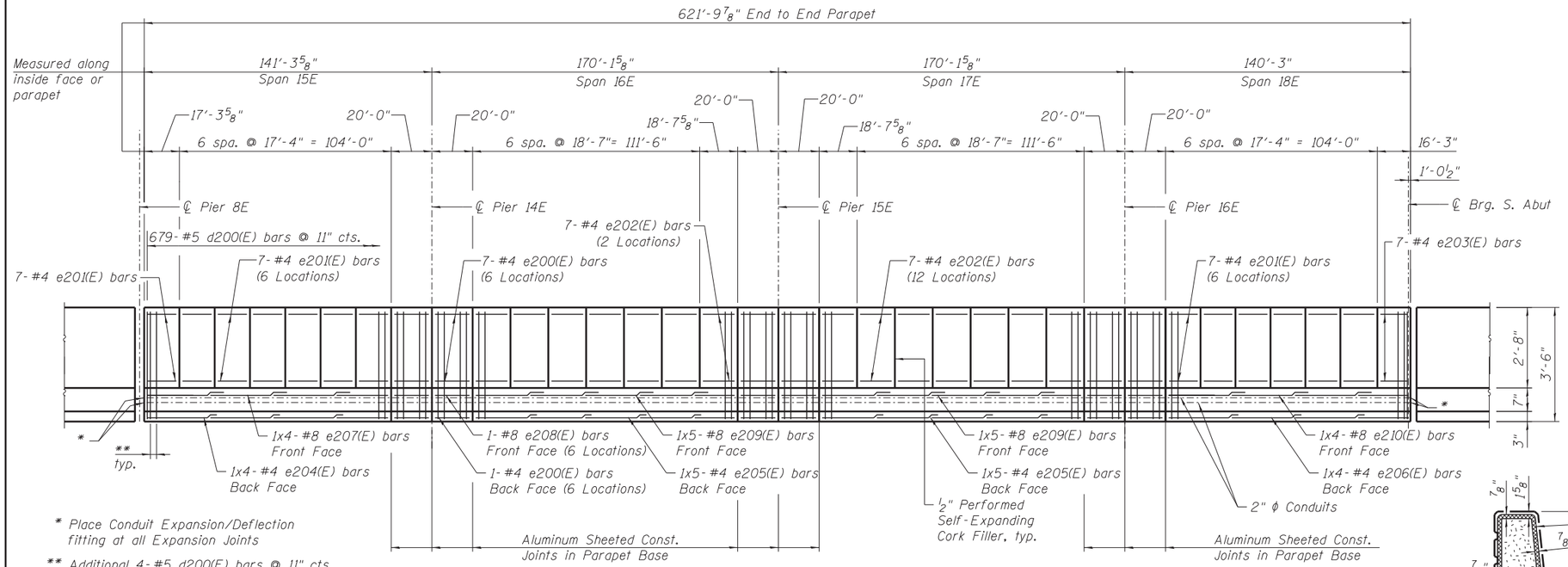
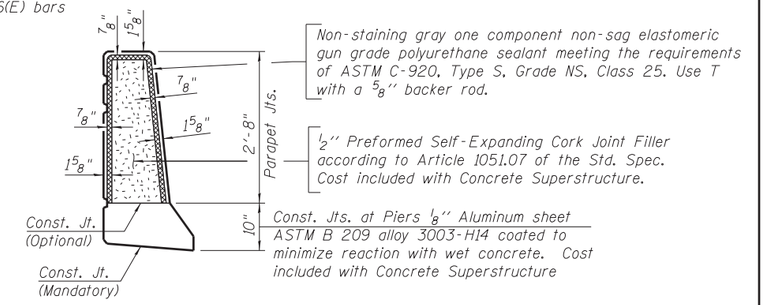
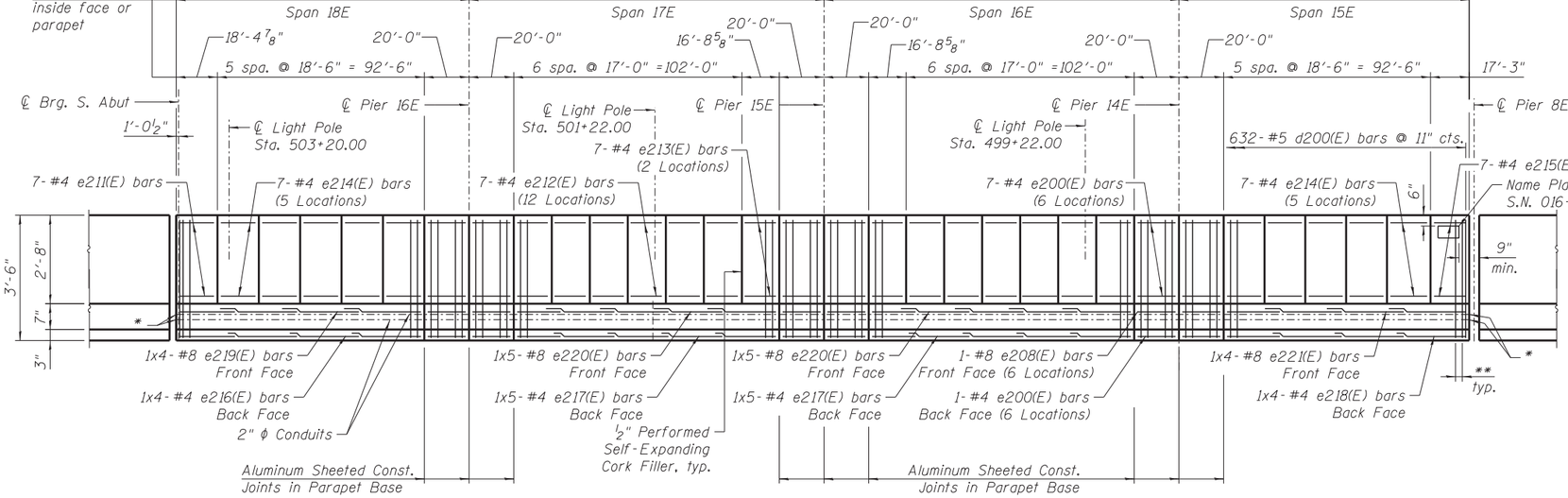


* Place Conduit Expansion/Deflection fitting at all Expansion Joints

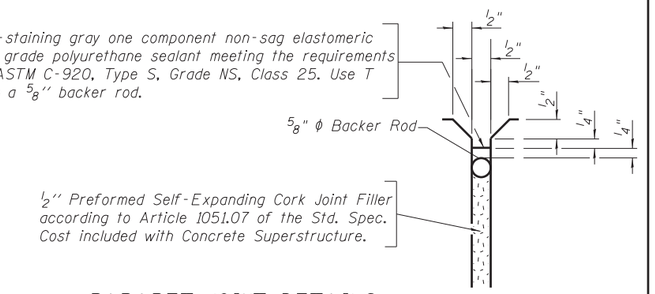
** Additional 4-#5 d200(E) bars @ 11" cts. Space between the already specified d200(E) bars that run End to End Parapet. Typical at parapet ends and each side of aluminum sheeted joints. (20 Locations North Parapet) (20 Locations South Parapet)

INSIDE ELEVATION OF NORTH PARAPET - S.N. 016-1502





INSIDE ELEVATION OF SOUTH PARAPET - S.N. 016-1502



PARAPET JOINT DETAILS

MIN. BAR LAP

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

NOTES:

1. Contractor to provide expansion/deflection conduit fittings at all structural expansion joints. See lighting plans for expansion/deflection fitting installation details.
2. Bars indicated Locations: 1x4-#8 etc., indicates one line of bars with 4 lengths per line.
3. See Sheet S-83 for parapet details.

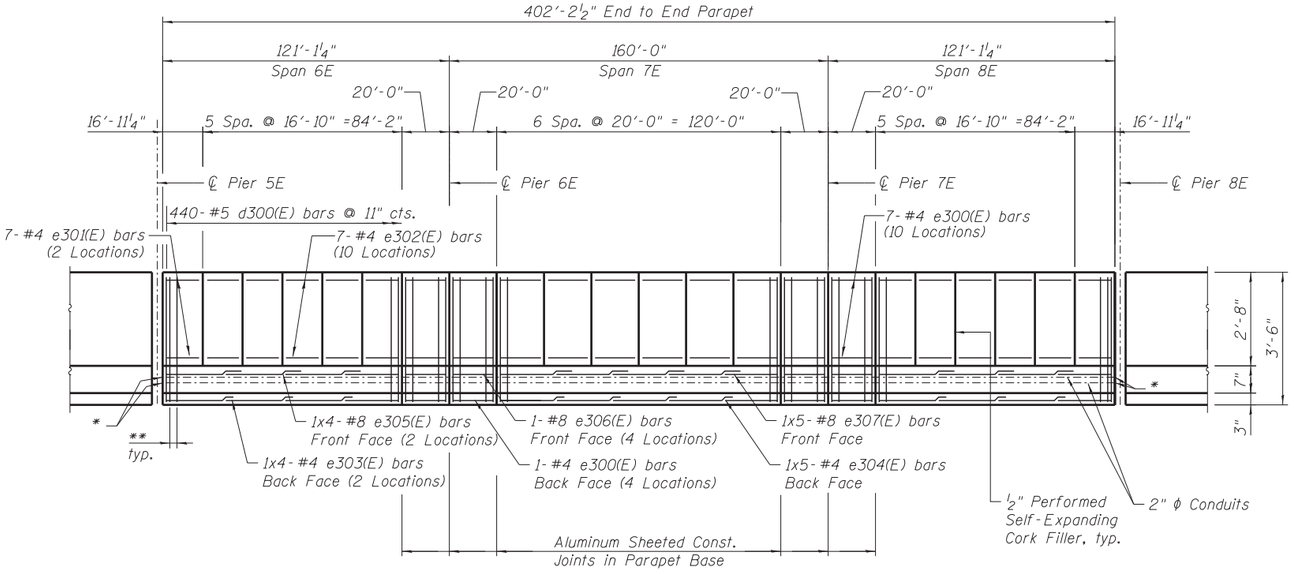
222_0161502_60X70_Parapet_II.dgn

AECOM	USER NAME = kritzm	DESIGNED - AV	REVISED -
		CHECKED - DD	REVISED -
	PLOT SCALE =	DRAWN - AV	REVISED -
	PLOT DATE = 5/26/2015	CHECKED - EJO	REVISED -

