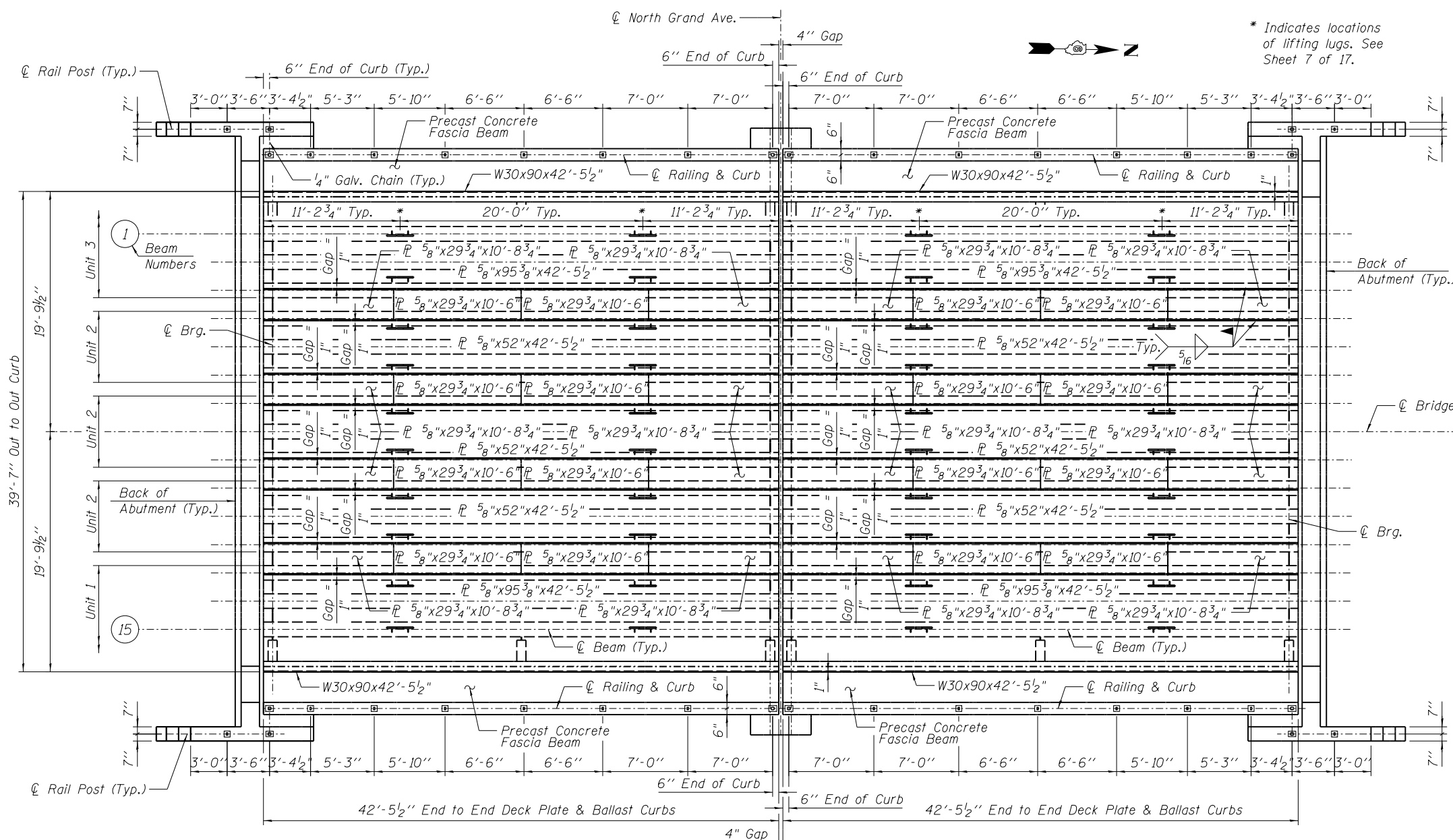
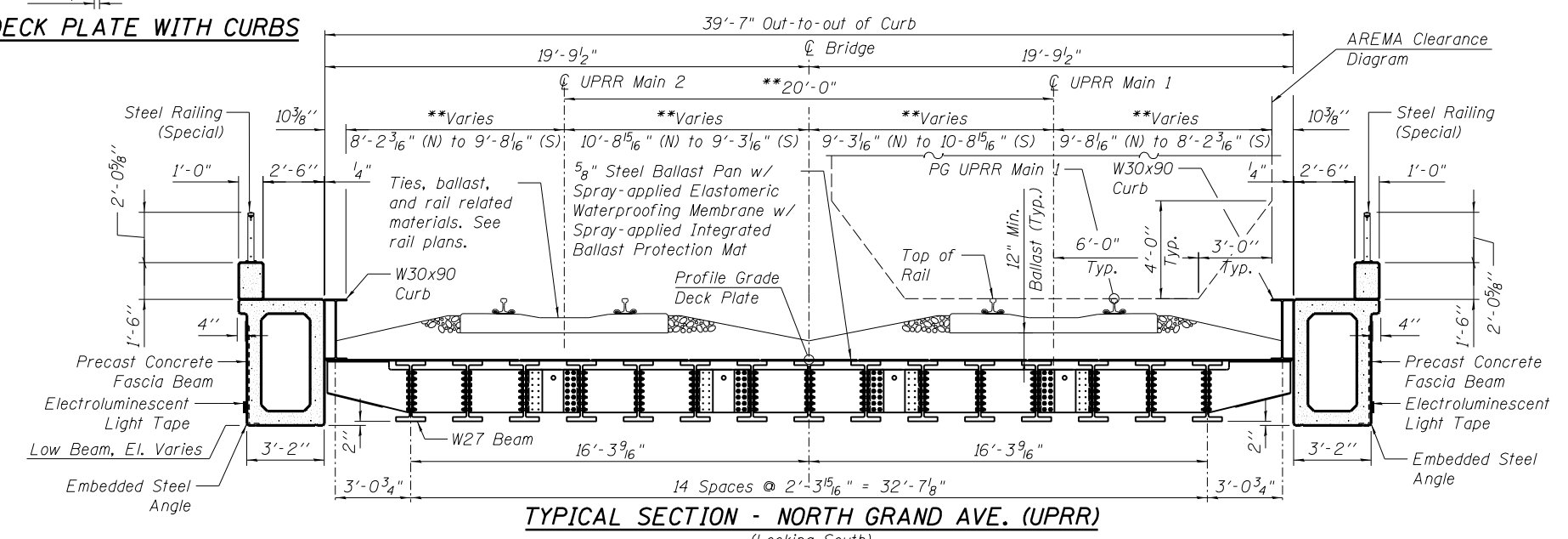




Notes:
 For Steel Railing Details See Sheets 13 of 17.
 For Membrane Waterproofing Details See Sheet 12 of 17.
 For 1/4" Galv. Chain Details, See Sheet 13 of 17. Cost of Chain and hardware included in the cost of Steel Railing (Special).

PLAN - DECK PLATE WITH CURBS



TYPICAL SECTION - NORTH GRAND AVE. (UPRR)
 (Looking South)
 ** Dimensions are Rt. L's to C Track

FINAL PLANS

pw:\hansoninc-pw.bentley.com\hanson-pw-01\Documents\09Jobs\09181798\Usable Segments III - V - VINCAD\Struct\Usable Segment VINorth Grand\Sheet\084-99XX.09181798.004.Superstructure.dgn

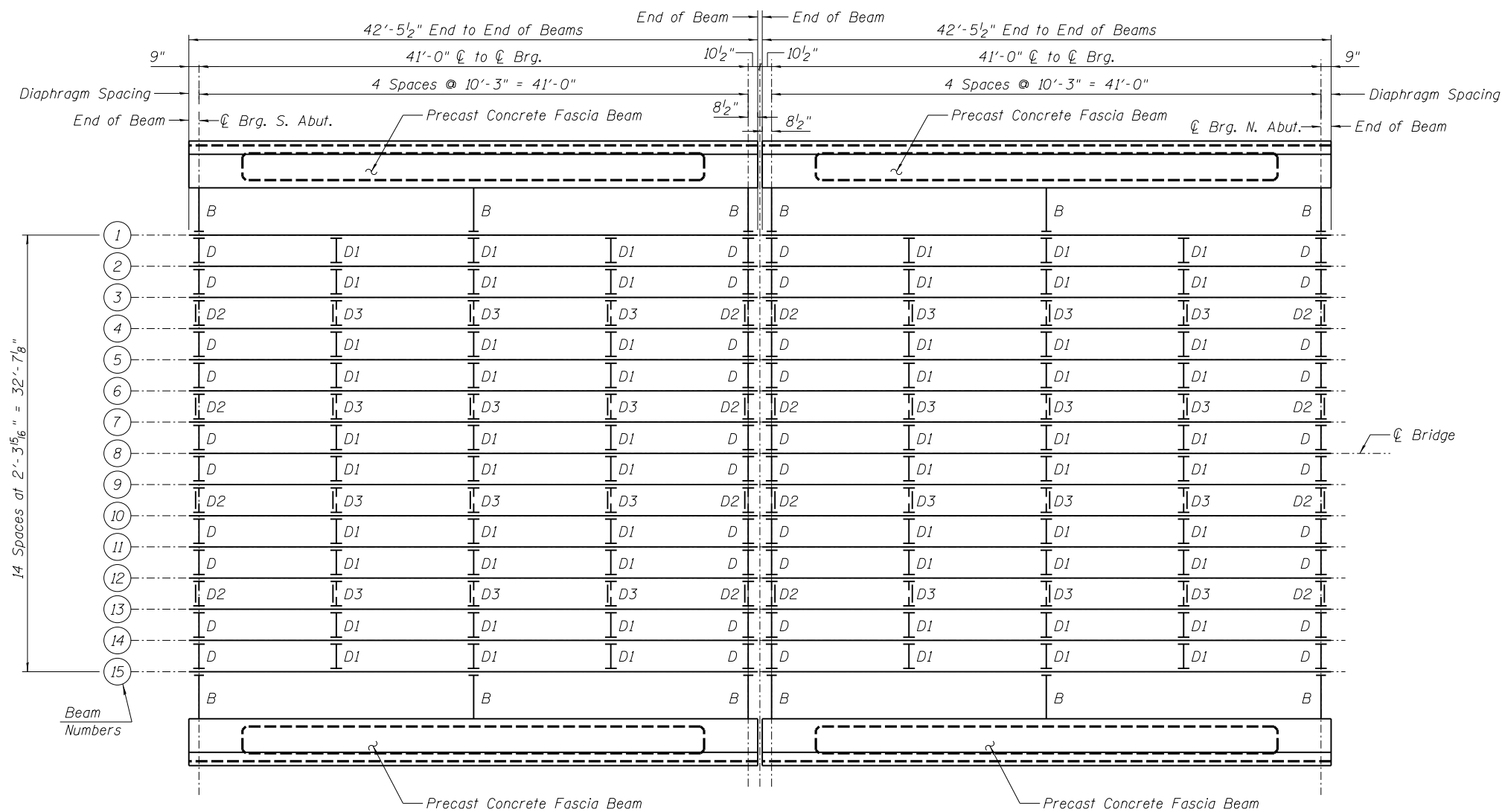
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**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

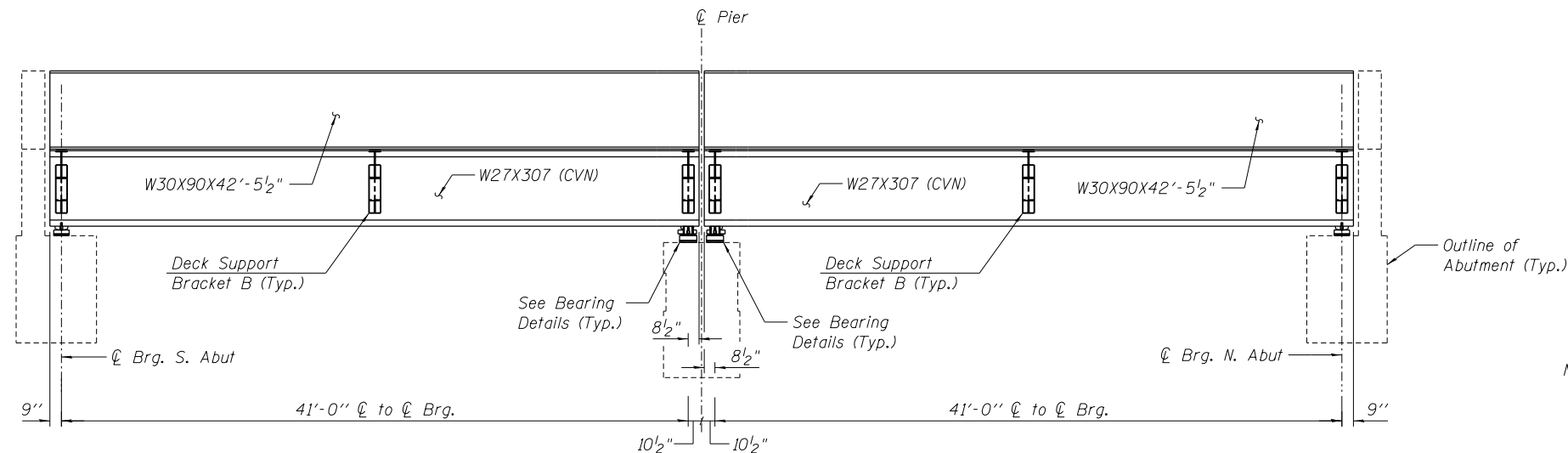
**SUPERSTRUCTURE
 STRUCTURE NO. 084-9972**

SHEET NO. 4 OF 17 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	401
CONTRACT NO. 93773				
ILLINOIS FED. AID PROJECT				



FRAMING PLAN



GIRDER ELEVATION
(Fascia beam, curb and railing not shown for clarity.)
(See Sheet 4 of 17 for Rail Post Spacing)

Notes:
All diaphragms shall be installed at the fabricators shop except as otherwise noted. Individual diaphragms at supports may be temporarily disconnected to install bearing anchor rods.

"CVN" denotes Charpy-V-Notch impact energy requirements, Zone 2.

FINAL PLANS

pw:\\hansoninc-pw.bentley.com\\hanson-pw-01\\Documents\\09Jobs\\09L01798\\Usable Segments III - V - VINCAD\\Struct\\Usable Segment VI\\North Grand\\Sheet\\084-99XX.09L01798.005.Steel Details.dgn



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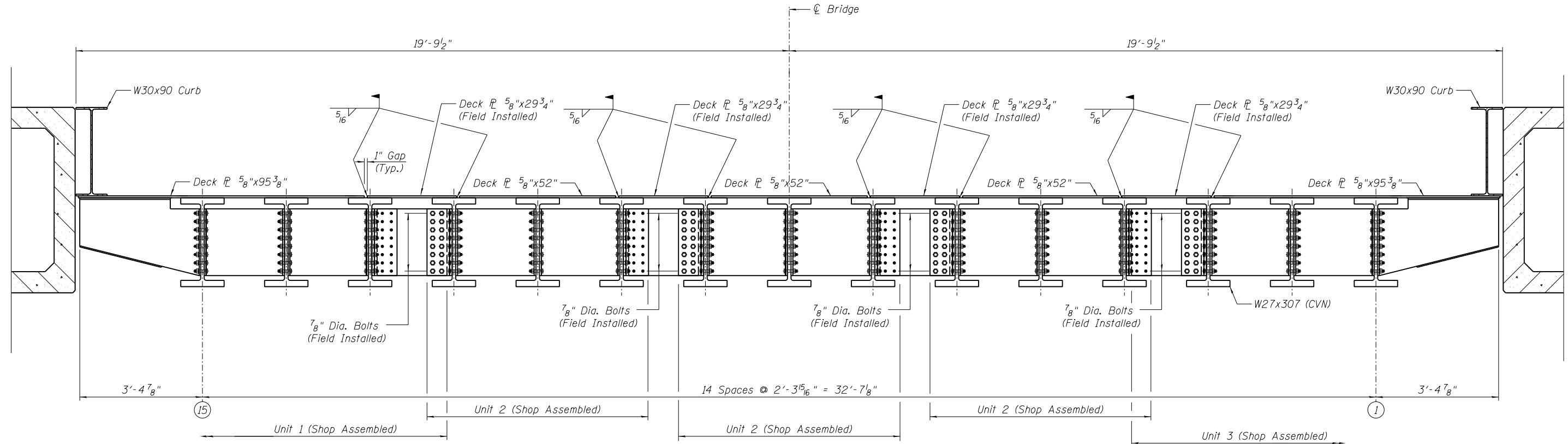
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**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

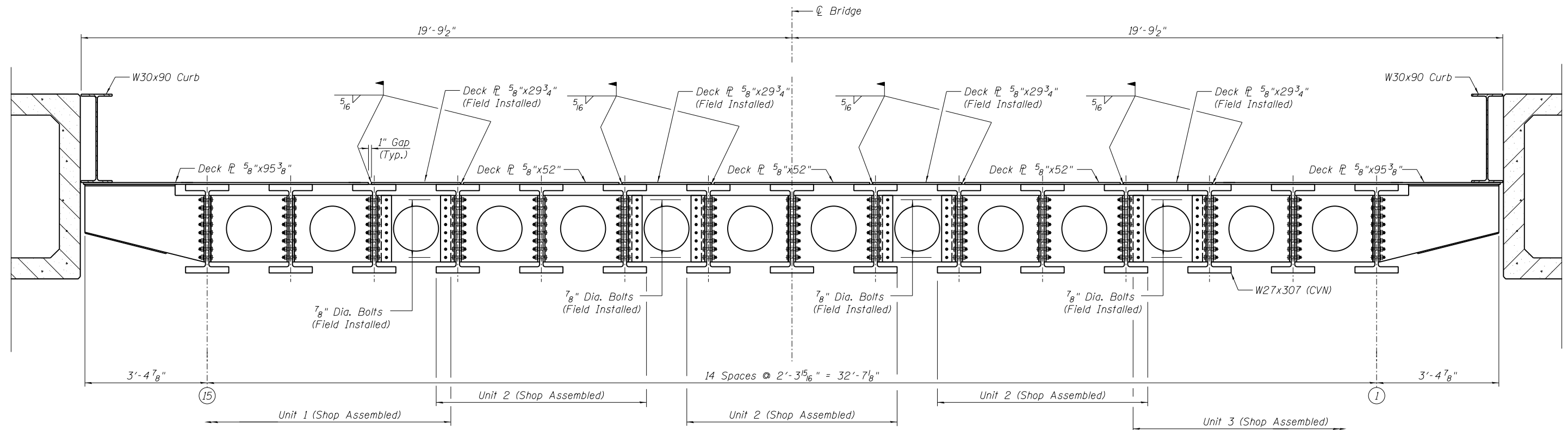
**STRUCTURAL STEEL
STRUCTURE NO. 084-9972**

SHEET NO. 5 OF 17 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	402
		CONTRACT NO. 93773		
ILLINOIS		FED. AID PROJECT		



SECTION - ASSEMBLED SPAN AT INTERIOR DIAPHRAGM
(Looking South)



SECTION - ASSEMBLED SPAN AT END DIAPHRAGM
(Looking South)

Notes:
Bolts shall be 7/8" ϕ placed in 1 1/2" ϕ holes unless otherwise noted.
Steel shall conform to ASTM A709 Gr. 50, unless otherwise noted.

FINAL PLANS

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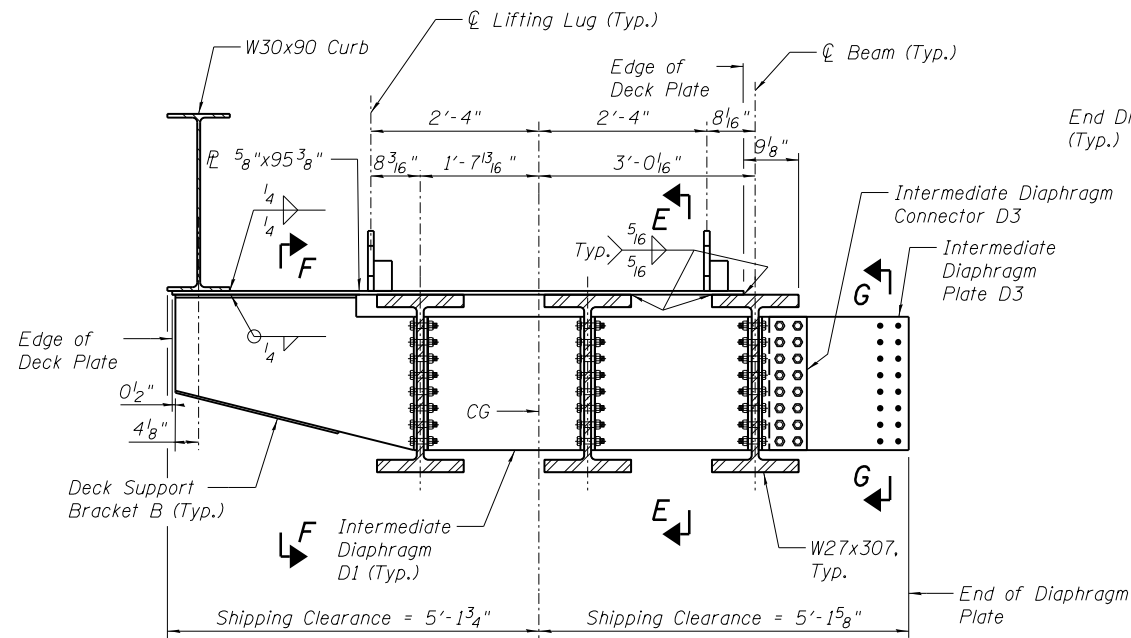
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

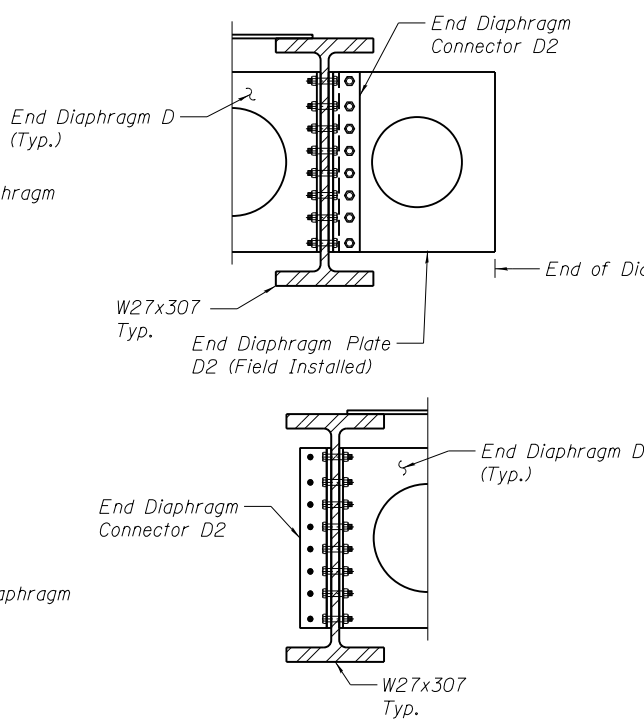
STRUCTURAL STEEL DETAILS (1 OF 3)
STRUCTURE NO. 084-9972

SHEET NO. 6 OF 17 SHEETS

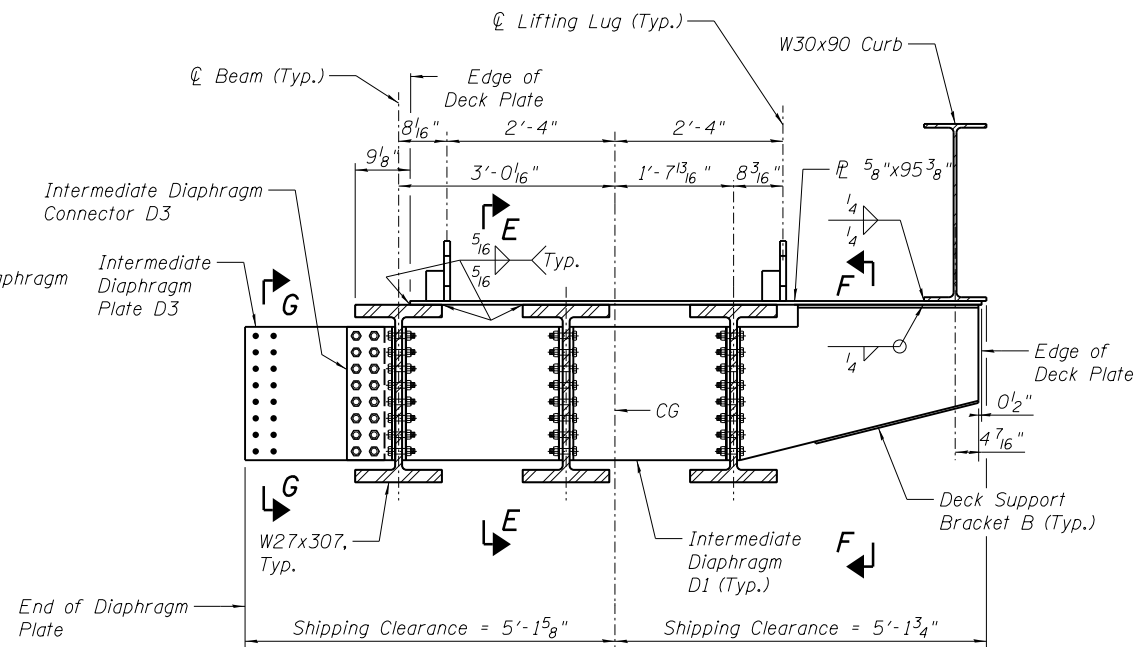
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CONTRACT NO. 93773				
ILLINOIS FED. AID PROJECT				



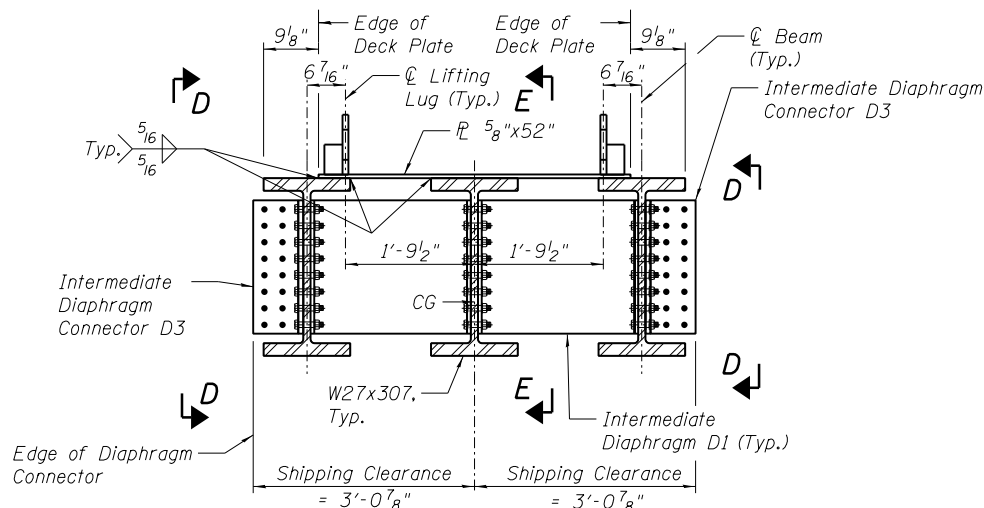
AT INTERIOR DIAPHRAGM UNIT 1
(Looking South)



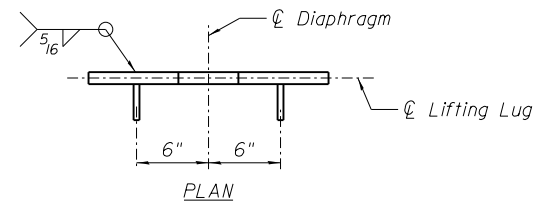
AT END DIAPHRAGM
(Partial Section shown, End Diaphragm Sections are similar to Interior Diaphragm Sections except as noted above)



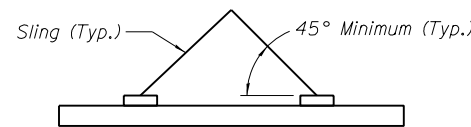
AT INTERIOR DIAPHRAGM UNIT 3
(Looking South)



AT INTERIOR DIAPHRAGM UNIT 2
(Looking South)

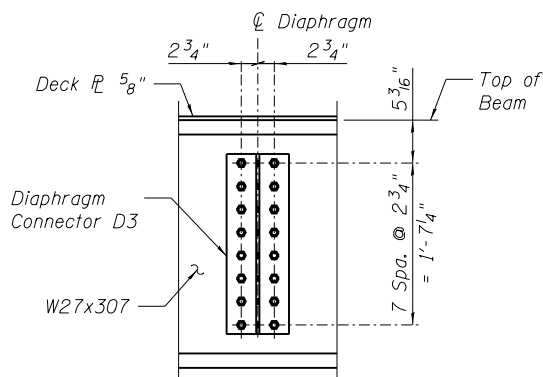


LIFTING LUG DETAIL

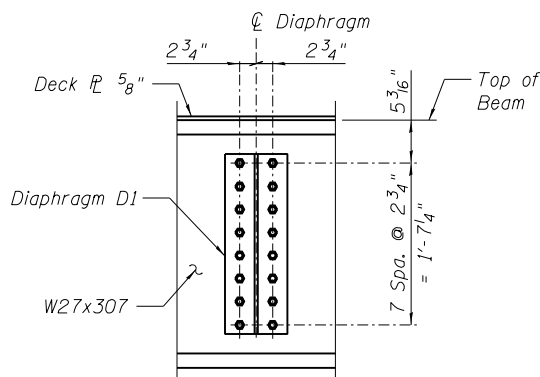


TYPICAL ELEVATION
LIFTING DIAGRAM

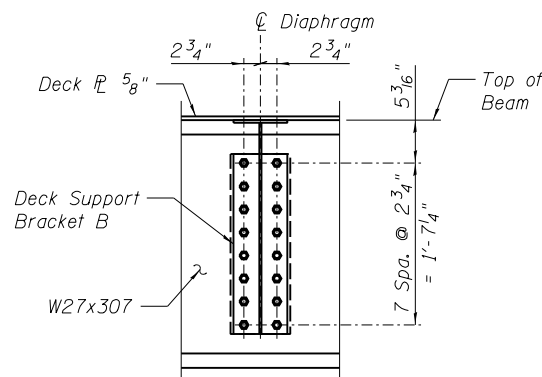
Notes:
Bolts shall be 7/8" ϕ placed in 1 5/16" ϕ holes unless otherwise noted.
Steel shall conform to ASTM A709 Gr. 50, unless otherwise noted.
After assembled span is in final position, lifting lugs shall be burned or ground off in a manner that will not damage the waterproofing system.



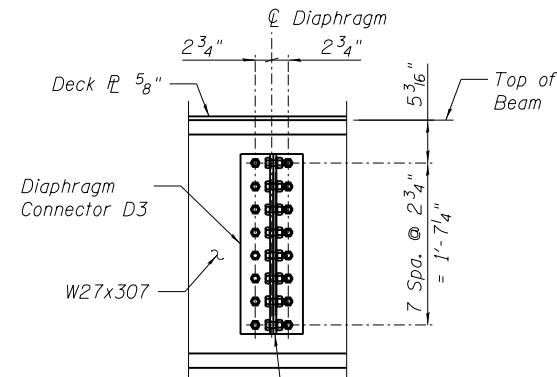
SECTION D-D



SECTION E-E



SECTION F-F



SECTION G-G

FINAL PLANS

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL DETAILS (2 OF 3)
STRUCTURE NO. 084-9972

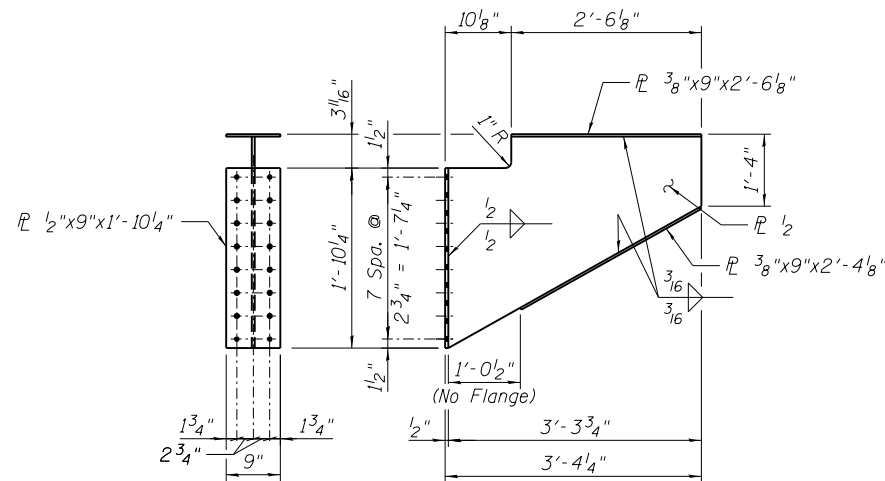
SHEET NO. 7 OF 17 SHEETS

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

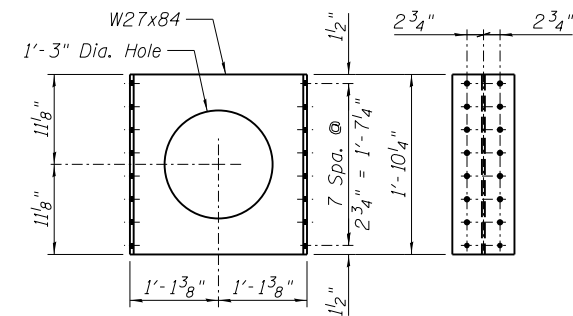
INTERIOR BEAM MOMENT & SHEAR TABLE

<i>Description</i>	<i>Max Moment</i>	<i>Max Shear</i>
<i>Dead Load</i>	<i>260.8 ft.-k</i>	<i>25.4 k</i>
<i>Live Load</i>	<i>710.3 ft.-k</i>	<i>75.6 k</i>
<i>Impact</i>	<i>287.0 ft.-k</i>	<i>30.6 k</i>
<i>Total</i>	<i>1,258.1 ft.-k</i>	<i>131.6 k</i>
<i>Section</i>	<i>W27x307</i>	
<i>Steel</i>	<i>ASTM A709, Gr. 50, CVN Zone 2</i>	
<i>Net I</i>	<i>12,731 in⁴</i>	
<i>Net S (Bott.)</i>	<i>860 in³</i>	
<i>FST (Bott.)</i>	<i>17.6 ksi</i>	
<i>Gross I</i>	<i>13,100 in⁴</i>	
<i>Gross S (Top)</i>	<i>887 in³</i>	
<i>FSC (Top)</i>	<i>17.0 ksi</i>	
<i>(LL+I) Deflection</i>	<i>0.74 in</i>	
<i>Allowable (LL+I) Deflection</i>	<i>0.77 in</i>	

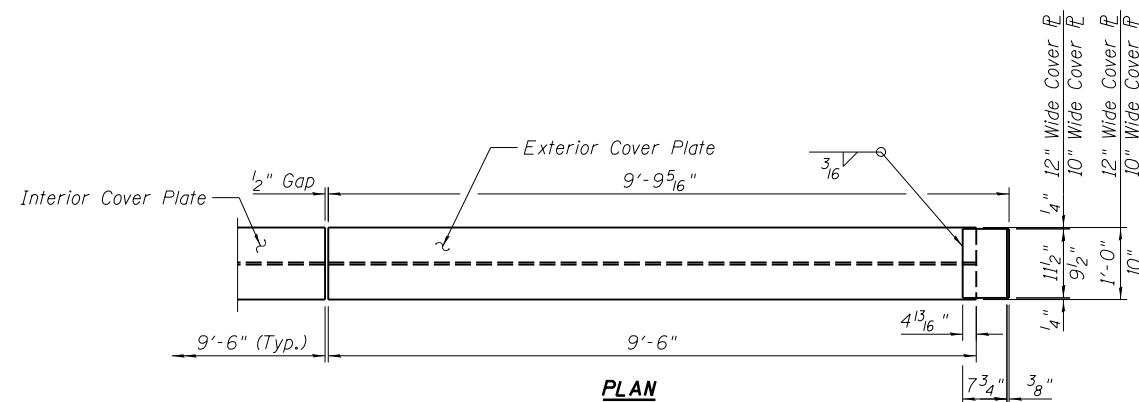
I - Non-composite moment of inertia of the steel section
S - Non-composite section modulus of the steel section
FST - Max unfactored tension stress in the section due to DL+LL+Impact
FSC - Max unfactored compression stress in the section due to DL+LL+Impact



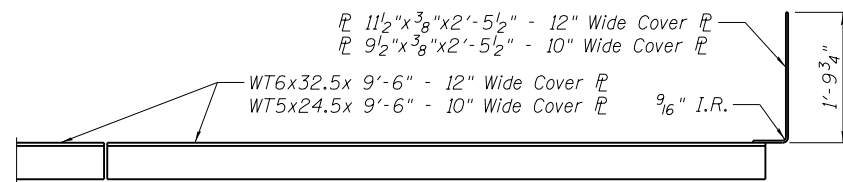
DECK SUPPORT BRACKET B



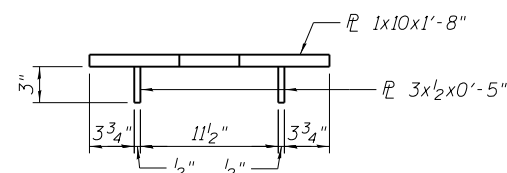
END DIAPHRAGM D



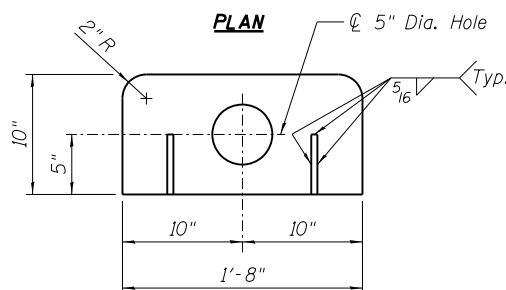
PLAN

ELEVATION

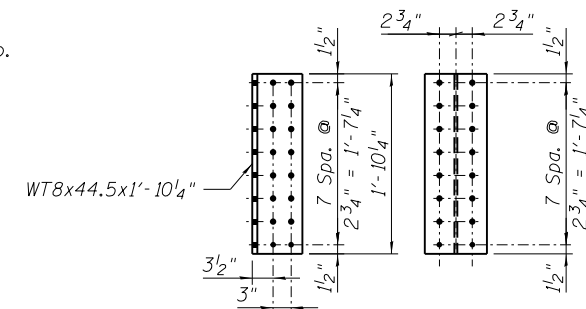
COVER PLATES



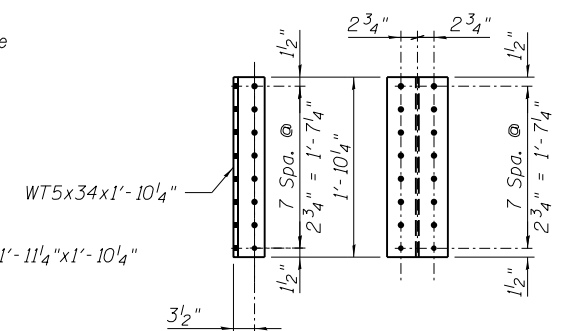
PLAN

ELEVATION

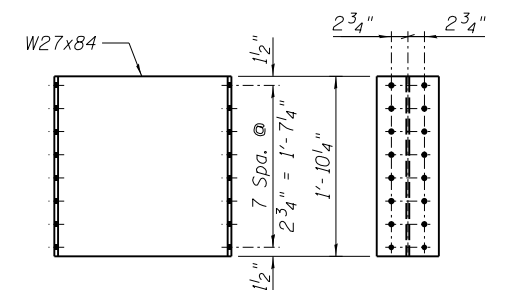
LIFTING LUG



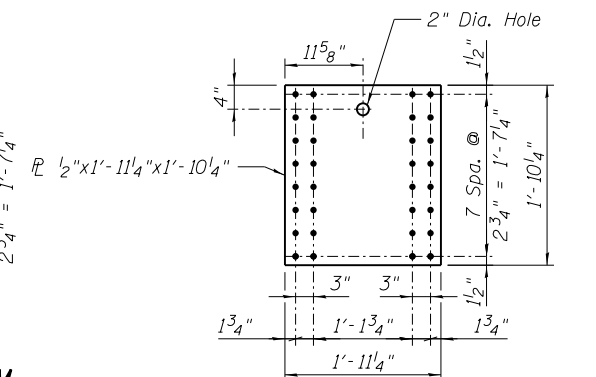
INTERMEDIATE DIAPHRAGM
CONNECTOR D3



END DIAPHRAGM CONNECTOR D2



INTERMEDIATE DIAPHRAGM DI

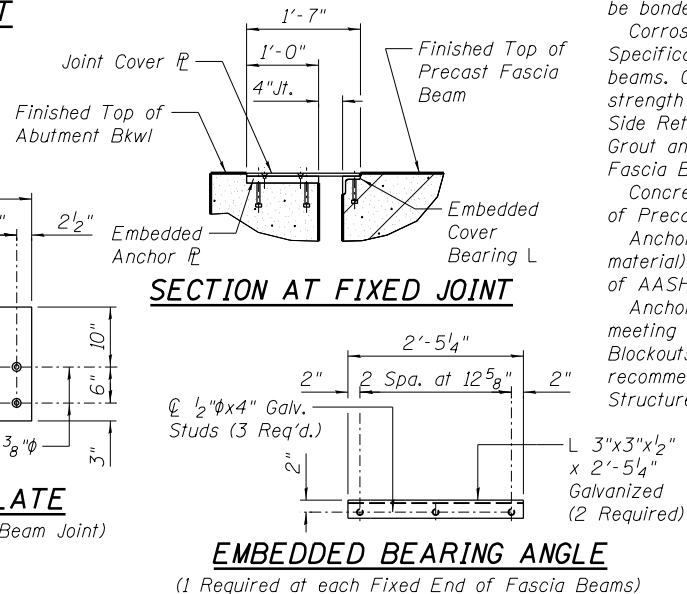
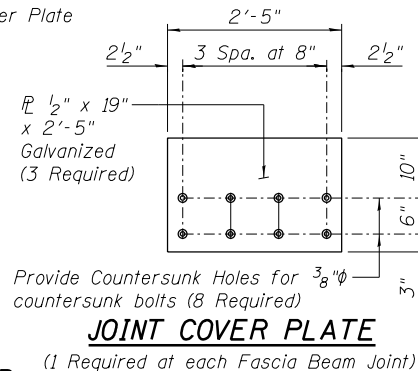
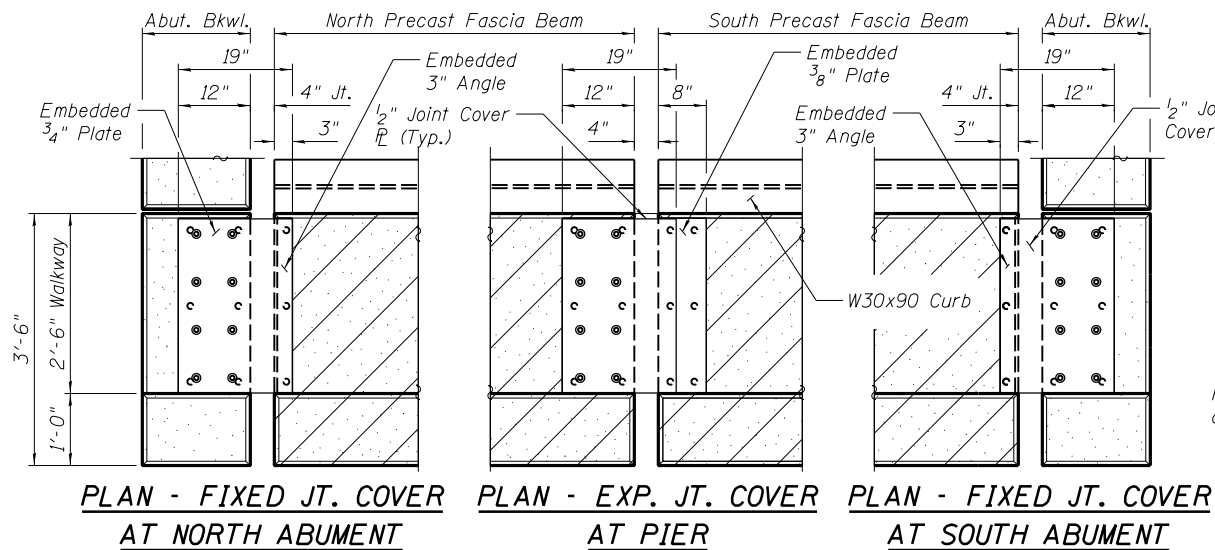
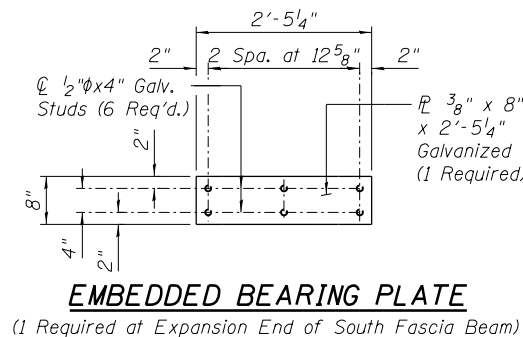
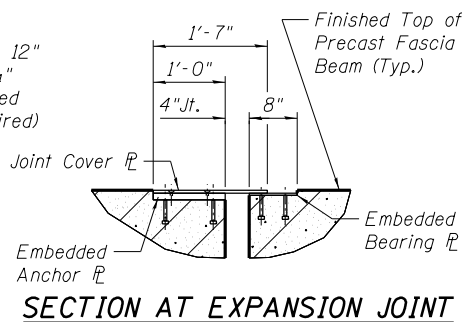
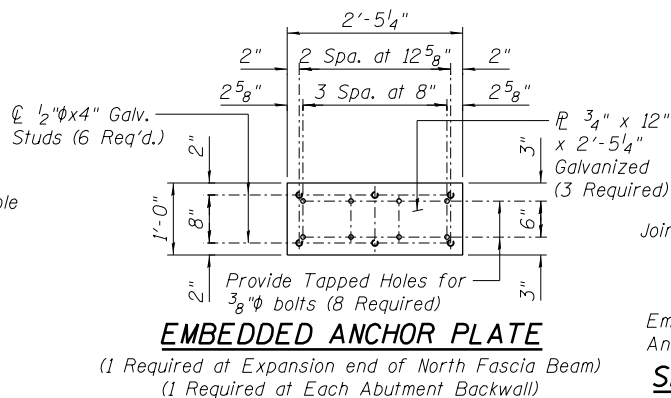
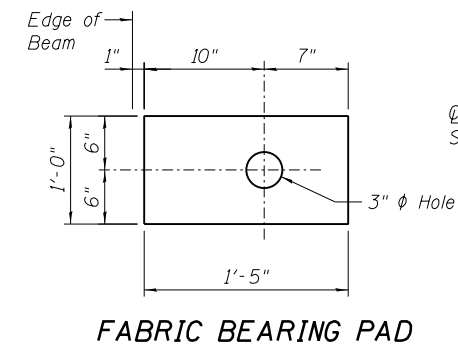
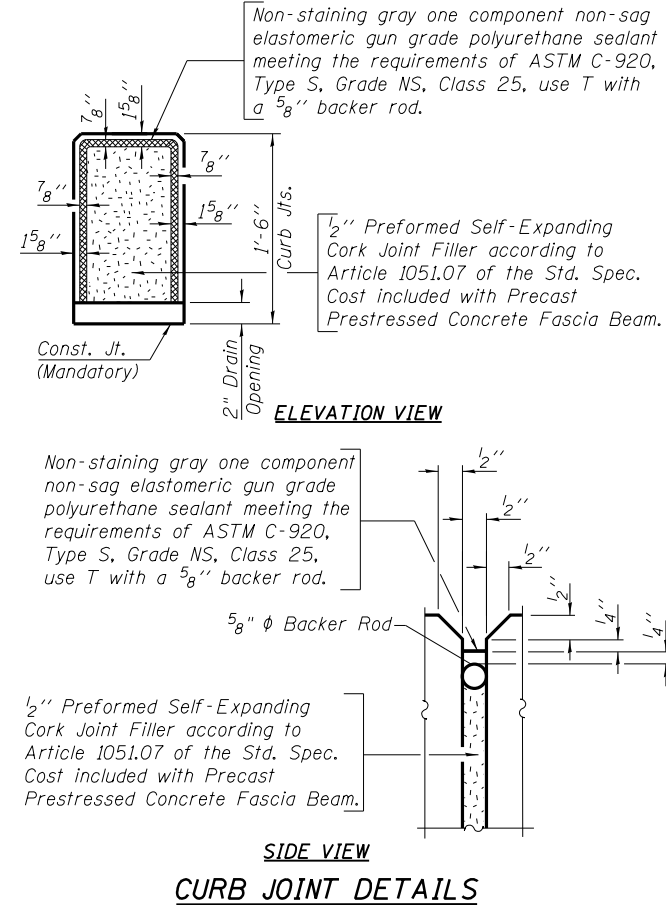
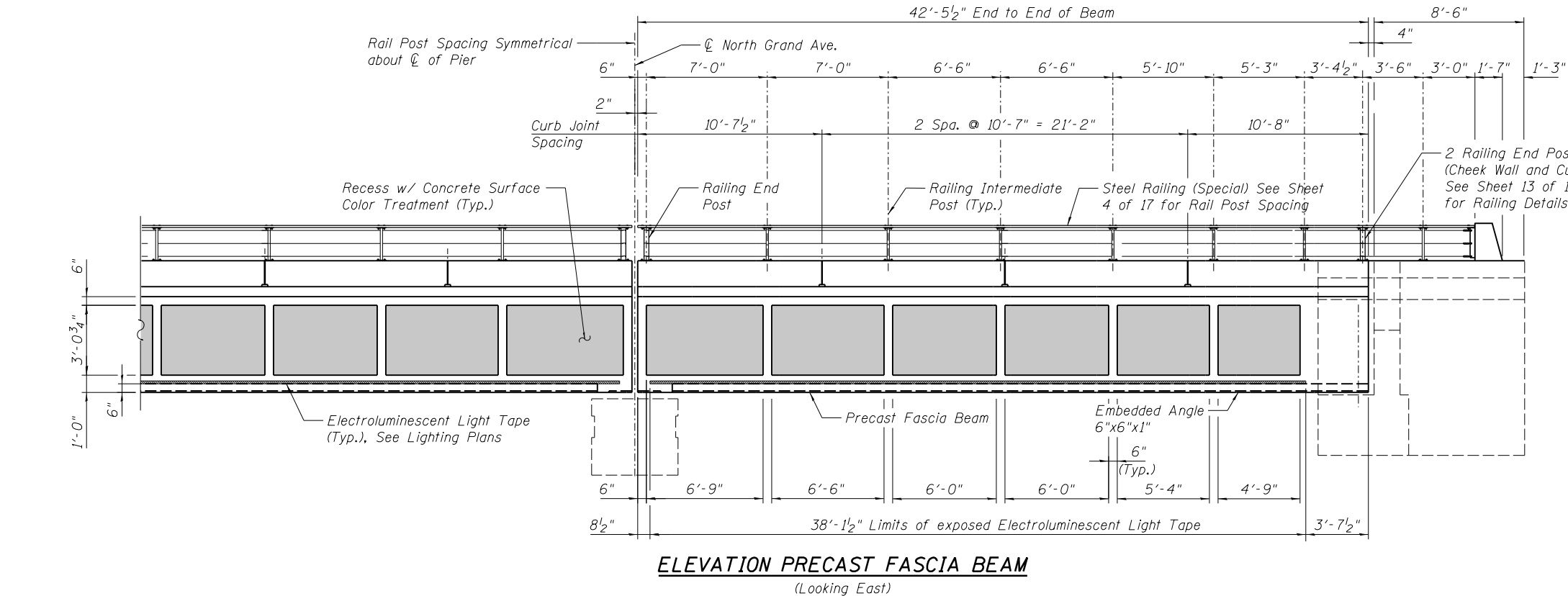


INTERMEDIATE DIAPHRAGM
PLATE D3

Notes:

All diaphragms shall be installed at the fabricators shop except as otherwise noted. Individual diaphragms at supports may be temporarily disconnected to install bearing anchor rods.

"CVN" denotes Charpy-V-N-Notch Impact Energy Requirements, Zone 2.
Bolts shall be $\frac{7}{8}$ " ϕ placed in $\frac{15}{16}$ " ϕ holes unless otherwise noted.
Steel shall conform to ASTM A709 Gr. 50, unless otherwise noted.



Note:
For Railing Details See Sheet 13 of 17.
All (embedded and separate) hardware, angles, bearing plates, side retainers, anchor bolts, threaded rods, nuts, washers and pintles shall be galvanized according to AASHTO M11 and ASTM 385 or M232 as applicable.
Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in.
Reinforcement bars shall conform to ASTM A 706, Grade 60.
Two 1/8" fabric adjusting shims of the dimensions of the bearing pad shall be provided for each bearing pad location.
All bearing pads shall be 1" thick at expansion bearings and 1" thick at fixed bearings. Omit holes when using expansion bearings.
Expansion bearing pad shall be bonded to the substructure.
Expansion bearing pad shall have PTFE bonded to top surface. PTFE surface shall be bonded according to manufacturers recommendations.
Corrosion Inhibitor, per Article 1020.05(b)(12) and 1021.07 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete fascia beams. Compressive strength of prestressed concrete, f'c, shall be 6500 psi. Compressive strength of prestressed concrete at release, f'ci, shall be 5000 psi. Embedded angles, Side Retainers, Anchor Bolts, plates, studs, bearing pads, Threaded Rods, Non-Shrink Grout and accessories shall be included in the cost of Precast Prestressed Concrete Fascia Beam.
Concrete curb shall be cast with the precast fascia beam and included in the cost of Precast Prestressed Concrete Fascia Beam.
Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
Anchor bolts and Threaded Rods shall be installed in blockouts with Non-Shrink Grout meeting the material requirements of Article 1024.02 of the Standard Specifications. Blockouts shall be clean prior to grouting and grout installed according to manufactures recommendations. Cost for non-shrink grout shall be included in the cost of Concrete Structures.

BILL OF MATERIAL

ITEM	UNIT	TOTAL
* Precast Prestressed Concrete Fascia Beam, No. 1	L. Sum	1
Concrete Surface Color Treatment	Sq. Ft.	431
Concrete Sealer	Sq. Ft.	2915

*Precast Prestressed Concrete Fascia Beam, No. 1, includes four beams

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USER NAME : pop00275
PLOT SCALE : 0/2" = 1' / in.
PLOT DATE : 9/27/2024

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CHECKED - CGP
DRAWN - RSJ
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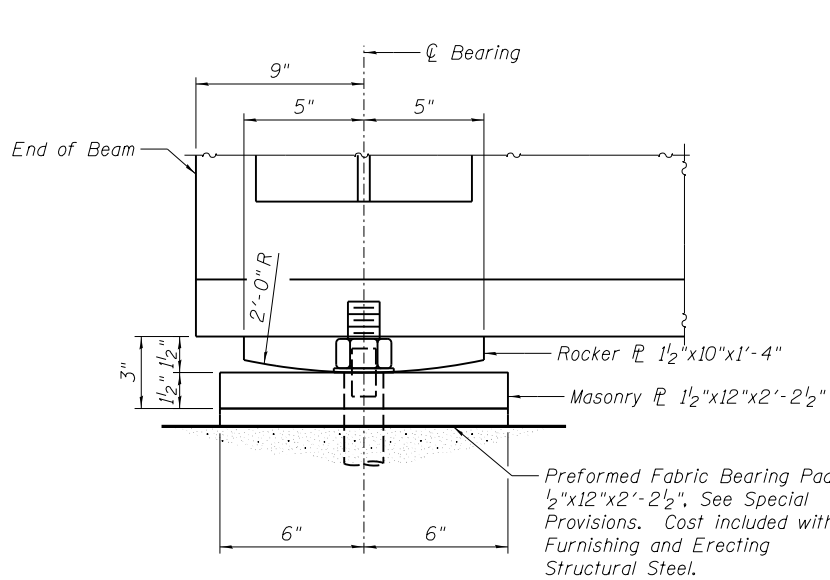
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

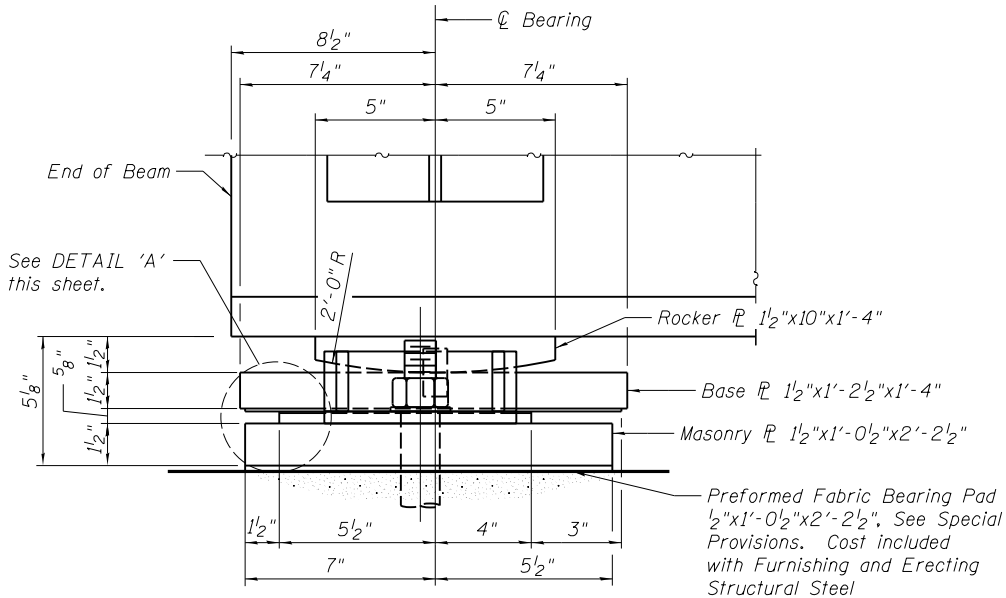
PRECAST FASCIA BEAM DETAILS
STRUCTURE NO. 084-9972

SHEET NO. 10 OF 17 SHEETS

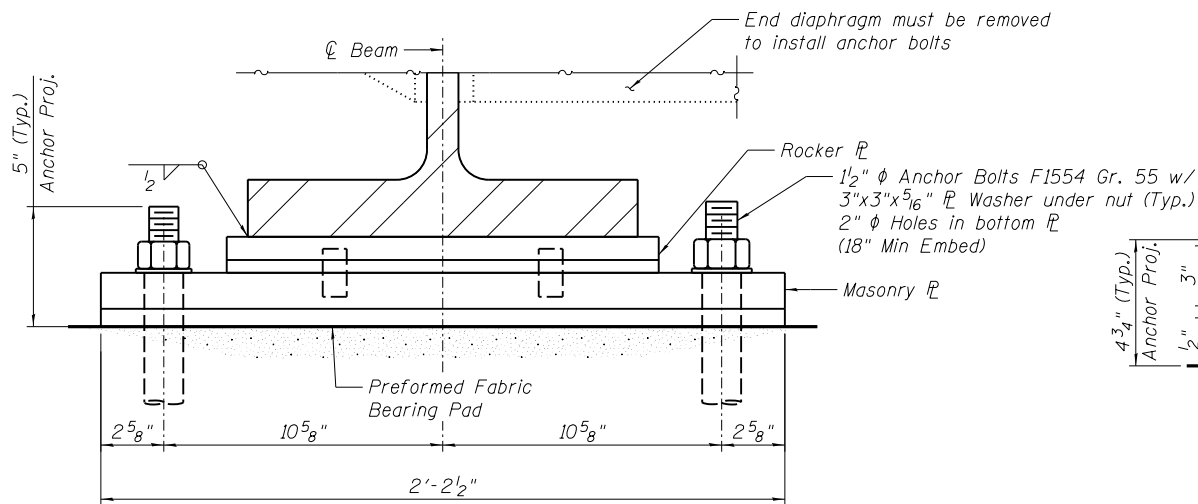
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			CONTRACT NO.	93773
ILLINOIS FED. AID PROJECT				



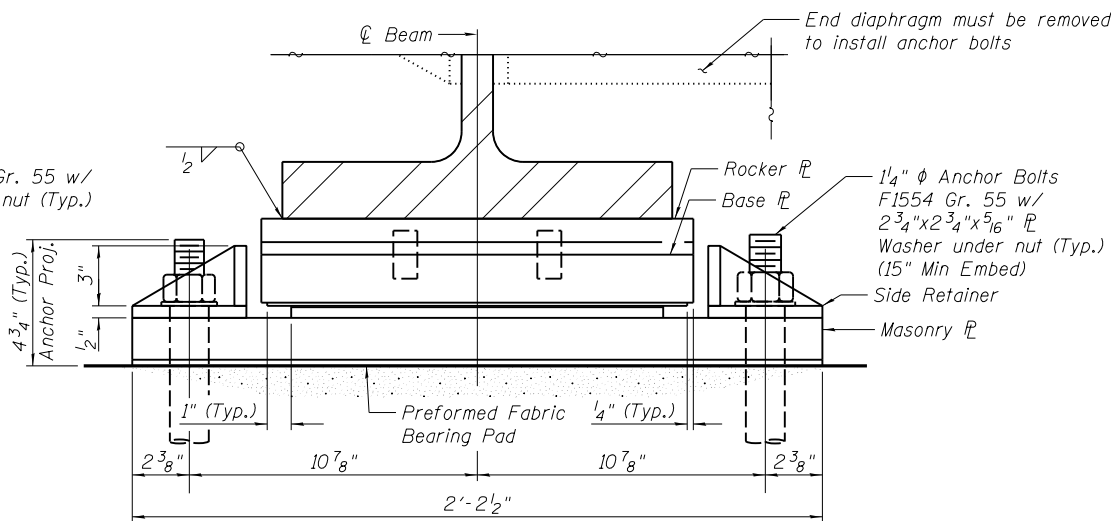
ELEVATION - FIXED BEARING



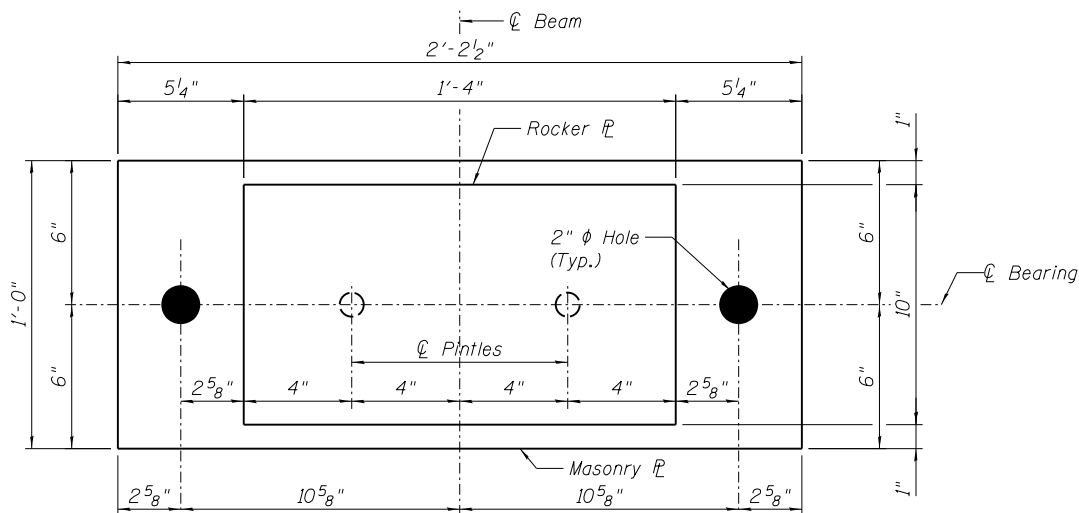
ELEVATION - EXPANSION BEARING



END VIEW - FIXED BEARING

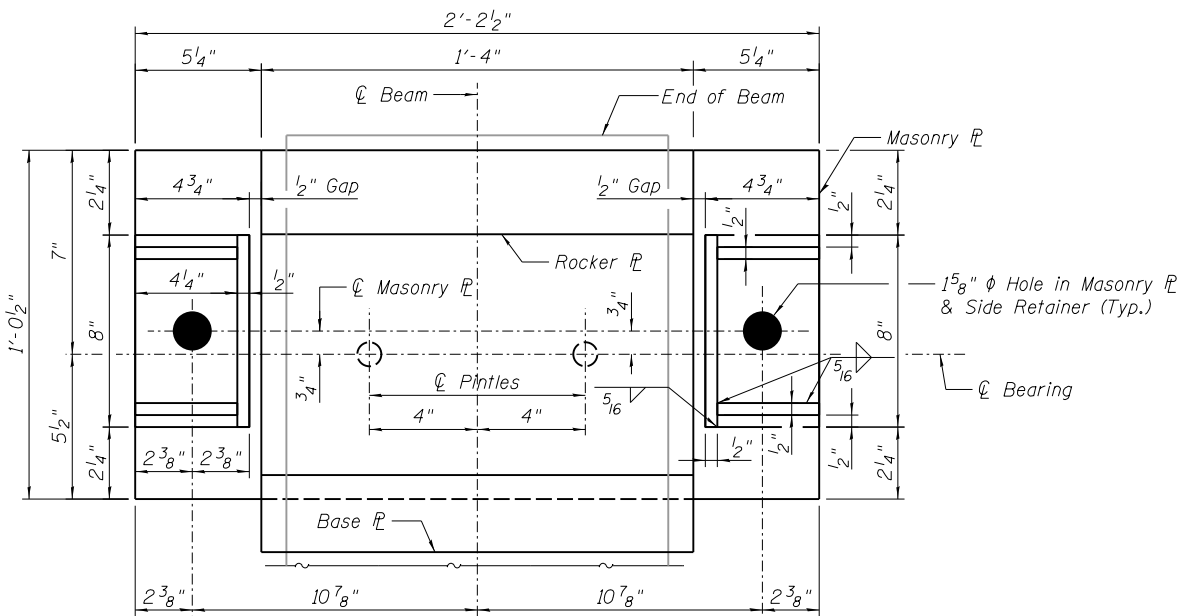


END VIEW - EXPANSION BEARING



PLAN VIEW - FIXED BEARING

(Abutment Bearings - 30 required)

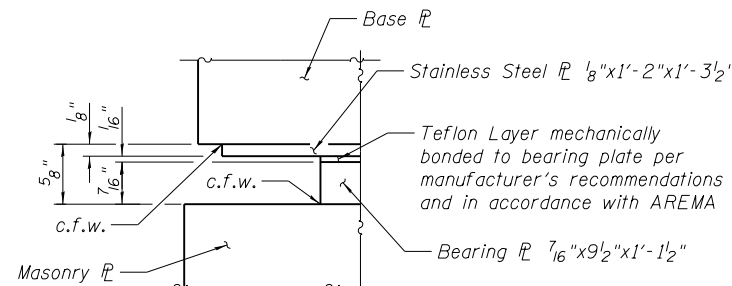


PLAN VIEW - EXPANSION BEARING

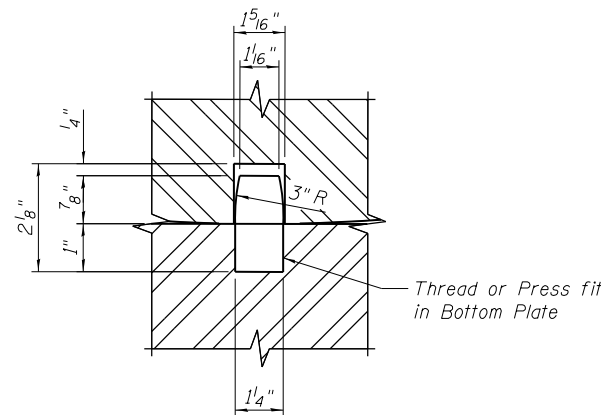
(Pier Bearings - 30 required)

Notes:

- The structural steel plates of the Bearing Assembly shall conform to the requirements of ASTM A709, Grade 50.
- Teflon Layer shall be composed of virgin unfilled TFE resin, unfilled TFE sheets, or unfilled TFE fabric. Filler material, such as milled glass fibers, will not be allowed. Teflon layer shall conform to the requirements of AREMA Chapter 15.
- The bearing assembly shall be according to Section 521 of the Standard Specifications where applicable. The bearing assembly and anchor bolts will not be paid for separately but included in the weight of Structural Steel for payment as "Furnishing and Erecting Structural Steel".
- Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
- Anchor bolts shall be installed in blockouts with Non-Shrink Grout meeting the material requirements of Article 1024.02 of the Standard Specifications. Blockouts shall be clean prior to grouting and grout installed according to manufacturers recommendations. Cost for non-shrink grout shall be included in the cost of Concrete Structures.
- Two 1/8" adjusting shims shall be provided for each bearing assembly in addition to all other plates or shims and placed as shown on bearing details.



DETAIL 'A'



PINTLE DETAIL

FINAL PLANS

pw:\\hansoninc-pw.bentley.com\\hanson-pw-01\\Documents\\09Jobs\\09L01798\\Usable Segments III - V - VINCAD\\Struct\\Usable Segment VINorth Grand\\Sheet\\084-99XX.09L01798.011.Brg Det.dgn



USER NAME : pop00275
PLOT SCALE : 0.2" = 1'-0"
PLOT DATE : 9/27/2024

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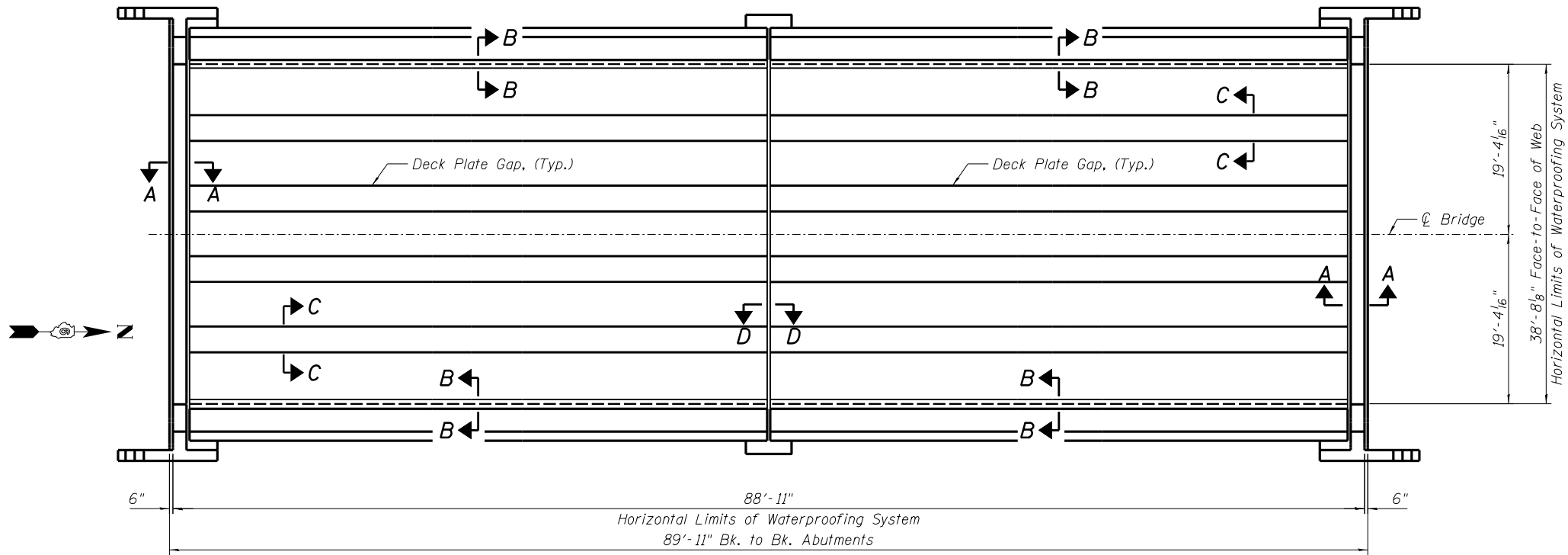
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

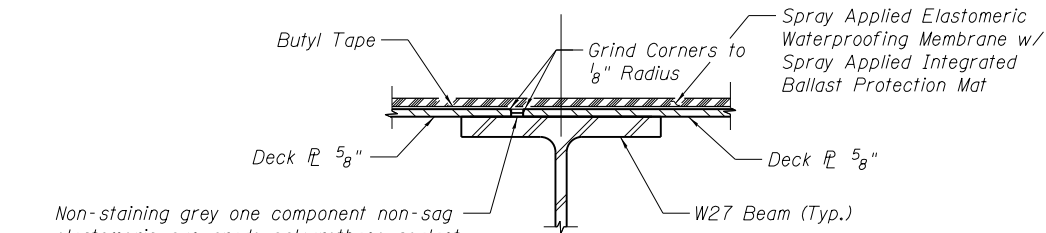
BEARING DETAILS
STRUCTURE NO. 084-9972

SHEET NO. 11 OF 17 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	408
				CONTRACT NO. 93773
ILLINOIS FED. AID PROJECT				



WATERPROOFING LIMITS PLAN

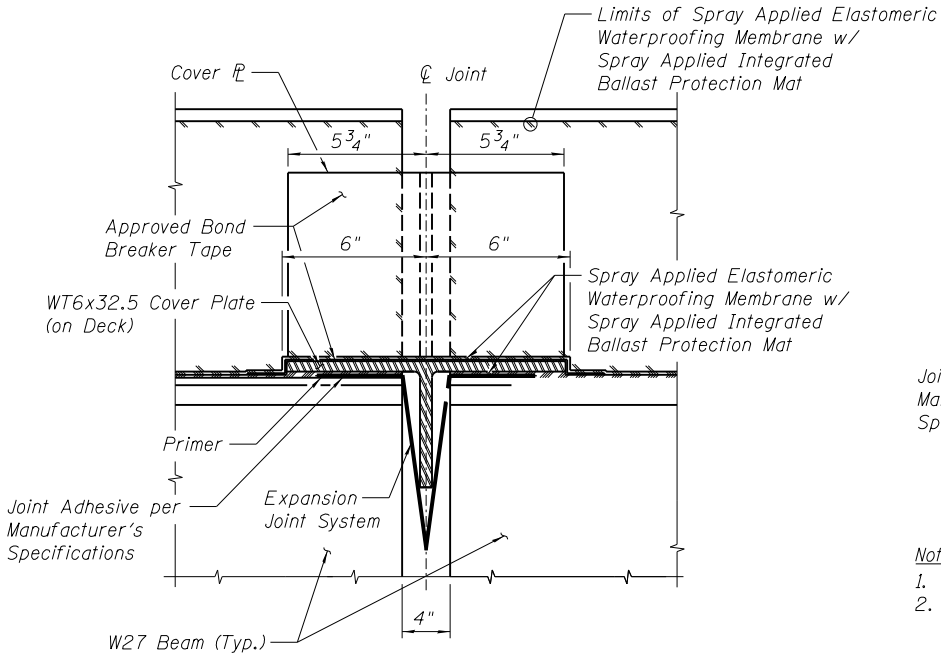


SECTION C-C

Non-staining grey one component non-sag elastomeric gun grade polyurethane sealant meeting the requirements of ASTM C-920, Type S, Grade NS, Class 25. Cost included with Membrane Waterproofing (Special)

Notes:

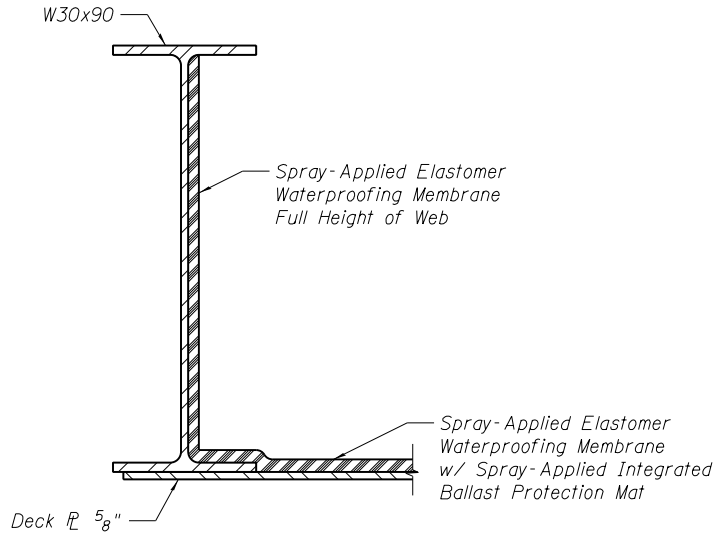
1. Prepare surfaces and apply in accordance with Manufacturer's recommendations.
2. Structural steel cover plates shall be galvanized.
3. Cost of adhesive and bond breaker tape shall be included in the cost of "Membrane Waterproofing (Special)".
4. The cover plate is included in the weight of the Structural Steel and will be paid for as "Furnishing and Erecting Structural Steel."
5. For cover plate details see Sheet 8 of 17.
6. Structural steel surfaces coated with spray-applied elastomer waterproofing membrane shall not be primed or painted.



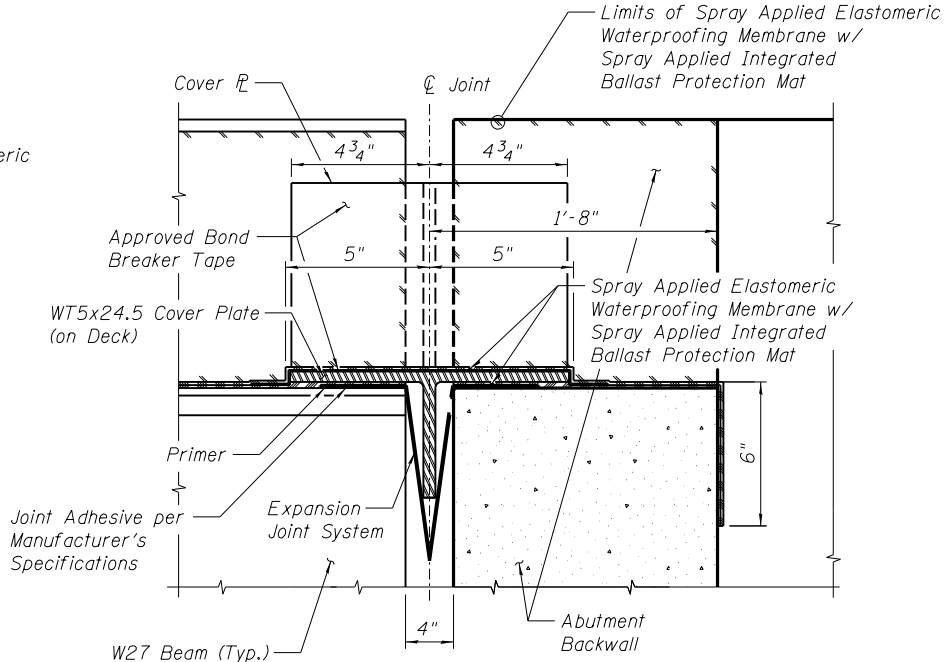
SECTION D-D

Note:

1. Bridge deck membrane continuous thru joint.
2. Typical Joint Detail shown for information only. Waterproofing installer shall determine final details in accordance with the manufacturer's recommendations.



SECTION B-B



Note:

1. Bridge deck membrane continuous thru joint.
2. Typical Joint Detail shown for information only. Waterproofing installer shall determine final details in accordance with the manufacturer's recommendations.

SECTION A-A

BILL OF MATERIAL

ITEM	UNIT	TOTAL
Membrane Waterproofing (Special)	Sq. Ft.	3439

FINAL PLANS

p:\hansoninc-pw\hansoninc-pw\Documents\09Jobs\09L0179B\Usable Segments III - V - VINCAD\Struct\Usable Segment VI\North Grand\Sheet\084-99XX.09L0179B.012.Waterproofing.dgn



USER NAME : pop00275	DESIGNED - JGT	REvised -
	CHECKED - CGP	REvised -
PLOT SCALE : 0/2 'x' / in.	DRAWN - RSJ	REvised -
PLOT DATE : 9/27/2024	CHECKED - JGT	REvised -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

MEMBRANE WATERPROOFING
STRUCTURE NO. 084-9972

SHEET NO. 12 OF 17 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	409
ILLINOIS FED. AID PROJECT				CONTRACT NO. 93773



USER NAME : pop08275
PLOT SCALE : 0/2' = 1" / in.
PLOT DATE : 9/27/2024

DESIGNED - JGT
CHECKED - CGP
DRAWN - RSJ
CHECKED - JGT

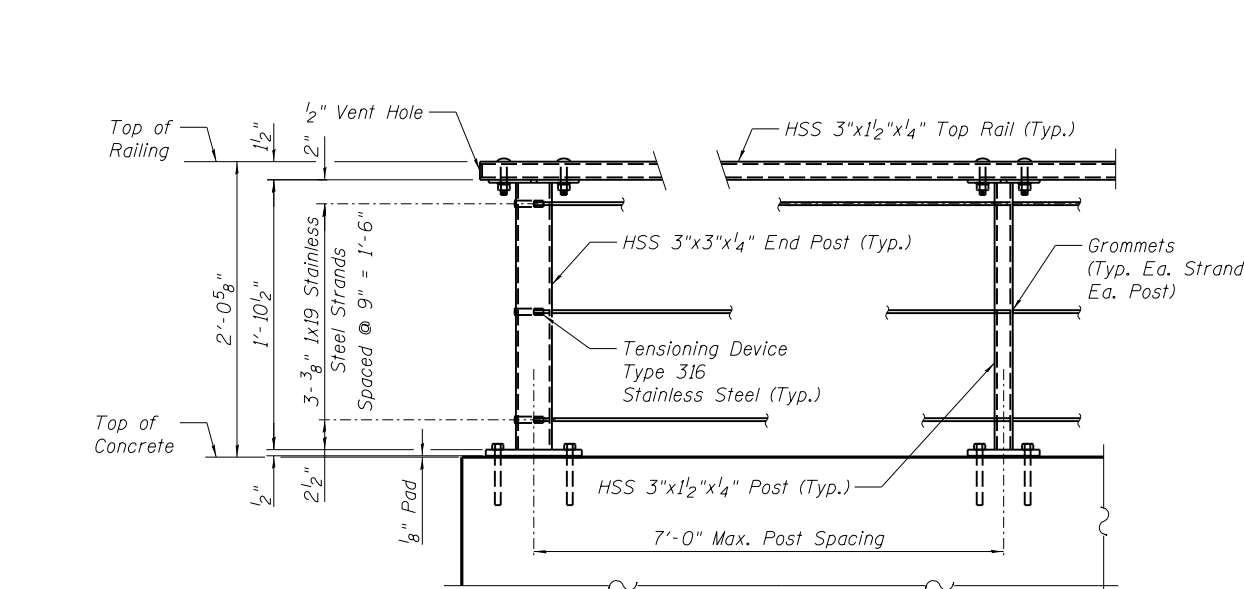
REVISED -
REVISED -
REVISED -
REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STEEL RAILING (SPECIAL)
STRUCTURE NO. 084-9972

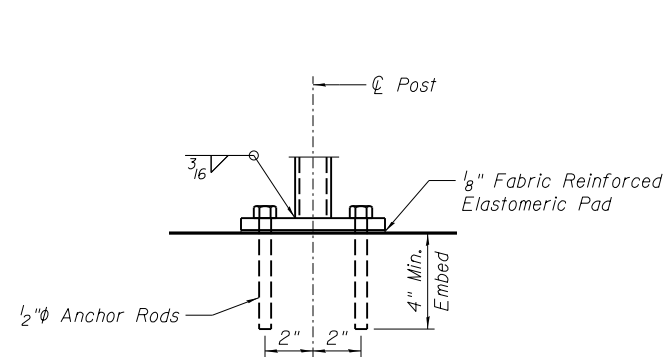
SHEET NO. 13 OF 17 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	410
CONTRACT NO. 93773				ILLINOIS FED. AID PROJECT

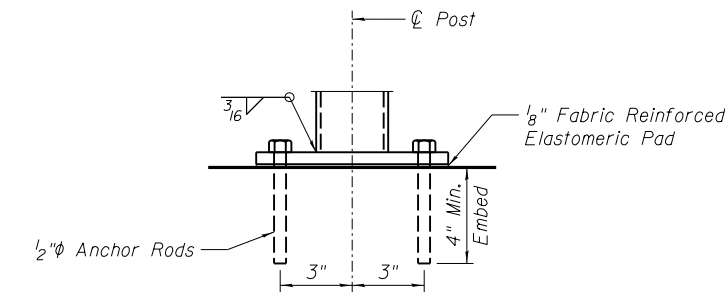


END POST

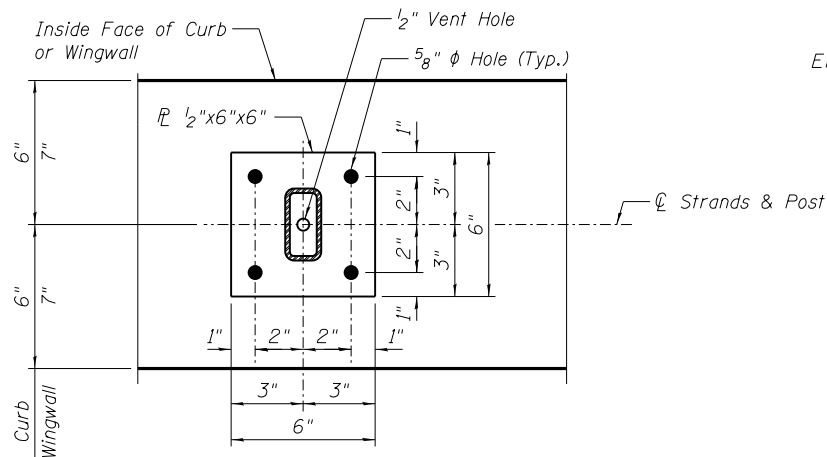
INTERMEDIATE POST



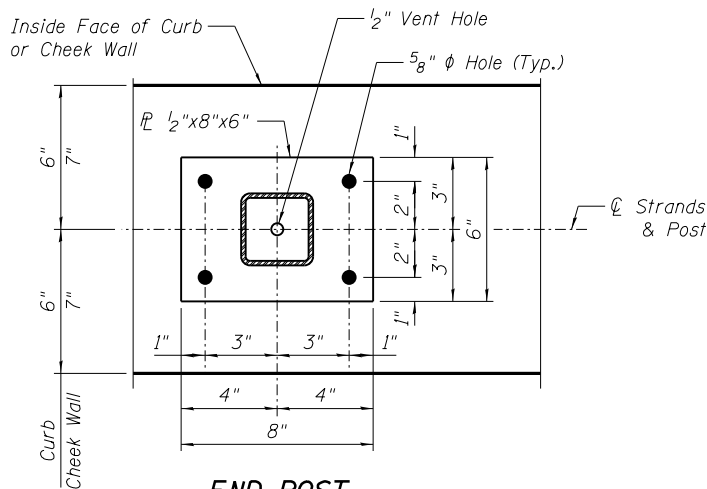
ANCHOR ROD DETAIL
INTERMEDIATE POSTS



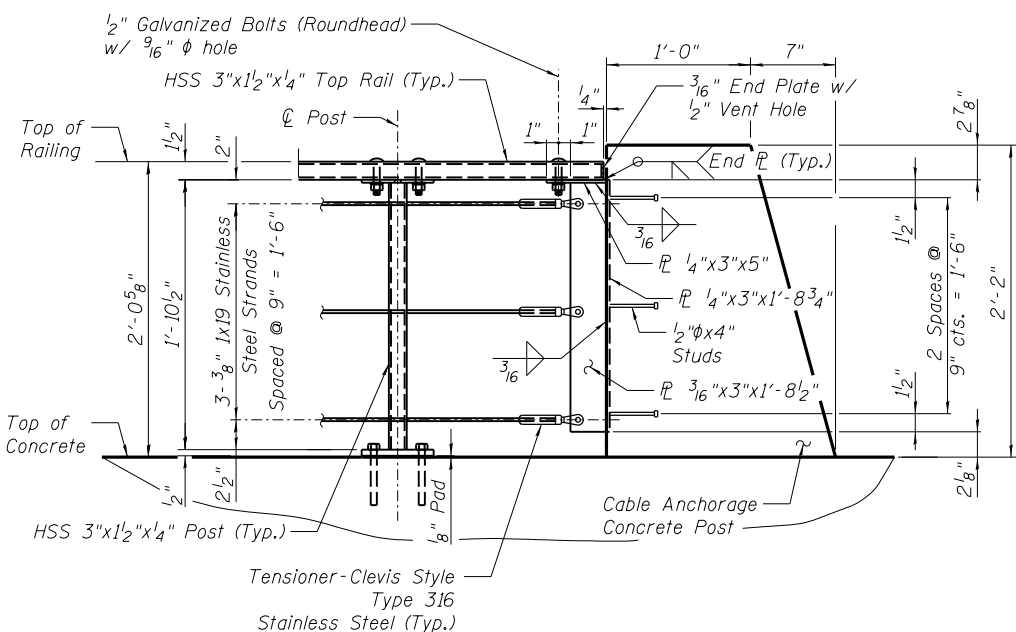
ANCHOR ROD DETAIL
END POSTS



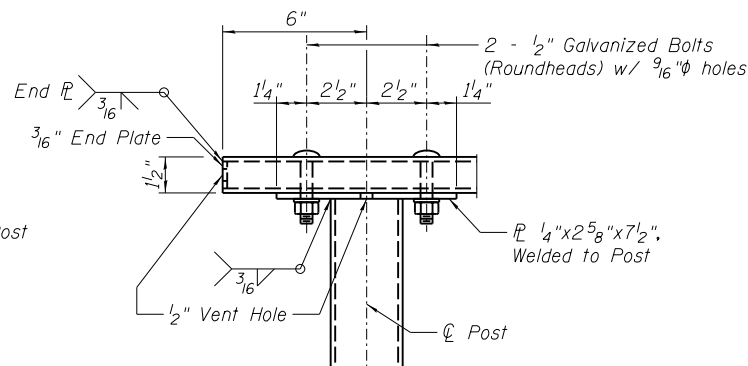
INTERMEDIATE POST



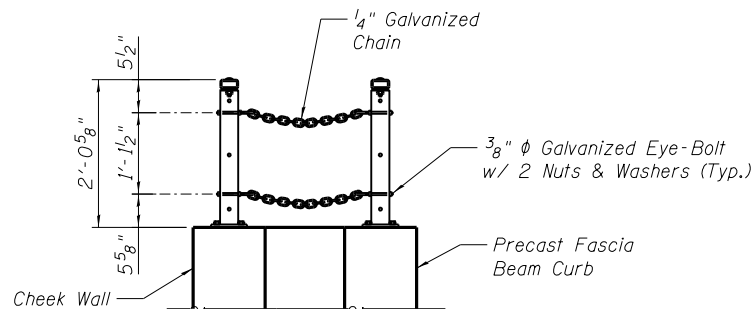
END POST



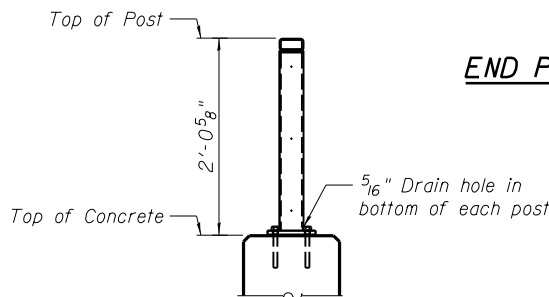
CABLE RAILING END PANEL



TYPICAL RAIL/END POST CONNECTION
(Strands not shown for clarity)



END POST AND CHAIN DETAIL



POST DETAIL

Notes:

Anchor rods shall be ASTM F1554, Gr. 55, galvanized steel all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554. The anchor rods shall be hot-dipped galvanized according to ASTM M232, Class C.

Tube segments shall have all corners ground to remove burrs or sharp projections.

All bolts, eyebolts, nuts and washers must satisfy the requirements of ASTM A307 Gr. A unless noted otherwise.

The Anchor rods shall be installed according to Article 509.06 of the Standard Specifications. Embedment shall be 4" min. or according to the manufactures specifications whatever is greater.

Structural steel plates and bars of the Steel Railing shall conform to the requirements of ASTM A36/36M.

Tubular steel posts shall be according to the requirements of ASTM A500, Grade B.

All steel rail members, with the exception of the stainless steel strand and fittings, shall be hot dipped galvanized according to 509.05 of the Standard Specifications.

All studs shall be 1/2"x4" granular or solid flux filled headed studs automatically end welded to plates.

See Sheet 4 of 17 for rail post spacing.

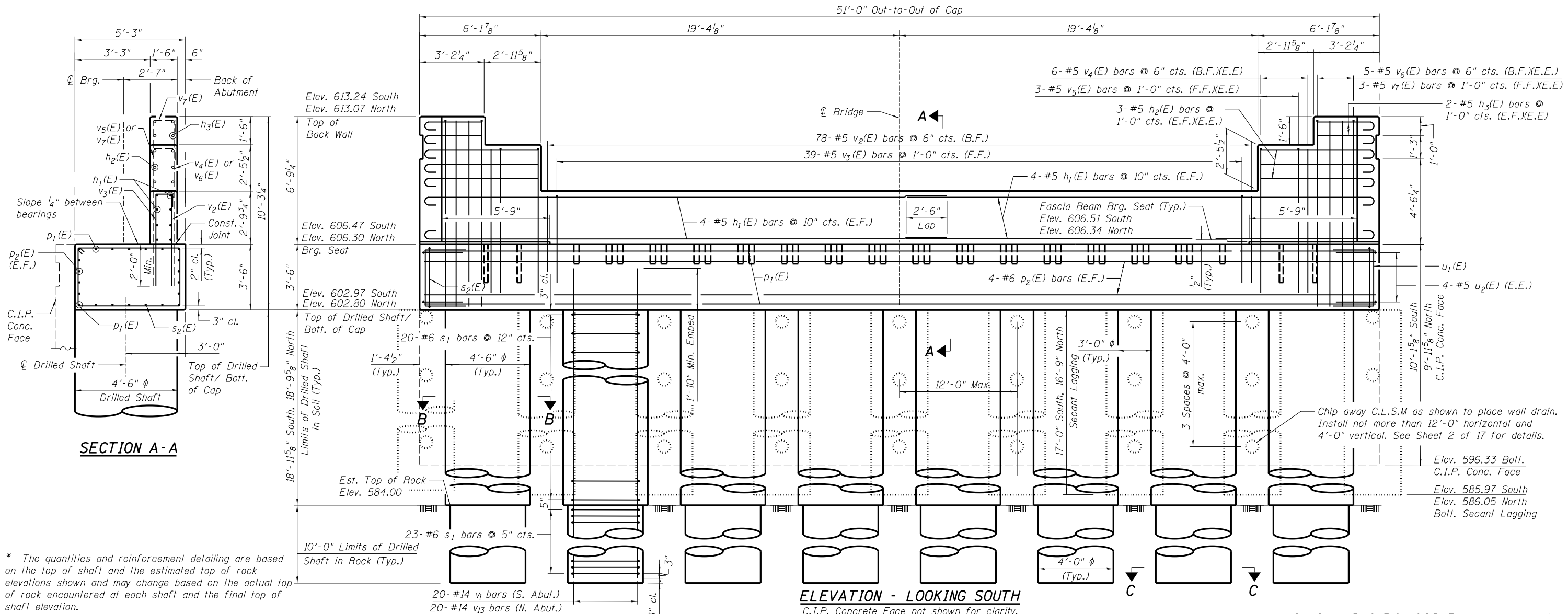
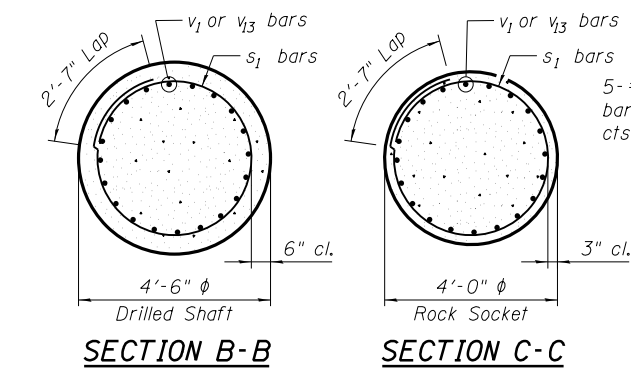
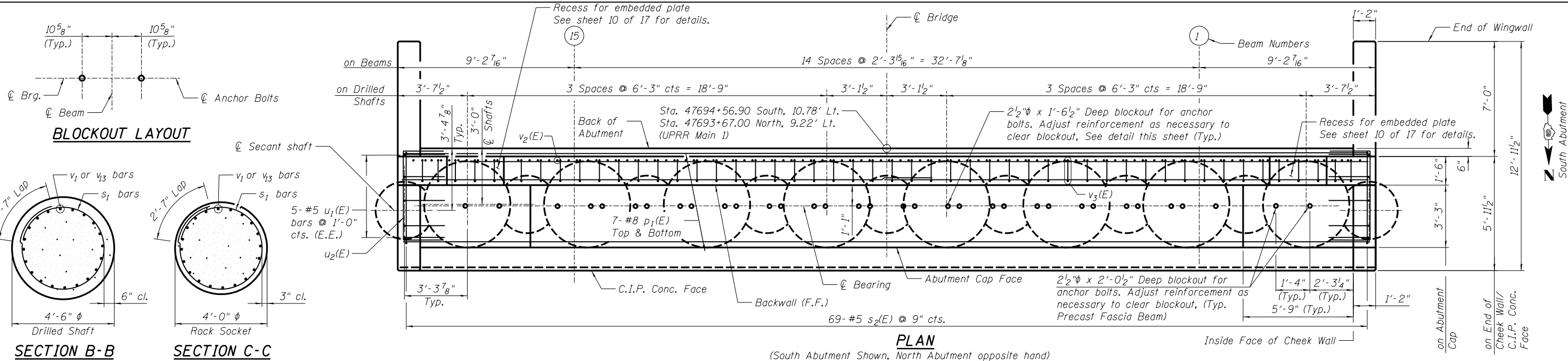
BILL OF MATERIAL

(Includes Railing along West & East side)

ITEM	UNIT	TOTAL
Steel Railing (Special)	Foot	194

Note:

Chain, eye-bolts, nuts and washers will not be paid for separately but included in the cost of Steel Railing (Special).



