

NOTES:
 SEE PAVEMENT MARKINGS SHEET 1 OF 5
 FOR SIGN LEGEND



FINAL PLANS

MODEL: Sheet 5
 FILE NAME: p:\projects\091798\Road\Overpass\SheetC_091798.dwg
 PROJECT: Springfield Rail Improvements Project - Springfield, IL - 19th Street Overpass
 DATE: 11/19/2024



USER NAME = pop00275	DESIGNED - DJP	REVISED -
PLOT SCALE = 40.00' / in.	DRAWN - DJP	REVISED -
PLOT DATE = 11/20/2024	CHECKED - DJP	REVISED -
	DATE - 11/19/2024	REVISED -

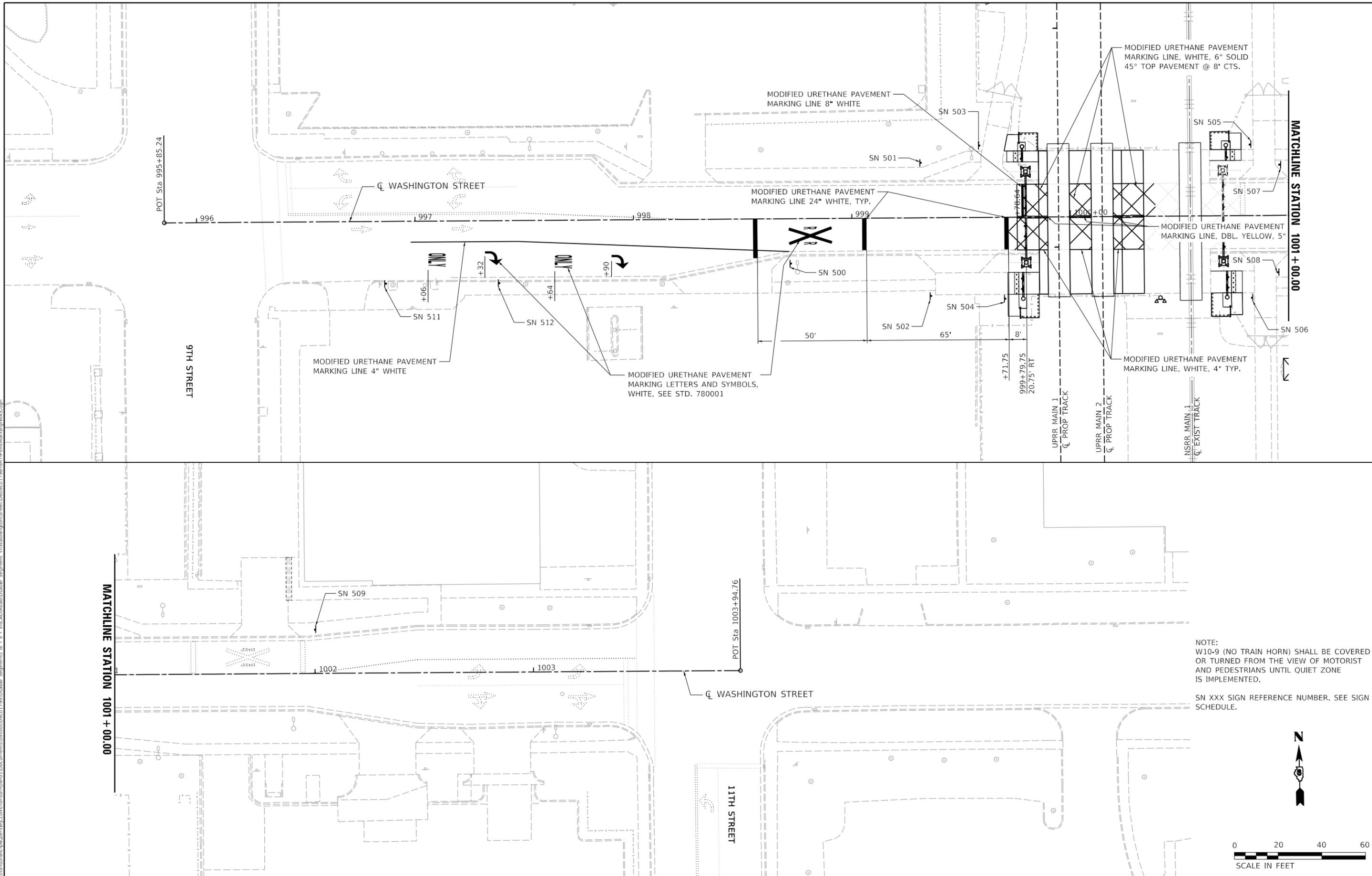
**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**SPRINGFIELD RAIL IMPROVEMENTS PROJECT
 SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
 PAVEMENT MARKING PLAN - NORTH GRAND AVENUE - OVERPASS - 5**

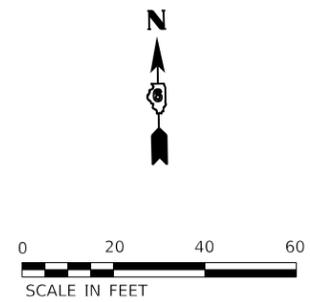
SCALE: SHEET 5 OF 5 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	302
09L0179B		CONTRACT NO. 93773		
ILLINOIS FED. AID PROJECT				

MODEL: Sheet 1
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NOTE:
 W10-9 (NO TRAIN HORN) SHALL BE COVERED OR TURNED FROM THE VIEW OF MOTORIST AND PEDESTRIANS UNTIL QUIET ZONE IS IMPLEMENTED.
 SN XXX SIGN REFERENCE NUMBER. SEE SIGN SCHEDULE.



USER NAME = pop00275	DESIGNED - DJP	REVISED -
DRAWN - DJP	REVISIONS -	
PLOT SCALE = 40.00' / in.	CHECKED - DJP	REVISED -
PLOT DATE = 9/27/2024	DATE - 10/01/2024	REVISED -

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**SPRINGFIELD RAIL IMPROVEMENTS PROJECT
 SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
 PAVEMENT MARKING PLAN - WASHINGTON STREET**

SCALE: SHEET 1 OF 1 SHEETS STA. TO STA.

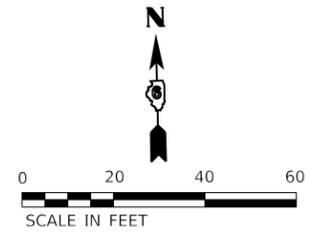
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	303
09L0179B		CONTRACT NO. 93773		
ILLINOIS		FED. AID PROJECT		

MODEL: Sheet 1
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NOTE:
 W10-9 SHALL BE COVERED OR
 TURNED FROM THE VIEW OF MOTORIST
 AND PEDESTRIANS UNTIL QUIET ZONE
 IS IMPLEMENTED.

SN XXX SIGN REFERENCE NUMBER.
 SEE SIGN SCHEDULE.



USER NAME = pop00275	DESIGNED - DJP	REVISED -
DRAWN - DJP	REVISIONS -	
PLOT SCALE = 40.00' / in.	CHECKED - DJP	REVISED -
PLOT DATE = 9/27/2024	DATE - 10/01/2024	REVISED -

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

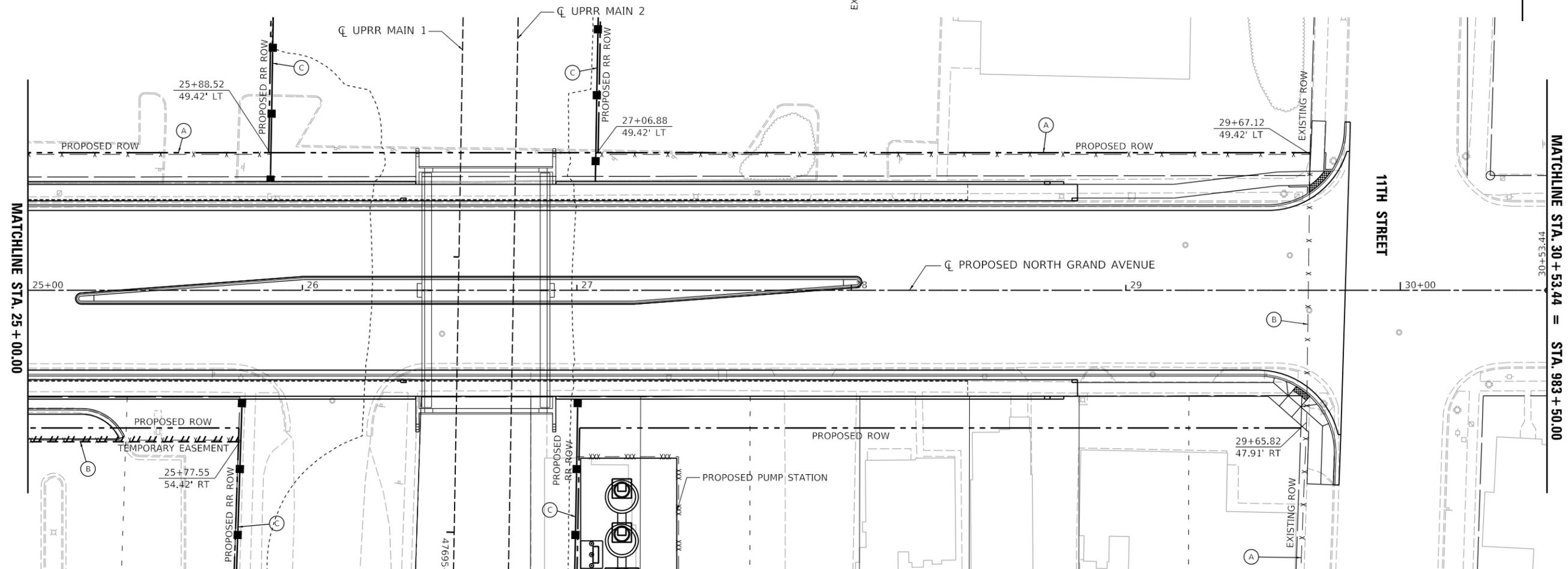
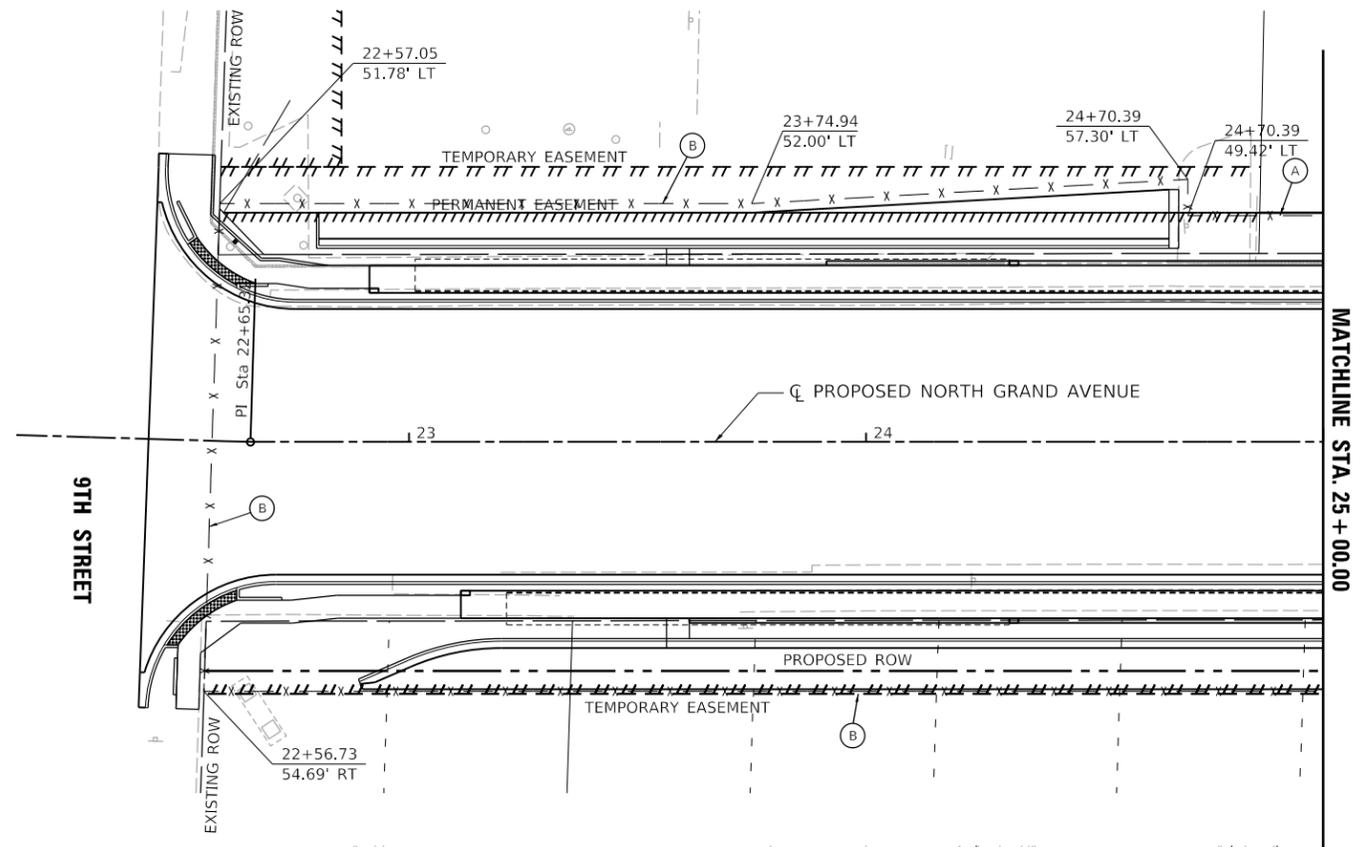
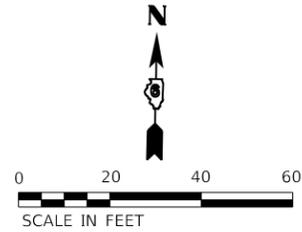
**SPRINGFIELD RAIL IMPROVEMENTS PROJECT
 SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
 PAVEMENT MARKING PLAN - CAPITOL AVENUE**

SCALE: SHEET 1 OF 1 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	304
09L0179B			CONTRACT NO. 93773	
ILLINOIS FED. AID PROJECT				

LEGEND

- (A) = ERECT AND MAINTAIN TEMPORARY FENCE (CHAIN LINK OR WOVEN WIRE FENCE). STAKE FENCING AT 10' MAXIMUM USING METAL POSTS.
- (B) = ERECT AND MAINTAIN TEMPORARY CHAIN LINK FENCE (PORTABLE), STABILIZE USING SAND BAGS AS REQUIRED.
- (C) = FENCING ALONG RAILROAD ROW. SEE FENCING AND ACCESS PLAN - TRACK SHEETS FOR LEGEND / TYPE & CALLOUTS.
- - - - - EXISTING FENCE
- · - · - · PROPOSED ROW
- x - x - TEMPORARY FENCE. SEE FENCE LEGEND FOR TYPE
- xxx - xxx - CHAIN LINK FENCE 8' (SPECIAL)



FINAL PLANS

MODEL: Default
 FILE NAME: p:\projects\hanson\csw_bentley.com\hanson\p01\Documents\09\09\01\798\Usable_Segment_V\North_Grand\Sheet\090101798-SHT-Fence-Details.dgn



USER NAME = pop00275
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 PLOT DATE = 9/27/2024

DESIGNED - JGT
 DRAWN - RSJ
 CHECKED - MNM
 DATE - 10/01/2024

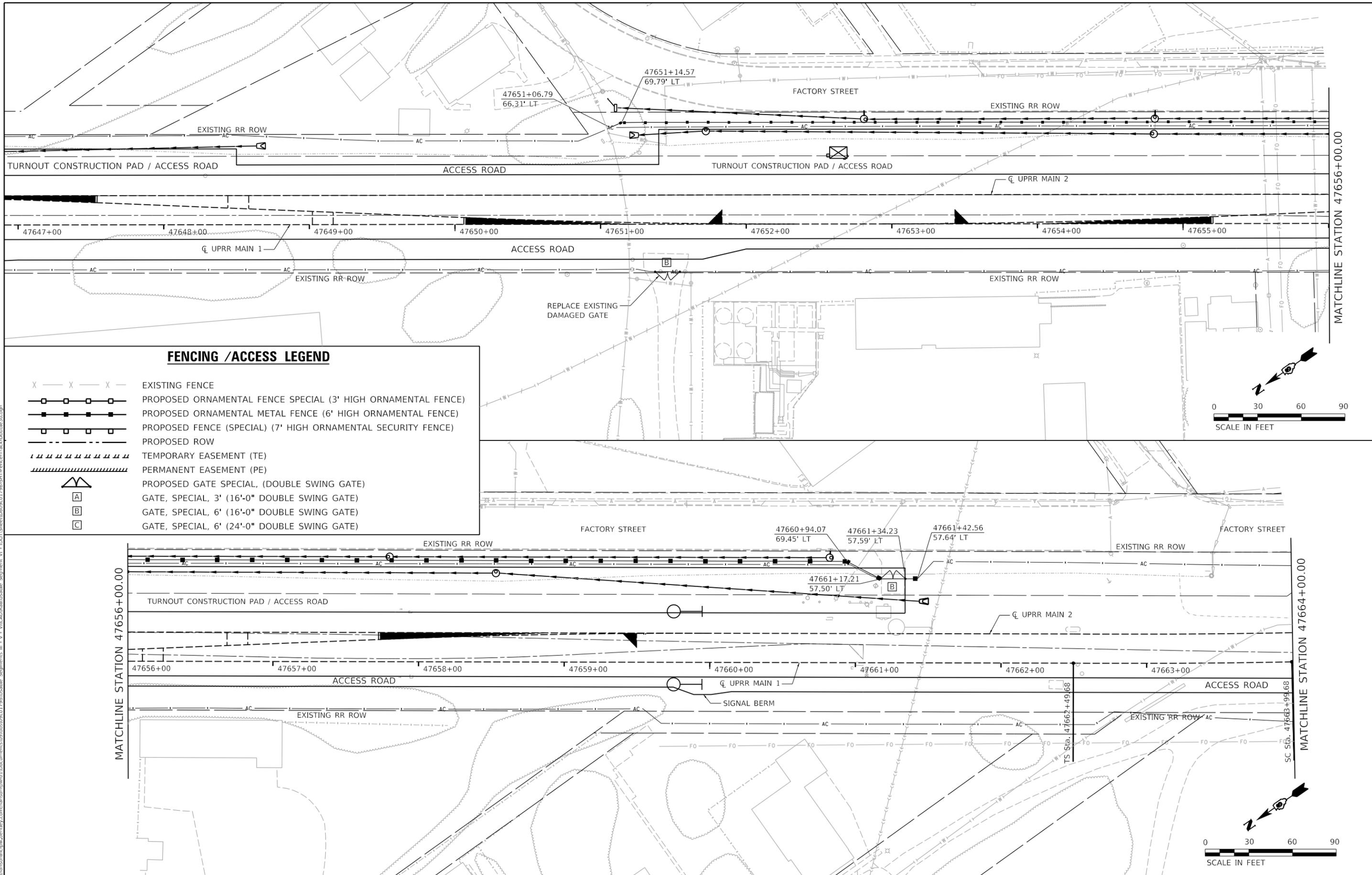
REVISED -
 REVISED -
 REVISED -
 REVISED -

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

SPRINGFIELD RAIL IMPROVEMENTS PROJECT
 SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
 TEMPORARY FENCING PLAN - NORTH GRAND AVENUE UNDERPASS
 SCALE: SHEET 1 OF 1 SHEETS STA. TO STA.

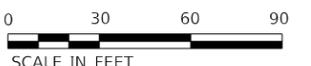
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	305
09L0179B		CONTRACT NO. 93773		
ILLINOIS FED. AID PROJECT				

MODEL: S:\IT\Fence\Track\30-2
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FENCING /ACCESS LEGEND

- X — X — X — X — EXISTING FENCE
- [] — [] — [] — [] — PROPOSED ORNAMENTAL FENCE SPECIAL (3' HIGH ORNAMENTAL FENCE)
- [] — [] — [] — [] — PROPOSED ORNAMENTAL METAL FENCE (6' HIGH ORNAMENTAL FENCE)
- [] — [] — [] — [] — PROPOSED FENCE (SPECIAL) (7' HIGH ORNAMENTAL SECURITY FENCE)
- — — — — PROPOSED ROW
- ||||| TEMPORARY EASEMENT (TE)
- ||||| PERMANENT EASEMENT (PE)
- ▲▲ PROPOSED GATE SPECIAL, (DOUBLE SWING GATE)
- [A] GATE, SPECIAL, 3' (16'-0" DOUBLE SWING GATE)
- [B] GATE, SPECIAL, 6' (16'-0" DOUBLE SWING GATE)
- [C] GATE, SPECIAL, 6' (24'-0" DOUBLE SWING GATE)



USER NAME = pop00275	DESIGNED - JGT	REVISED -
	DRAWN - RSJ	REVISED -
PLOT SCALE = 60.00' / in.	CHECKED - MNM	REVISED -
PLOT DATE = 10/24/2024	DATE - 10/01/2024	REVISED -

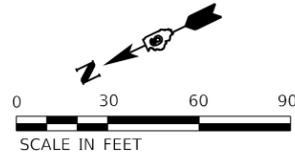
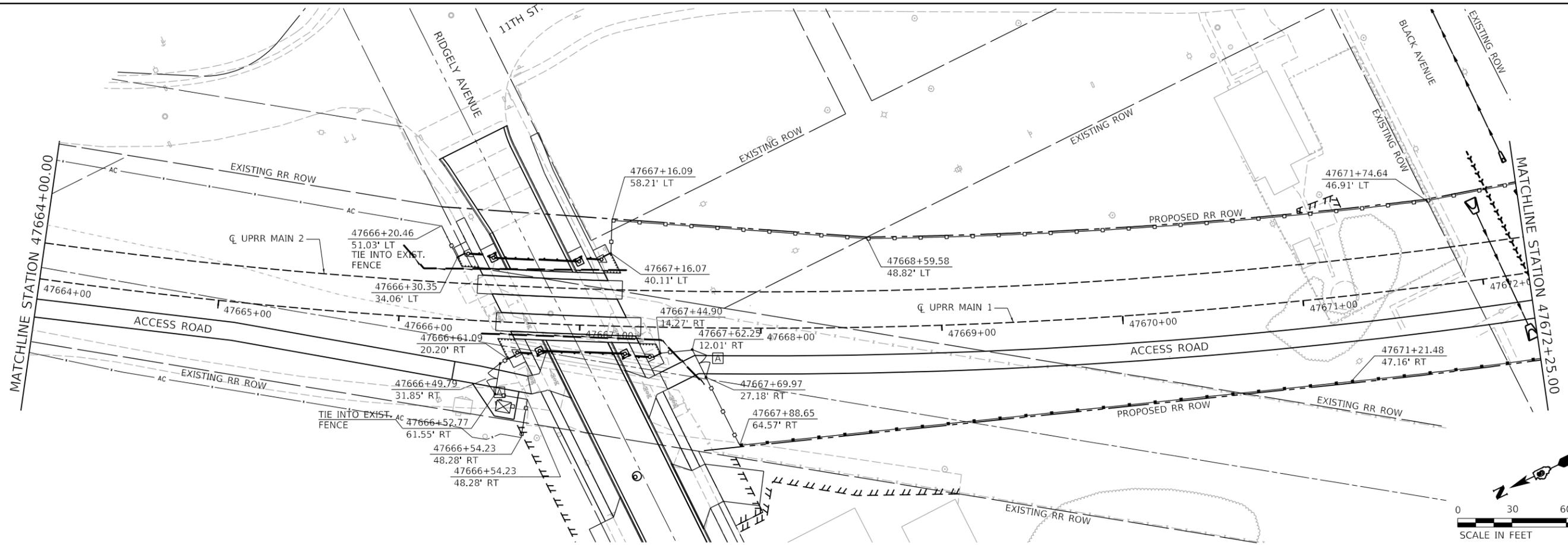
**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**SPRINGFIELD RAIL IMPROVEMENTS PROJECT
 SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
 FENCING AND ACCESS PLAN - TRACK - 1**

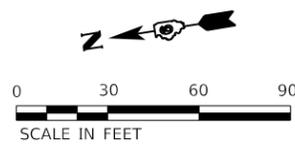
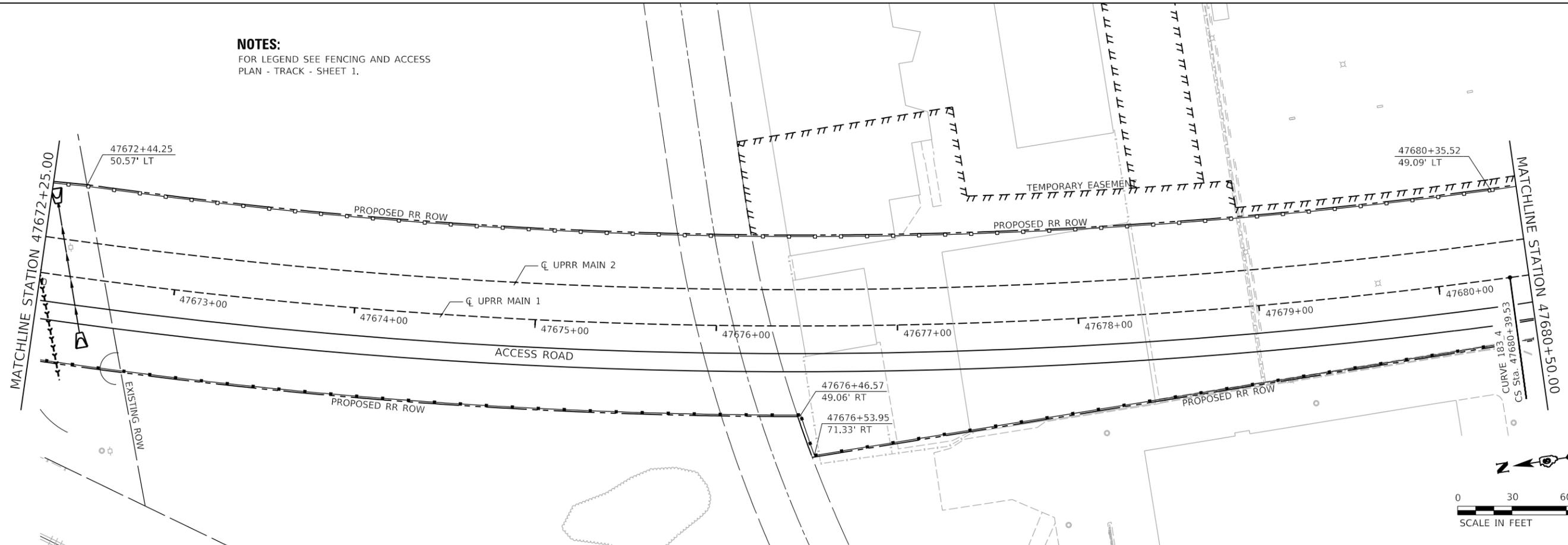
SCALE: SHEET 1 OF 16 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	306
	09L0179B	CONTRACT NO.	93773	
ILLINOIS FED. AID PROJECT				

MODEL: SHF-Fence-Track-20-3
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NOTES:
 FOR LEGEND SEE FENCING AND ACCESS
 PLAN - TRACK - SHEET 1.



FINAL PLANS



USER NAME = pop00275	DESIGNED - JGT	REVISED -
PLOT SCALE = 60.00' / in.	DRAWN - RSJ	REVISED -
PLOT DATE = 9/27/2024	CHECKED - MNM	REVISED -
	DATE - 10/01/2024	REVISED -

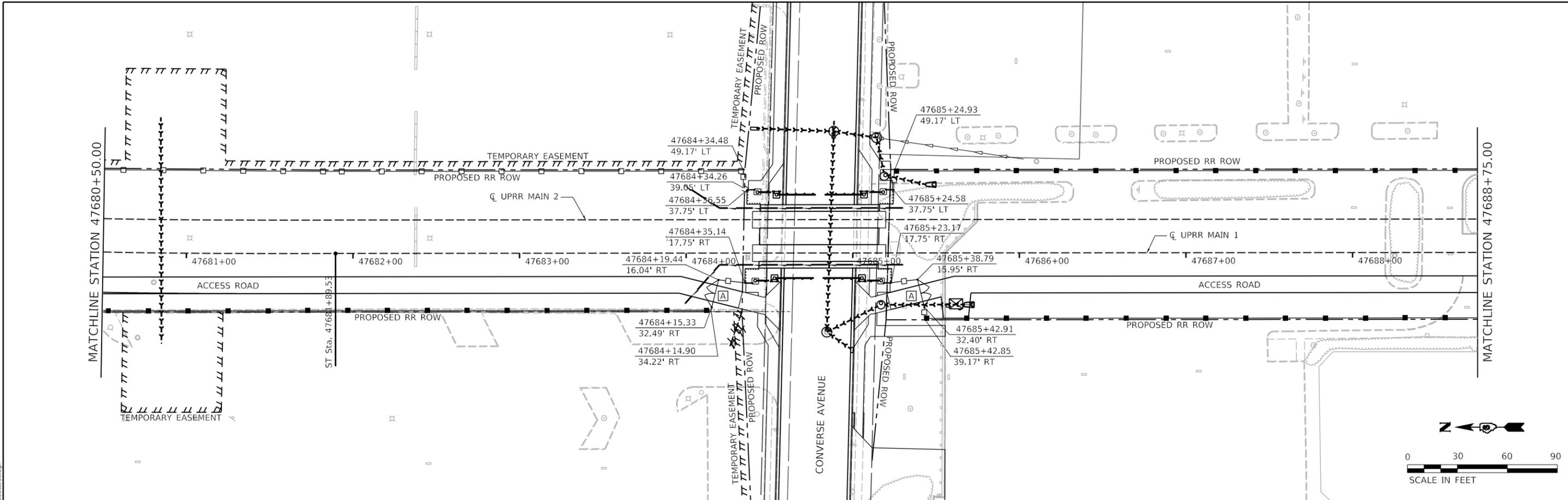
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SPRINGFIELD RAIL IMPROVEMENTS PROJECT
SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
FENCING AND ACCESS PLAN - TRACK - 2

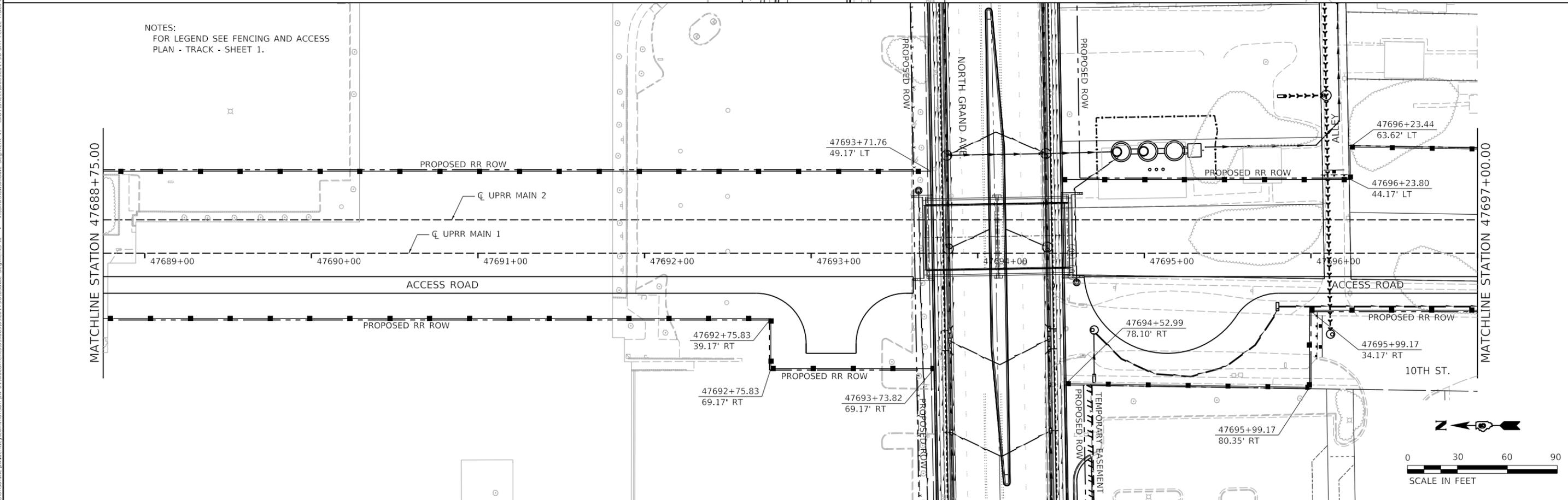
SCALE: SHEET 2 OF 16 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	307
09L0179B		CONTRACT NO. 93773		
ILLINOIS FED. AID PROJECT				

MODEL: SHIF-Fence-Track-30-4
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NOTES:
 FOR LEGEND SEE FENCING AND ACCESS
 PLAN - TRACK - SHEET 1.



USER NAME = pop00275	DESIGNED - JGT	REVISED -
DRAWN - RSJ	REVISED -	
PLOT SCALE = 60.00' / in.	CHECKED - MNM	REVISED -
PLOT DATE = 9/27/2024	DATE - 10/01/2024	REVISED -

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**SPRINGFIELD RAIL IMPROVEMENTS PROJECT
 SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
 FENCING AND ACCESS PLAN - TRACK - 3**

SCALE: SHEET 3 OF 16 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	308
09L0179B		CONTRACT NO. 93773		
ILLINOIS FED. AID PROJECT				

MODEL: SHIF-Fence-Track-30-5
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NOTES:
 FOR LEGEND SEE FENCING AND ACCESS
 PLAN - TRACK - SHEET 1.



USER NAME = pop00275	DESIGNED - JGT	REVISED -
PLOT SCALE = 60.00' / in.	DRAWN - RSJ	REVISED -
PLOT DATE = 9/27/2024	CHECKED - MNM	REVISED -
	DATE - 10/01/2024	REVISED -

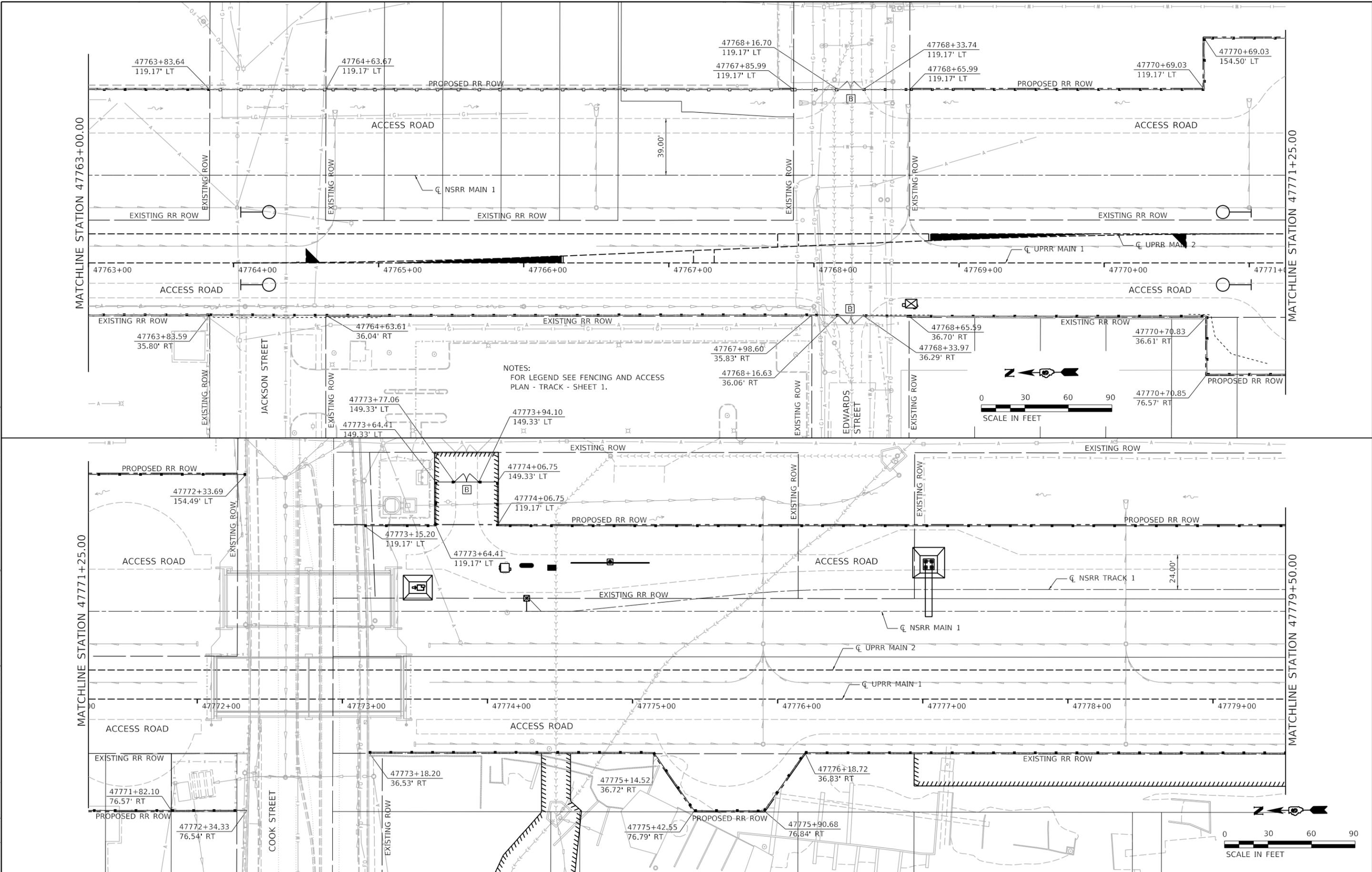
**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**SPRINGFIELD RAIL IMPROVEMENTS PROJECT
 SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
 FENCING AND ACCESS PLAN - TRACK - 4**

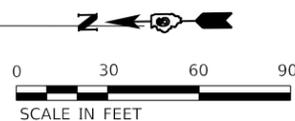
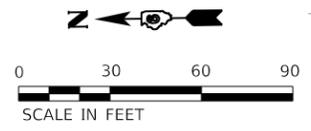
SCALE: SHEET 4 OF 16 SHEETS STA. TO STA.

F.A.U. RTE. 7972	SECTION 09L0179B	COUNTY SANGAMON	TOTAL SHEETS 714	SHEET NO. 309
ILLINOIS FED. AID PROJECT		CONTRACT NO. 93773		

MODEL: SHIF-Fence-Track-20-9
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NOTES:
 FOR LEGEND SEE FENCING AND ACCESS
 PLAN - TRACK - SHEET 1.



USER NAME = pop00275	DESIGNED - JGT	REVISED -
PLOT SCALE = 60.00' / in.	DRAWN - RSJ	REVISED -
PLOT DATE = 9/27/2024	CHECKED - MNM	REVISED -
	DATE - 10/01/2024	REVISED -

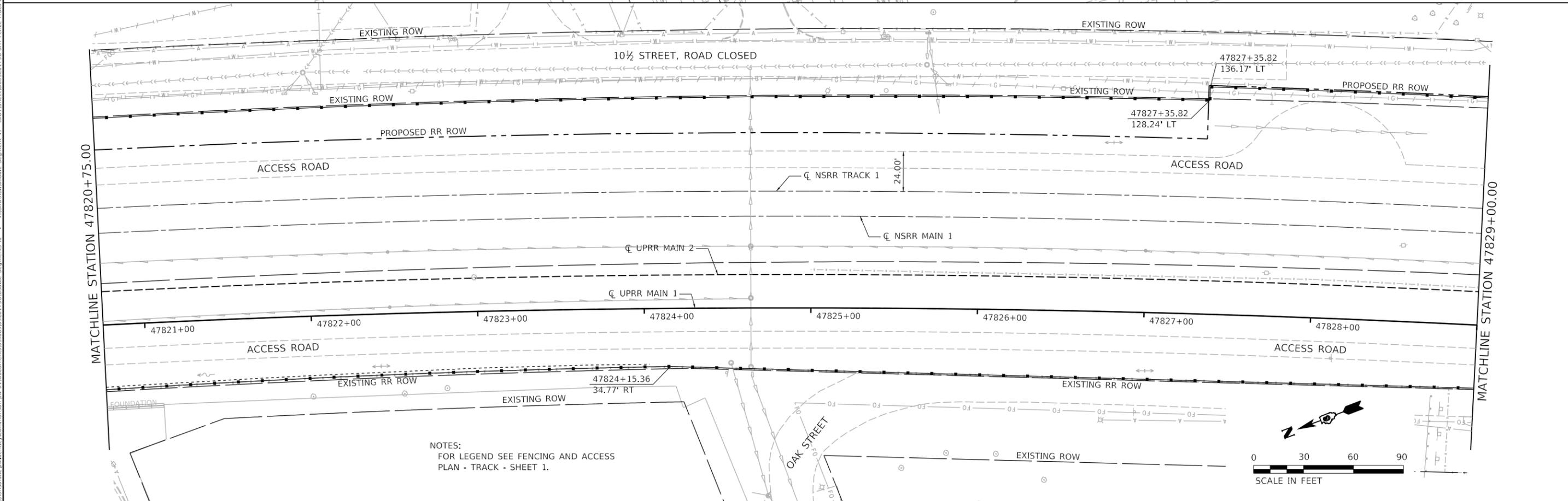
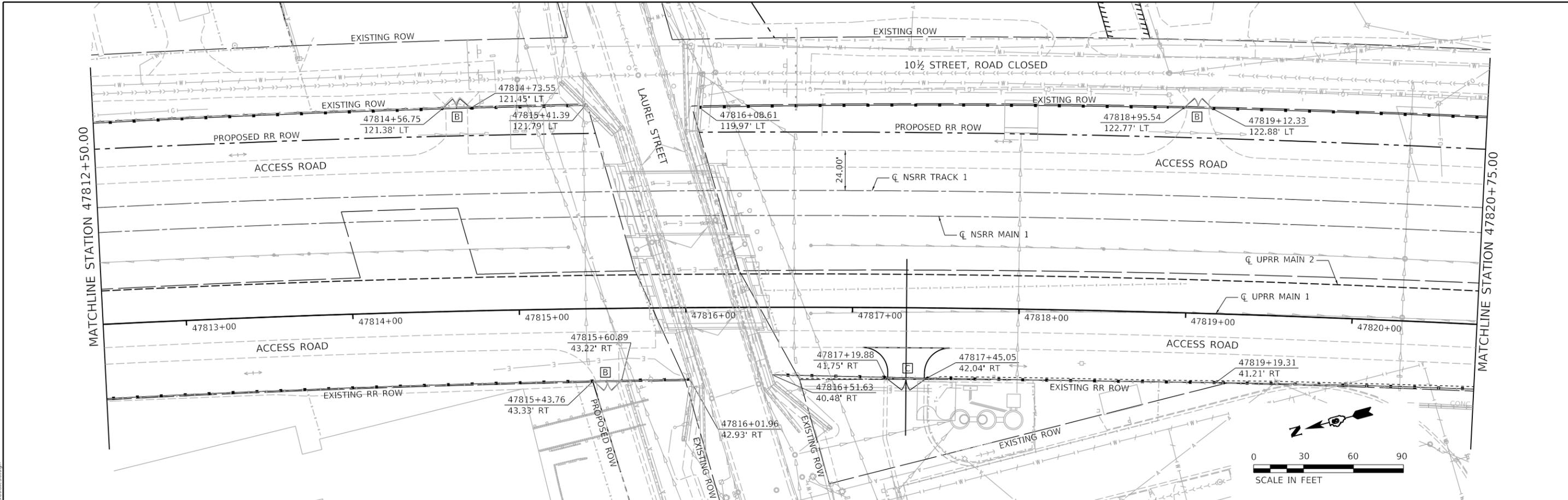
**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**SPRINGFIELD RAIL IMPROVEMENTS PROJECT
 SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
 FENCING AND ACCESS PLAN - TRACK - 8**

SCALE: SHEET 8 OF 16 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	313
	09L0179B	CONTRACT NO.	93773	
	ILLINOIS	FED. AID PROJECT		

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NOTES:
 FOR LEGEND SEE FENCING AND ACCESS
 PLAN - TRACK - SHEET 1.



USER NAME = pop00275	DESIGNED - JGT	REVISED -
PLOT SCALE = 60.00' / in.	DRAWN - RSJ	REVISED -
PLOT DATE = 9/27/2024	CHECKED - MNM	REVISED -
	DATE - 10/01/2024	REVISED -

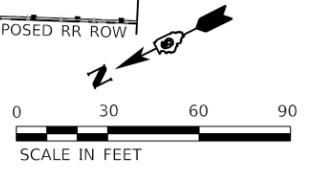
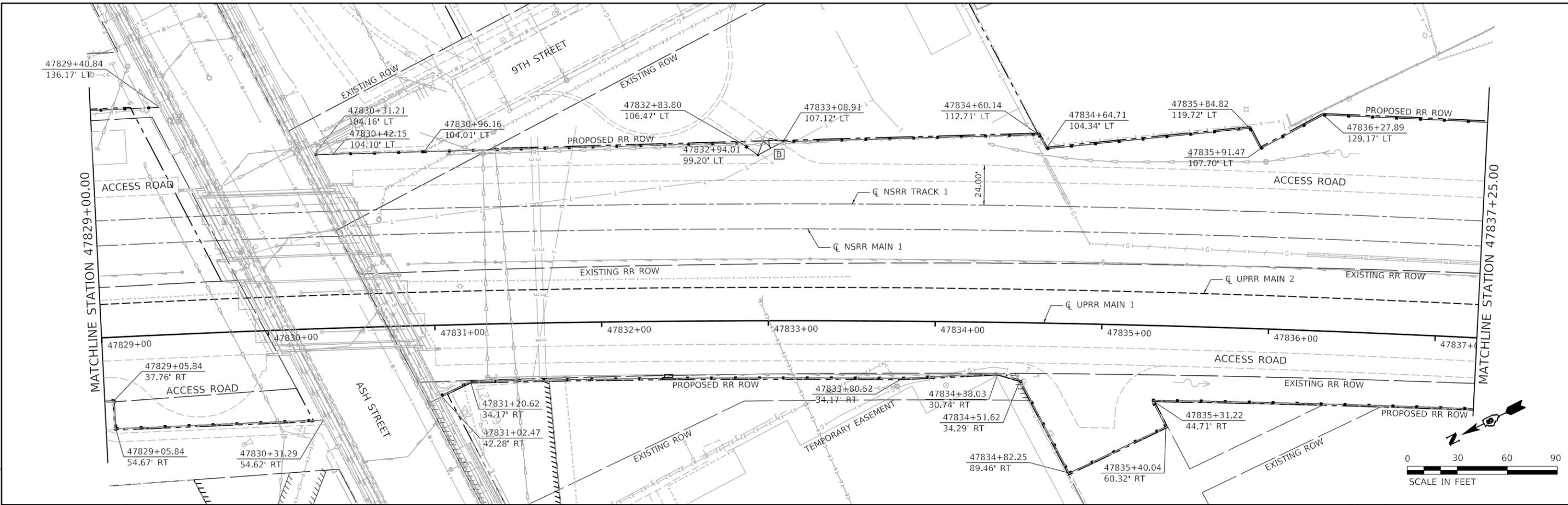
**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**SPRINGFIELD RAIL IMPROVEMENTS PROJECT
 SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
 FENCING AND ACCESS PLAN - TRACK - 11**

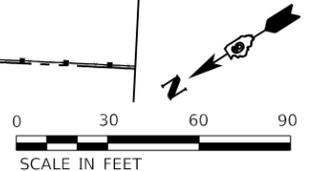
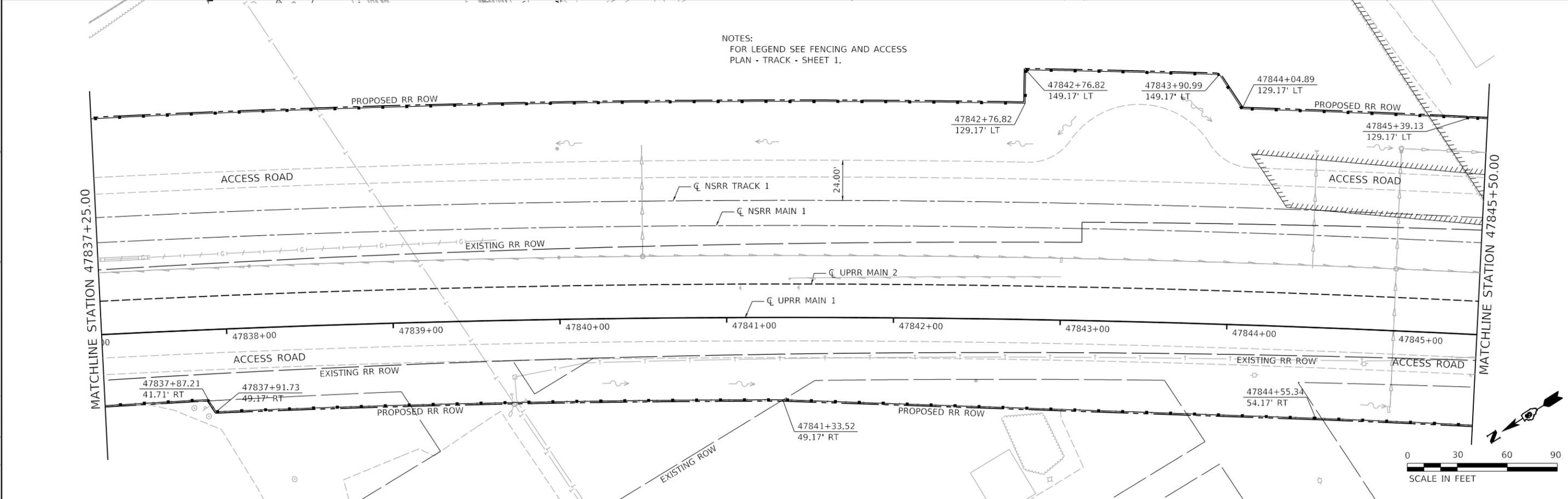
SCALE: SHEET 11 OF 16 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	316
09L0179B		CONTRACT NO. 93773		
ILLINOIS		FED. AID PROJECT		

MODEL: SHF-Fence-Track-20-13
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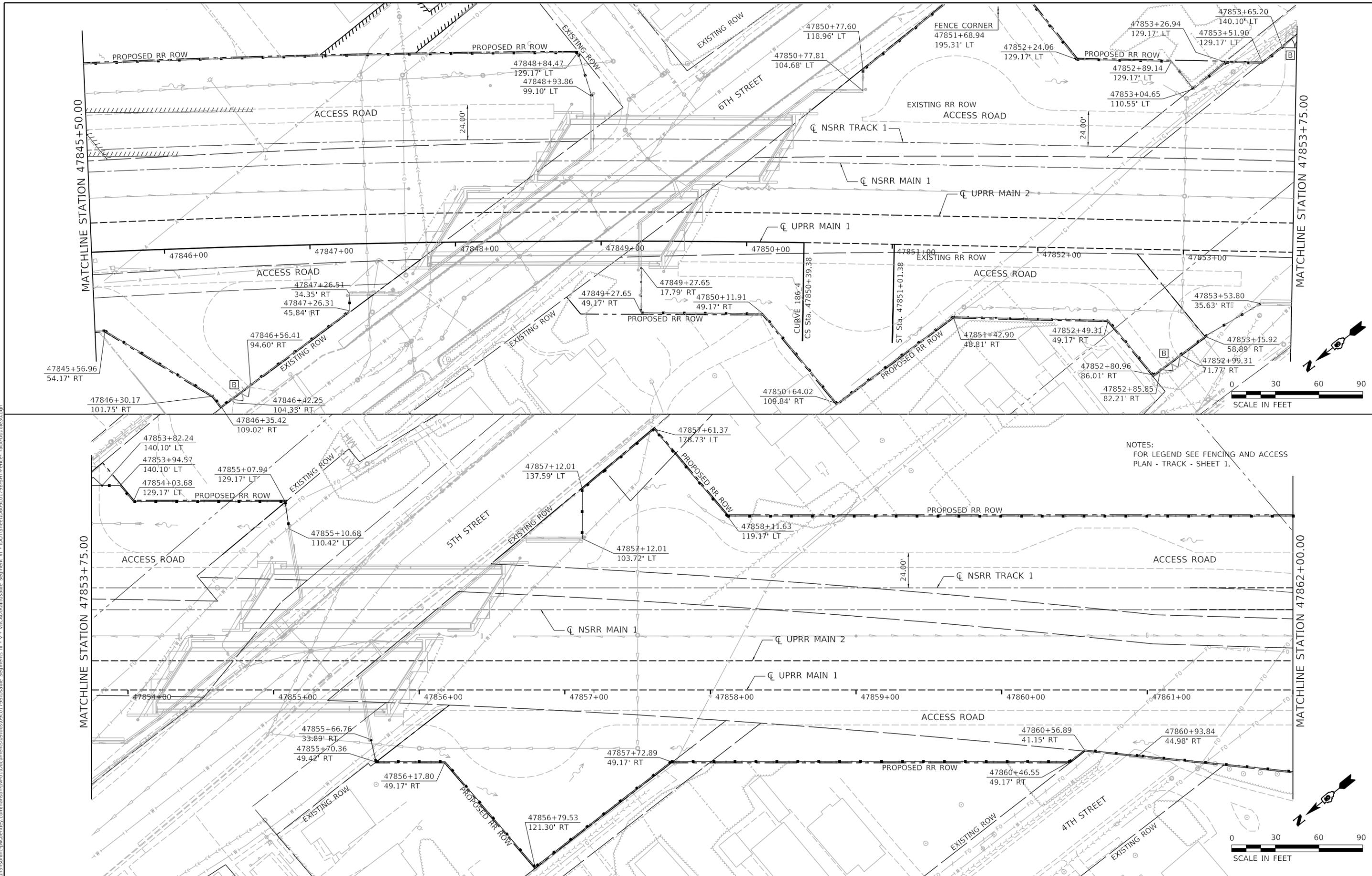


NOTES:
 FOR LEGEND SEE FENCING AND ACCESS
 PLAN - TRACK - SHEET 1.



	USER NAME = pop00275	DESIGNED - JGT	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SPRINGFIELD RAIL IMPROVEMENTS PROJECT SPRINGFIELD, SANGAMON COUNTY, ILLINOIS FENCING AND ACCESS PLAN - TRACK - 12	F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
	PLOT SCALE = 60.00' / in.	CHECKED - MNM	REVISED -			7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	317	
	PLOT DATE = 9/27/2024	DATE - 10/01/2024	REVISED -			SCALE: SHEET 12 OF 16 SHEETS STA. TO STA.		09L0179B		CONTRACT NO. 93773	
							ILLINOIS FED. AID PROJECT				

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NOTES:
 FOR LEGEND SEE FENCING AND ACCESS
 PLAN - TRACK - SHEET 1.



USER NAME = pop00275	DESIGNED - JGT	REVISED -
PLOT SCALE = 60.00' / in.	DRAWN - RSJ	REVISED -
PLOT DATE = 9/27/2024	CHECKED - MNM	REVISED -
	DATE - 10/01/2024	REVISED -

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

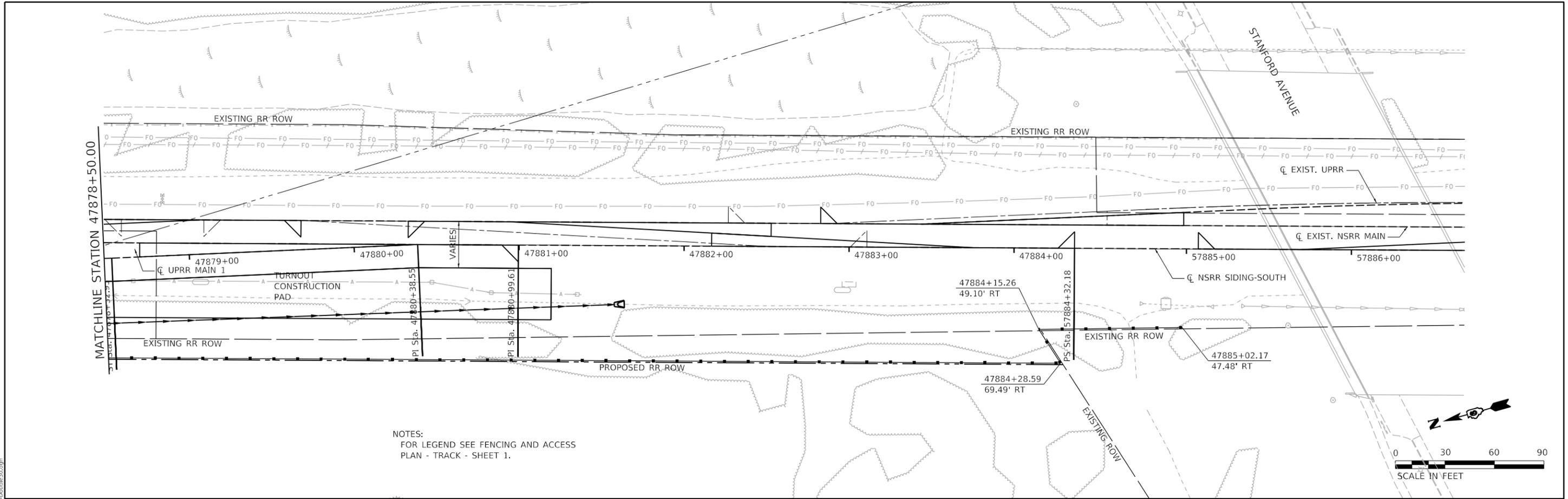
**SPRINGFIELD RAIL IMPROVEMENTS PROJECT
 SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
 FENCING AND ACCESS PLAN - TRACK - 13**

SCALE: SHEET 13 OF 16 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	318
09L0179B		CONTRACT NO. 93773		
ILLINOIS FED. AID PROJECT				

MODEL: SHIFenceTrack20-16
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FINAL PLANS



NOTES:
 FOR LEGEND SEE FENCING AND ACCESS
 PLAN - TRACK - SHEET 1.



