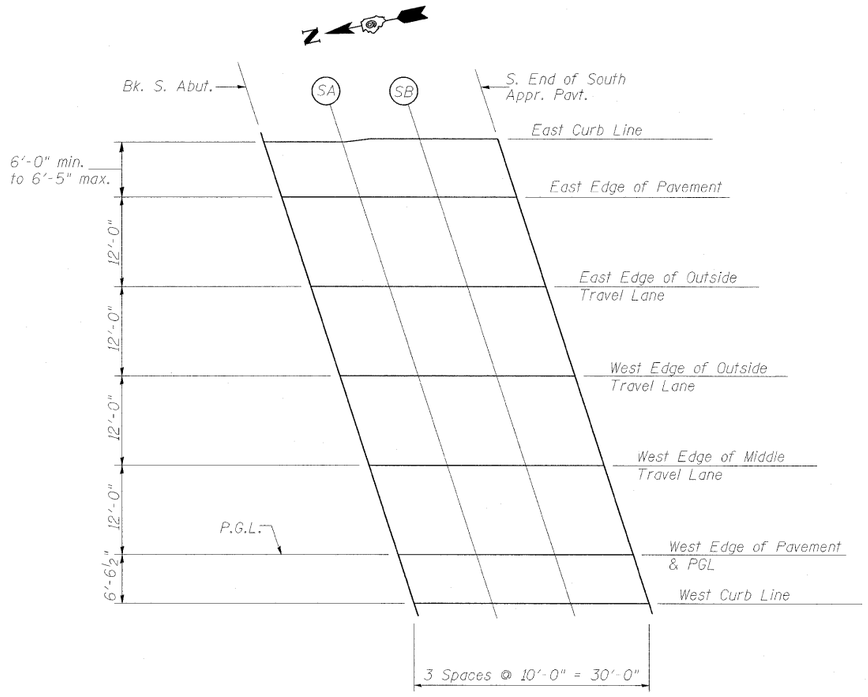

PLAN - SOUTH APPROACH

EAST CURB LINE

Location	Station	Offset	Theoretical Grade Elevations
Bk. S. Abut.	1492+57.54	-54.000	472.095
SA	1492+67.54	-54.000	471.989
SB	1492+77.41	-54.417	471.873
End S. Appr. Pav't.	1492+87.41	-54.417	471.760

EAST EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
Bk. S. Abut.	1492+59.49	-48.000	472.194
SA	1492+69.49	-48.000	472.088
SB	1492+79.49	-48.000	472.978
End S. Appr. Pav't.	1492+89.49	-48.000	471.864

EAST EGDE OF OUTSIDE TRAVEL LANE

Location	Station	Offset	Theoretical Grade Elevations
Bk. S. Abut.	1492+63.39	-36.000	472.393
SA	1492+73.39	-36.000	472.286
SB	1492+83.39	-36.000	472.174
End S. Appr. Pav't.	1492+93.39	-36.000	472.059

WEST EDGE OF OUTSIDE TRAVEL LANE

Location	Station	Offset	Theoretical Grade Elevations
Bk. S. Abut.	1492+67.29	-24.000	472.532
SA	1492+77.29	-24.000	472.423
SB	1492+87.29	-24.000	472.310
End S. Appr. Pav't.	1492+97.29	-24.000	472.192

WEST EDGE OF MIDDLE TRAVEL LANE

Location	Station	Offset	Theoretical Grade Elevations
Bk. S. Abul.	1492+71.19	-12.000	472.310
SA	1492+81.19	-12.000	472.199
SB	1492+91.19	-12.000	472.084
End S. Appr. Pav't.	1493+01.19	-12.000	471.966

WEST EDGE OF PAVEMENT & PGL

Location	Station	Offset	Theoretical Grade Elevations
Bk. S. Abut.	1492+75.09	0.000	472.027
SA	1492+85.09	0.000	471.915
SB	1492+95.09	0.000	471.799
End S. Appr. Pav't.	1493+05.09	0.000	471.678

WEST CURB LINE

Location	Station	Offset	Theoretical Grade Elevations
Bk. S. Abut.	1492+77.22	6.542	471.873
SA	1492+87.22	6.542	471.760
SB	1492+97.22	6.542	471.642
End S. Appr. Pav't.	1493+07.22	6.542	471.522

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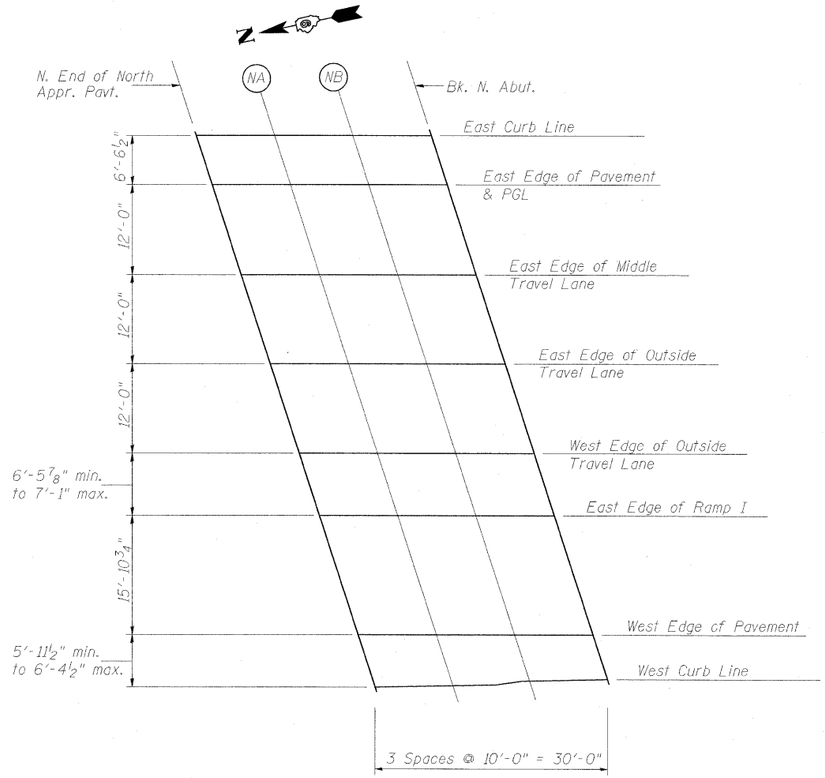
FILE NAME = ...\016_S_APPROACH PAVMT ELEVS_NB.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - WLB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TOP OF S. APPROACH SLAB ELEVATIONS
STRUCTURE NO. 100-0088 (N.B.)
SHEET NO. 16 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
•	(X1-6-2)HBK-2	WILLIAMSON	968	601
• F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			



PLAN - NORTH APPROACH

EAST CURB LINE

Location	Station	Offset	Theoretical Grade Elevations
End N. Appr. Pav't.	1488+38.16	-6.542	473.006
NA	1488+48.16	-6.542	473.054
NB	1488+58.16	-6.542	473.102
Bk. N. Abut.	1488+68.16	-6.542	473.150

WEST EDGE OF OUTSIDE TRAVEL LANE

Location	Station	Offset	Theoretical Grade Elevations
End N. Appr. Pav't.	1488+51.99	36.000	473.444
NA	1488+61.99	36.000	473.492
NB	1488+71.99	36.000	473.539
Bk. N. Abut.	1488+81.99	36.000	473.585

EAST EDGE OF PAVEMENT & PGL

Location	Station	Offset	Theoretical Grade Elevations
End N. Appr. Pav't.	1488+40.29	0.000	473.147
NA	1488+50.29	0.000	473.195
NB	1488+60.29	0.000	473.243
Bk. N. Abut.	1488+70.29	0.000	473.291

EAST EDGE OF RAMP I

Location	Station	Offset	Theoretical Grade Elevations
End N. Appr. Pav't.	1488+54.29	43.087	473.313
NA	1488+64.23	42.888	473.365
NB	1488+74.16	42.690	473.416
Bk. N. Abut.	1488+84.10	42.491	473.464

EAST EDGE OF MIDDLE TRAVEL LANE

Location	Station	Offset	Theoretical Grade Elevations
End N. Appr. Pav't.	1488+44.19	12.000	473.406
NA	1488+54.19	12.000	473.454
NB	1488+64.19	12.000	473.502
Bk. N. Abut.	1488+74.19	12.000	473.550

WEST EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
End N. Appr. Pav't.	1488+59.46	58.987	472.952
NA	1488+69.39	58.788	473.053
NB	1488+79.33	58.589	473.121
Bk. N. Abut.	1488+89.26	58.391	473.167

EAST EDGE OF OUTSIDE TRAVEL LANE

Location	Station	Offset	Theoretical Grade Elevations
End N. Appr. Pav't.	1488+48.09	24.000	473.605
NA	1488+58.09	24.000	473.653
NB	1488+68.09	24.000	473.701
Bk. N. Abut.	1488+78.09	24.000	473.748

WEST CURB LINE

Location	Station	Offset	Theoretical Grade Elevations
End N. Appr. Pav't.	1488+61.53	65.363	472.822
NA	1488+71.46	65.165	472.949
NB	1488+81.26	64.552	473.011
Bk. N. Abut.	1488+91.20	64.353	473.056

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FILE NAME = ...\017_N_APPROACH PAVMT ELEVS_SB.dgn

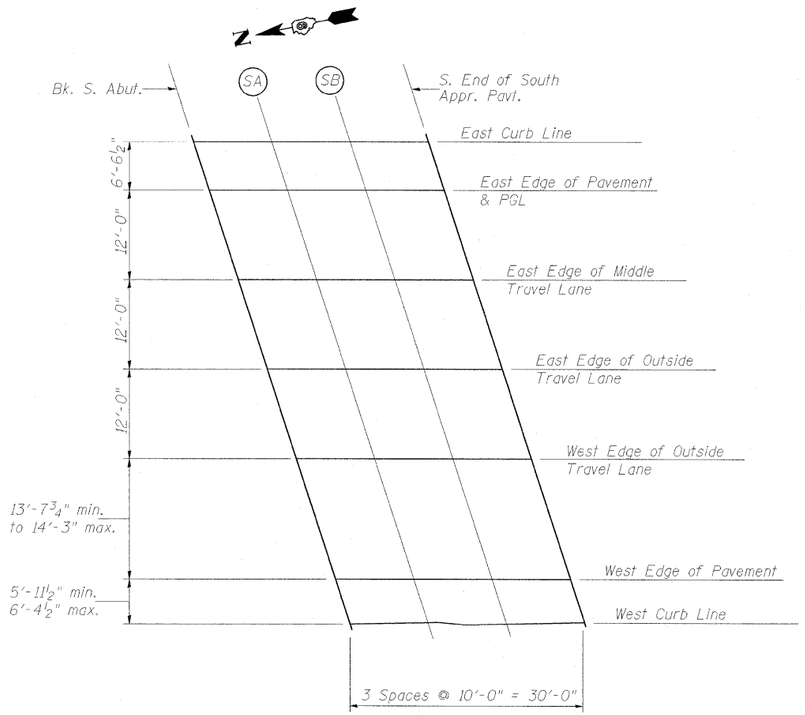
USER NAME = Rob Heady
PLOT SCALE =
PLOT DATE = 10/7/2011

DESIGNED - BPD	REVISED -	
CHECKED - WLB	REVISED -	
DRAWN - GLD	REVISED -	
CHECKED - BPD	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TOP OF N. APPROACH SLAB ELEVATIONS
STRUCTURE NO. 100-0089 (S.B.)
SHEET NO. 17 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	602
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS	FED. AID PROJECT			



PLAN - SOUTH APPROACH

EAST CURB LINE

Location	Station	Offset	Theoretical Grade Elevations
Bk. S. Abut.	1492+78.16	-6.542	471.862
SA	1492+88.16	-6.542	471.749
SB	1492+98.16	-6.542	471.631
End S. Appr. Pav't.	1493+08.16	-6.542	471.510

EAST EDGE OF PAVEMENT & PGL

Location	Station	Offset	Theoretical Grade Elevations
Bk. S. Abut.	1492+80.29	0.000	471.969
SA	1492+90.29	0.000	471.855
SB	1493+00.29	0.000	471.737
End S. Appr. Pav't.	1493+10.29	0.000	471.626

EAST EDGE OF MIDDLE TRAVEL LANE

Location	Station	Offset	Theoretical Grade Elevations
Bk. S. Abut.	1492+84.19	12.000	472.165
SA	1492+94.19	12.000	472.049
SB	1493+04.19	12.000	471.929
End S. Appr. Pav't.	1493+14.19	12.000	471.818

EAST EDGE OF OUTSIDE TRAVEL LANE

Location	Station	Offset	Theoretical Grade Elevations
Bk. S. Abut.	1492+88.09	24.000	472.300
SA	1492+98.09	24.000	472.183
SB	1493+08.09	24.000	472.062
End S. Appr. Pav't.	1493+18.09	24.000	471.950

WEST EDGE OF OUTSIDE TRAVEL LANE

Location	Station	Offset	Theoretical Grade Elevations
Bk. S. Abut.	1492+91.99	36.000	472.075
SA	1493+01.99	36.000	471.957
SB	1493+11.99	36.000	471.862
End S. Appr. Pav't.	1493+21.99	36.000	471.754

WEST EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
Bk. S. Abut.	1492+96.62	50.244	471.736
SA	1493+06.55	50.045	471.632
SB	1493+16.49	49.846	471.549
End S. Appr. Pav't.	1493+26.42	49.648	471.453

WEST CURB LINE

Location	Station	Offset	Theoretical Grade Elevations
Bk. S. Abut.	1492+98.55	56.206	471.593
SA	1493+08.49	56.007	471.494
SB	1493+18.56	56.223	471.402
End S. Appr. Pav't.	1493+28.49	56.024	471.307

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FILE NAME = ...\018_S_APPROACH PAVMT ELEVS_SB.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
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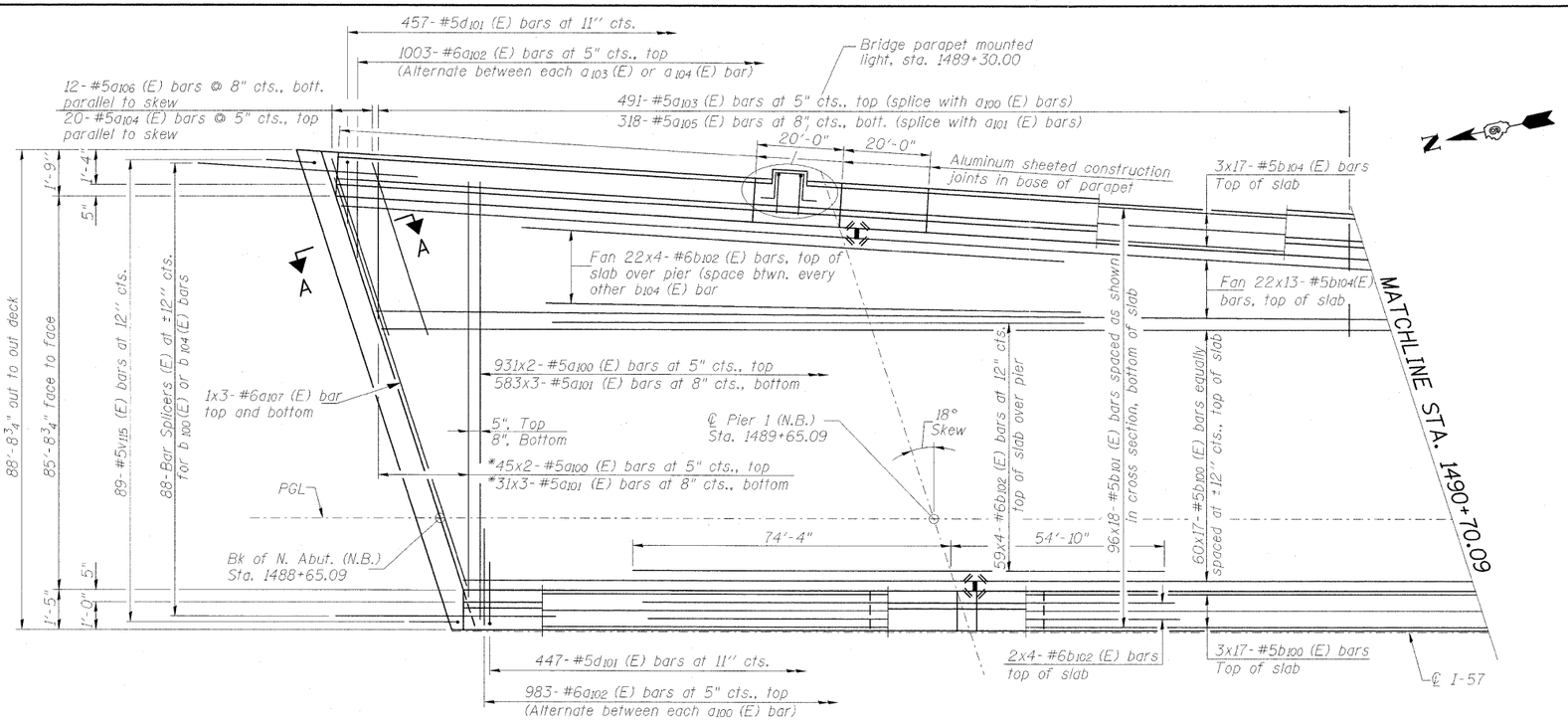
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

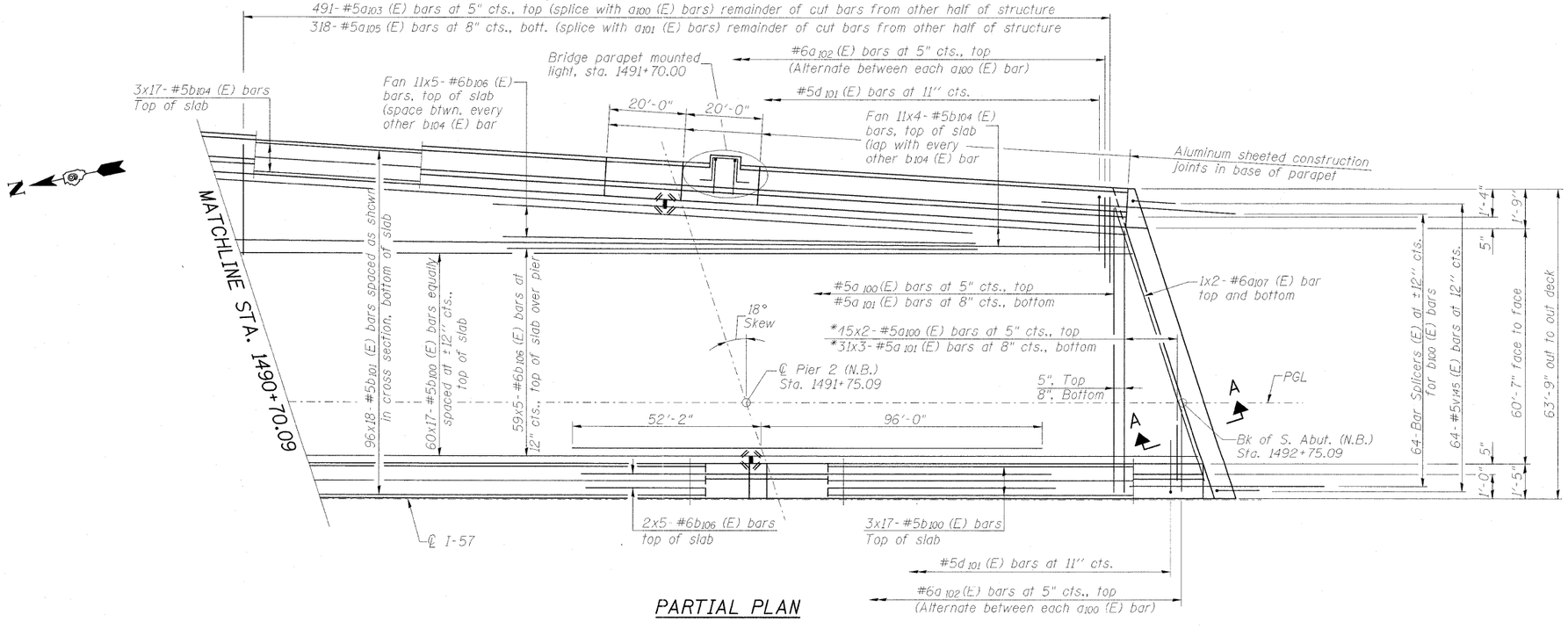
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TOP OF S. APPROACH SLAB ELEVATIONS
STRUCTURE NO. 100-0089 (S.B.)
SHEET NO. 18 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	603
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS FED. AID PROJECT				



PARTIAL PLAN



PARTIAL PLAN

Notes:
See Sheet 21 and 22 of 75 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 20 of 75 for Cross Section.
See Sheet 21 of 75 for parapet reinforcement.
See Sheet 22 of 75 for light base details.

MINIMUM BAR LAP

#5 bar = 2'-7"
#6 bar = 3'-1"

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FILE NAME = ...\019_SUPERSTRUCTURE I_NB.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
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	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

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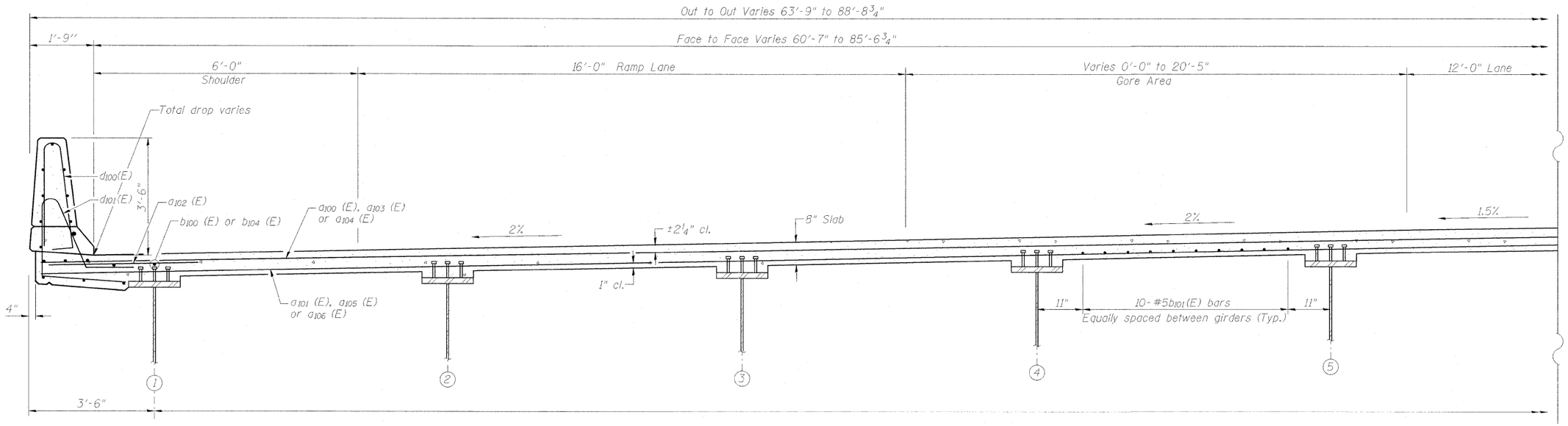
DEPARTMENT OF TRANSPORTATION

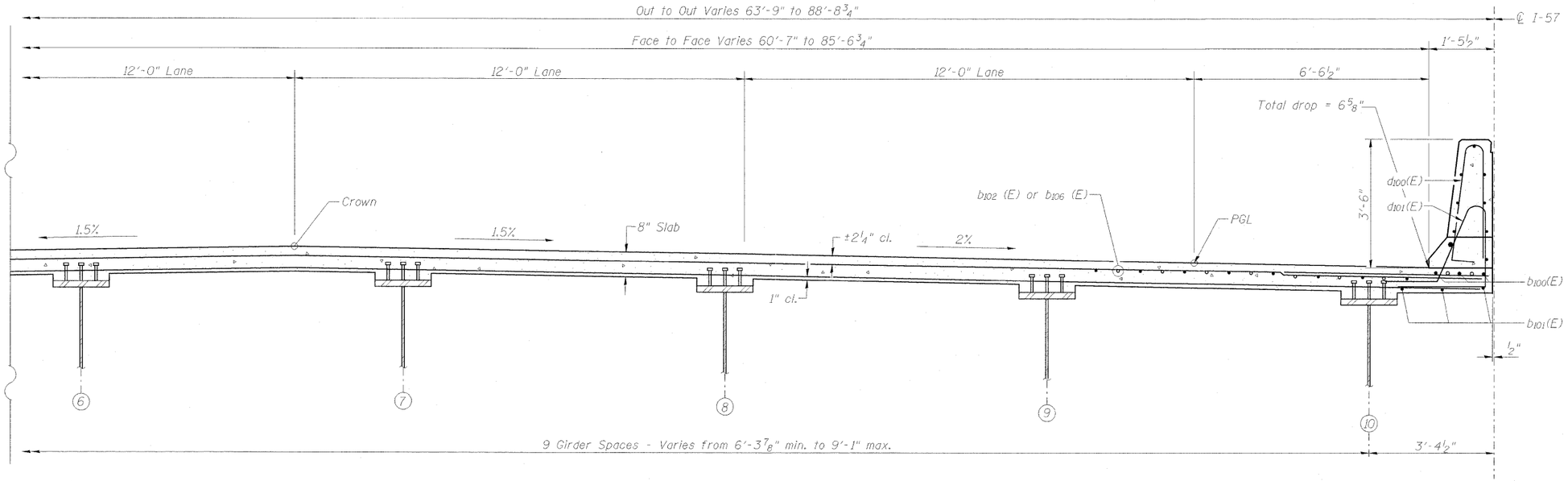
SUPERSTRUCTURE I
STRUCTURE NO. 100-0088 (N.B.)
SHEET NO. 19 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	604
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS FED. AID PROJECT				



(NEAR MIDSPAN)

CROSS SECTION
(Looking South)



CROSS SECTION
(Looking South)

(NEAR PIER)

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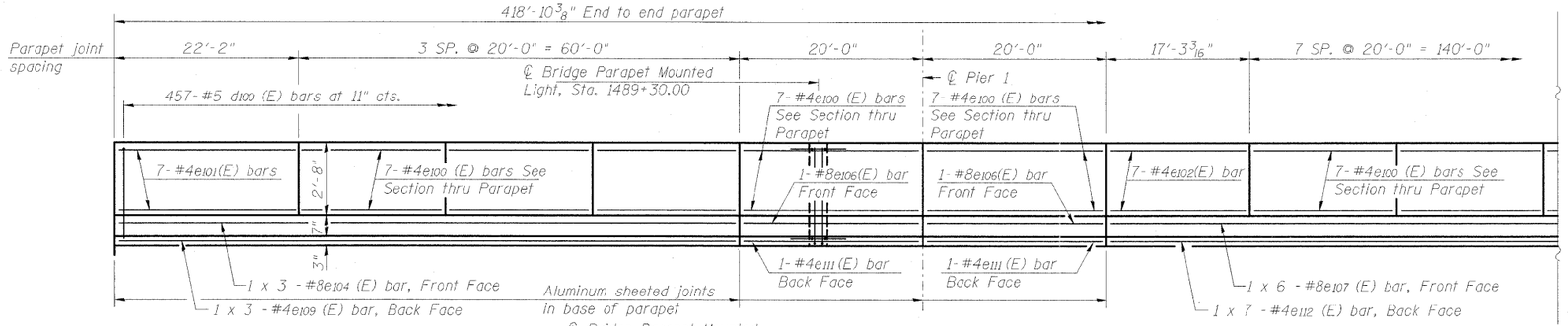
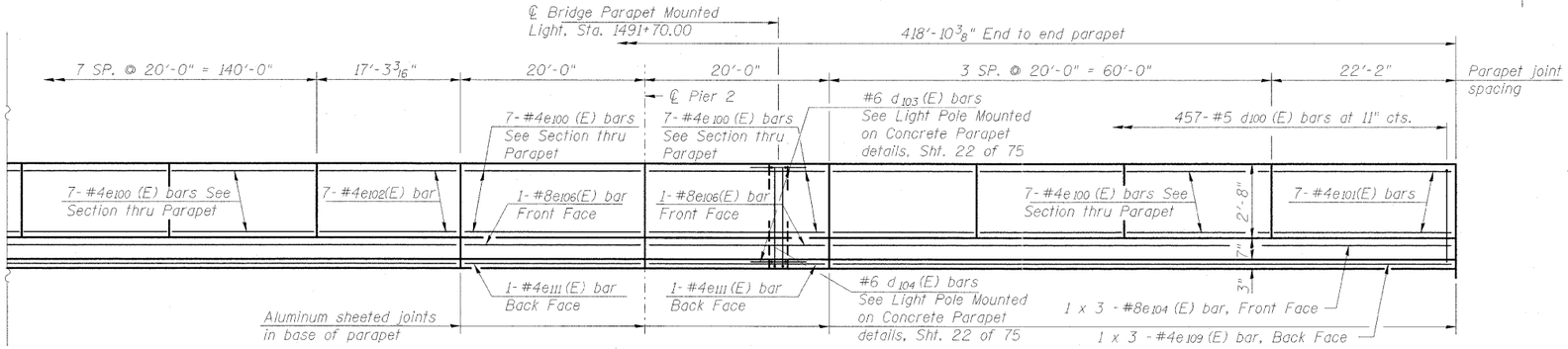
FILE NAME = ...\020.SUPERSTRUCTURE II.NB.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - WLB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE II
STRUCTURE NO. 100-0088 (N.B.)
SHEET NO. 20 OF 75 SHEETS

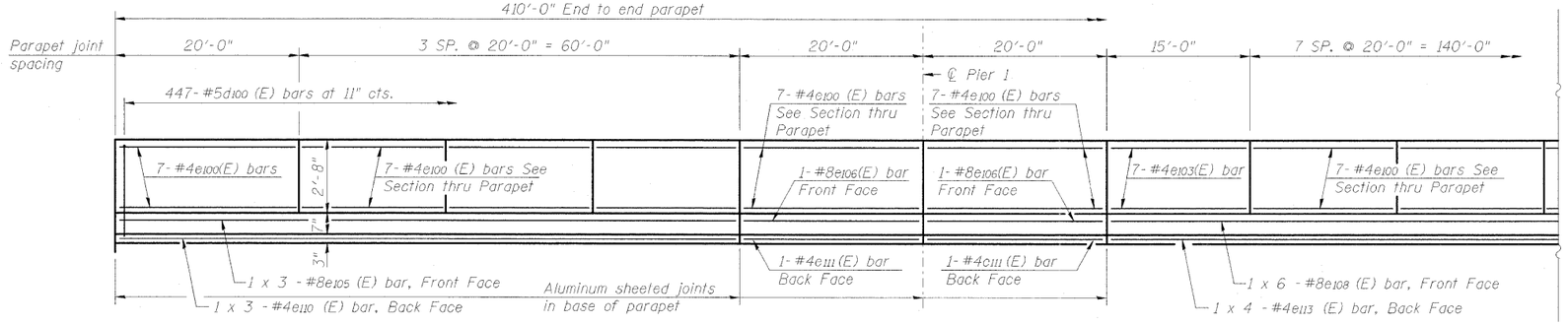
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	605
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			

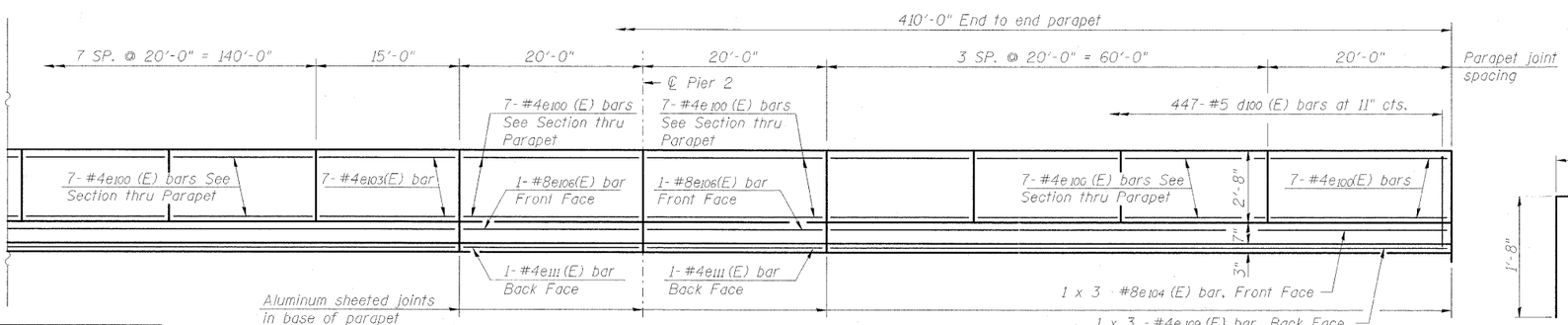




INSIDE ELEVATION OF PARAPET

(East Parapet)





INSIDE ELEVATION OF PARAPET

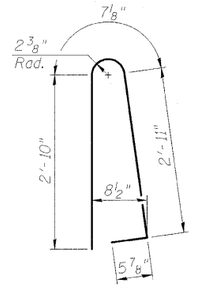
(West Parapet)

MINIMUM BAR LAP

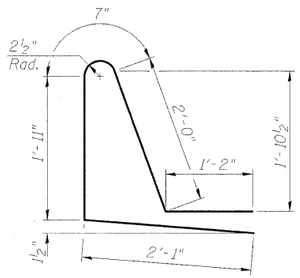
(Parapet)

#4 bar = 2'-0"

#8 bar = 5'-2"



BAR d100 (E)



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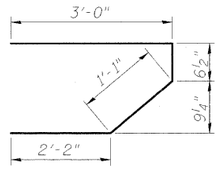
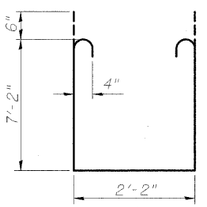


BAR s117 (E) & s147 (E)



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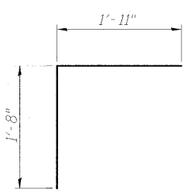
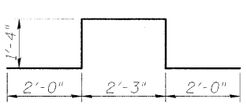
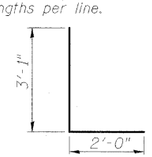


BAR v115 (E) & v145 (E)



BAR d103 (E)



BAR d104 (E)

SUPERSTRUCTURE BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a100(E)	1952	#5	32'-2"	
a101(E)	1842	#5	22'-4"	
a102(E)	1986	#6	6'-6"	
a103(E)	491	#5	30'-2"	
a104(E)	20	#5	26'-8"	
a105(E)	318	#5	30'-2"	
a106(E)	12	#5	26'-8"	
a107(E)	10	#6	34'-0"	
a114(E)	32	#5	1'-6"	
b100(E)	1071	#5	26'-7"	
b101(E)	1728	#5	25'-8"	
b102(E)	340	#6	34'-8"	
b104(E)	381	#5	27'-1"	
b105(E)	370	#6	32'-1"	
d100(E)	904	#5	6'-10"	
d101(E)	904	#5	7'-9"	
d103(E)	12	#6	8'-11"	
d104(E)	6	#6	5'-1"	
e100(E)	252	#4	19'-8"	
e101(E)	14	#4	21'-10"	
e102(E)	14	#4	16'-11"	
e103(E)	14	#4	14'-8"	
e104(E)	6	#8	30'-9"	
e105(E)	6	#8	30'-0"	
e106(E)	8	#8	19'-8"	
e107(E)	6	#8	33'-4"	
e108(E)	6	#8	32'-8"	
e109(E)	6	#4	28'-8"	
e110(E)	6	#4	27'-11"	
e111 (E)	8	#4	19'-8"	
e112(E)	7	#4	26'-7"	
e113(E)	7	#4	26'-0"	
m110(E)	15	#6	33'-5"	
m111 (E)	20	#6	13'-0"	
m112(E)	9	#6	9'-4"	
m113(E)	1	#6	2'-10"	
m114(E)	1	#6	3' 6"	
m140(E)	10	#6	34'-11"	
m141(E)	20	#6	10'-1"	
m142(E)	9	#6	6'-5"	
m143(E)	2	#6	3'-6"	
s117(E)	87	#5	6'-10"	U
s118(E)	78	#4	17'-6"	U
s147(E)	60	#5	6'-10"	U
s148(E)	51	#4	17'-6"	U
v115(E)	89	#5	3'-7"	Γ
v145(E)	64	#5	3'-7"	Γ
Reinforcement Bars, Epoxy Coated		Pound	303,070	
Concrete Superstructure		Cu. Yd.	1,017.2	
Bridge Deck Grooving		Sq. Yd.	3,271	
Protective Coat		Sq. Yd.	3,770	
Bar Splicers		Each	152	
Staining Concrete Structures		Sq. Yd.	163	
Concrete Stain		Sq. Yd.	48	

Bars indicated thus 1 x 3- #5 etc. indicates 1 line of bars with 3 lengths per line.

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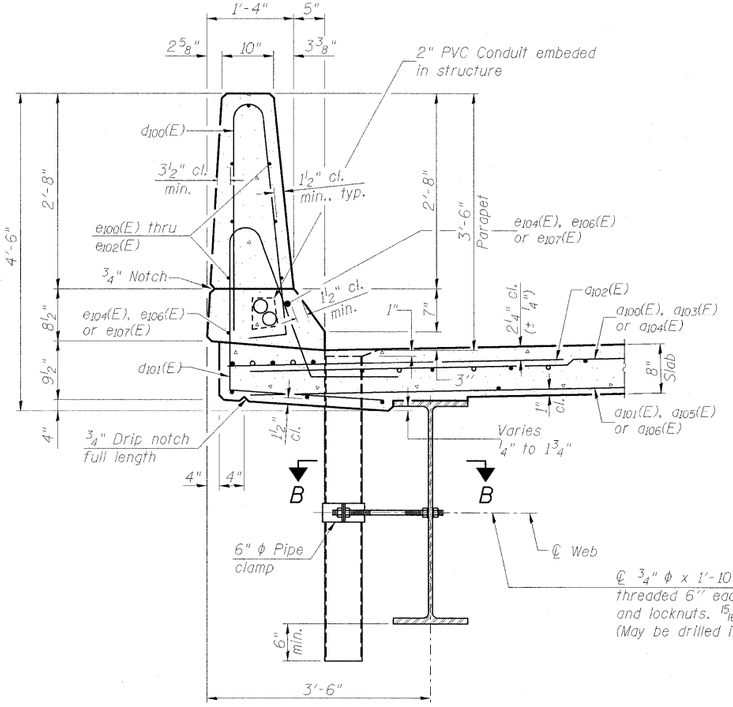
FILE NAME = ...\023_SUPERSTRUCTURE DETAILS_NB-1.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - WLB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

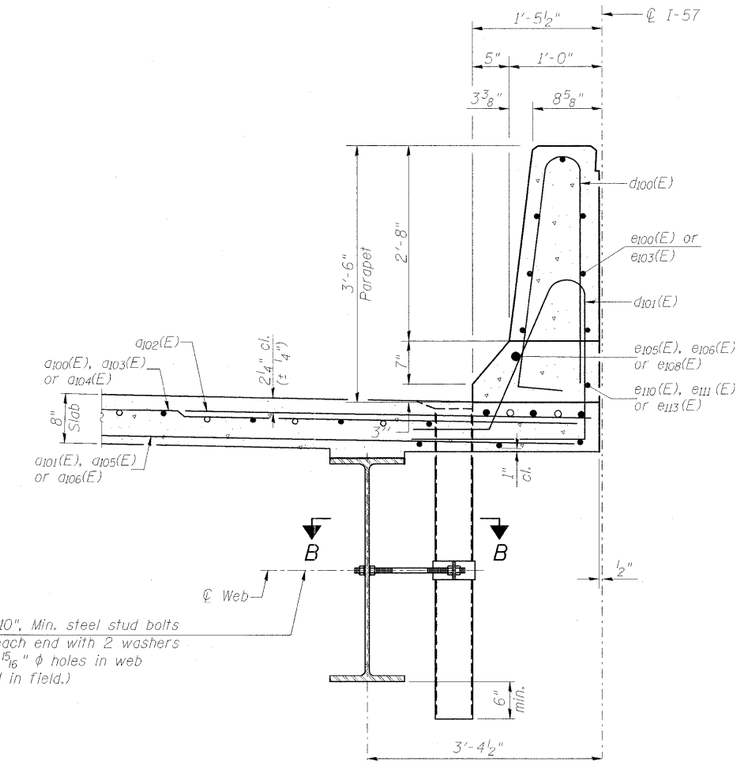
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE DETAILS – I
STRUCTURE NO. 100-0088 (N.B.)
SHEET NO. 21 OF 75 SHEETS

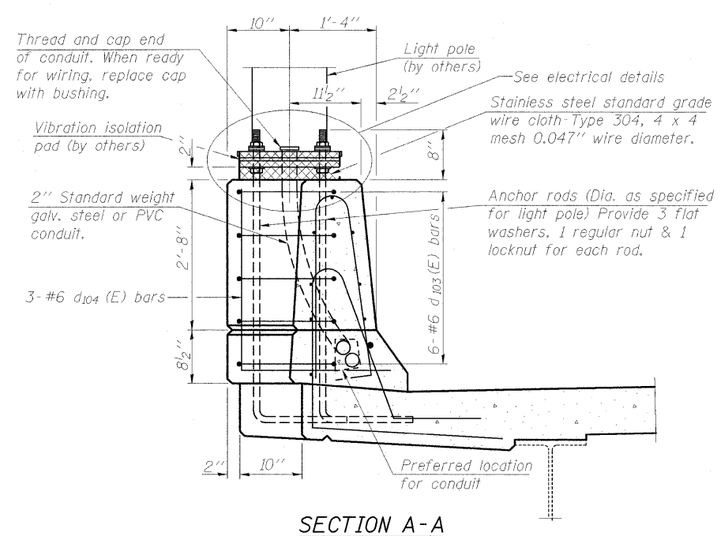
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	606
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
		ILLINOIS FED. AID PROJECT		



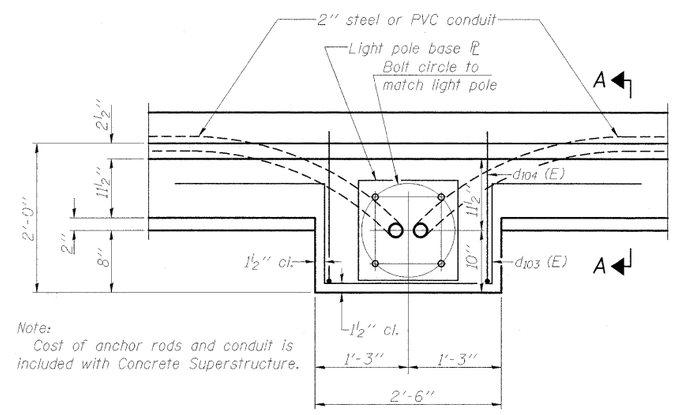
SECTION THRU OUTSIDE PARAPET



SECTION THRU MEDIAN PARAPET



SECTION A-A

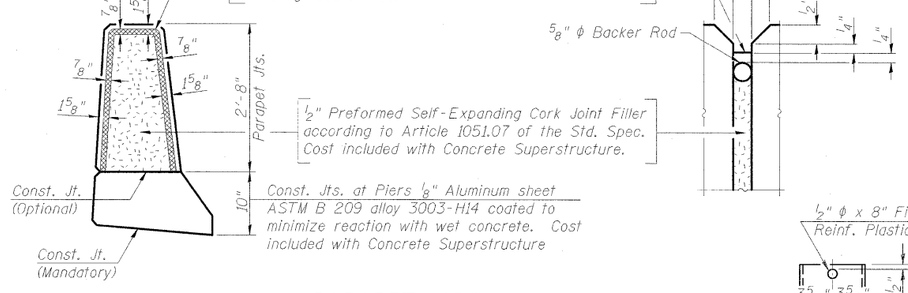


Note:
Cost of anchor rods and conduit is included with Concrete Superstructure.

PLAN

LIGHT POLE MOUNTED ON CONCRETE PARAPET

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.

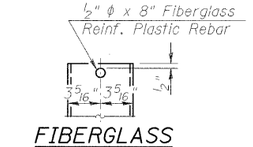


1/2" Preformed Self-Expanding Cork Joint Filler according to Article 1051.07 of the Std. Spec. Cost included with Concrete Superstructure.

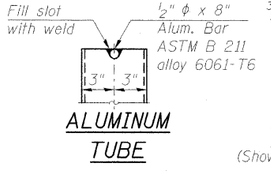
Const. Jts. at Piers 1/8" Aluminum sheet ASTM B 209 alloy 3003-H14 coated to minimize reaction with wet concrete. Cost included with Concrete Superstructure

PARAPET JOINT DETAILS

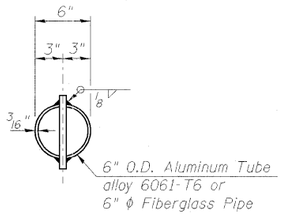
Notes:
The exterior surfaces of the floor drains shall be painted with the finish coat as specified in the special provisions for Cleaning and Painting New Metal Structures. The exterior surfaces of the drains shall be cleaned according to Society of Protective Coatings Spec. SSPC-SP1 prior to painting.
Fiberglass pipe shall conform to ASTM D 2996, with short-time rupture strength hoop tensile stress of 30,000 p.s.i. minimum.
Galvanize clamping device according to AASHTO M232. Cost of clamping device and inserts is included with Floor Drains.



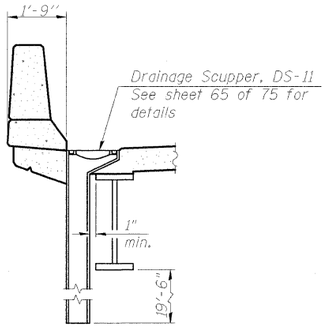
FIBERGLASS PIPE



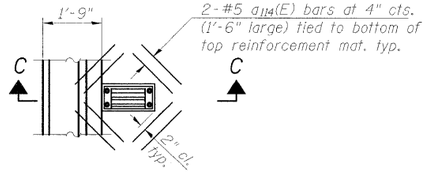
ALUMINUM TUBE



TOP PLAN
(Showing Aluminum Tube)

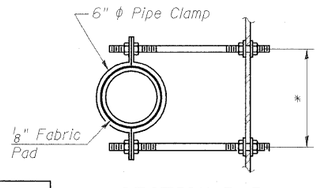


SECTION C-C

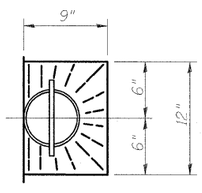


PLAN

Note:
Cut longitudinal reinforcement to clear drainage scuppers.



SECTION B-B
*Dimension as required by Pipe Clamp



TOP PLAN

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ROCKFORD, IL ■ PEORIA, IL ■ CHICAGO, IL

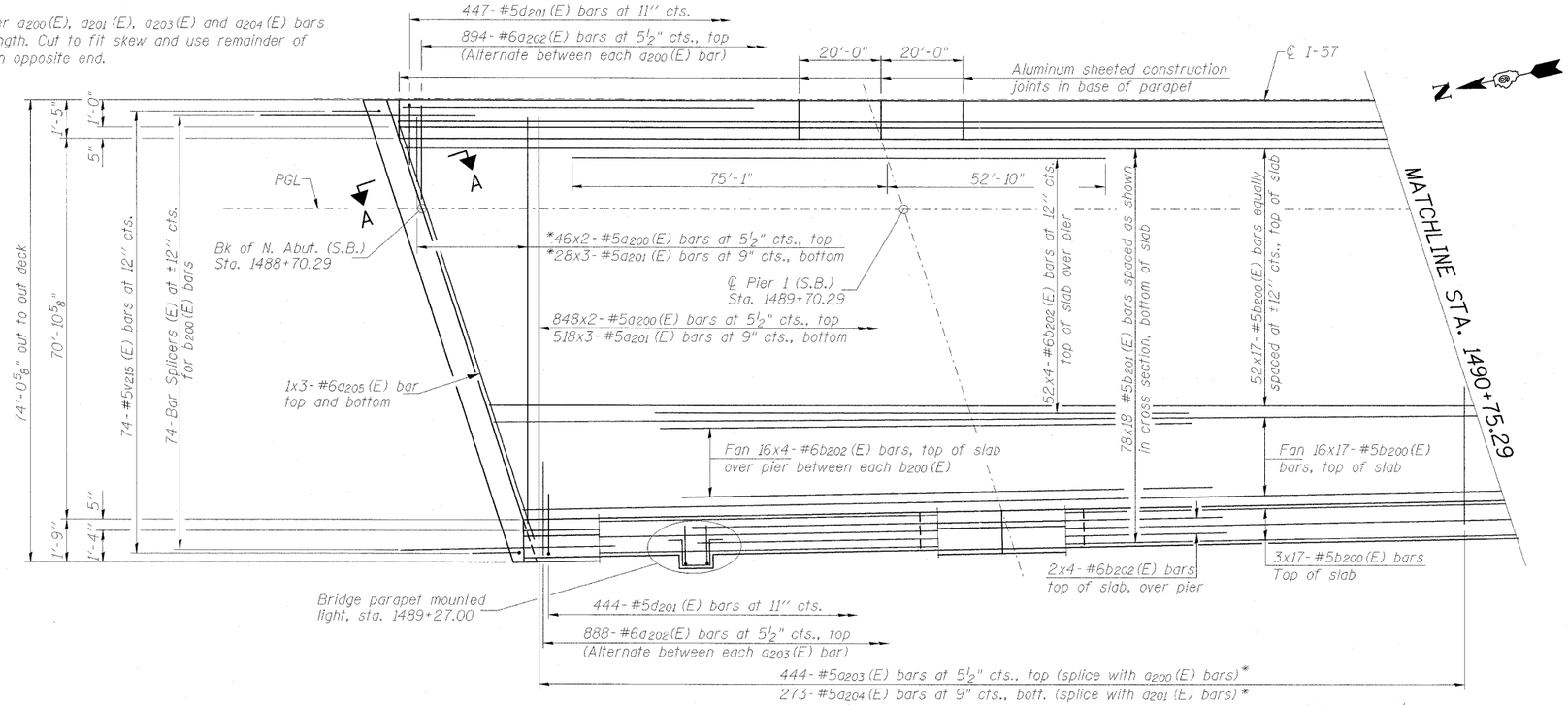
FILE NAME = ...\0234_SUPERSTRUCTURE DETAILS_NB-II.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - WLB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

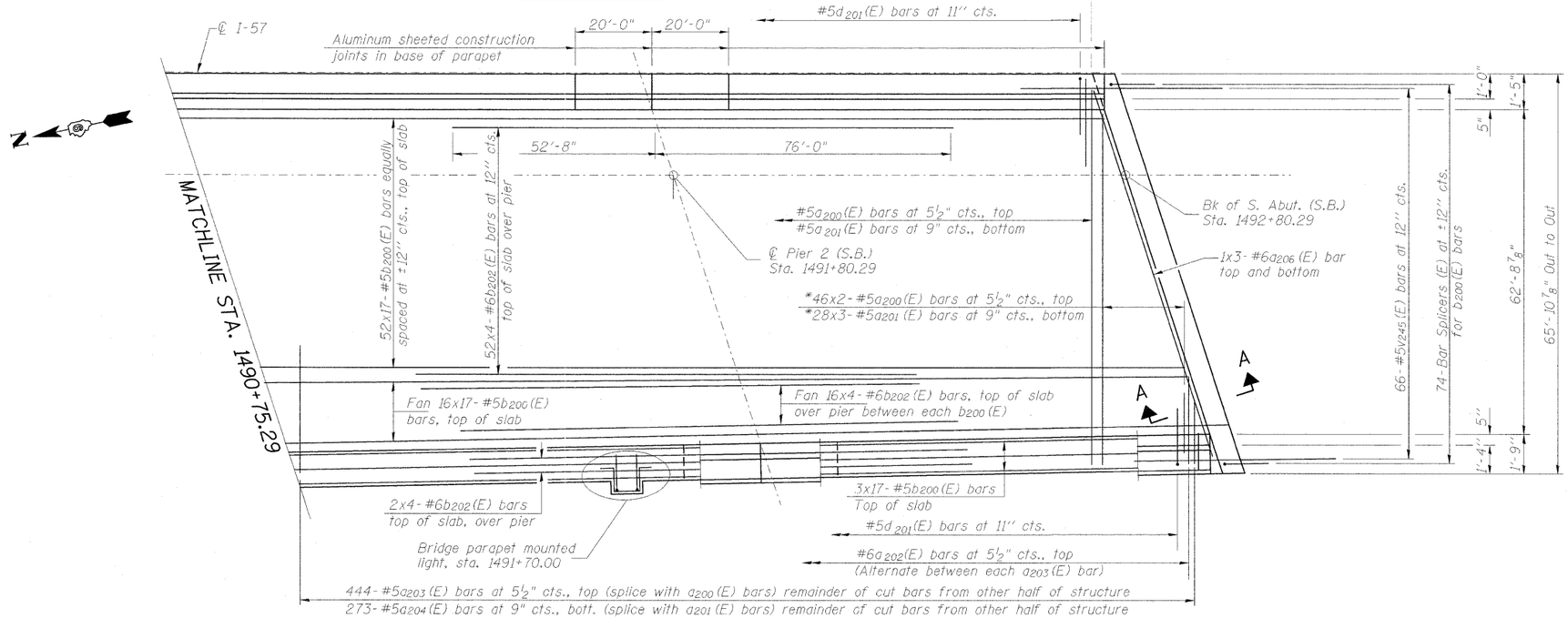
SUPERSTRUCTURE DETAILS – II
STRUCTURE NO. 100-0088 (N.B.)
SHEET NO. 22 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
•	(X1-6-2)HBK-2	WILLIAMSON	968	607
• F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
		ILLINOIS FED. AID PROJECT		

* Order a_{200}(E), a_{201} (E), a_{203}(E) and a_{204} (E) bars full length. Cut to fit skew and use remainder of bars in opposite end.



PARTIAL PLAN



PARTIAL PLAN

Notes:
See Sheet 25 and 26 of 75 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 24 of 75 for Cross Section.
See Sheet 25 of 75 for parapet reinforcement.
See Sheet 26 of 75 for light base details.

MINIMUM BAR LAP

#5 bar = 2'-7"
#6 bar = 3' 1"

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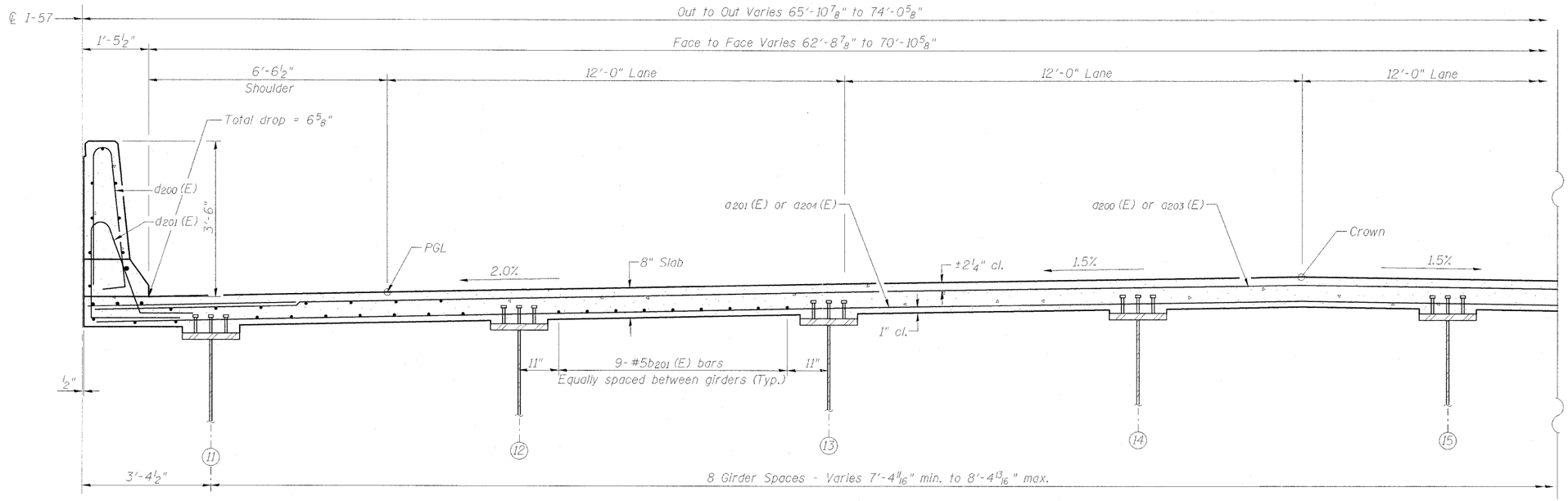
FILE NAME = ...\021_SUPERSTRUCTURE 1_SB.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - WLB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

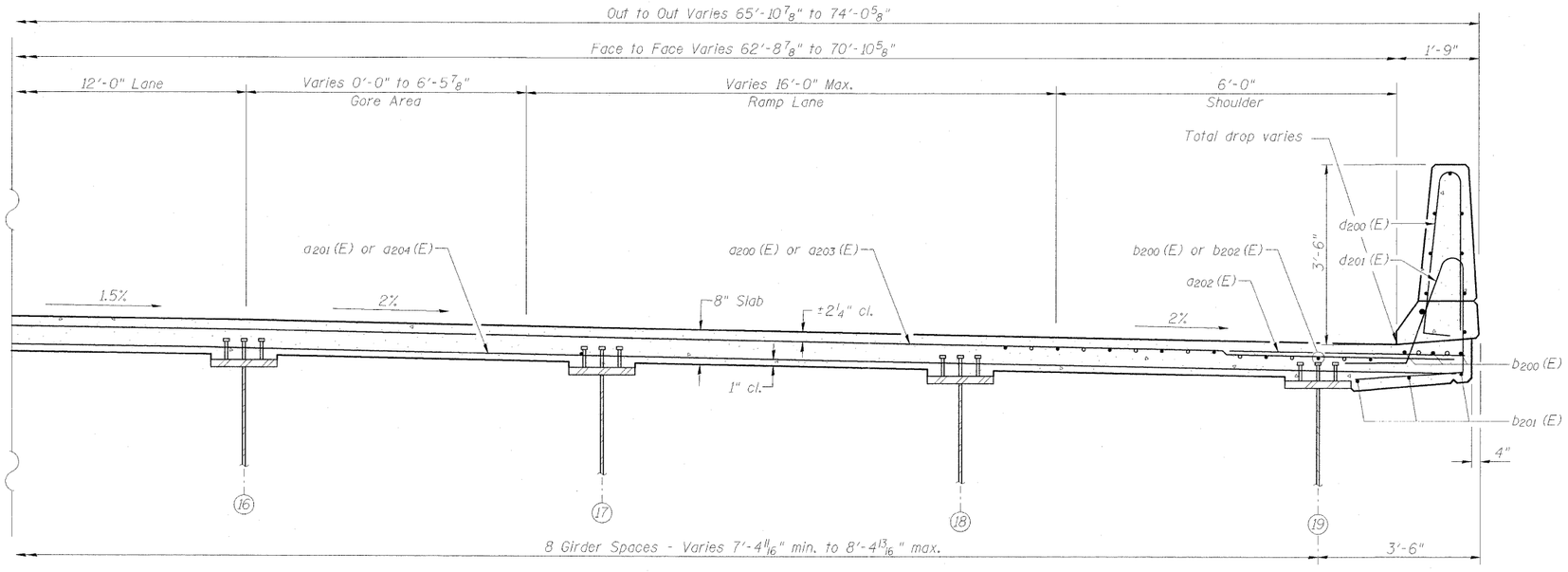
SUPERSTRUCTURE I
STRUCTURE NO. 100-0089 (S.B.)
SHEET NO. 23 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	608
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
		ILLINOIS FED. AID PROJECT		



(NEAR MIDSPAN)

CROSS SECTION
(Looking South)



(NEAR PIER)

CROSS SECTION
(Looking South)

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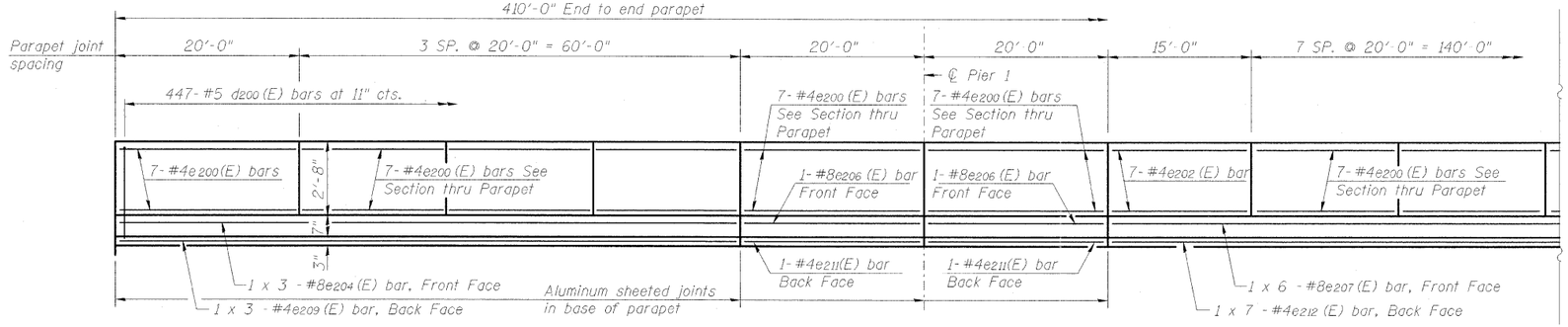
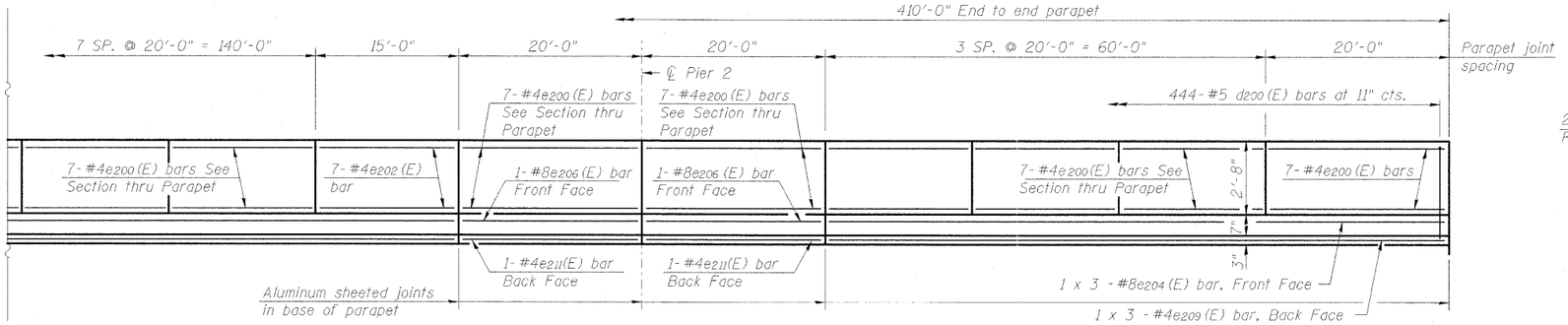
FILE NAME = ...\022_SUPERSTRUCTURE II_SB.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - WLB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE II
STRUCTURE NO. 100-0089 (S.B.)
SHEET NO. 24 OF 75 SHEETS

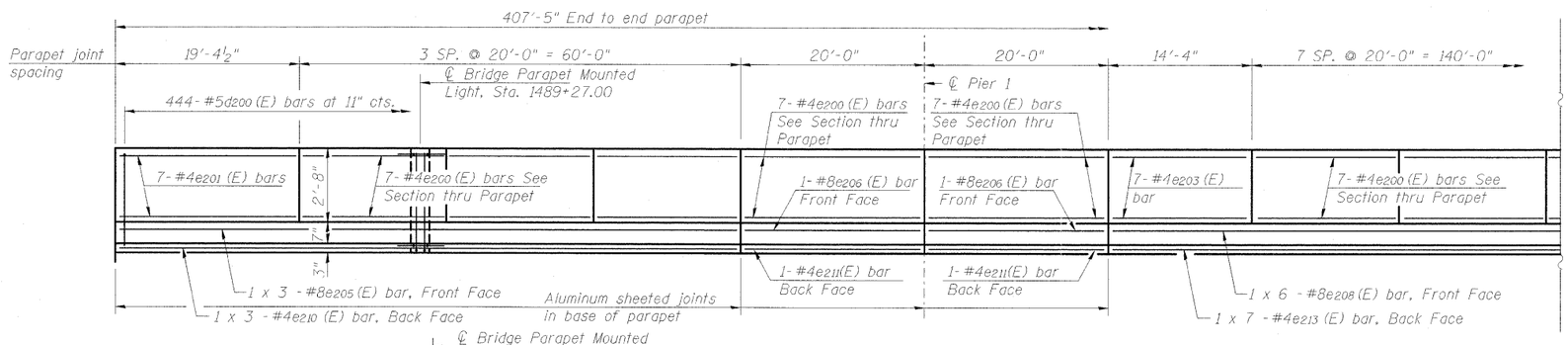
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	609
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			

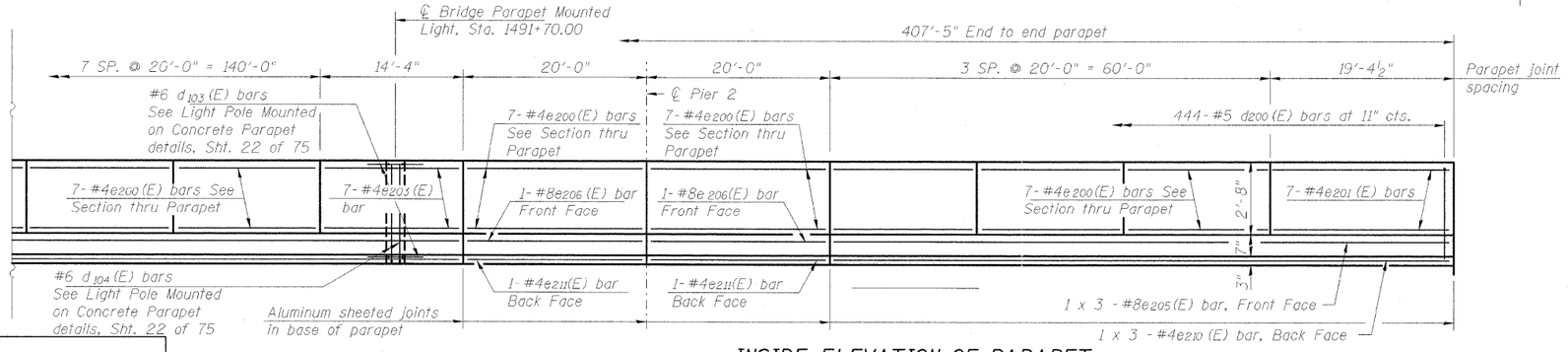




INSIDE ELEVATION OF PARAPET

(East Parapet)



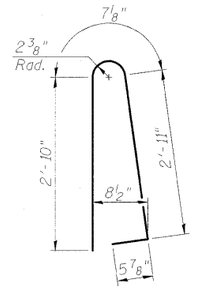


INSIDE ELEVATION OF PARAPET

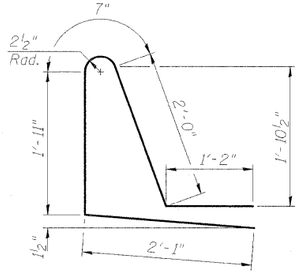
(West Parapet)

MINIMUM BAR LAP

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



BAR d200 (E)



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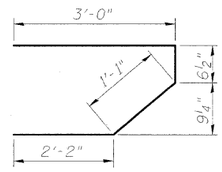
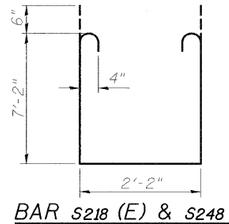
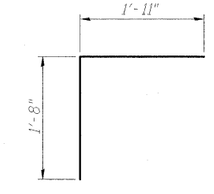


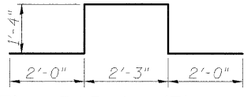
BAR S217 (E) & S247 (E)



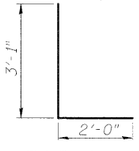
BAR S218 (E) & S248 (E)



BAR V215 (E) & V245 (E)



BAR d203 (E)



BAR d204 (E)

SUPERSTRUCTURE BILL OF MATERIAL

Bar	No.	Size	Length	Shape
d200 (E)	1788	#5	34'-1"	——
d201 (E)	1638	#5	23'-7"	——
d202 (E)	1782	#6	6'-6"	——
d203 (E)	444	#5	13'-8"	——
d204 (E)	273	#5	13'-8"	——
d205 (E)	6	#6	26'-9"	——
d206 (E)	6	#6	24'-0"	——
d214 (E)	32	#5	1'-6"	——
b200 (E)	1258	#5	26'-7"	——
b201 (E)	1404	#5	25'-3"	——
b202 (E)	576	#6	34'-6"	——
d200 (E)	891	#5	6'-10"	⌐
d201 (E)	891	#5	7'-9"	⌐
d203 (E)	12	#6	8'-11"	⌐
d204 (E)	6	#6	5'-1"	⌐
e200 (E)	154	#4	19'-8"	——
e201 (E)	14	#4	21'-10"	——
e202 (E)	14	#4	16'-11"	——
e203 (E)	14	#4	14'-8"	——
e204 (E)	6	#8	30'-9"	——
e205 (E)	6	#8	30'-0"	——
e206 (E)	8	#8	19'-8"	——
e207 (E)	6	#8	33'-4"	——
e208 (E)	6	#8	32'-8"	——
e209 (E)	6	#4	28'-8"	——
e210 (E)	6	#4	27'-11"	——
e211 (E)	8	#4	19'-8"	——
e212 (E)	7	#4	26'-7"	——
e213 (E)	7	#4	26'-0"	——
n210(E)	10	#6	40'-4"	——
n211(E)	18	#6	12'-3"	——
n212(E)	8	#6	8'-8"	——
n213(E)	2	#6	3'-6"	——
n240 (E)	10	#6	36'-5"	——
n241 (E)	18	#6	11'-2"	——
n242 (E)	8	#6	7'-7"	——
n243 (E)	1	#6	3'-4"	——
n244 (E)	1	#6	2'-11"	——
s217 (E)	78	#5	6'-10"	⊐
s218 (E)	70	#4	17'-6"	⊔
s247 (E)	54	#5	6'-10"	⊐
s248 (E)	46	#4	17'-6"	⊔
v215 (E)	74	#5	3'-7"	⌐
v245 (E)	66	#5	3'-1"	⌐
Reinforcement Bars, Epoxy Coated		Pound	257,820	
Concrete Superstructure		Cu. Yd.	949.9	
Bridge Deck Grooving		Sq. Yd.	2,941	
Protective Coat		Sq. Yd.	3,434	
Bar Splicers		Each	148	
Staining Concrete Structures		Sq. Yd.	159	
Concrete Stain		Sq. Yd	48	

Bars indicated thus 1 x 3- #5 etc. indicates 1 line of bars with 3 lengths per line.

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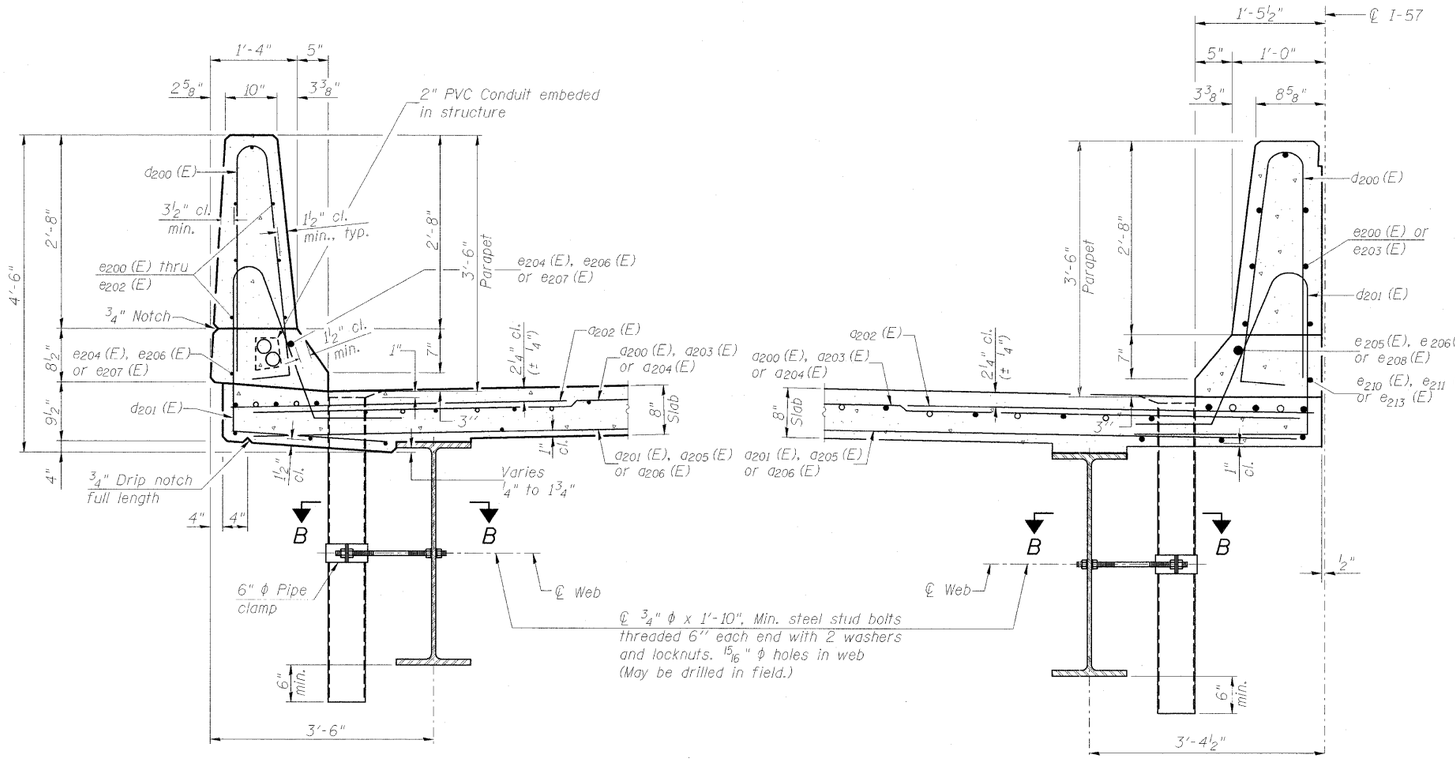
ROCKFORD, IL ■ PEORIA, IL ■ CHICAGO, IL

FILE NAME = ...\024_SUPERSTRUCTURE DETAILS_SB-1.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - WLB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

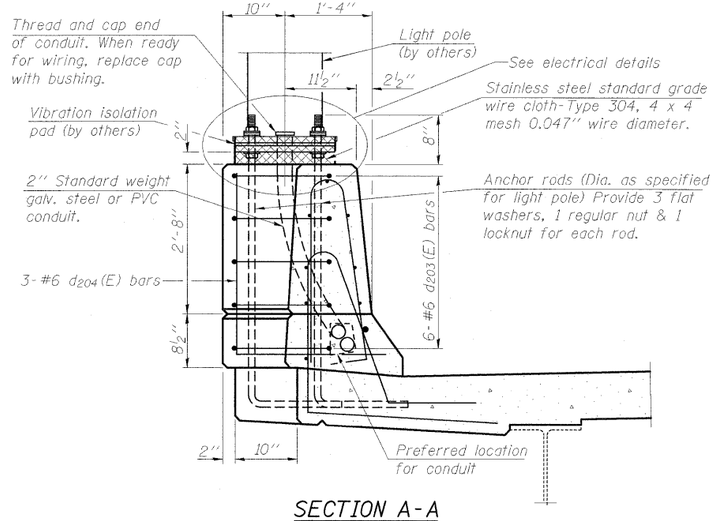
SUPERSTRUCTURE DETAILS – 1
STRUCTURE NO. 100-0089 (S.B.)
SHEET NO. 25 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	610
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			

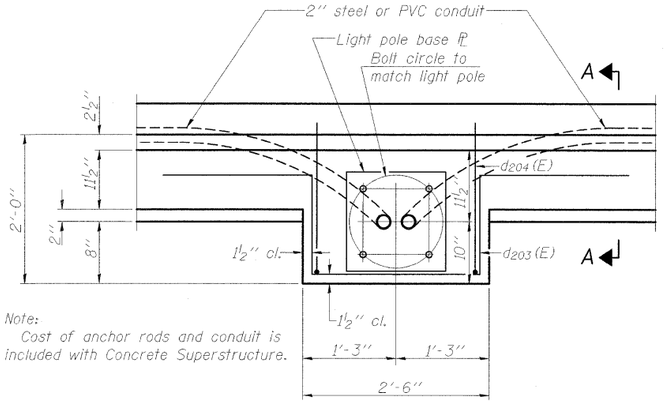


SECTION THRU OUTSIDE PARAPET

SECTION THRU MEDIAN PARAPET



SECTION A-A

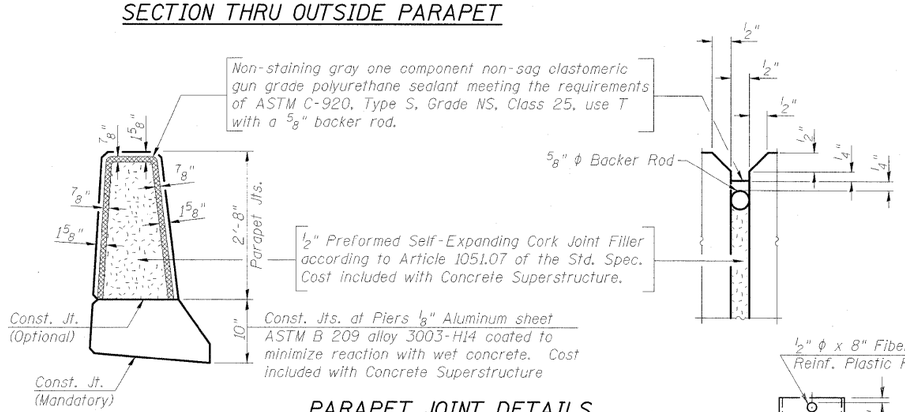


PLAN

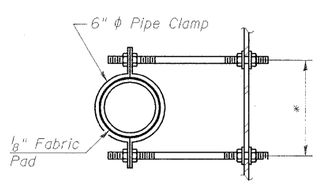
LIGHT POLE MOUNTED ON CONCRETE PARAPET

Notes:
The exterior surfaces of the floor drains shall be painted with the finish coat as specified in the special provisions for Cleaning and Painting New Metal Structures. The exterior surfaces of the drains shall be cleaned according to Society of Protective Coatings Spec. SSPC-SP1 prior to painting.
Fiberglass pipe shall conform to ASTM D 2996, with short-time rupture strength hoop tensile stress of 30,000 p.s.i. minimum.
Galvanize clamping device according to AASHTO M232. Cost of clamping device and inserts is included with Floor Drains.

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

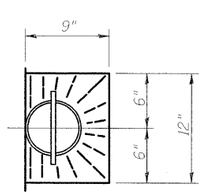


PARAPET JOINT DETAILS

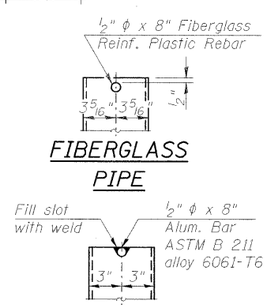


SECTION B-B

*Dimension as required by Pipe Clamp

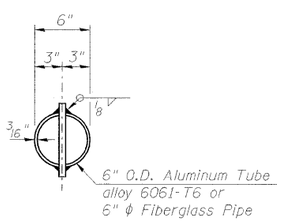


TOP PLAN



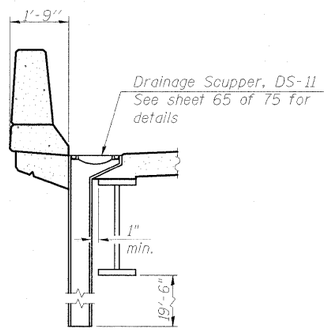
FIBERGLASS PIPE

ALUMINUM TUBE

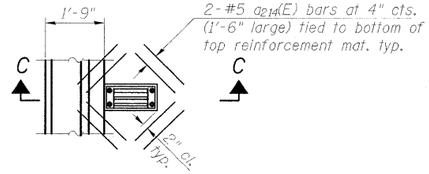


TOP PLAN

(Showing Aluminum Tube)



SECTION C-C



PLAN

Note:
Cut longitudinal reinforcement to clear drainage scuppers.

