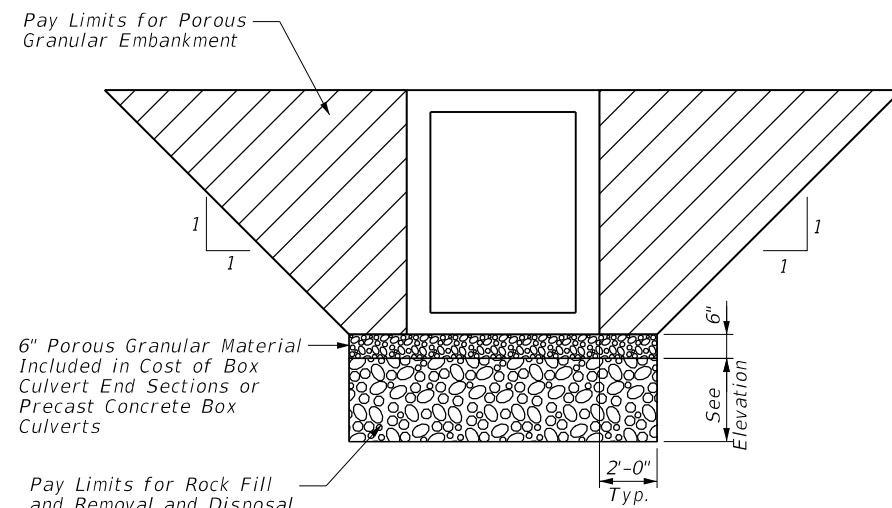
**INDEX OF SHEETS**

- 1 General Plan and Elevation
- 2 General Notes, Index of Sheets and Total Bill of Materials
- 3 Stage Construction Details
- 4 Temporary Concrete Barrier for Stage Construction
- 5-6 Precast Concrete Box Culvert Apron End Section Details
- 7 Soil Boring Logs

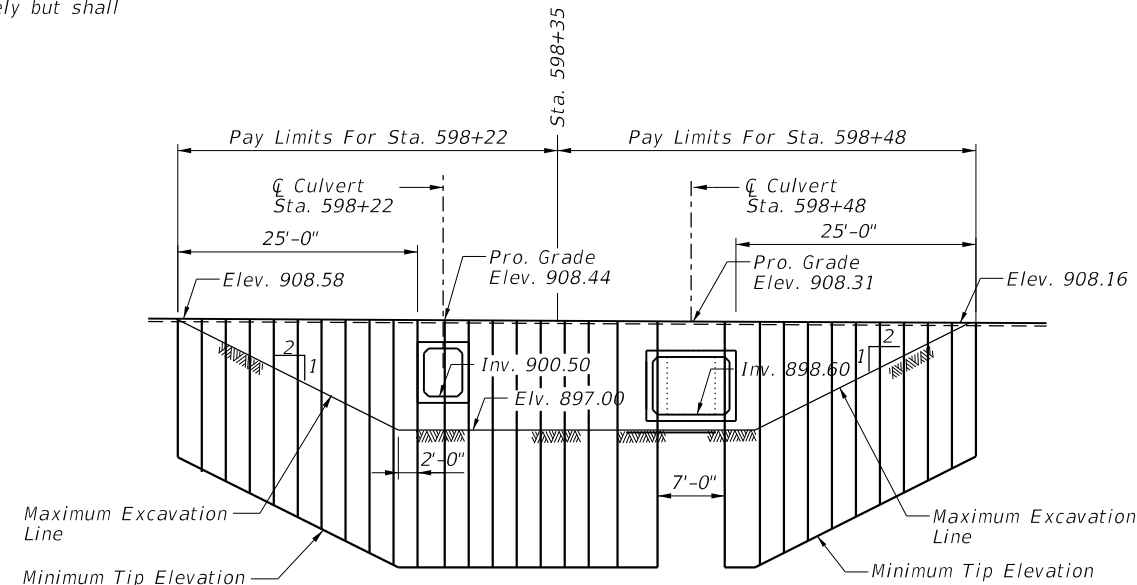
**TOTAL BILL OF MATERIAL**

ITEM	UNIT	TOTAL
Porous Granular Embankment	Cu. Yd.	417
Structure Excavation	Cu. Yd.	626
Removal and Disposal of Unsuitable Material for Structures	Cu. Yd.	204
Name Plates	Each	1
Temporary Soil Retention System	Sq. Ft.	332
Box Culvert End Sections, Culvert No. 1	Each	2
Geocomposite Wall Drain	Sq. Yd.	126
Membrane Waterproofing System for Buried Structures	Sq. Yd.	126
* Precast Concrete Box Culverts 4' X 5' (Special)	Foot	158
* Rock Fill	Cu. Yd.	202

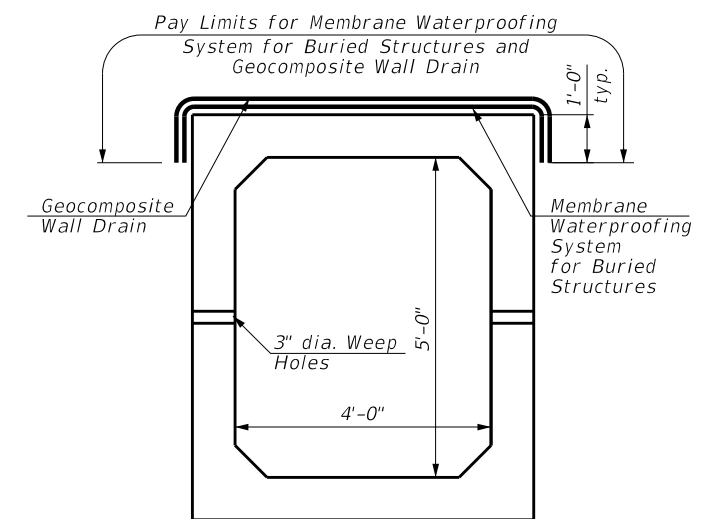
\* See Special Provision



**PAY LIMITS DETAIL**

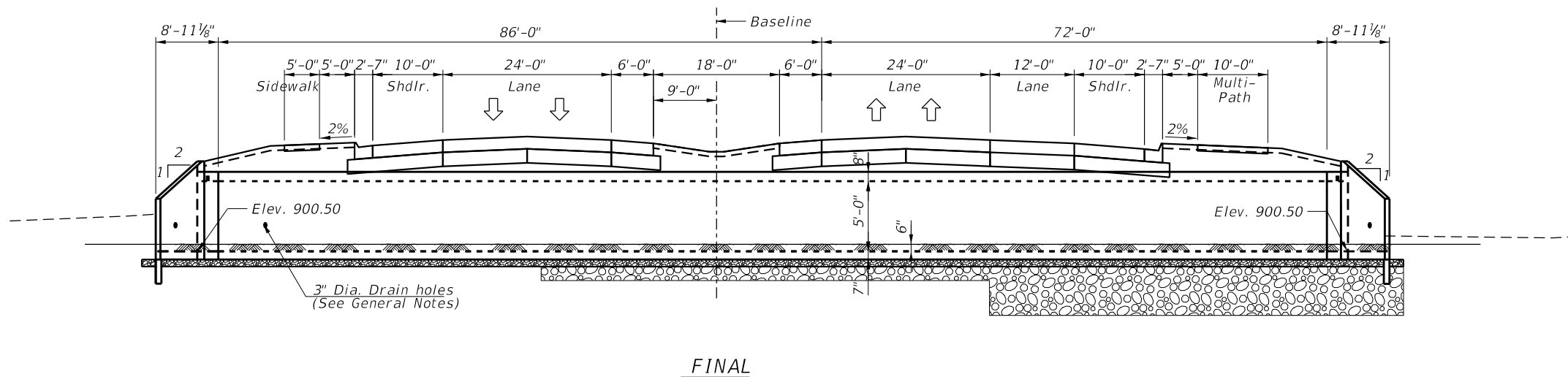
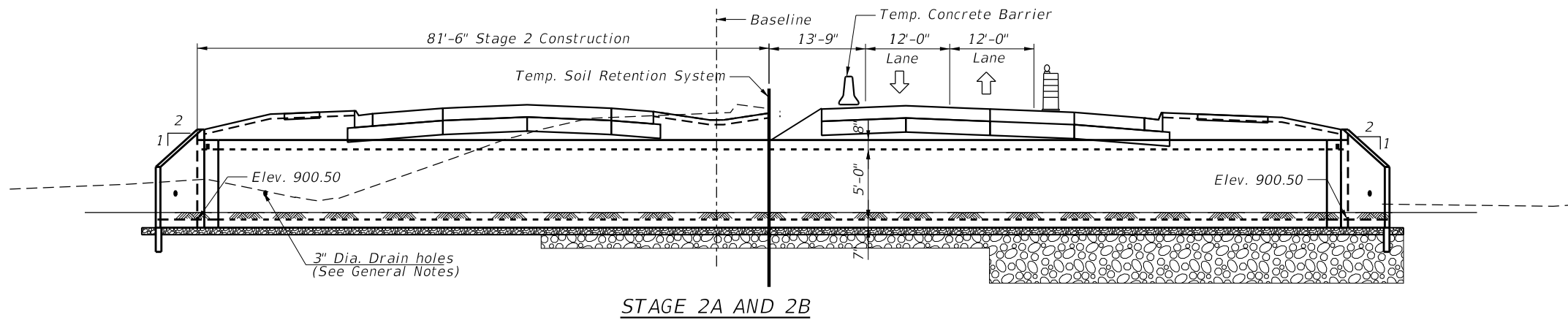
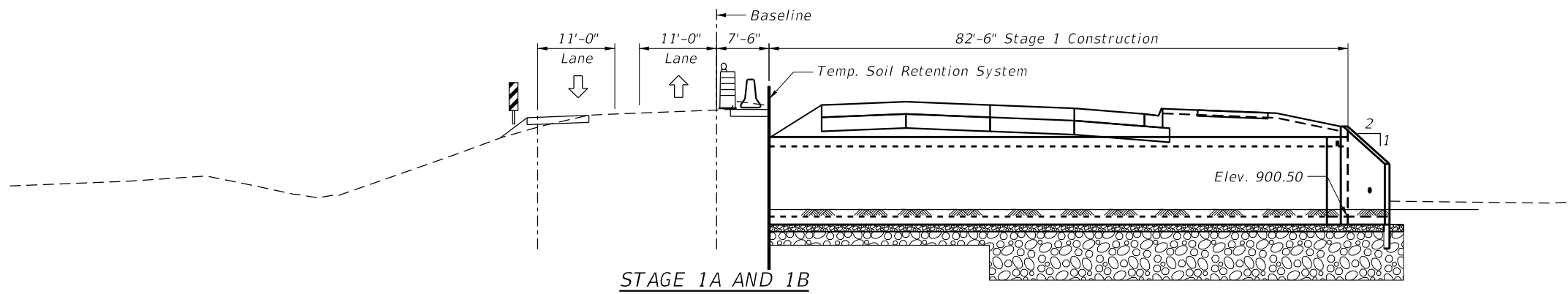
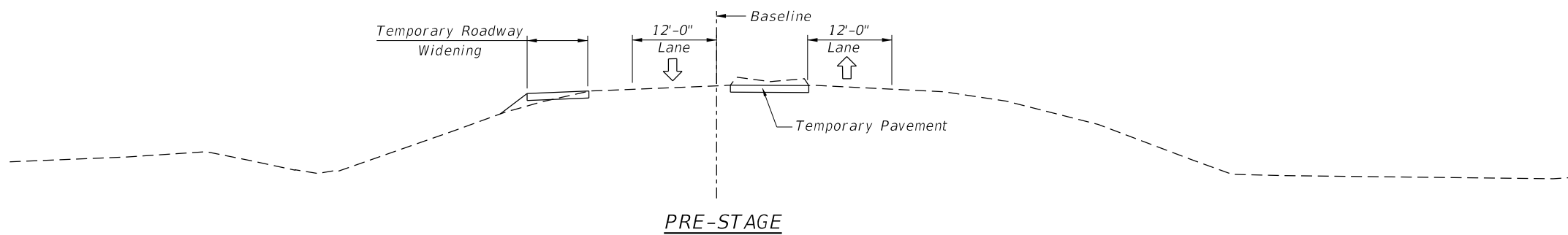


**TEMPORARY SOIL RETENTION SYSTEM**



**MEMBER WATERPROOFING SYSTEM FOR BURIED STRUCTURES**

MODEL: D:\cadd\170353\CBBEL\Struct\170353-GNOTES-MEMBR-CULVERT.dwg



Note: There is no culvert work for this structure during MOT Stage 3. Only roadway work is occurring at this location during Stage 3.

The top of the structure shall be backfilled with porous granular material, and the membrane waterproofing system shall be protected during the placement of the aggregate subgrade improvement 12".

MODEL: D:\m\170353\CBBEL\Struct\170353-MOT-DEEP-CULVERT-01.rvt

**CB**  
 CHRISTOPHER B. BURKE  
 ENGINEERING, LTD.  
 9575 W. HOGGINS ROAD, SUITE 600  
 ROSEMONT, ILLINOIS 60018  
 (847) 823-0500

USER NAME = jbarrett  
 PLOT SCALE = 20.0000 ' / in.  
 PLOT DATE = 12/14/2023

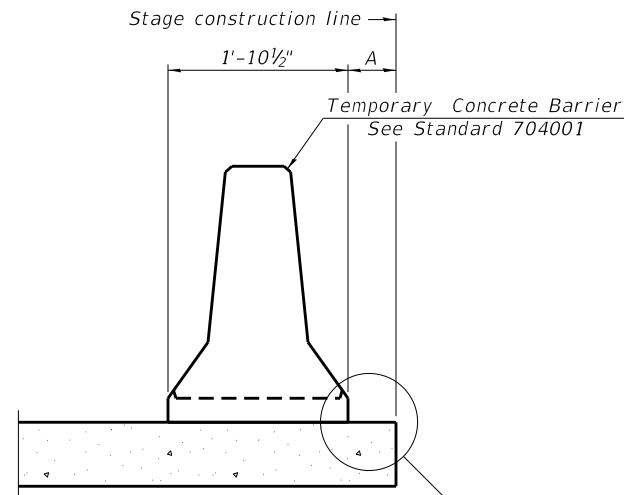
DESIGNED - AS	REVISED -
DRAWN - PDR	REVISED -
CHECKED - MM	REVISED -
DATE - SPLANDATES	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**STAGE CONSTRUCTION DETAILS  
 PROPOSED ANIMAL CROSSING - STRUCTURE NO. 056-C001**

SCALE: N.T.S. SHEET 3 OF 7 SHEETS STA. 598+22 TO STA. ---

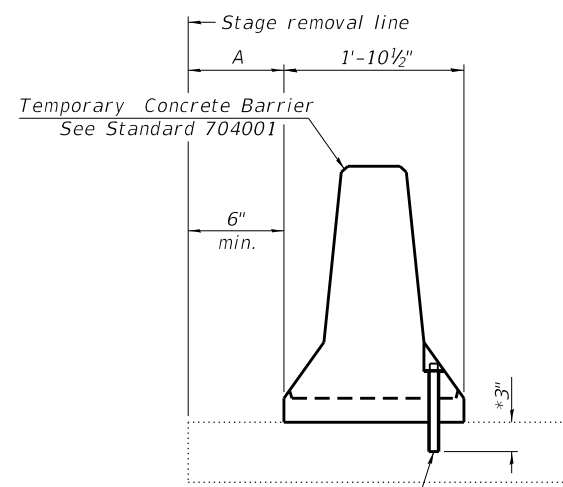
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	554
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				



When "A" is 3'-1" or less, the temporary concrete barrier shall be restrained to the new slab according to Detail I. No restraint is required when "A" is greater than 3'-1".

NEW PAVEMENT

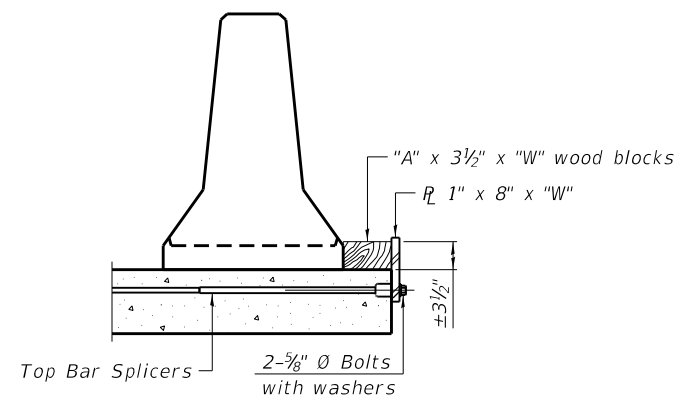
\* When hot-mix asphalt wearing surface is present, embedment shall be 3" plus the wearing surface depth.



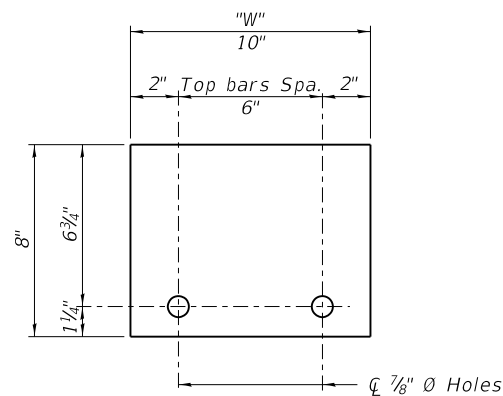
Drill 3-1/4" Ø Holes in existing slab for 1" Ø restraining pins. Traffic side only. Cost of restraining pins are included with Temporary Concrete Barrier. No restraint is required when "A" is greater than 3'-1".

EXISTING PAVEMENT

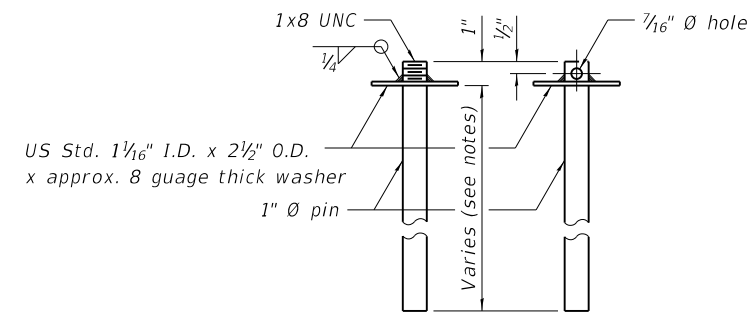
SECTIONS THRU PAVEMENT



DETAIL I



STEEL RETAINER 1" x 8" x "W"



RESTRAINING PIN

Notes:

- Cost of retainer assembly is included with Temporary Concrete Barrier.
- A retainer assembly shall be located at the approximate  $\bar{C}$  of each temporary concrete barrier.
- The retainer plate shall not be removed until the concrete on the adjacent stage is ready to be poured.
- When the 'A' dimension is less than 1 1/2", the wood block shall be omitted and the barrier shall be placed in direct contact with the steel retainer plate.

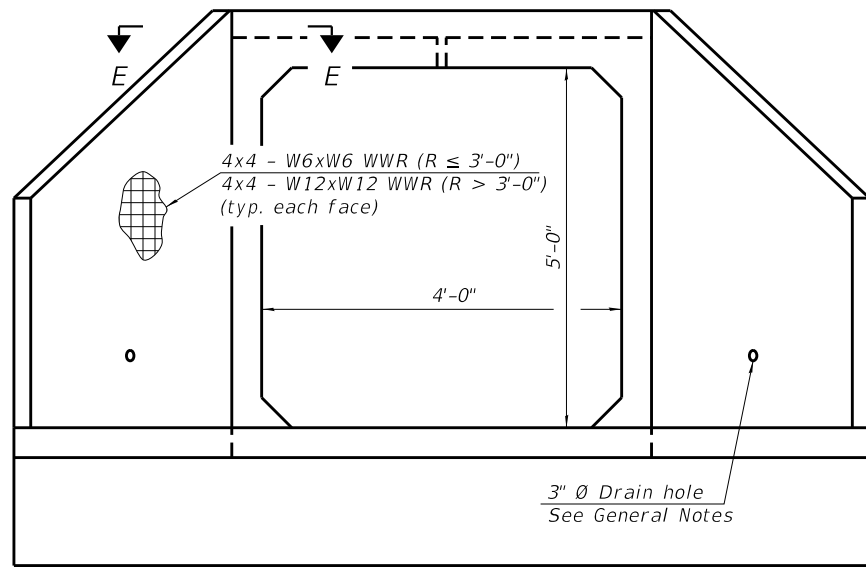
Detail I - Installation for a culvert.

R-27

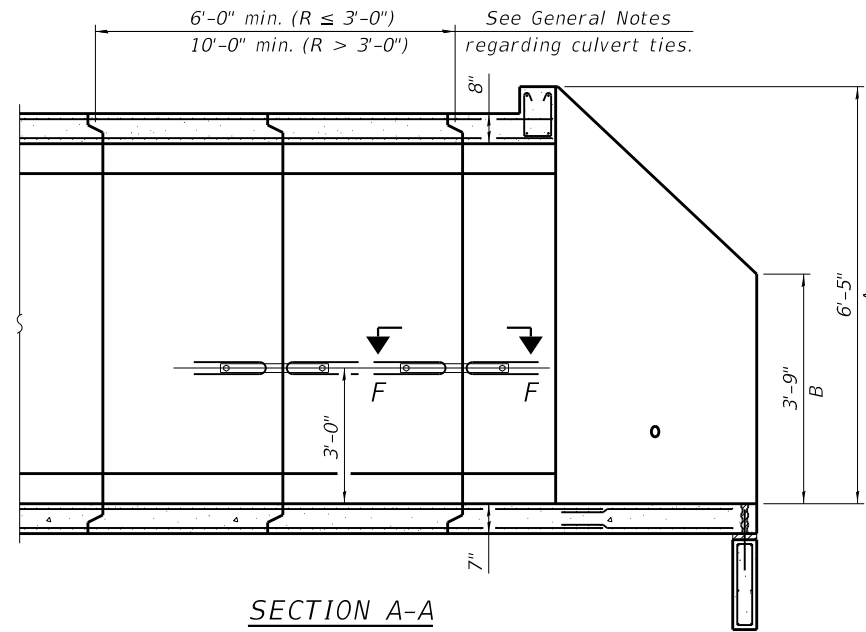
2-17-2017

MODEL: Default  
FILE NAME: \\bos170353\CBBEL\Struct\170353-BARRIER WALL.dwg

	CHRISTOPHER B. BURKE ENGINEERING, LTD. 9575 W. HOGGINS ROAD, SUITE 600 ROSEMONT, ILLINOIS 60018 (847) 823-0500	USER NAME = jbarrett DESIGNED - AS DRAWN - PDR CHECKED - MM DATE - SPLANDATES	REVISED - REVISED - REVISED - REVISED -	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION</b> <b>PROPOSED ANIMAL CROSSING - STRUCTURE NO. 056-C001</b>	F.A.P. RTE. 326	SECTION 105-N-2(15)	COUNTY MCHENRY	TOTAL SHEETS 803	SHEET NO. 555
	PLOT SCALE = 2,0000' / in. PLOT DATE = 12/14/2023	DATE - SPLANDATES	SCALE: N.T.S.			SHEET 4 OF 7 SHEETS	STA. 598+22 TO STA. ---	ILLINOIS FED. AID PROJECT		



END VIEW



SECTION A-A

GENERAL NOTES

Box Culvert End Sections shall be constructed according to the requirements of Section 540 of the Standard Specifications except as modified herein. End sections will be paid for at the contract unit price per each for Box Culvert End Sections.

The Contractor may furnish the end section as a single precast concrete piece or construct the end section in the field using cast-in-place (CIP) construction. For CIP construction, the bottom slab thickness shall be increased by 2" and the clear cover to the bottom mat of reinforcement shall be increased to 3".

Box section dimensions, materials, and reinforcement details for Box Culvert End Sections shall be according to the requirements for ASTM C 1577 as required for the design of the portion of the culvert within the limits of Precast Concrete Box Culverts except as modified herein.

The number of culvert ties shall be sufficient to engage the minimum length of culvert barrel shown within the pay limits for Precast Concrete Box Culverts and will be dependent upon the length of box culvert segments furnished by the Contractor. Culvert ties are not required for box culverts having a rise (R) less than or equal to 3 ft and a span (S) greater than or equal to 10 ft.

All costs associated with furnishing and installing or constructing the toewall and culvert ties will not be measured for payment but shall be included in the unit price for Box Culvert End Sections of the culvert number specified.

Shop drawings that detail slab thickness and reinforcement layout for the Box Culvert End Sections shall be provided to the Engineer for review and approval. Reinforcement bars not detailed herein shall be detailed with a clear distance at the end of the reinforcement not less than 1/2" nor more than 2". For the precast option, it shall be the Contractor's responsibility for determining a method of handling and a construction procedure shall be included on the shop drawings. The Contractor shall determine and detail in the shop drawings any necessary strengthening or stiffening provisions necessary to handle the precast segment. Any required modifications shall be at no extra charge.

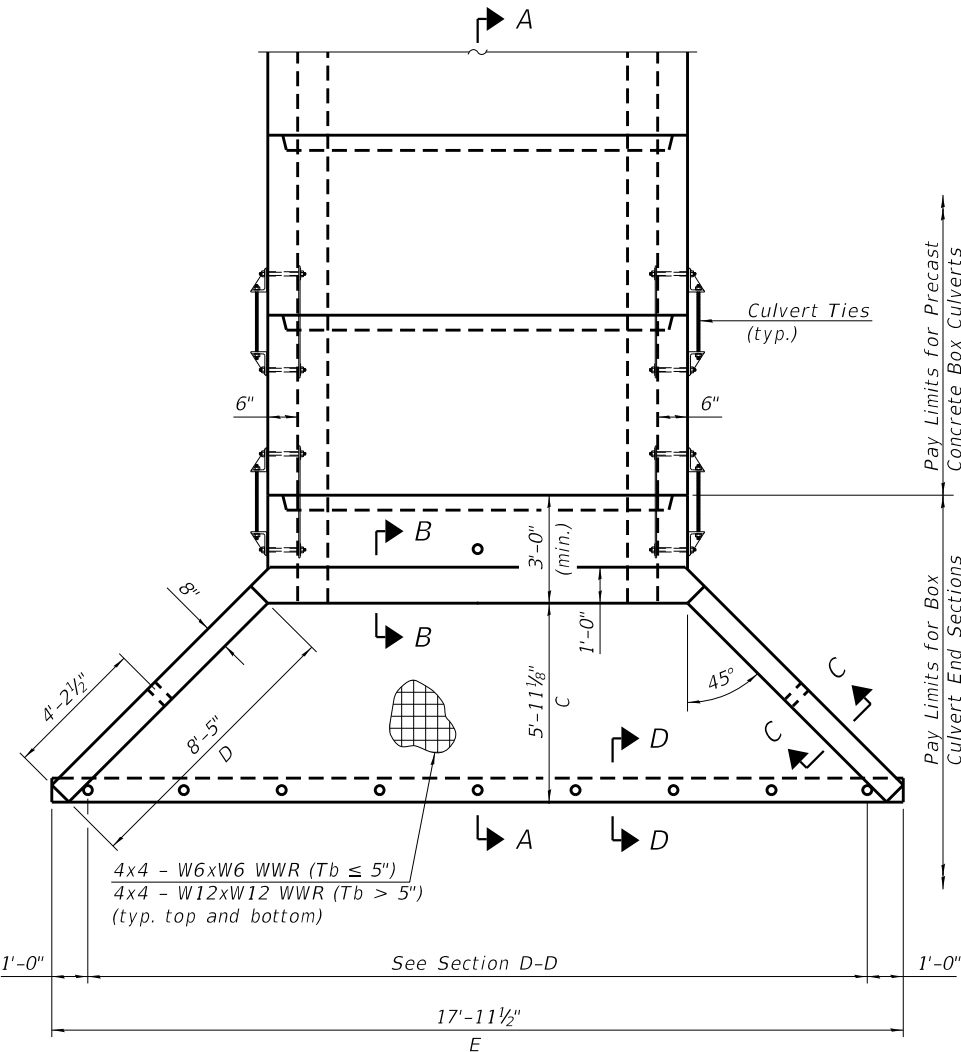
The Contractor may use reinforcement bars in lieu of welded wire reinforcement (WWR). Reinforcement bars shall be limited to the sizes of #3 through #5 bars, a maximum spacing of the lesser of 8" or the member thickness, and shall result in an area of reinforcement equal to or greater than that provided by the WWR. Minimum lap lengths detailed herein are applicable to WWR and reinforcement bars.

Reinforcement (circumferential and longitudinal) in the culvert barrel portion of the end section being lapped with reinforcement from the wingwalls or bottom slab of the end section shall not be less than that required by ASTM C 1577 for the design fill height or the reinforcement detailed for the end section, whichever is greater.

One drain hole shall be provided in each wingwall for end sections of box culverts having an opening with a clear rise greater than 3 ft. The drain hole shall be located within the lower 1/3 of the clear rise of the box culvert and shall conform to the requirements of Article 503.11 of the Standard Specifications.

APRON END SECTION DIMENSIONS

Span (S)	Rise (R)	Tt	Tb	Ts	A	B	C	D	E	Concrete Cu. Yd.	Culvert Ties Required
4'-0"	5'-0"	8"	7"	6"	6'-5"	3'-9"	5'-11 1/8"	8'-5"	17'-11 1/2"	7.1	Yes

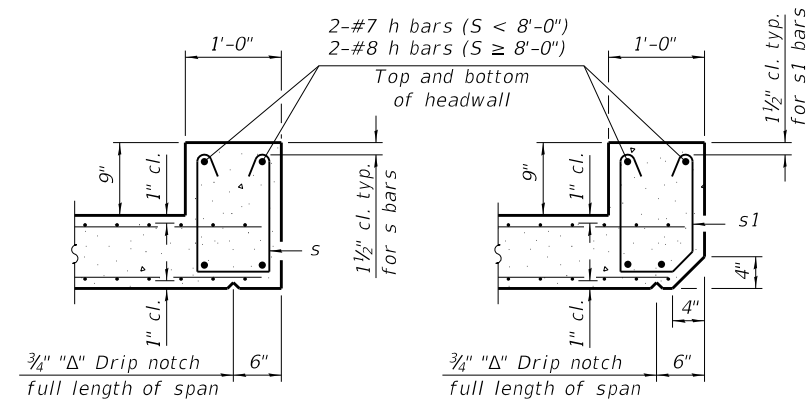


PLAN

(Sheet 1 of 2)

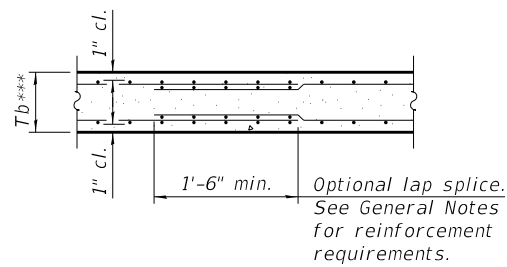
MODEL: D:\p1\170353\CBBEL\STRUCT\170353-DETAILS\DEER-CULVERT-01.rvt

	CHRISTOPHER B. BURKE ENGINEERING, LTD. 9575 W. HOGGINS ROAD, SUITE 600 ROSEMONT, ILLINOIS 60018 (847) 823-0500	USER NAME = jlbarnett DESIGNED - AS DRAWN - PDR CHECKED - MM DATE - SPLANDATES	REVISED - REVISED - REVISED - REVISED -	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>PRECAST CONCRETE BOX CULVERT APRON END SECTION DETAILS</b> <b>PROPOSED ANIMAL CROSSING - STRUCTURE NO. 056-C001</b>	F.A.P. RTE. 326	SECTION 105-N-2(15)	COUNTY MCHENRY	TOTAL SHEETS 803	SHEET NO. 556
	SCALE: N.T.S.	SHEET 5 OF 7 SHEETS	STA. 598+22 TO STA. ---			ILLINOIS FED. AID PROJECT	CONTRACT NO. 62B43			



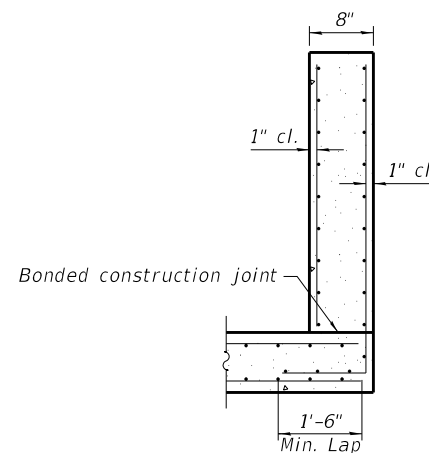
SECTION B-B  
(Top slab at downstream end)

SECTION B-B  
(Top slab at upstream end)

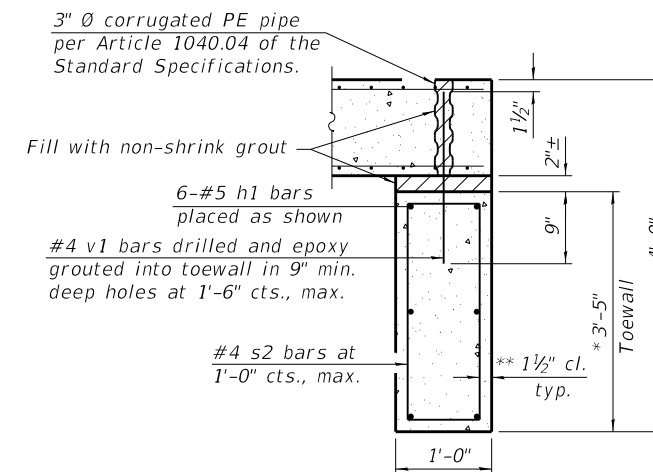


SECTION B-B  
(Bottom Slab)

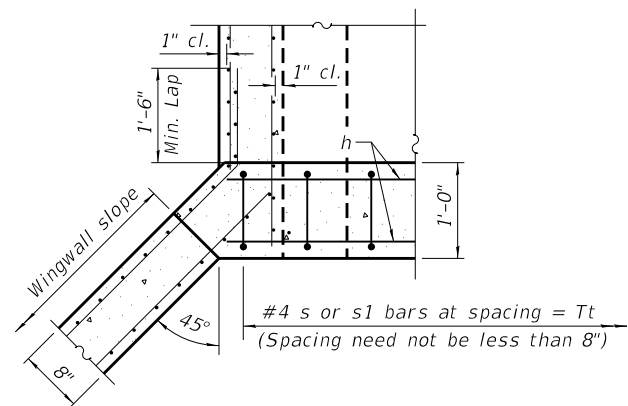
\*\*\* This dimension shall be increased by 2" for CIP construction.



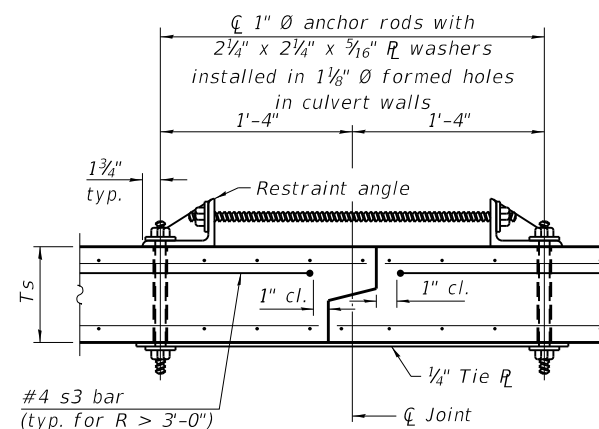
SECTION C-C



SECTION D-D



SECTION E-E



SECTION F-F  
(Showing culvert tie details)

**TOEWALL CONSTRUCTION SEQUENCE**

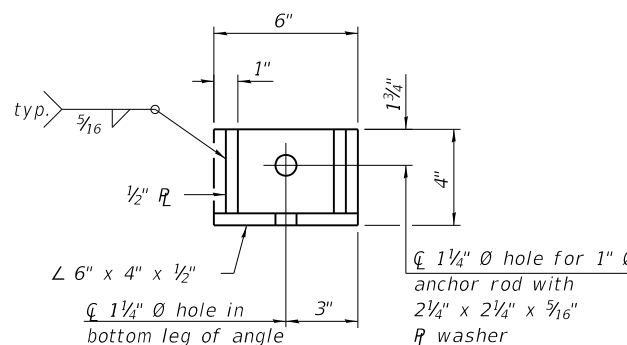
1. Perform excavation and construct toewall.
2. Backfill accordingly and place bedding for precast box culvert end sections.
3. Set precast box culvert end section.
4. Drill and epoxy grout reinforcement in toewall in accordance with Section 584 of the Standard Specifications.
5. Pressure grout voids using non-shrink grout conforming to Section 1024 of the Standard Specifications.

\* The Contractor may furnish a precast or cast-in-place toewall. The Contractor shall be responsible for the strength and stability of the precast toewall during handling. Additional lifting points may be required depending upon the length of the toewall or the Contractor may need to modify the design of the toewall for the proposed handling method.

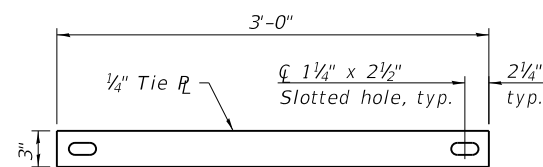
\*\* If soil conditions permit, the sides of the toewall may be poured directly against the soil. The clear cover on the sides of the toewall shall be increased to 3" by increasing the thickness of the toewall.

**Notes:**

1" Ø anchor rods for the culvert ties shall conform to the requirements of ASTM F1554, Grade 105. Structural steel for the tie plate and restraint angle shall conform to the requirements of Article 1006.04 of the Standard Specifications. All components of the culvert tie detail shall be galvanized according to the requirements of AASHTO M 111 or M 232 as applicable. 2 1/4" x 2 1/4" x 3/16" plate washers shall be provided under each nut required for the anchor rods. Anchor rods connecting precast sections shall be brought to a snug tight condition followed by an additional 1/2 turn on one of the nuts for anchor rods installed in the walls. Match marks shall be provided on the bolt and nut to verify relative rotation between the bolt and the nut. Holes in the walls for the culvert tie assembly may be drilled using core bits in lieu of using formed holes.



RESTRAINT ANGLE DETAIL

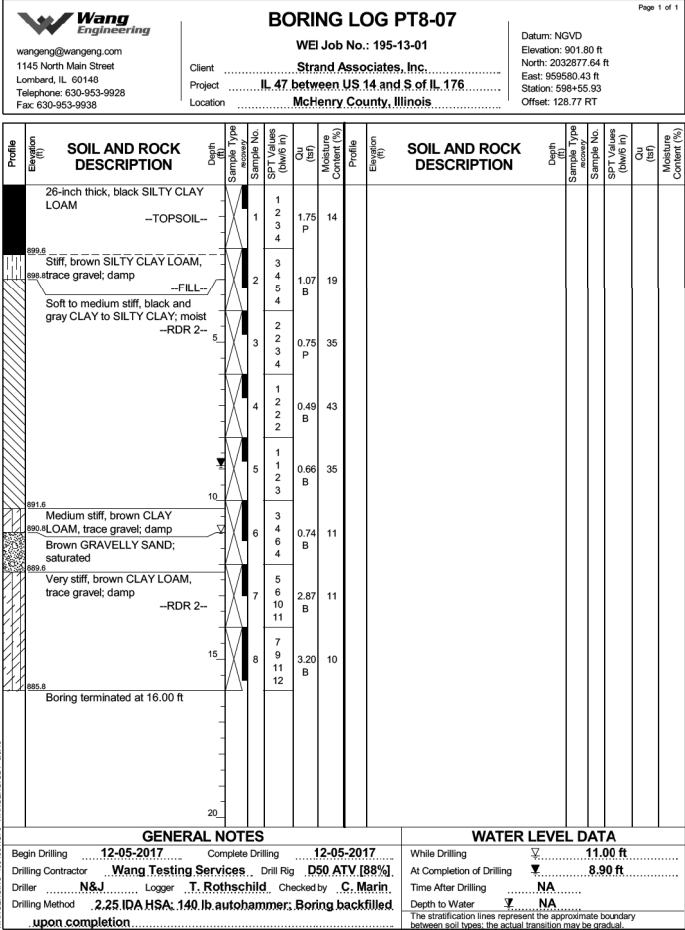
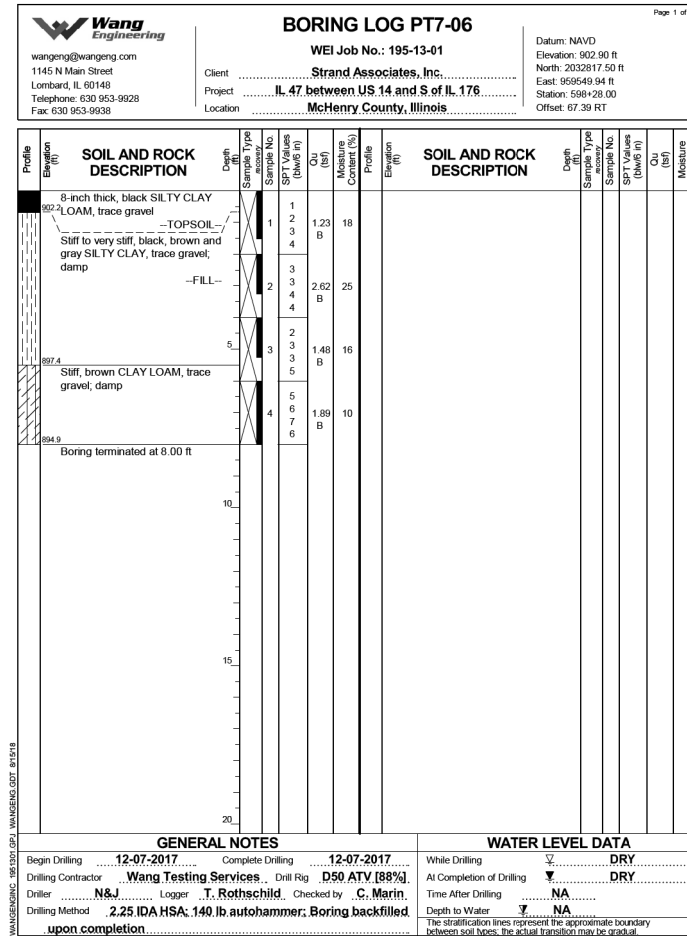
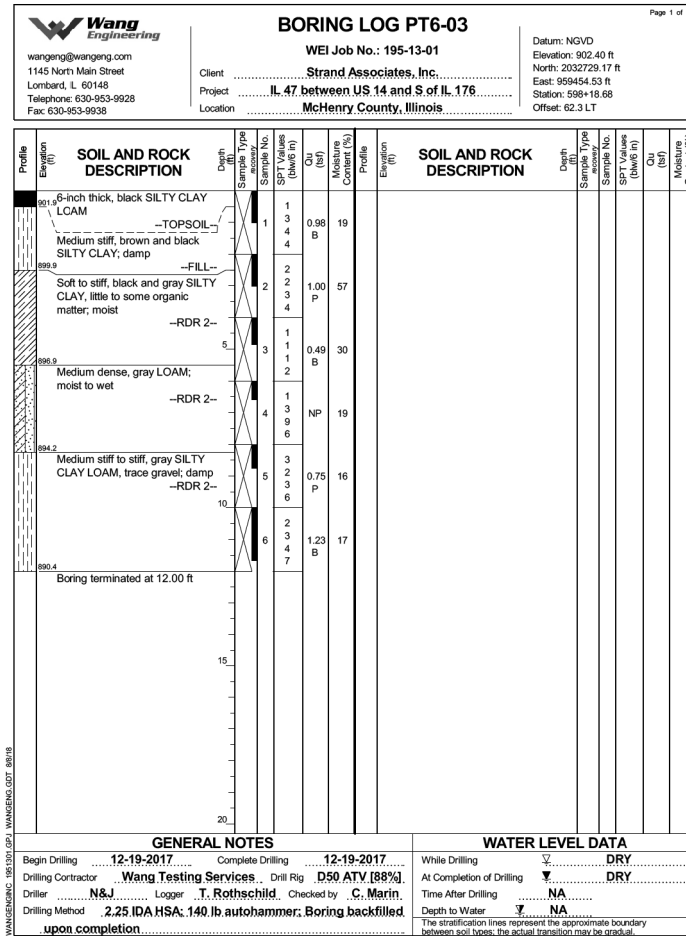
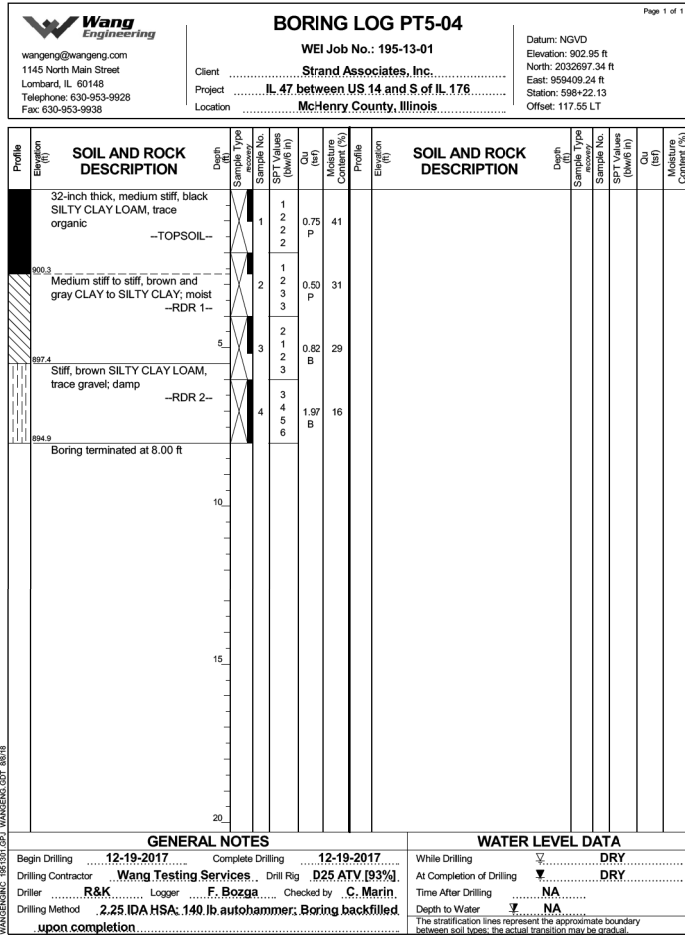


TIE PLATE DETAIL

(Sheet 2 of 2)

MODEL: D:\cadd\170353\CBBEL\Struct\170353-DET\AIL-DEER-CULVERT-02.rvt  
FILE NAME: 170353\CBBEL\Struct\170353-DET\AIL-DEER-CULVERT-02.rvt

	CHRISTOPHER B. BURKE ENGINEERING, LTD. 9575 W. HOGGINS ROAD, SUITE 600 ROSEMONT, ILLINOIS 60018 (847) 823-0500	USER NAME = jbarrett PLOT SCALE = 2,0000' / in. PLOT DATE = 12/14/2023	DESIGNED - AS DRAWN - PDR CHECKED - MM DATE - SPLANDATES	REVISED - REVISED - REVISED - REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PRECAST CONCRETE BOX CULVERT APRON END SECTION DETAILS PROPOSED ANIMAL CROSSING - STRUCTURE NO. 056-C001	F.A.P. RTE. 326 SECTION 105-N-2(15) COUNTY MCHENRY TOTAL SHEETS 803 SHEET NO. 557 CONTRACT NO. 62B43	ILLINOIS FED. AID PROJECT
	SCALE: N.T.S.	SHEET 6 OF 7 SHEETS	STA. 598+22 TO STA. ---	ILLINOIS FED. AID PROJECT				



MODEL: Default  
FILE NAME: 170353-CBBELStruct170353-LOGS-DEER-CULVERT.rvt

**CB**  
CHRISTOPHER B. BURKE  
ENGINEERING, LTD.  
9575 W. HIGGINS ROAD, SUITE 600  
ROSEMONT, ILLINOIS 60018  
(847) 823-0500

USER NAME = jboarnett  
DESIGNED - AS  
DRAWN - PDR  
CHECKED - MM  
DATE - SPLANDATES

REVISIONS  
REVISIONED -  
REVISIONED -  
REVISIONED -  
REVISIONED -

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**SOIL BORING LOGS**  
**PROPOSED ANIMAL CROSSING - STRUCTURE NO. 056-C001**  
SCALE: N.T.S. SHEET 7 OF 7 SHEETS STA. 598+22 TO STA. ---

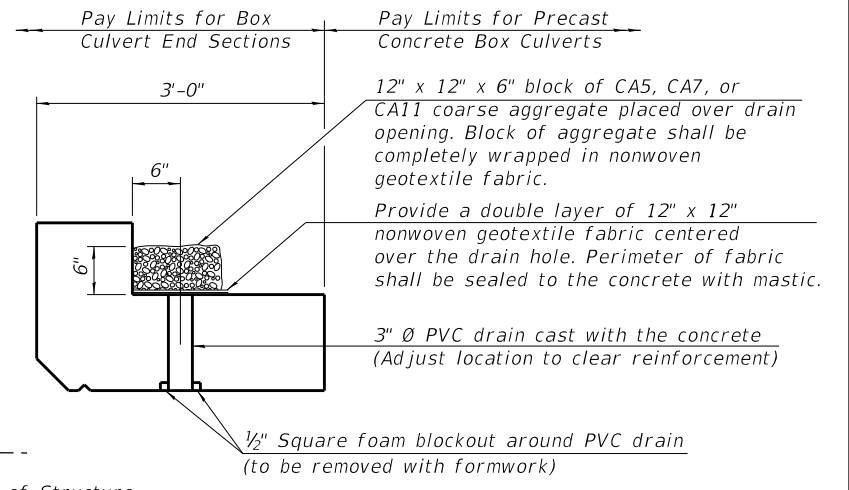
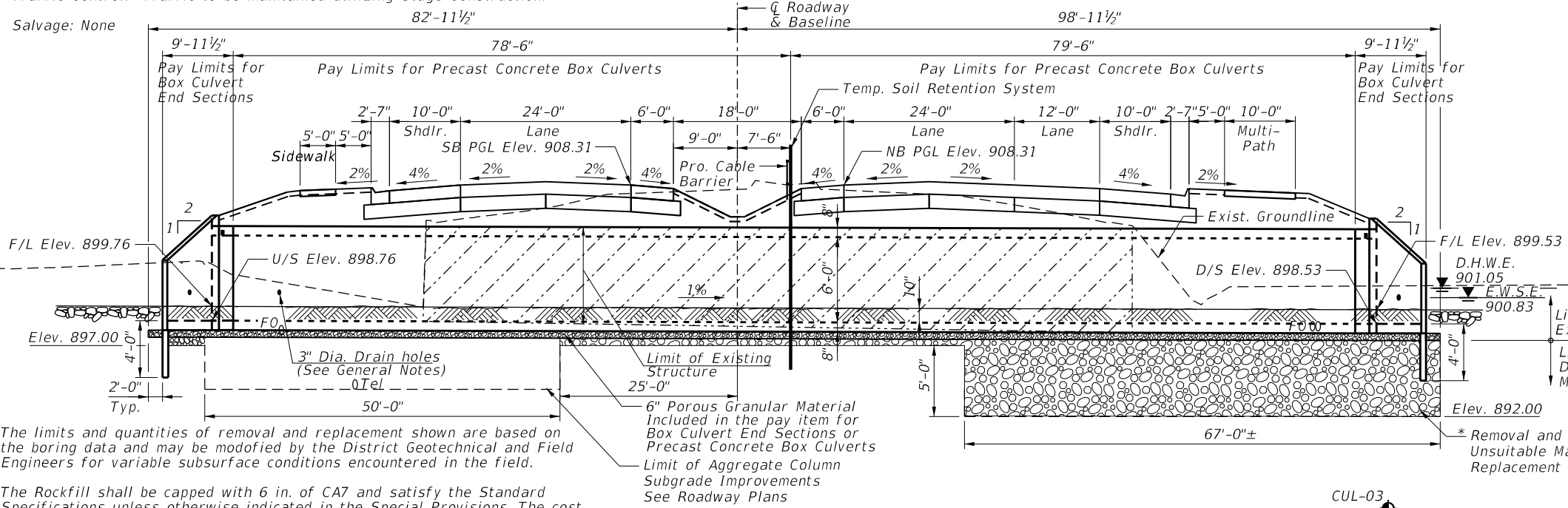
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	558
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				

Benchmark: BM #6, Set cut square on light pole base along Illinois Rte. 47  
130± North of intersection of Pleasant Valley Road. Elev. 908.52

Existing Structure: SN 056-0247 was built in 1936 as SBI 47 Section 105X.  
It is a single Box Culvert 6' x 5', 100'-0" Face to Face of Headwalls.

Traffic Control: Traffic to be maintained utilizing Stage Construction.

Salvage: None



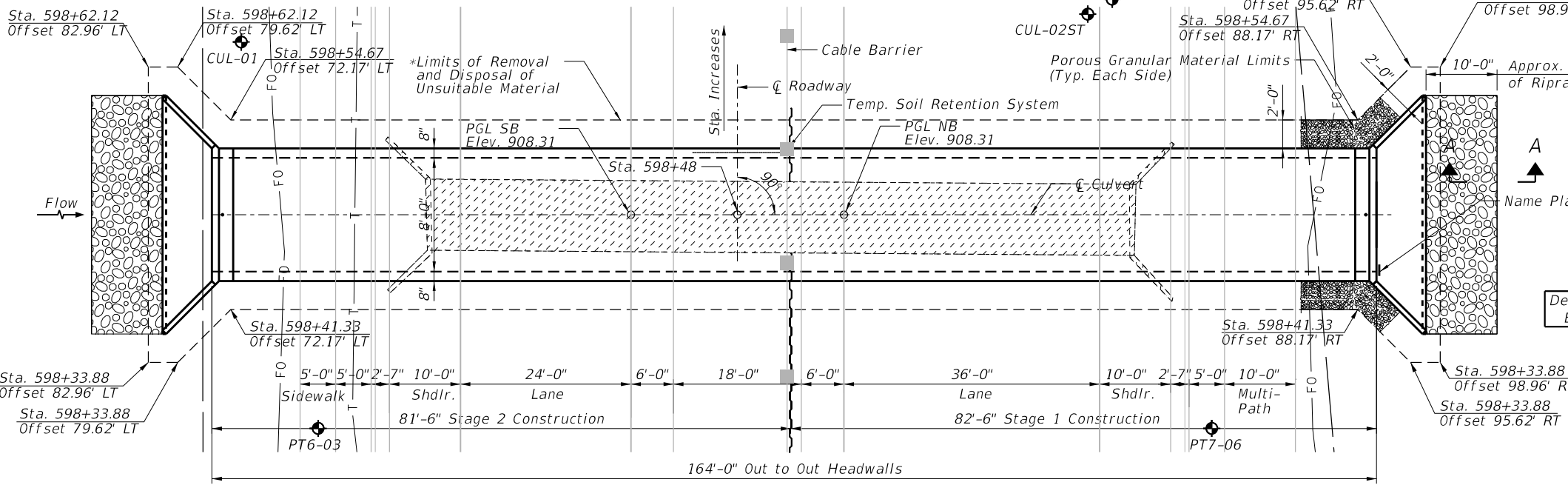
**DRAIN DETAIL**

(All costs associated with furnishing and constructing the above drain detail will not be measured for payment but shall be included in the contract unit price for the associated work.)