USER NAME =	pop00275
PLOT SCALE =	60.00' / in.
PLOT DATE =	9/27/2024

DESIGNED -	JGT
DRAWN -	RSJ
CHECKED -	MNM
DATE -	10/01/2024

REVISED -	

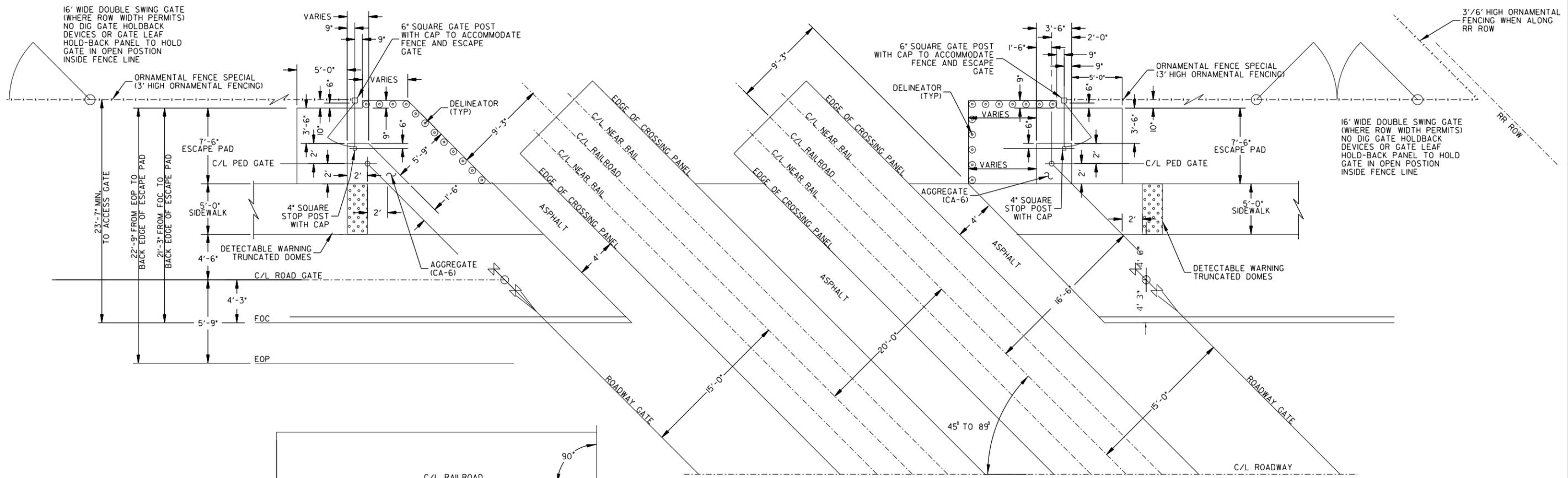
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SPRINGFIELD RAIL IMPROVEMENTS PROJECT
SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
FENCING AND ACCESS PLAN - TRACK - 15

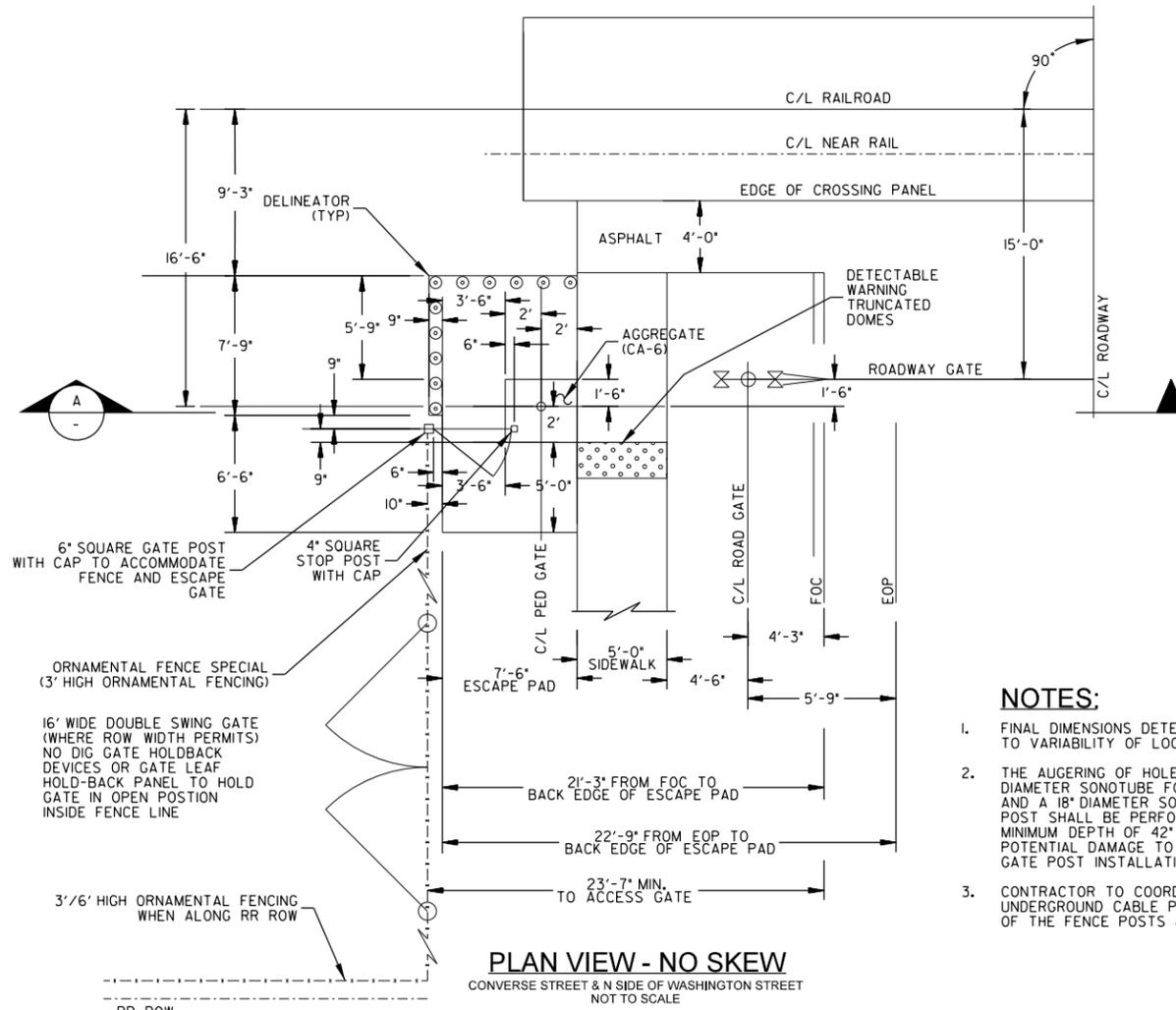
SCALE: SHEET 15 OF 16 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	320
09L0179B		CONTRACT NO. 93773		
ILLINOIS		FED. AID PROJECT		

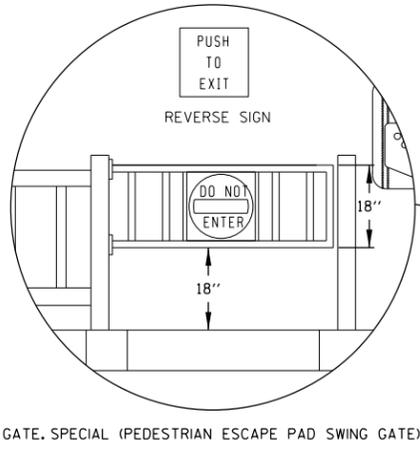
MODEL: Sheet 1
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PLAN VIEW - SKEW 45° TO 89°
 RIDGELY AVENUE
 NOT TO SCALE



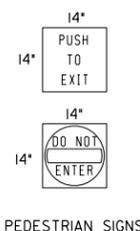
PLAN VIEW - NO SKEW
 CONVERSE STREET & N SIDE OF WASHINGTON STREET
 NOT TO SCALE



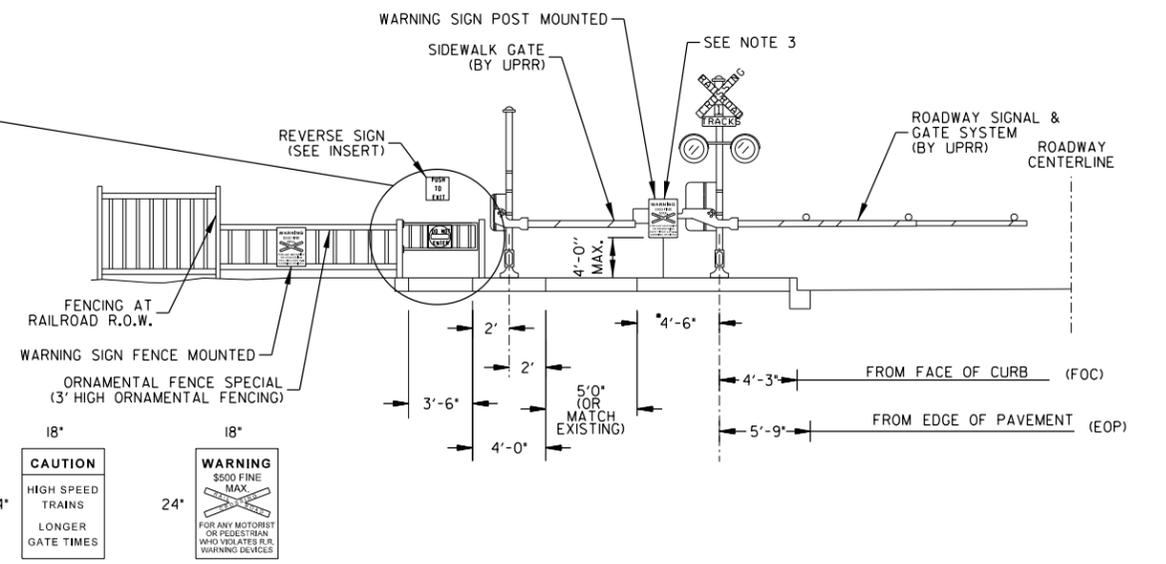
GATE SPECIAL (PEDESTRIAN ESCAPE PAD SWING GATE)

NOTES:

1. FINAL DIMENSIONS DETERMINED IN FIELD DUE TO VARIABILITY OF LOCATIONS AND FIELD CONDITIONS.
2. THE AUGERING OF HOLES AND PLACEMENT OF A 12" DIAMETER SONOTUBE FOR THE ESCAPE GATE STOP POST AND A 18" DIAMETER SONOTUBE FOR THE ESCAPE GATE POST SHALL BE PERFORMED BY CONTRACTOR TO A MINIMUM DEPTH OF 42" BELOW GRADE TO ELIMINATE POTENTIAL DAMAGE TO SIGNAL CABLE DURING ESCAPE GATE POST INSTALLATIONS.
3. CONTRACTOR TO COORDINATE WITH UP SIGNAL TO AVOID UNDERGROUND CABLE PLACEMENT IN THE VICINITY OF THE FENCE POSTS & SIGNS.



PEDESTRIAN SIGNS



SECTION A-A
PEDESTRIAN VIEW AT EXIT GATE - TRAIN APPROACHING
 ROADWAY AND 5'-0" WIDE PEDESTRIAN CROSSING

FINAL PLANS



USER NAME = pop00275	DESIGNED - JGT	REVISED -
PLOT SCALE = 2.00' / in.	DRAWN - RSJ	REVISED -
PLOT DATE = 10/24/2024	CHECKED - MNM	REVISED -
	DATE - 10/01/2024	REVISED -

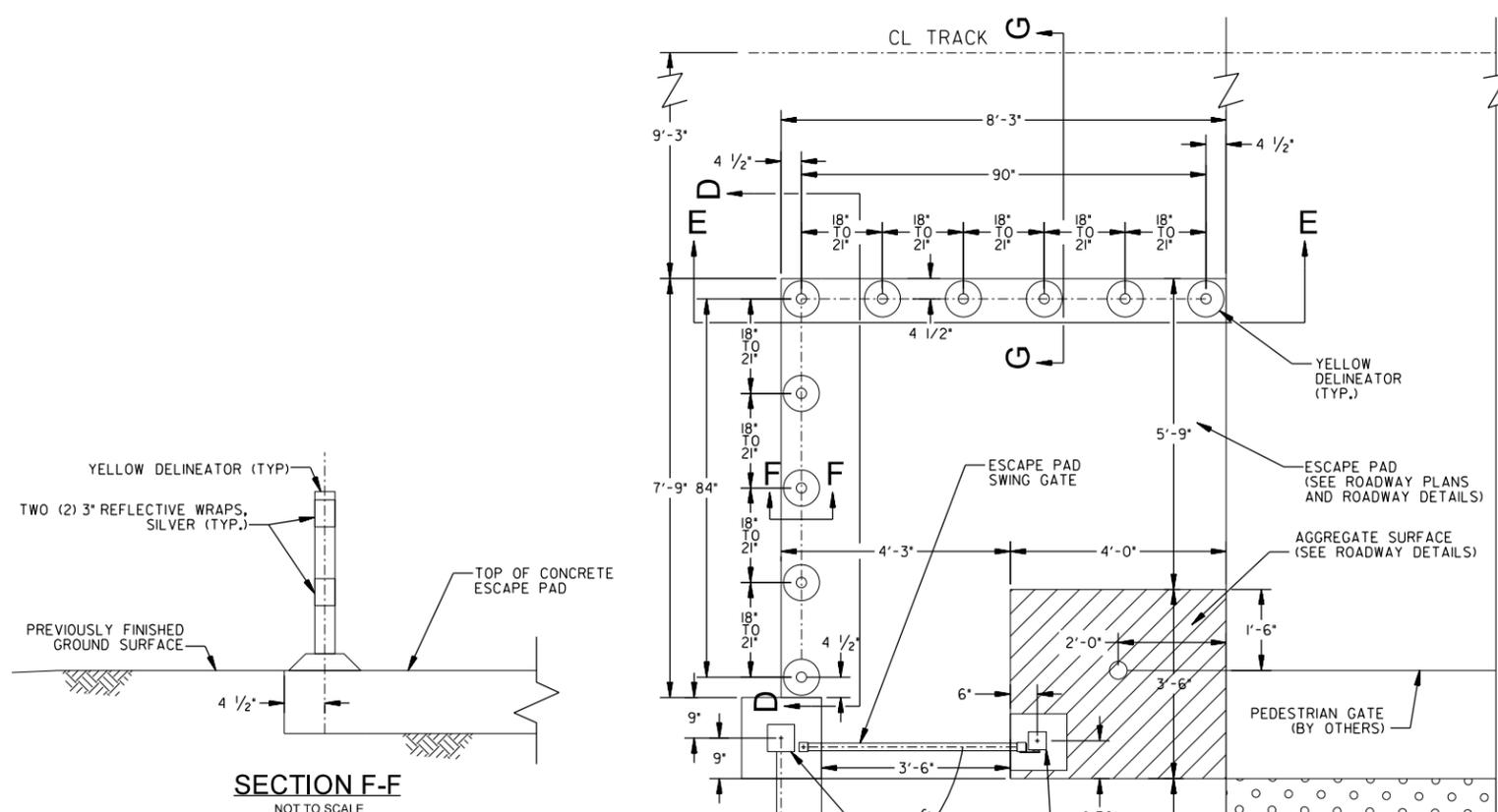
STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

SPRINGFIELD RAIL IMPROVEMENTS PROJECT
 SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
 FENCING DETAILS - 1

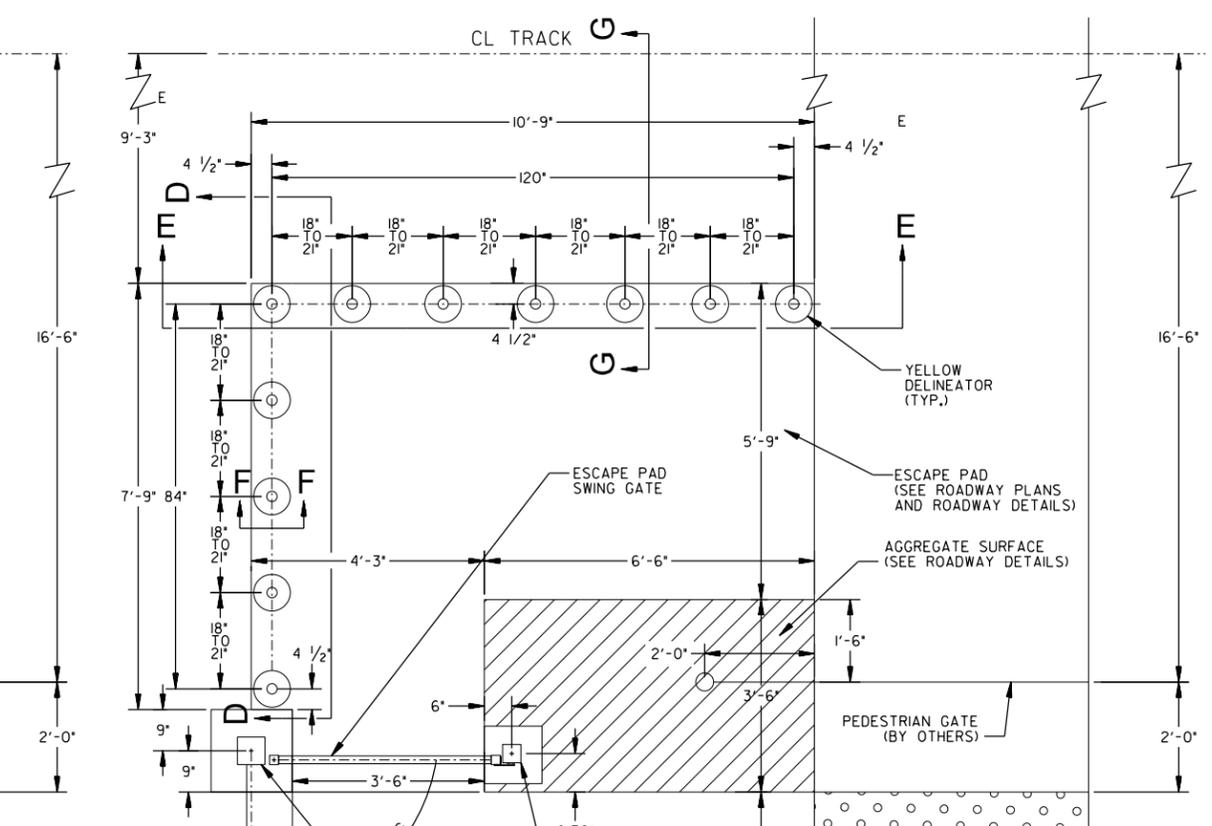
SCALE: SHEET 1 OF 11 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	322
	09L0179B			CONTRACT NO. 93773
		ILLINOIS		FED. AID PROJECT

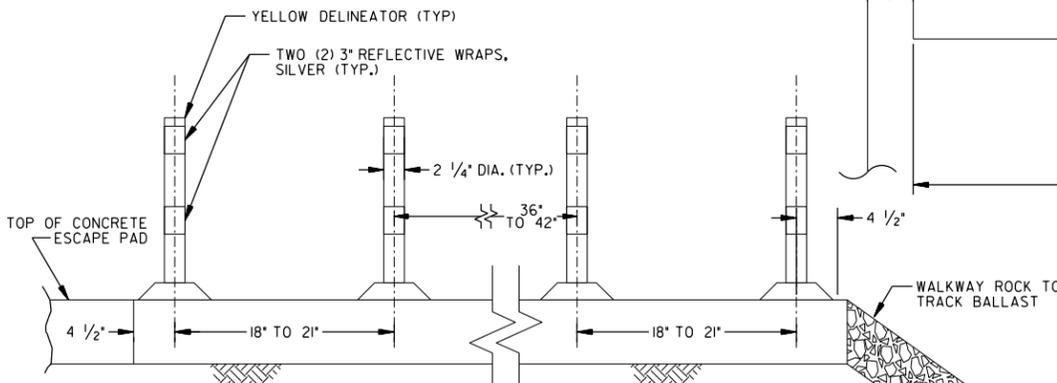
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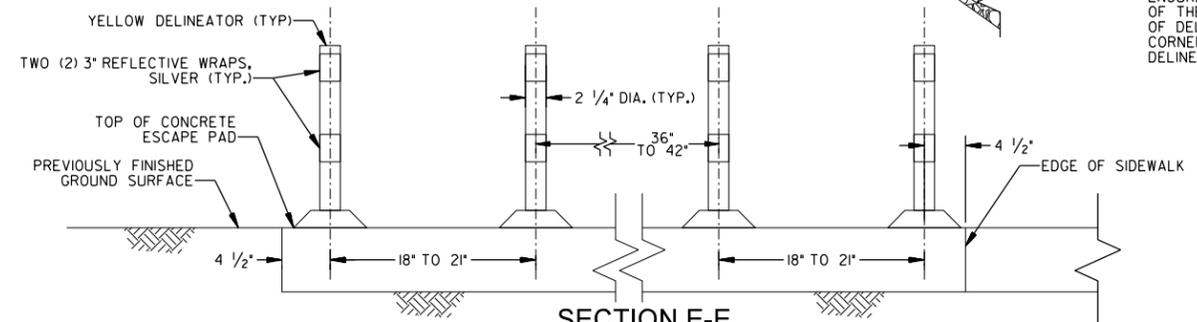
SECTION F-F
NOT TO SCALE



ESCAPE PAD/90° SKEW
 CAPITAL AVENUE, SOUTH SIDE OF WASHINGTON STREET,
 ENOS AVENUE AND EAST SIDE OF MONROE STREET
 FOR 7'-3" OR 10'-0" SIDEWALK
 NOT TO SCALE

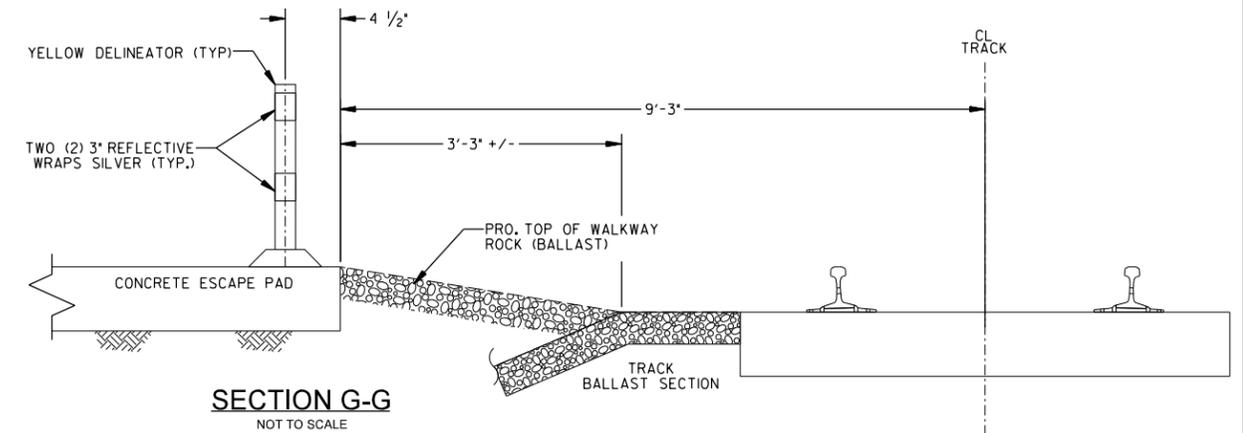


SECTION D-D
NOT TO SCALE



SECTION E-E
NOT TO SCALE

NOTE: AT SKEWED CROSSINGS THE NUMBER OF DELINEATORS REQUIRED WILL VARY. DELINEATORS TO BE EQUALLY SPACED ALONG THE OUTSIDE EDGE OF THE ESCAPE PAD. ENSURE THAT A DELINEATOR IS LOCATED IN THE CORNER OF THE ESCAPE PAD AS SHOWN ABOVE. THE REMAINDER OF DELINEATORS TO BE EQUALLY SPACED BETWEEN THIS CORNER DELINEATOR AND THE BEGINNING AND ENDING DELINEATORS, NOT TO EXCEED TWENTY-ONE (21) INCHES.



SECTION G-G
NOT TO SCALE



USER NAME = pop00275	DESIGNED - JGT	REVISED -
PLOT SCALE = 2.00' / in.	DRAWN - RSJ	REVISED -
PLOT DATE = 10/24/2024	CHECKED - MNM	REVISED -
	DATE - 10/01/2024	REVISED -

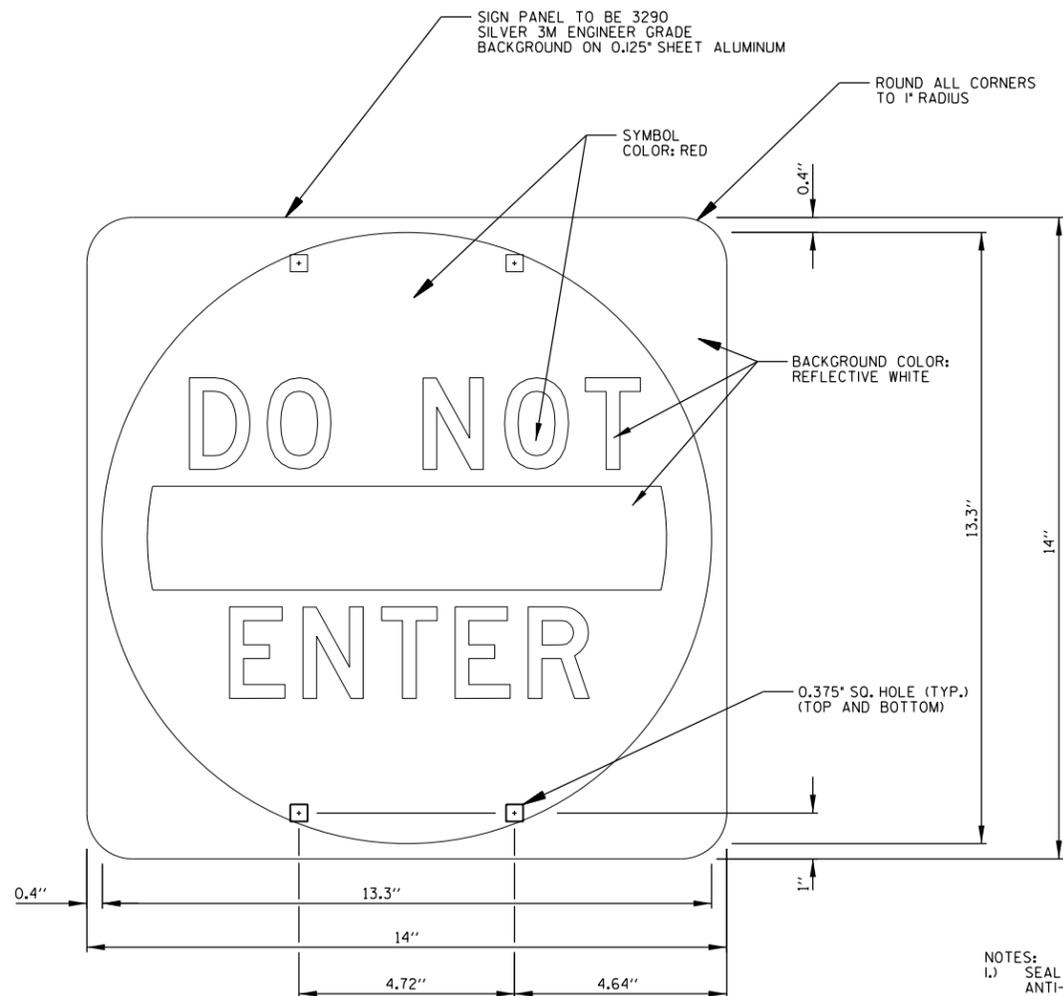
STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

SPRINGFIELD RAIL IMPROVEMENTS PROJECT
 SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
 FENCING DETAILS - 3

SCALE: SHEET 3 OF 11 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	324
	09L0179B	CONTRACT NO.	93773	
	ILLINOIS	FED. AID PROJECT		

MODEL: Sheet 5
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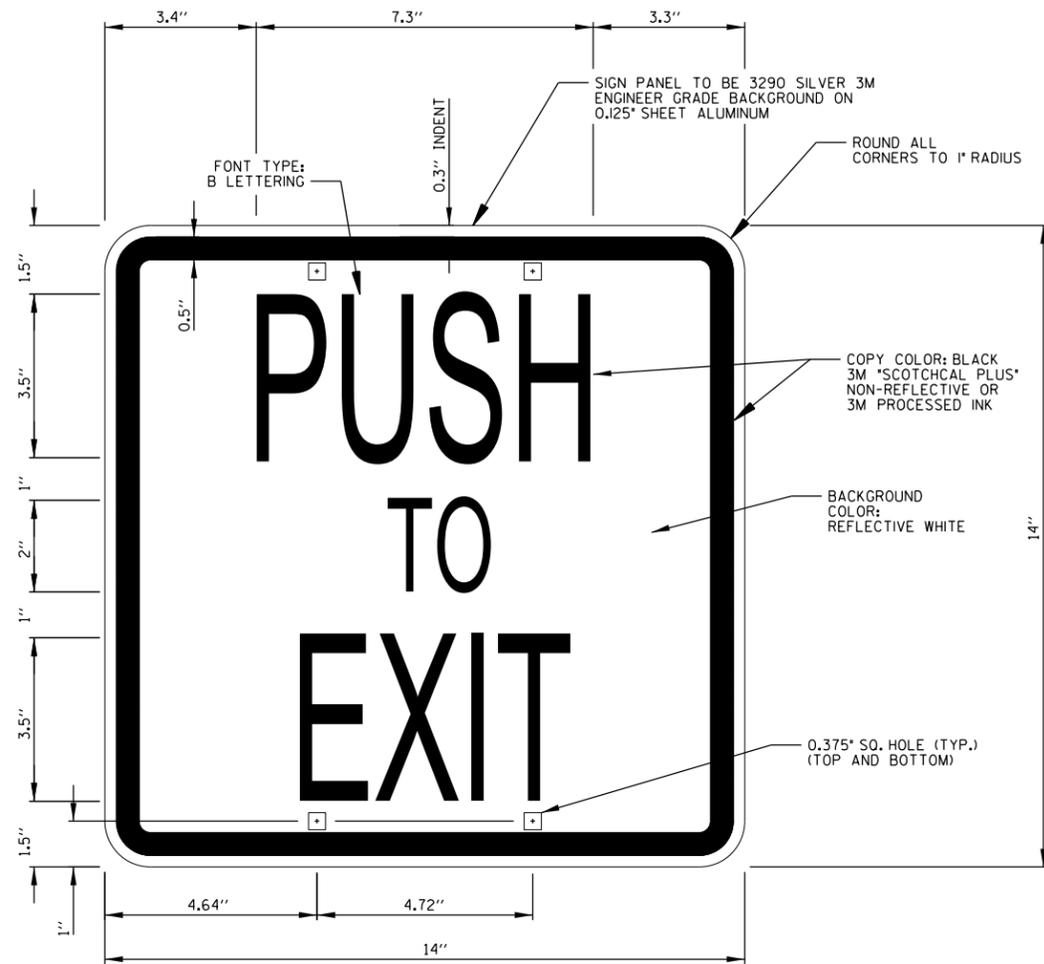


R5-1STD & MIN;
 1.0" Radius, No border, White;
 Table of distances between letter and object lefts.

0.4	DO NOT ENTER	0.3
-----	-----------------	-----

- NOTES:
- 1.) SEAL SIGNS WITH TRANSPARENT ANTI-GRAFFITI FILM
 - 2.) TWO (2) EACH PICKETS TO BE DRILLED WITH TWO (2) HOLES EACH FOR MOUNTING TAMPER-PROOF FASTENERS. CONTRACTOR TO APPLY ENGINEER APPROVED SURFACE COATING PRODUCT TO DRILLED HOLES.
 - 3.) SIGNS TO BE MOUNTED BACK TO BACK WITH FOUR (4) TAMPER-PROOF STAINLESS STEEL ONE-WAY FASTENERS. ENGINEER APPROVED NEOPRENE WASHERS TO BE PLACED BETWEEN SIGN SURFACES AND PICKETS PRIOR TO INSTALLATION OF FASTENERS.

2 ESCAPE PAD SWING GATE SIGN (FIELD SIDE)
 NOT TO SCALE



1.0" Radius, 0.5" Border, 0.3" Indent, Black on White;
 PUSH B 75% spacing;
 TO B 75% spacing;
 EXIT B 75% spacing;
 Table of distances between letter and object lefts.

3.4	P	1.9	2.0	1.9	1.5	3.3
-----	---	-----	-----	-----	-----	-----

6.0	T	1.0	1.0	6.0
-----	---	-----	-----	-----

4.1	E	1.6	2.1	0.9	1.3	4.0
-----	---	-----	-----	-----	-----	-----

3 ESCAPE PAD SWING GATE SIGN (TRACK SIDE)
 NOT TO SCALE

FINAL PLANS



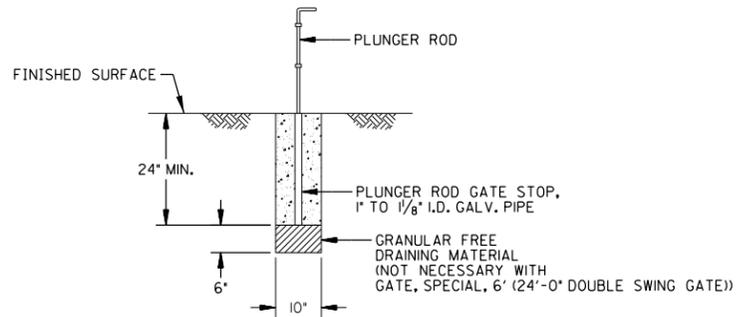
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PLOT SCALE = 2.00' / in.	DRAWN - RSJ	REVISED -
PLOT DATE = 9/27/2024	CHECKED - MNM	REVISED -
	DATE - 10/01/2024	REVISED -

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

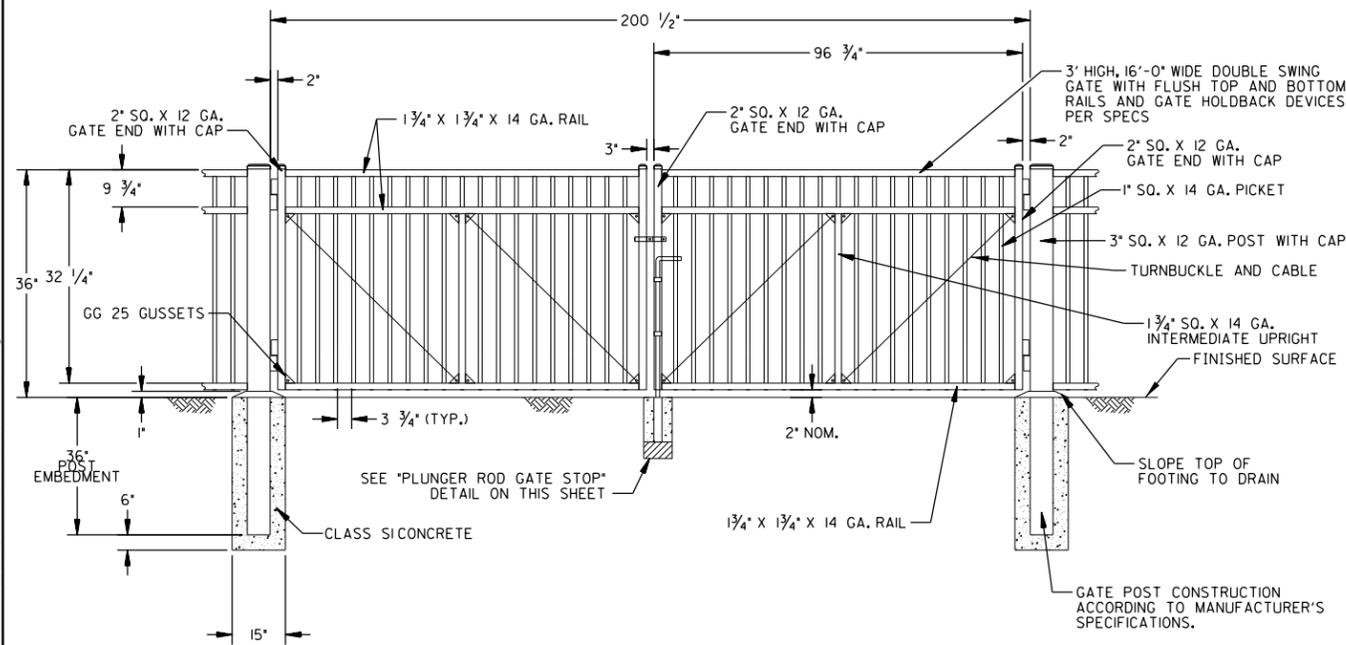
SPRINGFIELD RAIL IMPROVEMENTS PROJECT
 SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
 FENCING DETAILS - 6

SCALE: SHEET 6 OF 11 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	327
09L0179B		CONTRACT NO. 93773		
ILLINOIS		FED. AID PROJECT		



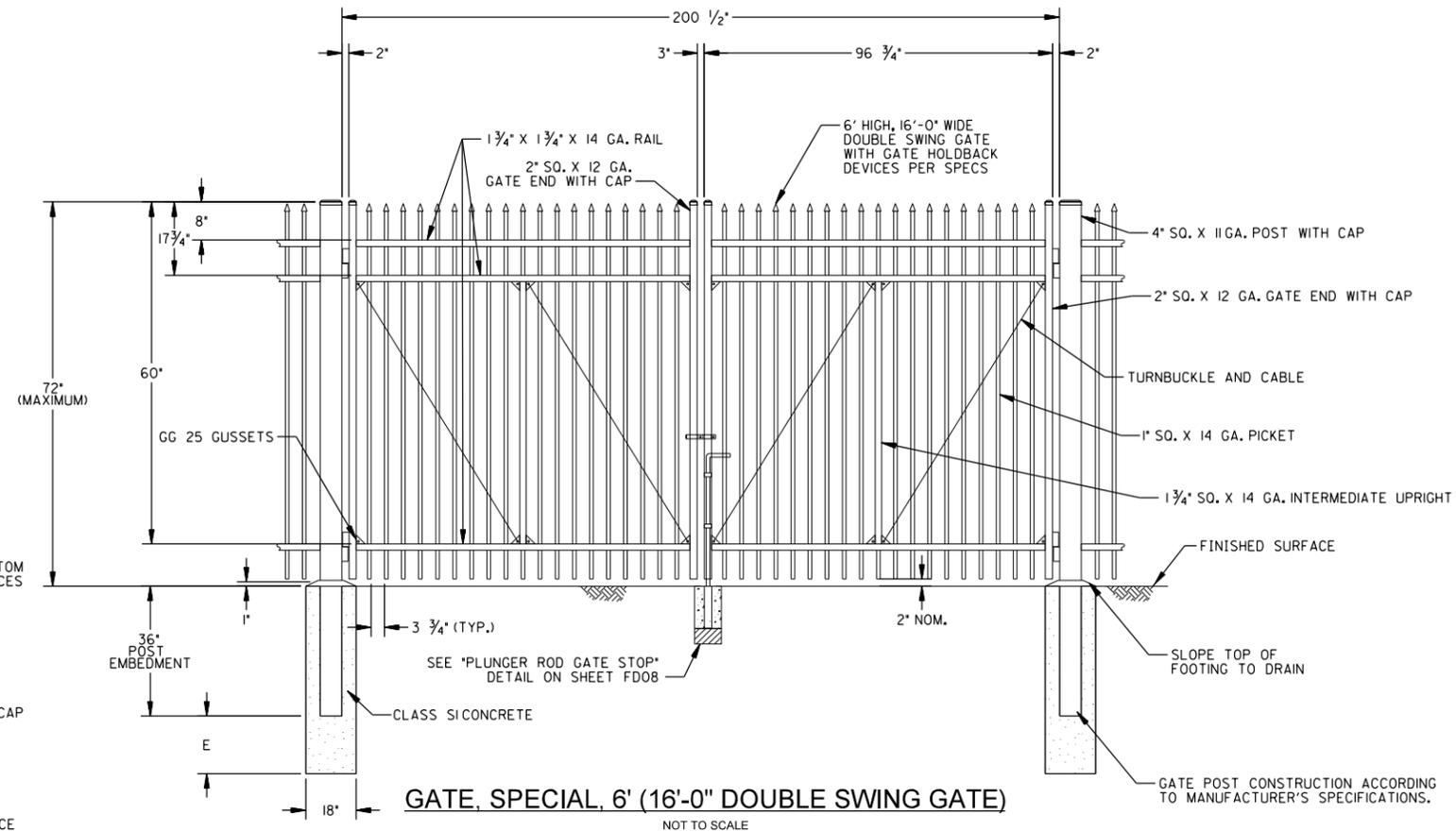
PLUNGER ROD GATE STOP
NOT TO SCALE



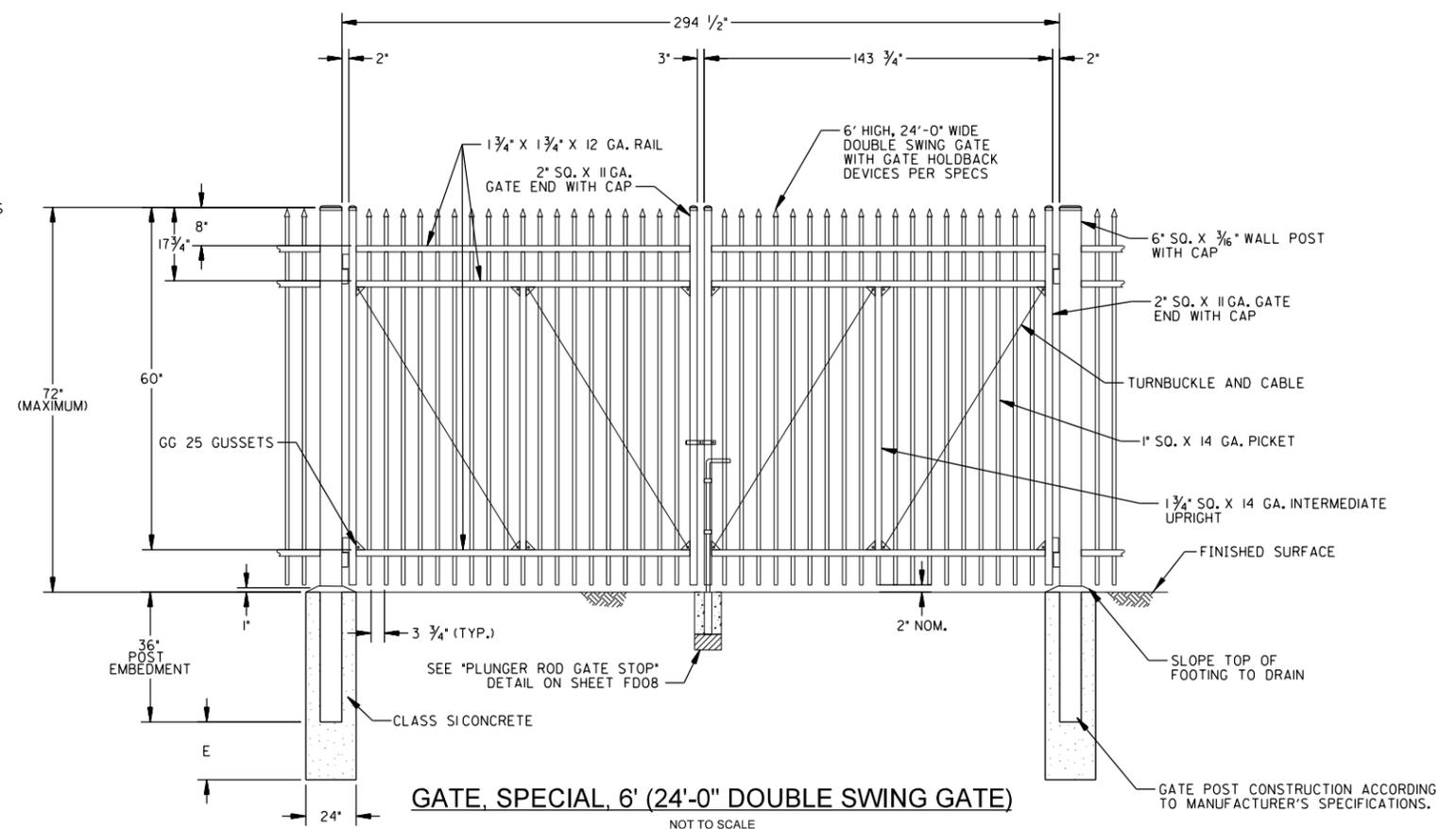
GATE, SPECIAL, 3' (16'-0\"/>NOT TO SCALE

- NOTE:
- 1.) RAILROAD WILL FURNISH PAD LOCK.
 - 2.) NO DIG GATE HOLDBACK DEVICE (EACH PER SWING GATE SECTION) TO BE INSTALLED INSIDE FENCE LIMITS. SPECIFIC LOCATIONS FOR GATE HOLDBACK DEVICE AT GATE LOCATIONS WHICH COULD HAVE AN IMPACT ON THE AMOUNT OF HORIZONTAL CLEARANCE TO TRACK CENTERLINE TO BE PROVIDED BY THE ENGINEER IN THE FIELD TO ENSURE PROPER HORIZONTAL CLEARANCE IS PROVIDED TO TRACK CENTERLINE FROM GATE WHEN IN THE OPEN POSITION. MINIMUM HORIZONTAL DISTANCE FROM TRACK CENTERLINE TO ANY PORTION OF A GATE WHEN IN THE OPEN POSITION IS TEN (10) FEET.
 - 3.) ADJUST GRADES AS REQUIRED TO ENSURE A MAXIMUM GAP OF TWELVE (12) INCHES BENEATH ANY PORTION OF GATE AND TO PROVIDE A FULL UNOBSTRUCTED RANGE OF TRAVEL BETWEEN GATE CLOSED AND OPEN POSITION.

FOOTING DEPTH BELOW POST (E)		
GATE	WIND EXPOSURE B	WIND EXPOSURE C
GATE, SPECIAL, 6'	24"	36"



GATE, SPECIAL, 6' (16'-0\"/>NOT TO SCALE

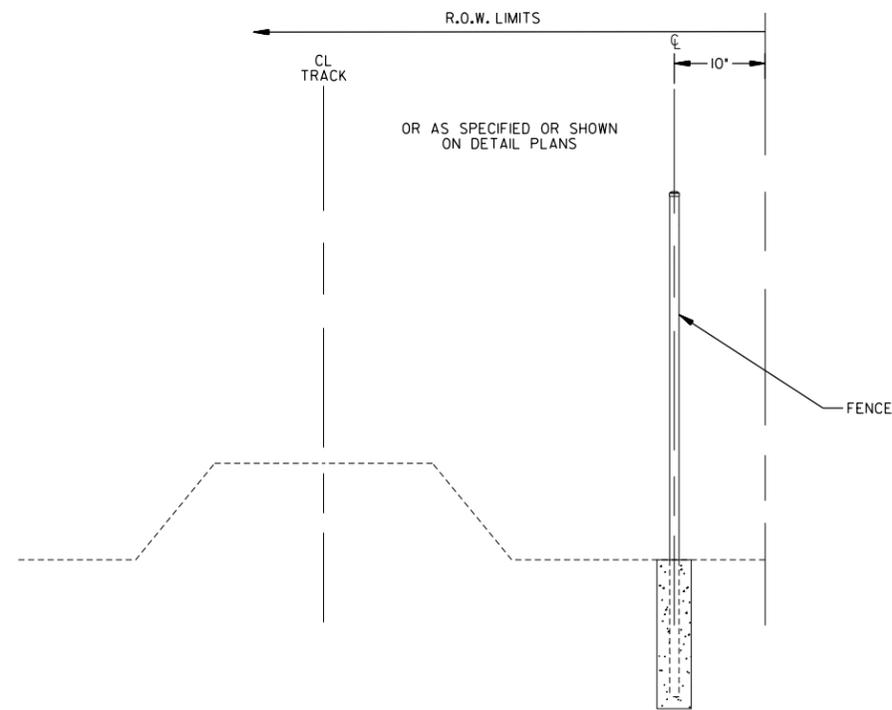


GATE, SPECIAL, 6' (24'-0\"/>NOT TO SCALE

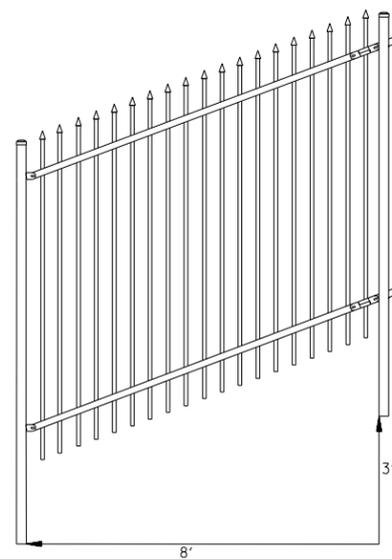
USER NAME = pop00275	DESIGNED - JGT	REVISED -
PLOT SCALE = 2.00' / in.	DRAWN - RSJ	REVISED -
PLOT DATE = 9/27/2024	CHECKED - MNM	REVISED -
	DATE - 10/01/2024	REVISED -

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	330
09L0179B		CONTRACT NO. 93773		
ILLINOIS		FED. AID PROJECT		

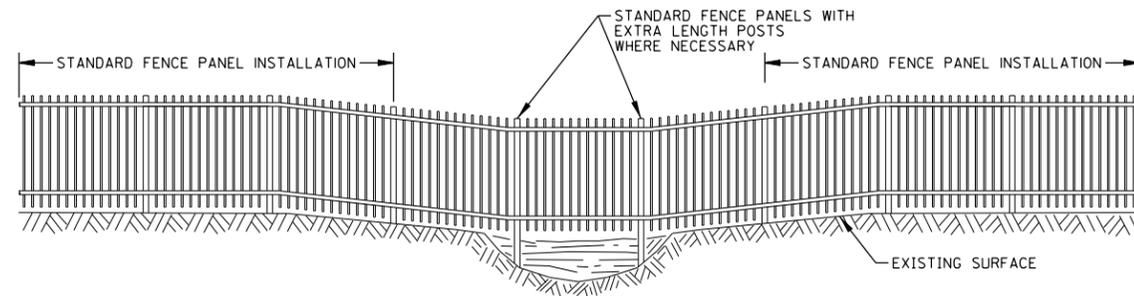
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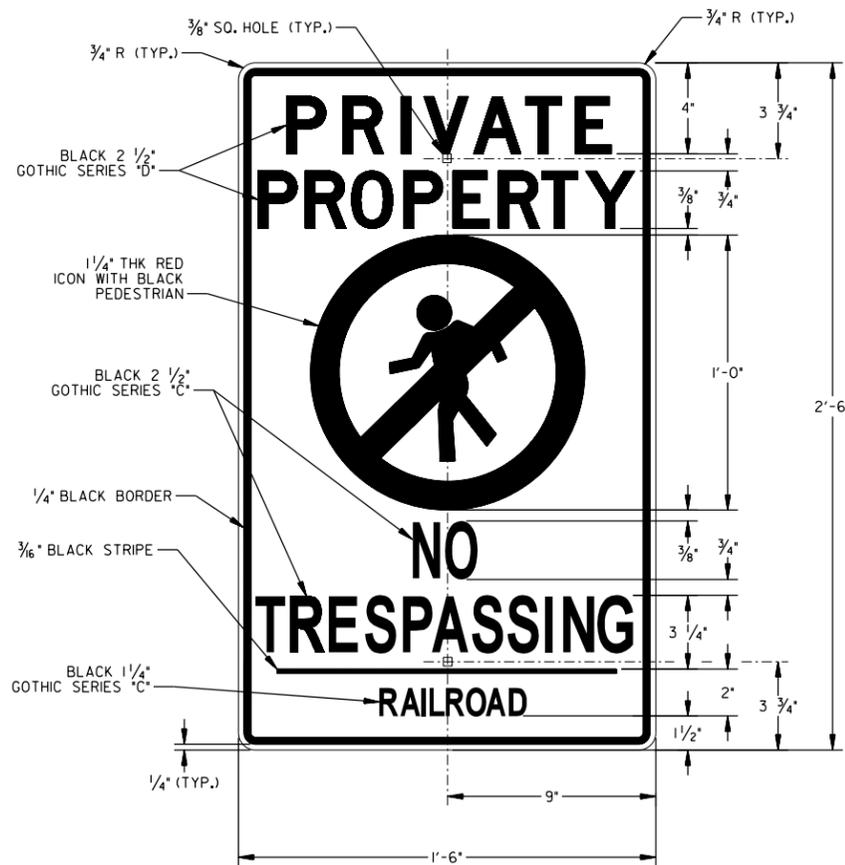
FENCE LOCATION ALONG R.O.W. LIMITS
 NOT TO SCALE



FENCE PANEL FLEXIBILITY
 NOT TO SCALE



**ELEVATION ORNAMENTAL FENCE
 INSTALLATION OVER SWALE/ DITCH**
 NOT TO SCALE



NO TRESPASSING SIGN (UP STD. DWG. 0538A)
 NOT TO SCALE

- NOTES:
 1.) SIGN TO BE 3290 SILVER 3M ENGINEER GRADE BACKGROUND, ON 0.080" 3105 SHEET ALUMINUM.
 2.) SIGN TO BE MOUNTED TO TUBULAR SWING GATE WITH TWO (2) TAMPER-PROOF ONE-WAY FASTENERS.



USER NAME = pop00275	DESIGNED - JGT	REVISED -
PLOT SCALE = 2.00' / in.	DRAWN - RSJ	REVISED -
PLOT DATE = 9/27/2024	CHECKED - MNM	REVISED -
	DATE - 10/01/2024	REVISED -

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

SPRINGFIELD RAIL IMPROVEMENTS PROJECT
 SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
 FENCING DETAILS - 10

SCALE: SHEET 10 OF 11 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	331
09L0179B		CONTRACT NO. 93773		
ILLINOIS FED. AID PROJECT				

SHEET NOTES:

- ① SEE TRACK FENCING AND ACCESS PLAN SHEETS FOR ROW STATION AND OFFSET CALLOUTS.
- ② SUBBALLAST 12 INCH



NORTH TURNAROUND AT STA. 47693+12.01 RT

WORKING PTS	NORTHING	EASTING	ELEVATION
A	1,147,496.05	2,444,044.62	608.60
B	1,147,495.93	2,443,998.62	607.70
C	1,147,510.93	2,443,998.58	607.64
D	1,147,510.95	2,444,004.58	607.74
E	1,147,519.79	2,444,025.77	608.13
F	1,147,541.02	2,444,034.51	608.22
G	1,147,540.95	2,444,004.51	N/A
H	1,147,480.93	2,443,998.66	607.75
I	1,147,480.95	2,444,004.66	606.85
J	1,147,472.21	2,444,025.90	608.31
K	1,147,451.02	2,444,034.74	608.56
L	1,147,450.95	2,444,004.74	N/A
M	1,147,447.28	2,444,034.75	608.57
N	1,147,447.30	2,444,044.75	608.77

SOUTH TURNAROUND AT STA. 47695+13.63 RT

WORKING PTS	NORTHING	EASTING	ELEVATION
O	1,147,294.44	2,444,049.15	N/A
P	1,147,344.27	2,444,045.02	609.31
Q	1,147,294.31	2,443,999.15	608.41
R	1,147,252.61	2,444,021.75	608.92
S	1,147,227.59	2,444,035.32	609.22
T	1,147,227.51	2,444,005.32	N/A

FINAL PLANS

MODEL: Sheet 0
FILE: I:\A\B\C\p\hanson\c-cw\hanson\c-cw\hanson\c-cw\09\09\09\01\798\Usable_Segments_III - V - VICAD\Rail\Usable_Segment_VI - IDOT\Sheet\090901798B-TrackEntranceDetails.dgn



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PLOT SCALE = 20.00' / in.
PLOT DATE = 9/27/2024

DESIGNED - GCN
DRAWN - DJP
CHECKED - GCN
DATE - 10/01/2024

REVISED -
REVISED -
REVISED -
REVISED -

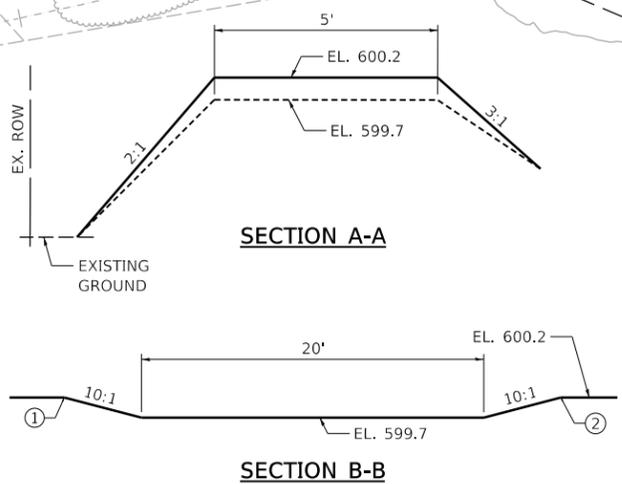
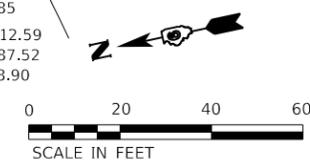
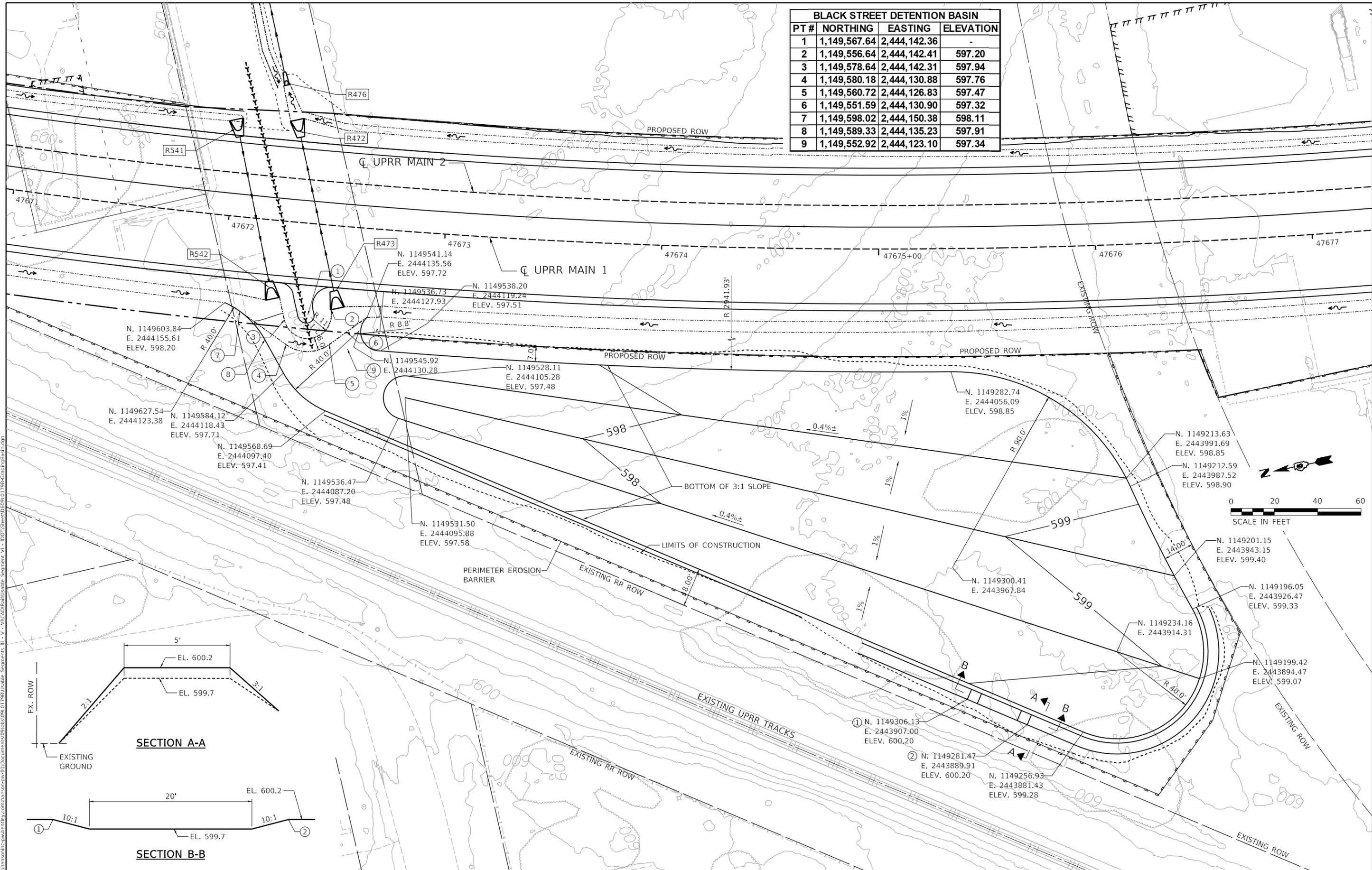
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**SPRINGFIELD RAIL IMPROVEMENTS PROJECT
SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
TRACK TURNAROUND DETAILS**

SCALE: SHEET 1 OF 1 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	333
09L0179B			CONTRACT NO. 93773	
ILLINOIS FED. AID PROJECT				

BLACK STREET DETENTION BASIN			
PT #	NORTHING	EASTING	ELEVATION
1	1,149,567.64	2,444,142.36	-
2	1,149,556.64	2,444,142.41	597.20
3	1,149,578.64	2,444,142.31	597.94
4	1,149,580.18	2,444,130.88	597.76
5	1,149,560.72	2,444,126.83	597.47
6	1,149,551.59	2,444,130.90	597.32
7	1,149,598.02	2,444,150.38	598.11
8	1,149,589.33	2,444,135.23	597.91
9	1,149,552.92	2,444,123.10	597.34



FINAL PLANS

MODEL: Sheet 1
FILE NAME: p:\hanson\civic\dw\hanson\p09\09\01\09\01\798\Usable_Segment_VI - I\DOT\Street\090101798-Grading\Basin.dwg
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USER NAME = hard02376	DESIGNED - JAD	REVISED -
PLOT SCALE = 40.00' / in.	DRAWN - RH	REVISED -
PLOT DATE = 10/18/2024	CHECKED - JAD	REVISED -
	DATE - 10/01/2024	REVISED -

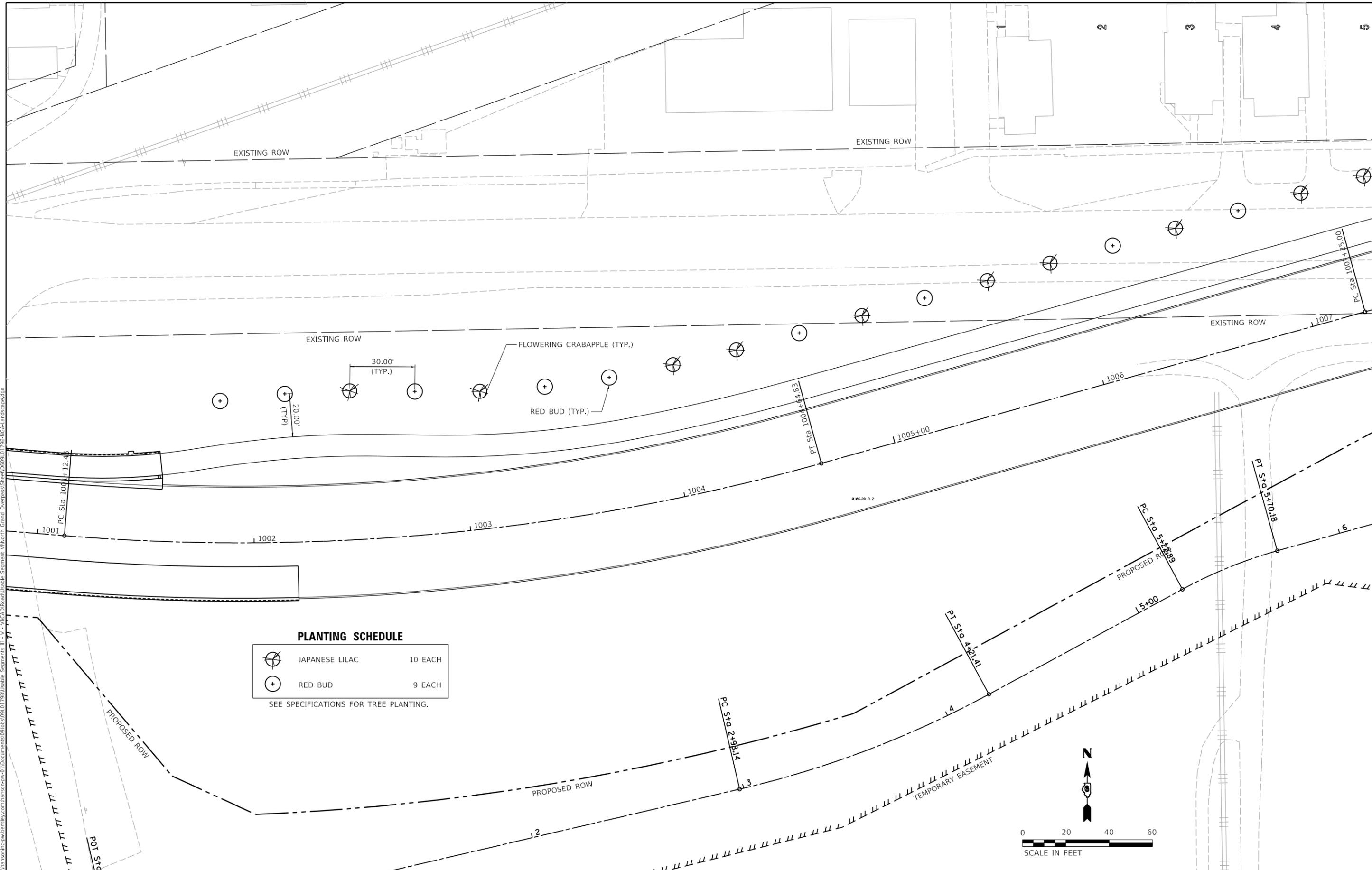
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SCALE: SHEET 1 OF 2 SHEETS STA. TO STA.