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FILE NAME = ...\024A_SUPERSTRUCTURE DETAILS_SB-II.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
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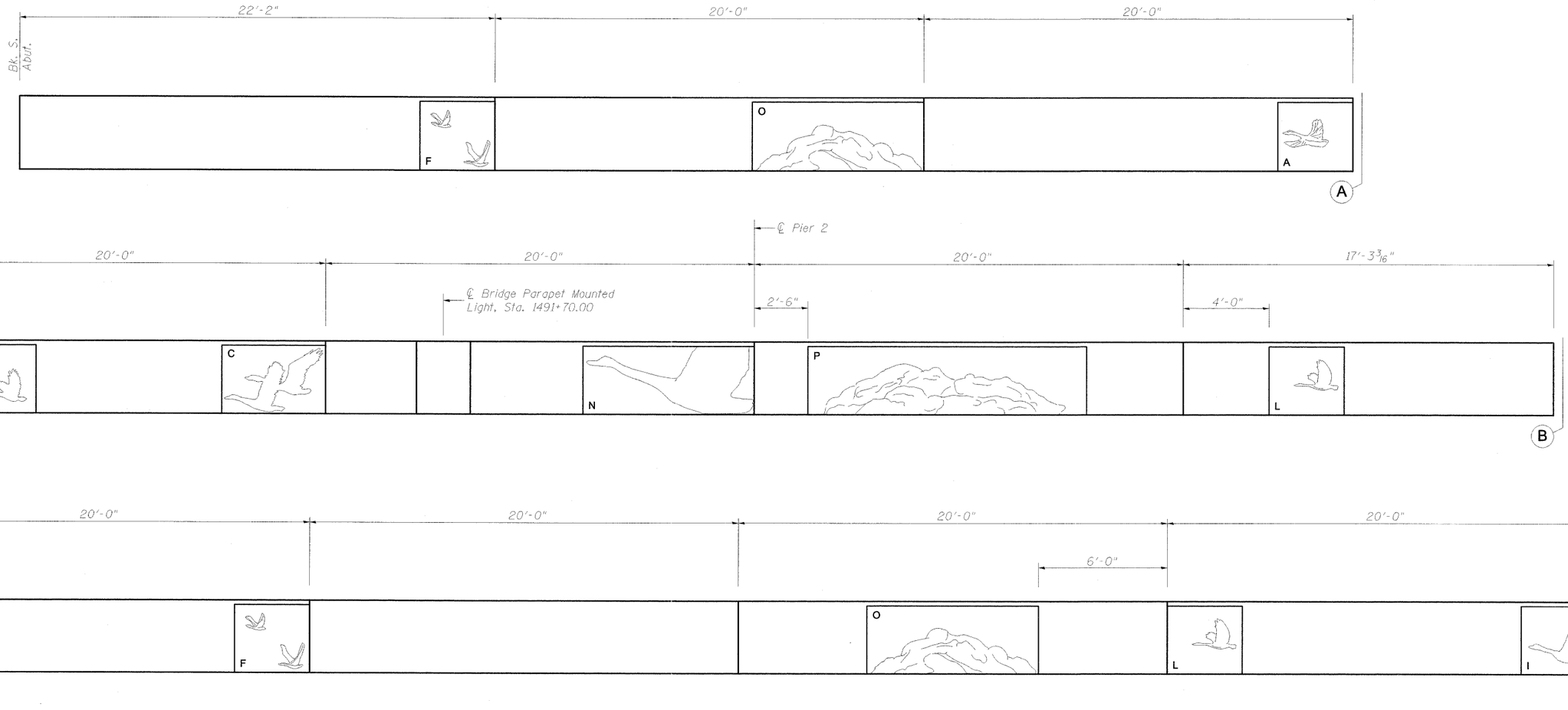
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

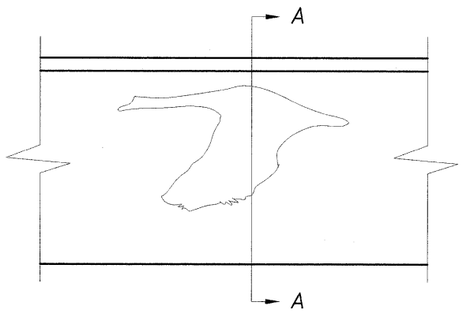
SUPERSTRUCTURE DETAILS – II
STRUCTURE NO. 100-0089 (S.B.)
SHEET NO. 26 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	611
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS FED. AID PROJECT				

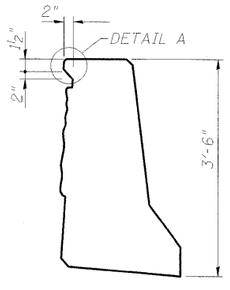


PARTIAL OUTSIDE ELEVATION OF PARAPET

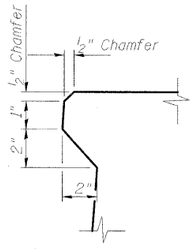
(NB East Parapet, Looking West)



OUTSIDE ELEVATION



SECTION A-A



DETAIL A

NOTES:

1. Custom liners will be secured into forms.
2. Forms will be fabricated to make up any voids surrounding or between liners and remain flush with background surface height.
3. See Sheet 63 of 75 for form liner panel details.
4. See Special Provisions for Aesthetic Bridge Treatment

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FILE NAME = ...\023A_AD_SUPERSTRUCTURE DETAILS_NB-I.dgn	USER NAME = Gary Davis	DESIGNED - BPD	REVISED -
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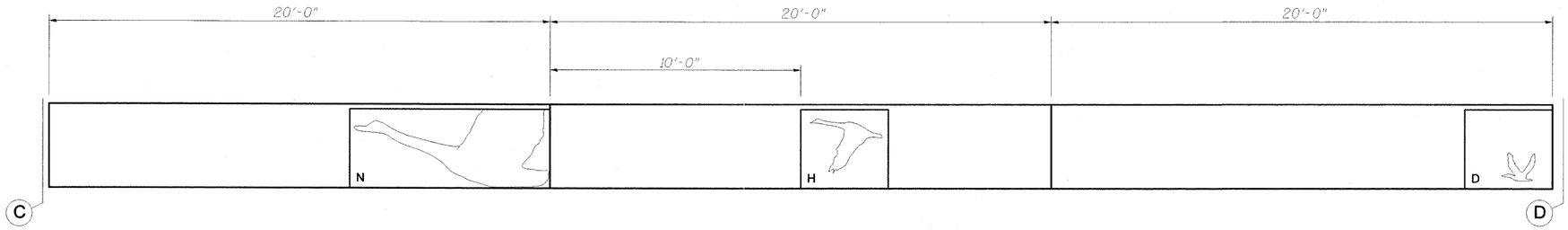
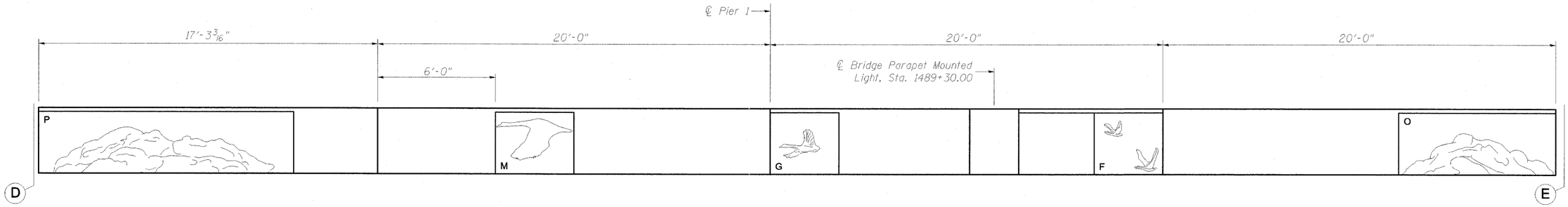
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/10/2011	CHECKED - BPD	REVISED -

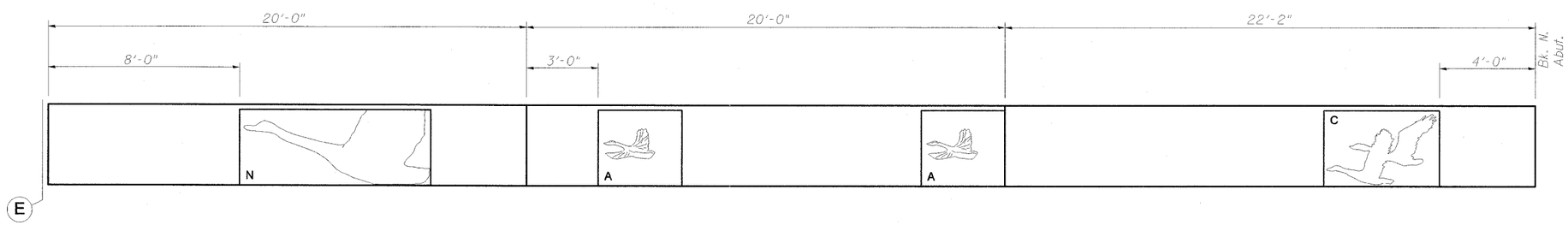
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

AESTHETIC DETAILS – I
STRUCTURE NO. 100–0088 (N.B.)
SHEET NO. 27 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	612
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			







PARTIAL OUTSIDE ELEVATION OF PARAPET

(NB East Parapet, Looking West)

NOTES:

1. Custom liners will be secured into forms.
2. Forms will be fabricated to make up any voids surrounding or between liners and remain flush with background surface height.
3. See Sheet 63 of 75 for form liner panel details.
4. See Special Provisions for Aesthetic Bridge Treatment

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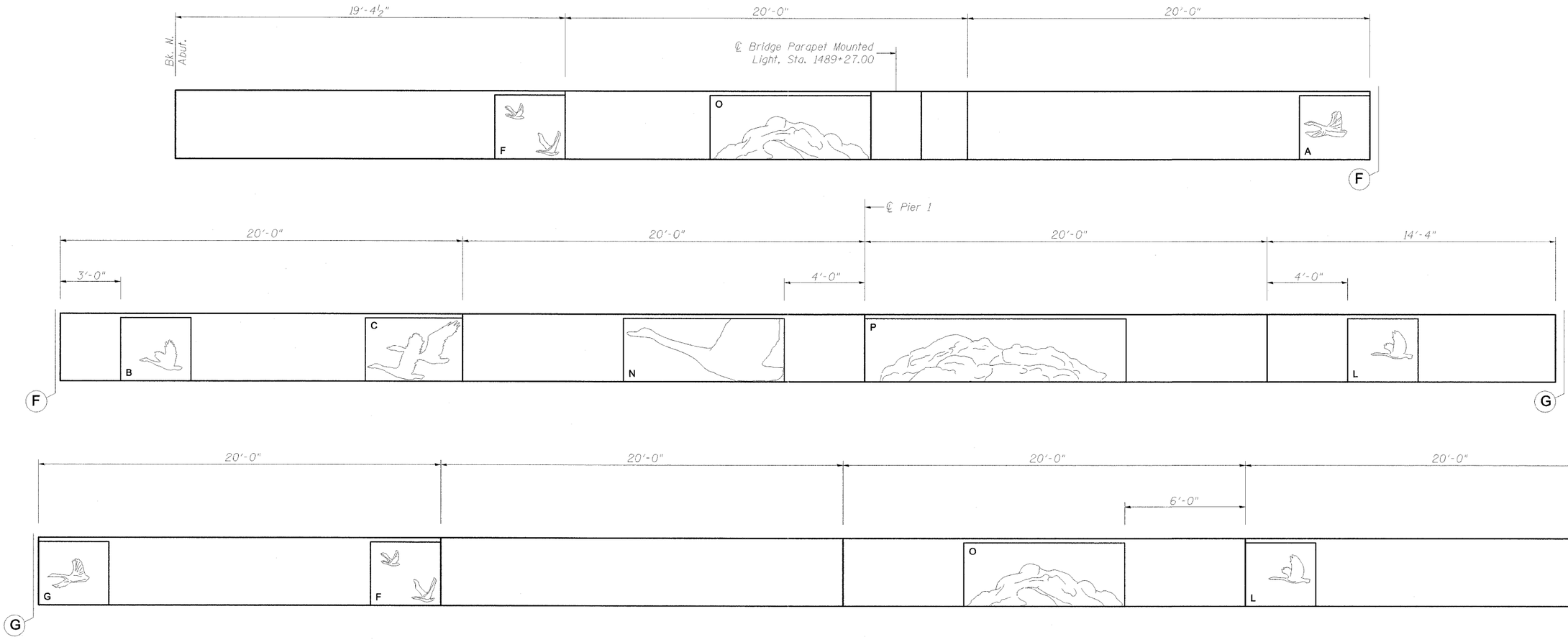
		CHECKED - WLB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/10/2011	CHECKED - BPD	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

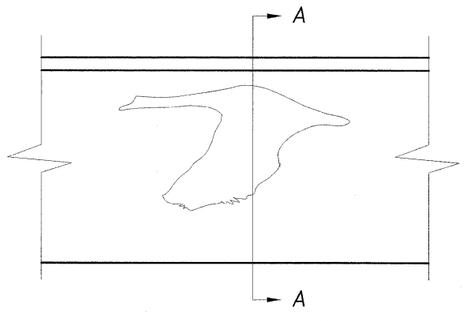
AESTHETIC DETAILS – II
STRUCTURE NO. 100-0088 (N.B.)
SHEET NO. 28 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	613
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			

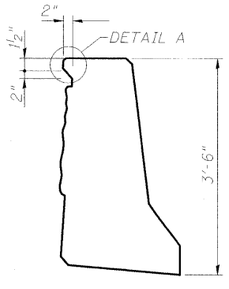


PARTIAL OUTSIDE ELEVATION OF PARAPET

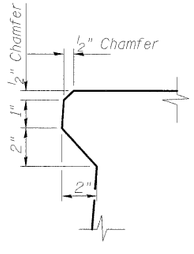
(SB West Parapet, Looking East)



OUTSIDE ELEVATION



SECTION A-A



DETAIL A

NOTES:

1. Custom liners will be secured into forms.
2. Forms will be fabricated to make up any voids surrounding or between liners and remain flush with background surface height.
3. See Sheet 63 of 75 for form liner panel details.
4. See Special Provisions for Aesthetic Bridge Treatment

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FILE NAME = ...\024A_AD_SUPERSTRUCTURE DETAILS_SB-I.dgn	USER NAME = Gary Davis	DESIGNED - BPD	REVISED -
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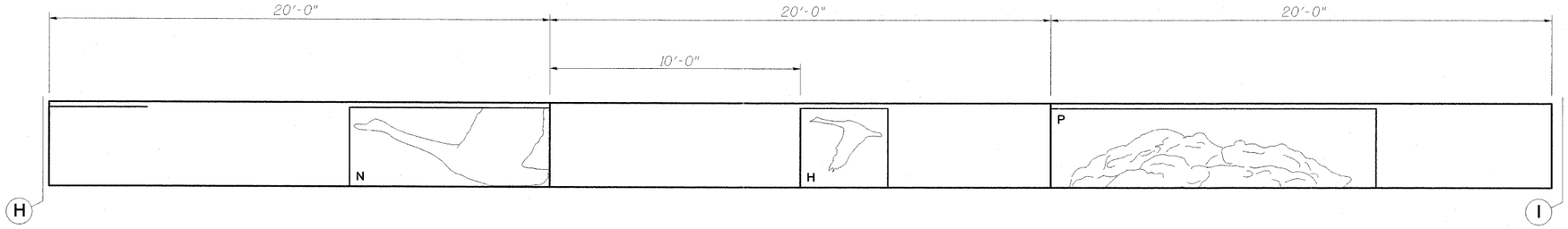
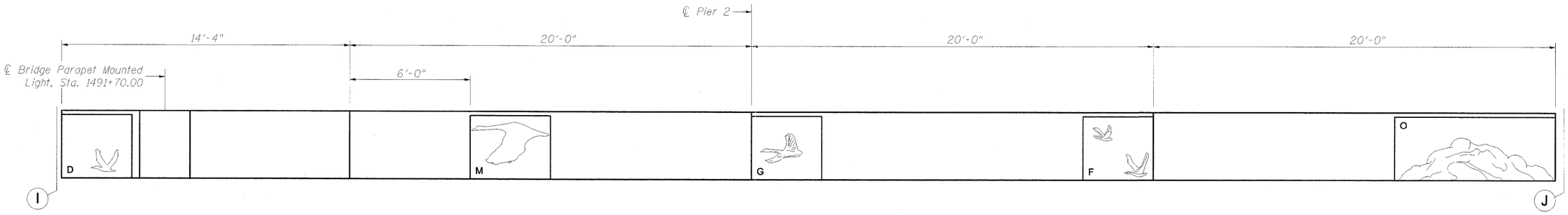
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/10/2011	CHECKED - BPD	REVISED -

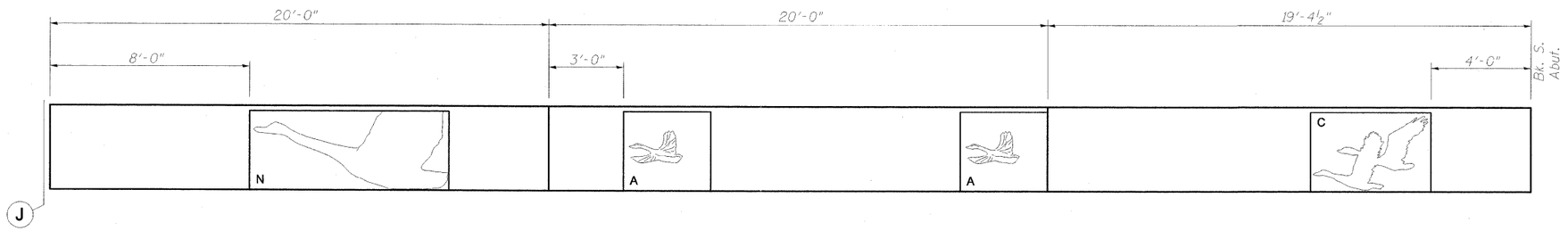
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

AESTHETIC DETAILS – I
STRUCTURE NO. 100–0089 (S.B.)
SHEET NO. 29 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	614
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			







PARTIAL OUTSIDE ELEVATION OF PARAPET

(SB West Parapet, Looking East)

NOTES:

1. Custom liners will be secured into forms.
2. Forms will be fabricated to make up any voids surrounding or between liners and remain flush with background surface height.
3. See Sheet 63 of 75 for form liner panel details.
4. See Special Provisions for Aesthetic Bridge Treatment

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	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/10/2011	CHECKED - BPD	REVISED -

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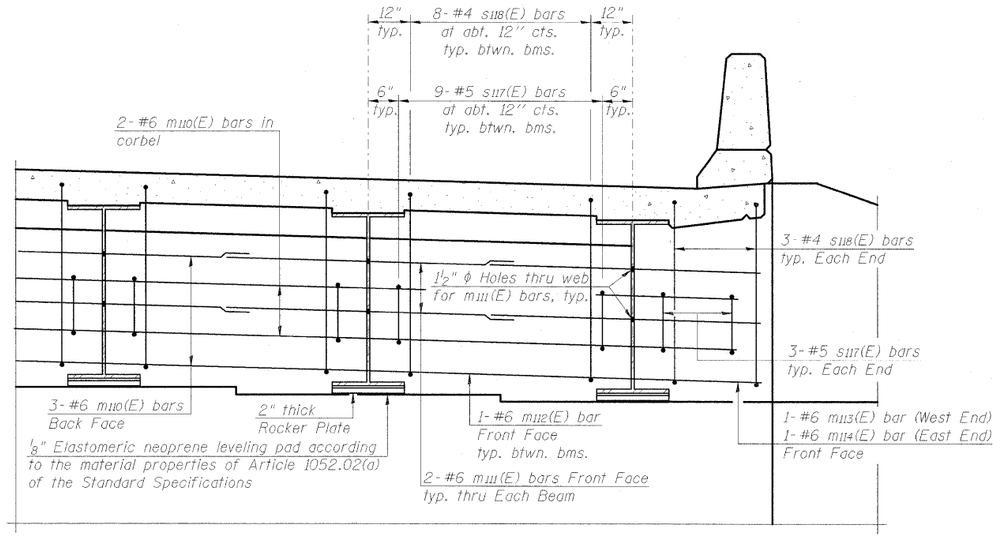
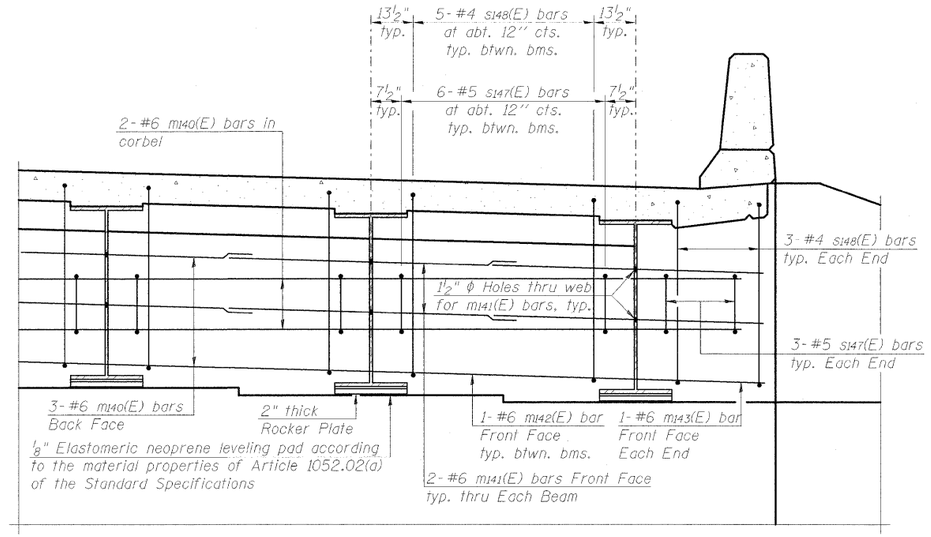
AESTHETIC DETAILS – II
STRUCTURE NO. 100-0089 (S.B.)
SHEET NO. 30 OF 75 SHEETS

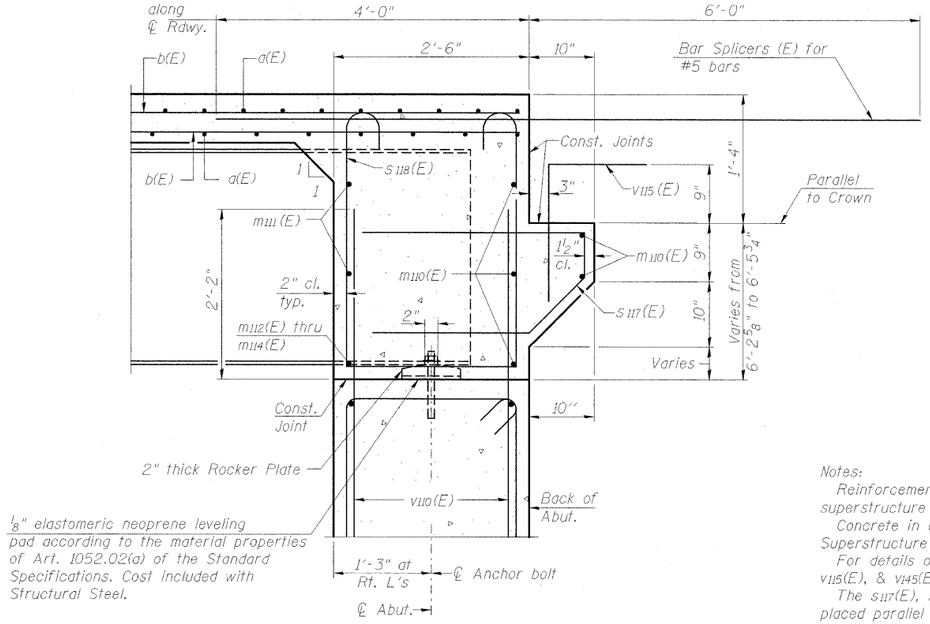
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	615
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS	FED. AID PROJECT			



DIAPHRAGM ELEVATION AT NORTH ABUTMENT



DIAPHRAGM ELEVATION AT SOUTH ABUTMENT



SECTION THRU DIAPHRAGM AT NORTH ABUTMENT

Dimensions at right angles to abutment, except as shown.

Notes:

Reinforcement bars in diaphragm are billed with superstructure on sheet 21 of 75.

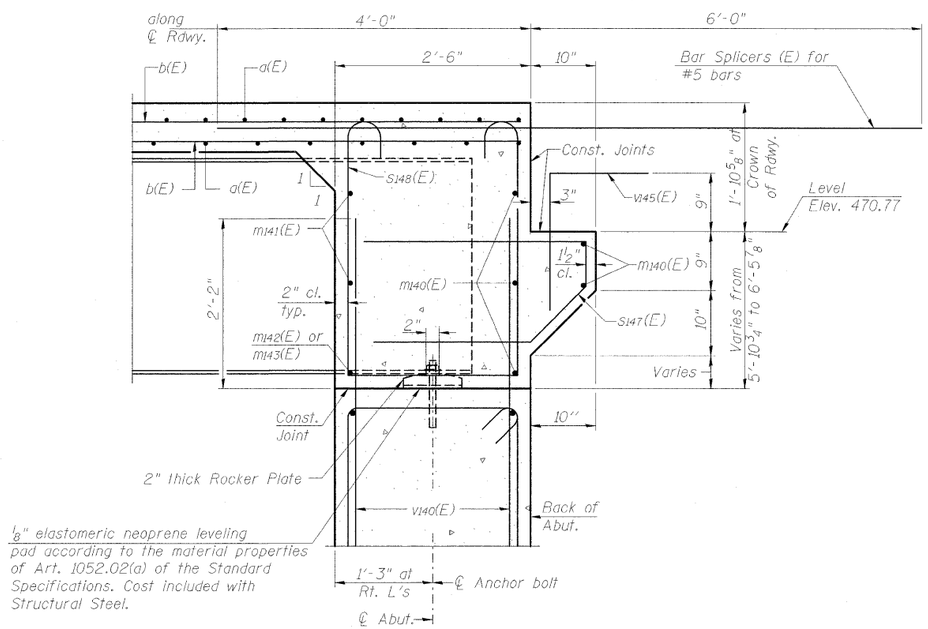
Concrete in diaphragm is included with Concrete Superstructure on sheet 21 of 75.

For details of bars s117(E), s118(E), s147(E), s148(E), v115(E), & v145(E) see sheet 21 of 75.

The s117(E), s118(E), s147(E), & s148(E) bars shall be placed parallel to the beams. Spacing for these bars shall be at right angles to the beams.

MIN. BAR LAP

#6 bar = 3'-4"



SECTION THRU DIAPHRAGM AT SOUTH ABUTMENT

Dimensions at right angles to abutment, except as shown.

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FILE NAME = ...\042_INTEGRAL ABUT DETAILS_NB.dgn	USER NAME = Rob Heady	DESIGNED - JDJ	REVISED -
		CHECKED - REB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - REB	REVISED -

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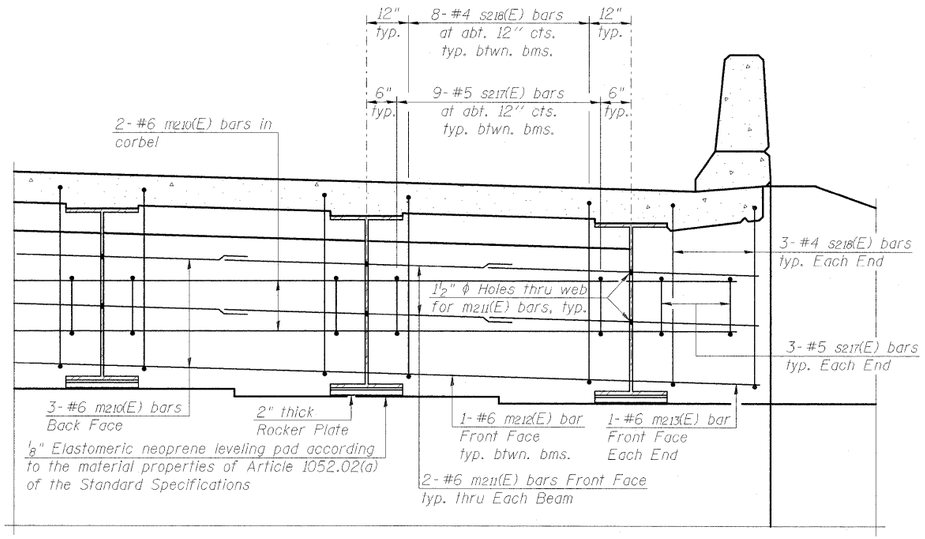
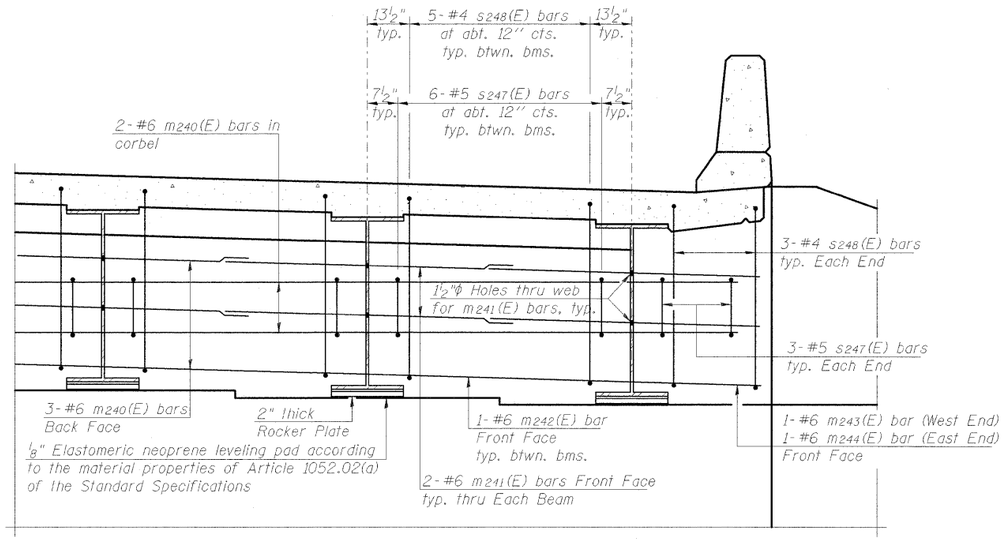
INTEGRAL ABUTMENT DIAPHRAGM DETAILS
STRUCTURE NO. 100-0088 (N.B.)
SHEET NO. 31 OF 75 SHEETS

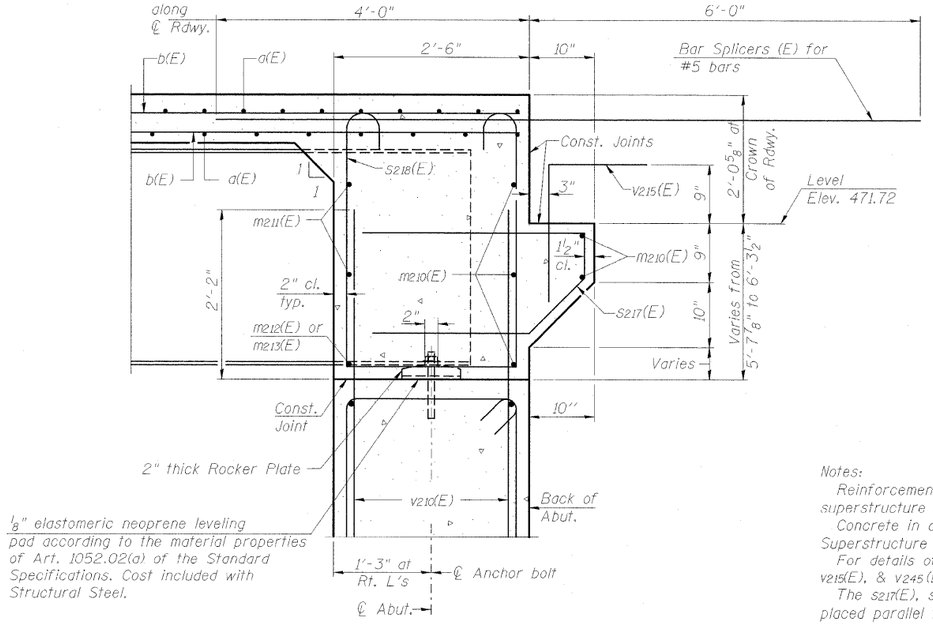
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(X1-6-2)HBK-2	WILLIAMSON	968	616
		CONTRACT NO. 78182		
		ILLINOIS FED. AID PROJECT		



DIAPHRAGM ELEVATION AT NORTH ABUTMENT



DIAPHRAGM ELEVATION AT SOUTH ABUTMENT



SECTION THRU DIAPHRAGM AT NORTH ABUTMENT

Dimensions at right angles to abutment, except as shown.

Notes:

Reinforcement bars in diaphragm are billed with superstructure on sheet 25 of 75.

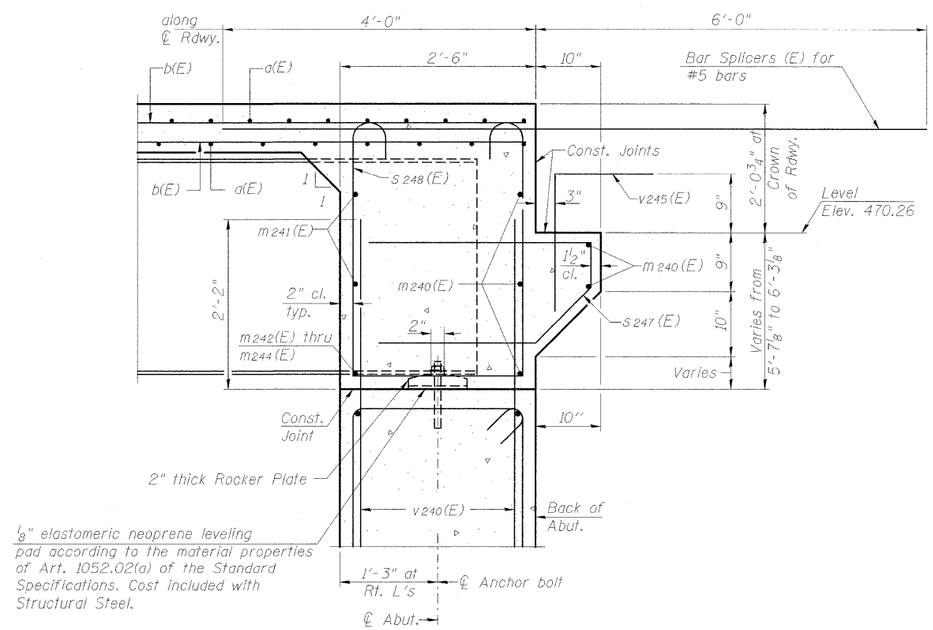
Concrete in diaphragm is included with Concrete Superstructure on sheet 25 of 75.

For details of bars s217(E), s218(E), s247(E), s248(E), v215(E), & v245(E) see sheet 25 of 75.

The s217(E), s218(E), s247(E), & s248(E) bars shall be placed parallel to the beams. Spacing for these bars shall be at right angles to the beams.

MIN. BAR LAP

#6 bar = 3'-4"



SECTION THRU DIAPHRAGM AT SOUTH ABUTMENT

Dimensions at right angles to abutment, except as shown.

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	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - REB	REVISED -

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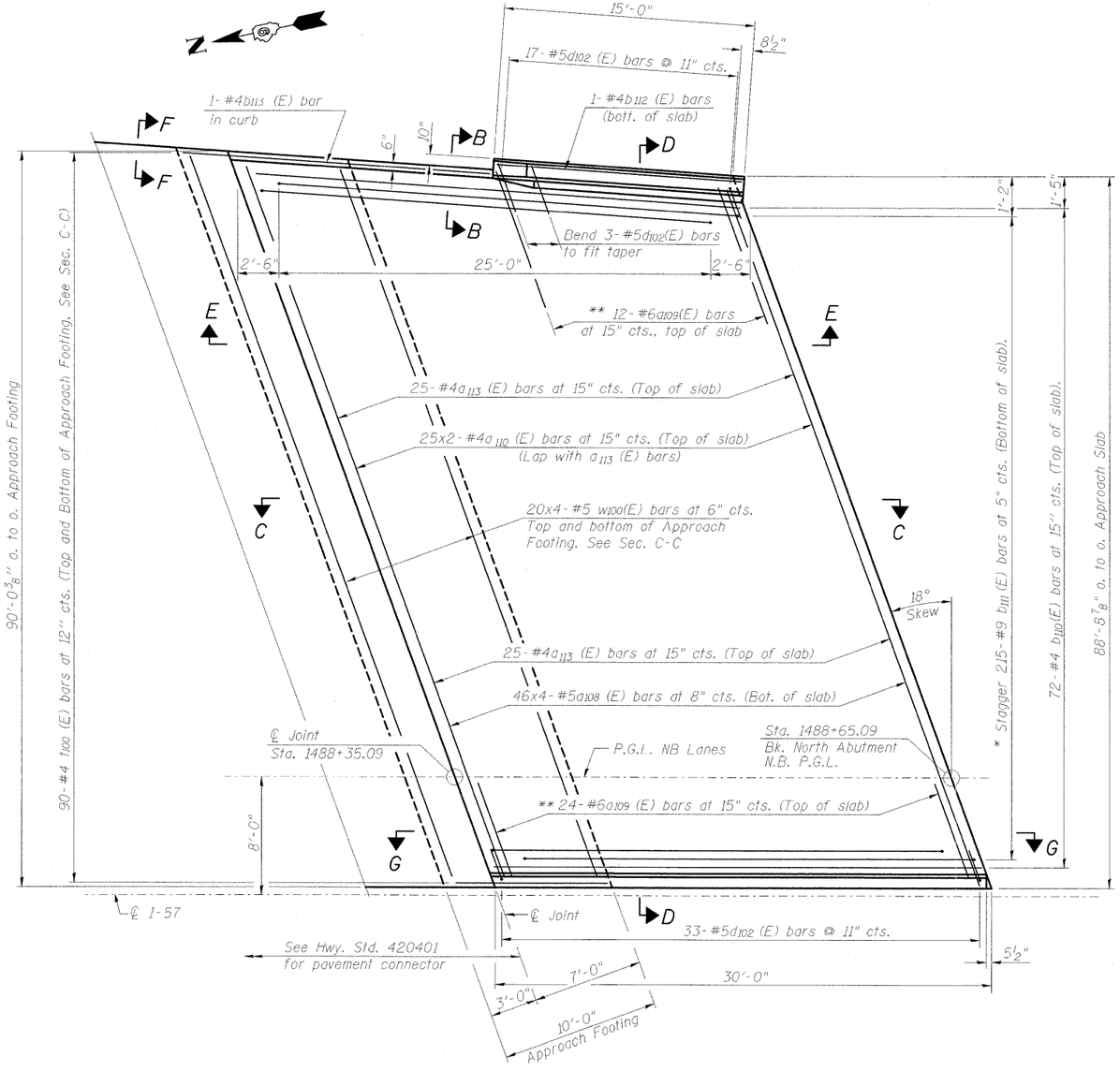
DEPARTMENT OF TRANSPORTATION

INTEGRAL ABUTMENT DIAPHRAGM DETAILS
STRUCTURE NO. 100-0089 (S.B.)
SHEET NO. 32 OF 75 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(X1-6-2)HBK-2	WILLIAMSON	968	617
		CONTRACT NO. 78182		
ILLINOIS	FED. AID PROJECT			

NOTES:

1. See sheet 34 of 75 for Sections C-C & D-D and View E-E & G-G.
2. a_{113} (E), a_{108} (E) and a_{110} (E) bar spacings measured along PGL.
3. Bars indicated thus 20x4-#5 etc. indicates 20 lines of bars with 4 lengths per line.

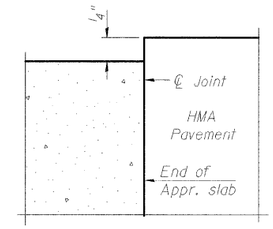


PLAN

* Tilt #9 b_{111} (E) bars as required to maintain clearance.
** Space between a_{113} (E) bars

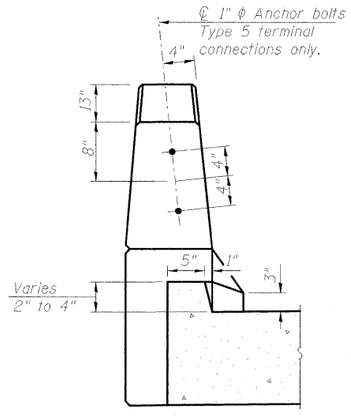
MINIMUM BAR LAP

#4 bar = 2'-7"
#5 bar = 3'-3"

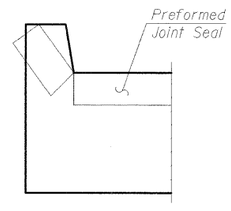


FLEXIBLE PAVEMENT

DETAIL A



VIEW B-B



VIEW F-F

Angle Preformed Joint Seal at 45° at curbs when req'd for drainage.

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FILE NAME = ...\025_NO BR APP SLAB DTLS-I-NB.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - WLB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

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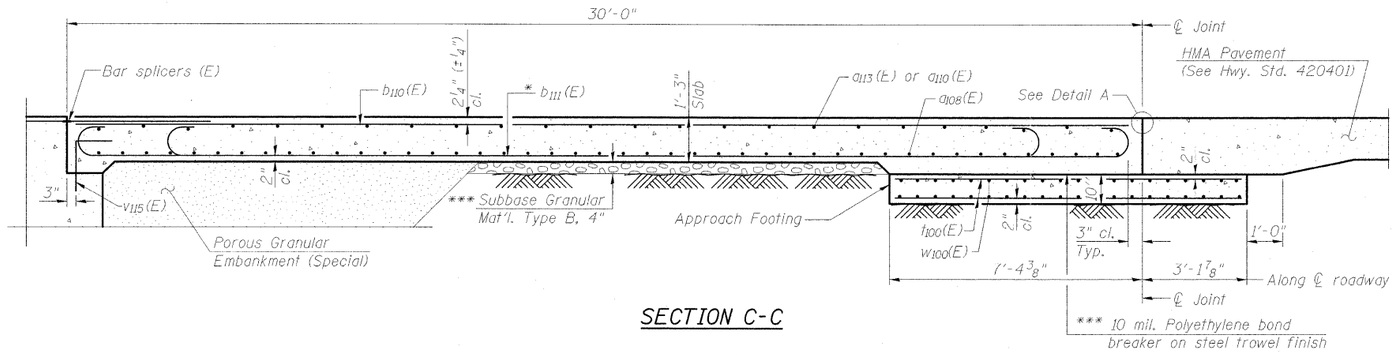
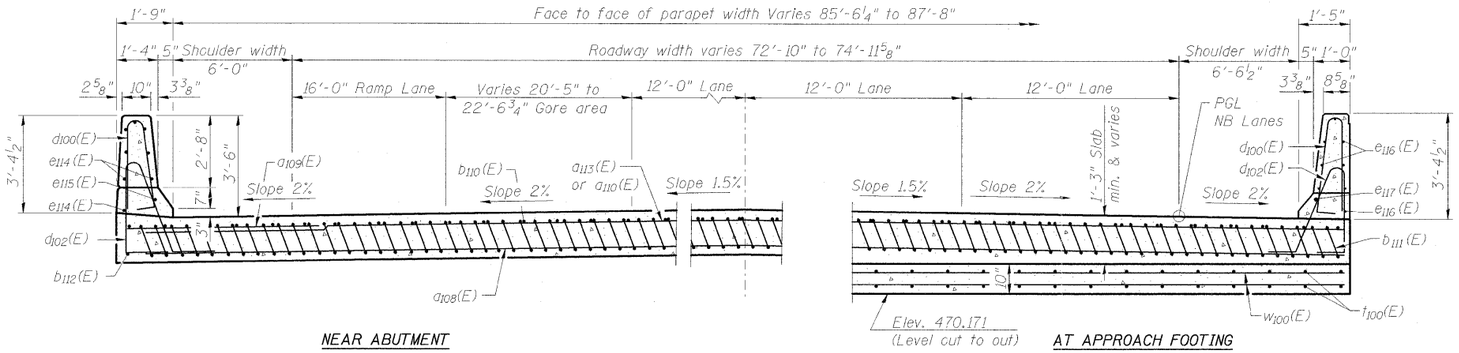
NORTH BRIDGE APPROACH SLAB DETAILS
STRUCTURE NO. 100-0088 (N.B.)
SHEET NO. 33 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	618
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS FED. AID PROJECT				



SECTION C-C

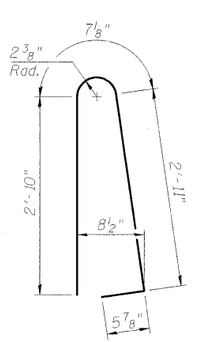


NEAR ABUTMENT

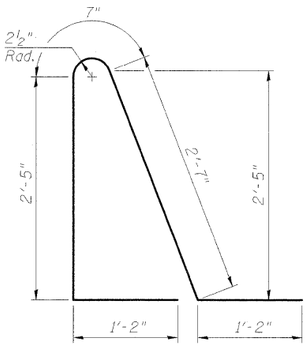
AT APPROACH FOOTING

NOTES:

1. See sheet 33 of 75 for Detail A and View B-B.
2. Approach slab and parapet concrete shall be paid for as Concrete Superstructure.
3. Approach footing concrete shall be paid for as Concrete Structures.
4. Reinforcement shall be paid for as Reinforcement Bars, Epoxy Coated.
5. For v_{115}(E) bar details, see sheet 21 of 75.
6. The approach footing maximum applied service bearing pressure (Qmax) = 2.0 ksf.
7. For bar splicer details, see sheet 65 of 75.
8. Cost of excavation for approach footing included with Concrete Structures.
9. For Porous Granular Embankment (Special) and drainage treatment details, see sheet 2 of 75.
10. For additional parapet details, see sheet 22 of 75.



BAR d_{100} (E)



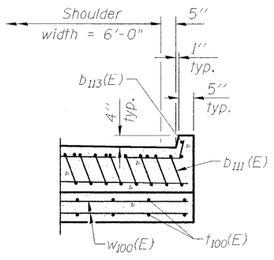
BAR d_{102} (E)

* Till #9 b_{111}(E) bars as required to maintain clearance.

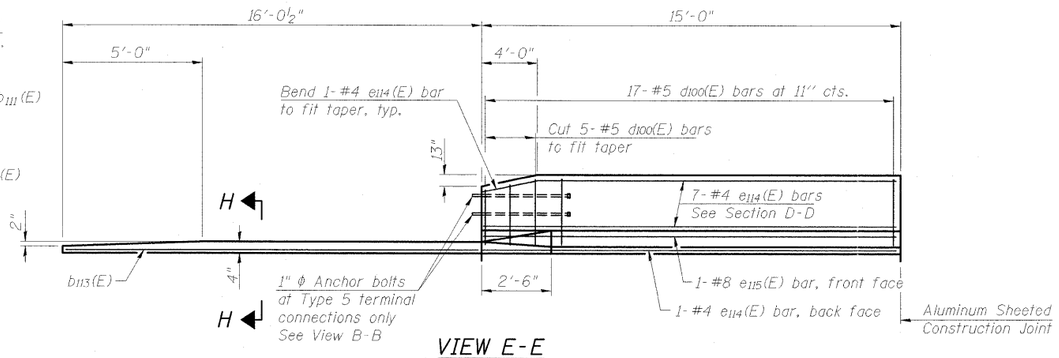
*** Cost included with Concrete Superstructure.

SECTION D-D

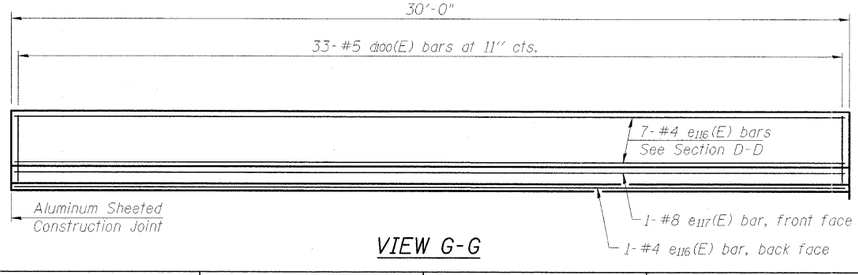
(See Plan for dimensions not shown)



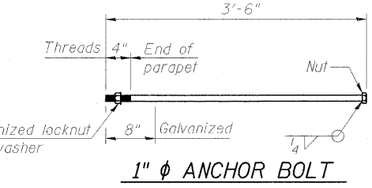
SECTION H-H



VIEW E-E

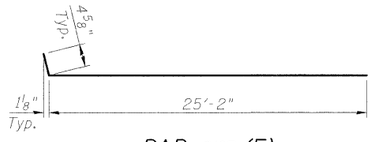


VIEW G-G

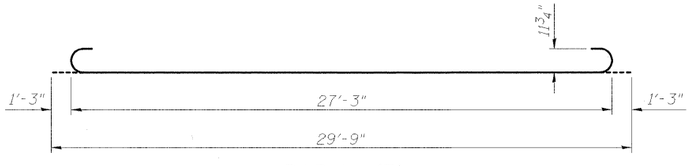


1" ϕ ANCHOR BOLT

(Cost included with Concrete Superstructure)



BAR a_{107} (E)



BAR b_{111} (E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a_{113}(E)	50	#4	25'-7"	
a_{108}(E)	184	#5	26'-0"	
a_{109}(E)	36	#6	6'-6"	
a_{110}(E)	50	#4	25'-11"	
b_{110}(E)	72	#4	29'-8"	
b_{111}(E)	215	#9	29'-9"	
b_{112}(E)	1	#4	14'-8"	
b_{113}(E)	1	#4	15'-8"	
d_{100}(E)	50	#5	6'-10"	
d_{102}(E)	50	#5	7'-11"	
e_{114}(E)	8	#4	14'-8"	
e_{115}(E)	1	#8	14'-8"	
e_{116}(E)	8	#4	29'-8"	
e_{117}(E)	1	#8	29'-8"	
t_{100}(E)	180	#4	10'-2"	
w_{100}(E)	160	#5	26'-1"	
Structure Excavation			Cu. Yd.	42
Concrete Structures			Cu. Yd.	29.2
Concrete Superstructure			Cu. Yd.	150.7
Bridge Deck Grooving			Sq. Yd.	282
Protective Coat			Sq. Yd.	313
Reinforcement Bars, Epoxy Coated			Pound	36,960
Staining Concrete Structure			Sq. Yd.	6

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ROCKFORD, IL ■ PEORIA, IL ■ CHICAGO, IL

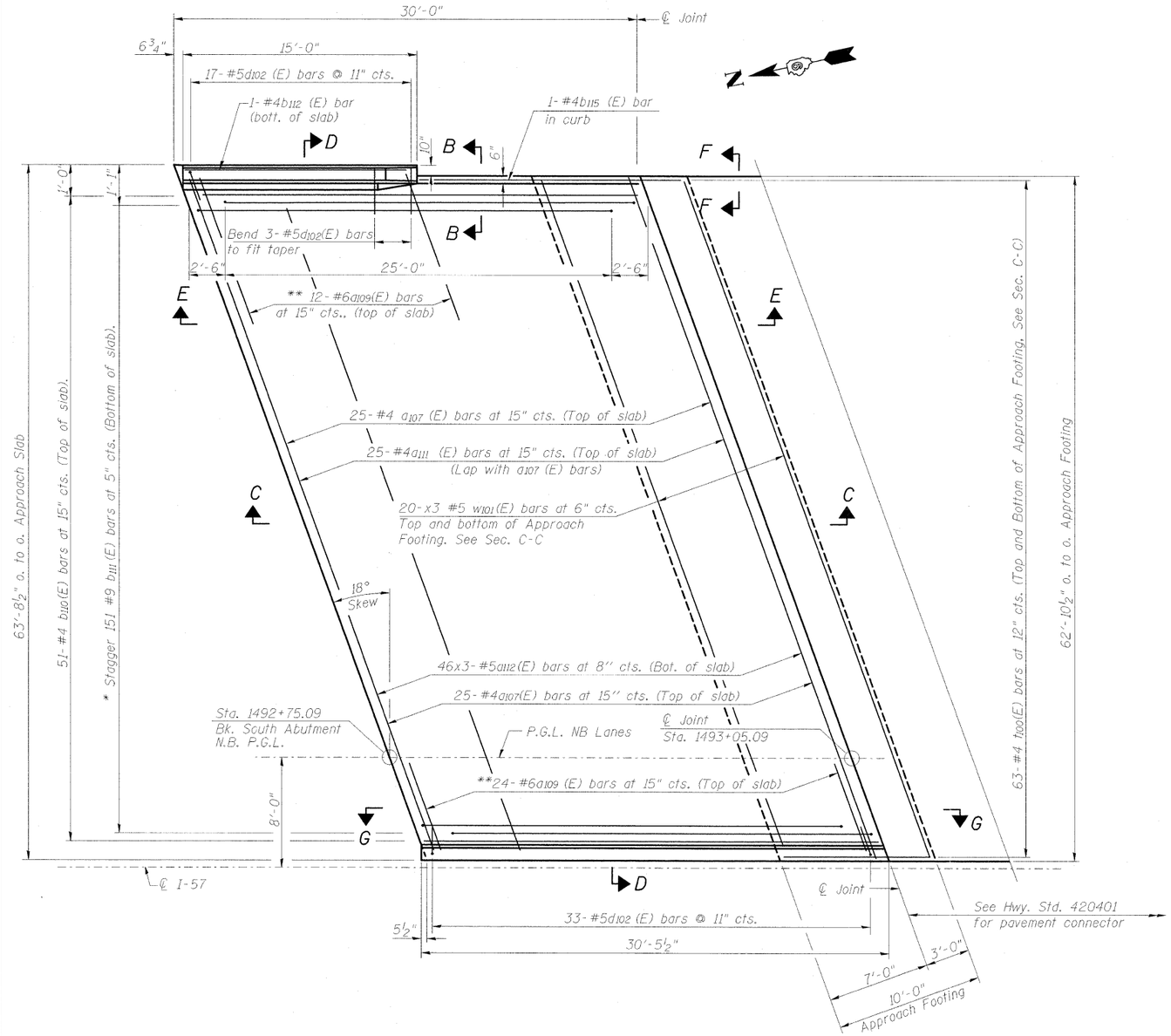
FILE NAME = ...\026_NO BR APP SLAB DTLS-11-NB.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - WLB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

NORTH BRIDGE APPROACH SLAB DETAILS
STRUCTURE NO. 100-0088 (N.B.)

SHEET NO. 34 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	619
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS FED. AID PROJECT				



MINIMUM BAR LAP

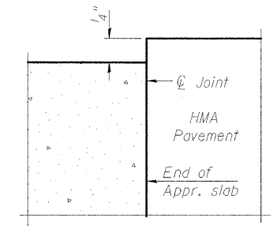
#4 bar = 2'-7"
#5 bar = 3'-3"

PLAN

* Tilt #9 b111 (E) bars as required to maintain clearance.
** Space between a107 (E) bars

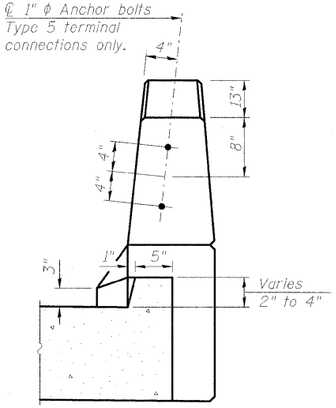
NOTES:

1. See sheet 36 of 75 for Sections C-C & D-D and View E-E & G-G.
2. a_{107}(E), a_{111}(E) and a_{112}(E) bar spacings measured along PGL.
3. Bars indicated thus 20x2-#5 etc. indicates 20 lines of bars with 2 lengths per line.

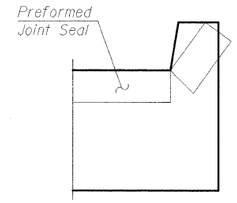


FLEXIBLE PAVEMENT

DETAIL A



VIEW B-B



VIEW F-F

Angle Preformed Joint Seal at 45° at curbs when req'd for drainage.

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CONSULTING ENGINEERS
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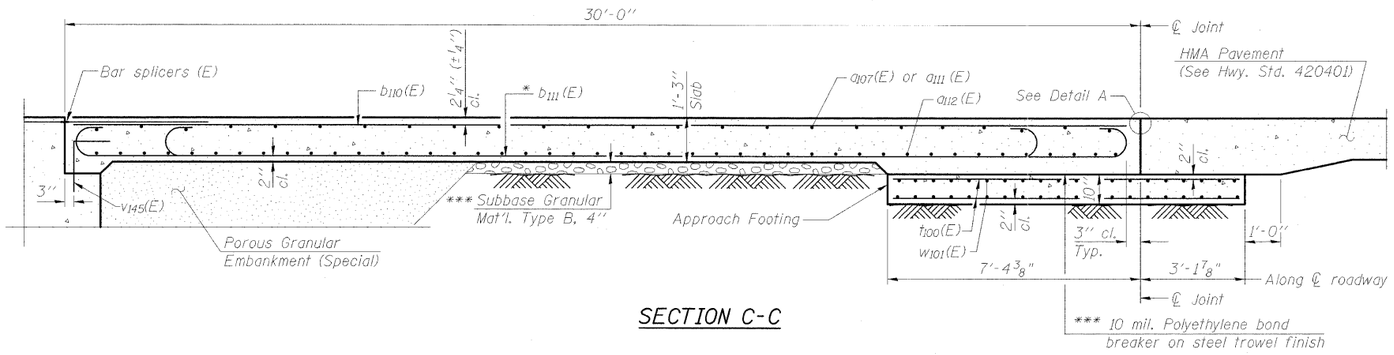
ROCKFORD, IL ■ PEORIA, IL ■ CHICAGO, IL

FILE NAME = ...\027_SO BR APP SLAB DTLS-I-NB.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - WLB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

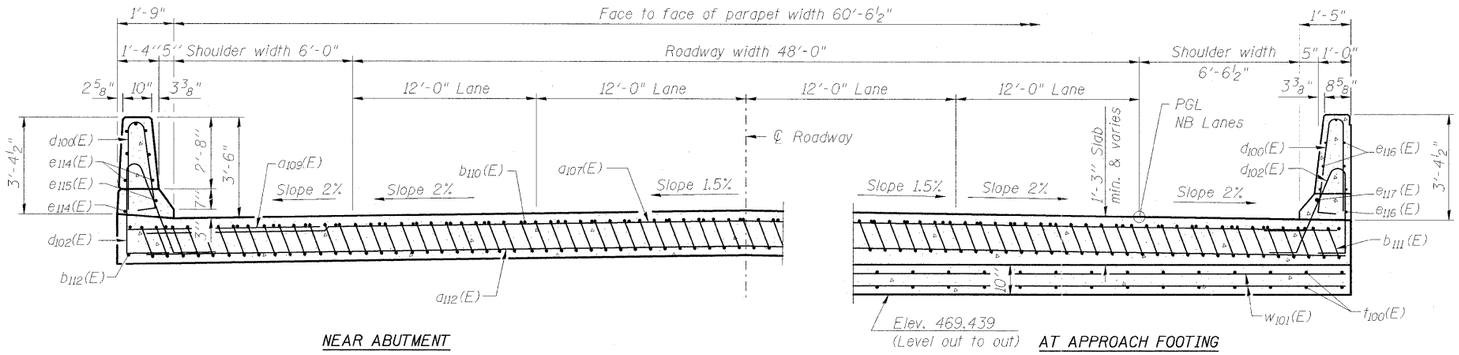
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOUTH BRIDGE APPROACH SLAB DETAILS
STRUCTURE NO. 100-0088 (N.B.)
SHEET NO. 35 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	620
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS	FED. AID PROJECT			



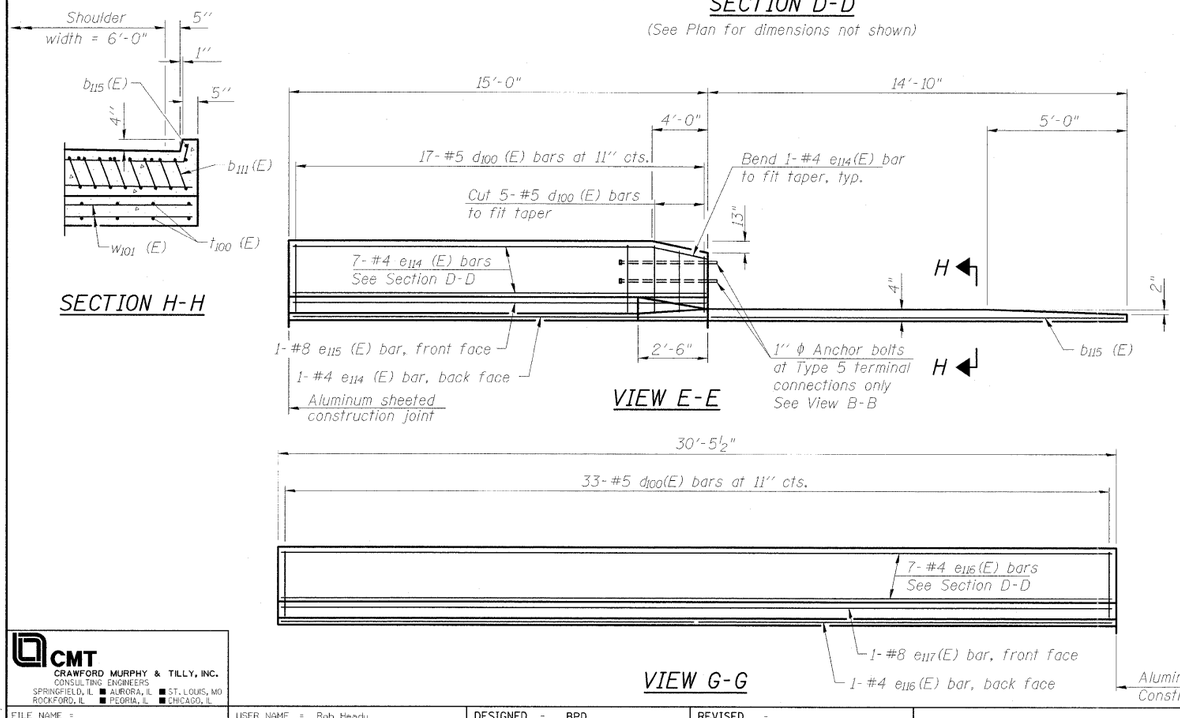
SECTION C-C



NEAR ABUTMENT — AT APPROACH FOOTING

SECTION D-D

(See Plan for dimensions not shown)

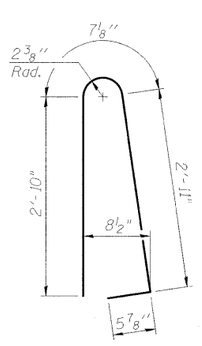


SECTION H-H — VIEW E-E

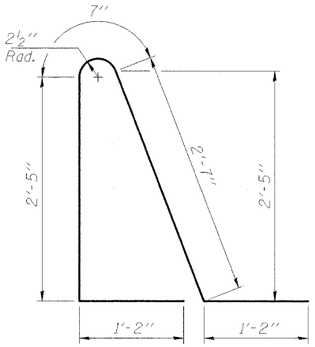
VIEW G-G

NOTES:

1. See sheet 35 of 75 for Detail A and View B-B.
2. Approach slab and parapet concrete shall be paid for as Concrete Superstructure.
3. Approach footing concrete shall be paid for as Concrete Structures.
4. Reinforcement shall be paid for as Reinforcement Bars, Epoxy Coated.
5. For v_{145}(E) bar details, see sheet 21 of 75.
6. The approach footing maximum applied service bearing pressure (Qmax) = 2.0 ksf.
7. For bar splicer details, see sheet 65 of 75.
8. Cost of excavation for approach footing included with Concrete Structures.
9. For Porous Granular Embankment (Special) and drainage treatment details, see sheet 2 of 75.
10. For additional parapet details, see sheet 22 of 75.



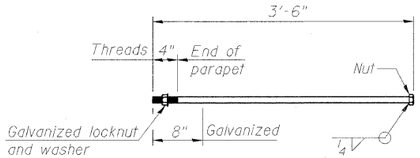
BAR d_{100}(E)



BAR d_{102} (E)

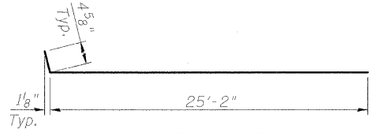
* Tilt #9 b_{111}(E) bars as required to maintain clearance.

*** Cost included with Concrete Superstructure.

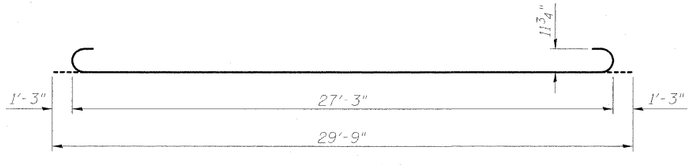


1" ϕ ANCHOR BOLT

(Cost included with Concrete Superstructure)



BAR a_{107} (E)



BAR b_{111} (E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a_{113}(E)	50	#4	25'-7"	
a_{105}(E)	36	#6	6'-6"	
a_{111}(E)	25	#4	20'-8"	
a_{112}(E)	138	#5	24'-1"	
b_{110}(E)	51	#4	29'-8"	
b_{111} (E)	151	#9	29'-9"	
b_{112}(E)	1	#4	14'-8"	
b_{115}(E)	1	#4	14'-6"	
d_{100}(E)	50	#5	6'-10"	
d_{102}(E)	50	#5	7'-11"	
e_{114}(E)	8	#4	14'-8"	
e_{115}(E)	1	#8	14'-8"	
e_{116}(E)	8	#4	29'-8"	
e_{117}(E)	1	#8	29'-8"	
t_{100}(E)	126	#4	10'-2"	
w_{101}(E)	120	#5	24'-1"	
Structure Excavation		Cu. Yd.	29	
Concrete Structures		Cu. Yd.	20.4	
Concrete Superstructure		Cu. Yd.	100.9	
Bridge Deck Grooving		Sq. Yd.	195	
Protective Coat		Sq. Yd.	226	
Reinforcement Bars, Epoxy Coated		Pound	26,320	
Staining Concrete Structure		Sq. Yd.	6	

(Sheet 2 of 2)

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ROCKFORD, IL ■ PEORIA, IL ■ CHICAGO, IL

FILE NAME = ...\028_SO BR APP SLAB DTLS-I-NB.dgn
USER NAME = Rob Heady
PLOT SCALE =
PLOT DATE = 10///2011

DESIGNED - BPD		REVISED -
CHECKED - WLB		REVISED -
DRAWN - GLD		REVISED -
CHECKED - BPD		REVISED -

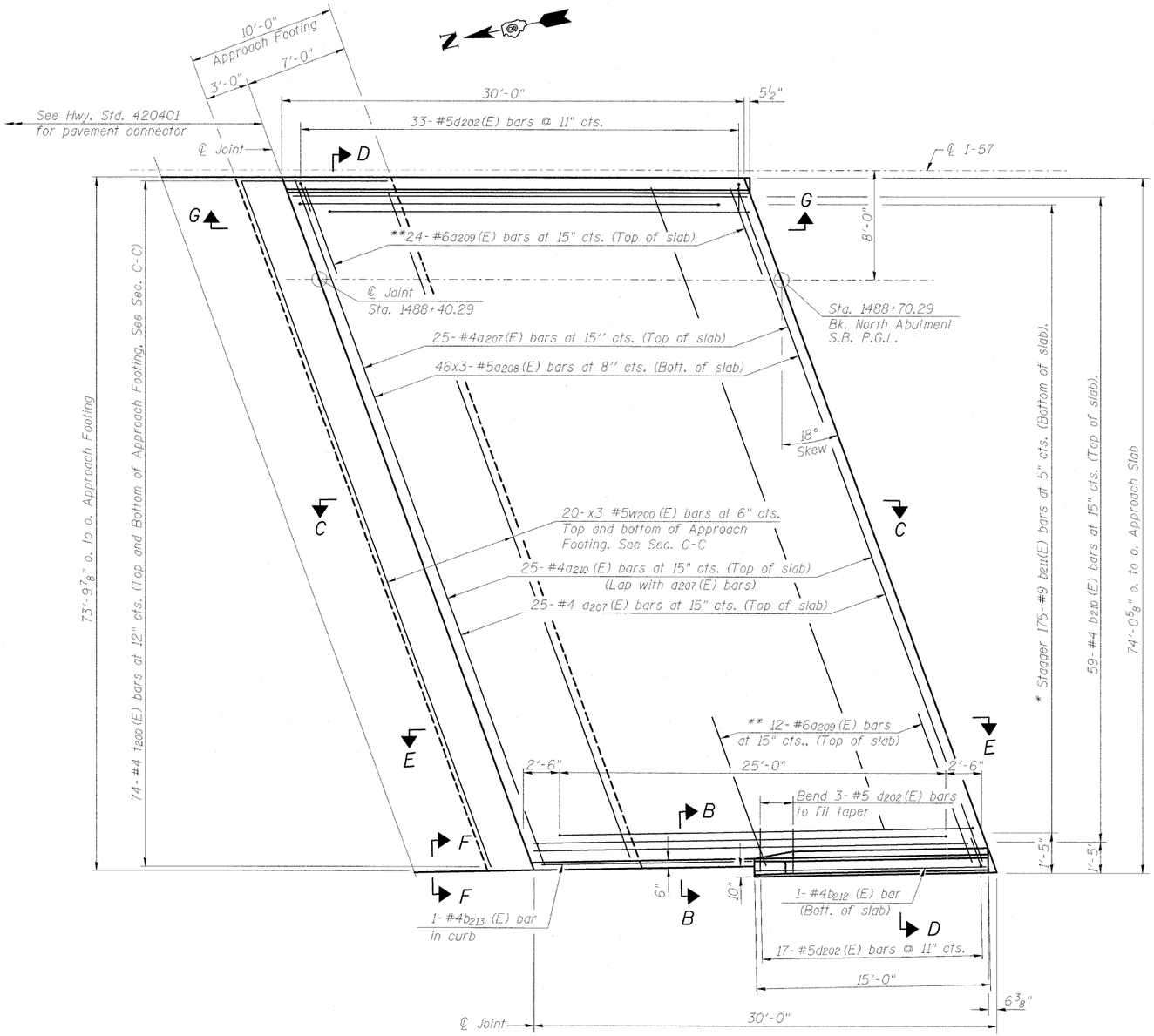
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOUTH BRIDGE APPROACH SLAB DETAILS
STRUCTURE NO. 100-0088 (N.B.)
SHEET NO. 36 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	621
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
		ILLINOIS FED. AID PROJECT		

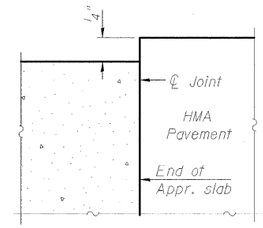
NOTES:

1. See sheet 38 of 75 for Sections C-C & D-D and View E-E & G-G.
2. a_{207}(E), a_{208}(E) and a_{210}(E) bar spacings measured along PGL.
3. Bars indicated thus 20x3-#5 etc. indicates 20 lines of bars with 3 lengths per line.



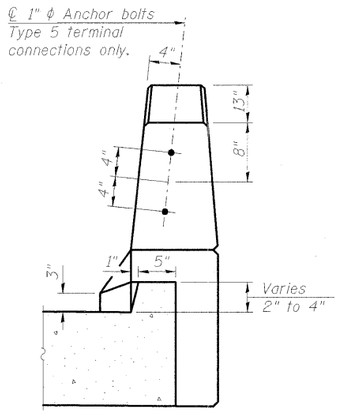
PLAN

* Tilt #9 b_{211}(E) bars as required to maintain clearance.
** Space between a_{207}(E) bars, typ. each parapet.

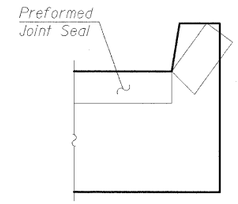


FLEXIBLE PAVEMENT

DETAIL A



VIEW B-B



VIEW F-F

Angle Preformed Joint Seal at 45° at curbs when req'd for drainage.

MINIMUM BAR LAP

#4 bar = 2'-7"
#5 bar = 3'-3"

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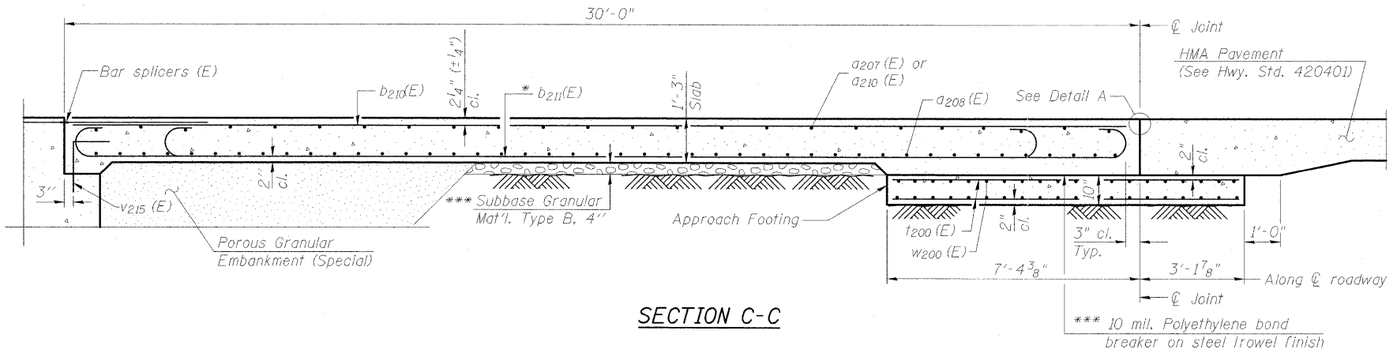
CONSULTING ENGINEERS
SPRINGFIELD, IL ■ AURORA, IL ■ ST. LOUIS, MO
ROCKFORD, IL ■ PEORIA, IL ■ CHICAGO, IL

FILE NAME = ...\029_NO BR APP SLAB DTLS-I-SB.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - WLB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

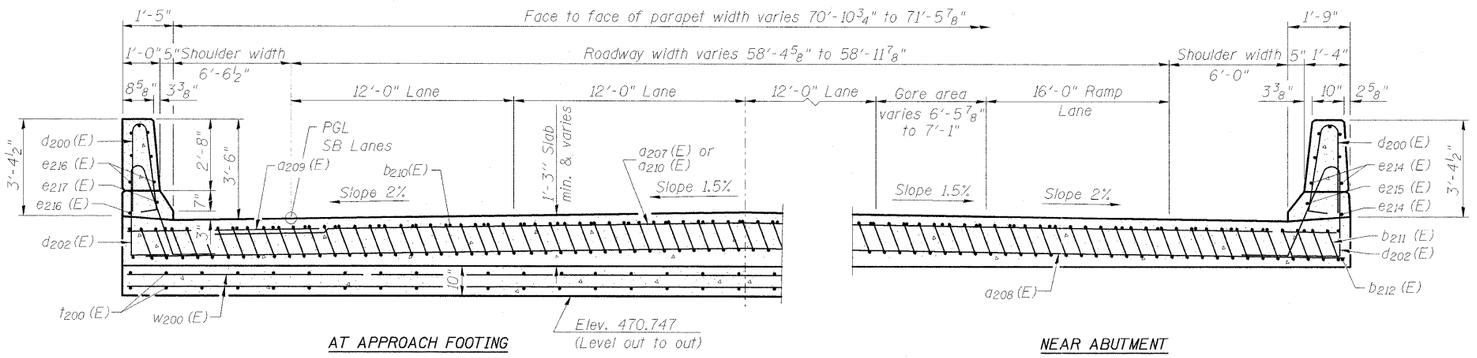
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

NORTH BRIDGE APPROACH SLAB DETAILS
STRUCTURE NO. 100-0089 (S.B.)
SHEET NO. 37 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	622
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS FED. AID PROJECT				



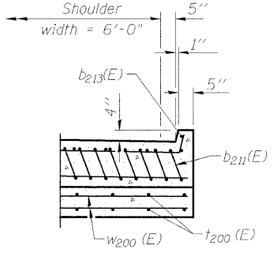
SECTION C-C



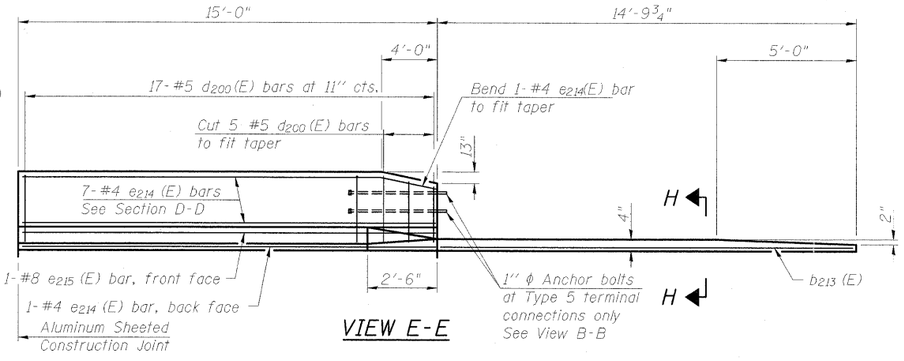
AT APPROACH FOOTING — NEAR ABUTMENT

SECTION D-D

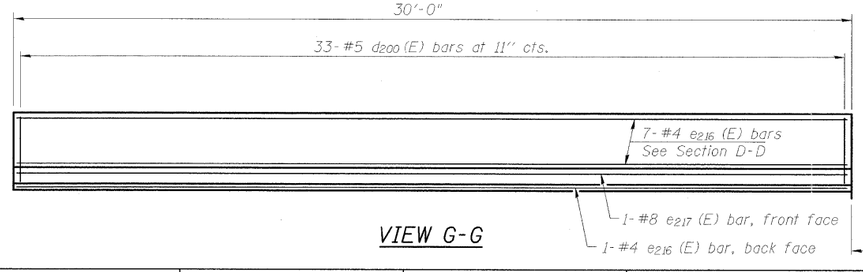
(See Plan for dimensions not shown)



SECTION H-H



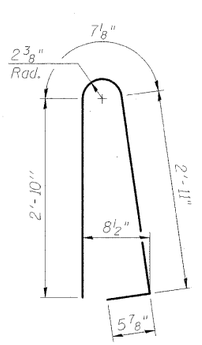
VIEW E-E



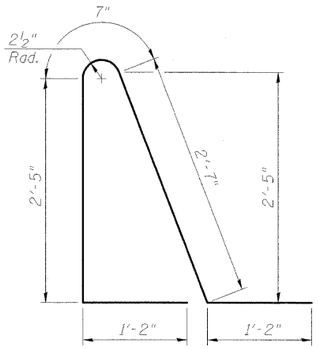
VIEW G-G

NOTES:

1. See sheet 37 of 75 for Detail A and View B-B.
2. Approach slab and parapet concrete shall be paid for as Concrete Superstructure.
3. Approach footing concrete shall be paid for as Concrete Structures.
4. Reinforcement shall be paid for as Reinforcement Bars, Epoxy Coated.
5. For v_{215} (E) bar details, see sheet 25 of 75.
6. The approach footing maximum applied service bearing pressure (Qmax) = 2.0 ksf.
7. For bar splicer details, see sheet 65 of 75.
8. Cost of excavation for approach footing included with Concrete Structures.
9. For Porous Granular Embankment (Special) and drainage treatment details, see sheet 2 of 75.
10. For additional parapet details, see sheet 24 of 75.



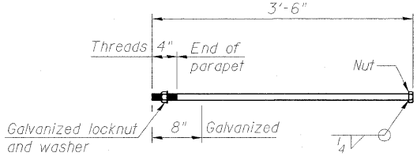
BAR d_{200}(E)



BAR d_{202}(E)

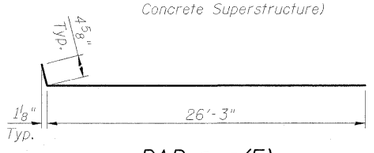
* Tilt #9 b_{211}(E) bars as required to maintain clearance.

*** Cost included with Concrete Superstructure.

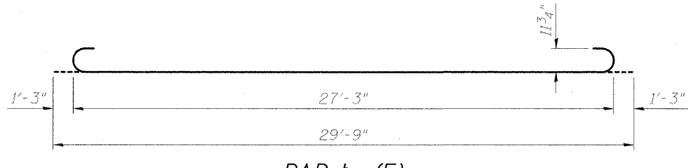


1" ϕ ANCHOR BOLT

(Cost included with Concrete Superstructure)



BAR a_{207}(E)



BAR b_{211}(E)

(Sheet 2 of 2)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a_{207}(E)	50	#4	26'-8"	
a_{208}(E)	138	#5	28'-0"	
a_{209}(E)	36	#6	6'-6"	
a_{210} (E)	25	#4	30'-0"	
b_{210} (E)	59	#4	29'-8"	
b_{211} (E)	1/5	#9	29'-9"	
b_{212} (E)	1	#4	14'-8"	
b_{213} (E)	1	#4	14'-5"	
d_{200}(E)	50	#5	6'-10"	
d_{202}(E)	50	#5	7'-11"	
e_{214} (E)	8	#4	14'-8"	
e_{215} (E)	1	#8	14'-8"	
e_{216} (E)	8	#4	29'-8"	
e_{217} (E)	1	#8	29'-8"	
t_{200} (E)	148	#4	10'-2"	
w_{200} (E)	120	#5	28'-0"	
Structure Excavation			Cu. Yd.	34
Concrete Structures			Cu. Yd.	23.9
Concrete Superstructure			Cu. Yd.	117.5
Bridge Deck Grooving			Sq. Yd.	231
Protective Coat			Sq. Yd.	261
Reinforcement Bars, Epoxy Coated			Pound	30,300
Staining Concrete Structure			Sq. Yd.	6

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ROCKFORD, IL ■ PEORIA, IL ■ CHICAGO, IL

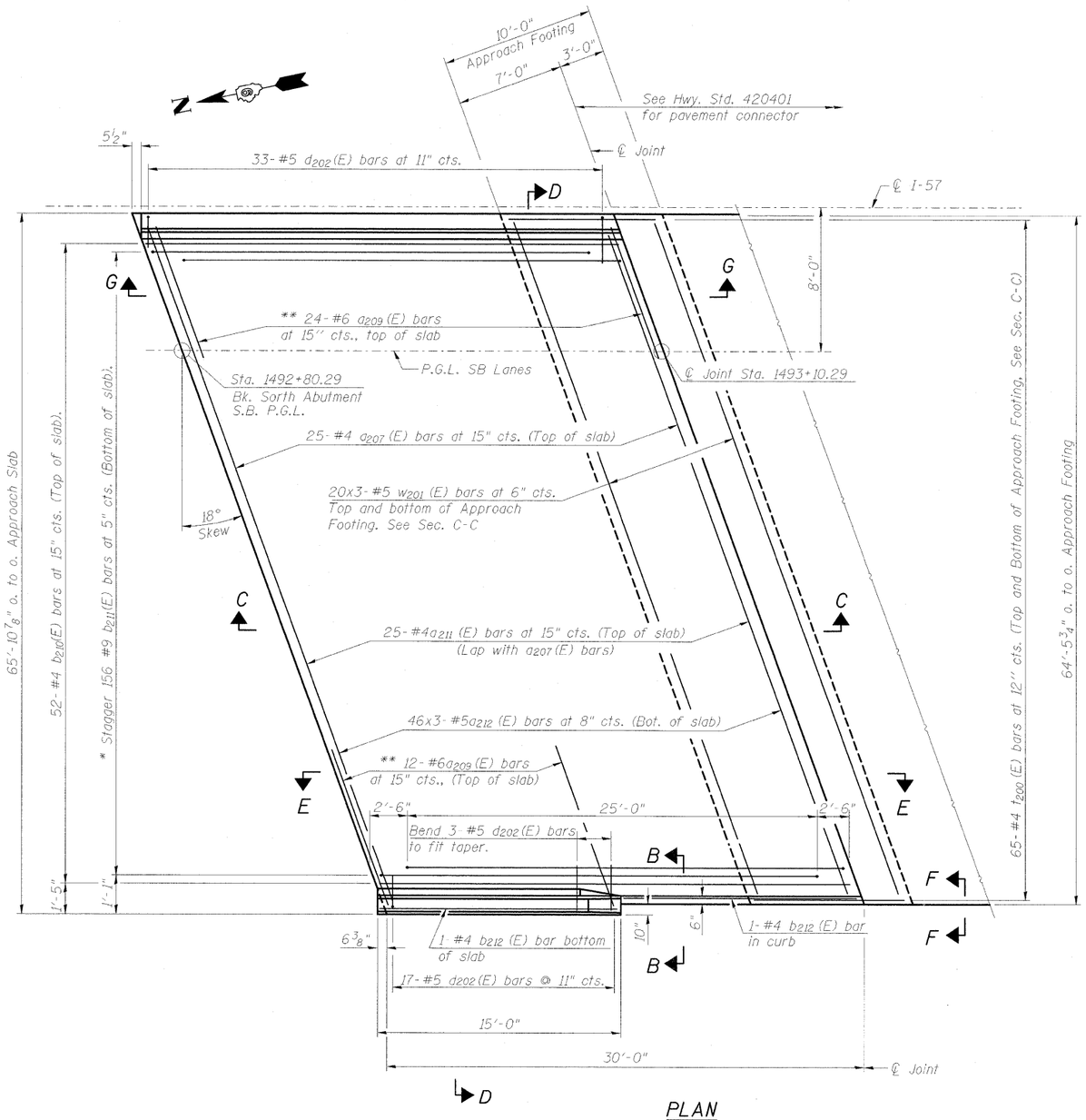
FILE NAME = ...\030_NO BR APP SLAB DTLS-II-SB.dgn
USER NAME = Rob Heady
PLOT SCALE =
PLOT DATE = 10/7/2011

DESIGNED - BPD	REVISED -	
CHECKED - WLB	REVISED -	
DRAWN - GLD	REVISED -	
CHECKED - BPD	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

NORTH BRIDGE APPROACH SLAB DETAILS
STRUCTURE NO. 100-0089 (S.B.)
SHEET NO. 38 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	623
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			



PLAN

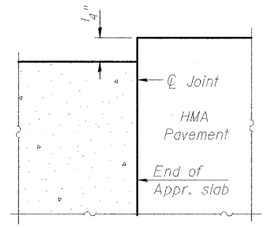
* Tilt #9 b_{211}(E) bars as required to maintain clearance.
** Space between a_{207}(E) bars, typ. each parapet.

MINIMUM BAR LAP

#4 bar = 2'-7"
#5 bar = 3'-3"

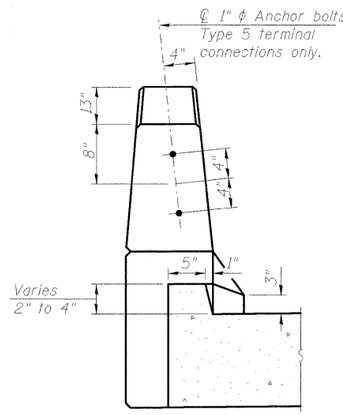
NOTES:

1. See sheet 40 of 75 for Sections C-C & D-D and View E-E & G-G.
2. a_{207}(E), a_{211} (E) and a_{212} (E) bar spacings measured along PGL.
3. Bars indicated thus 20x3-#5 etc. indicates 20 lines of bars with 3 lengths per line.

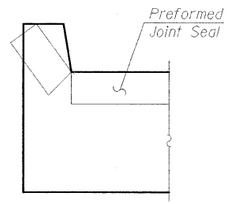


FLEXIBLE PAVEMENT

DETAIL A



VIEW B-B



VIEW F-F

Angle Preformed Joint Seal at 45° at curbs when req'd for drainage.

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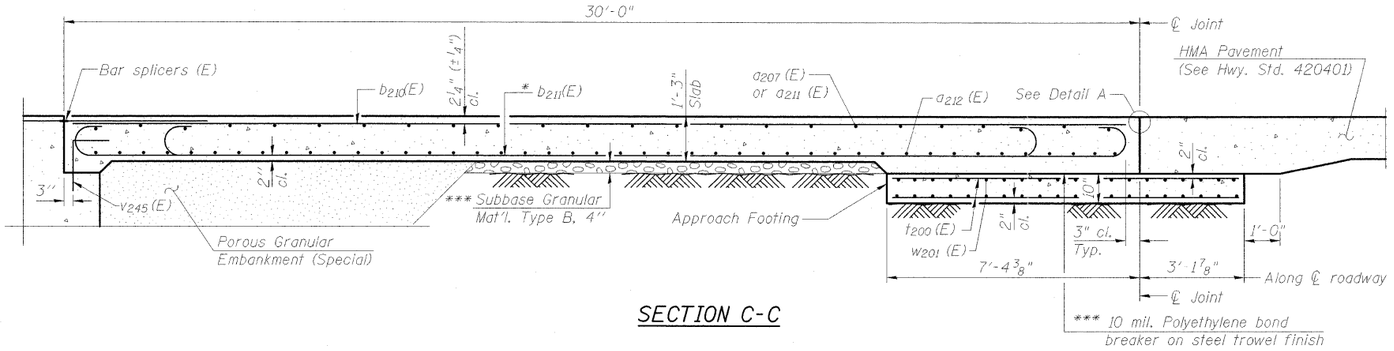
FILE NAME = ...\03L_SO BR APP SLAB DTLS-I-SB.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - WLB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

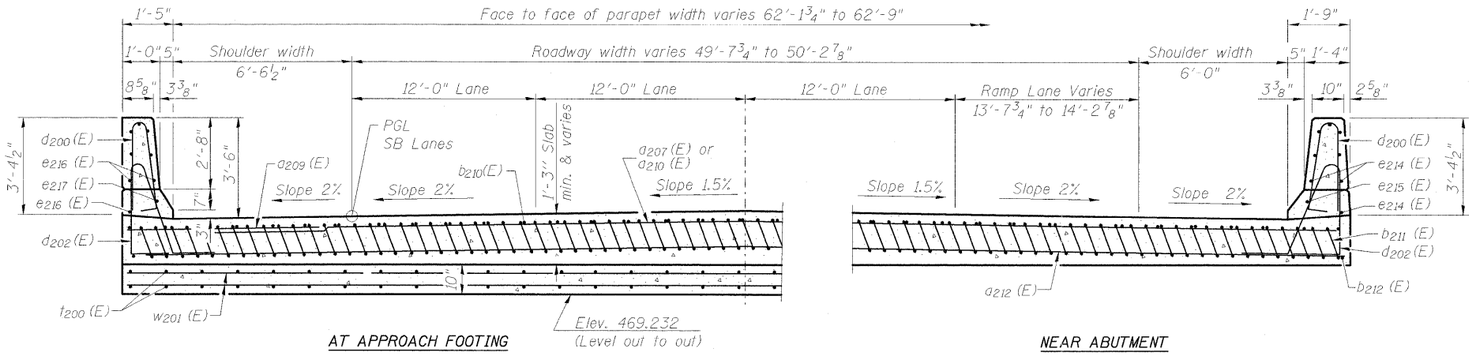
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOUTH BRIDGE APPROACH SLAB DETAILS
STRUCTURE NO. 100-0089 (S.B.)
SHEET NO. 39 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	624
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS	FED. AID PROJECT			



SECTION C-C

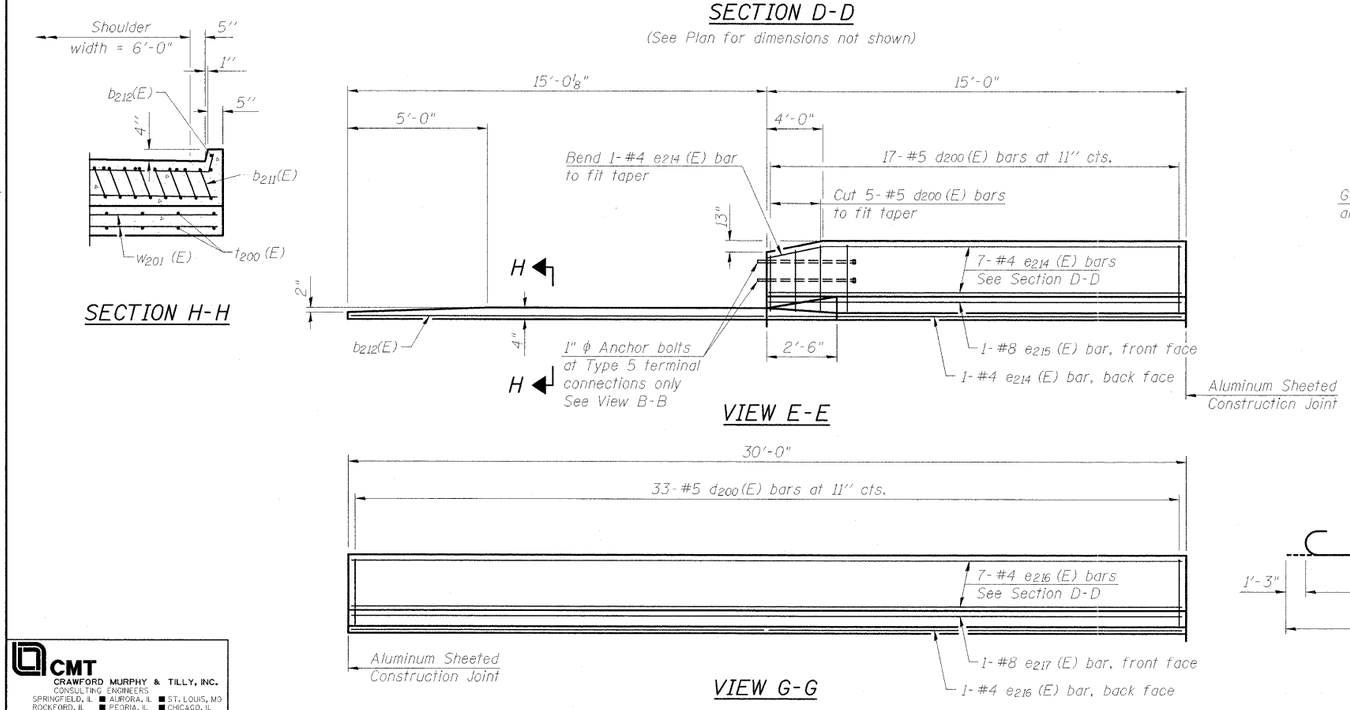


AT APPROACH FOOTING

NEAR ABUTMENT

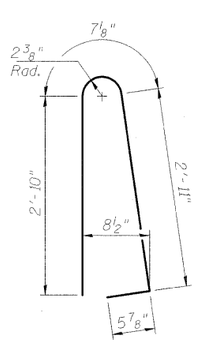
SECTION D-D

(See Plan for dimensions not shown)

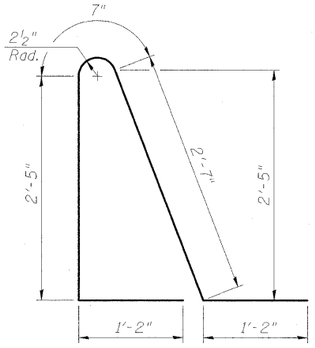


NOTES:

1. See sheet 40 of 75 for Detail A and View B-B.
2. Approach slab and parapet concrete shall be paid for as Concrete Superstructure.
3. Approach footing concrete shall be paid for as Concrete Structures.
4. Reinforcement shall be paid for as Reinforcement Bars, Epoxy Coated.
5. For v245 (E) bar details, see sheet 25 of 75.
6. The approach footing maximum applied service bearing pressure (Qmax) = 2.0 ksf.
7. For bar splicer details, see sheet 65 of 75.
8. Cost of excavation for approach footing included with Concrete Structures.
9. For Porous Granular Embankment (Special) and drainage treatment details, see sheet 2 of 75.
10. For additional parapet details, see sheet 26 of 75.