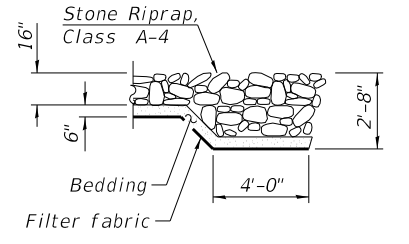
\* The limits and quantities of removal and replacement shown are based on the boring data and may be modified by the District Geotechnical and Field Engineers for variable subsurface conditions encountered in the field.

The Rockfill shall be capped with 6 in. of CA7 and satisfy the Standard Specifications unless otherwise indicated in the Special Provisions. The cost of the capping material shall be included in the pay item for Box Culvert End Sections or Precast Concrete Box Culverts.

**ELEVATION**



**PLAN**



**SECTION A-A**

**DESIGN SCOUR ELEVATION TABLE**

Design Scour Elev. (ft.)	D/S Inv.	U/S Inv.
	895.53	895.76

**DESIGN SPECIFICATIONS**  
2020 AASHTO LRFD Bridge Design Specifications  
9th Edition

**LOADING HL-93**

Allow 50 #/sq. ft. for future wearing surface

**DESIGN STRESSES**

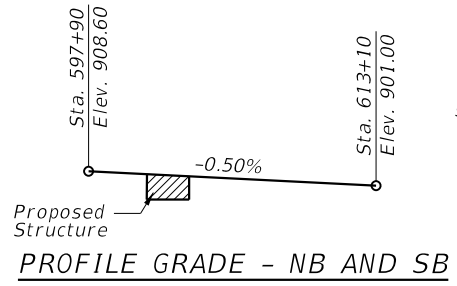
**PRECAST UNITS**

f'c = 5,000 psi  
fy = 65,000 psi (Welded Wire Reinforcement)

**WATERWAY INFORMATION**

Drainage Area = 0.0544 sq. mi. Low Grade Elev. = 908.05 @ Sta. 599+00

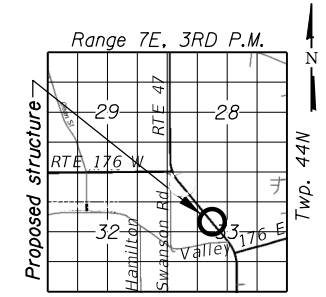
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
	2	9.48	4.3	5.7	900.47	0.00	0.00	900.47	900.47
	10	17.04	6.4	8.6	900.83	0.05	0.18	900.88	901.01
Design	50	27.41	7.8	10.3	901.05	0.21	0.34	901.26	901.39
Base	100	38.82	8.9	11.8	901.24	0.40	0.50	901.64	901.74
Overtopping									
Max. Calc.	500	65.90	11.1	14.7	901.60	0.83	0.84	902.43	902.44



**PROFILE GRADE - NB AND SB**

STATION 598+48.00  
BUILT 202X BY  
STATE OF ILLINOIS  
F.A.P. RT. 326  
SEC. 105-N-2(15)  
LOADING HL-93  
STR. NO. 056-0309

**NAME PLATE**  
See Std. 515001



**LOCATION SKETCH**

**GENERAL PLAN AND ELEVATION**  
**IL RTE. 47 OVER**  
**KISHWAUKEE RIVER TRIBUTARY**  
**F.A.P. RTE. 326 SEC 105-N-2(15)**  
**McHENRY COUNTY**  
**STATION 598+48.00**  
**S.N. 056-0309**

MODEL: D:\draft\... FILE NAME: 170353\CBREL\STRUCT\056-0309-GPE-170353.dwg

**GENERAL NOTES**

- 1 The design fill height for this box is 3'-0". The precast box culvert sections shall conform to the requirements of ASTM C 1577.
- 2 Drain holes shall be provided on exterior culvert walls for each precast box segment with a clear rise greater than 3 ft. The drain hole shall be located within 1/3 of the clear rise of the box culvert, shall not intercept the haunch, and shall conform to the requirements of Article 503.11 of the Standard Specification.
- 3 Nonwoven geotextile fabric shall conform to the requirements of Art. 1080.01 of the Standard Specifications. The minimum weight of the fabric shall be 6 ounces per square yard.
- 4 Precast concrete box culverts and box culvert end sections shall be backfilled with Porous Granular Embankment in the required excavation areas on the sides of the box culvert from the top of the box culvert to the bottom of the box culvert. This area of PGE is included in the Porous Granular Embankment pay item. The 6-inch thick layer of porous granular material required under the precast box culvert, according to Section 540.06 of the Standard Specifications, shall also apply to the End Sections. Cost of this porous granular material will not be paid for separately but shall be included in the unit price of the work for which it is required.

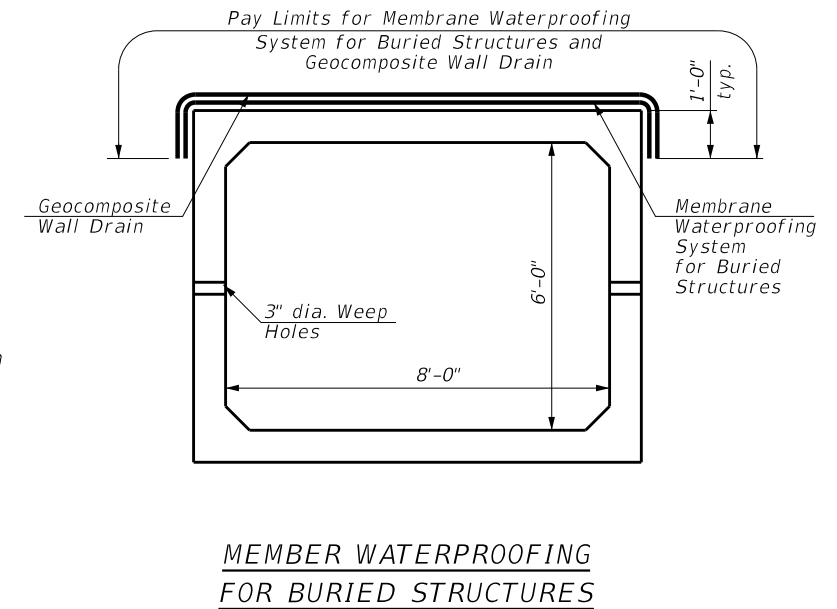
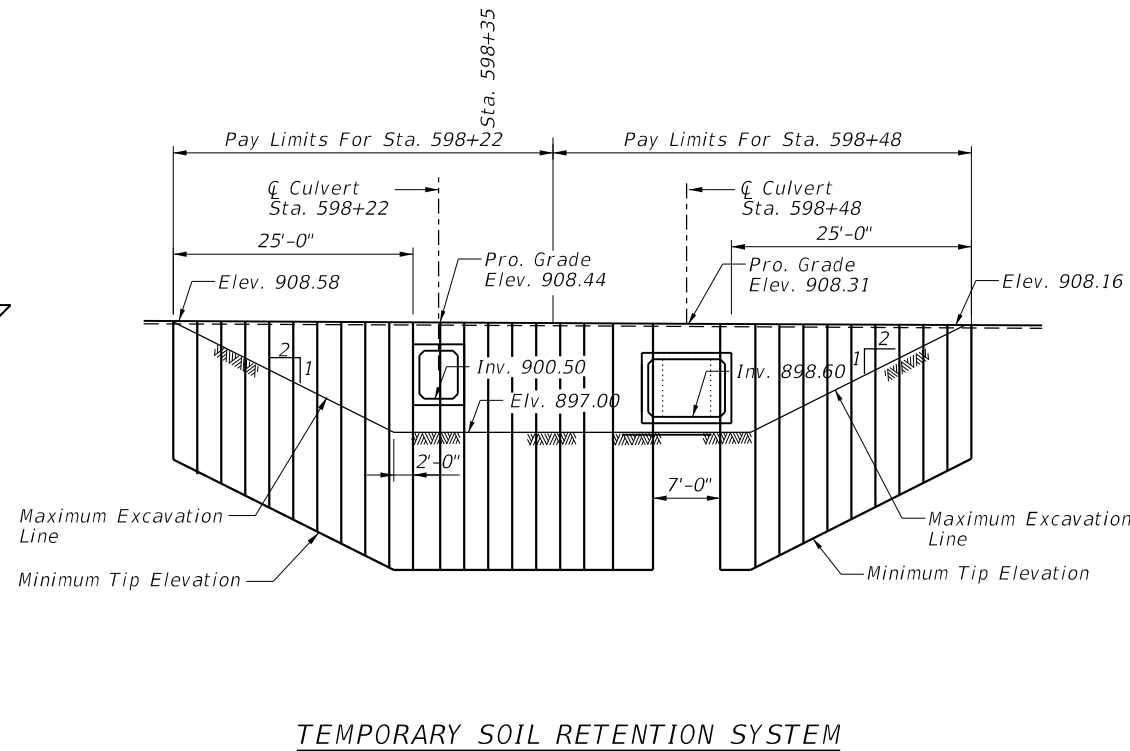
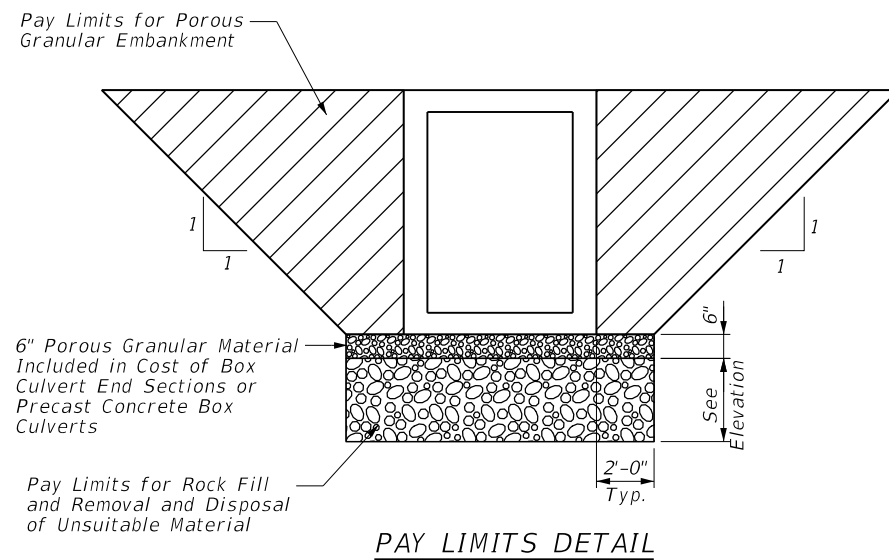
**INDEX OF SHEETS**

- 1 General Plan and Elevation
- 2 General Notes, Index of Sheets and Total Bill of Materials
- 3 Stage Construction Details
- 4-5 Precast Concrete Box Culvert Apron End Section Details
- 6 Soil Boring Logs
- 7-9 Existing Structure (For Information Only)

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	TOTAL
Porous Granular Embankment	Cu. Yd.	548
Stone Riprap, Class A4	Sq. Yd.	54
Filter Fabric	Sq. Yd.	54
Removal of Existing Structures No. 1	Each	1
Structure Excavation	Cu. Yd.	684
Removal and Disposal of Unsuitable Material for Structures	Cu. Yd.	165
Name Plates	Each	1
Temporary Soil Retention System	Sq. Ft.	353
Box Culvert End Sections, Culvert No. 2	Each	2
Precast Concrete Box Culverts 8' X 6'	Foot	158
Geocomposite Wall Drain	Sq. Yd.	204
Membrane Waterproofing System for Buried Structures	Sq. Yd.	204
* Rock Fill	Cu. Yd.	163

\* See Special Provision



MODEL Default  
FILE Name: I:\Jobs\170353\CBBEL\Struct\056-0309-GNOTES\_170353.dgn

	CHRISTOPHER B. BURKE ENGINEERING, LTD. 9575 W. HOGGINS ROAD, SUITE 600 ROSEMONT, ILLINOIS 60018 (847) 823-0500	USER NAME = jbarrett DESIGNED - AS DRAWN - PDR CHECKED - MM DATE - SPLANDATES	REVISED - REVISED - REVISED - REVISED -
	PLOT SCALE = 2,000' / in. PLOT DATE = 12/14/2023		

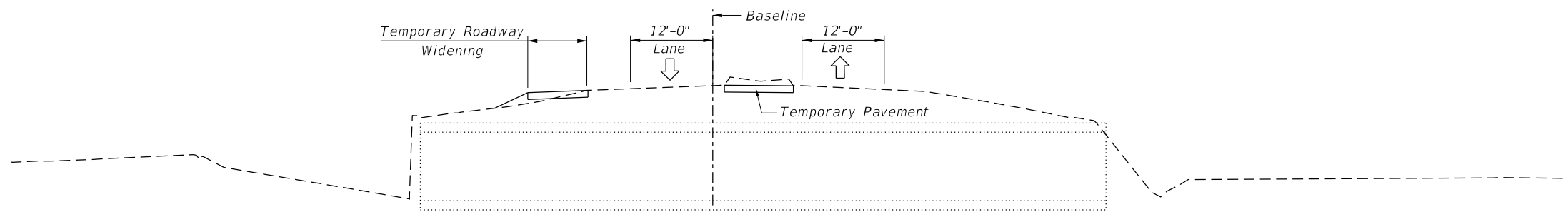
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**GENERAL NOTES, INDEX OF SHEETS AND TOTAL BILL OF MATERIALS  
STRUCTURE NO. 056-0309**

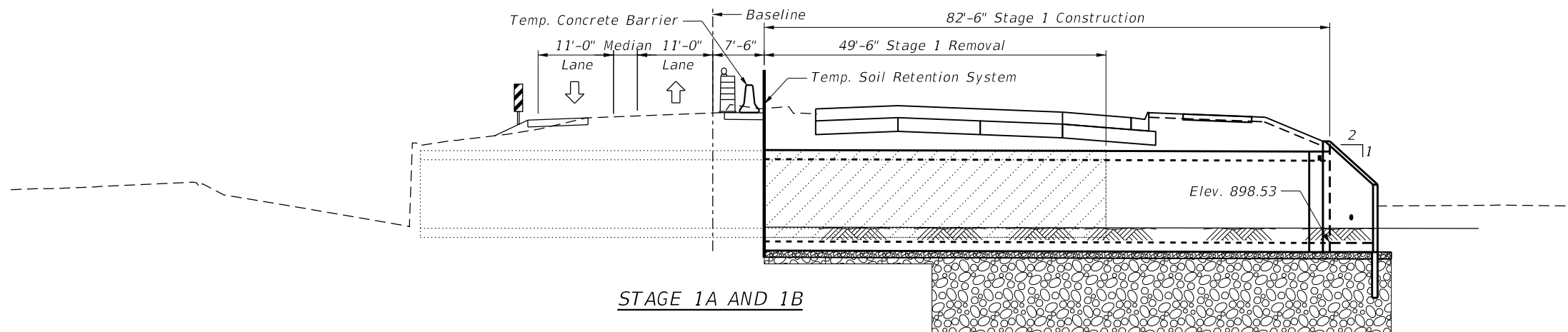
SCALE: N.T.S. SHEET 2 OF 9 SHEETS STA. 598+48 TO STA. ---

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	560
			CONTRACT NO. 62B43	
		ILLINOIS	FED. AID PROJECT	

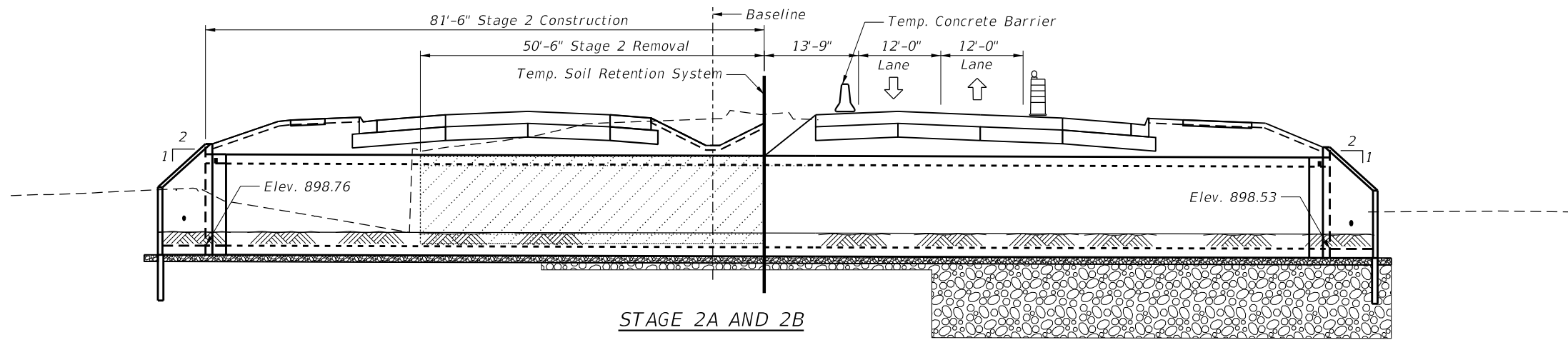




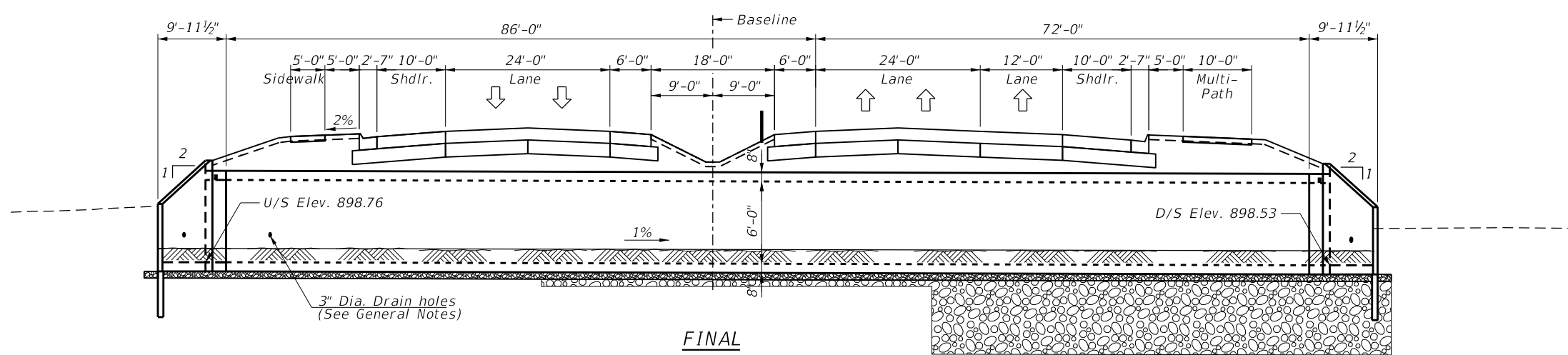
**PRE-STAGE**



**STAGE 1A AND 1B**



**STAGE 2A AND 2B**



**FINAL**

Note: There is no culvert work for this structure during MOT Stage 3. Only roadway work is occurring at this location during Stage 3.

MODEL: Default  
FILE NAME: I:\Projects\170353\CBBEL\Struct\056-0309\MOT-170353-01.dwg

**CB**  
CHRISTOPHER B. BURKE  
ENGINEERING, LTD.  
9575 W. HOGGINS ROAD, SUITE 600  
ROSEMONT, ILLINOIS 60018  
(847) 823-0500

USER NAME = jbarrett  
PLOT SCALE = 20.0000' / in.  
PLOT DATE = 12/14/2023

DESIGNED - AS  
DRAWN - PDR  
CHECKED - MM  
DATE - SPLANDATES

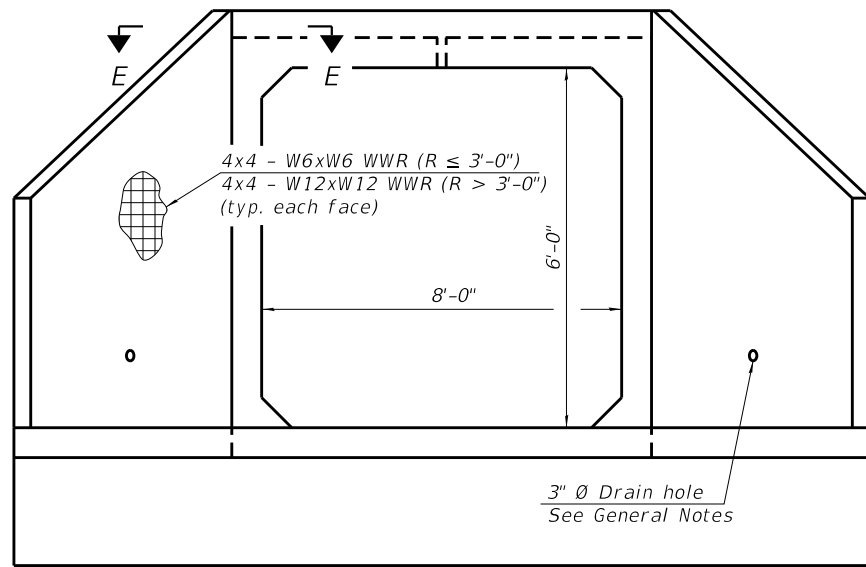
REVISED -  
REVISED -  
REVISED -  
REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

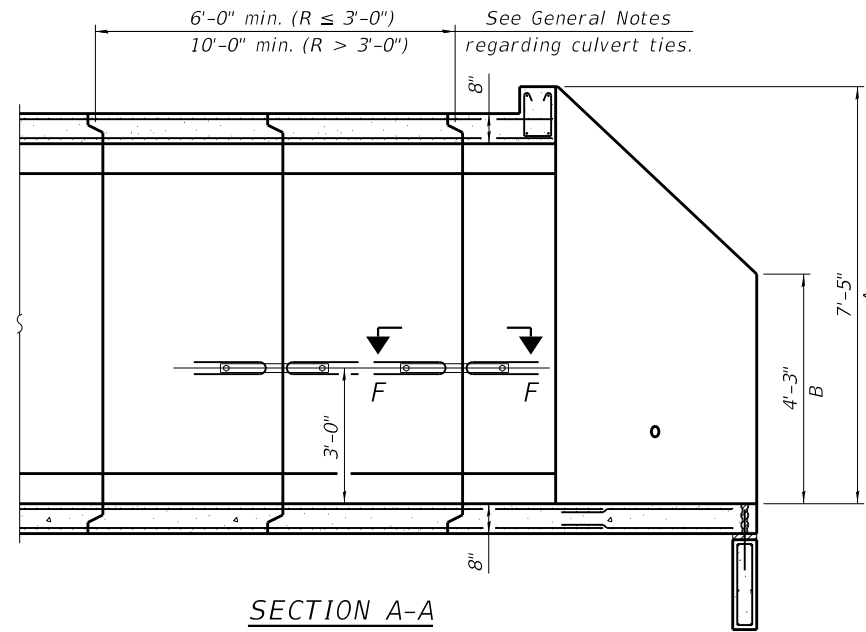
**STAGE CONSTRUCTION DETAILS  
STRUCTURE NO. 056-0309**

SCALE: N.T.S. SHEET 3 OF 9 SHEETS STA. 598+48 TO STA. ---

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	561
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				



END VIEW



SECTION A-A

GENERAL NOTES

Box Culvert End Sections shall be constructed according to the requirements of Section 540 of the Standard Specifications except as modified herein. End sections will be paid for at the contract unit price per each for Box Culvert End Sections.

The Contractor may furnish the end section as a single precast concrete piece or construct the end section in the field using cast-in-place (CIP) construction. For CIP construction, the bottom slab thickness shall be increased by 2" and the clear cover to the bottom mat of reinforcement shall be increased to 3".

Box section dimensions, materials, and reinforcement details for Box Culvert End Sections shall be according to the requirements for ASTM C 1577 as required for the design of the portion of the culvert within the limits of Precast Concrete Box Culverts except as modified herein.

The number of culvert ties shall be sufficient to engage the minimum length of culvert barrel shown within the pay limits for Precast Concrete Box Culverts and will be dependent upon the length of box culvert segments furnished by the Contractor. Culvert ties are not required for box culverts having a rise (R) less than or equal to 3 ft and a span (S) greater than or equal to 10 ft.

All costs associated with furnishing and installing or constructing the toewall and culvert ties will not be measured for payment but shall be included in the unit price for Box Culvert End Sections of the culvert number specified.

Shop drawings that detail slab thickness and reinforcement layout for the Box Culvert End Sections shall be provided to the Engineer for review and approval. Reinforcement bars not detailed herein shall be detailed with a clear distance at the end of the reinforcement not less than 1/2" nor more than 2". For the precast option, it shall be the Contractor's responsibility for determining a method of handling and a construction procedure shall be included on the shop drawings. The Contractor shall determine and detail in the shop drawings any necessary strengthening or stiffening provisions necessary to handle the precast segment. Any required modifications shall be at no extra charge.

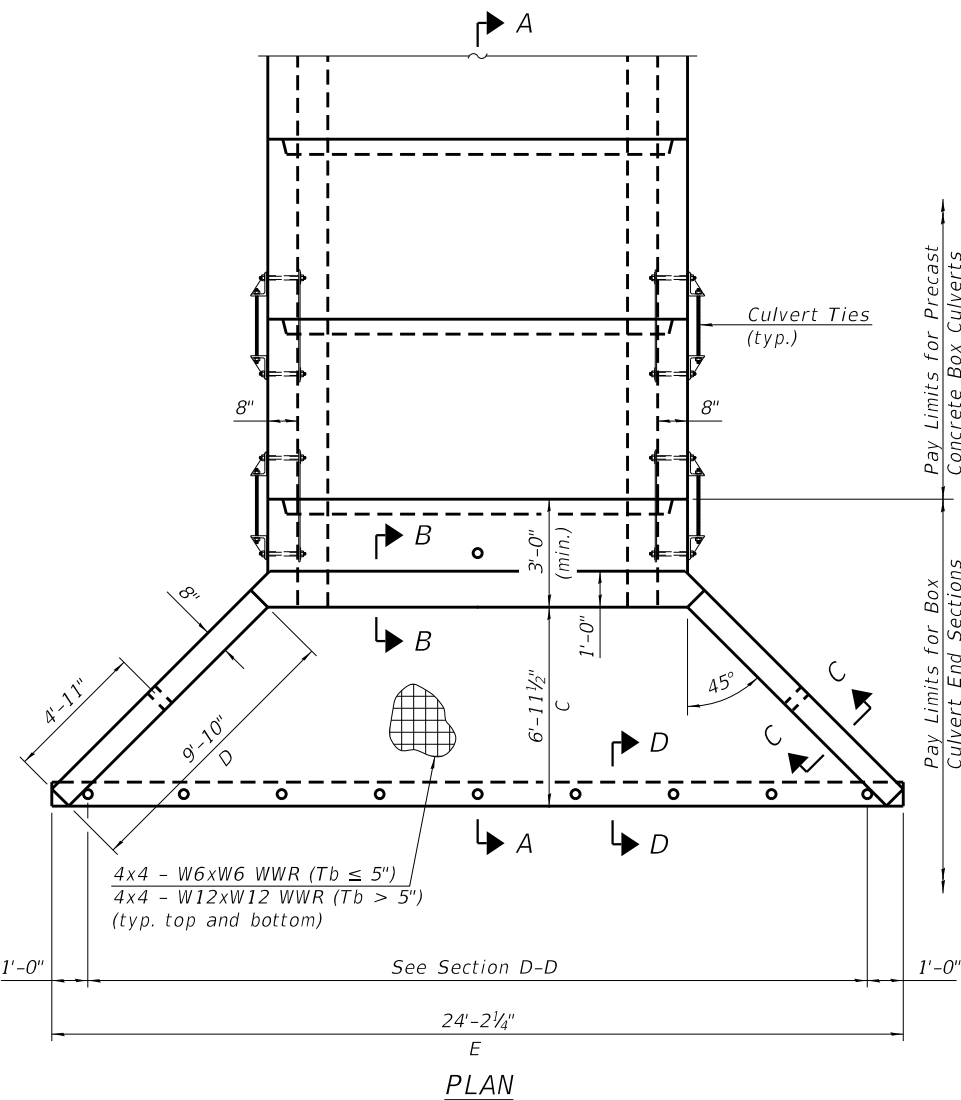
The Contractor may use reinforcement bars in lieu of welded wire reinforcement (WWR). Reinforcement bars shall be limited to the sizes of #3 through #5 bars, a maximum spacing of the lesser of 8" or the member thickness, and shall result in an area of reinforcement equal to or greater than that provided by the WWR. Minimum lap lengths detailed herein are applicable to WWR and reinforcement bars.

Reinforcement (circumferential and longitudinal) in the culvert barrel portion of the end section being lapped with reinforcement from the wingwalls or bottom slab of the end section shall not be less than that required by ASTM C 1577 for the design fill height or the reinforcement detailed for the end section, whichever is greater.

One drain hole shall be provided in each wingwall for end sections of box culverts having an opening with a clear rise greater than 3 ft. The drain hole shall be located within the lower 1/3 of the clear rise of the box culvert and shall conform to the requirements of Article 503.11 of the Standard Specifications.

APRON END SECTION DIMENSIONS

Span (S)	Rise (R)	Tt	Tb	Ts	A	B	C	D	E	Concrete Cu. Yd.	Culvert Ties Required
8'-0"	6'-0"	8"	8"	8"	7'-5"	4'-3"	6'-11 1/2"	9'-10"	24'-2 1/4"	11.0	Yes



PLAN

SCB-AES

2-17-2017

MODEL: D:\a\170353\CBBEL\STRUCT\056-0309-DETAIL\_170353-01.rvt

**CB**  
CHRISTOPHER B. BURKE  
ENGINEERING, LTD.  
9575 W. HOGGINS ROAD, SUITE 600  
ROSEMONT, ILLINOIS 60018  
(847) 823-0500

USER NAME = jboarnett	DESIGNED - AS	REVISED -
PLOT SCALE = 2,0000' / in.	DRAWN - PDR	REVISED -
PLOT DATE = 12/14/2023	CHECKED - MM	REVISED -
	DATE - SPLANDATES	REVISED -

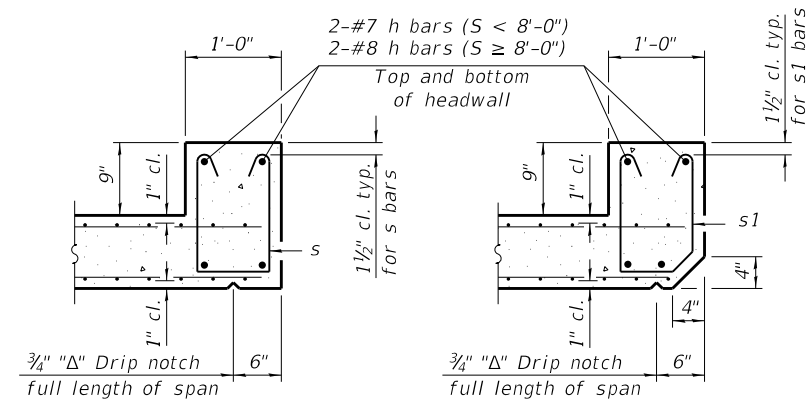
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

PRECAST CONCRETE BOX CULVERT APRON END  
SECTION DETAILS - STRUCTURE NO. 056-0309

SCALE: N.T.S. SHEET 4 OF 9 SHEETS STA. 598+48 TO STA. ---

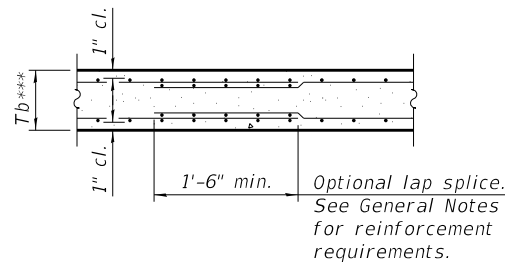
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	562
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				

(Sheet 1 of 2)



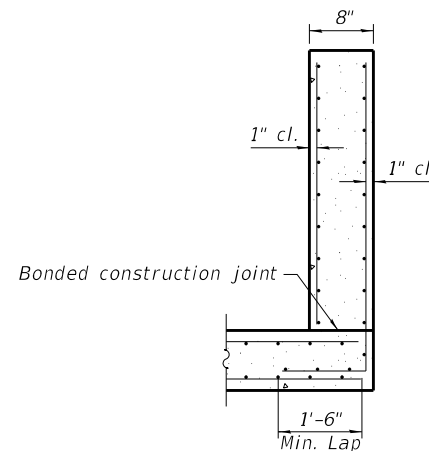
SECTION B-B  
(Top slab at downstream end)

SECTION B-B  
(Top slab at upstream end)

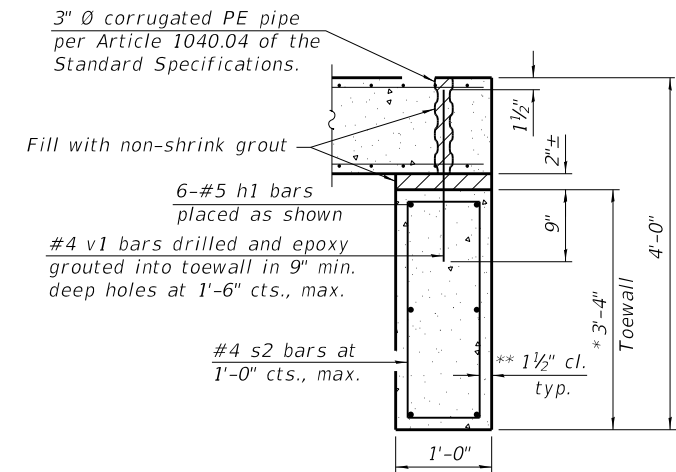


SECTION B-B  
(Bottom Slab)

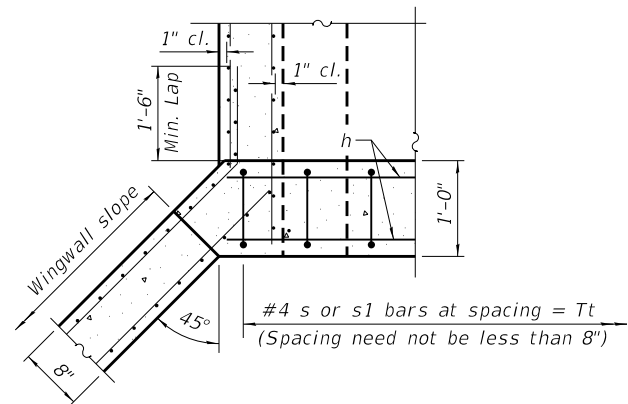
\*\*\* This dimension shall be increased by 2" for CIP construction.



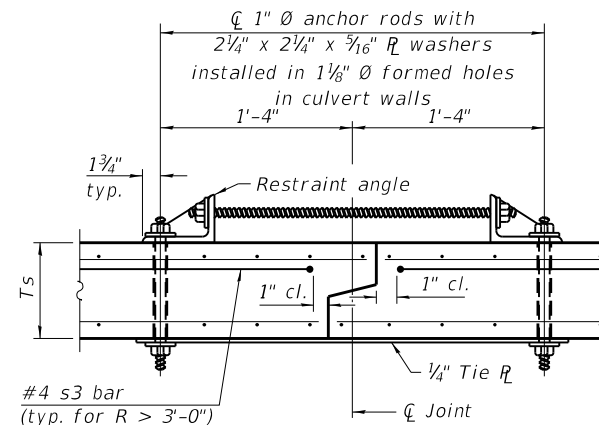
SECTION C-C



SECTION D-D



SECTION E-E



SECTION F-F  
(Showing culvert tie details)

**TOEWALL CONSTRUCTION SEQUENCE**

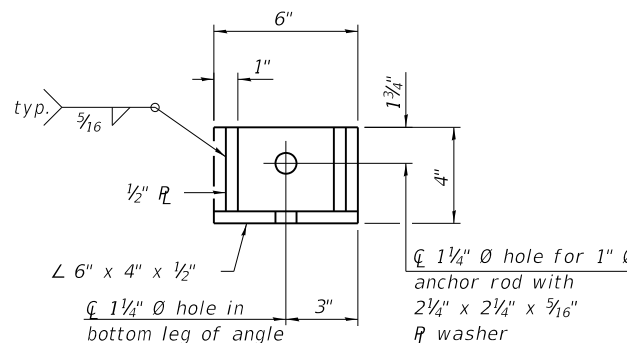
1. Perform excavation and construct toewall.
2. Backfill accordingly and place bedding for precast box culvert end sections.
3. Set precast box culvert end section.
4. Drill and epoxy grout reinforcement in toewall in accordance with Section 584 of the Standard Specifications.
5. Pressure grout voids using non-shrink grout conforming to Section 1024 of the Standard Specifications.

\* The Contractor may furnish a precast or cast-in-place toewall. The Contractor shall be responsible for the strength and stability of the precast toewall during handling. Additional lifting points may be required depending upon the length of the toewall or the Contractor may need to modify the design of the toewall for the proposed handling method.

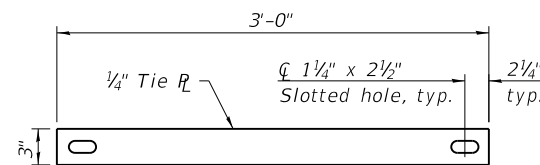
\*\* If soil conditions permit, the sides of the toewall may be poured directly against the soil. The clear cover on the sides of the toewall shall be increased to 3" by increasing the thickness of the toewall.

**Notes:**

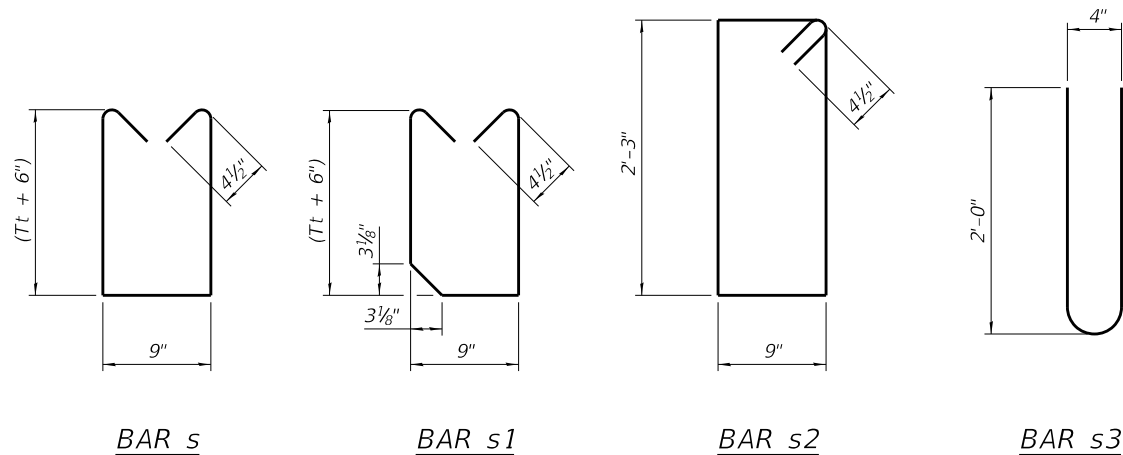
1" Ø anchor rods for the culvert ties shall conform to the requirements of ASTM F1554, Grade 105. Structural steel for the tie plate and restraint angle shall conform to the requirements of Article 1006.04 of the Standard Specifications. All components of the culvert tie detail shall be galvanized according to the requirements of AASHTO M 111 or M 232 as applicable. 2 1/4" x 2 1/4" x 3/16" plate washers shall be provided under each nut required for the anchor rods. Anchor rods connecting precast sections shall be brought to a snug tight condition followed by an additional 1/2 turn on one of the nuts for anchor rods installed in the walls. Match marks shall be provided on the bolt and nut to verify relative rotation between the bolt and the nut. Holes in the walls for the culvert tie assembly may be drilled using core bits in lieu of using formed holes.



RESTRAINT ANGLE DETAIL



TIE PLATE DETAIL



BAR s

BAR s1

BAR s2

BAR s3

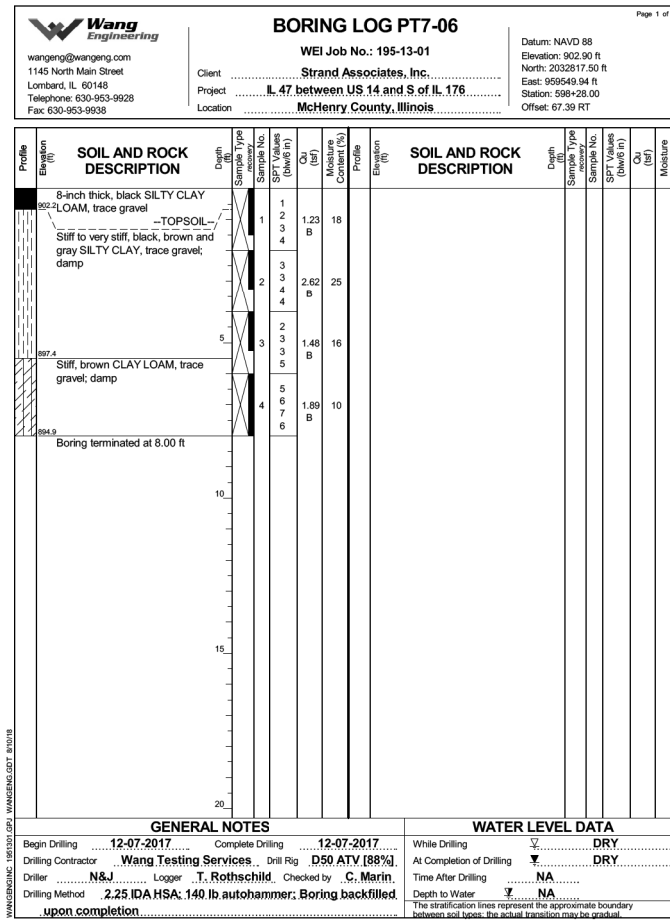
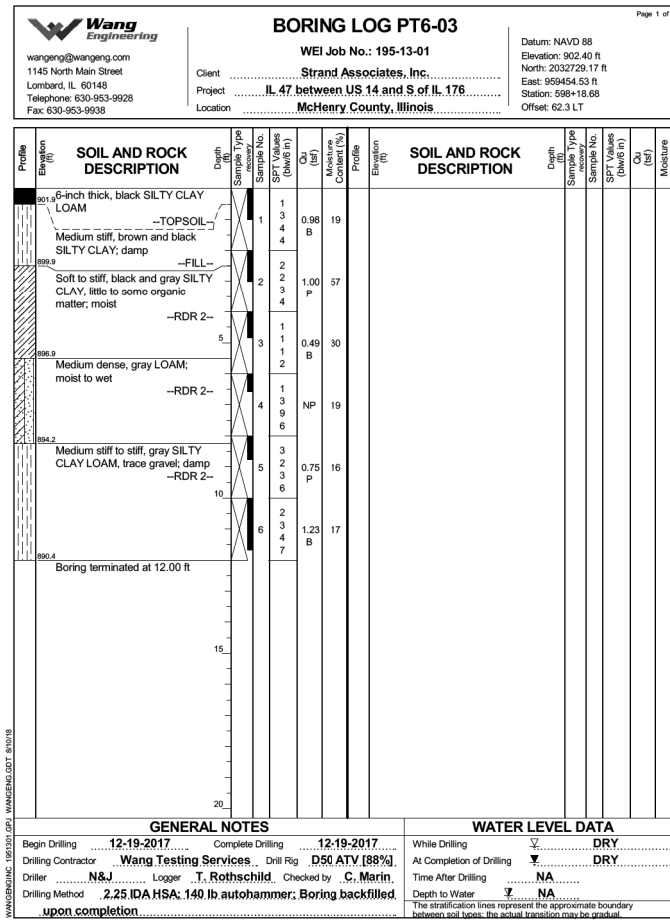
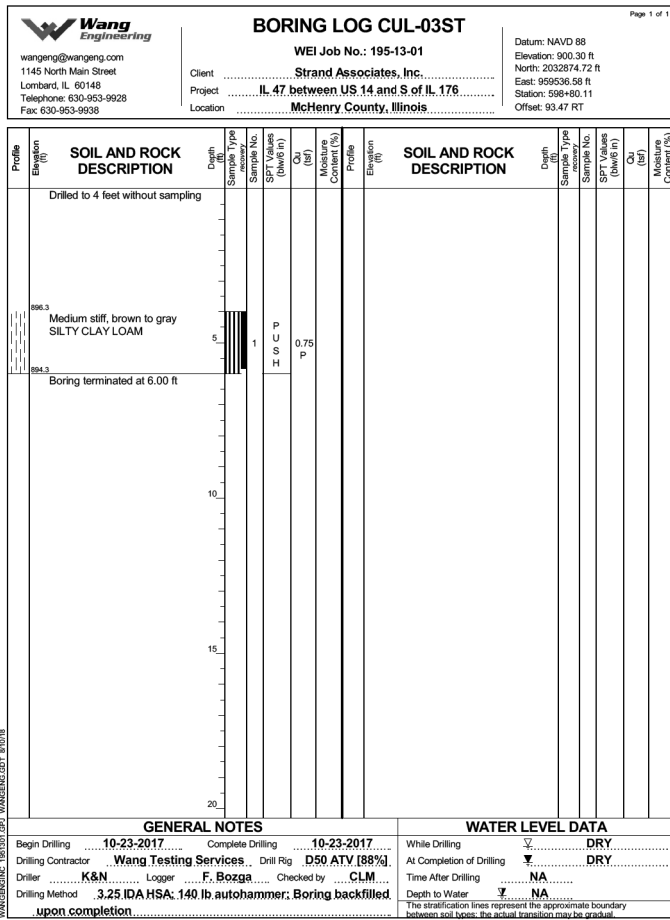
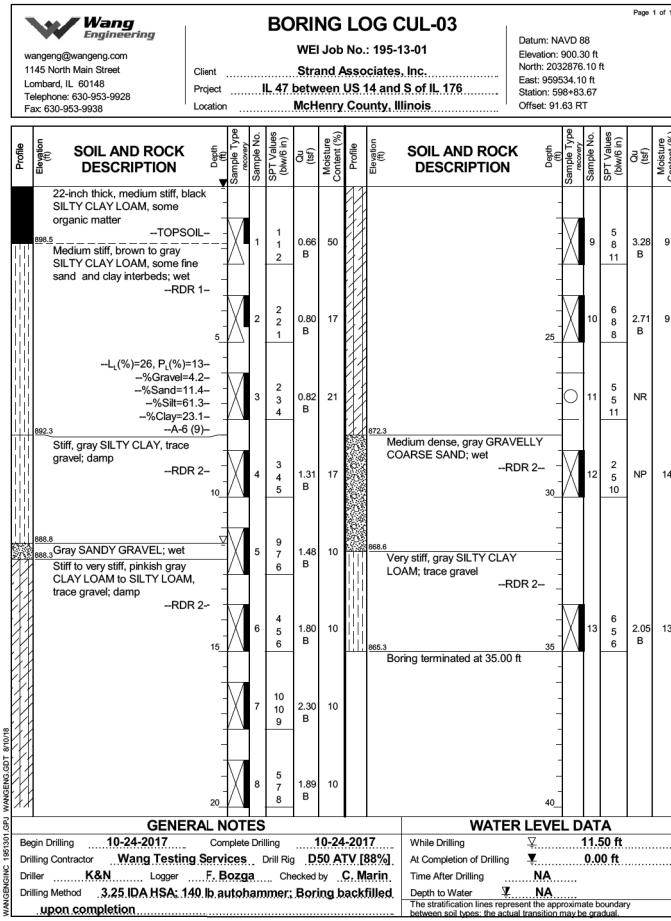
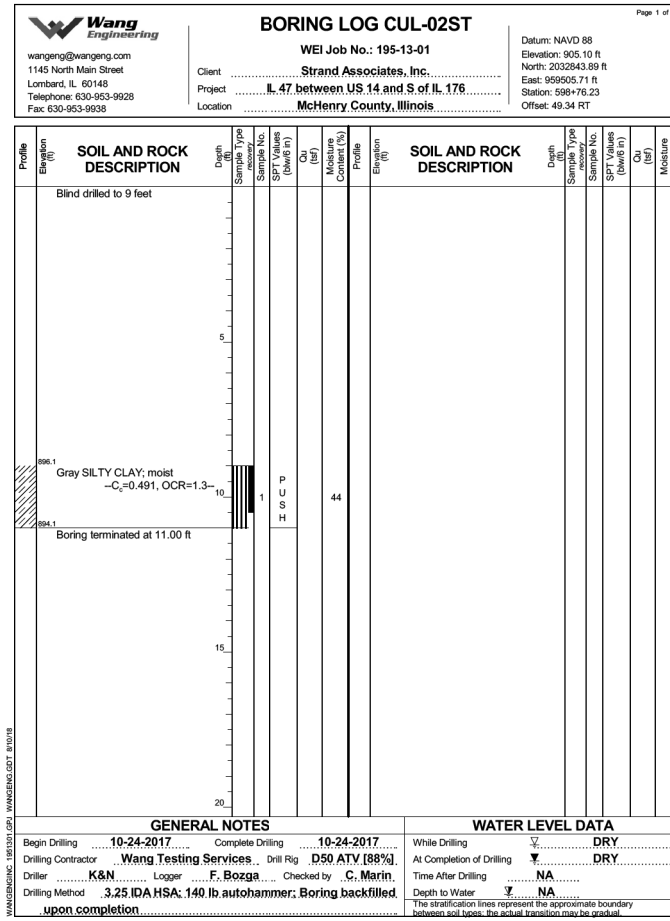
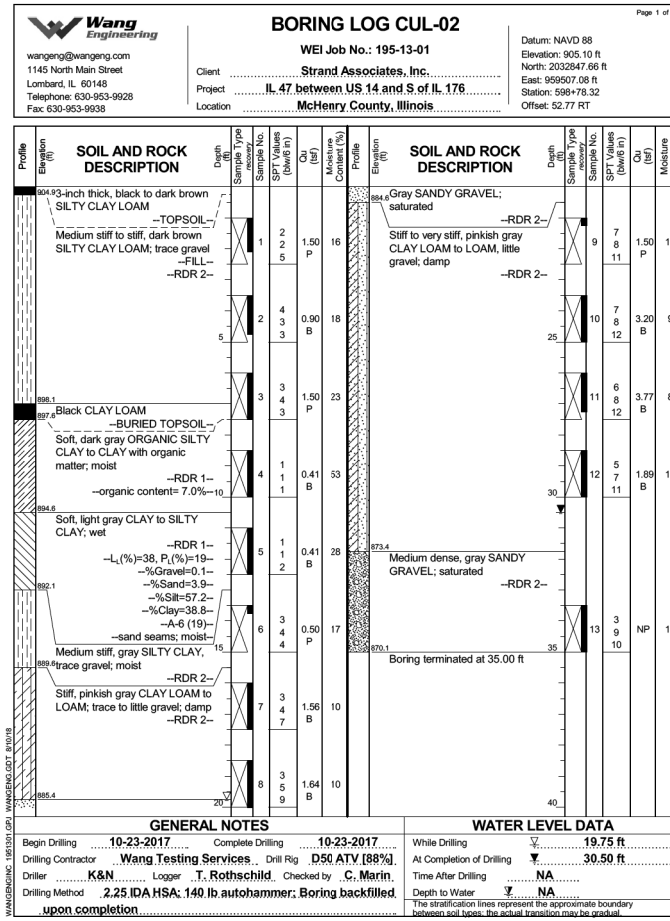
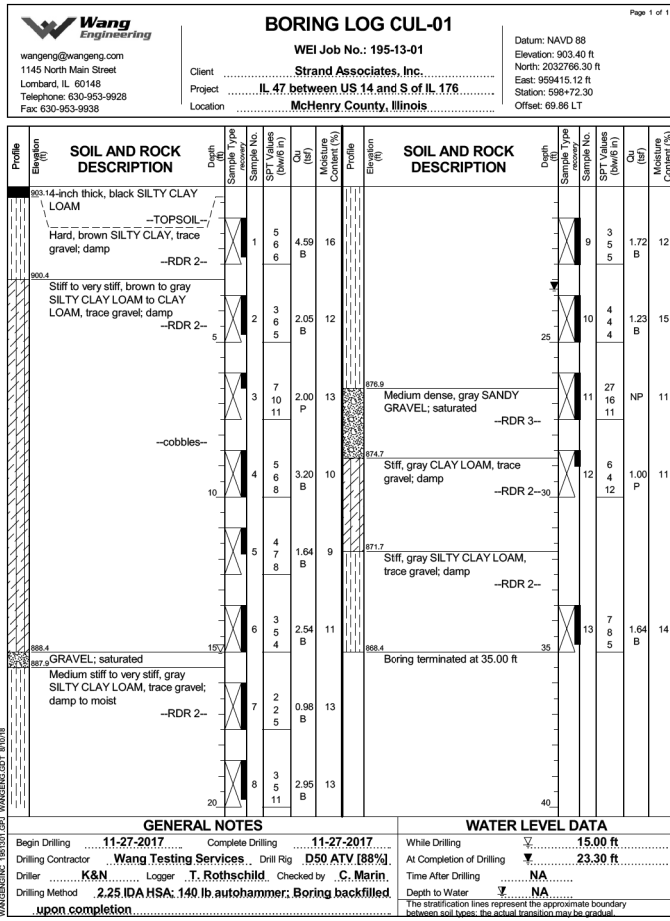
(Sheet 2 of 2)

MODEL: D:\a\170353\CBBEL\STRUCT\056-0309-DETAIL\_170353-02.rvt  
FILE NAME: 170353\CBBEL\STRUCT\056-0309-DETAIL\_170353-02.rvt

SCB-AES

2-17-2017

	CHRISTOPHER B. BURKE ENGINEERING, LTD. 9575 W. HOGGINS ROAD, SUITE 600 ROSEMONT, ILLINOIS 60018 (847) 823-0500	USER NAME = j0arnett PLOT SCALE = 2,0000' / in. PLOT DATE = 12/14/2023	DESIGNED - AS DRAWN - PDR CHECKED - MM DATE - SPLANDATES	REVISED - REVISED - REVISED - REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PRECAST CONCRETE BOX CULVERT APRON END SECTION DETAILS - STRUCTURE NO. 056-0309	SCALE: N.T.S.	SHEET 5 OF 9 SHEETS	STA. 598+48 TO STA. ---	F.A.P. RTE. 326	SECTION 105-N-2(15)	COUNTY MCHENRY	TOTAL SHEETS 803	SHEET NO. 563
										CONTRACT NO. 62B43 ILLINOIS FED. AID PROJECT				



MODEL: D:\dwg\170353\CBBEL\Struct\056-0309-BL\LOGS-170353.dwg  
FILE NAME: 170353\CBBEL\Struct\056-0309-BL\LOGS-170353.dwg



USER NAME = jbarrett  
PLOT SCALE = 2,000' / in.  
PLOT DATE = 12/14/2023

DESIGNED - AS  
DRAWN - PDR  
CHECKED - MM  
DATE - SPLANDATES

REVISED -  
REVISED -  
REVISED -  
REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