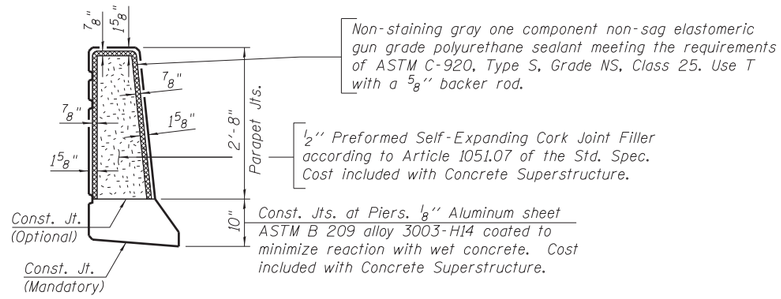
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

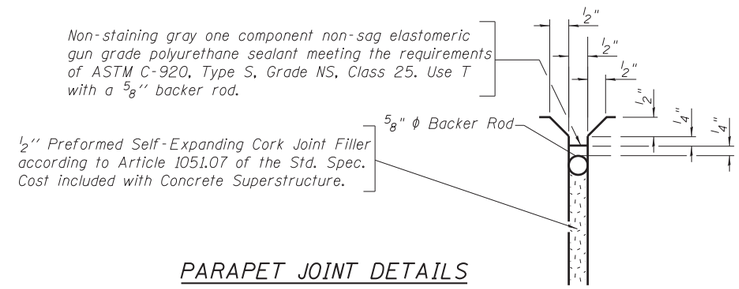
PARAPET ELEVATIONS II – S.N. 016–1502
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-78 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	601
		CONTRACT NO. 60X07		
		ILLINOIS FED. AID PROJECT		

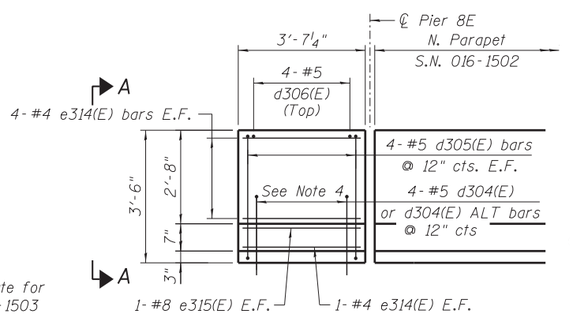


INSIDE ELEVATION OF NORTH PARAPET - S.N. 016-1503 (UNIT 1)



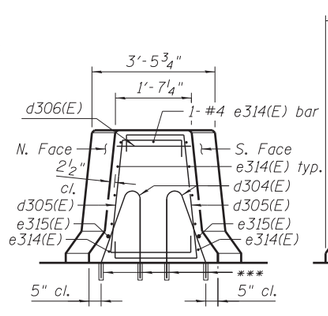


PARAPET JOINT DETAILS



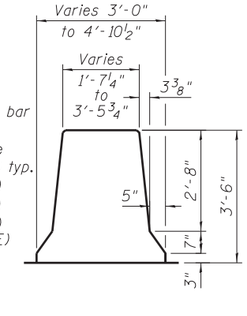
ELEVATION OF PARAPET END BLOCK

(Looking North)



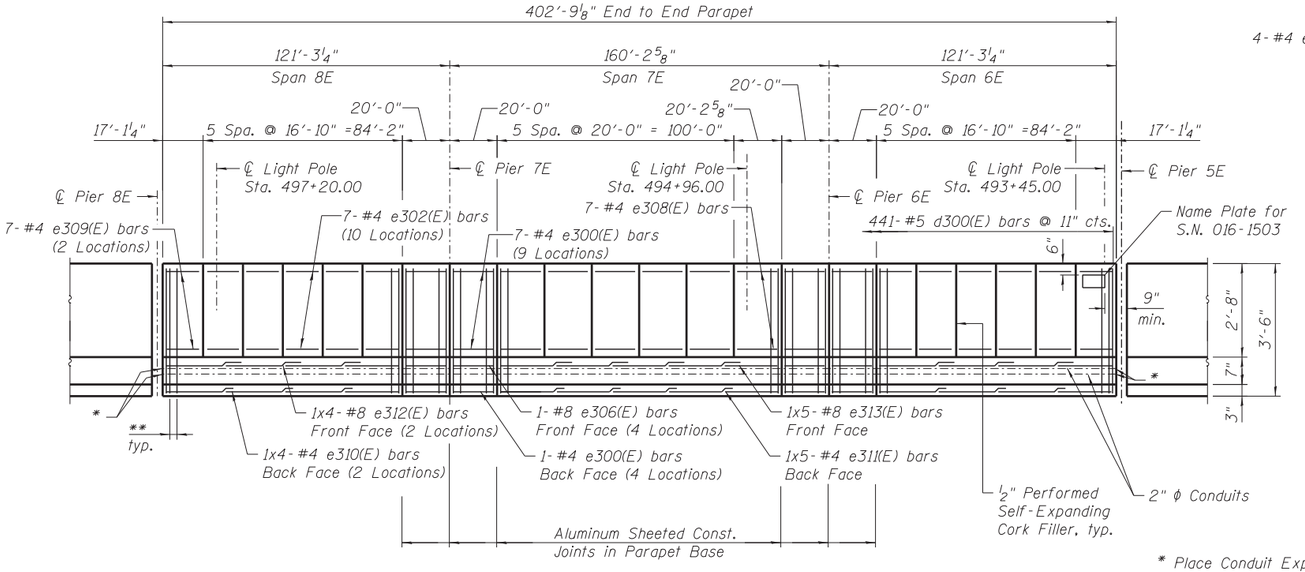
VIEW A-A

(Looking East)



Note: See Sheet S-72 for additional Detail.

*** Core and set #5 d304(E) bars according to Article 509.06 of the Standard Specifications. Cored holes shall be roughened or scored per manufacturer's recommendations. Maximum depth of hole shall not exceed 6".



INSIDE ELEVATION OF SOUTH PARAPET - S.N. 016-1503 (UNIT 1)

* Place Conduit Expansion/Deflection fitting at all Expansion Joints

** Additional 4-#5 d300(E) bars @ 11" cts. Space between the already specified d300(E) bars that run End to End Parapet. Typical at parapet ends and each side of aluminum sheeted joints.
(14 Locations North Parapet)
(14 Locations South Parapet)

MIN. BAR LAP

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

NOTES:

1. Contractor to provide expansion/deflection conduit fittings at all structural expansion joints. See lighting plans for expansion/deflection fitting installation details.
2. Bars indicated Locations: 1x4-#8 etc., indicates one line of bars with 4 lengths per line.
3. See Sheet S-84 for parapet details.
4. Contractor may elect to use Bar "d304(E) ALT" instead of d304(E) with inserts as shown. The d304(E) bars with inserts are included on Bill of Material.