SPRINGFIELD RAIL IMPROVEMENTS PROJECT
SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
GRADING PLAN - BLACK ST. DETENTION BASIN

F.A.U. RTE. 7972	SECTION 20-00492-00-BR & 22-00492-01-BR	COUNTY SANGAMON	TOTAL SHEETS 714	SHEET NO. 336
09L0179B		CONTRACT NO. 93773		
ILLINOIS FED. AID PROJECT				

MODEL: Sheet 2
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PLANTING SCHEDULE

	JAPANESE LILAC	10 EACH
	RED BUD	9 EACH

SEE SPECIFICATIONS FOR TREE PLANTING.

FINAL PLANS



USER NAME = pop00275	DESIGNED - DJP	REVISED -
PLOT SCALE = 40.00' / in.	DRAWN - DJP	REVISED -
PLOT DATE = 9/27/2024	CHECKED - DJP	REVISED -
	DATE - 10/01/2024	REVISED -

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

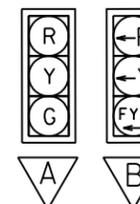
SPRINGFIELD RAIL IMPROVEMENTS PROJECT
 SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
 LANDSCAPE PLANS - 2

SCALE: SHEET 2 OF 2 SHEETS STA. TO STA.

F.A.P. RTE. 7972	SECTION 20-00492-00-BR & 22-00492-01-BR	COUNTY SANGAMON	TOTAL SHEETS 714	SHEET NO. 339
09L0179B		CONTRACT NO. 93773		
ILLINOIS FED. AID PROJECT				

TRAFFIC SIGNAL PLAN LEGEND

EXISTING	PROPOSED	DESCRIPTION
○	●	SIGNAL HEAD WITH BACKPLATE
⊗	●	SIGNAL POST
	⊗	CONTROLLER
	⊕	HANDHOLE
	⊕	PEDESTRIAN COUNTDOWN SIGNAL HEAD
	⊕	PEDESTRIAN PUSH BUTTON (APS)
	⊕	PEDESTRIAN PUSH BUTTON POST
	⊕	CONDUIT
	⊕	CONTROLLER

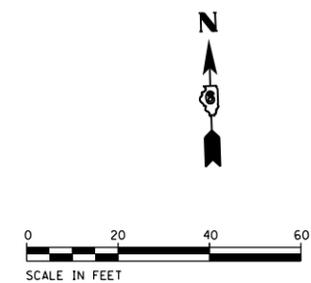
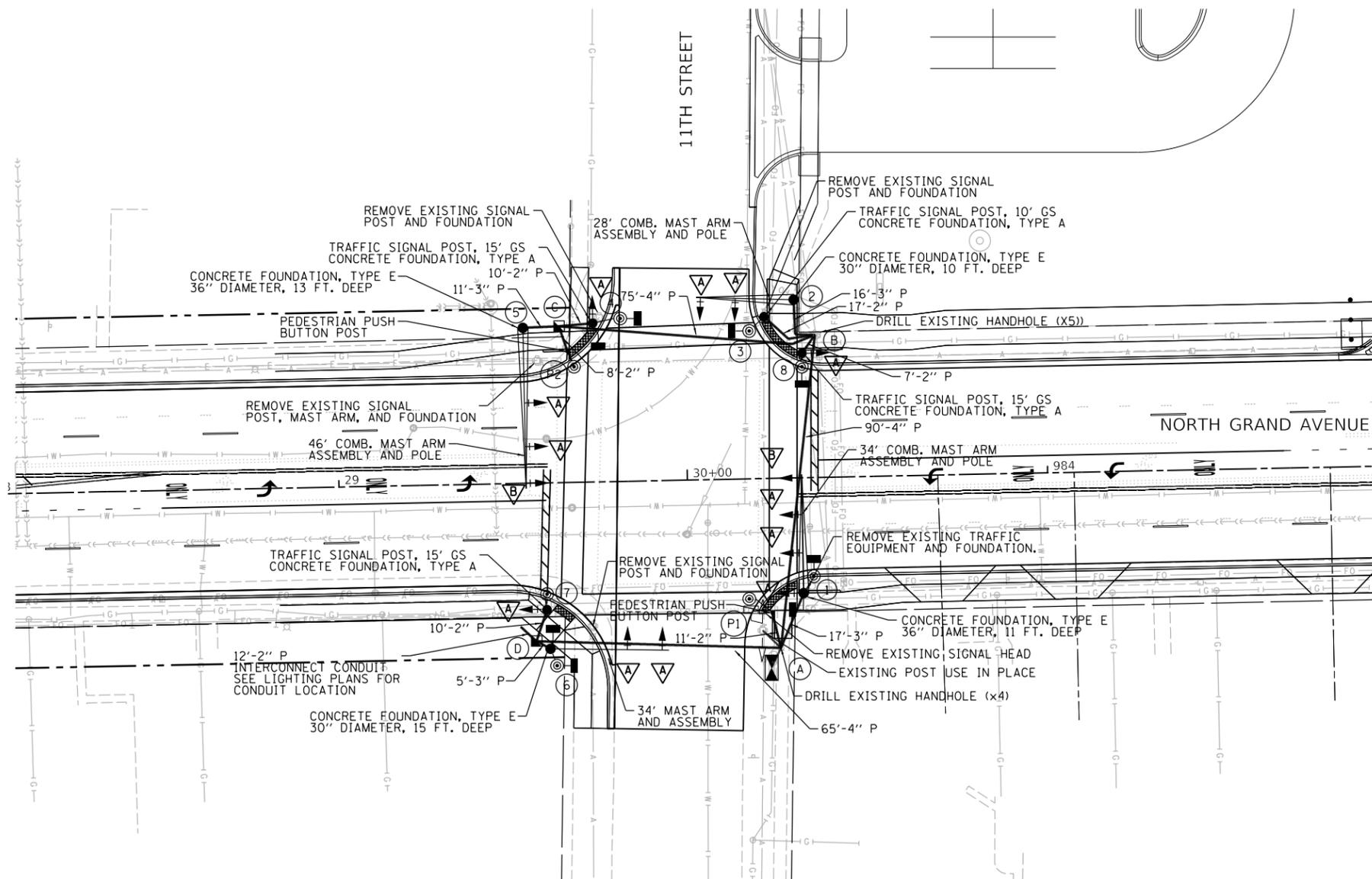


HANDHOLD LOCATIONS

HH I.D.	ALIGNMENT	STATION	OFFSET
(C)	N. GRAND	29+64	45' LT
(D)	N. GRAND	29+56	45' RT
⊗	N. GRAND	30+23	54' RT

POLE LOCATIONS

POLE I.D.	ALIGNMENT	STATION	OFFSET
(1)	N. GRAND	30+33	33' RT
(2)	N. GRAND	30+32	51' LT
(3)	N. GRAND	30+23	46' LT
(4)	N. GRAND	29+74	45' LT
(5)	N. GRAND	29+54	45' LT
(6)	N. GRAND	29+60	47' RT
(7)	N. GRAND	29+59	36' RT
(8)	N. GRAND	30+34	36' LT
(P1)	N. GRAND	30+24	38' RT
(P2)	N. GRAND	29+66	38' LT



FINAL PLANS

MODEL: 11th Street_Signal
FILE NAME: \\hanson\p\11thStreet_Signal\11thStreet_Signal.dwg



USER NAME = pop00275
PLOT SCALE = 40.00' / in.
PLOT DATE = 9/27/2024

DESIGNED - EMS
DRAWN - EMS
CHECKED - TMA
DATE - 10/01/2024

REVISED -
REVISED -
REVISED -
REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SPRINGFIELD RAIL IMPROVEMENTS PROJECT
SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
TRAFFIC SIGNAL PLAN - 11TH & N. GRAND AVENUE

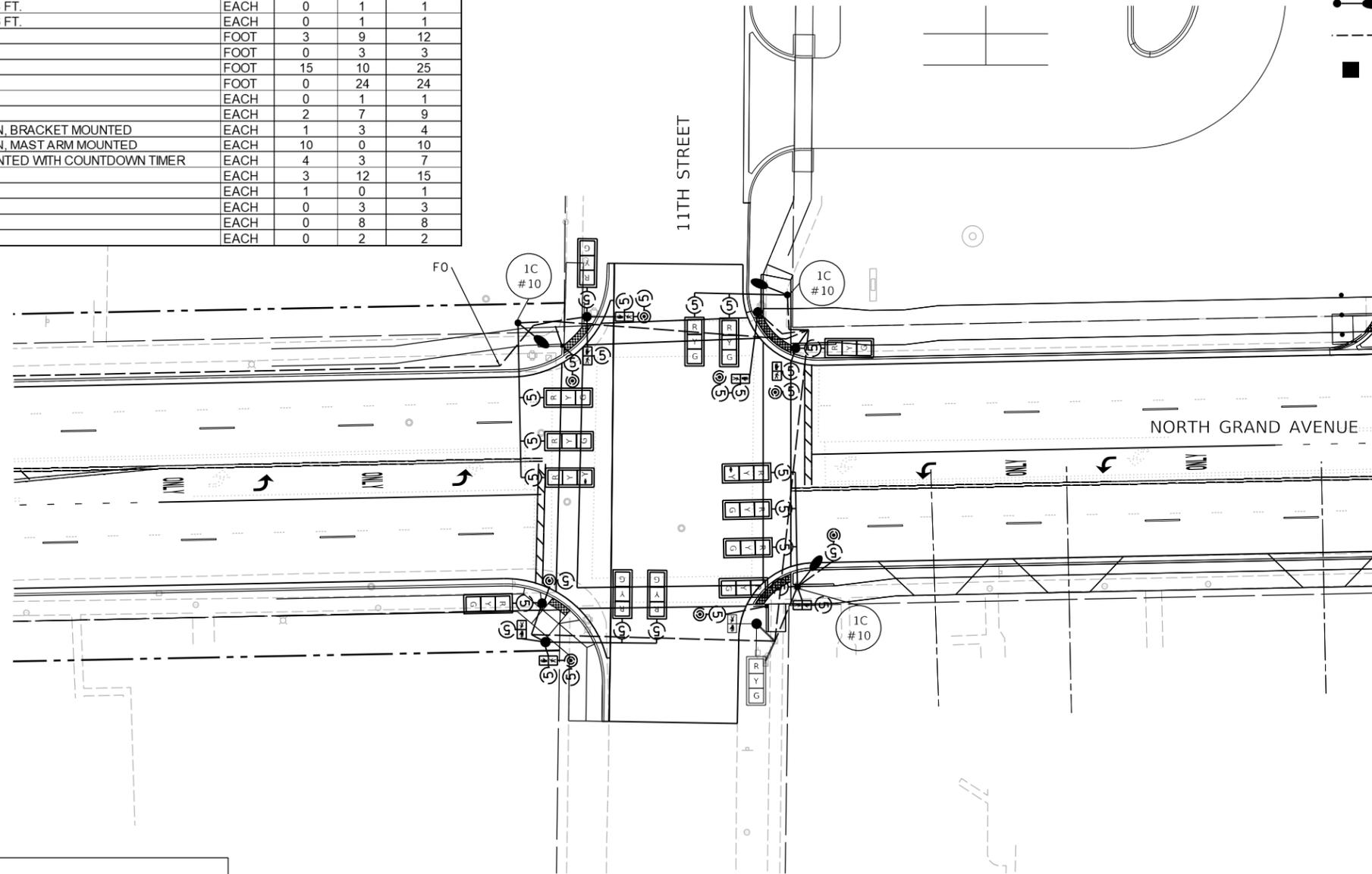
SCALE: SHEET 1 OF 9 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	340
09L0179B		CONTRACT NO. 93773		
ILLINOIS FED. AID PROJECT				

PAY ITEM	DESCRIPTION	UNIT	Usable Segment VI B	City	Total
72000100	SIGN PANEL - TYPE 1	SQ FT	0	8	8
72000200	SIGN PANEL - TYPE 2	SQ FT	15	45	60
81028350	UNDERGROUND CONDUIT, PVC, 2" DIA.	FOOT	10	71	81
81028370	UNDERGROUND CONDUIT, PVC, 3" DIA.	FOOT	5	44	49
81028390	UNDERGROUND CONDUIT, PVC, 4" DIA.	FOOT	140	90	230
81400100	HANDHOLE	EACH	2	0	2
81702110	ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE) 1/C NO. 10	FOOT	0	512	512
85700200	FULL-ACTUATED CONTROLLER AND TYPE IV CABINET	EACH	0	1	1
87100120	FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, 8F	FOOT	0	962	962
87301245	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	1330	2670	3999
87301900	ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1C	FOOT	200	624	824
87502440	TRAFFIC SIGNAL POST, GALVANIZED STEEL 10 FT.	EACH	0	1	1
87502490	TRAFFIC SIGNAL POST, GALVANIZED STEEL 15 FT.	EACH	1	2	3
87700210	STEEL MAST ARM ASSEMBLY AND POLE, 34 FT.	EACH	1	0	1
87702870	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 28 FT.	EACH	0	1	1
87702900	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 34 FT.	EACH	0	1	1
87702960	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 46 FT.	EACH	0	1	1
87800100	CONCRETE FOUNDATION, TYPE A	FOOT	3	9	12
87800200	CONCRETE FOUNDATION, TYPE D	FOOT	0	3	3
87800400	CONCRETE FOUNDATION, TYPE E 30-INCH DIAMETER	FOOT	15	10	25
87800415	CONCRETE FOUNDATION, TYPE E 36-INCH DIAMETER	FOOT	0	24	24
87900100	DRILL EXISTING FOUNDATION	EACH	0	1	1
87900200	DRILL EXISTING HANDHOLE	EACH	2	7	9
88040070	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, BRACKET MOUNTED	EACH	1	3	4
88040090	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, MAST ARM MOUNTED	EACH	10	0	10
88102717	PEDESTRIAN SIGNAL HEAD, LED, 1-FACE, BRACKET MOUNTED WITH COUNTDOWN TIMER	EACH	4	3	7
88200510	TRAFFIC SIGNAL BACKPLATE, RETROREFLECTIVE	EACH	3	12	15
89502375	REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT	EACH	1	0	1
X1400238	LUMINAIRE, LED, SPECIAL	EACH	0	3	3
X8760200	ACCESSIBLE PEDESTRIAN SIGNALS	EACH	0	8	8
X8760201	PEDESTRIAN PUSH-BUTTON POST	EACH	0	2	2

TRAFFIC SIGNAL WIRING DIAGRAM LEGEND

- ELECTRIC CABLE DENOTING NUMBER OF CONDUCTORS #14
- SIGNAL FACE WITH BACKPLATE
- DIRECTIONAL SIGNAL SECTION
- 12" SIGNAL SECTION
- PEDESTRIAN SIGNAL HEAD
- APS PEDESTRIAN PUSH BUTTON
- LUMINAIRE
- CONDUIT
- PEDESTRIAN PUSH BUTTON POST



NOTE
SEE ENLARGED PLAN - 9TH STREET ENTRANCES
FOR SIGNAL WORK AT 9TH STREET AND N. GRAND AVENUE.



FINAL PLANS

MODEL: 11th Street - Cable
FILE NAME: p:\projects\11thStreet\11thStreet.dwg



USER NAME = pop00275
PLOT SCALE = 40.00' / in.
PLOT DATE = 9/30/2024

DESIGNED - EMS
DRAWN - EMS
CHECKED - TMA
DATE - 10/01/2024

REVISED -
REVISED -
REVISED -
REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

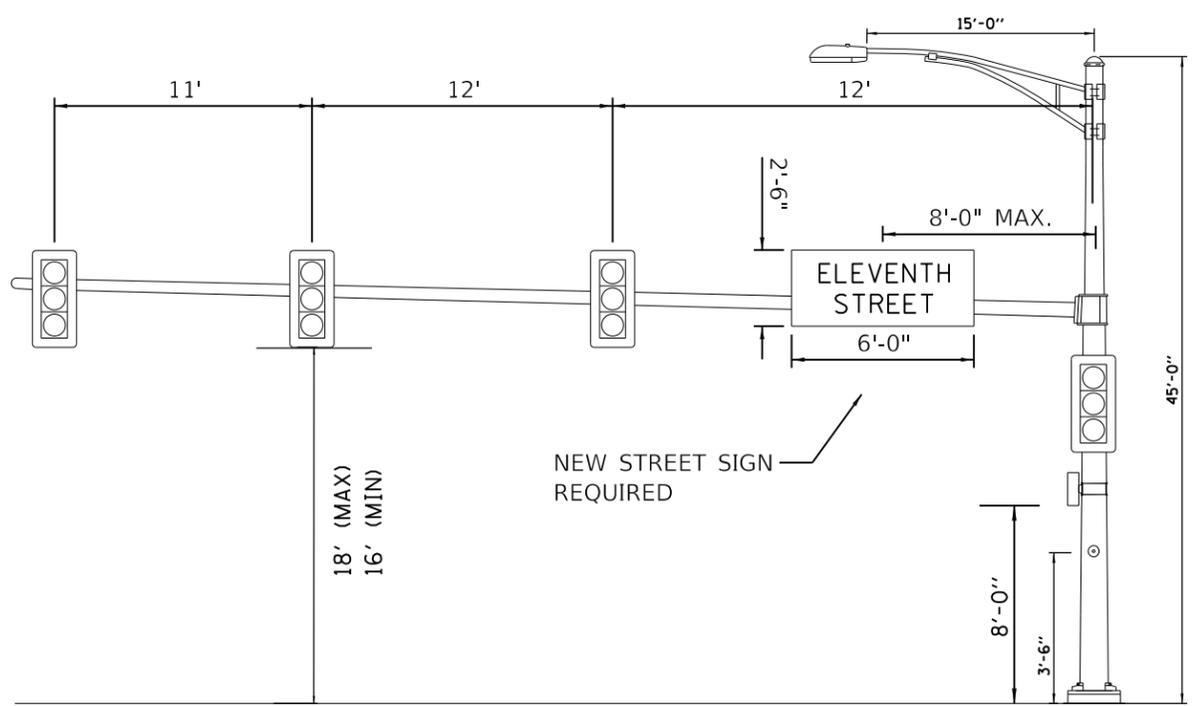
SPRINGFIELD RAIL IMPROVEMENTS PROJECT
SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
TRAFFIC CABLE PLAN - 11TH & N. GRAND AVENUE

SCALE: SHEET 2 OF 9 SHEETS STA. TO STA.

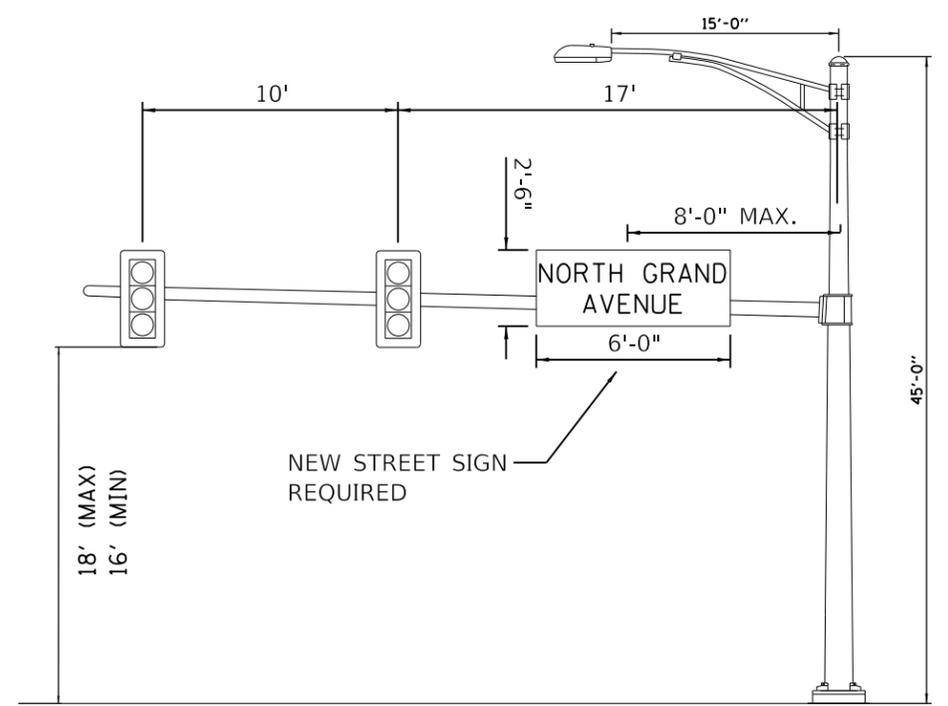
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	341
09L0179B		CONTRACT NO. 93773		
ILLINOIS		FED. AID PROJECT		

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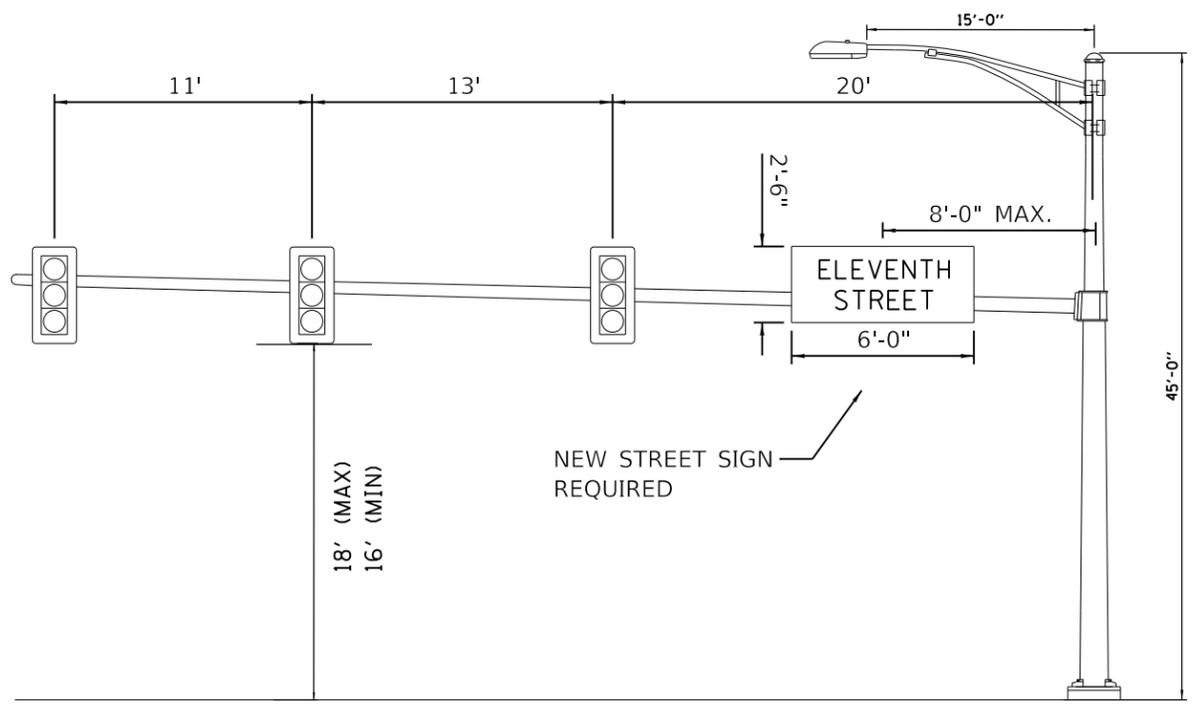
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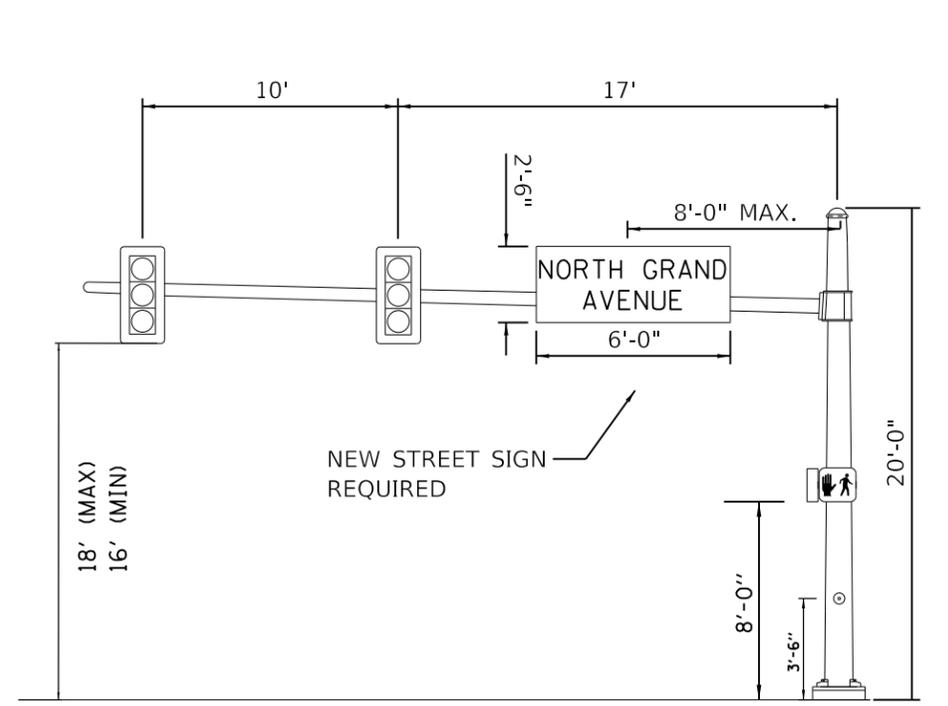
POLE #1
 N. GRAND AVE. AND 11TH ST.
 EASTBOUND N. GRAND AVE.
 NTS



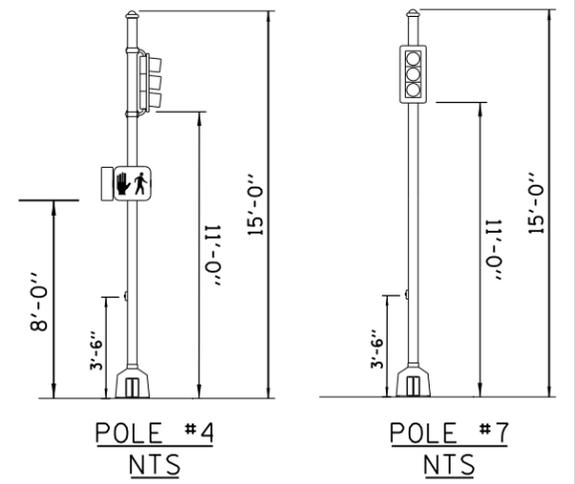
POLE #2
 N. GRAND AVE. AND 11TH ST.
 NORTHBOUND 11TH ST.
 NTS



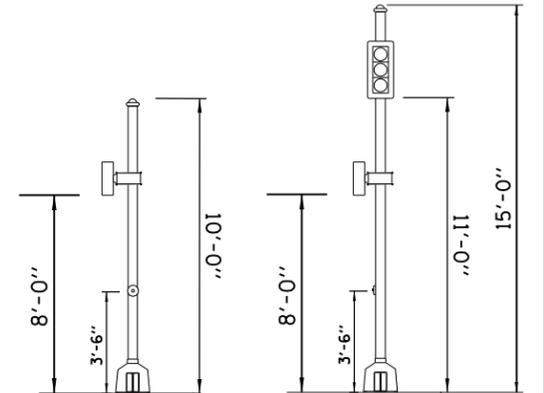
POLE #5
 N. GRAND AVE. AND 11TH ST.
 WESTBOUND N. GRAND AVE.
 NTS



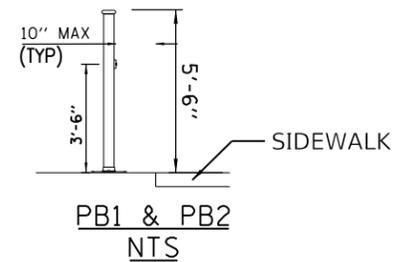
POLE #6
 N. GRAND AVE. AND 11TH ST.
 SOUTHBOUND 11TH ST.
 NTS



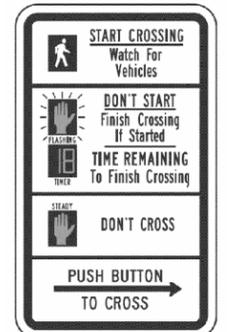
POLE #4
 NTS
POLE #7
 NTS



POLE #3
 NTS
POLE #8
 NTS



PB1 & PB2
 NTS



R10-3e
 SIGN PANEL-TYPE 1
 9" X 15"
 8 REQUIRED

FINAL PLANS



USER NAME = pop00275	DESIGNED - EMS	REVISED -
DRAWN - EMS	REVISED -	
PLOT SCALE = 40.00' / in.	CHECKED - TMA	REVISED -
PLOT DATE = 9/27/2024	DATE - 10/01/2024	REVISED -

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

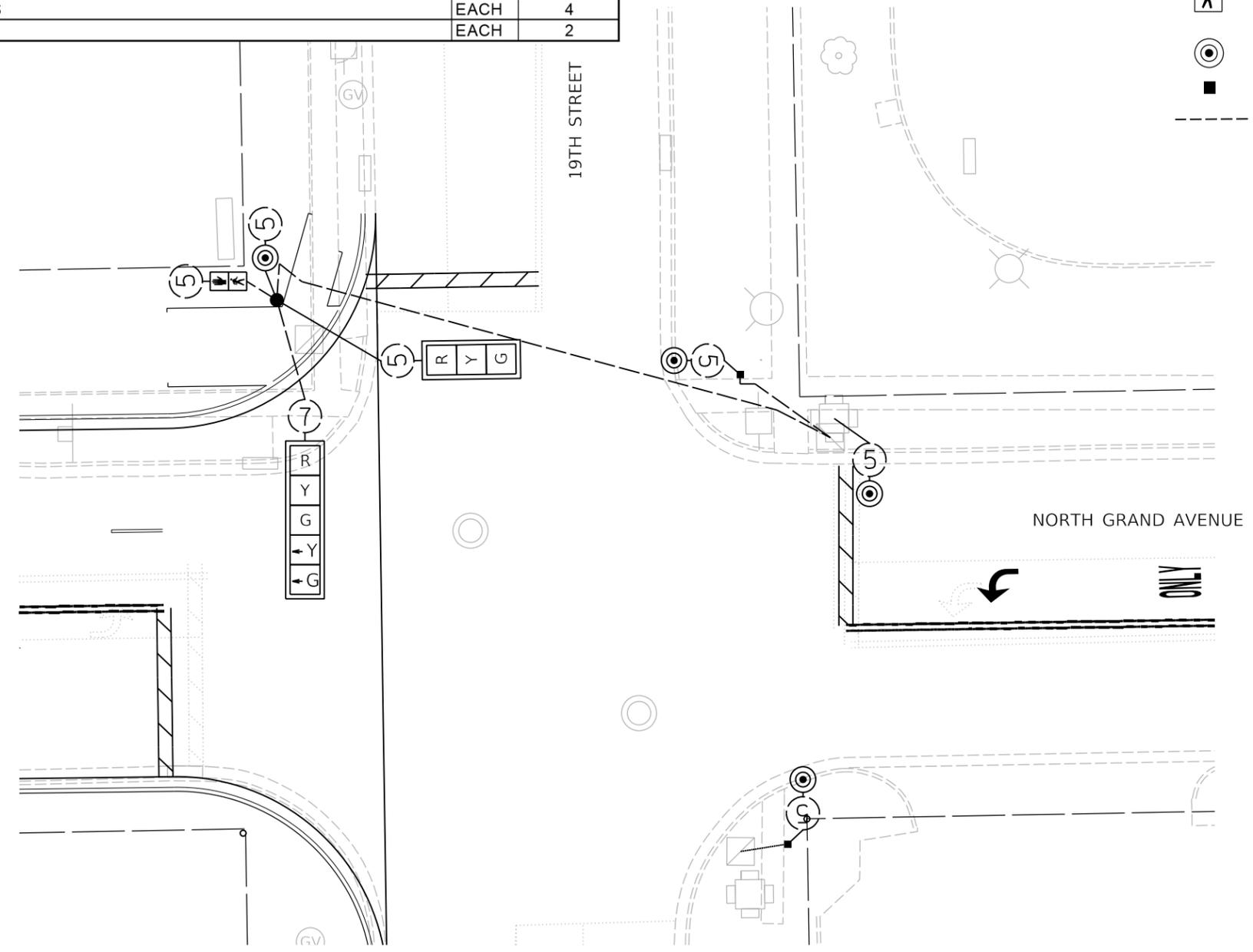
SPRINGFIELD RAIL IMPROVEMENTS PROJECT
 SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
 TRAFFIC LOADING PLAN - 11TH & N. GRAND AVENUE
 SCALE: SHEET 3 OF 9 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	342
	09L0179B		CONTRACT NO.	93773
	ILLINOIS	FED. AID PROJECT		

PAY ITEM	DESCRIPTION	UNIT	Quantity
72000100	SIGN PANEL - TYPE 1	SQ FT	4
81028350	UNDERGROUND CONDUIT, PVC, 2" DIA.	FOOT	59
81028390	UNDERGROUND CONDUIT, PVC, 4" DIA.	FOOT	83
81400100	HANDHOLE	EACH	2
87301245	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	590
87301255	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C	FOOT	135
87301900	ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1C	FOOT	151
87502510	TRAFFIC SIGNAL POST, GALVANIZED STEEL 17 FT.	EACH	1
87800100	CONCRETE FOUNDATION, TYPE A	FOOT	3
87900100	DRILL EXISTING FOUNDATION	EACH	1
87900200	DRILL EXISTING HANDHOLE	EACH	3
88040070	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, BRACKET MOUNTED	EACH	1
88040150	SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 5-SECTION, BRACKET MOUNTED	EACH	1
88102717	PEDESTRIAN SIGNAL HEAD, LED, 1-FACE, BRACKET MOUNTED WITH COUNTDOWN TIMER	EACH	1
88200510	TRAFFIC SIGNAL BACKPLATE, RETROREFLECTIVE	EACH	2
89502375	REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT	EACH	1
X8760200	ACCESSIBLE PEDESTRIAN SIGNALS	EACH	4
X8760201	PEDESTRIAN PUSH-BUTTON POST	EACH	2

TRAFFIC SIGNAL WIRING DIAGRAM LEGEND

-  ELECTRIC CABLE DENOTING NUMBER OF CONDUCTORS #14
-  SIGNAL FACE WITH BACKPLATE
-  DIRECTIONAL SIGNAL SECTION
-  12" SIGNAL SECTION
-  PEDESTRIAN SIGNAL HEAD
-  APS PEDESTRIAN PUSH BUTTON
-  PEDESTRIAN PUSH BUTTON POST
-  CONDUIT



FINAL PLANS

MODEL: 19th Street - Cable
 FILE NAME: p:\projects\2024\09L0179B\Usable Segments\09L0179B\Usable Segments - 19th Street - Cable.dwg
 USER: jhanson
 DATE: 9/27/2024



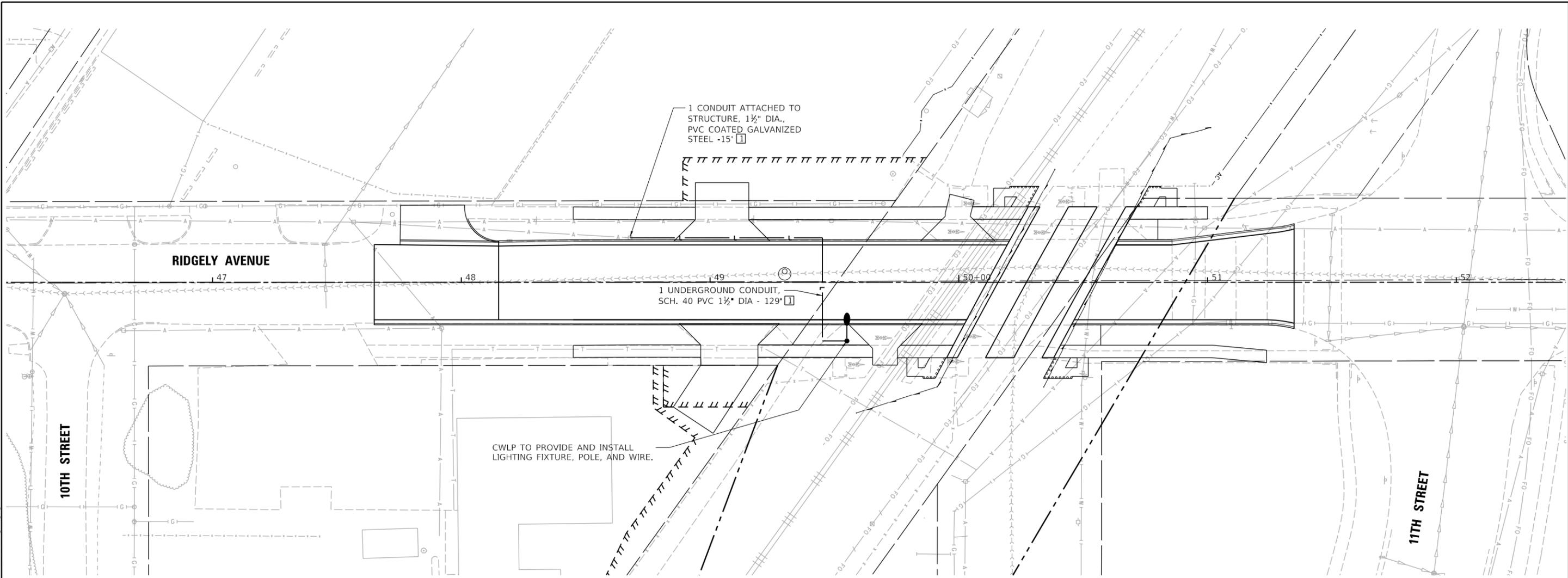
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	DATE - 10/01/2024	REVISED -

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

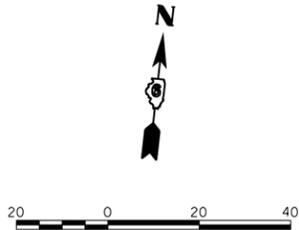
SPRINGFIELD RAIL IMPROVEMENTS PROJECT
 SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
 TRAFFIC CABLE PLAN - 19TH & N. GRAND AVENUE

SCALE: SHEET 5 OF 9 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	344
09L0179B		CONTRACT NO. 93773		
ILLINOIS FED. AID PROJECT				



CWLP TO PROVIDE AND INSTALL LIGHTING FIXTURE, POLE, AND WIRE.



LEGEND

- LIGHT POLE
- LIGHTING CONDUIT

KEYED NOTES

- 1 CONTRACTOR TO COORDINATE WITH CWLP ON INSTALLATION AND LOCATION OF CONDUIT.

GENERAL NOTE

LENGTHS PROVIDED FOR CONDUIT REPRESENT TYPICAL HORIZONTAL DISTANCES FROM POINT TO POINT. VERTICAL DISTANCES FOR BURIAL OF CONDUIT ARE NOT INCLUDED. SIX(6) ADDITIONAL FEET IS ADDED TO THE CONDUIT LENGTH FOR TYPICAL WIRE LENGTHS FOR SLACK AND TERMINATIONS BUT AGAIN THE VERTICAL LENGTHS FOR BURIAL ARE NOT INCLUDED. CONTRACTOR SHALL ACCOUNT FOR NOTED ITEMS IN THEIR OVERALL UNIT PRICING.

FINAL PLANS

MODEL: Sheet 5
FILE NAME: p:\projects\hanson\csw_bentley.com\hanson\p09\01\Documents\09\p09\01\798\Lighting.dgn
DOT: Street\09\01\798\Lighting.dgn



USER NAME = pop00275	DESIGNED - JFC	REVISED -
PLOT SCALE = 40.00' / in.	DRAWN - RSJ	REVISED -
PLOT DATE = 9/27/2024	CHECKED - RDN	REVISED -
	DATE - 10/01/2024	REVISED -

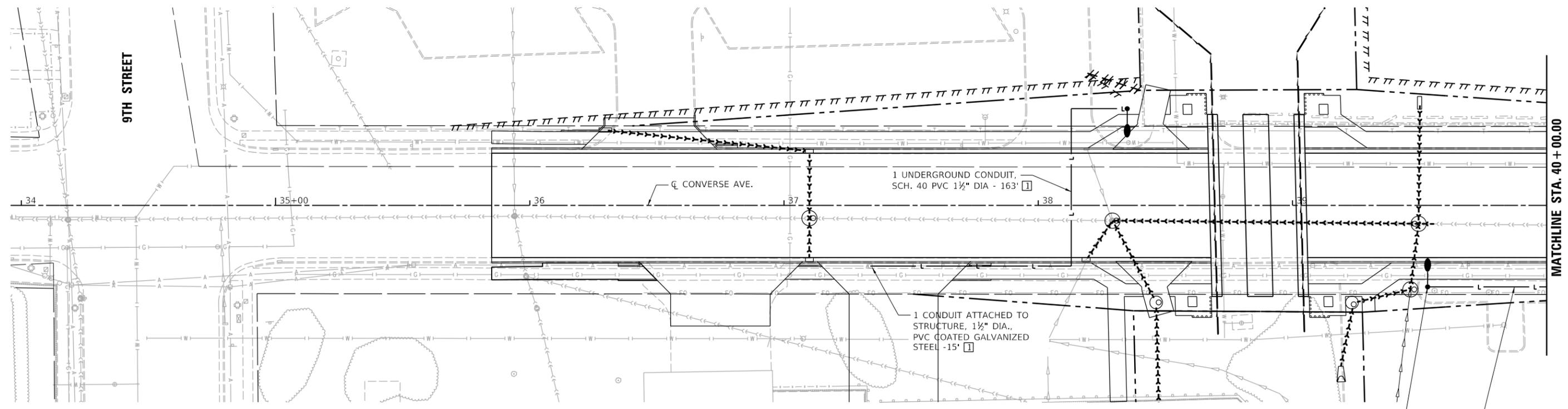
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**SPRINGFIELD RAIL IMPROVEMENTS PROJECT
SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
LIGHTING PLAN - RIDGELY AVENUE**

SCALE: SHEET 1 OF 1 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	349
09L0179B		CONTRACT NO. 93773		
ILLINOIS FED. AID PROJECT				

MODEL: Sheet 4
 FILE NAME: p:\v\hanson\c-aw\hanson\c-aw\09\09\01\798\Usable_Segment_VI - IDOT\Street\090101798-st-4-lighting.dgn



MATCHLINE STA. 40 + 00.00



LEGEND

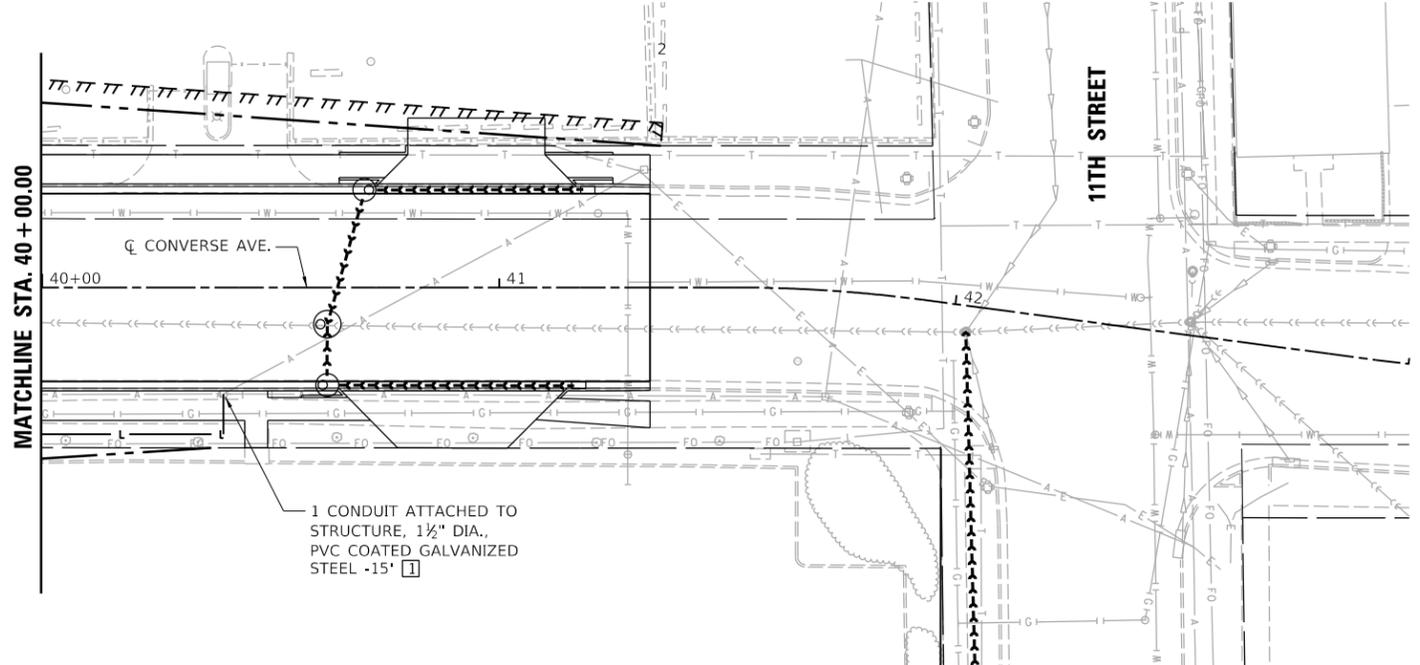
-  LIGHT POLE
-  LIGHTING CONDUIT

KEYED NOTES

1 CONTRACTOR TO COORDINATE WITH CWLP ON INSTALLATION AND LOCATION OF CONDUIT.

GENERAL NOTE

LENGTHS PROVIDED FOR CONDUIT REPRESENT TYPICAL HORIZONTAL DISTANCES FROM POINT TO POINT. VERTICAL DISTANCES FOR BURIAL OF CONDUIT ARE NOT INCLUDED. SIX(6) ADDITIONAL FEET IS ADDED TO THE CONDUIT LENGTH FOR TYPICAL WIRE LENGTHS FOR SLACK AND TERMINATIONS BUT AGAIN THE VERTICAL LENGTHS FOR BURIAL ARE NOT INCLUDED. CONTRACTOR SHALL ACCOUNT FOR NOTED ITEMS IN THEIR OVERALL UNIT PRICING.



MATCHLINE STA. 40 + 00.00

11TH STREET



USER NAME = pop00275	DESIGNED - JFC	REVISED -
DRAWN - RSJ	REVISED -	
PLOT SCALE = 40.00' / in.	CHECKED - RDN	REVISED -
PLOT DATE = 9/27/2024	DATE - 10/01/2024	REVISED -

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

SPRINGFIELD RAIL IMPROVEMENTS PROJECT
 SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
 LIGHTING PLAN - CONVERSE AVENUE

SCALE: SHEET 1 OF 1 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	350
09L0179B		CONTRACT NO. 93773		
ILLINOIS FED. AID PROJECT				

GENERAL NOTES

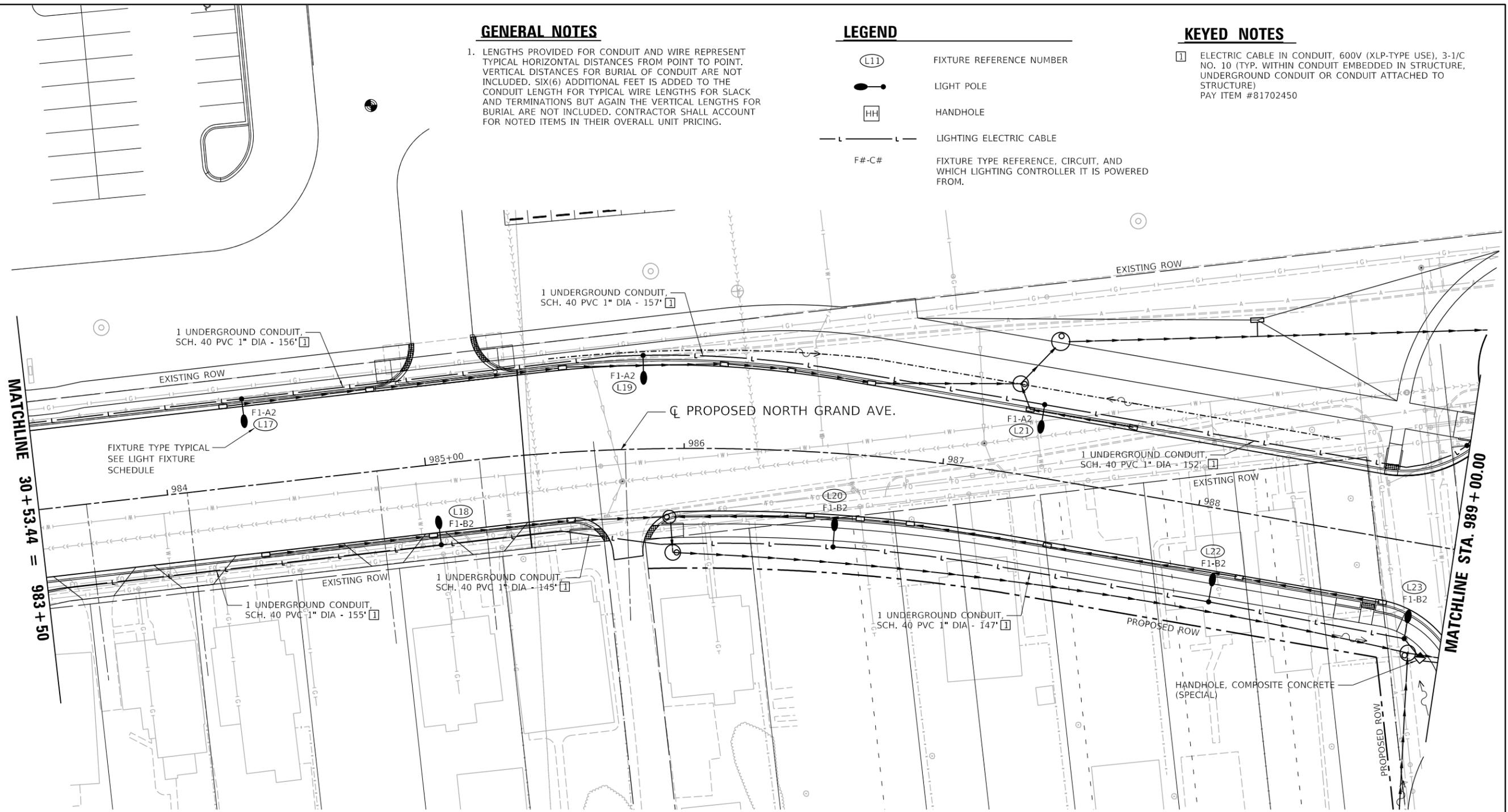
- LENGTHS PROVIDED FOR CONDUIT AND WIRE REPRESENT TYPICAL HORIZONTAL DISTANCES FROM POINT TO POINT. VERTICAL DISTANCES FOR BURIAL OF CONDUIT ARE NOT INCLUDED. SIX(6) ADDITIONAL FEET IS ADDED TO THE CONDUIT LENGTH FOR TYPICAL WIRE LENGTHS FOR SLACK AND TERMINATIONS BUT AGAIN THE VERTICAL LENGTHS FOR BURIAL ARE NOT INCLUDED. CONTRACTOR SHALL ACCOUNT FOR NOTED ITEMS IN THEIR OVERALL UNIT PRICING.

LEGEND

- (L11) FIXTURE REFERENCE NUMBER
- ☉ LIGHT POLE
- HH HANDHOLE
- L — LIGHTING ELECTRIC CABLE
- F#-C# FIXTURE TYPE REFERENCE, CIRCUIT, AND WHICH LIGHTING CONTROLLER IT IS POWERED FROM.

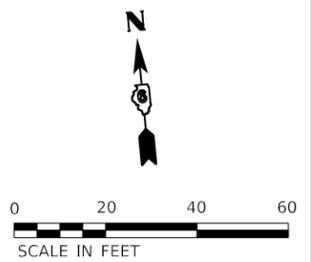
KEYED NOTES

- 1 ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE), 3-1/8 NO. 10 (TYP. WITHIN CONDUIT EMBEDDED IN STRUCTURE, UNDERGROUND CONDUIT OR CONDUIT ATTACHED TO STRUCTURE) PAY ITEM #81702450



FIXTURE REF. NO.	STATION	OFFSET	POLE HT.
NORTH GRAND AVENUE			
L17	984+32.50	33.50' LT	30.00'
L18	985+02.61	31.00' RT	30.00'
L19	985+85.00	36.00' LT	30.00'
L20	986+60.00	36.00' RT	30.00'
L21	987+35.00	28.00' LT	30.00'
L22	988+10.00	36.00' RT	30.00'
L23	988+86.70	37.00' RT	30.00'

LIGHTING FIXTURE SCHEDULE						
FIXT. TYPE	DESCRIPTION	MANUFACTURER & CATALOG NO.	LAMPS/WATTS	VOLTS	MOUNTING	REMARKS
F1	LED COBRA HEAD, SINGLE HEAD OR TWIN HEAD LIGHT FIXTURE, HEAVY DUTY CAST ALUMINUM HOUSING, DIE CAST ALUMINUM DOOR FRAME, TYPE II CUTOFF OPTICS, GRAY POLYESTER POWDER COAT FINISH, FUSED, POLE TO MATCH IDOT SPECIFICATION 1069.2.	LUMARK: RC LED ROADWAY SERIES	97 WATTS	480	POLE MOUNTED, 30' MOUNTED HEIGHT, MATCH IDOT STANDARD SHEET 830006-05.	FOR LUMARK FIXTURE PROVIDE E04 OPTION ON LIGHT BARS.