* The quantities and reinforcement detailing are based on the top of shaft and the estimated top of rock elevations shown and may change based on the actual top of rock encountered at each shaft and the final top of shaft elevation.

Notes: See Sheet 15 of 17 for C.I.P. Face and other details.

FINAL PLANS

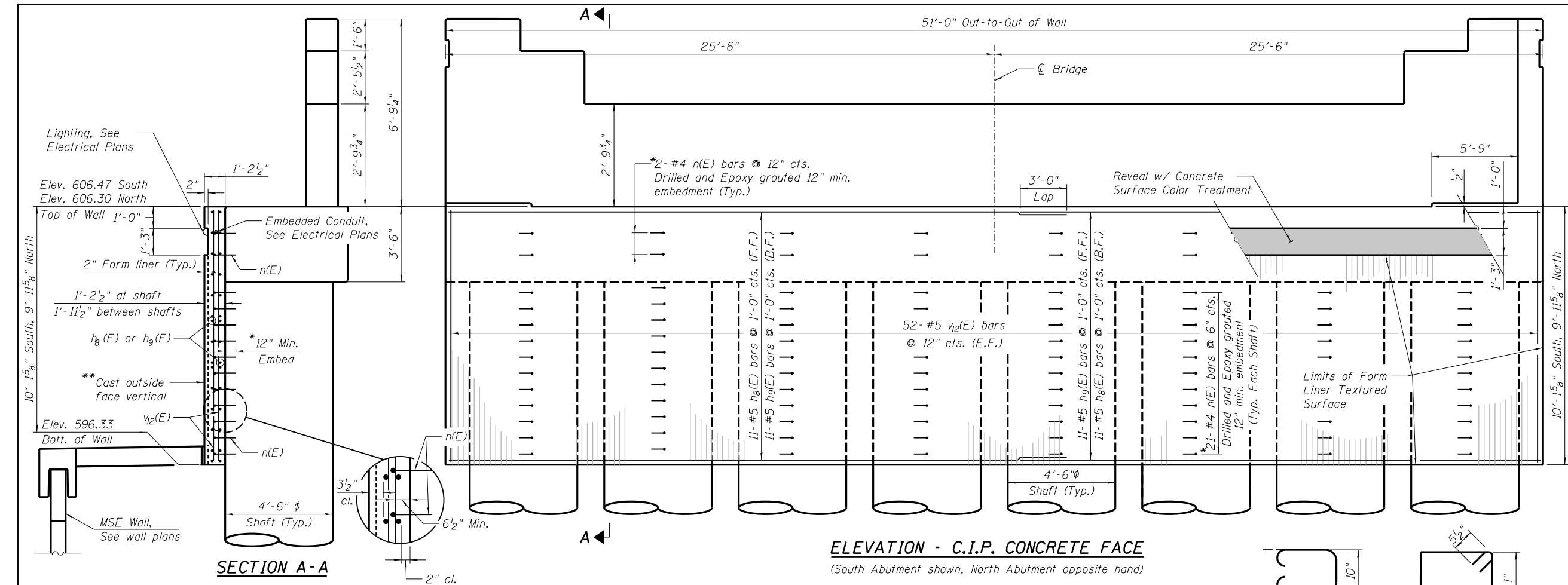
pw\hansoninc-pw\hanson.com\hanson-pw\01\Documents\09Jobs\09101798\Usable Segments III - V - VINCAD\Struct\Usable Segment VINorth Grand\Sheet\084-99XX.09101798.014_Abutment.dgn	USER NAME = pop00275	DESIGNED = JGT	REVISED =
	PLOT SCALE = 0.1999996 ' / in.	CHECKED = CGP	REVISED =
	PLOT DATE = 9/27/2024	DRAWN = RSJ	REVISED =
		CHECKED = JGT	REVISED =

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ABUTMENT
STRUCTURE NO. 084-9972

SHEET NO. 14 OF 17 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	411
CONTRACT NO. 93773				
ILLINOIS FED. AID PROJECT				

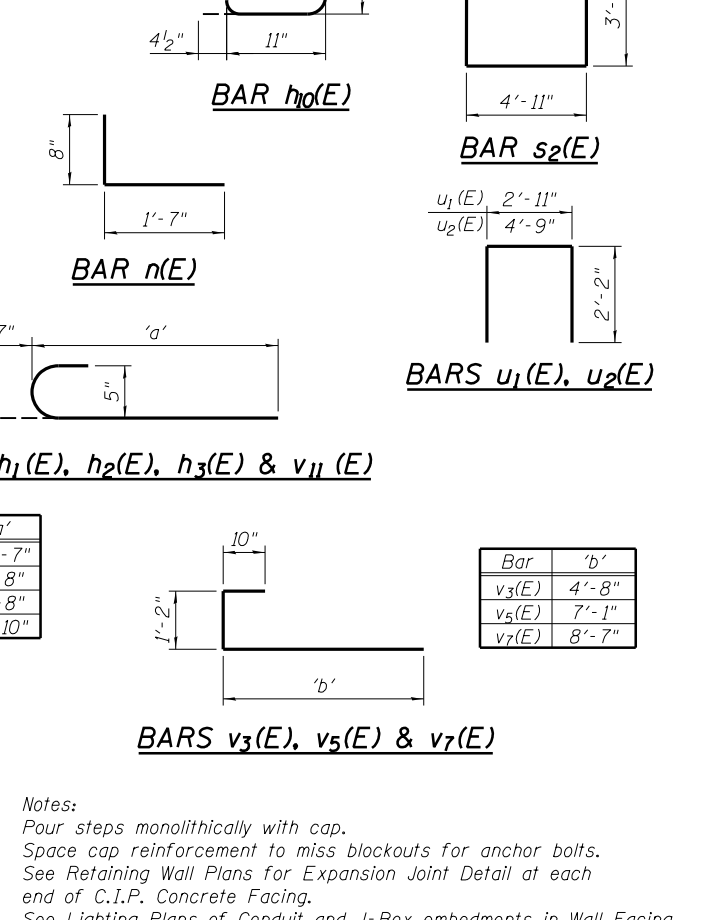
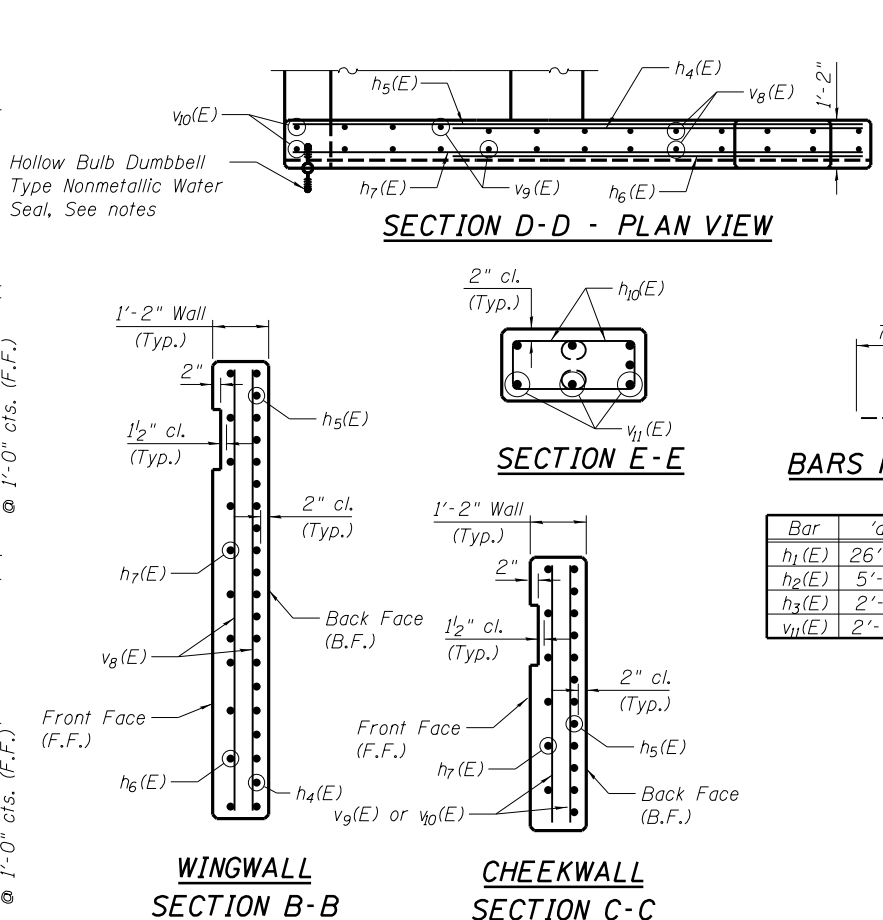
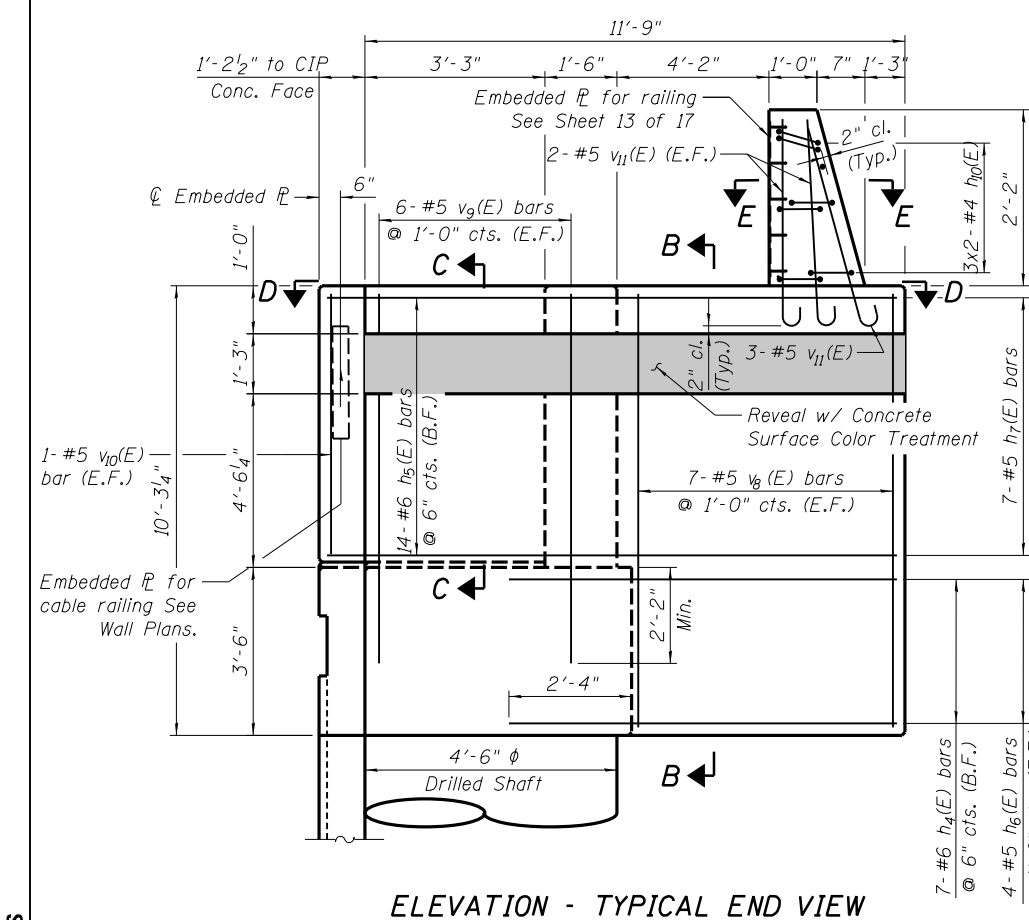


* Bars epoxy grouted shall have an embedment sufficient to develop 1.25 times the full capacity of the reinforcement bar.

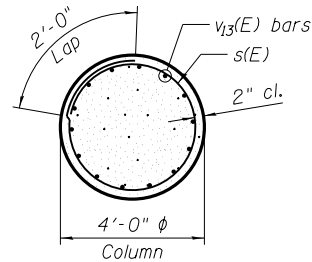
** Concrete wall face shall be cast vertically. Thickness of wall may vary due to abutment deflection. The Min. wall thickness shall be 11 1/2\"/>

**BILL OF MATERIAL
NORTH & SOUTH ABUTMENTS**

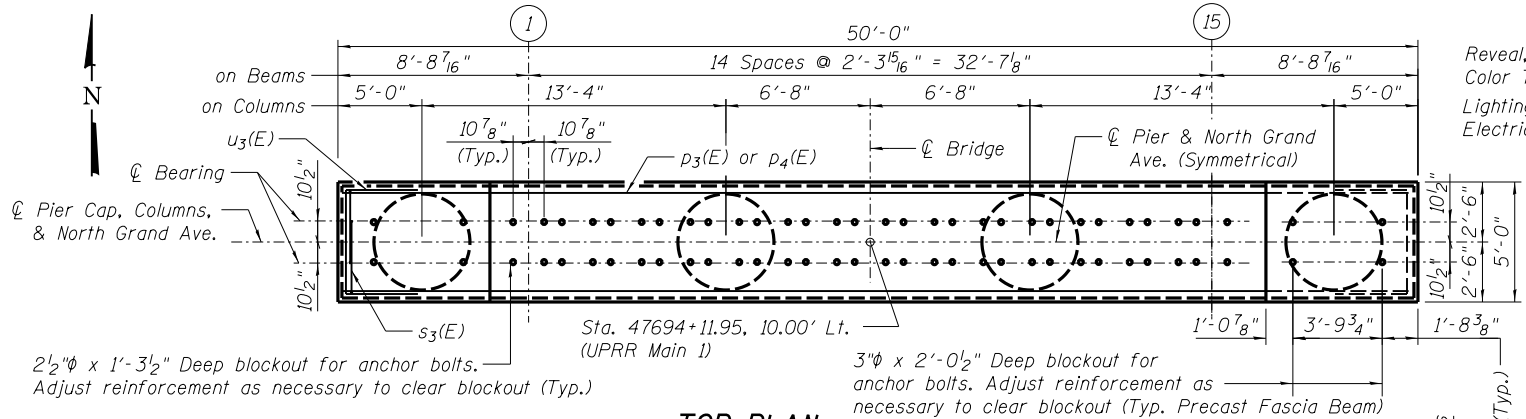
Bar	No.	Size	Length	Shape
$h_1(E)$	32	#5	27'-2"	┐
$h_2(E)$	24	#5	6'-3"	┐
$h_3(E)$	16	#5	3'-3"	┐
$h_4(E)$	28	#6	8'-10"	—
$h_5(E)$	56	#6	12'-7"	—
$h_6(E)$	16	#5	8'-10"	—
$h_7(E)$	28	#5	12'-7"	—
$h_8(E)$	44	#5	23'-6"	—
$h_9(E)$	44	#5	30'-2"	—
$h_{10}(E)$	24	#4	3'-5"	┐
$n(E)$	368	#4	2'-3"	┐
$p_1(E)$	28	#8	50'-8"	—
$p_2(E)$	16	#6	50'-8"	—
s_1	688	#6	13'-7"	○
$s_2(E)$	138	#5	16'-11"	┐
$u_1(E)$	20	#5	7'-3"	┐
$u_2(E)$	16	#5	9'-1"	┐
v_1	160	#14	30'-7"	—
$v_2(E)$	156	#5	4'-8"	—
$v_3(E)$	78	#5	6'-8"	┐
$v_4(E)$	24	#5	7'-1"	—
$v_5(E)$	12	#5	9'-1"	┐
$v_6(E)$	20	#5	8'-7"	—
$v_7(E)$	12	#5	10'-7"	┐
$v_8(E)$	56	#5	9'-11"	—
$v_9(E)$	48	#5	9'-0"	—
$v_{10}(E)$	8	#5	6'-5"	—
$v_{11}(E)$	28	#5	3'-5"	┐
$v_{12}(E)$	208	#5	9'-8"	—
$v_{13}(E)$	160	#14	30'-5"	—
Structure Excavation	Cu. Yds.	129		
Concrete Structures	Cu. Yds.	151.8		
Form Liner	Sq. Ft.	830		
Textured Surface				
Reinforcement Bars	Pound	51470		
Reinforcement Bars, Epoxy Coated	Pound	56290		
Drilled Shaft in Soil	Cu. Yds.	178.0		
Drilled Shaft in Rock	Cu. Yds.	74.4		
Secant Lagging	Cu. Ft.	2147		
Concrete Sealer	Sq. Ft.	1863		
Concrete Surface Color Treatment	Sq. Ft.	187		
Crosshole Sonic Logging Access Ducts	Foot	502		



Notes:
Pour steps monolithically with cap.
Space cap reinforcement to miss blockouts for anchor bolts.
See Retaining Wall Plans for Expansion Joint Detail at each end of C.I.P. Concrete Facing.
See Lighting Plans of Conduit and J-Box embedments in Wall Facing.

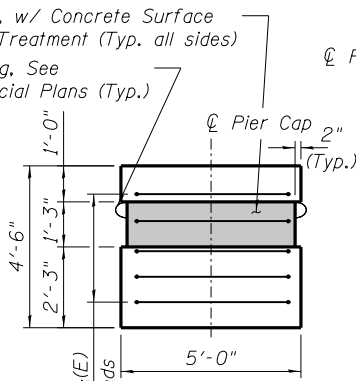


SECTION C-C

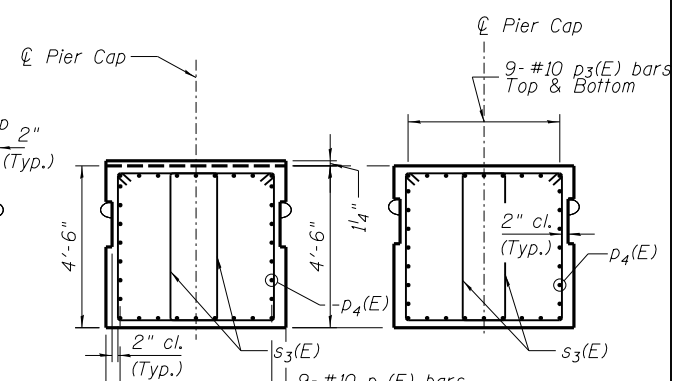


TOP PLAN

Reveal, w/ Concrete Surface
Color Treatment (Typ. all sides)
Lighting, See
Electrical Plans (Typ.)

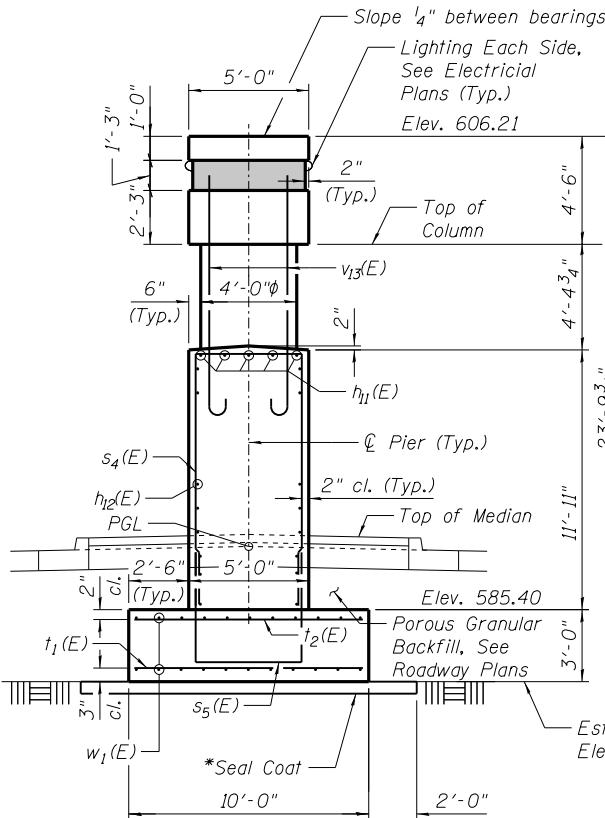


WEST CAP
END VIEW



SECTION A-A

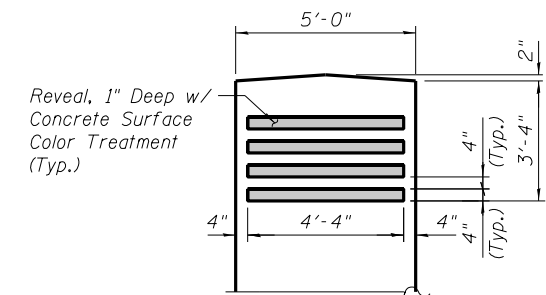
SECTION B-B



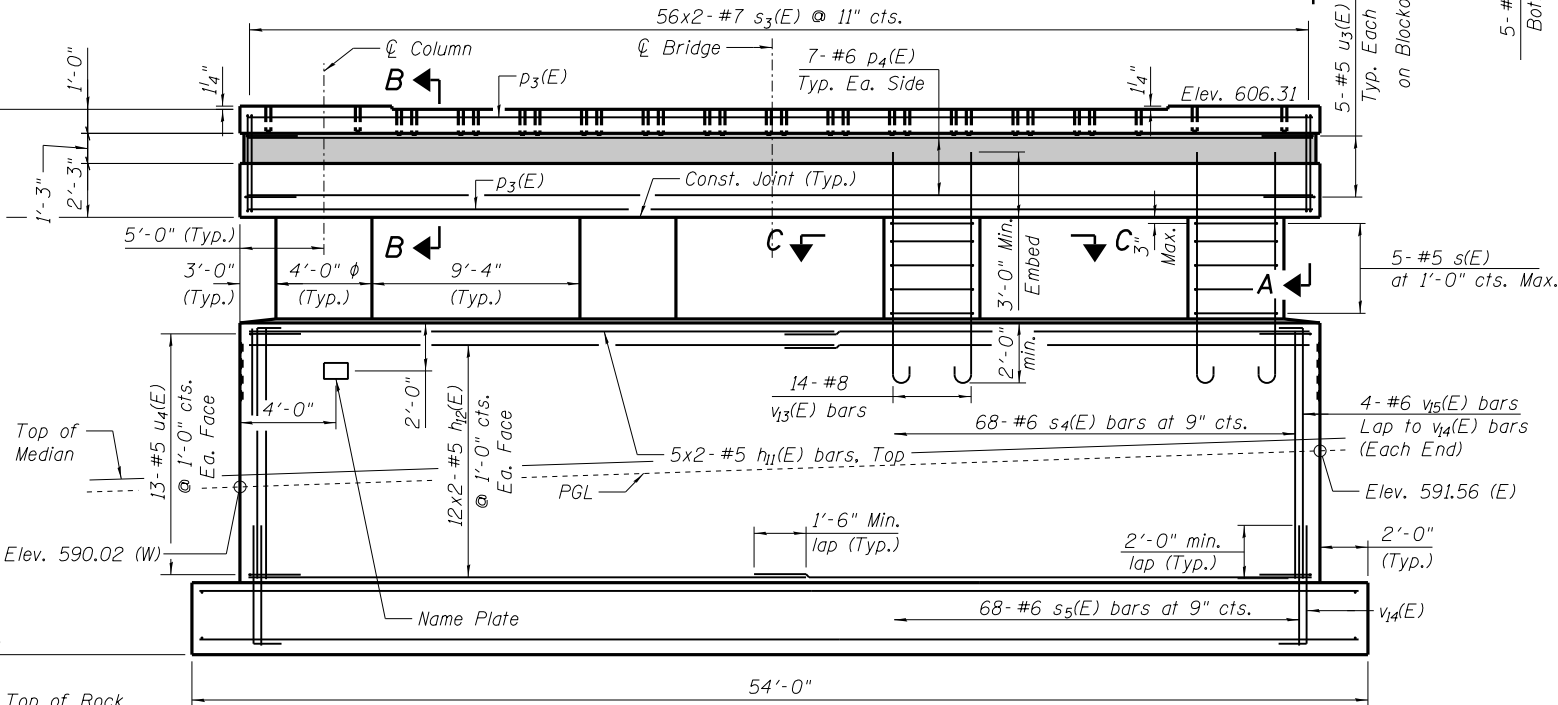
END VIEW

*The Footing Excavation shall be undercut by 6" and immediately filled with Seal Coat Concrete to prevent degradation of the exposed bedrock surface. Do not allow water to collect in excavation.

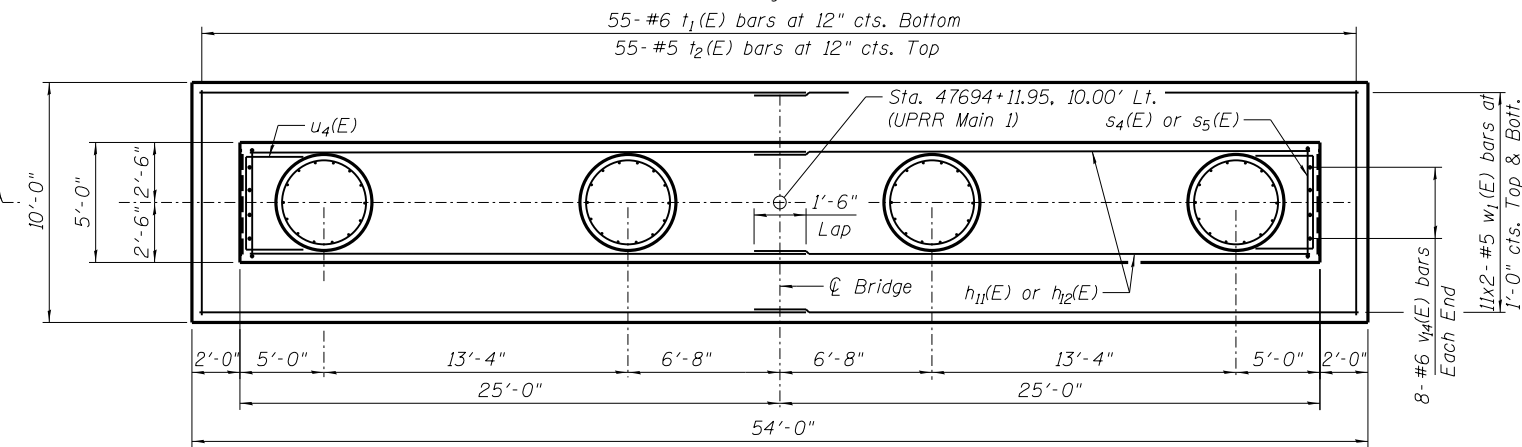
⊙ Pier & North Grand Ave.



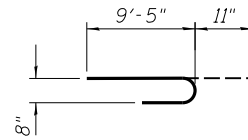
CRASH WALL REVEAL
TYP. BOTH ENDS



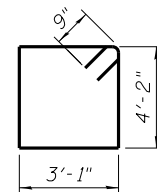
ELEVATION
(Looking North)



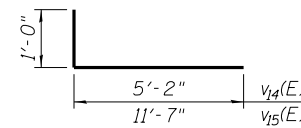
FOOTING PLAN



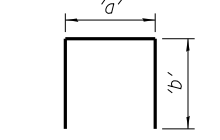
BAR v3(E)



BAR s3(E)



BARS v4(E) & v5(E)



Bar	'a'	'b'
s4(E)	4'-8"	11'-7"
s5(E)	4'-8"	5'-2"
u3(E)	4'-2"	2'-2"
u4(E)	4'-6"	1'-8"

BARS s4(E), s5(E),
u3(E), & u4(E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h11(E)	10	#5	25'-7"	—
h12(E)	48	#5	25'-7"	—
p3(E)	18	#10	49'-8"	—
p4(E)	14	#6	49'-4"	—
s(E)	20	#5	13'-7"	○
s3(E)	112	#7	16'-0"	□
s4(E)	68	#6	27'-10"	└
s5(E)	68	#6	15'-0"	└
t1(E)	55	#6	9'-8"	—
t2(E)	55	#5	9'-8"	—
u3(E)	10	#5	8'-6"	└
u4(E)	26	#5	7'-10"	└
v13(E)	56	#8	10'-4"	└
v14(E)	8	#6	6'-2"	└
v15(E)	8	#6	12'-7"	└
w1(E)	44	#5	28'-5"	—
Structure Excavation				
Cu. Yds.			192	
Rock Excavation for Structures				
Cu. Yds.			22	
Concrete Structures				
Cu. Yds.			220.2	
Seal Coat Concrete				
Cu. Yds.			15.0	
Reinforcement Bars, Epoxy Coated				
Pound			19480	
Concrete Sealer				
Sq. Ft.			1938	
Concrete Surface Color Treatment				
Sq. Ft.			148	

Notes:
Space reinforcement in cap to miss blockouts for anchor bolts.
Pour steps monolithically with cap.
Bars indicated thus 7x2-#5 etc indicates 7 lines of bars with 2 lengths per line.
See Electrical Plans for Conduit embedded in cap and column.

pw:\hanson\nc-pw\hanson\com\hanson\pw-01\Documents\09Jobs\09L01798\Usable Segments III - V - VINCAD\Struct\Usable Segment VI\North Grand\Sheet\084-99XX.09L01798.016.Pier.dgn



USER NAME : pop08275
PLOT SCALE : 0.2' / in.
PLOT DATE : 9/27/2024

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CHECKED - CGP
DRAWN - RSJ
CHECKED - JGT

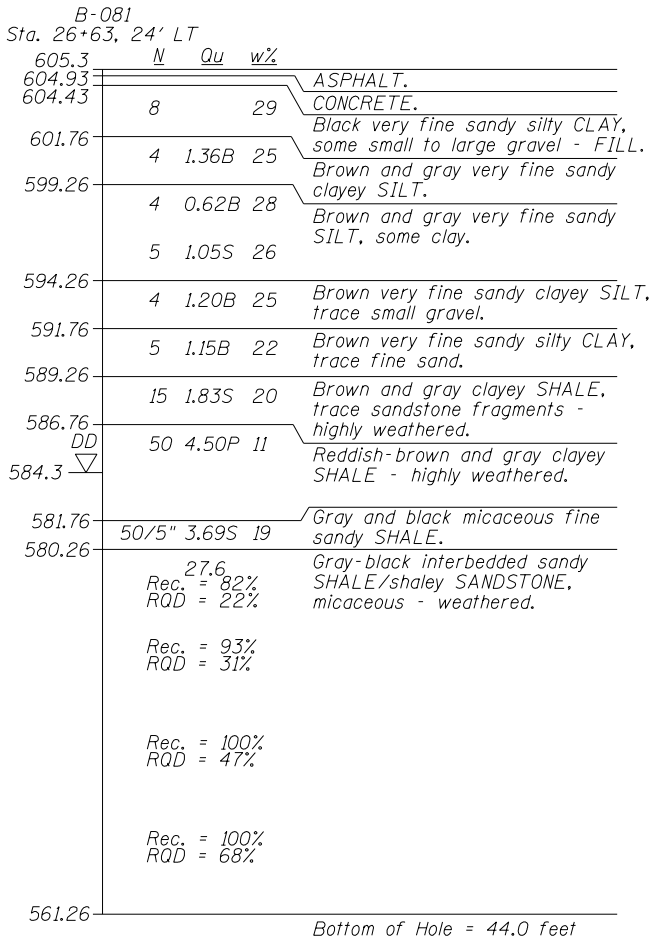
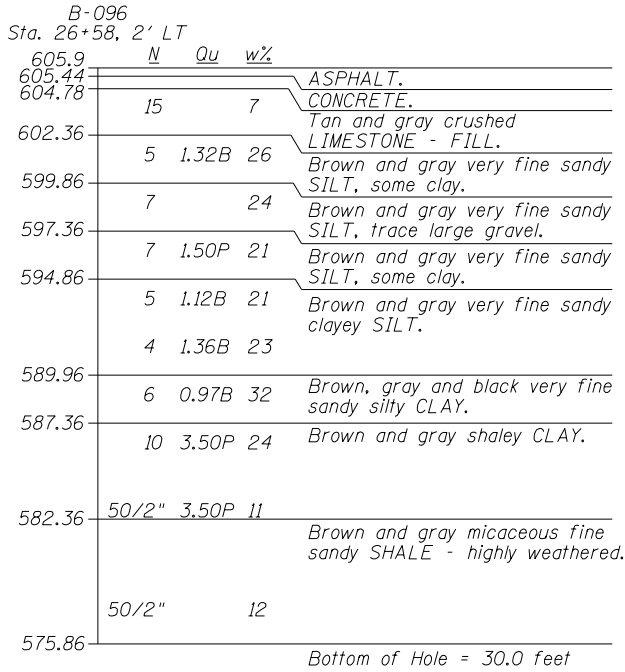
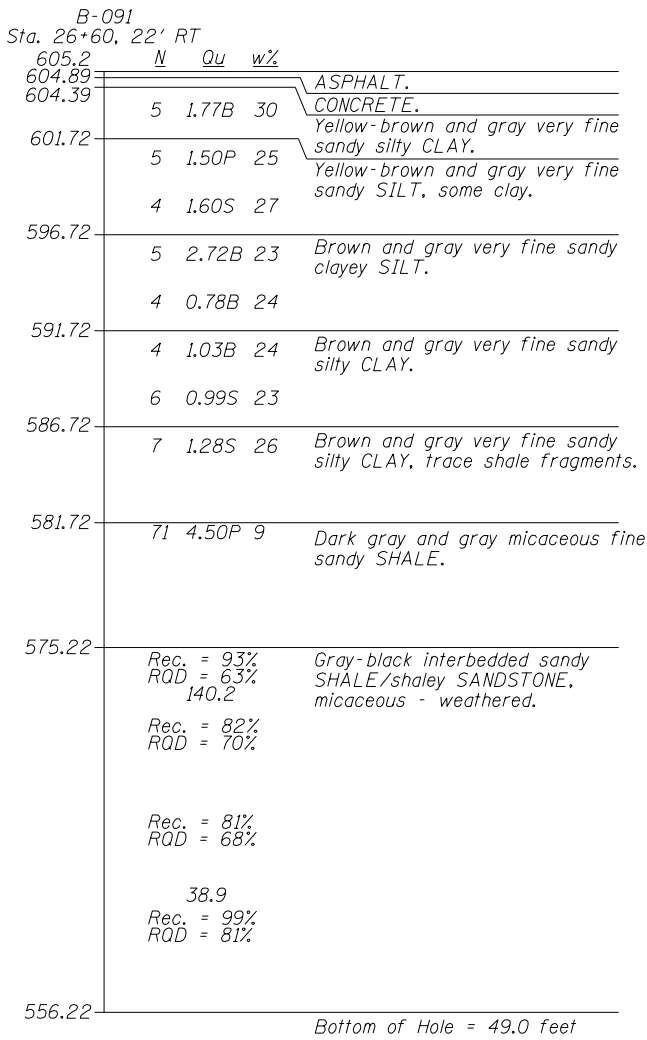
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REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER
STRUCTURE NO. 084-9972

SHEET NO. 16 OF 17 SHEETS

F.A.U. RTE. SECTION COUNTY TOTAL SHEETS SHEET NO.
7972 20-00492-00-BR & 22-00492-01-BR SANGAMON 714 413
CONTRACT NO. 93773
ILLINOIS FID. AID PROJECT



LEGEND

N Standard Penetration Test N (blows/ft)
Qu Unconfined Strength (tsf)
w% Natural Moisture Content (%)

DD Water Surface Elevation Encountered in Boring
558.10 DD = during drilling
Oh = at completion
24h = 24 hours after completion

p:\hansoninc-pw.bentley.com\hanson-pw-01\Documents\09Jobs\09L0179B\Usable Segments III - V - VINCAD\Struct\Usable Segment VI\North Grand\Sheet\084-99XX.09L0179B.017.Sub Data Profile.dgn



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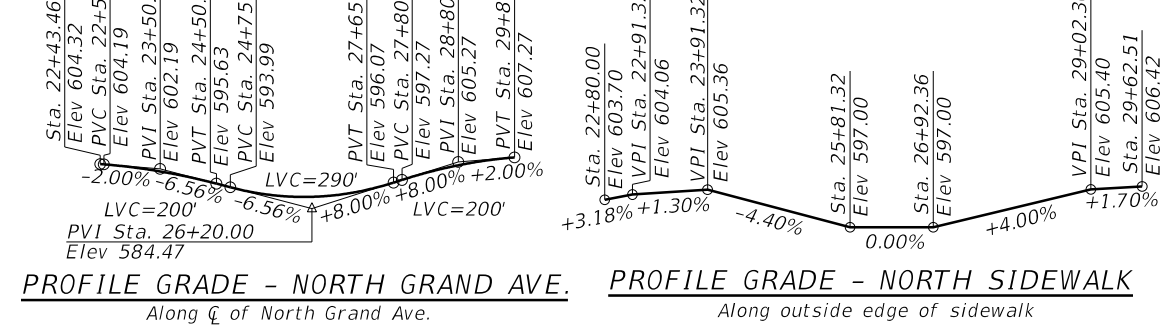
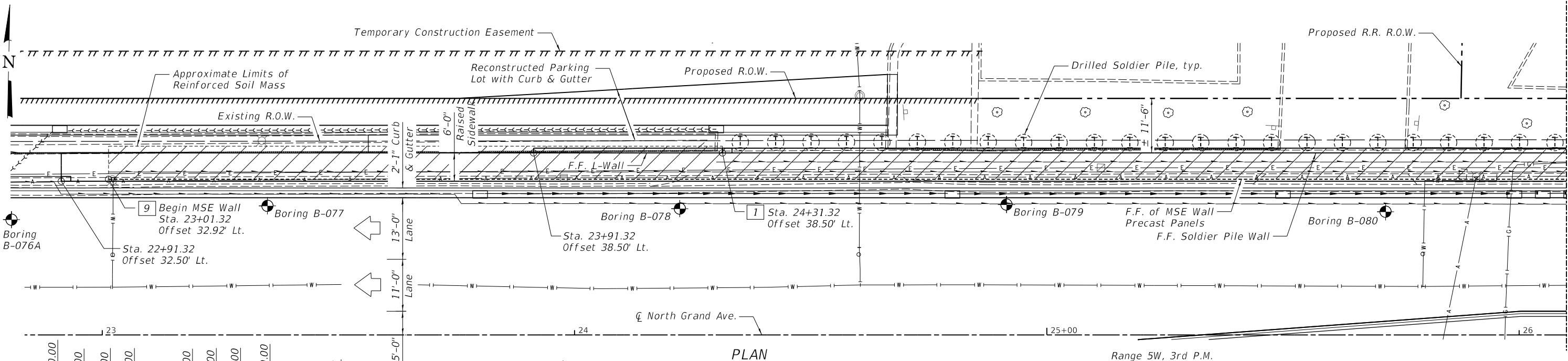
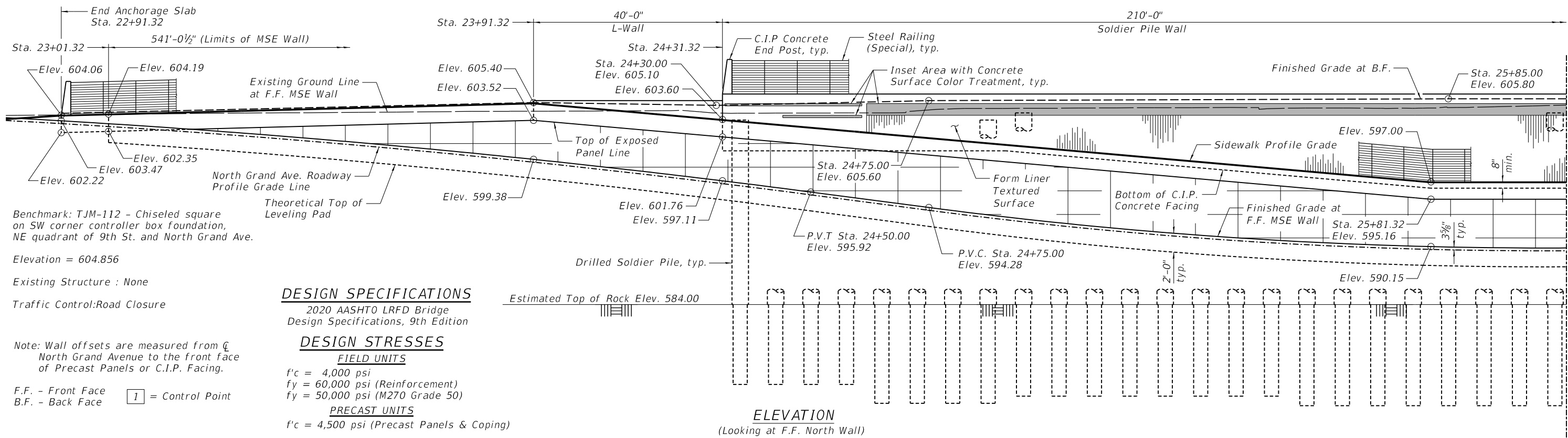
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CHECKED - CGP	REVISIED -	
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PLOT DATE = 9/27/2024	CHECKED - JGT	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUBSURFACE DATA PROFILE
STRUCTURE NO. 084-9972

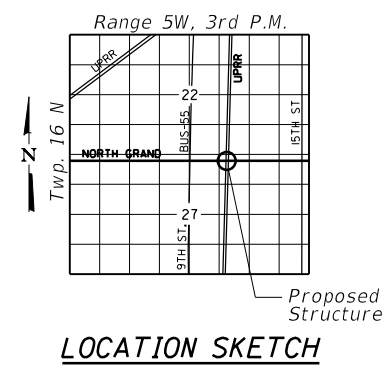
SHEET NO. 17 OF 17 SHEETS

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

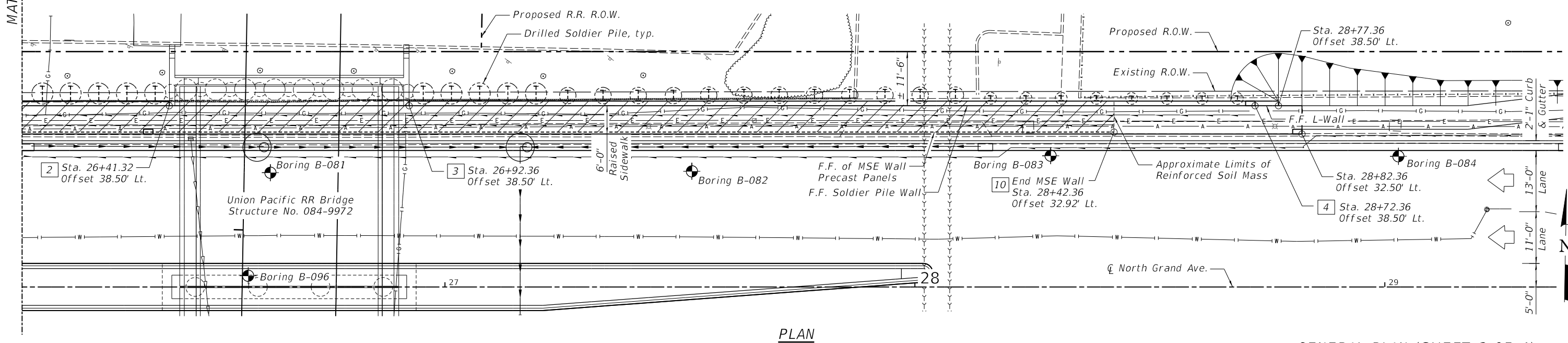
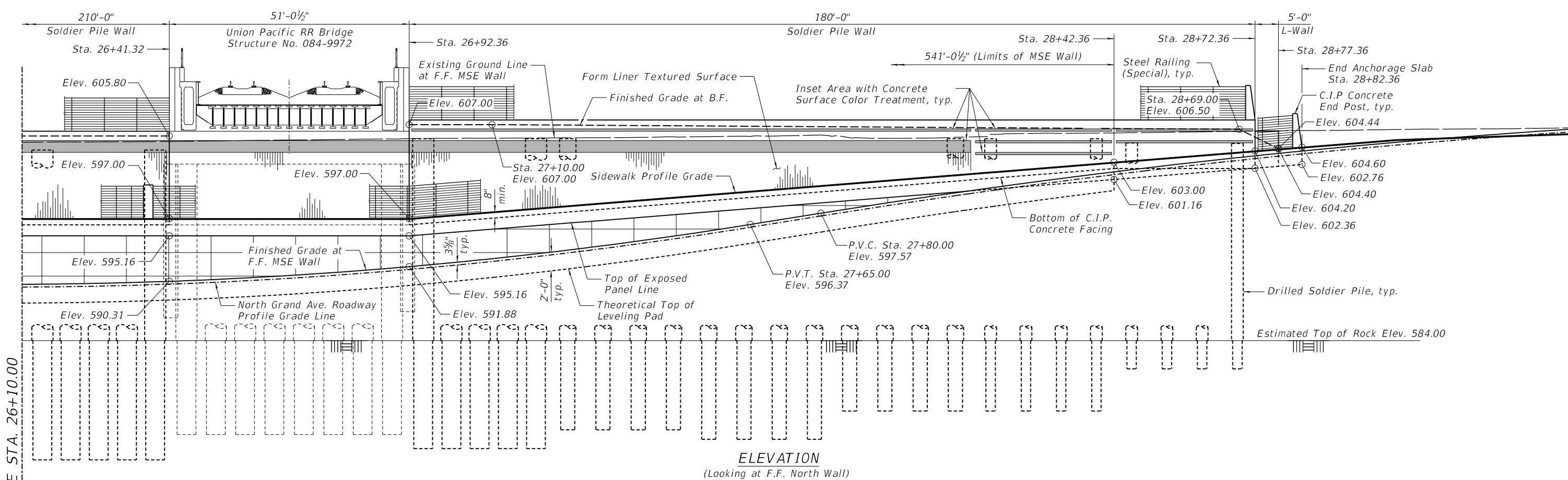


Robert Chantome
September 30, 2024
Expires November 30, 2024

I certify that to the best of my knowledge, information and belief, this retaining wall 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 AASHTO LRFD Specifications.



GENERAL PLAN (SHEET 1 OF 4)
NORTH WALL - NORTH GRAND AVE.
F.A.U. 7972 - SECTION 20-00492-00-BR
SANGAMON COUNTY
STATION 22+91.32 TO 28+82.36

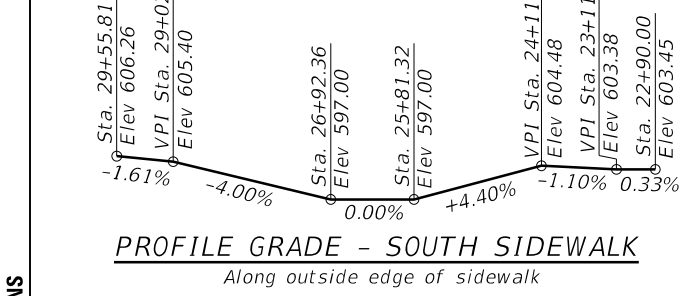
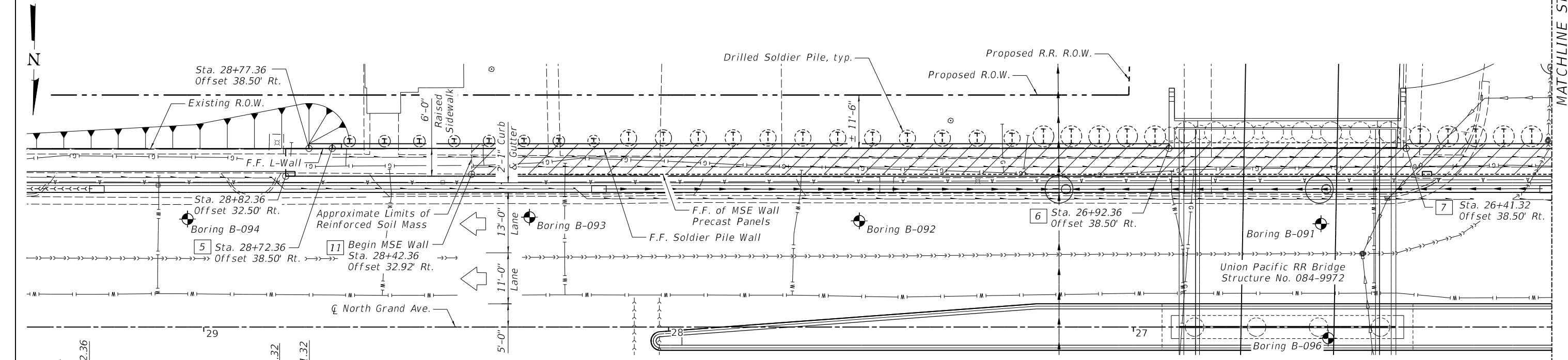
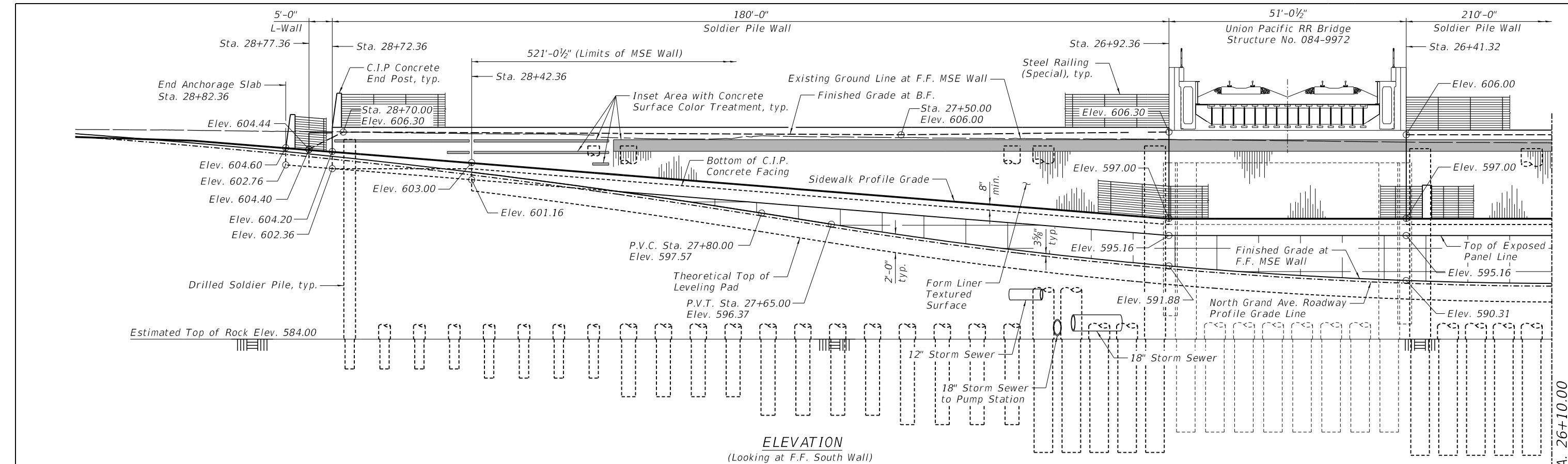


Note: Wall offsets are measured from $\bar{C}$ North Grand Avenue to the front face of Precast Panels or C.I.P. Facing.

F.F. - Front Face
B.F. - Back Face

2 = Control Point

GENERAL PLAN (SHEET 2 OF 4)
NORTH WALL - NORTH GRAND AVE.
F.A.U. 7972 - SECTION 20-00492-00-BR
SANGAMON COUNTY
STATION 22+91.32 TO 28+82.36



Note: Wall offsets are measured from $\varnothing$ North Grand Avenue to the front face of Precast Panels or C.I.P. Facing.

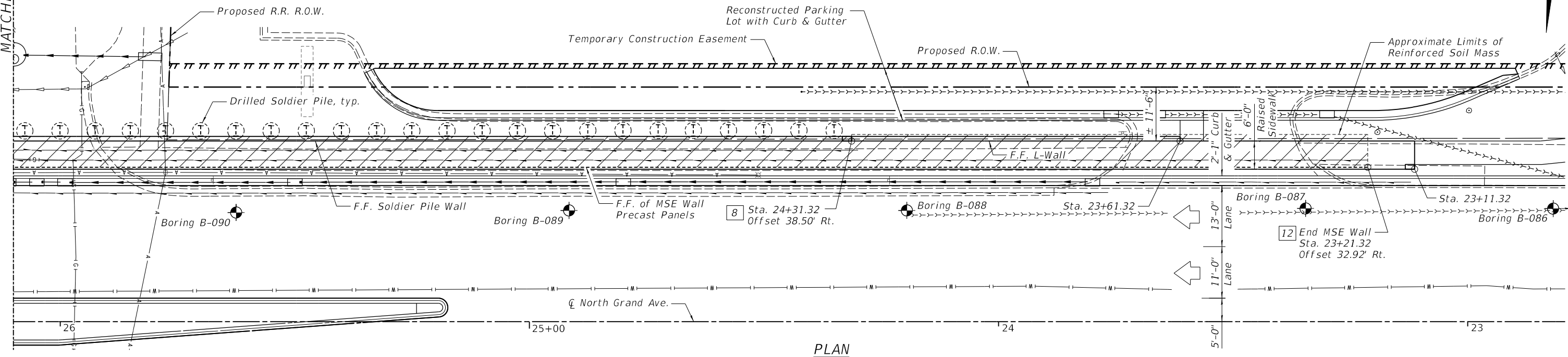
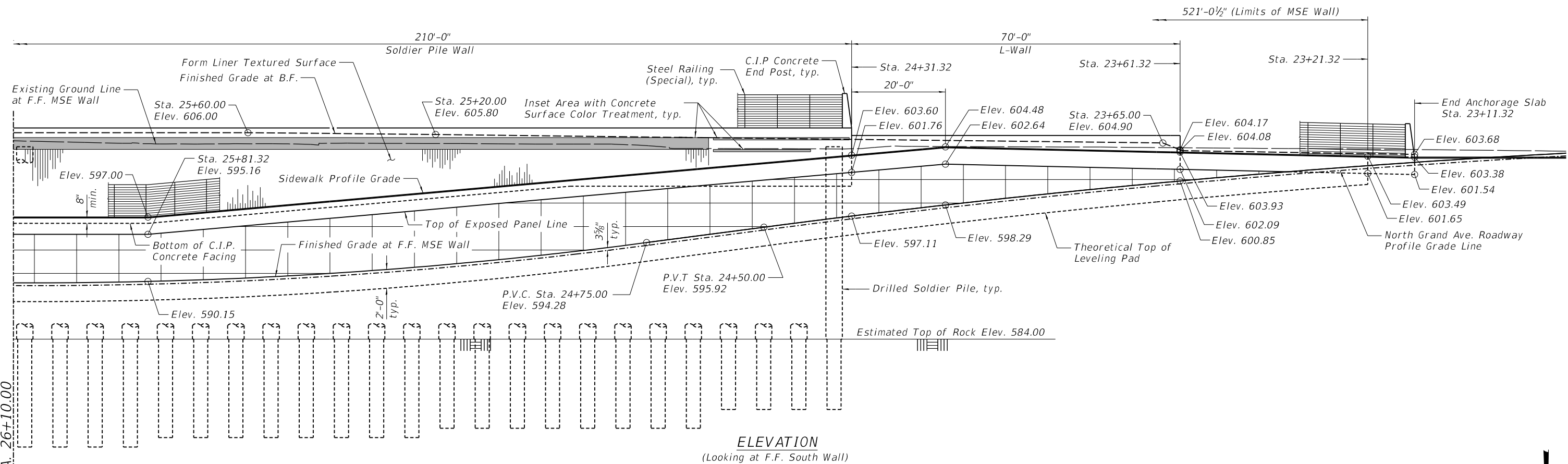
F.F. - Front Face
B.F. - Back Face

[5] = Control Point

GENERAL PLAN (SHEET 3 OF 4)
SOUTH WALL - NORTH GRAND AVE.
F.A.U. 7972 - SECTION 20-00492-00-BR
SANGAMON COUNTY
STATION 22+91.32 TO 28+82.36

pw:\hanson\nc-pw\entley\comhanson-pw\01\Documents\09\Jobs\09\01798\Usable Segments III - V - VINCAD\Struct\Usable Segment VI\North Grand\Sheet\09\01798-NorthGrand-Retaining-Walls-Plans.dgn				STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION		GENERAL PLAN & ELEVATION - SOUTH WALL RETAINING WALLS - NORTH GRAND AVENUE UNDERPASS		F.A.U. RTE. SECTION COUNTY TOTAL SHEETS SHEET NO. 7972 20-00492-00-BR & 22-00492-01-BR SANGAMON 714 417	
USER NAME : pop00275 DESIGNED - KMS CHECKED - RGC PLOT SCALE : 21.333' / in. DRAWN - EJM PLOT DATE : 9/27/2024 CHECKED - RGC				REVISD - REVISED - REVISED - REVISED -		SHEET NO. 3 OF 32 SHEETS		CONTRACT NO. 93773 ILLINOIS FED. AID PROJECT	

MATCHLINE STA. 26+10.00



Note: Wall offsets are measured from $\varnothing$ North Grand Avenue to the front face of Precast Panels or C.I.P. Facing.

F.F. - Front Face
B.F. - Back Face
8 = Control Point

GENERAL PLAN (SHEET 4 OF 4)
SOUTH WALL - NORTH GRAND AVE.
F.A.U. 7972 - SECTION 20-00492-00-BR
SANGAMON COUNTY
STATION 22+91.32 TO 28+82.36

FINAL PLANS

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	CHECKED - RGC	REVISD -
PLOT SCALE = 21.333' / in.	DRAWN - EJM	REVISD -
PLOT DATE = 9/27/2024	CHECKED - RGC	REVISD -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN & ELEVATION - SOUTH WALL
RETAINING WALLS - NORTH GRAND AVENUE UNDERPASS

SHEET NO. 4 OF 32 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	418
CONTRACT NO. 93773				

ILLINOIS FED. AID PROJECT

GENERAL NOTES

1. Reinforcement bars designated (E) shall be epoxy coated.
2. All substructure concrete shall have a compressive strength of 4,000 psi at 14 days.
3. The Contractor is responsible for the design and performance of the Untreated Timber Lagging using no less than a 3 in. nominal rough-sawn thickness and timber with a minimum allowable bending stress of 1000 psi.

ASSUMED SEQUENCE OF CONSTRUCTION

1. Install secant lagging and drilled shafts for S.N. 084-9972.
2. Drill and set soldier piles for north and south walls.
3. Excavate for North Grand Avenue pavement, installing temporary timber lagging from top down as excavation progresses. Lay back temporary slopes in areas beyond soldier pile walls.
4. Place aggregate subgrade improvement layer and lower underdrain up to base of MSE wall.
5. Construct MSE wall up to bottom of upper underdrain.
6. Install geocomposite wall drain and upper underdrain.
7. Continue MSE wall construction up to bottom of concrete facing.
8. Construct cast-in-place concrete facing.
9. Set precast coping and place remainder of select fill.
10. Construct anchorage slab and L-wall.
11. Backfill to finish grade behind L-wall and soldier pile.

WALL CONTROL POINTS

Control Point	Station	Offset
1	24+31.32	38.50' LT
2	26+41.32	38.50' LT
3	26+92.36	38.50' LT
4	28+72.36	38.50' LT
5	28+72.36	38.50' RT
6	26+92.36	38.50' RT
7	26+41.32	38.50' RT
8	24+31.32	38.50' RT
9	23+01.32	32.92' LT
10	28+42.36	32.92' LT
11	28+42.36	32.92' RT
12	23+21.32	32.92' RT

Control Points 1-8 are to Front Face of C.I.P. Facing.
Control Points 9-12 are to Front Face of Precast Panels.

INDEX OF SHEETS

1. General Plan & Elevation – North Wall
2. General Plan & Elevation – North Wall
3. General Plan & Elevation – South Wall
4. General Plan & Elevation – South Wall
5. General Data
6. Typical Sections & Details
7. Soldier Piles – North Wall
8. Soldier Piles – North Wall
9. Soldier Piles – South Wall
10. Soldier Piles – South Wall
11. Concrete Facing – North Wall
12. Concrete Facing – North Wall
13. Concrete Facing – North Wall
14. Concrete Facing – North Wall
15. Concrete Facing – South Wall
16. Concrete Facing – South Wall
17. Concrete Facing – South Wall
18. Concrete Facing – South Wall
19. Concrete Facing Details
20. MSE Elevation – North Wall
21. MSE Elevation – South Wall
22. MSE Details
23. Anchorage Slab – North Wall
24. Anchorage Slab – North Wall
25. Anchorage Slab – South Wall
26. Anchorage Slab – South Wall
27. Railing Details
28. Railing Details
29. Subsurface Data Profile
30. Subsurface Data Profile
31. Subsurface Data Profile
32. Subsurface Data Profile

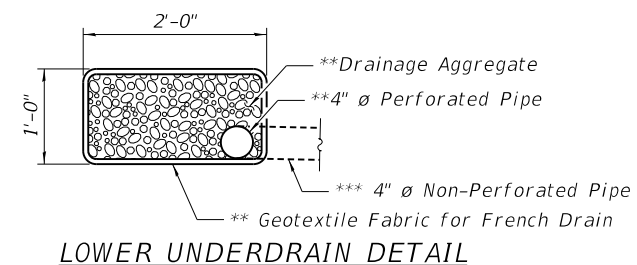
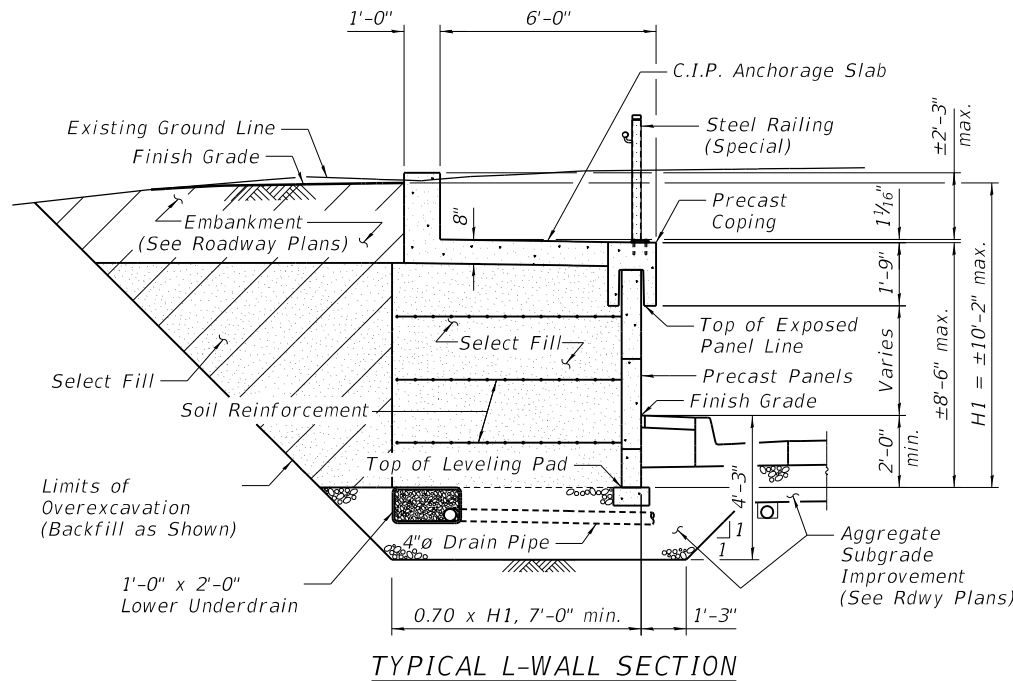
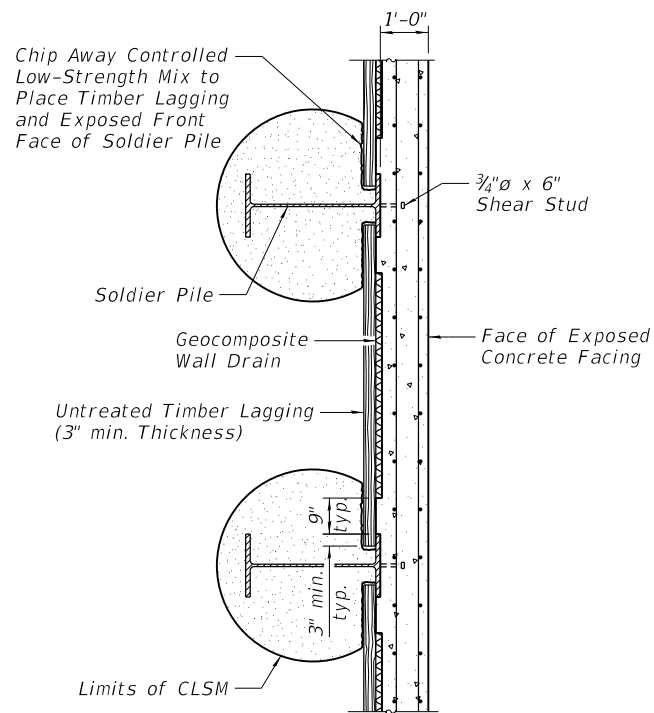
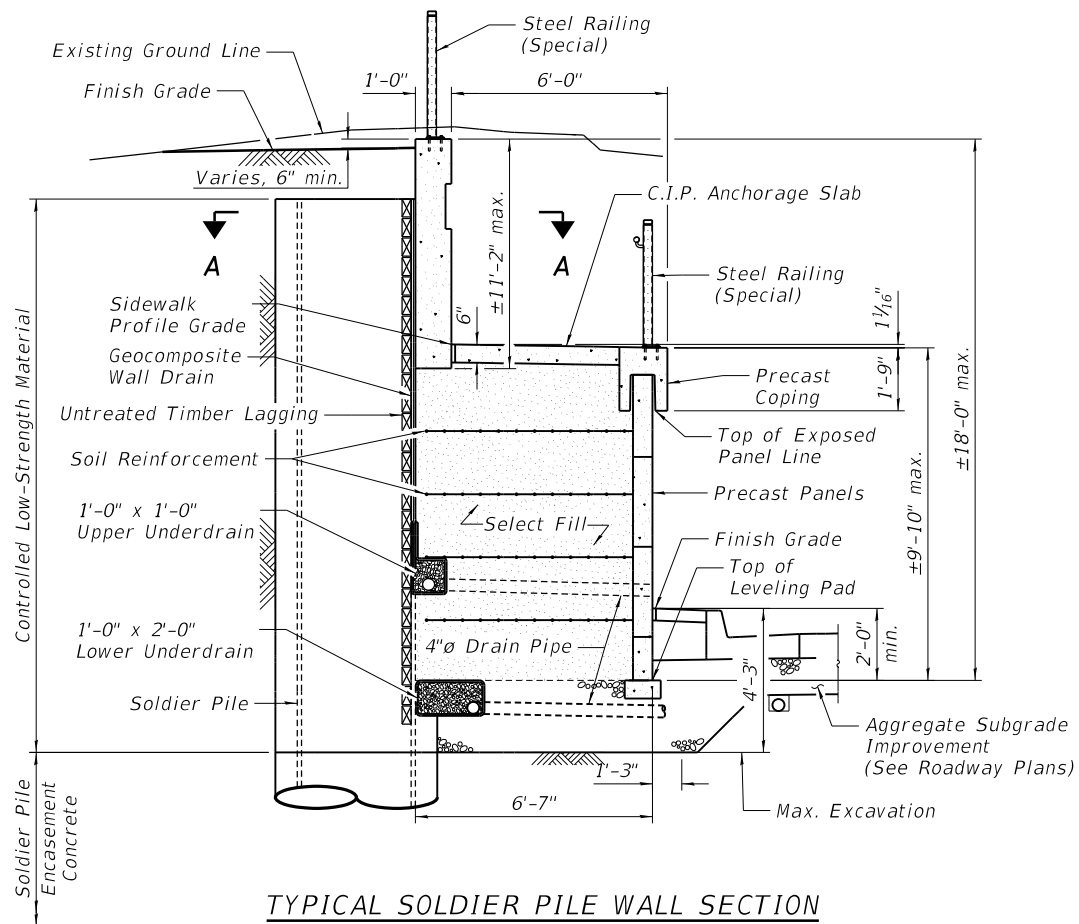
TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
Structure Excavation	Cu. Yd.	72
Concrete Structures	Cu. Yd.	113.6
Form Liner Textured Surface	Sq. Ft.	3504
Stud Shear Connectors	Each	517
Reinforcement Bars, Epoxy Coated	Pound	36810
Furnishing Soldier Piles (W Section)	Foot	3228
Drilling and Setting Soldier Piles (In Soil)	Cu. Ft.	23733.8
Drilling and Setting Soldier Piles (In Rock)	Cu. Ft.	8098.4
Untreated Timber Lagging	Sq. Ft.	9839
Mechanically Stabilized Earth Retaining Wall	Sq. Ft.	5813
Concrete Structures (Retaining Wall)	Cu. Yd.	246.8
Concrete Sealer	Sq. Ft.	19771
Geocomposite Wall Drain	Sq. Yd.	553
Concrete Surface Color Treatment	Sq. Ft.	861
Steel Railing (Special)	Foot	1922
Pipe Underdrains for Structures 4"	Foot	2115

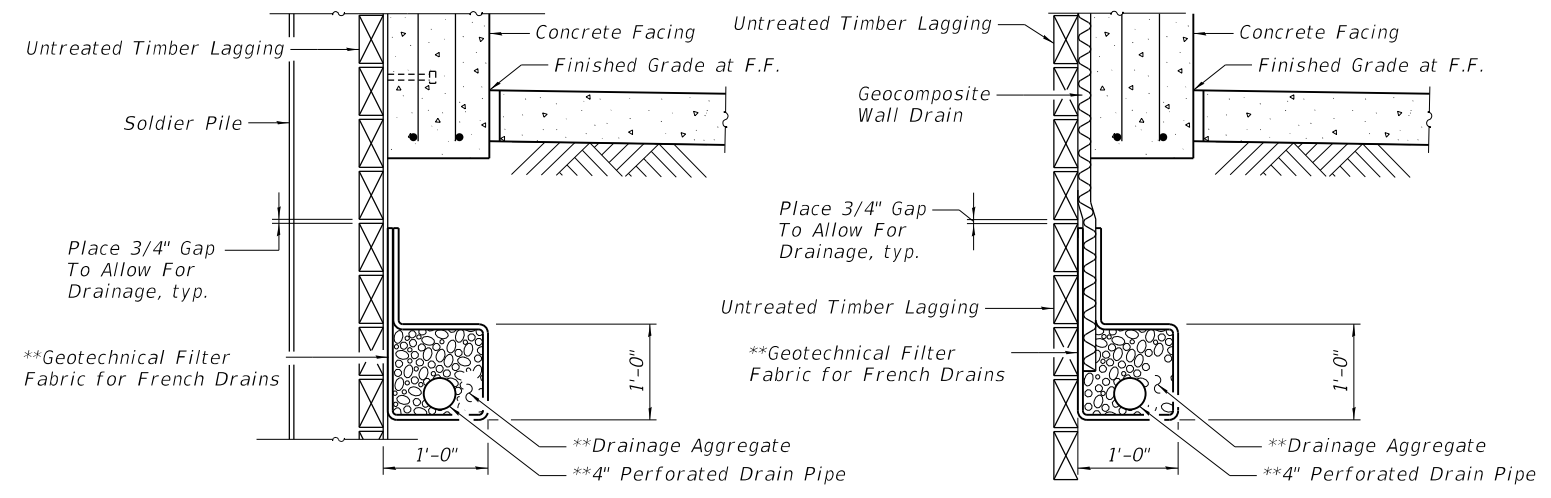
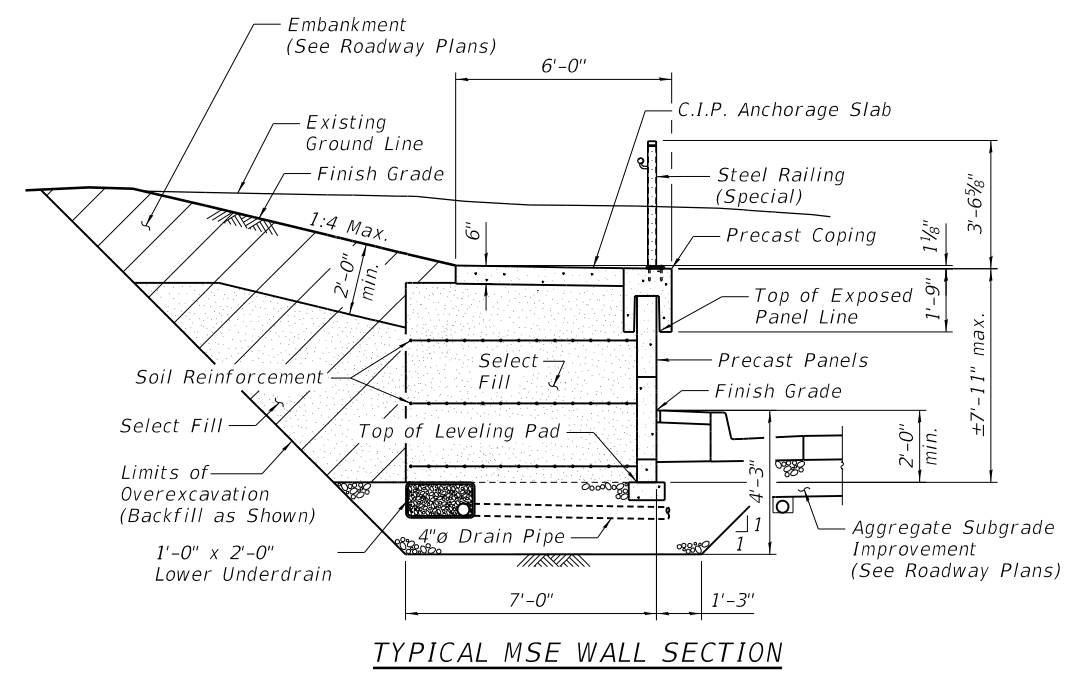
FINAL PLANS

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		CHECKED - RGC	REVISED -			7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	419
	PLOT SCALE = 0.167 ' / in.	DRAWN - EJM	REVISED -			CONTRACT NO. 93773				
	PLOT DATE = 9/27/2024	CHECKED - RGC	REVISED -			ILLINOIS FED. AID PROJECT				
SHEET NO. 5 OF 32 SHEETS										

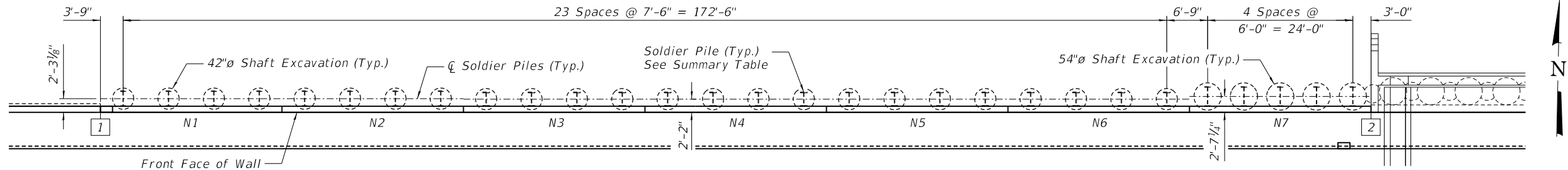


** Included in the cost of Pipe Underdrains for Structures 4".
 *** Included in the cost of Pipe Underdrains for Structures 4" (Special).

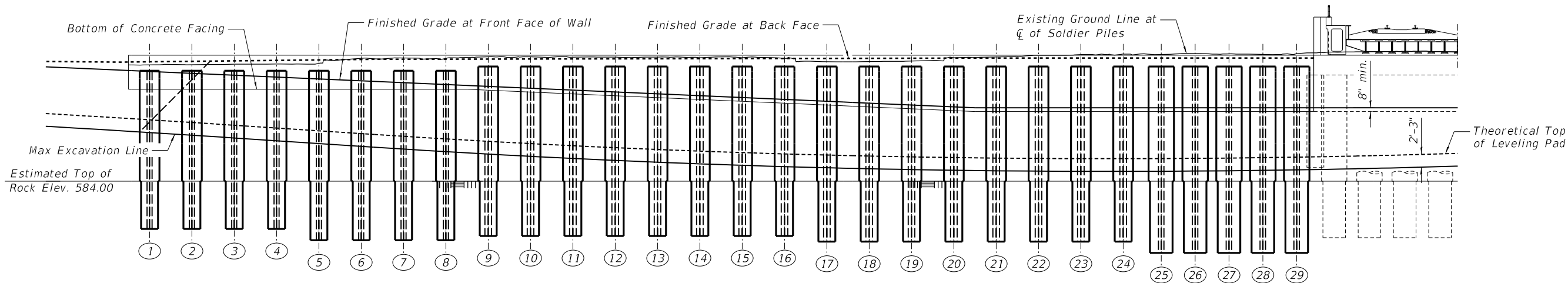


**Included in the Cost of Pipe Underdrains for Structures 4".

[2] = Control Point



PLAN



ELEVATION

SOLDIER PILE SUMMARY

PILE NO.	PILE SIZE	LENGTH	BOTTOM ELEVATION	TOP ELEVATION	PILE NO.	PILE SIZE	LENGTH	BOTTOM ELEVATION	TOP ELEVATION
1	W30x124	28'-0"	575.55	603.55	16	W27x194	30'-0"	574.30	604.30
2	W30x124	28'-0"	575.55	603.55	17	W27x194	31'-0"	573.30	604.30
3	W30x124	28'-0"	575.55	603.55	18	W27x194	31'-0"	573.30	604.30
4	W30x124	28'-0"	575.55	603.55	19	W27x194	31'-0"	573.30	604.30
5	W30x124	30'-0"	573.55	603.55	20	W27x194	31'-0"	573.30	604.30
6	W30x124	30'-0"	573.55	603.55	21	W27x194	31'-0"	573.30	604.30
7	W30x124	30'-0"	573.55	603.55	22	W27x194	31'-0"	573.30	604.30
8	W30x124	30'-0"	573.55	603.55	23	W27x194	31'-0"	573.30	604.30
9	W27x194	30'-0"	574.30	604.30	24	W27x194	31'-0"	573.30	604.30
10	W27x194	30'-0"	574.30	604.30	25	W40x167	33'-0"	571.30	604.30
11	W27x194	30'-0"	574.30	604.30	26	W40x167	33'-0"	571.30	604.30
12	W27x194	30'-0"	574.30	604.30	27	W40x167	33'-0"	571.30	604.30
13	W27x194	30'-0"	574.30	604.30	28	W40x167	33'-0"	571.30	604.30
14	W27x194	30'-0"	574.30	604.30	29	W40x167	33'-0"	571.30	604.30
15	W27x194	30'-0"	574.30	604.30					

NORTH WALL STUD SHEAR CONNECTORS REQUIRED

Pile No.	Number Required on Each Pile
1-8	3
9-12	4
13-16	5
17-29	6

Space at 1'-6" Max. cts.

BILL OF MATERIAL

ITEM	UNIT	TOTAL
Stud Shear Connectors	Each	138
Furnishing Soldier Piles (W Section)	Foot	885
Drilling and Setting Soldier Piles (In Soil)	Cu. Ft.	6786.2
Drilling and Setting Soldier Piles (In Rock)	Cu. Ft.	2485.9

FINAL PLANS

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PLOT DATE : 9/27/2024

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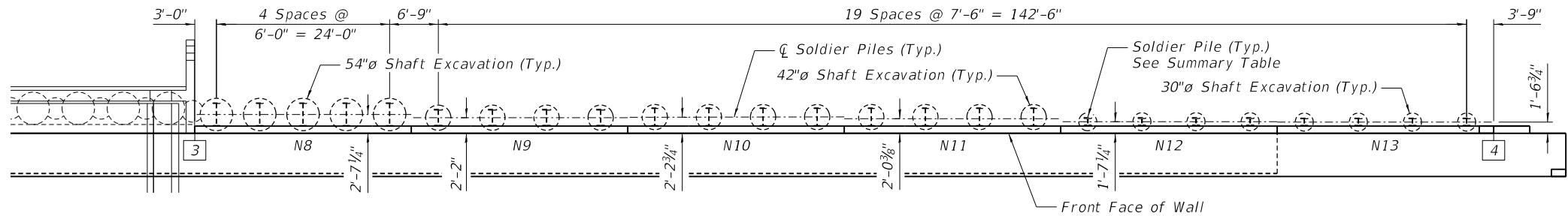
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOLDIER PILES - NORTH WALL
RETAINING WALLS - NORTH GRAND AVENUE UNDERPASS

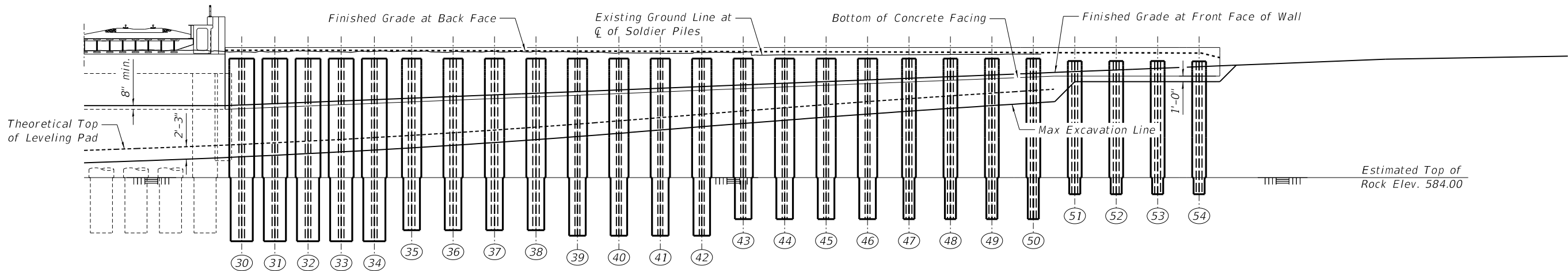
SHEET NO. 7 OF 32 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	421
ILLINOIS FED. AID PROJECT			CONTRACT NO. 93773	

4 = Control Point



PLAN



ELEVATION

SOLDIER PILE SUMMARY

PILE NO.	PILE SIZE	LENGTH	BOTTOM ELEVATION	TOP ELEVATION	PILE NO.	PILE SIZE	LENGTH	BOTTOM ELEVATION	TOP ELEVATION
30	W40x167	33'-0"	572.50	605.50	43	W30x124	29'-0"	576.50	605.50
31	W40x167	33'-0"	572.50	605.50	44	W30x124	29'-0"	576.50	605.50
32	W40x167	33'-0"	572.50	605.50	45	W30x124	29'-0"	576.50	605.50
33	W40x167	33'-0"	572.50	605.50	46	W30x124	29'-0"	576.50	605.50
34	W40x167	33'-0"	572.50	605.50	47	W12x190	29'-0"	576.50	605.50
35	W27x194	31'-0"	574.50	605.50	48	W12x190	29'-0"	576.50	605.50
36	W27x194	31'-0"	574.50	605.50	49	W12x190	29'-0"	576.50	605.50
37	W27x194	31'-0"	574.50	605.50	50	W12x190	29'-0"	576.50	605.50
38	W27x194	31'-0"	574.50	605.50	51	W12x136	24'-0"	581.00	605.00
39	W30x124	32'-0"	573.50	605.50	52	W12x136	24'-0"	581.00	605.00
40	W30x124	32'-0"	573.50	605.50	53	W12x136	24'-0"	581.00	605.00
41	W30x124	32'-0"	573.50	605.50	54	W12x136	24'-0"	581.00	605.00
42	W30x124	32'-0"	573.50	605.50					

NORTH WALL STUD SHEAR CONNECTORS REQUIRED

Pile No.	Number Required on Each Pile
30-33	7
34-38	6
39-43	5
44-48	4
49-54	3

Space at 1'-6" Max. cts.

BILL OF MATERIAL

ITEM	UNIT	TOTAL
Stud Shear Connectors	Each	121
Furnishing Soldier Piles (W Section)	Foot	745
Drilling and Setting Soldier Piles (In Soil)	Cu. Ft.	5290.7
Drilling and Setting Soldier Piles (In Rock)	Cu. Ft.	1632.1

FINAL PLANS

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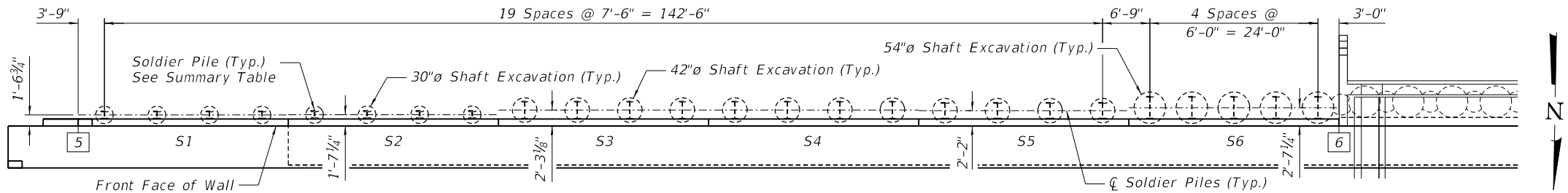
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOLDIER PILES - NORTH WALL
RETAINING WALLS - NORTH GRAND AVENUE UNDERPASS

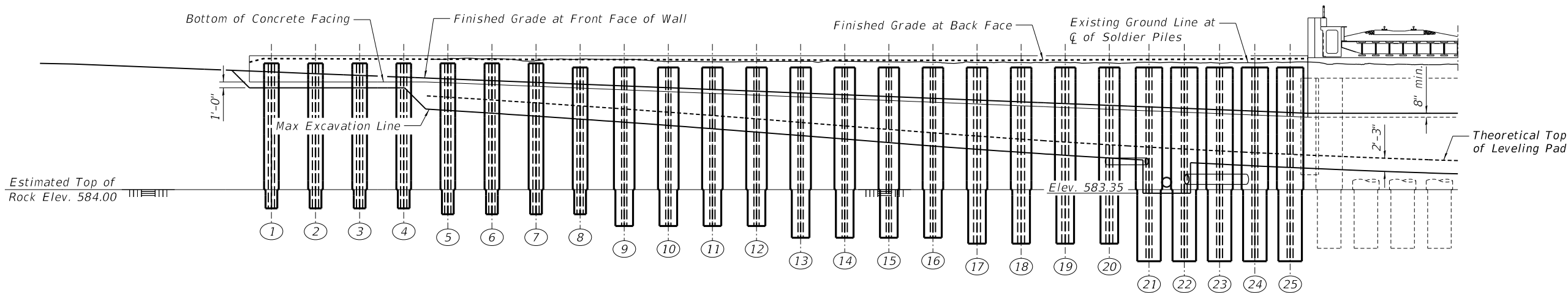
SHEET NO. 8 OF 32 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	422
ILLINOIS FED. AID PROJECT			CONTRACT NO. 93773	

6 = Control Point



PLAN



ELEVATION

SOLDIER PILE SUMMARY

PILE NO.	PILE SIZE	LENGTH	BOTTOM ELEVATION	TOP ELEVATION	PILE NO.	PILE SIZE	LENGTH	BOTTOM ELEVATION	TOP ELEVATION
1	W12x136	24'-0"	580.80	604.80	14	W30x124	29'-0"	575.80	604.80
2	W12x136	24'-0"	580.80	604.80	15	W30x124	29'-0"	575.80	604.80
3	W12x136	24'-0"	580.80	604.80	16	W30x124	29'-0"	575.80	604.80
4	W12x136	24'-0"	580.80	604.80	17	W27x194	30'-0"	574.80	604.80
5	W12x190	25'-0"	579.80	604.80	18	W27x194	30'-0"	574.80	604.80
6	W12x190	25'-0"	579.80	604.80	19	W27x194	30'-0"	574.80	604.80
7	W12x190	25'-0"	579.80	604.80	20	W27x194	30'-0"	574.80	604.80
8	W12x190	25'-0"	579.80	604.80	21	W40x167	33'-0"	571.80	604.80
9	W30x124	27'-0"	577.80	604.80	22	W40x167	33'-0"	571.80	604.80
10	W30x124	27'-0"	577.80	604.80	23	W40x167	33'-0"	571.80	604.80
11	W30x124	27'-0"	577.80	604.80	24	W40x167	33'-0"	571.80	604.80
12	W30x124	27'-0"	577.80	604.80	25	W40x167	33'-0"	571.80	604.80
13	W30x124	29'-0"	575.80	604.80					

NORTH WALL STUD SHEAR CONNECTORS REQUIRED

Pile No.	Number Required on Each Pile
1-8	3
9-13	4
14-18	5
19-24	6
25	7

Space at 1'-6" Max. cts.

BILL OF MATERIAL

ITEM	UNIT	TOTAL
Stud Shear Connectors	Each	112
Furnishing Soldier Piles (W Section)	Foot	705
Drilling and Setting Soldier Piles (In Soil)	Cu. Ft.	5104.2
Drilling and Setting Soldier Piles (In Rock)	Cu. Ft.	1526.8

FINAL PLANS

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

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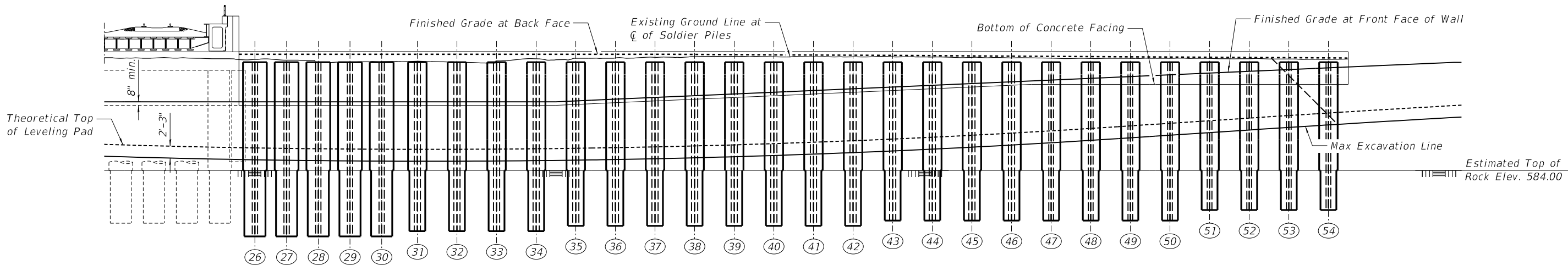
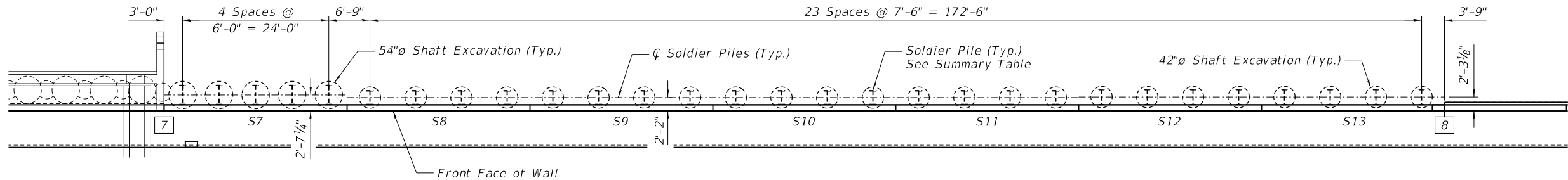
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOLDIER PILES - SOUTH WALL
RETAINING WALLS - NORTH GRAND AVENUE UNDERPASS

SHEET NO. 9 OF 32 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	423
ILLINOIS FED. AID PROJECT			CONTRACT NO. 93773	



SOLDIER PILE SUMMARY

PILE NO.	PILE SIZE	LENGTH	BOTTOM ELEVATION	TOP ELEVATION	PILE NO.	PILE SIZE	LENGTH	BOTTOM ELEVATION	TOP ELEVATION
26	W40x167	33'-0"	571.50	604.50	41	W27x194	31'-0"	573.50	604.50
27	W40x167	33'-0"	571.50	604.50	42	W27x194	31'-0"	573.50	604.50
28	W40x167	33'-0"	571.50	604.50	43	W27x194	30'-0"	574.50	604.50
29	W40x167	33'-0"	571.50	604.50	44	W27x194	30'-0"	574.50	604.50
30	W40x167	33'-0"	571.50	604.50	45	W27x194	30'-0"	574.50	604.50
31	W27x194	32'-0"	572.50	604.50	46	W27x194	30'-0"	574.50	604.50
32	W27x194	32'-0"	572.50	604.50	47	W30x124	30'-0"	574.50	604.50
33	W27x194	32'-0"	572.50	604.50	48	W30x124	30'-0"	574.50	604.50
34	W27x194	32'-0"	572.50	604.50	49	W30x124	30'-0"	574.50	604.50
35	W27x194	31'-0"	573.50	604.50	50	W30x124	30'-0"	574.50	604.50
36	W27x194	31'-0"	573.50	604.50	51	W30x124	28'-0"	576.50	604.50
37	W27x194	31'-0"	573.50	604.50	52	W30x124	28'-0"	576.50	604.50
38	W27x194	31'-0"	573.50	604.50	53	W30x124	28'-0"	576.50	604.50
39	W27x194	31'-0"	573.50	604.50	54	W30x124	28'-0"	576.50	604.50
40	W27x194	31'-0"	573.50	604.50					

NORTH WALL STUD SHEAR CONNECTORS REQUIRED

Pile No.	Number Required on Each Pile
26-38	6
39-42	5
43-54	4

Space at 1'-6" Max. cts.

