

PLAN - PILE CAP

PILE DATA

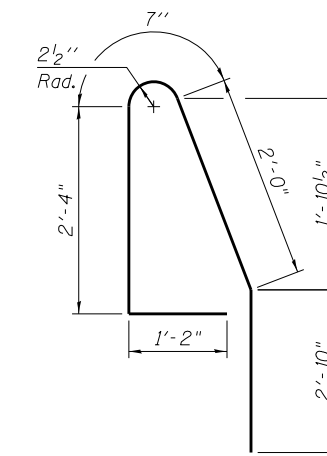
Type: Metal Shell 14 in. dia. x 0.312 in. walls with pile shoes
 Nominal Required Bearing: 440 kips
 Factored Resistance Available: 240 kips
 Est. Length: 106 ft.
 No. Production Piles: 16
 No. Test Piles: 1

Pile installation notes:

- All piles shall be reinforced as shown on Sheet 60 of 68.
- Remove/excavate soft/unusable soils as indicated in the cross section drawings.
- Install 18" diameter pile sleeves at the pile locations from the bottom of the excavation to the existing grade.
- Backfill around the pile sleeves using granular soils to existing grade.
- Extend pile sleeves to the bottom of SN 022-0559 leveling pad and construct embankment around the pile sleeves to the bottom of the leveling pad.
- Drive piles through the pile sleeves.
- Extend pile sleeves above the embankment to the bottom of the abutment.
- Construct SN 022-0559 around pile sleeves.
- Fill annular space between piles and pile sleeves with dry loose sand.
- Restrike piles an additional one (1) inch after the backfill for SN 022-0559 is in place, just prior to construction of the abutment pile cap.
- Costs for precoring, pile sleeves, filling annular spaces with sand and restriking piles are all included with Driving Piles.

Notes:

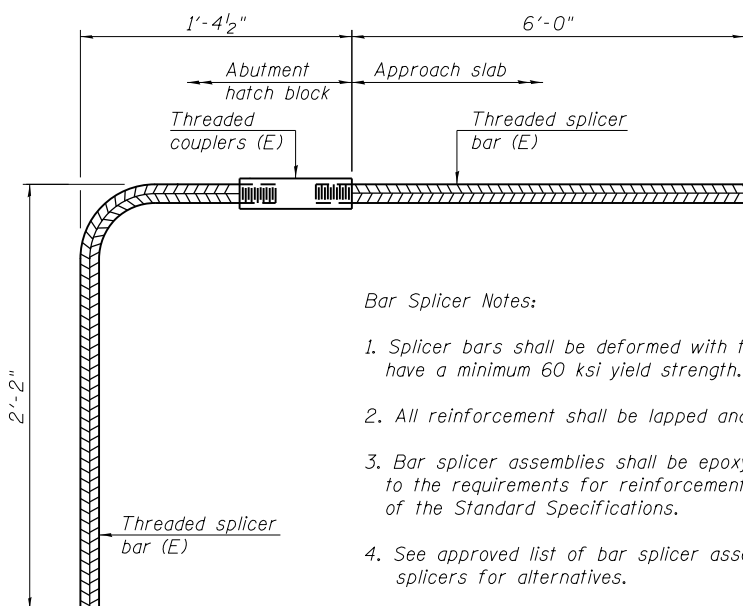
- For abutment notes, see Sheet 48 of 68.
- 10" dimension to be coordinated with final retaining wall plans.



BAR d201(E)

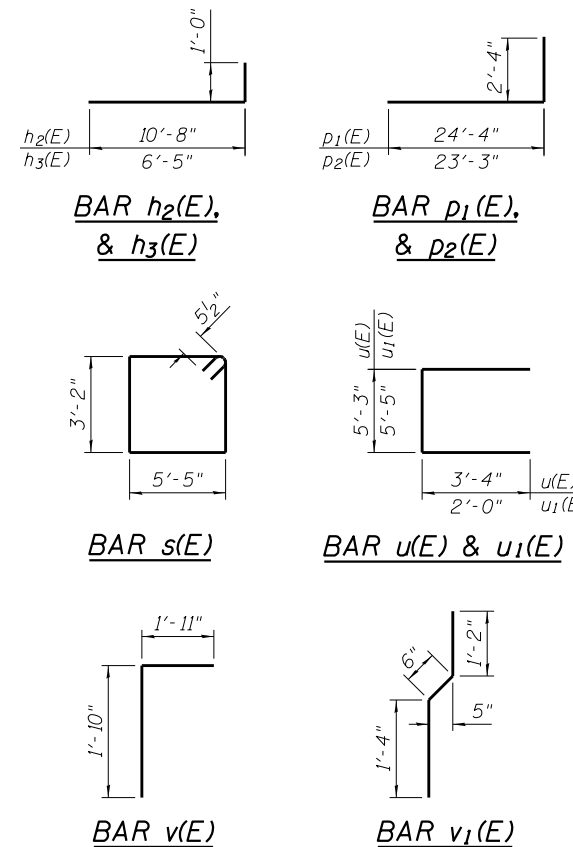
BILL OF MATERIAL

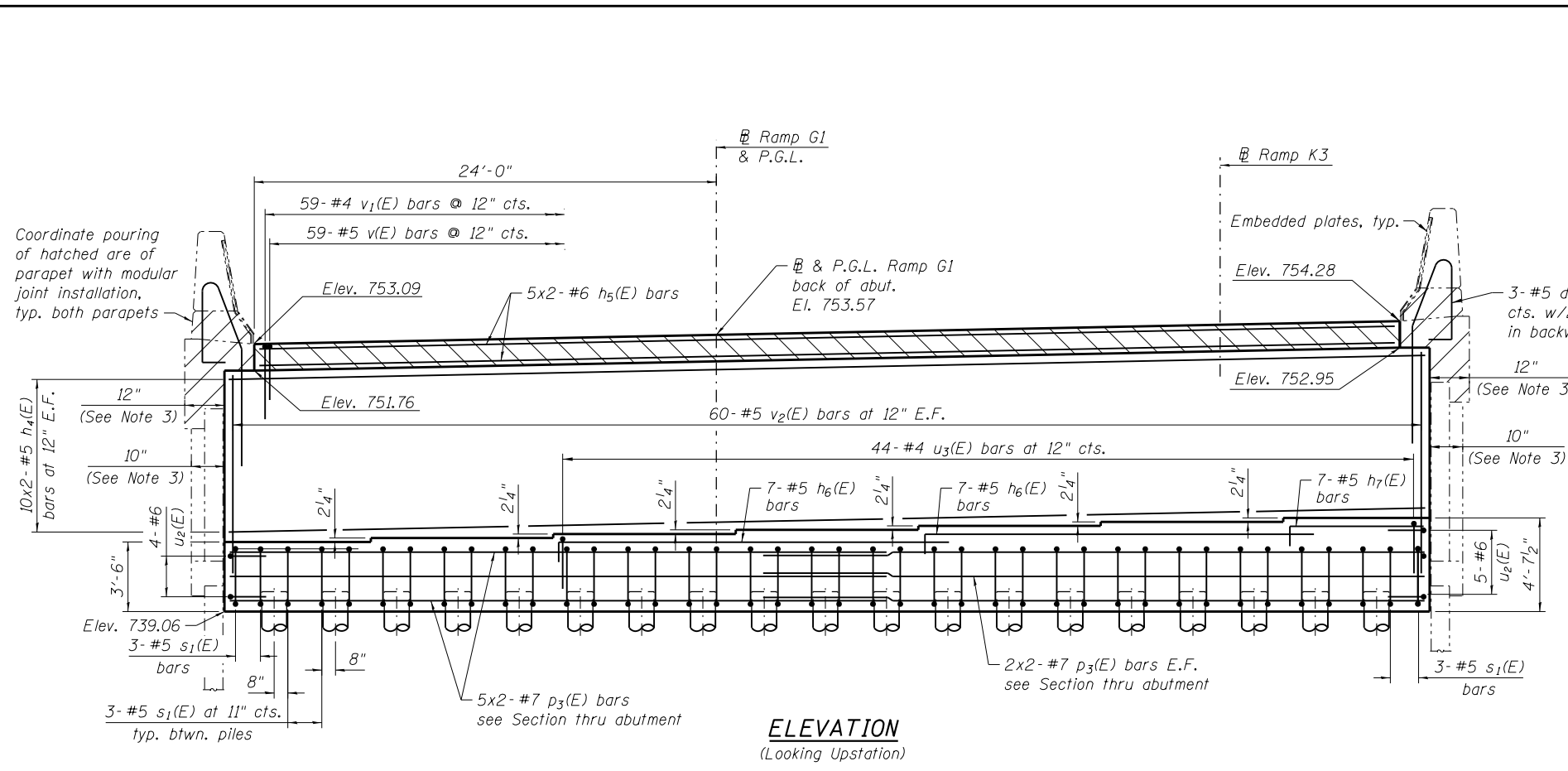
Bar	No.	Size	Length	Shape
d201(E)	6	#5	8'-11"	A
h(E)	20	#5	47'-2"	—
h1(E)	5	#6	45'-8"	—
h2(E)	12	#5	11'-8"	L
h3(E)	6	#5	7'-5"	L
p(E)	14	#7	25'-8"	—
p1(E)	5	#7	26'-8"	—
p2(E)	5	#7	25'-7"	—
s(E)	52	#5	18'-1"	□
u(E)	9	#6	11'-11"	□
u1(E)	31	#4	9'-5"	□
v(E)	46	#5	3'-9"	┌
v1(E)	46	#4	3'-0"	┌
v2(E)	94	#5	11'-5"	—



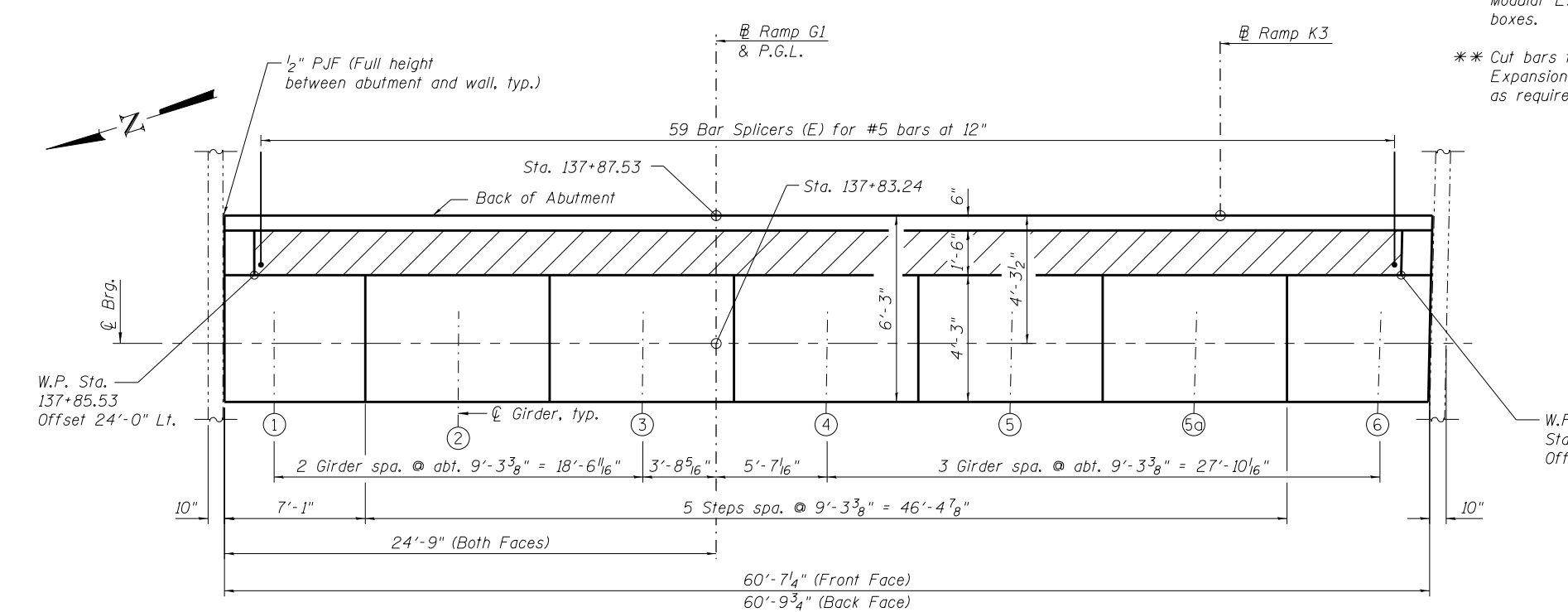
BAR SPLICER ASSEMBLY

- Bar Splicer 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.

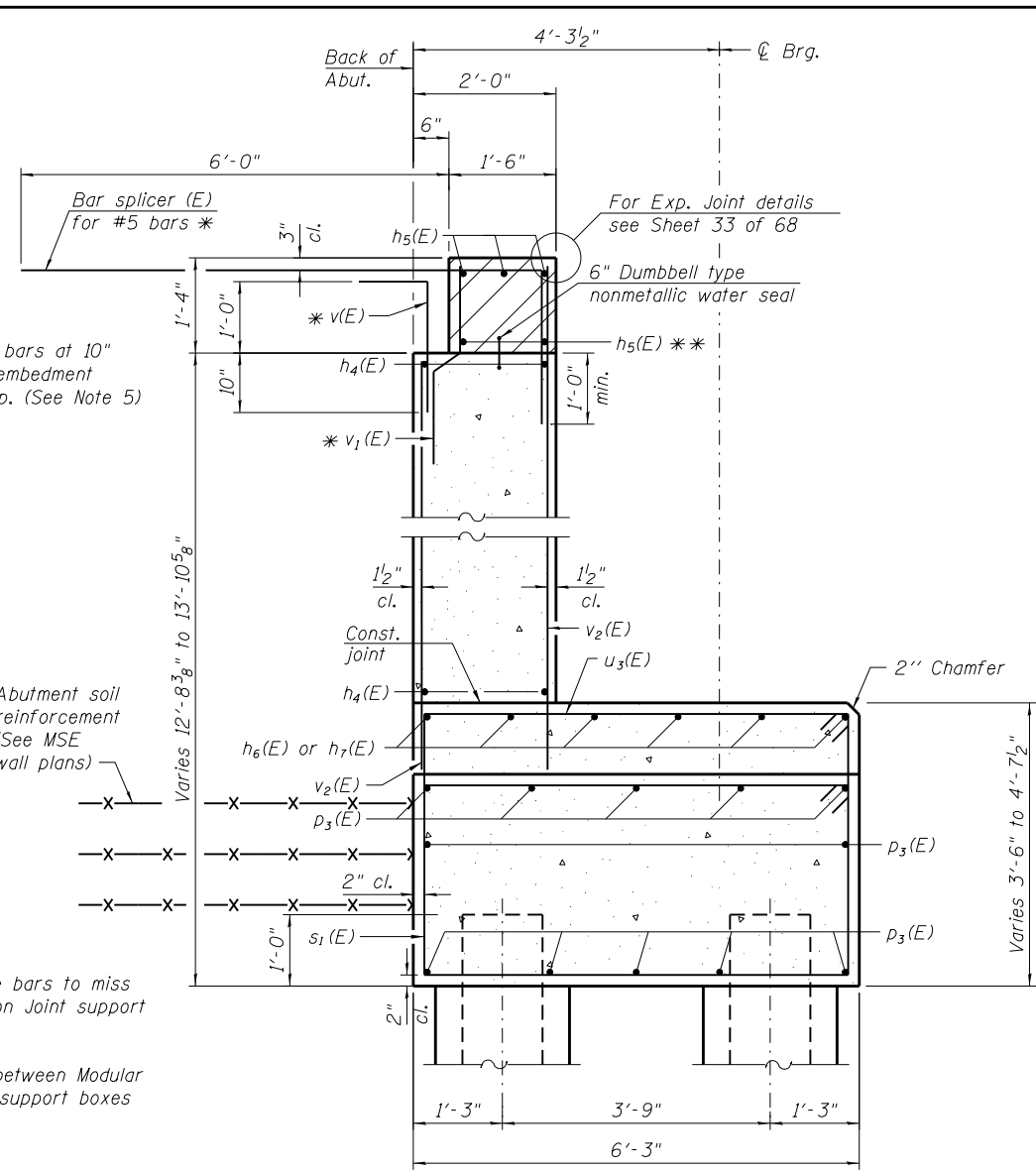




ELEVATION
(Looking Upstation)



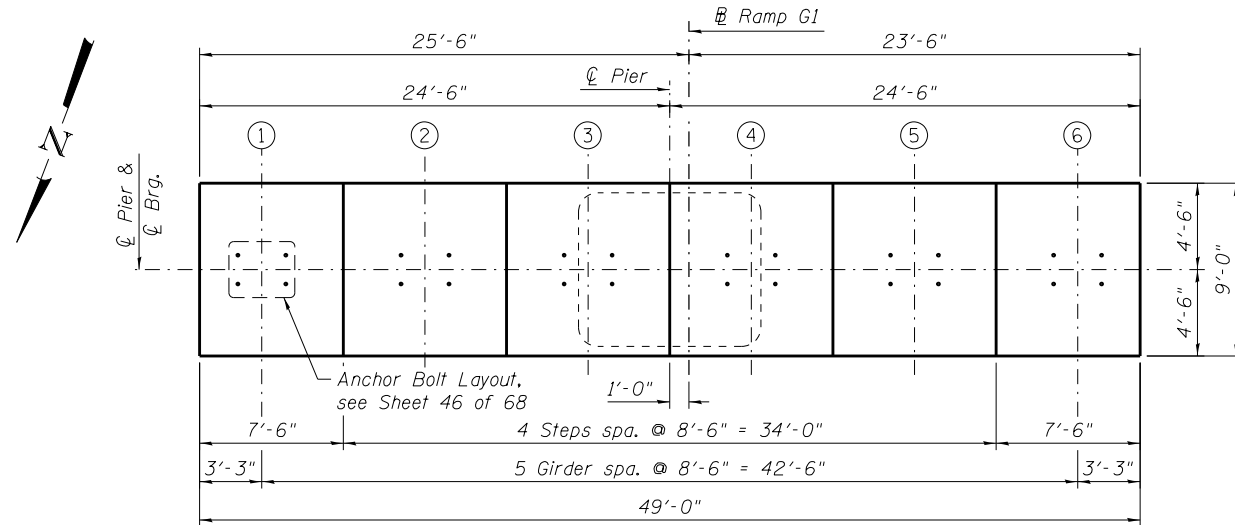
TOP VIEW



SEC. THRU ABUT.

Girder No.	Seat Elev.
1	742.56
2	742.75
3	742.93
4	743.12
5	743.31
5a	743.49
6	743.68

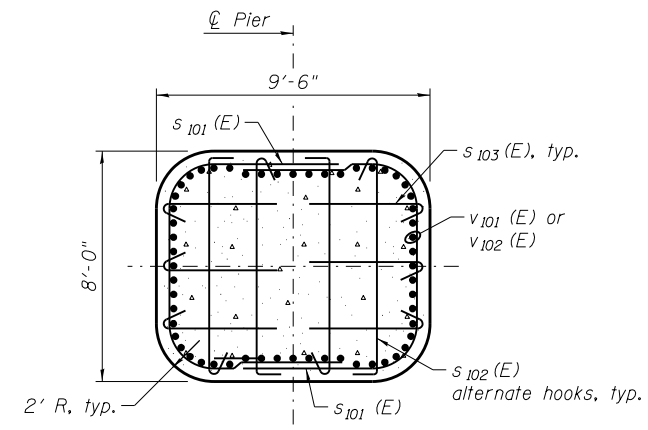
- Abutment notes:
- For abutment notes, see Sheet 48 of 68.
 - For pile cap plan and notes, see Sheet 51 of 68.
 - 10" & 12" dimensions to be coordinated with final retaining wall plans.
 - Bars indicated thus "12x5- #5 etc." indicate 12 lines of bars with 5 lengths per line.
 - Place d₂₀₁(E) bars to maintain 1/2" cover behind embedded plates. See Sheet 33 of 68 for details.



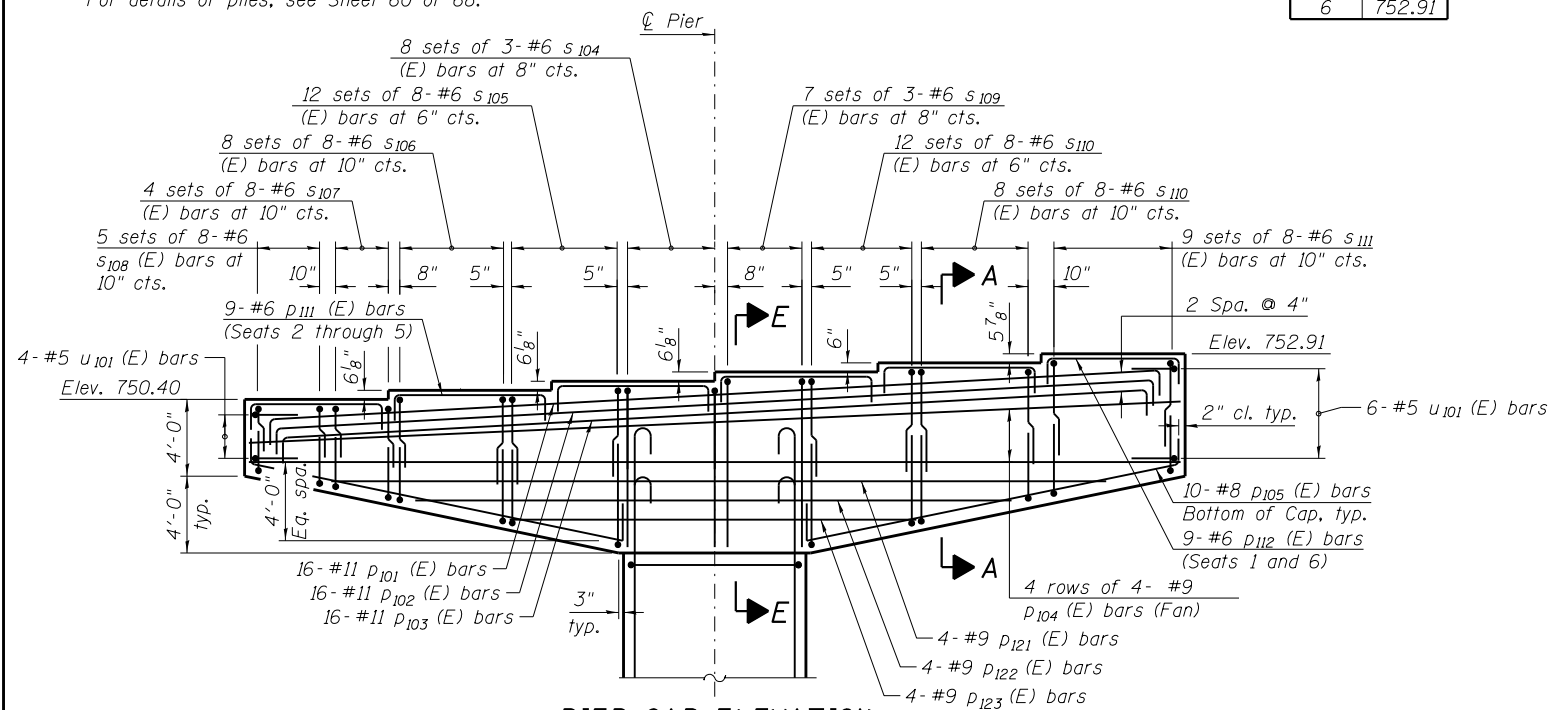
Girder No.	Seat Elev.
1	750.40
2	750.91
3	751.42
4	751.93
5	752.42
6	752.91

Notes:
 Space reinforcement in cap to miss anchor bolts.
 Pour steps monolithically with cap.
 For details of piles, see Sheet 60 of 68.

TOP PLAN

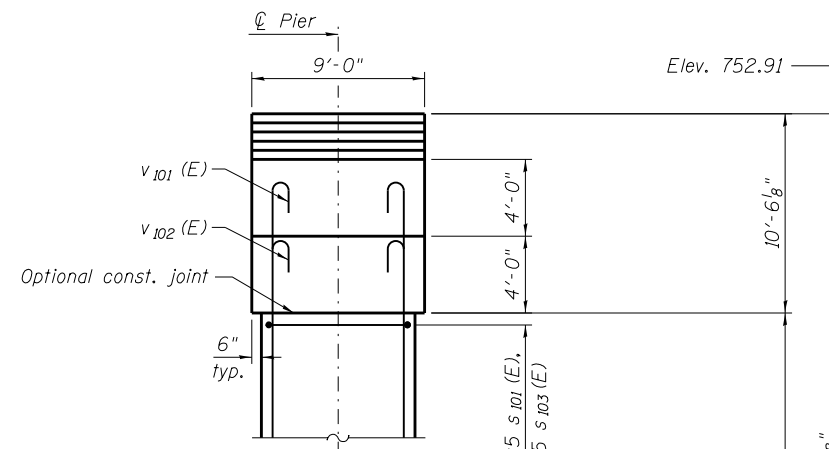


SECTION B-B

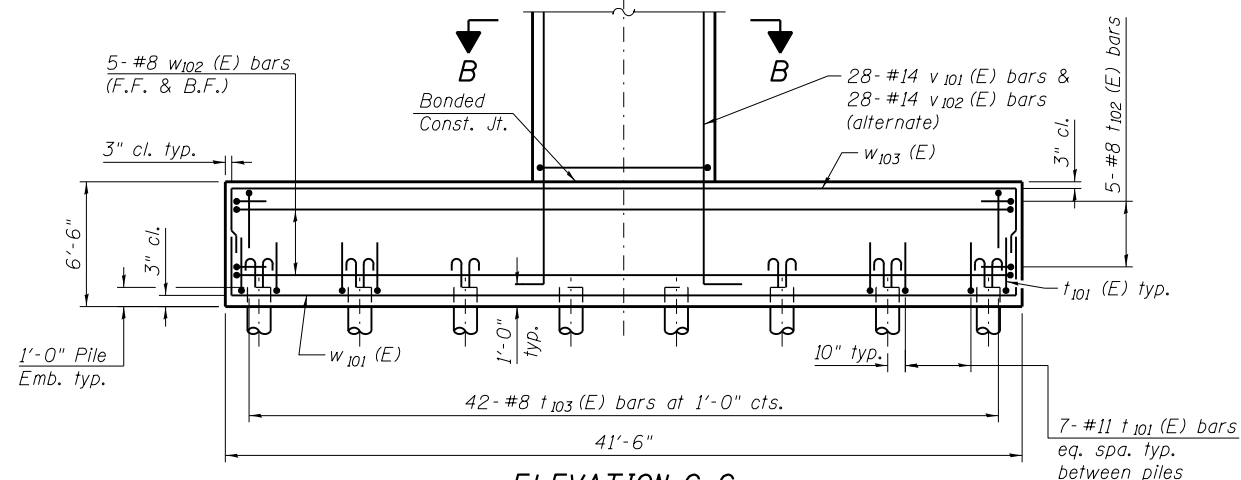


PIER CAP ELEVATION

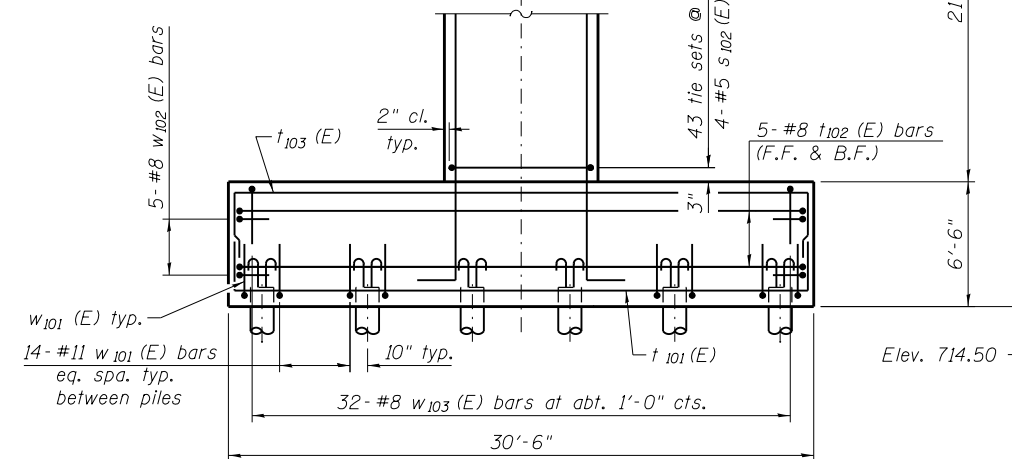
(Looking Upstation)



PIER CAP END VIEW

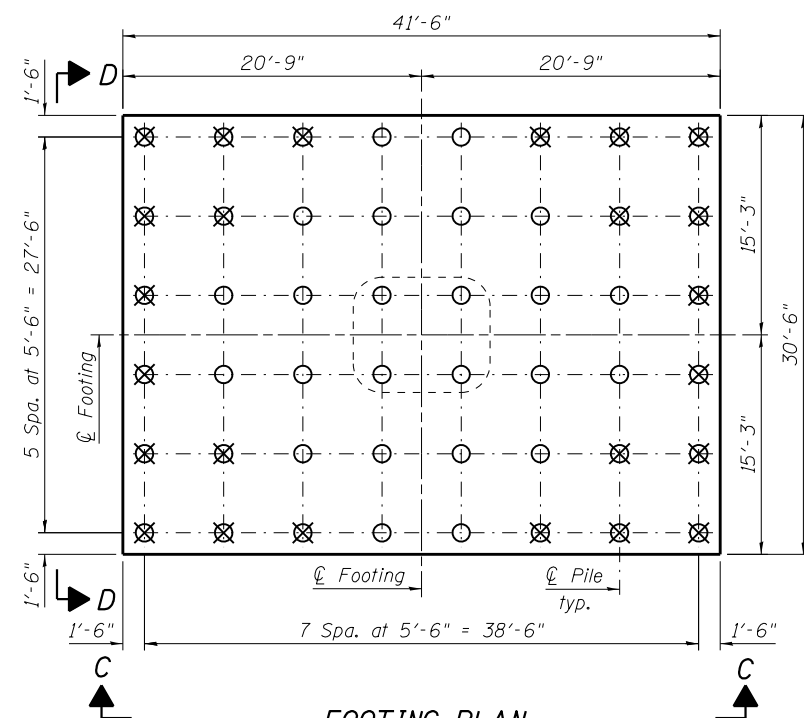


ELEVATION C-C



ELEVATION D-D

Notes:
 1. Work this sheet with Sheet 53 of 68.



FOOTING PLAN
X Denotes piles with uplift connection

PILE DATA

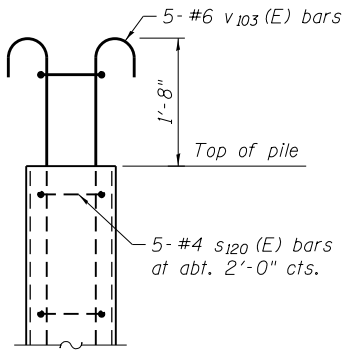
Type: Metal Shell 14 in. dia.
x 0.312 in. walls with pile shoes
Nominal Required Bearing: 475 kips
Factored Resistance Available: 261 kips
Est. Length: 74'
No. Production Piles: 47
No. Test Piles: 1

Pile installation notes:

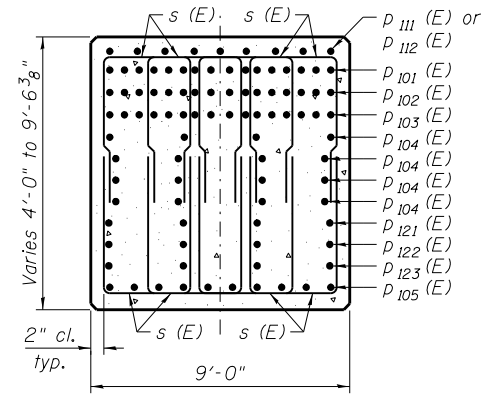
1. Construct embankment to the bottom of the pile cap.
2. Precure 18" diameter holes thru embankment to elevation 698 according to Article 512.09(c) of the Standard Specifications. Cost included in Driving Piles.
3. Drive piles through precured holes.
4. Fill annular space between piles and precured holes with dry loose sand. Cost included with Driving Piles.

Notes:

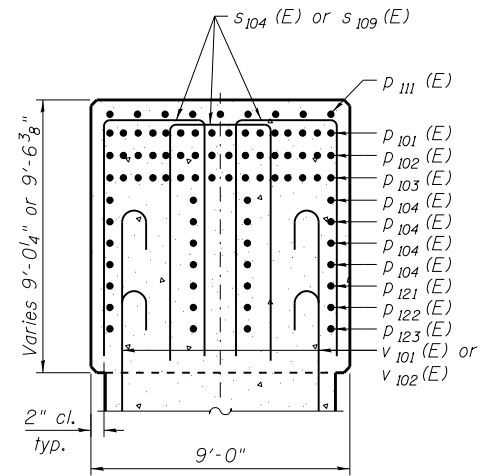
1. Work this sheet with Sheet 52 of 68.



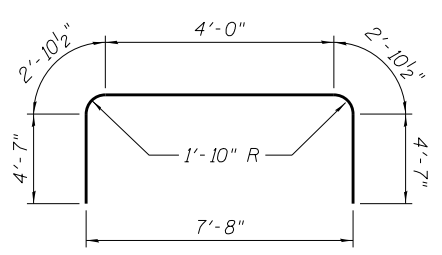
PILE UPLIFT CONNECTION



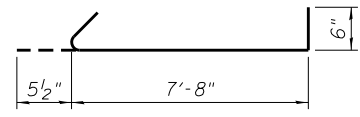
SECTION A-A



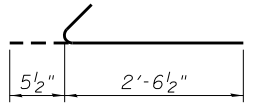
SECTION E-E



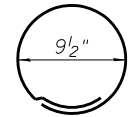
BAR s101 (E)



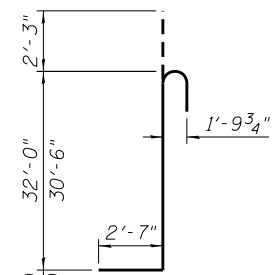
BAR s102 (E)



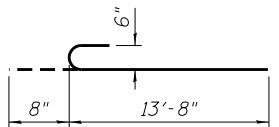
BAR s103 (E)



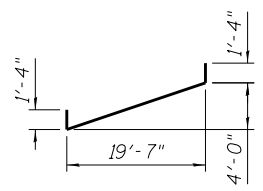
BAR s120 (E)



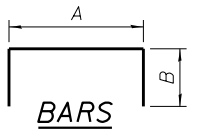
BAR v101 (E) & v102 (E)



BAR v103 (E)



BAR p105 (E)

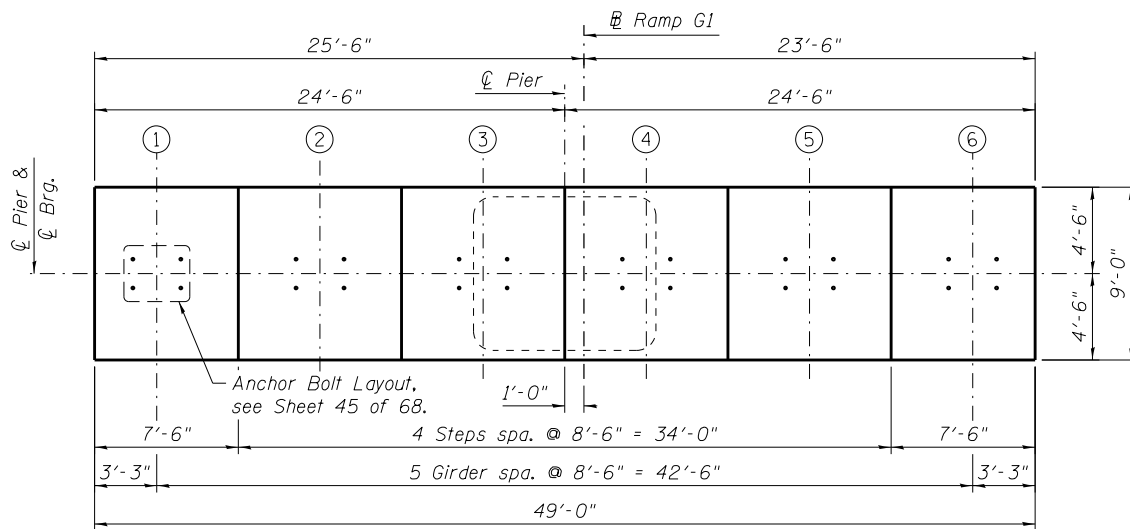
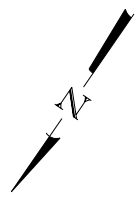


A & B DIMENSIONS

Bar	A	B
P101 (E)	48'-5"	2'-0"
P102 (E)	47'-5"	2'-0"
P103 (E)	46'-5"	2'-0"
P104 (E)	8'-2"	1'-0"
P105 (E)	7'-2"	1'-0"
P106 (E)	3'-6"	8'-8"
P107 (E)	3'-6"	6'-4"
P108 (E)	3'-6"	5'-6"
P109 (E)	3'-6"	4'-7"
P110 (E)	3'-6"	3'-7"
P111 (E)	3'-6"	9'-2"
P112 (E)	3'-6"	6'-7"
P113 (E)	3'-6"	5'-11"
P114 (E)	30'-0"	4'-0"
P115 (E)	29'-9"	1'-4"
P116 (E)	30'-0"	4'-0"
P117 (E)	8'-6"	2'-3"
P118 (E)	41'-0"	4'-0"
P119 (E)	40'-9"	1'-4"
P120 (E)	41'-0"	4'-0"

BILL OF MATERIAL

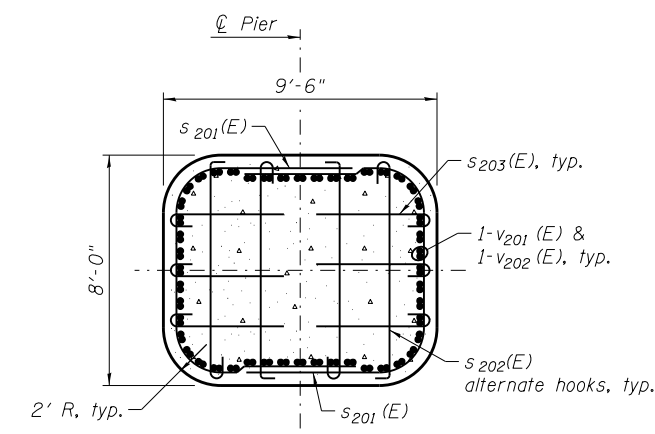
Bar	No.	Size	Length	Shape
P101 (E)	16	#11	52'-5"	U
P102 (E)	16	#11	51'-5"	U
P103 (E)	16	#11	50'-5"	U
P104 (E)	16	#9	48'-2"	U
P105 (E)	20	#8	22'-8"	U
P106 (E)	36	#6	10'-2"	U
P107 (E)	18	#6	9'-2"	U
P108 (E)	4	#9	39'-0"	U
P109 (E)	4	#9	30'-9"	U
P110 (E)	4	#9	22'-6"	U
P111 (E)	86	#5	18'-11"	U
P112 (E)	172	#5	8'-8"	U
P113 (E)	258	#5	3'-0"	U
P114 (E)	24	#6	20'-10"	U
P115 (E)	96	#6	16'-2"	U
P116 (E)	64	#6	14'-6"	U
P117 (E)	32	#6	12'-8"	U
P118 (E)	40	#6	10'-8"	U
P119 (E)	21	#6	21'-10"	U
P120 (E)	160	#6	16'-8"	U
P121 (E)	72	#6	15'-4"	U
P122 (E)	120	#4	5'-6"	O
P123 (E)				
U101 (E)	10	#5	13'-0"	U
V101 (E)	28	#14	36'-10"	U
V102 (E)	28	#14	35'-4"	U
V103 (E)	120	#6	14'-4"	U
W101 (E)	72	#11	49'-0"	U
W102 (E)	10	#8	43'-5"	U
W103 (E)	32	#8	49'-0"	U
Concrete Structures		Cu. Yd.	487.7	
Reinforcement Bars, Epoxy Coated		Pound	93,260	
Furnishing Metal Shell Piles 14" x 0.312"		Foot	3478	
Driving Piles		Foot	3478	
Test Pile Metal Shells		Each	1	
Pile Shoes		Each	48	



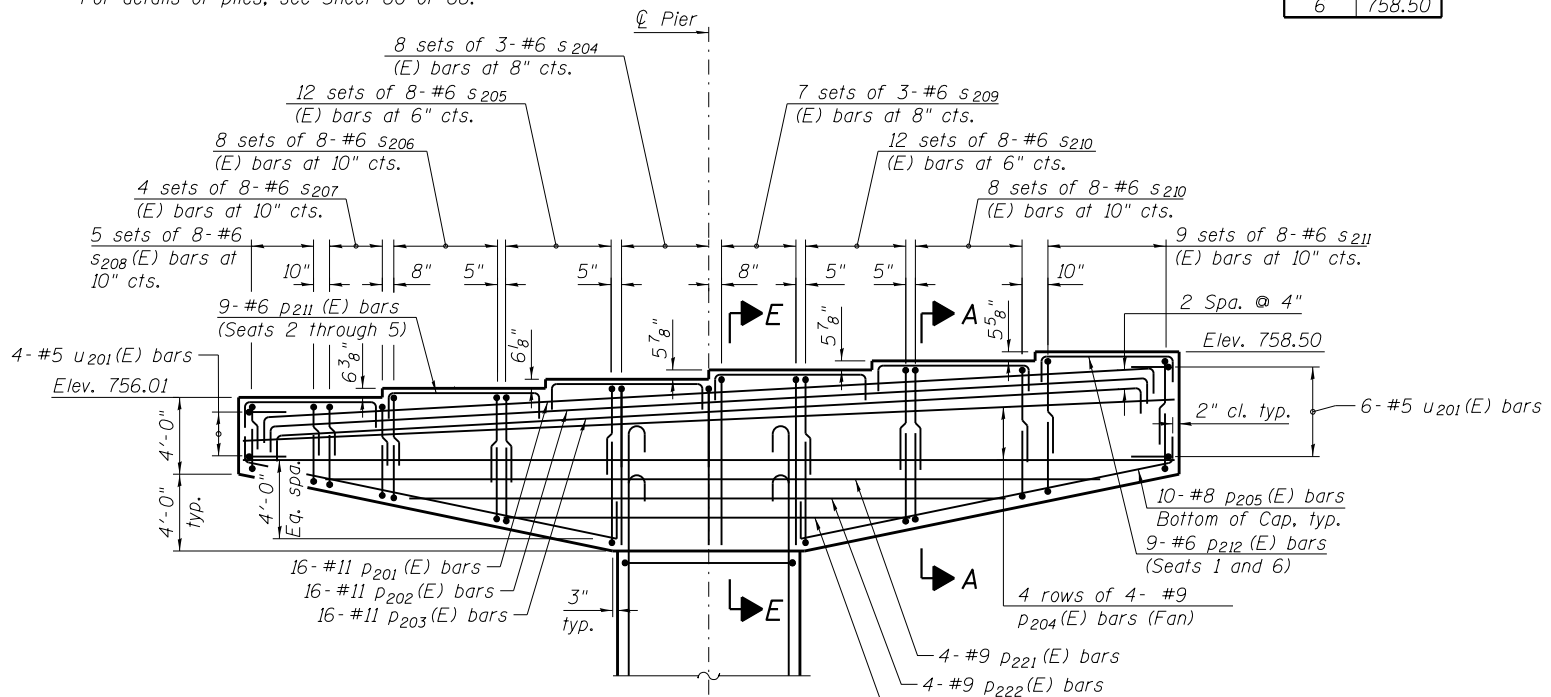
TOP PLAN

Girder No.	Seat Elev.
1	756.01
2	756.54
3	757.05
4	757.54
5	758.03
6	758.50

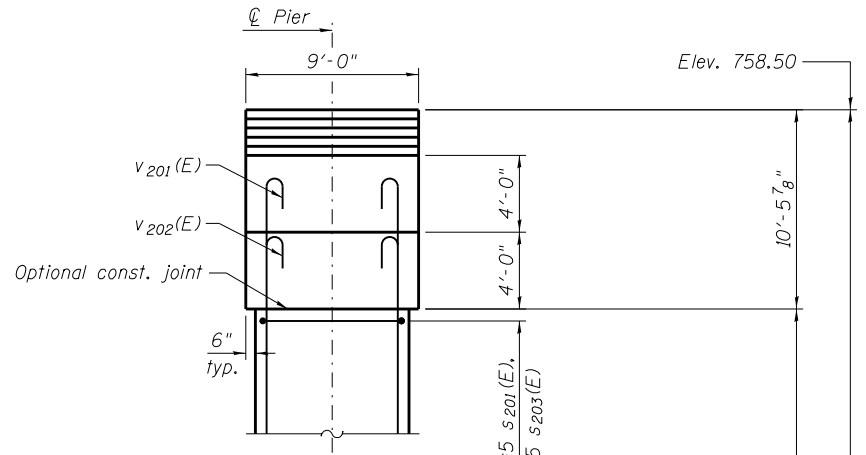
Notes:
 Space reinforcement in cap to miss anchor bolts.
 Pour steps monolithically with cap.
 For details of piles, see Sheet 60 of 68.



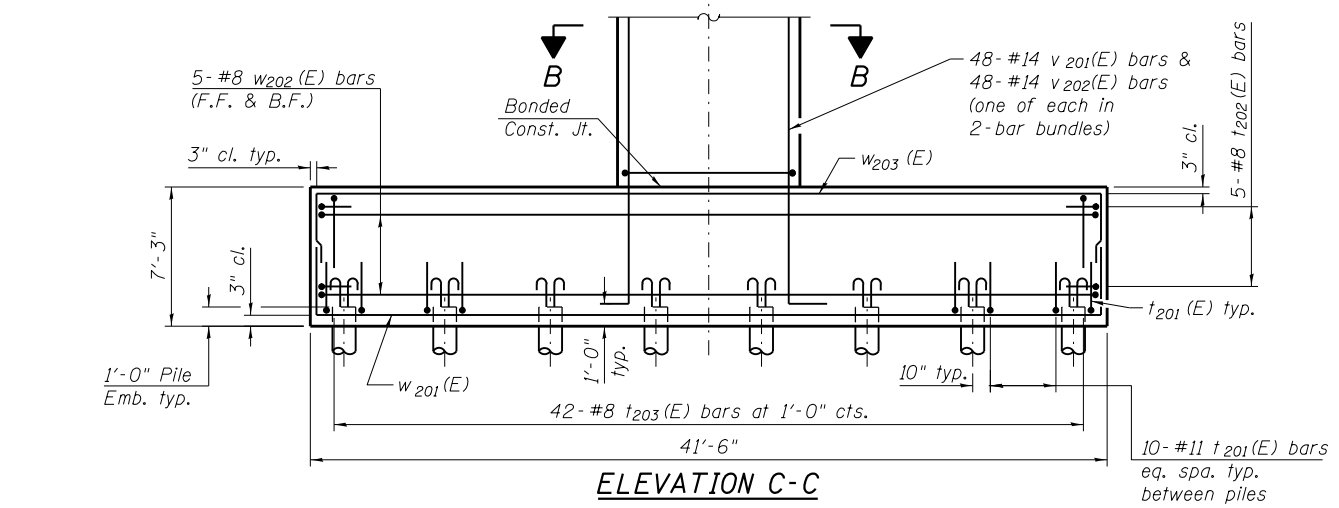
SECTION B-B



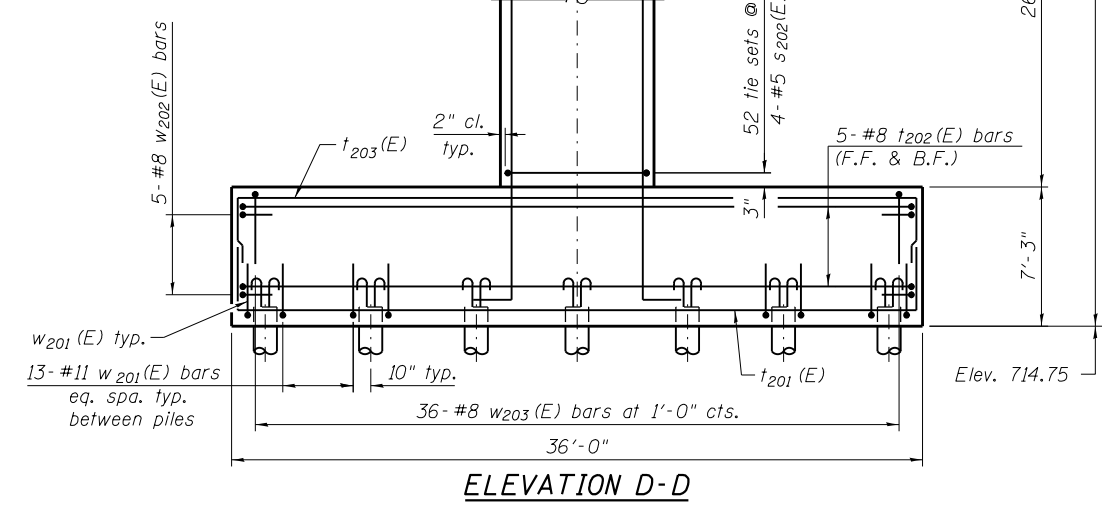
PIER CAP ELEVATION
(Looking Upstation)



PIER CAP END VIEW

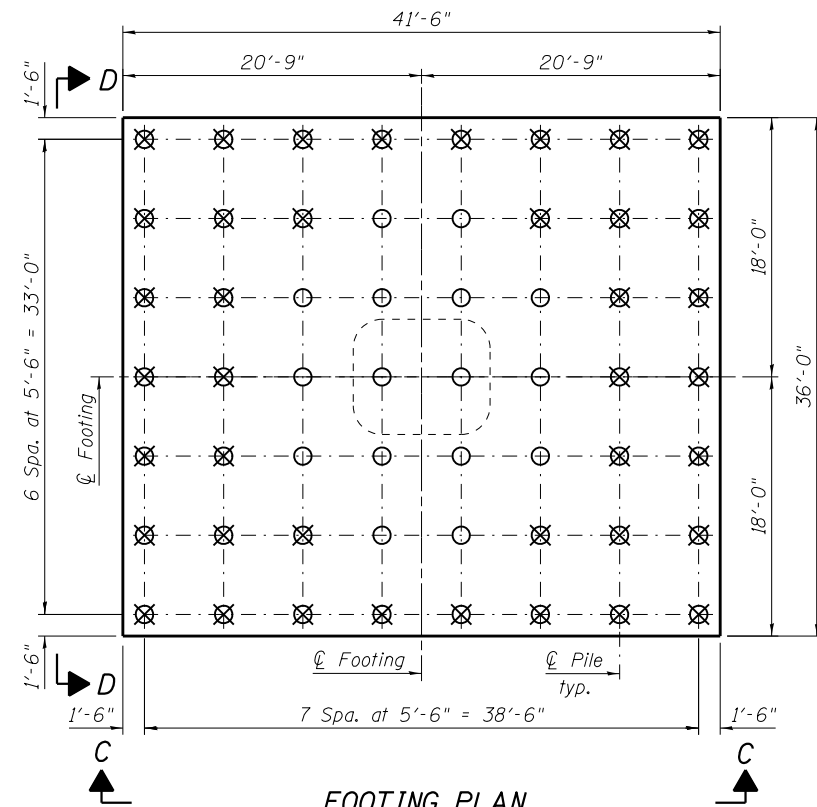


ELEVATION C-C



ELEVATION D-D

Notes:
 1. Work this sheet with Sheet 55 of 68.

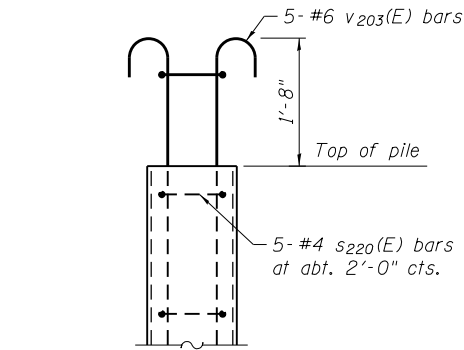


FOOTING PLAN

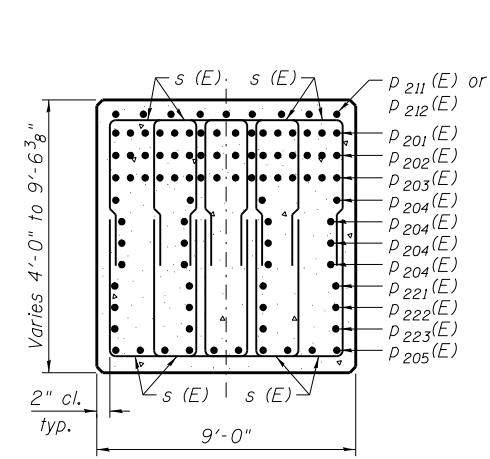
X Denotes piles with uplift connection

PILE DATA

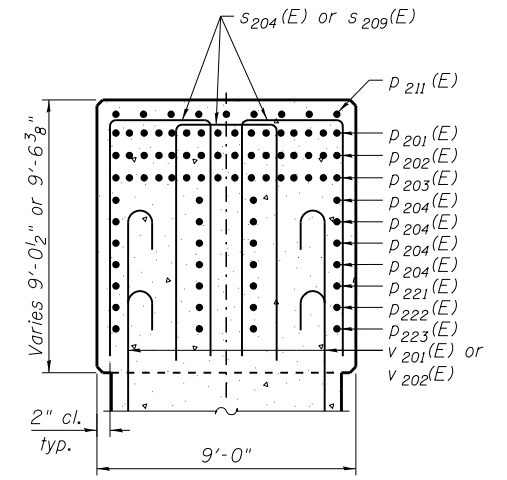
Type: Metal Shell 14 in. dia.
 x 0.312 in. walls with pile shoes
 Nominal Required Bearing: 500 kips
 Factored Resistance Available: 275 kips
 Est. Length: 65'
 No. Production Piles: 55
 No. Test Piles: 1



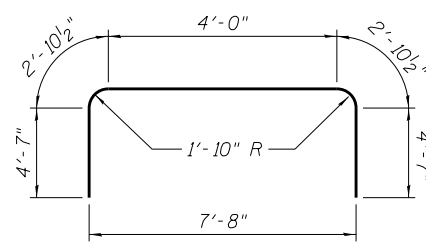
PILE UPLIFT CONNECTION



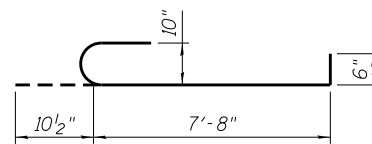
SECTION A-A



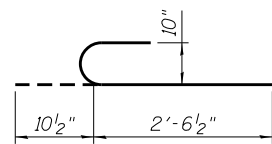
SECTION E-E



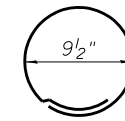
BAR s201(E)



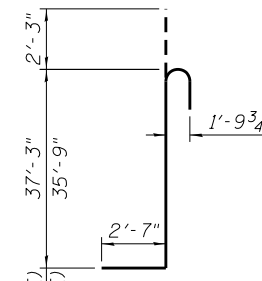
BAR s202(E)



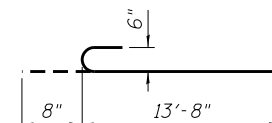
BAR s203(E)



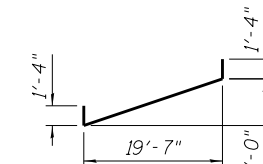
BAR s220(E)



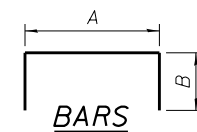
BAR v201(E) & v202(E)



BAR v203(E)



BAR p205(E)



BARS

A & B DIMENSIONS

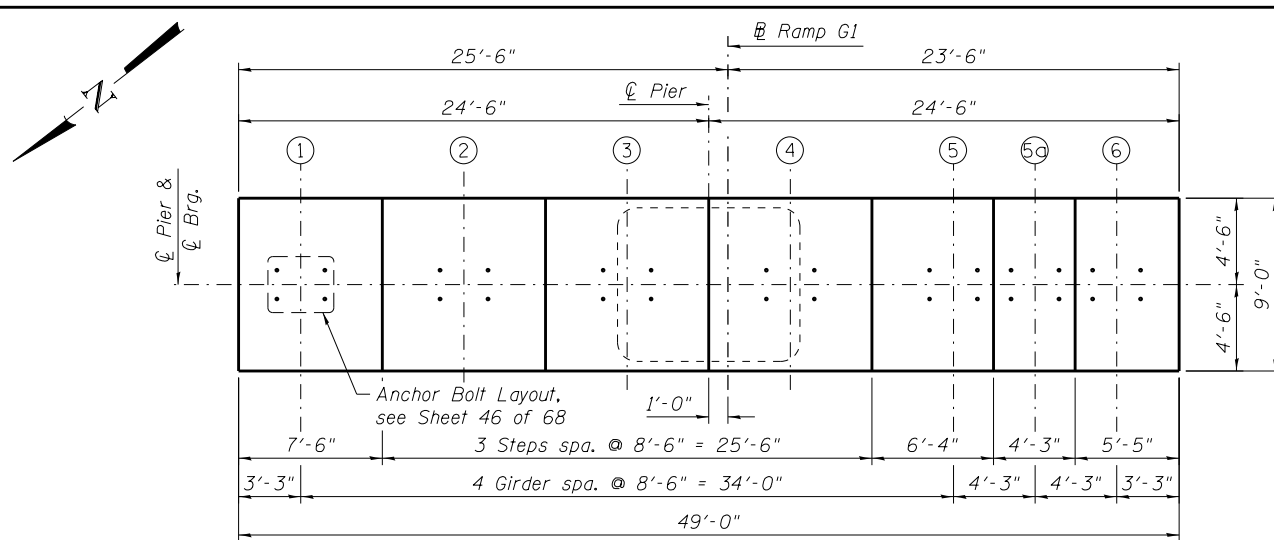
Bar	A	B
p201(E)	48'-5"	2'-0"
p202(E)	47'-5"	2'-0"
p203(E)	46'-5"	2'-0"
p211(E)	8'-2"	1'-0"
p212(E)	7'-2"	1'-0"
s204(E)	3'-6"	8'-8"
s205(E)	3'-6"	6'-4"
s206(E)	3'-6"	5'-6"
s207(E)	3'-6"	4'-7"
s208(E)	3'-6"	3'-7"
s209(E)	3'-6"	9'-2"
s210(E)	3'-6"	6'-7"
s211(E)	3'-6"	5'-11"
t201(E)	35'-3"	4'-0"
t202(E)	35'-3"	1'-4"
t203(E)	35'-6"	4'-0"
u201(E)	8'-6"	2'-3"
w201(E)	41'-0"	4'-0"
w202(E)	40'-9"	1'-4"
w203(E)	41'-0"	4'-0"

BILL OF MATERIAL

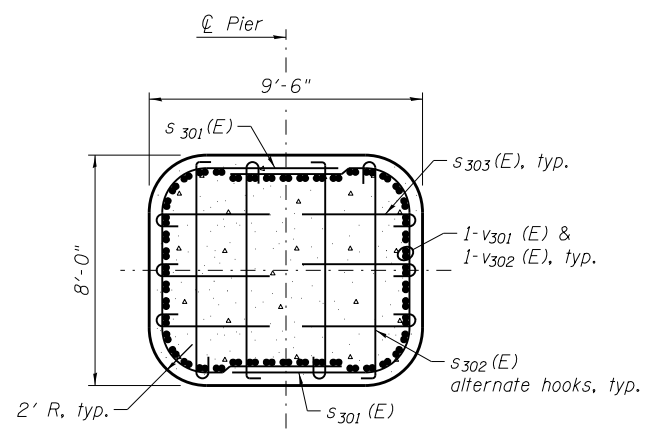
Bar	No.	Size	Length	Shape
p201(E)	16	#11	52'-5"	U
p202(E)	16	#11	51'-5"	U
p203(E)	16	#11	50'-5"	U
p204(E)	16	#9	48'-2"	U
p205(E)	20	#8	22'-8"	U
p211(E)	36	#6	10'-2"	U
p212(E)	18	#6	9'-2"	U
p221(E)	4	#9	39'-0"	U
p222(E)	4	#9	30'-9"	U
p223(E)	4	#9	22'-6"	U
s201(E)	104	#5	18'-11"	U
s202(E)	208	#5	9'-1"	U
s203(E)	312	#5	3'-5"	U
s204(E)	24	#6	20'-10"	U
s205(E)	96	#6	16'-2"	U
s206(E)	64	#6	14'-6"	U
s207(E)	32	#6	12'-8"	U
s208(E)	40	#6	10'-8"	U
s209(E)	21	#6	21'-10"	U
s210(E)	160	#6	16'-8"	U
s211(E)	72	#6	15'-4"	U
s220(E)	200	#4	5'-6"	O
t201(E)	72	#11	43'-6"	U
t202(E)	10	#8	37'-11"	U
t203(E)	42	#8	43'-6"	U
u201(E)	10	#5	13'-0"	U
v201(E)	48	#14	42'-1"	U
v202(E)	48	#14	40'-7"	U
v203(E)	200	#6	14'-4"	U
w201(E)	80	#11	49'-0"	U
w202(E)	10	#8	43'-5"	U
w203(E)	36	#8	49'-0"	U
Braced Excavation		Cu. Yd.	1028.0	
Concrete Structures		Cu. Yd.	596.6	
Reinforcement Bars, Epoxy Coated		Pound	120,970	
Furnishing Metal Shell Piles 14" x 0.312"		Foot	3575	
Driving Piles		Foot	3575	
Test Pile Metal Shells		Each	1	
Pile Shoes		Each	56	

Notes:

1. Work this sheet with Sheet 54 of 68.



Girder No.	Seat Elev.
1	755.64
2	756.20
3	756.72
4	757.19
5	757.68
5a	757.94
6	758.17



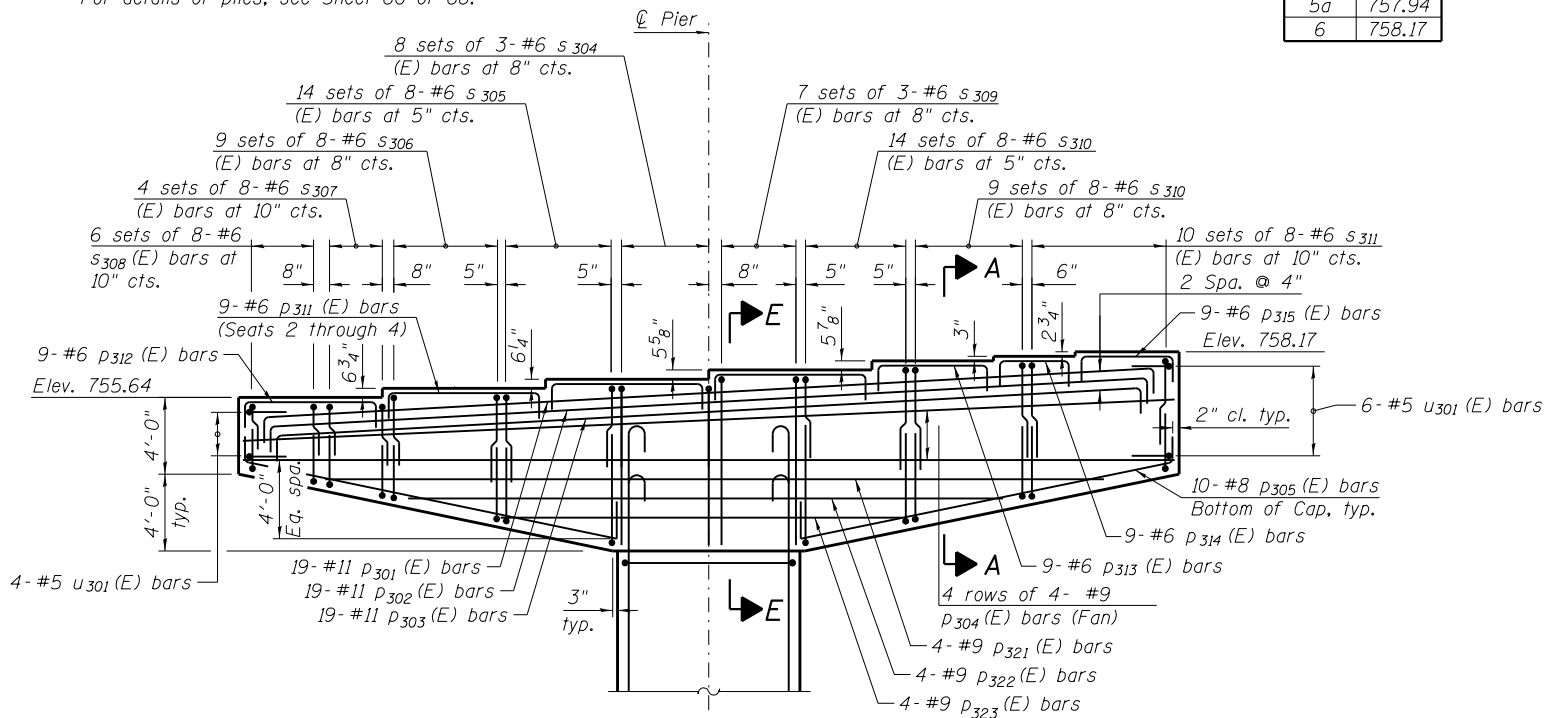
Notes:
 Space reinforcement in cap to miss anchor bolts.
 Pour steps monolithically with cap.
 For details of piles, see Sheet 60 of 68.

TOP PLAN

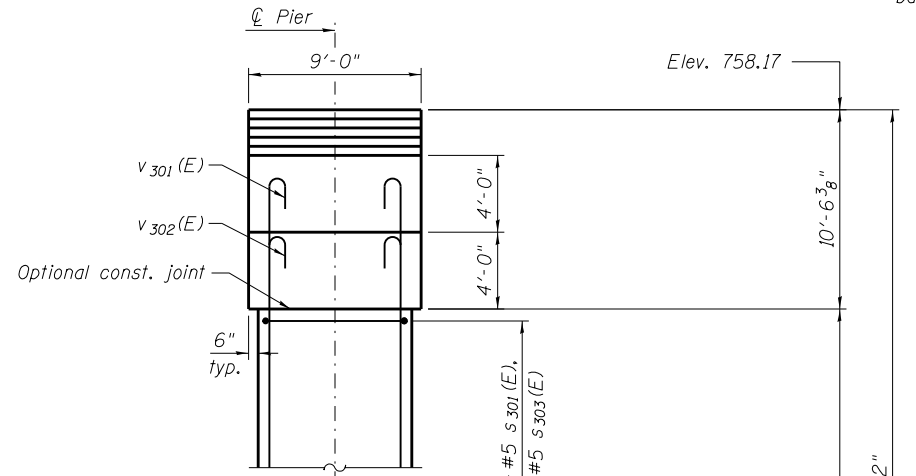
SECTION B-B

BAR MARKS

- (A) 1-#8 t₃₀₆ (E), 3-#8 t₃₀₅ (E) & 3-#8 t₃₀₄ (E) bars at 12" cts. left to right.
- (B) 4-#11 t₃₀₈ (E), 4-#11 t₃₀₇ (E) & 2-#11 t₃₀₁ (E) bars eq. spa between piles left to right.
- (C) 13-#11 w₃₀₄ (E) bars eq. spa between piles.
- (D) 4-#11 w₃₀₅ (E), 3-#11 w₃₀₆ (E) & 6-#11 w₃₀₁ (E) bars eq. spa between piles left to right.
- (E) 7-#8 w₃₀₇ (E), 2-#8 w₃₀₈ (E) & 1-#8 w₃₀₉ (E) bars at 12" cts. left to right

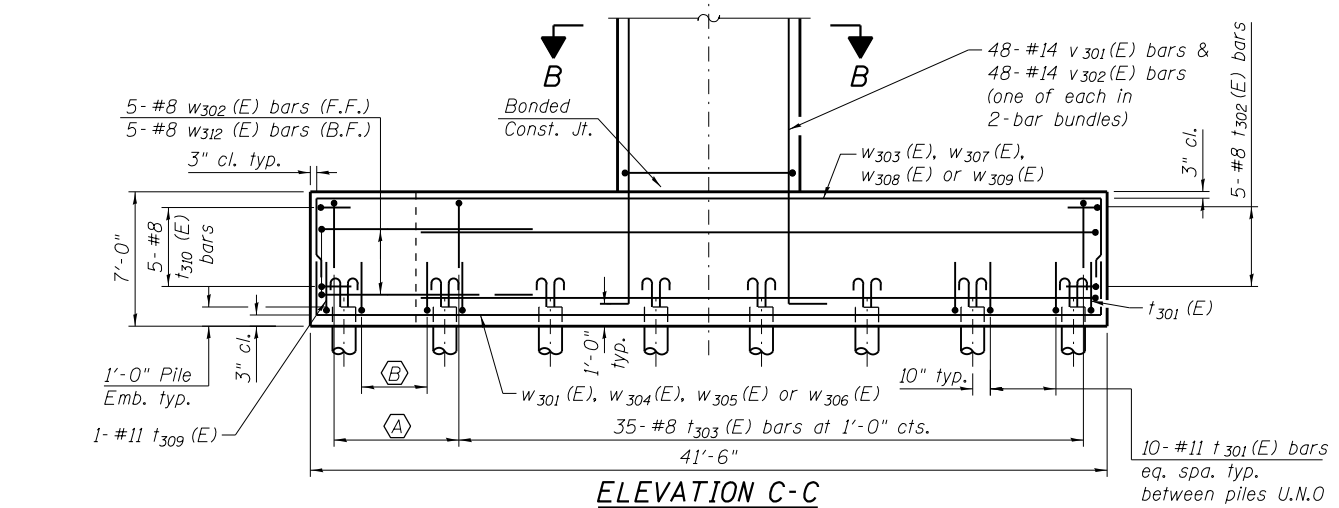


PIER CAP ELEVATION
(Looking Upstation)

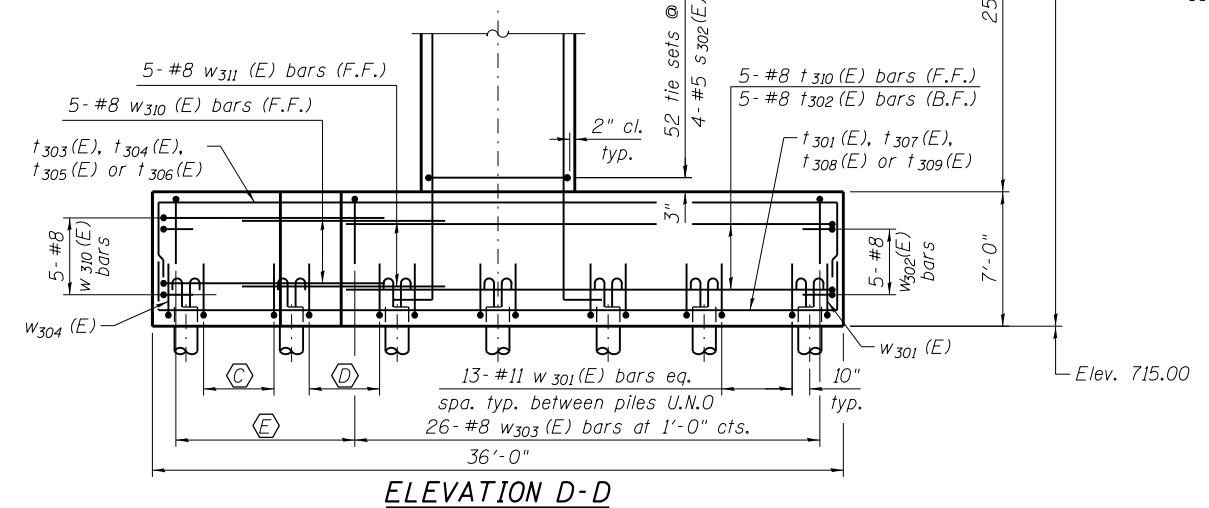


PIER CAP END VIEW

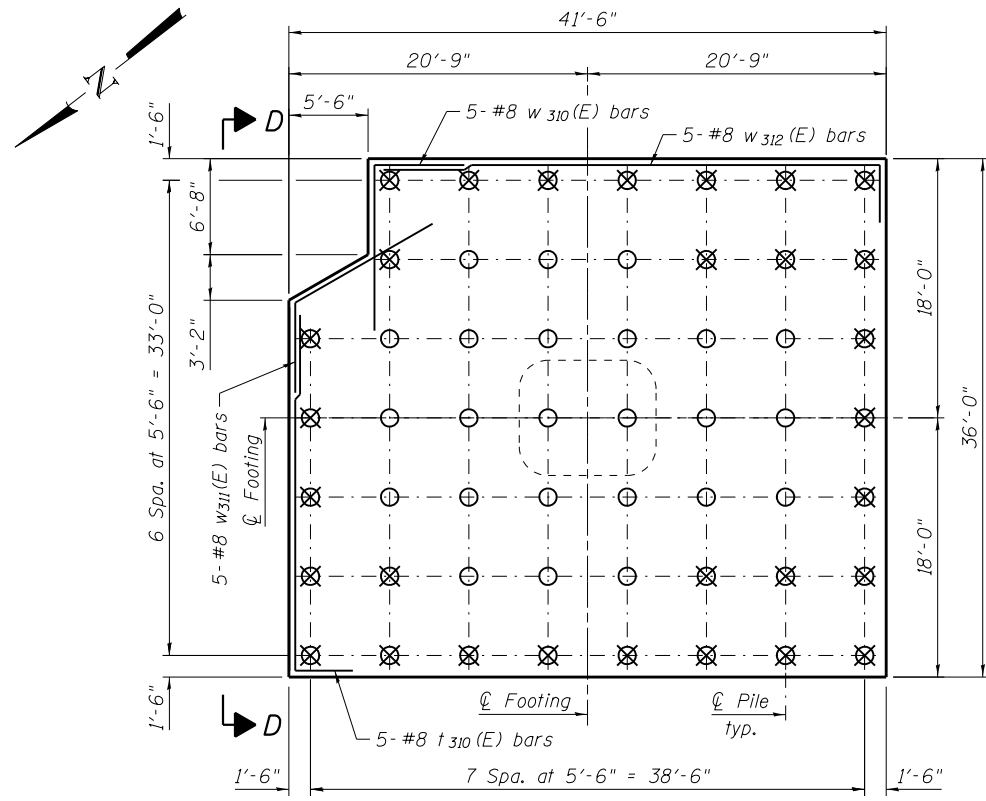
Notes:
 1. Work this sheet with Sheet 57 of 68.
 2. See Footing Plan on Sheet 57 of 68 for additional reinforcing.



ELEVATION C-C



ELEVATION D-D

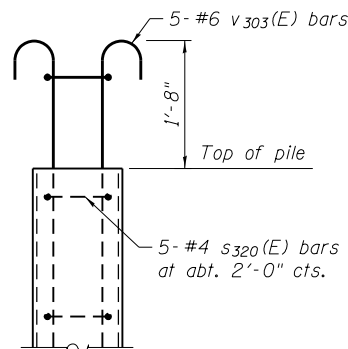


FOOTING PLAN

X Denotes piles with uplift connection

PILE DATA

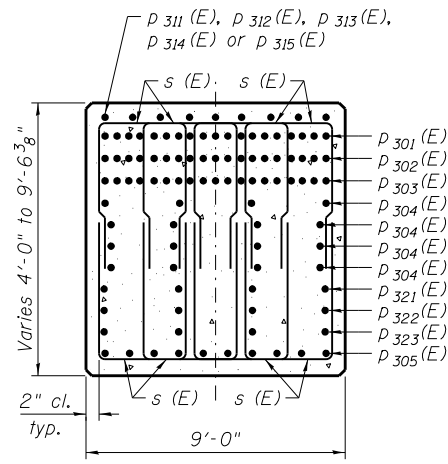
Type: Metal Shell 14 in. dia.
 x 0.312 in. walls with pile shoes
 Nominal Required Bearing: 510 kips
 Factored Resistance Available: 280 kips
 Est. Length: 56'
 No. Production Piles: 53
 No. Test Piles: 1



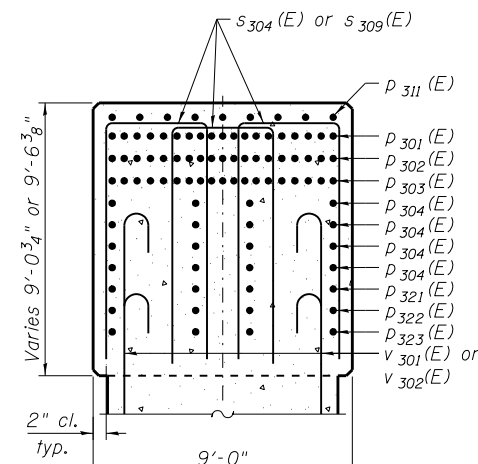
PILE UPLIFT CONNECTION

Notes:

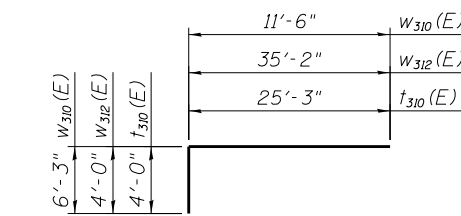
1. Work this sheet with Sheet 56 of 68.



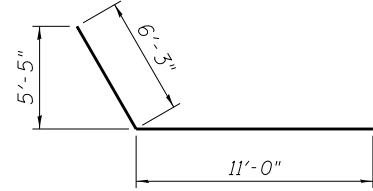
SECTION A-A



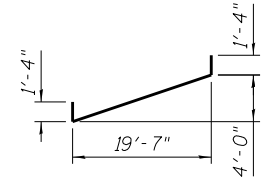
SECTION E-E



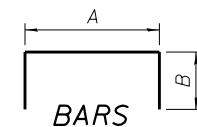
BARS t₃₁₀(E), w₃₁₀(E) and w₃₁₂(E)



BAR w₃₁₁(E)



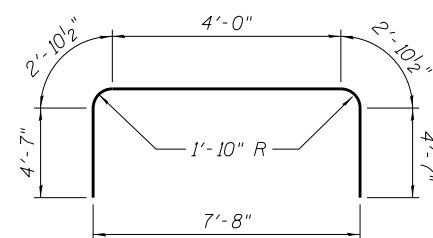
BAR p₃₀₅(E)



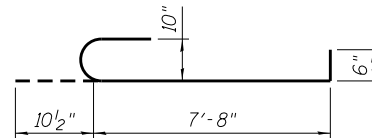
BARS

A & B DIMENSIONS

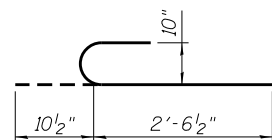
Bar	A	B
p ₃₀₁ (E)	48'-5"	2'-0"
p ₃₀₂ (E)	47'-5"	2'-0"
p ₃₀₃ (E)	46'-5"	2'-0"
p ₃₀₄ (E)	3'-6"	8'-8"
p ₃₀₅ (E)	3'-6"	6'-4"
p ₃₀₆ (E)	3'-6"	5'-6"
p ₃₀₇ (E)	3'-6"	4'-7"
p ₃₀₈ (E)	3'-6"	3'-7"
p ₃₀₉ (E)	3'-6"	9'-2"
p ₃₁₀ (E)	3'-6"	6'-7"
p ₃₁₁ (E)	3'-6"	5'-11"
t ₃₀₁ (E)	35'-6"	4'-0"
t ₃₀₂ (E)	35'-3"	1'-4"
t ₃₀₃ (E)	35'-6"	4'-0"
t ₃₀₄ (E)	27'-11"	4'-0"
t ₃₀₅ (E)	26'-11"	4'-0"
t ₃₀₆ (E)	26'-0"	4'-0"
t ₃₀₇ (E)	27'-11"	4'-0"
t ₃₀₈ (E)	26'-11"	4'-0"
t ₃₀₉ (E)	26'-0"	4'-0"
u ₃₀₁ (E)	8'-6"	2'-3"
w ₃₀₁ (E)	41'-0"	4'-0"
w ₃₀₂ (E)	40'-9"	1'-4"
w ₃₀₃ (E)	41'-0"	4'-0"
w ₃₀₄ (E)	35'-6"	4'-0"
w ₃₀₅ (E)	37'-2"	4'-0"
w ₃₀₆ (E)	39'-4"	4'-0"
w ₃₀₇ (E)	35'-6"	4'-0"
w ₃₀₈ (E)	37'-2"	4'-0"
w ₃₀₉ (E)	39'-4"	4'-0"
Structure Excavation	Cu. Yd.	472
Concrete Structures	Cu. Yd.	570.1
Reinforcement Bars, Epoxy Coated	Pound	122,340
Furnishing Metal Shell Piles 14" x 0.312"	Foot	2968
Driving Piles	Foot	2968
Test Pile Metal Shells	Each	1
Pile Shoes	Each	54



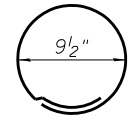
BAR s₃₀₁(E)



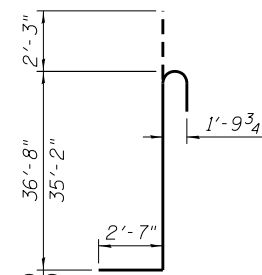
BAR s₃₀₂(E)



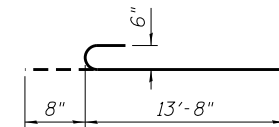
BAR s₃₀₃(E)



BAR s₃₂₀(E)



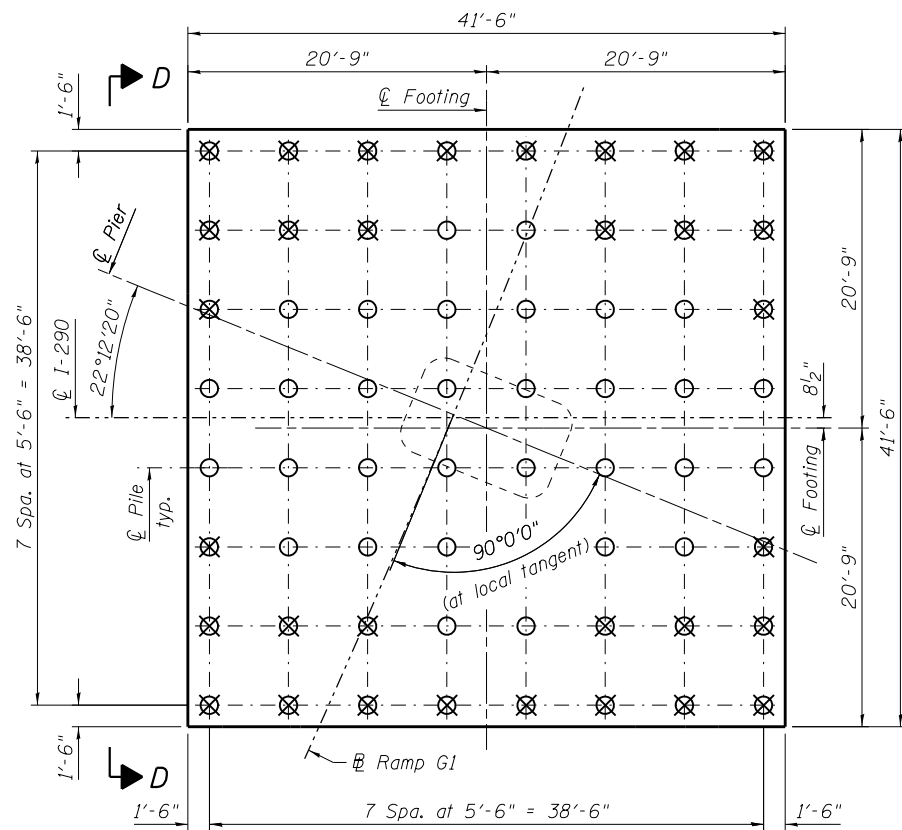
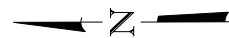
BAR v₃₀₁(E) & v₃₀₂(E)



BAR v₃₀₃(E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
p ₃₀₁ (E)	19	#11	52'-5"	┌
p ₃₀₂ (E)	19	#11	51'-5"	┌
p ₃₀₃ (E)	19	#11	50'-5"	┌
p ₃₀₄ (E)	16	#9	48'-2"	┌
p ₃₀₅ (E)	20	#8	22'-8"	┌
p ₃₁₁ (E)	27	#6	10'-2"	┌
p ₃₁₂ (E)	9	#6	9'-2"	┌
p ₃₁₃ (E)	9	#6	8'-2"	┌
p ₃₁₄ (E)	9	#6	5'-11"	┌
p ₃₁₅ (E)	9	#6	7'-1"	┌
p ₃₂₁ (E)	4	#9	39'-0"	┌
p ₃₂₂ (E)	4	#9	30'-9"	┌
p ₃₂₃ (E)	4	#9	22'-6"	┌
s ₃₀₁ (E)	104	#5	18'-11"	┌
s ₃₀₂ (E)	208	#5	9'-1"	┌
s ₃₀₃ (E)	312	#5	3'-5"	┌
s ₃₀₄ (E)	24	#6	20'-10"	┌
s ₃₀₅ (E)	112	#6	16'-2"	┌
s ₃₀₆ (E)	72	#6	14'-6"	┌
s ₃₀₇ (E)	32	#6	12'-8"	┌
s ₃₀₈ (E)	48	#6	10'-8"	┌
s ₃₀₉ (E)	21	#6	21'-10"	┌
s ₃₁₀ (E)	184	#6	16'-8"	┌
s ₃₁₁ (E)	80	#6	15'-4"	┌
s ₃₂₀ (E)	150	#4	5'-6"	○
t ₃₀₁ (E)	63	#11	43'-6"	┌
t ₃₀₂ (E)	5	#8	37'-11"	┌
t ₃₀₃ (E)	35	#8	43'-6"	┌
t ₃₀₄ (E)	3	#8	35'-11"	┌
t ₃₀₅ (E)	3	#8	34'-11"	┌
t ₃₀₆ (E)	1	#8	34'-0"	┌
t ₃₀₇ (E)	4	#11	35'-11"	┌
t ₃₀₈ (E)	4	#11	34'-11"	┌
t ₃₀₉ (E)	1	#11	34'-0"	┌
t ₃₁₀ (E)	5	#8	29'-3"	┌
u ₃₀₁ (E)	10	#5	13'-0"	┌
v ₃₀₁ (E)	48	#14	41'-6"	┌
v ₃₀₂ (E)	48	#14	40'-0"	┌
v ₃₀₃ (E)	150	#6	14'-4"	┌
w ₃₀₁ (E)	59	#11	49'-0"	┌
w ₃₀₂ (E)	5	#8	43'-5"	┌
w ₃₀₃ (E)	26	#8	49'-0"	┌
w ₃₀₄ (E)	14	#11	43'-6"	┌
w ₃₀₅ (E)	4	#11	45'-2"	┌
w ₃₀₆ (E)	3	#11	47'-4"	┌
w ₃₀₇ (E)	7	#8	43'-6"	┌
w ₃₀₈ (E)	2	#8	45'-2"	┌
w ₃₀₉ (E)	1	#8	47'-4"	┌
w ₃₁₀ (E)	5	#8	17'-9"	┌
w ₃₁₁ (E)	5	#8	17'-3"	┌
w ₃₁₂ (E)	5	#8	39'-2"	┌

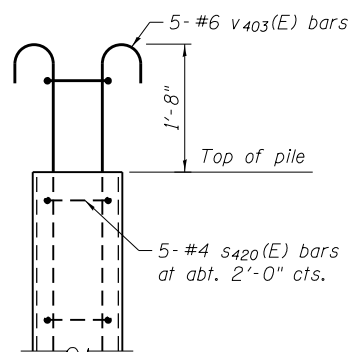


FOOTING PLAN

X Denotes piles with uplift connection

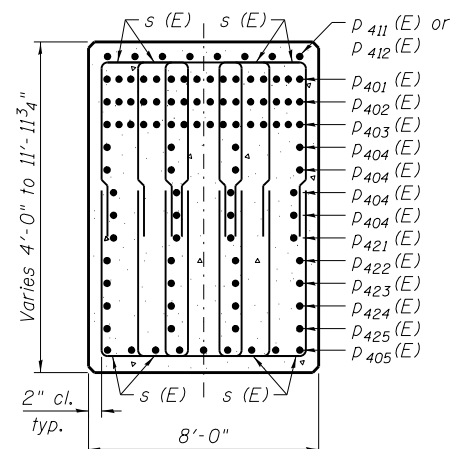
PILE DATA

Type: Metal Shell 14 in. dia.
 x 0.312 in. walls with pile shoes
 Nominal Required Bearing: 480 kips
 Factored Resistance Available: 265 kips
 Est. Length: 45'
 No. Production Piles: 63
 No. Test Piles: 1

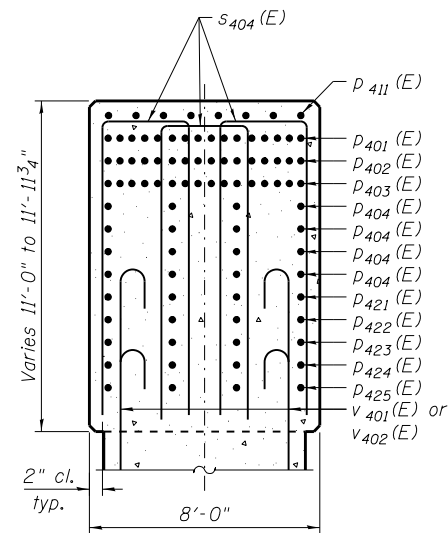


PILE UPLIFT CONNECTION

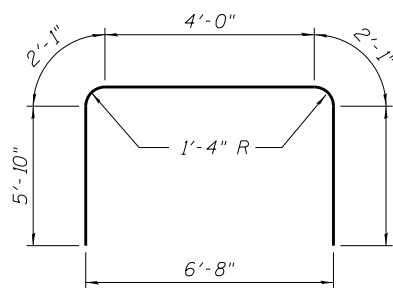
Notes:
 1. Work this sheet with Sheet 58 of 68.