SCALE: N.T.S. SHEET 6 OF 9 SHEETS STA. 598+48 TO STA. ---

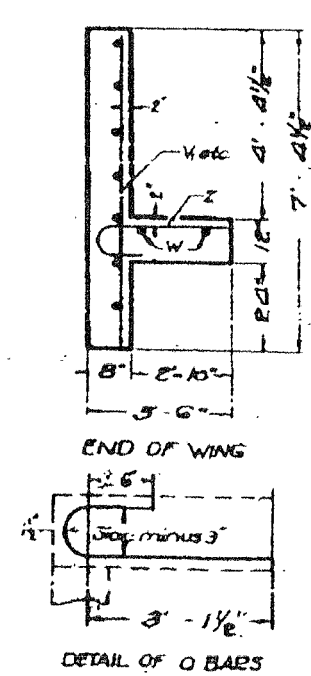
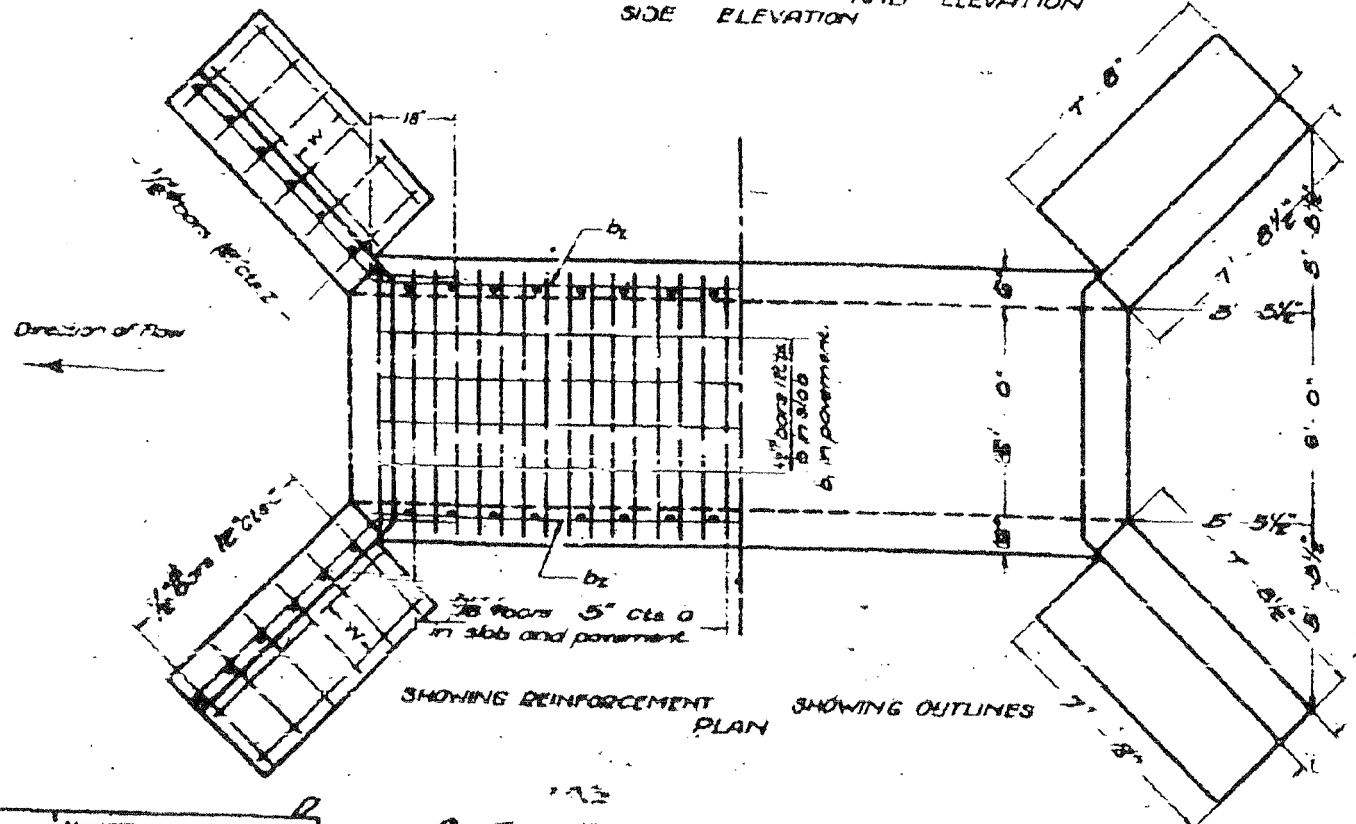
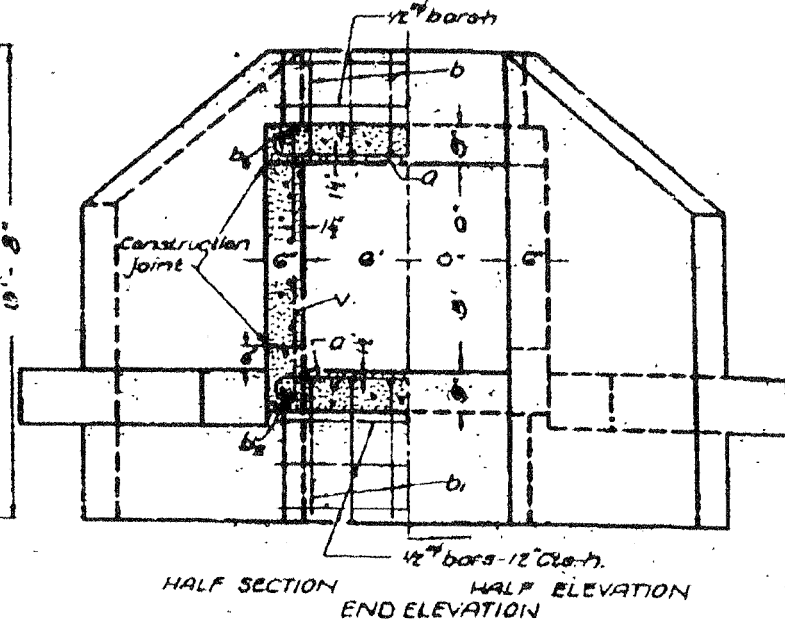
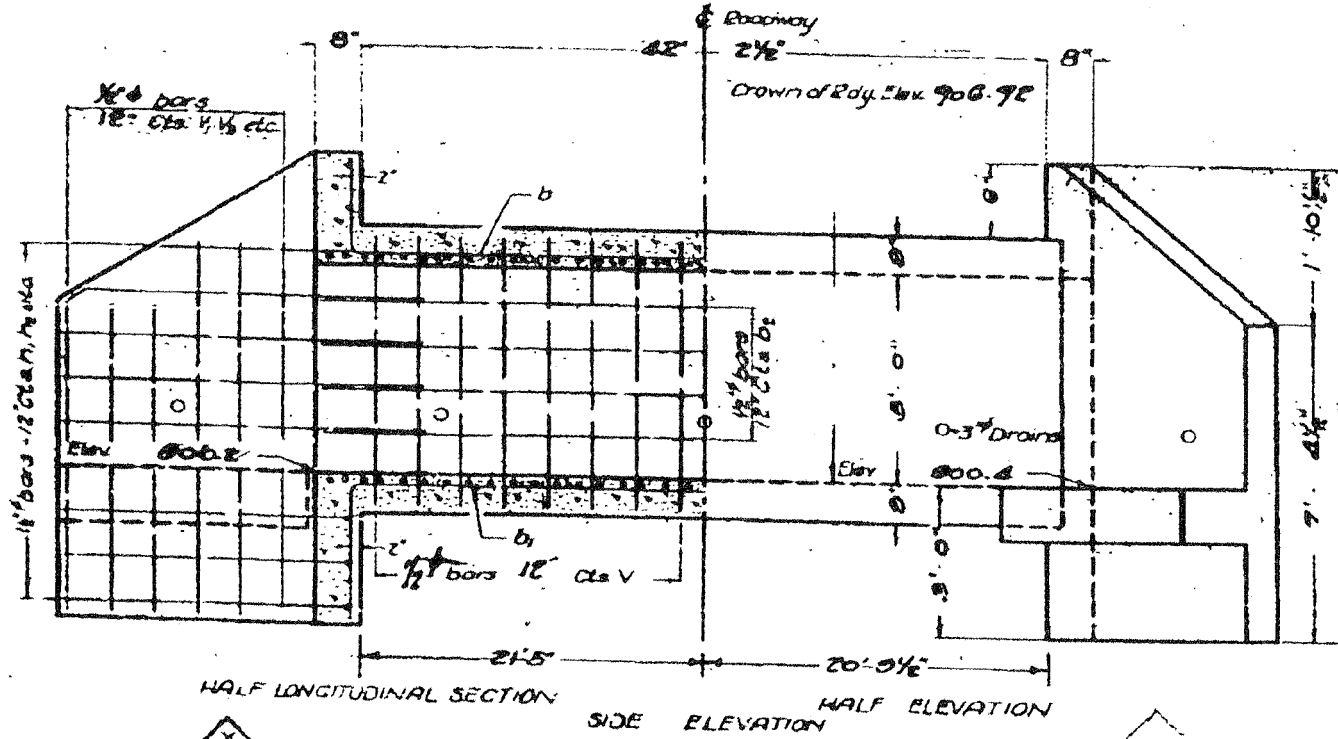
SOIL BORING LOGS  
STRUCTURE NO. 056-0309

F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	564
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				

Slope 3 to 1

STATE OF ILLINOIS  
DEPARTMENT OF PUBLIC WORKS & BUILDINGS  
DIVISION OF HIGHWAYS

ROAD DIST. No. 47	SEC. 105A-X WPHB	COUNTY McHenry	TOTAL SHEETS 70	SHEET No. 60
FED. ROAD DIST. No. 7 ILLINOIS FED. AID PROJECT WPH-105A-X				



**BILL OF MATERIAL**

Bar Number	Size	Length
a	20#	2'-0"
b	12	20'-0"
d	12	20'-0"
b1	20	22'-0"
h	6	0'-0"
h1	6	4'-0"
h2	6	8'-0"
h3	20	8'-0"
v	8#	8'-0"
v1	6	7'-0"
v2	6	7'-0"
v3	6	7'-0"
v4	12	8'-0"
v5	6	7'-0"
z	32	4'-0"

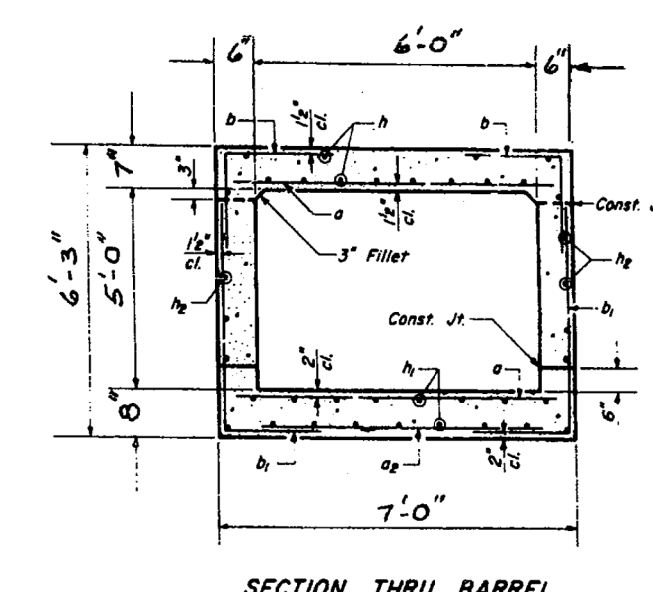
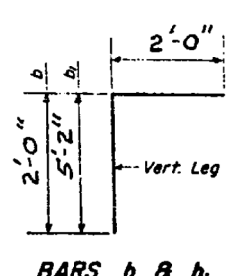
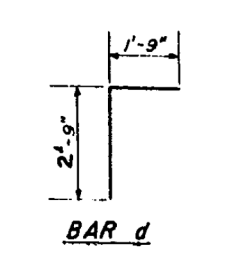
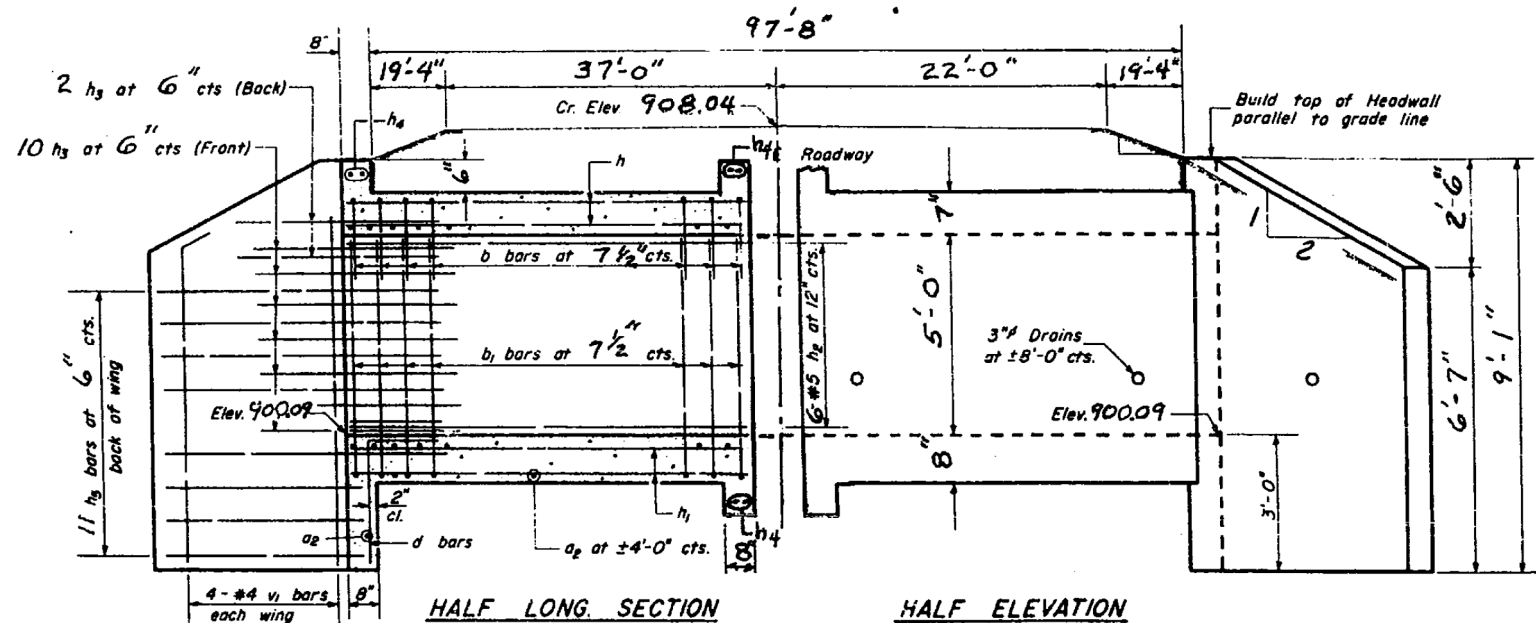
Class X Concrete Cu Yds. 36.8  
Reinforcing Steel Lbs. 3680

DESIGNED BY: *A. S. [Signature]*  
 DRAWN BY: *M. L. [Signature]*  
 CHECKED BY: *J. A. [Signature]*  
 APPROVED BY: *[Signature]*

Notes:  
 Class X concrete shall be used throughout.  
 All reinforcing steel shall be wired securely  
 in place before the concrete is poured.

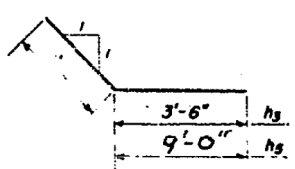
056-0247  
 SPECIAL CULVERT DESIGN  
 STA. 424+72  
 S.D. RTE. 47 SECT. 105A-X  
 MCHENRY COUNTY

MODEL: D:\dwg\170353\CBBEL\STRUCT\056-0247\ASBUILT\_170353-01.dwg  
 FILE NAME: 170353\CBBEL\STRUCT\056-0247\ASBUILT\_170353-01.dwg



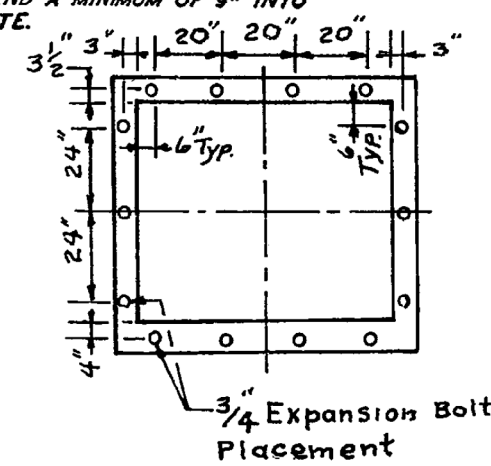
Note:  $h_7, h_1, h_2$  of Lt. Ext. Corresponds with  $h_6, h_7, h_8$  of Rt. Ext.  
**BILL OF MATERIAL**

Bar	No.	Size	Length
a	228	#6	6'-8"
a <sub>2</sub>	16	#4	3'-9"
b	90	#4	4'-0"
b <sub>1</sub>	90	#4	7'-2"
d	14	#4	4'-6"
h	13	#5	33'-6"
h <sub>1</sub>	10	#5	33'-6"
h <sub>2</sub>	12	#5	33'-6"
h <sub>3</sub>	48	#6	5'-0"
h <sub>4</sub>	12	#6	6'-8"
h <sub>5</sub>	44	#6	10'-6"
v	4	#4	6'-0"
v <sub>1</sub>	16	#4	7'-9"
Class X Concrete		Cu. Yds.	37.8
Reinforcement Bars		Lbs.	6320
3/4" x 12" Exp. Bolt		Each	28
h <sub>6</sub>	13	#5	21'-6"
h <sub>7</sub>	10	#5	21'-6"
h <sub>8</sub>	12	#5	21'-6"



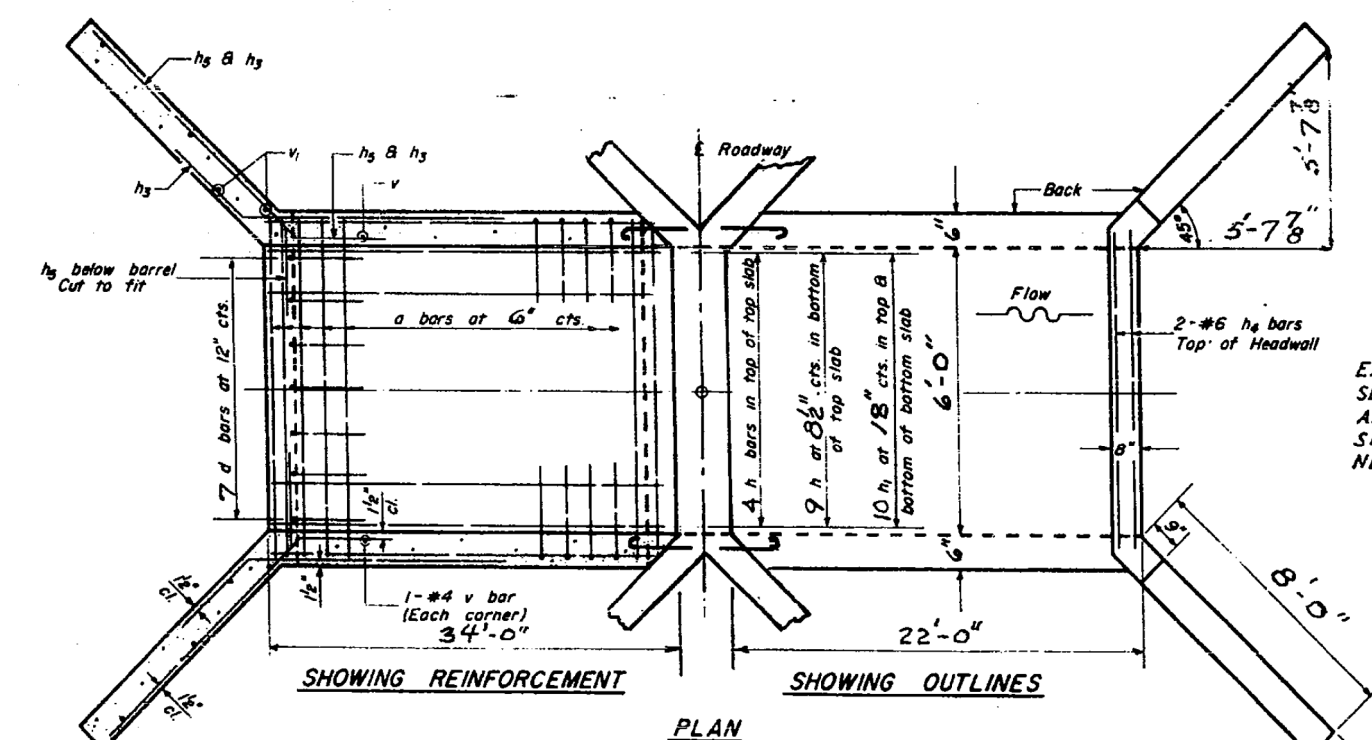
**BARS h<sub>3</sub> & h<sub>5</sub>**

EXPANSION BOLTS SHALL CONSIST OF SELF-DRILLING EXPANSION SHIELDS AND 3/4" Ø HOOKED BOLTS. HOOKED BOLTS SHALL EXTEND A MINIMUM OF 9" INTO NEW CONCRETE.



3/4" Expansion Bolt Placement

$f_s = 20,000$  psi.  
 $f_c = 1400$  psi. Barrel  
 $f_c = 1200$  psi. Wings  
 $v = 90$  psi.  
 $n = 10$



SHOWING REINFORCEMENT

SHOWING OUTLINES

PLAN

**GENERAL NOTES**

Class X Concrete shall be used throughout.  
At least six feet of Barrel shall be poured monolithically with wingwalls.  
Exposed edges shall be beveled 3/4".  
For backfilling & embankments see S'd. Spec's.  
Tilt hook of 'a' bars, if necessary, to obtain 1 1/2" minimum clearance at top of hook.  
The top of the culvert, the backs of the sidewalls above the lower construction joint and the backs of the wings shall be waterproofed in accordance with Art. 503J of the S'd. Spec's.  
All bars shall be lapped 24 diameters unless otherwise specified.

DESIGNED	EXAMINED
CHECKED	PASSED
DRAWN	APPROVED
CHECKED	

Rev. Reinf. Bars from 4810# to 6320# 10-28-71 D.D.

**SPECIAL BOX CULVERT EXTENS. STA 424 + 71**

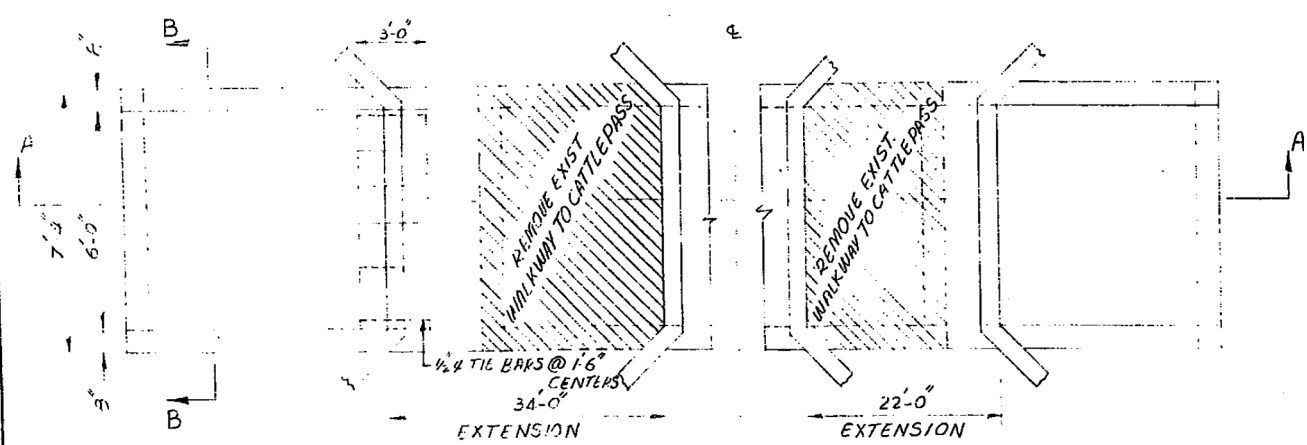
LOADING HS20-44

STANDARD 2030R

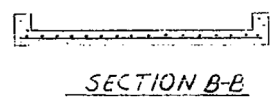
FOR INFORMATION ONLY

MODEL Dwg. No. 170353CBBELSTRUCT056-000-ASBUILT\_170353-02.dwg

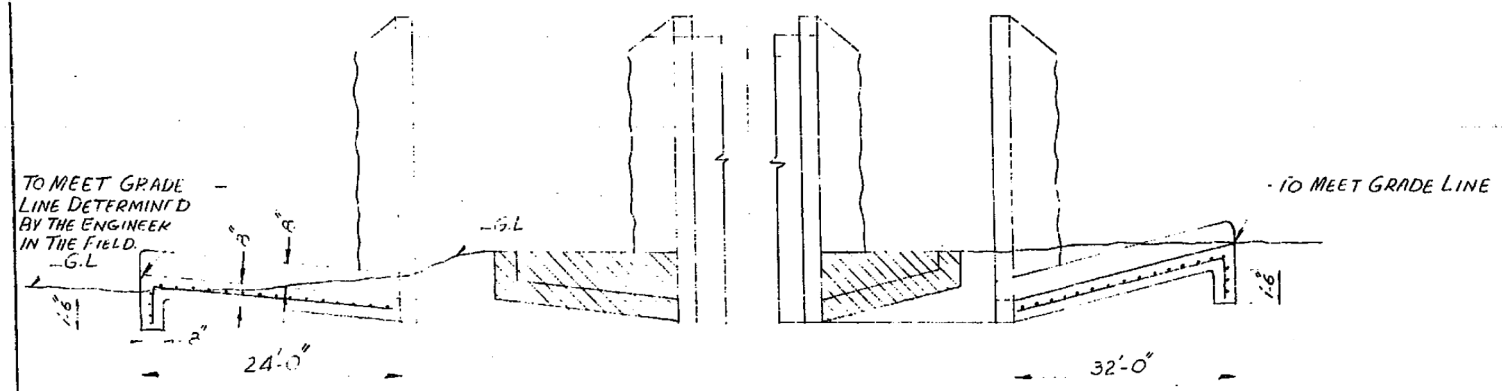
ROUTE NO.	SEC.	COUNTY	TOTAL SHEETS	SHEET NO.
64	105N	MCHENRY	55	33
FED. AID DIST. NO.		ILLINOIS DIST. PROJECT		



PLAN



SECTION B-B



SECTION A-A

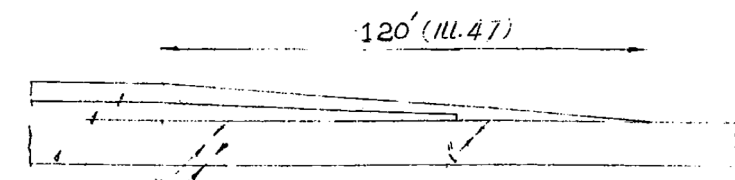
BILL OF MATERIALS

CLASS X CONCRETE	= 15.9 C.Y.
CONC. REMOVAL	= 16.0 C.Y.

NOTE:

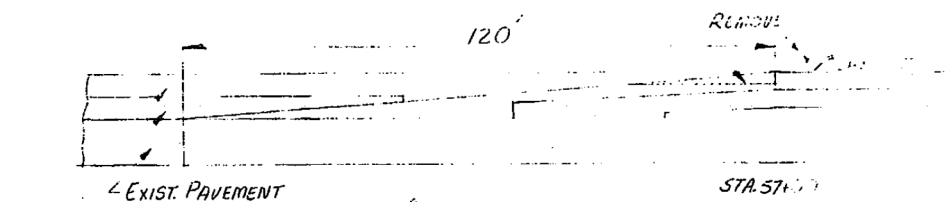
CLASS X CONCRETE SHALL BE USED THROUGHOUT  
 WELDED WIRE FABRIC TO BE USED IN WALKWAY  
 (WEIGHING NOT LESS THAN 58 LBS. PER 100 SQ. FT.)  
 FURNISHING & PLACING THE TIE BARS & WELDED WIRE  
 MESH SHALL BE IN ACCORDANCE WITH THE STANDARD  
 SPECIFICATIONS, THE DETAILS SHOWN & SHALL BE  
 INCIDENTAL TO THE CLASS X CONCRETE.

WALKWAY DETAILS STA. 424+71



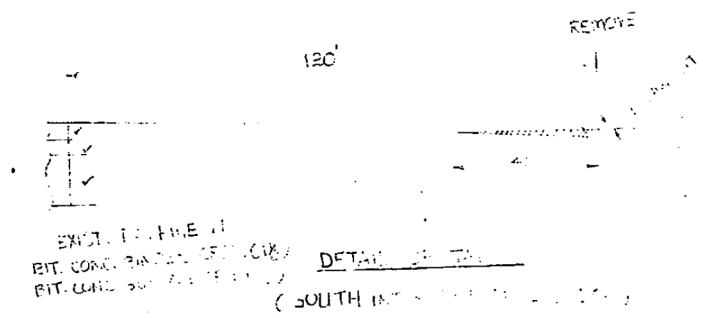
- BIT. CONC. SURF. CRSE. CLT
- BIT. CONC. BINDER CRSE.
- EXIST. PAVEMENT.

DETAIL OF TAPER



DETAIL OF TAPER

(NORTH INTERSECTION ILL. 115)



DETAIL OF TAPER

(SOUTH INTERSECTION ILL. 115)

FOR INFORMATION ONLY

MODEL: D:\p1\170353\CB\BELL\STRUCT\056-0309-AS\BUILT\_170353-03.dwg  
 FILE NAME: 170353\CB\BELL\STRUCT\056-0309-AS\BUILT\_170353-03.dwg

**CB**  
 CHRISTOPHER B. BURKE  
 ENGINEERING, LTD.  
 9575 W. HOGANS ROAD, SUITE 600  
 ROSEMONT, ILLINOIS 60018  
 (847) 823-0500

USER NAME	= jboarnett
DESIGNED	- AS
DRAWN	- PDR
CHECKED	- MM
DATE	- SPLANDATES
DESIGNED	- AS
REVISED	-
REVISED	-
REVISED	-
REVISED	-

DESIGNED	- AS
DRAWN	- PDR
CHECKED	- MM
DATE	- SPLANDATES
DESIGNED	- AS
REVISED	-
REVISED	-
REVISED	-
REVISED	-

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

EXISTING STRUCTURE (FOR INFORMATION ONLY) (3 OF 3)  
 STRUCTURE NO. 056-0309

SCALE: N.T.S. SHEET 9 OF 9 SHEETS STA. 598+48 TO STA. ---

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	567
			CONTRACT NO. 62B43	

ILLINOIS FED. AID PROJECT



Benchmark: Site Benchmark #7 Sta. 610+25.95 o/s 45.14 ft right. Elev. 897.583. Set cut box in NW corner of drainage structure with metal structure grate.

Existing Structure: None.

Traffic Control: Traffic will be maintained in a three stage construction process.

Salvage: None.

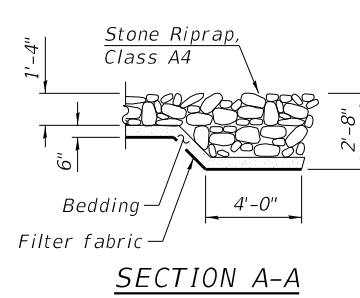
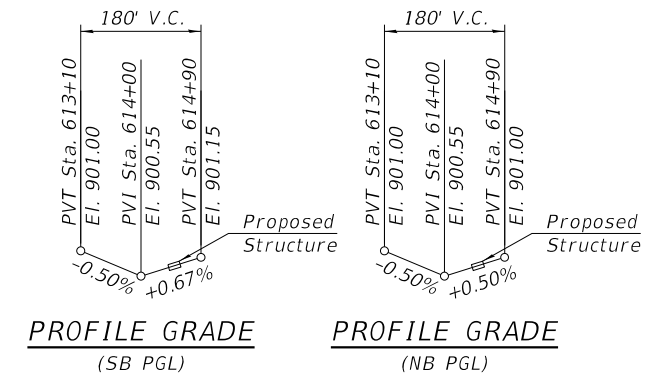
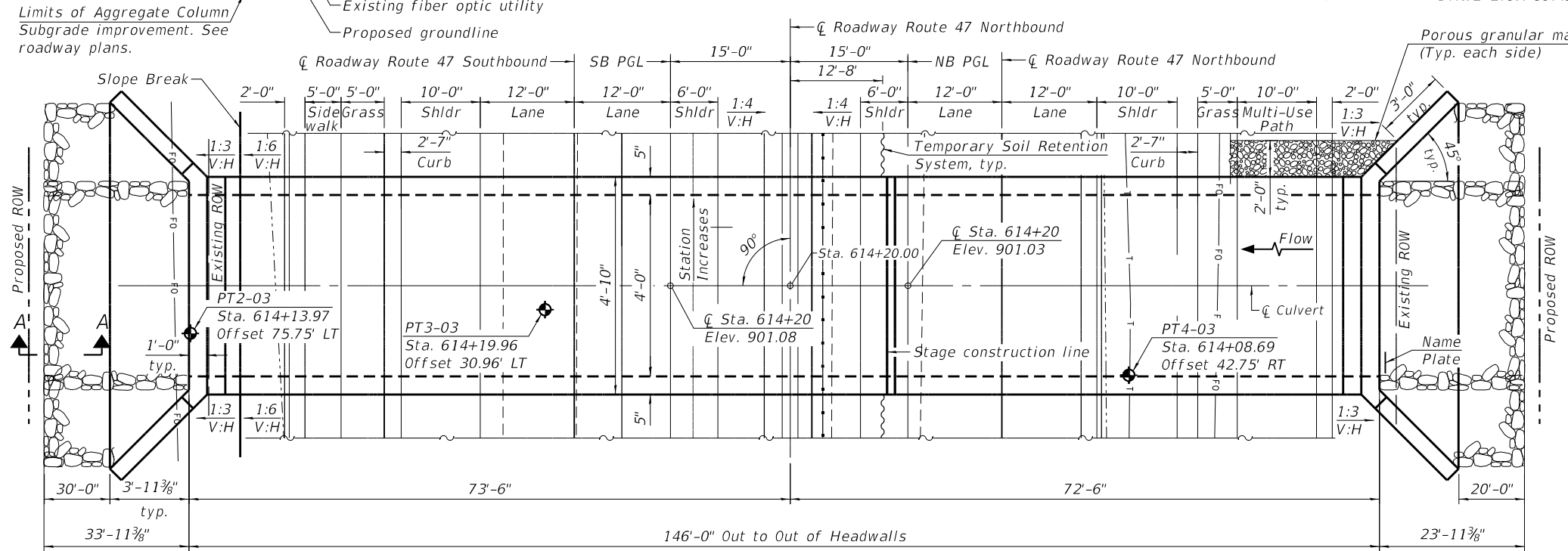
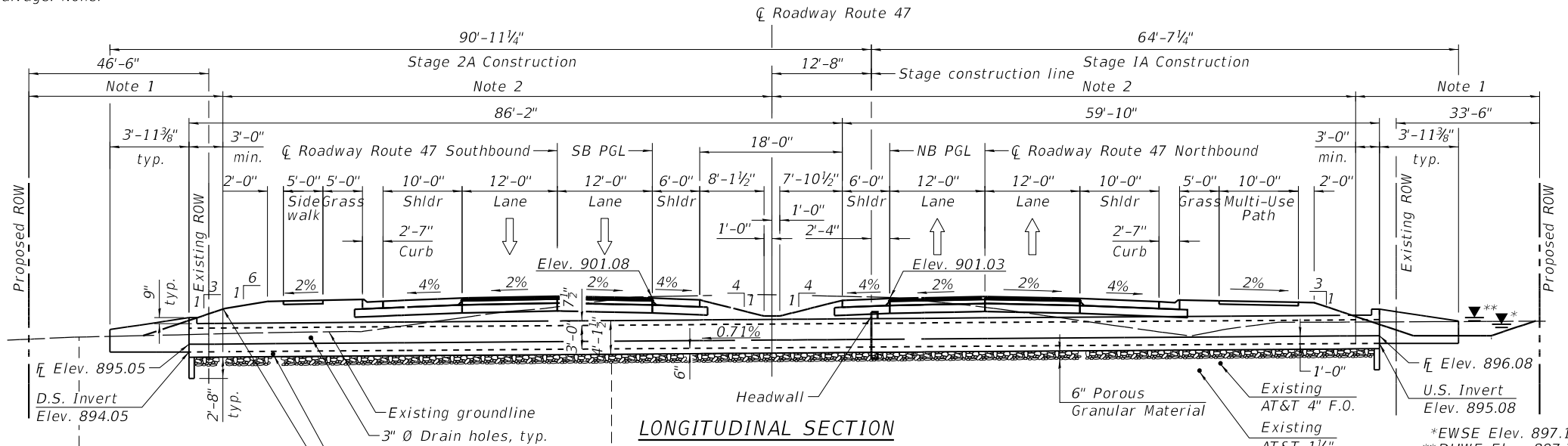
**INDEX OF SHEETS**

- 1 General Plan and Elevation
- 2 General Data
- 3 Stage Construction Details
- 4 Precast Box Culvert Details - 1
- 5 Precast Box Culvert Details - 2
- 6 Soil Boring Logs

**SUGGESTED CONSTRUCTION SEQUENCE**

1. Establish MOT Stage 1A.
2. Install Temporary Soil Retention System.
3. Construct Precast Concrete Box Culverts, 4x3 and Boxculvert End Sections, Culvert No. 4.
4. Install Geotextile Retaining Wall.
5. Backfill structure with Porous Granular Embankment. See limits on Sheet 2.
6. Establish MOT Stage 2A.
7. Repeat Steps 3 through 5 for Stage 2A construction while installing Aggregate Column Ground Improvements. Step 4 is not needed under Stage 2A.

Note 1: Pay limits for Box Culverts End Sections, Culvert No. 4.  
 Note 2: Pay limits for Precast Concrete Box Culvert, 4'x3'.



**DESIGN SPECIFICATIONS**  
 2020 AASHTO LRFD Bridge Design Specifications  
 Customary U.S. Units, 9th Edition

**LOADING HL-93**  
 Allow 50 #/sq.ft for future wearing surface  
 Structure designed for a min fill height of 0.75' and a max. fill height of 2.94'

**DESIGN STRESSES**  
**PRECAST UNITS**  
 f'c = 5,000 psi  
 fy = 65,000 psi (WWR)

**WATERWAY INFORMATION**

Drainage Area = 0.0365 sq. mi. Low Grade Elev. =900.78 @ Sta. 614+00

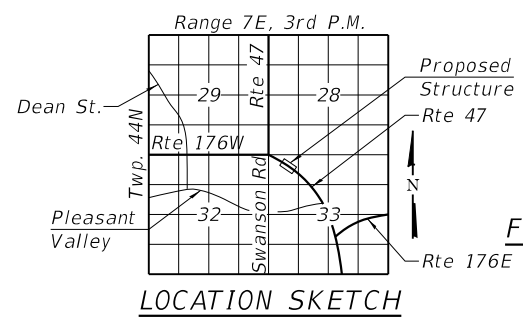
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.		Head - Ft.		Headwater El.	
			Exist.	Prop.	Exist.	Prop.	Exist.	Prop.	Exist.	Prop.
2	10	12.97	1.7	3.4	896.93	0.43	0.08	897.36	897.01	
Design	50	20.17	2.6	5.2	897.38	1.28	0.43	898.66	897.81	
Base	100	28.06	2.9	5.8	897.53	2.10	0.70	889.63	898.23	
Overtopping	>500									
Max. Calc.	500	47.70	3.4	6.8	897.78	3.01	1.67	900.79	899.45	

**DESIGN SCOUR ELEVATION TABLE**

Design Scour Elevation (ft)	D.S. Invert	U.S. Invert
	891.05	892.08

**LEGEND**

- Porous Granular Embankment
- Stone Riprap, Class A4
- Existing Fiber Optic
- Existing Telephone Underground
- TSRS
- High Tension Median Cable Barrier



**GENERAL PLAN AND ELEVATION**  
**IL RTE. 47 OVER UNNAMED CREEK**  
**F.A.P. RTE. 326(IL-47) SEC. 105-N-2(15)**  
**McHENRY COUNTY**  
**STATION 614+20**

MODEL: Default  
 FILE NAME: S:\J01\6300-6399\6346\069\Micro\CAD\_Sheets\0162B43-STA614+20-001-GRP.Edgn  
 1/11/2024 11:59:10 AM

**SA STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200  
 IDFP No. 184-001273

USER NAME = StevenB	DESIGNED - MJD	REVISD -
PLOT SCALE =	CHECKED - BRL	REVISD -
PLOT DATE = 1/11/2024	DRAWN - BJF	REVISD -
	CHECKED - KRB	REVISD -

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**GENERAL PLAN AND ELEVATION**  
**STA. 614+20**

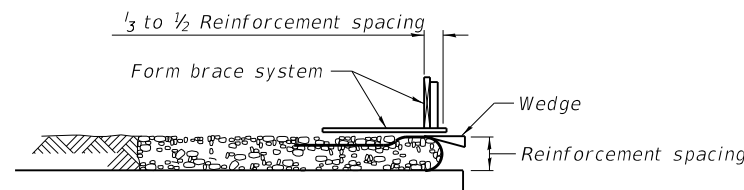
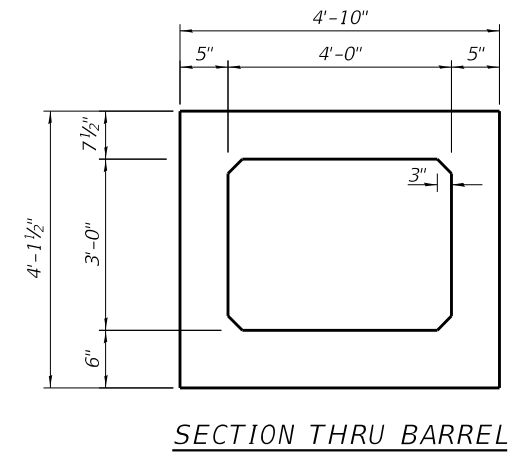
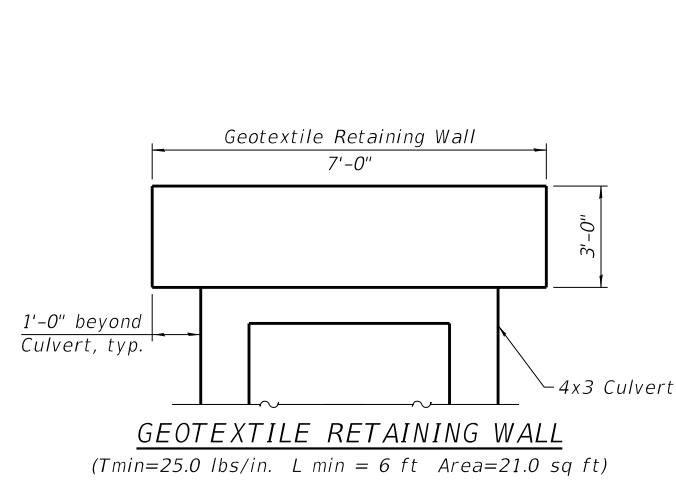
SHEET 1 OF 6 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	McHENRY	803	568
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				

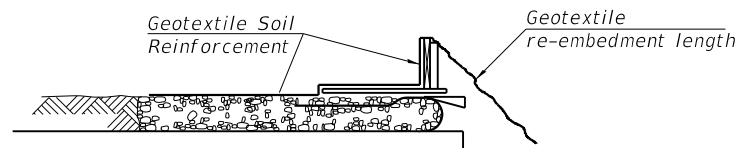


**GENERAL NOTES**

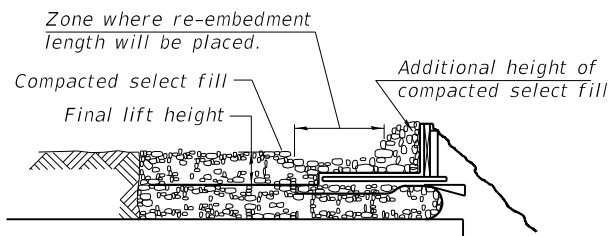
1. The design fill height for this box is 2.94 ft. The precast box culvert sections shall conform to the requirement of ASTM C 1577.
2. Drain holes shall be provided on exterior culvert walls for each precast box segment with a clear rise greater than 3ft. The drain hole shall be located within 1/3 of the clear rise of the box culvert, shall not intercept the haunch and shall conform to the requirements of Article 503.11 of the Standard Specification.
3. Nonwoven geotextile fabric shall conform to the requirements of Art. 1080.01 of the Standard Specifications. The minimum weight of the fabric shall be 6 ounces per square yard.
4. Precast concrete box culverts and box culvert end sections shall be backfilled with Porous Granular Embankment in the required excavation areas on the sides of the box culvert from the top of the box culvert. This area of PGE is included in the Porous Granular Embankment pay item. The 6-inch thick layer of Porous Granular material required under the precast concrete box culvert, according to Section 540.06 of the Standard Specifications, shall also apply to the end sections. Cost of the Porous Granular material will not be paid for separately but shall be included in the unit price of the work for which it is required.



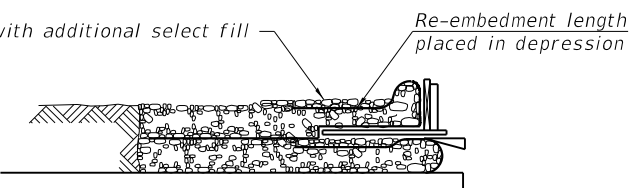
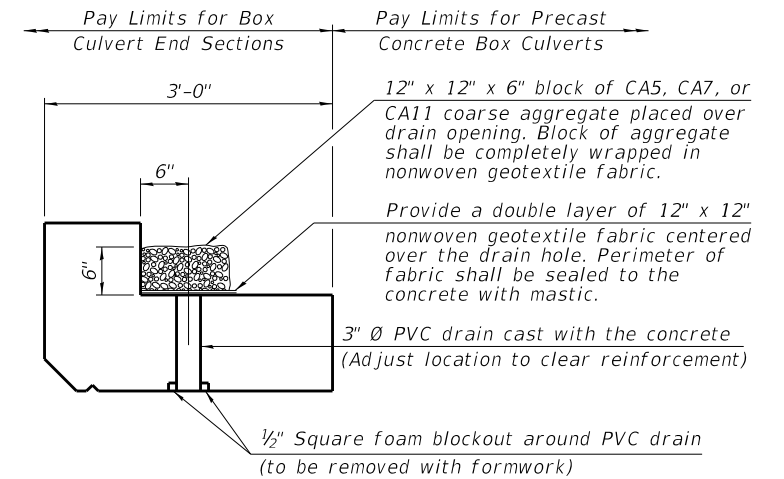
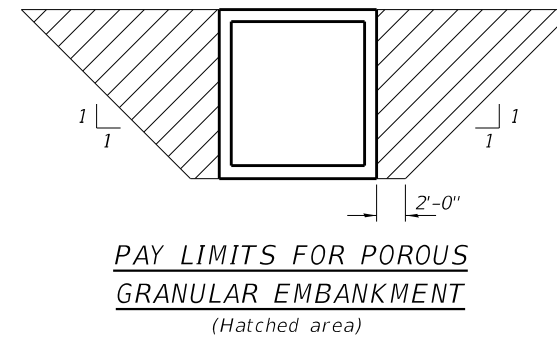
1. Place form brace system on completed reinforcement level; back from the finished fabric face a distance of 1/3 to 1/2 the geotextile reinforcement spacing.



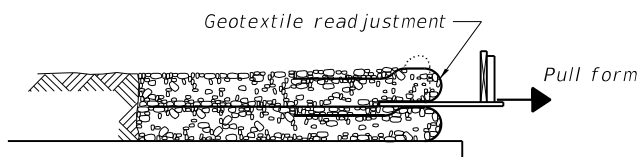
2. Position fabric so that the required geotextile re-embedment length extends over the top of the form brace and the design reinforcement width is placed with no slack against the previous level.



3. Compact select fill material in lifts to final lift height, create (±3") depression in zone where re-embedment length will be located and place additional height of compacted select fill against form brace.



4. Fold geotextile re-embedment length back over form brace into zone where depression was made in select fill and place additional select fill (±3") to embed geotextile and bring to final lift height.



5. Pull form brace outward allowing geotextile face to slightly readjust to form tight round face level with plan reinforcement spacing.

Note:  
The geotextile soil reinforcement shall have a minimum allowable tensile strength (T min.) of 25 lb./in. as determined by the procedure described in the Special Provision. The computations supporting the determination of (T min.) shall be submitted to the engineer for approval.

STATION 614+20  
BUILT 202X BY  
STATE OF ILLINOIS  
F.A.P RT. 326 (IL-176E)  
SEC. 105-N-2(15)  
LOADING HL-93  
STR. NO.  
**NAME PLATE**  
See Std. 515001

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	TOTAL
Porous Granular Embankment	Cu. Yd.	210.0
Stone Riprap, Class A4	Sq. Yd.	80.0
Filter Fabric	Sq. Yd.	80.0
Name Plates	Each	1.0
Temporary Soil Retention System	Sq. Ft.	136.0
Geotextile Retaining Wall	Sq. Ft.	21.0
Box Culvert End Sections, Culvert No. 4	Each	2.0
Precast Concrete Box Culverts 4'x3'	Foot	140.0

**GEOTEXTILE WALL CONSTRUCTION SEQUENCE**

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**GENERAL DATA  
STA. 614+20**

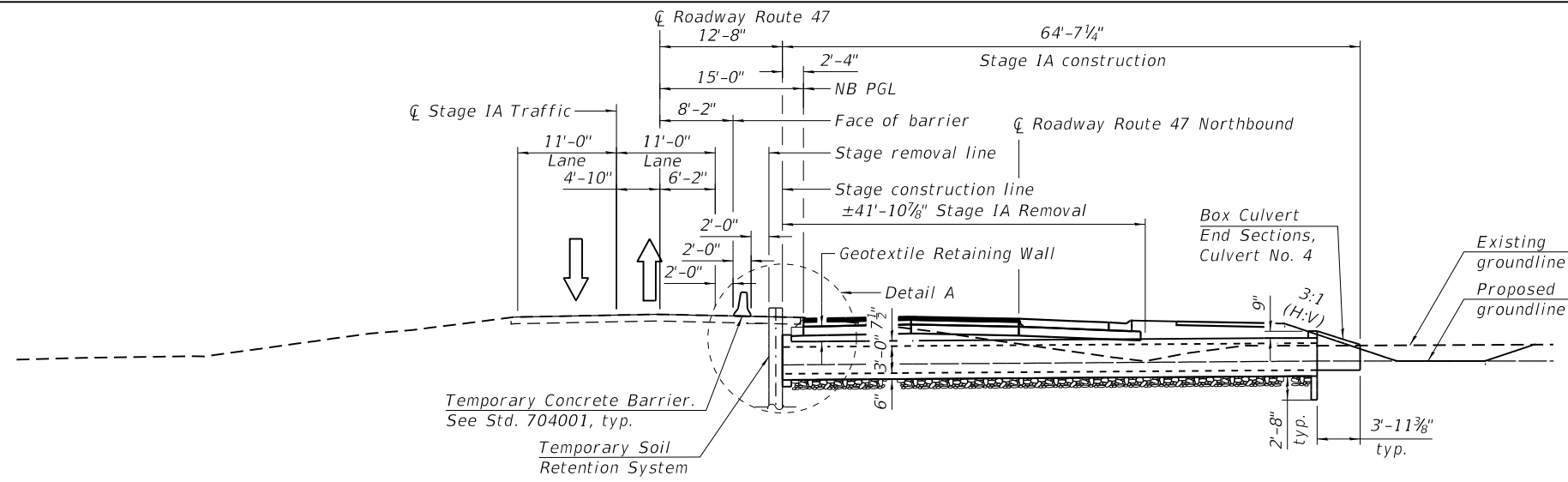
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	McHENRY	803	569
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				

SHEET 2 OF 6 SHEETS

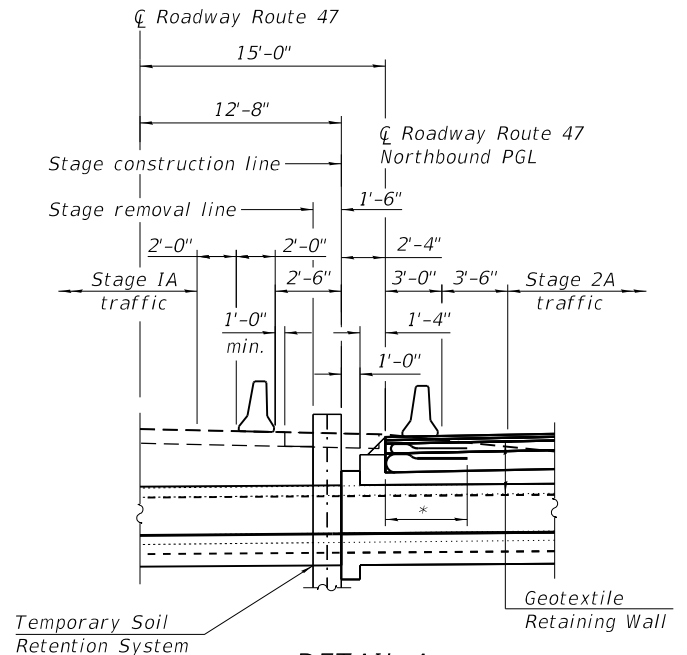
MODEL: Default  
FILE NAME: SAJOL16300-63991634610691Micros\CAD\_Sheets\162B43-STA614+20-002-GD.dgn  
1/11/2024 11:59:12 AM

**SA STRAND ASSOCIATES**  
1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
(815) 744-4200  
IDFPR NO. 184-001273

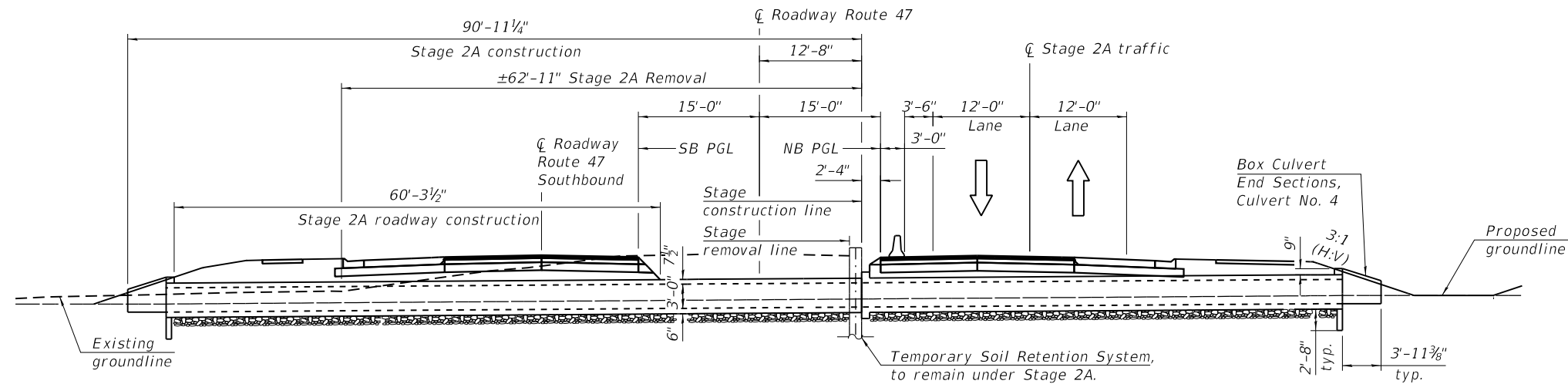
USER NAME = StevenB	DESIGNED - MJD	REVISIONS -
PLOT SCALE =	CHECKED - BRL	REVISIONS -
PLOT DATE = 1/11/2024	DRAWN - BJF	REVISIONS -
	CHECKED - KRB	REVISIONS -



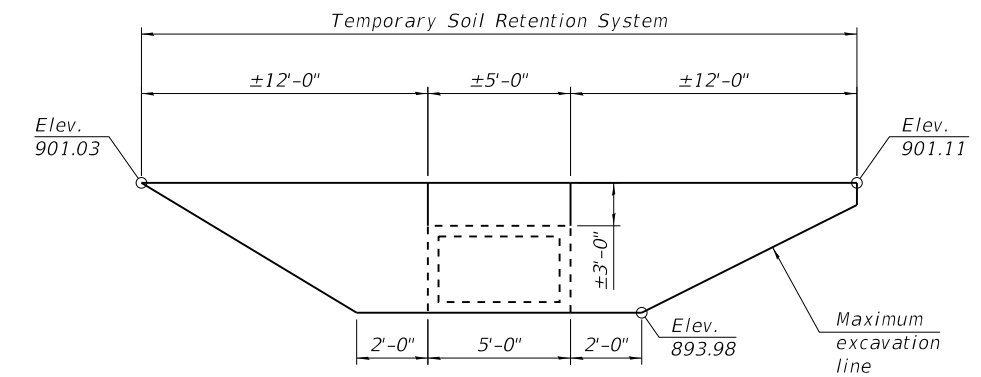
**STAGE IA REMOVAL AND CONSTRUCTION**  
(Horizontal dimensions at Rt. L's to  $\bar{C}$  roadway)



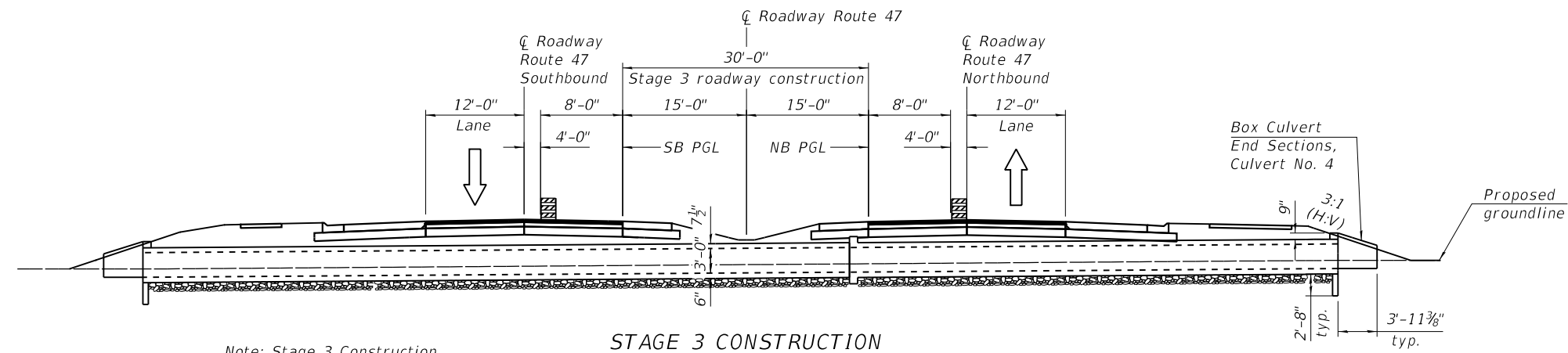
**DETAIL A**  
\* Anticipated length of wall is 6'-0". Contractor to provide  $T_{min}=25.0$  lbs/in.