223_0161503_60X70_Parapet_III_Unit-1.dgn

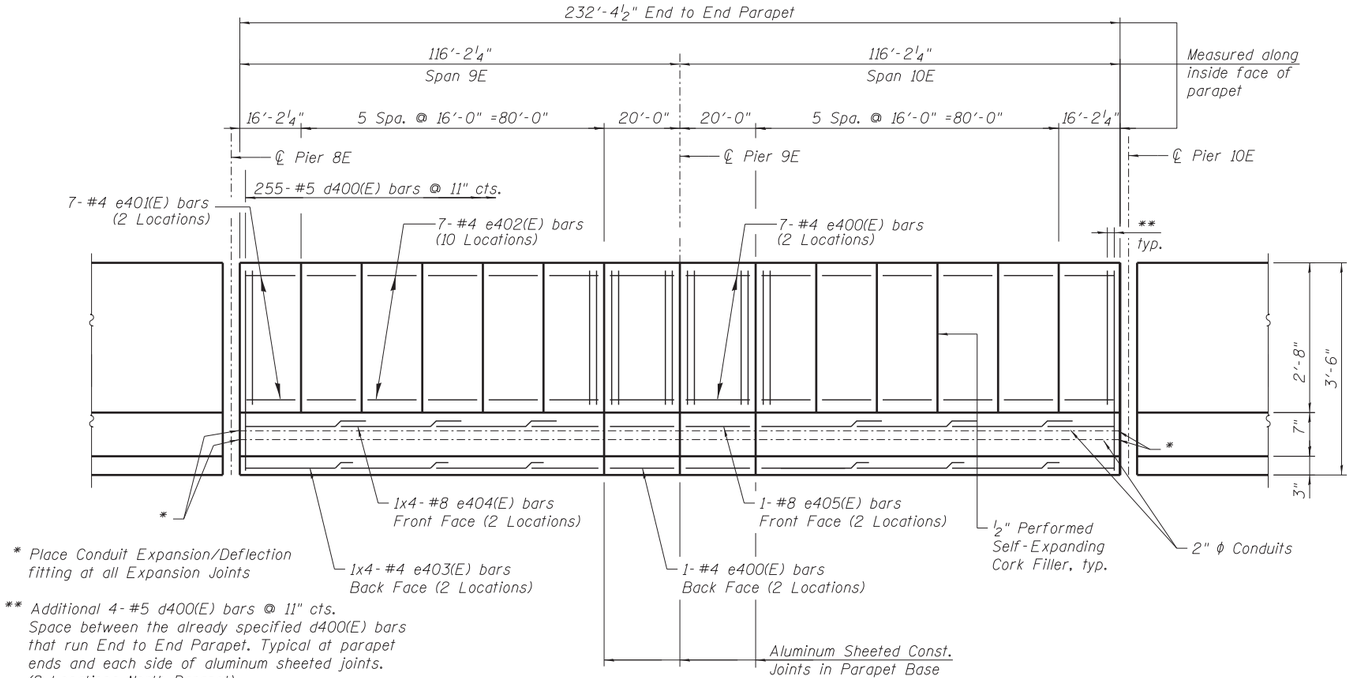
AECOM

USER NAME = kritzm	DESIGNED - CLS	REVISED -
	CHECKED - ATB	REVISED -
PLOT SCALE =	DRAWN - MRK	REVISED -
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -

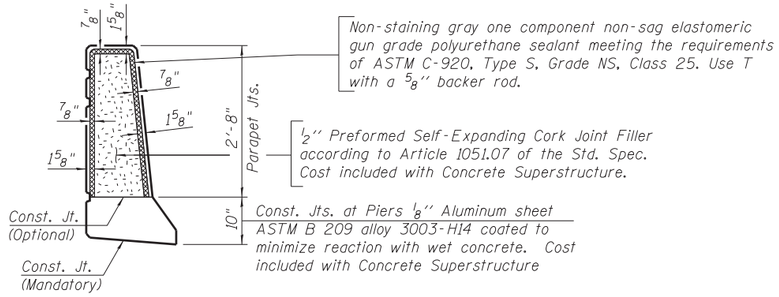
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

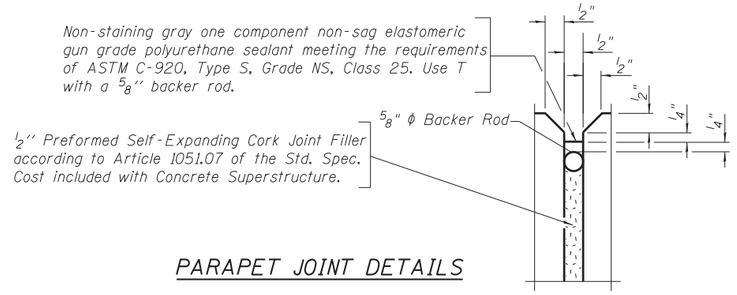
PARAPET ELEVATIONS III – S.N. 016-1503 (UNIT 1)
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-79 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	602
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

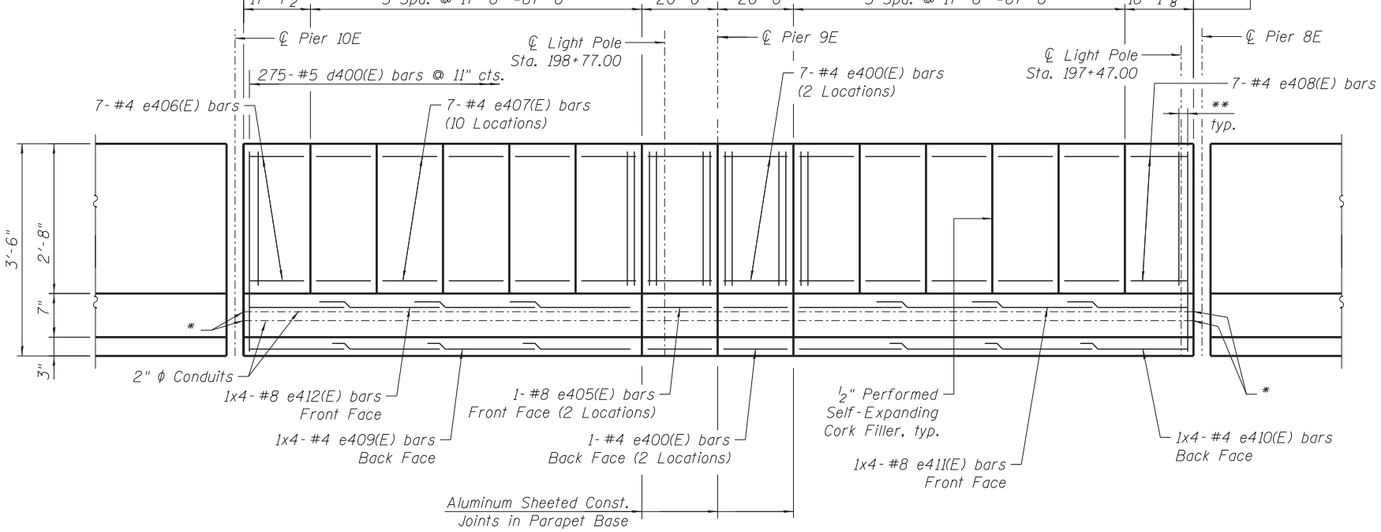


INSIDE ELEVATION OF NORTH PARAPET - S.N. 016-1503 (UNIT 2)





PARAPET JOINT DETAILS



INSIDE ELEVATION OF SOUTH PARAPET - S.N. 016-1503 (UNIT 2)

MIN. BAR LAP

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

NOTES:

1. Contractor to provide expansion/deflection conduit fittings at all structural expansion joints. See lighting plans for expansion/deflection fitting installation details.
2. Bars indicated Locations: 1x4-#8 etc., indicates one line of bars with 4 lengths per line.
3. See Sheet S-85 for parapet details.

224_0161503_60X70_Parapet_IV_Unit-2.dgn

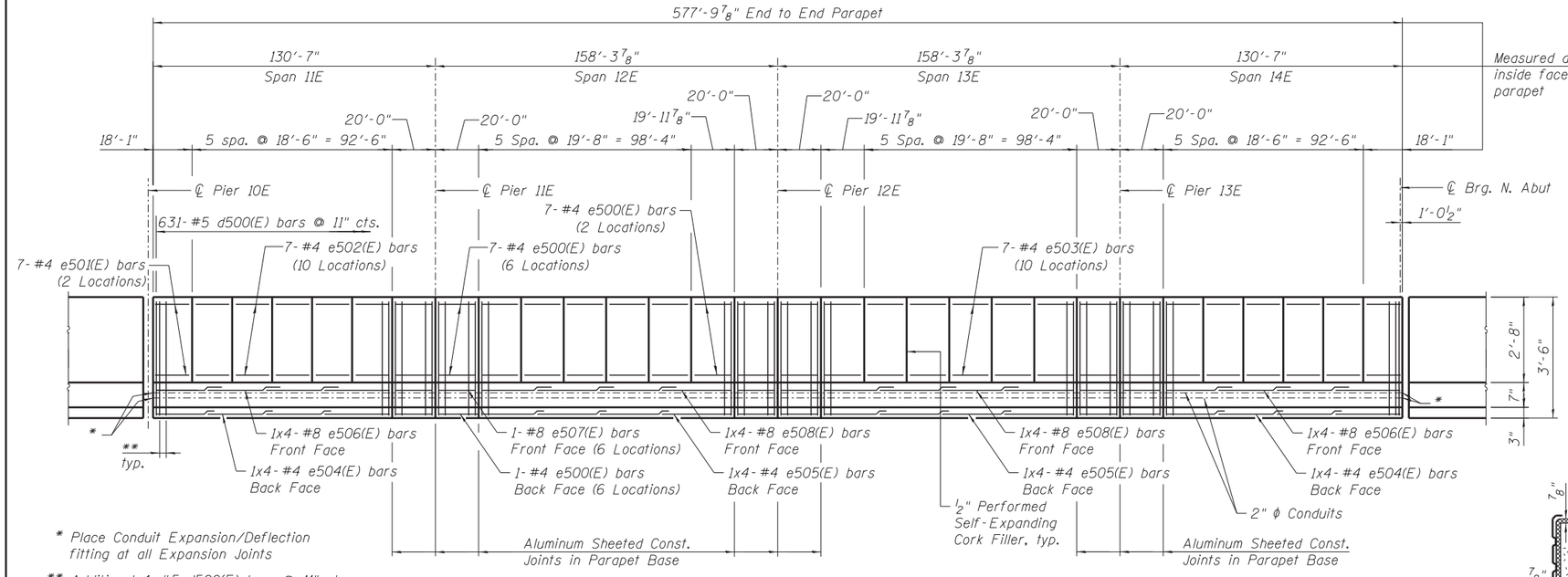
AECOM

USER NAME = kritzm	DESIGNED - AV	REVISED -
	CHECKED - DD	REVISED -
PLOT SCALE =	DRAWN - AV	REVISED -
PLOT DATE = 5/26/2015	CHECKED - EJO	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PARAPET ELEVATIONS IV – S.N. 016–1503 (UNIT 2)
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-80 OF S-218 SHEETS