FINAL PLANS

MODEL: Sheet 6
FILE: h:\a\p\hanson\civic\hanson\civic\1\Documents\09\09\01\798\Lighting.dgn



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	DRAWN - RSJ	REVISED -
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PLOT DATE = 10/24/2024	DATE - 10/01/2024	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

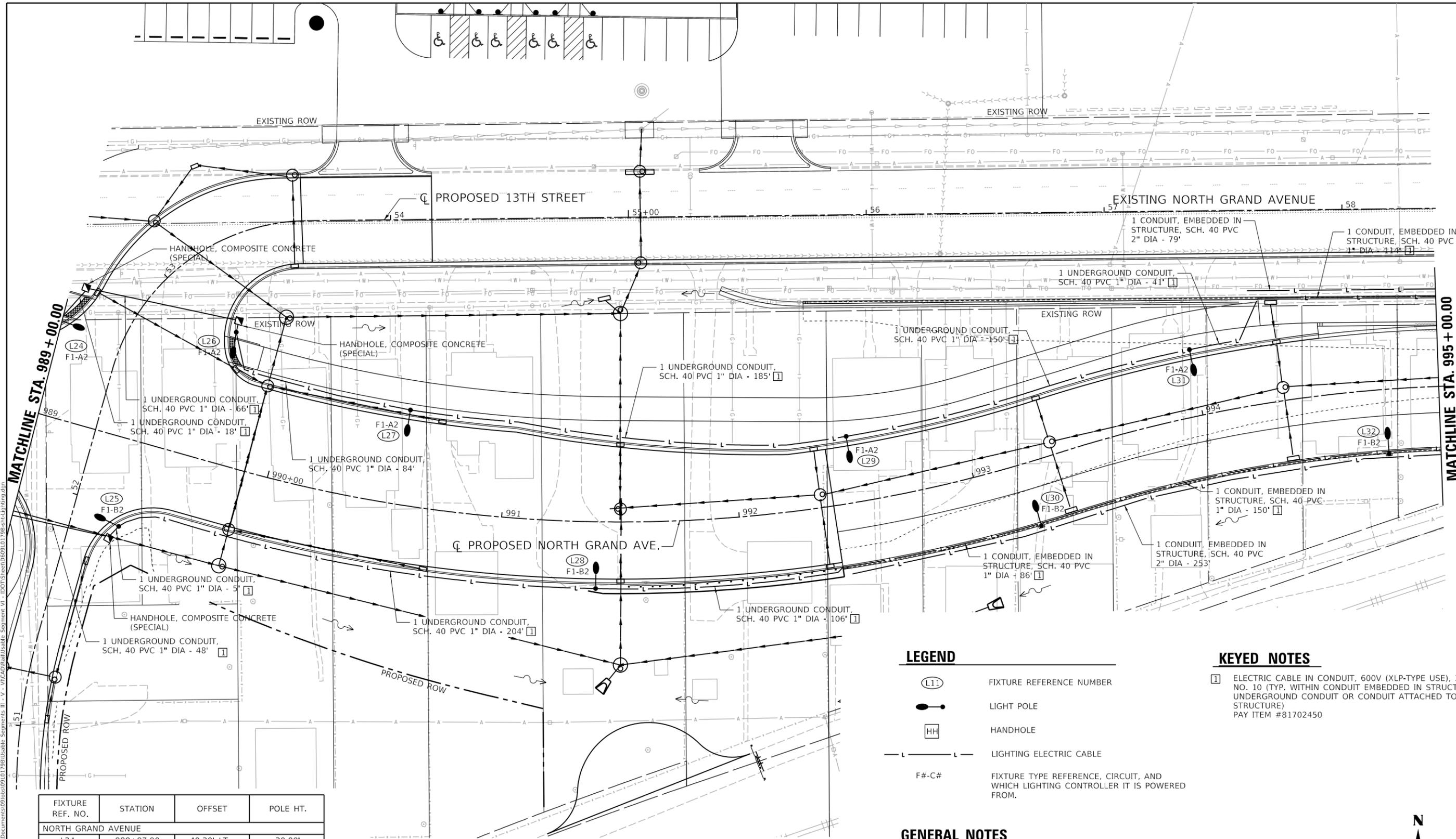
**SPRINGFIELD RAIL IMPROVEMENTS PROJECT
SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
LIGHTING PLAN - NORTH GRAND AVENUE OVERPASS - 1**

SCALE: SHEET 1 OF 5 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	352
09L0179B		CONTRACT NO. 93773		
ILLINOIS FED. AID PROJECT				

MODEL: Sheet 7
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FINAL PLANS



LEGEND

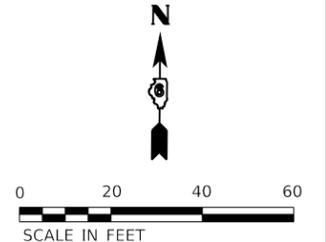
- (L11) FIXTURE REFERENCE NUMBER
- LIGHT POLE
- HH HANDHOLE
- L — LIGHTING ELECTRIC CABLE
- F#-C# FIXTURE TYPE REFERENCE, CIRCUIT, AND WHICH LIGHTING CONTROLLER IT IS POWERED FROM.

KEYED NOTES

1 ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE), 3-1/C NO. 10 (TYP. WITHIN CONDUIT EMBEDDED IN STRUCTURE, UNDERGROUND CONDUIT OR CONDUIT ATTACHED TO STRUCTURE)
 PAY ITEM #81702450

GENERAL NOTES

1. LENGTHS PROVIDED FOR CONDUIT AND WIRE REPRESENT TYPICAL HORIZONTAL DISTANCES FROM POINT TO POINT. VERTICAL DISTANCES FOR BURIAL OF CONDUIT ARE NOT INCLUDED. SIX(6) ADDITIONAL FEET IS ADDED TO THE CONDUIT LENGTH FOR TYPICAL WIRE LENGTHS FOR SLACK AND TERMINATIONS BUT AGAIN THE VERTICAL LENGTHS FOR BURIAL ARE NOT INCLUDED. CONTRACTOR SHALL ACCOUNT FOR NOTED ITEMS IN THEIR OVERALL UNIT PRICING.



FIXTURE REF. NO.	STATION	OFFSET	POLE HT.
NORTH GRAND AVENUE			
L24	988+97.90	40.20' LT	30.00'
L25	989+45.35	36.45' RT	30.00'
L26	989+70.77	55.35' LT	30.00'
L27	990+55.00	40.00' LT	30.00'
L28	991+40.00	28.00' RT	30.00'
L29	992+50.00	28.00' LT	30.00'
L30	993+21.67	26.21' RT	30.00'
L31	994+00.00	28.00' LT	30.00'
L32	994+77.05	26.21' RT	30.00'

LIGHTING FIXTURE SCHEDULE						
FIXT. TYPE	DESCRIPTION	MANUFACTURER & CATALOG NO.	LAMPS/WATTS	VOLTS	MOUNTING	REMARKS
F1	LED COBRA HEAD, SINGLE HEAD OR TWIN HEAD LIGHT FIXTURE, HEAVY DUTY CAST ALUMINUM HOUSING, DIE CAST ALUMINUM DOOR FRAME, TYPE II CUTOFF OPTICS, GRAY POLYESTER POWDER COAT FINISH, FUSED, POLE TO MATCH IDOT SPECIFICATION 1069.2	LUMARK: RC LED ROADWAY SERIES	97 WATTS	480	POLE MOUNTED, 30' MOUNTED HEIGHT, MATCH IDOT STANDARD SHEET 830006-05.	FOR LUMARK FIXTURE PROVIDE E04 OPTION ON LIGHTBARS.



USER NAME = pop00275
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 DRAWN - RSJ
 CHECKED - RDN
 DATE - 10/01/2024

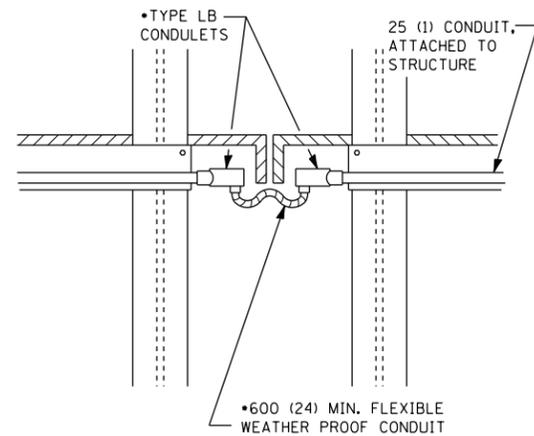
DESIGNED - JFC
 DRAWN - RSJ
 CHECKED - RDN
 DATE - 10/01/2024

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

SPRINGFIELD RAIL IMPROVEMENTS PROJECT
 SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
 LIGHTING PLAN - NORTH GRAND AVENUE OVERPASS - 2

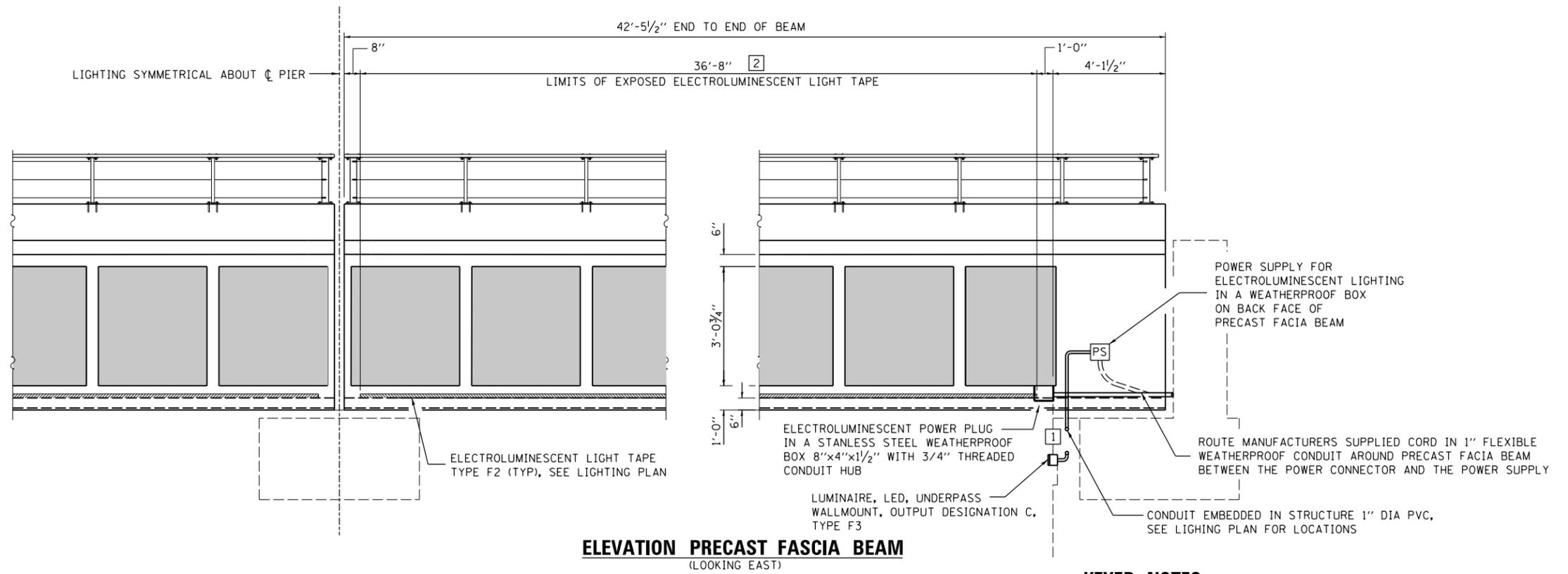
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	353
09L0179B		CONTRACT NO. 93773		
ILLINOIS FED. AID PROJECT				

SCALE: SHEET 2 OF 5 SHEETS STA. TO STA.



EXPANSION JOINT DETAIL

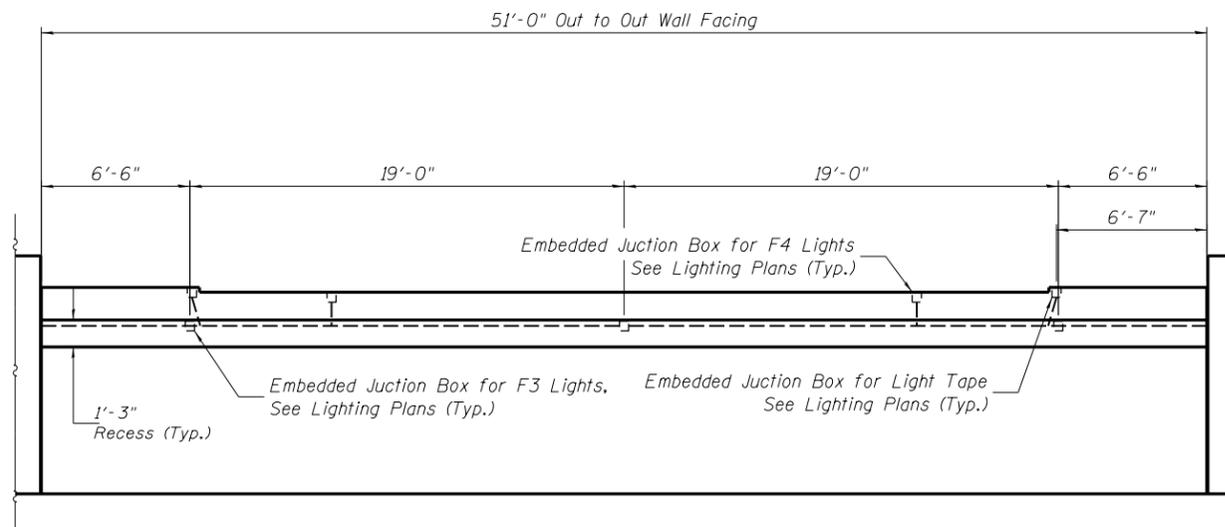
(USE SAME METHOD TO BYPASS OTHER OBSTRUCTIONS.)
 • INCLUDED IN COST OF CONDUIT ATTACHED TO STRUCTURE



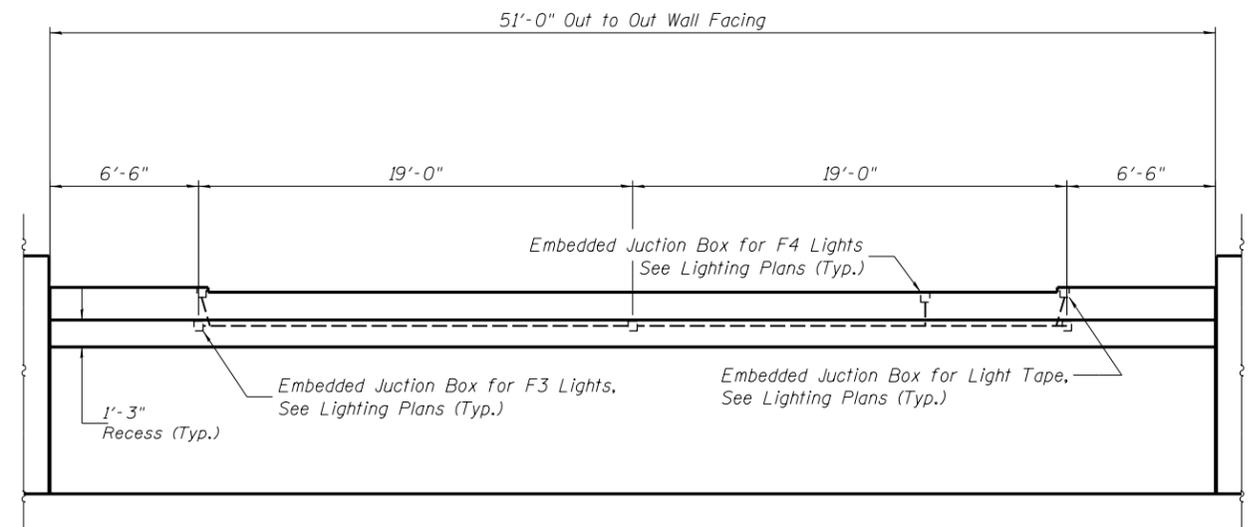
ELEVATION PRECAST FACIA BEAM
(LOOKING EAST)

KEYED NOTES:

- 1 TYPICAL ELECTRICAL CONDUITS EMBEDDED IN STRUCTURE 1" DIA. PVC. SEE LIGHTING PLAN FOR LOCATIONS AND NUMBER OF CONDUITS REQUIRED.
- 2 COORDINATE EXACT LENGTH OF LIGHT TAPE WITH MANUFACTURERS INSTALLATION INSTRUCTIONS AND EXACT SIZE OF WEATHERPROOF J-BOX PROTECTING LIGHT TAPE POWER CONNECTOR
- 3 JUNCTION BOX - STAINLESS STEEL EMBEDDED IN STRUCTURE, 4"x4"x3". COST INCLUDED WITH CONDUIT EMBEDDED IN STRUCTURE.



ELEVATION – SOUTH ABUTMENT WALL FACING
(Looking South)



ELEVATION – NORTH ABUTMENT WALL FACING
(Looking North)

FINAL PLANS

MODEL: Sheet 2
 FILE NAME: p:\projects\springfield\comshanson\pc-01\Documents\09L0179B\Usable_Segments_VI - V - V\VCAD\Rail\Usable_Segment_VI - V - V - V\VCAD\Rail\Usable_Segment_VI - V - V - V\VCAD\Rail\Lighting.dgn



USER NAME = pop00275	DESIGNED - JFC	REVISED -
PLOT SCALE = 0.17' / in.	DRAWN - RSJ	REVISED -
PLOT DATE = 9/27/2024	CHECKED - RDN	REVISED -
	DATE - 10/01/2024	REVISED -

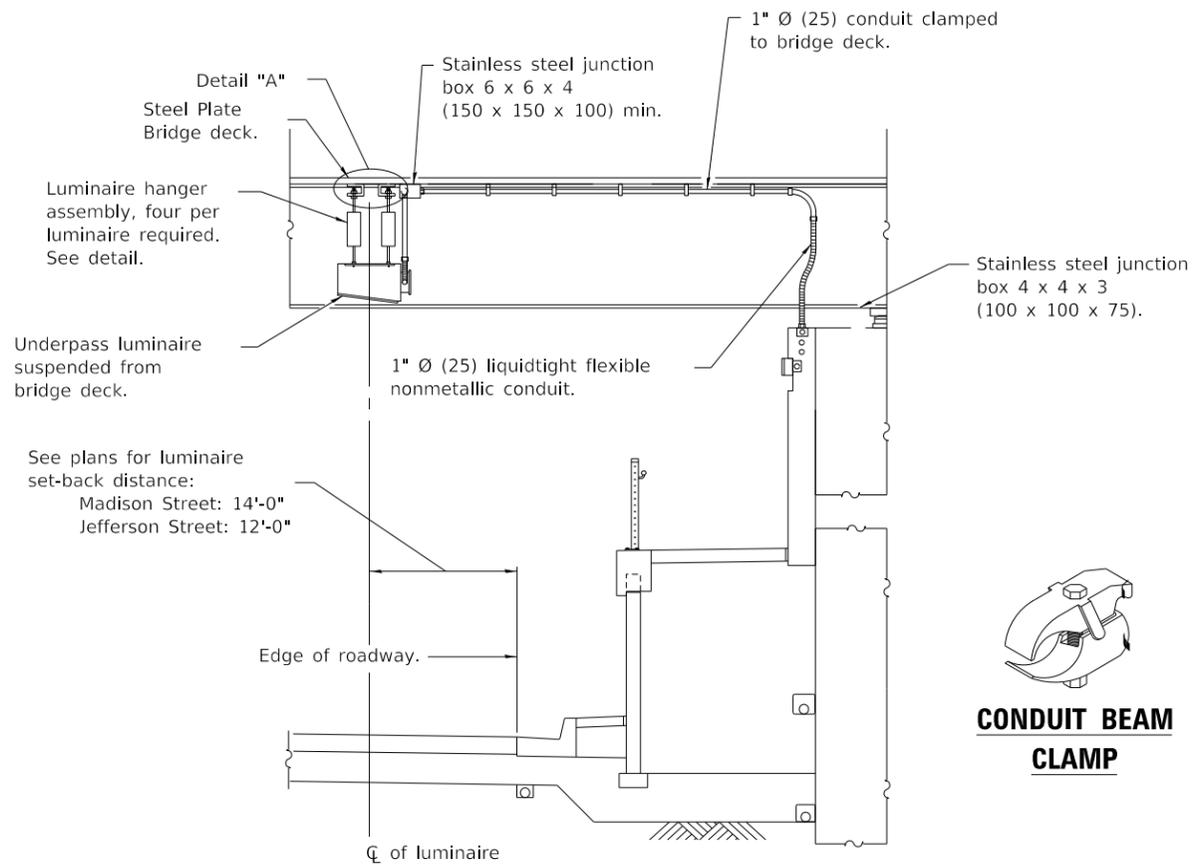
**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**SPRINGFIELD RAIL IMPROVEMENTS PROJECT
 SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
 LIGHTING DETAILS - 1**

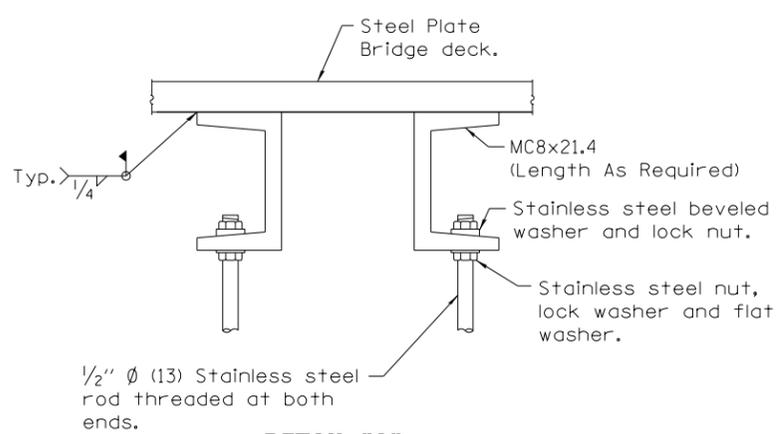
SCALE: SHEET 1 OF 4 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	358
09L0179B		CONTRACT NO. 93773		
ILLINOIS FED. AID PROJECT				

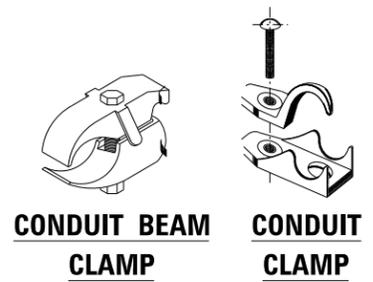
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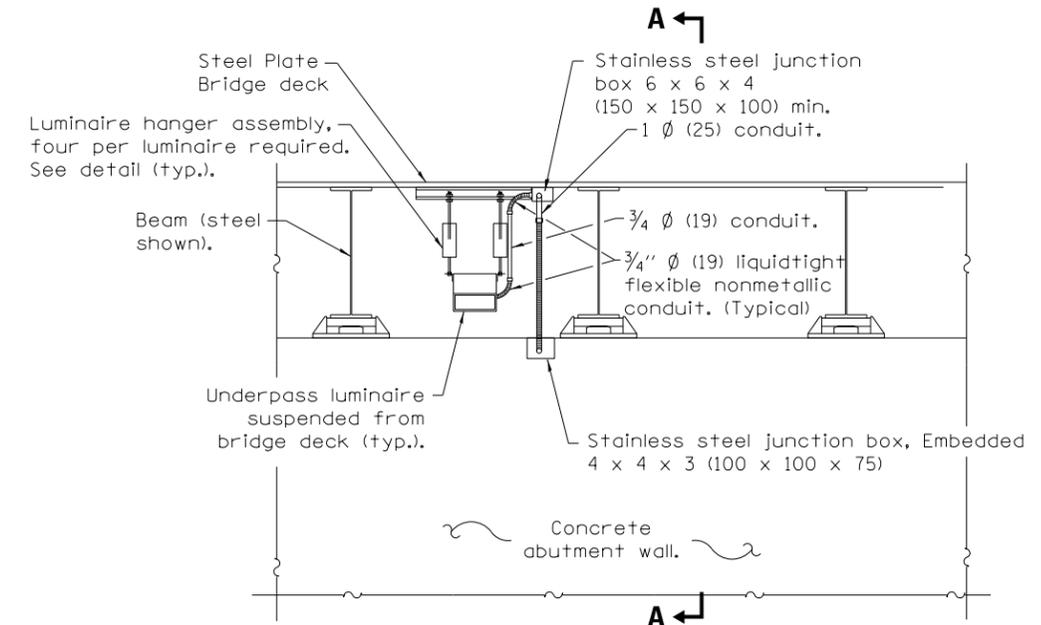
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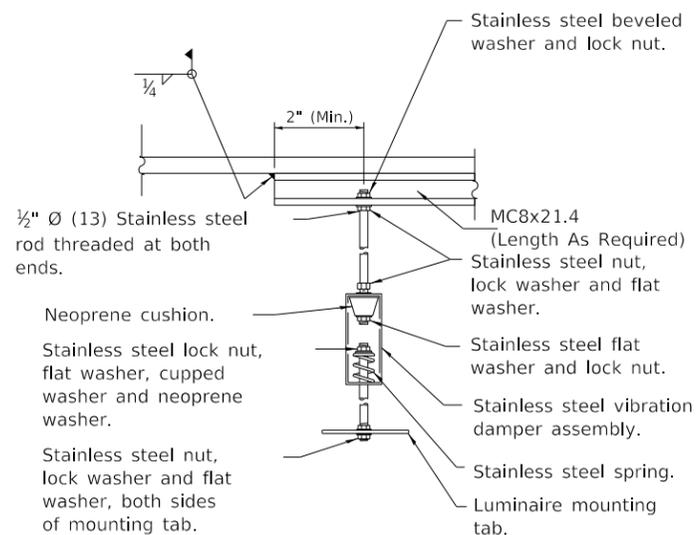
DETAIL "A"



CONDUIT BEAM CLAMP
CONDUIT CLAMP



ABUTMENT WALL ELEVATION



LUMINAIRE HANGER ASSEMBLY DETAIL

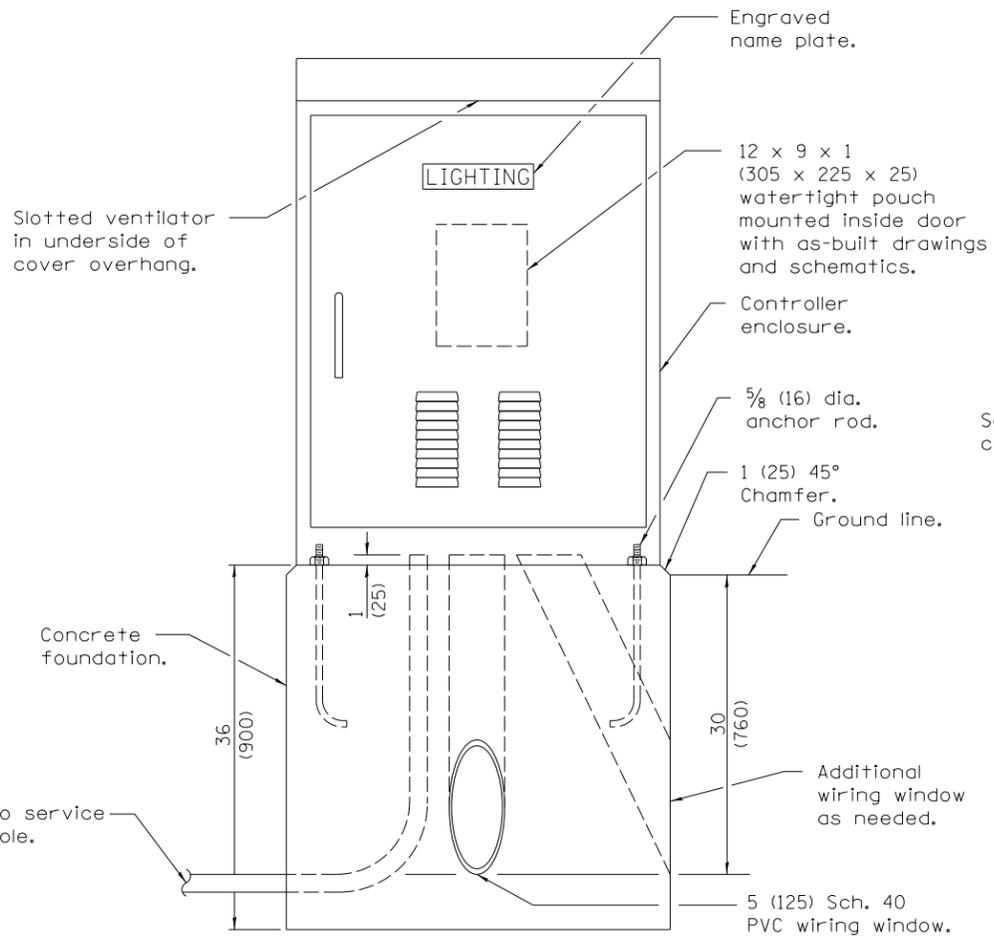
GENERAL NOTES

- No field drilling of the steel plate bridge deck will be allowed.
- See plan for underpass luminaire locations.
- Underpass luminaires shall be centered between beams unless otherwise directed by the Engineer.
- Optics of underpass luminaires shall be installed 1 inch above the bottom of the beams with no parts of the luminaire or attached conduit below the beams.
- Rigid conduit may be used in lieu of flexible conduit except at abutments.
- Stainless steel conduit shall be used beneath any openings in the bridge deck.
- Branch circuits to luminaires shown routed from underground.
- All dimensions are in inches (millimeters) unless otherwise shown.
- Clamps should not be fastened to steel bridge deck directly. Contractor shall weld small plates to deck where clamps necessary and attach the clamp to the small plate. Cost included with conduit attached to structure.

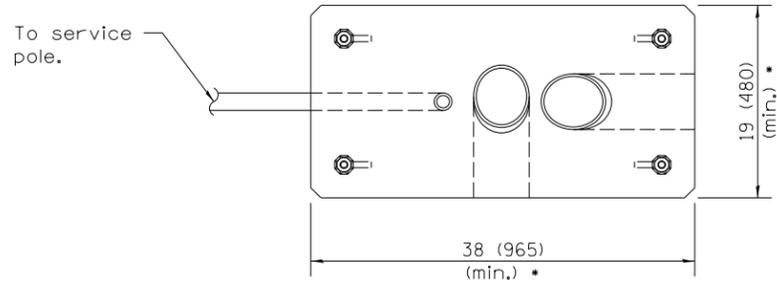
BRIDGE DETAILS

	USER NAME = pop00275	DESIGNED - JFC	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SPRINGFIELD RAIL IMPROVEMENTS PROJECT SPRINGFIELD, SANGAMON COUNTY, ILLINOIS LIGHTING DETAILS - 2		F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE = 0.17' / in.	CHECKED - RDN	REVISED -		SCALE:	SHEET 2 OF 4 SHEETS	STA.	TO STA.	7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON
PLOT DATE = 9/27/2024	DATE - 10/01/2024	REVISED -						09L0179B		CONTRACT NO.	93773
										ILLINOIS	FED. AID PROJECT

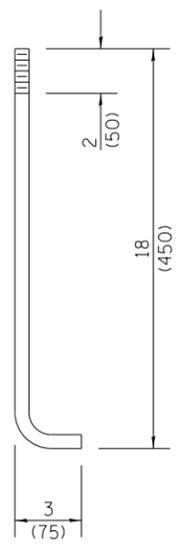
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 V:\CAD\Baltimore\Segment VI - V - V\CAD\Baltimore\Segment VI - V - V\Lighting\Lighting-Details.dwg



LIGHTING CONTROLLER



FOUNDATION (PLAN)
 (Work pad not shown.)

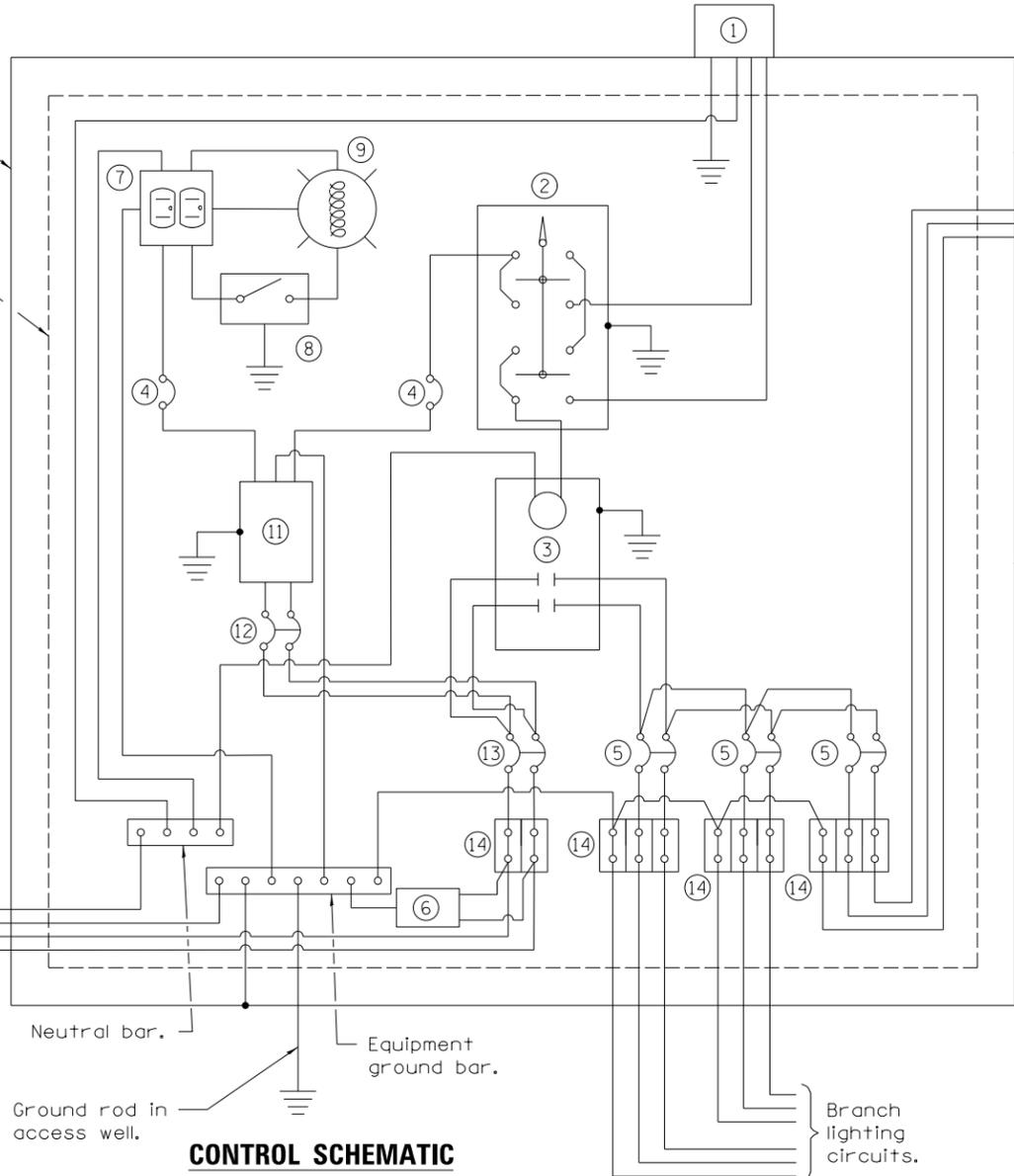
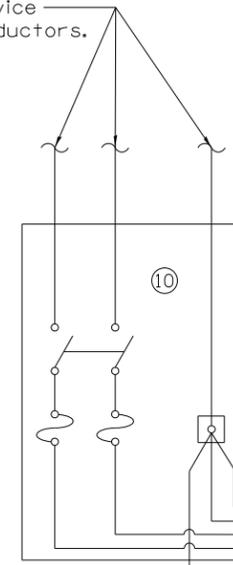


ANCHOR ROD DETAIL

Controller enclosure, minimum dimensions: 50H x 36W x 17D * (1270 x 915 x 430)

Insulated mounting board.

Service conductors.



CONTROL SCHEMATIC

- ① Photocell with integral surge arrester.
- ② HAND-OFF-AUTO selector switch.
- ③ 100 amp*, electrically held contactor.
- ④ 15 amp, 1-pole circuit breaker.
- ⑤ 20 amp*, 2-pole circuit breaker (two spares required but not shown).
- ⑥ Surge arrester.
- ⑦ GFCI duplex receptacle.
- ⑧ Single-pole, single-throw switch.
- ⑨ Incandescent luminaire, enclosed and gasketed with 100 watt lamp.
- ⑩ Service disconnect switch - 2-pole, 3-wire, 100 amp*, fused at 100 amp*, solid neutral in NEMA 4X enclosure having lockable external handle.
- ⑪ Transformer - 1KVA*, 480V primary, 120/240V secondary, single-phase, 60Hz.
- ⑫ 15 amp, 2-pole circuit breaker.
- ⑬ 100 amp*, 2-pole circuit breaker.
- ⑭ Terminal block sized for conductors as shown on plans.

All dimensions are in inches (millimeters) unless otherwise shown.

Sqaure D Mini Power Zone unit to be paid for as supplemental to the 480V Lighting Controller Pay Item #82500360

Feed Mini Power Zone from 20A/2P 480V breaker in lighting control panel.

Provide 3-20A/2P breakers in Mini-Power Zone 1 active for underpass lights and 2 spares.

FINAL PLANS



USER NAME = pop00275	DESIGNED - JFC	REVISED -
PLOT SCALE = 0.17' / in.	DRAWN - RSJ	REVISED -
PLOT DATE = 9/27/2024	CHECKED - RDN	REVISED -
	DATE - 10/01/2024	REVISED -

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

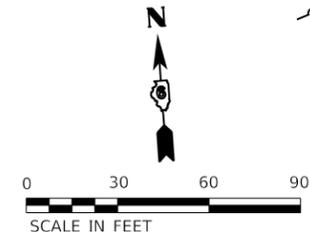
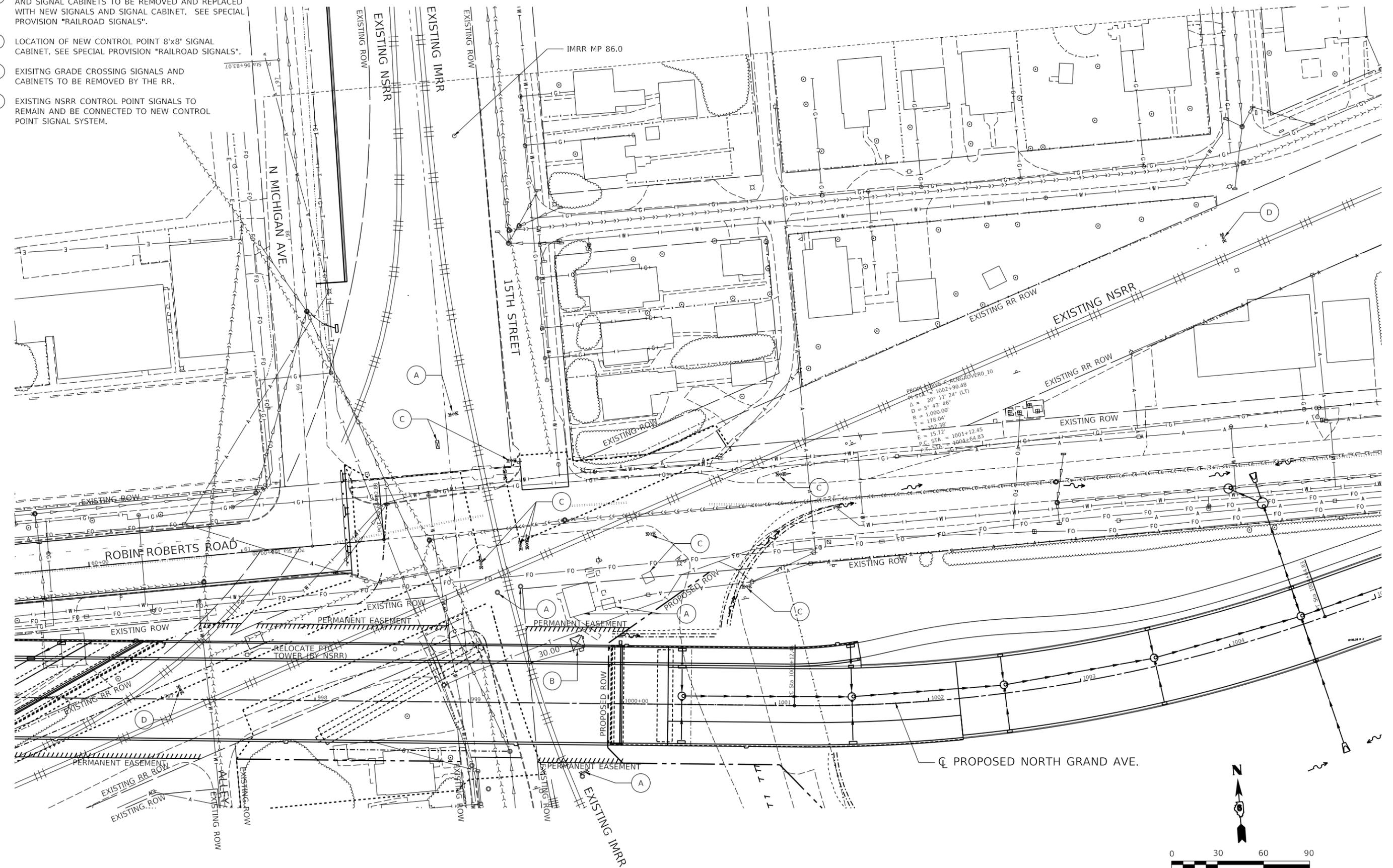
SPRINGFIELD RAIL IMPROVEMENTS PROJECT
 SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
 LIGHTING DETAILS - 3

SCALE: SHEET 3 OF 4 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	360
09L0179B		CONTRACT NO. 93773		

ILLINOIS FED. AID PROJECT

- (A) EXISTING IMRR CONTROL POINT SIGNALS, BUILDING, AND SIGNAL CABINETS TO BE REMOVED AND REPLACED WITH NEW SIGNALS AND SIGNAL CABINET. SEE SPECIAL PROVISION "RAILROAD SIGNALS".
- (B) LOCATION OF NEW CONTROL POINT 8'x8' SIGNAL CABINET. SEE SPECIAL PROVISION "RAILROAD SIGNALS".
- (C) EXISTING GRADE CROSSING SIGNALS AND CABINETS TO BE REMOVED BY THE RR.
- (D) EXISTING NSRR CONTROL POINT SIGNALS TO REMAIN AND BE CONNECTED TO NEW CONTROL POINT SIGNAL SYSTEM.



FINAL PLANS

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USER NAME = pop00275
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 PLOT DATE = 10/1/2024

DESIGNED - GCH
 DRAWN - DJP
 CHECKED - GCN
 DATE - 10/01/2024

REVISED -
 REVISED -
 REVISED -
 REVISED -

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

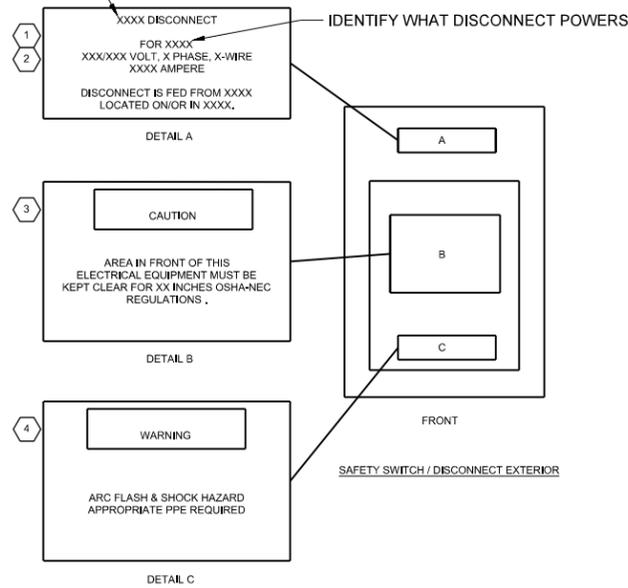
**SPRINGFIELD RAIL IMPROVEMENTS PROJECT
 SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
 PLAN SHEET - RAILROAD SIGNALS - IMRR AT NORTH GRAND AVENUE**
 SCALE: SHEET 1 OF 1 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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09L0179B		CONTRACT NO. 93773		
ILLINOIS		FED. AID PROJECT		

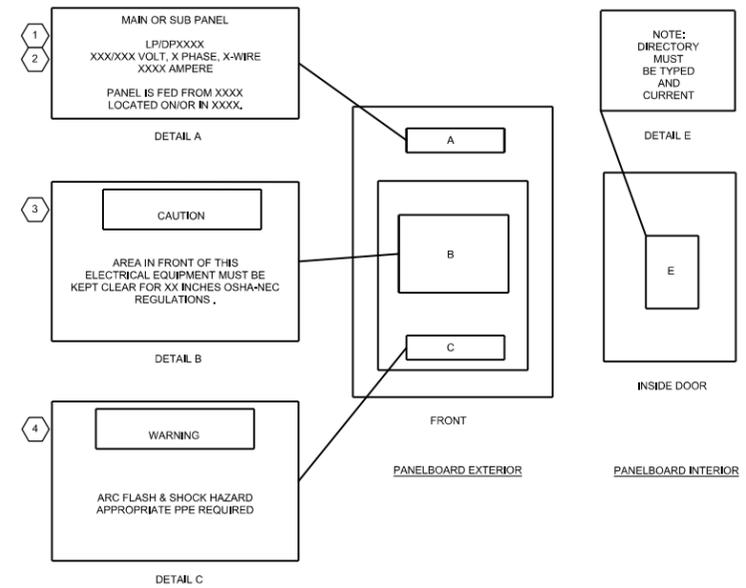
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PROFILE	SUBMITTED	DATE
	PLOTTED	
	GRADES CHECKED	
	NOTE BOOK	
	NO.	
	STRUCTURE NOTATIONS CHECKED	

IDENTIFY AS "SERVICE", "PRIMARY", "SECONDARY" OR OTHER APPLICATION



SAFETY SWITCH / DISCONNECT LABELING DETAIL
NOT TO SCALE



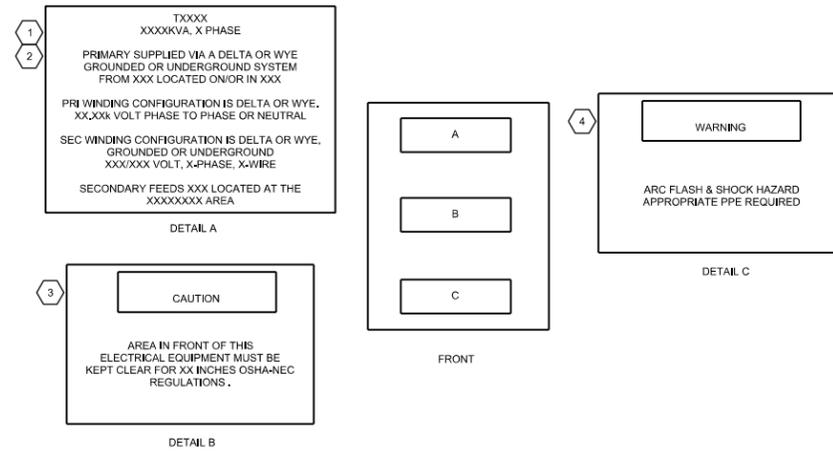
PANELBOARD LABELING DETAIL
NOT TO SCALE

GENERAL NOTES:

- ALL LABELING WILL COMPLY WITH UPRR GENERAL CONDITIONS AND SPECIFICATIONS 260500 AND 269900
- PER NEC 110.22 "IDENTIFICATION OF DISCONNECT MEANS", EACH DISCONNECTING MEANS SHALL BE LEGIBLY MARKED TO INDICATE ITS PURPOSE AND IDENTIFY THE POWER SOURCE THAT SUPPLIES THE DISCONNECTING MEANS.
- PER NEC 408.4 "FIELD MARKING REQUIRED" PART (B) "SOURCE OF SUPPLY", ALL SWITCHBOARDS, SWITCHGEAR, AND PANELBOARDS SUPPLIED BY A FEEDER(S) SHALL BE PERMANENTLY MARKED TO INDICATE EACH DEVICE OR EQUIPMENT WHERE THE POWER ORIGINATES.
- PER NEC 100.24 "AVAILABLE FAULT CURRENT" PART (A) "FIELD MARKING", SERVICE EQUIPMENT SHALL BE LEGIBLY MARKED IN THE FIELD WITH AVAILABLE FAULT CURRENT.
- PER NEC 408.6 "SHORT-CIRCUIT CURRENT RATING" THE AVAILABLE FAULT CURRENT AND THE DATE THE CALCULATION WAS PERFORMED SHALL BE FIELD MARKED ON THE ENCLOSURE AT THE POINT OF SUPPLY.
- FAULT CURRENT INFORMATION TO BE PROVIDED BY SERVING ELECTRIC UTILITY COMPANY OR FROM DATA OBTAINED FROM UTILITY TRANSFORMER NAMEPLATE. CONTACT PROJECT ENGINEER OF RECORD TO CONFIRM FAULT CURRENT CALCULATIONS.
- CONTRACTOR SHALL PROVIDE APPROPRIATE LABELS ON ELECTRICAL EQUIPMENT, IN ACCORDANCE WITH NFPA 70E ARTICLE 130 WORK INVOLVING ELECTRICAL HAZARDS, PART 130.5 ARC FLASH RISK ASSESSMENT, (H) EQUIPMENT LABELING.

GENERAL NOTE FOR NEC WIRING COLOR CODE IDENTIFICATION REQUIREMENTS:

CONTRACTOR IS TO FOLLOW THE REQUIREMENTS OF NEC ARTICLE 210.5 - IDENTIFICATION OF BRANCH CIRCUIT CONDUCTORS FOR LABELING ON ALL PANELBOARDS, LIGHTING CONTACTORS, DISCONNECTS, HIGH MAST LIGHT POLES, MINI POWER ZONES, AND OTHER ELECTRICAL EQUIPMENT ON SITE. THIS INCLUDES, BUT IS NOT LIMITED TO, PROVIDING THE COLOR CODE WIRING INFORMATION ON EACH PIECE OF EQUIPMENT AND NOTING THAT OTHER UNIDENTIFIED SYSTEMS EXIST ON THE PREMISES.



TRANSFORMER LABELING DETAIL
NOT TO SCALE

NOTES:

- LABEL SHALL BE WHITE PHENOLIC WITH 1/2" HEIGHT MINIMUM BLACK ENGRAVED LETTERING.
- EQUIPMENT CONTAINING MULTIPLE POWER SOURCES SHALL INCLUDE LABELS DETAILING EACH POWER SOURCE.
- USE NEC TABLE 110.26 TO DETERMINE THE PROPER CLEARANCE. USE PRE-PRINTED BRADY LABELS.
- USE BRADY LABEL MODEL NUMBERS 99462 OR AN APPROVED EQUAL.

FINAL PLANS

MODEL Sheet 1
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	DRAWN - JFC	REVISED -
PLOT SCALE = 100.00 sf / ln.	CHECKED - KNL	REVISED -
PLOT DATE = 9/27/2024	DATE - 10/01/2024	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**SPRINGFIELD RAIL IMPROVEMENTS PROJECT
SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
ELECTRICAL DETAILS - UPRR - 1**

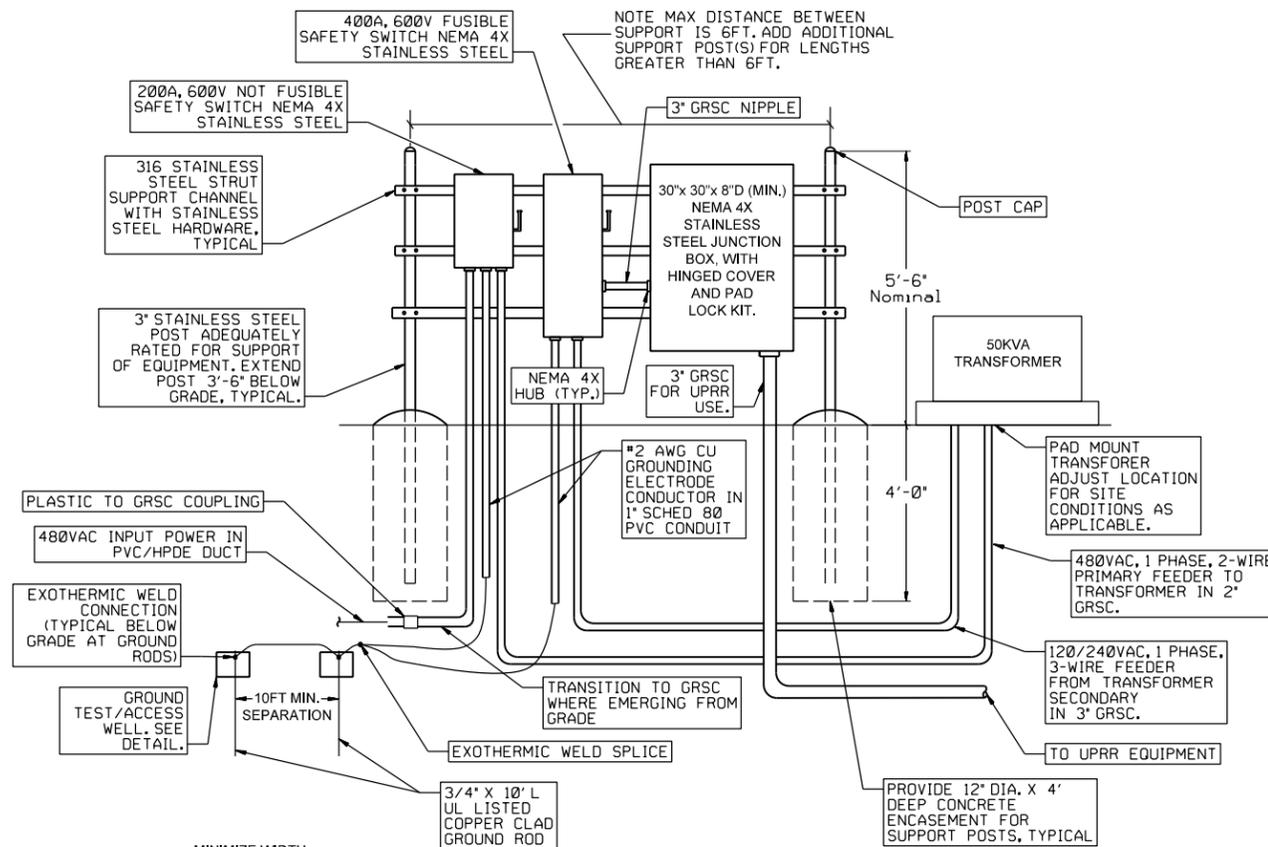
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	372
09L0179B		CONTRACT NO. 93773		
SCALE:		ILLINOIS FED. AID PROJECT		

SHEET 1 OF 16 SHEETS STA. TO STA.