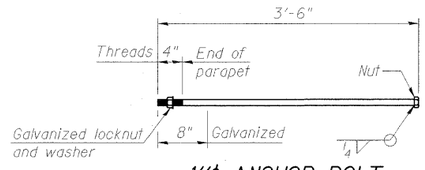
BAR d200(E)



BAR d202(E)

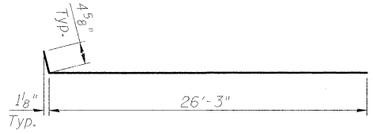
* Tilt #9 b211 (E) bars as required to maintain clearance.

*** Cost included with Concrete Superstructure.

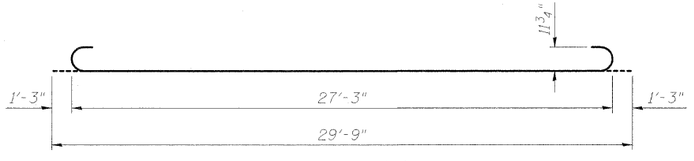


1"ϕ ANCHOR BOLT

(Cost included with Concrete Superstructure)



BAR a207 (E)



BAR b211 (E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a207(E)	50	#4	26'-8"	
a209(E)	36	#6	6'-6"	
a 211(E)	25	#4	20'-8"	
a 212(E)	138	#5	24'-10"	
b 210(E)	52	#4	29'-8"	
b 211 (E)	156	#9	29'-9"	
b212 (E)	2	#4	14'-8"	
d 200(E)	50	#5	6'-10"	
d 202(E)	50	#5	7'-11"	
e 214(E)	8	#4	14'-8"	
e 215(E)	1	#8	14'-8"	
e 216(E)	8	#4	29'-8"	
e 217(E)	1	#8	29'-8"	
t 200(E)	130	#4	10'-2"	
w201(E)	120	#5	24'-1"	
Structure Excavation			Cu. Yd.	30
Concrete Structures			Cu. Yd.	20.9
Concrete Superstructure			Cu. Yd.	103.2
Bridge Deck Grooving			Sq. Yd.	202
Protective Coat			Sq. Yd.	232
Reinforcement Bars, Epoxy Coated			Pound	27,090
Staining Concrete Structure			Sq. Yd.	6

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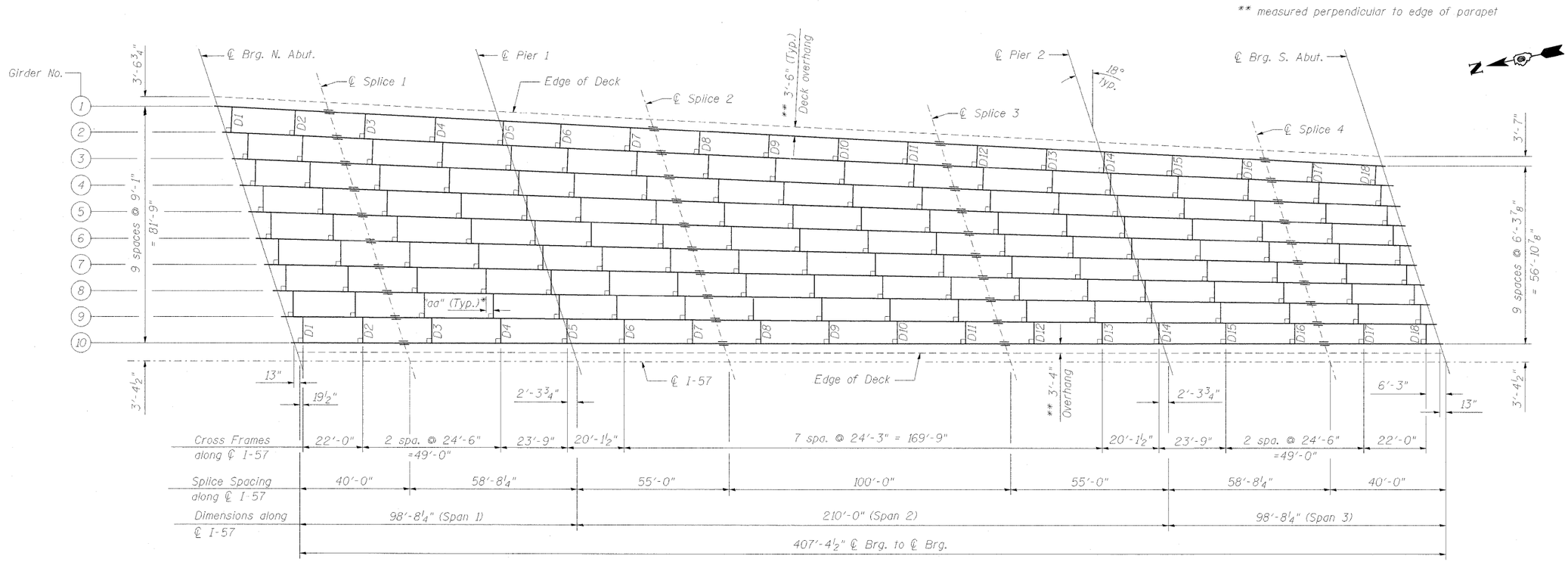
FILE NAME = ...\032_SO BR APP SLAB DTLS-II-SB.dgn
USER NAME = Rob Heady
PLOT SCALE =
PLOT DATE = 10/7/2011

DESIGNED -	BPD	REVISED -
CHECKED -	WLB	REVISED -
DRAWN -	GLD	REVISED -
CHECKED -	BPD	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOUTH BRIDGE APPROACH SLAB DETAILS
STRUCTURE NO. 100-0089 (S.B.)
SHEET NO. 40 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	625
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
		ILLINOIS FED. AID PROJECT		

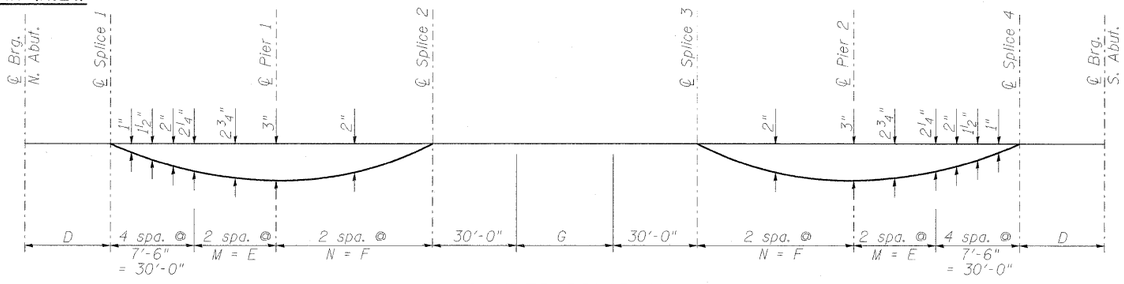


FRAMING PLAN (N.B.)

TOP OF WEB ELEVATIONS

(For Fabrication Only)

LOCATION	GIRDER 1	GIRDER 2	GIRDER 3	GIRDER 4	GIRDER 5	GIRDER 6	GIRDER 7	GIRDER 8	GIRDER 9	GIRDER 10
℄ Brg. N. Abut.	471.66	471.86	472.07	472.26	472.47	472.65	472.76	472.64	472.47	472.30
℄ Splice 1	471.991	472.174	472.344	472.552	472.741	472.899	472.978	472.856	472.694	472.528
℄ Pier 1	472.165	472.345	472.515	472.695	472.885	473.015	473.036	472.925	472.755	472.585
℄ Splice 2	471.980	472.129	472.288	472.450	472.610	472.736	472.718	472.599	472.441	472.285
℄ Splice 3	471.873	472.000	472.138	472.278	472.398	472.502	472.404	472.280	472.128	471.983
℄ Pier 2	471.965	472.095	472.225	472.355	472.455	472.535	472.405	472.265	472.105	471.945
℄ Splice 4	471.661	471.774	471.895	471.998	472.077	472.089	471.969	471.853	471.680	471.529
℄ Brg. S. Abut.	471.25	471.35	471.47	471.56	471.64	471.61	471.49	471.35	471.20	471.04



CAMBER DIAGRAM

*DIMENSION "aa"

Girder	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18
2	3'-4 3/4"	3'-4 5/8"	3'-4 9/16"	3'-4 7/16"	3'-1 3/4"	2'-10 7/8"	2'-10 13/16"	2'-10 11/16"	2'-10 5/8"	2'-10 1/2"	2'-10 1/2"	2'-10 5/16"	2'-10 1/4"	2'-7 3/8"	2'-4 11/16"	2'-4 9/16"	2'-4 1/2"	2'-4 3/8"
3	3'-4 1/16"	3'-4"	3'-3 13/16"	3'-3 7/8"	3'-1 1/8"	2'-10 1/4"	2'-10 3/16"	2'-10 1/8"	2'-10"	2'-10"	2'-9 7/8"	2'-9 3/4"	2'-9 11/16"	2'-6 13/16"	2'-4 1/8"	2'-4 1/16"	2'-4"	2'-3 7/8"
4	3'-3 3/8"	3'-3 5/16"	3'-3 1/4"	3'-3 1/4"	3'-0 1/2"	2'-9 5/8"	2'-9 9/16"	2'-9 1/2"	2'-9 7/16"	2'-9 3/8"	2'-9 5/16"	2'-9 3/16"	2'-9 1/8"	2'-6 5/16"	2'-3 5/8"	2'-3 9/16"	2'-3 1/2"	2'-3 7/16"
5	3'-2 11/16"	3'-2 5/8"	3'-2 1/2"	3'-2 9/16"	2'-11 13/16"	2'-9"	2'-8 15/16"	2'-8 7/8"	2'-8 13/16"	2'-8 3/4"	2'-8 11/16"	2'-8 5/8"	2'-8 9/16"	2'-5 3/4"	2'-3 1/8"	2'-3 1/16"	2'-3"	2'-2 15/16"
6	3'-1 15/16"	3'-1 15/16"	3'-1 7/8"	3'-1 13/16"	2'-11 3/16"	2'-8 3/8"	2'-8 5/16"	2'-8 1/4"	2'-8 3/16"	2'-8 3/16"	2'-8 1/8"	2'-8 1/16"	2'-8"	2'-5 3/16"	2'-2 9/16"	2'-2 1/2"	2'-2 1/2"	2'-2 7/16"
7	3'-1 1/4"	3'-1 3/16"	3'-1 3/16"	3'-1 1/8"	2'-10 1/2"	2'-7 11/16"	2'-7 7/16"	2'-7 5/16"	2'-7 5/16"	2'-7 9/16"	2'-7 1/2"	2'-7 1/2"	2'-7 1/16"	2'-4 11/16"	2'-2"	2'-2"	2'-1 15/16"	2'-1 15/16"
8	3'-0 1/2"	3'-0 1/2"	3'-0 1/2"	3'-0 1/2"	2'-9 15/16"	2'-7 1/16"	2'-7"	2'-7"	2'-7"	2'-6 15/16"	2'-6 15/16"	2'-6 15/16"	2'-6 1/8"	2'-4 1/8"	2'-1 1/2"	2'-1 7/16"	2'-1 7/16"	2'-1 7/16"
9	2'-11 13/16"	2'-11 3/4"	3'-11 3/4"	2'-11 3/4"	2'-9 1/8"	2'-6 3/8"	2'-6 3/8"	2'-6 3/8"	2'-6 3/8"	2'-6 5/16"	2'-6 5/16"	2'-6 5/16"	2'-6 5/16"	2'-3 9/16"	2'-0 15/16"	2'-0 15/16"	2'-0 15/16"	2'-0 15/16"

NOTES:

1. All webs and flanges of the girders, bearing stiffeners, web and flange splice plates, and bearing plates shall be AASHTO M270, Grade 50.
2. Load carrying components designed "N.T.R." shall conform to the supplemental requirements for notch toughness (Zone 2).
3. All cross frames shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted. Individual cross frames at supports may be temporarily disconnected to install bearing anchor rods.
4. For Girder Dimension Tables, see Sheet 43 of 75.
5. For cross frame details and dimensions see Sheet 46 of 75.

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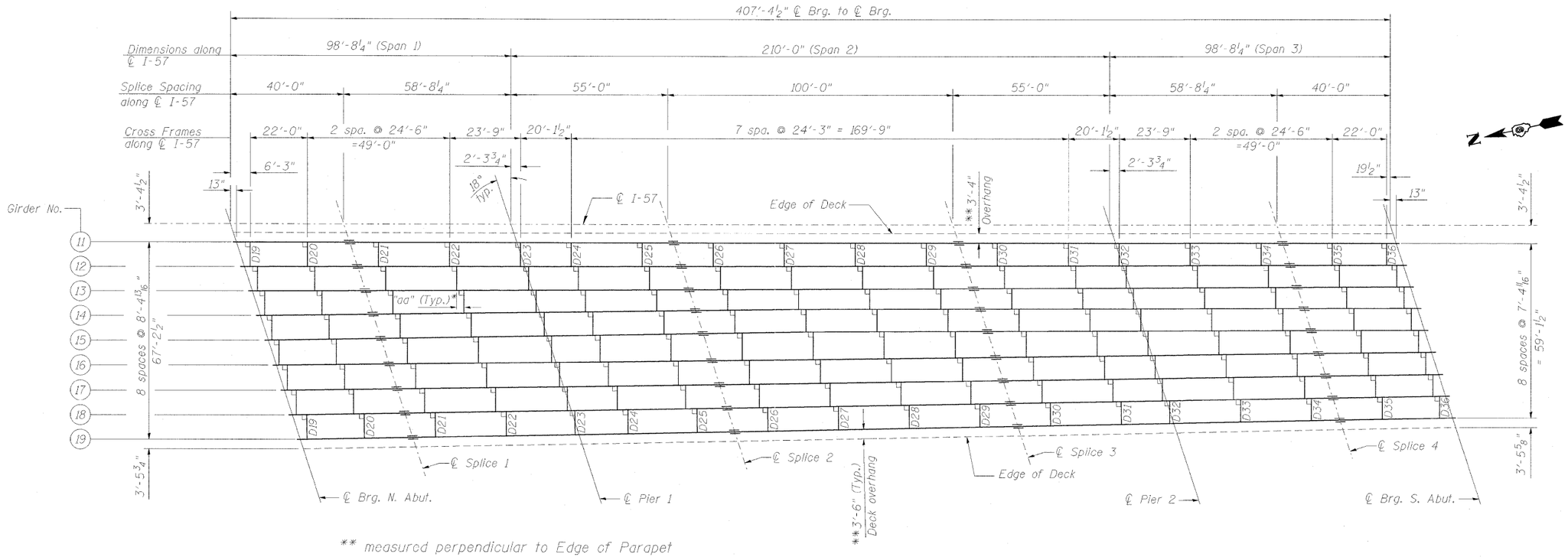
FILE NAME = ...\i-57\033_FRAMING PLAN_NB.DGN	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - WLB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FRAMING PLAN
STRUCTURE NO. 100-0088 (N.B.)
SHEET NO. 41 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	626
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS FED. AID PROJECT				



** measured perpendicular to Edge of Parapet

FRAMING PLAN (S.B.)

TOP OF WEB ELEVATIONS

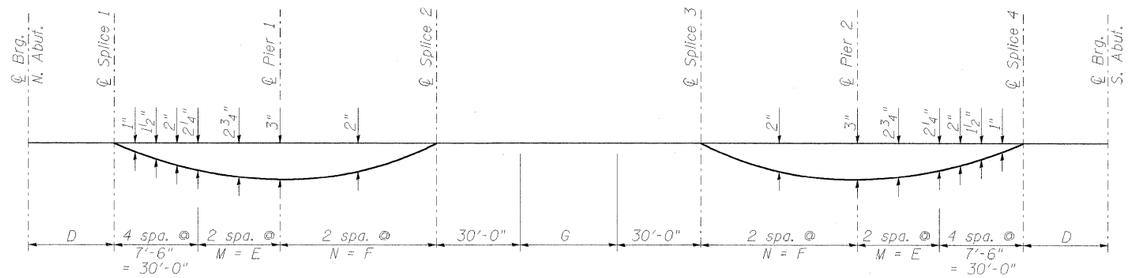
(For Fabrication Only)

LOCATION	GIRDER 11	GIRDER 12	GIRDER 13	GIRDER 14	GIRDER 15	GIRDER 16	GIRDER 17	GIRDER 18	GIRDER 19
℄ Brg. N. Abut.	472.31	472.49	472.68	472.83	472.76	472.68	472.52	472.36	472.19
℄ Splice 1	472.523	472.697	472.872	473.004	473.000	472.878	472.719	472.558	472.399
℄ Pier 1	472.595	472.775	472.935	473.075	473.075	472.945	472.785	472.615	472.435
℄ Splice 2	472.296	472.436	472.591	472.713	472.726	472.603	472.440	472.282	472.117
℄ Splice 3	471.997	472.104	472.244	472.355	472.382	472.254	472.093	471.929	471.761
℄ Pier 2	471.937	472.085	472.215	472.315	472.357	472.225	472.065	471.885	471.705
℄ Splice 4	471.487	471.615	471.743	471.838	471.886	471.751	471.591	471.415	471.239
℄ Brg. S. Abut.	471.02	471.15	471.27	471.36	471.43	471.28	471.12	470.94	470.76

*DIMENSION "aa"

Girder	D19	D20	D21	D22	D23	D24	D25	D26	D27	D28	D29	D30	D31	D32	D33	D34	D35	D36
12	2'-8⅝"	2'-8⅝"	2'-8⅝"	2'-8⅝"	2'-7¹¹⁄₁₆"	2'-6¹³⁄₁₆"	2'-6¹³⁄₁₆"	2'-6¹³⁄₁₆"	2'-6¹³⁄₁₆"	2'-6¹³⁄₁₆"	2'-6¹³⁄₁₆"	2'-6¹³⁄₁₆"	5'-6¹³⁄₁₆"	2'-5¹¹⁄₁₆"	2'-4¹¹⁄₁₆"	2'-4¹¹⁄₁₆"	2'-4¹¹⁄₁₆"	2'-4¹¹⁄₁₆"
13	2'-8⅜"	2'-8⅜"	2'-8⅜"	2'-8⅜"	2'-8¼"	2'-6⅞"	2'-6⅞"	2'-6⅞"	2'-6⅞"	2'-6⅞"	2'-6⅞"	2'-6⅞"	2'-6⅞"	2'-5½"	2'-4½"	2'-4½"	2'-4½"	2'-4½"
14	2'-8⅛"	2'-8⅛"	2'-8⅛"	2'-8⅛"	2'-5⅞"	2'-6³⁄₁₆"	2'-6³⁄₁₆"	2'-6³⁄₁₆"	2'-6³⁄₁₆"	2'-6³⁄₁₆"	2'-6³⁄₁₆"	2'-6³⁄₁₆"	2'-6³⁄₁₆"	2'-5³⁄₁₆"	2'-4¼"	2'-4¼"	2'-4¼"	2'-4¼"
15	2'-7⅞"	2'-7⅞"	2'-7⅞"	2'-7⅞"	2'-6¹⁵⁄₁₆"	2'-5¹⁵⁄₁₆"	2'-5¹⁵⁄₁₆"	2'-5¹⁵⁄₁₆"	2'-5¹⁵⁄₁₆"	2'-5¹⁵⁄₁₆"	2'-5¹⁵⁄₁₆"	2'-6"	2'-6"	2'-5"	2'-4"	2'-4"	2'-4"	2'-4⅛"
16	2'-7⅝"	2'-7⅝"	2'-7⅝"	2'-7⅝"	2'-6"	2'-5¹¹⁄₁₆"	2'-5¹¹⁄₁₆"	2'-5¹¹⁄₁₆"	2'-5¹¹⁄₁₆"	2'-5¾"	2'-5¾"	2'-5¾"	2'-5¾"	2'-4¾"	2'-3¹³⁄₁₆"	2'-3¹³⁄₁₆"	2'-3¹³⁄₁₆"	2'-3¹³⁄₁₆"
17	2'-7⅜"	2'-7⅜"	2'-7⅜"	2'-7⅜"	2'-6⅛"	2'-5⅞"	2-5⅞"	2'-5⅞"	2'-5½"	2'-5½"	2'-5½"	2'-5½"	2'-5½"	2'-4½"	2'-3⅞"	2'-3⅞"	2'-3⅞"	2'-3⅞"
18	2'-7⅛"	2'-7⅛"	2'-7⅛"	2'-7⅛"	2'-6³⁄₁₆"	2'-5³⁄₁₆"	2'-5³⁄₁₆"	2'-5¼"	2'-5¼"	2'-5¼"	2'-5¼"	2'5¼"	2'-5⁵⁄₁₆"	2'-4¼"	2'-3⁵⁄₁₆"	2'-3⁵⁄₁₆"	2'-3⅜"	2'-3⅜"

FRAMING PLAN (S.B.)



CAMBER DIAGRAM

NOTES:

1. All webs and flanges of the girders, bearing stiffeners, web and flange splice plates, and bearing plates shall be AASHTO M270, Grade 50.
2. Load carrying components designed "N.T.R." shall conform to the supplemental requirements for notch toughness (Zone 2).
3. All cross frames shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted. Individual cross frames at supports may be temporarily disconnected to install bearing anchor rods.
4. For Girder Dimension Tables, see Sheet 44 of 75.
5. For cross frame details and dimensions see Sheet 43 of 75.

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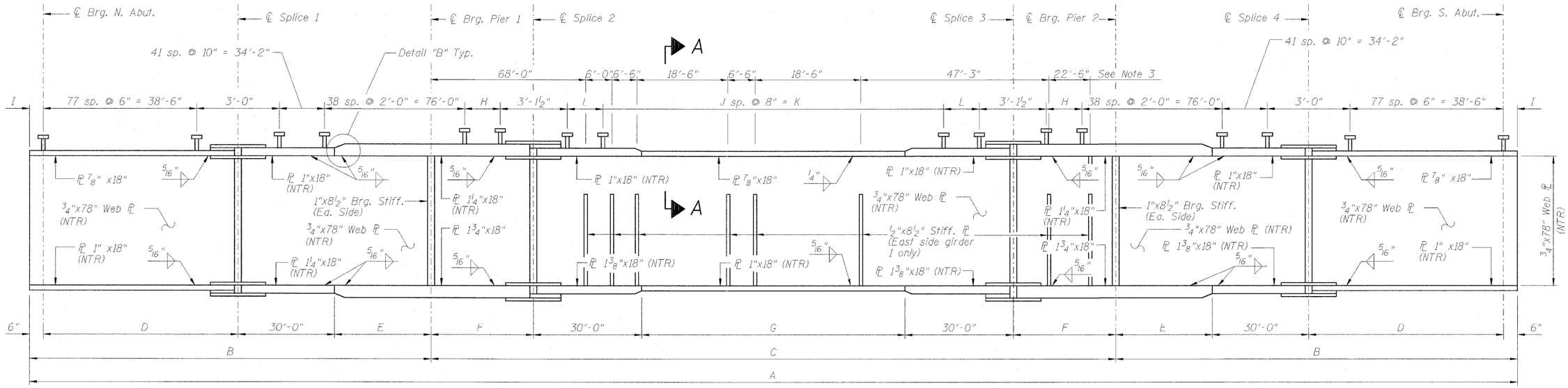
FILE NAME = ...\i-57\034_FRAMING PLAN_SB.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - WLB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FRAMING PLAN
STRUCTURE NO. 100-0089 (S.B.)
SHEET NO. 42 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	627
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			



GIRDER ELEVATION

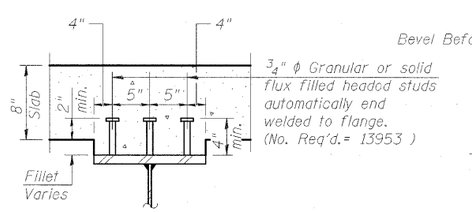
"NTR" denotes plates to which notch toughness requirements are applicable.

Notes:

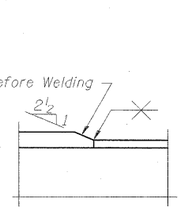
1. Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.
2. For Framing Plan, see Sheet 41 of 75.
3. Spacing for ½"x8½", full height stiffener PL's for traffic signal mounting system, East face of girder 1 only.
4. See Sheet 541 of 968 for details of traffic signal mounting system.

GIRDER DIMENSION TABLE

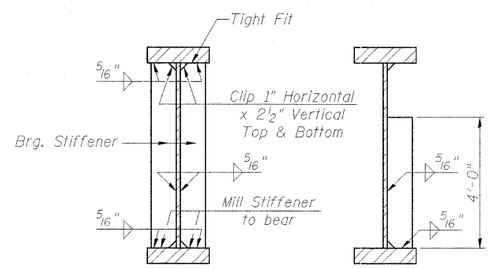
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
Girder 1	417'-2¼"	101'-3⅞"	214'-6⅝"	40'-10⅜"	29'-11⅜"	56'-2⅜"	42'-1⅞"	2'-11"	1'-4 7/16"	147	98'-0"	6 3/16"	14'-11 11/16"	28'-1 3/16"
Girder 2	416'-1⅝"	101'-0⅞"	214'-0"	40'-9¼"	29'-9¾"	56'-0⅝"	41'-10¾"	2'-7½"	1'-3⅛"	146	97'-4"	4⅝"	14'-10⅞"	28'-0 5/16"
Girder 3	415'-1¼"	100'-9⅞"	213'-5⅝"	40'-7⅞"	29'-7⅞"	55'-10⅞"	41'-7¾"	2'-4"	1'-2"	146	97'-4"	7⅛"	14'-9 15/16"	27'-11 7/16"
Girder 4	414'-1⅛"	100'-6⅞"	212'-11⅜"	40'-6¾"	29'-6¼"	55'-9⅜"	41'-4¾"	2'-0¾"	1'-0¾"	145	98'-0"	5⅝"	14'-9⅛"	27'-10 11/16"
Girder 5	413'-1⅛"	100'-4"	212'-5¼"	40'-5½"	29'-4½"	55'-7⅝"	41'-1⅞"	1'-9⅜"	11½"	145	96'-8"	8 3/16"	14'-8¼"	27'-9 13/16"
Girder 6	412'-1⅜"	100'-1¼"	211'-11¼"	40'-4⅜"	29'-2⅝"	55'-6¼"	40'-11"	1'-6"	10 7/16"	145	96'-8"	6¾"	14'-7 5/16"	27'-9⅛"
Girder 7	411'-1¾"	99'-10⅜"	211'-5¼"	40'-3¼"	29'-1¼"	55'-4½"	40'-8¼"	1'-3"	9¼"	145	96'-8"	5⅜"	14'-6⅝"	27'-8¼"
Girder 8	410'-2½"	99'-7½"	210'-11⅜"	40'-2¼"	28'-11⅜"	55'-3"	40'-5⅜"	11⅝"	8⅛"	144	96'-0"	7 15/16"	14'-5 11/16"	27'-7½"
Girder 9	409'-3⅜"	99'-4⅞"	210'-5½"	40'-1¼"	28'-9⅞"	55'-1⅜"	40'-2⅝"	8½"	7"	144	96'-0"	6 9/16"	14'-4 15/16"	27'-6 11/16"
Girder 10	408'-7½"	99'-2¼"	210'-0"	40'-0"	28'-8¼"	55'-0"	40'-0"	5½"	6"	144	96'-0"	5¼"	14'-4⅛"	27'-6"



SECTION A-A

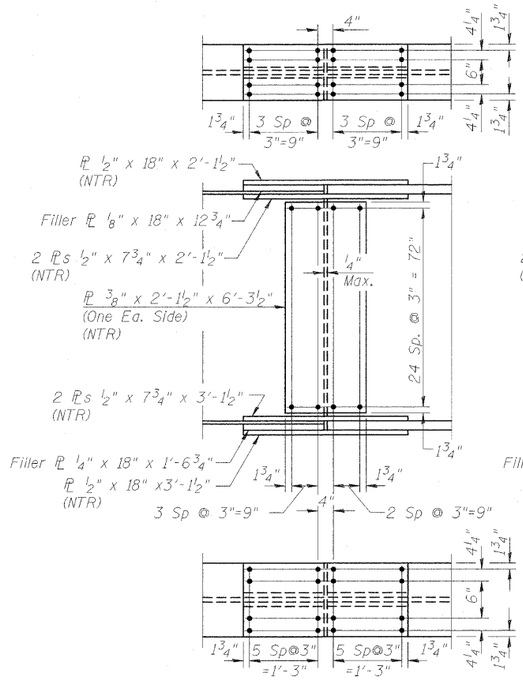


DETAIL "B"

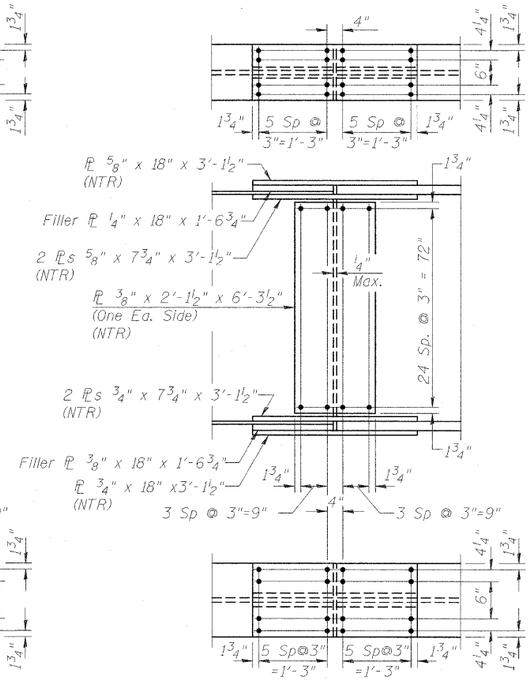


SECTION AT PIER

SECTION AT TRAFFIC SIGNAL MOUNTING SYSTEM STIFFENER



FIELD SPLICE 1 & 4 DETAIL



FIELD SPLICE 2 & 3 DETAIL

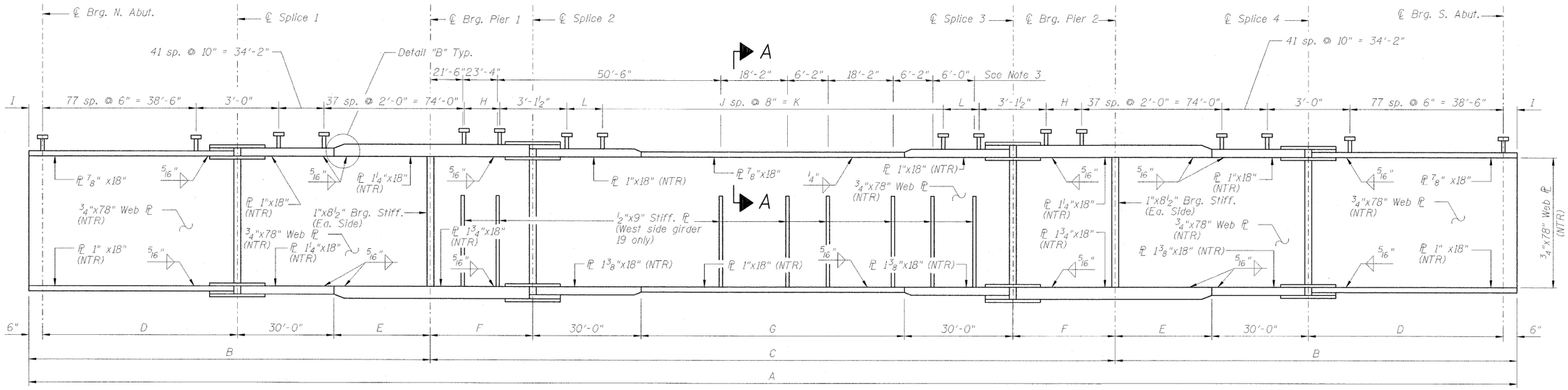
CMT
CRAWFORD MURPHY & TILLY, INC.
CONSULTING ENGINEERS
SPRINGFIELD, IL ■ AURORA, IL ■ ST. LOUIS, MO
ROCKFORD, IL ■ PEORIA, IL ■ CHICAGO, IL

FILE NAME = ...\035_STRUCT STEEL DETAILS_NB.dgn	USER NAME = Gary Davis	DESIGNED - BPD	REVISED -
		CHECKED - WLB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 12/14/2011	CHECKED - BPD	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL DETAILS
STRUCTURE NO. 100-0088 (N.B.)
SHEET NO. 43 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	628
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
		ILLINOIS FED. AID PROJECT		



Notes:

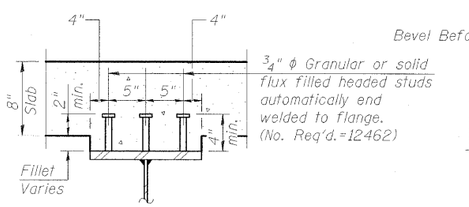
1. Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.
2. For Framing Plan, see Sheet 42 of 75.
3. Spacing for 1/2"x8 1/2", full height stiffener PL's for traffic signal mounting system, West face of girder 19 only.
4. See Sheet 447 of 814 for details of traffic signal mounting system.

GIRDER ELEVATION

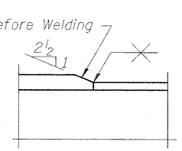
"NTR" denotes plates to which notch toughness requirements are applicable.

GIRDER DIMENSION TABLE

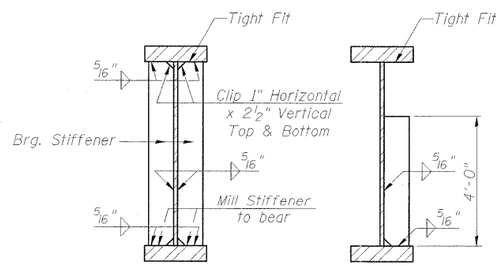
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
Girder 11	408'-4 1/2"	99'-2 1/4"	210'-0"	40'-0"	28'-8 1/4"	55'-0"	40'-0"	2'-5 1/2"	6"	143	95'-4"	9 1/4"	14'-4 1/8"	27'-6"
Girder 12	408'-0 5/8"	99'-1 3/8"	209'-10"	39'-11 5/8"	28'-7 5/8"	54'-11 1/2"	39'-11"	2'-4 7/16"	5 5/8"	143	95'-4"	8 3/4"	14'-3 13/16"	27'-5 3/4"
Girder 13	407'-8 5/8"	99'-0 3/8"	209'-7 7/8"	39'-11 1/4"	28'-7 1/4"	54'-10 7/8"	39'-10 1/4"	2'-3 1/4"	5 1/4"	143	95'-4"	8 1/4"	14'-3 5/8"	27'-5 7/16"
Girder 14	407'-4 3/4"	99'-1 3/8"	209'-6"	39'-10 3/4"	28'-6 5/8"	54'-10 1/2"	39'-9 1/4"	2'-2 1/4"	4 1/4"	143	95'-4"	7 13/16"	14'-3 5/16"	27'-5 1/4"
Girder 15	407'-1"	98'-10 1/2"	209'-4"	39'-10 1/2"	28'-6"	54'-9 7/8"	39'-8 1/4"	2'-1 1/8"	4 1/2"	143	95'-4"	7 5/16"	14'-3"	27'-4 15/16"
Girder 16	406'-9 1/4"	98'-9 5/8"	209'-2"	39'-10 1/4"	28'-5 1/2"	54'-9 1/4"	39'-7 1/4"	2'-0"	4"	142	94'-8"	10 7/8"	14'-2 3/4"	27'-4 5/8"
Girder 17	406'-5 3/8"	98'-8 5/8"	209'-0 1/4"	39'-9 3/4"	28'-4 7/8"	54'-8 3/4"	39'-6 1/4"	1'-11"	3 3/4"	142	94'-8"	10 5/16"	14'-2 7/16"	27'-4 3/8"
Girder 18	406'-1 5/8"	98'-7 3/4"	208'-10 1/4"	39'-9 1/4"	28'-4 1/2"	54'-8 3/8"	39'-5 1/4"	1'-10 1/4"	3 1/4"	142	94'-8"	9 7/8"	14'-2 1/4"	27'-4 3/16"
Girder 19	405'-9"	98'-6 7/8"	208'-7 1/4"	39'-8 7/8"	28'-4"	54'-7 1/2"	39'-4 1/4"	1'-8 3/4"	2 7/8"	142	94'-8"	9 3/8"	14'-2"	27'-3 3/4"



SECTION A-A



DETAIL "B"



SECTION AT PIER

SECTION AT TRAFFIC SIGNAL MOUNTING SYSTEM STIFFENER

FIELD SPLICE 1 & 4 DETAIL

FIELD SPLICE 2 & 3 DETAIL

CMT
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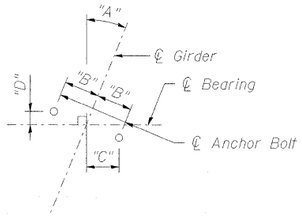
CONSULTING ENGINEERS
SPRINGFIELD, IL ■ AURORA, IL ■ ST. LOUIS, MO
ROCKFORD, IL ■ PEORIA, IL ■ CHICAGO, IL

FILE NAME = ...\036_STRUCT STEEL DETAILS_SB.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - WLB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL DETAILS
STRUCTURE NO. 100-0089 (S.B.)
SHEET NO. 44 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	629
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS FED. AID PROJECT				



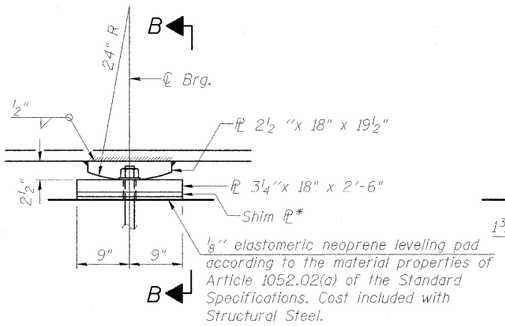
ANCHOR BOLT LOCATION DETAIL

NORTHBOUND STRUCTURE 100-0088

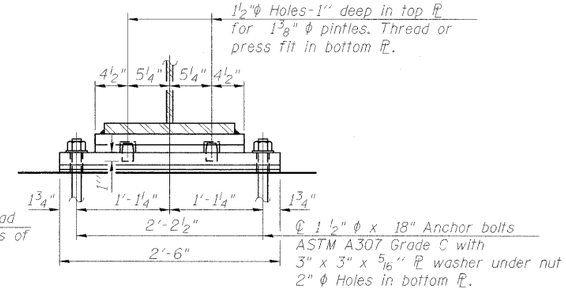
LOCATION	GIRDER	ANGLE "A"	"B" (in.)	"C" (in.)	"D" (in.)
North Abutment	1	21° 25′ 20"	4 1/2	4 1/4	1 5/8
North Abutment	2	21° 2′ 58"	4 1/2	4 1/4	1 5/8
North Abutment	3	20° 40′ 28"	4 1/2	4 1/4	1 5/8
North Abutment	4	20° 17′ 52"	4 1/2	4 1/4	1 1/2
North Abutment	5	19° 55′ 10"	4 1/2	4 1/4	1 1/2
North Abutment	6	19° 32′ 21"	4 1/2	4 1/4	1 1/2
North Abutment	7	19° 9′ 25"	4 1/2	4 1/4	1 1/2
North Abutment	8	18° 46′ 23"	4 1/2	4 1/4	1 1/2
North Abutment	9	18° 23′ 15"	4 1/2	4 1/4	1 3/8
North Abutment	10	18° 0′ 0"	4 1/2	4 1/4	1 3/8
Pier 1	1	21° 25′ 20"	13	12 1/8	4 3/4
Pier 1	2	21° 2′ 58"	13	12 1/8	4 5/8
Pier 1	3	20° 40′ 28"	13	12 1/8	4 5/8
Pier 1	4	20° 17′ 52"	13	12 1/4	4 1/2
Pier 1	5	19° 55′ 10"	13	12 1/4	4 1/2
Pier 1	6	19° 32′ 21"	13	12 1/4	4 1/2
Pier 1	7	19° 9′ 25"	13	12 1/4	4 1/4
Pier 1	8	18° 46′ 23"	13	12 1/4	4 1/8
Pier 1	9	18° 23′ 15"	13	12 3/8	4 1/8
Pier 1	10	18° 0′ 0"	13	12 3/8	4
Pier 2	1	21° 25′ 20"	13	12 1/8	4 3/4
Pier 2	2	21° 2′ 58"	13	12 1/8	4 5/8
Pier 2	3	20° 40′ 28"	13	12 1/8	4 5/8
Pier 2	4	20° 17′ 52"	13	12 1/4"	4 1/2
Pier 2	5	19° 55′ 10"	13	12 1/4"	4 3/8
Pier 2	6	19° 32′ 21"	13	12 1/4"	4 3/8
Pier 2	7	19° 9′ 25"	13	12 1/4"	4 1/4
Pier 2	8	18° 46′ 23"	13	12 1/4"	4 1/8
Pier 2	9	18° 23′ 15"	13	12 3/8"	4 1/8
Pier 2	10	18° 0′ 0"	13	12 3/8"	4
South Abutment	1	21° 25′ 20"	4 1/2	4 1/4	1 5/8
South Abutment	2	21° 2′ 58"	4 1/2	4 1/4	1 5/8
South Abutment	3	20° 40′ 28"	4 1/2	4 1/4	1 5/8
South Abutment	4	20° 17′ 52"	4 1/2	4 1/4	1 1/2
South Abutment	5	19° 55′ 10"	4 1/2	4 1/4	1 1/2
South Abutment	6	19° 32′ 21"	4 1/2	4 1/4	1 1/2
South Abutment	7	19° 9′ 25"	4 1/2	4 1/4	1 1/2
South Abutment	8	18° 46′ 23"	4 1/2	4 1/4	1 1/2
South Abutment	9	18° 23′ 15"	4 1/2	4 1/4	1 3/8
South Abutment	10	18° 0′ 0"	4 1/2	4 1/4	1 3/8

SOUTHBOUND STRUCTURE 100-0089

LOCATION	GIRDER	ANGLE "A"	"B" (in.)	"C" (in.)	"D" (in.)
North Abutment	11	18° 0′ 0"	4 1/2	4 1/4	1 3/8
North Abutment	12	17° 51′ 28"	4 1/2	4 1/4	1 3/8
North Abutment	13	17° 42′ 55"	4 1/2	4 1/4	1 3/8
North Abutment	14	17° 34′ 22"	4 1/2	4 1/4	1 3/8
North Abutment	15	17° 25′ 47"	4 1/2	4 1/4	1 3/8
North Abutment	16	17° 17′ 12"	4 1/2	4 1/4	1 3/8
North Abutment	17	17° 8′ 36"	4 1/2	4 1/4	1 3/8
North Abutment	18	16° 59′ 59"	4 1/2	4 1/4	1 3/8
North Abutment	19	16° 51′ 21"	4 1/2	4 1/4	1 1/4
Pier 1	11	18° 0′ 0"	13	12 3/8	4
Pier 1	12	17° 51′ 28"	13	12 3/8	4
Pier 1	13	17° 42′ 55"	13	12 3/8	4
Pier 1	14	17° 34′ 22"	13	12 3/8	3 7/8
Pier 1	15	17° 25′ 47"	13	12 3/8	3 7/8
Pier 1	16	17° 17′ 12"	13	12 3/8	3 7/8
Pier 1	17	17° 8′ 36"	13	12 3/8	3 7/8
Pier 1	18	16° 59′ 59"	13	12 3/8	3 3/4
Pier 1	19	16° 51′ 21"	13	12 1/2	3 3/4
Pier 2	11	18° 0′ 0"	13	12 3/8	4
Pier 2	12	17° 51′ 28"	13	12 3/8	4
Pier 2	13	17° 42′ 55"	13	12 3/8	4
Pier 2	14	17° 34′ 22"	13	12 3/8	3 7/8
Pier 2	15	17° 25′ 47"	13	12 3/8	3 7/8
Pier 2	16	17° 17′ 12"	13	12 3/8	3 7/8
Pier 2	17	17° 8′ 36"	13	12 3/8	3 7/8
Pier 2	18	16° 59′ 59"	13	12 3/8	3 3/4
Pier 2	19	16° 51′ 21"	13	12 1/2	3 3/4
South Abutment	11	18° 0′ 0"	4 1/2	4 1/4	1 3/8
South Abutment	12	17° 51′ 28"	4 1/2	4 1/4	1 3/8
South Abutment	13	17° 42′ 55"	4 1/2	4 1/4	1 3/8
South Abutment	14	17° 34′ 22"	4 1/2	4 1/4	1 3/8
South Abutment	15	17° 25′ 47"	4 1/2	4 1/4	1 3/8
South Abutment	16	17° 17′ 12"	4 1/2	4 1/4	1 3/8
South Abutment	17	17° 8′ 36"	4 1/2	4 1/4	1 3/8
South Abutment	18	16° 59′ 59"	4 1/2	4 1/4	1 3/8
South Abutment	19	16° 51′ 21"	4 1/2	4 1/4	1 1/4

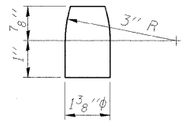


ELEVATION AT PIER



SECTION B-B

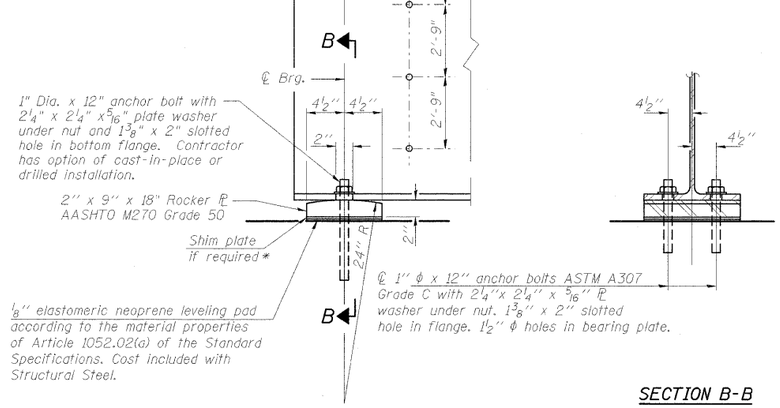
FIXED BEARING



PINTLE

*SHIM PLATES REQUIRED

N. Abut., Girder 11 - 1/8" shim ℄
Pier 1, Girder 7 - 1/4" shim ℄
Pier 1, Girder 11 - 1/8" shim ℄
Pier 2, Girder 11 - 5/8" shim ℄
Pier 2, Girder 15 - 1/2" shim ℄
S. Abut., Girder 6 - 1/2" shim ℄
S. Abut., Girder 11 - 1/2" shim ℄



ELEVATION AT ABUTMENT

SECTION B-B

FIXED BEARING AT ABUTMENTS

BILL OF MATERIAL

Item	Unit	Total
Anchor Bolts, 1"ϕ	Each	76
Anchor Bolts, 1 1/2"ϕ	Each	76

Note:
Two 1/8 in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

The anchor bolt sizes and grades shown constitute a calculated seismic structural fuse. Substitution of higher diameter and/or grade anchor bolts will not be allowed.

CMT
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SPRINGFIELD, IL ■ AURORA, IL ■ ST. LOUIS, MO
ROCKFORD, IL ■ PEORIA, IL ■ CHICAGO, IL

FILE NAME = ...\037_STRUCT STEEL DETAILS_NB-SB.dgn	USER NAME - Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - WLB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL DETAILS – I
STRUCTURE NO. 100–0088 (N.B.) & 100–0089 (S.B.)
SHEET NO. 45 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	630
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS	FED. AID PROJECT			

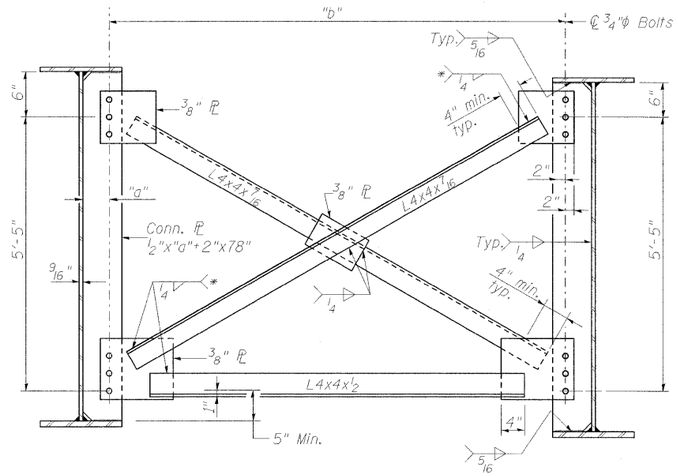
CROSS FRAME DIMENSIONS (a)

BAY	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18
Girder 1-2	6 5/8"	6 5/8"	6 5/8"	6 5/8"	6 5/8"	6 5/8"	6 5/8"	6 5/8"	6 5/8"	6 5/8"	6 5/8"	6 5/8"	6 5/8"	6 5/8"	6 5/8"	6 5/8"	6 5/8"	6 5/8"
Girder 2-3	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"
Girder 3-4	6 7/8"	6 7/8"	6 7/8"	6 7/8"	6 7/8"	6 7/8"	6 7/8"	6 7/8"	6 7/8"	6 13/16"	6 13/16"	6 13/16"	6 13/16"	6 13/16"	6 13/16"	6 13/16"	6 13/16"	6 13/16"
Girder 4-5	7"	7"	7"	7"	7"	7"	7"	7"	7"	6 15/16"	6 15/16"	6 15/16"	6 15/16"	6 15/16"	6 15/16"	6 15/16"	6 15/16"	6 7/8"
Girder 5-6	7 1/8"	7 1/8"	7 1/8"	7 1/8"	7 1/8"	7 1/8"	7 1/8"	7 1/8"	7 1/16"	7 1/16"	7 1/16"	7"	7"	7"	7"	7"	7"	7"
Girder 6-7	7 1/4"	7 1/4"	7 1/4"	7 1/4"	7 1/4"	7 1/4"	7 1/4"	7 3/16"	7 3/16"	7 3/16"	7 3/16"	7 1/8"	7 1/8"	7 1/8"	7 1/8"	7 1/8"	7 1/8"	7 1/8"
Girder 7-8	7 3/8"	7 3/8"	7 3/8"	7 3/8"	7 3/8"	7 3/8"	7 3/8"	7 5/16"	7 5/16"	7 5/16"	7 1/4"	7 1/4"	7 1/4"	7 1/4"	7 1/4"	7 1/4"	7 3/16"	7 3/16"
Girder 8-9	7 1/2"	7 1/2"	7 1/2"	7 1/2"	7 1/2"	7 1/2"	7 7/16"	7 7/16"	7 7/16"	7 3/8"	7 3/8"	7 5/16"	7 5/16"	7 5/16"	7 5/16"	7 5/16"	7 1/4"	7 1/4"
Girder 9-10	7 5/8"	7 5/8"	7 9/16"	7 9/16"	7 9/16"	7 9/16"	7 9/16"	7 9/16"	7 1/2"	7 1/2"	7 7/16"	7 7/16"	7 3/8"	7 3/8"	7 3/8"	7 3/8"	7 3/8"	7 3/8"

BAY	D19	D20	D21	D22	D23	D24	D25	D26	D27	D28	D29	D30	D31	D32	D33	D34	D35	D36
Girder 11-12	6 5/8"	6 5/8"	6 5/8"	6 5/8"	6 5/8"	6 5/8"	6 5/8"	6 5/8"	6 5/8"	6 5/8"	6 5/8"	6 5/8"	6 5/8"	6 5/8"	6 5/8"	6 5/8"	6 5/8"	6 5/8"
Girder 12-13	6 11/16"	6 11/16"	6 11/16"	6 11/16"	6 11/16"	6 11/16"	6 11/16"	6 11/16"	6 11/16"	6 11/16"	6 11/16"	6 11/16"	6 11/16"	6 11/16"	6 11/16"	6 11/16"	6 11/16"	6 11/16"
Girder 13-14	6 11/16"	6 11/16"	6 11/16"	6 11/16"	6 11/16"	6 11/16"	6 11/16"	6 11/16"	6 11/16"	6 11/16"	6 11/16"	6 11/16"	6 11/16"	6 11/16"	6 11/16"	6 11/16"	6 11/16"	6 11/16"
Girder 14-15	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"
Girder 15-16	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"	6 3/4"
Girder 16-17	6 13/16"	6 13/16"	6 13/16"	6 13/16"	6 13/16"	6 13/16"	6 13/16"	6 13/16"	6 13/16"	6 13/16"	6 13/16"	6 13/16"	6 13/16"	6 13/16"	6 13/16"	6 13/16"	6 13/16"	6 13/16"
Girder 17-18	6 7/8"	6 7/8"	6 7/8"	6 7/8"	6 7/8"	6 7/8"	6 7/8"	6 7/8"	6 7/8"	6 7/8"	6 7/8"	6 13/16"	6 13/16"	6 13/16"	6 13/16"	6 13/16"	6 13/16"	6 13/16"
Girder 18-19	6 7/8"	6 7/8"	6 7/8"	6 7/8"	6 7/8"	6 7/8"	6 7/8"	6 7/8"	6 7/8"	6 7/8"	6 7/8"	6 7/8"	6 7/8"	6 7/8"	6 7/8"	6 7/8"	6 7/8"	6 7/8"

CROSS FRAME DIMENSIONS (b)

D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18
7'-9"	7'-7 1/2"	7'-5 5/8"	7'-3 11/16"	7'-1 11/16"	7'-0"	6'-10 1/16"	6'-8 3/16"	6'-6 1/4"	6'-4 3/8"	6'-2 1/2"	6'-0 5/8"	5'-10 11/16"	5'-9"	5'-7"	5'-5 1/16"	5'-3 1/8"	5'-1 7/16"
D19	D20	D21	D22	D23	D24	D25	D26	D27	D28	D29	D30	D31	D32	D33	D34	D35	D36
7'-3 1/2"	7'-2 13/16"	7'-2 1/8"	7'-1 3/8"	7'-0 11/16"	7'-0"	6'-11 3/8"	6'-10 5/8"	6'-9 7/8"	6'-9 3/16"	6'-8 7/16"	6'-7 3/4"	6'-7"	6'-6 7/16"	6'-5 11/16"	6'-5"	6'-4 1/4"	6'-3 9/16"



TYPICAL INTERIOR CROSS FRAME

(9 Each D1-D18 for S.N. 100-0088 (N.B.))
(8 Each D19-D36 for S.N. 100-0089 (S.B.))

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

All cross frames shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted. Individual cross frames at supports may be temporarily disconnected to install bearing anchor rods.

Detail 15/16" diameter holes for all 3/4" diameter bolts.

Two hardened washers required for each set of oversized holes.

INTERIOR GIRDER MOMENT TABLE - SN 100-0088 (NB)

		0.4 Sp. 1	Pier 1	0.5 Sp. 2	Pier 2	0.6 Sp.3
I_s	(in^4)	82155	113903	82155	113903	82155
$I_c(n)$	(in^4)	174672	-	168590	-	161607
$I_c(3n)$	(in^4)	129060	-	124535	-	119692
$I_c(cr)$	(in^4)	-	130064	-	127529	-
S_s	(in^3)	2011	2619	2011	2619	2011
$S_c(n)$	(in^3)	2831	-	2800	-	2762
$S_c(3n)$	(in^3)	2553	-	2519	-	2481
$S_c(cr)$	(in^3)	-	3205	-	3118	-
DC1	(k/')	1.23	1.26	1.11	1.12	1.03
M_{DC1}	('k)	100	3925	2658	3752	263
DC2	(k/')	0.20	0.20	0.20	0.20	0.20
M_{DC2}	('k)	36	54	61	50	34
DW	(k/')	0.42	0.42	0.42	0.42	0.42
M_{DW}	('k)	50	1378	1004	1347	35
M_{L+IM}	('k)	1680	3195	2585	2955	1412
M_u(Strength I)	('k)	2695	12632	9429	11944	2047
$\phi_f M_n$	('k)	15229	13831	13510	13688	13430
f_s DC1	(ksi)	0.60	17.98	15.86	17.19	1.57
f_s DC2	(ksi)	0.17	0.20	0.29	0.19	0.16
f_s DW	(ksi)	0.24	5.16	4.78	5.18	0.17
f_s (L+IM)	(ksi)	7.12	11.96	11.08	11.37	5.98
f_s (Service II)	(ksi)	8.25	38.89	35.33	37.34	6.08
f_s (Total)(Strength I)	(ksi)	11.14	51.4	46.74	49.39	9.35
V_f	(k)	51.3	96.92	61.61	88.62	51.07

INTERIOR GIRDER MOMENT TABLE - SN 100-0089 (SB)

		0.4 Sp. 1	Pier 1	0.5 Sp. 2	Pier 2	0.6 Sp.3
I_s	(in^4)	82155	110684	82155	110684	82155
$I_c(n)$	(in^4)	172489	-	170220	-	167838
$I_c(3n)$	(in^4)	127401	-	125719	-	123996
$I_c(cr)$	(in^4)	-	126090	-	125189	-
S_s	(in^3)	2011	2590	2011	2590	2011
$S_c(n)$	(in^3)	2820	-	2808	-	2795
$S_c(3n)$	(in^3)	2541	-	2528	-	2515
$S_c(cr)$	(in^3)	-	3061	-	3053	-
DC1	(k/')	1.17	1.22	1.13	1.16	1.09
M_{DC1}	('k)	140	3841	2587	3771	206
DC2	(k/')	0.20	0.20	0.20	0.20	0.20
M_{DC2}	('k)	54	99	106	100	54
DW	(k/')	0.39	0.39	0.39	0.39	0.39
M_{DW}	('k)	44	1255	904	1243	39
M_{L+IM}	('k)	1551	3126	2488	3060	1512
M_u(Strength I)	('k)	2406	12278	9076	12058	2262
$\phi_f M_n$	('k)	14934	13505	13593	13454	14262
f_s DC1	(ksi)	0.84	17.8	15.44	17.47	1.23
f_s DC2	(ksi)	0.25	0.39	0.5	0.39	0.26
f_s DW	(ksi)	0.21	4.92	4.29	4.88	0.19
f_s 1.3(L+IM)	(ksi)	6.60	12.25	10.66	12.03	6.49
f_s (Service II)	(ksi)	7.33	39.04	34.09	38.38	6.75
f_s (Total)(Strength I)	(ksi)	9.87	51.6	45.02	50.7	9.2
V_f	(k)	53.6	96.02	58.4	93.14	52.42

INTERIOR GIRDER REACTION TABLE - SN 100-0088 (NB)
HL93 Loading

		N. Abut.	Pier 1	Pier 2	S. Abut.
R_{DC1}	(k)	24.58	230.80	211.53	14.66
R_{DC2}	(k)	4.11	37.49	35.44	4.66
R_{DW}	(k)	7.08	80.87	78.66	7.63
R_{L+IM}	(k)	116.09	239.90	215.44	95.62
R_{Total}	(k)	151.85	541.06	803.71	122.57

INTERIOR GIRDER REACTION TABLE - SN 100-0089 (SB)
HL93 Loading

		N. Abut.	Pier 1	Pier 2	S. Abut.
R_{DC1}	(k)	22.05	224.12	214.00	18.17
R_{DC2}	(k)	4.46	36.01	35.74	4.23
R_{DW}	(k)	6.52	75.68	72.54	6.85
R_{L+IM}	(k)	112.04	244.68	221.10	102.55
R_{Total}	(k)	145.07	580.49	543.38	131.79

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) 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) due to long-term composite (superimposed) dead loads ($in.^4$ and $in.^3$).

Z: Plastic Section Modulus of the steel section in non-composite areas. Omit line in Moment Table if not used in design calculations ($in.^3$).

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

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

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

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

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

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

M_{L+IM}: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).

M_u (Strength I): Factored design moment (kip-ft.).
$1.25\,(M_{DC1} + M_{DC2}) + 1.5\,M_{DW} + 1.75\,M_{L+IM}$

$\phi_f M_n$: Compact composite positive moment capacity computed according to Article 6.10.7.1 (kip-ft.).

$\phi_f M_{nc}$: Compact non-composite negative moment capacity computed according to Article A6.1.1 (kip-ft.).

f_s (Service II): Sum of stresses as computed from the moments below (ksi).
$M_{DC1} + M_{DC2} + M_{DW} + 1.3\,M_{L+IM}$

V_f: Maximum factored shear range in composite portion of span computed according to Article 6.10.10.

NOTES:

1. For Framing Plans and Cross Frame locations, see Sheets 41 and 42 of 75.

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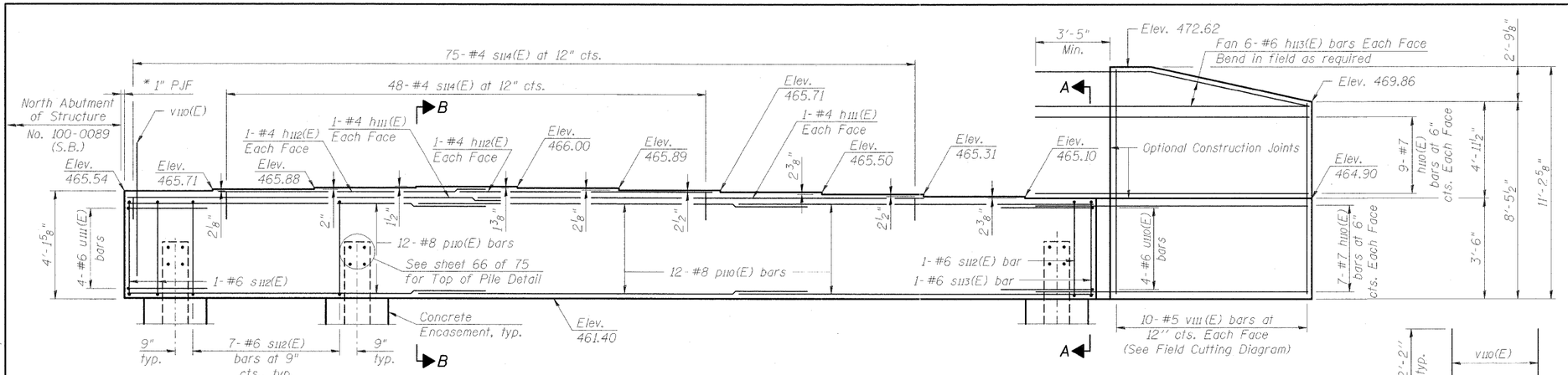
FILE NAME = ...\0378_STRUCT STEEL DETAILS_II_NB-SB.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - WLB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL DETAILS – II
STRUCTURE NO. 100-0088 (N.B.) & 100-0089 (S.B.)
SHEET NO. 46 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	631
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS FED. AID PROJECT				



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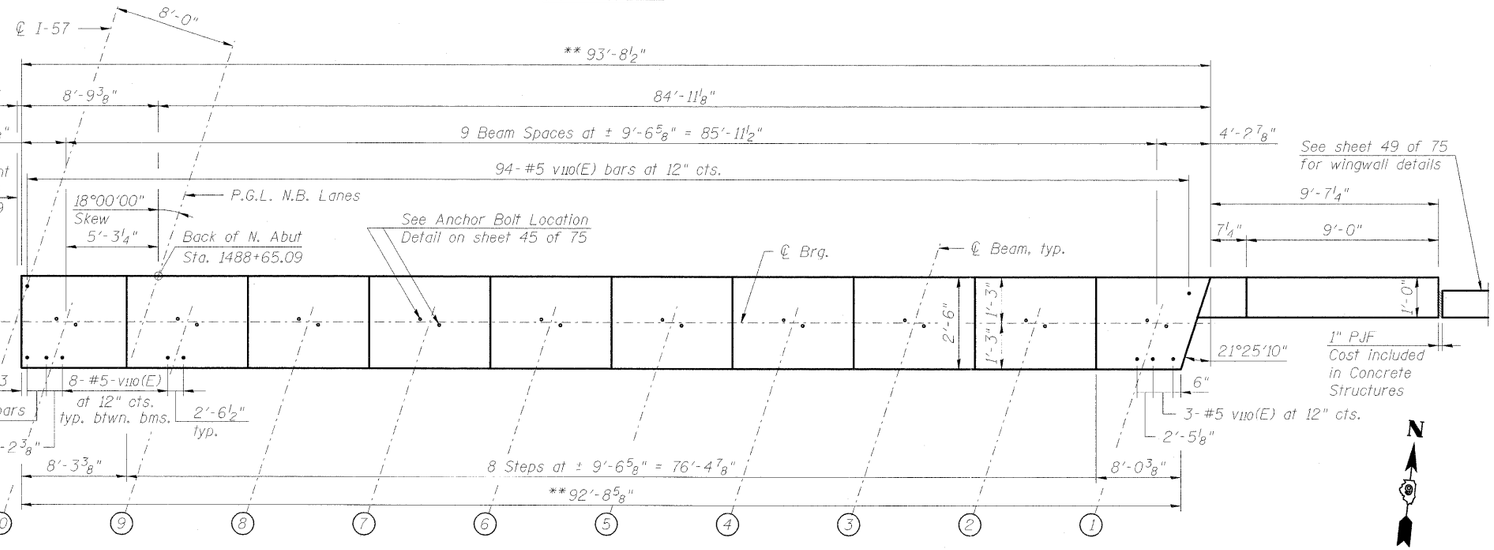
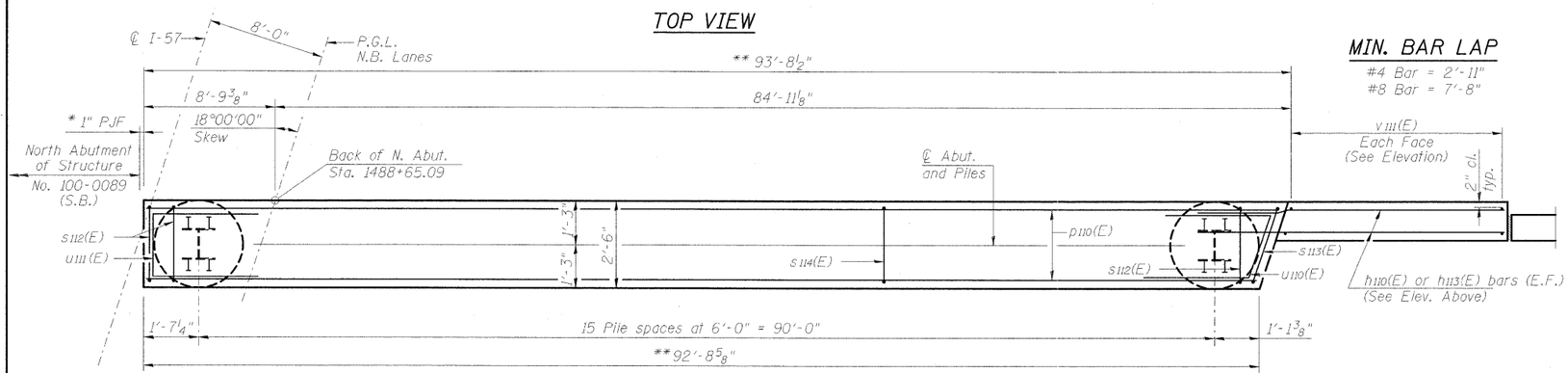


TOP VIEW

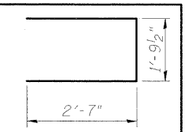


PILE CAP PLAN

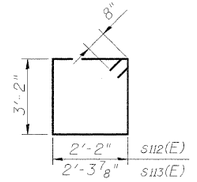
MIN. BAR LAP

#4 Bar = 2'-11"
#8 Bar = 7'-8"

BAR u110(E)



BAR u111(E)



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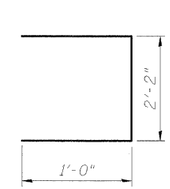

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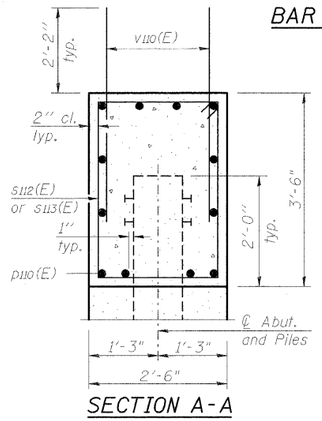
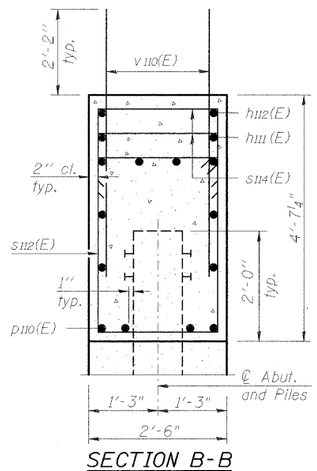


SECTION A-A



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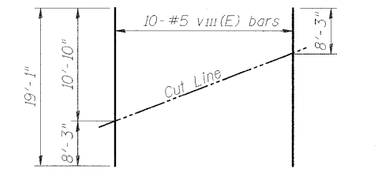

FIELD CUTTING DIAGRAM

Order v111(E) full length. Cut as shown and use remainder of bars in opposite face.

NORTH ABUTMENT (N.B.) BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h110(E)	32	#7	13'-8"	——
h111(E)	4	#4	39'-0"	——
h112(E)	4	#4	25'-3"	——
h113(E)	12	#6	13'-8"	——
p110(E)	36	#8	36'-0"	——
s112(E)	108	#6	12'-0"	
s113(E)	1	#6	12'-4"	
s114(E)	123	#4	4'-2"	
u110(E)	4	#6	7'-2"	
u111(E)	4	#6	7'-0"	
v110(E)	172	#5	4' 4"	——
v111(E)	10	#5	19'-1"	——
Structure Excavation		Cu. Yd.	66	
Concrete Structures		Cu. Yd.	39.6	
Concrete Encasement		Cu. Yd.	8.8	
Reinforcement Bars, Epoxy Coated		Pound	8,150	
Furnishing Steel Piles HP14x89		Foot	864	
Driving Piles		Foot	864	
Test Pile Steel HP14x89		Each	0	

PILE DATA

Type: Steel HP 14x89
Nominal Required Bearing: 705k
Factored Resistance Available: 388k
Est. Length: 54'
No. Production Piles: 16
No. Test Piles: 0
Estimated Top of Rock Elevation: 423.10

Notes:
Pour steps monolithically with cap.
Space reinforcement to miss anchor bolts.
See Sheet 2 of 75 for abutment backfill requirements.
See Sheet 66 of 75 for steel H-pile and Concrete Encasement details.

* Cost included in Concrete Structures.
** Out-to-out dimensions include 2" allowance for Form Liner on parapet.

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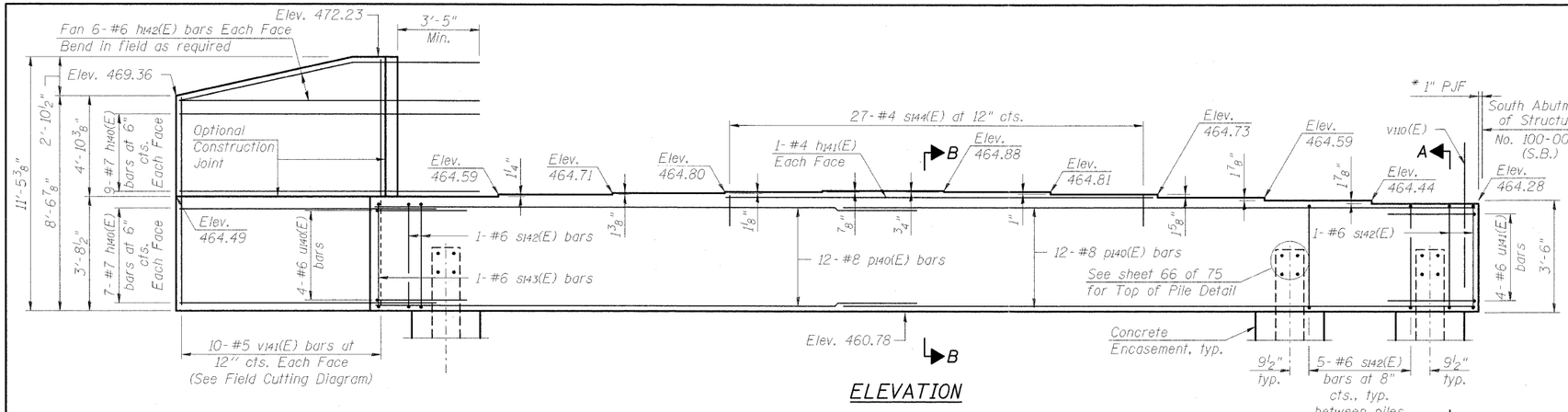
FILE NAME = ...\i-57\038_NORTH ABUT_NB.dgn
USER NAME = Rob Heady
PLOT SCALE =
PLOT DATE = 10/7/2011

DESIGNED - JDJ	REVISED -	
CHECKED - REB	REVISED -	
DRAWN - GLD	REVISED -	
CHECKED - REB	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

NORTH ABUTMENT
STRUCTURE NO. 100-0088 (N.B.)
SHEET NO. 47 OF 75 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(X1-6-2)HBK-2	WILLIAMSON	968	632
		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			



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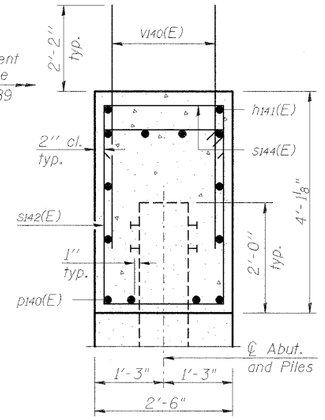
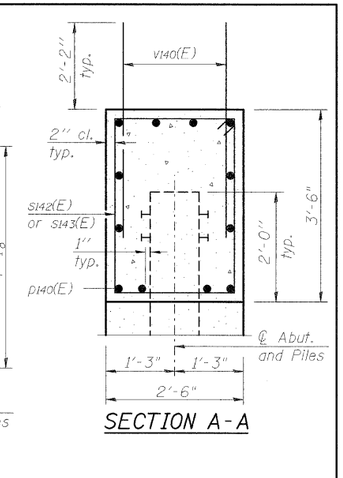
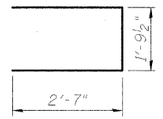


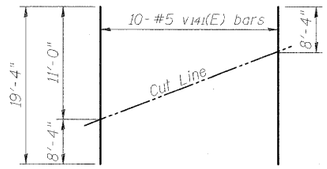
SECTION B-B



SECTION A-A

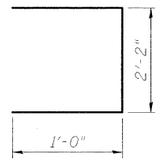


BAR u141(E)



FIELD CUTTING DIAGRAM

Order v141(E) full length. Cut as shown and use remainder of bars in opposite face.



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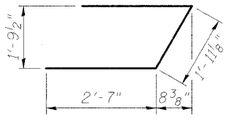
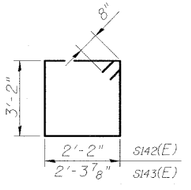


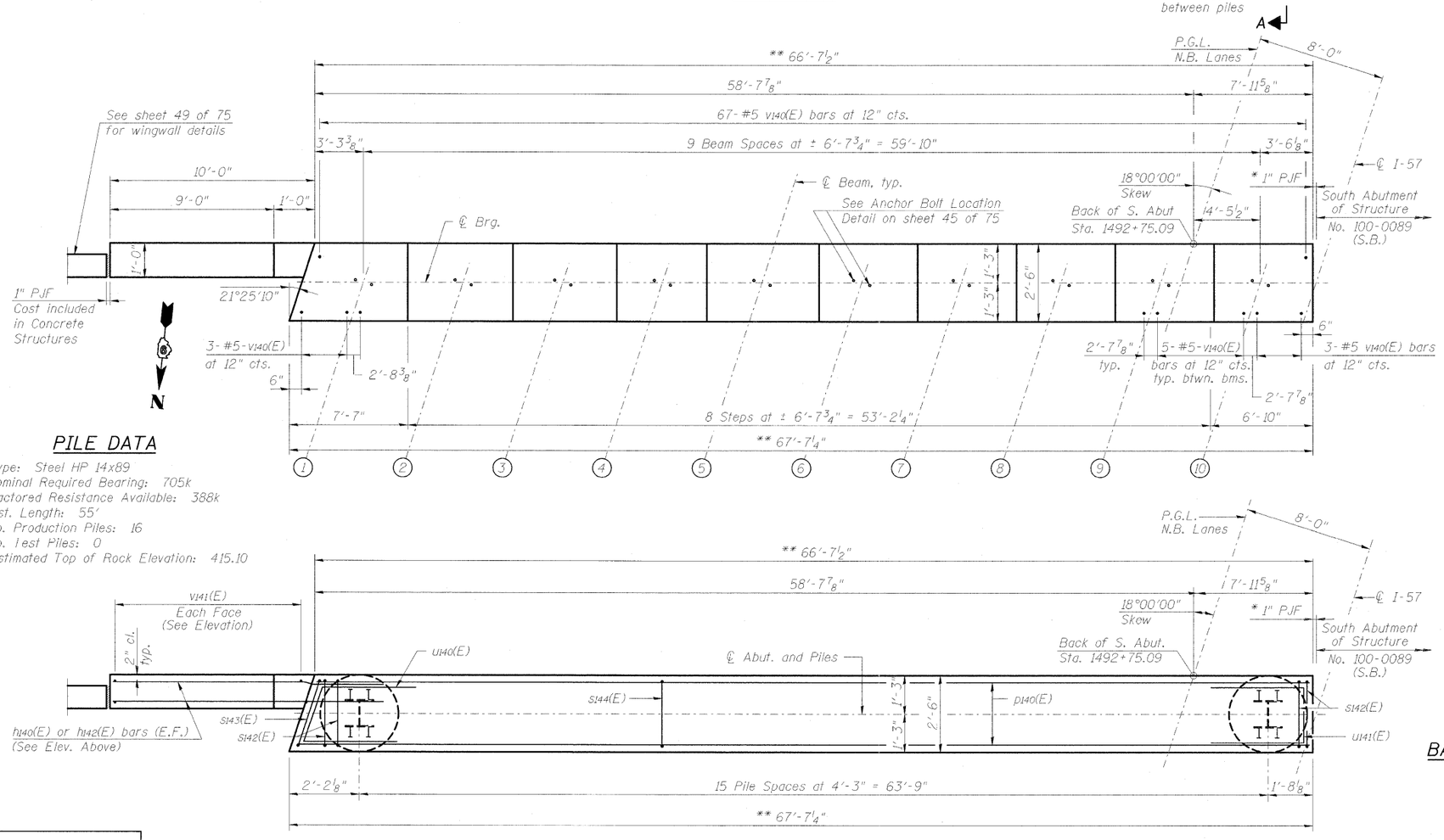
BAR u140(E)



BAR s142(E) & s143(E)

MIN. BAR LAP

#8 Bar = 7'-8"



PILE CAP PLAN

PILE DATA

Type: Steel HP 14x89
Nominal Required Bearing: 705k
Factored Resistance Available: 388k
Est. Length: 55'
No. Production Piles: 16
No. Test Piles: 0
Estimated Top of Rock Elevation: 415.10

SOUTH ABUTMENT (N.B.) BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h140(E)	32	#7	13'-8"	——
h141(E)	2	#4	26'-4"	——
h142(E)	12	#6	13'-8"	——
p140(E)	24	#8	37'-5"	——
s142(E)	79	#6	12'-0"	⌐
s143(E)	1	#6	12'-4"	⌐
s144(E)	27	#4	4'-2"	⌐
u140(E)	4	#6	7'-2"	⌐
u141(E)	4	#6	7'-0"	⌐
v140(E)	118	#5	4'-4"	——
v141(E)	10	#5	19'-4"	——

Structure Excavation	Cu. Yd.	51
Concrete Structures	Cu. Yd.	27.6
Concrete Encasement	Cu. Yd.	8.8
Reinforcement Bars, Epoxy Coated	Pound	5,920
Furnishing Steel Piles HP14x89	Foot	880
Driving Piles	Foot	880
Test Pile Steel HP14x89	Each	0

Notes:
Pour steps monolithically with cap.
Space reinforcement to miss anchor bolts.
See Sheet 2 of 75 for abutment backfill requirements.
See Sheet 66 of 75 for steel H-pile and Concrete Encasement details.

* Cost included in Concrete Structures.
** Out-to-out dimensions include 2" allowance for Form Liner on parapet.

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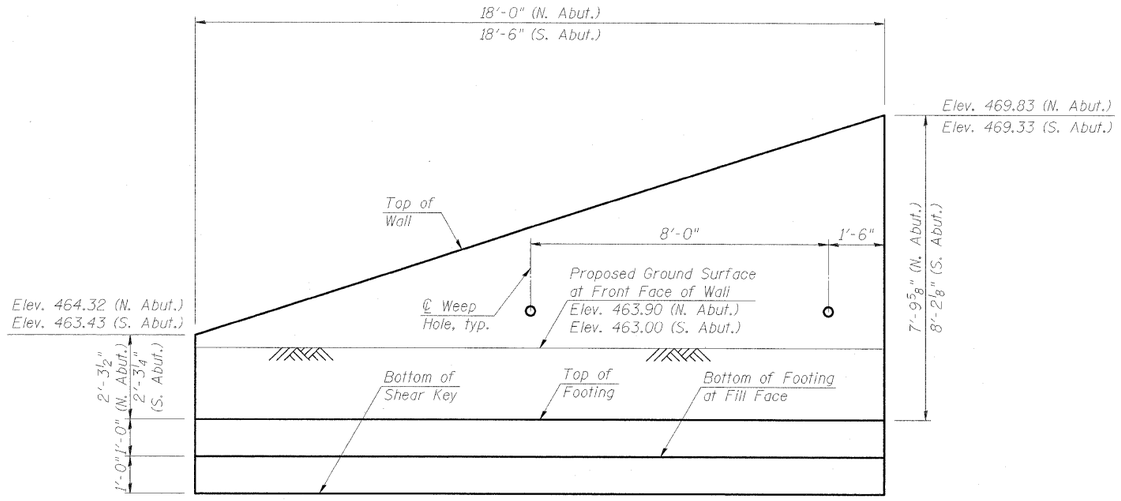
FILE NAME = ...\1-57\039_SOUTH ABUT_NB.dgn	USER NAME = Rob Heady	DESIGNED - JDJ	REVISED -
		CHECKED - REB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - REB	REVISED -

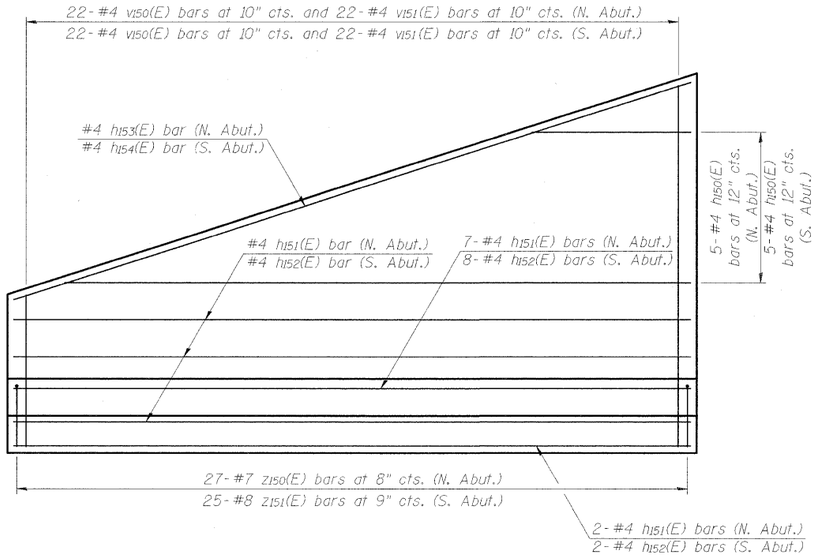
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOUTH ABUTMENT
STRUCTURE NO. 100-0088 (N.B.)
SHEET NO. 48 OF 75 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(X1-6-2)HBK-2	WILLIAMSON	968	633
		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			



ELEVATION
(Looking South)

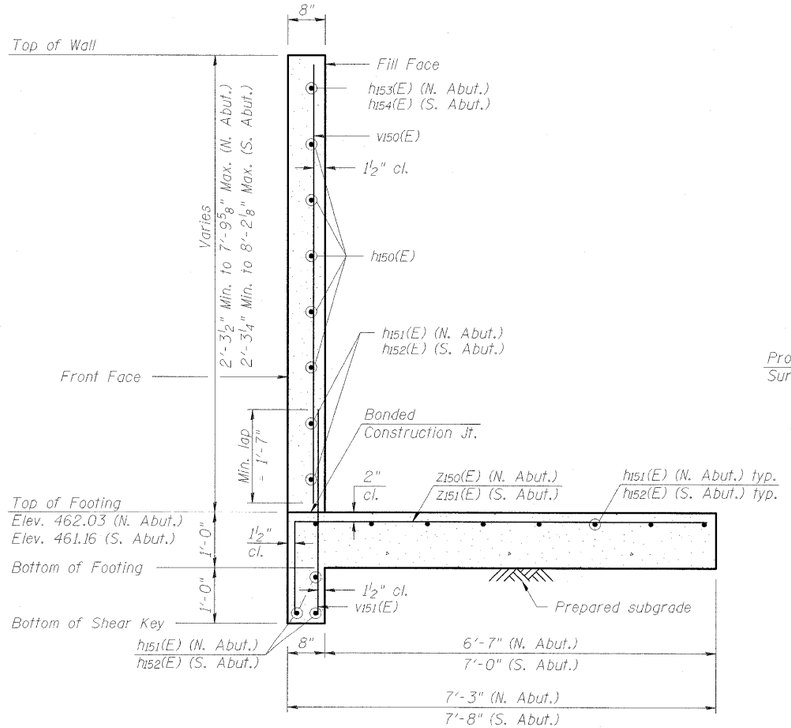


ELEVATION SHOWING REINFORCEMENT
(Looking South)

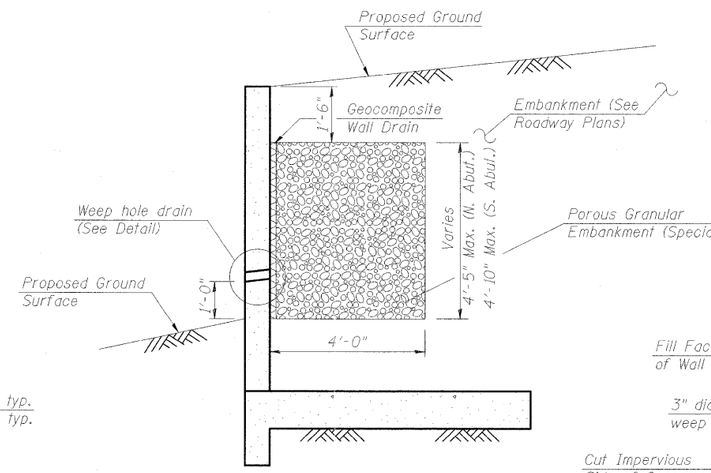
Maximum allowable soil pressure on prepared subgrade = 2000 psf.