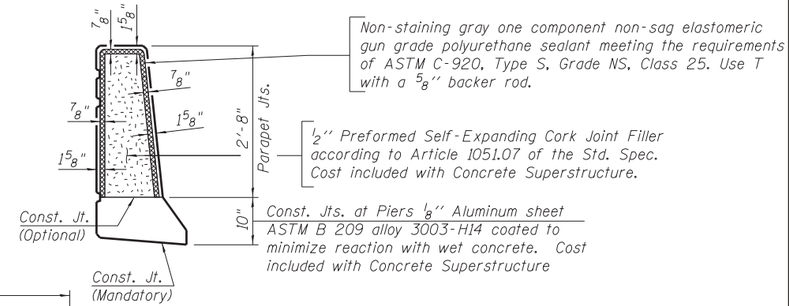
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	603
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

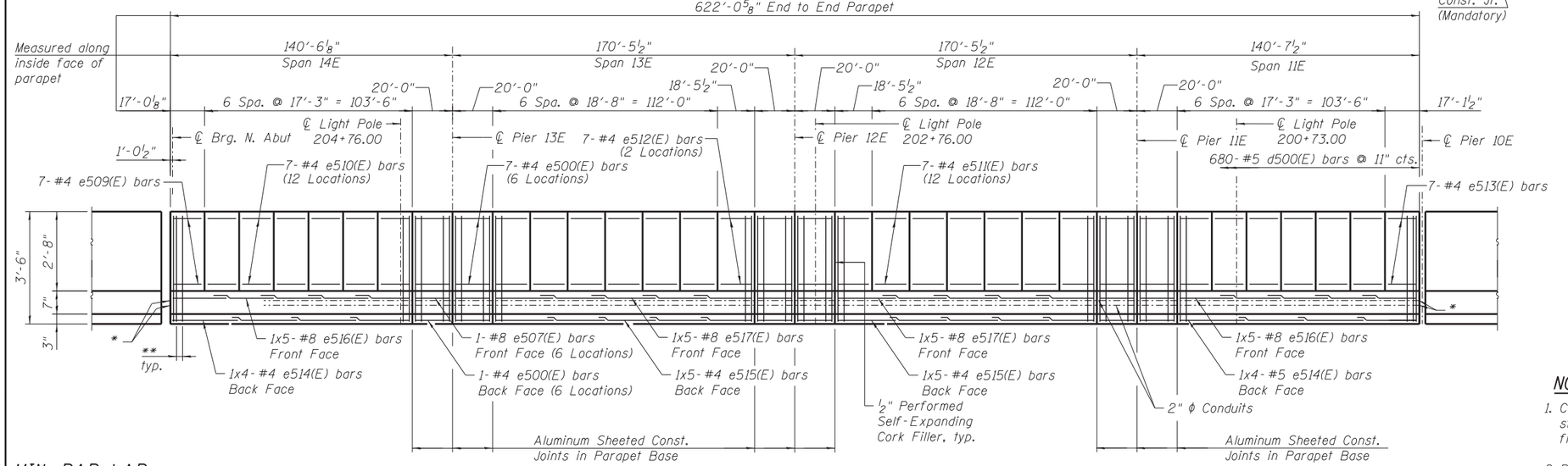


* Place Conduit Expansion/Deflection fitting at all Expansion Joints

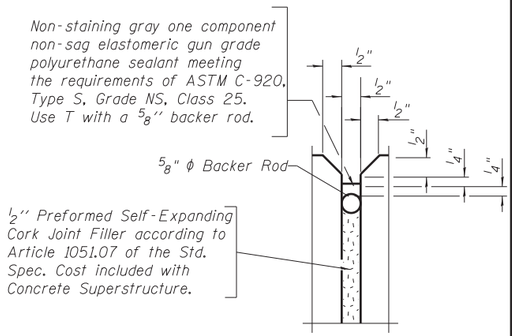
** Additional 4-#5 d500(E) bars @ 11" cts. Space between the already specified d500(E) bars that run End to End Parapet. Typical at parapet ends and each side of aluminum sheeted joints.
(20 Locations West Parapet)
(20 Locations East Parapet)

INSIDE ELEVATION OF WEST PARAPET - S.N. 016-1503 (UNIT 3)





INSIDE ELEVATION OF EAST PARAPET - S.N. 016-1503 (UNIT 3)



PARAPET JOINT DETAILS

MIN. BAR LAP

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

NOTES:

1. Contractor to provide expansion/deflection conduit fittings at all structural expansion joints. See lighting plans for expansion/deflection fitting installation details.
2. Bars indicated Locations: 1x4-#8 etc., indicates one line of bars with 4 lengths per line.
3. See Sheet S-86 for parapet details.

225_0161503_60X70_Parapet_V_Unit-3.dgn

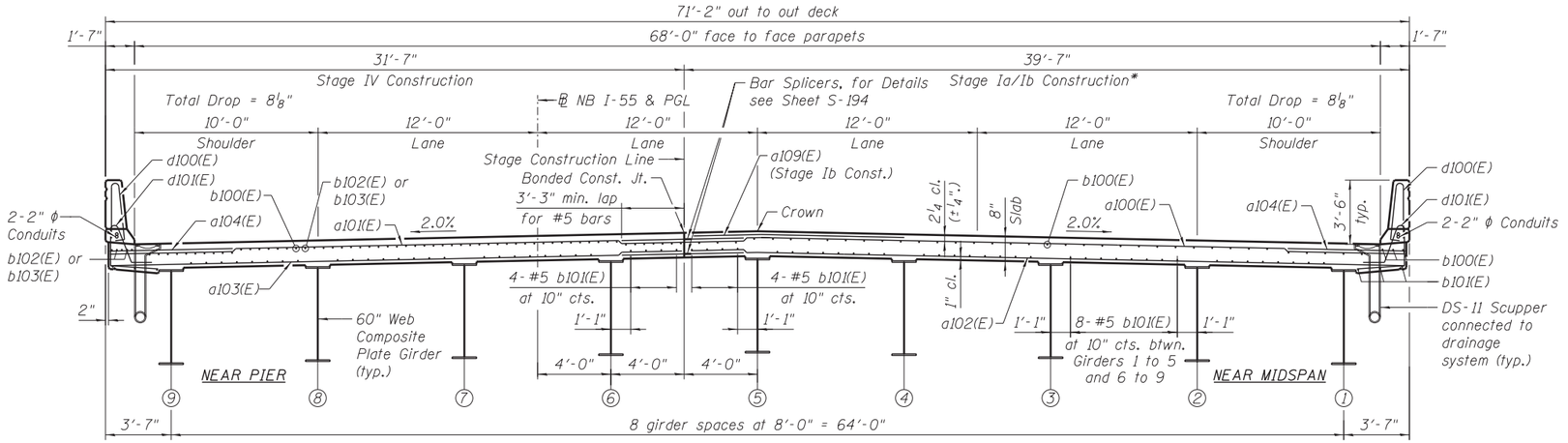
AECOM

USER NAME = kritzm	DESIGNED - CLS	REVISED -	
	CHECKED - DD	REVISED -	
PLOT SCALE =	DRAWN - MRK	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - EJO	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PARAPET ELEVATIONS V – S.N. 016–1503 (UNIT 3)
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-81 OF S-218 SHEETS

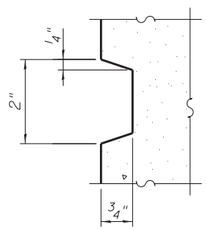
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	604
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			



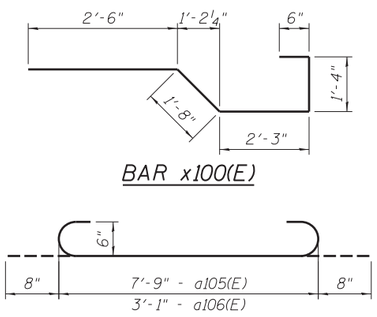
DECK CROSS SECTION - S.N. 016-1500

(Looking East)

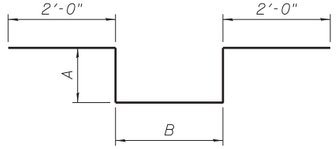
*Girders in Spans 1E, 2E & 3E will be erected during Stage Ia. Girders in Spans 4E & 5E will be erected in Stage Ib. Deck will be poured in Stage Ib after all girders have been erected for Spans 1E thru 5E.