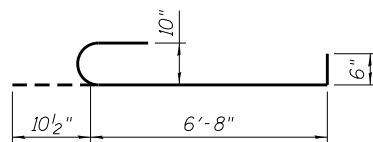
SECTION A-A



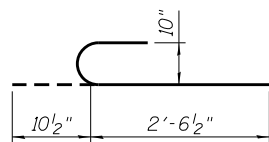
SECTION E-E



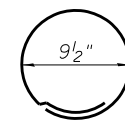
BAR s401(E)



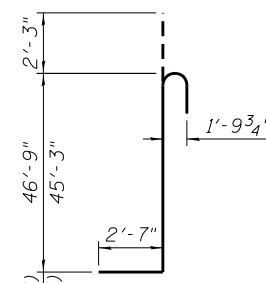
BAR s402(E)



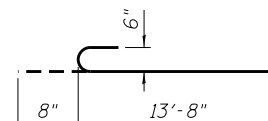
BAR s403(E)



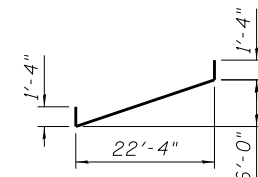
BAR s420(E)



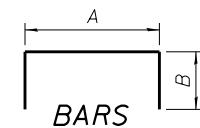
BAR v401(E) & v402(E)



BAR v403(E)



BAR p405(E)

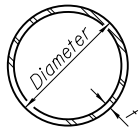


A & B DIMENSIONS

Bar	A	B
p401(E)	55'-6"	2'-0"
p402(E)	54'-6"	2'-0"
p403(E)	53'-6"	2'-0"
p411(E)	7'-11"	1'-0"
p412(E)	6'-11"	1'-0"
s404(E)	3'-0"	11'-2"
s405(E)	3'-0"	10'-8"
s406(E)	3'-0"	7'-3"
s407(E)	3'-0"	5'-10"
s408(E)	3'-0"	4'-9"
s409(E)	3'-0"	3'-7"
s410(E)	3'-0"	11'-8"
s411(E)	3'-0"	7'-9"
s412(E)	3'-0"	6'-10"
s413(E)	3'-0"	5'-11"
u401(E)	7'-6"	2'-3"
w401(E)	41'-0"	4'-0"
w402(E)	40'-9"	1'-4"
w403(E)	41'-0"	4'-0"

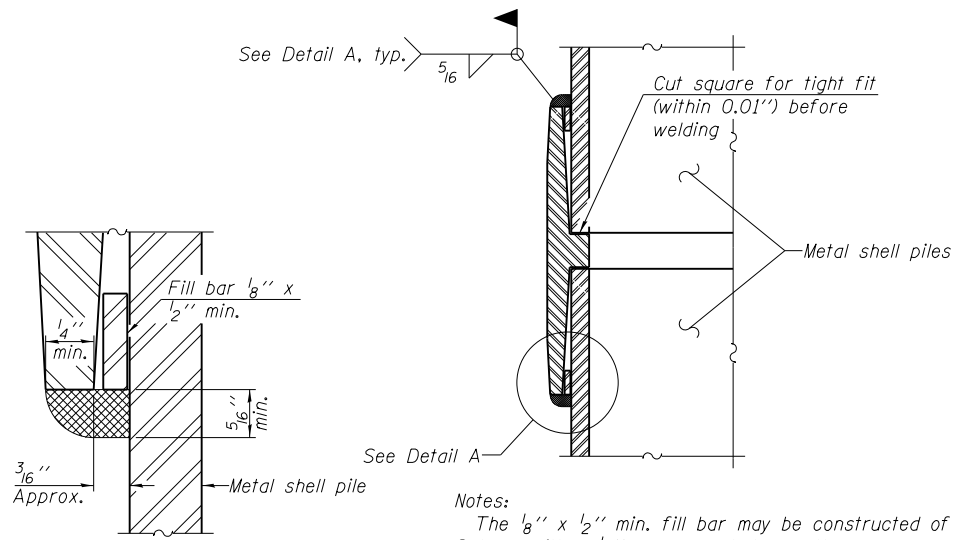
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
p401(E)	16	#11	59'-6"	U
p402(E)	16	#11	58'-6"	U
p403(E)	16	#11	57'-6"	U
p404(E)	16	#9	55'-3"	U
p405(E)	18	#8	25'-10"	U
p411(E)	40	#6	9'-11"	U
p412(E)	16	#6	8'-11"	U
p421(E)	4	#9	48'-1"	U
p422(E)	4	#9	40'-9"	U
p423(E)	4	#9	33'-4"	U
p424(E)	4	#9	25'-10"	U
p425(E)	4	#9	18'-6"	U
s401(E)	142	#5	22'-5"	U
s402(E)	355	#5	8'-1"	U
s403(E)	426	#5	3'-5"	U
s404(E)	33	#6	25'-4"	U
s405(E)	6	#6	24'-4"	U
s406(E)	128	#6	17'-6"	U
s407(E)	48	#6	14'-8"	U
s408(E)	24	#6	12'-6"	U
s409(E)	40	#6	10'-2"	U
s410(E)	6	#6	26'-4"	U
s411(E)	128	#6	18'-6"	U
s412(E)	72	#6	16'-8"	U
s413(E)	40	#6	14'-10"	U
s420(E)	160	#4	5'-6"	O
u401(E)	11	#5	12'-0"	U
v401(E)	52	#14	51'-7"	U
v402(E)	52	#14	50'-1"	U
v403(E)	160	#6	14'-4"	U
w401(E)	186	#11	49'-0"	U
w402(E)	20	#8	40'-9"	U
w403(E)	86	#8	49'-0"	U
Braced Excavation		Cu. Yd.	843.4	
Concrete Structures		Cu. Yd.	720.7	
Reinforcement Bars, Epoxy Coated		Pound	149,980	
Furnishing Metal Shell Piles 14" x 0.312"		Foot	2835	
Driving Piles		Foot	2835	
Test Pile Metal Shells		Each	1	
Pile Shoes		Each	64	



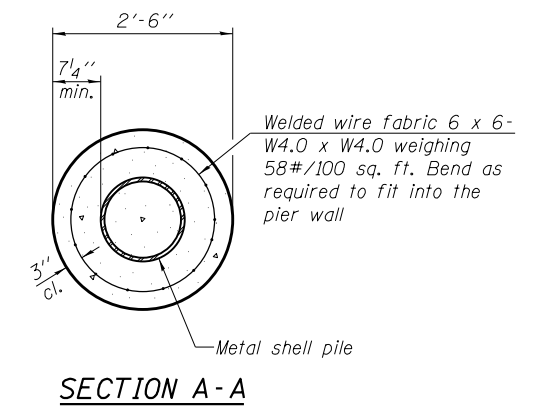
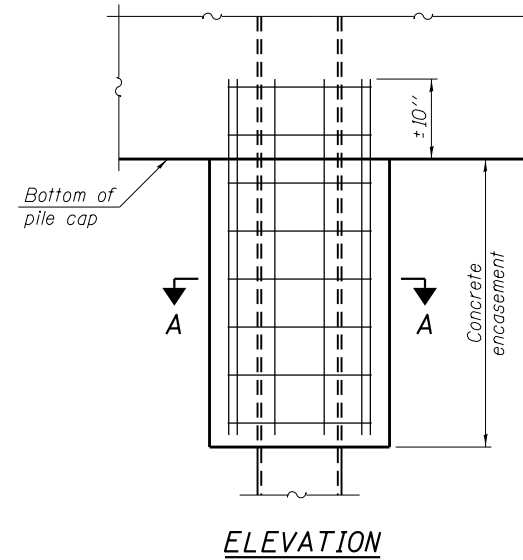
METAL SHELL PILE TABLE

Designation and outside diameter	Wall thickness t	Weight per foot (Lbs./ft.)	Inside volume (yd. ³ /ft.)
PP12	0.179"	22.60	0.0274
PP12	0.250"	31.37	0.0267
PP14	0.250"	36.71	0.0368
PP14	0.312"	45.61	0.0361



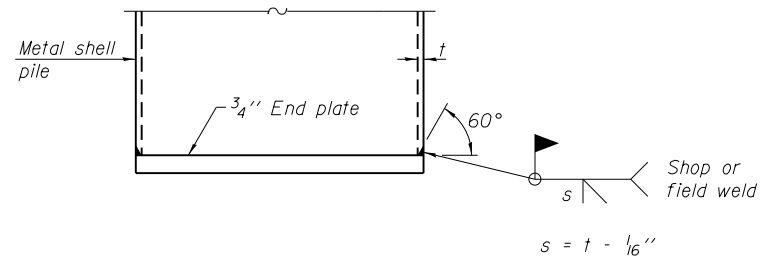
Notes:
 The $\frac{1}{8}$ " x $\frac{1}{2}$ " min. fill bar may be constructed of 2 bars with a $\frac{1}{8}$ " max. gap between them.
 Pile segments shall be driven to solid contact with splicer before welding.

WELDED COMMERCIAL SPLICE

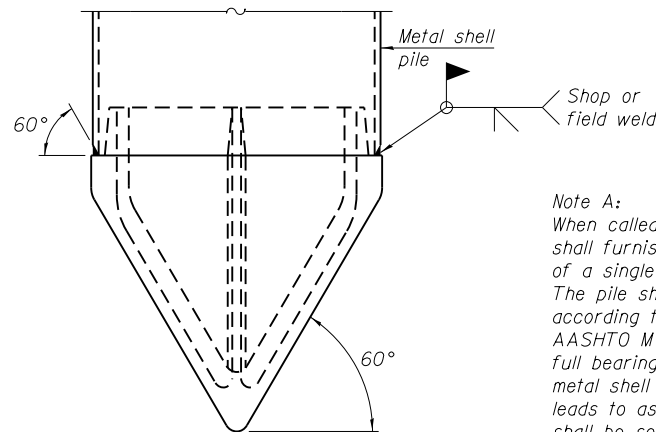


Note:
 Forms for encasement may be omitted when soil conditions permit.

CONCRETE ENCASEMENT AT PIERS



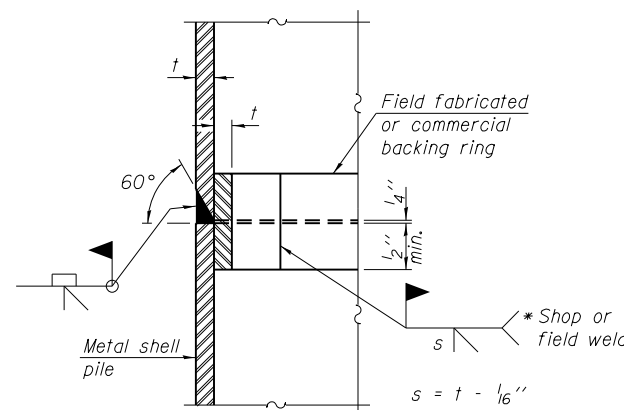
END PLATE ATTACHMENT



Note A:
 When called for on the plans, the Contractor shall furnish metal shell pile shoes consisting of a single piece conical pile point as shown. The pile shoes shall be cast in one piece steel according to either ASTM A 148 Grade 90-60 or AASHTO M 103 Grade 65-35 and shall provide full bearing over the full circumference of the metal shell pile. The pile shoe shall have tapered leads to assure proper alignment and fitting and shall be secured to the pile with a circumferential weld.

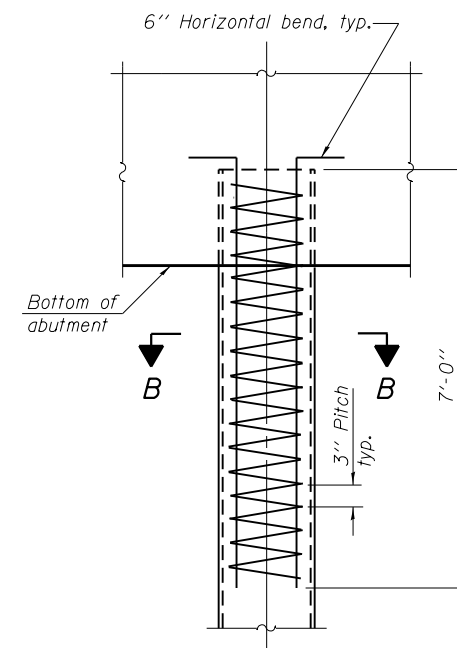
METAL SHELL PILE SHOE ATTACHMENT

(See Note A)



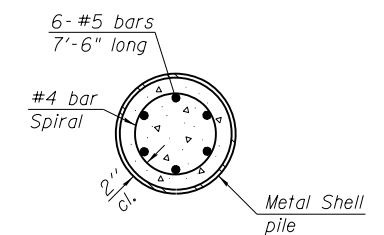
COMPLETE PENETRATION WELD SPLICE

* Field fabricated backing ring may be made from pile shell by removing segment to allow reducing circumference and vertically rejoin with partial joint penetration weld.



ELEVATION

METAL SHELL REINFORCEMENT AT ABUTMENTS



Note: The cost of reinforcement is included with Furnishing Metal Shell Piles of the size indicated in the plans.

Note:
 The metal shell piles shall be according to ASTM A 252 Grade 3.

SOIL BORING LOG

CONTRACT I-11-4031 DESCRIPTION Bridge B-21, Ramp G1 over Ramp G7, IL 390 and I-290 LOGGED BY E. Slusser

ROUTE Elgin O'Hare (IL 390) SECTION LOCATION NE 1/4 SEC. 6 TWP. 40N RNG. 11E PM. 3"

COUNTY DuPage DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. 022-0557
 Station 131+09.79
 BORING NO. B-21-BSB-01
 Station 127+34.93
 Offset 9.1 ft LT.
 Northing 1,937,927.42
 Easting 1,068,015.84
 Ground Surface Elev. 703.1 ft

DEPTH (ft)	SOIL DESCRIPTION	U (tsf)	S (%)	P (%)	DEPTH (ft)	SOIL DESCRIPTION	U (tsf)	S (%)	P (%)
0	TOPSOIL				0	Gray below 18.5 feet(continued)			
3	Stiff to Very Stiff, Brown, Gray and Black SILTY CLAY trace - roots, organics ST-1(0.5'-3') Dry Density = 108 pcf	1.2"	20		5		5	2.4	18
5		8 S			9		9	B	
2					4	Stiff to Very Stiff, Gray CLAY trace - gravel	4		
2		1.6	27		7		7	1.6	19
4		B			12		12	B	
1					7		7		
1	ST-3(6'-8') Grain Size LL=49, PI=31, A-7-6(30) Dry Density=96 pcf OC=2.4% Brown below 8 feet	1.1"	28		10		10	2.6	19
2		B			12		12	B	
5		2.1	19		8		8	1.6	21
7		B			11		11	B	
3	Medium Dense, Brown SANDY LOAM trace - gravel		10		5		5		
5					8		8	2.4	21
10					11		11	B	
2	Stiff, Gray CLAY trace - gravel		20		4		4		
3		1.2			7		7	2.5	22
7		B			11		11	B	
3	Stiff to Very Stiff, Brown SILTY CLAY trace - gravel		19		5		5		
5		1.6			8		8	2.1	23
7		B			10		10	B	
2	Gray below 18.5 feet				4		4		
3		1.3	17		7		7	2.5	18
6		B			10		10	B	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

SOIL BORING LOG

CONTRACT I-11-4031 DESCRIPTION Bridge B-21, Ramp G1 over Ramp G7, IL 390 and I-290 LOGGED BY E. Slusser

ROUTE Elgin O'Hare (IL 390) SECTION LOCATION NE 1/4 SEC. 6 TWP. 40N RNG. 11E PM. 3"

COUNTY DuPage DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. 022-0557
 Station 131+09.79
 BORING NO. B-21-BSB-01
 Station 127+34.93
 Offset 9.1 ft LT.
 Northing 1,937,927.42
 Easting 1,068,015.84
 Ground Surface Elev. 703.1 ft

DEPTH (ft)	SOIL DESCRIPTION	U (tsf)	S (%)	P (%)	DEPTH (ft)	SOIL DESCRIPTION	U (tsf)	S (%)	P (%)
0	Stiff to Very Stiff, Gray CLAY trace - gravel(continued)				0	Medium Dense, Gray SILTY LOAM little - gravel			
4					2		2		
5		1.8	16		5		5		15
10		B			8		8		
2					10	Very Stiff, Gray SILTY CLAY trace - gravel	10		
5		1.6	17		10		10	2.5	16
7		B			18		18	B	
6					10	Very Stiff, Gray CLAY	10		
6		2.1	17		12		12	2.3	17
10		B			15		15	B	
5					12	Medium Dense to Very Dense, Gray SANDY LOAM little - gravel	12		
9		2.1	20		21		21		12
11		B			21		21		
7					17		17		
8		3.0	18		24		24		11
11		P			34		34		
10	Medium Dense to Dense, Gray Fine to Coarse SAND trace to little - gravel		15		14	Grain Size A-1-b(0) Non Plastic	14		
10					16		16		9
20					21		21		
9					6		6		
12			17		13		13		11
15					12		12		
4					7	Hard, Gray CLAY LOAM trace - gravel	7		
13			18		11		11	4.5+	14
19					20		20	P	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

SOIL BORING LOG

Date 5/22/13

CONTRACT I-11-4031 DESCRIPTION Bridge B-21, Ramp G1 over Ramp G7, IL 390 and I-290 LOGGED BY E. Slusser

ROUTE Elgin O'Hare (IL 390) SECTION LOCATION NE 1/4 SEC. 6 TWP. 40N RNG. 11E PM. 3"

COUNTY DuPage DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. 022-0557
 Station 131+09.79
 BORING NO. B-21-BSB-01
 Station 127+34.93
 Offset 9.1 ft LT.
 Northing 1,937,927.42
 Easting 1,068,015.84
 Ground Surface Elev. 703.1 ft

DEPTH (ft)	SOIL DESCRIPTION	DEPTH (ft)	SOIL DESCRIPTION	DEPTH (ft)	SOIL DESCRIPTION
622.6	Dense, Gray SILTY LOAM trace - gravel	602.6	Dense, Gray SILT		
10		9			
15		15		14	
24		16			
620.1	Very Stiff to Hard, Gray CLAY LOAM trace - gravel				
8		11			
12	6.0 B	15		7	
15	B	15			
-85		598.1 -105	END OF BORING		
6					
10	5.8 B				
13	B				
9					
9	5.4 B				
16	B	-110			
-90					
8					
16	2.1 B				
8	B				
7					
7	2.2 B				
6	B	-115			
-95					
607.6	Very Dense, Gray Fine to Medium SAND				
12					
36				15	
42					
13					
26				14	
38		-120			
-100					

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

SOIL BORING LOG

Date 5/29/13

CONTRACT I-11-4031 DESCRIPTION Bridge B-21, Ramp G1 over Ramp G7, IL 390 and I-290 LOGGED BY E. Slusser

ROUTE Elgin O'Hare (IL 390) SECTION LOCATION NE 1/4 SEC. 6 TWP. 40N RNG. 11E PM. 3"

COUNTY DuPage DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. 022-0557
 Station 131+09.79
 BORING NO. B-21-BSB-02
 Station 129+00
 Offset 5.0 ft LT.
 Northing 1,937,768.36
 Easting 1,068,053.69
 Ground Surface Elev. 701.6 ft

DEPTH (ft)	SOIL DESCRIPTION	DEPTH (ft)	SOIL DESCRIPTION	DEPTH (ft)	SOIL DESCRIPTION
700.8	TOPSOIL				
4	Stiff to Very Stiff, Brown, Black and Gray SILTY CLAY trace - organics, roots, gravel	5		5	
5		7		1.9	22
7		B		B	
698.1	Brown and Gray from 3.5 to 6 feet				
2		3		3	
3		6		1.8	21
6		B		B	
-5		-25			
695.6	Brown below 6 feet				
4		4		4	
5		6		2.6	22
7		B		B	
693.6	Stiff to Hard, Gray CLAY trace - gravel				
3		3		3	
6		6		2.9	21
7		B		B	
-10		-30			
2		6		6	
5		9		3.1	15
6		11		B	
2					
4		4		4	
5		6		2.1	15
-15		8		B	
3					
3					
4					
				6	
4				9	
5				4.5	17
-20		-40		B	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

SOIL BORING LOG

Date 5/29/13

CONTRACT I-11-4031 DESCRIPTION Bridge B-21, Ramp G1 over Ramp G7, IL 390 and I-290 LOGGED BY E. Slusser

ROUTE Elgin O'Hare (IL 390) SECTION LOCATION NE 1/4 SEC. 6 TWP. 40N RNG. 11E PM. 3"

COUNTY DuPage DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. 022-0557
 Station 131+09.79
 BORING NO. B-21-BSB-02
 Station 129+00
 Offset 5.0 ft LT.
 Northing 1,937,768.36
 Easting 1,068,053.69
 Ground Surface Elev. 701.6 ft

DEPTH (ft)	SOIL TYPE	UCS (tsf)	SPT (blows)	DEPTH (ft)	SOIL TYPE	UCS (tsf)	SPT (blows)
0	Stiff to Hard, Gray CLAY trace - gravel(continued)			0	Very Stiff, Gray CLAY(continued)		
8			20	639.6	Medium Dense to Dense, Gray SANDY LOAM little - gravel		10
9		2.3					
10		B					
8			19				
11		5.4					
20		B					
649.6	Medium Dense, Gray LOAM little - gravel			629.6	Medium Dense to Dense, Gray SILTY LOAM trace to little - gravel		
10			11				
10	Grain Size LL=19, PI=6, A-4(1)						
13							
644.6	Very Stiff, Gray CLAY						
10			19				
9		2.9					
12		B					

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

SOIL BORING LOG

Date 5/29/13

CONTRACT I-11-4031 DESCRIPTION Bridge B-21, Ramp G1 over Ramp G7, IL 390 and I-290 LOGGED BY E. Slusser

ROUTE Elgin O'Hare (IL 390) SECTION LOCATION NE 1/4 SEC. 6 TWP. 40N RNG. 11E PM. 3"

COUNTY DuPage DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. 022-0557
 Station 131+09.79
 BORING NO. B-21-BSB-02
 Station 129+00
 Offset 5.0 ft LT.
 Northing 1,937,768.36
 Easting 1,068,053.69
 Ground Surface Elev. 701.6 ft

DEPTH (ft)	SOIL TYPE	UCS (tsf)	SPT (blows)
0	Medium Dense to Dense, Gray SILTY LOAM trace to little - gravel(continued)		
10			10
12			
14			
616.6	END OF BORING		
85			
90			
95			
100			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

SOIL BORING LOG

CONTRACT I-11-4031 DESCRIPTION Bridge B-21, Ramp G1 over Ramp G7, IL 390 and I-290 LOGGED BY J. Frederick

ROUTE Elgin O'Hare (IL 390) SECTION LOCATION SE 1/4 SEC. 6 TWP. 40N RNG. 11E PM. 3"

COUNTY DuPage DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. 022-0557
 Station 131+09.79
 BORING NO. B-21-BSB-04
 Station 133+91.12
 Offset 12.8 ft RT.
 Northing 1,937,369.81
 Easting 1,068,333.10
 Ground Surface Elev. 715.8 ft

DEPTH THW H	BLOW S	UCS Qu	MOIST T	Surface Water Elev.				Stream Bed Elev.				Groundwater Elev.:			
				ft				ft				ft			
(ft)	(/6")	(tsf)	(%)	ft	(ft)	(/6")	(tsf)	(%)	ft	(ft)	(/6")	(tsf)	(%)		
TOPSOIL				Gray below 11 feet(continued)											
714.8															
	5					4									
	6	3.9	22			6	2.4	15							
	10	B				9	B								
712.8															
	4					6									
	7	6.4	18			6	2.5	15							
	8	B				9	B								
	4					4									
	7	5.6	19			6	2.0	16							
	8	B				8	B								
	4					5									
	7	6.2	19			7	2.1	13							
	10	B				9	B								
704.8															
	3					5									
	7	3.7	18			7	2.7	18							
	8	B				11	B								
	3					4									
	5	2.4	19			7	3.6	18							
	7	B				9	B								
	3					3									
	4	2.3	18			7	2.4	19							
	7	B				10	B								
	3					4									
	5	2.3	18			7	3.0	21							
	7	B				10	B								

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

SOIL BORING LOG

CONTRACT I-11-4031 DESCRIPTION Bridge B-21, Ramp G1 over Ramp G7, IL 390 and I-290 LOGGED BY J. Frederick

ROUTE Elgin O'Hare (IL 390) SECTION LOCATION SE 1/4 SEC. 6 TWP. 40N RNG. 11E PM. 3"

COUNTY DuPage DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. 022-0557
 Station 131+09.79
 BORING NO. B-21-BSB-04
 Station 133+91.12
 Offset 12.8 ft RT.
 Northing 1,937,369.81
 Easting 1,068,333.10
 Ground Surface Elev. 715.8 ft

DEPTH THW H	BLOW S	UCS Qu	MOIST T	Surface Water Elev.				Stream Bed Elev.				Groundwater Elev.:			
				ft				ft				ft			
(ft)	(/6")	(tsf)	(%)	ft	(ft)	(/6")	(tsf)	(%)	ft	(ft)	(/6")	(tsf)	(%)		
Gray below 11 feet(continued)				Medium Dense to Very Dense, Gray Fine SAND(continued)											
	7														
	8	3.1	20			8									
	11	B				9									
	4					6									
	7	2.3	16			7	2.3	16							
	8	B				9	B								
	6					6									
	9	2.5	15			9	2.5	15							
	11	B				11	B								
	8					8									
	12	2.6	14			12	2.6	14							
	15	B				15	B								
	11					11									
	12	2.5	15			12	2.5	15							
	15	P				15	P								
	7					7									
	9		20			9		20							
	27					27									
	11					11									
	19		20			19		20							
	32					32									
	10					10									
	15		18			15		18							
	19					19									
END OF BORING				END OF BORING											

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

SOIL BORING LOG

CONTRACT I-11-4031 DESCRIPTION Bridge B-21, Ramp G1 over Ramp G7, IL 390 and I-290 LOGGED BY J. Frederick

ROUTE Elgin O'Hare (IL 390) SECTION LOCATION SE 1/4 SEC. 6 TWP. 40N RNG. 11E PM. 3"

COUNTY DuPage DRILLING METHOD Solid Stem Auger / Mud Rotary below 10 feet HAMMER TYPE Automatic

STRUCT. NO. 022-0557
Station 131+09.79
BORING NO. B-21-BSB-05
Station 136+04.05
Offset 15.4 ft LT.
Northing 1,937,291.03
Easting 1,068,531.94
Ground Surface Elev. 708.1 ft

DEPTH (ft)	BLOW COUNT (blows/ft)	UCS (tsf)	MOISTURE (%)	Description	DEPTH (ft)	BLOW COUNT (blows/ft)	UCS (tsf)	MOISTURE (%)	Surface Water Elev.		Stream Bed Elev.		Groundwater Elev.:				
									ft	ft	ft	ft	Mud Rotary	ft	Mud Rotary	ft	
0				CONCRETE PAVEMENT													
0.8	50/2"			ASPHALT PAVEMENT	0.8	4											
0.9		8		Extremely Dense CRUSHED STONE	0.9	7	2.6	18									
1.0				FILL	1.0	9	B										
1.0				Very Stiff to Hard, Brown and Black SILTY CLAY trace - gravel	1.0	4											
1.0		14			1.0	6	2.7	19									
1.0					1.0	8	B										
1.0					1.0	5											
1.0		20			1.0	6	2.6	20									
1.0					1.0	7	B										
1.0					1.0	6											
1.0		18			1.0	10	4.1	19									
1.0					1.0	14	B										
1.0					1.0	10											
1.0		19			1.0	11	2.5	24									
1.0					1.0	15	P										
1.0					1.0	5											
1.0		20			1.0	6	3.3	21									
1.0					1.0	11	B										
1.0					1.0	5											
1.0		18			1.0	8	3.2	19									
1.0					1.0	11	B										

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

SOIL BORING LOG

CONTRACT I-11-4031 DESCRIPTION Bridge B-21, Ramp G1 over Ramp G7, IL 390 and I-290 LOGGED BY J. Frederick

ROUTE Elgin O'Hare (IL 390) SECTION LOCATION SE 1/4 SEC. 6 TWP. 40N RNG. 11E PM. 3"

COUNTY DuPage DRILLING METHOD Solid Stem Auger / Mud Rotary below 10 feet HAMMER TYPE Automatic

STRUCT. NO. 022-0557
Station 131+09.79
BORING NO. B-21-BSB-05
Station 136+04.05
Offset 15.4 ft LT.
Northing 1,937,291.03
Easting 1,068,531.94
Ground Surface Elev. 708.1 ft

DEPTH (ft)	BLOW COUNT (blows/ft)	UCS (tsf)	MOISTURE (%)	Description	DEPTH (ft)	BLOW COUNT (blows/ft)	UCS (tsf)	MOISTURE (%)	Surface Water Elev.		Stream Bed Elev.		Groundwater Elev.:				
									ft	ft	ft	ft	Mud Rotary	ft	Mud Rotary	ft	
0				Very Stiff to Hard, Gray CLAY trace to little - gravel(continued)													
0.8					0.8	4											
0.9					0.9	7	2.6	18									
0.9					0.9	9	B										
1.0					1.0	4											
1.0					1.0	6	2.7	19									
1.0					1.0	8	B										
1.0					1.0	5											
1.0		20			1.0	6	2.6	20									
1.0					1.0	7	B										
1.0					1.0	6											
1.0		18			1.0	10	4.1	19									
1.0					1.0	14	B										
1.0					1.0	10											
1.0		19			1.0	11	2.5	24									
1.0					1.0	15	P										
1.0					1.0	5											
1.0		20			1.0	6	3.3	21									
1.0					1.0	11	B										
1.0					1.0	5											
1.0		18			1.0	8	3.2	19									
1.0					1.0	11	B										

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

FILE NAME =	USER NAME = osantiag	DESIGNED - KSM	REVISED -
0220557-60Y95-066-BoringLog.dgn		CHECKED - CK/CM	REVISED -
CH2MHILL	PLOT SCALE = 2.0000' / in.	DRAWN - MRW	REVISED -
	PLOT DATE = 11/19/2014	CHECKED - KSM	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BORING LOG B-21-BSB-05
STRUCTURE NUMBER - 022-0557

SHEET NO. 66 OF 68 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
345	2013-083-R&B	DUPAGE	759	418
DRAWING NO. SD-66		CONTRACT NO. 60Y95		
ILLINOIS FED. AID PROJECT				

SOIL BORING LOG

CONTRACT I-11-4031 DESCRIPTION Bridge B-21, Ramp G1 over Ramp G7, IL 390 and I-290 LOGGED BY M. Baig

ROUTE Elgin O'Hare (IL 390) SECTION LOCATION SE 1/4 SEC. 6 TWP. 40N RNG. 11E PM. 3"

COUNTY DuPage DRILLING METHOD Solid Stem Auger / Mud Rotary below 10 feet HAMMER TYPE Automatic

STRUCT. NO. 022-0557
 Station 131+09.79
 BORING NO. B-21-BSB-06
 Station 137+76.95
 Offset 24.3 ft RT.
 Northing 1,937,200.07
 Easting 1,068,683.17
 Ground Surface Elev. 705.4 ft

DEPTH (ft)	SOIL DESCRIPTION	DEPTH (ft)	SOIL DESCRIPTION	U (tsf)	S (%)	P (%)
0 - 705.2	TOPSOIL	0 - 684.9	Medium Dense, Gray SANDY GRAVEL(continued)			
2	Very Stiff, Gray and Brown SILTY CLAY trace - roots, gravel	2	Stiff to Very Stiff, Gray CLAY trace to little - gravel	2.8	17	
4		3		1.6	19	
6		5		B		
701.4	FILL	684.9				
4	Very Stiff to Hard, Gray and Brown SILTY CLAY trace - gravel	3				
6		5		2.6	19	
8		8		B		
699.4	Gray below 6 feet	699.4				
3		2				
6		5		2.4	22	
9		6		B		
695.4		695.4				
4		2				
7		4		1.7	21	
		6		B		
		3				
		5		2.2	16	
		6		B		
		3				
		4		2.1	18	
		6		B		
		10				
		13				
		19				
		5				
		7		1.7	18	
		8		B		
		7				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

SOIL BORING LOG

CONTRACT I-11-4031 DESCRIPTION Bridge B-21, Ramp G1 over Ramp G7, IL 390 and I-290 LOGGED BY M. Baig

ROUTE Elgin O'Hare (IL 390) SECTION LOCATION SE 1/4 SEC. 6 TWP. 40N RNG. 11E PM. 3"

COUNTY DuPage DRILLING METHOD Solid Stem Auger / Mud Rotary below 10 feet HAMMER TYPE Automatic

STRUCT. NO. 022-0557
 Station 131+09.79
 BORING NO. B-21-BSB-06
 Station 137+76.95
 Offset 24.3 ft RT.
 Northing 1,937,200.07
 Easting 1,068,683.17
 Ground Surface Elev. 705.4 ft

DEPTH (ft)	SOIL DESCRIPTION	DEPTH (ft)	SOIL DESCRIPTION	U (tsf)	S (%)	P (%)
0 - 664.9	Dense, Gray Fine to Medium SAND	0 - 644.9	Stiff to Hard, Gray CLAY LOAM trace - gravel			
10		7				
17		11		3.7	11	
19		21		B		
662.4	Stiff to Hard, Gray CLAY LOAM trace - gravel	662.4				
5		8				
6		11		4.0	9	
9		16		B		
699.4	Gray below 6 feet	699.4				
4		7				
5		8		1.7	11	
7		10		B		
695.4		695.4				
8		8				
8		10		1.75	13	
13		29		P		
649.9	Dense, Gray Fine SAND	649.9				
5		4				
16		5		2.0	14	
14		11		B		
647.4	Stiff, Gray SILTY CLAY LOAM trace - gravel	647.4				
4		5				
5		7		2.7	12	
7		10		B		
649.9		649.9				
14		5				
22		6		2.5	14	
25		6		B		
627.4	Very Stiff, Gray CLAY trace - gravel	627.4				
7		4				
8		6		1.4	18	
11		7		B		
625.4	END OF BORING	625.4				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

SOIL BORING LOG

CONTRACT I-11-4031 DESCRIPTION Bridge B-21, Ramp G1 over Ramp G7, IL 390 and I-290 LOGGED BY J. Frederick

ROUTE Elgin O'Hare (IL 390) SECTION _____ LOCATION NW 1/4 SEC. 6 TWP. 40N RNG. 11E PM. 3"

COUNTY DuPage DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. 022-0557
 Station 137+79.24 to 145+20
 BORING NO. B-21-BSB-11
 Station 127+11.36
 Offset 1.5 ft LT.
 Northing 1,937,949.47
 Easting 1,068,004.86
 Ground Surface Elev. 702.5 ft (ft) (/6") (tsf) (%)

Description	ft	(ft)	(/6")	(tsf)	(%)	Soil Description	ft	(ft)	(/6")	(tsf)	(%)
TOPSOIL	702.2					Stiff to Very Stiff, Gray CLAY					
Medium Stiff to Very Stiff, Black and Gray CLAY			2			trace - gravel, organics			2		
ST-1(2'-4')			3	2.5	20				3	2.1	18
Dry Density=99 pcf			4	B					5	B	
ST-2(4'-6')			1	B	26				2		
Dry Density=91 pcf			2	1.0	32				4	2.6	16
		-5	2	B					6	B	
						END OF BORING					
	696.5										
Brown and Gray below 6 feet			2								
trace - roots, organics			2	1.4	26						
ST-3(6'-8')			3	12 S							
Dry Density=99 pcf											
ST-4(8'-10')				0.7	30						
Dry Density=93 pcf			1	5 S							
Very Soft to Stiff, Gray SILTY CLAY	693.5		2	0.7	51						
little - organics			2	12 S							
trace - roots, peat, wood pieces		-10									
ST-5(10'-12')											
Dry Density=60 pcf			1								
ST-6(12'-14')			1	0.8	60						
Dry Density=96 pcf			2	9 S							
1-inch Silty Loam layer at 12.75 feet	689.5										
Gray and Black below 13 feet			1	1.0	27						
ST-7(14'-16')			1	0.2	39						
Dry Density=81 pcf		-15	2	B							
	686.5										
Loose, Gray SANDY LOAM			2								
little - gravel			2		16						
			3								
	684.5										
Stiff to Very Stiff, Gray CLAY			2								
trace - gravel			3	1.7	18						
			4	B							
		-20									

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

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CH2MHILL	PLOT SCALE = 2.0000' / in.	CHECKED - CK/CM	REVISED -
	PLOT DATE = 11/19/2014	DRAWN - MRW	REVISED -
		CHECKED - KSM	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

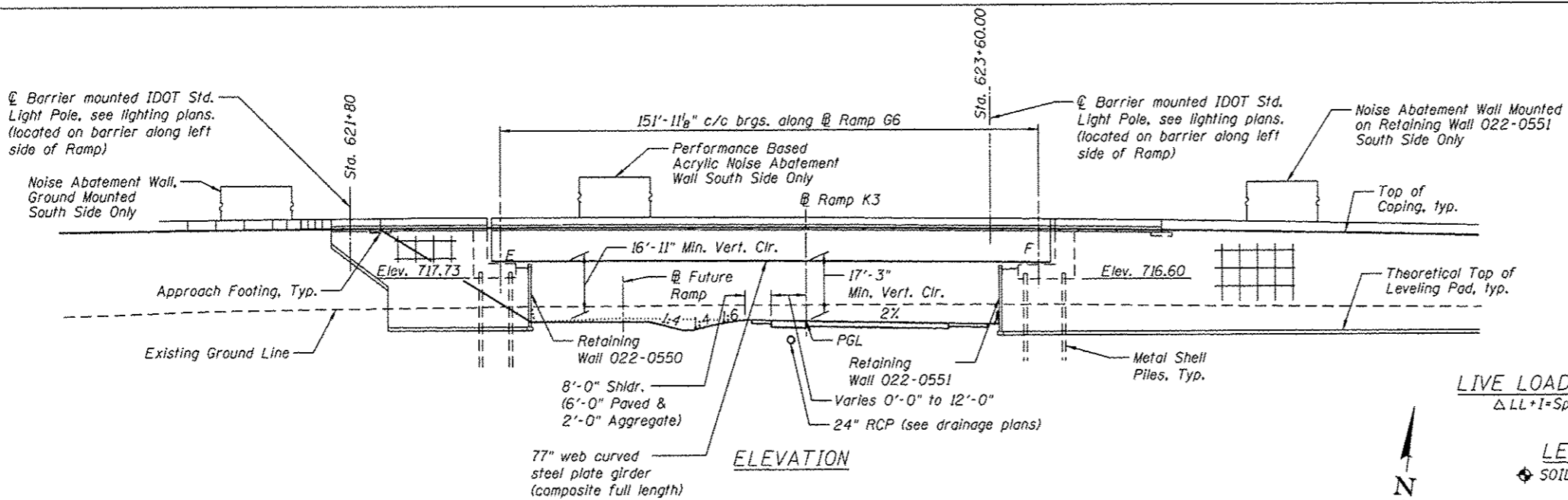
**BORING LOG B-21-BSB-11
STRUCTURE NUMBER - 022-0557**

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
345	2013-083-R&B	DUPAGE	759	420
DRAWING NO. SD-68			CONTRACT NO. 60Y95	
ILLINOIS FED. AID PROJECT				

Bench Mark: BM#716. Cut square in the northwest end of bridge wall. Approximately 65 feet north of the centerline of Thorndale Ave. and 168 feet west of the centerline of I-290, approximately 12 feet west of bridge deck. Elevation: 731.40 (NAVD88)

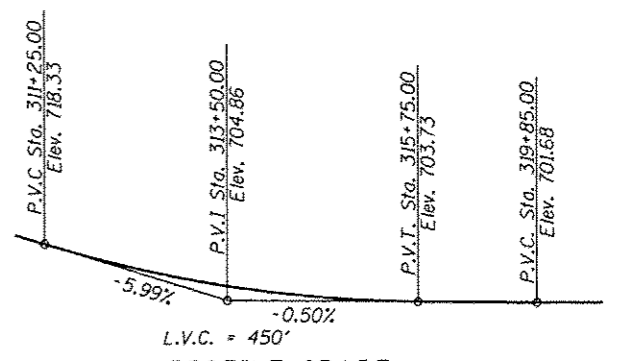
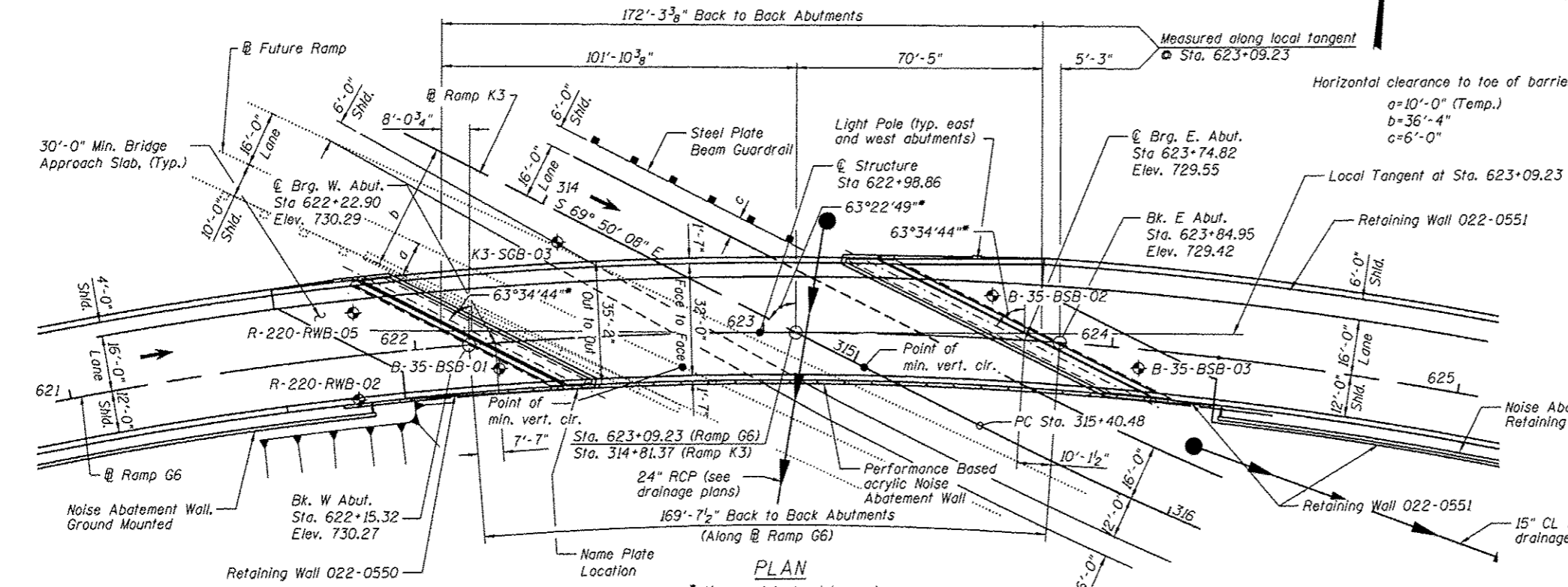
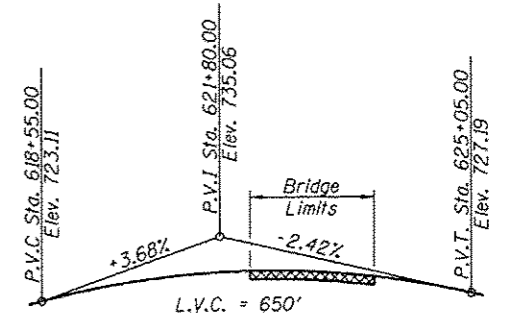
Existing Bridge: None

New Structure: SN 022-0549 will carry Ramp G6 over Ramp K3 and a future ramp. The bridge consists of a single span concrete deck slab on 77" web steel plate girder with an ahead right skew of 63°34'44". The bridge measures 172'-3 3/8" (measured along tangent) back to back abutments, and is 35'-2" out to out parapets.



LIVE LOAD DEFLECTION
 $\Delta LL + I = \text{Span Length} / 800$

LEGEND:
 ◆ SOIL BORING
 ← RCP Pipe



HORIZONTAL CURVE DATA

(Along @ Ramp G6)
 Curve No. 160
 Curve Name B1 E0 G6P-1
 PI STA. = 619+44.27
 $\Delta = 88^\circ 27' 45.43''$
 $D = 5^\circ 12' 31.35''$
 $R = 1100.00'$
 $L = 1698.36'$
 $E = 435.18'$
 $T = 1070.87'$
 $S.E. = 0.058 \text{ '}'$
 P.C. STA. = 608+73.39
 P.T. STA. = 625+71.75
 BACK N 8°45'22.5" E
 AHEAD S 82°46'52.1" E

DESIGN STRESSES

Field Units

Concrete
 $f'_c = 3,500 \text{ psi}$

Structural steel:
 $f_y = 50,000 \text{ psi}$
 (M270 Grade 50)

Reinforcement:
 $f_y = 60,000 \text{ psi}$

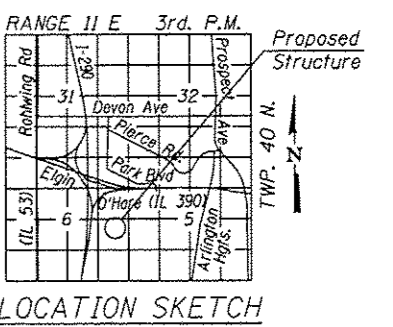
LOADING HL-93
 Allow 50#/sq. ft. for future wearing surface
 Allow 155 plf for noisewall barrier

DESIGN SPECIFICATIONS
 2012 AASHTO LRFD Bridge Design Specifications 6th Edition with 2013 Interim Revisions
 Illinois Department of Transportation Bridge Manual, January 2012

SEISMIC DATA
 Seismic Performance Zone (SPZ) = 1
 Design Spectral Acceleration @ 1.0 sec (S_D1) = 0.085
 Design Spectral Acceleration @ 0.2 sec (S_D5) = 0.150
 Soil Site Class = D

APPROVED
 For Structural Adequacy Only

De Carl Pappas
 Engineer of Bridges & Structures



GENERAL PLAN & ELEVATION
 RAMP G6 OVER RAMP K3
 DUPAGE COUNTY
 STATION 622+98.86
 STRUCTURE NO. 022-0549

FILE NAME : 0220549-08195-001-GPE.dgn CH2MHILL.	USER NAME : asontag	DESIGNED - VKN	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	GENERAL PLAN AND ELEVATION STRUCTURE NO. 022-0549 SHEET NO. 01 OF 36 SHEETS	F.A.P. RTE. 345	SECTION 2013-083-R&B	COUNTY DUPAGE	TOTAL SHEETS 759	SHEET NO. 421
	PLOT SCALE : 40.0000 ' / in.	CHECKED - MAM	REVISED -			DRAWING NO. SH-01	CONTRACT NO. 60Y95			
	PLOT DATE : 11/25/2014	DRAWN - JBA	REVISED -			[ILLINOIS] FED. AID PROJECT				
	CHECKED - MAM	REVISED -								

TOTAL BILL OF MATERIAL

PAY ITEM NUMBER	ITEM	UNIT	SUPER	SUB	TOTAL	RECORD QUANT.
50300225	Concrete Structures	Cu. Yd.	-	269	269	
50300255	Concrete Superstructure	Cu. Yd.	442	-	442	
50300260	Bridge Deck Grooving	Sq. Yd.	750	-	750	
50300300	Protective Coat	Sq. Yd.	1036	-	1036	
50500105	Furnishing and Erecting Structural Steel	L. Sum	0.08	-	0.08	
50500505	Stud Shear Connectors	Each	4300	-	4300	
50800205	Reinforcement Bars, Epoxy Coated	Pound	96356	22093	118449	
50800515	Bar Splicers	Each	-	154	154	
51200959	Furnishing Metal Shell Piles 14" x 0.312"	Foot	-	2056	2056	
51202305	Driving Piles	Foot	-	2056	2056	
51203200	Test Pile Metal Shells	Each	-	4	4	
51204650	Pile Shoes	Each	-	44	44	
51500100	Name Plates	Each	1	-	1	
52000110	Preformed Joint Strip Seal	Foot	90.5	-	90.5	
52100530	Anchor Bolts, 1 1/4"	Each	-	48	48	
58700300	Concrete Sealer	Sq. Ft.	-	2594	2594	
X5210120	High Load Multi-Rotational Bearings, Guided Expansion, 250k	Each	9	-	9	
X5210315	High Load Multi-Rotational Bearings, Fixed, 250k	Each	1	-	1	
X5210790	High Load Multi-Rotational Bearings, Non-Guided Expansion, 300k	Each	2	-	2	
Z0034806	Modular Expansion Joint - Swivel 6"	Foot	69	-	69	
XXXXXXX	Performance Based Acrylic Noise Abatement Wall	L. Sum	1	-	1	

GENERAL NOTES

- Fasteners shall be ASTM A325 Type 1, mechanically galvanized bolts. Bolts 7/8 in. ϕ , holes 15/16 in. ϕ , unless otherwise noted.
- Calculated weight of structural steel = 322,664 pounds.
- All structural steel shall be AASHTO M270 Grade 50.
- No field welding is permitted except as specified in the contract documents.
- Reinforcement bars designated (E) shall be epoxy coated.
- Concrete sealer shall be applied to the designated areas of the 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 Reddish Brown, Munsell No. 2.5YR 3/4.
- 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.
- Slipforming of the parapets is not allowed.
- Concrete superstructure shall have a seven day minimum cure.
- Modular expansion joints shall be assembled in their final relative position with the ends in place for shop inspection and acceptance.
- Prior to the placement of the joint blockout, the Contractor shall coordinate with the Modular Joint Manufacturer to ensure that the joint will be properly supported and that the reinforcement bars will not interfere with the joint components. Any necessary adjustments to the reinforcement layout shall be submitted to the Engineer for approval.
- It shall be the Contractor's responsibility to verify the location of all fiber optic utilities prior to starting construction. The Contractor shall initiate the location process for the fiber optic cable by completing a "Request Tollway Utilities Locate" form filled in online at the Tollway website under "Doing Business" at least four (4) business days prior to starting any underground operations, excavations or digging of any type in the general area of the fiber optic cable.
- The erection of the structural steel shall be in accordance with the requirements of the special provision "Erection of Curved Steel Structures".

INDEX OF SHEETS

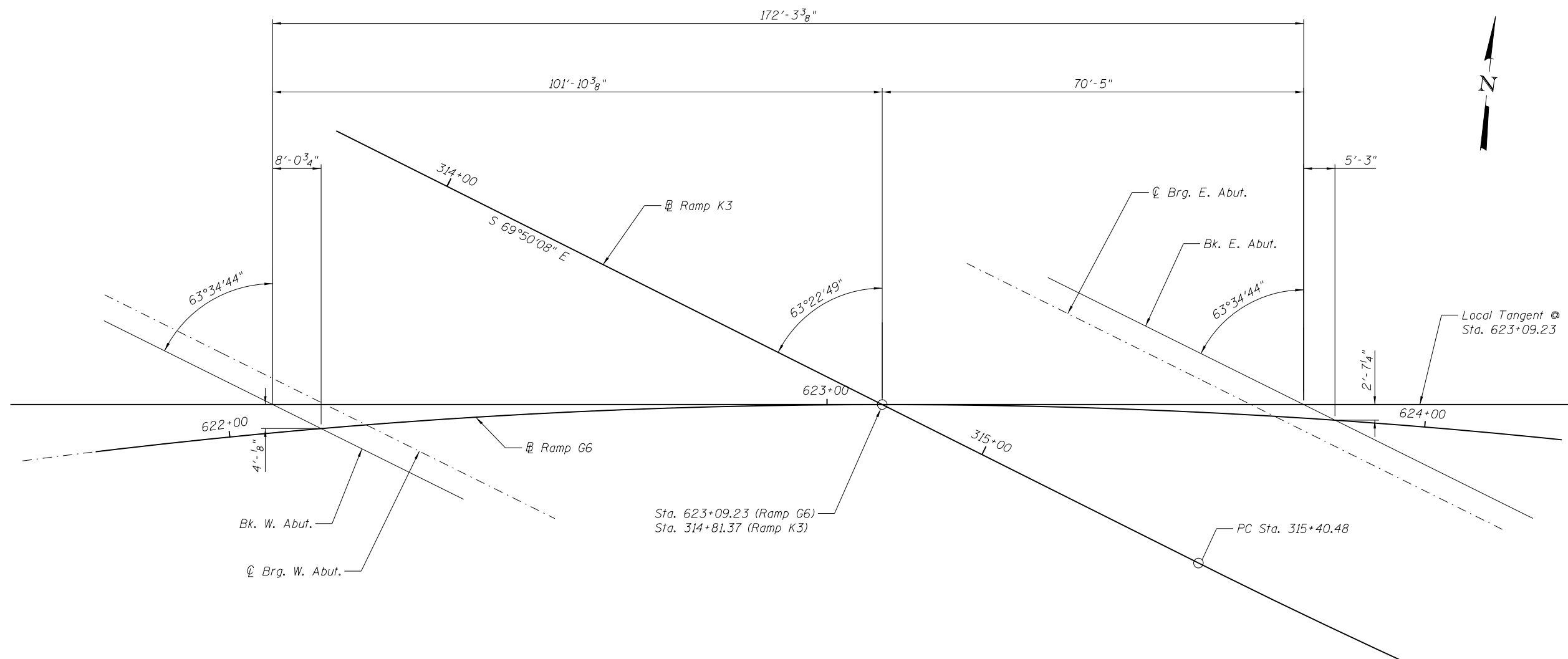
Sht. No.	Sht. Title
1	General Plan and Elevation
2	General Data
3	Substructure Layout
4	Top of Deck Elevations Layout
5	Top of Deck Elevations
6	Top of Approach Slab Elevations
7	Deck Plan and Section
8	Superstructure Details I
9	Superstructure Details II
10	Bridge Approach Slab Plan - West
11	Bridge Approach Slab Plan - East
12	Bridge Approach Slab Details I
13	Bridge Approach Slab Details II
14	Noise Wall Plan and Elevation
15	Noise Wall Sections and Details
16	Preformed Joint Strip Seal
17	Modular Swivel Joint
18	Structural Steel Framing Plan
19	Steel Girder Elevation and Details
20	Structural Steel Details I
21	Structural Steel Details II
22	Structural Steel Details III
23	Bearing Orientation Layout
24	Expansion Bearing Details-West Abutment
25	Expansion Bearing Details-East Abutment
26	Fixed Bearing Details-East Abutment
27	Section Thru Abutments
28	West Abutment Plan and Elevation
29	West Abutment Section and Details
30	East Abutment Plan and Elevation
31	East Abutment Section and Details
32	Metal Shell Pile Details
33-36	Soil Boring Logs

ABBREVIATIONS

Abut.	Abutment
Bk	Back
C.I.P.	Cast in place
Const.	Construction
E. Abut.	East Abutment
F.F.	Front Face
Jt.	Joint
Max.	Maximum
Min.	Minimum
P.G.L.	Profile Grade Line
P.JF	Preformed Joint Filler
P.J.S.	Preformed Joint Sealer
Quant.	Quantity
W. Abut.	West Abutment

STATION 622+98.86
 BUILT 20__ BY
 STATE OF ILLINOIS
 F.A.I. RT. 290 SEC. 2013-083-R&B
 LOADING HL-93
 STRUCTURE NO. 022-0549

NAME PLATE
 See Std. 515001



SUBSTRUCTURE LAYOUT

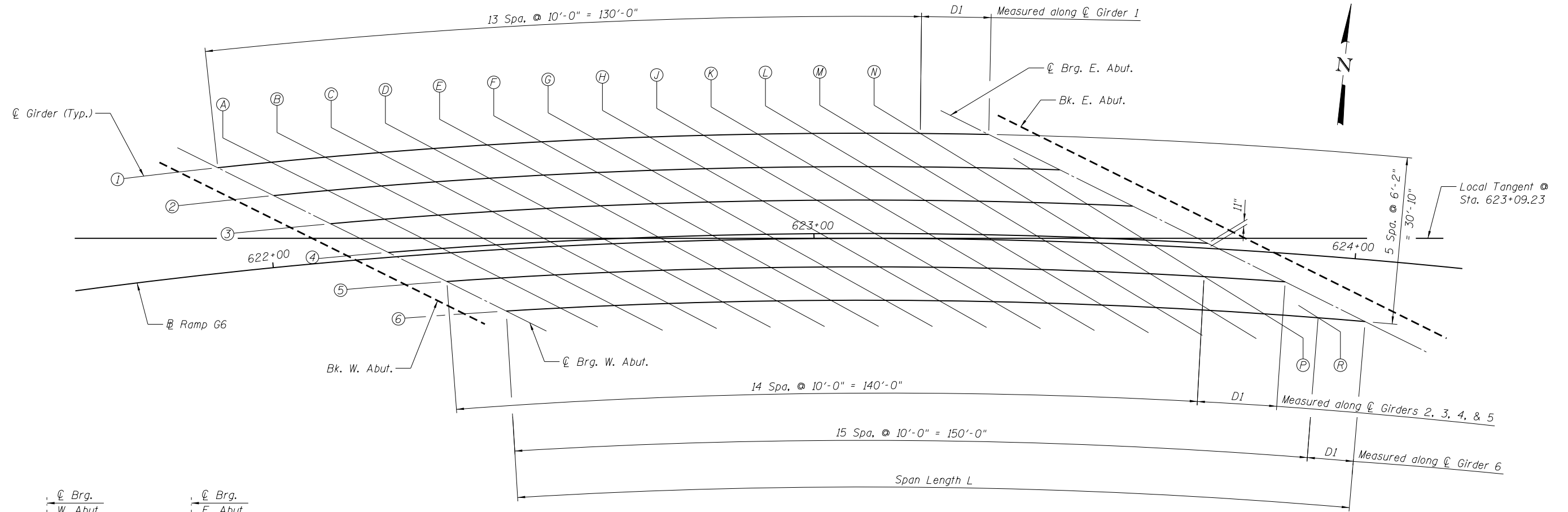
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

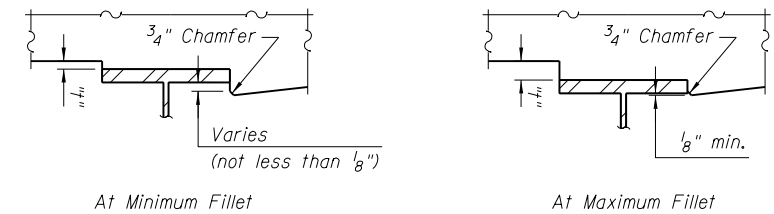
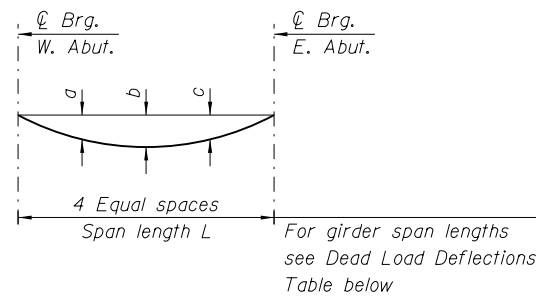
SUBSTRUCTURE LAYOUT
STRUCTURE NO. 022-0549

SHEET NO. 03 OF 36 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
345	2013-083-R&B	DUPAGE	759	423
DRAWING NO. SH-03			CONTRACT NO. 60Y95	
ILLINOIS FED. AID PROJECT				



ELEVATION GRID



DEAD LOAD DEFLECTIONS DIAGRAM
 (Includes weight of slab, parapet, noise wall & concrete deck shrinkage -no future wearing surface)

DEAD LOAD DEFLECTIONS TABLE
 (Values in inches)

Girder No.	Deflection			
	L	a	b	c
1	142'-6 ⁵ / ₈ "	4 ⁷ / ₁₆ "	6 ¹ / ₈ "	4 ⁷ / ₁₆ "
2	145'-3 ³ / ₈ "	4 ¹ / ₁₆ "	5 ⁷ / ₁₆ "	3 ⁷ / ₈ "
3	148'-2 ³ / ₄ "	3 ⁷ / ₈ "	5 ³ / ₁₆ "	3 ³ / ₄ "
4	151'-5 ¹ / ₈ "	3 ⁷ / ₈ "	5 ¹ / ₄ "	3 ⁷ / ₈ "
5	154'-10 ¹⁵ / ₁₆ "	4 ¹ / ₈ "	5 ⁵ / ₈ "	4 ¹ / ₈ "
6	158'-8 ¹¹ / ₁₆ "	4 ¹¹ / ₁₆ "	6 ⁵ / ₁₆ "	4 ⁹ / ₁₆ "

Note: The above deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown in the "Top of Slab Elevations" tables.

END OF SPAN DIMENSIONS

Girder	D1
1	12'-6 ⁵ / ₈ "
2	5'-3 ³ / ₈ "
3	8'-2 ³ / ₄ "
4	11'-5 ¹ / ₈ "
5	14'-10 ¹⁵ / ₁₆ "
6	8'-8 ¹¹ / ₁₆ "

To determine "t": After all structural steel has been erected, elevations of the top flanges of the girders shall be taken at intervals shown in the elevation tables. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown, minus slab thickness, equals the fillet heights "t" above top flange of girders.

FILLET HEIGHTS

Notes:

- See Sheet 5, for top of deck elevations.
- All dimensions are in feet and inches unless otherwise noted.

GIRDER 1

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Back of W Abut.	621+84.65	-19.42	731.26	731.26
CL Brg. W Abut.	621+91.77	-19.42	731.30	731.30
A	622+01.60	-19.42	731.34	731.45
B	622+11.42	-19.42	731.38	731.58
C	622+21.25	-19.42	731.41	731.70
D	622+31.08	-19.42	731.43	731.78
E	622+40.90	-19.42	731.44	731.84
F	622+50.73	-19.42	731.47	731.87
G	622+60.56	-19.42	731.43	731.88
H	622+70.38	-19.42	731.42	731.85
J	622+80.81	-19.42	731.39	731.79
K	622+90.03	-19.42	731.36	731.72
L	622+99.86	-19.42	731.31	731.61
M	623+09.69	-19.42	731.26	731.48
N	623+19.51	-19.42	731.20	731.33
P	-	-	-	-
R	-	-	-	-
CL Brg. E Abut.	623+31.85	-19.42	731.10	731.10
Back of E Abut.	623+40.95	-19.42	731.03	731.03

GIRDER 4

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Back of W Abut.	622+13.81	-0.92	730.32	730.32
CL Brg. W Abut.	622+21.37	-0.92	730.34	730.34
A	622+31.36	-0.92	730.36	730.45
B	622+41.35	-0.92	730.37	730.54
C	622+51.34	-0.92	730.37	730.61
D	622+61.34	-0.92	730.36	730.66
E	622+71.33	-0.92	730.34	730.69
F	622+81.32	-0.92	730.31	730.69
G	622+91.31	-0.92	730.28	730.67
H	623+01.30	-0.92	730.23	730.63
J	623+11.29	-0.92	730.18	730.56
K	623+21.29	-0.92	730.11	730.46
L	623+31.28	-0.92	730.04	730.35
M	623+41.27	-0.92	729.95	730.21
N	623+51.26	-0.92	729.86	730.04
P	623+61.25	-0.92	729.76	729.86
R	-	-	-	-
CL Brg. E Abut.	623+72.67	-0.92	729.63	729.63
Back of E Abut.	623+82.74	-0.92	729.51	729.51

GIRDER 6

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Back of W Abut.	622+34.56	11.42	729.65	729.65
CL Brg. W Abut.	622+42.45	11.42	729.65	729.65
A	622+52.55	11.42	729.65	729.76
B	622+62.66	11.42	729.64	729.85
C	622+72.76	11.42	729.62	729.91
D	622+82.87	11.42	729.59	729.95
E	622+92.97	11.42	729.55	729.97
F	623+03.08	11.42	729.51	729.96
G	623+13.18	11.42	729.45	729.92
H	623+23.29	11.42	729.38	729.86
J	623+33.39	11.42	729.30	729.77
K	623+43.50	11.42	729.22	729.66
L	623+53.60	11.42	729.12	729.52
M	623+63.71	11.42	729.02	729.36
N	623+73.81	11.42	728.90	729.17
P	623+83.92	11.42	728.78	728.96
R	623+94.02	11.42	728.64	728.73
CL Brg. E Abut.	624+02.84	11.42	728.52	728.52
Back of E Abut.	624+13.75	11.42	728.35	728.35

GIRDER 2

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Back of W Abut.	621+94.13	-13.25	730.95	730.95
CL Brg. W Abut.	622+01.39	-13.25	730.99	730.99
A	622+11.27	-13.25	731.02	731.12
B	622+21.15	-13.25	731.05	731.24
C	622+31.03	-13.25	731.07	731.33
D	622+40.91	-13.25	731.08	731.40
E	622+50.79	-13.25	731.08	731.45
F	622+60.67	-13.25	731.08	731.47
G	622+70.55	-13.25	731.06	731.46
H	622+80.43	-13.25	731.03	731.42
J	622+90.31	-13.25	731.00	731.37
K	623+00.20	-13.25	730.95	731.28
L	623+10.08	-13.25	730.90	731.18
M	623+19.96	-13.25	730.83	731.05
N	623+29.84	-13.25	730.76	730.90
P	623+39.72	-13.25	730.68	730.73
R	-	-	-	-
CL Brg. E Abut.	623+44.94	-13.25	730.63	730.63
Back of E Abut.	623+54.33	-13.25	730.54	730.54

RAMP G6

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Back of W Abut.	622+15.32	0	730.27	730.27
CL Brg. W Abut.	622+22.90	0	730.29	730.29
A	622+32.90	0	730.31	730.37
B	622+42.90	0	730.31	730.43
C	622+52.90	0	730.31	730.49
D	622+62.90	0	730.30	730.52
E	622+72.90	0	730.28	730.53
F	622+82.90	0	730.26	730.53
G	622+92.90	0	730.22	730.50
H	623+02.90	0	730.17	730.46
J	623+12.90	0	730.11	730.39
K	623+22.90	0	730.05	730.30
L	623+32.90	0	729.97	730.19
M	623+42.90	0	729.88	730.06
N	623+52.90	0	729.79	729.92
P	623+62.90	0	729.69	729.76
R	-	-	-	-
CL Brg. E Abut.	623+74.82	0	729.55	729.55
Back of E Abut.	623+84.95	0	729.42	729.42

GIRDER 3

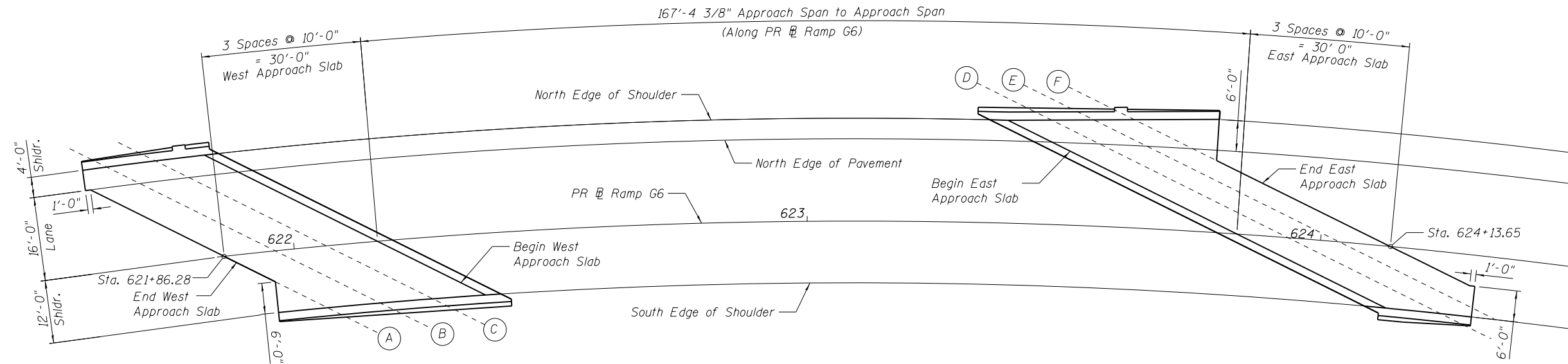
Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Back of W Abut.	622+03.85	-7.08	730.64	730.64
CL Brg. W Abut.	622+11.25	-7.08	730.67	730.67
A	622+21.18	-7.08	730.69	730.79
B	622+31.12	-7.08	730.71	730.89
C	622+41.06	-7.08	730.72	730.97
D	622+50.99	-7.08	730.73	731.03
E	622+60.93	-7.08	730.72	731.06
F	622+70.86	-7.08	730.70	731.07
G	622+80.80	-7.08	730.67	731.06
H	622+90.74	-7.08	730.64	731.02
J	623+00.67	-7.08	730.59	730.96
K	623+10.61	-7.08	730.54	730.87
L	623+20.54	-7.08	730.47	730.76
M	623+30.48	-7.08	730.40	730.63
N	623+40.42	-7.08	730.32	730.47
P	623+50.35	-7.08	730.23	730.30
R	-	-	-	-
CL Brg. E Abut.	623+58.53	-7.08	730.14	730.14
Back of E Abut.	623+68.25	-7.08	730.04	730.04

GIRDER 5

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Back of W Abut.	622+24.05	5.25	729.99	729.99
CL Brg. W Abut.	622+31.76	5.25	730.00	730.00
A	622+41.81	5.25	730.01	730.10
B	622+51.86	5.25	730.01	730.19
C	622+61.91	5.25	730.00	730.25
D	622+71.96	5.25	729.98	730.30
E	622+82.00	5.25	729.95	730.32
F	622+92.05	5.25	729.92	730.32
G	623+02.10	5.25	729.87	730.29
H	623+12.15	5.25	729.81	730.24
J	623+22.20	5.25	729.75	730.16
K	623+32.24	5.25	729.67	730.06
L	623+42.29	5.25	729.59	729.93
M	623+52.34	5.25	729.49	729.78
N	623+62.39	5.25	729.39	729.61
P	623+72.44	5.25	729.27	729.41
R	-	-	-	-
CL Brg. E Abut.	623+87.42	5.25	729.09	729.09
Back of E Abut.	623+97.89	5.25	728.94	728.94

Notes:

1. All elevations and offsets are in decimal feet.
2. See Sheet 4 for location diagram.
3. Offsets are measured from R Ramp G6.



PLAN

NORTH EDGE OF SHOULDER

Location	Station	Offset	Theoretical Grade Elevations
End W. Appr. Slab	621+61.25	-20.00	731.13
B	621+65.87	-20.00	731.17
C	621+75.28	-20.00	731.23
Begin W. Appr. Slab	621+84.67	-20.00	731.29
Begin E. Appr. Slab	623+38.54	-20.00	731.08
D	623+47.23	-20.43	731.03
E	623+56.10	-20.87	730.97
F	623+64.93	-21.31	730.90
End E. Appr. Slab	623+78.83	-22.00	730.77

NORTH EDGE OF PAVEMENT

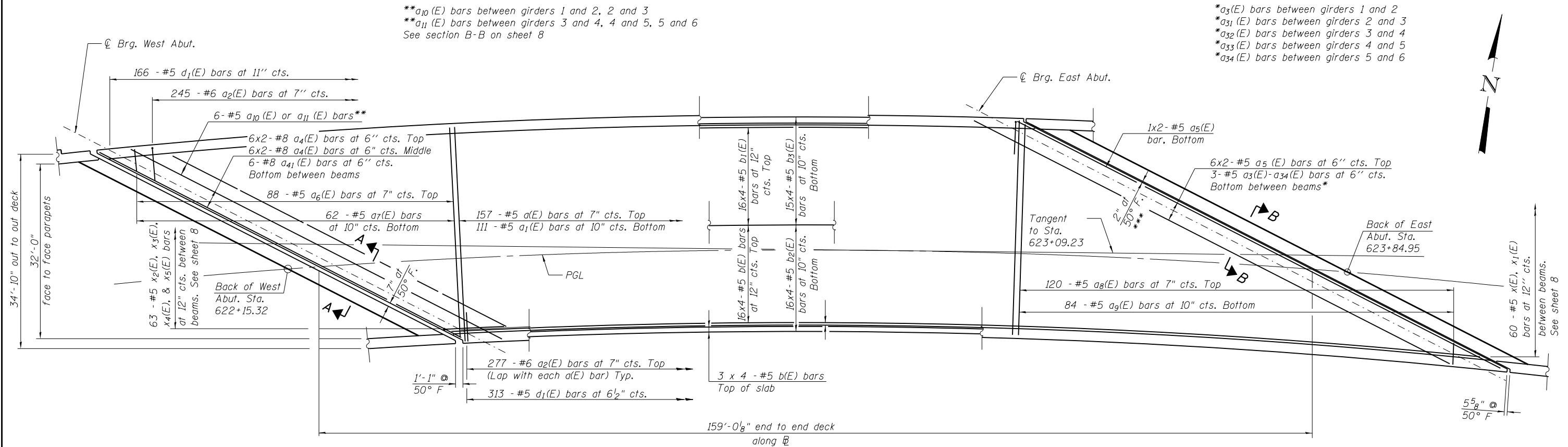
Location	Station	Offset	Theoretical Grade Elevations
End W. Appr. Slab	621+61.25	-16.00	730.90
A	621+62.24	-16.00	730.90
B	621+71.77	-16.00	730.98
C	621+81.28	-16.00	731.04
Begin W. Appr. Slab	621+90.79	-16.00	731.09
Begin E. Appr. Slab	623+48.30	-16.00	730.76
D	623+56.03	-16.00	730.69
E	623+65.10	-16.00	730.59
F	623+74.13	-16.00	730.49
End E. Appr. Slab	623+78.83	-16.00	730.43

RAMP G6

Location	Station	Offset	Theoretical Grade Elevations
End W. Appr. Slab	621+86.28	0.00	730.14
B	621+96.28	0.00	730.19
C	622+06.28	0.00	730.24
Begin W. Appr. Slab	622+16.28	0.00	730.27
Begin E. Appr. Slab	623+83.65	0.00	729.44
D	623+93.65	0.00	729.30
E	624+03.65	0.00	729.16
End E. Appr. Slab	624+13.65	0.00	729.01

SOUTH EDGE OF SHOULDER

Location	Station	Offset	Theoretical Grade Elevations
End W. Appr. Slab	621+95.69	12.00	729.50
A	622+05.34	12.00	729.54
B	622+15.74	12.00	729.57
C	622+26.15	12.00	729.60
Begin W. Appr. Slab	622+36.57	12.00	729.61
Begin E. Appr. Slab	624+13.88	12.00	728.31
D	624+24.92	12.00	728.14
End E. Appr. Slab	624+30.80	12.00	728.04



**a₁₀(E) bars between girders 1 and 2, 2 and 3
 **a₁₁(E) bars between girders 3 and 4, 4 and 5, 5 and 6
 See section B-B on sheet 8

*a₃(E) bars between girders 1 and 2
 *a₃₁(E) bars between girders 2 and 3
 *a₃₂(E) bars between girders 3 and 4
 *a₃₃(E) bars between girders 4 and 5
 *a₃₄(E) bars between girders 5 and 6

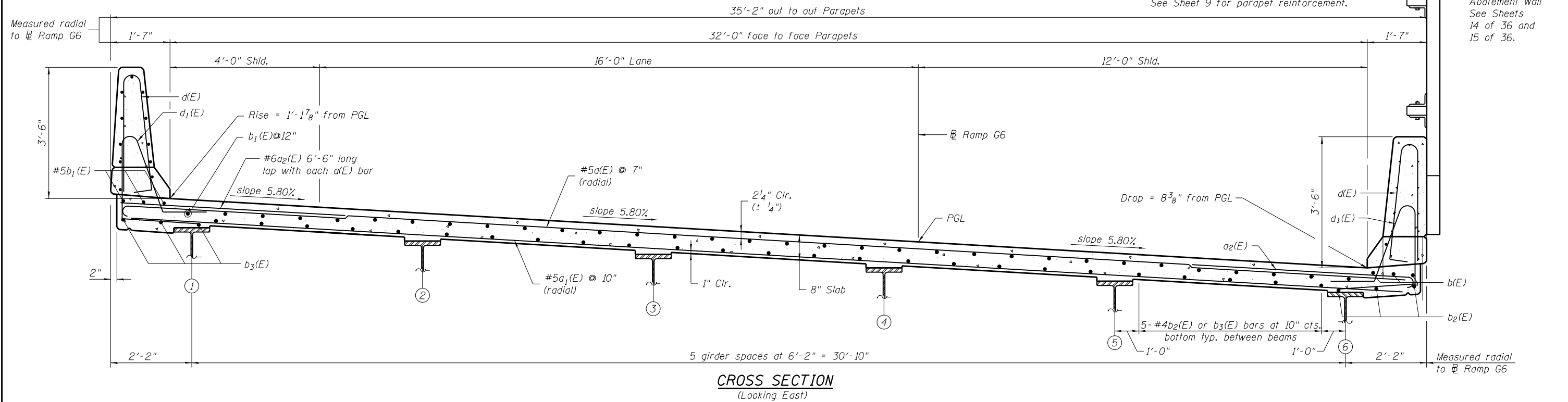
PLAN

MINIMUM BAR LAP

(Deck)
 #5 bar = 2'-7"
 #8 bar = 5'-2"

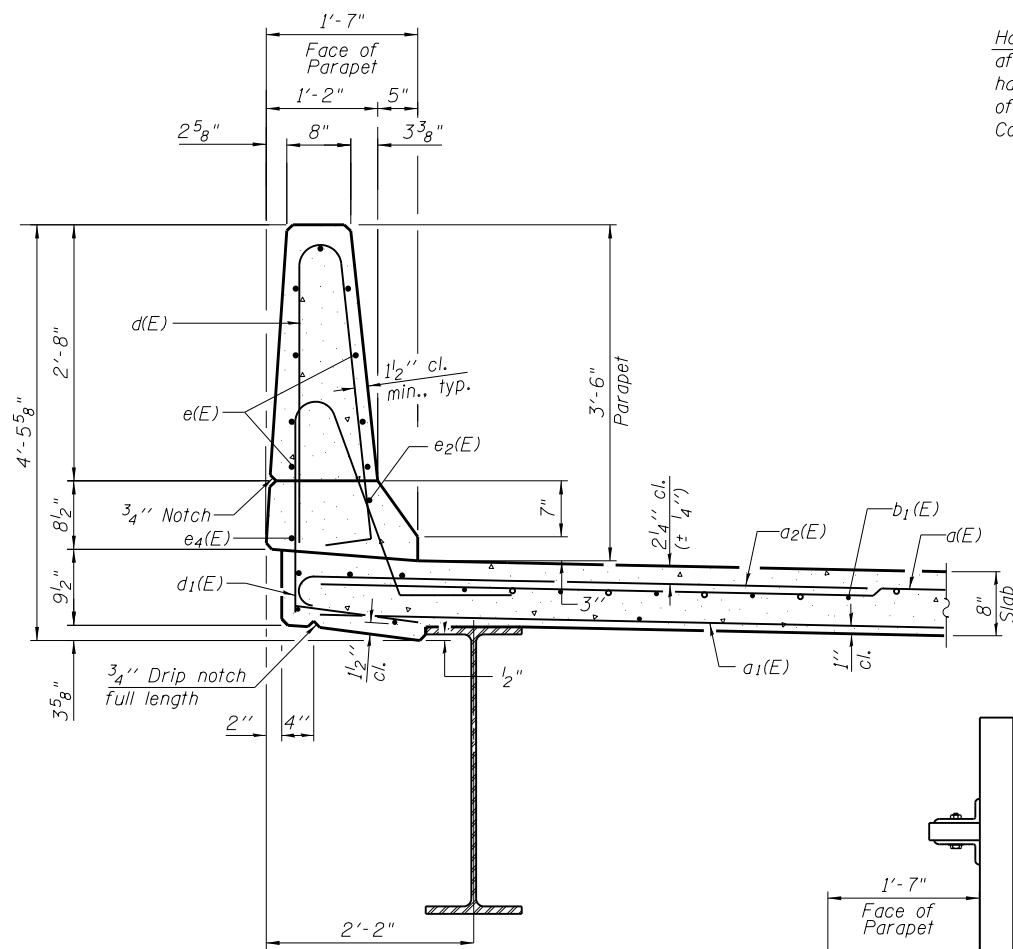
*** Dimensions are based on a rolled strip seal joint. If the Contractor elects to use the welded rail strip seal joint, deck dimension may require adjustments to satisfy the details on sheet SH-16.

Notes:
 See Sheets 8 and 9 for superstructure details and Bill of Material.
 Bars indicated thus 20 x 3-#5 etc. indicates 20 lines of bars with 3 lengths per line.
 See Sheet 8 for Section A-A and B-B.
 See Sheet 9 for parapet reinforcement.



CROSS SECTION
 (Looking East)

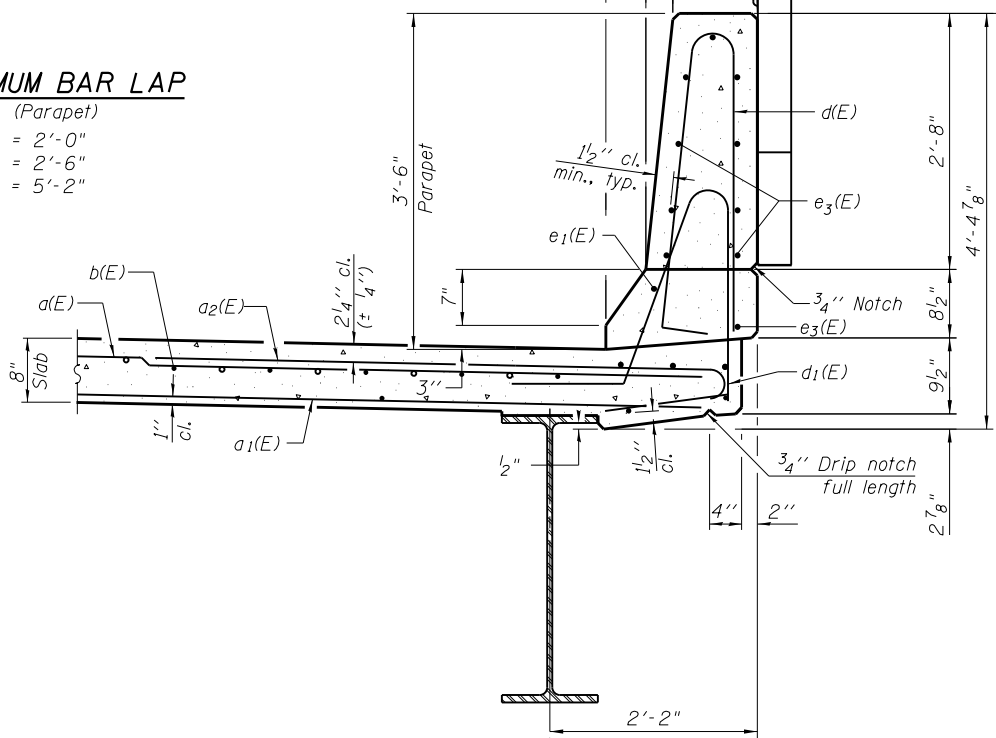
FILE NAME = 0220549-60Y95-007-Deck-Plan.dgn CH2MHILL	USER NAME = asontag	DESIGNED - VKN	REVISED - -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	DECK PLAN AND SECTION STRUCTURE NO. 022-0549 SHEET NO. 07 OF 36 SHEETS	F.A.P. R.E. = 345	SECTION = 2013-083-R&B	COUNTY = DUPAGE	TOTAL SHEETS = 759	SHEET NO. = 427
	PLOT SCALE = 2.0000' / in.	DRAWN - JBA	REVISED - -			DRAWING NO. SH-07	CONTRACT NO. 60Y95			
	PLOT DATE = 10/28/2014	CHECKED - MAM	REVISED - -			ILLINOIS FED. AID PROJECT				



SECTION THRU NORTH PARAPET

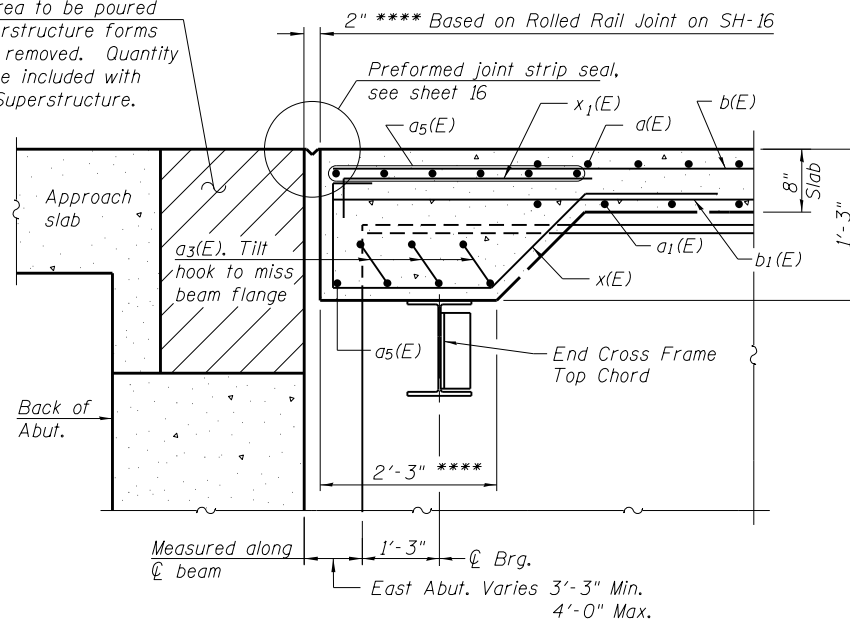
MINIMUM BAR LAP

(Parapet)
 #4 bar = 2'-0"
 #5 bar = 2'-6"
 #8 bar = 5'-2"



SECTION THRU SOUTH PARAPET

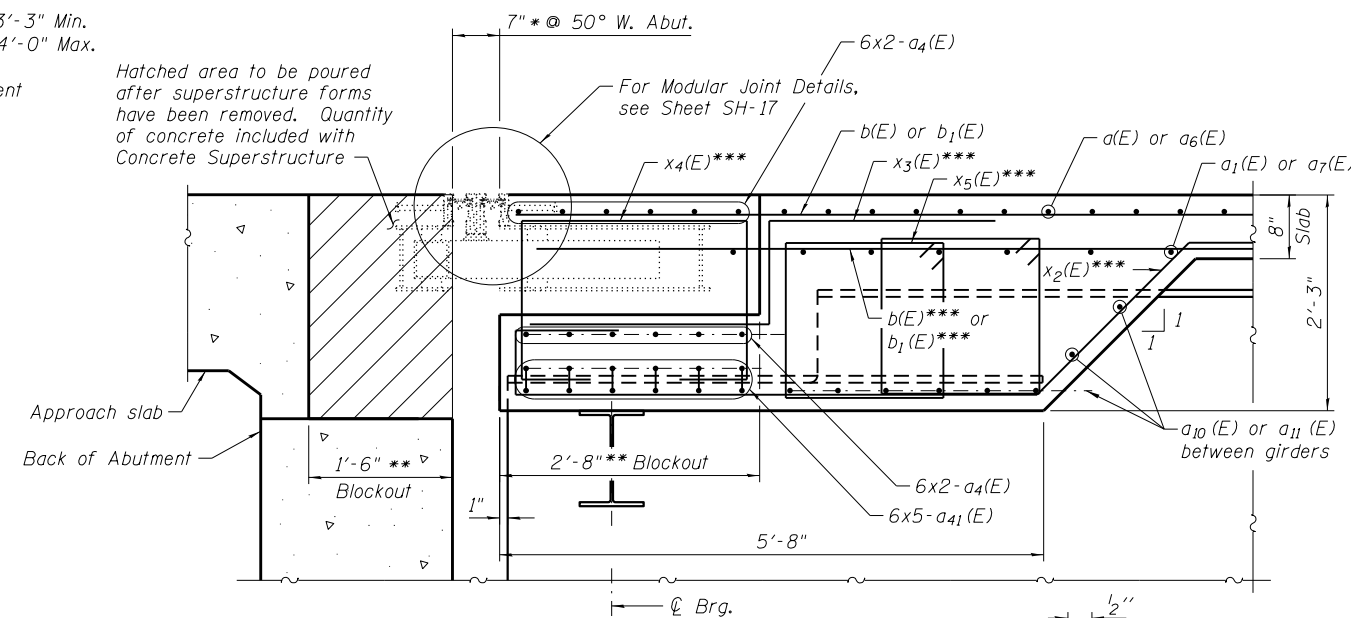
Hatched area to be poured after superstructure forms have been removed. Quantity of concrete included with Concrete Superstructure.



SECTION B-B

**** Measured perpendicular to abutment

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



SECTION A-A

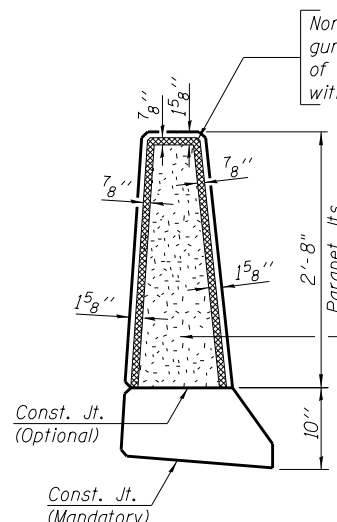
Non-staining gray one component non-sag elastomeric gun grade polyurethane sealant meeting the requirements of ASTM C-920, Type S, Grade NS, Class 25, use T with a 5/8" backer rod.

Extend horizontal reinforcement thru joint, Typ.

Cold formed construction joint Fully cure first parapet segment placed before placing adjacent segment.

SOUTH PARAPET JOINT DETAIL

Note:
 For sections A-A and B-B see sheet SH-07.



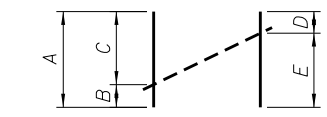
NORTH PARAPET JOINT DETAIL

**SUPERSTRUCTURE
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
a(E)	157	#5	34'-4"	—
a ₁ (E)	111	#5	34'-4"	—
a ₂ (E)	522	#6	7'-2"	—
a ₃ (E)	3	#5	15'-5"	—
a ₃₁ (E)	3	#5	15'-10"	—
a ₃₂ (E)	3	#5	16'-3"	—
a ₃₃ (E)	3	#5	16'-9"	—
a ₃₄ (E)	3	#5	17'-4"	—
a ₄ (E)	24	#8	36'-0"	—
a ₄₁ (E)	30	#8	17'-3"	—
a ₅ (E)	14	#5	45'-6"	—
a ₆ (E)	44	#5	33'-9"	—
a ₇ (E)	31	#5	33'-9"	—
a ₈ (E)	60	#5	33'-9"	—
a ₉ (E)	42	#5	33'-9"	—
a ₁₀ (E)	18	#5	11'-2"	—
a ₁₁ (E)	12	#5	11'-8"	—
b(E)	64	#5	44'-0"	—
b ₁ (E)	64	#5	41'-7"	—
b ₂ (E)	62	#5	44'-0"	—
b ₃ (E)	62	#5	41'-7"	—
d(E)	479	#5	6'-11"	—
d ₁ (E)	479	#5	7'-6"	—
e(E)	72	#4	18'-2"	—
e ₁ (E)	4	#8	45'-6"	—
e ₂ (E)	4	#8	41'-1"	—
e ₃ (E)	40	#4	43'-1"	—
e ₄ (E)	4	#4	38'-8"	—
x(E)	140	#5	9'-0"	—
x ₁ (E)	60	#5	6'-7"	—
x ₂ (E)	60	#5	19'-8"	—
x ₃ (E)	60	#5	9'-4"	—
x ₄ (E)	60	#5	10'-9"	—
x ₅ (E)	120	#5	11'-11"	—
Item	Unit	Total		
Reinforcement Bars, Epoxy Coated	Pound	53618		
Concrete Superstructure	Cu. Yds.	214		
Bridge Deck Grooving	Sq. Yd.	524		
Protective Coat	Sq. Yd.	737		

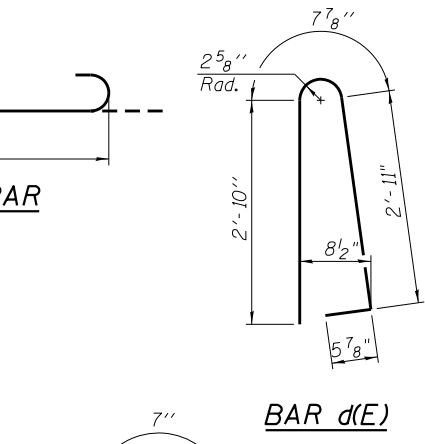
Bars indicated thus 1 x 2 - #8 etc. indicates 1 line of bars with 2 lengths per line.