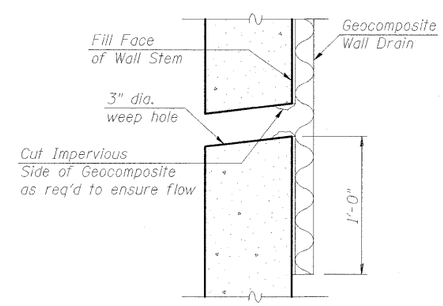
WINGWALLS (N.B.) BILL OF MATERIAL

Bar	No.	Size	Length	Shape
v150(E)	22	#4	9'-8"	——
v151(E)	44	#4	3'-8"	——
h150(E)	5	#4	20'-11"	——
h151(E)	12	#4	17'-8"	——
h152(E)	13	#4	18'-2"	——
h153(E)	1	#4	18'-5"	——
h154(E)	1	#4	19'-0"	——
z150(E)	27	#7	8'-7"	⌐——
z151(E)	25	#8	9'-0"	⌐——
Concrete Structures			Cu. Yd.	15.7
Reinforcement Bars, Epoxy Coated			Pound	1,720
Porous Granular Embankment, Special			Cu. Yd.	11

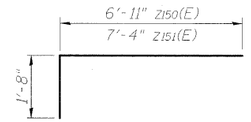


SECTION THRU WALL

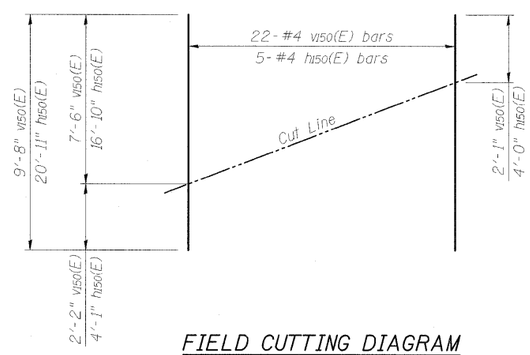




WEEP HOLE DRAIN DETAILS



BAR z150(E), z151(E)



FIELD CUTTING DIAGRAM
Order bars full length. Cut as shown and use remainder of bars in south abutment.

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FILE NAME = ...\i-57\041A_WINGWALLS_NB.dgn	USER NAME = Rob Heady	DESIGNED - JDJ	REVISED -
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	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - REB	REVISED -

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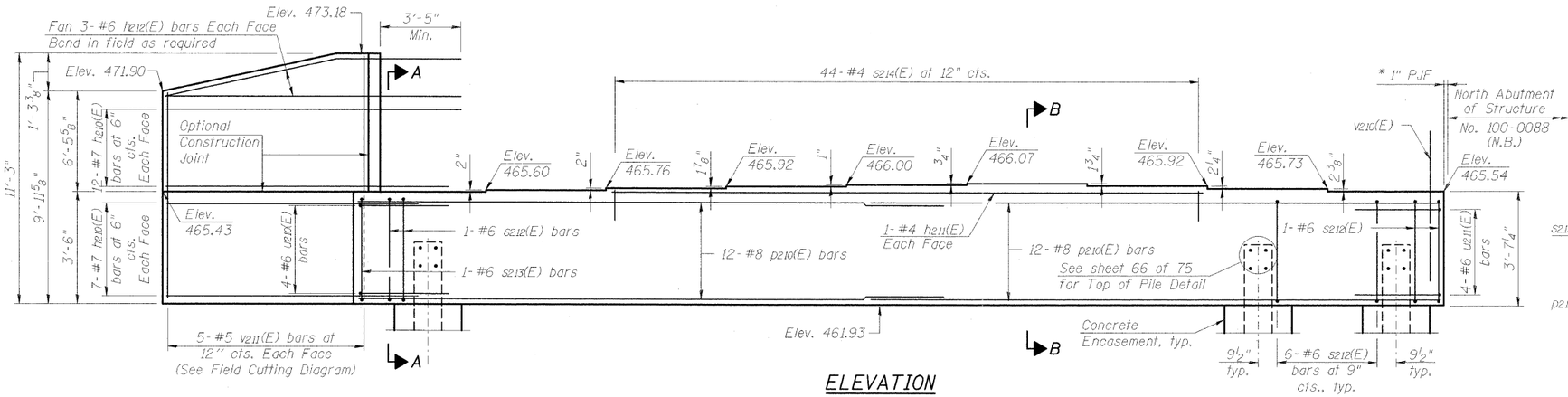
DEPARTMENT OF TRANSPORTATION

WINGWALLS
STRUCTURE NO. 100-0088 (N.B.)
SHEET NO. 49 OF 75 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(X1-6-2)HBK-2	WILLIAMSON	968	634
		CONTRACT NO. 78182		
		ILLINOIS FED. AID PROJECT		



NORTH ABUTMENT (S.B.)
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h210(E)	38	#7	8'-8"	——
h211(E)	2	#4	43'-11"	——
h212(E)	6	#6	8'-8"	——
p210(E)	24	#8	42'-10"	——
s212(E)	88	#6	12'-0"	⬀
s213(E)	1	#6	12'-3"	⬀
s214(E)	44	#4	4'-2"	⌐
u210(E)	4	#6	7'-1"	◺
u211(E)	4	#6	7'-0"	⌐
v210(E)	148	#5	4'-4"	——
v211(E)	5	#5	20'-7"	——

Structure Excavation	Cu. Yd.	183
Concrete Structures	Cu. Yd.	29.7
Concrete Encasement	Cu. Yd.	8.2
Reinforcement Bars, Epoxy Coated	Pound	6,150
Furnishing Steel Piles HP14x89	Foot	756
Driving Piles	Foot	756
Test Pile Steel HP14x89	Each	1

Notes:
Pour steps monolithically with cap.
Space reinforcement to miss anchor bolts.
See Sheet 2 of 75 for abutment backfill requirements.
See Sheet 66 of 75 for steel H-pile and Concrete Encasement details.

* Cost included in Concrete Structures.
** Out-to-out dimensions include 2" allowance for Form Liner on parapet.

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FILE NAME = ...\i-57\040_NORTH ABUT_SB.dgn	USER NAME = Rob Heady	DESIGNED - JDJ	REVISED -
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	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - REB	REVISED -

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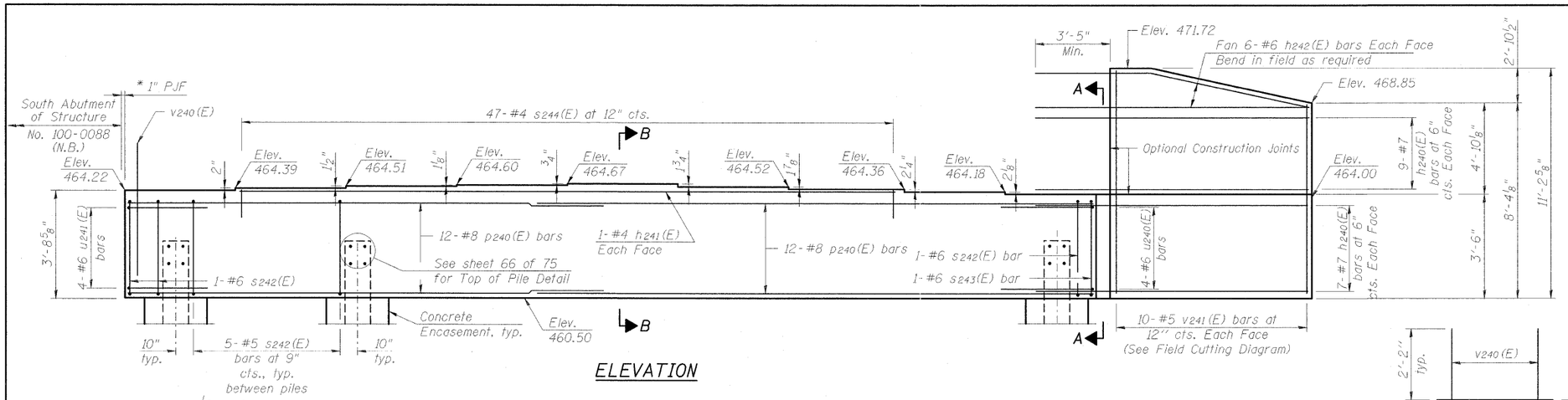
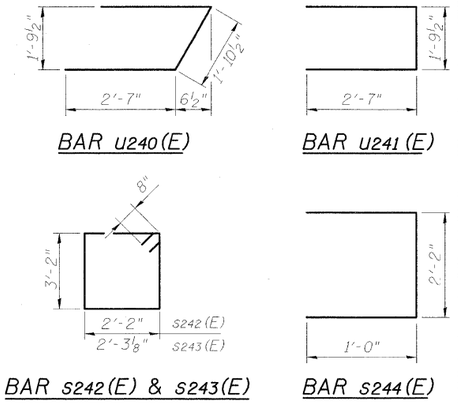
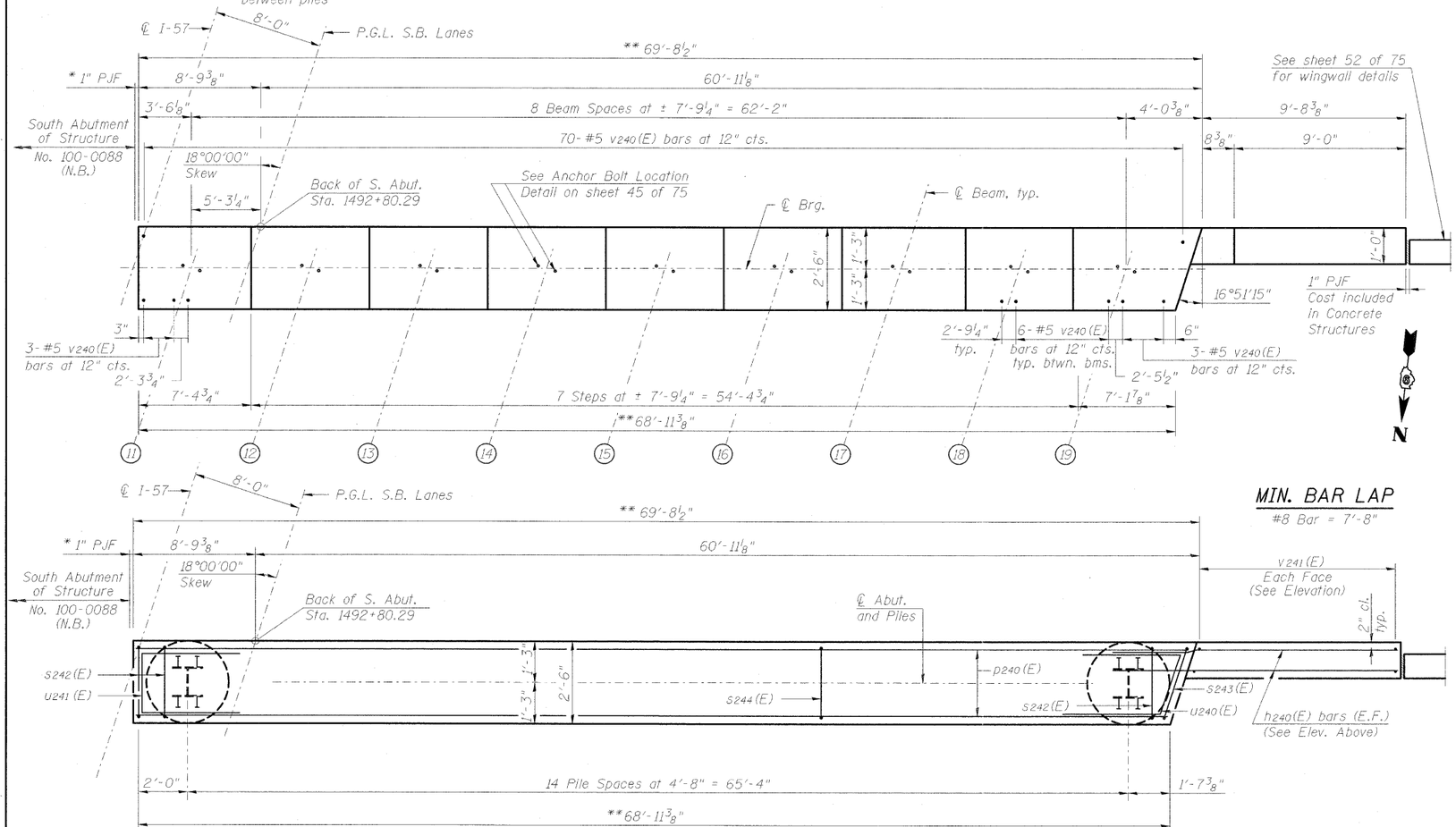
DEPARTMENT OF TRANSPORTATION

NORTH ABUTMENT
STRUCTURE NO. 100-0089 (S.B.)
SHEET NO. 50 OF 75 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(X1-6-2)HBK-2	WILLIAMSON	968	635
		CONTRACT NO. 78182		
		ILLINOIS FED. AID PROJECT		



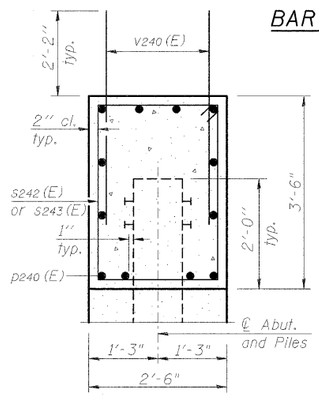




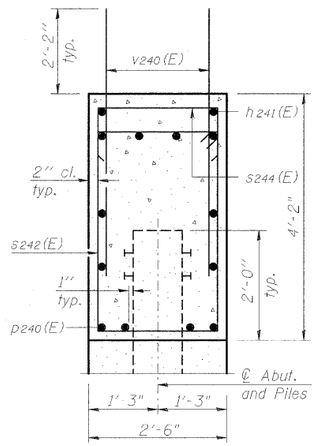
PILE CAP PLAN

MIN. BAR LAP

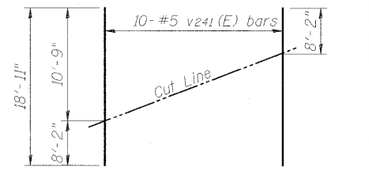
#8 Bar = 7'-8"



SECTION A-A



SECTION B-B



FIELD CUTTING DIAGRAM

Order V241(E) full length. Cut as shown and use remainder of bars in opposite face.

SOUTH ABUTMENT (S.B.) BILL OF MATERIAL

Bar	No.	Size	Length	Shape
H240(E)	32	#7	13'-9"	——
H241(E)	2	#4	46'-4"	——
H242(E)	12	#6	13'-9"	——
P240(E)	24	#8	38'-8"	——
S242(E)	73	#6	12'-0"	⊐
S243(E)	1	#6	12'-3"	⊐
S244(E)	47	#4	4'-2"	⊐
U240(E)	4	#6	7'-1"	⌐
U241(E)	4	#6	7'-0"	⊐
V240(E)	124	#5	4'-4"	——
V241(E)	10	#5	18'-11"	——

Structure Excavation	Cu. Yd.	162
Concrete Structures	Cu. Yd.	28.6
Concrete Encasement	Cu. Yd.	8.2
Reinforcement Bars, Epoxy Coated	Pound	6,000
Furnishing Steel Piles HP14x89	Foot	825
Driving Piles	Foot	825
Test Pile Steel HP14x89	Each	0

PILE DATA

Type: Steel HP 14x89
Nominal Required Bearing: 705k
Factored Resistance Available: 388k
Est. Length: 55'
No. Production Piles: 15
No. Test Piles: 0
Estimated Top of Rock Elevation: 415.10

Notes:
Pour steps monolithically with cap.
Space reinforcement to miss anchor bolts.
See Sheet 2 of 75 for abutment backfill requirements.
See Sheet 66 of 75 for steel H-pile and Concrete Encasement details.

* Cost included in Concrete Structures.
** Out-to-out dimensions include 2" allowance for Form Liner on parapet.

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FILE NAME = ...\i-57\041_SOUTH ABUT_SB.dgn	USER NAME = Rob Heady	DESIGNED - JDJ	REVISED -
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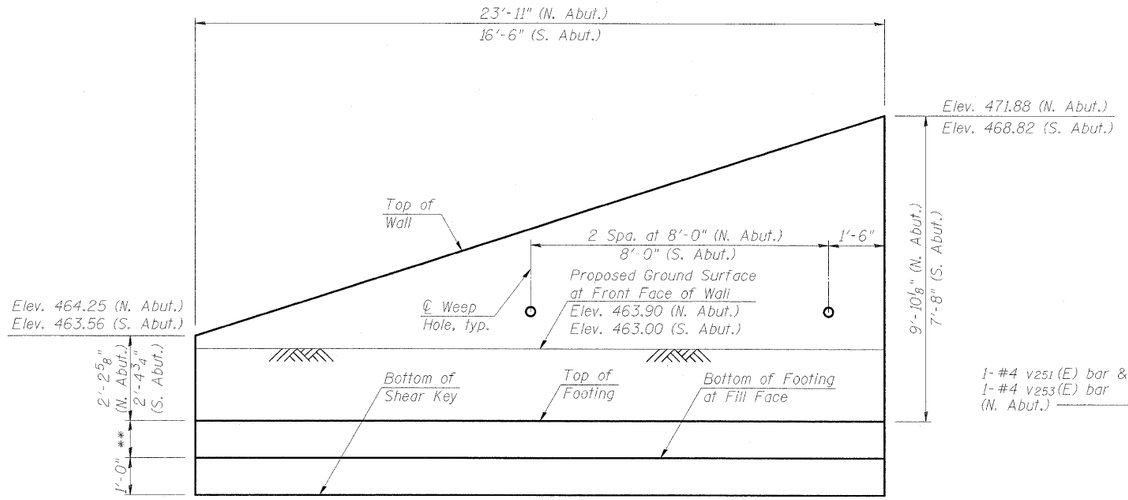
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - REB	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

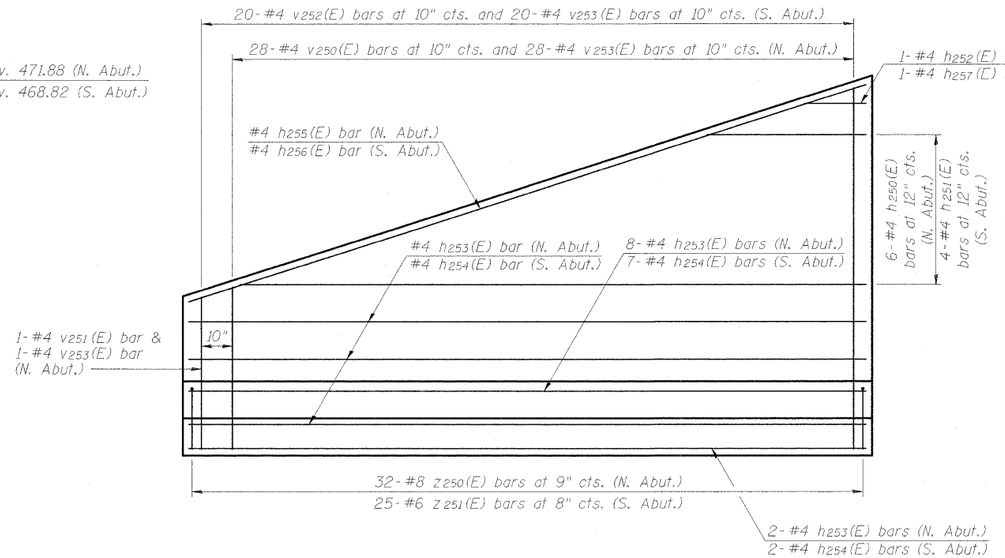
SOUTH ABUTMENT
STRUCTURE NO. 100-0089 (S.B.)
SHEET NO. 51 OF 75 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(X1-6-2)HBK-2	WILLIAMSON	968	636
		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			



ELEVATION
(Looking North)

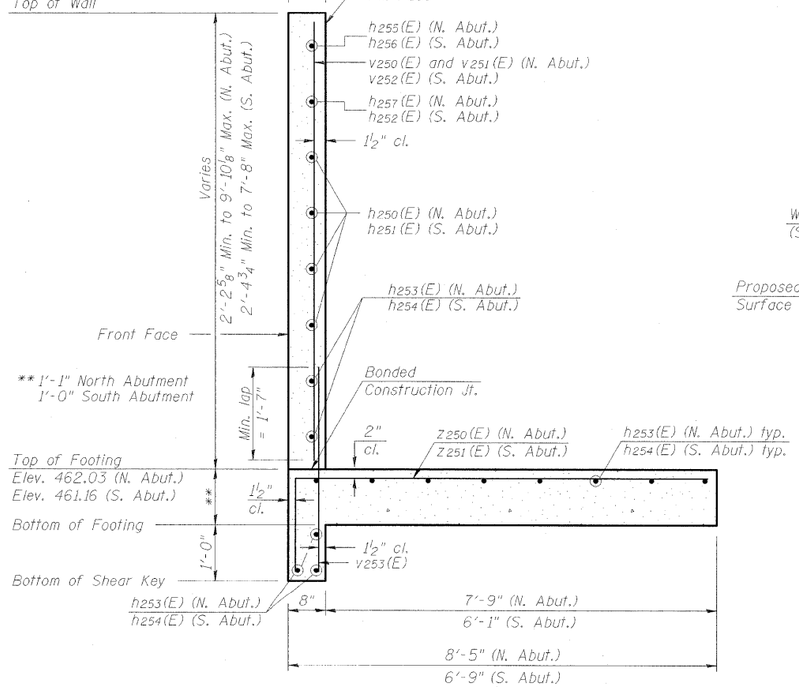
Maximum allowable soil pressure on prepared subgrade = 2000 psf.



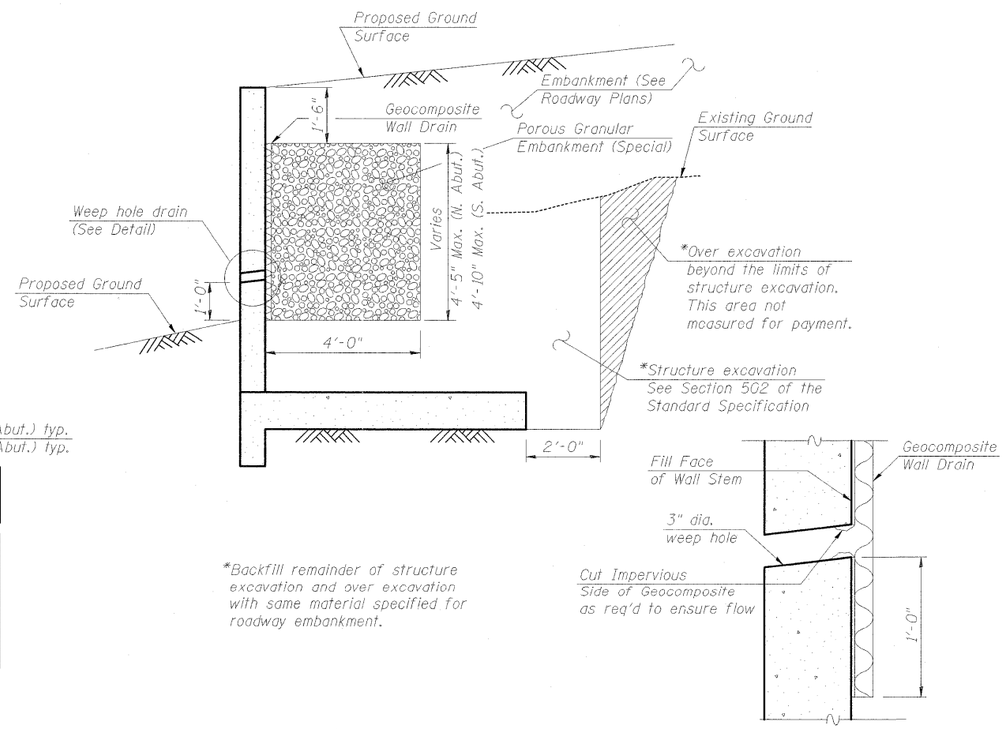
ELEVATION SHOWING REINFORCEMENT
(Looking North)

WINGWALLS (S.B.) BILL OF MATERIAL

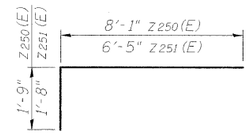
Bar	No.	Size	Length	Shape
v250(E)	14	#4	11'-8"	—
v251(E)	1	#4	2'-0"	—
v252(E)	10	#4	9'-6"	—
v253(E)	49	#4	3'-8"	—
h250(E)	3	#4	31'-3"	—
h251(E)	2	#4	22'-7"	—
h252(E)	1	#4	3'-6"	—
h253(E)	13	#4	23'-7"	—
h254(E)	12	#4	16'-2"	—
h255(E)	1	#4	24'-9"	—
h256(E)	1	#4	16'-11"	—
h257(E)	1	#4	4'-8"	—
z250(E)	32	#8	9'-10"	⌐
z251(E)	25	#6	8'-1"	⌐
Structure Excavation			Cu. Yd.	186
Concrete Structures			Cu. Yd.	18.9
Reinforcement Bars, Epoxy Coated			Pound	1,900
Porous Granular Embankment, Special			Cu. Yd.	15



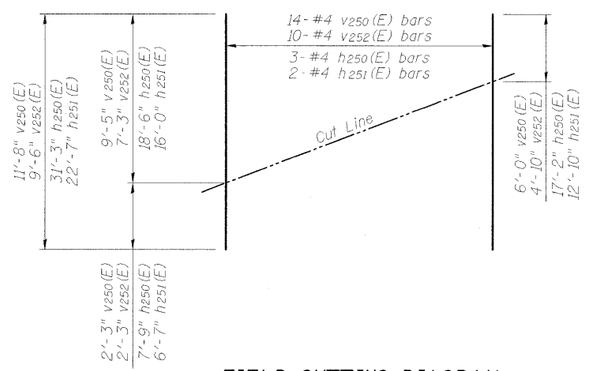
SECTION THRU WALL



WEEP HOLE DRAIN DETAILS



BAR z250(E), z251(E)



FIELD CUTTING DIAGRAM

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

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FILE NAME = ...\1-57\0416_WINGWALLS_SB.dgn	USER NAME = Rob Heady	DESIGNED - JDJ	REVISED -
		CHECKED - REB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - REB	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

WINGWALLS
STRUCTURE NO. 100-0089 (S.B.)
SHEET NO. 52 OF 75 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(X1-6-2)HBK-2	WILLIAMSON	968	637
		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			

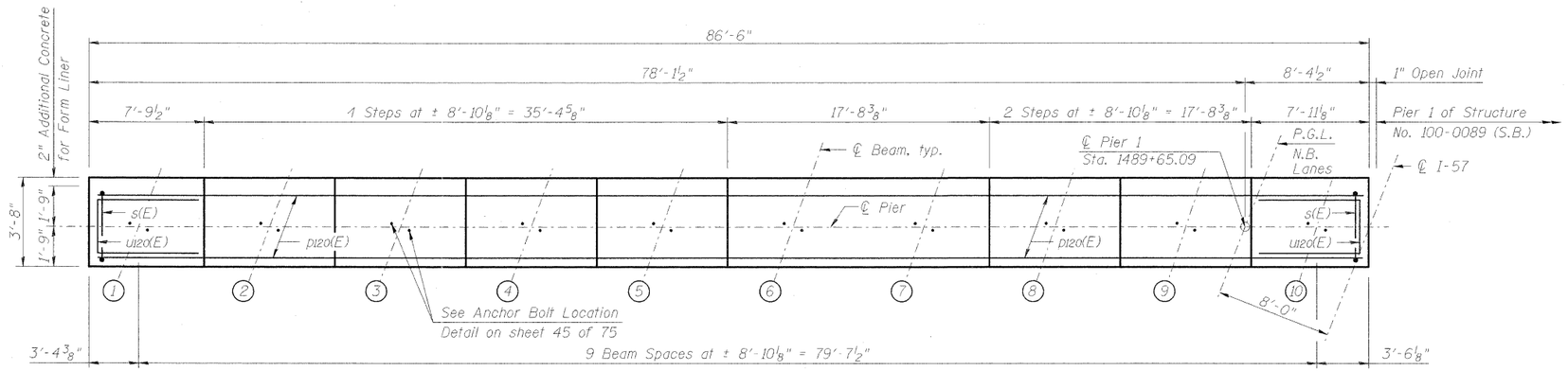
Notes:
Space reinforcement in cap to miss anchor bolts.
Pour steps monolithically with cap.
For details of piles and Concrete Encasement, see sheet 66 of 75.
For Bar Details, Bill of Material, Footing Plan, Sections A-A, B-B, C-C and D-D, see sheet 54 of 75.
For Aesthetic Treatment Details, see sheets 61 thru 63 of 75.
All surfaces of pier above proposed ground line shall be treated with concrete sealer.

PILE DATA

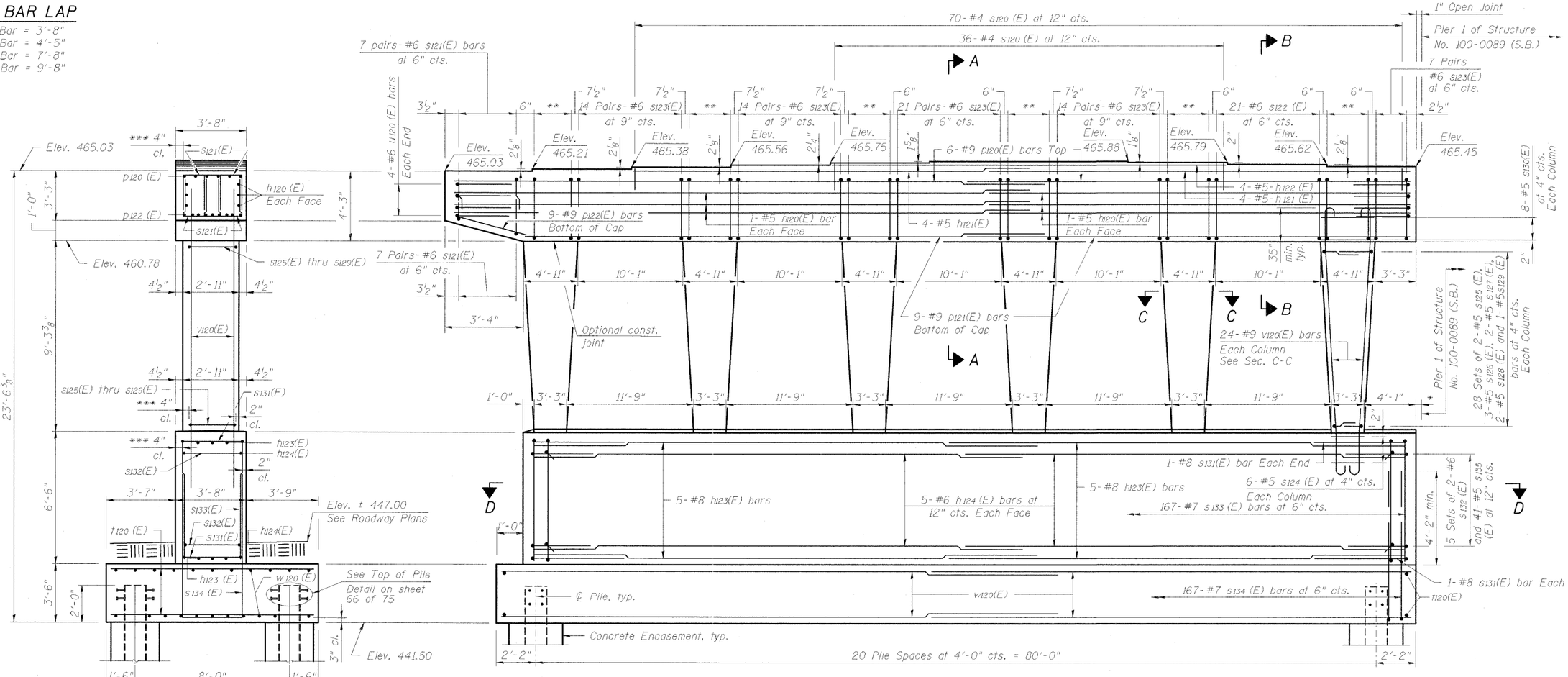
Type: Steel HP 14x89
Nominal Required Bearing: 659k
Factored Resistance Available: 363k
Est. Length: 28'
No. Production Piles: 42
No. Test Piles: 0
Estimated Top of Rock Elevation: 423.10

MIN. BAR LAP

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



TOP PLAN



ELEVATION
(Looking South)

END VIEW

*** 2" Additional Concrete for Form Liner.

* 1" P.J.F. between structures, Cost included in Concrete Structures.

** 5-#6 s122(E) at 12" cts.

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FILE NAME = ...\i-57\044_PIER 1_NB.dgn	USER NAME = Rob Heady	DESIGNED - JDJ	REVISED -
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	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - REB	REVISED -

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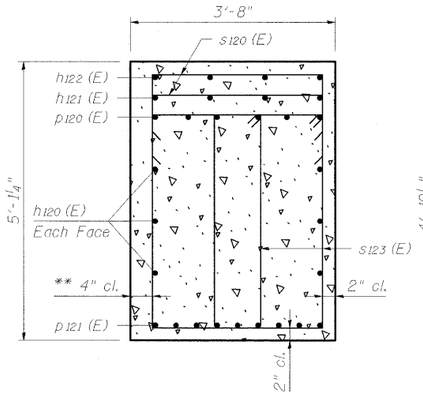
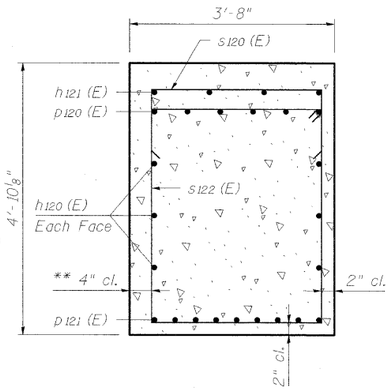
PIER 1
STRUCTURE NO. 100-0088 (N.B.)
SHEET NO. 53 OF 75 SHEETS

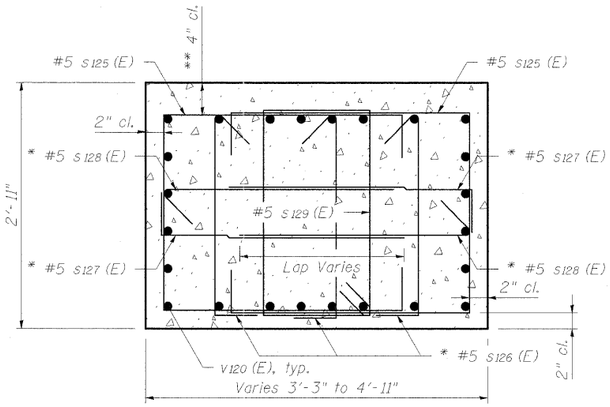
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(X1-6-2)HBK-2	WILLIAMSON	968	638
		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			



SECTION A-A



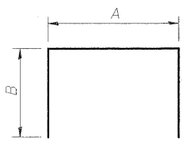
SECTION B-B



SECTION C-C

* Alternate ends at each level.

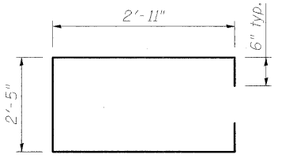
** 2" additional concrete for Form Liner.



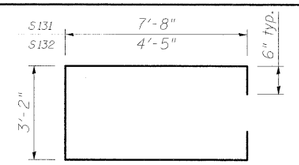
BARS (E)

A & B DIMENSIONS

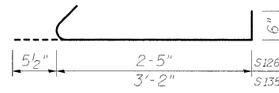
Bar	A	B
s120 (E)	3'-2"	1'-1"
s121 (E)	2'-0"	2'-11"
s133 (E)	3'-2"	6'-3"
s134 (E)	3'-2"	7'-6"
u120 (E)	3'-2"	1'-5"



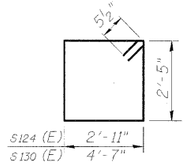
BAR s125 (E)



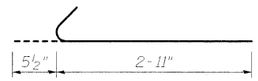
BAR s131 (E) & BAR s132 (E)



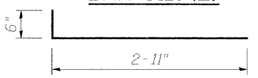
BAR s126 (E) & BAR s135 (E)



BAR s124 (E) & BAR s130 (E)



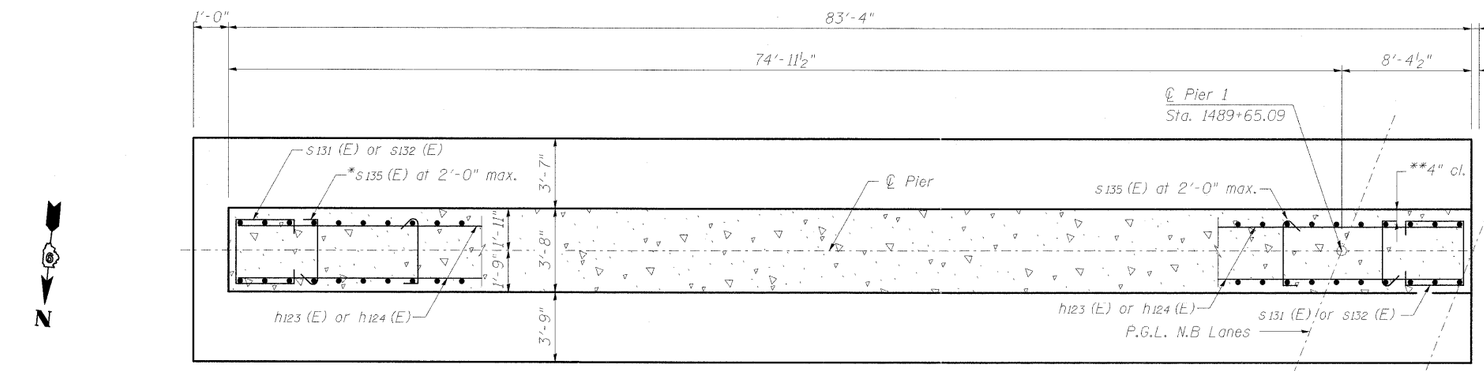
BAR s128 (E)



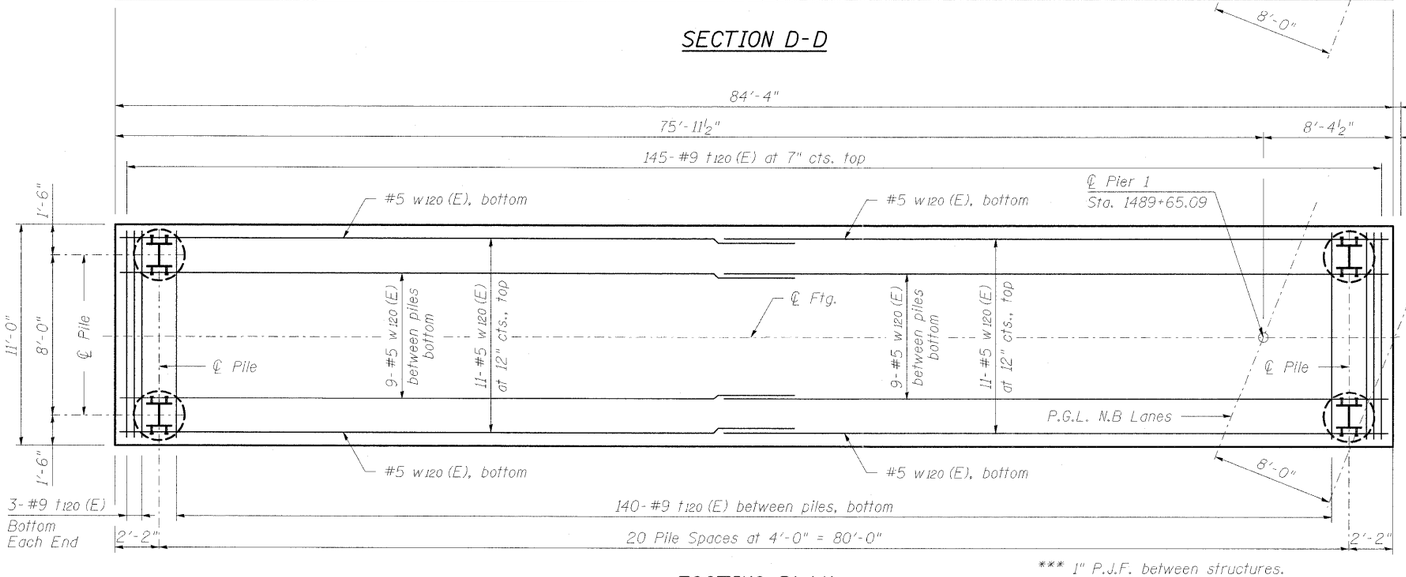
BAR s127 (E)

BILL OF MATERIAL

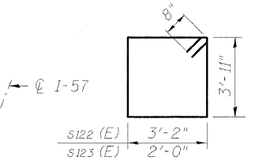
Bar	No.	Size	Length	Shape
h120 (E)	12	#5	45'-0"	
h121 (E)	8	#5	36'-8"	
h122 (E)	4	#5	35'-1"	
h123 (E)	20	#8	45'-5"	
h124 (E)	20	#6	43'-10"	
p120 (E)	12	#9	48'-0"	
p121 (E)	18	#9	46'-4"	
p122 (E)	9	#9	3'-4"	
s120 (E)	106	#4	5'-4"	
s121 (E)	28	#6	7'-10"	
s122 (E)	51	#6	15'-6"	
s123 (E)	140	#6	13'-2"	
s124 (E)	36	#5	11'-7"	
s125 (E)	336	#5	9'-3"	
s126 (E)	504	#5	3'-5"	
s127 (E)	336	#5	3'-5"	
s128 (E)	336	#5	3'-5"	
s129 (E)	168	#5	8'-3"	
s130 (E)	48	#5	14'-11"	
s131 (E)	4	#8	19'-6"	
s132 (E)	10	#6	13'-0"	
s133 (E)	167	#7	15'-8"	
s134 (E)	167	#7	18'-2"	
s135 (E)	205	#5	4'-2"	
t120 (E)	291	#9	10'-8"	
u120 (E)	8	#6	12'-0"	
v120 (E)	144	#9	17'-9"	
w120 (E)	44	#5	43'-11"	
Structure Excavation		Cu. Yd.	888	
Concrete Structures		Cu. Yd.	274.6	
Concrete Encasement		Cu. Yd.	23.0	
Form Liner Textured Surface		Sq. Ft.	164	
Reinforcement Bars, Epoxy Coated		Pound	58630	
Furnishing Steel Piles HP14x89		Foot	1176	
Driving Piles		Foot	1176	
Test Pile Steel HP14x89		Each	0	
Concrete Sealer		Sq. Ft.	3186	
Staining Concrete Structures		Sq. Yd.	354	
Concrete Stain		Sq. Yd.	19	



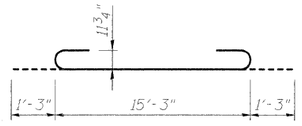
SECTION D-D



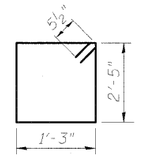
FOOTING PLAN



BAR s122 (E) & BAR s123 (E)



BAR v120 (E)



BAR s129 (E)

MIN. BAR LAP

#5 Bar = 3'-8"

*** 1" P.J.F. between structures.
Cost included in Concrete Structures.

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FILE NAME = ...\i-57\048_PIER DETAILS_I.dgn	USER NAME = Rob Heady	DESIGNED - JDJ	REVISED -
		CHECKED - REB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - REB	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

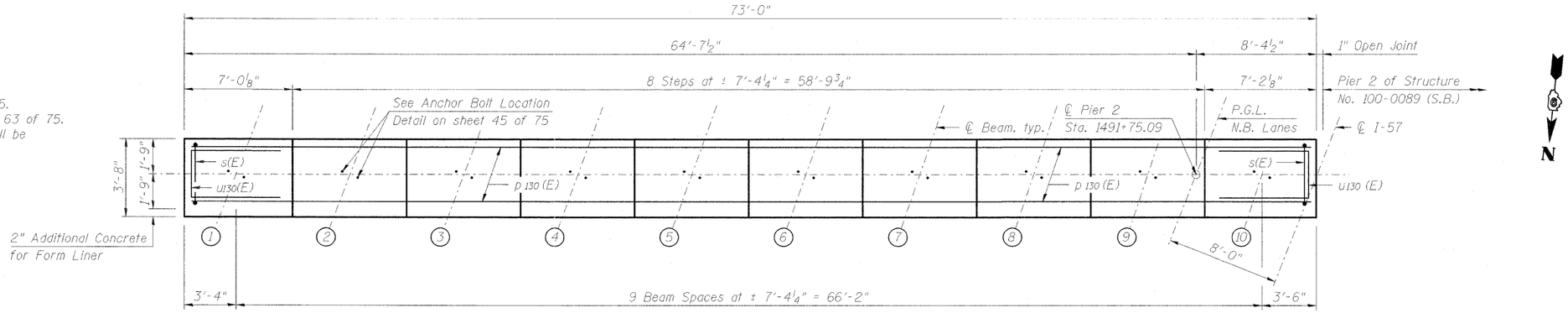
PIER 1 DETAILS
STRUCTURE NO. 100-0088 (N.B.)
SHEET NO. 54 OF 75 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(X1-6-2)HBK-2	WILLIAMSON	968	639
		CONTRACT NO. 78182		
ILLINOIS FED. AID PROJECT				

Notes:
Space reinforcement in cap to miss anchor bolts.
Pour steps monolithically with cap.
For details of piles and Concrete Encasement, see sheet 66 of 75.
For Bar Details, Bill of Material, Footing Plan, Sections A-A, B-B, C-C and D-D, see sheet 56 of 75.
For Aesthetic Treatment Details, see sheets 61 thru 63 of 75.
All surfaces of pier above proposed ground line shall be treated with concrete sealer.

PILE DATA

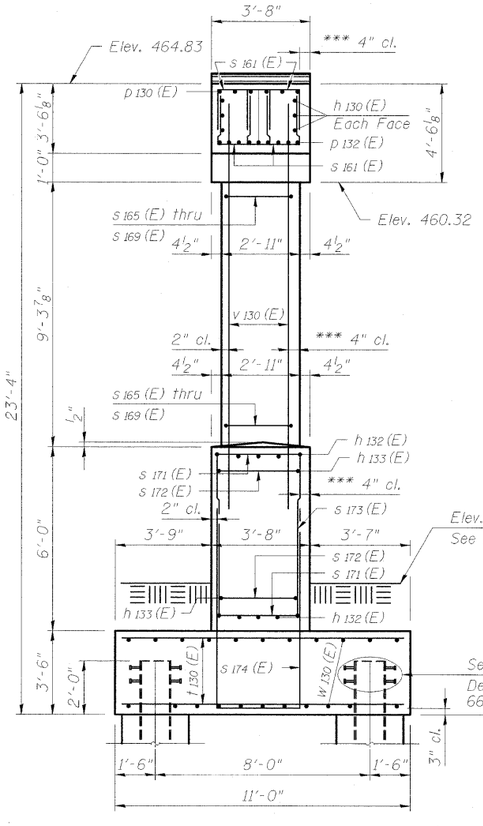
Type: Steel HP 14x89
Nominal Required Bearing: 700k
Factored Resistance Available: 385k
Est. Length: 30'
No. Production Piles: 36
No. Test Piles: 0
Estimated Top of Rock Elevation: 415.10



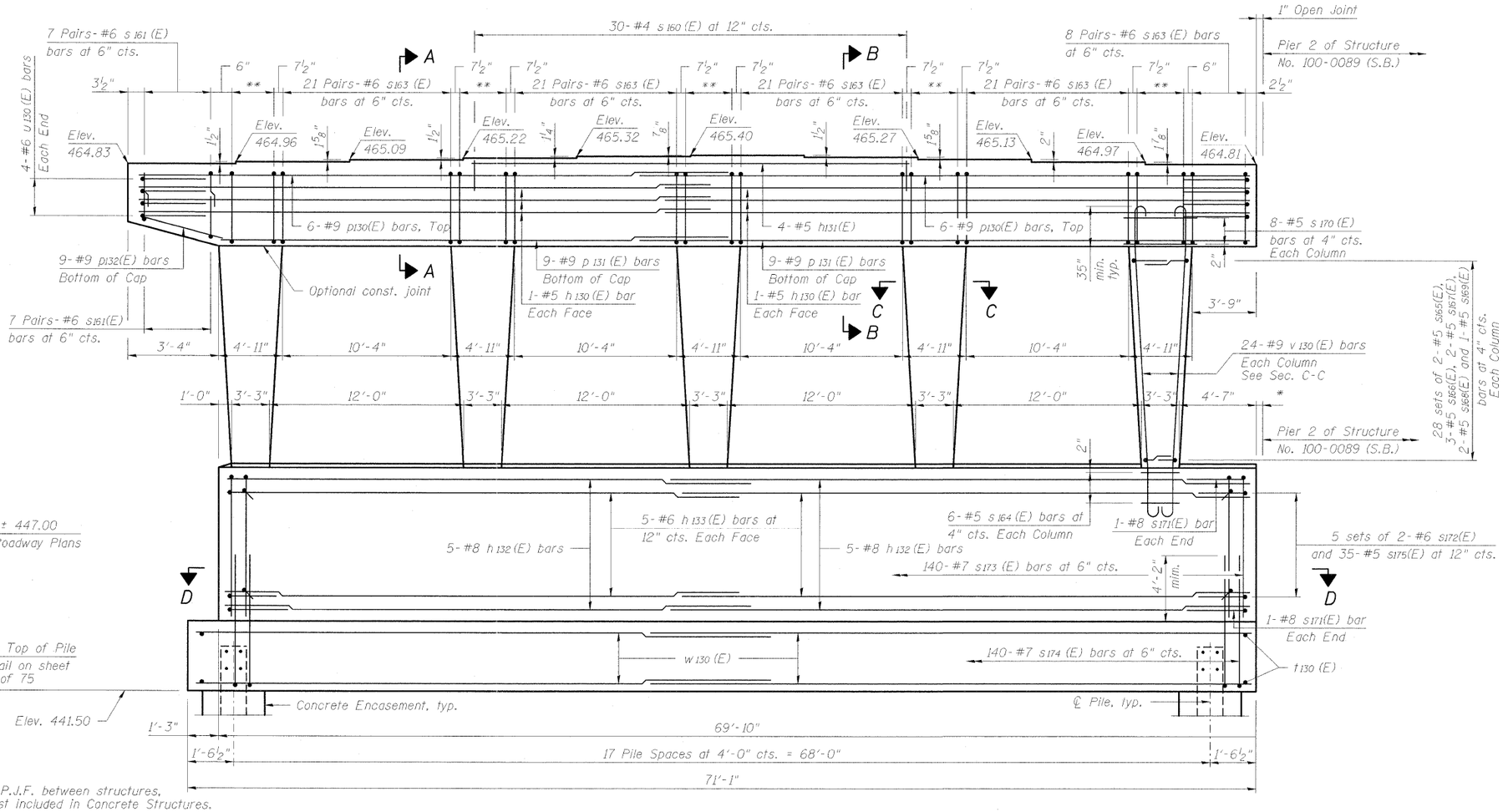
TOP PLAN

MIN. BAR LAP

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



END VIEW



ELEVATION
(Looking South)

* 1" P.J.F. between structures, Cost included in Concrete Structures.

** 5- #6 s 162 (E) at 12" cts.

*** 2" Additional Concrete for Form Liner.

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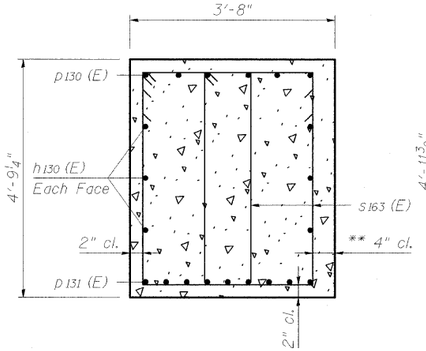
ROCKFORD, IL ■ PEORIA, IL ■ CHICAGO, IL

FILE NAME = ...\i-57\045_PIER 2_NB.dgn	USER NAME = Rob Heady	DESIGNED - JDJ	REVISED -
		CHECKED - REB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - REB	REVISED -

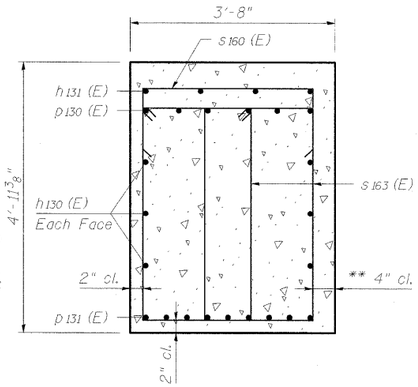
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 2
STRUCTURE NO. 100-0088 (N.B.)
SHEET NO. 55 OF 75 SHEETS

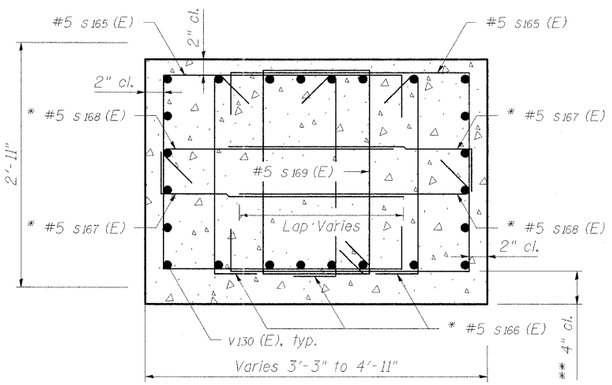
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(X1-6-2)HBK-2	WILLIAMSON	968	640
		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			



SECTION A-A



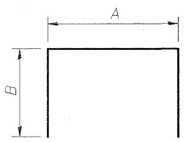
SECTION B-B



SECTION C-C

* Alternate ends at each level.

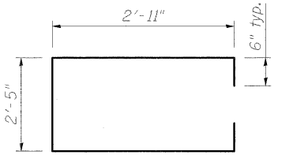
** 2" additional concrete for Form Liner.



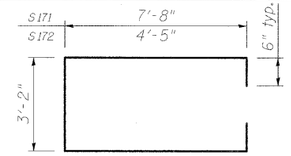
BARS (E)

A & B DIMENSIONS

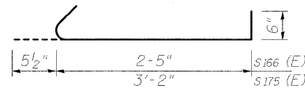
Bar	A	B
s160 (E)	3'-2"	1'-1"
s161 (E)	2'-0"	3'-2"
s173 (E)	3'-2"	5'-9"
s174 (E)	3'-2"	7'-6"
u160 (E)	3'-2"	4'-5"



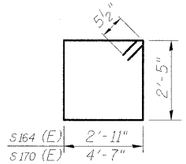
BAR s165 (E)



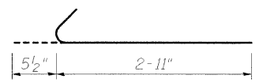
BAR s171 (E) & BAR s172 (E)



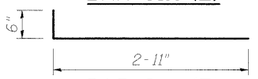
BAR s166 (E) & BAR s175 (E)



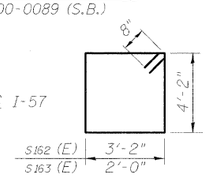
BAR s164 (E) & BAR s170 (E)



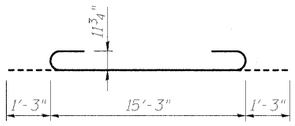
BAR S168 (E)



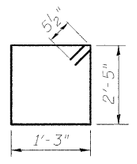
BAR S167 (E)



BAR s162 (E) & BAR s163 (E)



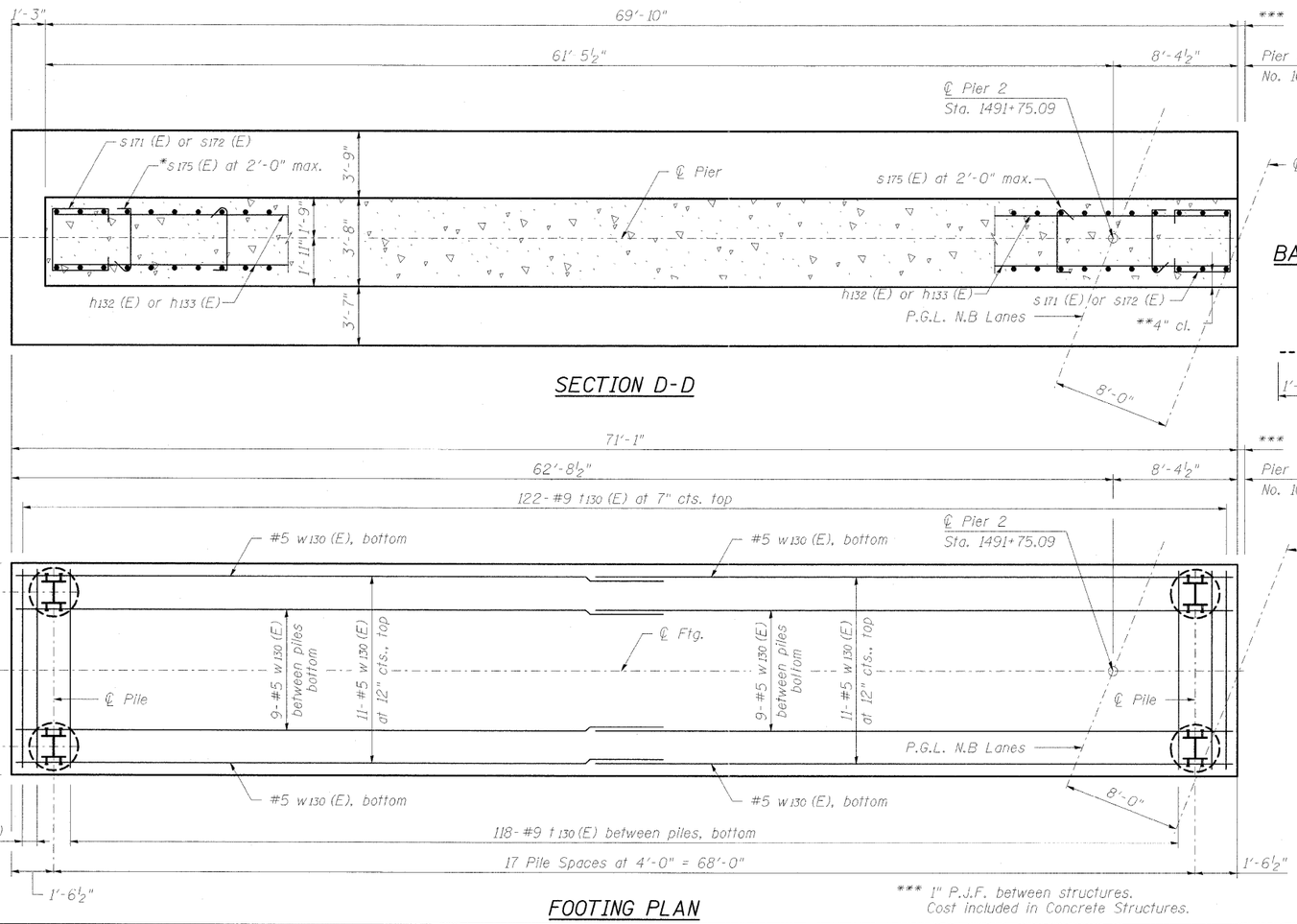
BAR v130 (E)



BAR s169 (E)

MIN. BAR LAP

#5 Bar = 3'-8"



SECTION D-D

FOOTING PLAN

*** 1" P.J.F. between structures. Cost included in Concrete Structures.

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h130 (E)	12	#5	38'-3"	
h131 (E)	4	#5	29'-1"	
h132 (E)	20	#8	38'-8"	
h133 (E)	20	#6	37'-0"	
p130 (E)	12	#9	41'-3"	
p131 (E)	18	#9	39'-7"	
p132 (E)	9	#9	3'-4"	
s160 (E)	30	#4	5'-4"	
s161 (E)	28	#6	8'-4"	
s162 (E)	25	#6	16'-0"	
s163 (E)	184	#6	13'-8"	
s164 (E)	30	#5	11'-7"	
s165 (E)	280	#5	9'-3"	
s166 (E)	420	#5	3'-5"	
s167 (E)	280	#5	3'-5"	
s168 (E)	280	#5	3'-5"	
s169 (E)	140	#5	8'-3"	
s170 (E)	40	#5	14'-11"	
s171 (E)	4	#8	19'-6"	
s172 (E)	10	#6	13'-0"	
s173 (E)	140	#7	14'-8"	
s174 (E)	140	#7	18'-2"	
s175 (E)	175	#5	4'-2"	
t130 (E)	244	#9	10'-8"	
u130 (E)	8	#6	12'-0"	
v130 (E)	120	#9	17'-9"	
w130 (E)	44	#5	37'-3"	
Structure Excavation		Cu. Yd.	955	
Concrete Structures		Cu. Yd.	226.2	
Concrete Encasement		Cu. Yd.	19.7	
Form Liner Textured Surface		Sq. Ft.	132	
Reinforcement Bars, Epoxy Coated		Pound	49710	
Furnishing Steel Piles HP14x89		Foot	1080	
Driving Piles		Foot	1080	
Test Pile Steel HP14x89		Each	0	
Concrete Sealer		Sq. Ft.	2612	
Staining Concrete Structures		Sq. Yd.	291	
Concrete Stain		Sq. Yd.	15	

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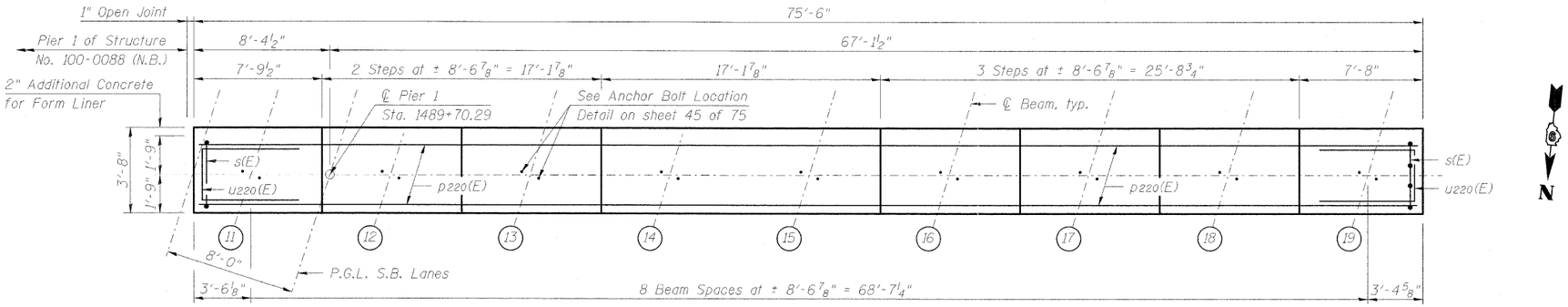
FILE NAME = ...\s-57\049_PIER DETAILS_II.dgn	USER NAME = Rob Heady	DESIGNED - JDJ	REVISED -
		CHECKED - REB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - REB	REVISED -

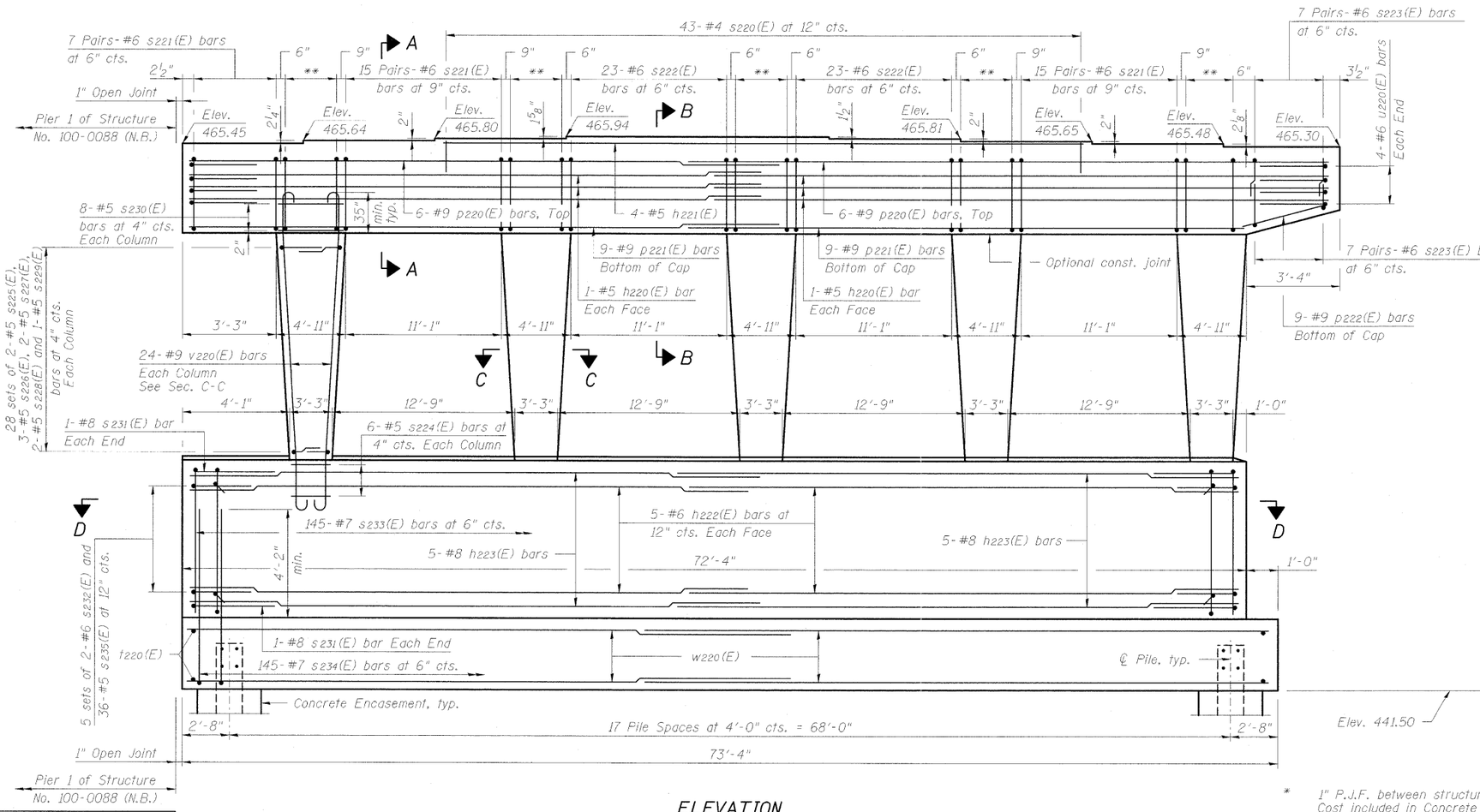
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 2 DETAILS
STRUCTURE NO. 100-0088 (N.B.)
SHEET NO. 56 OF 75 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(X1-6-2)HBK-2	WILLIAMSON	968	641
		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			



TOP PLAN



ELEVATION
(Looking South)

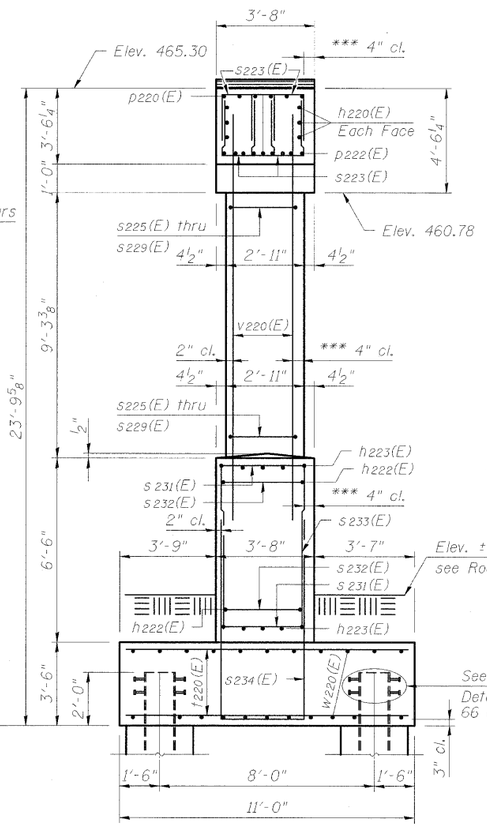
Notes:
Space reinforcement in cap to miss anchor bolts.
Pour steps monolithically with cap.
For details of piles and Concrete Encasement, see sheet 66 of 75.
For Bar Details, Bill of Material, Footing Plan, Sections A-A, B-B, C-C and D-D, see sheet 58 of 75.
For Aesthetic Treatment Details, see sheets 61 thru 63 of 75.
All surfaces of pier above proposed ground line shall be treated with concrete sealer.

PILE DATA

Type: Steel HP 14x89
Nominal Required Bearing: 659k
Factored Resistance Available: 363k
Est. Length: 28'
No. Production Piles: 36
No. Test Piles: 0
Estimated Top of Rock Elevation: 423.10

MIN. BAR LAP

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



END VIEW

* 1" P.J.F. between structures. Cost included in Concrete Structures.

** 5-#6 s222(E) at 12" cts.

*** 2" Additional Concrete for Form Liner.

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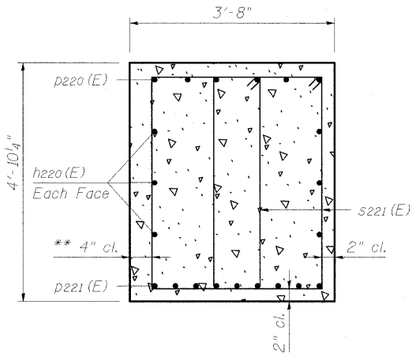
FILE NAME = ...\s-57\046_PIER 1_SB.dgn	USER NAME = Rob Heady	DESIGNED - JDJ	REVISED -
		CHECKED - REB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - REB	REVISED -

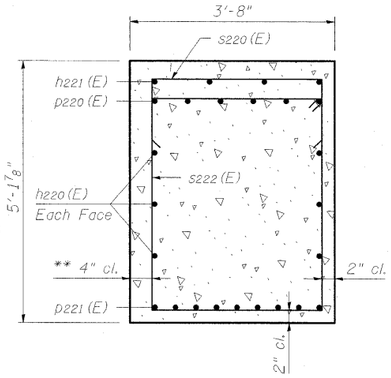
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 1
STRUCTURE NO. 100-0089 (S.B.)
SHEET NO. 57 OF 75 SHEETS

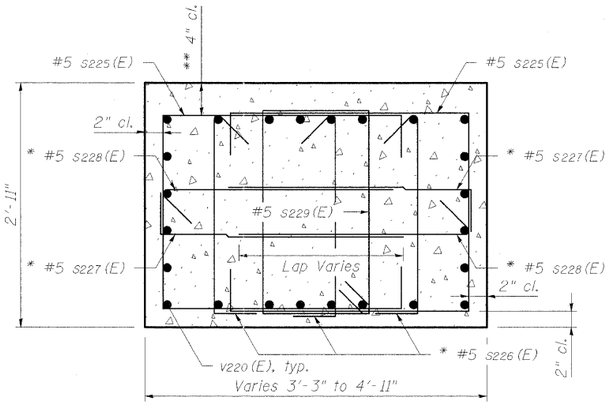
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(X1-6-2)HBK-2	WILLIAMSON	968	642
		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			



SECTION A-A



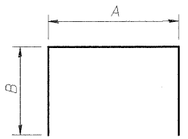
SECTION B-B



SECTION C-C

* Alternate ends at each level.

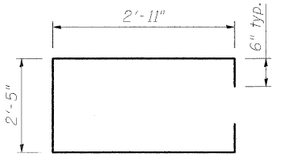
** 2" additional concrete for Form Liner.



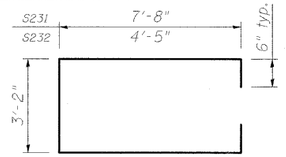
BARS (E)

A & B DIMENSIONS

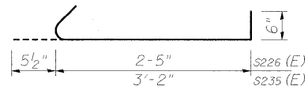
Bar	A	B
s220(E)	3'-2"	1'-1"
s223(E)	2'-0"	3'-2"
s233(E)	3'-2"	6'-3"
s234(E)	3'-2"	7'-6"
u220(E)	3'-2"	4'-5"



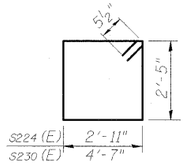
BAR s225(E)



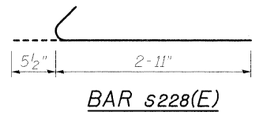
BAR s231(E) & BAR s232(E)



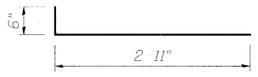
BAR s226(E) & BAR s235(E)



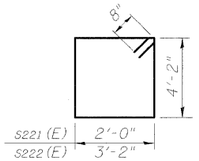
BAR s224(E) & BAR s230(E)



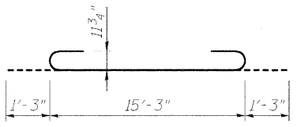
BAR s228(E)



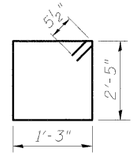
BAR s227(E)



BAR s221(E) & BAR s222(E)



BAR v220(E)



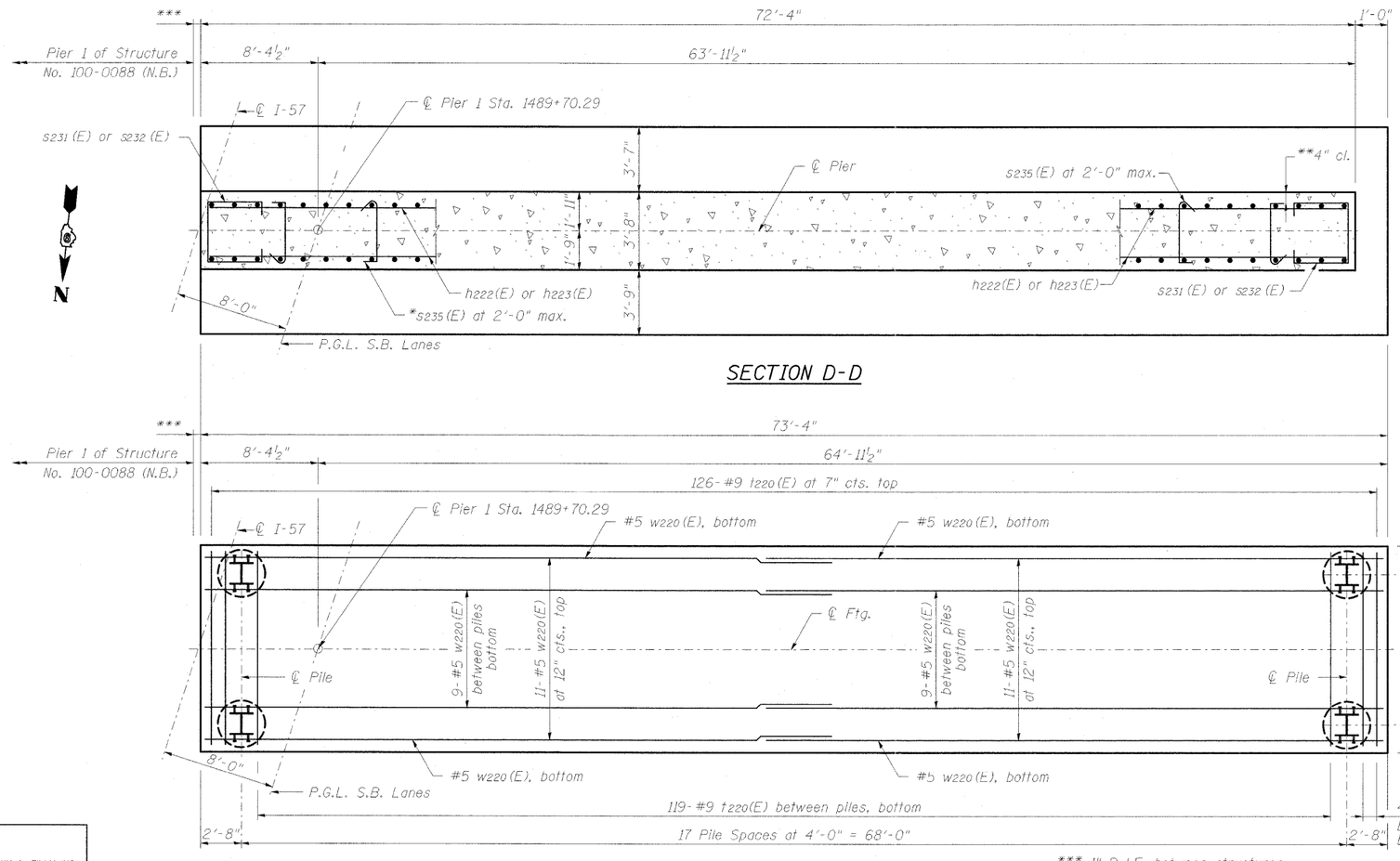
BAR s229(E)

MIN. BAR LAP

#5 Bar = 3'-8"

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h220(E)	12	#5	39'-6"	
h221(E)	4	#5	42'-6"	
h222(E)	20	#6	38'-3"	
h223(E)	20	#8	39'-11"	
p220(E)	12	#9	42'-6"	
p221(E)	18	#9	40'-10"	
p222(E)	9	#9	3'-4"	
s220(E)	43	#4	5'-4"	
s221(E)	74	#6	13'-8"	
s222(E)	71	#6	16'-0"	
s223(E)	28	#6	8' 4"	
s224(E)	30	#5	11'-7"	
s225(E)	280	#5	9'-3"	
s226(E)	420	#5	3'-5"	
s227(E)	280	#5	3'-5"	
s228(E)	280	#5	3'-5"	
s229(E)	140	#5	8'-3"	
s230(E)	40	#5	14'-11"	
s231(E)	4	#8	19'-6"	
s232(E)	10	#6	13'-0"	
s233(E)	145	#7	15'-8"	
s234(E)	145	#7	18'-2"	
s235(E)	180	#5	4'-2"	
t220(E)	253	#9	10'-8"	
u220(E)	8	#6	12'-0"	
v220(E)	120	#9	17'-9"	
w220(E)	44	#5	38'-5"	
Structure Excavation		Cu. Yd.	1110	
Concrete Structures		Cu. Yd.	239.1	
Concrete Encasement		Cu. Yd.	19.7	
Form Liner Textured Surface		Sq. Ft.	127	
Reinforcement Bars, Epoxy Coated		Pound	49940	
Furnishing Steel Piles HP14x89		Foot	1008	
Driving Piles		Foot	1008	
Test Pile Steel HP14x89		Each	0	
Concrete Sealer		Sq. Ft.	2771	
Staining Concrete Structure		Sq. Yd.	308	
Concrete Stain		Sq. Yd.	15	



FOOTING PLAN

*** 1" P.J.F. between structures. Cost included in Concrete Structures.

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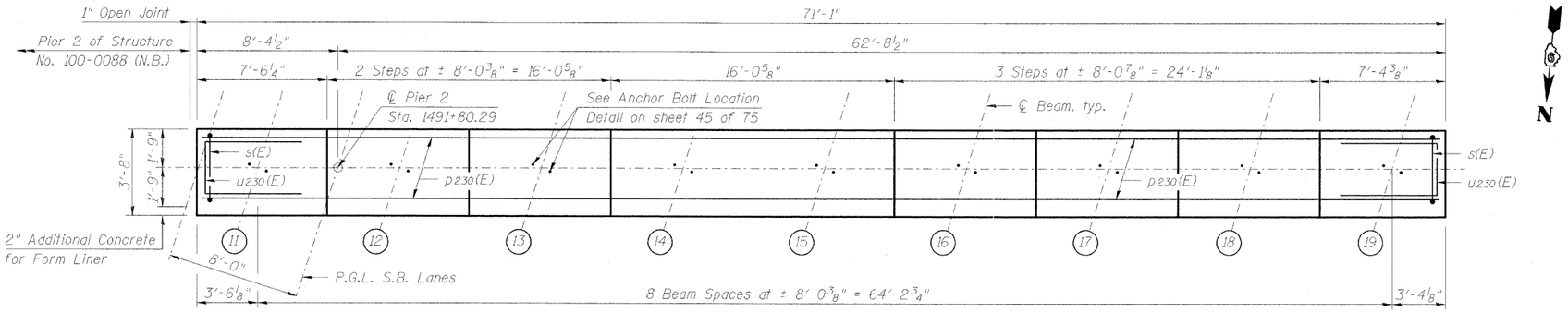
ROCKFORD, IL ■ PEORIA, IL ■ CHICAGO, IL

FILE NAME = ...\s-57\048a_PIER DETAILS_1.dgn	USER NAME = Rob Heady	DESIGNED - JDJ	REVISED -
		CHECKED - REB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - REB	REVISED -

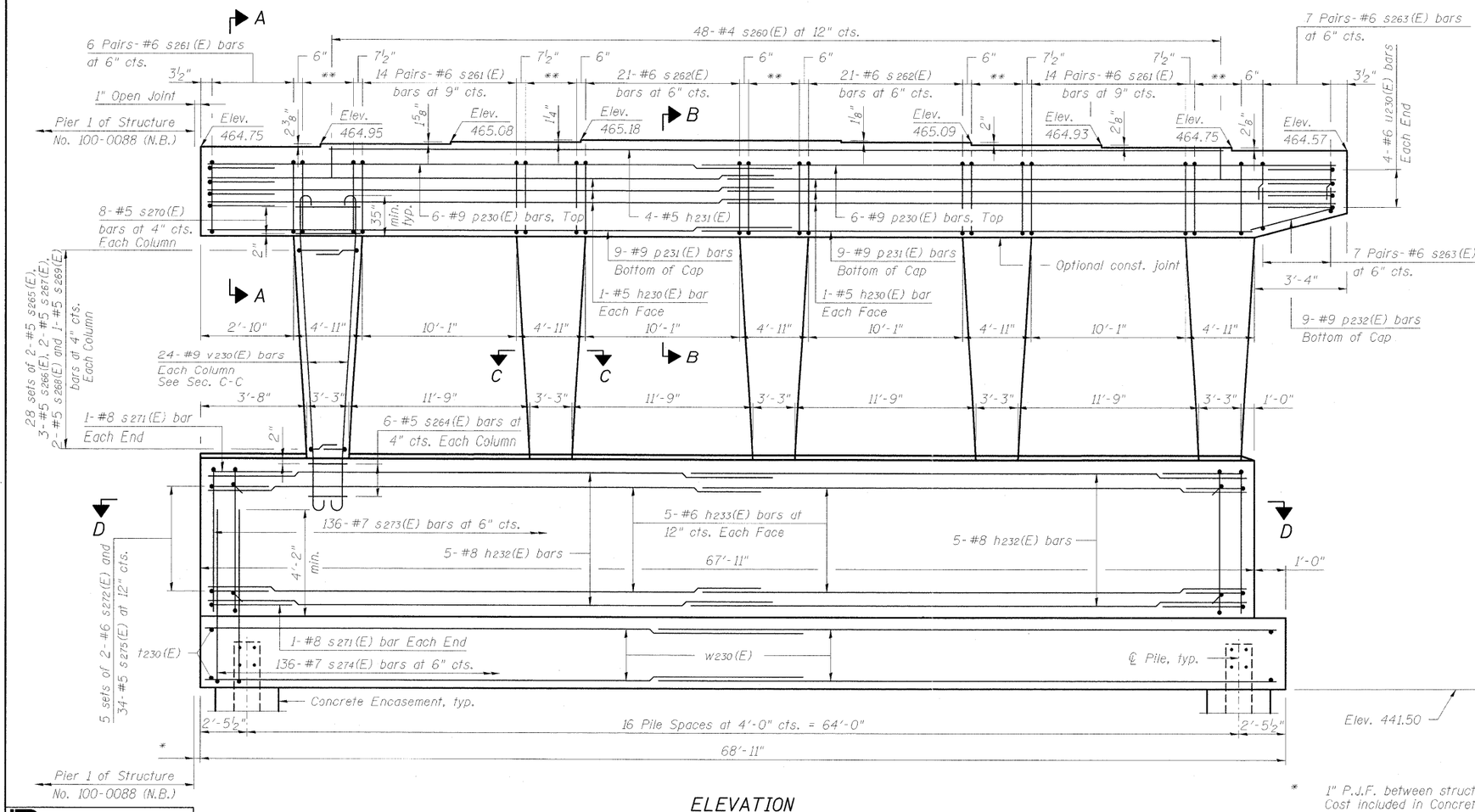
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 1 DETAILS
STRUCTURE NO. 100-0089 (S.B.)
SHEET NO. 58 OF 75 SHEETS

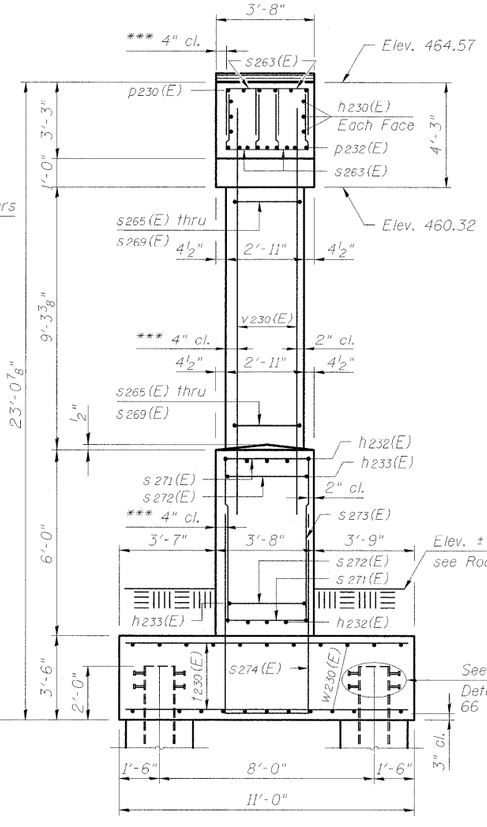
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(X1-6-2)HBK-2	WILLIAMSON	968	643
		CONTRACT NO. 78182		
		ILLINOIS FED. AID PROJECT		



TOP PLAN



ELEVATION
(Looking South)



END VIEW

Notes:
Space reinforcement in cap to miss anchor bolts.
Pour steps monolithically with cap.
For details of piles and Concrete Encasement, see sheet 66 of 75.
For Bar Details, Bill of Material, Footing Plan, Sections A-A, B-B, C-C and D-D, see sheet 60 of 75.
For Aesthetic Treatment Details, see sheets 61 thru 63 of 75.
All surfaces of pier above proposed ground line shall be treated with concrete sealer.