BILL OF MATERIAL

ITEM	UNIT	TOTAL
Stud Shear Connectors	Each	146
Furnishing Soldier Piles (W Section)	Foot	893
Drilling and Setting Soldier Piles (In Soil)	Cu. Ft.	6552.7
Drilling and Setting Soldier Piles (In Rock)	Cu. Ft.	2453.6

FINAL PLANS

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USER NAME : pop00275
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CHECKED - RGC

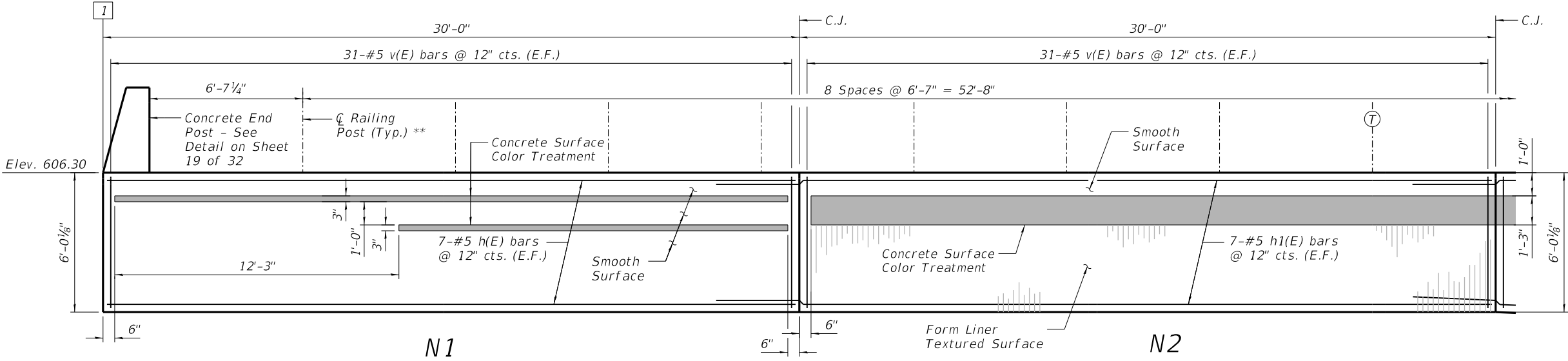
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

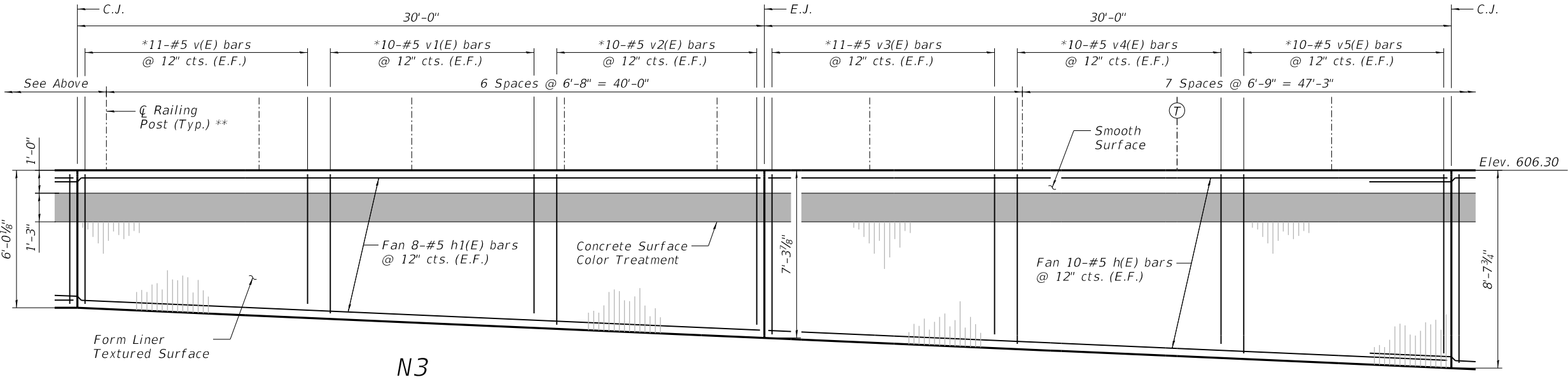
SOLDIER PILES - SOUTH WALL
RETAINING WALLS - NORTH GRAND AVENUE UNDERPASS

SHEET NO. 10 OF 32 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	424
ILLINOIS FED. AID PROJECT				CONTRACT NO. 93773



ELEVATION
Concrete Facing Panels N1-N2



ELEVATION
Concrete Facing Panels N3-N4

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h(E)	34	#5	29'-8"	—
h1(E)	30	#5	33'-5"	—
v(E)	146	#5	5'-8"	—
v1(E)	20	#5	6'-1"	—
v2(E)	20	#5	6'-7"	—
v3(E)	22	#5	7'-0"	—
v4(E)	20	#5	7'-5"	—
v5(E)	20	#5	7'-10"	—
Reinforcement Bars Epoxy Coated			Pound	3680
Concrete Structures (Retaining Wall)			Cu. Yd.	31.4

⊕ = Intermediate Tensioning Posts

1 = Control Point

Note: E.J. = Expansion Joint
C.J. = Construction Joint
E.F. = Each Face

* Stagger Bars

** Steel Railing (Special)
Adjust as Necessary
to Avoid C.J.'s.

MIN. BAR LAPS
#5 Bars = 3'-4"

FINAL PLANS

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USER NAME : pop00275
PLOT SCALE : 0.167' / 1" = 1/6"
PLOT DATE : 9/27/2024

DESIGNED - KMS
CHECKED - RGC
DRAWN - EJM
CHECKED - RGC

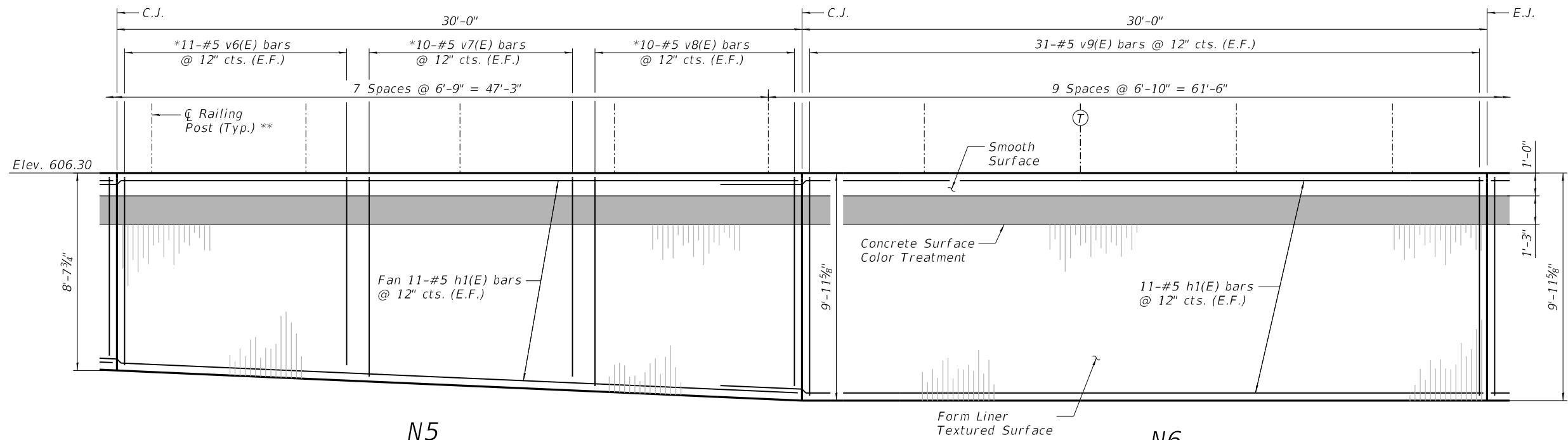
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CONCRETE FACING - NORTH WALL
RETAINING WALLS - NORTH GRAND AVENUE UNDERPASS

SHEET NO. 11 OF 32 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	425
ILLINOIS FED. AID PROJECT			CONTRACT NO. 93773	

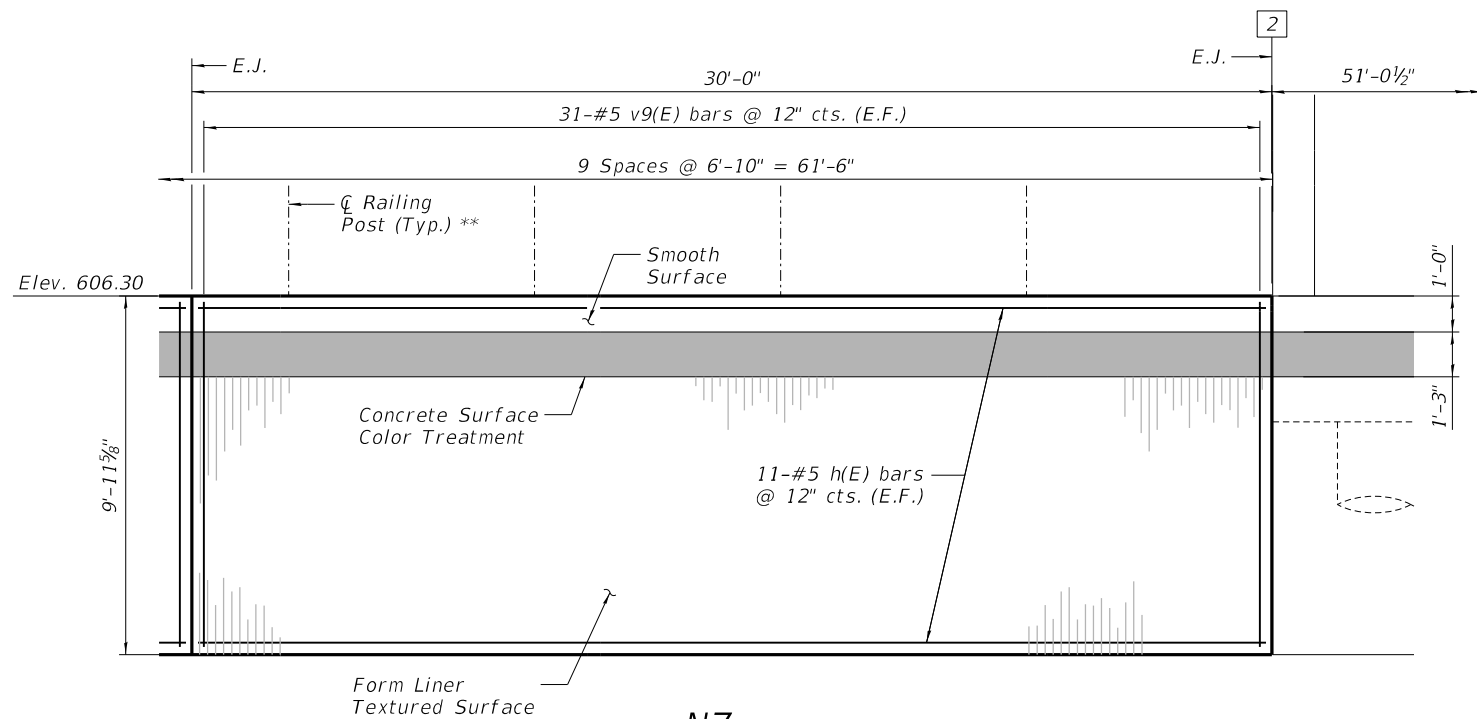


N5

ELEVATION

Concrete Facing Panels N5-N6

N6



N7

ELEVATION

Concrete Facing Panel N7

⑦ = Intermediate Tensioning Posts

② = Control Point

Note: E.J. = Expansion Joint
C.J. = Construction Joint
E.F. = Each Face

* Stagger Bars

** Steel Railing (Special)
Adjust as Necessary
to Avoid C.J.'s.

MIN. BAR LAPS
#5 Bars = 3'-4"

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h(E)	22	#5	29'-8"	——
h1(E)	44	#5	33'-5"	——
v6(E)	22	#5	8'-3"	——
v7(E)	20	#5	8'-9"	——
v8(E)	20	#5	9'-2"	——
v9(E)	124	#5	9'-7"	——
Reinforcement Bars		Epoxy Coated		
Concrete Structures		(Retaining Wall)		
		Pound	4020	
		Cu. Yd.	34.6	

FINAL PLANS

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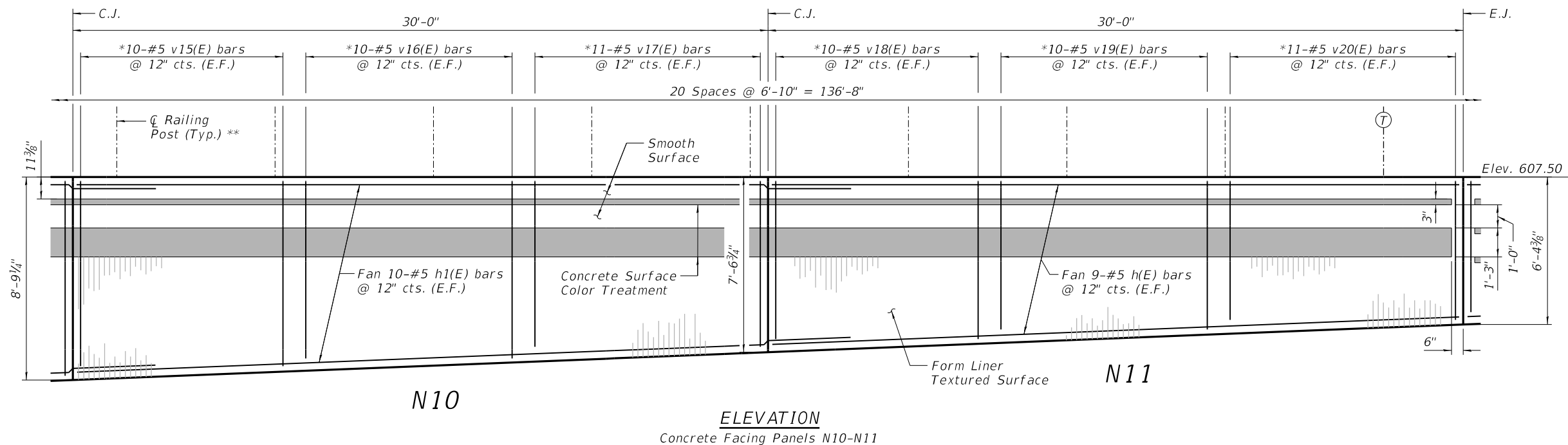
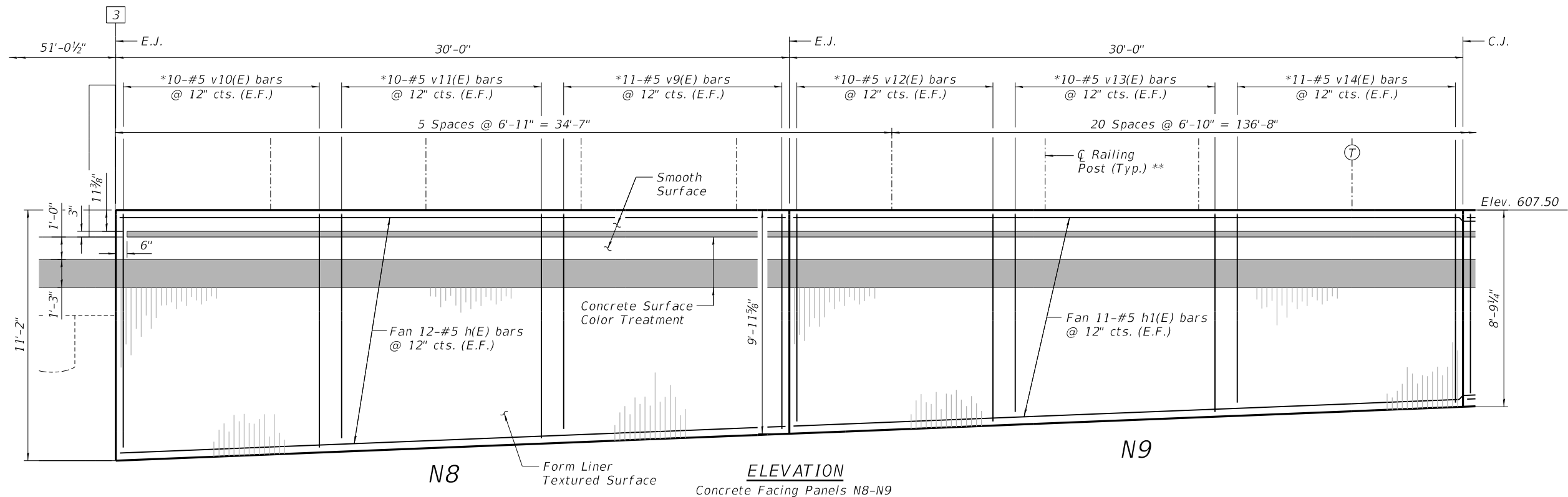
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PLOT SCALE : 0.167' / 1" =	DRAWN - EJM	REVISED -
PLOT DATE : 9/27/2024	CHECKED - RGC	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CONCRETE FACING - NORTH WALL
RETAINING WALLS - NORTH GRAND AVENUE UNDERPASS

SHEET NO. 12 OF 32 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	426
ILLINOIS FED. AID PROJECT			CONTRACT NO. 93773	



BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h(E)	42	#5	29'-8"	—
h1(E)	42	#5	33'-5"	—
v9(E)	22	#5	9'-7"	—
v10(E)	20	#5	10'-5"	—
v11(E)	20	#5	10'-0"	—
v12(E)	20	#5	9'-3"	—
v13(E)	20	#5	8'-10"	—
v14(E)	22	#5	8'-5"	—
v15(E)	20	#5	8'-0"	—
v16(E)	20	#5	7'-8"	—
v17(E)	22	#5	7'-2"	—
v18(E)	20	#5	6'-10"	—
v19(E)	20	#5	6'-5"	—
v20(E)	22	#5	6'-0"	—
Reinforcement Bars Epoxy Coated			Pound	4880
Concrete Structures (Retaining Wall)			Cu. Yd.	41.1

⊙ = Intermediate Tensioning Posts

3 = Control Point

Note: E.J. = Expansion Joint
C.J. = Construction Joint
E.F. = Each Face

* Stagger Bars

** Steel Railing (Special)
Adjust as Necessary
to Avoid C.J.'s.

MIN. BAR LAPS
#5 Bars = 3'-4"

FINAL PLANS

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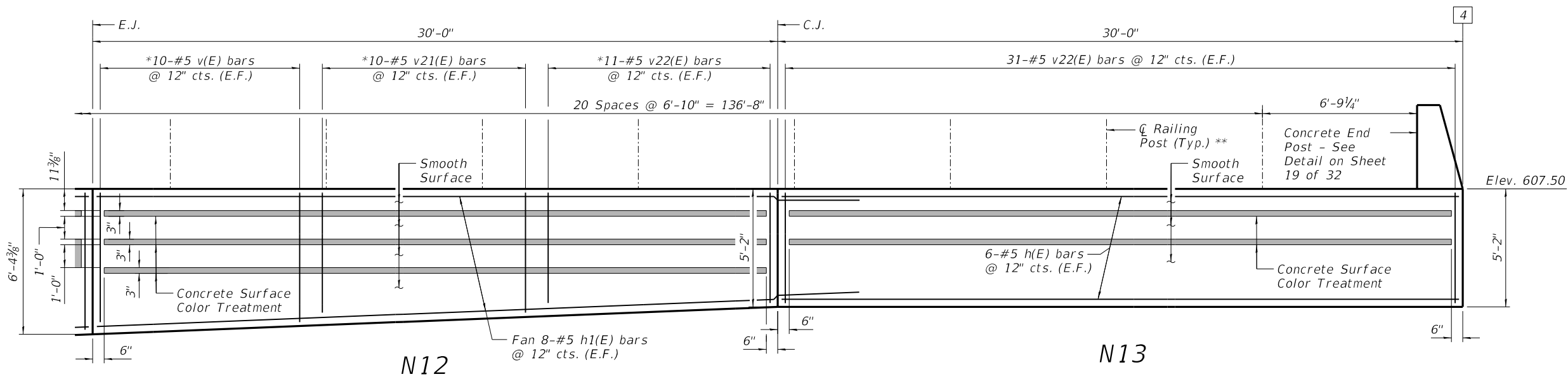
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PLOT DATE = 9/27/2024	CHECKED - RGC	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CONCRETE FACING - NORTH WALL
RETAINING WALLS - NORTH GRAND AVENUE UNDERPASS

SHEET NO. 13 OF 32 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	427
				CONTRACT NO. 93773
ILLINOIS FED. AID PROJECT				



ELEVATION
Concrete Facing Panels N12-N13

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h(E)	12	#5	29'-8"	—
h1(E)	16	#5	33'-5"	—
v(E)	20	#5	5'-8"	—
v21(E)	20	#5	5'-3"	—
v22(E)	84	#5	4'-10"	—
Reinforcement Bars		Pound		1580
Epoxy Coated		Cu. Yd.		20.6
Concrete Structures				
(Retaining Wall)				

4 = Control Point

Note: E.J. = Expansion Joint
C.J. = Construction Joint
E.F. = Each Face

* Stagger Bars

** Steel Railing (Special)
Adjust as Necessary
to Avoid C.J.'s.

MIN. BAR LAPS
#5 Bars = 3'-4"

FINAL PLANS

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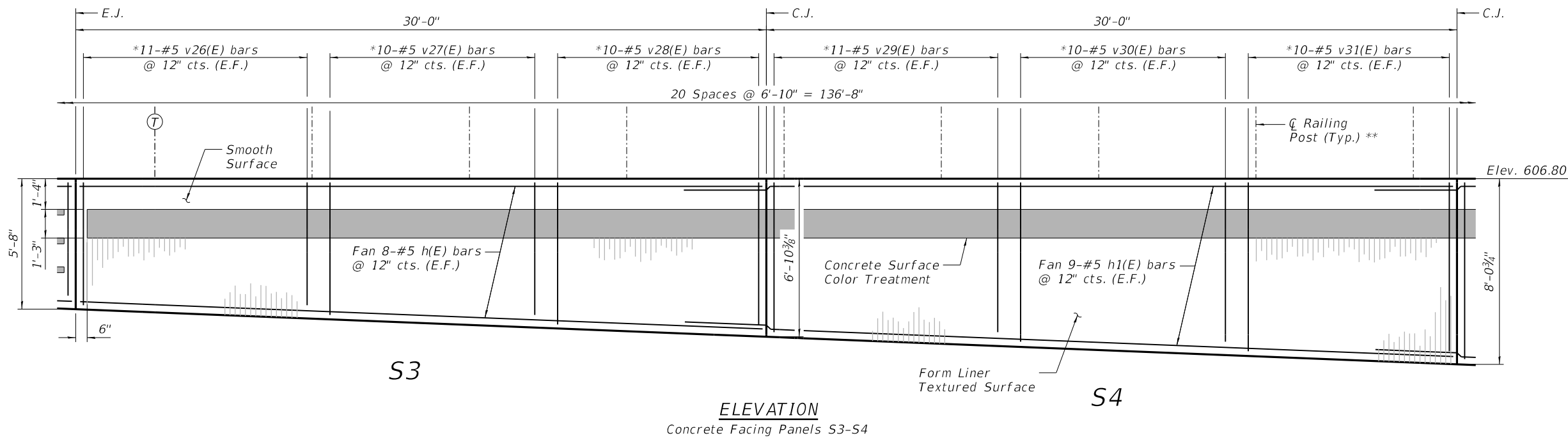
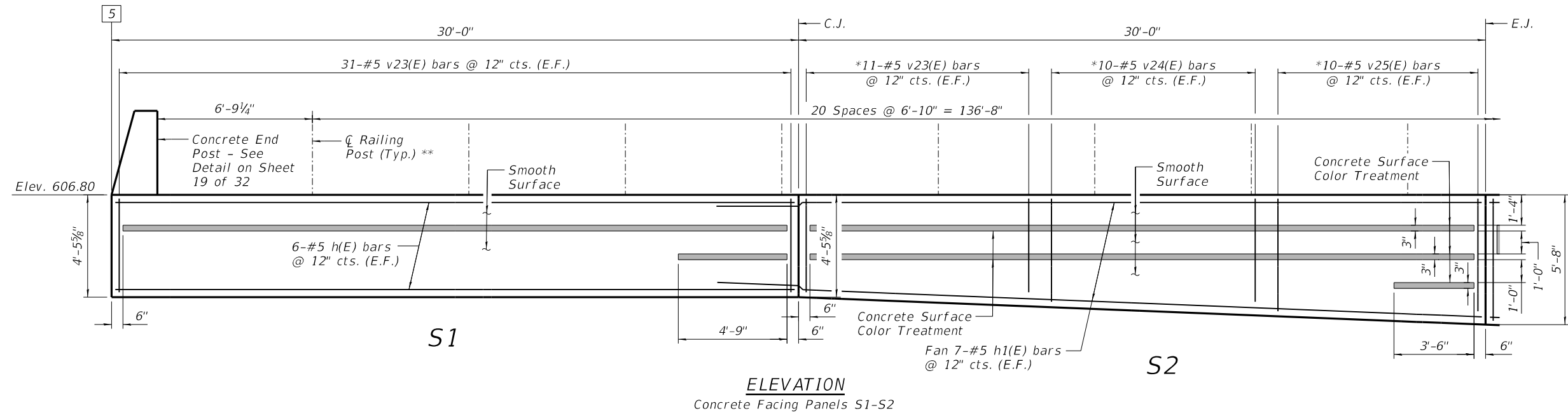
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PLOT DATE : 9/27/2024	CHECKED - RGC	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CONCRETE FACING - NORTH WALL
RETAINING WALLS - NORTH GRAND AVENUE UNDERPASS

SHEET NO. 14 OF 32 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	428
		CONTRACT NO. 93773		
		ILLINOIS FED. AID PROJECT		



BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h(E)	28	#5	29'-8"	—
h1(E)	32	#5	33'-5"	—
v23(E)	84	#5	4'-1"	—
v24(E)	20	#5	4'-6"	—
v25(E)	20	#5	4'-11"	—
v26(E)	22	#5	5'-4"	—
v27(E)	20	#5	5'-9"	—
v28(E)	20	#5	6'-2"	—
v29(E)	22	#5	6'-6"	—
v30(E)	20	#5	6'-11"	—
v31(E)	20	#5	7'-4"	—
Reinforcement Bars Epoxy Coated			Pound	3350
Concrete Structures (Retaining Wall)			Cu. Yd.	27.4

Ⓣ = Intermediate Tensioning Posts

5 = Control Point

* Stagger Bars

** Steel Railing (Special)
Adjust as Necessary
to Avoid C.J.'s.

Note: E.J. = Expansion Joint
C.J. = Construction Joint
E.F. = Each Face

MIN. BAR LAPS
#5 Bars = 3'-4"

FINAL PLANS

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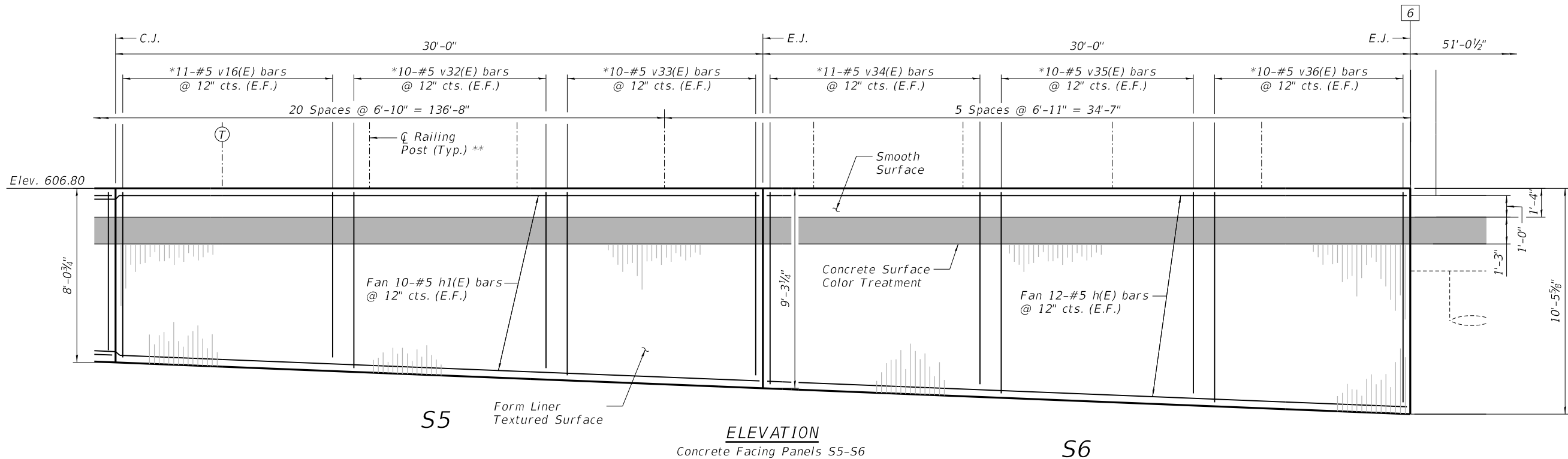
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PLOT DATE = 9/27/2024	CHECKED - RGC	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CONCRETE FACING - SOUTH WALL
RETAINING WALLS - NORTH GRAND AVENUE UNDERPASS

SHEET NO. 15 OF 32 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	429
				CONTRACT NO. 93773
ILLINOIS FED. AID PROJECT				



ELEVATION
Concrete Facing Panels S5-S6

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h(E)	24	#5	29'-8"	—
h1(E)	20	#5	33'-5"	—
v16(E)	22	#5	7'-8"	—
v32(E)	20	#5	8'-2"	—
v33(E)	20	#5	8'-6"	—
v34(E)	22	#5	8'-11"	—
v35(E)	20	#5	9'-4"	—
v36(E)	20	#5	9'-9"	—
Reinforcement Bars Epoxy Coated			Pound	2570
Concrete Structures (Retaining Wall)			Cu. Yd.	22.6

Ⓣ = Intermediate Tensioning Posts

[6] = Control Point

Note: E.J. = Expansion Joint
C.J. = Construction Joint
E.F. = Each Face

* Stagger Bars

** Steel Railing (Special)
Adjust as Necessary
to Avoid C.J.'s.

MIN. BAR LAPS
#5 Bars = 3'-4"

FINAL PLANS

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USER NAME : pop00275	DESIGNED - KMS	REVISIONS
	CHECKED - RGC	REVISIONS
PLOT SCALE : 0.167' / 1" =	DRAWN - EJM	REVISIONS
PLOT DATE : 9/27/2024	CHECKED - RGC	REVISIONS

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CONCRETE FACING - SOUTH WALL
RETAINING WALLS - NORTH GRAND AVENUE UNDERPASS

SHEET NO. 16 OF 32 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	430
ILLINOIS FED. AID PROJECT				CONTRACT NO. 93773



USER NAME : pop00275	DESIGNED - KMS	REVISED -
	CHECKED - RGC	REVISED -
PLOT SCALE : 0.167 ' / in.	DRAWN - EJM	REVISED -
PLOT DATE : 9/27/2024	CHECKED - RGC	REVISED -

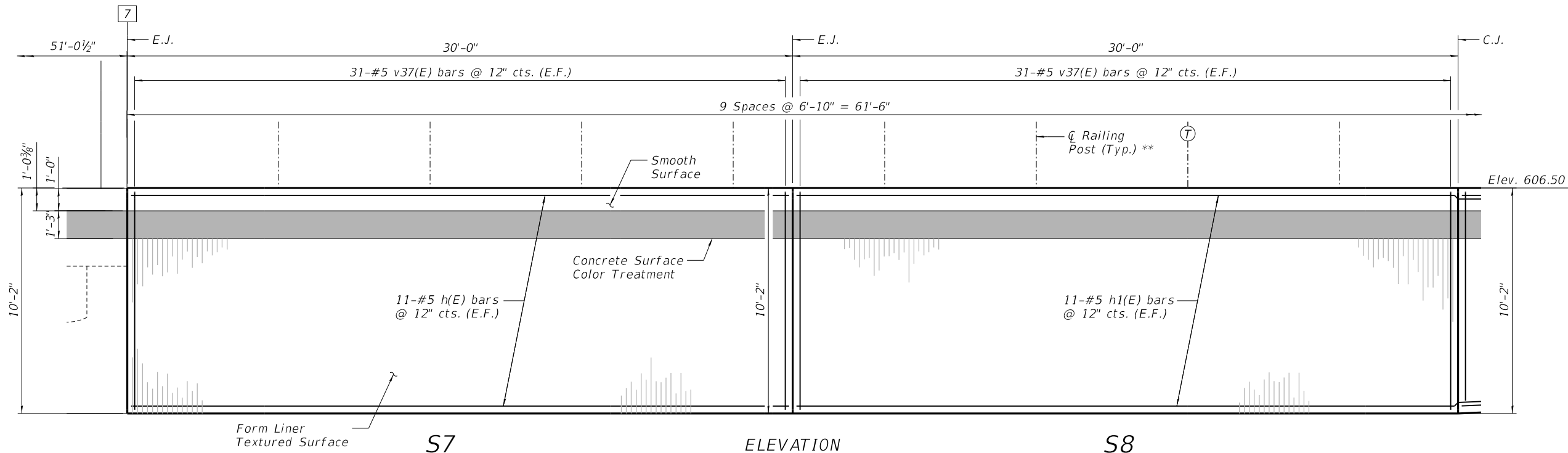
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

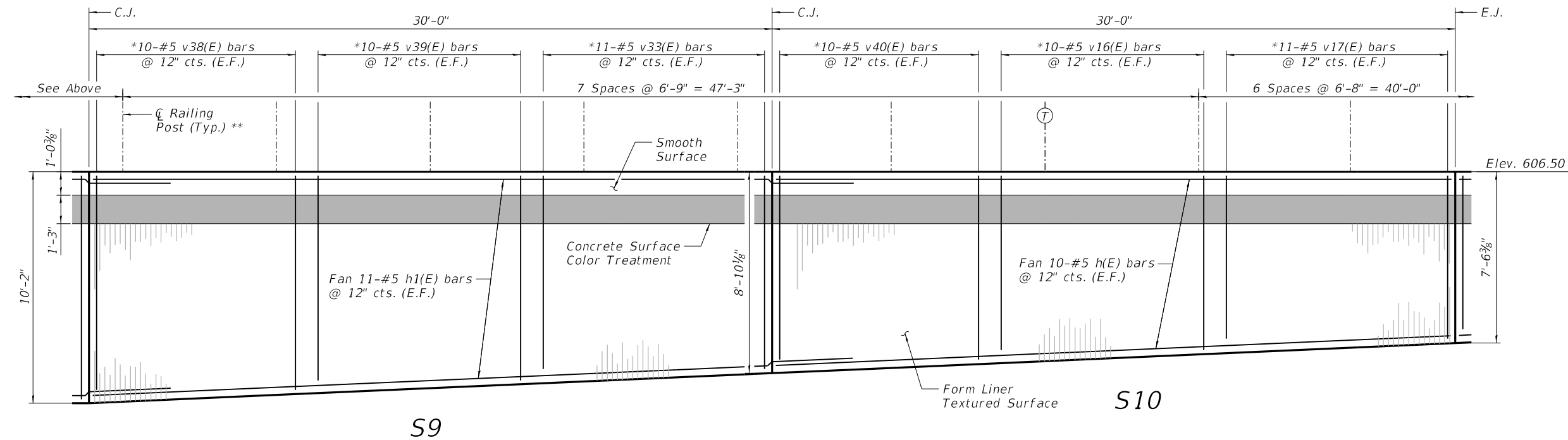
CONCRETE FACING - SOUTH WALL
RETAINING WALLS - NORTH GRAND AVENUE UNDERPASS

SHEET NO. 17 OF 32 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	431
ILLINOIS FED. AID PROJECT			CONTRACT NO. 93773	



ELEVATION
Concrete Facing Panels S7-S8



ELEVATION
Concrete Facing Panels S9-S10

⊕ = Intermediate Tensioning Posts

7 = Control Point

Note: E.J. = Expansion Joint
C.J. = Construction Joint
E.F. = Each Face

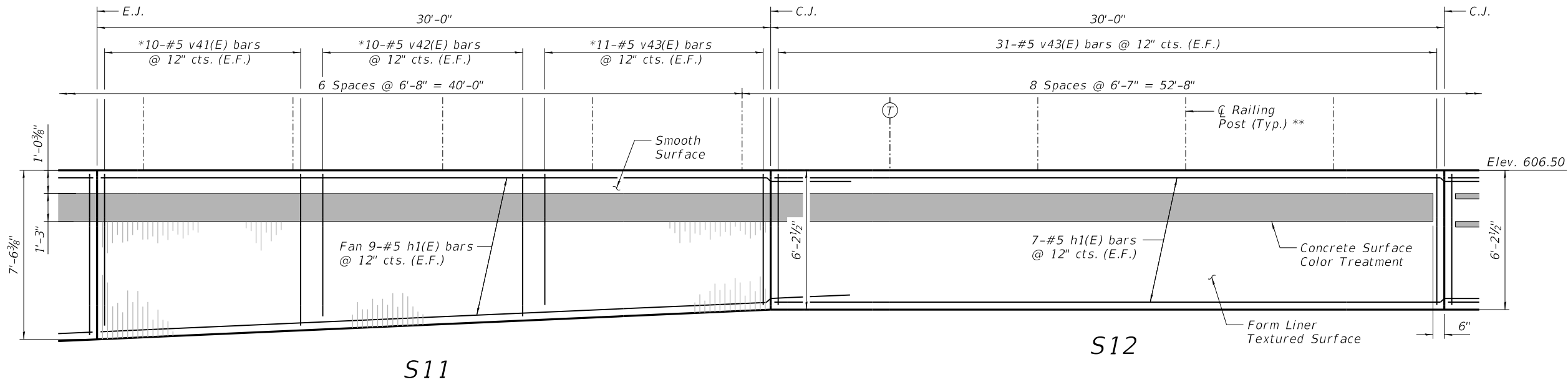
* Stagger Bars

** Steel Railing (Special)
Adjust as Necessary
to Avoid C.J.'s.

MIN. BAR LAPS
#5 Bars = 3'-4"

BILL OF MATERIAL

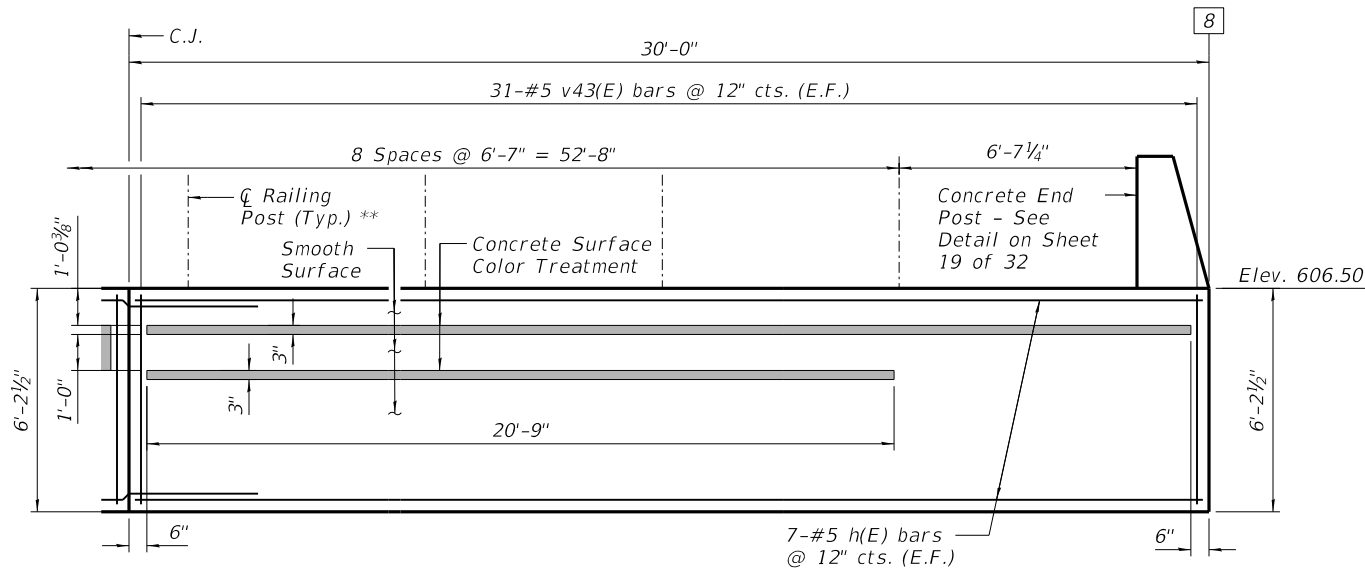
Bar	No.	Size	Length	Shape
h(E)	42	#5	29'-8"	—
h1(E)	44	#5	33'-5"	—
v16(E)	20	#5	7'-8"	—
v17(E)	22	#5	7'-2"	—
v33(E)	22	#5	8'-6"	—
v37(E)	124	#5	9'-10"	—
v38(E)	20	#5	9'-5"	—
v39(E)	20	#5	9'-0"	—
v40(E)	20	#5	8'-1"	—
Reinforcement Bars Epoxy Coated			Pound	5180
Concrete Structures (Retaining Wall)			Cu. Yd.	45.8



S11

S12

ELEVATION
Concrete Facing Panels S11-S12



S13

ELEVATION
Concrete Facing Panel S13

Ⓢ = Intermediate Tensioning Posts

8 = Control Point

* Stagger Bars

** Steel Railing (Special)
Adjust as Necessary
to Avoid C.J.'s.

Note: E.J. = Expansion Joint
C.J. = Construction Joint
E.F. = Each Face

MIN. BAR LAPS
#5 Bars = 3'-4"

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h(E)	14	#5	29'-8"	—
h1(E)	32	#5	33'-5"	—
v41(E)	20	#5	6'-9"	—
v42(E)	20	#5	6'-4"	—
v43(E)	146	#5	5'-10"	—
Reinforcement Bars Epoxy Coated			Pound	2710
Concrete Structures (Retaining Wall)			Cu. Yd.	22.5

FINAL PLANS

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USER NAME : pop00275

PLOT SCALE : 0.167 ' / in.

PLOT DATE : 9/27/2024

DESIGNED - KMS

CHECKED - RGC

DRAWN - EJM

CHECKED - RGC

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REVISED -

REVISED -

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CONCRETE FACING - SOUTH WALL
RETAINING WALLS - NORTH GRAND AVENUE UNDERPASS

SHEET NO. 18 OF 32 SHEETS

F.A.U.

RTE.

SECTION

COUNTY

TOTAL

SHEETS

SHEET

NO.

7972

20-00492-00-BR & 22-00492-01-BR

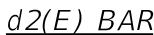
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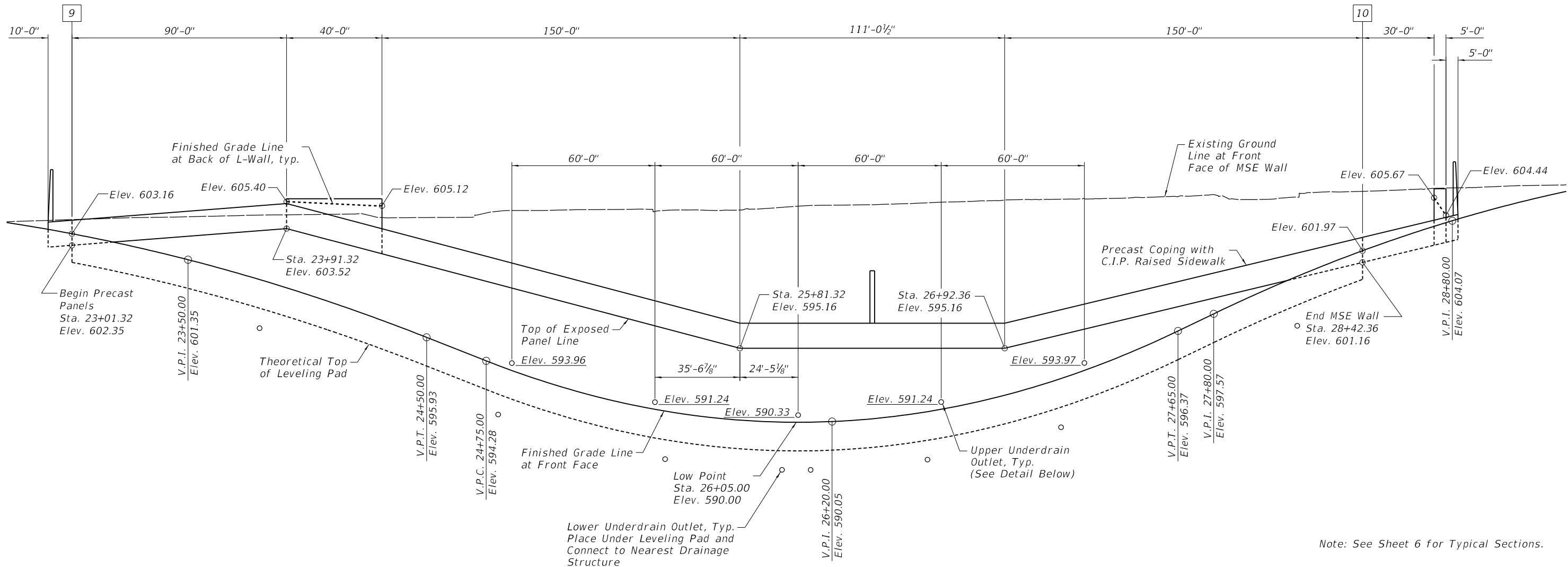
714

432

CONTRACT NO. 93773

ILLINOIS FED. AID PROJECT





Note: See Sheet 6 for Typical Sections.

NORTH WALL ELEVATION

MSE Wall Notes

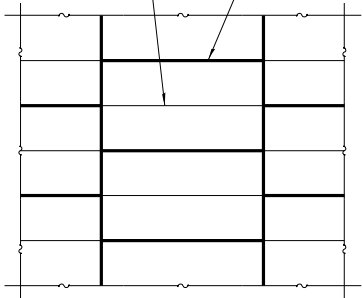
- The MSE Wall supplier's internal stability design shall account for the L-Wall anchorage slab's factored bearing pressure of 0.40 ksf and horizontal factored sliding force of 0.65 kips/ft. of wall. This loading includes all live loads.
- Apply Concrete Sealer to exposed faces of Precast Panels, Coping, and Anchorage Slab.

MSE Wall Design Loads

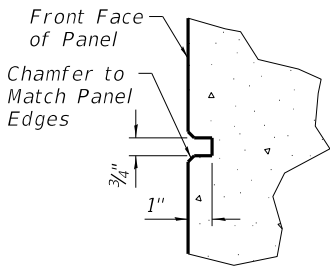
- Native soil behind select fill
Unit Weight = 125 pcf, $\phi = 30^\circ$
- Vertical Live Load on Sidewalk = 75 pcf
- Vertical Live Load behind upper wall
Cooper E-80 at railroad tracks
240 psf traffic surcharge elsewhere.

External stability of the MSE Wall in front of the permanent tangent pile retaining wall has been evaluated for the greater of the active pressure including surcharge behind the tangent pile wall applied only through the gaps between the drilled shafts or 35 psf/ft applied to the entire reinforced soil mass.

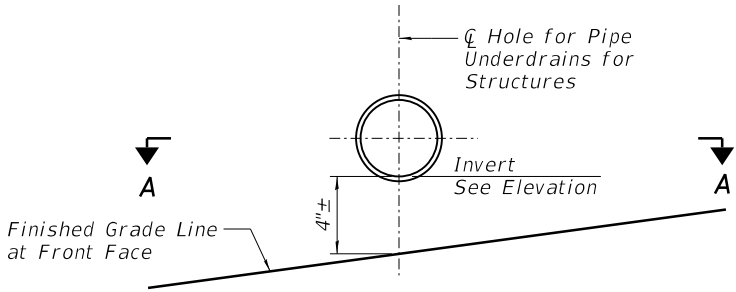
False Joint in Precast Panel $\frac{3}{4}$ "x1" typ.



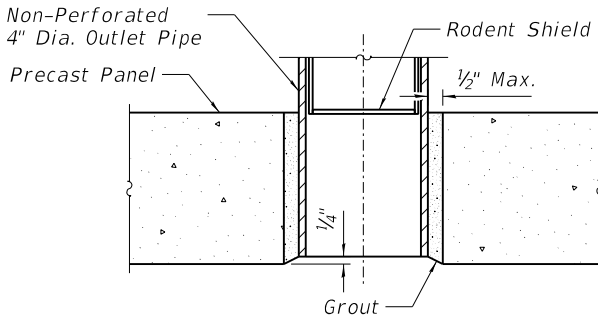
**MSE WALL PRECAST
PANEL PATTERN**



**FALSE JOINT
RUSTICATION**



UPPER UNDERDRAIN OUTLET DETAIL



SECTION A-A

FINAL PLANS



USER NAME : pop00275
PLOT SCALE : 0.167' / 1" =
PLOT DATE : 9/27/2024

DESIGNED - KMS
CHECKED - RGC
DRAWN - EJM
CHECKED - RGC

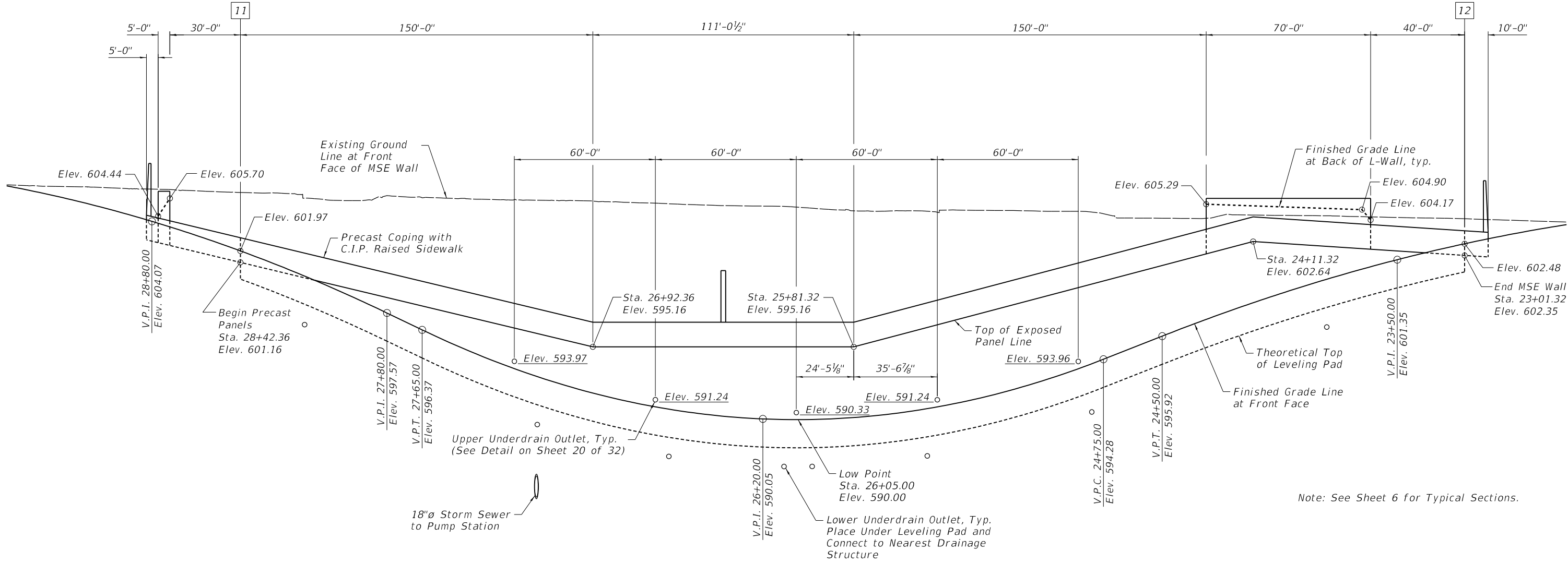
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

MSE ELEVATION - NORTH WALL
RETAINING WALLS - NORTH GRAND AVENUE UNDERPASS

SHEET NO. 20 OF 32 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	434
CONTRACT NO. 93773				
ILLINOIS FED. AID PROJECT				



SOUTH WALL ELEVATION

Note: See Sheet 6 for Typical Sections.

FINAL PLANS

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	CHECKED - RGC
PLOT SCALE = 0.167' / 1" =	DRAWN - EJM
PLOT DATE = 9/27/2024	CHECKED - RGC

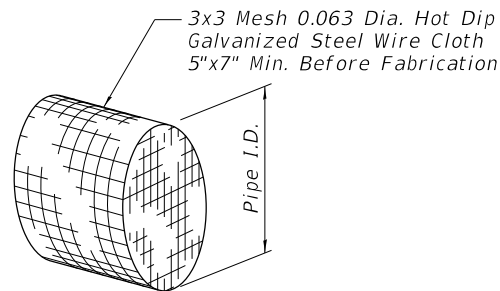
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DEPARTMENT OF TRANSPORTATION

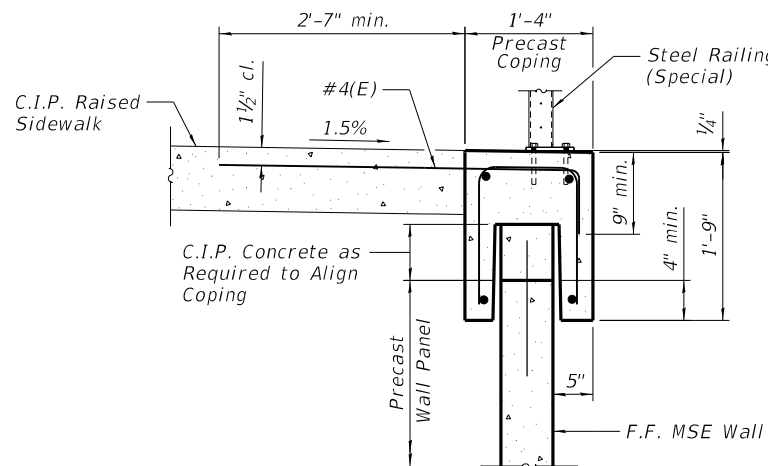
MSE ELEVATION - SOUTH WALL
RETAINING WALLS - NORTH GRAND AVENUE UNDERPASS

SHEET NO. 21 OF 32 SHEETS

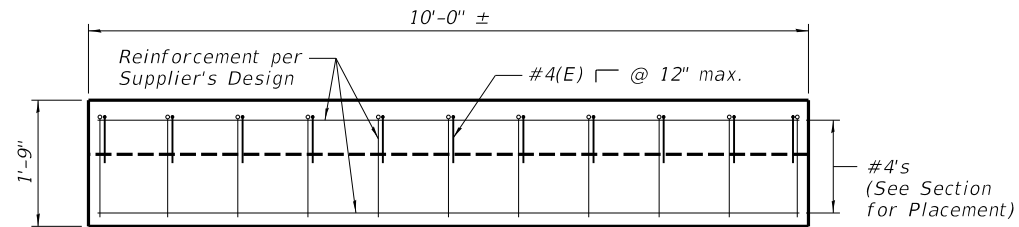
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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CONTRACT NO. 93773				
ILLINOIS FED. AID PROJECT				



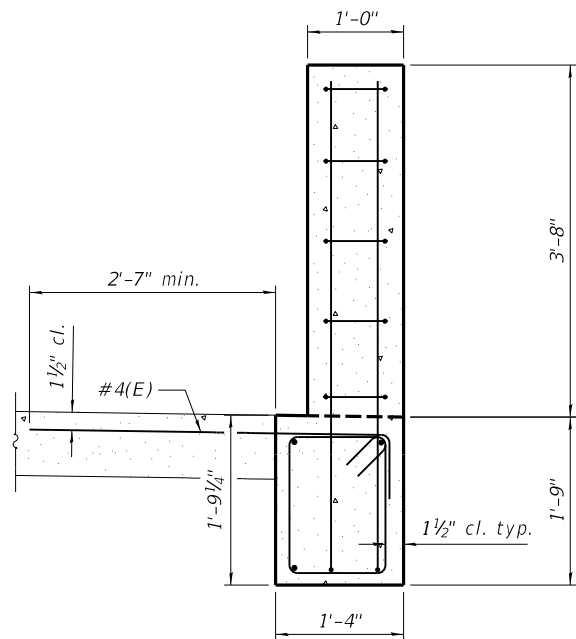
DETAIL OF RODENT SHIELD



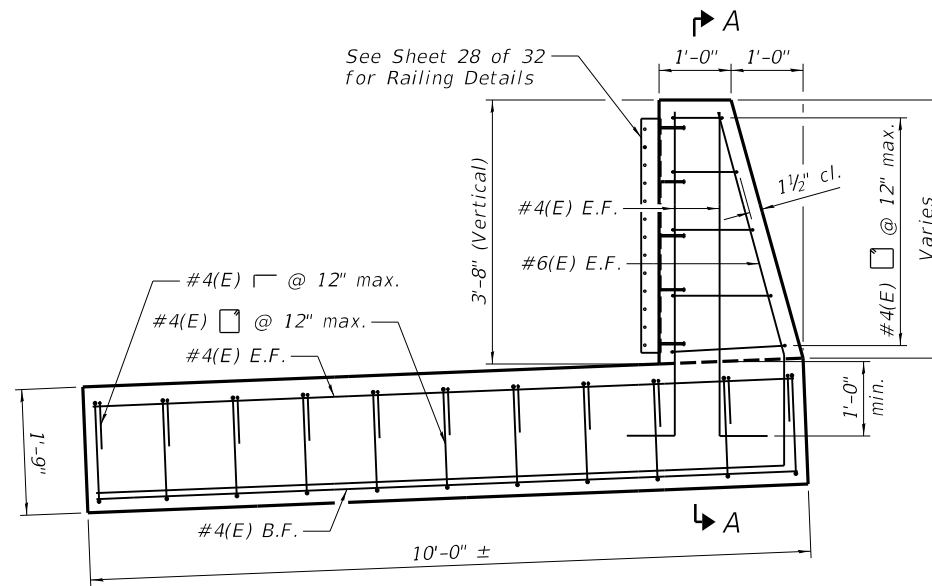
STANDARD COPING SECTION



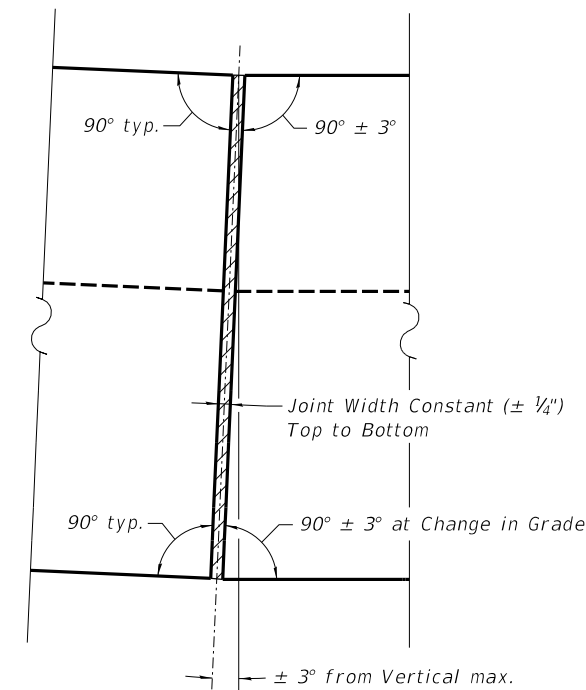
TYPICAL PRE-CAST COPING ELEVATION



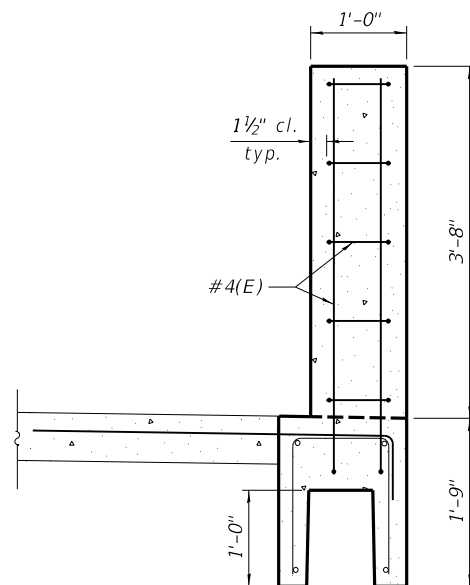
SECTION A-A



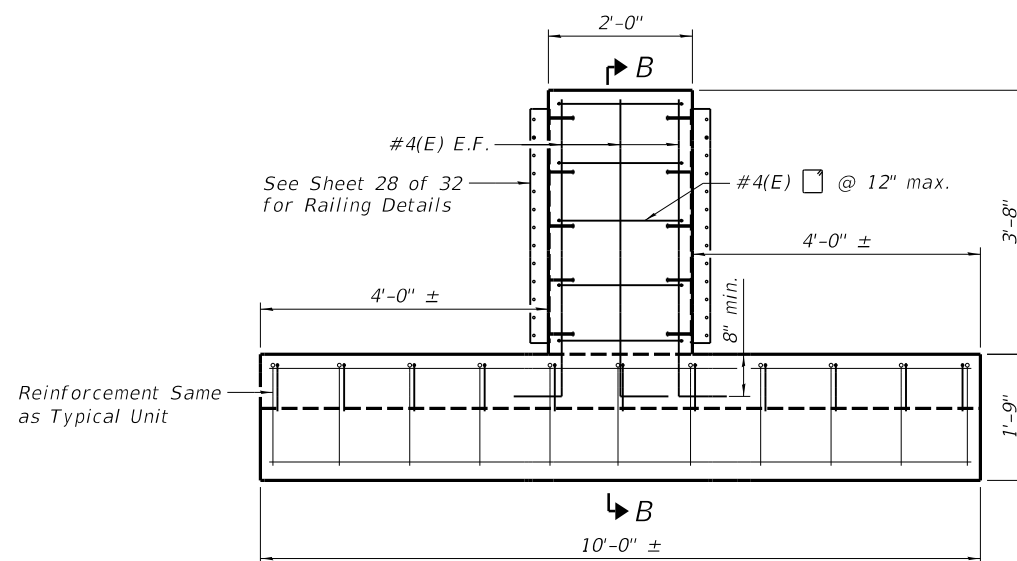
END POST UNIT ELEVATION



PRECAST UNIT JOINT ELEVATION



SECTION B-B



INTERMEDIATE POST UNIT ELEVATION

Notes:

1. Precast coping, end posts, and intermediate posts shall be included in the cost of Mechanically Stabilized Earth Retaining Wall.
2. Embeds for railing shall be included in the cost of Steel Railing (Special).
3. Reinforcement for concrete end posts and for embedment into cast-in-place raised sidewalk shall be as shown, minimum. Other reinforcement shall be per supplier design.



USER NAME	= pop00275
PLOT SCALE	= 0.167' / 1 in.
PLOT DATE	= 9/27/2024

DESIGNED	- KMS
CHECKED	- RGC
DRAWN	- EJM
CHECKED	- RGC

REVISED	-
REVISED	-
REVISED	-
REVISED	-

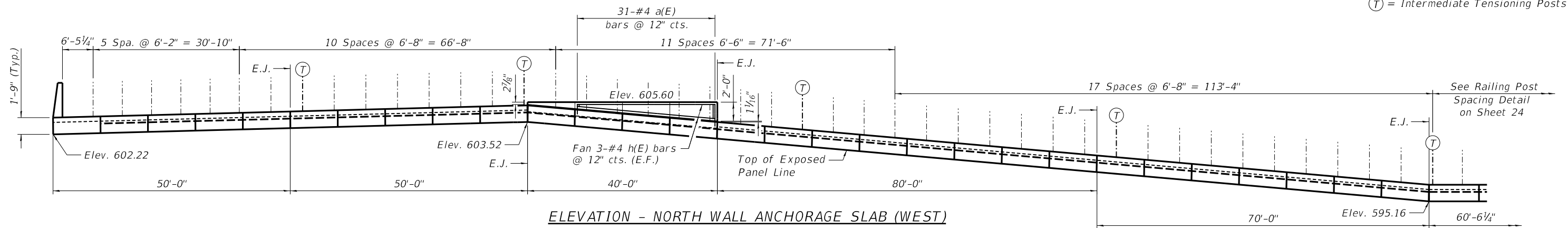
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

MSE DETAILS
RETAINING WALLS - NORTH GRAND AVENUE UNDERPASS

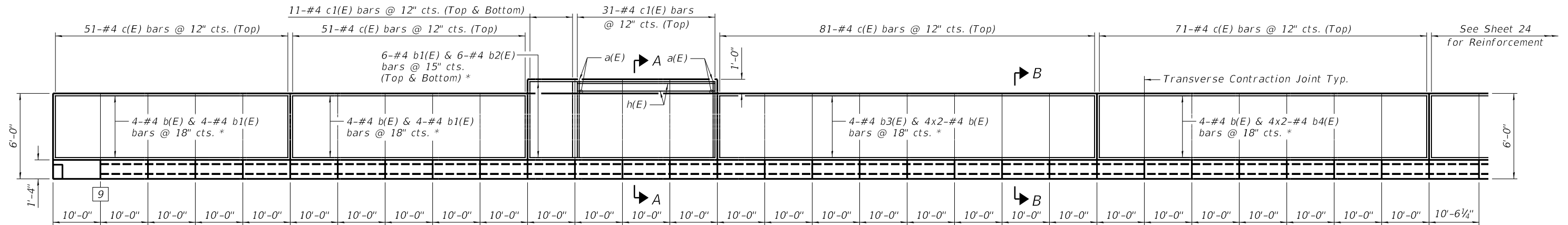
SHEET NO. 22 OF 32 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	436
CONTRACT NO.				93773
ILLINOIS FED. AID PROJECT				

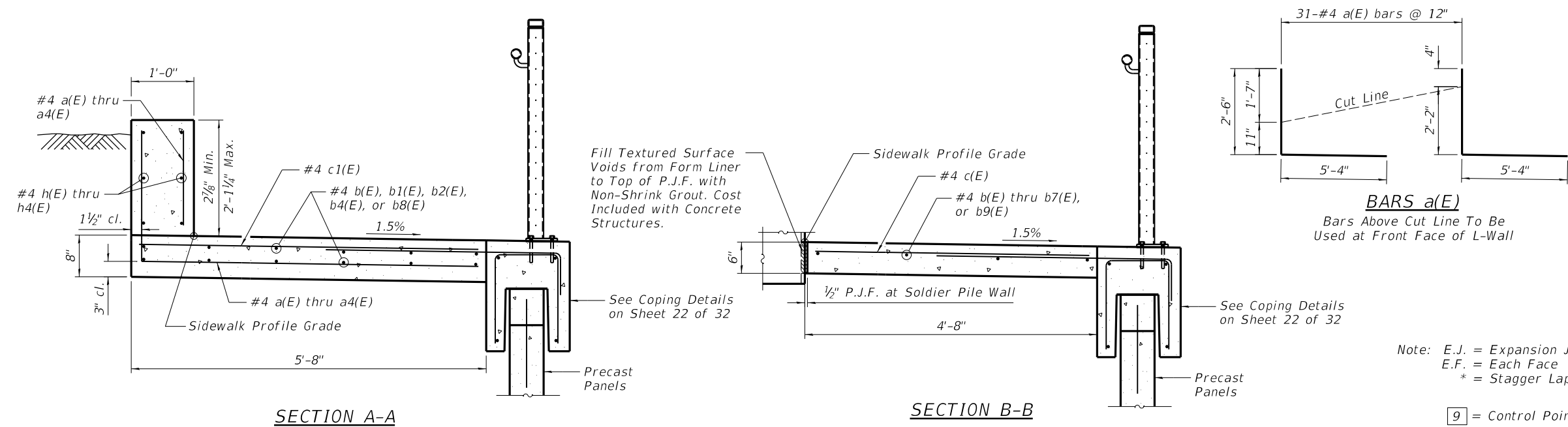
(T) = Intermediate Tensioning Posts



ELEVATION - NORTH WALL ANCHORAGE SLAB (WEST)



PLAN - NORTH WALL ANCHORAGE SLAB (WEST)



MIN. BAR LAPS
#4 Bars = 2'-5"

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a(E)	31	#4	7'-10"	└─
b(E)	20	#4	34'-0"	—
b1(E)	20	#4	18'-3"	—
b2(E)	12	#4	24'-0"	—
b3(E)	4	#4	16'-9"	—
b4(E)	8	#4	20'-6"	—
c(E)	254	#4	4'-4"	—
c1(E)	53	#4	5'-4"	—
h(E)	6	#4	29'-8"	—
Reinforcement Bars			Pound	2250
Epoxy Coated				
Concrete Structures			Cu. Yd.	29.8

Note: E.J. = Expansion Joint
E.F. = Each Face
* = Stagger Laps

[9] = Control Point

FINAL PLANS

p:\hansoninc-pw\hanson.com\hanson-pw\01\Documents\09\Jobs\09\01798\Usable Segments III - V - VINCAD\Struct\Usable Segment VI\North Grand\Sheet\09\01798-NorthGrand-Retaining-Walls-Plans.dgn



USER NAME : pop00275	DESIGNED - KMS	REVISED -
PLOT SCALE = 0.167' / 1"	CHECKED - RGC	REVISED -
PLOT DATE = 9/27/2024	DRAWN - EJM	REVISED -
	CHECKED - RGC	REVISED -

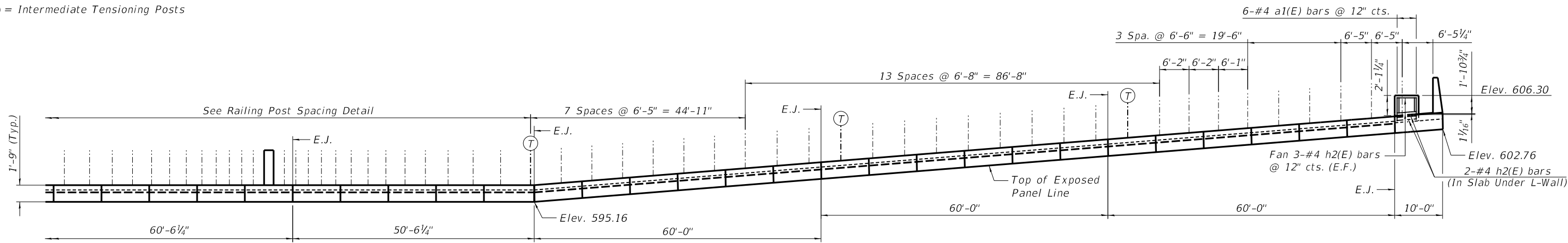
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ANCHORAGE SLAB - NORTH WALL
RETAINING WALLS - NORTH GRAND AVENUE UNDERPASS

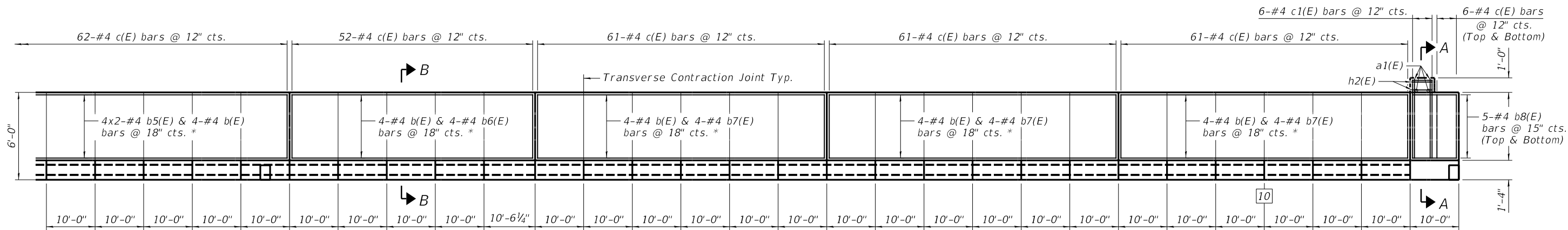
SHEET NO. 23 OF 32 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	437
				CONTRACT NO. 93773
ILLINOIS FED. AID PROJECT				

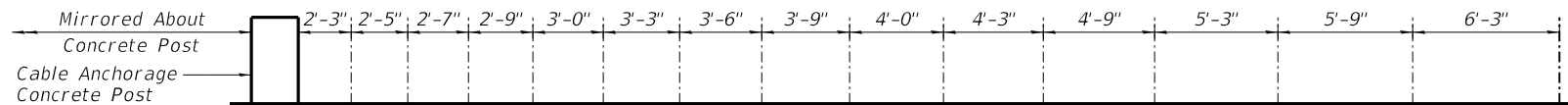
Ⓣ = Intermediate Tensioning Posts



ELEVATION - NORTH WALL ANCHORAGE SLAB (EAST)



PLAN - NORTH WALL ANCHORAGE SLAB (EAST)



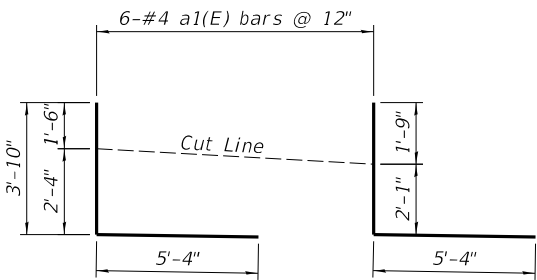
RAILING POST SPACING DETAIL
Typical for North and South Wall Anchorage Slabs

Note: E.J. = Expansion Joint
E.F. = Each Face
* = Stagger Laps
10 = Control Point

MIN. BAR LAPS
#4 Bars = 2'-5"

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a1(E)	6	#4	9'-2"	└─┘
b(E)	20	#4	34'-0"	—
b5(E)	8	#4	15'-9"	—
b6(E)	4	#4	18'-10"	—
b7(E)	12	#4	28'-3"	—
b8(E)	10	#4	9'-8"	—
c(E)	309	#4	4'-4"	—
c1(E)	6	#4	5'-4"	—
h2(E)	8	#4	4'-8"	—
Reinforcement Bars			Pound	1860
Epoxy Coated				
Concrete Structures			Cu. Yd.	25.9



BARS a1(E)
Bars Above Cut Line To Be
Used at Front Face of L-Wall

FINAL PLANS

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USER NAME : pop00275	DESIGNED - KMS	REVISD -
PLOT SCALE : 0.167' / 1in.	CHECKED - RGC	REVISED -
PLOT DATE : 9/27/2024	DRAWN - EJM	REVISED -
	CHECKED - RGC	REVISED -

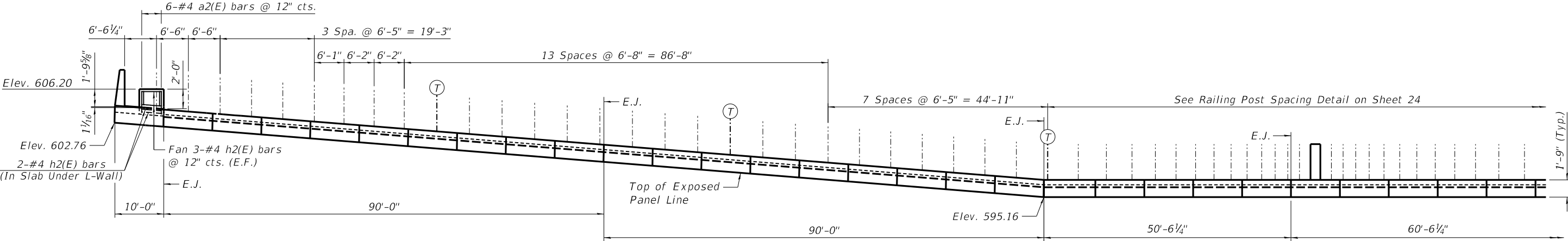
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ANCHORAGE SLAB - NORTH WALL
RETAINING WALLS - NORTH GRAND AVENUE UNDERPASS

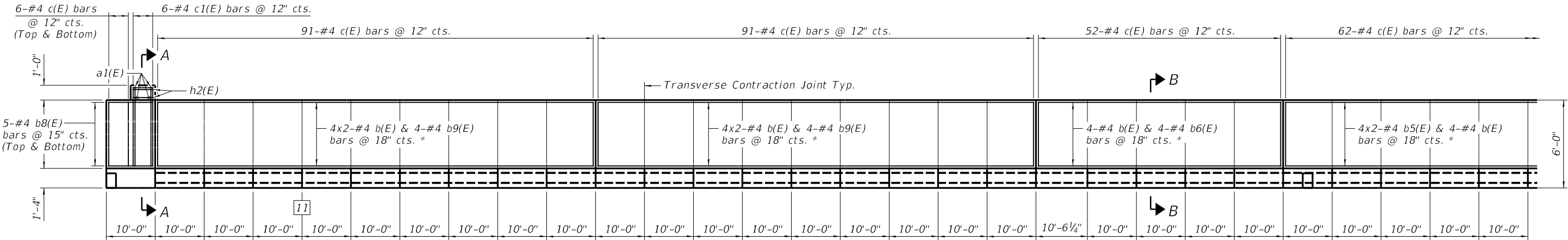
SHEET NO. 24 OF 32 SHEETS

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

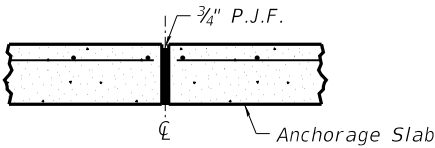
Ⓣ = Intermediate Tensioning Posts



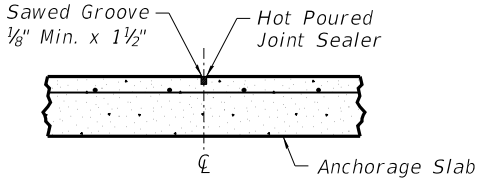
ELEVATION - SOUTH WALL ANCHORAGE SLAB (EAST)



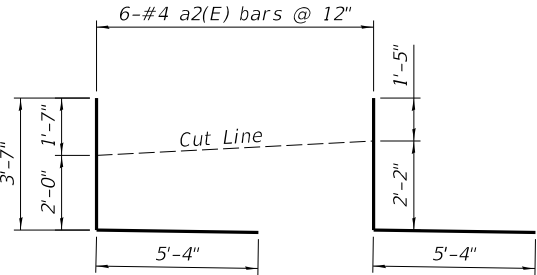
PLAN - SOUTH WALL ANCHORAGE SLAB (EAST)



EXPANSION JOINT



TRANSVERSE CONTRACTION JOINT
See Article 420.05(c) of Standard Specifications.



BARS a2(E)
Bars Above Cut Line To Be
Used at Front Face of L-Wall

Note: E.J. = Expansion Joint
E.F. = Each Face
* = Stagger Laps

11 = Control Point

MIN. BAR LAPS
#4 Bars = 2'-5"

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a2(E)	6	#4	8'-11"	
b(E)	24	#4	34'-0"	
b5(E)	8	#4	15'-9"	
b6(E)	4	#4	18'-10"	
b8(E)	10	#4	9'-8"	
b9(E)	8	#4	26'-9"	
c(E)	308	#4	4'-4"	
c1(E)	6	#4	5'-4"	
h2(E)	8	#4	4'-8"	
Reinforcement Bars			Pound	1860
Epoxy Coated				
Concrete Structures			Cu. Yd.	25.9

FINAL PLANS

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USER NAME : pop00275	DESIGNED - KMS	REVISD -
CHECKED - RGC	REVISD -	
PLOT SCALE : 0.167 ' / 1"	DRAWN - EJM	REVISD -
PLOT DATE : 9/27/2024	CHECKED - RGC	REVISD -

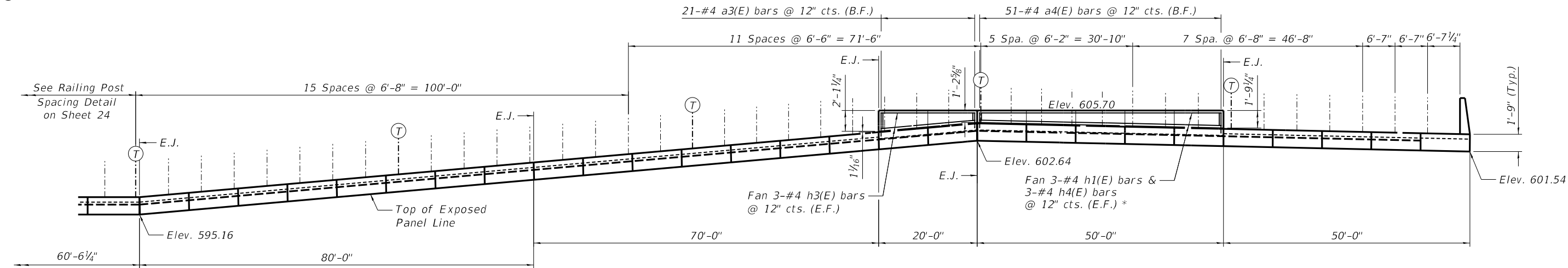
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ANCHORAGE SLAB - SOUTH WALL
RETAINING WALLS - NORTH GRAND AVENUE UNDERPASS

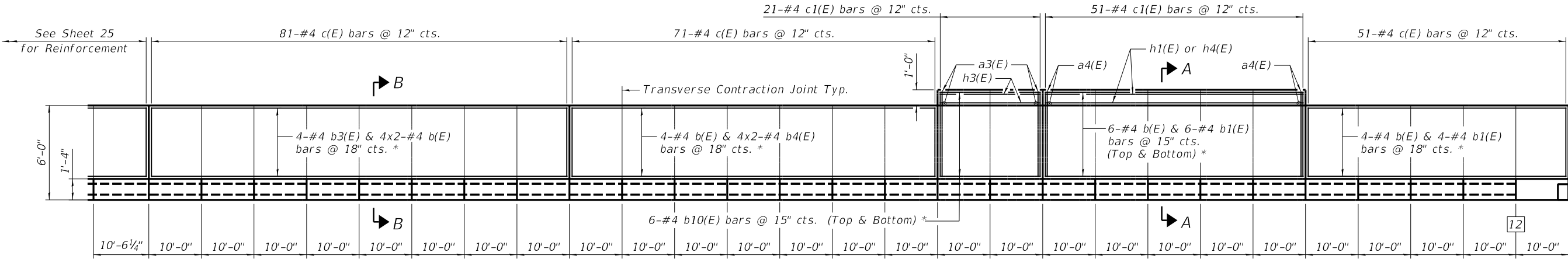
SHEET NO. 25 OF 32 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	439
				CONTRACT NO. 93773
ILLINOIS FED. AID PROJECT				

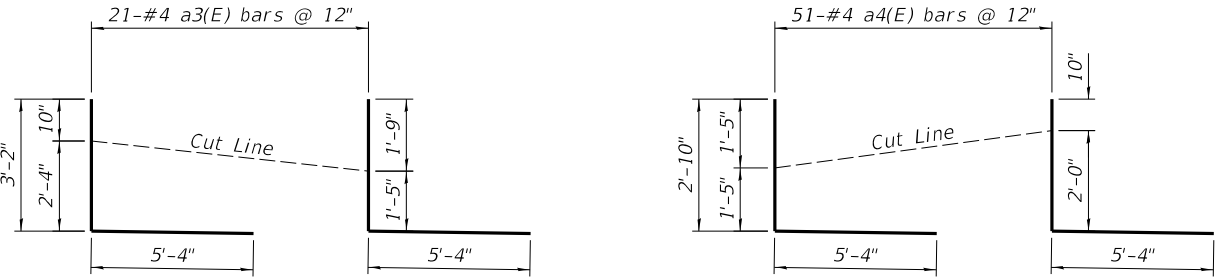
Ⓣ = Intermediate Tensioning Posts



ELEVATION - SOUTH WALL ANCHORAGE SLAB (WEST)



PLAN - SOUTH WALL ANCHORAGE SLAB (WEST)



BARS a3(E)
Bars Above Cut Line To Be
Used at Front Face of L-Wall

BARS a4(E)
Bars Above Cut Line To Be
Used at Front Face of L-Wall

Note: E.J. = Expansion Joint
E.F. = Each Face
* = Stagger Laps

12 = Control Point

MIN. BAR LAPS
#4 Bars = 2'-5"

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a3(E)	21	#4	8'-6"	L
a4(E)	51	#4	8'-2"	L
b(E)	28	#4	34'-0"	—
b1(E)	16	#4	18'-3"	—
b3(E)	4	#4	16'-9"	—
b4(E)	8	#4	20'-6"	—
b10(E)	12	#4	19'-8"	—
c(E)	203	#4	4'-4"	—
c1(E)	72	#4	5'-4"	—
h1(E)	6	#4	33'-5"	—
h3(E)	6	#4	19'-8"	—
h4(E)	6	#4	18'-6"	—
Reinforcement Bars			Pound	2670
Epoxy Coated				
Concrete Structures			Cu. Yd.	32.0

FINAL PLANS

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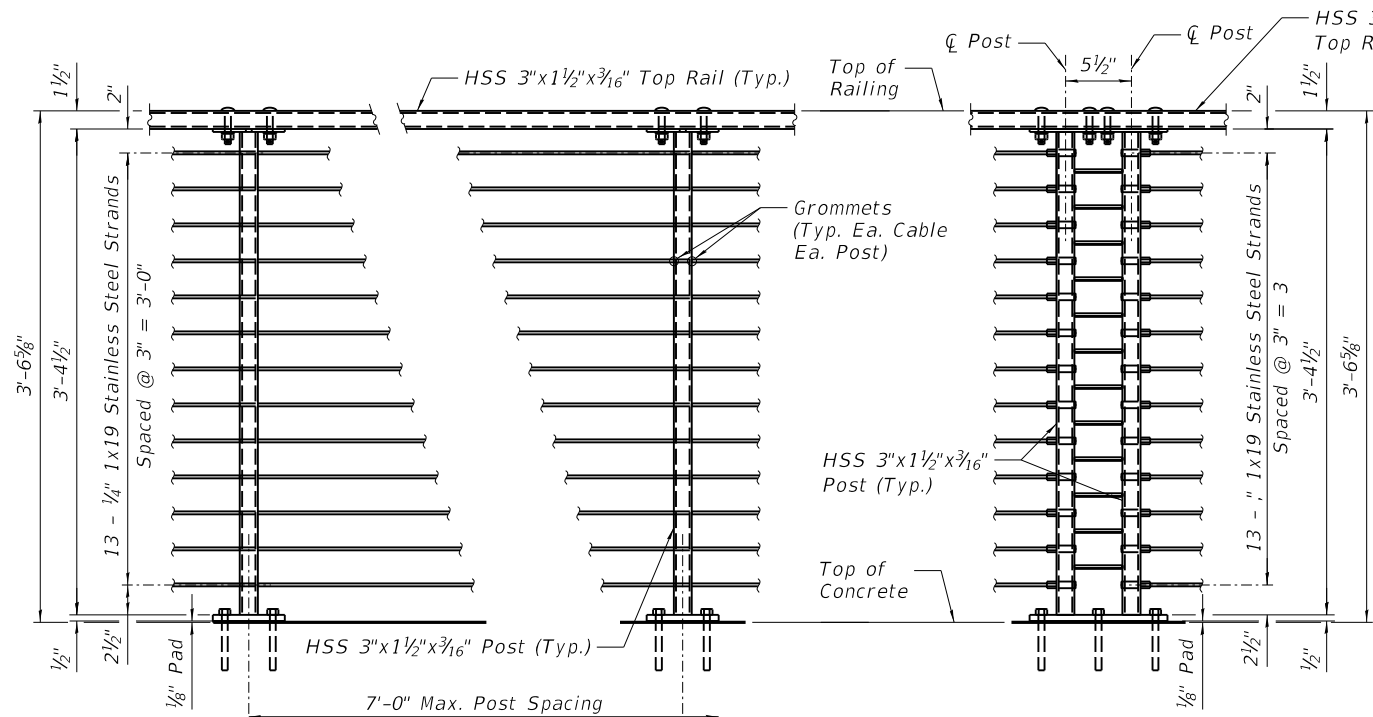
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	CHECKED - RGC	REVISED -
PLOT SCALE : 0.167' / 1"	DRAWN - EJM	REVISED -
PLOT DATE : 9/27/2024	CHECKED - RGC	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ANCHORAGE SLAB - SOUTH WALL
RETAINING WALLS - NORTH GRAND AVENUE UNDERPASS

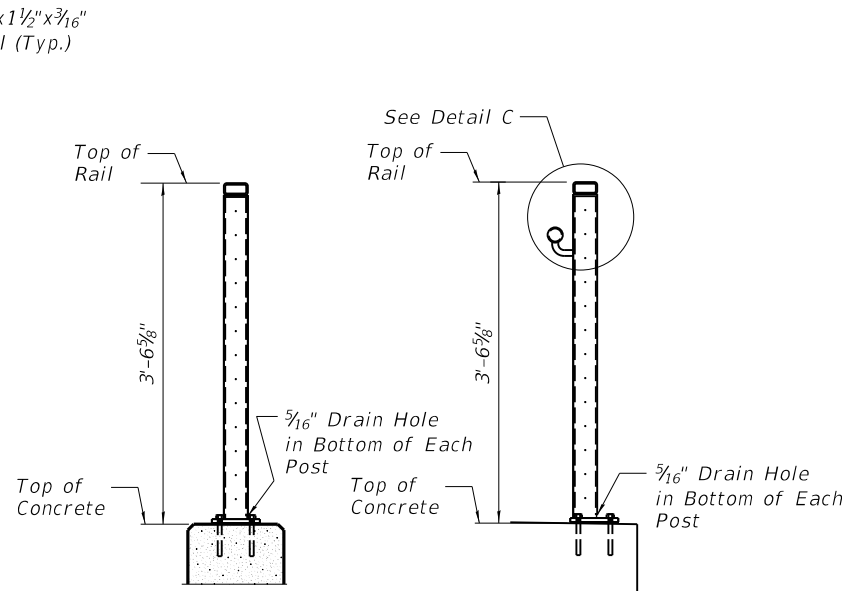
SHEET NO. 26 OF 32 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	440
		CONTRACT NO. 93773		
ILLINOIS		FED. AID PROJECT		



TYPICAL RAILING PANEL

INTERMEDIATE TENSIONING POSTS



**UPPER RETAINING WALL
LOWER RETAINING WALL
POST DETAILS**

Notes:

Railing posts shall be vertical.

Anchor rods shall be ASTM F1554, Gr. 55, galvanized steel all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor rods may be used in lieu of ASTM F1554. The anchor rods shall be hot-dipped galvanized according to AASHTO M232, Class C.

Tube segments shall have all corners ground to remove burrs or sharp projections.

All bolts, eyebolts, nuts and washers must satisfy the requirements of ASTM A307 Gr. A unless noted otherwise.

The anchor rods shall be installed according to Article 509.06 of the Standard Specifications. Embedment shall be 4" min. or according to the manufactures specifications whatever is greater.

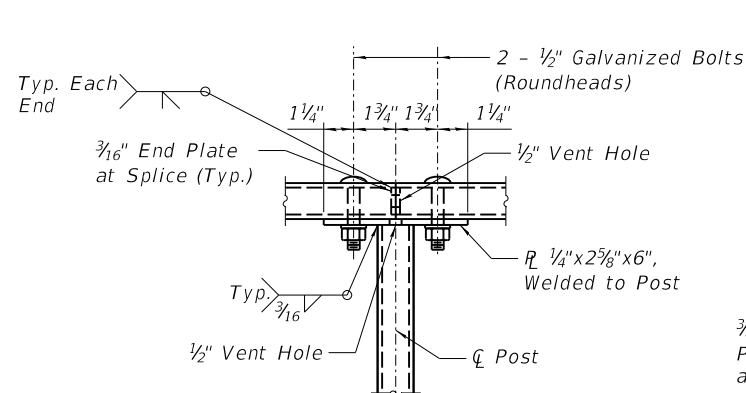
Structural steel plates and bars of the Steel Railing shall conform to the requirements of ASTM A36/36M.

Tubular steel posts shall be according to the requirements of ASTM A500, Grade B.

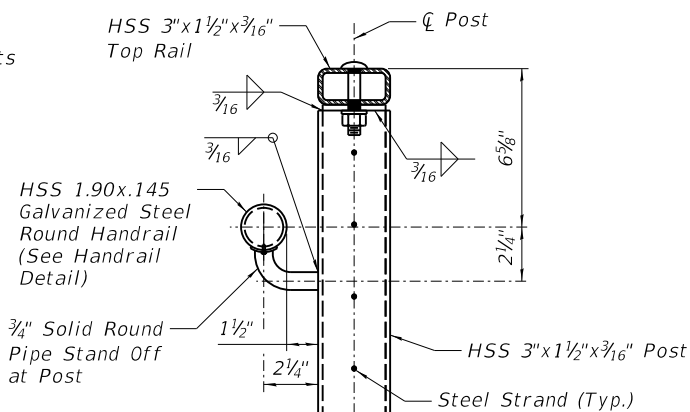
All steel rail members, with the exception of the stainless steel strand and fittings, shall be hot dipped galvanized according to Article 509.05 of the Standard Specifications.

All studs shall be 1/2"Ø x 4 " granular or solid flux filled headed studs automatically end welded to plates.

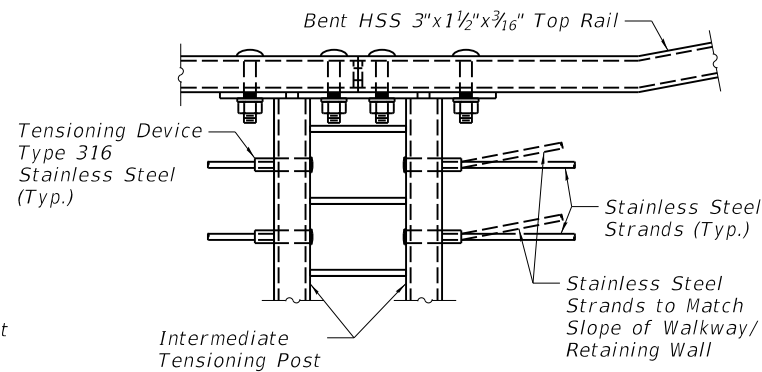
See Sheets 11 thru 18 and 23 thru 26 of 32 for rail post spacing.