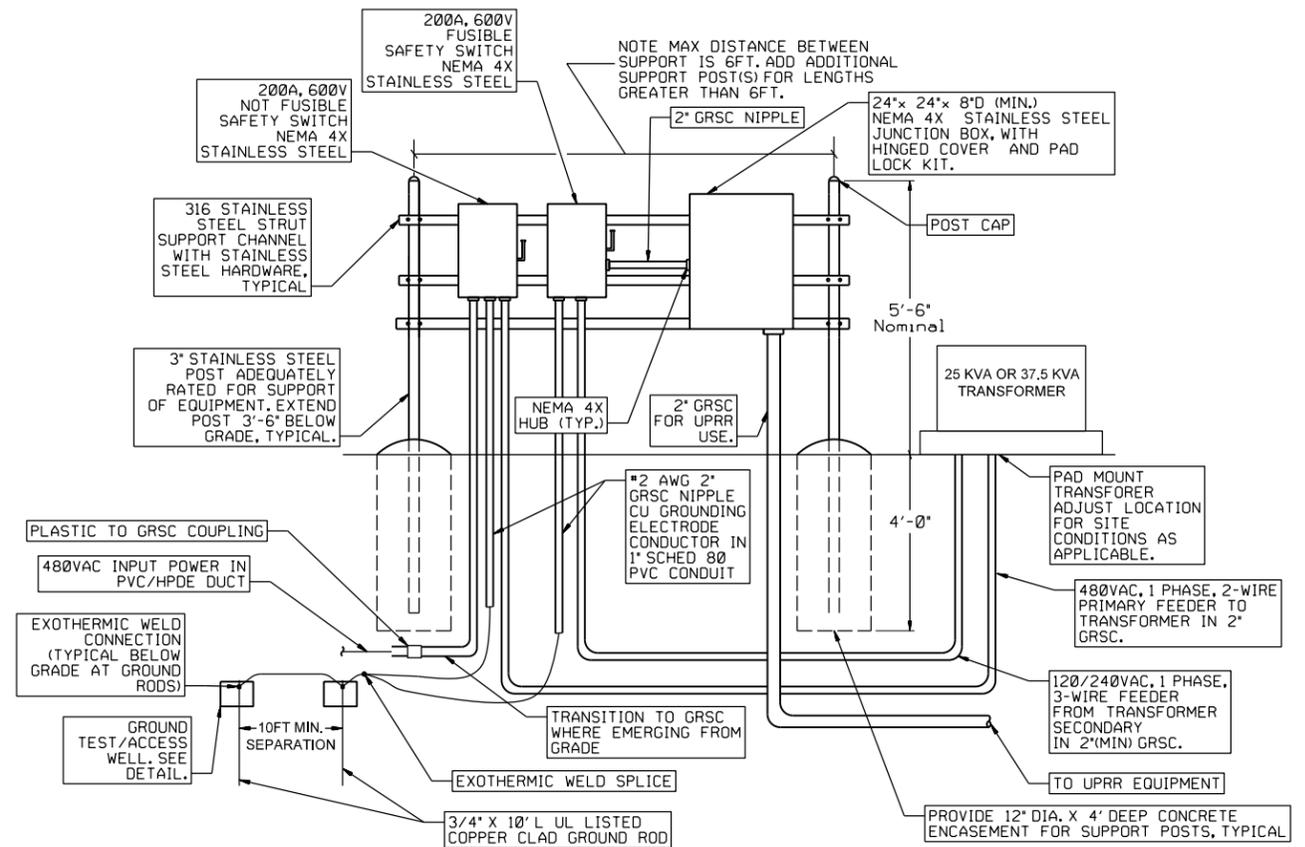
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PROFILE	SUBMITTED
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SWITCH RACK DETAIL - FOR 50KVA TRANSFORMER
 NOT TO SCALE

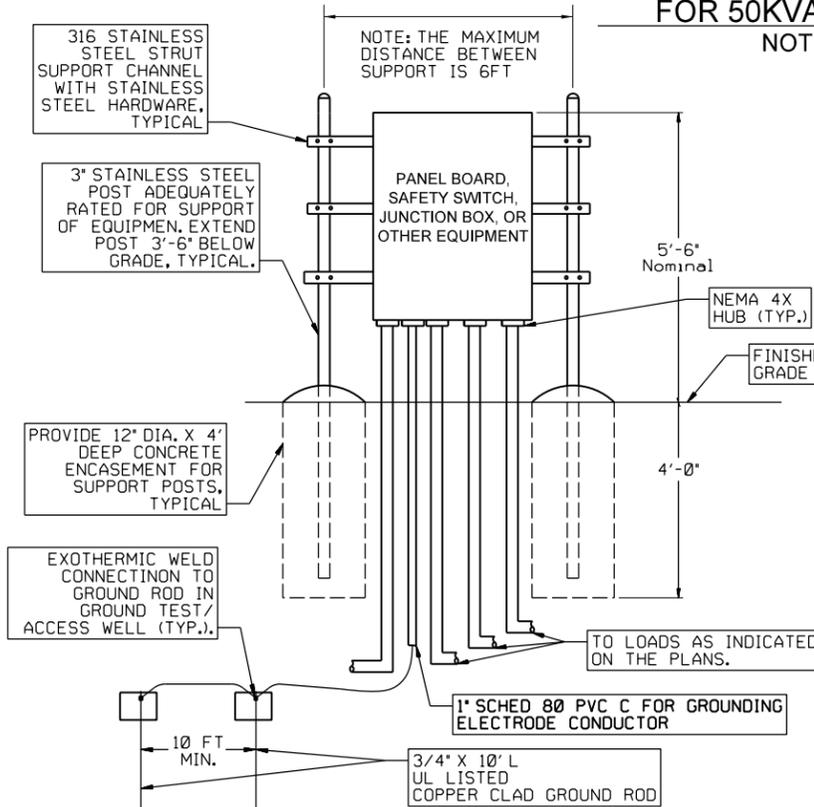


SWITCH RACK DETAIL - FOR 25KVA OR 37.5KVA TRANSFORMER
 NOT TO SCALE

SWITCH RACK DETAILS - NOTES

- ALL ELECTRICAL WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE NFPA 70 NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE APPLICABLE UNION PACIFIC RAILROAD STANDARDS, AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES, AND REQUIREMENTS IN FORCE. ELECTRICAL EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN CONFORMANCE WITH THE RESPECTIVE MANUFACTURER'S DIRECTIONS AND RECOMMENDATIONS FOR THE RESPECTIVE APPLICATION. ANY INSTALLATIONS WHICH VOID THE UL LISTING, INTERTEK TESTING SERVICES VERIFICATION / ETL LISTING (OR OTHER THIRD PARTY LISTING), AND / OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.
- WORK, POWER OUTAGES, AND / OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE OWNER'S REPRESENTATIVE. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT / TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT / TAGOUT). ALSO COMPLY WITH THE RESPECTIVE RAILROAD COMPANY LOCKOUT / TAGOUT STANDARDS. WHERE THE FACILITY IS NOT EQUIPPED WITH LOCKOUT / TAGOUT EQUIPMENT THE RESPECTIVE PERSONNEL WILL BE RESPONSIBLE FOR PROVING THE APPROPRIATE LOCKOUT / TAGOUT EQUIPMENT. FAILURE TO SHUT DOWN AND LOCKOUT THE CIRCUITS PRESENTS A DANGEROUS HAZARD FOR PERSONNEL WORKING ON THE RESPECTIVE SYSTEM.
- CONTRACTOR SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF NFPA 70E STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE.
- ONLY QUALIFIED ELECTRICAL CONTRACTORS SHALL PERFORM ELECTRICAL WORK ON THIS PROJECT. NEC DEFINES A QUALIFIED PERSON AS "ONE WHO HAS SKILLS AND KNOWLEDGE RELATED TO THE CONSTRUCTION AND OPERATION OF THE ELECTRICAL EQUIPMENT AND INSTALLATIONS AND HAS RECEIVED SAFETY TRAINING TO RECOGNIZE AND AVOID THE HAZARDS INVOLVED."
- COLOR-CODE PHASE AND NEUTRAL CONDUCTOR INSULATION FOR NO. 6 AWG OR SMALLER. PROVIDE COLORED MARKING TAPE FOR PHASE AND NEUTRAL CONDUCTOR FOR NO. 4 AWG AND LARGER. INSULATED GROUND CONDUCTORS SHALL HAVE GREEN COLORED INSULATION FOR ALL CONDUCTOR SIZES (AWG AND / OR KCMIL) TO COMPLY WITH NEC 250.119. NEUTRAL CONDUCTORS SHALL HAVE WHITE OR GRAY COLORED INSULATION FOR NO. 6 AWG OR SMALLER TO MEET REQUIREMENTS OF NEC 200.6. COLOR CODING REQUIREMENTS SHALL BE POSTED ON EACH PANELBOARD WITH A WEATHERPROOF LABEL. STANDARD COLORS FOR THE POWER WIRING AND BRANCH CIRCUITS SHALL BE AS FOLLOWS:

480/277 VAC, 3-PHASE, 4-WIRE SYSTEM	120/240 VAC, 1-PHASE, 3-WIRE SYSTEM		
PHASE A	BROWN	PHASE A	BLACK
PHASE B	ORANGE	PHASE B	RED
PHASE C	YELLOW	NEUTRAL	WHITE
NEUTRAL	GRAY	GROUND	GREEN
GROUND	GREEN		
- ALL INSULATED EQUIPMENT GROUND WIRES SHALL HAVE GREEN COLORED INSULATION REGARDLESS OF SIZE. GREEN TAPE WILL NOT MEET THIS REQUIREMENT
- ALL ENCLOSURES RATED NEMA 4, 4X SHALL HAVE WATERTIGHT HUBS AT CONDUIT ENTRANCES UL LISTED NEMA 4, 4X FOR THE RESPECTIVE ENCLOSURE TO MAINTAIN THE NEMA 4, 4X RATING.
- COORDINATE ELECTRIC SERVICE WORK WITH THE SERVING ELECTRIC UTILITY COMPANY: CITY WATER, LIGHT & POWER (CWLP). PHONE: 217-789-2323
- CONTRACTOR SHALL PROVIDE ARC FLASH STUDY REPORT AND APPROPRIATE LABELS ON ELECTRICAL EQUIPMENT.
- EACH SAFETY SWITCH SHALL BE LABELED TO IDENTIFY IT'S POWER SOURCE, VOLTAGE, FUSE SIZE, AND THE EQUIPMENT IT FEEDS.
- THIS IS A TYPICAL DETAIL AND MAY NOT SHOW EVERY CONDUIT, SUPPORT POST, AND FEATURE FOR EVERY INSTALLATION



H-FRAME RACK DETAIL - TYPICAL
 NOT TO SCALE



USER NAME = pop00275	DESIGNED - KNL	REVISED -
	DRAWN - JFC	REVISED -
PLOT SCALE = 100,0000 sf / ln.	CHECKED - KNL	REVISED -
PLOT DATE = 9/27/2024	DATE - 10/01/2024	REVISED -

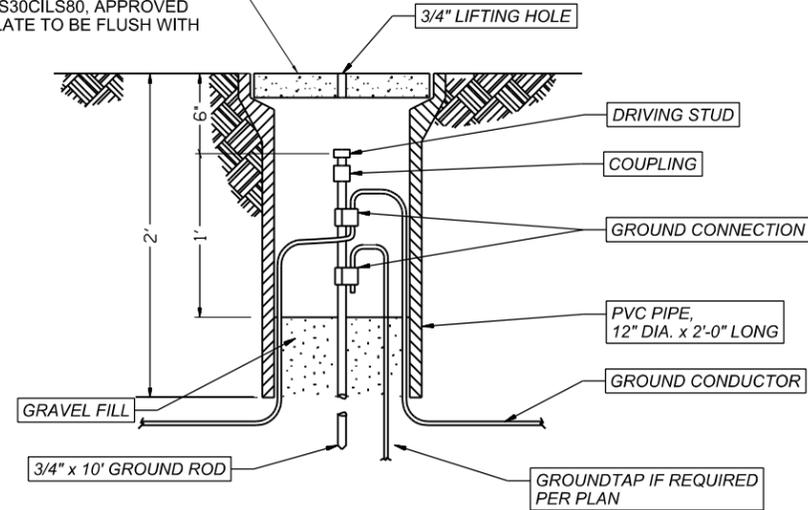
**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

SPRINGFIELD RAIL IMPROVEMENTS PROJECT		F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	373
		09L0179B		CONTRACT NO.	93773	
SCALE:		SHEET 2 OF 16 SHEETS		ILLINOIS FED. AID PROJECT		

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	NOTE BOOK NO.	
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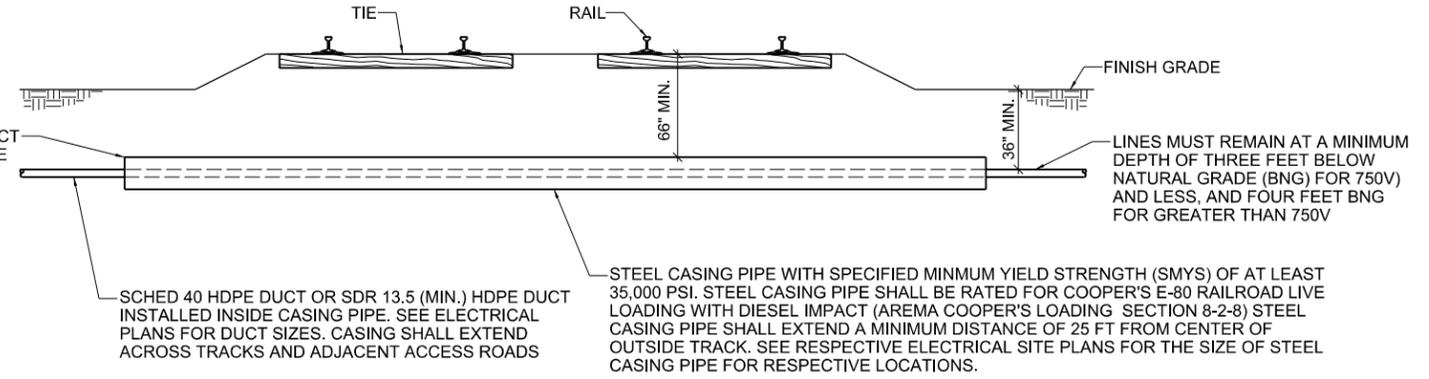
PROFILE	SUBMITTED	DATE
	PLOTTED	
	GRADES CHECKED	
	STRUCTURE NOTATIONS CHECKED	
	NOTE BOOK NO.	
	CADD FILE NAME	

HEAVY DUTY GROUND ACCESS WELL WITH CAST IRON COVER, RATED FOR 20,000 LBS OF STATIC LOAD, 12" MIN. DIAMETER BY 30" DEEP, HARGER PART NO. 362PS30CILS80, APPROVED EQUAL, TOP OF WELL PLATE TO BE FLUSH WITH FINISHED GRADE



GROUNDING WELL DETAIL
NOT TO SCALE

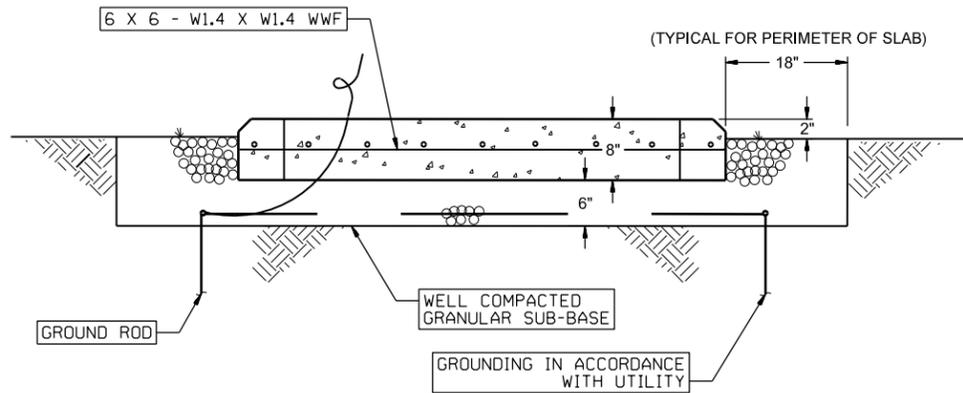
TRANSITION TO CONDUIT / DUCT DIRECT BURIED OR CONCRETE ENCASED DUCT AS DETAILED HEREIN, AT TERMINATION OF CASING PIPE.



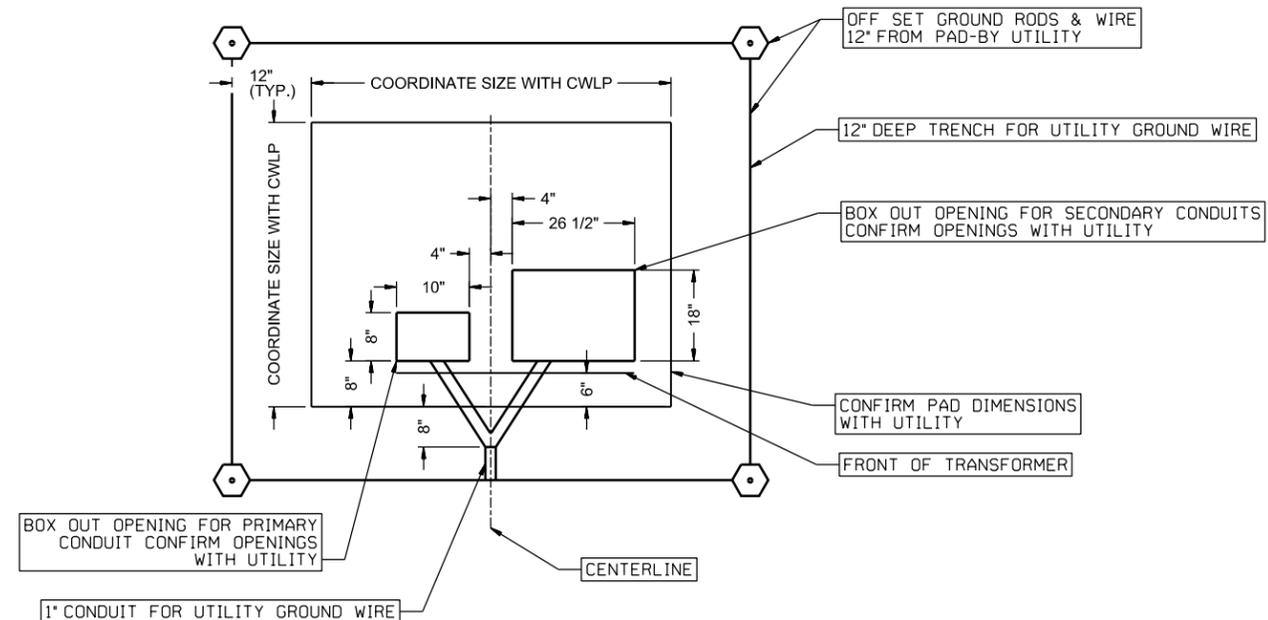
ELECTRICAL DUCT INSTALLATION UNDER TRACKS
NOT TO SCALE

NOTES

1. CASING PIPE AND JOINTS SHALL BE LEAKPROOF CONSTRUCTION, CAPABLE OF WITHSTANDING RAILROAD.
2. STEEL CASING PIPE SHALL HAVE A SPECIFIED MINIMUM YIELD STRENGTH, SMYS, OF AT LEAST 35,000 PSI.
3. CASING PIPE UNDER TRACK AND ACROSS RAILWAY RIGHT-OF-WAY SHALL EXTEND TO THE GREATER OF THE FOLLOWING DISTANCES, MEASURED AT RIGHT ANGLES TO THE CENTERLINE OF TRACKS
2 FT. BEYOND TOE OF THE SLOPE
3 FT. BEYOND DITCH
A MINIMUM DISTANCE OF 25 FT. FROM CENTER OF THE OUTSIDE TRACK WHEN END OF CASING IS BELOW GROUND



TRANSFORMER PAD SECTION
NOT TO SCALE



STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SPRINGFIELD RAIL IMPROVEMENTS PROJECT
SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
ELECTRICAL DETAILS - UPRR - 3

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	374
09L0179B		CONTRACT NO. 93773		
ILLINOIS		FED. AID PROJECT		

SCALE: SHEET 3 OF 16 SHEETS STA. TO STA.



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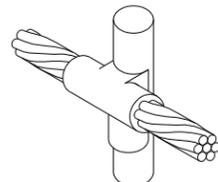
FINAL PLANS

MODEL Sheet 3

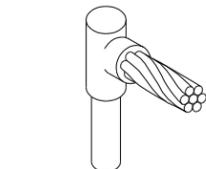
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PLAN	
NO.	
NOTE BOOK	
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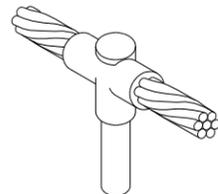
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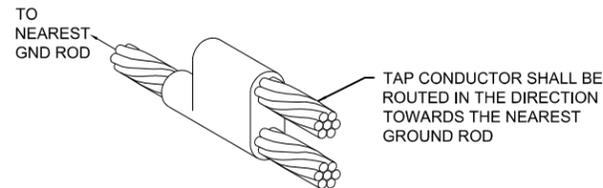
CABLE TO GROUND ROD



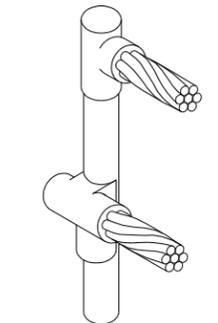
CABLE TO GROUND ROD



CABLE TO GROUND ROD



CABLE TO CABLE HORIZONTAL PARALLEL TAP

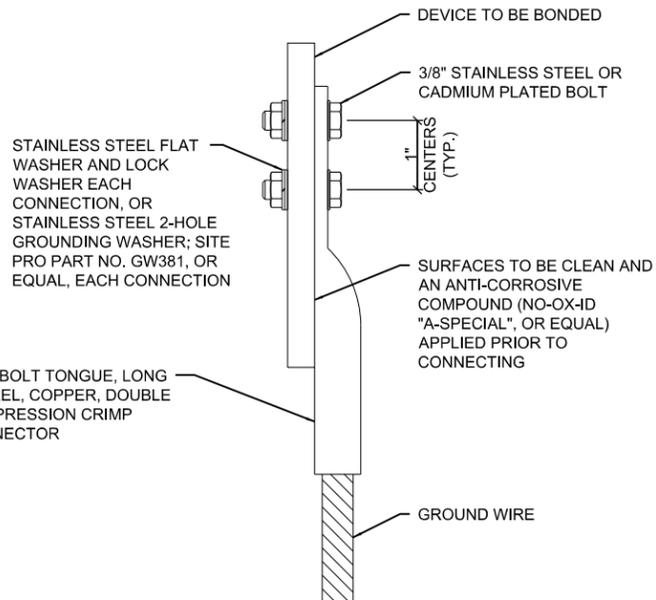


CABLES TO GROUND ROD

DETAIL NOTES

- KNOWLEDGEABLE AND QUALIFIED PERSONNEL SHALL PERFORM EXOTHERMIC WELD CONNECTIONS TO ENSURE GOOD, SAFE, & RELIABLE CONNECTIONS. ALL BELOW GRADE CONNECTIONS TO GROUND RODS & GROUND RING CONNECTORS SHALL BE EXOTHERMIC WELD TYPE CONNECTIONS. EXOTHERMIC WELDS SHALL BE CADWELDED AS MANUFACTURED BY PENTAIR ERICO PRODUCTS, ULTRAWELDED AS MANUFACTURED BY HARGER LIGHTING PROTECTION & GROUNDING EQUIPMENT, OR THERMOWELDED AS MANUFACTURED BY CONTINENTAL INDUSTRIES OR APPROVED EQUAL. VERIFY PROPER SIZES, MOLDS, TYPES, AND REQUIREMENTS FOR THE RESPECTIVE APPLICATION WITH THE MANUFACTURER, AND INSTALL PER THEIR DIRECTIONS.
- INDIVIDUAL GROUNDING ELECTRODE CONDUCTORS SHALL NOT BE INSTALLED IN METAL CONDUIT. INSTALL GROUNDING ELECTRODE CONDUCTORS IN SCHED 80 PVC CONDUIT AS REQUIRED IN FOUNDATIONS. FOR PROTECTION, WHERE ENTERING ENCLOSURES, ETC. WHERE PLASTIC CONDUIT IS USED FOR INDIVIDUAL GROUND WIRES, DO NOT COMPLETELY ENCIRCLE THE CONDUIT WITH FERROUS AND/OR MAGNETIC MATERIALS. WHERE CLAMPS ARE INSTALLED USE NYLON BOLTS, NUTS, WASHERS, & SPACERS TO INTERRUPT A COMPLETE METALLIC PATH FROM ENCIRCLING THE CONDUIT. THIS IS REQUIRED TO AVOID GIRDLING OF GROUND CONDUCTORS. GIRDLING OF A GROUND CONDUCTOR IS THE RESULT OF PLACING THE CONDUCTOR IN A RING OF MAGNETIC MATERIAL. THIS RING COULD BE A METALLIC CONDUIT, U-BOLT OR STRUT SUPPORT PIPE CLAMP, OR OTHER SUPPORT HARDWARE. THE RESULT OF GIRDLING GROUND CONNECTORS SIGNIFICANTLY INCREASES THE INDUCTIVE IMPEDANCE OF THE GROUND CONDUCTOR. INDUCTIVE AND CAPACITIVE IMPEDANCE IS A TYPE OF RESISTANCE THAT OPPOSES THE FLOW OF ALTERNATING CURRENT. ANY INCREASE IN THE IMPEDANCE OF A GROUND CONDUCTOR REDUCES ITS ABILITY TO EFFECTIVELY MITIGATE RADIO FREQUENCY NOISE IN THE GROUND SYSTEM. THE CONDITION WHERE A GROUND CONDUCTOR IS GIRDLED DURING A LIGHTNING STRIKE RESULTS IN PHENOMENA KNOWN AS SURGE IMPEDANCE LOADING. SURGE IMPEDANCE LOADING IS A RESULT OF VOLTAGE AND CURRENT REACHING 500,000 VOLT AND 10,000 AMPS FOR A SHORT DURATION. GIRDLING FURTHER INCREASES THE IMPEDANCE AT LIGHTNING FREQUENCIES OF 100 KILOHERTZ TO 100 MEGAHERTZ. AT THESE POWER AND FREQUENCY LEVELS ANY INCREASE IN THE IMPEDANCE OF THE GROUND CONDUCTOR MUST BE CONTROLLED. DURING LIGHTNING DISCHARGE CONDITIONS A LOW INDUCTIVE IMPEDANCE PATH IS MORE IMPORTANT THAN LOW DC RESISTANCE PATH.
- ALL APPLICATIONS TO GALVANIZED STEEL OR PAINTED STEEL, SHALL REMOVE GALVANIZING AND/OR PAINT & CLEAN THE SURFACE TO EXPOSE BARE STEEL BEFORE MAKING EXOTHERMIC WELD CONNECTION.

EXOTHERMIC WELD DETAILS

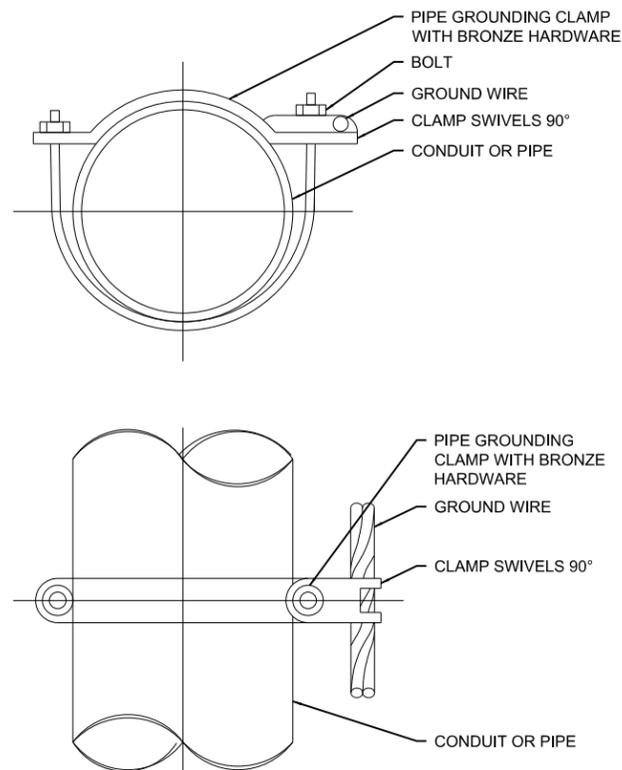


WIRE SIZE	BURNDY CAT. NO.	THOMAS & BETTS CAT. NO.	PENN-UNION CAT. NO.
#8 AWG STRANDED	YA8C-2TC38	256-30695-1157	BBLU-8D-2TC38
#6 AWG SOLID	YA8C-2TC38 OR YGA6C-2TC38E2G1		
#6 AWG STRANDED	YA6C-2TC38	256-30695-1158	BBLU-6D-2TC38
#4 AWG STRANDED	YA4C-2TC38	256-30695-1159	BBLU-4D-2TC38
#2 AWG STRANDED	YA2C-2TC38	256-30695-1160	BBLU-2D-2TC38
#2 AWG SOLID	YA3C-2TC38	256-30695-1160	BBLU-3D-2TC38
#1/0 AWG STRANDED	YA25-2TC38	256-30695-1162	BBLU-1/0D-2TC38
#2/0 AWG STRANDED	YA26-2TC38	256-30695-1116	BBLU-2/0D-2TC38
#3/0 AWG STRANDED	YA27-2TC38	54816BE	BBLU-3/0D-2TC38
#4/0 AWG STRANDED	YA28-2TC38	256-30695-1117	BBLU-4/0D-2TC38

NOTES

- IT IS IMPORTANT TO HAVE GOOD SECURE GROUND CONNECTIONS THAT WILL WITHSTAND WEATHER CONDITIONS AND MAINTAIN CONTINUITY TO GROUND. OFTEN WEATHER CONDITIONS CAN EFFECT GROUNDING CONNECTIONS THAT RESULT IN LOOSE CONNECTIONS AND UNSAFE CONDITIONS.
- SAFETY OF PERSONNEL IS THE PRIORITY, PROTECTION OF EQUIPMENT IS SECONDARY.
- THE GROUND WIRE CONNECTIONS TO EQUIPMENT LOCATED ABOVE GRADE, SHALL BE WITH 2 HOLE TONGUE LONG BARREL COMPRESSION LUGS BOLTED TO THE DEVICE WITH 3/8-INCH STAINLESS STEEL BOLTS, NUTS, AND WASHERS OR WITH THE RESPECTIVE EQUIP MANUFACTURER'S LUG OR TERMINAL WHERE APPLICABLE. THIS ALSO APPLIES TO CONNECTIONS TO GROUND BUS BARS.
- HARGER LIGHTING PROTECTION AND GROUNDING EQUIPMENT ALSO MANUFACTURERS TWO HOLE LONG BARREL COMPRESSION LUGS.
- EACH CONNECTION SHALL BE COATED WITH A CORROSION PREVENTATIVE COMPOUND (SANCHEM INC. NO-OX-ID "A-SPECIAL", BURNDY PENETROX E, OR APPROVED EQUAL) BEFORE JOINING. ALL COPPER BUS BARS SHALL BE CLEANED PRIOR TO MAKING CONNECTIONS TO REMOVE SURFACE OXIDATION. CLEAN SURFACES, OF RESPECTIVE DEVICES TO BE BONDED. TO BARE METAL PER NEC 250-12.

GROUNDING LUG CONNECTION DETAIL



BURNDY CAT. NO.	PIPE SIZE
GAR3902-BU	1/2" - 1"
GAR3903-BU	1 1/4" - 2"
GAR3904-BU	2 1/2" - 3 1/2"
GAR3905-BU	4" - 5"
GAR3906-BU	6"

NOTES

- EACH PIPE GROUNDING CLAMP SHALL HAVE BRONZE HARDWARE, BE CORROSION RESISTANT, SUITABLE FOR DIRECT BURIAL IN EARTH OR CONCRETE, & UL 467 LISTED.
- FOR APPLICATIONS SUBJECT TO ADDITIONAL CORROSION, PROVIDE PIPE GROUNDING CLAMPS WITH TINNED COATED BRONZE HARDWARE.
- HARGER CPC AND APC SERIES PIPE GROUNDING CLAMPS PROPERLY SIZED FOR THE RESPECTIVE PIPE AND GROUND WIRE ARE ALSO ACCEPTABLE.
- PENN-UNION TYPE "GPL" SERIES PIPE GROUNDING CLAMPS PROPERLY SIZED FOR THE RESPECTIVE PIPE AND GROUND WIRE ARE ALSO ACCEPTABLE.

PIPE/CONDUIT GROUNDING CLAMP DETAIL

FINAL PLANS

MODEL Sheet 4
FILE NAME: p:\hanson\proj\springfield\documents\09pos\091017910\usabilite - Segment III - V - V1\CAD\Drawings\Sheet\091017910-usabilite-Elect-dwg.dwg



USER NAME = pop00275	DESIGNED - KNL	REVISED -
	DRAWN - JFC	REVISED -
PLOT SCALE = 100.00 sf / ln.	CHECKED - KNL	REVISED -
PLOT DATE = 9/27/2024	DATE - 10/01/2024	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SPRINGFIELD RAIL IMPROVEMENTS PROJECT
SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
ELECTRICAL DETAILS - UPRR - 4

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	375
09L0179B		CONTRACT NO.	93773	
SCALE:		ILLINOIS FED. AID PROJECT		

SCALE: SHEET 4 OF 16 SHEETS STA. TO STA.

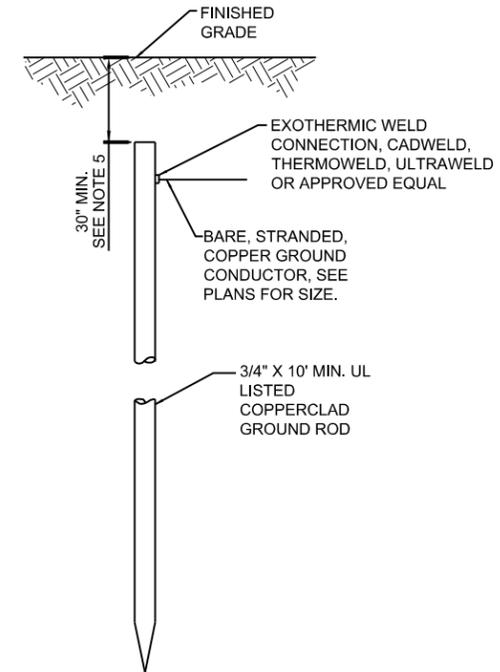
GROUNDING NOTES

THE CONTRACTOR SHALL FURNISH AND INSTALL ALL GROUNDING SHOWN ON THE RESPECTIVE CONTRACT DOCUMENTS AND/OR MAY BE NECESSARY OR REQUIRED TO MAKE A COMPLETE GROUNDING SYSTEM. AS REQUIRED BY THE LATEST NFPA 70-NATIONAL ELECTRICAL CODE (NEC) IN FORCE, OTHER APPLICABLE CODES, AND IN ACCORDANCE WITH THE RESPECTIVE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS, INSTRUCTIONS, AND REQUIREMENTS FOR THE PRIORITY OF PROTECTION OF PERSONNEL AND ADDITIONALLY FOR THE PROTECTION OF EQUIPMENT. ALL PERSONNEL ARE RECOMMENDED TO ALSO COMPLY WITH NFPA 70E STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE. THE RELIABILITY OF THE GROUNDING SYSTEM IS DEPENDENT ON CAREFUL, PROPER INSTALLATION, AND CHOICE MATERIALS. IMPROPER PREPARATION OF SURFACES TO BE JOINED TO MAKE AN ELECTRICAL PATH, LOOSE JOINTS, OR CORROSION CAN INTRODUCE IMPEDANCE THAT WILL SERIOUSLY IMPAIR THE ABILITY OF THE GROUND PATH TO PROTECT PERSONNEL AND EQUIPMENT AND TO ABSORB TRANSIENTS THAT CAN CAUSE NOISE IN COMMUNICATIONS CIRCUITS. THE FOLLOWING FUNCTIONS ARE PARTICULARLY IMPORTANT TO ENSURE A RELIABLE GROUND SYSTEM:

- FURNISH AND INSTALL GROUND RODS AS DETAILED HEREIN. GROUND RODS SHALL BE MINIMUM 3/4-IN. DIAMETER BY 10-FT LONG, UL-LISTED, COPPER CLAD WITH 10-MIL MINIMUM COPPER COATING. GROUND RODS SHALL BE SPACED OR AS DETAILED ON THE RESPECTIVE PLANS, AND IN NO CASE SPACED LESS THAN ONE ROD LENGTH APART. ALL CONNECTIONS TO GROUND RODS AND THE GROUND RING SHALL BE MADE WITH EXOTHERMIC WELD TYPE CONNECTORS, CADWELD BY PENTAIR ERICO PRODUCTS, INC., THERMOWELD BY CONTINENTAL INDUSTRIES, INC., ULTRAWELD BY HARGER, OR APPROVED EQUAL. EXOTHERMIC WELD CONNECTIONS SHALL BE INSTALLED IN CONFORMANCE WITH THE RESPECTIVE MANUFACTURER'S DIRECTIONS USING MOLDS AS REQUIRED FOR EACH RESPECTIVE APPLICATION. BOLTED CONNECTIONS WILL NOT BE PERMITTED AT GROUND RODS OR AT BURIED GROUNDING ELECTRODE CONDUCTORS.
- CONTRACTOR SHALL TEST EACH MADE ELECTRODE GROUND ROD/GROUND FIELD/GROUND RING WITH AN INSTRUMENT SPECIFICALLY DESIGNED FOR TESTING GROUND FIELD SYSTEMS. IF GROUND RESISTANCE EXCEEDS 25 OHMS, CONTACT THE PROJECT ENGINEER FOR FURTHER DIRECTION. COPIES OF GROUND ROD TEST RESULTS SHALL BE FURNISHED TO THE OWNER'S REPRESENTATIVE.
- ALL PRODUCTS ASSOCIATED WITH THE GROUNDING SYSTEM SHALL BE UL-LISTED AND LABELED.
- ALL BOLTED OR MECHANICAL CONNECTIONS SHALL BE COATED WITH A CORROSION PREVENTATIVE COMPOUND BEFORE JOINING, SANCHEM INC. NO-OX-ID A-SPECIAL COMPOUND, BURNDY PENETROX E, OR APPROVED EQUAL.
- METALLIC SURFACES TO BE JOINED SHALL BE PREPARED BY THE REMOVAL OF ALL NON-CONDUCTIVE MATERIAL, PER 2020 NATIONAL ELECTRICAL CODE ARTICLE 250-12. ALL COPPER BUS BARS MUST BE CLEANED PRIOR TO MAKING CONNECTIONS TO REMOVE SURFACE OXIDATION.
- METALLIC RACEWAY FITTINGS SHALL BE MADE UP TIGHT TO PROVIDE A PERMANENT LOW IMPEDANCE PATH FOR ALL CIRCUITS. METAL CONDUIT TERMINATIONS IN ENCLOSURES SHALL BE BONDED TO THE ENCLOSURE WITH UL-LISTED FITTINGS SUITABLE FOR GROUNDING. PROVIDE GROUNDING BUSHINGS WITH BONDING JUMPERS FOR ALL METAL CONDUITS ENTERING SERVICE EQUIPMENT (METER BASE, CT CABINET, MAIN SERVICE BREAKER ENCLOSURE, ETC.). PROVIDE GROUNDING BUSHINGS WITH BONDING JUMPERS FOR ALL METAL CONDUITS ENTERING AN ENCLOSURE THROUGH CONCENTRIC OR ECCENTRIC KNOCKOUTS THAT ARE PUNCHED OR OTHERWISE FORMED SO AS TO IMPAIR THE ELECTRICAL CONNECTION TO GROUND. STANDARD LOCKNUTS OR BUSHINGS SHALL NOT BE THE SOLE MEANS FOR BONDING WHERE A CONDUIT ENTERS AN ENCLOSURE THROUGH A CONCENTRIC OR ECCENTRIC KNOCKOUT
- ALL CONNECTIONS, LOCATED ABOVE GRADE, BETWEEN THE DIFFERENT TYPES OF GROUNDING CONDUCTORS SHALL BE MADE USING UL-LISTED DOUBLE COMPRESSION CRIMP TYPE CONNECTORS OR UL-LISTED BOLTED GROUND CONNECTORS. FOR GROUND CONNECTIONS TO ENCLOSURES, CASES AND FRAMES OF ELECTRICAL EQUIPMENT NOT SUPPLIED WITH GROUND LUGS THE CONTRACTOR SHALL DRILL REQUIRED HOLES FOR MOUNTING A BOLTED GROUND CONNECTOR. ALL BOLTED GROUND CONNECTORS SHALL BE BURNDY, THOMAS AND BETTS, OR EQUAL. TIGHTEN CONNECTIONS TO COMPLY WITH TIGHTENING TORQUES IN UL STANDARD 486A TO ASSURE PERMANENT AND EFFECTIVE GROUNDING.
- ALL METAL EQUIPMENT ENCLOSURES, CONDUITS, CABINETS, BOXES, RECEPTACLES, MOTORS, ETC. SHALL BE BONDED TO THE RESPECTIVE GROUNDING SYSTEM.
- PROVIDE ALL BOXES FOR PROPOSED OUTLETS, SWITCHES, CIRCUIT BREAKERS, ETC. WITH GROUNDING SCREWS. PROVIDE ALL PANELBOARD, SWITCHGEAR, ETC., ENCLOSURES WITH GROUNDING BARS WITH INDIVIDUAL SCREWS, LUGS, CLAMPS, ETC., FOR EACH OF THE GROUNDING CONDUCTORS THAT ENTER THEIR RESPECTIVE ENCLOSURES.
- EACH NEW FEEDER CIRCUIT AND/OR BRANCH CIRCUIT SHALL INCLUDE AN EQUIPMENT GROUND WIRE. METAL RACEWAY OR CONDUIT SHALL NOT MEET THIS REQUIREMENT. THE EQUIPMENT GROUND WIRE FROM EQUIPMENT SHALL NOT BE SMALLER THAN ALLOWED BY 2020 NEC TABLE 250-122 MINIMUM SIZE CONDUCTORS OR GROUNDING RACEWAY AND EQUIPMENT. WHEN CONDUCTORS ARE ADJUSTED IN SIZE TO COMPENSATE FOR VOLTAGE DROP, EQUIPMENT-GROUNDING CONDUCTORS SHALL BE ADJUSTED PROPORTIONATELY ACCORDING TO CIRCULAR MIL AREA. ALL EQUIPMENT GROUND WIRES SHALL BE COPPER, EITHER BARE OR INSULATED GREEN IN COLOR. WHERE THE EQUIPMENT GROUNDING CONDUCTORS ARE INSULATED, THEY SHALL BE IDENTIFIED BY THE COLOR GREEN, AND SHALL BE THE SAME INSULATION TYPE AS THE PHASE CONDUCTORS.

- ALL EXTERIOR METAL CONDUIT, WHERE NOT ELECTRICALLY CONTINUOUS BECAUSE OF MANHOLES, HANDHOLES, NON-METALLIC JUNCTION BOXES, ETC., SHALL BE BONDED TO ALL OTHER METAL CONDUIT IN THE RESPECTIVE DUCT RUN, AND AT EACH END, WITH A COPPER-BONDING JUMPER SIZED IN CONFORMANCE WITH 2020 NEC 250-102. WHERE METAL CONDUITS TERMINATE IN AN ENCLOSURE (SUCH AS A MOTOR CONTROL CENTER, SWITCHBOARD, ETC) WHERE THERE IS NOT ELECTRICAL CONTINUITY WITH THE CONDUIT AND THE RESPECTIVE ENCLOSURE, PROVIDE A BONDING JUMPER FROM THE RESPECTIVE ENCLOSURE GROUND BUS TO THE CONDUIT SIZED PER 2020 NEC 250-102.
- IT IS THE INTENT OF THIS SPECIFICATION THAT ALL MOTOR FRAMES, PUMP BASES ELECTRICAL EQUIPMENT ENCLOSURES, PANEL HOUSINGS, CONDUITS, BOXES, ETC. HAVE A CONTINUOUS COPPER WIRE GROUND CONNECTION AND SHALL BE POSITIVELY BONDED TO THE RESPECTIVE GROUNDING SYSTEM. CONDUIT CONNECTORS WILL NOT BE CONSIDERED AS ADEQUATE GROUNDING.
- PROVIDE A POSITIVE GROUND BOND FOR ALL OUTLET BOXES, ELECTRICAL EQUIPMENT ENCLOSURES, GROUNDING RECEPTACLES, TOGGLE SWITCHES, ETC. INSTALL A GROUNDING CONDUCTOR IN ALL WIRE AND CABLE RACEWAYS. GROUND CONDUCTOR TO HAVE 600-VOLT INSULATION AND BE IDENTIFIED BY A CONTINUOUS GREEN COLOR COATING. THEY SHALL BE USED SOLELY FOR GROUNDING PURPOSES AND BE ENTIRELY SEPARATE FROM WHITE GROUNDED NEUTRAL CONDUCTOR, EXCEPT AT SUPPLY SIDE OF SERVICE DISCONNECTING MEANS, WHERE GROUNDING AND NEUTRAL SYSTEMS ARE TO BE CONNECTED TO SERVICE GROUND.
- EACH AND ALL GROUNDED CASED AND METAL PARTS ASSOCIATED WITH ELECTRICAL EQUIPMENT SHALL BE TESTED FOR CONTINUITY OF CONNECTION WITH GROUND BUS SYSTEM BY CONTRACTOR IN PRESENCE OF OWNER'S REPRESENTATIVE.
- ALL CONNECTIONS BETWEEN THE DIFFERENT TYPES OF GROUNDING CONDUCTORS ABOVE GRADE SHALL BE MADE USING BOLTED GROUND CONNECTORS. GROUND LUGS SHALL BE PROVIDED IN ALL ENCLOSURES AND WIRING TERMINATION JUNCTION BOXES. EQUIPMENT GROUNDS AND GROUNDING CONDUCTOR SHALL BE CONNECTED TO THESE GROUND LUGS. FOR GROUND CONNECTIONS TO ENCLOSURES, CASES AND FRAMES OF ELECTRICAL EQUIPMENT NOT SUPPLIED WITH GROUND LUGS THE CONTRACTOR SHALL DRILL REQUIRED HOLES FOR MOUNTING A BOLTED GROUND CONNECTOR. ALL BOLTED GROUND CONNECTORS SHALL BE BURNDY, OR APPROVED EQUAL.
- BOND ALL NONCURRENT-CARRYING PARTS OF METAL EQUIPMENT TO GROUND SYSTEM.
- BUILDING STRUCTURAL STEEL SYSTEM SHALL BE BONDED TO ELECTRICAL GROUND SYSTEM.
- INSTALL GROUNDING ELECTRODE CONDUCTORS, LIGHTNING PROTECTION DOWN CONDUCTORS AND SEPARATE GROUND CONDUCTORS IN SCHEDULE 80 PVC CONDUIT OR EXPOSED WHERE ACCEPTABLE TO LOCAL CODES. WHERE GROUNDING ELECTRODE CONDUCTORS, LIGHTNING PROTECTION DOWN CONDUCTORS OR INDIVIDUAL GROUND CONDUCTORS ARE RUN IN PVC CONDUIT, NOT COMPLETELY ENCIRCLE CONDUIT WITH FERROUS AND/OR MAGNETIC MATERIALS. USE NON-METALLIC REINFORCED FIBERGLASS STRUT SUPPORT. WHERE METAL CONDUIT CLAMPS ARE INSTALLED, USE NYLON BOLTS, NUTS, WASHERS AND SPACERS TO INTERRUPT A COMPLETE METALLIC PATH FROM ENCIRCLING THE CONDUIT. THIS IS REQUIRED TO AVOID GIRDLING OF GROUND CONDUCTORS.
- IF LOCAL CODES DICTATE THAT INDIVIDUAL GROUNDING CONDUCTORS MUST BE RUN IN METAL CONDUIT OR RACEWAY, THEN THE CONDUIT OR RACEWAY MUST BE BONDED AT EACH END OF THE RUN WITH A BONDING JUMPER SIZED EQUAL TO THE INDIVIDUAL GROUNDING CONDUCTOR OR AS REQUIRED BY 2020 NEC 250-102. NOTE THIS DOES NOT APPLY TO AC EQUIPMENT GROUNDING CONDUCTORS RUN WITH AC CIRCUITS. CONFIRM REQUIREMENTS WITH AUTHORITY HAVING JURISDICTION.
- GROUNDING WORK AFFECTING OPERATIONS AT FACILITY SHALL BE COORDINATED WITH THE OWNER'S DESIGNATED REPRESENTATIVE(S) AND TO MINIMIZE DOWNTIME TO EXISTING SYSTEMS. THE RESPECTIVE PERSONNEL SHALL COORDINATE WORK AND ANY POWER OUTAGES WITH THE OWNER'S DESIGNATED REPRESENTATIVE(S). ANY SHUTDOWN OF EXISTING SYSTEMS SHALL BE SCHEDULED WITH AND APPROVED BY THE OWNERS REPRESENTATIVE PRIOR TO THE SHUTDOWN. ALL POWER SYSTEMS (AC OR DC) SHALL HAVE PROVISIONS TO LOCKOUT AND TAGOUT ANY CIRCUIT TO HELP ENSURE THE CIRCUIT IS SAFE TO WORK ON FOR PROTECTION OF PERSONNEL. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTED CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY AND HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT). WHERE A FACILITY DOES NOT HAVE LOCKOUT/TAGOUT KITS THE RESPECTIVE PERSONNEL SHALL PROVIDE ADEQUATE QUANTITIES OF LOCKOUT/TAGOUT KITS SUITABLE FOR USE WITH THE RESPECTIVE EQUIPMENT. WHERE EXISTING ELECTRICAL EQUIPMENT DOES NOT HAVE FEATURES FOR LOCKOUT/TAGOUT THE RESPECTIVE PERSONNEL WILL BE RESPONSIBLE FOR PROVIDING THE APPROPRIATE LOCKOUT/TAGOUT EQUIPMENT AND MEASURES TO COMPLY WITH OSHA LOCKOUT/TAGOUT REQUIREMENTS. ALL PADLOCKS FOR USE WITH LOCKOUT/TAGOUT PROCEDURES SHALL HAVE A DIFFERENT KEY. PROVIDE LOCKOUT HASPS TO ACCOMMODATE MULTIPLE PADLOCKS WHERE MULTIPLE PEOPLE ARE WORKING ON THE SAME SYSTEM. INCLUDE LOCKOUT TAGS FOR EACH PIECE OF EQUIPMENT REQUIRING SERVICING AND SHUTDOWN. COMPLIANCE WITH LOCKOUT/TAGOUT PROCEDURE AND ALL OTHER SAFETY PROCEDURES AND REQUIREMENTS ARE THE RESPONSIBILITY OF THE RESPECTIVE PERSONNEL WORKING AT THE FACILITY.

- NEVER REMOVE, ALTER, OR ATTEMPT TO REPAIR CONDUCTORS OR CONDUIT SYSTEMS PROVIDING GROUNDING OR ELECTRICAL BONDING FOR ANY ELECTRICAL EQUIPMENT UNTIL ALL POWER IS REMOVED FROM EQUIPMENT. WARN ALL PERSONNEL OF THE UNGROUNDED CONDITION OF THE EQUIPMENT. DISPLAY APPROPRIATE WARNING SIGNS, SUCH AS DANGER TAGS, TO WARN PERSONNEL OF THE POSSIBLE HAZARDS.
- GROUNDING WORK AND MODIFICATIONS SHALL NOT BE PERFORMED DURING A THUNDERSTORM OR WHEN A THUNDERSTORM IS PREDICTED IN THE AREA.
- PER NFPA 70E STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE, IT DEFINES ELECTRICALLY SAFE WORK CONDITION AS "A STATE IN WHICH AN ELECTRICAL CONDUCTOR OR CIRCUIT PART HAS BEEN DISCONNECTED FROM ENERGIZED PARTS, LOCKED/TAGGED IN ACCORDANCE WITH ESTABLISHED STANDARDS, TESTED TO VERIFY THE ABSENCE OF VOLTAGE, AND, IF NECESSARY, TEMPORARILY GROUNDED FOR PERSONAL PROTECTION." PRIOR TO CONDUCTING TESTS OR WORKING ON EQUIPMENT, VERIFY EQUIPMENT ENCLOSURES AND FRAMES HAVE A GOOD AND SECURE GROUND CONNECTION. FAILURE TO PROPERLY GROUND THIS EQUIPMENT PRESENTS A DANGEROUS HAZARD FOR PERSONNEL WORKING ON THIS SYSTEM.
- WHERE A CONFLICT IS DETERMINED WITH RESPECT TO GROUNDING REQUIREMENTS PER MANUFACTURER INSTALLATION INSTRUCTIONS, NEC, AND/OR THE CONTRACT DOCUMENTS, CONTACT THE RESIDENT ENGINEER OR PROJECT ENGINEER OF RECORD FOR FURTHER DIRECTIONS.



10 FT. GROUND ROD

NOTES

- TYPE AND MINIMUM NUMBER OF GROUND RODS SHALL BE AS SPECIFIED ON THE PLAN.
- THE RESISTANCE TO GROUND OF THE GROUNDING SYSTEM SHALL NOT EXCEED 25 OHMS.
- COST OF GROUND RODS IS INCIDENTAL TO THE ASSOCIATED ITEMS REQUIRING GROUNDING UNLESS OTHERWISE SPECIFIED.
- GROUND RODS SHALL BE SPACED AS DETAILED ON THE PLANS AND SHALL NOT BE SPACED LESS THAN ONE ROD LENGTH APART.
- TOP OF GROUND RODS SHALL BE 30" MINIMUM BELOW GRADE UNLESS DETAILED OTHERWISE HEREIN. GROUND RING AND/OR GROUND FIELD CONDUCTORS SHALL BE 40" MINIMUM BELOW GRADE TO BE BELOW FROST LINE (FOR SANGAMON COUNTY, ILLINOIS).

PLAN	SUBMITTED	DATE
NOTE BOOK NO.	PLOTTED	
	ALIGNMENT CHECKED	
	ADD FILE NAME	

PROFILE	SUBMITTED	DATE
NOTE BOOK NO.	GRADES CHECKED	
	STRUCTURE NOTATIONS CHECKED	

FINAL PLANS

MODEL Sheet 5
 FILE NAME: p:\hanson\proj\springfield\documents\09jpos0117910\usabille - uprr\Sheet\09jpos0117910-usabille-01-05.dwg
 Segment: III - V - VINCAD\Rail\Usabille - Segment: III - uprr\Sheet\09jpos0117910-usabille-01-05.dwg



USER NAME = pop00275	DESIGNED - KNL	REVISED -
	DRAWN - JFC	REVISED -
PLOT SCALE = 100.00 sf / ln.	CHECKED - KNL	REVISED -
PLOT DATE = 9/27/2024	DATE - 10/01/2024	REVISED -

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**SPRINGFIELD RAIL IMPROVEMENTS PROJECT
 SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
 ELECTRICAL DETAILS - UPRR - 5**

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	376
	09L0179B			CONTRACT NO. 93773

SCALE: SHEET 5 OF 16 SHEETS STA. TO STA.

ILLINOIS FED. AID PROJECT

ELECTRICAL ABBREVIATIONS

@	AT	KWH	KILOWATT HOUR
A/C	AIR CONDITIONING	LAHJ	LOCAL AUTHORITY HAVING JURISDICTION
AC	ALTERNATING CURRENT	LED	LIGHT EMITTING DIODE
A/E	ARCHITECT/ENGINEER	LPF	LOW POWER FACTOR
AFD	ADJUSTABLE FREQUENCY DRIVE	LT	LIGHT
AFF	ABOVE FINISHED FLOOR	LTG	LIGHTING
AFG	ABOVE FINISHED GRADE	LTS	LIGHTS
AHJ	AUTHORITY HAVING JURISDICTION	LV	LOW VOLTAGE
AHU	AIR HANDLER UNIT	M	METER
AIC	AMPS INTERRUPTING CAPACITY	MAINT	MAINTENANCE
AL	ALUMINUM	MAX	MAXIMUM
AM	AMMETER	MCB	MAIN CIRCUIT BREAKER
AMP	AMPERE	MCC	MOTOR CONTROL CENTER
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	MCM	THOUSAND CIRCULAR MILS
ATS	AUTOMATIC TRANSFER SWITCH	MFG	MANUFACTURER
AWG	AMERICAN WIRE GAUGE	MH	MANHOLE OR METAL HALIDE
BKR	BREAKER	MIN	MINIMUM
BLDG	BUILDING	MLO	MAIN LUG ONLY
C	CONDUIT	MM	MILIMETER
CB	CIRCUIT BREAKER	MOCPP	MAXIMUM OVERCURRENT PROTECTION
CFM	CUBIC FEET PER MINUTE	MPH	MILES PER HOUR
CKT	CIRCUIT	MTD	MOUNTED
C/L	CENTER LINE	MV	MEDIUM VOLTAGE
CLG	CEILING	#	NUMBER
COMP	COMPRESSOR	N	NEUTRAL
COND	CONDUIT	NC	NORMALLY CLOSED
CONN	CONNECTION	NEC	NATIONAL ELECTRICAL CODE (NFPA 70)
CONT	CONTINUOUS	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
CRI	COLOR RENDERING INDEX	NF	NON-FUSED
CT	CURRENT TRANSFORMER	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
CTR	COUNTER	NIC	NOT IN CONTRACT
CU	COPPER OR CONDENSER UNIT	NL	NIGHT LIGHT, NOT SWITCHED
DB	DIRECT BURIED	NO	NORMALLY OPEN OR NUMBER
DC	DIRECT CURRENT	NPT	NATIONAL PIPE THREAD
DISC	DISCONNECT	OD	OUTSIDE DIAMETER
DISC SW	DISCONNECT SWITCH	OL	OVERLOAD
DN	DOWN	%	PERCENT
DPST	DOUBLE POLE SINGLE THROW	P	POLE
DS	DISCONNECT SWITCH	PB	PULL BOX
EA	EACH	PH OR Ø	PHASE
ECB	ENCLOSED CIRCUIT BREAKER	PL	COMPACT FLUORESCENT LAMP
EC	ELECTRICAL CONTRACTOR	PNL	PANEL OR PANELBOARD
EDH	ELECTRIC DUCT HEATER	PR	PAIR
EF	EXHAUST FAN	PRI	PRIMARY
ELEV	ELEVATION OR ELEVATOR	PSF	POUNDS PER SQUARE FOOT
EMS	ENERGY MANAGEMENT SYSTEM	PSI	POUNDS PER SQUARE INCH
EMT	ELECTRICAL METALLIC TUBING	PT	POTENTIAL TRANSFORMER
EQUIP	EQUIPMENT	PVC	POLYVINYL CHLORIDE
EST	ESTIMATE	RECEPT	RECEPTACLE
EWC	ELECTRIC WATER COOLER	RGS	RIGID GALVANIZED STEEL
EWH	ELECTRIC WATER HEATER	RPM	REVOLUTIONS PER MINUTE
EX OR EXIST	EXISTING	RS	RAPID START
F/A	FIRE ALARM	RTU	ROOF TOP UNIT
FAAP	FIRE ALARM ANNUNCIATOR PANEL	SCA	SHORT CIRCUIT AMPERES
FACP	FIRE ALARM CONTROL PANEL	SEC	SECONDARY
FATC	FIRE ALARM TERMINAL CABINET	SF	SQUARE FOOT OR SUPPLY FAN
FC	FOOTCANDLES	S/N	SOLID NEUTRAL
FLA	FULL LOAD AMPERES	SPST	SINGLE POLE SINGLE THROW
FLR	FLOOR	SS	STAINLESS STEEL
FT	FEET	SW	SWITCH
FTB	FAN TERMINAL BOX	SWBD	SWITCHBOARD
FVNR	FULL VOLTAGE NON-REVERSING	SYS	SYSTEM
G OR GND	GROUND	TEMP	TEMPERATURE
GAL	GALLON	TSP	TWISTED SHIELDED PAIR
GALV	GALVANIZED	TV	TELEVISION
GC	GENERAL CONTRACTOR	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
GFI	GROUND FAULT INTERRUPTING	TYP	TYPICAL
GFP	GROUND FAULT PROTECTION	UG	UNDERGROUND
GPH	GALLONS PER HOUR	UL	UNDERWRITER'S LABORATORIES
GPM	GALLONS PER MINUTE	UON	UNLESS OTHERWISE NOTED
GRS	GALVANIZED RIGID STEEL	VE	VALUE ENGINEER
HDPE	HIGH DENSITY POLYETHYLEEN	VFD	VARIABLE FREQUENCY DRIVE
HH	HAND HOLE	VHF	VERY HIGH FREQUENCY
HO	HIGH OUTPUT	VHO	VERY HIGH OUTPUT
HP	HORSEPOWER OR HEAT PUMP	V	VOLT
HPF	HIGH POWER FACTOR	VA	VOLT AMPERE
HPS	HIGH PRESSURE SODIUM	VAV	VARIABLE AIR VOLUME
HR	HOUR	VM	VOLT METER
HT	HEIGHT	VOL	VOLUME
HTR	HEATER	W	WATT OR WIRE
HZ	HERTZ	WP	WEATHERPROOF
IG	ISOLATED GROUND	WSA	WIRE SIZE AMPERES
IMC	INTERMEDIATE METALLIC CONDUIT	WW	WIREWAY OR AUXILIARY GUTTER
IN	INCHES	XFMR	TRANSFORMER
JB	JUNCTION BOX	Y	WYE
K	KELVIN OR KILO	YD	YARD
KCMIL	THOUSAND CIRCULAR MILS	YR	YEAR
KVA	KILOVOLT AMPERE	3R	RAINPROOF
KW	KILOWATT	4X	DUSTTIGHT, WATERTIGHT

ELECTRICAL ONE LINE LEGEND

	CIRCUIT BREAKER
	FUSE
	TRANSFORMER
	GROUND, GROUND ROD or GROUNDING ELECTRODE
	TERMINAL, SPLICE, OR LUG
	SPLICE OR CONNECTION
	AC SURGE PROTECTOR
	AC SURGE PROTECTOR / TRANSIENT VOLTAGE SURGE SUPPRESSOR
	GROUND BAR OR GROUND LUG
	NEUTRAL BAR/BUS
	PAD MOUNT TRANSFORMER
	ELECTRIC UTILITY KWH SERVICE METER AND BASE
	PANELBOARD WITH MAIN BREAKER
	PANELBOARD WITH MAIN LUGS
	JUNCTION BOX / ENCLOSURE
	NOT FUSIBLE SAFETY SWITCH WITH GND KIT
	FUSIBLE SAFETY SWITCH WITH GND KIT AND SOLID NEUTRAL

1. ALL ELECTRICAL WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE NFPA 70 NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE. THE APPLICABLE UNION PACIFIC RAILROAD STANDARDS, AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES, AND REQUIREMENTS IN FORCE. ELECTRICAL EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN CONFORMANCE WITH THE RESPECTIVE MANUFACTURER'S DIRECTIONS AND RECOMMENDATIONS FOR THE RESPECTIVE APPLICATION. ANY INSTALLATIONS WHICH VOID THE UL LISTING, INTERTEK TESTING SERVICES VERIFICATION / ETL LISTING (OR OTHER THIRD PARTY LISTING), AND / OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.

2. WORK, POWER OUTAGES, AND / OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE OWNER'S REPRESENTATIVE. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT / TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT / TAGOUT). ALSO COMPLY WITH THE RESPECTIVE RAILROAD COMPANY LOCKOUT / TAGOUT STANDARDS. WHERE THE FACILITY IS NOT EQUIPPED WITH LOCKOUT / TAGOUT EQUIPMENT THE RESPECTIVE PERSONNEL WILL BE RESPONSIBLE FOR PROVING THE APPROPRIATE LOCKOUT / TAGOUT EQUIPMENT. FAILURE TO SHUT DOWN AND LOCKOUT THE CIRCUITS PRESENTS A DANGEROUS HAZARD FOR PERSONNEL WORKING ON THE RESPECTIVE SYSTEM.

3. CONTRACTOR SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF NFPA 70E STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE.

4. ONLY QUALIFIED ELECTRICAL CONTRACTORS SHALL PERFORM ELECTRICAL WORK ON THIS PROJECT. NEC DEFINES A QUALIFIED PERSON AS "ONE WHO HAS SKILLS AND KNOWLEDGE RELATED TO THE CONSTRUCTION AND OPERATION OF THE ELECTRICAL EQUIPMENT AND INSTALLATIONS AND HAS RECEIVED SAFETY TRAINING TO RECOGNIZE AND AVOID THE HAZARDS INVOLVED."