PILE DATA

Type: Steel HP 14x89
Nominal Required Bearing: 700k
Factored Resistance Available: 385k
Est. Length: 30'
No. Production Piles: 34
No. Test Piles: 0
Estimated Top of Rock Elevation: 415.10

MIN. BAR LAP

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

* 1" P.J.F. between structures. Cost included in Concrete Structures.

** 5-#6 s262(E) at 12" cts.

*** 2" Additional Concrete for Form Liner.

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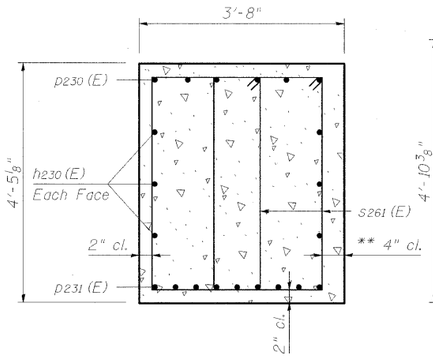
FILE NAME = ...\i-57\047_PIER 2_SB.dgn	USER NAME = Rob Heady	DESIGNED - JDJ	REVISED -
		CHECKED - REB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - REB	REVISED -

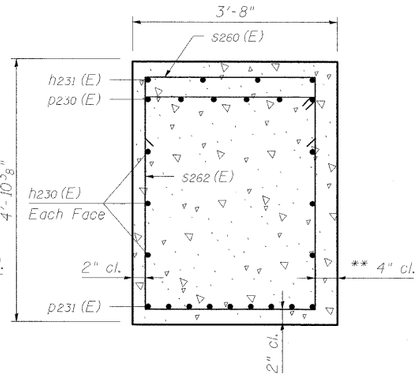
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 2
STRUCTURE NO. 100-0089 (S.B.)
SHEET NO. 59 OF 75 SHEETS

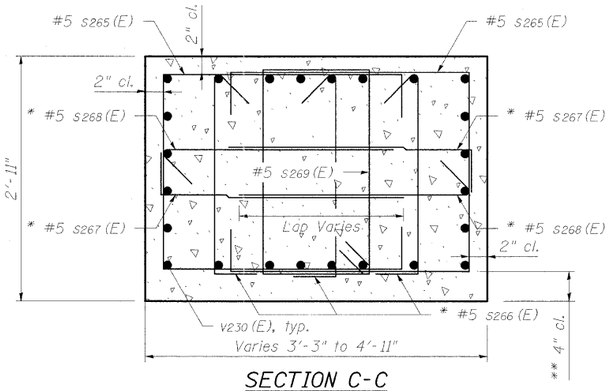
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(X1-6-2)HBK-2	WILLIAMSON	968	644
		CONTRACT NO. 78182		
		ILLINOIS	FED. AID PROJECT	



SECTION A-A



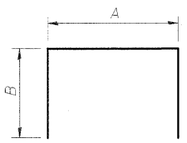
SECTION B-B



SECTION C-C

* Alternate ends at each level.

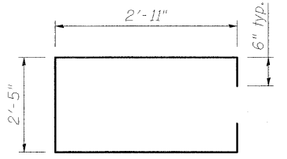
** 2" additional concrete for Form Liner.



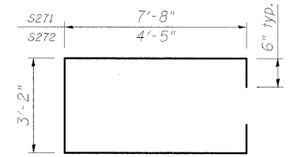
BARS (E)

A & B DIMENSIONS

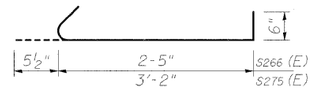
Bar	A	B
s260 (E)	3'-2"	1'-1"
s263 (E)	3'-2"	3'-0"
s273 (E)	3'-2"	5'-9"
s274 (E)	3'-2"	7'-6"
u230 (E)	3'-2"	4'-5"



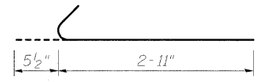
BAR s265(E)



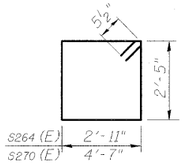
BAR s271(E) & BAR s272(E)



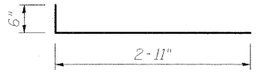
BAR s266(E) & BAR s275(E)



BAR s268(E)



BAR s264(E) & BAR s270(E)



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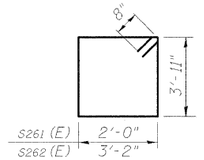
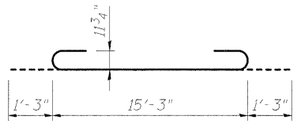
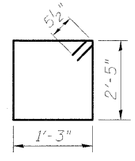


BAR s261(E) & BAR s262(E)



BAR v230(E)



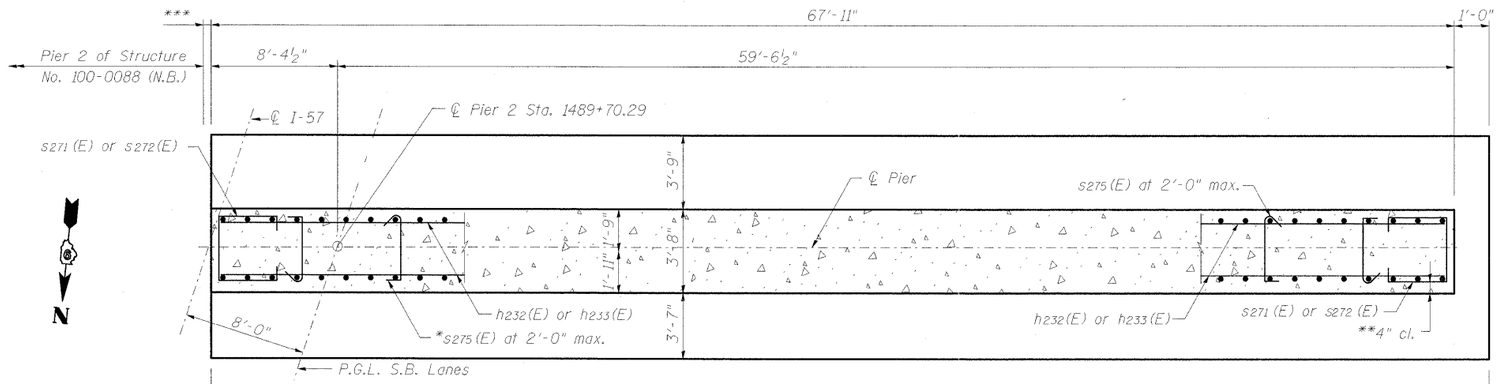
BAR s269(E)

MIN. BAR LAP

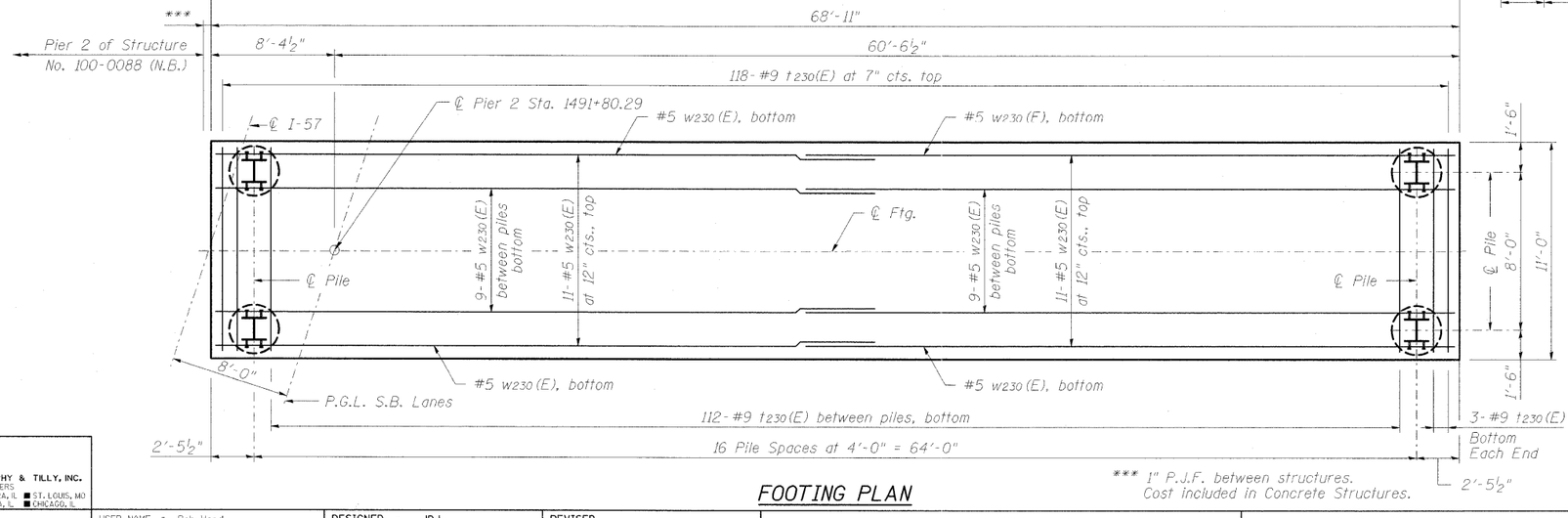
#5 Bar = 3'-8"

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h230 (E)	12	#5	37'-3"	
h231 (E)	4	#5	47'-10"	
h232 (E)	20	#8	37'-8"	
h233 (E)	20	#6	36'-1"	
p230 (E)	12	#9	40'-3"	
p231 (E)	18	#9	38'-8"	
p232 (E)	9	#9	3'-4"	
s260 (E)	48	#4	5'-4"	
s261 (E)	68	#6	13'-2"	
s262 (E)	67	#6	15'-6"	
s263 (E)	28	#6	9'-2"	
s264 (E)	30	#5	11'-7"	
s265 (E)	280	#5	9'-3"	
s266 (E)	420	#5	3'-5"	
s267 (E)	280	#5	3'-5"	
s268 (E)	280	#5	3'-5"	
s269 (E)	140	#5	8'-3"	
s270 (E)	40	#5	14'-11"	
s271 (E)	4	#8	19'-6"	
s272 (E)	10	#6	13'-0"	
s273 (E)	136	#7	14'-8"	
s274 (E)	136	#7	18'-2"	
s275 (E)	170	#5	4'-2"	
t230 (E)	236	#9	10'-8"	
u230 (E)	8	#6	12'-0"	
v230 (E)	120	#9	17'-9"	
w230 (E)	44	#5	36'-2"	
Structure Excavation		Cu. Yd.	985	
Concrete Structures		Cu. Yd.	218.8	
Concrete Encasement		Cu. Yd.	18.6	
Form Liner Textured Surface		Sq. Ft.	132	
Reinforcement Bars, Epoxy Coated		Pound	47600	
Furnishing Steel Piles HP14x89		Foot	1020	
Driving Piles		Foot	1020	
Test Pile Steel HP14x89		Each	0	
Concrete Sealer		Sq. Ft.	2534	
Staining Concrete Structure		Sq. Yd.	282	
Concrete Stain		Sq. Yd.	15	



SECTION D-D



FOOTING PLAN

*** 1" P.J.F. between structures.
Cost included in Concrete Structures.

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FILE NAME = ...\i-57\049a_PIER DETAILS_II.dgn

USER NAME = Rob Heady
PLOT SCALE =
PLOT DATE = 10/7/2011

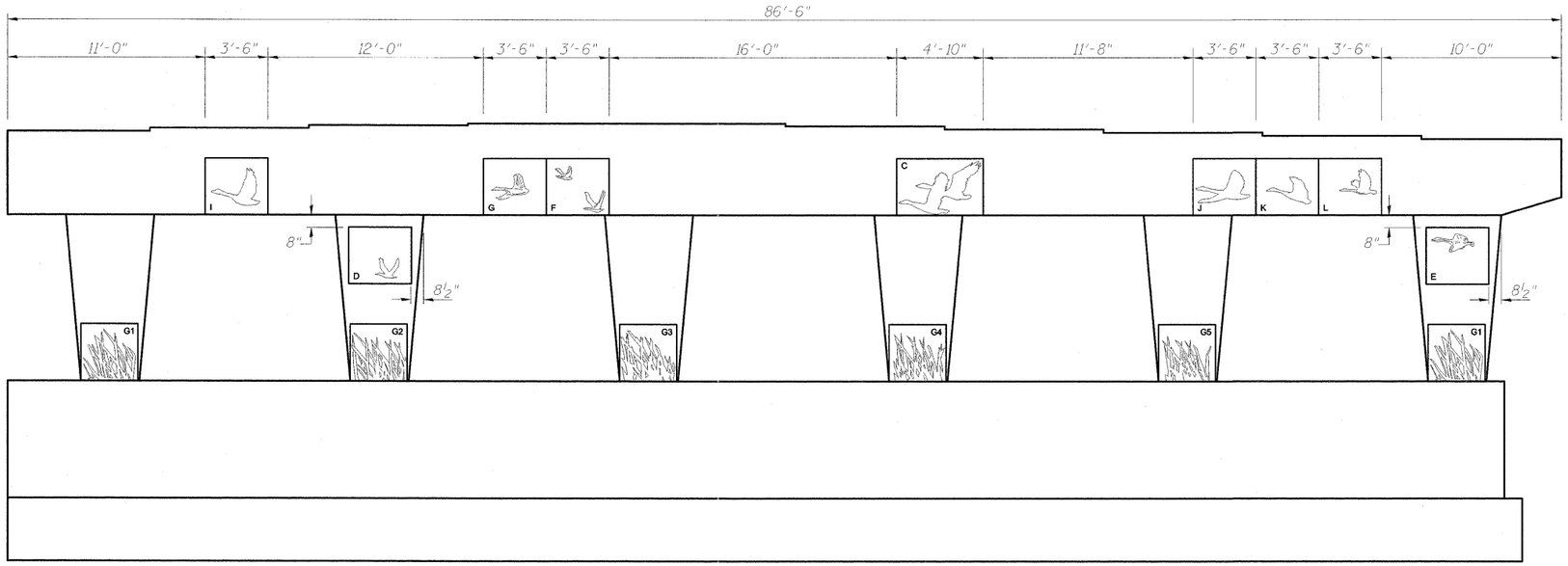
DESIGNED - JDJ
CHECKED - REB
DRAWN - GLD
CHECKED - REB

REVISED -
REVISED -
REVISED -
REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

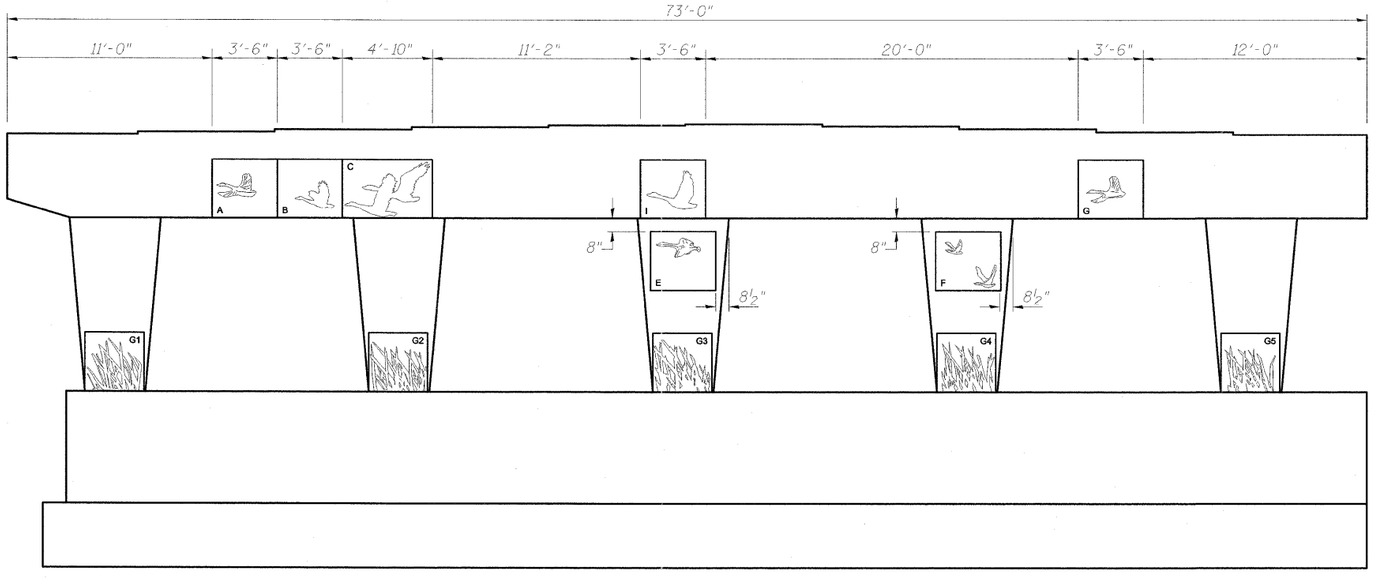
PIER 2 DETAILS
STRUCTURE NO. 100-0089 (S.B.)
SHEET NO. 60 OF 75 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(X1-6-2)HBK-2	WILLIAMSON	968	645
		CONTRACT NO. 78182		
		ILLINOIS FED. AID PROJECT		



ELEVATION - PIER 1

(Looking North)



ELEVATION - PIER 2

(Looking South)

NOTE:

1. See Sheet 63 of 75 for form liner panel details.

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ROCKFORD, IL ■ PEORIA, IL ■ CHICAGO, IL

FILE NAME = ...\1-57\045A_AE_PIER 1 & 2_NB.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - WLB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

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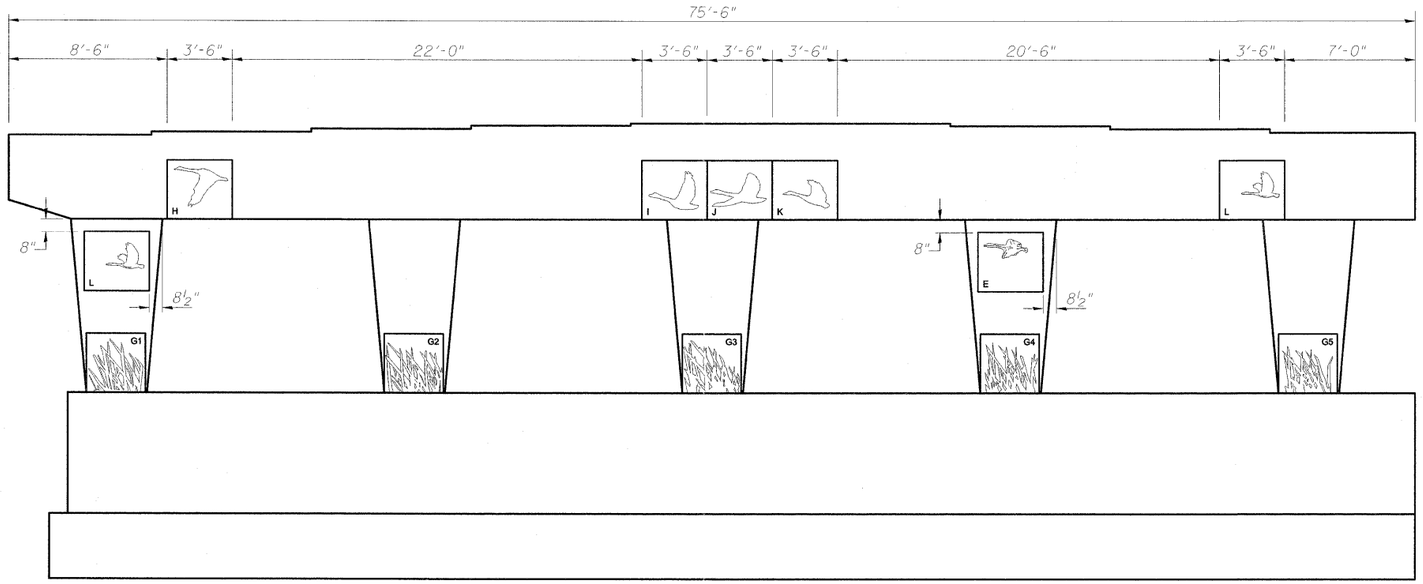
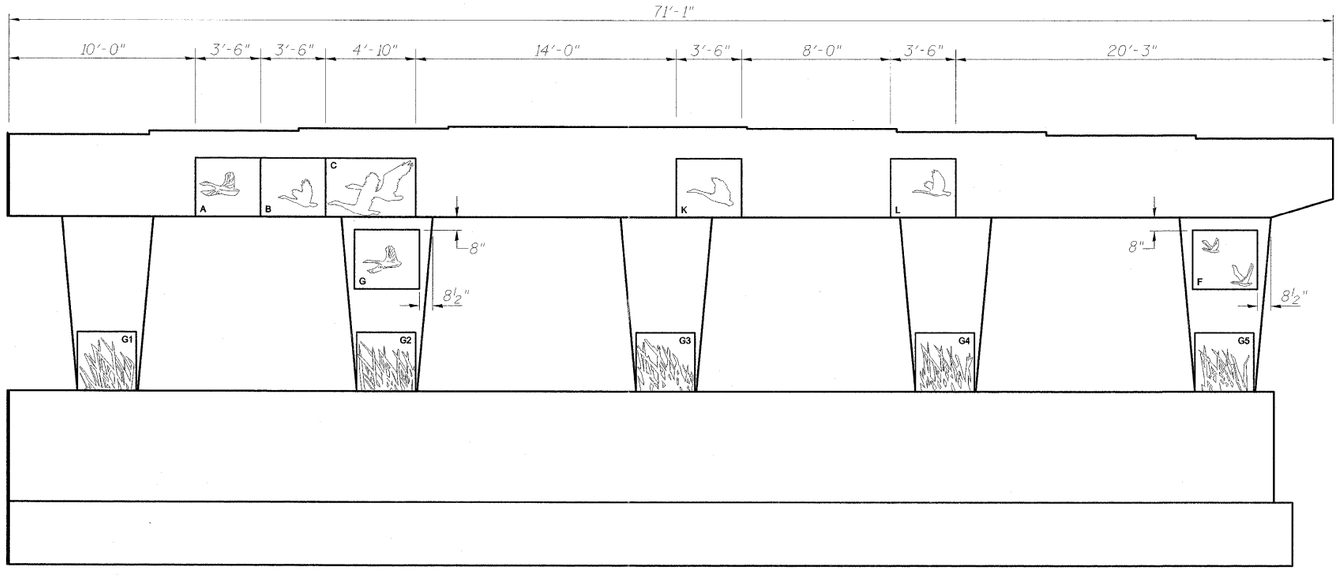
AESTHETIC DETAILS – PIER 1 AND PIER 2
STRUCTURE NO. 100-0088 (N.B.)
SHEET NO. 61 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	646
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS FED. AID PROJECT				



ELEVATION - PIER 1

(Looking North)



ELEVATION - PIER 2

(Looking South)

NOTE:

1. See Sheet 63 of 75 for form liner panel details.

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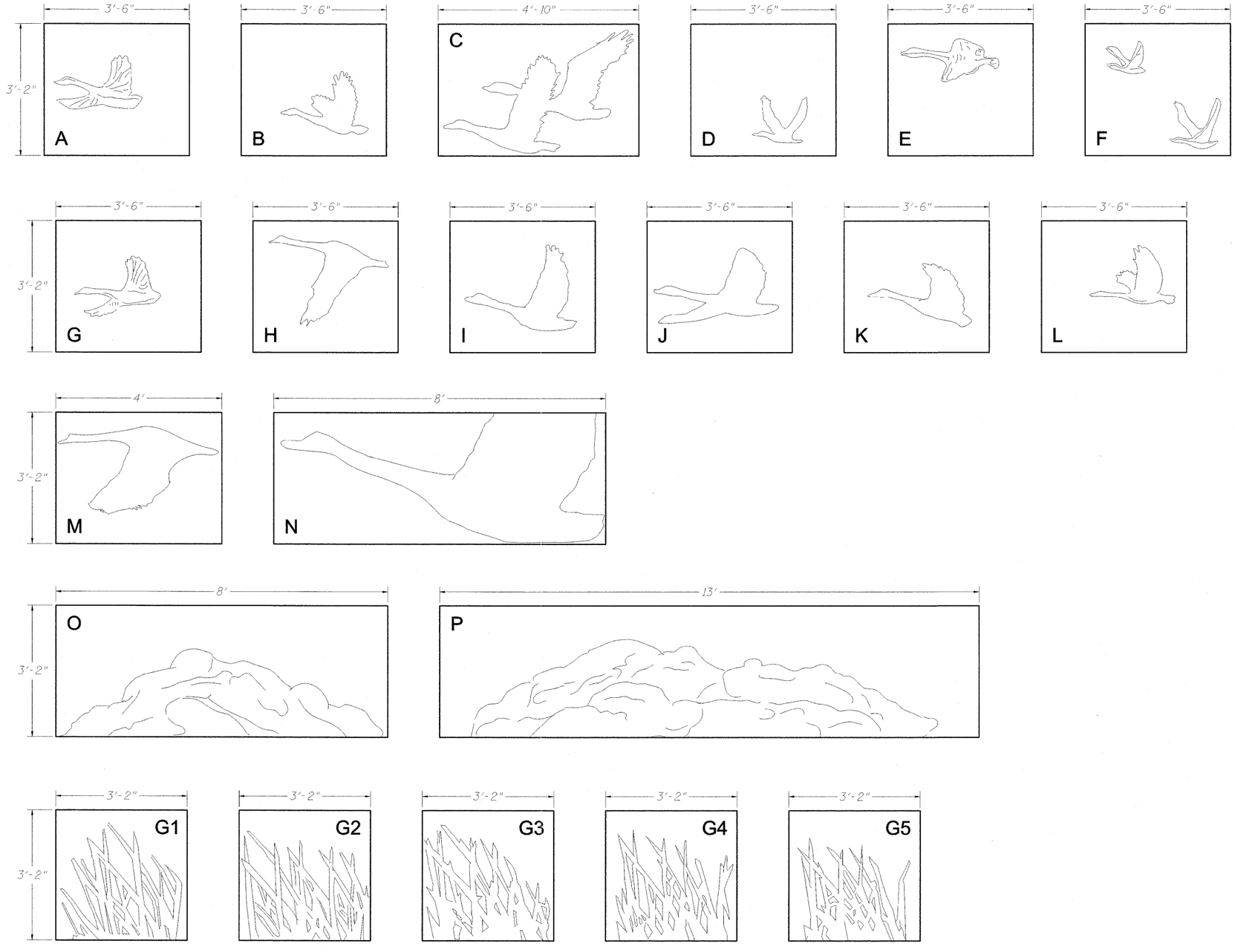
FILE NAME = ...\s-57\047A_AE_PIER 1 & 2_SB.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - WLB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

AESTHETIC DETAILS – PIER 1 AND PIER 2
STRUCTURE NO. 100-0089 (S.B.)
SHEET NO. 62 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	647
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS FED. AID PROJECT				



FORM LINER SERIES FOR PARAPET AND PIERS

See Special Provisions for Aesthetic Bridge Treatment

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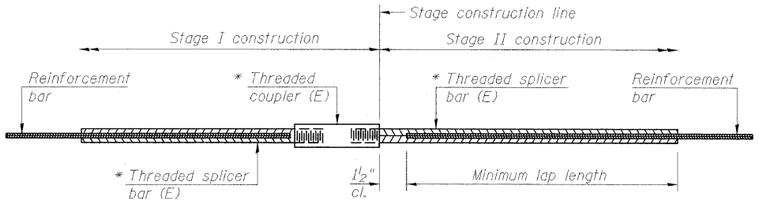
FILE NAME = ...\02446_AD_SUPERSTRUCTURE DETAILS_SB-NB.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - WLB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FORM LINER SERIES FOR PARAPET AND PIERS
STRUCTURE NO. 100-0088 (N.B.) & 100-0089 (S.B.)
SHEET NO. 63 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	648
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS FED. AID PROJECT				



STANDARD BAR SPLICER ASSEMBLY

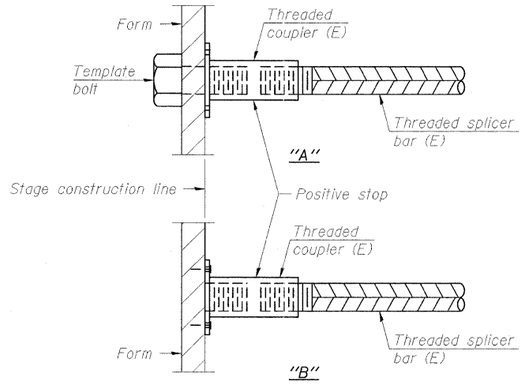
Minimum Lap Lengths					
Bar size to be spliced	Table 1	Table 2	Table 3	Table 4	Table 5
3, 4	1'-5"	1'-11"	2'-1"	2'-4"	2'-3"
5	1'-9"	2'-5"	2'-7"	2'-11"	2'-10"
6	2'-1"	2'-11"	3'-1"	3'-6"	3'-4"
7	2'-9"	3'-10"	4'-2"	4'-8"	4'-6"
8	3'-8"	5'-1"	5'-5"	6'-2"	5'-10"
9	4'-7"	6'-5"	6'-10"	7'-9"	7'-5"

Table 1: Black bar, 0.8 Class C
Table 2: Black bar, Top bar lap, 0.8 Class C
Table 3: Epoxy bar, 0.8 Class C
Table 4: Epoxy bar, Top bar lap, 0.8 Class C
Table 5: Epoxy bar, Top bar lap, Class B

Threaded splicer bar length = min. lap length + 1½" + thread length

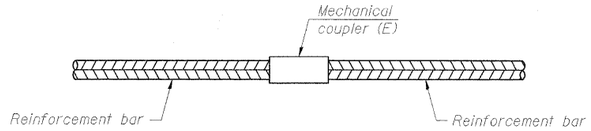
* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

Location	Bar size	No. assemblies required	Table for minimum lap length



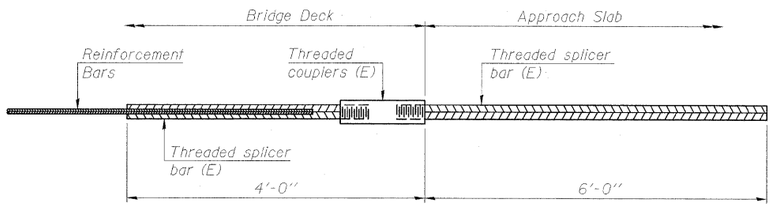
INSTALLATION AND SETTING METHODS

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



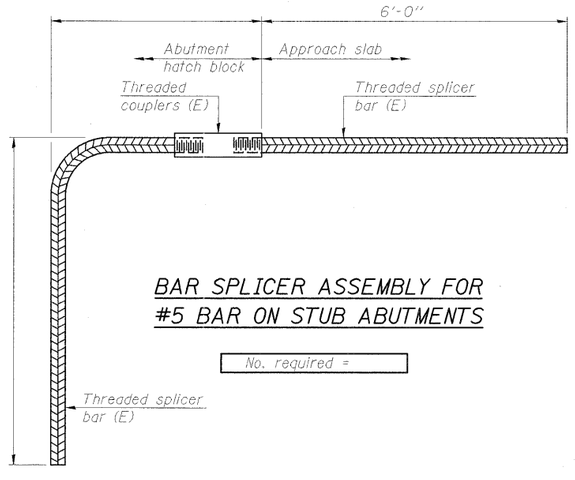
STANDARD MECHANICAL SPLICER

Location	Bar size	No. assemblies required



BAR SPLICER ASSEMBLY FOR #5 BAR ON INTEGRAL OR SEMI-INTEGRAL ABUTMENTS

No. required = 300
(152 - NB Structure, 148 - SB Structure)



BAR SPLICER ASSEMBLY FOR #5 BAR ON STUB ABUTMENTS

No. required =

NOTES

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

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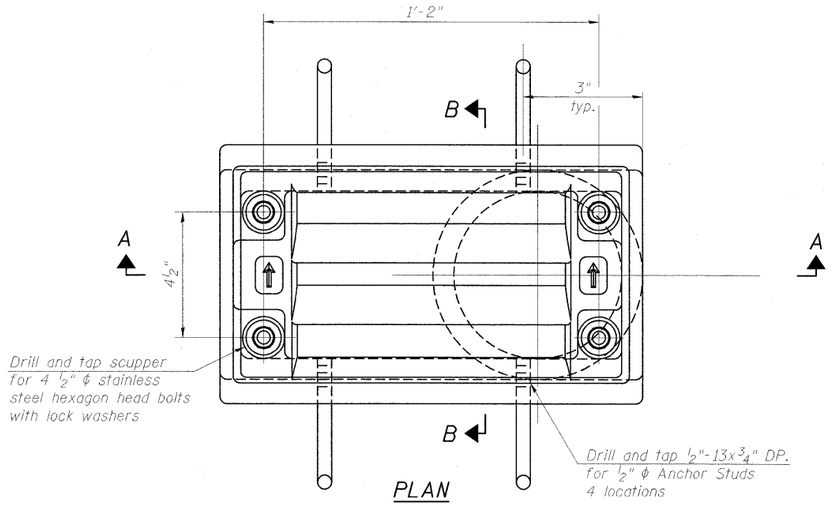
BSD-1 7-1-10

FILE NAME = ...\a-57\056_BAR SPLICER.dgn	USER NAME = Rob Heady	DESIGNED - JDJ	REVISED -
		CHECKED - REB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - REB	REVISED -

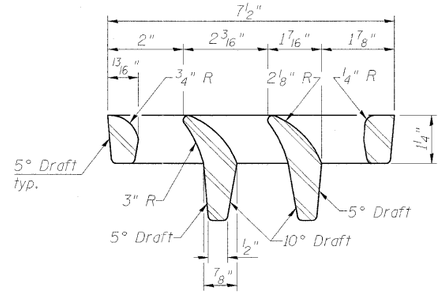
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BAR SPLICER ASSEMBLY AND MECHANICAL SPLICER DETAILS
STRUCTURE NO. 100-0088 (N.B.) & 100-0089 (S. B.)
SHEET NO. 64 OF 75 SHEETS

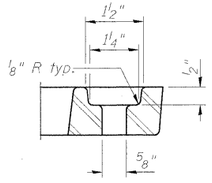
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(X1-6-2)HBK-2	WILLIAMSON	968	649
		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			



PLAN



VANE GRATE DETAIL



BOLT HOLE DETAIL

Notes:

All cast iron parts shall be gray iron conforming to the requirements of AASHTO M 105, Class 35B.

Bolts, anchor studs, washers and nuts shall conform to the requirements of ASTM A 307 and shall be galvanized according to AASHTO M 232.

Downspouts located on the exterior side of a painted steel fascia beam shall be painted with the finish coat specified for the exterior side of the fascia beam.

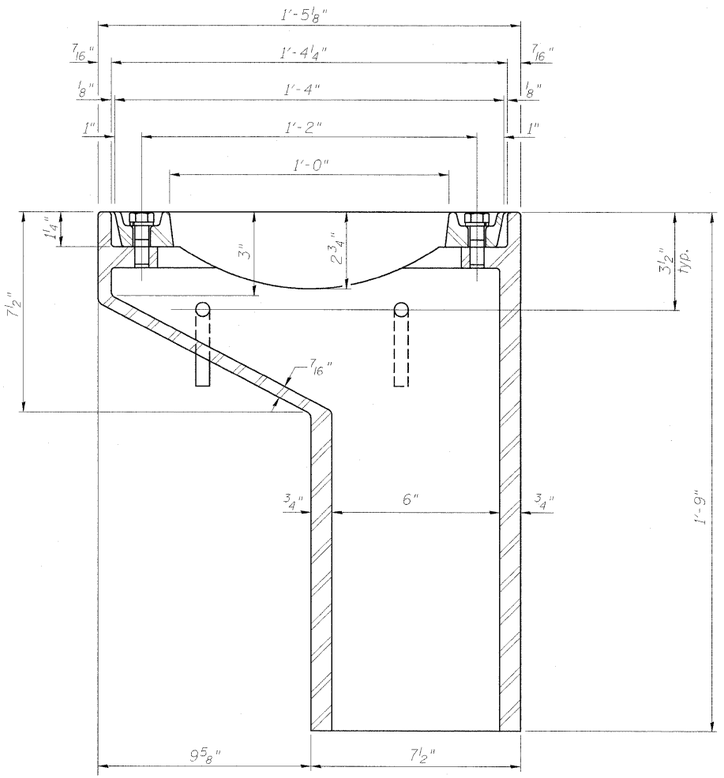
As an alternate, bolts, anchor studs, washers and nuts may be stainless steel according to Article 1006.29(d) of the Standard Specifications.

Structural steel weldments of equal sections and of the same configuration may be substituted for the cast iron scupper frame. Fillet or full penetration welds shall be used for the weldments. Details shall be submitted to the Engineer for approval. Structural steel weldments shall not be substituted for the cast iron scupper grate. Structural steel frames and downspouts shall be galvanized according to AASHTO M111.

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

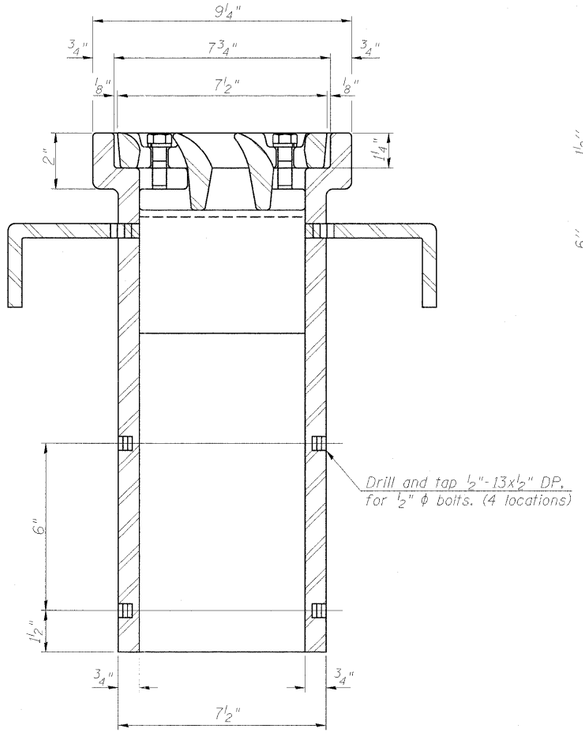
Cost of the Grate, Frame, Downspout, Anchor Studs, Bolts, Washers and Nuts including complete installation of the scupper shall be paid for at the contract unit price each for Drainage Scupper, DS-11.

Alternate fiberglass downspout conforming to ASTM D 2996 with a short-time rupture strength hoop tensile stress of 30,000 psi min. may be used in lieu of the cast iron or steel equivalent.

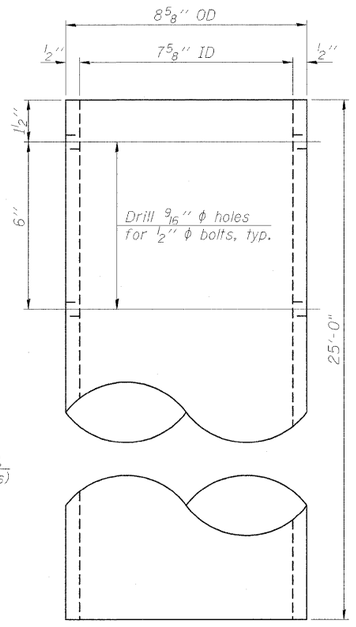


SECTION A-A

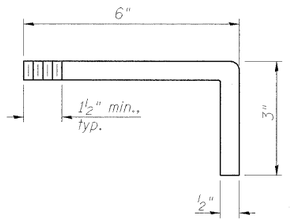
See sheets 22 and 26 of 75 for scupper location relative to parapet.



SECTION B-B



DOWNSPOUT



ANCHOR STUD DETAIL

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Drainage Scupper, DS-11	Each	8

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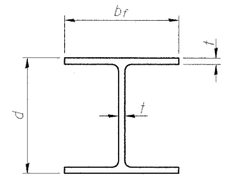
FILE NAME = ...\i-57\050_SCUPPER DETAILS_1.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - WLB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10///2011	CHECKED - BPD	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

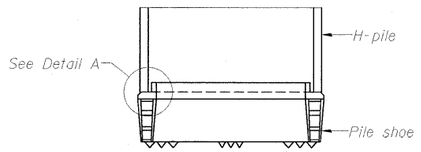
DRAINAGE SCUPPER, DS-11
STRUCTURE NO. 100-0088 (N.B.) & 100-0089 (S.B.)
SHEET NO. 65 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	650
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS FED. AID PROJECT				

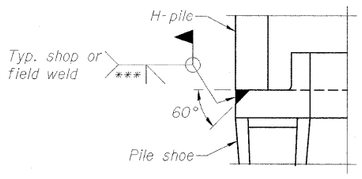


STEEL PILE TABLE

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

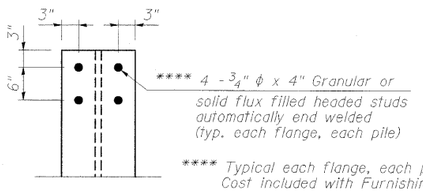


ELEVATION



DETAIL A

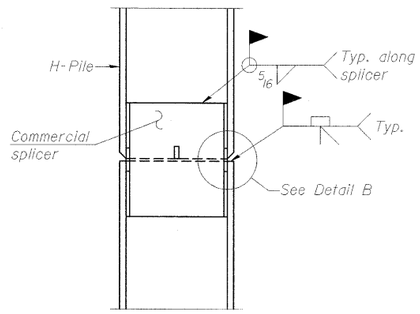
H-PILE SHOE ATTACHMENT



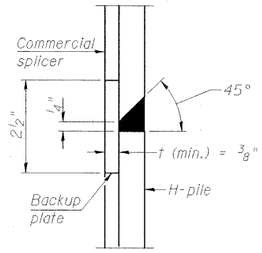
**** 4 - $\frac{3}{4}$" ϕ x 4" Granular or solid flux filled headed studs automatically end welded (typ. each flange, each pile)

**** Typical each flange, each pile. Cost included with Furnishing Piles.

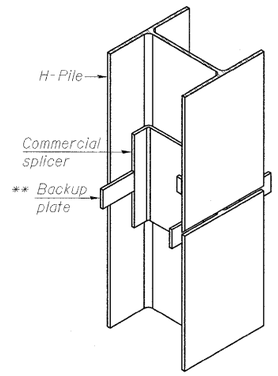
TOP OF PILE DETAIL



ELEVATION

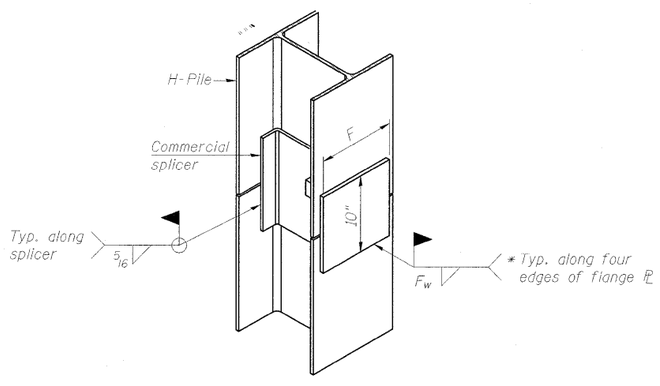


DETAIL "B"



ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE



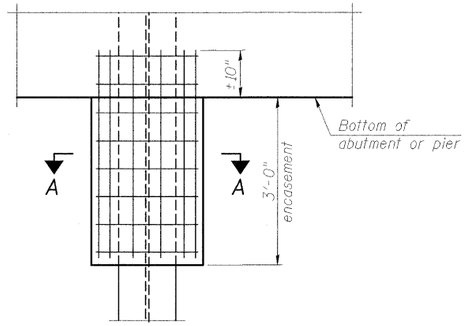
ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE ALTERNATE

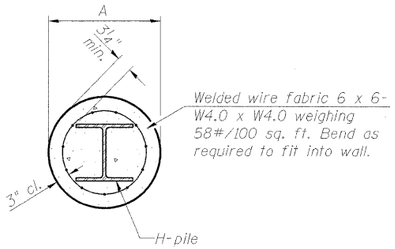
* Interrupt welds $\frac{1}{4}$" from end of web and/or each flange.

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

*** Weld size per pile shoe manufacturer ($\frac{5}{16}$" min.).



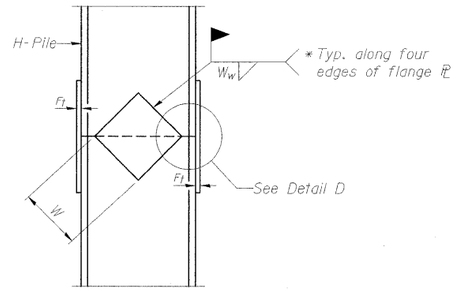
ELEVATION



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

SECTION A-A

PILE ENCASEMENT



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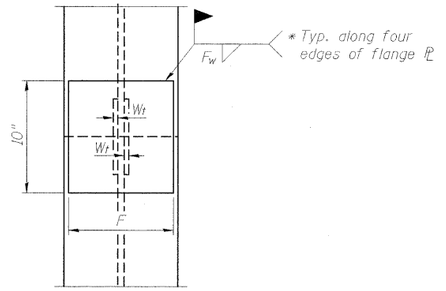
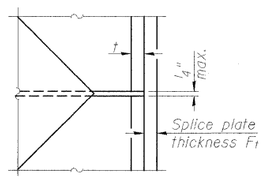


END VIEW



DETAIL D

Designation	F	F_t	F_w	W	W_t	W_w
HP 14x117	$12\frac{1}{2}$"	1"	$\frac{7}{8}$"	$7\frac{3}{4}$"	$\frac{5}{8}$"	$\frac{1}{2}$"
x102	$12\frac{1}{2}$"	$\frac{7}{8}$"	$\frac{3}{4}$"	$7\frac{3}{4}$"	$\frac{5}{8}$"	$\frac{1}{2}$"
x89	$12\frac{1}{2}$"	$\frac{3}{4}$"	$\frac{11}{16}$"	$7\frac{3}{4}$"	$\frac{5}{8}$"	$\frac{1}{2}$"
x73	$12\frac{1}{2}$"	$\frac{5}{8}$"	$\frac{9}{16}$"	$7\frac{3}{4}$"	$\frac{5}{8}$"	$\frac{1}{2}$"
HP 12x84	10"	$\frac{7}{8}$"	$\frac{11}{16}$"	$6\frac{1}{2}$"	$\frac{5}{8}$"	$\frac{1}{2}$"
x74	10"	$\frac{7}{8}$"	$\frac{11}{16}$"	$6\frac{1}{2}$"	$\frac{5}{8}$"	$\frac{1}{2}$"
x63	10"	$\frac{5}{8}$"	$\frac{1}{2}$"	$6\frac{1}{2}$"	$\frac{1}{2}$"	$\frac{3}{8}$"
x53	10"	$\frac{5}{8}$"	$\frac{1}{2}$"	$6\frac{1}{2}$"	$\frac{1}{2}$"	$\frac{3}{8}$"
HP 10x57	8"	$\frac{3}{4}$"	$\frac{9}{16}$"	$5\frac{1}{4}$"	$\frac{1}{2}$"	$\frac{3}{8}$"
x42	8"	$\frac{5}{8}$"	$\frac{9}{16}$"	$5\frac{1}{4}$"	$\frac{1}{2}$"	$\frac{3}{8}$"
HP 8x36	7"	$\frac{5}{8}$"	$\frac{7}{16}$"	$4\frac{1}{4}$"	$\frac{1}{2}$"	$\frac{3}{8}$"

WELDED PLATE FIELD SPLICE

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

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ROCKFORD, IL ■ PEORIA, IL ■ CHICAGO, IL

FILE NAME = ...\i-57\057_HP PILE DETAILS.dgn	USER NAME = Rob Heady	DESIGNED - JDJ	REVISED -
		CHECKED - REB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED REB	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

HP PILE DETAILS
STRUCTURE NO. 100-0088 (N.B.) & 100-0089 (S.B.)
SHEET NO. 66 OF 75 SHEETS

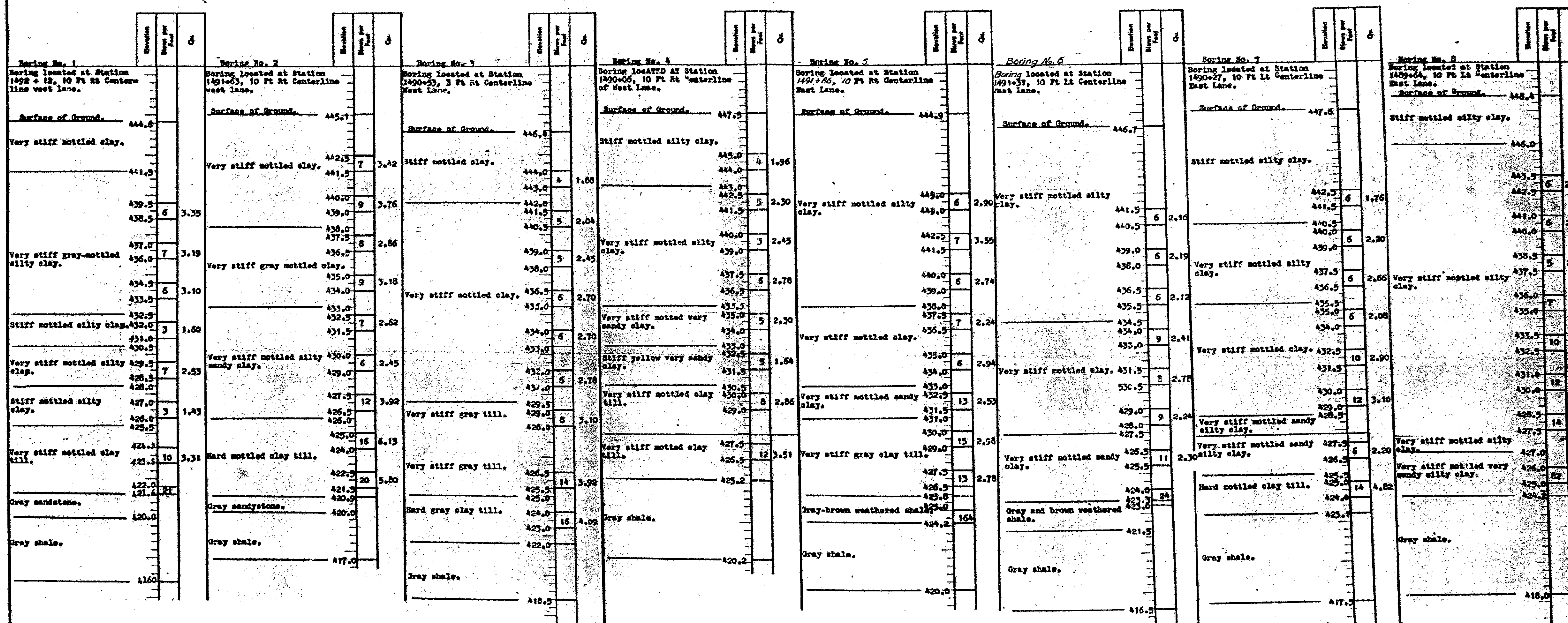
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(X1-6-2)HBK-2	WILLIAMSON	968	651
		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			

Boring Nos. B1959-1 thru B1959-8

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

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.I. 57	XI-6HB-1, XI-6HB-2	Williamson	45	13

SHEET NO. 2
13 SHEETS



Note:
Qu = Unconfined compressive strength in Tons per sq. ft.
Hammer weight = 350 lbs.
Drop of hammer = 12"

DESIGNED J. Barraza
CHECKED J. Kellogg
DRAWN Jorge Barraza
CHECKED G.K. J.B.S.

Mar 31 1959
EXAMINED
PASSED
APPROVED

BORING DATA
F.A.I. RT. 57 - SEC. XI - 6HB-1
WILLIAMSON COUNTY
STA. 1490+79.7 & 1491+10.38

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CRAWFORD MURPHY & TILLY, INC.
CONSULTING ENGINEERS
SPRINGFIELD, IL · AURORA, IL · ST. LOUIS, MO
ROCKFORD, IL · PEORIA, IL · CHICAGO, IL

FILE NAME = ...\i-57\058_BORING LOGS 1.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	BORING LOGS I STRUCTURE NO. 100-0088 (N.B.) & 100-0089 (S.B.)	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		CHECKED - WLB	REVISED -			*	(X1-6-2)HBK-2	WILLIAMSON	968	652
	PLOT SCALE =	DRAWN - GLD	REVISED -			* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -		SHEET NO. 67 OF 75 SHEETS		ILLINOIS FED. AID PROJECT			

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAI 57	*	WILLIAMSON	808	547
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 61
63 SHEETS

Contract #98951 *(X1-6-2)HBK-2

ILLINOIS DEPARTMENT OF TRANSPORTATION
District Nine Materials

Bridge Foundation
Boring Log
Sheet 1 of 2

FAI 57 Over ILL Rte 13
Route: FAI 57 Structure Number: 100-0008, 100-0009 Date: 06/13/2000
Section X1-6HB-1 Bored By: Bryan Keller
County: Williamson Location: S NCL Marion Checked By: R Moberly

Boring No 1-S
Station 1489+81
Offset 20' Rt CL Median
Ground Surface 470.5 Ft

Surf Wat Elev:
Ground Water Elevation
when Drilling 431
At Completion 454.5
At: Hrs:

Description	Elev. (bottom)	DEPTH	BLOW	Qu tsf	W%
Stiff, moist, brown mottled grey, Silty Clay A-6			2, 2, 2	1.5P	18
	463.5	5.0	2, 5, 7	1.4B	19
Stiff, moist, brown mottled grey, Clay to Silty Clay A7-6	461.0		2, 4, 4	1.5B	22
Stiff, moist, brown mottled grey, Silty Clay to Clay A-6	458.5	10.0	2, 3, 5	1.1B	19
Very stiff, moist, brown, Clay to Silty Clay A7-6	456.0		2, 3, 4	2.3B	18
Stiff, moist, brown mottled grey, Silty Clay to Silty Clay Loam A7-6	453.5	15.0	1, 3, 3	1.4B	23
Very stiff, moist, brown mottled grey, Silty Clay A-6	451.0		1, 4, 4	2.8B	16
Stiff, moist, brown mottled grey, Silty Clay A7-6	448.5	20.0	1, 3, 4	1.5S	23
Stiff, moist, grey, Silty Clay Loam A-6	446.0		2, 3, 4	1.5B	22
		25.0	1		
Very stiff, moist, grey mottled brown, Clay A7-6	443.5		3, 4	2.3B	26
Stiff, moist, brown mottled grey, Silty Clay A-6	441.0		1, 3, 3	1.4B	21
Medium, very moist, grey mottled brown, Silty Clay A7-6	438.5	30.0	1, 1, 2	0.9B	20
Stiff, moist, brown mottled grey, Silty Clay to Silty Clay Loam A7-6	436.0		1, 1, 2	1.3S	21
Stiff, moist, brown mottled grey, Clay to Silty Clay A7-6		35.0	1, 2, 2	1.4S	21
	431.0		1, 4, 4	1.8B	16
Very stiff, moist, brown, Silty Clay A7-6	426.0	40.0	WH, 2, 2	2.1B	7
Very stiff, moist, grey, Clay Loam A-6 with Gravel and Coal	423.0	45.0	1, 4, 7	3.1B	23
Hard, dry, grey, weathered Clay Shale		50.0	56		

N-Std Pentr Test: 2" OD Sampler,
140# Hammer, 30" Fall (Type Fail. B-Bulge S-Shear E-Estimated P-Penetrometer)

Sheet 2 of 2
Date: 06/13/2000

Route: FAI 57
Section: X1-6HB-1
County: Williamson

Boring No: 1-S
Station: 1489+81
Offset: 20' Rt CL Median
Ground Surface: 470.5 Ft

Description	Elev. (bottom)	DEPTH	BLOW	Qu tsf	W%
Hard, dry, grey, weathered Clay Shale	418.5		37, 47		
Hard, dry, grey, Clay Shale			100/1"		
		55.0	100/1"		
		60.0	100/2"		
	408.0		100/2"		
		65.0			
		70.0			
		75.0			
		80.0			
		85.0			
		90.0			
		95.0			
		100.0			

Bottom of hole = 62.2 feet

Free water observed at 39.5 feet.

Elevation referenced to plans

To convert "N" values to "N60" values multiply by 1.25

N-Std Pentr Test: 2" OD Sampler,
140# Hammer, 30" Fall (Type Fail. B-Bulge S-Shear E-Estimated P-Penetrometer)

BORING LOGS (2000)
INTERSTATE 57 OVER IL. RT. 13
F.A.I. RT. 57 SEC. (X1-6-2)HBK-2
WILLIAMSON COUNTY
SN 100-0088 (NB) STA. 1490+79.58
SN 100-0089 (SB) STA. 1491+10.23

COOMBE-BLOXDORF P.C.
Engineers /Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

PROJECT NO. 06057
DATE 9/25/08
DRAWN BY TFG
CHECKED BY CME/MCB

PLOT DATE
FILE NAME
PLOT SCALE
USER NAME

CMT
CRAWFORD MURPHY & TILLY, INC.
CONSULTING ENGINEERS
SPRINGFIELD, IL ■ AURORA, IL ■ ST. LOUIS, MO
ROCKFORD, IL ■ PEORIA, IL ■ CHICAGO, IL

FILE NAME = ...\i-57\059_BORING LOGS II.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - WLB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BORING LOGS II
STRUCTURE NO. 100-0088 (N.B.) & 100-0089 (S.B.)
SHEET NO. 68 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	653
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
		ILLINOIS	FED. AID PROJECT	

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAI 57	*	WILLIAMSON	808	548
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 62
63 SHEETS

Contract #98951 *(X1-6-2)HBK-2

ILLINOIS DEPARTMENT OF TRANSPORTATION
District Nine Materials

Bridge Foundation Boring Log
Sheet 1 of 2

FAI 57 Over ILL Rte 13
Route: FAI 57   Structure Number: 100-0008, 100-0009   Date: 06/13/2000
Section X1-6RB-1   Bored By: Bryan Keller
County: Williamson   Location: S NCL Marion   Checked By: R Moberly

Boring No 2-S
Station 1492+43
Offset 21' Lt CL Median
Ground Surface 469.4 Ft

Surf Wat Elev:
Ground Water Elevation
when Drilling 427.4
At Completion 421.4
At: Hrs:

Description	Elev.	DEPTH	BLOW	Qu tsf	W%
Very stiff, moist, brown, Silty Clay A-6			2 4 3	2.5P	15
		5.0	3 7 7	2.5B	16
	462.4				
Stiff, moist, grey, Silty Clay to Silty Clay Loam A-6			2 3 6	1.8B	22
		10.0	2 5 6	1.6S	21
	457.4				
Stiff, moist, grey, Clay to Silty Clay A7-6			2 2 4	1.4B	21
	454.9				
Medium, very moist, grey mottled brown, Clay A7-6		15.0	1 2 3	0.8B	24
	452.4				
Stiff, moist to very moist, grey mottled brown, Silty Clay to Silty Clay Loam A-6			1 2 5	1.2S	23
		20.0	1 3 4	1.1S	22
	447.4				
Medium, very moist, grey mottled brown, Silty Clay to Silty Clay Loam A-6			1 3 3	0.9B	22
	444.9				
		25.0	2		
Stiff, moist to very moist, grey, Silty Clay to Silty Clay Loam A-6			3 4	1.4B	23
	442.4				
Stiff, moist, brown mottled grey, Clay A7-6			1 3 4	1.6B	27
	439.9				
Very stiff, moist, grey mottled brown, Clay A7-6		30.0	1 3 5	2.3B	19
			2 3 5	2.7S	17
	434.9				
Stiff, moist, brown mottled grey, Clay A7-6		35.0	1 3 3	1.9S	21
			1 2 4	1.4S	20
	429.9				
Very stiff, moist, brown mottled grey, Clay A7-6		40.0	1 2 3	2.1S	19
	424.9				
Stiff, very moist, brown mottled grey, Clay to Silty Clay A7-6		45.0	1 2 2	1.1B	19
	419.9				
Hard, dry, grey, Clay Shale	419.4	50.0	100/3"		

N-Std Pentr Test: 2" OD Sampler,
140# Hammer, 30" Fall (Type Fail. B-Bulge S-Shear E-Estimated P-Penetrometer)

Sheet 2 of 2
Date: 06/13/2000

Route: FAI 57
Section: X1-6HB-1
County: Williamson

Boring No: 2-S
Station: 1492+43
Offset: 21' Lt CL Median
Ground Surface: 469.4 Ft

Description	DEPTH	BLOW	Qu tsf	W%		DEPTH	BLOW	Qu tsf	W%
Bottom of hole = 49.8 feet Free water observed at 42.0 feet Elevation referenced to plans To convert "N" values to "N60" values multiply by 1.25	55.0					80.0			
	60.0					85.0			
	65.0					90.0			
	70.0					95.0			
	75.0					100.0			

N-Std Pentr Test: 2" OD Sampler,
140# Hammer, 30" Fall (Type Fail. B-Bulge S-Shear E-Estimated P-Penetrometer)

BORING LOGS (2000)
INTERSTATE 57 OVER IL. RT. 13
F.A.I. RT. 57 SEC. (X1-6-2)HBK-2
WILLIAMSON COUNTY
SN 100-0088 (NB) STA. 1490+79.58
SN 100-0089 (SB) STA. 1491+10.23

COOMBE-BLOXDORF P.C.
Engineers /Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

PROJECT NO. 06057
DATE 9/25/08
DRAWN BY TFC
CHECKED BY CME/MCB

PLOT DATE = $DATE$
FILE NAME = $FILE$
PLOT SCALE = $SCALE$
USER NAME = $USER$

CMT
CRAWFORD MURPHY & TILLY, INC.
CONSULTING ENGINEERS
SPRINGFIELD, IL ■ AURORA, IL ■ ST. LOUIS, MO
ROCKFORD, IL ■ PEORIA, IL ■ CHICAGO, IL

FILE NAME = ...\i-57\060_BORING LOGS III.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	BORING LOGS III STRUCTURE NO. 100-0088 (N.B.) & 100-0089 (S.B.)	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS / SHEET NO.
		CHECKED - WLB	REVISED -			*	(X1-6-2)HBK-2	WILLIAMSON	968 / 654
	PLOT SCALE =	DRAWN - GLD	REVISED -			* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182	
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -		SHEET NO. 69 OF 75 SHEETS		ILLINOIS	FED. AID PROJECT	

Kaskaskia Engineering Group, LLC

SOIL BORING LOG

Date 9/13/10

ROUTE FAI 57/FAP 331 DESCRIPTION FAI 57 over IL Rte 13 LOGGED BY KEG

SECTION (X1-6-2)HBK-2 LOCATION Marion; N 1/2 Section 14, TWP 9S, RNG 2E

COUNTY Williamson DRILLING METHOD CME 55LC/HSA HAMMER TYPE Automatic

STRUCT. NO. 100-0088 (NB) & 100-0089 (SB)
Station

BORING NO. B-1
Station 1489+00.70
Offset 121.4 ft Lt
Ground Surface Elev. 449.01 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter - ft
Upon Completion - ft
After Hrs. - ft

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Grass cover and topsoil	448.0			
FILL: Brown, silt, trace roots (A-4)		5		
		3 2	0.5 S	20
	446.0			
FILL: Grayish brown, silty clay (A-6)		2		
	444.5	2 2	0.5 B	26
SILTY CLAY: Gray and brown (A-7)	443.5			
SILTY CLAY: Brown and gray, some sand (A-6)		2		
		2 3	1.2 B	20
Becomes grayish brown		2		
		3 4	1.3 B	21
	438.5			
CLAY: Gray and brown, some sand (A-7)		2		
		3 4	1.8 B	20
Becomes brown		2		
		3 6	2.3 B	19
		2		
		4 5	1.9 B	19
Becomes brown and gray, trace sand, organics		2		
		3 3	1.2 B	24

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
CLAY: Gray and brown, some sand (A-7) *(continued)*		2		
Becomes gray, some sand, trace gravel		4 5	1.2 B	18
		9		
	424.5	18	-	8
CLAYEY SHALE: gray		50/3"		
	423.5			
SHALE: Gray		50/3" 50/1"	-	4
	420.2	50/2" 50/1"	-	4
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)

BBS, form 137 (Rev. 8-99)

CMT
CRAWFORD MURPHY & TILLY, INC.
CONSULTING ENGINEERS
SPRINGFIELD, IL ■ AURORA, IL ■ ST. LOUIS, MO
ROCKFORD, IL ■ PEORIA, IL ■ CHICAGO, IL

FILE NAME = ...\i-57\061_BORING LOGS IV.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - WLB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BORING LOGS IV
STRUCTURE NO. 100-0088 (N.B.) & 100-0089 (S.B.)
SHEET NO. 70 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	655
*	F.A.I. 57 AND F.A.P. 331	CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			

Kaskaskia Engineering Group, LLC

SOIL BORING LOG

Date 9/9/10

ROUTE FAI 57/FAP 331 DESCRIPTION FAI 57 over IL Rte 13 LOGGED BY KEG

SECTION (X1-6-2)HBK-2 LOCATION Marion; N 1/2 Section 14, TWP 9S, RNG 2E

COUNTY Williamson DRILLING METHOD CME 55LC/HSA HAMMER TYPE Automatic

STRUCT. NO. 100-0088 (NB) & 100-0089 (SB)
Station

BORING NO. B-2
Station 1489+26.76
Offset 77.0 ft Rt
Ground Surface Elev. 470.51 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter 442.0 ft
Upon Completion - ft
After Hrs. - ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
FILL: Brown, silty clay (A-7)			
	4		
	6 5	4.0 P	14
467.5			
FILL: Brown and gray, sandy clay, trace rock (A-6) LL-37, PL-19, PI-18			
	3		
-5	3 2	1.5 P	15
465.0			
FILL: Brown and gray, sandy clay (A-6)			
	4		
	3 4	3.5 B	17
462.5			
FILL: Dark gray, clayey shale, some rock			
	7		
-10	12 6	-	21
460.0			
FILL: Brown, silty clay (A-6)			
	8		
	5 6	3.5 B	20
457.5			
FILL: Gray and brown, clay (A-7)			
	4		
-15	4 5	1.2 S	17
455.0			
FILL: Gray and brown, silty clay (A-7)			
	3		
	3 5	3.0 P	20
Becomes brown			
	3		
-20	3 5	1.4 B	21
450.0			
FILL: Gray and brown, silty clay (A-6)			
	3		
	3 4	1.3 B	21
447.5			
CLAY: Gray and brown (A-7)			
	2		
-25	3 5	2.7 B	27
	2		
	1 2	<0.25 P	32
442.0 ▼			
SILTY CLAY: Gray and brown (A-7)	1		
-30	2 3	1.2 B	23
438.5			
CLAY: Brown and gray (A-7)			
	1		
-35	3 3	1.1 B	28
	1		
Some sand, trace gravel			
-40	2 3	1.5 P	21

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)

BBS, form 137 (Rev. 8-99)

Kaskaskia Engineering Group, LLC

SOIL BORING LOG

Date 9/9/10

ROUTE FAI 57/FAP 331 DESCRIPTION FAI 57 over IL Rte 13 LOGGED BY KEG

SECTION (X1-6-2)HBK-2 LOCATION Marion; N 1/2 Section 14, TWP 9S, RNG 2E

COUNTY Williamson DRILLING METHOD CME 55LC/HSA HAMMER TYPE Automatic

STRUCT. NO. 100-0088 (NB) & 100-0089 (SB)
Station

BORING NO. B-2
Station 1489+26.76
Offset 77.0 ft Rt
Ground Surface Elev. 470.51 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter 442.0 ft
Upon Completion - ft
After Hrs. - ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
CLAY: Brown and gray (A-7) *(continued)*			
428.5			
CLAYEY SHALE: Grayish brown			
	1		
-45	3 12	1.8 B	19
425.0			
COAL: Black	50/3" 50/2"	-	13
423.0			
CLAYEY SHALE: Gray	22		
-50	45 50	-	15
	100/1"	-	10
416.9			
End of Boring	100/1"	-	13
-55			
-60			

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)

BBS, form 137 (Rev. 8-99)

CMT
CRAWFORD MURPHY & TILLY, INC.
CONSULTING ENGINEERS
SPRINGFIELD, IL ■ AURORA, IL ■ ST. LOUIS, MO
ROCKFORD, IL ■ PEORIA, IL ■ CHICAGO, IL

FILE NAME = ...\i-57\062.BORING LOGS V.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - WLB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BORING LOGS V
STRUCTURE NO. 100-0088 (N.B.) & 100-0089 (S.B.)
SHEET NO. 71 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	656
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS FED. AID PROJECT				

Kaskaskia Engineering Group, LLC

SOIL BORING LOG

Page 1 of 1

Date 9/13/10

ROUTE FAI 57/FAP 331 DESCRIPTION FAI 57 over IL Rte 13 LOGGED BY KEG

SECTION (X1-6-2)HBK-2 LOCATION Marion; N 1/2 Section 14, TWP 9S, RNG 2E

COUNTY Williamson DRILLING METHOD CME 55LC/HSA HAMMER TYPE Automatic

STRUCT. NO. 100-0088 (NB) & 100-0089 (SB)
Station

BORING NO. B-3
Station 1489+35.12
Offset 81.0 ft Lt
Ground Surface Elev. 450.12 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter - ft
Upon Completion - ft
After Hrs. - ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
449.1				Grass cover and topsoil
	8			FILL: Dark brown, silty clay, trace roots
	8 5	4.5 P	16	(A-6)
				Becomes brown
446.1	2			
	2 5	4.5 P	12	FILL: Gray, clay (A-7)
-5 444.6				
	3			SILTY CLAY: Gray and brown (A-6)
	3 4	0.8 B	21	
442.1				
	2			CLAY: Gray and brown (A-7)
	2 4	0.7 B	21	
-10				
	2			Some sand
	2 4	1.4 B	19	
	2			
	2 3	0.6 B	20	
-15				
	5			Becomes brown and gray
	6 7	1.6 B	17	
	3			Becomes gray and brown
-20	3 5	0.9 B	21	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				CLAY: Gray and brown (A-7) *(continued)*
	2			Becomes brown, trace organics
	3 4	0.7 B	19	
	3			Becomes gray, trace coal
	6 8	2.2 B	17	
-25 424.6				
	7			CLAYEY SHALE: Gray and brown
423.1	17 50/2"	-	16	
				SHALE: Gray
421.3	50/3" 50/1"	-	4	
-30				Borehole continued with rock coring.
-35				
-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)

BBS, form 137 (Rev. 8-99)

Kaskaskia Engineering Group, LLC

ROCK CORE LOG

Page 1 of 1

Date 9/13/10

ROUTE FAI 57/FAP 331 DESCRIPTION FAI 57 over IL Rte 13 LOGGED BY KEG

SECTION (X1-6-2)HBK-2 LOCATION Marion; N 1/2 Section 14, TWP 9S, RNG 2E

COUNTY Williamson CORING METHOD Rotary, surface set diamond bit

STRUCT. NO. 100-0088 (NB) & 100-0089 (SB)
Station

CORING BARREL TYPE & SIZE NX conv dbl bbl split inner
Core Diameter 2 in
Top of Rock Elev. 424.62 ft
Begin Core Elev. 421.32 ft

BORING NO. B-3
Station 1489+35.12
Offset 81.0 ft Lt
Ground Surface Elev. 450.12 ft

DEPTH (ft)	CORE (#)	RECOVERY (%)	R.Q.D. (%)	CORE TIME (min/ft)	STRENGTH (tsf)	Description
421.32						CLAYEY SHALE: Gray
421.02	1	87	55	7.8		SHALE: Gray
-30						
	2	97	92	12		
	3	86	73	5.3		
415.12 -35						
414.62						CLAYEY SHALE: Gray
						SHALE: Gray
411.32						End of Boring
-40						
-45						

Color pictures of the cores Yes
Cores will be stored for examination until
The "Strength" column represents the uniaxial compressive strength of the core sample (ASTM D-2938)

BBS, form 138 (Rev. 8-99)

CMT
CRAWFORD MURPHY & TILLY, INC.
CONSULTING ENGINEERS
SPRINGFIELD, IL ■ AURORA, IL ■ ST. LOUIS, MO
ROCKFORD, IL ■ PEORIA, IL ■ CHICAGO, IL

FILE NAME = ...\i-57\003_BORING LOGS VI.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - WLB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BORING LOGS VI
STRUCTURE NO. 100-0088 (N.B.) & 100-0089 (S.B.)
SHEET NO. 72 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	657
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
		ILLINOIS FED. AID PROJECT		

Kaskaskia Engineering Group, LLC

SOIL BORING LOG

Page 1 of 1

Date 9/7/10

ROUTE FAI 57/FAP 331 DESCRIPTION FAI 57 over IL Rte 13 LOGGED BY KEG

SECTION (X1-6-2)HBK-2 LOCATION Marion; N 1/2 Section 14, TWP 9S, RNG 2E

COUNTY Williamson DRILLING METHOD CME 55LC/HSA HAMMER TYPE Automatic

STRUCT. NO. 100-0088 (NB) & 100-0089 (SB)
Station

BORING NO. B-4
Station 1491+59.54
Offset 73.6 ft Lt
Ground Surface Elev. 446.93 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter 415.9 ft ▼
Upon Completion - ft
After Hrs. - ft

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Grass cover and topsoil	445.9			
FILL: Grayish brown, silty clay, trace sand and crushed rock (A-6)		13		
		14	4.5	8
		13	P	
Becomes gray, no sand and rock	442.2	4		
		4	4.3	7
	-5	3	P	
FILL: Gray and brown, clay (A-7)	441.4			
CLAY: Grayish brown (A-7)		3		
		3	0.9	23
		4	B	
		3		
		3	1.7	19
	-10	4	B	
Becomes gray and brown, some sand		3		
		3	2.2	19
		4	B	
Becomes brown and gray		3		
		4	1.8	19
	-15	5	B	
		3		
		4	2.5	24
		4	B	
Becomes brown, trace sand and coal		2		
		4	1.6	21
	-20	5	B	

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
CLAY: Grayish brown (A-7) *(continued)*		4		
Becomes brown and gray, trace rock		7	2.0	18
	423.9	7	B	
CLAYEY SHALE: Brown and gray		50/3"	-	8
	-25	50/2"		
	421.4			
SHALE: Gray		50/3"	-	5
		50/1"		
		50/4"	-	5
		50/1"		
	416.4			
CLAYEY SHALE: Gray		50/4"	-	15
With sandstone rock		50/1"		
	413.1	50/2"	-	10
End of Boring		50/1"		
	-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)

BBS, form 137 (Rev. 8-99)

Kaskaskia Engineering Group, LLC

SOIL BORING LOG

Page 1 of 1

Date 9/7/10

ROUTE FAI 57/FAP 331 DESCRIPTION FAI 57 over IL Rte 13 LOGGED BY KEG

SECTION (X1-6-2)HBK-2 LOCATION Marion; N 1/2 Section 14, TWP 9S, RNG 2E

COUNTY Williamson DRILLING METHOD CME 55LC/HSA HAMMER TYPE Automatic

STRUCT. NO. 100-0088 (NB) & 100-0089 (SB)
Station

BORING NO. B-5
Station 1491+89.81
Offset 116.4 ft Lt
Ground Surface Elev. 445.08 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter - ft
Upon Completion - ft
After Hrs. - ft

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Grass cover and topsoil	444.1			
FILL: Brown and gray, clay (A-7)		5		
		4	4.8	24
		6	B	
SILTY CLAY: Grayish brown and brown (A-7)	442.1	2		
		3	2.0	20
	-5	4	P	
CLAY: Grayish brown (A-7)	439.6			
		2		
		3	1.2	19
		4	B	
Becomes gray and brown, trace sand, gravel		3		
		3	1.5	19
	-10	4	B	
Becomes brown		2		
		3	2.2	19
		6	B	
		3		
		3	1.9	20
	-15	5	B	
Some sand		2		
		3	1.2	17
		6	B	
Trace coal		2		
		3	1.8	21
	-20	7	B	

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
CLAY: Grayish brown (A-7) *(continued)*		3		
	423.1	6	-	16
CLAYEY SHALE: Brown and gray (moisture content - 5.2 percent)	422.6	50		
End of Boring				
	-25			
	-30			
	-35			
	-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)

BBS, form 137 (Rev. 8-99)

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CRAWFORD MURPHY & TILLY, INC.
CONSULTING ENGINEERS
SPRINGFIELD, IL ■ AURORA, IL ■ ST. LOUIS, MO
ROCKFORD, IL ■ PEORIA, IL ■ CHICAGO, IL

FILE NAME = ...\i-57\064_BORING LOGS VII.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - WLB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BORING LOGS VII
STRUCTURE NO. 100-0088 (N.B.) & 100-0089 (S.B.)
SHEET NO. 73 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	658
*	F.A.I. 57 AND F.A.P. 331	CONTRACT NO. 78182		
ILLINOIS	FED. AID PROJECT			

Kaskaskia Engineering Group, LLC

SOIL BORING LOG

Date 9/14/10

ROUTE FAI 57/FAP 331 DESCRIPTION FAI 57 over IL Rte 13 LOGGED BY KEG

SECTION (X1-6-2)HBK-2 LOCATION Marion; N 1/2 Section 14, TWP 9S, RNG 2E

COUNTY Williamson DRILLING METHOD CME 55LC/HSA HAMMER TYPE Automatic

STRUCT. NO. 100-0088 (NB) & 100-0089 (SB)
Station

BORING NO. B-6
Station 1492+15.99
Offset 71.3 ft Rt
Ground Surface Elev. 469.57 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter 431.1 ft
Upon Completion - ft
After Hrs. - ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Grass cover and topsoil			
468.6			
FILL: Grayish brown and brown, clay, trace wood (A-7)	7		
	6 6	4.5 P	13
	9		
-5	5 8	4.5 P	15
Becomes brown and gray	7		
	6 6	2.3 B	20
	4		
-10	4 6	1.6 B	20
459.1			
FILL: Greenish gray and brown, silty clay (A-7)	2		
	2 3	1.4 B	19
456.6			
FILL: Gray and brown, clay (A-7)	2		
-15	3 3	1.4 B	19
454.1			
FILL: Brown, silty clay (A-6)	2		
	2 4	0.7 B	20
451.6			
FILL: Gray and brown, clay (A-7)	3		
-20	3 4	1.3 B	23
FILL: Gray and brown, clay (A-7) (continued)			
Becomes brown and gray	4		
	3 6	1.8 B	20
446.6			
FILL: Brown and gray, silty clay (A-6)	2		
-25	4 4	1.5 B	21
Becomes greenish gray	2		
	3 4	1.2 B	26
441.6			
SILTY CLAY: Grayish brown (A-7)	2		
-30	2 2	1.0 B	26
437.6			
CLAY: Gray, some sand (A-7)	3		
-35	5 6	1.7 B	19
Becomes brown and gray	2		
-40	3 5	1.6 S	22

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)

BBS, form 137 (Rev. 8-99)

Kaskaskia Engineering Group, LLC

SOIL BORING LOG

Date 9/14/10

ROUTE FAI 57/FAP 331 DESCRIPTION FAI 57 over IL Rte 13 LOGGED BY KEG

SECTION (X1-6-2)HBK-2 LOCATION Marion; N 1/2 Section 14, TWP 9S, RNG 2E

COUNTY Williamson DRILLING METHOD CME 55LC/HSA HAMMER TYPE Automatic

STRUCT. NO. 100-0088 (NB) & 100-0089 (SB)
Station

BORING NO. B-6
Station 1492+15.99
Offset 71.3 ft Rt
Ground Surface Elev. 469.57 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter 431.1 ft
Upon Completion - ft
After Hrs. - ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
CLAY: Gray, some sand (A-7) (continued)			
	2		
-45	3 5	1.0 B	20
421.6			
CLAYEY SHALE: Gray	50/5"	-	17
	50/1"		
-50			
415.9			
Borehole continued with rock coring.	50/1"	-	13
	50/1"		
-55			
-60			

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)

BBS, form 137 (Rev. 8-99)

CMT
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CONSULTING ENGINEERS
SPRINGFIELD, IL ■ AURORA, IL ■ ST. LOUIS, MO
ROCKFORD, IL ■ PEORIA, IL ■ CHICAGO, IL

FILE NAME = ...\x-57\065_BORING LOGS VIII.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - WLB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BORING LOGS VIII
STRUCTURE NO. 100-0088 (N.B.) & 100-0089 (S.B.)
SHEET NO. 74 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	659
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS FED. AID PROJECT				

Kaskaskia Engineering Group, LLC

ROCK CORE LOG

Date 9/14/10

ROUTE FAI 57/FAP 331 DESCRIPTION FAI 57 over IL Rte 13 LOGGED BY KEG

SECTION (X1-6-2)HBK-2 LOCATION Marion; N 1/2 Section 14, TWP 9S, RNG 2E

COUNTY Williamson CORING METHOD Rotary, surface set diamond bit

STRUCT. NO. 100-0088 (NB) & 100-0089 (SB) CORING BARREL TYPE & SIZE NX conv dbl bbl split inner

Station

BORING NO. B-6
Station 1492+15.99
Offset 71.3 ft Rt
Ground Surface Elev. 469.57 ft

Core Diameter 2 in
Top of Rock Elev. 421.57 ft
Begin Core Elev. 415.90 ft

	DEPTH (ft)	CORE (#)	RECOVERY (%)	R.Q.D. (%)	CORE TIME (min/ft)	STRENGTH (tsf)
SHALE: Gray	415.90	1	92	83	11	
	-55					
	-60	2	88	87	7	
End of Boring	405.90					
	-65					
	-70					

Color pictures of the cores Yes
Cores will be stored for examination until
The "Strength" column represents the uniaxial compressive strength of the core sample (ASTM D-2938)

BBS, form 138 (Rev. 8-99)

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ROCKFORD, IL ■ PEORIA, IL ■ CHICAGO, IL

FILE NAME = ...\i-57\086_BORING LOGS IX.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - WLB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

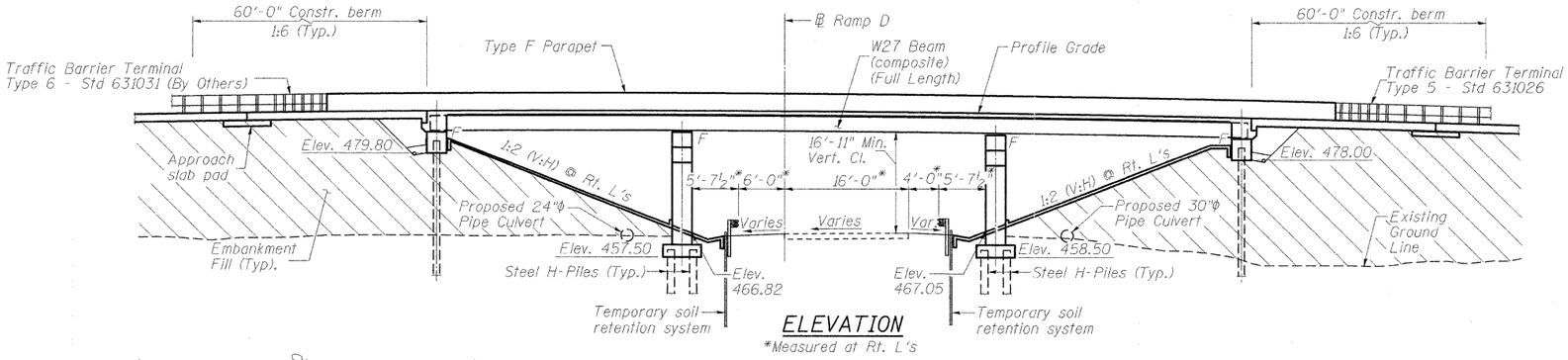
BORING LOGS IX
STRUCTURE NO. 100-0088 (N.B.) & 100-0089 (S.B.)
SHEET NO. 75 OF 75 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HBK-2	WILLIAMSON	968	660
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS FED. AID PROJECT				

Benchmark: PSM-100-09-05 = IDOT Disk set in top of Precast Monument, at Morgan Ave. & Ramp "H" West of I-57 NE Quadrant. Elev 487.435

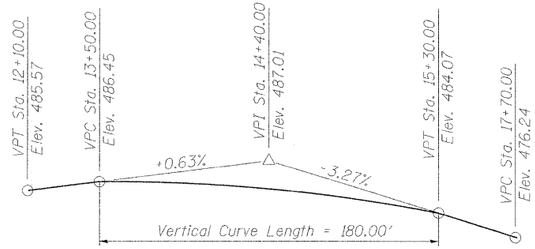
Existing Structure:

None



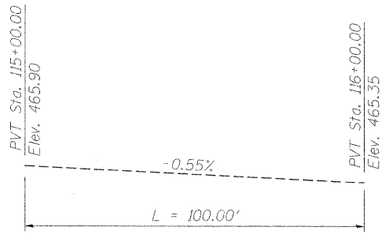
ELEVATION

*Measured at Rt. L's



PROFILE GRADE RAMP I

(Along ℄ Roadway)



PROFILE GRADE RAMP D

(Along ℄ Roadway)

BORINGS

BORING	LOCATION
B-15	Sta. 13+74.78, Ramp I, 7.3' LT.
B-16	Sta. 13+97.92, Ramp I, 29.3' RT.
B-17	Sta. 14+73.45, Ramp I, 13.4' LT.
B-18	Sta. 14+99.51, Ramp I, 20.5' RT.