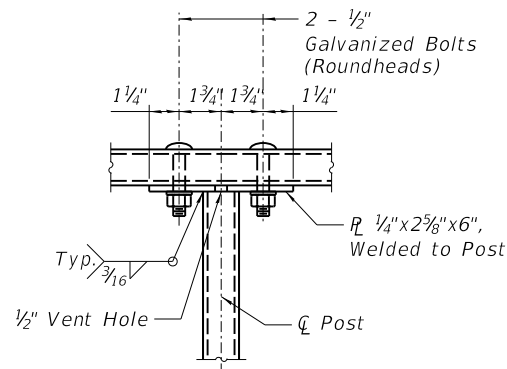
TOP RAIL - WITH SPLICE



DETAIL 'C'

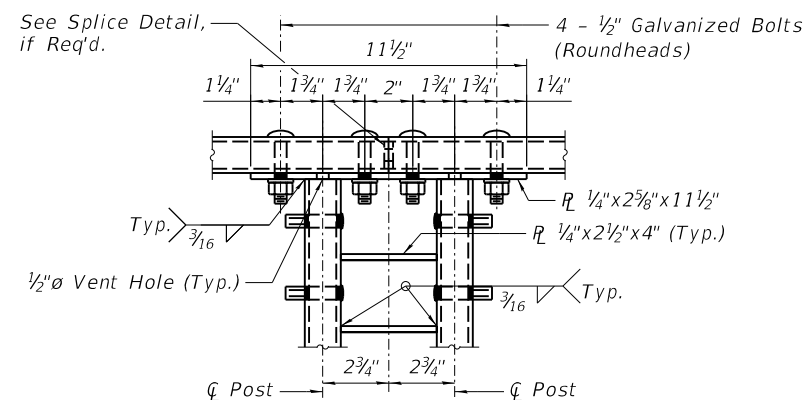


**INTERMEDIATE TENSIONING POSTS
(At Grade Change Only)**

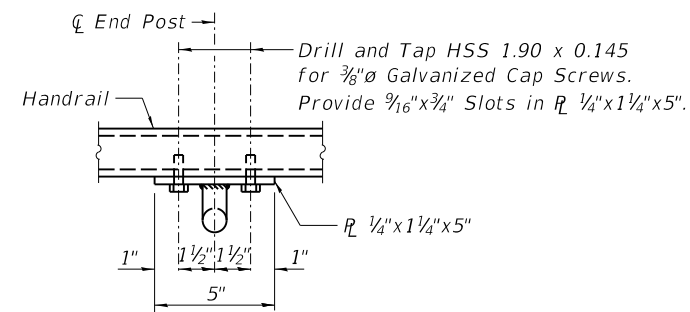


TOP RAIL - NO SPLICE

**TYPICAL RAIL/POST CONNECTION
(Strands not shown for clarity.)**



**TOP PLATE
INTERMEDIATE TENSIONING POSTS**



HANDRAIL DETAIL

FINAL PLANS

pw:\\hansoninc-pw.bentley.com\\hanson-pw-01\\Documents\\09Jobs\\09L01798\\Usable Segments III - V - VINCAD\\Struct\\Usable Segment VI\\North Grand\\Sheet\\09L01798-NorthGrand-Retaining-Walls-Plans.dgn



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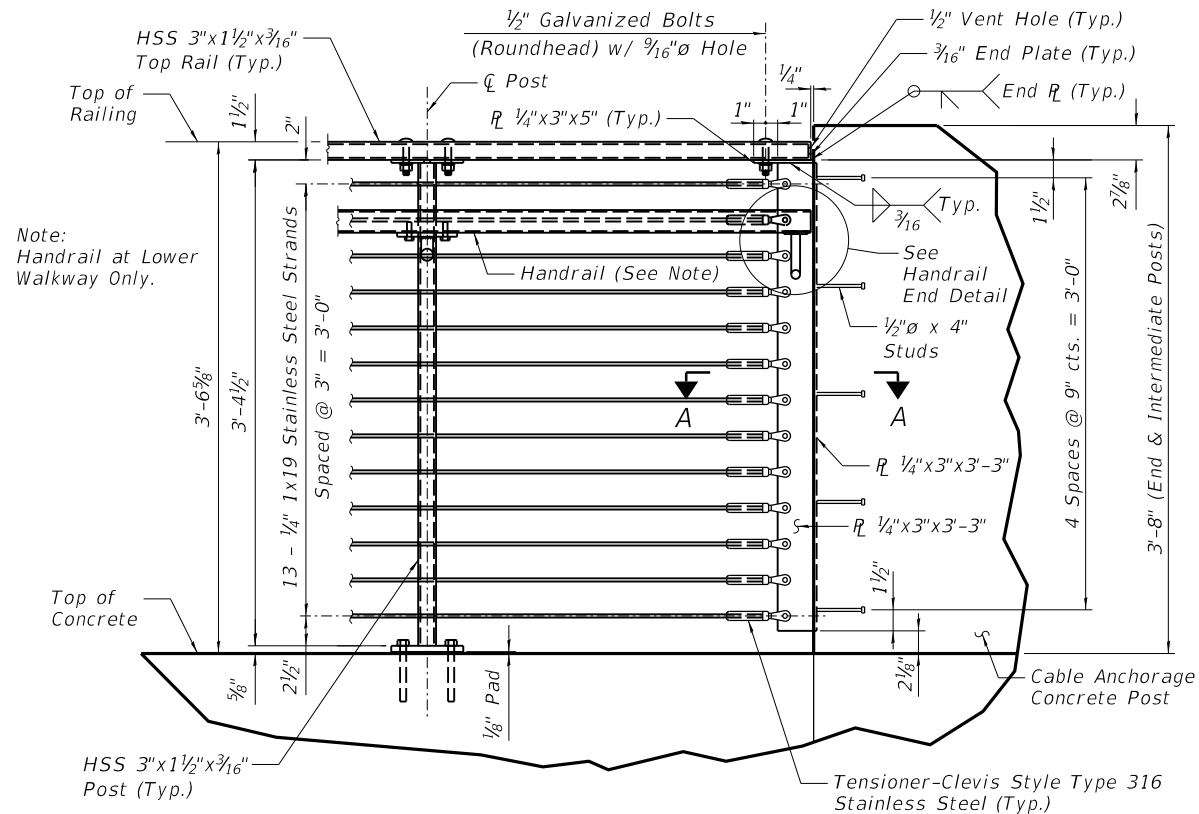
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PLOT SCALE = 0.167 ' / in.	CHECKED - RGC	REVISED -
PLOT DATE = 9/27/2024	DRAWN - EJM	REVISED -
	CHECKED - RGC	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

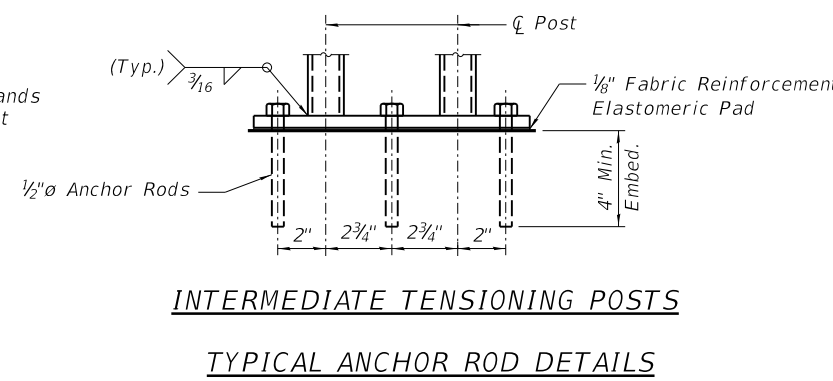
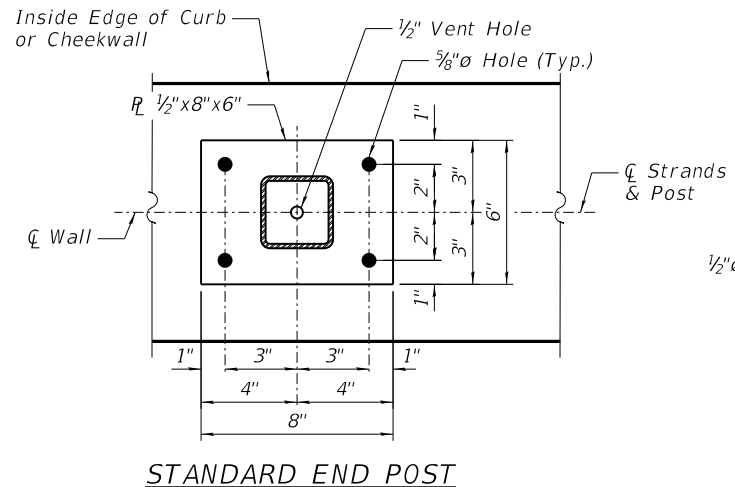
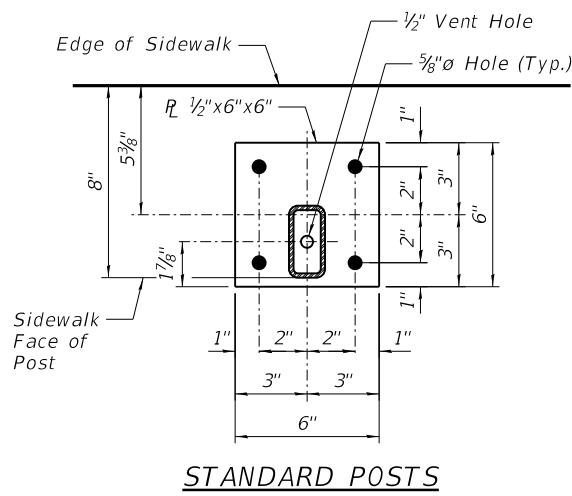
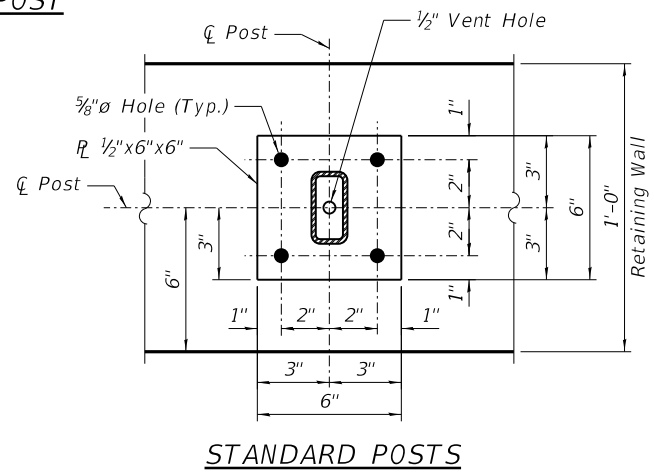
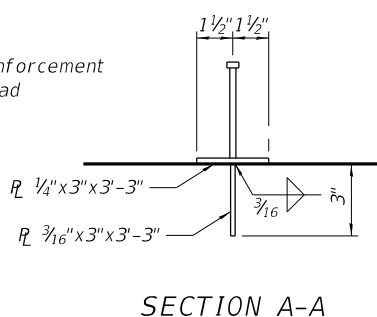
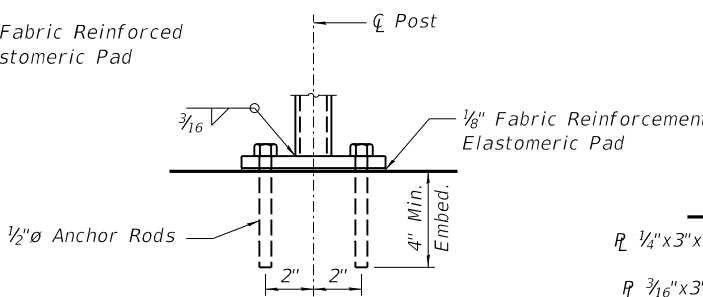
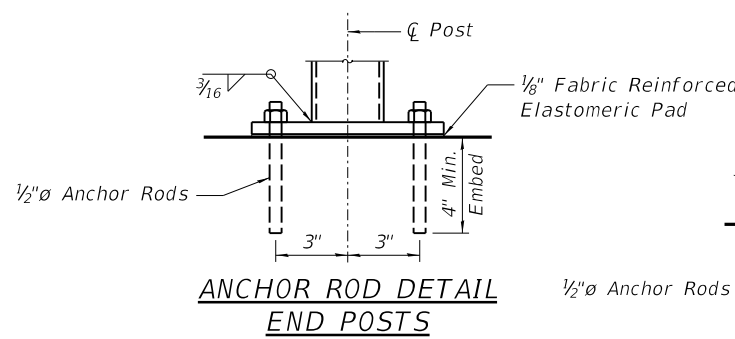
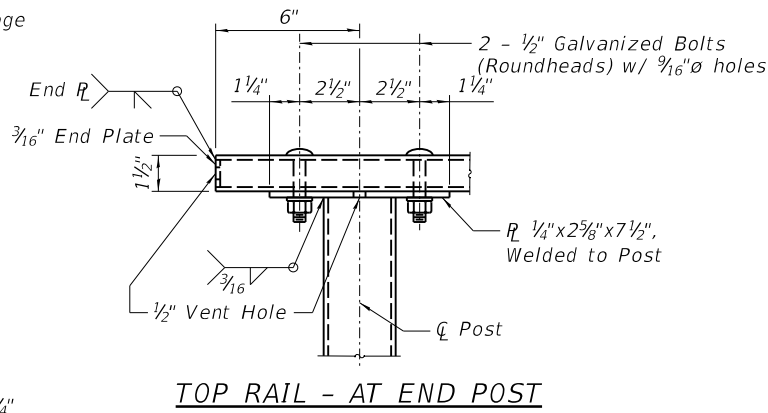
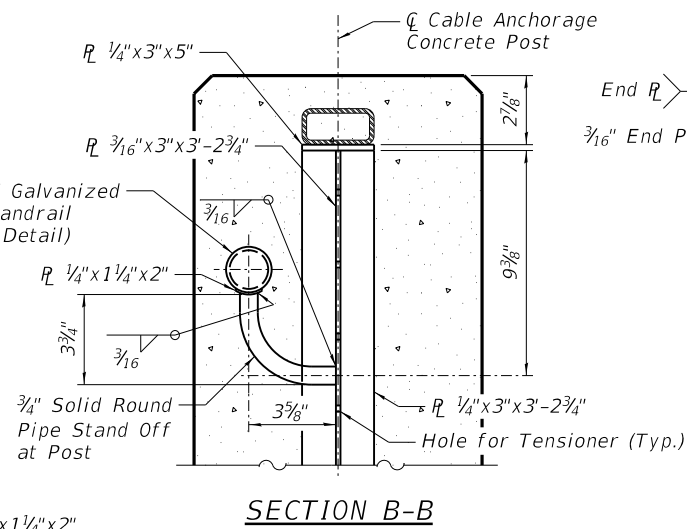
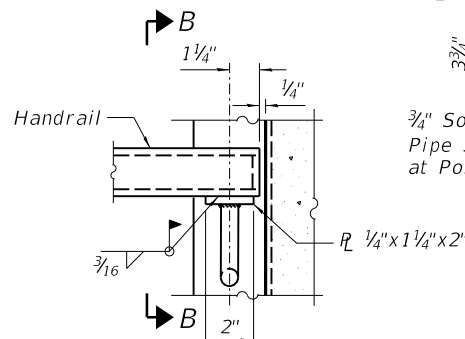
**RAILING DETAILS
RETAINING WALLS - NORTH GRAND AVENUE UNDERPASS**

SHEET NO. 27 OF 32 SHEETS

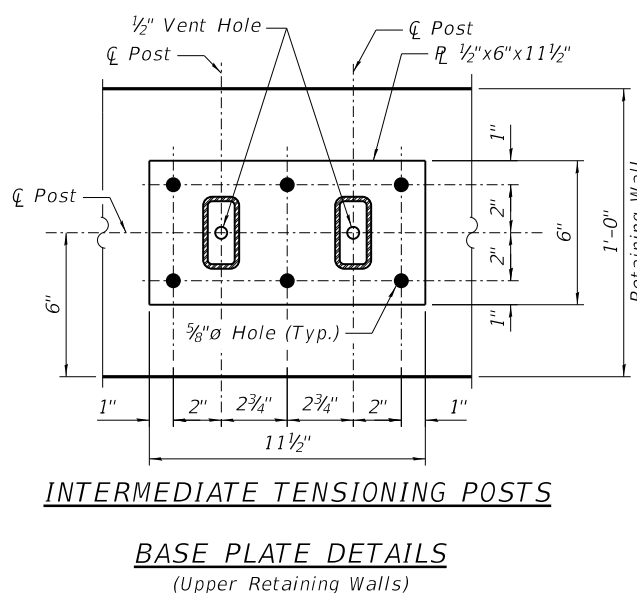
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	441
		CONTRACT NO. 93773		
ILLINOIS		FED. AID PROJECT		



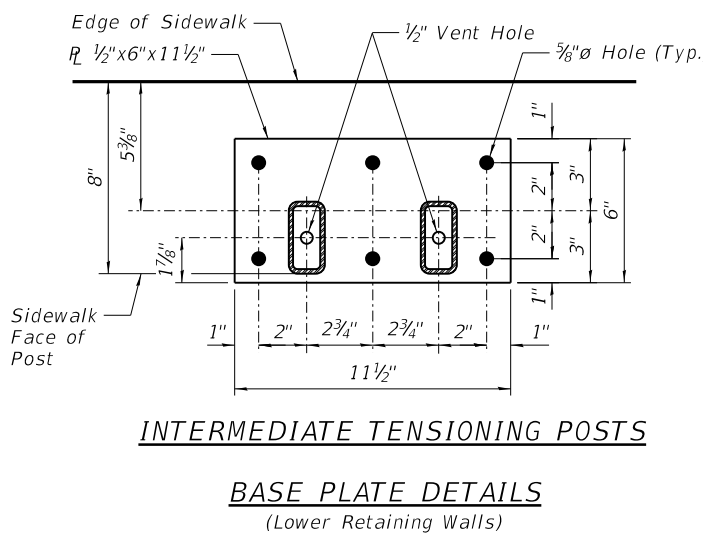
**HANDRAIL END DETAIL
CABLE ANCHORAGE CONCRETE POST**



INTERMEDIATE TENSIONING POSTS



INTERMEDIATE TENSIONING POSTS



INTERMEDIATE TENSIONING POSTS

FINAL PLANS

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PLOT SCALE = 0.167' / 1"	CHECKED - RGC	REvised -	
PLOT DATE = 9/27/2024	DRAWN - EJM	REvised -	
	CHECKED - RGC	REvised -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

RAILING DETAILS
RETAINING WALLS - NORTH GRAND AVENUE UNDERPASS

SHEET NO. 28 OF 32 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	442
CONTRACT NO. 93773				

ILLINOIS|FED. AID PROJECT

B-076A
Sta. 22+81, 24' LT

	N	Qu	w%	
604.0				ASPHALT.
603.55				CONCRETE.
602.97	6	1.53B	27	Dark brown and brown-gray very fine sandy silty CLAY - FILL.
601.47				Old abandoned Gas Line.
598.97				Bottom of Hole = 5.0 feet

B-077
Sta. 23+35, 27' LT

	N	Qu	w%	
604.1				ASPHALT.
603.75				CONCRETE.
603.00	5	1.50P	30	Brown and dark brown very fine sandy silty CLAY.
600.58	5	1.40B	24	Brown and gray very fine sandy SILT, some clay.
596.58	4	1.00P	37	Bottom of Hole = 7.5 feet

B-078
Sta. 24+22, 27' LT

	N	Qu	w%	
604.4				ASPHALT.
604.06				CONCRETE.
603.22	5	1.85B	30	Dark brown and brown very fine sandy silty CLAY.
600.89	4	0.82B	29	Brown and gray very fine sandy SILT, some clay.
	3		32	
595.89	4	1.03B	25	Brown and gray very fine sandy silty CLAY.
593.39	4	1.03B	22	Brown very fine sandy clayey SILT.
591.89				Bottom of Hole = 12.5 feet

B-079
Sta. 24+91, 28' LT

	N	Qu	w%	
604.5				ASPHALT.
604.21				CONCRETE.
603.37	4	1.11S	28	Dark brown and brown very fine sandy silty CLAY.
601.04	5	1.11B	26	Brown and gray very fine sandy SILT, some clay.
	4	0.44S	26	
596.04	5	1.57B	22	Brown-gray very fine sandy clayey SILT, trace fine sand.
593.54	4	0.82B	24	Brown very fine sandy silty CLAY, trace fine sand and small gravel.
	5	1.82B	24	Brown very fine sandy silty CLAY and yellow-brown and gray clayey SHALE, highly weathered.
588.54	7	1.30P	22	Brown and gray micaceous sandy SHALE, highly weathered.
586.04	39	3.50P	14	
584.54				Bottom of Hole = 20.0 feet

LEGEND

N Standard Penetration Test N (blows/ft)

Qu Unconfined Strength (tsf)

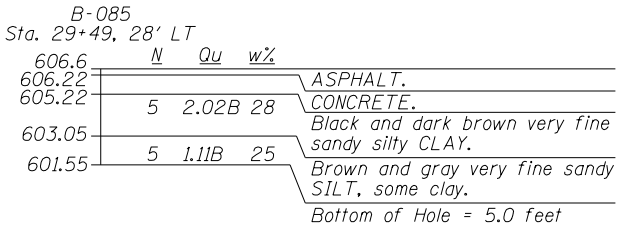
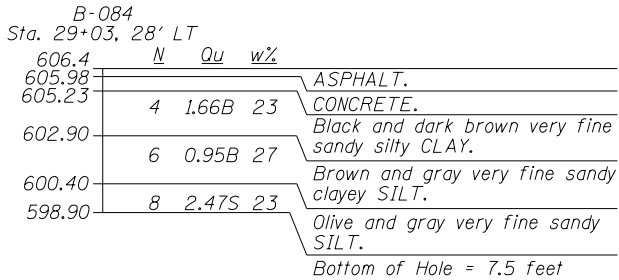
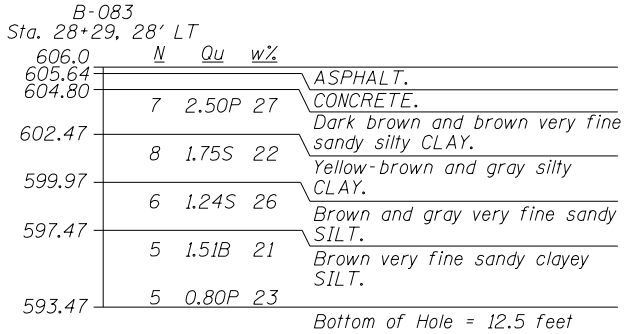
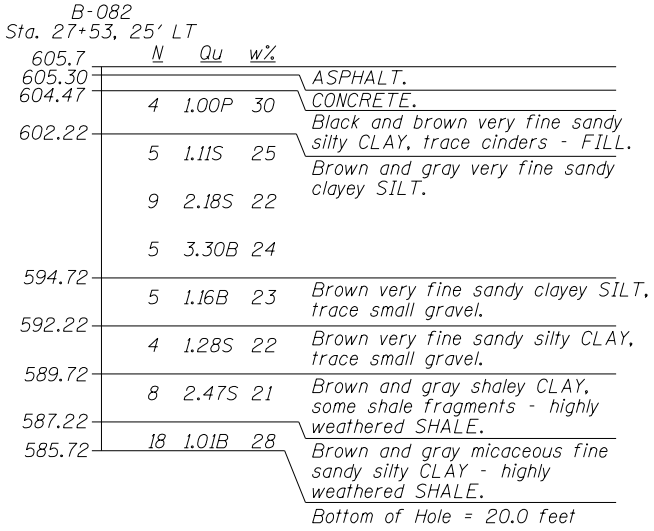
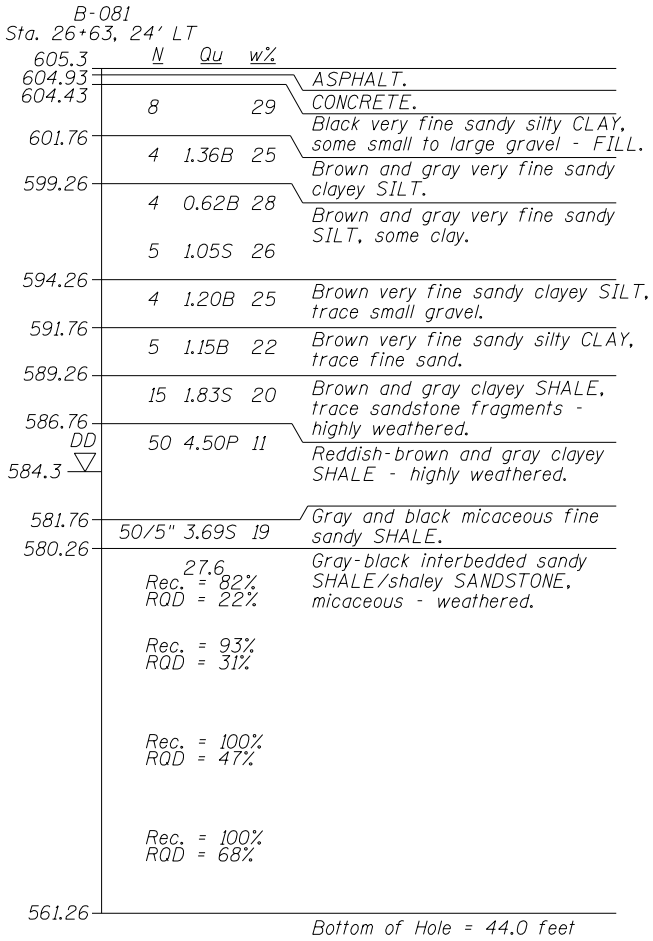
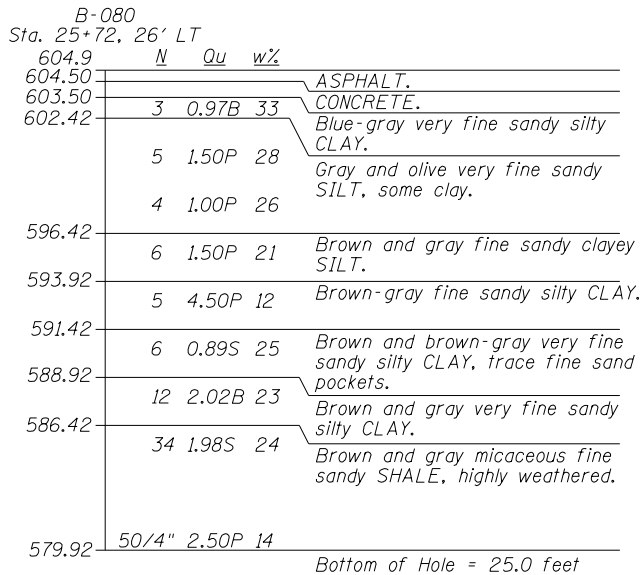
w% Natural Moisture Content (%)

DD Water Surface Elevation Encountered in Boring
558.10 DD = during drilling
Oh = at completion
24h = 24 hours after completion

FINAL PLANS

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 © Copyright Hanson Professional Services Inc., 2024	USER NAME = pop00275	DESIGNED - KMS	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SUBSURFACE DATA PROFILE RETAINING WALLS – NORTH GRAND AVENUE UNDERPASS	F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		CHECKED - RGC	REVISED -			7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	443
	PLOT SCALE = 0.167 ' / in.	DRAWN - EJM	REVISED -			CONTRACT NO. 93773				
	PLOT DATE = 9/27/2024	CHECKED - RGC	REVISED -			ILLINOIS FED. AID PROJECT				
SHEET NO. 29 OF 32 SHEETS										



LEGEND

N Standard Penetration Test N (blows/ft)

Qu Unconfined Strength (tsf)

w% Natural Moisture Content (%)

DD Water Surface Elevation Encountered in Boring
558.10 DD = during drilling
Oh = at completion
24h = 24 hours after completion

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

DESIGNED - KMS
CHECKED - RGC
DRAWN - EJM
CHECKED - RGC

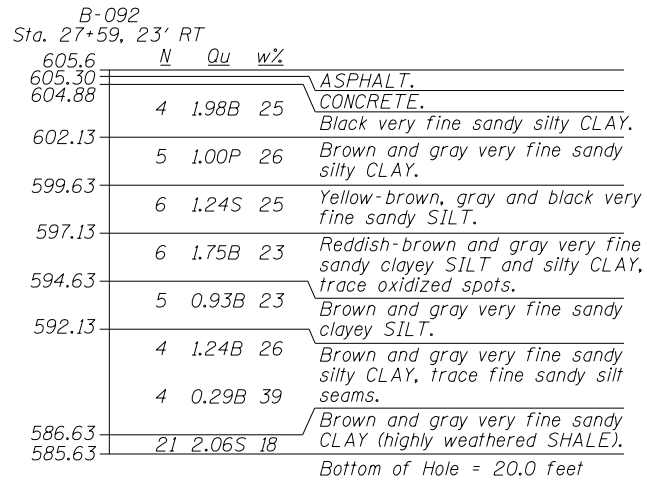
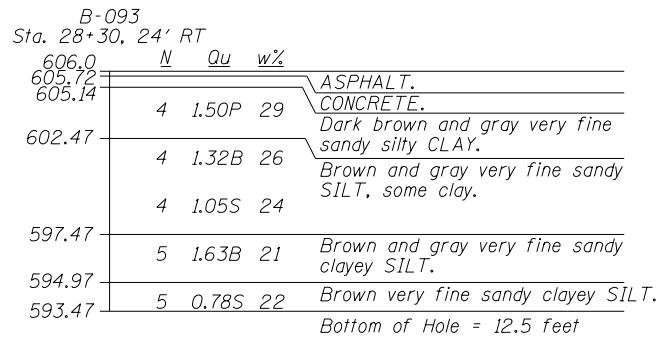
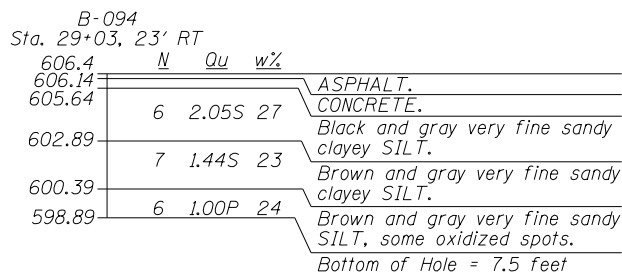
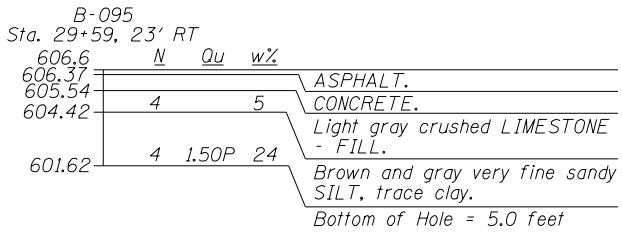
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUBSURFACE DATA PROFILE
RETAINING WALLS – NORTH GRAND AVENUE UNDERPASS

SHEET NO. 30 OF 32 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	444
CONTRACT NO.			93773	
ILLINOIS		FED. AID PROJECT		



LEGEND

N Standard Penetration Test N (blows/ft)

Qu Unconfined Strength (tsf)

w% Natural Moisture Content (%)

DD Water Surface Elevation Encountered in Boring
558.10 DD = during drilling
Oh = at completion
24h = 24 hours after completion

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USER NAME = pop00275
PLOT SCALE = 0.167 ' / in.
PLOT DATE = 9/27/2024

DESIGNED - KMS
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DRAWN - EJM
CHECKED - RGC

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUBSURFACE DATA PROFILE
RETAINING WALLS – NORTH GRAND AVENUE UNDERPASS

SHEET NO. 31 OF 32 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	445
CONTRACT NO.			93773	
ILLINOIS		FED. AID PROJECT		

B-091			
Sta. 26+60, 22' RT			
605.2	N	Qu	w%
604.89			
604.39			
	5	1.77B 30	ASPHALT.
			CONCRETE.
601.72	5	1.50P 25	Yellow-brown and gray very fine sandy silty CLAY.
	4	1.60S 27	Yellow-brown and gray very fine sandy SILT, some clay.
596.72	5	2.72B 23	Brown and gray very fine sandy clayey SILT.
	4	0.78B 24	
591.72	4	1.03B 24	Brown and gray very fine sandy silty CLAY.
	6	0.99S 23	
586.72	7	1.28S 26	Brown and gray very fine sandy silty CLAY, trace shale fragments.
581.72	71	4.50P 9	Dark gray and gray micaceous fine sandy SHALE.
575.22	Rec. = 93% RQD = 63% 140.2 Rec. = 82% RQD = 70% Rec. = 81% RQD = 68% 38.9 Rec. = 99% RQD = 81%		
556.22	Bottom of Hole = 49.0 feet		

B-090			
Sta. 25+63, 23' RT			
604.9	N	Qu	w%
604.54			
604.04			
	4	1.50P 29	ASPHALT.
			CONCRETE.
601.37			Brown and dark brown very fine sandy silty CLAY.
598.87	6	0.39S 30	Yellow-brown and gray very fine sandy clayey SILT.
	4		Brown and gray very fine sandy clayey SILT.
	4	0.43B 30	
	5	0.97B 24	
591.37	5	1.16B 22	Brown and gray very fine sandy silty CLAY, trace small gravel.
	11	1.44S 19	
586.37	45	0.96B 19	Reddish-brown and gray fine sandy SILT and silty CLAY (Weathered SANDSTONE and SHALE).
581.37	50/1"		
579.87	Gray SHALE fragments. Bottom of Hole = 25.0 feet		

B-089			
Sta. 24+92, 24' RT			
604.6	N	Qu	w%
604.28			
603.78			
	4	1.22B 29	ASPHALT.
			CONCRETE.
	1	1.00P 31	Black, dark gray and olive very fine sandy silty CLAY, trace small gravel and roots.
	WOH	39	
596.11	5	1.90B 21	Brown and gray fine sandy SILT.
	4	0.82S 22	
591.11	5	1.75S 25	Brown and gray fine sandy clayey SILT.
588.61	19	1.00P 18	Brown and gray very fine sandy silty CLAY and brown and gray micaceous fine sandy clayey SHALE.
586.11	43	3.50P 18	Brown micaceous fine sandy SHALE - highly weathered.
584.61	Bottom of Hole = 20.0 feet		

B-088			
Sta. 24+20, 24' RT			
604.3	N	Qu	w%
604.09			
603.51			
	5	1.57B 30	ASPHALT.
			CONCRETE.
600.84	5	1.85B 25	Dark gray and gray very fine sandy silty CLAY.
598.34	4	0.58B 30	Brown and gray very fine sandy SILT, trace clay.
595.84	6	1.50P 23	Olive and gray very fine sandy SILT.
593.34	6	1.36B 22	Brown, gray and black very fine sandy SILT and silty CLAY.
591.84	Brown very fine sandy clayey SILT. Bottom of Hole = 12.5 feet		

B-087			
Sta. 23+35, 24' RT			
604.1	N	Qu	w%
603.81			
603.31			
	2	0.58B 30	ASPHALT.
			CONCRETE.
600.56	3	0.82B 30	Dark gray and gray very fine sandy silty CLAY.
			Brown and gray very fine sandy SILT.
596.56	3	0.50P 39	
	Bottom of Hole = 7.5 feet		

B-086			
Sta. 22+77, 24' RT			
603.8	N	Qu	w%
603.56			
603.06			
	6	1.75B 30	ASPHALT.
			CONCRETE.
598.81	6	1.50P 28	Dark brown and brown very fine sandy silty CLAY.
	Bottom of Hole = 5.0 feet		

LEGEND

N Standard Penetration Test N (blows/ft)

Qu Unconfined Strength (tsf)

w% Natural Moisture Content (%)

DD Water Surface Elevation Encountered in Boring
558.10 DD = during drilling
Oh = at completion
24h = 24 hours after completion

FINAL PLANS

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	CHECKED - RGC	REVISED -
PLOT SCALE = 0.167' / 1in.	DRAWN - EJM	REVISED -
PLOT DATE = 9/27/2024	CHECKED - RGC	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUBSURFACE DATA PROFILE
RETAINING WALLS – NORTH GRAND AVENUE UNDERPASS

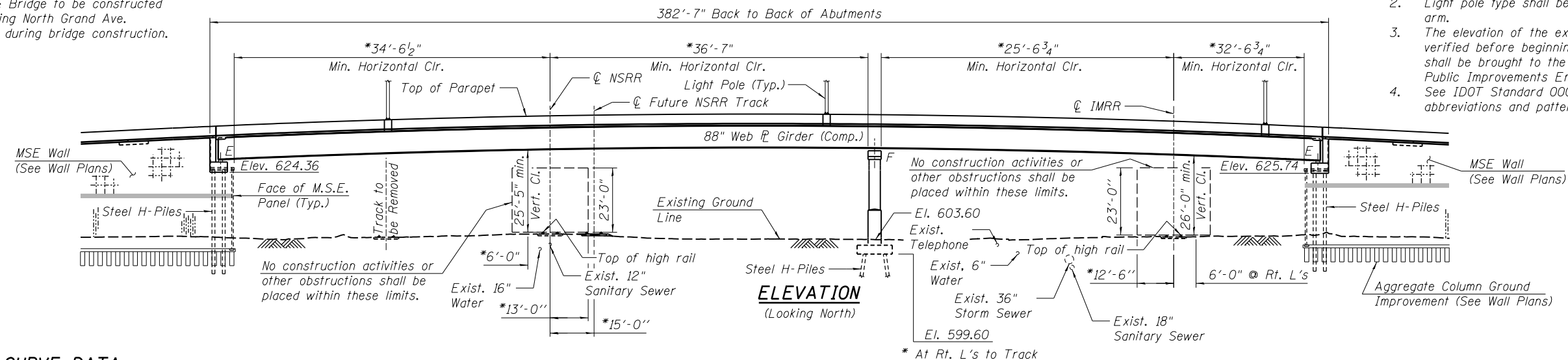
SHEET NO. 32 OF 32 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	446
		CONTRACT NO. 93773		
ILLINOIS		FED. AID PROJECT		

Traffic Control: Bridge to be constructed off Line. Existing North Grand Ave. to remain open during bridge construction.

Notes:

1. *No free fall deck drains will be permitted in the spans over the tracks or within 10' of a cross arm of a railroad pole line.*
2. *Light pole type shall be 30' aluminum pole with 10' davit arm.*
3. *The elevation of the existing top-of-rail profile shall be verified before beginning construction. All discrepancies shall be brought to the attention of the Norfolk Southern Public Improvements Engineer.*
4. *See IDOT Standard 000001-08 for standard symbols, abbreviations and patterns.*



CURVE DATA

Prop. Curve C-ALNGA0VER02-7
PI Sta. = 994+57.97
 $\Delta = 22^\circ 57' 23''$ (RT)
 $D = 9^\circ 32' 57''$
 $R = 600.00'$
 $T = 121.83'$
 $L = 240.40'$
 $E = 12.24'$
P.C. Sta. = 993+36.13
P.T. Sta. = 995+76.53

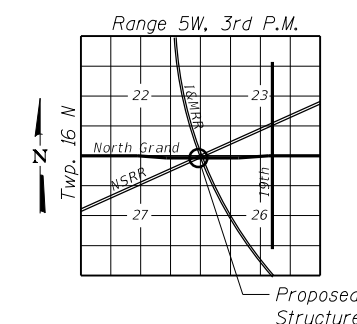
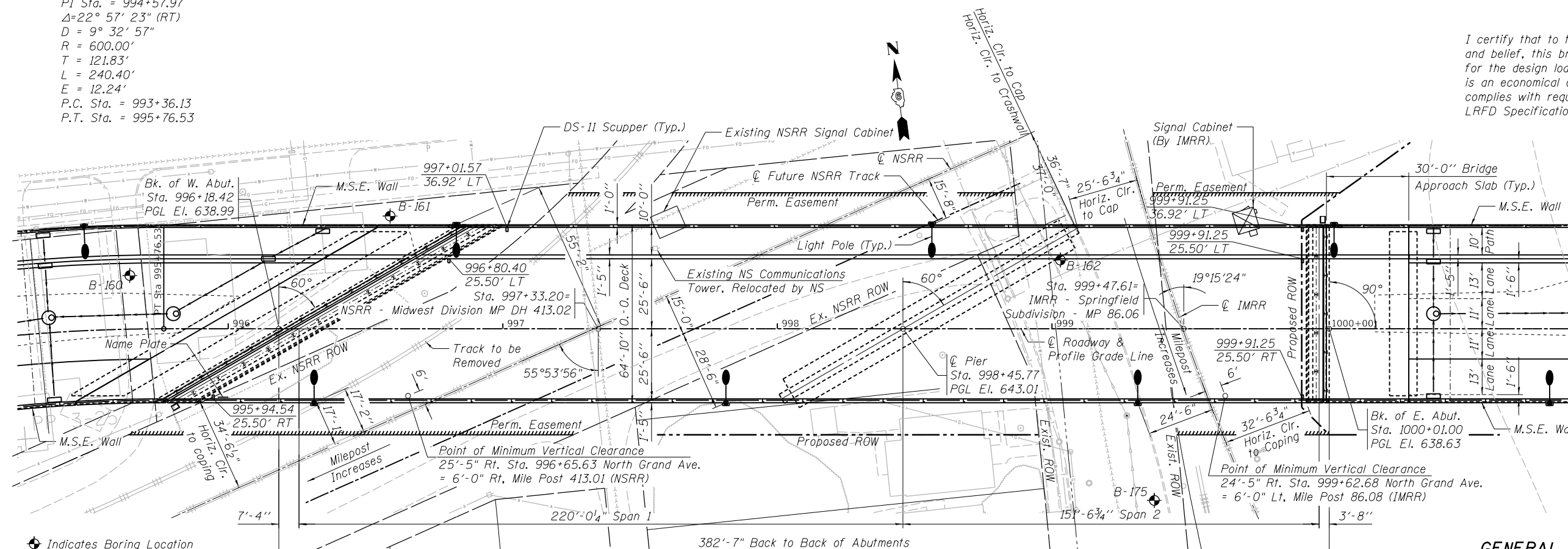


Michael N. Mendenhall
SIGNATURE

DATE
09/27/2024

LIC. EXP. DATE : 11/30/2024

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 AASHTO LRFD Specifications.



LOCATION SKETCH

GENERAL PLAN & ELEVATION

NORTH GRAND AVE. OVER

IMRR & NSRR

F.A.U. 7972 - SECTION 22-00492-01-BR

SANGAMON COUNTY

STATION 998+10.21

STRUCTURE NO. 084-9973

PLAN

LOADING HL-93

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

DESIGN SPECIFICATIONS

2020 AASHTO LRFD Bridge Design
Specifications, 9th Edition

DESIGN STRESSES

FIELD UNITS

$f'_c = 3,500 \text{ psi}$
 $f'_c = 4,000 \text{ psi}$ (Superstructure Concrete)
 $f_y = 60,000 \text{ psi}$ (Reinforcement)
 $f_y = 50,000 \text{ psi}$ (M270 Grade 50)

SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.107
Design Spectral Acceleration at 0.2 sec. (S_{D5}) = 0.201
Soil Site Class = C

Specifications, 9th Edition



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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN & ELEVATION
STRUCTURE NO. 084-9973

SHEET NO. 1 OF 53 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	447
		CONTRACT NO. 9377		
ILLINOIS FED. AID PROJECT				

ILLINOIS	FED. AID PROJECT
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FINAL PLANS

GENERAL NOTES

Fasteners shall be ASTM F 3125 Grade A325 Type 1, mechanically galvanized bolts in painted areas. Bolts 7/8in. Ø, holes 15/16in. Ø, unless otherwise noted.

Calculated weight of Structural Steel,
AASHTO M270 Grade 50 = 1,520,150 lbs.
ASTM A1085 Grade 50 = 6,700 lbs. (Split-Pipe Bearing Stiffeners)

All structural steel shall be AASHTO M270 Grade 50, unless otherwise noted.

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.

A film forming Concrete Sealer shall be applied to the backwalls, seats, step areas and front face of the West and East Abutments.

The Organic Zinc Rich Primer / Epoxy / Urethane Paint System shall be used for painting of new structural steel except where otherwise noted. The entire system shall be shop applied, with the exception of the exterior surface and the bottom of the bottom flange of fascia beams, masked off connection surfaces, field installed fasteners and damaged areas shall be touched up in the field. The color of the final finish coat for all interior steel surfaces 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 shall be Blue, Munsell No. 10B 3/6.

Layout of the slope protection system outside the railroad row may be varied to suit ground conditions in the field as directed by the Engineer.

The concrete for bridge decks finished according to Article 503.16(a) of the Standard Specifications shall be placed and compacted parallel to the skew in uniform increments along centerline of bridge. The machine used for finishing shall be set parallel to the skew for striking off and screeding the concrete. Approach (and roadway) parapets may need to be poured after the deck to facilitate the bridge deck pour.

Bridge Deck Grooving shall not be performed within the 10'-0" shared-use path. The shared-use portion of the bridge deck shall have a broomed finish.

The calculated deflections of the primary girders under steel self-weight shall be used to detail cross frame connections and to erect structural steel such that the girders will be plumb within a tolerance of +/- 1/8 inch per vertical foot throughout when supporting their own weight.

The deck pouring sequence shown on the plans has been used to design the required beam camber and to determine the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" used in the calculation of fillet heights, "t". Request for changes to the plan pouring sequence shall be submitted in writing (prior to ordering steel). Modifications, either to the camber diagrams or the "Theoretical Grade Elevations Adjusted for Dead Load Deflection", resulting from changes to the pouring sequence shall be the responsibility of the Contractor. All required plans shall be submitted with the request and shall be sealed by an Illinois Licensed Structural Engineer.

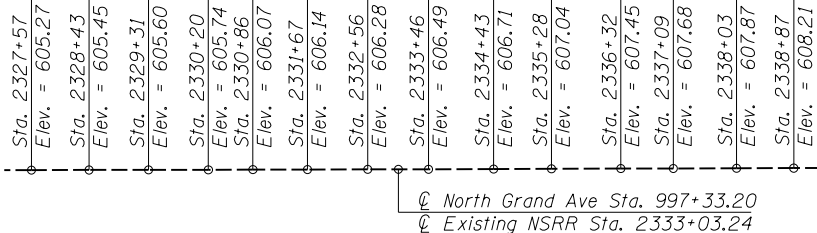
Slipforming of parapets is not allowed.

INDEX OF SHEETS

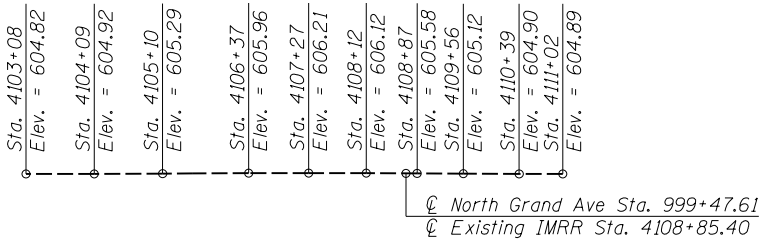
- 1. General Plan and Elevation
- 2. General Data
- 3.-6. Top of Deck Elevations
- 7. Top of Approach Slab Elevations
- 8. Deck Pouring Sequence
- 9.-16. Superstructure
- 17. West Approach Slab
- 18. East Approach Slab
- 19.-22. Approach Slab Details
- 23.-24. Fence Details
- 25. Steel Railing (Special)
- 26. Railing Details
- 27. Drainage Scupper, DS-11
- 28. Drainage Details
- 29.-30. West Expansion Joint Detail
- 31.-32. East Expansion Joint Detail
- 33. Structural Steel Framing Plan
- 34.-40. Structural Steel Details
- 41. Bearing Orentation Plan
- 42.-44. Bearing Details
- 45.-46. West Abutment
- 47. East Abutment
- 48.-50. Pier
- 51. Steel Piles
- 52. Bar Splicer Details
- 53. Borings

NS AND I&M RAILROAD
BUILT 20__ BY
CITY OF SPRINGFIELD
SEC. 22-00492-01-BR
F.A.U. RT. 7972 STATION 998+10.21
STR. NO. 084-9973 LOADING HL-93

NAME PLATE
See Std. 515001



ELEVATIONS - NSRR EXIST. TOP OF RAIL
(Looking East)



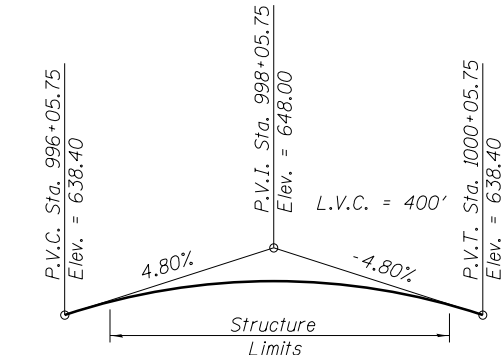
ELEVATIONS - IMRR TOP OF RAIL
(Looking East)

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Structure Excavation	Cu. Yd.	-	284	284
Concrete Structures	Cu. Yd.	55.1	784.5	839.6
Concrete Superstructures	Cu. Yd.	859.1	9.0	868.1
Bridge Deck Grooving	Sq. Yd.	2390	-	2390
Form Liner Textured Surface	Sq. Ft.	-	3226	3226
Protective Coat	Sq. Yd.	2887	-	2887
Concrete Superstructure (Approach Slab)	Cu. Yd.	181.9	-	181.9
Stud Shear Connectors	Each	12144	-	12144
Reinforcement Bars, Epoxy Coated	Pound	319060	85770	404830
Bar Splicers	Each	140	87	227
Bicycle Railing (Curved)	Foot	317	-	317
Parapet Railing	Foot	394	-	394
Furnishing Steel Piles HP14x73	Foot	-	1247	1247
Furnishing Steel Piles HP14x89	Foot	-	1081	1081
Furnishing Steel Piles HP14x117	Foot	-	570	570
Driving Piles	Foot	-	2898	2898
Test Pile Steel HP14x73	Each	-	1	1
Test Pile Steel HP14x89	Each	-	1	1
Test Pile Steel HP14x117	Each	-	1	1
Name Plates	Each	1	-	1
Preformed Joint Strip Seal	Foot	64	-	64
Anchor Bolts, 1"	Each	-	40	40
Anchor Bolts, 1½"	Each	-	40	40
Anchor Bolts, 2"	Each	-	16	16
Drainage System for Structures	L. Sum	1	-	1
Concrete Sealer	Sq. Ft.	-	3156	3156
Concrete Surface Color Treatment	Sq. Ft.	54	-	54
High Load Multi-Rotational Bearings, Disc, Fixed - 800K	Each	-	4	4
High Load Multi-Rotational Bearings, Disc, Non-Guided Expansion - 400K	Each	-	2	2
High Load Multi-Rotational Bearings, Disc, Guided Expansion - 200K	Each	-	8	8
High Load Multi-Rotational Bearings, Disc, Guided Expansion - 300K	Each	-	6	6
High Load Multi-Rotational Bearings, Disc, Guided Expansion - 900K	Each	-	4	4
Furnishing and Erecting Structural Steel Bridge No. 2	L. Sum	1	-	1
Steel Railing (Special)	Foot	50	-	50
Drainage Scuppers, DS-11	Each	6	-	6
Modular Expansion Joint 6"	Foot	-	130	130

ABBREVIATIONS

- PGL Profile Grade
- NBL North Bound Lanes
- SBL South Bound Lanes
- E. Abut. East Abutment
- W. Abut. West Abutment
- EF Each Face
- FF Front Face
- BF Back Face
- IF Inside Face
- OF Outside Face
- Bk/ Back of
- B/ Bottom of
- T/ Top of
- Prop Proposed
- Exist Existing



PROFILE GRADE - NORTH GRAND AVE.
Along Centerline Roadway

FINAL PLANS

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		CHECKED - JGT	REVISED -			7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	448
	PLOT SCALE = 0x2.0000 'x' / in.	DRAWN - RSJ	REVISED -			CONTRACT NO. 93773				
	PLOT DATE = 9/27/2024	CHECKED -	REVISED -			ILLINOIS FED. AID PROJECT				
SHEET NO. 2 OF 53 SHEETS										

GIRDER 1

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted for Dead Load Deflection
Bk. W. Abut	996+78.46	- 34.67	640.74	640.74
☉ Brg. W. Abut.	996+85.79	- 34.67	640.95	640.95
a1	996+95.79	- 34.67	641.23	641.31
a2	997+05.79	- 34.67	641.48	641.64
a3	997+15.79	- 34.67	641.71	641.94
a4	997+25.79	- 34.67	641.91	642.20
a5	997+35.79	- 34.67	642.09	642.44
a6	997+45.79	- 34.67	642.25	642.63
a7	997+55.79	- 34.67	642.38	642.80
a8	997+65.79	- 34.67	642.49	642.92
a9	997+75.79	- 34.67	642.57	643.01
a10	997+85.79	- 34.67	642.63	643.07
a11	997+95.79	- 34.67	642.67	643.09
a12	998+05.79	- 34.67	642.68	643.07
a13	998+15.79	- 34.67	642.67	643.03
a14	998+25.79	- 34.67	642.63	642.95
a15	998+35.79	- 34.67	642.57	642.84
a16	998+45.79	- 34.67	642.49	642.71
a17	998+55.79	- 34.67	642.38	642.56
a18	998+65.79	- 34.67	642.25	642.38
a19	998+75.79	- 34.67	642.09	642.18
a20	998+85.79	- 34.67	641.91	641.97
a21	998+95.79	- 34.67	641.71	641.73
☉ Brg. Pier	999+05.81	- 34.67	641.48	641.48
b1	999+15.81	- 34.67	641.23	641.21
b2	999+25.81	- 34.67	640.95	640.93
b3	999+35.81	- 34.67	640.65	640.62
b4	999+45.81	- 34.67	640.33	640.30
b5	999+55.81	- 34.67	639.98	639.95
b6	999+65.81	- 34.67	639.61	639.59
b7	999+75.81	- 34.67	639.21	639.20
b8	999+85.81	- 34.67	638.79	638.78
b9	999+95.81	- 34.67	638.35	638.34
☉ Brg. E Abut.	999+97.34	- 34.67	638.28	638.28
Bk. E Abut	1000+01.00	- 34.67	638.11	638.11

GIRDER 2

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted for Dead Load Deflection
Bk. W. Abut	996+64.03	- 26.33	640.39	640.39
☉ Brg. W. Abut.	996+71.36	- 26.33	640.64	640.64
a1	996+81.36	- 26.33	640.95	641.02
a2	996+91.36	- 26.33	641.23	641.38
a3	997+01.36	- 26.33	641.50	641.70
a4	997+11.36	- 26.33	641.74	642.00
a5	997+21.36	- 26.33	641.95	642.26
a6	997+31.36	- 26.33	642.14	642.49
a7	997+41.36	- 26.33	642.31	642.69
a8	997+51.36	- 26.33	642.45	642.85
a9	997+61.36	- 26.33	642.57	642.98
a10	997+71.36	- 26.33	642.66	643.07
a11	997+81.36	- 26.33	642.73	643.13
a12	997+91.36	- 26.33	642.78	643.16
a13	998+01.36	- 26.33	642.80	643.15
a14	998+11.36	- 26.33	642.80	643.11
a15	998+21.36	- 26.33	642.78	643.05
a16	998+31.36	- 26.33	642.73	642.95
a17	998+41.36	- 26.33	642.65	642.83
a18	998+51.36	- 26.33	642.56	642.69
a19	998+61.36	- 26.33	642.43	642.53
a20	998+71.36	- 26.33	642.29	642.35
a21	998+81.36	- 26.33	642.12	642.15
☉ Brg. Pier	998+91.38	- 26.33	641.93	641.93
b1	999+01.38	- 26.33	641.71	641.70
b2	999+11.38	- 26.33	641.47	641.45
b3	999+21.38	- 26.33	641.20	641.18
b4	999+31.38	- 26.33	640.91	640.89
b5	999+41.38	- 26.33	640.60	640.58
b6	999+51.38	- 26.33	640.26	640.24
b7	999+61.38	- 26.33	639.90	639.89
b8	999+71.38	- 26.33	639.51	639.51
b9	999+81.38	- 26.33	639.10	639.10
b10	999+91.38	- 26.33	638.67	638.67
☉ Brg. E Abut.	999+97.34	- 26.33	638.40	638.40
Bk. E Abut	1000+01.00	- 26.33	638.23	638.23

GIRDER 3

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted for Dead Load Deflection
Bk. W. Abut	996+49.60	- 18.00	640.00	640.00
☉ Brg. W. Abut.	996+56.93	- 18.00	640.27	640.27
a1	996+66.93	- 18.00	640.62	640.69
a2	996+76.93	- 18.00	640.94	641.07
a3	996+86.93	- 18.00	641.24	641.43
a4	996+96.93	- 18.00	641.51	641.76
a5	997+06.93	- 18.00	641.76	642.06
a6	997+16.93	- 18.00	641.98	642.32
a7	997+26.93	- 18.00	642.18	642.55
a8	997+36.93	- 18.00	642.36	642.75
a9	997+46.93	- 18.00	642.51	642.91
a10	997+56.93	- 18.00	642.64	643.04
a11	997+66.93	- 18.00	642.75	643.13
a12	997+76.93	- 18.00	642.83	643.20
a13	997+86.93	- 18.00	642.89	643.22
a14	997+96.93	- 18.00	642.92	643.22
a15	998+06.93	- 18.00	642.93	643.19
a16	998+16.93	- 18.00	642.92	643.14
a17	998+26.93	- 18.00	642.88	643.05
a18	998+36.93	- 18.00	642.81	642.95
a19	998+46.93	- 18.00	642.73	642.82
a20	998+56.93	- 18.00	642.62	642.67
a21	998+66.93	- 18.00	642.48	642.51
☉ Brg. Pier	998+76.95	- 18.00	642.32	642.32
b1	998+86.95	- 18.00	642.14	642.13
b2	998+96.95	- 18.00	641.93	641.91
b3	999+06.95	- 18.00	641.70	641.68
b4	999+16.95	- 18.00	641.45	641.43
b5	999+26.95	- 18.00	641.17	641.15
b6	999+36.95	- 18.00	640.86	640.85
b7	999+46.95	- 18.00	640.54	640.53
b8	999+56.95	- 18.00	640.19	640.18
b9	999+66.95	- 18.00	639.81	639.81
b10	999+76.95	- 18.00	639.41	639.42
b11	999+86.95	- 18.00	638.99	638.99
b12	999+96.95	- 18.00	638.54	638.54
☉ Brg. E Abut.	999+97.34	- 18.00	638.53	638.53
Bk. E Abut	1000+01.00	- 18.00	638.36	638.36

Notes:
Offsets measured from ☉ North Grand Avenue.

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USER NAME : pop00275	DESIGNED - CGP	REVISED -
	CHECKED - JGT	REVISED -
PLOT SCALE : 0x2.0000 'x' / in.	DRAWN - RSJ	REVISED -
PLOT DATE : 9/27/2024	CHECKED -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TOP OF DECK ELEVATIONS (SHEET 2 OF 4)
STRUCTURE NO. 084-9973

SHEET NO. 4 OF 53 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	450
		CONTRACT NO. 93773		
ILLINOIS		FED. AID PROJECT		

GIRDER 4

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted for Dead Load Deflection
Bk. W. Abut	996+35.16	-9.67	639.56	639.56
℄ Brg. W. Abut.	996+42.49	-9.67	639.86	639.86
a1	996+52.49	-9.67	640.24	640.30
a2	996+62.49	-9.67	640.59	640.72
a3	996+72.49	-9.67	640.92	641.12
a4	996+82.49	-9.67	641.23	641.48
a5	996+92.49	-9.67	641.52	641.81
a6	997+02.49	-9.67	641.78	642.11
a7	997+12.49	-9.67	642.01	642.37
a8	997+22.49	-9.67	642.22	642.60
a9	997+32.49	-9.67	642.41	642.80
a10	997+42.49	-9.67	642.57	642.96
a11	997+52.49	-9.67	642.71	643.09
a12	997+62.49	-9.67	642.83	643.19
a13	997+72.49	-9.67	642.92	643.25
a14	997+82.49	-9.67	642.99	643.29
a15	997+92.49	-9.67	643.03	643.29
a16	998+02.49	-9.67	643.05	643.27
a17	998+12.49	-9.67	643.05	643.22
a18	998+22.49	-9.67	643.02	643.15
a19	998+32.49	-9.67	642.97	643.06
a20	998+42.49	-9.67	642.89	642.95
a21	998+52.49	-9.67	642.79	642.82
℄ Brg. Pier	998+62.51	-9.67	642.67	642.67
b1	998+72.51	-9.67	642.52	642.51
b2	998+82.51	-9.67	642.35	642.33
b3	998+92.51	-9.67	642.15	642.13
b4	999+02.51	-9.67	641.93	641.91
b5	999+12.51	-9.67	641.69	641.67
b6	999+22.51	-9.67	641.42	641.41
b7	999+32.51	-9.67	641.13	641.13
b8	999+42.51	-9.67	640.81	640.82
b9	999+52.51	-9.67	640.47	640.48
b10	999+62.51	-9.67	640.11	640.12
b11	999+72.51	-9.67	639.72	639.73
b12	999+82.51	-9.67	639.31	639.31
b13	999+92.51	-9.67	638.87	638.87
℄ Brg. E Abut.	999+97.34	-9.67	638.65	638.65
Bk. E Abut	1000+01.00	-9.67	638.48	638.48

GIRDER 5

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted for Dead Load Deflection
Bk. W. Abut	996+20.73	-1.33	639.07	639.07
℄ Brg. W. Abut.	996+28.06	-1.33	639.39	639.39
a1	996+38.06	-1.33	639.81	639.87
a2	996+48.06	-1.33	640.20	640.33
a3	996+58.06	-1.33	640.56	640.76
a4	996+68.06	-1.33	640.90	641.15
a5	996+78.06	-1.33	641.22	641.52
a6	996+88.06	-1.33	641.52	641.85
a7	996+98.06	-1.33	641.79	642.15
a8	997+08.06	-1.33	642.03	642.42
a9	997+18.06	-1.33	642.26	642.65
a10	997+28.06	-1.33	642.46	642.84
a11	997+38.06	-1.33	642.63	643.01
a12	997+48.06	-1.33	642.78	643.14
a13	997+58.06	-1.33	642.91	643.24
a14	997+68.06	-1.33	643.01	643.31
a15	997+78.06	-1.33	643.09	643.35
a16	997+88.06	-1.33	643.14	643.36
a17	997+98.06	-1.33	643.17	643.35
a18	998+08.06	-1.33	643.18	643.31
a19	998+18.06	-1.33	643.16	643.25
a20	998+28.06	-1.33	643.12	643.18
a21	998+38.06	-1.33	643.05	643.08
℄ Brg. Pier	998+48.08	-1.33	642.96	642.96
b1	998+58.08	-1.33	642.85	642.84
b2	998+68.08	-1.33	642.71	642.70
b3	998+78.08	-1.33	642.55	642.54
b4	998+88.08	-1.33	642.37	642.35
b5	998+98.08	-1.33	642.16	642.15
b6	999+08.08	-1.33	641.92	641.93
b7	999+18.08	-1.33	641.67	641.68
b8	999+28.08	-1.33	641.38	641.41
b9	999+38.08	-1.33	641.08	641.11
b10	999+48.08	-1.33	640.75	640.78
b11	999+58.08	-1.33	640.40	640.43
b12	999+68.08	-1.33	640.02	640.04
b13	999+78.08	-1.33	639.62	639.64
b14	999+88.08	-1.33	639.19	639.20
℄ Brg. E Abut.	999+97.34	-1.33	638.78	638.78
Bk. E Abut	1000+01.00	-1.33	638.61	638.61

℄ ROADWAY & P.G.L.

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted for Dead Load Deflection
Bk. W. Abut	996+18.42	0.00	638.99	638.99
℄ Brg. W. Abut.	996+25.75	0.00	639.31	639.31
a1	996+35.75	0.00	639.73	639.80
a2	996+45.75	0.00	640.13	640.26
a3	996+55.75	0.00	640.50	640.69
a4	996+65.75	0.00	640.85	641.10
a5	996+75.75	0.00	641.17	641.47
a6	996+85.75	0.00	641.47	641.81
a7	996+95.75	0.00	641.75	642.11
a8	997+05.75	0.00	642.00	642.38
a9	997+15.75	0.00	642.23	642.62
a10	997+25.75	0.00	642.43	642.82
a11	997+35.75	0.00	642.61	642.99
a12	997+45.75	0.00	642.77	643.13
a13	997+55.75	0.00	642.90	643.23
a14	997+65.75	0.00	643.01	643.31
a15	997+75.75	0.00	643.09	643.35
a16	997+85.75	0.00	643.15	643.37
a17	997+95.75	0.00	643.19	643.36
a18	998+05.75	0.00	643.20	643.33
a19	998+15.75	0.00	643.19	643.28
a20	998+25.75	0.00	643.15	643.21
a21	998+35.75	0.00	643.09	643.12
℄ Brg. Pier	998+45.77	0.00	643.01	643.01
b1	998+55.77	0.00	642.90	642.89
b2	998+65.77	0.00	642.77	642.75
b3	998+75.77	0.00	642.61	642.60
b4	998+85.77	0.00	642.43	642.42
b5	998+95.77	0.00	642.23	642.22
b6	999+05.77	0.00	642.00	642.00
b7	999+15.77	0.00	641.75	641.76
b8	999+25.77	0.00	641.47	641.50
b9	999+35.77	0.00	641.17	641.20
b10	999+45.77	0.00	640.85	640.88
b11	999+55.77	0.00	640.50	640.53
b12	999+65.77	0.00	640.13	640.16
b13	999+75.77	0.00	639.73	639.76
b14	999+85.77	0.00	639.31	639.33
℄ Brg. E Abut.	999+97.34	0.00	638.80	638.80
Bk. E Abut	1000+01.00	0.00	638.63	638.63

Notes:
Offsets measured from ℄ North Grand Avenue.

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GIRDER 6

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted for Dead Load Deflection
Bk. W. Abut	996+06.30	7.00	638.32	638.32
℄ Brg. W. Abut.	996+13.63	7.00	638.67	638.67
a1	996+23.63	7.00	639.11	639.18
a2	996+33.63	7.00	639.54	639.68
a3	996+43.63	7.00	639.94	640.14
a4	996+53.63	7.00	640.32	640.57
a5	996+63.63	7.00	640.67	640.97
a6	996+73.63	7.00	641.00	641.34
a7	996+83.63	7.00	641.31	641.67
a8	996+93.63	7.00	641.59	641.98
a9	997+03.63	7.00	641.84	642.24
a10	997+13.63	7.00	642.08	642.47
a11	997+23.63	7.00	642.29	642.67
a12	997+33.63	7.00	642.47	642.84
a13	997+43.63	7.00	642.63	642.97
a14	997+53.63	7.00	642.77	643.07
a15	997+63.63	7.00	642.88	643.14
a16	997+73.63	7.00	642.97	643.19
a17	997+83.63	7.00	643.04	643.21
a18	997+93.63	7.00	643.08	643.21
a19	998+03.63	7.00	643.09	643.19
a20	998+13.63	7.00	643.09	643.14
a21	998+23.63	7.00	643.06	643.08
℄ Brg. Pier	998+33.65	7.00	643.00	643.00
b1	998+43.65	7.00	642.92	642.91
b2	998+53.65	7.00	642.82	642.81
b3	998+63.65	7.00	642.69	642.68
b4	998+73.65	7.00	642.54	642.54
b5	998+83.65	7.00	642.37	642.37
b6	998+93.65	7.00	642.17	642.18
b7	999+03.65	7.00	641.94	641.97
b8	999+13.65	7.00	641.70	641.74
b9	999+23.65	7.00	641.43	641.47
b10	999+33.65	7.00	641.13	641.19
b11	999+43.65	7.00	640.81	640.87
b12	999+53.65	7.00	640.47	640.52
b13	999+63.65	7.00	640.10	640.15
b14	999+73.65	7.00	639.71	639.75
b15	999+83.65	7.00	639.30	639.32
b16	999+93.65	7.00	638.86	638.86
℄ Brg. E Abut.	999+97.34	7.00	638.69	638.69
Bk. E Abut	1000+01.00	7.00	638.52	638.52

GIRDER 7

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted for Dead Load Deflection
Bk. W. Abut	995+91.86	15.33	637.50	637.50
℄ Brg. W. Abut.	995+99.19	15.33	637.86	637.86
a1	996+09.19	15.33	638.33	638.41
a2	996+19.19	15.33	638.79	638.94
a3	996+29.19	15.33	639.23	639.44
a4	996+39.19	15.33	639.64	639.91
a5	996+49.19	15.33	640.03	640.34
a6	996+59.19	15.33	640.39	640.75
a7	996+69.19	15.33	640.73	641.12
a8	996+79.19	15.33	641.05	641.45
a9	996+89.19	15.33	641.34	641.75
a10	996+99.19	15.33	641.61	642.02
a11	997+09.19	15.33	641.85	642.25
a12	997+19.19	15.33	642.07	642.45
a13	997+29.19	15.33	642.27	642.62
a14	997+39.19	15.33	642.44	642.75
a15	997+49.19	15.33	642.59	642.86
a16	997+59.19	15.33	642.71	642.94
a17	997+69.19	15.33	642.81	642.99
a18	997+79.19	15.33	642.89	643.02
a19	997+89.19	15.33	642.94	643.03
a20	997+99.19	15.33	642.96	643.02
a21	998+09.19	15.33	642.97	642.99
℄ Brg. Pier	998+19.21	15.33	642.95	642.95
b1	998+29.21	15.33	642.90	642.89
b2	998+39.21	15.33	642.84	642.82
b3	998+49.21	15.33	642.74	642.73
b4	998+59.21	15.33	642.63	642.62
b5	998+69.21	15.33	642.49	642.49
b6	998+79.21	15.33	642.32	642.34
b7	998+89.21	15.33	642.13	642.17
b8	998+99.21	15.33	641.92	641.97
b9	999+09.21	15.33	641.69	641.75
b10	999+19.21	15.33	641.43	641.50
b11	999+29.21	15.33	641.14	641.22
b12	999+39.21	15.33	640.83	640.92
b13	999+49.21	15.33	640.50	640.58
b14	999+59.21	15.33	640.14	640.22
b15	999+69.21	15.33	639.76	639.82
b16	999+79.21	15.33	639.36	639.40
b17	999+89.21	15.33	638.93	638.95
℄ Brg. E Abut.	999+97.34	15.33	638.57	638.57
Bk. E Abut	1000+01.00	15.33	638.40	638.40

GIRDER 8

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted for Dead Load Deflection
Bk. W. Abut	995+77.43	23.67	636.69	636.69
℄ Brg. W. Abut.	995+84.76	23.67	637.04	637.04
a1	995+94.76	23.67	637.52	637.59
a2	996+04.76	23.67	638.00	638.15
a3	996+14.76	23.67	638.47	638.69
a4	996+24.76	23.67	638.91	639.20
a5	996+34.76	23.67	639.34	639.67
a6	996+44.76	23.67	639.73	640.11
a7	996+54.76	23.67	640.11	640.52
a8	996+64.76	23.67	640.46	640.90
a9	996+74.76	23.67	640.79	641.23
a10	996+84.76	23.67	641.09	641.53
a11	996+94.76	23.67	641.37	641.80
a12	997+04.76	23.67	641.62	642.03
a13	997+14.76	23.67	641.85	642.23
a14	997+24.76	23.67	642.06	642.40
a15	997+34.76	23.67	642.24	642.53
a16	997+44.76	23.67	642.40	642.64
a17	997+54.76	23.67	642.53	642.73
a18	997+64.76	23.67	642.64	642.79
a19	997+74.76	23.67	642.73	642.83
a20	997+84.76	23.67	642.79	642.85
a21	997+94.76	23.67	642.83	642.86
℄ Brg. Pier	998+04.78	23.67	642.84	642.84
b1	998+14.78	23.67	642.84	642.82
b2	998+24.78	23.67	642.80	642.78
b3	998+34.78	23.67	642.74	642.73
b4	998+44.78	23.67	642.66	642.65
b5	998+54.78	23.67	642.56	642.56
b6	998+64.78	23.67	642.43	642.45
b7	998+74.78	23.67	642.27	642.31
b8	998+84.78	23.67	642.10	642.15
b9	998+94.78	23.67	641.89	641.97
b10	999+04.78	23.67	641.67	641.76
b11	999+14.78	23.67	641.42	641.53
b12	999+24.78	23.67	641.14	641.26
b13	999+34.78	23.67	640.85	640.96
b14	999+44.78	23.67	640.53	640.64
b15	999+54.78	23.67	640.18	640.28
b16	999+64.78	23.67	639.81	639.89
b17	999+74.78	23.67	639.42	639.48
b18	999+84.78	23.67	639.00	639.03
b19	999+94.78	23.67	638.56	638.56
℄ Brg. E Abut.	999+97.34	23.67	638.44	638.44
Bk. E Abut	1000+01.00	23.67	638.27	638.27

Notes:
Offsets measured from ℄ North Grand Avenue.

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 © Copyright Hanson Professional Services Inc., 2024	USER NAME = pop00275	DESIGNED - CGP	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	TOP OF DECK ELEVATIONS (SHEET 4 OF 4) STRUCTURE NO. 084-9973	F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		CHECKED - JGT	REVISED -			7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	452
	PLOT SCALE = 0x2.0000 'x' / in.	DRAWN - RSJ	REVISED -			CONTRACT NO. 93773				
	PLOT DATE = 9/27/2024	CHECKED -	REVISED -			SHEET NO. 6 OF 53 SHEETS				
						ILLINOIS FED. AID PROJECT				

WEST APPROACH SLAB

NORTH GUTTER LINE

Location	Station	Offset	Theoretical Grade Elevations
Free End of West Aprr.	996+54.36	-36.92	639.90
A	996+64.36	-36.92	640.25
B	996+74.36	-36.92	640.57
Abut. End of West Aprr.	996+84.36	-36.92	640.88

NORTH ROADWAY PARAPET LINE

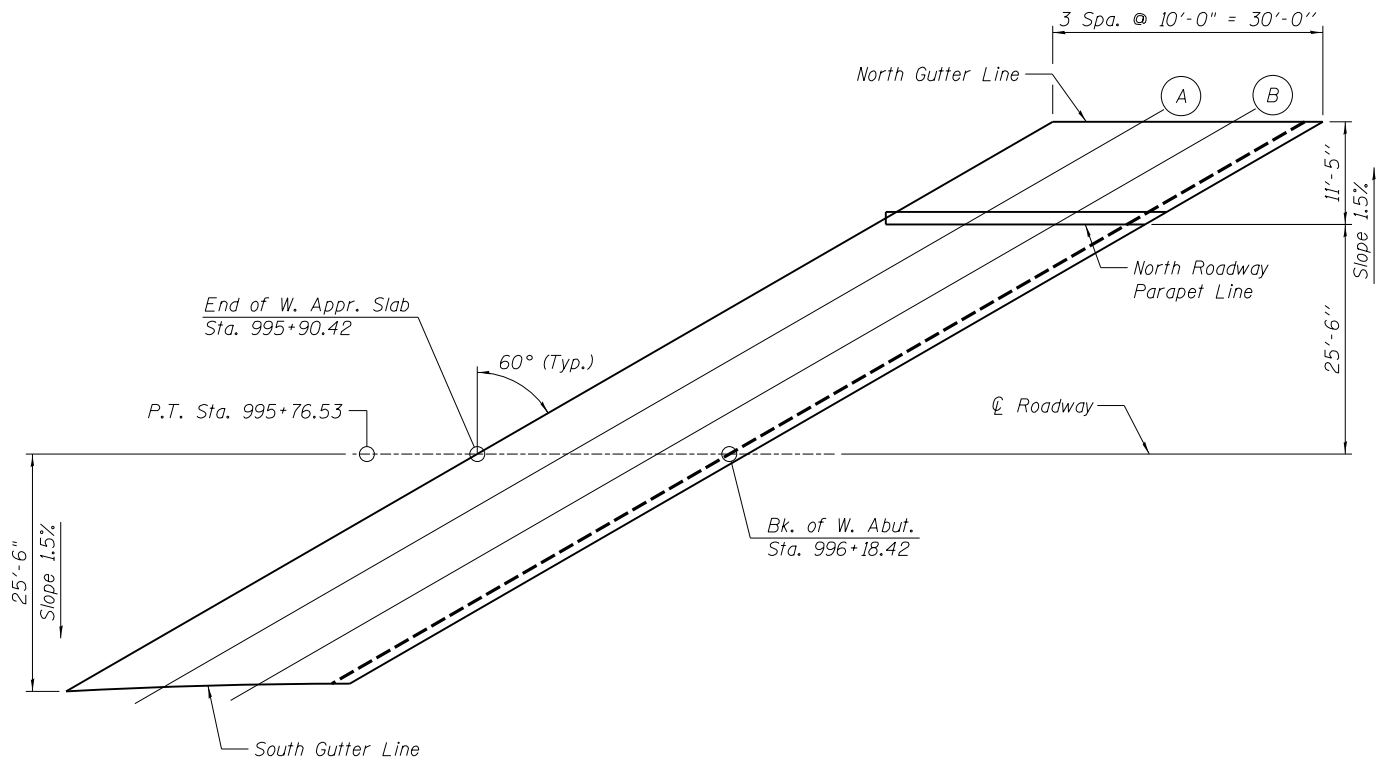
Location	Station	Offset	Theoretical Grade Elevations
Free End of West Aprr.	996+34.59	-25.50	639.30
A	996+44.59	-25.50	639.70
B	996+54.59	-25.50	640.08
Abut. End of West Aprr.	996+64.59	-25.50	640.43

℄ ROADWAY AND P.G.L.

Location	Station	Offset	Theoretical Grade Elevations
Free End of West Aprr.	995+90.42	0.00	637.66
A	996+00.42	0.00	638.14
B	996+10.42	0.00	638.62
Abut. End of West Aprr.	996+20.42	0.00	639.08

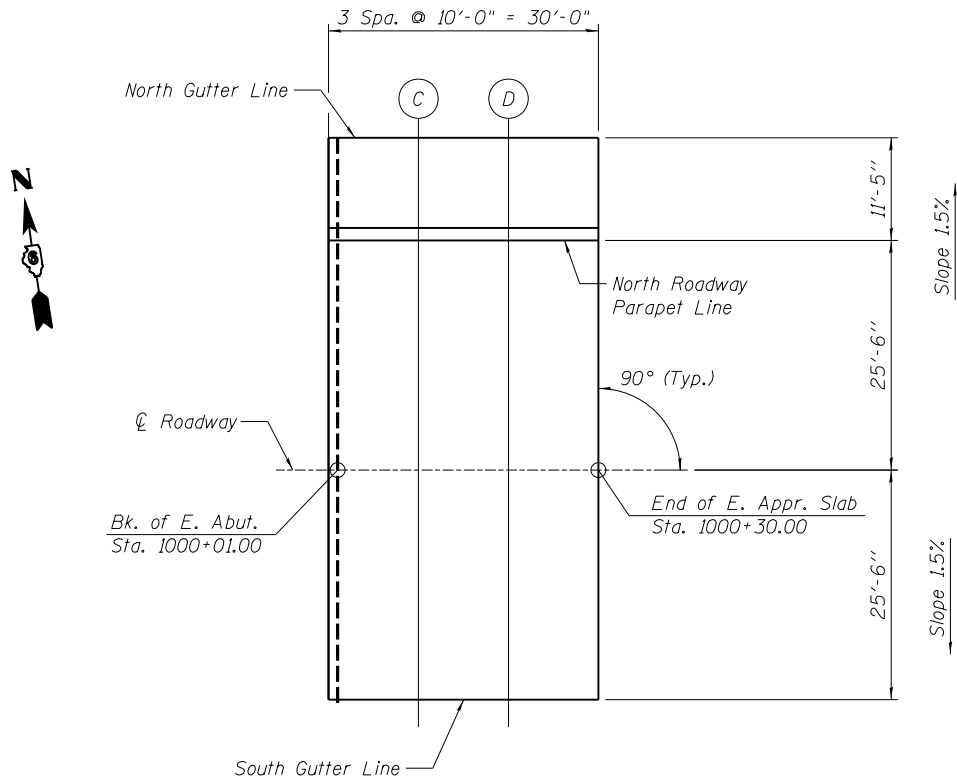
SOUTH GUTTER LINE

Location	Station	Offset	Theoretical Grade Elevations
Free End of West Aprr.	995+43.29	25.50	635.02
A	995+54.65	25.50	635.56
B	995+65.62	25.50	636.09
Abut. End of West Aprr.	995+76.24	25.50	636.60



PLAN

West Approach



PLAN

East Approach

EAST APPROACH SLAB

NORTH GUTTER LINE

Location	Station	Offset	Theoretical Grade Elevations
Abut. End of East Aprr.	1000+00.00	-36.92	638.12
C	1000+10.00	-36.92	637.64
D	1000+20.00	-36.92	637.16
Free End of East Aprr.	1000+30.00	-36.92	636.68

NORTH ROADWAY PARAPET LINE

Location	Station	Offset	Theoretical Grade Elevations
Abut. End of East Aprr.	1000+00.00	-25.50	638.29
C	1000+10.00	-25.50	637.81
D	1000+20.00	-25.50	637.33
Free End of East Aprr.	1000+30.00	-25.50	636.85

℄ ROADWAY AND P.G.L.

Location	Station	Offset	Theoretical Grade Elevations
Abut. End of East Aprr.	1000+00.00	0.00	638.67
C	1000+10.00	0.00	638.20
D	1000+20.00	0.00	637.72
Free End of East Aprr.	1000+30.00	0.00	637.24

SOUTH GUTTER LINE

Location	Station	Offset	Theoretical Grade Elevations
Abut. End of East Aprr.	1000+00.00	25.50	638.29
C	1000+10.00	25.50	637.81
D	1000+20.00	25.50	637.33
Free End of East Aprr.	1000+30.00	25.50	636.85

Notes:
Offsets measured from ℄ North Grand Avenue.

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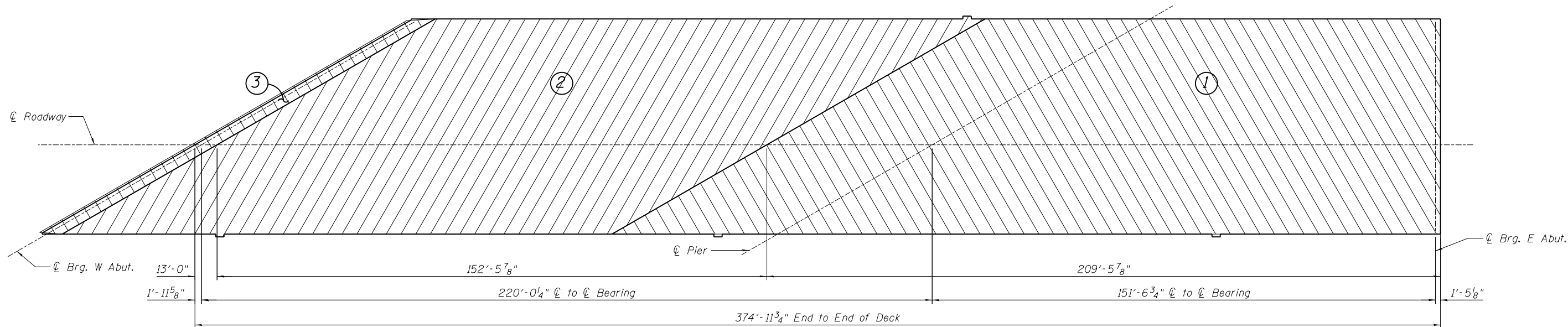
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TOP OF APPROACH SLAB ELEVATIONS
STRUCTURE NO. 084-9973

SHEET NO. 7 OF 53 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	453
CONTRACT NO. 93773				
ILLINOIS FED. AID PROJECT				



DECK POURING SEQUENCE

Indicated pouring sequence

ANTICIPATED UNFACTORED DEAD LOAD REACTIONS AT EAST ABUTMENT (kips)

	GIRDER 1	GIRDER 2	GIRDER 3	GIRDER 4	GIRDER 5	GIRDER 6	GIRDER 7	GIRDER 8
Steel Only	-6	3	11	14	16	19	21	23
Pour 1	26	46	57	65	71	77	81	84
Pour 2	-19	7	28	39	45	54	60	62

(Negative indicates uplift)

- Notes:
- Pour sequence 3 shall not be placed until after the expansion joint has been installed.
- When the deck pour is stopped for the day at one or more of the transverse bonded construction joints in the deck pouring sequence as shown, the next pour shall not be made until both of the following are met:
- At least 72 hours shall have elapsed from the end of the previous pour.
 - The concrete strength shall have attained a minimum flexural strength of 675 psi or a minimum compressive strength of 4000 psi.

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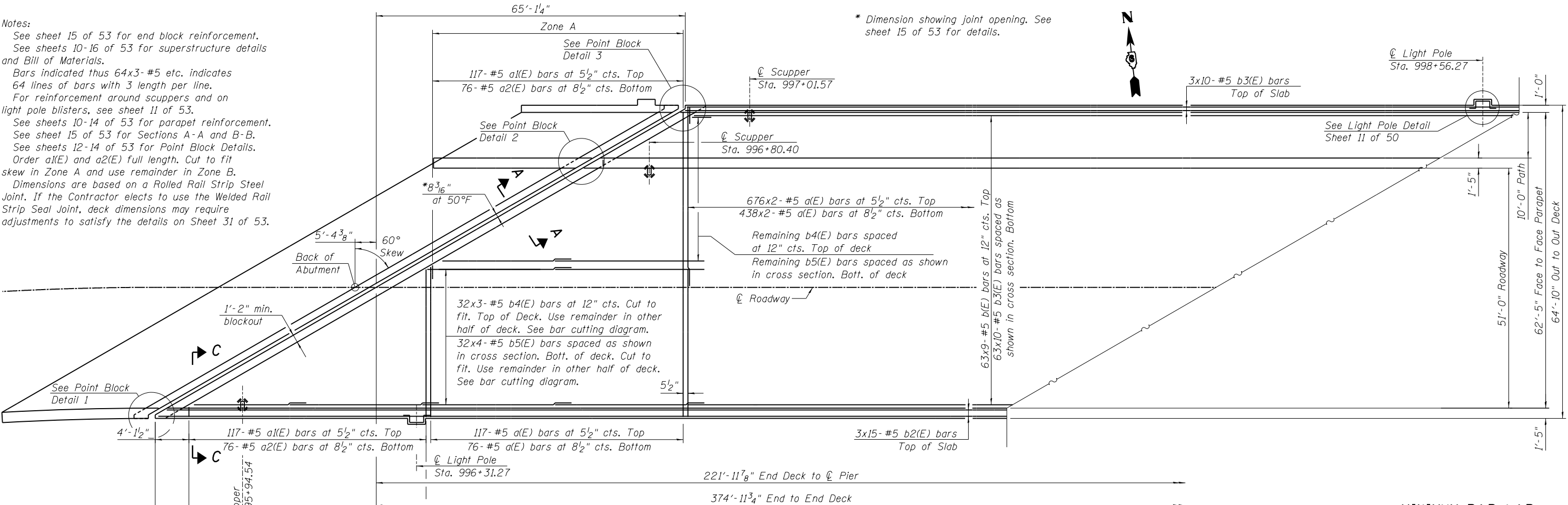
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DECK POURING SEQUENCE
STRUCTURE NO. 084-9973

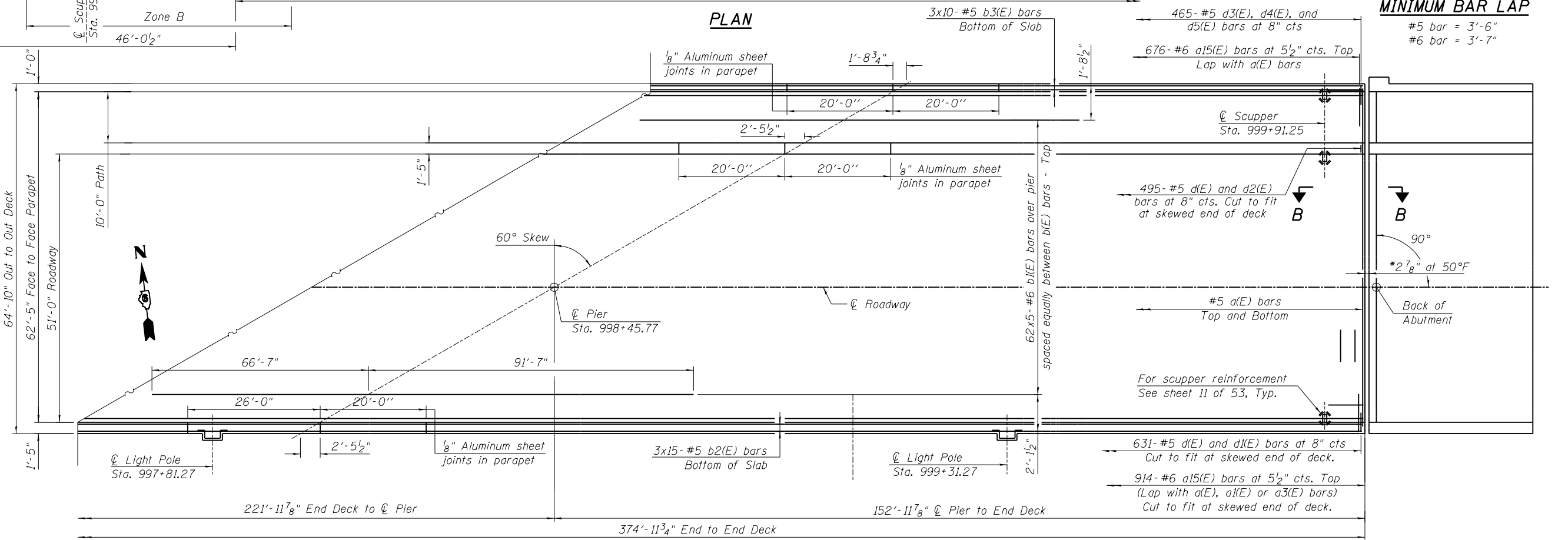
SHEET NO. 8 OF 53 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	454
ILLINOIS FED. AID PROJECT			CONTRACT NO. 93773	

Notes:
See sheet 15 of 53 for end block reinforcement.
See sheets 10-16 of 53 for superstructure details and Bill of Materials.
Bars indicated thus 64x3-#5 etc. indicates 64 lines of bars with 3 length per line.
For reinforcement around scuppers and on light pole blisters, see sheet 11 of 53.
See sheets 10-14 of 53 for parapet reinforcement.
See sheet 15 of 53 for Sections A-A and B-B.
See sheets 12-14 of 53 for Point Block Details.
Order a1(E) and a2(E) full length. Cut to fit skew in Zone A and use remainder in Zone B.
Dimensions are based on a Rolled Rail Strip Steel Joint. If the Contractor elects to use the Welded Rail Strip Seal Joint, deck dimensions may require adjustments to satisfy the details on Sheet 31 of 53.



PLAN



PLAN

MINIMUM BAR LAP

#5 bar = 3'-6"
#6 bar = 3'-7"

FINAL PLANS



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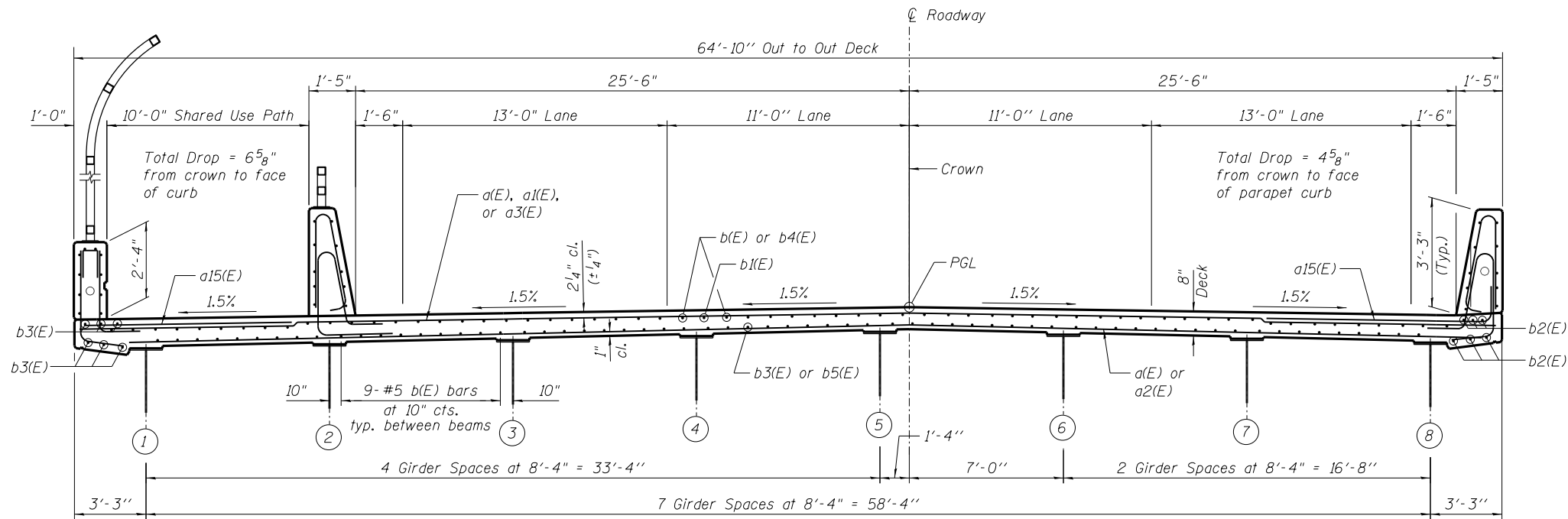
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE
STRUCTURE NO. 084-9973

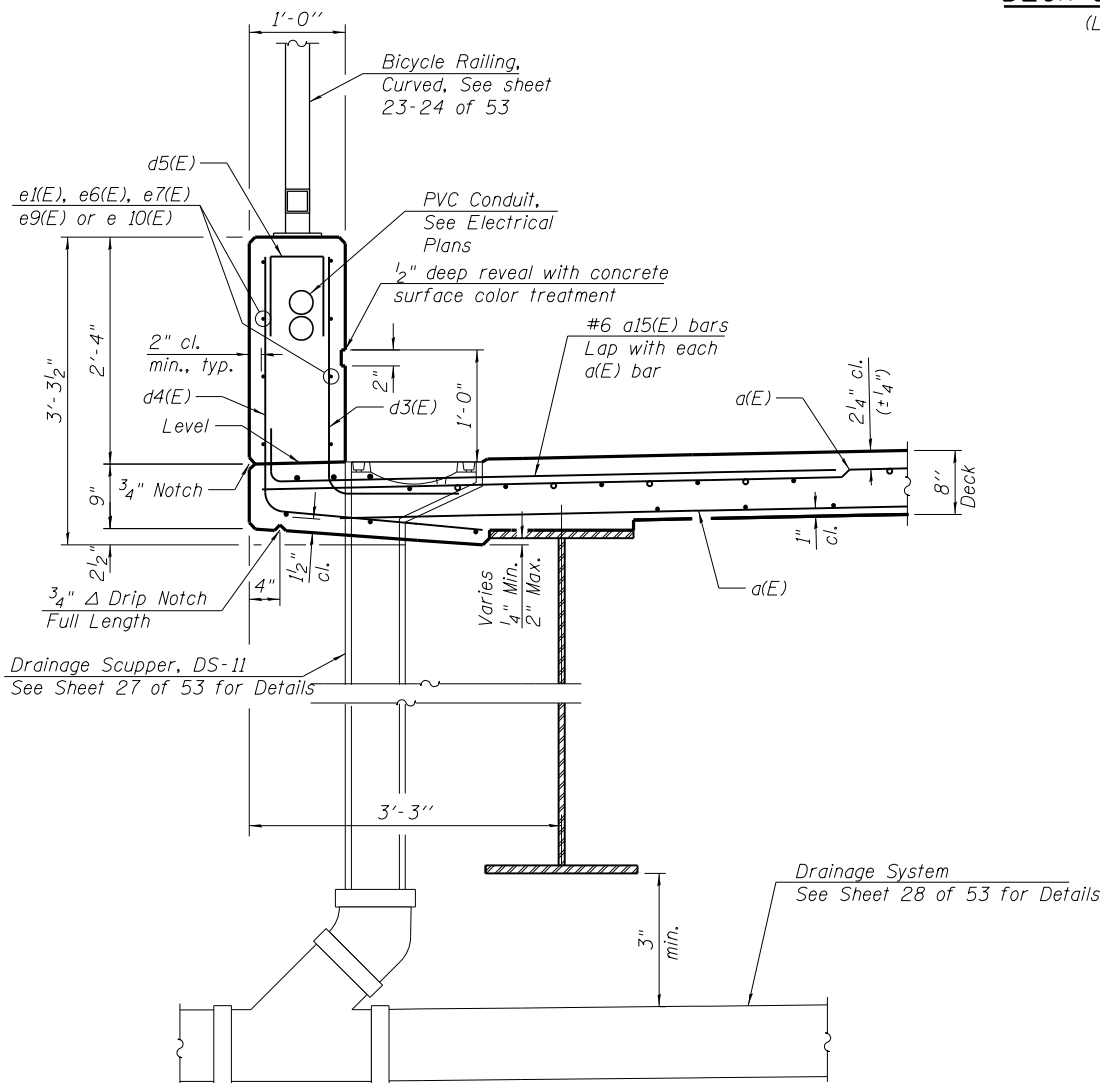
SHEET NO. 9 OF 53 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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CONTRACT NO. 93773				

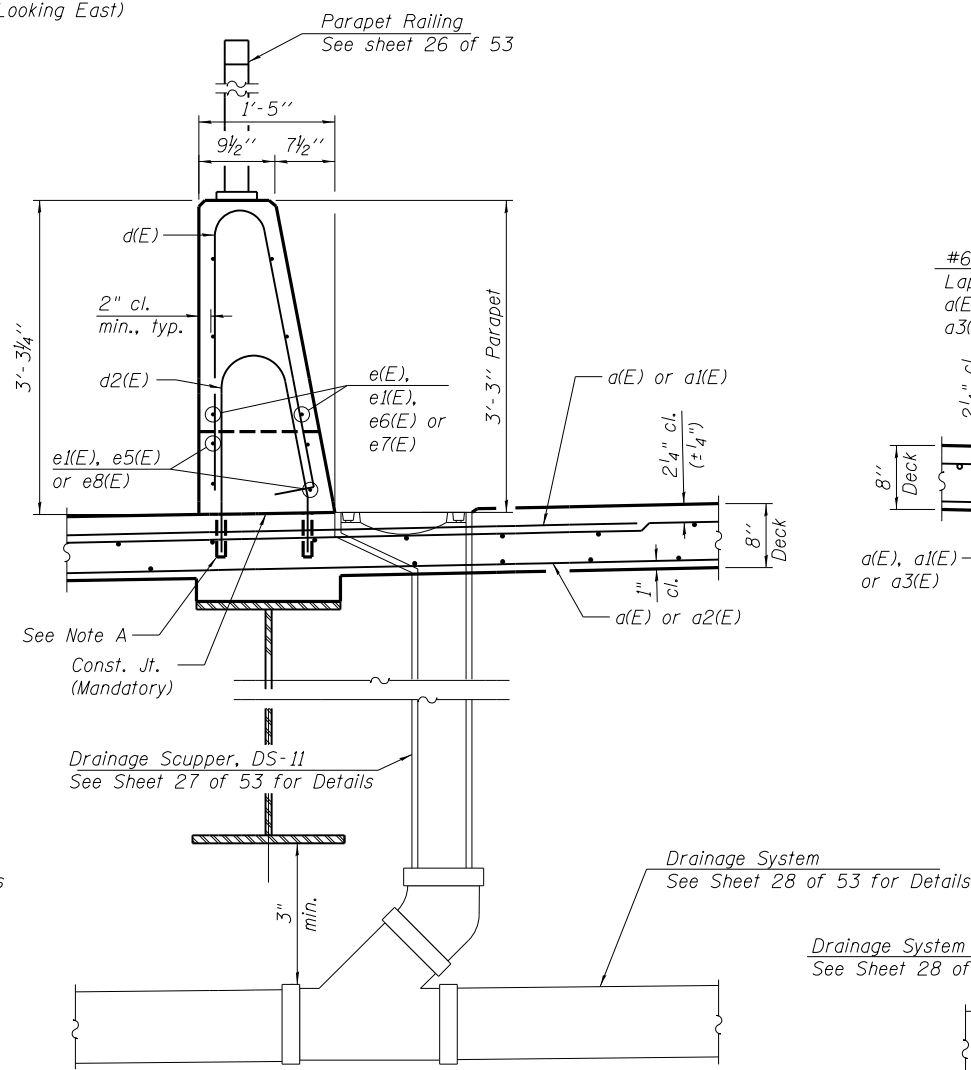
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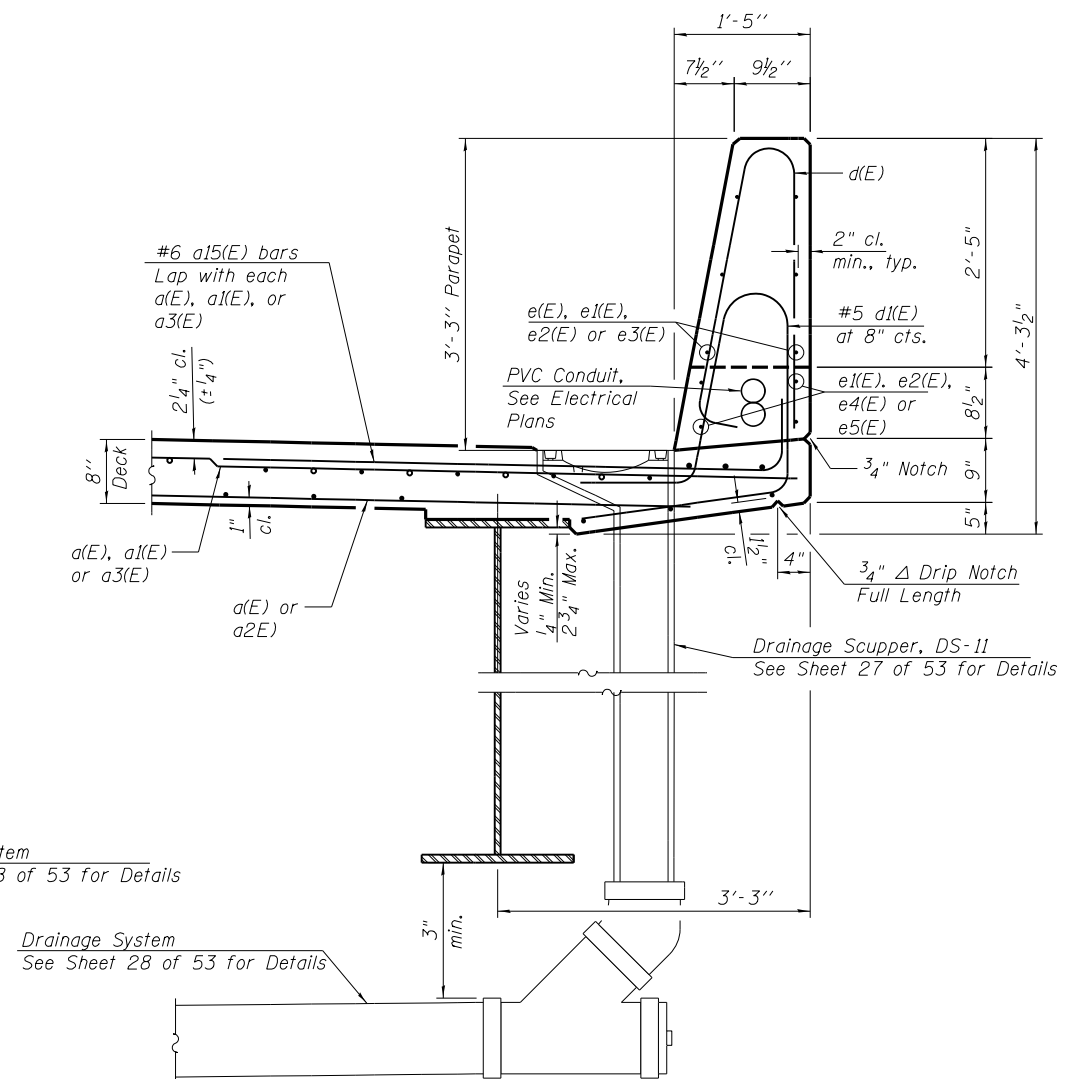
DECK CROSS SECTION
(Looking East)



SECTION THRU NORTH CURB
(East Abut. Shown, West Abut. Similar)



SECTION THRU NORTH PARAPET
(East Abut. Shown, West Abut. Similar)



SECTION THRU SOUTH PARAPET
(East Abut. Shown, West Abut. Similar)

Notes:
See sheets 10-16 of 53 for Superstructure Details and Bill of Material.
See sheets 9 and 12-14 of 53 for Curb and Parapet Reinforcement Spacing.
Drains shall be located clear of all the cross frames.