**STAGE 2A REMOVAL AND CONSTRUCTION**  
(Horizontal dimensions at Rt. L's to  $\bar{C}$  roadway)



**TEMPORARY SOIL RETENTION SYSTEM**



**STAGE 3 CONSTRUCTION**  
(Horizontal dimensions at Rt. L's to  $\bar{C}$  roadway)

Note: Stage 3 Construction provided for optional culvert and roadway construction

MODEL: Default  
FILE NAME: SA\01\6300-6399\6346\069\Micros\CAD\_Sheets\0162B43-STA6.14+20-003-STAGE.dgn

**SA STRAND ASSOCIATES**  
1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
(815) 744-4200  
IDFPR NO. 184-001273

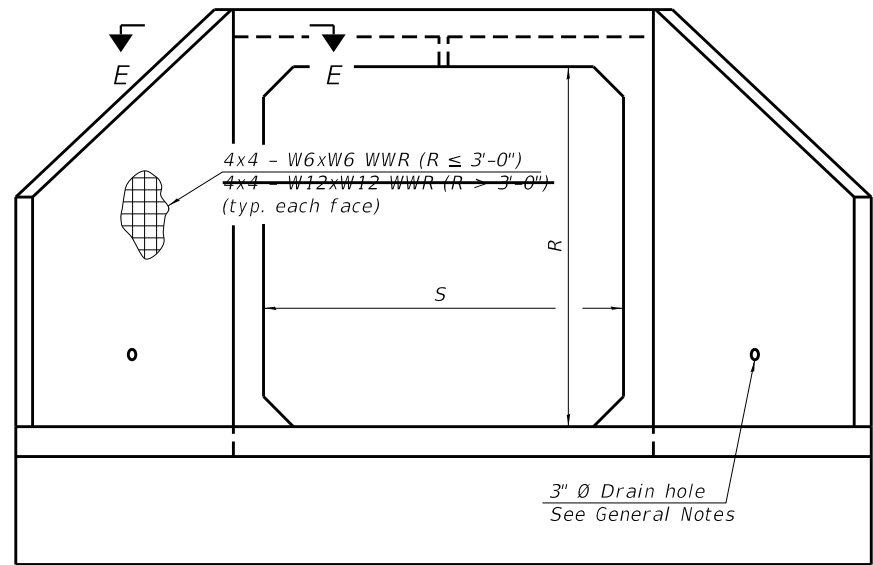
USER NAME = StevenB	DESIGNED - MJD	REVISD -
PLOT SCALE =	CHECKED - BRL	REVISD -
PLOT DATE = 1/11/2024	DRAWN - BJF	REVISD -
	CHECKED - KRB	REVISD -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

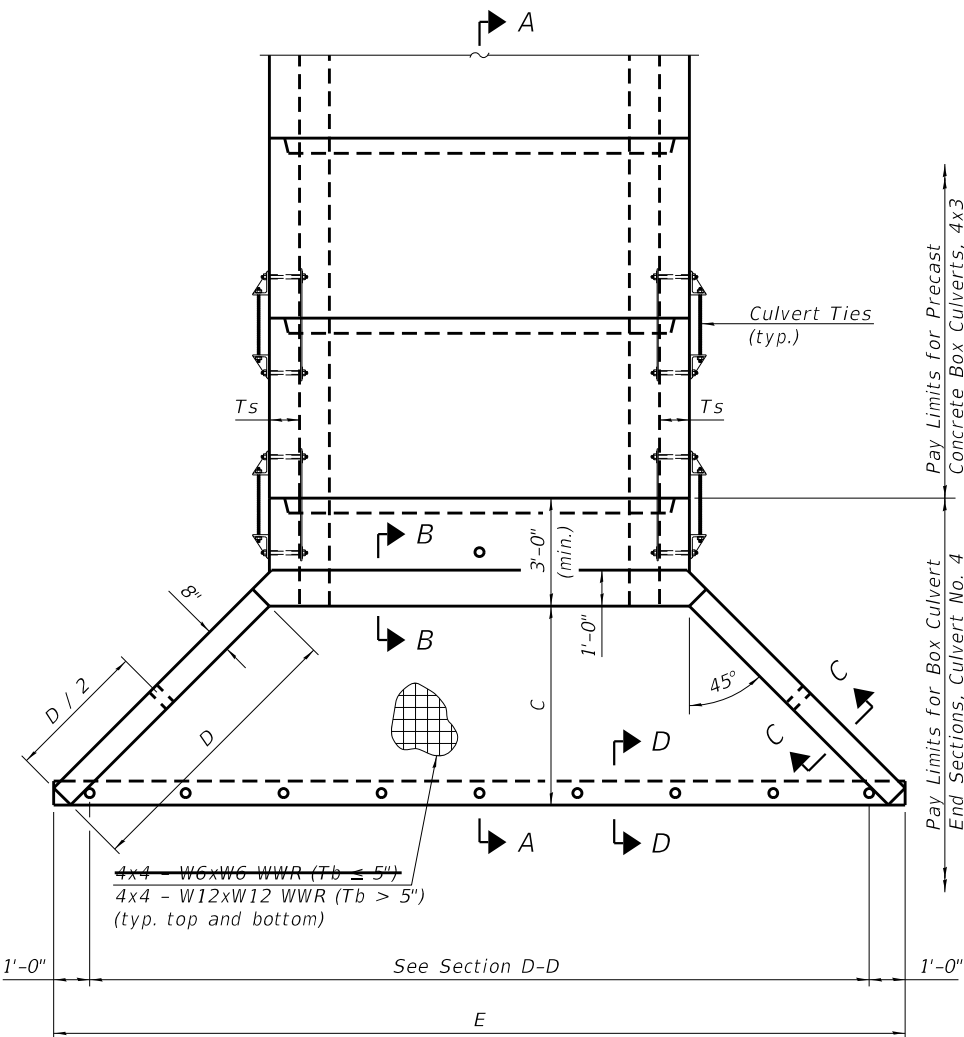
**STAGE CONSTRUCTION DETAILS  
STA. 614+20**

SHEET 3 OF 6 SHEETS

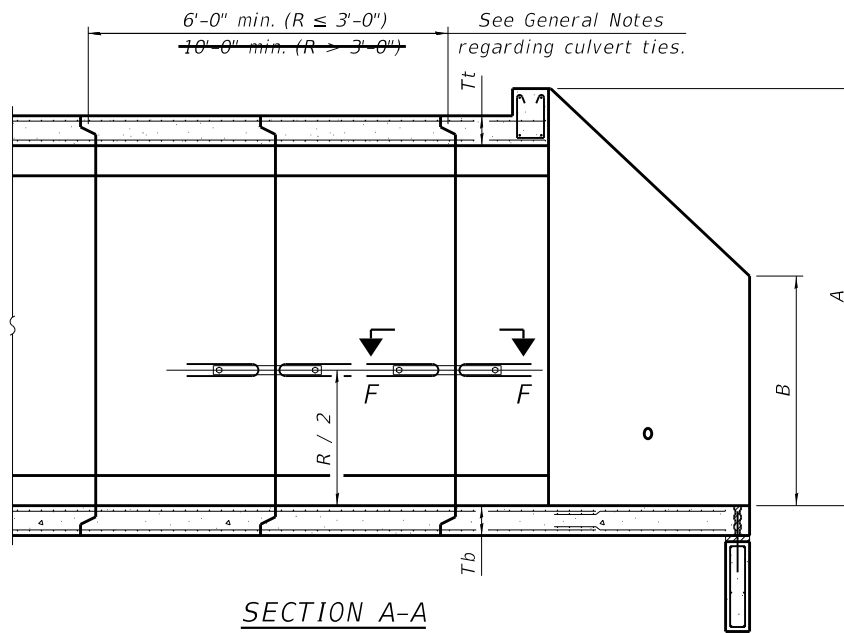
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	McHENRY	803	570
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				



END VIEW



PLAN



SECTION A-A

GENERAL NOTES

Box Culvert End Sections shall be constructed according to the requirements of Section 540 of the Standard Specifications except as modified herein. End sections will be paid for at the contract unit price per each for Box Culvert End Sections.

The Contractor may furnish the end section as a single precast concrete piece or construct the end section in the field using cast-in-place (CIP) construction. For CIP construction, the bottom slab thickness shall be increased by 2" and the clear cover to the bottom mat of reinforcement shall be increased to 3".

Box section dimensions, materials, and reinforcement details for Box Culvert End Sections shall be according to the requirements for ASTM C 1577 as required for the design of the portion of the culvert within the limits of Precast Concrete Box Culverts except as modified herein.

The number of culvert ties shall be sufficient to engage the minimum length of culvert barrel shown within the pay limits for Precast Concrete Box Culverts and will be dependent upon the length of box culvert segments furnished by the Contractor. Culvert ties are not required for box culverts having a rise (R) less than or equal to 3 ft and a span (S) greater than or equal to 10 ft.

All costs associated with furnishing and installing or constructing the toewall and culvert ties will not be measured for payment but shall be included in the unit price for Box Culvert End Sections of the culvert number specified.

Shop drawings that detail slab thickness and reinforcement layout for the Box Culvert End Sections shall be provided to the Engineer for review and approval. Reinforcement bars not detailed herein shall be detailed with a clear distance at the end of the reinforcement not less than 1/2" nor more than 2". For the precast option, it shall be the Contractor's responsibility for determining a method of handling and a construction procedure shall be included in the shop drawings. The Contractor shall determine and detail in the shop drawings any necessary strengthening or stiffening provisions necessary to handle the precast segment. Any required modifications shall be at no extra charge.

The Contractor may use reinforcement bars in lieu of welded wire reinforcement (WWR). Reinforcement bars shall be limited to the sizes of #3 through #5 bars, a maximum spacing of the lesser of 8" or the member thickness, and shall result in an area of reinforcement equal to or greater than that provided by the WWR. Minimum lap lengths detailed herein are applicable to WWR and reinforcement bars.

Reinforcement (circumferential and longitudinal) in the culvert barrel portion of the end section being lapped with reinforcement from the wingwalls or bottom slab of the end section shall not be less than that required by ASTM C 1577 for the design fill height or the reinforcement detailed for the end section, whichever is greater.

One drain hole shall be provided in each wingwall for end sections of box culverts having an opening with a clear rise greater than 3 ft. The drain hole shall be located within the lower 1/3 of the clear rise of the box culvert and shall conform to the requirements of Article 503.11 of the Standard Specifications.

APRON END SECTION DIMENSIONS

Span (S)	Rise (R)	Tt	Tb	Ts	A	B	C	D	E	Concrete Cu. Yd.	Culvert Ties Required
3'-0"	2'-0"	7"	6"	4"	3'-4"	2'-2"	2'-10 <sup>5</sup> / <sub>8</sub> "	4'-1"	10'-4 <sup>5</sup> / <sub>8</sub> "	2.8	Yes
3'-0"	2'-0"	4"	4"	4"	3'-1"	2'-1"	2'-7 <sup>7</sup> / <sub>8</sub> "	3'-9"	9'-11"	2.3	Yes
3'-0"	3'-0"	7"	6"	4"	4'-4"	2'-8"	3'-10 <sup>3</sup> / <sub>8</sub> "	5'-6"	12-4 <sup>3</sup> / <sub>8</sub> "	3.7	Yes
3'-0"	3'-0"	4"	4"	4"	4'-1"	2'-7"	3'-7 <sup>7</sup> / <sub>8</sub> "	5'-2"	11'-11"	3.1	Yes
4'-0"	2'-0"	7.5"	6"	5"	3'-4 <sup>1</sup> / <sub>2</sub> "	2'-2 <sup>1</sup> / <sub>2</sub> "	2'-11 <sup>3</sup> / <sub>8</sub> "	4'-2"	11'-8"	3.3	Yes
4'-0"	2'-0"	5"	5"	5"	3'-2"	2'-1"	2'-8 <sup>1</sup> / <sub>2</sub> "	3'-10"	11'-2 <sup>3</sup> / <sub>8</sub> "	2.8	Yes
4'-0"	3'-0"	7.5"	6"	5"	4'-4 <sup>1</sup> / <sub>2</sub> "	2'-8 <sup>1</sup> / <sub>2</sub> "	3'-11 <sup>3</sup> / <sub>8</sub> "	5'-7"	13'-8 <sup>1</sup> / <sub>8</sub> "	4.2	Yes
4'-0"	3'-0"	5"	5"	5"	4'-2"	2'-7"	3'-8 <sup>1</sup> / <sub>2</sub> "	5'-3"	13'-2 <sup>3</sup> / <sub>8</sub> "	3.7	Yes
4'-0"	4'-0"	7.5"	6"	5"	5'-4 <sup>1</sup> / <sub>2</sub> "	3'-2 <sup>1</sup> / <sub>2</sub> "	4'-11 <sup>3</sup> / <sub>8</sub> "	7'-0"	15'-8 <sup>1</sup> / <sub>8</sub> "	5.3	Yes
4'-0"	4'-0"	5"	5"	5"	5'-2"	3'-1"	4'-8 <sup>3</sup> / <sub>8</sub> "	6'-8"	15'-2 <sup>1</sup> / <sub>2</sub> "	4.7	Yes
5'-0"	2'-0"	8"	7"	6"	3'-5"	2'-3"	2'-11 <sup>3</sup> / <sub>8</sub> "	4'-2"	12'-10"	3.9	Yes
5'-0"	2'-0"	6"	6"	6"	3'-3"	2'-2"	2'-10"	4'-0"	12'-7 <sup>1</sup> / <sub>4</sub> "	3.5	Yes
5'-0"	3'-0"	8"	7"	6"	4'-5"	2'-9"	3'-11 <sup>3</sup> / <sub>8</sub> "	5'-7"	14'-10 <sup>1</sup> / <sub>8</sub> "	4.9	Yes
5'-0"	3'-0"	6"	6"	6"	4'-3"	2'-8"	3'-10"	5'-5"	14'-7 <sup>1</sup> / <sub>4</sub> "	4.5	Yes
5'-0"	4'-0"	8"	7"	6"	5'-5"	3'-3"	4'-11 <sup>3</sup> / <sub>8</sub> "	7'-0"	16'-10 <sup>1</sup> / <sub>8</sub> "	6.1	Yes
5'-0"	4'-0"	6"	6"	6"	5'-3"	3'-2"	4'-9 <sup>1</sup> / <sub>4</sub> "	6'-9"	16'-5 <sup>1</sup> / <sub>4</sub> "	5.5	Yes
5'-0"	5'-0"	8"	7"	6"	6'-5"	3'-9"	5'-11 <sup>3</sup> / <sub>8</sub> "	8'-5"	18'-10 <sup>1</sup> / <sub>8</sub> "	7.4	Yes
5'-0"	5'-0"	6"	6"	6"	6'-3"	3'-8"	5'-9 <sup>1</sup> / <sub>4</sub> "	8'-2"	18'-5 <sup>1</sup> / <sub>8</sub> "	6.8	Yes
6'-0"	2'-0"	8"	7"	7"	3'-5"	2'-3"	2'-11 <sup>3</sup> / <sub>8</sub> "	4'-2"	14'-0"	4.3	Yes
6'-0"	2'-0"	7"	7"	7"	3'-4"	2'-2"	2'-10 <sup>3</sup> / <sub>8</sub> "	4'-1"	13'-10 <sup>3</sup> / <sub>8</sub> "	4.2	Yes
6'-0"	3'-0"	8"	7"	7"	4'-5"	2'-9"	3'-11 <sup>3</sup> / <sub>8</sub> "	5'-7"	16'-0 <sup>1</sup> / <sub>8</sub> "	5.4	Yes
6'-0"	3'-0"	7"	7"	7"	4'-4"	2'-8"	3'-10 <sup>3</sup> / <sub>8</sub> "	5'-6"	15'-10 <sup>3</sup> / <sub>8</sub> "	5.2	Yes
6'-0"	4'-0"	8"	7"	7"	5'-5"	3'-3"	4'-11 <sup>3</sup> / <sub>8</sub> "	7'-0"	18'-0 <sup>1</sup> / <sub>8</sub> "	6.5	Yes
6'-0"	4'-0"	7"	7"	7"	5'-4"	3'-2"	4'-10 <sup>3</sup> / <sub>4</sub> "	6'-11"	17'-10 <sup>3</sup> / <sub>4</sub> "	6.5	Yes
6'-0"	5'-0"	8"	7"	7"	6'-5"	3'-9"	5'-11 <sup>3</sup> / <sub>8</sub> "	8'-5"	20'-0 <sup>1</sup> / <sub>8</sub> "	8.0	Yes
6'-0"	5'-0"	7"	7"	7"	6'-4"	3'-8"	5'-10 <sup>3</sup> / <sub>8</sub> "	8'-4"	19'-10 <sup>3</sup> / <sub>4</sub> "	7.8	Yes
6'-0"	6'-0"	8"	7"	7"	7'-5"	4'-3"	6'-11 <sup>1</sup> / <sub>2</sub> "	9'-10"	22'-0 <sup>1</sup> / <sub>4</sub> "	9.5	Yes
6'-0"	6'-0"	7"	7"	7"	7'-4"	4'-2"	6'-10 <sup>3</sup> / <sub>4</sub> "	9'-9"	21'-10 <sup>3</sup> / <sub>4</sub> "	9.3	Yes
7'-0"	2'-0"	8"	8"	8"	3'-5"	2'-3"	2'-11 <sup>3</sup> / <sub>8</sub> "	4'-2"	15'-2"	4.9	Yes
7'-0"	3'-0"	8"	8"	8"	4'-5"	2'-9"	3'-11 <sup>3</sup> / <sub>8</sub> "	5'-7"	17'-2 <sup>1</sup> / <sub>8</sub> "	6.1	Yes
7'-0"	4'-0"	8"	8"	8"	5'-5"	3'-3"	4'-11 <sup>3</sup> / <sub>8</sub> "	7'-0"	19'-2 <sup>1</sup> / <sub>8</sub> "	7.4	Yes
7'-0"	5'-0"	8"	8"	8"	6'-5"	3'-9"	5'-11 <sup>3</sup> / <sub>8</sub> "	8'-5"	21'-2 <sup>1</sup> / <sub>8</sub> "	8.9	Yes
7'-0"	6'-0"	8"	8"	8"	7'-5"	4'-3"	6'-11 <sup>1</sup> / <sub>2</sub> "	9'-10"	23'-2 <sup>1</sup> / <sub>4</sub> "	10.6	Yes
8'-0"	2'-0"	8"	8"	8"	3'-5"	2'-3"	2'-11 <sup>3</sup> / <sub>8</sub> "	4'-2"	16'-2"	5.3	Yes
8'-0"	3'-0"	8"	8"	8"	4'-5"	2'-9"	3'-11 <sup>3</sup> / <sub>8</sub> "	5'-7"	18'-2 <sup>1</sup> / <sub>8</sub> "	6.5	Yes
8'-0"	4'-0"	8"	8"	8"	5'-5"	3'-3"	4'-11 <sup>3</sup> / <sub>8</sub> "	7'-0"	20'-2 <sup>1</sup> / <sub>8</sub> "	7.8	Yes
8'-0"	5'-0"	8"	8"	8"	6'-5"	3'-9"	5'-11 <sup>3</sup> / <sub>8</sub> "	8'-5"	22'-2 <sup>1</sup> / <sub>8</sub> "	9.3	Yes
8'-0"	6'-0"	8"	8"	8"	7'-5"	4'-3"	6'-11 <sup>1</sup> / <sub>2</sub> "	9'-10"	24'-2 <sup>1</sup> / <sub>4</sub> "	11.0	Yes
9'-0"	2'-0"	9"	9"	9"	3'-6"	2'-3"	3'-0 <sup>3</sup> / <sub>4</sub> "	4'-4"	17'-6 <sup>3</sup> / <sub>8</sub> "	6.2	Yes
9'-0"	3'-0"	9"	9"	9"	4'-6"	2'-9"	4'-0 <sup>3</sup> / <sub>4</sub> "	5'-9"	19'-6 <sup>3</sup> / <sub>8</sub> "	7.5	Yes
9'-0"	4'-0"	9"	9"	9"	5'-6"	3'-3"	5'-0 <sup>3</sup> / <sub>4</sub> "	7'-2"	21'-6 <sup>3</sup> / <sub>8</sub> "	9.0	Yes
9'-0"	5'-0"	9"	9"	9"	6'-6"	3'-9"	6'-0 <sup>3</sup> / <sub>8</sub> "	8'-7"	23'-7"	10.6	Yes
9'-0"	6'-0"	9"	9"	9"	7'-6"	4'-3"	7'-0 <sup>3</sup> / <sub>8</sub> "	9'-11"	25'-5 <sup>5</sup> / <sub>8</sub> "	12.4	Yes
10'-0"	2'-0"	10"	10"	10"	3'-7"	2'-4"	3'-1 <sup>1</sup> / <sub>2</sub> "	4'-5"	18'-10 <sup>1</sup> / <sub>4</sub> "	7.1	No
10'-0"	3'-0"	10"	10"	10"	4'-7"	2'-10"	4'-1 <sup>1</sup> / <sub>2</sub> "	5'-10"	20'-10 <sup>1</sup> / <sub>4</sub> "	8.6	No
10'-0"	4'-0"	10"	10"	10"	5'-7"	3'-4"	5'-1 <sup>1</sup> / <sub>2</sub> "	7'-3"	22'-10 <sup>3</sup> / <sub>8</sub> "	10.2	Yes
10'-0"	5'-0"	10"	10"	10"	6'-7"	3'-10"	6'-1 <sup>1</sup> / <sub>2</sub> "	8'-8"	24'-10 <sup>3</sup> / <sub>8</sub> "	12.0	Yes
10'-0"	6'-0"	10"	10"	10"	7'-7"	4'-4"	7'-1 <sup>1</sup> / <sub>2</sub> "	10'-1"	26'-10 <sup>3</sup> / <sub>8</sub> "	13.9	Yes
11'-0"	2'-0"	11"	11"	11"	3'-8"	2'-4"	3'-2 <sup>1</sup> / <sub>8</sub> "	4'-7"	20'-3 <sup>1</sup> / <sub>8</sub> "	8.2	No
11'-0"	3'-0"	11"	11"	11"	4'-8"	2'-10"	4'-2 <sup>1</sup> / <sub>8</sub> "	6'-0"	22'-3 <sup>1</sup> / <sub>8</sub> "	9.8	No
11'-0"	4'-0"	11"	11"	11"	5'-8"	3'-4"	5'-2 <sup>1</sup> / <sub>4</sub> "	7'-4"	24'-1 <sup>3</sup> / <sub>4</sub> "	11.5	Yes
11'-0"	5'-0"	11"	11"	11"	6'-8"	3'-10"	6'-2 <sup>1</sup> / <sub>4</sub> "	8'-9"	26'-1 <sup>3</sup> / <sub>4</sub> "	13.3	Yes
11'-0"	6'-0"	11"	11"	11"	7'-8"	4'-4"	7'-2 <sup>1</sup> / <sub>4</sub> "	10'-2"	28'-1 <sup>1</sup> / <sub>2</sub> "	15.5	Yes
12'-0"	2'-0"	12"	12"	12"	3'-9"	2'-5"	3'-3 <sup>5</sup> / <sub>8</sub> "	4'-8"	21'-6 <sup>1</sup> / <sub>2</sub> "	9.3	No
12'-0"	3'-0"	12"	12"	12"	4'-9"	2'-11"	4'-3 <sup>5</sup> / <sub>8</sub> "	6'-1"	23'-6 <sup>1</sup> / <sub>2</sub> "	11.1	No
12'-0"	4'-0"	12"	12"	12"	5'-9"	3'-5"	5'-3 <sup>5</sup> / <sub>8</sub> "	7'-6"	25'-6 <sup>1</sup> / <sub>8</sub> "	13.0	Yes
12'-0"	5'-0"	12"	12"	12"	6'-9"	3'-11"	6'-3 <sup>5</sup> / <sub>8</sub> "	8'-11"	27'-6 <sup>1</sup> / <sub>8</sub> "	14.1	Yes
12'-0"	6'-0"	12"	12"	12"	7'-9"	4'-5"	7'-3 <sup>5</sup> / <sub>8</sub> "	10'-4"	29'-6 <sup>1</sup> / <sub>8</sub> "	17.4	Yes

Note:  
Two sets of apron end section dimensions are shown above for some box culvert sizes due to the top and bottom slabs having different thicknesses per ASTM C 1577 for design fill heights less than 2 ft.  
(Sheet 1 of 2)

MODEL: Default  
FILE NAME: S:\JULIET\300-6399\6346\069\Micros\CAD\_Sheets\162B43-STA614+20-004-SCB\_AES1.dgn  
12/18/2023 3:25:42 PM

SCB-AES

2-17-2017

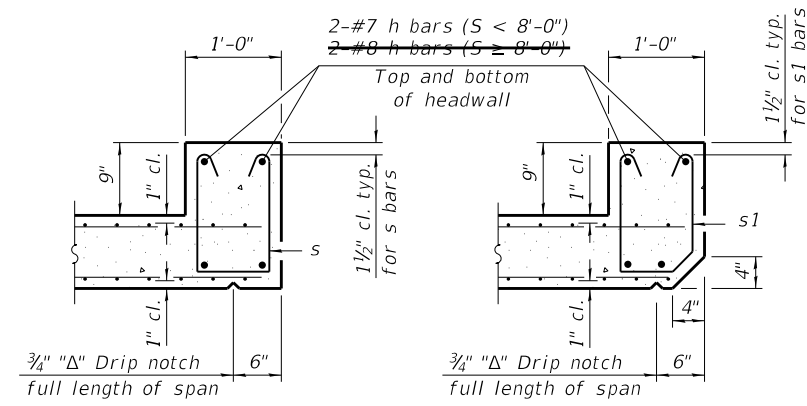
USER NAME = StevenB	DESIGNED - MJD	REVISIONS -
PLOT SCALE =	CHECKED - BRL	REVISIONS -
PLOT DATE = 12/18/2023	DRAWN - BJF	REVISIONS -
	CHECKED - KRB	REVISIONS -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

PRECAST CONCRETE BOX CULVERT APRON END SECTION DETAILS - 1  
STA. 614+20

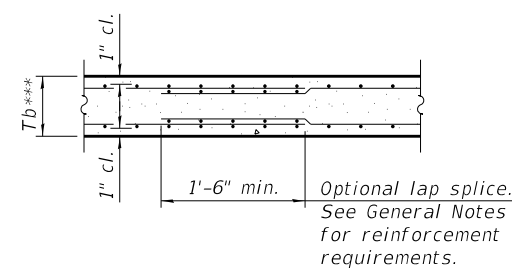
SHEET 4 OF 6 SHEETS

F.A.P. RTE. 326	SECTION 105-N-2(15)	COUNTY McHENRY	TOTAL SHEETS 803	SHEET NO. 571
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				



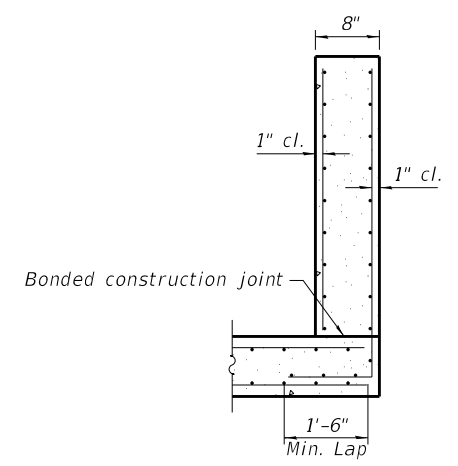
SECTION B-B  
(Top slab at downstream end)

SECTION B-B  
(Top slab at upstream end)

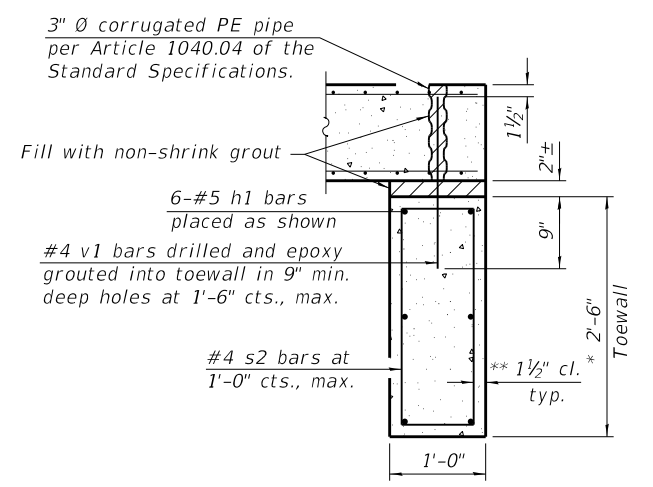


SECTION B-B  
(Bottom Slab)

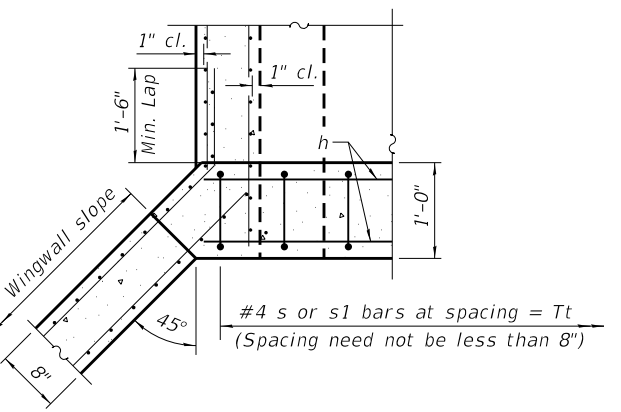
\*\*\* This dimension shall be increased by 2" for CIP construction.



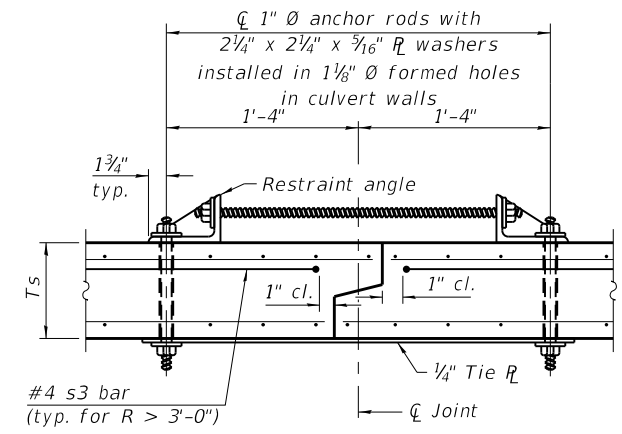
SECTION C-C



SECTION D-D



SECTION E-E



SECTION F-F  
(Showing culvert tie details)

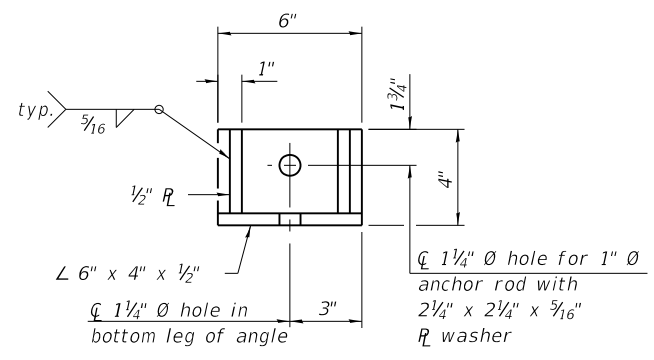
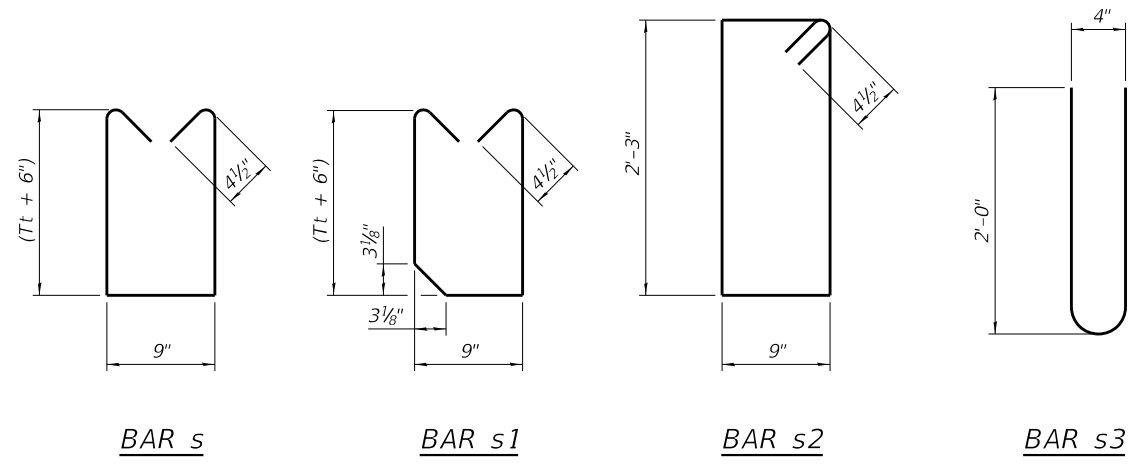
**TOEWALL CONSTRUCTION SEQUENCE**

1. Perform excavation and construct toewall.
2. Backfill accordingly and place bedding for precast box culvert end sections.
3. Set precast box culvert end section.
4. Drill and epoxy grout reinforcement in toewall in accordance with Section 584 of the Standard Specifications.
5. Pressure grout voids using non-shrink grout conforming to Section 1024 of the Standard Specifications.

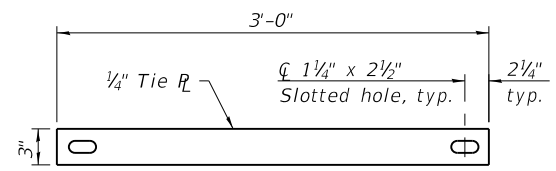
\* The Contractor may furnish a precast or cast-in-place toewall. The Contractor shall be responsible for the strength and stability of the precast toewall during handling. Additional lifting points may be required depending upon the length of the toewall or the Contractor may need to modify the design of the toewall for the proposed handling method.

\*\* If soil conditions permit, the sides of the toewall may be poured directly against the soil. The clear cover on the sides of the toewall shall be increased to 3" by increasing the thickness of the toewall.

Notes:  
1" Ø anchor rods for the culvert ties shall conform to the requirements of ASTM F1554, Grade 105. Structural steel for the tie plate and restraint angle shall conform to the requirements of Article 1006.04 of the Standard Specifications. All components of the culvert tie detail shall be galvanized according to the requirements of AASHTO M 111 or M 232 as applicable. 2 1/4" x 2 1/4" x 3/16" plate washers shall be provided under each nut required for the anchor rods. Anchor rods connecting precast sections shall be brought to a snug tight condition followed by an additional 1/2 turn on one of the nuts for anchor rods installed in the walls. Match marks shall be provided on the bolt and nut to verify relative rotation between the bolt and the nut. Holes in the walls for the culvert tie assembly may be drilled using core bits in lieu of using formed holes.



RESTRAINT ANGLE DETAIL



TIE PLATE DETAIL

(Sheet 2 of 2)

MODEL: Default  
FILE NAME: SA\JULIET\300-6399\6346\069\Micro\CAD\_Sheets\162B43-STA614+20-005-SCB\_AES2.dgn  
12/18/2023 3:25:43 PM

SCB-AES

2-17-2017



USER NAME = StevenB	DESIGNED - MJD	REVISIONS -
PLOT SCALE =	CHECKED - BRL	REVISIONS -
PLOT DATE = 12/18/2023	DRAWN - BJF	REVISIONS -
	CHECKED - KRB	REVISIONS -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

PRECAST CONCRETE BOX CULVERT APRON END SECTION DETAILS-2  
STA. 614+20

SHEET 5 OF 6 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	McHENRY	803	572
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				



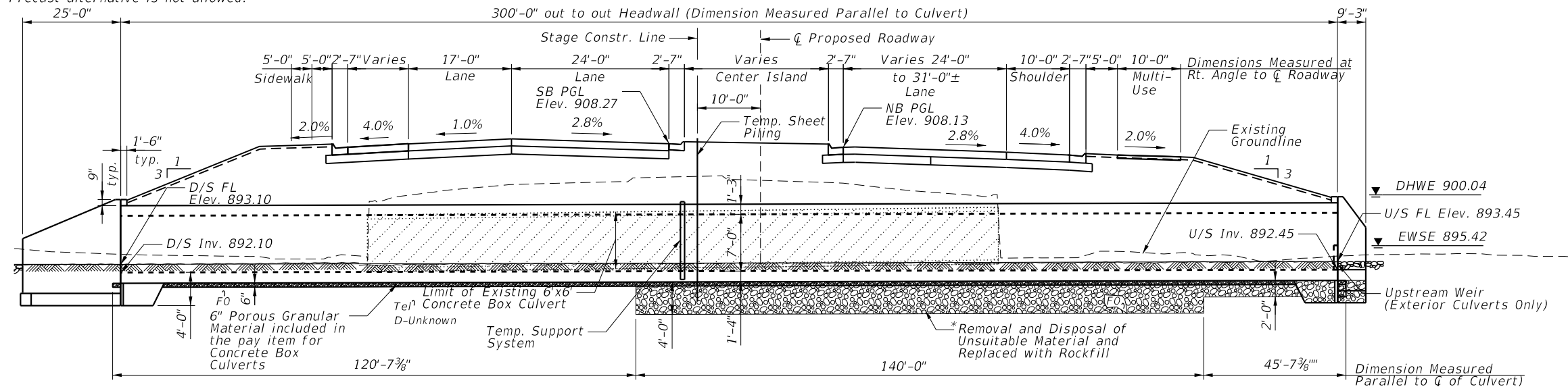
Bench Mark: BM #9-Found bolt at the SW corner of Concrete Box Culvert. Elev.=901.77

Existing Structure: SN 056-0246 was originally built in 1936 as SBI 47, Section 105A and was reconstructed in 1971 as FAP 64, Section 105N, Contract 28872. It is a single 6'x6' R.C. box culvert, 155'-0" face to face of curb.

Traffic Control: Traffic to be maintained utilizing stage construction.

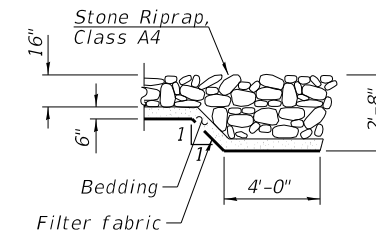
Salvage: None

Precast alternative is not allowed.  
25'-0"



**LONGITUDINAL SECTION**  
(Looking West)

\* The limits and quantities of removal and replacement shown are based on the boring data and may be modified by the District Geotechnical and Field Engineers for variable subsurface conditions encountered in the field. The Rockfill shall be capped with 6 in. of CA7 and satisfy the Standard Specifications unless otherwise indicated in the Special Provisions. The cost of the capping material shall be included in the pay item for Concrete Box Culverts.



**SECTION A-A**

STATION 627+82  
BUILT BY  
McHENRY COUNTY  
FAP ROUTE 326 (IL 47)  
SEC 105-N-2 (15)  
LOADING HL-93  
STRUCTURE NO. 056-0310

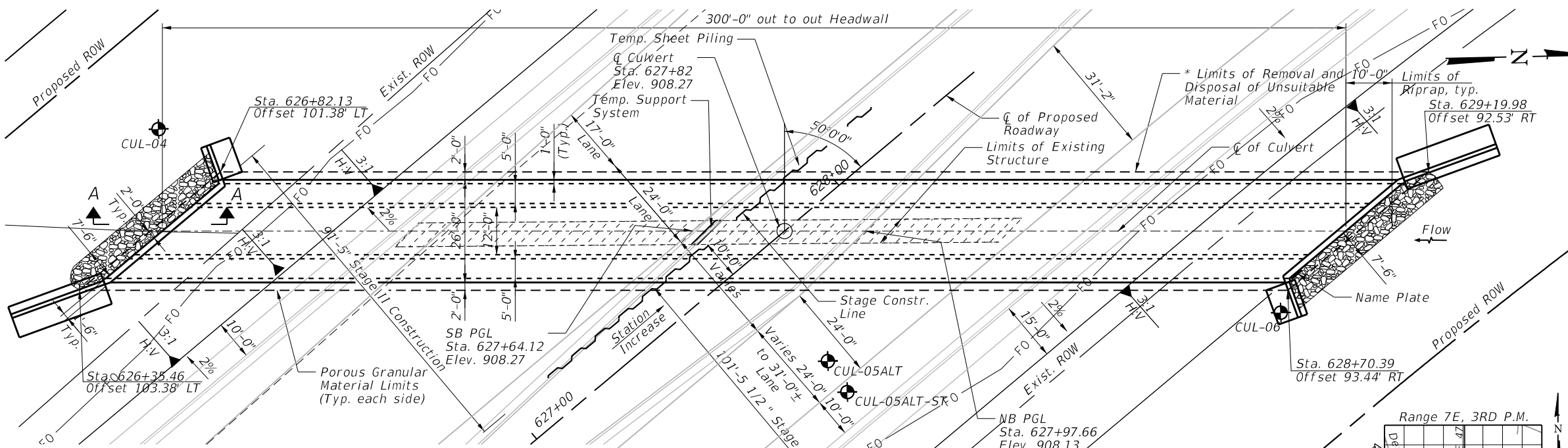
**NAME PLATE**  
See Std. 515001

**DESIGN SPECIFICATIONS**  
2020 AASHTO LFRD Bridge Design  
Specifications, 9th Edition

**LOADING HL-93**  
Allow 50#/sq. ft. for future wearing surface.

**DESIGN STRESSES**  
**FIELD UNITS**

$f'_c = 3,500$  psi  
 $f_y = 60,000$  psi (Reinforcement)



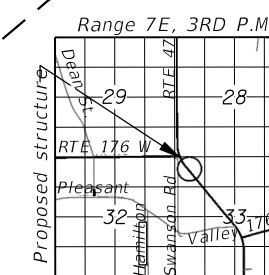
**WATERWAY INFORMATION**

Drainage Area = 1.47		Low Grade Elev. 904.55 @ Sta. 622+00							
Flood	Freq. Yr.	Q C.F.S.	Opening Ft <sup>2</sup>		Nat. H.W.E.	Head - Ft.		Headwater El	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
	2	84.05	17.8	72.2	897.64	0.80	0.00	898.44	897.64
	10	139	22.8	90.4	898.47	0.84	0.01	899.28	898.48
Design	50	312	32.2	112.0	900.04	2.15	0.20	902.16	900.24
Base	100	425	34.9	112.0	900.51	2.13	0.46	902.60	900.97
Overtopping									
Max. Calc.	500	609	36.0	112.0	901.08	1.89	1.12	902.92	902.20

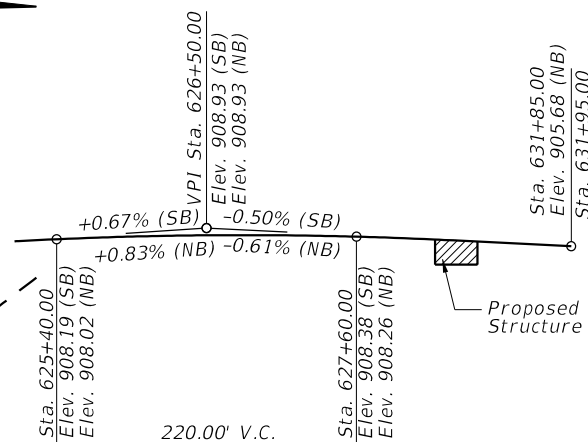
**PLAN**

**DESIGN SCOUR ELEVATION TABLE**

Design Scour Elev. (ft.)	D/S Inv.	U/S Inv.
	888.10	888.45



**LOCATION SKETCH**



**PROFILE GRADE NB AND SB**

**GENERAL PLAN AND ELEVATION**  
**ILLINOIS ROUTE 47 OVER**  
**TRIBUTARY KISHWAUKEE RIVER**  
**FAP ROUTE 326 (IL 47)**  
**SECTION 105-N-2(15)**  
**McHENRY COUNTY**  
**STATION 627+82**  
**STRUCTURE No. 056-0310**

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**GENERAL PLAN AND ELEVATION**  
**STRUCTURE NO. 056-0310**

SCALE: N.T.S. SHEET 1 OF 9 SHEETS STA. 627+82 TO STA. ---

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	McHENRY	803	574
CONTRACT NO. 62B43			ILLINOIS FED. AID PROJECT	

MODEL: Default  
FILE NAME: I:\0353\CBREL\Struct\056-0310\GPE\_170353.dwg

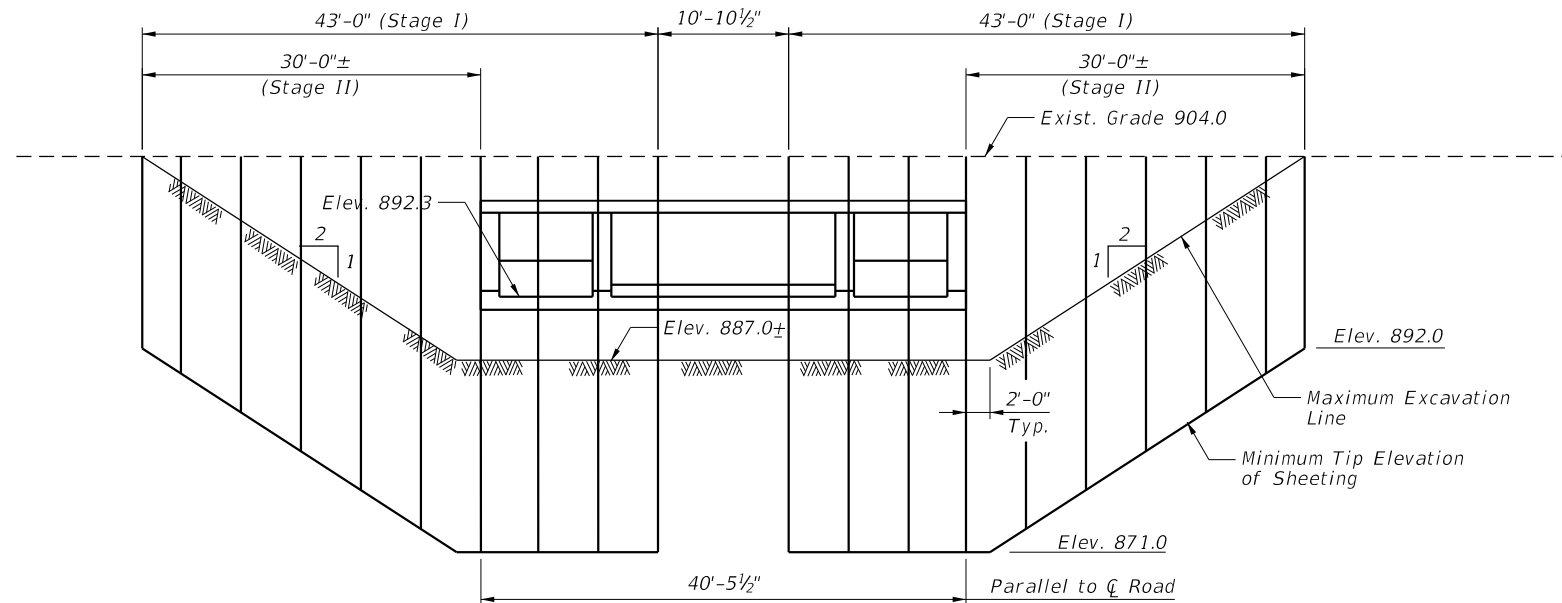
**CB** CHRISTOPHER B. BURKE  
ENGINEERING, LTD.  
9575 W. HOGANS ROAD, SUITE 600  
ROSEMONT, ILLINOIS 60018  
(847) 823-0500

USER NAME = jbarrett  
DESIGNED - AS  
DRAWN - PDR  
CHECKED - MM  
DATE - SPLANDATES

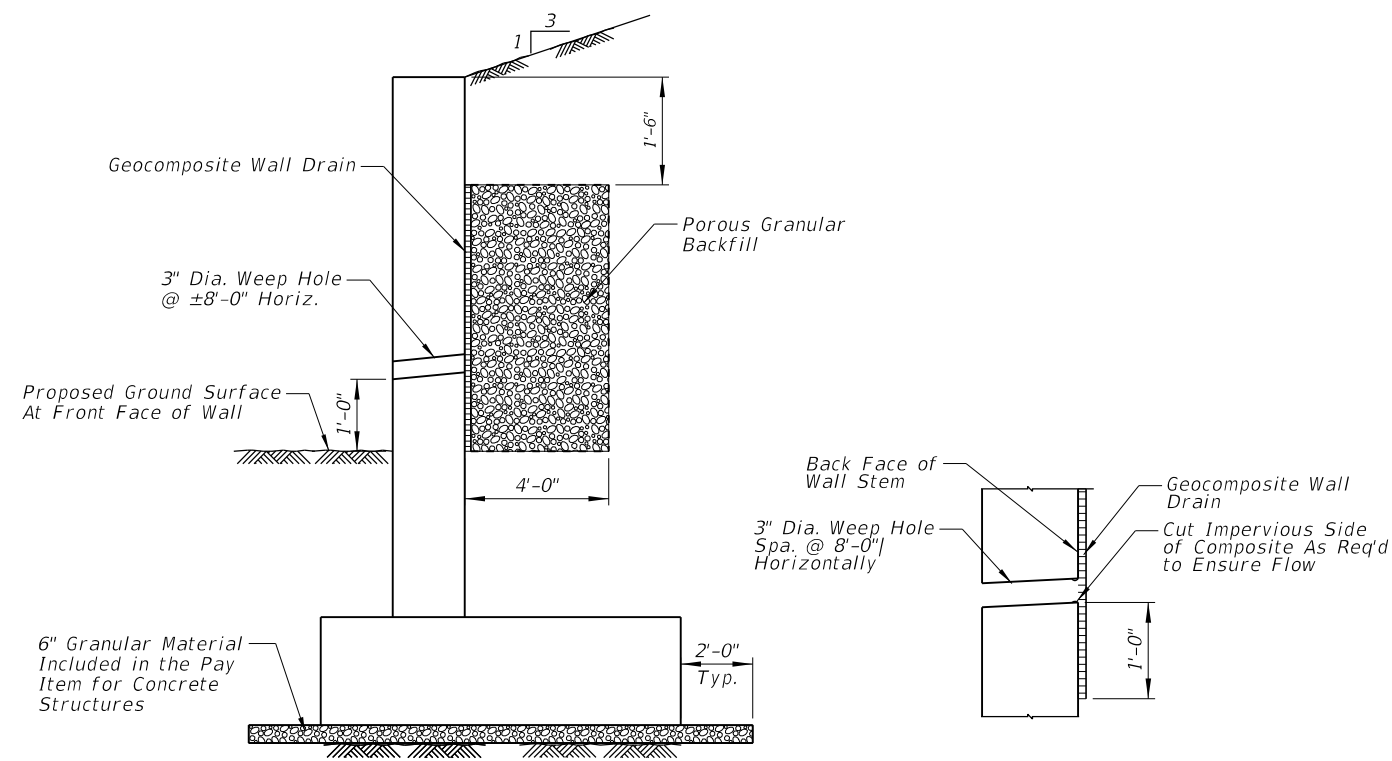
REVISER -  
REVISER -  
REVISER -  
REVISER -

**GENERAL NOTES**

1. Reinforcement bars designated (E) shall be epoxy coated
2. Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
3. If the Contractor chooses to alter the temporary cantilevered sheet piling design requirements shown on the plans, a design submittal including plan details and calculations will be required for review and acceptance by the Engineer.