* Includes parapet

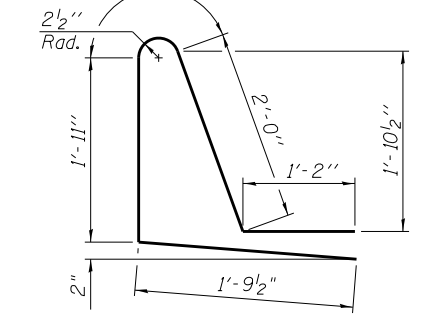


BAR CUTTING DIAGRAM

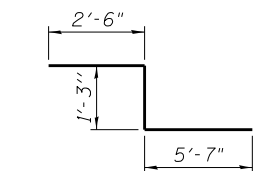
Bar	A	B	C	D	E	No.
a ₆ (E)	33'-9"	3'-4"	30'-5"	16'-9"	17'-0"	44
a ₇ (E)	33'-9"	3'-4"	30'-5"	16'-8"	17'-1"	31
a ₈ (E)	33'-9"	3'-4"	30'-5"	16'-9"	17'-0"	60
a ₉ (E)	33'-9"	3'-4"	30'-5"	16'-9"	17'-0"	42



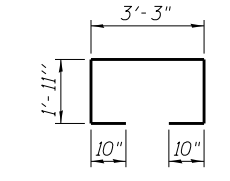
BAR d(E)



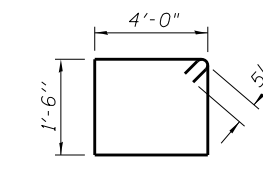
BAR d₁(E)



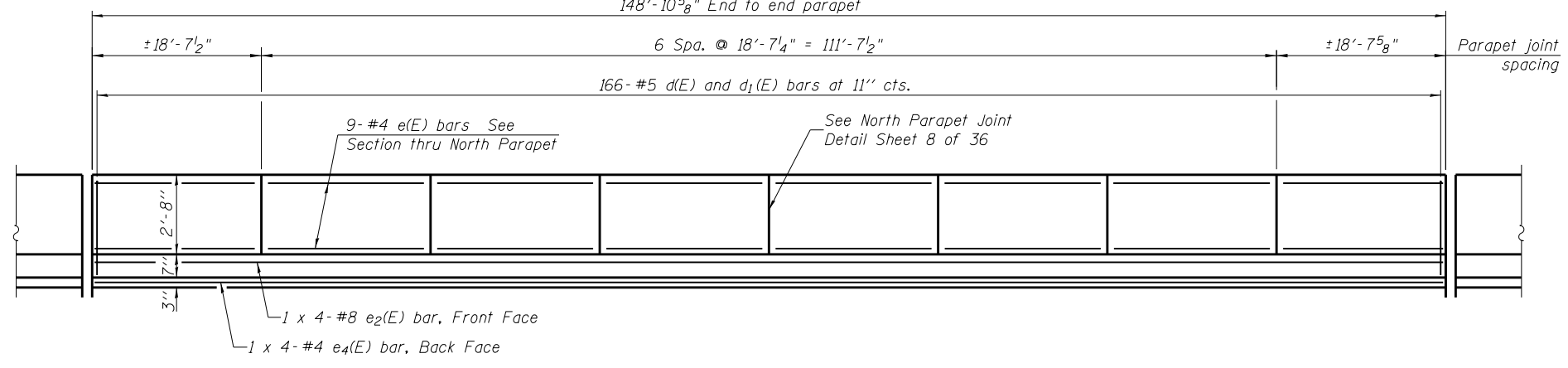
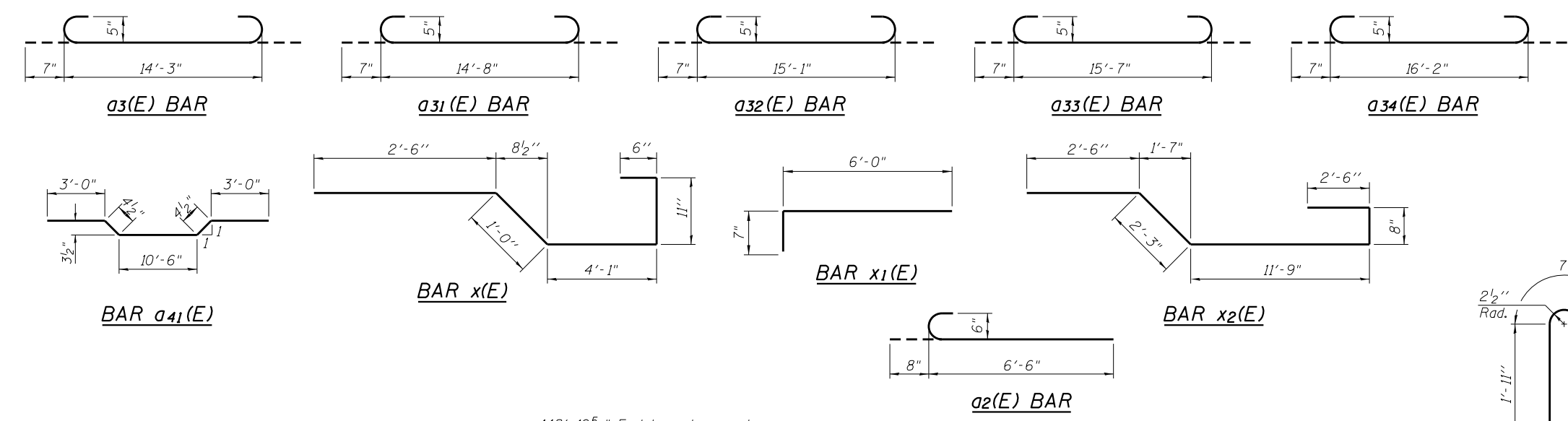
BAR x₃(E)



BAR x₄(E)

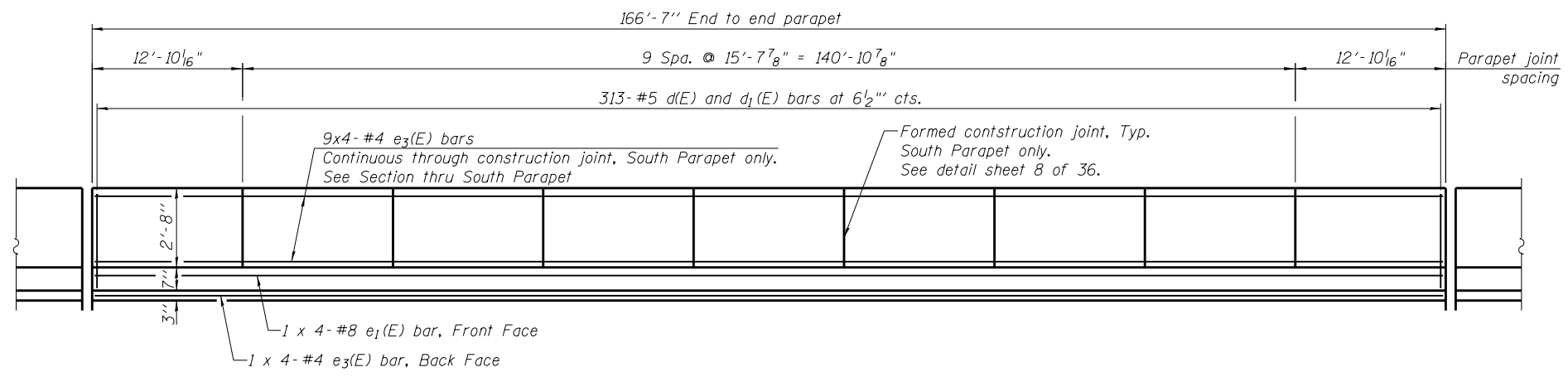


BAR x₅(E)



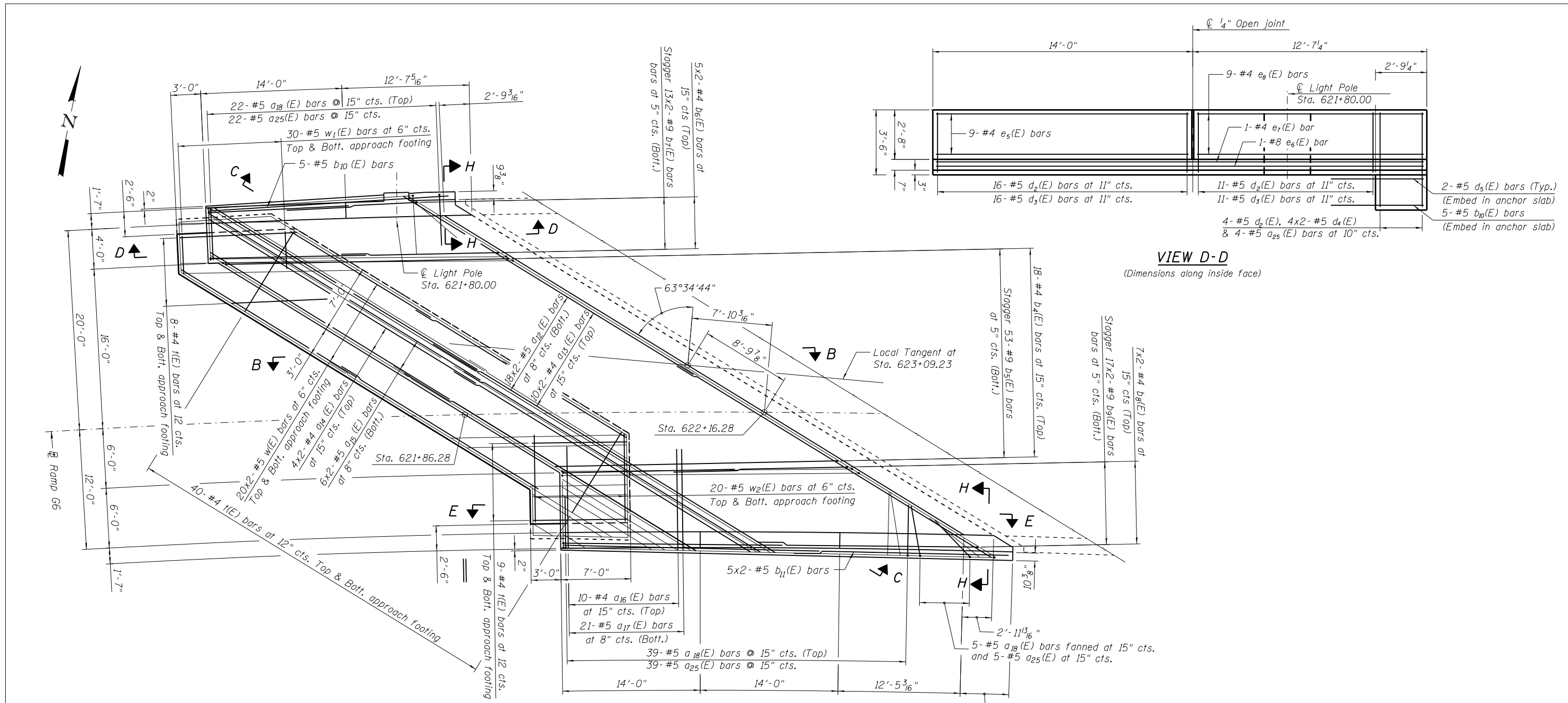
INSIDE ELEVATION OF NORTH PARAPET

MINIMUM BAR LAP
(Parapet)
#4 bar = 2'-0"
#5 bar = 2'-6"
#8 bar = 5'-2"



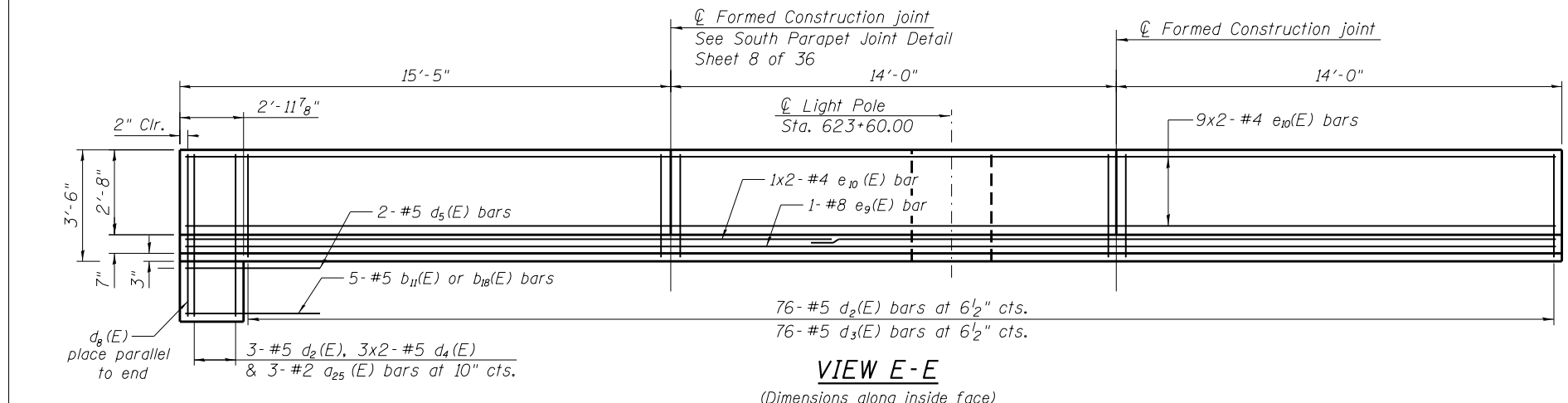
INSIDE ELEVATION OF SOUTH PARAPET

Note:
See Sheet 8 of 36 for section thru parapet and joint details.



PLAN
(West Approach Slab)

VIEW D-D
(Dimensions along inside face)



VIEW E-E
(Dimensions along inside face)

Notes:
See Sheet 12 of 36 for Detail D and Sections B-B, C-C, and H-H.
Approach slab and parapet concrete shall be paid for as Concrete Superstructure.
Approach footing concrete shall be paid for as Concrete Structures.
Reinforcement shall be paid for as Reinforcement Bars, Epoxy Coated.
For v(E) bar details, see sheet 29 of 36.
The approach footing maximum applied service bearing pressure (Q_{max}) = 2.0 ksf.
For bar splicer details, see sheet 29 of 36.
Cost of excavation for approach footing included with Concrete Structures.

FILE NAME = 0220549-60Y95-010-Appr-Slab-West.dgn
CH2MHILL

USER NAME = asontag
DESIGNED - VKN
CHECKED - MAM
DRAWN - ZNG
CHECKED - MAM
PLOT SCALE = 10.0001' / in.
PLOT DATE = 10/28/2014

REVISED - -
REVISED - -
REVISED - -
REVISED - -

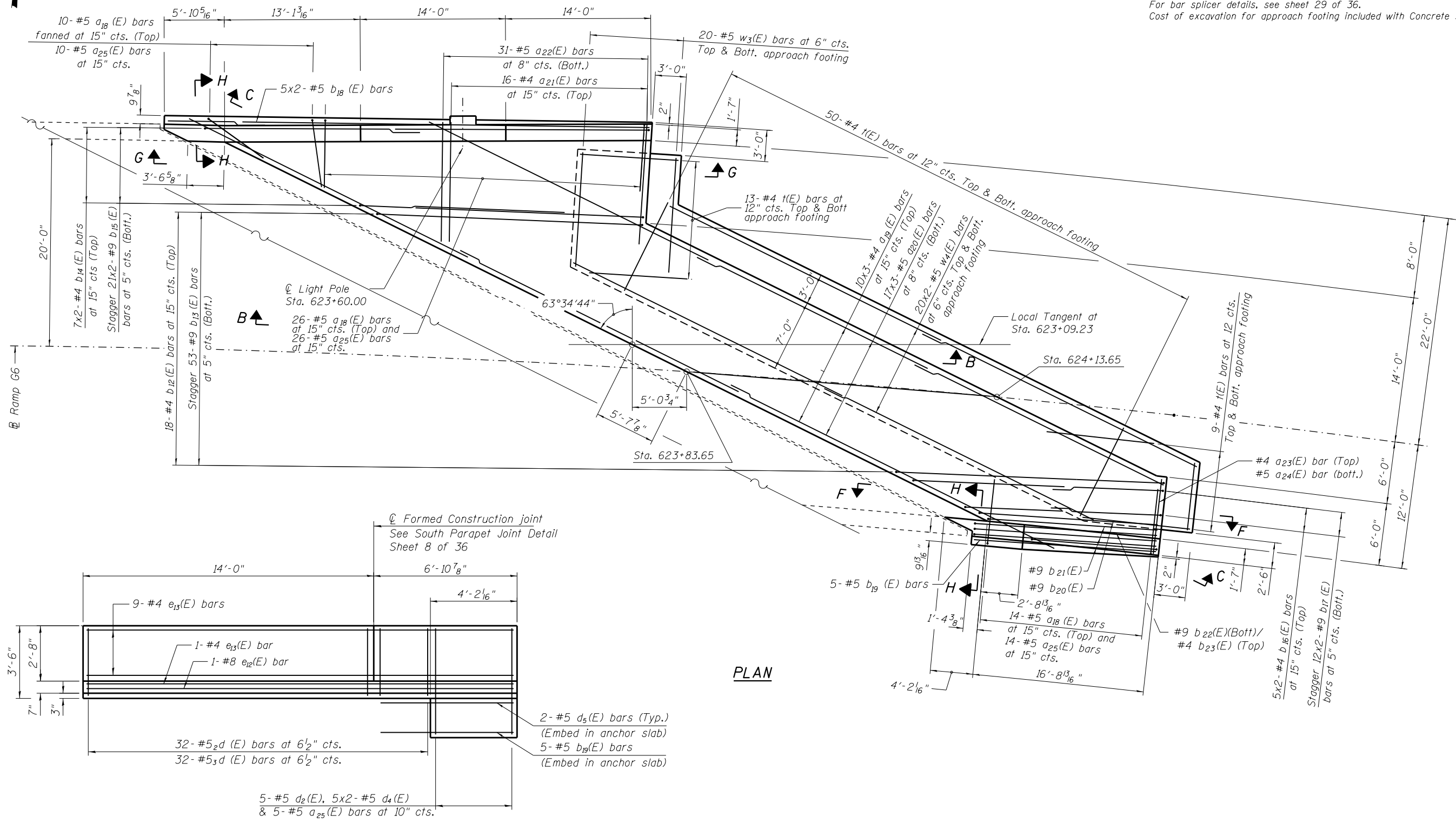
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRIDGE APPROACH SLAB PLAN - WEST
STRUCTURE NO. 022-0549
SHEET NO. 10 OF 36 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
345	2013-083-R&B	DUPAGE	759	430
DRAWING NO. SH-10			CONTRACT NO. 60Y95	
ILLINOIS FED. AID PROJECT				



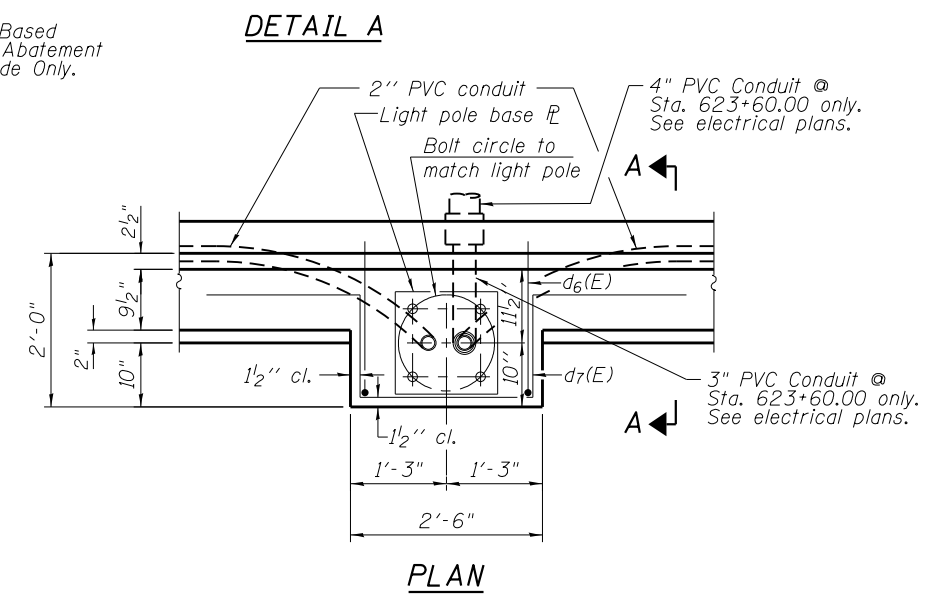
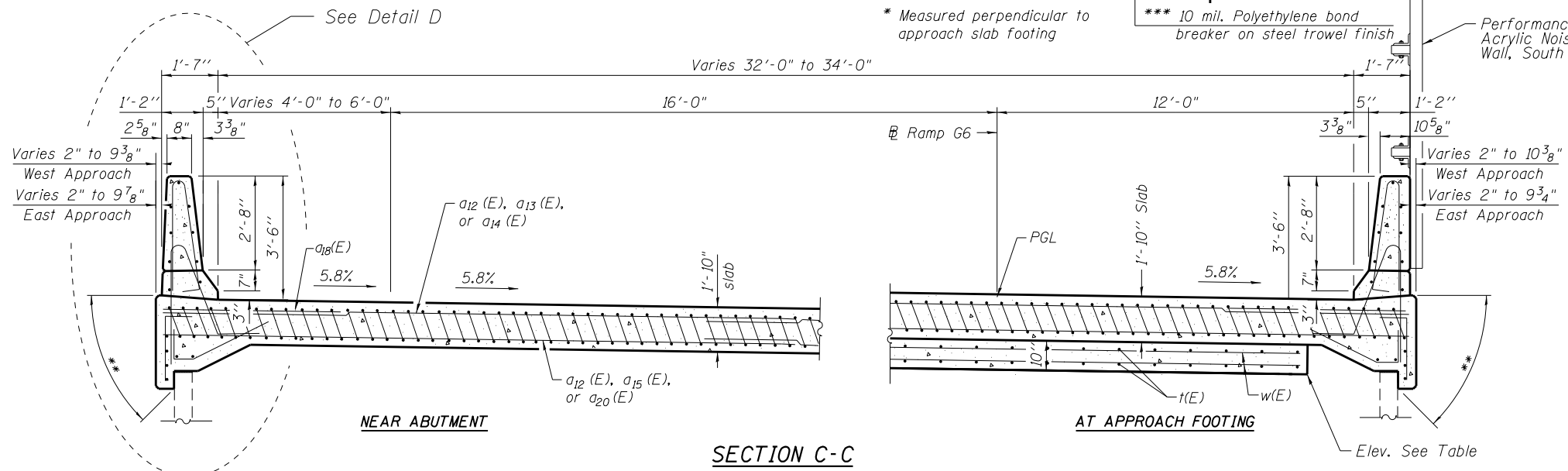
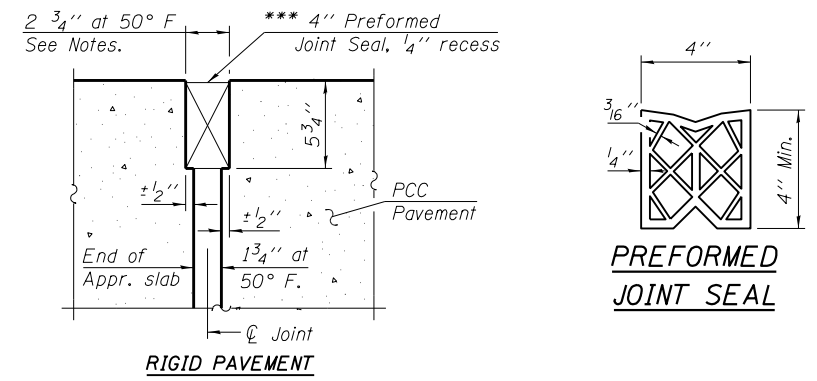
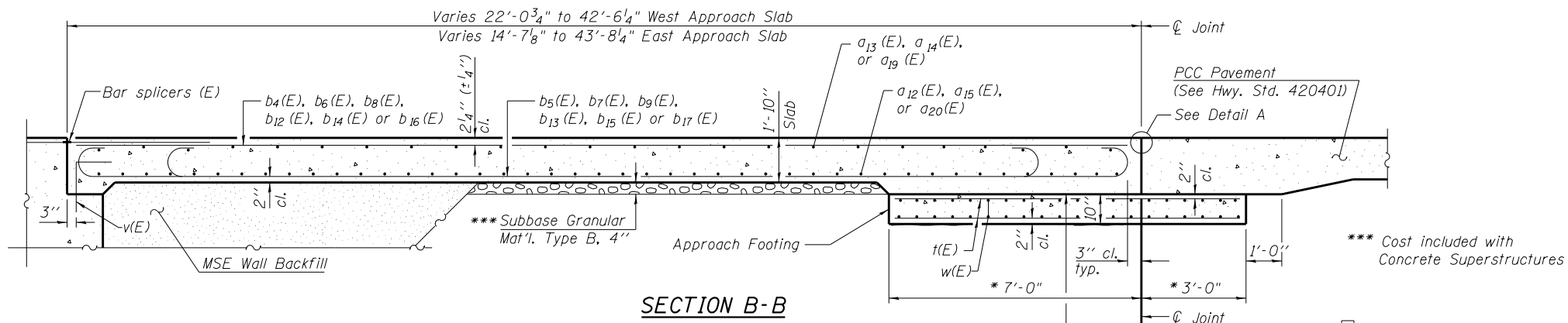
Notes:
 See Sheet 12 of 36 for Detail D and Sections B-B, C-C, H-H and View B-B.
 See Sheet 13 of 36 for View G-G.
 Approach slab and parapet concrete shall be paid for as Concrete Superstructure.
 Approach footing concrete shall be paid for as Concrete Structures.
 Reinforcement shall be paid for as Reinforcement Bars, Epoxy Coated.
 For v(E) bar details, see sheet 31 of 36.
 The approach footing maximum applied service bearing pressure (Qmax) = 2.0 ksf.
 For bar splicer details, see sheet 29 of 36.
 Cost of excavation for approach footing included with Concrete Structures.



PLAN

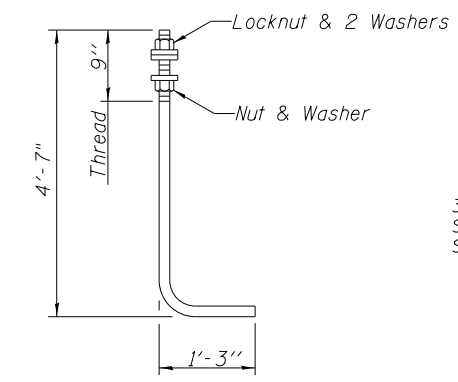
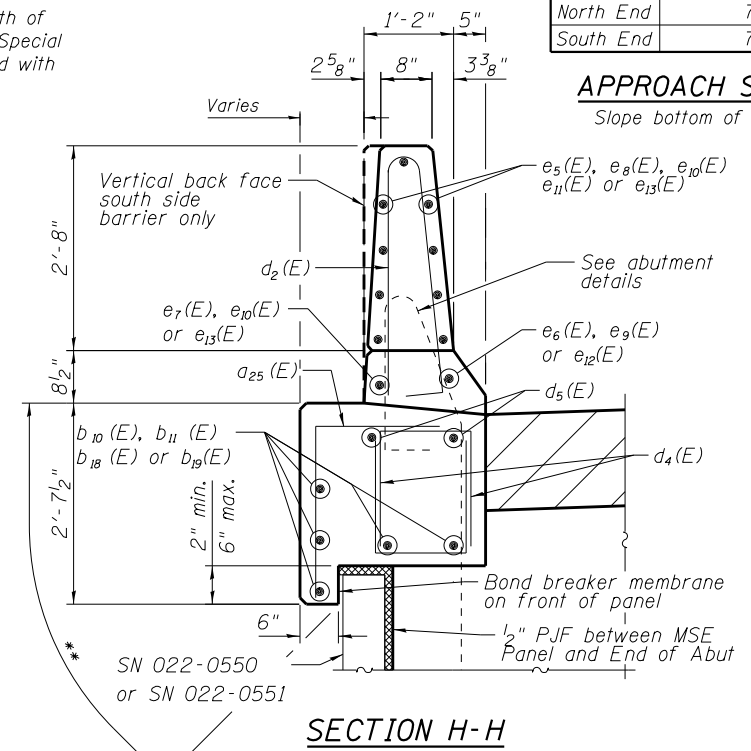
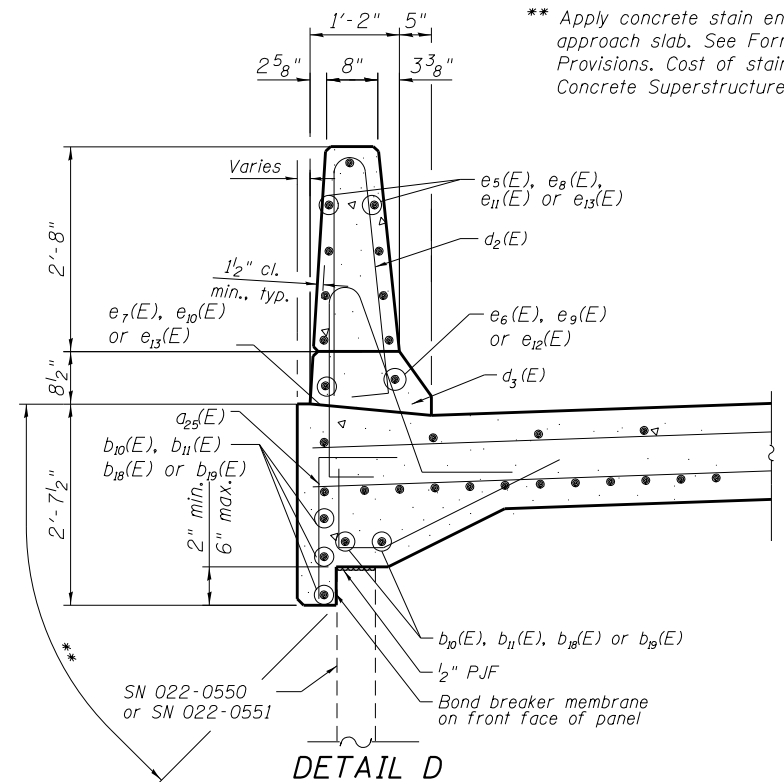
VIEW F-F
 (Dimensions along inside face)

FILE NAME = 0220549-60Y95-011-Appr-Slab-East.dgn	USER NAME = asontag	DESIGNED - VKN	REVISED - -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	BRIDGE APPROACH SLAB PLAN - EAST STRUCTURE NO. 022-0549	F.A.P. RTE. 345	SECTION 2013-083-R&B	COUNTY DUPAGE	TOTAL SHEETS 759	SHEET NO. 431
CH2MHILL	PLOT SCALE = 10.0000' / in.	DRAWN - ZNG	REVISED - -			DRAWING NO. SH-11	CONTRACT NO. 60Y95			
PLOT DATE = 10/28/2014	CHECKED - MAM	REVISED - -	SHEET NO. 11 OF 36 SHEETS			ILLINOIS FED. AID PROJECT				

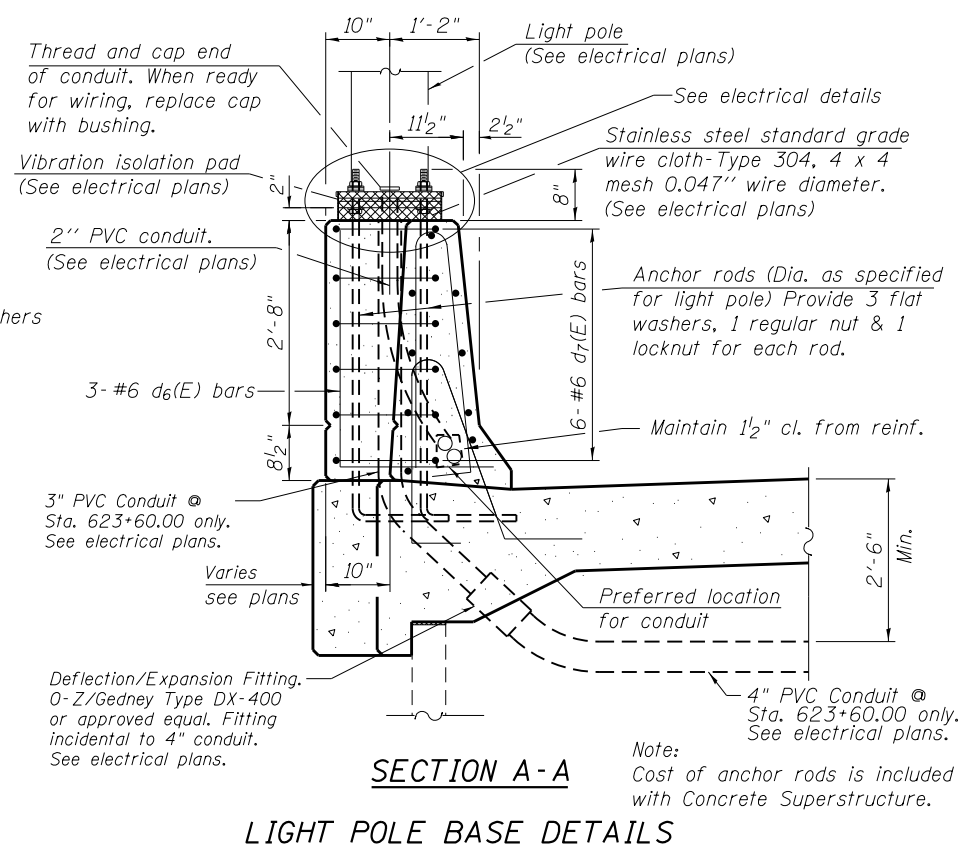


Location	West Approach Footing Bottom Elevation	East Approach Footing Bottom Elevation
North End	728.46	728.10
South End	726.83	725.37

APPROACH SLAB FOOTING ELEVATIONS
Slope bottom of footing uniformly between points given



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



LIGHT POLE BASE DETAILS

FILE NAME = 0220549-60Y95-012-Appr-Slab-Det1.dgn	USER NAME = asontag	DESIGNED - VKN	REVISED - -
CH2MHILL	PLOT SCALE = 10.0000' / in.	CHECKED - MAM	REVISED - -
	PLOT DATE = 10/13/2014	DRAWN - ZNG	REVISED - -
		CHECKED - MAM	REVISED - -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRIDGE APPROACH SLAB DETAILS I
STRUCTURE NO. 022-0549

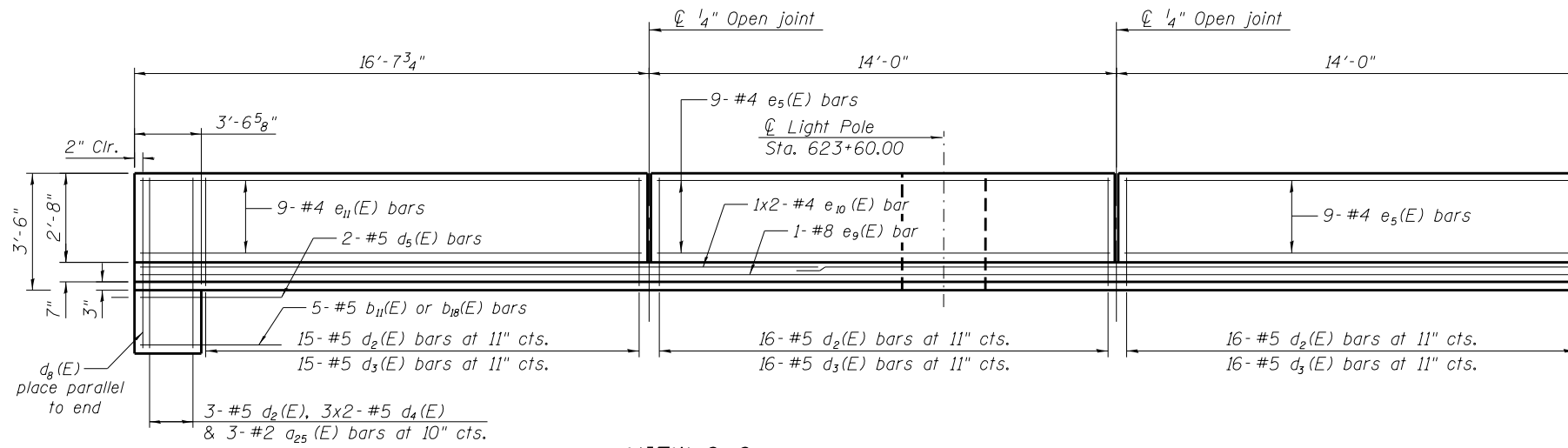
SHEET NO. 12 OF 36 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
345	2013-083-R&B	DUPAGE	759	432
DRAWING NO. SH-12		CONTRACT NO. 60Y95		

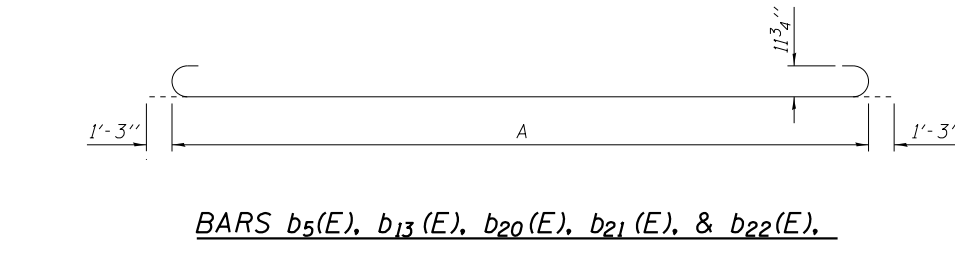
ILLINOIS FED. AID PROJECT

**TWO APPROACHES
BILL OF MATERIAL CONT'D.**

Bar	No.	Size	Length	Shape
a ₂₀ (E)	51	#5	33'-6"	—
a ₂₁ (E)	16	#4	11'-6"	—
a ₂₂ (E)	31	#5	11'-6"	—
a ₂₃ (E)	1	#4	7'-3"	—
a ₂₄ (E)	1	#5	7'-3"	—
a ₂₅ (E)	131	#5	4'-2"	—
b ₄ (E)	18	#4	27'-11"	—
b ₅ (E)	53	#9	30'-5"	—
b ₆ (E)	10	#4	15'-11"	—
b ₇ (E)	26	#9	20'-0"	—
b ₈ (E)	14	#4	22'-6"	—
b ₉ (E)	34	#9	26'-7"	—
b ₁₀ (E)	5	#5	24'-7"	—
b ₁₁ (E)	10	#5	24'-1"	—
b ₁₂ (E)	18	#4	27'-3"	—
b ₁₃ (E)	53	#9	29'-9"	—
b ₁₄ (E)	14	#4	23'-1"	—
b ₁₅ (E)	42	#9	27'-2"	—
b ₁₆ (E)	8	#4	15'-7"	—
b ₁₇ (E)	20	#9	19'-8"	—
b ₁₈ (E)	10	#5	24'-11"	—
b ₁₉ (E)	5	#5	17'-7"	—
b ₂₀ (E)	1	#9	19'-10"	—
b ₂₁ (E)	3	#9	18'-9"	—
b ₂₂ (E)	1	#9	17'-8"	—
b ₂₃ (E)	1	#4	15'-2"	—
d ₂ (E)	197	#5	6'-11"	—
d ₃ (E)	182	#5	8'-0"	—
d ₄ (E)	30	#5	4'-10"	—
d ₅ (E)	8	#5	12'-0"	—
d ₆ (E)	6	#6	5'-1"	—
d ₇ (E)	12	#6	8'-11"	—
d ₈ (E)	2	#5	7'-0"	—
e ₅ (E)	27	#4	13'-8"	—
e ₆ (E)	1	#8	25'-11"	—
e ₇ (E)	1	#4	25'-0"	—
e ₈ (E)	9	#4	11'-11"	—
e ₉ (E)	2	#8	44'-5"	—
e ₁₀ (E)	22	#4	24'-9"	—
e ₁₁ (E)	9	#4	18'-7"	—
e ₁₂ (E)	1	#8	19'-11"	—
e ₁₃ (E)	10	#4	17'-7"	—
t(E)	258	#4	9'-6"	—
w(E)	80	#5	26'-2"	—
w ₁ (E)	50	#5	3'-8"	—
w ₂ (E)	40	#5	8'-8"	—
w ₃ (E)	40	#5	10'-11"	—
w ₄ (E)	80	#5	34'-10"	—
Item	Unit	Total		
Bridge Deck Grooving	Sq. Yd.	226		
Protective Coat	Sq. Yd.	299		
Concrete Superstructure	Cu. Yd.	211		
Concrete Structures	Cu. Yd.	36		
Reinforcement Bars, Epoxy Coated	Pound	42738		

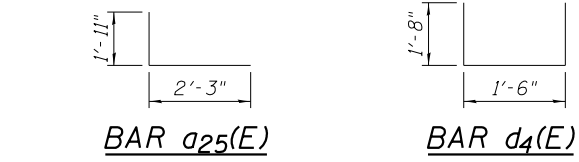


VIEW G-G
(Dimensions along inside face)

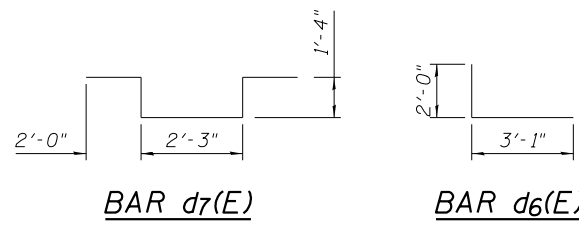


BARS b₅(E), b₁₃(E), b₂₀(E), b₂₁(E), & b₂₂(E).

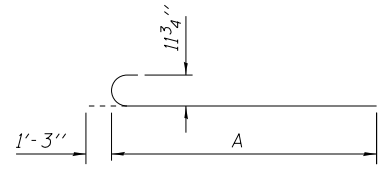
Bar	A
b ₅ (E)	27'-11"
b ₁₃ (E)	27'-3"
b ₂₀ (E)	17'-4"
b ₂₁ (E)	16'-3"
b ₂₂ (E)	15'-2"



BAR a₂₅(E) BAR d₄(E)

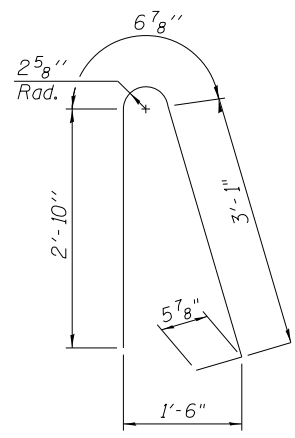


BAR d₇(E) BAR d₆(E)

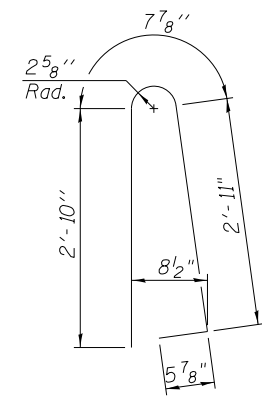


BARS b₇(E), b₉(E), b₁₅(E), & b₁₇(E).

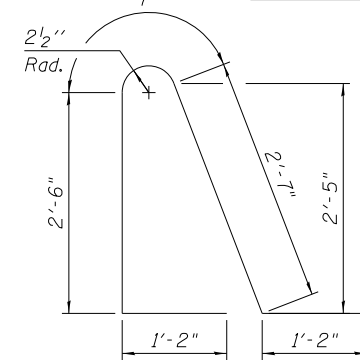
Bar	A
b ₇ (E)	18'-9"
b ₉ (E)	25'-4"
b ₁₅ (E)	25'-11"
b ₁₇ (E)	18'-5"



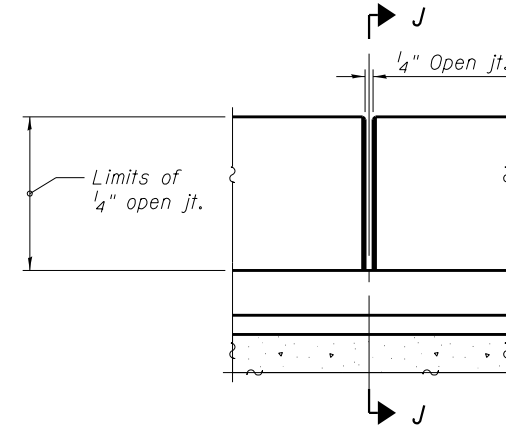
BAR d₈(E)



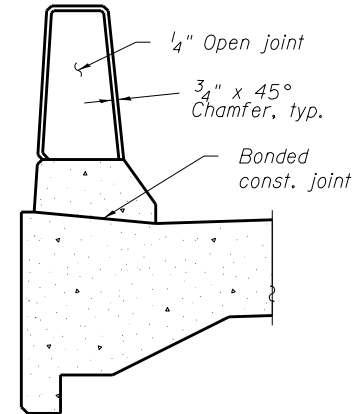
BAR d₂(E)



BAR d₃(E)



**ELEVATION DETAIL
OF BARRIER OPEN JOINT**

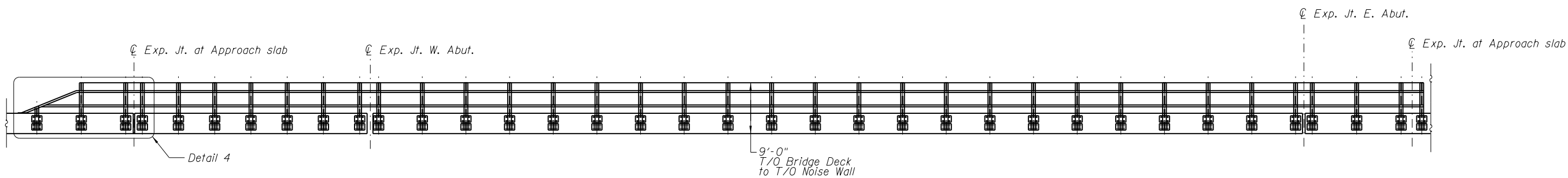


SECTION J-J

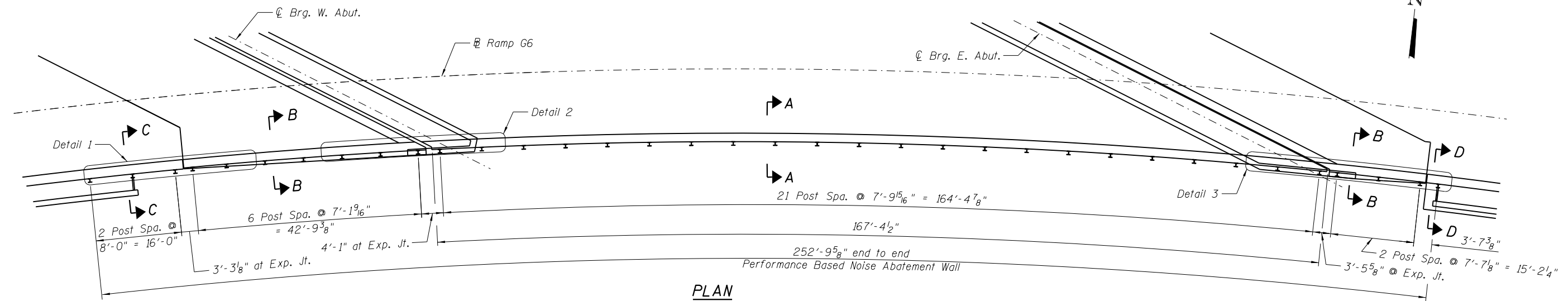
**TWO APPROACHES
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
a ₁₂ (E)	36	#5	36'-3"	—
a ₁₃ (E)	20	#4	36'-1"	—
a ₁₄ (E)	8	#4	34'-5"	—
a ₁₅ (E)	12	#5	34'-7"	—
a ₁₆ (E)	10	#4	10'-2"	—
a ₁₇ (E)	21	#5	10'-2"	—
a ₁₈ (E)	116	#5	6'-6"	—
a ₁₉ (E)	30	#4	33'-4"	—

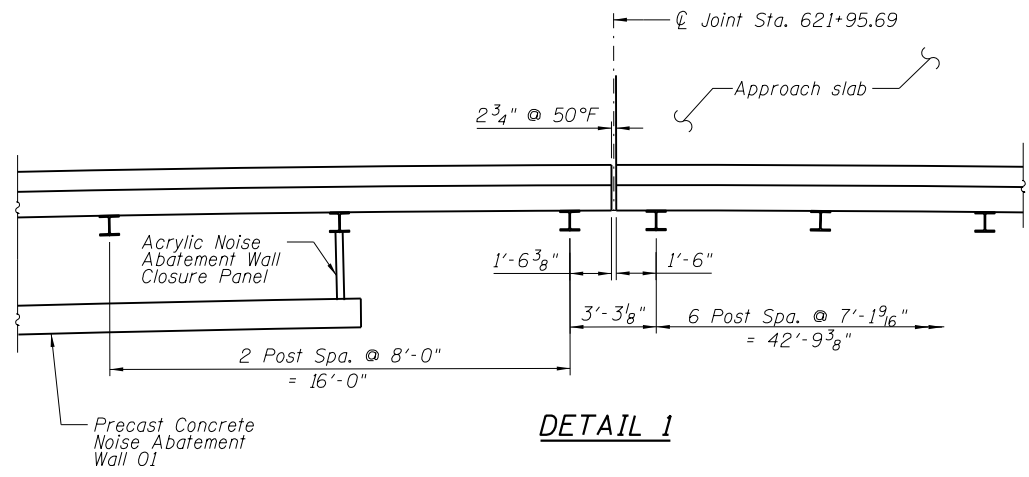
Notes:
1. Bars indicated thus "10x2-#5 etc." indicate 10 lines of bars with 2 lengths per line.
MIN BAR LAP
#4 Bar = 2'-11"
#5 Bar = 3'-3"
#9 Bar = 8'-7"



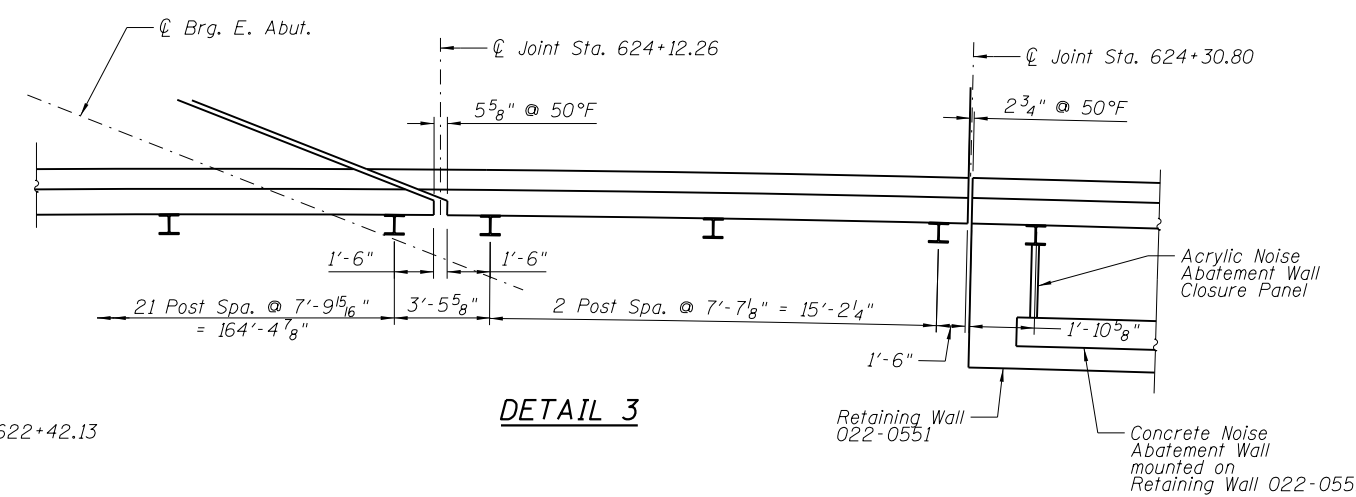
ELEVATION



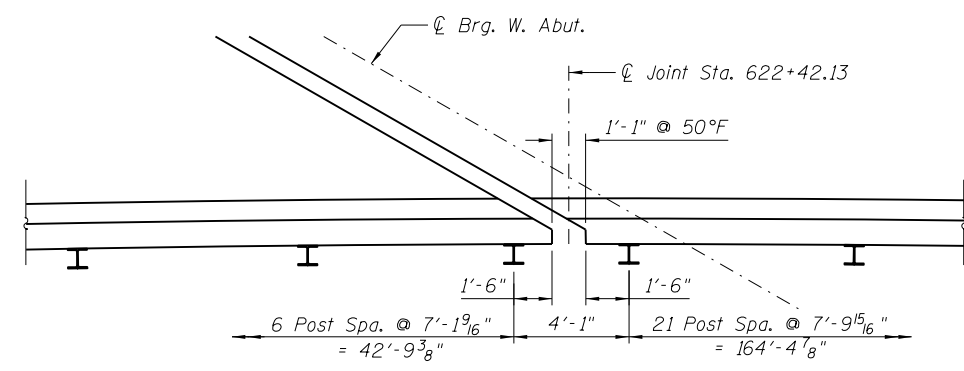
PLAN



DETAIL 1



DETAIL 3



DETAIL 2

BILL OF MATERIAL

Item	Unit	Total
Performance Based Acrylic Noise Abatement Wall	L. Sum	1

Note: See Sheet SH-15 for Sections and Detail 4.

FILE NAME = 0220549-60Y95-014-Noise-Wall-Plan.dgn
CH2MHILL

USER NAME = asantiag
 PLOT SCALE = 20.0000' / in.
 PLOT DATE = 10/28/2014

DESIGNED - VKN
 CHECKED - MAM
 DRAWN - JBA
 CHECKED - MAM

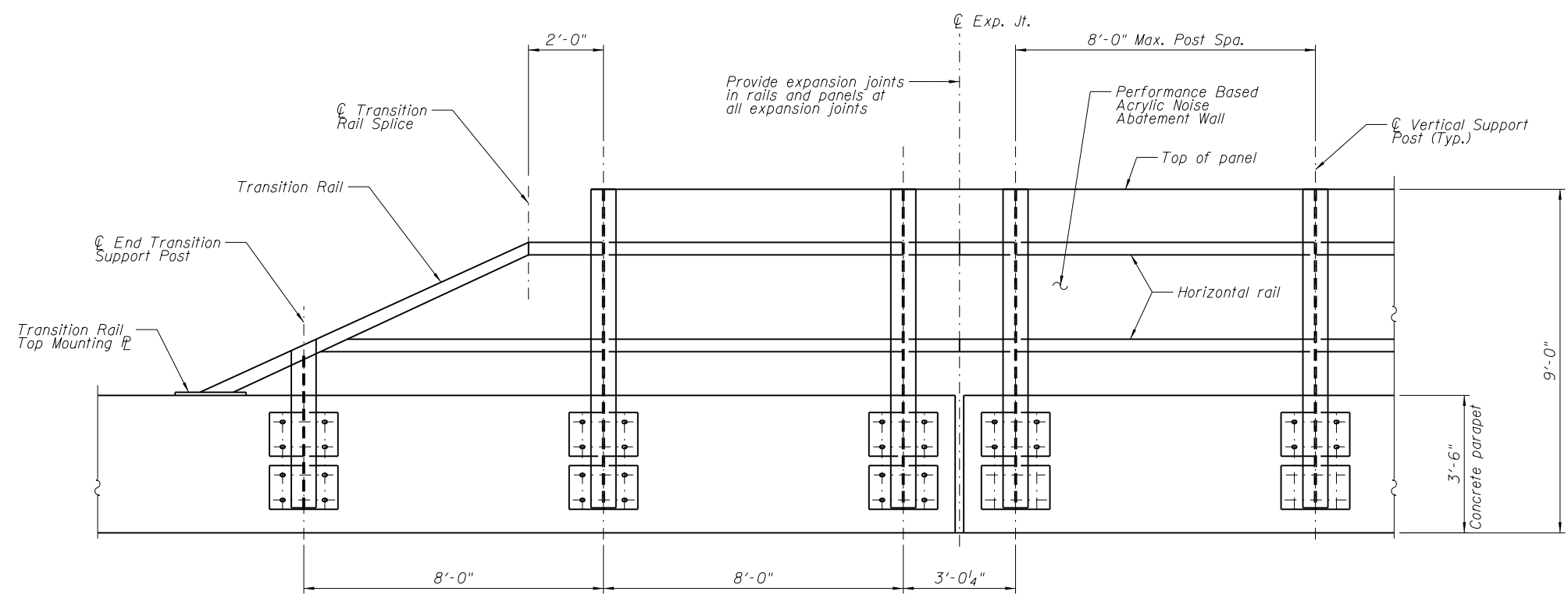
REVISED - -
 REVISED - -
 REVISED - -
 REVISED - -

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

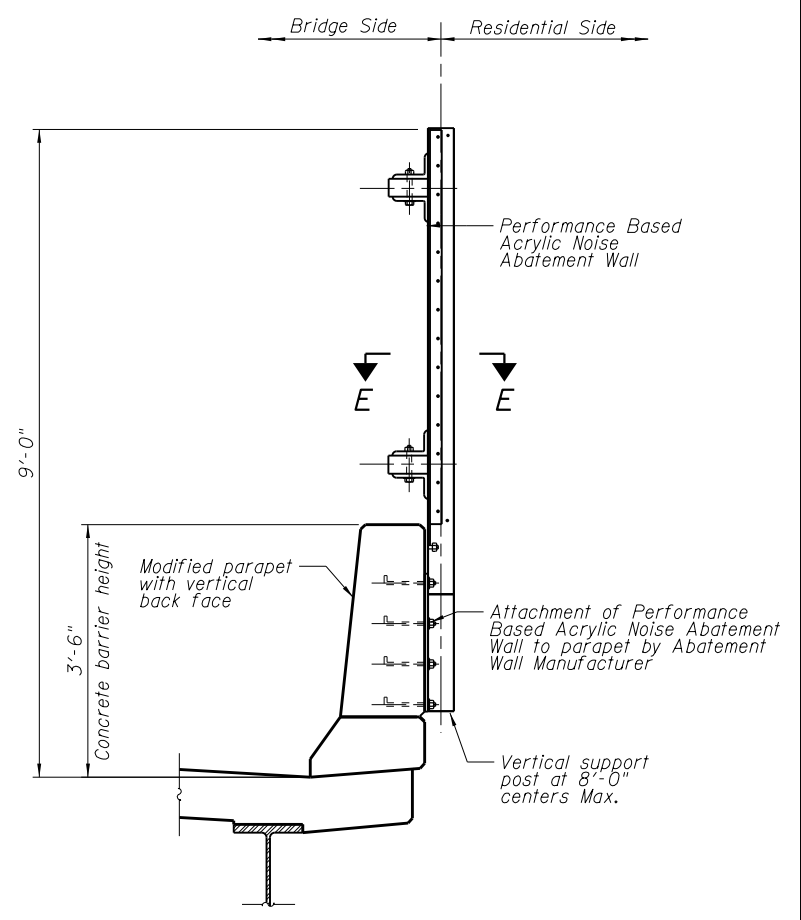
**NOISE ABATEMENT WALL PLAN & ELEVATION
 STRUCTURE NO. 022-0549**

SHEET NO. 14 OF 36 SHEETS

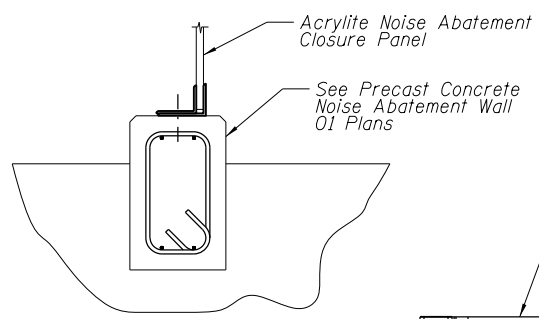
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
345	2013-083-R&B	DUPAGE	759	434
DRAWING NO. SH-14			CONTRACT NO. 60Y95	
ILLINOIS FED. AID PROJECT				



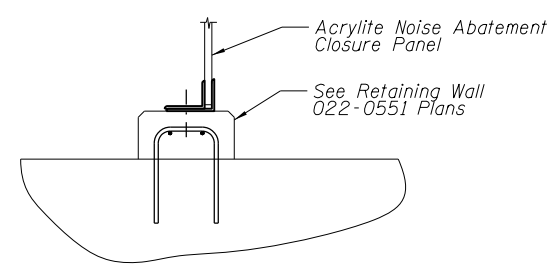
DETAIL 4



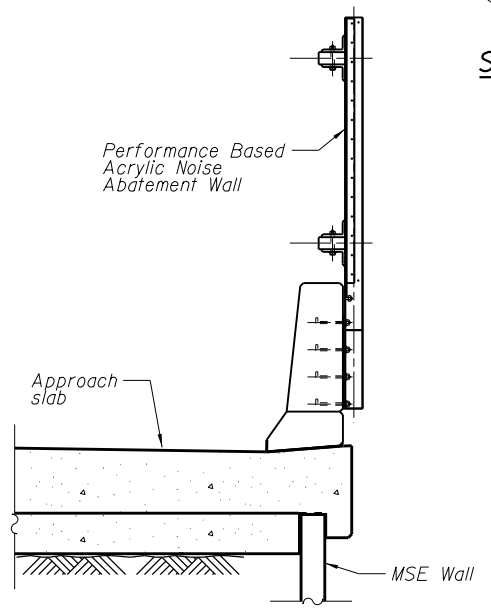
SECTION A-A



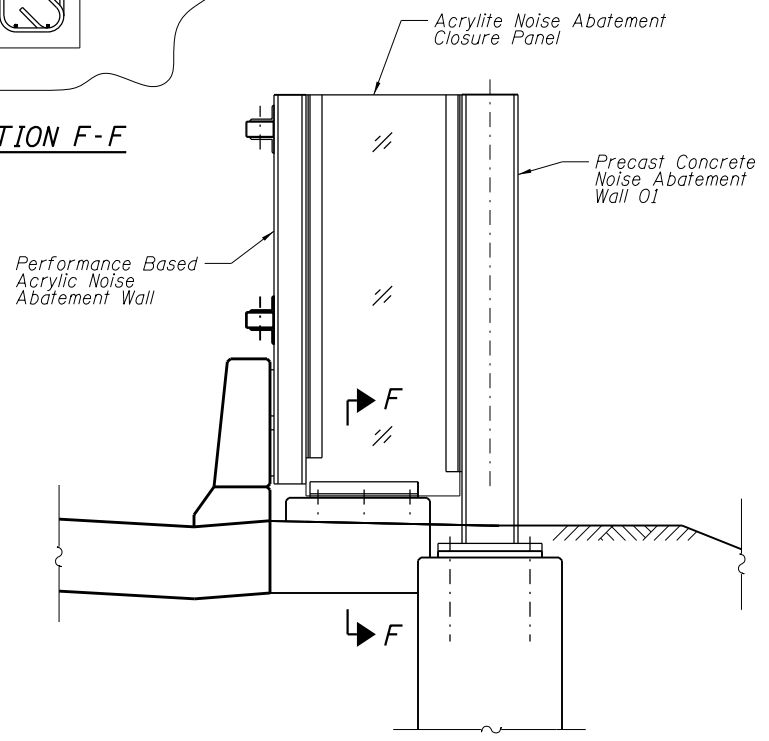
SECTION F-F



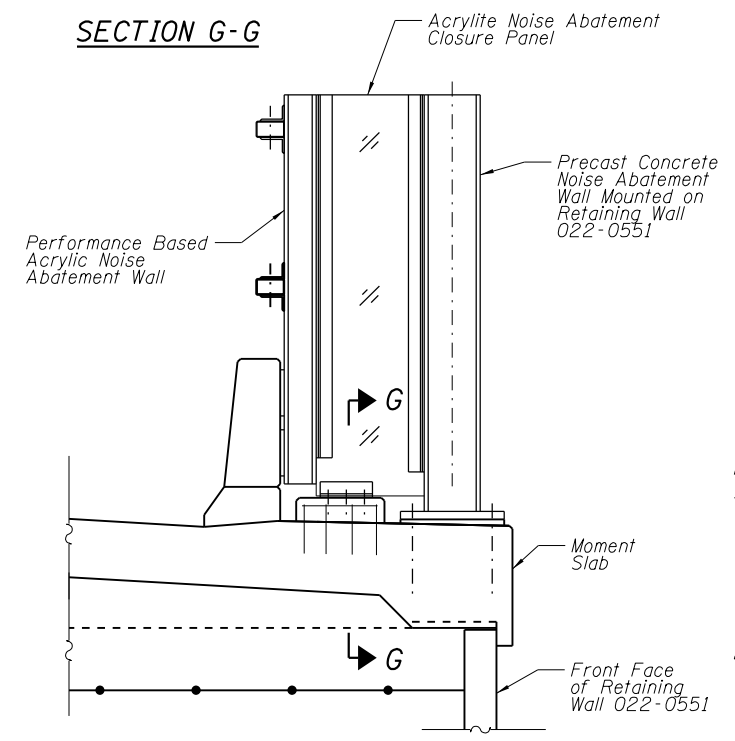
SECTION G-G



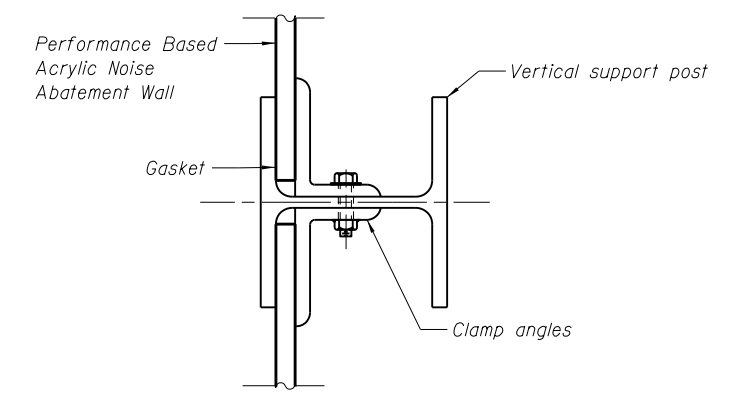
SECTION B-B



SECTION C-C



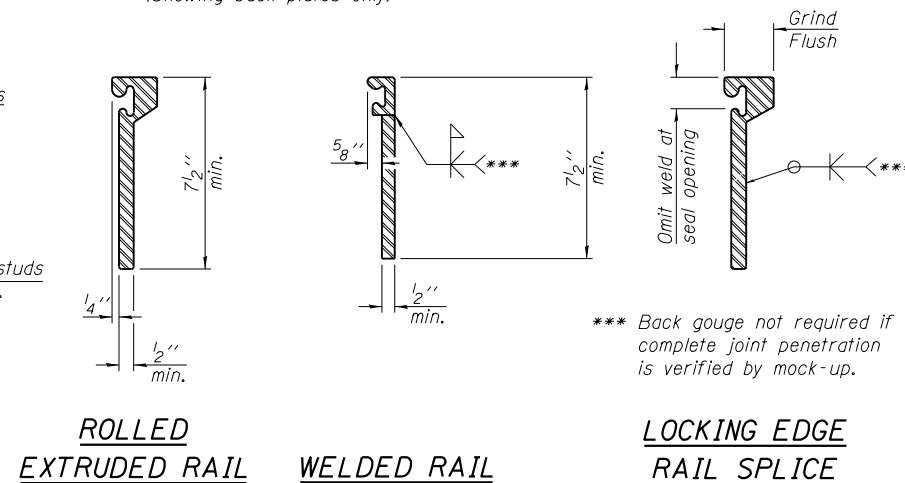
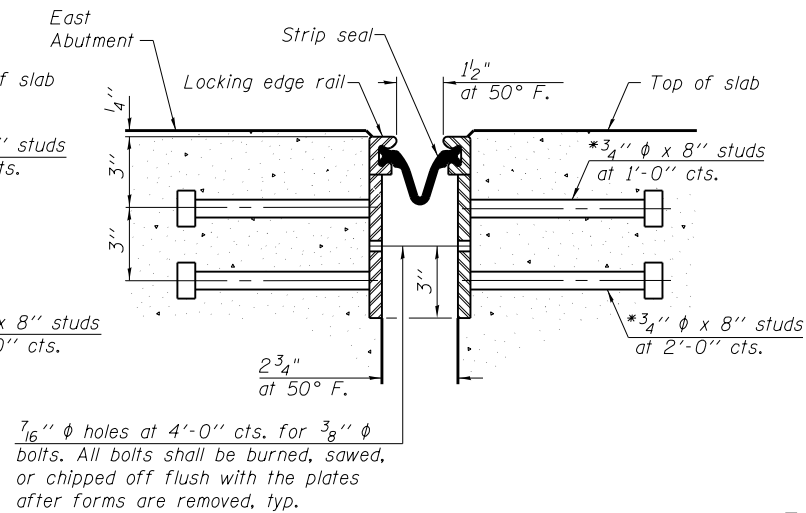
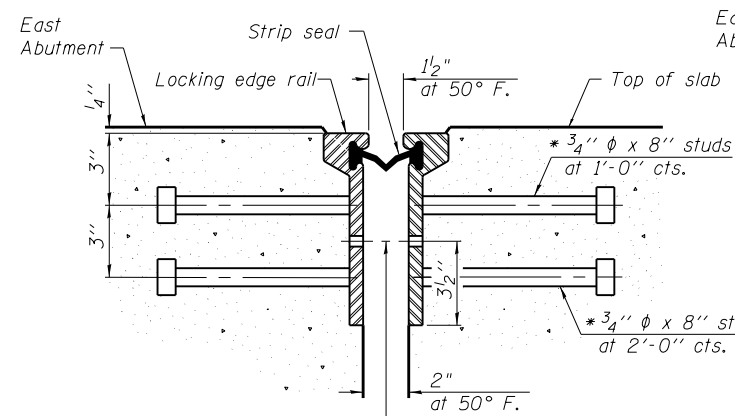
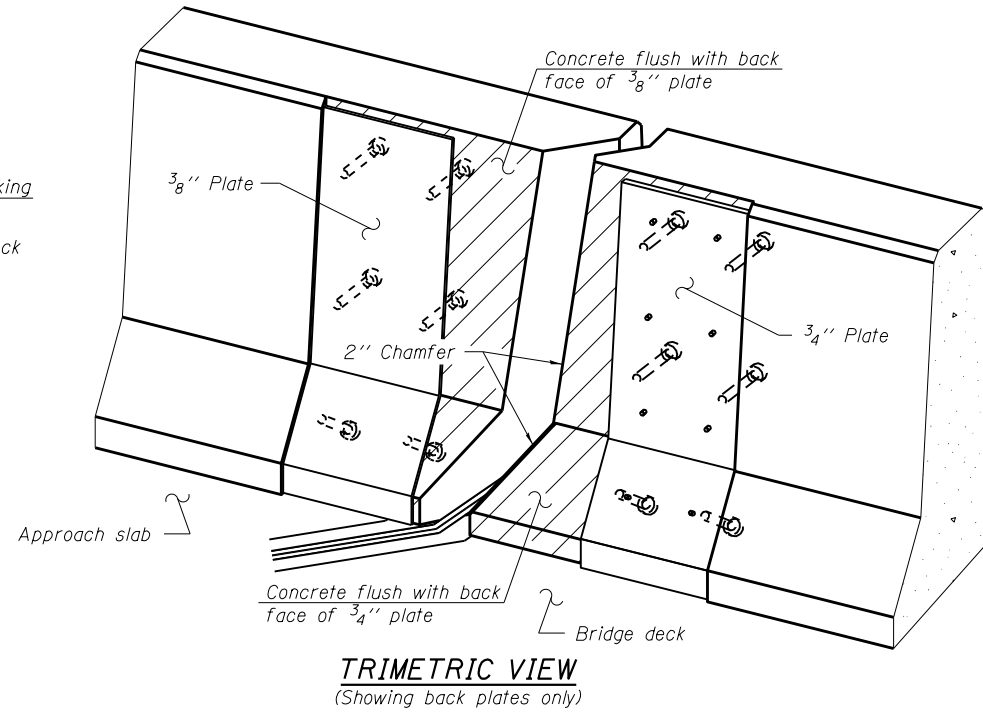
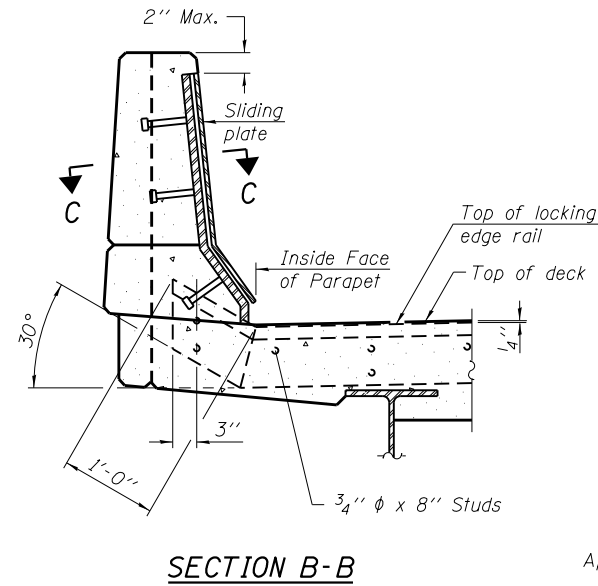
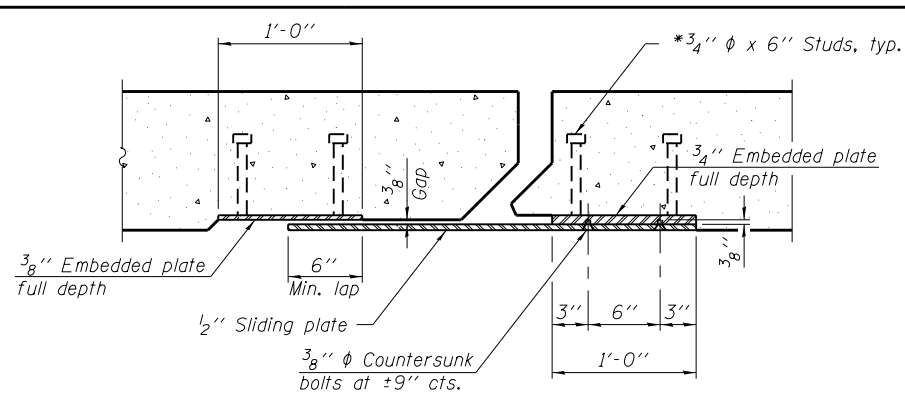
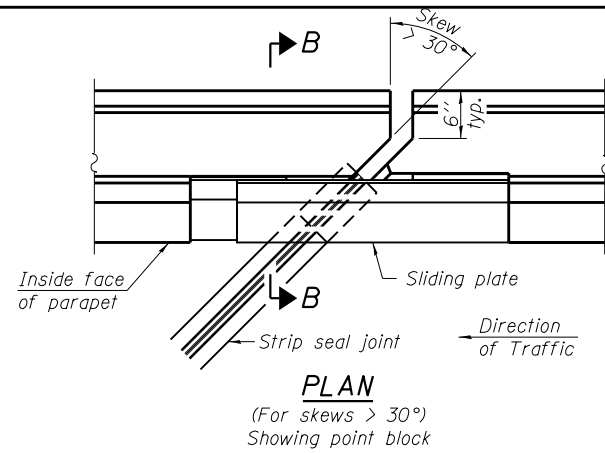
SECTION D-D



SECTION E-E

- Notes:**
1. Details of the Performance Based Acrylic Noise Abatement Wall system, components and attachment to approach slab south barriers and south bridge parapet is to be provided by the noise abatement wall manufacturer. The noise abatement wall shall meet the design and performance requirements of the AASHTO LRFD Specifications for Railing Test Level 4 and confirmed by successful vehicular crash testing. See Performance Based Acrylic Noise Abatement Wall Special Provision.
 2. Acrylic noise abatement wall closure panels to adjacent precast concrete noise abatement walls included with the item Performance Based Acrylic Noise Abatement Wall. Coordinate closure details with Precast Concrete Noise Abatement Wall 01 and Precast Noise abatement wall mounted on retaining wall 022-0551.
 3. Provide expansion joints in all Noise Abatement Wall panels and rails that cross expansion joints noted on sheet 14.

FILE NAME = 0220549-60Y95-015-Noise-Wall-Det.dgn CH2MHILL	USER NAME = asontag	DESIGNED - VKN	REVISED - -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	NOISE ABATEMENT WALL SECTIONS AND DETAILS STRUCTURE NO. 022-0549	F.A.P. RTÉ. = 345	SECTION = 2013-083-R&B	COUNTY = DUPAGE	TOTAL SHEETS = 759	SHEET NO. = 435
	PLOT SCALE = 4.0000' / in.	DRAWN - JBA	REVISED - -			DRAWING NO. SH-15	CONTRACT NO. 60Y95			
	PLOT DATE = 10/28/2014	CHECKED - MAM	REVISED - -			SHEET NO. 15 OF 36 SHEETS				
						ILLINOIS FED. AID PROJECT				



7/16" ϕ holes at 4'-0" cts. for 3/8" ϕ bolts. All bolts shall be burned, sawed, or chipped off flush with the plates after forms are removed, typ.

7/16" ϕ holes at 4'-0" cts. for 3/8" ϕ bolts. All bolts shall be burned, sawed, or chipped off flush with the plates after forms are removed, typ.

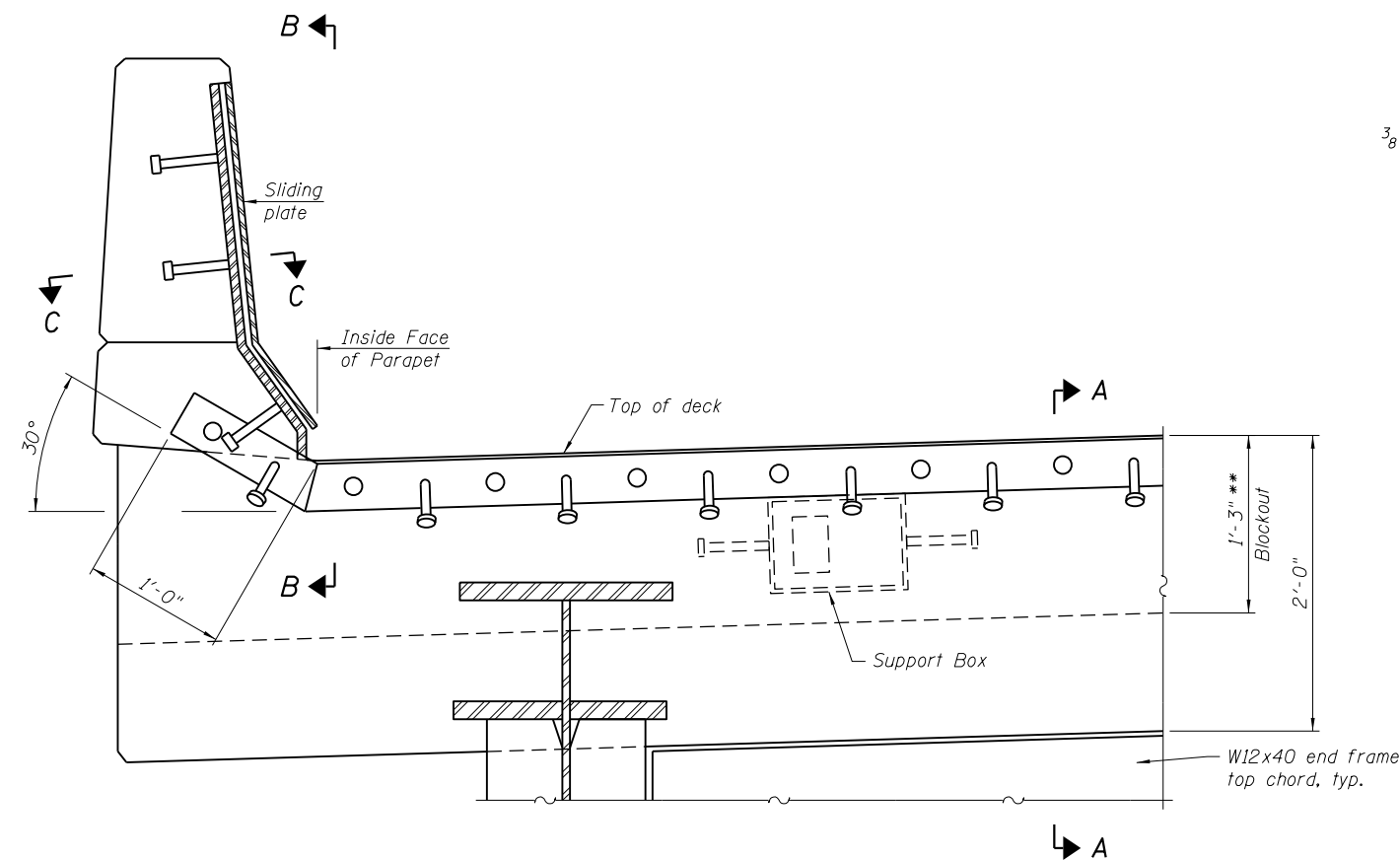
*** Back gouge not required if complete joint penetration is verified by mock-up.

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

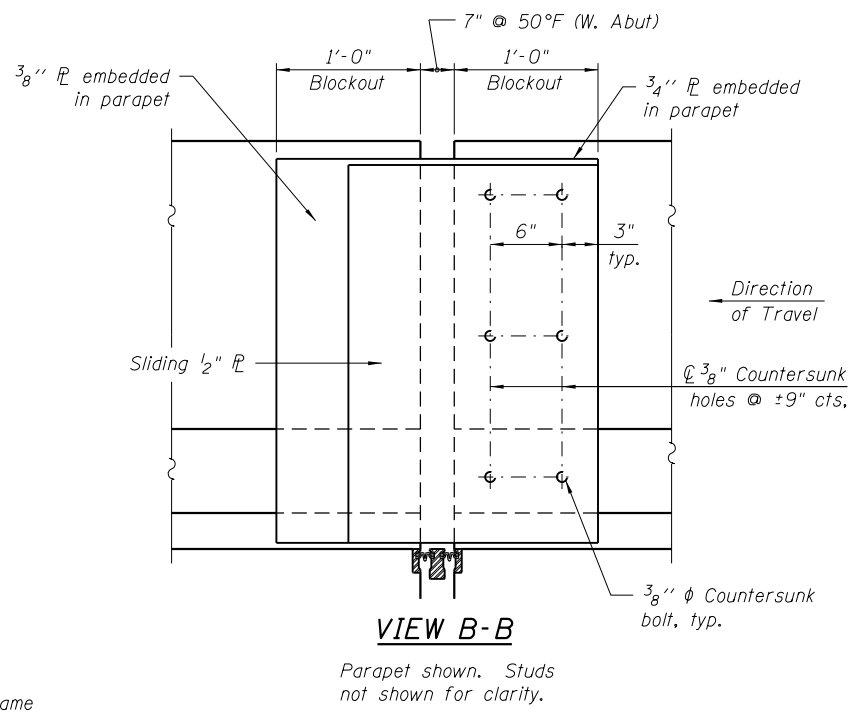
Notes:
The strip seal shall be made continuous and shall have a minimum thickness of 1/4". The configuration of the strip seal shall match the configuration of the Locking Edge Rails. Open or "webbed" strip seal gland configurations are not permitted. The gland shall be sized for a maximum rated movement of 4 inches.
The Locking Edge Rails depicted are conceptual only, except for the minimum dimensions shown. The actual configuration of the Locking Edge Rails and matching strip seal may vary from manufacturer to manufacturer. Flanged edge rails will not be allowed. Locking Edge Rails may be spliced at slope discontinuities.
The manufacturer's recommended installation methods shall be followed.
The joint opening and deck dimensions detailed on the superstructure are based on a rolled rail expansion joint. If the Contractor elects to use the welded rail expansion joint, the opening and deck dimensions shall be modified according to the dimensions detailed on this sheet. Required modifications shall be made at no additional cost to the State.
All steel components shall be galvanized after fabrication according to Article 520.03 of the Standard Specifications. Maximum space between rail segments shall be 3/16", sealed with a suitable sealant. Joints in rails within 10 ft. of curbs shall be welded.
Parapet plates and anchorage studs for skews > 30° included in the cost of Preformed Joint Strip Seal.

BILL OF MATERIAL

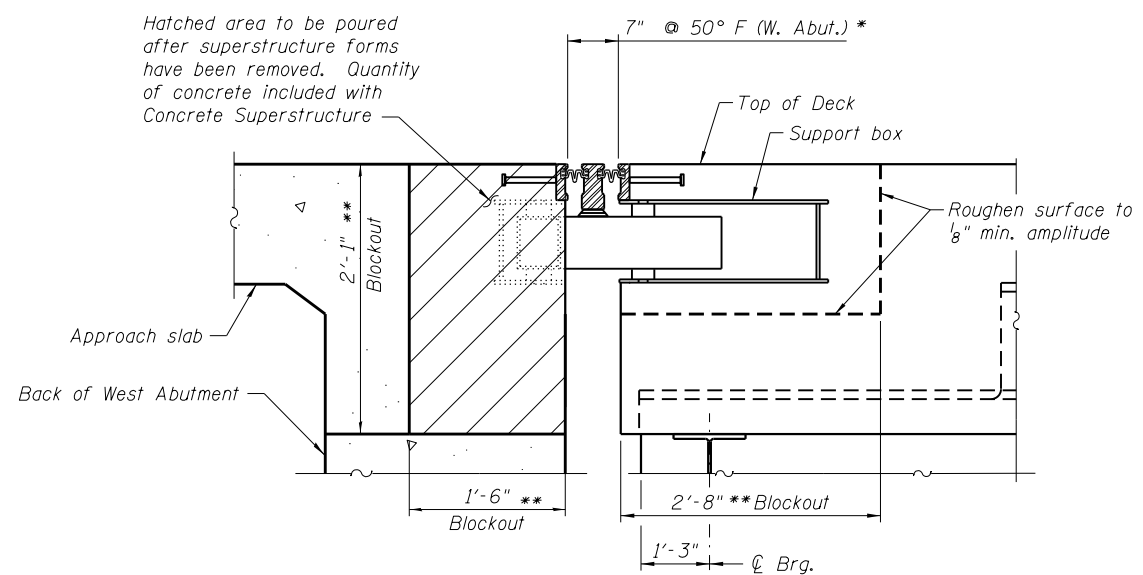
Item	Unit	Total
Preformed Joint Strip Seal	Foot	90.5



PARAPET & DECK DETAIL
(Looking west at southwest corner of bridge)

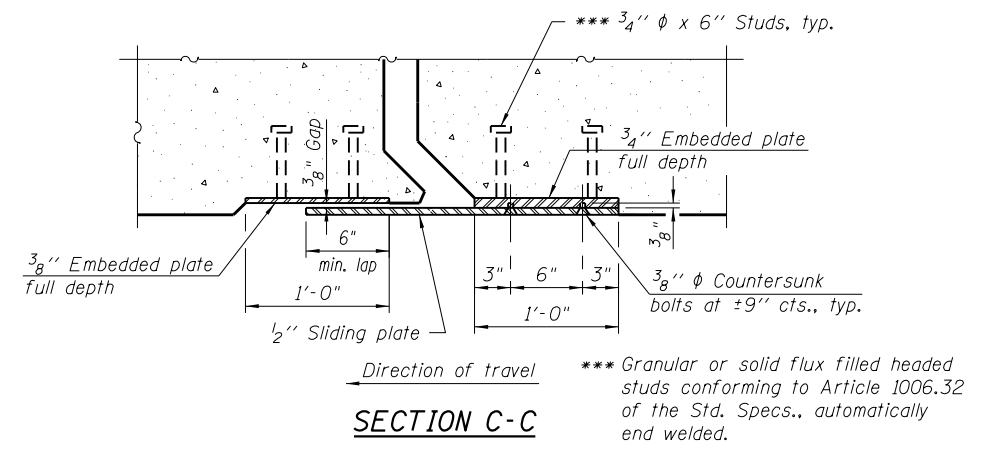


VIEW B-B
Parapet shown. Studs not shown for clarity.



SECTION A-A

* Number of rails determined by the manufacturer.
** Blockout dimensions to be verified by contractor with joint manufacturer. See detail C on Sheet 19.



SECTION C-C

- Notes:
- The expansion joint device shall be a prefabricated modular assembly with multiple support bars and separator beams providing a continuous seal across the deck.
 - Joint openings shall be adjusted according to article 520.04 of the Standard Specifications when the concrete blockout is cast at an ambient temperature other than 50° F.
 - The cost of furnishing and installing the barrier plate assemblies shall be included in the cost of Modular Expansion Joints.
 - Countersunk bolts shall be in accordance with ASTM A-307, Grade A.
 - Countersunk bolts and concrete inserts shall be hot-dipped galvanized according to AASHTO M232.
 - The modular joints shall be fabricated to conform to the roadway profile and cross slope.
 - Prior to the placement of the joint blockout, the Contractor shall coordinate with the Modular Joint Manufacturer to ensure that the joint will be properly supported and that the reinforcement bars will not interfere with the joint components. Any necessary adjustments to the reinforcement layout shall be submitted to the Engineer for approval.
 - Concrete in hatchblock and deck blockout areas to be placed after the modular joint is fixed in position.

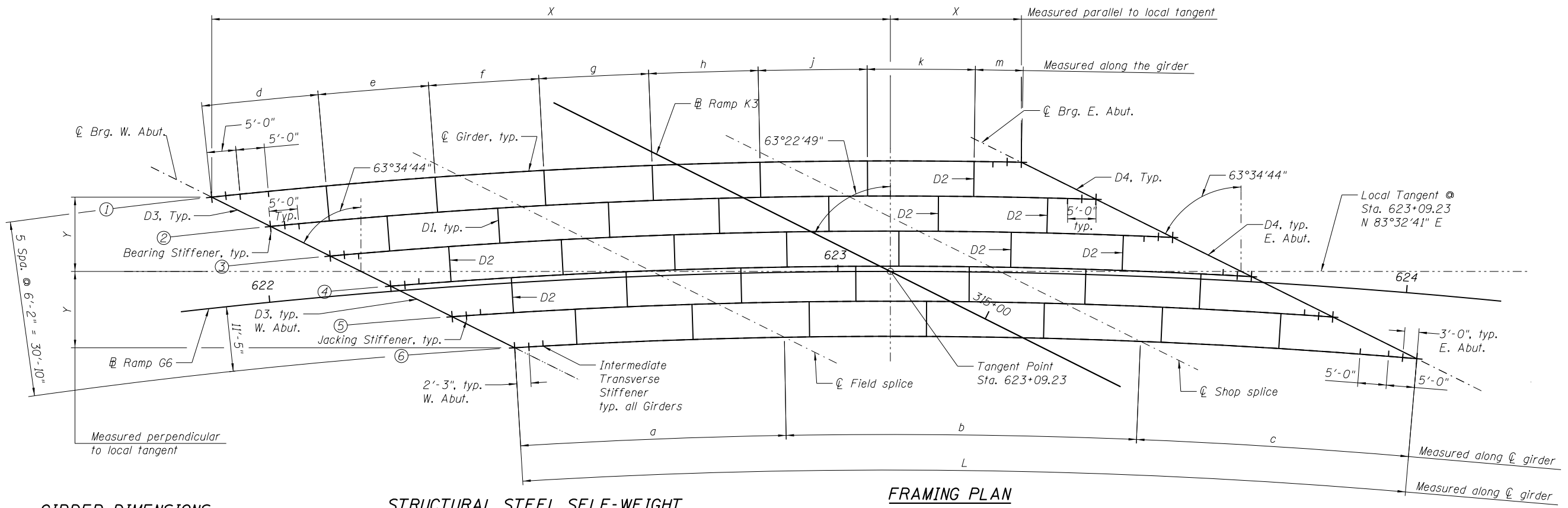
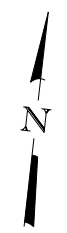
REQUIRED MOVEMENT
Total longitudinal (open/close) movement

Location	Amount
W. Abut	2"

(Values include AASHTO LRFD load factor of 1.2)

BILL OF MATERIAL

Item	Unit	Total
Modular Expansion Joint-Swivel 6"	Foot	69.0



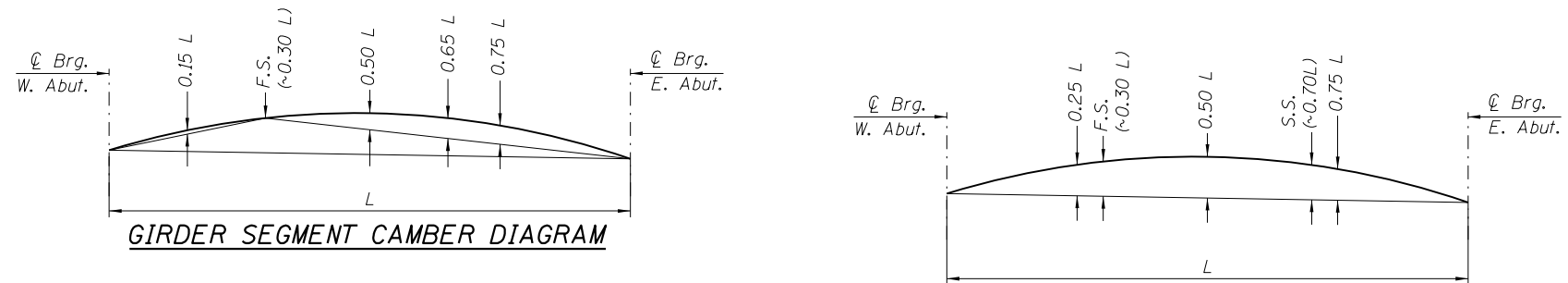
GIRDER DIMENSIONS

Girder	Radius	a	b	c	L
1	1119.42	43'-7 ⁵ / ₈ "	56'-4 ³ / ₁₆ "	42'-6 ¹³ / ₁₆ "	142'-6 ⁵ / ₈ "
2	1113.25	44'-3 ⁵ / ₈ "	57'-4 ¹⁵ / ₁₆ "	43'-6 ¹³ / ₁₆ "	145'-3 ³ / ₈ "
3	1107.08	45'-0 ¹ / ₈ "	58'-6 ¹¹ / ₁₆ "	44'-7 ¹⁵ / ₁₆ "	148'-2 ³ / ₄ "
4	1100.92	45'-9 ³ / ₁₆ "	59'-9 ⁹ / ₁₆ "	45'-10 ³ / ₈ "	151'-5 ¹ / ₈ "
5	1094.75	46'-6 ¹⁵ / ₁₆ "	61'-1 ¹¹ / ₁₆ "	47'-2 ⁵ / ₁₆ "	154'-10 ¹⁵ / ₁₆ "
6	1088.58	47'-5 ³ / ₈ "	62'-7 ¹ / ₄ "	48'-8 ¹ / ₁₆ "	158'-8 ¹¹ / ₁₆ "

STRUCTURAL STEEL SELF-WEIGHT DEFLECTIONS TABLE
(Values in inches)

Girder No.	Span		
	1/4 PT	1/2 PT	3/4 PT
1	1 ⁵ / ₁₆ "	1 ¹³ / ₁₆ "	1 ⁵ / ₈ "
2	1 ³ / ₁₆ "	1 ⁵ / ₈ "	1 ⁹ / ₈ "
3	1 ¹ / ₈ "	1 ¹ / ₂ "	1 ¹ / ₁₆ "
4	1 ¹ / ₁₆ "	1 ⁷ / ₁₆ "	1 ¹ / ₁₆ "
5	1 ¹ / ₈ "	1 ¹ / ₂ "	1 ¹ / ₁₆ "
6	1 ¹ / ₄ "	1 ⁵ / ₈ "	1 ¹ / ₈ "

FRAMING PLAN



GIRDER SEGMENT CAMBER DIAGRAM

SPAN CAMBER DIAGRAM

LAYOUT DIMENSIONS

Girder	West Abutment		Splice 1 (Field Splice)		Splice 2 (Shop Splice)		East Abutment	
	X	Y	X	Y	X	Y	X	Y
1	119'-3 ¹¹ / ₁₆ "	13'-0 ¹ / ₂ "	75'-10 ¹ / ₁₆ "	16'-10 ¹ / ₈ "	19'-6 ⁹ / ₁₆ "	19'-2 ¹⁵ / ₁₆ "	23'-0 ¹³ / ₁₆ "	19'-2 ³ / ₁₆ "
2	108'-11 ⁵ / ₈ "	7'-10 ⁷ / ₈ "	64'-9 ¹¹ / ₁₆ "	11'-4 ³ / ₈ "	7'-5 ³ / ₁₆ "	13'-2 ¹¹ / ₁₆ "	36'-1 ⁹ / ₁₆ "	12'-7 ¹⁵ / ₁₆ "
3	98'-5 ¹³ / ₁₆ "	2'-8 ⁵ / ₁₆ "	53'-7"	5'-9 ⁷ / ₁₆ "	4'-11 ⁷ / ₁₆ "	7'-0 ⁷ / ₈ "	49'-7 ³ / ₁₆ "	5'-11 ¹¹ / ₁₆ "
4	87'-10 ¹ / ₁₆ "	2'-7 ¹ / ₈ "	40'-5 ⁵ / ₁₆ "	8 ¹⁵ / ₁₆ "	19'-6 ⁷ / ₁₆ "	9 ⁵ / ₁₆ "	63'-5 ¹ / ₂ "	10 ¹⁵ / ₁₆ "
5	77'-0 ³ / ₈ "	7'-11 ⁹ / ₁₆ "	30'-6 ³ / ₁₆ "	5'-8 ¹ / ₈ "	30'-7 ³ / ₈ "	5'-8 ¹ / ₈ "	77'-8 ¹⁵ / ₁₆ "	8'-0 ³ / ₁₆ "
6	66'-0 ⁹ / ₁₆ "	13'-5 ¹ / ₁₆ "	18'-7 ¹ / ₁₆ "	11'-6 ¹⁵ / ₁₆ "	43'-11 ³ / ₈ "	12'-3 ⁵ / ₈ "	92'-6 ¹ / ₄ "	15'-4 ¹ / ₄ "

GIRDER SEGMENT CAMBER TABLE

Girder No.	Span				
	0.15 L	F.S.	0.50 L	0.65 L	0.75 L
1	7 ⁹ / ₈ "	0"	4 ¹ / ₄ "	5 ¹ / ₁₆ "	4 ⁵ / ₈ "
2	7 ⁷ / ₈ "	0"	3 ⁷ / ₈ "	4 ⁵ / ₈ "	4 ¹ / ₈ "
3	1 ³ / ₁₆ "	0"	3 ¹³ / ₁₆ "	4 ⁹ / ₁₆ "	4 ¹ / ₈ "
4	1 ³ / ₁₆ "	0"	4"	4 ¹³ / ₁₆ "	4 ⁵ / ₁₆ "
5	1 ³ / ₁₆ "	0"	4 ⁵ / ₁₆ "	5 ³ / ₁₆ "	4 ⁵ / ₈ "
6	1 ⁵ / ₁₆ "	0"	4 ¹ / ₁₆ "	5 ⁹ / ₁₆ "	5"

SPAN CAMBER TABLE

Girder No.	Span				
	0.25 L	F.S.	0.50 L	S.S.	0.75 L
1	7 ⁷ / ₈ "	8 ¹⁵ / ₁₆ "	10 ¹¹ / ₁₆ "	8 ⁷ / ₈ "	7 ⁷ / ₈ "
2	8 ¹³ / ₁₆ "	8 ⁷ / ₁₆ "	9 ¹⁵ / ₁₆ "	8 ¹ / ₈ "	7 ³ / ₁₆ "
3	7 ⁵ / ₁₆ "	8 ¹ / ₄ "	9 ³ / ₄ "	8"	7 ¹ / ₁₆ "
4	7 ³ / ₈ "	8 ³ / ₈ "	9 ¹⁵ / ₁₆ "	8 ⁵ / ₁₆ "	7 ⁵ / ₁₆ "
5	7 ¹³ / ₁₆ "	8 ³ / ₄ "	10 ⁹ / ₁₆ "	8 ¹³ / ₁₆ "	7 ³ / ₄ "
6	8 ⁵ / ₈ "	9 ¹ / ₁₆ "	11 ⁹ / ₁₆ "	9 ¹ / ₁₆ "	8 ⁷ / ₁₆ "

Note: Camber includes deflections due to structural steel, deck, parapet, and noise barrier dead loads, and deflection due to deck concrete shrinkage.