5. COLOR-CODE PHASE AND NEUTRAL CONDUCTOR INSULATION FOR NO. 6 AWG OR SMALLER. PROVIDE COLORED MARKING TAPE FOR PHASE AND NEUTRAL CONDUCTOR FOR NO. 4 AWG AND LARGER. INSULATED GROUND CONDUCTORS SHALL HAVE GREEN COLORED INSULATION FOR ALL CONDUCTOR SIZES (AWG AND / OR KCMIL) TO COMPLY WITH NEC 250.119. NEUTRAL CONDUCTORS SHALL HAVE WHITE OR GRAY COLORED INSULATION FOR NO. 6 AWG OR SMALLER TO MEET REQUIREMENTS OF NEC 200.6. COLOR CODING REQUIREMENTS SHALL BE POSTED ON EACH PANELBOARD WITH A WEATHERPROOF LABEL. STANDARD COLORS FOR THE POWER WIRING AND BRANCH CIRCUITS SHALL BE AS FOLLOWS:

480/277 VAC, 3-PHASE, 4-WIRE SYSTEM		120/240 VAC, 1-PHASE, 3-WIRE SYSTEM	
PHASE A	BROWN	PHASE A	BLACK
PHASE B	ORANGE	PHASE B	RED
PHASE C	YELLOW	NEUTRAL	WHITE
NEUTRAL	GRAY	GROUND	GREEN
GROUND	GREEN		

ALL INSULATED EQUIPMENT GROUND WIRES SHALL HAVE GREEN COLORED INSULATION REGARDLESS OF SIZE. GREEN TAPE WILL NOT MEET THIS REQUIREMENT

6. LOCATE EXISTING UNDERGROUND UTILITIES AND CABLES. THE LOCATION, SIZE, AND TYPE OF MATERIAL OF EXISTING UNDERGROUND AND / OR ABOVEGROUND UTILITIES INDICATED ON THE PLANS ARE NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT, OR COMPLETE. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY WHATSOEVER IN RESPECT TO THE ACCURACY, COMPLETENESS, OR SUFFICIENCY OF THE INFORMATION. THERE IS NO GUARANTEE, EITHER EXPRESSED OR IMPLIED, THAT THE LOCATIONS, SIZE, AND TYPE OF MATERIAL OF EXISTING UNDERGROUND UTILITIES INDICATED ARE REPRESENTATIVE OF THOSE TO BE ENCOUNTERED IN THE CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF SUCH FACILITIES. INCLUDING SERVICE CONNECTIONS TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES OF HIS OPERATIONAL PLANS. AND SHALL OBTAIN FROM THE RESPECTIVE UTILITIES COMPANIES. DETAILED INFORMATION AND ASSISTANCE RELATIVE TO THE LOCATION OF THEIR FACILITIES AND WORKING SCHEDULE OF THE COMPANIES FOR REMOVAL OR ADJUSTMENT, WHERE REQUIRED. IN THE EVENT AN UNEXPECTED UTILITY INTERFERENCE IS ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITY COMPANY OF JURISDICTION. THE OWNER'S REPRESENTATIVE AND / OR THE RESIDENT ENGINEER / RESIDENT TECHNICIAN SHALL ALSO BE IMMEDIATELY NOTIFIED. ANY DAMAGE TO SUCH MAINS AND SERVICES SHALL BE RESTORED TO SERVICE AT ONCE AND PAID FOR BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACT. ALL UTILITY CABLES AND LINES SHALL BE LOCATED BY THE RESPECTIVE UTILITY. CONTACT JULIE (JOINT UTILITY LOCATION INFORMATION FOR EXCAVATORS) FOR UTILITY INFORMATION. PHONE: 1-800-892-0123. ALSO CONTACT THE OWNER'S REPRESENTATIVE FOR ANY ASSISTANCE IN LOCATING UNDERGROUND LINES AND / OR UTILITIES. ALSO COORDINATE WORK WITH ALL ABOVEGROUND UTILITIES.

7. ALL ENCLOSURES RATED NEMA 4, 4X SHALL HAVE WATERTIGHT HUBS AT CONDUIT ENTRANCES UL LISTED NEMA 4, 4X FOR THE RESPECTIVE ENCLOSURE TO MAINTAIN THE NEMA 4, 4X RATING.

8. COORDINATE ELECTRIC SERVICE WORK WITH THE SERVING ELECTRIC UTILITY COMPANY: CITY WATER, LIGHT & POWER (CWLP). PHONE: 217-789-2323

9. CONTRACTOR SHALL PROVIDE ARC FLASH REPORT AND APPROPRIATE LABELS ON ELECTRICAL EQUIPMENT, IN CONFORMANCE WITH NFPA 70E STANDARDS FOR ELECTRICAL SAFETY IN THE WORKPLACE. ARTICLE 130 WORK INVOLVING ELECTRICAL HAZARDS.

PLAN	SUBMITTED	DATE
NOTE BOOK	PLOTTED	
NO.	ALIGNMENT CHECKED	
	CONSTRUCTION CHECKED	
	ADD FILE NAME	

PROFILE	SUBMITTED	DATE
NOTE BOOK	PLOTTED	
NO.	GRADES CHECKED	
	STRUCTURE NOTATIONS CHECKED	

FINAL PLANS

MODEL Sheet 6
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USER NAME = pop00275	DESIGNED - KNL	REVISED -
	DRAWN - JFC	REVISED -
PLOT SCALE = 100.00 sf / ln.	CHECKED - KNL	REVISED -
PLOT DATE = 9/27/2024	DATE - 10/01/2024	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

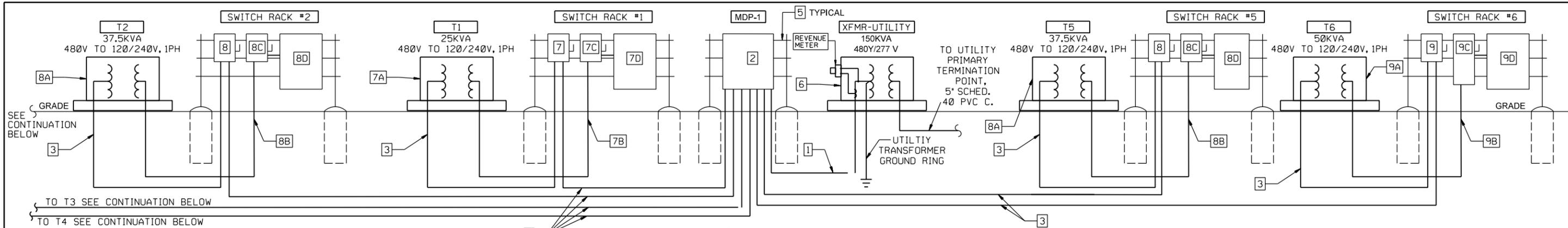
SPRINGFIELD RAIL IMPROVEMENTS PROJECT
SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
ELECTRICAL DETAILS - UPRR - 6

SCALE: SHEET 6 OF 16 SHEETS STA. TO STA.

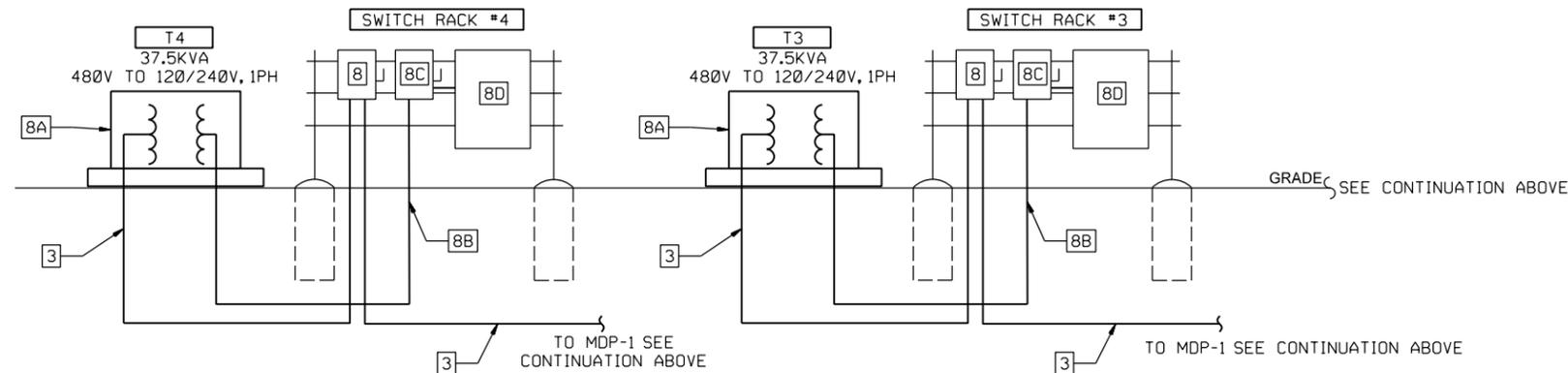
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	377
	09L0179B			CONTRACT NO. 93773
		ILLINOIS	FED. AID PROJECT	

DATE	
BY	
REVISION	
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PANEL LAYOUT - MDP-1
NOT TO SCALE



KEYED NOTES

- 1 400A, 480/277V, 3PH, 4W SERVICE; 4 #600MCM XHHW-2, 4" C.
- 2 400A, 480Y/277V, 3PH MAIN SERVICE AND POWER DISTRIBUTION PANEL, 25 KAIC MIN. AT 480/277VAC. AMP INTERRUPTING RATING SHALL BE GREATER THAN CALCULATED FAULT CURRENT AT UTILITY TRANSFORMER SECONDARY. ADJUST AS APPLICABLE.
- 3 2 #3/0 XHHW-2, 1 #2 AWG GND., 2" SCHED 40 MIN. PVC/HDPE CONDUIT. TRANSITION TO GRSC WHERE EMERGEING FROM GRADE.
- 4 (RESERVED)
- 5 SEE H-FRAME RACK DETAIL AND SWITCH RACK DETAILS.
- 6 SEE TRANSFORMER PAD DETAIL. COORDINATE REQUIREMENTS WITH CWLP
- 7 480VAC FEEDER
PRIMARY DISCONNECT FOR 25KVA TRANSFORMER; 200AMP, 600VAC, 2-POLE HEAVY DUTY NOT FUSIBLE UL LISTED SAFETY SWITCH IN A NEMA 4X STAINLESS STEEL ENCLOSURE. INCLUDE GROUND KIT. LOCATE SWITCH ON SWITCH RACK NEAR/ADJACENT TO RESPECTIVE PAD MOUNT TRANSFORMER.
- 7A 25KVA PAD MOUNT TRANSFORMER;
PRIMARY: 480VAC SINGLE PHASE, 2-WIRE
SECONDARY: 120/240VAC SINGLE PHASE, 3-WIRE.
- 7B 2 #3/0 AWG XHHW-2, 1 #2 GND IN 2" GRSC.
- 7C 120/240VAC SECONDARY DISCONNECT/OVERCURRENT PROTECTION FOR TRANSFORMER; 200AMP, 240VAC, 2-POLE HEAVY DUTY FUSIBLE UL LISTED SAFETY SWITCH IN A NEMA 4X STAINLESS STEEL ENCLOSURE. INCLUDE SOLID NEUTRAL AND GROUND KIT. FURNISH AND INSTALL 2-150AMP CLASS RK5 FUSES AS MANUFACTURED BY BUSSMANN OR LITTELFUSE. INCLUDE 2 SPARES OF SAME MANUFACTURER, SIZE, AND TYPE. ADJUST FUSE SIZES AS NEEDED TO ACCOMMODATE RESPECTIVE LOAD AND APPLICATION.
- 7D NEMA 4X STAINLESS STEEL ENCLOSURE WITH HINGED COVER AND PAD LOCK FEATURE, MINIMUM SIZE 24"H X 24"W X 8"D.
- 8 480VAC FEEDER
PRIMARY DISCONNECT FOR 37.5KVA TRANSFORMER; 200AMP, 600VAC, 2-POLE HEAVY DUTY NOT FUSIBLE UL LISTED SAFETY SWITCH IN A NEMA 4X STAINLESS STEEL ENCLOSURE. INCLUDE GROUND KIT. LOCATE SWITCH ON SWITCH RACK NEAR/ADJACENT TO RESPECTIVE PAD MOUNT TRANSFORMER.
- 8A 37.5KVA PAD MOUNT TRANSFORMER;
PRIMARY: 480VA SINGLE PHASE, 2-WIRE
SECONDARY: 120/240VAC SINGLE PHASE, 3-WIRE.
- 8B 2 #3/0 AWG XHHW-2, 1 #2 GND IN 2" GRSC.
- 8C 120/240VAC SECONDARY DISCONNECT/OVERCURRENT PROTECTION FOR TRANSFORMER; 200AMP, 240VAC, 2-POLE HEAVY DUTY FUSIBLE UL LISTED SAFETY SWITCH IN A NEMA 4X STAINLESS STEEL ENCLOSURE. INCLUDE SOLID NEUTRAL AND GROUND KIT. FURNISH AND INSTALL 2-200AMP CLASS RK5 FUSES AS MANUFACTURED BY BUSSMANN OR LITTELFUSE. INCLUDE 2 SPARES OF SAME MANUFACTURER, SIZE, AND TYPE. ADJUST FUSE SIZES AS NEEDED TO ACCOMMODATE RESPECTIVE LOAD AND APPLICATION.
- 8D NEMA 4X STAINLESS STEEL ENCLOSURE WITH HINGED COVER AND PAD LOCK FEATURE, MINIMUM SIZE 24"H X 24"W X 8"D.
- 9 480VAC FEEDER
PRIMARY DISCONNECT FOR 50KVA TRANSFORMER; 200AMP, 600VAC, 2-POLE HEAVY DUTY NOT FUSIBLE UL LISTED SAFETY SWITCH IN A NEMA 4X STAINLESS STEEL ENCLOSURE. INCLUDE GROUND KIT. LOCATE SWITCH ON SWITCH RACK NEAR/ADJACENT TO RESPECTIVE PAD MOUNT TRANSFORMER.
- 9A 50KVA PAD MOUNT TRANSFORMER;
PRIMARY: 480VAC SINGLE PHASE, 2-WIRE
SECONDARY: 120/240VAC SINGLE PHASE, 3-WIRE.
- 9B 2 #350 MCM XHHW-2, 1 #2 GND IN 3" GRSC.
- 9C 120/240VAC SECONDARY DISCONNECT/OVERCURRENT PROTECTION FOR TRANSFORMER; 400AMP, 240VAC, 2-POLE HEAVY DUTY FUSIBLE UL LISTED SAFETY SWITCH IN A NEMA 4X STAINLESS STEEL ENCLOSURE. INCLUDE SOLID NEUTRAL AND GROUND KIT. FURNISH AND INSTALL 2-300AMP CLASS RK5 FUSES AS MANUFACTURED BY BUSSMANN OR LITTELFUSE. INCLUDE 2 SPARES OF SAME MANUFACTURER, SIZE, AND TYPE. ADJUST FUSE SIZES AS NEEDED TO ACCOMMODATE RESPECTIVE LOAD AND APPLICATION.
- 9D NEMA 4X STAINLESS STEEL ENCLOSURE WITH HINGED COVER AND PAD LOCK FEATURE, MINIMUM SIZE 30"H X 30"W X 8"D.

MAIN SERVICE & DISTRIBUTION PANEL MDP-1										
400 A	MAIN BREAKER	LOAD	480 Y / 277 VOLT		3 PHASE 4 WIRE		EXTERIOR MOUNTED			
VOLT-AMP	CIR. NO.		CB	P	Ø	P	CB	LOAD	CIR. NO.	VOLT-AMP
25000	1	SWITCH RACK #1 AND TRANSFORMER T1	125	2	A	2	150	SWITCH RACK #5 AND TRANSFORMER T5	2	28000
	3								4	
28000	5	SWITCH RACK #2 AND TRANSFORMER T2	150	2	C	2	200	SWITCH RACK #6 AND TRANSFORMER T6	6	50000
	7								8	
28000	9	SWITCH RACK #3 AND TRANSFORMER T3	150	2	B	2	150	SPARE	10	
	11								12	
	13								14	
28000	15	SWITCH RACK #4 AND TRANSFORMER T4	150	2	A			SPACE	16	
	17								18	
	19	SPACE			A			SPACE	20	
	21	SPACE			B			SPACE	22	
	23	SPACE			C			SPACE	24	
	25	SPACE			A			SPACE	26	
	27	SPACE			B	3	30	TVSS	28	500
	29	SPACE			C			SPACE	30	

CIRCUIT BREAKERS SHALL HAVE A MINIMUM INTERRUPTING RATING OF 25000 RMS SYMMETRICAL AMPERES.
TOTAL CONNECTED LOAD = 187.0 KVA TOTAL DEMAND LOAD = 187.0 KVA
PROVIDE A NEMA 3R STAINLESS STEEL ENCLOSURE PROVIDE COPPER GROUND BUS

FINAL PLANS

MODEL Sheet 7

FILE NAME: p:\hanson\proj\sw_bentley\com\hanson-pw-d1\Documents\09\pos\091017910\Usable_Segment\W - V\CAD\Detail\Usable_Segment\W - UPRR\Sheet\091017910-snc-Elc-detailed2-07-08.dgn



USER NAME = pop00275	DESIGNED - KNL	REVISED -
PLOT SCALE = 100.0000 sf / ln.	CHECKED - KNL	REVISED -
PLOT DATE = 9/27/2024	DATE - 10/01/2024	REVISED -

DESIGNED - KNL	REVISED -
CHECKED - KNL	REVISED -
DATE - 10/01/2024	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SPRINGFIELD RAIL IMPROVEMENTS PROJECT
SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
ELECTRICAL DETAILS - UPRR - 7

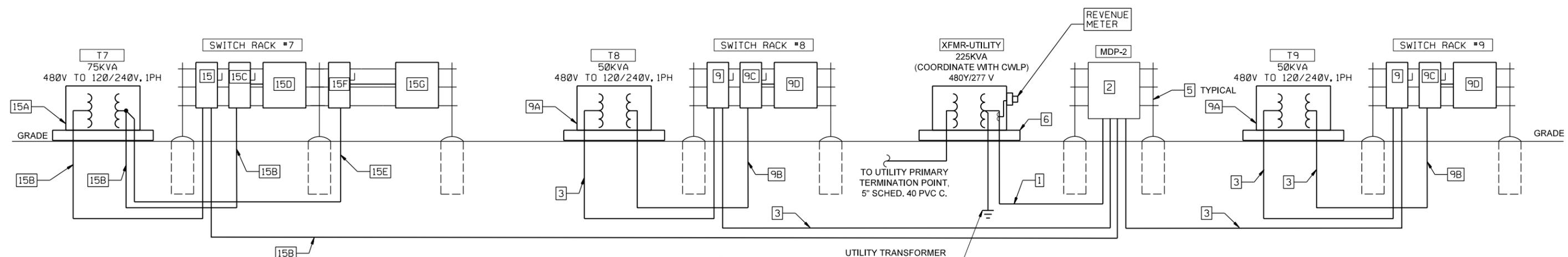
SCALE: SHEET 7 OF 16 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	378
	09L0179B		CONTRACT NO.	93773
	ILLINOIS	FED. AID PROJECT		

PLAN	SUBMITTED	DATE
	PLOTTED	
	ALIGNMENT CHECKED	
	BY FILE NAME	
	NO.	

PROFILE	SUBMITTED	DATE
	PLOTTED	
	GRADES CHECKED	
	STRUCTURE NOTATIONS CHECKED	
	NO.	

MODEL Sheet 9
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PANEL LAYOUT - MDP-2
 NOT TO SCALE

MAIN SERVICE & DISTRIBUTION PANEL MDP-2										
400 A MAIN BREAKER		480 Y / 277 VOLT		3 PHASE 4 WIRE		EXTERIOR MOUNTED				
VOLT-AMP	CIR. NO.	LOAD	CB	P	Ø	P	CB	LOAD	CIR. NO.	VOLT-AMP
75000	1				A				2	
	3	SWITCH RACK #7 & XFMR T7	300	2	B	2	200	SWITCH RACK #8 & XFMR T8	4	50000
	5				C				6	
50000	7	SWITCH RACK #9 & XFMR T9	200	2	A	2	200	SPARE	8	
	9	SPACE			B			SPACE	10	
	11	SPACE			C			SPACE	12	
	13	SPACE			A			SPACE	14	
	15	SPACE			B			SPACE	16	
	17	SPACE			C			SPACE	18	
	19	SPACE			A			SPACE	20	
	21	SPACE			B			SPACE	22	
	23	SPACE			C			SPACE	24	
	25	SPACE			A				26	
	27	SPACE			B	3	30	TVSS	28	500
	29	SPACE			C				30	

CIRCUIT BREAKERS SHALL HAVE A MINIMUM INTERRUPTING RATING OF 25000 RMS SYMMETRICAL AMPERES.
 TOTAL CONNECTED LOAD = 175.5 KVA TOTAL DEMAND LOAD = 175.5 KVA
 PROVIDE A NEMA 3R STAINLESS STEEL ENCLOSURE PROVIDE COPPER GROUND BUS

KEYED NOTES

- 1 400A, 480/277V, 3PH, 4W SERVICE; 4 #600MCM XHHW-2, 4" C.
- 2 400A, 480Y/277V, 3PH, 4W MAIN SERVICE AND POWER DISTRIBUTION PANEL, 25 KAIC MIN. AT 480/277VAC. AMP INTERRUPTING RATING SHALL BE GREATER THAN CALCULATED FAULT CURRENT AT UTILITY TRANSFORMER SECONDARY. ADJUST AS APPLICABLE.
- 3 2 #3/0 XHHW-2, 1 #2 AWG GND., 2" SCHEDULE 40 MIN. PVC/HDPE CONDUIT. TRANSITION TO GRSC WHERE EMERGING FROM GRADE.
- 4 (RESERVED)
- 5 SEE H-FRAME RACK DETAIL AND SWITCH RACK DETAILS
- 6 SEE TRANSFORMER PAD DETAIL. COORDINATE REQUIREMENTS WITH CWLP
- 7 (RESERVED)
- 7A (RESERVED)
- 7B (RESERVED)
- 7C (RESERVED)
- 7D (RESERVED)
- 8 (RESERVED)
- 8A (RESERVED)
- 8B (RESERVED)
- 8C (RESERVED)
- 8D (RESERVED)
- 9 480VAC FEEDER PRIMARY DISCONNECT FOR 50KVA TRANSFORMER; 200AMP, 600VAC, 2-POLE HEAVY DUTY NOT FUSIBLE UL LISTED SAFETY SWITCH IN A NEMA 4X STAINLESS STEEL ENCLOSURE. INCLUDE SOLID NEUTRAL AND GROUND KIT. FURNISH AND INSTALL 2-150AMP CLASS RK5 FUSES AS MANUFACTURED BY BUSSMANN OR LITTELFUSE. OR APPROVED EQUAL. INCLUDE 2 SPARES OF SAME MANUFACTURER, SIZE, AND TYPE. ADJUST FUSE SIZES AS NEEDED TO ACCOMMODATE RESPECTIVE LOAD AND APPLICATION.
- 9A 50KVA PAD MOUNT TRANSFORMER; PRIMARY: 480VAC SINGLE PHASE, 2-WIRE SECONDARY: 120/240VAC SINGLE PHASE, 3-WIRE.
- 9B 2 #350 MCM XHHW-2, 1 #2 GND IN 3" GRSC.
- 9C 120/240VAC SECONDARY DISCONNECT/OVERCURRENT PROTECTION FOR TRANSFORMER; 400AMP, 240VAC, 2-POLE HEAVY DUTY FUSIBLE UL LISTED SAFETY SWITCH IN A NEMA 4X STAINLESS STEEL ENCLOSURE. INCLUDE SOLID NEUTRAL AND GROUND KIT. FURNISH AND INSTALL 2-300AMP CLASS RK5 FUSES AS MANUFACTURED BY BUSSMANN OR LITTELFUSE. OR APPROVED EQUAL. INCLUDE 2 SPARES OF SAME MANUFACTURER, SIZE, AND TYPE. ADJUST FUSE SIZES AS NEEDED TO ACCOMMODATE RESPECTIVE LOAD AND APPLICATION.
- 9D NEMA 4X STAINLESS STEEL ENCLOSURE WITH HINGED COVER AND PAD LOCK FEATURE, MINIMUM SIZE 30"H X 30"W X 8"D.
- 10 (RESERVED)
- 11 (RESERVED)
- 12 (RESERVED)
- 13 (RESERVED)
- 14 (RESERVED)
- 15 480VAC FEEDER PRIMARY DISCONNECT FOR 75KVA TRANSFORMER; 400AMP, 600VAC, 2-POLE HEAVY DUTY NOT FUSIBLE UL LISTED SAFETY SWITCH IN A NEMA 4X STAINLESS STEEL ENCLOSURE. INCLUDE GROUND KIT. LOCATE SWITCH ON SWITCH RACK NEAR/ADJACENT TO RESPECTIVE PAD MOUNT TRANSFORMER.
- 15A 75KVA PAD MOUNT TRANSFORMER; PRIMARY: 480VAC SINGLE PHASE, 2-WIRE SECONDARY: 120/240VAC SINGLE PHASE, 3-WIRE.
- 15B 2 #350 MCM XHHW-2, 1 #2 GND IN 3" SCHEDULE 40 MIN PVC/HDPE CONDUIT. TRANSITION TO GRSC WHERE EMERGING FROM GRADE. CONDUIT RUNS BETWEEN STEP-DOWN TRANSFORMER AND DISCONNECTS TO BE GRSC.
- 15C 120/240VAC SECONDARY DISCONNECT/OVERCURRENT PROTECTION FOR TRANSFORMER; 400AMP, 240VAC, 2-POLE HEAVY DUTY FUSIBLE UL LISTED SAFETY SWITCH IN A NEMA 4X STAINLESS STEEL ENCLOSURE. INCLUDE SOLID NEUTRAL AND GROUND KIT. FURNISH AND INSTALL 2-250 AMP CLASS RK5 FUSES AS MANUFACTURED BY BUSSMANN OR LITTELFUSE OR APPROVED EQUAL. INCLUDE 2 SPARES OF SAME MANUFACTURER, SIZE, AND TYPE. ADJUST FUSE SIZES AS NEEDED TO ACCOMMODATE RESPECTIVE LOAD AND APPLICATION.
- 15D NEMA 4X STAINLESS STEEL ENCLOSURE WITH HINGED COVER AND PAD LOCK FEATURE, MINIMUM SIZE 30"H X 30"W X 8"D.
- 15E 2 #3/0 AWG XHHW-2, 1 #2 GND IN 2" GRSC.
- 15F 120/240VAC SECONDARY DISCONNECT/OVERCURRENT PROTECTION FOR TRANSFORMER; 200AMP, 240VAC, 2-POLE HEAVY DUTY FUSIBLE UL LISTED SAFETY SWITCH IN A NEMA 4X STAINLESS STEEL ENCLOSURE. INCLUDE SOLID NEUTRAL AND GROUND KIT. FURNISH AND INSTALL 2-150AMP CLASS RK5 FUSES AS MANUFACTURED BY BUSSMANN OR LITTELFUSE. INCLUDE 2 SPARES OF SAME MANUFACTURER, SIZE, AND TYPE. ADJUST FUSE SIZES AS NEEDED TO ACCOMMODATE RESPECTIVE LOAD AND APPLICATION.
- 15G NEMA 4X STAINLESS STEEL ENCLOSURE WITH HINGED COVER AND PAD LOCK FEATURE, MINIMUM SIZE 24"H X 24"W X 8"D.

FINAL PLANS



USER NAME = pop00275	DESIGNED - KNL	REVISED -
	DRAWN - JFC	REVISED -
PLOT SCALE = 100.00 sf / in.	CHECKED - KNL	REVISED -
PLOT DATE = 9/27/2024	DATE - 10/01/2024	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

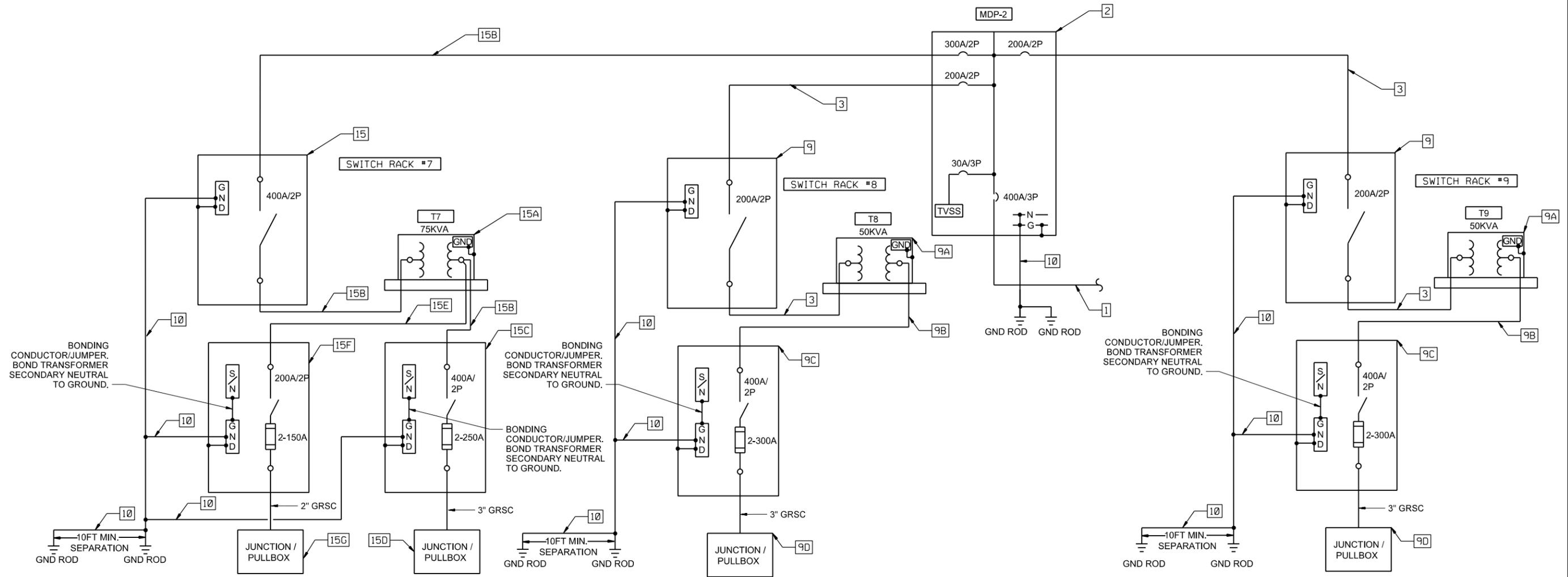
SPRINGFIELD RAIL IMPROVEMENTS PROJECT		F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	380
		09L0179B		CONTRACT NO. 93773		
SCALE:	SHEET 9 OF 16 SHEETS	STA.	TO STA.			

ILLINOIS		FED. AID PROJECT	
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PLAN	SUBMITTED
	PLOTTED
	ALIGNMENT CHECKED
	NOTE BOOK
	NO.
	ADD FILE NAME
	NO.

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PROFILE	SUBMITTED
	PLOTTED
	GRADES CHECKED
	NOTE BOOK
	NO.
	STRUCTURE
	NOTATION
	CP/PG

MODEL SHEET 10
 FILE NAME: p:\01\hanson\cfr\sw_bentley\com\hanson\p\41\Documents\09\pos\091017918\Usable - UPRR\Sheet\091017918-she-Elc-detailed-09-10.dgn
 Segment: III - V - V\CAD\Rail\Usable - UPRR\Sheet\091017918-she-Elc-detailed-09-10.dgn



ONE-LINE DIAGRAM - MDP-2
 NOT TO SCALE

KEYED NOTES

- 1 400A, 480/277V, 3PH, 4W SERVICE; 4 #600MCM XHHW-2, 4" C.
- 2 400A, 480Y/277V, 3PH, 4W MAIN SERVICE AND POWER DISTRIBUTION PANEL, 25 KAIC MIN. AT 480/277VAC. AMP INTERRUPTING RATING SHALL BE GREATER THAN CALCULATED FAULT CURRENT AT UTILITY TRANSFORMER SECONDARY. ADJUST AS APPLICABLE.
- 3 2 #3/0 XHHW-2, 1 #2 AWG GND., 2" SCHEDULE 40 MIN. PVC/HDPE CONDUIT. TRANSITION TO GRSC WHERE EMERGING FROM GRADE.
- 4 (RESERVED)
- 5 SEE H-FRAME RACK DETAIL
- 6 SEE TRANSFORMER PAD DETAIL. COORDINATE REQUIREMENTS WITH CWLP
- 7 (RESERVED)
- 7A (RESERVED)
- 7B (RESERVED)
- 7C (RESERVED)
- 7D (RESERVED)
- 8 (RESERVED)
- 8A (RESERVED)
- 8B (RESERVED)
- 8C (RESERVED)
- 8D (RESERVED)
- 9 480VAC FEEDER PRIMARY DISCONNECT FOR 50KVA TRANSFORMER; 200AMP, 600VAC, 2-POLE HEAVY DUTY NOT FUSIBLE UL LISTED SAFETY SWITCH IN A NEMA 4X STAINLESS STEEL ENCLOSURE. INCLUDE GROUND KIT. LOCATE SWITCH ON SWITCH RACK NEAR/ADJACENT TO RESPECTIVE PAD MOUNT TRANSFORMER.
- 9A 50KVA PAD MOUNT TRANSFORMER; PRIMARY: 480VAC SINGLE PHASE, 2-WIRE SECONDARY: 120/240VAC SINGLE PHASE, 3-WIRE.
- 9B 2 #350 MCM XHHW-2, 1 #2 GND IN 3" GRSC.
- 9C 120/240VAC SECONDARY DISCONNECT/OVERCURRENT PROTECTION FOR TRANSFORMER; 400AMP, 240VAC, 2-POLE HEAVY DUTY FUSIBLE UL LISTED SAFETY SWITCH IN A NEMA 4X STAINLESS STEEL ENCLOSURE. INCLUDE SOLID NEUTRAL AND GROUND KIT. FURNISH AND INSTALL 2-300AMP CLASS RK5 FUSES AS MANUFACTURED BY BUSSMANN OR LITTELFUSE, OR APPROVED EQUAL. INCLUDE 2 SPARES OF SAME MANUFACTURER, SIZE, AND TYPE. ADJUST FUSE SIZES AS NEEDED TO ACCOMMODATE RESPECTIVE LOAD AND APPLICATION.
- 9D NEMA 4X STAINLESS STEEL ENCLOSURE WITH HINGED COVER AND PAD LOCK FEATURE, MINIMUM SIZE 30"H X 30"W X 8"D.
- 10 PROVIDE 2 - 3/4" x 10'L UL LISTED COPPER-CLAD GROUND RODS WITH #2 AWG COPPER GROUNDING ELECTRODE CONDUCTOR IN 1" SCHED 80 PVC CONDUIT. CONNECTION TO GROUND RODS SHALL BE EXOTHERMIC WELD.
- 11 (RESERVED)
- 12 (RESERVED)
- 13 (RESERVED)
- 14 (RESERVED)
- 15 480VAC FEEDER PRIMARY DISCONNECT FOR 75KVA TRANSFORMER; 400AMP, 600VAC, 2-POLE HEAVY DUTY NOT FUSIBLE UL LISTED SAFETY SWITCH IN A NEMA 4X STAINLESS STEEL ENCLOSURE. INCLUDE GROUND KIT. LOCATE SWITCH ON SWITCH RACK NEAR/ADJACENT TO RESPECTIVE PAD MOUNT TRANSFORMER.
- 15A 75KVA PAD MOUNT TRANSFORMER; PRIMARY: 480VAC SINGLE PHASE, 2-WIRE SECONDARY: 120/240VAC SINGLE PHASE, 3-WIRE.
- 15B 2 #350 MCM XHHW-2, 1 #2 GND IN 3" SCHEDULE 40 MIN PVC/HDPE CONDUIT. TRANSITION TO GRSC WHERE EMERGING FROM GRADE. CONDUIT RUNS BETWEEN STEP-DOWN TRANSFORMER AND DISCONNECTS TO BE GRSC.
- 15C 120/240VAC SECONDARY DISCONNECT/OVERCURRENT PROTECTION FOR TRANSFORMER; 400AMP, 240VAC, 2-POLE HEAVY DUTY FUSIBLE UL LISTED SAFETY SWITCH IN A NEMA 4X STAINLESS STEEL ENCLOSURE. INCLUDE SOLID NEUTRAL AND GROUND KIT. FURNISH AND INSTALL 2-250 AMP CLASS RK5 FUSES AS MANUFACTURED BY BUSSMANN, LITTELFUSE OR APPROVED EQUAL. INCLUDE 2 SPARES OF SAME MANUFACTURER, SIZE, AND TYPE. ADJUST FUSE SIZES AS NEEDED TO ACCOMMODATE RESPECTIVE LOAD AND APPLICATION.
- 15D NEMA 4X STAINLESS STEEL ENCLOSURE WITH HINGED COVER AND PAD LOCK FEATURE, MINIMUM SIZE 30"H X 30"W X 8"D.
- 15E 2 #3/0 AWG XHHW-2, 1 #2 GND IN 2" GRSC.
- 15F 120/240VAC SECONDARY DISCONNECT/OVERCURRENT PROTECTION FOR TRANSFORMER; 200AMP, 240VAC, 2-POLE HEAVY DUTY FUSIBLE UL LISTED SAFETY SWITCH IN A NEMA 4X STAINLESS STEEL ENCLOSURE. INCLUDE SOLID NEUTRAL AND GROUND KIT. FURNISH AND INSTALL 2-150AMP CLASS RK5 FUSES AS MANUFACTURED BY BUSSMANN, LITTELFUSE OR APPROVED EQUAL. INCLUDE 2 SPARES OF SAME MANUFACTURER, SIZE, AND TYPE. ADJUST FUSE SIZES AS NEEDED TO ACCOMMODATE RESPECTIVE LOAD AND APPLICATION.
- 15G NEMA 4X STAINLESS STEEL ENCLOSURE WITH HINGED COVER AND PAD LOCK FEATURE, MINIMUM SIZE 24"H X 24"W X 8"D.

FINAL PLANS



USER NAME	= pop00275	DESIGNED	- KNL	REVISED	-
		DRAWN	- JFC	REVISED	-
PLOT SCALE	= 100.00 sf / ln.	CHECKED	- KNL	REVISED	-
PLOT DATE	= 9/27/2024	DATE	- 10/01/2024	REVISED	-

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

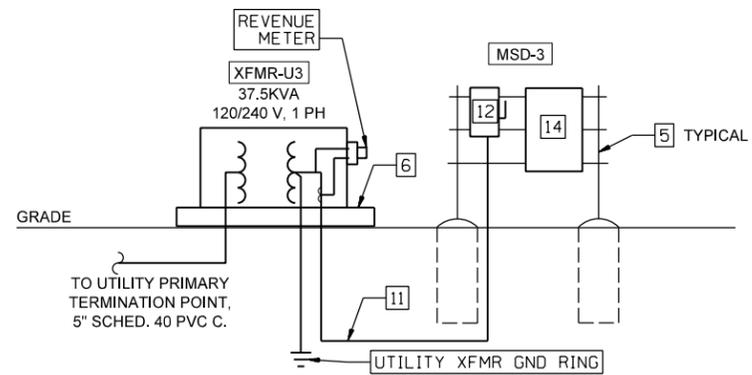
SPRINGFIELD RAIL IMPROVEMENTS PROJECT
SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
ELECTRICAL DETAILS - UPRR - 10

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	381
	09L0179B			CONTRACT NO. 93773
		ILLINOIS	FED. AID PROJECT	

SCALE: SHEET 10 OF 16 SHEETS STA. TO STA.

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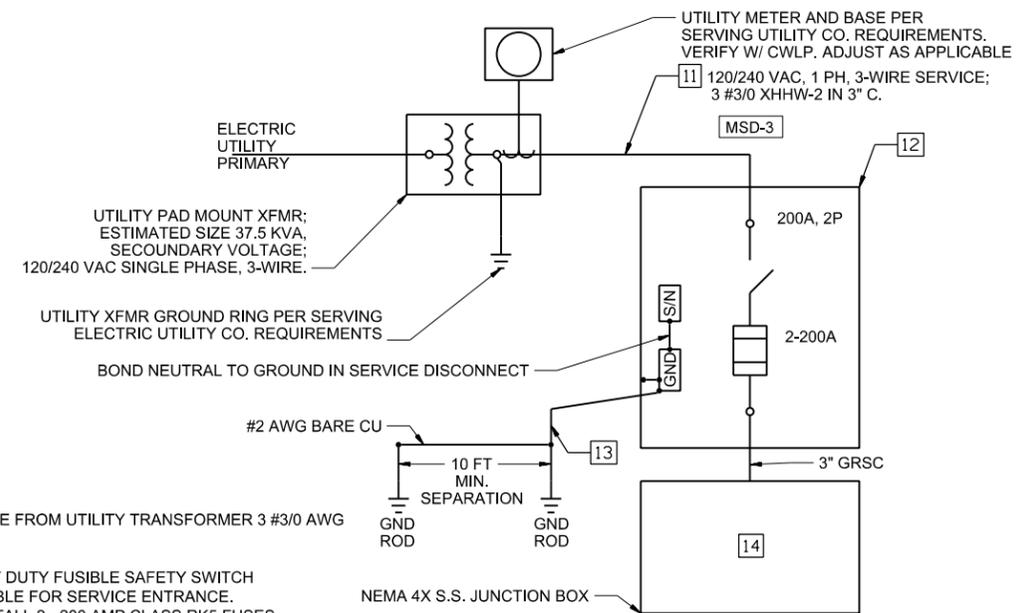
**120/240V, 1PH SERVICE
DISCONNECT LAYOUT - MSD-3**
NOT TO SCALE

MSD-3 LAYOUT - KEYED NOTES

- 5 SEE H-FRAME RACK DETAIL
- 6 SEE TRANSFORMER PAD DETAIL. COORDINATE REQUIREMENTS WITH CWLP
- 11 200 AMP, 120/240 VAC, SINGLE PHASE 3-WIRE ELECTRIC SERVICE FROM UTILITY TRANSFORMER 3 #3/0 AWG XHHW-2, 3" C
- 12 MAIN SERVICE DISCONNECT: 200 AMP, 240 VAC, 2- POLE HEAVY DUTY FUSIBLE SAFETY SWITCH IN A NEMA 4X STAINLESS STEEL ENCLOSURE UL LISTED SUITABLE FOR SERVICE ENTRANCE. INCLUDE SOLID NEUTRAL AND GROUND KIT, FURNISH AND INSTALL 2 - 200 AMP CLASS RK5 FUSES AS MANUFACTURED BY BUSSMANN OR LITTELFUSE OR APPROVED EQUAL. INCLUDE 2 SPARES OF SAME MFR, SIZE, AND TYPE. ADJUST FUSE SIZE AS NEEDED TO ACCOMMODATE RESPECTIVE LOADS AND APPLICATION.
- 14 NEMA 4X STAINLESS STEEL ENCLOSURE WITH HINGED COVER AND PAD LOCK FEATURE, MINIMUM SIZE 24" X 24" W X 8" D.

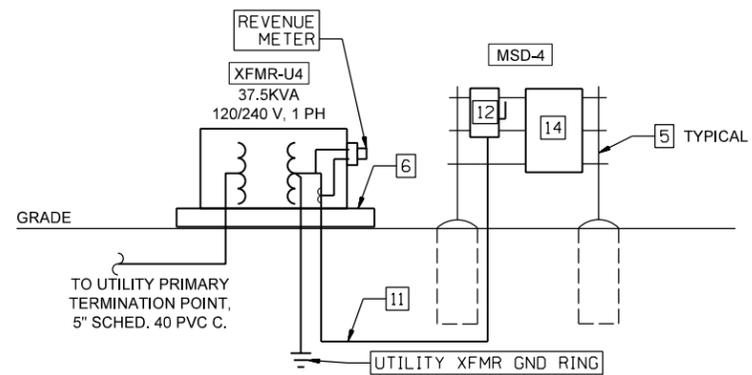
MSD-3 ONE-LINE DIAGRAM - KEYED NOTES

- 11 200 AMP, 120/240 VAC, SINGLE PHASE 3-WIRE ELECTRIC SERVICE FROM UTILITY TRANSFORMER 3 #3/0 AWG XHHW-2, 3" C
- 12 MAIN SERVICE DISCONNECT: 200 AMP, 240 VAC, 2- POLE HEAVY DUTY FUSIBLE SAFETY SWITCH IN A NEMA 4X STAINLESS STEEL ENCLOSURE UL LISTED SUITABLE FOR SERVICE ENTRANCE. INCLUDE SOLID NEUTRAL AND GROUND KIT, FURNISH AND INSTALL 2 - 200 AMP CLASS RK5 FUSES AS MANUFACTURED BY BUSSMANN OR LITTELFUSE OR APPROVED EQUAL. INCLUDE 2 SPARES OF SAME MFR, SIZE, AND TYPE. ADJUST FUSE SIZE AS NEEDED TO ACCOMMODATE RESPECTIVE LOADS AND APPLICATION.
- 13 PROVIDE 2-3/4" X 10' L COPPER CLAD GROUND RODS WITH #2 AWG GROUNDING ELECTRODE CONDUCTOR IN 1" SCHED 80 PVC C. PROVIDE EXOTHERMIC WELDS TO GROUND RODS.
- 14 NEMA 4X STAINLESS STEEL ENCLOSURE WITH HINGED COVER AND PAD LOCK FEATURE, MINIMUM SIZE 24" X 24" W X 8" D.



ONE-LINE DIAGRAM - MSD-3
NOT TO SCALE

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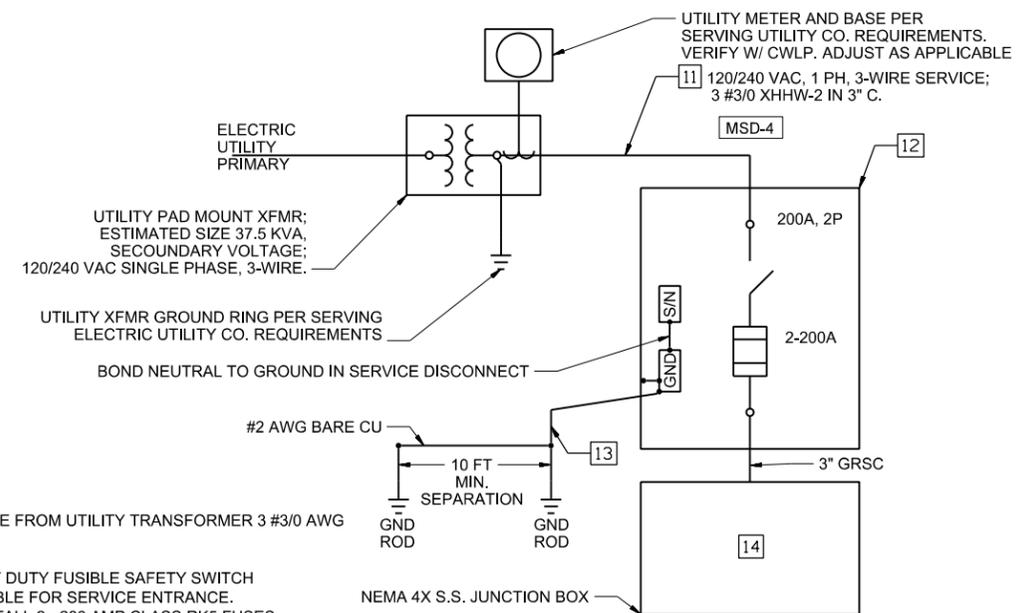
**120/240V, 1PH SERVICE
DISCONNECT LAYOUT - MSD-4**
NOT TO SCALE

MSD-4 LAYOUT - KEYED NOTES

- 5 SEE H-FRAME RACK DETAIL
- 6 SEE TRANSFORMER PAD DETAIL. COORDINATE REQUIREMENTS WITH CWLP
- 11 200 AMP, 120/240 VAC, SINGLE PHASE 3-WIRE ELECTRIC SERVICE FROM UTILITY TRANSFORMER 3 #3/0 AWG XHHW-2, 3" C
- 12 MAIN SERVICE DISCONNECT: 200 AMP, 240 VAC, 2- POLE HEAVY DUTY FUSIBLE SAFETY SWITCH IN A NEMA 4X STAINLESS STEEL ENCLOSURE UL LISTED SUITABLE FOR SERVICE ENTRANCE. INCLUDE SOLID NEUTRAL AND GROUND KIT, FURNISH AND INSTALL 2 - 200 AMP CLASS RK5 FUSES AS MANUFACTURED BY BUSSMANN OR LITTELFUSE OR APPROVED EQUAL. INCLUDE 2 SPARES OF SAME MFR, SIZE, AND TYPE. ADJUST FUSE SIZE AS NEEDED TO ACCOMMODATE RESPECTIVE LOADS AND APPLICATION.
- 14 NEMA 4X STAINLESS STEEL ENCLOSURE WITH HINGED COVER AND PAD LOCK FEATURE, MINIMUM SIZE 24" X 24" W X 8" D.

MSD-4 ONE-LINE DIAGRAM - KEYED NOTES

- 11 200 AMP, 120/240 VAC, SINGLE PHASE 3-WIRE ELECTRIC SERVICE FROM UTILITY TRANSFORMER 3 #3/0 AWG XHHW-2, 3" C
- 12 MAIN SERVICE DISCONNECT: 200 AMP, 240 VAC, 2- POLE HEAVY DUTY FUSIBLE SAFETY SWITCH IN A NEMA 4X STAINLESS STEEL ENCLOSURE UL LISTED SUITABLE FOR SERVICE ENTRANCE. INCLUDE SOLID NEUTRAL AND GROUND KIT, FURNISH AND INSTALL 2 - 200 AMP CLASS RK5 FUSES AS MANUFACTURED BY BUSSMANN OR LITTELFUSE OR APPROVED EQUAL. INCLUDE 2 SPARES OF SAME MFR, SIZE, AND TYPE. ADJUST FUSE SIZE AS NEEDED TO ACCOMMODATE RESPECTIVE LOADS AND APPLICATION.
- 13 PROVIDE 2-3/4" X 10' L COPPER CLAD GROUND RODS WITH #2 AWG GROUNDING ELECTRODE CONDUCTOR IN 1" SCHED 80 PVC C. PROVIDE EXOTHERMIC WELDS TO GROUND RODS.
- 14 NEMA 4X STAINLESS STEEL ENCLOSURE WITH HINGED COVER AND PAD LOCK FEATURE, MINIMUM SIZE 24" X 24" W X 8" D.



ONE-LINE DIAGRAM - MSD-4
NOT TO SCALE

FINAL PLANS

MODEL SHEET 11



USER NAME = pop00275	DESIGNED - KNL	REVISED -
	DRAWN - JFC	REVISED -
PLOT SCALE = 100.00 sf / ln.	CHECKED - KNL	REVISED -
PLOT DATE = 9/27/2024	DATE - 10/01/2024	REVISED -

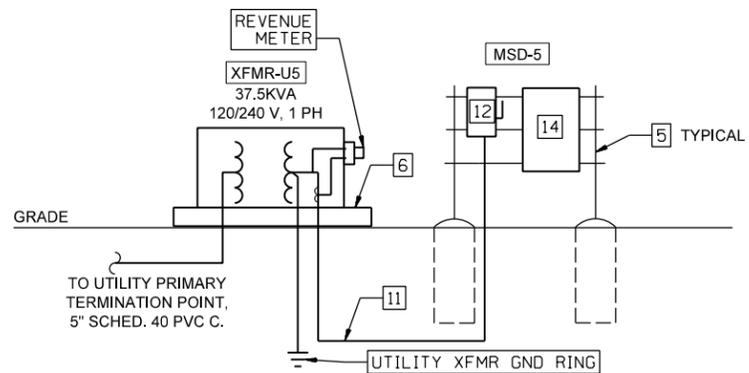
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**SPRINGFIELD RAIL IMPROVEMENTS PROJECT
SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
ELECTRICAL DETAILS - UPRR - 11**

SCALE: SHEET 11 OF 16 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	382
	09L0179B	CONTRACT NO.	93773	
	ILLINOIS	FED. AID PROJECT		

DATE	
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REVISION	
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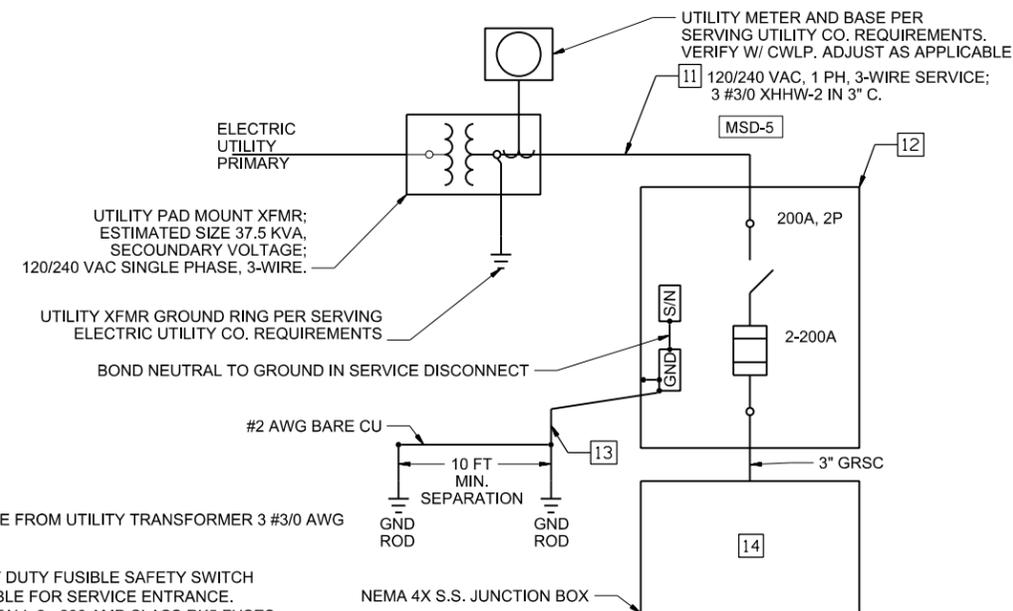
120/240V, 1PH SERVICE DISCONNECT LAYOUT - MSD-5
NOT TO SCALE

MSD-5 LAYOUT - KEYED NOTES

- 5 SEE H-FRAME RACK DETAIL
- 6 SEE TRANSFORMER PAD DETAIL. COORDINATE REQUIREMENTS WITH CWLP
- 11 200 AMP, 120/240 VAC, SINGLE PHASE 3-WIRE ELECTRIC SERVICE FROM UTILITY TRANSFORMER 3 #3/0 AWG XHHW-2, 3" C
- 12 MAIN SERVICE DISCONNECT: 200 AMP, 240 VAC, 2- POLE HEAVY DUTY FUSIBLE SAFETY SWITCH IN A NEMA 4X STAINLESS STEEL ENCLOSURE UL LISTED SUITABLE FOR SERVICE ENTRANCE. INCLUDE SOLID NEUTRAL AND GROUND KIT, FURNISH AND INSTALL 2 - 200 AMP CLASS RK5 FUSES AS MANUFACTURED BY BUSSMANN OR LITTELFUSE OR APPROVED EQUAL. INCLUDE 2 SPARES OF SAME MFR, SIZE, AND TYPE. ADJUST FUSE SIZE AS NEEDED TO ACCOMMODATE RESPECTIVE LOADS AND APPLICATION.
- 14 NEMA 4X STAINLESS STEEL ENCLOSURE WITH HINGED COVER AND PAD LOCK FEATURE, MINIMUM SIZE 24" X 24" W X 8" D.

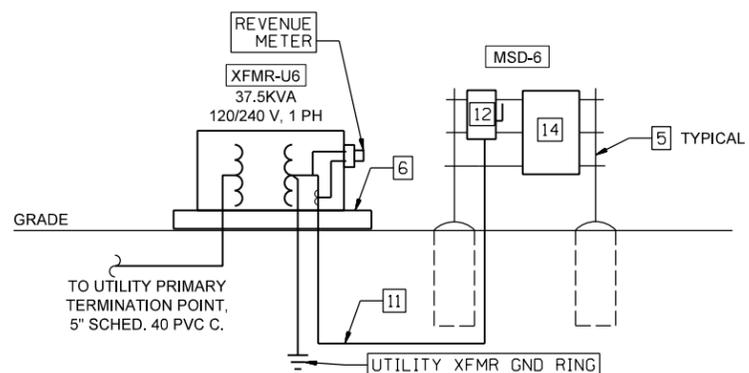
MSD-5 ONE-LINE DIAGRAM - KEYED NOTES

- 11 200 AMP, 120/240 VAC, SINGLE PHASE 3-WIRE ELECTRIC SERVICE FROM UTILITY TRANSFORMER 3 #3/0 AWG XHHW-2, 3" C
- 12 MAIN SERVICE DISCONNECT: 200 AMP, 240 VAC, 2- POLE HEAVY DUTY FUSIBLE SAFETY SWITCH IN A NEMA 4X STAINLESS STEEL ENCLOSURE UL LISTED SUITABLE FOR SERVICE ENTRANCE. INCLUDE SOLID NEUTRAL AND GROUND KIT, FURNISH AND INSTALL 2 - 200 AMP CLASS RK5 FUSES AS MANUFACTURED BY BUSSMANN OR LITTELFUSE OR APPROVED EQUAL. INCLUDE 2 SPARES OF SAME MFR, SIZE, AND TYPE. ADJUST FUSE SIZE AS NEEDED TO ACCOMMODATE RESPECTIVE LOADS AND APPLICATION.
- 13 PROVIDE 2-3/4" X 10' L COPPER CLAD GROUND RODS WITH #2 AWG GROUNDING ELECTRODE CONDUCTOR IN 1" SCHED 80 PVC C. PROVIDE EXOTHERMIC WELDS TO GROUND RODS.
- 14 NEMA 4X STAINLESS STEEL ENCLOSURE WITH HINGED COVER AND PAD LOCK FEATURE, MINIMUM SIZE 24" X 24" W X 8" D.



ONE-LINE DIAGRAM - MSD-5
NOT TO SCALE

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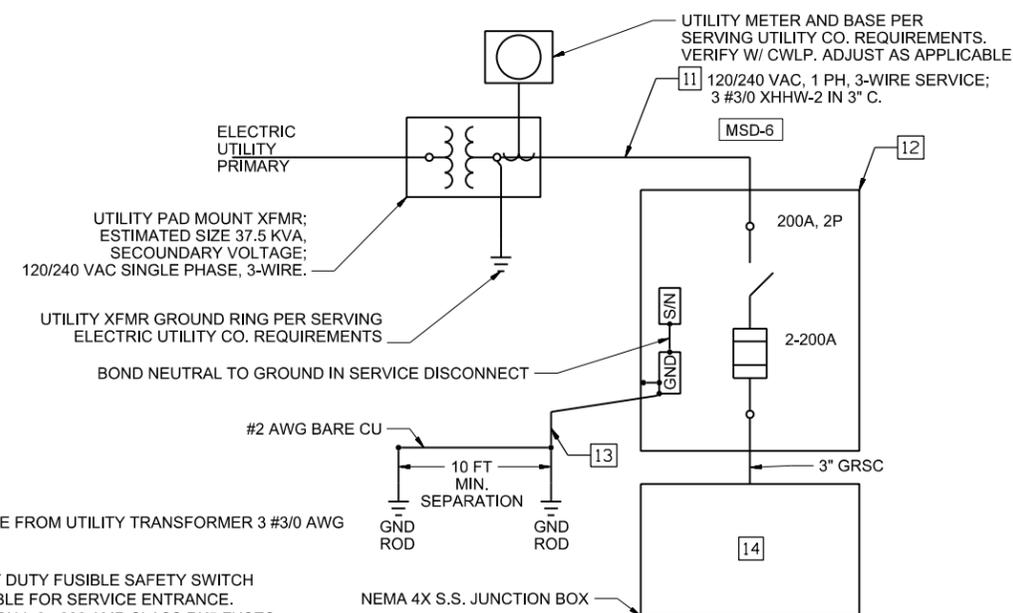
120/240V, 1PH SERVICE DISCONNECT LAYOUT - MSD-6
NOT TO SCALE

MSD-6 LAYOUT - KEYED NOTES

- 5 SEE H-FRAME RACK DETAIL
- 6 SEE TRANSFORMER PAD DETAIL. COORDINATE REQUIREMENTS WITH CWLP
- 11 200 AMP, 120/240 VAC, SINGLE PHASE 3-WIRE ELECTRIC SERVICE FROM UTILITY TRANSFORMER 3 #3/0 AWG XHHW-2, 3" C
- 12 MAIN SERVICE DISCONNECT: 200 AMP, 240 VAC, 2- POLE HEAVY DUTY FUSIBLE SAFETY SWITCH IN A NEMA 4X STAINLESS STEEL ENCLOSURE UL LISTED SUITABLE FOR SERVICE ENTRANCE. INCLUDE SOLID NEUTRAL AND GROUND KIT, FURNISH AND INSTALL 2 - 200 AMP CLASS RK5 FUSES AS MANUFACTURED BY BUSSMANN OR LITTELFUSE OR APPROVED EQUAL. INCLUDE 2 SPARES OF SAME MFR, SIZE, AND TYPE. ADJUST FUSE SIZE AS NEEDED TO ACCOMMODATE RESPECTIVE LOADS AND APPLICATION.
- 14 NEMA 4X STAINLESS STEEL ENCLOSURE WITH HINGED COVER AND PAD LOCK FEATURE, MINIMUM SIZE 24" X 24" W X 8" D.