INDEX OF SHEETS

DESIGN SPECIFICATIONS

2010 AASHTO LRFD Bridge Design Specifications with 2010 Interim Revisions

DESIGN STRESSES

FIELD UNITS

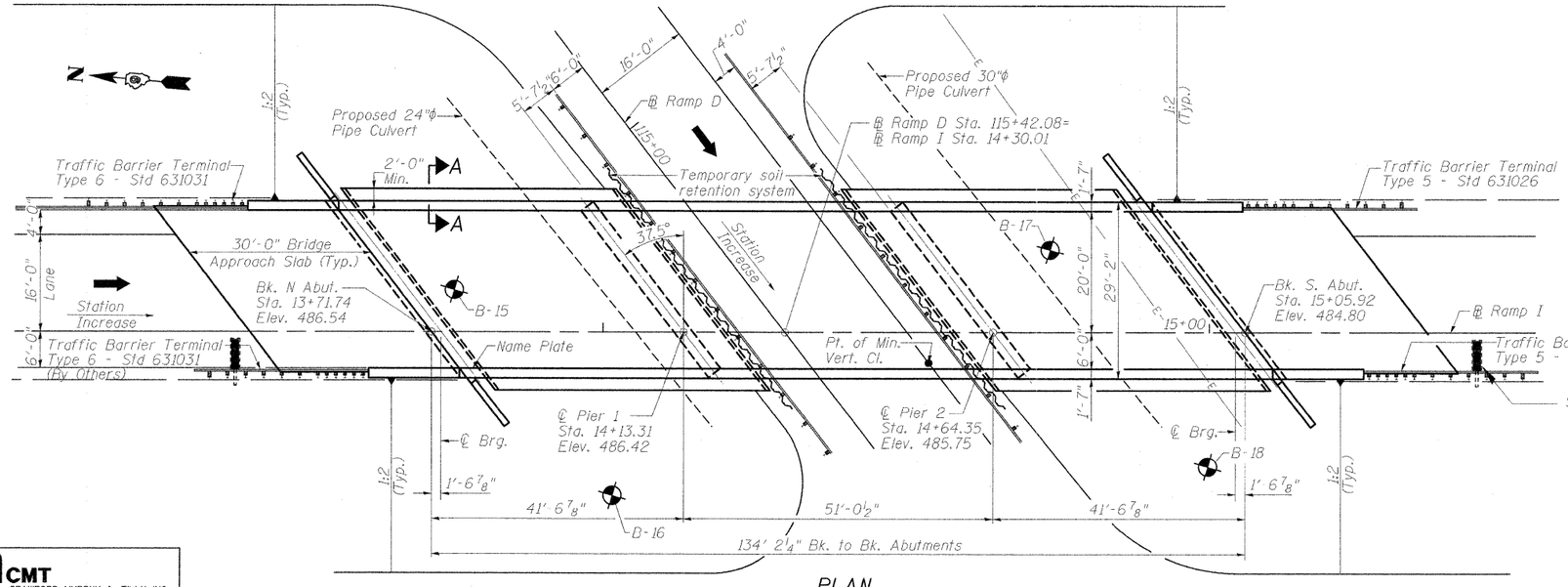
f'c = 3,500 psi
fy = 60,000 psi (Reinforcement)
fy = 50,000 psi (M270 Grade 50)
fy = 36,000 psi (M270 Grade 36)

LOADING HL-93

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

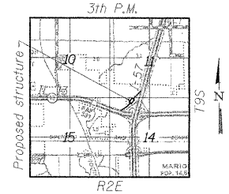
SEISMIC DATA

Seismic Performance Zone (SPZ) = 2
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.277g
Design Spectral Acceleration at 0.2 sec. (S_{DS}) = 0.759g
Soil Site Class = C



PLAN

APPROVED
FOR STRUCTURAL ADEQUACY ONLY
ENGINEER OF BRIDGES AND STRUCTURES



LOCATION SKETCH

DONALD E. BREVILLE
081-005711
LICENSED STRUCTURAL ENGINEER
ST. LOUIS MO
STATE OF ILLINOIS

4 OCT 2011
EXP: 30 NOV 2012

GENERAL PLAN & ELEVATION
FAI 57 RAMP I OVER RAMP D
SECTION (X1-6-2)HB-1
WILLIAMSON COUNTY
STATION 14+30.01
STRUCTURE NO. 100-0097

CMT
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ROCKFORD, IL ■ PEORIA, IL ■ CHICAGO, IL

FILE NAME = ...\GENERAL PLAN_ELEV_001.dgn

USER NAME = Gary Davis	DESIGNED - BPD	REVISED -	
	CHECKED - REB	REVISED -	
PLOT SCALE =	DRAWN - GLD	REVISED -	
PLOT DATE = 10/10/2011	CHECKED - BPD	REVISED -	

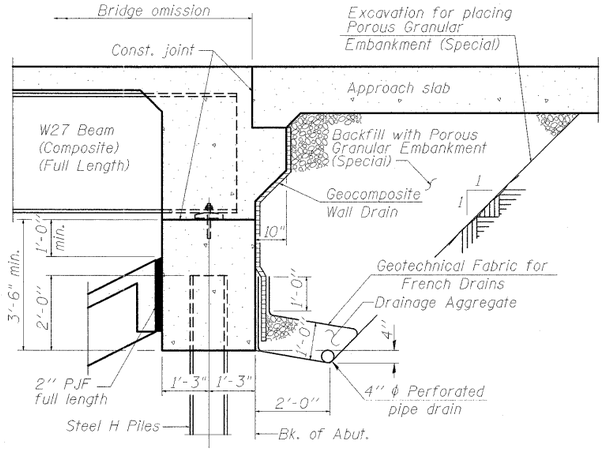
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET NO. 1 OF 23 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HB-1	WILLIAMSON	968	661
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
		ILLINOIS FED. AID PROJECT		

GENERAL NOTES

1. Fasteners shall be AASHTO M164 Type 1, mechanically galvanized bolts. Bolts $^{7}/_{8}$ in. ϕ, holes $^{15}/_{16}$ in. ϕ, unless otherwise noted.
2. Calculated weight of Structural Steel = 59,960 lbs. (M270 Grade 50)
3. Calculated weight of Structural Steel = 6,100 lbs. (M270 Grade 36)
4. No field welding is permitted except as specified in the contract documents.
5. Reinforcement bars shall conform to the requirements of ASTM A 706 Grade 60.
6. Reinforcement bars designated (E) shall be epoxy coated.
7. Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of $^{1}/_{8}$ inch (0.01 ft.). Adjustment shall be made either by grinding the surface or by shimming the bearings.
8. The Inorganic Zinc Rich Primer / Acrylic / Acrylic Paint System shall be used for shop and field painting of new structural steel except where otherwise noted. The color of the final finish coat for all interior steel surfaces 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
9. Concrete Sealer shall be applied to designated areas of the piers.
10. The embankment configuration shown shall be the minimum embankment that must be placed and compacted prior to construction of the abutments.
11. Slope wall shall be reinforced with welded wire fabric, 6 in. x 6 in. - W4.0 x W4.0, weighting 58 lbs. per 100 sq. ft.
12. Slipforming of concrete parapets is not allowed.



SECTION THRU INTEGRAL ABUTMENT

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

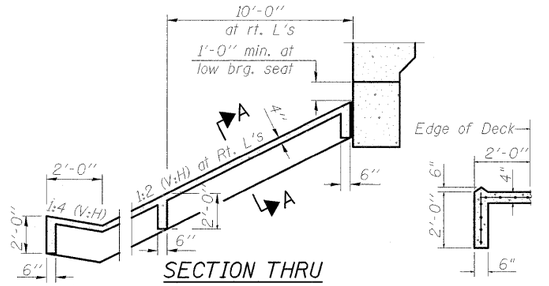
STATION 14+30.01
BUILT 201_ BY
STATE OF ILLINOIS
F.A.I.-57 RAMP I
SEC. (X1-6-2)HB-1
LOADING HL-93
STR. NO. 100-0097

NAME PLATE

See Std. 515001

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Porous Granular Embankment, Special	Cu. Yd.		109	109
Structure Excavation	Cu. Yd.		561	561
Concrete Structures	Cu. Yd.		292.8	292.8
Concrete Superstructure	Cu. Yd.	240.2		240.2
Bridge Deck Grooving	Sq. Yd.	518		518
Concrete Encasement	Cu. Yd.		4.2	4.2
Protective Coat	Sq. Yd.	707		707
Furnishing and Erecting Structural Steel	L. Sum	0.02		0.02
Stud Shear Connectors	Each	2865		2865
Reinforcement Bars, Epoxy Coated	Pound	61,690	55,690	117,380
Bar Splicers	Each	58		58
Slope Wall 4 Inch	Sq. Yd.		354	354
Furnishing Steel Piles HP 12x53	Foot		633	633
Driving Piles	Foot		633	633
Test Pile Steel HP 12x53	Each		4	4
Name Plates	Each	1		1
Anchor Bolts, 1"	Each		40	40
Geocomposite Wall Drain	Sq. Yd.		68	68
Pipe Underdrains for Structures 4"	Foot		145	145
Mechanical Splicers	Each		292	292
Concrete Sealer	Sq. Ft.		1148	1148
Temporary Soil Retention System	Sq. Ft.		990	990



SECTION THRU CONCRETE SLOPEWALL

SECTION A-A

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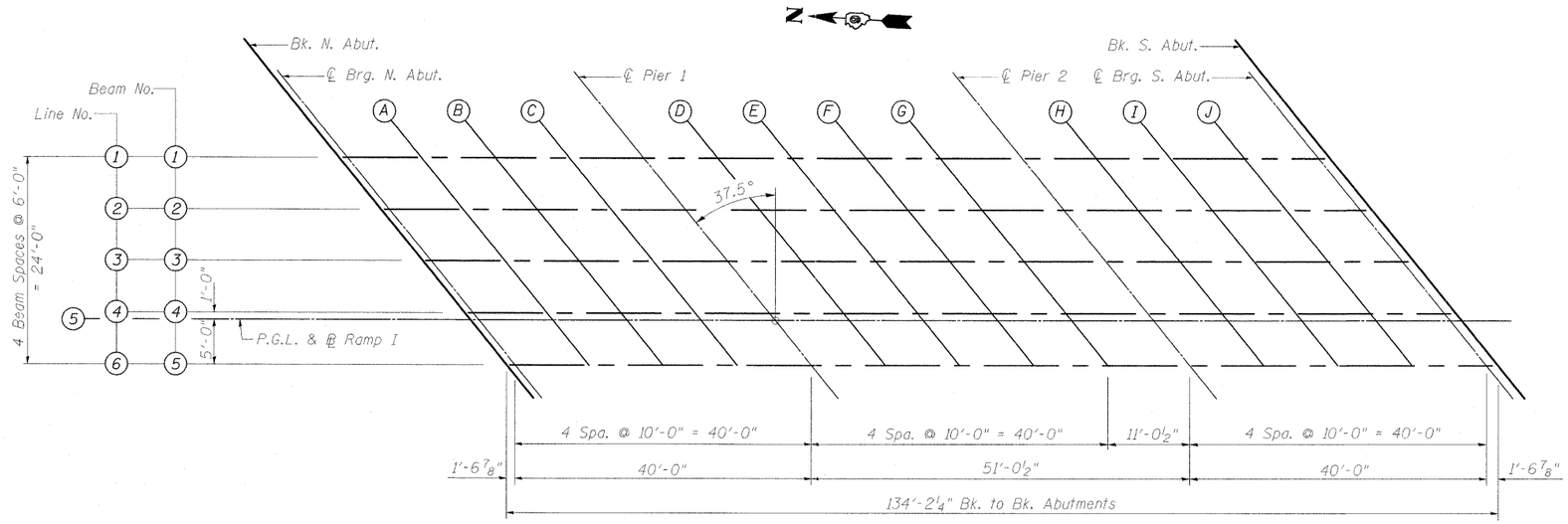
SPRINGFIELD, IL ■ AURORA, IL ■ ST. LOUIS, MO
ROCKFORD, IL ■ PEORIA, IL ■ CHICAGO, IL

FILE NAME = ...\Ramp I\GENERAL DATA_002.dgn	USER NAME = Gary Davis	DESIGNED - BPD	REVISED -
		CHECKED - REB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 12/14/2011	CHECKED - BPD	REVISED -

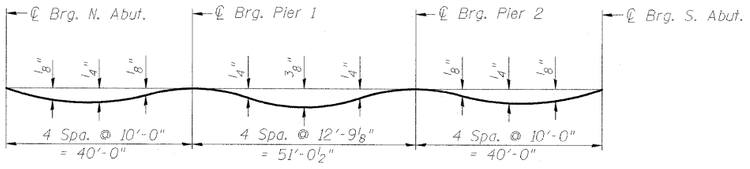
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL DATA
STRUCTURE NO. 100-0097
SHEET NO. 2 OF 23 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HB-1	WILLIAMSON	968	662
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			



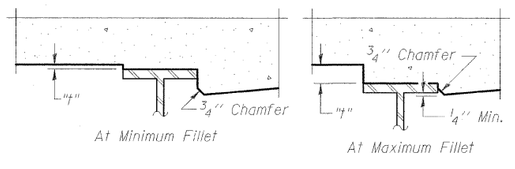
LAYOUT PLAN FOR DECK ELEVATIONS



DEAD LOAD DEFLECTION DIAGRAM

(Includes weight of concrete only.)

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 on Sheet 4.



To determine "t": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown below. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown on Sheet 4, minus slab thickness, equals the fillet heights "t" above top flange of beams.

FILLET HEIGHTS

CMT
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CONSULTING ENGINEERS
SPRINGFIELD, IL ■ AURORA, IL ■ ST. LOUIS, MO
ROCKFORD, IL ■ PEORIA, IL ■ CHICAGO, IL

FILE NAME = ...\DECK ELEVATION_1_Ø03.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - REB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10//2011	CHECKED - BPD	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DECK ELEVATIONS 1
STRUCTURE NO. 100-0097
SHEET NO. 3 OF 23 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HB-1	WILLIAMSON	968	663
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS FED. AID PROJECT				

BEAM 1 - (LINE NO.1)

LOCATION	STATION	OFFSET	THEORETICAL GRADE ELEVATION	THEORETICAL GRADE ELEV. ADJUSTED FOR DEAD LOAD DEFLECTION
Bk. N. Abut.	13+57.16	-19.000	486.870	486.870
℄ Brg. N. Abut.	13+58.73	-19.000	486.877	486.877
A	13+68.73	-19.000	486.910	486.923
B	13+78.73	-19.000	486.922	486.936
C	13+88.73	-19.000	486.911	486.918
℄ Pier 1	13+98.73	-19.000	486.880	486.880
D	14+08.73	-19.000	486.826	486.836
E	14+18.73	-19.000	486.751	486.773
F	14+28.73	-19.000	486.654	486.678
G	14+38.73	-19.000	486.536	486.549
℄ Pier 2	14+49.77	-19.000	486.380	486.380
H	14+59.77	-19.000	486.216	486.223
I	14+69.77	-19.000	486.031	486.045
J	14+79.77	-19.000	485.823	485.836
℄ Brg. S. Abut.	14+89.77	-19.000	485.594	485.594
Bk. S. Abut.	14+91.34	-19.000	485.556	485.556

BEAM 2 - (LINE NO.2)

LOCATION	STATION	OFFSET	THEORETICAL GRADE ELEVATION	THEORETICAL GRADE ELEV. ADJUSTED FOR DEAD LOAD DEFLECTION
Bk. N. Abut.	13+61.76	-13.000	486.769	486.769
℄ Brg. N. Abut.	13+63.33	-13.000	486.775	486.775
A	13+73.33	-13.000	486.798	486.811
B	13+83.33	-13.000	486.800	486.814
C	13+93.33	-13.000	486.780	486.786
℄ Pier 1	14+03.33	-13.000	486.738	486.738
D	14+13.33	-13.000	486.674	486.684
E	14+23.33	-13.000	486.589	486.611
F	14+33.33	-13.000	486.483	486.507
G	14+43.33	-13.000	486.354	486.367
℄ Pier 2	14+54.37	-13.000	486.187	486.187
H	14+64.37	-13.000	486.013	486.020
I	14+74.37	-13.000	485.818	485.832
J	14+84.37	-13.000	485.600	485.613
℄ Brg. S. Abut.	14+94.37	-13.000	485.361	485.361
Bk. S. Abut.	14+95.94	-13.000	485.322	485.322

BEAM 3 - (LINE NO.3)

LOCATION	STATION	OFFSET	THEORETICAL GRADE ELEVATION	THEORETICAL GRADE ELEV. ADJUSTED FOR DEAD LOAD DEFLECTION
Bk. N. Abut.	13+66.37	-7.000	486.664	486.664
℄ Brg. N. Abut.	13+67.94	-7.000	486.668	486.668
A	13+77.94	-7.000	486.681	486.694
B	13+87.94	-7.000	486.673	486.688
C	13+97.94	-7.000	486.643	486.649
℄ Pier 1	14+07.94	-7.000	486.591	486.591
D	14+17.94	-7.000	486.518	486.528
E	14+27.94	-7.000	486.423	486.444
F	14+37.94	-7.000	486.306	486.330
G	14+47.94	-7.000	486.168	486.181
℄ Pier 2	14+58.98	-7.000	485.990	485.990
H	14+68.98	-7.000	485.806	485.812
I	14+78.98	-7.000	485.600	485.615
J	14+88.98	-7.000	485.373	485.386
℄ Brg. S. Abut.	14+98.98	-7.000	485.124	485.124
Bk. S. Abut.	15+00.55	-7.000	485.083	485.083

BEAM 4 - (LINE NO.4)

LOCATION	STATION	OFFSET	THEORETICAL GRADE ELEVATION	THEORETICAL GRADE ELEV. ADJUSTED FOR DEAD LOAD DEFLECTION
Bk. N. Abut.	13+70.97	-1.000	486.554	486.554
℄ Brg. N. Abut.	13+72.54	-1.000	486.557	486.557
A	13+82.54	-1.000	486.560	486.573
B	13+92.54	-1.000	486.542	486.557
C	14+02.54	-1.000	486.502	486.508
℄ Pier 1	14+12.54	-1.000	486.440	486.440
D	14+22.54	-1.000	486.357	486.367
E	14+32.54	-1.000	486.252	486.273
F	14+42.54	-1.000	486.125	486.149
G	14+52.54	-1.000	485.977	485.990
℄ Pier 2	14+63.58	-1.000	485.788	485.788
H	14+73.58	-1.000	485.594	485.600
I	14+83.58	-1.000	485.378	485.393
J	14+93.58	-1.000	485.141	485.154
℄ Brg. S. Abut.	15+03.58	-1.000	484.882	484.882
Bk. S. Abut.	15+05.15	-1.000	484.840	484.840

P.G.L. ℄ RAMP 1 - (LINE NO.5)

LOCATION	STATION	OFFSET	THEORETICAL GRADE ELEVATION	THEORETICAL GRADE ELEV. ADJUSTED FOR DEAD LOAD DEFLECTION
Bk. N. Abut.	13+71.74	0.000	486.536	486.536
℄ Brg. N. Abut.	13+73.31	0.000	486.538	486.538
A	13+83.31	0.000	486.540	486.552
B	13+93.31	0.000	486.520	486.534
C	14+03.31	0.000	486.478	486.484
℄ Pier 1	14+13.31	0.000	486.415	486.415
D	14+23.31	0.000	486.330	486.340
E	14+33.31	0.000	486.223	486.244
F	14+43.31	0.000	486.095	486.119
G	14+53.31	0.000	485.945	485.957
℄ Pier 2	14+64.35	0.000	485.754	485.754
H	14+74.35	0.000	485.558	485.565
I	14+84.35	0.000	485.341	485.356
J	14+94.35	0.000	485.102	485.115
℄ Brg. S. Abut.	15+04.35	0.000	484.841	484.841
Bk. S. Abut.	15+05.92	0.000	484.799	484.799

BEAM 5 - (LINE NO.5)

LOCATION	STATION	OFFSET	THEORETICAL GRADE ELEVATION	THEORETICAL GRADE ELEV. ADJUSTED FOR DEAD LOAD DEFLECTION
Bk. N. Abut.	13+75.58	5.000	486.440	486.440
℄ Brg. N. Abut.	13+77.15	5.000	486.441	486.441
A	13+87.15	5.000	486.435	486.447
B	13+97.15	5.000	486.406	486.421
C	14+07.15	5.000	486.356	486.363
℄ Pier 1	14+17.15	5.000	486.285	486.285
D	14+27.15	5.000	486.191	486.201
E	14+37.15	5.000	486.076	486.098
F	14+47.15	5.000	485.940	485.964
G	14+57.15	5.000	485.781	485.794
℄ Pier 2	14+68.19	5.000	485.581	485.581
H	14+78.19	5.000	485.377	485.384
I	14+88.19	5.000	485.152	485.167
J	14+98.19	5.000	484.905	484.917
℄ Brg. S. Abut.	15+08.19	5.000	484.636	484.636
Bk. S. Abut.	15+09.76	5.000	484.592	484.592

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FILE NAME = ...\DECK ELEVATION_2.004.dgn
USER NAME = Rob Heady
PLOT SCALE =
PLOT DATE = 10/7/2011

DESIGNED - BPD | REVISED -
CHECKED - REB | REVISED -
DRAWN - GLD | REVISED -
CHECKED - BPD | REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DECK ELEVATIONS 2
STRUCTURE NO. 100-0097
SHEET NO. 4 OF 23 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HB-1	WILLIAMSON	968	664
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS FED. AID PROJECT				

EAST CURB LINE

LOCATION	STATION	OFFSET	THEORETICAL GRADE ELEVATION
N. End of N. Appr.	13+26.39	-20.000	486.701
A1	13+36.39	-20.000	486.764
A2	13+46.39	-20.000	486.827
S. End of N. Appr.	13+56.39	-20.000	486.886

EAST EDGE OF PAVEMENT

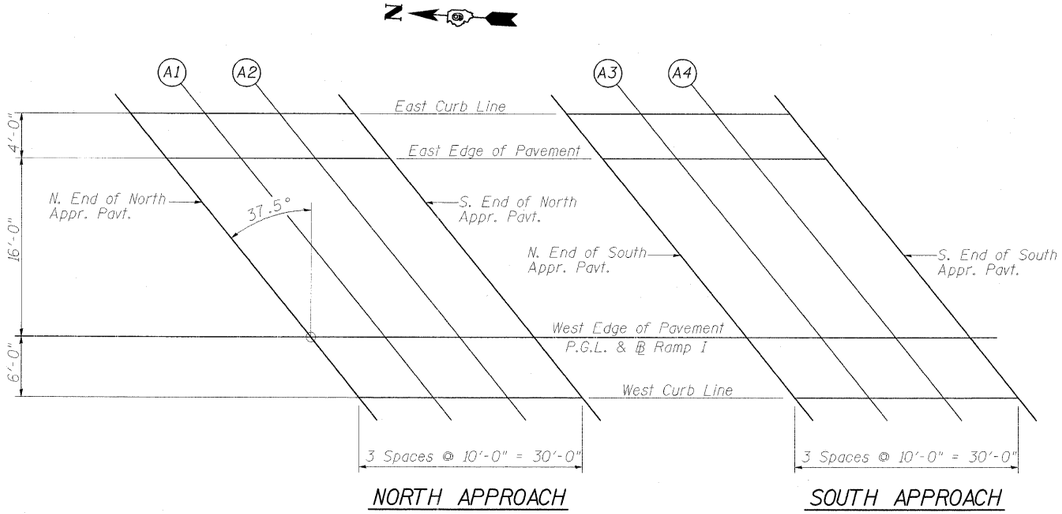
LOCATION	STATION	OFFSET	THEORETICAL GRADE ELEVATION
N. End of N. Appr.	13+29.46	-16.000	486.641
A1	13+39.46	-16.000	486.704
A2	13+49.46	-16.000	486.767
S. End of N. Appr.	13+59.46	-16.000	486.820

WEST EDGE OF PAVEMENT P.G.L. & ℄ RAMP I

LOCATION	STATION	OFFSET	THEORETICAL GRADE ELEVATION
N. End of N. Appr.	13+41.74	0.000	486.398
A1	13+51.74	0.000	486.461
A2	13+61.74	0.000	486.509
S. End of N. Appr.	13+71.74	0.000	486.536

WEST CURB LINE

LOCATION	STATION	OFFSET	THEORETICAL GRADE ELEVATION
N. End of N. Appr.	13+46.34	6.000	486.307
A1	13+56.34	6.000	486.366
A2	13+66.34	6.000	486.404
S. End of N. Appr.	13+76.34	6.000	486.421



NORTH APPROACH

SOUTH APPROACH

PLAN

EAST CURB LINE

LOCATION	STATION	OFFSET	THEORETICAL GRADE ELEVATION
N. End of S. Appr.	14+90.57	-20.000	485.595
A3	15+00.57	-20.000	485.342
A4	15+10.57	-20.000	485.068
S. End of S. Appr.	15+20.57	-20.000	484.773

EAST EDGE OF PAVEMENT

LOCATION	STATION	OFFSET	THEORETICAL GRADE ELEVATION
N. End of S. Appr.	14+93.64	-16.000	485.440
A3	15+03.64	-16.000	485.181
A4	15+13.64	-16.000	484.900
S. End of S. Appr.	15+23.64	-16.000	484.598

WEST EDGE OF PAVEMENT P.G.L. & ℄ RAMP I

LOCATION	STATION	OFFSET	THEORETICAL GRADE ELEVATION
N. End of S. Appr.	15+05.92	0.000	484.799
A3	15+15.92	0.000	484.513
A4	15+25.92	0.000	484.206
S. End of S. Appr.	15+35.92	0.000	483.876

WEST CURB LINE

LOCATION	STATION	OFFSET	THEORETICAL GRADE ELEVATION
N. End of S. Appr.	15+10.52	6.000	484.550
A3	15+20.52	6.000	484.254
A4	15+30.52	6.000	483.933
S. End of S. Appr.	15+40.52	6.000	483.606

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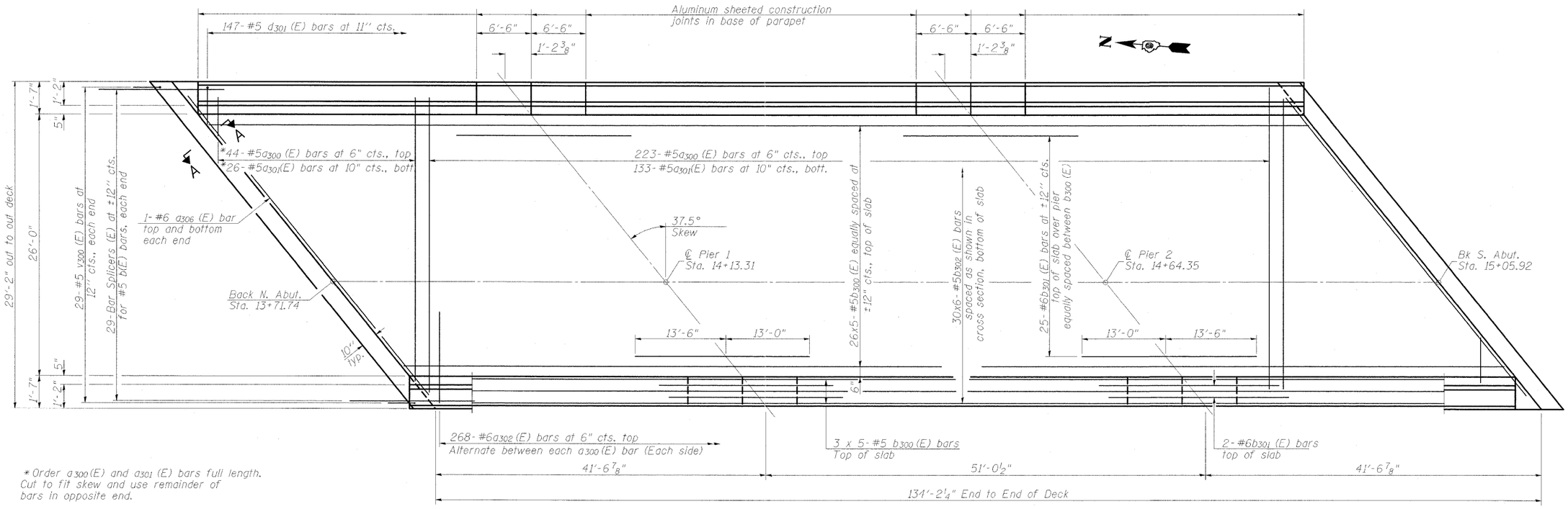
FILE NAME = ...\APPROACH PAVMT ELEVS.1.005.dgn
USER NAME = Rob Heady
PLOT SCALE =
PLOT DATE = 10/7/2011

DESIGNED - BPD	REVISED -	
CHECKED - REB	REVISED -	
DRAWN - GLD	REVISED -	
CHECKED - BPD	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TOP OF APPROACH SLAB ELEVATIONS
STRUCTURE NO. 100-0097
SHEET NO. 5 OF 23 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HB-1	WILLIAMSON	968	665
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS	FED. AID PROJECT			

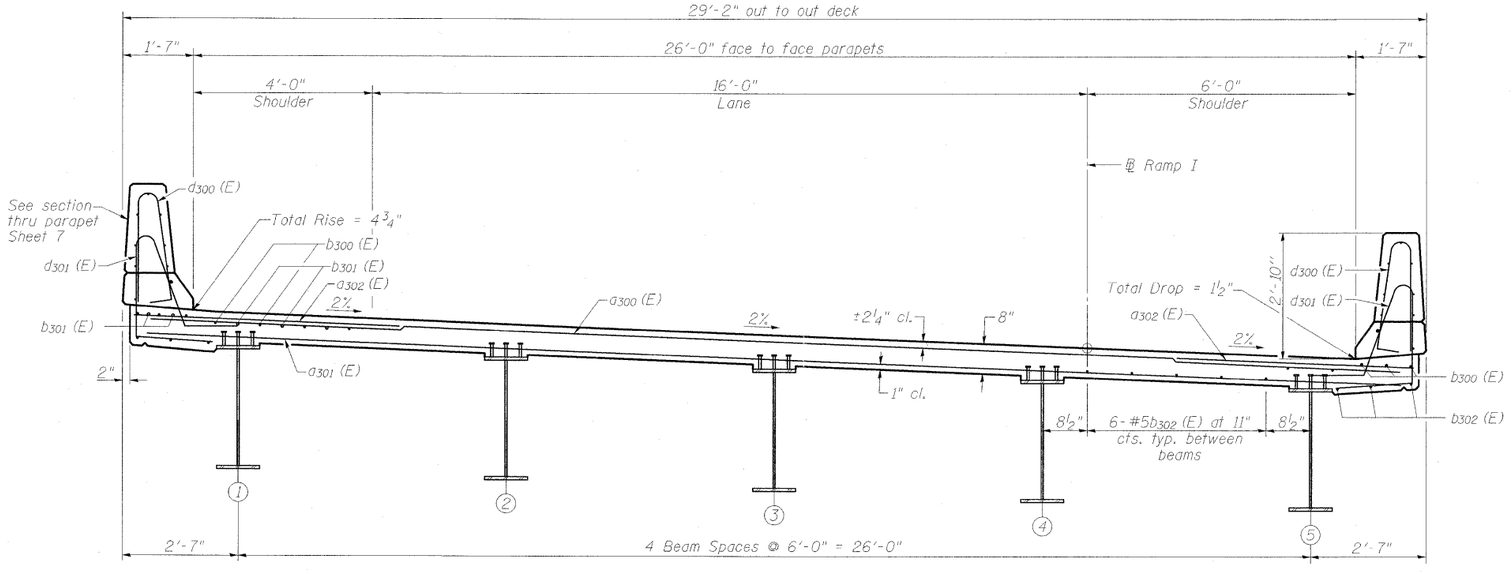


* Order a300 (E) and a301 (E) bars full length. Cut to fit skew and use remainder of bars in opposite end.

PLAN

MIN. BAR LAP

#5 Bar = 2'-7"



(NEAR PIER) (NEAR MIDSPAN)

CROSS SECTION

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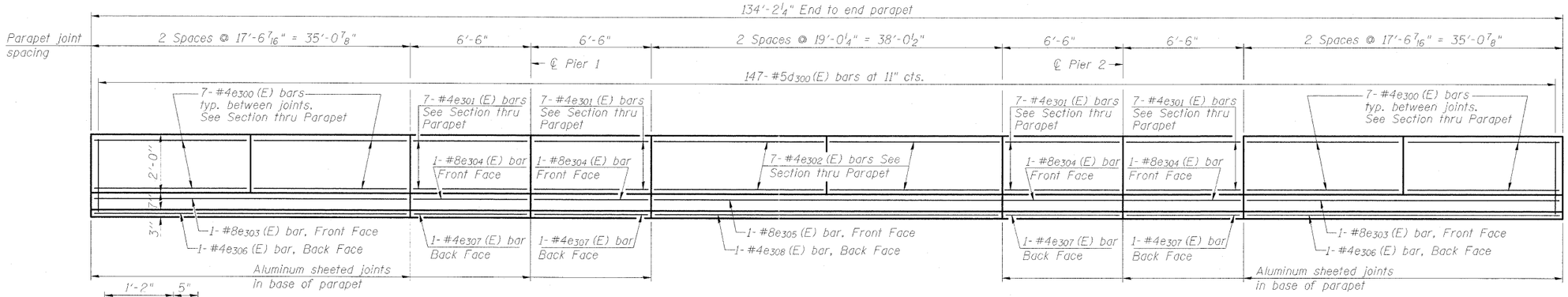
FILE NAME = ...\Ramp I\SUPERSTRUCTURE_006.dgn	USER NAME = Rob Heady	DESIGNED - BPD / REVISED -
		CHECKED - REB / REVISED -
	PLOT SCALE =	DRAWN - GLD / REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD / REVISED -

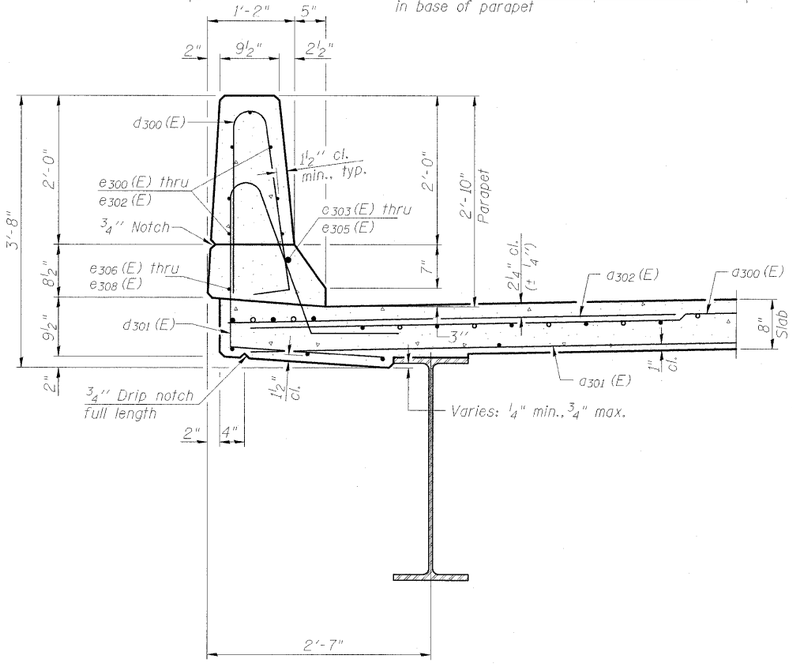
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE PLAN & CROSS SECTION
STRUCTURE NO. 100-0097
SHEET NO. 6 OF 23 SHEETS

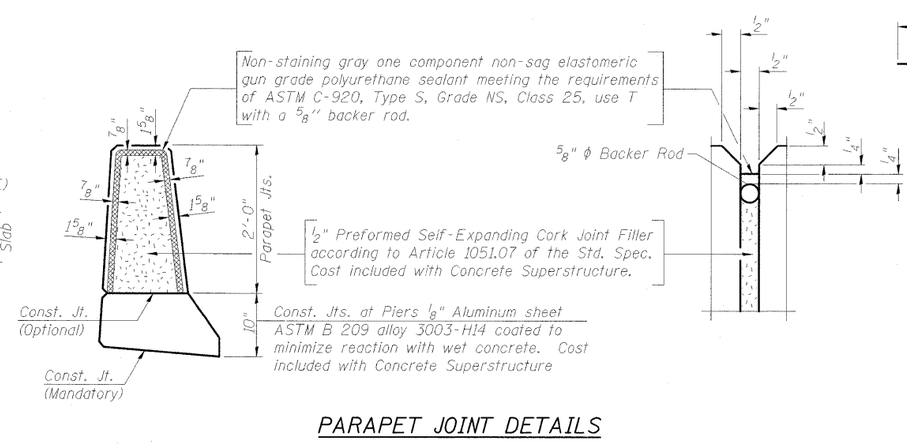
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HB-1	WILLIAMSON	968	666
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS FED. AID PROJECT				



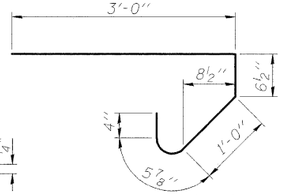
INSIDE ELEVATION OF PARAPET



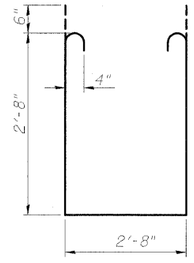
SECTION THRU PARAPET



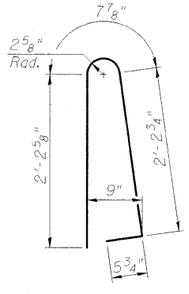
PARAPET JOINT DETAILS



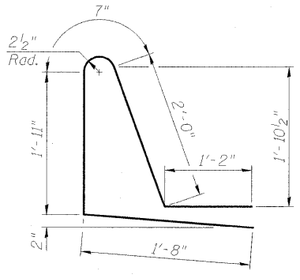
BAR s304 (E)



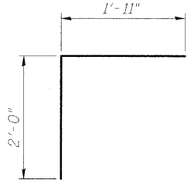
BAR s305 (E)



BAR d300 (E)



BAR d301 (E)



BAR v300 (E)

SUPERSTRUCTURE BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a300 (E)	267	#5	27'-10"	——
a301 (E)	159	#5	27'-0"	——
a302 (E)	536	#6	6'-6"	——
a306 (E)	4	#6	36'-0"	——
b300 (E)	160	#5	28'-10"	——
b301 (E)	58	#6	26'-6"	——
b302 (E)	180	#5	24'-6"	——
d300 (E)	308	#5	5'-7"	
d301 (E)	308	#5	7'-4"	
e300 (E)	56	#4	17'-2"	——
e301 (E)	56	#4	6'-2"	——
e302 (E)	28	#4	18'-8"	——
e303 (E)	4	#8	34'-8"	——
e304 (E)	8	#8	6'-2"	——
e305 (E)	2	#8	37'-8"	——
e306 (E)	4	#4	34'-8"	——
e307 (E)	8	#4	6'-2"	——
e308 (E)	2	#4	37'-8"	——
m300 (E)	10	#6	36'-0"	——
m301 (E)	20	#6	10'-10"	——
m302 (E)	8	#6	7'-2"	——
m303 (E)	4	#6	2'-11"	——
m304 (E)	1	#6	14'-3"	——
s304 (E)	60	#5	5'-5"	
s305 (E)	60	#4	9'-0"	
v300 (E)	58	#5	3'-11"	
Reinforcement Bars, Epoxy Coated		Pound	37,580	
Concrete Superstructure		Cu. Yds.	147.2	
Bridge Deck Grooving		Sq. Yd.	358	
Protective Coat		Sq. Yd.	500	
Bar Splicers		Each	58	

Bars indicated thus 1 x 5-#5 etc. indicates 1 line of bars with 5 lengths per line.

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FILE NAME = ...\SUPERSTR DETAILS_007.DGN	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - REB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

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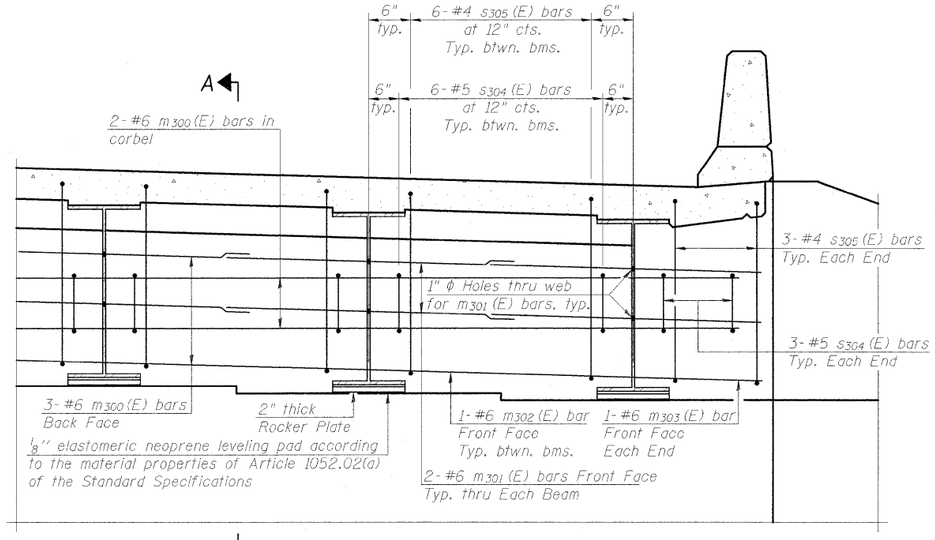
DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE DETAILS
STRUCTURE NO. 100-0097
SHEET NO. 7 OF 23 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HB-1	WILLIAMSON	968	667
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS FED. AID PROJECT				

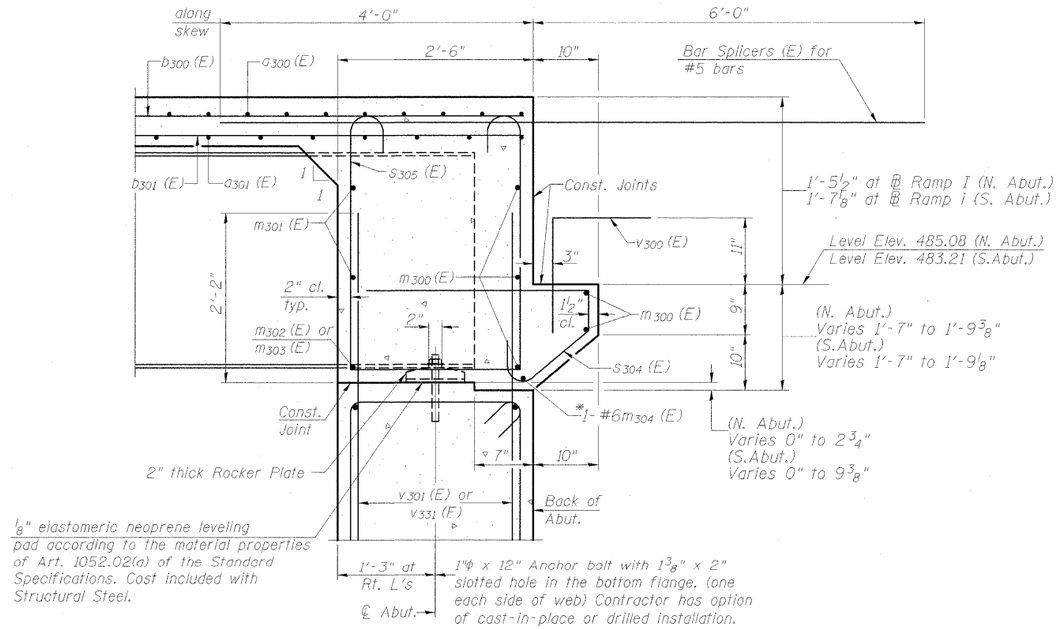


DIAPHRAGM ELEVATION AT ABUTMENT

Notes:
Reinforcement bars in diaphragm are billed with superstructure on sheet 7 of 23.
Concrete in diaphragm is included with Concrete Superstructure on sheet 7 of 23.
For details of bars s304 (E) & s305 (E) see sheet 7 of 23.
The s304 (E) and s305 (E) bars shall be placed parallel to the beams. Spacing for those bars shall be at right angles to the beams.

MIN. BAR LAP

#6 bar = 3'-4"



SECTION B-B

Dimensions at right angles to abutment, except as shown.

*South Abutment only, where notch depth exceeds 4".

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FILE NAME = ...\INT ABUT DIAPH DETAILS_008.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - REB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

STATE OF ILLINOIS
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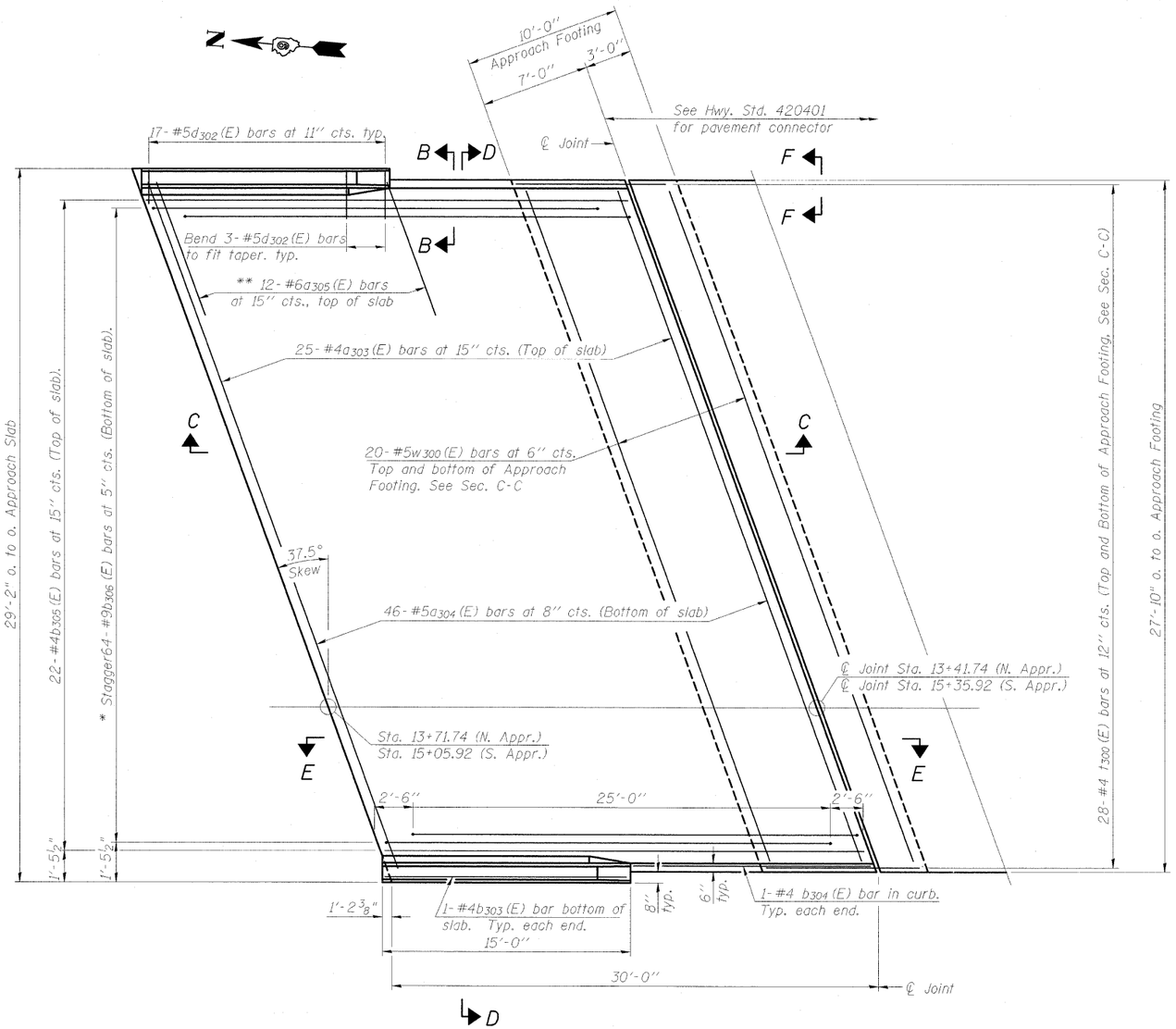
INTEGRAL ABUTMENT DIAPHRAGM DETAILS
STRUCTURE NO. 100-0097
SHEET NO. 8 OF 23 SHEETS

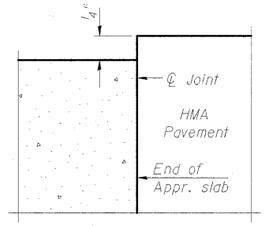
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HB-1	WILLIAMSON	968	668
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS FED. AID PROJECT				

Notes:
See sheet 10 of 23 for Sections C-C & D-D and View E-E.
a_{303} (E) and a_{304} (E) bar spacings measured along ℄ Rdwy.



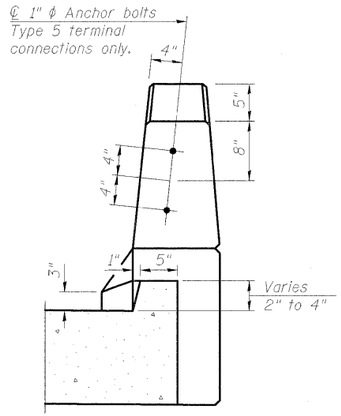
PLAN

* Tilt #9b306 (E) bars as required to maintain clearance.
** Space between a_{303} (E) bars, typ. each parapet.

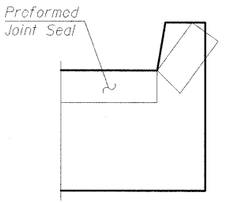


FLEXIBLE PAVEMENT

DETAIL A



VIEW B-B



VIEW F-F

Angle Preformed Joint Seal at 45° at curbs when req'd for drainage.

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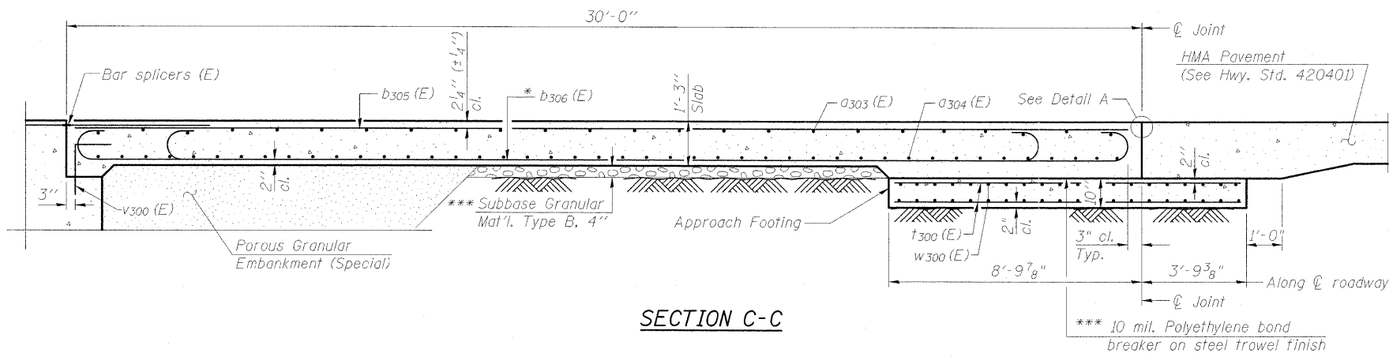
FILE NAME = ...\APP SLAB DETAILS_1_009.DGN	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - REB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

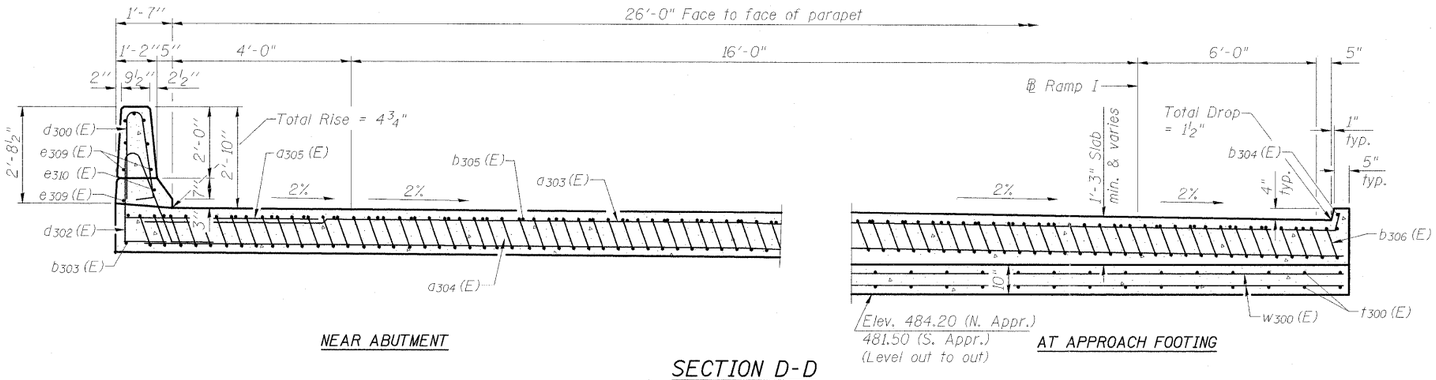
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRIDGE APPROACH SLAB DETAILS 1
STRUCTURE NO. 100-0097
SHEET NO. 9 OF 23 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HB-1	WILLIAMSON	968	669
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS FED. AID PROJECT				



SECTION C-C



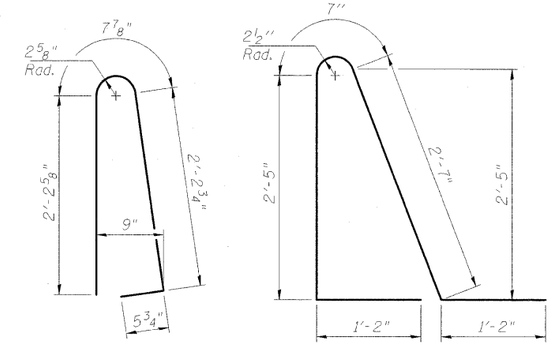
NEAR ABUTMENT

AT APPROACH FOOTING

SECTION D-D

(See Plan for dimensions not shown)

Notes:
See sheet 9 of 23 for Detail A and View B-B.
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 v300 (E) bar details, see sheet 8 of 23.
The approach footing maximum applied service bearing pressure (Qmax) = 2.0 ksf.
For bar splicer details, see sheet 19 of 23.
Cost of excavation for approach footing included with Concrete Structures.
For Porous Granular Embankment (Special) and drainage treatment details, see sheet 2 of 23.
For additional parapet details, see sheet 7 of 23.

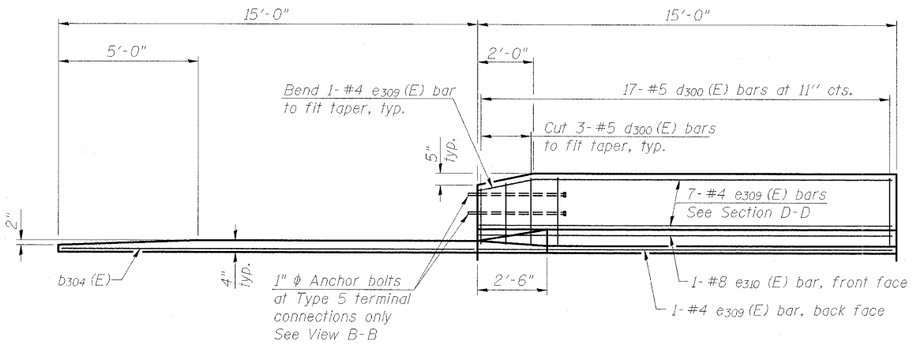


BAR d300 (E)

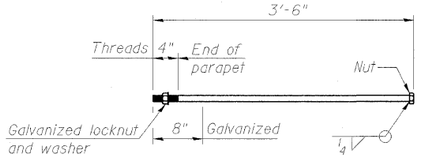
BAR d302 (E)

* Tilt #9 b306 (E) bars as required to maintain clearance.

*** Cost included with Concrete Superstructure.



VIEW E-E

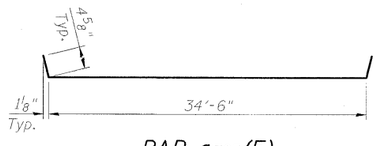


1"ϕ ANCHOR BOLT

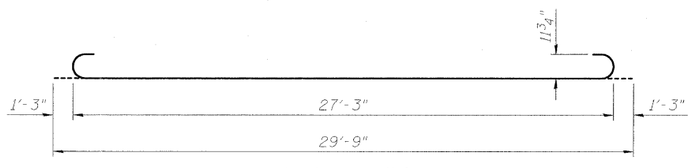
(Cost included with Concrete Superstructure)

TWO APPROACHES
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a303 (E)	50	#4	35'-3"	
a304 (E)	92	#5	34'-8"	
a305 (E)	48	#6	6'-6"	
b305 (E)	44	#4	29'-8"	
b306 (E)	128	#9	29'-9"	
b303 (E)	4	#4	14'-8"	
b304 (E)	4	#4	14'-4"	
d300 (E)	68	#5	5'-7"	
d302 (E)	68	#5	7'-11"	
e309 (E)	32	#4	14'-8"	
e310 (E)	4	#8	14'-8"	
t300 (E)	112	#4	12'-3"	
w300 (E)	80	#5	34'-8"	
Structure Excavation			Cu. Yd.	32.6
Concrete Superstructure			Cu. Yd.	93.0
Concrete Structures			Cu. Yd.	21.7
Bridge Deck Grooving			Sq. Yd.	160
Protective Coat			Sq. Yd.	207
Reinforcement Bars, Epoxy Coated			Pound	24,110



BAR a303 (E)



BAR b306 (E)

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FILE NAME = ...\APP SLAB DETAILS_2_010.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - REB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
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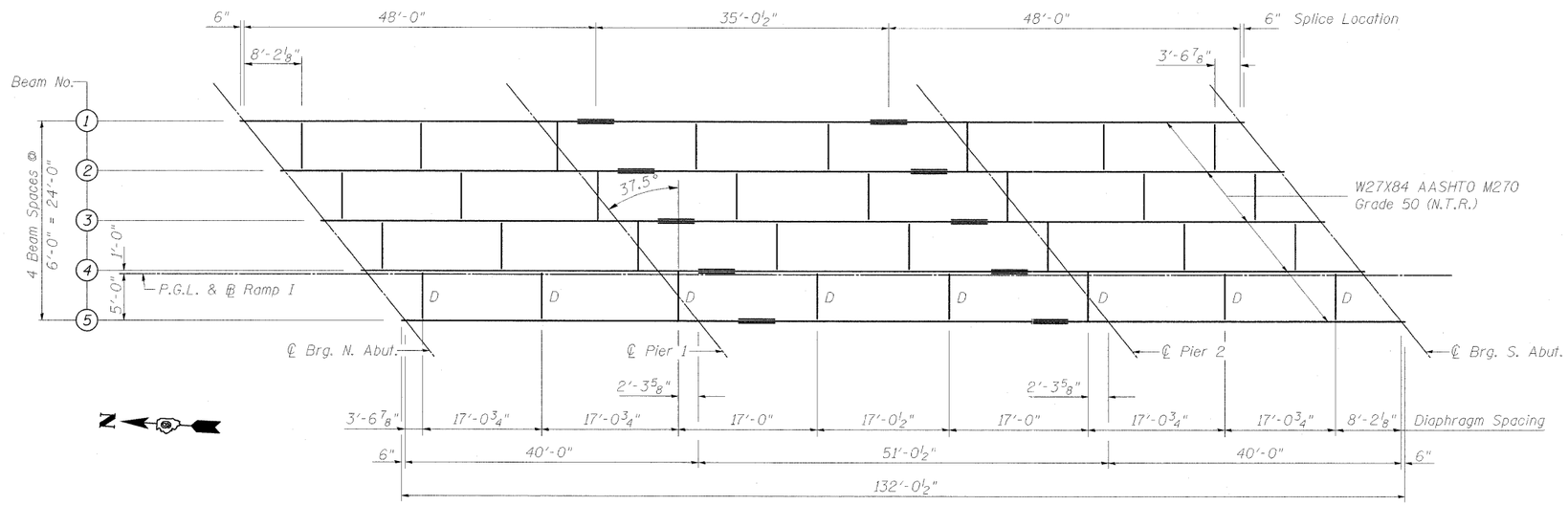
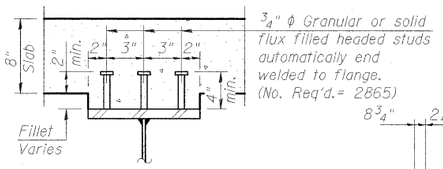
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRIDGE APPROACH SLAB DETAILS 2
STRUCTURE NO. 100-0097
SHEET NO. 10 OF 23 SHEETS

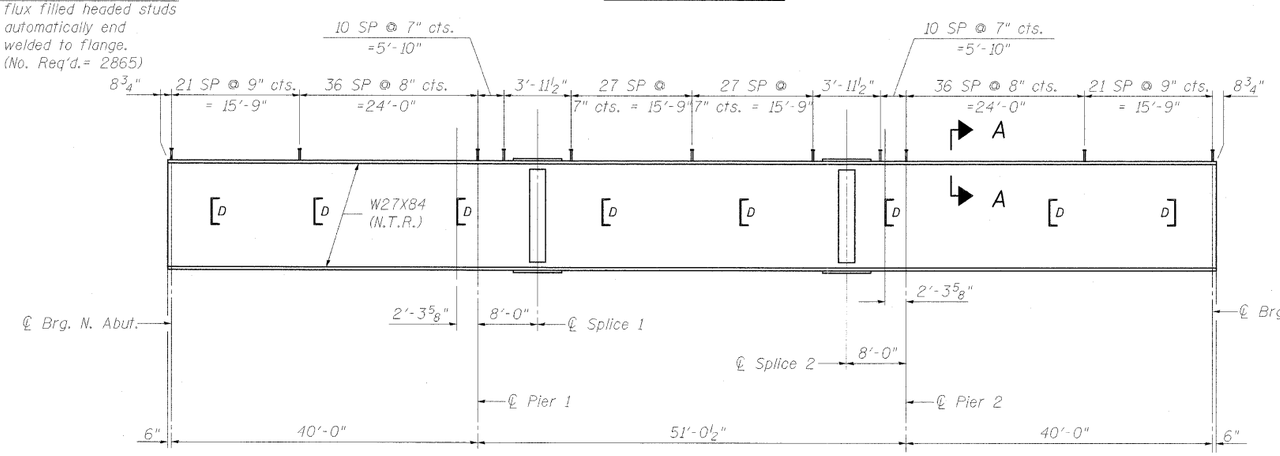
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HB-1	WILLIAMSON	968	670
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS	FED. AID PROJECT			



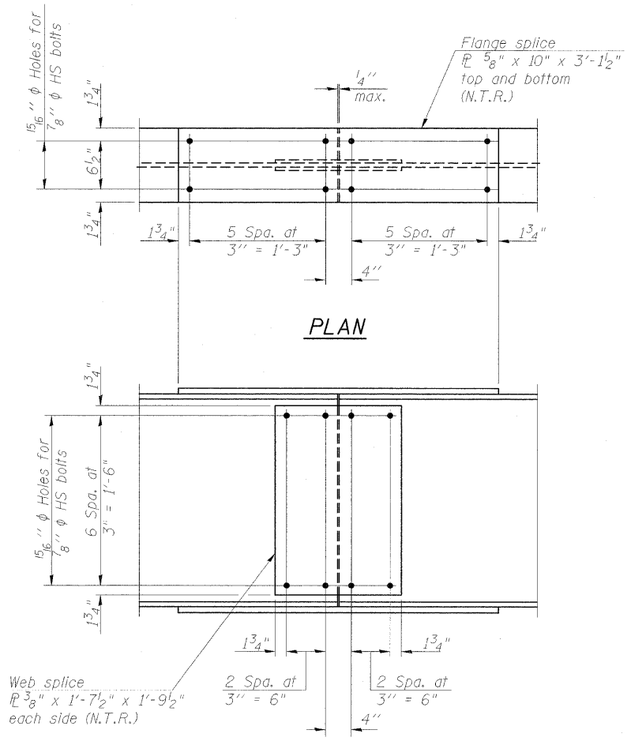
FRAMING PLAN



SECTION A-A



BEAM ELEVATION



SPLICE DETAIL

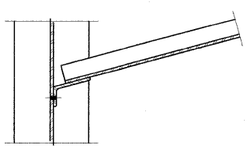
(10 Required)

TOP OF BEAM ELEVATIONS FOR FABRICATION ONLY					
Location	Beam 1	Beam 2	Beam 3	Beam 4	Beam 5
℄ Brg. N. Abut.	486.16	486.06	485.96	485.85	485.73
℄ Pier 1	486.09	485.95	485.80	485.65	485.50
℄ Splice 1	486.08	485.92	485.77	485.61	485.45
℄ Splice 2	485.73	485.54	485.35	485.16	484.96
℄ Pier 2	485.59	485.39	485.19	484.99	484.78
℄ Brg. S. Abut.	484.88	484.65	484.41	484.17	483.92

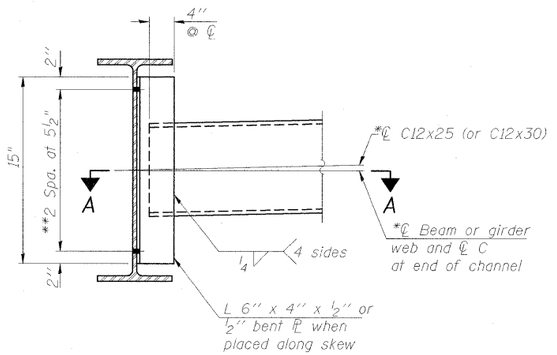
NOTES:

1. All stringers shall be AASHTO M270, Grade 50 steel (N.T.R.).
2. Load carrying components designed "N.T.R." shall conform to the supplemental requirements for notch toughness (Zone 2).
3. All diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted. Individual diaphragms at supports may be temporarily disconnected to install bearing anchor rods.

Note:
Two hardened washers required for each set of oversized holes.
*Alternate channels are permitted to facilitate material acquisition. Calculated weight of structural steel is based on the lighter section. The alternate, if utilized, shall be provided at no additional cost to the Department.
**3/4" ϕ HS bolts, 15/16" ϕ holes



SECTION A-A



INTERIOR DIAPHRAGM

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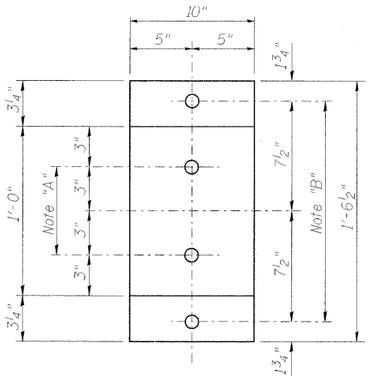
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FRAMING PLAN
STRUCTURE NO. 100-0097
SHEET NO. 11 OF 23 SHEETS

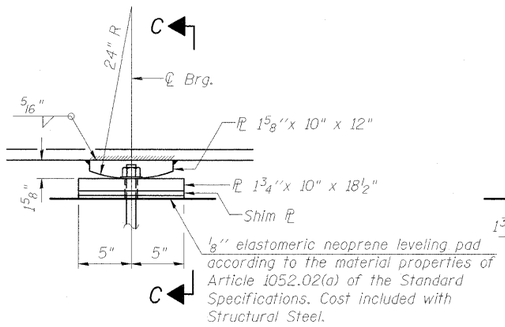
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HB-1	WILLIAMSON	968	671
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS FED. AID PROJECT				



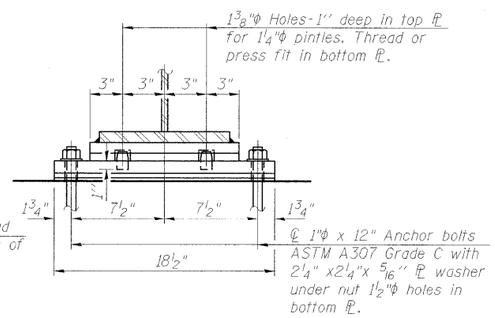
PLAN AT PIERS

Note "A":
$1\frac{3}{8}$"ϕ Holes - 1" deep in top plate for $1\frac{1}{4}$"ϕ pintles. Thread or press fit in bottom plate.

Note B:
1"ϕx12" Anchor bolts ASTM A307 Grade C with $2\frac{1}{4}$"x$\frac{5}{16}$" ℄ washer under nut $1\frac{1}{4}$"ϕ holes in bottom ℄.

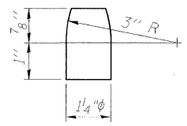


ELEVATION AT PIER



SECTION C-C

FIXED BEARING AT PIERS 1 & 2



PINTLE

Notes:

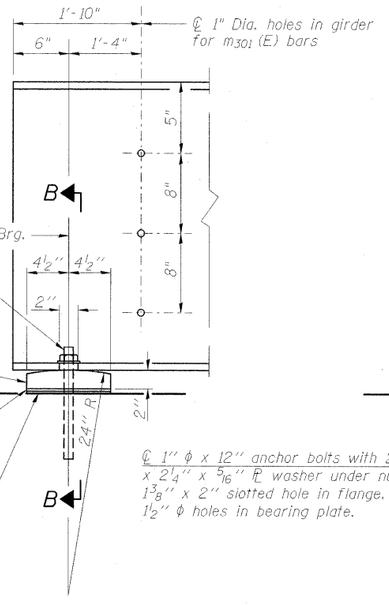
Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. ASTM A307 Grade C anchor bolts may be used in lieu of ASTM F1554 Grade 36 (Fy=36ksi). The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.

Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.

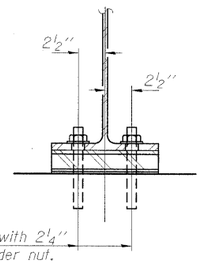
Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.

Two $\frac{1}{8}$ in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

The anchor bolt sizes and grades shown constitute a calculated seismic structural fuse. Substitution of higher diameter and/or grade will not be allowed.



ELEVATION AT ABUTMENT



SECTION B-B

FIXED BEARING AT ABUTMENTS

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) 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) due to long-term composite (superimposed) dead loads ($in.^4$ and $in.^3$).

Z: Plastic Section Modulus of the steel section in non-composite areas. Omit line in Moment Table if not used in design calculations ($in.^3$).

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

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

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

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

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

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

M_{L+IM}: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).

M_u (Strength I): Factored design moment (kip-ft.). $1.25\,(M_{DC1} + M_{DC2}) + 1.5\,M_{DW} + 1.75\,M_{L+IM}$

$\phi_f M_n$: Compact composite positive moment capacity computed according to Article 6.10.7.1 (kip-ft.).

$\phi_f M_{nc}$: Compact non-composite negative moment capacity computed according to Article A6.1.1 (kip-ft.).

f_s (Service II): Sum of stresses as computed from the moments below (ksi). $M_{DC1} + M_{DC2} + M_{DW} + 1.3\,M_{L+IM}$

V_r: Maximum factored shear range in composite portion of span computed according to Article 6.10.10.

INTERIOR GIRDER MOMENT TABLE

		0.4 Sp. 1 or 0.6 Sp. 3	Pier 1 or Pier 2	0.5 Sp. 2
I_s	($in.^4$)	2850	2850	2850
$I_c(n)$	($in.^4$)	8890	4425	8890
$I_c(3n)$	($in.^4$)	6620	4425	6620
S_s	($in.^3$)	213	213	213
$S_c(n)$	($in.^3$)	339	263	339
$S_c(3n)$	($in.^3$)	306	263	306
DC1	(k/')	0.730	0.730	0.730
M_{DC1}	('k)	75	-149	83
DC2	(k/')	0.204	0.204	0.204
M_{DC2}	('k)	21	-43	23
DW	(k/')	0.300	0.300	0.300
M_{DW}	('k)	31	-63	34
M_{L+IM}	('k)	322	-267	313
M_u (Strength I)	('k)	730	905	848
$\phi_f M_n$, $\phi_f M_{nc}$	('k)	1754	1301	1719
f_s DC1	(ksi)	4.22	9.69	6.03
f_s DC2	(ksi)	0.82	2.28	1.18
f_s DW	(ksi)	1.22	3.38	1.73
f_s 1.3(L+IM)	(ksi)	11.40	17.50	12.35
f_s (Service II)	(ksi)	17.66	32.85	21.29
V_r	(k)	32.9	45	33.8

INTERIOR GIRDER REACTION TABLE

		Abut.	Pier
R_{DC1}	(k)	21.3	36.1
R_{DC2}	(k)	3.0	10.4
R_{DW}	(k)	4.4	15.2
R_{L+IM}	(k)	65.4	82.9
R_{Total}	(k)	94.1	144.6

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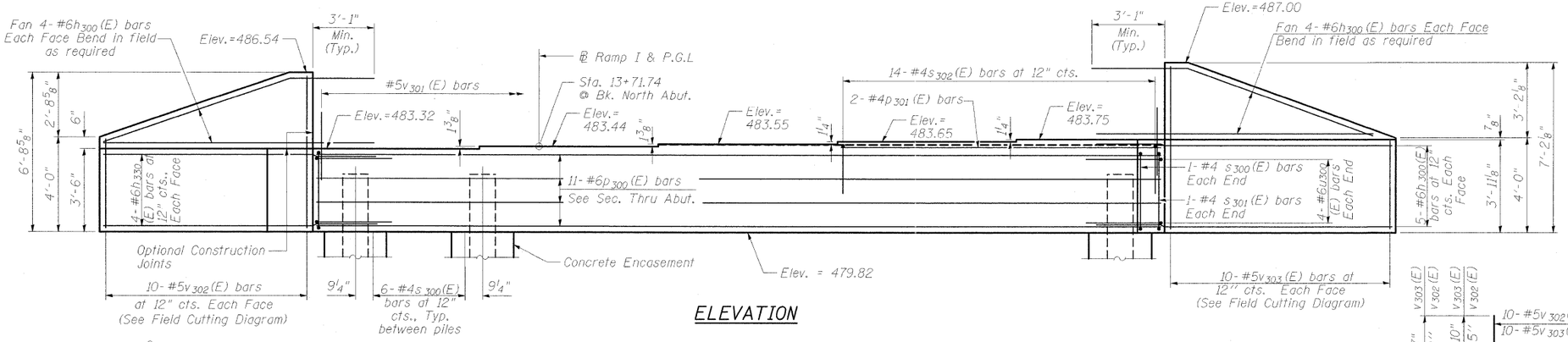
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL DETAILS
STRUCTURE NO. 100-0097
SHEET NO. 12 OF 23 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HB-1	WILLIAMSON	968	672
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS	FED. AID PROJECT			



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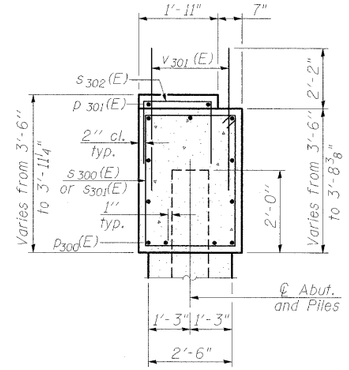

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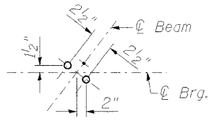
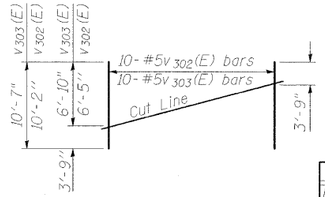


ANCHOR BOLT LAYOUT

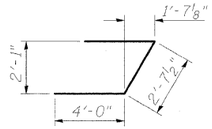


FIELD CUTTING DIAGRAM

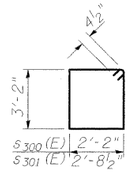
Order $v_{302}(E)$ and $v_{303}(E)$ full length. Cut as shown and use remainder of bars in opposite face.

BILL OF MATERIAL

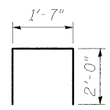
Bar	No.	Size	Length	Shape
$h_{300}(E)$	34	#6	12'-1"	
$p_{300}(E)$	11	#6	36'-5"	
$p_{301}(E)$	2	#4	13'-6"	
$s_{300}(E)$	32	#4	11'-5"	
$s_{301}(E)$	2	#4	12'-6"	
$s_{302}(E)$	14	#4	5'-7"	
$u_{300}(E)$	8	#6	10'-8"	
$v_{301}(E)$	72	#5	4'-4"	
$v_{302}(E)$	10	#5	10'-2"	
$v_{303}(E)$	10	#5	10'-7"	
Concrete Structures		Cu. Yd.	16.4	
Reinforcement Bars, Epoxy Coated		Pound	2,220	
Furnishing Steel Piles, HP 12x53		Foot	165	
Driving Piles		Foot	165	
Test Pile Steel HP 12x53		Each	1	
Concrete Encasement		Cu. Yd.	2.1	



BAR $u_{300}(E)$



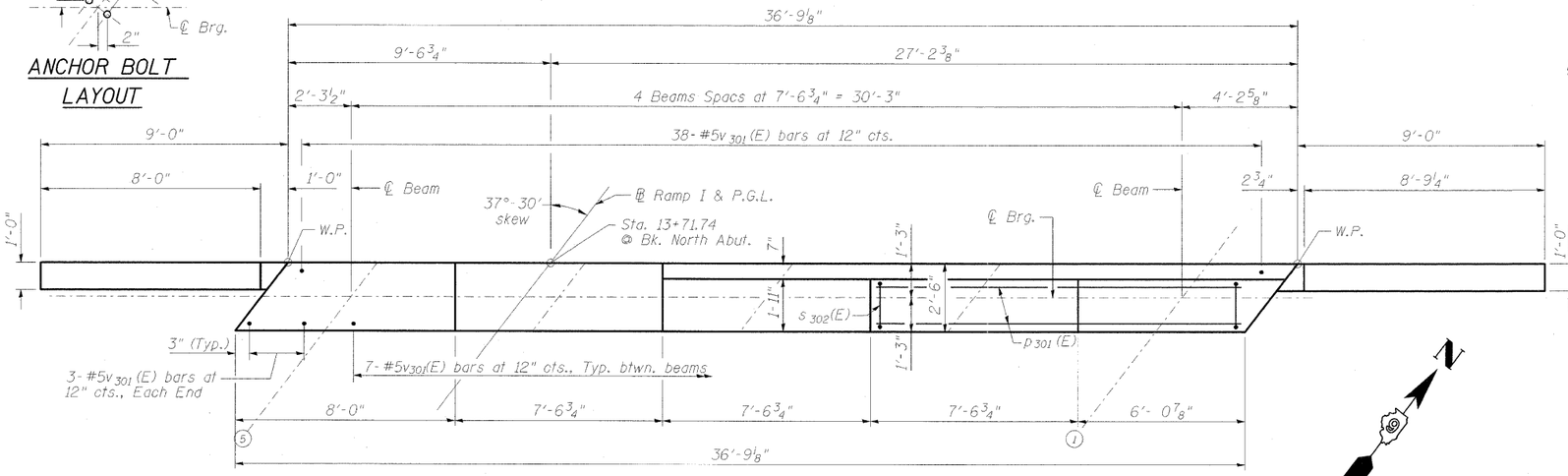
BARS $s_{300}(E)$ & $s_{301}(E)$



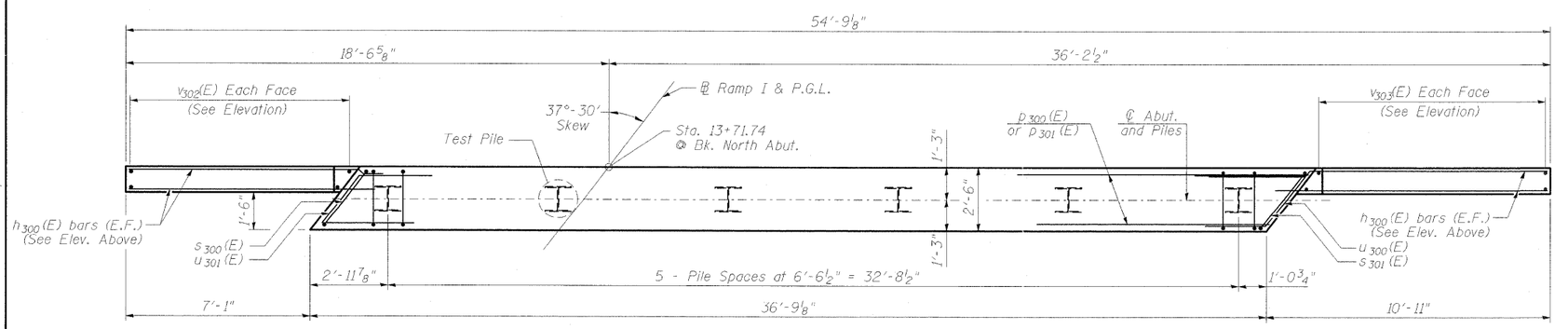
BAR $s_{302}(E)$

NOTES:

1. Pour steps monolithically with cap.
2. Space reinforcement to miss anchor bolts.
3. See Sheet 2 of 23 for abutment backfill requirements.
4. See Sheet 21 of 23 for steel H-pile details.
5. For details of piles and Concrete Encasement, see sheet 21 of 23.



TOP VIEW



PILE CAP PLAN

PILE DATA

PILE TYPE AND SIZE:	HP 12x53
NOMINAL REQUIRED BEARING:	418 Kips
FACTORED RESISTANCE AVAILABLE:	230 Kips
ESTIMATED PILE LENGTH:	33 Ft.
NUMBER OF PRODUCTION PILES:	5
NUMBER OF TEST PILES:	1

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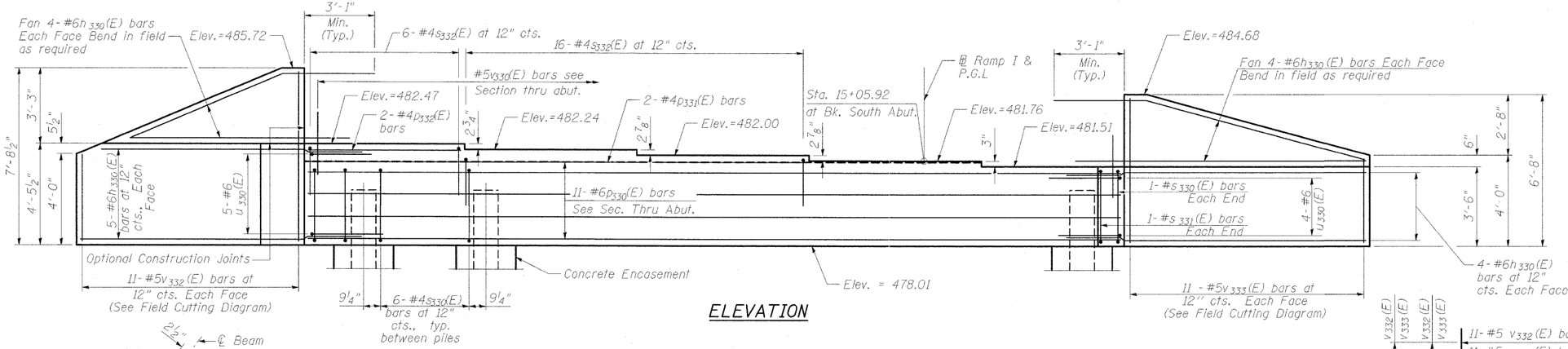
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

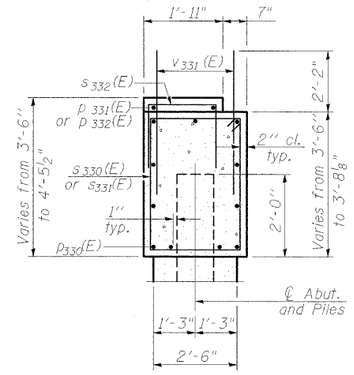
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

NORTH ABUTMENT
STRUCTURE NO. 100-0097
SHEET NO. 13 OF 23 SHEETS

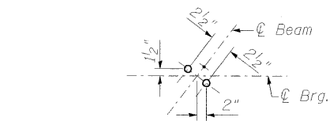
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HB-1	WILLIAMSON	968	673
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS FED. AID PROJECT				



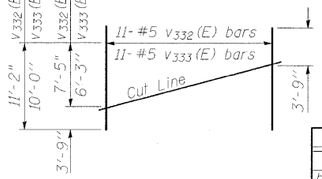
ELEVATION



SEC. THRU ABUT.



ANCHOR BOLT LAYOUT

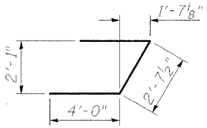


FIELD CUTTING DIAGRAM

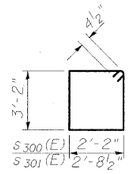
Order $v_{332}(E)$ and $v_{331}(E)$ full length. Cut as shown and use remainder of bars in opposite face.

BILL OF MATERIAL

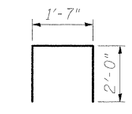
Bar	No.	Size	Length	Shape
$h_{330}(E)$	34	#6	13'-1"	
$p_{330}(E)$	11	#6	36'-5"	
$p_{331}(E)$	2	#4	21'-0"	
$p_{332}(E)$	2	#4	5'-10"	
$s_{330}(E)$	32	#4	11'-5"	
$s_{331}(E)$	2	#4	12'-6"	
$s_{332}(E)$	22	#4	5'-7"	
$u_{330}(E)$	9	#6	10'-8"	
$v_{331}(E)$	72	#5	4'-4"	
$v_{332}(E)$	11	#5	11'-2"	
$v_{333}(E)$	11	#5	10'-0"	
Concrete Structures			Cu. Yd.	17.8
Reinforcement Bars, Epoxy Coated			Pound	2,370
Furnishing Steel Piles, HP 12x53			Foot	160
Driving Piles			Foot	160
Test Pile Steel HP 12x53			Each	1
Concrete Encasement			Cu. Yd.	2.1



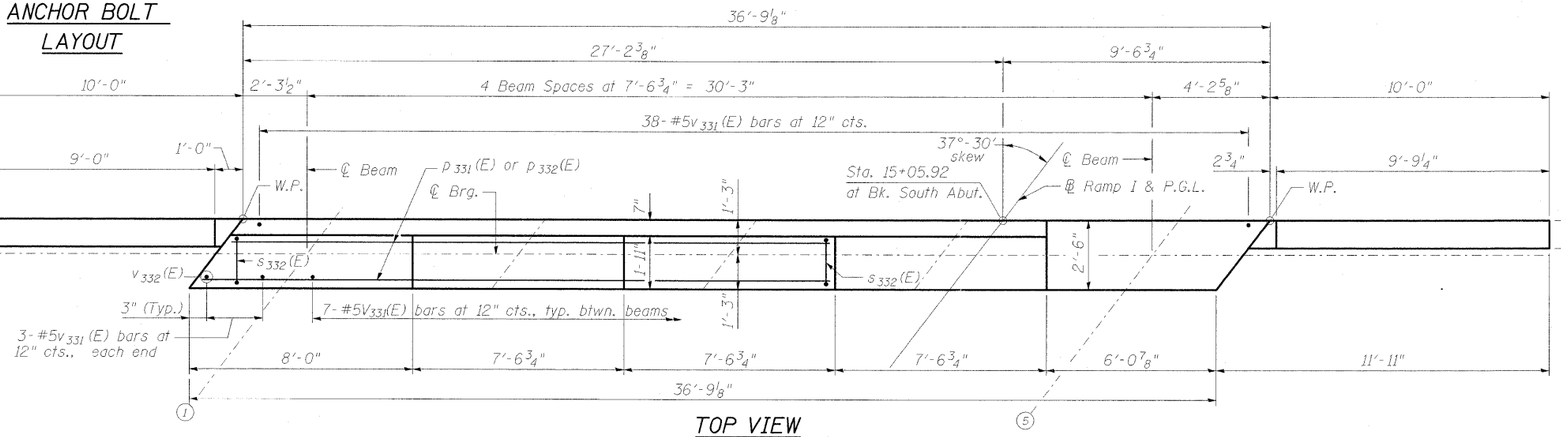
BAR $u_{330}(E)$



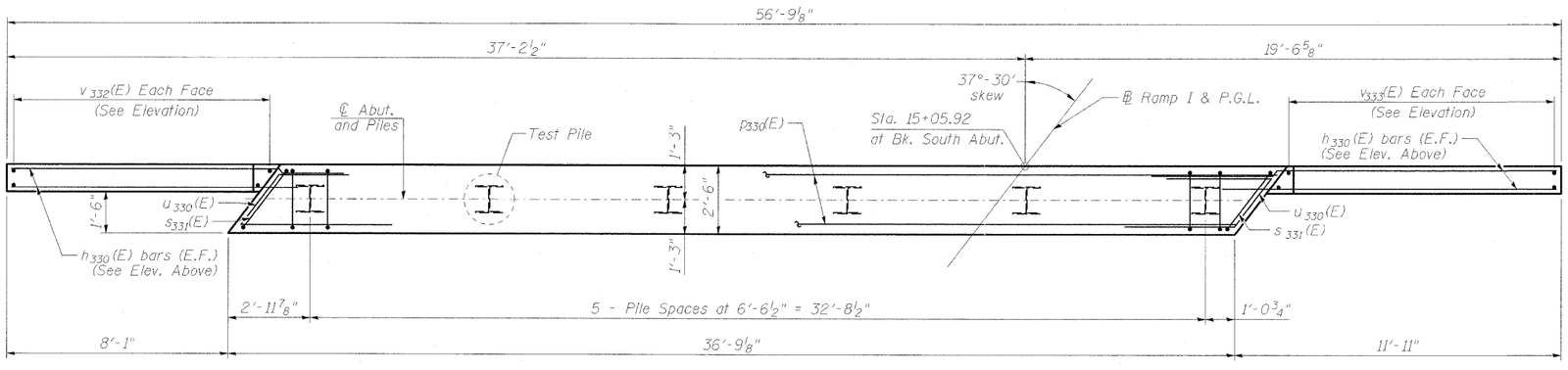
BARS $s_{330}(E)$ & $s_{331}(E)$



BAR $s_{332}(E)$



TOP VIEW



PILE CAP PLAN

NOTES:

1. Pour steps monolithically with cap.
2. Space reinforcement to miss anchor bolts.
3. See Sheet 2 of 23 for abutment backfill requirements.
4. See Sheet 21 of 23 for steel H-pile details.
5. For details of piles and Concrete Encasement, see sheet 21 of 23.