**TEMPORARY SHEET PILING DETAIL**  
**IL RTE. 47 @ STAGE CONSTRUCTION LINE**  
 Minimum Section Modulus = 27.4 in<sup>3</sup>/ft



**TYPICAL SECTION THRU WALL**      **WEEP HOLE DRAIN DETAIL**

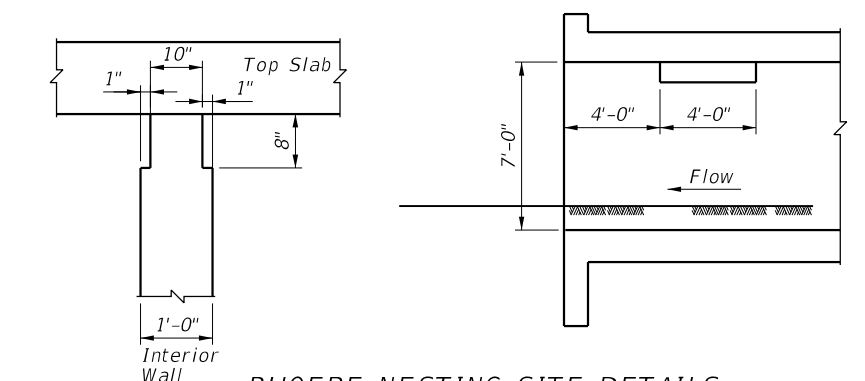
**INDEX OF SHEETS**

- 1 General Plan and Elevation
- 2 General Notes, Index of Sheets and Total Bill of Materials
- 3 Stage Construction Details
- 4 Plan and Elevation - Details
- 5 Section and Details
- 6 Bar Splicer Assembly and Mechanical Splicer Details
- 7 Soil Boring Logs
- 8 - 9 Existing Structure (For Information Only)

**TOTAL BILL OF MATERIAL**

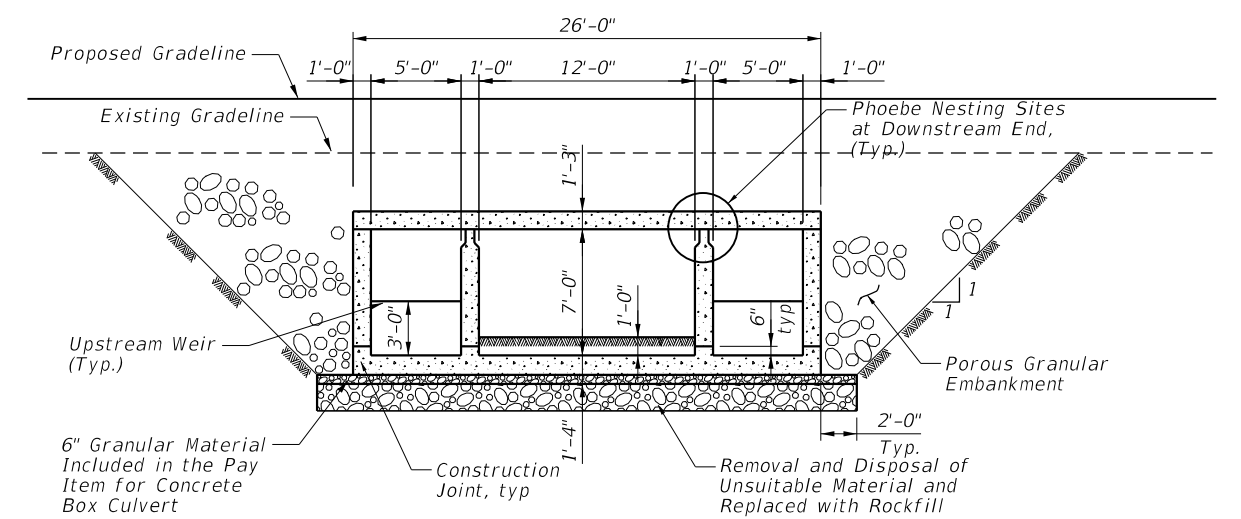
ITEM	UNIT	TOTAL
Porous Granular Embankment	Cu. Yd.	1,717
Porous Granular Backfill	Cu. Yd.	47
Stone Riprap, Class A4	Sq. Yd.	81
Filter Fabric	Sq. Yd.	81
Removal of Existing Structures No. 2	Each	1
Structure Excavation	Cu. Yd.	2,597
Removal and Disposal of Unsuitable Material	Cu. Yd.	718
Concrete Structures	Cu. Yd.	52.0
Reinforcement Bars	Pound	295,280
Reinforcement Bars, Epoxy Coated	Pound	1,210
Bar Splicers	Each	172
Name Plates	Each	1
Temporary Sheet Piling	Sq. Ft.	2,369
Concrete Box Culverts	Cu. Yd.	1,067.6
Geocomposite Wall Drain	Sq. Yd.	35
* Temporary Support System	L. Sum	1
* Rock Fill	Cu. Yd.	714

\* See Special Provision



**PHOEBE NESTING SITE DETAILS**  
 (DOWNSTREAM END)

Note:  
 Notch formed by rough-finished board attached to and removed with formwork.



**SECTION THRU BARREL**  
 (Dimensions at Rt. Angle to Barrel)

MODEL: Default FILE NAME: 170353.CBBLStruct056-0310-GNOTES\_170353.dwt



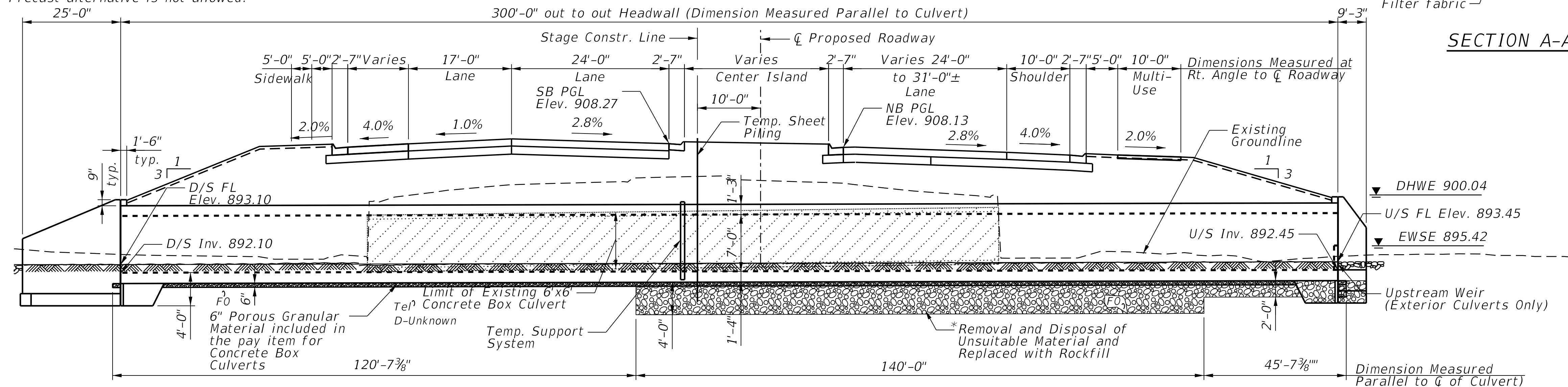
Bench Mark: BM #9-Found bolt at the SW corner of Concrete Box Culvert. Elev.=901.77

Existing Structure: SN 056-0246 was originally built in 1936 as SBI 47, Section 105A and was reconstructed in 1971 as FAP 64, Section 105N, Contract 28872. It is a single 6'x6' R.C. box culvert, 155'-0" face to face of curb.

Traffic Control: Traffic to be maintained utilizing stage construction.

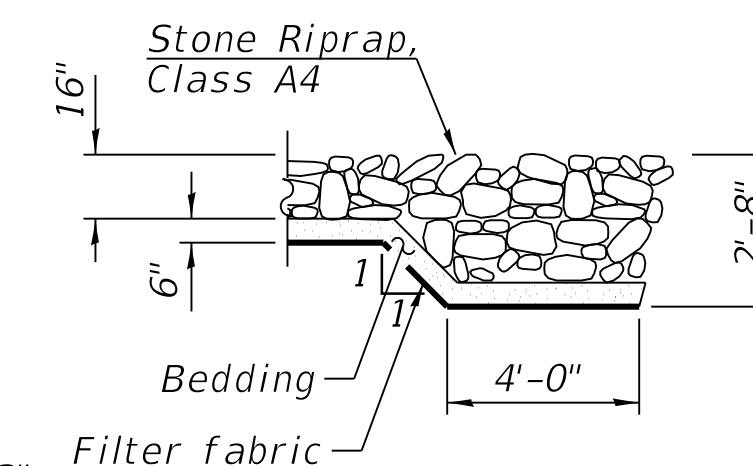
Salvage: None

Precast alternative is not allowed.  
25'-0"

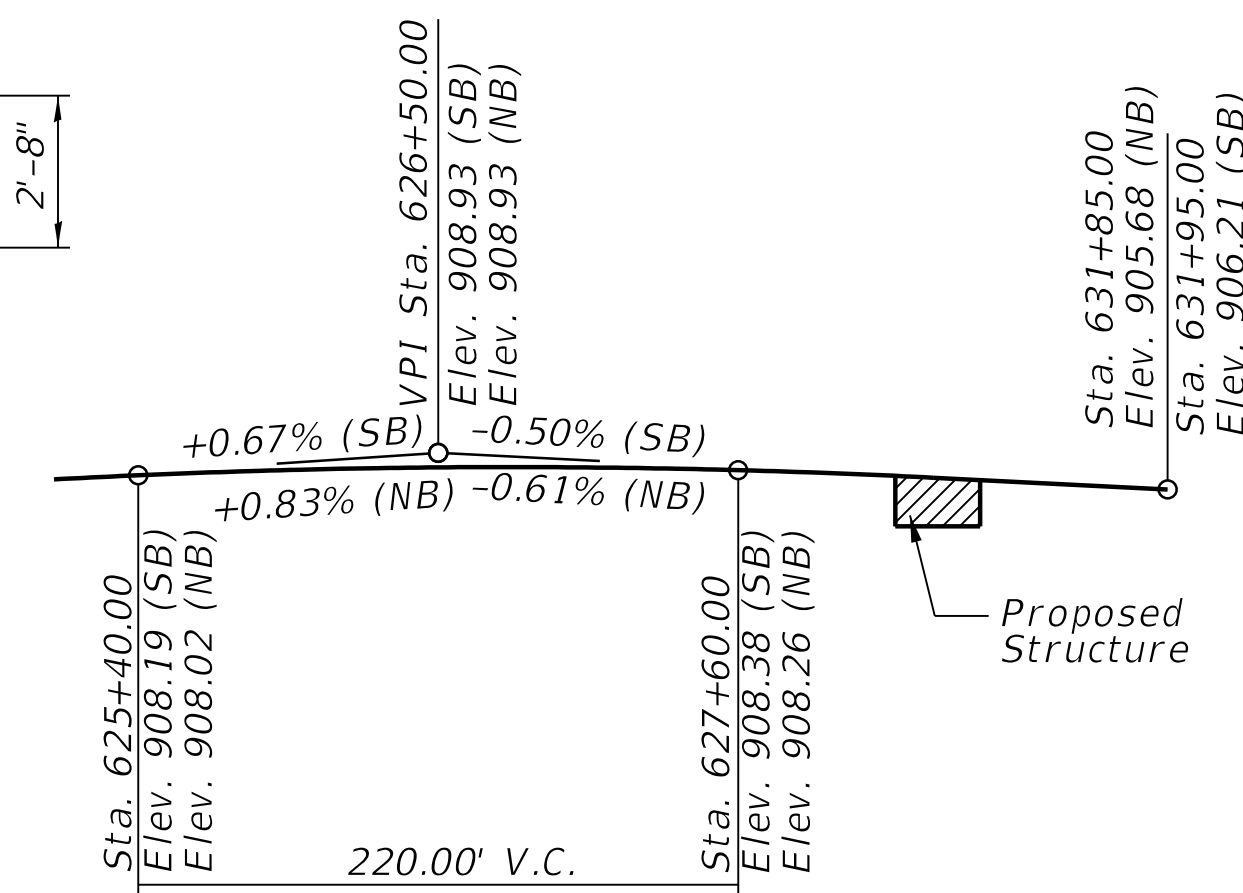


**LONGITUDINAL SECTION**  
(Looking West)

\* The limits and quantities of removal and replacement shown are based on the boring data and may be modified by the District Geotechnical and Field Engineers for variable subsurface conditions encountered in the field. The Rockfill shall be capped with 6 in. of CA7 and satisfy the Standard Specifications unless otherwise indicated in the Special Provisions. The cost of the capping material shall be included in the pay item for Concrete Box Culverts.



**SECTION A-A**



**PROFILE GRADE NB AND SB**

STATION 627+82  
BUILT BY  
McHENRY COUNTY  
FAP ROUTE 326 (IL 47)  
SEC 105-N-2 (15)  
LOADING HL-93  
STRUCTURE NO. 056-0310

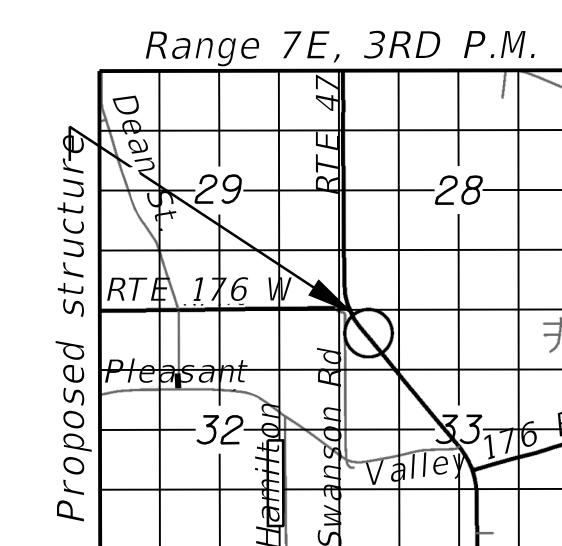
**NAME PLATE**  
See Std. 515001

**DESIGN SPECIFICATIONS**  
2020 AASHTO LRFD Bridge Design  
Specifications, 9th Edition

**LOADING HL-93**  
Allow 50#/sq. ft. for future wearing surface.

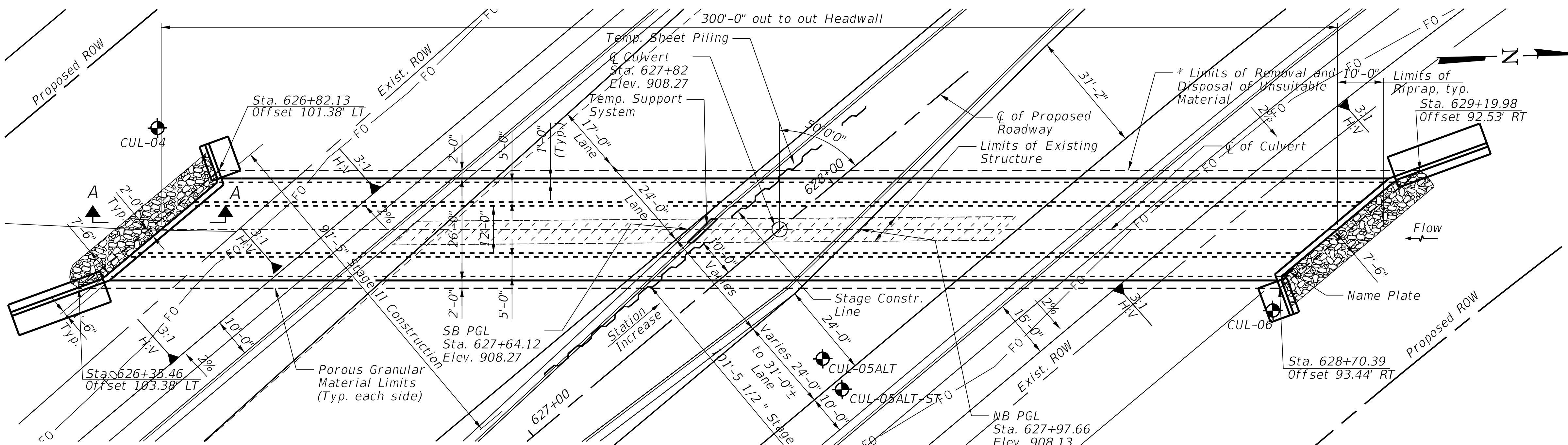
**DESIGN STRESSES**  
**FIELD UNITS**

$f'_c = 3,500$  psi  
 $f_y = 60,000$  psi (Reinforcement)



**LOCATION SKETCH**

**GENERAL PLAN AND ELEVATION**  
**ILLINOIS ROUTE 47 OVER**  
**TRIBUTARY KISHWAUKEE RIVER**  
FAP ROUTE 326 (IL 47)  
SECTION 105-N-2(15)  
McHENRY COUNTY  
STATION 627+82  
STRUCTURE No. 056-0310



**WATERWAY INFORMATION**

Drainage Area = 1.47 Low Grade Elev. 904.55 @ Sta. 622+00

Flood	Freq. Yr.	Q C.F.S.	Opening Ft <sup>2</sup>		Nat. H.W.E.	Head - Ft.		Headwater El	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
2	84.05	17.8	72.2	897.64	0.80	0.00	898.44	897.64	
10	139	22.8	90.4	898.47	0.84	0.01	899.28	898.48	
Design	50	312	32.2	112.0	900.04	2.15	0.20	902.16	900.24
Base	100	425	34.9	112.0	900.51	2.13	0.46	902.60	900.97
Overtopping									
Max. Calc.	500	609	36.0	112.0	901.08	1.89	1.12	902.92	902.20

**DESIGN SCOUR**  
**ELEVATION TABLE**

Design Scour Elev. (ft.)	D/S Inv.	U/S Inv.
888.10	888.45	888.45



*Majid Mobasser* 12/14/23  
**MAJID MOBASSERI**  
STRUCTURAL ENGINEER  
ILLINOIS REGISTRATION No. 081-005058  
EXPIRATION DATE: 11/30/24

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**GENERAL PLAN AND ELEVATION**  
**STRUCTURE NO. 056-0310**

SCALE: N.T.S. SHEET 1 OF 9 SHEETS STA. 627+82 TO STA. ----

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	McHENRY	805	576
CONTRACT NO. 62B43				

ILLINOIS FED. AID PROJECT

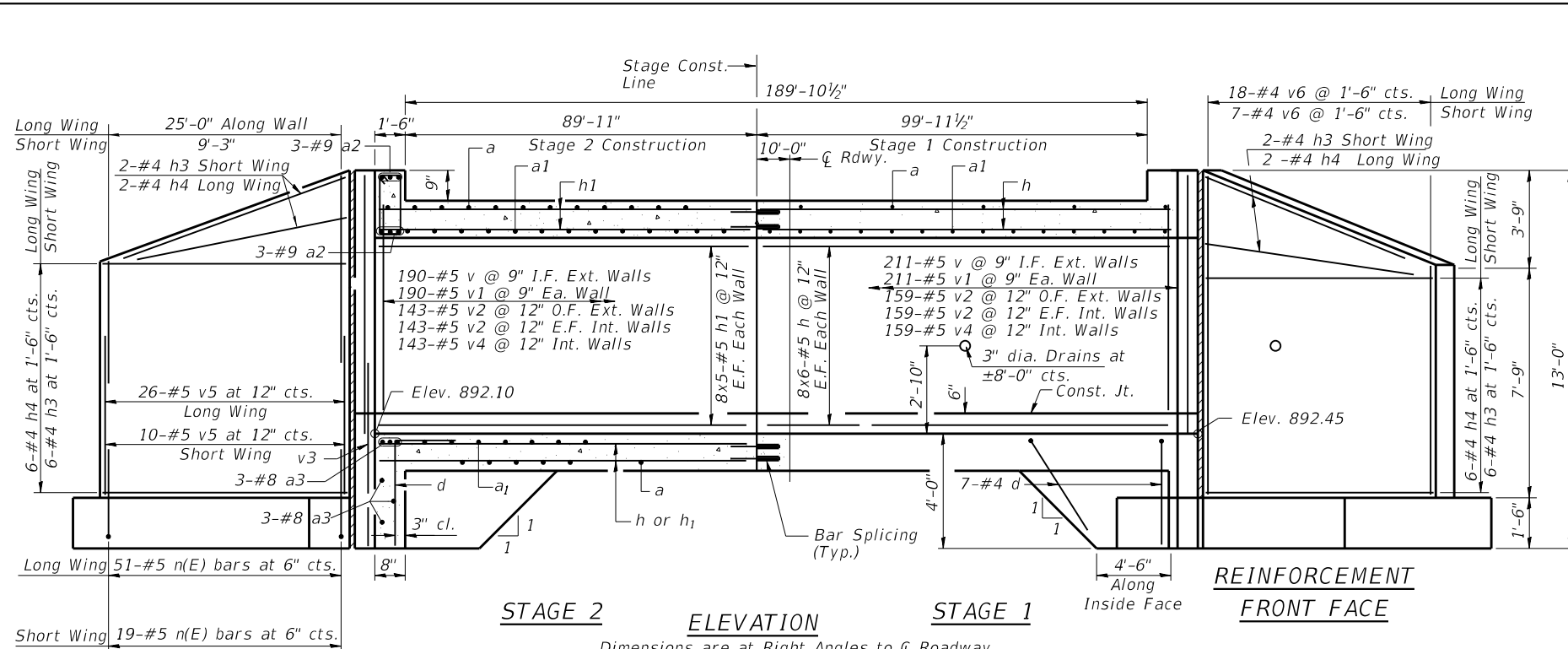
MODEL: D:\cadd\170353\CBELLS\STRUCT\056-0310\CP.E 170353.BAT

**CB** CHRISTOPHER B. BURKE  
ENGINEERING, LTD.  
9575 W. HIGGINS ROAD, SUITE 600  
ROSEMONT, ILLINOIS 60018  
(847) 823-0500

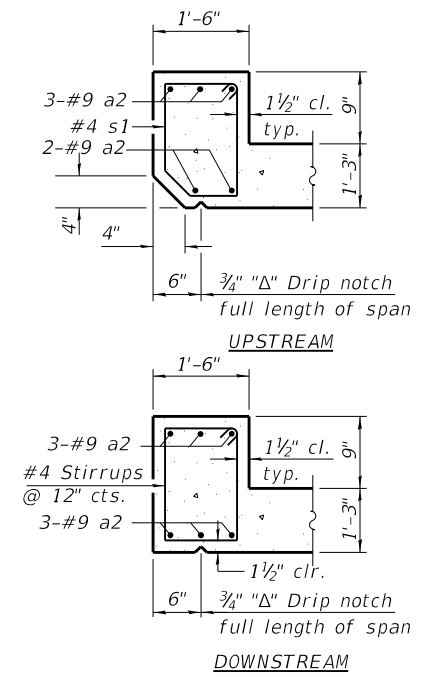
USER NAME = prazalan  
DESIGNED - AS  
DRAWN - PDR  
CHECKED - MM  
DATE - SPLANDATES

REVISD -  
REVISD -  
REVISD -  
REVISD -

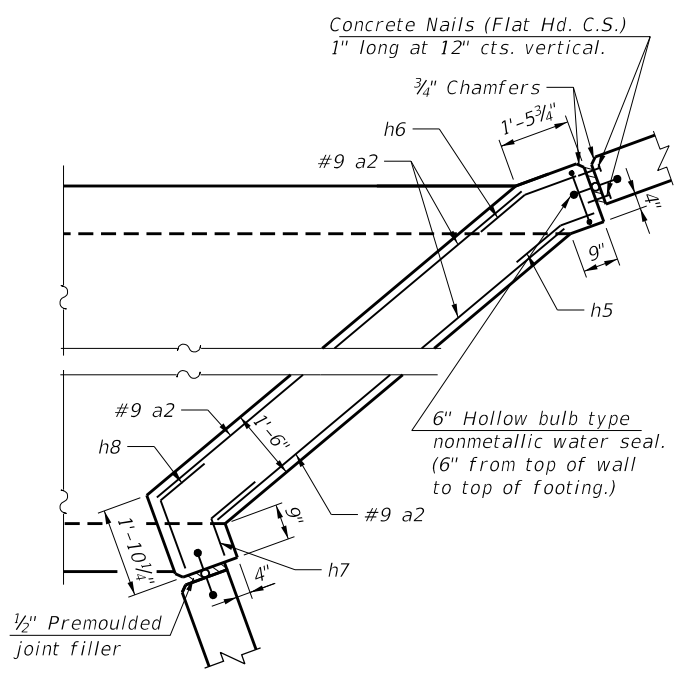




**STAGE 2 ELEVATION STAGE 1 FRONT FACE**



**SECTION THRU HEADWALL**

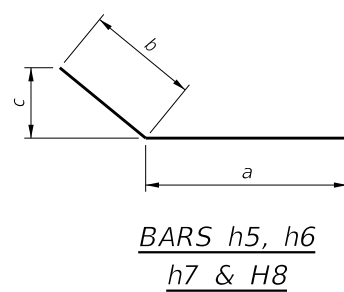


**CORNER DETAIL**

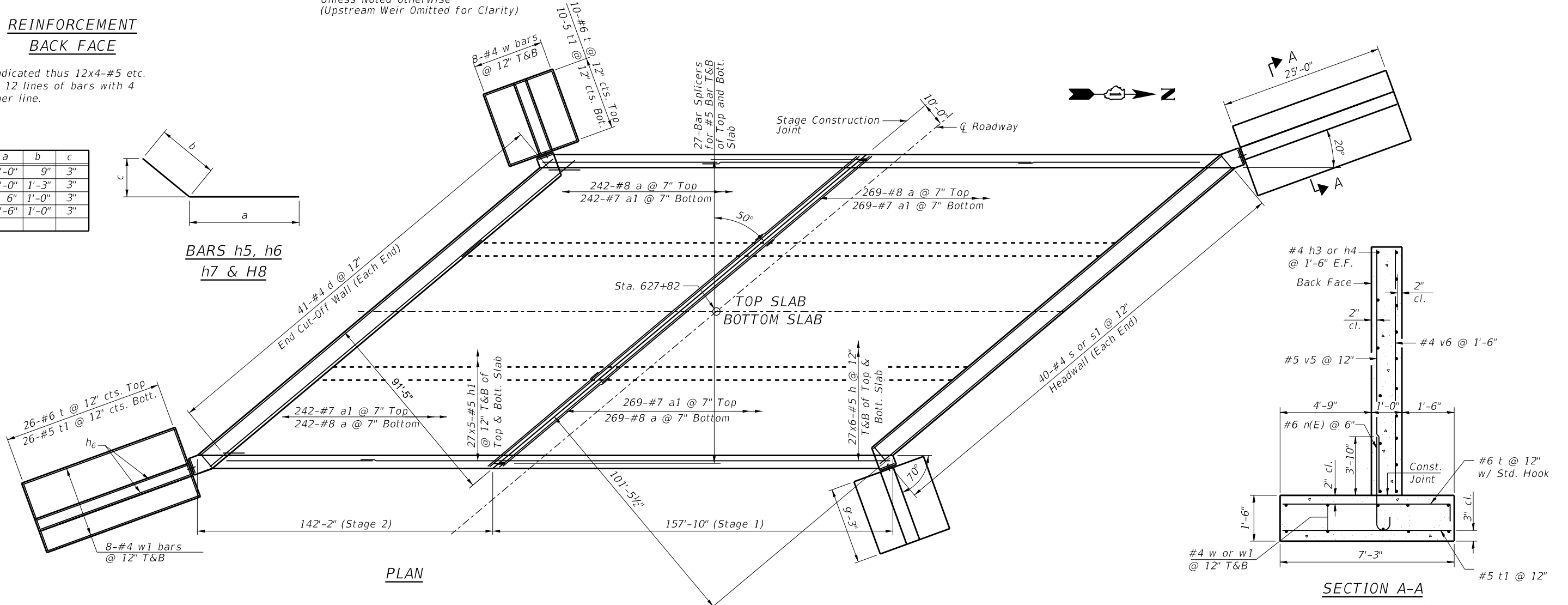
**REINFORCEMENT BACK FACE**

Notes:  
Bars indicated thus 12x4-#5 etc. indicates 12 lines of bars with 4 lengths per line.

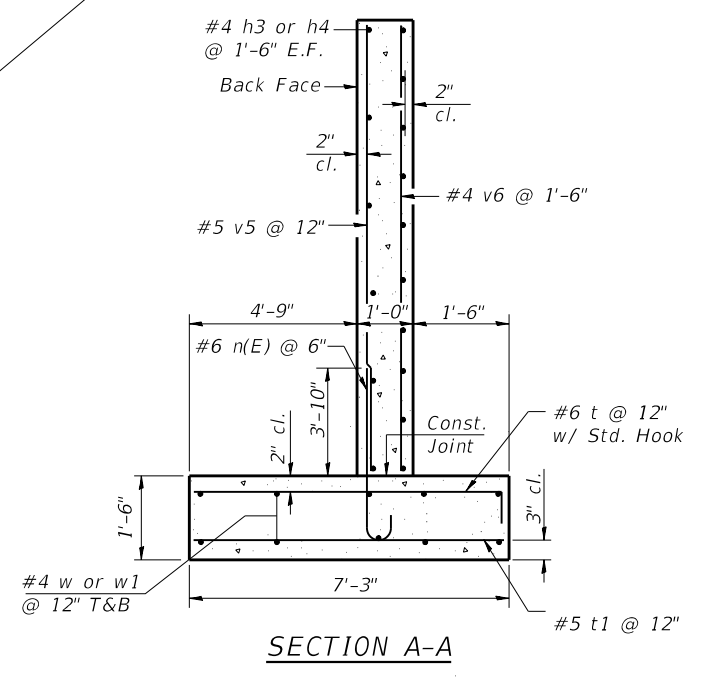
	a	b	c
h5	1'-0"	9"	3"
h6	1'-0"	1'-3"	3"
h7	6"	1'-0"	3"
h8	1'-6"	1'-0"	3"



**BARS h5, h6 h7 & H8**



**PLAN**



**SECTION A-A**

MODEL: D:\m\170353\CBBEL\STRUCT\056-0310\DETAILS\_170353-01.dwg

**CBB**  
CHRISTOPHER B. BURKE  
ENGINEERING, LTD.  
9575 W. HOGGINS ROAD, SUITE 600  
ROSEMONT, ILLINOIS 60018  
(847) 823-0500

USER NAME = jboarnett  
PLOT SCALE = 2,0000' / in.  
PLOT DATE = 12/14/2023

DESIGNED - AS	REVISED -
DRAWN - PDR	REVISED -
CHECKED - MM	REVISED -
DATE - SPLANDATES	REVISED -

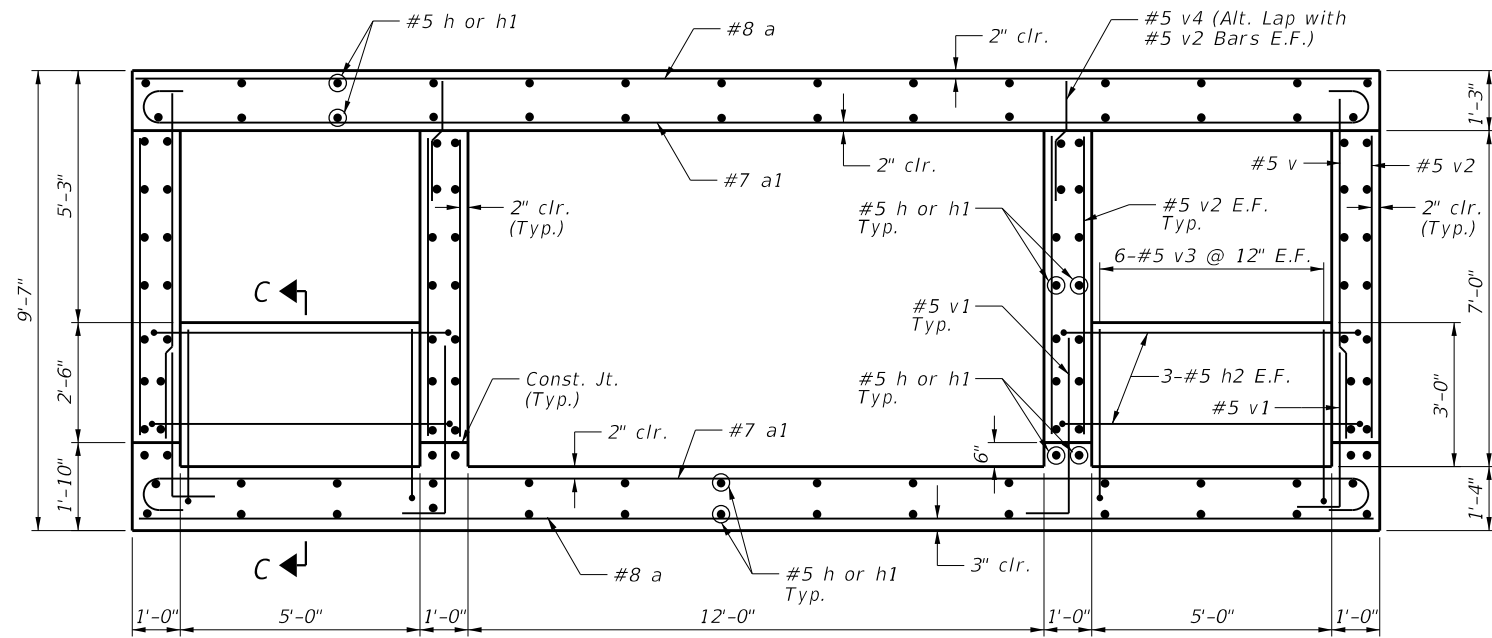
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**PLAN AND ELEVATION - DETAILS  
STRUCTURE NO. 056-0310**

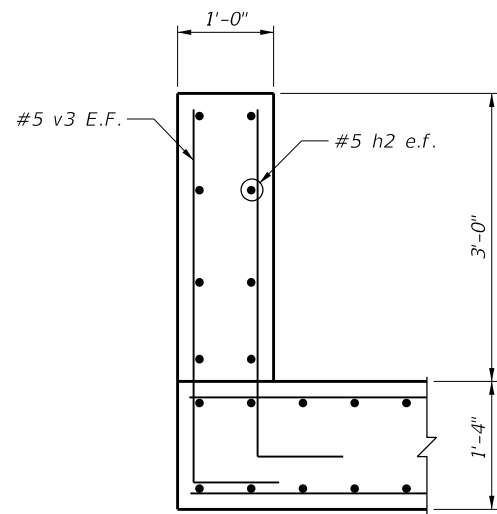
SCALE: N.T.S. SHEET 4 OF 9 SHEETS STA. 627+82 TO STA. ---

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	577

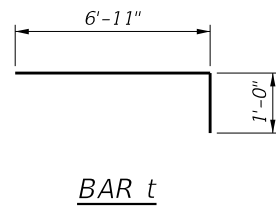
CONTRACT NO. 62B43  
ILLINOIS FED. AID PROJECT



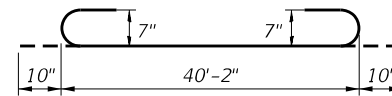
**SECTION THRU BARREL**  
(At Right Angle)



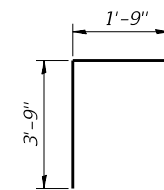
**SECTION C-C**



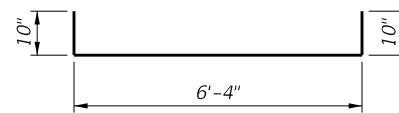
**BAR t**



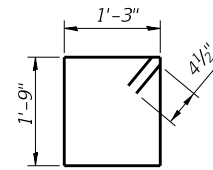
**BAR a1**



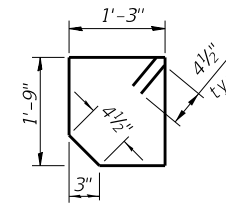
**BAR d**



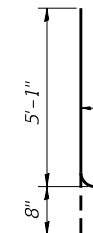
**BAR h2**



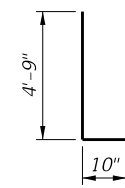
**BAR s**



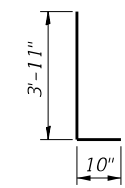
**BAR s1**



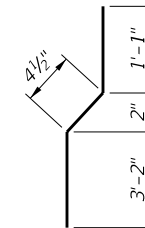
**BAR n(E)**



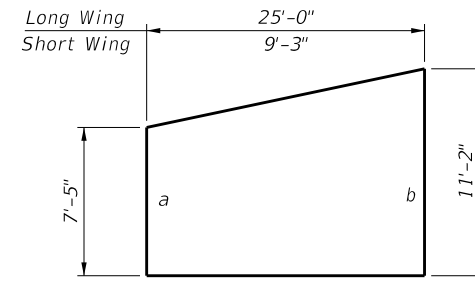
**BAR v1**



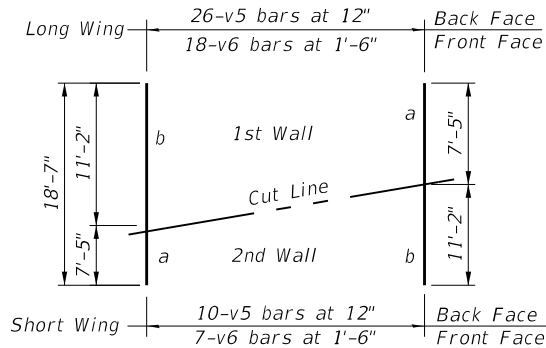
**BAR v3**



**BAR v4**



**PLACING DIAGRAM**



**FIELD CUTTING DIAGRAM**

Order bars shown full length. Cut as shown and use remainder of bars in opposite wingwall.

**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
a	1028	#8	40'-2"	—
a1	1022	#7	41'-10"	—
a2	11	#9	38'-8"	—
a3	12	#8	40'-2"	—
d	110	#4	5'-6"	—
h	1032	#5	29'-3"	—
h1	860	#5	31'-3"	—
h2	12	#5	8'-0"	—
h3	32	#4	8'-11"	—
h4	32	#4	24'-8"	—
h5	4	#5	1'-9"	—
h6	4	#5	2'-3"	—
h7	4	#5	1'-6"	—
h8	4	#5	2'-6"	—
n(E)	140	#6	5'-9"	—
s	40	#4	6'-9"	—
s1	40	#4	6'-8"	—
t	72	#6	7'-11"	—
t1	72	#5	6'-11"	—
v	802	#5	7'-7"	—
v1	1604	#5	5'-7"	—
v2	1812	#5	6'-4"	—
v3	24	#5	4'-9"	—
v4	604	#5	4'-8"	—
v5	36	#5	18'-7"	—
v6	25	#4	18'-7"	—
w	32	#4	8'-11"	—
w1	32	#4	24'-8"	—
Concrete Structures	Cu. Yd.	52.0		
Reinforcement Bars	Pound	295,280		
Reinforcement Bars, Epoxy Coated	Pound	1,210		
Bar Splicers	Each	172		
Concrete Box Culverts	Cu. Yd.	1,067.6		

Min. Lap #5 Bar=3'-2"

MODEL: D:\p\170353\CBBEL\Struct\056-0310\DETAILS\_170353-02.dwg  
FILE NAME: 170353\CBBEL\Struct\056-0310\DETAILS\_170353-02.dwg

**CB**  
CHRISTOPHER B. BURKE  
ENGINEERING, LTD.  
9575 W. HOGANS ROAD, SUITE 600  
ROSEMONT, ILLINOIS 60018  
(847) 823-0500

USER NAME = jbarrett  
DESIGNED - AS  
DRAWN - PDR  
CHECKED - MM  
DATE - SPLANDATES

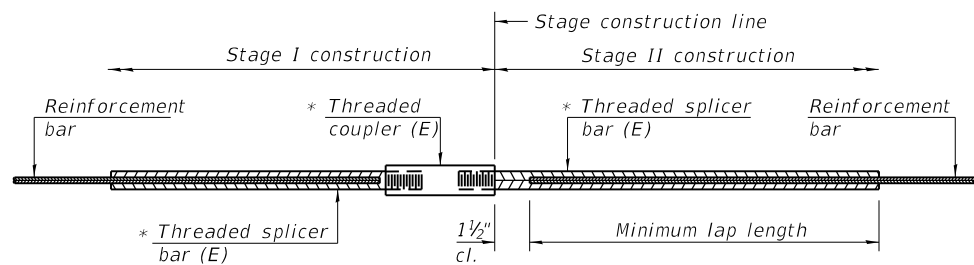
REVISD -  
REVISD -  
REVISD -  
REVISD -

REVISD -  
REVISD -  
REVISD -  
REVISD -

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**SECTION AND DETAILS**  
**STRUCTURE NO. 056-0310**  
SCALE: N.T.S. SHEET 5 OF 9 SHEETS STA. 627+82 TO STA. ---

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	578
			CONTRACT NO. 62B43	
ILLINOIS FED. AID PROJECT				

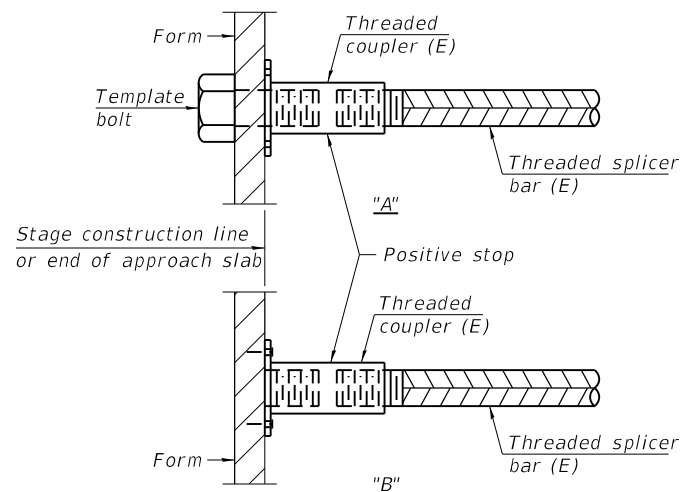


**STANDARD BAR SPLICER ASSEMBLY**

Threaded splicer bar length = min. lap length + 1 1/2" + thread length

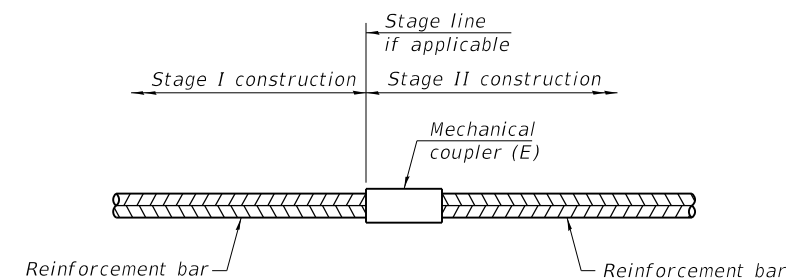
\* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

Location	Bar size	No. assemblies required	Minimum lap length
T&B Top Slab	#5	54	3'-2"
T&B Bottom Slab	#5	54	3'-2"
Walls	#5	64	3'-7"



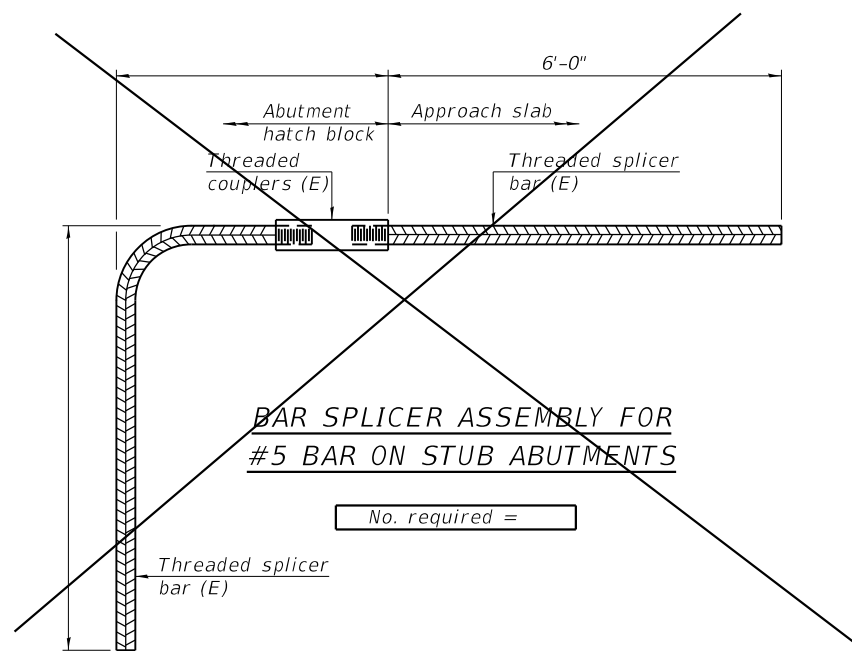
**INSTALLATION AND SETTING METHODS**

"A" : Set bar splicer assembly by means of a template bolt.  
 "B" : Set bar splicer assembly by nailing to wood forms or cementing to steel forms.  
 (E) : Indicates epoxy coating.



**STANDARD MECHANICAL SPLICER**

Location	Bar size	No. assemblies required



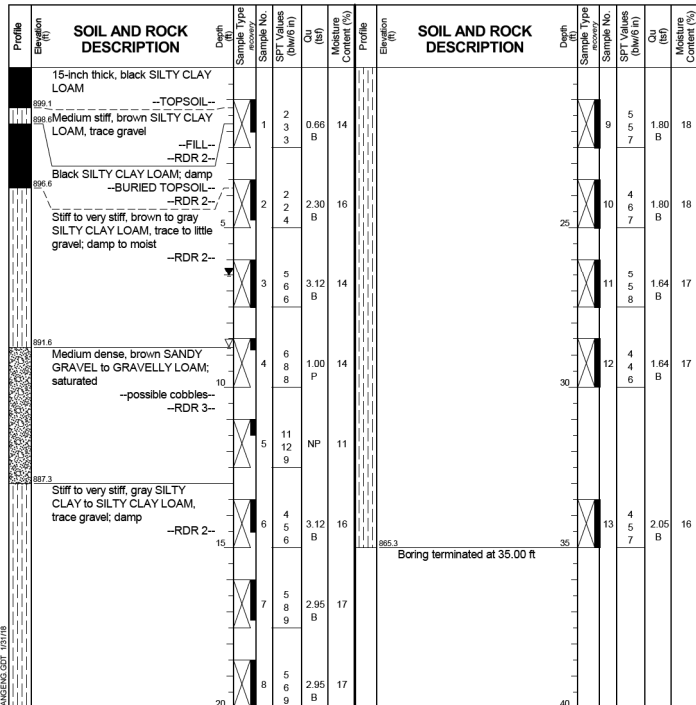
**BAR SPLICER ASSEMBLY FOR #5 BAR ON STUB ABUTMENTS**

No. required =

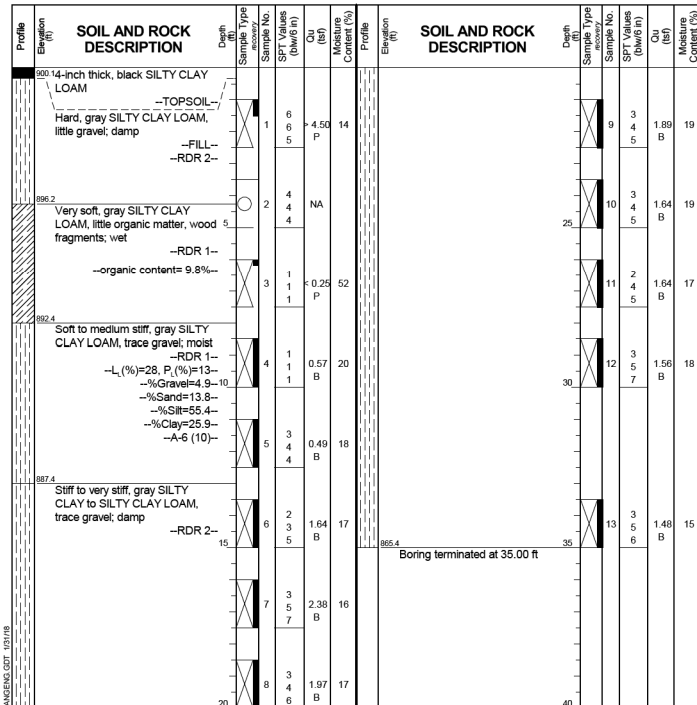
**NOTES**

Splicer bars shall be deformed with threaded ends and have a minimum 60 ksi yield strength.  
 All reinforcement shall be lapped and tied to the splicer bars.  
 Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars. See Section 508 of the Standard Specifications.  
 See approved list of bar splicer assemblies and mechanical splicers for alternatives.

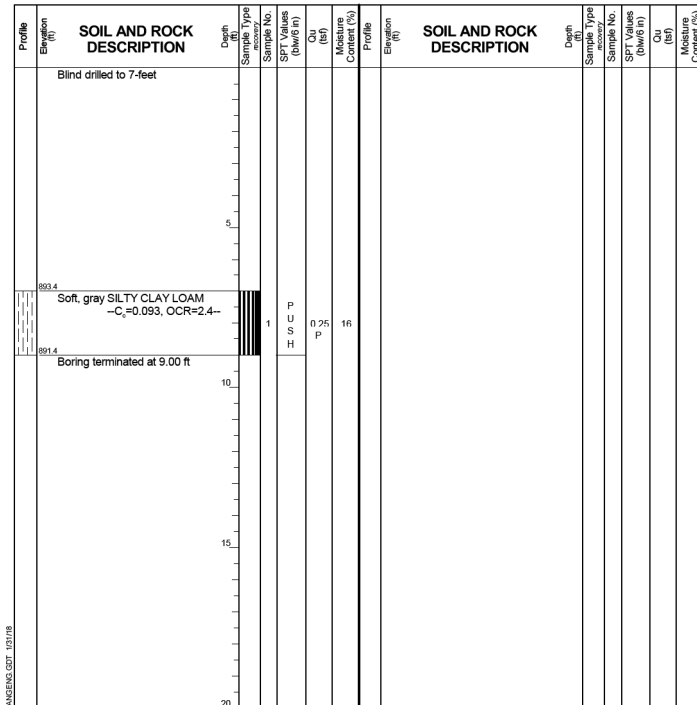
MODEL: D:\m\h\... FILE NAME: 170353\CBBELSTRUCT\056-0310\BAR SPLICER.RVT



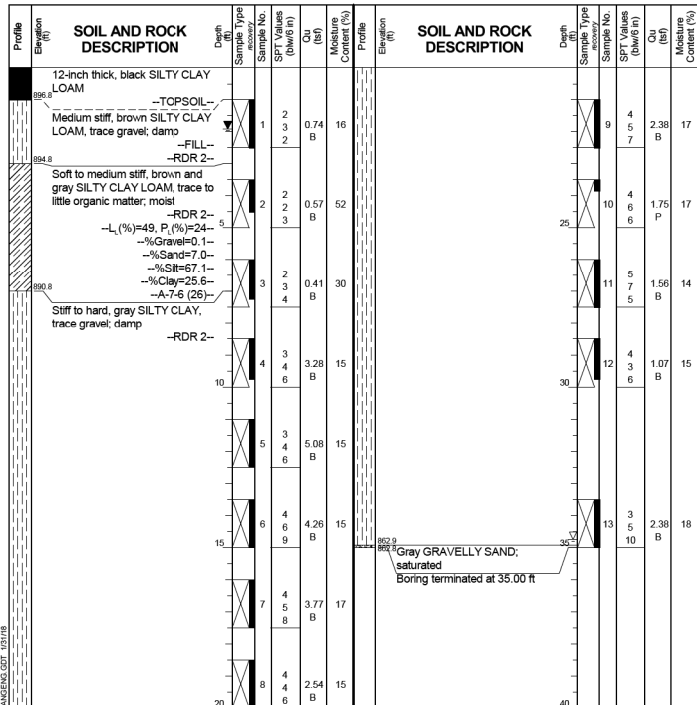
GENERAL NOTES		WATER LEVEL DATA	
Begin Drilling	11-22-2017	Complete Drilling	11-22-2017
Drilling Contractor	Wang Testing Services	Drill Rig	D50 ATV [88%]
Driller	K&K	Logger	T. Rothschild
Checked by	C. Marin	Drilling Method	2.25 IDA HSA; 140 lb autohammer; Boring backfilled upon completion
While Drilling	DRY	At Completion of Drilling	8.75 ft
Time After Drilling	NA	Time After Drilling	6.50 ft
Depth to Water	NA	The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.	



GENERAL NOTES		WATER LEVEL DATA	
Begin Drilling	10-25-2017	Complete Drilling	10-25-2017
Drilling Contractor	Wang Testing Services	Drill Rig	D50 ATV [88%]
Driller	R&K	Logger	F. Bozga
Checked by	C. Marin	Drilling Method	2.25 IDA HSA; 140 lb autohammer; Boring backfilled upon completion
While Drilling	DRY	At Completion of Drilling	DRY
Time After Drilling	NA	Time After Drilling	NA
Depth to Water	NA	The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.	



GENERAL NOTES		WATER LEVEL DATA	
Begin Drilling	10-26-2017	Complete Drilling	10-26-2017
Drilling Contractor	Wang Testing Services	Drill Rig	D50 ATV [88%]
Driller	K&N	Logger	F. Bozga
Checked by	C. Marin	Drilling Method	2.25 IDA HSA; 140 lb autohammer; Boring backfilled upon completion
While Drilling	DRY	At Completion of Drilling	NA
Time After Drilling	NA	Time After Drilling	NA
Depth to Water	NA	The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.	