Deflection notes:

- The calculated deflections of the primary girders/beams under steel self-weight shall be used to detail the diaphragm, cross frame and lateral bracing connections, and to erect the structural steel such that the girders/beams will be plumb within a tolerance of ±¹/₈" per vertical ft. throughout when supporting their own weight.
- The Contractor shall either:
 - Ream diaphragm and/or cross frame connection holes during shop assembly, or
 - Provide detailing and fabrication controls acceptable to the Engineer which ensures accuracy such that field reaming will not exceed the amount permitted in Article 505.08(I) of the Standard Specifications.

Note: Camber includes deflections due to structural steel, deck, parapet, and noise barrier dead loads, and deflection due to deck concrete shrinkage.

Note:

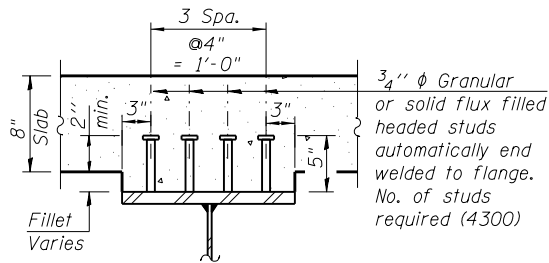
All cross frames or diaphragms between beams or girders shall be installed with erection pins and bolts in accordance with the erection plan approved by the Engineer. Individual cross frames or diaphragms at supports may be temporarily disconnected to install bearing anchor rods.

CROSSFRAME SPACING

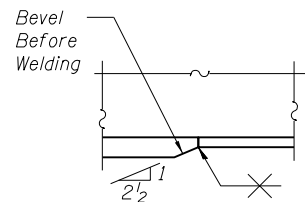
Girder	d	e	f	g	h	j	k	m
1	20'-2 ⁷ / ₈ "	19'-2 ¹ / ₂ "	19'-1 ¹ / ₁₆ "	19'-0 ¹ / ₁₆ "	18'-11 ¹¹ / ₁₆ "	18'-10 ¹ / ₂ "	18'-9 ³ / ₁₆ "	8'-3 ⁹ / ₁₆ "
2	20'-6 ¹¹ / ₁₆ "	19'-6 ¹ / ₈ "	19'-5 ⁹ / ₁₆ "	19'-4 ¹⁵ / ₁₆ "	19'-4 ¹ / ₄ "	19'-3 ¹ / ₂ "	19'-2 ⁹ / ₁₆ "	8'-5 ⁵ / ₈ "
3	20'-10 ¹³ / ₁₆ "	19'-10"	19'-9 ¹³ / ₁₆ "	19'-9 ¹ / ₂ "	19'-9 ¹ / ₄ "	19'-8 ¹³ / ₁₆ "	19'-8 ¹ / ₂ "	8'-7 ¹⁵ / ₁₆ "
4	21'-3 ³ / ₁₆ "	20'-2 ³ / ₁₆ "	20'-2 ⁵ / ₁₆ "	20'-7 ⁷ / ₁₆ "	20'-2 ⁵ / ₈ "	20'-2 ¹³ / ₁₆ "	20'-3"	8'-10 ¹ / ₂ "
5	21'-7 ¹³ / ₁₆ "	20'-6 ⁵ / ₈ "	20'-7 ³ / ₁₆ "	20'-7 ¹³ / ₁₆ "	20'-8 ¹ / ₂ "	20'-9 ⁵ / ₁₆ "	20'-10 ³ / ₁₆ "	9'-1 ⁷ / ₁₆ "

SHEAR STUD SPACING

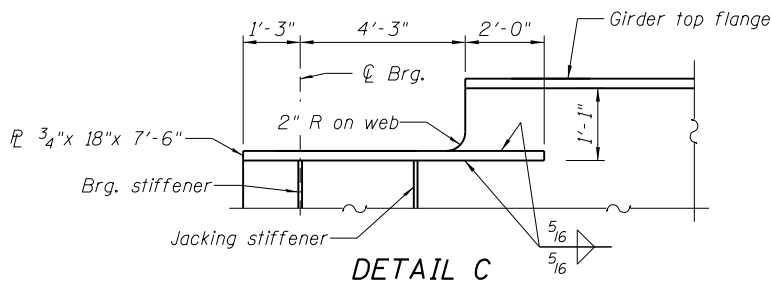
Girder	P	Q	R	S
1	26 Spa. @ 1'-0" = 26'-0"	1'-15/8"	1'-5"	81 Spa. @ 1'-0" = 81'-0"
2	27 Spa. @ 1'-0" = 27'-0"	95/8"	1'-53/4"	83 Spa. @ 1'-0" = 83'-0"
3	28 Spa. @ 1'-0" = 28'-0"	69/8"	85/8"	86 Spa. @ 1'-0" = 86'-0"
4	28 Spa. @ 1'-0" = 28'-0"	1'-33/16"	1'-15/16"	88 Spa. @ 1'-0" = 88'-0"
5	29 Spa. @ 1'-0" = 29'-0"	1'-015/16"	10"	91 Spa. @ 1'-0" = 91'-0"
6	30 Spa. @ 1'-0" = 30'-0"	113/8"	95/16"	94 Spa. @ 1'-0" = 94'-0"



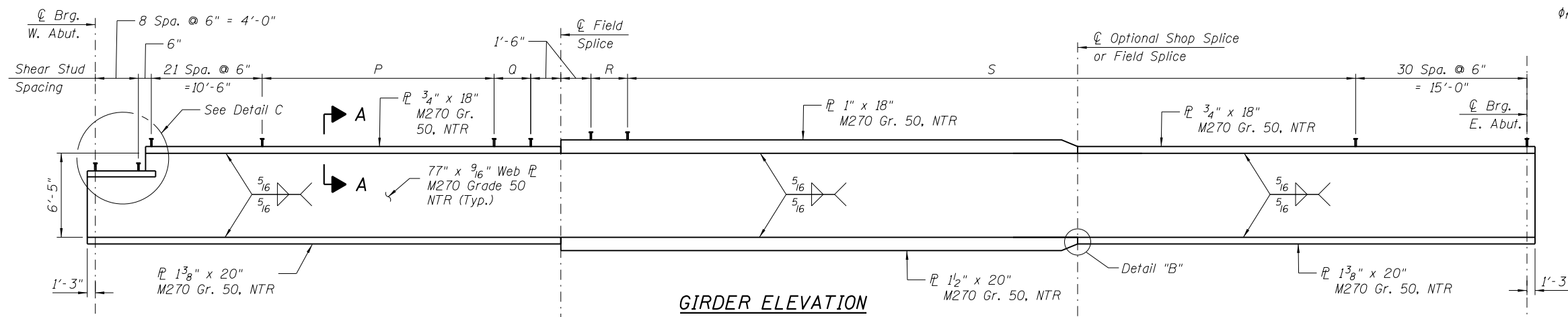
SECTION A-A



DETAIL "B"



DETAIL C



GIRDER ELEVATION

GIRDER MOMENT TABLE	0.5 Span					
	Girder 1	Girder 2	Girder 3	Girder 4	Girder 5	Girder 6
I_s	92526	92526	92526	92526	92526	92526
$I_c(n)$	190171	199021	199021	199021	199021	190171
$I_c(3n)$	137802	143678	143678	143678	143678	137802
S_s	2659	2659	2659	2659	2659	2659
$S_c(n)$	3395	3437	3437	3437	3437	3395
$S_c(3n)$	3087	3129	3129	3129	3129	3087
S_{xc}	3028	3101	3139	3148	3137	3091
DC1	1.20	1.23	1.23	1.23	1.23	1.20
Mdc1	3851	3332	2956	2848	2934	3107
DC2	0.20	0.17	0.17	0.17	0.17	0.25
Mdc2	581	556	482	504	601	690
DW	0.27	0.27	0.27	0.27	0.27	0.27
Mdw	840	776	699	667	687	716
$M_L + IM$	2301	2026	1626	1572	1779	1805
f_l (Strength I)	38.7	-87.9	45.7	80.9	71.9	49.7
$M_u + 1/2 f_l S_{xc}$	13328	11871	10308	10240	10616	11298
$\phi_r M_{nc}$	14136	15339	15339	15339	15339	14136
f_s DC1	13.61	11.64	10.32	9.95	10.25	10.98
f_s DC2	2.26	2.13	1.85	1.93	2.30	2.68
f_s DW	3.26	2.98	2.68	2.56	2.64	2.78
f_s ($\ell + IM$)	8.13	7.07	5.68	5.49	6.21	6.38
f_l (Service II)	3.58	-8.06	3.87	7.14	6.38	4.55
$f_s + f_l / 2$ (Service II)	31.5	21.9	24.2	25.1	26.4	27.0
$0.95R_n F_y f$	47.5	47.5	47.5	47.5	47.5	47.5
$f_s + f_l / 3$ (Total)(Strength I)	40.5	30.5	31.0	31.5	33.4	34.4
$\phi_r F_n$	50.0	50.0	50.0	50.0	50.0	50.0
Vr	24.2	18.3	18.6	18.4	18.2	17.6

GIRDER REACTION TABLE (SERVICE I)	0.5 Span					
	Girder 1	Girder 2	Girder 3	Girder 4	Girder 5	Girder 6
Abutment (West)	102.0	105.5	90.3	81.3	78.1	88.4
Rdc1	28.2	13.2	8.0	2.1	8.2	27.8
Rdc2	22.3	19.5	20.4	18.2	22.4	24.4
Rdw	60.0	68.3	79.9	68.8	71.5	83.1
$R_L + IM$	212.5	206.6	198.6	170.3	180.2	223.8

GIRDER REACTION TABLE (SERVICE I)	0.5 Span					
	Girder 1	Girder 2	Girder 3	Girder 4	Girder 5	Girder 6
Abutment (East)	125.8	93.7	86.7	88.4	86.5	78.0
Rdc1	15.3	7.9	5.7	10.7	17.7	37.2
Rdc2	32.6	29.7	20.2	16.2	16.9	21.4
Rdw	109.6	88.5	86.3	78.6	70.7	47.9
$R_L + IM$	283.3	219.8	199.0	193.9	191.7	184.5

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).

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.).

Mdc1: 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.).

Mdc2: 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.).

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

$M_L + IM$: Un-factored live load moment plus dynamic load allowance (kip-ft.).

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

$M_u + 1/2 f_l S_{xc}$: Factored combined flexural force in terms of the section major-axis bending moment, M_u , and the flange lateral bending stress, f_l computed from an elastic analysis (kip-ft.).

$\phi_r M_{nc}$: Nominal flexural resistance based on the compression flange determined as specified in Article A6.3 (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).

Mdc1 / 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).

Mdc2 / $S_c(3n)$ or Mdc2 / $S_c(cr)$ 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).

Mdw / $S_c(3n)$ or Mdw / $S_c(cr)$ as applicable.

f_s ($\ell + IM$): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live plus impact loads as calculated below (ksi).

$M_L + IM$ / $S_c(n)$ or Mdw / $S_c(cr)$ as applicable.

$f_s + f_l / 2$ (Service II): Sum of stresses as computed below (ksi).

$f_s DC1 + f_s DC2 + f_s DW + 1.3 f_s (\ell + IM) + f_l / 2$

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

$f_s + f_l / 3$ (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).

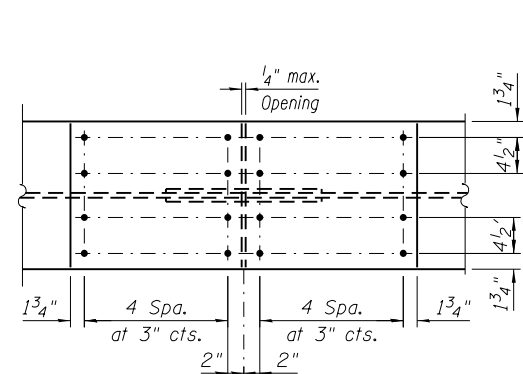
$1.25 (f_s DC1 + f_s DC2) + 1.5 f_s DW + 1.75 f_s (\ell + IM) + f_l / 3$

$\phi_r F_n$: Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7 or 6.10.8 (ksi).

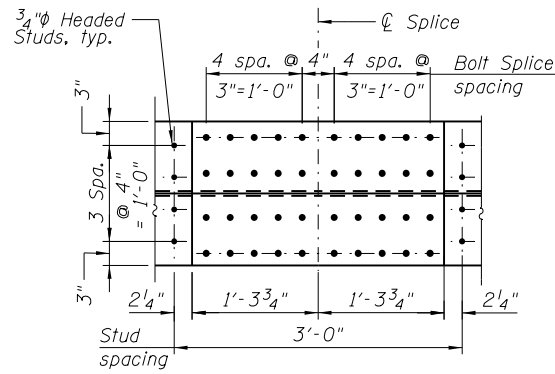
Vr: Maximum factored shear range in span computed according to Article 6.10.10.

Note:
 M_L and ℓR include the effects of centrifugal force and superelevation.

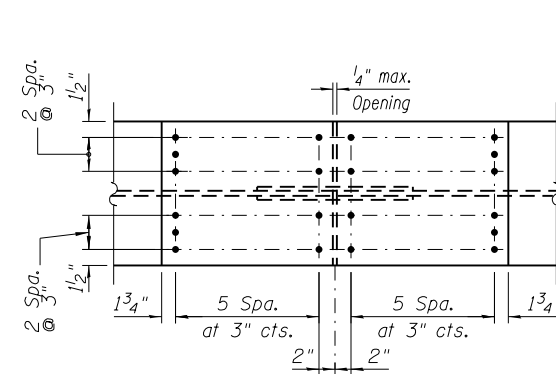
Notes:
1. Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.
2. See Sheet 20 of 36 for field splice details.



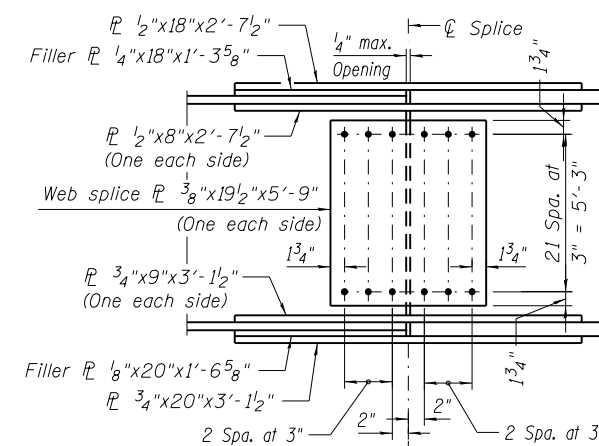
TOP FLANGE SPLICE



STUDS AT SPLICE PLATE



BOTTOM FLANGE SPLICE

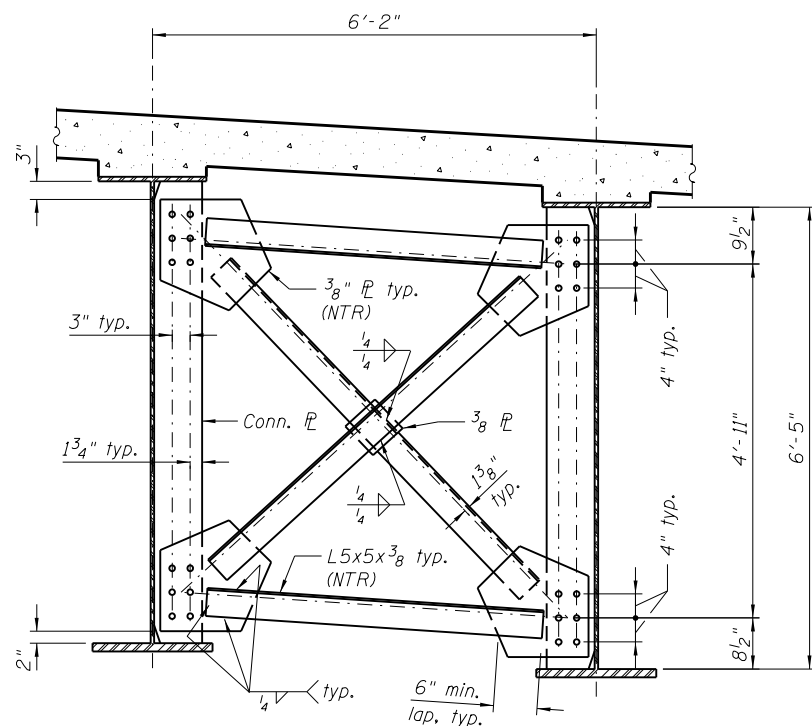


WEB PLATES

FIELD SPLICE DETAILS

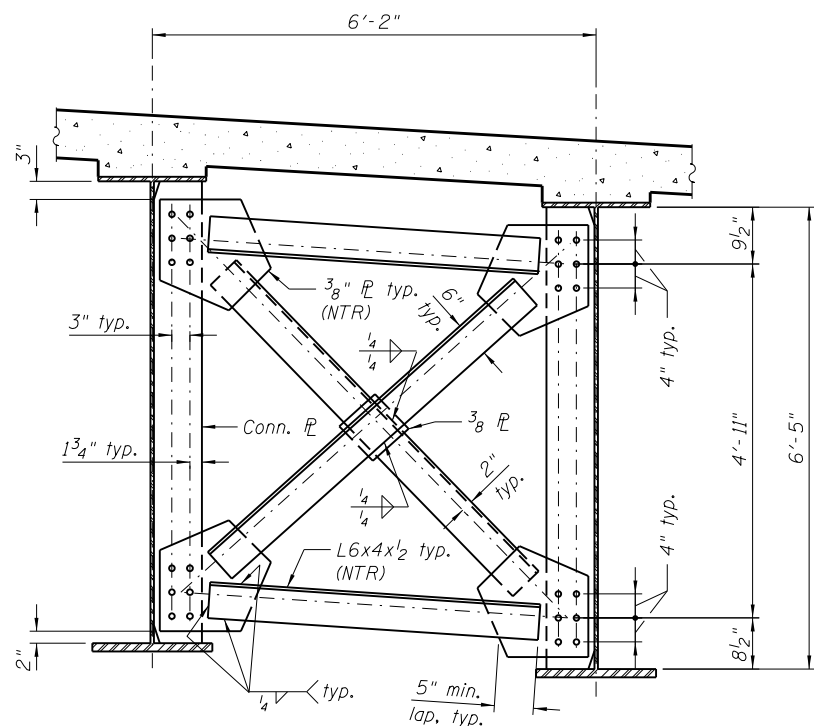
Field Splice Note:

All field splice plates, except fill plates to be AASHTO M270 Grade 50 and meet N.T.R.



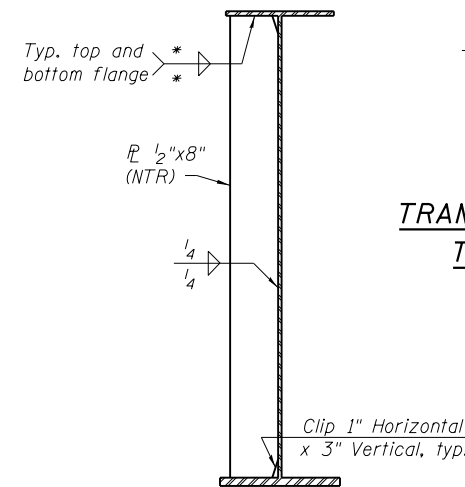
INTERIOR CROSS FRAME, D1

(28 Required)



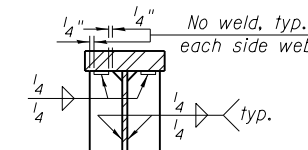
INTERIOR CROSS FRAME, D2

(7 Required)

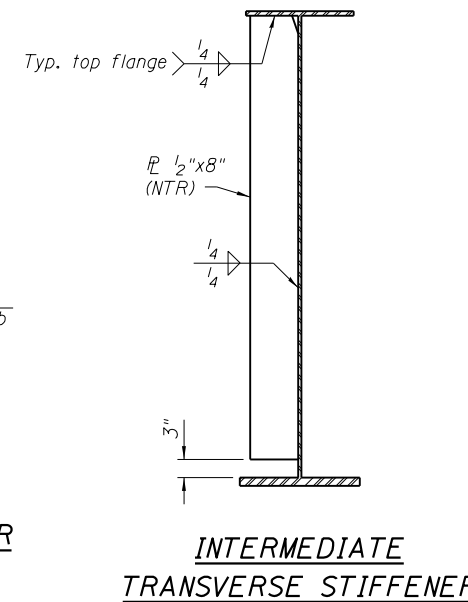


CROSS FRAME CONNECTOR PLATE

(Bolt holes not shown)



TRANSVERSE STIFFENER TO FLANGE WELD

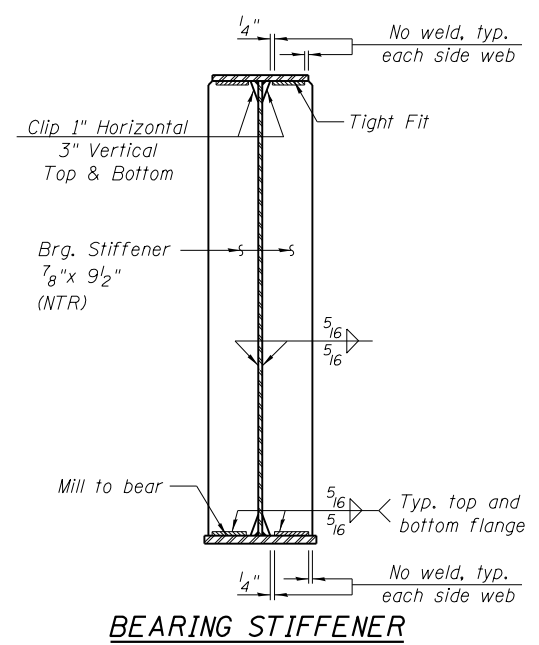


INTERMEDIATE TRANSVERSE STIFFENER

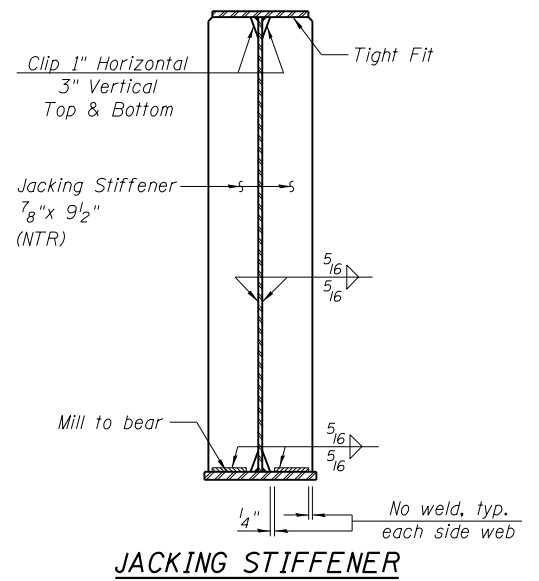
Notes:

1. All structural steel for cross frames, including their connection plates, shall be AASHTO M270 Grade 50 and meet NTR.
2. Terminate welds 1/4" from ends of members and edges of gusset plates.
3. Load carrying components designated "NTR" shall conform to the impact testing requirement, Zone 2.
4. For location of interior cross frames, see Framing Plan on Sheet 18.
5. All cross frames or diaphragms between beams or girders shall be installed with erection pins and bolts in accordance with the erection plan approved by the Engineer.

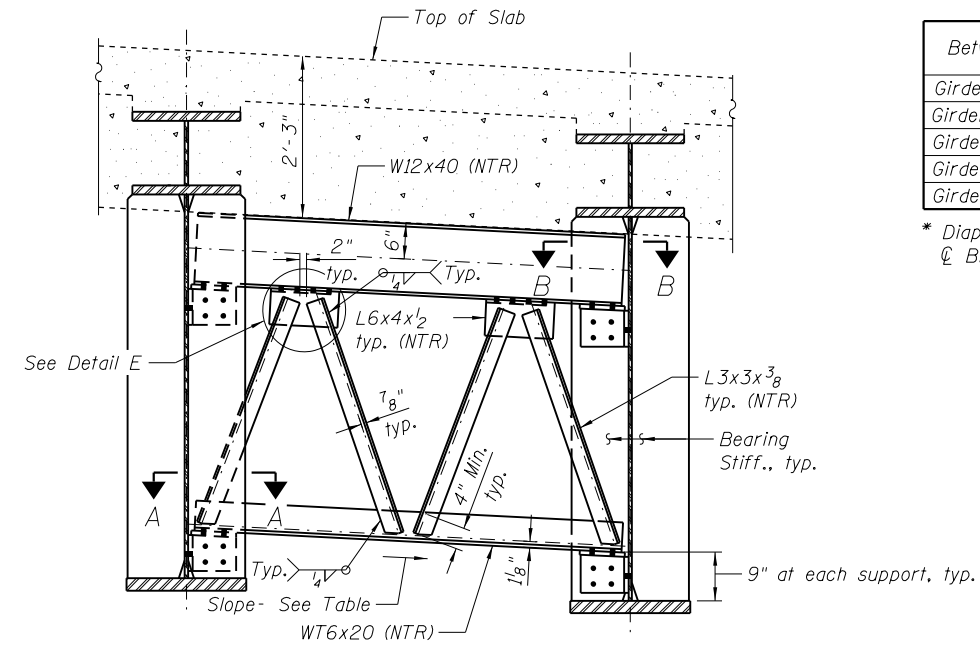
* 1/4" Fillet weld where top flange thickness = 3/4"
5/16" Fillet weld where top flange thickness = 1"



BEARING STIFFENER



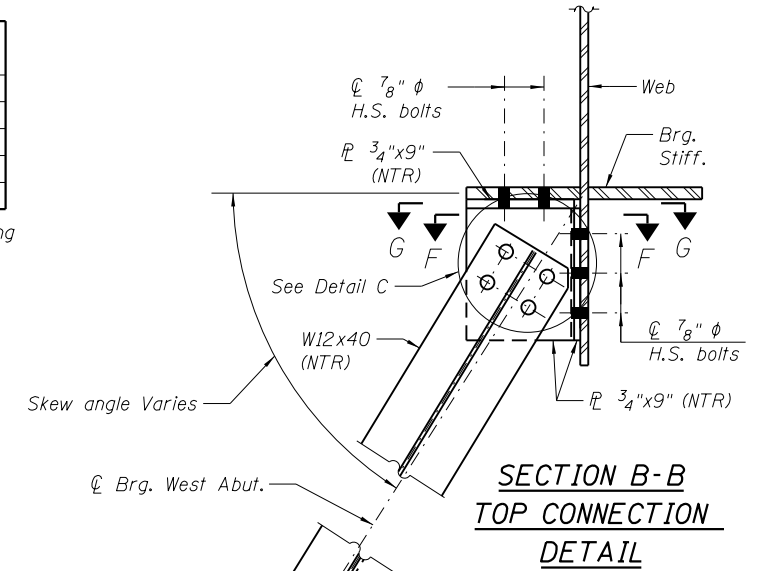
JACKING STIFFENER



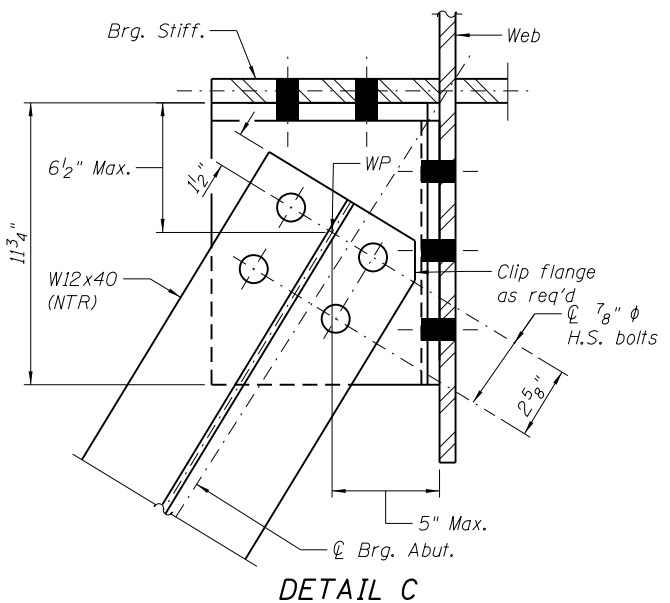
WEST ABUTMENT END CROSS FRAME, D3
(5 Required)

Between:	Slope *
Girders 1-2	2.69%
Girders 2-3	2.73%
Girders 3-4	2.78%
Girders 4-5	2.82%
Girders 5-6	2.85%

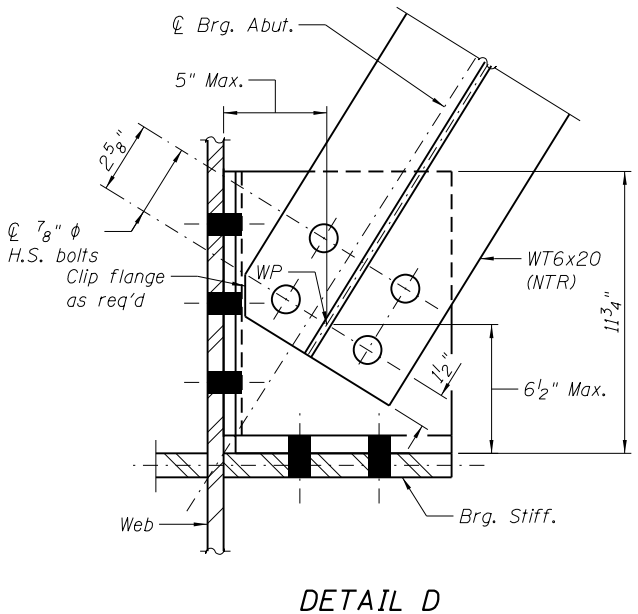
* Diaphragm Slope Along
C Brg. @ West Abut.



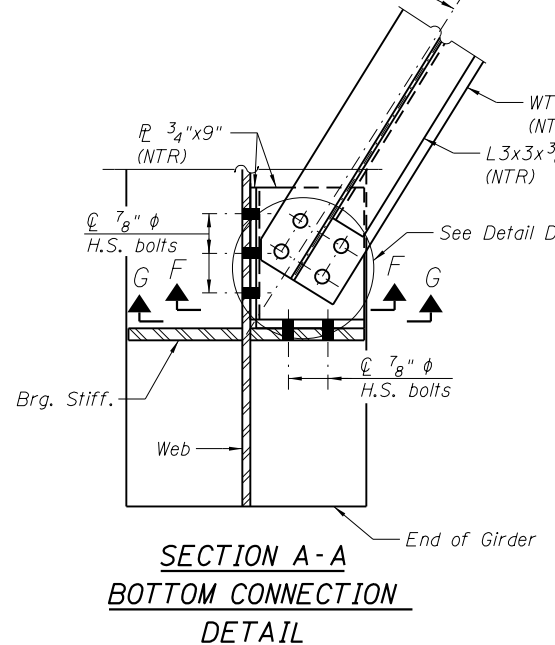
**SECTION B-B
TOP CONNECTION
DETAIL**



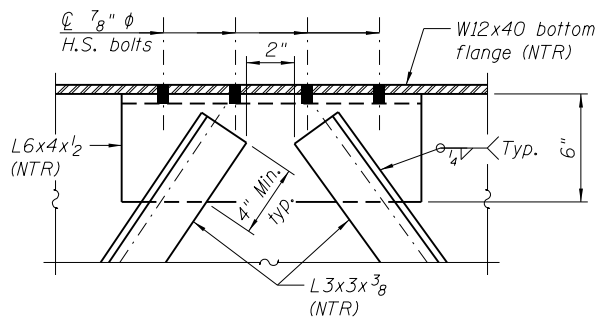
DETAIL C



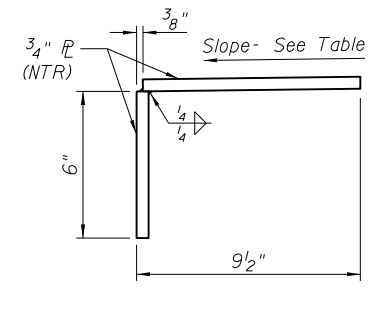
DETAIL D



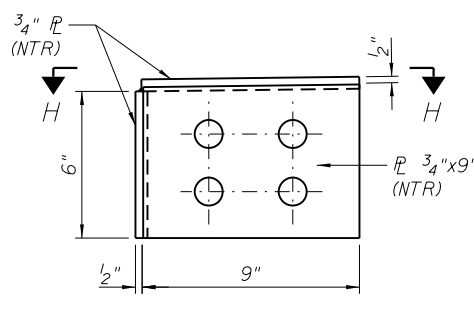
**SECTION A-A
BOTTOM CONNECTION
DETAIL**



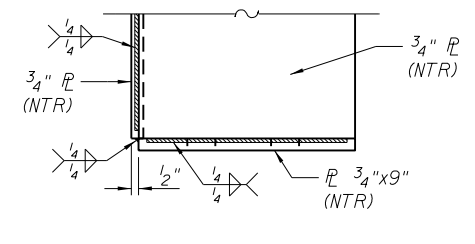
DETAIL E



SECTION F-F

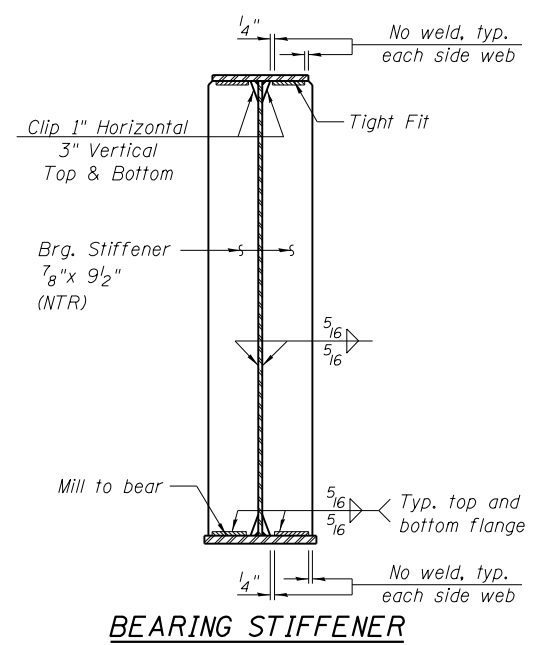


SECTION G-G

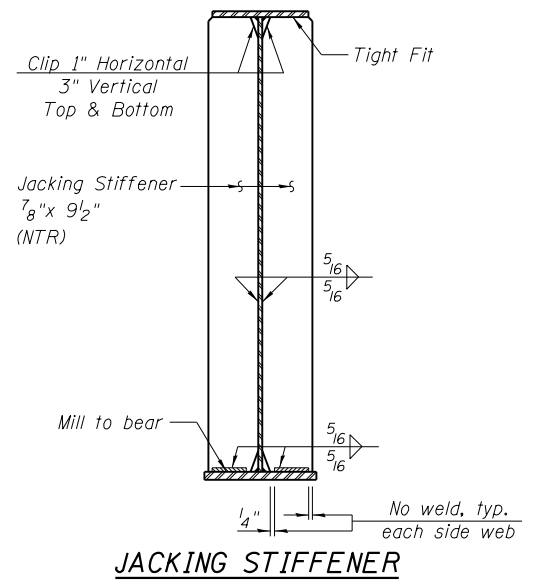


SECTION H-H

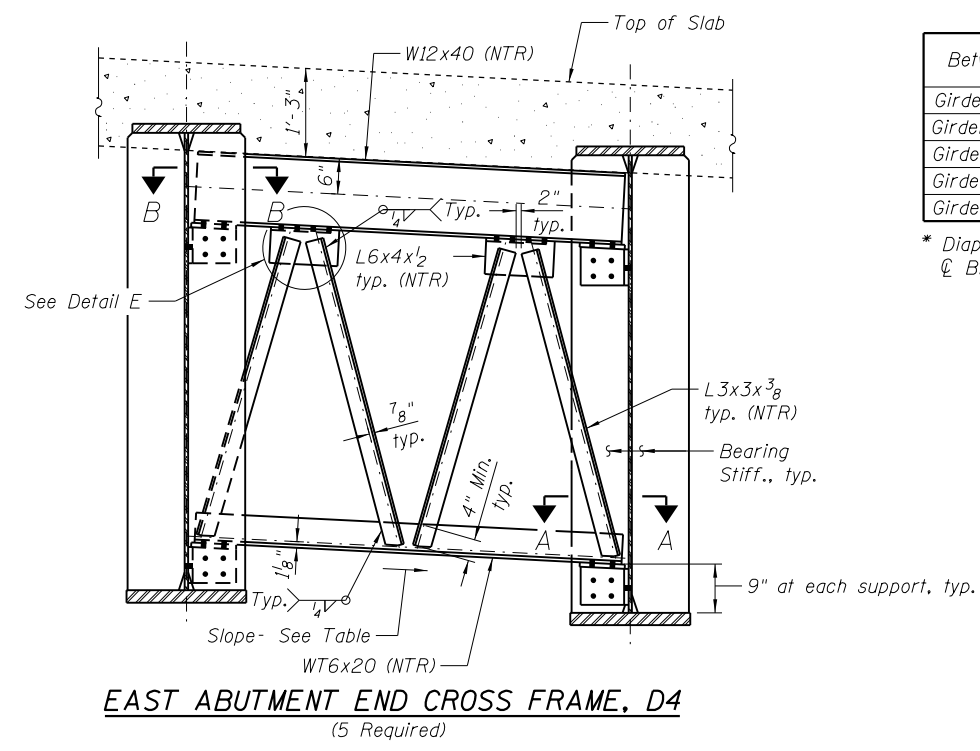
- Notes:
- All structural steel for end cross frames, bearing stiffeners, and jacking stiffeners shall be AASHTO M270, grade 50.
 - Load carrying components designated "NTR" shall conform to the impact testing requirement, Zone 2.
 - Terminate welds 1/4" from ends of members.
 - For location of end cross frames and jacking stiffeners, see Framing Plan on sheet 18.
 - All cross frames or diaphragms between beams or girders shall be installed with erection pins and bolts in accordance with the erection plan approved by the Engineer.



BEARING STIFFENER



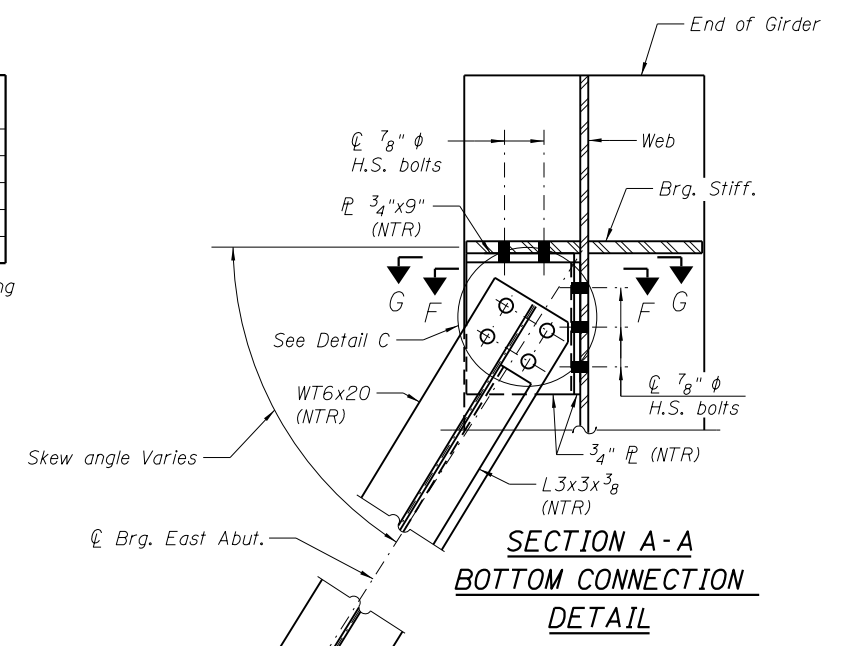
JACKING STIFFENER



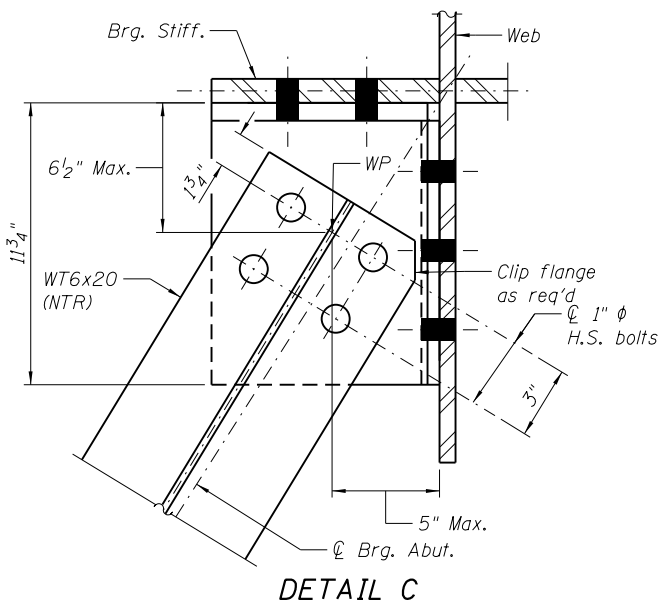
EAST ABUTMENT END CROSS FRAME, D4
(5 Required)

Between:	Slope *
Girders 1-2	3.21%
Girders 2-3	3.23%
Girders 3-4	3.32%
Girders 4-5	3.38%
Girders 5-6	3.45%

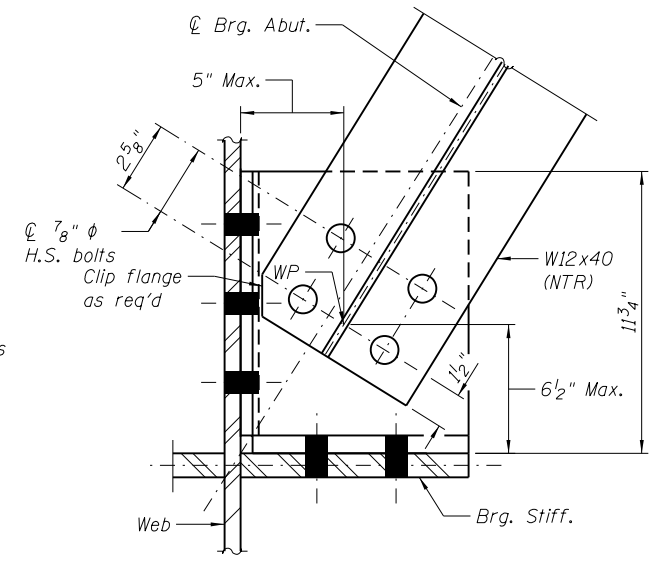
* Diaphragm Slope Along
 Ⓞ Brg. Ⓞ East Abut.



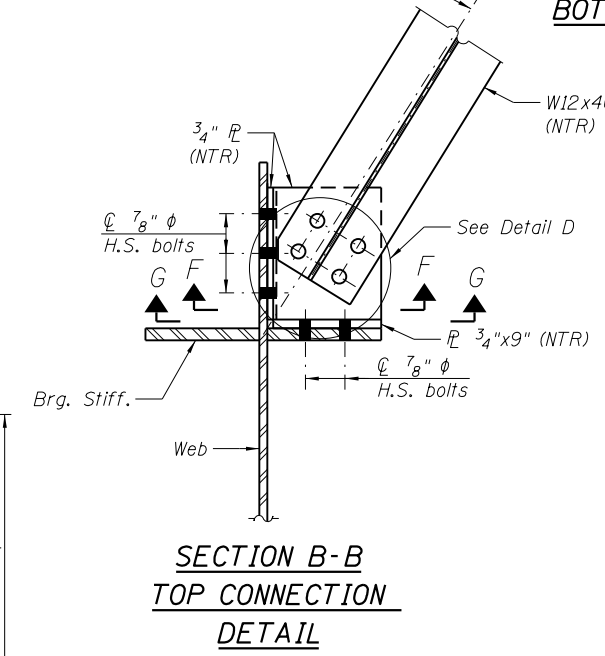
**SECTION A-A
BOTTOM CONNECTION
DETAIL**



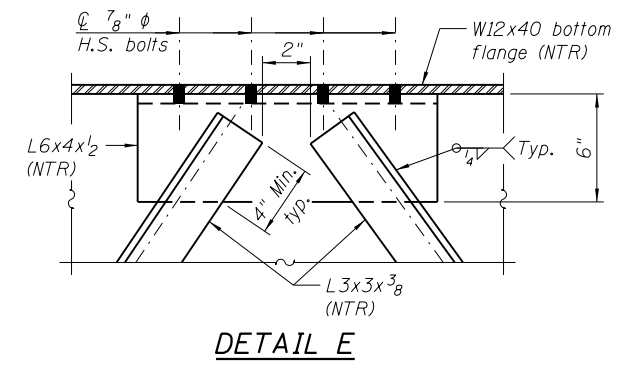
DETAIL C



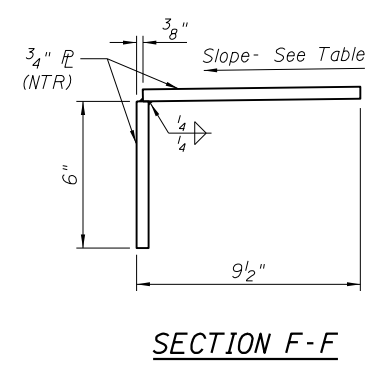
DETAIL D



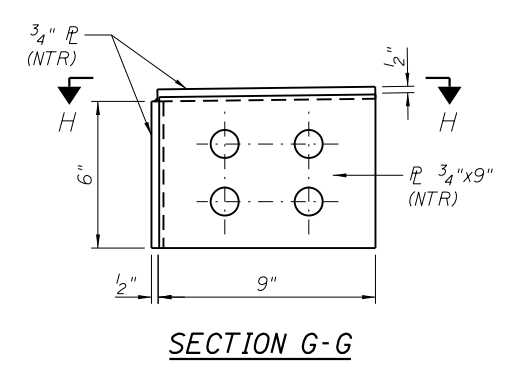
**SECTION B-B
TOP CONNECTION
DETAIL**



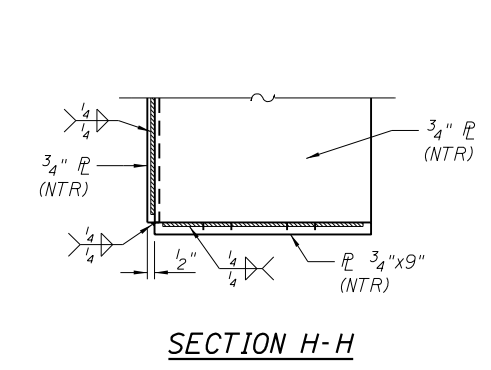
DETAIL E



SECTION F-F

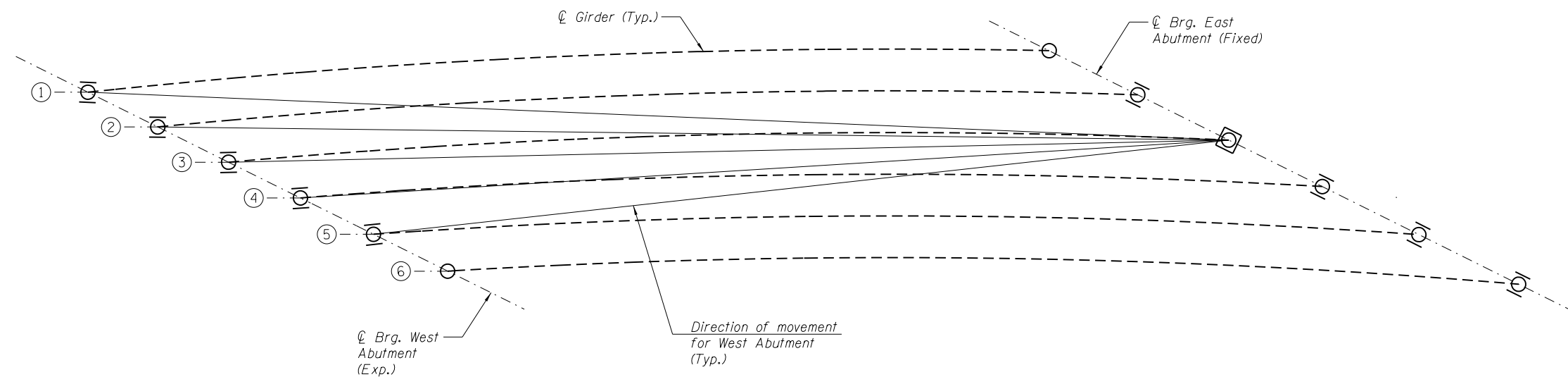
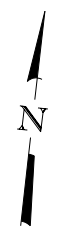


SECTION G-G



SECTION H-H

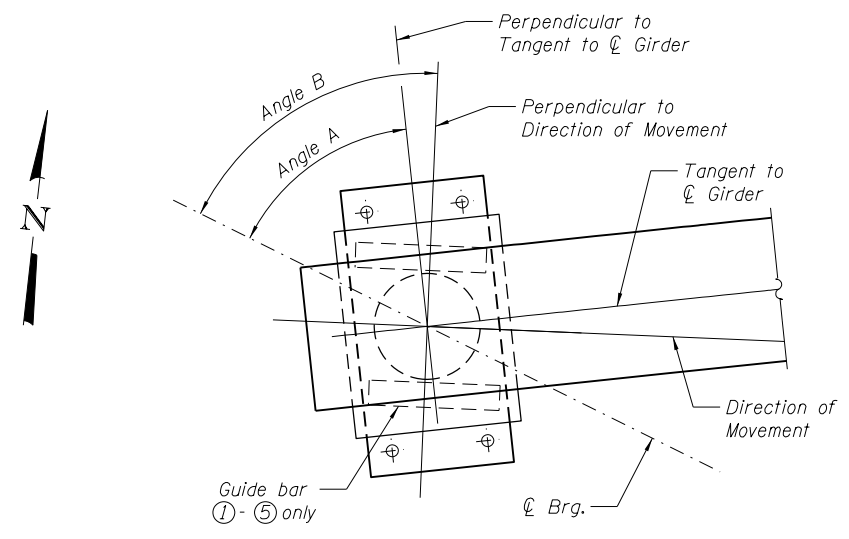
- Notes:
- All structural steel for end cross frames, bearing stiffeners, and jacking stiffeners shall be AASHTO M270, grade 50.
 - Load carrying components designated "NTR" shall conform to the impact testing requirement, Zone 2.
 - 1" diameter ASTM A325 bolts are required with 1/16" holes for the connection of the WT6x20 to the 3/4" seat plate.
 - Terminate welds 1/4" from ends of members.
 - For location of end cross frames and jacking stiffeners, see Framing Plan on sheet 18.
 - All cross frames or diaphragms between beams or girders shall be installed with erection pins and bolts in accordance with the erection plan approved by the Engineer.



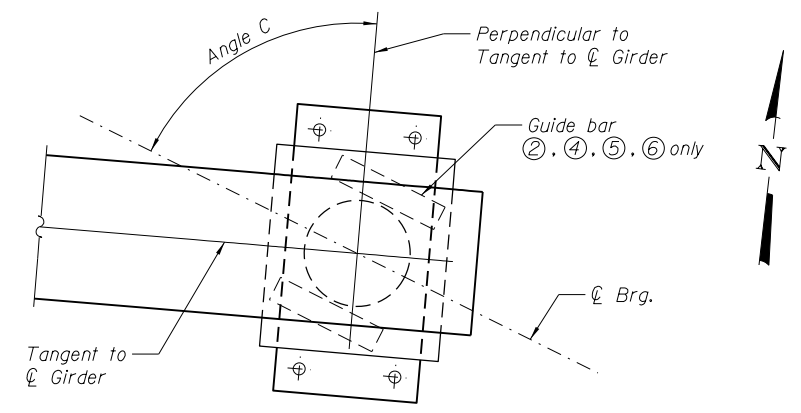
BEARING LAYOUT PLAN

BEARING LEGEND

- ⊙ Guided
- ⊠ Fixed
- Non-guided



WEST ABUTMENT

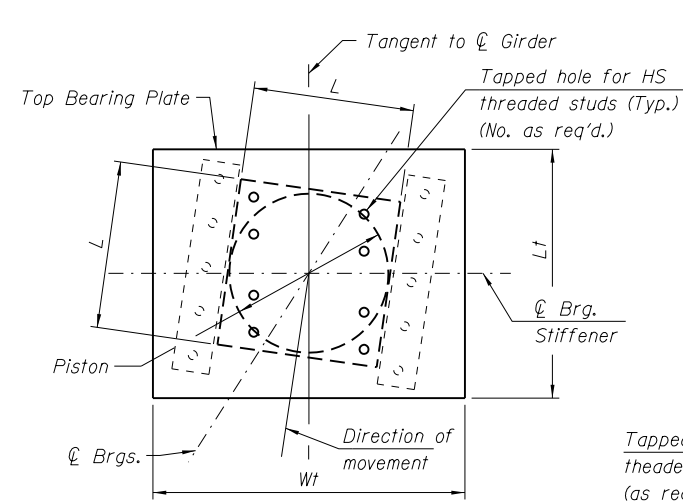


EAST ABUTMENT

BEARING ORIENTATION

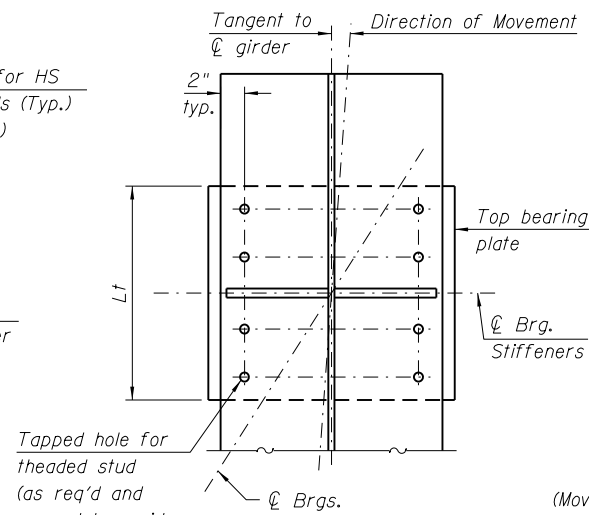
Girder	Angle A	Angle B	Angle C
1	57°27'39"	65°58'32"	64°45'25"
2	57°57'42"	64°16'38"	65°26'20"
3	58°28'31"	62°18'40"	66°08'48"
4	59°00'09"	60°00'47"	66°53'00"
5	59°32'39"	57°17'56"	67°39'05"
6	60°06'02"	n/a	68°27'17"

- Notes:
1. East Abutment guided bearings shall be unrestrained in a direction along the centerline of bearing. The guide bars shall be oriented parallel to the centerline of the bearing.
 2. West Abutment guided bearings shall be unrestrained in the direction of movement. The guide bars shall be oriented parallel to the direction of movement.



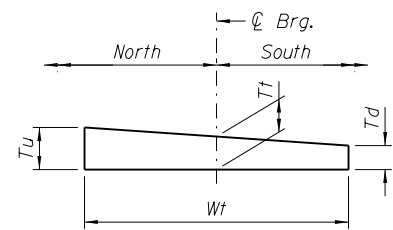
TOP BEARING PLATE / PISTON PLAN

Note: See Bearing Orientation Layout Sheet for top bearing plate and guide bar orientation.



SECTION A-A

Tapped hole for threaded stud (as req'd and spaced to avoid diaphragm connection), typ.



TOP BEARING PLATE BEVEL

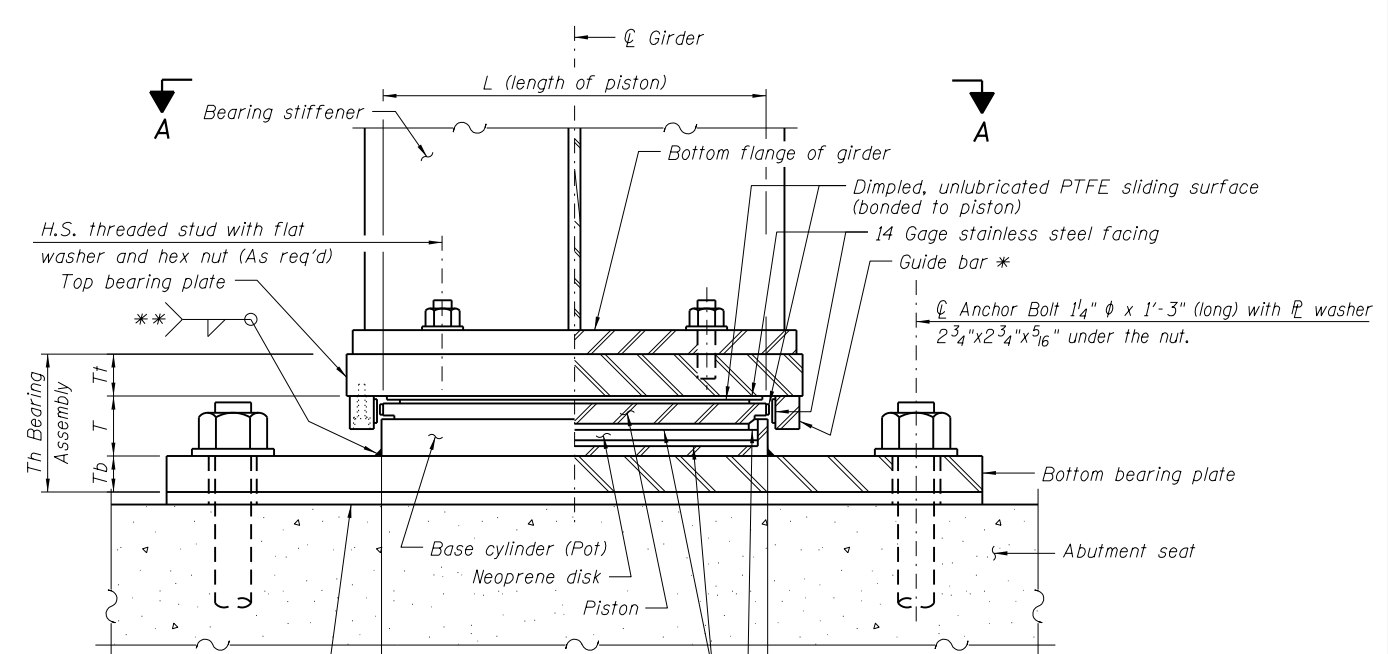
Girder	Wf	Td (North)	Tt	Tu (South)
1	2'-4 1/2"	2 1/16"	1 3/4"	1 7/16"
2	2'-4 1/2"	2"	1 3/4"	1 1/2"
3	2'-4 1/2"	2 1/16"	1 3/4"	1 7/16"
4	2'-4 1/2"	2 1/16"	1 3/4"	1 7/16"
5	2'-4 1/2"	2 1/16"	1 3/4"	1 7/16"
6	2'-4 1/2"	2 1/8"	1 3/4"	1 3/8"

$X = \frac{1}{8}''$ per each 100' of expansion for every 15° temp. change from the normal temp. of 50°F.

BELOW 50°F.
(Move bott. brg. away from fixed brg.)

ABOVE 50°F.
(Move bott. brg. toward fixed brg.)

SETTING ANCHOR BOLTS AT EXP. BRG.



HALF SECTION THRU GUIDED EXPANSION HLMR BEARING

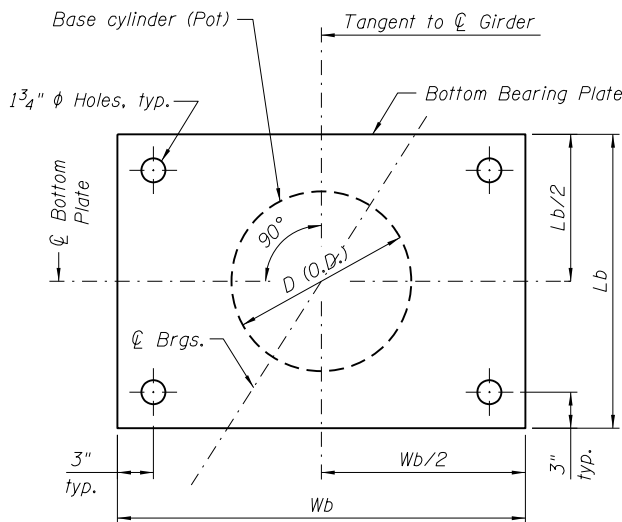
* As alternatives to the bolted connection shown, the guide bars may be connected to the top bearing plate by groove welds or the guide bars and top bearing plate may be fabricated as a single piece.
** Weld may be omitted if base cylinder is recessed into bottom bearing plate.

ASSUMED BEARING ASSEMBLY DIMENSIONS

Member	Dimension	West Abut.
Top Plate	Lt	1'-11"
	D	13 3/4"
	L	13 3/4"
Bearing	T	7 1/2"
	Wb	3'-10"
	Lb	1'-6"
Bottom Plate	Tb	2 1/2"
	Th	11 3/4"

Notes:

- All dimensions are in feet and inches unless noted otherwise.
- The structural steel for the top bearing plate/piston and bottom bearing plate shall be AASHTO M270, Grade 50.
- Cost of top and bottom bearing plates, 1/8" elastomeric neoprene and threaded studs with washer shall be included with High Load Multi-Rotational Bearings Pay Items.
- Anchor bolts shall be ASTM F1554, Grade 105.
- For unguided bearing, eliminate guide bars.
- Rotation values in the table include an allowance of 0.005 radians for uncertainties per AASHTO 14.4.2.2. and 0.0104 radians for the out of plumb tolerance permitted in the Standard Construction Specifications.
- For pot bearings only, increase the rotational demand by an additional 0.005 radians to account for fabrication and installation tolerances per AASHTO 14.4.2.2.1
- Forces in the table are maximum effects for LRFD service and strength load combinations without live load impact.
- Horizontal forces in the table are the expected applied forces. Design bearings for these values or 20 percent of the vertical service load as specified in the HLMR special provision, whichever is greater.



BOTTOM BEARING PLATE AND BASE CYLINDER PLAN

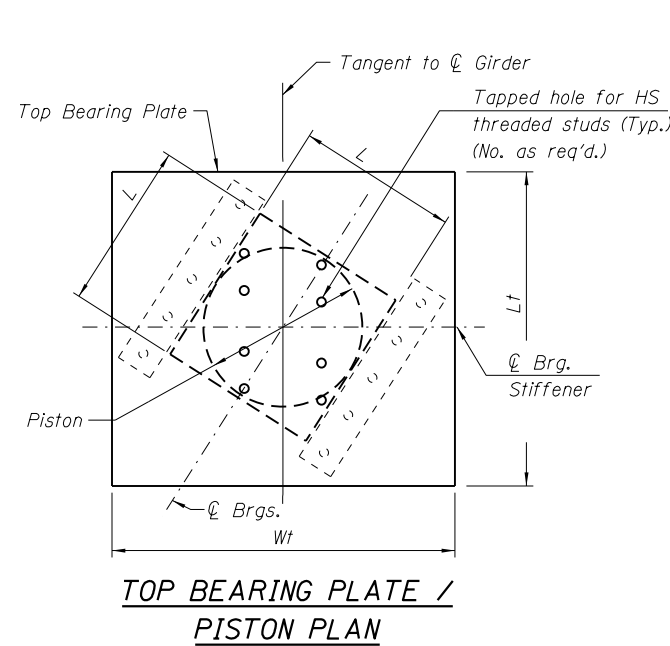
Note: See Bearing Orientation Layout Sheet for bottom plate orientation.

BEARING DESIGN INFORMATION

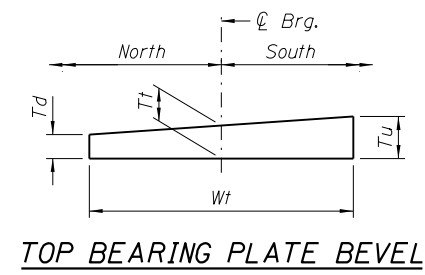
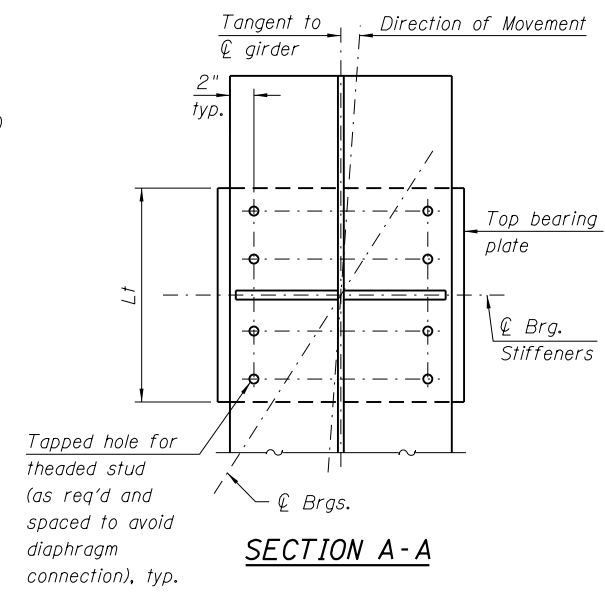
Design Information	Girder					
	1	2	3	4	5	6
Type	Guided	Guided	Guided	Guided	Guided	Non-Guided
Vertical Design Load (kips)	Service	210	200	190	160	170
	Strength	290	280	270	230	250
Horizontal Load (kips)	Service	80	70	60	60	110
	Strength	120	100	90	90	150
Total Req'd Movement (in.)	Service	1.68	1.71	1.74	1.77	1.83
	Strength	2.07	2.12	2.15	2.20	2.28
Req'd Design Rotation (Rad.)	Service	0.028	0.027	0.028	0.026	0.024
	Strength	0.033	0.032	0.033	0.030	0.026

BILL OF MATERIAL

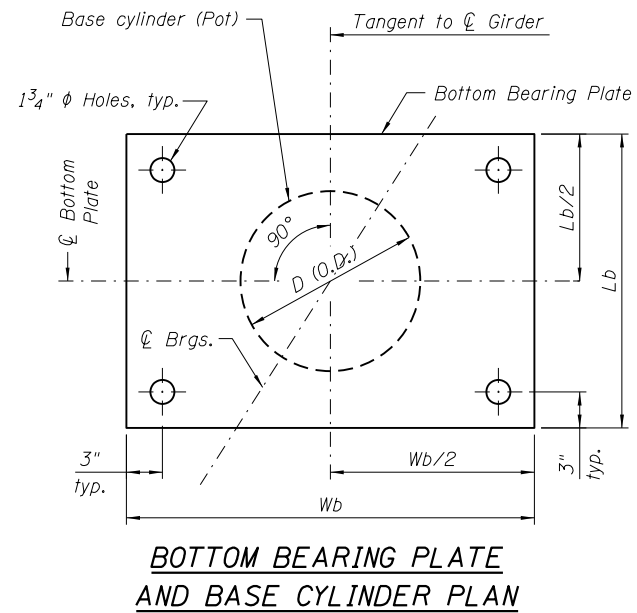
Item	Unit	Quantity
High Load Multi-Rotational Bearings, Guided Expansion, 250k	Each	5
High Load Multi-Rotational Bearings, Non-Guided Expansion, 300k	Each	1
Anchor Bolts, 1 1/4"	Each	24



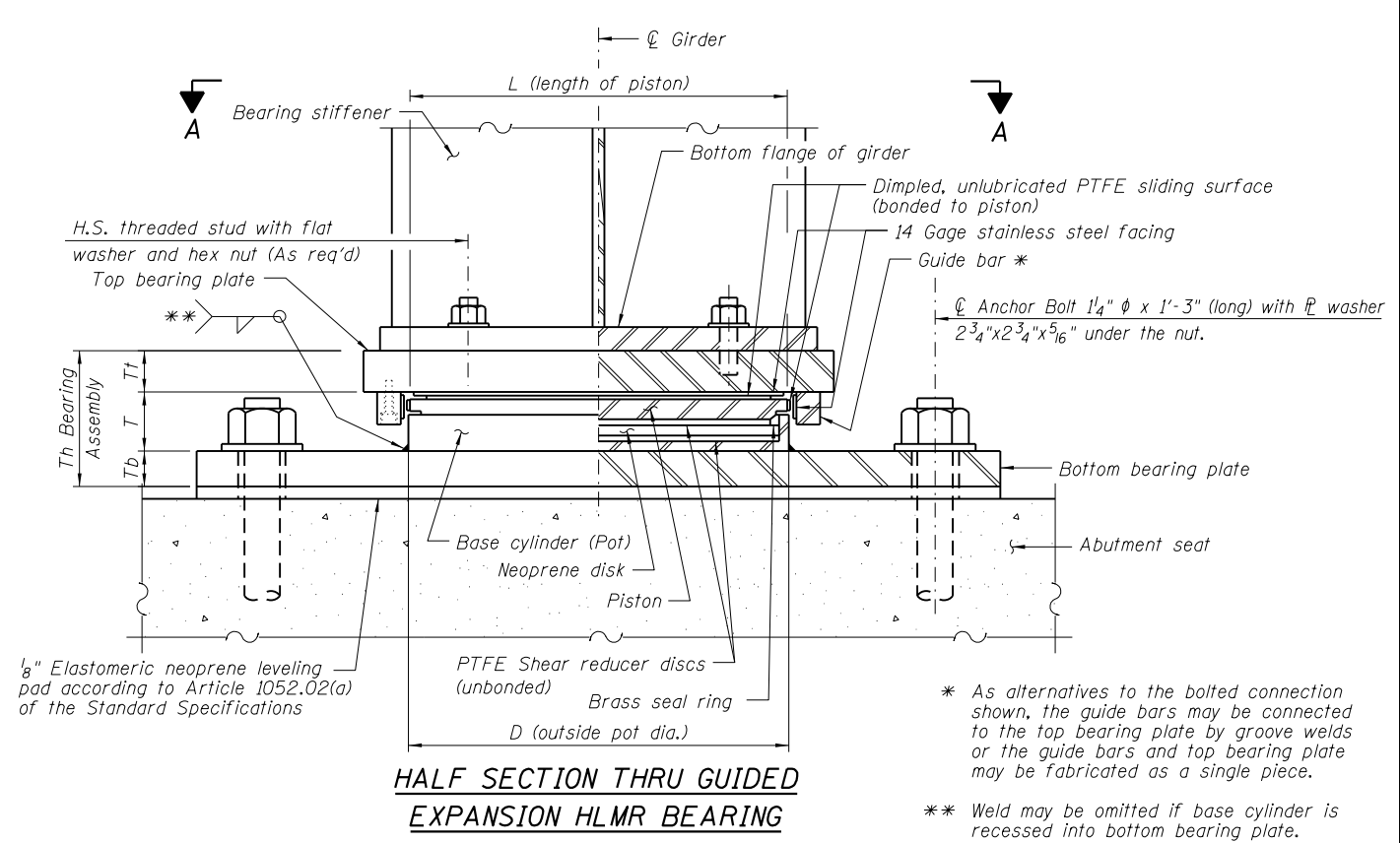
Note: See Bearing Orientation Layout Sheet for top bearing plate and guide bar orientation.



Girder	Wt	Td (North)	Tt	Tu (South)
1	2'-3 1/2"	1 3/8"	1 3/4"	2 1/8"
2	2'-3 1/2"	1 7/16"	1 3/4"	2 1/16"
4	2'-3 1/2"	1 7/16"	1 3/4"	2 1/16"
5	2'-3 1/2"	1 3/8"	1 3/4"	2 1/8"
6	2'-3 1/2"	1 3/8"	1 3/4"	2 1/8"



Note: See Bearing Orientation Layout Sheet for bottom plate orientation.



* As alternatives to the bolted connection shown, the guide bars may be connected to the top bearing plate by groove welds or the guide bars and top bearing plate may be fabricated as a single piece.
 ** Weld may be omitted if base cylinder is recessed into bottom bearing plate.

ASSUMED BEARING ASSEMBLY DIMENSIONS

Member	Dimension	East Abut.
Top Plate	Lt	2'-0"
Bearing	D	13 1/4"
	L	13 1/4"
	T	7 1/2"
Bottom Plate	Wb	3'-10"
	Lb	1'-6"
Bearing Assembly	Tb	2 1/2"
	Th	11 3/4"

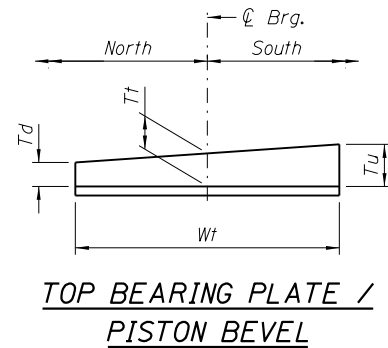
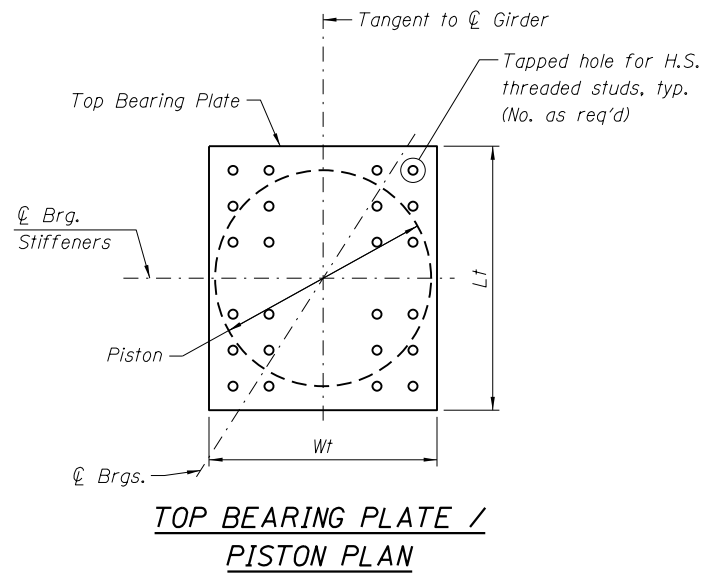
- Notes:
- All dimensions are in feet and inches unless noted otherwise.
 - The structural steel for the top bearing plate/piston and bottom bearing plate shall be AASHTO M270, Grade 50.
 - Cost of top and bottom bearing plates, 1/8" elastomeric neoprene and threaded studs with washer shall be included with High Load Multi-Rotational Bearings Pay Items.
 - Anchor bolts shall be ASTM F1554, Grade 105.
 - For unguided bearing, eliminate guide bars.
 - Rotation values in the table include an allowance of 0.005 radians for uncertainties per AASHTO 14.4.2.2. and 0.0104 radians for the out of plumb tolerance permitted in the Standard Construction Specifications.
 - For pot bearings only, increase the rotational demand by an additional 0.005 radians to account for fabrication and installation tolerances per AASHTO 14.4.2.2.1
 - Forces in the table are maximum effects for LRFD service and strength load combinations without live load impact.
 - Horizontal forces in the table are the expected applied forces. Design bearings for these values or 20 percent of the vertical service load as specified in the HLMR special provision, whichever is greater.

BEARING DESIGN INFORMATION

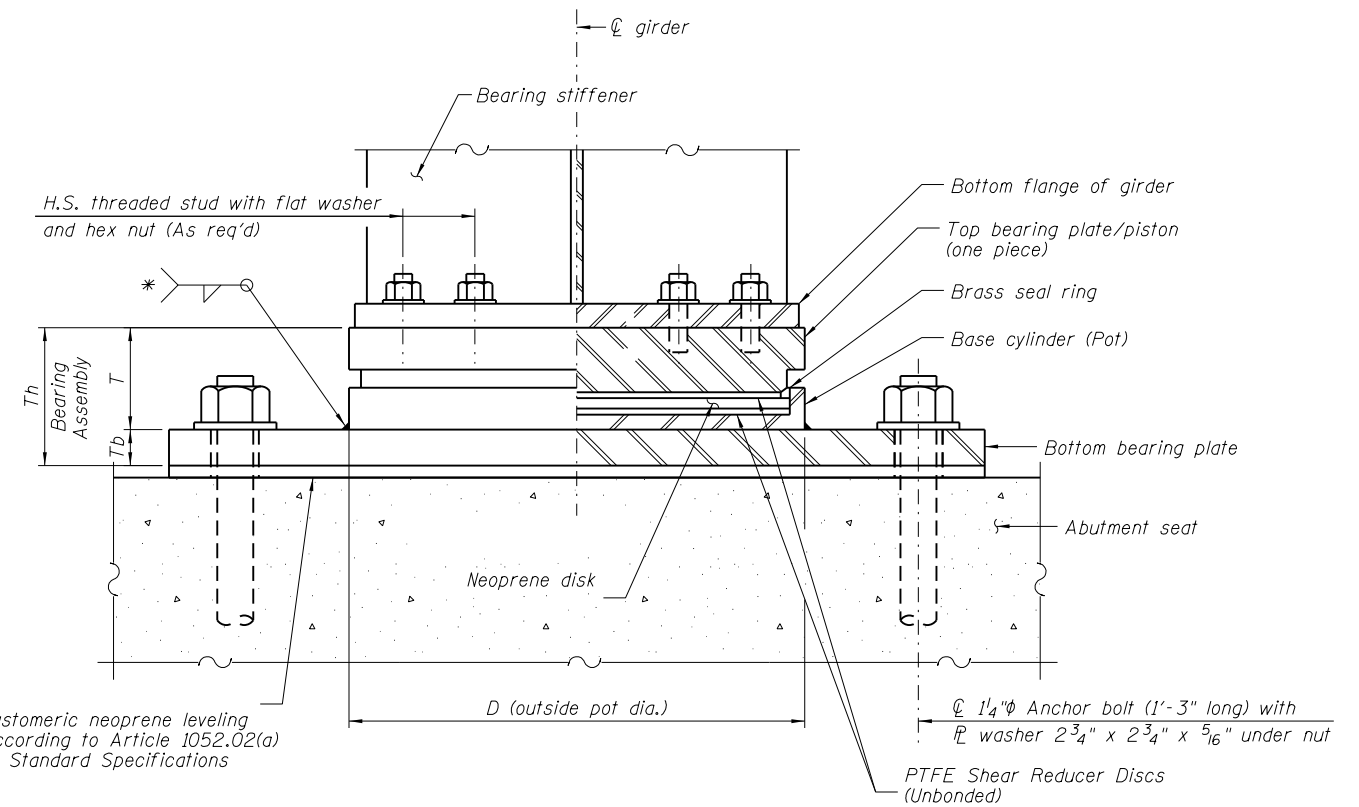
Design Information	Girder					
	1	2	4	5	6	
Type	Non-Guided	Guided	Guided	Guided	Guided	
Vertical Design Load (kips)	Service	270	210	180	180	
	Strength	390	310	270	260	250
Horizontal Load (kips)	Service	N/A	128	66	71	88
	Strength	N/A	191	100	105	132
Total Req'd Movement (in.)	Service	0.74	0.29	0.33	0.38	0.43
	Strength	0.95	0.36	0.40	0.48	0.55
Req'd Design Rotation (Rad.)	Service	0.028	0.024	0.025	0.026	0.026
	Strength	0.033	0.026	0.027	0.029	0.029

BILL OF MATERIAL

Item	Unit	Quantity
High Load Multi-Rotational Bearings, Guided Expansion, 250k	Each	4
High Load Multi-Rotational Bearings, Non-Guided Expansion, 300k	Each	1
Anchor Bolts, 1 1/4"	Each	20



Girder	W_t	T_d (North)	T_t	T_u (South)
3	1'-7"	1 1/2"	1 3/4"	2"



1/8" Elastomeric neoprene leveling pad according to Article 1052.02(a) of the Standard Specifications

HALF SECTION THRU FIXED HLMR BEARING

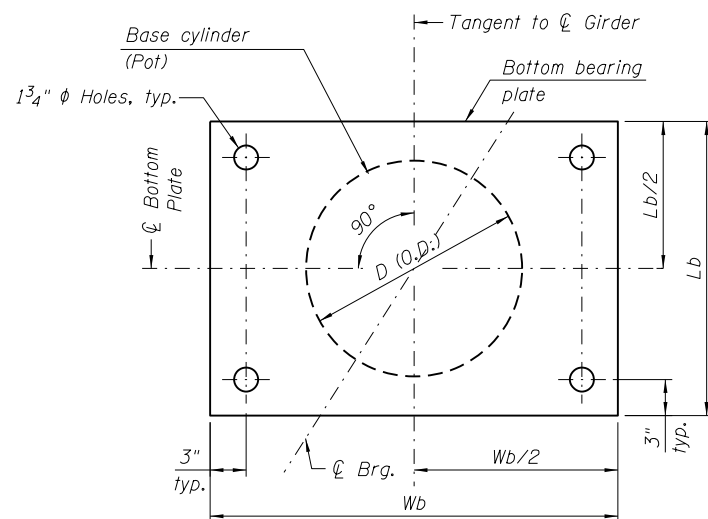
* Weld may be omitted if base cylinder is recessed into bottom bearing plate.

ASSUMED BEARING ASSEMBLY DIMENSIONS

Member	Dimension	East Abut.
Top Plate	L_t	1'-6"
Bearing	D	14 1/2"
	T	7 1/2"
Bottom Plate	W_b	2'-6"
	L_b	1'-8"
	T_b	2 1/2"
Bearing Assembly	T_h	10"

Notes:

- All dimensions are in feet and inches unless noted otherwise.
- The structural steel for the top bearing plate/piston and bottom bearing plate shall be AASHTO M270, Grade 50.
- Cost of top and bottom bearing plates, 1/8" elastomeric neoprene, and threaded studs with washer shall be included in the cost of High Load Multi-Rotational Bearings Pay Items.
- Anchor Bolts shall be ASTM F1554, Grade 105.
- Rotation values in the table include an allowance of 0.005 radians for uncertainties per AASHTO 14.4.2.2. and 0.0104 radians for the out of plumb tolerance permitted in the Standard Construction Specifications.
- For pot bearings only, increase the rotational demand by an additional 0.005 radians to account for fabrication and installation tolerances per AASHTO 14.4.2.2.1
- Forces in the table are maximum effects for LRFD service and strength load combinations without live load impact.
- Horizontal forces in the table are the expected applied forces. Design bearings for these values or 20 percent of the vertical service load as specified in the HLMR special provision, whichever is greater.



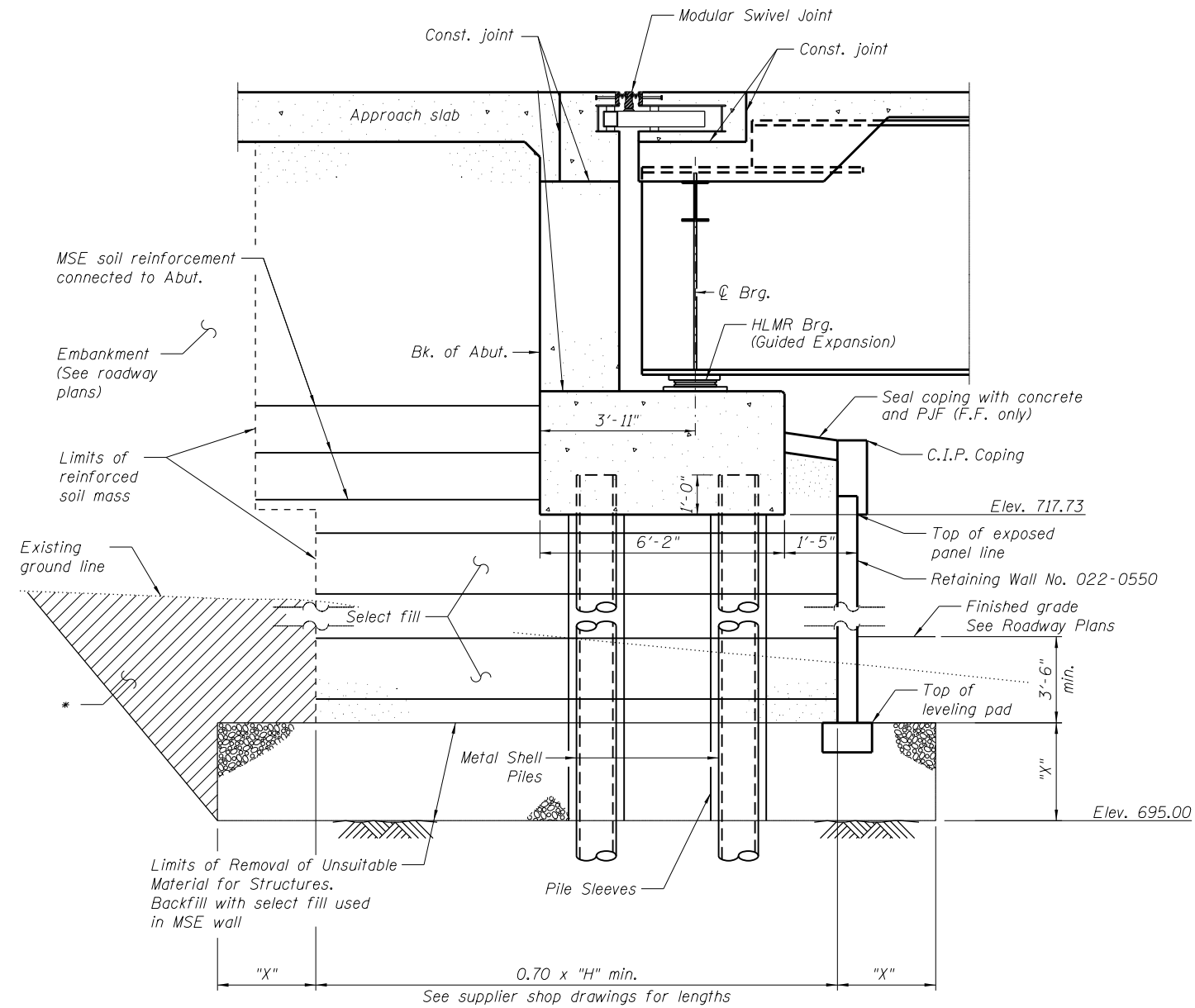
Note: See Bearing Orientation Layout Sheet for bottom plate orientation.

BEARING DESIGN INFORMATION

Design Information		Girder
		3
Type		Fixed
Vertical Design Load (kips)	Service	190
	Strength	280
Horizontal Load (kips)	Service	93
	Strength	126
Total Req'd Movement (in.)	Service	N/A
	Strength	N/A
Req'd Design Rotation (Rad.)	Service	0.025
	Strength	0.027

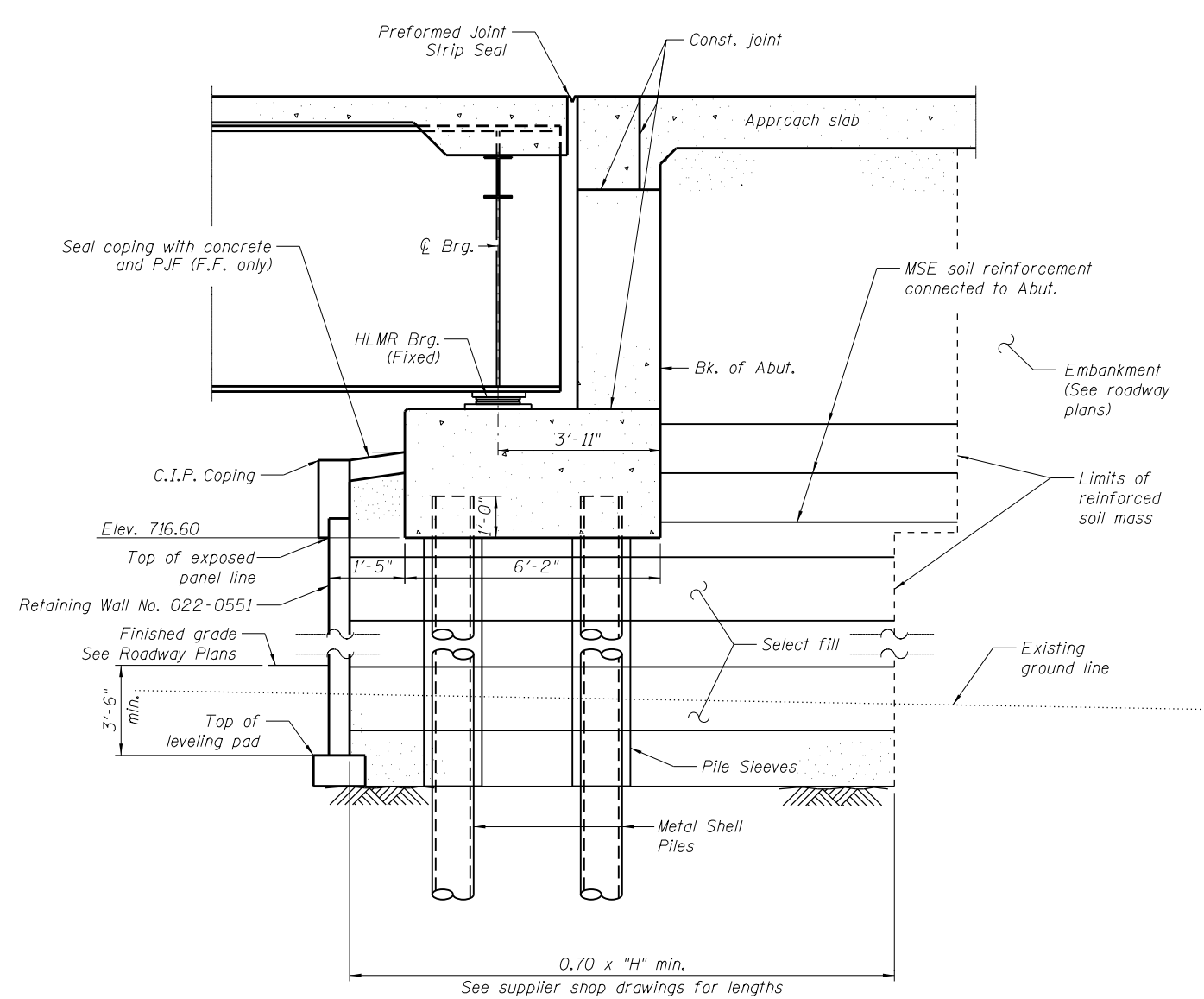
BILL OF MATERIAL

Item	Unit	Quantity
High Load Multi-Rotational Bearings, Fixed - 250k	Each	1
Anchor Bolts, 1 1/4"	Each	4



**SECTION THRU WEST PILE SUPPORTED
STUB ABUTMENT**

(Horizontal dimensions are at right angles to abutment)



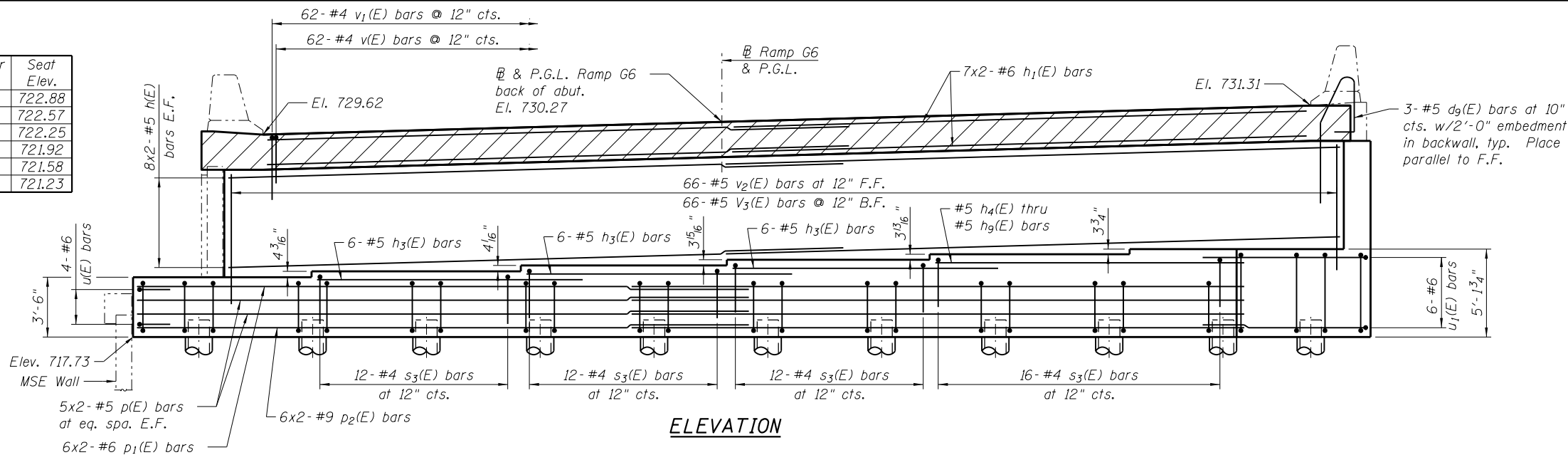
**SECTION THRU EAST PILE SUPPORTED
STUB ABUTMENT**

(Horizontal dimensions are at right angles to abutment)

* Overexcavation beyond structure excavation and removal of unsuitable material. This area not measured for payment. Backfill overexcavation with same material used for select fill used in MSE wall.