Note A:
Drill and Set d2(E) bars according to Article 509.06 of the Standard Specifications. Drilled holes shall be roughened or scored per manufacture's recommendations. Maximum depth of hole shall not exceed 6". Contractor shall take all necessary precautions to prevent drilled hole interference with deck reinforcement bars. Locate longitudinal bars to miss drilled locations. Locate drilled holes to miss transverse bars in deck.

FINAL PLANS

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PLOT DATE : 9/27/2024
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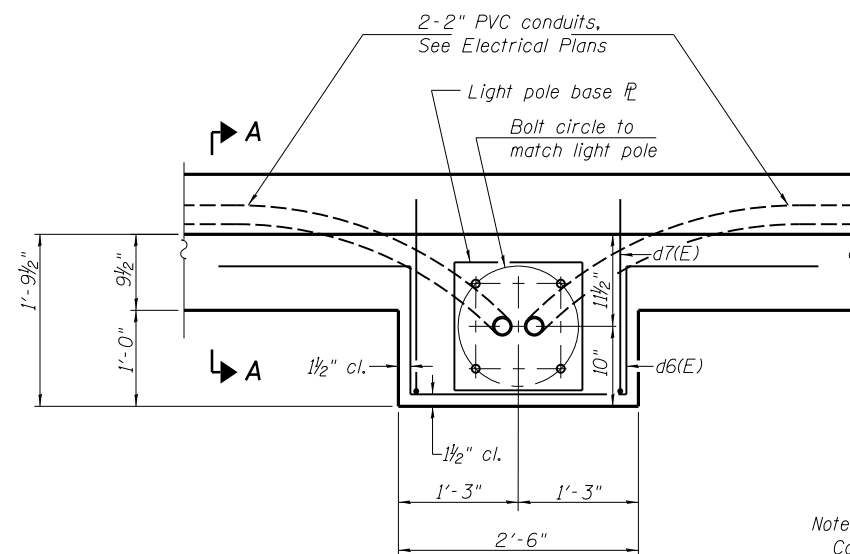
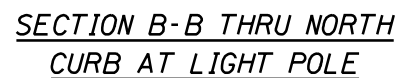
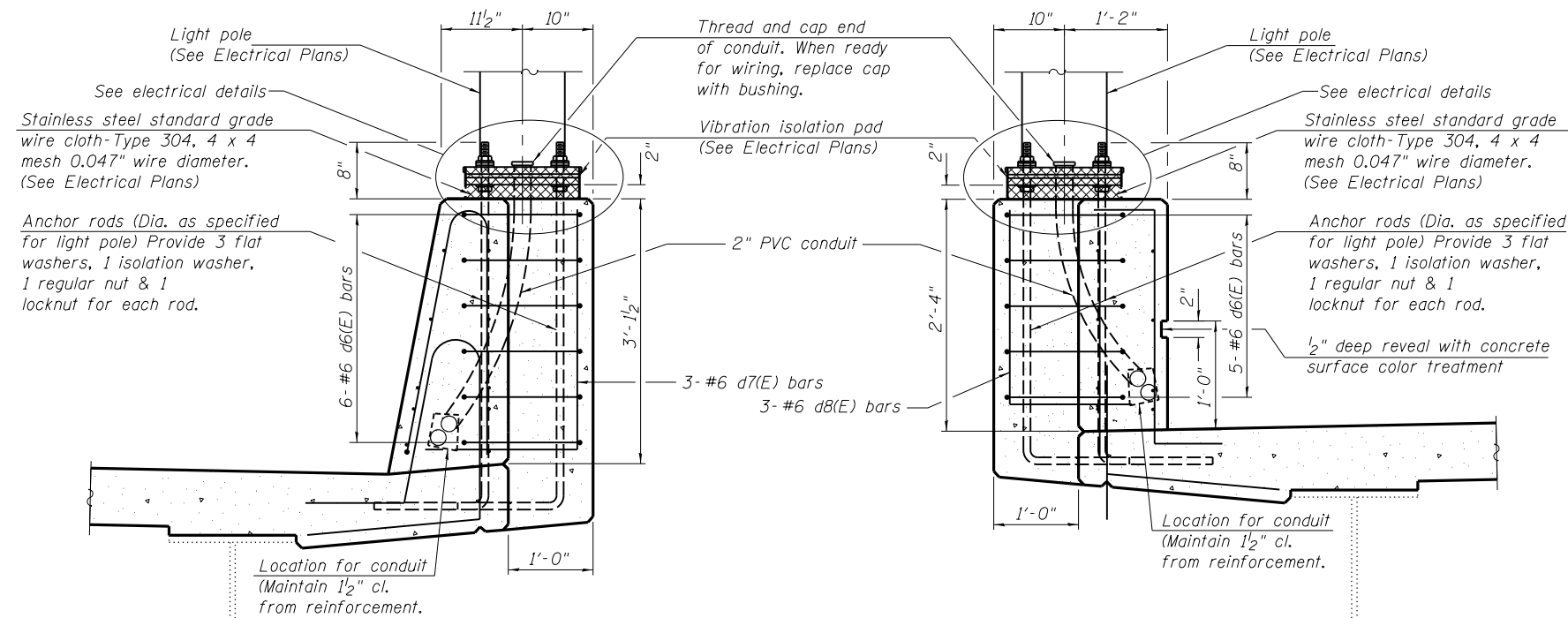
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE DETAILS (SHEET 1 OF 7)
STRUCTURE NO. 084-9973

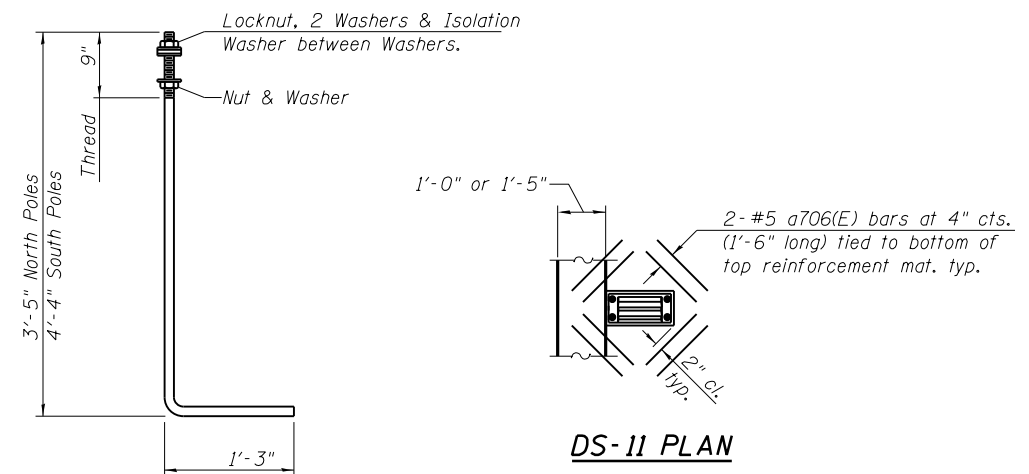
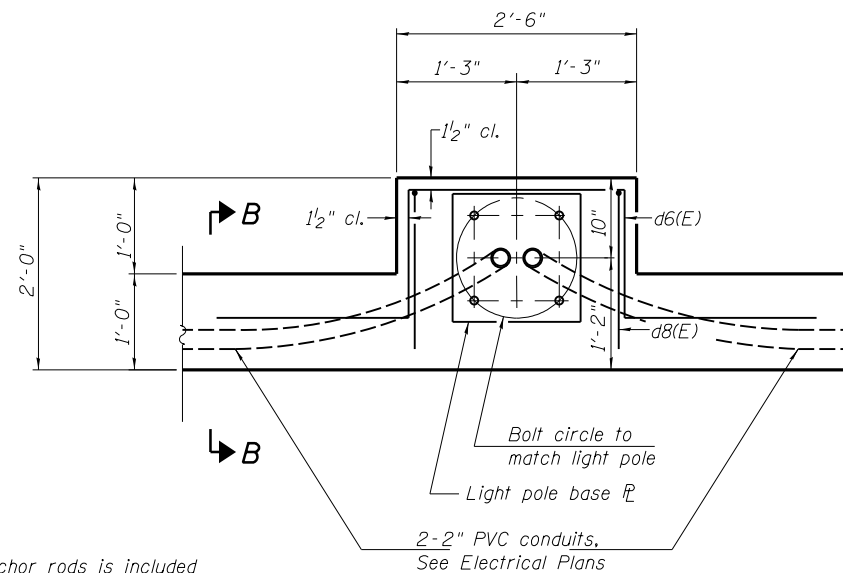
SHEET NO. 10 OF 53 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	456
CONTRACT NO. 93773				

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Note:
Cost of anchor rods is included
with Concrete Superstructure.



*Diameter as specified for light poles.
(ASTM F 1554 Grade 105) Full length
hot dipped galvanized.*

Note:
Cut longitudinal reinforcement to clear drainage scuppers.

Notes:
The 1/8" Aluminum sheet shall be ASTM B 209 alloy 3003-H14 and coated to minimize reaction with wet concrete. Cost included with Concrete Superstructure.
The Polyurethane Sealant shall be according to Article 1050.04 of the Std. Spec. and the color shall be gray.



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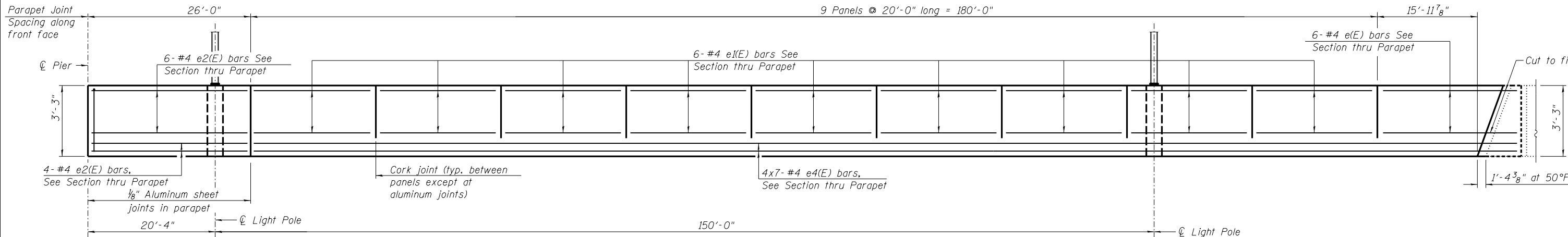
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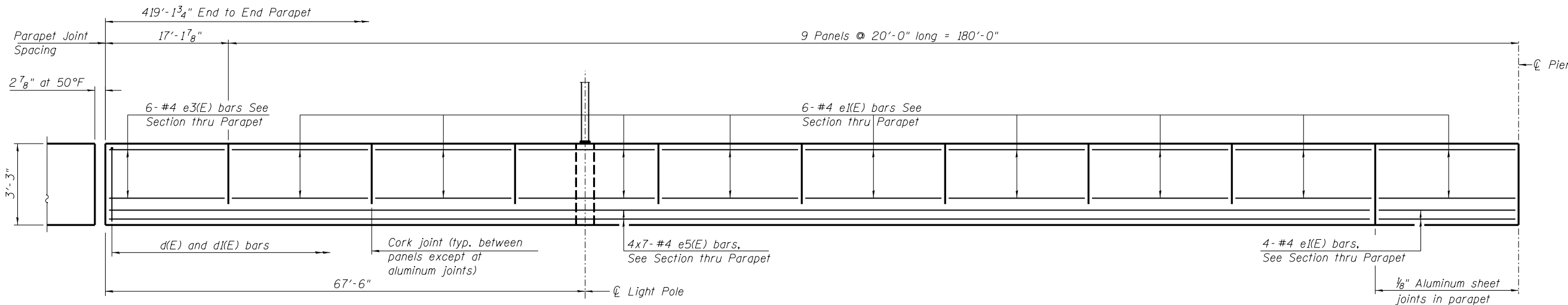
SUPERSTRUCTURE DETAILS (SHEET 3 OF 7)
STRUCTURE NO. 084-9973

SHEET NO. 12 OF 53 SHEETS

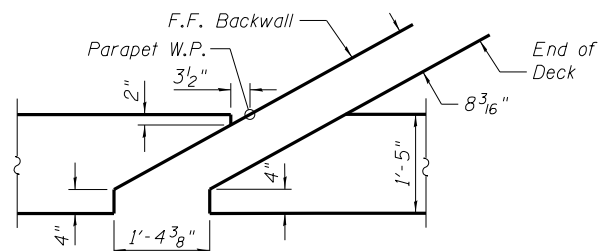
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	458
		CONTRACT NO. 93773		
		ILLINOIS FED. AID PROJECT		



INSIDE ELEVATION OF SOUTH PARAPET (SPAN 1)



INSIDE ELEVATION OF SOUTH PARAPET (SPAN 2)



POINT BLOCK DETAIL 1

MINIMUM BAR LAP

(Parapet)
#4 bar = 2'-5"

Notes:
Bars indicated thus 4x6- #4 etc. indicates 4 lines of bars with 6 lengths per line.
Cut bars to fit.



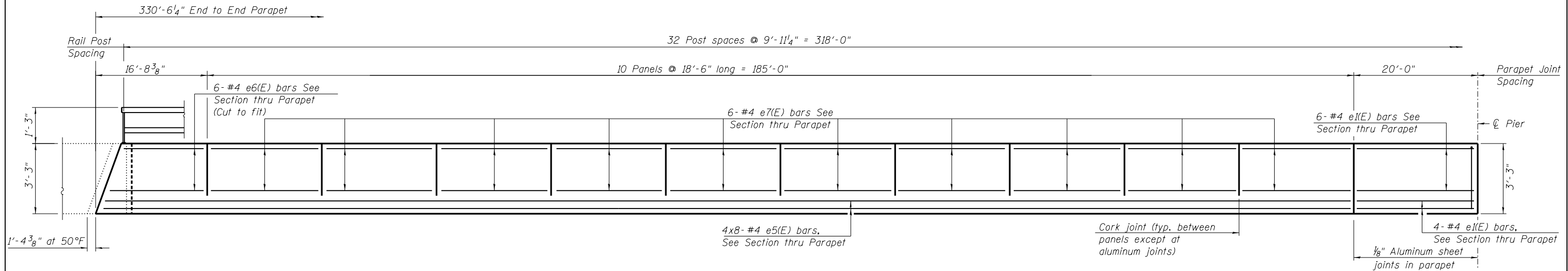
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

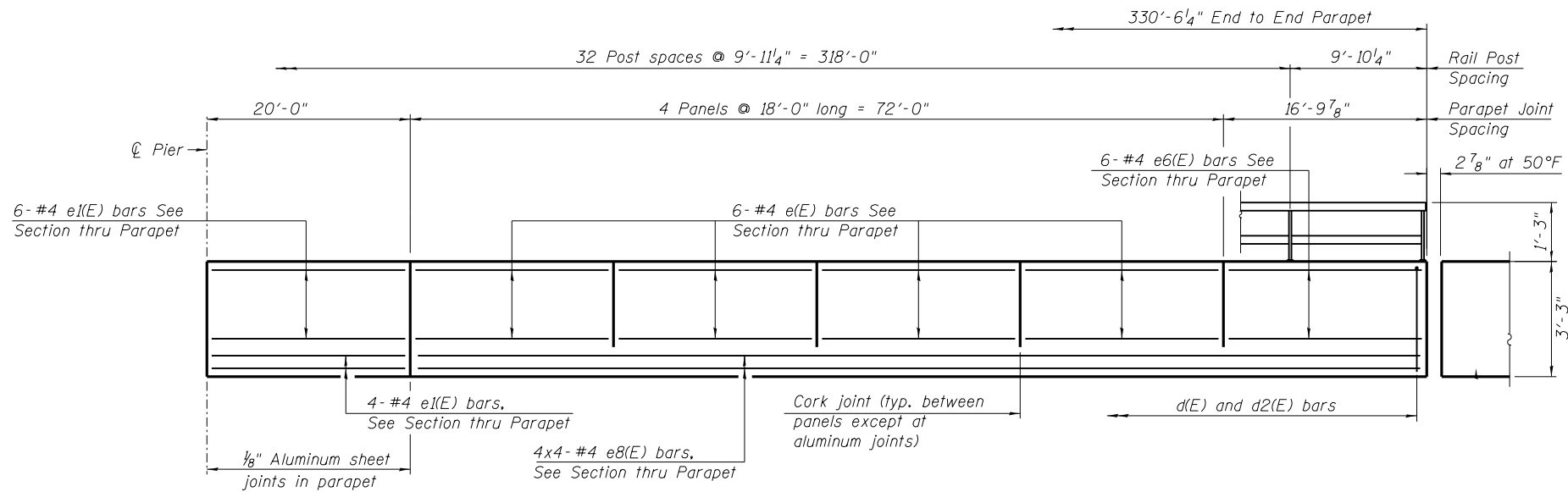
SUPERSTRUCTURE DETAILS (SHEET 4 OF 7)
STRUCTURE NO. 084-9973

SHEET NO. 13 OF 53 SHEETS

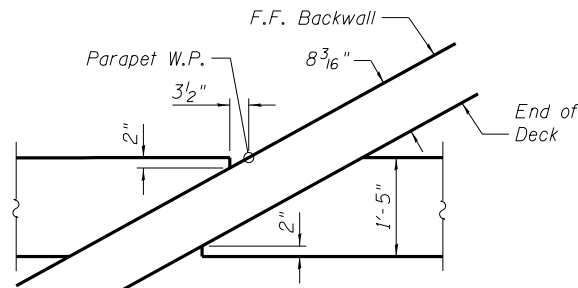
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	459
CONTRACT NO. 93773				
ILLINOIS FED. AID PROJECT				



INSIDE ELEVATION OF NORTH PARAPET (SPAN 1)



INSIDE ELEVATION OF NORTH PARAPET (SPAN 2)



POINT BLOCK DETAIL 2

MINIMUM BAR LAP

(Parapet)
#4 bar = 2'-5"

Notes:
Bars indicated thus 4x6- #4 etc. indicates 4 lines of bars with 6 lengths per line.
Cut bars to fit.



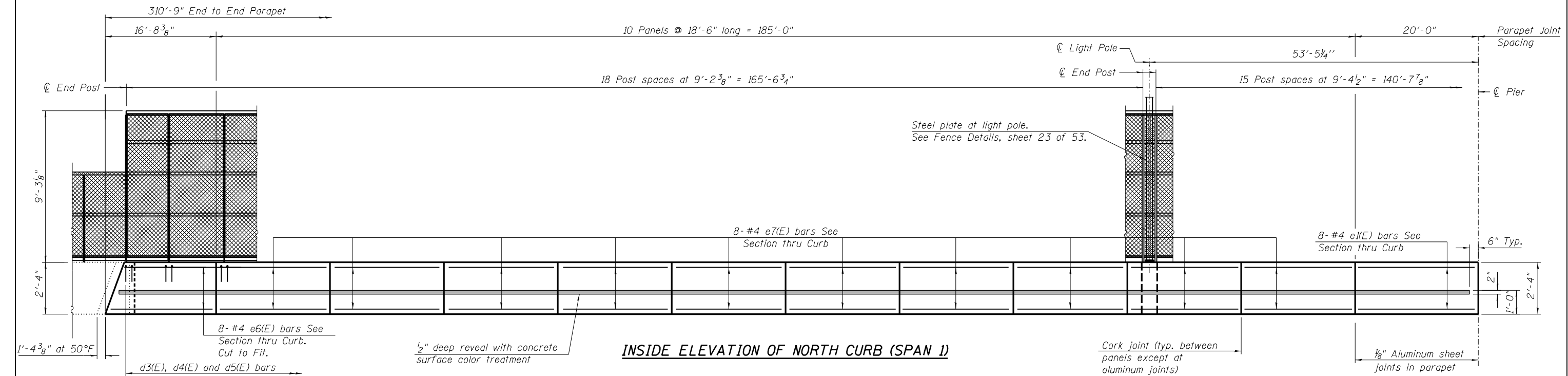
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

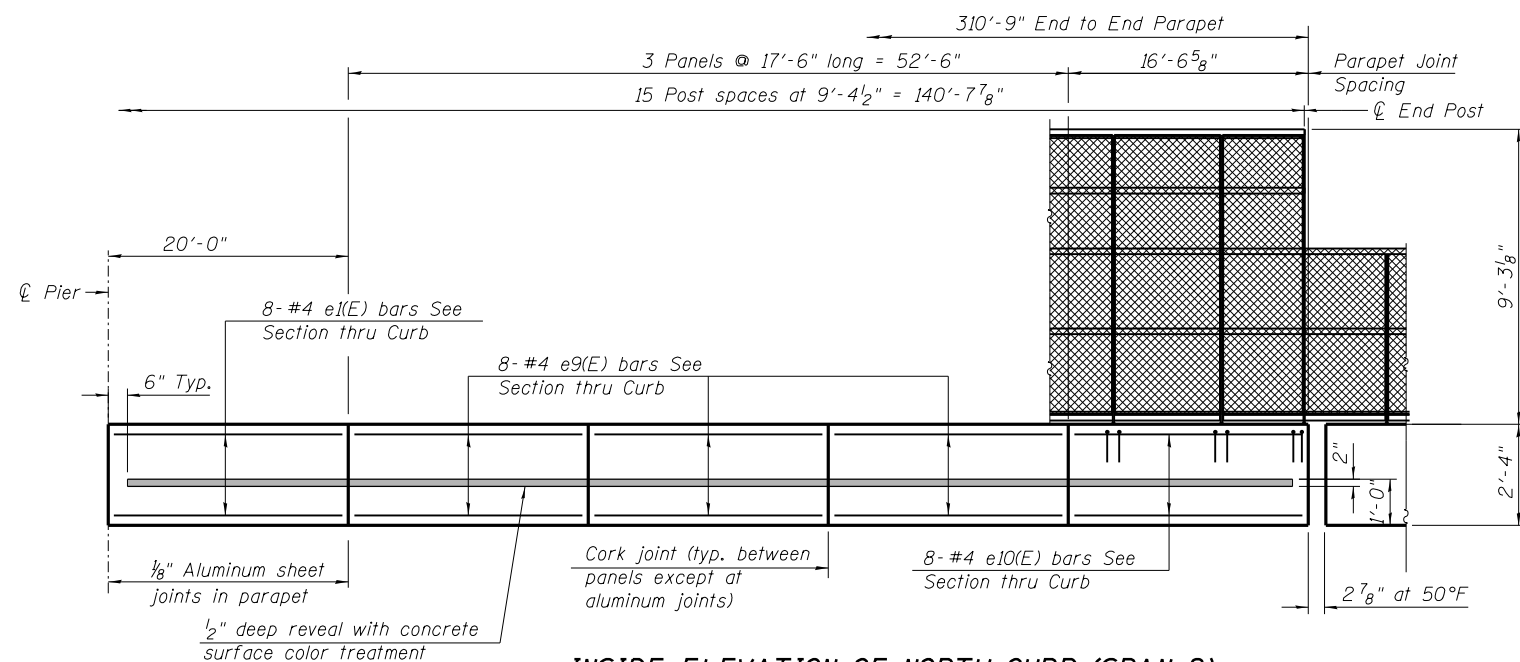
SUPERSTRUCTURE DETAILS (SHEET 5 OF 7)
STRUCTURE NO. 084-9973

SHEET NO. 14 OF 53 SHEETS

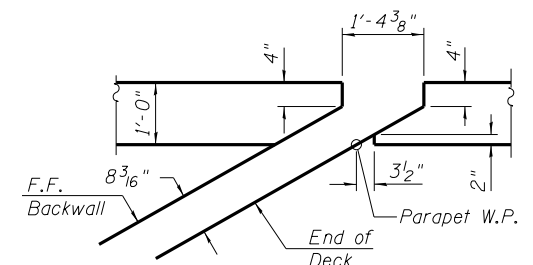
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	460
		CONTRACT NO. 93773		
		ILLINOIS FED. AID PROJECT		



INSIDE ELEVATION OF NORTH CURB (SPAN 1)



INSIDE ELEVATION OF NORTH CURB (SPAN 2)



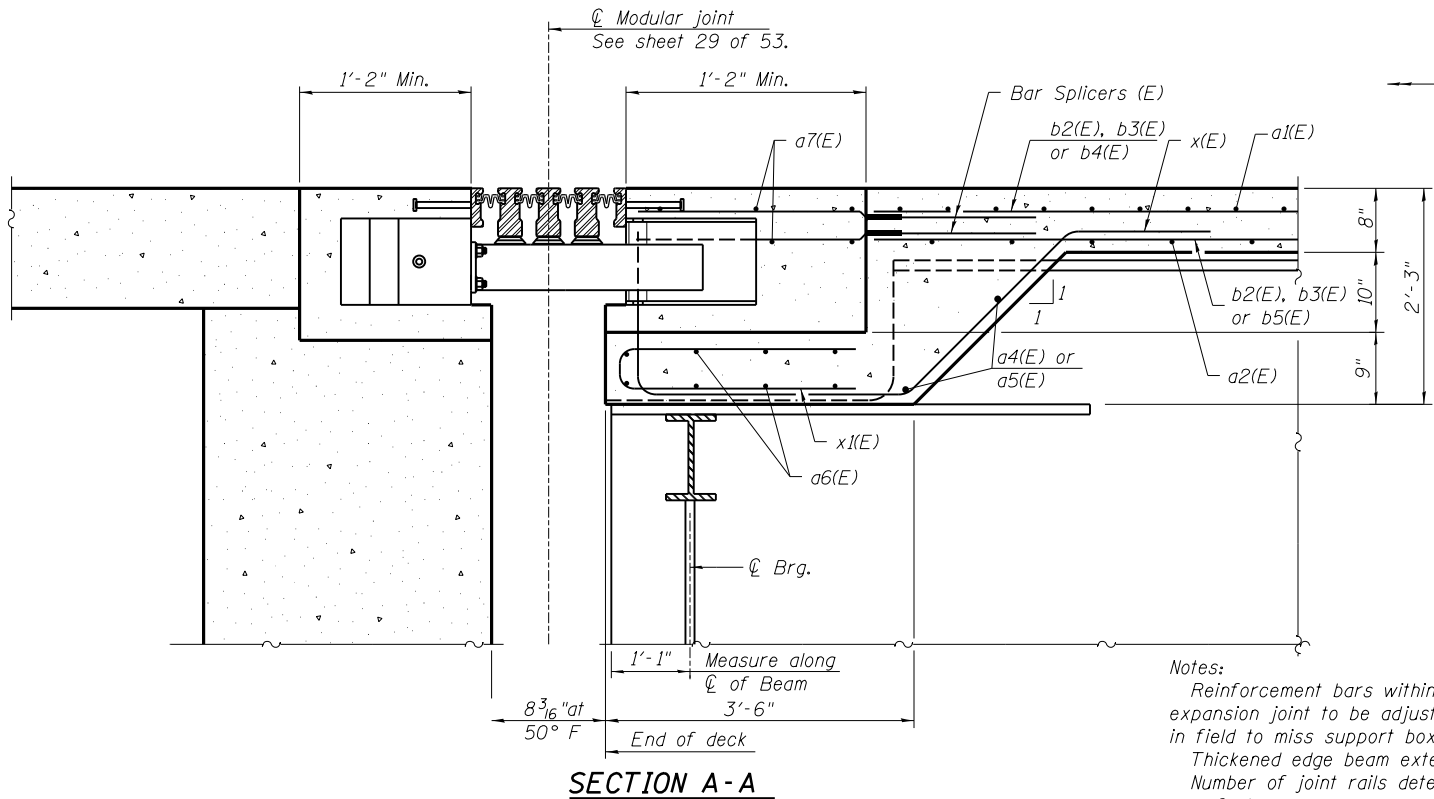
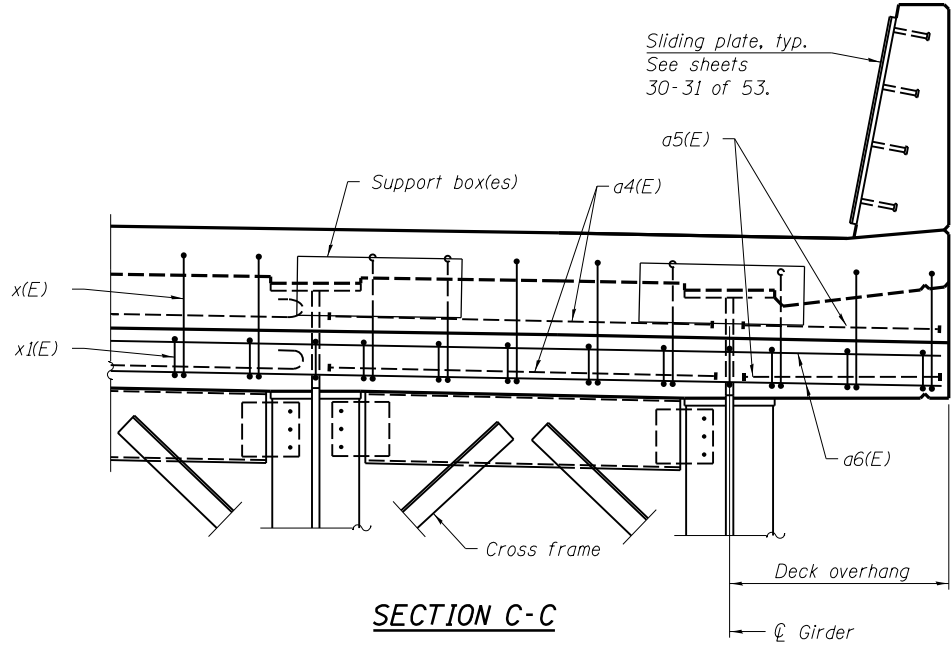
POINT BLOCK DETAIL 3

MINIMUM BAR LAP

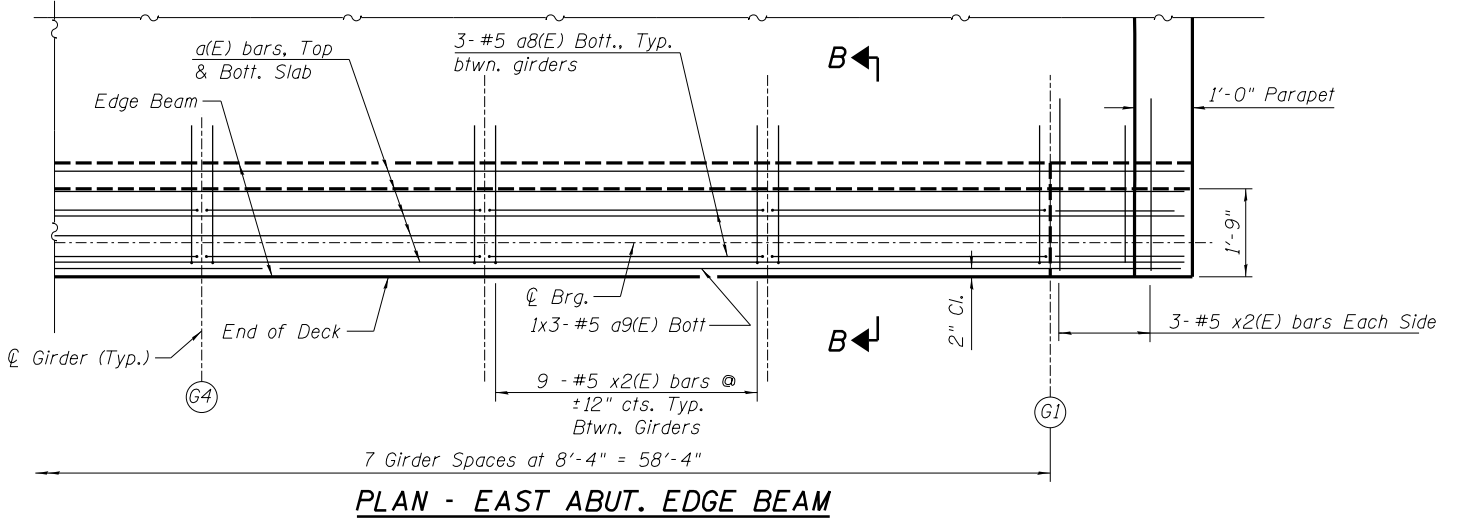
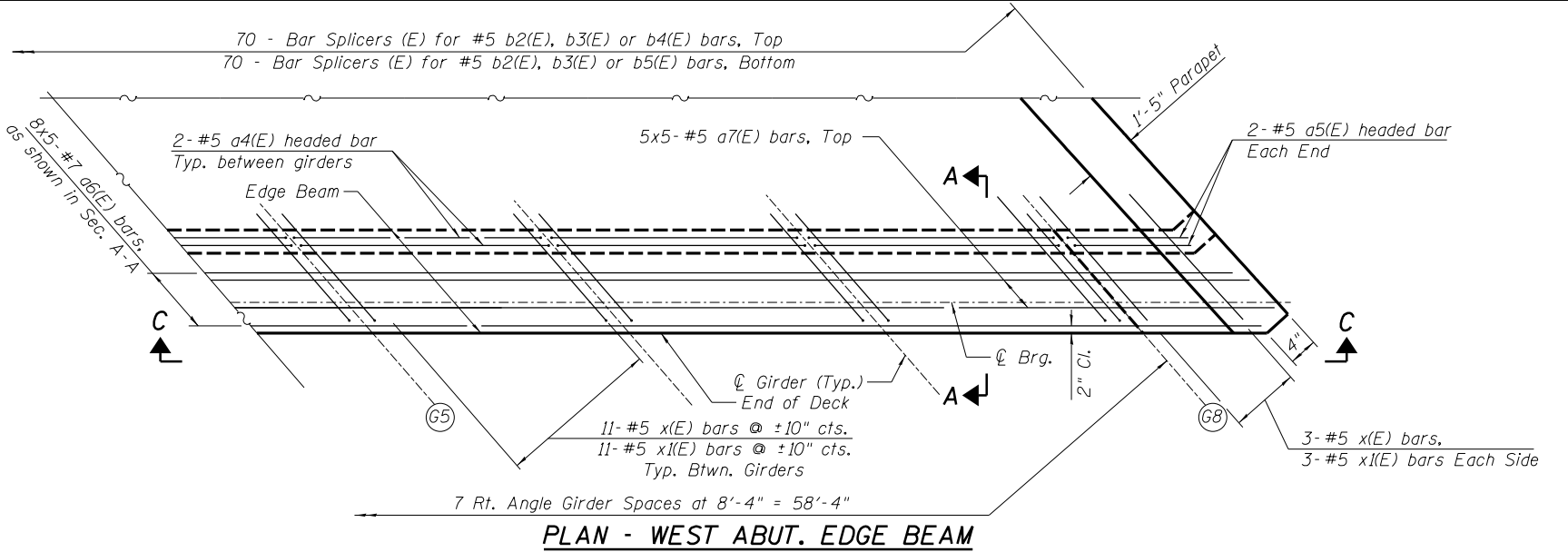
(Parapet)
#4 bar = 2'-5"

Notes:
Bars indicated thus 4x6- #4 etc. indicates 4 lines of bars with 6 lengths per line.
Cut bars to fit.

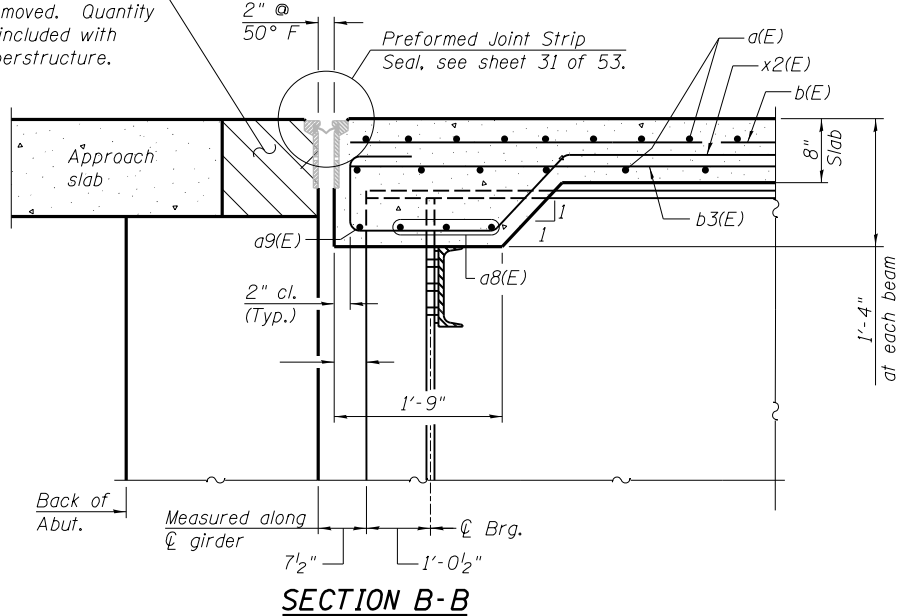
Notes:
See sheets 9-10 of 53 for primary slab reinforcement size and spacing.
See sheets 29-32 of 53 for sliding plate details.
Headed bars shall conform to ASTM A970 with threaded attachment; Class HA; and reinforcement bars conforming to ASTM A706. Cost included with Reinforcement bars, Epoxy Coated.
See sheet 52 of 53 for Bar Slicer (E) for b2(E), b3(E), b4(E) and b5(E) placement.



Notes:
Reinforcement bars within breakout for expansion joint to be adjusted and/or cut in field to miss support boxes or girder webs.
Thickened edge beam extends out-to-out deck.
Number of joint rails determined by the manufacturer.



Hatched area to be poured after superstructure forms have been removed. Quantity of concrete included with Concrete Superstructure.



(Dimensions are at Rt. L's to the back of the Abutment unless noted otherwise.)
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FINAL PLANS



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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE DETAILS (SHEET 6 OF 7)
STRUCTURE NO. 084-9973

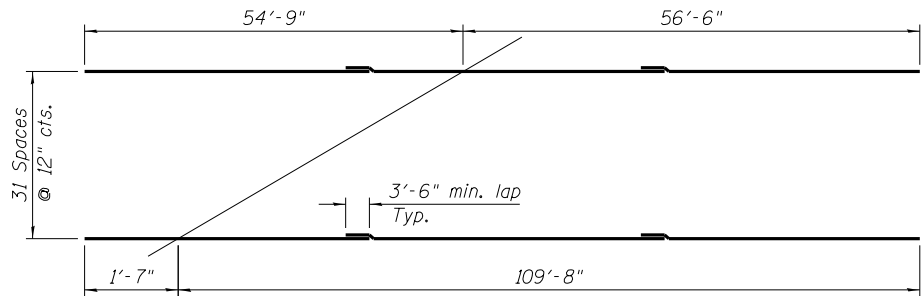
SHEET NO. 15 OF 53 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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CONTRACT NO. 93773				

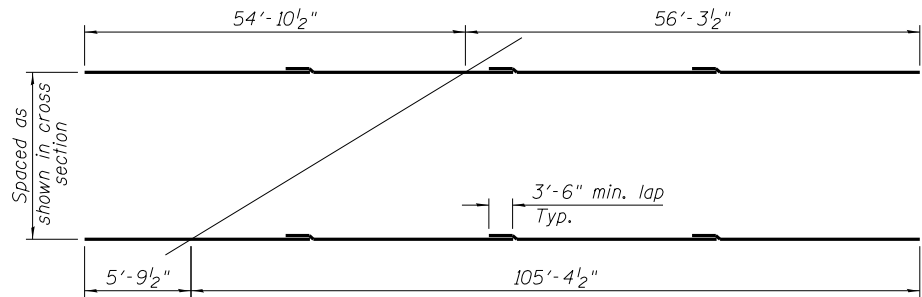
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SUPERSTRUCTURE
BILL OF MATERIAL

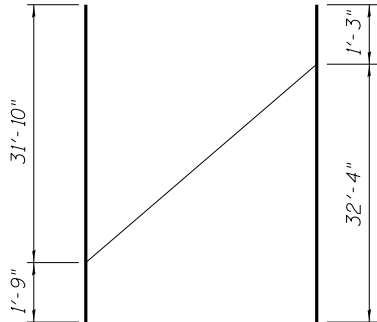
Bar	No.	Size	Length	Shape
a(E)	2421	#5	34'-0"	
a1(E)	117	#5	33'-7"	
a2(E)	76	#5	33'-7"	
a4(E)	14	#5	16'-5"	
a5(E)	4	#5	6'-3"	
a6(E)	40	#7	30'-8"	
a7(E)	25	#5	28'-8"	
a8(E)	21	#5	8'-0"	
a9(E)	3	#5	23'-10"	
a15(E)	1590	#6	8'-4"	
b(E)	567	#5	37'-6"	
b1(E)	310	#6	34'-6"	
b2(E)	90	#5	31'-4"	
b3(E)	690	#5	34'-2"	
b4(E)	96	#5	39'-5"	
b5(E)	128	#5	30'-5"	
d(E)	1126	#5	6'-5"	
d1(E)	631	#5	8'-3"	
d2(E)	495	#5	5'-2"	
d3(E)	465	#5	3'-9"	
d4(E)	465	#5	4'-9"	
d5(E)	465	#5	2'-8"	
d6(E)	23	#6	8'-11"	
d7(E)	9	#6	4'-10"	
d8(E)	3	#6	3'-7"	
e(E)	30	#4	17'-6"	
e1(E)	148	#4	19'-8"	
e2(E)	10	#4	25'-8"	
e3(E)	6	#4	16'-9"	
e4(E)	28	#4	30'-6"	
e5(E)	60	#4	27'-5"	
e6(E)	20	#4	16'-4"	
e7(E)	140	#4	18'-2"	
e8(E)	16	#4	24'-0"	
e9(E)	24	#4	17'-2"	
e10(E)	8	#4	16'-2"	
x(E)	83	#5	8'-2"	
x1(E)	83	#5	6'-11"	
x2(E)	69	#5	5'-11"	
Concrete Superstructure			Cu. Yds.	838.3
Bridge Deck Grooving			Sq. Yds.	2390
Protective Coat			Sq. Yds.	2466
Reinforcement Bars, Epoxy Coated			Lbs.	219970



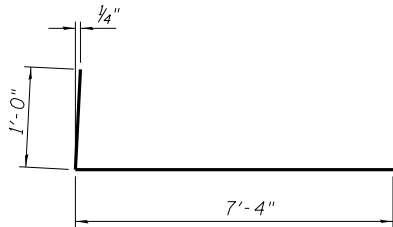
b4(E) CUTTING DIAGRAM



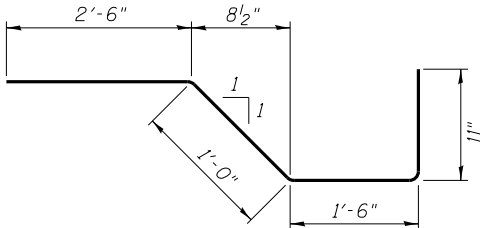
b5(E) CUTTING DIAGRAM



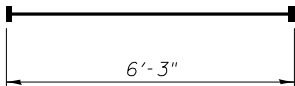
a1(E) & a2(E) CUTTING DIAGRAM



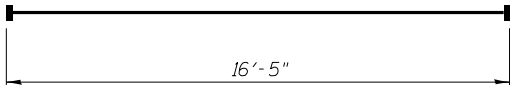
BAR a15(E)



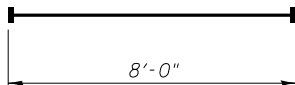
BAR x2(E)



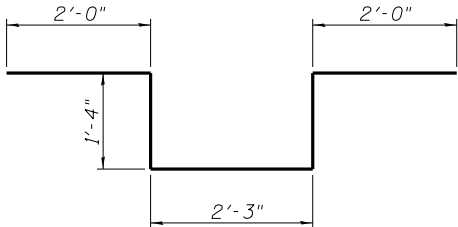
HEADED BAR a5(E)



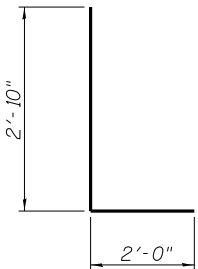
HEADED BAR a4(E)



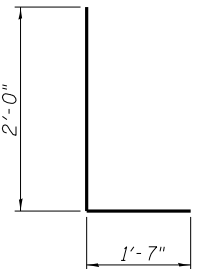
HEADED BAR a8(E)



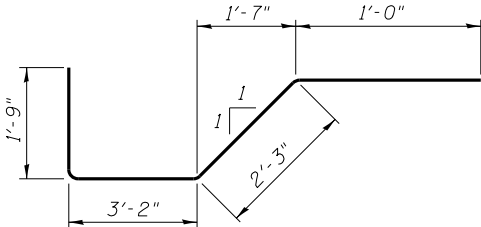
BAR d6(E)



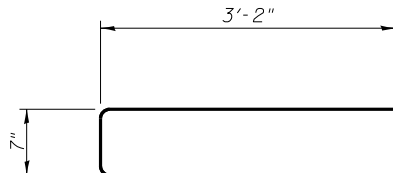
BAR d7(E)



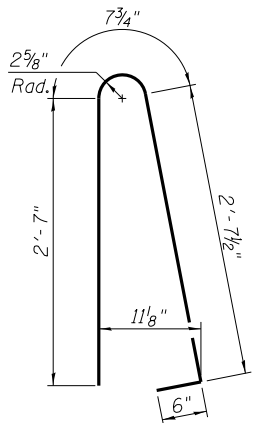
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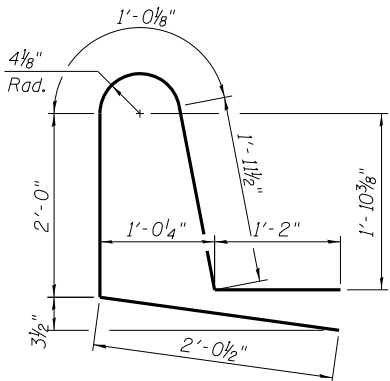
BAR x(E)



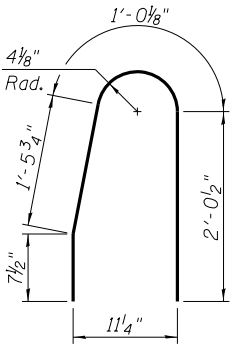
BAR x1(E)



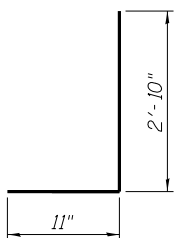
BAR d(E)



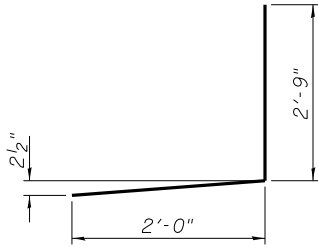
BAR d1(E)



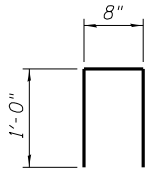
BAR d2(E)



BAR d3(E)



BAR d4(E)



BAR d5(E)

FINAL PLANS

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USER NAME : pop00275
PLOT SCALE : 0:2.0000 'ft' / in.
PLOT DATE : 9/27/2024

DESIGNED - CGP
CHECKED - JGT
DRAWN - RSJ
CHECKED -

REVISED -
REVISED -
REVISED -
REVISED -

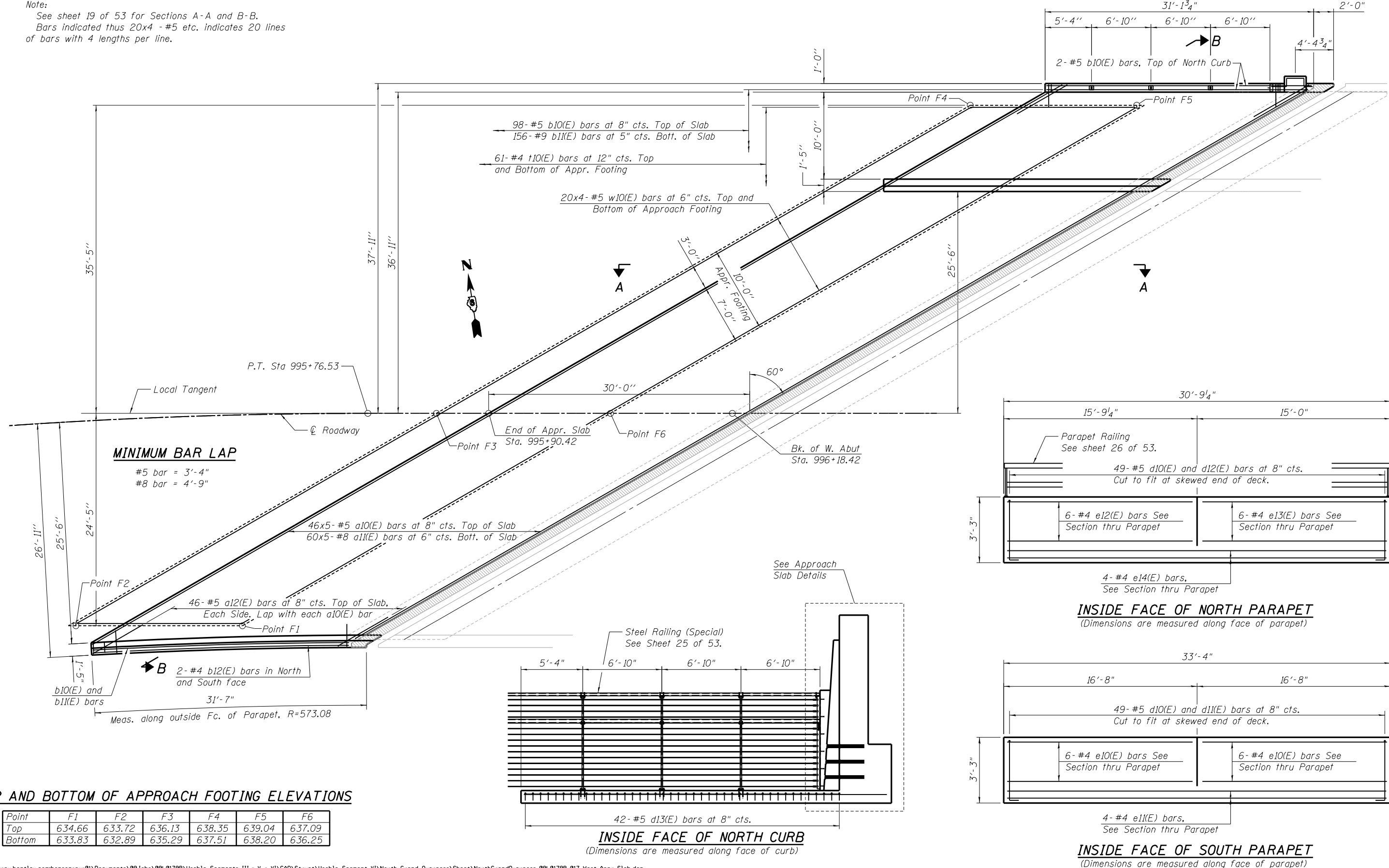
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE DETAILS (SHEET 7 OF 7)
STRUCTURE NO. 084-9973

SHEET NO. 16 OF 53 SHEETS

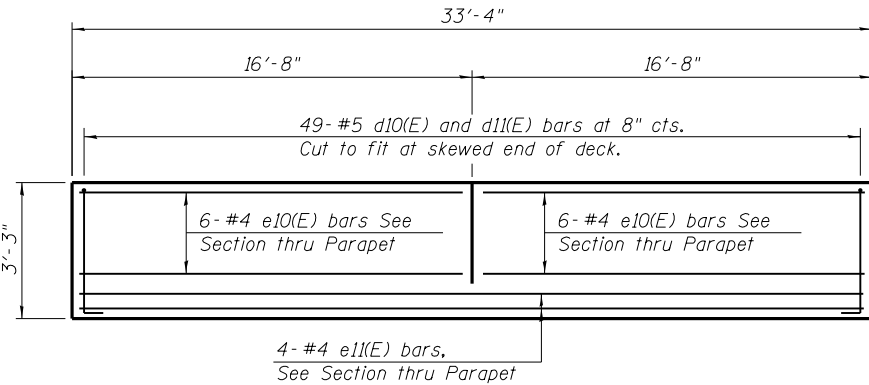
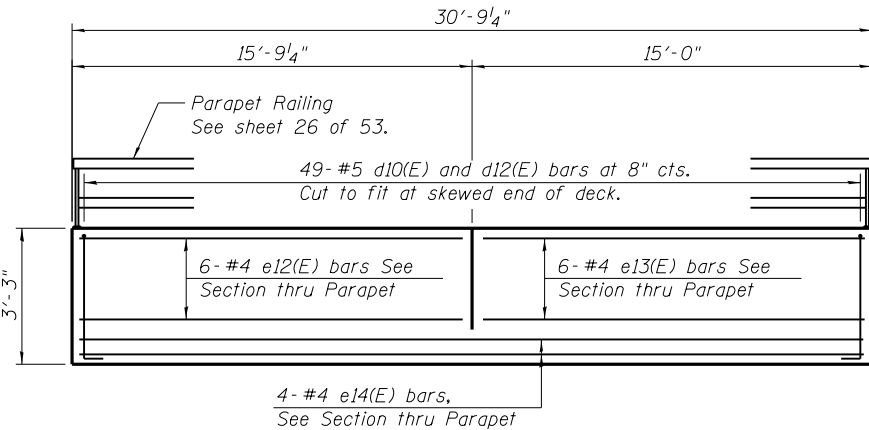
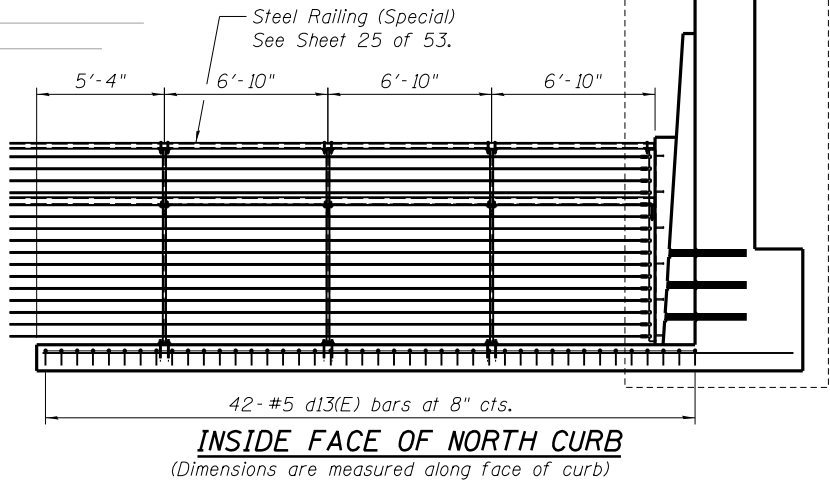
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	462
CONTRACT NO.			93773	
ILLINOIS FED. AID PROJECT				

Note:
See sheet 19 of 53 for Sections A-A and B-B.
Bars indicated thus 20x4 -#5 etc. indicates 20 lines
of bars with 4 lengths per line.



TOP AND BOTTOM OF APPROACH FOOTING ELEVATIONS

Point	F1	F2	F3	F4	F5	F6
Top	634.66	633.72	636.13	638.35	639.04	637.09
Bottom	633.83	632.89	635.29	637.51	638.20	636.25



FINAL PLANS

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USER NAME : pop00275

PLOT SCALE : 0:2.0000 'ft' / in.

PLOT DATE : 9/27/2024

DESIGNED - CGP

CHECKED - JGT

DRAWN - RSJ

CHECKED -

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

WEST APPROACH SLAB
STRUCTURE NO. 084-9973

SHEET NO. 17 OF 53 SHEETS

F.A.U.
RTE.

SECTION

COUNTY

TOTAL
SHEETS

SHEET
NO.

7972

20-00492-00-BR & 22-00492-01-BR

SANGAMON

714

463

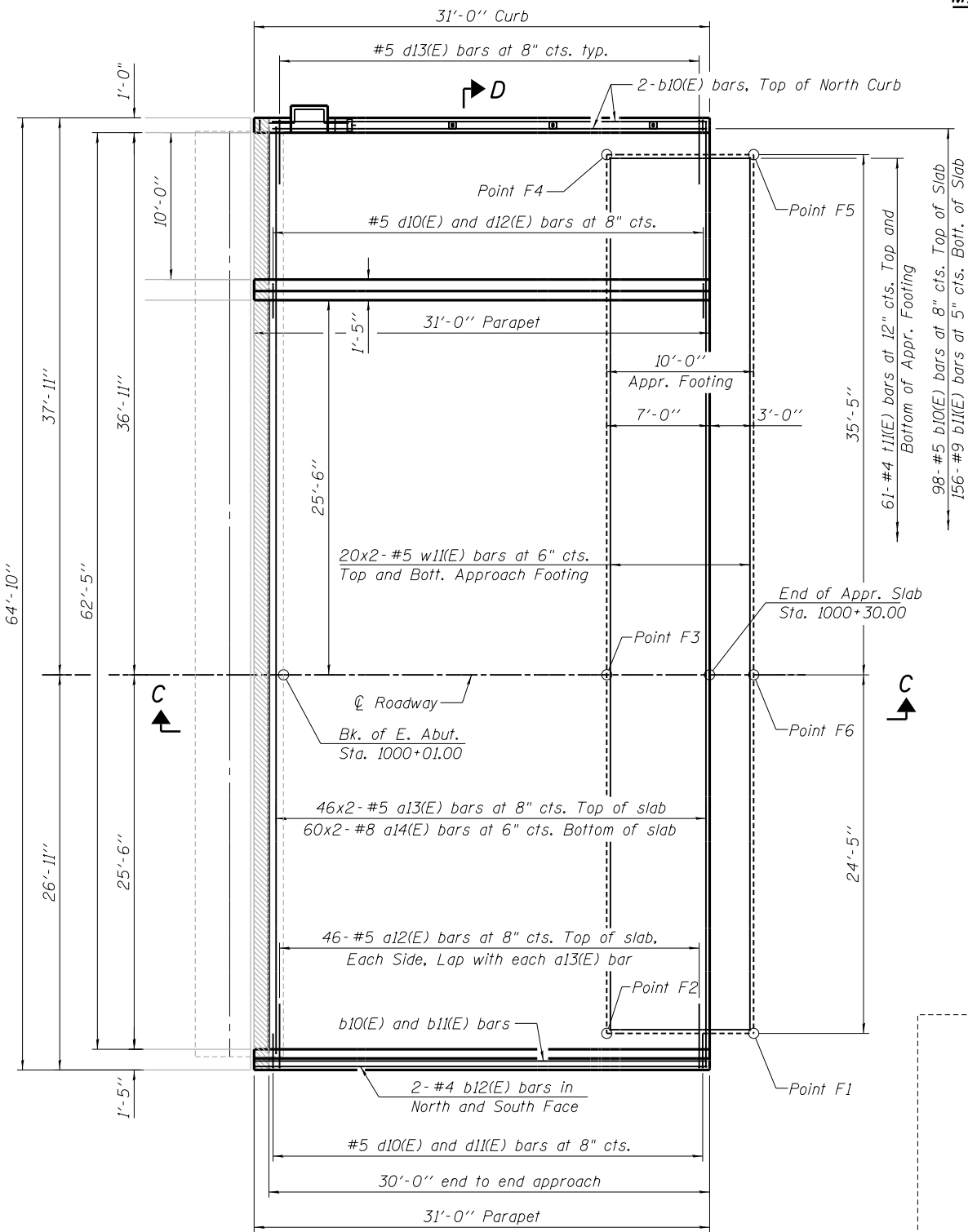
CONTRACT NO.

93773

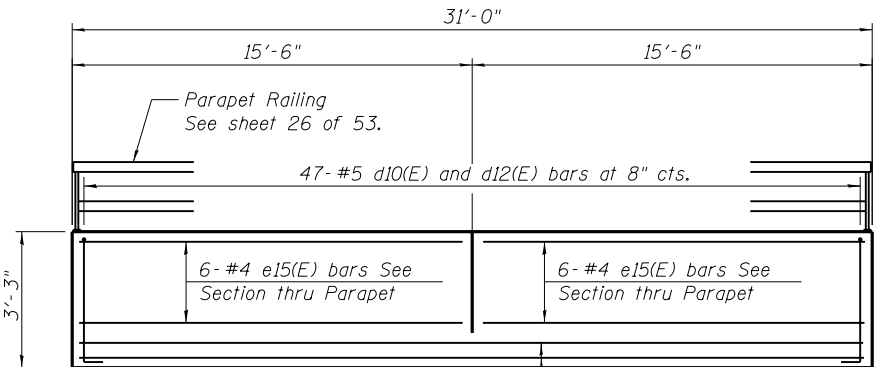
ILLINOIS FED. AID PROJECT

MINIMUM BAR LAP

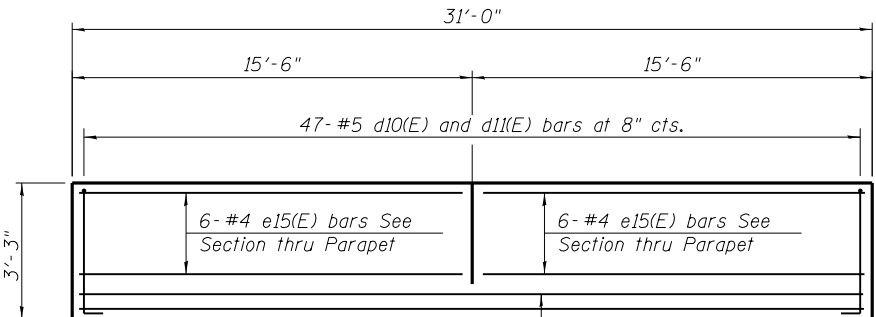
#5 bar = 3'-4"
#8 bar = 4'-9"



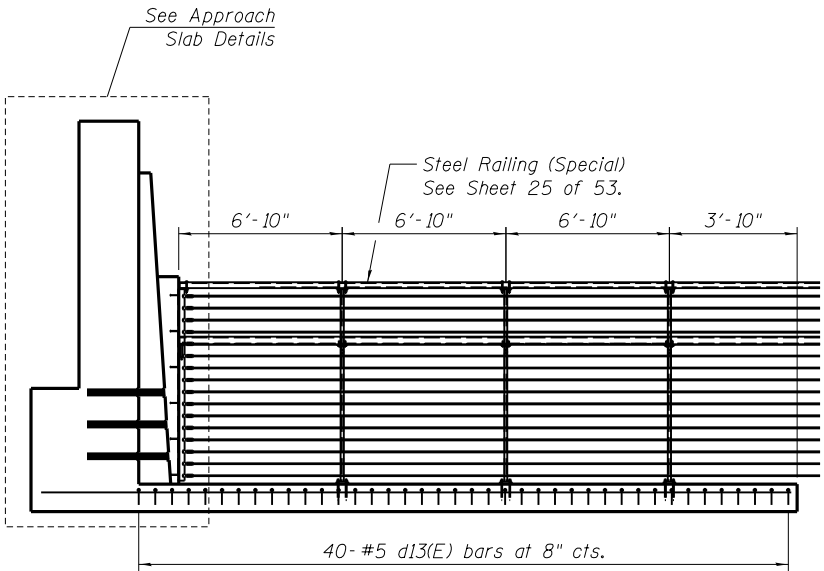
Note:
See sheet 19 of 53 for Sections C-C and D-D.
Bars indicated thus 20x4 -#5 etc. indicates 20 lines
of bars with 4 lengths per line.



INSIDE FACE OF NORTH PARAPET
(Dimensions are measured along face of parapet)



INSIDE FACE OF SOUTH PARAPET
(Dimensions are measured along face of parapet)



INSIDE FACE OF NORTH CURB
(Dimensions are measured along face of curb)

TOP AND BOTTOM OF APPROACH FOOTING ELEVATIONS

Point	F1	F2	F3	F4	F5	F6
Top	635.31	635.79	636.32	635.79	635.31	635.84
Bottom	634.48	634.96	635.49	634.96	634.48	635.01

FINAL PLANS

p:\hansoninc-pw\hanson-pw\01\Documents\09Jobs\09L01798\Usable Segments III - V - VINCAD\Struct\Usable Segment V\North Grand Overpass\Sheet\NorthGrandOverpass.09L01798.018-East Appr Slab.dgn



USER NAME : pop00275

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PLOT SCALE : 0:2.0000 '1" / 1"

CHECKED - JGT

REVISED -

PLOT DATE : 9/27/2024

DRAWN - RSJ

REVISED -

CHECKED -

REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EAST APPROACH SLAB
STRUCTURE NO. 084-9973

SHEET NO. 18 OF 53 SHEETS

F.A.U.
RTE.

SECTION

COUNTY

TOTAL
SHEETS

SHEET
NO.

7972

20-00492-00-BR & 22-00492-01-BR

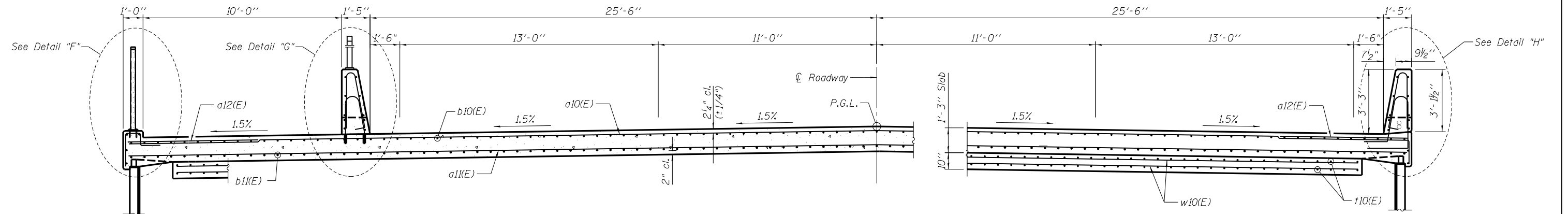
SANGAMON

714

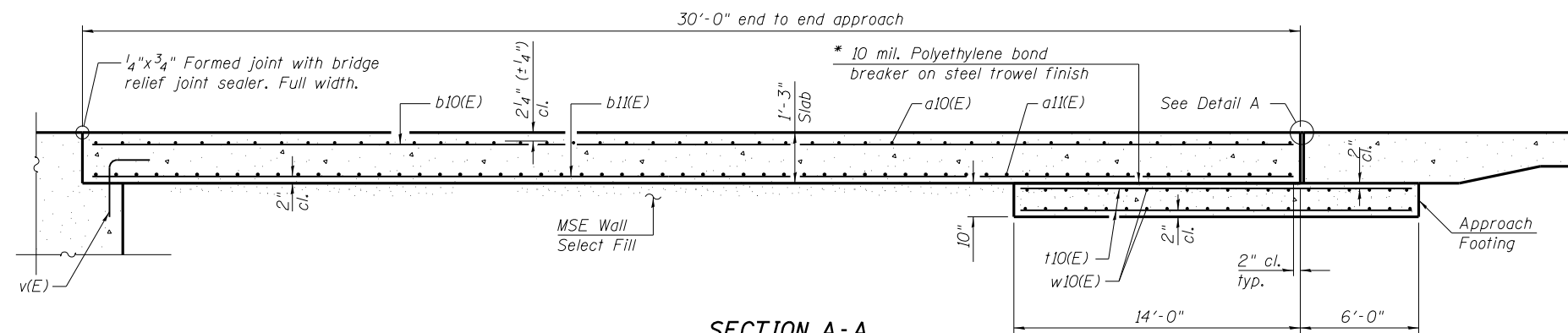
464

CONTRACT NO. 93773

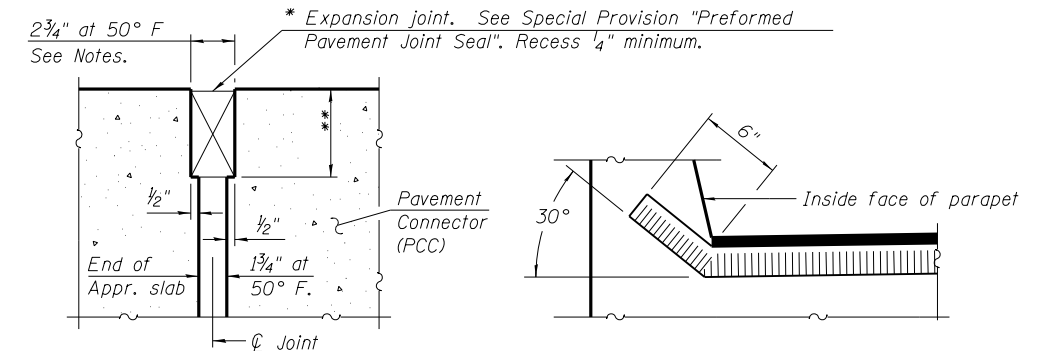
ILLINOIS FED. AID PROJECT



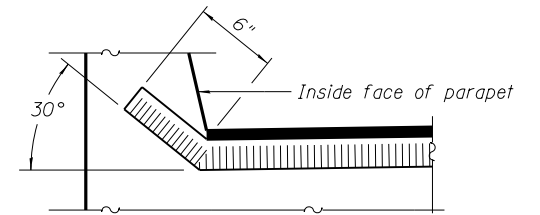
SECTION B-B



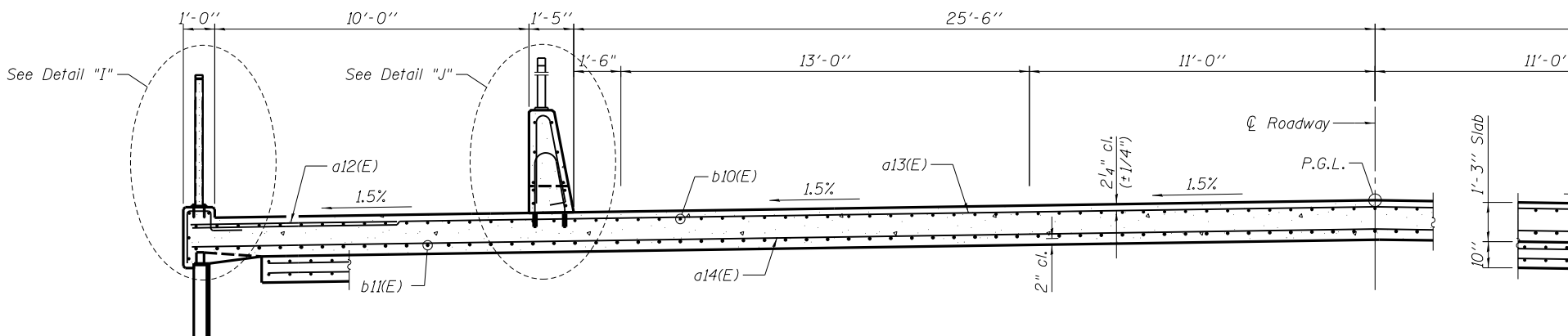
SECTION A-A



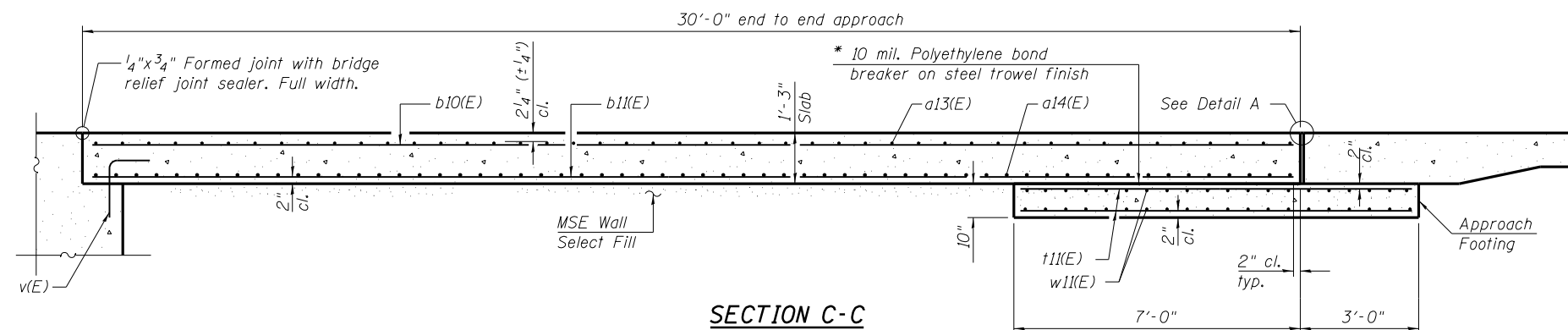
DETAIL A
(at Rt. L's)



END OF SEAL



SECTION D-D



SECTION C-C

Notes:
See sheet 20 of 53 for Approach Curb and Parapet Detail.
See sheet 17-18 of 53 for Approach Slab Reinforcement Layout and Spacing.
Parapet concrete shall be paid for as Concrete Superstructure.
Approach slab shall be paid for as Concrete Superstructure (Approach Slab).
Approach footing concrete shall be paid for as Concrete Structures.
The approach footing maximum applied service bearing pressure (Q_{max}) = 2.0 ksf.
Cost of excavation for approach footing included with Concrete Structures.
For Select Fill details, see Retaining Wall Plans.
See sheet 20 of 53 for Details "F", "G", "H", "I", "J" and "K".

FINAL PLANS



USER NAME = pop00275
DESIGNED - CGP
CHECKED - JGT
PLOT SCALE = 0:2.0000 'ft' / in.
DRAWN - RSJ
PLOT DATE = 9/27/2024
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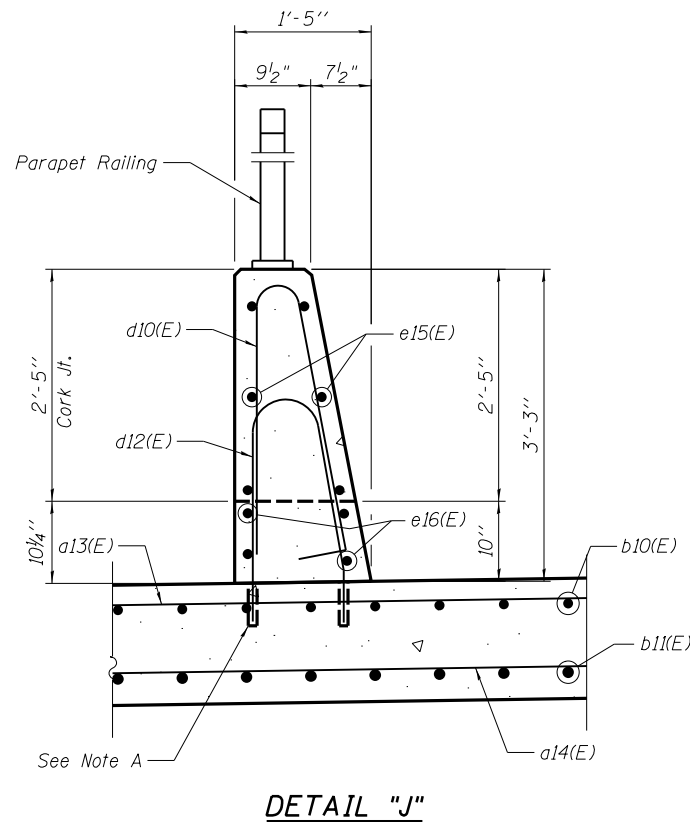
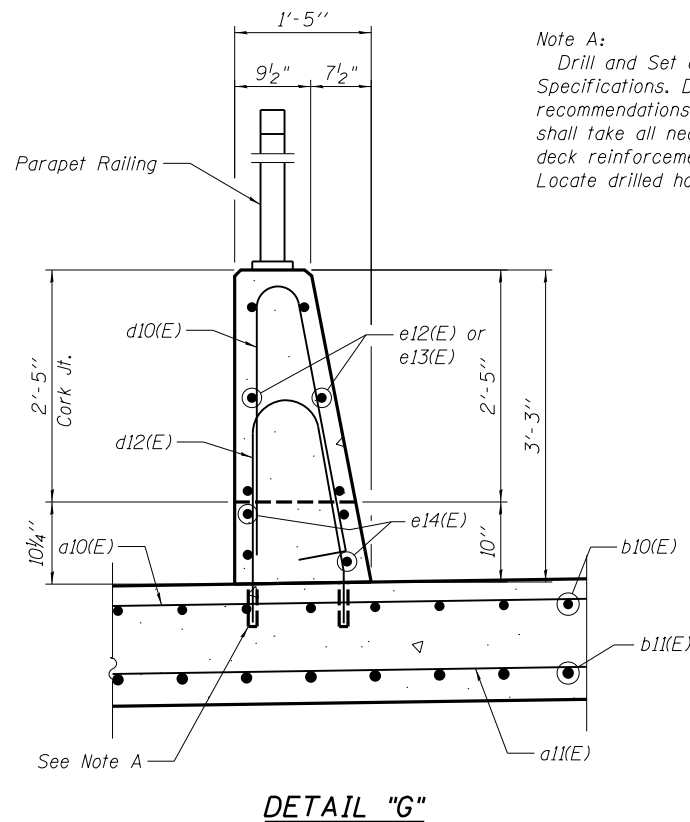
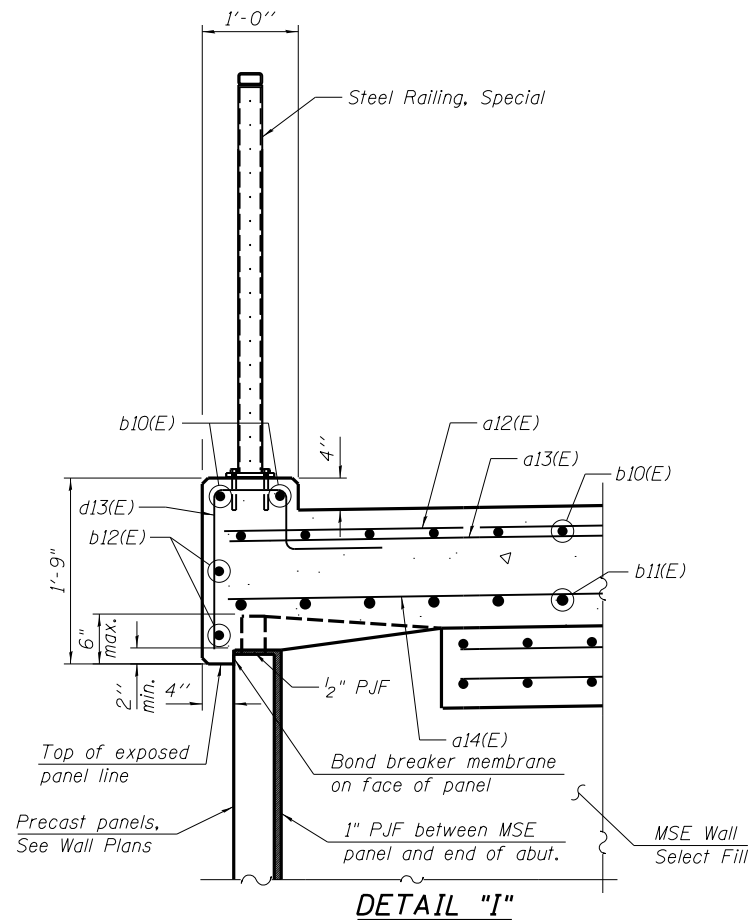
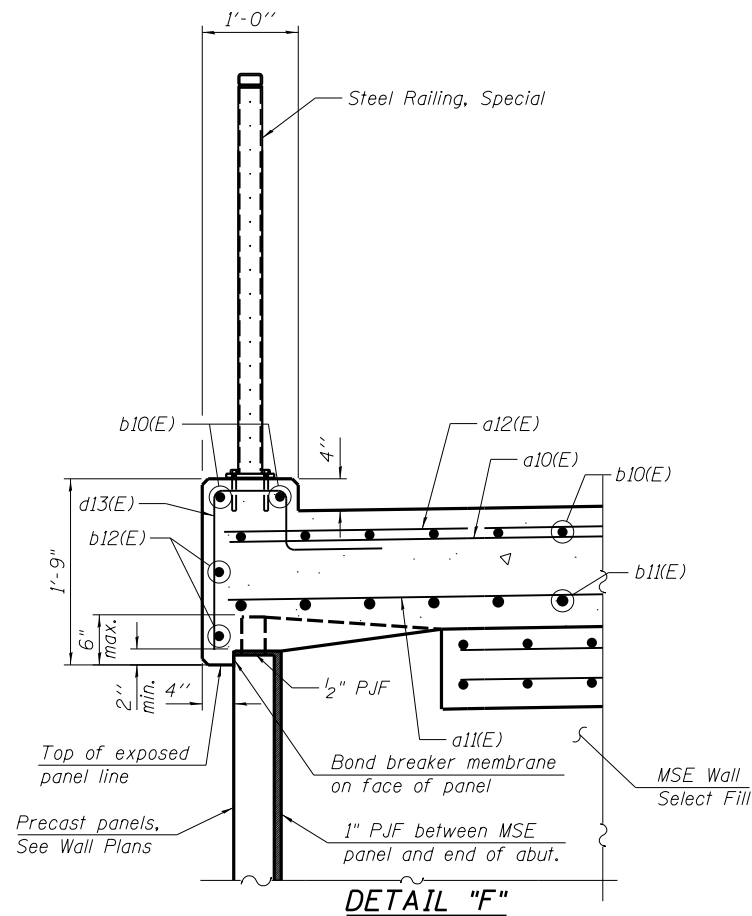
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STATE OF ILLINOIS
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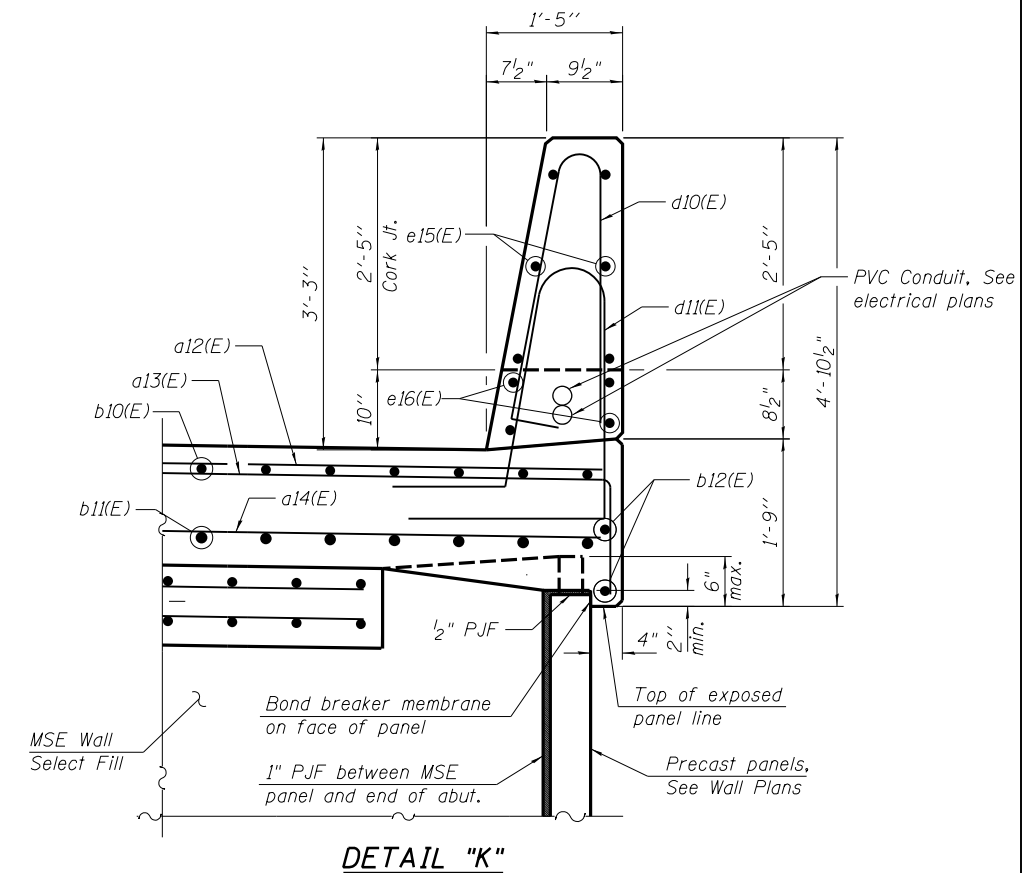
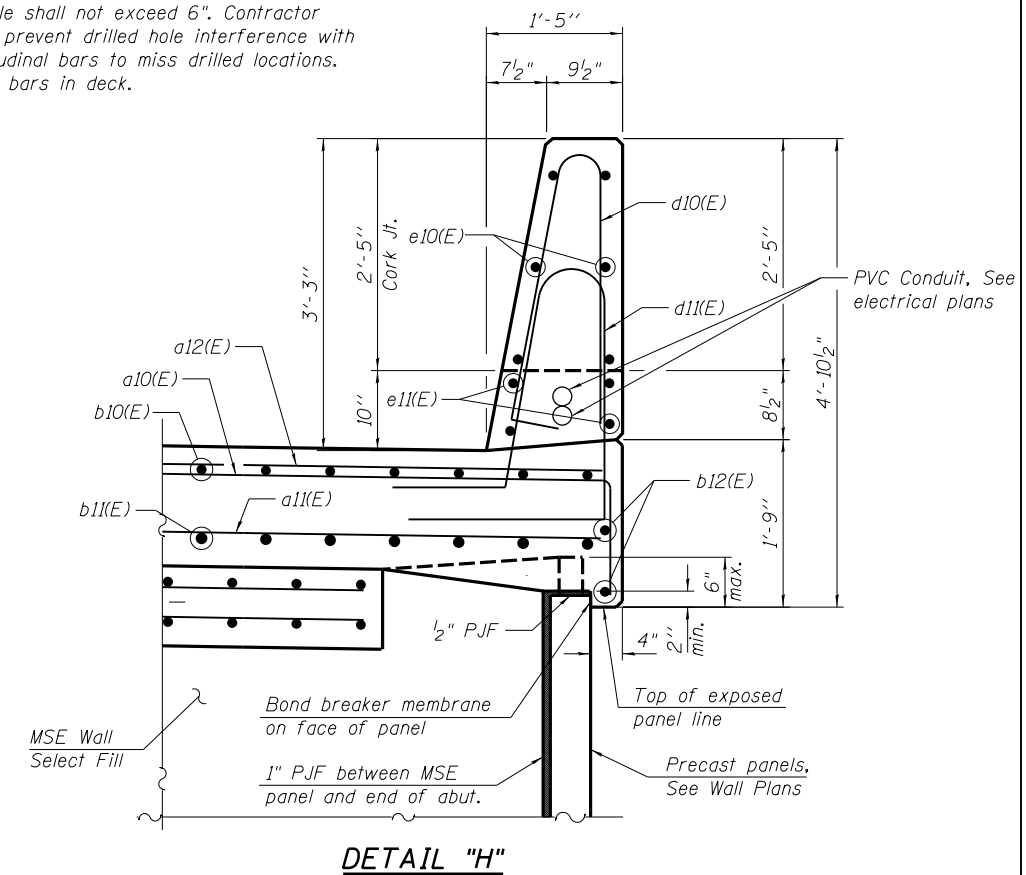
APPROACH SLAB DETAILS (SHEET 1 OF 4)
STRUCTURE NO. 084-9973

SHEET NO. 19 OF 53 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	465
CONTRACT NO. 93773				
ILLINOIS FED. AID PROJECT				



Note A:
Drill and Set d12(E) bars according to Article 509.06 of the Standard Specifications. Drilled holes shall be roughened or scored per manufacture's recommendations. Maximum depth of hole shall not exceed 6". Contractor shall take all necessary precautions to prevent drilled hole interference with deck reinforcement bars. Locate longitudinal bars to miss drilled locations. Locate drilled holes to miss transverse bars in deck.



FINAL PLANS

p:\hanson\inc-pw\hanson\com\hanson-pw\01\Documents\09Jobs\09L01798\Usable Segments III - V - VINCAD\Struct\Usable Segment VI\North Grand Overpass\Sheet\NorthGrandOverpass.09L01798.020.Appr Slab Details.dgn



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USER NAME : pop00275
PLOT SCALE : 0:2.0000 '1" / 1"
PLOT DATE : 9/27/2024

DESIGNED - CGP
CHECKED - JGT
DRAWN - RSJ
CHECKED -

REVISED -
REVISED -
REVISED -
REVISED -

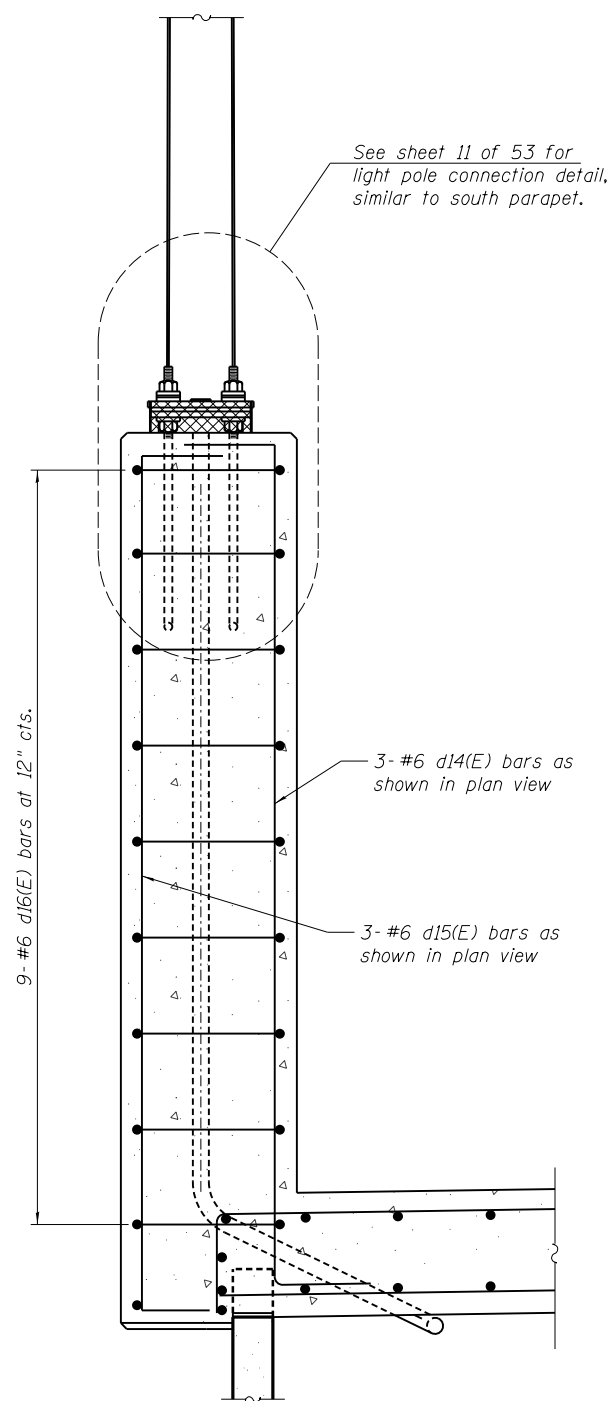
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

APPROACH SLAB DETAILS (SHEET 2 OF 4)
STRUCTURE NO. 084-9973

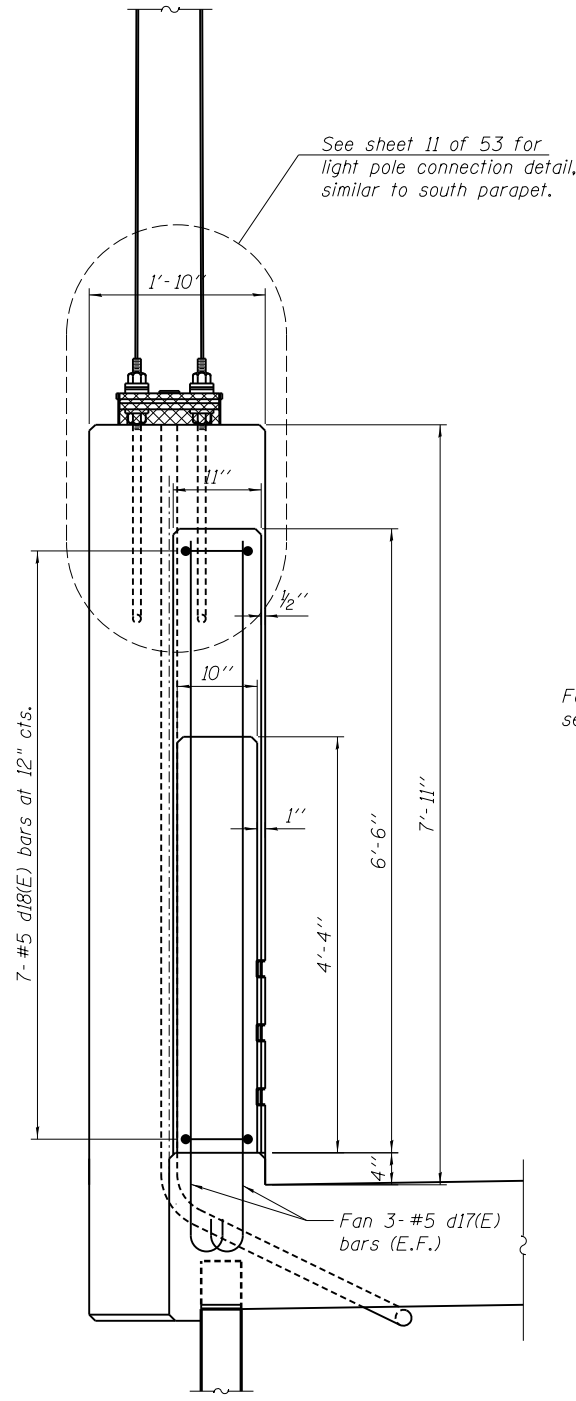
SHEET NO. 20 OF 53 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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CONTRACT NO.			93773	

ILLINOIS FED. AID PROJECT



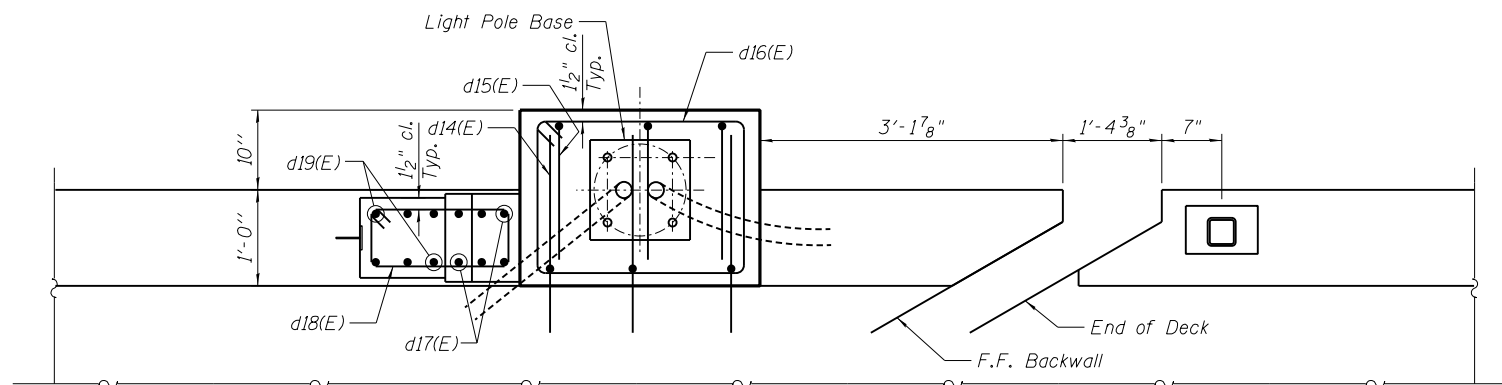
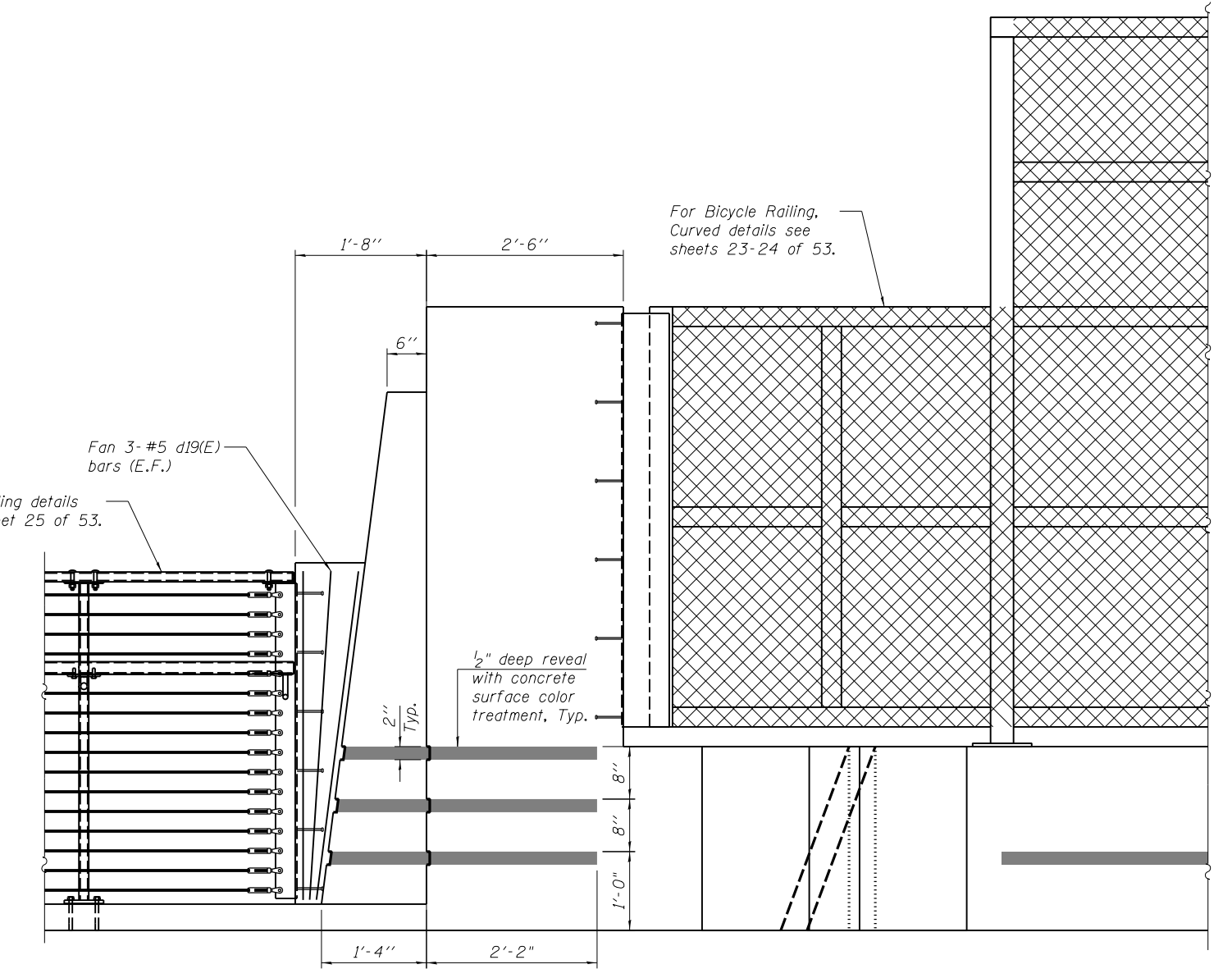
SECTION THRU MONUMENT



For railing details see sheet 25 of 53.