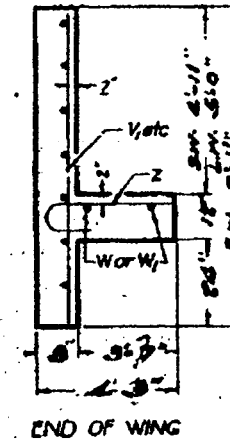
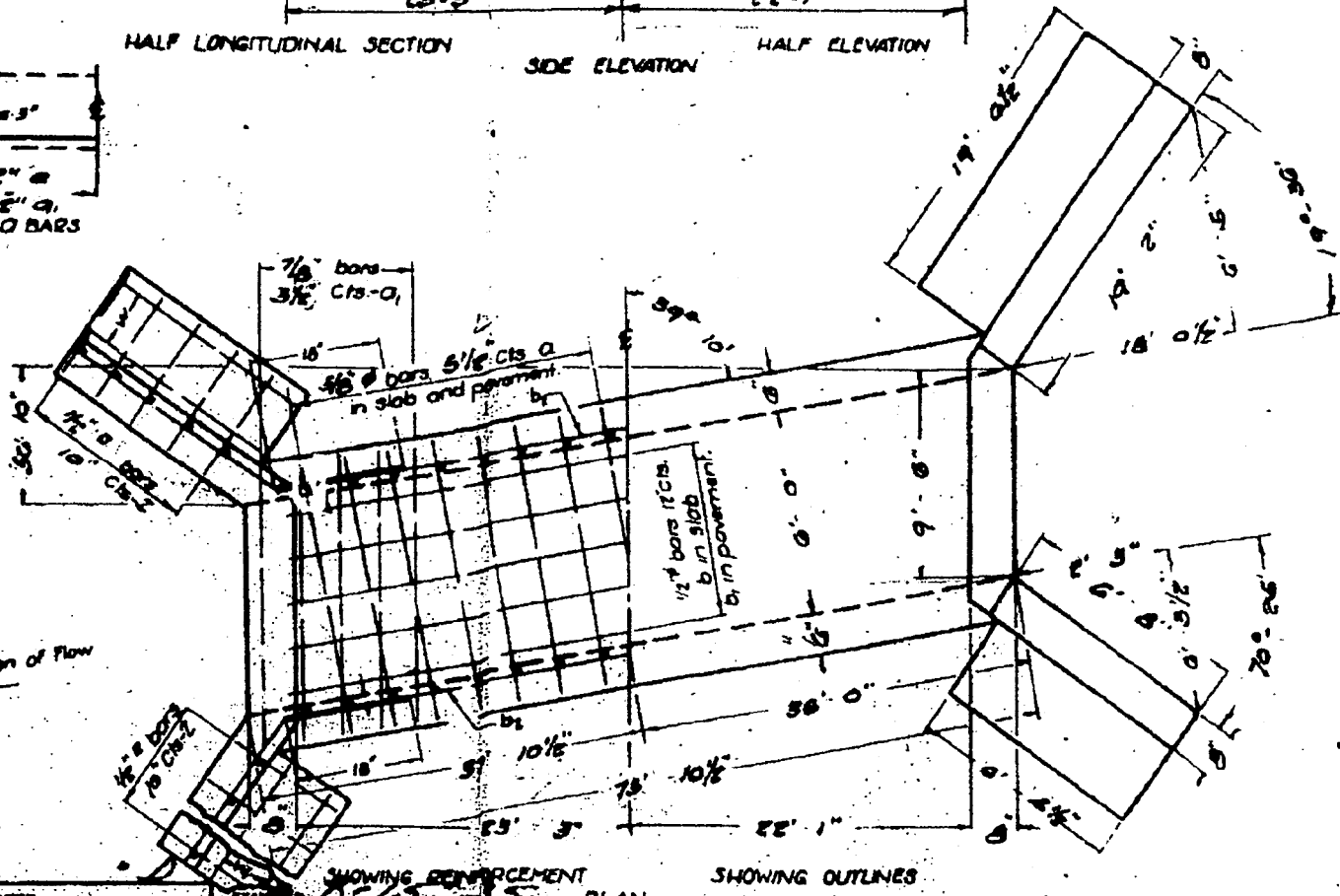
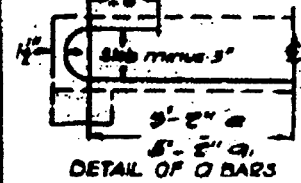
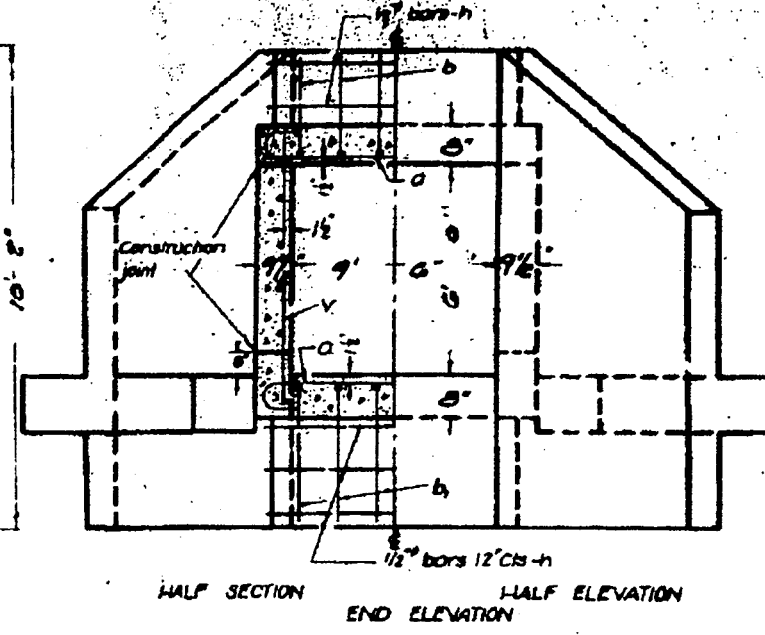
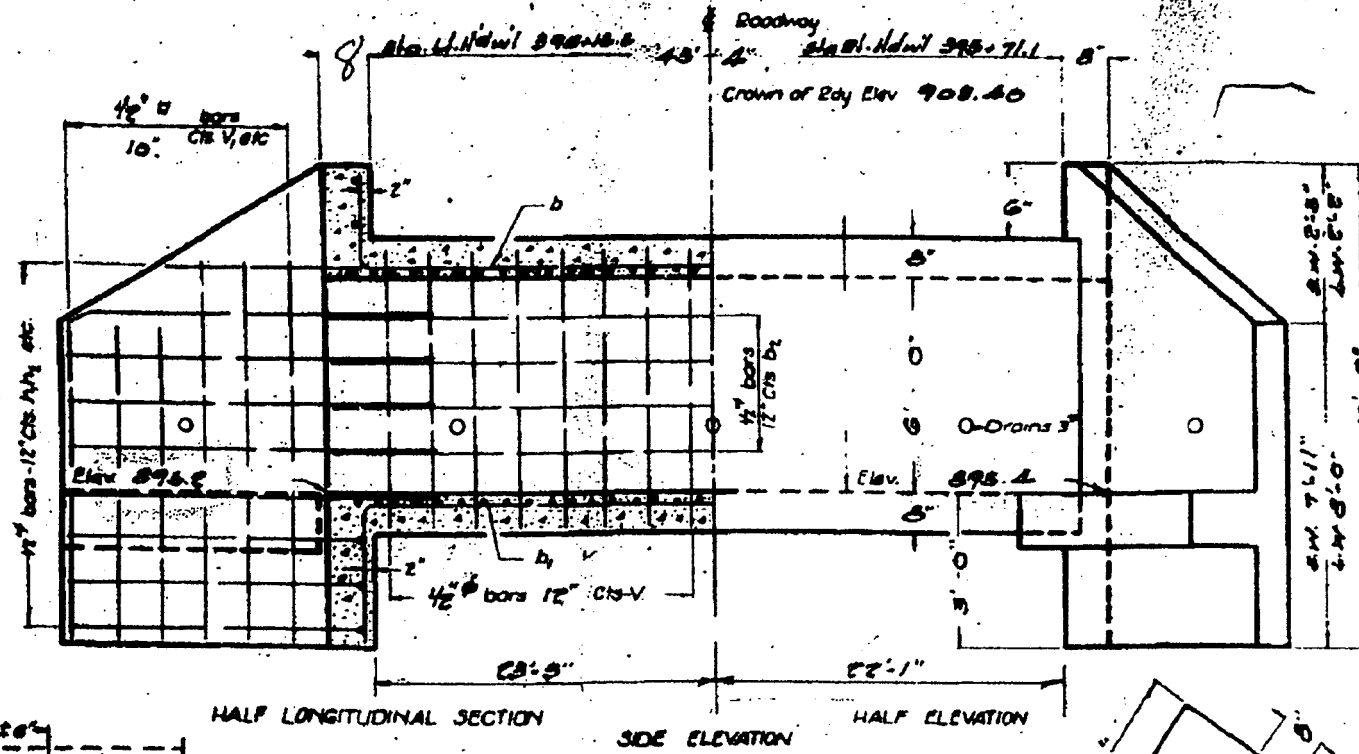
GENERAL NOTES		WATER LEVEL DATA	
Begin Drilling	11-20-2017	Complete Drilling	11-20-2017
Drilling Contractor	Wang Testing Services	Drill Rig	D50 ATV [88%]
Driller	K&K	Logger	T. Rothschild
Checked by	C. Marin	Drilling Method	2.25 IDA HSA; 140 lb autohammer; Boring backfilled upon completion
While Drilling	DRY	At Completion of Drilling	34.75 ft
Time After Drilling	NA	Time After Drilling	1.90 ft
Depth to Water	NA	The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.	

MODEL: D:\dwg\170353\CBBEL\STRUCT\056-0310\BLOGS-170353.dwg  
 FILE NAME: 170353\CBBEL\STRUCT\056-0310\BLOGS-170353.dwg

Slope 3 to 1

STATE OF ILLINOIS  
DEPARTMENT OF PUBLIC WORKS & BUILDINGS  
DIVISION OF HIGHWAYS

BOND ROUTE No.	SEC.	COUNTY	TOTAL SHEETS	SHEET No.
47	105A	McHenry	95	90
FED. ROAD DIST. No. 7 ILLINOIS - FED. AID PROJECT 1194-1000				



BILL OF MATERIAL

Bars	Number	Size	Length
a	200	1/2"	8'-0"
a <sub>1</sub>	75	1/2"	12'-0"
b	24	1/2"	14'-0"
b <sub>1</sub>	24	1/2"	20'-0"
b <sub>2</sub>	24	1/2"	19'-0"
h	6	1/2"	16'-0"
h <sub>1</sub>	10	1/2"	20'-0"
h <sub>2</sub>	272	1/2"	20'-0"
h <sub>3</sub>	16	1/2"	8'-0"
h <sub>4</sub>	2/2	1/2"	20'-0"
v	2	1/2"	7'-0"
v <sub>1</sub>	4/2	1/2"	8'-0"
v <sub>2</sub>	12	1/2"	7'-0"
v <sub>3</sub>	10/10	1/2"	20'-0"
v <sub>4</sub>	10/10	1/2"	4'-0"
v <sub>5</sub>	4/4	1/2"	4'-0"
v <sub>6</sub>	4	1/2"	16'-0"
v <sub>7</sub>	4	1/2"	14'-0"
z	65	1/2"	8'-0"

Class X concrete CuYds. 01.7  
Reinforcing Steel Lbs. 7050

COMPUTED	—
CHECKED	—
DRAWN	—
CHECKED	J.A. Taylor
SPECIAL	—
APPROVED	—
CHECKED	—

Class X concrete shall be used throughout.  
All reinforcing steel shall be wired securely in place before the concrete is poured.

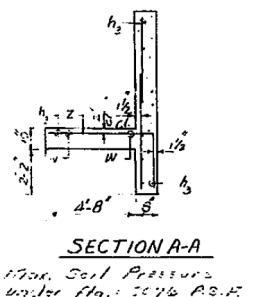
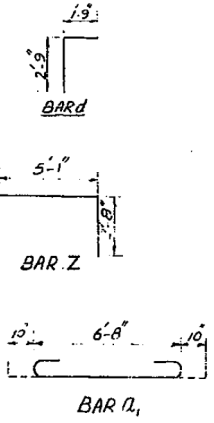
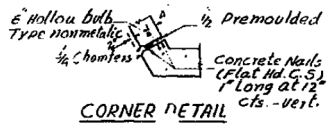
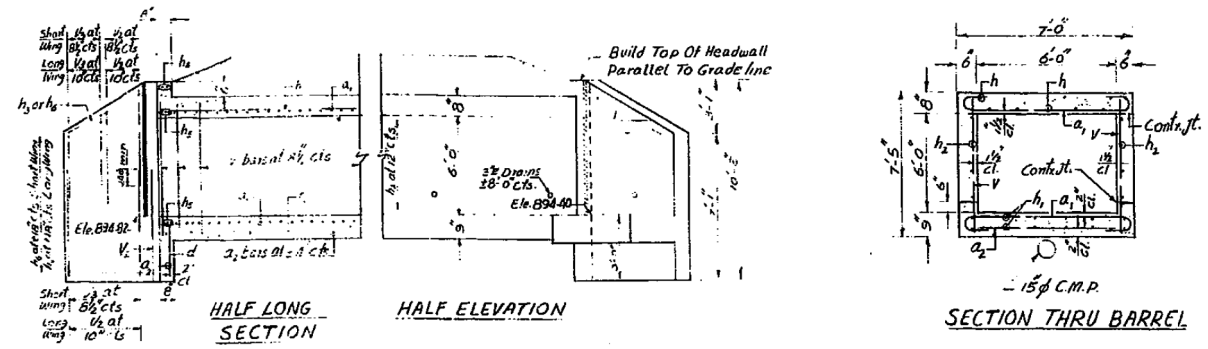
056 0246

SPECIAL CULVERT DESIGN  
STA. 295+44  
S.S.I. SEC. 105A  
RTS 47  
MCHENRY CO.

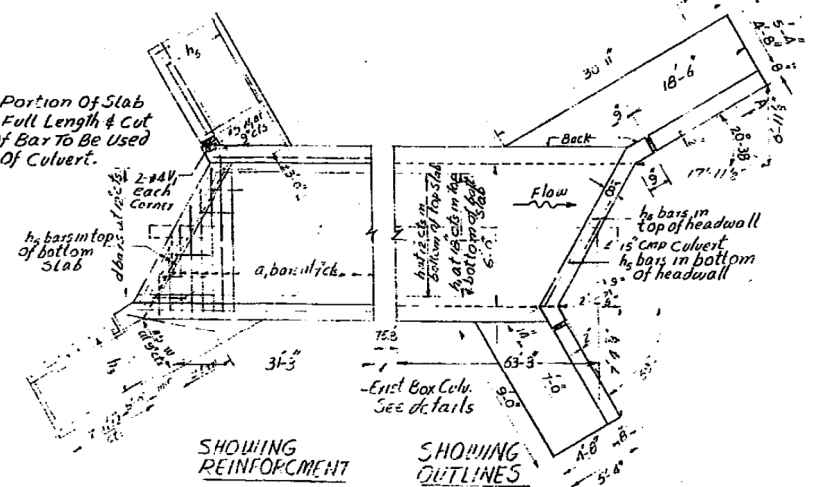
Standard (33)

FOR INFORMATION ONLY

Route No.	Section	County	Total Sheets	Sheet No.
FA64	105N	MCHENRY	55	31
Fed. Road Dist.	Ill. no.	Craft.		

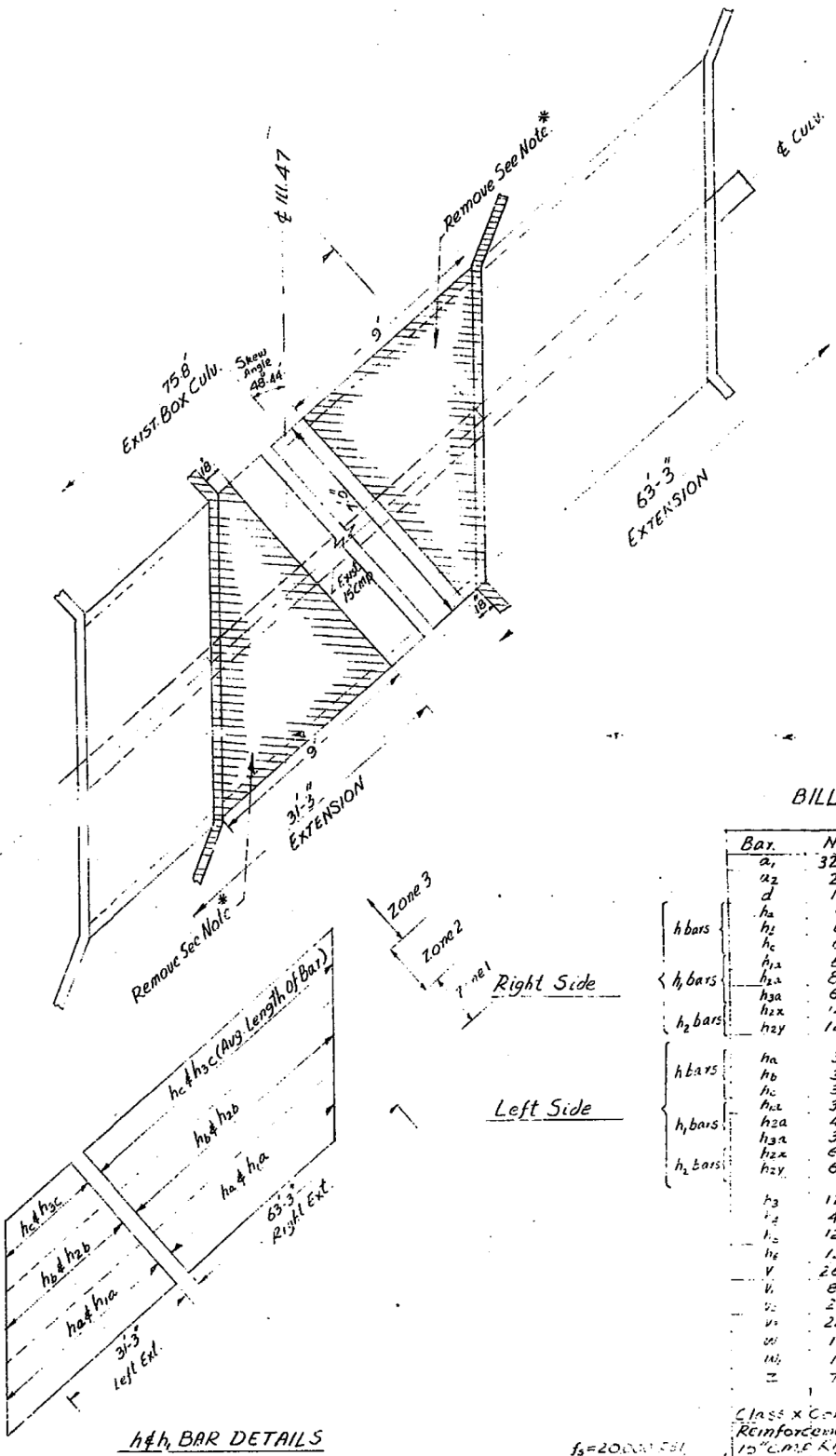


Note:  
a<sub>1</sub> Bars in Skew Portion of Slab Shall Be Ordered Full Length & Cut To Fit. Balance Of Bar To Be Used in Opposite End Of Culvert.



**GENERAL NOTES**

Class X Concrete Shall Be Used Throughout. Exposed Edges Shall Be Beveled  $\frac{3}{4}$ ". For Backfilling & Embankment See Standard Specs. All Bars Shall Be Lapped 24 Diameters Unless Otherwise Specified. The Top Of The Culvert, The Backs Of The Side Walls Above The Lower Construction Joint And Backs Of The Wings Above The Tops Of The Footings Shall Be Waterproofed In Accordance With Art. 503.11 Of The Std. Specs.  
Nonmetallic Water Seal Used In The Wingwall Joints Shall Extend From The Top Of The Footing To Within 6" Of The Headwall. Tilt Hook Of "a<sub>1</sub>" Bars, If Necessary, To Obtain  $1\frac{1}{2}$ " Minimum Clearance At Top Of Hook.



**BILL OF MATERIAL**

Bar	No.	Size	Length	Remarks
a <sub>1</sub>	324	#7	8'-4"	
a <sub>2</sub>	24	#4	6'-3"	
d	12	#4	4'-6"	
h <sub>1</sub>	6	#5	31'-0"	
h <sub>2</sub>	6	#5	32'-1"	
h <sub>3</sub>	6	#5	33'-3"	
h <sub>4</sub>	6	#5	31'-0"	
h <sub>5</sub>	8	#5	32'-1"	
h <sub>6</sub>	6	#5	33'-3"	
h <sub>7</sub>	12	#5	33'-7"	Long Side
h <sub>8</sub>	12	#5	30'-7"	Short Side
h <sub>9</sub>	3	#5	28'-5"	
h <sub>10</sub>	3	#5	31'-0"	
h <sub>11</sub>	3	#5	28'-5"	
h <sub>12</sub>	4	#5	31'-0"	
h <sub>13</sub>	3	#5	27'-5"	
h <sub>14</sub>	6	#5	28'-5"	Long Side
h <sub>15</sub>	6	#5	27'-5"	Short Side
h <sub>16</sub>	12	#4	15'-0"	
h <sub>17</sub>	4	#4	2'-4"	
h <sub>18</sub>	12	#6	3'-4"	
h <sub>19</sub>	12	#4	6'-3"	
v	264	#1	7'-1"	
v <sub>1</sub>	8	#1	3'-10"	
v <sub>2</sub>	28	#1	5'-5"	
v <sub>3</sub>	28	#1	3'-10"	
w	12	#5	15'-5"	
u <sub>1</sub>	12	#5	1'-0"	
z	72	#5	7'-0"	

f<sub>3</sub> = 2000 PSI  
f<sub>c</sub> = 1400 PSI  
f<sub>t</sub> = 1000 PSI  
v = 90 PSI  
n = 10

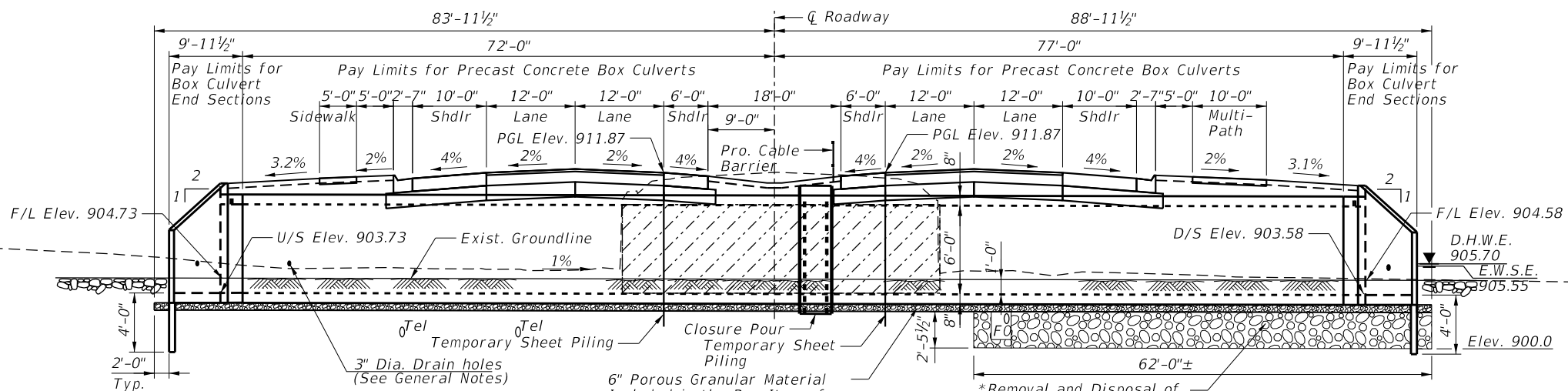
Class X Concrete  
Reinforcement Bars  
15" Conc. Right  
15" Conc. Left  
CONC. REMOVAL  
LOADING HS2C-44

\* NOTE: - This Portion Of Existing Box Shall Be Removed To Expose The Existing Rebars Which Shall Be Cut To A Length Of 18" & Cleaned For Overlap With Prop. Steel Bars. Conc. Removal Quantities Will Be Measured By Engineer In Field.

**h<sub>1</sub> & h<sub>2</sub> BAR DETAILS**

FOR INFORMATION ONLY

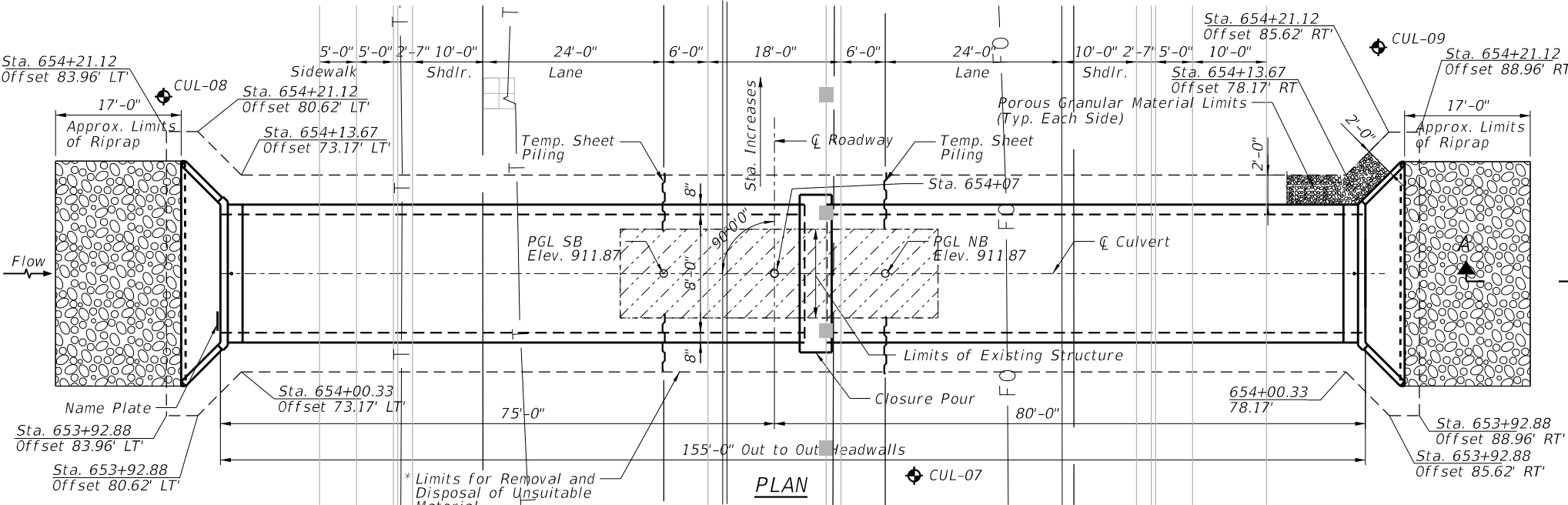
Benchmark: BM #12, Set nail in top center of 15" CMP. Elev. 912.37  
 Existing Structure: SN 056-0245 was built in 1936 as SBI 47 Section 105A. It is a single Box Culvert 6' x 6', 43'-0" Face to Face of Headwalls.  
 Traffic Control: Traffic to be maintained utilizing Stage Construction.  
 Salvage: None



\* The limits and quantities of removal and replacement shown are based on the boring data and may be modified by the District Geotechnical and Field Engineers for variable subsurface conditions encountered in the field.

The Rockfill shall be capped with 6 in. of CA7 and satisfy the Standard Specifications unless otherwise indicated in the Special Provisions. The cost of the capping material shall be included in the pay item for Box Culvert End Sections or Precast Concrete Box Culverts.

**ELEVATION**

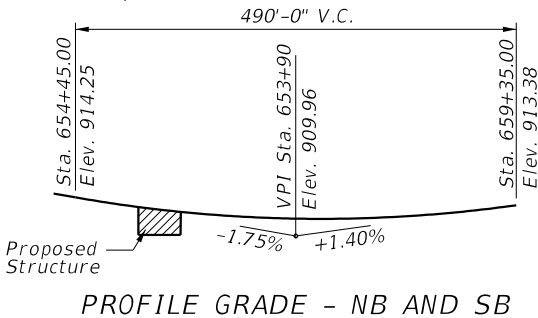


**PLAN**

**WATERWAY INFORMATION**

Drainage Area = 0.0603 sq. mi. Low Grade Elev. = 911.88 @ Sta. 654+00

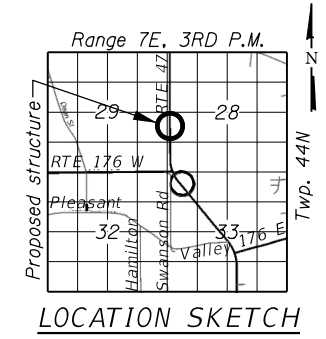
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
2	7.26	4.7	5.4	6.6	905.40	0.00	0.00	905.40	905.40
10	14.10	5.7	6.6	7.8	905.55	0.16	0.28	905.71	905.83
Design	50	33.90	6.6	7.8	905.70	0.77	0.84	906.47	906.54
Base	100	50.00	7.1	8.4	905.78	1.18	1.22	906.96	907.00
Overtopping									
Max. Calc.	500	85.00	7.9	9.5	905.92	1.97	1.95	907.89	907.87



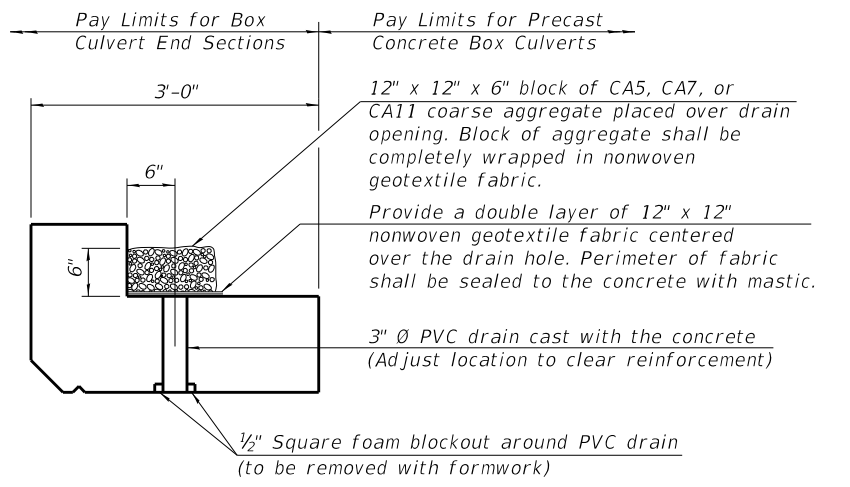
**PROFILE GRADE - NB AND SB**

STATION 654+07  
 BUILT 202X BY  
 STATE OF ILLINOIS  
 F.A.P. RT. 326  
 SEC. 105-N-2(15)  
 LOADING HL-93  
 STR. NO. 056-0311

**NAME PLATE**  
 See Std. 515001

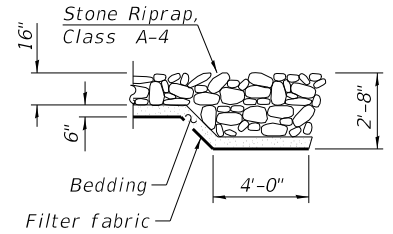


**LOCATION SKETCH**



**DRAIN DETAIL**

(All costs associated with furnishing and constructing the above drain detail will not be measured for payment but shall be included in the contract unit price for the associated work.)



**SECTION A-A**

**DESIGN SPECIFICATIONS**

2020 AASHTO LRFD Bridge Design Specifications  
 9th Edition

**LOADING HL-93**

Allow 50 #/sq. ft. for future wearing surface

**DESIGN STRESSES**

**PRECAST UNITS**

f'c = 5,000 psi  
 fy = 65,000 psi (Welded Wire Reinforcement)

**GENERAL PLAN AND ELEVATION**  
**IL RTE. 47 OVER**  
**KISHWAUKEE RIVER TRIBUTARY**  
**F.A.P. RTE. 326 SEC 105-N-2(15)**  
**McHENRY COUNTY**  
**STATION 654+07**  
**S.N. 056-0311**

MODEL: Default  
 FILE NAME: I:\Projects\170353\CBBEL\Struct\056-0311-GPE-170353.drn

**GENERAL NOTES**

- 1 The design fill height for this box is between 1'-1" and 1'-10". The precast box culvert sections shall conform to the requirements of ASTM C 1577.
- 2 Drain holes shall be provided on exterior culvert walls for each precast box segment with a clear rise greater than 3 ft. The drain hole shall be located within 1/3 of the clear rise of the box culvert, shall not intercept the haunch, and shall conform to the requirements of Article 503.11 of the Standard Specification.
- 3 Nonwoven geotextile fabric shall conform to the requirements of Art. 1080.01 of the Standard Specifications. The minimum weight of the fabric shall be 6 ounces per square yard.
- 4 Precast concrete box culverts and box culvert end sections shall be backfilled with Porous Granular Embankment in the required excavation areas on the sides of the box culvert from the top of the box culvert to the bottom of the box culvert. This area of PGE is included in the Porous Granular Embankment pay item. The 6-inch thick layer of porous granular material required under the precast box culvert, according to Section 540.06 of the Standard Specifications, shall also apply to the End Sections. Cost of this porous granular material will not be paid for separately but shall be included in the unit price of the work for which it is required.

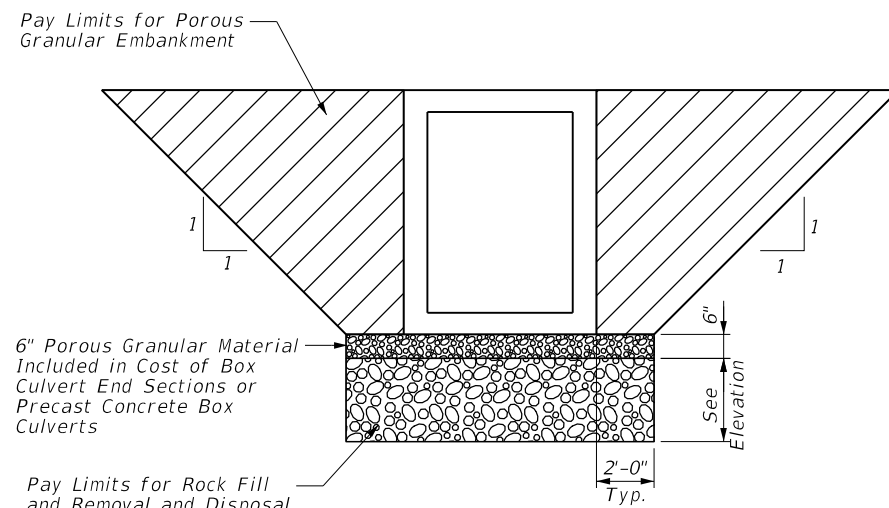
**INDEX OF SHEETS**

- 1 General Plan and Elevation
- 2 General Notes, Index of Sheets and Total Bill of Materials
- 3-4 Stage Construction Details
- 5-6 Precast Concrete Box Culvert Apron End Section Details
- 7 Precast Concrete Box Culvert Closure Pour Details
- 8 Soil Boring Logs
- 9 Existing Structure (For Information Only)

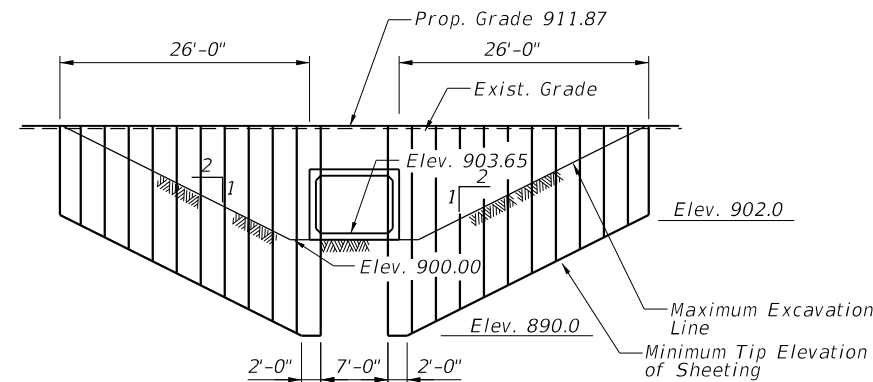
**TOTAL BILL OF MATERIAL**

ITEM	UNIT	TOTAL
Porous Granular Embankment	Cu. Yd.	520
Stone Riprap, Class A4	Sq. Yd.	92
Filter Fabric	Sq. Yd.	92
Removal of Existing Structures No. 3	Each	1
Structure Excavation	Cu. Yd.	426
Removal and Disposal of Unsuitable Material for Structures	Cu. Yd.	87
Reinforcement Bars, Epoxy Coated	Lbs	850
Name Plates	Each	1
Temporary Sheet Piling	Sq. Ft.	1,800
Box Culvert End Sections, Culvert No. 3	Each	2
Concrete Box Culverts	Cu. Yd.	6.2
Precast Concrete Box Culverts 8' X 6'	Foot	149
Geocomposite Wall Drain	Sq. Yd.	193
Dewatering	L. Sum	0.25
Membrane Waterproofing System for Buried Structures	Sq. Yd.	193
* Rock Fill	Cu. Yd.	86

\* See Special Provision

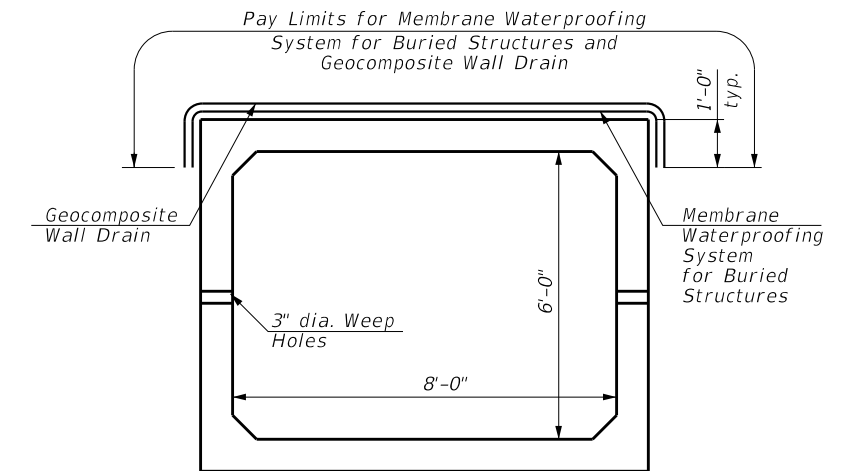


**PAY LIMITS DETAIL**



**TEMPORARY SHEET PILING DETAIL**

(Required Min. Section Modulus  $S_x = 9.4 \text{ in}^3/\text{ft.}$ )

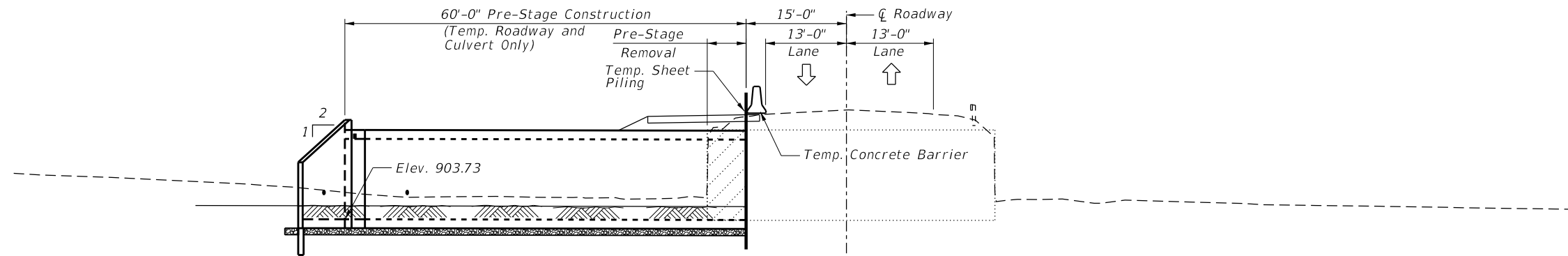


**MEMBER WATERPROOFING SYSTEM FOR BURIED STRUCTURES**

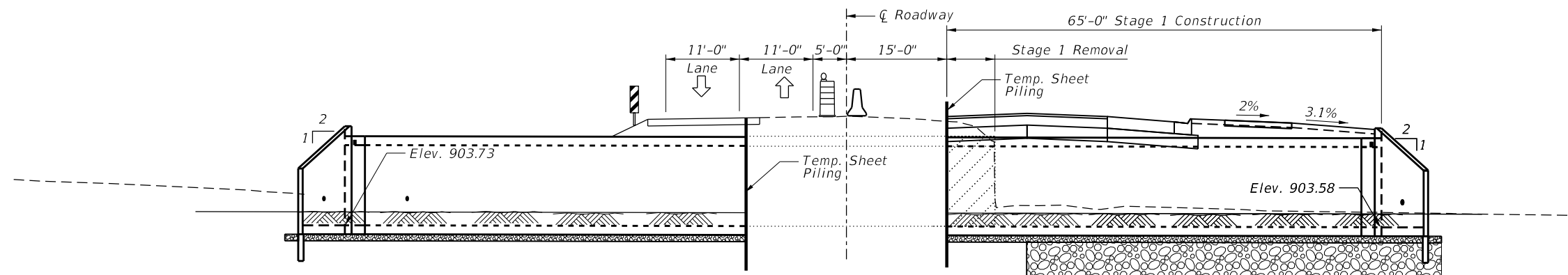
MODEL: Default  
FILE NAME: \\0353\CBBEL\Struct\056-0311-GNOTES\_170353.dgn

CHRISTOPHER B. BURKE ENGINEERING, LTD. 9575 W. HIGGINS ROAD, SUITE 600 ROSEMONT, ILLINOIS 60018 (847) 823-0500	USER NAME = jboarnett DESIGNED - AS DRAWN - PDR CHECKED - MM DATE - SPLANDATES	REVISED - REVISED - REVISED - REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	GENERAL NOTES, INDEX OF SHEETS AND TOTAL BILL OF MATERIALS STRUCTURE NO. 056-0311	F.A.P. RTE. = 326 SECTION = 105-N-2(15) COUNTY = MCHENRY TOTAL SHEETS = 803 SHEET NO. = 584
	PLOT SCALE = 2,000' / in. PLOT DATE = 12/14/2023	DATE - SPLANDATES			SCALE: N.T.S.    SHEET 2 OF 9 SHEETS    STA. 654+07 TO STA. ---

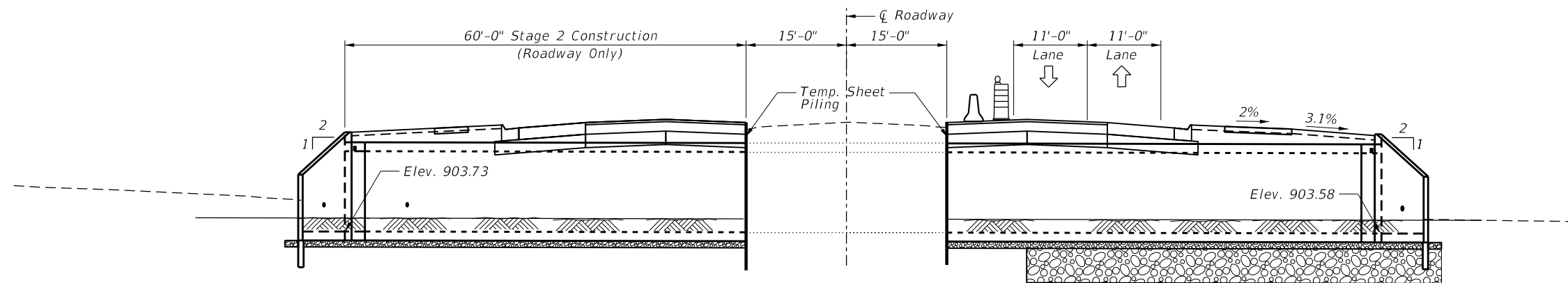




PRE-STAGE



STAGE 1A AND STAGE 1B



STAGE 2A AND STAGE 2B

Note: The top of the structure shall be backfilled with porous granular material, and the membrane waterproofing system shall be protected during the placement of the aggregate subgrade improvement 12".

MODEL: D:\m\170353\CBBEL\Struct\056-0311\MOT\_170353-01.dwg

**CB**  
 CHRISTOPHER B. BURKE  
 ENGINEERING, LTD.  
 9575 W. HOGANS ROAD, SUITE 600  
 ROSEMONT, ILLINOIS 60018  
 (847) 823-0500

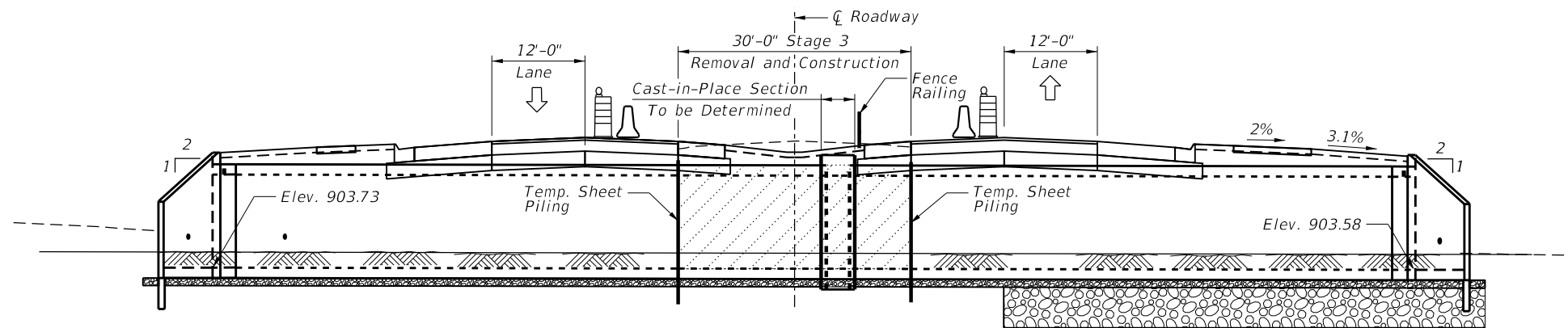
USER NAME	= jboarnett
PLOT SCALE	= 20.0000 "/in.
PLOT DATE	= 12/14/2023

DESIGNED	- AS	REVISED	-
DRAWN	- PDR	REVISED	-
CHECKED	- MM	REVISED	-
DATE	- SPLANDATES	REVISED	-

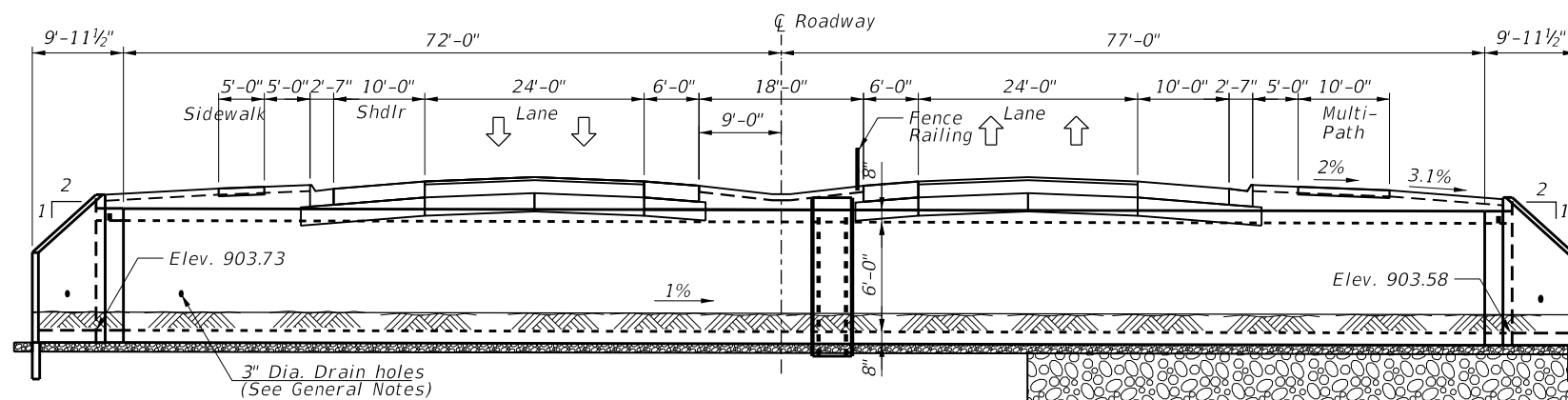
STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

STAGE CONSTRUCTION DETAILS (1 OF 2)  
 STRUCTURE NO. 056-0311  
 SCALE: N.T.S. SHEET 3 OF 9 SHEETS STA. 654+07 TO STA. ---

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	585
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				



**STAGE 3**

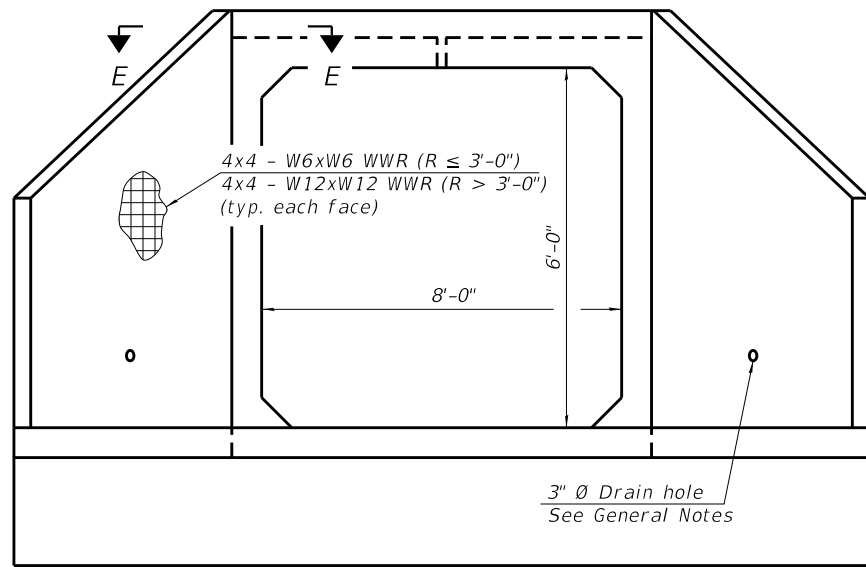


**FINAL**

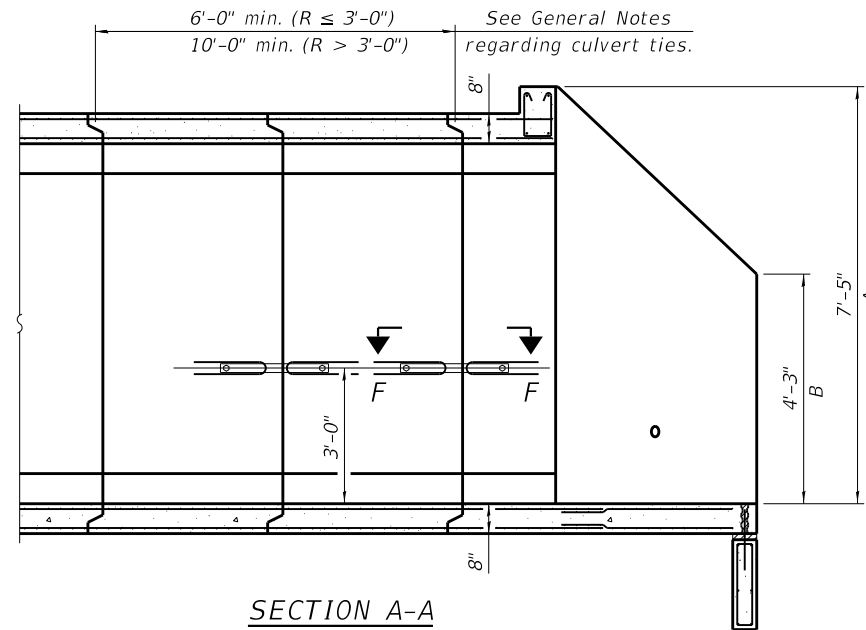
Note: The top of the structure shall be backfilled with porous granular material, and the membrane waterproofing system shall be protected during the placement of the aggregate subgrade improvement 12".

MODEL: D:\a\c\170353\CBBEL\Struct\056-0311-MOT-170353-02.dwg  
FILE NAME: 170353\CBBEL\Struct\056-0311-MOT-170353-02.dwg

	CHRISTOPHER B. BURKE ENGINEERING, LTD. 9575 W. HOGGINS ROAD, SUITE 600 ROSEMONT, ILLINOIS 60018 (847) 823-0500	USER NAME = jboarnett DESIGNED - AS DRAWN - PDR CHECKED - MM DATE - SPLANDATES	REVISED - REVISED - REVISED - REVISED -	<b>STATE OF ILLINOIS          DEPARTMENT OF TRANSPORTATION</b>	<b>STAGE CONSTRUCTION DETAILS (2 OF 2)          STRUCTURE NO. 056-0311</b>	F.A.P. RTE. 326	SECTION 105-N-2(15)	COUNTY MCHENRY	TOTAL SHEETS 803	SHEET NO. 586
	PLOT SCALE = 20.0000' / in. PLOT DATE = 12/14/2023	DATE - SPLANDATES	SCALE: N.T.S.			SHEET 4 OF 9 SHEETS	STA. 654+07 TO STA. ---	ILLINOIS FED. AID PROJECT	CONTRACT NO. 62B43	



END VIEW



SECTION A-A

GENERAL NOTES

Box Culvert End Sections shall be constructed according to the requirements of Section 540 of the Standard Specifications except as modified herein. End sections will be paid for at the contract unit price per each for Box Culvert End Sections.

The Contractor may furnish the end section as a single precast concrete piece or construct the end section in the field using cast-in-place (CIP) construction. For CIP construction, the bottom slab thickness shall be increased by 2" and the clear cover to the bottom mat of reinforcement shall be increased to 3".

Box section dimensions, materials, and reinforcement details for Box Culvert End Sections shall be according to the requirements for ASTM C 1577 as required for the design of the portion of the culvert within the limits of Precast Concrete Box Culverts except as modified herein.

The number of culvert ties shall be sufficient to engage the minimum length of culvert barrel shown within the pay limits for Precast Concrete Box Culverts and will be dependent upon the length of box culvert segments furnished by the Contractor. Culvert ties are not required for box culverts having a rise (R) less than or equal to 3 ft and a span (S) greater than or equal to 10 ft.

All costs associated with furnishing and installing or constructing the toewall and culvert ties will not be measured for payment but shall be included in the unit price for Box Culvert End Sections of the culvert number specified.

Shop drawings that detail slab thickness and reinforcement layout for the Box Culvert End Sections shall be provided to the Engineer for review and approval. Reinforcement bars not detailed herein shall be detailed with a clear distance at the end of the reinforcement not less than 1/2" nor more than 2". For the precast option, it shall be the Contractor's responsibility for determining a method of handling and a construction procedure shall be included on the shop drawings. The Contractor shall determine and detail in the shop drawings any necessary strengthening or stiffening provisions necessary to handle the precast segment. Any required modifications shall be at no extra charge.