FILE NAME = 0220549-60Y95-027-Section-Abuts.dgn CH2MHILL	USER NAME = asantiag	DESIGNED - VKN	REVISED - -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SECTION THRU ABUTMENTS STRUCTURE NO. 022-0549	F.A.P. RTE. 345	SECTION 2013-083-R&B	COUNTY DUPAGE	TOTAL SHEETS 759	SHEET NO. 447
	PLOT SCALE = 2.0000' / in.	DRAWN - JBA	REVISED - -			DRAWING NO. SH-27	CONTRACT NO. 60Y95			
	PLOT DATE = 10/28/2014	CHECKED - MAM	REVISED - -			SHEET NO. 27 OF 36 SHEETS				
	ILLINOIS FED. AID PROJECT									

Girder No.	Seat Elev.
1	722.88
2	722.57
3	722.25
4	721.92
5	721.58
6	721.23



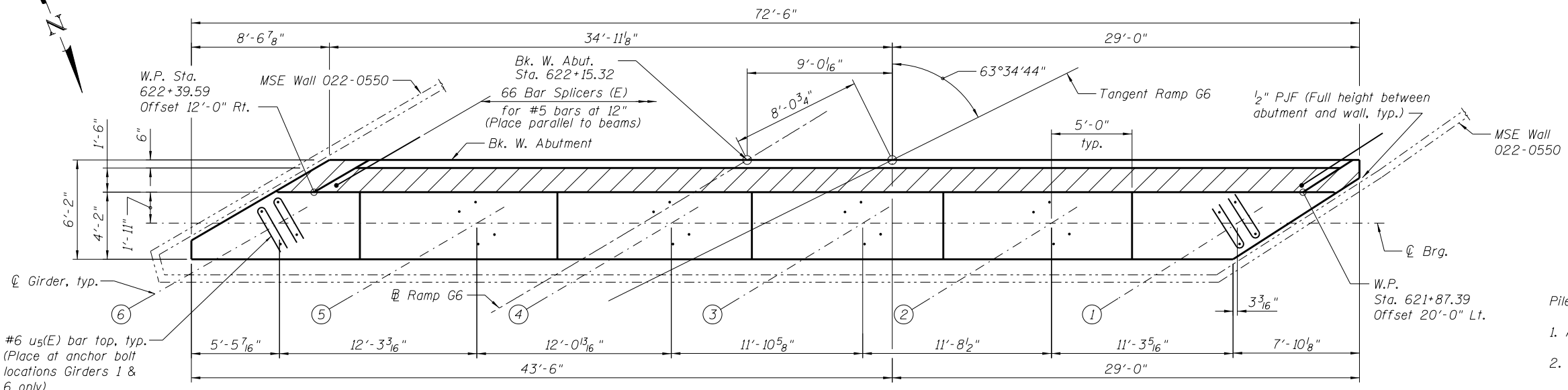
ELEVATION

Abutment notes:

1. Hatched area to be poured after superstructure forms have been removed. Quantity of concrete included with Concrete Superstructure.
2. Space reinforcement in cap to clear bearing anchor bolts.
3. Pour steps monolithically with cap.
4. See Sheet 29 of 36 for Section thru abutment, Bill of Material and bar details.
5. See Sheet 32 of 36 for pile details including required reinforcement.
6. See Sheet 29 of 36 for Bar Splicer details.
7. Concrete Sealer shall be applied to the girder seats and front faces of backwall and pile cap.
8. Prior to placing the abutment concrete, the contractor shall confirm the height of the HLMR bearings to be supplied and notify the engineer if any adjustment to the abutment bearing seat elevations may be required.

MINIMUM BAR LAP

- #5 bar = 3'-8"
- #6 bar = 4'-5"
- #9 bar = 8'-7"



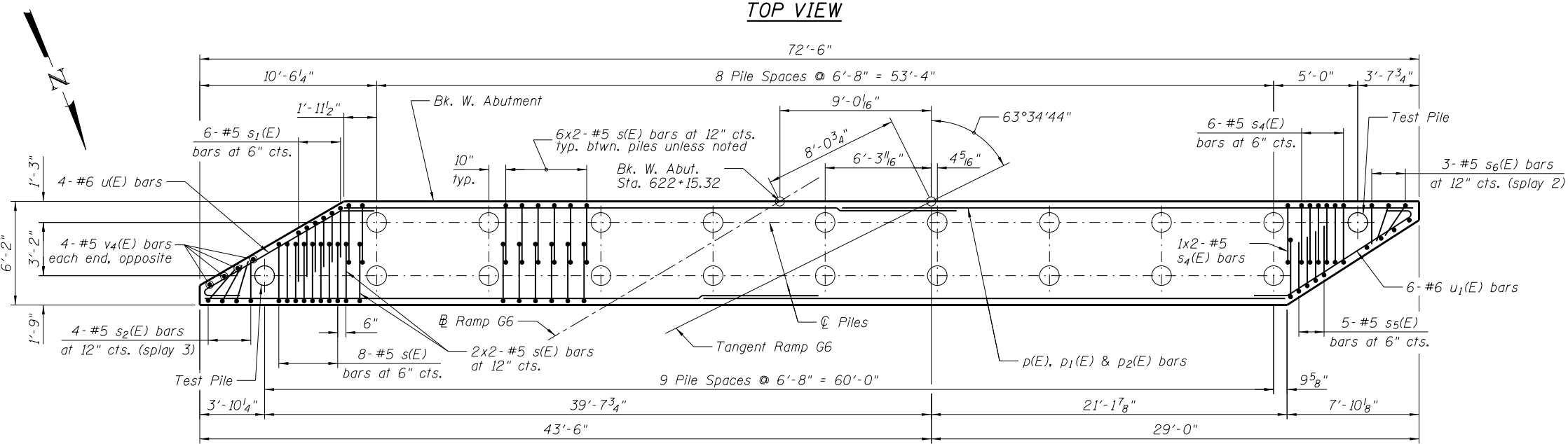
TOP VIEW

PILE DATA

Type: Metal shells 14" x 0.312" with pile shoes
 Nominal Required Bearing: 247 k
 Factored Resistance Available: 136 k
 Est. Length: 58'
 No. Production Piles: 18
 No. Test Piles: 2

Pile installation notes:

1. All piles shall be reinforced as shown on Sheet 32 of 36.
2. Install the piles as follows:
 - A. Over excavate to elevation 695.00 as shown on MSE wall plans.
 - B. Install pile sleeves around piles from bottom of over excavation to top of proposed leveling pad for MSE wall 022-0550. Pile sleeves to provide a minimum of 2" clearance between sleeve and pile all around pile.
 - C. Backfill over excavated zone around pile sleeves to top of MSE wall leveling pad elevation with MSE wall select fill.
 - D. Drive piles to required capacity inside pile sleeves.
 - E. Extend pile sleeves around piles from top of leveling pad elevation to bottom of west abutment elevation. Pile sleeves to provide a minimum of 2" clearance all around pile to inside wall of sleeve.
 - F. Construct MSE wall and retained embankment around extended pile sleeves.
 - G. Fill annular space between pile sleeves and piles with loose dry sand.
3. Over excavation and select backfill included with retaining wall 022-0550.
4. Furnishing and installing pile sleeves and loose sand included in driving piles item.



PLAN - PILE CAP

FILE NAME = 0220549-60Y95-028-West-Abut-Plan.dgn
CH2MHILL

USER NAME = asontag	DESIGNED - SSM	REVISED -
PLOT SCALE = 8.0000' / in.	CHECKED - MAM	REVISED -
PLOT DATE = 10/28/2014	DRAWN - MRW	REVISED -
	CHECKED - MAM	REVISED -

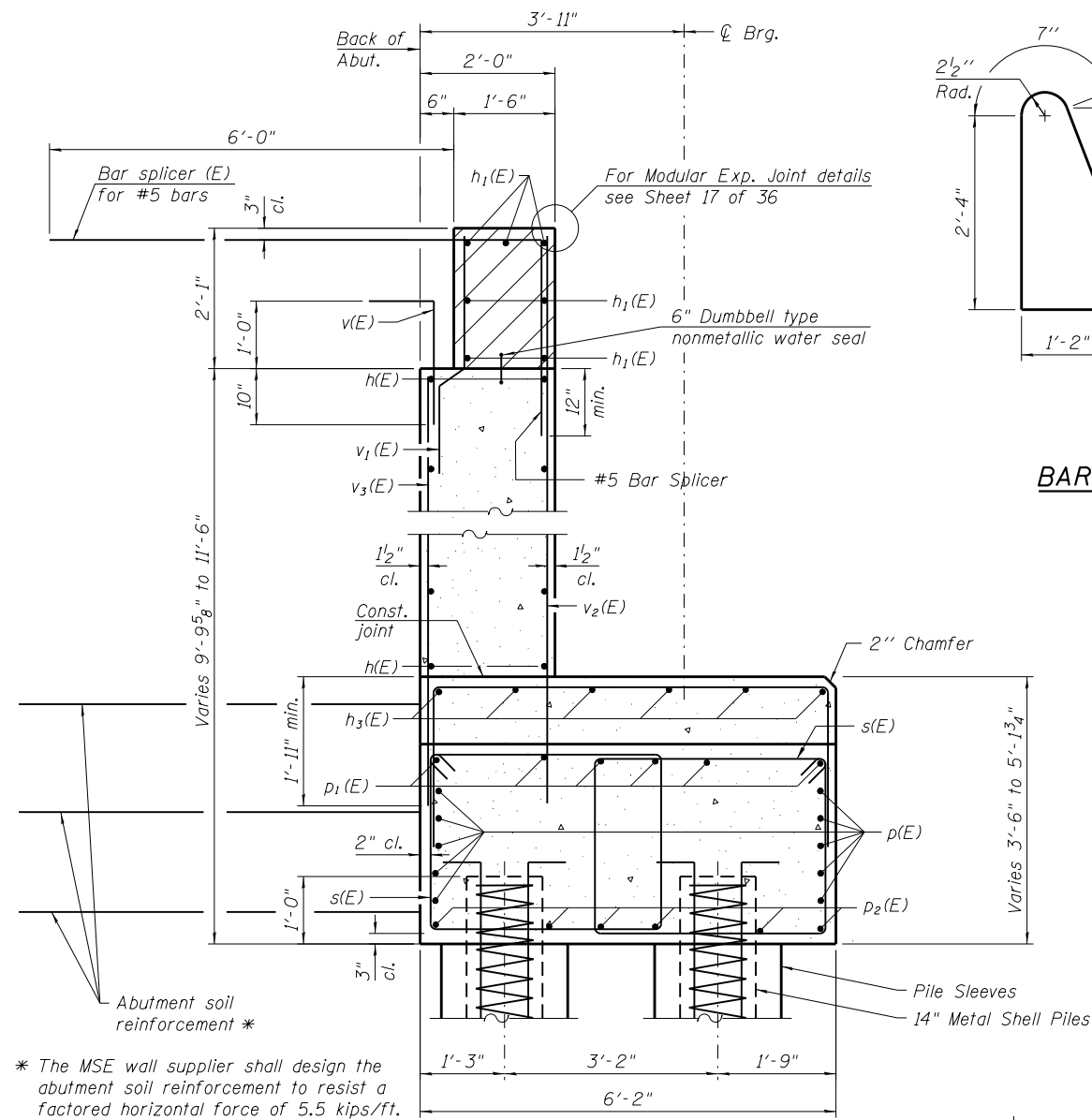
**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**WEST ABUTMENT PLAN AND ELEVATION
 STRUCTURE NO. 022-0549**

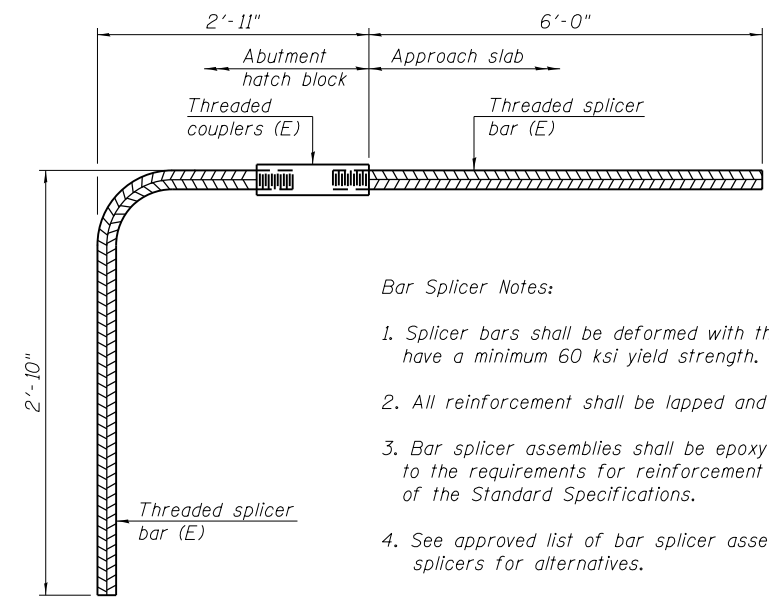
SHEET NO. 28 OF 36 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
345	2013-083-R&B	DUPAGE	759	448
DRAWING NO. SH-28			CONTRACT NO. 60Y95	

ILLINOIS FED. AID PROJECT

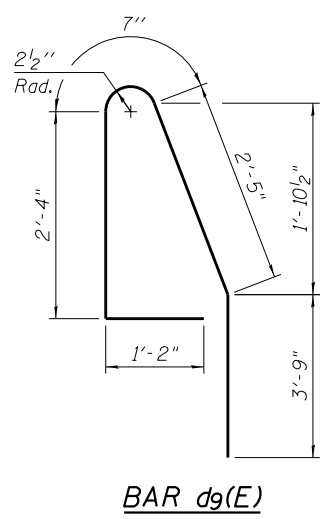


SEC. THRU ABUT.
(Dimensions at Rt. angles)

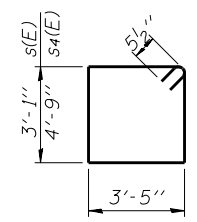


- Bar Splicer Notes:**
- Splicer bars shall be deformed with threaded ends and have a minimum 60 ksi yield strength.
 - All reinforcement shall be lapped and tied to the splicer bars.
 - Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars. See Section 508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

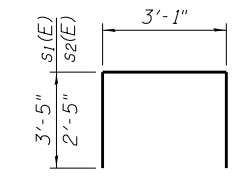
#5 BAR SPLICER ASSEMBLY



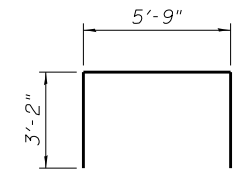
BAR dg(E)



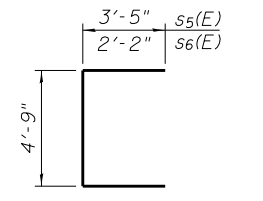
BARS s(E) & s4(E)



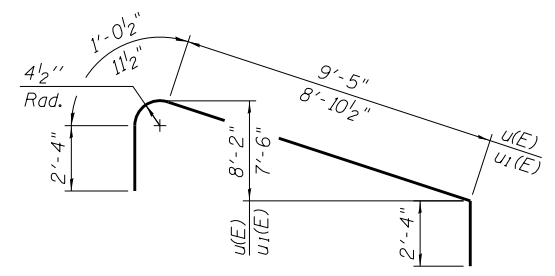
BARS s1(E) & s2(E)



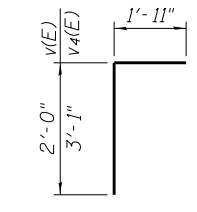
BARS s3(E)



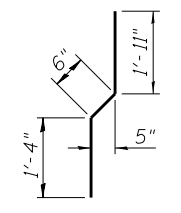
BARS s5(E) & s6(E)



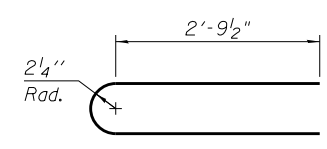
BARS u(E) & u1(E)



BAR v(E) & v4(E)



BAR v1(E)



BARS u5(E)

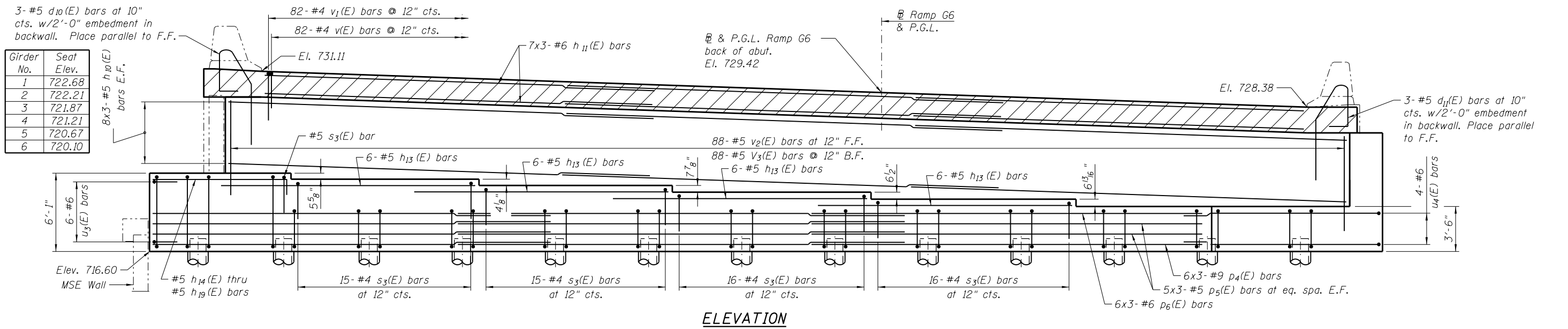
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
d9(E)	6	#5	10'-3"	U
h(E)	32	#5	34'-8"	—
h1(E)	14	#6	32'-8"	—
h3(E)	18	#5	14'-3"	—
h4(E)	1	#5	17'-11"	—
h5(E)	1	#5	19'-8"	—
h6(E)	1	#5	21'-6"	—
h7(E)	1	#5	23'-3"	—
h8(E)	1	#5	25'-0"	—
h9(E)	1	#5	25'-6"	—
p(E)	20	#5	34'-10"	—
p1(E)	12	#6	35'-3"	—
p2(E)	12	#9	37'-4"	—
s(E)	108	#5	13'-11"	□
s1(E)	5	#5	9'-11"	□
s2(E)	4	#5	7'-11"	□
s3(E)	52	#4	12'-1"	□
s4(E)	6	#5	17'-3"	□
s5(E)	5	#5	11'-7"	□
s6(E)	3	#5	9'-1"	□
u(E)	4	#6	15'-2"	U
u1(E)	6	#6	14'-7"	U
u5(E)	4	#6	6'-3"	U
v(E)	62	#4	3'-11"	U
v1(E)	62	#4	3'-9"	U
v2(E)	66	#5	10'-5"	—
v3(E)	66	#5	8'-4"	—
v4(E)	8	#5	5'-0"	U
Item	Unit	Total		
Concrete Structures	Cu. Yd.	97		
Concrete Superstructure	Cu. Yd.	7.1		
Reinforcement Bars, Epoxy Coated	Pound	9378		
Bar Splicers	Each	66		
Furnishing Metal Shell Piles 14" x 0.312"	Foot	1044		
Driving Piles	Foot	1044		
Test Pile Metal Shells	Each	2		
Pile Shoes	Each	20		
Concrete Sealer	Sq. Ft.	1095		

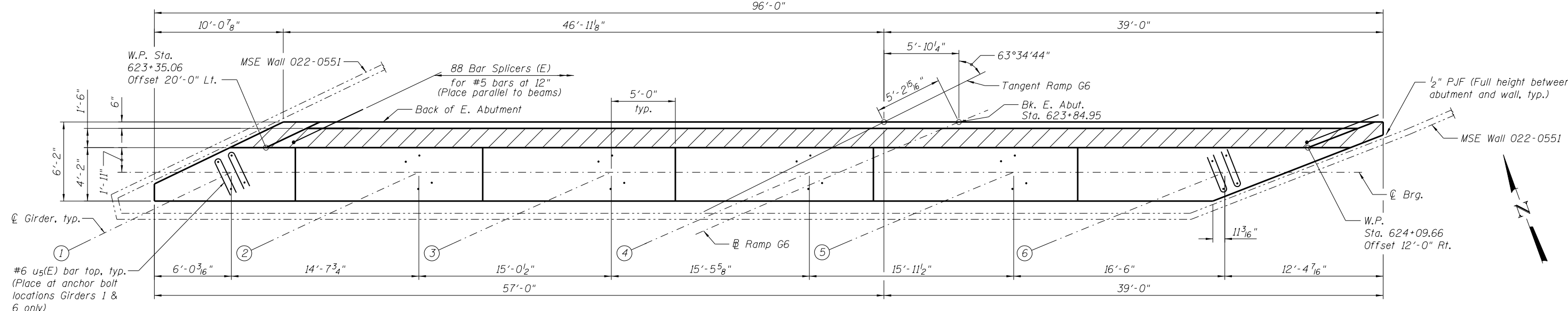
Bars indicated thus 9x2-#5 etc. indicates 9 lines of bars with 2 lengths per line.

MIN. BAR LAP

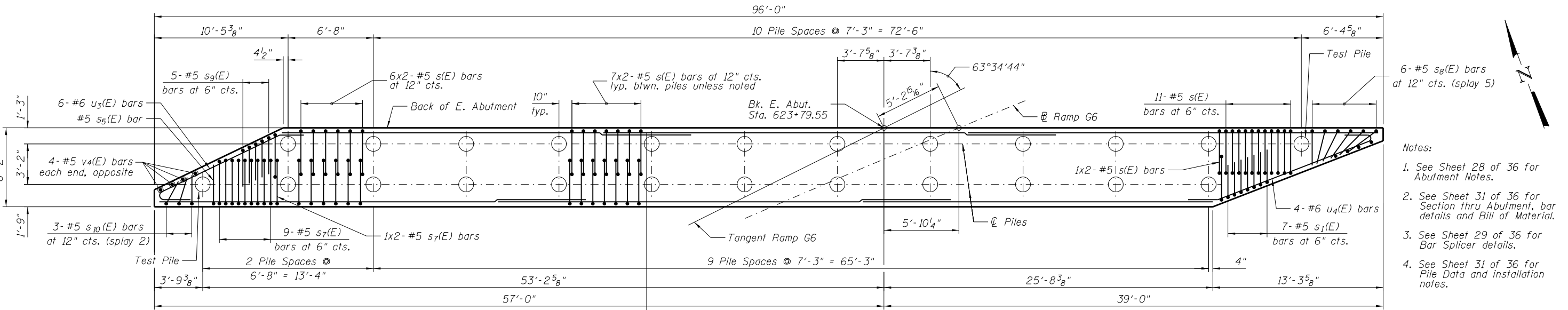
- #5 Bar = 3'-6"
- #6 Bar = 4'-5"
- #9 Bar = 8'-7"



ELEVATION

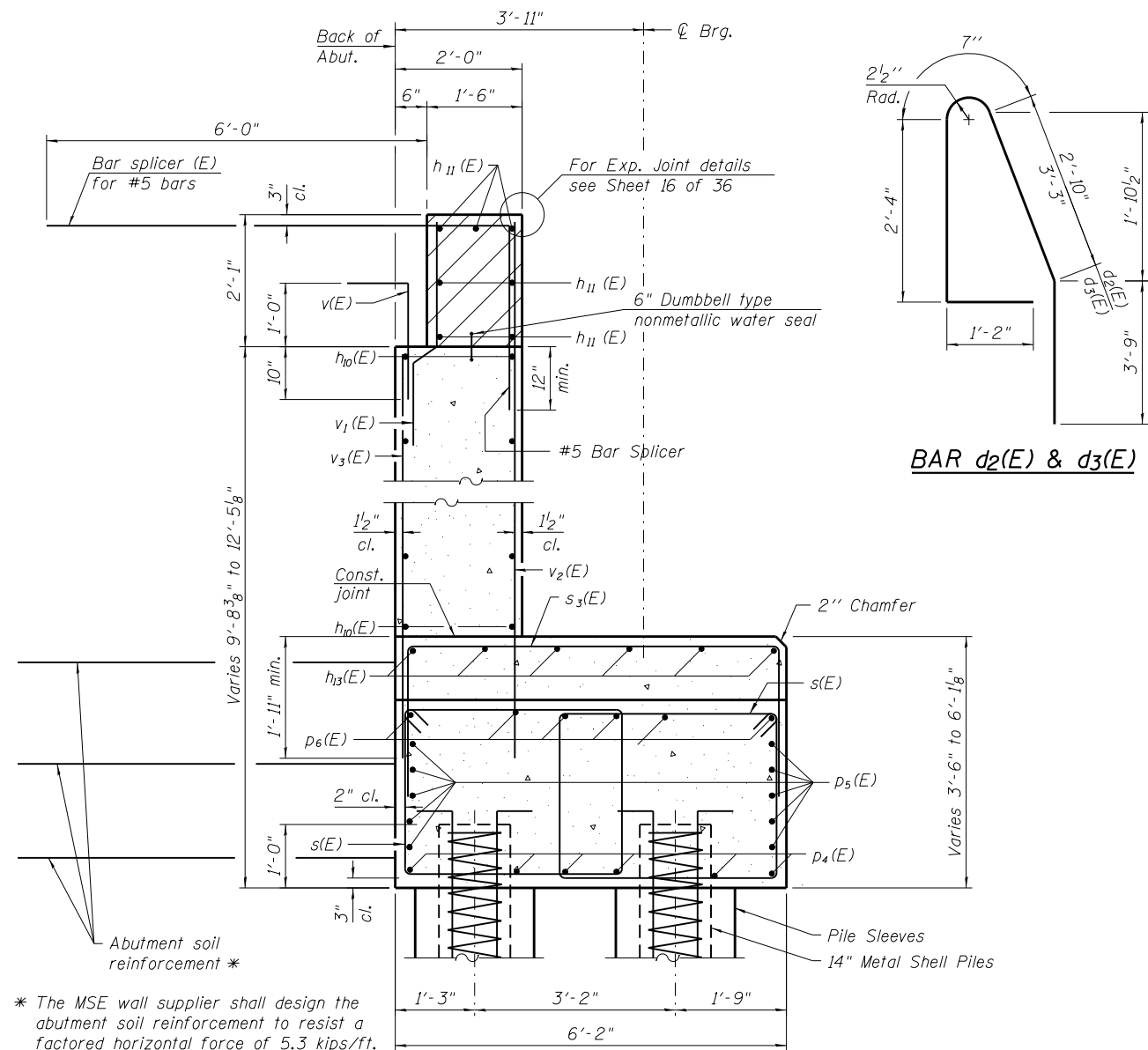


TOP VIEW

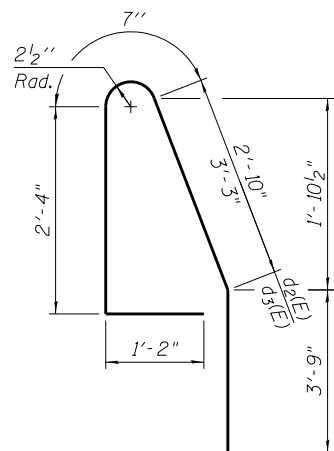


PLAN - PILE CAP

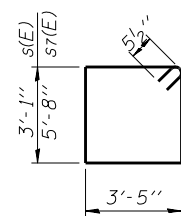
- Notes:
1. See Sheet 28 of 36 for Abutment Notes.
 2. See Sheet 31 of 36 for Section thru Abutment, bar details and Bill of Material.
 3. See Sheet 29 of 36 for Bar Splicer details.
 4. See Sheet 31 of 36 for Pile Data and installation notes.



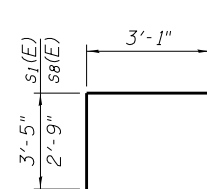
SEC. THRU ABUT.
(Dimensions at Rt. angles)



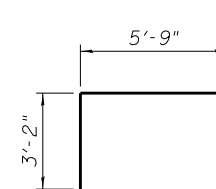
BAR d2(E) & d3(E)



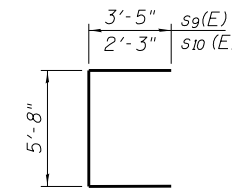
BARS s(E) & s7(E)



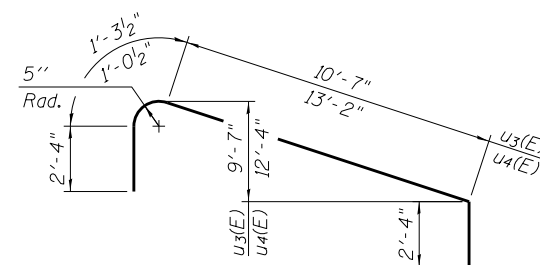
BARS s1(E) & s8(E)



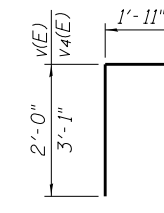
BARS s3(E)



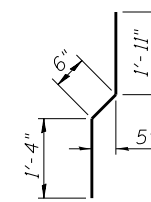
BARS s9(E) & s10(E)



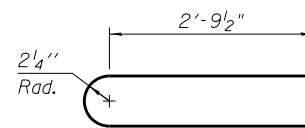
BARS u(E) & u1(E)



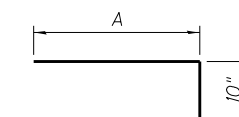
BAR v(E) & v4(E)



BAR v1(E)



BAR u5(E)



BARS A DIMENSIONS

Bar	A
h14(E)	10'-8"
h15(E)	10'-5"
h16(E)	8'-0"
h17(E)	5'-8"
h18(E)	3'-4"
h19(E)	11"

PILE DATA

Type: Metal shells 14" x 0.312" with pile shoes
 Nominal Required Bearing: 260 k
 Factored Resistance Available: 143 k
 Est. Length: 46'
 No. Production Piles: 22
 No. Test Piles: 2

Pile installation notes:

- All piles shall be reinforced as shown on Sheet 32 of 36.
- Install the piles as follows:
 - Excavate to bottom of MSE wall 022-0551 leveling pad.
 - Drive piles to required capacity.
 - Install pile sleeves around piles from bottom of leveling pad elevation to bottom of east abutment elevation. Pile sleeves to provide a minimum of 2" clearance all around pile to inside wall of sleeve.
 - Construct MSE wall and retained embankment around pile sleeves.
 - Fill annular space between pile sleeves and piles with loose dry sand.
- Furnishing and installing pile sleeves and loose sand included in driving piles.

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
d10(E)	3	#5	10'-8"	□
d11(E)	3	#5	11'-1"	□
h10(E)	48	#5	31'-6"	—
h11(E)	21	#6	30'-2"	—
h13(E)	24	#5	17'-11"	—
h14(E)	1	#5	11'-6"	□
h15(E)	1	#5	11'-3"	□
h16(E)	1	#5	8'-10"	□
h17(E)	1	#5	6'-6"	□
h18(E)	1	#5	4'-2"	□
h19(E)	1	#5	1'-9"	□
p4(E)	18	#9	34'-11"	—
p5(E)	30	#5	31'-8"	—
p6(E)	18	#6	32'-3"	—
s(E)	151	#5	13'-11"	□
s1(E)	7	#5	9'-11"	□
s3(E)	63	#4	12'-1"	□
s7(E)	11	#5	19'-1"	□
s8(E)	6	#5	8'-7"	□
s9(E)	5	#5	12'-6"	□
s10(E)	3	#5	10'-2"	□
u3(E)	6	#6	16'-5"	∩
u4(E)	4	#6	18'-11"	∩
u5(E)	4	#6	6'-3"	∩
v(E)	82	#4	3'-11"	∩
v1(E)	82	#4	3'-9"	∩
v2(E)	88	#5	10'-5"	∩
v3(E)	88	#5	8'-4"	∩
v4(E)	8	#5	5'-0"	∩
Item	Unit	Total		
Concrete Structures	Cu. Yd.	136		
Concrete Superstructure	Cu. Yd.	9.8		
Reinforcement Bars, Epoxy Coated	Pound	12715		
Bar Splicers	Each	88		
Furnishing Metal Shell Piles 14"x 0.312"	Foot	1012		
Driving Piles	Foot	1012		
Test Pile Metal Shell	Each	2		
Pile Shoes	Each	24		
Concrete Sealer	Sq. Ft.	1499		

Bars indicated thus 9x2-#5 etc. indicates 9 lines of bars with 2 lengths per line.

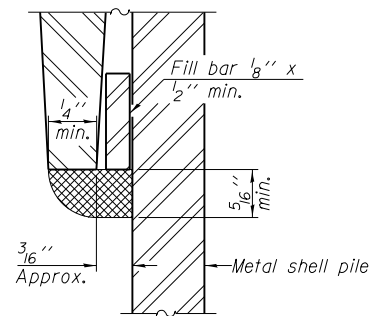
MIN. BAR LAP

- #5 Bar = 3'-6"
- #6 Bar = 4'-5"
- #9 Bar = 8'-7"

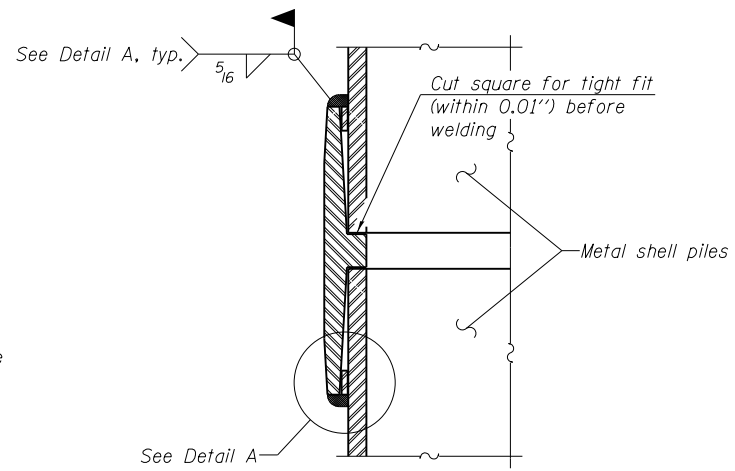


METAL SHELL PILE TABLE

Designation and outside diameter	Wall thickness t	Weight per foot (Lbs./ft.)	Inside volume (yd. ³ /ft.)
PP14	0.312"	45.61	0.0361

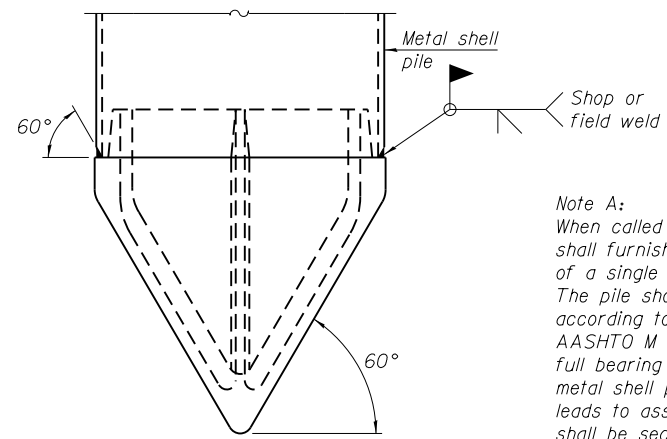


DETAIL A



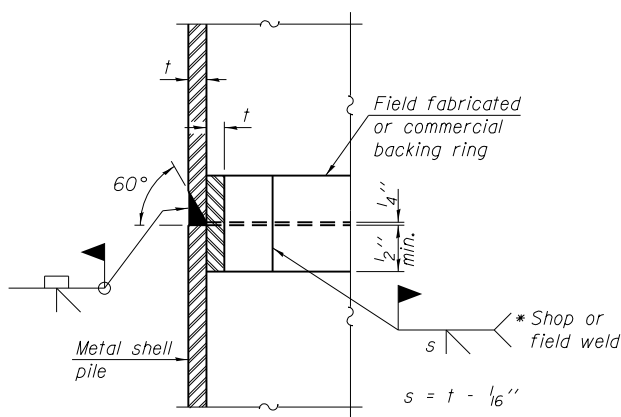
Notes:
 The 1/8" x 1/2" min. fill bar may be constructed of 2 bars with a 1/8" max. gap between them.
 Pile segments shall be driven to solid contact with splicer before welding.

WELDED COMMERCIAL SPLICE



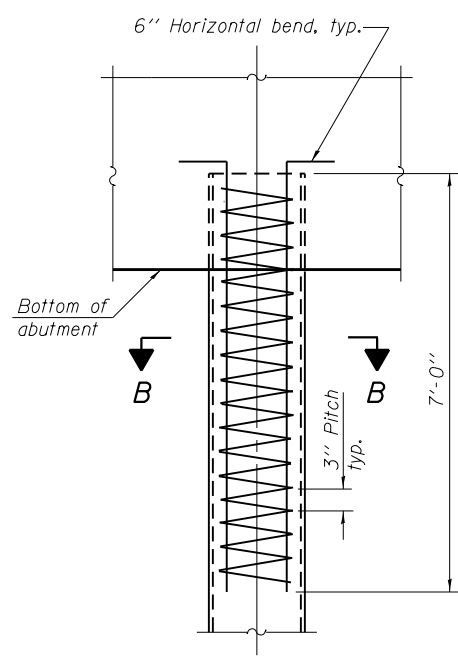
Note A:
 When called for on the plans, the Contractor shall furnish metal shell pile shoes consisting of a single piece conical pile point as shown. The pile shoes shall be cast in one piece steel according to either ASTM A 148 Grade 90-60 or AASHTO M 103 Grade 65-35 and shall provide full bearing over the full circumference of the metal shell pile. The pile shoe shall have tapered leads to assure proper alignment and fitting and shall be secured to the pile with a circumferential weld.

METAL SHELL PILE SHOE ATTACHMENT
 (See Note A)

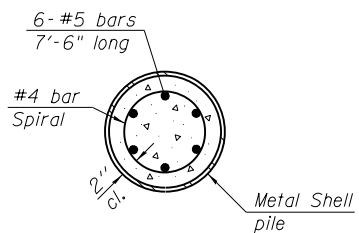


COMPLETE PENETRATION WELD SPLICE
 * Field fabricated backing ring may be made from pile shell by removing segment to allow reducing circumference and vertically rejoin with partial joint penetration weld.

Note:
 The metal shell piles shall be according to ASTM A 252 Grade 3.



ELEVATION



SECTION B-B

METAL SHELL REINFORCEMENT AT ABUTMENTS

Note:
 The cost of reinforcement is included with Furnishing Metal Shell Piles of the size indicated on the plans.



SOIL BORING LOG

CONTRACT 1-11-4031 DESCRIPTION Bridge B-35, Ramp G6 Over Ramp K3 LOGGED BY K. Krug

ROUTE Elgin O'Hare Expressway SECTION LOCATION SE 1/4 SEC. 6 TWP. 40N R1G. 11E PM. 3'

COUNTY DuPage DRILLING METHOD Solid Stem Auger / Mud Rotary below 10 feet HAMMER TYPE Automatic

STRUCT. NO. 022-0549
 Station 622+98.86
 BORING NO. B-35-BSB-01
 Station 622+23.53
 Offset 7.4 ft RT.
 Northing 1,936,808.97
 Easting 1,069,625.69
 Ground Surface Elev. 708.4 ft

DEPTH (ft)	BLOW COUNT (blows/6")	UCS (tsf)	MOISTURE (%)	SOIL DESCRIPTION	DEPTH (ft)	BLOW COUNT (blows/6")	UCS (tsf)	MOISTURE (%)	SOIL DESCRIPTION
707.9				TOPSOIL	687.9				Stiff to Very Stiff, Gray CLAY LOAM trace - gravel
7				Stiff to Very Stiff, Brown, Black and Gray SILTY CLAY	2				
8	3.0	22		trace - gravel, asphalt grindings	4	1.4	20		
8	P				5	B			
12					2				
6	2.0	10			3	1.2	21		
5	P				4	B			
-5					-25				
3					3				
5	1.2	22			4	2.1	21		
5	B				7	B			
700.4				FILL					
3				Medium Stiff to Stiff, Brown, Black and Gray CLAY	3				
3	1.2	29		trace - gravel, rocks, organics	6	2.3	20		
3	B				7	B			
-10					-30				
0.5		30		ST-5 (10'-12") Grain Size LL=43, PL=19, A-7-6(17) Dry Density=94 pcf	4				little - gravel below 31 feet
5	S				5	2.1	18		
5					8	B			
695.4				Stiff to Very Stiff, Gray SILTY CLAY trace - gravel	4				
5					4				
7	3.9	21			6	1.6	17		
10	B				7	B			
-15					-35				
3				Medium Dense, Gray Medium SAND	7				
5	2.5	19			8		16		
6	B				9				
670.4				Stiff, Gray SILTY CLAY trace to little - gravel	7				
4	1.7	19			15	1.5	15		
5	B				7	B			
-20					-40				

The Unconfined Compressive Strength (UCS) Failure Mode Is Indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)



SOIL BORING LOG

CONTRACT 1-11-4031 DESCRIPTION Bridge B-35, Ramp G6 Over Ramp K3 LOGGED BY K. Krug

ROUTE Elgin O'Hare Expressway SECTION LOCATION SE 1/4 SEC. 6 TWP. 40N R1G. 11E PM. 3'

COUNTY DuPage DRILLING METHOD Solid Stem Auger / Mud Rotary below 10 feet HAMMER TYPE Automatic

STRUCT. NO. 022-0549
 Station 622+98.86
 BORING NO. B-35-BSB-01
 Station 622+23.53
 Offset 7.4 ft RT.
 Northing 1,936,808.97
 Easting 1,069,625.69
 Ground Surface Elev. 708.4 ft

DEPTH (ft)	BLOW COUNT (blows/6")	UCS (tsf)	MOISTURE (%)	SOIL DESCRIPTION	DEPTH (ft)	BLOW COUNT (blows/6")	UCS (tsf)	MOISTURE (%)	SOIL DESCRIPTION
647.9				Stiff, Gray SILTY CLAY trace to little - gravel (continued)	5				Medium Dense, Gray LOAM little - gravel
3					5				
3	1.5	24			6		13		
5	B				7				
665.4				Loose, Gray SILTY LOAM trace - gravel	645.4				Stiff to Very Stiff, Gray SILTY CLAY little - gravel
3					6				
3		14			8	2.5	15		
5					11	B			
-45					-65				
662.9				Stiff to Very Stiff, Gray SILTY CLAY trace - gravel	7				
6					11	2.6	14		
8	1.1	14			14	B			
9	B								
3					3				
5	2.9	18			5	1.2	15		
8	B				6	B			
-50					-70				
657.9				Medium Dense, Gray LOAM trace to little - gravel	6				Dense to Extremely Dense, Gray SANDY LOAM
4					6				
4		11			9	1.7	13		
6					11	B			
6									
6					14				
6		12			24		18		
15					25				
-55					-75				
6					22				
7		12			29		14		
6					31				
650.4				Stiff, Gray SILTY CLAY trace - gravel	8				
5					26		15		
5	1.7	14			50/5"				
6	B				-80				

The Unconfined Compressive Strength (UCS) Failure Mode Is Indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)



SOIL BORING LOG

CONTRACT 1-11-4031 DESCRIPTION Bridge B-35, Ramp G6 Over Ramp K3 LOGGED BY K. Krug

ROUTE Elgin O'Hare Expressway SECTION LOCATION SE 1/4 SEC. 6 TWP. 40N R1G. 11E PM. 3'

COUNTY DuPage DRILLING METHOD Solid Stem Auger / Mud Rotary below 10 feet HAMMER TYPE Automatic

STRUCT. NO. 022-0549
 Station 622+98.86
 BORING NO. B-35-BSB-01
 Station 622+23.53
 Offset 7.4 ft RT.
 Northing 1,936,808.97
 Easting 1,069,625.69
 Ground Surface Elev. 708.4 ft

DEPTH (ft)	BLOW COUNT (blows/6")	UCS (tsf)	MOISTURE (%)	SOIL DESCRIPTION	DEPTH (ft)	BLOW COUNT (blows/6")	UCS (tsf)	MOISTURE (%)	SOIL DESCRIPTION
647.9				Dense to Extremely Dense, Gray SANDY LOAM (continued) little - gravel below 80.5 feet	11				
11					26		10		
18									
625.4				Medium Dense, Gray SILTY LOAM trace - gravel	14				
14					8		12		
8					14				
-85									
14					14				
8					17		13		
17									
12					12				
13					13		11		
13					13				
-90					-90				
617.9				Extremely Dense, Gray SANDY LOAM little - gravel	47				
47					50/4"		10		
50/4"									
615.4				Extremely Dense, Gray SANDY GRAVEL	50/5"		10		
50/5"									
50/5"									
-85					-85				
612.9				Extremely Dense, Gray SANDY LOAM little - gravel	50/5"		7		
50/5"									
610.9				END OF BORING					
-100					-100				

The Unconfined Compressive Strength (UCS) Failure Mode Is Indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)



SOIL BORING LOG

Page 1 of 2

Date 11/30/12

CONTRACT 1-11-4031 DESCRIPTION Bridge B-35, Ramp G6 Over Ramp K3 LOGGED BY K. Krug

ROUTE Elgin O'Hare Expressway SECTION LOCATION SE 1/4 SEC. 6 TWP. 40N RNg. 11E PM. 3'

COUNTY DuPage DRILLING METHOD Solid Stem Auger / Mud Rotary below 10 feet HAMMER TYPE Automatic

STRUCT. NO. 022-0549
 Station 622+98.86
 BORING NO. B-35-BSB-02
 Station 623+64.95
 Offset 12.2 ft LT.
 Northing 1,936,843.79
 Easting 1,069,773.20
 Ground Surface Elev. 708.6 ft

DEPTH (ft)	BLOW (6")	UCS (tsf)	MOIST (%)	SOIL DESCRIPTION	DEPTH (ft)	BLOW (6")	UCS (tsf)	MOIST (%)
0.3				TOPSOIL				
0.3 - 0.9	9	3.75	17	Very Stiff, Gray CLAY LOAM trace - gravel(continued)				
0.9 - 1.5	9			ST-9 (21'-23') Grain Size LL=31, PI=11, A-6(6) Dry Density=114 pcf			2.3"	18
1.5 - 2.1	4					3		
2.1 - 2.7	5	1.8	26	Stiff to Hard, Brown and Gray SILTY CLAY trace - gravel, roots		5	2.9	20
2.7 - 3.3	6	B				8	B	
3.3 - 3.9	4					4		
3.9 - 4.5	7	3.7	18			6	2.4	20
4.5 - 5.1	9	B				7	B	
5.1 - 5.7	5					4		
5.7 - 6.3	7	7.0	19			5	3.0	21
6.3 - 6.9	11	B				8	B	
6.9 - 7.5	5					4		
7.5 - 8.1	8	3.4	19	Very Stiff, Gray SILTY CLAY trace - gravel		6	2.6	19
8.1 - 8.7	12	B				8	B	
8.7 - 9.3	3					6		
9.3 - 9.9	5	2.5	21			8	2.5	14
9.9 - 10.5	7	B				11	B	
10.5 - 11.1	3					4		
11.1 - 11.7	4	2.1	20			5	2.1	18
11.7 - 12.3	7	B				10	B	
12.3 - 12.9	3					6		
12.9 - 13.5	4	2.0	19	Very Stiff, Gray CLAY LOAM trace - gravel		6		
13.5 - 14.1	6	B		Sandy Loam seam at 39 feet		8	2.9	17
14.1 - 14.7						8	B	

The Unconfined Compressive Strength (UCS) Failure Mode Is Indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)



SOIL BORING LOG

Page 2 of 2

Date 11/30/12

CONTRACT 1-11-4031 DESCRIPTION Bridge B-35, Ramp G6 Over Ramp K3 LOGGED BY K. Krug

ROUTE Elgin O'Hare Expressway SECTION LOCATION SE 1/4 SEC. 6 TWP. 40N RNg. 11E PM. 3'

COUNTY DuPage DRILLING METHOD Solid Stem Auger / Mud Rotary below 10 feet HAMMER TYPE Automatic

STRUCT. NO. 022-0549
 Station 622+98.86
 BORING NO. B-35-BSB-02
 Station 623+64.95
 Offset 12.2 ft LT.
 Northing 1,936,843.79
 Easting 1,069,773.20
 Ground Surface Elev. 708.6 ft

DEPTH (ft)	BLOW (6")	UCS (tsf)	MOIST (%)	SOIL DESCRIPTION	DEPTH (ft)	BLOW (6")	UCS (tsf)	MOIST (%)
648.1				Very Stiff, Gray SILTY CLAY trace - gravel				
648.1 - 653.7	6					7	2.5	18
653.7 - 659.3	11	B				11	B	
659.3 - 664.9	9			Very Stiff, Gray SILTY CLAY little - gravel				
664.9 - 670.5	10					7		
670.5 - 676.1	10	2.5	17	Medium Dense to Extremely Dense, Gray SILTY LOAM little - gravel				
676.1 - 681.7	14	P				7		8
681.7 - 687.3	4					50/5"		14
687.3 - 692.9	7					16	3.5	14
692.9 - 698.5	17	P				17	P	
698.5 - 704.1	16			Dense, Gray SANDY GRAVEL				
704.1 - 709.7	17					11		
709.7 - 715.3	18					12		12
715.3 - 720.9	50					12		
720.9 - 726.5	16			Very Stiff, Gray CLAY				
726.5 - 732.1	6					3		
732.1 - 737.7	8	2.9	22			8		16
737.7 - 743.3	16	B				15		
743.3 - 748.9	2			Loose to Medium Dense, Gray SILTY LOAM little - gravel				
748.9 - 754.5	3					4		
754.5 - 760.1	6					4		12
760.1 - 765.7	11					10		
765.7 - 771.3	5					5		
771.3 - 776.9	6					6		12
776.9 - 782.5	10					10		
782.5 - 788.1	15					15		
788.1 - 793.7	12					27		20
793.7 - 799.3	11					27		

The Unconfined Compressive Strength (UCS) Failure Mode Is Indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)



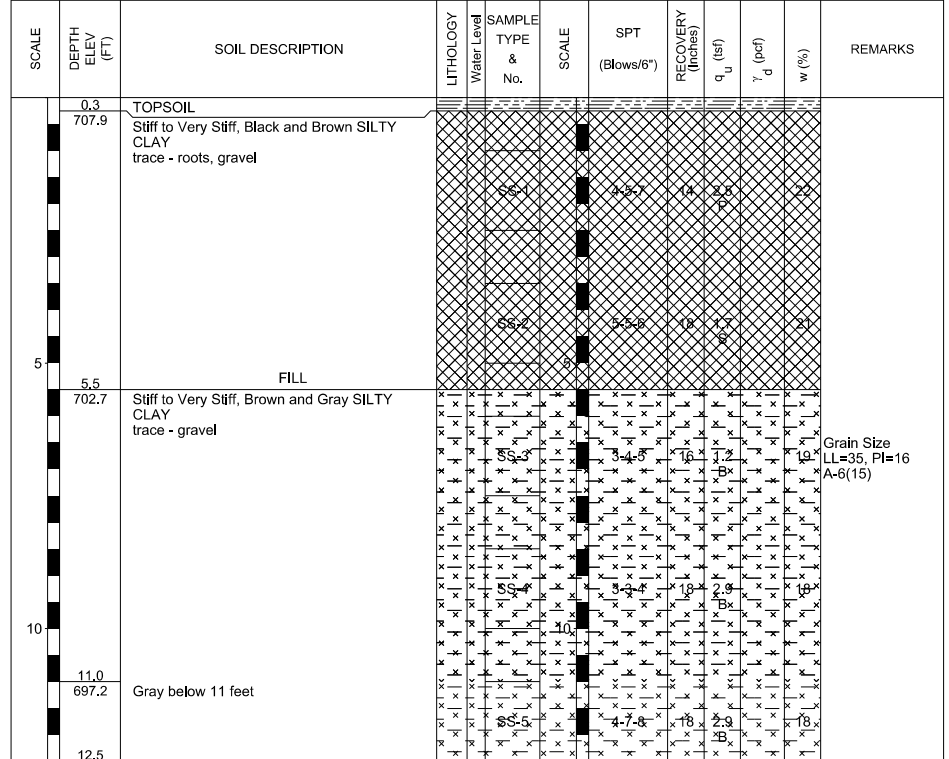
LOG OF SUBSURFACE DATA

CLIENT: Illinois State Toll Highway Authority
 PROJECT: I-11-4031, Elgin O'Hare Western Bypass
 LOCATION: Ramp K3
 COUNTY: DuPage
 BORING NO.: K3-SGB-03
 STATION: 314+08.56
 OFFSET: 7.9 ft RT.

SEC. 6 (SE 1/4) TWP. 40N RNg. 11E PM. 3'
 SURFACE ELEV.: 708.2
 NORTH: 1,936,846.84
 EAST: 1,069,638.15

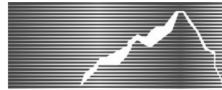
JOB NO.: 1227
 LOGGED BY: K. Krug

SHEET 1 OF 1



DRILLED BY: D. Roselle (Geo Services, Inc.)
 DRILL RIG: Diedrich D-50 Turbo Track Mount
 HAMMER TYPE: Automatic
 BORING STARTED: December 5, 2012
 BORING COMPLETED: December 5, 2012
 THIS LOG IS NOT INTENDED FOR USE INDEPENDENT FROM THE ENGINEERING REPORT

WATER LEVEL
 ▽ Dry DURING DRILLING
 ▽ Dry AT COMPLETION
 ▽ AFTER COMPLETION



SOIL BORING LOG

EVEREST ENGINEERING COMPANY
915 WEST LIBERTY DRIVE, WHEATON, IL 60187

CONTRACT 1-11-4031 DESCRIPTION Retaining Wall R-220, Ramp G6 LOGGED BY K. Krug

ROUTE Elgin O'Hare Expressway SECTION LOCATION SE 1/4 SEC. 6 TWP. 40N RNG. 11E PM. 3rd

COUNTY DuPage DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. 022-0550
Station 621+77.81 to 621+22.73
BORING NO. R-220-RWB-02
Station 621+82.29
Offset 12.6 ft RT.
Northing 1,936,795.49
Easting 1,069,587.57
Ground Surface Elev. 707.9

Surface Water Elev.	ft	D	B	U	M	Stream Bed Elev.	ft	E	L	O	S	Groundwater Elev.:	ft	T	W	Qu	S	First Encounter	ft	H	S	Upon Completion	ft	(ft)	(/6")	(tsf)	(%)	After	Hrs.	(ft)	(/6")	(tsf)	(%)
Gray below 11 feet(continued)																																	
Very Stiff, Brown and Black SILTY CLAY trace - gravel																																	
4																																	
5																																	
8																																	
3.0																																	
9																																	
B																																	
704.9																																	
Black below 3 feet Grain Size LL=58, Pl=29, A-7-6(30) Dry Density=90 pcf																																	
4																																	
5																																	
6																																	
3.0																																	
29																																	
P																																	
702.4																																	
FILL																																	
Stiff to Hard, Brown and Gray CLAY trace - gravel, roots																																	
3																																	
4																																	
5																																	
3.0																																	
20																																	
B																																	
702.4																																	
Stiff to Hard, Brown and Gray CLAY trace - gravel, roots																																	
3																																	
4																																	
5																																	
2.9																																	
20																																	
B																																	
696.9																																	
Gray below 11 feet																																	
3																																	
6																																	
8																																	
5.0																																	
19																																	
B																																	
675.9																																	
Medium Dense, Gray SANDY LOAM little - gravel																																	
6																																	
8																																	
1.2																																	
20																																	
B																																	
673.4																																	
Very Stiff, Gray SILTY CLAY little - gravel																																	
7																																	
8																																	
3.7																																	
20																																	
B																																	
672.4																																	
Medium Dense, Gray SILTY LOAM little - gravel																																	
8																																	
11																																	
12																																	
1.9																																	
20																																	
B																																	
669.9																																	
Hard, Gray SILTY CLAY trace - gravel																																	
5																																	
9																																	
4.1																																	
13																																	
B																																	
667.9																																	
END OF BORING																																	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)



SOIL BORING LOG

EVEREST ENGINEERING COMPANY
915 WEST LIBERTY DRIVE, WHEATON, IL 60187

CONTRACT 1-11-4031 DESCRIPTION Retaining Wall R-220, Ramp G6 LOGGED BY K. Krug

ROUTE Elgin O'Hare Expressway SECTION LOCATION SE 1/4 SEC. 6 TWP. 40N RNG. 11E PM. 3rd

COUNTY DuPage DRILLING METHOD Solid Stem Auger / Mud Rotary Below 10 feet HAMMER TYPE Automatic

STRUCT. NO. 022-0550
Station 621+77.81 to 621+22.73
BORING NO. R-220-RWB-05
Station 621+83.34
Offset 12.3 ft LT.
Northing 1,936,819.92
Easting 1,069,582.46
Ground Surface Elev. 707.4

Surface Water Elev.	ft	D	B	U	M	Stream Bed Elev.	ft	E	L	O	S	Groundwater Elev.:	ft	T	W	Qu	S	First Encounter	ft	H	S	Upon Completion	ft	(ft)	(/6")	(tsf)	(%)	After	Hrs.	(ft)	(/6")	(tsf)	(%)
TOPSOIL																																	
706.9																																	
Hard, Brown, Gray and Black SILTY CLAY trace - gravel																																	
4																																	
7																																	
9																																	
4.5+																																	
16																																	
P																																	
701.9																																	
FILL																																	
Stiff to Hard, Brown and Gray CLAY trace - roots, gravel																																	
7																																	
10																																	
11																																	
5.4																																	
17																																	
B																																	
701.9																																	
Stiff to Hard, Brown and Gray CLAY trace - roots, gravel																																	
7																																	
8																																	
10																																	
5.8																																	
21																																	
B																																	
694.4																																	
Gray below 13 feet																																	
3																																	
6																																	
7																																	
3.7																																	
20																																	
B																																	
674.4																																	
Very Stiff to Hard, Gray SILTY CLAY trace - gravel																																	
6																																	
7																																	
15																																	
2.0																																	
16																																	
P																																	
689.4																																	
Stiff to Very Stiff, Gray CLAY LOAM little to some - gravel																																	
3																																	
4																																	
5																																	
2.5																																	
20																																	
B																																	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)



SOIL BORING LOG

EVEREST ENGINEERING COMPANY
915 WEST LIBERTY DRIVE, WHEATON, IL 60187

CONTRACT 1-11-4031 DESCRIPTION Retaining Wall R-220, Ramp G6 LOGGED BY K. Krug

ROUTE Elgin O'Hare Expressway SECTION LOCATION SE 1/4 SEC. 6 TWP. 40N RNG. 11E PM. 3rd

COUNTY DuPage DRILLING METHOD Solid Stem Auger / Mud Rotary Below 10 feet HAMMER TYPE Automatic

STRUCT. NO. 022-0550
Station 621+77.81 to 621+22.73
BORING NO. R-220-RWB-05
Station 621+83.34
Offset 12.3 ft LT.
Northing 1,936,819.92
Easting 1,069,582.46
Ground Surface Elev. 707.4

Surface Water Elev.	ft	D	B	U	M	Stream Bed Elev.	ft	E	L	O	S	Groundwater Elev.:	ft	T	W	Qu	S	First Encounter	ft	H	S	Upon Completion	ft	(ft)	(/6")	(tsf)	(%)	After	Hrs.	(ft)	(/6")	(tsf)	(%)
TOPSOIL																																	
706.9																																	
Hard, Brown, Gray and Black SILTY CLAY trace - gravel																																	
4																																	
7																																	
9																																	
4.5+																																	
16																																	
P																																	
701.9																																	
FILL																																	
Stiff to Hard, Brown and Gray CLAY trace - roots, gravel																																	
7																																	
10																																	
11																																	
5.4																																	
17																																	
B																																	
701.9																																	
Stiff to Hard, Brown and Gray CLAY trace - roots, gravel																																	
7																																	
8																																	
10																																	
5.8																																	
21																																	
B																																	
694.4																																	
Gray below 13 feet																																	
3																																	
6																																	
7																																	
3.7																																	
20																																	
B																																	
674.4																																	
Very Stiff to Hard, Gray SILTY CLAY trace - gravel																																	
6																																	
7																																	
15																																	
2.0																																	
16																																	
P																																	
689.4																																	
Stiff to Very Stiff, Gray CLAY LOAM little to some - gravel																																	
3																																	
4																																	
5																																	
2.5																																	
20																																	
B																																	
674.4																																	
Very Stiff to Hard, Gray SILTY CLAY trace - gravel(continued)																																	
6																																	
7																																	
10																																	
1.9																																	
20																																	
B																																	
645.4																																	
Dense, Gray SILTY LOAM trace - gravel																																	
17																																	
21																																	
13																																	
16																																	
640.4																																	
Very Stiff, Gray SILTY CLAY trace - gravel																																	
6																																	
7																																	
10																																	
4.1																																	
14																																	
B																																	
635.4																																	
Extremely Dense, Gray Fine to Medium SAND trace - gravel																																	
14																																	
42																																	
44																																	
21																																	
632.4																																	
END OF BORING																																	
Note: Blind drill to 30 feet adjacent to the borehole for 48 hrs. groundwater level																																	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

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CH2MHILL	PLOT SCALE = 20.0000' / in.	CHECKED - MAM	REVISED - -
	PLOT DATE = 10/28/2014	DRAWN - EC	REVISED - -
		CHECKED - MAM	REVISED - -

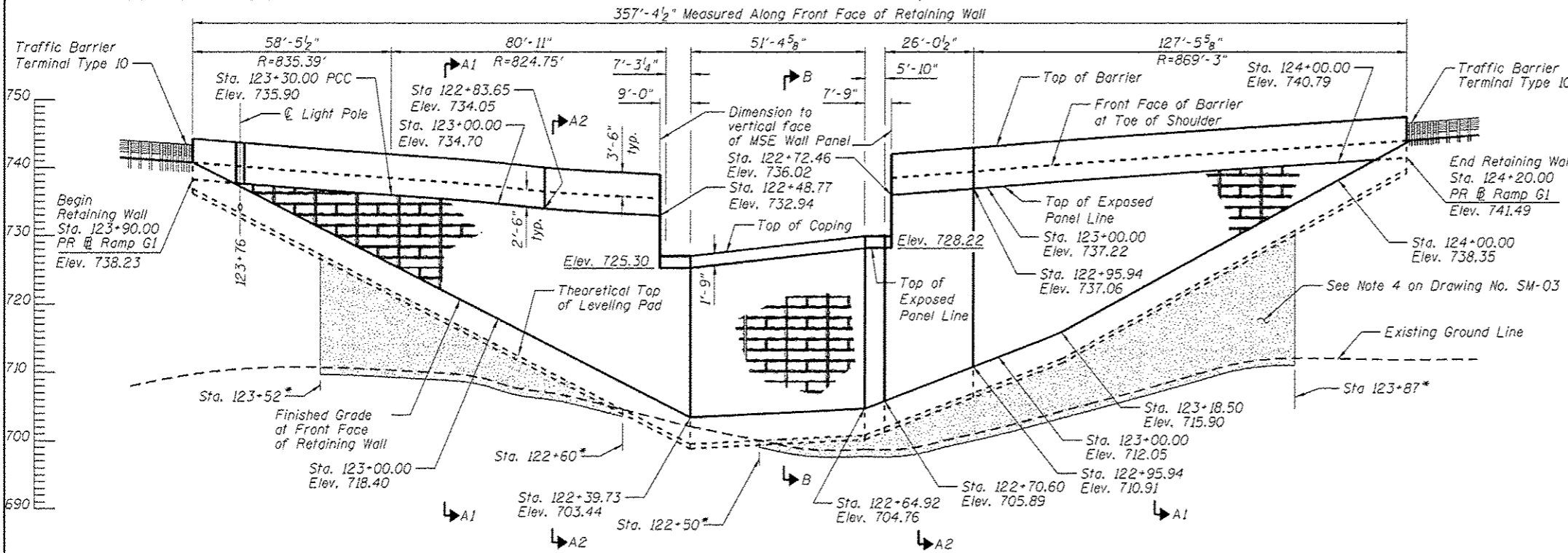
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORING LOGS
STRUCTURE NO. 022-0549

SHEET NO. 36 OF 36 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
345	2013-083-R&B	DUPAGE	759	456
DRAWING NO. SH-36		CONTRACT NO. 60Y95		
ILLINOIS FED. AID PROJECT				

Bench Mark: BM#716 - Cut square in the Northwest end of bridge wall. Approximately 65 feet North of the centerline of Thorndale Ave. and 168 feet West of the centerline of I-290. Approximately 12 feet West of bridge deck. Elev. 731.40' (NAVD88)



ELEVATION
(Unfolded Elevation View)

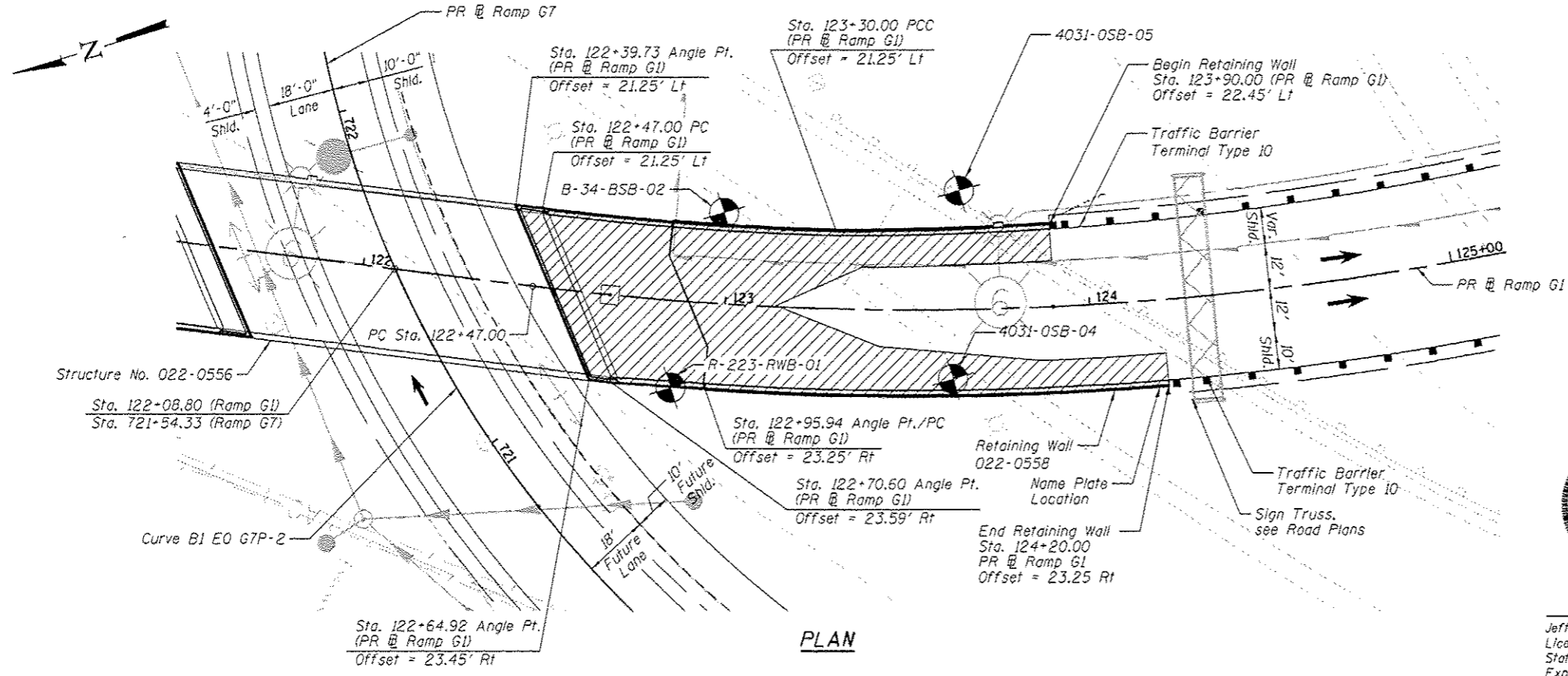
*Limits may vary depending on Contractor's Retaining Wall design

Notes:

1. Wall stations and offsets are given to the front face of the wall and are measured from the baseline of Ramp G1.
2. Top of wall elevations are given to the top of exposed panel line along front face of MSE Wall Panels. Bottom of wall elevations are measured to top of finish grade along front face of MSE Wall Panels.
3. All exposed faces of the MSE Wall panels shall have a formliner simulated limestone surface. See Special Provisions for additional details.
4. For Section A1-A1, Section A2-A2, and Section B-B, see Drawing No. SM-03.
5. For additional notes, see Drawing No. SM-02.
6. Erect settlement platform on Baseline 5 feet behind the abutment in accordance with Article 204.06 of the Standard Specifications for Road and Bridge Construction except that the platform shall be placed at the bottom of the MSE soil mass. Payment for the Settlement Platform shall be included in the payment item for MSE walls.

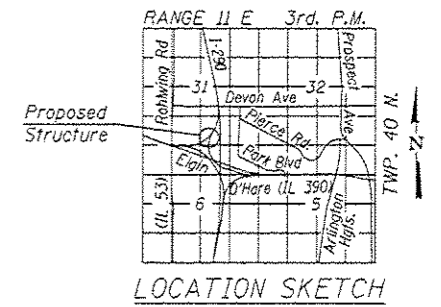
LEGEND

- Reinforced Soil Mass, Approximate Limits
- Indicates Granular Backfill for Structures
- MSE Wall Panels (See Note 3)
- Soil Borings
- Settlement Platform



PLAN

APPROVED
For Structural Adequacy Only
Dr. Carl Krueger
Engineer of Bridges & Structures



GENERAL PLAN & ELEVATION
ELGIN O'HARE (IL-390) AT I-290
DUPAGE COUNTY
RAMP G1 STA 122+39.73 TO
RAMP G1 STA 124+20.00
STRUCTURE NO. 022-0558



Jeffrey S. Aldrich
Jeffrey S. Aldrich
Licensed Structural Engineer
State of Illinois No. 081-007301
Expires 11/30/2016

FILE NAME = 2220558-02145-001-CPE.dgn	USER NAME = ewenting	DESIGNED - EJM	REVISIONS -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	GENERAL PLAN & ELEVATION STRUCTURE NO. 022-0558 SHEET NO. 01 OF 13 SHEETS	F.A.P. RTE. 345	SECTION 2013-083-R&B	COUNTY DUPAGE	TOTAL SHEETS 759	SHEET NO. 457
CH2MHILL	PLOT SCALE = 1/8" = 1'-0"	CHECKED - JLT	REVISIONS -			DRAWING NO. SM-01	CONTRACT NO. 60Y95			
	PLOT DATE = 12/29/2014	DRAWN - EJM	REVISIONS -							
		CHECKED - JLT	REVISIONS -							

DESIGN SPECIFICATIONS

2012 AASHTO LRFD Bridge Design Specifications with 2013 Interims

Tollway Structure Design Manual, March 2014 with latest Tollway Design Bulletins

Illinois Department of Transportation Bridge Manual, January 2012

DESIGN STRESSES

FIELD UNITS

f'_c = 3,500 PSI Class BS (Barrier Rail and Anchor Slab)
 f'_c = 3,500 PSI Class SI (all other CIP Concrete)
 f_y = 60,000 PSI (Reinforcement)

PRECAST UNITS

f'_c = 4,500 PSI (Precast Face Panel)

TRAFFIC BARRIER LOADING

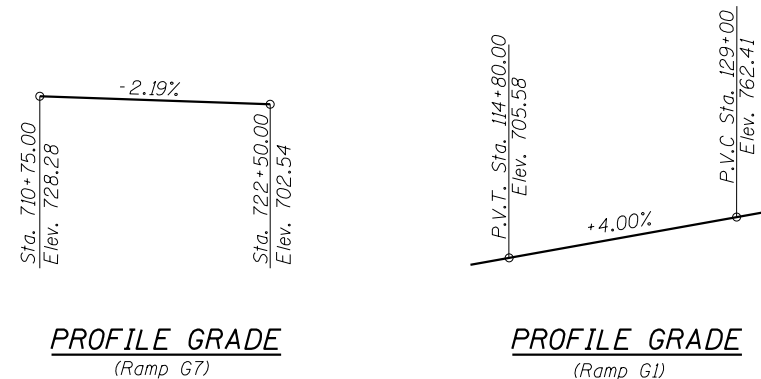
Traffic Impact per AASHTO LRFD Bridge Design Specifications

GENERAL NOTES

- The Contractor shall design and construct MSE Wall per the Special Provisions.
- Reinforcement bar bending details shall be in accordance with the latest "Manual of Standard Practice for Detailing Reinforced Concrete Structures", ACI 315, latest edition.
- Reinforcing bars designated "(E)" shall be epoxy coated.
- Reinforcement bar bending dimensions are out to out.
- Apply Protective Coat to top and traffic face of barrier and anchor slab.
- All exposed concrete edges shall have a $\frac{3}{4}$ " x 45° chamfer, except where shown otherwise. Chamfer on vertical edges shall be continued a minimum of one foot below finished ground line.
- Bars noted thus, 3x2-#5 indicates 3 lines of bars with 2 lengths of bars per line.
- No construction joints except those shown on the plans will be allowed unless otherwise approved by the Engineer.
- It shall be the Contractor's responsibility to verify the location of all utilities prior to starting construction. Contact J.U.L.I.E., 800-892-0123.
- It shall be the Contractor's responsibility to verify the location of all fiber optic utilities prior to starting construction. The Contractor shall initiate the location process for the fiber optic cable by completing a "Request Tollway Utilities Locate" form filled in online at the Tollway website under "Doing Business" at least four (4) business days prior to starting any underground operations, excavations or digging of any type in the general area of the fiber optic cable.
- Slipforming of barriers is not allowed.

INDEX OF SHEETS

- SM-01 General Plan & Elevation
- SM-02 General Data
- SM-03 Wall Sections
- SM-04 Anchorage Slab Plan & Elevation No. 1
- SM-05 Anchorage Slab Plan & Elevation No. 2
- SM-06 Anchorage Slab Plan & Elevation No. 3
- SM-07 Anchorage Slab Plan & Elevation No. 4
- SM-08 Anchorage Slab & Barrier Details No. 1
- SM-09 Anchorage Slab & Barrier Details No. 2
- SM-10 Anchorage Slab & Barrier Details No. 3
- SM-11 Soil Boring Logs No. 1
- SM-12 Soil Boring Logs No. 2
- SM-13 Soil Boring Logs No. 3



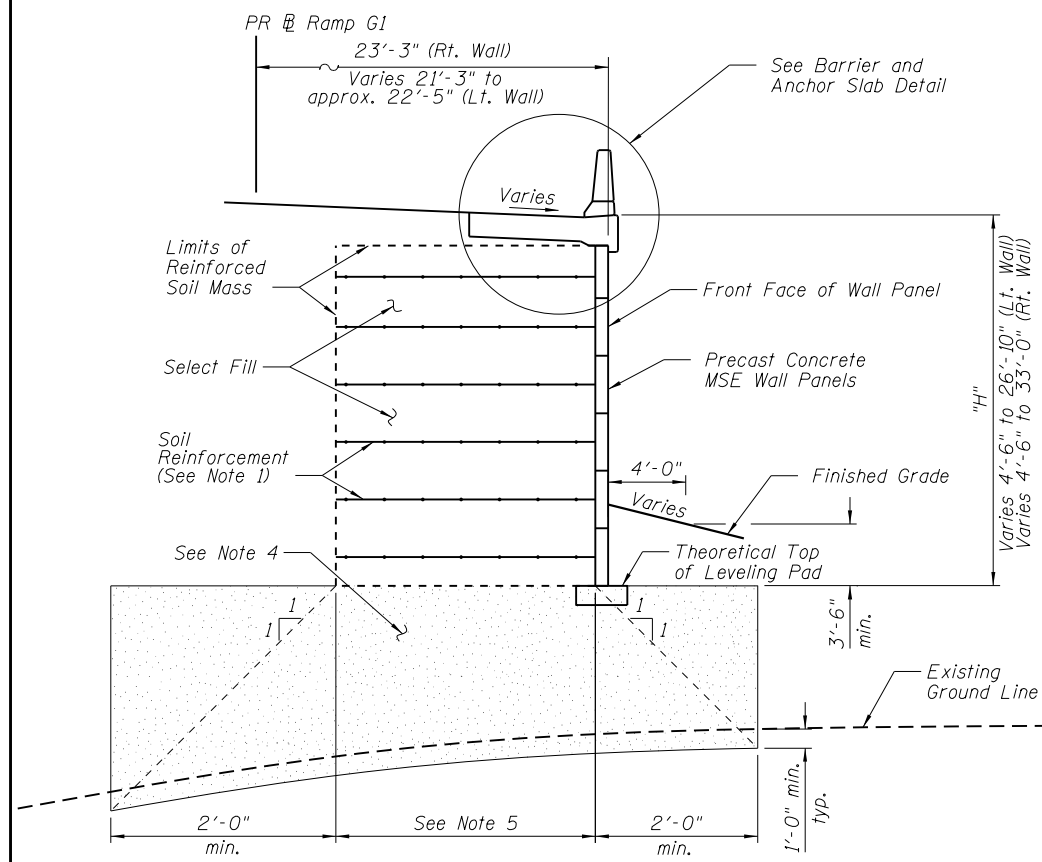
HORIZONTAL CURVE DATA

<p>Curve B1 E0 G7P-2 along PR $\frac{1}{2}$ Ramp G7</p> <p>PI Sta. = 720+83.19 Δ = 205°15'58" (RT) D = 19°05'55" R = 300.00' L = 1,074.77 S.E. = 7.5% P.C. Sta. = 715+45.80 P.T. Sta. = 726+20.58</p>	<p>Curve B1 E0 G1P-3 along PR $\frac{1}{2}$ Ramp G1</p> <p>PI Sta. = 132+00.31 Δ = 96°49'35" (LT) D = 6°46'21" R = 846.00' L = 1429.69' E = 428.57' T = 953.32' S.E. = 6.0% P.C. STA. = 122+47.00 P.T. STA. = 136+76.69</p>
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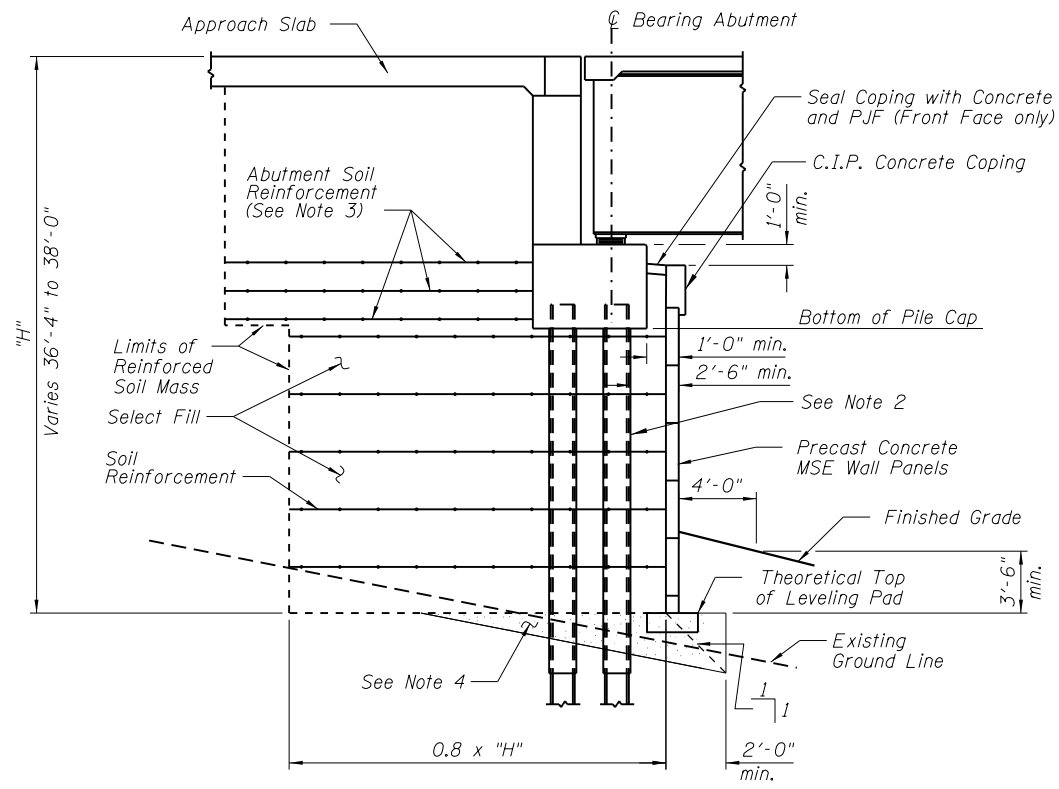
TOTAL BILL OF MATERIALS		
ITEM	UNIT	QUANTITY
Protective Coat	SQ YD	353
Structure Excavation	CU YD	17
Concrete Superstructure	CU YD	204.4
Reinforcement Bars, Epoxy Coated	POUND	34340
Name Plates	EACH	1
Granular Backfill for Structures	CU YD	3203
Mechanically Stabilized Earth Retaining Wall	SQ FT	7129

STATION 124+18
 BUILT 201_ BY
 STATE OF ILLINOIS
 F.A.I. RT. 290
 SEC. 2013-083-R&B
 STRUCTURE NO. 022-0558

NAME PLATE
 See Std. 515001



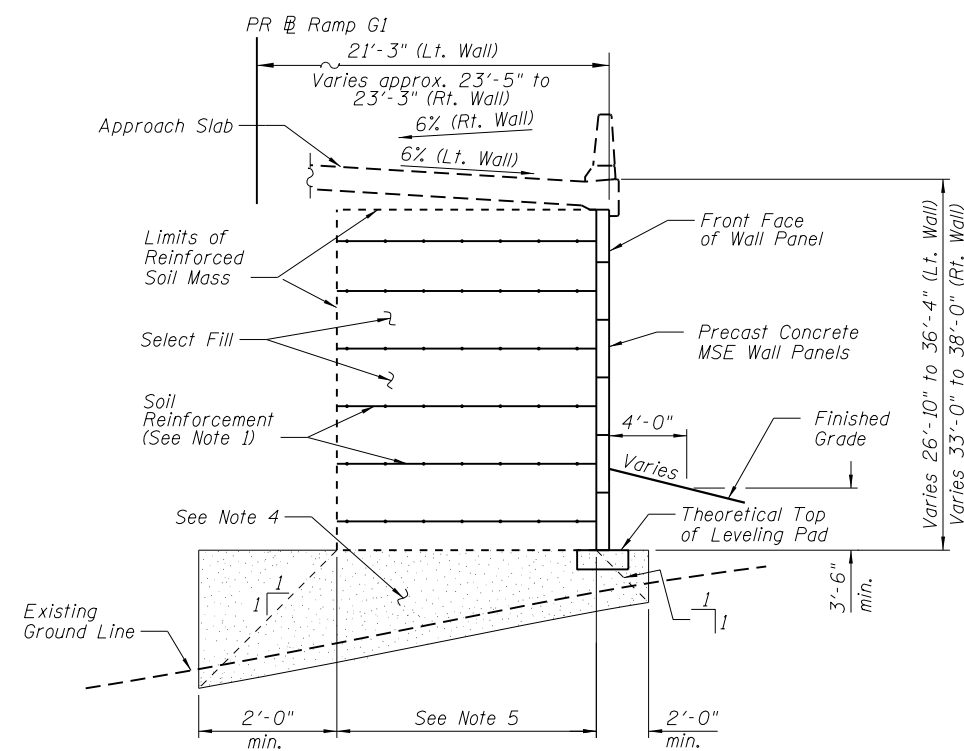
TYPICAL SECTION
(SECTION A1-A1)



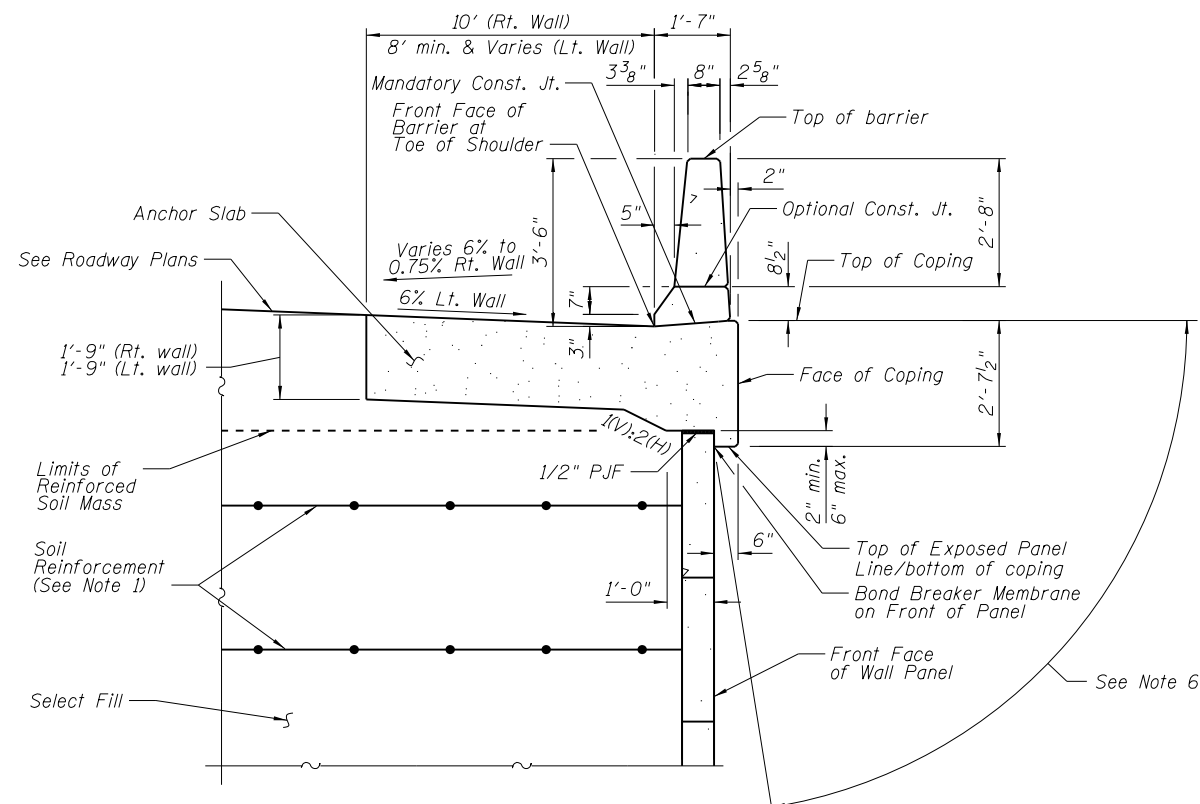
SECTION THRU ABUTMENT
(SECTION B-B, see Note 7)

Notes:

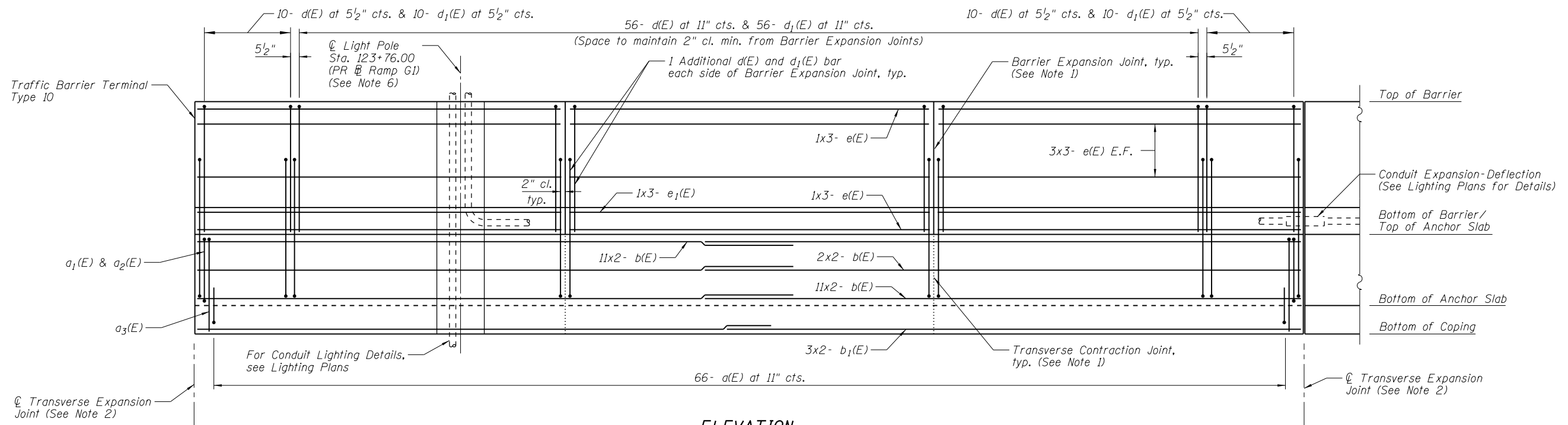
1. The MSE wall supplier's internal stability design shall account for the anchor slab's bearing pressure surcharge of 1.0 ksf and horizontal sliding force of 1.15 kips/ft. of wall.
2. Pile Sleeve (See Bridge Plans).
3. The MSE wall supplier shall design the abutment soil reinforcement to resist a horizontal force of 2.6 kips/ft. of abutment for the Service I limit state. The specified horizontal force includes abutment loads from bridge forces and active soil pressure.
4. Granular Backfill for Structures required for wall height, "H" ≥ 12'.
5. Minimum strap length shall be 0.8 x "H" at the Right Wall when "H" exceeds 33'. Elsewhere, minimum strap length shall be 0.7 X "H" but no less than 8'-0" minimum.
6. Apply concrete stain entire length of wall. See Form liner Special Provisions for requirements.
7. Sections shown where Existing Ground Line is below Leveling Pad. For locations where Existing Ground Line is above Leveling Pad, Overexcavation beyond the limits of Structure Excavation not measured for payment and backfilled with same material used for Select Fill.



TYPICAL SECTION
(SECTION A2-A2, see Note 7)



BARRIER AND ANCHOR SLAB DETAIL



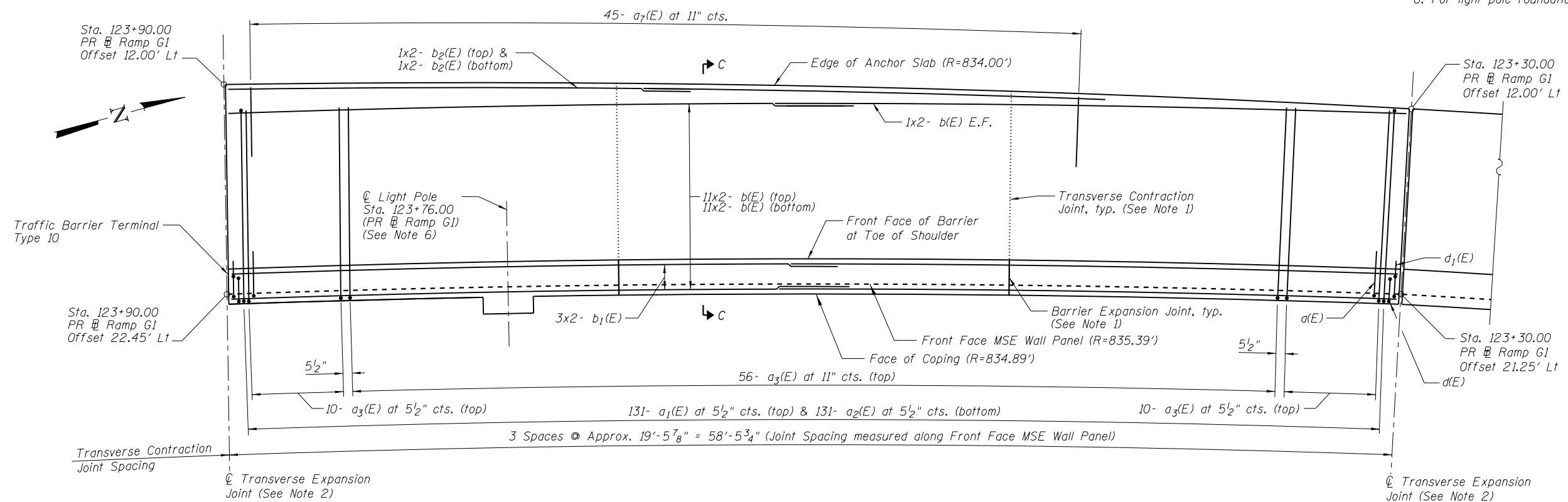
ELEVATION

Minimum Bar Lap

- #4 Bar = 2'-4"
- #5 Bar = 3'-0"
- #6 Bar = 3'-6"
- #7 Bar = 4'-8"
- #8 Bar = 6'-0"

Notes:

1. Place Transverse Contraction Joints with Barrier Expansion Joints perpendicular to Face of Coping. For details, see Drawing No. SM-09.
2. Place Transverse Expansion Joints perpendicular to Face of Coping. For details, see Drawing No. SM-09.
3. For Section C-C, see Drawing No. SM-08.
4. Bar spacing for transverse reinforcement measured along Front Face MSE Wall Panel.
5. Barrier longitudinal reinforcement not shown in Plan View for Clarity.
6. For light pole foundation details, see Drawing No. SM-10.