Fan 3- #5 d19(E) bars (E.F.)

ELEVATION



PLAN

FINAL PLANS

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	CHECKED - JGT	REVISED -
PLOT SCALE = 0:2.0000 '1" / 1in.	DRAWN - RSJ	REVISED -
PLOT DATE = 9/27/2024	CHECKED -	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**APPROACH SLAB DETAILS (SHEET 3 OF 4)
STRUCTURE NO. 084-9973**

SHEET NO. 21 OF 53 SHEETS

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



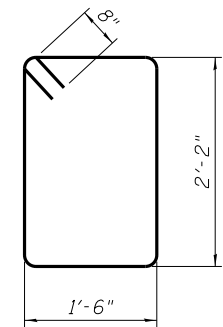
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

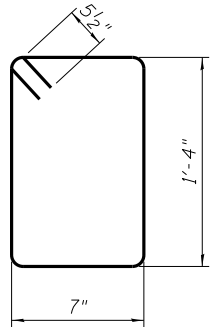
APPROACH SLAB DETAILS (SHEET 4 OF 4)
STRUCTURE NO. 084-9973

SHEET NO. 22 OF 53 SHEETS

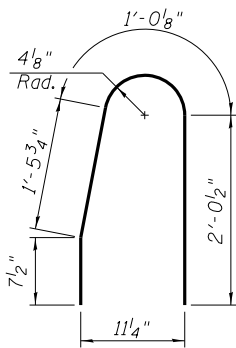
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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ILLINOIS FED. AID PROJECT			CONTRACT NO. 93773	



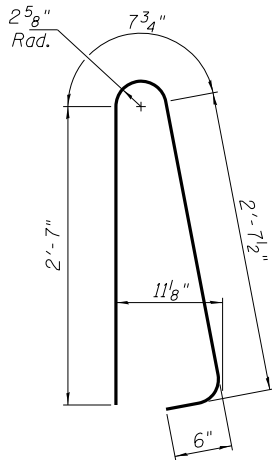
BAR d16(E)



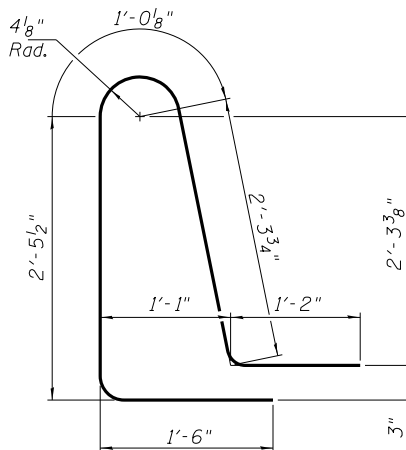
BAR d18(E)



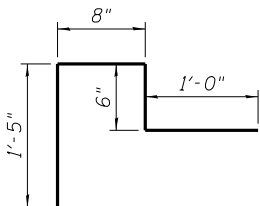
BAR d12(E)



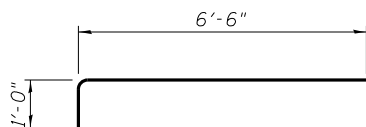
BAR d10(E)



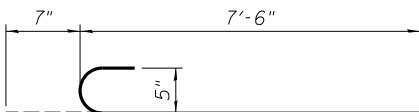
BAR d11(E)



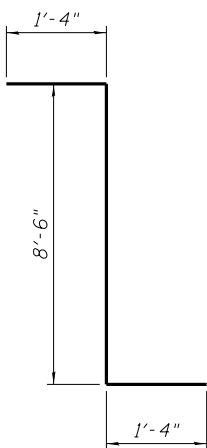
BAR d13(E)



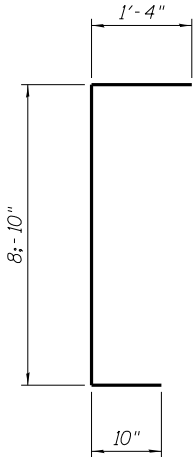
BAR d12(E)



BAR d17(E)



BAR d14(E)



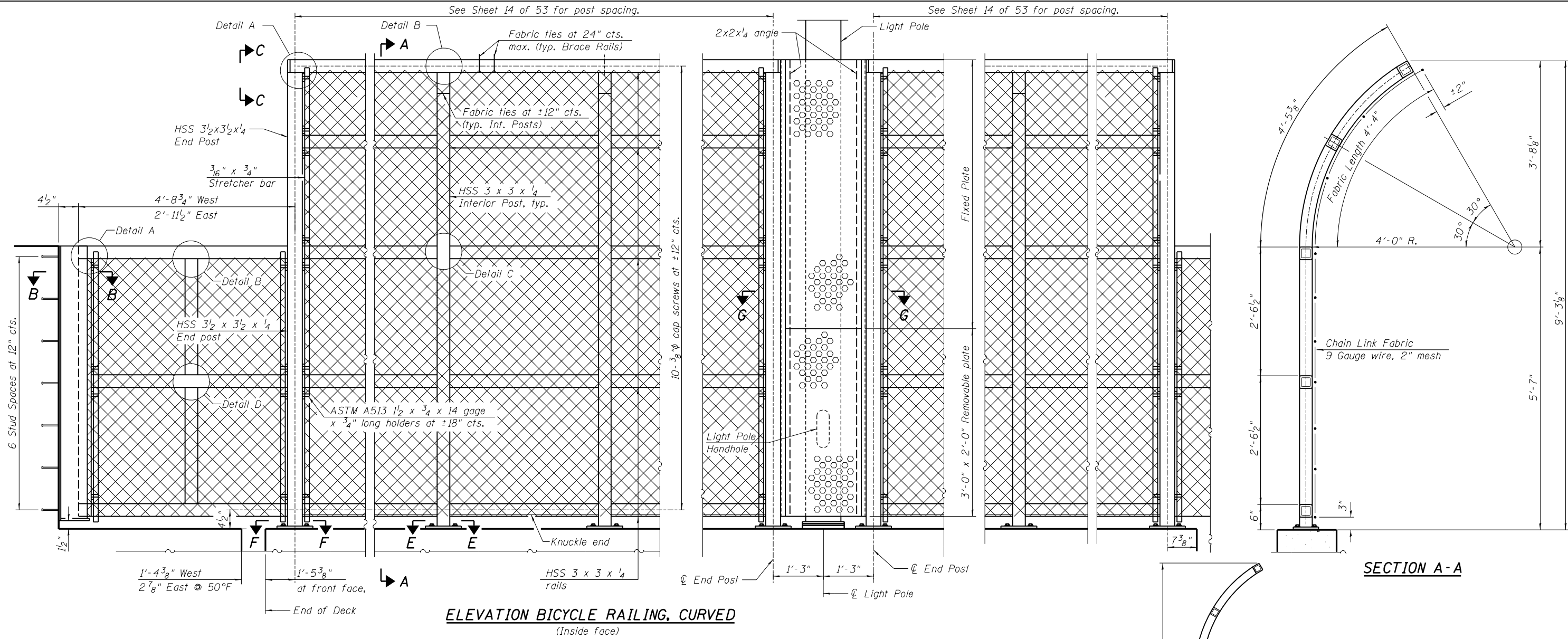
BAR d15(E)

WEST APPROACH
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a10(E)	230	#5	28'-6"	—
a11(E)	300	#8	29'-7"	—
a12(E)	92	#5	7'-6"	—
b10(E)	100	#5	29'-8"	—
b11(E)	156	#9	29'-8"	—
b12(E)	4	#4	29'-8"	—
d10(E)	98	#5	6'-5"	—
d11(E)	49	#5	8'-6"	—
d12(E)	49	#5	5'-2"	—
d13(E)	42	#5	3'-7"	—
d14(E)	3	#6	11'-2"	—
d15(E)	3	#6	11'-0"	—
d16(E)	9	#6	8'-8"	—
d17(E)	6	#5	8'-1"	—
d18(E)	7	#5	4'-9"	—
d19(E)	6	#5	4'-0"	—
e10(E)	12	#4	16'-2"	—
e11(E)	4	#4	33'-0"	—
e12(E)	6	#4	15'-5"	—
e13(E)	6	#4	14'-8"	—
e14(E)	4	#4	30'-5"	—
f10(E)	122	#4	19'-8"	—
w10(E)	160	#5	32'-10"	—
Concrete Superstructure			Cu. Yd.	10.4
Concrete Superstructure (Approach Slab)			Cu. Yd.	91.2
Concrete Structures			Cu. Yd.	36.6
Reinforcement Bars, Epoxy Coated			Pound	59500

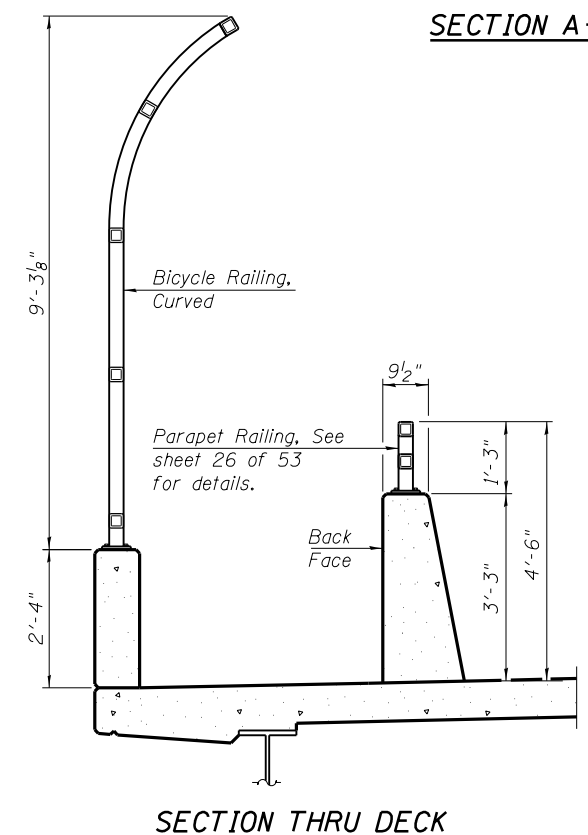
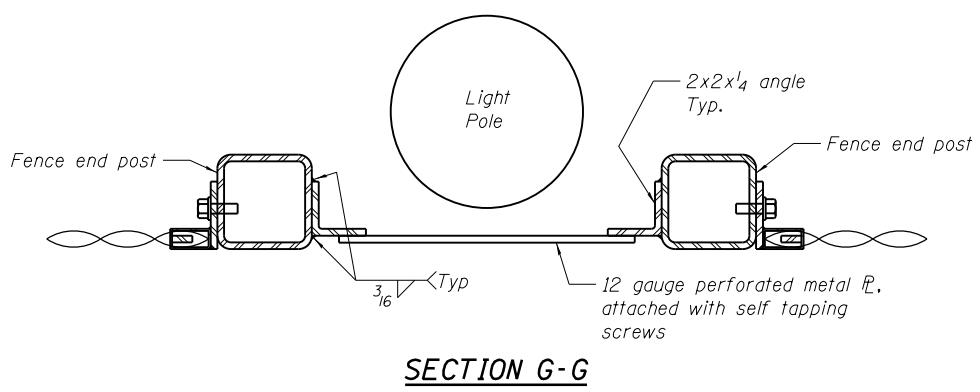
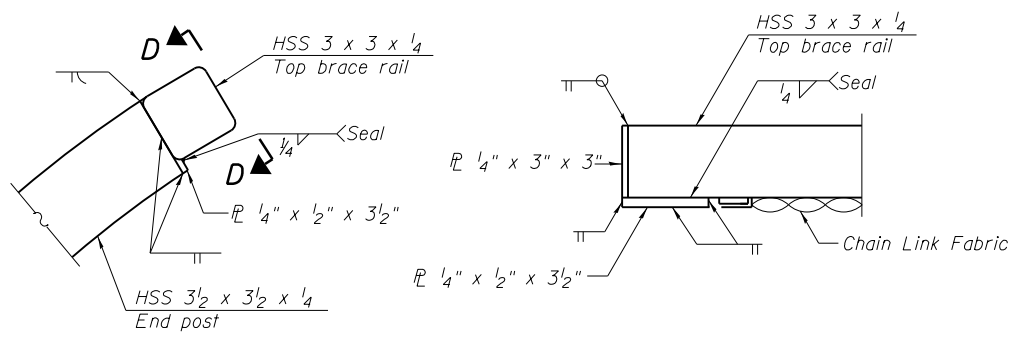
EAST APPROACH
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a12(E)	92	#5	7'-6"	—
a13(E)	92	#5	34'-0"	—
a14(E)	120	#8	34'-8"	—
b10(E)	100	#5	29'-8"	—
b11(E)	156	#9	29'-8"	—
b12(E)	4	#4	29'-8"	—
d10(E)	94	#5	6'-5"	—
d11(E)	47	#5	8'-6"	—
d12(E)	47	#5	5'-2"	—
d13(E)	40	#5	3'-7"	—
d14(E)	3	#6	11'-2"	—
d15(E)	3	#6	11'-0"	—
d16(E)	9	#6	8'-8"	—
d17(E)	6	#5	8'-1"	—
d18(E)	7	#5	4'-9"	—
d19(E)	6	#5	4'-0"	—
e15(E)	24	#4	15'-2"	—
e16(E)	8	#4	30'-8"	—
f11(E)	122	#4	9'-8"	—
w11(E)	80	#5	31'-5"	—
Concrete Superstructure			Cu. Yd.	10.4
Concrete Superstructure (Approach Slab)			Cu. Yd.	90.7
Concrete Structures			Cu. Yd.	18.5
Reinforcement Bars, Epoxy Coated			Pound	39590



RAILING CRITERIA

MASH 2016 Test Level	4
Parapet Railing Weight (plf)	25
Bicycle Railing Weight (plf)	50
Max Post Spacing	10'-0"



FINAL PLANS

p:\hansoninc-pw\hanson-pw\01\Documents\09Jobs\091\0179B\Usable Segments III - V - VINCAD\Struct\Usable Segment VI\North Grand Overpass\Sheet\NorthGrandOverpass.091\0179B.023.Curved Fence.dgn



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PLOT DATE = 9/27/2024	DRAWN - RSJ	REVISED -
	CHECKED -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

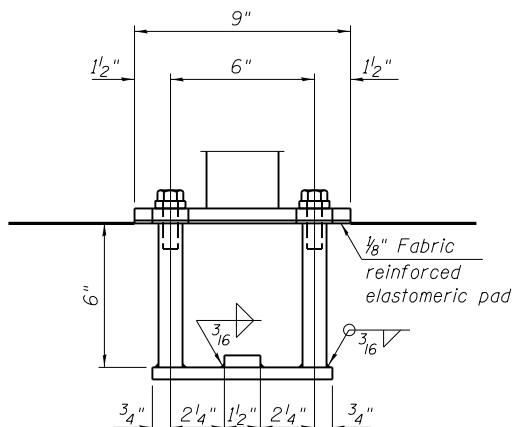
BICYCLE RAILING, CURVED DETAILS
STRUCTURE NO. 084-9973

SHEET NO. 23 OF 53 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	469
CONTRACT NO. 93773				

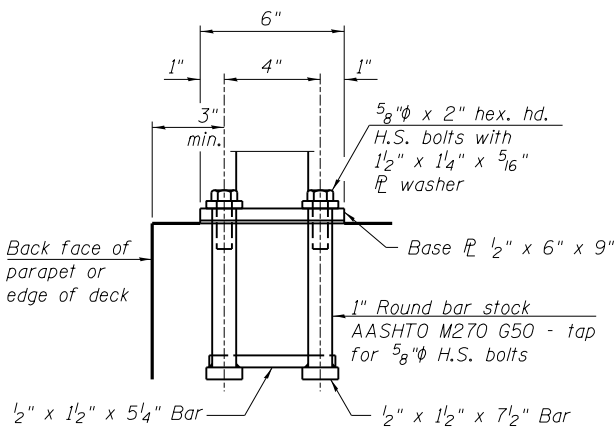
ILLINOIS FED. AID PROJECT

(Sheet 1 of 2)

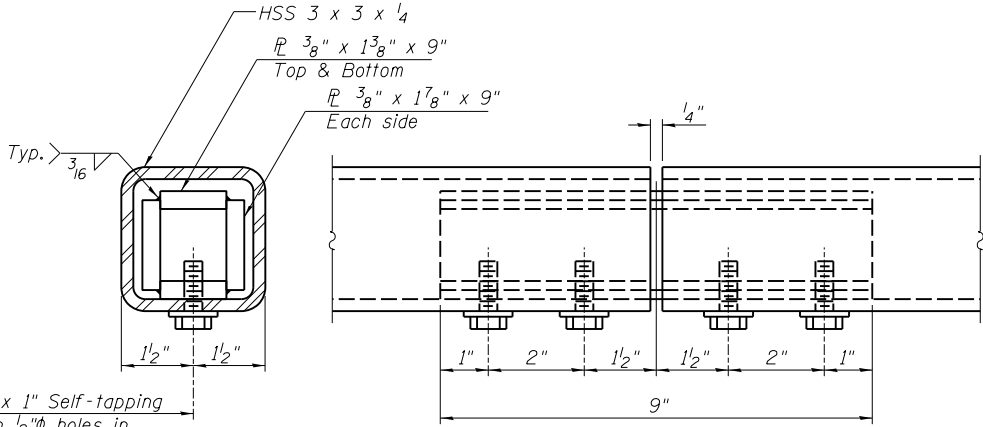


ANCHORAGE ASSEMBLY

The Bicycle Railing, Curved fasteners for end posts near expansion joints may need to be installed prior to installing the bent plates.
In lieu of the cast-in-place anchor device shown, the Contractor has the option of drilling and setting 5/8"φ fully threaded anchor rods with the same plate washers as specified above and heavy hex lock nuts according to Article 509.06 of the Standard Specifications. Embedment shall be according to the manufacturer's specifications.

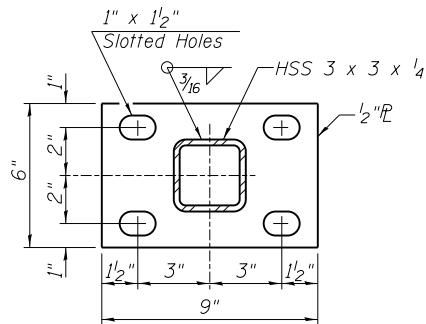


3/8"φ x 1" Self-tapping
HHCS in 1/2"φ holes in
HSS tubing and pilot holes
per manufacturer in plates

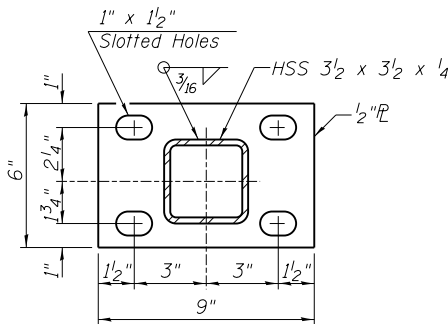


MATERIAL SPLICE

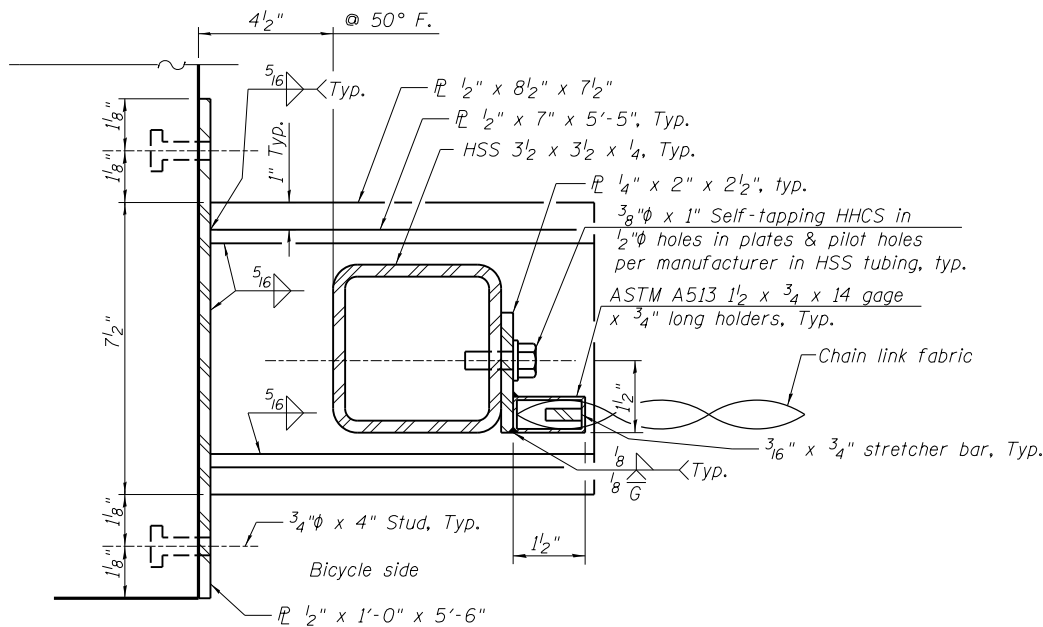
Notes:
Place reinforcement bars to miss anchor rod locations.
CVN testing is not required for the HSS tubing used in the Bicycle Railing, Curved.
All heavy hex nuts shall be according to ASTM A 563 grade DH.
All fully threaded anchor rods shall be ASTM F1554 grade 105.
The post base plate shall be fastened to the curb snug tight and given an additional 1/8" turn.
Rail splice inserts may be built out of bent plates of the same thicknesses and outside geometry limits as the 4 plate rail splice inserts shown.
When the contract specifies a galvanized railing, all steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications. When the contract specifies a painted railing, all posts, rail, splices, anchor devices and plates of the railing shall be painted according to the paint system for railings as specified in the General Notes.
See sheet 9 of 53 for dimensions of concrete openings at expansion joints.
All 3/4" studs shall be granular or solid flux filled headed studs automatically end welded to plates, studs shall conform to Art. 1006.32 of the Standard Specifications.



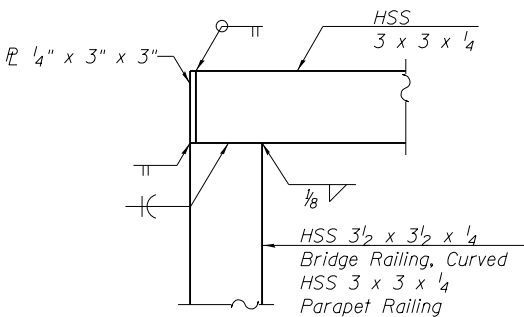
SECTION E-E



SECTION F-F

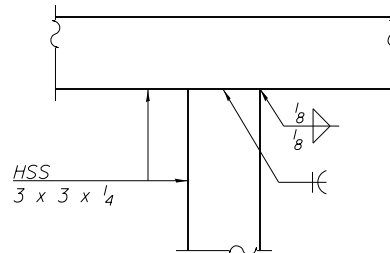


SECTION B-B

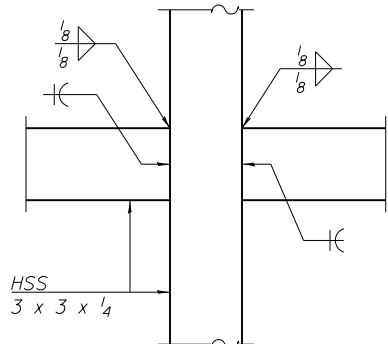


DETAIL A

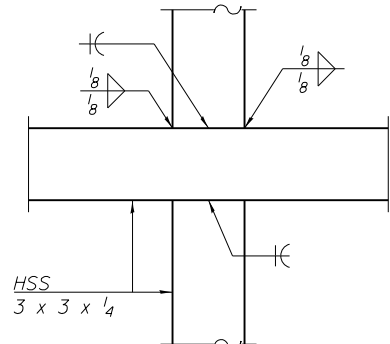
(Parapet railing shown,
bicycle railing similar)



DETAIL B



DETAIL C



DETAIL D

BILL OF MATERIAL

Item	Unit	Quantity
Bicycle Railing, Curved	Foot	317

FINAL PLANS



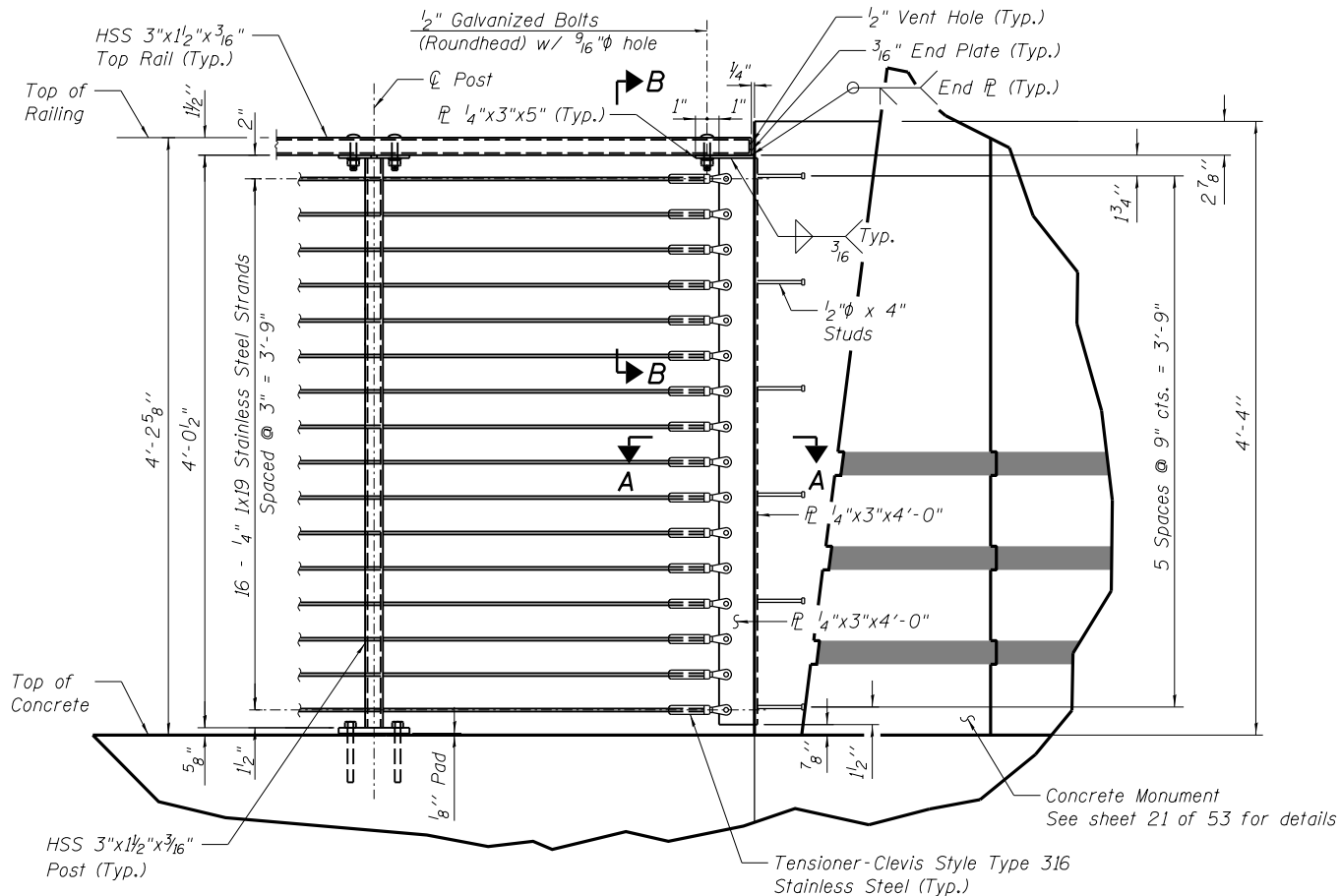
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PLOT DATE : 9/27/2024	DRAWN - RSJ	REVISED -
	CHECKED -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

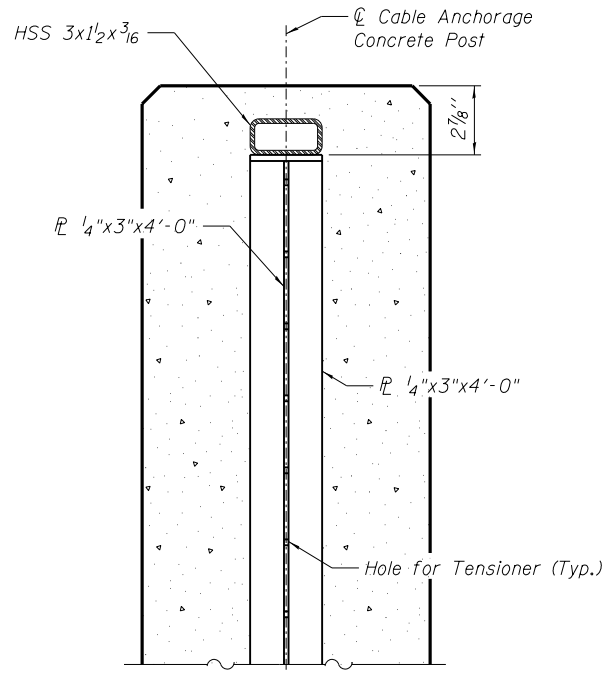
BICYCLE RAILING, CURVED DETAILS
STRUCTURE NO. 084-9973

SHEET NO. 24 OF 53 SHEETS

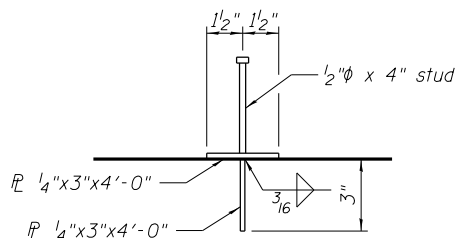
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	470
		CONTRACT NO. 93773		
ILLINOIS FED. AID PROJECT				



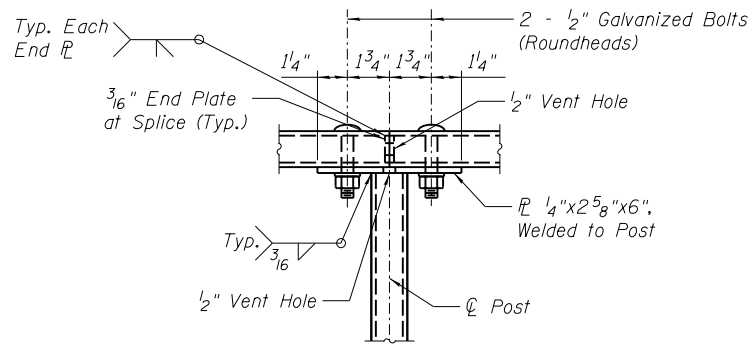
CABLE RAILING TERMINATION
(Typical Termination at Exterior Bridge Post & End Posts)



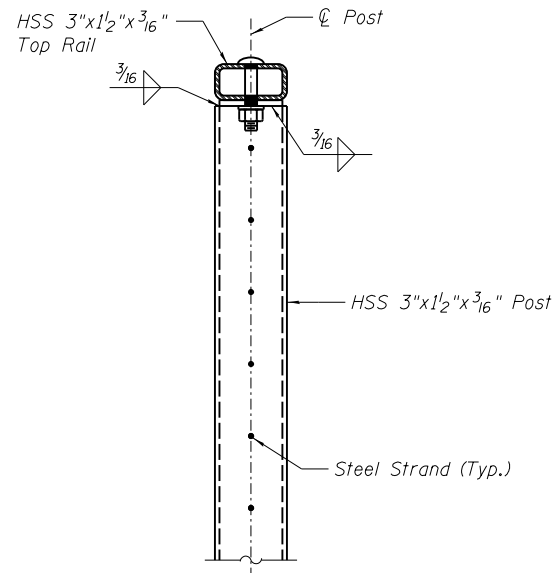
SECTION B-B



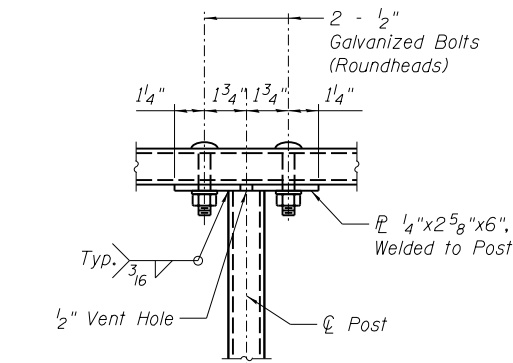
SECTION A-A



TOP RAIL - WITH SPLICE



DETAIL A



TOP RAIL - NO SPLICE
TYPICAL RAIL/POST CONNECTION
(Strands not shown for clarity.)

Notes:

Railing posts shall be vertical.

Anchor rods shall be ASTM F1554, Gr. 55, galvanized steel all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor rods may be used in lieu of ASTM F1554. The anchor rods shall be hot-dipped galvanized according to AASHTO M232, Class C.

Tube segments shall have all corners ground to remove burrs or sharp projections.

All bolts, eyebolts, nuts and washers must satisfy the requirements of ASTM A307 Gr. A unless noted otherwise.

The anchor rods shall be installed according to Article 509.06 of the Standard Specifications. Embedment shall be 4" min. or according to the manufactures specifications whatever is greater.

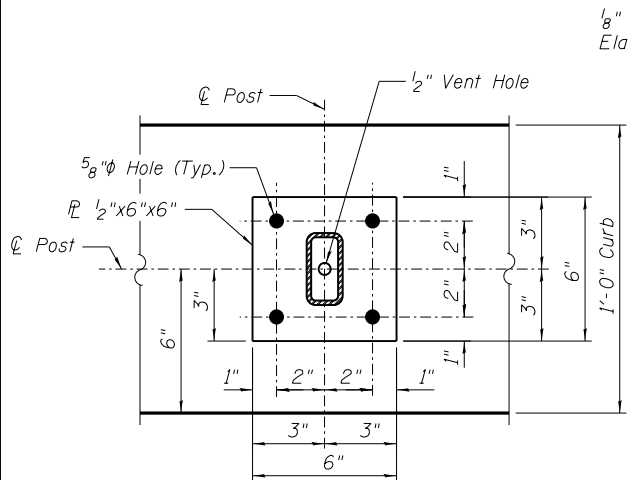
Structural steel plates and bars of the Steel Railing shall conform to the requirements of ASTM A36/36M.

Tubular steel posts shall be according to the requirements of ASTM A500, Grade B.

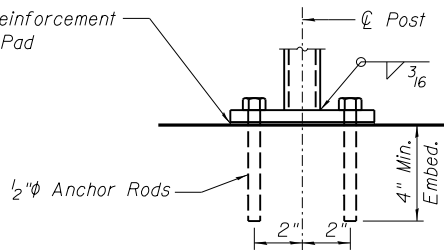
All steel rail members, with the exception of the stainless steel strand and fittings, shall be hot dipped galvanized according to Article 509.05 of the Standard Specifications.

All studs shall be 1/2" x 4" granular or solid flux filled headed studs automatically end welded to plates.

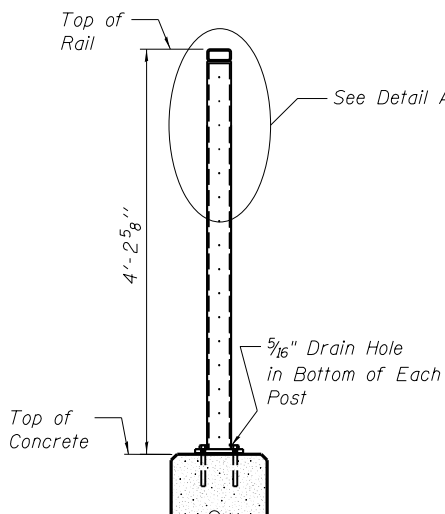
See Sheets 17 and 18 of 53 for rail post spacing.



STANDARD POSTS



ANCHOR ROD DETAILS
STANDARD POSTS



POST DETAIL

FINAL PLANS

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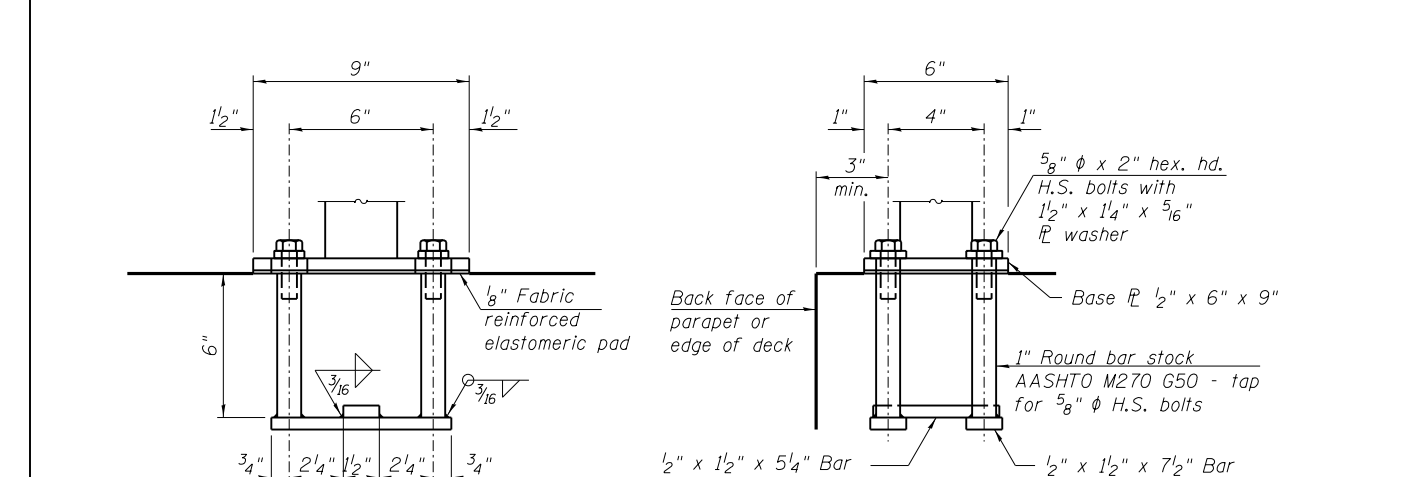
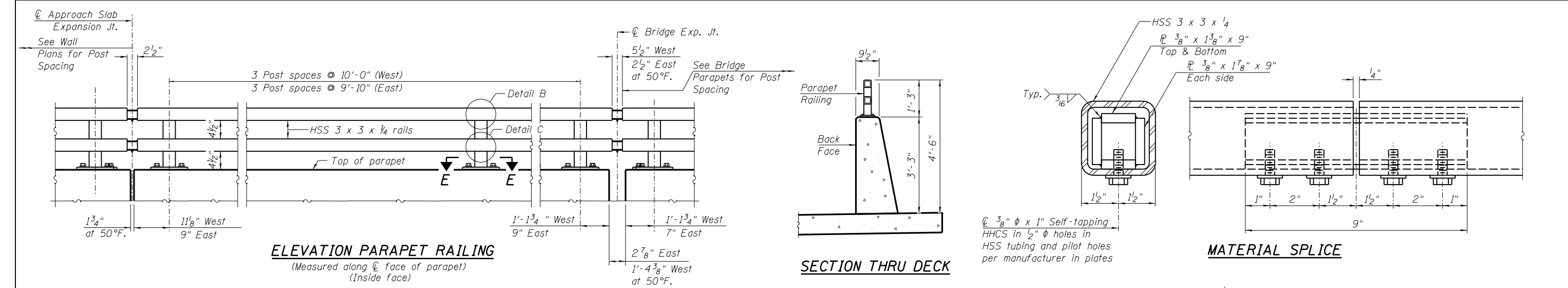
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PLOT DATE = 9/27/2024	DRAWN - RSJ	REVISED -
	CHECKED -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STEEL RAILING, SPECIAL
STRUCTURE NO. 084-9973

SHEET NO. 25 OF 53 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	471
		CONTRACT NO. 93773		
ILLINOIS FED. AID PROJECT				

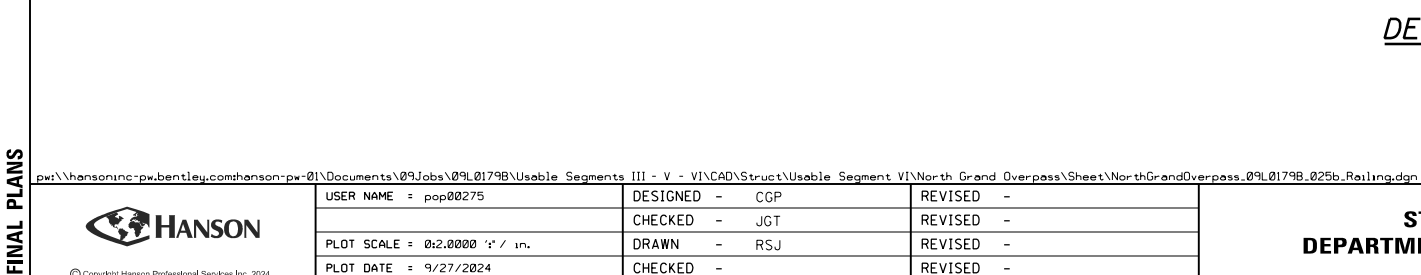


ANCHORAGE ASSEMBLY

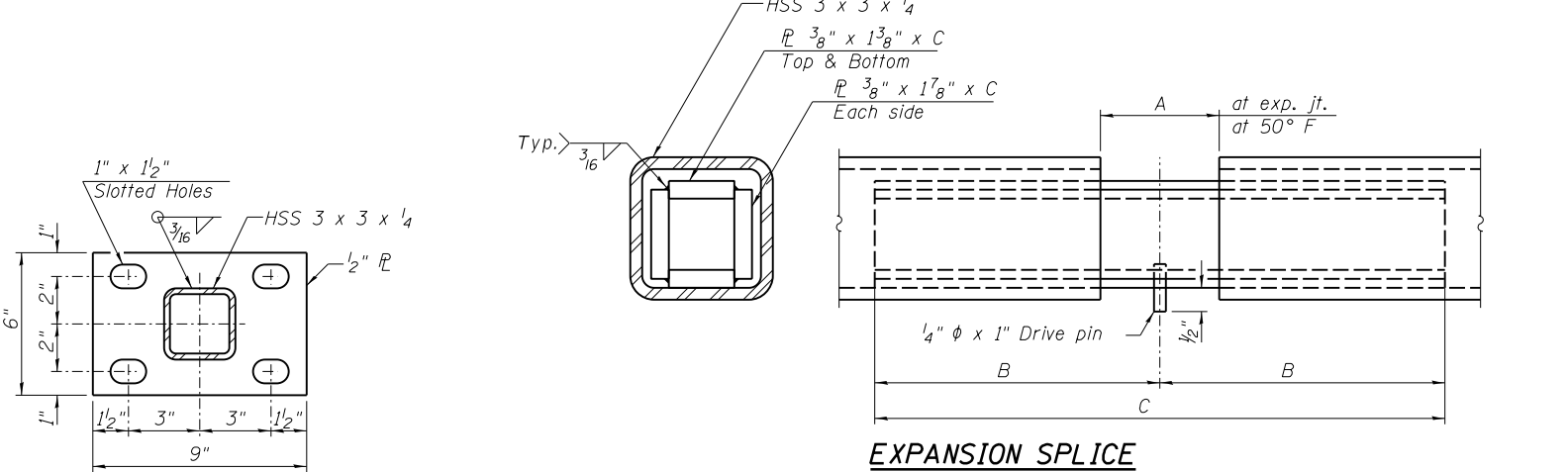
In lieu of the cast-in-place anchor device shown, the Contractor has the option of drilling and setting 5/8" ϕ fully threaded anchor rods with the same plate washers as specified above and heavy hex lock nuts according to Article 509.06 of the Standard Specifications. Embedment shall be according to the manufacturer's specifications.

TABLE OF DIMENSIONS						
Location	T	A	B	C	D	E
Over Strip Seal Jt.	$\pm 4"$	2'2"	1'-2"	2'-4"	7'4"	7"
Over Finger or Modular Jt.	$\pm 9'2"$	5'2"	1'-7'3/4"	3'-3'1/2"		

T = ; total movement based on total temperature range from -20°F to 120°F along centerline of roadway at expansion joint.



FINAL PLANS



EXPANSION SPLICE

Notes:

- Place reinforcement bars to miss anchor rod locations.
- All HSS tubing used for the Parapet Railing shall be CVN tested according to Article 1006.34(b) of the Standard Specifications.
- All HSS tubing used for the Parapet Railing shall be ASTM A500 grade C.
- All base plates used for the Parapet Railing shall be AASHTO M270 grade 50.
- All heavy hex nuts shall be according to ASTM A 563 grade DH.
- All fully threaded anchor rods shall be ASTM F1554 grade 105.
- The post base plate shall be fastened to the curb snug tight and given an additional 1/8" turn.
- Rail splice inserts may be built out of bent plates of the same thicknesses and outside geometry limits as the 4 plate rail splice inserts shown.
- When the contract specifies a galvanized railing, all steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications. When the contract specifies a painted railing, all posts, rail, splices, anchor devices and plates of the railing shall be painted according to the paint system for railings as specified in the General Notes.
- See sheets 29-31 of 53 for dimensions of concrete openings at expansion joints.

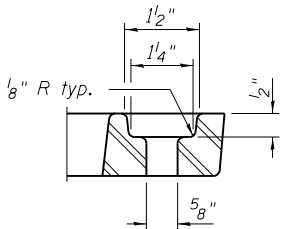
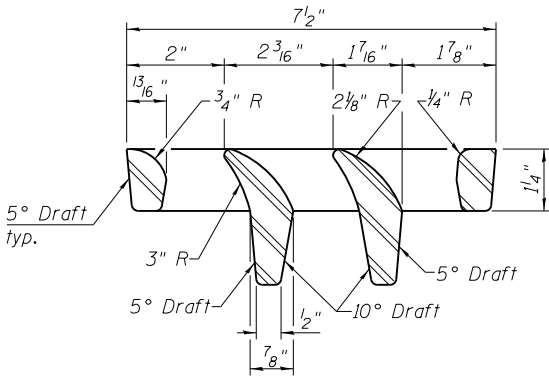
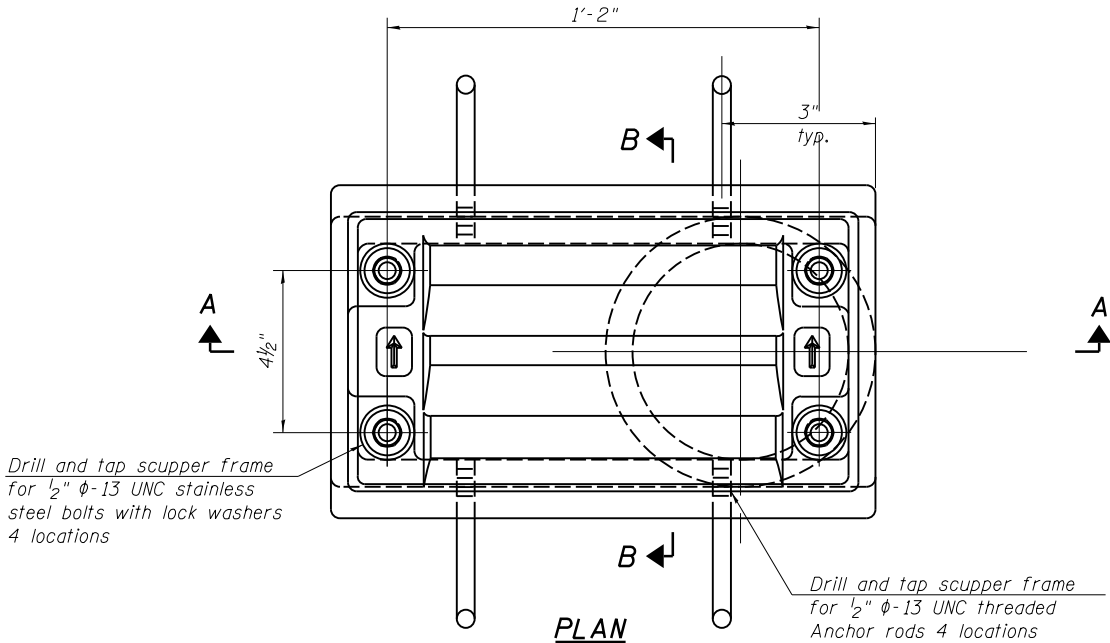
BILL OF MATERIAL			
Item	Unit	Quantity	
Parapet Railing	Foot	394	

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	472
CONTRACT NO.				93773

ILLINOIS FED. AID PROJECT

RAILING DETAILS
STRUCTURE NO. 084-9973

SHEET NO. 26 OF 53 SHEETS



Notes:

All cast iron parts shall be gray iron conforming to the requirements of AASHTO M105, Class 35B and AASHTO M306.

Bolts, anchor rods, nuts and washers shall be according to ASTM A307 and shall be galvanized according to AASHTO M232. As an alternate stainless steel may be used.

Stainless steel hardware shall be according to Article 1006.29(d) of the Standard Specifications.

Structural steel weldments of equal sections and of the same configuration may be substituted for the cast iron scupper frames and downspouts; however, the scupper grates shall remain cast iron. Fillet or full penetration welds shall be used for the weldments. Details shall be submitted to the Engineer for approval.

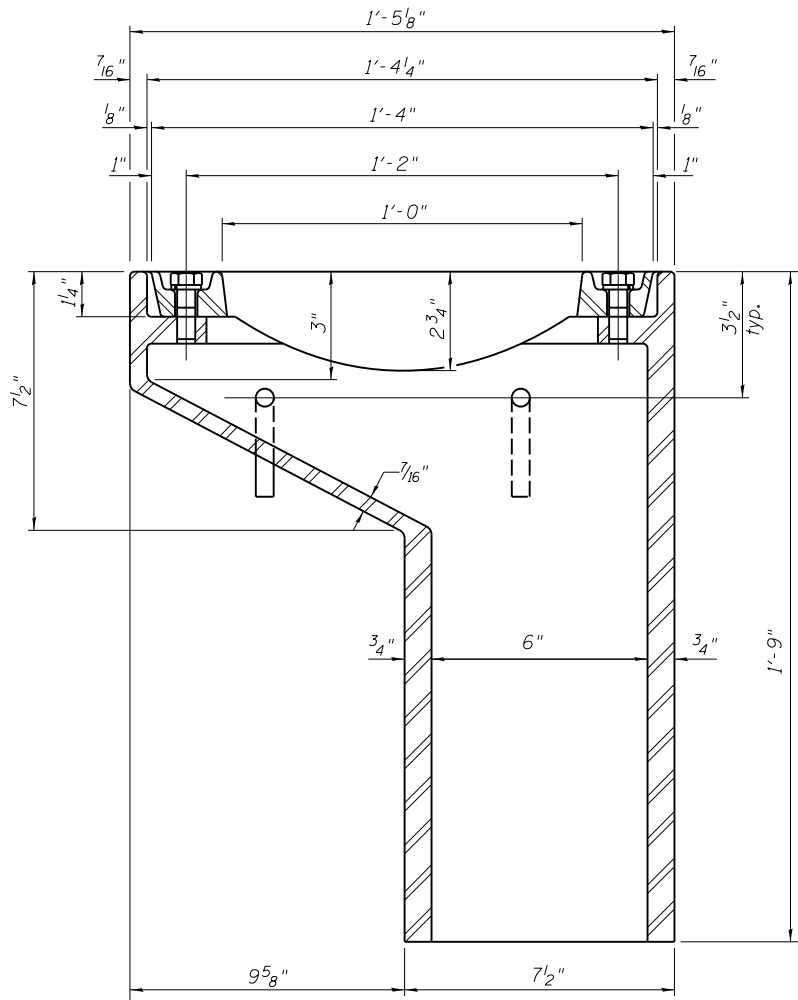
Structural steel scupper frames and downspouts, when utilized, shall be galvanized according to AASHTO M111.

As an alternate, fiberglass may be used for downspouts according to ASTM D2996 with a short-time rupture strength hoop tensile stress of 30,000 psi min. in lieu of the cast iron or structural steel.

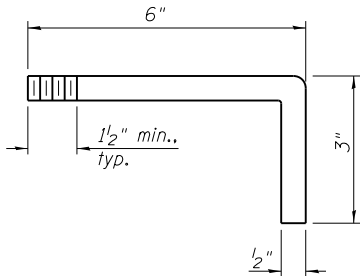
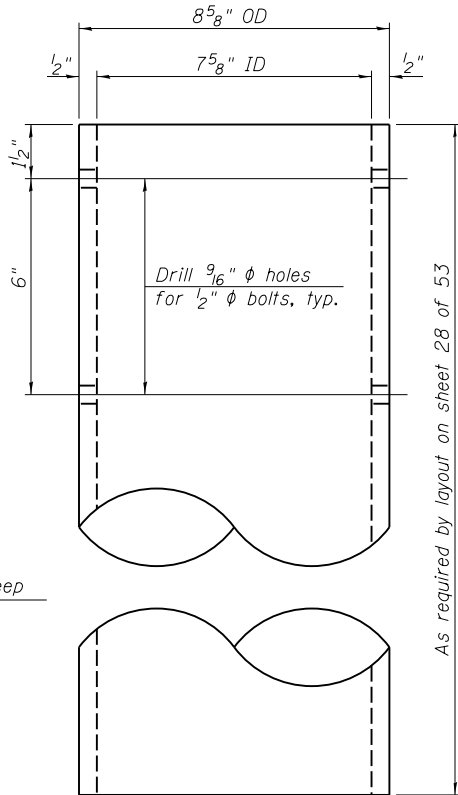
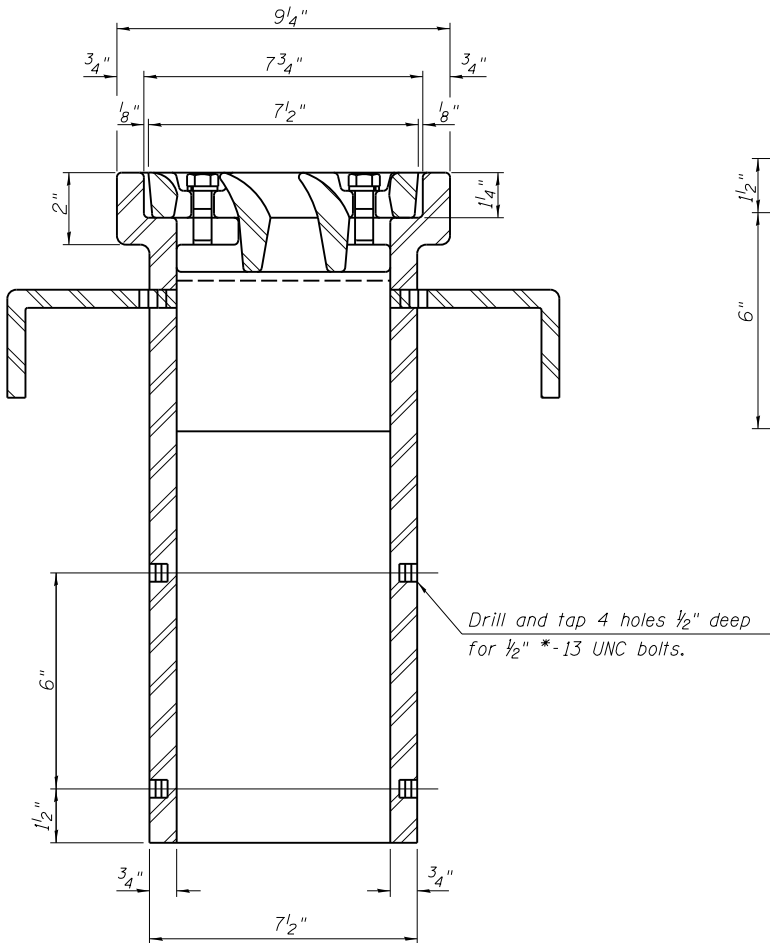
Exterior surfaces of downspouts and exterior exposed surfaces of the scupper frame below deck shall be treated as specified on sheet of .

The Contractor shall take appropriate measures to assure that Protective Coat is not applied to the scupper.

Cost of the grate, frame, downspout, anchor rods, nuts and washers including complete installation of the scupper shall be paid for at the contract unit price for Drainage Scupper, DS-11.



See sheet 9 of 53 for scupper location relative to parapet.



ANCHOR ROD DETAIL

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Drainage Scupper, DS-11	Each	6

pw:\hansoninc-pw.bentley.com\hanson-pw-01\Documents\09Jobs\09101798\Usable Segments III - V - VINCAD\Struct\Usable Segment VINorth Grand Overpass\Sheet\NorthGrandOverpass.09101798.026.Drainage Scupper.dgn



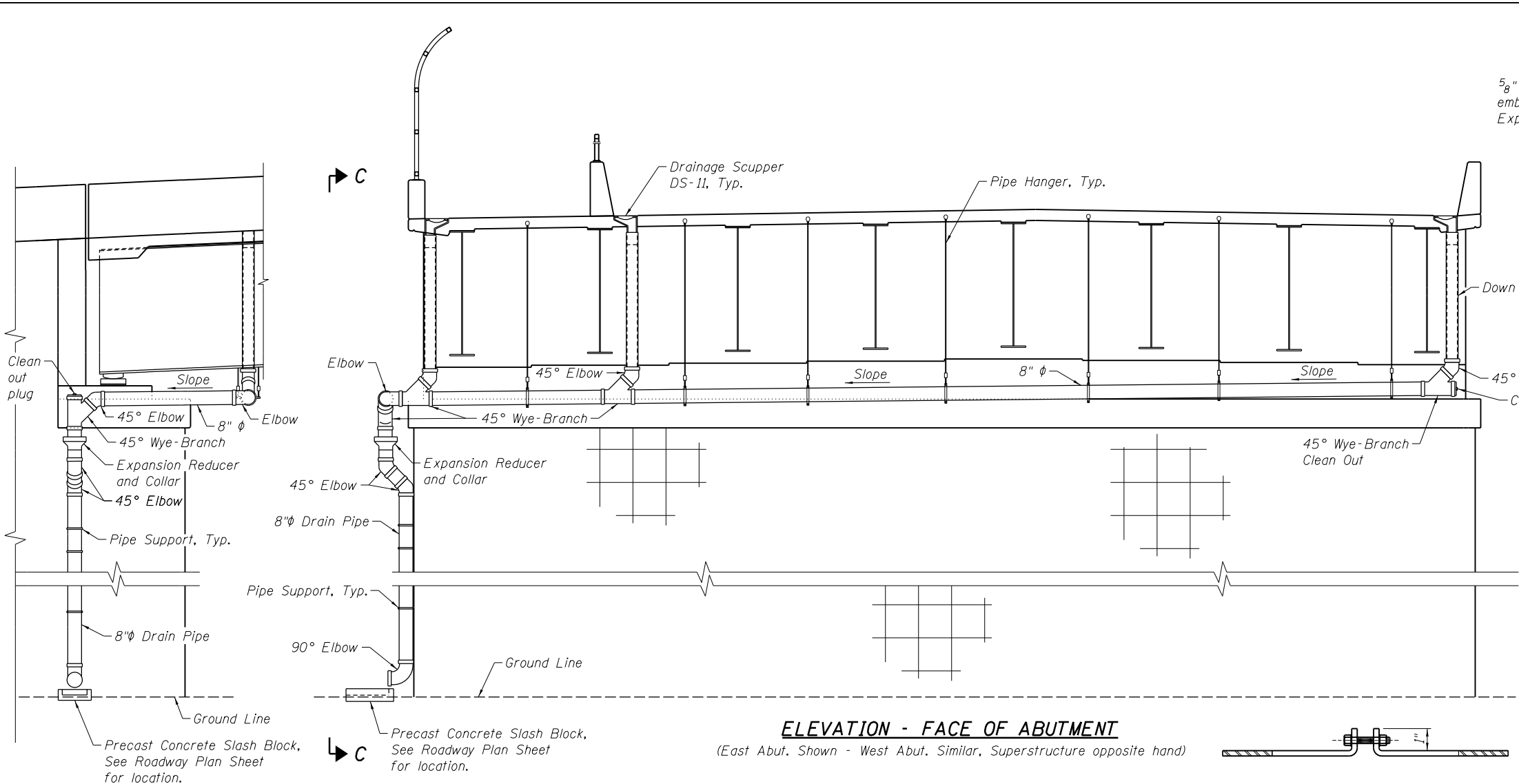
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PLOT DATE : 9/27/2024	CHECKED -	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**DRAINAGE SCUPPER, DS-11
STRUCTURE NO. 084-9973**

SHEET NO. 27 OF 53 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	473
ILLINOIS FED. AID PROJECT			CONTRACT NO. 93773	



SECTION C-C

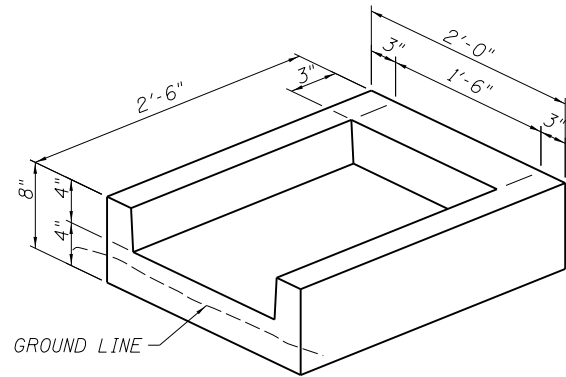
Notes:
The bridge drainage system pipe and fittings shall be 8"φ.
The layout (number, locations and spacings) of all pipe hangers, pipe clamps, reducers and expansion collars shall be specified by the bridge drainage system manufacturer in conformance to the requirements shown herein and contained in the special provisions.
Concrete anchors for horizontal collector pipe supports shall be cast-in-place stainless steel ferule loops provided at each fitting. Cleanout or change in direction and at intermediate points at the maximum spacing of 10'-0" on center. Mechanical inserts or adhesive anchor systems are not permitted.
Reducer fittings shall be sized to accommodate the movements of the superstructure and pipe system. See table for movements base on 70°F rise or fall from a setting temperature of 50°F and other force effects.
Contractor shall submit shop drawings of the complete drainage system to the engineer for review and approval prior to fabrication.
Contractor shall temporarily divert the discharge from the scupper downspout at the East Abutment during Stages 1A, 1B and 2A. Discharge from the scupper downspout shall be diverted to the south along the face of the MSE wall and then to the east toward the proposed ditch at the toe of the slope. Remove temporary relocation once the ditch along the north side of the overpass has been constructed during Stage 2A.
See superstructure plan for scupper spacing.
See Sheet 27 of 53 for scupper details.

REQUIRED MOVEMENTS

LOCATION	TOTAL REQUIRED MOVEMENT
W. Abut.	5"
E. Abut.	3"

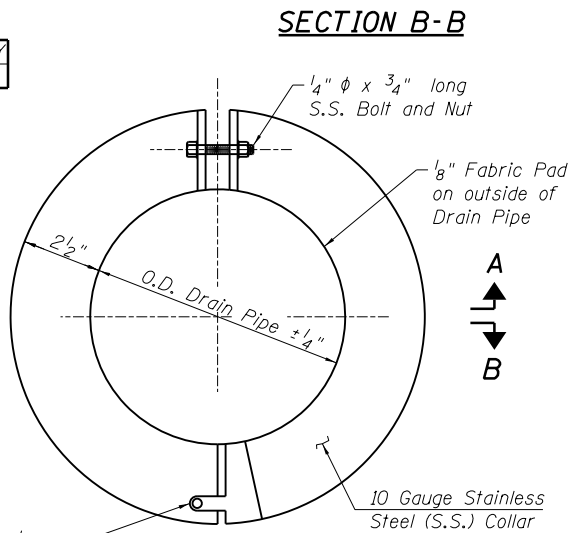
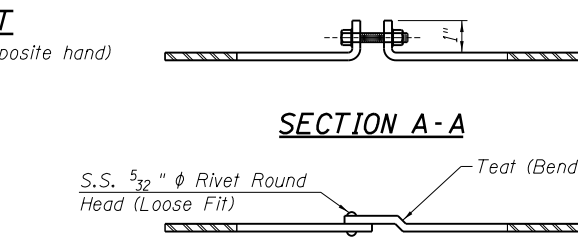
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Drainage System for Structures	L Sum	1

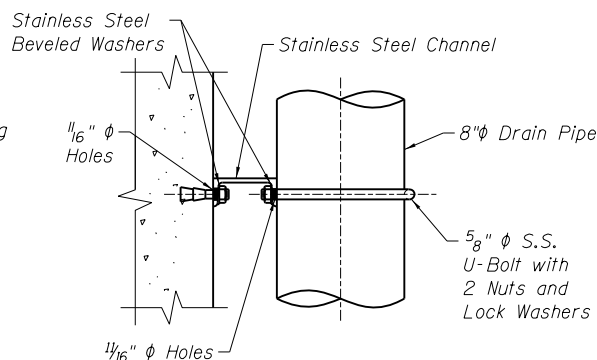
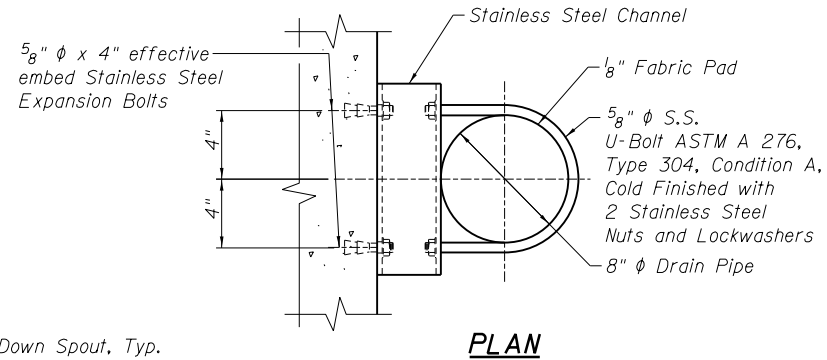


PRECAST CONCRETE SPLASH BLOCK

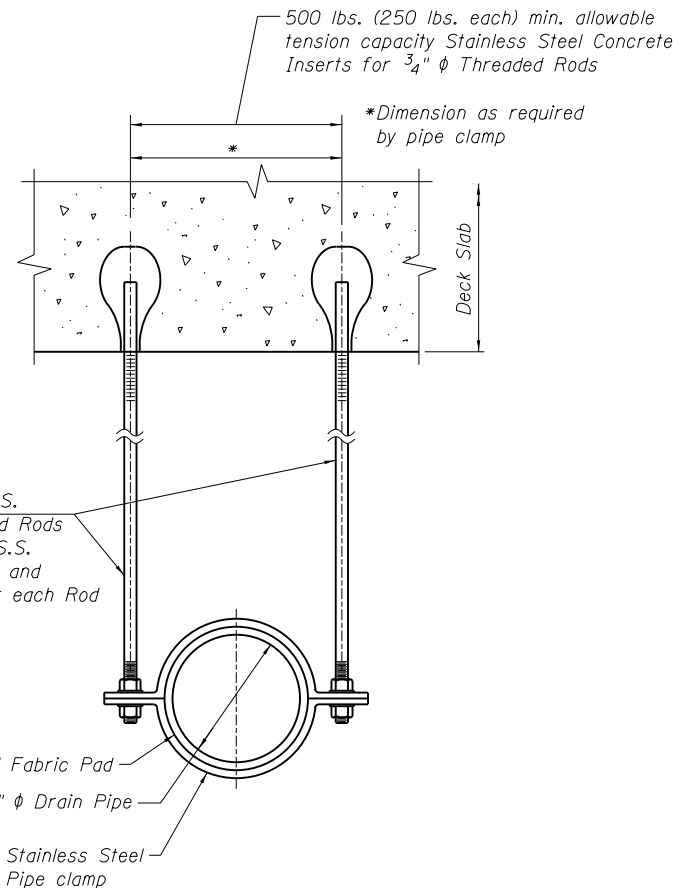
ELEVATION - FACE OF ABUTMENT
(East Abut. Shown - West Abut. Similar, Superstructure opposite hand)



EXPANSION COLLAR DETAIL



ELEVATION
PIPE SUPPORT DETAIL



COLLECTOR PIPE HANGER DETAILS

p:\hanson\inc-pw\hanson\inc-pw\01\Documents\09Jobs\09101798\Usable Segments III - V - VINCAD\Struct\Usable Segment VI\North Grand Overpass\Sheet\NorthGrandOverpass.09101798.027.Drainage Details.dgn



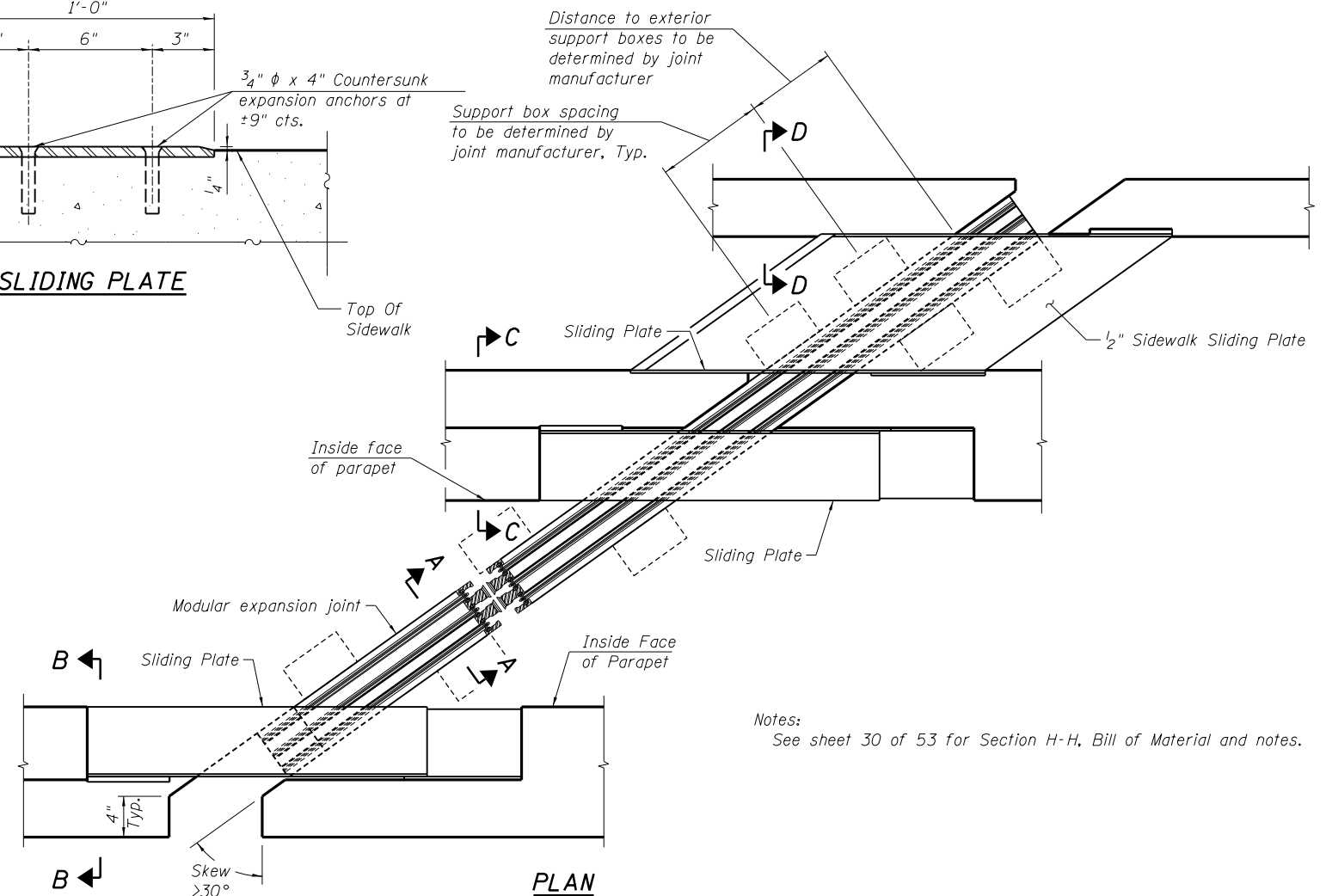
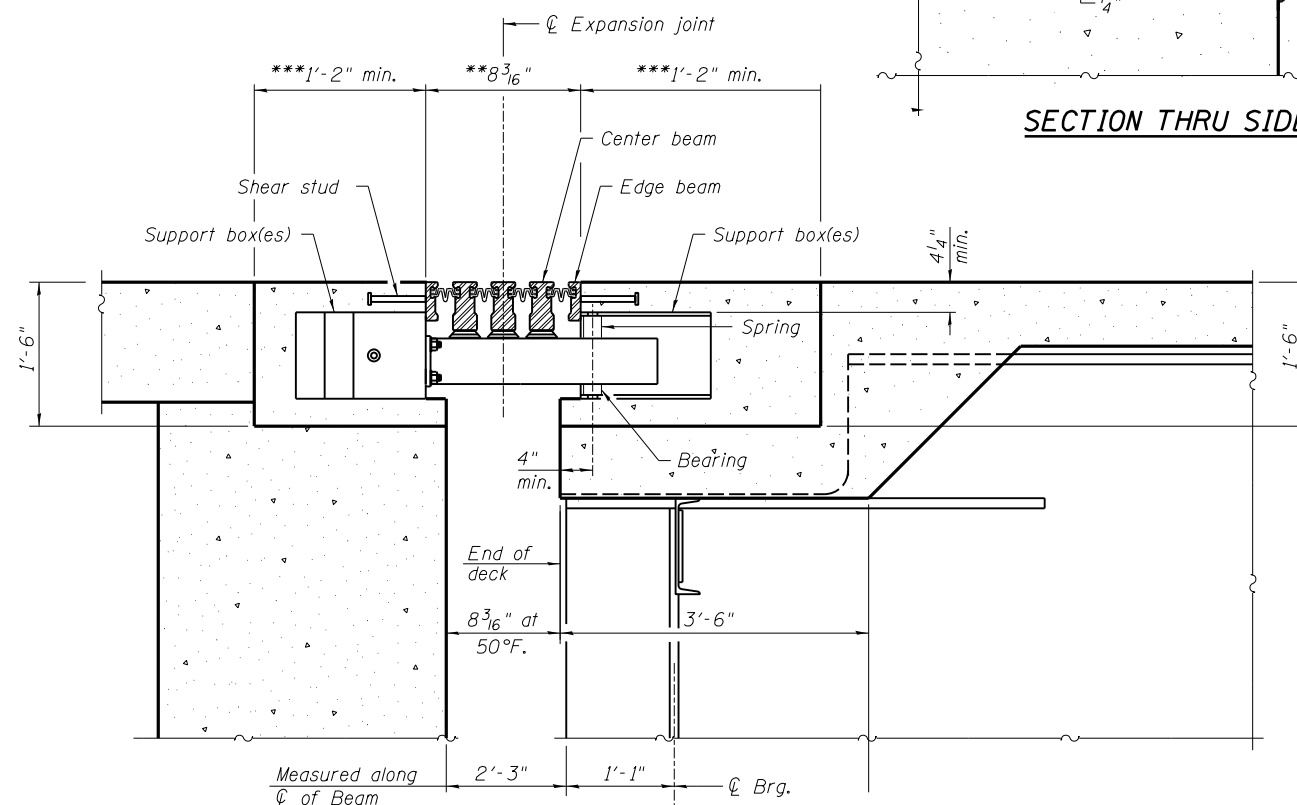
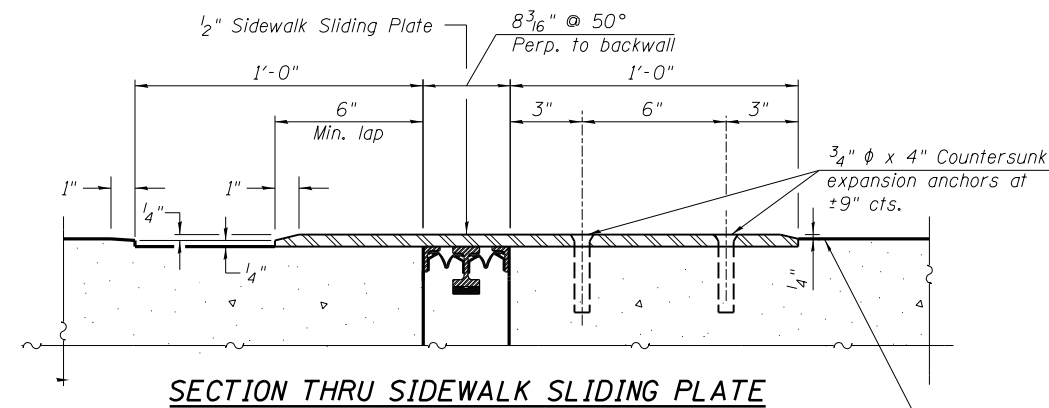
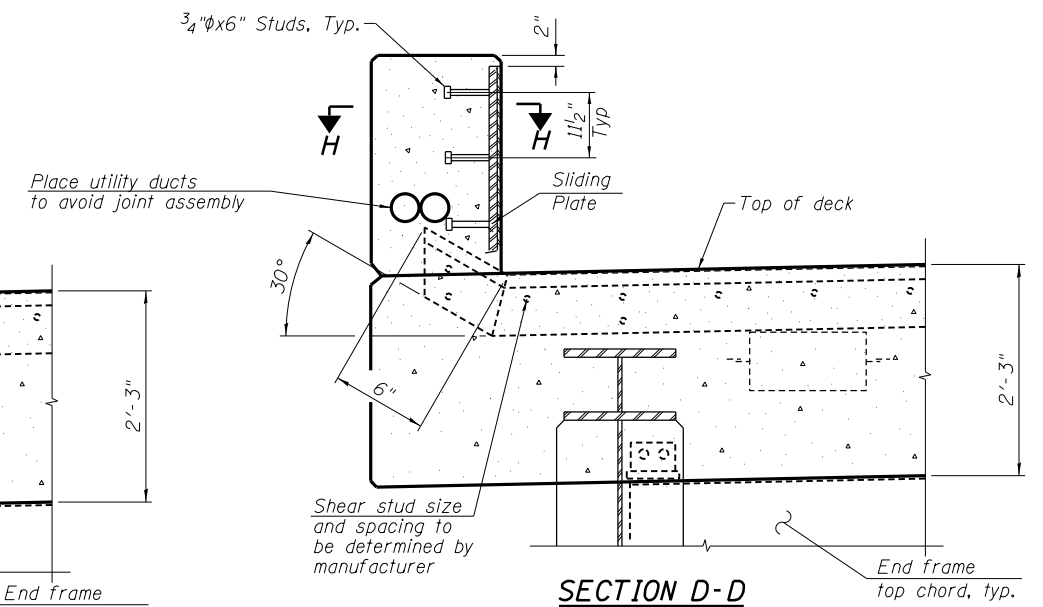
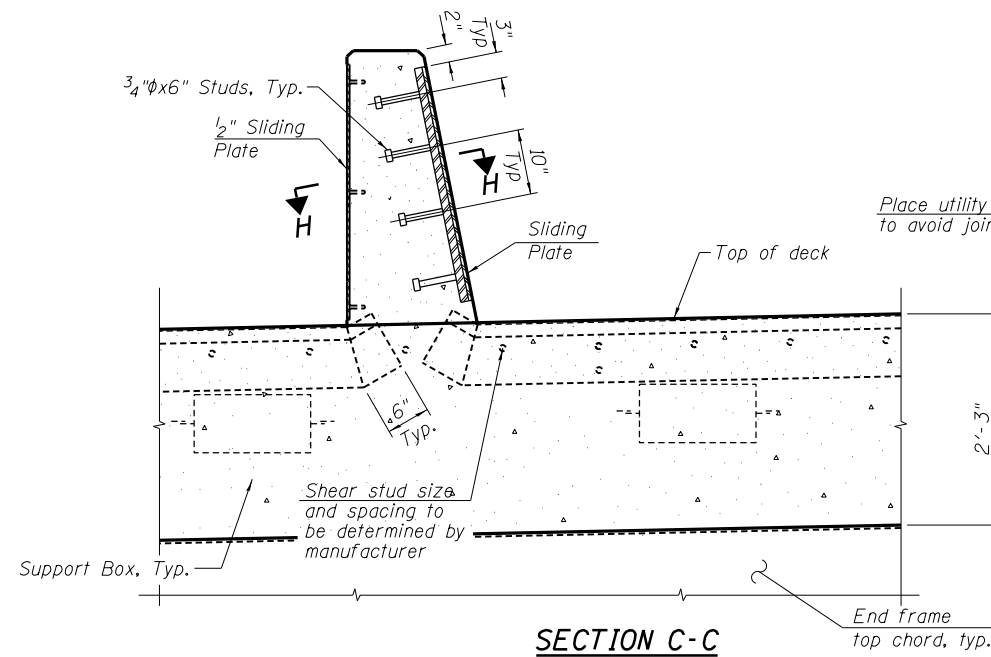
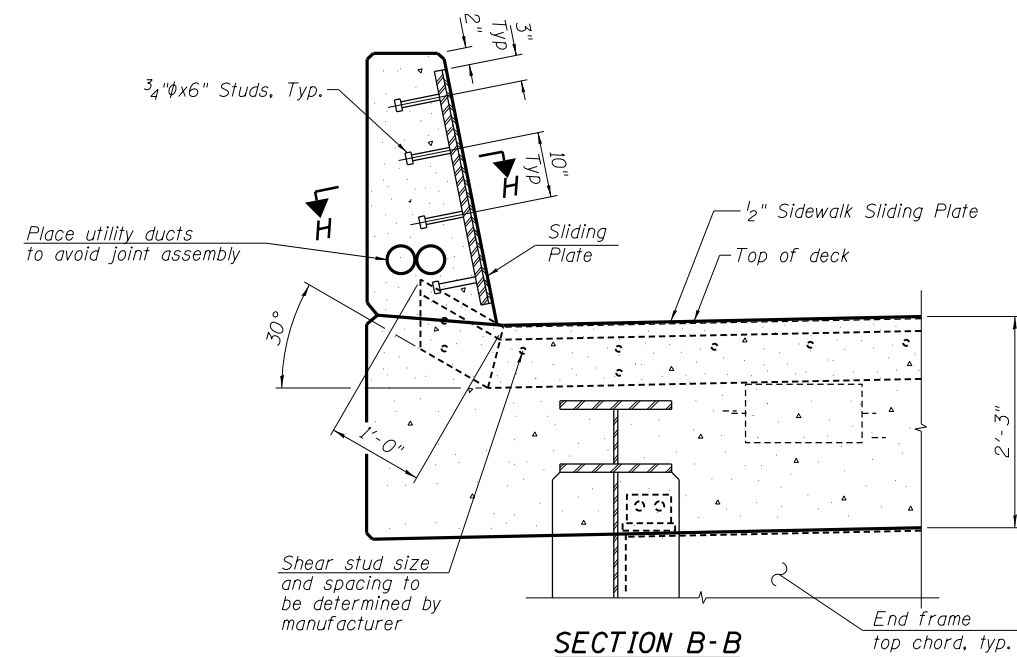
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PLOT SCALE : 0:2.0000 '1" / in.	CHECKED - JGT	REVISED -
PLOT DATE : 9/27/2024	DRAWN - RSJ	REVISED -
	CHECKED -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DRAINAGE DETAILS
STRUCTURE NO. 084-9973

SHEET NO. 28 OF 53 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	474
				CONTRACT NO. 93773
ILLINOIS FED. AID PROJECT				



Notes:
See sheet 30 of 53 for Section H-H, Bill of Material and notes.

* Joint width, per manufacturer.
 ** Number of rails determined by the manufacturer.
 *** Contractor to verify blockout dimensions with joint manufacturer.

p:\hanson\inc-pw\hanson\inc-pw\01\Documents\09Jobs\09L0179B\Usable Segments III - V - VINCAD\Struct\Usable Segment V\North Grand Overpass\Sheet\NorthGrandOverpass.09L0179B.029.West Expansion Joint.dgn



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USER NAME : pop00275	DESIGNED - CGP	REVISED -
	CHECKED - JGT	REVISED -
PLOT SCALE : 0:2.0000 'ft' / in.	DRAWN - RSJ	REVISED -
PLOT DATE : 9/27/2024	CHECKED -	REVISED -

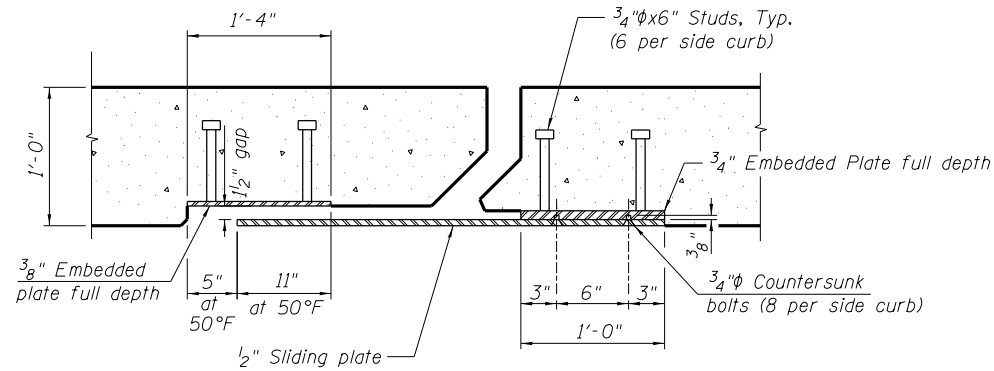
DESIGNED - CGP	REVISED -
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DRAWN - RSJ	REVISED -
CHECKED -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

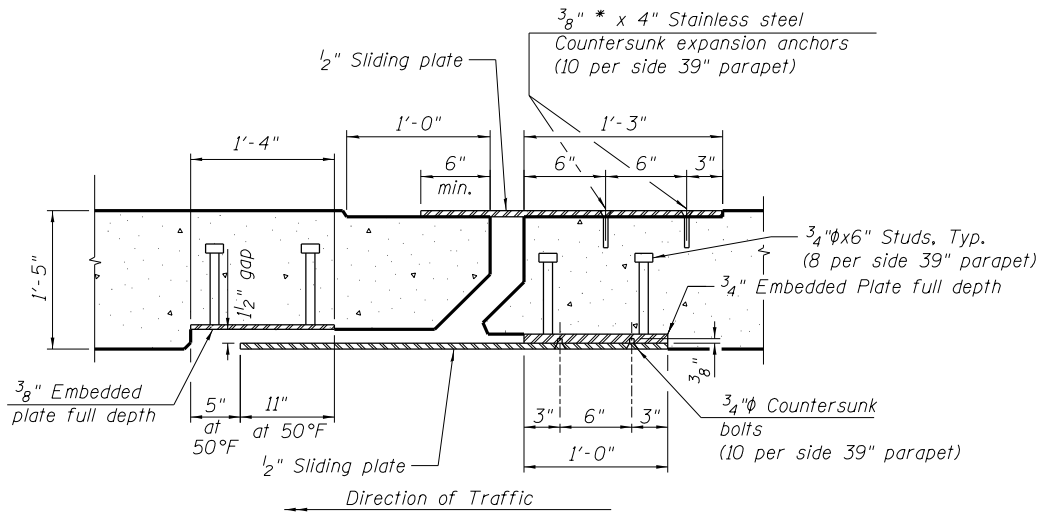
WEST EXPANSION JOINT DETAILS (SHEET 2 OF 2)
STRUCTURE NO. 084-9973

SHEET NO. 30 OF 53 SHEETS

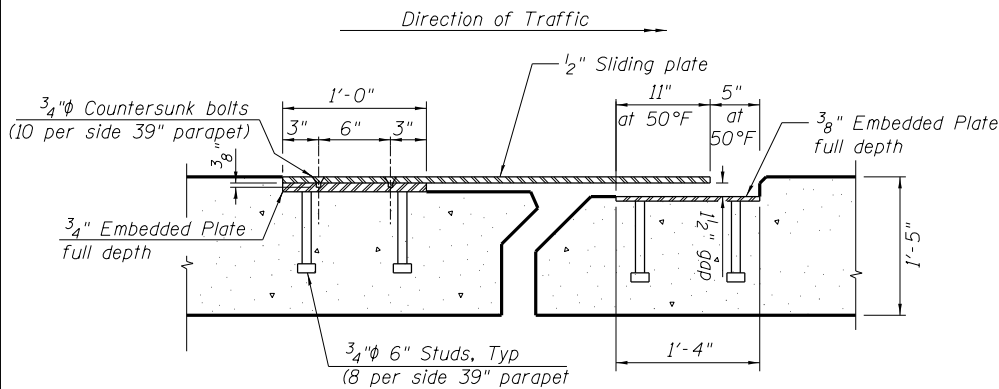
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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CONTRACT NO. 93773				
ILLINOIS FED. AID PROJECT				



NORTH CURB



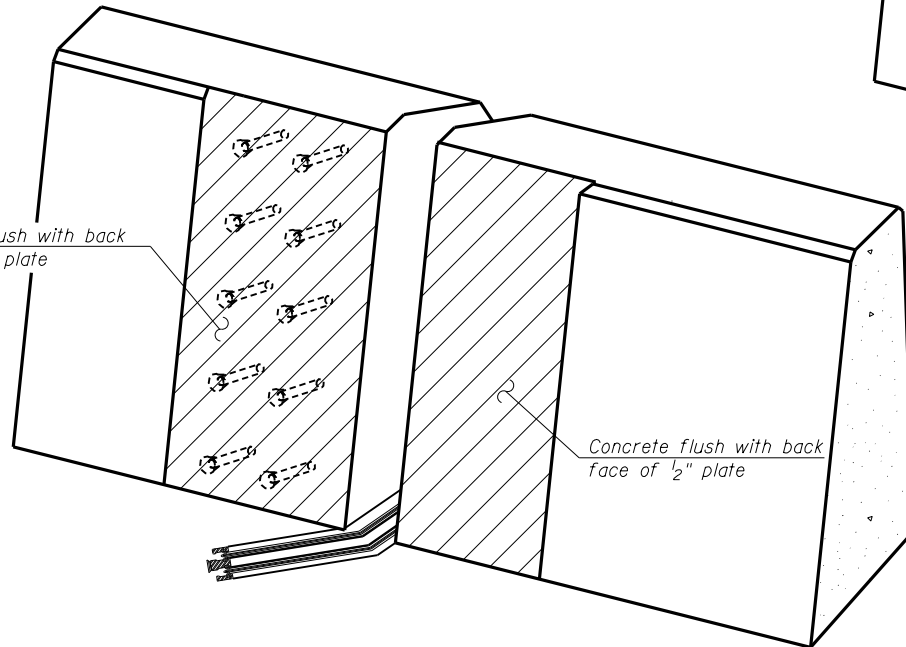
NORTH PARAPET



SOUTH PARAPET

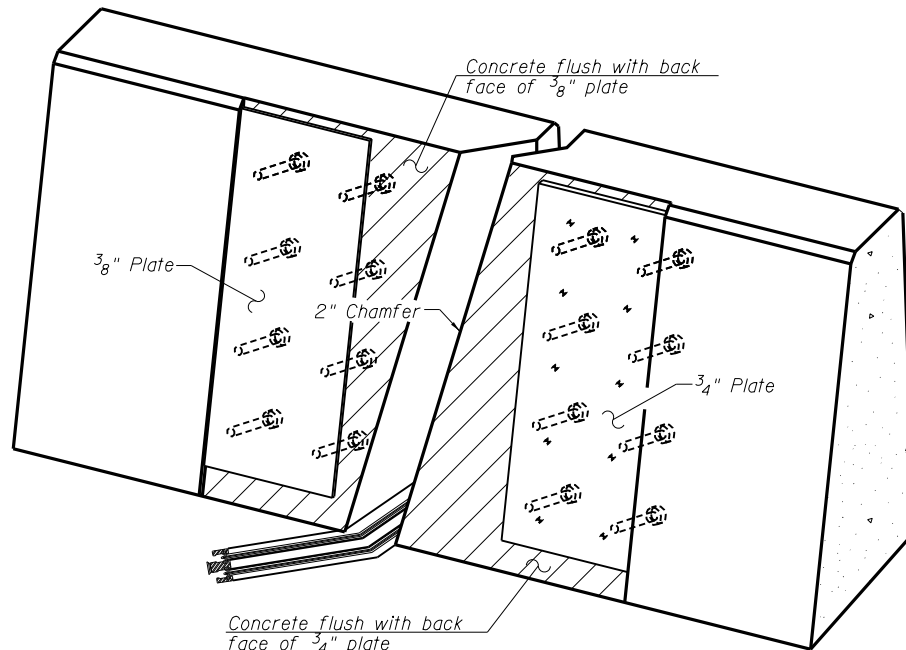
SECTION H-H

Concrete flush with back
face of 1/2" plate



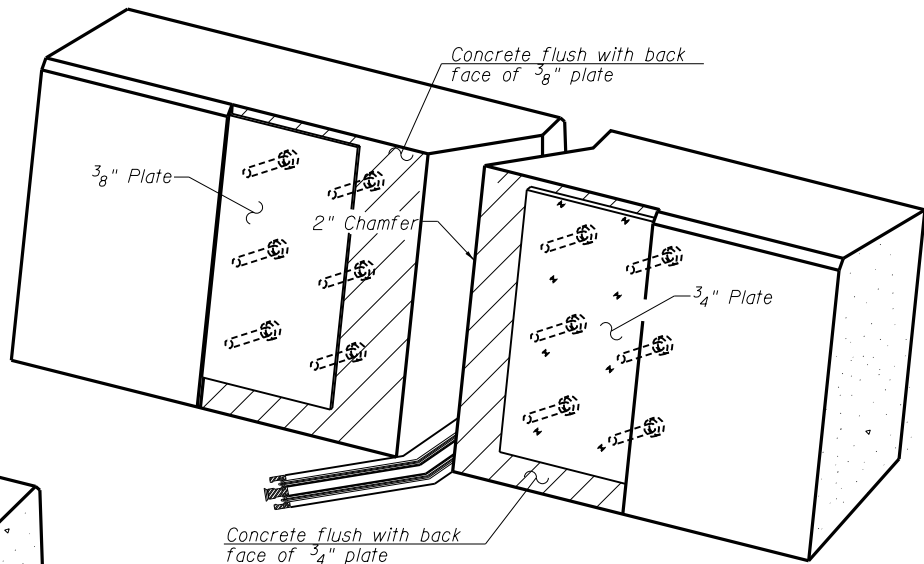
**NORTH PARAPET
TRIMETRIC VIEW**

(Showing Pedestrian side, Traffic side
as shown in South Parapet Trimetric view)



**SOUTH PARAPET
TRIMETRIC VIEW**

(Showing embedded plates only)



**NORTH CURB
TRIMETRIC VIEW**
(Showing embedded plates only)

BILL OF MATERIAL

Description	Unit	Quantity
Modular Expansion Joint 6"	Foot	130

Notes:

All steel components shall be galvanized after fabrication according to Article 520.03 of the Standard Specifications.