REVEAL DETAIL



BAR x100(E)

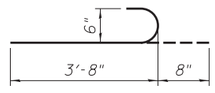


BARS d102(E), d104(E) & d106(E)

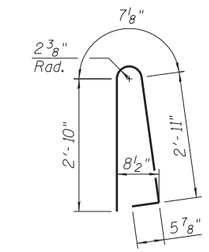
A & B DIMENSIONS

Bar	A	B
d102(E)	1'-4"	2'-1"
d104(E)	1'-7"	2'-1"
d106(E)	1'-7"	1'-9"

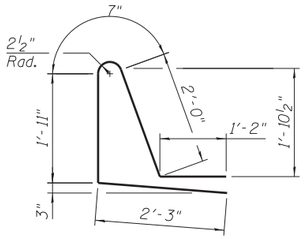
BARS a105(E) & a106(E)



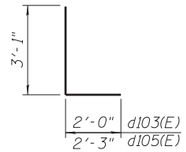
BAR a107(E)



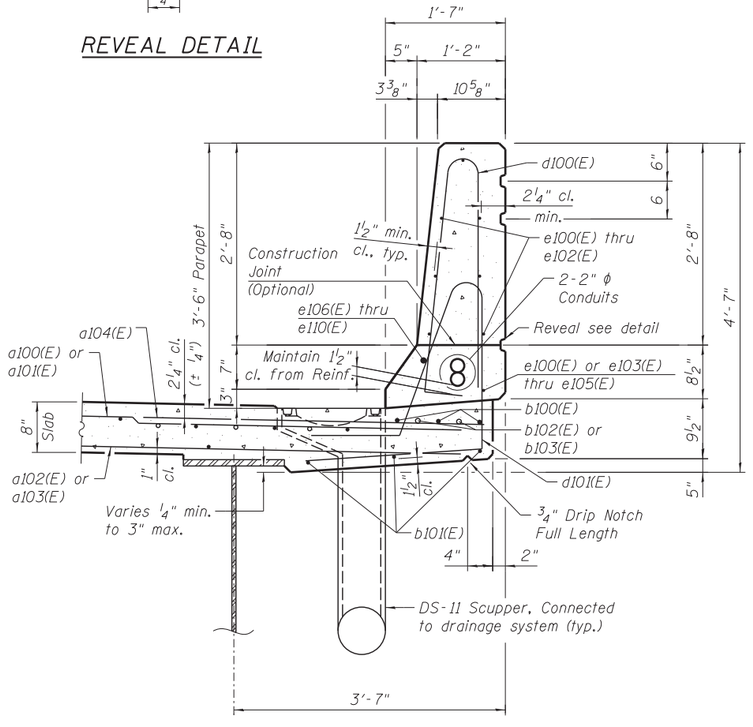
BAR d100(E)



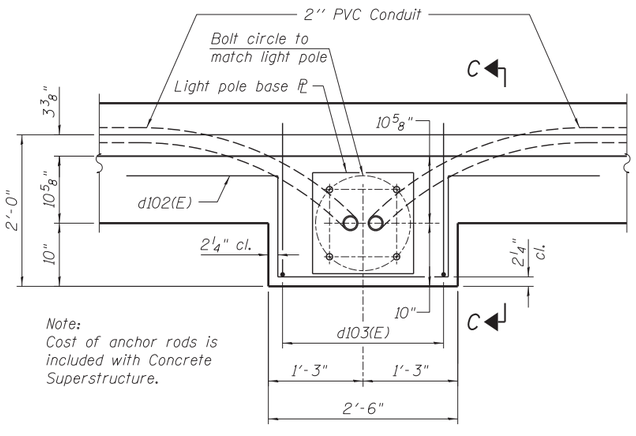
BAR d101(E)



BARS d103(E) & d105(E)

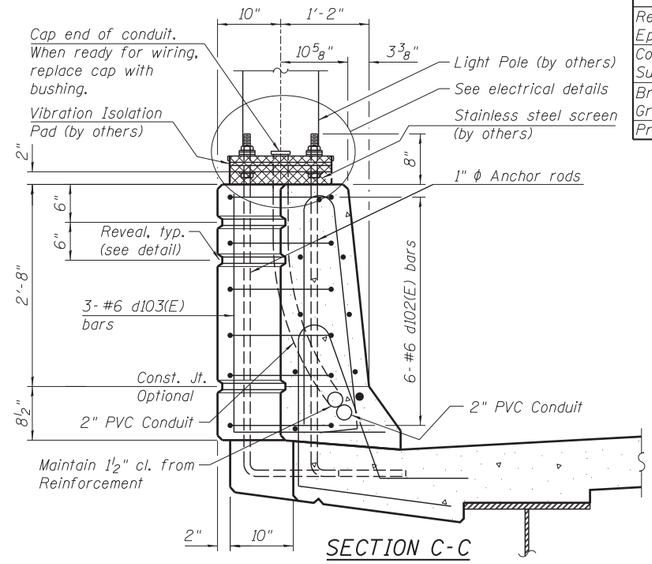


SECTION THRU PARAPET



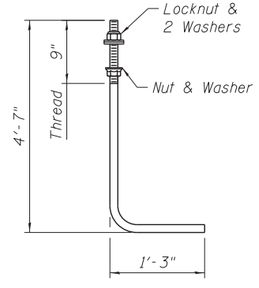
Note:
Cost of anchor rods is included with Concrete Superstructure.

PLAN AT LIGHT POLE



SECTION C-C

LIGHT POLE MOUNTED ON PARAPET



ANCHOR ROD

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

SUPERSTRUCTURE BILL OF MATERIAL S.N. 016-1500

Bar	No.	Size	Length	Shape
a100(E)	1601	#5	39'-1"	
a101(E)	1609	#5	31'-1"	
a102(E)	980	#5	38'-9"	
a103(E)	986	#5	30'-9"	
a104(E)	3218	#6	6'-6"	
a105(E)	56	#6	9'-1"	
a106(E)	16	#6	4'-5"	
a107(E)	16	#6	4'-4"	
a108(E)	96	#5	1'-6"	
a109(E)	1593	#5	11'-10"	
a110(E)	88	#8	8'-5"	
a111(E)	13	#5	19'-9"	
a112(E)	8	#5	19'-1"	
a113(E)	5	#5	18'-9"	
b100(E)	1998	#5	30'-5"	
b101(E)	2030	#5	28'-7"	
b102(E)	420	#6	32'-1"	
b103(E)	420	#6	30'-5"	
d100(E)	1818	#5	6'-10"	
d101(E)	1610	#5	7'-11"	
d102(E)	24	#6	8'-9"	
d103(E)	12	#6	5'-1"	
d104(E)	28	#6	9'-3"	
d105(E)	24	#6	5'-4"	
d106(E)	8	#6	8'-11"	
e100(E)	506	#4	19'-9"	
e101(E)	14	#4	20'-9"	
e102(E)	14	#4	15'-10"	
e103(E)	8	#4	26'-8"	
e104(E)	10	#4	29'-7"	
e105(E)	28	#4	25'-7"	
e106(E)	8	#8	29'-1"	
e107(E)	16	#8	19'-9"	
e108(E)	10	#8	32'-1"	
e109(E)	20	#8	28'-1"	
e110(E)	8	#8	27'-10"	
x100(E)	126	#5	8'-3"	
Reinforcement Bars, Epoxy Coated		Pound	447,380	
Concrete Superstructure		Cu. Yd.	1,642.6	
Bridge Deck Grooving (Longitudinal)		Sq. Yd.	5,406	
Protective Coat		Sq. Yd.	6,326	

231_016I500_60X07_Xsect_1.dgn

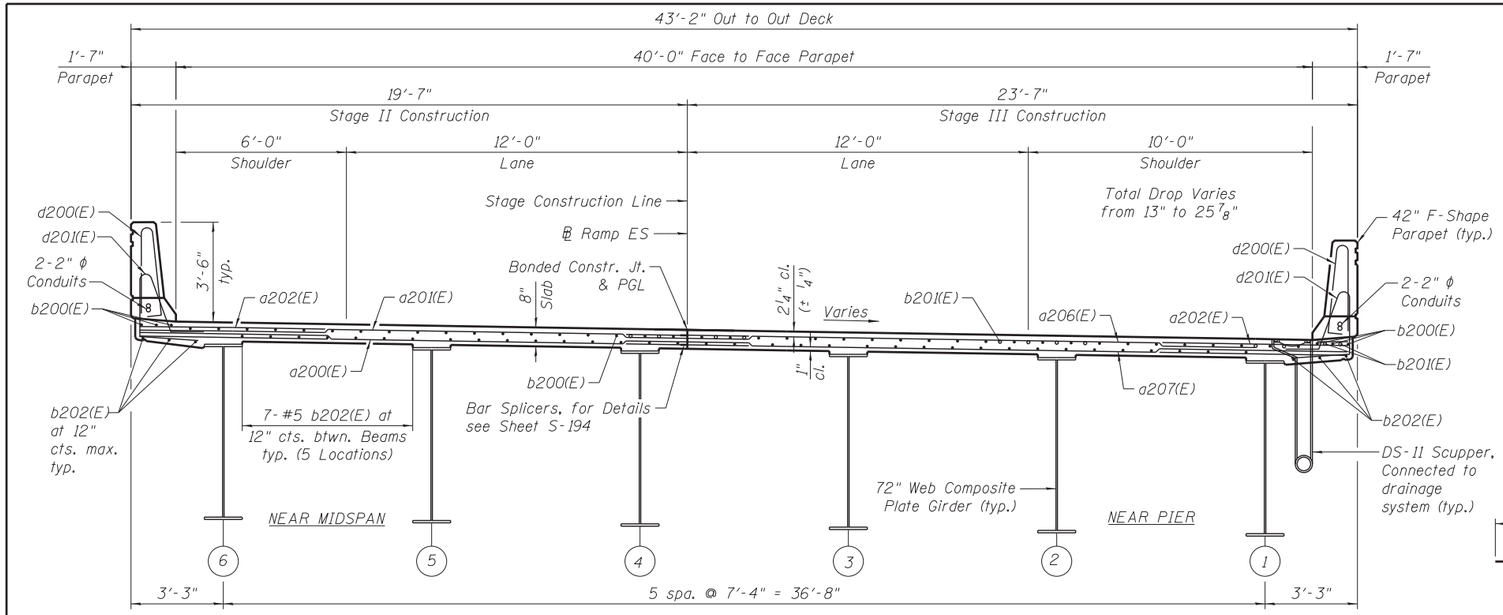
RME Rubinos & Mesia Engineers, Inc.
200 S. Michigan Avenue, Suite 1500, Chicago, IL 60604-2482