PLAN

FILE NAME = 0220558-60Y95-004-AnchSlabP&E1.dgn
CH2MHILL

USER NAME = asantiag
 CHECKED - JLT
 DRAWN - EJM
 CHECKED - JLT

DESIGNED - EJM
 CHECKED - JLT
 DRAWN - EJM
 CHECKED - JLT

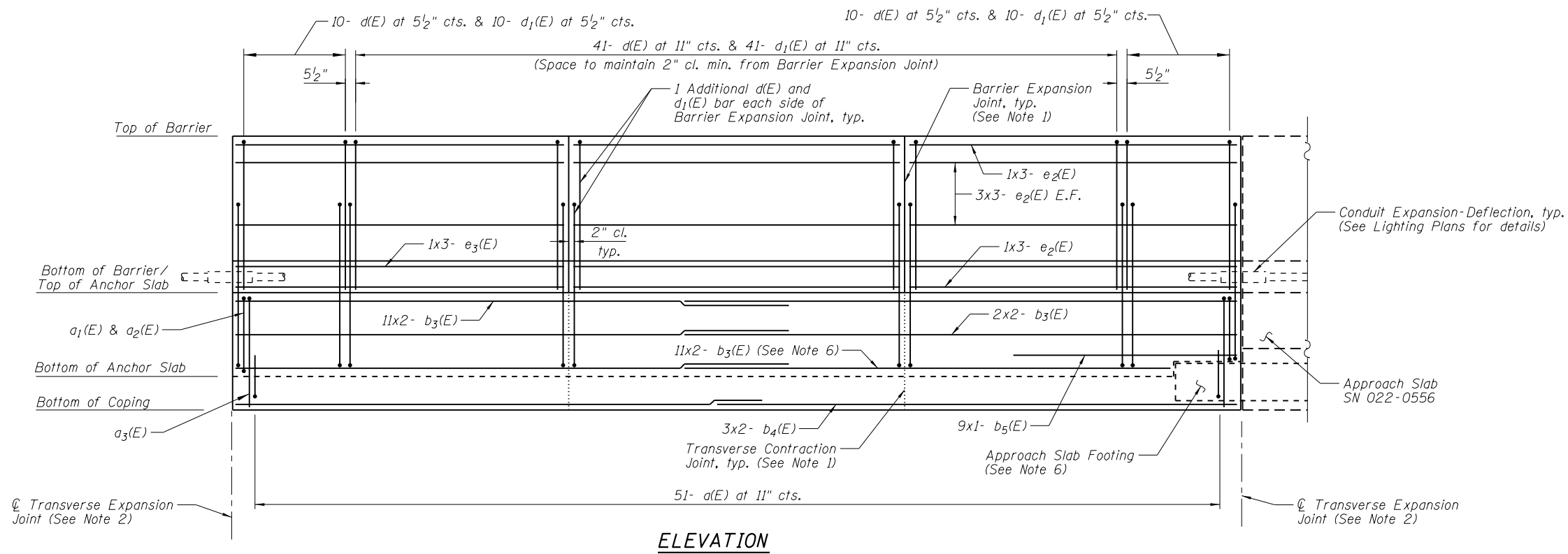
REVISED -
 REVISED -
 REVISED -
 REVISED -

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**ANCHORAGE SLAB PLAN & ELEVATION No.1
 STRUCTURE NO. 022-0558**

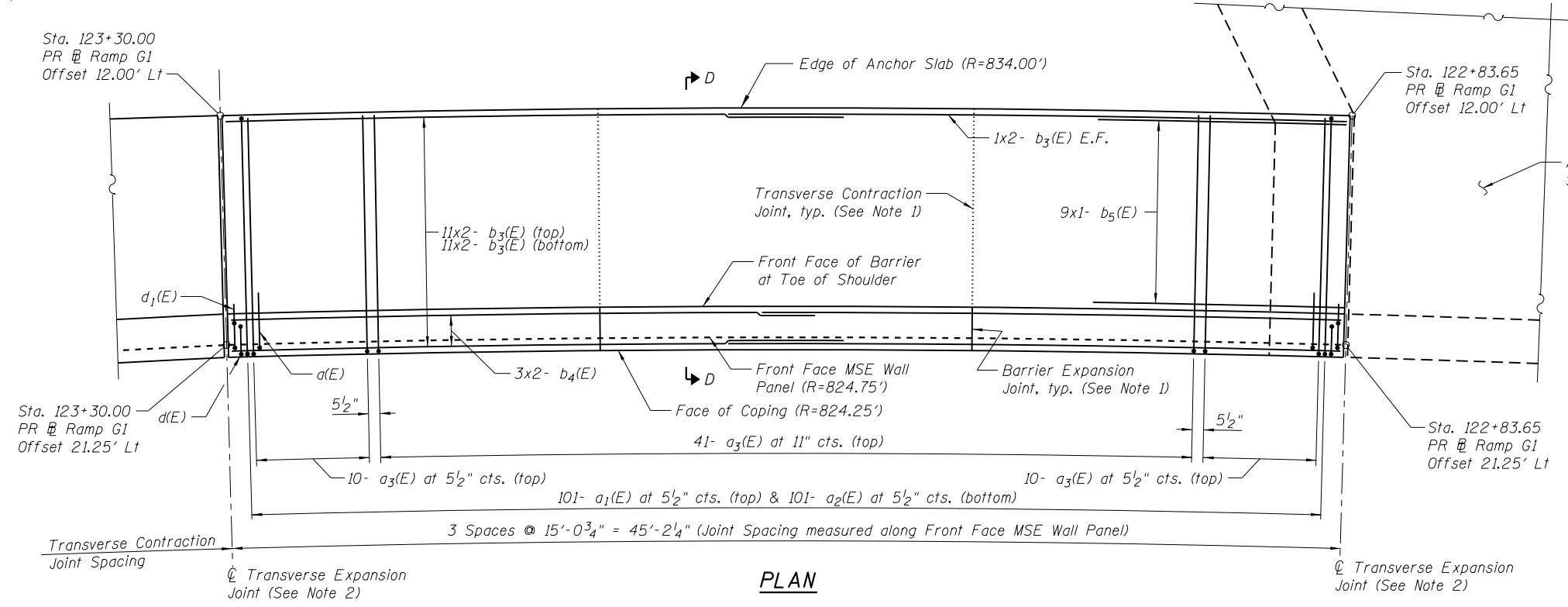
SHEET NO. 04 OF 13 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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DRAWING NO. SM-04			CONTRACT NO. 60Y95	
ILLINOIS FED. AID PROJECT				

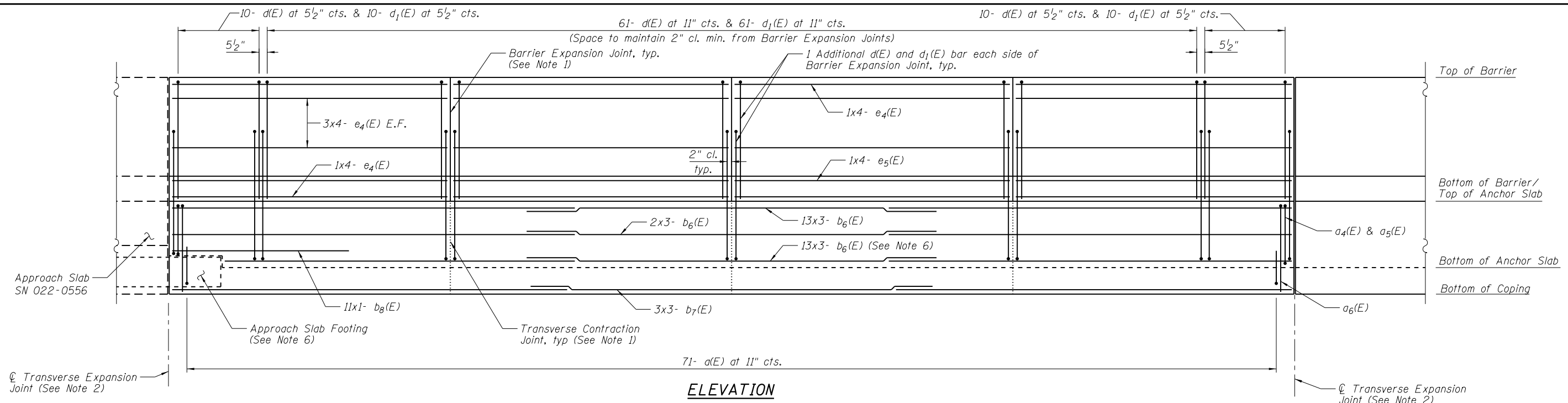


Minimum Bar Lap

#4 Bar	= 2'-4"
#5 Bar	= 3'-0"
#6 Bar	= 3'-6"
#7 Bar	= 4'-8"
#8 Bar	= 6'-0"



- Notes:**
1. Place Transverse Contraction Joints with Barrier Expansion Joints perpendicular to Face of Coping. For details, see Drawing No. SM-09.
 2. Place Transverse Expansion Joints perpendicular to Face of Coping. For details, see Drawing No. SM-09.
 3. For Section D-D, see Drawing No. SM-08.
 4. Bar spacing for transverse reinforcement measured along Front Face MSE Wall Panel.
 5. Barrier longitudinal reinforcement not shown in Plan View for Clarity.
 6. For details of Anchor Slab at Approach Slab Footing, see Drawing No. SM-09.



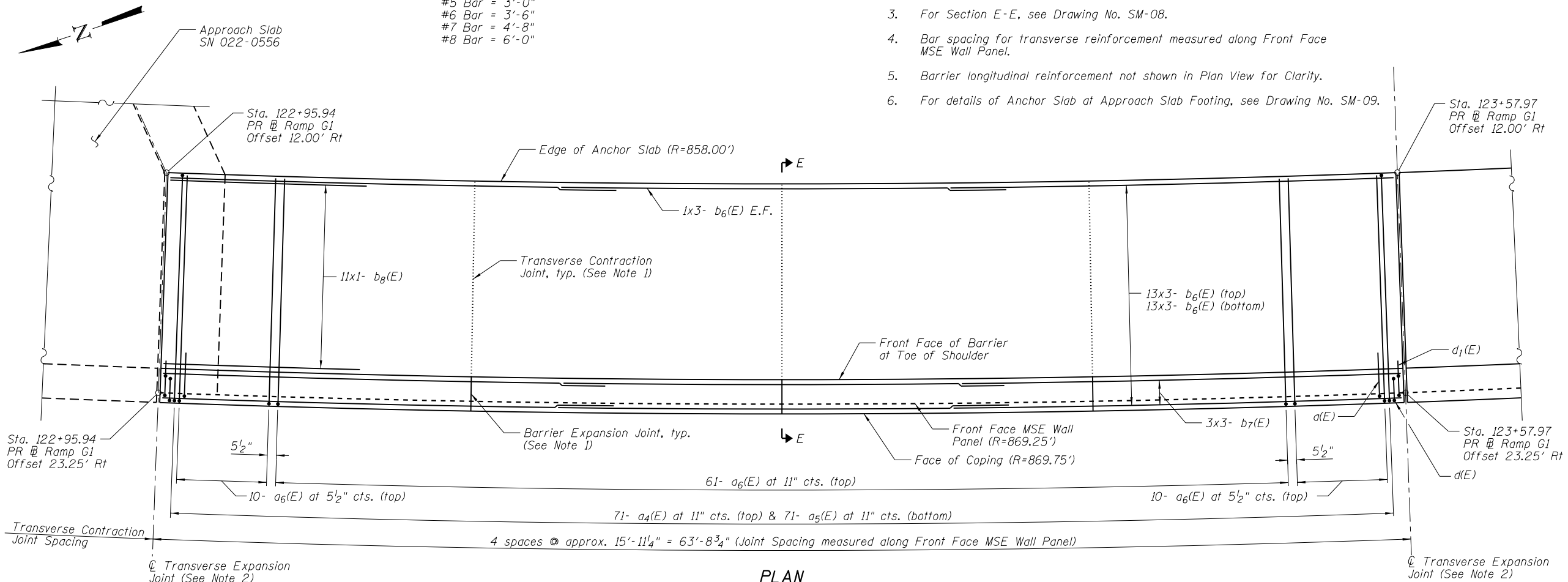
ELEVATION

Notes:

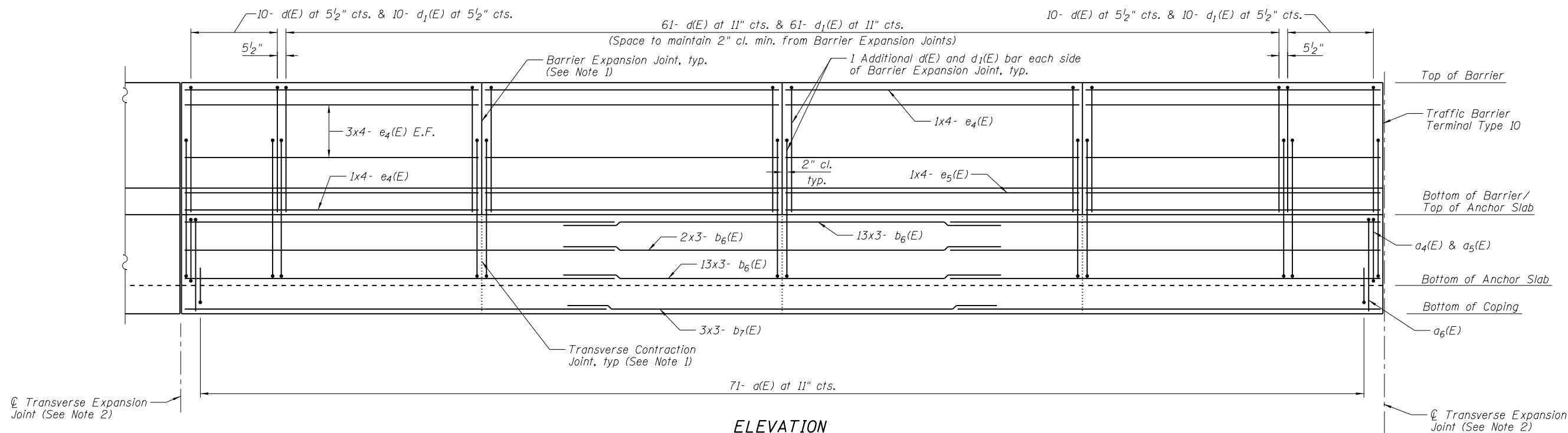
1. Place Transverse Contraction Joints with Barrier Expansion Joints perpendicular to Face of Coping. For details, see Drawing No. SM-09.
2. Place Transverse Expansion Joints perpendicular to Face of Coping. For details, see Drawing No. SM-09.
3. For Section E-E, see Drawing No. SM-08.
4. Bar spacing for transverse reinforcement measured along Front Face MSE Wall Panel.
5. Barrier longitudinal reinforcement not shown in Plan View for Clarity.
6. For details of Anchor Slab at Approach Slab Footing, see Drawing No. SM-09.

Minimum Bar Lap

- #4 Bar = 2'-4"
- #5 Bar = 3'-0"
- #6 Bar = 3'-6"
- #7 Bar = 4'-8"
- #8 Bar = 6'-0"



PLAN



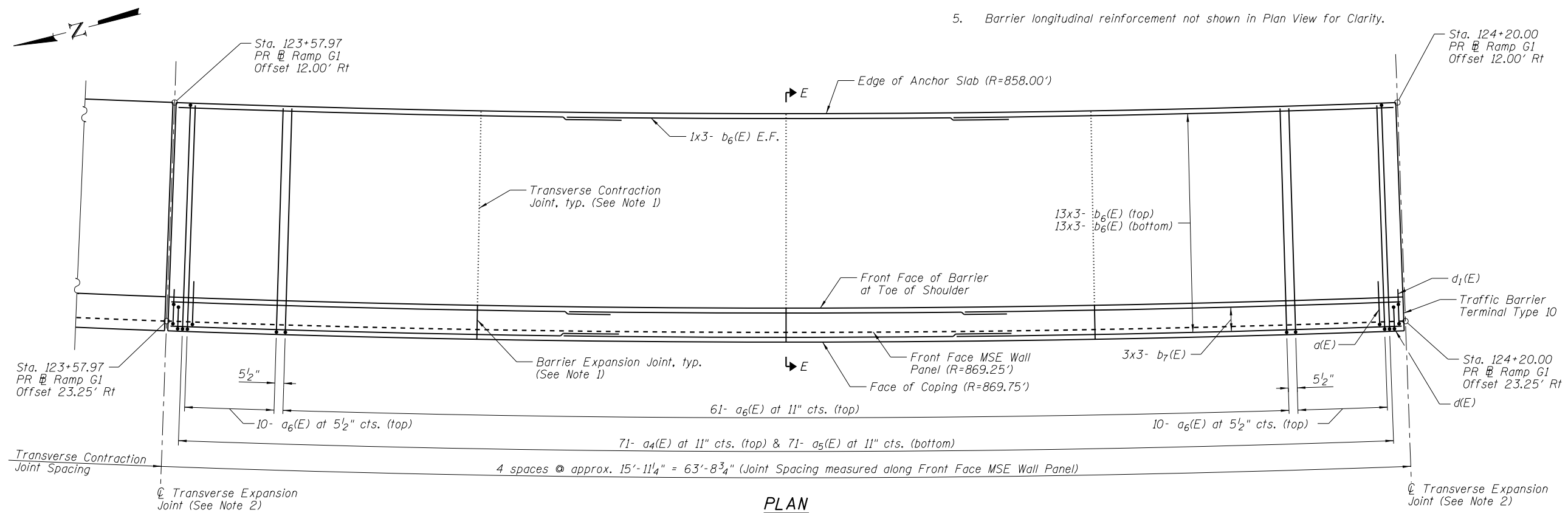
ELEVATION

Minimum Bar Lap

- #4 Bar = 2'-4"
- #5 Bar = 3'-0"
- #6 Bar = 3'-6"
- #7 Bar = 4'-8"
- #8 Bar = 6'-0"

Notes:

1. Place Transverse Contraction Joints with Barrier Expansion Joints perpendicular to Face of Coping. For details, see Drawing No. SM-09.
2. Place Transverse Expansion Joints perpendicular to Face of Coping. For details, see Drawing No. SM-09.
3. For Section E-E, see Drawing No. SM-08.
4. Bar spacing for transverse reinforcement measured along Front Face MSE Wall Panel.
5. Barrier longitudinal reinforcement not shown in Plan View for Clarity.



PLAN

FILE NAME = 0220558-60Y95-007-AnchSlabP&E4.dgn
CH2MHILL

USER NAME = asantiag
 DESIGNED - EJM
 CHECKED - JLT
 DRAWN - EJM
 CHECKED - JLT
 PLOT SCALE = 6.0000' / in.
 PLOT DATE = 10/28/2014

DESIGNED - EJM
 CHECKED - JLT
 DRAWN - EJM
 CHECKED - JLT

REVISED -
 REVISED -
 REVISED -
 REVISED -

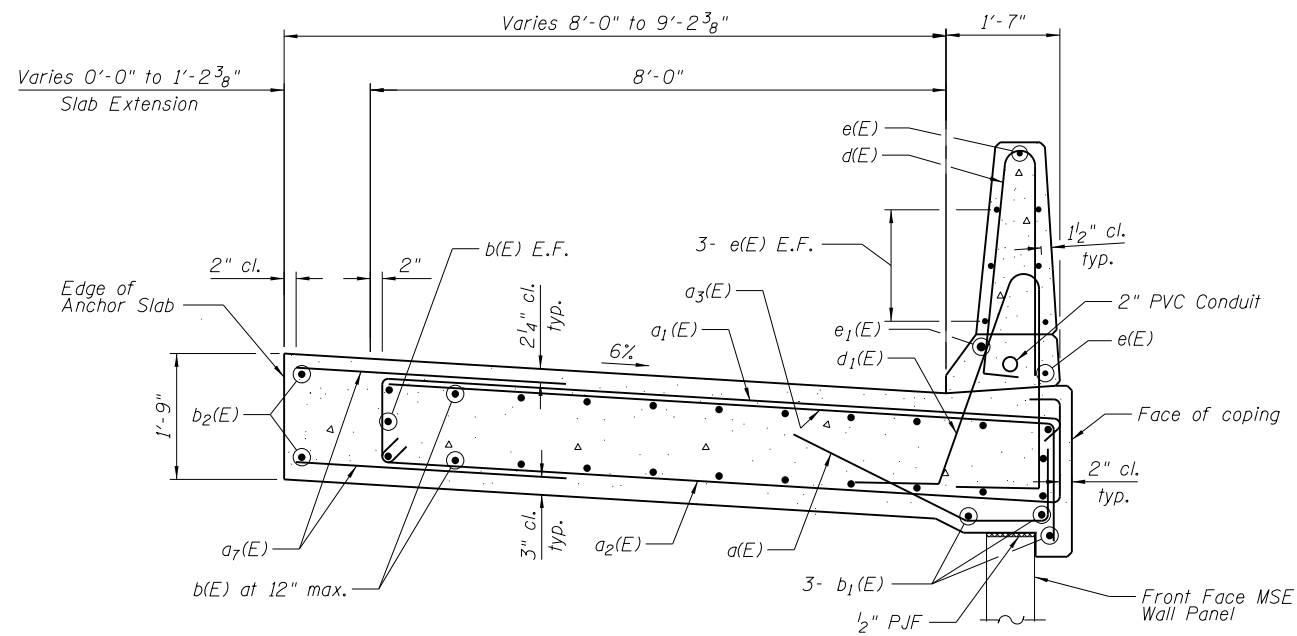
**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**ANCHORAGE SLAB PLAN & ELEVATION No. 4
 STRUCTURE NO. 022-0558**

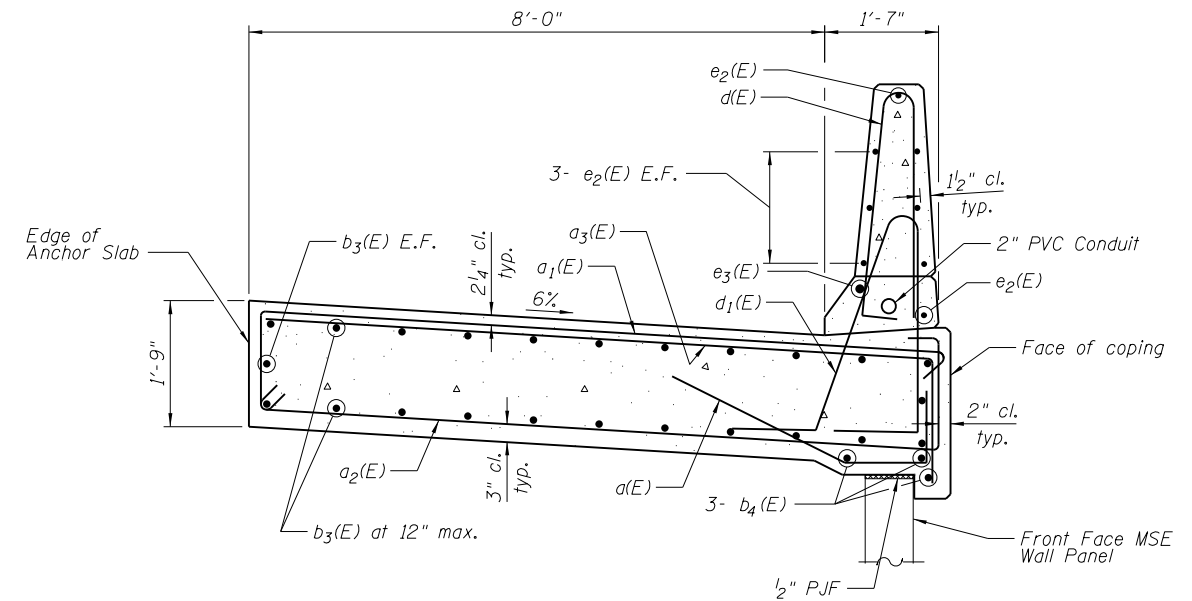
SHEET NO. 07 OF 13 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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DRAWING NO. SM-07			CONTRACT NO. 60Y95	

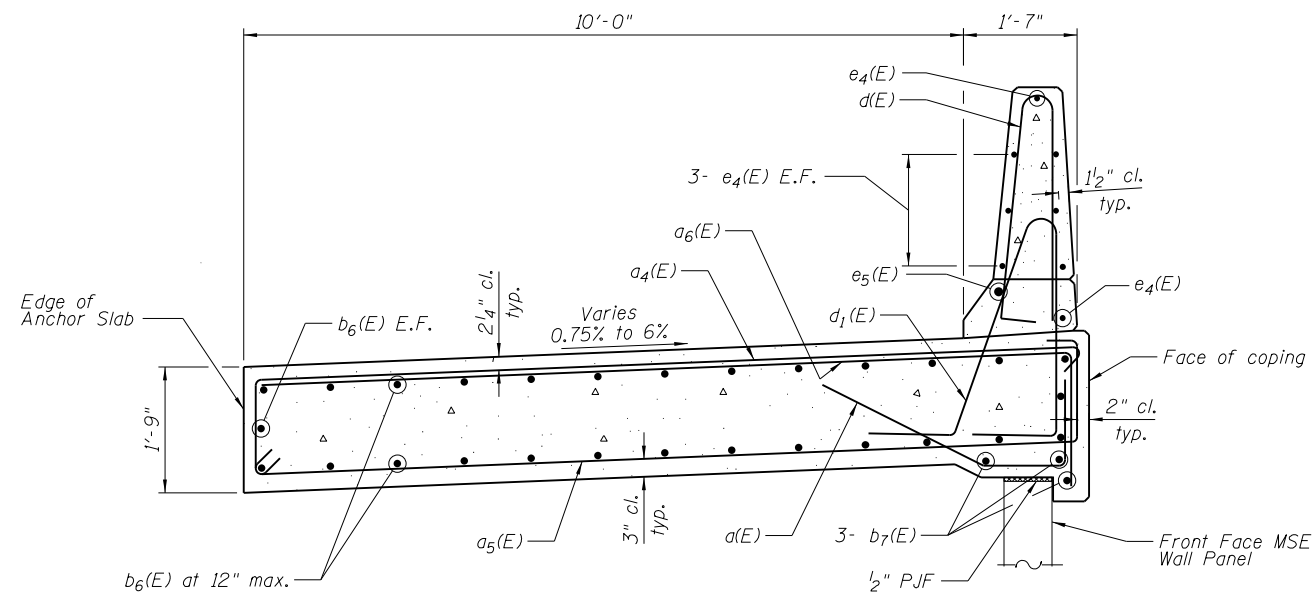
ILLINOIS FED. AID PROJECT



SECTION C-C



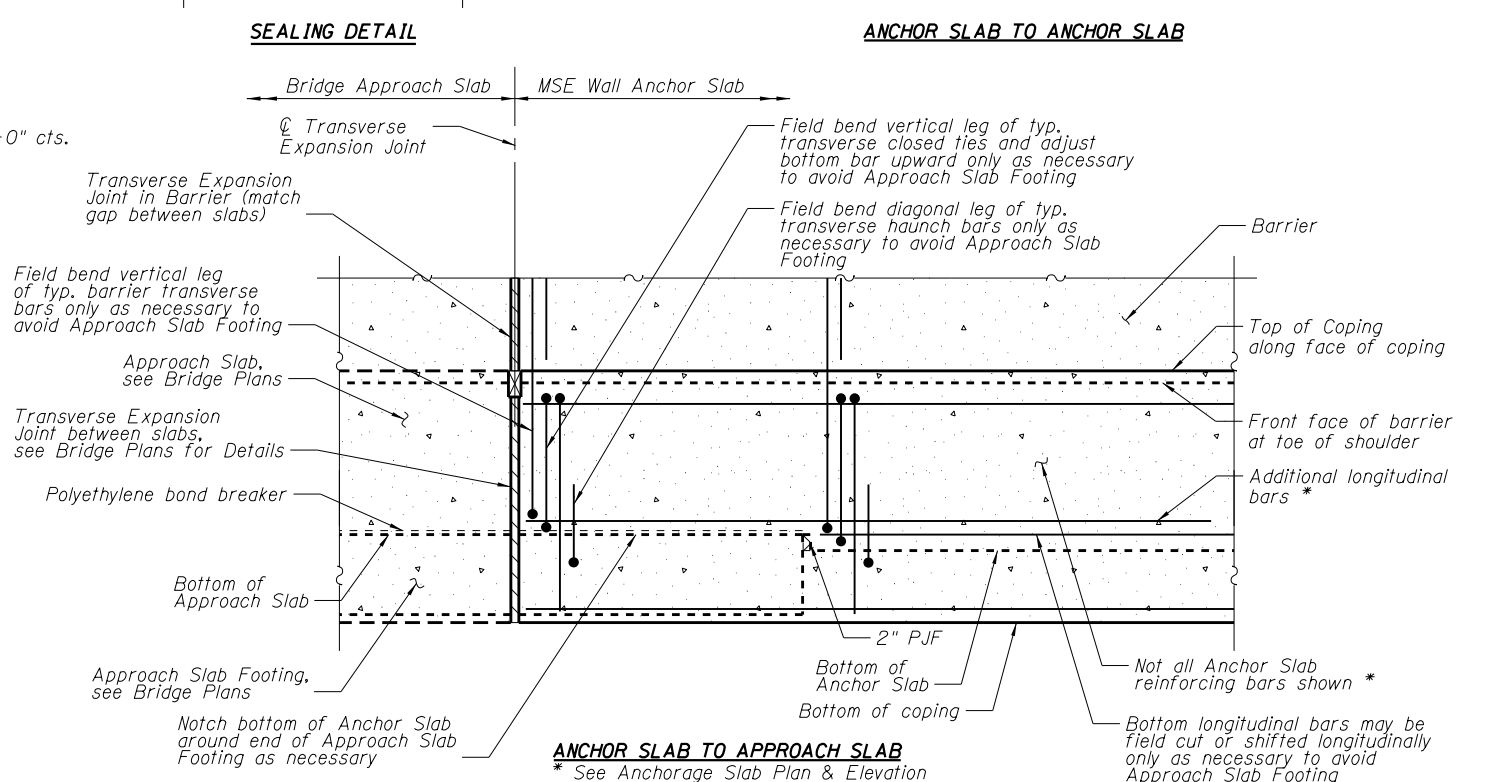
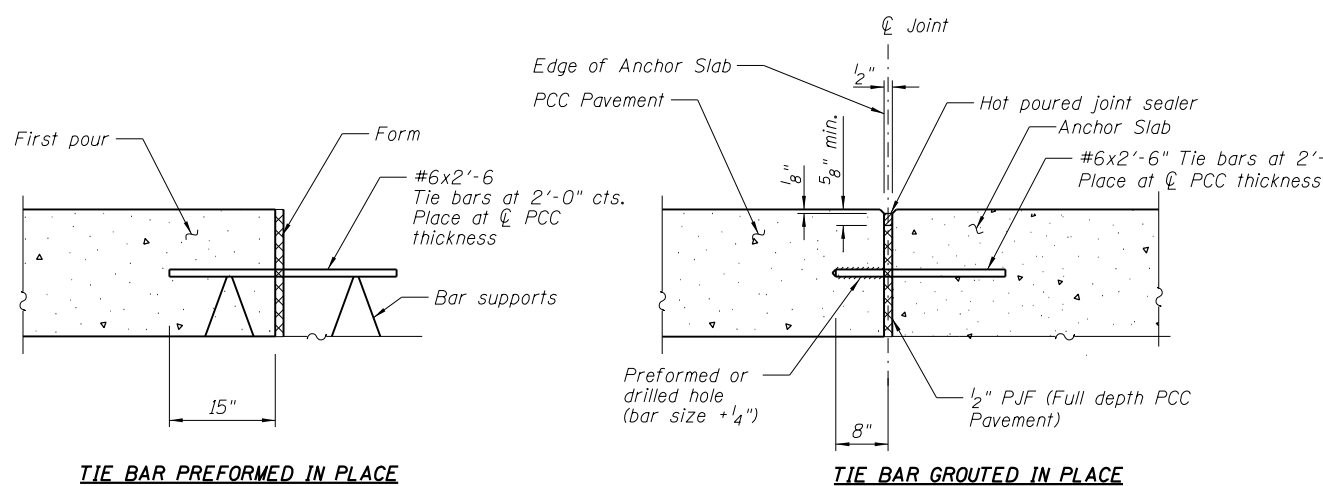
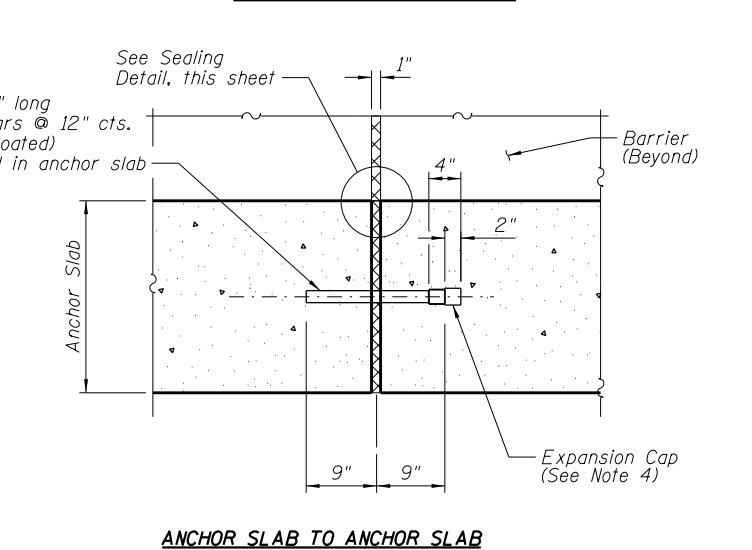
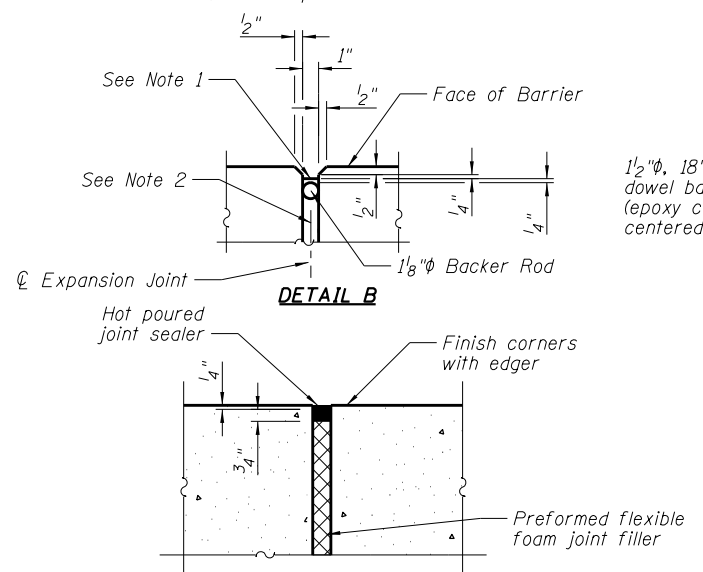
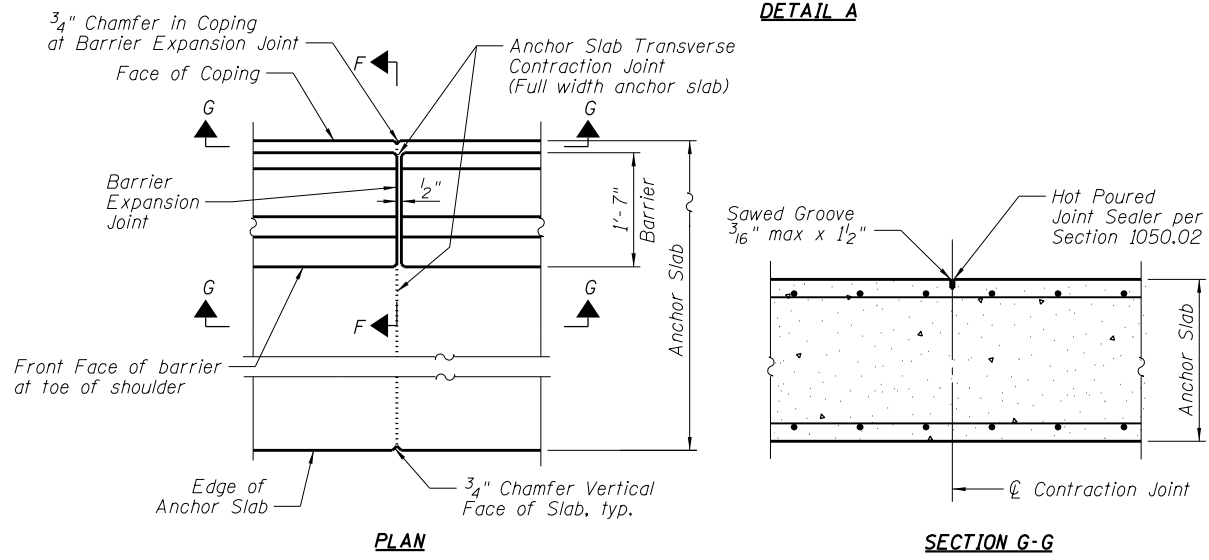
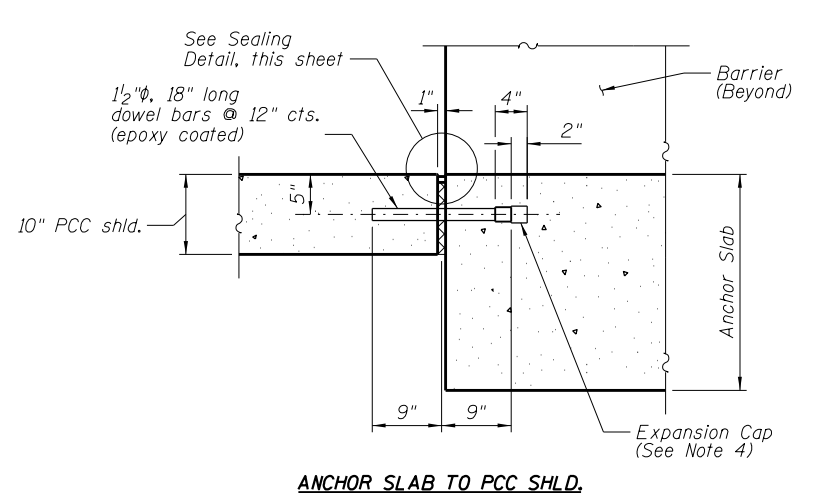
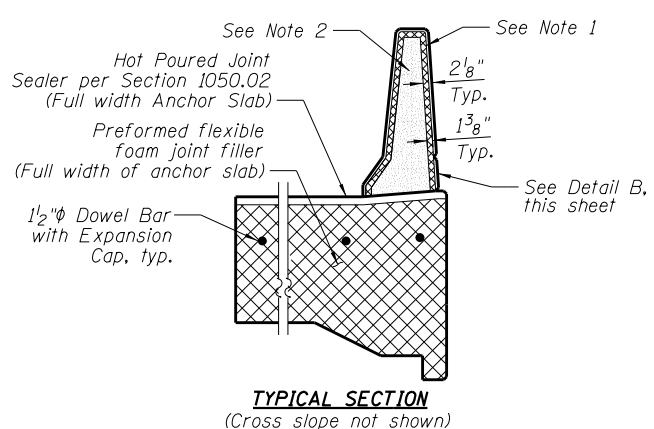
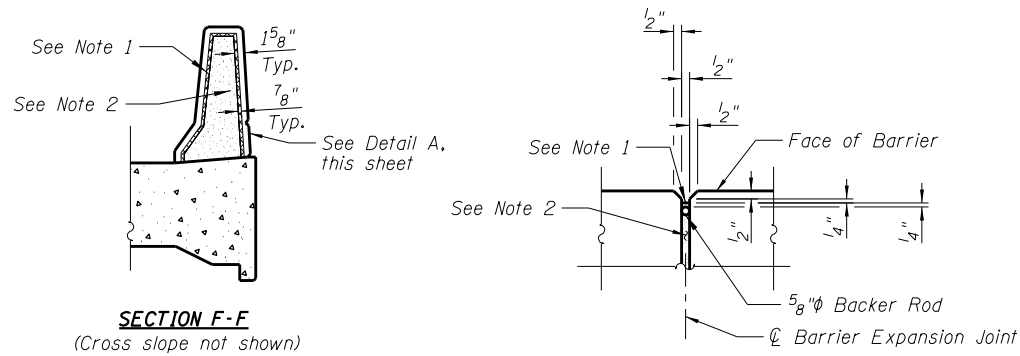
SECTION D-D



SECTION E-E

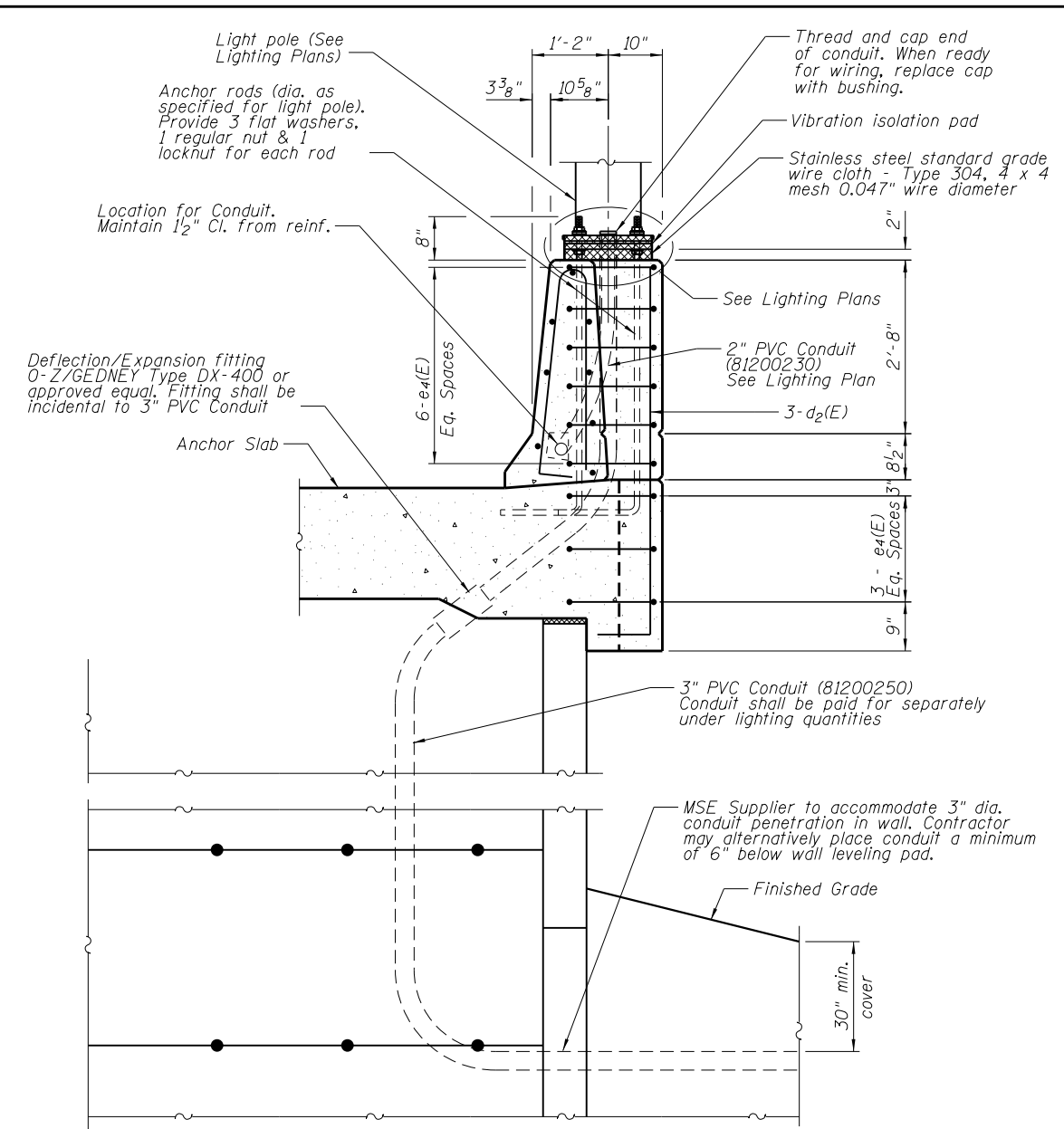
Notes:

1. For anchor slab details not provided, see Anchorage Slab Plan and Elevation sheets.
2. For locations of Section C-C, Section D-D, and Section E-E, see Anchorage Slab Plan and Elevation sheets.
3. For Anchorage Slab Bill of Materials and Bar Details, see Drawing No. SM-10.
4. For Anchor Slab dimensions not shown, see Barrier and Anchor Slab Detail on Drawing No. SM-03.
5. Cost of P.J.F. included in Concrete Superstructure.

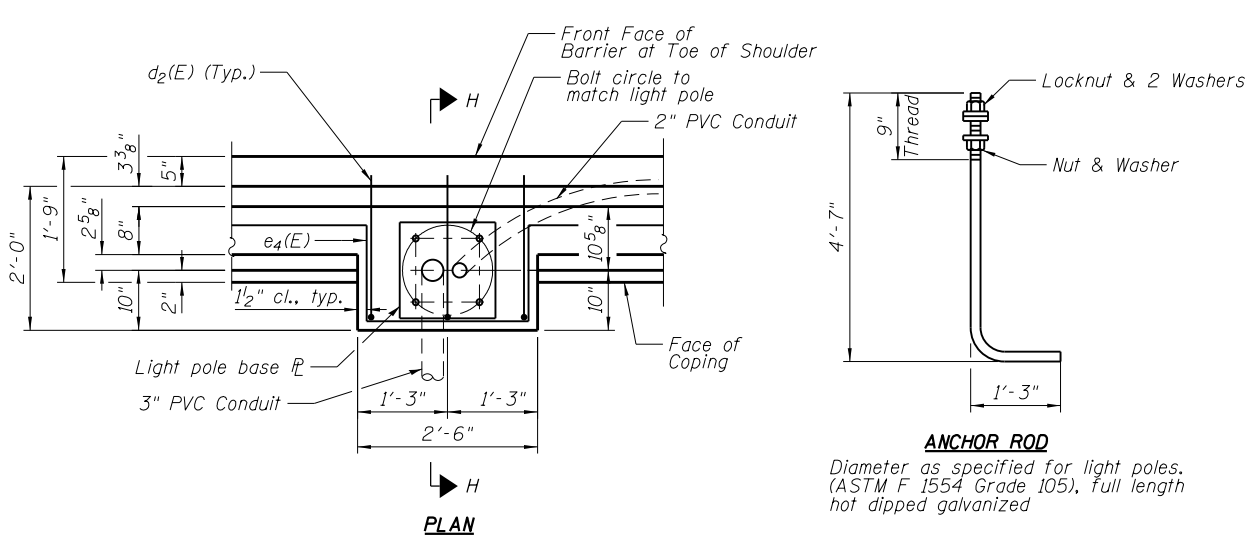


- Notes:**
- Non-staining gray one component non-sag elastomeric gun grade polyurethane sealant meeting the requirements of ASTM C-920, Type S, Grade NS, Class 25, use T with a backer rod.
 - Preformed Self-Expanding Cork Joint Filler according to Article 1051.07 of Std. Spec.
 - Dowel bars and tie bars are not included in Bill of Materials. Cost included in Concrete Superstructure.
 - Expansion caps shall be installed on the exposed end of each dowel bar once the header has been removed and the joint filler material has been installed.

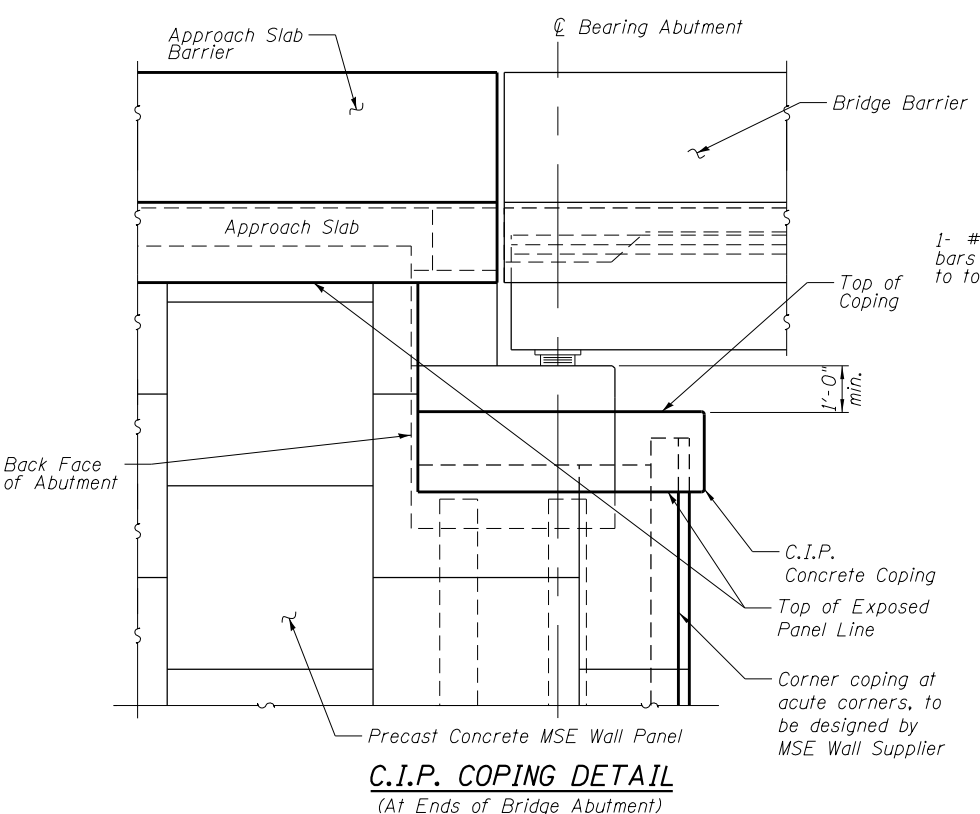
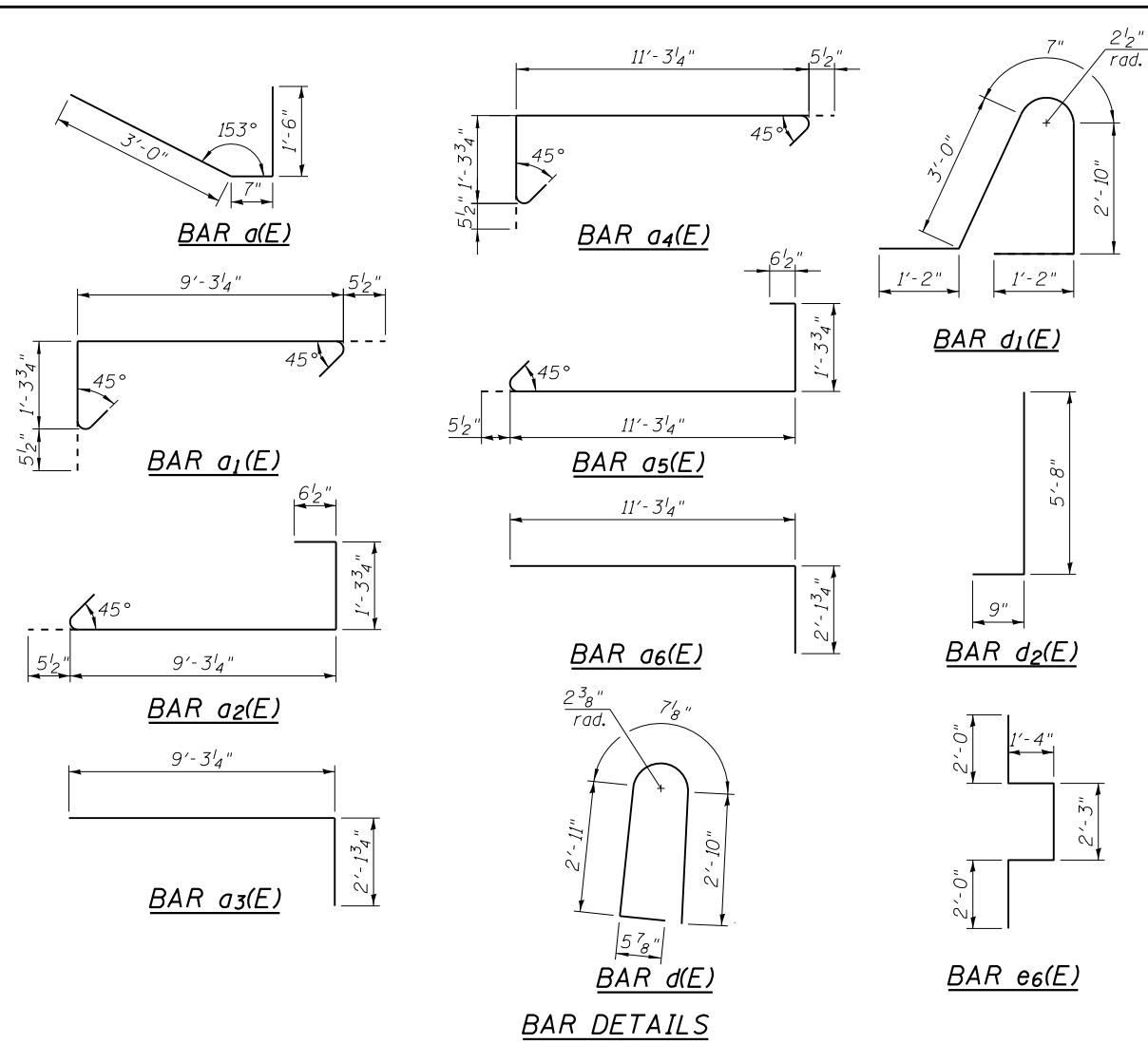
ANCHOR SLAB TO APPROACH SLAB
 * See Anchorage Slab Plan & Elevation sheets for reinforcing details not shown.
TRANSVERSE EXPANSION JOINT



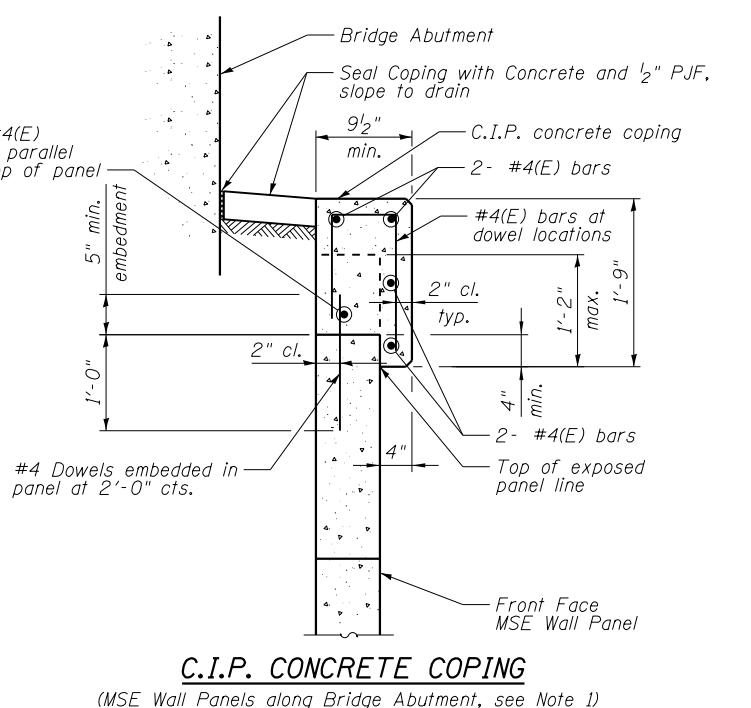
SECTION H-H



LIGHT POLE FOUNDATION



C.I.P. COPING DETAIL
(At Ends of Bridge Abutment)



ANCHOR SLAB BILL OF MATERIAL				
BAR	No.	SIZE	LENGTH	SHAPE
a(E)	259	4	5'-1"	
a ₁ (E)	232	5	11'-6"	
a ₂ (E)	232	5	11'-7"	
a ₃ (E)	137	5	11'-5"	
a ₄ (E)	142	5	13'-6"	
a ₅ (E)	142	5	13'-7"	
a ₆ (E)	162	5	13'-5"	
a ₇ (E)	90	5	4'-2"	
b(E)	48	7	31'-9"	
b ₁ (E)	6	4	30'-7"	
b ₂ (E)	4	5	23'-0"	
b ₃ (E)	48	7	25'-0"	
b ₄ (E)	6	4	23'-10"	
b ₅ (E)	9	7	10'-0"	
b ₆ (E)	168	6	23'-6"	
b ₇ (E)	18	4	22'-9"	
b ₈ (E)	11	6	10'-0"	
d(E)	319	5	6'-10"	
d ₁ (E)	319	5	8'-9"	
d ₂ (E)	3	6	6'-5"	
e(E)	24	4	19'-1"	
e ₁ (E)	3	8	19'-1"	
e ₂ (E)	24	4	14'-8"	
e ₃ (E)	3	8	14'-8"	
e ₄ (E)	64	4	15'-6"	
e ₅ (E)	8	8	15'-6"	
e ₆ (E)	9	6	8'-11"	
DESCRIPTION	UNIT	QUANTITY		
Concrete Superstructure	CU YD	204.4		
Reinforcement Bars, Epoxy Coated	POUND	34340		
Protective Coat	SQ YD	353		

- Notes:**
- Reinforcing bars in C.I.P. coping (except anchor slab coping) to be designed by MSE Wall Supplier and not included in Bill of Materials. Cost included in Mechanically Stabilized Earth Retaining Wall.
 - For lighting layout, quantities, and payment, see Lighting Plans.
 - Cost of anchor rods included in Concrete Superstructure.

SOIL BORING LOG

CONTRACT I-11-4031 DESCRIPTION Retaining Wall R-223, Ramp G1 LOGGED BY E. Slusser

ROUTE Elgin O'Hare (IL 390) SECTION _____ LOCATION NW 1/4 SEC. 6 TWP. 40N RNG. 11E PM. 3"

COUNTY DuPage DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. _____	D E P T H S T R I C T U R E N O. <u>R-223-RWB-01</u>	B L O W S Q u	U C S Q u	M O I S T T	Surface Water Elev. _____ ft	D E P T H S T R I C T U R E N O. <u>R-223-RWB-01</u>	B L O W S Q u	U C S Q u	M O I S T T
Station <u>125+95.00 to 127+25.00</u>					Stream Bed Elev. _____ ft				
Station <u>121+86.81</u>					Groundwater Elev.: _____				
Offset <u>23.7 ft RT.</u>					First Encounter <u>695.4</u> ft				
Northing <u>1,938,375.03</u>					Upon Completion <u>696.4</u> ft				
Easting <u>1,068,030.55</u>					After <u>24</u> Hrs. <u>698.2</u> ft				
Ground Surface Elev. <u>699.4</u> ft	(ft) (/6") (tsf) (%)	(ft) (/6") (tsf) (%)							

TOPSOIL	699.4				Stiff to Hard, Gray CLAY(continued)				
Very Stiff, Brown and Gray SILTY CLAY		4				2			
trace - gravel		5	2.7	20		3	1.8	23	
		6	B			5	B		
	696.4								
Loose to Medium Dense, Gray Fine to Coarse SAND		3				3			
trace to little - gravel		3		16		5	2.7	16	
		4				7	B		
		-5				-25			
		2				5			
		3		16		7	3.3	17	
		3				9	B		
		11				5			
		14		15		10	2.1	17	
		14				12	B		
		-10				-30			
	688.9								
Medium Dense, Gray SANDY LOAM		10				10			
little - gravel		9		13		10	2.3	15	
		9				10	B		
	686.4								
Medium Dense, Gray Fine to Coarse SAND		3				5			
trace - gravel		5		16		7	2.9	23	
		5				7	B		
		-15				-35			
	683.9								
Stiff to Hard, Gray CLAY		5				3			
		5	2.6	23		4	2.6	24	
		6	B			6	B		
		5				4			
		6	2.1	23		4	2.9	17	
		7	B			6	B		
		-20				-40			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

SOIL BORING LOG

CONTRACT I-11-4031 DESCRIPTION Retaining Wall R-223, Ramp G1 LOGGED BY E. Slusser

ROUTE Elgin O'Hare (IL 390) SECTION _____ LOCATION NW 1/4 SEC. 6 TWP. 40N RNG. 11E PM. 3"

COUNTY DuPage DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. _____	D E P T H S T R I C T U R E N O. <u>R-223-RWB-01</u>	B L O W S Q u	U C S Q u	M O I S T T	Surface Water Elev. _____ ft	D E P T H S T R I C T U R E N O. <u>R-223-RWB-01</u>	B L O W S Q u	U C S Q u	M O I S T T
Station <u>125+95.00 to 127+25.00</u>					Stream Bed Elev. _____ ft				
Station <u>121+86.81</u>					Groundwater Elev.: _____				
Offset <u>23.7 ft RT.</u>					First Encounter <u>695.4</u> ft				
Northing <u>1,938,375.03</u>					Upon Completion <u>696.4</u> ft				
Easting <u>1,068,030.55</u>					After <u>24</u> Hrs. <u>698.2</u> ft				
Ground Surface Elev. <u>699.4</u> ft	(ft) (/6") (tsf) (%)	(ft) (/6") (tsf) (%)							

					Stiff to Hard, Gray CLAY(continued)				
		8							
		13	4.1	23					
		19	B						
	656.4								
Very Stiff, Gray CLAY LOAM		12							
trace - gravel		13	2.9	13					
		13	B						
		-45							
		8							
		16	3.1	11					
		27	B						
	651.4								
Hard, Gray CLAY		10							
trace - gravel		17	4.3	16					
		29	B						
		-50							
		9							
		15	4.1	16					
		22	B						
	646.4								
Medium Dense, Gray LOAM		5							
little - gravel		7		13					
		9							
		-55							
	643.9								
Medium Dense to Dense, Gray SANDY LOAM		7							
little - gravel		15		10					
		17							
		10							
		8		11					
		10							
		-60							
END OF BORING	639.4								

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

Note: The soil boring logs represent point information. Presentation of this information in no way implies that subsurface conditions are the same at locations other than the exact location of the boring.

SOIL BORING LOG

Date 3/28/13

CONTRACT 1-11-4031 DESCRIPTION Bridge B-34, Ramp G1 over Ramp G7 LOGGED BY J. Frederick

ROUTE Elgin O'Hare (IL 390) SECTION LOCATION NW 1/4 SEC. 6 TWP. 40N RNG. 11E PM. 3"

COUNTY DuPage DRILLING METHOD Solid Stem Auger / Mud Rotary below 10 feet HAMMER TYPE Automatic

STRUCT. NO. 1628
 Station 122+08.80
 BORING NO. B-34-BSB-02
 Station 122+97.93
 Offset 24.8 ft LT.
 Northing 1,938,347.23
 Easting 1,068,072.01
 Ground Surface Elev. 709.5 ft

DEPTH (ft)	LOW (ft)	UCS (tsf)	MOIST (%)	Surface Water Elev. ft	DEPTH (ft)	LOW (ft)	UCS (tsf)	MOIST (%)
708.5					688.5			
	4					4		
	6	5.2	15			6	5.0	18
	9	B				10	B	
706.5								
	3					6		
	4	4.0	20			6	3.9	18
	7	P				10	B	
	-5					-25		
703.0								
	7					3		
	7	3.2	20			5	2.1	22
	7	B				7	B	
	4					4		
	5	3.9	18			5	2.0	20
	6	B				7	B	
	-10					-30		
	4					4		
	8	4.1	20			5	2.2	20
	11	B				8	B	
	6					5		
	8	4.5	20			7	3.1	20
	11	B				9	B	
	-15					-35		
	3					4		
	8	2.1	13			5	2.2	15
	7	B				7	B	
	4					5		
	5	2.5	18			6	2.5	16
	8	B				7	B	
	-20					-40		

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

SOIL BORING LOG

Date 3/28/13

CONTRACT 1-11-4031 DESCRIPTION Bridge B-34, Ramp G1 over Ramp G7 LOGGED BY J. Frederick

ROUTE Elgin O'Hare (IL 390) SECTION LOCATION NW 1/4 SEC. 6 TWP. 40N RNG. 11E PM. 3"

COUNTY DuPage DRILLING METHOD Solid Stem Auger / Mud Rotary below 10 feet HAMMER TYPE Automatic

STRUCT. NO. 1628
 Station 122+08.80
 BORING NO. B-34-BSB-02
 Station 122+97.93
 Offset 24.8 ft LT.
 Northing 1,938,347.23
 Easting 1,068,072.01
 Ground Surface Elev. 709.5 ft

DEPTH (ft)	LOW (ft)	UCS (tsf)	MOIST (%)	Surface Water Elev. ft	DEPTH (ft)	LOW (ft)	UCS (tsf)	MOIST (%)
					649.0			
	5					6		
	8	3.5	17			10	5.0	16
	9	B				16	B	
666.5								
	5					6		
	8					10	4.5	19
	12					14	B	
	-45					-65		
664.0					644.0			
	10					10		
	11					12		10
	9		13			16		
	9					7		
	9					7	2.5	12
	9		16			10	B	
	-50					-70		
659.0					639.0			
	11					9		
	11	5.4	14			15		12
	14	B				12		
656.5					636.5			
	17					9		
	15		21			9	2.8	11
	16					11	B	
	-55					-75		
	17					20		
	22		16			15	3.5	10
	21					12	B	
	17					13		
	18		18			12	3.3	10
	18					10	B	
	-60					-80		

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

Note: The soil boring logs represent point information. Presentation of this information in no way implies that subsurface conditions are the same at locations other than the exact location of the boring.

SOIL BORING LOG

Page 1 of 1

Date 5/13/13

CONTRACT 1-11-4031 DESCRIPTION Overhead Sign Structures LOGGED BY E. Slusser

ROUTE Elgin-O'Hare (IL 390) SECTION _____ LOCATION NW 1/4 SEC. 6 TWP. 40N RNG. 11E PM. 3"

COUNTY DuPage DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. _____

Station _____
 BORING NO. 4031-OSB-04
 Station 123+62.40
 Offset 18.9 ft RT.
 Northing 1,937,650.32
 Easting 1,067,289.15
 Ground Surface Elev. 711.3 ft

DEPTH (ft)
 BLOW S
 UCS Qu
 MOIST (%)

Surface Water Elev. _____ ft
 Stream Bed Elev. _____ ft
 Groundwater Elev.:
 First Encounter Dry ft
 Upon Completion Dry ft
 After 24 Hrs. Dry ft

RECYCLED ASPHALT PAVEMENT FILL	710.6	/			Very Stiff, Gray CLAY trace - gravel(continued)				
Very Stiff to Hard, Brown, Gray and Black CLAY trace - gravel		2					5		
		3	3.9	18			6	3.7	16
		6	B				7	B	
	688.8								
END OF BORING									
Grain Size LL=50, PI=23, A-7-6(23)		3							
		6	3.5	19					
		7	B						
		-5							
		3							
		4	6.4	19					
		5	B						
		3							
		4	2.5	20					
		6	B						
		-10							
		4							
		5	3.7	20					
		8	B						
FILL	698.8								
Very Stiff, Gray and Brown SILTY CLAY trace - gravel		3							
		4	2.1	22					
		5	B						
		-15							
	695.8								
Brown below 15.5 feet		3							
		5	2.9	19					
		7	B						
		-15							
	693.3								
Very Stiff, Gray CLAY trace - gravel		4							
		7	3.9	16					
		9	B						
		-20							

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

SOIL BORING LOG

Page 1 of 1

Date 5/17/13

CONTRACT 1-11-4031 DESCRIPTION Overhead Sign Structures LOGGED BY E. Slusser

ROUTE Elgin-O'Hare (IL 390) SECTION _____ LOCATION NW 1/4 SEC. 6 TWP. 40N RNG. 11E PM. 3"

COUNTY DuPage DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. _____

Station _____
 BORING NO. 4031-OSB-05
 Station 123+64.68
 Offset 32.5 ft LT.
 Northing 1,938,283.79
 Easting 1,068,059.26
 Ground Surface Elev. 710.6 ft

DEPTH (ft)
 BLOW S
 UCS Qu
 MOIST (%)

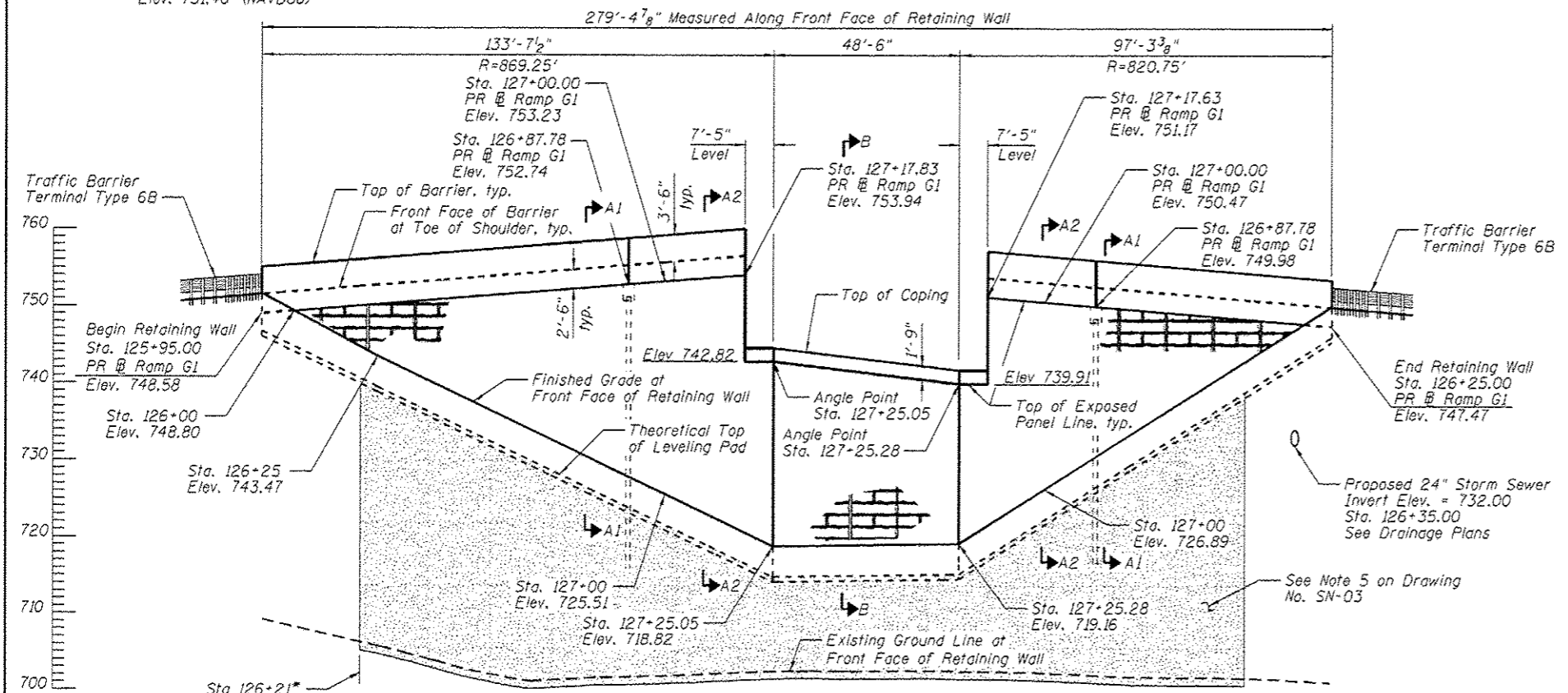
Surface Water Elev. _____ ft
 Stream Bed Elev. _____ ft
 Groundwater Elev.:
 First Encounter Dry ft
 Upon Completion Dry ft
 After _____ Hrs. _____ ft

CONCRETE PAVEMENT	709.5	/							
Medium Dense, RECYCLED ASPHALT PAVEMENT	708.8								
FILL		7		5					
Very Stiff to Hard, Brown and Gray SILTY CLAY little - gravel		12	4.5+ P	13					
	707.1								
Brown, Gray and Black below 3.5 feet		3							
		6	4.5+ P	17					
		9	B						
		-5							
		2							
		4	2.0	18					
		5	B						
		3							
		6	4.1	18					
		8	B						
		-10							
FILL	700.1								
Hard, Black SILTY CLAY trace - organics, roots		4							
		6	4.5+ B	36					
		9	B						
		-10							
	697.6								
Very Stiff, Brown, Gray and Black CLAY trace - gravel, organics		2							
		4	2.9	24					
		7	B						
		-15							
	695.1								
Brown below 15.5 feet		4							
Grain Size LL=41, PI=22, A-7-6(18)		8	3.8	19					
		9	B						
		4							
		5	2.5	19					
		8	B						
		-20							
END OF BORING									

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

Note: The soil boring logs represent point information. Presentation of this information in no way implies that subsurface conditions are the same at locations other than the exact location of the boring.

Bench Mark: BM#716 - Cut square in the Northwest end of bridge wall. Approximately 65 feet North of the centerline of Thorndale Ave. and 168 feet West of the centerline of I-290. Approximately 12 feet West of bridge deck. Elev. 731.40' (NAVD88)



ELEVATION
(Unfolded Elevation View)

* Limits may vary depending on Contractor's Retaining Wall design

Notes:

1. Wall stations and offsets are given to the front face of the wall and are measured from the baseline of Ramp G1.
2. Top of wall elevations are given to the top of exposed panel line along front face of MSE Wall Panels. Bottom of wall elevations are measured to top of finish grade along front face of MSE Wall Panels.
3. All exposed faces of MSE wall panels shall have a formliner simulated limestone surface. See special provisions for additional details.
4. Unsuitable material and ground improvement in vicinity of retaining wall not shown. See Roadway Plans for details.
5. For Section A1-A1, Section A2-A2, and Section B-B, see Drawing No. SN-03.
6. For additional notes, see Drawing No. SN-02.
7. Erect settlement platform on Baseline 5 feet behind the abutment in accordance with Article 204.06 of the Standard Specifications for Road and Bridge Construction except that the platform shall be placed at the bottom of the MSE soil mass. Payment for the Settlement Platform shall be included in the payment item for MSE walls.

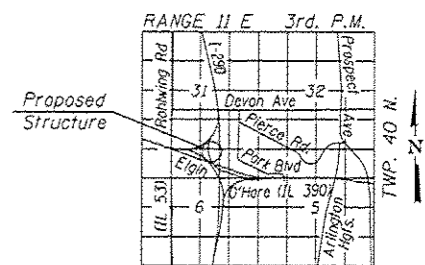
LEGEND

- Reinforced Soil Mass, Approximate Limits
- Indicates Granular Backfill for Structures
- MSE Wall Panels (See Note 3)
- Soil Borings
- Settlement Platform

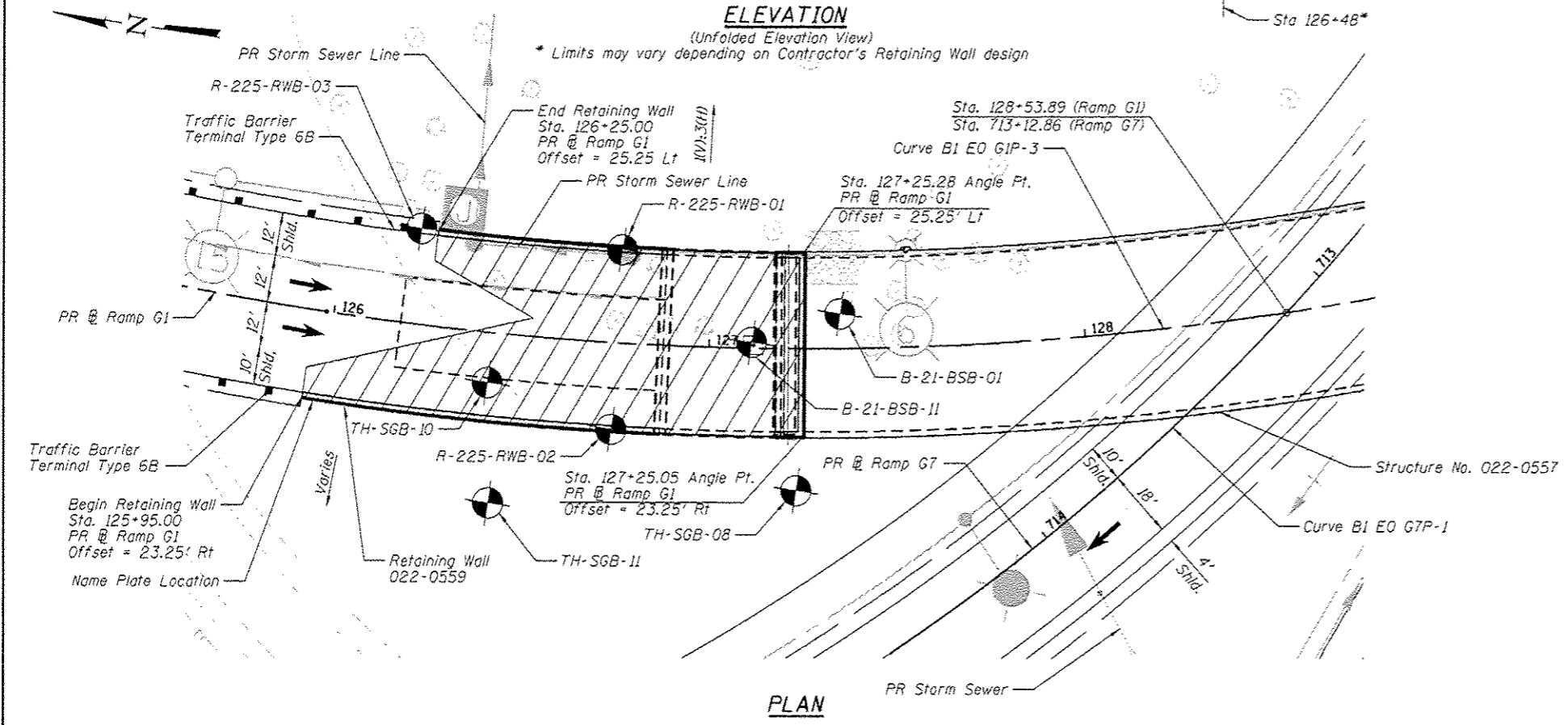
- Reinforced Soil Mass, Approximate Limits
- MSE Wall Panels
- Soil Borings
- Settlement Platform

APPROVED
For Structural Adequacy Only

De Carl Puyger
Engineer of Bridges & Structures



LOCATION SKETCH



PLAN



Jeffrey S. Aldrich
Jeffrey S. Aldrich
Licensed Structural Engineer
State of Illinois No. 081-007301
Expires 11/30/2016

GENERAL PLAN & ELEVATION
ELGIN O'HARE (IL-390) AT I-290
DUPAGE COUNTY
EB RAMP G1 STA 125+95.00 TO
EB RAMP G1 STA 127+25.28
STRUCTURE NO. 022-0559

FILE NAME = 0220559-02Y95-201-GPE.dgn	USER NAME = ean121g	DESIGNED - EJM	REVISD -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	GENERAL PLAN & ELEVATION STRUCTURE NO. 022-0559 SHEET NO. 01 OF 16 SHEETS	F.A.P. RTE. 345	SECTION 2013-083-R&B	COUNTY DUPAGE	TOTAL SHEETS 759	SHEET NO. 470
CH2MHILL	PLOT SCALE = 1/8" = 1'-0"	CHECKED - JLT	REVISD -			DRAWING NO. SN-01	CONTRACT NO. 60Y95			
	PLOT DATE = 10/28/2014	DRAWN - EJM	REVISD -							
		CHECKED - JLT	REVISD -							

DESIGN SPECIFICATIONS

2012 AASHTO LRFD Bridge Design Specifications with 2013 Interims

Tollway Structure Design Manual, March 2014 with latest Tollway Design Bulletins

Illinois Department of Transportation Bridge Manual, January 2012

DESIGN STRESSES

FIELD UNITS

- f'_c = 3,500 PSI Class BS (Barrier Rail and Anchor Slab)
- f'_c = 3,500 PSI Class SI (all other CIP Concrete)
- f_y = 60,000 PSI (Reinforcement)

PRECAST UNITS

- f'_c = 4,500 PSI (Precast Face Panel)

TRAFFIC BARRIER LOADING

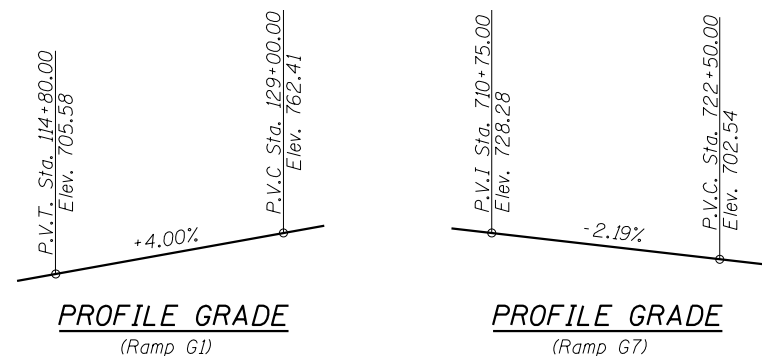
Traffic Impact per AASHTO LRFD Bridge Design Specifications

GENERAL NOTES

1. The Contractor shall design and construct MSE Wall per the Special Provisions.
2. Reinforcement bar bending details shall be in accordance with the latest "Manual of Standard Practice for Detailing Reinforced Concrete Structures", ACI 315, latest edition.
3. Reinforcing bars designated "(E)" shall be epoxy coated.
4. Reinforcement bar bending dimensions are out to out.
5. Apply Protective Coat to top and traffic face of barrier and anchor slab.
6. All exposed concrete edges shall have a $\frac{3}{4}$ " x 45° chamfer, except where shown otherwise. Chamfer on vertical edges shall be continued a minimum of one foot below finished ground line.
7. Bars noted thus, 3x2-#5 indicates 3 lines of bars with 2 lengths of bars per line.
8. No construction joints except those shown on the plans will be allowed unless otherwise approved by the Engineer.
9. It shall be the Contractor's responsibility to verify the location of all utilities prior to starting construction. Contact J.U.L.I.E., 800-892-0123.
10. It shall be the Contractor's responsibility to verify the location of all fiber optic utilities prior to starting construction. The Contractor shall initiate the location process for the fiber optic cable by completing a "Request Tollway Utilities Locate" form filled in online at the Tollway website under "Doing Business" at least four (4) business days prior to starting any underground operations, excavations or digging of any type in the general area of the fiber optic cable.
11. Slipforming of the barriers is not allowed.

INDEX OF SHEETS

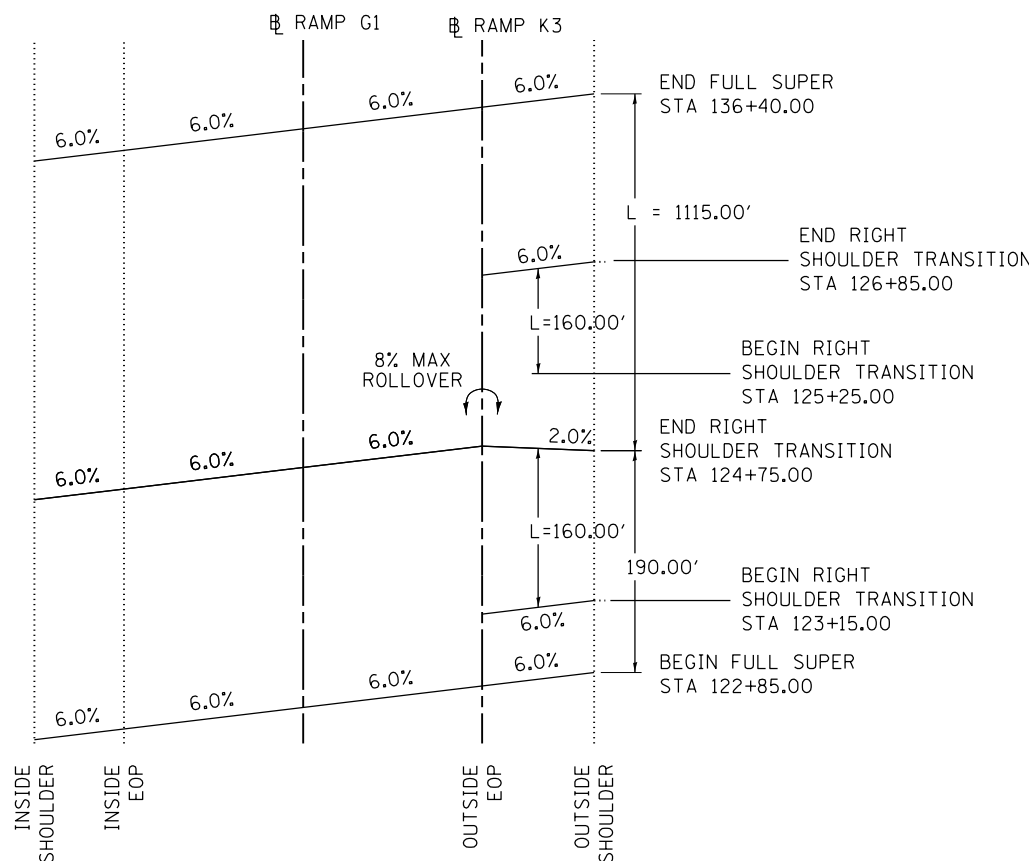
- SN-01 General Plan & Elevation
- SN-02 General Data
- SN-03 Wall Sections
- SN-04 Anchorage Slab Plan & Elevation No. 1
- SN-05 Anchorage Slab Plan & Elevation No. 2
- SN-06 Anchorage Slab & Barrier Details No. 1
- SN-07 Anchorage Slab & Barrier Details No. 2
- SN-08 Anchorage Slab & Barrier Details No. 3
- SN-09 Miscellaneous Details
- SN-10 Soil Boring Logs No. 1
- SN-11 Soil Boring Logs No. 2
- SN-12 Soil Boring Logs No. 3
- SN-13 Soil Boring Logs No. 4
- SN-14 Soil Boring Logs No. 5
- SN-15 Soil Boring Logs No. 6
- SN-16 Soil Boring Logs No. 7



HORIZONTAL CURVE DATA

Curve B1 EO GIP-3 along PR @ Ramp G1	Curve B1 EO G7P-1 along PR @ Ramp G7
PI Sta. = 132+00.31	PI Sta. = 713+70.30
Δ = 96°49'35" (LT)	Δ = 34°36'39" (RT)
D = 6°46'21"	D = 9°32'57"
R = 846.00'	R = 600.00'
L = 1429.69'	L = 362.44'
E = 428.57'	E = 28.45'
T = 953.32'	T = 186.94'
S.E. = 6.0%	S.E. = 5.6%
P.C. Sta. = 122+47.00	P.C. Sta. = 711+83.36
P.T. Sta. = 136+76.69	P.T. Sta. = 715+45.80

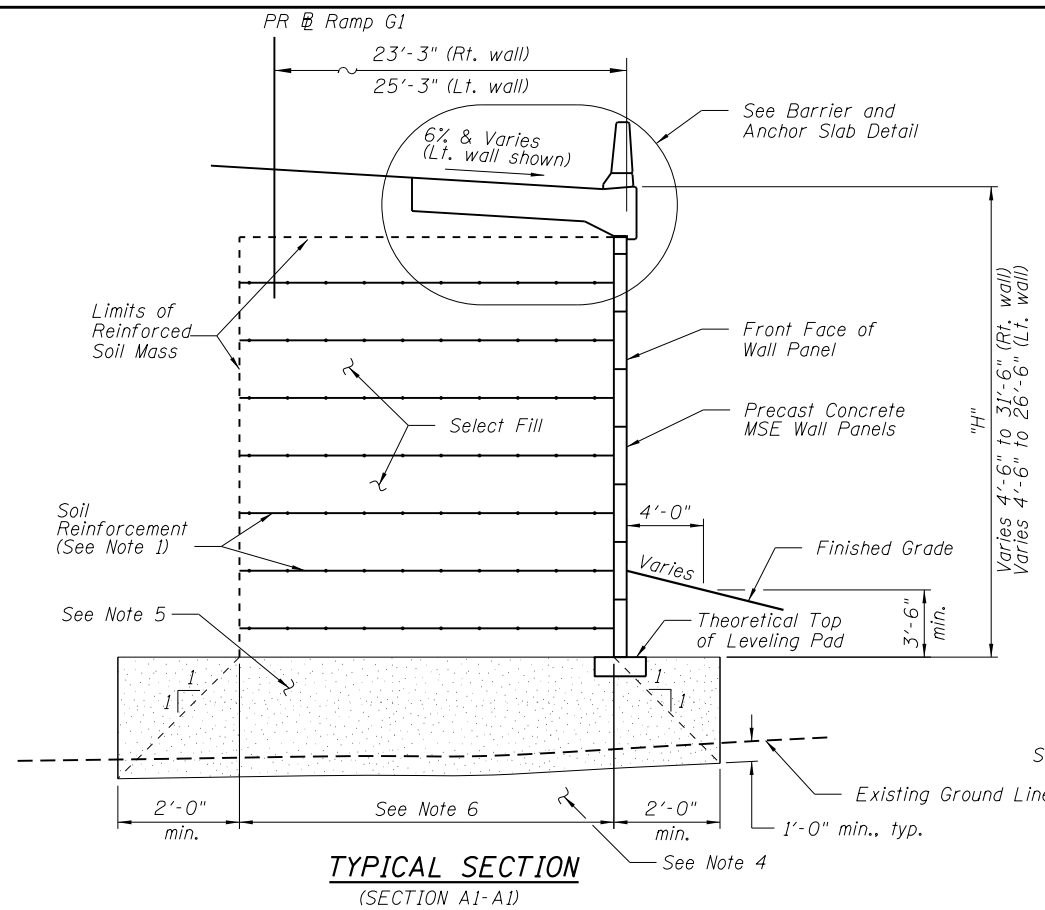
SUPERELEVATION



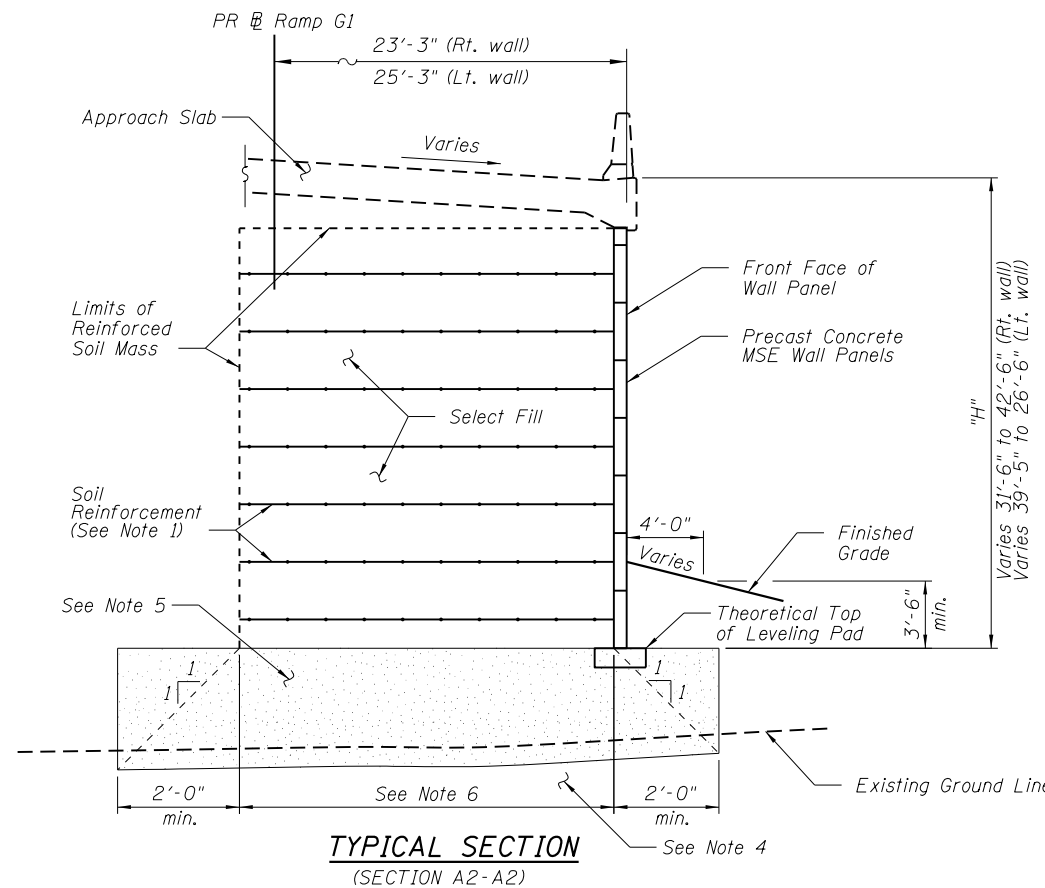
TOTAL BILL OF MATERIALS		
ITEM	UNIT	QUANTITY
Protective Coat	SQ YD	266
Concrete Superstructure	CU YD	148.4
Reinforcement Bars, Epoxy Coated	POUND	22370
Name Plates	EACH	1
Granular Backfill for Structures	CU YD	9940
Mechanically Stabilized Earth Retaining Wall	SQ FT	5870

STATION 125+97
BUILT 2011 BY
STATE OF ILLINOIS
F.A.P. RT. 345
SEC. 2013-083-R&B
STRUCTURE NO. 022-0559

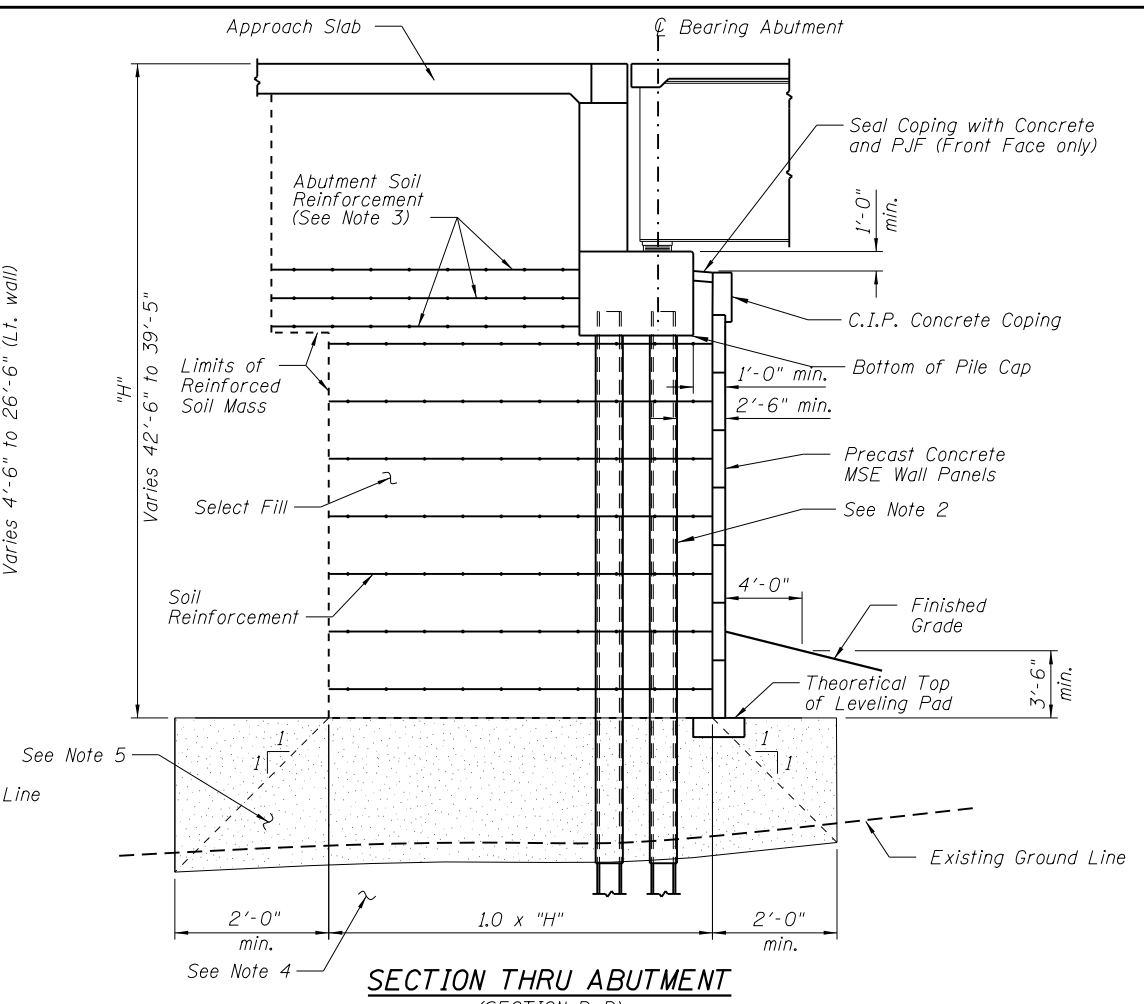
NAME PLATE
See Std. 515001



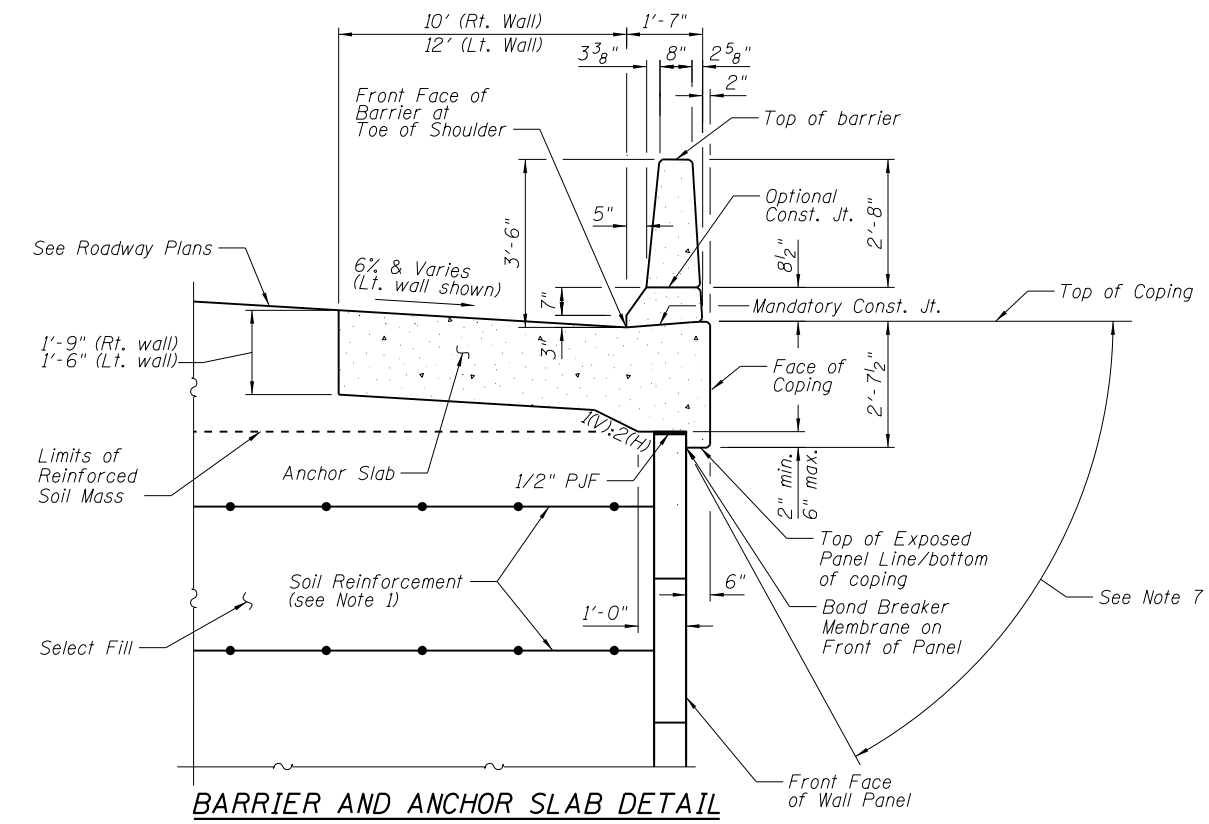
TYPICAL SECTION
(SECTION A1-A1)



TYPICAL SECTION
(SECTION A2-A2)



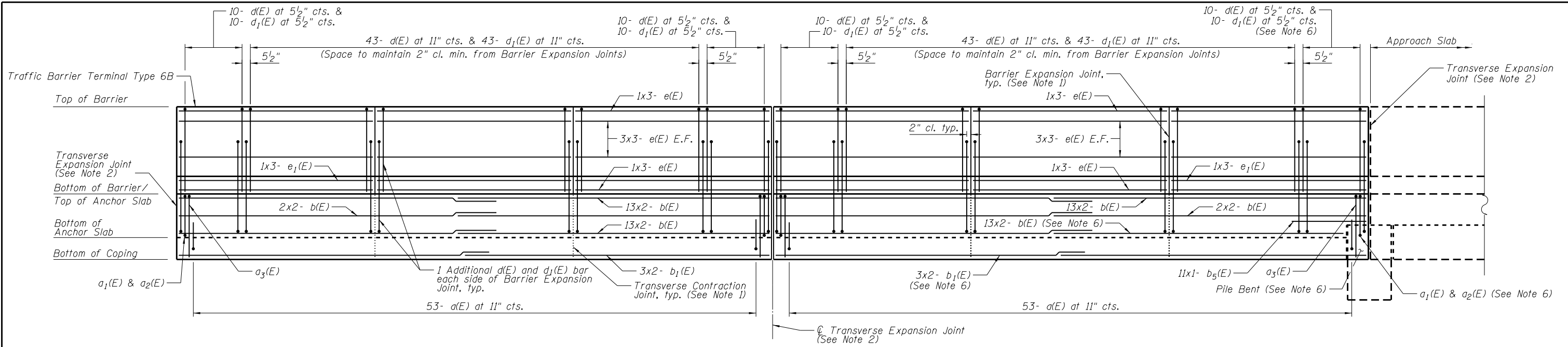
SECTION THRU ABUTMENT
(SECTION B-B)



BARRIER AND ANCHOR SLAB DETAIL

Notes:

1. The MSE wall supplier's internal stability design shall account for the anchor slab's bearing pressure surcharge of 1.0 ksf and horizontal sliding force of 1.15 kips/ft. of wall.
2. Pile Sleeve (See Bridge Plans).
3. The MSE wall supplier shall design the abutment soil reinforcement to resist a horizontal force of 9.0 kips/ft. of abutment for the service I limit state. The specified horizontal force includes abutment loads from bridge forces and active soil pressure.
4. Unsuitable material and ground improvement in vicinity of retaining wall not shown, see Roadway Plans for details.
5. Granular Backfill for Structures required for wall height, "H" ≥ 12'.
6. Minimum strap length shall be 1.0 x "H" when "H" exceeds 30'. Elsewhere, minimum strap length shall be 0.7 X "H" but no less than 8'-0" minimum.
7. Apply concrete stain entire length of wall, see Form Liner Special Provisions for requirements.