MSD-6 ONE-LINE DIAGRAM - KEYED NOTES

- 11 200 AMP, 120/240 VAC, SINGLE PHASE 3-WIRE ELECTRIC SERVICE FROM UTILITY TRANSFORMER 3 #3/0 AWG XHHW-2, 3" C
- 12 MAIN SERVICE DISCONNECT: 200 AMP, 240 VAC, 2- POLE HEAVY DUTY FUSIBLE SAFETY SWITCH IN A NEMA 4X STAINLESS STEEL ENCLOSURE UL LISTED SUITABLE FOR SERVICE ENTRANCE. INCLUDE SOLID NEUTRAL AND GROUND KIT, FURNISH AND INSTALL 2 - 200 AMP CLASS RK5 FUSES AS MANUFACTURED BY BUSSMANN OR LITTELFUSE OR APPROVED EQUAL. INCLUDE 2 SPARES OF SAME MFR, SIZE, AND TYPE. ADJUST FUSE SIZE AS NEEDED TO ACCOMMODATE RESPECTIVE LOADS AND APPLICATION.
- 13 PROVIDE 2-3/4" X 10' L COPPER CLAD GROUND RODS WITH #2 AWG GROUNDING ELECTRODE CONDUCTOR IN 1" SCHED 80 PVC C. PROVIDE EXOTHERMIC WELDS TO GROUND RODS.
- 14 NEMA 4X STAINLESS STEEL ENCLOSURE WITH HINGED COVER AND PAD LOCK FEATURE, MINIMUM SIZE 24" X 24" W X 8" D.



ONE-LINE DIAGRAM - MSD-6
NOT TO SCALE

FINAL PLANS

MODEL SHEET 12



USER NAME = pop00275	DESIGNED - KNL	REVISED -
	DRAWN - JFC	REVISED -
PLOT SCALE = 100.00 sf / ln.	CHECKED - KNL	REVISED -
PLOT DATE = 9/27/2024	DATE - 10/01/2024	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**SPRINGFIELD RAIL IMPROVEMENTS PROJECT
SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
ELECTRICAL DETAILS - UPRR - 12**

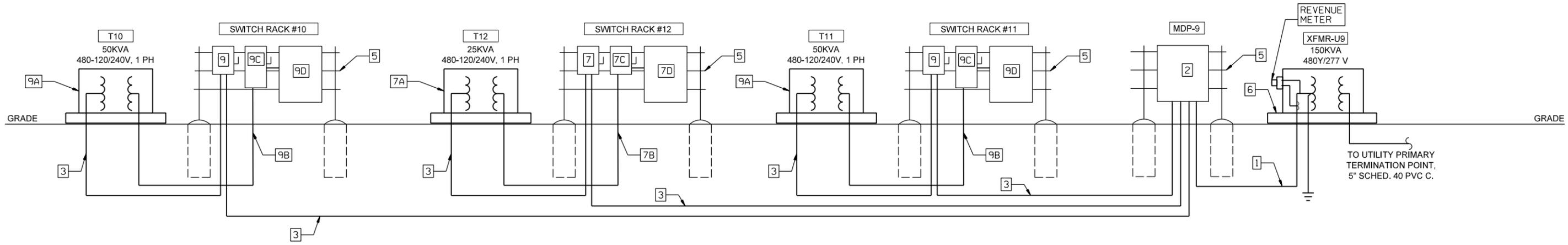
SCALE: SHEET 12 OF 16 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	383
	09L0179B			CONTRACT NO. 93773
	ILLINOIS	FED. AID PROJECT		

PLAN	SUBMITTED	DATE
	PLOTTED	
	ALIGNMENT CHECKED	
	FILE NAME	
	ADD FILE NAME	
	NO.	
	NO.	

PROFILE	SUBMITTED	DATE
	PLOTTED	
	GRADES CHECKED	
	STRUCTURE NOTATIONS CHECKED	
	NO.	
	NO.	

MODEL SHEET 14
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PANEL LAYOUT - MDP-9
 NOT TO SCALE

MAIN SERVICE & DISTRIBUTION PANEL MDP-9										
400 A	MAIN BREAKER	480 Y / 277 VOLT	3 PHASE	4 WIRE	EXTERIOR MOUNTED					
VOLT-AMP	CIR. NO.	LOAD	CB	P	Ø	P	CB	LOAD	CIR. NO.	VOLT-AMP
50000	1				A				2	
	3	SWITCH RACK #10 AND XFMR T10	200	2	B	2	200	SWITCH RACK #11 AND XFMR T11	4	50000
25000	5				C				6	
	7	SWITCH RACK #12 AND XFMR T12	125	2	A	2	150	SPARE	8	
	9				B			SPACE	10	
	11	SPARE	125	2	C			SPACE	12	
	13	SPACE			A			SPACE	14	
	15	SPACE			B			SPACE	16	
	17	SPACE			C			SPACE	18	
	19	SPACE			A			SPACE	20	
	21	SPACE			B			SPACE	22	
	23	SPACE			C			SPACE	24	
	25	SPACE			A				26	
	27	SPACE			B	3	30	TVSS	28	500
	29	SPACE			C				30	

CIRCUIT BREAKERS SHALL HAVE A MINIMUM INTERRUPTING RATING OF 25000 RMS SYMMETRICAL AMPERES.
 TOTAL CONNECTED LOAD = 125.5 KVA TOTAL DEMAND LOAD = 125.5 KVA
 PROVIDE A NEMA 3R STAINLESS STEEL ENCLOSURE PROVIDE COPPER GROUND BUS

KEYED NOTES

- 1 400A, 480/277V, 3PH, 4W SERVICE; 4 #600MCM XHHW-2, 4" C.
- 2 400A, 480Y/277V, 3PH 4-WIRE MAIN SERVICE AND POWER DISTRIBUTION PANEL, 25 KAIC MIN. AT 480/277VAC. AMP INTERRUPTING RATING SHALL BE GREATER THAN FAULT CURRENT AT UTILITY TRANSFORMER SECONDARY, ADJUST AS APPLICABLE.
- 3 2 #3/0 XHHW-2, 1 #2 AWG GND., 2" SCHEDULE 40 MIN. PVC/HDPE CONDUIT. TRANSITION TO GRSC WHERE EMERGING FROM GRADE.
- 4 (RESERVED)
- 5 SEE H-FRAME RACK DETAIL AND SWITCH-RACK DETAILS
- 6 SEE TRANSFORMER PAD DETAIL. COORDINATE REQUIREMENTS OF SERVING ELECTRIC UTILITY WITH CWLP
- 7 480VAC FEEDER PRIMARY DISCONNECT FOR 25KVA TRANSFORMER; 200AMP, 600VAC, 2-POLE HEAVY DUTY NOT FUSIBLE UL LISTED SAFETY SWITCH IN A NEMA 4X STAINLESS STEEL ENCLOSURE. INCLUDE SOLID NEUTRAL AND GROUND KIT. LOCATE SWITCH ON SWITCH RACK NEAR/ADJACENT TO RESPECTIVE PAD MOUNT TRANSFORMER.
- 7A 25KVA PAD MOUNT TRANSFORMER; PRIMARY: 480VAC SINGLE PHASE, 2-WIRE SECONDARY: 120/240VAC SINGLE PHASE, 3-WIRE.
- 7B 2 #3/0 AWG XHHW-2, 1 #2 GND IN 2" GRSC.
- 7C 120/240VAC SECONDARY DISCONNECT/OVERCURRENT PROTECTION FOR TRANSFORMER; 200AMP, 240VAC, 2-POLE HEAVY DUTY FUSIBLE UL LISTED SAFETY SWITCH IN A NEMA 4X STAINLESS STEEL ENCLOSURE. INCLUDE SOLID NEUTRAL AND GROUND KIT. FURNISH AND INSTALL 2-150AMP CLASS RK5 FUSES AS MANUFACTURED BY BUSSMANN OR LITTEL FUSE. INCLUDE 2 SPARES OF SAME MANUFACTURER, SIZE, AND TYPE. ADJUST FUSE SIZES AS NEEDED TO ACCOMMODATE RESPECTIVE LOAD AND APPLICATION.
- 7D NEMA 4X STAINLESS STEEL ENCLOSURE WITH HINGED COVER AND PAD LOCK FEATURE, MINIMUM SIZE 24"H X 24"W X 8"D.
- 8 (RESERVED)
- 9 480VAC FEEDER PRIMARY DISCONNECT FOR 50KVA TRANSFORMER; 200AMP, 600VAC, 2-POLE HEAVY DUTY NOT FUSIBLE UL LISTED SAFETY SWITCH IN A NEMA 4X STAINLESS STEEL ENCLOSURE. INCLUDE GROUND KIT. LOCATE SWITCH ON SWITCH RACK NEAR/ADJACENT TO RESPECTIVE PAD MOUNT TRANSFORMER.
- 9A 50KVA PAD MOUNT TRANSFORMER; PRIMARY: 480VA SINGLE PHASE, 2-WIRE SECONDARY: 120/240VAC SINGLE PHASE, 3-WIRE.
- 9B 2 #350MCM XHHW-2, 1 #2 GND IN 3" GRSC.
- 9C 120/240VAC SECONDARY DISCONNECT/OVERCURRENT PROTECTION FOR TRANSFORMER; 400AMP, 240VAC, 2-POLE HEAVY DUTY FUSIBLE UL LISTED SAFETY SWITCH IN A NEMA 4X STAINLESS STEEL ENCLOSURE. INCLUDE SOLID NEUTRAL AND GROUND KIT. FURNISH AND INSTALL 2-300AMP CLASS RK5 FUSES AS MANUFACTURED BY BUSSMANN OR LITTEL FUSE. INCLUDE 2 SPARES OF SAME MANUFACTURER, SIZE, AND TYPE. ADJUST FUSE SIZES AS NEEDED TO ACCOMMODATE RESPECTIVE LOAD AND APPLICATION.
- 9D NEMA 4X STAINLESS STEEL ENCLOSURE WITH HINGED COVER AND PAD LOCK FEATURE, MINIMUM SIZE 30"H X 30"W X 8"D.

FINAL PLANS



USER NAME = pop00275	DESIGNED - KNL	REVISED -
	DRAWN - JFC	REVISED -
PLOT SCALE = 100.00 sf / ln.	CHECKED - KNL	REVISED -
PLOT DATE = 9/27/2024	DATE - 10/01/2024	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SPRINGFIELD RAIL IMPROVEMENTS PROJECT
SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
ELECTRICAL DETAILS - UPRR - 14

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	385
09L0179B		CONTRACT NO.	93773	
SCALE:		SHEET 14 OF 16 SHEETS	STA.	TO STA.
ILLINOIS FED. AID PROJECT				

GENERAL NOTES:

1. DRAINAGE STRUCTURES, NO. 1 AND NO. 2 SHALL BE INSTALLED AND BACKFILLED PRIOR TO THE INSTALLATION OF THE RAILROAD TRACK. THE VALVE VAULT AND ASSOCIATED SITE IMPROVEMENTS CAN BE INSTALLED AFTER THE INSTALLATION OF THE TRACK.
2. CONTRACTOR SHALL COORDINATE WITH THE RAILROAD IF CONSTRUCTION ACTIVITIES ENCROACH WITHIN 25 FT OF THE ADJACENT RAIL.
3. FINAL SITE GRADING SHALL OCCUR ONLY AFTER ALL IMPROVEMENTS HAVE BEEN COMPLETED.
4. THERE ARE TWO (2) DRAINAGE STRUCTURES, NO. 1. EACH IS IDENTICAL WITH EXCEPTION OF THE INVERTS AND THE PIPES ENTERING AND EXITING THEM. THEY WILL BE BID PER EACH.

EXCAVATION AND BACKFILL NOTES:

1. DRAINAGE STRUCTURES, NO. 1 AND NO. 2 SHALL BE EXCAVATED USING A VERTICAL SHAFT BORING MACHINE.
2. THE CONTRACTOR SHALL SUBMIT AN EXCAVATION PLAN AND DETAILED GROUT INSTALLATION AND DRAINAGE STRUCTURE INSTALLATION PLAN SEALED BY A PROFESSIONAL ENGINEER TO THE ENGINEER FOR APPROVAL PRIOR TO COMMENCING WORK. THE EXCAVATION PLAN SHALL INCLUDE DRAWINGS AND DESIGN CALCULATIONS FOR TEMPORARY AND PERMANENT CASING, THE CALCULATIONS SHALL BE PREPARED AND SEALED BY AN ILLINOIS LICENSED STRUCTURAL ENGINEER. THIS APPROVAL WILL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR SAFETY OF THE EXCAVATION.
3. ALL EXCAVATION, SHORING, TEMPORARY OR PERMANENT CASING, AGGREGATE OR CONCRETE BASE, CONCRETE PRECAST MANHOLE SECTIONS, FLAT SLAB TOP, ACCESS HATCHES, LOCKING MECHANISM, MASTIC, SEALANT, WATERPROOFING GROUT, AND BACKFILL SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR DRAINAGE STRUCTURES, NO. 1 AND NO. 2, RESPECTIVELY.
4. TEMPORARY OR PERMANENT CASING SHALL BE ACCORDING TO SECTION 516 OF THE STANDARD SPECIFICATIONS. GALVANIZED CMP MAY ALSO BE USED AS PERMANENT CASING. IF CMP IS USED AS A PERMANENT CASING, THE ANNULAR SPACE BETWEEN THE CMP AND THE EDGE OF THE BORING SHALL BE FILLED WITH NON-SHRINK GROUT FROM THE BASE TO ELEVATION 584.0.
5. THE STRUCTURES SHALL BE EXCAVATED AND INSTALLED ONE AT A TIME WITH EACH BEING GROUTED AND BACKFILLED COMPLETELY BEFORE COMMENCING CONSTRUCTION ON THE NEXT.
6. THE ANNULAR SPACE BETWEEN THE DRAINAGE STRUCTURE WALL AND THE EDGE OF THE BORING WITH A TEMPORARY CASING OR BETWEEN THE DRAINAGE STRUCTURE AND PERMANENT CASING SHALL BE FILLED WITH NON-SHRINK GROUT FROM THE BASE TO ELEVATION 584.0.
7. FROM ELEVATION 584.0 TO THE SURFACE, THE ANNULAR SPACE BETWEEN THE MANHOLE SECTION AND THE EDGE OF THE BORING WITH A TEMPORARY CASING OR BOTH SIDES OF THE PERMANENT CASING SHALL BE FILLED WITH NON-SHRINK GROUT OR CONTROLLED LOW STRENGTH MATERIAL, MIX 2.
8. THE DRAINAGE STRUCTURE SHALL BE CHECKED AFTER THE INSTALLATION OF EACH SECTION TO ENSURE A TRUE VERTICAL INSTALLATION. IF THE ALIGNMENT IS OFF, THE CONTRACTOR SHALL TAKE CORRECTIVE ACTION TO SHIM THE STRUCTURE BACK INTO LEVEL.
9. MATERIAL REMOVED FROM THE EXCAVATION SHALL BE DISPOSED OF IN ACCORDANCE WITH SECTION 202.03 OF THE STANDARD SPECIFICATIONS.

DRAINAGE STRUCTURE PIPE CONNECTION NOTES:

1. THE TWO DRAINAGE STRUCTURES, NO. 1; AND DRAINAGE STRUCTURES NO. 1 AND DRAINAGE STRUCTURES NO. 2 SHALL BE CONNECTED BY 36" DIAMETER CLASS 52 DUCTILE IRON PIPE.
2. ALL MATERIAL AND LABOR ASSOCIATED WITH EXCAVATING FOR AND INSTALLING THE 36" DIAMETER PIPE SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR STORM SEWER CONNECTION.
3. THE PIPE SHALL BE INSTALLED BY TUNNELED EXCAVATION AFTER THE TWO STRUCTURES HAVE BEEN INSTALLED AND BACKFILLED.
4. ONCE THE OPENING HAS BEEN EXCAVATED, AND THE PIPE INSTALLED, THE PIPE SHALL BE SEALED TO DRAINAGE STRUCTURES, NO. 1 AND NO. 2 WITH A NON-SHRINK GROUT AND 2" DIAMETER GROUT FILL AND VENT PORTS.
5. ONCE THE GROUT HAS DRIED, THE ANNULAR SPACE BETWEEN THE ROCK AND THE PIPE SHALL BE GROUTED UNTIL MATERIAL EXITS THE VENT. ONCE THE GROUT HAS CURED, THE GROUT PIPES SHALL BE CUT OFF FLUSH WITH THE INTERIOR OF DRAINAGE STRUCTURES, NO. 1 AND NO. 2.
6. STORM SEWERS JACKED IN PLACE, 18" SHALL MEET THE REQUIREMENTS OF SECTION 552 OF THE STANDARD SPECIFICATIONS AND AS SPECIFIED IN THE SPECIAL PROVISIONS.
7. THE STORM SEWER SHALL HAVE A 30-IN DIAMETER STEEL CASING JACKED AND BORED FROM STRUCTURE N20 TO DRAINAGE STRUCTURES NO. 1 WITH THE 18-IN DIAMETER STORM SEWER INSTALLED WITHIN IT. CASING SPACERS SHALL BE USED TO SUPPORT THE CARRIER PIPE WITHIN THE CASING. A CASING END SEAL SHALL BE USED TO SEAL THE CASING TO THE CARRIER PIPE. AT DRAINAGE STRUCTURES, NO. 1, GROUT BETWEEN THE CASING AND THE CARRIER PIPE.
8. THE 18" DIAMETER STORM SEWER SHALL BE SOLID WALL PS46 PIPE.
9. THE 30" DIAMETER STEEL CASING SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR STORM SEWERS JACKED IN PLACE, 18".

PUMPING STATION NOTES:

1. THE VALVE VAULT, PUMPS, PUMP BASES, RAILS AND LIFTING CHAINS SHALL ALL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR PUMPING STATION.
2. ALL PIPING, FITTINGS, VALVES AND PIPE SUPPORT BRACKETS FROM THE PUMP BASE, THROUGH THE VALVE VAULT TO TWO FEET OUTSIDE THE VALVE VAULT SHALL BE PAID FOR UNDER PUMP STATION MECHANICAL WORK.
3. ALL VALVES AND FITTINGS IN THE VALVE VAULT SHALL BE SUPPORTED ON STEEL PIPE SUPPORTS.
4. THE 2" SCHEDULE 40 DRAIN AND CHECK VALVE SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR PUMP STATION MECHANICAL WORK.

DRAINAGE STRUCTURES AND VALVE VAULT NOTES:

1. THE ACCESS HATCHES CAST INTO THE LIDS OF DRAINAGE STRUCTURES, NO. 1 AND NO. 2 SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR DRAINAGE STRUCTURES, NO. 1 AND NO. 2 RESPECTIVELY.
2. THE VALVE VAULT AND ASSOCIATED EXCAVATION AND BACKFILL SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR PUMPING STATION.
3. THE VALVE VAULT SHALL CONFORM TO ASTM C-913. THE STRUCTURE SHALL BE DESIGNED FOR EARTH LOADS AND HS-20 LIVE LOAD FOR VEHICULAR TRAFFIC.
4. THE PRECAST LID FOR DRAINAGE STRUCTURES, NO. 1 SHALL BE SEALED TO THE TOP RING SECTION WITH A DOUBLE ROW OF BUTYL MASTIC. THE LID SHALL HAVE A CAST IN PLACE ALUMINUM ACCESS FRAME AND HATCH. THE HATCH SHALL BE HINGED WITH A FLUSH LOCKING MECHANISM 36" X 36" MINIMUM CLEAR OPENING. THE TOP OF THE HATCH SHALL BE A MINIMUM ¼" ALUMINUM DIAMOND TREAD PLATE.
5. THE PRECAST CONCRETE LID FOR DRAINAGE STRUCTURES, NO. 2 SHALL BE SEALED TO THE TOP BARREL SECTION WITH TWO ROWS OF BUTYL MASTIC. THE LID SHALL HAVE AN ALUMINUM ACCESS FRAME AND ACCESS HATCH PER THE PLANS. THE HATCH SHALL BE A HINGED DOUBLE DOOR HATCH WITH AN H-20 LOAD RATING WITH FLUSH LIFTING HANDLES AND LOCKING MECHANISM. THE MINIMUM CLEAR OPENING OF THE HATCH SHALL BE 72" x 90". THE DOORS SHALL BE ¼" (MINIMUM) ALUMINUM DIAMOND TREAD PLATE. ORIENTATION OF THE HATCH SYSTEM SHALL BE COORDINATED WITH THE PUMP MANUFACTURER.
6. AFTER INSTALLATION IS COMPLETE, IF THERE ARE WATER LEAKS AT JOINTS, THE CONTRACTOR SHALL WATERPROOF THE LEAKS USING DRILLED PORTS AROUND THE LEAK AND A HYDROPHILIC GROUT. IF REQUIRED, IT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR DRAINAGE STRUCTURES, NO. 1 AND NO. 2, RESPECTIVELY.
7. ALL PENETRATIONS THROUGH THE WALLS OF THE DRAINAGE STRUCTURES SHALL BE SEALED WITH NON-SHRINK GROUT.
8. DRAINAGE STRUCTURES SHALL BE CHECKED DURING INSTALLATION AND GROUTING TO ENSURE A TRUE VERTICAL INSTALLATION. IF THE ALIGNMENT IS OFF, THE CONTRACTOR SHALL TAKE CORRECTIVE MEASURES TO SHIM THE STRUCTURE BACK TO LEVEL.
9. THE EXTERIOR AND BOTTOM OF THE VALVE VAULT SHALL RECEIVE TWO COATS OF ASPHALT EMULSION WATERPROOFING IN ACCORDANCE WITH SECTION 503.18 OF THE STANDARD SPECIFICATIONS.

DRAINAGE STRUCTURES PRECAST CONCRETE MANHOLE:

1. DRAINAGE STRUCTURES SHALL BE PRECAST REINFORCED CONCRETE MANHOLES CONFORMING TO SECTION 1042 OF THE STANDARD SPECIFICATIONS. STRUCTURES SHALL BE WATER TIGHT. THE PRECAST MANHOLE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS.
2. THE EXTERIOR AND BOTTOM OF THE BASE OF THE STRUCTURES SHALL RECEIVE TWO COATS OF ASPHALT EMULSION WATERPROOFING IN ACCORDANCE WITH SECTION 503.18 OF THE STANDARD SPECIFICATIONS.
3. THE DRAINAGE STRUCTURE SECTIONS SHALL BE A MINIMUM OF 4-FT TALL WITH THE EXCEPTION OF THE FINAL SECTION. EACH SECTION SHALL BE SEALED WITH TWO (2) STRIPS OF BUTYL RUBBER SEALANT. JOINTS IN THE BUTYL RUBBER SEALANT SHALL BE OVERLAPPED TO PREVENT GAPS.
4. THE ANNULAR SPACE BETWEEN THE STRUCTURES AND THE DRILLED SHAFT SHALL BE FILLED WITH NON-SHRINK GROUT. THE GROUT SHALL BE INSTALLED AFTER EACH BARREL SECTION IS INSTALLED FROM ELEVATION 561.0 TO 584.0. FROM ELEVATION 584.0 TO THE SURFACE, THE ANNULAR SPACE BETWEEN THE MANHOLE AND DRILLED SHAFT SHALL BE FILLED WITH CONTROLLED LOW STRENGTH MATERIAL OR NON-SHRINK GROUT.
5. THE CONTRACTOR SHALL SUBMIT A PLAN FOR INSTALLING THE GROUT AND DRAINAGE STRUCTURES TO THE ENGINEER FOR APPROVAL BEFORE COMMENCING THE WORK. THE PLAN SHALL ADDRESS THE INSTALLATION METHOD AND BUOYANCY ISSUES DURING INSTALLATION. THIS APPROVAL WILL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR GROUTING AND INSTALLING THE DRAINAGE STRUCTURE.
6. IF GROUNDWATER IS PRESENT BETWEEN THE STRUCTURE AND THE DRILLED SHAFT, THE CONTRACTOR SHALL USE A GROUT FORMULATED FOR CURING UNDER WATER AND SHALL INSTALL THE GROUT FROM THE BOTTOM-UP USING A TREMIEOR PUMP.
7. THE NON-SHRINK GROUT SHALL CONFORM TO ASTM C-1107 AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI AFTER 28 DAYS. THE ADDITION OF AGGREGATE TO THE PREPACKAGED PRODUCT WILL BE PERMITTED AND SHALL BE IN ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS. IN LIEU OF NON-SHRINK GROUT AROUND THE DRAINAGE STRUCTURE, THE CONTRACTOR MAY USE CLASS DS CONCRETE WITH 8-10 INCH SLUMP AT POINT OF PLACEMENT.



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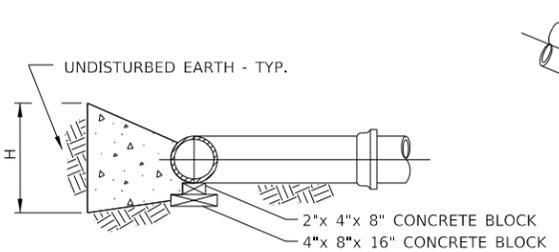
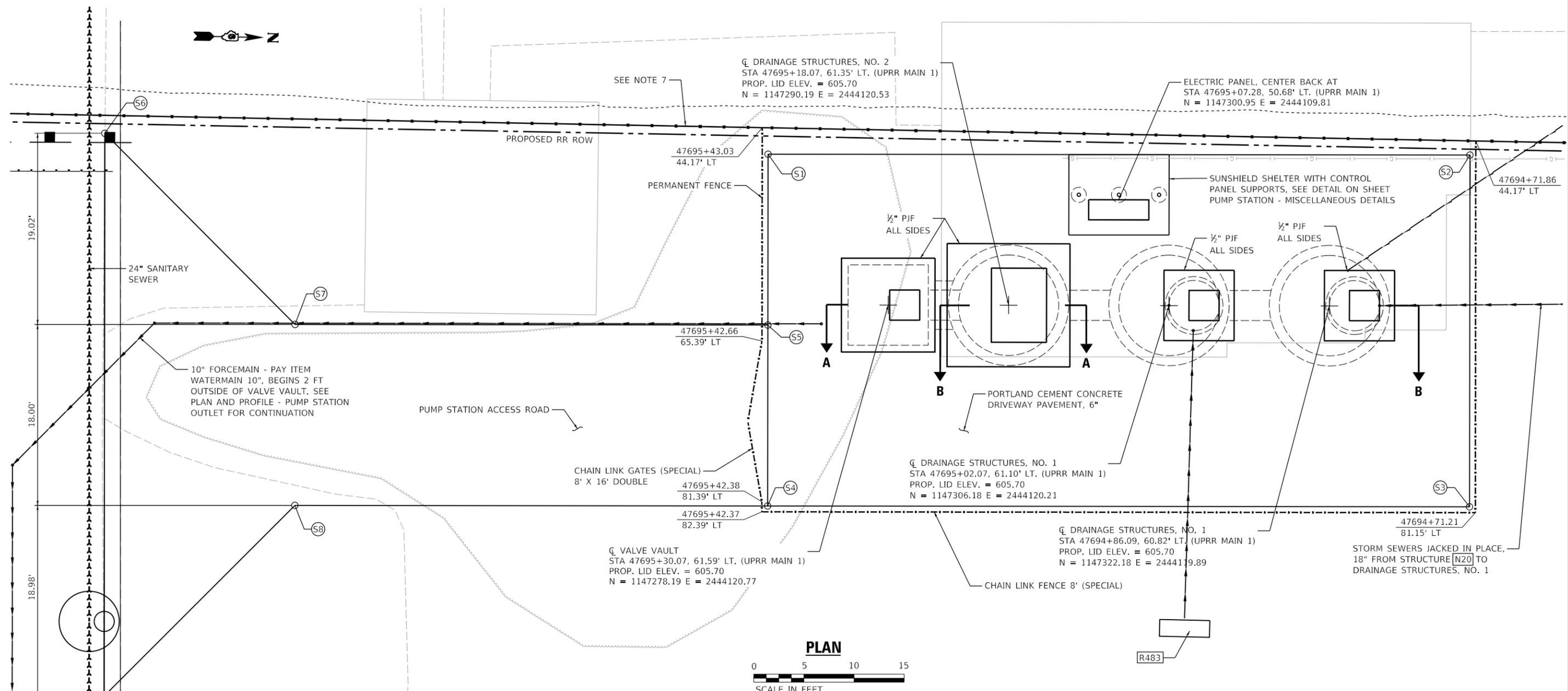
STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

SPRINGFIELD RAIL IMPROVEMENTS PROJECT
 SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
 PUMP STATION – GENERAL NOTES

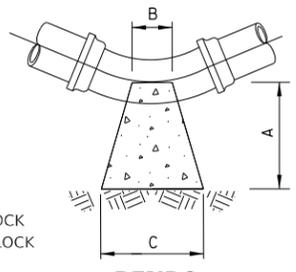
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F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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09L0179B		CONTRACT NO.	93773	
		ILLINOIS	FED. AID PROJECT	

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TYPICAL SECTION
 NOT TO SCALE
HORIZONTAL THRUST BLOCKING



THRUST BLOCK DIMENSIONS										
PIPE DIA.	ALL FTGS.		90 DEGREE BEND		45 DEGREE BEND		22-1/2 DEGREE BEND		11-1/4 DEGREE BEND	
	A	B	C	H	C	H	C	H	C	H
10	20	10	21	18	20	14	12	12	10	10

DIMENSIONS (INCHES) BASED ON 50 PSI WORKING PRESSURE AND 1500 PSF ALLOWABLE SOIL BEARING PRESSURE. DIMENSIONS MAY BE REDUCED IF CONTRACTOR FURNISHES SOIL TESTING RESULTS DEMONSTRATING HIGHER ALLOWABLE SOIL BEARING PRESSURE.

PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 6"

POINT	NORTHING	EASTING	ELEVATION
S1	1147265.89	2444106.02	605.54
S2	1147335.88	2444104.62	605.54
S3	1147336.59	2444139.61	605.50
S4	1147266.59	2444141.01	605.50
S5	1147266.23	2444123.01	605.68
S6	1147199.71	2444105.34	606.21
S7	1147219.09	2444123.96	606.18
S8	1147219.45	2444141.95	606.00
S9	1147200.83	2444161.33	606.53

NOTES:

- SEE PUMP STATION MECHANICAL LAYOUT SHT. FOR SECTION A-A. SEE PUMP STATION PRC DETAILS SHT. FOR SECTION B-B.
- CONTRACTOR SHALL VERIFY THE DEPTH OF THE DISCHARGE PIPE.
- SURFACE RESTORATION ABOVE THE 10-IN FORCE MAIN IN LOCATIONS NOT BEING PAVED SHALL BE SEEDED AND MULCHED.
- PROVIDE THRUST BLOCKING AT ALL BENDS IN FORCE MAIN. THE COST OF PROVIDING THRUST BLOCKS INCLUDED WITH THE FORCE MAIN PAY ITEM WATER MAIN 10". SEE PLAN AND PROFILE - PUMP STATION OUTLET FOR FORCE MAIN LAYOUT NOT SHOWN ON THIS SHEET.
- TRENCH BACKFILL SHALL BE USED FOR THE 10" FORCE MAIN WHERE THERE IS PAVEMENT.
- EXISTING UTILITY CONFLICTS - SEE GENERAL NOTES & REMOVAL PLANS FOR INFORMATION REGARDING ADJUSTMENTS AND REMOVAL LIMITS.
- SEE 'FENCING AND ACCESS PLAN - TRACK - 3' FOR FENCING ALONG RAILROAD ROW.
- ALL TEES, ELBOWS, & FITTINGS ARE TO BE INCLUDED IN THE COST PER FOOT OF WATER MAIN 10".



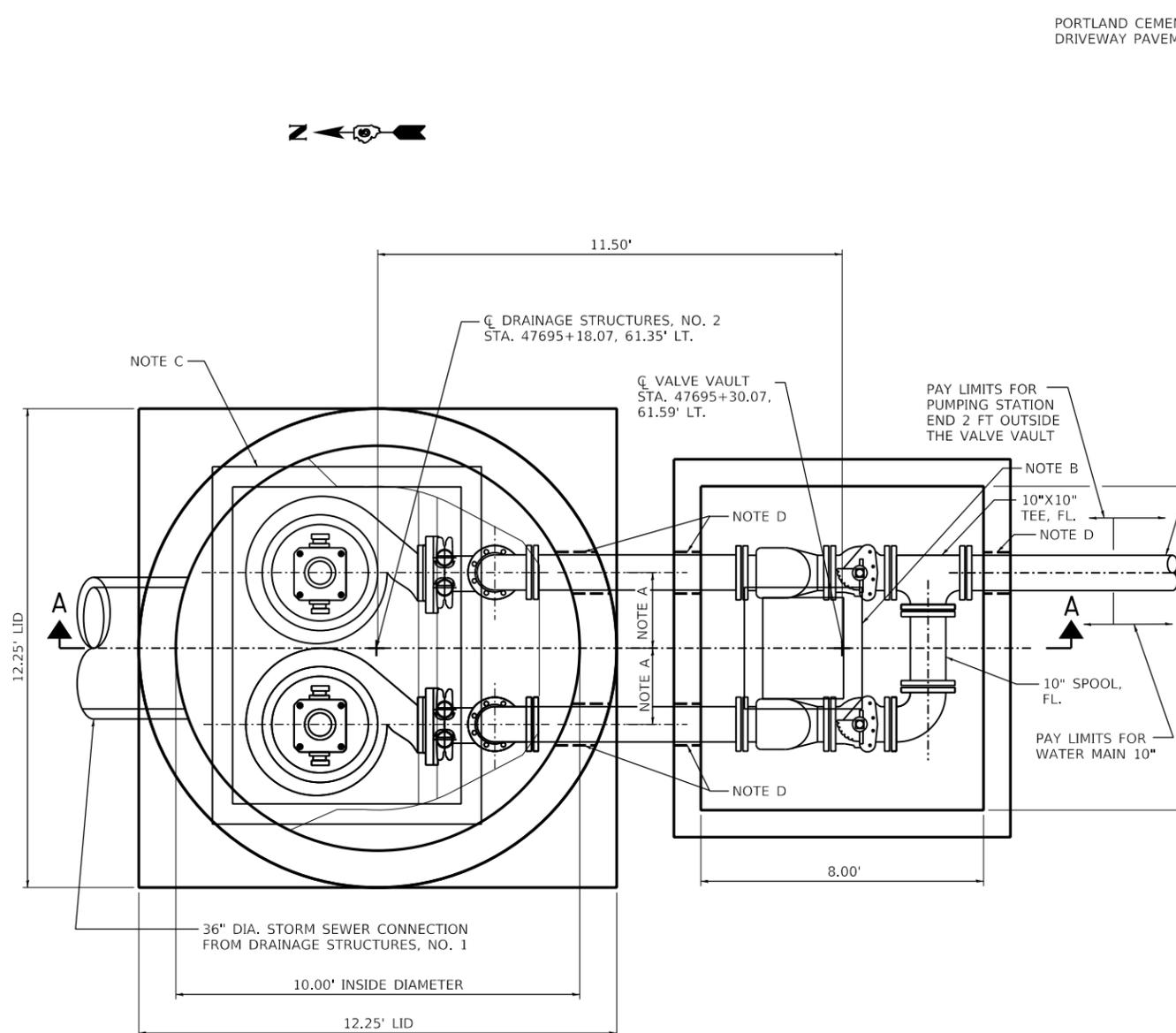
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STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

SPRINGFIELD RAIL IMPROVEMENTS PROJECT
 SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
 PUMP STATION - SITE PLAN

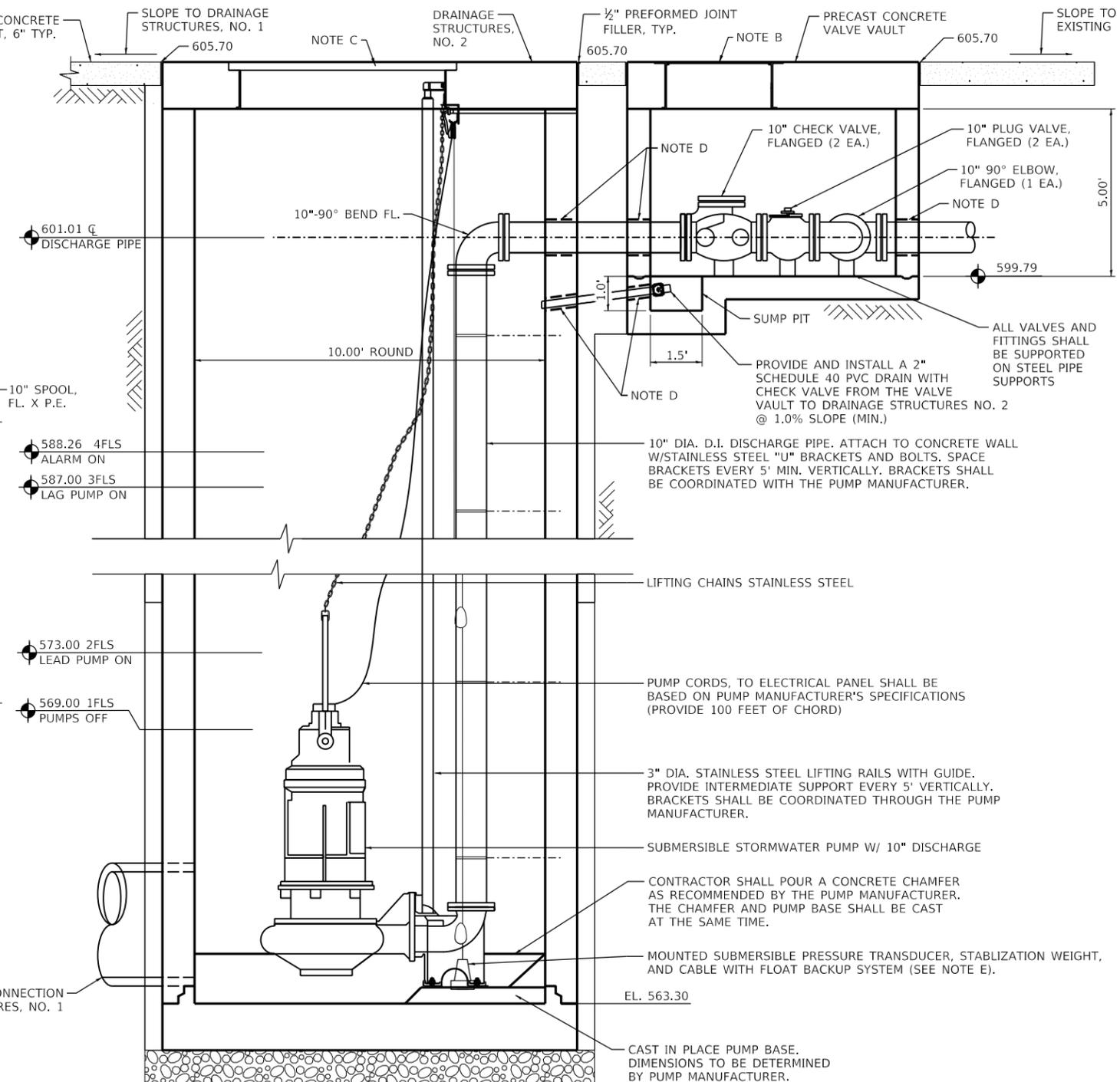
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7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	389
09L0179B		CONTRACT NO. 93773		
ILLINOIS FED. AID PROJECT				

SCALE: SHEET 2 OF 9 SHEETS STA. TO STA.



**MECHANICAL LAYOUT
DRAINAGE STRUCTURES, NO. 2 AND VALVE VAULT PLAN**

NOT TO SCALE AND SHOWN WITH THE PRC LAYOUT

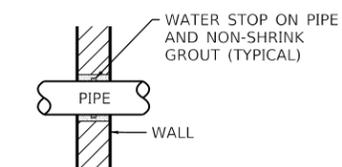


**MECHANICAL LAYOUT
SECTION A-A**

NOT TO SCALE AND SHOWN WITH THE PRC LAYOUT

NOTES

- A. 1.875' - CONTRACTOR TO VERIFY DIMENSION WITH PUMP MANUFACTURE FOR MINIMUM PUMP SPACING
- B. 36" X 36" ALUMINUM ACCESS FRAME AND HATCH.
- C. CUSTOM HATCH SYSTEM. SEE PUMP STATION - MISCELLANEOUS DETAILS SHEET.
- D. GROUT TYP. (SEE DETAIL THIS SHEET)
- E. FLOATS SHALL BE ATTACHED TO THE TRANSDUCER CABLE AT EACH LOCATION JUST ABOVE EACH FLOAT WITH SUFFICIENT SLACK TO ALLOW THE FLOAT TO ACTIVATE.



GROUT DETAIL

NOT TO SCALE

FINAL PLANS

MODEL: Sheet 3
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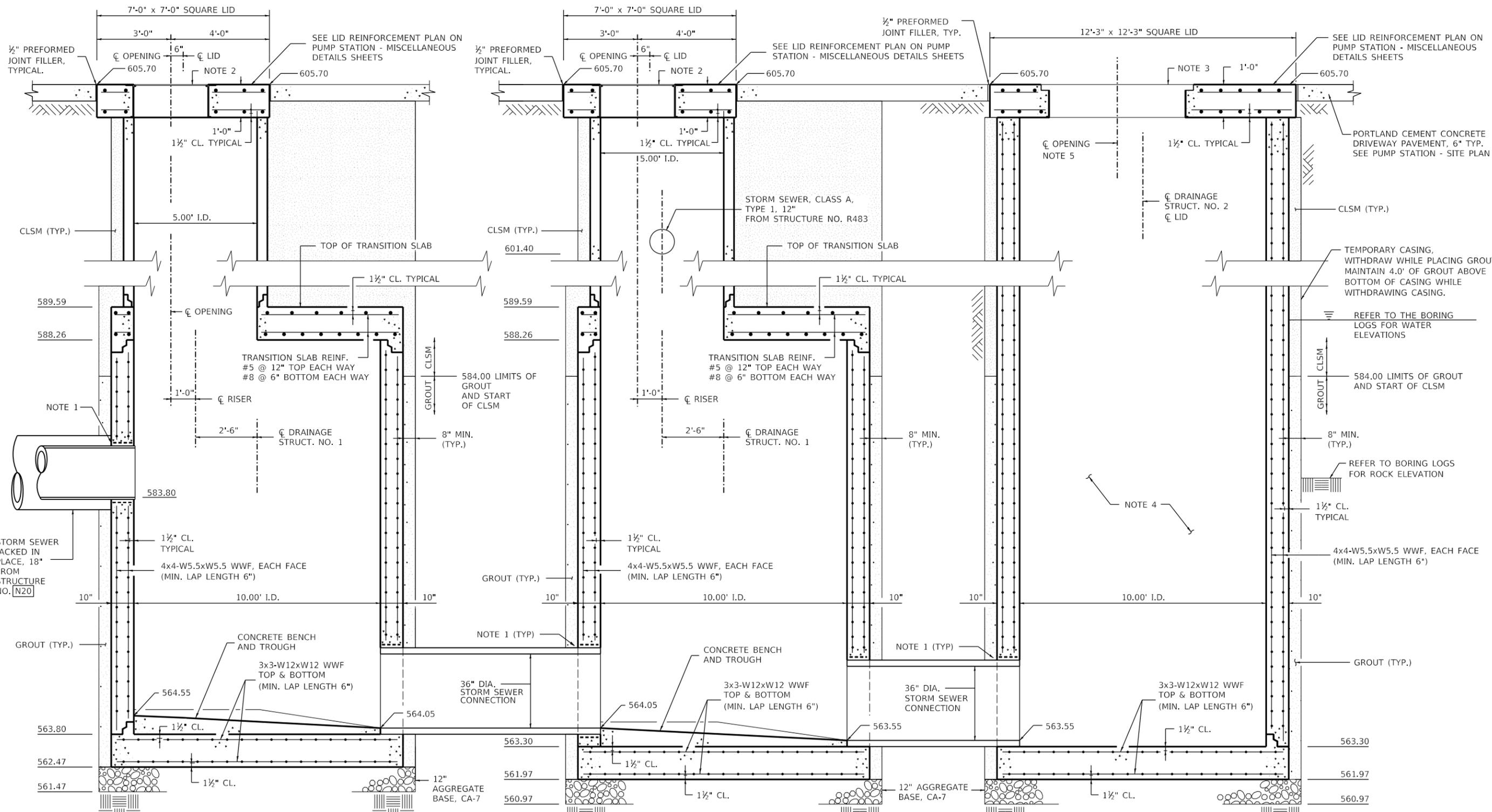
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**SPRINGFIELD RAIL IMPROVEMENTS PROJECT
SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
PUMP STATION - MECHANICAL LAYOUT**

SCALE: SHEET 3 OF 9 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	390
09L0179B		CONTRACT NO. 93773		

ILLINOIS FED. AID PROJECT



**INFLOW MANHOLE
DRAINAGE STRUCTURES, NO. 1**
PRECAST REINFORCED CONCRETE MANHOLE SECTIONS

**OUTFLOW MANHOLE
DRAINAGE STRUCTURES, NO. 1**
PRECAST REINFORCED CONCRETE MANHOLE SECTIONS

**PUMP MANHOLE
DRAINAGE STRUCTURES, NO. 2**
PRECAST REINFORCED CONCRETE MANHOLE SECTIONS

SECTION B-B
NOT TO SCALE

NOTES:

1. GROUT TYPICAL. SEE DETAIL ON PUMP STATION - MECHANICAL LAYOUT SHEET.
2. 36" X 36" ALUMINUM ACCESS FRAME AND HATCH.
3. CUSTOM HATCH SYSTEM. SEE PUMP STATION - MISCELLANEOUS DETAILS SHEETS.
4. PUMPS AND PIPING REMOVED FOR CLARITY.
5. LOCATION OF THE HATCH & HINGED SIDE OF THE HATCH TO BE COORDINATED WITH THE PUMP MANUFACTURER.

SEE PUMP STATION - MISCELLANEOUS DETAILS SHEETS FOR PLAN VIEW OF INFLOW MANHOLE.

FINAL PLANS

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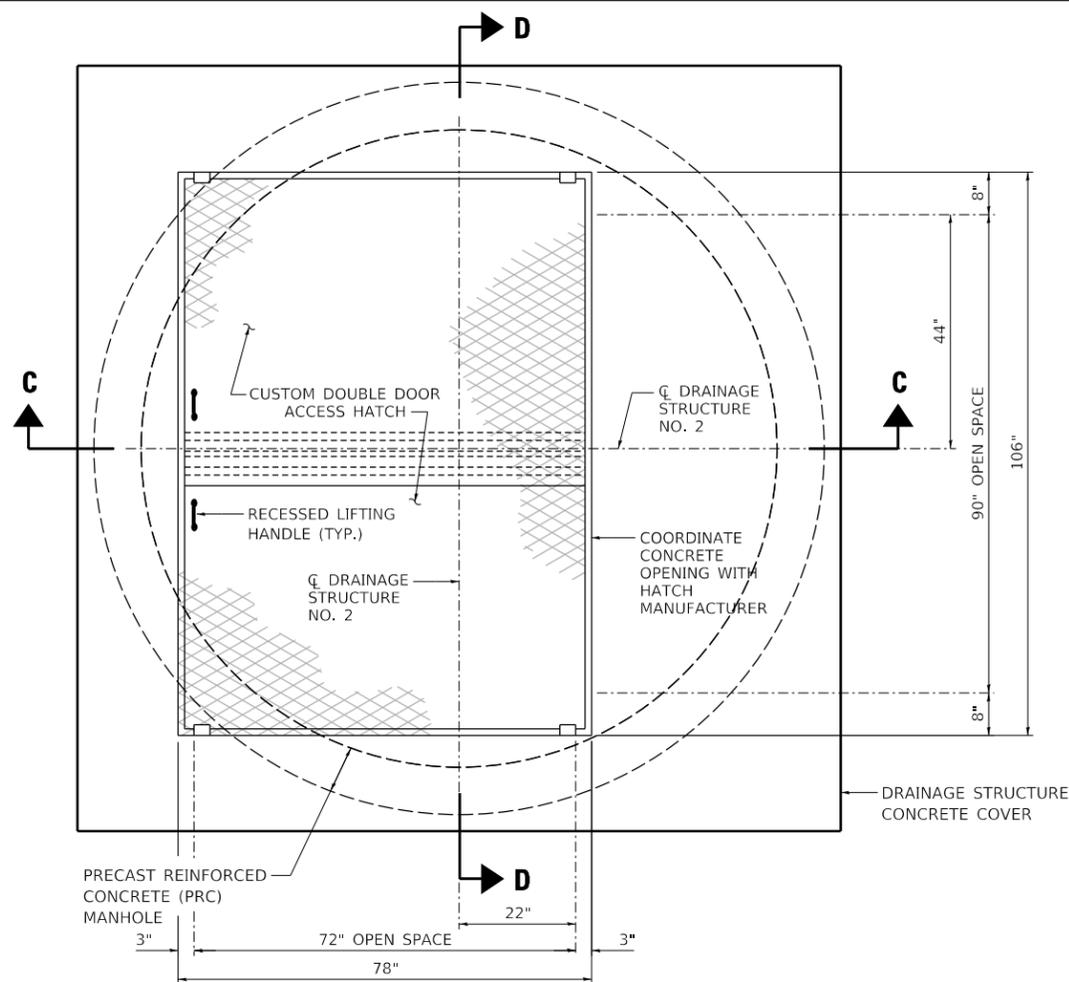
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**SPRINGFIELD RAIL IMPROVEMENTS PROJECT
SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
PUMP STATION - PRC DETAILS**

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	391
09L0179B		CONTRACT NO. 93773		
ILLINOIS		FED. AID PROJECT		

SCALE: SHEET 4 OF 9 SHEETS STA. TO STA.

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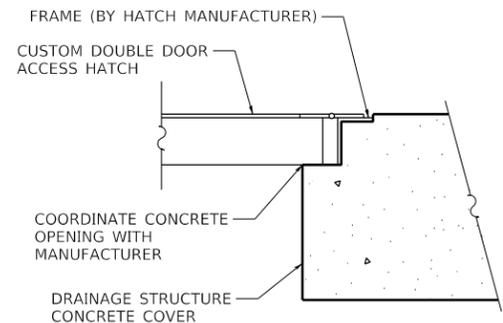
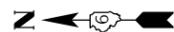


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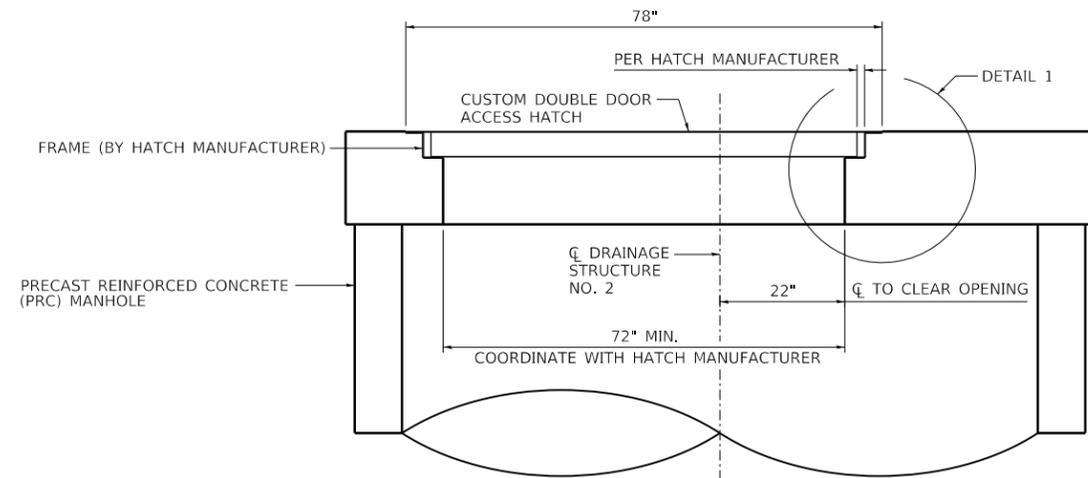
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NOT TO SCALE

SEE SITE PLANS FOR ORIENTATION

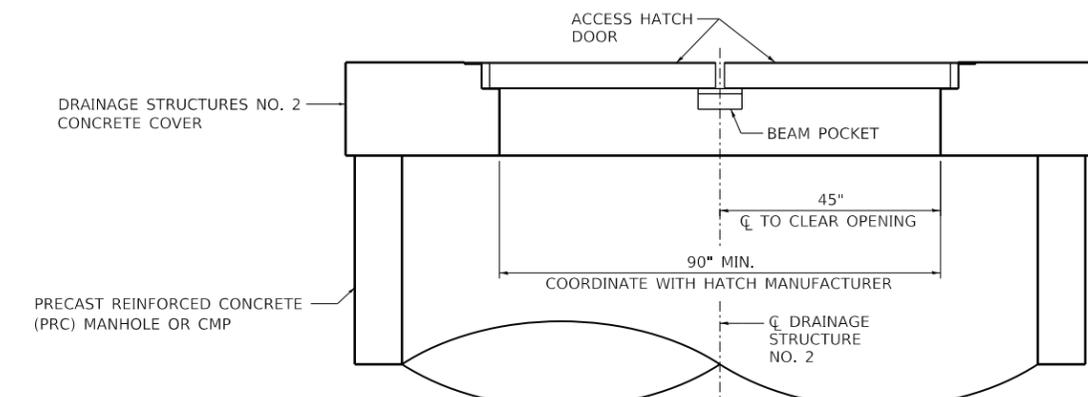


DETAIL 1



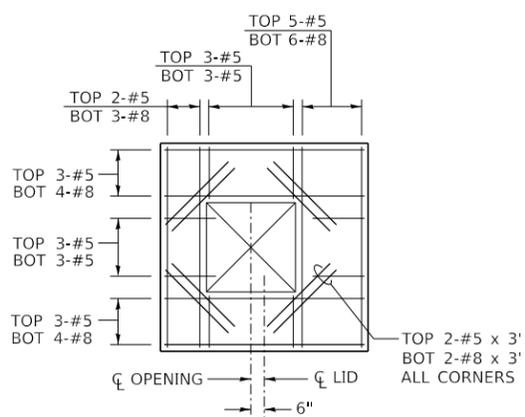
SECTION C-C

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SECTION D-D

NOT TO SCALE

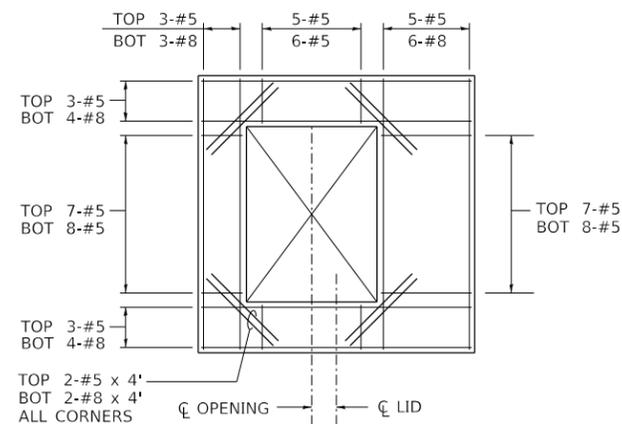


NOTE: 1 1/2" CLEAR COVER ON ALL REINFORCEMENT

DRAINAGE STRUCTURES, NO. 1

LID REINFORCING PLAN

NOT TO SCALE

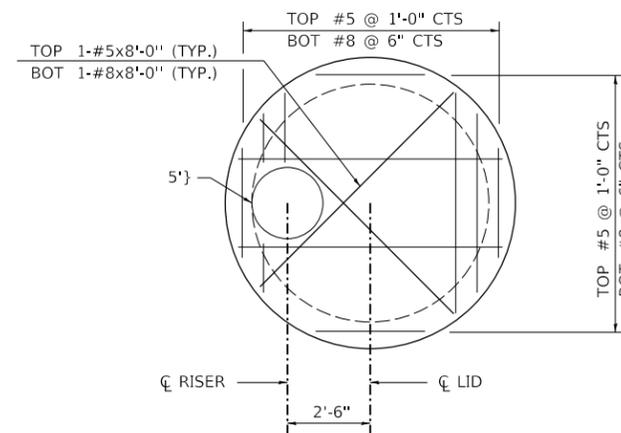


NOTE: 1 1/2" CLEAR COVER ON ALL REINFORCEMENT

DRAINAGE STRUCTURES, NO. 2

LID REINFORCING PLAN

NOT TO SCALE



NOTE: 1 1/2" CLEAR COVER ON ALL REINFORCEMENT

PUMP STATION - TRANSITION SLAB

NOT TO SCALE

DRAINAGE STRUCTURE, ACCESS HATCH NOTES:

- LOADING: H20 LOAD RATING.
- LOCATION AND ARRANGEMENT OF THE HATCH TO BE COORDINATED WITH THE PUMP MANUFACTURER.
- THE CONCRETE OPENING FOR ACCESS HATCH FRAME SHALL BE COORDINATED WITH HATCH MANUFACTURER.