Actual dimensions may vary depending on modular joint manufacturer's design.

Modular expansion joint assembly shall be installed after the concrete ledge below the blockout has been poured and reached required strength as specified on the General Plan and Elevation.

Modular expansion joints shall be adjusted for temperature prior to pouring the blockout area.

Modular expansion joints shall be assembled in their final relative position with ends in place for shop inspection and acceptance.

For beam coping and modular joint diaphragm details see sheet 15, 29 & 34 of 53.

Bars in the blockout may be adjusted in the field if necessary to miss joint support boxes, as approved by the Engineer.

Joint assembly shall be installed with reinforcement bars in place prior to pouring the adjoining concrete approach slab.

The modular expansion joint system shall be designed to accommodate 5 inch of movement in the longitudinal direction of the bridge and 1 3/4 inches of movement in the transverse direction of the bridge.

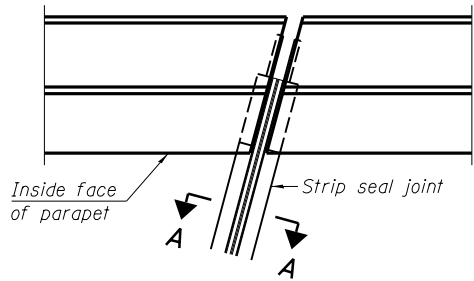
The details shown are intended to be schematic. The actual components of the expansion joint system may vary from those shown. This includes, but is not limited to, the number of cells, the number of support boxes, and support bar box size, however, the total required range of expansion remains unchanged regardless of the manufacturer chosen.

All 3/4" studs shall be granular or solid flux filled headed studs conforming to art. 1006.32 of the standard specifications automatically end welded.

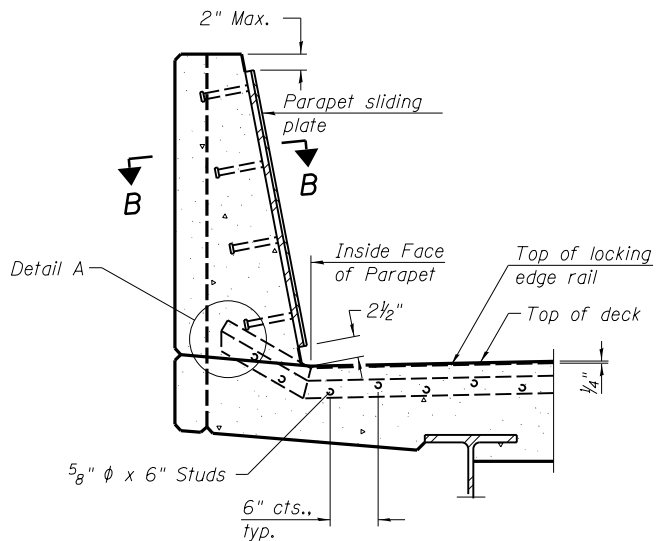
Cost of parapet sliding plates, embedded plates, and anchorage studs included with Modular Expansion Joint 6".

See sheets 12-14 of 53 for point block details.

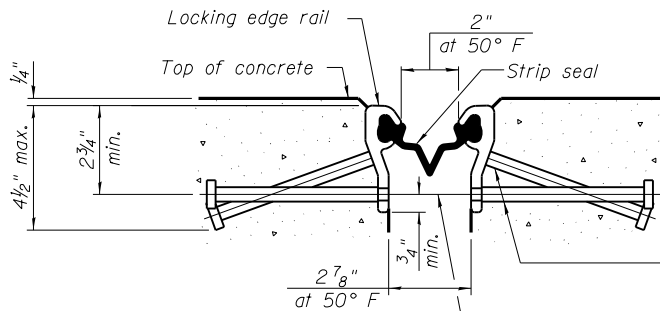
Modular expansion joint shall be assembled in its final relative position with the ends in place for shop inspection and acceptance.



FOR SKEWS <= 30°
PLAN AT PARAPET



SECTION AT PARAPET
(Skews > 30° shown. Skews = 30° similar except as shown in plan view.)

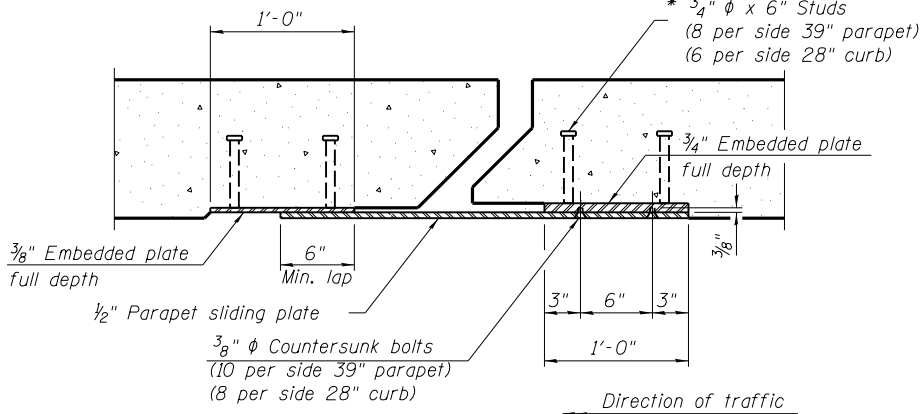


SHOWING ROLLED RAIL JOINT

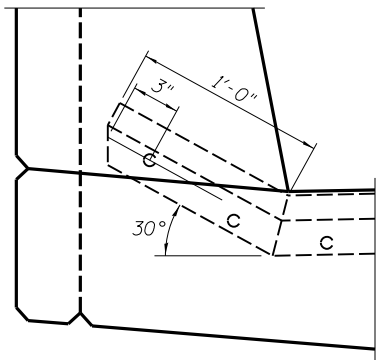
* 5/8" ϕ x 6" studs @ 6" cts. (alternate angled/bent studs with horizontal studs)
3/8" ϕ threaded rods in 7/16" ϕ holes at *4'-0" cts. for holding the proper joint opening based on the temperature during the deck pour. Place to miss studs. All rods shall be burned, or sawed off flush with the plates after concrete is set.

SECTION A-A

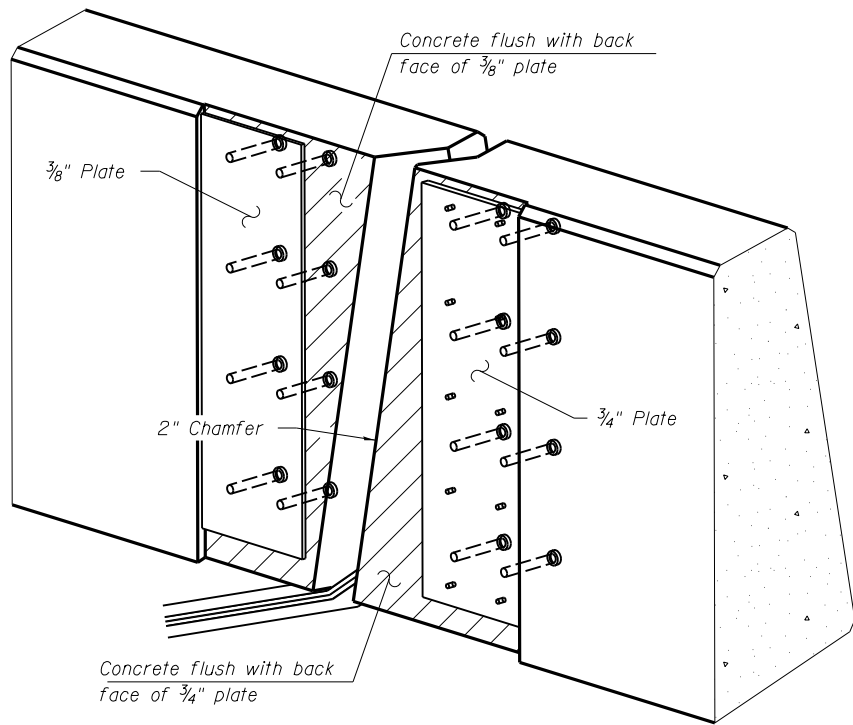
* Granular or solid flux filled headed studs conforming to Article 1006.32 of the Std. Specs., automatically end welded.



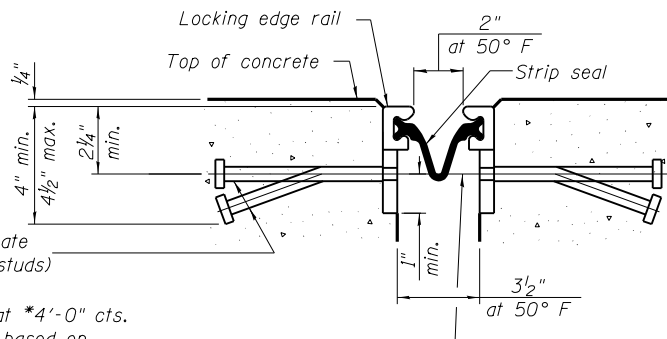
SECTION B-B



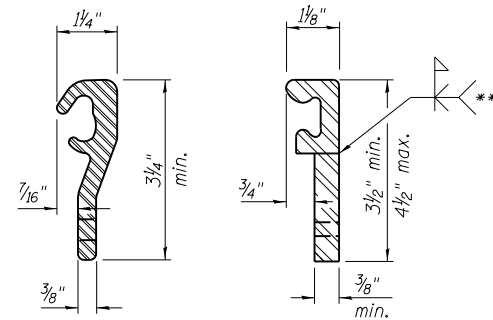
DETAIL A



TRIMETRIC VIEW
(Showing embedded plates only)

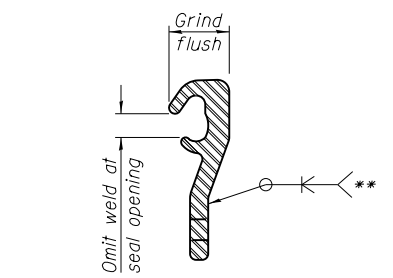


SHOWING WELDED RAIL JOINT



LOCKING EDGE RAILS
ROLLED (EXTRUDED) RAIL
WELDED RAIL

** Back gouge not required if complete joint penetration is verified by mock-up.



LOCKING EDGE RAIL SPLICE

The inside of the locking edge rail groove shall be free of weld residue.
Rolled rail shown, welded rail similar.

BILL OF MATERIAL

Item	Unit	Total
Preformed Joint Strip Seal	Foot	64

Notes:

The strip seal shall be made continuous and shall have a minimum thickness of 1/4". The configuration of the strip seal shall match the configuration of the locking edge rails. Open or "webbed" strip seal gland configurations are not permitted. The gland shall be sized for a maximum rated movement of 4 inches.

The locking edge rails depicted are configured for typical applications and are conceptual only. The actual configuration of the locking edge rails and matching strip seal may vary from manufacturer to manufacturer provided they fit the application and meet the minimum anchorage shown. Flanged edge rails, however, will not be allowed. Locking edge rails may exceed the 4 1/2" maximum depth provided the anchorage system is revised according to the manufacturer's recommendation.

The manufacturer's recommended installation methods shall be followed.

All steel components shall be galvanized after fabrication according to Article 520.03 of the Standard Specifications.

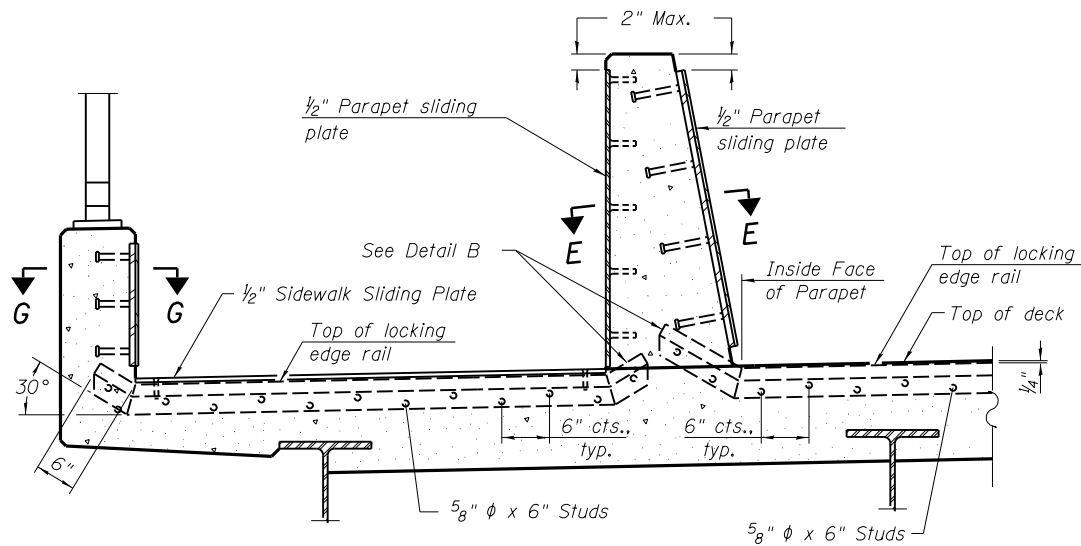
The Maximum space between locking edge rail segments shall be 3/16" and sealed with a suitable sealant; however, any rail joint within 10' measured perpendicular to the face of the curb or parapet shall be welded as shown in the locking edge rail splice detail.

The top surface of sidewalk sliding plates shall have a raised pattern according to ASTM A786.

Cost of parapet sliding plates, sidewalk sliding plates, embedded plates, anchorage studs, and expansion anchors included with Preformed Joint Strip Seal.

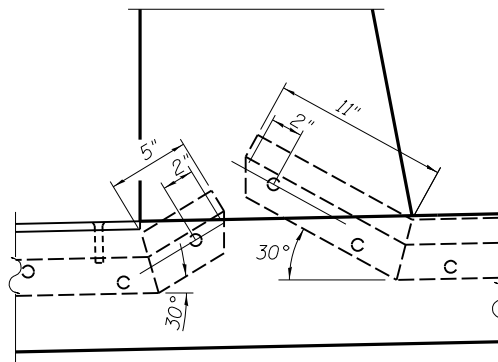
39" constant slope barrier shown, 28" curb similar as noted.

The concrete opening below the strip seal will vary based on the locking edge rail chosen by the Contractor. Deck and parapet lengths shown elsewhere in the plans are dimensioned to the concrete opening, not the joint opening, and are based on the rolled locking edge rail. If the Contractor elects to use a different locking edge rail, dimensional adjustments may be required. One exception to this would be the strip seal joint at the end of the precast bridge approach slab. For these cases the pavement connector length shall be adjusted, not the length of the bridge approach slab.

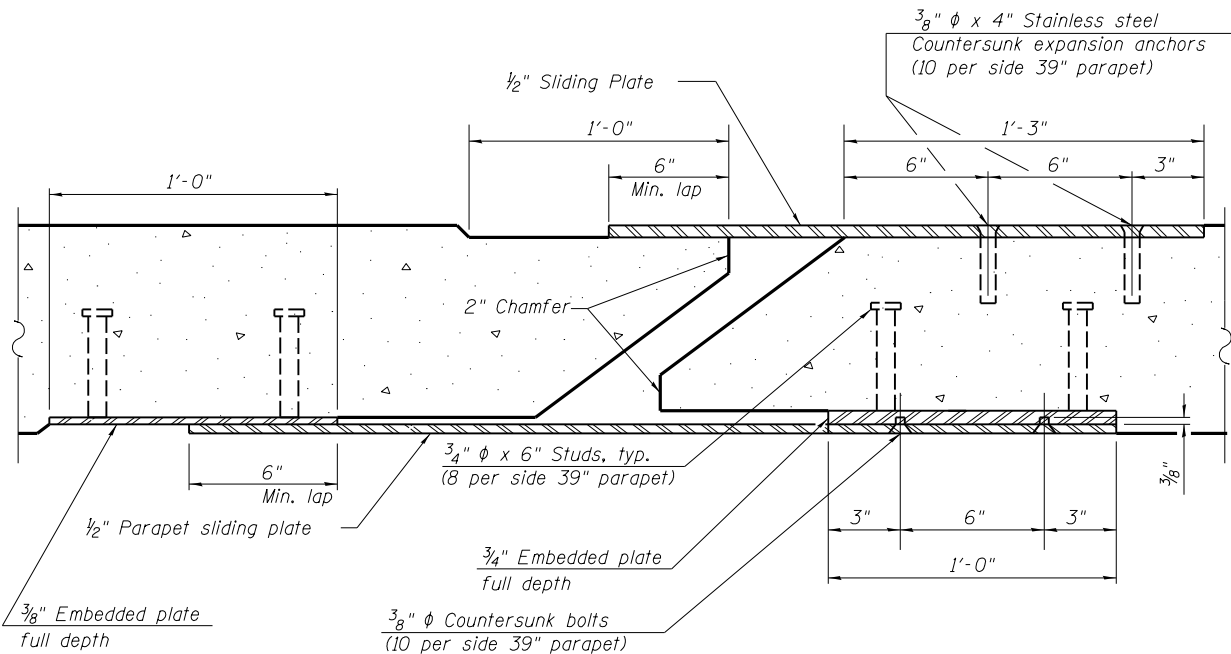


SECTION AT DECK LEVEL SIDEWALK

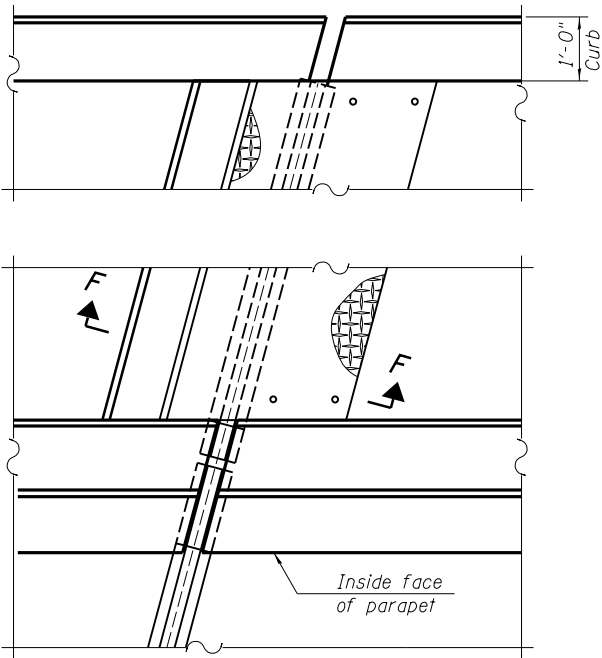
(Skews > 30° shown. Skews = 30° similar except as shown in plan view.)



DETAIL B

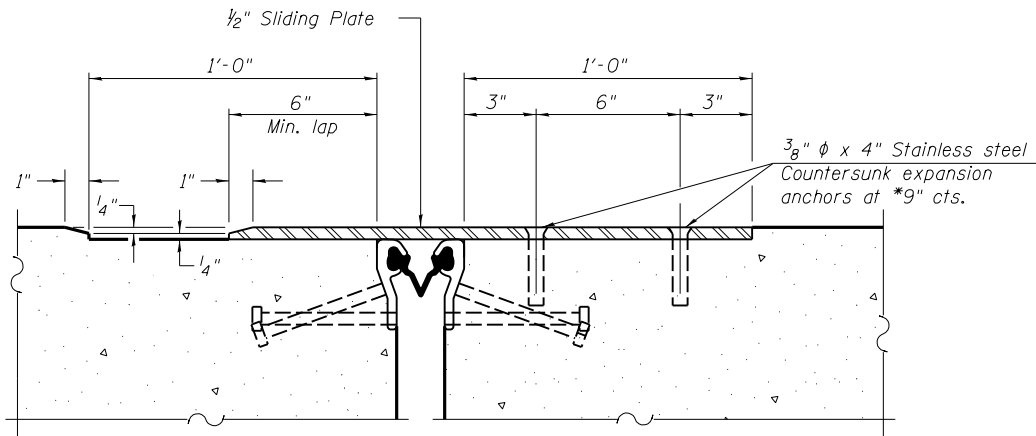


SECTION E-E

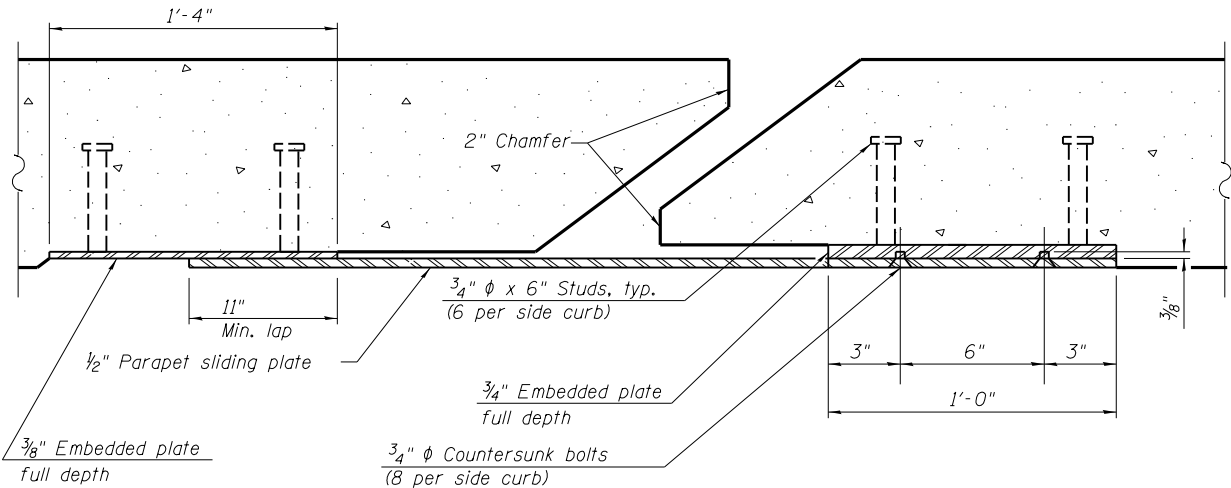


PLAN AT DECK LEVEL SIDEWALK

(FOR SKEWS <= 30°)



SECTION F-F



SECTION G-G

FINAL PLANS

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

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EAST EXPANSION JOINT DETAILS (SHEET 2 OF 2)
STRUCTURE NO. 084-9973

SHEET NO. 32 OF 53 SHEETS

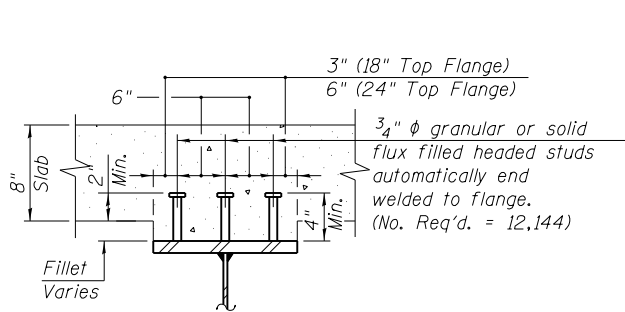
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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				CONTRACT NO. 93773

ILLINOIS FED. AID PROJECT

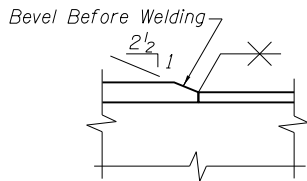
SHEAR CONNECTOR TABLE

	"F"	"G"	"H"	"I"	"J"	"K"	"L"	"M"	"N"	"O"	"P"
G1	3'-1 ⁷ / ₈ "	180 Spa. @ 9" = 135'-0"	3'-6 ¹ / ₂ "	37 Spa. @ 9" = 27'-9"	7"	88 Spa. @ 7" = 51'-4"	7"	55 Spa. @ 9" = 41'-3"	3'-3 ¹ / ₄ "	5 Spa. @ 9" = 3'-9"	30 Spa. @ 5" = 12'-6"
G2	2'-10 ¹ / ₂ "	179 Spa. @ 9" = 134'-3"	3'-0 ⁷ / ₈ "	39 Spa. @ 9" = 29'-3"	7"	88 Spa. @ 7" = 51'-4"	7"	55 Spa. @ 9" = 41'-3"	3'-5 ¹ / ₂ "	34 Spa. @ 9" = 25'-6"	12 Spa. @ 5" = 5'-0"
G3	3'-4"	176 Spa. @ 9" = 132'-0"	3'-4 ¹ / ₄ "	41 Spa. @ 9" = 30'-9"	8 ¹ / ₂ "	79 Spa. @ 7" = 46'-1"	8 ¹ / ₂ "	25 Spa. @ 9" = 18'-9"	3'-4 ³ / ₄ "	90 Spa. @ 9" = 67'-6"	12 Spa. @ 5" = 5'-0"
G4	3'-0 ⁵ / ₈ "	175 Spa. @ 9" = 131'-3"	3'-7 ³ / ₄ "	42 Spa. @ 9" = 31'-6"	8 ¹ / ₂ "	79 Spa. @ 7" = 46'-1"	8 ¹ / ₂ "	45 Spa. @ 9" = 33'-9"	3'-3 ⁷ / ₈ "	90 Spa. @ 9" = 67'-6"	12 Spa. @ 5" = 5'-0"
G5	3'-1 ³ / ₄ "	173 Spa. @ 9" = 129'-9"	3'-6 ¹ / ₂ "	44 Spa. @ 9" = 33'-0"	7"	88 Spa. @ 7" = 51'-4"	7"	57 Spa. @ 9" = 42'-9"	3'-9 ¹ / ₈ "	90 Spa. @ 9" = 67'-6"	12 Spa. @ 5" = 5'-0"
G6	3'-2 ⁷ / ₈ "	171 Spa. @ 9" = 128'-3"	3'-5 ¹ / ₂ "	46 Spa. @ 9" = 34'-6"	7"	88 Spa. @ 7" = 51'-4"	7"	55 Spa. @ 9" = 41'-3"	3'-2 ¹ / ₄ "	112 Spa. @ 9" = 84'-0"	12 Spa. @ 5" = 5'-0"
G7	3'-4"	169 Spa. @ 9" = 126'-9"	3'-4 ³ / ₈ "	48 Spa. @ 9" = 36'-0"	7"	88 Spa. @ 7" = 51'-4"	7"	55 Spa. @ 9" = 41'-3"	3'-4 ¹ / ₂ "	131 Spa. @ 9" = 98'-3"	12 Spa. @ 5" = 5'-0"
G8	3'-0 ¹ / ₂ "	168 Spa. @ 9" = 126'-0"	3'-7 ⁷ / ₈ "	49 Spa. @ 9" = 36'-9"	7"	88 Spa. @ 7" = 51'-4"	7"	54 Spa. @ 9" = 40'-6"	4'-3 ³ / ₄ "	150 Spa. @ 9" = 112'-6"	12 Spa. @ 5" = 5'-0"

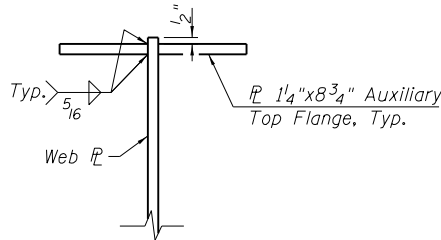
Note:
Stud shear locations at splice
locations shall be spaced to
avoid top splice plate.



SECTION A-A



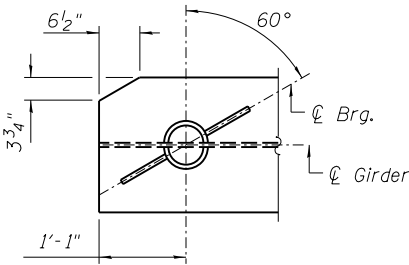
DETAIL "B"



SECTION B-B

SPLICE TABLE

	"A"	"B"	"C"	"D"	"E"	℄ to ℄ Brg. Span 2
G1	138'-2 ⁹ / ₁₆ "	29'-9 ¹¹ / ₁₆ "	30'-0"	42'-10 ⁸ / ₁₆ "	18'-8 ¹ / ₈ "	91'-6 ¹ / ₄ "
G2	136'-10 ¹³ / ₁₆ "	31'-1 ¹ / ₂ "	30'-0"	42'-10 ⁸ / ₁₆ "	33'-1 ⁵ / ₁₆ "	109'-11 ¹ / ₂ "
G3	135'-7"	32'-5 ⁵ / ₁₆ "	25'-0"	20'-10 ¹⁵ / ₁₆ "	74'-5 ³ / ₄ "	120'-4 ⁵ / ₈ "
G4	134'-3 ³ / ₁₆ "	33'-9 ¹ / ₈ "	25'-0"	35'-4 ¹ / ₈ "	74'-5 ³ / ₄ "	134'-9 ⁷ / ₈ "
G5	132'-11 ³ / ₈ "	35'-0 ⁷ / ₈ "	30'-0"	44'-9 ⁵ / ₁₆ "	74'-5 ³ / ₄ "	149'-3"
G6	131'-7 ⁵ / ₈ "	36'-4 ¹ / ₁₆ "	30'-0"	42'-10 ⁸ / ₁₆ "	90'-10 ⁸ / ₁₆ "	163'-8 ¹ / ₄ "
G7	130'-3 ¹³ / ₁₆ "	37'-8 ¹ / ₂ "	30'-0"	42'-10 ⁸ / ₁₆ "	105'-3 ³ / ₈ "	178'-1 ¹ / ₂ "
G8	129'-0"	39'-0 ⁵ / ₁₆ "	30'-0"	42'-10 ⁸ / ₁₆ "	119'-8 ⁹ / ₁₆ "	192'-6 ⁵ / ₈ "

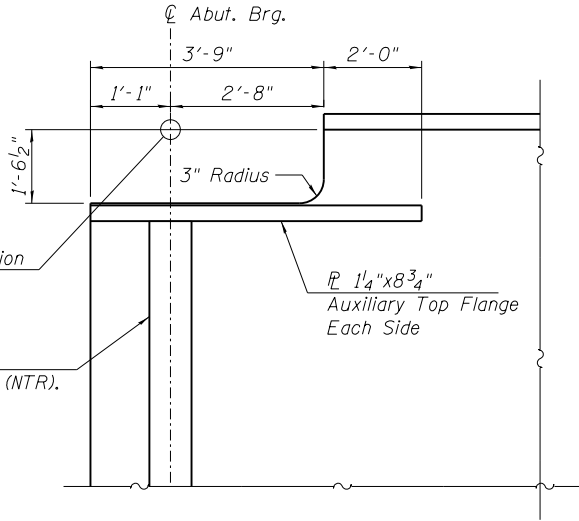


AUX. TOP FLANGE CLIP

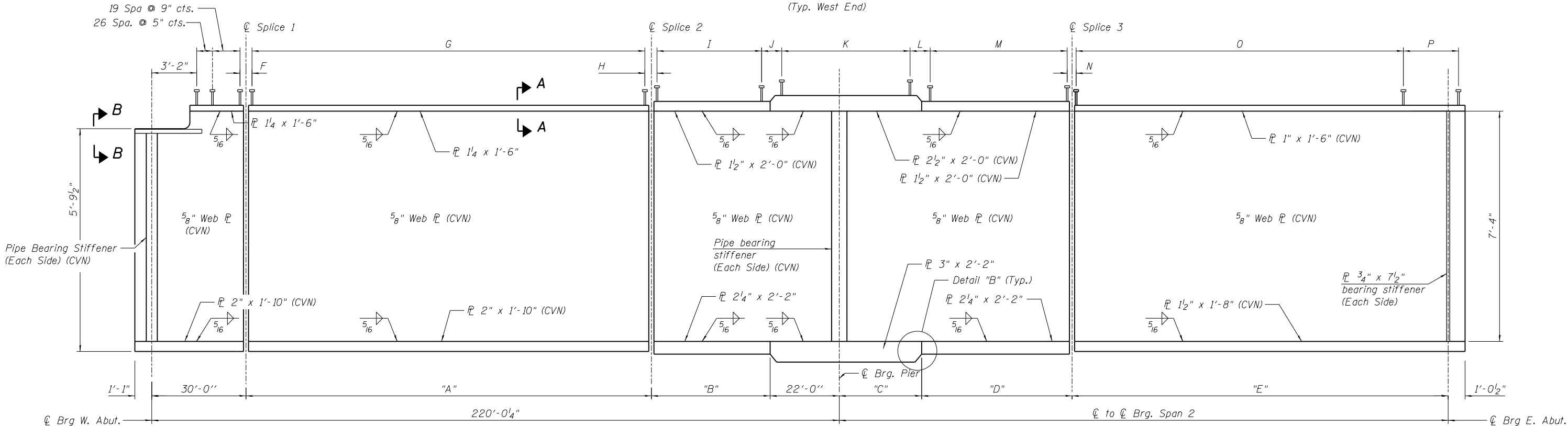
(Typ. West End)

Top of web elevation
listed for camber

HSS 10.75x0.375
Bearing Stiffener (NTR).
Each Side



WEST END BEAM DETAIL



GIRDER ELEVATION

Notes:
"CVN" denotes Charpy-V-Notch impact energy requirements, Zone 2.

FINAL PLANS

p:\hansoninc-pw\hanson-pw\01\Documents\09Jobs\09L01798\Usable Segments III - V - VINCAD\Struct\Usable Segment VI\North Grand Overpass\Sheet\NorthGrandOverpass.09L01798.033.SS Details.dgn



USER NAME : pop00275

DESIGNED - CGP

REVISED -

PLOT SCALE : 0:2.0000 '1' = 1"

CHECKED - JGT

REVISED -

PLOT DATE : 9/27/2024

DRAWN - RSJ

REVISED -

CHECKED -

REVISED -

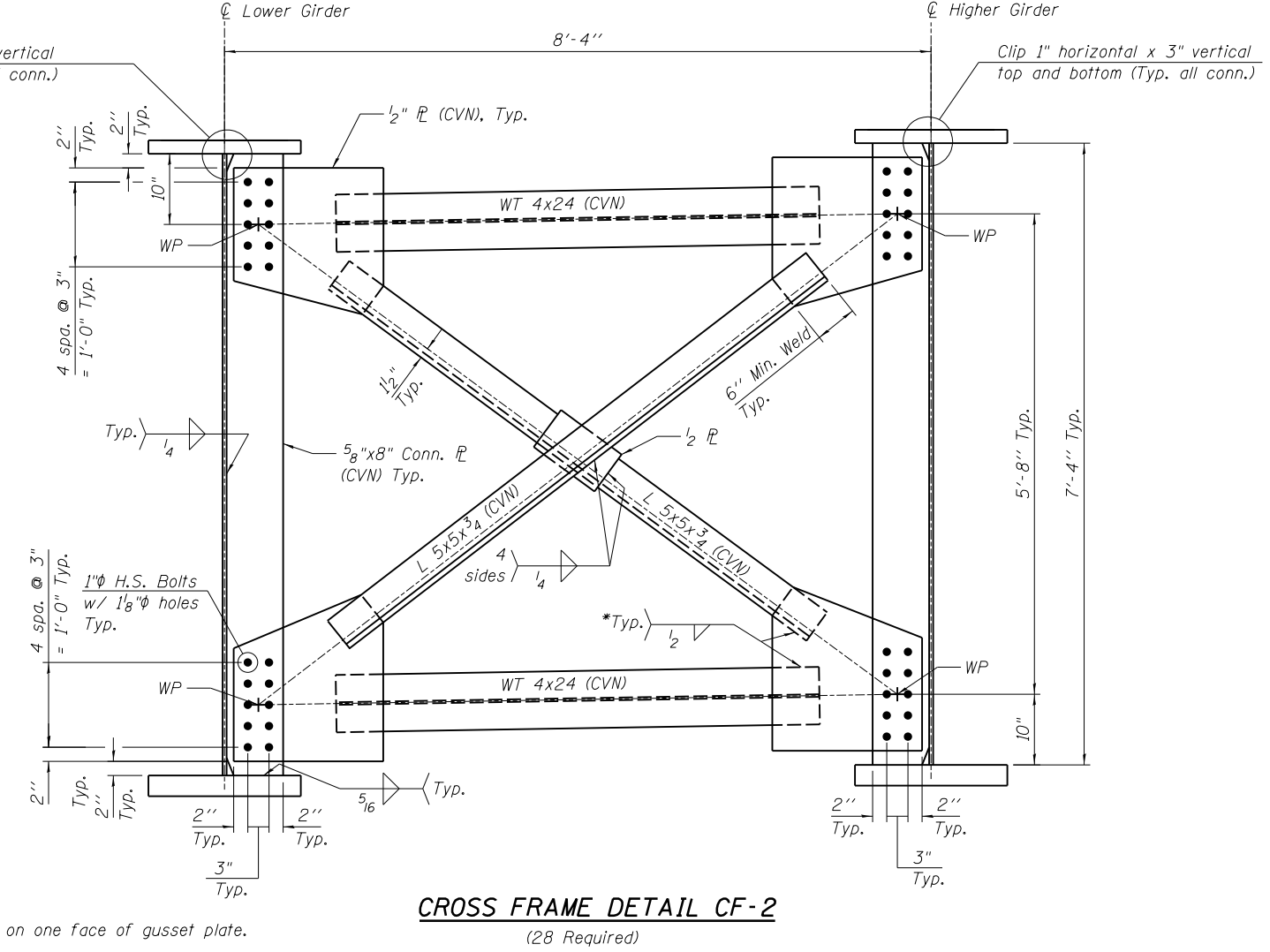
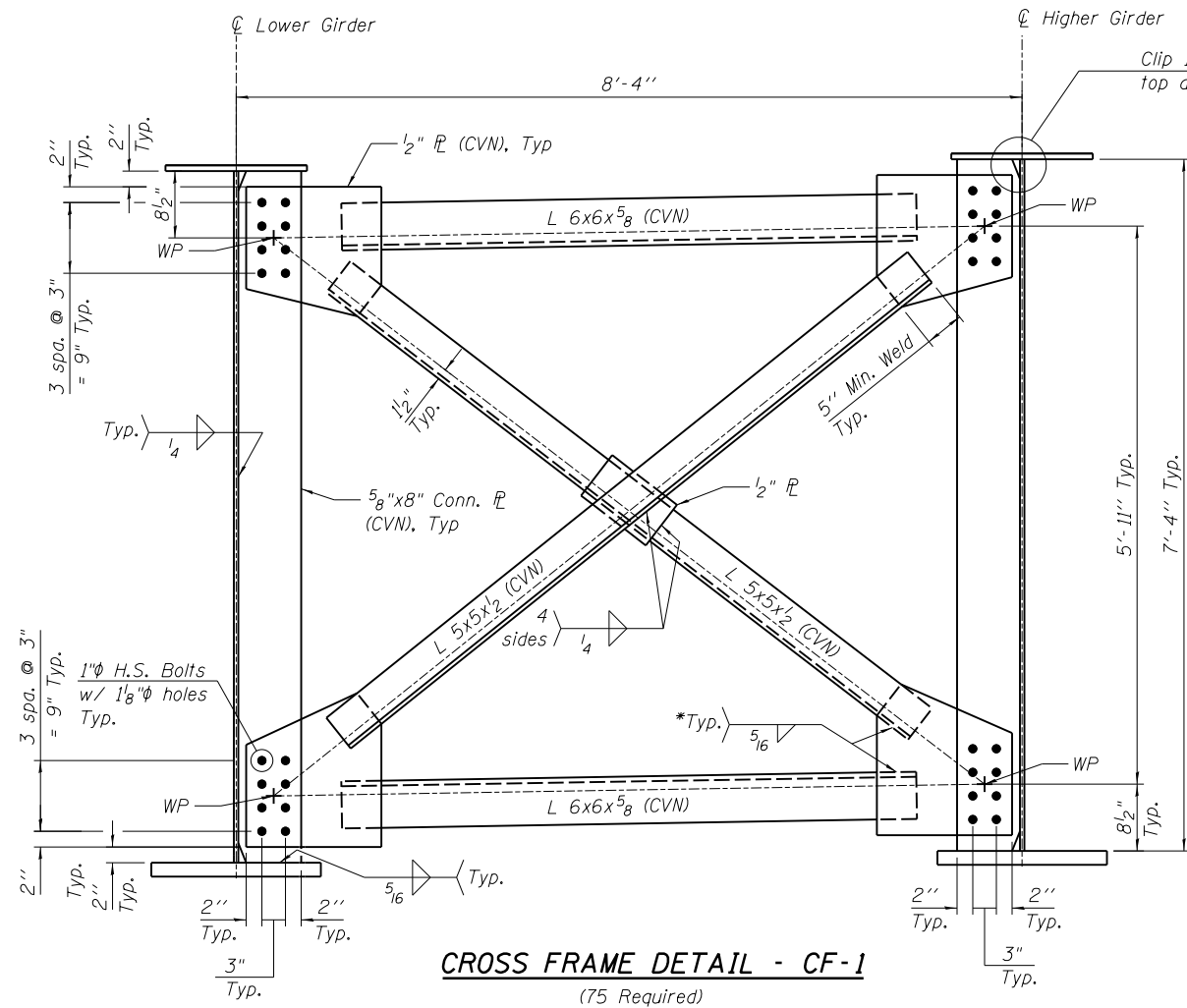
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL DETAILS (SHEET 1 OF 7)
STRUCTURE NO. 084-9973

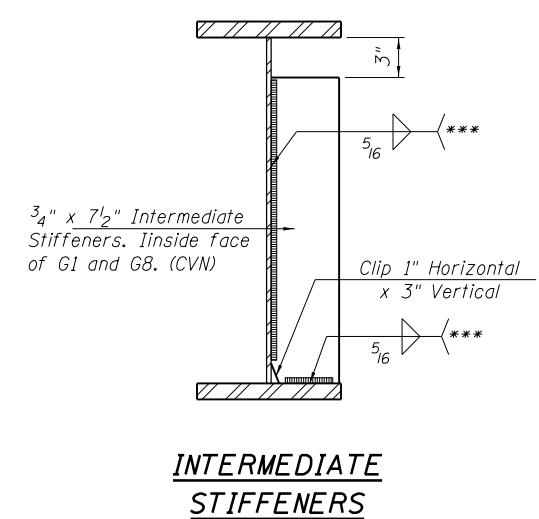
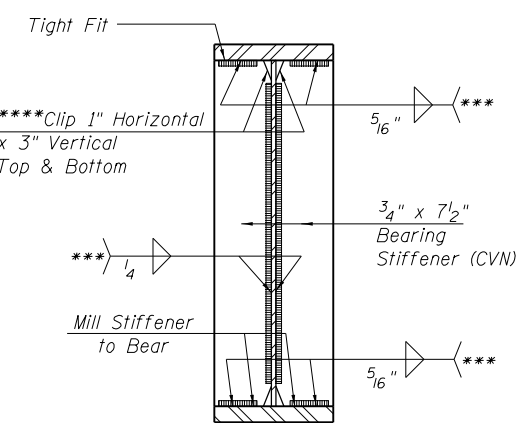
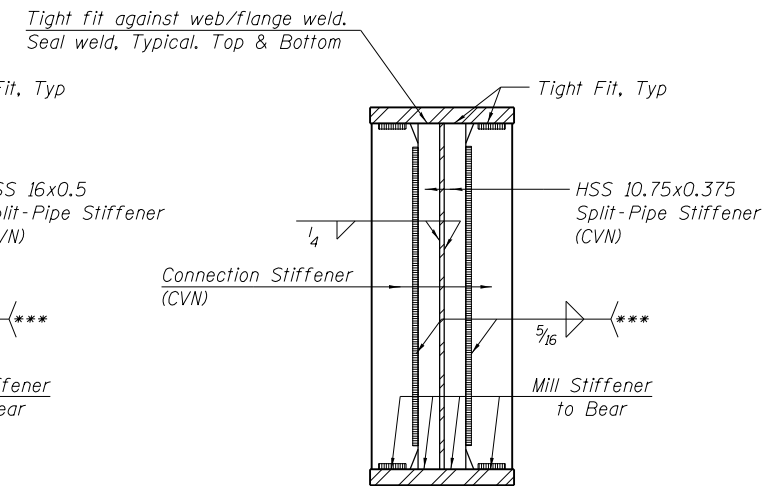
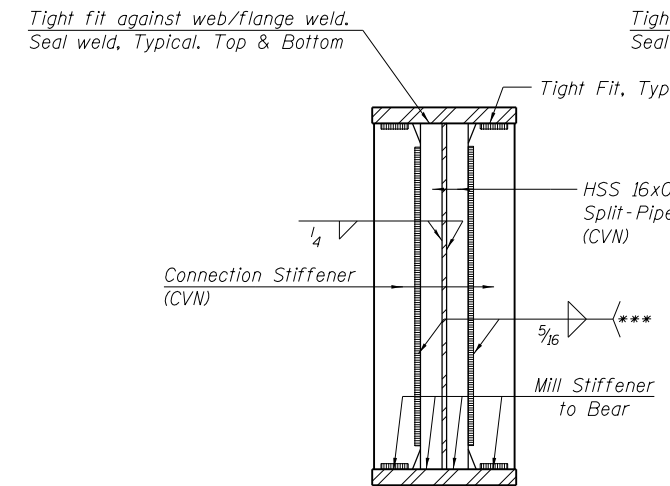
SHEET NO. 34 OF 53 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	480
CONTRACT NO. 93773				

ILLINOIS FED. AID PROJECT



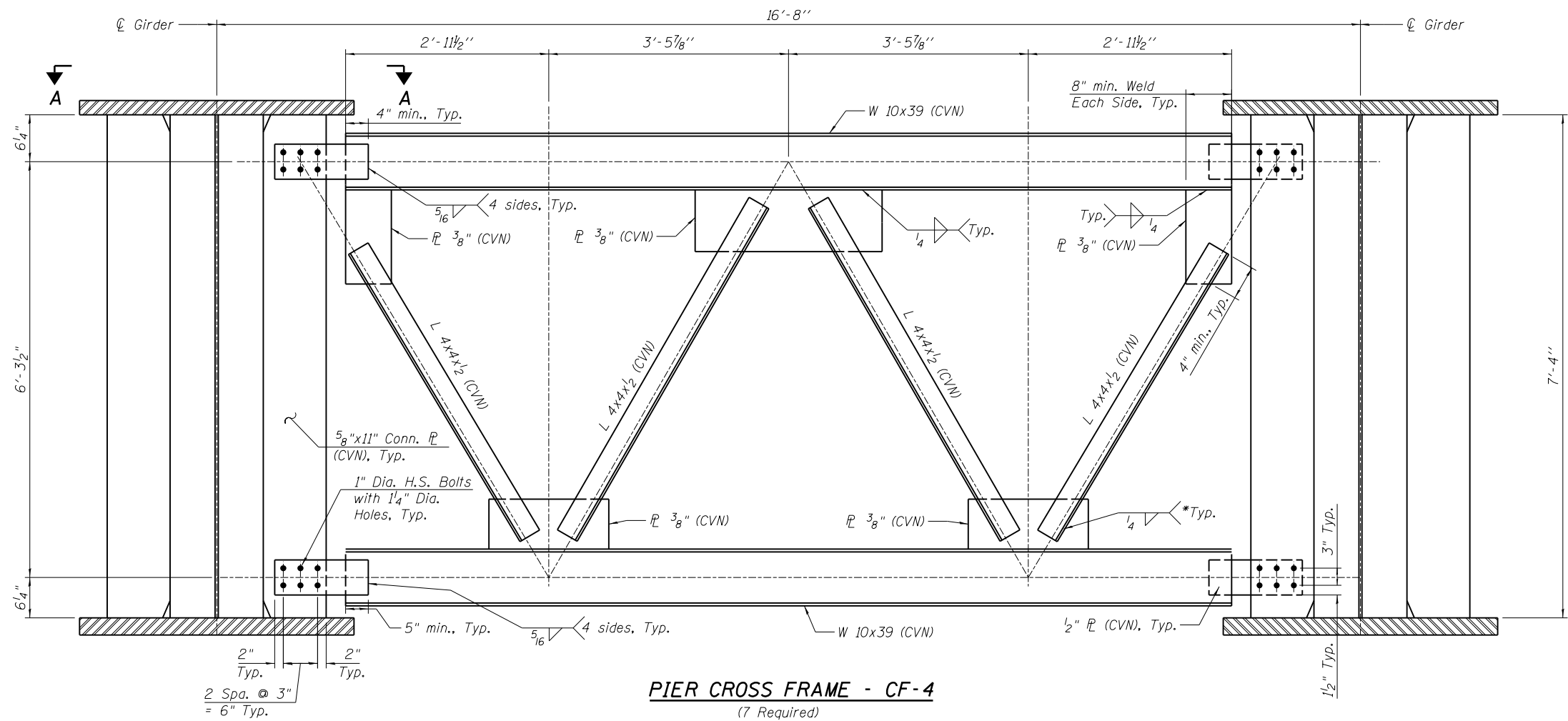
* Fillet weld angles along 3 sides on one face of gusset plate.



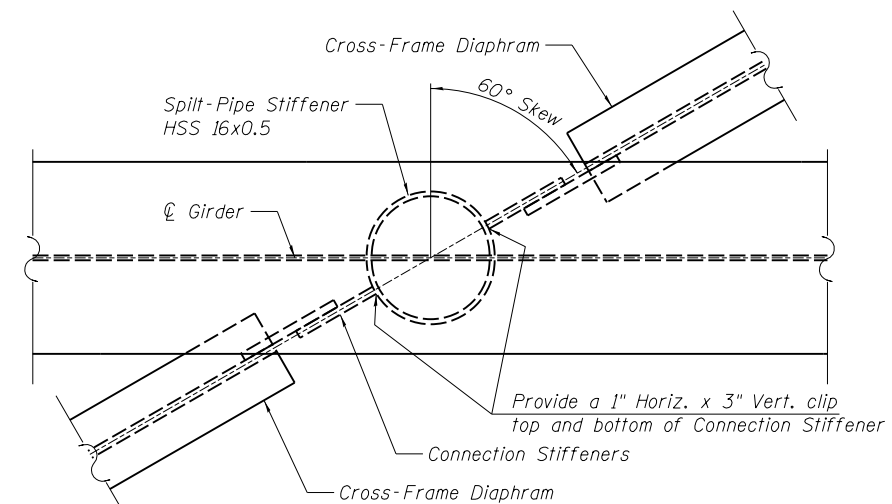
Notes:
Split-Pipe Stiffeners shall conform to ASTM A1085.
Load carrying components designated "CVN" shall conform to the Charpy-V-Notch Impact Energy Requirement, Zone 2.
All cross frames between girders shall be installed with erection pins and bolts in accordance with the erection plan approved by the Engineer. Individual cross frames at supports may be temporarily disconnected to install bearing anchor rods.

FINAL PLANS

pw:\hansoninc-pw.bentley.com\hanson-pw-01\Documents\09Jobs\09L0179B\Usable Segments III - V - VINCAD\Struct\Usable Segment VI\North Grand Overpass\Sheet\NorthGrandOverpass.09L0179B.034.SS Details.dgn				STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION		STRUCTURAL STEEL DETAILS (SHEET 2 OF 7) STRUCTURE NO. 084-9973		F.A.U. RTE. SECTION COUNTY TOTAL SHEETS SHEET NO.					
USER NAME = pop00275 DESIGNED - CGP CHECKED - JGT PLOT SCALE = 0:2.0000 'ft / in. DRAWN - RSJ PLOT DATE = 9/27/2024 CHECKED - REVISED -								7972 20-00492-00-BR & 22-00492-01-BR SANGAMON 714 481					
SHEET NO. 35 OF 53 SHEETS								ILLINOIS FED. AID PROJECT					



* Fillet weld angles along 3 sides on one face of gusset plate.



Notes:

"CVN" Denotes Charpy-V-Notch Impact Energy Requirements, Zone 2.

All cross frames between girders shall be installed with erection pins and bolts in accordance with the erection plan approved by the Engineer. Individual cross frames at supports may be temporarily disconnected to install bearing anchor rods.

FINAL PLANS

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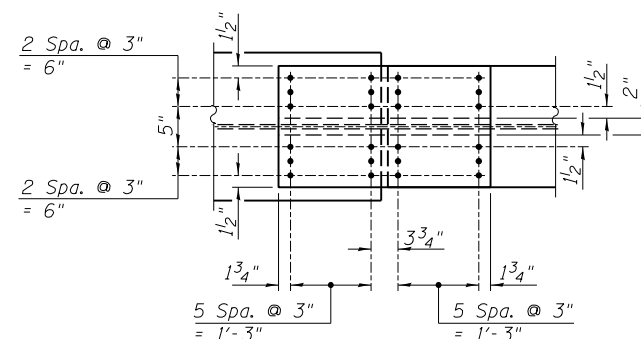
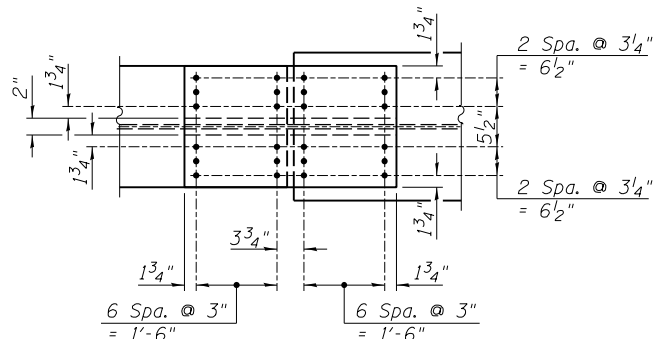
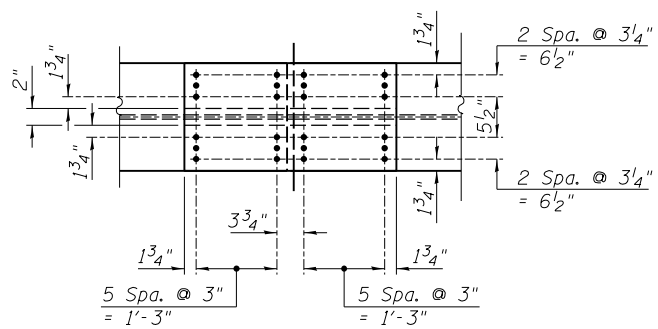
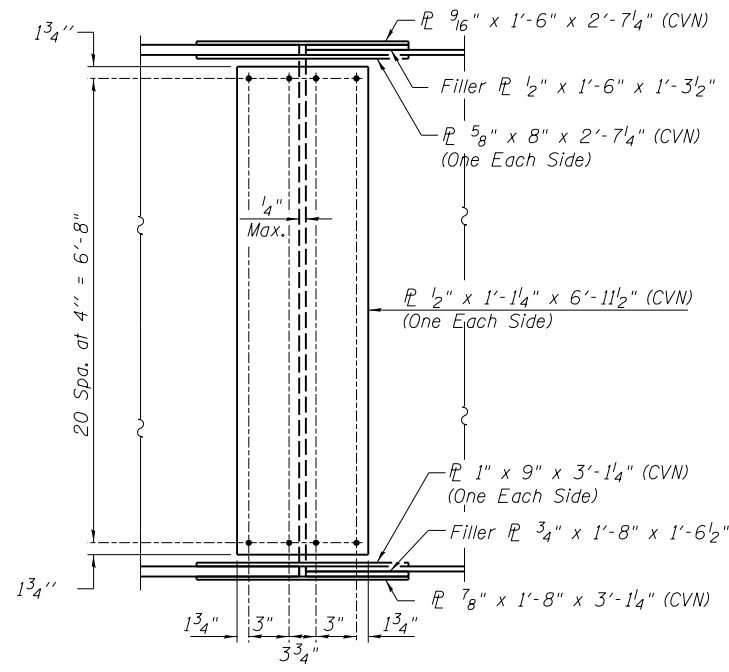
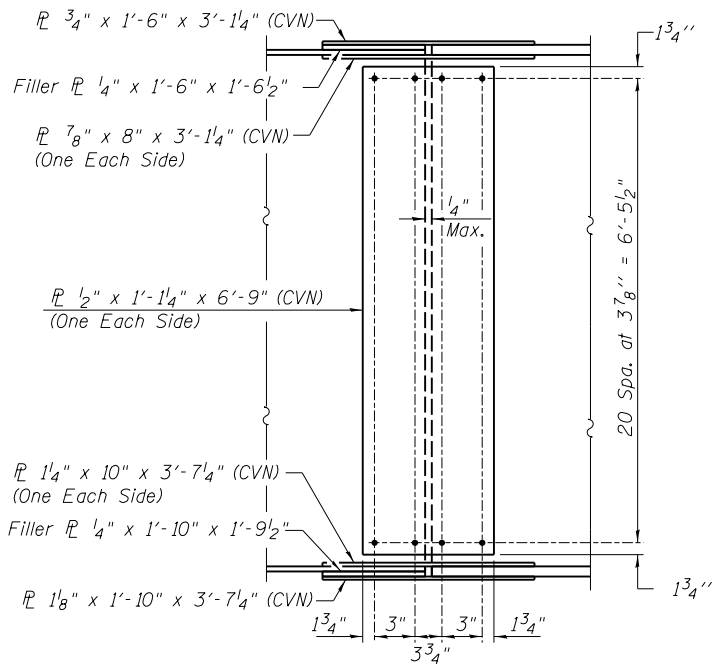
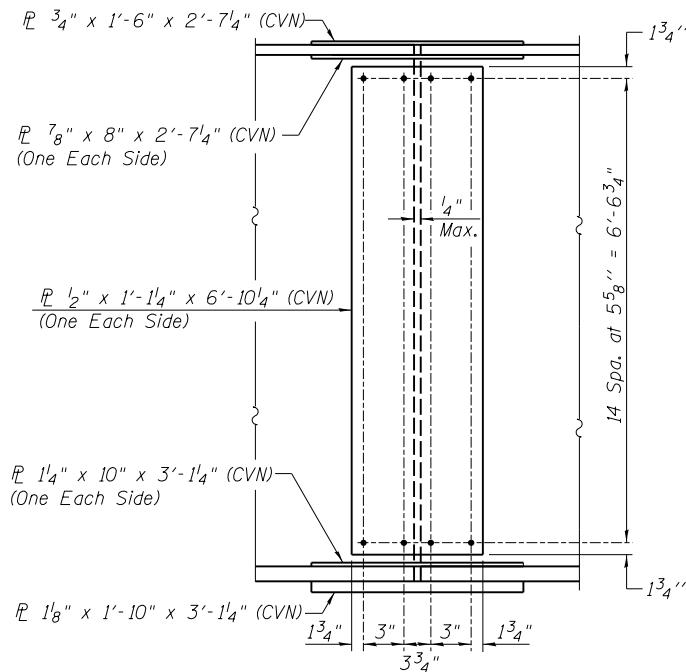
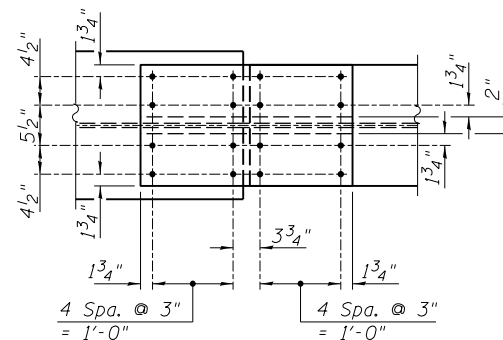
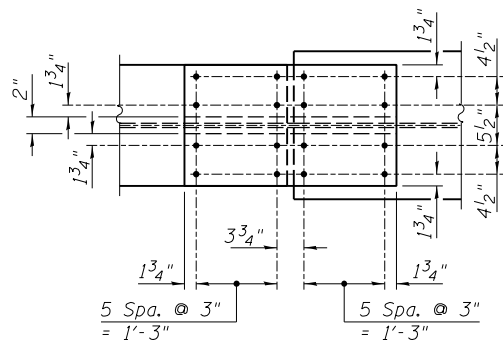
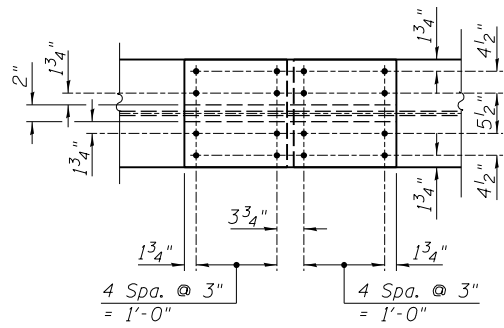
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL DETAILS (SHEET 4 OF 7)
STRUCTURE NO. 084-9973

SHEET NO. 37 OF 53 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	483
		CONTRACT NO. 93773		
		ILLINOIS FED. AID PROJECT		



DETAIL - FIELD SPLICE 1

DETAIL - FIELD SPLICE 2

DETAIL - FIELD SPLICE 3

Notes:
Use 7/8" ϕ H.S. Bolts with 15/16" ϕ holes for all splice connections.
"CVN" denotes Charpy-V-Notch Impact Energy Requirements, Zone 2.

FINAL PLANS

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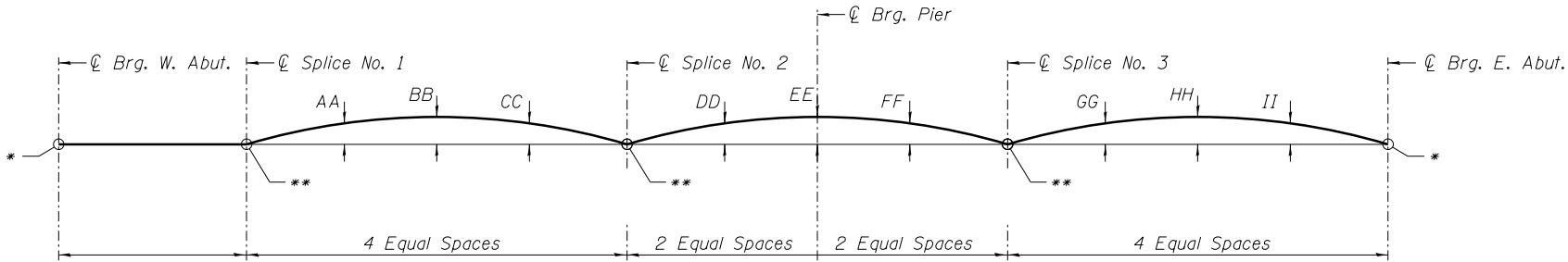
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL DETAILS (SHEET 5 OF 7)
STRUCTURE NO. 084-9973

SHEET NO. 38 OF 53 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	484
CONTRACT NO. 93773				
ILLINOIS FED. AID PROJECT				



CAMBER DIAGRAM

Note: Camber includes deflections due to structural steel, deck and parapet.
* See Table for Final Top of Web Elevations at abutments.
** Theoretical Top of Web Elevations before dead load deflections.

CAMBER DIMENSIONS (INCHES)

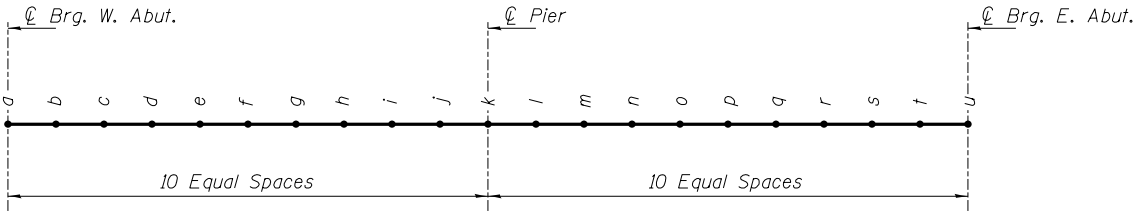
	AA	BB	CC	DD	EE	FF	GG	HH	II
Girder 1	8.5	11.25	8.25	3.0	3.25	3.0	0	0	0
Girder 2	8.25	10.75	8	3.0	3.25	3.0	0	0.75	0
Girder 3	8.0	10.5	8.0	1.5	1.75	1.5	2.25	2.5	1.75
Girder 4	8.0	10.5	7.75	2.5	2.75	2.5	2.25	2.75	1.75
Girder 5	7.75	10.25	7.75	3.25	3.5	3.25	2.5	2.75	2
Girder 6	7.75	10.25	7.75	3.25	3.5	3.25	3.5	4	2.75
Girder 7	7.75	10.0	7.5	3.0	3.25	3.0	4.5	5.5	3.75
Girder 8	7.75	10.25	7.75	3.0	3.25	3.0	5.5	7.0	5.0

TOP OF WEB ELEVATIONS

(For Fabrication Only)

	Girder 1	Girder 2	Girder 3	Girder 4	Girder 5	Girder 6	Girder 7	Girder 8
⊘ Brg. W. Abut.	640.09	639.77	639.41	638.99	638.53	637.80	636.99	636.17
Splice No. 1	641.11	640.87	640.61	640.29	639.94	639.32	638.62	637.88
Splice No. 2	641.73	642.01	642.24	642.40	642.51	642.36	642.11	641.81
⊘ Brg. Pier	640.50	640.94	641.34	641.70	641.98	642.03	641.96	641.86
Splice No. 3	638.14	638.83	640.31	640.45	640.61	640.97	641.18	641.33
⊘ Brg. E. Abut.	637.43	637.56	637.68	637.81	637.93	637.85	637.72	637.60

Note:
Top of web elevations at ⊘ Brg. W. Abut. do not account for cope. See girder elevation on sheet 34 of 53.



STRUCTURAL STEEL SELF-WEIGHT
DEFLECTION DIAGRAM

STRUCTURAL STEEL SELF-WEIGHT DEFLECTION TABLE

Girder	Deflection																			
	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t
1	0	-1 1⁄8"	-2	-2 5⁄8"	-2 7⁄8"	-2 3⁄4"	-2 3⁄8"	-1 3⁄4"	-1	-1 1⁄2"	0	1⁄8"	1⁄8"	1⁄4"	1⁄4"	1⁄4"	1⁄8"	1⁄8"	1⁄8"	0
2	0	-1	-1 3⁄4"	-2 3⁄8"	-2 5⁄8"	-2 5⁄8"	-2 1⁄4"	-1 3⁄4"	-1 1⁄8"	-1 1⁄2"	0	1⁄8"	1⁄8"	1⁄4"	1⁄4"	1⁄4"	1⁄8"	1⁄8"	1⁄8"	0
3	0	-1	-1 3⁄4"	-2 3⁄8"	-2 5⁄8"	-2 1⁄2"	-2 1⁄4"	-1 3⁄4"	-1 1⁄8"	-1 1⁄2"	0	1⁄8"	1⁄8"	1⁄4"	1⁄4"	1⁄4"	1⁄8"	1⁄8"	0	0
4	0	-1	-1 3⁄4"	-2 3⁄8"	-2 5⁄8"	-2 1⁄2"	-2 1⁄4"	-1 3⁄4"	-1	-1 1⁄2"	0	1⁄8"	1⁄8"	1⁄4"	1⁄8"	1⁄8"	1⁄8"	0	0	0
5	0	-1	-1 3⁄4"	-2 3⁄8"	-2 5⁄8"	-2 5⁄8"	-2 1⁄4"	-1 3⁄4"	-1	-1 1⁄2"	0	1⁄8"	1⁄8"	1⁄8"	1⁄8"	0	0	0	0	0
6	0	-1	-1 7⁄8"	-2 3⁄8"	-2 5⁄8"	-2 5⁄8"	-2 1⁄4"	-1 3⁄4"	-1 1⁄8"	-1 1⁄2"	0	1⁄8"	1⁄8"	1⁄8"	0	0	-1⁄8"	-1⁄8"	-1⁄8"	0
7	0	-1	-1 7⁄8"	-2 1⁄2"	-2 3⁄4"	-2 3⁄4"	-2 3⁄8"	-1 7⁄8"	-1 1⁄8"	-1 1⁄2"	0	1⁄8"	1⁄8"	1⁄8"	0	-1⁄4"	-1⁄4"	-1⁄4"	-1⁄8"	0
8	0	-1 1⁄8"	-2	-2 3⁄4"	-3	-3	-2 5⁄8"	-2	-1 1⁄4"	-1 1⁄2"	0	1⁄4"	1⁄4"	1⁄8"	0	-1⁄4"	-3⁄8"	-3⁄8"	-1⁄4"	0

FINAL PLANS

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PLOT DATE : 9/27/2024	CHECKED -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL DETAILS (SHEET 6 OF 7)
STRUCTURE NO. 084-9973

SHEET NO. 39 OF 53 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	485
			CONTRACT NO. 93773	
ILLINOIS FED. AID PROJECT				

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 © Copyright Hanson Professional Services Inc., 2024	USER NAME = pop00275	DESIGNED - CGP	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	STRUCTURAL STEEL DETAILS (SHEET 7 OF 7) STRUCTURE NO. 084-9973	F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		CHECKED - JGT	REVISED -			7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	486
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	PLOT DATE = 9/27/2024	CHECKED -	REVISED -			SHEET NO. 40 OF 53 SHEETS				

INTERIOR GIRDER MOMENT TABLE													
		GIRDER 1			GIRDER 2			GIRDER 7			GIRDER 8		
		0.4 Sp. 1	Pier	0.4 Sp. 2	0.4 Sp. 1	Pier	0.4 Sp. 2	0.4 Sp. 1	Pier	0.6 Sp. 2	0.4 Sp. 1	Pier	0.6 Sp. 2
I_s	(in ⁴)	161578	316312	219659	161578	316312	219659	161578	316312	128375	161578	316312	128375
$I_c(n)$	(in ⁴)	350120	-	-	350120	-	-	350120	-	285066	350120	-	285066
$I_c(3n)$	(in ⁴)	251877	-	-	251877	-	-	251877	-	206482	251877	-	206482
$I_c(cr)$	(in ⁴)	-	343125	247629	-	343125	247629	-	343125	-	-	343125	-
S_s	(in ³)	4256	7412	5580	4256	7412	5580	4256	7412	3190	4256	7412	3190
$S_c(n)$	(in ³)	5424	-	-	5424	-	-	5424	-	4209	5424	-	4209
$S_c(3n)$	(in ³)	4967	-	-	4967	-	-	4967	-	3826	4967	-	3826
$S_c(cr)$	(in ³)	-	7596	5808	-	7596	5808	-	7596	-	-	7596	-
S_{xc}	(in ³)	4936	-	-	4978	-	-	4974	-	4067	4937	-	4039
$DC1$	(k/')	1.370	1.452	1.452	1.370	1.424	1.424	1.370	1.370	1.354	1.370	1.370	1.346
M_{DC1}	(k)	5045	6774	2843	4604	7476	2843	4741	8158	1283	5144	8214	1538
$DC2$	(k/')	0.320	0.320	0.320	0.320	0.320	0.320	0.179	0.179	0.179	0.179	0.179	0.179
M_{DC2}	(k)	1063	1032	296	809	1133	240	536	911	136	589	901	190
DW	(k/')	0.390	0.390	0.390	0.390	0.390	0.390	0.390	0.390	0.390	0.390	0.390	0.390
M_{DW}	(k)	1505	1363	518	1316	1722	314	1309	2253	411	1384	2457	475
$M_{\perp} + 1M$	(k)	3389	3522	2199	2865	3623	2011	2947	3669	2378	3102	5595	2583
f_i (Strength I)	(ksi)	0.96	6.68	0.89	5.00	2.44	3.74	4.23	10.69	2.73	0.74	11.65	1.24
$M_u + 1/3 f_i S_{xc}$	(k)	15955	-	-	16337	-	-	15079	-	7437	15488	-	7756
$\phi_f M_n$	(k)	22086	-	-	23526	-	-	23526	-	20635	22086	-	19491
$f_s DC1$	(ksi)	14.22	10.97	6.11	12.98	12.10	4.34	13.37	13.21	4.83	14.50	13.30	5.79
$f_s DC2$	(ksi)	2.57	1.63	0.61	1.95	1.79	0.50	1.29	1.44	0.43	1.42	1.42	0.60
$f_s DW$	(ksi)	3.64	2.15	1.07	3.18	2.72	0.65	3.16	3.56	1.29	3.34	3.88	1.49
$f_s (\perp + 1M)$	(ksi)	7.50	5.56	4.54	6.34	5.72	4.15	6.52	5.80	6.78	6.86	8.84	7.37
f_i (Service II)	(ksi)	0.72	5.04	0.68	3.97	1.91	2.86	3.26	8.40	2.36	0.50	8.78	0.76
$f_s + 1/2 f_i$ (Service II)	(ksi)	31.11	25.04	14.28	31.83	28.78	14.00	30.22	32.54	17.69	28.99	34.48	18.02
$0.95R_n F_y$	(ksi)	47.50	47.50	47.50	47.50	47.50	47.5	47.50	47.50	47.5	47.50	47.50	47.5
$f_s + 1/3 f_i$ (Total Strength I)	(ksi)	-	31.53	18.64	-	37.26	15.97	-	40.43	-	-	43.63	-
$\phi_f F_n$	(ksi)	-	47.9	48.4	-	50.0	50	-	50.0	-	-	50.0	-
V_r	(k)	68.92	68.32	51.40	37.40	43.52	39.50	57.06	64.53	45.49	46.10	70.36	53.37

Note:
The reactions listed above are based on service maximums and strength I combinations.
Bearings at Girder 1 and Girder 2 shall be designed for a service uplift of 45 kips
and a factored uplift of 60 kips.

I_s, S_s : Non-composite moment of inertia and section modulus of the steel section used for computing f_s (Total-Strength I, and Service II) due to non-composite dead loads (in.4 and in.3).

$I_c(n), S_c(n)$: Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing f_s (Total-Strength I, and Service II) in uncracked sections due to short term composite live loads (in.4 and in.3).

$I_c(3n), S_c(3n)$: Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing f_s (Total-Strength I, and Service II) in uncracked sections due to long-term composite (superimposed) dead loads (in.4 and in.3).

$I_{c(cr)}, S_{c(cr)}$: Composite moment of inertia and section modulus of the steel and longitudinal deck reinforcement, used for computing f_s (Total-Strength I and Service II) in cracked sections, due to both short-term composite live loads and long-term composite (superimposed) dead loads (in.4 and in.3).

S_{xc} : Section modulus about the major axis of section to the controlling flange, tension or compression, taken as yield moment with respect to the controlling flange over the yield strength of the controlling flange (in.3).

$DC1$: Un-factored non-composite dead load (kips/ft.).

M_{DC1} : Un-factored moment due to non-composite dead load (kip-ft.).

$DC2$: Un-factored long-term composite (superimposed excluding future wearing surface) dead load (kips/ft.).

M_{DC2} : Un-factored moment due to long-term composite (superimposed excluding future wearing surface) dead load (kip-ft.).

DW : Un-factored long-term composite (superimposed future wearing surface only) dead load (kips/ft.).

M_{DW} : Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).

$M_{\perp} + 1M$: Un-factored live load moment plus dynamic load allowance (impact)(kip-ft.).

M (Strength I): Factored design moment (kip-ft.).
 $1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_{\perp} + 1M$

f_i : Factored calculated normal stress at edge of flange for controlling flange plate due to lateral bending, Strength I or Service II as applicable (kip-ft.).

$\phi_f M_n$: Compact composite positive moment capacity computed according to Article 6.10.7.1 or non-slender negative moment capacity according to Article A6.1.1 or A6.1.2 (kip-ft.).

$f_s DC1$: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).
 M_{DC1} / S_{nc}

$f_s DC2$: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).
 $M_{DC2} / S_c(3n)$ or $M_{DC2} / S_c(cr)$ as applicable.

$f_s DW$: Un-factored stress at edge of flange for controlling steel flange due to vertical composite future wearing surface loads as calculated below (ksi).
 $M_{DW} / S_c(3n)$ or $M_{DW} / S_c(cr)$ as applicable.

$f_s (\perp + 1M)$: Un-factored stress at edge of flange for controlling steel flange due to vertical composite live plus impact loads as calculated below (ksi).
 $M_{\perp} + 1M / S_c(n)$ or $M_{DW} / S_c(cr)$ as applicable.

$f_s + f_i/2$ (Service II): Sum of stresses as computed below (ksi).
 $f_s DC1 + f_s DC2 + f_s DW + 1.3 f_s (\perp + 1M) + f_i/2$

$0.95R_n F_y f$: Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

V_f : Maximum factored shear range in span computed according to Article 6.10.10.
Un-factored reaction due to non-composite dead load (kip).
Un-factored reaction due to long-term composite (superimposed excluding future wearing surface) dead load (kip).
Un-factored reaction due to long-term composite (superimposed future wearing surface only) dead load (kip).
Un-factored live load reaction (kip).
Un-factored dynamic load allowance (impact)(kip).
Strength I load combination of factored design reactions (kip).
 $1.25(R_{DC1} + R_{DC2}) + 1.5 R_{DW} + 1.75(R_{\perp} + R_{1M})$
Strength I load combination of factored design reactions, not including (kip).
dynamic load allowance (impact)(kip).
 $1.25(R_{DC1} + R_{DC2}) + 1.5 R_{DW} + 1.75 R_{\perp}$

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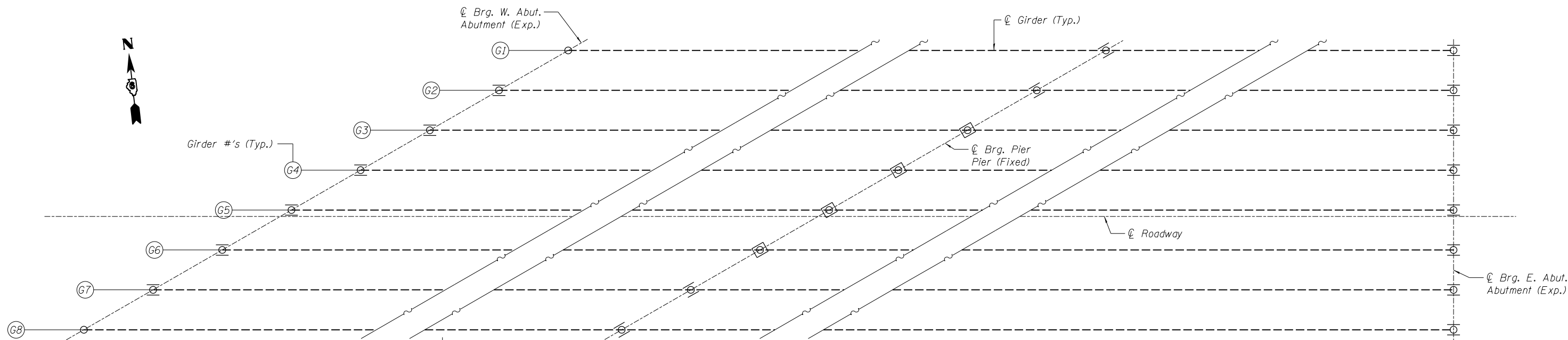
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BEARING ORIENTATION PLAN
STRUCTURE NO. 084-9973

SHEET NO. 41 OF 53 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	487
ILLINOIS FED. AID PROJECT				CONTRACT NO. 93773

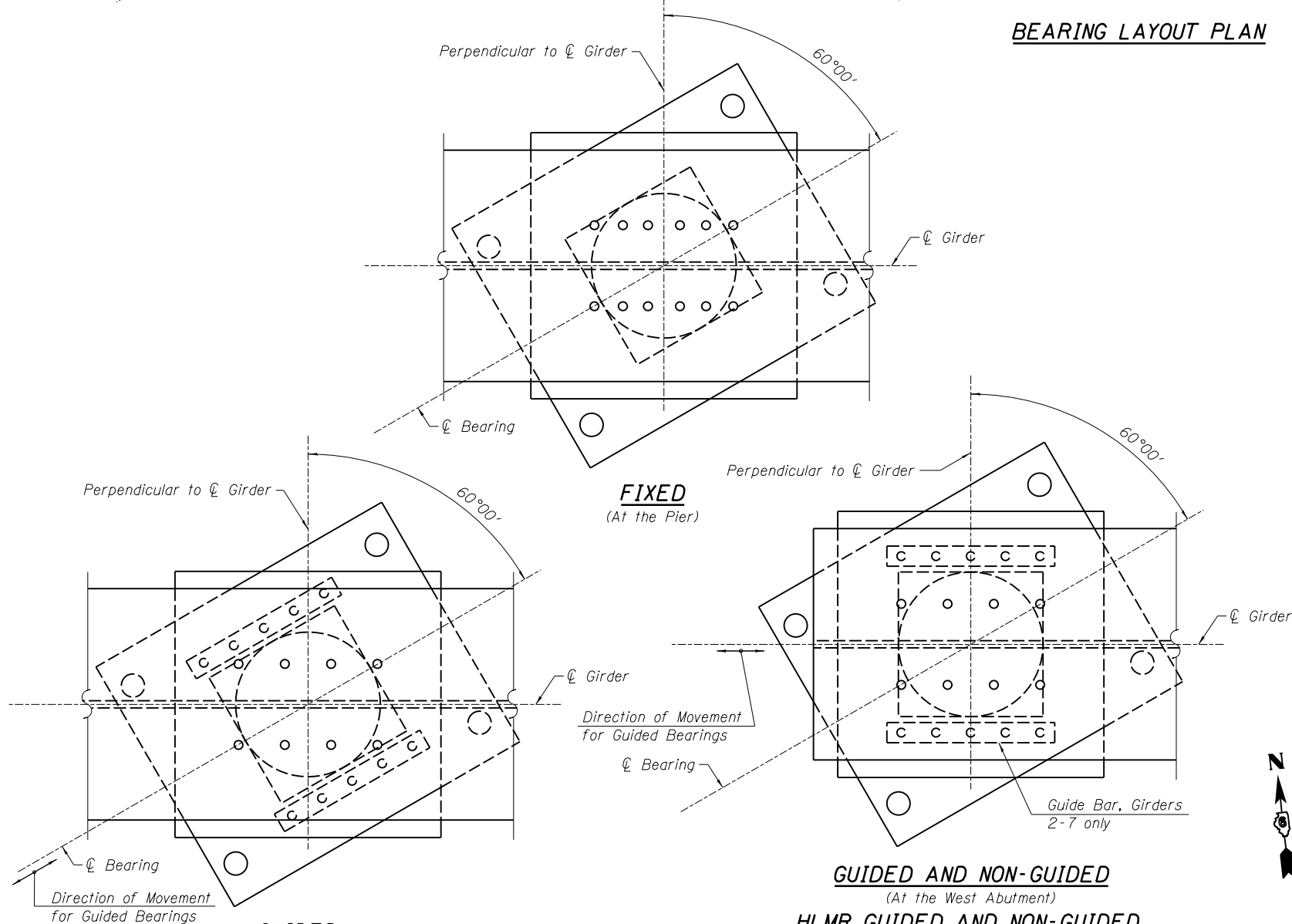


BEARING LAYOUT PLAN

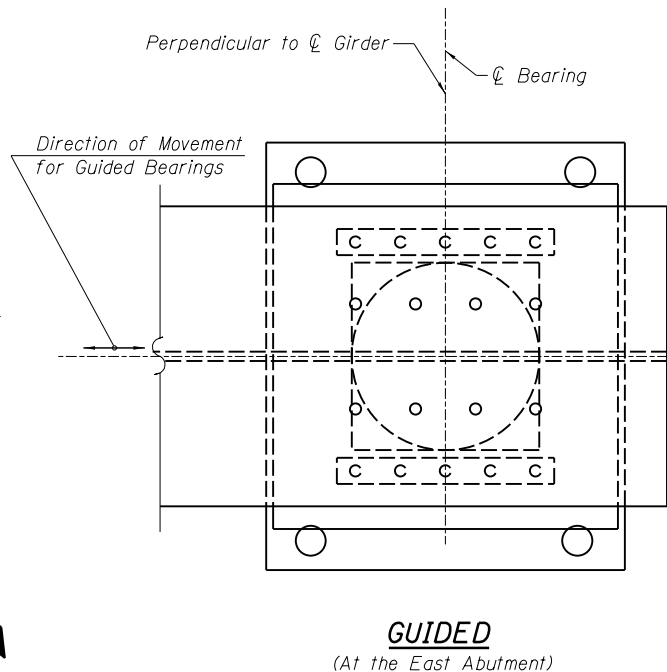
BEARING LEGEND

- HLMR Guided
- HLMR Fixed
- HLMR Non-Guided

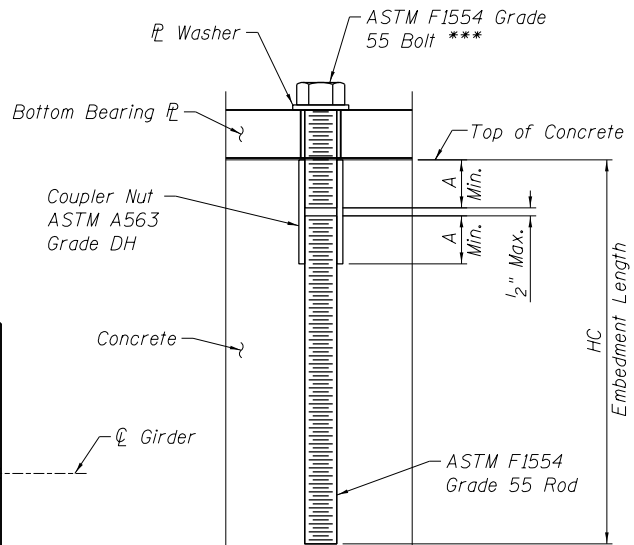
*** Contractor shall verify that the length of anchor bolt is sufficient for placement with bearing manufacturer.



GUIDED AND NON-GUIDED
HLMR GUIDED AND NON-GUIDED
BEARING ORIENTATION PLAN

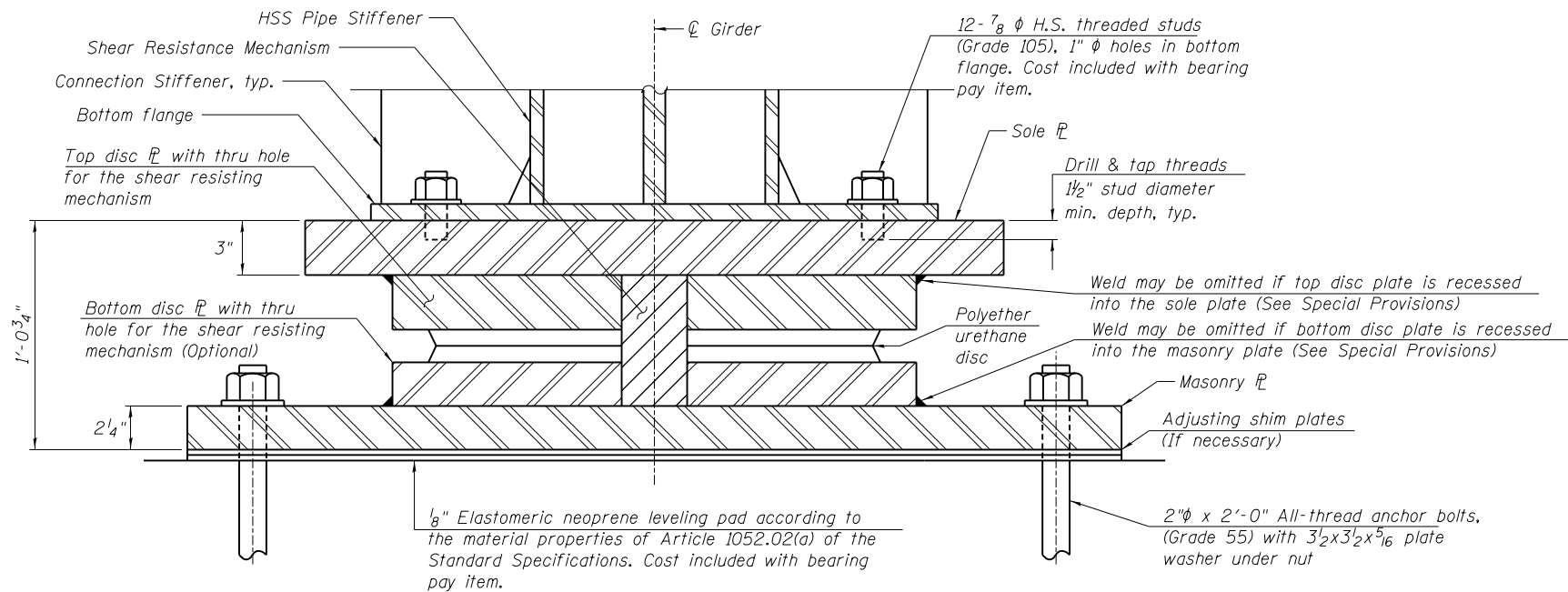


GUIDED
(At the East Abutment)



DETAIL 1

Anchor Bolt Dia. (in.)	A (in.)	HC (in.)
1	1 1/2	18
1 1/2	2 1/4	18
2	3	24



SECTION THRU BEARING

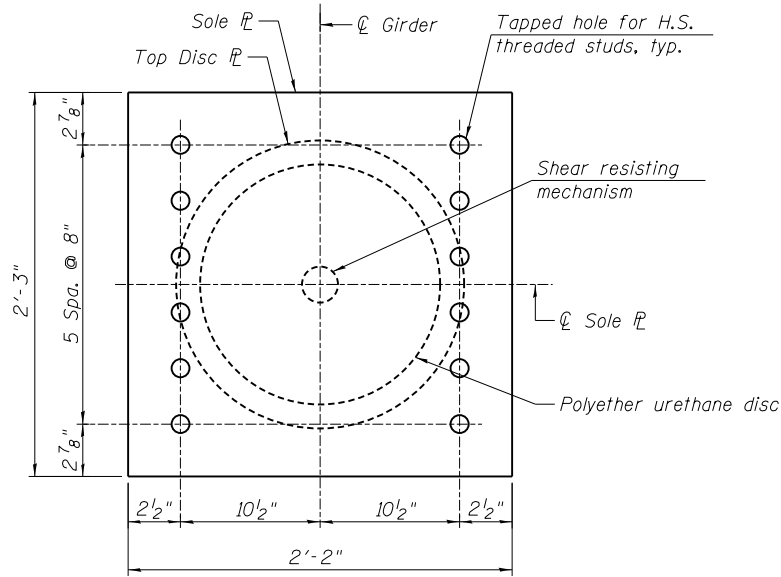
DESIGN DATA

Unfactored Vertical Dead Load Reaction (R _{DC})	450 kips
Unfactored Vertical Wearing Surface Reaction (R _{DW})	110 kips
Unfactored Vertical Live Load without Impact Reaction (R _{LL})	180 kips
Maximum Strength or Extreme Event Lateral Reaction (H _u)	250 kips
Maximum Strength Limit State Rotation (Θ _u according to Article 14.4.2.2)	0.034 rad
Service I Factored Lateral Reaction	250 kips
Service I Factored Rotation	0.032 rad
Service I Factored Vertical Reaction	740 kips
Strength I Factored Vertical Reaction	1043 kips

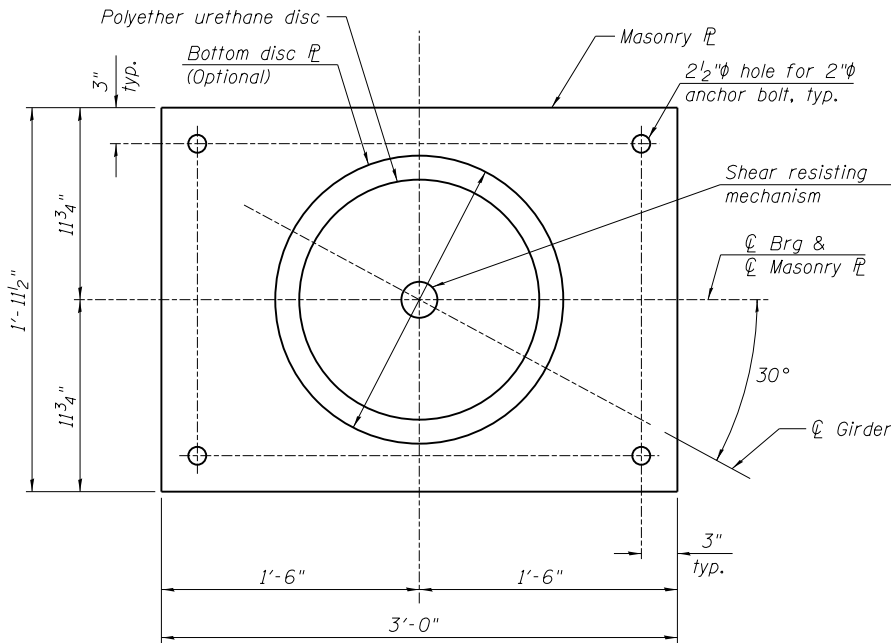
Service I Load Factors = 1.0DC + 1.0DW + 1.00LL
Strength I Load Factors = 1.25DC + 1.5DW + 1.75LL + 1.2TU
Extreme Event Load Factors = 1.0EQ

NOTES:

- Two 1/8 in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details. Shim plates not included in total bearing height. Cost included with bearing pay item.
- Total bearing height is estimated based on manufacturer data. Actual bearing height may differ from contract plans. The Contractor shall be responsible for verifying bearing heights and adjusting seat elevations, if required, prior to placing pier or abutment concrete.
- The structural steel plates of the Bearing Assembly shall conform to the requirements of AASHTO M270 Grade 50.
- Anchor rods and anchor bolts shall be ASTM F1554 All-Tread (or an engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of ASTM M314 anchor rods and anchor bolts may be used in lieu of ASTM F1554.
- See Bearing Orientation Sheet for masonry plate orientation.
- A 3/4" shim shall be provided for the Girder 6 bearing at the pier. Cost included with bearing pay item.



SOLE PLATE AND TOP DISC PLATE PLAN



MASONRY PLATE AND
BOTTOM DISC PLATE PLAN

BILL OF MATERIAL

Item	Unit	Total
* High Load Multi-Rotational Bearing, Disc, Fixed - 800k	Each	4
Anchor Bolts, 2"	Each	16

* The value specified in the pay item name is an approximate vertical load capacity that is used for letting and bidding purposes only. Exact bearing capacity will vary subject to final design.

FINAL PLANS

p:\hansoninc-pw\hanson.com\hanson-pw\01\Documents\09Jobs\09101798\Usable Segments III - V - VINCAD\Struct\Usable Segment VI\North Grand Overpass\Sheet\NorthGrandOverpass.09101798.040_Bearings.dgn



USER NAME : pop00275
PLOT SCALE : 0:2.0000 '1' / in.
PLOT DATE : 9/27/2024

DESIGNED - CGP
CHECKED - JGT
DRAWN - RSJ
CHECKED -

REVISED -
REVISED -
REVISED -
REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FIXED BEARING DETAIL
STRUCTURE NO. 084-9973

SHEET NO. 42 OF 53 SHEETS

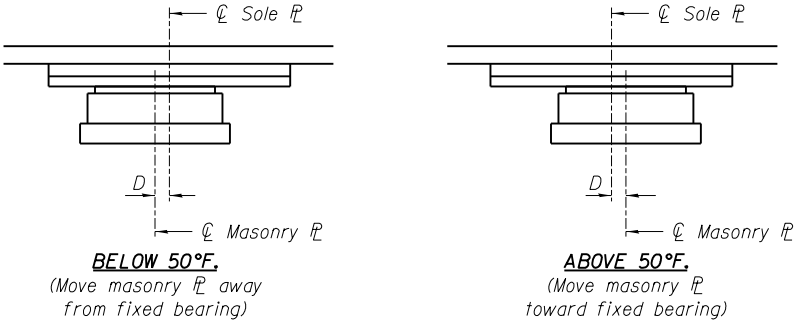
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	488
CONTRACT NO.			93773	
ILLINOIS FED. AID PROJECT				

DESIGN DATA

	W. Abut.	Pier	E. Abut.
Unfactored Vertical Dead Load Reaction (R _{DC})	140 kips	450 kips	80 kips
Unfactored Vertical Wearing Surface Reaction (R _{DW})	40 kips	120 kips	20 kips
Unfactored Vertical Live Load without Impact Reaction (R _{LL})	90 kips	260 kips	80 kips
Maximum Strength or Extreme Event Lateral Reaction (H _w)	70 kips	120 kips	30 kips
Maximum Strength Limit State Rotation (θ _u according to Article 14.4.2.2)	0.062 rad	0.044 rad	0.049 rad
Unfactored Design Thermal Movement from 50° F (ΔT)	1.5 in.	0.5 in.	1.0 in.
Service I Factored Lateral Reaction	70 kips	90 kips	20 kips
Service I Take Factored Rotation	0.060 rad	0.042 rad	0.049 rad
Strength I Factored Longitudinal Movement	4.0 in.	1.5 in.	2.5 in.
Service I Factored Vertical Reaction	270 kips	830 kips	180 kips
Strength I Factored Vertical Reaction	393 kips	1198 kips	270 kips

Service I Load Factors = 1.0DC + 1.0DW + 1.0OLL
Strength I Load Factors = 1.25DC + 1.5DW + 1.75LL + 1.2TU
Extreme Event Load Factors = 1.0EQ

Note: Values for longitudinal movement given at the pier reflect movement parallel to the pier in direction of the guided bearings.