USER NAME = AVasonis	DESIGNED - TH	REVISED -	
	CHECKED - MR	REVISED -	
PLOT SCALE =	DRAWN - AMV	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - TH	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

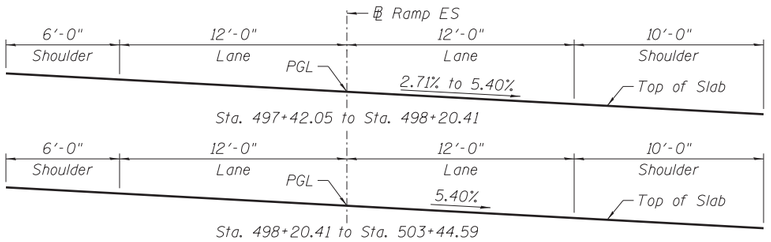
DECK CROSS SECTION & DETAILS I – S.N. 016-1500
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-82 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	605
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

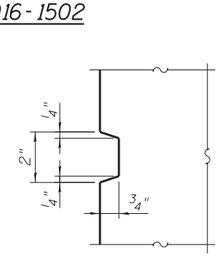


DECK CROSS SECTION - S.N. 016-1502

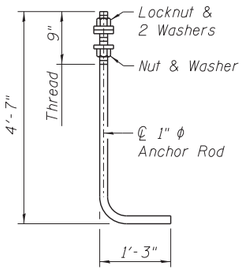
(Looking East)



DECK CROSS SLOPE DETAIL

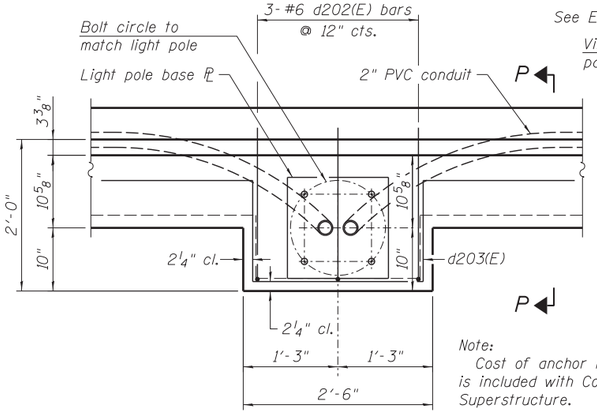


REVEAL DETAIL



ANCHOR ROD

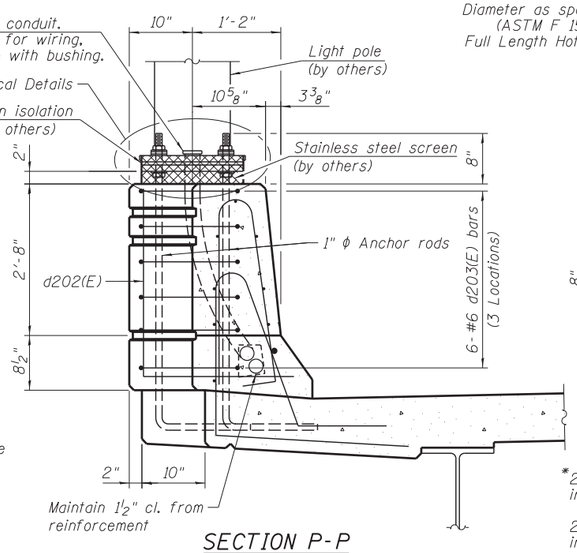
Diameter as specified for light poles.
(ASTM F 1554 Grade 105)
Full Length Hot Dipped Galvanized.



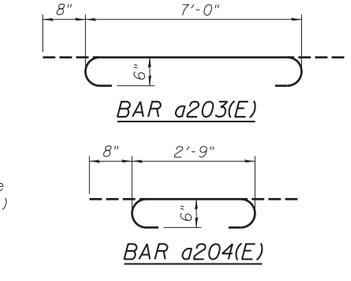
PLAN

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

LIGHT POLE MOUNTED ON PARAPET

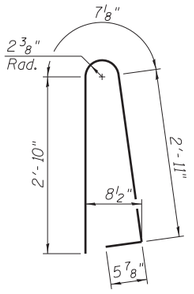


SECTION P-P

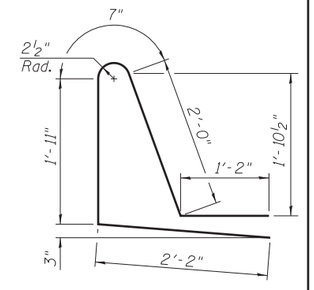


BAR a203(E)

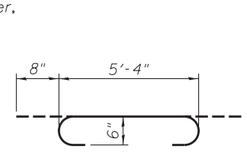
BAR a204(E)



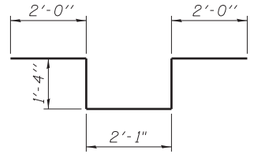
BAR d200(E)



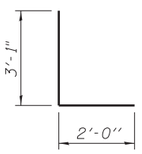
BAR d201(E)

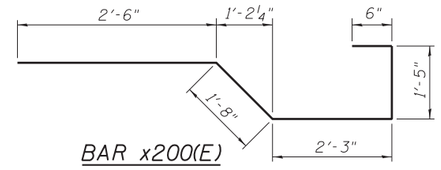


BAR a208(E)

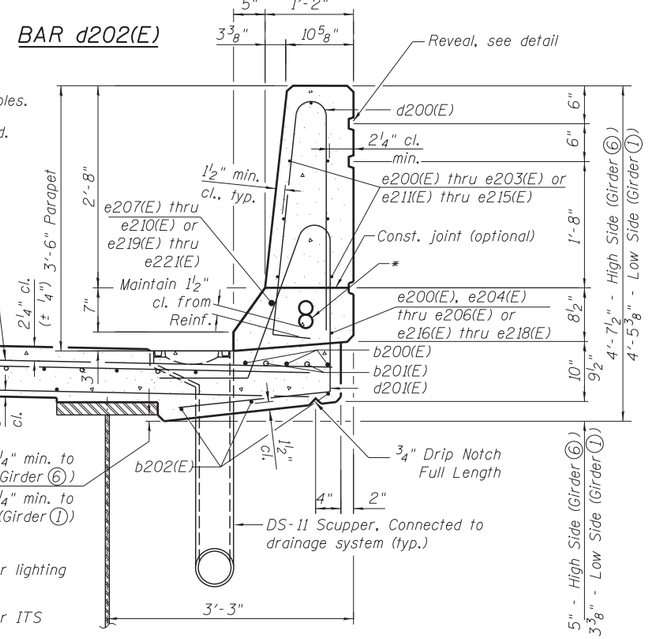


BAR d203(E)





BAR x200(E)



BAR d202(E)