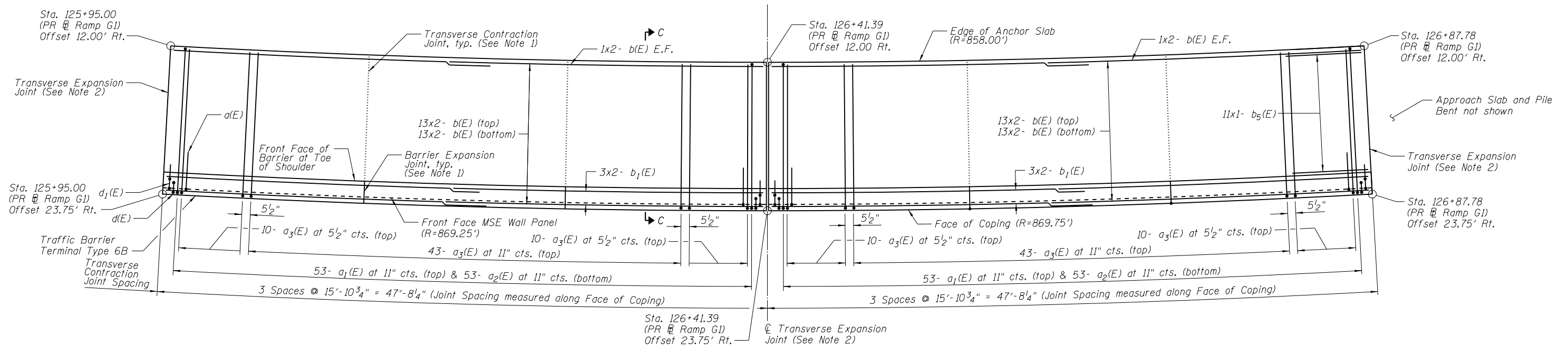
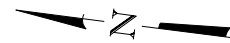
ELEVATION

Minimum Bar Lap

- #4 Bar = 2'-4"
- #5 Bar = 3'-0"
- #6 Bar = 3'-6"
- #7 Bar = 4'-8"
- #8 Bar = 6'-0"

Notes:

1. Place Transverse Contraction Joints with Barrier Expansion Joints perpendicular to Face of Coping. For details, see Drawing No. SN-07.
2. Place Transverse Expansion Joints perpendicular to Face of Coping. For details, see Drawing No. SN-07.
3. For Section C-C, see Drawing No. SN-06.
4. Bar spacing for transverse reinforcement measured along Face of Coping.
5. Barrier longitudinal reinforcement not shown in Plan for clarity.
6. For details of anchor slab at pile bent, see Drawing No. SN-07.



PLAN

FILE NAME = 0220559-60Y95-004-AnchSlabP&E1.dgn
CH2MHILL

USER NAME = asonting
 DESIGNED - EJM
 CHECKED - JLT
 DRAWN - EJM
 CHECKED - JLT
 PLOT SCALE = 8.0000' / in.
 PLOT DATE = 10/28/2014

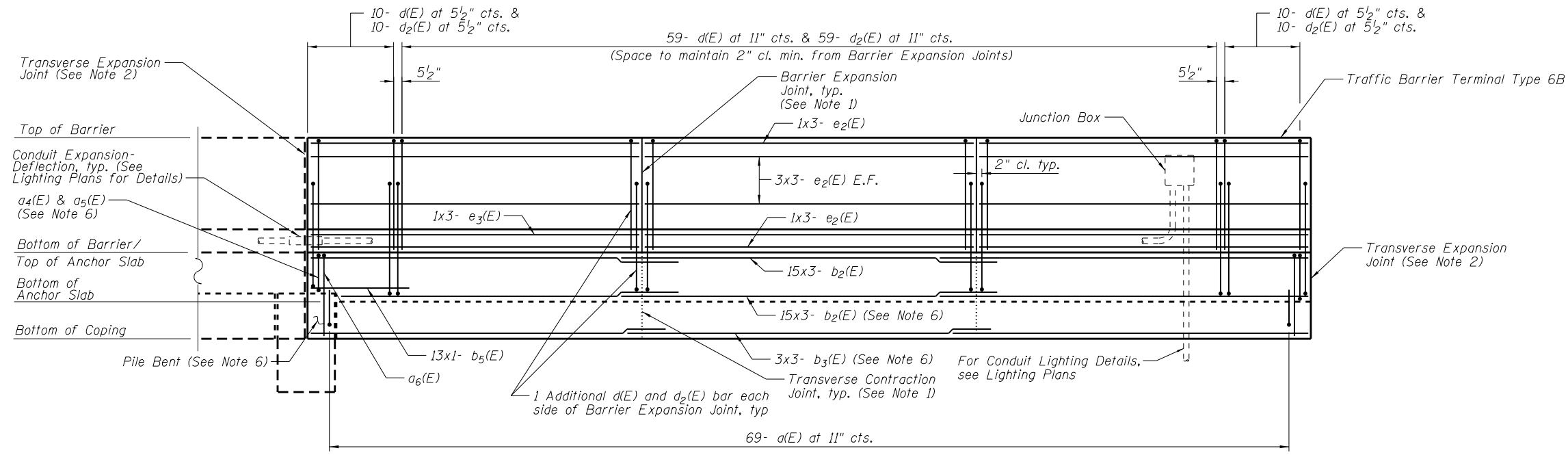
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 CHECKED - JLT
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 REVISED - -
 REVISED - -
 REVISED - -
 REVISED - -

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**ANCHORAGE SLAB PLAN & ELEVATION No. 1
 STRUCTURE NO. 022-0559**

SHEET NO. 04 OF 16 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
345	2013-083-R&B	DUPAGE	759	473
DRAWING NO. SN-04			CONTRACT NO. 60Y95	
ILLINOIS FED. AID PROJECT				



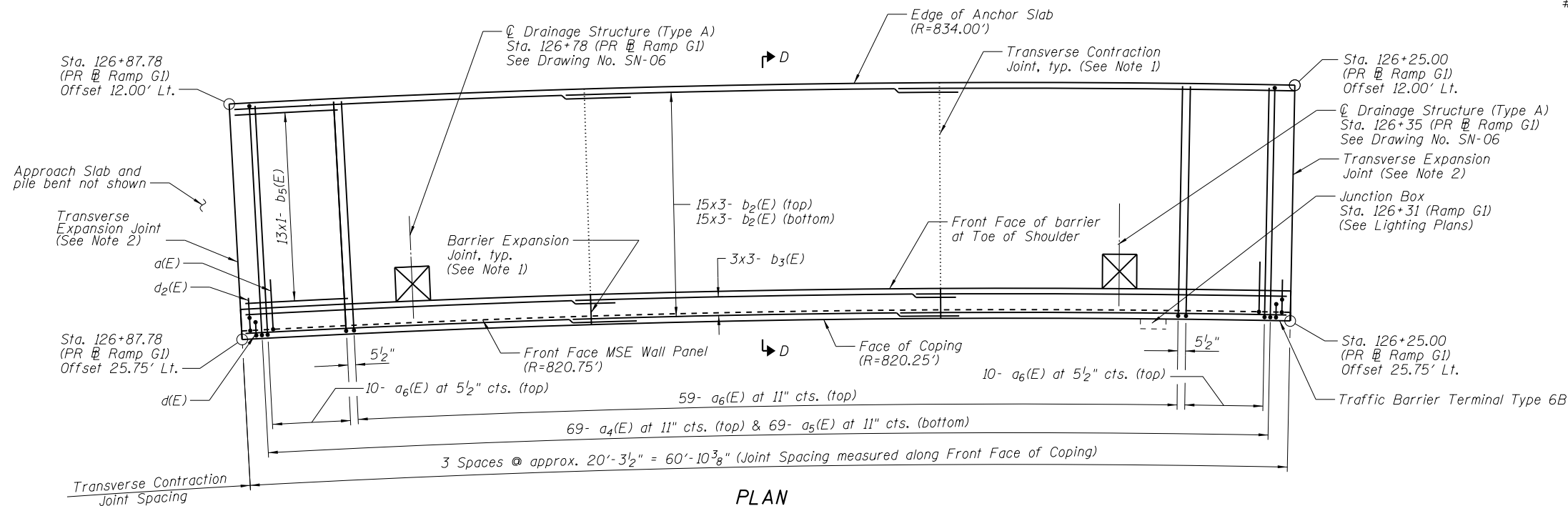
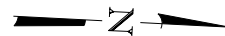
ELEVATION

Notes:

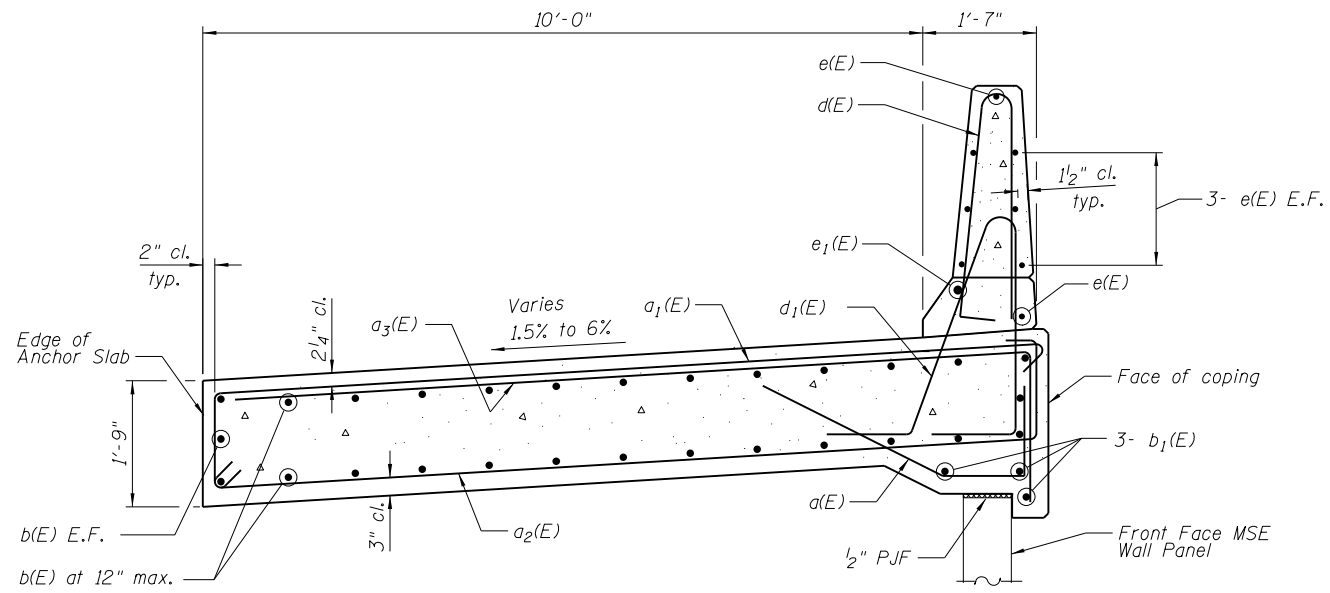
1. Place Transverse Contraction Joints with Barrier Expansion Joints perpendicular to Face of Coping. For details, see Drawing No. SN-07.
2. Place Transverse Expansion Joints perpendicular to Face of Coping. For details, see Drawing No. SN-07.
3. For Section D-D, see Drawing No. SN-06.
4. Bar spacing for transverse reinforcement measured along Face of Coping.
5. Additional anchor slab transverse reinforcement at drainage structure not shown. See Drawing No. SN-06.
6. For details of anchor slab at pile bent, see Drawing No. SN-07.
7. Barrier longitudinal reinforcement not shown in Plan for clarity.

Minimum Bar Lap

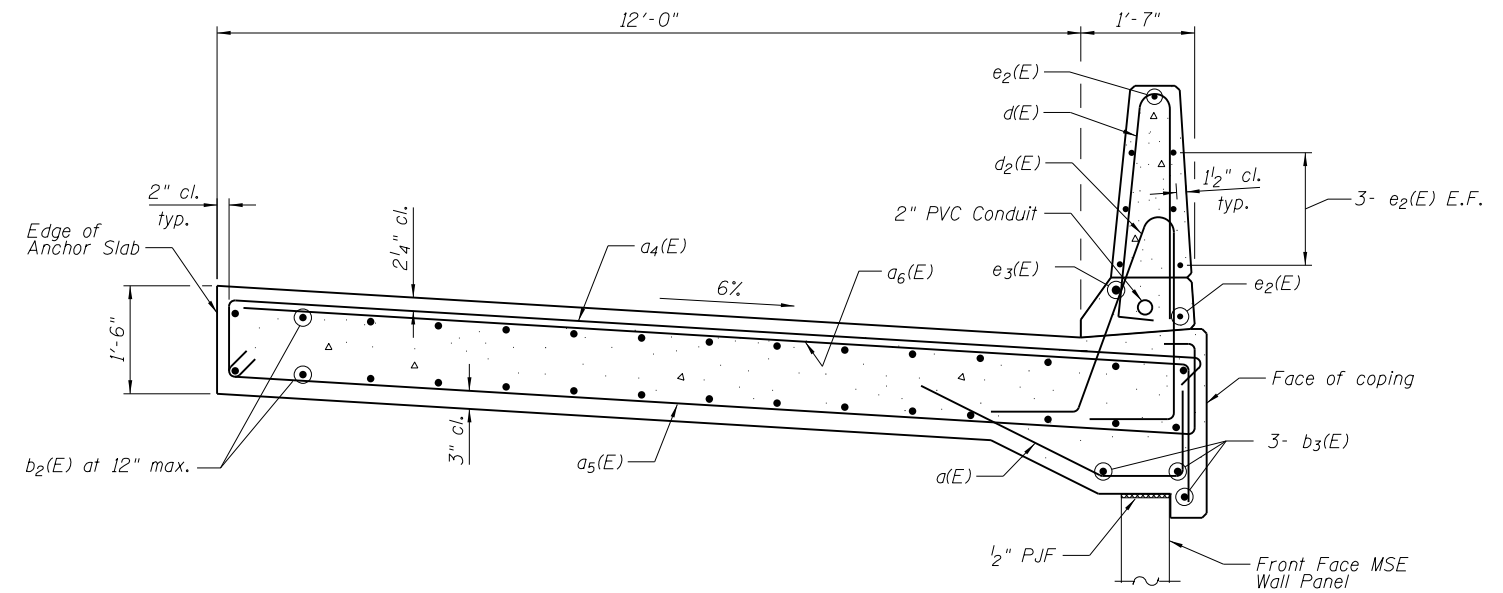
- #4 Bar = 2'-4"
- #5 Bar = 3'-0"
- #6 Bar = 3'-6"
- #7 Bar = 4'-8"
- #8 Bar = 6'-0"



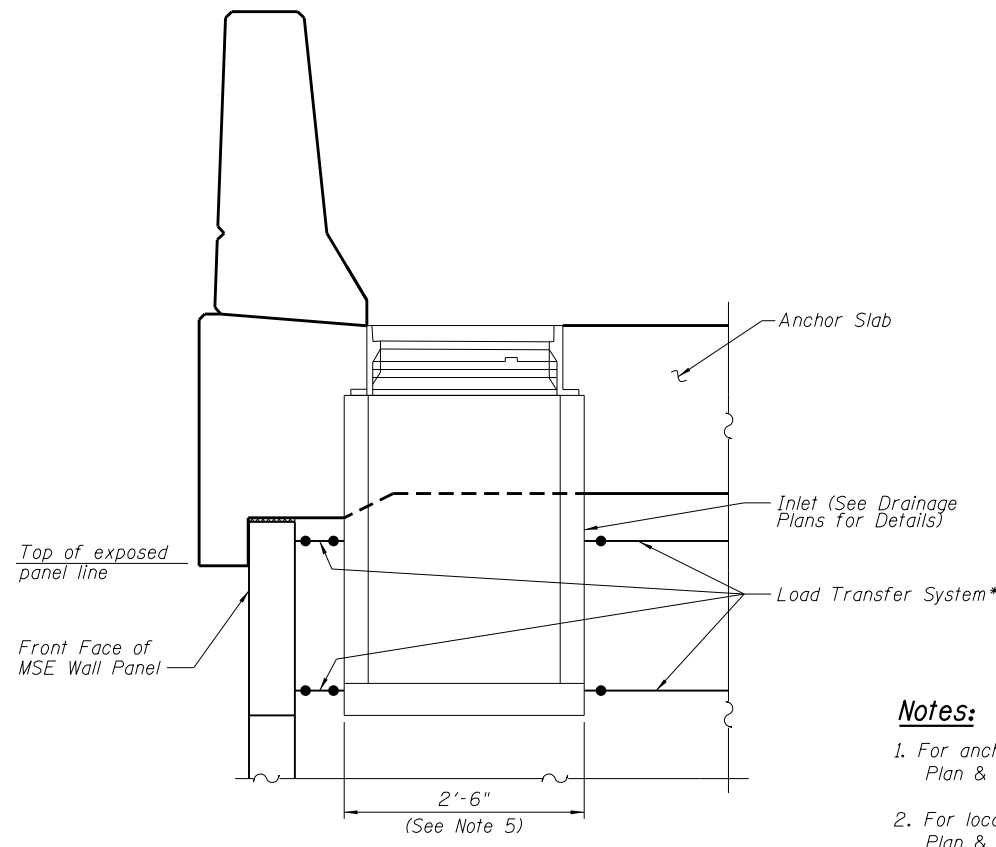
PLAN



SECTION C-C

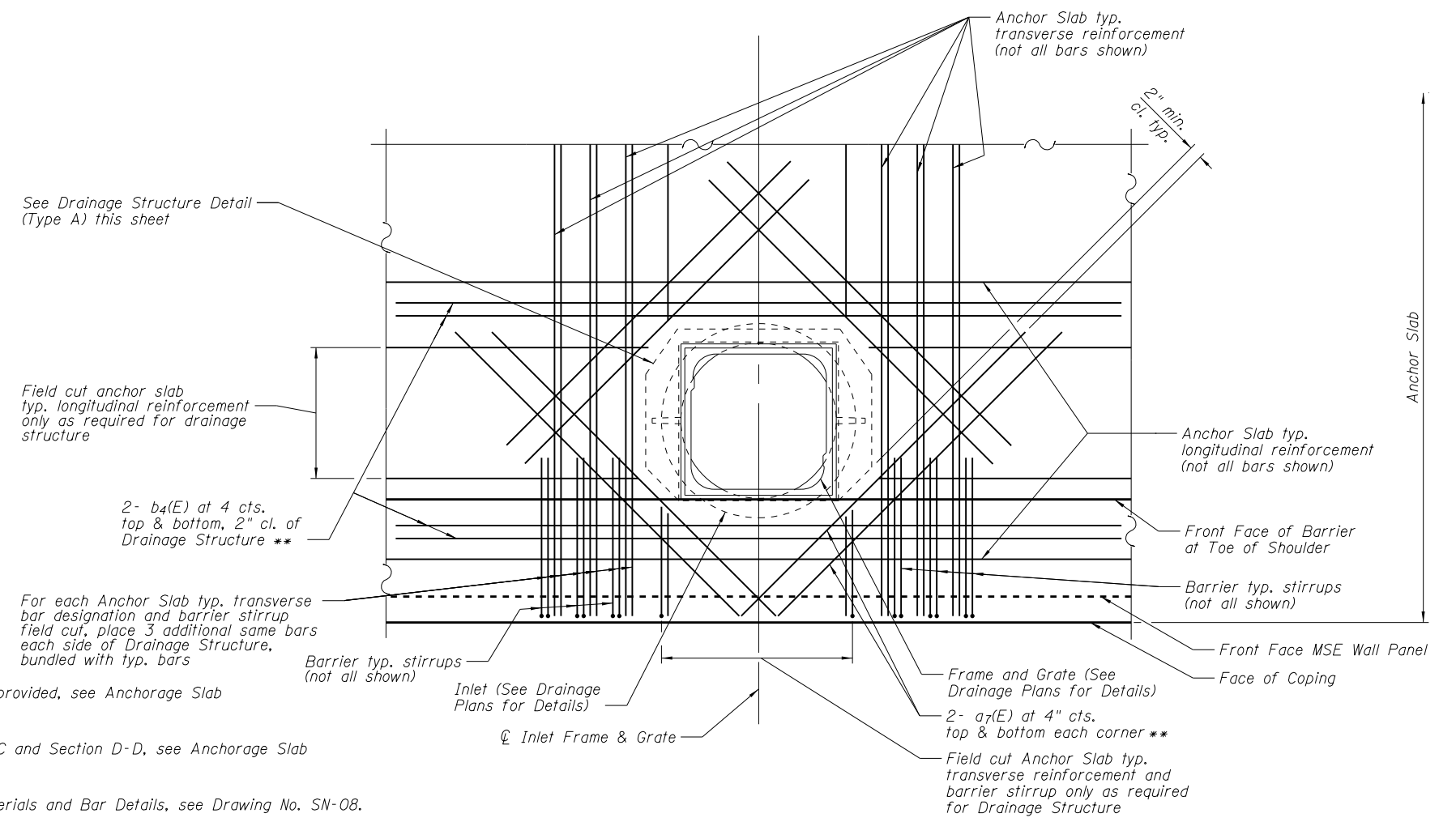


SECTION D-D



DRAINAGE STRUCTURE DETAIL (TYPE A)

(Cross slope not shown)
* MSE supplier to design load transfer system to accommodate drainage structure.

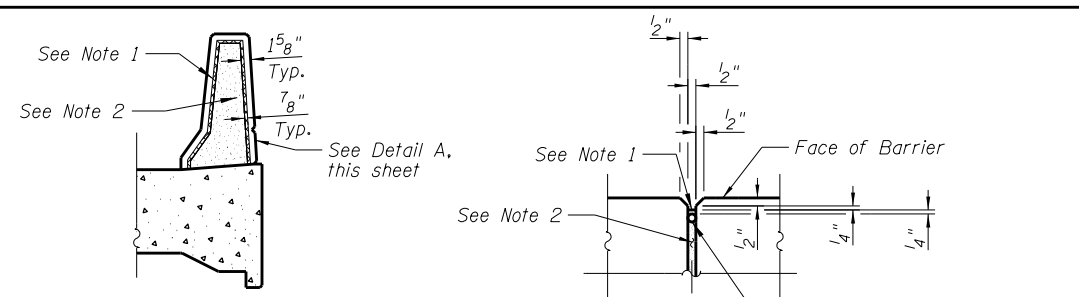


PLAN AT DRAINAGE STRUCTURE (TYPE A)

Inlet - Sta. 126+35 (Ramp G1)
Inlet - Sta. 126+78 (Ramp G1)
** Place bars symmetric about \perp drainage inlet as space permits, see Anchor Slab Bill of Materials for bar lengths.

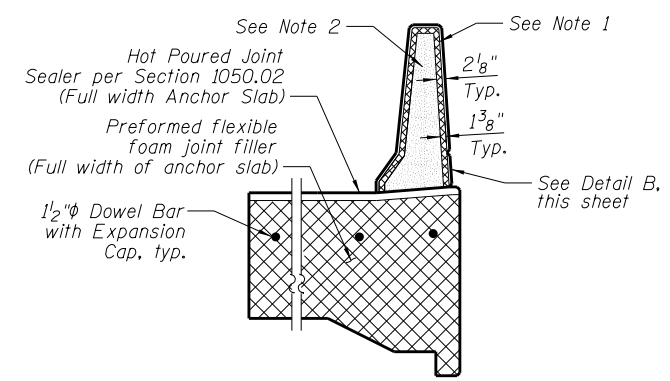
Notes:

1. For anchor slab details not provided, see Anchorage Slab Plan & Elevations sheets.
2. For locations of Section C-C and Section D-D, see Anchorage Slab Plan & Elevations Sheets.
3. For Anchor Slab Bill of Materials and Bar Details, see Drawing No. SN-08.
4. For Anchor Slab dimensions not shown, see Barrier and Anchor Slab Detail on Drawing No. SN-03.
5. Size and shape of drainage structure approximate, see Drainage Plans for details.
6. Cost of P.J.F. included in Concrete Superstructure.

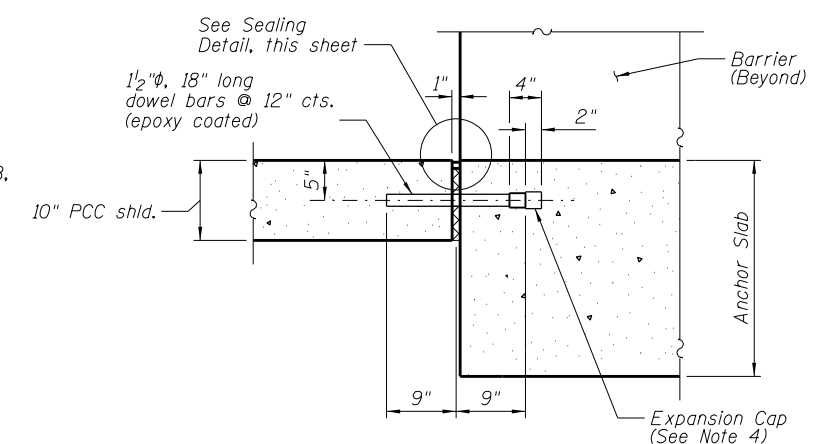


SECTION E-E
(Cross slope not shown)

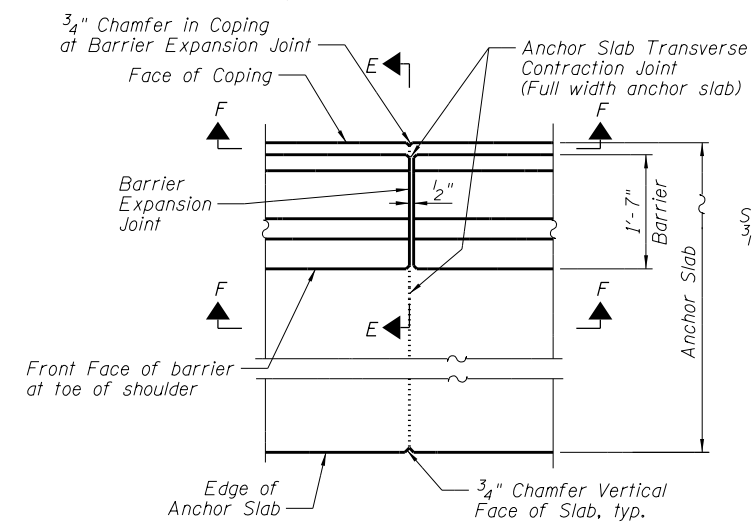
DETAIL A



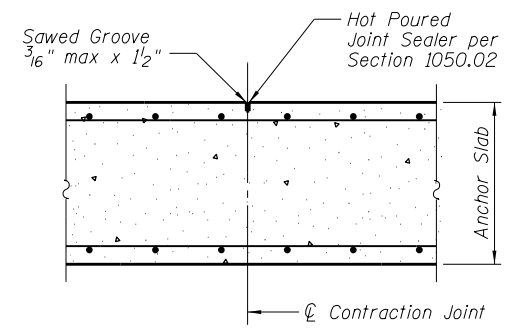
TYPICAL SECTION
(Cross slope not shown)



ANCHOR SLAB TO PCC SHLD.

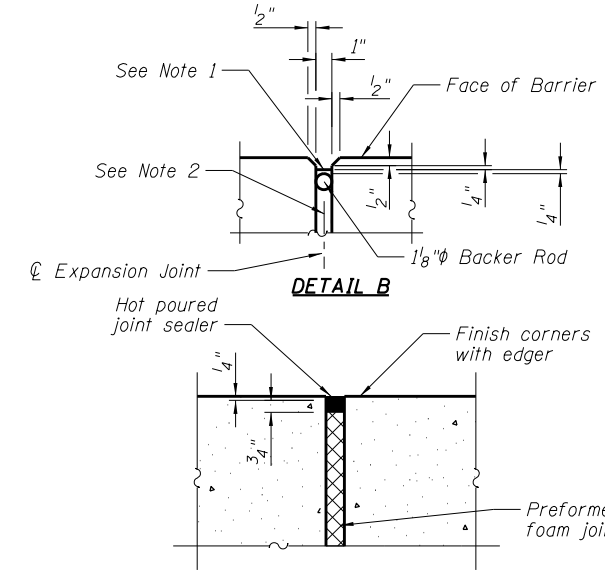


PLAN

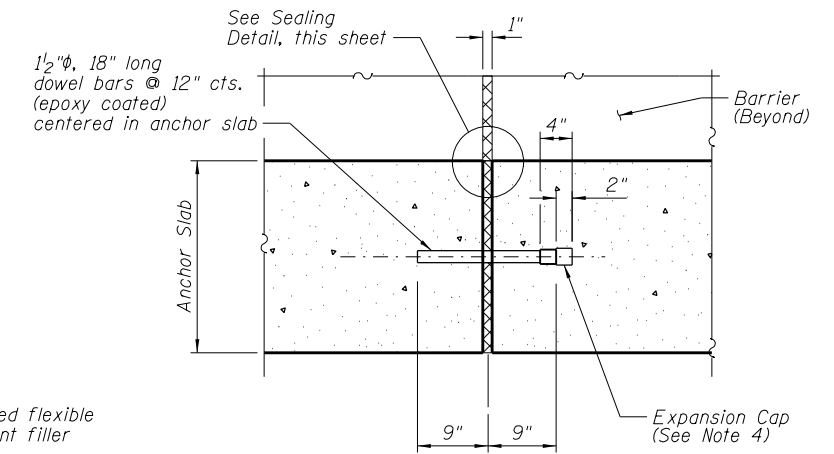


SECTION F-F

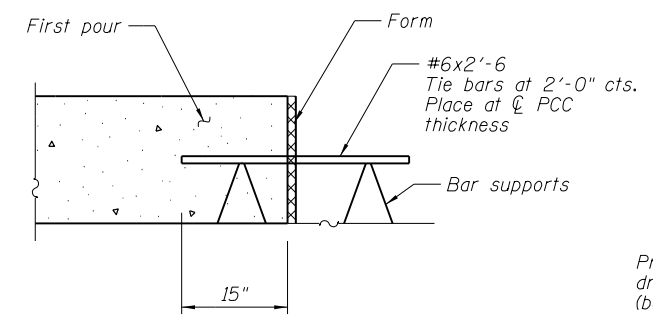
TRANSVERSE CONTRACTION JOINT



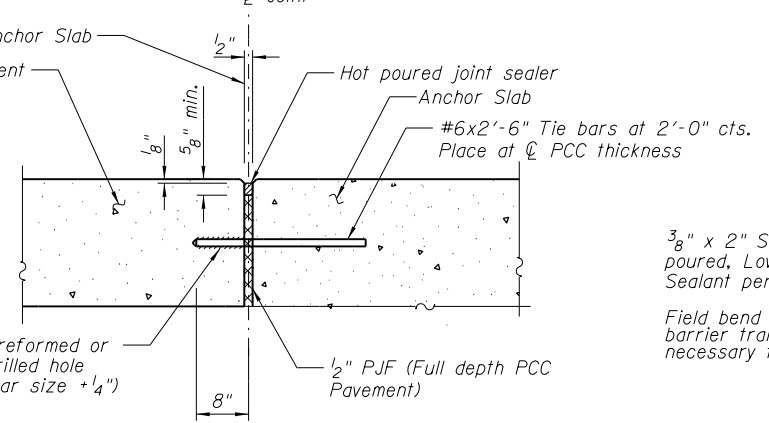
SEALING DETAIL



ANCHOR SLAB TO ANCHOR SLAB

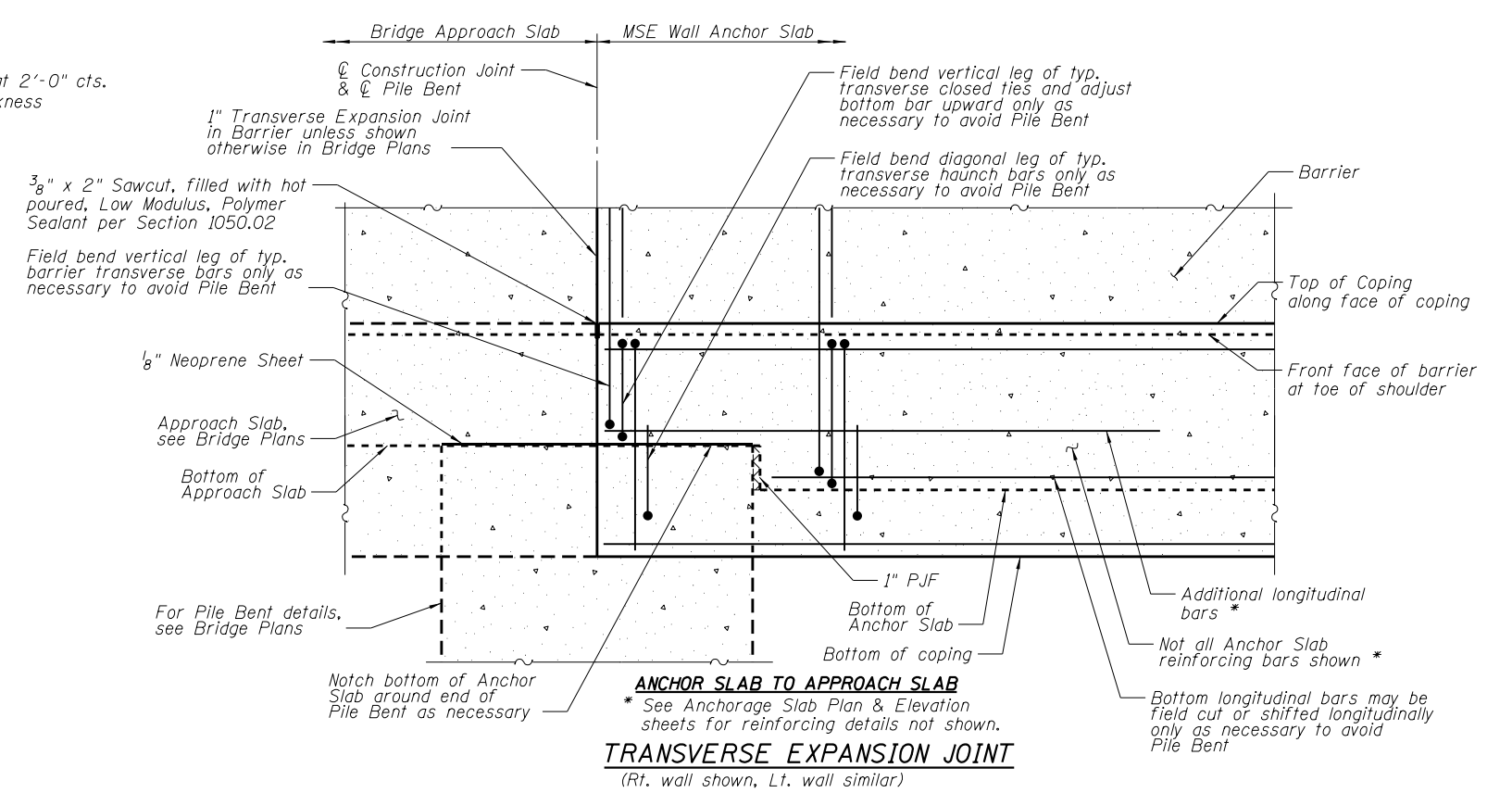


TIE BAR PREFORMED IN PLACE



TIE BAR GROUTED IN PLACE

LONGITUDINAL CONSTRUCTION JOINT

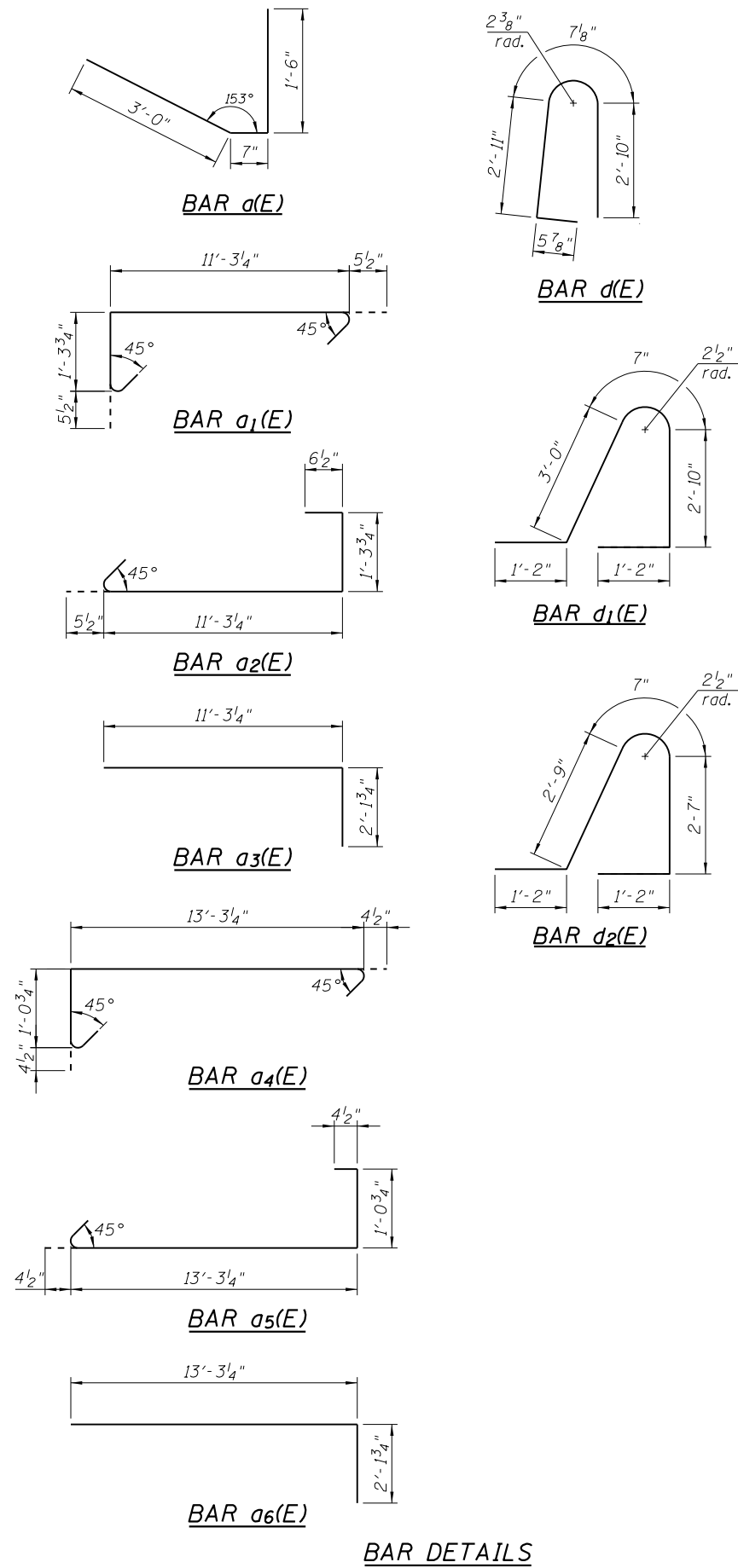


TRANSVERSE EXPANSION JOINT
(Rt. wall shown, Lt. wall similar)

Notes:

1. Non-staining gray one component non-sag elastomeric gun grade polyurethane sealant meeting the requirements of ASTM C-920, Type S, Grade NS, Class 25, use T with a backer rod.
2. 1/2" Preformed Self-Expanding Cork Joint Filler according to Article 1051.07 of Std. Spec.
3. Dowel bars and tie bars are not included in Bill of Materials. Cost included in Concrete Superstructure.
4. Expansion caps shall be installed on the exposed end of each dowel bar once the header has been removed and the joint filler material has been installed.

FILE NAME = 0220559-60Y95-007-AnchBarrierDet2.dgn	USER NAME = asantiag	DESIGNED - EJM	REVISED - -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	ANCHORAGE SLAB & BARRIER DETAILS No. 2 STRUCTURE NO. 022-0559	F.A.P. RTE. 345	SECTION 2013-083-R&B	COUNTY DUPAGE	TOTAL SHEETS 759	SHEET NO. 476
CH2MHILL	PLOT SCALE = 80.0007' / in.	DRAWN - EJM	REVISED - -			DRAWING NO. SN-07 CONTRACT NO. 60Y95				
	PLOT DATE = 10/28/2014	CHECKED - JLT	REVISED - -			SHEET NO. 07 OF 16 SHEETS				
						ILLINOIS FED. AID PROJECT				



ANCHOR SLAB BILL OF MATERIAL				
BAR	No.	SIZE	LENGTH	SHAPE
a (E)	175	# 4	5'-1"	
a1 (E)	106	# 5	13'-6"	
a2 (E)	106	# 5	13'-7"	
a3 (E)	126	# 5	13'-5"	
a4 (E)	81	# 4	15'-1"	
a5 (E)	81	# 4	15'-1"	
a6 (E)	91	# 6	15'-5"	
a7 (E)	32	# 6	5'-2"	
b (E)	112	# 6	25'-6"	
b1 (E)	12	# 4	25'-0"	
b2 (E)	90	# 6	22'-11"	
b3 (E)	9	# 4	22'-2"	
b4 (E)	16	# 6	12'-0"	
b5 (E)	24	# 6	6'-0"	
d (E)	217	# 5	6'-10"	
d1 (E)	134	# 5	8'-9"	
d2 (E)	95	# 5	8'-3"	
e (E)	48	# 4	15'-5"	
e1 (E)	6	# 8	15'-5"	
e2 (E)	24	# 4	19'-10"	
e3 (E)	3	# 8	19'-10"	
DESCRIPTION	UNIT	QUANTITY		
Concrete Superstructure	CU YD	148.4		
Reinforcement Bars, Epoxy Coated	POUND	22370		
Protective Coat	SQ YD	266		

Note:
 1. Reinforcement in MSE wall panels and C.I.P. Coping (except anchor slab coping) not included in Bill of Materials. Cost included in Mechanically Stabilized Earth Retaining Wall.

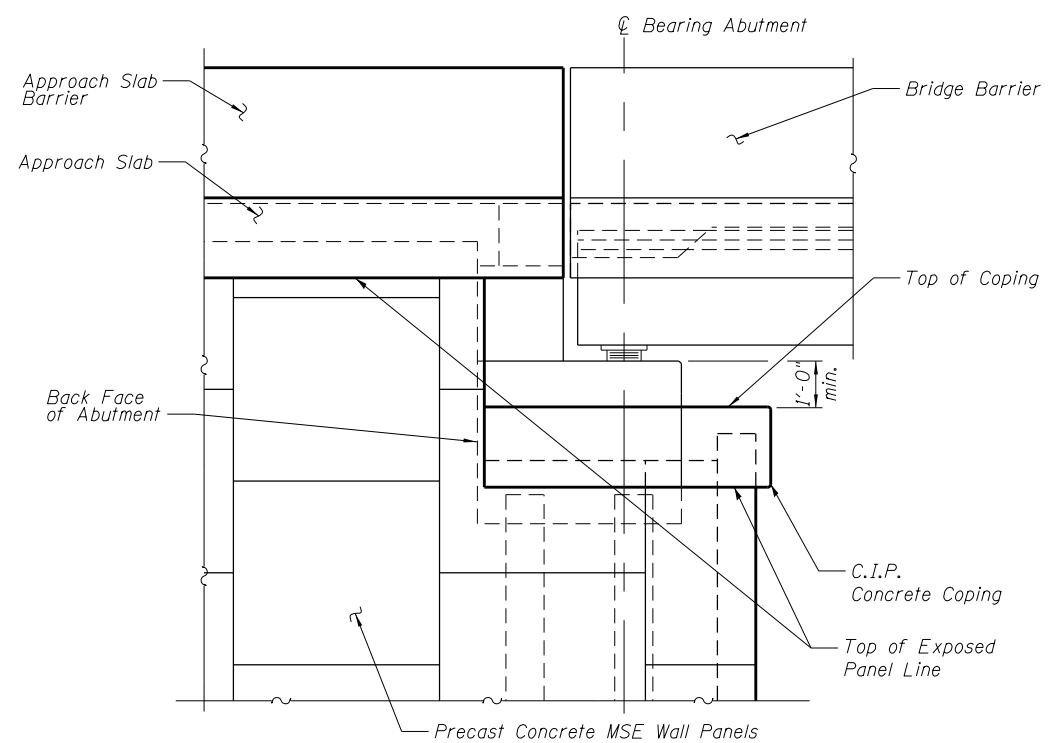
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CH2MHILL	PLOT SCALE = 2.6667' / in.	CHECKED - JLT	REVISED -
	PLOT DATE = 10/28/2014	DRAWN - EJM	REVISED -
		CHECKED - JLT	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

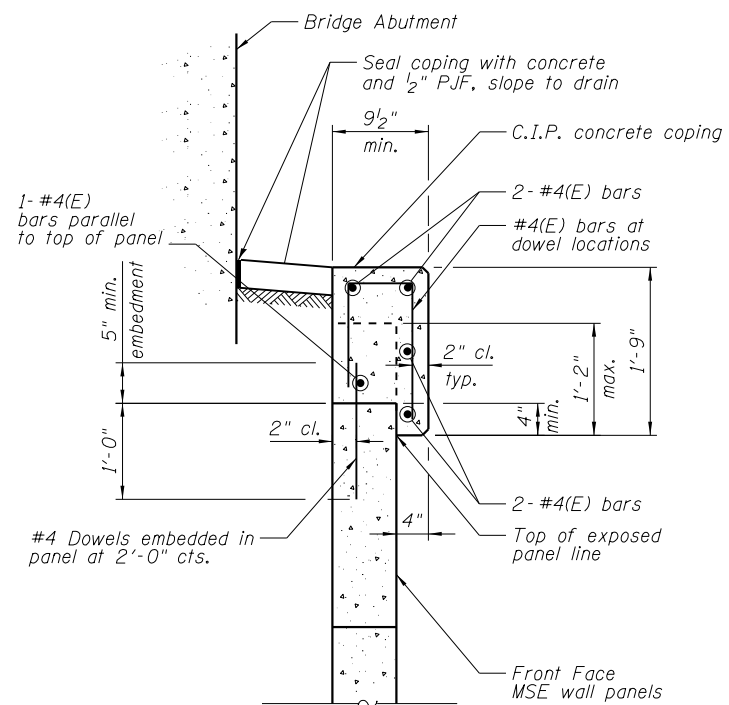
**ANCHORAGE SLAB & BARRIER DETAILS No. 3
STRUCTURE NO. 022-0559**

SHEET NO. 08 OF 16 SHEETS

F.A.P. RTE. 345	SECTION 2013-083-R&B	COUNTY DUPAGE	TOTAL SHEETS 759	SHEET NO. 477
DRAWING NO. SN-08			CONTRACT NO. 60Y95	
ILLINOIS FED. AID PROJECT				



C.I.P. COPING DETAIL AT ENDS OF ABUTMENT



C.I.P. CONCRETE COPING

(MSE Wall Panels along Bridge Abutment, see Note 1)

Note:

1. Reinforcing bars in C.I.P. coping (except anchor slab coping) to be designed by MSE Wall Supplier.

FILE NAME = 0220559-60Y95-009-MiscDets.dgn	USER NAME = asantiag	DESIGNED - EJM	REVISED -
CH2MHILL	PLOT SCALE = 2.6667' / in.	CHECKED - JLT	REVISED -
	PLOT DATE = 10/28/2014	DRAWN - EJM	REVISED -
		CHECKED - JLT	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**MISCELLANEOUS DETAILS
STRUCTURE NO. 022-0559**

SHEET NO. 09 OF 16 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
345	2013-083-R&B	DUPAGE	759	478
DRAWING NO. SN-09			CONTRACT NO. 60Y95	
ILLINOIS FED. AID PROJECT				

SOIL BORING LOG

Page 1 of 2

Date 5/21/13

CONTRACT I-11-4031 DESCRIPTION Retaining Wall R-225, Ramp G1 LOGGED BY E. Slusser

ROUTE Elgin O'Hare (IL 390) SECTION LOCATION NW 1/4 SEC. 6 TWP. 40N RNG. 11E PM. 3'

COUNTY DuPage DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. 022-0559
 Station 125+95.00 to 127+25.28
 BORING NO. R-225-RWB-01
 Station 126+75.58
 Offset 24.6 ft LT.
 Northing 1,937,987.07
 Easting 1,068,023.89
 Ground Surface Elev. 702.2 ft

DEPTH	BLOW	UCS	MOIST	Surface Water Elev.	DEPTH	BLOW	UCS	MOIST
H	S	Qu	T	ft	H	S	Qu	T
(ft)	(/6")	(tsf)	(%)		(ft)	(/6")	(tsf)	(%)
				681.7				
0								
2					5			
4	1.8	28			6	2.6	20	
3	B				8	B		
1					4			
2	0.5 ST	49			5	2.1	28	
3	12 S				7	B		
1					3			
2	1.1	31			5	2.1	19	
3	B				8	B		
1					4			
1	0.6 ST	32			5	2.4	21	
2	9 S				8	B		
0					5			
0	0.5 ST	76			8	2.7	22	
1	10 S				8	B		
1					5			
3		20			8	2.9	20	
5					7	B		
2								
4		18						
3								
1					4			
3	2.1	19			4	1.8	13	
3	B				8	B		

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

SOIL BORING LOG

Page 2 of 2

Date 5/21/13

CONTRACT I-11-4031 DESCRIPTION Retaining Wall R-225, Ramp G1 LOGGED BY E. Slusser

ROUTE Elgin O'Hare (IL 390) SECTION LOCATION NW 1/4 SEC. 6 TWP. 40N RNG. 11E PM. 3'

COUNTY DuPage DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. 022-0559
 Station 125+95.00 to 127+25.28
 BORING NO. R-225-RWB-01
 Station 126+75.58
 Offset 24.6 ft LT.
 Northing 1,937,987.07
 Easting 1,068,023.89
 Ground Surface Elev. 702.2 ft

DEPTH	BLOW	UCS	MOIST	Surface Water Elev.	DEPTH	BLOW	UCS	MOIST
H	S	Qu	T	ft	H	S	Qu	T
(ft)	(/6")	(tsf)	(%)		(ft)	(/6")	(tsf)	(%)
				681.7				
0								
2					5			
4	1.8	28			6	2.6	20	
3	B				8	B		
1					4			
2	0.5 ST	49			5	2.1	28	
3	12 S				7	B		
1					3			
2	1.1	31			5	2.1	19	
3	B				8	B		
1					4			
1	0.6 ST	32			5	2.4	21	
2	9 S				8	B		
0					5			
0	0.5 ST	76			8	2.7	22	
1	10 S				8	B		
1					5			
3		20			8	2.9	20	
5					7	B		
2								
4		18						
3								
1					4			
3	2.1	19			4	1.8	13	
3	B				8	B		

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

Note: The soil boring logs represent point information. Presentation of this information in no way implies that subsurface conditions are the same at locations other than the exact location of the boring.

SOIL BORING LOG

Page 1 of 2

Date 6/5/13

CONTRACT I-11-4031 DESCRIPTION Retaining Wall R-225, Ramp G1 LOGGED BY J. Frederick

ROUTE Elgin O'Hare (IL 390) SECTION LOCATION NW 1/4 SEC. 6 TWP. 40N RNG. 11E PM. 3"

COUNTY DuPage DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. 022-0559
Station 125+95.00 to 127+25.28
BORING NO. R-225-RWB-03
Station 126+20.33
Offset 25.3 ft LT.
Northing 1,938,040.61
Easting 1,068,021.43
Ground Surface Elev. 701.1 ft

DEPTH	BLOW	UCS	MOIST	Surface Water Elev.	DEPTH	BLOW	UCS	MOIST
H	S	Qu	T	ft	H	S	Qu	T
(ft)	(/6")	(tsf)	(%)		(ft)	(/6")	(tsf)	(%)

700.1				Stiff to Hard, Gray CLAY trace - gravel(continued)				
	2					3		
	3	1.3	30			6	2.6	18
	3	B				7	B	
	1					3		
	3	1.5	36			5	2.3	27
	4	B				8	B	
695.6				Gray and Black from 5.5 to 8 feet trace to little - organics				
	1					3		
	3	1.1	27			5	2.1	21
	3	B				6	B	
693.1				Brown and Gray from 8 to 10.5 feet ST-4(8'-10')				
	1			Grain Size		3		
	1	0.8 ST	35	LL=53, PI=34, A-7-6(35)		4	1.7	20
	1	B		Dry Density = 85 pcf		4	B	
				ST-5(10'-12')				
	0			Dry Density = 67 pcf		3		
	1	0.8 ST	54	Gray below 10.5 feet		7	1.8	22
	1	10 S		ST-6(12'-14')		9	B	
				Dry Density = 110 pcf				
		1.6 ST	20					
	1	B		Stiff to Very Stiff, Gray CLAY LOAM trace - gravel		4		
	5	1.0	16			5	1.9	20
	7	B		ST-7(14'-16')		8	B	
				Dry Density = 113 pcf				
		2.6 ST	19	Sand seam at 14.8 feet				
		B		Stiff to Hard, Gray CLAY trace - gravel		4		
	6	1.5	25			9	2.9	14
	8	B				12	B	
	4					8		
	6	1.7	17			11	3.1	16
	8	B				14	B	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

SOIL BORING LOG

Page 2 of 2

Date 6/5/13

CONTRACT I-11-4031 DESCRIPTION Retaining Wall R-225, Ramp G1 LOGGED BY J. Frederick

ROUTE Elgin O'Hare (IL 390) SECTION LOCATION NW 1/4 SEC. 6 TWP. 40N RNG. 11E PM. 3"

COUNTY DuPage DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. 022-0559
Station 125+95.00 to 127+25.28
BORING NO. R-225-RWB-03
Station 126+20.33
Offset 25.3 ft LT.
Northing 1,938,040.61
Easting 1,068,021.43
Ground Surface Elev. 701.1 ft

DEPTH	BLOW	UCS	MOIST	Surface Water Elev.	DEPTH	BLOW	UCS	MOIST
H	S	Qu	T	ft	H	S	Qu	T
(ft)	(/6")	(tsf)	(%)		(ft)	(/6")	(tsf)	(%)

660.6				Very Stiff to Hard, Gray CLAY trace - gravel				
	4					21		
	8	3.8	23			13	3.2	14
	11	B				12	B	
	8					7		
	11	4.3	23			19		6
	12	B				18		
	5					18		
	7	2.6	25			25		8
	16	B				30		
653.6				Medium Dense to Dense, Gray Medium to Coarse SAND little to some - gravel				
	7					9		
	11		10			12		11
	14					26		
	9					9		
	10		19			10		12
	12					14		
	11					20		
	13		13			9		14
	14					11		
	10					8		
	18		16			12		9
	16					14		
643.1				Very Stiff, Gray CLAY LOAM trace - gravel				
	6					16		
	8	3.4	14			18		13
	12	B				26		

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

Note: The soil boring logs represent point information. Presentation of this information in no way implies that subsurface conditions are the same at locations other than the exact location of the boring.

SOIL BORING LOG

CONTRACT 1-11-4031 DESCRIPTION Bridge B-21, Ramp G1 over Ramp G7, EO Expy and I-290 LOGGED BY E. Slusser
 ROUTE Elgin O'Hare (IL 390) SECTION LOCATION NE 1/4 SEC. 6 TWP. 40N RNG. 11E PM. 3"

COUNTY DuPage DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. 022-0557 Station 131+09.79
 BORING NO. B-21-BSB-01 Station 127+34.93
 Offset 9.1 ft LT.
 Northing 1,937,927.42
 Easting 1,068,015.84
 Ground Surface Elev. 703.1 ft

DEPTH (ft)	BLWS (/6")	UCS (tsf)	MOIST (%)	Surface Water Elev. ft	DEPTH (ft)	BLWS (/6")	UCS (tsf)	MOIST (%)
703.0								
TOPSOIL				Gray below 18.5 feet (continued)				
Stiff to Very Stiff, Brown, Gray and Black SILTY CLAY trace - roots, organcis ST-1(0.5'-3') Dry Density = 108 pcf						5		
	3	1.2 ST	20			5	2.4	18
	3	8 S				9	B	
	5							
				680.1				
Stiff to Very Stiff, Gray CLAY trace - gravel						4		
	2					7	1.6	19
	2	1.6	27			12	B	
	4	B						
						7		
	1					10	2.6	19
ST-3(6'-8') Grain Size LL=49, PI=31, A-7-6(30) Dry Density=96 pcf OC=2.4% Brown below 8 feet						12	B	
	2					8		
	5	2.1	19			8	1.6	21
	7	B				11	B	
				692.6				
Medium Dense, Brown SANDY LOAM trace - gravel						5		
	3					8	2.4	21
	5		10			11	B	
	10							
				690.1				
Stiff, Gray CLAY trace - gravel						4		
	2					7	2.5	22
	3	1.2	20			11	B	
	7	B						
				687.6				
Stiff to Very Stiff, Brown SILTY CLAY trace - gravel						5		
	3					8	2.1	23
	5	1.6	19			10	B	
	7	B						
				684.6				
Gray below 18.5 feet						4		
	2					7	2.5	18
	3	1.3	17			10	B	
	6	B						

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

SOIL BORING LOG

CONTRACT 1-11-4031 DESCRIPTION Bridge B-21, Ramp G1 over Ramp G7, EO Expy and I-290 LOGGED BY E. Slusser
 ROUTE Elgin O'Hare (IL 390) SECTION LOCATION NE 1/4 SEC. 6 TWP. 40N RNG. 11E PM. 3"

COUNTY DuPage DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. 022-0557 Station 131+09.79
 BORING NO. B-21-BSB-01 Station 127+34.93
 Offset 9.1 ft LT.
 Northing 1,937,927.42
 Easting 1,068,015.84
 Ground Surface Elev. 703.1 ft

DEPTH (ft)	BLWS (/6")	UCS (tsf)	MOIST (%)	Surface Water Elev. ft	DEPTH (ft)	BLWS (/6")	UCS (tsf)	MOIST (%)
Stiff to Very Stiff, Gray CLAY trace - gravel (continued)								
	4			642.6				
Medium Dense, Gray SILTY LOAM little - gravel						2		
	5	1.8	16			5		15
	8					8		
	10	B		640.1				
Very Stiff, Gray SILTY CLAY trace - gravel						10		
	2					10	2.5	16
	5	1.6	17			18	B	
	7	B						
				637.6				
Very Stiff, Gray CLAY						10		
	6					12	2.3	17
	6	2.1	17			15	B	
	10	B		635.1				
Medium Dense to Very Dense, Gray SANDY LOAM little - gravel						12		
	5					21		12
	9	2.1	20			21		
	11	B						
				650.1				
Medium Dense to Dense, Gray Fine to Coarse SAND trace to little - gravel						17		
	7					24		11
	8	3.0	18			34		
	11	P						
				625.1				
Hard, Gray CLAY LOAM trace - gravel						6		
	9					13		11
	12					12		
	15							
						7		
	4					11	4.5+	14
	13		18			20	P	
	19							

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

Note: The soil boring logs represent point information. Presentation of this information in no way implies that subsurface conditions are the same at locations other than the exact location of the boring.

SOIL BORING LOG

Date 5/22/13

CONTRACT 1-11-4031 DESCRIPTION Bridge B-21, Ramp G1 over Ramp G7, EO Expy and I-290 LOGGED BY E. Slusser

ROUTE Elgin O'Hare (IL 390) SECTION LOCATION NE 1/4 SEC. 6 TWP. 40N RNG. 11E PM. 3'

COUNTY DuPage DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. 022-0557
 Station 131+09.79
 BORING NO. B-21-BSB-01
 Station 127+34.93
 Offset 9.1 ft LT.
 Northing 1,937,927.42
 Easting 1,068,015.84
 Ground Surface Elev. 703.1 ft

DEPTH (ft)	BLWS	UCS (tsf)	MOIST (%)	Surface Water Elev. ft	DEPTH (ft)	BLWS	UCS (tsf)	MOIST (%)
622.6					602.6			
	10					9		
	15		14			15		14
	24					16		
620.1								
	8					11		
	12	6.0	11			15		7
-85	15	B			598.1	15		
	6							
	10	5.8	11					
	13	B						
	9							
	9	5.4	11					
-90	16	B			-110			
	8							
	16	2.1	12					
	8	B						
	7							
	7	2.2	11					
-95	6	B			-115			
607.6								
	12							
	36		15					
	42							
	13							
	26		14					
-100	38				-120			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

SOIL BORING LOG

Date 7/3/13

CONTRACT 1-11-4031 DESCRIPTION Bridge B-21, Ramp G1 over Ramp G7, EO Expy and I-290 LOGGED BY J. Frederick

ROUTE Elgin O'Hare (IL 390) SECTION LOCATION NW 1/4 SEC. 6 TWP. 40N RNG. 11E PM. 3'

COUNTY DuPage DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. 022-0557
 Station 137+79.24 to 145+20
 BORING NO. B-21-BSB-11
 Station 127+11.36
 Offset 1.5 ft LT.
 Northing 1,937,949.47
 Easting 1,068,004.86
 Ground Surface Elev. 702.5 ft

DEPTH (ft)	BLWS	UCS (tsf)	MOIST (%)	Surface Water Elev. ft	DEPTH (ft)	BLWS	UCS (tsf)	MOIST (%)
702.2								
	2					2		
	3	2.5	20			3	2.1	18
	4	B				5	B	
	1	B	26			2		
	2	1.0	32			4	2.6	16
-5	2	B			677.5	6	B	
	2							
	2	1.4	26					
	3	12 S						
	1	0.7	30					
	1	5 S						
693.5								
	2	0.7	51					
	2	12 S						
	1							
	1	0.8	60					
	2	9 S						
	1	1.0	27					
	1	B						
	1	0.2	39					
-15	2	B						
	2							
	2		16					
	3							
	2							
	3	1.7	18					
	4	B						
-20								

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

Note: The soil boring logs represent point information. Presentation of this information in no way implies that subsurface conditions are the same at locations other than the exact location of the boring.

LOG OF SUBSURFACE DATA

CLIENT: **Illinois State Toll Highway Authority**
 PROJECT: **I-11-4031, Elgin O'Hare Western Bypass**
 LOCATION: **Ramp G1** SEC.: **6 (NW 1/4) TWP.: 40N RNG.: 11E PM.: 3"**
 COUNTY: **DuPage**
 BORING NO.: **TH-SGB-08** SURFACE ELEV.: **702.4**
 JOB NO.: **1227** STATION: **127+23.32** NORTH: **1,937,930.73**
 LOGGED BY: **J. Frederick** OFFSET: **37.5 ft RT.** EAST: **1,067,971.97** SHEET **1 OF 1**

SCALE	DEPTH ELEV (FT)	SOIL DESCRIPTION	LITHOLOGY	Water Level	SAMPLE TYPE & No.	SCALE	SPT (Blows/6")	RECOVERY (Inches)	q _u (tsf)	γ _d (pcf)	w (%)	REMARKS
	0.8	TOPSOIL										
	701.6	Medium Stiff to Stiff, Black CLAY trace - roots, organics, gravel			SS-1		2-2-3	14	1.0 B	104	23	ST(0.5'-2.5')
	3.0	Brown and Gray from 3 to 5 feet										
	699.4				SS-2		2-2-3	16	0.7 B	102	24	ST(2.5'-4.5')
	5.0	FILL										
	697.4	Stiff to Very Stiff, Brown and Gray CLAY trace - gravel, roots			SS-3		2-2-3	14	1.5 B	101	24	ST(4.5'-6.5')
	8.0	Gray below 8 feet										
	694.4				SS-4		2-2-5	16	1.8 B		20	ST(6.5'-7.5')
	10.0											
	13.0				SS-5		2-3-5	16	2.1 B		16	
	689.4	Medium Dense, Gray SILT trace - gravel	x x x x		SS-6		4-5-6	16			20	
	15.5	Very Stiff, Gray CLAY trace - gravel			SS-7		2-3-5	18	2.0 B		17	
	686.9											
	20.0				SS-8		4-4-6	16	2.3 B		18	
	682.4	END OF BORING										

DRILLED BY: **M. Din (Geo Services, Inc.)**
 DRILL RIG: **Diedrich D-50 Track Mounted**
 HAMMER TYPE: **Automatic** DRILLING METHOD: **Hollow Stem Auger**
 BORING STARTED: **July 2, 2013** BORING COMPLETED: **July 2, 2013**
 THIS LOG IS NOT INTENDED FOR USE INDEPENDENT FROM THE ENGINEERING REPORT

WATER LEVEL
 ▽ **Dry** DURING DRILLING
 ▽ **Dry** AT COMPLETION
 ▽ **19'** 24 HRS. AFTER COMPLETION

LOG OF SUBSURFACE DATA

CLIENT: **Illinois State Toll Highway Authority**
 PROJECT: **I-11-4031, Elgin O'Hare Western Bypass**
 LOCATION: **Ramp G1** SEC.: **6 (NW 1/4) TWP.: 40N RNG.: 11E PM.: 3"**
 COUNTY: **DuPage**
 BORING NO.: **TH-SGB-10** SURFACE ELEV.: **701.3**
 JOB NO.: **1227** STATION: **126+42.33** NORTH: **1,938,017.30**
 LOGGED BY: **J. Frederick** OFFSET: **13.8 ft RT.** EAST: **1,067,983.84** SHEET **1 OF 1**

SCALE	DEPTH ELEV (FT)	SOIL DESCRIPTION	LITHOLOGY	Water Level	SAMPLE TYPE & No.	SCALE	SPT (Blows/6")	RECOVERY (Inches)	q _u (tsf)	γ _d (pcf)	w (%)	REMARKS
	1.0	TOPSOIL										
	700.3	Soft to Very Stiff, Black CLAY trace - gravel, organics			SS-1		2-3-6	16	1.5 B	97	27	ST-1(1'-3')
	5.0											
	699.4	Brown and Gray from 3 to 5 feet			SS-2		2-3-3	18	0.8 B	83	37	ST-2(3'-5')
	5.0											
	697.4	Stiff to Very Stiff, Brown and Gray CLAY trace - gravel, roots			SS-3		1-1-2	10	0.4 B	88	32	ST-3(5'-7')
	8.0	Gray below 8 feet										
	694.4				SS-4		1-1-2	18	0.3 B	84	36	ST-4(7'-9')
	10.0											
	13.0				SS-5		2-3-5	16	1.2 B		18	ST-5(9'-11')
	692.8	Gray below 8.5 feet										
	15.0				SS-6		3-3-5	16	1.8 B		17	
	15.5											
	686.9				SS-7		2-3-5	16	1.9 B		14	
	20.0											
	681.3	END OF BORING			SS-8		3-4-7	16	2.6 B		16	

DRILLED BY: **M. Din (Geo Services, Inc.)**
 DRILL RIG: **Diedrich D-50 Track Mounted**
 HAMMER TYPE: **Automatic** DRILLING METHOD: **Hollow Stem Auger**
 BORING STARTED: **July 3, 2013** BORING COMPLETED: **July 3, 2013**
 THIS LOG IS NOT INTENDED FOR USE INDEPENDENT FROM THE ENGINEERING REPORT

WATER LEVEL
 ▽ **Dry** DURING DRILLING
 ▽ **Dry** AT COMPLETION
 ▽ **Dry** 120 HRS. AFTER COMPLETION

Note: The soil boring logs represent point information. Presentation of this information in no way implies that subsurface conditions are the same at locations other than the exact location of the boring.

LOG OF SUBSURFACE DATA

CLIENT: **Illinois State Toll Highway Authority**
 PROJECT: **I-11-4031, Elgin O'Hare Western Bypass**
 LOCATION: **Ramp G1** SEC.: **6 (NW 1/4) TWP.: 40N RNG.: 11E PM.: 3"**
 COUNTY: **DuPage**

JOB NO.: **1227** BORING NO.: **TH-SGB-11** SURFACE ELEV.: **707.5**
 LOGGED BY: **J. Frederick** STATION: **126+45.41** NORTH: **1,938,012.44**
 OFFSET: **44.7 ft RT.** EAST: **1,067,952.51** SHEET **1 OF 1**

SCALE	DEPTH ELEV (FT)	SOIL DESCRIPTION	LITHOLOGY	SAMPLE TYPE & No.	SCALE	SPT (Blows/6")	RECOVERY (Inches)	q _u (tsf)	γ _d (pcf)	w (%)	REMARKS
	0.3 707.2	TOPSOIL Stiff to Very Stiff, Brown CLAY trace - gravel		SS-1		2-3-3	12	1.9 B		18	
	5.5 702.0	Black below 5.5 feet		SS-2	5	2-3-5	16	2.4 B		22	
	8.0 699.5	FILL Very Stiff, Black SILTY CLAY trace - gravel, organics		SS-3		3-5-7	14	2.6 B		23	
	10.5 697.0	Very Stiff, Brown and Gray CLAY trace - gravel		SS-4	10	2-3-5	14	2.2 B		29	
	13.5 694.0	Gray below 13.5 feet		SS-5		3-4-4	14	2.6 B		24	
	15.0 694.0			SS-6	15	3-4-5	16	2.4 B		24	
	18.0 689.5	Medium Dense, Gray SILTY LOAM		SS-7		3-4-6	16	2.8 B		21	
	20.0 687.5	END OF BORING		SS-8	20	4-8-5	16			21	

DRILLED BY: **M. Din (Geo Services, Inc.)**
 DRILL RIG: **Diedrich D-50 Track Mounted**
 HAMMER TYPE: **Automatic** DRILLING METHOD: **Hollow Stem Auger**
 BORING STARTED: **June 28, 2013** BORING COMPLETED: **June 28, 2013**
 THIS LOG IS NOT INTENDED FOR USE INDEPENDENT FROM THE ENGINEERING REPORT

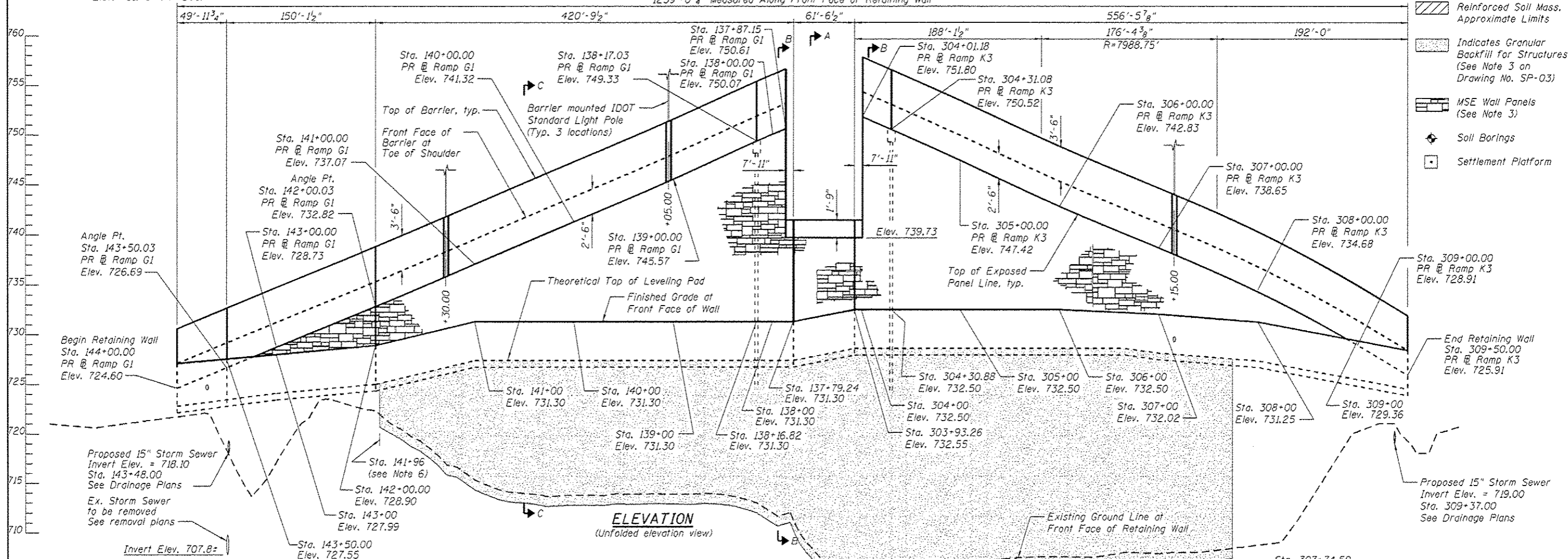
WATER LEVEL

Dry DURING DRILLING
 Dry AT COMPLETION
 Dry 24 HRS. AFTER COMPLETION

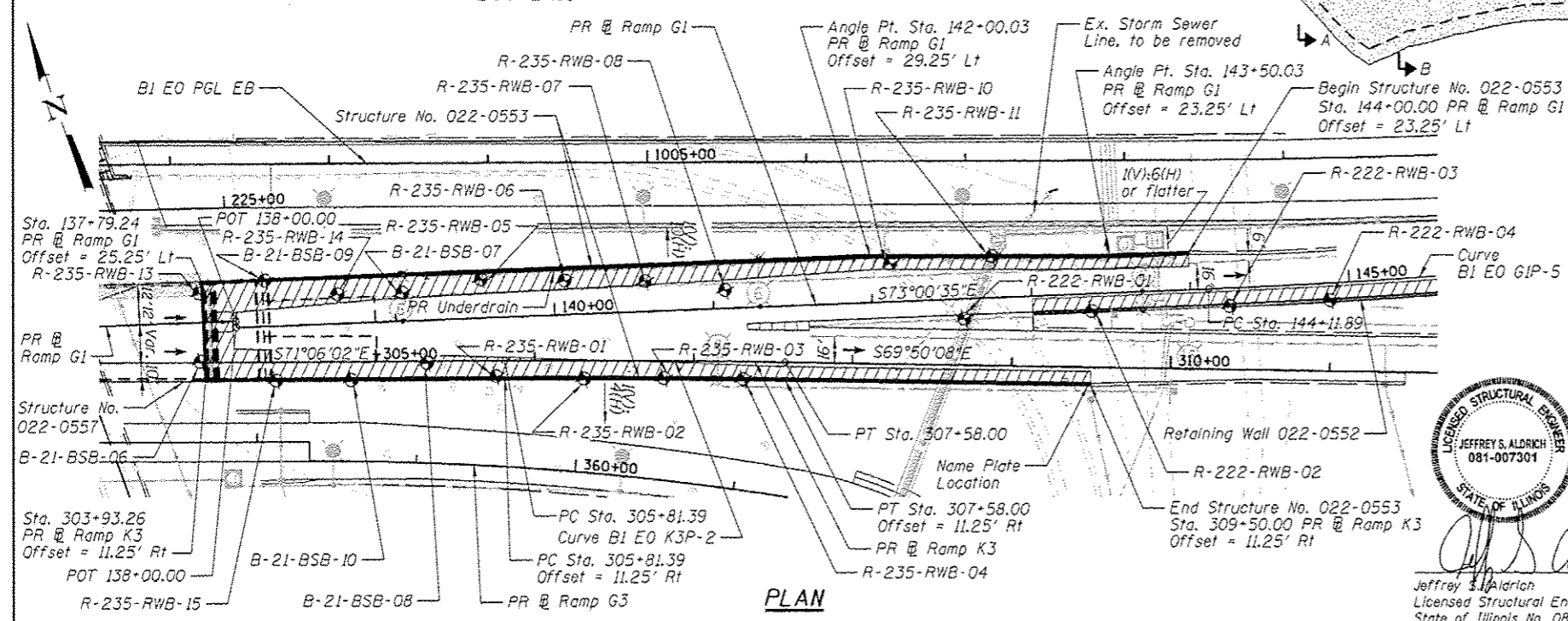
Note:
 The soil boring logs represent point information. Presentation of this information in no way implies that subsurface conditions are the same at locations other than the exact location of the boring.

Bench Mark: BM#716 - Cut square in the Northwest end of bridge wall. Approximately 65 feet North of the centerline of Thorndale Ave. and 168 feet West of the centerline of I-290. Approximately 12 feet West of bridge deck. Elev. 731.40' (NAVD88)

1239'-0 3/4" Measured Along Front Face of Retaining Wall

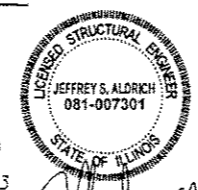
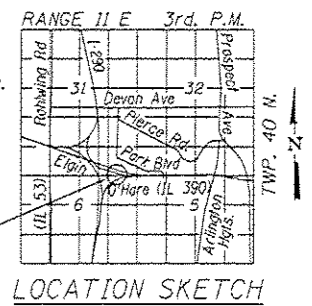


- LEGEND**
- Reinforced Soil Mass. Approximate Limits
 - Indicates Granular Backfill for Structures (See Note 3 on Drawing No. SP-03)
 - MSE Wall Panels (See Note 3)
 - Soil Borings
 - Settlement Platform



Notes:

1. Wall stations and offsets are given to the front face of the wall and are measured from the baseline of Ramps K3 & G1.
2. Top of wall elevations are given to the bottom of coping along face of coping. Bottom of wall elevations are measured to top of finish grade along front face of MSE Wall Panels.
3. All exposed faces of the MSE wall panels shall have a formliner simulated limestone surface. (See Special Provisions for additional details).
4. For Sections A-A, B-B and C-C, see Drawing No. SP-03.
5. For additional notes, see Drawing No. SP-02.
6. Limits may vary depending upon Contractor's retaining wall design.
7. Erect settlement platform on Baseline 5 feet behind the abutment in accordance with Article 204.06 of the Standard Specifications for Road and Bridge Construction except that the platform shall be placed at the existing ground level, after removing topsoil and prior to placement of any fill. Payment for the Settlement Platform shall be included in the payment item for MSE walls.



Jeffrey S. Aldrich
Licensed Structural Engineer
State of Illinois No. 081-007301
Expires 11/30/2016

APPROVED
For Structural Adequacy Only
Jeffrey S. Aldrich
Engineer of Bridges & Structures

GENERAL PLAN & ELEVATION
ELGIN O'HARE (IL-390) AT I-290
DUPAGE COUNTY
RAMP G1 STA 137+79.24 TO
RAMP G1 STA 144+00.00
STRUCTURE NO. 022-0553

FILE NAME: 0220553-01-01-01-01.dgn	USER NAME: asentiaj	DESIGNED: EJM	REVISED: -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	GENERAL PLAN & ELEVATION STRUCTURE NO. 022-0553	F.A.P. RATE: 345	SECTION: 2013-083-R&B	COUNTY: DUPAGE	TOTAL SHEETS: 759	SHEET NO.: 486
CH2MHILL	PLOT SCALE: 1/8" = 1'-0"	CHECKED: BGA	REVISED: -			DRAWING NO. SP-01	CONTRACT NO. 60Y95			
	PLOT DATE: 11/26/2014	DRAWN: EJM	REVISED: -			SHEET NO. 01 OF 36 SHEETS				
		CHECKED: BGA	REVISED: -			ILLINOIS FED. AID PROJECT				

DESIGN SPECIFICATIONS

2012 AASHTO LRFD Bridge Design Specifications with 2013 Interims

Tollway Structure Design Manual, March 2014 with latest Tollway Design Bulletins

Illinois Department of Transportation Bridge Manual, January 2012

DESIGN STRESSES

FIELD UNITS

$f'_c = 3,500$ PSI Class BS (Barrier Rail and Anchor Slab)
 $f'_c = 3,500$ PSI Class SI (All other CIP Concrete)
 $f_y = 60,000$ PSI (Reinforcement)

PRECAST UNITS

$f'_c = 4,500$ PSI (Precast Face Panel)

TRAFFIC BARRIER LOADING

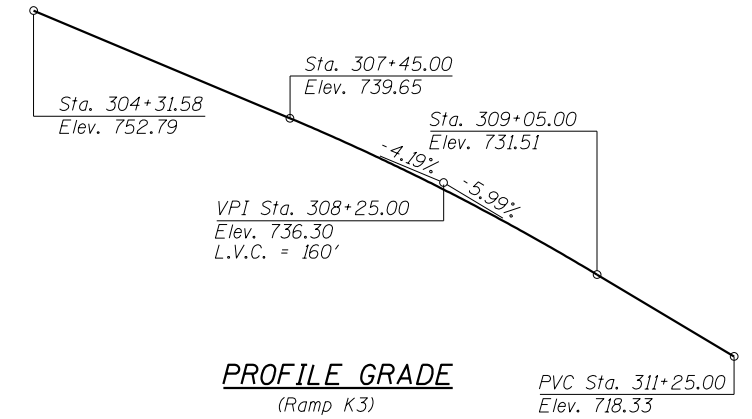
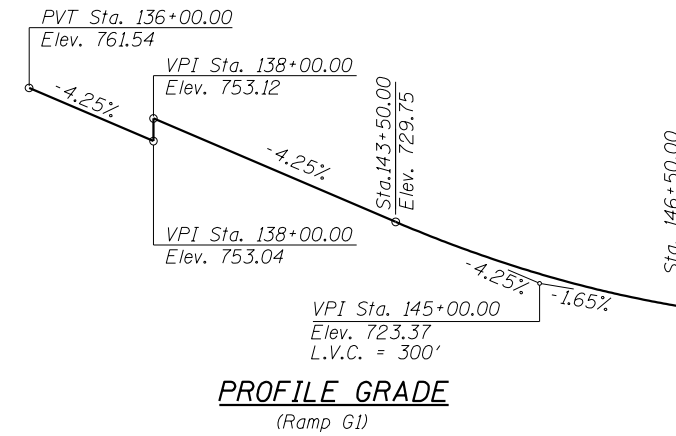
Traffic Impact per AASHTO LRFD Bridge Design Specifications

GENERAL NOTES

- The contractor shall design and construct MSE Wall per the Special Provisions.
- Reinforcing bar bending details shall be in accordance with the latest "Manual of Standard Practice for Detailing Reinforced Concrete Structures", ACI 315, latest edition.
- Reinforcing bars designated "(E)" shall be epoxy coated.
- Reinforcement bar bending dimensions are out to out.
- Apply Protective Coat to top and traffic face of barrier and anchor slab.
- All exposed concrete edges shall have a $\frac{3}{4}$ " x 45° chamfer, except where shown otherwise. Chamfer on vertical edges shall be continued a minimum of one foot below finished ground line.
- Bars noted thus, 3x2- #5 indicates 3 lines of bars with 2 lengths of bars per line.
- No construction joints except those shown on the plans will be allowed unless otherwise approved by the Engineer.
- It shall be the Contractor's responsibility to verify the location of all utilities prior to starting construction. Contact J.U.L.I.E., 800-892-0123.
- It shall be the Contractor's responsibility to verify the location of all fiber optic utilities prior to starting construction. The Contractor shall initiate the location process for the fiber optic cable by completing a "Request Tollway Utilities Locate" form filled in online at the Tollway website under "Doing Business" at least four (4) business days prior to starting any underground operations, excavations or digging of any type in the general area of the fiber optic cable.
- Slipforming of barriers is not allowed.