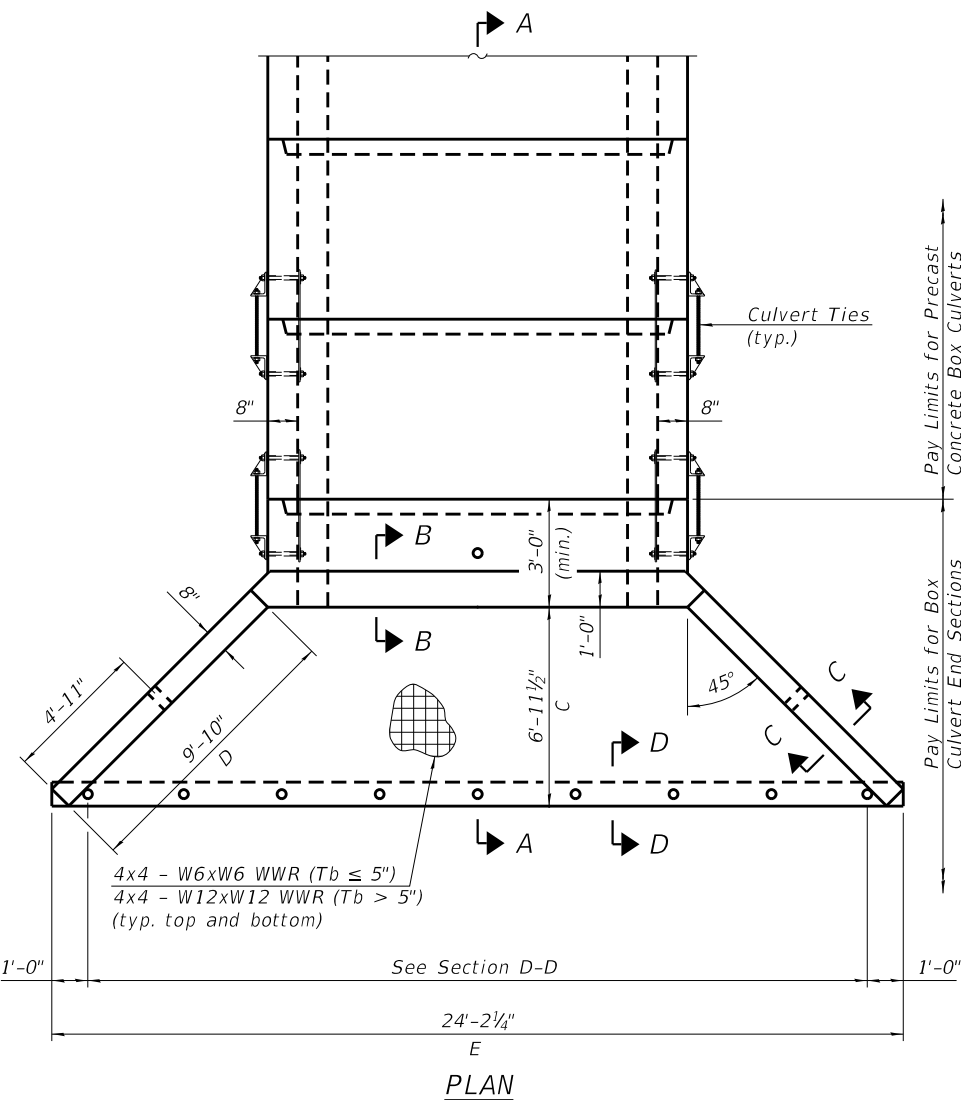
The Contractor may use reinforcement bars in lieu of welded wire reinforcement (WWR). Reinforcement bars shall be limited to the sizes of #3 through #5 bars, a maximum spacing of the lesser of 8" or the member thickness, and shall result in an area of reinforcement equal to or greater than that provided by the WWR. Minimum lap lengths detailed herein are applicable to WWR and reinforcement bars.

Reinforcement (circumferential and longitudinal) in the culvert barrel portion of the end section being lapped with reinforcement from the wingwalls or bottom slab of the end section shall not be less than that required by ASTM C 1577 for the design fill height or the reinforcement detailed for the end section, whichever is greater.

One drain hole shall be provided in each wingwall for end sections of box culverts having an opening with a clear rise greater than 3 ft. The drain hole shall be located within the lower 1/3 of the clear rise of the box culvert and shall conform to the requirements of Article 503.11 of the Standard Specifications.

APRON END SECTION DIMENSIONS

Span (S)	Rise (R)	Tt	Tb	Ts	A	B	C	D	E	Concrete Cu. Yd.	Culvert Ties Required
8'-0"	6'-0"	8"	8"	8"	7'-5"	4'-3"	6'-11 1/2"	9'-10"	24'-2 1/4"	11.0	Yes



PLAN

SCB-AES

2-17-2017

MODEL: D:\a\170353\CBBEL\STRUCT\056\0311\DETAIL\_170353-01.rvt  
FILE NAME: 170353\CBBEL\STRUCT\056\0311\DETAIL\_170353-01.rvt

**CB**  
CHRISTOPHER B. BURKE  
ENGINEERING, LTD.  
9575 W. HOGGINS ROAD, SUITE 600  
ROSEMONT, ILLINOIS 60018  
(847) 823-0500

USER NAME = jboarnett  
DESIGNED - AS  
DRAWN - PDR  
PLOT SCALE = 2,0000 ' / in.  
PLOT DATE = 12/14/2023

REVISOR -  
REVISION -  
CHECKED - MM  
DATE - SPLANDATES

REVISOR -  
REVISION -  
CHECKED -  
DATE -

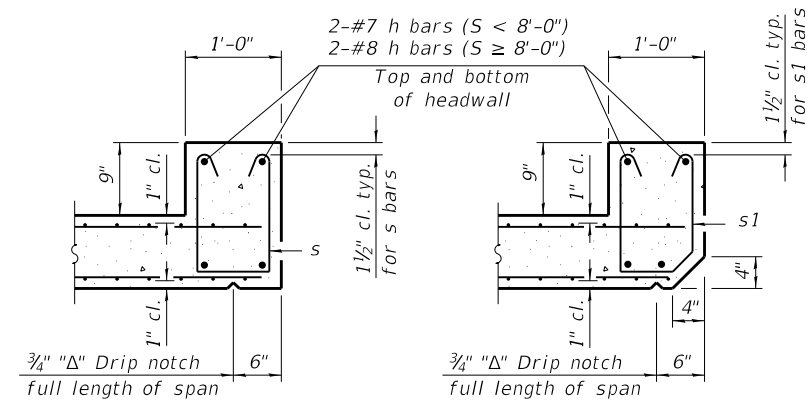
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

PRECAST CONCRETE BOX CULVERT APRON END  
SECTION DETAILS - STRUCTURE NO. 056-0311

SCALE: N.T.S. SHEET 5 OF 9 SHEETS STA. 654+07 TO STA. ---

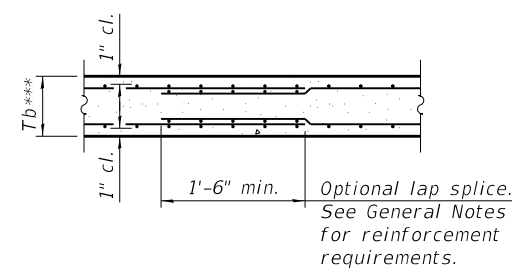
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	587
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				

(Sheet 1 of 2)



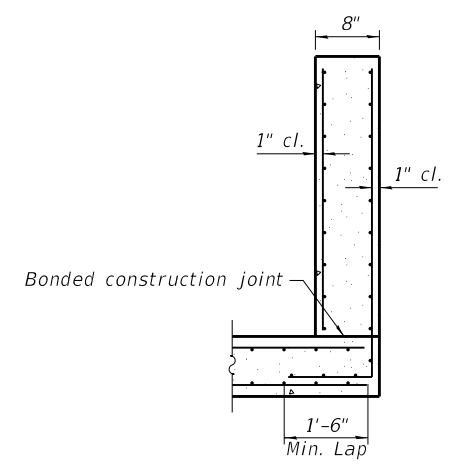
**SECTION B-B**  
(Top slab at downstream end)

**SECTION B-B**  
(Top slab at upstream end)

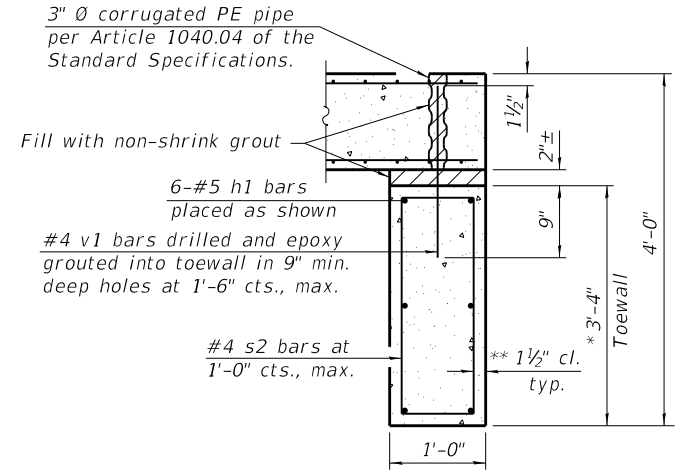


**SECTION B-B**  
(Bottom Slab)

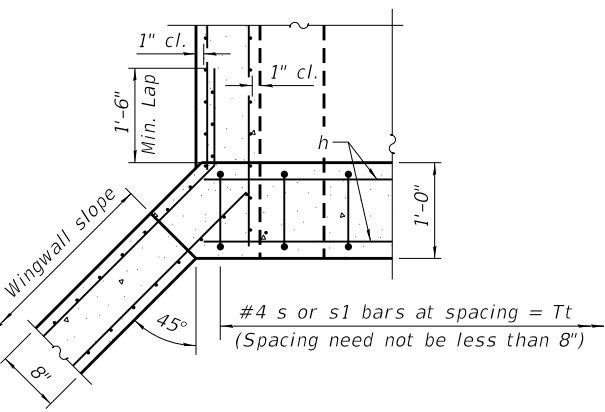
\*\*\* This dimension shall be increased by 2" for CIP construction.



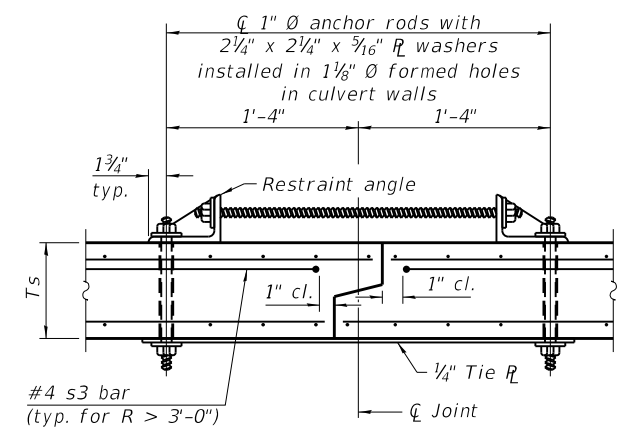
**SECTION C-C**



**SECTION D-D**



**SECTION E-E**



**SECTION F-F**  
(Showing culvert tie details)

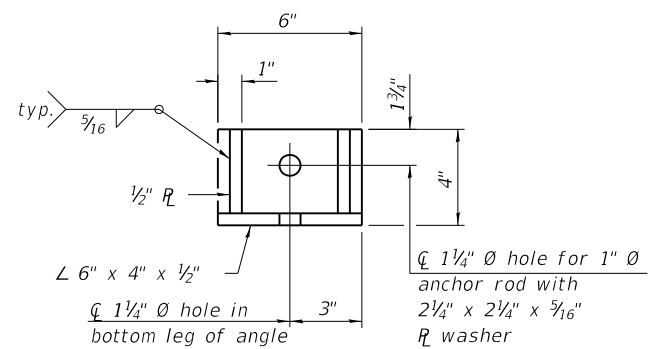
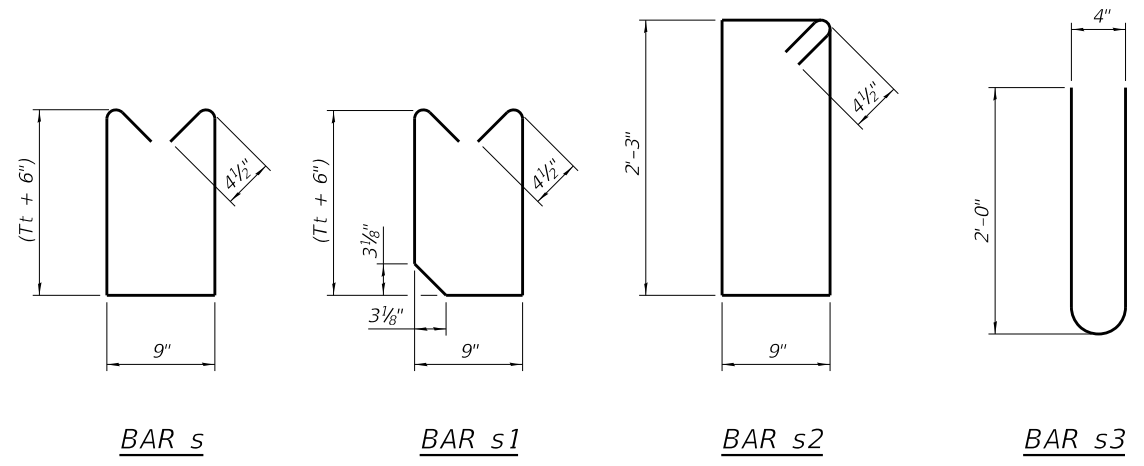
**TOEWALL CONSTRUCTION SEQUENCE**

1. Perform excavation and construct toewall.
2. Backfill accordingly and place bedding for precast box culvert end sections.
3. Set precast box culvert end section.
4. Drill and epoxy grout reinforcement in toewall in accordance with Section 584 of the Standard Specifications.
5. Pressure grout voids using non-shrink grout conforming to Section 1024 of the Standard Specifications.

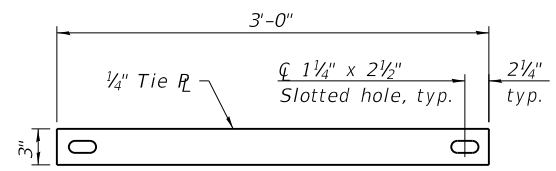
\* The Contractor may furnish a precast or cast-in-place toewall. The Contractor shall be responsible for the strength and stability of the precast toewall during handling. Additional lifting points may be required depending upon the length of the toewall or the Contractor may need to modify the design of the toewall for the proposed handling method.

\*\* If soil conditions permit, the sides of the toewall may be poured directly against the soil. The clear cover on the sides of the toewall shall be increased to 3" by increasing the thickness of the toewall.

Notes:  
1" Ø anchor rods for the culvert ties shall conform to the requirements of ASTM F1554, Grade 105. Structural steel for the tie plate and restraint angle shall conform to the requirements of Article 1006.04 of the Standard Specifications. All components of the culvert tie detail shall be galvanized according to the requirements of AASHTO M 111 or M 232 as applicable. 2 1/4" x 2 1/4" x 3/16" plate washers shall be provided under each nut required for the anchor rods. Anchor rods connecting precast sections shall be brought to a snug tight condition followed by an additional 1/2 turn on one of the nuts for anchor rods installed in the walls. Match marks shall be provided on the bolt and nut to verify relative rotation between the bolt and the nut. Holes in the walls for the culvert tie assembly may be drilled using core bits in lieu of using formed holes.



**RESTRAINT ANGLE DETAIL**



**TIE PLATE DETAIL**

(Sheet 2 of 2)

MODEL: D:\a\170353\CBBEL\Struct\056-0311-DETAIL\_170353-02.rvt  
FILE NAME: 170353\CBBEL\Struct\056-0311-DETAIL\_170353-02.rvt

SCB-AES

2-17-2017

**CB**  
CHRISTOPHER B. BURKE  
ENGINEERING, LTD.  
9575 W. HOGGINS ROAD, SUITE 600  
ROSEMONT, ILLINOIS 60018  
(847) 823-0500

USER NAME = jbornett  
PLOT SCALE = 2.0000' / in.  
PLOT DATE = 12/14/2023

DESIGNED - AS  
DRAWN - PDR  
CHECKED - MM  
DATE - SPLANDATES

REVISED -  
REVISED -  
REVISED -  
REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

PRECAST CONCRETE BOX CULVERT APRON END  
SECTION DETAILS - STRUCTURE NO. 056-0311

SCALE: N.T.S. SHEET 6 OF 9 SHEETS STA. 654+07 TO STA. ---

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	588
			CONTRACT NO. 62B43	
		ILLINOIS	FED. AID PROJECT	

**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
a101(E)	12 *	#6	11'-8"	
a102(E)	10 *	#5	13'-8"	
h100(E)	36	#5	5'-4" *	
h101(E)	36	#5	4'-0" *	
v101(E)	12 *	#5	8'-4"	
v102(E)	10 *	#5	4'-4"	
Reinforcement Bars, Epoxy Coated			Pound	850 *
Concrete Box Culverts			Cu. Yd.	6.2 *

\*See Notes

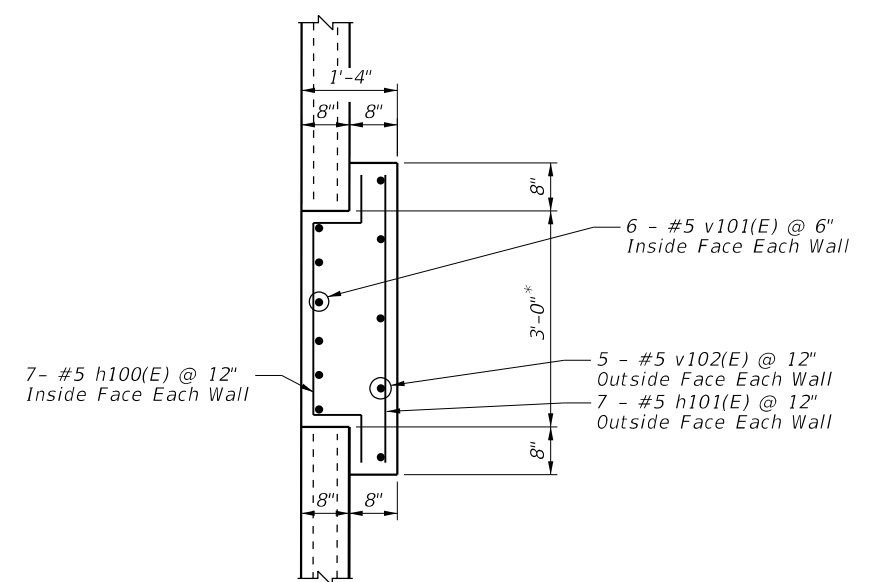
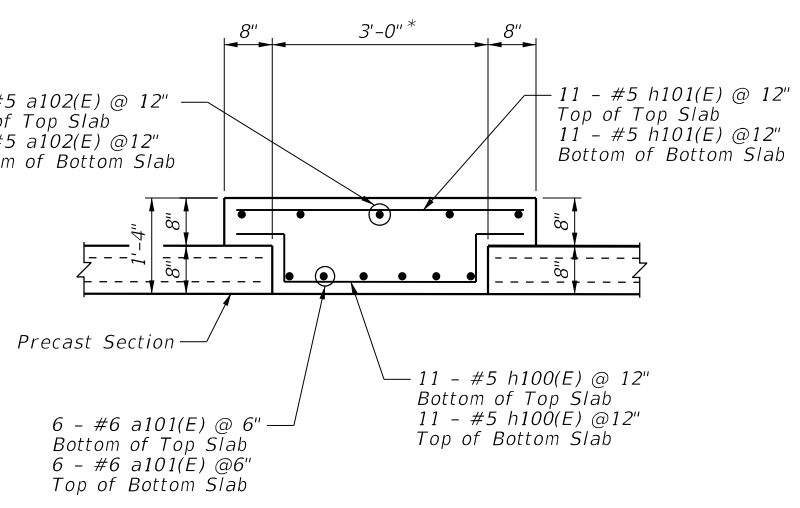
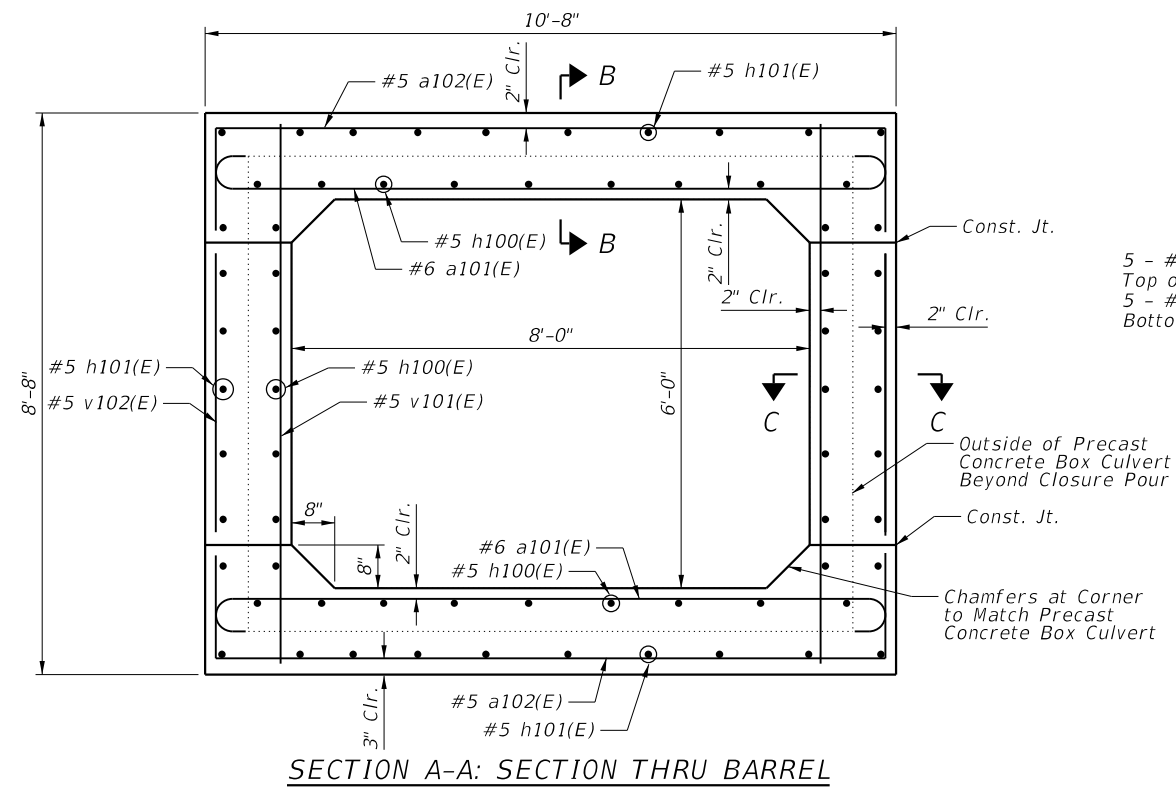
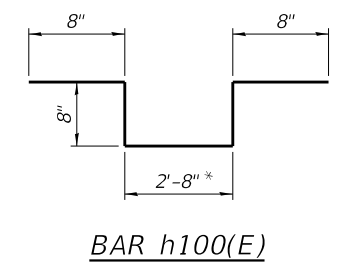
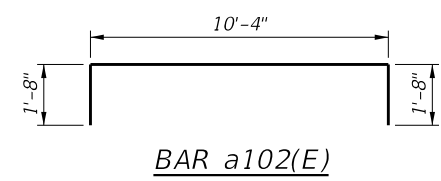
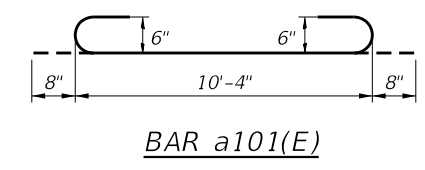
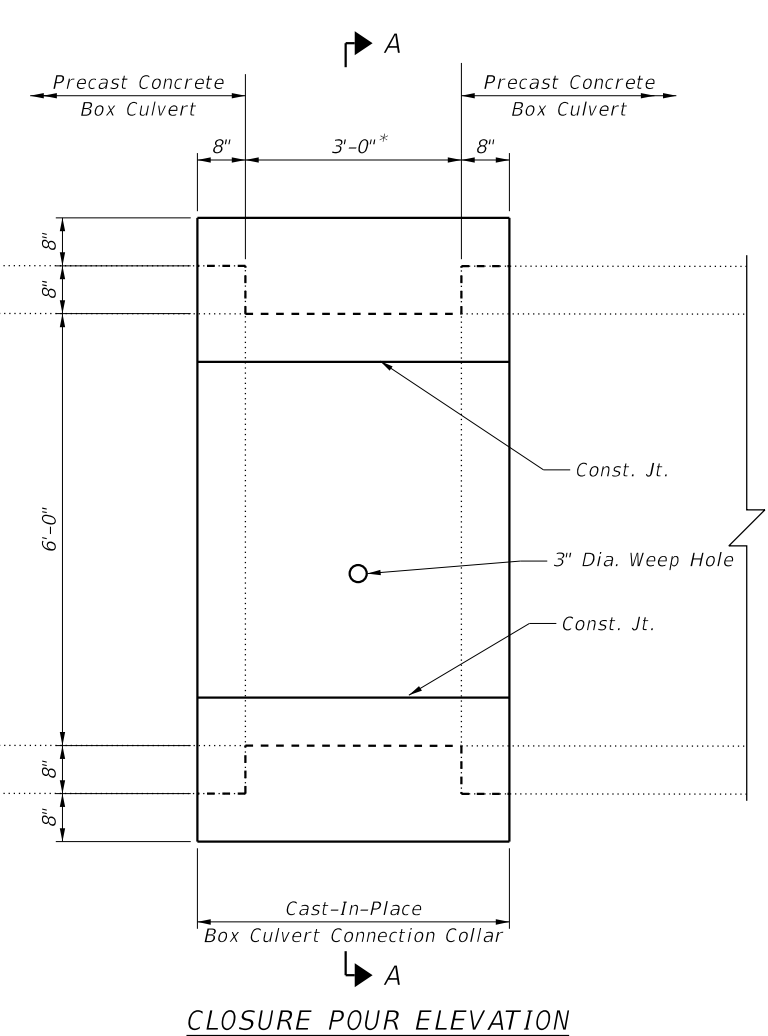
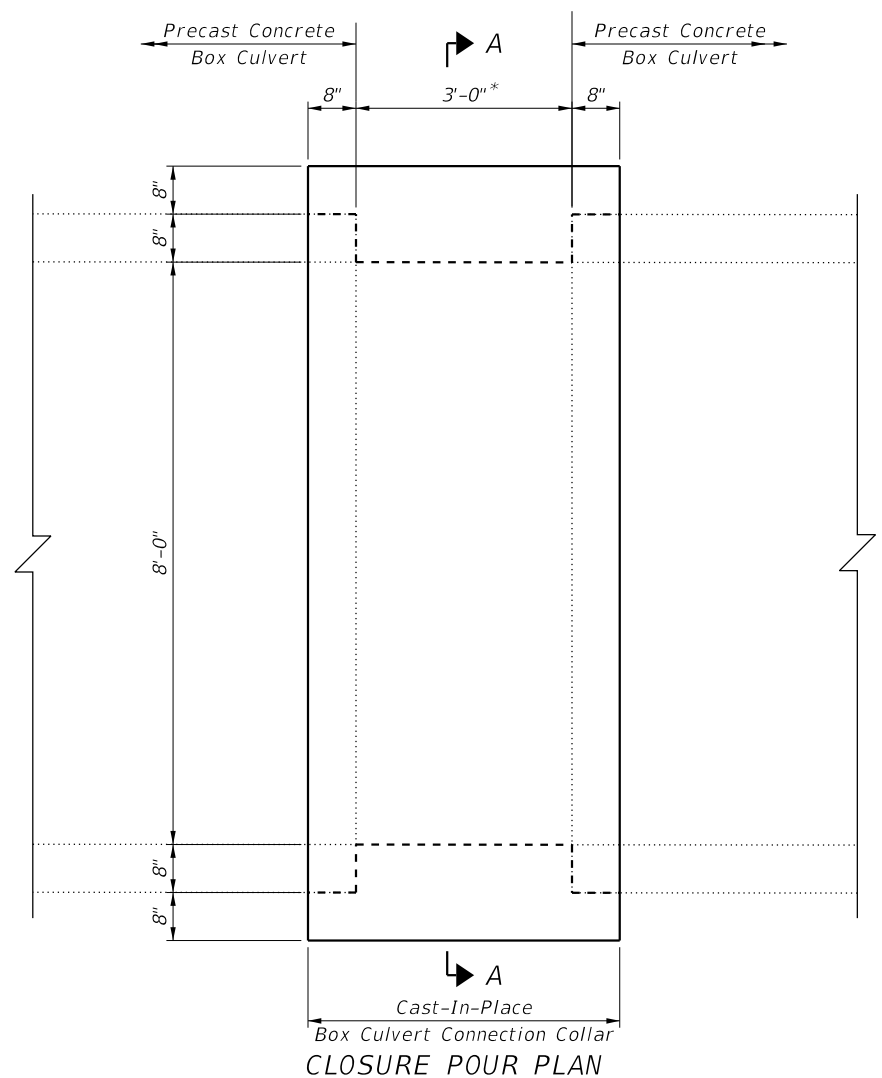
**NOTES**

Length of the Closure Pour is Dependent on the Length of the Precast Concrete Segments. For Quantity Estimating Purposes, a 3'-0" Gap for the Closure Pour has been Assumed.

Dimensions of h100(E) and h101(E) bars will need to be Adjusted if the Closure Pour Length is Revised.

The number of a101(E), a102(E), v101(E) and v102(E) bars will need to be Adjusted if the Closure Pour Length is Revised.

Contractor shall be paid for the actual quantities of reinforcement and concrete placed.



MODEL: D:\p\170353\CBBEL\Struct\056-0311-DETAIL\_170353-03.rvt

**CB**  
CHRISTOPHER B. BURKE  
ENGINEERING, LTD.  
9575 W. HOGGINS ROAD, SUITE 600  
ROSEMONT, ILLINOIS 60018  
(847) 823-0500

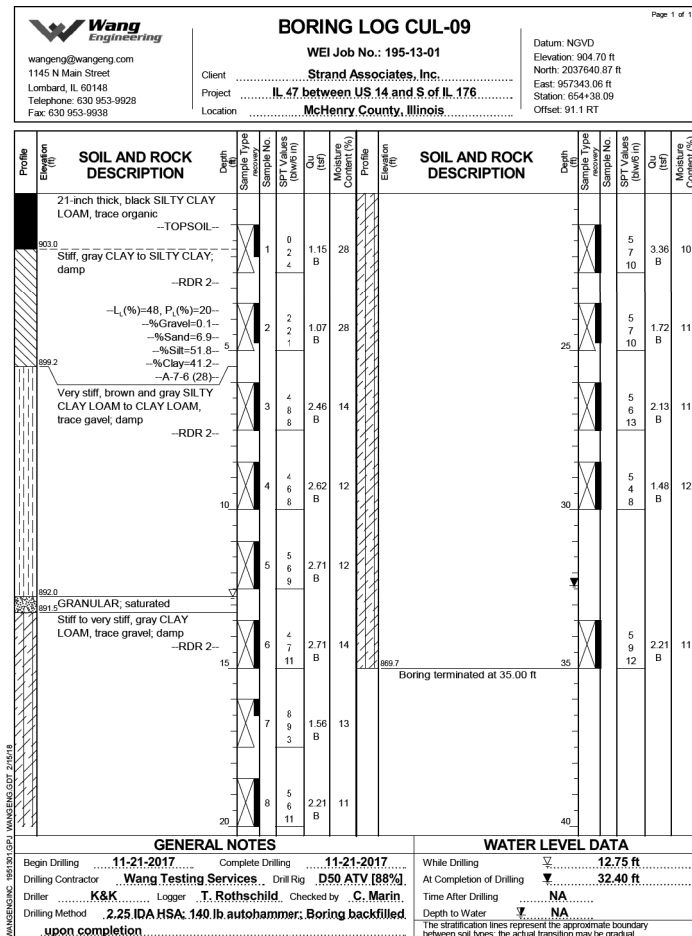
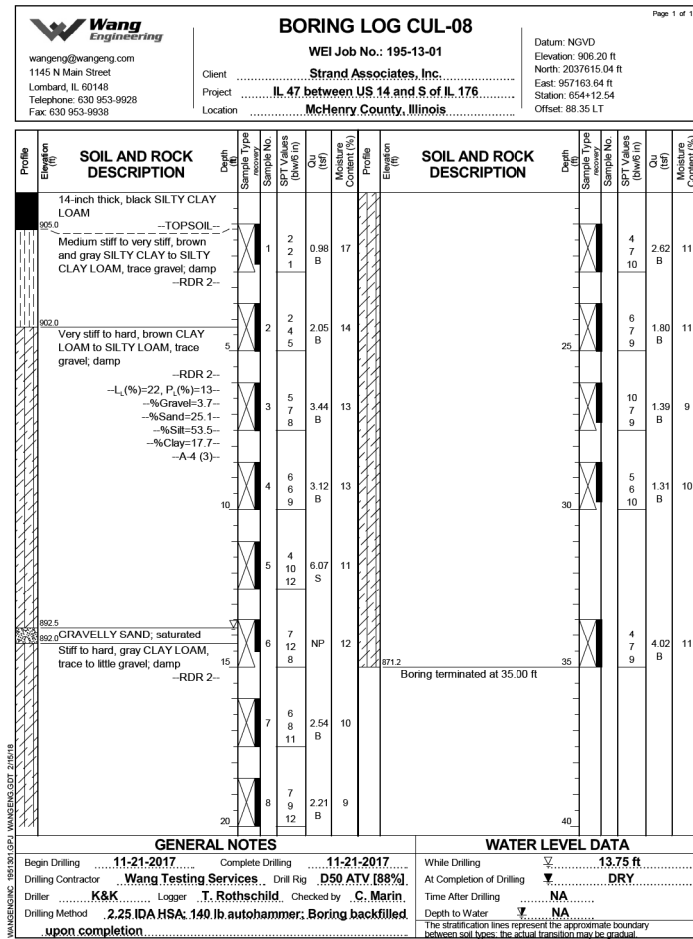
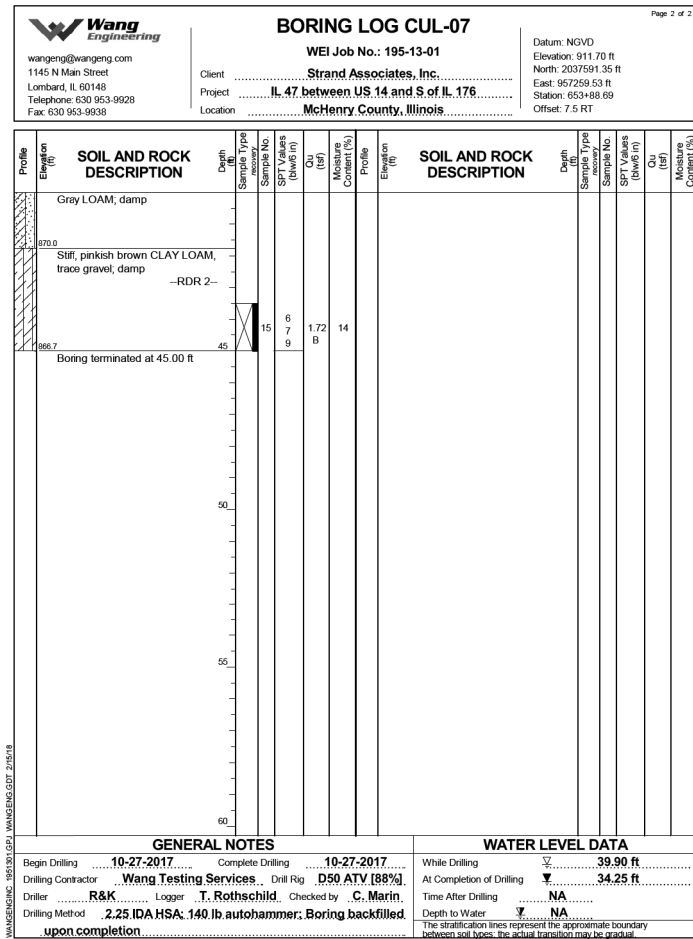
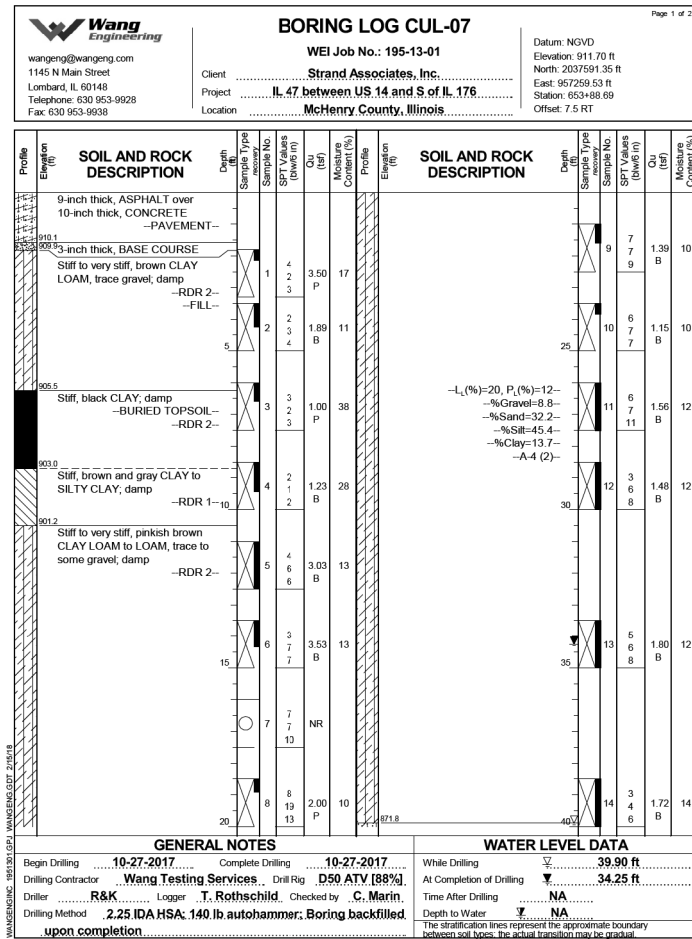
USER NAME = j.barnett	DESIGNED - AS	REVISED -
PLOT SCALE = 2,000' / in.	DRAWN - PDR	REVISED -
PLOT DATE = 12/14/2023	CHECKED - MM	REVISED -
	DATE - SPLANDATES	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**PRECAST CONCRETE BOX CULVERT CLOSURE POUR  
DETAILS - STRUCTURE NO. 056-0311**

SCALE: N.T.S. SHEET 7 OF 9 SHEETS STA. 654+07 TO STA. ---

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	589
			CONTRACT NO. 62B43	
			ILLINOIS FED. AID PROJECT	



MODEL: D:\dwg\170353\CBREL\STRUCT\056-0311-RL\LOGS-170353.dwg  
FILE NAME: 170353\CBREL\STRUCT\056-0311-RL\LOGS-170353.dwg



CHRISTOPHER B. BURKE  
ENGINEERING, LTD.  
9575 W. HOGGINS ROAD, SUITE 600  
ROSEMONT, ILLINOIS 60018  
(847) 823-0500

USER NAME = jboarnett  
PLOT SCALE = 2,000' / in.  
PLOT DATE = 12/14/2023

DESIGNED - AS  
DRAWN - PDR  
CHECKED - MM  
DATE - SPLANDATES

REVISED -  
REVISED -  
REVISED -  
REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

SCALE: N.T.S. SHEET 8 OF 9 SHEETS STA. 654+07 TO STA. ---

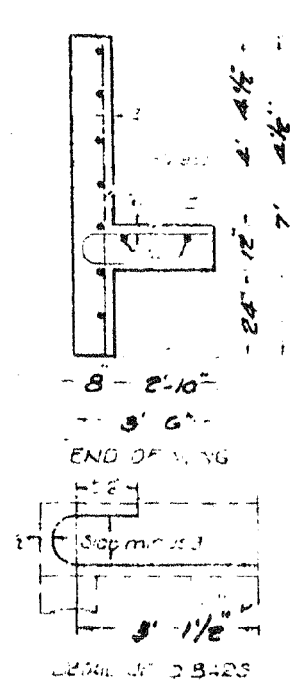
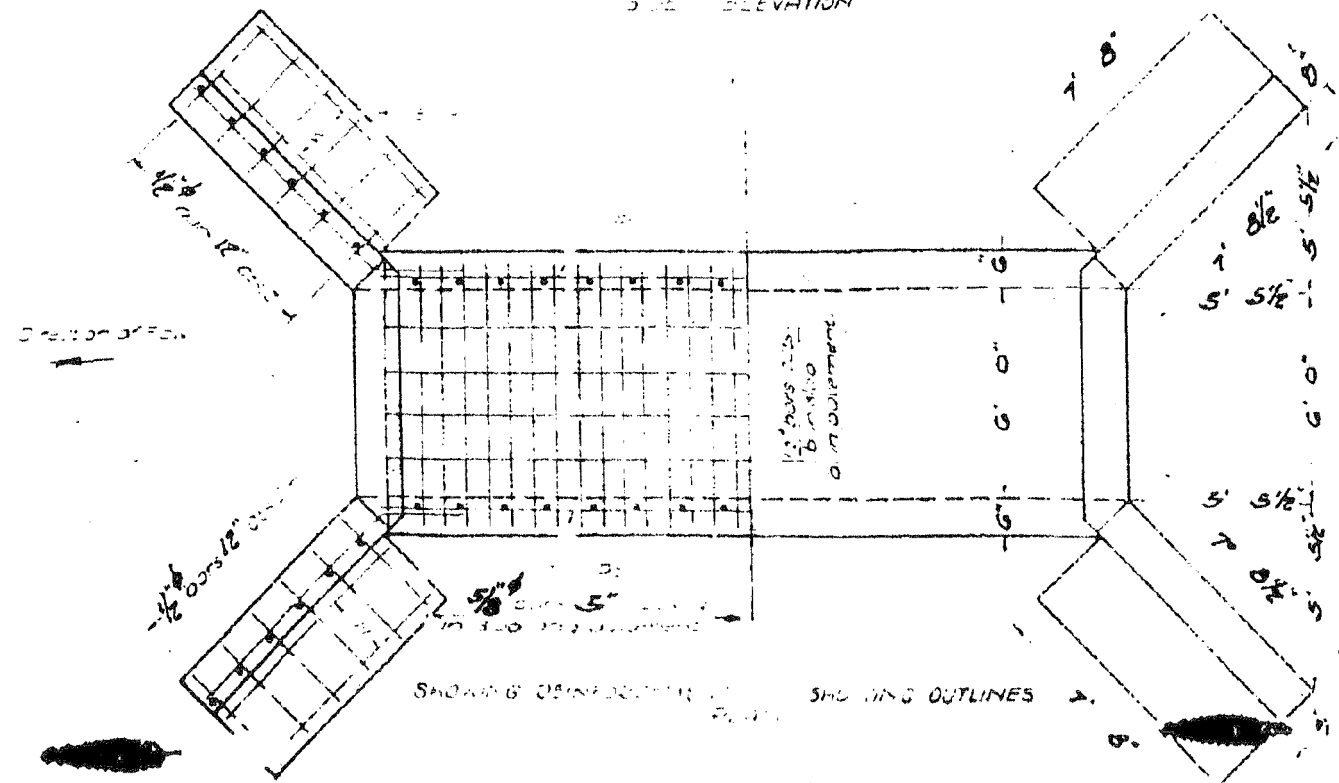
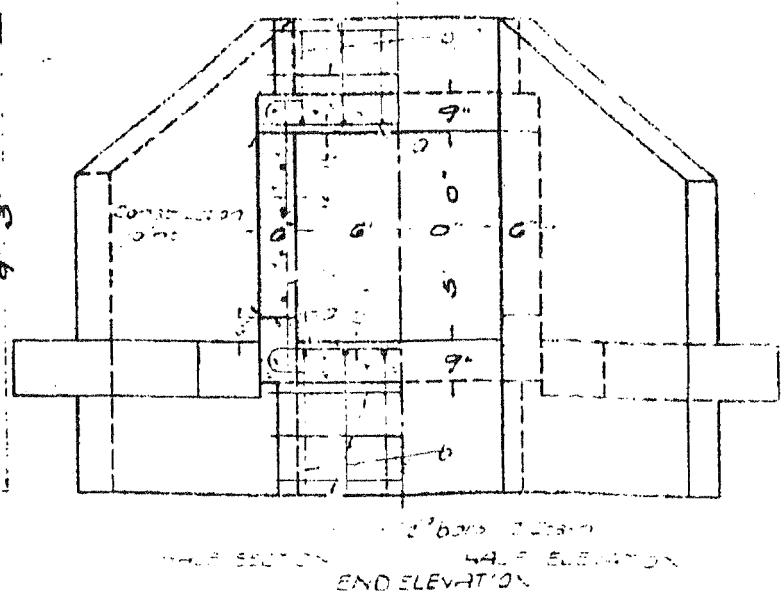
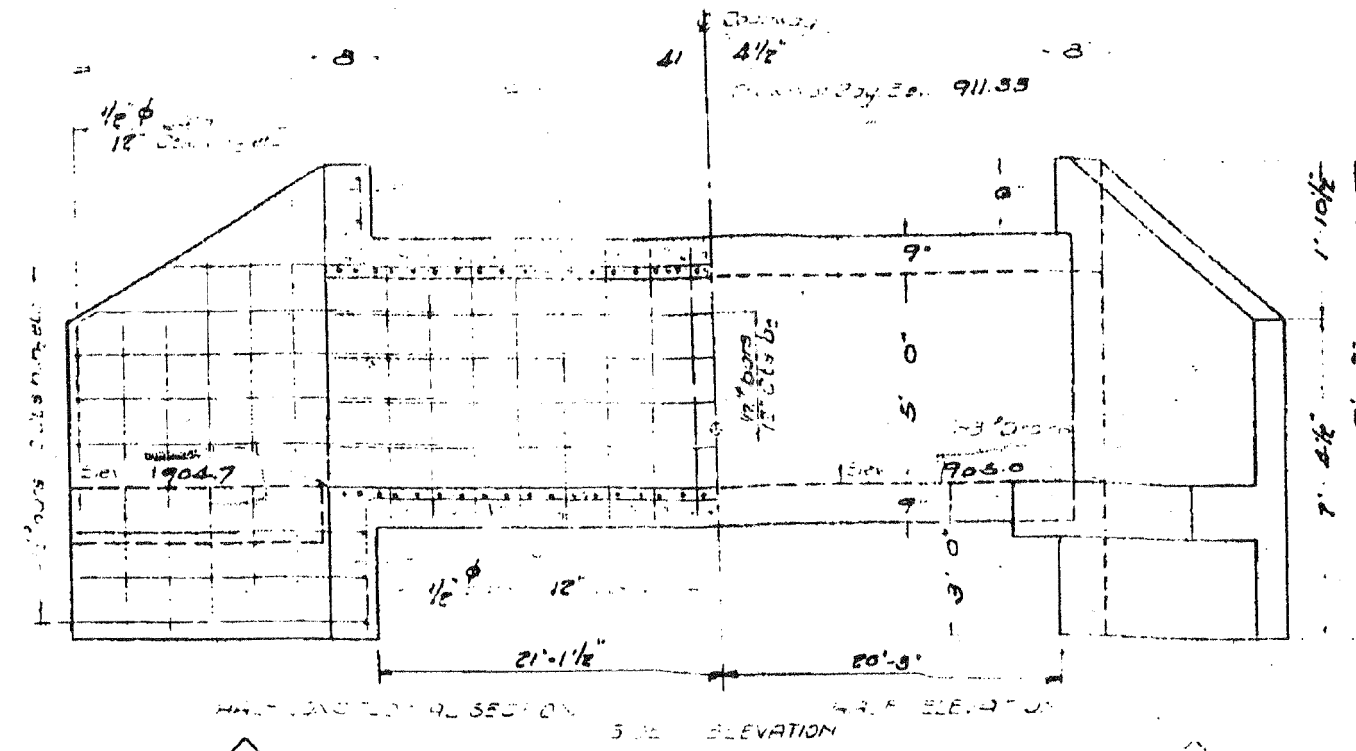
SOIL BORING LOGS  
STRUCTURE NO. 056-0311

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	590
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				

Slope 3 to 1

STATE OF ILLINOIS  
DEPARTMENT OF PUBLIC WORKS & BUILDINGS  
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE No.	SEC.	COUNTY	TOTAL SHEETS	SHEET No.
47	105A	McHenry	95	90
FED. ROAD DIST. No 7		ILLINOIS	FED. AID PROJECT 117-H-WPH	



BILL OF MATERIAL

Bars	Number	Size	Length
c	200	4/8"	9'-0"
c	12	1/2"	22'-0"
c	12	1/2"	22'-0"
br	20	1/2"	22'-0"
1/2	4	1/2"	9'-0"
n	8	1/2"	6'-0"
h	4	1/2"	4'-0"
h1	4	1/2"	8'-0"
h2	20	1/2"	9'-0"
v	20	1/2"	6'-0"
w	4	1/2"	7'-0"
v1	8	1/2"	7'-6"
v2	8	1/2"	8'-0"
v3	8	1/2"	8'-0"
w	8	1/2"	7'-6"
z	20	1/2"	4'-0"

Class Concrete = 32.8  
Reinforcing steel = 3580

STANDARD	COMPUTED	—
	CHECKED	—
	DRAWN	H.L. SMITH
	CHECKED	J.A. Taylor
SPECIAL	ASSEMBLED	—
	CHECKED	—

8-15-33  
*P.H. Burk*  
*Robert Johnson*  
*Ernst Leberman*

Note: Class X concrete shall be used throughout. All reinforcing steel shall be well spaced before the concrete is placed.

056-0245  
**SPECIAL CULVERT DESIGN**  
 STA. 509+15  
 S.B.I. SEC. 105A  
 RTB 47  
 MCHENRY CO.

FOR INFORMATION ONLY

MODEL: D:\dwg\170353\CBBELSTRUCT\056-0311-ASBUILT\_170353-01.dwg

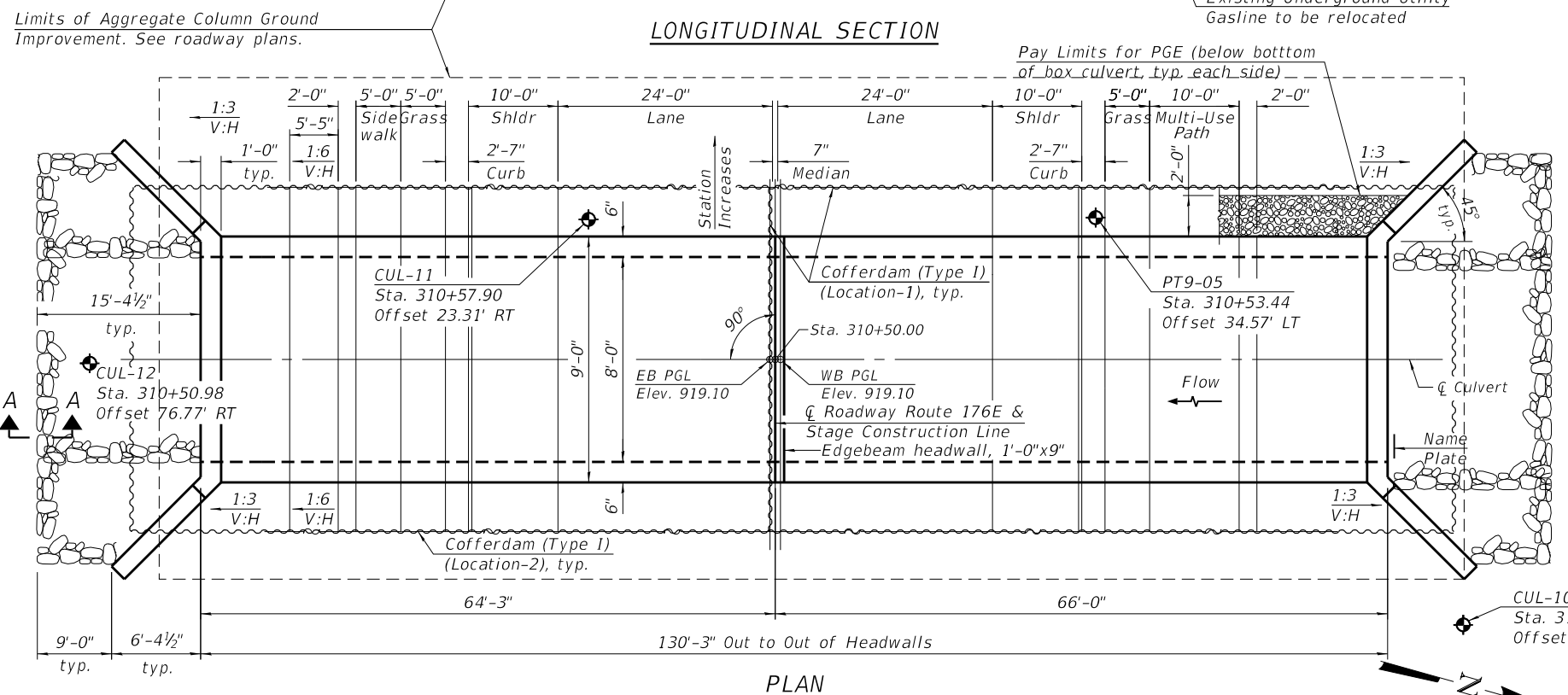
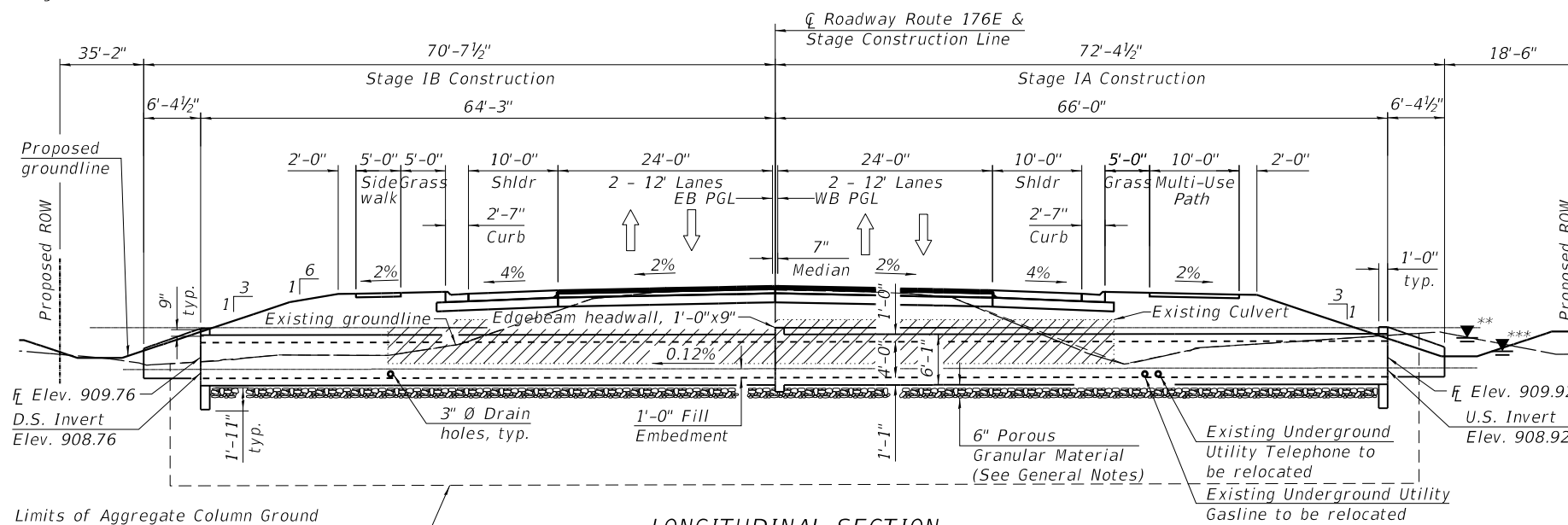
Benchmark: CWA CP #5, 5/8" dia. rebar Sta. 312+36.71 o/s 29.43 ft left, Elev. 917.838.  
 Existing Structure: Concrete Box Culvert at Sta. 310+25 3 ft W x 3 ft H by approx. 65 ft in length at 0° skew shall be removed.  
 Traffic Control: Traffic will be maintained in a two stage construction process.  
 Salvage: None.