*2-2" ϕ Conduits for lighting in left Parapet

2-2" ϕ Conduits for ITS in right Parapet

SECTION THRU PARAPET

SUPERSTRUCTURE BILL OF MATERIAL S.N. 016-1502

Bar	No.	Size	Length	Shape
a200(E)	830	#5	19'-3"	
a201(E)	1359	#5	19'-3"	
a202(E)	2714	#6	6'-7"	
a203(E)	32	#6	8'-4"	
a204(E)	16	#6	4'-1"	
a205(E)	40	#5	1'-6"	
a206(E)	1359	#5	23'-3"	
a207(E)	830	#5	23'-3"	
a208(E)	8	#6	6'-8"	
b200(E)	1152	#5	29'-1"	
b201(E)	396	#6	35'-1"	
b202(E)	1107	#5	26'-2"	
d200(E)	1471	#5	6'-10"	
d201(E)	1311	#5	7'-10"	
d202(E)	9	#6	5'-1"	
d203(E)	18	#6	8'-9"	
e200(E)	96	#4	19'-8"	
e201(E)	91	#4	17'-0"	
e202(E)	98	#4	18'-4"	
e203(E)	7	#4	16'-0"	
e204(E)	4	#4	32'-0"	
e205(E)	10	#4	27'-7"	
e206(E)	4	#4	31'-6"	
e207(E)	4	#8	34'-3"	
e208(E)	12	#8	19'-8"	
e209(E)	10	#8	30'-2"	
e210(E)	4	#8	34'-0"	
e211(E)	7	#4	18'-1"	
e212(E)	84	#4	16'-8"	
e213(E)	14	#4	16'-5"	
e214(E)	70	#4	18'-2"	
e215(E)	7	#4	16'-11"	
e216(E)	4	#4	29'-2"	
e217(E)	10	#4	25'-4"	
e218(E)	4	#4	28'-10"	
e219(E)	4	#8	31'-6"	
e220(E)	10	#8	27'-10"	
e221(E)	4	#8	31'-3"	
x200(E)	92	#5	8'-4"	
Reinforcement Bars, Epoxy Coated			Pound	242,770
Concrete Superstructure			Cu. Yd.	876.6
Bridge Deck Grooving (Longitudinal)			Sq. Yd.	2,534
Protective Coat			Sq. Yd.	3271

232_061502_60X07-Xsect_II.dgn

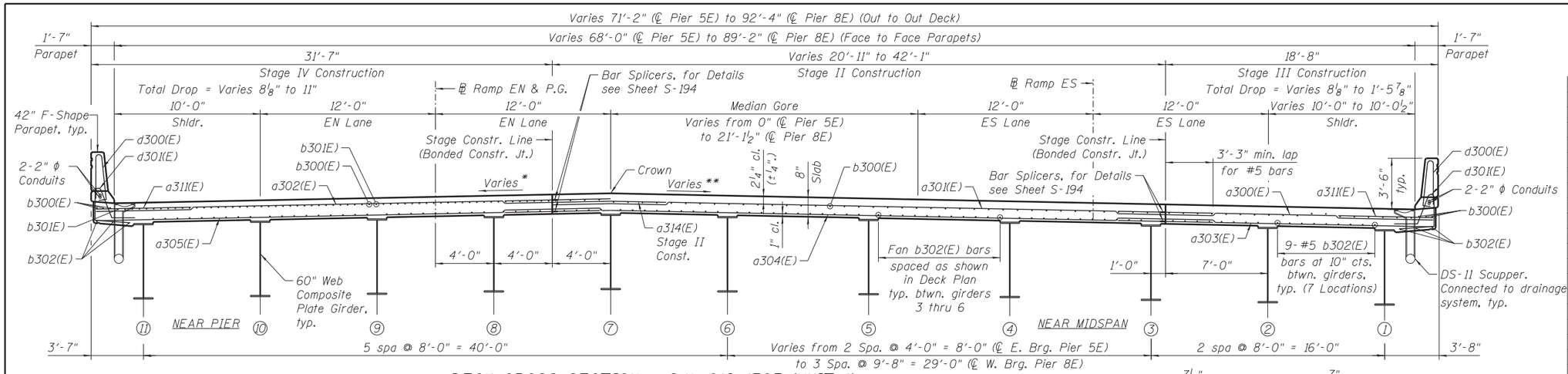
AECOM

USER NAME = kritzm	DESIGNED - AV	REVISED -
	CHECKED - DD	REVISED -
PLOT SCALE =	DRAWN - AV	REVISED -
PLOT DATE = 5/26/2015	CHECKED - EJO	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DECK CROSS SECTION & DETAILS II – S.N. 016–1502
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-83 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	606
		CONTRACT NO. 60X07		
		ILLINOIS FED. AID PROJECT		

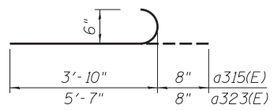


DECK CROSS SECTION - S.N. 016-1503 (UNIT 1)

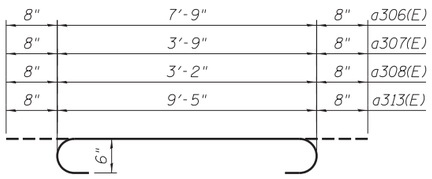
(Looking East)

* Slope increases from 2.00% ℄ Sta. 197+20.89 to 2.71% ℄ Sta. 197+41.50.

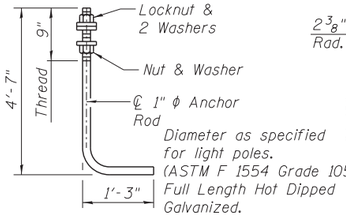
** Slope increases from 2.00% ℄ Sta. 197+20.89 to 2.71% ℄ Sta. 197+41.50.



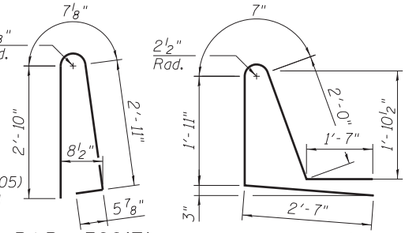
BAR a315(E) & a323(E)



BAR a306(E), a307(E), a308(E) & a313(E)

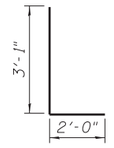


ANCHOR ROD

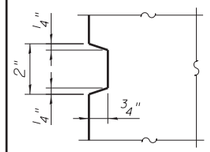


BAR d300(E)

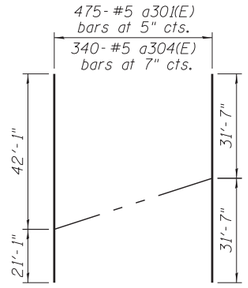
BAR d301(E)



BAR d303(E)

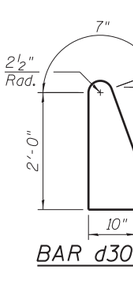


REVEAL DETAIL

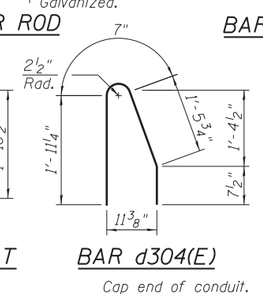


FIELD CUTTING DIAGRAM

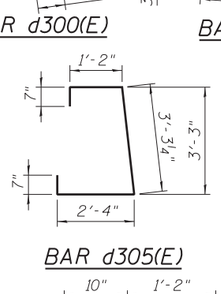
Order a301(E) & a304(E) bars full length. Cut as shown and use remainder of bars at opposite end.



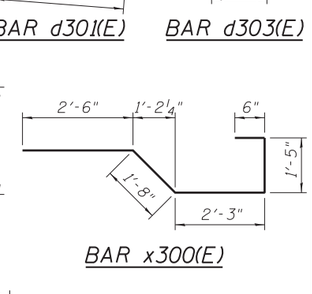
BAR d304(E) ALT



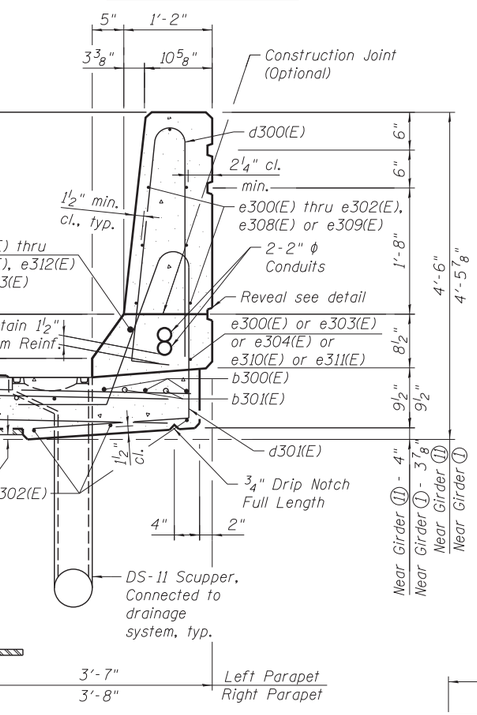
BAR d304(E)



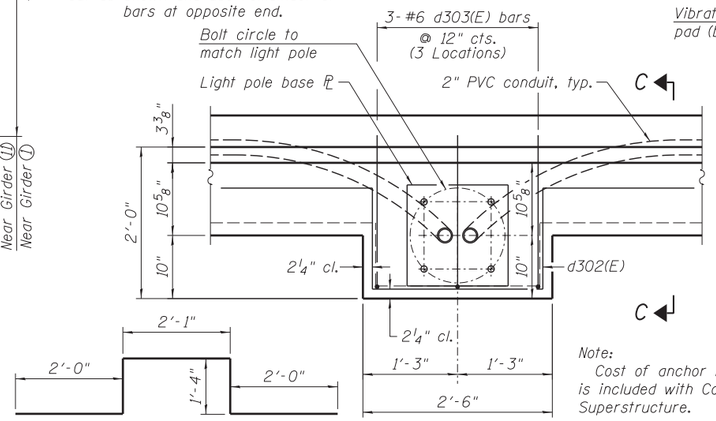
BAR d305(E)



BAR x300(E)