INDEX OF SHEETS

SP-01	General Plan & Elevation
SP-02	General Data
SP-03	Wall Sections
SP-04	Anchorage Slab Key Plan
SP-05	Anchorage Slab Plan & Elevation No. 1
SP-06	Anchorage Slab Plan & Elevation No. 2
SP-07	Anchorage Slab Plan & Elevation No. 3
SP-08	Anchorage Slab Plan & Elevation No. 4
SP-09	Anchorage Slab Plan & Elevation No. 5
SP-10	Anchorage Slab & Barrier Details No. 1
SP-11	Anchorage Slab & Barrier Details No. 2
SP-12	Anchorage Slab & Barrier Details No. 3
SP-13	Anchorage Slab & Barrier Details No. 4
SP-14	Anchorage Slab & Barrier Details No. 5
SP-15	Anchorage Slab & Barrier Details No. 6
SP-16	Coping Details
SP-17	Soil Boring Logs 1
SP-18	Soil Boring Logs 2
SP-19	Soil Boring Logs 3
SP-20	Soil Boring Logs 4
SP-21	Soil Boring Logs 5
SP-22	Soil Boring Logs 6
SP-23	Soil Boring Logs 7
SP-24	Soil Boring Logs 8
SP-25	Soil Boring Logs 9
SP-26	Soil Boring Logs 10
SP-27	Soil Boring Logs 11
SP-28	Soil Boring Logs 12
SP-29	Soil Boring Logs 13
SP-30	Soil Boring Logs 14
SP-31	Soil Boring Logs 15
SP-32	Soil Boring Logs 16
SP-33	Soil Boring Logs 17
SP-34	Soil Boring Logs 18
SP-35	Soil Boring Logs 19
SP-36	Soil Boring Logs 20



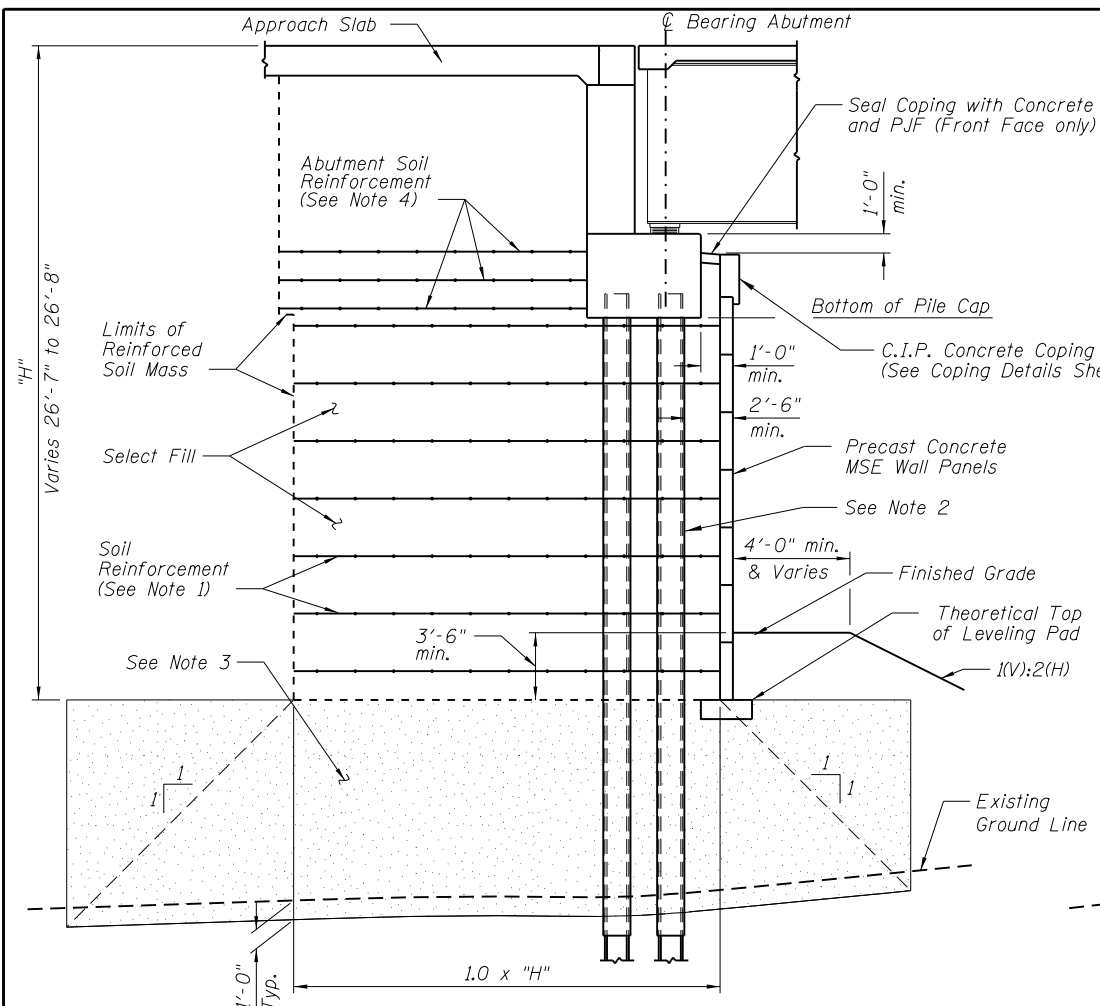
HORIZONTAL CURVE DATA

Curve B1 E0 G1P-5 along Ramp G1	Curve B1 E0 K3P-2 along Ramp K3
PI Sta. = 148+18.08	PI Sta. = 306+69.70
$\Delta = 10^\circ 18' 57''$ (LT)	$\Delta = 1^\circ 15' 54''$ (RT)
$D = 1^\circ 16' 24''$	$D = 0^\circ 42' 58''$
$R = 4,500.00'$	$R = 8,000.00'$
$L = 810.19'$	$L = 176.62'$
$E = 18.30'$	$E = 0.49'$
$T = 406.19'$	$T = 88.31'$
P.C. Sta. = 144+11.89	P.C. Sta. = 305+81.39
P.T. Sta. = 152+22.08	P.T. Sta. = 307+58.00

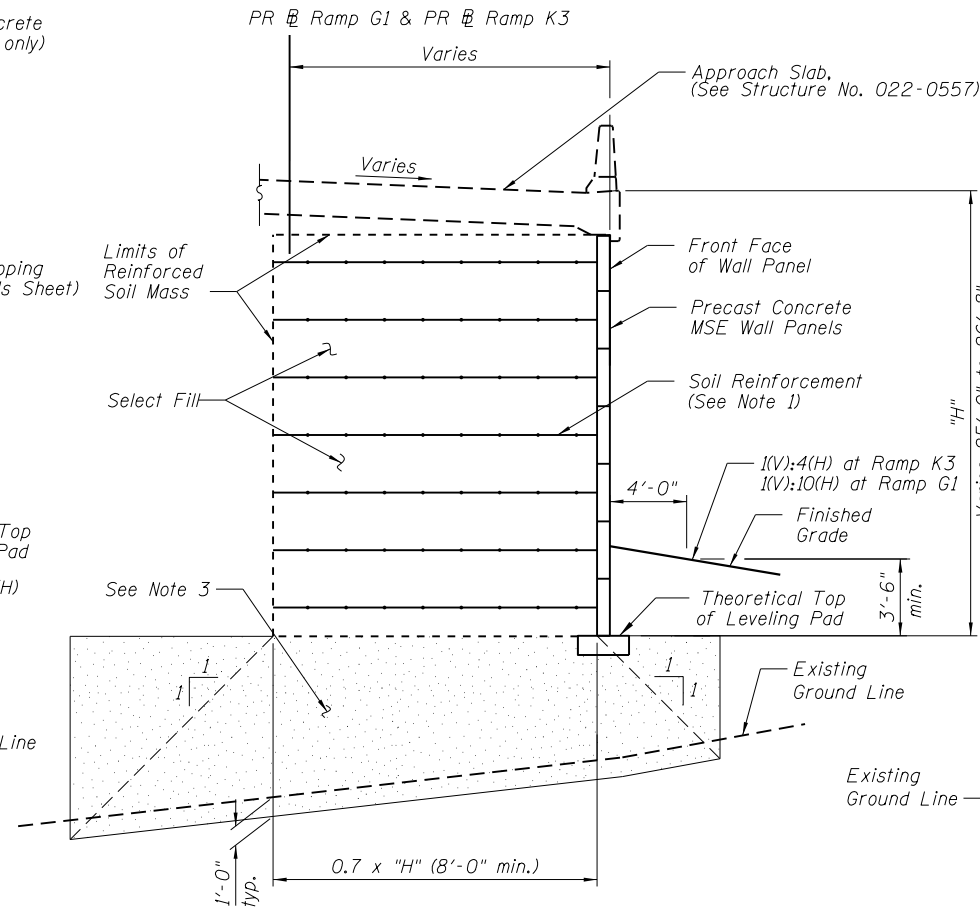
TOTAL BILL OF MATERIALS		
ITEM	UNIT	QUANTITY
Protective Coat	SQ YD	1797
Concrete Superstructure	CU YD	1016
Reinforcement Bars, Epoxy Coated	POUND	161,380
Name Plates	EACH	1
Granular Backfill for Structures	CU YD	27,634
Mechanically Stabilized Earth Retaining Wall	SQ FT	14,315

STATION 309+48 RAMP K3
 BUILT 2011 BY
 STATE OF ILLINOIS
 F.A.I. RT. 290
 SEC. 2013-83-R&B
 STRUCTURE NO. 022-0553

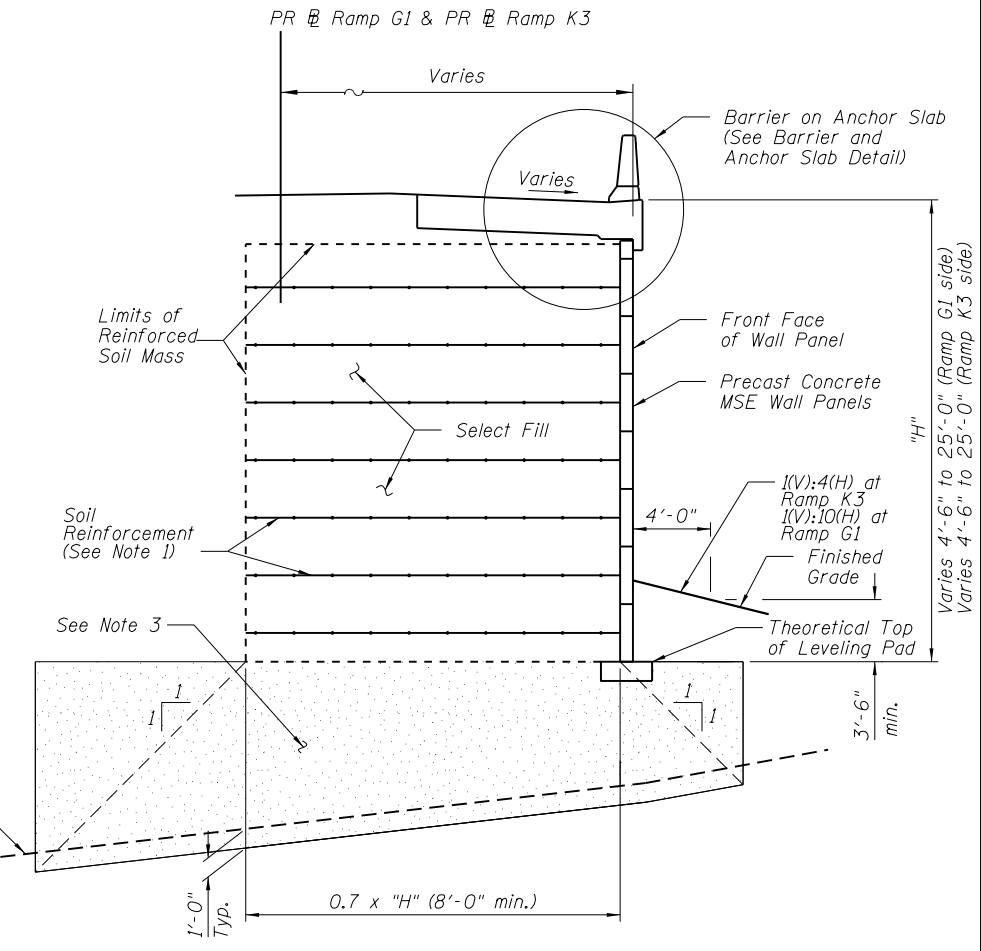
NAME PLATE
 See Std. 515001



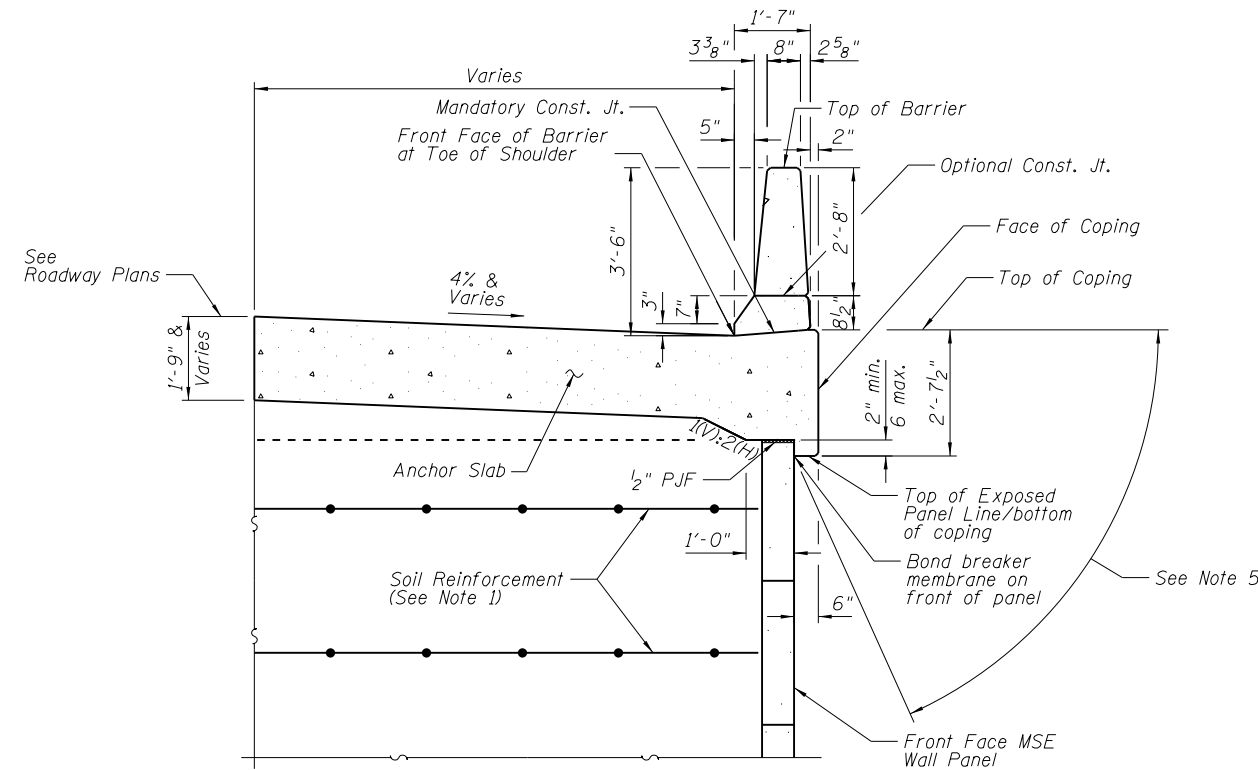
SECTION THRU ABUTMENT
(SECTION A-A)



SECTION THRU APPROACH SLAB
(SECTION B-B)



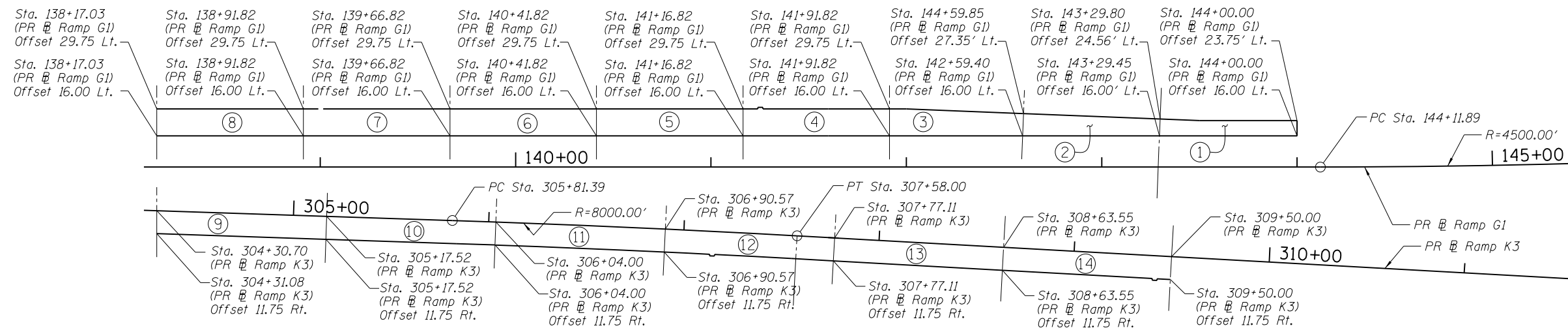
TYPICAL SECTION
(SECTION C-C)



BARRIER AND ANCHOR SLAB DETAIL

Notes:

1. The MSE wall supplier's internal stability design shall account for the anchor slab's bearing pressure surcharge of 1.0 ksf and horizontal sliding force of 1.15 kips/ft. of wall.
2. Pile Sleeve (See Bridge Plans).
3. Contractor Granular Backfill for Structures required for wall height, "H" ≥ 12'.
4. The MSE wall supplier shall design the abutment soil reinforcement to resist a horizontal force of 8.6 kips/ft. of abutment and shall account for this load in the internal stability design for the Service I limit state. The specified horizontal force includes abutment loads from bridge forces and active soil pressure.
5. Apply concrete stain entire length of wall. See Form Liner Special Provisions for requirements.



ANCHOR SLAB LAYOUT

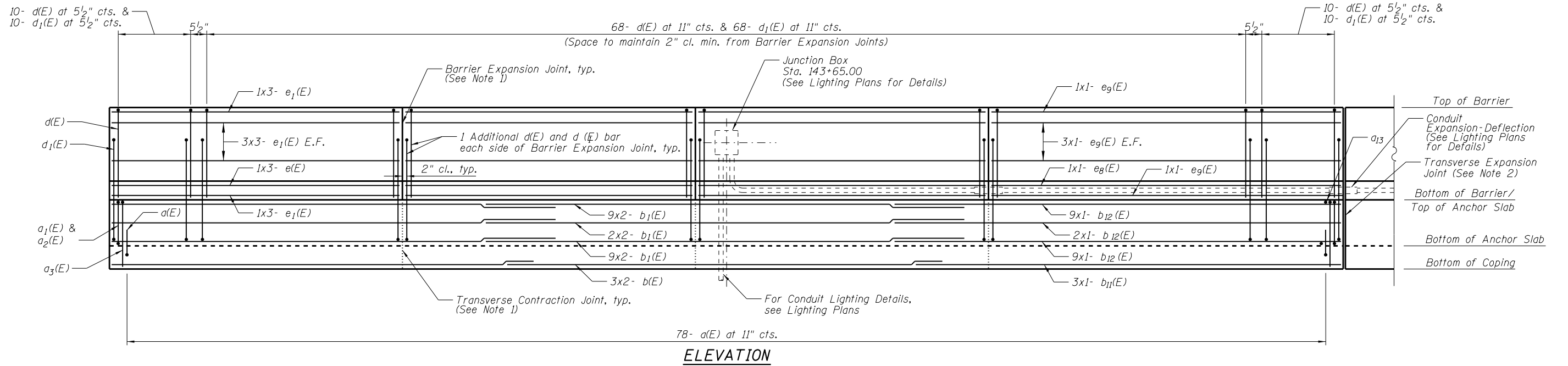
Legend:

(X) - Indicates Anchor Slab segment number

Note:

1. Station and offsets measured to Edge of Anchor Slab.

FILE NAME = 0220553-60Y95-004-AnchSlabKeyPlan.dgn CH2MHILL	USER NAME = asantiag	DESIGNED - EJM	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	ANCHORAGE SLAB KEY PLAN STRUCTURE NO. 022-0553	F.A.P. RTE. 345	SECTION 2013-083-R&B	COUNTY DUPAGE	TOTAL SHEETS 759	SHEET NO. 489
	PLOT SCALE = 6.0000' / in.	DRAWN - EJM	REVISED -			DRAWING NO. SP-04	CONTRACT NO. 60Y95			
	PLOT DATE = 10/28/2014	CHECKED - BGA	REVISED -			SHEET NO. 04 OF 36 SHEETS				
	ILLINOIS FED. AID PROJECT									



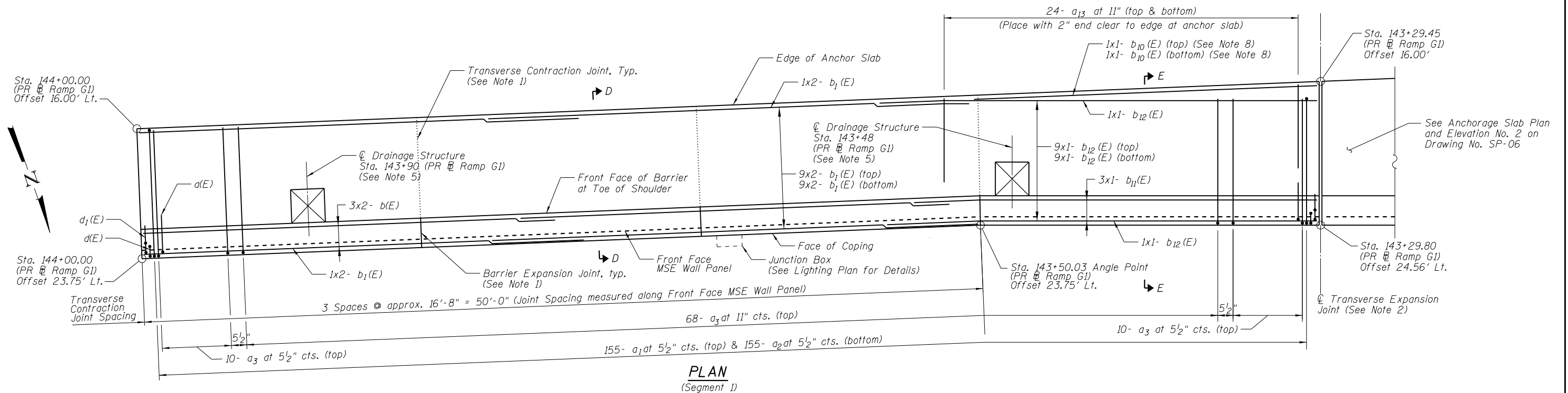
ELEVATION

Minimum Bar Lap

- #4 Bar = 2'-4"
- #5 Bar = 3'-0"
- #6 Bar = 3'-6"
- #7 Bar = 4'-8"
- #8 Bar = 6'-0"

Notes:

1. Place Transverse Contraction Joints with Barrier Expansion Joints perpendicular to Face of Coping. For details see Drawing No. SP-12.
2. Place Transverse Expansion Joints perpendicular to Face of Coping. For details see Drawing No. SP-12.
3. For Section D-D and Section E-E see Drawing No. SP-10.
4. Bar spacing for transverse reinforcement measured along Face of Coping.
5. Additional anchor slab transverse reinforcement at drainage structure not shown. See Drawing No. SP-13.
6. For Anchor Slab Layout, see Drawing No. SP-04.
7. Barrier longitudinal reinforcement not shown in Plan for clarity.
8. Field cut and omit b_{10} bars to maintain 3" minimum bar spacing.



PLAN
(Segment 1)

FILE NAME = 0220553-60Y95-005-AnchSlabP&E1.dgn
CH2MHILL

USER NAME = asantiag
DESIGNED - EJM
CHECKED - BGA
DRAWN - EJM
CHECKED - BGA
PLOT SCALE = 6.0000' / in.
PLOT DATE = 10/28/2014

DESIGNED - EJM
CHECKED - BGA
DRAWN - EJM
CHECKED - BGA

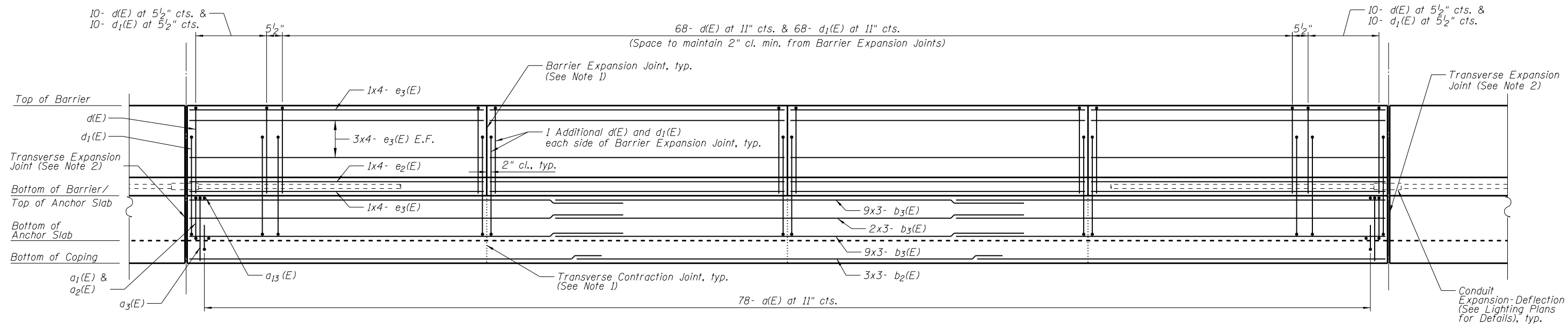
REVISED -
REVISED -
REVISED -
REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ANCHORAGE SLAB PLAN & ELEVATION No. 1
STRUCTURE NO. 022-0553

SHEET NO. 05 OF 36 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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DRAWING NO. SP-05			CONTRACT NO. 60Y95	
ILLINOIS FED. AID PROJECT				



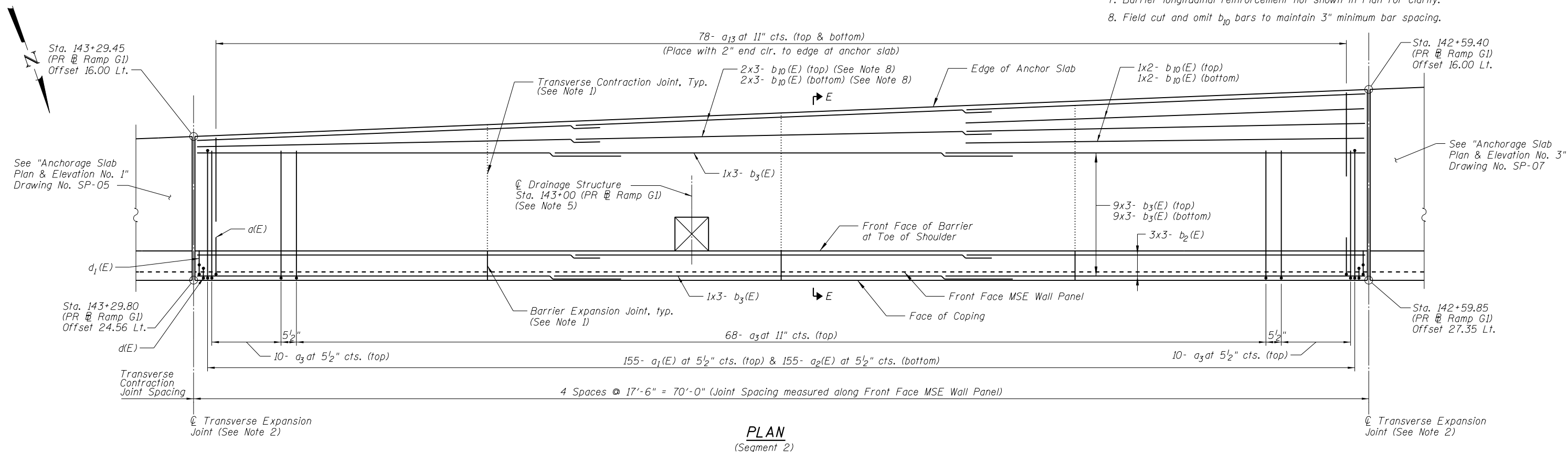
ELEVATION

Minimum Bar Lap

- #4 Bar = 2'-4"
- #5 Bar = 3'-0"
- #6 Bar = 3'-6"
- #7 Bar = 4'-8"
- #8 Bar = 6'-0"

Notes:

1. Place Transverse Contraction Joints with Barrier Expansion Joints perpendicular to Face of Coping. For details see Drawing No. SP-12.
2. Place Transverse Expansion Joints perpendicular to Face of Coping. For details see Drawing No. SP-12.
3. For Section E-E, see Drawing No. SP-10.
4. Bar spacing for transverse reinforcement measured along Face of Coping.
5. Additional anchor slab transverse reinforcement at drainage structure not shown. See Drawing No. SP-13.
6. For Anchor Slab Layout, see Drawing No. SP-04.
7. Barrier longitudinal reinforcement not shown in Plan for clarity.
8. Field cut and omit b_{10} bars to maintain 3" minimum bar spacing.



PLAN
(Segment 2)

FILE NAME = 0220553-60Y95-006-AnchSlabP&E2.dgn
CH2MHILL

USER NAME = asantiag
DESIGNED - EJM
CHECKED - BGA
DRAWN - EJM
CHECKED - BGA

DESIGNED - EJM
CHECKED - BGA
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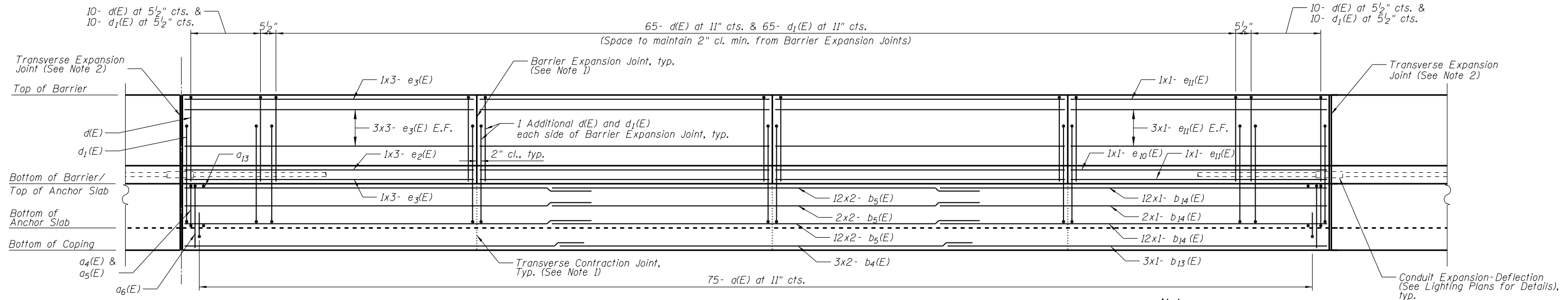
REVISED -
REVISED -
REVISED -
REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ANCHORAGE SLAB PLAN & ELEVATION No. 2
STRUCTURE NO. 022-0553

SHEET NO. 06 OF 36 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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DRAWING NO. SP-06			CONTRACT NO. 60Y95	
ILLINOIS FED. AID PROJECT				



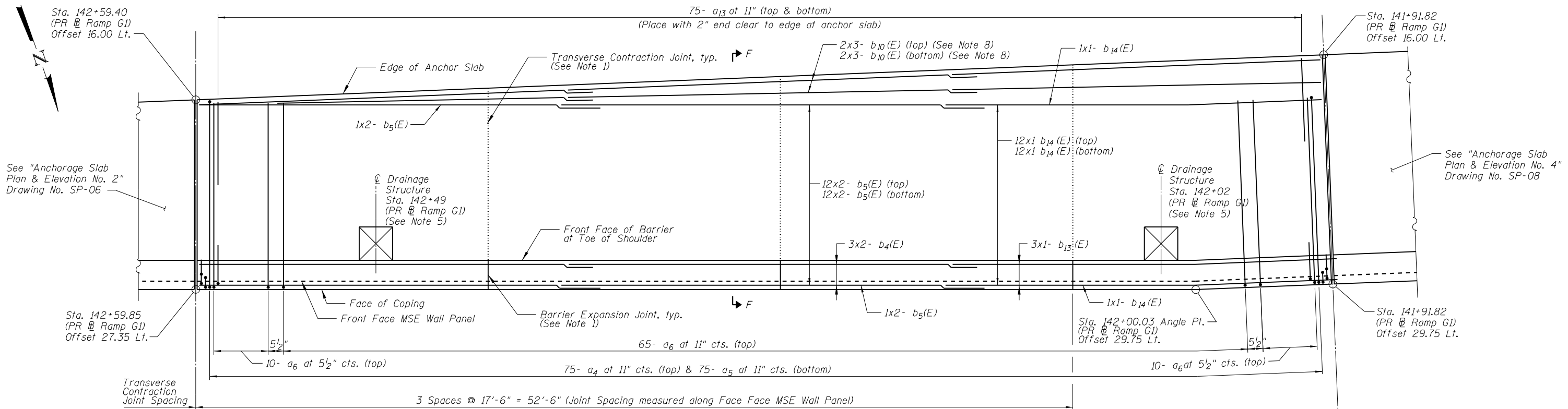
ELEVATION

Notes:

1. Place Transverse Contraction Joints with Barrier Expansion Joints perpendicular to Face of Coping. For details see Drawing No. SP-12.
2. Place Transverse Expansion Joints perpendicular to Face of Coping. For details see Drawing No. SP-12.
3. For Section F-F, see Drawing No. SP-10.
4. Bar spacing for transverse reinforcement measured along Face of Coping.
5. Additional anchor slab transverse reinforcement at drainage structure not shown. See Drawing No. SP-13.
6. For Anchor Slab Layout, see Drawing No. SP-04.
7. Barrier longitudinal reinforcement not shown in Plan for clarity.
8. Field cut and omit b_{10} bars to maintain 3" minimum bar spacing.

Minimum Bar Lap

- #4 Bar = 2'-4"
- #5 Bar = 3'-0"
- #6 Bar = 3'-6"
- #7 Bar = 4'-8"
- #8 Bar = 6'-0"



PLAN

(Segment 3)

FILE NAME = 0220553-60Y95-007-AnchSlabP&E3.dgn
CH2MHILL

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 CHECKED - BGA
 DRAWN - EJM
 CHECKED - BGA
 PLOT SCALE = 6.0000' / in.
 PLOT DATE = 10/28/2014

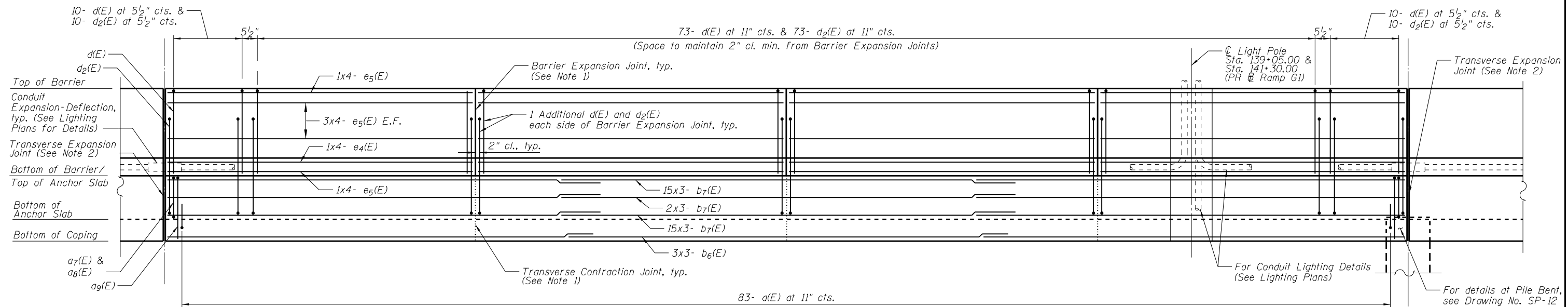
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 REVISED -
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**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**ANCHORAGE SLAB PLAN & ELEVATION No. 3
 STRUCTURE NO. 022-0553**

SHEET NO. 07 OF 36 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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DRAWING NO. SP-07			CONTRACT NO. 60Y95	
ILLINOIS FED. AID PROJECT				



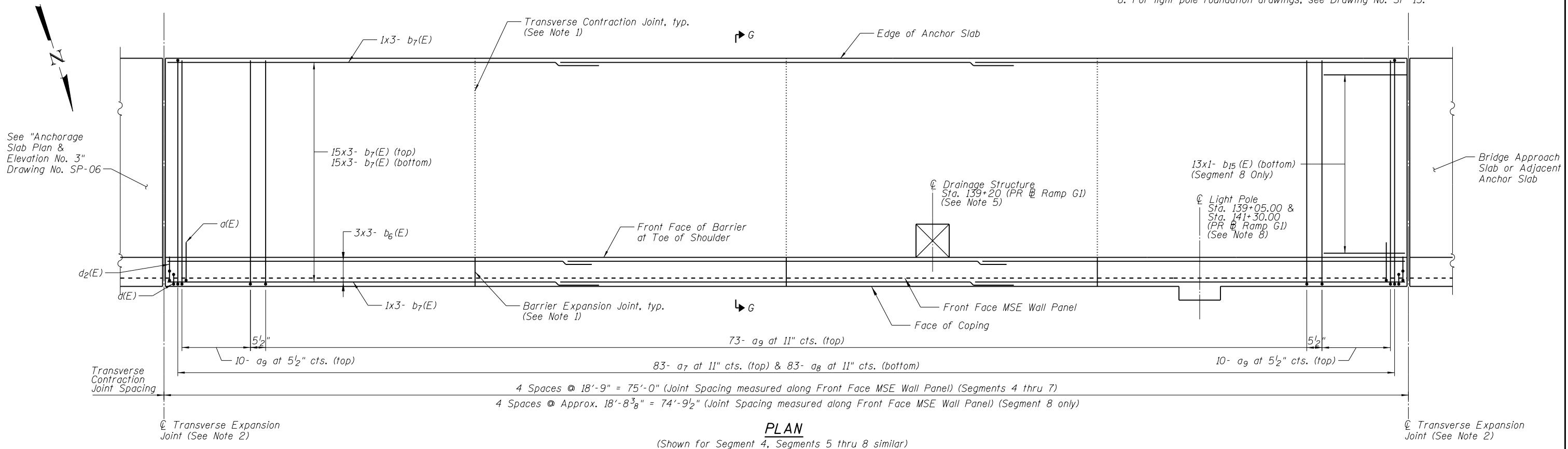
ELEVATION

Minimum Bar Lap

- #4 Bar = 2'-4"
- #5 Bar = 3'-0"
- #6 Bar = 3'-6"
- #7 Bar = 4'-8"
- #8 Bar = 6'-0"

Notes:

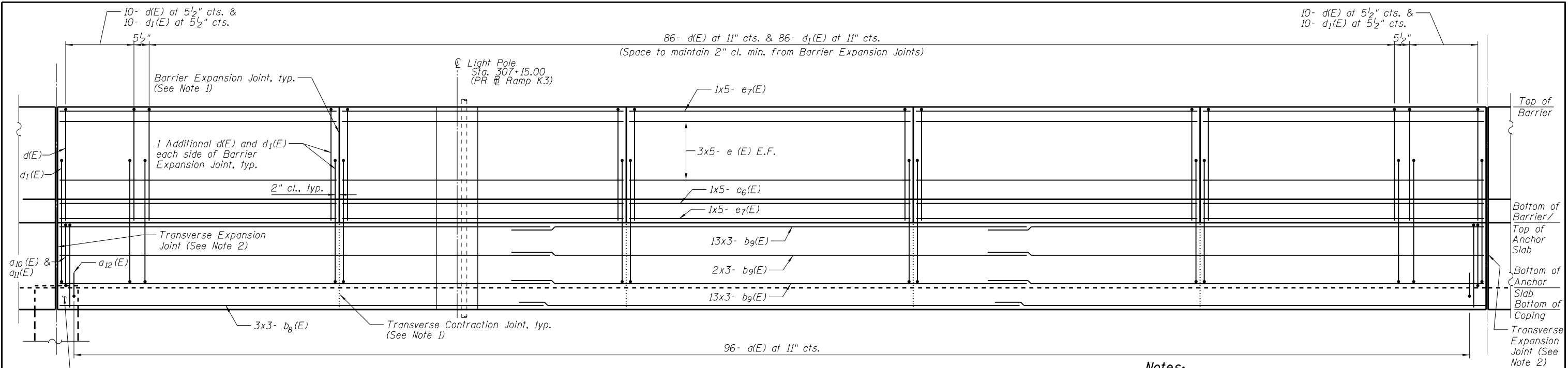
1. Place Transverse Contraction Joints with Barrier Expansion Joints perpendicular to Face of Coping. For details see Drawing No. SP-12.
2. Place Transverse Expansion Joints perpendicular to Face of Coping. For details see Drawing No. SP-12.
3. For Section G-G, see Drawing No. SP-10.
4. Bar spacing for transverse reinforcement measured along Face of Coping.
5. Additional anchor slab transverse reinforcement at drainage structure not shown. See Drawing No. SP-13.
6. For Anchor Slab Layout, see Drawing No. SP-04.
7. Barrier longitudinal reinforcement not shown in Plan for clarity.
8. For light pole foundation drawings, see Drawing No. SP-13.



PLAN

(Shown for Segment 4, Segments 5 thru 8 similar)

FILE NAME = 0220553-60Y95-008-AnchSlabP&E4.dgn CH2MHILL	USER NAME = asantiag	DESIGNED - EJM	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	ANCHORAGE SLAB PLAN & ELEVATION No. 4 STRUCTURE NO. 022-0553 SHEET NO. 08 OF 36 SHEETS	F.A.P. R.T.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
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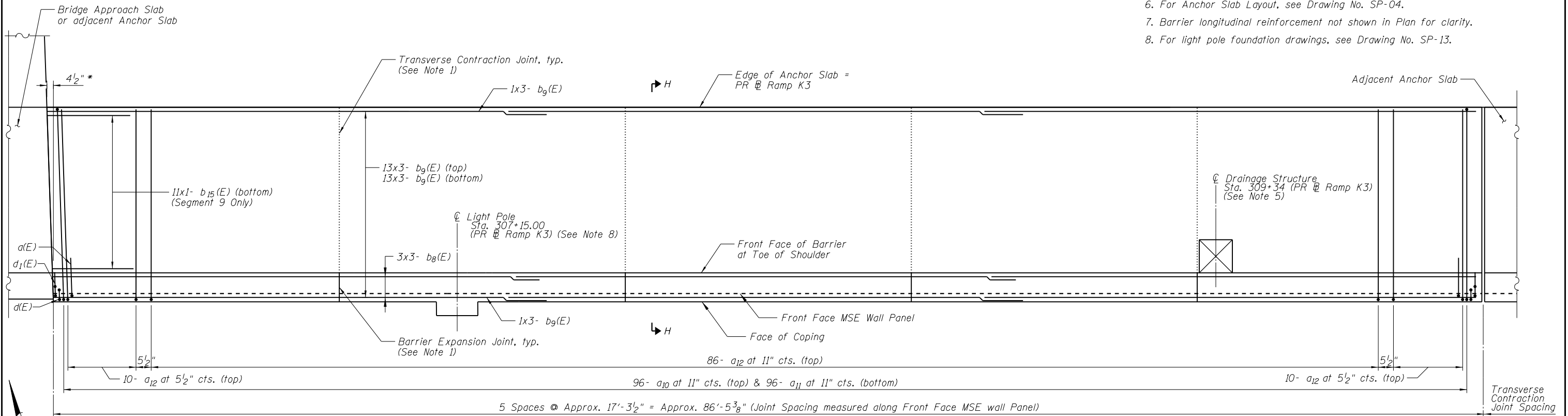
ELEVATION

Minimum Bar Lap

- #4 Bar = 2'-4"
- #5 Bar = 3'-0"
- #6 Bar = 3'-6"
- #7 Bar = 4'-8"
- #8 Bar = 6'-0"

Notes:

1. Place Transverse Contraction Joints with Barrier Expansion Joints perpendicular to Face of Coping. For details see Drawing No. SP-12.
2. Place Transverse Expansion Joints perpendicular to Face of Coping. For details see Drawing No. SP-12.
3. For Section H-H, see Drawing No. SP-11.
4. Bar spacing for transverse reinforcement measured along Face of Coping.
5. Additional anchor slab transverse reinforcement at drainage structure not shown. See Drawing No. SP-13.
6. For Anchor Slab Layout, see Drawing No. SP-04.
7. Barrier longitudinal reinforcement not shown in Plan for clarity.
8. For light pole foundation drawings, see Drawing No. SP-13.

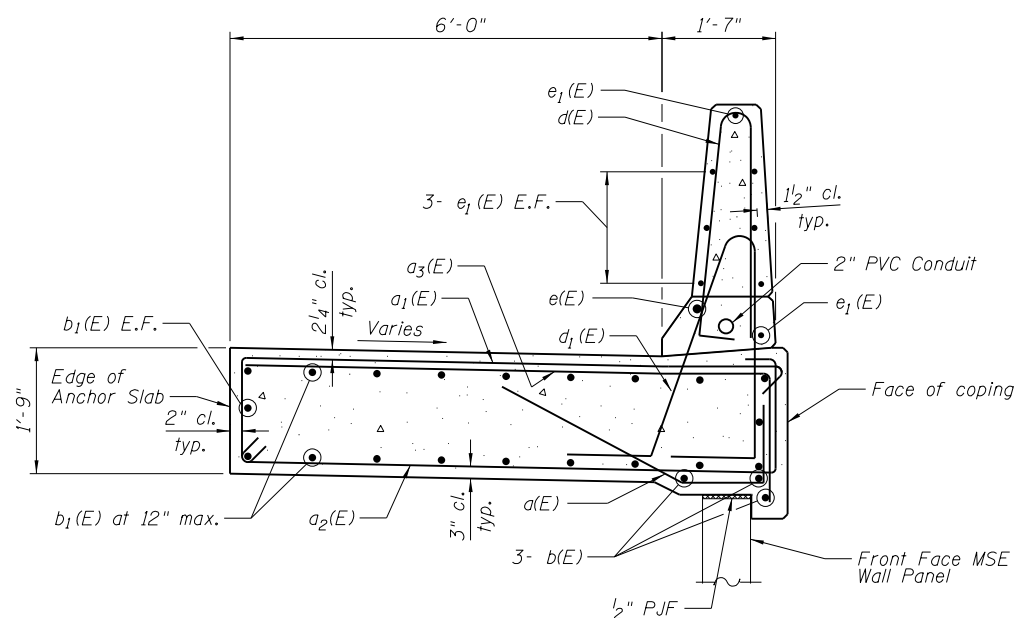


PLAN

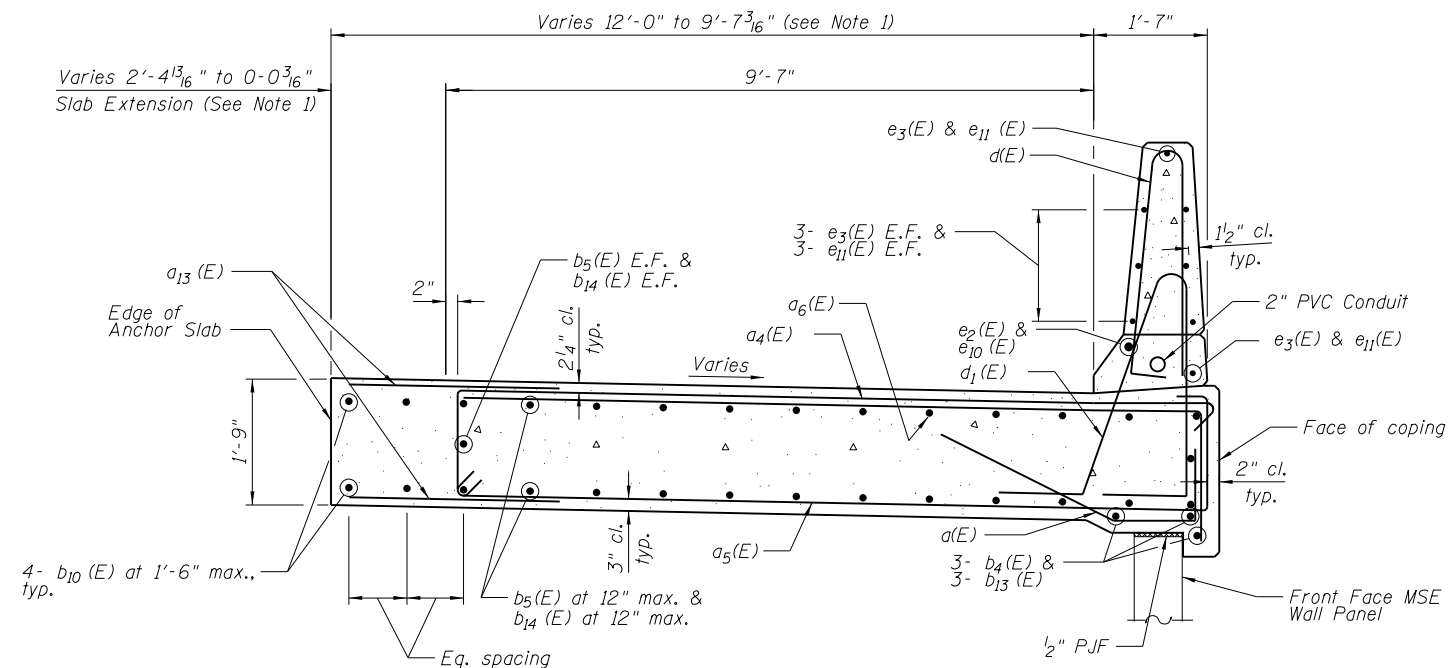
(Shown for Segment 9, Segments 10 thru 14 similar)

* Dimension for Transverse Expansion Joint at Approach Slab/Anchor Slab (Segment 9) only. All other Transverse Expansion Joints are perpendicular to PR @ Ramp K3.

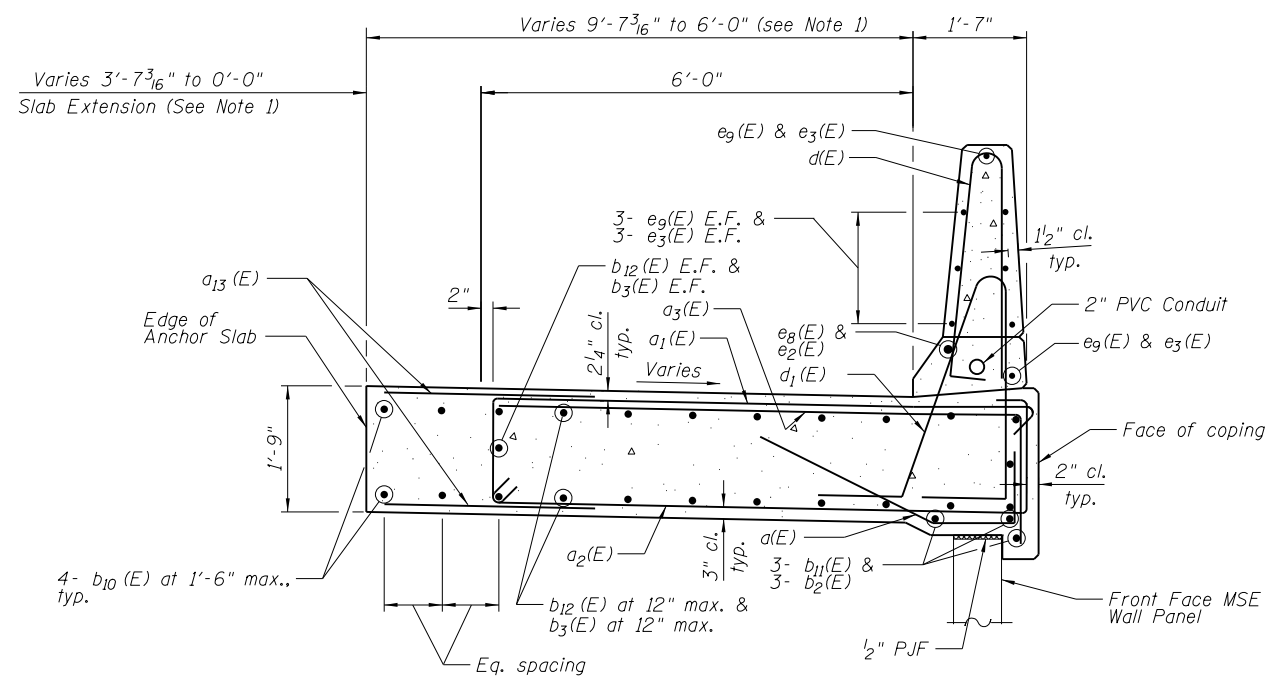
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	ILLINOIS FED. AID PROJECT									



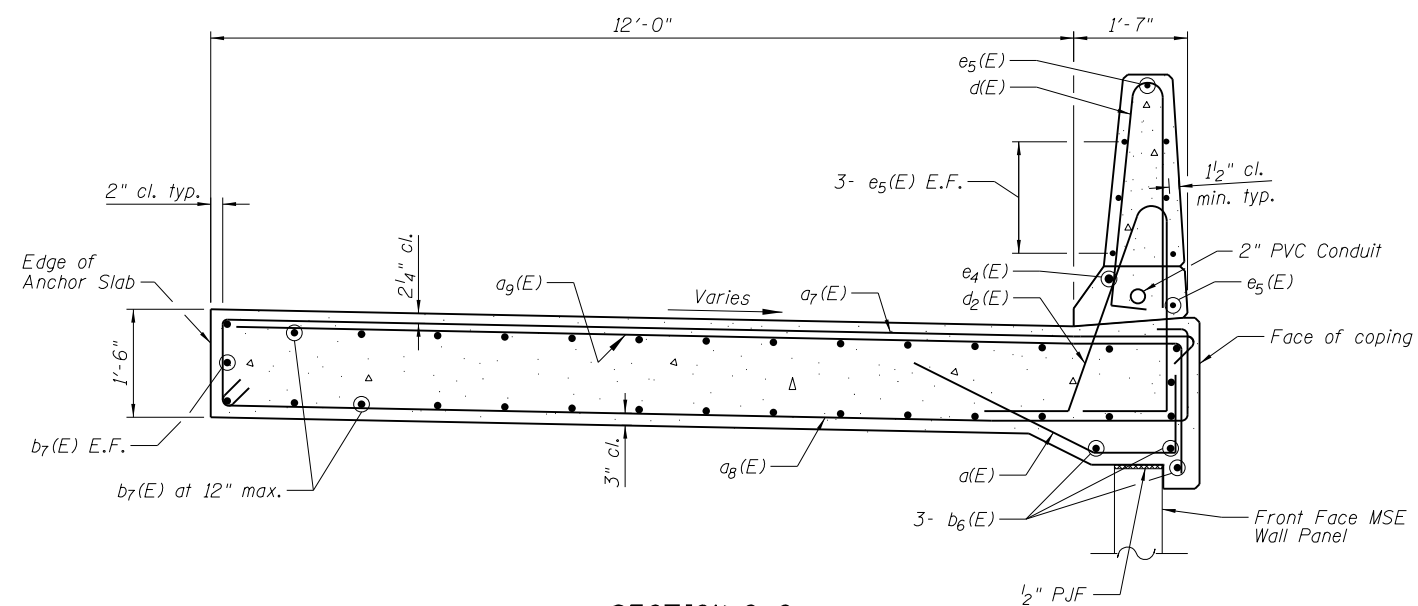
SECTION D-D



SECTION F-F



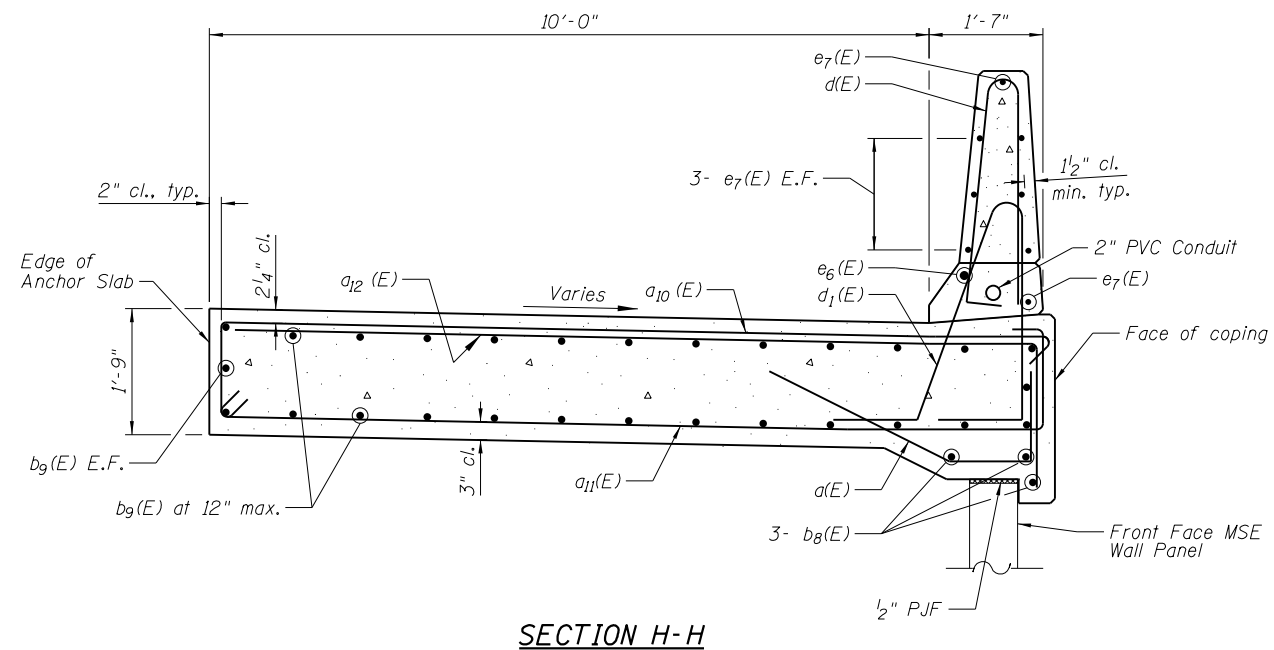
SECTION E-E



SECTION G-G

Notes:

1. For anchor slab details not provided, see Anchorage Slab Plan and Elevation sheets.
2. For locations of Section D-D, Section E-E, Section F-F and Section G-G, see Anchorage Slab Plan and Elevation sheets.
3. For Anchor Slab Bill of Materials and Bar Details, see Drawing No. SP-14 and Drawing No. SP-15.
4. For Anchor Slab dimensions not shown, see Barrier and Anchor Slab Detail on Drawing No. SP-03.
5. Cost of P.J.F. included in Concrete Superstructure.



Notes:

1. For anchor slab details not provided, see Anchorage Slab Plan and Elevation sheets.
2. For locations of Section H-H, see Anchorage Slab Plan and Elevation sheets.
3. For Anchor Slab Bill of Materials and Bar Details, see Drawing No. SP-14 and Drawing No. SP-15.
4. For Anchor Slab dimensions not shown, see Barrier and Anchor Slab Detail on Drawing No. SP-03.
5. Cost of P.J.F. included in Concrete Superstructure.

FILE NAME = 0220553-60Y95-011-AnchSlabBarrDet2.dgn
CH2MHILL

USER NAME = asantiag
 PLOT SCALE = 4.0000' / in.
 PLOT DATE = 10/28/2014

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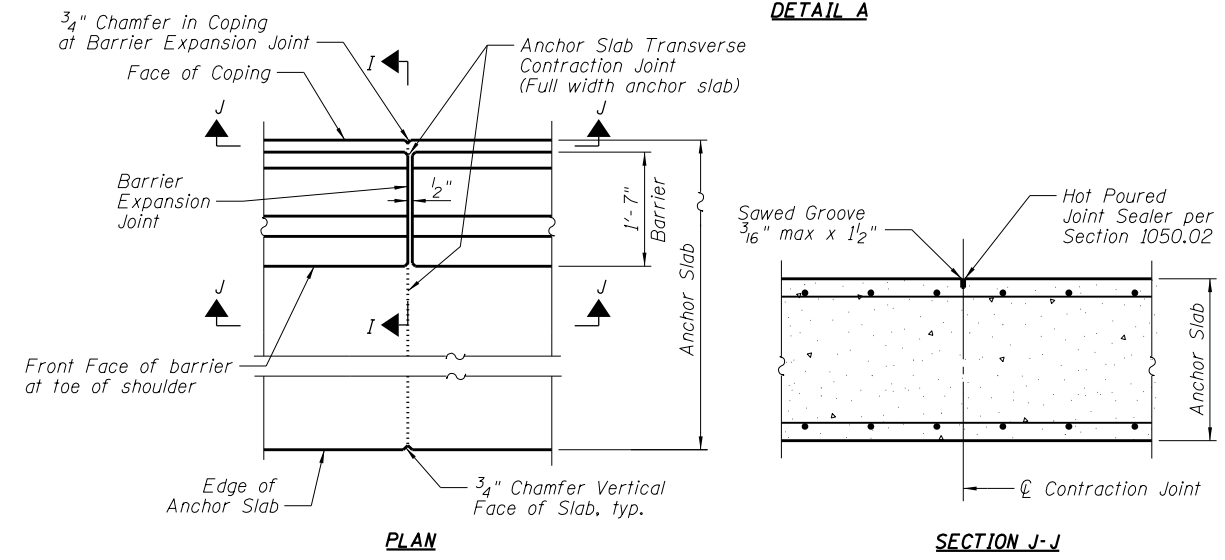
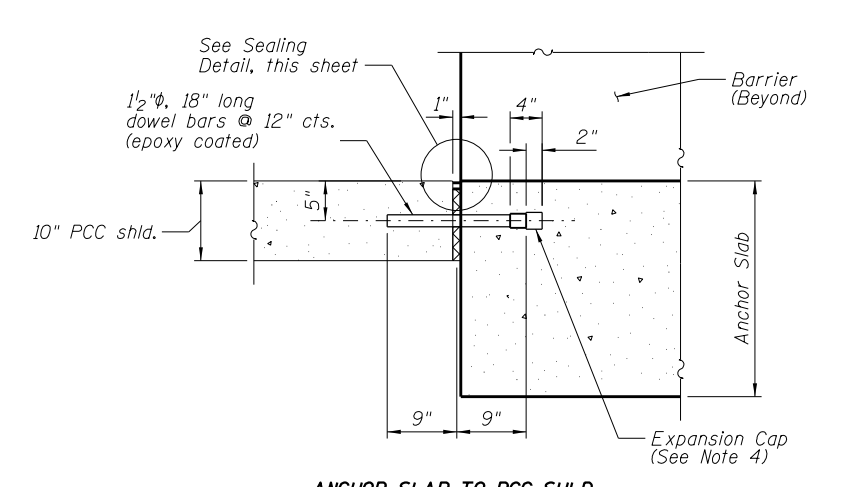
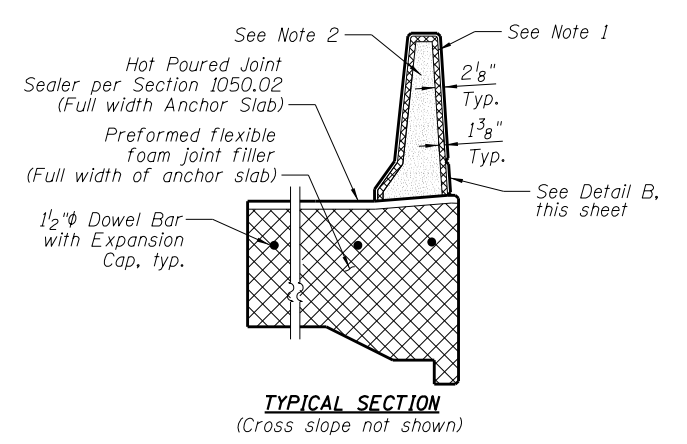
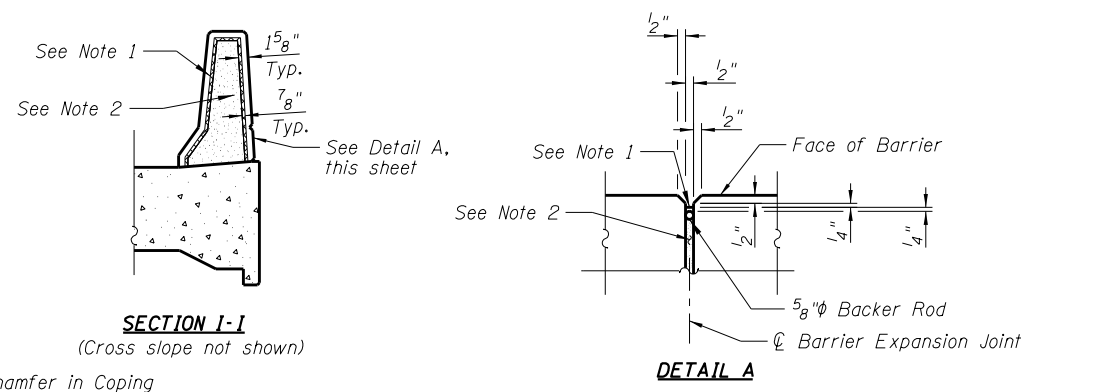
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**STATE OF ILLINOIS
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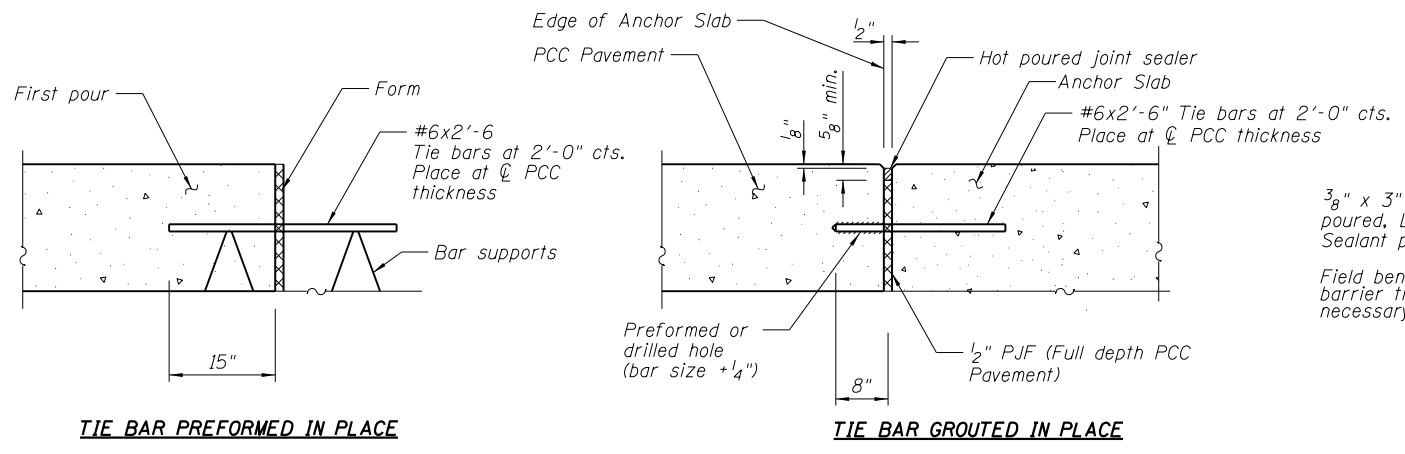
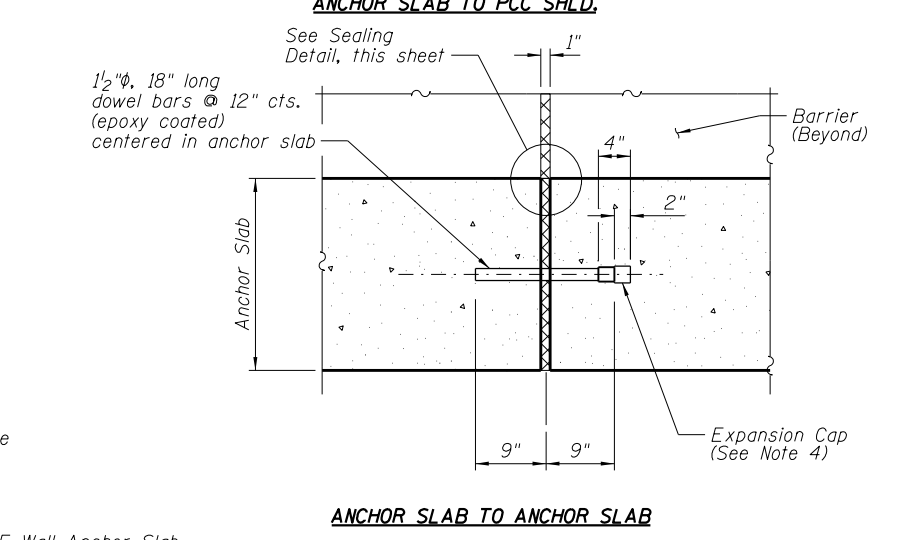
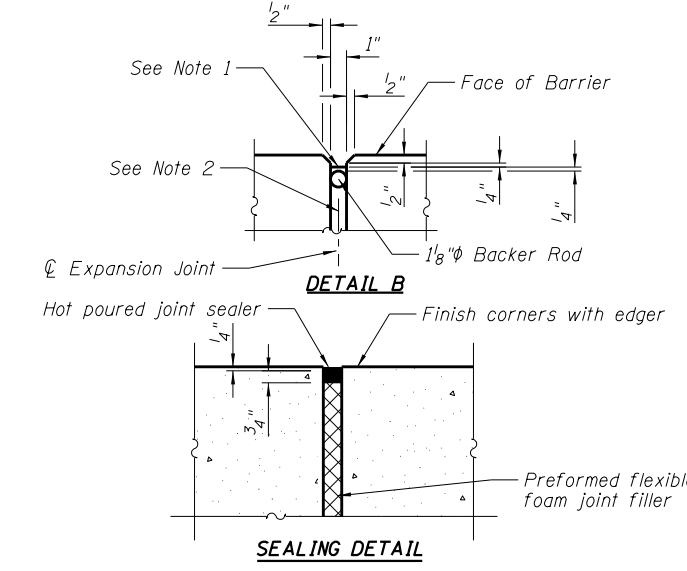
**ANCHORAGE SLAB & BARRIER DETAILS No. 2
 STRUCTURE NO. 022-0553**

SHEET NO. 11 OF 36 SHEETS

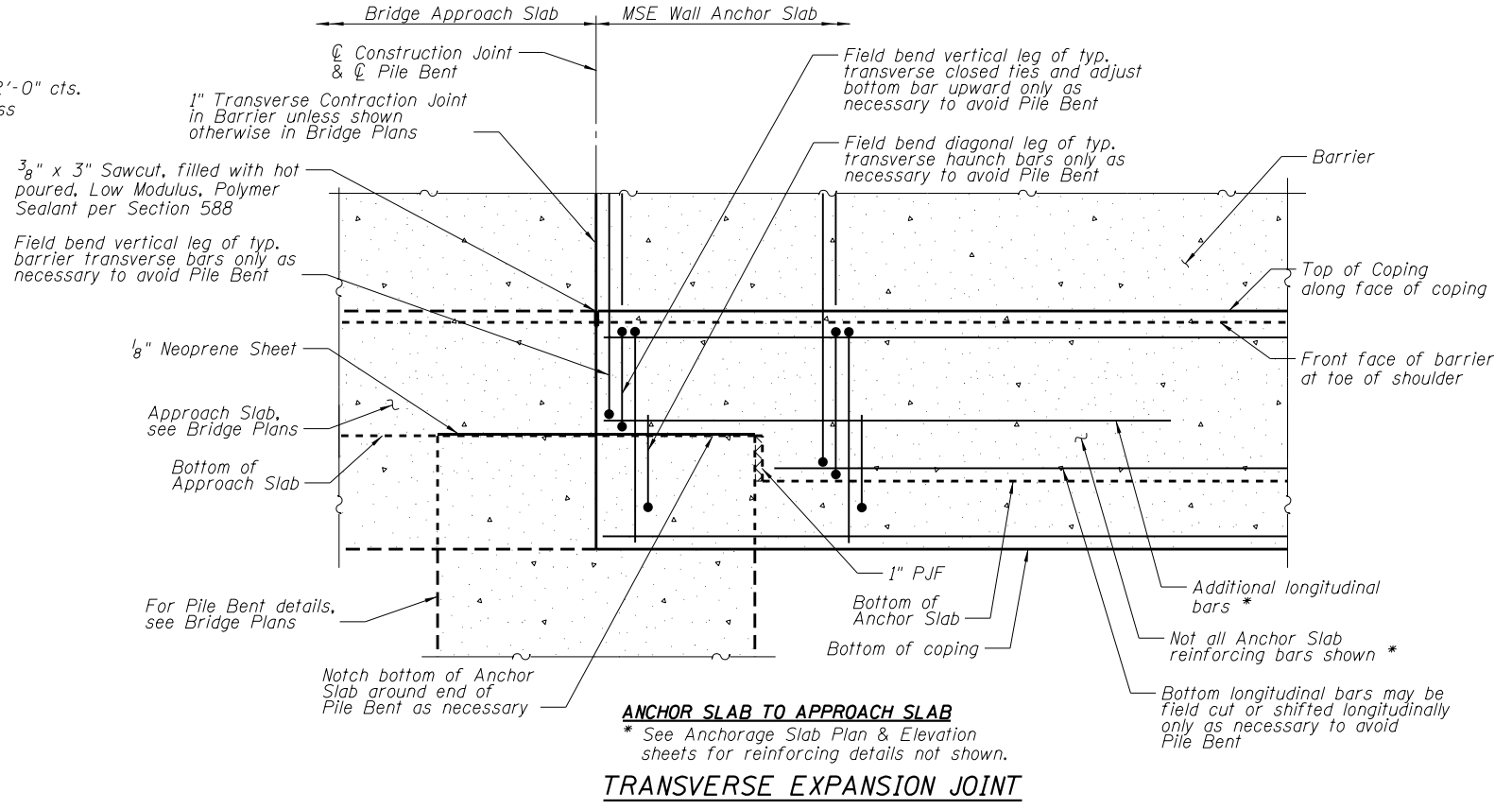
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
345	2013-083-R&B	DUPAGE	759	496
DRAWING NO. SP-11			CONTRACT NO. 60Y95	
ILLINOIS FED. AID PROJECT				



TRANSVERSE CONTRACTION JOINT

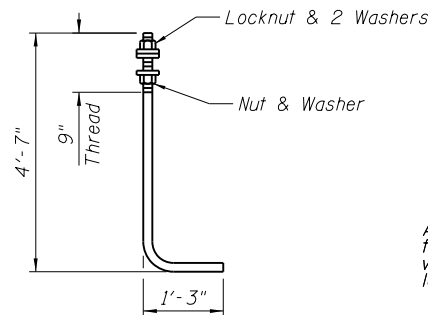
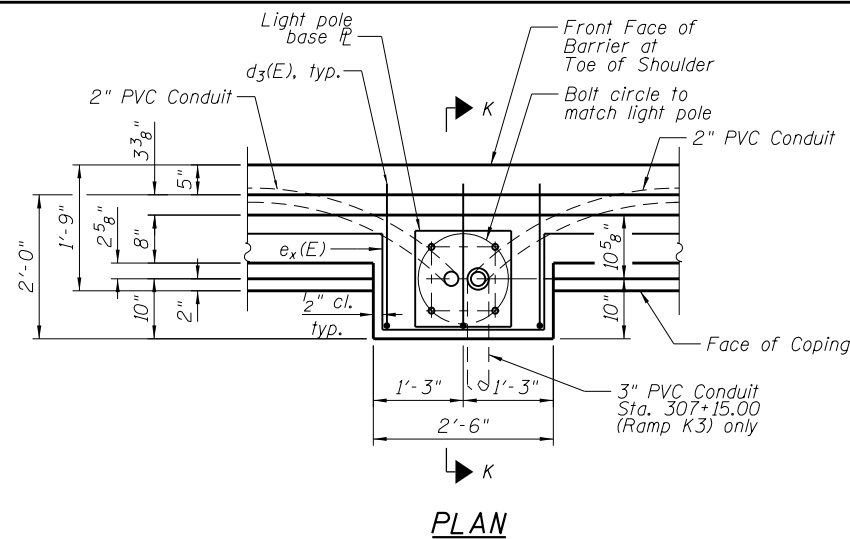


LONGITUDINAL CONSTRUCTION JOINT



TRANSVERSE EXPANSION JOINT

- Notes:**
- Non-staining gray one component non-sag elastomeric gun grade polyurethane sealant meeting the requirements of ASTM C-920, Type S, Grade NS, Class 25, use T with a backer rod.
 - Preformed Self-Expanding Cork Joint Filler according to Article 1051.07 of Std. Spec.
 - Dowel bars are not included in Bill of Materials. Cost included in Concrete Superstructure.
 - Expansion caps shall be installed on the exposed end of each dowel bar once the header has been removed and the joint filler material has been installed.



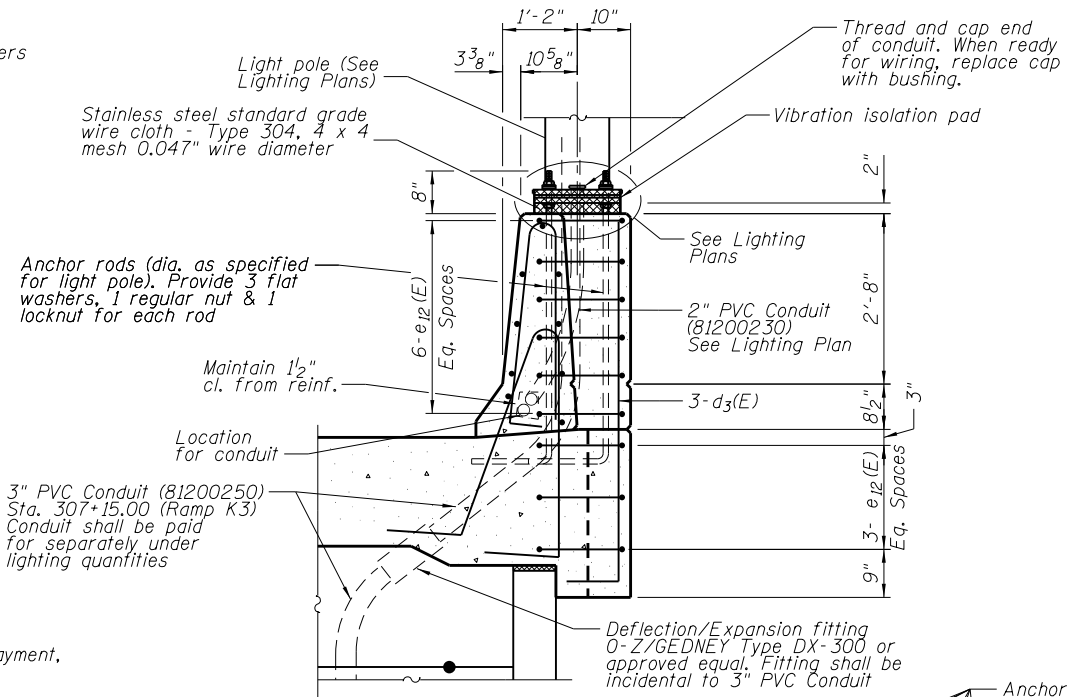
Diameter as specified for light poles. (ASTM F 1554 Grade 105), full length hot dipped galvanized

LIGHT POLE FOUNDATION

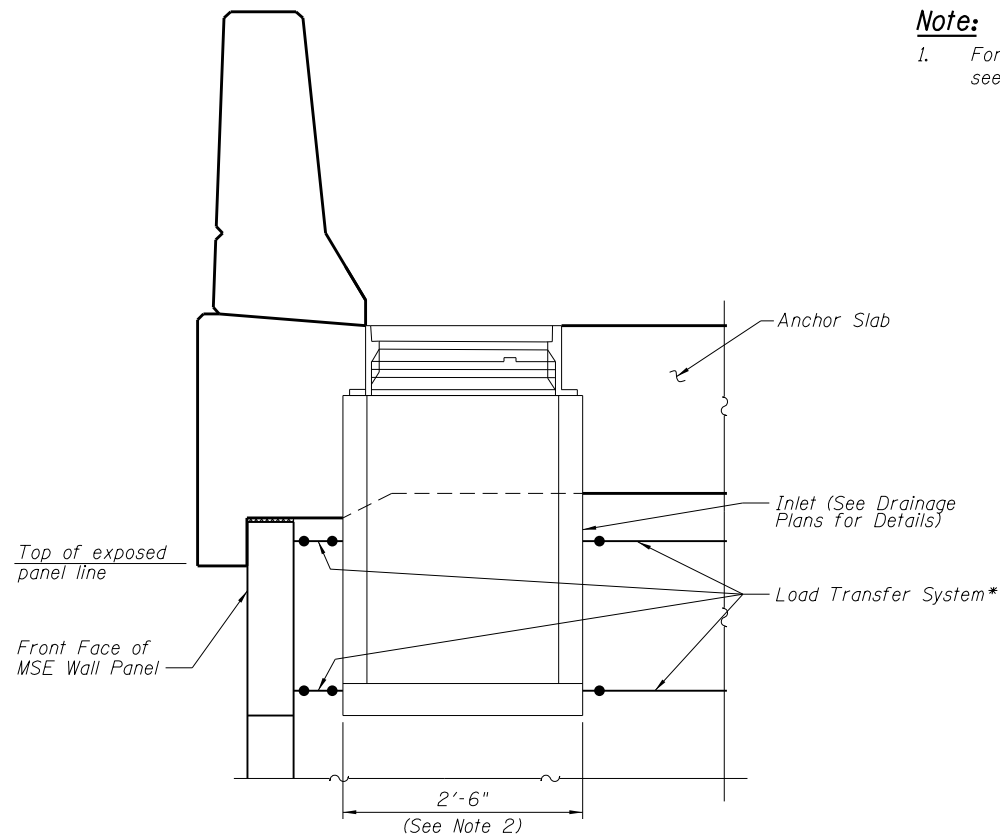
Light Pole - Sta. 139+05.00 (Ramp G1)
 Light Pole - Sta. 141+30.00 (Ramp G1)
 Light Pole - Sta. 307+15.00 (Ramp K3)

Note:

1. For lighting layout, quantities, and payment, see Lighting Plans.



SECTION K-K



DRAINAGE STRUCTURE DETAIL (TYPE A)

* MSE supplier to design load transfer system to accommodate drainage structure.

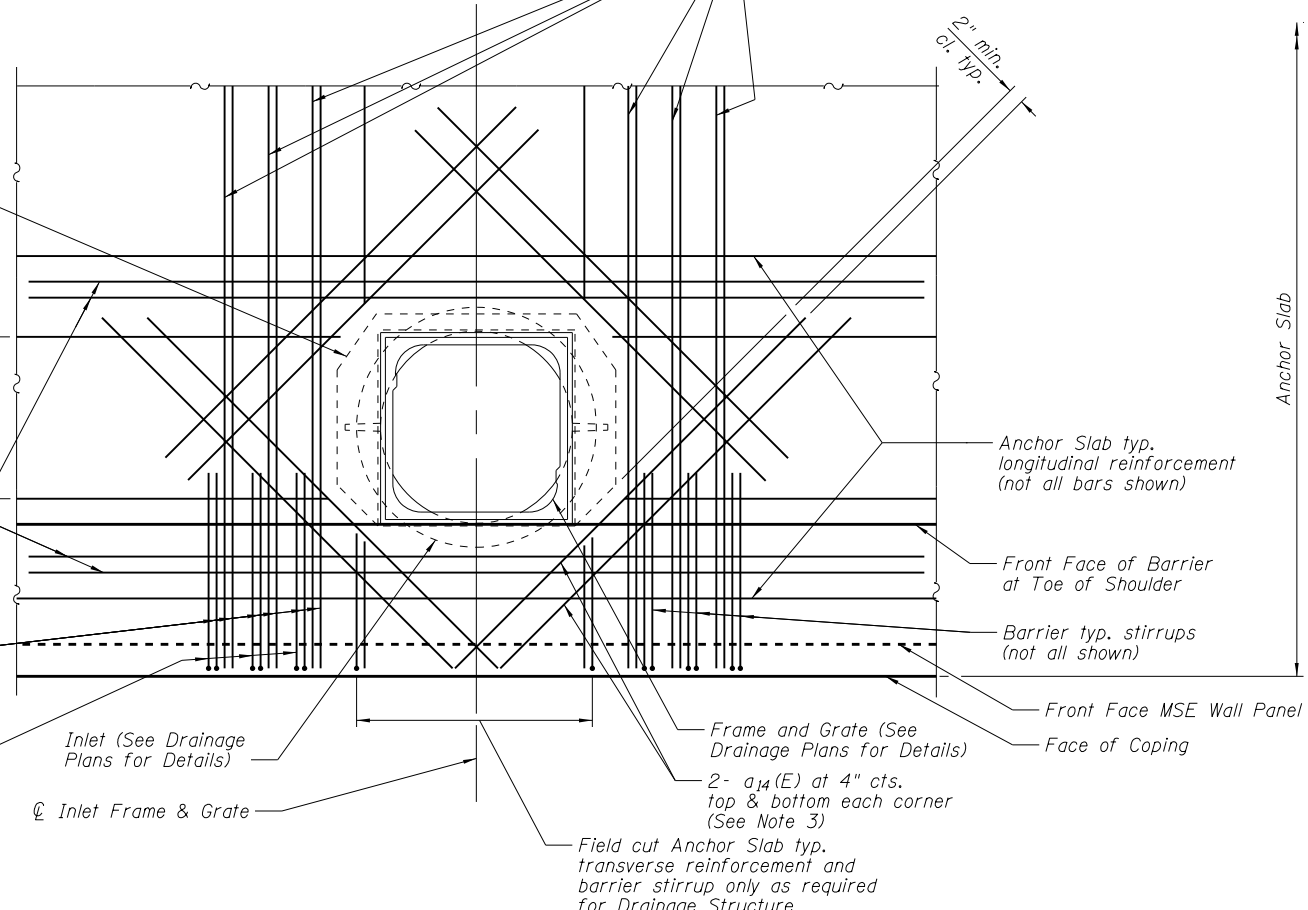
See Drainage Structure Detail (Type A) this sheet

Field cut anchor slab typ. longitudinal reinforcement only as required for drainage structure

2- b₁₆(E) at 4" cts. top & bottom, 2" cl. of Drainage Structure (See Note 3)

For each Anchor Slab typ. transverse bar designation and barrier stirrup field cut, place 3 additional same bars each side of Drainage Structure, bundled with typ. bars

Barrier typ. stirrups (not all shown)



PLAN AT DRAINAGE STRUCTURE (TYPE A)

Inlet - Sta. 143+90 (Ramp G1)
 Inlet - Sta. 143+48 (Ramp G1)
 Inlet - Sta. 143+00 (Ramp G1)
 Inlet - Sta. 142+49 (Ramp G1)
 Inlet - Sta. 142+02 (Ramp G1)
 Inlet - Sta. 139+20 (Ramp G1)
 Inlet - Sta. 309+34 (Ramp K3)

Notes:

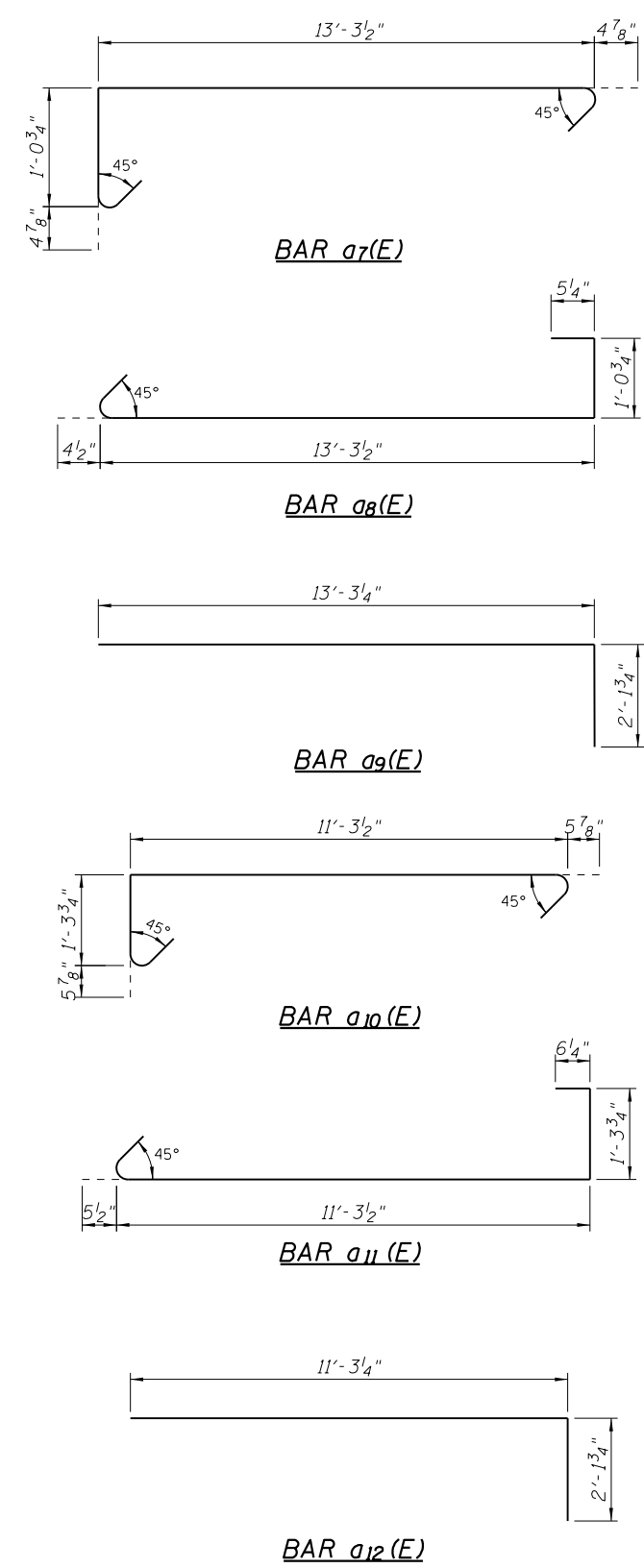
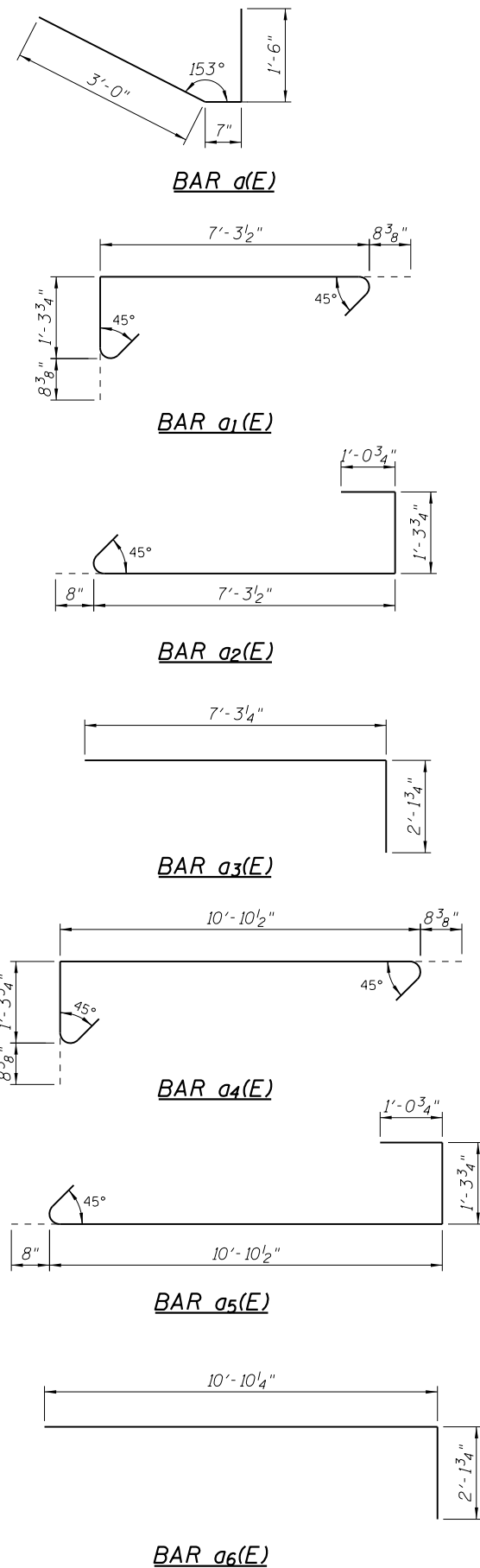
- For Anchor Slab Bill of Materials and Bar Details, see Drawing No. SP-14 and Drawing No. SP-15.
- Size and shape of drainage structure approximate, see Drainage Plans for details.
- Place bars symmetric about \varnothing drainage inlet as space permits, see Anchor Slab Bill of Materials for bar lengths.

**ANCHOR SLAB
BILL OF MATERIAL**

BAR	No.	SIZE	LENGTH	SHAPE
a(E)	1222	#4	5'-1"	┘
a ₁ (E)	328	#6	10'-0"	┘
a ₂ (E)	328	#6	10'-4"	┘
a ₃ (E)	194	#5	9'-5"	┘
a ₄ (E)	87	#6	13'-7"	┘
a ₅ (E)	87	#6	13'-11"	┘
a ₆ (E)	97	#5	13'-0"	┘
a ₇ (E)	421	#4	15'-2"	┘
a ₈ (E)	421	#4	15'-2"	┘
a ₉ (E)	471	#6	15'-5"	┘
a ₁₀ (E)	582	#5	13'-7"	┘
a ₁₁ (E)	582	#5	13'-7"	┘
a ₁₂ (E)	642	#5	13'-5"	┘
a ₁₃ (E)	354	#4	5'-6"	┘
a ₁₄ (E)	112	#6	5'-2"	┘
b(E)	6	#4	24'-11"	—
b ₁ (E)	40	#8	27'-4"	—
b ₂ (E)	9	#4	24'-10"	—
b ₃ (E)	60	#8	27'-3"	—
b ₄ (E)	6	#4	24'-2"	—
b ₅ (E)	52	#6	24'-11"	—
b ₆ (E)	45	#4	26'-6"	—
b ₇ (E)	480	#6	27'-3"	—
b ₈ (E)	54	#4	30'-5"	—
b ₉ (E)	504	#6	31'-2"	—
b ₁₀ (E)	30	#4	30'-0"	—
b ₁₁ (E)	3	#4	24'-11"	—
b ₁₂ (E)	20	#8	27'-4"	—
b ₁₃ (E)	3	#4	24'-2"	—
b ₁₄ (E)	26	#6	24'-11"	—
b ₁₅ (E)	24	#6	6'-0"	—
b ₁₆ (E)	56	#8	16'-0"	—
d(E)	1458	#5	6'-10"	┘
d ₁ (E)	999	#5	8'-9"	┘
d ₂ (E)	501	#5	8'-3"	┘
d ₃ (E)	9	#6	6'-5"	┘
e(E)	3	#8	16'-3"	—
e ₁ (E)	24	#4	16'-3"	—
e ₂ (E)	7	#8	17'-1"	—
e ₃ (E)	56	#4	17'-1"	—
e ₄ (E)	20	#8	18'-3"	—
e ₅ (E)	160	#4	18'-3"	—
e ₆ (E)	30	#8	16'-10"	—
e ₇ (E)	240	#4	16'-10"	—
e ₈ (E)	1	#8	19'-10"	—
e ₉ (E)	8	#4	19'-10"	—
e ₁₀ (E)	1	#8	15'-1"	—
e ₁₁ (E)	8	#4	15'-1"	—
e ₁₂ (E)	27	#6	8'-11"	┘
DESCRIPTION	UNIT	QUANTITY		
Concrete Superstructure	CU YD	1016		
Reinforcement Bars Epoxy Coated	POUND	161,380		
Protective Coat	SQ YD	1797		

Note:

1. Reinforcement in MSE wall panels and C.I.P. Concrete Coping (except anchor slab coping) not included in Bill of Materials. Cost included in Mechanically Stabilized Earth Retaining Wall.



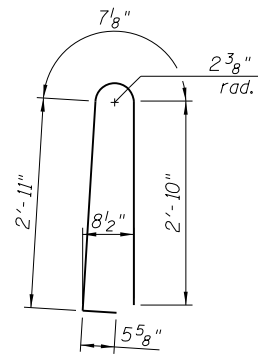
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CH2MHILL	PLOT SCALE = 2.6667' / in.	CHECKED - BGA	REVISED -
	PLOT DATE = 10/28/2014	DRAWN - EJM	REVISED -
		CHECKED - BGA	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

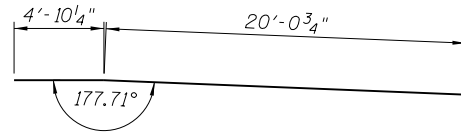
**ANCHORAGE SLAB & BARRIER DETAILS No. 5
STRUCTURE NO. 022-0553**

SHEET NO. 14 OF 36 SHEETS

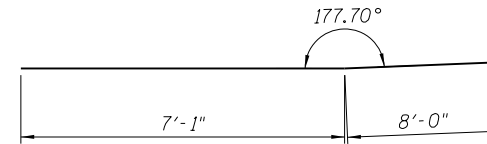
F.A.P. RTE. 345	SECTION 2013-083-R&B	COUNTY DUPAGE	TOTAL SHEETS 759	SHEET NO. 499
DRAWING NO. SP-14		CONTRACT NO. 60Y95		
ILLINOIS FED. AID PROJECT				



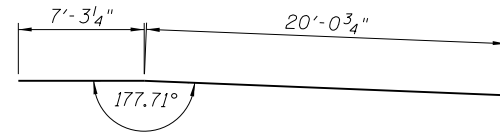
BAR d(E)



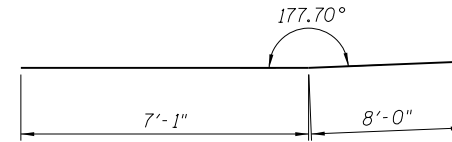
BAR b₁₁(E)



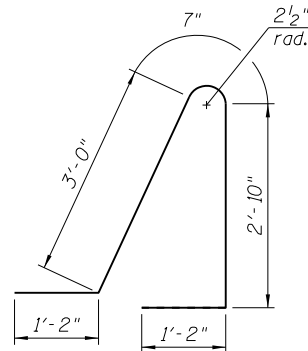
BAR e₁₀(E)



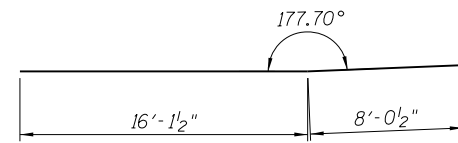
BAR b₁₂(E)



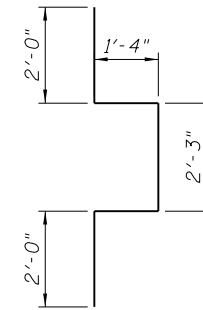
BAR e₁₁(E)



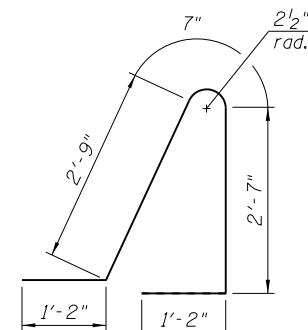
BAR d₁(E)



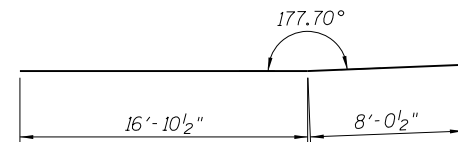
BAR b₁₃(E)



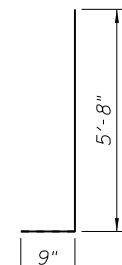
BAR e₁₂(E)



BAR d₂(E)



BAR b₁₄(E)



BAR d₃(E)