PILE DATA

PILE TYPE AND SIZE:	HP 12x53
NOMINAL REQUIRED BEARING:	418 Kips
FACTORED RESISTANCE AVAILABLE:	230 Kips
ESTIMATED PILE LENGTH:	32 Ft.
NUMBER OF PRODUCTION PILES:	5
NUMBER OF TEST PILES:	1

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FILE NAME = ...\Ramp 1\SO ABUT_015.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
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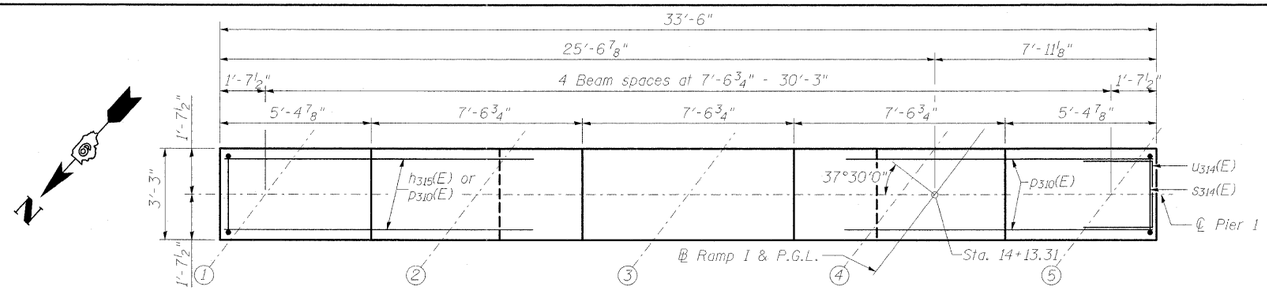
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

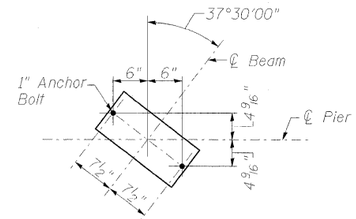
SOUTH ABUTMENT
STRUCTURE NO. 100-0097
SHEET NO. 14 OF 23 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HB-1	WILLIAMSON	968	674
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
		ILLINOIS FED. AID PROJECT		

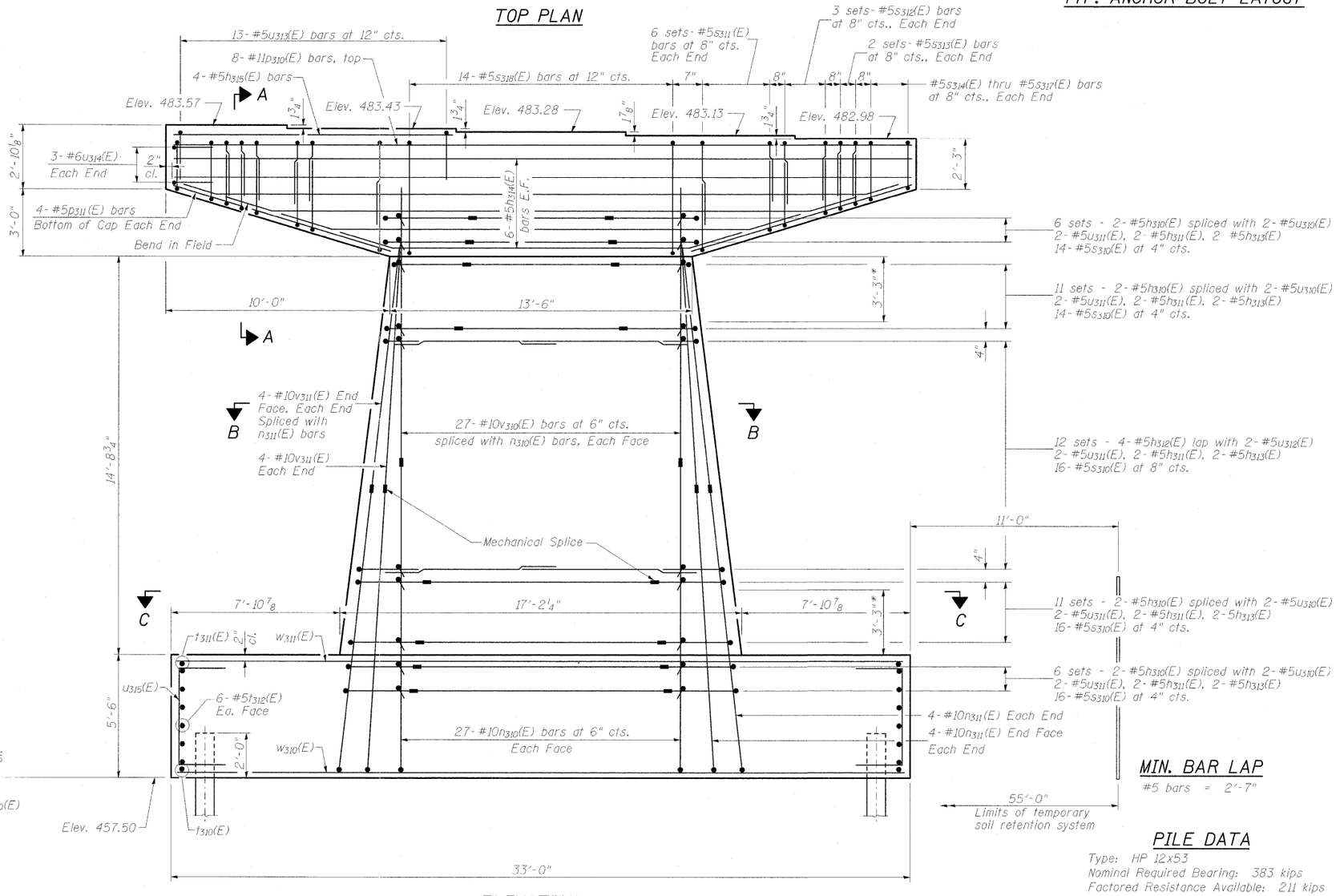
Notes:
Space reinforcement in cap to miss anchor bolts.
Pour steps monolithically with cap.
For details of piles, see sheet 21 of 23.
Each set of $s_{311}(E)$, $s_{312}(E)$ and $s_{313}(E)$ bars has 2 bars (1 top and 1 bottom). See Section A-A.
For details of Mechanical Splice, see sheet 19 of 23.
Concrete Sealer shall be applied to both faces, both ends and top of pier.
A cantilevered sheet piling design does not appear feasible and additional members or other retention systems may be necessary. The Contractor shall submit a temporary soil retention system design including plan details and calculations for review and acceptance by the Engineer.



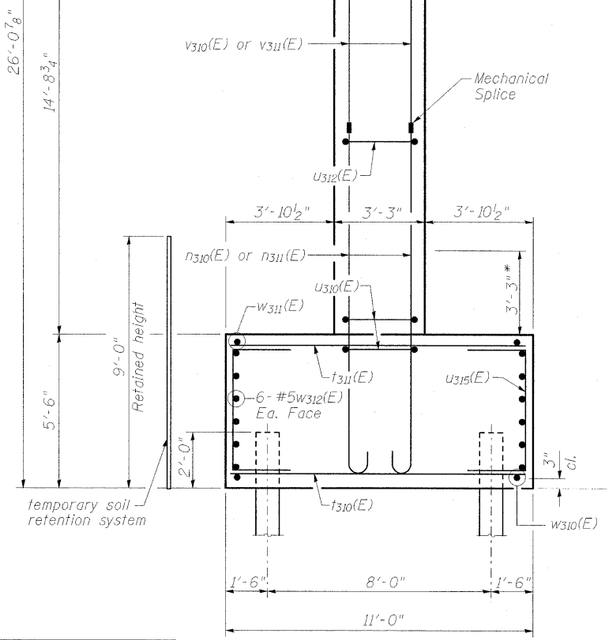
TOP PLAN



TYP. ANCHOR BOLT LAYOUT



ELEVATION
(Looking South)
* Limits of plastic hinging region. No lap splices allowed.



END VIEW

MIN. BAR LAP

#5 bars = 2'-7"

PILE DATA

Type: HP 12x53
Nominal Required Bearing: 383 kips
Factored Resistance Available: 211 kips
Est. Length: 13 ft.
No. Production Piles: 11
No. Test Piles: 1

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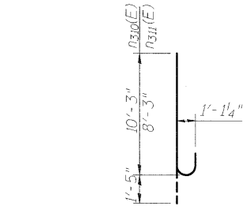
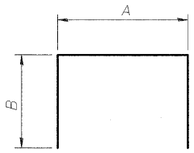
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 1
STRUCTURE NO. 100-0097
SHEET NO. 15 OF 23 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HB-1	WILLIAMSON	968	675
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			



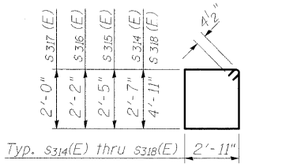
BAR n_{310} (E) & n_{311} (E)



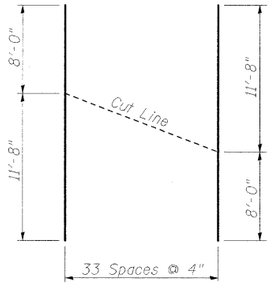
BAR u_{313}(E), u_{314}(E), u_{315}(E) s_{311}(E), s_{312}(E) & s_{313}(E)

A & B DIMENSIONS

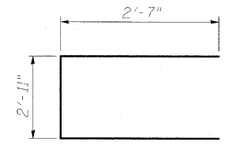
Bar	A	B
s_{311}(E)	2'-11"	3'-9"
s_{312}(E)	2'-11"	3'-1"
s_{313}(E)	2'-11"	2'-9½"
u_{313}(E)	2'-11"	2'-0"
u_{314}(E)	2'-9"	3'-0"
u_{315}(E)	4'-8"	2'-0"



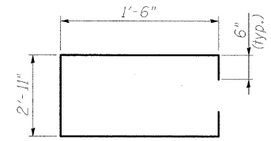
BARS s_{314}(E) thru s_{318}(E)



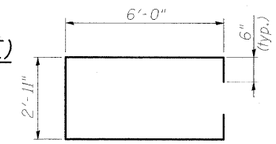
CUTTING DIAGRAM BAR h310(E)



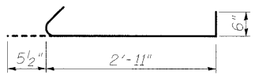
BAR u_{310} (E)



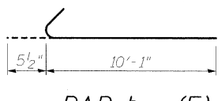
BAR u_{311} (E)



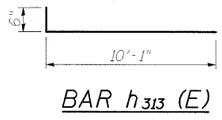
BAR u_{312} (E)



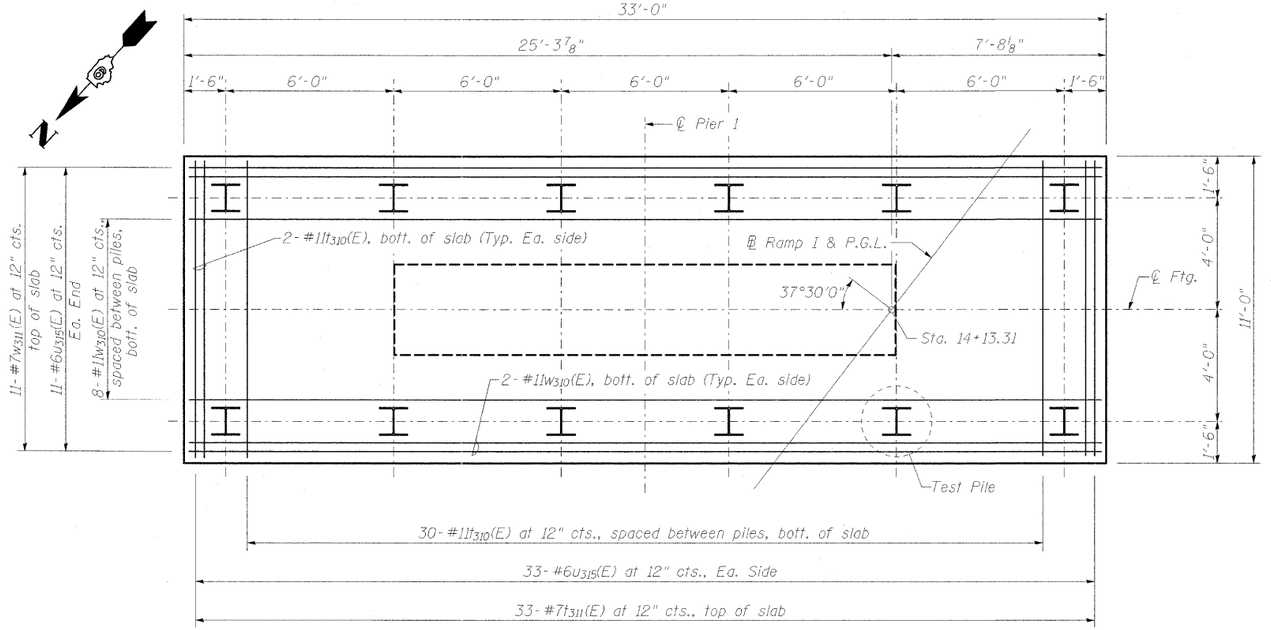
BAR s_{310} (E)



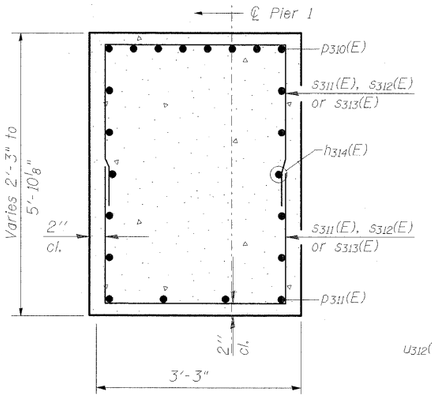
BAR h_{311} (E)



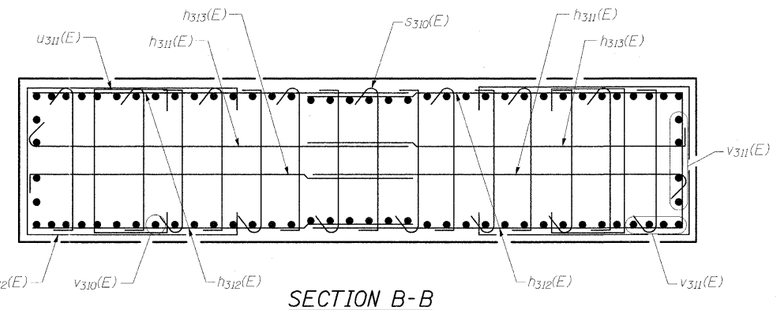
BAR h_{313} (E)



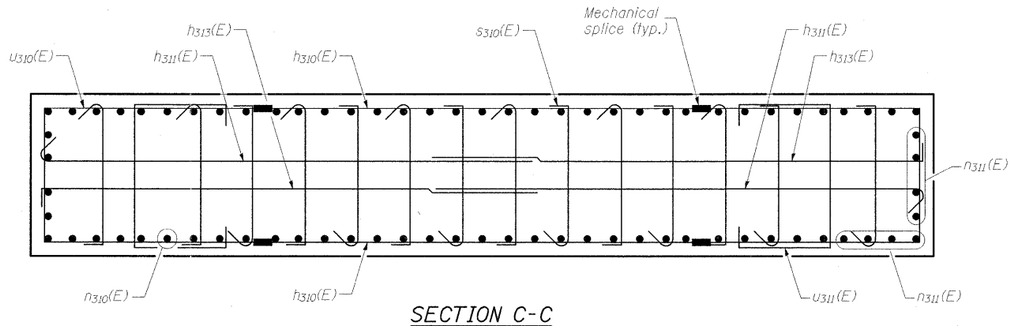
FOOTING PLAN



SECTION A-A



SECTION B-B



SECTION C-C

PIER 1
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h_{310} (E)	34	#5	19'-8"	
h_{311} (E)	92	#5	10'-7"	
h_{312} (E)	48	#5	9'-8"	
h_{313} (E)	92	#5	10'-7"	
h_{314} (E)	12	#5	33'-2"	
h_{315} (E)	4	#5	12'-7"	
n_{310} (E)	54	#10	11'-8"	
n_{311} (E)	24	#10	9'-8"	
p_{310} (E)	8	#11	33'-2"	
p_{311} (E)	8	#5	10'-3"	
s_{310} (E)	702	#5	3'-11"	
s_{311} (E)	24	#5	10'-5"	
s_{312} (E)	12	#5	9'-1"	
s_{313} (E)	8	#5	8'-6"	
s_{314} (E)	2	#5	11'-9"	
s_{315} (E)	2	#5	11'-5"	
s_{316} (E)	2	#5	10'-11"	
s_{317} (E)	2	#5	10'-7"	
s_{318} (E)	14	#5	16'-5"	
t_{310} (E)	34	#11	10'-6"	
t_{311} (E)	33	#7	10'-6"	
t_{312} (E)	12	#5	10'-6"	
u_{310} (E)	68	#5	8'-1"	
u_{311} (E)	92	#5	6'-11"	
u_{312} (E)	24	#5	15'-11"	
u_{313} (E)	13	#5	6'-11"	
u_{314} (E)	6	#6	8'-9"	
u_{315} (E)	88	#6	8'-8"	
v_{310} (E)	54	#10	13'-0"	
v_{311} (E)	24	#10	15'-0"	
w_{310} (E)	12	#11	32'-6"	
w_{311} (E)	11	#7	32'-6"	
w_{312} (E)	12	#5	32'-6"	
Structure Excavation		Cu. Yd.	164	
Concrete Structures		Cu. Yd.	120.0	
Reinforcement Bars, Epoxy Coated		Pound	26,000	
Furnishing Steel Piles, HP 12x53		Foot	143	
Driving Piles		Foot	143	
Test Pile Steel HP 12x53		Each	1	
Mechanical Splicers		Each	146	
Concrete Sealer		Sq. Ft.	591	

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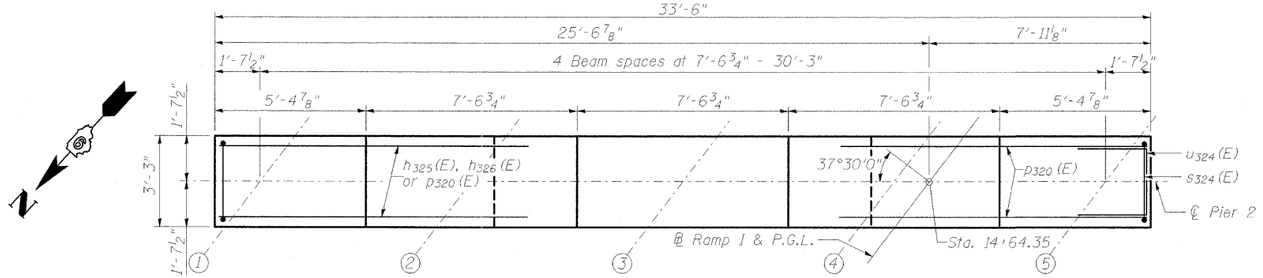
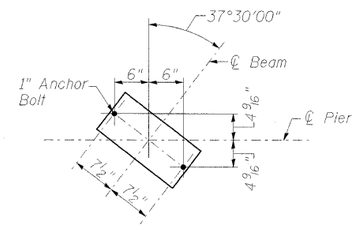
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 1 DETAILS
STRUCTURE NO. 100-0097
SHEET NO. 16 OF 23 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HB-1	WILLIAMSON	968	676
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			

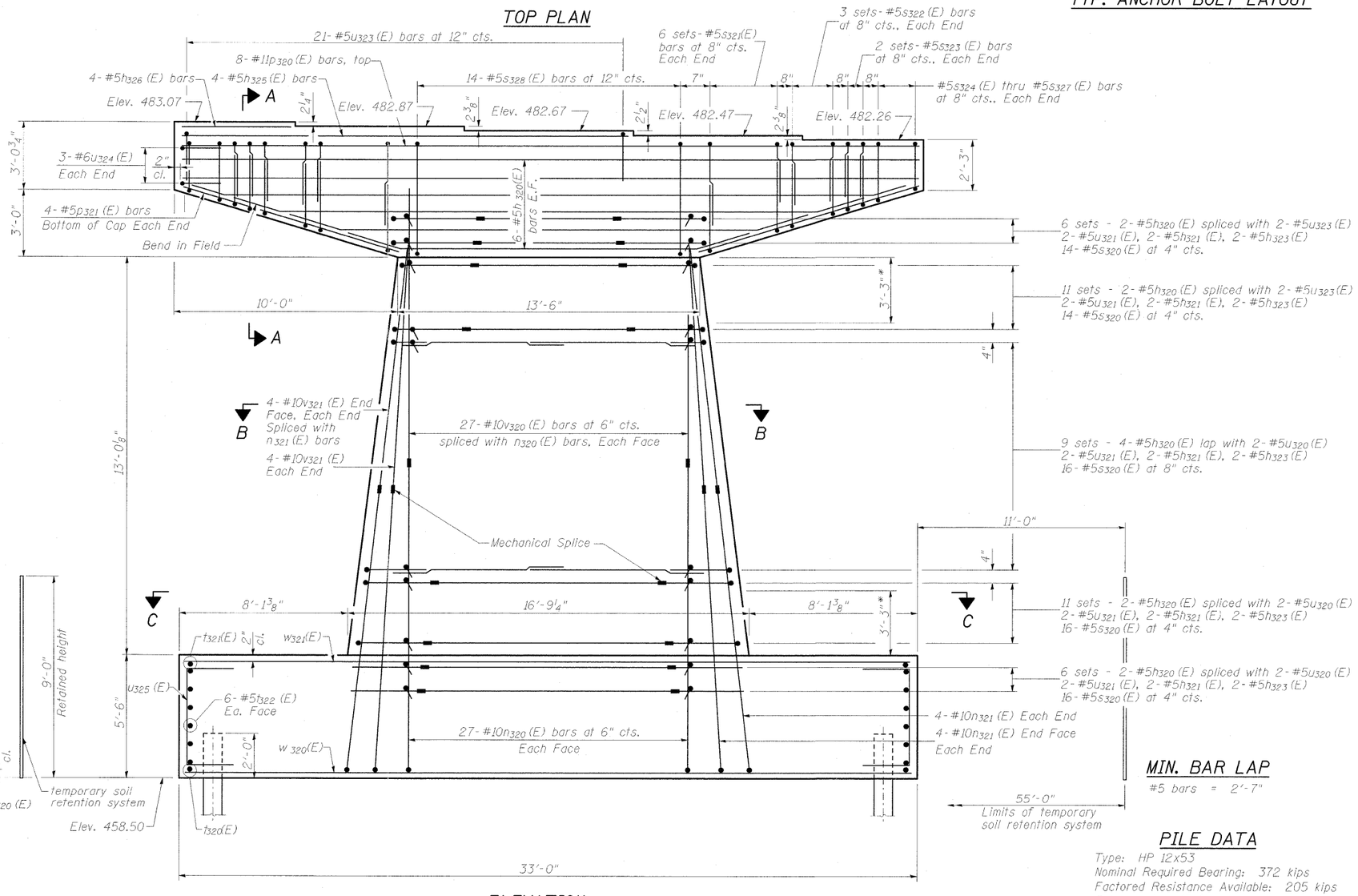
Notes:
Space reinforcement in cap to miss anchor bolts.
Pour steps monolithically with cap.
For details of piles, see sheet 21 of 23.
Each set of s_{321} (E), s_{322} (E) and s_{323} (E) bars has 2 bars (1 top and 1 bottom). See Section A-A.
For details of Mechanical Splice, see sheet 19 of 23.
Concrete Sealer shall be applied to both faces, both ends and top of pier.
A cantilevered sheet piling design does not appear feasible and additional members or other retention systems may be necessary. The Contractor shall submit a temporary soil retention system design including plan details and calculations for review and acceptance by the Engineer.



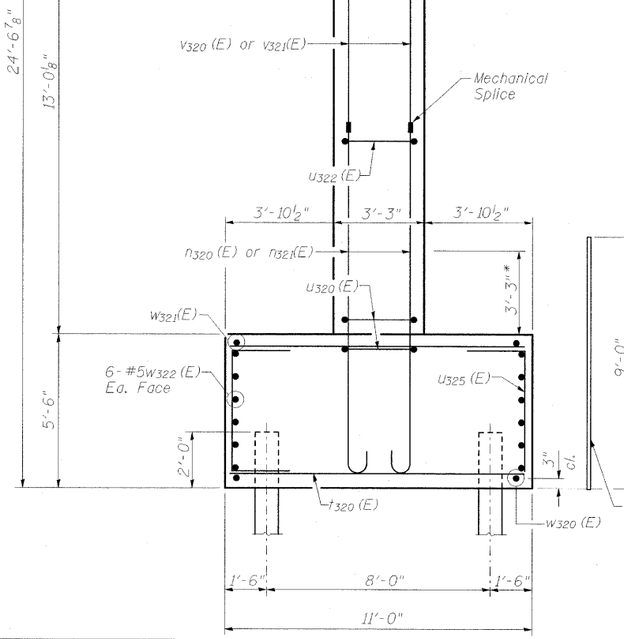


TYP. ANCHOR BOLT LAYOUT

TOP PLAN



ELEVATION
(Looking South)
* Limits of plastic hinging region. No lap splices allowed.



END VIEW

MIN. BAR LAP
#5 bars = 2'-7"

PILE DATA
Type: HP 12x53
Nominal Required Bearing: 372 kips
Factored Resistance Available: 205 kips
Est. Length: 15 ft.
No. Production Piles: 11
No. Test Piles: 1

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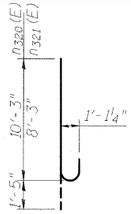
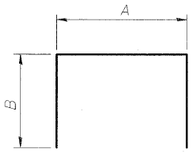
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 2
STRUCTURE NO. 100-0097
SHEET NO. 17 OF 23 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HB-1	WILLIAMSON	968	677
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS FED. AID PROJECT				



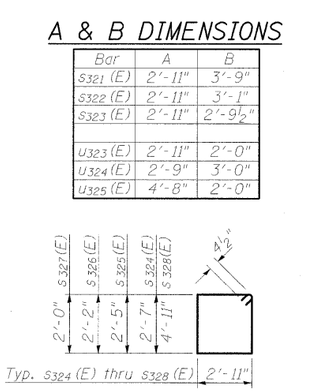
BAR n_{320} (E) & n_{321} (E)



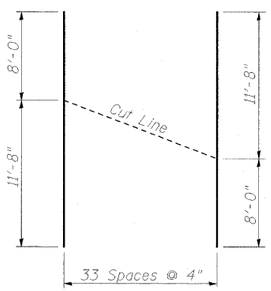
BAR u_{323}(E), u_{324}(E), u_{325}(E) s_{321}(E), s_{322}(E) & s_{323}(E)

A & B DIMENSIONS

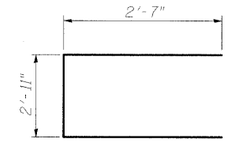
Bar	A	B
s_{321} (E)	2'-11"	3'-9"
s_{322} (E)	2'-11"	3'-1"
s_{323} (E)	2'-11"	2'-9½"
u_{323} (E)	2'-11"	2'-0"
u_{324} (E)	2'-9"	3'-0"
u_{325} (E)	4'-8"	2'-0"



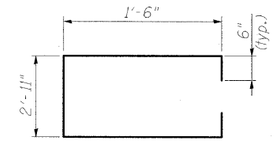
BARS s_{324} (E) thru s_{328} (E)



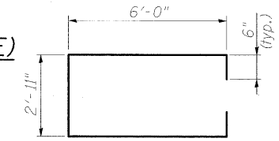
CUTTING DIAGRAM
BAR h_{320} (E)



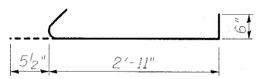
BAR u_{320} (E)



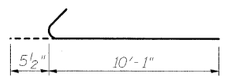
BAR u_{321} (E)



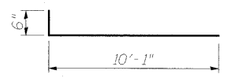
BAR u_{321} (E)



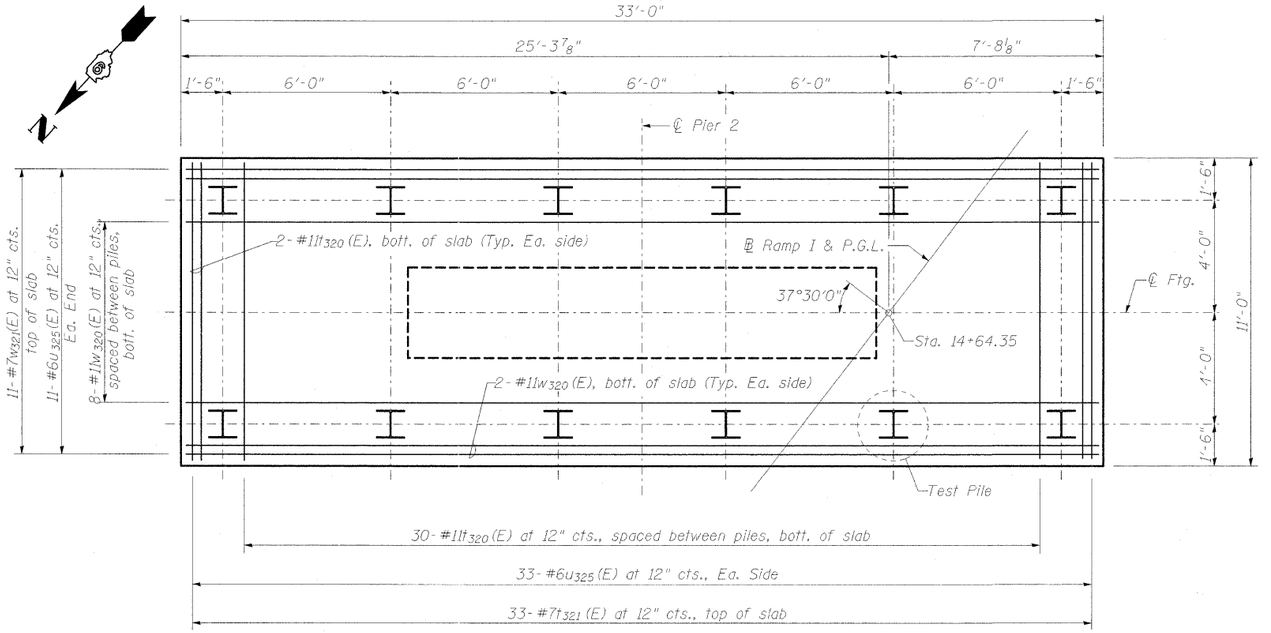
BAR s_{320} (E)



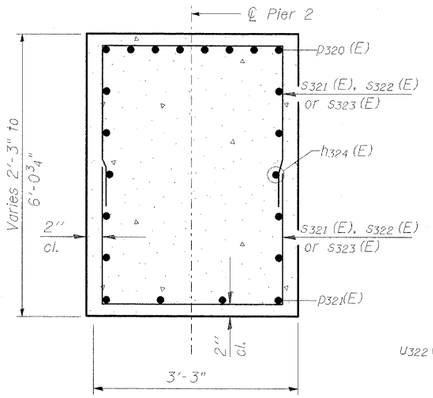
BAR h_{321} (E)



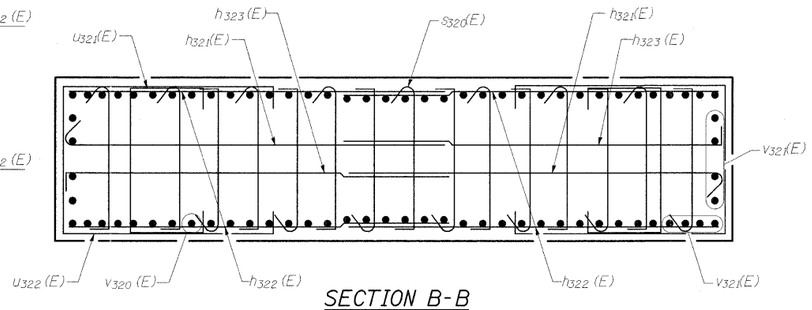
BAR h_{323} (E)



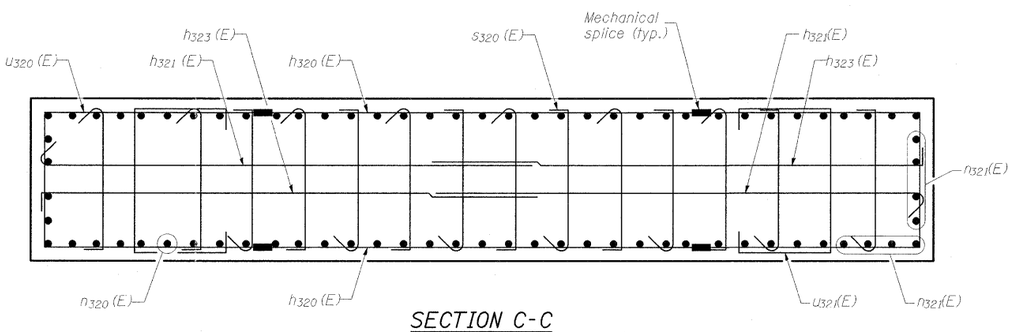
FOOTING PLAN



SECTION A-A



SECTION B-B



SECTION C-C

PIER 2
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h_{320} (E)	34	#5	19'-8"	
h_{321} (E)	92	#5	10'-7"	
h_{322} (E)	36	#5	9'-8"	
h_{323} (E)	92	#5	10'-7"	
h_{324} (E)	12	#5	33'-2"	
h_{325} (E)	4	#5	20'-2"	
h_{326} (E)	4	#5	5'-1"	
n_{320} (E)	54	#10	11'-8"	
n_{321} (E)	24	#10	9'-8"	
p_{320} (E)	8	#11	33'-2"	
p_{321} (E)	8	#5	10'-3"	
s_{320} (E)	654	#5	3'-11"	
s_{321} (E)	24	#5	10'-5"	
s_{322} (E)	12	#5	9'-1"	
s_{323} (E)	8	#5	8'-6"	
s_{324} (E)	2	#5	11'-9"	
s_{325} (E)	2	#5	11'-5"	
s_{326} (E)	2	#5	10'-11"	
s_{327} (E)	2	#5	10'-7"	
s_{328} (E)	14	#5	16'-5"	
t_{320} (E)	34	#11	10'-6"	
t_{321} (E)	33	#7	10'-6"	
t_{322} (E)	12	#5	10'-6"	
u_{320} (E)	68	#5	8'-1"	
u_{321} (E)	86	#5	6'-11"	
u_{322} (E)	18	#5	15'-11"	
u_{323} (E)	21	#5	6'-11"	
u_{324} (E)	6	#6	8'-9"	
u_{325} (E)	88	#6	8'-8"	
v_{320} (E)	54	#10	11'-4"	
v_{321} (E)	24	#10	13'-4"	
w_{320} (E)	12	#11	32'-6"	
w_{321} (E)	11	#7	32'-6"	
w_{322} (E)	12	#5	32'-6"	
Structure Excavation		Cu. Yd.	164	
Concrete Structures		Cu. Yd.	116.9	
Reinforcement Bars, Epoxy Coated		Pound	25,100	
Furnishing Steel Piles, HP 12x53		Foot	165	
Driving Piles		Foot	165	
Test Pile Steel HP 12x53		Each	1	
Mechanical Splicers		Each	146	
Concrete Sealer		Each	557	

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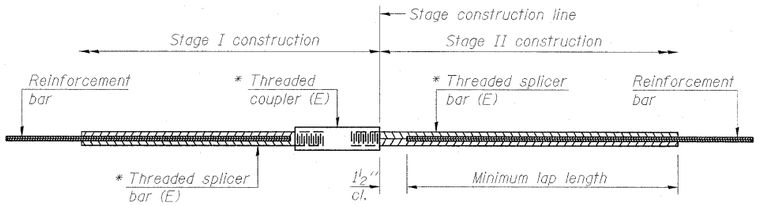
FILE NAME = ...\ramp 1\PIER 2_017A.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - REB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 2 DETAILS
STRUCTURE NO. 100-0097
SHEET NO. 18 OF 23 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HB-1	WILLIAMSON	968	678
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS	FED. AID PROJECT			



STANDARD BAR SPLICER ASSEMBLY

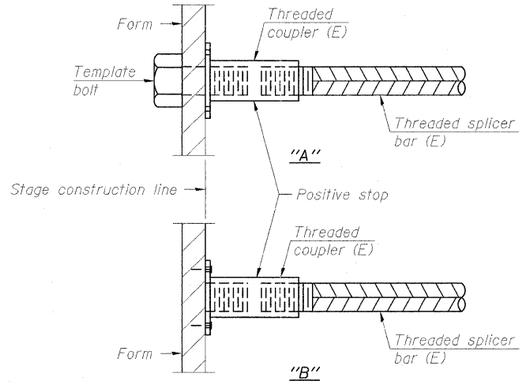
Minimum Lap Lengths					
Bar size to be spliced	Table 1	Table 2	Table 3	Table 4	Table 5
3, 4	1'-5"	1'-11"	2'-1"	2'-4"	2'-3"
5	1'-9"	2'-5"	2'-7"	2'-11"	2'-10"
6	2'-1"	2'-11"	3'-1"	3'-6"	3'-4"
7	2'-9"	3'-10"	4'-2"	4'-8"	4'-6"
8	3'-8"	5'-1"	5'-5"	6'-2"	5'-10"
9	4'-7"	6'-5"	6'-10"	7'-9"	7'-5"

Table 1: Black bar, 0.8 Class C
Table 2: Black bar, Top bar lap, 0.8 Class C
Table 3: Epoxy bar, 0.8 Class C
Table 4: Epoxy bar, Top bar lap, 0.8 Class C
Table 5: Epoxy bar, Top bar lap, Class B

Threaded splicer bar length = min. lap length + 1½" + thread length

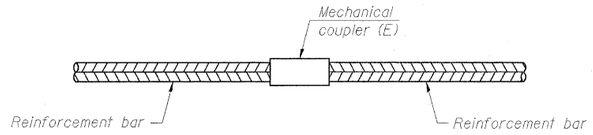
* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

Location	Bar size	No. assemblies required	Table for minimum lap length



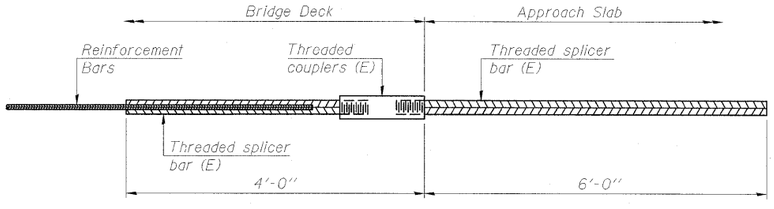
INSTALLATION AND SETTING METHODS

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



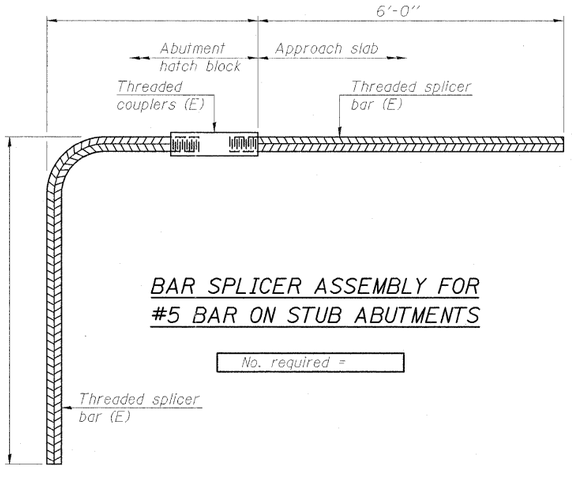
STANDARD MECHANICAL SPLICER

Location	Bar size	No. assemblies required
Pier 1	#5	68
	#10	78
Pier 2	#5	68
	#10	78



BAR SPLICER ASSEMBLY FOR #5 BAR ON INTEGRAL OR SEMI-INTEGRAL ABUTMENTS

No. required = 58



BAR SPLICER ASSEMBLY FOR #5 BAR ON STUB ABUTMENTS

No. required =

NOTES

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

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

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

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

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BSD-1 7-1-10

FILE NAME = ...\Ramp 1\BAR SPLICER.018.dgn
USER NAME = Gary Davis
PLOT SCALE =
PLOT DATE = 12/14/2011

DESIGNED - BPD	CHECKED - REB	DRAWN - GLD	CHECKED - BPD
REVISED -	REVISED -	REVISED -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BAR SPLICER ASSEMBLY AND MECHANICAL SPLICER DETAILS
STRUCTURE NO. 100-0097
SHEET NO. 19 OF 23 SHEETS

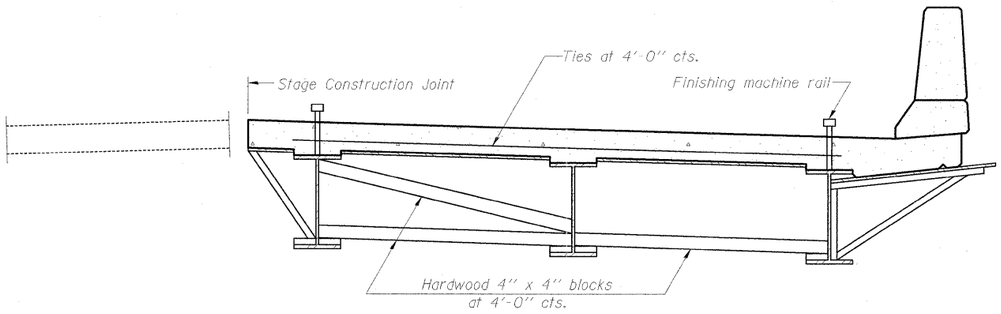
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HB-1	WILLIAMSON	968	679
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS FED. AID PROJECT				

When cantilever forming brackets are used, the work shall be done according to Article 503.06(b) of the Standard Specifications, except as modified below and in the details shown on this sheet.

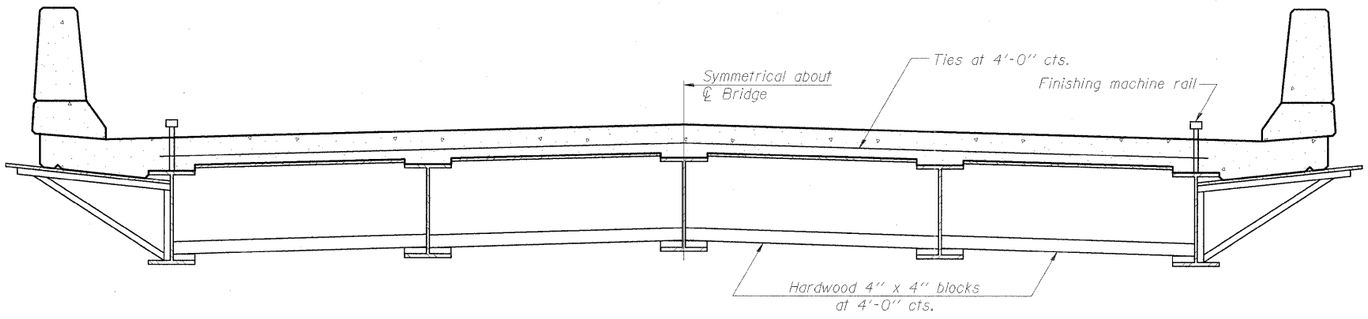
The finishing machine rails shall be placed on the top flange of the exterior beams.

The beams or girders, supporting cantilever forming brackets, shall be tied together at 4 foot intervals.

For Standard construction, or Stage Construction the Hardwood bracing materials shall be placed as shown between webs of beams in each bay.



FORM BRACES FOR
STAGE CONSTRUCTION



FORM BRACES FOR
STANDARD CONSTRUCTION

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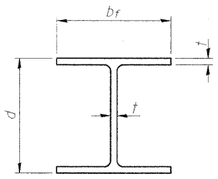
SB-1 7-1-10

FILE NAME = ...\Ramp I\CANT_FORM_BRACK_019.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - REB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

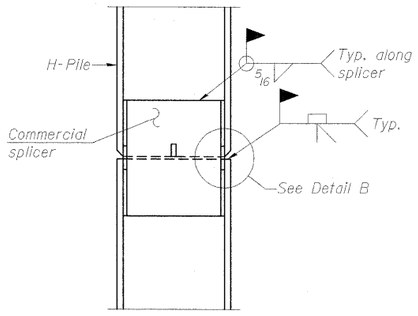
CANTILEVER FORMING BRACKETS
STRUCTURE NO. 100-0097
SHEET NO. 20 OF 23 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HB-1	WILLIAMSON	968	680
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS FED. AID PROJECT				

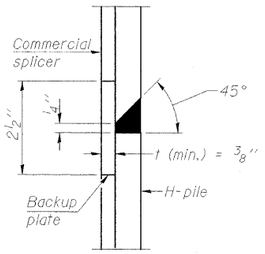


STEEL PILE TABLE

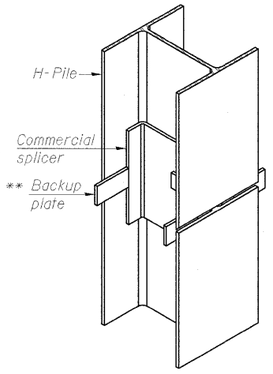
Designation	Depth d	Flange width b_f	Web and Flange thickness t	Encasement diameter A
HP 14x117	$14\frac{1}{4}''$	$14\frac{7}{8}''$	$\frac{13}{16}''$	30''
x102	14''	$14\frac{3}{4}''$	$\frac{11}{16}''$	30''
x89	$13\frac{7}{8}''$	$14\frac{3}{4}''$	$\frac{5}{8}''$	30''
x73	$13\frac{5}{8}''$	$14\frac{5}{8}''$	$\frac{1}{2}''$	30''
HP 12x84	$12\frac{1}{4}''$	$12\frac{1}{4}''$	$\frac{11}{16}''$	24''
x74	$12\frac{1}{8}''$	$12\frac{1}{4}''$	$\frac{5}{8}''$	24''
x63	12''	$12\frac{1}{8}''$	$\frac{1}{2}''$	24''
x53	$11\frac{3}{4}''$	12''	$\frac{7}{16}''$	24''
HP 10x57	10''	$10\frac{1}{4}''$	$\frac{9}{16}''$	24''
x42	$9\frac{3}{4}''$	$10\frac{1}{8}''$	$\frac{7}{16}''$	24''
HP 8x36	8''	$8\frac{1}{8}''$	$\frac{7}{16}''$	18''



ELEVATION

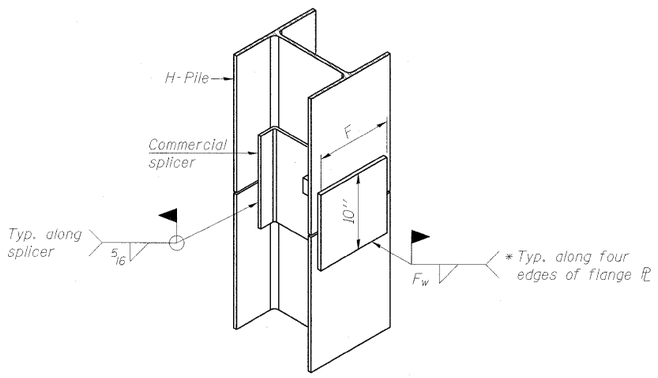


DETAIL "B"



ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE



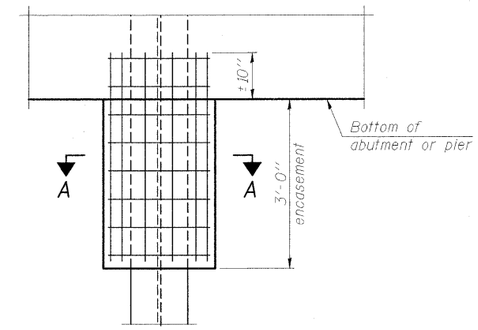
ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE ALTERNATE

* Interrupt welds ¼'' from end of web and/or each flange.

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

*** Weld size per pile shoe manufacturer ($\frac{5}{16}''$ min.).



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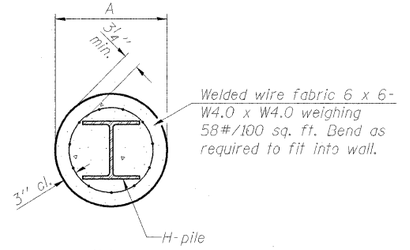
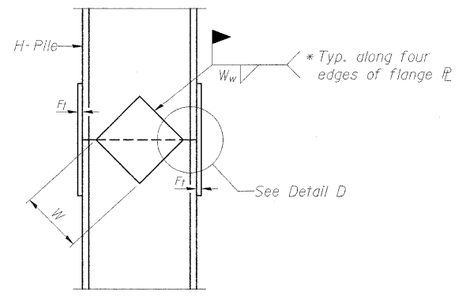


SECTION A-A

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

PILE ENCASEMENT



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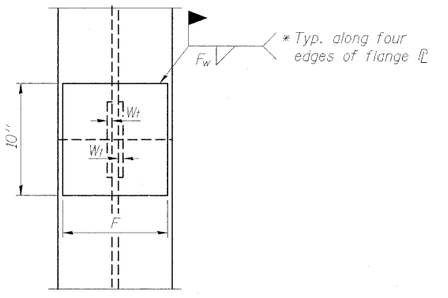
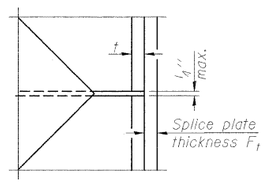


END VIEW



DETAIL D

Designation	F	F_t	F_w	W	W_t	W_w
HP 14x117	$12\frac{1}{2}''$	1''	$\frac{7}{8}''$	$7\frac{3}{4}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
x102	$12\frac{1}{2}''$	$\frac{7}{8}''$	$\frac{3}{4}''$	$7\frac{3}{4}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
x89	$12\frac{1}{2}''$	$\frac{3}{4}''$	$\frac{11}{16}''$	$7\frac{3}{4}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
x73	$12\frac{1}{2}''$	$\frac{5}{8}''$	$\frac{9}{16}''$	$7\frac{3}{4}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
HP 12x84	10''	$\frac{7}{8}''$	$\frac{11}{16}''$	$6\frac{1}{2}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
x74	10''	$\frac{7}{8}''$	$\frac{11}{16}''$	$6\frac{1}{2}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
x63	10''	$\frac{5}{8}''$	$\frac{1}{2}''$	$6\frac{1}{2}''$	$\frac{1}{2}''$	$\frac{3}{8}''$
x53	10''	$\frac{5}{8}''$	$\frac{1}{2}''$	$6\frac{1}{2}''$	$\frac{1}{2}''$	$\frac{3}{8}''$
HP 10x57	8''	$\frac{3}{4}''$	$\frac{9}{16}''$	$5\frac{1}{4}''$	$\frac{1}{2}''$	$\frac{3}{8}''$
x42	8''	$\frac{5}{8}''$	$\frac{9}{16}''$	$5\frac{1}{4}''$	$\frac{1}{2}''$	$\frac{3}{8}''$
HP 8x36	7''	$\frac{5}{8}''$	$\frac{7}{16}''$	$4\frac{1}{4}''$	$\frac{1}{2}''$	$\frac{3}{8}''$

WELDED PLATE FIELD SPLICE

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

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F-HP 7-1-10

FILE NAME = ...\ramp 1\HP PILE DETAILS_020.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - REB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

HP PILE DETAILS
STRUCTURE NO. 100-0097
SHEET NO. 21 OF 23 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HB-1	WILLIAMSON	968	681
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
ILLINOIS FED. AID PROJECT				

Kaskaskia Engineering Group, LLC

SOIL BORING LOG

Page 1 of 1

Date 9/10/10

ROUTE FAI 57/FAP 331 DESCRIPTION FAI 57 Ramp I over Ramp D LOGGED BY KEG

SECTION (X1-6-2)HB-1 LOCATION Marion; N 1/2 Section 14, TWP 9S, RNG 2E

COUNTY Williamson DRILLING METHOD CME 55LC/HSA HAMMER TYPE Automatic

STRUCT. NO. 100-0097
Station

BORING NO. B-15
Station 13+74.78
Offset 7.3 ft Lt
Ground Surface Elev. 468.63 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter - ft
Upon Completion - ft
After Hrs. - ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
FILL: Gray and brown, silty clay (A-7)			
	7		
	7 8	3.3 S	16
Boring offset 10'W due to electric utility.			
465.6			
SILTY CLAY: Brown, some sand (A-6)			
	3		
LL-31, PL-18, PI-13	3 5	1.9 B	19
463.1			
CLAY: Gray and brown, trace sand (A-7)			
	2		
	2 4	1.6 B	21
Becomes brown, dark brown, and gray, some sand, trace gravel	2		
	3 5	1.2 S	20
Becomes gray and brown, trace sand, no gravel	3		
	5 4	0.6 B	24
455.6			
SILTY CLAY: Brown, some sand (A-6)	2		
	2 3	0.4 B	19
453.1			
SHALE: Gray	50		
	50/2.5"	-	8
450.6			
CLAYEY SHALE: Brown	30		
	50/3"	-	12

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
CLAYEY SHALE: Brown *(continued)*			
Becomes brown and gray	39		
	50/3"	-	9
445.9			
SHALE: Gray			
	50/5"	-	8
	50/1"		
	50/4"	-	6
	50/2"		
439.6	50/3"	-	5
End of Boring	50/3"		

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)

BBS, form 137 (Rev. 8-99)

Kaskaskia Engineering Group, LLC

SOIL BORING LOG

Page 1 of 1

Date 9/13/10

ROUTE FAI 57/FAP 331 DESCRIPTION FAI 57 Ramp I over Ramp D LOGGED BY KEG

SECTION (X1-6-2)HB-1 LOCATION Marion; N 1/2 Section 14, TWP 9S, RNG 2E

COUNTY Williamson DRILLING METHOD CME 55LC/HSA HAMMER TYPE Automatic

STRUCT. NO. 100-0097
Station

BORING NO. B-16
Station 13+97.92
Offset 29.3 ft Rt
Ground Surface Elev. 468.65 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter - ft
Upon Completion - ft
After Hrs. - ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Grass cover and topsoil			
467.7	8		
FILL: Brown and gray, silty clay (A-7)	9	4.4	15
	8	B	
Some sand	5		
	7	4.5	14
463.2	7	P	
FILL: Brown, clay (A-7)	4		
	4	1.6	20
460.7	5	B	
CLAY: Brown, some sand (A-7)	4		
	4	1.5	18
	6	B	
	3		
	3	0.8	19
Trace coal, gravel	3	B	
	2		
	5	3.5	16
453.2	6	P	
SHALE: Brown	26		
	50/5"	-	8
	50		
	50/3"	-	8

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
SHALE: Brown *(continued)*			
	50		
	50/2"	-	7
Becomes gray	50/3"	-	6
	50/1"		
	50/4"	-	5
	50/1"		
Becomes brown and gray 439.7	50/4"	-	6
End of Boring	50/2"		

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)

BBS, form 137 (Rev. 8-99)

CMT
CRAWFORD MURPHY & TILLY, INC.
CONSULTING ENGINEERS
SPRINGFIELD, IL ■ AURORA, IL ■ ST. LOUIS, MO
ROCKFORD, IL ■ PEORIA, IL ■ CHICAGO, IL

FILE NAME = ...\ramp I\BORING LOGS I.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - REB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BORING LOGS I
STRUCTURE NO. 100-0097
SHEET NO. 22 OF 23 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HB-1	WILLIAMSON	968	682
	* F.A.I. 57 AND F.A.P. 331	CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			

Kaskaskia Engineering Group, LLC

SOIL BORING LOG

Page 1 of 1

Date 9/10/10

ROUTE FAI 57/FAP 331 DESCRIPTION FAI 57 Ramp I over Ramp D LOGGED BY KEG

SECTION (X1-6-2)HB-1 LOCATION Marion; N 1/2 Section 14, TWP 9S, RNG 2E

COUNTY Williamson DRILLING METHOD CME 55LC/HSA HAMMER TYPE Automatic

STRUCT. NO. 100-0097
Station

BORING NO. B-17
Station 14+73.45
Offset 13.4 ft Lt
Ground Surface Elev. 464.51 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter - ft
Upon Completion - ft
After 2 Hrs. 458.0 ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Grass cover and topsoil			
463.5			
SILTY CLAY: Brown and gray, some sand (A-7)	3		
	4 5	3.0 P	21
	2		
	3 4	0.9 B	21
-5			
	2		
	3 4	2.4 B	21
456.5			
CLAY: Brown and gray, some sand (A-7)	2		
	3 4	1.3 B	19
-10			
	2		
	2 4	1.3 B	21
Thin sandy deposit at 12 feet.			
451.5			
SHALE: Gray	39		
	50/4"	-	8
-15			
	19		
	26 50/4.5"	-	9
Becomes brown and gray	28		
	50/2"	-	9
-20			
SHALE: Gray *(continued)*			
No recovery - SPT shoe dislodged from sampler in the boring.	50	-	
	50/0"		
Becomes gray			
Boring terminated due to SPT shoe in bottom of boring. 440.5	50/2"	-	5
	50/1"		
End of Boring			
-25			
-30			
-35			
-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)

BBS, form 137 (Rev. 8-99)

Kaskaskia Engineering Group, LLC

SOIL BORING LOG

Page 1 of 1

Date 9/10/10

ROUTE FAI 57/FAP 331 DESCRIPTION FAI 57 Ramp I over Ramp D LOGGED BY KEG

SECTION (X1-6-2)HB-1 LOCATION Marion; N 1/2 Section 14, TWP 9S, RNG 2E

COUNTY Williamson DRILLING METHOD CME 55LC/HSA HAMMER TYPE Automatic

STRUCT. NO. 100-0097
Station

BORING NO. B-18
Station 14+99.51
Offset 20.5 ft Rt
Ground Surface Elev. 464.10 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter 443.1 ft
Upon Completion - ft
After 1.75 Hrs. 458.1 ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
SILTY CLAY: Brown (A-6)	4		
	5 5	3.8 P	17
461.1			
SANDY CLAY: Brown (A-6)	3		
	3 5	1.9 B	19
LL-35, PL-16, PI-19			
-5			
Becomes brown and gray	2		
	3 4	1.6 B	22
456.1			
SANDY CLAY: Brown (A-4)	3		
	3 4	0.5 P	21
-10			
453.6			
CLAYEY SHALE: Brown	4		
	6 10	3.4 B	13
Becomes grayish brown	22		
	50/3.5"	-	10
449.1			
-15			
SHALE: Gray	40		
	50/4"	-	8
446.1			
CLAYEY SHALE: Brown	31		
	50/3"	-	13
-20			
CLAYEY SHALE: Brown *(continued)*			
Becomes gray	50/3.5"	-	13
	50/2"		
	50/3"	-	13
	50/0.5"		
-25			
	50/2"	-	15
	50/2"		
435.5			
End of Boring	50/0.5"	-	11
	50/0.5"		
-30			
-35			
-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)

BBS, form 137 (Rev. 8-99)

CMT
CRAWFORD MURPHY & TILLY, INC.
CONSULTING ENGINEERS
SPRINGFIELD, IL ■ AURORA, IL ■ ST. LOUIS, MO
ROCKFORD, IL ■ PEORIA, IL ■ CHICAGO, IL

FILE NAME = ...\ramp I\BORING LOGS II.dgn	USER NAME = Rob Heady	DESIGNED - BPD	REVISED -
		CHECKED - REB	REVISED -
	PLOT SCALE =	DRAWN - GLD	REVISED -
	PLOT DATE = 10/7/2011	CHECKED - BPD	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BORING LOGS II
STRUCTURE NO. 100-0097
SHEET NO. 23 OF 23 SHEETS

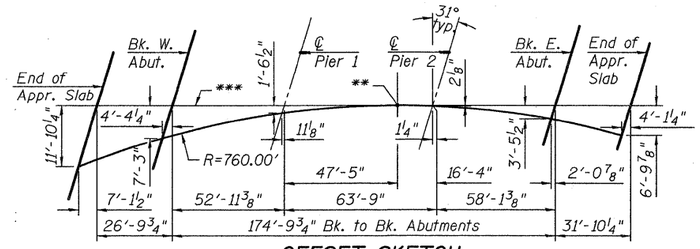
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(X1-6-2)HB-1	WILLIAMSON	968	683
* F.A.I. 57 AND F.A.P. 331		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			

Bench Mark: IDOT District 9 Survey Control Point for I-57, Point No. NDCP11. Aluminum Permanent Survey Marker (PSM) set in concrete cap stamped "CP11 1489+00", located in existing I-57 median north of existing bridges over new Route 13. 2.10' Right of the Existing I-57 CL at Sta. 1489+04.61
Elevation = 470.197

Existing Structures: None

STATION 9+96.56
BUILT 20__ BY
STATE OF ILLINOIS
F.A.I. RTE. 57 SEC. (XI-6-2)HB-2
LOADING HL-93
STRUCTURE NO. 100-0098

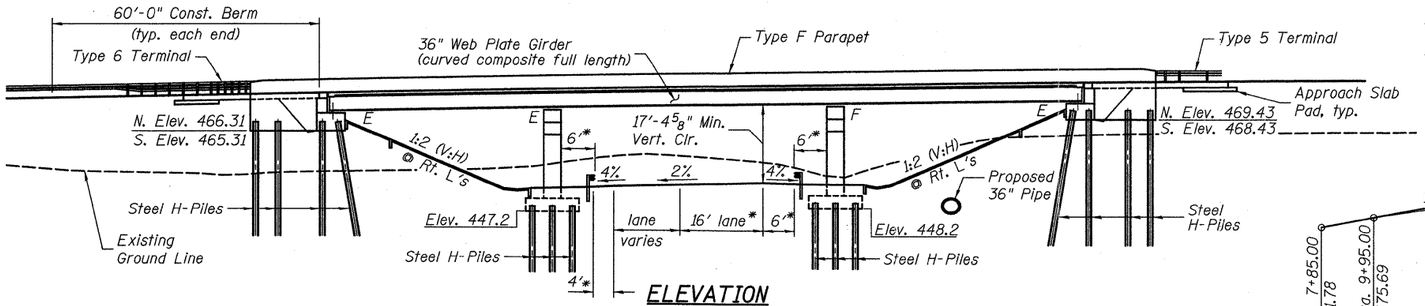
NAME PLATE
See Std. 515001



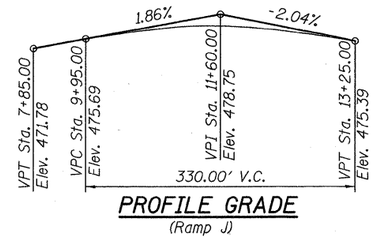
OFFSET SKETCH

** ℄ Ramp J Sta. 9+96.56 = ℄ Ramp A Sta. 19+28.55
*** Local Tangent @ Sta. 9+96.56

INDEX OF SHEETS



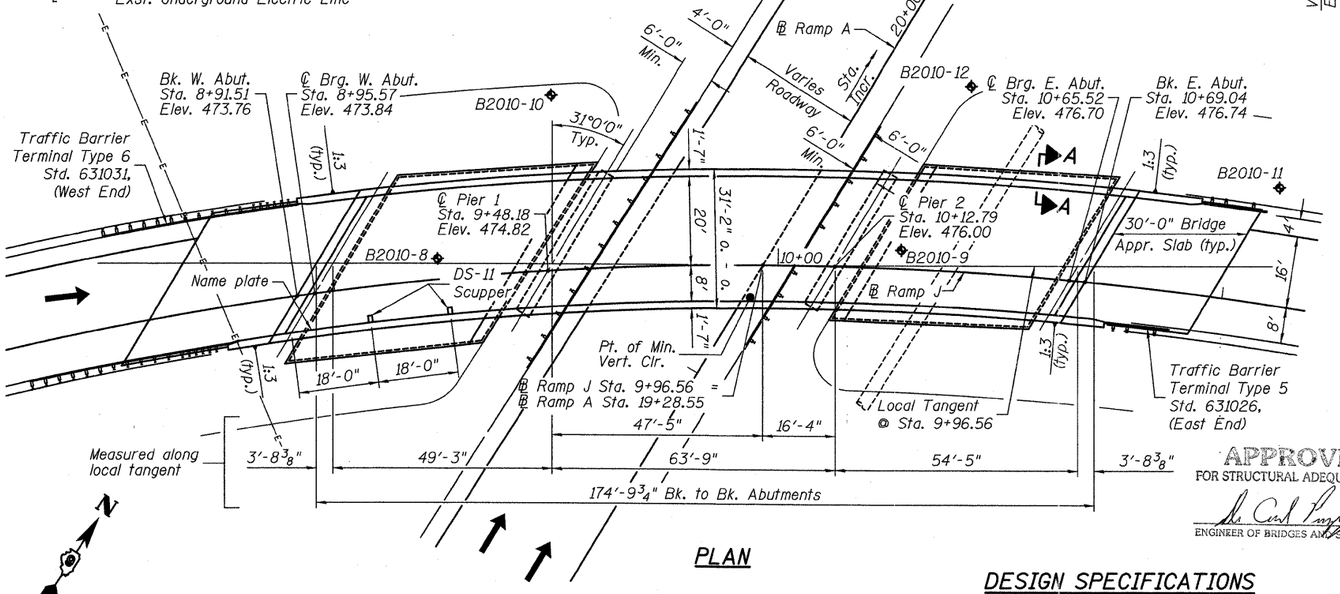
ELEVATION
* Measured at Rt. L's.



PROFILE GRADE
(Ramp J)

Legend:

Exst. Underground Electric Line



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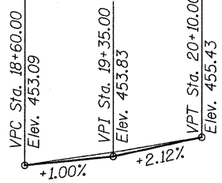

PROFILE GRADE
(Ramp A)

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Porous Granular Embankment, Special	Cu. Yd.		95	95
Structure Excavation	Cu. Yd.		338	338
Concrete Structures	Cu. Yd.		302.1	302.1
Concrete Superstructure	Cu. Yd.	278.4		278.4
Bridge Deck Grooving	Sq. Yd.	682		682
Concrete Encasement	Cu. Yd.		7.7	7.7
Protective Coat	Sq. Yd.	907		907
Furnishing and Erecting Structural Steel	L. Sum	0.04		0.04
Stud Shear Connectors	Each	3600		3600
Reinforcement Bars, Epoxy Coated	Pound	66220	59540	125760
Bar Splicers	Each		67	67
Slopewall 4 inch	Sq. Yd.		428	428
Furnishing Steel Piles HP12x53	Foot		1230	1230
Driving Piles	Foot		1230	1230
Test Pile Steel HP12x53	Each		4	4
Pile Shoes	Each		48	48
Name Plates	Each	1		1
Preformed Joint Strip Seal	Foot	71		71
Elastomeric Bearing Assembly, Type I	Each	10		10
Elastomeric Bearing Assembly, Type II	Each	5		5
Anchor Bolts, ⅝"	Each	10		10
Anchor Bolts, 1"	Each	30		30
Concrete Sealer	Sq. Ft.		2807	2807
Geocomposite Wall Drain	Sq. Yd.		53	53
Pipe Underdrains for Structures 4"	Foot		116	116
Drainage Scuppers, DS-11	Each	2		2
Mechanical Splicers	Each		362	362

CURVE DATA
(Ramp J)

Δ = 53°16'45" (RT)
D = 7°32'20"
T = 381.24'
L = 706.72'
E = 90.26'
R = 760.00'
S.E. = 8.0%
P.C. = Sta. 4+54.82
P.T. = Sta. 11+61.54
P.I. = Sta. 8+36.06

DESIGN SPECIFICATIONS
2010 AASHTO LRFD
Bridge Design Specifications
with 2010 Interims

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

DESIGN STRESSES
FIELD UNITS
f'c = 3,500 psi
fy = 60,000 psi (Reinforcement)
fy = 50,000 psi (M270 Grade 50)

APPROVED
FOR STRUCTURAL ADEQUACY ONLY
ENGINEER OF BRIDGES AND STRUCTURES

LICENSED STRUCTURAL ENGINEER
CHRIS LINNEMAN
081-006445
STATE OF ILLINOIS

Signed:
Date: 9/28/2011
License Expires: 11/30/2012

SEISMIC DATA
Seismic Performance Zone (SPZ) = 2
Design Spectral Acceleration at 1.0 sec.
(S_{D1}) = 0.277g
Design Spectral Acceleration at 0.2 sec.
(S_{DS}) = 0.759g
Soil Site Class = C

LOCATION SKETCH

GENERAL PLAN & ELEVATION
FAI 57 RAMP J OVER RAMP A
SECTION (XI-6-2)HB-2
WILLIAMSON COUNTY
STA. 9+96.56
STRUCTURE NO. 100-0098

EFK•Moen, LLC
Civil Engineering Design
331 Salem Place, Suite 225
Fairview Heights, IL 62208
Phone 618-206-4250

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	PLOT DATE = 9/28/2011	DATE - 9/28/2011	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN & ELEVATION
STRUCTURE NO. 100-0098
SHEET NO. 1 OF 33 SHEETS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(XI-6-2)HB-2	WILLIAMSON	968	684
		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			

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GENERAL NOTES

Fasteners shall be AASHTO M164 Type 1, mechanically galvanized bolts. Bolts $^{7}/_{8}$" dia., hole $^{15}/_{16}$" dia., unless otherwise noted.

Calculated weight of Structural Steel = 121,400 lbs. (Grade 50)

No field welding is permitted except as specified in the contract documents.

Reinforcement bars shall conform to the requirements of ASTM A706 Gr 60.

Reinforcement bars designated (E) shall be epoxy coated.

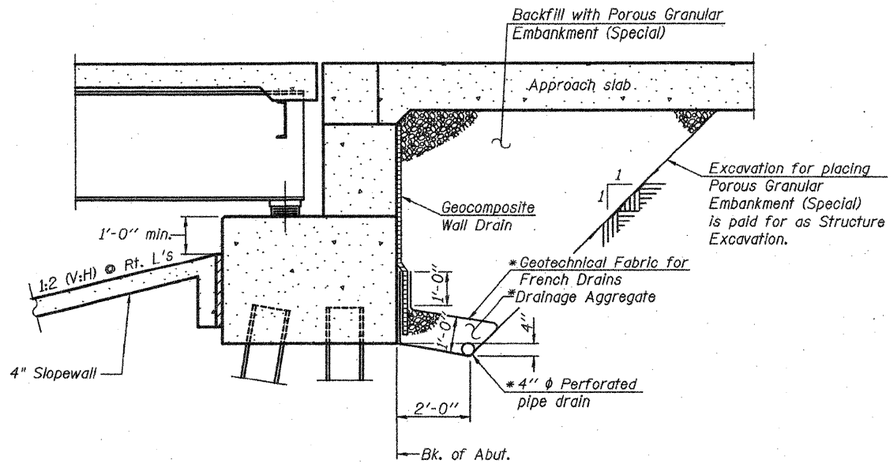
Bearing seat surfaces be constructed or adjusted to their designated elevations within a tolerance of $^{1}/_{8}$" (0.01 ft.). Adjustment shall be made either by grinding the surface or by shimming the bearings.

Concrete Sealer shall be applied to the designated areas of the abutments and piers.

The Inorganic Zinc Rich Primer / Acrylic / Acrylic Pain System shall be used for shop and field painting of new structural steel except where otherwise noted. The entire system shall be shop applied, with the exception that masked off connection surfaces, field installed fasterners and damage 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 embankment configuration shown shall be the minimum that must be placed and compacted prior to the construction of the abutments.

Slipforming of the parapets is not allowed.

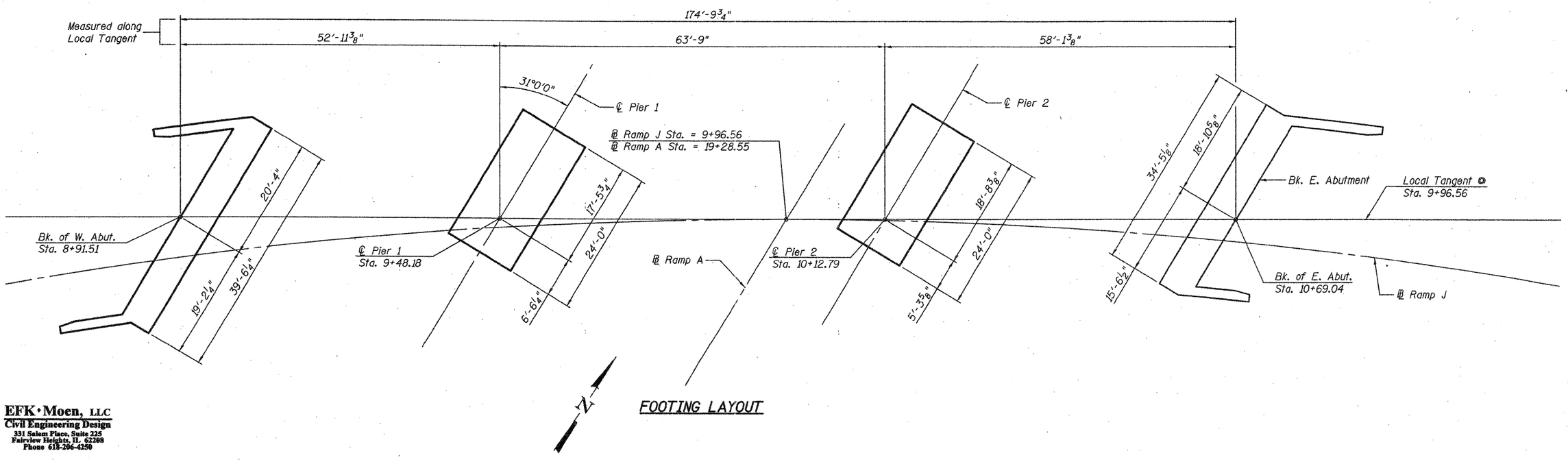


SECTION THRU PILE SUPPORTED STUB ABUTMENT

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

*Included in the cost of Pipe Underdrains for Structures.

Note:
All drainage system components shall extend parallel to the abutment back wall until they intersect the wingwalls or 2'-0" from the end of the wingwalls when the wings are parallel to the abutment. The pipe shall extend under the wingwall, if necessary, until intersecting the side slopes. The pipes shall drain into concrete headwalls. (See Article 601.05 of the Standard Specifications and Highway Standard 601101).



FOOTING LAYOUT

EFK·Moen, LLC
Civil Engineering Design
331 Salem Place, Suite 225
Fairview Heights, IL 62208
Phone 618-206-4250

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		CHECKED - CDL	REVISED -
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	PLOT DATE = 9/7/2011	DATE - 9/7/2011	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL DATA & FOOTING LAYOUT
STRUCTURE NO. 100-0098
SHEET NO. 2 OF 33 SHEETS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(X1-6-2)HB-2	WILLIAMSON	968	685
		CONTRACT NO. 78182		
		ILLINOIS FED. AID PROJECT		

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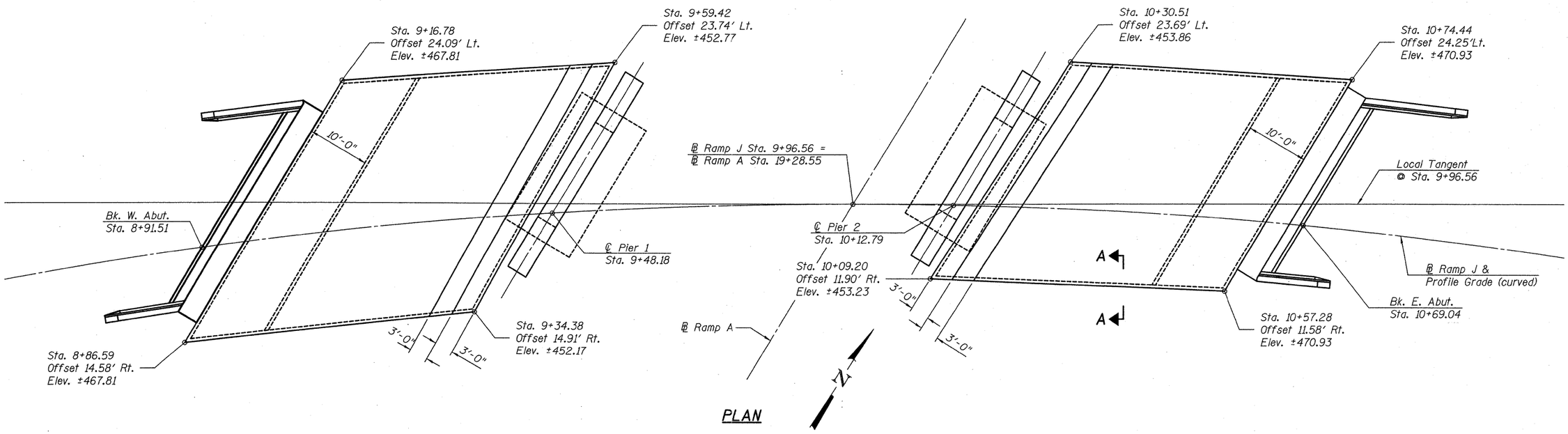

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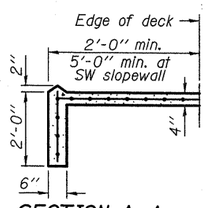
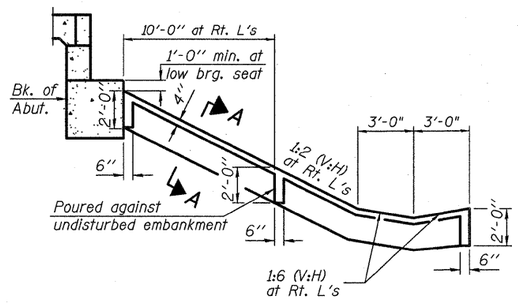


SECTION A-A



SECTION THRU
CONCRETE SLOPEWALL

Notes:
Slope wall shall be reinforced with welded wire fabric, 6"x6" - W4.0xW4.0, weighing 58 lbs. per 100 sq. ft.

EFK • Moen, LLC
Civil Engineering Design
331 Salem Place, Suite 225
Fairview Heights, IL 62208
Phone 618-206-4250

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SLOPEWALL DETAILS
STRUCTURE NO. 100-0098
SHEET NO. 3 OF 33 SHEETS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(X1-6-2)HB-2	WILLIAMSON	968	686
		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			

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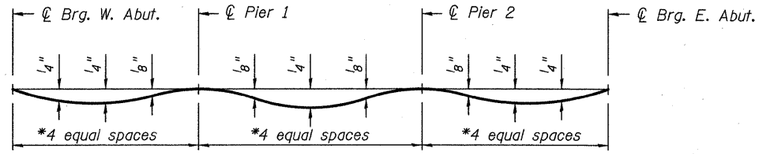
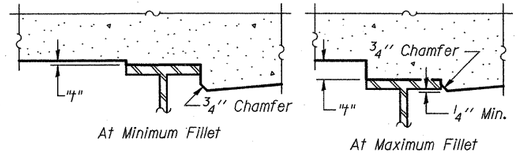


DEAD LOAD DEFLECTION DIAGRAM

(Includes weight of concrete only.)

* See sheet 14 of 33 for span dimensions.
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 below.