SETTING ANCHOR BOLTS AT EXPANSION BEARING

D=1/8" per each 100' of expansion for every 15° temp. change from the normal temp. of 50° F.

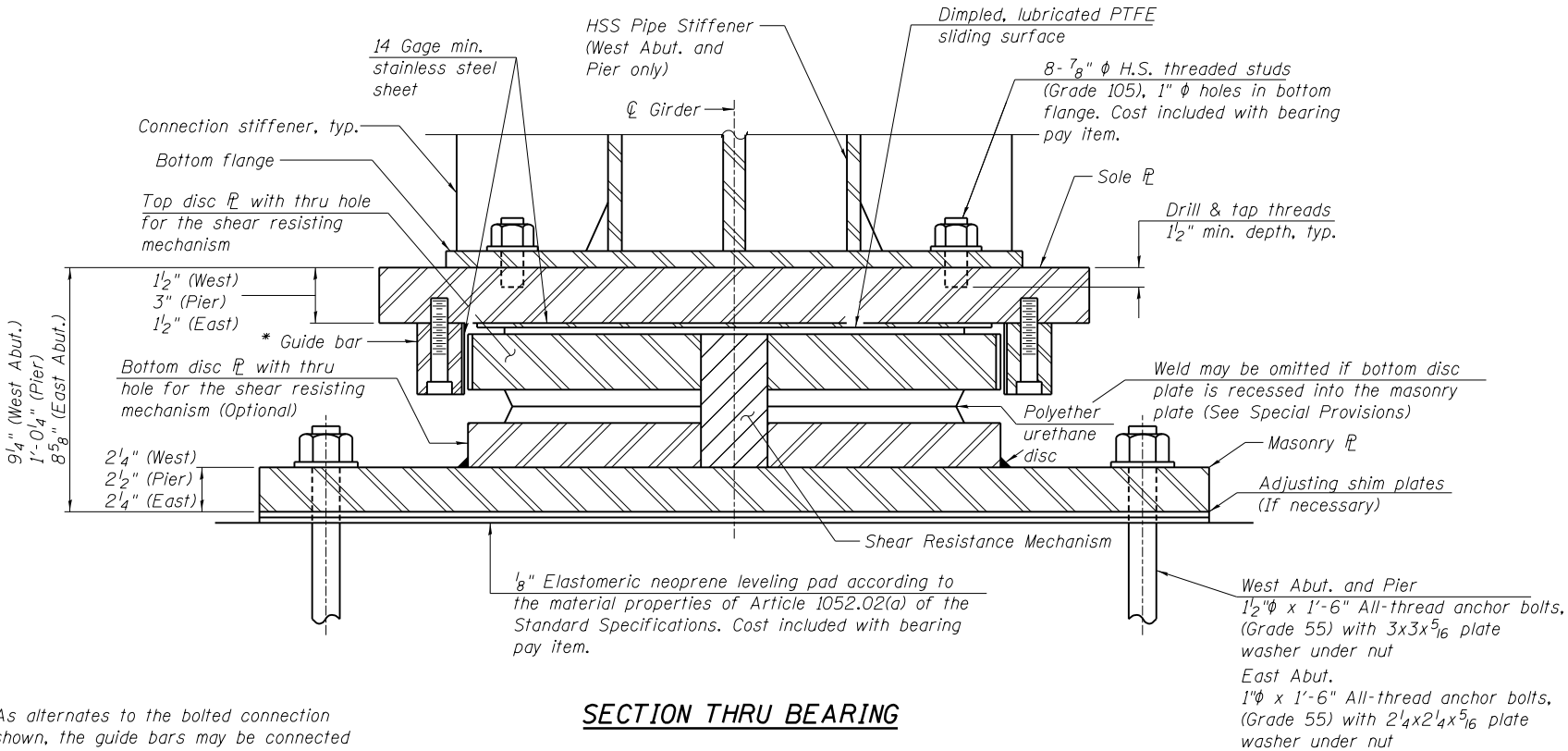
NOTES:

- Two 1/8 in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details. Shim plates not included in total bearing height. Cost included with bearing pay item.
- Total bearing height is estimated based on manufacturer data. Actual bearing height may differ from contract plans. The Contractor shall be responsible for verifying bearing heights and adjusting seat elevations, if required, prior to placing pier or abutment concrete.
- The structural steel plates of the Bearing Assembly shall conform to the requirements of AASHTO M270 Grade 50.
- Vertical restraints shall be provided for Girders 1 and 2 at the East Abutments. The Vertical restraints shall be designed for a service uplift of 45 kips and a factored uplift of 60 kips.
- See Bearing Orientation Plan Sheet 41 of 53 for orientation of G Girder, Sole Plate, Masonry Plate and Guide Bars.
- Anchor rods and anchor bolts shall be ASTM F1554 All-Tread (or an engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of ASTM M314 anchor rods and anchor bolts may be used in lieu of ASTM F1554.
- A 3/8" shim shall be provided for the Girder 7 bearing at the pier. Cost included with bearing pay item.

BILL OF MATERIAL

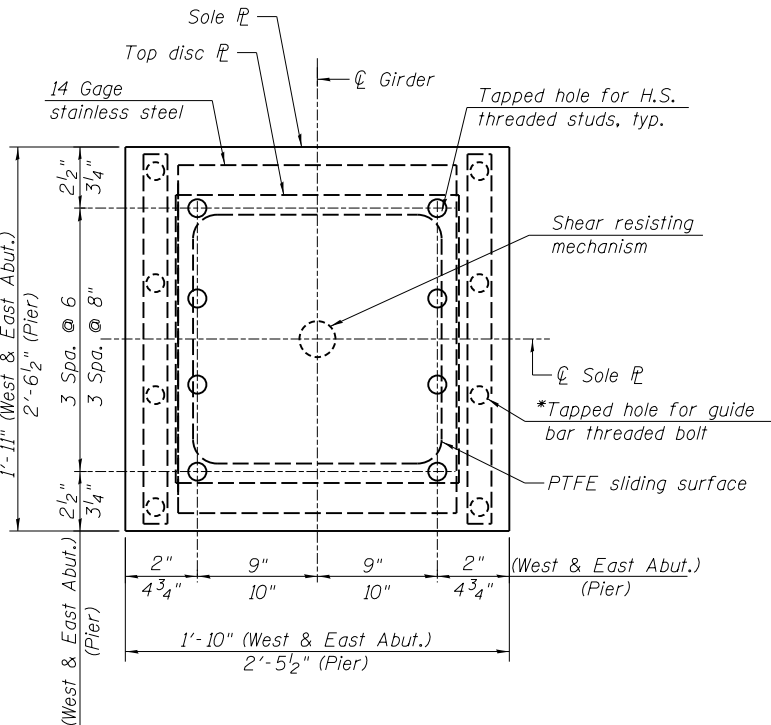
Item	Unit	Total
** High Load Multi-Rotational Bearings, Disc, Guided Expansion - 200k	Each	8
** High Load Multi-Rotational Bearings, Disc, Guided Expansion - 300k	Each	6
** High Load Multi-Rotational Bearings, Disc, Guided Expansion - 900k	Each	4
Anchor Bolts, 1"	Each	32
Anchor Bolts, 1 1/2"	Each	40

** The value specified in the pay item name is an approximate vertical load capacity that is used for letting and bidding purposes only. Exact bearing capacity will vary subject to final design.



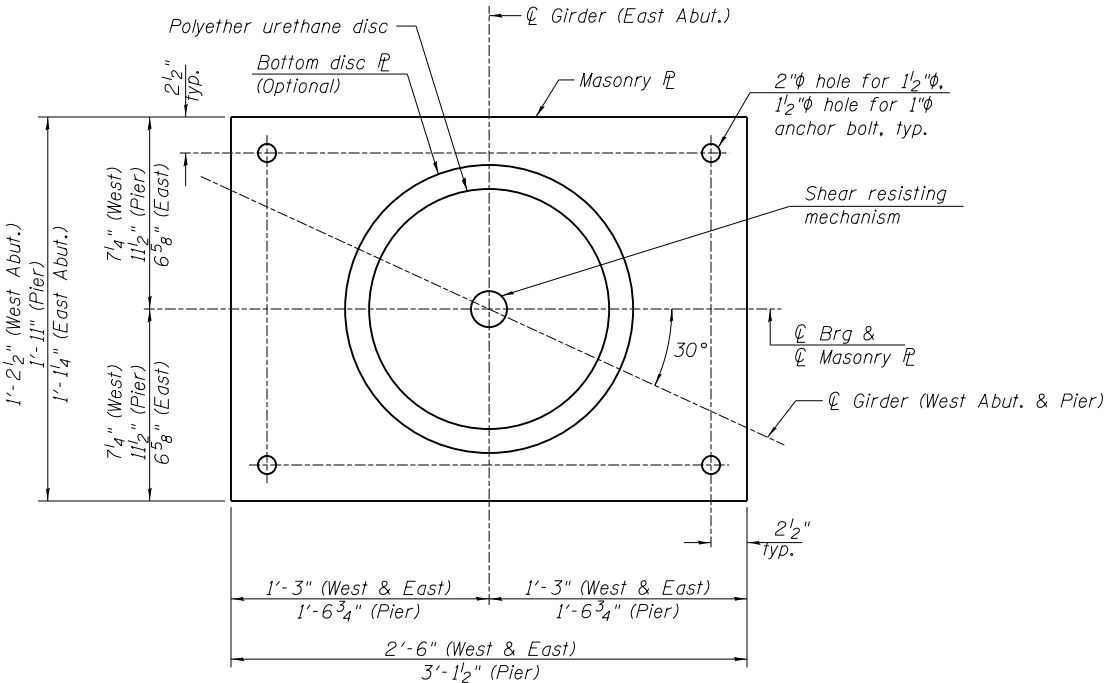
SECTION THRU BEARING

*As alternates to the bolted connection shown, the guide bars may be connected to the sole plate by groove welds or the guide bars and sole plate may be fabricated as a single piece.



SOLE PLATE AND TOP DISC PLATE PLAN

Note: Guide bars and top disk plate are skewed at pier.



MASONRY PLATE AND BOTTOM DISC PLATE PLAN

FINAL PLANS

p:\hansoninc-pw\bentley.com\hanson-pw\01\Documents\09Jobs\09101798\Usable Segments III - V - VINCAD\Struct\Usable Segment VI\North Grand Overpass\Sheet\NorthGrandOverpass.09101798.041.Bearings.dgn



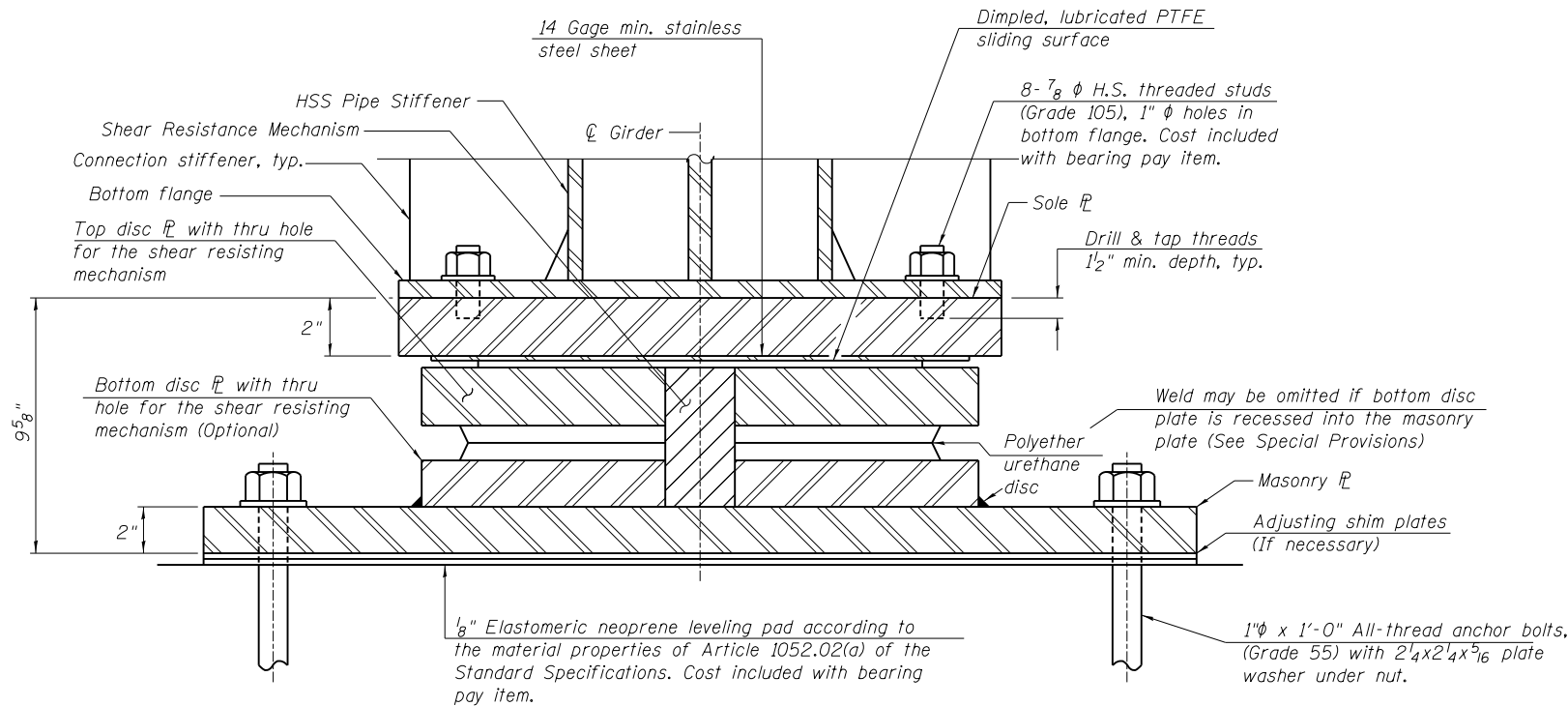
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PLOT DATE = 9/27/2024	CHECKED -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

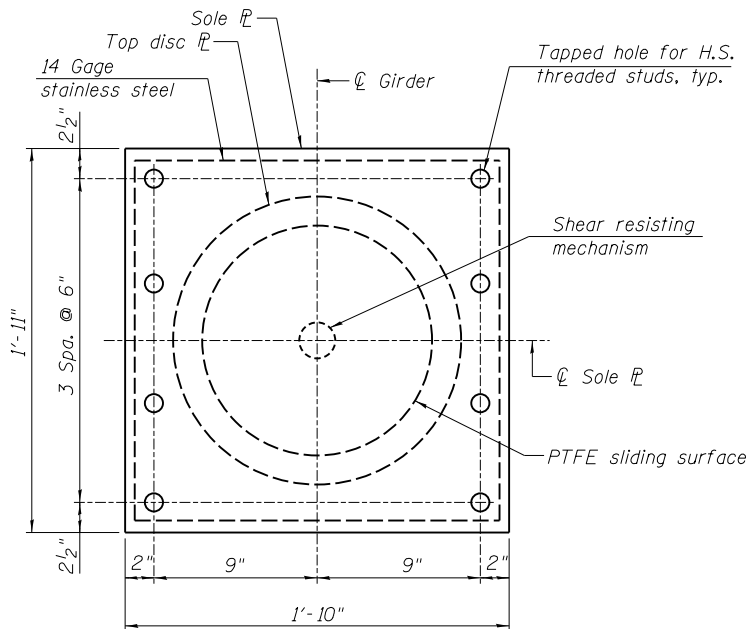
GUIDED EXPANSION DETAIL
STRUCTURE NO. 084-9973

SHEET NO. 43 OF 53 SHEETS

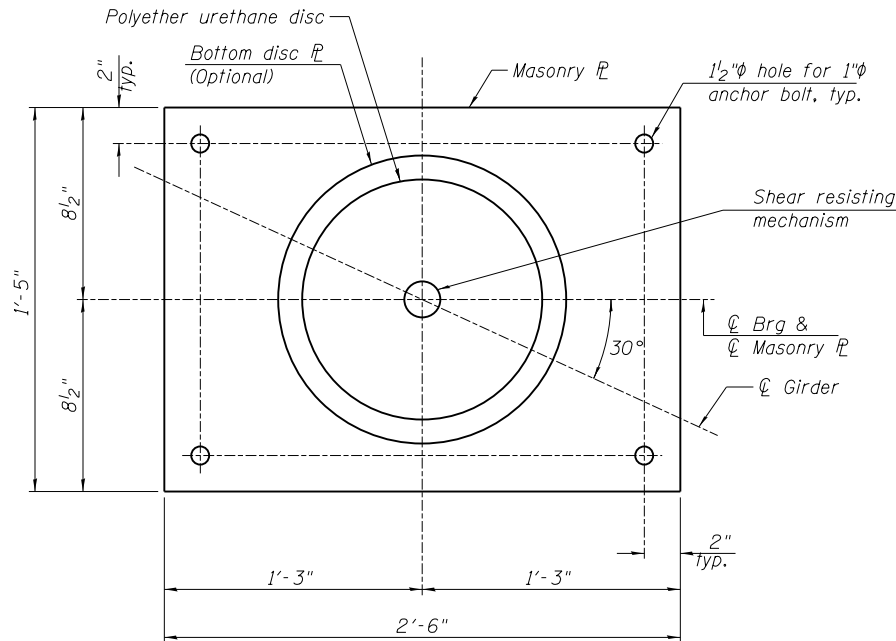
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	489
CONTRACT NO. 93773			ILLINOIS FED. AID PROJECT	



SECTION THRU BEARING



SOLE PLATE AND TOP DISC PLATE PLAN

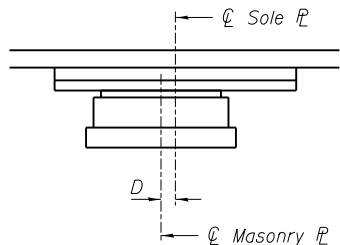


MASONRY PLATE AND
BOTTOM DISC PLATE PLAN

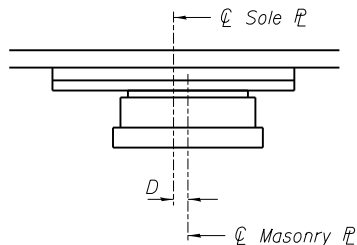
DESIGN DATA

Unfactored Vertical Dead Load Reaction (R_{DC})	170 kips
Unfactored Vertical Wearing Surface Reaction (R_{DW})	50 kips
Unfactored Vertical Live Load without Impact Reaction (R_{LL})	110 kips
Maximum Strength Limit State Rotation (θ_u according to Article 14.4.2.2)	0.065 rad
Unfactored Design Thermal Movement from 50° F (ΔT)	1.5 in.
Transverse Movement	1.0 in.
Service I Take Out Limit Rotation	0.062 rad
Strength I Factored Longitudinal Movement	4.0 in.
Service I Factored Vertical Reaction	340 kips
Strength I Factored Vertical Reaction	498 kips

Service I Load Factors = $1.0DC + 1.0DW + 1.00LL$
Strength I Load Factors = $1.25DC + 1.5DW + 1.75LL + 1.2TU$
Extreme Event Load Factors = $1.0EQ$



BELOW 50°F.
(Move masonry ϕ away
from fixed bearing)



ABOVE 50°F.
(Move masonry ϕ
toward fixed bearing)

SETTING ANCHOR BOLTS AT EXPANSION BEARING

$D = 1/8''$ per each 100' of expansion for every 15° temp. change from the normal temp. of 50° F.

NOTES:

- Two $1/8$ in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details. Shim plates not included in total bearing height. Cost included with bearing pay item.
- Total bearing height is estimated based on manufacturer data. Actual bearing height may differ from contract plans. The Contractor shall be responsible for verifying bearing heights and adjusting seat elevations, if required, prior to placing pier or abutment concrete.
- The structural steel plates of the Bearing Assembly shall conform to the requirements of AASHTO M270 Grade 50.
- See Bearing Orientation Plan Sheet 41 of 53 for orientation of ϕ Girder, Sole Plate, Masonry Plate and Guide Bars.
- Anchor rods and anchor bolts shall be ASTM F1554 All-Tread (or an engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of ASTM M314 anchor rods and anchor bolts may be used in lieu of ASTM F1554.

BILL OF MATERIAL

Item	Unit	Total
* High Load Multi-Rotational Bearings, Disc, Non-Guided Expansion - 400k	Each	2
Anchor Bolts, 1"	Each	8

* The value specified in the pay item name is an approximate vertical load capacity that is used for letting and bidding purposes only. Exact bearing capacity will vary subject to final design.

FINAL PLANS

p:\hanson\nc-pw\hanson\hanson-pw-01\Documents\09Jobs\09L0179B\Usable Segments III - V - VINCAD\Struct\Usable Segment VINorth Grand Overpass\Sheet\NorthGrandOverpass.09L0179B.042.Bearings.dgn



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PLOT DATE : 9/27/2024	DRAWN - RSJ
	CHECKED -

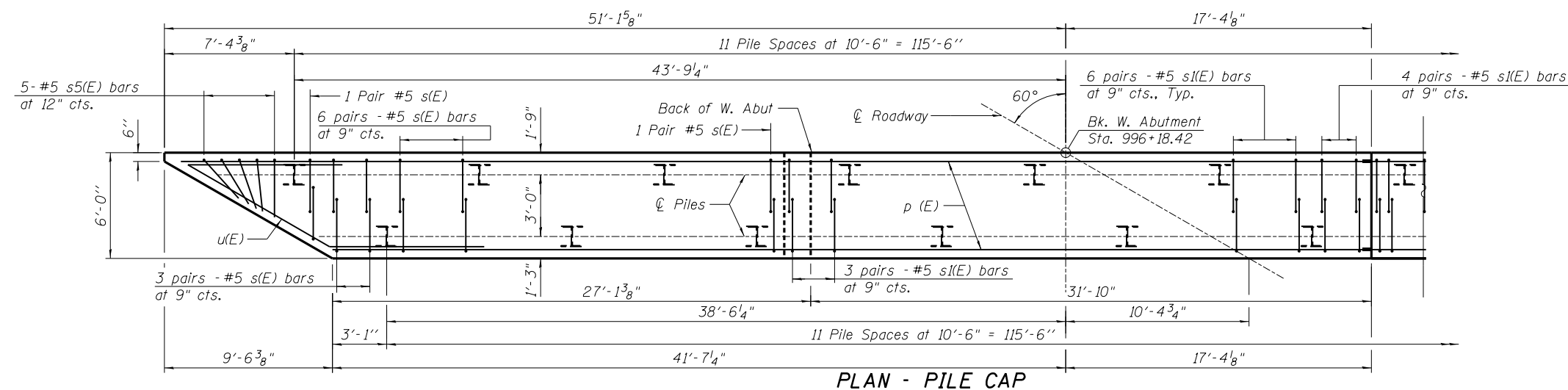
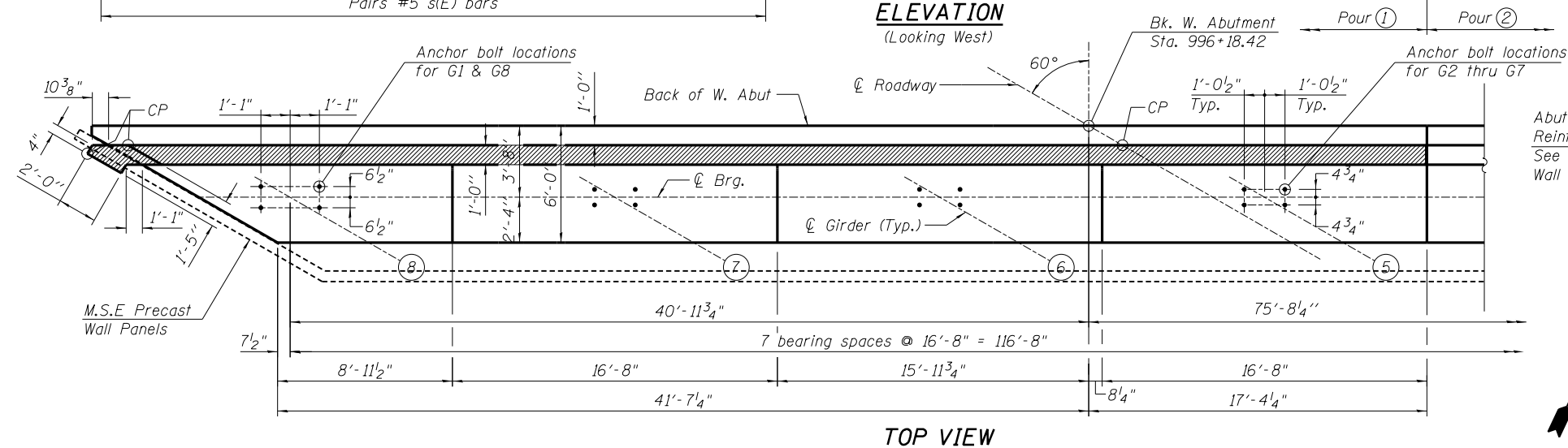
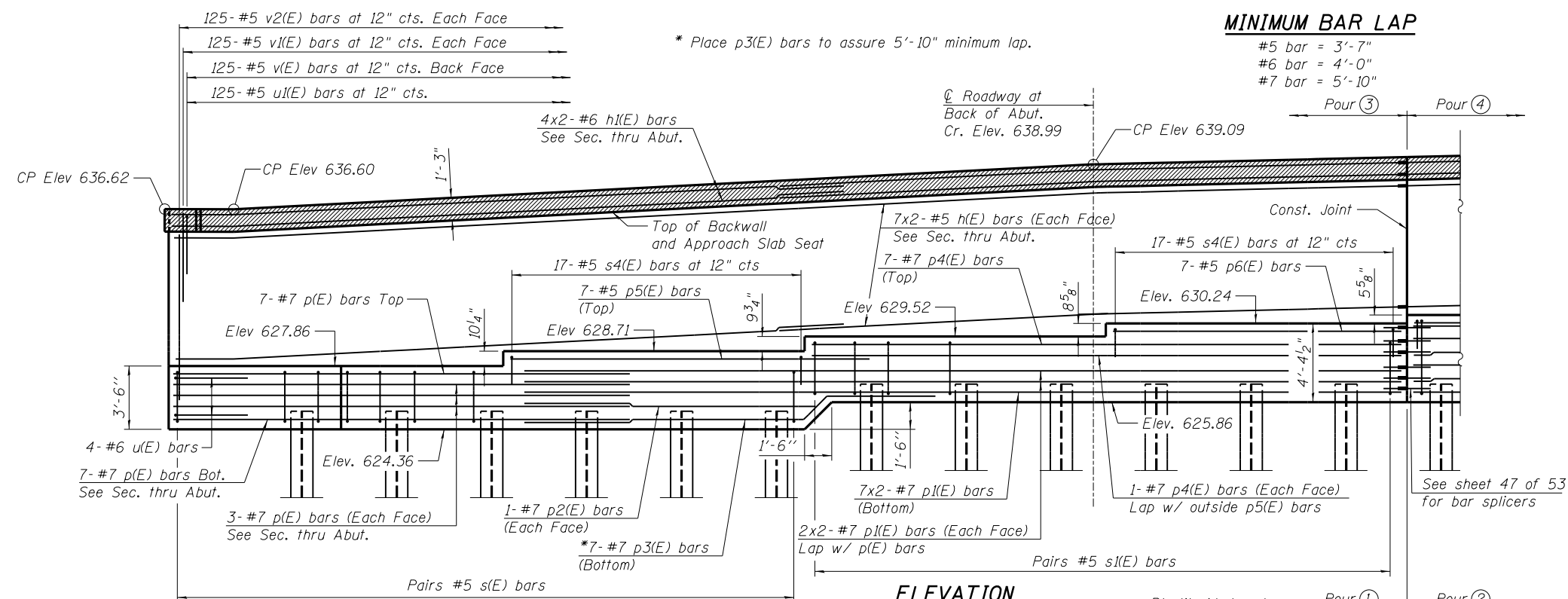
REVISED -
REVISED -
REVISED -
REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

NON-GUIDED EXPANSION DETAIL
STRUCTURE NO. 084-9973

SHEET NO. 44 OF 53 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	490
		CONTRACT NO. 93773		
ILLINOIS		FED. AID PROJECT		



MINIMUM BAR LAP

#5 bar = 3'-7"
#6 bar = 4'-0"
#7 bar = 5'-10"

#6 bar = 4'-0"

#7 bar = 5'-10"

Back of Abut.

3'-8"

2'-0"

1'-0" 1'-0"

CP

For Exp. Joint details see sheets 29-30 of 53.

6" Dumbbell type nonmetallic water seal

1'-3" at CP

4"

h1(E) or h3(E)

v1(E)

h1(E) or h3(E)

10" Min.

2" cl.

2" cl.

u1(E)

2" Anchor Bolts See top view

Slope 1/4" between bearings

2" Chamfer

p4(E), p5(E), p6(E), or p11(E)

p(E), p1(E), p2(E), p4(E), p7(E) or p8(E)

2" cl.

Varies from 10'-11 3/8" to 12'-6 3/8"

2'-5" Min.

h(E) or h2(E)

s4(E)

p5(E)

v2(E)

s(E) thru s3(E)

1'-0"

p(E), p1(E), p8(E) or p10(E)

2" cl.

Varies 3'-6" to 4'-10 1/4"

Steel H Piles (Typ.)

1'-9" 3'-0" 1'-3"

6'-0"

SEC. THRU ABUT.

(Horiz. Dim. @ Rt. L's)

Notes:

Hatched area to be poured separately after superstructure falsework has been removed and after approach slab side formwork has been removed.

Quantity of concrete in hatched area included with Concrete Superstructure on sheet 16 of 53.

Space reinforcement in cap to miss anchor bolts.

Pour steps monolithically with cap.

For details of piles, see sheet 51 of 53.

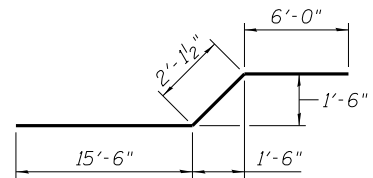
The top of back wall and approach slab seat shall have a constant slope determined from the control points shown.

Concrete Sealer shall be applied to the bearing seats and front faces of the hatched block, back wall, and abutment cap.

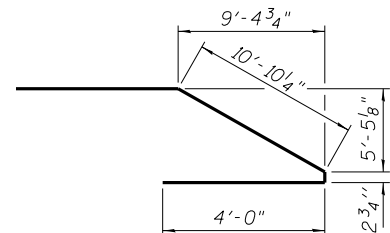
A delay of 14 days shall be provided between abutment pours (1)&(2) and (3)&(4).

PILE DATA

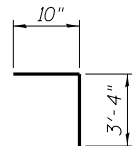
Type: HP14x89
Nominal Required Bearing: 705k
Factored Resistance Available: 166k
Est. Length: 47'
No. Production Piles: 23
No. Test Piles: 1



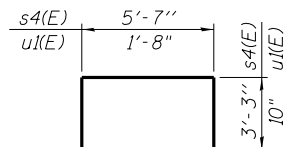
BAR p3(E)



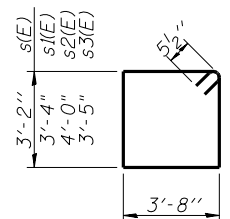
BAR u(E)



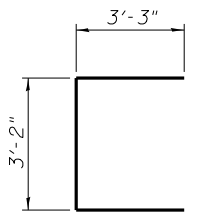
BAR v(E)



BAR s4(E) & u(E)



BAR s(E), s1(E),
s2(E) & s3(E)



BARS s5(E)

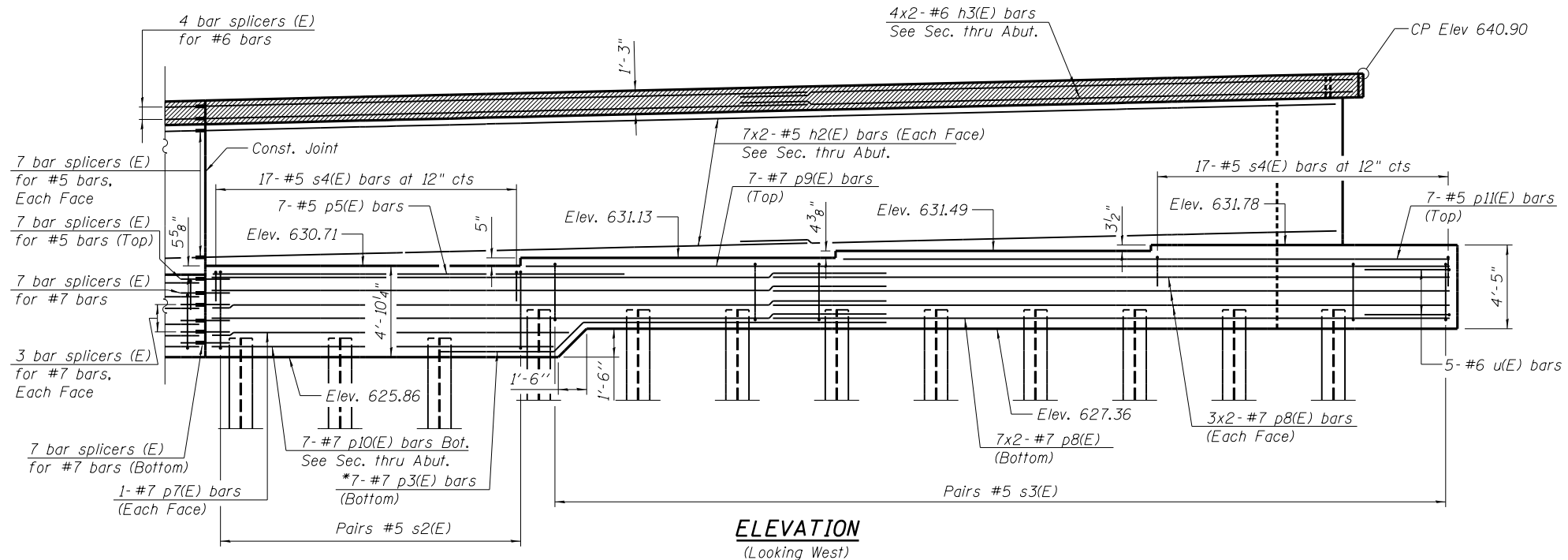
WEST ABUTMENT BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h(E)	28	#5	36'-1"	—
h1(E)	8	#6	36'-3"	—
h2(E)	28	#5	31'-9"	—
h3(E)	8	#6	32'-1"	—
p(E)	20	#7	25'-4"	—
p1(E)	22	#7	27'-3"	—
p2(E)	2	#7	16'-2"	—
p3(E)	14	#7	23'-8"	—
p4(E)	9	#7	33'-0"	—
p5(E)	14	#5	20'-0"	—
p6(E)	7	#5	16'-4"	—
p7(E)	2	#7	19'-0"	—
p8(E)	26	#7	36'-0"	—
p9(E)	7	#7	39'-8"	—
p10(E)	7	#7	18'-6"	—
p11(E)	7	#5	18'-0"	—
s(E)	58	#5	14'-7"	□
s1(E)	74	#5	14'-11"	□□
s2(E)	40	#5	16'-3"	□□□
s3(E)	96	#5	15'-1"	□□□□
s4(E)	68	#5	12'-1"	□□□□□
s5(E)	10	#5	9'-8"	□□□□□□
u(E)	9	#6	19'-6"	∩
u1(E)	125	#5	3'-4"	□
v(E)	125	#5	4'-2"	└
v1(E)	250	#5	4'-10"	—
v2(E)	250	#5	11'-6"	—
Concrete Structures			Cu. Yds.	189.5
Concrete Superstructure			Cu. Yds.	6.0
Reinforcement Bars, Epoxy Coated			Pound	20460
Bar Splicers			Each	53
Furnishing Steel Piles HP 14x89			Foot	1081
Driving Piles			Foot	1081
Test Pile Steel HP 14x89			Each	1
Concrete Sealer			Sq. Ft.	2109

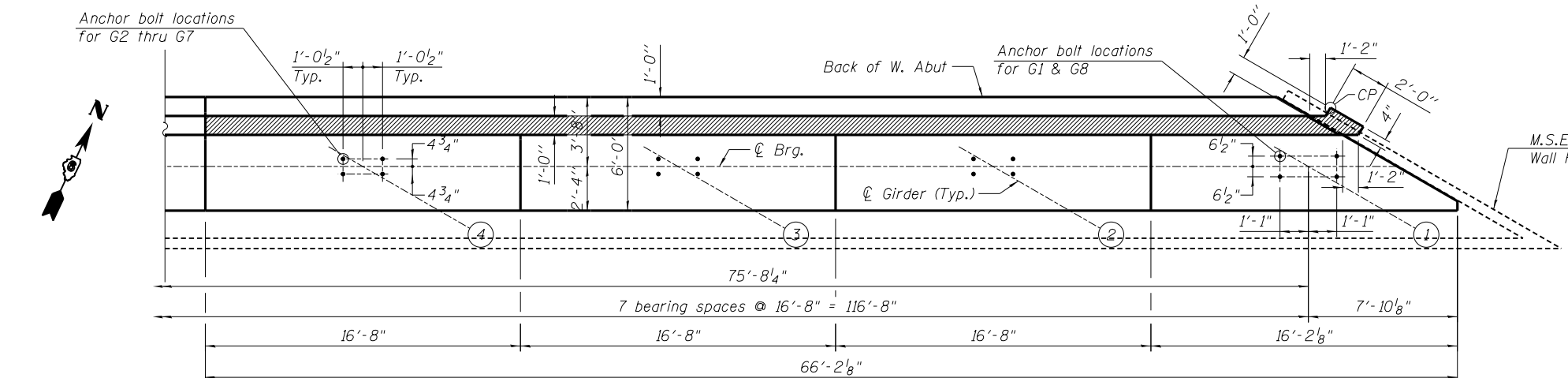
MINIMUM BAR LAP

#5 bar = 3'-7"
#6 bar = 4'-0"
#7 bar = 5'-10"

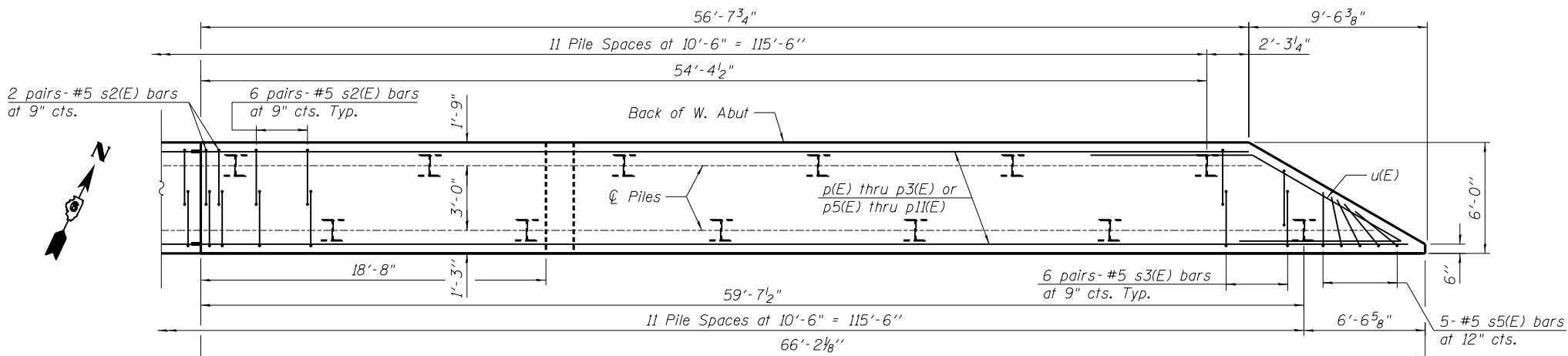
* Place p3(E) bars to assure 5'-10" minimum lap.



ELEVATION
(Looking West)



TOP VIEW



PLAN - PILE CAP

FINAL PLANS

pw:\hansoninc-pw-bentley.com\hanson-pw-01\Documents\09Jobs\09101798\Usable Segments III - V - VINCAD\Struct\Usable Segment VINorth Grand Overpass\Sheet\NorthGrandOverpass.09101798.044.West Abutment.dgn



USER NAME : pop00275
PLOT SCALE : 0:2.0000 '1" / in.
PLOT DATE : 9/27/2024

DESIGNED - CGP
CHECKED - JGT
DRAWN - RSJ
CHECKED -

REVISED -
REVISED -
REVISED -
REVISED -

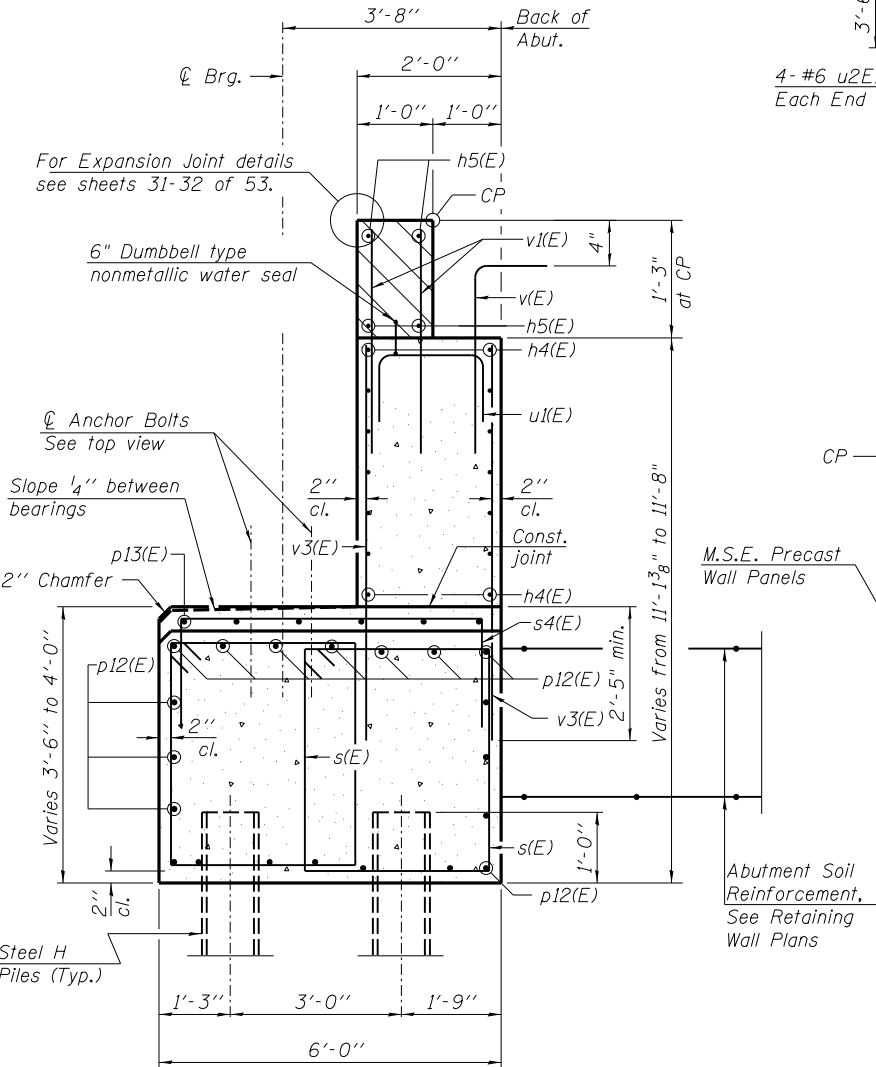
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

WEST ABUTMENT (SHEET 2 OF 2)
STRUCTURE NO. 084-9973

SHEET NO. 46 OF 53 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	492
		CONTRACT NO. 93773		
ILLINOIS FED. AID PROJECT				

Notes:
Hatched area to be poured separately after superstructure falsework has been removed and after approach slab side formwork has been removed.
Quantity of concrete in hatched area included with Concrete Superstructure on sheet 16 of 53.
Space reinforcement in cap to miss anchor bolts.
Pour steps monolithically with cap.
For details of piles, see sheet 51 of 53.
The top of back wall and approach slab seat shall have a constant slope determined from the control points shown.
Concrete Sealer shall be applied to the bearing seats and front faces of the hatched block, back wall, and abutment cap.



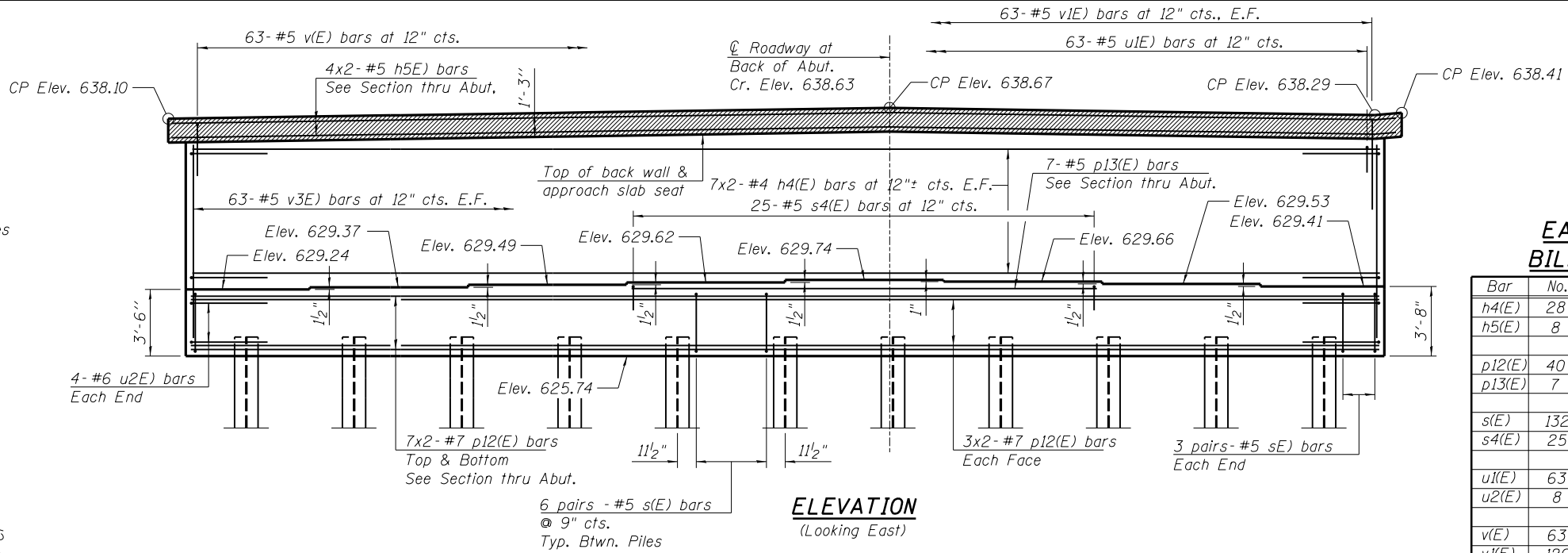
SEC. THRU ABUT.
(Horiz. Dim. © Rt. L's)

MINIMUM BAR LAP

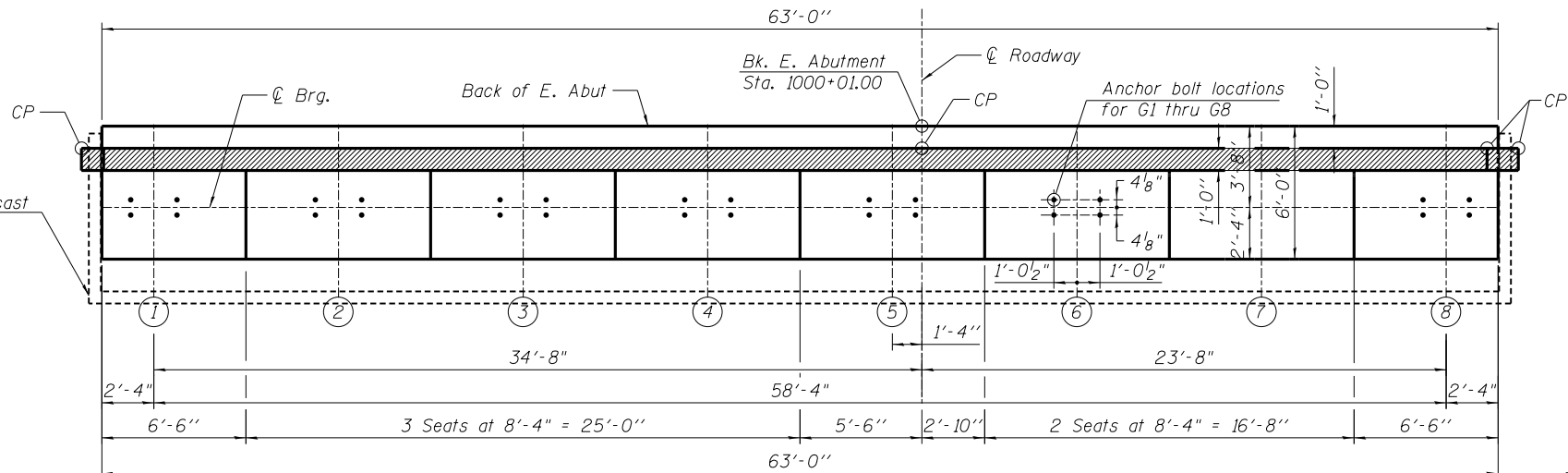
#4 bar = 2'-11"
#5 bar = 3'-7"
#6 bar = 4'-0"
#7 bar = 5'-10"

PILE DATA

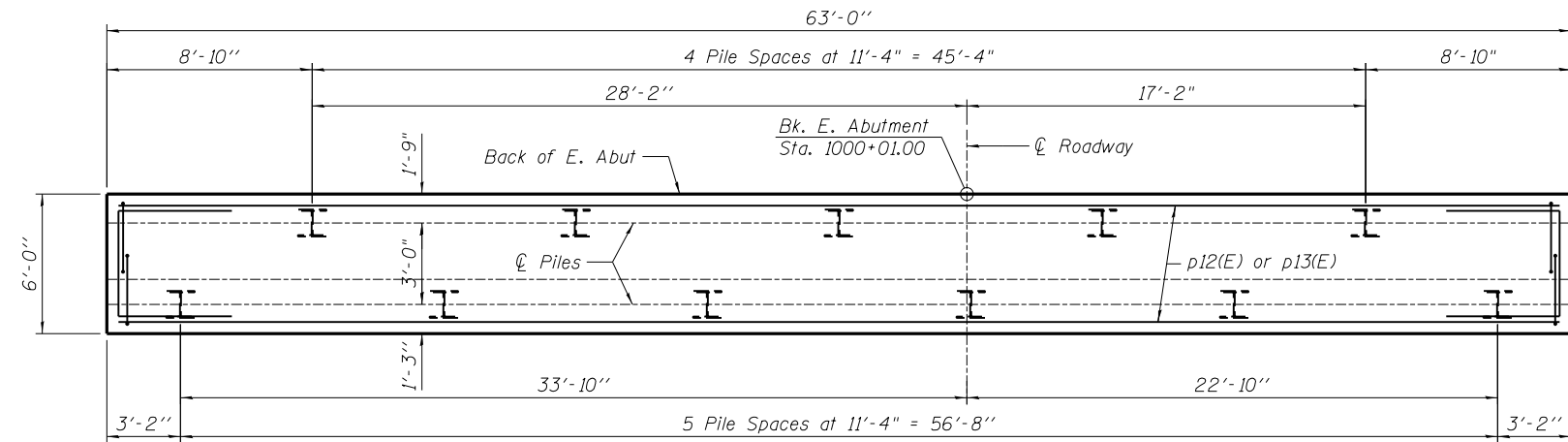
Type: HP14x117
Nominal Required Bearing: 929k
Factored Resistance Available: 280k
Est. Length: 57'
No. Production Piles: 10
No. Test Piles: 1



ELEVATION
(Looking East)



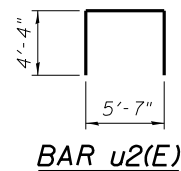
TOP VIEW



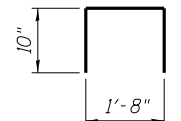
PLAN - PILE CAP

EAST ABUTMENT
BILL OF MATERIAL

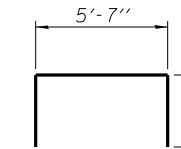
Bar	No.	Size	Length	Shape
h4(E)	28	#4	33'-0"	
h5(E)	8	#5	33'-3"	
p12(E)	40	#7	34'-3"	
p13(E)	7	#5	24'-9"	
s(E)	132	#5	14'-7"	
s4(E)	25	#5	12'-1"	
u1(E)	63	#5	3'-4"	
u2(E)	8	#6	14'-3"	
v(E)	63	#5	4'-2"	
v1(E)	126	#5	4'-10"	
v3(E)	126	#5	10'-3"	
Concrete Structures				Cu. Yds. 88.6
Concrete Superstructure				Cu. Yds. 3.0
Reinforcement Bars, Epoxy Coated				Pound 8840
Furnishing Steel Piles HP 14x117				Foot 570
Driving Piles				Foot 570
Test Pile Steel HP 14x117				Each 1
Concrete Sealer				Sq. Ft. 1047



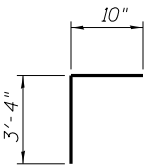
BAR u2(E)



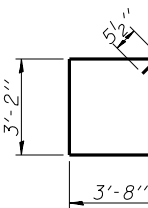
BAR u1(E)



BAR s4(E)



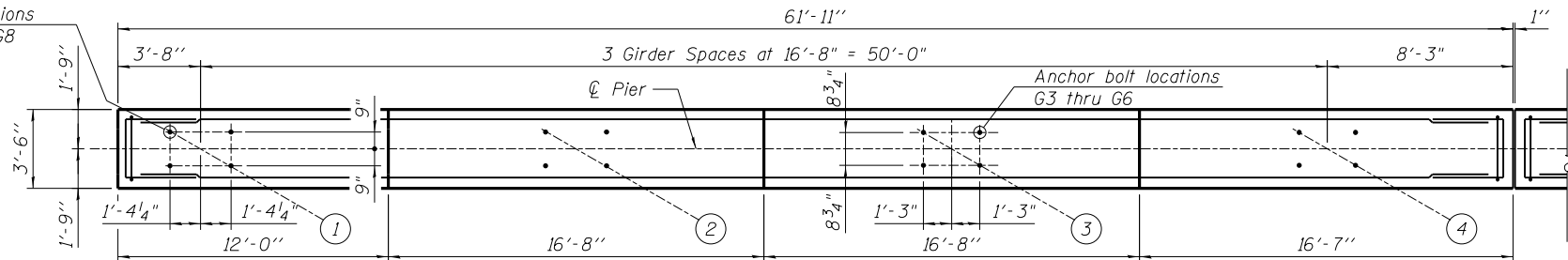
BAR v(E)



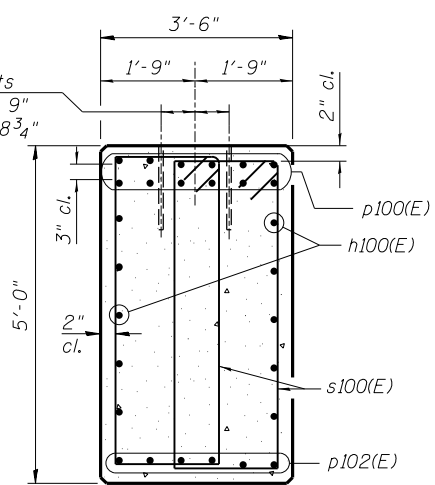
BAR s(E)

Notes:
Space reinforcement in cap to miss anchor bolts.
Pour steps monolithically with cap.
For details of piles, see sheet 51 of 53.

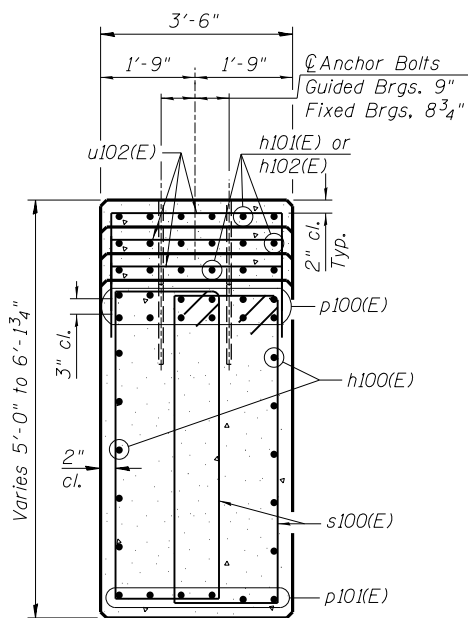
Anchor bolt locations
G1, G2, G7 and G8



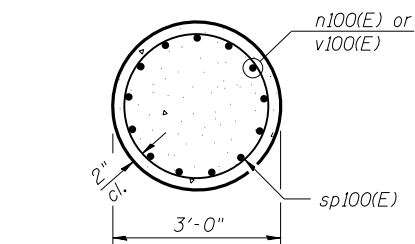
TOP PLAN



SECTION A-A



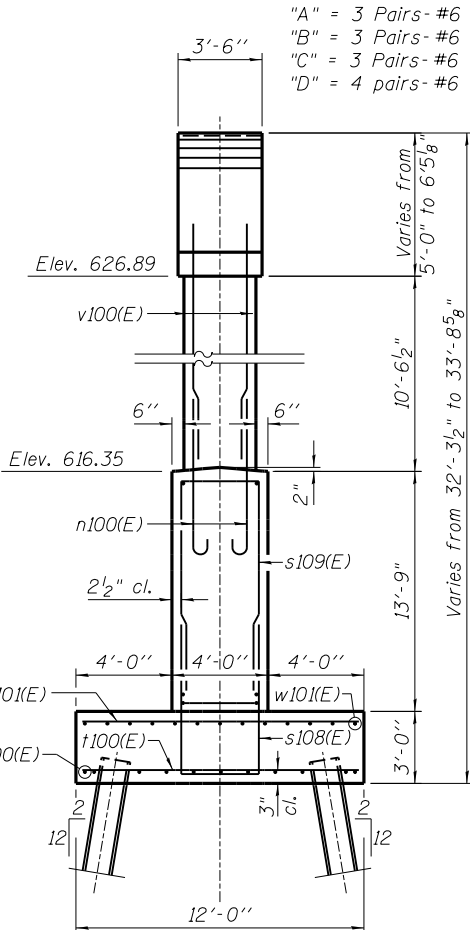
SECTION B-B



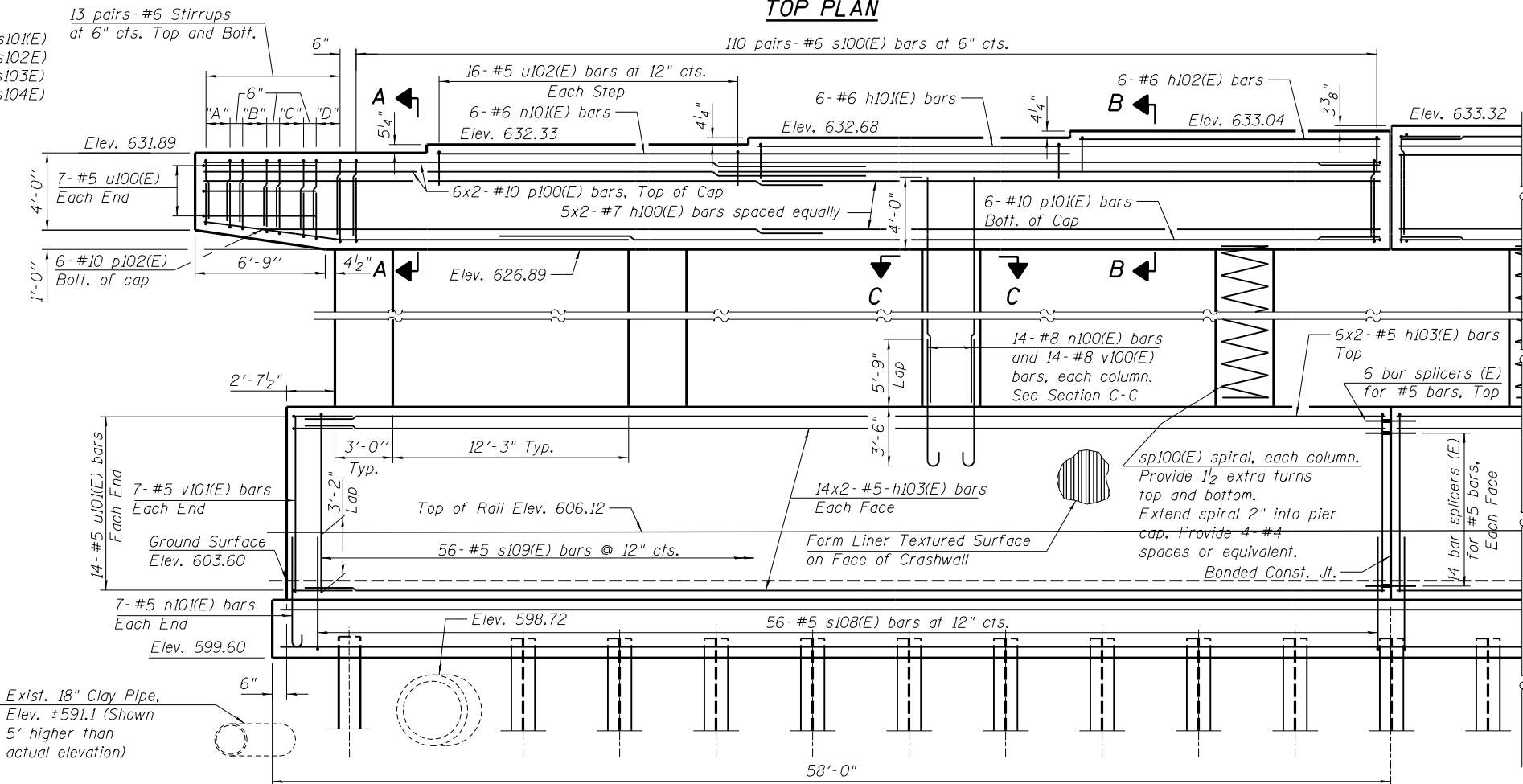
SECTION C-C

MINIMUM BAR LAP

#5 bar = 3'-2"
#6 bar = 3'-10"
#7 bar = 4'-5"
#10 bar = 6'-9" Bott.
#10 bar = 7'-8" Top



END VIEW

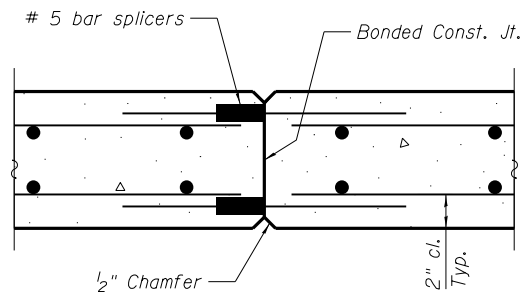


ELEVATION

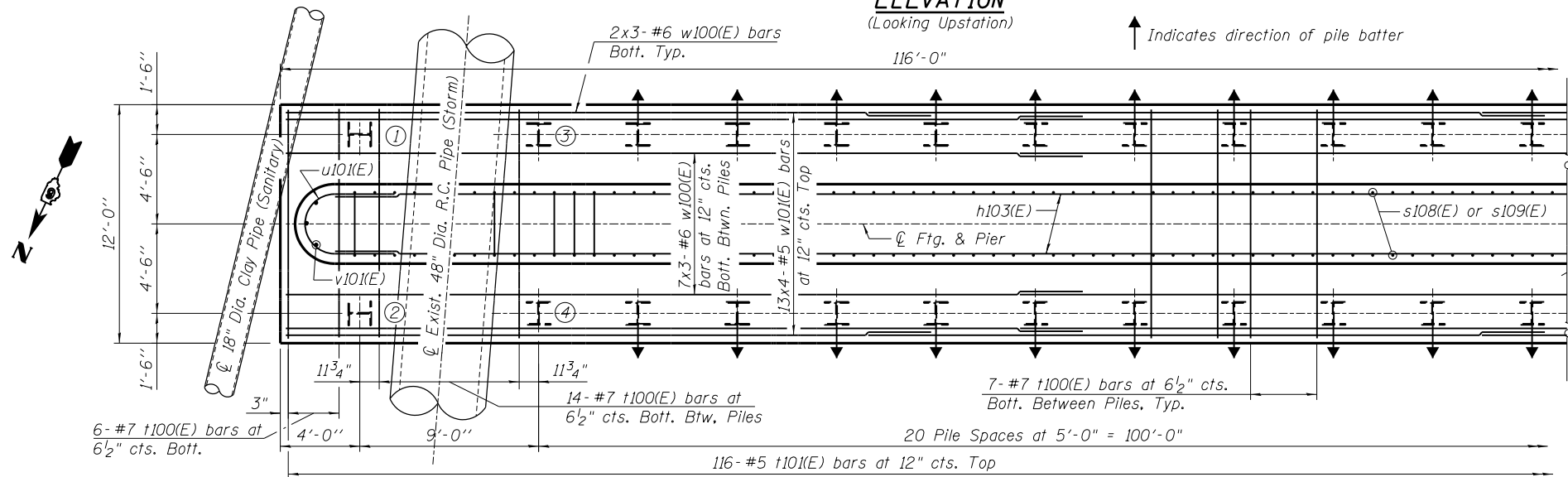
(Looking Upstation)

↑ Indicates direction of pile batter

Exist. 18" Clay Pipe,
Elev. ±591.1 (Shown
5' higher than
actual elevation)



SECTION THRU CONSTRUCTION JT.



FOOTING PLAN

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER (SHEET 1 OF 3)
STRUCTURE NO. 084-9973

SHEET NO. 48 OF 53 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	494
CONTRACT NO. 93773				

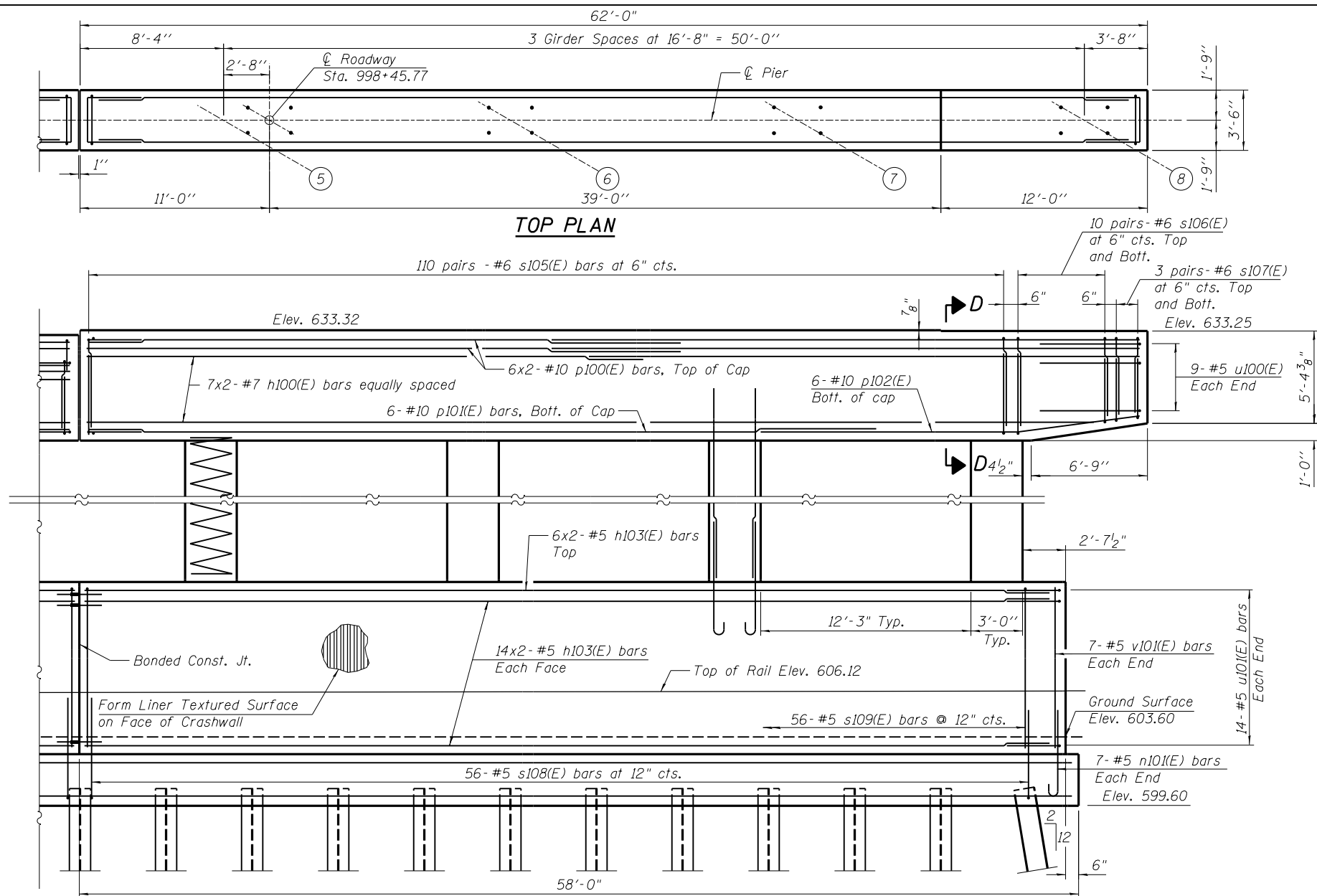
ILLINOIS FED. AID PROJECT



USER NAME : pop00275
PLOT SCALE : 0:2.0000 '1" / in.
PLOT DATE : 9/27/2024

DESIGNED - CGP
CHECKED - JGT
DRAWN - RSJ
CHECKED -

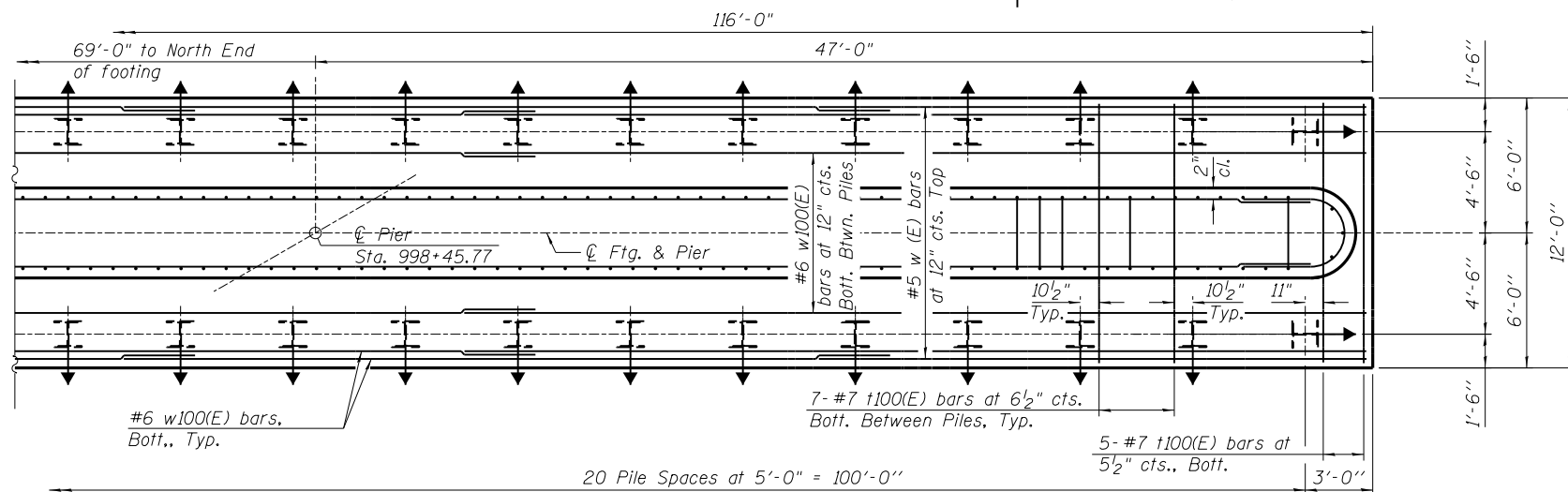
REVISED -
REVISED -
REVISED -
REVISED -



TOP PLAN

ELEVATION
(Looking Upstation)

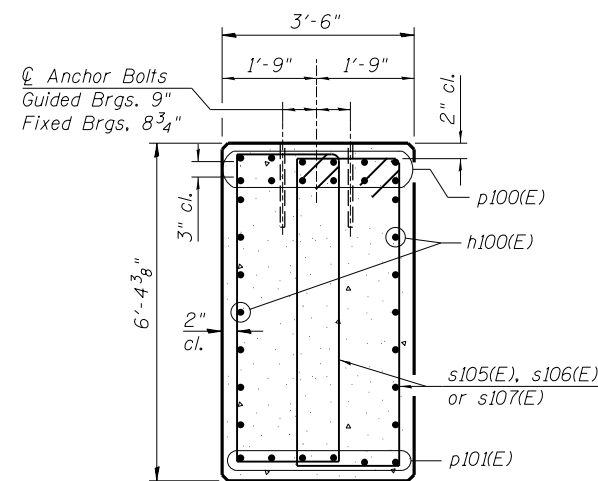
↑ Indicates direction of pile batter



FOOTING PLAN

Notes:

1. Space reinforcement in cap to miss anchor bolts.
2. Pour steps monolithically with cap.
3. For details of piles, see sheet 51 of 53.
4. Piles 1-4 shall be driven through 24 in. diameter precored holes extending to elevation 589.00 according to Article 512.09(c) of the Standard Specifications. Cost included in driving piles.
5. Complete Sanitary Sewer Lining, 18" before driving piles. See Removal Plans.
6. Contractor must submit a pile driving procedure including proposed battered pile driving equipment for review and approval in accordance with NS Special Provisions for Protection of Railway Interests.



SECTION D-D

MINIMUM BAR LAP

- #5 bar = 3'-2"
- #6 bar = 3'-10"
- #7 bar = 4'-5"
- #10 bar = 6'-9" Bott.
- #10 bar = 7'-8" Top

PILE DATA

Type: HPI4x73
Nominal Required Bearing: 578k
Factored Resistance Available: 292k
Est. Length: 29'
No. Production Piles: 43
No. Test Piles: 1



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

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER (SHEET 2 OF 3)
STRUCTURE NO. 084-9973

SHEET NO. 49 OF 53 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	495
				CONTRACT NO. 93773
ILLINOIS FED. AID PROJECT				



USER NAME = pop00275	DESIGNED - CGP	REVISED -
	CHECKED - JGT	REVISED -
PLOT SCALE = 0x2.0000 'x' / in.	DRAWN - RSJ	REVISED -
PLOT DATE = 9/27/2024	CHECKED -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER (SHEET 3 OF 3)
STRUCTURE NO. 084-9973

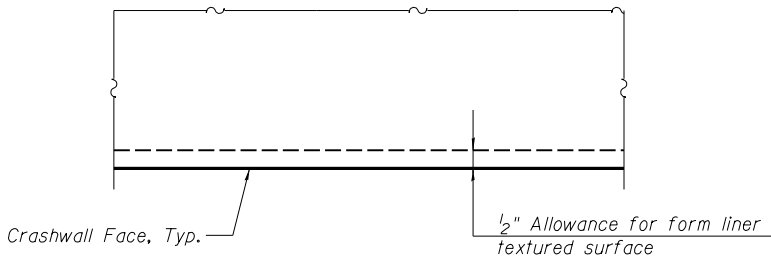
SHEET NO. 50 OF 53 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	496
CONTRACT NO.				93773
ILLINOIS FED. AID PROJECT				

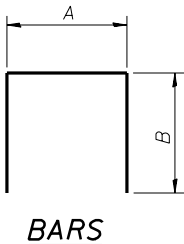
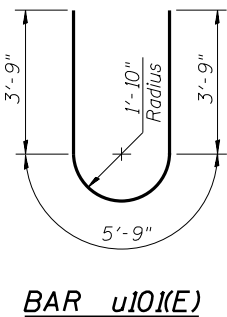
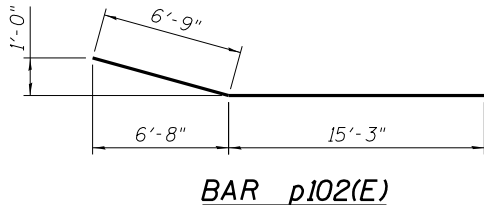
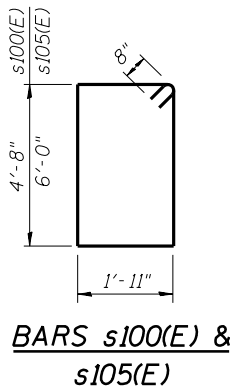
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h100(E)	48	#7	33'-0"	—
h101(E)	12	#6	33'-0"	—
h102(E)	6	#6	16'-3"	—
h103(E)	136	#5	30'-3"	—
n100(E)	112	#8	10'-2"	⌋
n101(E)	14	#5	6'-9"	⌋
p100(E)	48	#10	34'-9"	—
p101(E)	12	#10	46'-6"	—
p102(E)	12	#10	22'-0"	⌋
s100(E)	220	#6	14'-6"	⌋
s101(E)	12	#6	9'-4"	⌋
s102(E)	12	#6	9'-9"	⌋
s103(E)	12	#6	10'-1"	⌋
s104(E)	16	#6	10'-7"	⌋
s105(E)	220	#6	17'-2"	⌋
s106(E)	40	#6	11'-11"	⌋
s107(E)	12	#6	11'-1"	⌋
s108(E)	112	#5	15'-11"	⌋
s109(E)	112	#5	30'-1"	⌋
sp100(E)	8	#5	10'-9"	⌋
t100(E)	165	#7	11'-6"	—
t101(E)	116	#5	11'-6"	—
u100(E)	32	#5	10'-6"	⌋
u101(E)	28	#5	13'-3"	⌋
u102(E)	48	#5	7'-2"	⌋
v100(E)	112	#8	14'-6"	—
v101(E)	14	#5	13'-6"	—
w100(E)	33	#6	41'-6"	—
w101(E)	52	#5	31'-9"	—
Structure Excavation			Cu. Yds.	284
Concrete Structures			Cu. Yds.	506.4
Form Liner			Sq. Ft.	3226
Textured Surface				
Reinforcement Bars, Epoxy Coated			Pound	56470
Furnishin Steel Piles HP 14x73			Foot	1247
Driving Piles			Foot	1247
Test Pile HP 14x73			Each	1

** Length is height of spiral

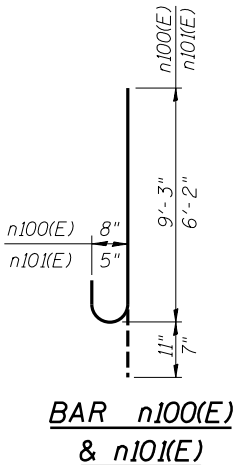


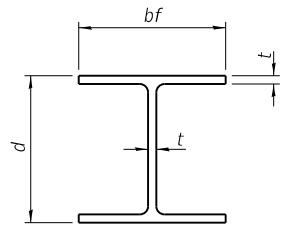
FORM LINER TEXTURED SURFACE DETAIL



A & B DIMENSIONS

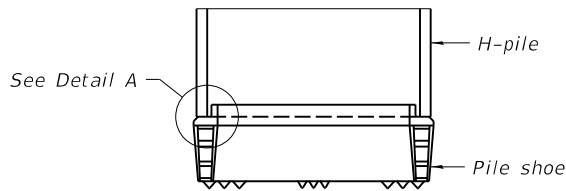
Bar	A	B
s101(E)	1'-11"	3'-8 1/2"
s102(E)	1'-11"	3'-11"
s103(E)	1'-11"	4'-1"
s104(E)	1'-11"	4'-4"
s106(E)	1'-11"	5'-0"
s107(E)	1'-11"	4'-7"
s108(E)	3'-7"	6'-2"
s109(E)	3'-7"	13'-3"
u100(E)	3'-0"	3'-9"
u102(E)	3'-2"	2'-0"



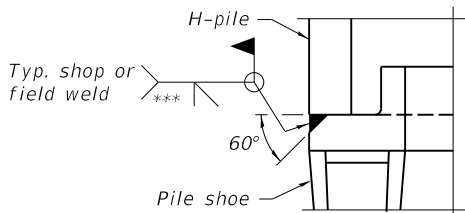


STEEL PILE TABLE

Designation	Depth d	Flange width bf	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	1 3/16"	30"
x102	14"	14 3/4"	1 1/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	1 1/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"
x53	11 3/4"	12"	7/16"	24"
HP 10x57	10"	10 1/4"	9/16"	24"
x42	9 3/4"	10 1/8"	7/16"	24"
HP 8x36	8"	8 1/8"	7/16"	18"



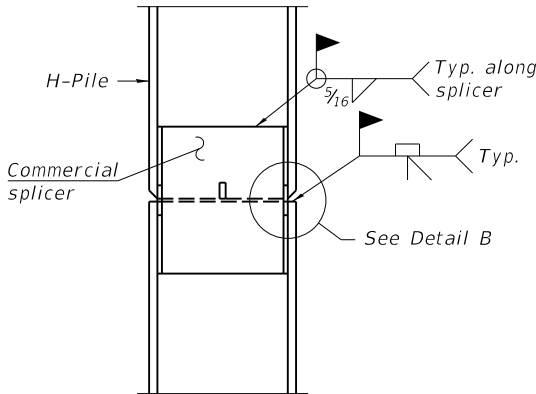
ELEVATION



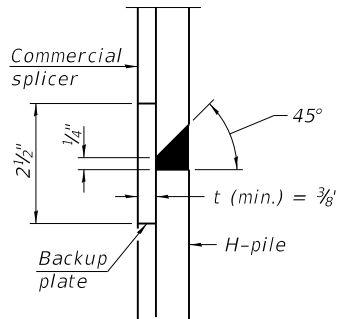
DETAIL A

SHOE ATTACHMENT

Note:
The steel H-piles shall be according to
AASHTO M270 Grade 50.

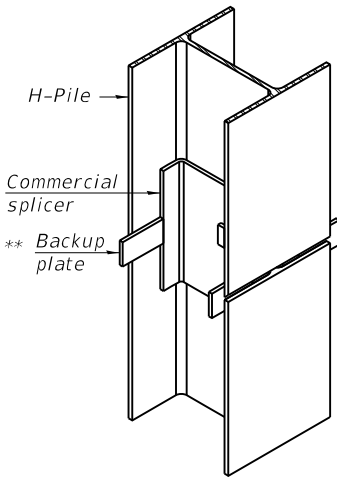


ELEVATION

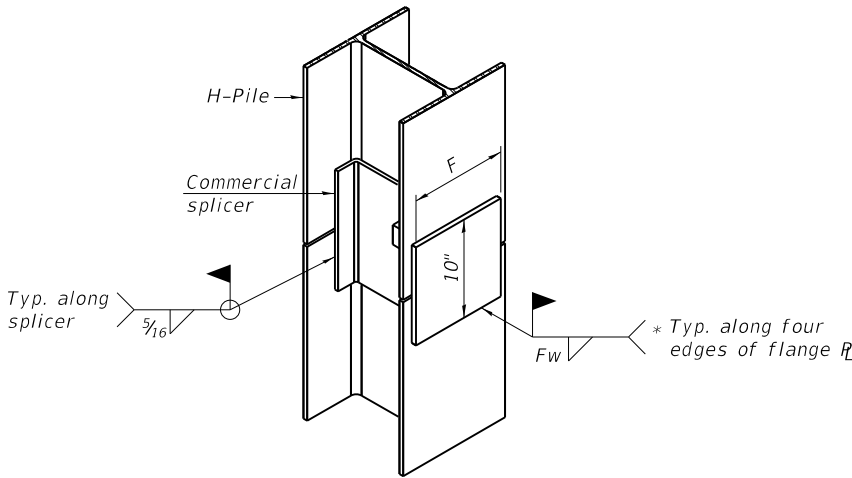


DETAIL "B"

WELDED COMMERCIAL SPLICE



ISOMETRIC VIEW



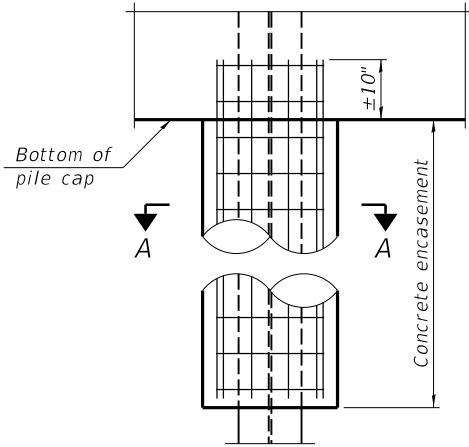
ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE ALTERNATE

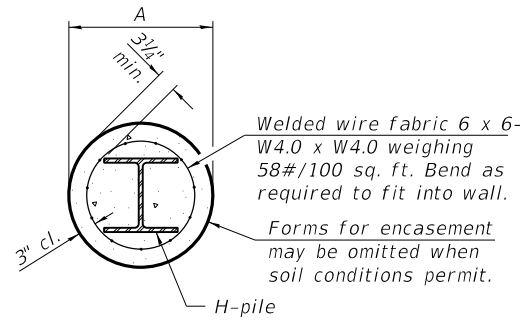
* Interrupt welds 1/4" from end of web and/or each flange.

** Remove portions of backup plates that extend outside the flanges.

*** Weld size per pile shoe manufacturer (5/16" min.).

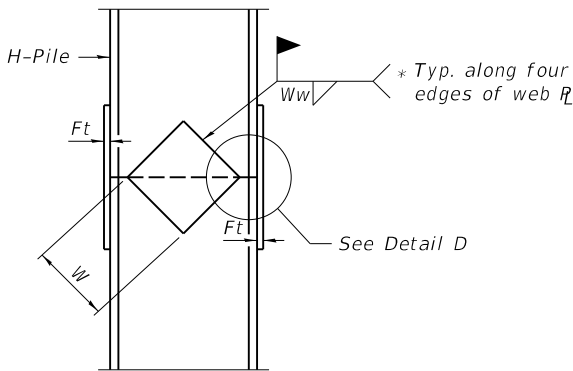


ELEVATION

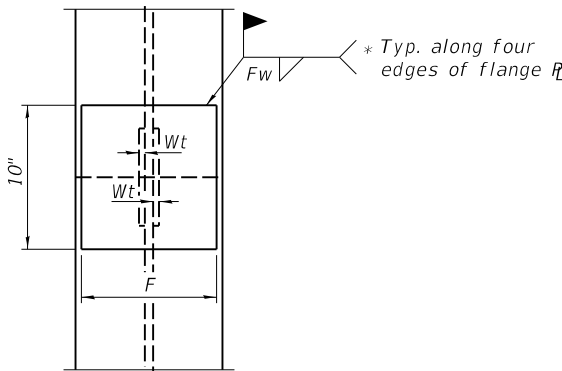


SECTION A-A

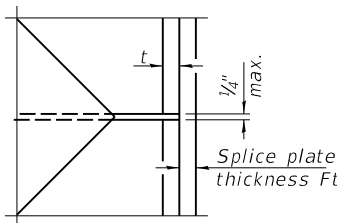
INDIVIDUAL PILE
CONCRETE ENCASEMENT
(when specified)



ELEVATION



END VIEW



DETAIL D

WELDED PLATE FIELD SPLICE

Designation	F	Ft	Fw	W	Wt	Ww
HP 14x117	12 1/2"	1"	7/8"	7 3/4"	5/8"	1/2"
x102	12 1/2"	7/8"	3/4"	7 3/4"	5/8"	1/2"
x89	12 1/2"	3/4"	1 1/16"	7 3/4"	5/8"	1/2"
x73	12 1/2"	5/8"	9/16"	7 3/4"	5/8"	1/2"
HP 12x84	10"	7/8"	1 1/16"	6 1/2"	5/8"	1/2"
x74	10"	7/8"	1 1/16"	6 1/2"	5/8"	1/2"
x63	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
x53	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
HP 10x57	8"	3/4"	9/16"	5 1/4"	1/2"	3/8"
x42	8"	5/8"	9/16"	5 1/4"	1/2"	3/8"
HP 8x36	7"	5/8"	7/16"	4 1/4"	1/2"	3/8"

FINAL PLANS

F-HP

1-1-2020



USER NAME = pop00275

DESIGNED - CGP

REvised -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STEEL PILES
STRUCTURE NO. 084-9973

SHEET NO. 51 OF 53 SHEETS

F.A.U.
RTE.

SECTION

COUNTY

TOTAL
SHEETS

SHEET
NO.

7972

20-00492-00-BR & 22-00492-01-BR

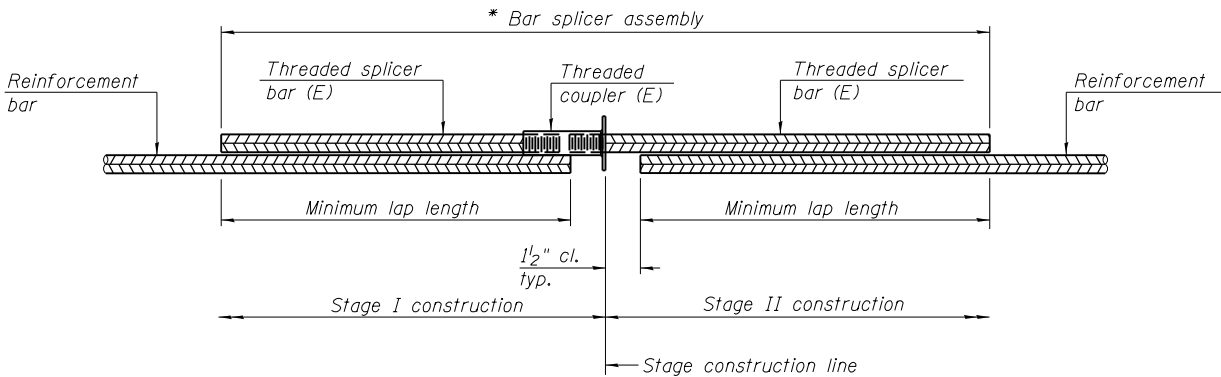
SANGAMON

714

497

CONTRACT NO. 93773

ILLINOIS FED. AID PROJECT

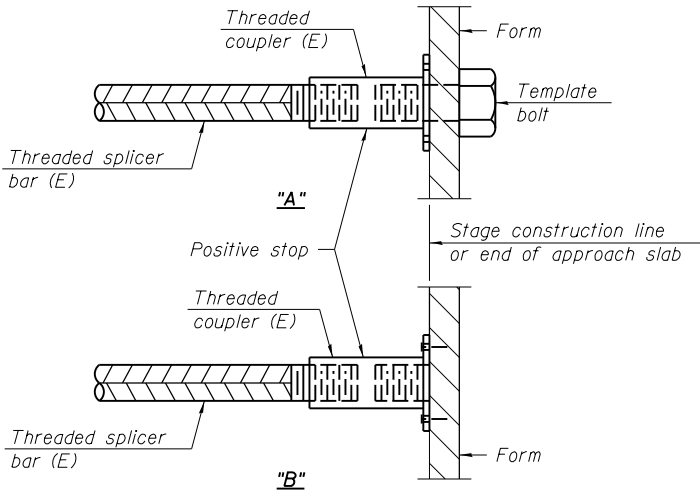


STANDARD BAR SPLICER ASSEMBLY PLAN
(All components shall be provided from one supplier)

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

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

Location	Bar size	No. assemblies required	Minimum lap length
West Edge Beam	#5	140	3'-6"
West Abut. Joint	#5	35	3'-7"
West Abut. Joint	#6	4	4'-0"
West Abut. Joint	#7	14	5'-10"
Pier Crashwall Jt.	#5	34	3'-6"



INSTALLATION AND SETTING METHODS

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

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

(E) : Indicates epoxy coating.

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

p:\hansoninc-pw.bentley.comhanson-pw-0\Documents\09Jobs\09L0179B\Useble Segments III - V - VINCAD\Struct\Usable Segment VI\North Grand Overpass\Sheet\NorthGrandOverpass.09L0179B.050.Borings.dgn



USER NAME = pop00275	DESIGNED - CGP
	CHECKED - JGT
PLOT SCALE = 10:8.0000 '1" / 1in.	DRAWN - RSJ
PLOT DATE = 9/27/2024	CHECKED -

REVISED -
REVISED -
REVISED -
REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BORINGS
STRUCTURE NO. 084-9973

SHEET NO. 53 OF 53 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7972	20-00492-00-BR & 22-00492-01-BR	SANGAMON	714	499
		CONTRACT NO. 93773		
ILLINOIS FED. AID PROJECT				

B-160 Sta. 995+59, 20' LT				
603.8 603.29	N	Qu	w%	
	10	3.50S	24	OIL & CHIP. Black very fine sandy silty CLAY.
600.29	8	3.09B	23	Brown and gray very fine sandy silty CLAY.
597.79	6	1.94B	26	Brown and gray very fine sandy SILT.
	6	2.91S	24	
592.79	4	1.09B	24	Gray to brownish-gray very fine sandy clayey SILT.
	4	1.51B	23	
587.79	4	1.16B	30	Brown and gray very fine sandy silty CLAY.
585.29	32	4.50P	15	Brownish-gray fine sandy SHALE.
580.29	50/5"	10		Gray fine sandy SHALE.
	50/4"	9		
573.79	Rec. = 75%			Gray sandy SHALE, micaceous.
	Rec. = 90%			
	Rec. = 93%			
565.29	Rec. = 100%			Gray clayey SHALE.
	Rec. = 94%			
	Rec. = 100%			
554.29 553.79	COAL. Bottom of Hole = 50.0 feet			

B-161 Sta. 996+53, 41' LT				
603.3 603.00	N	Qu	w%	
	8	3.49B	23	TOPSOIL. Brown and gray very fine sandy clayey SILT, trace calcareous concretions, some oxidized spots.
		2.10B	24	
		1.90B	21	
			23	
597.33	8	3.00P	24	Brown and gray very fine sandy SILT, some oxidized spots.
594.83	5	1.94B	25	Brown and gray very fine sandy clayey SILT, trace oxidized spots.
592.33		1.04B	25	Brown very fine sandy silty CLAY.
	5	1.16S	25	
587.33	5	1.36S	25	Brown and gray very fine sandy silty CLAY, trace oxidized spots.
584.83	47	4.50P	13	Brown fine sandy SHALE - highly weathered.
579.83	50/5"	10		Gray fine sandy SHALE.
573.33	50/3"	8		Bottom of Hole = 30.0 feet

B-162 Sta. 998+97, 25' LT				
602.4 602.17 601.42	N	Qu	w%	
	11	4		ASPHALT. CONCRETE. Brown silty fine to medium SAND, trace coarse sand and small gravel - FILL.
	4	5		
	3	6		Brown silty fine to medium SAND, trace coarse sand and small gravel and brown and gray very fine sandy SILT - FILL.
593.92	3	6		
592.42	5	1.71B	22	Brown and gray very fine sandy SILT, some clay.
588.92	3	0.89B	24	Brown and gray very fine to fine sandy silty CLAY, trace small gravel.
	4	1.09B	24	
583.92	7	2.06S	25	Brown and gray fine sandy silty CLAY.
578.92	50/4"	4.50P	14	Brown and gray SHALE - highly weathered.
573.92	50/5"	8		Gray micaceous fine sandy SHALE.
572.42	Rec. = 100%			Gray clayey SHALE, trace sand, micaceous.
	RQD = 21%			
	Rec. = 75%			
	RQD = 69%			
567.42	Rec. = 100%			Gray sandy SHALE, micaceous.
	RQD = 96%			
	Rec. = 93%			
	RQD = 93%			
	Rec. = 100%			
	RQD = 67%			
561.92	Gray clayey SHALE.			
	Rec. = 82%			
	RQD = 49%			
553.42	Bottom of Hole = 49.0 feet			

B-175 Sta. 999+32, 63' RT				
603.0 602.26	N	Qu	w%	
	6	2.00P	26	CONCRETE. Brown and gray very fine sandy silty CLAY.
599.51	5	0.62B	23	Brown and gray very fine sandy SILT, trace clay.
	6	1.44B	25	
592.01	3	0.43B	24	Brown and gray very fine to fine sandy silty CLAY.
	4	1.16B	24	
		23		
		22		
584.51	50/5"	4.50P	12	Brown SHALE - highly weathered.
579.51	50/3"	4.50P	10	Gray fine sandy SHALE.
	50/5"	8		
573.01	Bottom of Hole = 30.0 feet			