**INDEX OF SHEETS**

- 1 General Plan and Elevation
- 2 General Data
- 3 Stage Construction Details
- 4 Culvert Details
- 5 Bar Splicer Assembly and Mechanical Splicer Details
- 6 Soil Boring Logs

**SUGGESTED CONSTRUCTION SEQUENCE**

1. Establish MOT Stage 1A.
2. Install Cofferdam (Type 1).
3. Remove portion of Existing Structure No. 5.
4. Installing Aggregate Column Ground Improvements. See roadway plans.
5. Construct Concrete Box Culverts; 8x4.
6. Install Geotextile Retaining Wall.
7. Backfill structure with Porous Granular Embankment and Roadway fill as required.
8. Establish MOT Stage 1B.
9. Repeat Steps 3 through 7 for Stage 1B with the exception of Step 6.



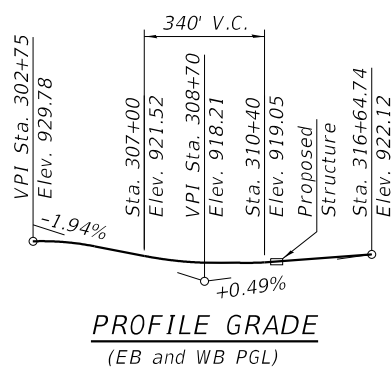
**DESIGN SCOUR ELEVATION TABLE**

Design Scour	D.S. Invert Elevation (ft)	U.S. Invert Elevation (ft)
	905.76	905.92

**WATERWAY INFORMATION**

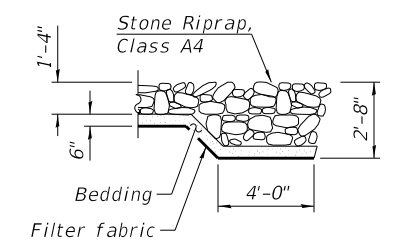
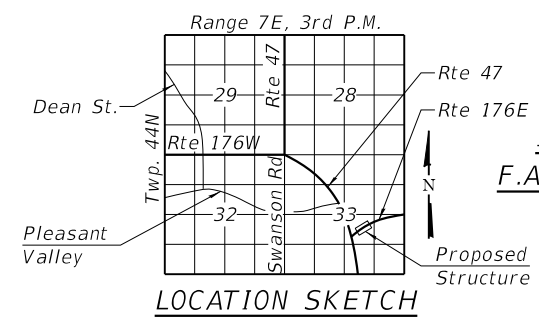
Drainage Area = 0.1155 sq. mi. Low Grade Elev. = 919.01 @ Sta. 311+75

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.		Head - Ft.		Headwater El.	
			Exist.	Prop.	Exist.	Prop.	Exist.	Prop.	Exist.	Prop.
	2	14.29	2.1	5.7	910.63	0.65	0.20	911.28	910.83	
	10	27.07	3.3	5.6	911.04	1.23	0.42	912.27	911.46	
Design	50	62.54	4.6	7.6	911.45	2.75	0.99	914.20	912.44	
Base	100	89.01	5.2	8.7	911.66	4.75	1.37	916.21	913.03	
Overtopping	>500									
Max. Calc.	500	151.32	6.3	10.6	912.04	6.81	2.85	918.85	914.89	



STATION 310+50  
 BUILT 202X BY  
 STATE OF ILLINOIS  
 F.A.P. RT. 326(IL-176E)  
 SEC. 105-N-2(15)  
 LOADING HL-93  
 STR. NO. 056-0110

**NAME PLATE**  
 See Std. 515001



**DESIGN SPECIFICATIONS**

2020 AASHTO LRFD Bridge Design Specifications  
 Customary U.S. Units, 9th Edition

**LOADING HL-93**

Allow 50 #/sq.ft for future wearing surface  
 Structure designed for a min fill height of 0.75'  
 and a max. fill height of 5.43'

**DESIGN STRESSES**

**FIELD UNITS**

f'c = 3,500 psi  
 fy = 60,000 psi (Reinforcement)

**PRECAST UNITS**

f'c = 5,000 psi  
 fy = 65,000 psi (WWR)

**GENERAL PLAN AND ELEVATION**  
**IL RTE. 176E OVER UNNAMED CREEK**  
**F.A.P. RTE. 326(IL-176E) SEC. 105-N-2(15)**

**MCHENRY COUNTY**  
**STATION 310+50**  
**S.N. 056-0110**

MODEL: Default  
 FILE NAME: SAJ0116300-6399(6346)069MicroCAD\_Sheets\0162B43-SN-056-0110-001-GR&E.dgn  
 12/18/2023 3:25:50 PM



USER NAME = StevenB  
 DESIGNED - BRL  
 CHECKED - KRB  
 PLOT SCALE =  
 PLOT DATE = 12/18/2023

DESIGNED - BRL  
 CHECKED - KRB  
 DRAWN - BJF  
 CHECKED - AJS

REVISED -  
 REVISED -  
 REVISED -  
 REVISED -

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**GENERAL PLAN AND ELEVATION**  
**STRUCTURE NO. 056-0110**

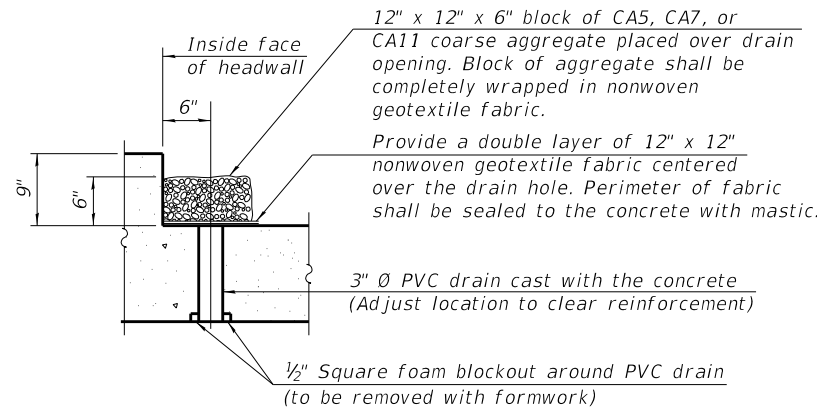
SHEET 1 OF 6 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	592
CONTRACT NO. 62B43				
		ILLINOIS	FED. AID PROJECT	



**GENERAL NOTES**

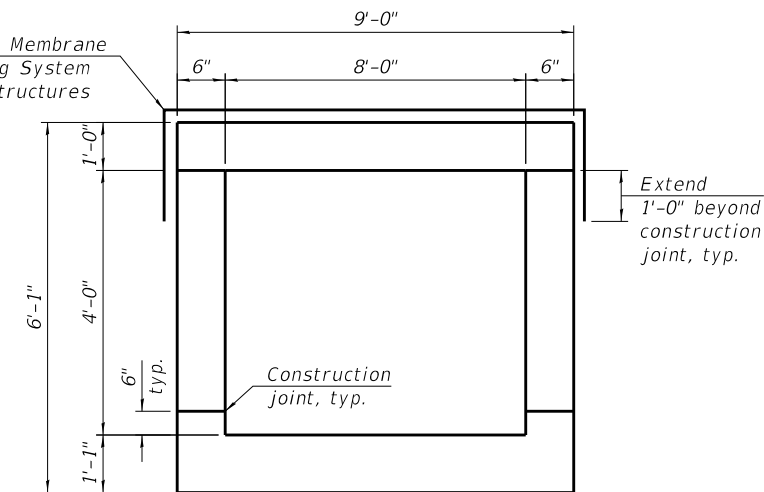
- Concrete box culverts shall be backfilled with Porous Granular Embankment below the top of the box culvert extending to a vertical plane 2 ft from the exterior sides of the culvert, and at a 1:1 slope, 2 ft from the back face of the wingwalls, but not closer than 2 ft from the face of embankment. See pay limits for Porous Granular Embankment detail.
- Below Culvert Footing shall be 6 in. of CA7 wrapped in Geotextile Fabric and satisfy the Standard Specifications unless otherwise indicated in the Special Provisions. The cost of the capping material shall be included in the pay item for Porous Granular Embankment.
- Nonwoven geotextile fabric shall conform to the requirements of Article 1080.01 of the Standard Specifications. The minimum weight of the fabric shall be 6 ounces per square yard.



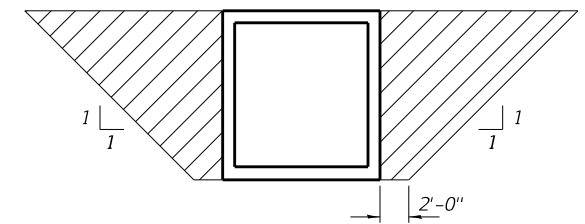
**DRAIN DETAIL**

(All costs associated with furnishing and constructing the above drain detail will not be measured for payment but shall be included in the contract unit price for the associated work.)

Paylimits for Membrane Waterproofing System for Buried Structures



**SECTION THRU BARREL**

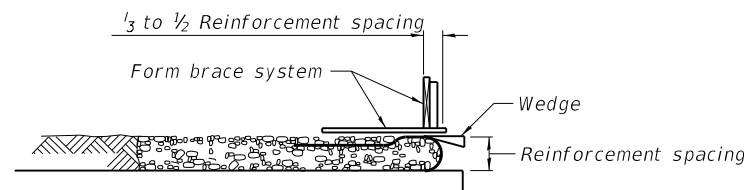


**PAY LIMITS FOR POROUS GRANULAR EMBANKMENT**  
(Hatched area)

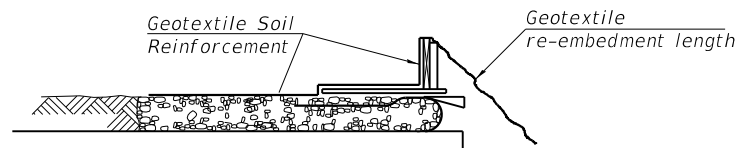
**TOTAL BILL OF MATERIAL**

ITEM	UNIT	TOTAL
Porous Granular Embankment	Cu. Yd.	307.0
Stone Riprap, Class A4	Sq. Yd.	66.0
Filter Fabric	Sq. Yd.	66.0
* Removal of Existing Structures, No. 5	Each	1.0
Reinforcement Bars	Pound	22,110
Bar Splicers	Each	60.0
Name Plates	Each	1.0
Cofferdam (Type 1) (Location-1)	Each	1.0
Cofferdam (Type 1) (Location-2)	Each	1.0
Geotextile Retaining Wall	Sq. Ft.	50.0
Concrete Box Culverts	Cu. Yd.	118.50
Membrane Waterproofing System for Buried Structures	Sq. Yds.	186.0

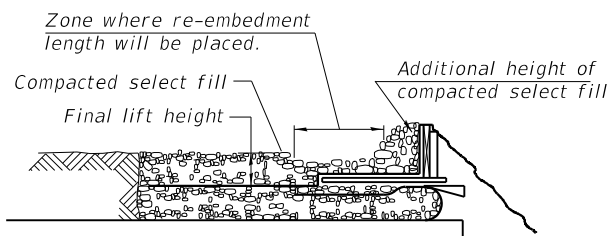
\*Removal of Existing Structures, No. 5 is at Sta. 310+25 a 3 ft x 3 ft Box Culvert approximately 65 ft in length



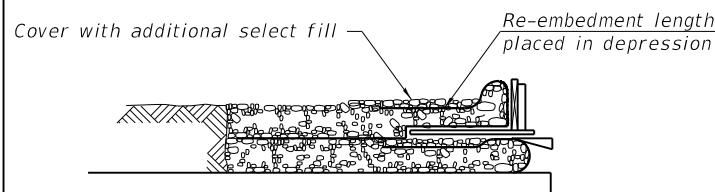
- Place form brace system on completed reinforcement level; back from the finished fabric face a distance of 1/3 to 1/2 the geotextile reinforcement spacing.



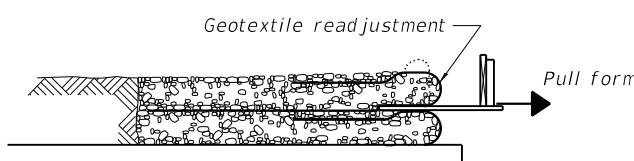
- Position fabric so that the required geotextile re-embedment length extends over the top of the form brace and the design reinforcement width is placed with no slack against the previous level.



- Compact select fill material in lifts to final lift height, create (±3") depression in zone where re-embedment length will be located and place additional height of compacted select fill against form brace.



- Fold geotextile re-embedment length back over form brace into zone where depression was made in select fill and place additional select fill (±3") to embed geotextile and bring to final lift height.



- Pull form brace outward allowing geotextile face to slightly readjust to form tight round face level with plan reinforcement spacing.

Note:

The geotextile soil reinforcement shall have a minimum allowable tensile strength (T min.) of 25 lb./in. as determined by the procedure described in the Special Provision. The computations supporting the determination of (T min.) shall be submitted to the engineer for approval.

**GEOTEXTILE WALL CONSTRUCTION SEQUENCE**

MODEL: Default  
FILE NAME: SAJOL16300-63991634610691MicroCAD\_Sheets\162B43-SN-056-0110-002-GD.dgn  
12/18/2023 3:25:51 PM

**SA STRAND ASSOCIATES**  
1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
(815) 744-4200  
IDFPR NO. 184-001273

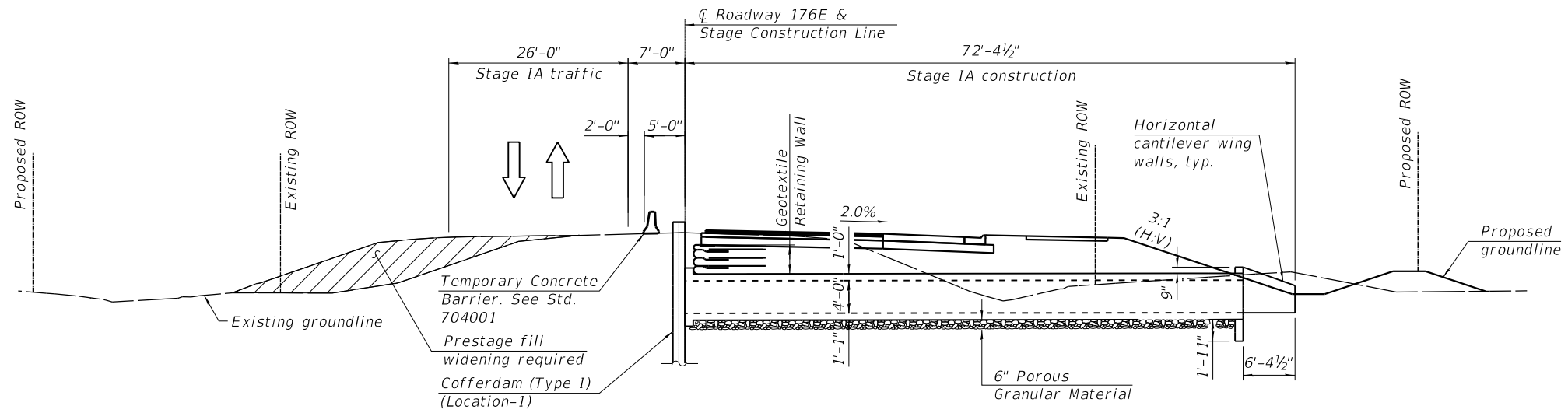
USER NAME = StevenB	DESIGNED - BRL	REVISIONS
PLOT SCALE =	CHECKED - KRB	REVISIONS
PLOT DATE = 12/18/2023	DRAWN - BJF	REVISIONS
	CHECKED - AJS	REVISIONS

**STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION**

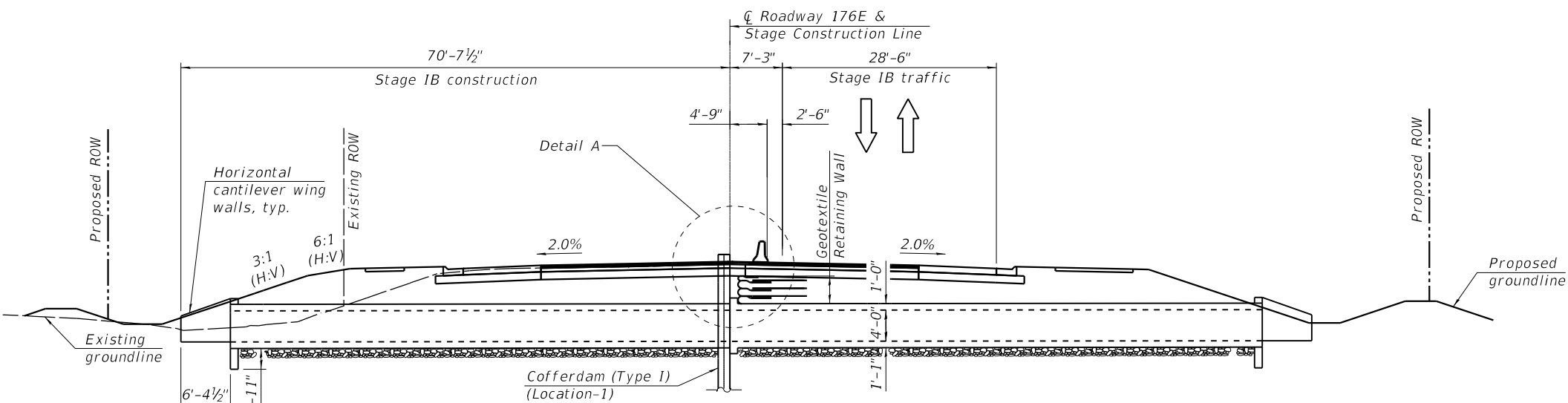
**GENERAL DATA STRUCTURE NO. 056-0110**

SHEET 2 OF 6 SHEETS

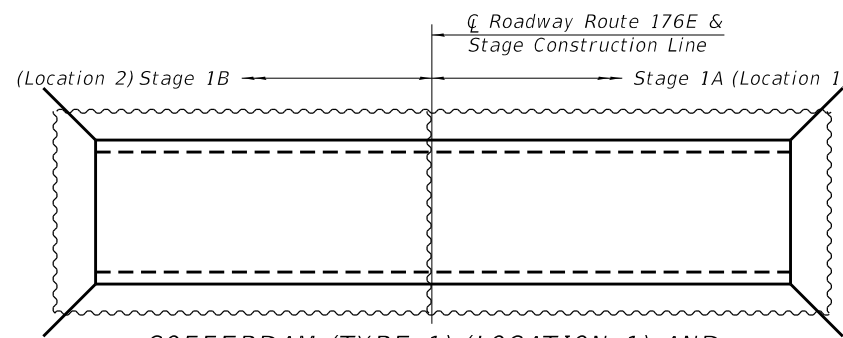
F.A.P. RTE. 326	SECTION 105-N-2(15)	COUNTY McHENRY	TOTAL SHEETS 803	SHEET NO. 593
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				



**STAGE IA REMOVAL AND CONSTRUCTION**  
(Horizontal dimensions at Rt. L's to  $\bar{C}$  roadway)

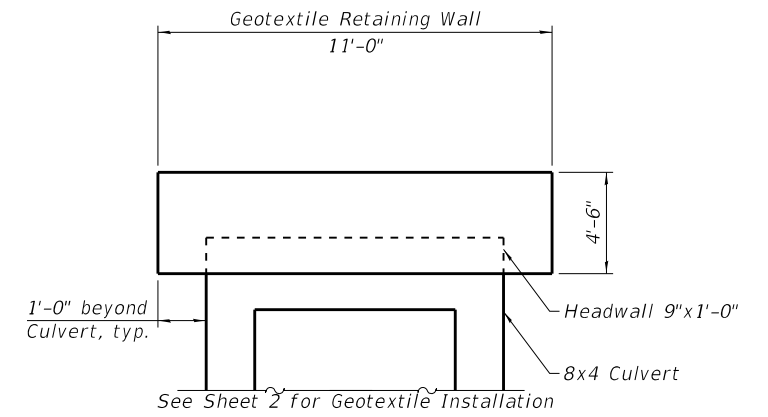


**STAGE IB REMOVAL AND CONSTRUCTION**  
(Horizontal dimensions at Rt. L's to  $\bar{C}$  roadway)

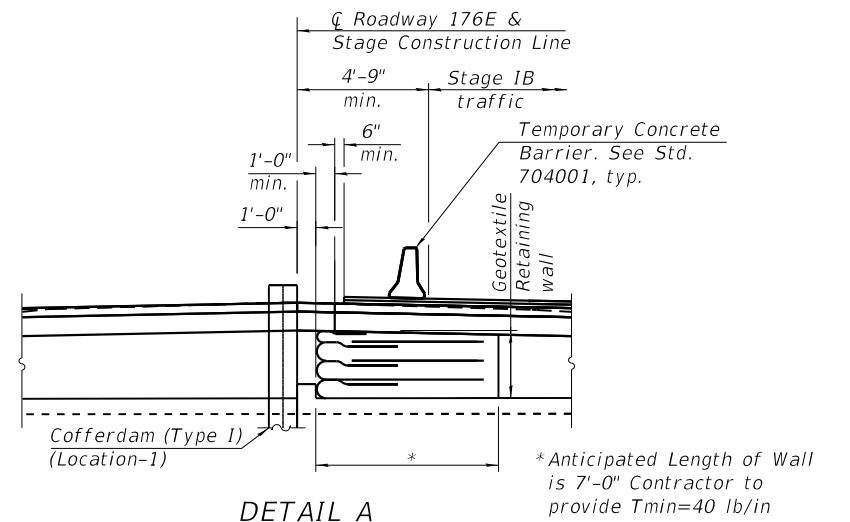


**COFFERDAM (TYPE 1) (LOCATION-1) AND COFFERDAM (TYPE 1) (LOCATION-2) SCHEMATIC LAYOUT**

(Stage IA Cofferdam (Type I) anticipated as 170 linear feet. Stage IB Cofferdam (Type I) anticipated as 153 linear feet. Paid based on location per stage.)



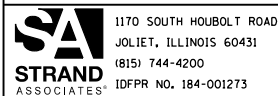
**GEOTEXTILE RETAINING WALL**  
( $T_{min}=40$  lb/in  $L_{min}=7.0$  ft Area=50 sq ft)



**DETAIL A**

\* Anticipated Length of Wall is 7'-0" Contractor to provide  $T_{min}=40$  lb/in

MODEL: Default  
FILE NAME: SA\JOL\6300-6399\6346\069\Micro\CAD\_Sheets\162B43-SN-056-0110-003-STAGE.dgn  
12/18/2023 3:25:53 PM



USER NAME =	StevenB
PLOT SCALE =	
PLOT DATE =	12/18/2023

DESIGNED -	BRL
CHECKED -	KRB
DRAWN -	BJF
CHECKED -	AJS

REVISED -	
REVISED -	
REVISED -	
REVISED -	

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

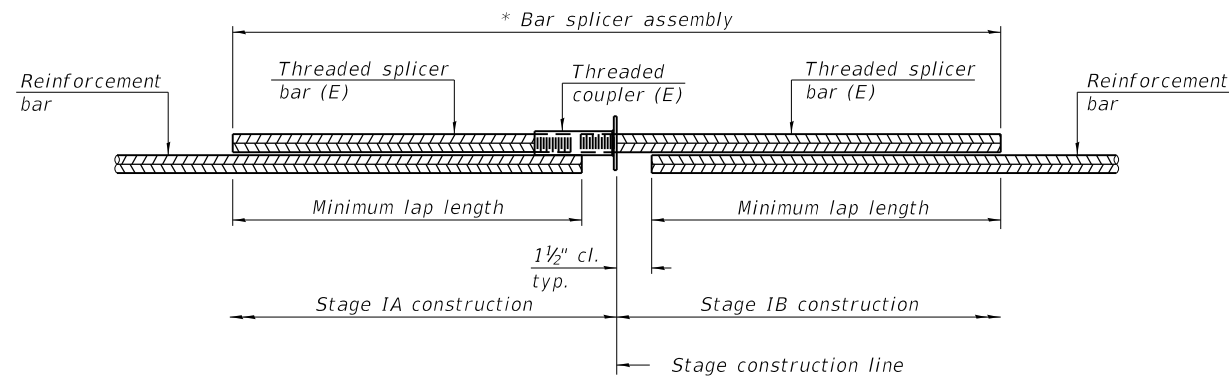
**STAGE CONSTRUCTION DETAILS  
STRUCTURE NO. 056-0110**

SHEET 3 OF 6 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	McHENRY	803	594
CONTRACT NO. 62B43				

ILLINOIS FED. AID PROJECT



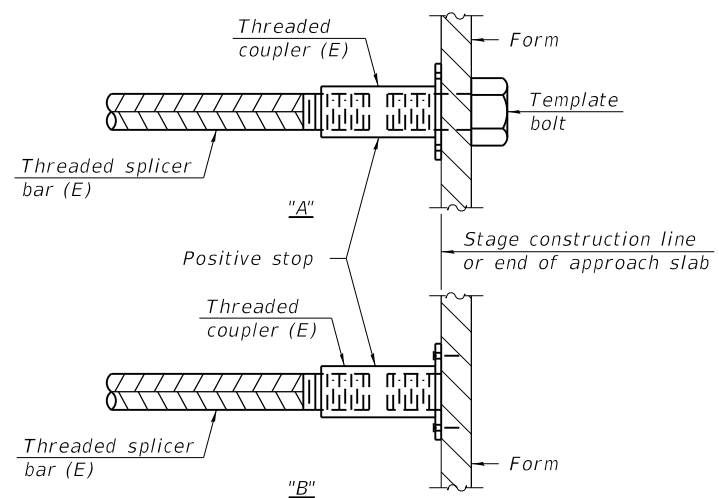


**STANDARD BAR SPLICER ASSEMBLY PLAN**  
 (All components shall be provided from one supplier)

Threaded splicer bar length = min. lap length + 1 1/2" + thread length

\* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

Location	Bar size	No. assemblies required	Minimum lap length
Stage 1A/B Top Slab	5	20	3'-9"
Stage 1A/B Bottom Slab	5	20	3'-9"
Stage 1A/B Walls	4	20	2'-8"

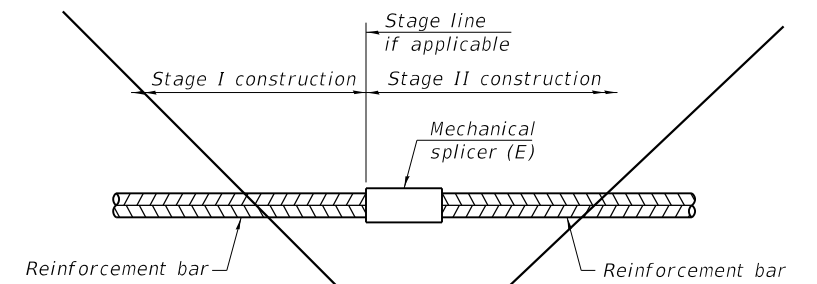


**INSTALLATION AND SETTING METHODS**

"A" : Set bar splicer assembly by means of a template bolt.

"B" : Set bar splicer assembly by nailing to wood forms or cementing to steel forms.

(E) : Indicates epoxy coating.



**STANDARD MECHANICAL SPLICER**

Location	Bar size	No. assemblies required

**Notes:**

Splicer bars shall be deformed with threaded ends and have a minimum 60 ksi yield strength.

All reinforcement shall be lapped and tied to the splicer bars.

Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars. See Section 508 of the Standard Specifications.

See approved list of bar splicer assemblies and mechanical splicers for alternatives.

MODEL: Default  
 FILE NAME: S:\JOLI\6300-6399\6346\069\Micros\CAD\_Sheets\162B43-SN-056-0110-005-BAR\_SPLICER.dgn

BSD-1

1-1-2020



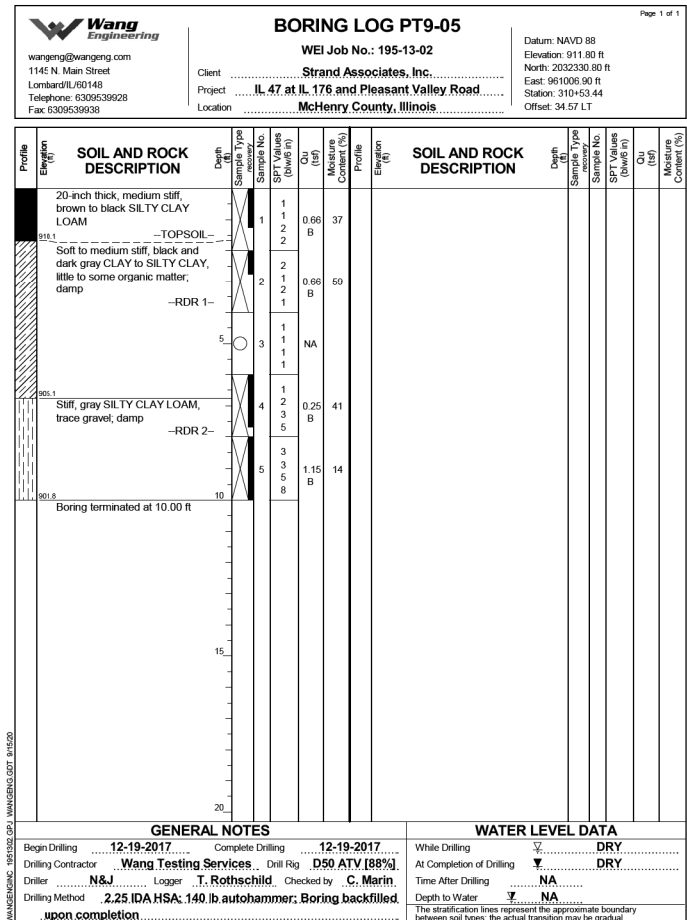
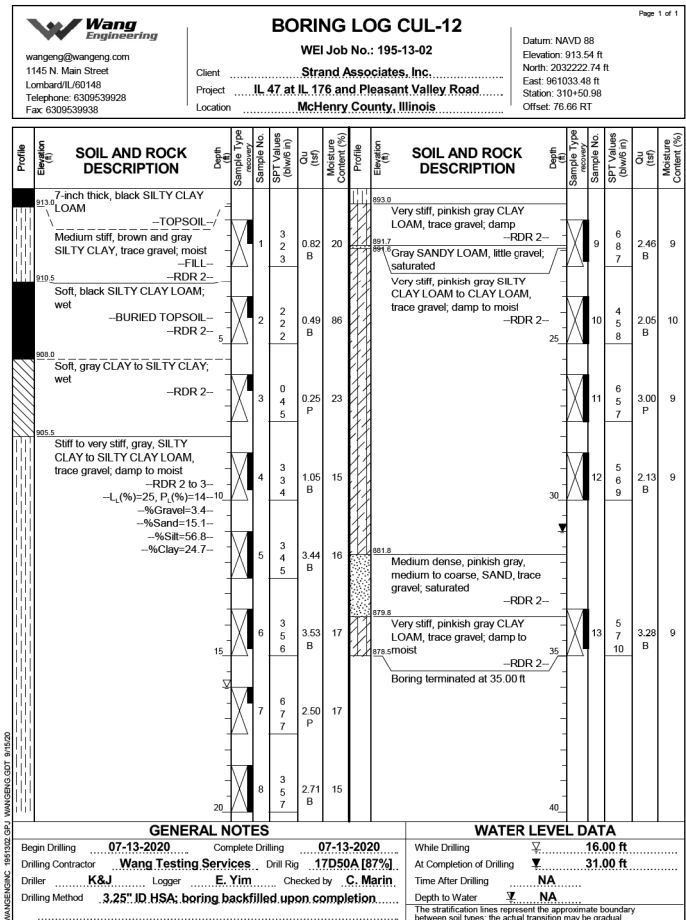
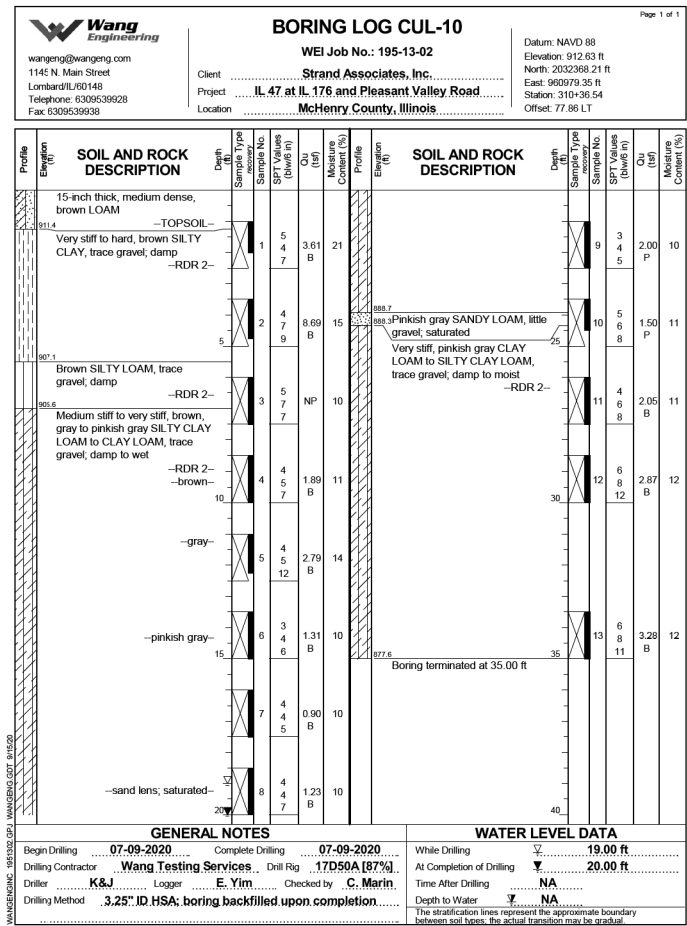
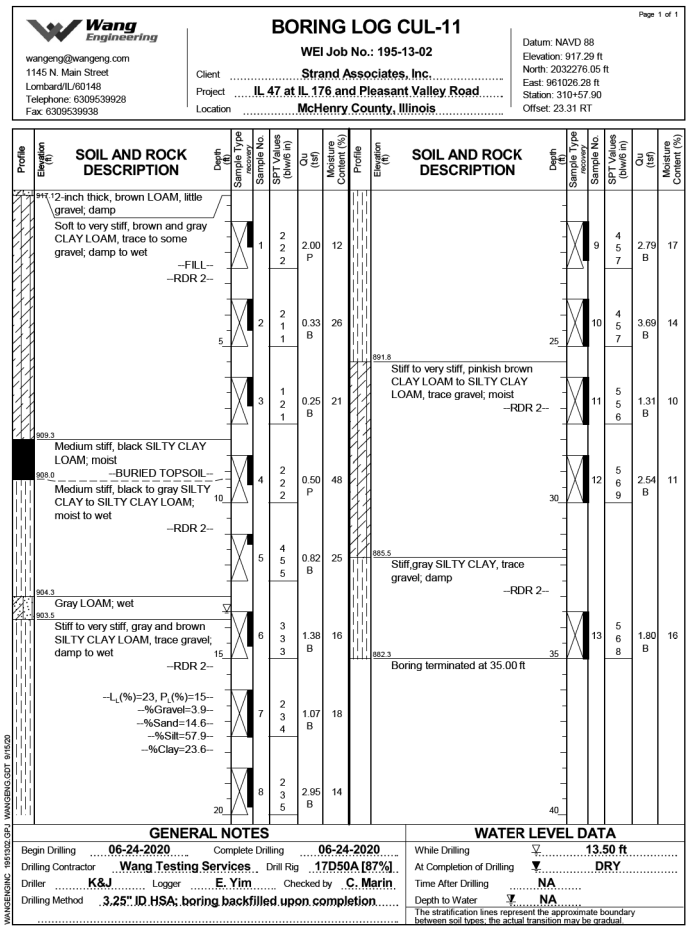
USER NAME = StevenB	DESIGNED - BRL	REVISED -
	CHECKED - KRB	REVISED -
PLOT SCALE =	DRAWN - BJF	REVISED -
PLOT DATE = 12/18/2023	CHECKED - AJS	REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

BAR SPLICER ASSEMBLY AND MECHANICAL SPLICER DETAILS  
 STRUCTURE NO. 056-0110

SHEET 5 OF 6 SHEETS

F.A.P. RTE. 326	SECTION 105-N-2(15)	COUNTY McHENRY	TOTAL SHEETS 803	SHEET NO. 596
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				



MODEL: Default  
FILE NAME: SA\01\6300-6399\6346\069\Micros\CAD\_Sheets\0162B43-SN-056-0110-006-SBL.dgn  
12/18/2023 3:25:55 PM



USER NAME =	StevenB
DESIGNED -	BRL
CHECKED -	KRB
PLOT SCALE =	
DRAWN -	BJF
PLOT DATE =	12/18/2023
CHECKED -	AJS
REVISED -	

DESIGNED -	BRL
CHECKED -	KRB
DRAWN -	BJF
CHECKED -	AJS
REVISED -	

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

SOIL BORING LOGS  
STRUCTURE NO. 056-0110

SHEET 6 OF 6 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	McHENRY	803	597
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				

Benchmark: BM-21. Set cut cross at centerline of concrete box culvert at south side of southerly RT-176 ±40' east of easterly gravel drive to "St. Aubin Nursery" approximately .50 miles east of RT-47. Elevation 903.194.

Existing Structure: None.

Salvage: None.

Staged: None.

**INDEX OF SHEETS**

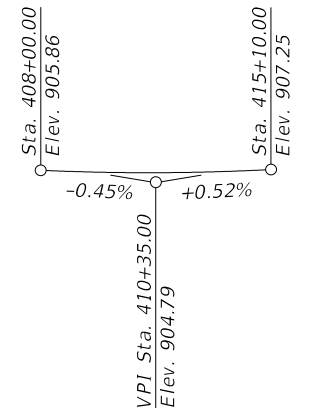
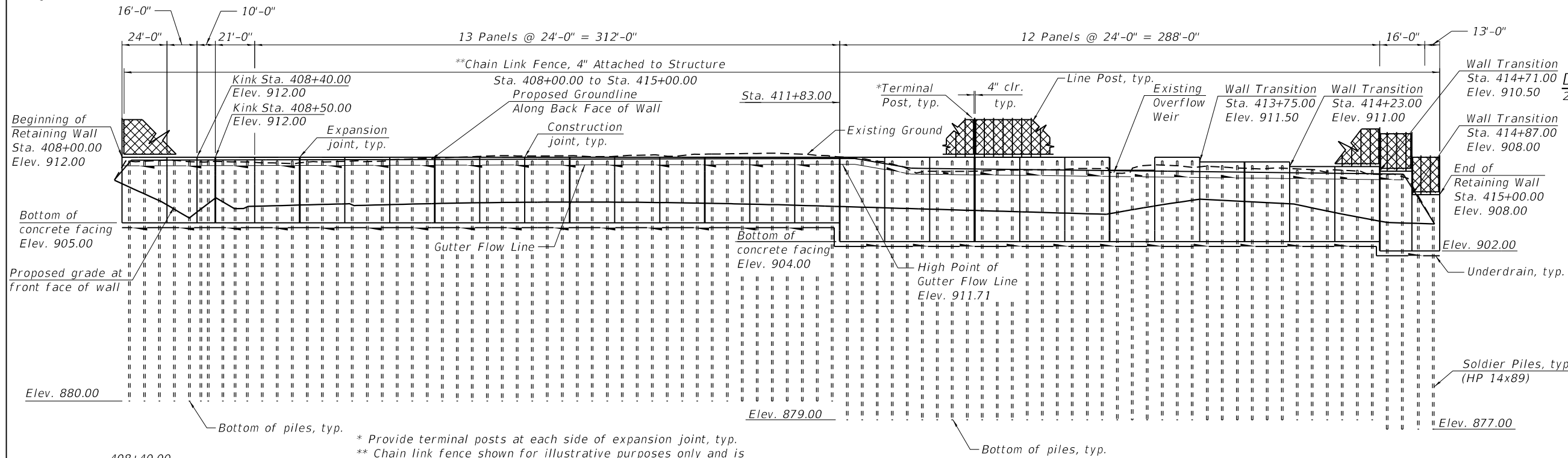
- 1 General Plan and Elevation
- 2 General Data
- 3 Soldier Pile Wall Layout
- 4 Soldier Pile Wall Details (1 of 3)
- 5 Soldier Pile Wall Details (2 of 3)
- 6 Soldier Pile Wall Details (3 of 3)
- 7 HP Pile Details
- 8 Fencing Details
- 9-13 Soil Boring Logs

**DESIGN SPECIFICATIONS**

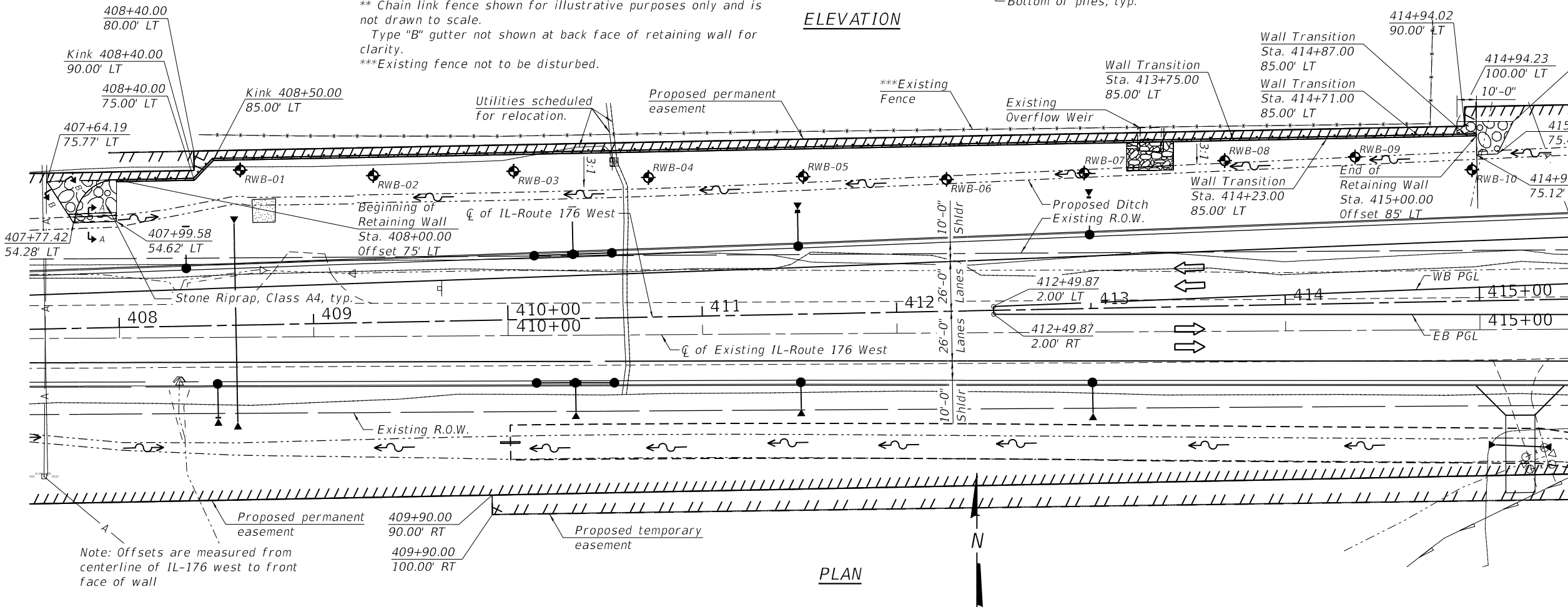
2020 AASHTO LRFD Bridge Design Specifications, 9th Edition

**DESIGN STRESSES**

**FIELD UNITS**  
 $f'_c = 3,500$  psi  
 $f_y = 60,000$  psi (Reinforcement)  
 $f_y = 50,000$  psi (M270 Grade 50)

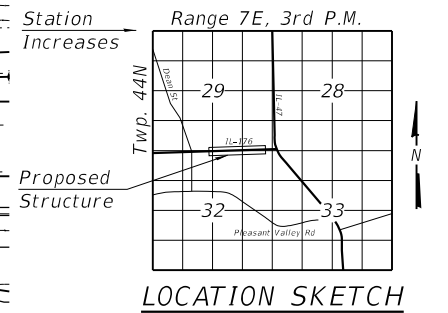


\* Provide terminal posts at each side of expansion joint, typ.  
 \*\* Chain link fence shown for illustrative purposes only and is not drawn to scale.  
 Type "B" gutter not shown at back face of retaining wall for clarity.  
 \*\*\*Existing fence not to be disturbed.



**LEGEND**

- Aerial Lines
- Underground Electric
- Fiber Optic Line
- Telephone Line
- Fence
- Temporary Easement
- Permanent Easement
- Soil Boring



**GENERAL PLAN & ELEVATION  
 IL ROUTE 176 WEST  
 F.A.P. 533 SECTION 105-N-2(15)  
 MCHENRY COUNTY  
 STATION 408+00.00 TO  
 STATION 415+10.00  
 STRUCTURE NO. 056-5600**

MODEL: Default  
 FILE NAME: S:\J01\6300-6399\6346\069\Micros\CAD\_Sheets\0162B43-RWALL-001-GPE.dgn  
 12/18/2023 3:26:03 PM

**SA STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200  
 IDFPR NO. 184-001273

USER NAME = StevenB  
 PLOT SCALE =  
 PLOT DATE = 12/18/2023

DESIGNED - BRL  
 CHECKED - KRB  
 DRAWN - BJF  
 CHECKED - AJS

REVISED -  
 REVISED -  
 REVISED -  
 REVISED -

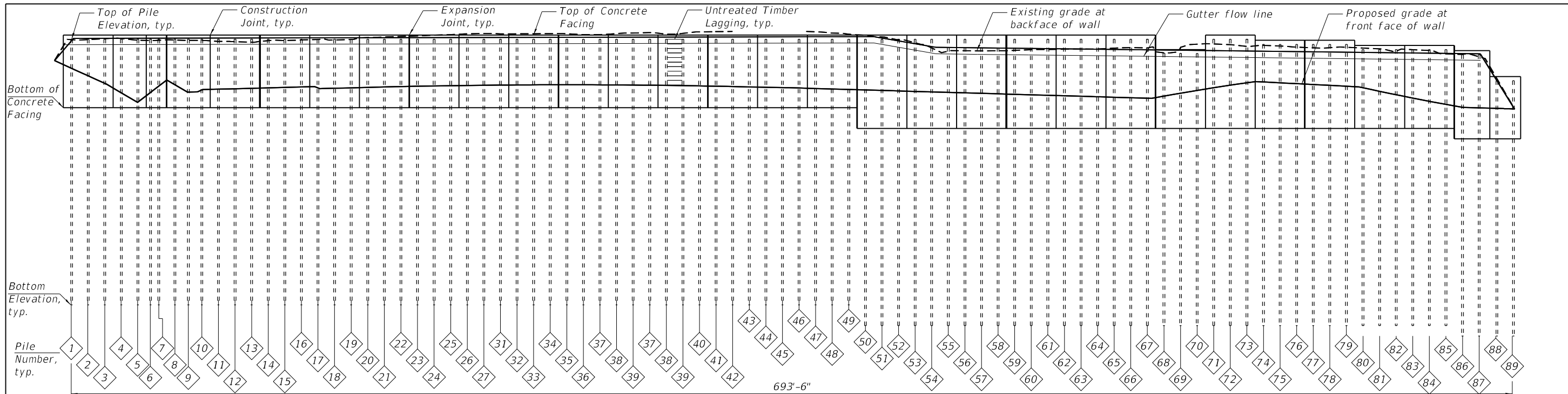
**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**GENERAL PLAN AND ELEVATION  
 STRUCTURE NO. 056-5600**

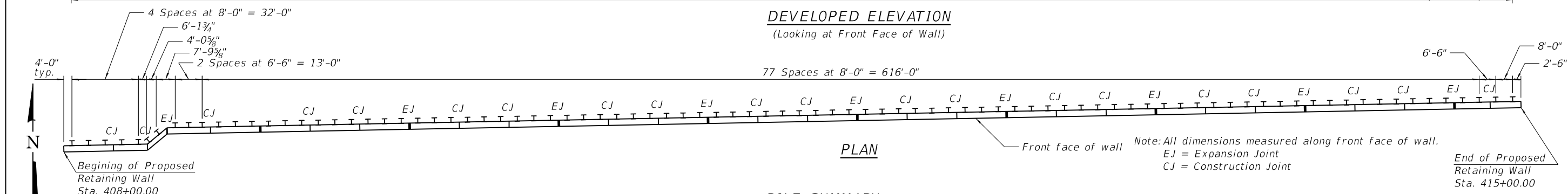
SHEET 1 OF 13 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	105-N-2(15)	MCHENRY	803	598
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				





**DEVELOPED ELEVATION**  
(Looking at Front Face of Wall)



**PLAN**

Note: All dimensions measured along front face of wall.  
EJ = Expansion Joint  
CJ = Construction Joint

**PILE SUMMARY**

Pile No.	Station	Offset to Centerline of Pile	Pile Designation	Length	Bottom Elevation	Top Elevation	# of Stud Shear Connectors
1	408+04.00	76.38' LT	HP 14x89	30.33	880.00	910.33	8
2	408+12.00	76.38' LT	HP 14x89	30.33	880.00	910.33	8
3	408+20.00	76.38' LT	HP 14x89	30.33	880.00	910.33	8
4	408+28.00	76.38' LT	HP 14x89	30.33	880.00	910.33	8
5	408+36.00	76.38' LT	HP 14x89	30.33	880.00	910.33	8
6	408+42.15	79.09' LT	HP 14x89	30.33	880.00	910.33	8
7	408+46.20	83.14' LT	HP 14x89	30.33	880.00	910.33	8
8	408+54.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
9	408+60.50	86.38' LT	HP 14x89	30.33	880.00	910.33	8
10	408+67.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
11	408+75.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
12	408+83.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
13	408+91.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
14	408+99.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
15	409+07.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
16	409+15.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
17	409+23.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
18	409+31.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
19	409+39.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
20	409+47.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
21	409+55.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
22	409+63.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
23	409+71.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
24	409+79.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
25	409+87.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
26	409+95.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
27	410+03.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
28	410+11.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
29	410+19.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
30	410+27.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8

Pile No.	Station	Offset to Centerline of Pile	Pile Designation	Length	Bottom Elevation	Top Elevation	# of Stud Shear Connectors
31	410+35.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
32	410+43.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
33	410+51.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
34	410+59.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
35	410+67.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
36	410+75.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
37	410+83.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
38	410+91.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
39	410+99.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
40	411+07.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
41	411+15.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
42	411+23.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
43	411+31.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
44	411+39.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
45	411+47.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
46	411+55.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
47	411+63.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
48	411+71.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
49	411+79.00	86.38' LT	HP 14x89	30.33	880.00	910.33	8
50	411+87.00	86.38' LT	HP 14x89	31.33	879.00	910.33	9
51	411+95.00	86.38' LT	HP 14x89	31.33	879.00	910.33	9
52	412+03.00	86.38' LT	HP 14x89	31.33	879.00	910.33	9
53	412+11.00	86.38' LT	HP 14x89	31.33	879.00	910.33	9
54	412+19.00	86.38' LT	HP 14x89	31.33	879.00	910.33	9
55	412+27.00	86.38' LT	HP 14x89	31.33	879.00	910.33	9
56	412+35.00	86.38' LT	HP 14x89	31.33	879.00	910.33	9
57	412+43.00	86.38' LT	HP 14x89	31.33	879.00	910.33	9
58	412+51.00	86.38' LT	HP 14x89	31.33	879.00	910.33	9
59	412+59.00	86.38' LT	HP 14x89	31.33	879.00	910.33	9
60	412+67.00	86.38' LT	HP 14x89	31.33	879.00	910.33	9

Pile No.	Station	Offset to Centerline of Pile	Pile Designation	Length	Bottom Elevation	Top Elevation	# of Stud Shear Connectors
61	412+75.00	86.38' LT	HP 14x89	31.33	879.00	910.33	9
62	412+83.00	86.38' LT	HP 14x89	31.33	879.00	910.33	9
63	412+91.00	86.38' LT	HP 14x89	31.33	879.00	910.33	9
64	412+99.00	86.38' LT	HP 14x89	31.33	879.00	910.33	9
65	413+07.00	86.38' LT	HP 14x89	31.33	879.00	910.33	9
66	413+15.00	86.38' LT	HP 14x89	31.33	879.00	910.33	9
67	413+23.00	86.38' LT	HP 14x89	31.33	879.00	910.33	9
68	413+31.00	86.38' LT	HP 14x89	30.17	879.00	909.18	8
69	413+39.00	86.38' LT	HP 14x89	30.17	879.00	909.18	8
70	413+47.00	86.38' LT	HP 14x89	30.17	879.00	909.18	8
71	413+55.00	86.38' LT	HP 14x89	31.33	879.00	910.33	9
72	413+63.00	86.38' LT	HP 14x89	31.33	879.00	910.33	9
73	413+71.00	86.38' LT	HP 14x89	31.33	879.00	910.33	9
74	413+79.00	86.38' LT	HP 14x89	30.83	879.00	909.83	9
75	413+87.00	86.38' LT	HP 14x89	30.83	879.00	909.83	9
76	413+95.00	86.38' LT	HP 14x89	30.83	879.00	909.83	9
77	414+03.00	86.38' LT	HP 14x89	30.83	879.00	909.83	9
78	414+11.00	86.38' LT	HP 14x89	30.83	879.00	909.83	9
79	414+19.00	86.38' LT	HP 14x89	30.83	879.00	909.83	9
80	414+27.00	86.38' LT	HP 14x89	30.33	879.00	909.33	8
81	414+35.00	86.38' LT	HP 14x89	30.33	879.00	909.33	8
82	414+43.00	86.38' LT	HP 14x89	30.33	879.00	909.33	8
83	414+51.00	86.38' LT	HP 14x89	30.33	879.00	909.33	8
84	414+59.00	86.38' LT	HP 14x89	30.33	879.00	909.33	8
85	414+67.00	86.38' LT	HP 14x89	30.33	879.00	909.33	8
86	414+75.00	86.38' LT	HP 14x89	31.83	877.00	908.83	10
87	414+83.00	86.38' LT	HP 14x89	31.83	877.00	908.83	10
88	414+89.5	86.38' LT	HP 14x89	29.33	877.00	906.33	7
89	414+97.50	86.38' LT	HP 14x89	29.33	877.00	906.33	7

MODEL: Default  
FILE NAME: S:\JULIET\6300-6399\6346\069\Micros\CAD\_Sheets\DWG\62B43-RWALL-003-PILE.dgn  
12/18/2023 3:26:06 PM

**SA STRAND ASSOCIATES**  
1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
(815) 744-4200  
IDFPR NO. 184-001213

USER NAME = StevenB	DESIGNED - BRL	REVISD -
PLOT SCALE =	CHECKED - KRB	REVISD -
PLOT DATE = 12/18/2023	DRAWN - BJF	REVISD -
	CHECKED - AJS	REVISD -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**SOLDIER PILE WALL LAYOUT  
STRUCTURE NO. 056-5600**

SHEET 3 OF 13 SHEETS

F.A.P. RTE. 326	SECTION 105-N-2(15)	COUNTY McHENRY	TOTAL SHEETS 803	SHEET NO. 600
CONTRACT NO. 62B43				
ILLINOIS FED. AID PROJECT				