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

FILLET HEIGHTS

BEAM 1

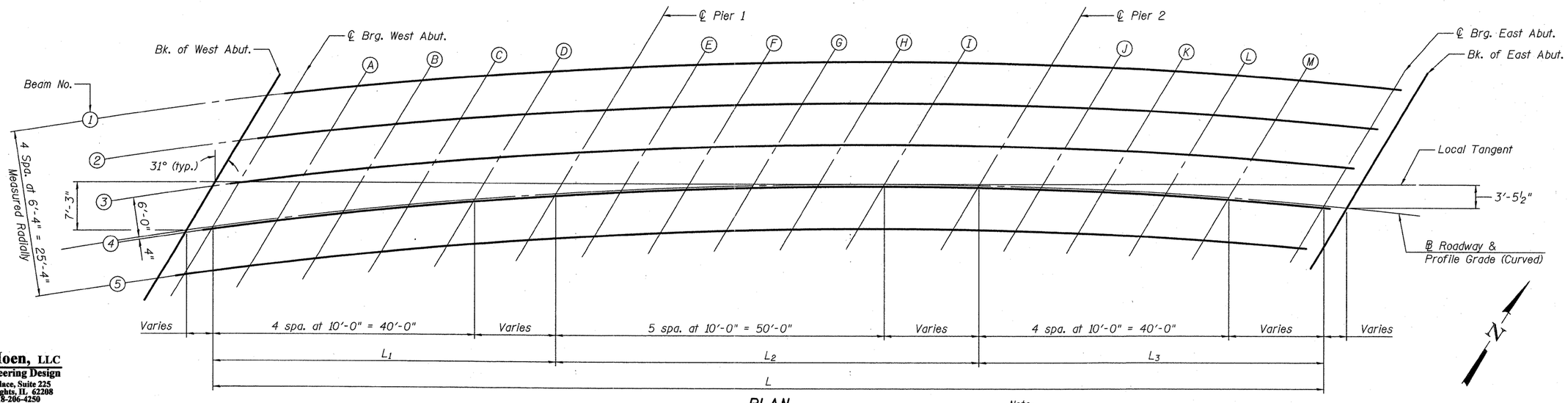
Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. West Abut.	9+06.11	-18.67	475.53	475.53
℄ Brg West Abut.	9+10.01	-18.67	475.60	475.60
A	9+19.77	-18.67	475.78	475.80
B	9+29.53	-18.67	475.96	475.98
C	9+39.29	-18.67	476.14	476.16
D	9+49.05	-18.67	476.33	476.33
℄ Pier 1	9+60.70	-18.67	476.54	476.54
E	9+70.46	-18.67	476.72	476.73
F	9+80.23	-18.67	476.90	476.92
G	9+89.99	-18.67	477.09	477.11
H	9+99.75	-18.67	477.27	477.29
I	10+09.51	-18.67	477.44	477.45
℄ Pier 2	10+23.17	-18.67	477.66	477.66
J	10+32.93	-18.67	477.80	477.81
K	10+42.69	-18.67	477.93	477.95
L	10+52.45	-18.67	478.05	478.08
M	10+62.21	-18.67	478.16	478.18
℄ Brg East Abut.	10+74.31	-18.67	478.28	478.28
Bk. East Abut.	10+77.72	-18.67	478.31	478.31

BEAM 2

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. West Abut.	9+01.26	-12.33	474.93	474.93
℄ Brg West Abut.	9+05.21	-12.33	475.00	475.00
A	9+15.05	-12.33	475.19	475.20
B	9+24.89	-12.33	475.37	475.39
C	9+34.73	-12.33	475.55	475.57
D	9+44.57	-12.33	475.74	475.74
℄ Pier 1	9+56.54	-12.33	475.96	475.96
E	9+66.38	-12.33	476.14	476.15
F	9+76.22	-12.33	476.32	476.34
G	9+86.06	-12.33	476.51	476.53
H	9+95.90	-12.33	476.69	476.71
I	10+05.74	-12.33	476.87	476.88
℄ Pier 2	10+19.72	-12.33	477.10	477.10
J	10+29.56	-12.33	477.24	477.25
K	10+39.40	-12.33	477.38	477.40
L	10+49.24	-12.33	477.51	477.53
M	10+59.08	-12.33	477.62	477.64
℄ Brg East Abut.	10+71.38	-12.33	477.75	477.75
Bk. East Abut.	10+74.83	-12.33	477.78	477.78

BEAM 3 & ℄ ROADWAY

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. West Abut.	8+96.30	-6.00	474.33	474.33
℄ Brg West Abut.	9+00.31	-6.00	474.41	474.41
A	9+10.23	-6.00	474.59	474.60
B	9+20.15	-6.00	474.78	474.80
C	9+30.08	-6.00	474.96	474.98
D	9+40.00	-6.00	475.14	475.15
℄ Pier 1	9+52.29	-6.00	475.37	475.37
E	9+62.21	-6.00	475.56	475.56
F	9+72.13	-6.00	475.74	475.76
G	9+82.06	-6.00	475.93	475.95
H	9+91.98	-6.00	476.11	476.13
I	10+01.90	-6.00	476.29	476.30
℄ Pier 2	10+16.19	-6.00	476.53	476.53
J	10+26.11	-6.00	476.69	476.69
K	10+36.03	-6.00	476.83	476.85
L	10+45.96	-6.00	476.96	476.98
M	10+55.88	-6.00	477.08	477.10
℄ Brg East Abut.	10+68.40	-6.00	477.21	477.21
Bk. East Abut.	10+71.88	-6.00	477.24	477.24



PLAN

Note:
For dimension L_1, L_2, L_3 and L, see Sheet 14 of 33.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TOP OF SLAB ELEVATIONS
STRUCTURE NO. 100-0098
SHEET NO. 4 OF 33 SHEETS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(X1-6-2)HB-2	WILLIAMSON	968	687
		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			

PROFILE GRADE

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. West Abut.	8+91.51	0.00	473.76	473.76
℄ Brg West Abut.	8+95.57	0.00	473.84	473.84
A	9+05.57	0.00	474.02	474.04
B	9+15.57	0.00	474.21	474.23
C	9+25.57	0.00	474.40	474.42
D	9+35.57	0.00	474.58	474.59
℄ Pier 1	9+48.18	0.00	474.82	474.82
E	9+58.18	0.00	475.00	475.01
F	9+68.18	0.00	475.19	475.20
G	9+78.18	0.00	475.37	475.40
H	9+88.18	0.00	475.56	475.58
I	9+98.18	0.00	475.74	475.76
℄ Pier 2	10+12.79	0.00	476.00	476.00
J	10+22.79	0.00	476.16	476.16
K	10+32.79	0.00	476.30	476.32
L	10+42.79	0.00	476.44	476.46
M	10+52.79	0.00	476.56	476.58
℄ Brg East Abut.	10+65.52	0.00	476.70	476.70
Bk. East Abut.	10+69.04	0.00	476.74	476.74

BEAM 4

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. West Abut.	8+91.24	0.33	473.73	473.73
℄ Brg West Abut.	8+95.30	0.33	473.81	473.81
A	9+05.31	0.33	473.99	474.01
B	9+15.31	0.33	474.18	474.20
C	9+25.32	0.33	474.36	474.39
D	9+35.32	0.33	474.55	474.56
℄ Pier 1	9+47.95	0.33	474.79	474.79
E	9+57.96	0.33	474.97	474.98
F	9+67.96	0.33	475.16	475.17
G	9+77.97	0.33	475.34	475.37
H	9+87.97	0.33	475.53	475.55
I	9+97.98	0.33	475.71	475.72
℄ Pier 2	10+12.60	0.33	475.97	475.97
J	10+22.60	0.33	476.13	476.13
K	10+32.61	0.33	476.27	476.29
L	10+42.61	0.33	476.41	476.43
M	10+52.62	0.33	476.53	476.55
℄ Brg East Abut.	10+65.36	0.33	476.67	476.67
Bk. East Abut.	10+68.88	0.33	476.71	476.71

BEAM 5

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. West Abut.	8+86.06	6.67	473.13	473.13
℄ Brg West Abut.	8+90.18	6.67	473.21	473.21
A	9+00.27	6.67	473.39	473.41
B	9+10.36	6.67	473.58	473.60
C	9+20.45	6.67	473.77	473.79
D	9+30.54	6.67	473.95	473.96
℄ Pier 1	9+43.53	6.67	474.20	474.20
E	9+53.61	6.67	474.38	474.39
F	9+63.70	6.67	474.57	474.59
G	9+73.79	6.67	474.76	474.78
H	9+83.88	6.67	474.95	474.97
I	9+93.97	6.67	475.13	475.15
℄ Pier 2	10+08.94	6.67	475.40	475.40
J	10+19.02	6.67	475.56	475.57
K	10+29.11	6.67	475.72	475.74
L	10+39.20	6.67	475.86	475.88
M	10+49.29	6.67	475.99	476.01
℄ Brg East Abut.	10+62.27	6.67	476.13	476.13
Bk. East Abut.	10+65.82	6.67	476.17	476.17

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TOP OF SLAB ELEVATIONS
STRUCTURE NO. 100-0098
SHEET NO. 5 OF 33 SHEETS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(X1-6-2)HB-2	WILLIAMSON	968	688
		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			

LEFT CURB LINE

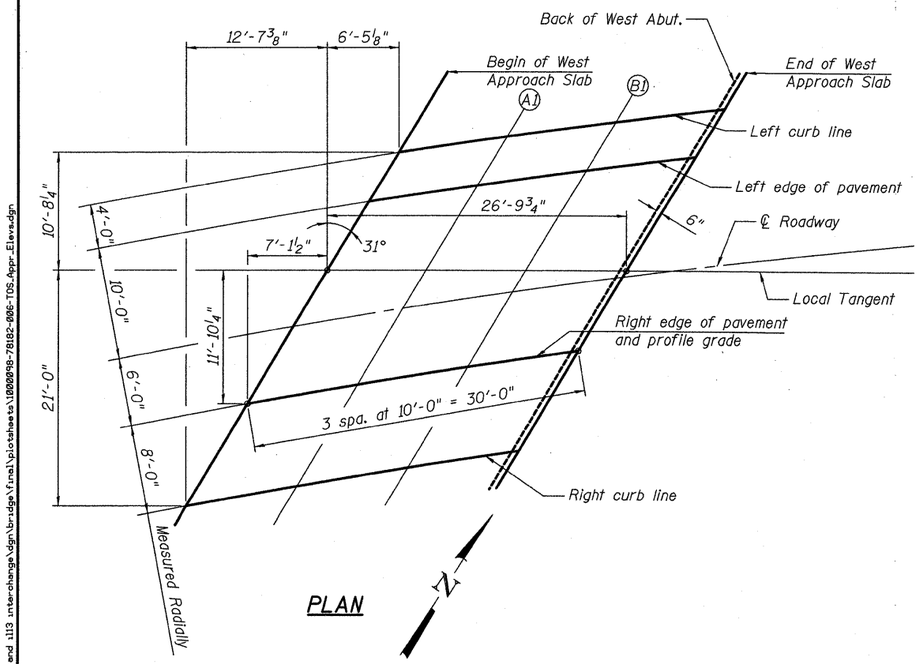
Location	Station	Offset	Theoretical Grade Elevations
Begin W. Appr. Slab	8+79.01	-20.00	475.13
A1	8+88.57	-20.00	475.31
B1	8+98.15	-20.00	475.49
End W. Appr. Slab	9+07.73	-20.00	475.66
Begin E. Appr. Slab	10+77.78	-20.00	478.42
A2	10+87.47	-20.00	478.50
B2	10+97.17	-20.00	478.57
End E. Appr. Slab	11+06.86	-20.00	478.62

LEFT EDGE OF PAVEMENT

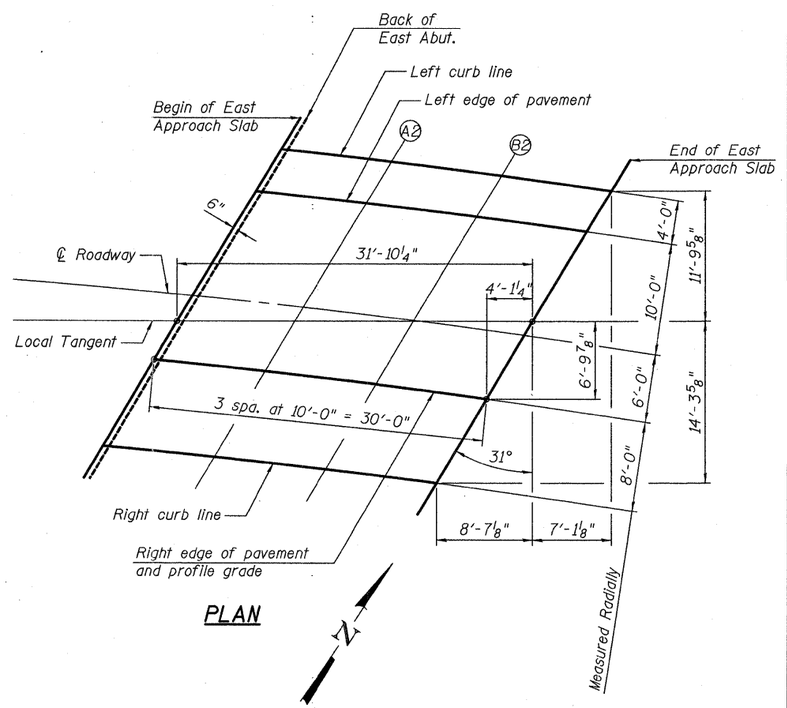
Location	Station	Offset	Theoretical Grade Elevations
Begin W. Appr. Slab	8+75.73	-16.00	474.75
A1	8+85.38	-16.00	474.93
B1	8+95.03	-16.00	475.11
End W. Appr. Slab	9+04.70	-16.00	475.29
Begin E. Appr. Slab	10+75.97	-16.00	478.08
A2	10+85.72	-16.00	478.16
B2	10+95.47	-16.00	478.24
End E. Appr. Slab	11+05.22	-16.00	478.30

℄ ROADWAY

Location	Station	Offset	Theoretical Grade Elevations
Begin W. Appr. Slab	8+67.33	-6.00	473.79
A1	8+77.20	-6.00	473.98
B1	8+87.03	-6.00	474.16
End W. Appr. Slab	8+96.94	-6.00	474.34
Begin E. Appr. Slab	10+71.33	-6.00	477.24
A2	10+81.23	-6.00	477.33
B2	10+91.14	-6.00	477.41
End E. Appr. Slab	11+01.05	-6.00	477.47



PLAN



PLAN

RIGHT EDGE OF PAVEMENT & PROFILE GRADE

Location	Station	Offset	Theoretical Grade Elevations
Begin W. Appr. Slab	8+62.15	0.00	473.22
A1	8+72.15	0.00	473.40
B1	8+82.15	0.00	473.59
End W. Appr. Slab	8+92.15	0.00	473.77
Begin E. Appr. Slab	10+68.48	0.00	476.73
A2	10+78.48	0.00	476.82
B2	10+88.48	0.00	476.91
End E. Appr. Slab	10+98.48	0.00	476.98

RIGHT CURB LINE

Location	Station	Offset	Theoretical Grade Elevations
Begin W. Appr. Slab	8+55.06	8.00	472.45
A1	8+65.25	8.00	472.64
B1	8+75.43	8.00	472.82
End W. Appr. Slab	8+85.61	8.00	473.01
Begin E. Appr. Slab	10+64.61	8.00	476.05
A2	10+74.74	8.00	476.15
B2	10+84.87	8.00	476.24
End E. Appr. Slab	10+95.00	8.00	476.31

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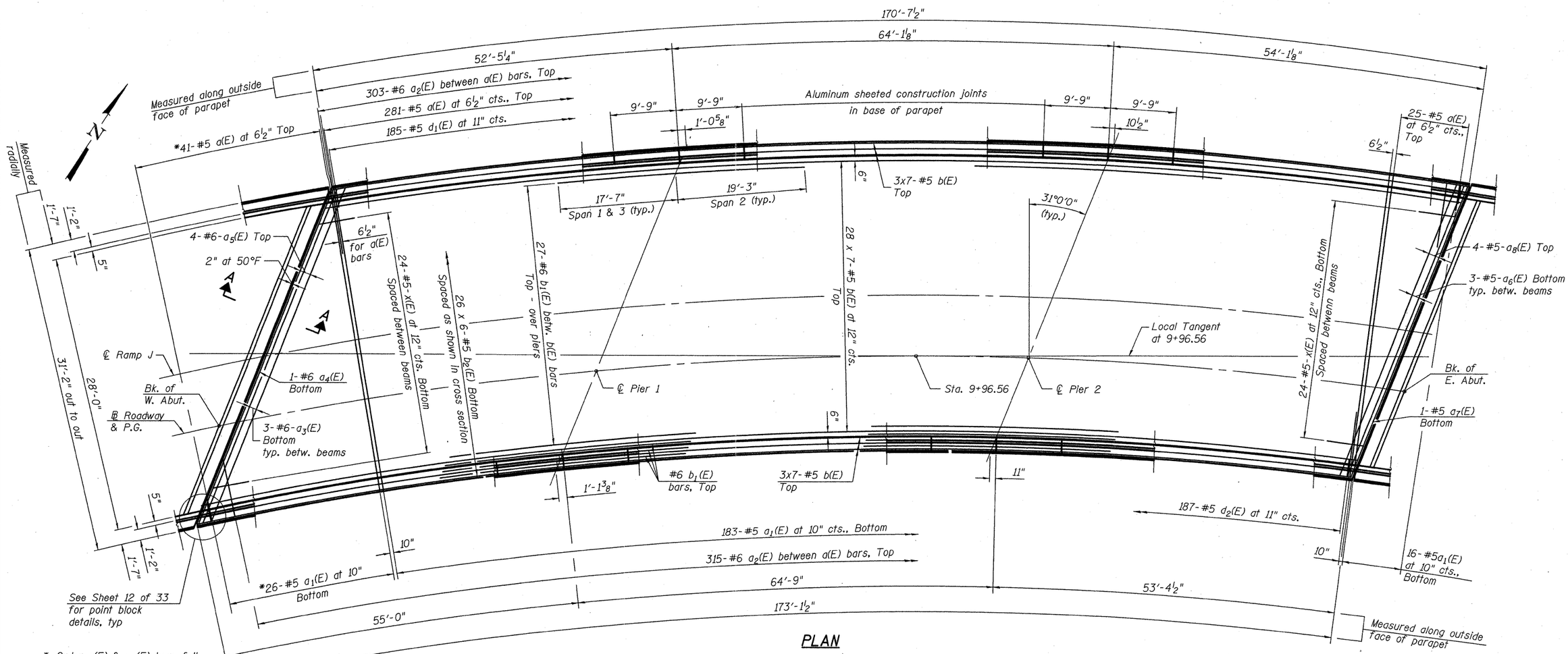
DEPARTMENT OF TRANSPORTATION

TOP OF APPROACH SLAB ELEVATIONS
STRUCTURE NO. 100-0098
SHEET NO. 6 OF 33 SHEETS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(X1-6-2)HB-2	WILLIAMSON	968	689
		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			

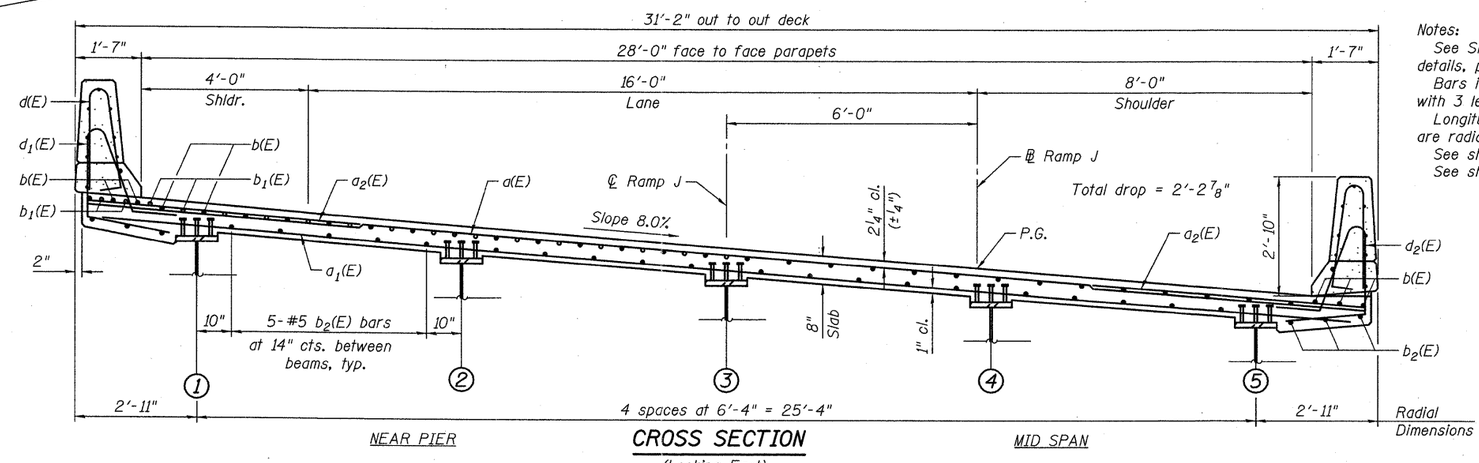


PLAN

* Order a(E) & a_1(E) bars full length. Cut to fit skew and use remainder of bars in opposite end. (East end requires fewer bars due to geometry.)

MIN BAR LAP

#5 bars = 2'-7"



CROSS SECTION

(Looking East)

Notes:

See Sheet 9 of 33 for Section A-A, Superstructure details, parapet reinforcement and Bill of Material.

Bars indicated thus 1 x 3-#8 etc. indicates 1 lines of bars with 3 lengths per line.

Longitudinal bars are parallel to the curve, transverse bars are radial.

See sheet 1 of 33 for drain scupper locations.

See sheets 8 and 9 of 33 for parapet details.

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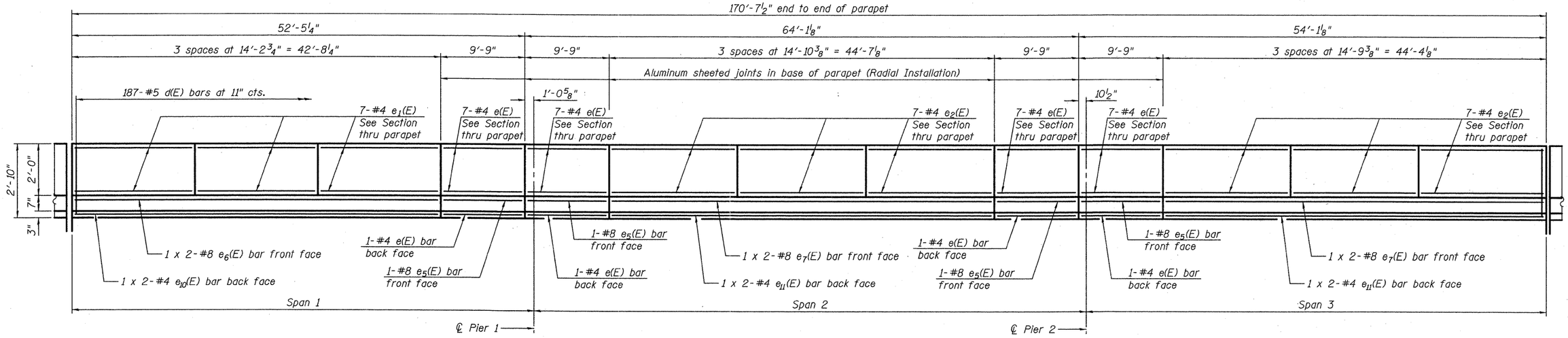
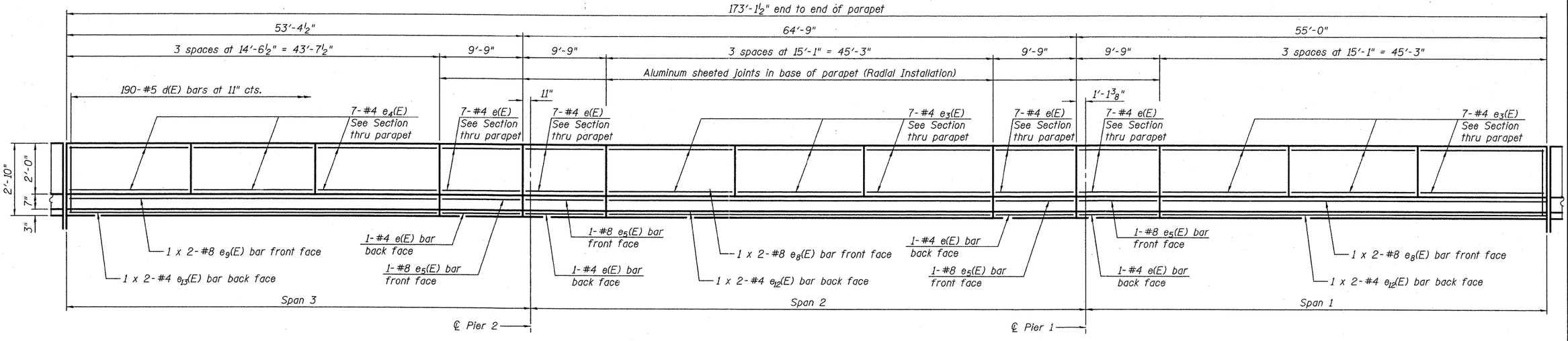
SUPERSTRUCTURE
STRUCTURE NO. 100-0098
SHEET NO. 7 OF 33 SHEETS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(X1-6-2)HB-2	WILLIAMSON	968	690
		CONTRACT NO. 78182		
		ILLINOIS FED. AID PROJECT		



INSIDE ELEVATION OF NORTH PARAPET - LOOKING NORTH

(Horizontal dimensions are along outside face of parapet)



INSIDE ELEVATION OF SOUTH PARAPET - LOOKING SOUTH

(Horizontal dimensions are along outside face of parapet)

MINIMUM BAR LAP

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

Notes:
See sheet 9 of 33 for parapet joint details.
See sheet 12 of 33 for details at expansion device.

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SUPERSTRUCTURE DETAILS
STRUCTURE NO. 100-0098
SHEET NO. 8 OF 33 SHEETS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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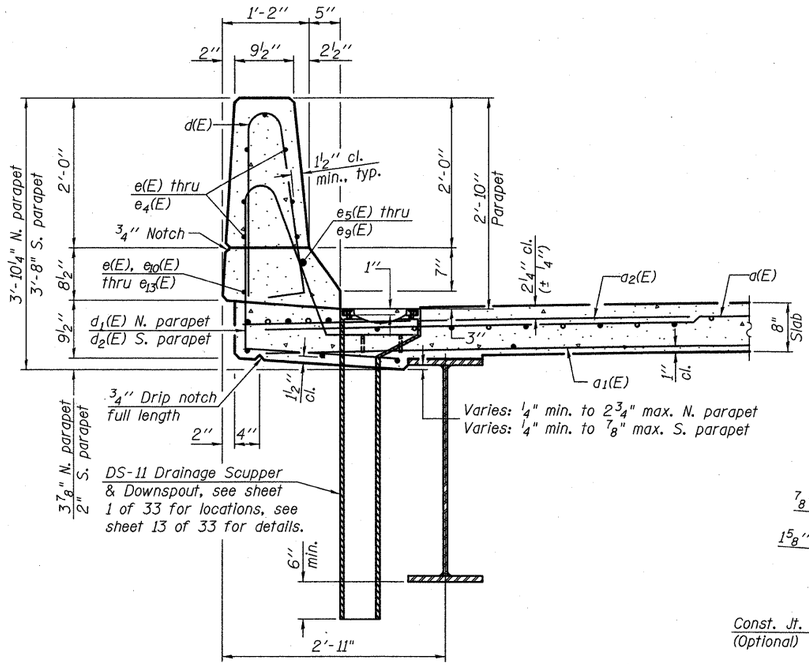
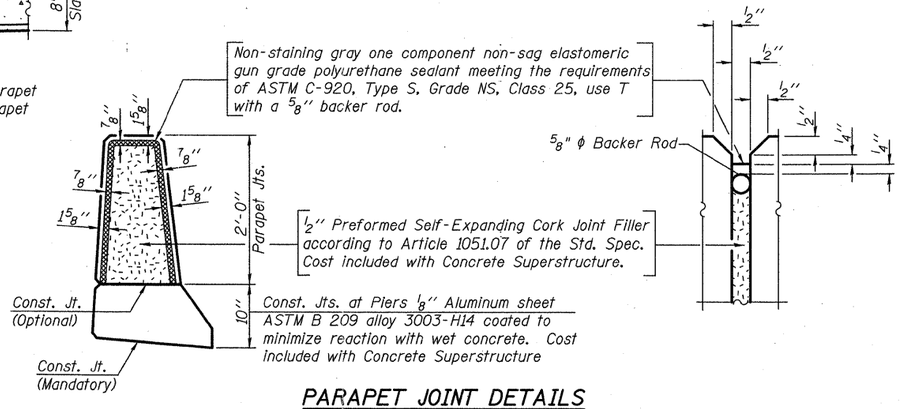
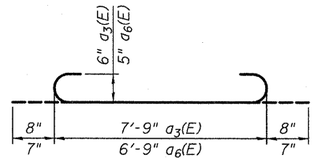


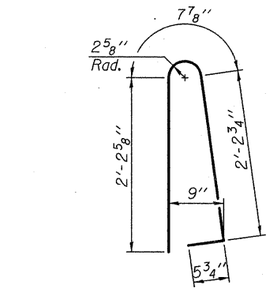
SECTION THRU PARAPET



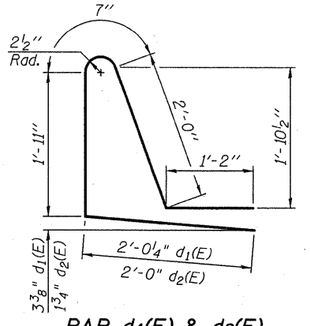
PARAPET JOINT DETAILS



a3(E) & a6(E) BAR



BAR d(E)

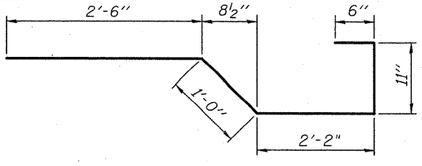


BAR d1(E) & d2(E)

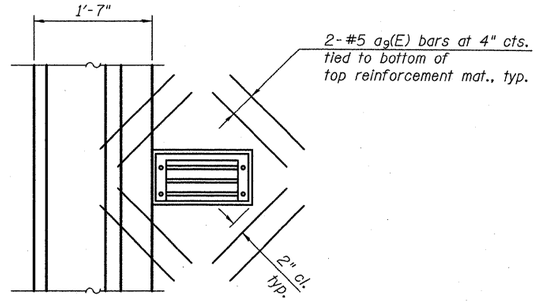
SUPERSTRUCTURE BILL OF MATERIAL

Bar	No.	Size	Length	Shape
d(E)	322	#5	30'-6"	
d1(E)	209	#5	29'-10"	
d2(E)	618	#6	6'-6"	
d3(E)	9	#6	9'-1"	
d4(E)	1	#6	38'-10"	
d5(E)	4	#5	38'-10"	
d6(E)	9	#5	7'-11"	
d7(E)	1	#6	33'-9"	
d8(E)	4	#5	33'-9"	
d9(E)	16	#5	1'-6"	
b(E)	238	#5	26'-11"	
b1(E)	66	#6	36'-10"	
b2(E)	130	#5	30'-11"	
d(E)	377	#5	5'-7"	
d1(E)	185	#5	7'-8"	
d2(E)	187	#5	7'-8"	
e(E)	64	#4	9'-6"	
e1(E)	21	#4	13'-11"	
e2(E)	42	#4	14'-6"	
e3(E)	42	#4	14'-10"	
e4(E)	21	#4	14'-3"	
e5(E)	8	#8	9'-6"	
e6(E)	2	#8	23'-9"	
e7(E)	4	#8	24'-9"	
e8(E)	4	#8	25'-1"	
e9(E)	2	#8	24'-3"	
e10 (E)	2	#4	22'-2"	
e11 (E)	4	#4	23'-2"	
e12 (E)	4	#4	23'-6"	
e13 (E)	2	#4	22'-8"	
x(E)	48	#5	7'-1"	
Reinforcement Bars, Epoxy Coated		Pound	47,230	
Concrete Superstructure		Cu. Yds.	191.0	
Bridge Deck Grooving		Sq. Yd.	496	
Protective Coat		Sq. Yd.	701	

Bars indicated thus 1 x 3-#8 etc. indicates 1 line of bars with 3 lengths per line.

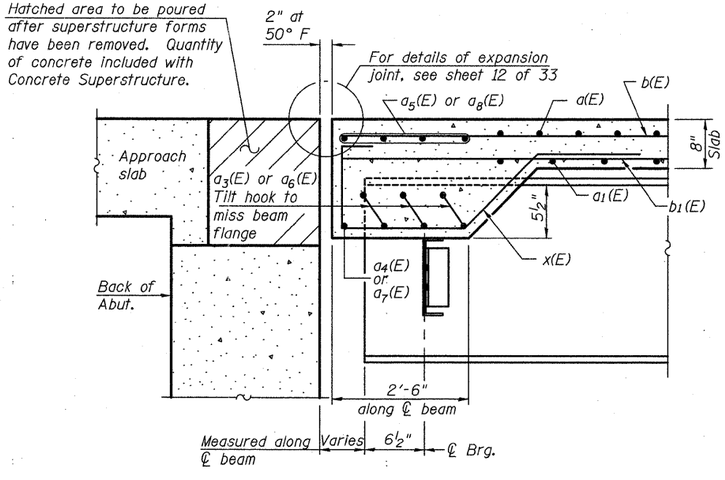


BAR x(E)



PLAN AT SCUPPER

Notes:
Cut longitudinal reinforcement to clear drainage scuppers.



SECTION A-A

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S-D

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SUPERSTRUCTURE DETAILS
STRUCTURE NO. 100-0098
SHEET NO. 9 OF 33 SHEETS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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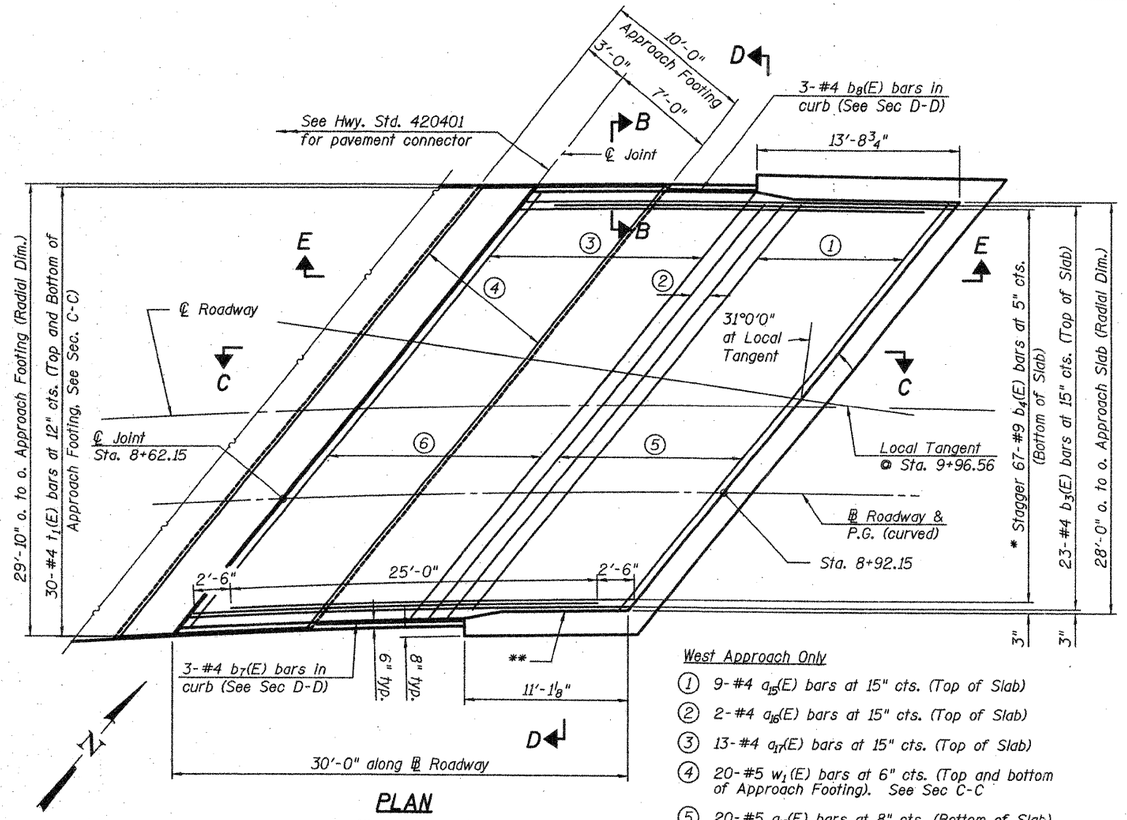
		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			



PLAN

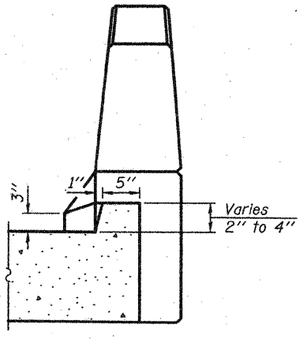
(West Approach)

* Tilt #9 $b_4(E)$ bars as required to maintain clearance.

** Closed cell joint filler according at Article 1051.08 of the Standard Specifications: full depth of slab, full length of parapet. Typ. each parapet.

West Approach Only

1. 9-#4 $a_{15}(E)$ bars at 15" cts. (Top of Slab)
2. 2-#4 $a_{16}(E)$ bars at 15" cts. (Top of Slab)
3. 13-#4 $a_{17}(E)$ bars at 15" cts. (Top of Slab)
4. 20-#5 $w_1(E)$ bars at 6" cts. (Top and bottom of Approach Footing). See Sec C-C
5. 20-#5 $a_{18}(E)$ bars at 8" cts. (Bottom of Slab)
6. 25-#5 $a_{19}(E)$ bars at 8" cts. (Bottom of Slab)



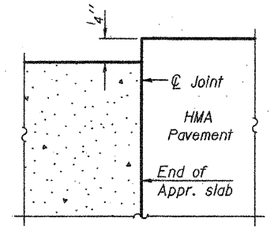
VIEW B-B

Notes:

See sheet 11 of 33 for Sections C-C & D-D and View E-E.

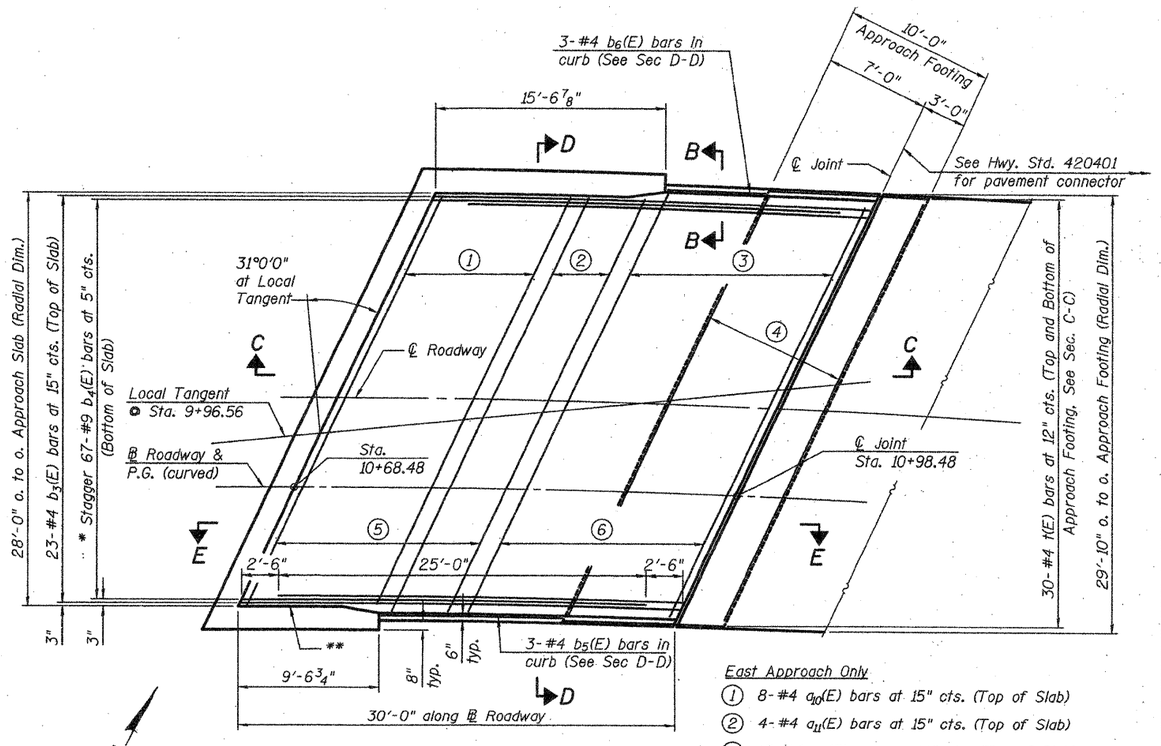
d(E) and $a_1(E)$ bar spacings measured along ℄ Rdwy.

Approach Slabs are on curved alignment, see Sheet 6 of 33 for layout dimension.



FLEXIBLE PAVEMENT

DETAIL A



PLAN

(East Approach)

* Tilt #9 $b_4(E)$ bars as required to maintain clearance.

** Closed cell joint filler according at Article 1051.09 of the Standard Specifications: full depth of slab, full length of parapet. Typ. each parapet.

East Approach Only

1. 8-#4 $a_{10}(E)$ bars at 15" cts. (Top of Slab)
2. 4-#4 $a_{11}(E)$ bars at 15" cts. (Top of Slab)
3. 13-#4 $a_{12}(E)$ bars at 15" cts. (Top of Slab)
4. 20-#5 w(E) bars at 6" cts. (Top and bottom of Approach Footing). See Sec C-C
5. 22-#5 $a_{13}(E)$ bars at 8" cts. (Bottom of Slab)
6. 24-#5 $a_{14}(E)$ bars at 8" cts. (Bottom of Slab)

EFK•Moen, LLC
Civil Engineering Design
331 Salem Place, Suite 225
Fairview Heights, IL 62208
Phone 618-206-4250

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRIDGE APPROACH SLAB DETAILS
STRUCTURE NO. 100-0098

SHEET NO. 10 OF 33 SHEETS

(Sheet 1 of 2)

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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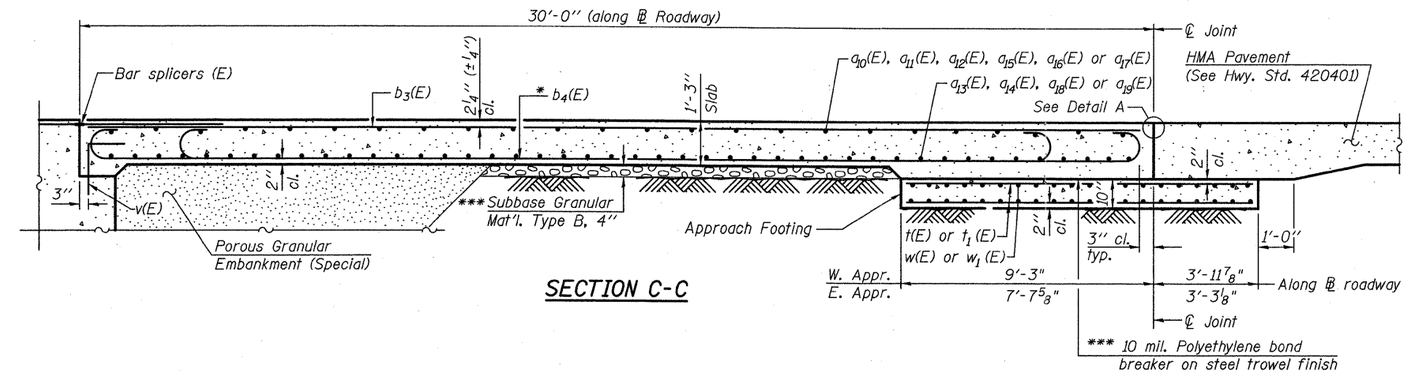
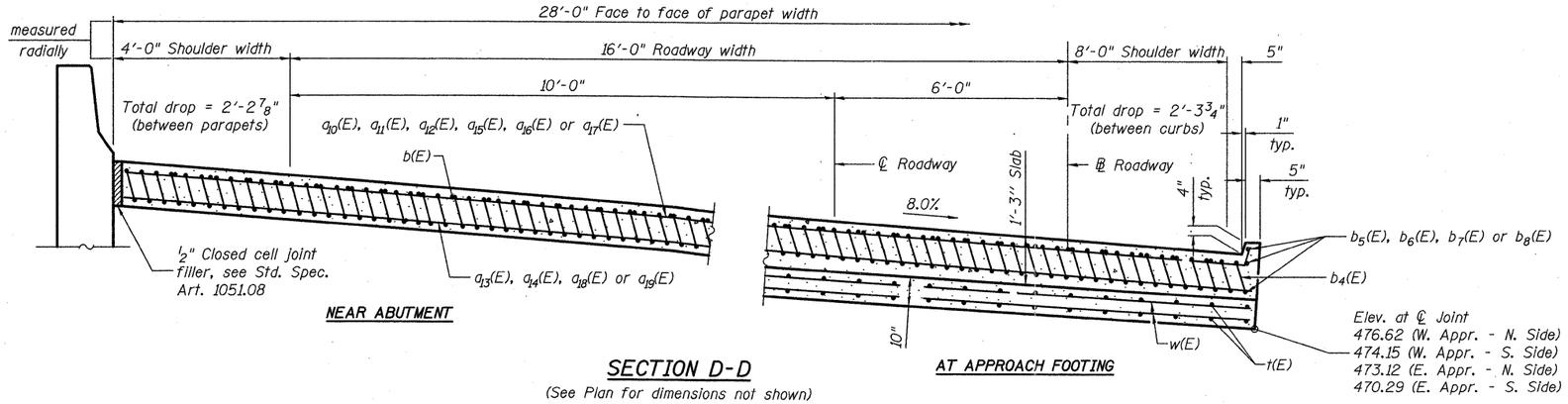
		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			



SECTION C-C

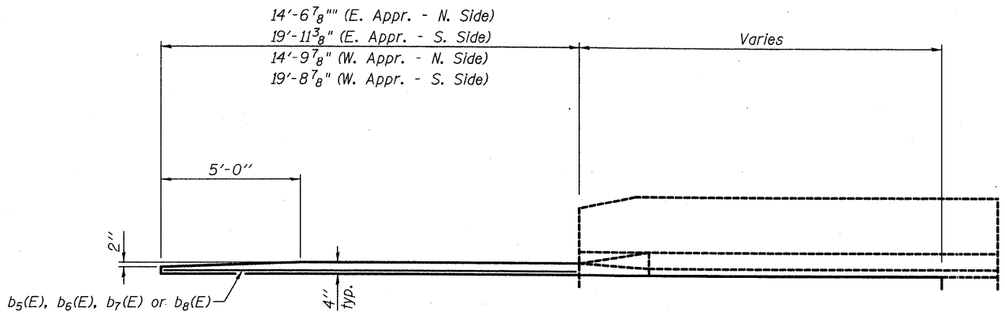


NEAR ABUTMENT

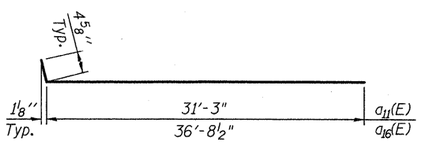
AT APPROACH FOOTING

SECTION D-D

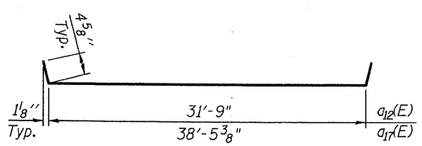
(See Plan for dimensions not shown)



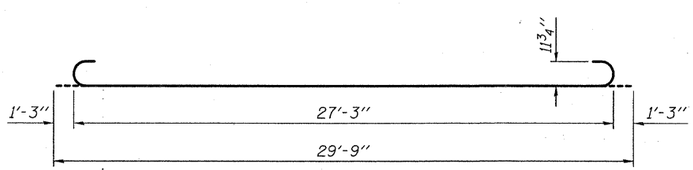
VIEW E-E



BAR a_{11}(E) or a_{16}(E)



BAR a_{12}(E) or a_{17}(E)



BAR b_4(E)

Notes:
See sheet 10 of 33 for Detail A and View B-B.
Approach slab 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 19 of 33 and 22 of 33.
The approach footing maximum applied service bearing pressure (Qmax) = 2.0 ksf.
For bar splicer details, see sheet 30 of 33.
Cost of excavation for approach footing included with Concrete Structures.
For Porous Granular Embankment (Special) and drainage treatment details, see sheet 2 of 33.
For additional parapet details, see sheet 21 of 33 and 24 of 33.

* Tilt #9 b_4(E) bars as required to maintain clearance.

*** Cost included with Concrete Superstructure.

TWO APPROACHES BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a_{10}(E)	8	#4	30'-7"	
a_{11}(E)	4	#4	31'-7"	
a_{12}(E)	13	#4	32'-6"	
a_{13}(E)	22	#5	30'-7"	
a_{14}(E)	24	#5	32'-0"	
a_{15}(E)	9	#4	35'-4"	
a_{16}(E)	2	#4	37'-1"	
a_{17}(E)	13	#4	39'-2"	
a_{18}(E)	20	#5	35'-4"	
a_{19}(E)	25	#5	38'-11"	
b_3(E)	46	#4	29'-8"	
b_4(E)	134	#9	29'-9"	
b_5(E)	3	#4	19'-7"	
b_6(E)	3	#4	14'-1"	
b_7(E)	3	#4	19'-2"	
b_8(E)	3	#4	14'-5"	
t(E)	60	#4	10'-6"	
t_1(E)	60	#4	12'-7"	
w(E)	40	#5	32'-0"	
w_1(E)	40	#5	38'-7"	
Concrete Superstructure			Cu. Yd.	87.4
Concrete Structures			Cu. Yd.	22.1
Bridge Deck Grooving			Sq. Yd.	186
Protective Coat			Sq. Yd.	206
Reinforcement Bars, Epoxy Coated			Pound	22,860

EFK • Moen, LLC
Civil Engineering Design
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Fairview Heights, IL 62208
Phone 618-206-4250

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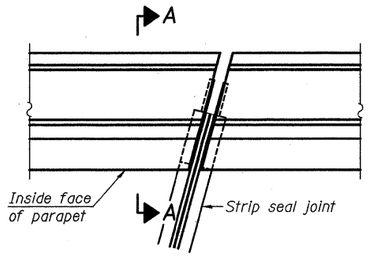
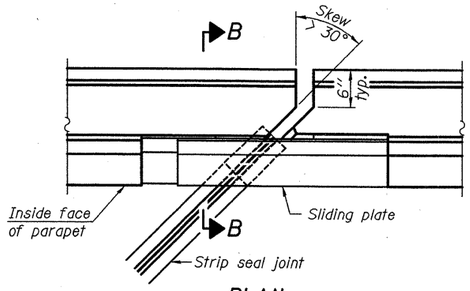
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

(Sheet 2 of 2)
BRIDGE APPROACH SLAB DETAILS
STRUCTURE NO. 100-0098
SHEET NO. 11 OF 33 SHEETS

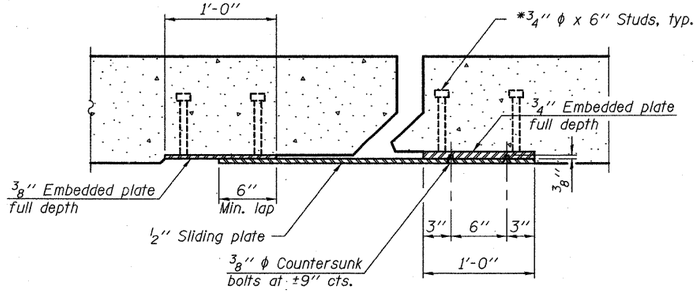
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(X1-6-2)HB-2	WILLIAMSON	968	694
		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			



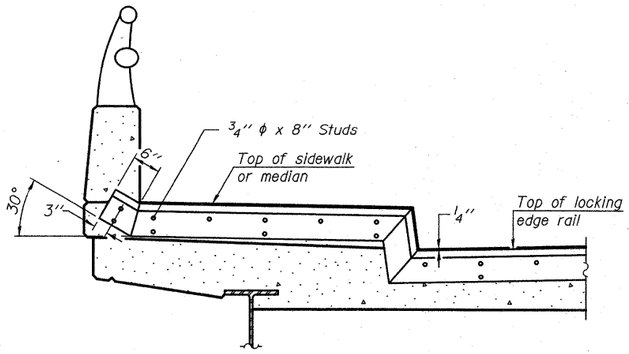
PLAN
(For skews ≤ 30°)



PLAN
(For skews > 30°)
Showing point block

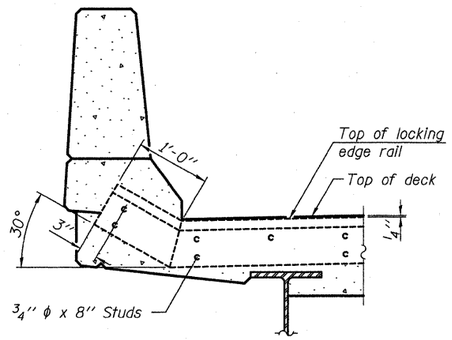


SECTION C-C

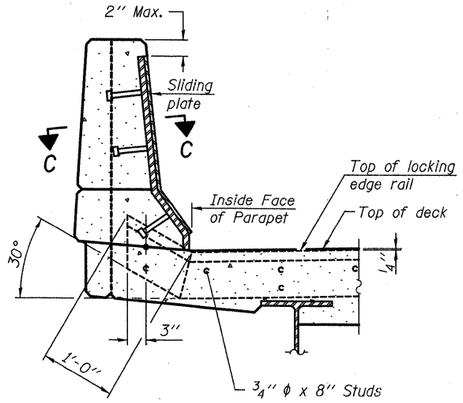


TYPICAL END TREATMENT AT SIDEWALK OR MEDIAN

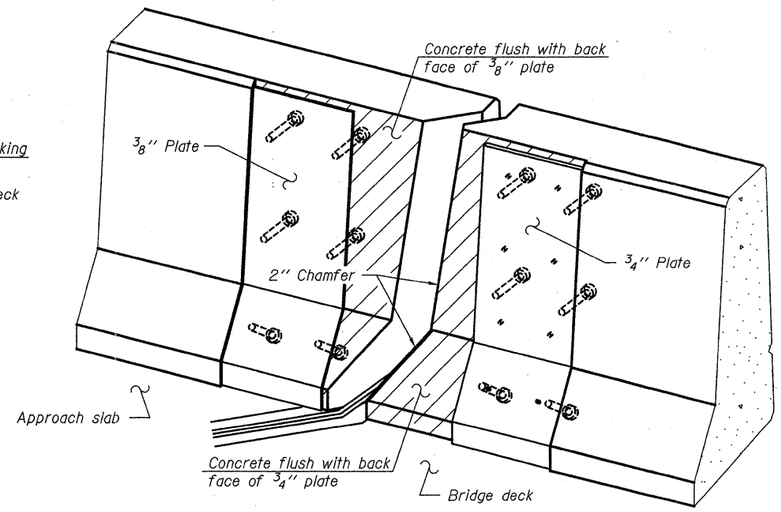
Shorter plates with a single row of studs at 12" cts. may be necessary on medians which are shallower than 9". See manufacturer's recommendation.



SECTION A-A



SECTION B-B



TRIMETRIC VIEW
(Showing back plates only)

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.

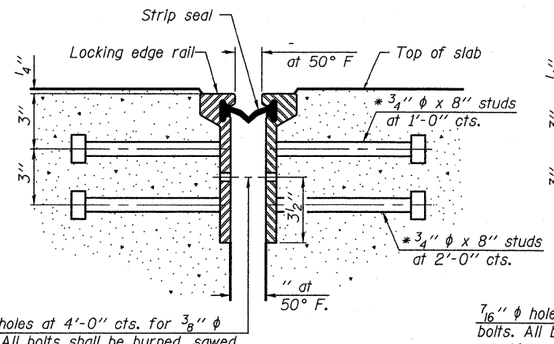
The manufacturer's recommended installation methods shall be followed.

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.

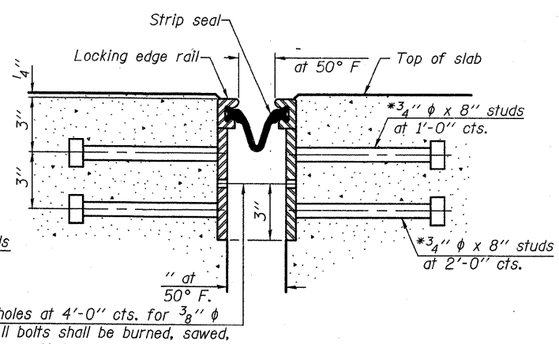
Maximum space between rail segments at stage lines shall be 3/16", sealed with a suitable sealant.

Parapet plates and anchorage studs for skews > 30° included in the cost of Preformed Joint Strip Seal.



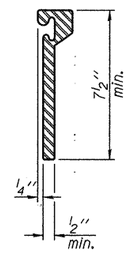
7/16" ϕ holes at 4'-0" cts. for 3/8" ϕ bolts. All bolts shall be burned, sawed, or chipped off flush with the plates after forms are removed, typ.

SECTION THRU ROLLED RAIL JOINT

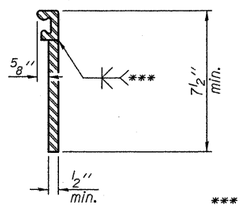


7/16" ϕ holes at 4'-0" cts. for 3/8" ϕ bolts. All bolts shall be burned, sawed, or chipped off flush with the plates after forms are removed, typ.

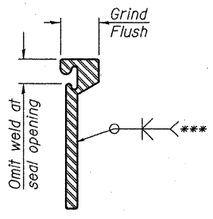
SECTION THRU WELDED RAIL JOINT



ROLLED EXTRUDED RAIL



WELDED RAIL



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

LOCKING EDGE RAIL SPLICE

The inside of the locking edge rail groove shall be free of weld residue.

Rolled rail shown, welded rail similar.

LOCKING EDGE RAILS

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

BILL OF MATERIAL

Item	Unit	Total
Preformed Joint Strip Seal	Foot	71

EFK•Moen, LLC
Civil Engineering Design
331 Salem Place, Suite 225
Fairview Heights, IL 62208
Phone 618-206-4250
EJ-SSJ 7-1-10

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PREFORMED JOINT STRIP SEAL
STRUCTURE NO. 100-0098
SHEET NO. 12 OF 33 SHEETS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(X1-6-2)HB-2	WILLIAMSON	968	695
		CONTRACT NO. 78182		
		ILLINOIS FED. AID PROJECT		

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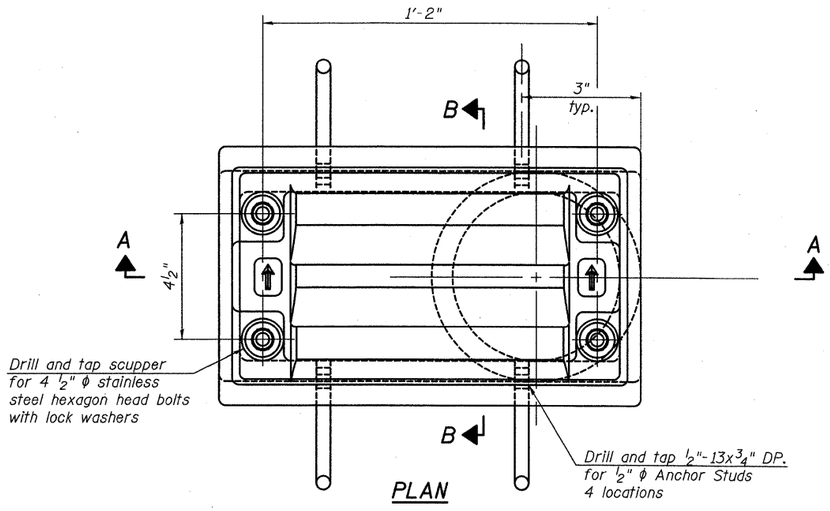
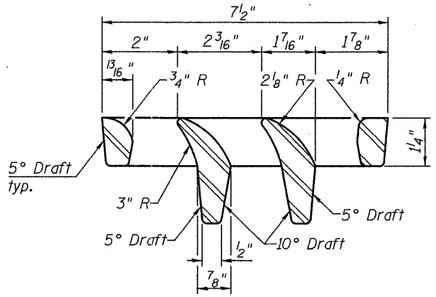
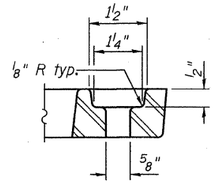


PLAN



VANE GRATE DETAIL



BOLT HOLE DETAIL

Notes:

All cast iron parts shall be gray iron conforming to the requirements of AASHTO M 105, Class 35B.

Bolts, anchor studs, washers and nuts shall conform to the requirements of ASTM A 307 and shall be galvanized according to AASHTO M 232.

Downspouts located on the exterior side of a painted steel fascia beam shall be painted with the finish coat specified for the exterior side of the fascia beam.

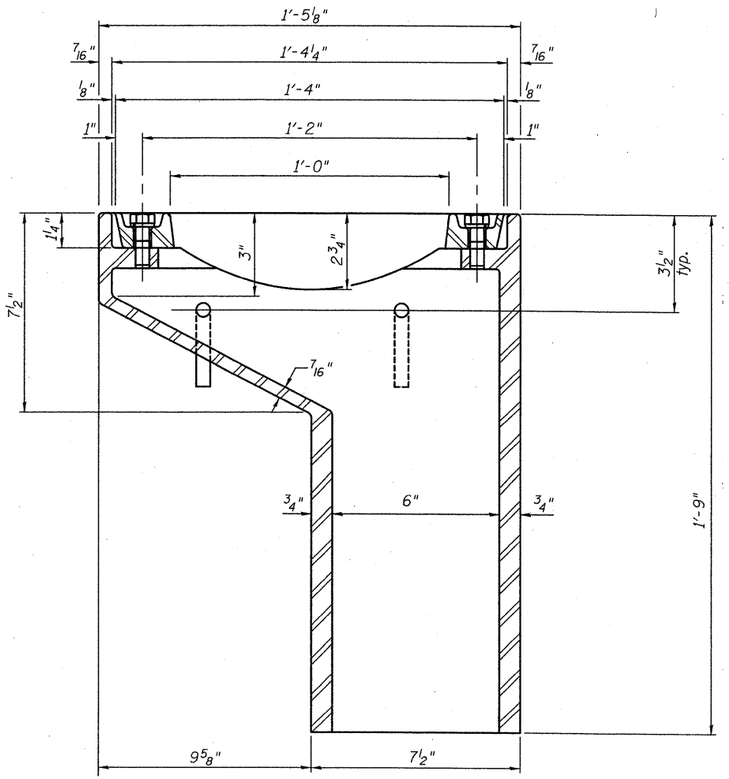
As an alternate, bolts, anchor studs, washers and nuts may be stainless steel according to Article 1006.29(d) of the Standard Specifications.

Structural steel weldments of equal sections and of the same configuration may be substituted for the cast iron scupper frame. Fillet or full penetration welds shall be used for the weldments. Details shall be submitted to the Engineer for approval. Structural steel weldments shall not be substituted for the cast iron scupper grate. Structural steel frames and downspouts shall be galvanized according to AASHTO M111.

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

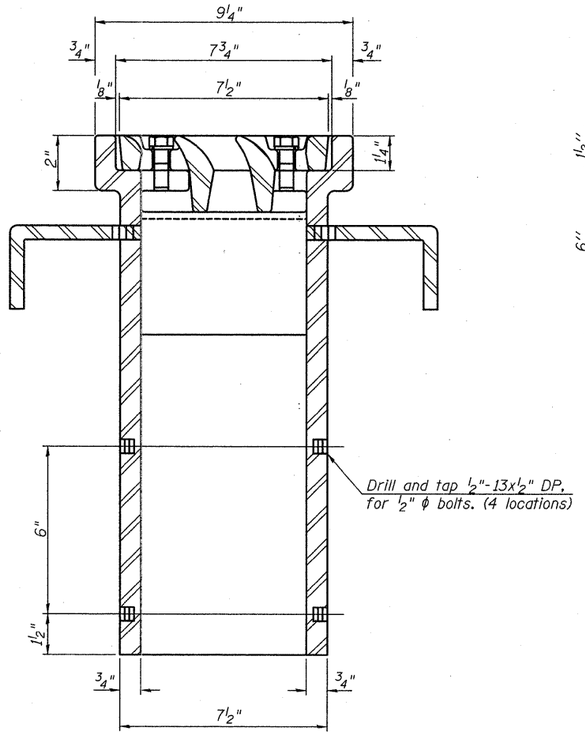
Cost of the Grate, Frame, Downspout, Anchor Studs, Bolts, Washers and Nuts including complete installation of the scupper shall be paid for at the contract unit price each for Drainage Scupper, DS-11.

Alternate fiberglass downspout conforming to ASTM D 2996 with a short-time rupture strength hoop tensile stress of 30,000 psi min. may be used in lieu of the cast iron or steel equivalent.

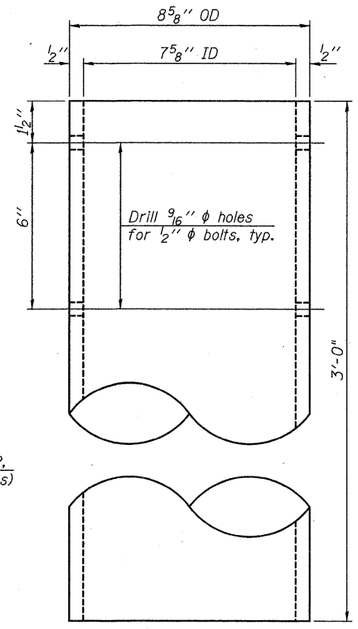


SECTION A-A

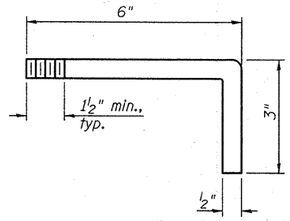
See sheet 1 of 33 for scupper location relative to parapet.



SECTION B-B



DOWNSPOUT



ANCHOR STUD DETAIL

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Drainage Scupper, DS-11	Each	2

EFK•Moen, LLC
Civil Engineering Design
331 Salem Place, Suite 225
Fairview Heights, IL 62208
Phone 618-206-4250

DS-11 7-1-10

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	PLOT DATE = 9/7/2011	DATE - 9/7/2011	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DRAINAGE SCUPPER, DS-11
STRUCTURE NO. 100-0098
SHEET NO. 13 OF 33 SHEETS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(X1-6-2)HB-2	WILLIAMSON	968	696
		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			

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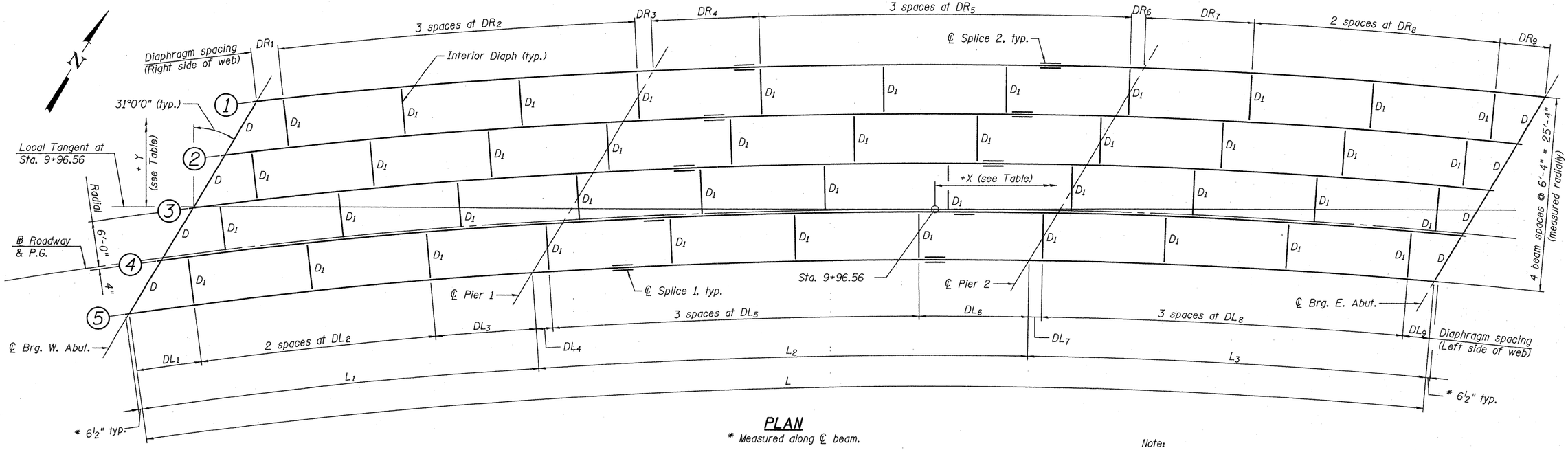
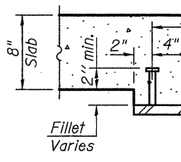


PLAN

* Measured along ℄ beam.

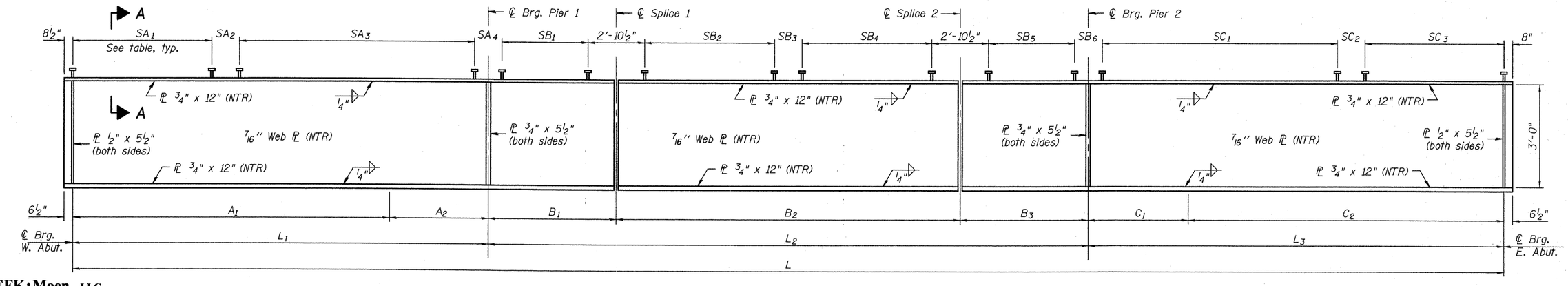


SECTION A-A

BEAM DIMENSION (feet)

Beam	Radius	A_1	A_2	B_1	B_2	B_3	C_1	C_2	L_1	L_2	L_3	L
1	778.67	40.51	11.43	11.84	39.96	12.20	12.06	40.33	51.94	64.00	52.39	168.33
2	772.33	40.97	11.19	11.87	40.18	12.15	12.07	40.43	52.16	64.21	52.51	168.88
3	766.00	41.17	11.23	11.90	40.33	12.18	12.09	40.53	52.39	64.41	52.62	169.42
4	759.67	41.36	11.27	11.92	40.48	12.21	12.10	40.64	52.63	64.62	52.74	169.99
5	753.33	41.57	11.31	11.83	40.76	12.25	12.28	40.59	52.88	64.84	52.87	170.58

Note:
See sheet 16 of 33 for tables detailing layout dimensions, diaphragm spacing and shear stud spacing for each beam.
See sheet 15 of 33 for additional steel details.
All diaphragms between beams shall be installed with erection pins and bolts in accordance with the erection plan approved by the Engineer. Individual diaphragms at supports may be temporarily disconnected to install bearing anchor rods.
Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.



GIRDER ELEVATION

"NTR" denotes plates to which notch toughness requirements are applicable.

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FILE NAME = 10000098-78182-014-Stl_Framing.dgn	USER NAME = jo	DESIGNED - CTW	REVISED -
		CHECKED - CDL	REVISED -
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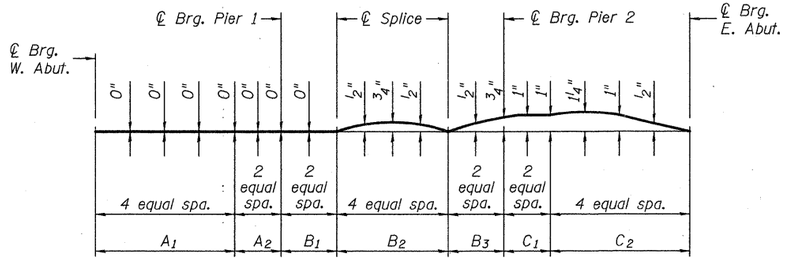
	PLOT DATE = 9/7/2011	DATE - 9/7/2011	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

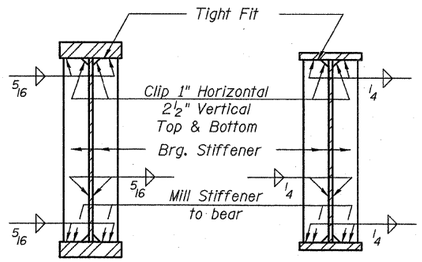
STRUCTURAL STEEL
STRUCTURE NO. 100-0098
SHEET NO. 14 OF 33 SHEETS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(X1-6-2)HB-2	WILLIAMSON	968	697
		CONTRACT NO. 78182		
		ILLINOIS FED. AID PROJECT		



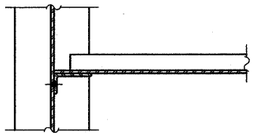
CAMBER DIAGRAM

Note:
For dimensions A, B & C, see previous sheet.

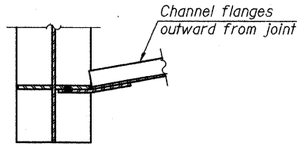


SECTION AT PIER

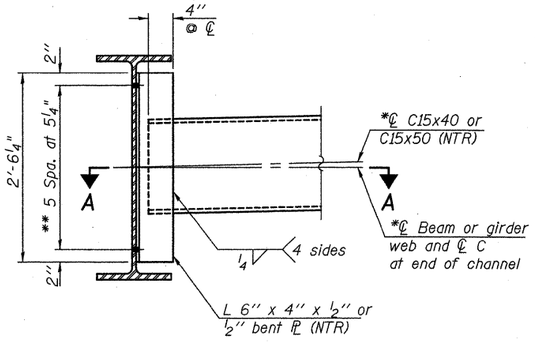
SECTION AT ABUTMENT



SECTION A-A



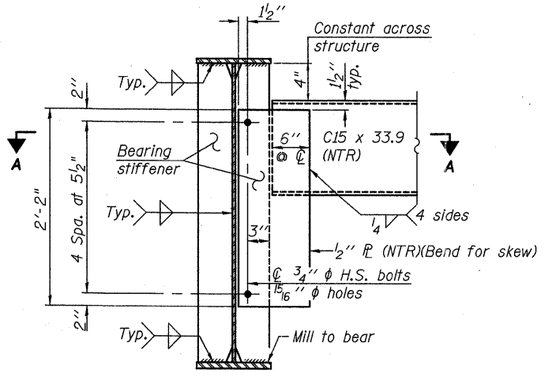
SECTION A-A



INTERIOR DIAPHRAGM (D_1)

(44 Required)

Note:
Two hardened washers required for each set of oversized holes.
*Alternate channels are permitted to facilitate material acquisition. Calculated weight of structural steel is based on the lighter section.
The alternate, if utilized, shall be provided at no additional cost to the Department.
**¾" ϕ HS bolts, 15/16" ϕ holes

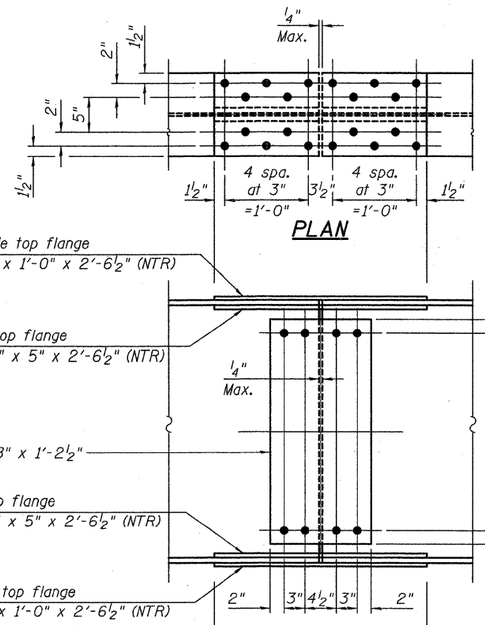


END DIAPHRAGM (D)

(8 Required)

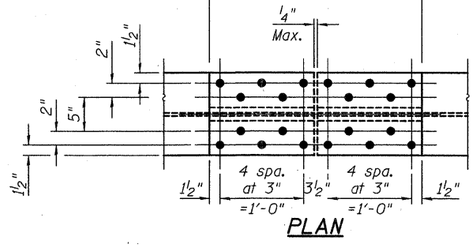
Note: Two hardened washers required for each set of oversized holes.

Note:
All structural steel shall be AASHTO M 270 Grade 50.
All structural steel shall be NTR.
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.
Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.



PLAN

ELEVATION



PLAN

FIELD SPLICE DETAIL

(Splice 1 and Splice 2)

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	PLOT DATE = 9/7/2011	DATE - 9/7/2011	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL DETAILS
STRUCTURE NO. 100-0098
SHEET NO. 15 OF 33 SHEETS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(X1-6-2)HB-2	WILLIAMSON	968	698
		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			

DIAPHRAGM SPACING - LEFT (feet)

Beam	DL_1	DL_2	DL_3	DL_4	DL_5	DL_6	DL_7	DL_8	DL_9
1	--	--	--	--	--	--	--	--	--
2	8.35	15.31	13.19	2.13	15.94	14.26	1.68	15.77	3.50
3	8.41	15.38	13.22	2.15	15.99	14.29	1.71	15.80	3.50
4	8.48	15.44	13.27	2.18	16.04	14.32	1.72	15.84	3.50
5	8.55	15.51	13.31	2.20	16.09	14.35	1.74	15.88	3.50

DIAPHRAGM SPACING - RIGHT (feet)

Beam	DR_1	DR_2	DR_3	DR_4	DR_5	DR_6	DR_7	DR_8	DR_9
1	3.50	15.44	2.12	13.95	16.07	1.84	14.06	15.90	6.53
2	3.50	15.50	2.16	13.97	16.13	1.86	14.07	15.94	6.56
3	3.50	15.57	2.17	14.00	16.18	1.88	14.09	15.98	6.58
4	3.50	15.64	2.20	14.02	16.23	1.91	14.11	16.00	6.63
5	--	--	--	--	--	--	--	--	--

LAYOUT DIMENSIONS (feet)

	W. Abut.-℄ Brg.		Inflection point		Pier 1-℄ Brg.		Splice 1		Splice 2		Pier 2-℄ Brg.		Inflection point		E. Abut.-℄ Brg.	
Beam	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
1	-88.48	13.62	-50.13	17.05	-36.72	17.80	-24.89	18.27	15.07	18.52	27.26	18.19	40.15	17.63	79.52	14.60
2	-92.60	6.76	-53.91	10.45	-40.65	11.26	-28.79	11.80	11.38	12.25	23.53	11.97	36.70	11.46	75.91	8.59
3	-96.75	-0.13	-57.89	3.81	-44.59	4.70	-32.71	5.30	7.60	5.96	19.79	5.74	32.97	5.29	72.30	2.58
4	-100.91	-7.07	-62.04	-2.87	-48.55	-1.89	-36.65	-1.22	3.82	-0.34	16.03	-0.50	29.15	-0.89	68.68	-3.44
5	-105.10	-14.03	-65.71	-9.54	-52.52	-8.50	-40.72	-7.77	0.02	-6.67	12.27	-6.77	25.54	-7.10	65.05	-9.48

X dimensions are parallel to the local tangent at Sta. 9+96.56.
Y dimensions are at right angles to the local tangent at Sta. 9+96.56.

INTERIOR GIRDER MOMENT TABLE

		0.4 Sp. 1	Pier 1	0.5 Sp. 2	Pier 2	0.6 Sp. 3
I_s	(in^4)	7779	7779	7779	7779	7779
$I_c(n)$	(in^4)	19788	19788	19788	19788	19788
$I_c(3n)$	(in^4)	14890	14890	14890	14890	14890
$I_c(cr)$	(in^4)	-	10592	-	10592	-
S_s	(in^3)	414.9	414.9	414.9	414.9	414.9
$S_c(n)$	(in^3)	583.4	1708.9	583.4	1708.9	583.4
$S_c(3n)$	(in^3)	534.6	843.8	534.6	843.8	534.6
$S_c(cr)$	(in^3)	-	524.6	-	524.6	-
S_{xc}	(in^3)	567.0	507.2	568.5	506.9	566.7
DC1	(k/')	0.80	0.80	0.80	0.80	0.80
M_{DC1}	('k)	154	274	140	279	157
DC2	(k/')	0.08	0.08	0.08	0.08	0.08
M_{DC2}	('k)	12	21	10	21	12
DW	(k/')	0.28	0.28	0.28	0.28	0.28
M_{DW}	('k)	53	95	48	97	54
$M_{℄+IM}$	('k)	556	517	562	532	567
f_f (Strength I)	(ksi)	3.9	5.6	3.9	6.1	4.2
$M_u + \frac{1}{3} f_f S_{xc}$	('k)	1322	1495	1305	1366	1350
$\phi_f M_n$	('k)	2274	1911	2286	1908	2274
f_s DC1	(ksi)	4.5	7.9	4.0	8.1	4.5
f_s DC2	(ksi)	0.3	0.5	0.2	0.5	0.3
f_s DW	(ksi)	1.2	2.2	1.1	2.2	1.2
f_s (℄+IM)	(ksi)	11.4	11.8	11.6	12.2	11.7
f_f (Service II)	(ksi)	0.8	4.3	1.2	4.6	1.4
$f_s + f_f/2$ (Service II)	(ksi)	21.2	28.1	21.0	28.9	21.9
$0.95R_hF_{yf}$	(ksi)	47.5	47.5	47.5	47.5	47.5
$f_s + f_f/3$ (Total)(Strength I)	(ksi)	29.0	36.3	28.5	39.8	29.6
$\phi_f F_n$	(ksi)	50	50	50	50	50
V_f	(k)	9.9	13.7	10.4	14.9	10.1

INTERIOR GIRDER REACTION TABLE

		W. Abut.	Pier 1	Pier 2	E. Abut.
R_{DC1}	(k)	16.6	51.9	52.4	16.5
R_{DC2}	(k)	1.1	3.9	4.0	1.1
R_{DW}	(k)	5.5	18.1	18.2	5.5
$R_{℄+IM}$	(k)	70.5	106.4	105.4	67.0
R_{Total}	(k)	93.7	180.3	180.0	90.1

TOP OF WEB ELEVATIONS*

Location	℄ Brg. W. Abut.	℄ Brg. Pier 1	℄ Splice 1	℄ Splice 2	℄ Brg. Pier 2	℄ Brg. E. Abut.
Beam 1	474.81	475.72	475.94	476.65	476.80	477.49
Beam 2	474.21	475.14	475.36	476.08	476.24	476.95
Beam 3	473.61	474.55	474.77	475.51	475.68	476.42
Beam 4	473.01	473.97	474.19	474.94	475.11	475.88
Beam 5	472.41	473.38	473.60	474.37	474.54	475.34

* For fabrication only

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

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

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

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

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

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

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

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

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

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

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

$M_{℄+IM}$: Un-factored live load moment plus dynamic load allowance (impact)(kip-ft.).

M_u (Strength I): Factored design moment (kip-ft.).
$1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_{℄+IM}$

f_f: Factored calculated normal stress at edge of flange for controlling steel flange plate due to lateral bending, Strength I or Service II as applicable (ksi).

$\phi_f M_n$: Factored resistance available according to A6.1.1 ('k).

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

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

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

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

$f_s + f_f/2$ (Service II): Sum of stresses as computed below (ksi).
$f_{sDC1} + f_{sDC2} + f_{sDW} + 1.3 f_{s℄+IM} + f_f/2$

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

$f_s + f_f/3$ (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).
$1.25 (f_{sDC1} + f_{sDC2}) + 1.5 f_{sDW} + 1.75 f_{s℄+IM} + f_f/3$

ϕ_rF_n: Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7.2 (ksi).

V_f: Maximum factored shear range computed according to Article 6.10.10.

M℄ and R℄ include the effects of centrifugal force and superelevation.

Note:.
See sheet 14 of 33 for beam plan and elevation dimensions depicted in tables.
Spacings given in tables are along respective beam centerlines.
See sheets 19 and 22 of 33 for abutment bearing orientations and anchor bolt layout dimensions.
See sheets 25 and 27 of 33 for pier bearing orientations and anchor bolt layout dimensions.

SHEAR STUD SPACING

Beam	SA_1	SA_2	SA_3	SA_4	SB_1	SB_2	SB_3	SB_4	SB_5	SB_6	SC_1	SC_2	SC_3
1	27 spa. @ 9"	7"	46 spa. @ 8"	8 1/8"	15 spa. @ 8"	27 spa. @ 8"	1'-1"	27 spa. @ 8"	14 spa. @ 9"	8"	46 spa. @ 8"	11 3/8"	27 spa. @ 9"
2	27 spa. @ 9"	9"	46 spa. @ 8"	10 1/8"	17 spa. @ 7"	27 spa. @ 8"	1'-3 5/8"	27 spa. @ 8"	15 spa. @ 8"	10"	47 spa. @ 8"	8 1/8"	27 spa. @ 9"
3	27 spa. @ 9"	11"	46 spa. @ 8"	11 1/4"	17 spa. @ 7"	28 spa. @ 8"	9 1/2"	27 spa. @ 8"	15 spa. @ 8"	10 1/4"	47 spa. @ 8"	9 1/2"	27 spa. @ 9"
4	27 spa. @ 9"	1'-2 7/8"	46 spa. @ 8"	10 1/2"	17 spa. @ 7"	28 spa. @ 8"	11 1/4"	27 spa. @ 8"	15 spa. @ 8"	10"	47 spa. @ 8"	11 3/4"	27 spa. @ 9"
5	27 spa. @ 9"	1'-3 3/4"	46 spa. @ 8"	10 1/2"	15 spa. @ 8"	28 spa. @ 8"	1'-2 5/8"	27 spa. @ 8"	14 spa. @ 9"	10 1/2"	46 spa. @ 8"	1'-3"	27 spa. @ 9"

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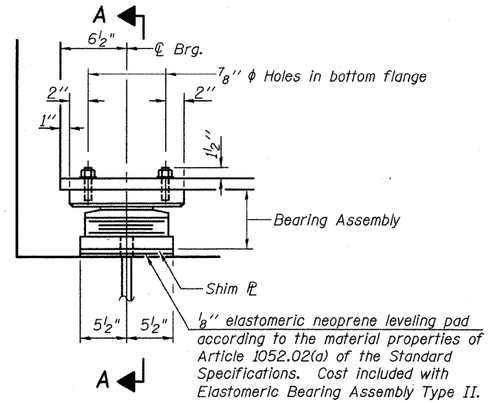
	PLOT DATE = 12/2/2011	DATE - 12/2/2011	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL DETAILS
STRUCTURE NO. 100-0098
SHEET NO. 16 OF 33 SHEETS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(XI-6-2)HB-2	WILLIAMSON	968	699
		CONTRACT NO. 78182		
	ILLINOIS FED. AID PROJECT			



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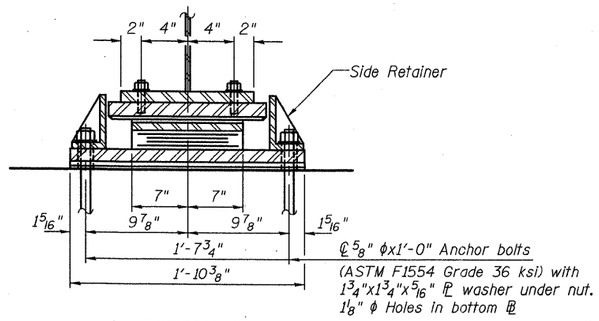
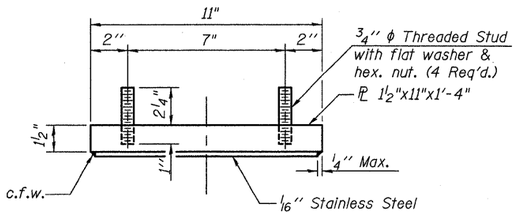
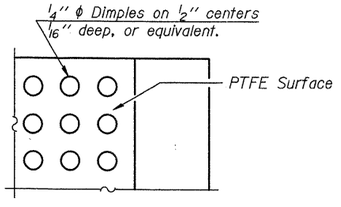


SECTION A-A

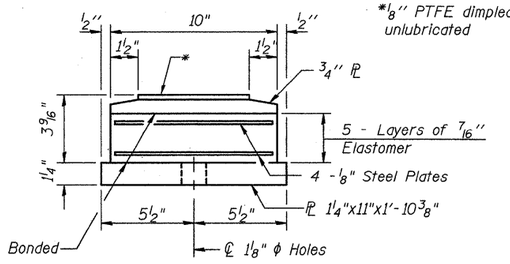
TYPE II ELASTOMERIC EXP. BRG.



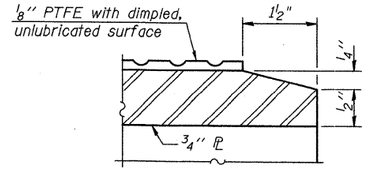
TOP BEARING ASSEMBLY



PLAN-PTFE SURFACE

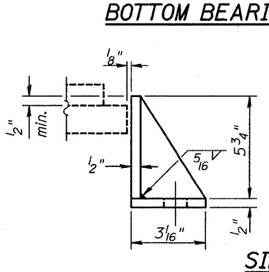


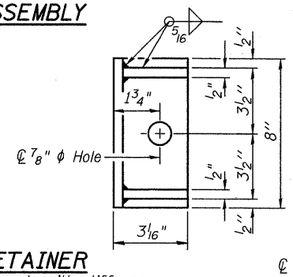
*1/8" PTFE dimpled, unlubricated



SECTION THRU PTFE

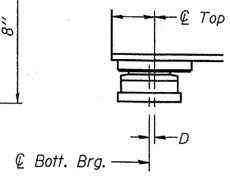
BOTTOM BEARING ASSEMBLY





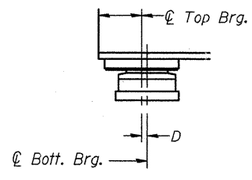
SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.



BELOW 50°F.

(Move bott. brg. away from fixed brg.)

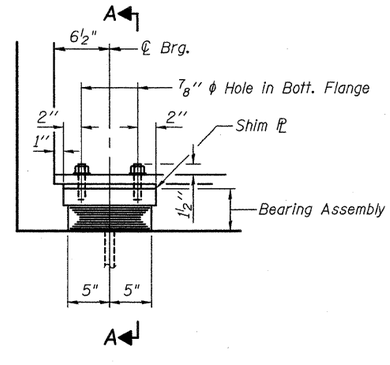


ABOVE 50°F.

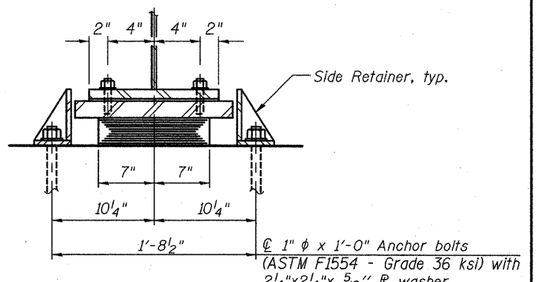
(Move bott. brg. toward fixed brg.)

SETTING ANCHOR BOLTS AT EXP. BRG.

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

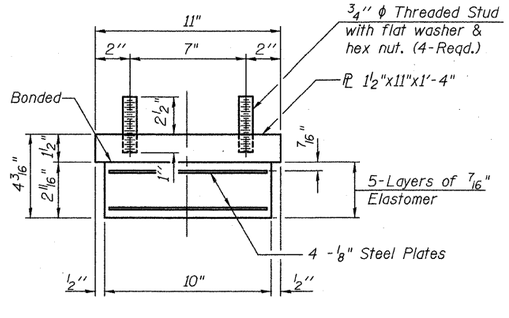


ELEVATION AT EAST ABUT.



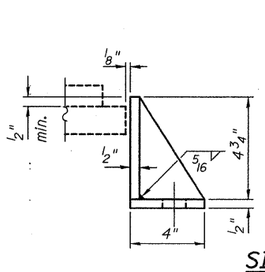
SECTION A-A

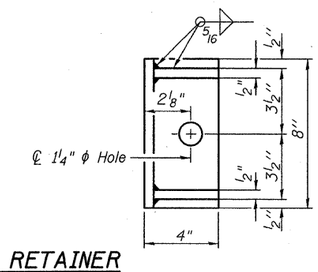
TYPE I ELASTOMERIC EXP. BRG.



BEARING ASSEMBLY

Note:
Shim plates shall not be placed under Bearing Assembly.





SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.

Notes:

Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. ASTM A307 Grade C anchor bolts may be used in lieu of ASTM F1554 Grade 36 (Fy=36ksi). The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.

Anchor bolts for side retainers may be cast in place or installed in holes drilled before or after members are in place.

Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.

Side retainers and other steel members required for the elastomeric bearing assembly shall be included in the cost of Elastomeric Bearing Assembly, Type I.

Anchor bolts for Type II bearings shall be placed in holes drilled in the concrete through holes in the bottom bearing plate after members are in place. Side retainers shall be placed after bolts are installed.

Side retainers and other steel members required for the elastomeric bearing assembly shall be included in the cost of Elastomeric Bearing Assembly, Type II.

The 1/8" PTFE sheet shall be bonded directly to the top steel plate with a two-component, medium viscosity epoxy resin, conforming to the requirements of the Federal Specification MMM-A-134, Type I. The bond agent shall be applied on the full area of the contact surfaces.

Bonding of 1/8" PTFE sheet during vulcanizing process will be permitted provided the process and method of adjusting assembly height is approved by the Engineer.

The structural steel plates of the Bearing Assembly shall conform to requirements of AASHTO M270 Grade 50.

Two 1/8 in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

The anchor bolt sizes and grades shown constitute a calculated seismic structural fuse. Substitution of higher diameter and/or grade anchor bolts will not be allowed.

See sheets 19 and 22 of 33 for bearing orientations and anchor bolt layout dimensions.

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type I	Each	5
Elastomeric Bearing Assembly Type II	Each	5
Anchor Bolts, 5/8"	Each	10
Anchor Bolts, 1"	Each	10

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BEARING DETAILS – ABUTMENTS
STRUCTURE NO. 100-0098
SHEET NO. 17 OF 33 SHEETS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(X1-6-2)HB-2	WILLIAMSON	968	700
		CONTRACT NO. 78182		
		ILLINOIS FED. AID PROJECT		

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