FINAL PLANS



USER NAME = pop00275	DESIGNED - LMU	REVISED -
PLOT SCALE = 0.17' / in.	DRAWN - EJM	REVISED -
PLOT DATE = 9/27/2024	CHECKED - LIB	REVISED -
	DATE - 10/01/2024	REVISED -

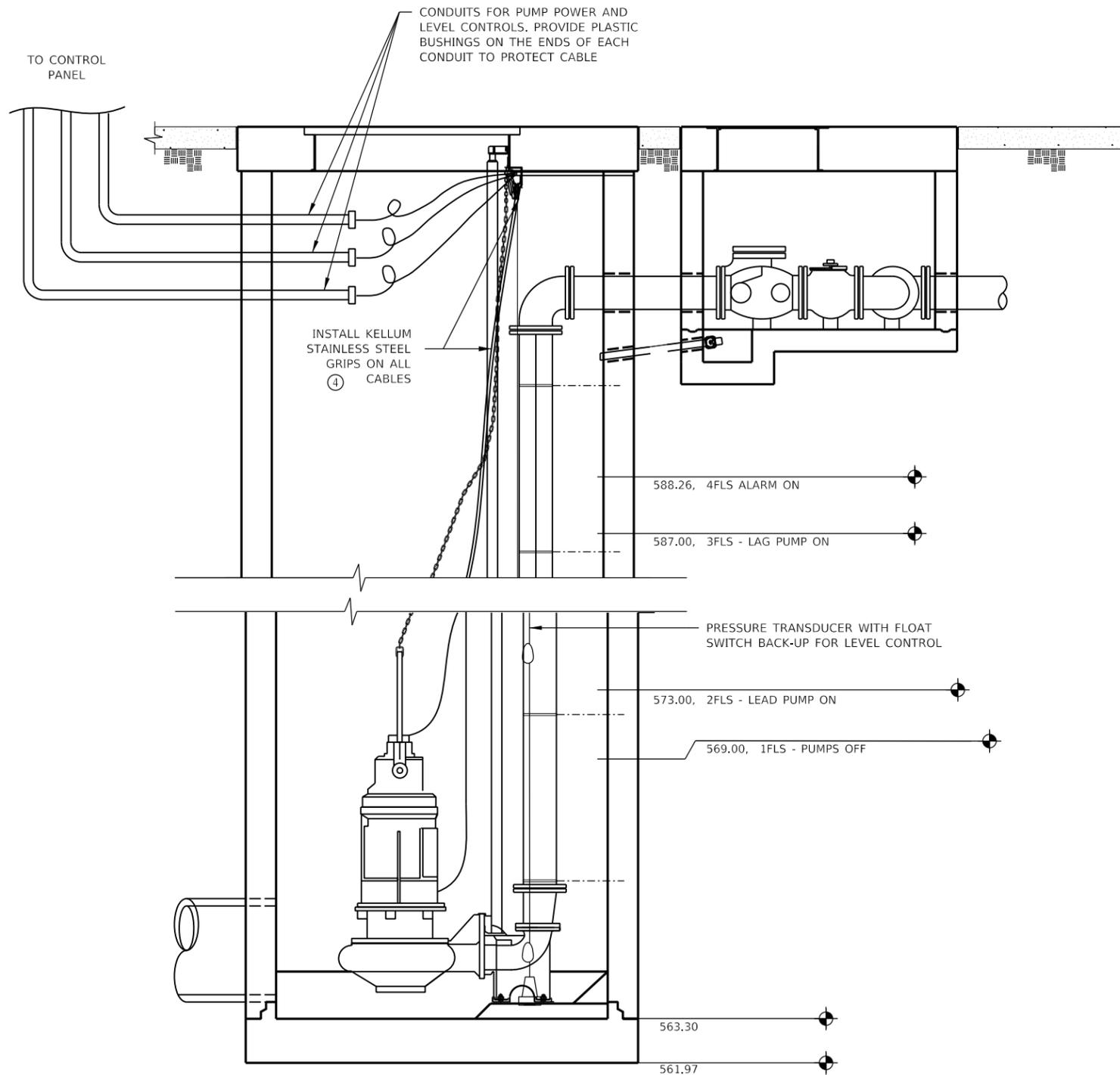
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**SPRINGFIELD RAIL IMPROVEMENTS PROJECT
SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
PUMP STATION - MISCELLANEOUS DETAILS**

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	393
09L0179B		CONTRACT NO. 93773		
ILLINOIS FED. AID PROJECT				

SCALE: SHEET 6 OF 9 SHEETS STA. TO STA.

MODEL: Sheet 7
 FILE NAME: p:\hanson\civic\hanson\civic-01\Documents\09\09\01798\Usable Segments - III - V - V\CAD\Road\Usable Segment_V\North_GravelSheet\090101798-SHT-1-IGA-PumpStation.dgn



ELECTRICAL ELEVATION
 NOT TO SCALE

NOTES:

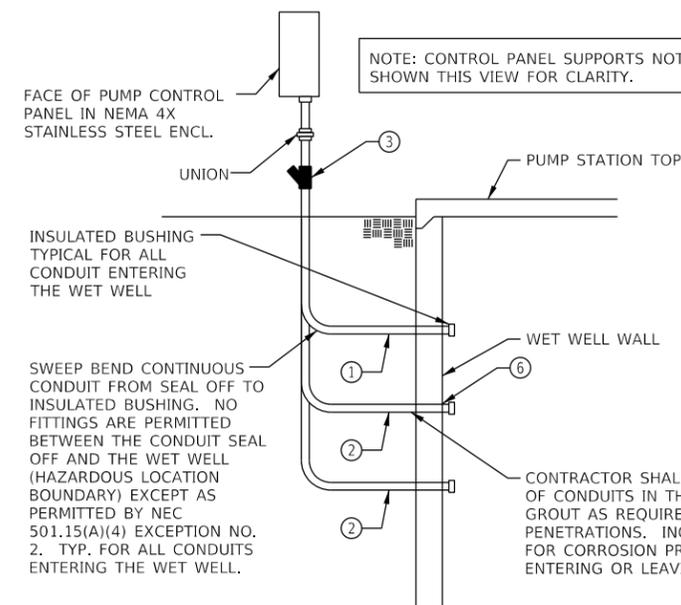
1. SHAFT SEAL FAILURE INSPECTION SHALL BE PART OF THE PUMPS ROUTINE MAINTENANCE.
2. THE PUMP CONTROLS SHALL INCORPORATE AN ALTERNATING RELAY TO EQUALIZE PUMP WEAR AND AUTOMATICALLY PROVIDE A STAND-BY.
3. VERIFY LEVEL SWITCH ELEVATIONS AND CABLE HANGAR LOCATIONS WITH ENGINEER AND PUMP MANUFACTURER REPRESENTATIVE.

GENERAL NOTES:

1. ALL ELECTRICAL EQUIPMENT INSTALLED IN THE WET WELL SHALL BE SUITABLE FOR USE IN CLASS 1, DIV. 1, GROUP D HAZARDOUS LOCATION AND SHALL CONFORM TO THE APPLICABLE SECTIONS OF NEC ARTICLES 500, 501, & 504 AS WELL AS ALL LOCAL CODES, ORDINANCES AND REQUIREMENTS.
2. ALL ELECTRICAL EQUIPMENT INSTALLED IN THE VALVE VAULT SHALL BE SUITABLE FOR USE IN CLASS 1, DIVISION 2, GROUP D HAZARDOUS LOCATION AND SHALL CONFORM TO THE APPLICABLE SECTIONS OF NEC ARTICLES 500, 501, & 504 AS WELL AS ALL LOCAL CODES, ORDINANCES, AND REQUIREMENTS.
3. CONTRACTOR SHALL COORDINATE INSTALLATION OF ELECTRICAL EQUIPMENT, AND WORK WITH RESPECT TO PLUMBING, MECHANICAL, CONCRETE, EXCAVATION AND ALL OTHER WORK. COORDINATE THE INSTALLATION OF CONDUITS INTO THE WET WELL. USE NON-SHRINK GROUT AS REQUIRED TO SEAL CONDUIT PENETRATIONS.
4. ALL CONDUIT TERMINATIONS & OPENINGS IN ENCLOSURES SHALL BE SEALED WITH DUCT SEAL OR EQUAL.
5. LEVEL SENSING PRESSURE TRANSDUCER & BACK-UP FLOATS SHALL HAVE AN FM LISTED OR UL LISTED INTRINSICALLY SAFE BARRIER (SWITCHING AMPLIFIER) SUPPLIED FOR UNIT. INTRINSICALLY SAFE WIRING SHALL HAVE LIGHT BLUE COLORED INSULATION AND KEPT PHYSICALLY ISOLATED FROM OTHER CONDUCTORS. INTRINSICALLY SAFE WIRING AND EQUIPMENT SHALL BE INSTALLED PER ANS/ISA RP12.6, UL 698A, AND NEC 504. CONDUITS WITH INTRINSICALLY SAFE WIRING SHALL TERMINATE IN THE CONTROL PANEL AT THE INTRINSICALLY SAFE WIRING SECTION.
6. METAL CONDUIT IN DIRECT CONTACT WITH EARTH OR CONCRETE SHALL BE PVC COATED FOR CORROSION PROTECTION.
7. ALL CONDUIT ENTRANCES INTO THE SERVICE BREAKER, PUMP CONTROL PANEL AND ANY OTHER NEMA 4 ENCLOSURES SHALL HAVE WATER TIGHT THREADED HUBS, UL LISTED NEMA 4, 4X FOR RESPECTIVE ENCLOSURE.
8. ALL BUSHINGS, HUBS, & FITTINGS BETWEEN CONDUITS OF DISSIMILAR METALS AND/OR BETWEEN CONDUITS AND ENCLOSURES OF A DISSIMILAR METAL SHALL BE SUITABLE FOR SUCH APPLICATIONS TO ELIMINATE THE POSSIBILITY OF GALVANIC ACTION.

SHEET LEGEND:

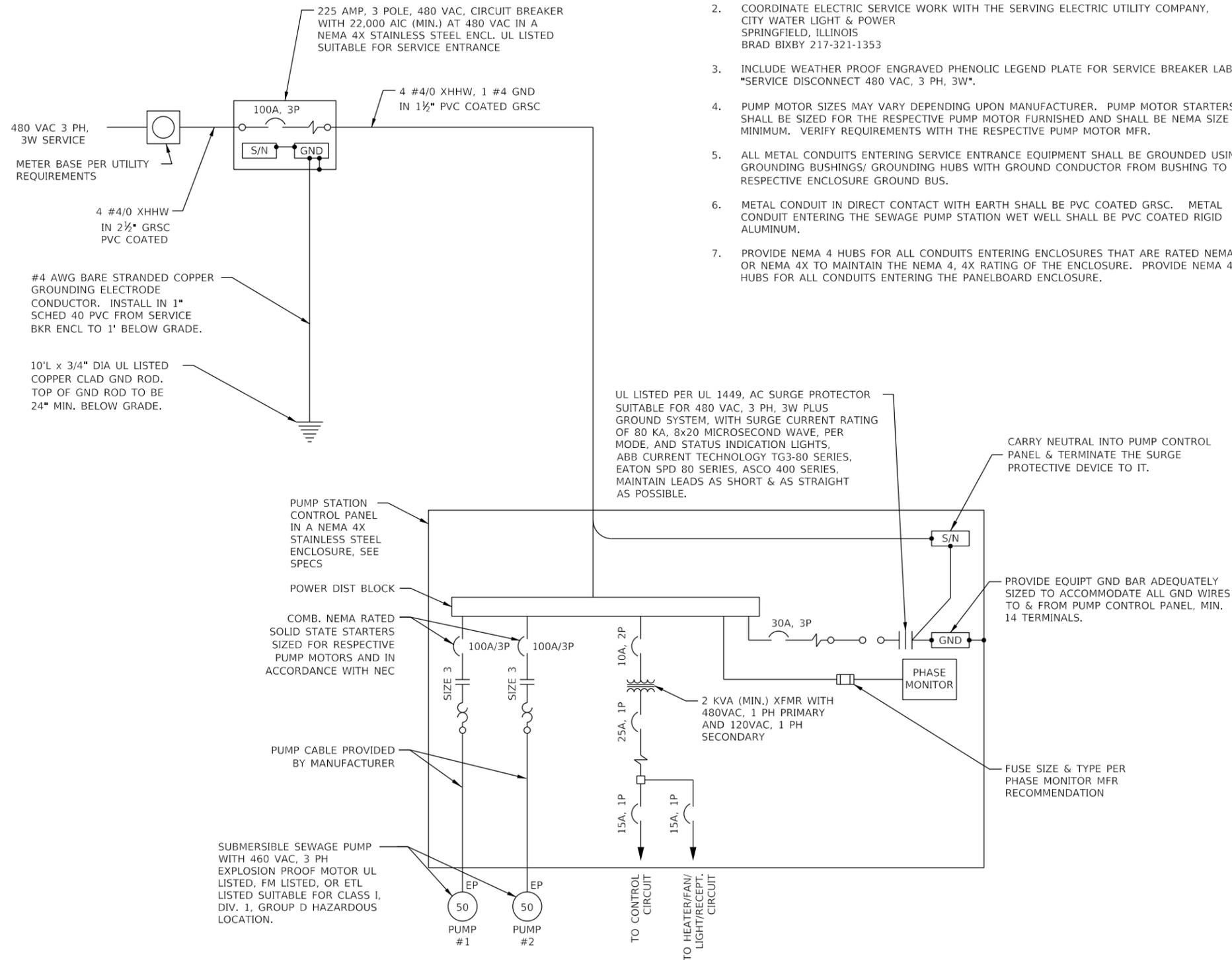
- ① MULTI-CONDUCTOR LIQUID LEVEL SENSING CABLE (WITH MAXIMUM DIAMETER OF 5/8") IN 2" PVC COATED RIGID ALUMINUM CONDUIT. CONDUIT SHALL BE SIZED FOR 25% MAXIMUM FILL TO CONFORM TO EXPLOSION PROOF CONDUIT SEAL REQUIREMENTS. ADJUST (ENLARGE) AS REQUIRED.
- ② SUBMERSIBLE PUMP MOTOR CABLE IN 3" PVC COATED RIGID ALUMINUM CONDUIT. CONDUIT SHALL BE SIZED FOR 25% MAXIMUM FILL TO CONFORM TO EXPLOSION PROOF CONDUIT SEAL REQUIREMENTS. ADJUST (ENLARGE) AS REQUIRED.
- ③ EXPLOSION PROOF CONDUIT SEAL SUITABLE FOR CLASS 1, DIVISION 1, GROUP D HAZARDOUS LOCATION, REQUIRED FOR ALL CONDUITS ENTERING OR LEAVING THE WET WELL OR VALVE VAULT INSTALLED IN CONFORMANCE WITH NEC 501 & MANUFACTURER'S DIRECTIONS. NOTE CONDUIT SEALS SHALL BE SIZED AS REQUIRED FOR THE RESPECTIVE CABLE FILL. CABLE FILL SHALL NOT EXCEED 25% FOR CONDUIT SEAL APPLICATION. CONDUIT SEALS SHALL BE THE FIRST FITTING AFTER THE CONDUIT LEAVES THE WET WELL AND EMERGES FROM GRADE & THE FIRST FITTING AFTER CONDUIT ENTERS THE VALVE VAULT.
- ④ HEAVY DUTY STAINLESS STEEL CABLE RACK ADEQUATELY SIZED FOR THE RESPECTIVE PUMP & LEVEL CABLES OR HEAVY DUTY NYLON SADDLE RACKS (CABLE HANGAR WITH 3" THROAT OPENING), UNDERGROUND DEVICES CAT. NO. 3SR1. MOUNT AT IMMEDIATELY INSIDE ACCESS HATCH WITH STAINLESS STEEL STRUT SUPPORT & STAINLESS STEEL HARDWARE. PROVIDE SUFFICIENT RACKS FOR EACH PUMP CABLE & LEVEL CABLES. EACH PUMP MOTOR SHALL HAVE 10' MINIMUM SLACK CABLE TO ALLOW FOR FUTURE REMOVAL AND REINSTALLATION. LOOP SLACK CABLES AROUND SADDLE RACK AND SECURE WITH CABLE TIES.
- ⑤ SUBMERSIBLE PUMP CABLE BY PUMP MANUFACTURER. VERIFY EACH PUMP MOTOR HAS A MINIMUM OF 10 FEET OF SLACK CABLE. (2 TYP.)
- ⑥ CONDUIT HOLES SHALL BE CORED THROUGH THE STRUCTURE WALLS OR PREFORMED DURING CASTING.



CONDUIT ENTRANCE TO PUMP STATION
 NOT TO SCALE

	USER NAME = pop00275	DESIGNED - JFC	REVISED -	<p align="center">STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</p>	<p align="center">SPRINGFIELD RAIL IMPROVEMENTS PROJECT SPRINGFIELD, SANGAMON COUNTY, ILLINOIS PUMP STATION ELECTRICAL DETAILS</p>	F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE = 0.17' / in.	CHECKED - JFC	REVISED -			7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	394
PLOT DATE = 9/27/2024	DATE - 10/01/2024	REVISED -		SCALE:	SHEET 7 OF 9 SHEETS	STA.	TO STA.	09L0179B	CONTRACT NO. 93773	ILLINOIS FED. AID PROJECT

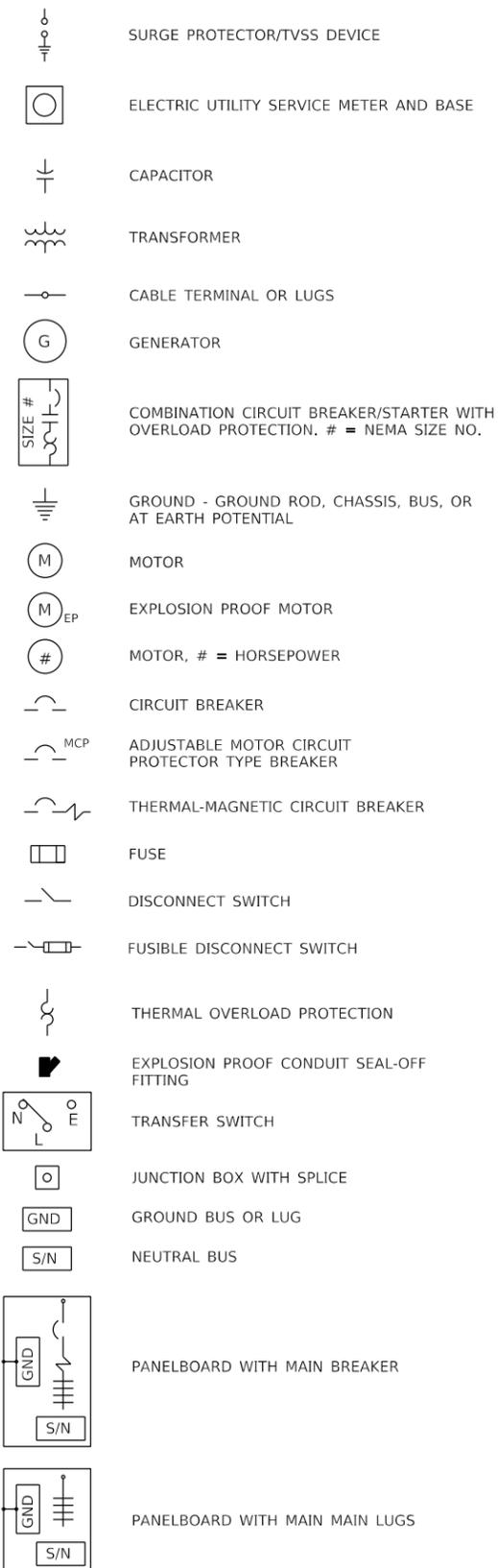
MODEL: Sheet 8
 FILE: hanson_pumpstation_elec-01\Documents\09\09\01\798\Usable_Segments_V\North_GravelSheet\090101798-SHT-UGA-4-PumpStation.dgn
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NOTES:

1. ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 (NEC MOST CURRENT ISSUE IN FORCE), THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE U.L. LISTING, FM LISTING, ETL LISTING (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE SHALL NOT BE PERMITTED.
2. COORDINATE ELECTRIC SERVICE WORK WITH THE SERVING ELECTRIC UTILITY COMPANY, CITY WATER LIGHT & POWER SPRINGFIELD, ILLINOIS BRAD BIXBY 217-321-1353
3. INCLUDE WEATHER PROOF ENGRAVED PHENOLIC LEGEND PLATE FOR SERVICE BREAKER LABELED "SERVICE DISCONNECT 480 VAC, 3 PH, 3W".
4. PUMP MOTOR SIZES MAY VARY DEPENDING UPON MANUFACTURER. PUMP MOTOR STARTERS SHALL BE SIZED FOR THE RESPECTIVE PUMP MOTOR FURNISHED AND SHALL BE NEMA SIZE 3 MINIMUM. VERIFY REQUIREMENTS WITH THE RESPECTIVE PUMP MOTOR MFR.
5. ALL METAL CONDUITS ENTERING SERVICE ENTRANCE EQUIPMENT SHALL BE GROUNDED USING GROUNDING BUSHINGS/ GROUNDING HUBS WITH GROUND CONDUCTOR FROM BUSHING TO RESPECTIVE ENCLOSURE GROUND BUS.
6. METAL CONDUIT IN DIRECT CONTACT WITH EARTH SHALL BE PVC COATED GRSC. METAL CONDUIT ENTERING THE SEWAGE PUMP STATION WET WELL SHALL BE PVC COATED RIGID ALUMINUM.
7. PROVIDE NEMA 4 HUBS FOR ALL CONDUITS ENTERING ENCLOSURES THAT ARE RATED NEMA 4 OR NEMA 4X TO MAINTAIN THE NEMA 4, 4X RATING OF THE ENCLOSURE. PROVIDE NEMA 4 HUBS FOR ALL CONDUITS ENTERING THE PANELBOARD ENCLOSURE.

ONE-LINE LEGEND



PUMP STATION ELECTRICAL ONE LINE
 NO SCALE



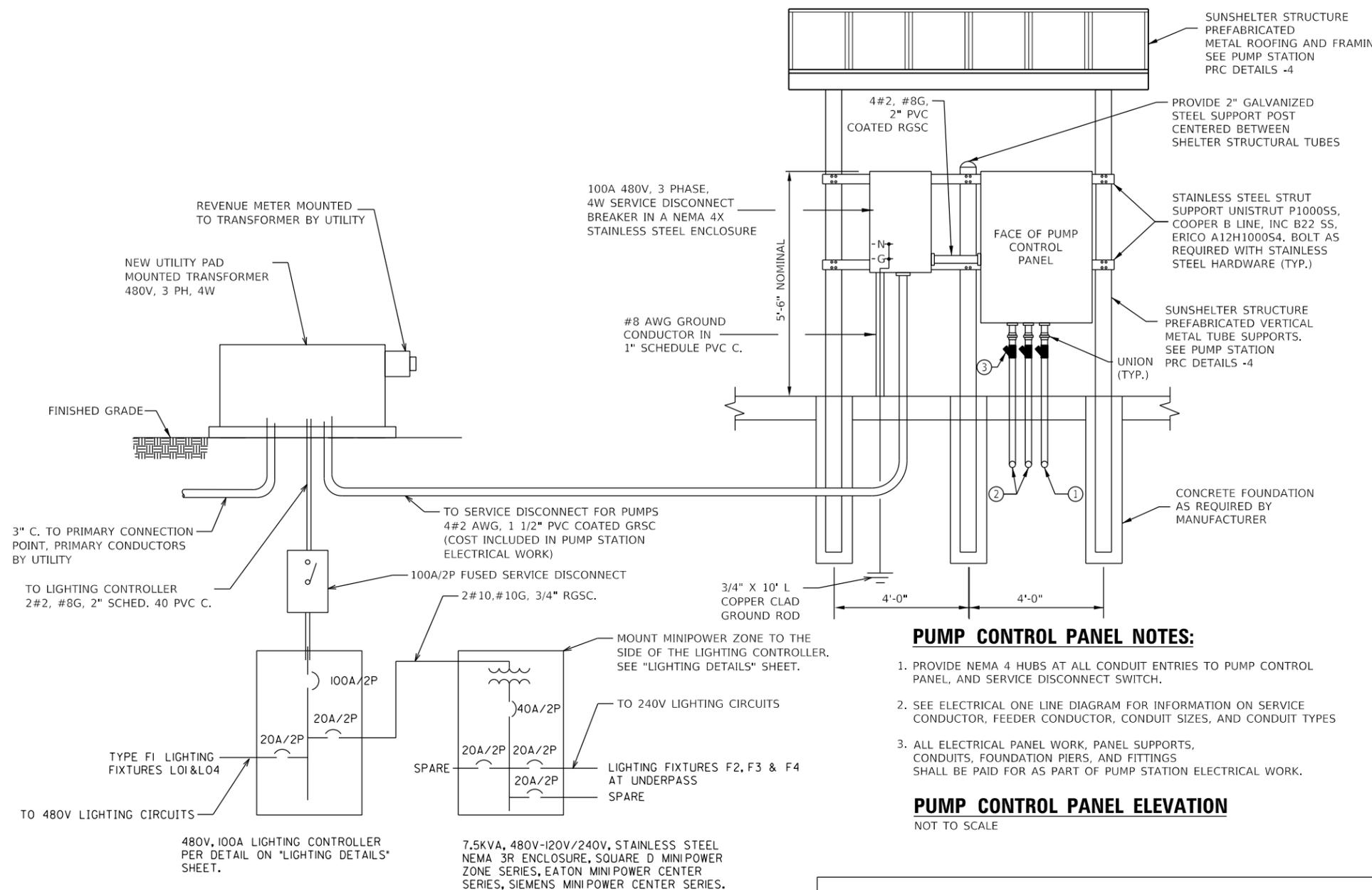
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DRAWN - RSJ	REVISED -	
PLOT SCALE = 0.17' / in.	CHECKED - JFC	REVISED -
PLOT DATE = 9/27/2024	DATE - 10/01/2024	REVISED -

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

SPRINGFIELD RAIL IMPROVEMENTS PROJECT
 SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
 PUMP STATION ELECTRICAL DETAILS

SCALE: SHEET 8 OF 9 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	395
09L0179B		CONTRACT NO. 93773		
ILLINOIS FED. AID PROJECT				



ELECTRIC SERVICE INSTALLATION DETAIL
NOT TO SCALE

- PUMP CONTROL PANEL NOTES:**
1. PROVIDE NEMA 4 HUBS AT ALL CONDUIT ENTRIES TO PUMP CONTROL PANEL, AND SERVICE DISCONNECT SWITCH.
 2. SEE ELECTRICAL ONE LINE DIAGRAM FOR INFORMATION ON SERVICE CONDUCTOR, FEEDER CONDUCTOR, CONDUIT SIZES, AND CONDUIT TYPES
 3. ALL ELECTRICAL PANEL WORK, PANEL SUPPORTS, CONDUITS, FOUNDATION PIERS, AND FITTINGS SHALL BE PAID FOR AS PART OF PUMP STATION ELECTRICAL WORK.

PUMP CONTROL PANEL ELEVATION
NOT TO SCALE

DEVICE	LEGEND PLATE LABELING	LETTER HEIGHT/COLOR
100A SERVICE BREAKER	SERVICE DISCONNECT 480 VAC, 3 PH, 4 W	1/4" BLACK LETTERING ON A WHITE BACKGROUND
PUMP CONTROL PANEL ENCLOSURE	PUMP STATION CONTROL PANEL 480 VAC, 3 PH, 4 W	1/4" WHITE LETTERING ON A RED BACKGROUND

- LEGEND PLATE SCHEDULE NOTES:**
1. LEGEND PLATES SHALL BE WEATHERPROOF, ABRASION RESISTANT, PHENOLIC ENGRAVED MATERIAL. LETTERING SHALL BE SIZED AS NOTED ABOVE. SECURE LEGNED PLATES TO EQUIPMENT WITH MACHINE SCREWS AND/OR RIVETS. CONTRACTOR SHALL FIELD VERIFY THAT THE RESPECTIVE LETTERING HEIGHT AND LEGENDS WILL FIT ON THE RESPECTIVE EQUIPMENT AND ADJUST LETTERING HEIGHT WHERE APPLICABLE. SEE SPECIFICATIONS FOR THE PUMP CONTROL PANEL FOR ADDITIONAL LEGEND PLATES REQUIRED FOR THAT PANEL.
 2. FURNISH & INSTALL A WEATHERPROOF WARNING LABEL FOR EACH METER SOCKET, SERVICE DISCONNECT, PANELBOARD & CONTROL PANEL TO WARN PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS, PER THE REQUIREMENTS OF NEC 110.16 "FLASH PROTECTION". LABELS SHALL BE HAZARD COMMUNICATION SYSTEMS, LLC (190 OLD MILFORD RD., P.O. BOX 1174, MILFORD, PA 18337 PHONE: 1-887-748-0244) PART NO. H6010-9VWHBJ OR APPROVED EQUAL.

- SHEET LEGEND:**
- ① MULTI-CONDUCTOR LEVEL PROBE CABLE (WITH MAXIMUM DIAMETER OF 5/8") IN 2" PVC COATED RIGID ALUMINUM. CONDUIT SHALL BE SIZED FOR 25% MAXIMUM FILL TO CONFORM TO EXPLOSION PROOF CONDUIT SEAL REQUIREMENTS. ADJUST (ENLARGE) AS REQUIRED.
 - ② SUBMERSIBLE PUMP MOTOR CABLE IN 3" PVC COATED RIGID ALUMINUM. CONDUIT SHALL BE SIZED FOR 25% MAXIMUM FILL TO CONFORM TO EXPLOSION PROOF CONDUIT SEAL REQUIREMENTS. ADJUST (ENLARGE) AS REQUIRED.
 - ③ EXPLOSION PROOF CONDUIT SEAL SUITABLE FOR CLASS I, DIVISION 1, GROUP D HAZARDOUS LOCATION, REQUIRED FOR ALL CONDUITS ENTERING OR LEAVING THE WET WELL OR VALVE VAULT INSTALLED IN CONFORMANCE WITH NEC 501 & MANUFACTURER'S DIRECTIONS. NOTE CONDUIT SEALS SHALL BE SIZED AS REQUIRED FOR THE RESPECTIVE CABLE FILL. CABLE FILL SHALL NOT EXCEED 25% FOR CONDUIT SEAL APPLICATION. CONDUIT SEALS SHALL BE THE FIRST FITTING AFTER THE CONDUIT LEAVES THE WET WELL AND EMERGES FROM GRADE & THE FIRST FITTING AFTER CONDUIT ENTERS THE VALVE VAULT.

- SERVICE NOTES:**
1. CONTRACTOR SHALL VERIFY AND COORDINATE SERVICE ENTRANCE WORK WITH THE SERVING ELECTRIC UTILITY COMPANY.
 2. ALL METAL CONDUITS TERMINATING IN SERVICE EQUIPMENT (METER BASE & SERVICE BREAKER) SHALL HAVE GROUND BUSHING TYPE HUBS WITH BONDING JUMPERS TO THE RESPECTIVE GND BUS.
 3. SEE ELECTRICAL ONE-LINE DIAGRAM FOR CONDUIT & WIRE SIZES & TYPES.
 4. UNLESS OTHERWISE NOTED, WORK SHOWN ON ELECTRIC SERVICE INSTALLATION DETAIL, INCLUDING COORDINATION WITH UTILITY COMPANY, SHALL BE PAID FOR AS ELECTRIC SERVICE INSTALLATION.

FINAL PLANS

MODEL: Sheet 0
FILE: hanson_pumpstation-cdw-hanson-cdw-hanson-cdw-01\Documents\09\Jobs\09\01798\Usable_Segments_V\North_GrandSheet\09\01798-SHT-10-A-PumpStation.dgn



USER NAME = pop00275	DESIGNED - JFC	REVISED -
PLOT SCALE = 0.17' / in.	DRAWN - RSJ	REVISED -
PLOT DATE = 9/27/2024	CHECKED - JFC	REVISED -
	DATE - 10/01/2024	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**SPRINGFIELD RAIL IMPROVEMENTS PROJECT
SPRINGFIELD, SANGAMON COUNTY, ILLINOIS
PUMP STATION ELECTRICAL DETAILS**

SCALE: SHEET 9 OF 9 SHEETS STA. TO STA.

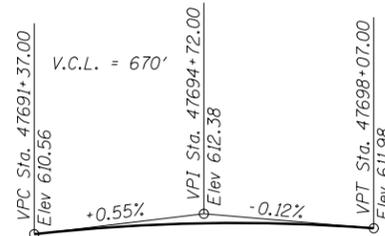
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	396
09L0179B		CONTRACT NO. 93773		
ILLINOIS FED. AID PROJECT				

Benchmark: TJM-112 - Chiseled square on SW corner controller box foundation, NE quadrant of 9th St. and North Grand Ave.
Elevation = 604.856

Existing Structure : None

Traffic Control: Road Closure

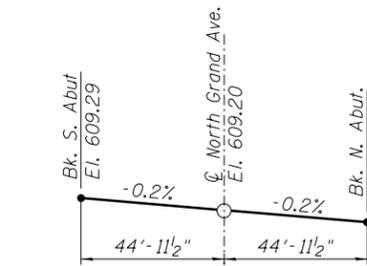
Construction Sequence: See Track Staging Plans



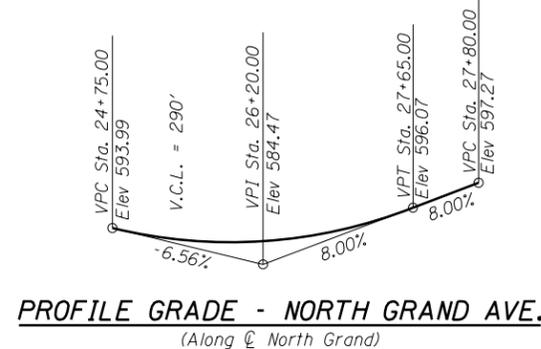
P.G. UPRR MAIN 1 RAIL
(Along Top of Rail)



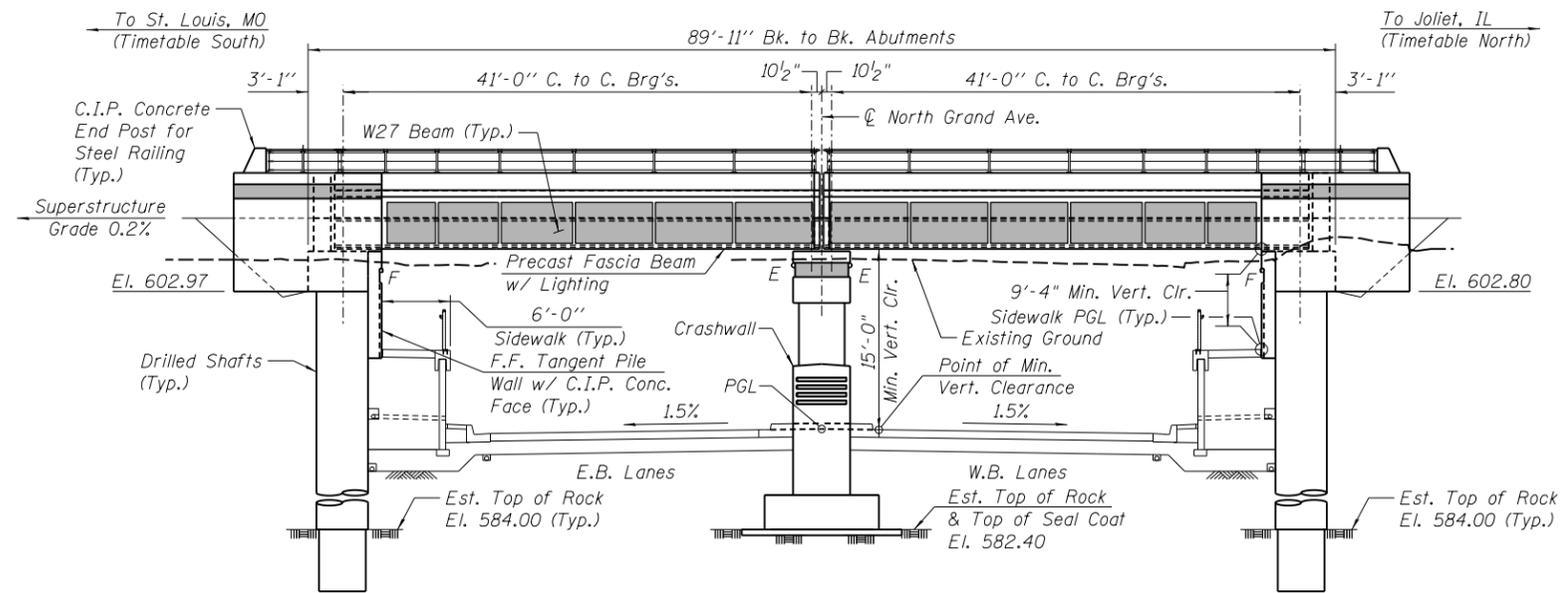
P.G.L. SIDEWALKS
(Along Face of Tangent Pile Wall)



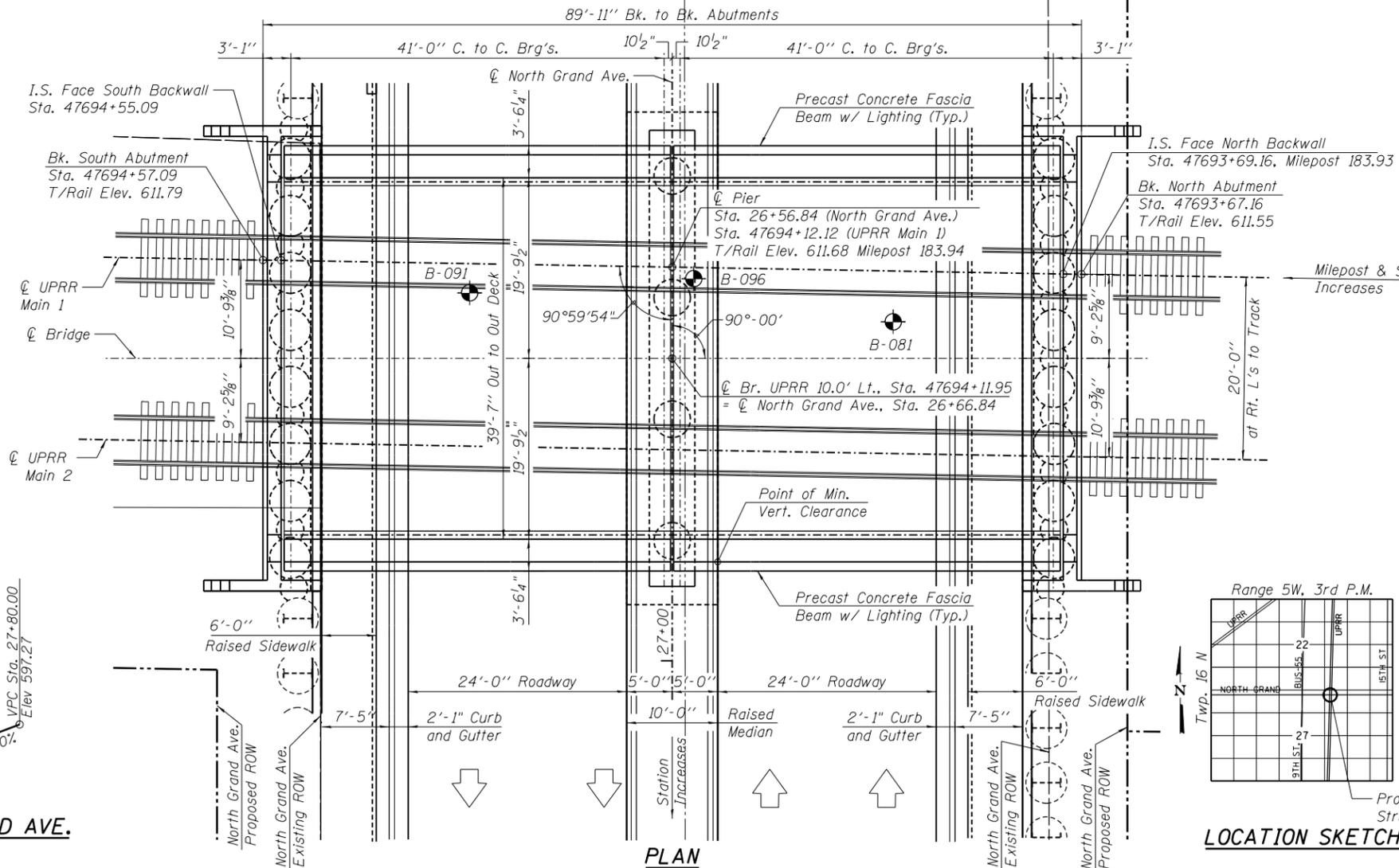
TOP OF BALLAST PAN GRADE
(Looking West)
(Elevations Taken along Bridge C/L)



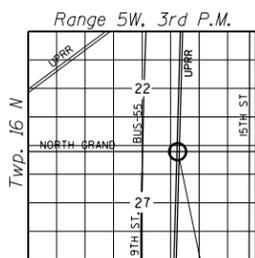
PROFILE GRADE - NORTH GRAND AVE.
(Along C/L North Grand)



ELEVATION
(Looking West)



PLAN



LOCATION SKETCH

HIGHWAY CLASSIFICATION

F.A.U. 7972 - North Grand Ave.
Functional Class: Minor Arterial
ADT: 11,100 (2017); 12,450 (2040)
DHV: 1.110 (2017); 1.245 (2040)
ADTT: 1,085 (2017); 1,220 (2040)
Design Speed: 30 mph
Posted Speed: 30 mph

LOADING COOPER E-80

Impact: Diesel Impact
Allow 30" of Ballast Dead Load

DESIGN SPECIFICATIONS

2019 AREMA Specifications
Live Load Deflection: L/640
Composite Design for Deflection Requirements
Design Speed: 50 m.p.h.

DESIGN STRESSES

FIELD UNITS

$f'_c = 4,000$ psi
 $f_y = 60,000$ psi (Reinforcement)
 $f_y = 50,000$ psi (ASTM A709 Grade 50)

PRECAST UNITS

$f'_c = 6,500$ psi
 $f'_{ci} = 5,000$ psi
 $f'_{pu} = 270,000$ psi ($\frac{1}{2}$ " ϕ Low Lax Strands)
 $f_{pbt} = 201,960$ psi ($\frac{1}{2}$ " ϕ Low Lax Strands)
 $f_y = 60,000$ psi (Reinforcement)

SEISMIC DATA

AREMA

Ground Motion Level	PGA	S _s	S ₁
Level 1 (100 Year)	0.010	0.025	0.005
Level 2 (475 Year)	0.040	0.090	0.035
Level 3 (2475 Year)	0.10	0.22	0.10

Soil Site Class = C



Michael N. Mendenhall
SIGNATURE

09/27/24
DATE

LIC. EXP. DATE: 11/30/24

I certify that to the best of knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current AREMA Specifications.

GENERAL PLAN AND ELEVATION
UPRR (MP 183.94) OVER NORTH GRAND AVE.
F.A.U. 7972 - SECTION 20-00492-00-BR
SANGAMON COUNTY
UPRR SUBDIVISION - SPRINGFIELD
STATION 47694+11.95
STRUCTURE NO. 084-9972

FINAL PLANS



USER NAME = pop00275	DESIGNED - CGP	REVISÉ -
PLOT SCALE = 1/8" = 1'-0"	CHECKED - MNM	REVISÉ -
PLOT DATE = 9/27/2024	DRAWN - RSJ	REVISÉ -
	CHECKED - MNM	REVISÉ -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN AND ELEVATION
STRUCTURE NO. 084-9972

SHEET NO. 1 OF 17 SHEETS

F.A.U. R.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	398
			CONTRACT NO. 93773	

ILLINOIS FED. AID PROJECT

GENERAL NOTES

- Fasteners shall be ASTM F3125 Grade A325 Type 1, mechanically galvanized bolts. Bolts 7/8 in. ϕ , holes 1 1/8 in. ϕ , unless otherwise noted.
- Calculated weight of Structural Steel, ASTM A709, Gr. 50 = 458,060 lbs.
ASTM A36, Gr. 36 = 85,790 lbs.
- All structural steel shall be ASTM A709 Grade 50 unless otherwise noted on the plans. The deck plate shall be ASTM A36.
- All substructure concrete shall have a compressive strength of 4,000 psi at 14 days.
- No field welding is permitted except as specified in the contract documents.
- Reinforcement bars designated (E) shall be epoxy coated.
- Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of 1/8 inch (0.01 ft.). Adjustment shall be made either by grinding the surface or by shimming the bearings.
- Concrete Sealer shall be applied to the following surfaces:
Abutments - inside face of backwall, inside face of cheekwall, top of cap, entire concrete facing attached to abutment caps and drilled shaft (except surfaces coated with surface color treatment).
Pier - entire exposed pier surface (except surfaces coated with concrete surface treatment).
Superstructure - entire exposed surface of precast prestressed fascia beam and curb (except surfaces coated with surface color treatment), concrete railing end post.
- Concrete Surface Color Treatment shall be applied to the following surfaces:
Abutments - concrete facing, wingwall and cheekwall surfaces designated in plans.
Pier - cap and crashwall surfaces designated in the plans.
Superstructure - Precast fascia Beam surfaces designated in plans.
- The Inorganic Zinc Rich Primer / Acrylic / Acrylic Paint System shall be used for shop and field painting of new structural steel except where otherwise noted. The color of the final finish coat for all interior steel surfaces, exterior bottom of deck plate, steel curb, shall be gray, Munsell No. 5B 7/1. The color of the final finish coat for the exterior and bottom flange of the fascia beams and exterior cantilever support bracket shall be blue, Munsell No. 10B 3/6.
- Waterproofing shall be applied to the backside of the abutment cap and backside of wingwalls for surfaces below ground. This shall be according to Article 503.18 of the Std. Spec. Cost included with Concrete Structures.

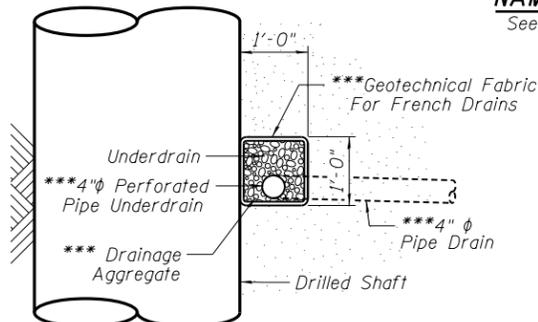
- Drilled shaft cross-hole sonic log (CSL) testing:
A) Drilled shafts shall be evaluated by cross-hole sonic log testing. Testing pipes shall be installed in each drilled shaft to facilitate the logging process, which will follow completion of each shaft.
B) Furnish and install six standard 2 inch nominal diameter steel pipes (ASTM A53, Grade B) for use in CSL testing of each drilled shaft. Pipes shall be equally spaced around the interior of the reinforcing steel cage.
C) Pipes shall be fitted with a screw-on watertight shoe and cap and shall be securely fixed to the interior of the reinforcing steel cage. Watertight joints shall be used to achieve the required length. The pipes shall be filled with water and plugged or capped before concrete placement. The upper end of the pipe shall not be left open during or after concrete placement. The pipes shall extend at least 2'-6" above the top of the drilled shaft concrete. The lower end of the pipes shall extend to the bottom of the shaft. Do not extend pipes into rock sockets with smaller diameter than drilled shafts.
D) CSL testing will be completed by the Engineer at no cost to the Contractor. If CSL test results are unsatisfactory according to the Engineer, the Contractor shall propose a method of correction including designs if required to the Engineer for approval. The correction shall be at the expense of the Contractor.

INDEX OF SHEETS

- General Plan and Elevation
- General Data
- Foundation Layout
- Superstructure
- Structural Steel
- Structural Steel Details (1 of 3)
- Structural Steel Details (2 of 3)
- Structural Steel Details (3 of 3)
- Precast Fascia Beam
- Precast Fascia Beam Details
- Bearing Details
- Membrane Waterproofing
- Steel Railing (Special)
- Abutment
- Abutment Details
- Pier
- Subsurface Data Profile

UNION PACIFIC RAILROAD
S.N. 084-9972 BUILT 20__ BY
CITY OF SPRINGFIELD
SEC. 20-00492-00-BR
STATION 47694+11.95
MILE POST 183.94
LOADING COOPER E-80

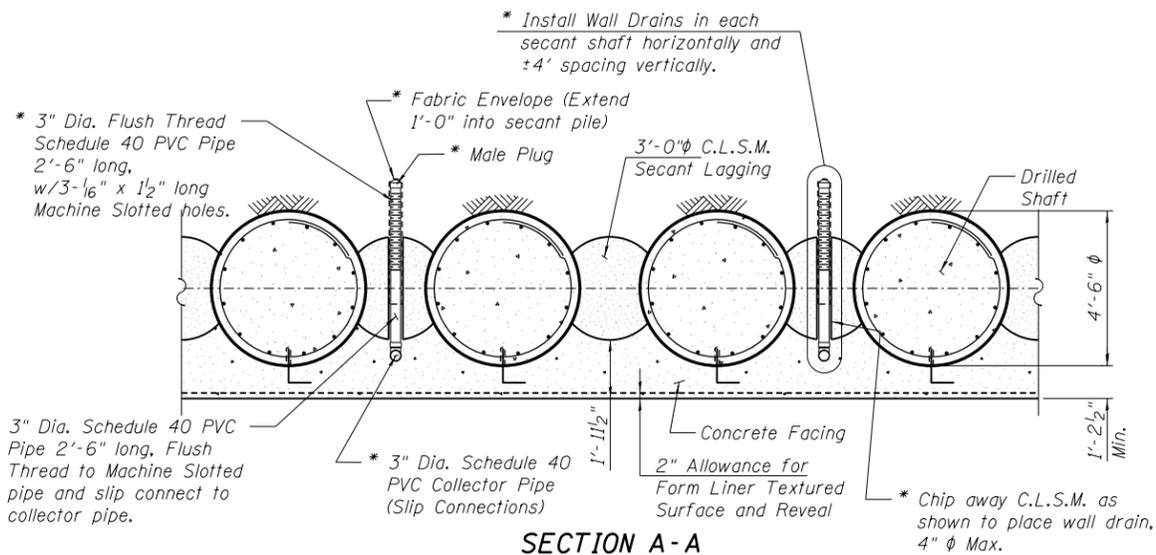
NAME PLATE
See Std. 515001



PIPE UNDERDRAIN DETAIL
***Included in the cost of "Pipe Underdrains for Structures, 4". See Wall Plans.

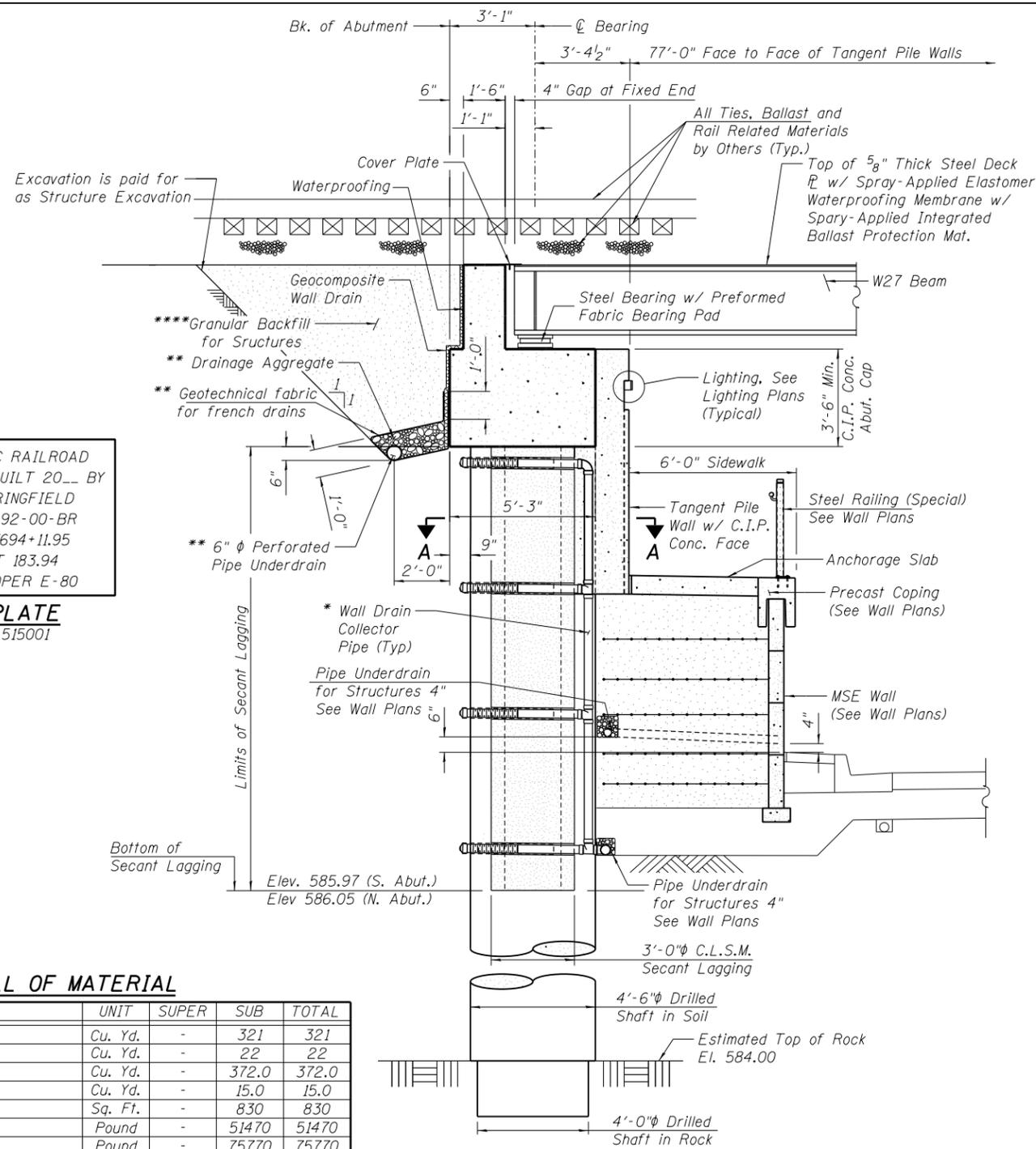
TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Structure Excavation	Cu. Yd.	-	321	321
Rock Excavation for Structures	Cu. Yd.	-	22	22
Concrete Structures	Cu. Yd.	-	372.0	372.0
Seal Coat Concrete	Cu. Yd.	-	15.0	15.0
Form Liner Textured Surface	Sq. Ft.	-	830	830
Reinforcement Bars	Pound	-	51470	51470
Reinforcement Bars, Epoxy Coated	Pound	-	75770	75770
Name Plates	Each	-	1	1
Drilled Shaft in Soil	Cu. Yd.	-	178.0	178.0
Drilled Shaft in Rock	Cu. Yd.	-	74.4	74.4
Secant Lagging	Cu. Ft.	-	2147	2147
Granular Backfill for Structures	Cu. Yd.	-	126	126
Concrete Sealer	Sq. Ft.	2915	3801	6716
Geocomposite Wall Drain	Sq. Yd.	-	74	74
Crosshole Sonic Logging Access Ducts	Foot	-	502	502
Concrete Surface Color Treatment	Sq. Ft.	431	335	766
Membrane Waterproofing (Special)	Sq. Ft.	3439	-	3439
Furnishing and Erecting Structural Steel, Bridge No. 1	L. Sum	1	-	1
Precast Prestressed Concrete Fascia Beam, No. 1	L. Sum	1	-	1
Steel Railing (Special)	Foot	194	-	194
Pipe Underdrains for Structures, 6"	Foot	-	102	102
Pipe Underdrains for Structures, 6" (Special)	Foot	-	37	37



SECTION A-A

* Included in the cost of "Pipe Underdrains for Structures, 4". See Wall Plans.



ABUTMENT SECTION

(At Rt. L's to Back of Abutment)

Notes:
South Abutment Section Shown North Similar.

** Included in the cost of "Pipe Underdrains for Structures, 6". For additional drainage details see Roadway Plans.

**** Granular Backfill for Structures shall be placed and compacted according to Section 502.10 of the Standard Specifications.

FINAL PLANS



USER NAME = pop00275	DESIGNED - CGP	REVISIONS -
PLOT SCALE = 0:2.0000 "/td> <td>CHECKED - MNM</td> <td>REVISIONS -</td>	CHECKED - MNM	REVISIONS -
PLOT DATE = 9/27/2024	DRAWN - RSJ	REVISIONS -
	CHECKED - MNM	REVISIONS -

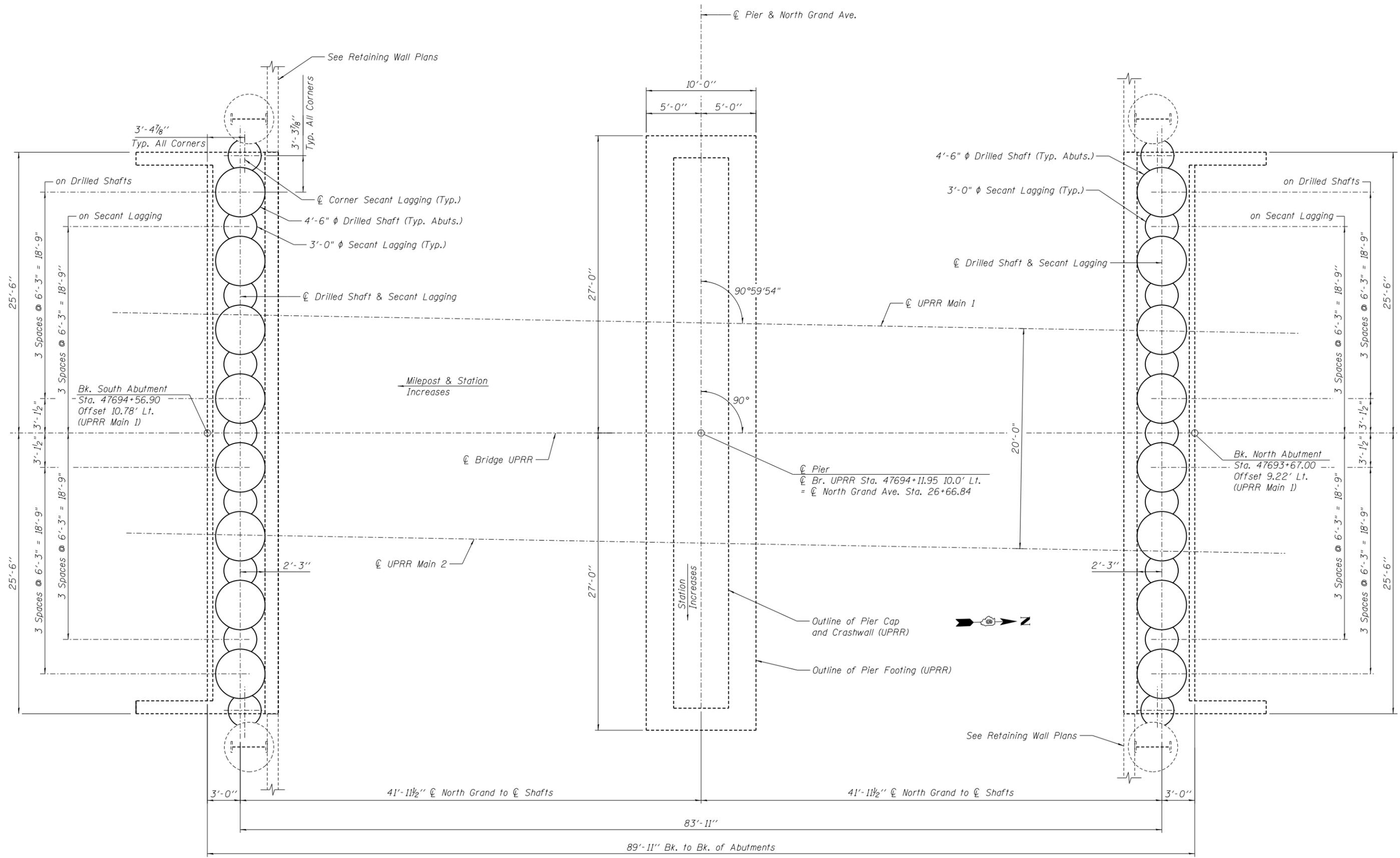
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL DATA
STRUCTURE NO. 084-9972

SHEET NO. 2 OF 17 SHEETS

F.A.U. R.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	399
			CONTRACT NO. 93773	
ILLINOIS FED. AID PROJECT				

p:\hansoninc-pw\bentley.com\hanson-pw-01\Documents\09Jobs\09101798\Usable Segments III - V - V\CAD\Struct\Usable Segment V\North Grand\Sheet\084-99XX.09\01798.003.Foundation Layout.dgn



FOUNDATION LAYOUT



USER NAME = pop00275	DESIGNED - JGT	REVISD -
PLOT SCALE = 0:2.0000 '1" / in.	CHECKED - CGP	REVISD -
PLOT DATE = 9/27/2024	DRAWN - RSJ	REVISD -
	CHECKED - JGT	REVISD -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**FOUNDATION LAYOUT
STRUCTURE NO. 084-9972**
SHEET NO. 3 OF 17 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	400
CONTRACT NO. 93773			ILLINOIS FED. AID PROJECT	