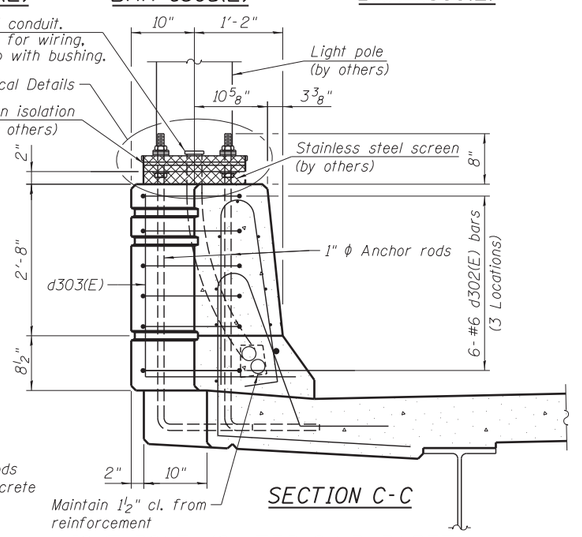


SECTION THRU PARAPET



BAR d302(E) PLAN

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



SECTION C-C

LIGHT POLE MOUNTED ON PARAPET

SUPERSTRUCTURE BILL OF MATERIAL S.N. 016-1503 (UNIT 1)

Bar	No.	Size	Length	Shape
a300(E)	950	#5	18'-4"	
a301(E)	475	#5	63'-2"	
a302(E)	958	#5	31'-3"	
a303(E)	680	#5	18'-4"	
a304(E)	340	#5	63'-2"	
a305(E)	687	#5	31'-3"	
a306(E)	44	#6	9'-1"	
a307(E)	8	#6	5'-1"	
a308(E)	16	#6	4'-6"	
a309(E)	8	#5	20'-6"	
a310(E)	7	#5	20'-6"	
a311(E)	1932	#6	7'-1"	
a312(E)	64	#5	1'-6"	
a313(E)	12	#6	10'-9"	
a314(E)	950	#5	7'-3"	
a315(E)	20	#6	4'-6"	
a317(E)	7	#5	23'-3"	
a318(E)	8	#5	31'-3"	
a319(E)	7	#5	37'-1"	
a320(E)	8	#5	37'-1"	
a321(E)	7	#5	31'-3"	
a322(E)	8	#5	23'-3"	
a323(E)	4	#6	6'-3"	
a324(E)	8	#5	19'-3"	
a325(E)	7	#5	19'-3"	
b300(E)	1666	#5	26'-9"	
b301(E)	558	#6	31'-9"	
b302(E)	1434	#5	29'-11"	
d300(E)	993	#5	6'-10"	
d301(E)	881	#5	8'-8"	
d302(E)	18	#6	8'-9"	
d303(E)	9	#6	5'-1"	
d304(E)	8	#5	4'-7½"	
d305(E)	8	#5	7'-11¼"	
d306(E)	4	#5	3'-2"	
e300(E)	141	#4	19'-8"	
e301(E)	14	#4	16'-8"	
e302(E)	140	#4	16'-6"	
e303(E)	8	#4	26'-8"	
e304(E)	5	#4	25'-7"	
e305(E)	8	#8	29'-1"	
e306(E)	8	#8	19'-8"	
e307(E)	5	#8	28'-1"	
e308(E)	7	#4	19'-11"	
e309(E)	14	#4	16'-10"	
e310(E)	8	#4	26'-9"	
e311(E)	5	#4	25'-8"	
e312(E)	8	#8	29'-2"	
e313(E)	5	#8	28'-2"	
e314(E)	11	#4	3'-5"	
e315(E)	2	#8	3'-5"	
x300(E)	167	#5	8'-4"	
Reinforcement Bars, Epoxy Coated		Pound	310,980	
Concrete Superstructure		Cu. Yd.	1014.4	
Bridge Deck Grooving (Longitudinal)		Sq. Yd.	3,425	
Protective Coat		Sq. Yd.	3,920	

AECOM

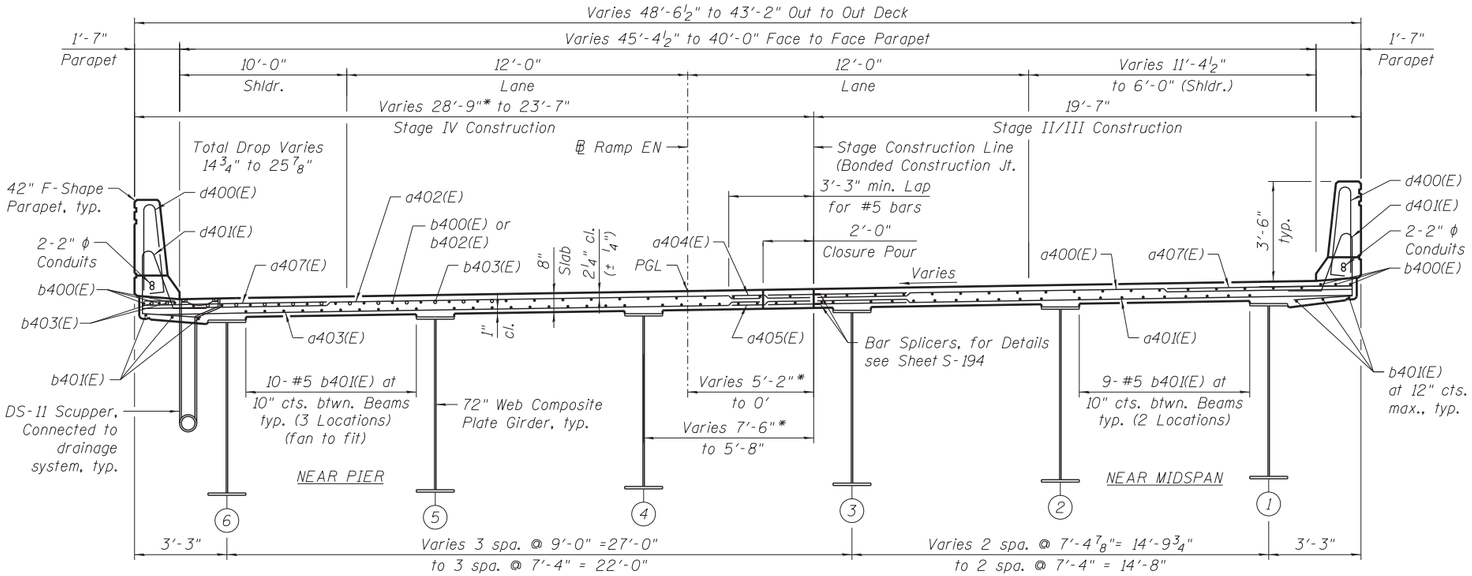
USER NAME = kritzm	DESIGNED - CLS	REVISED -
	CHECKED - ATB	REVISED -
PLOT SCALE =	DRAWN - MRK	REVISED -
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DECK CROSS SECTION & DETAILS III – S.N. 016-1503 (UNIT 1)
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-84 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	607
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

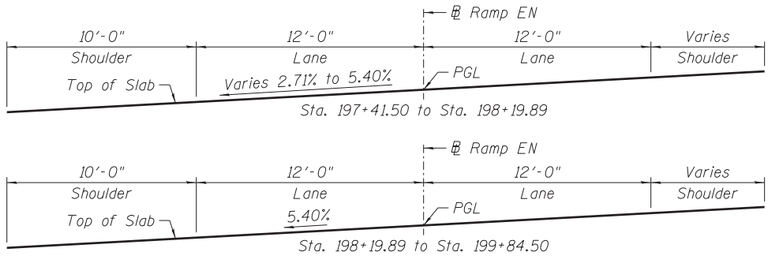
233_061503_60X07-Xsect_III_Unit-1.dgn



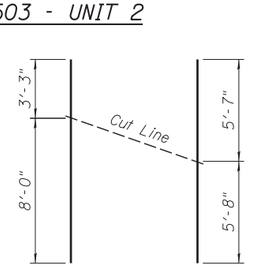
* Measured at edge of blockout/deck interface.

DECK CROSS SECTION - S.N. 016-1503 - UNIT 2

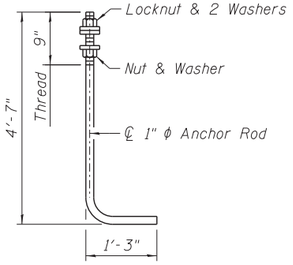
(Looking East)



DECK CROSS SLOPE DETAIL

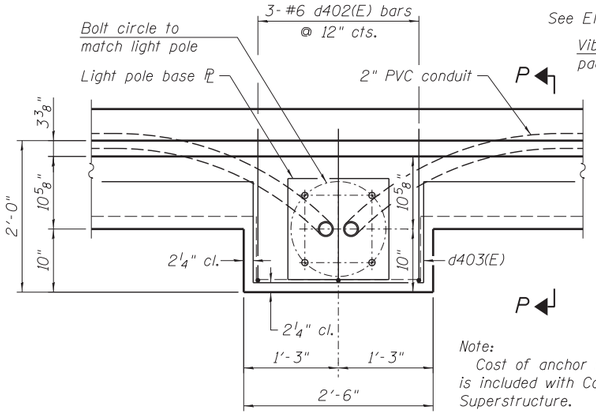


a404(E) & a405(E) CUTTING DIAGRAM

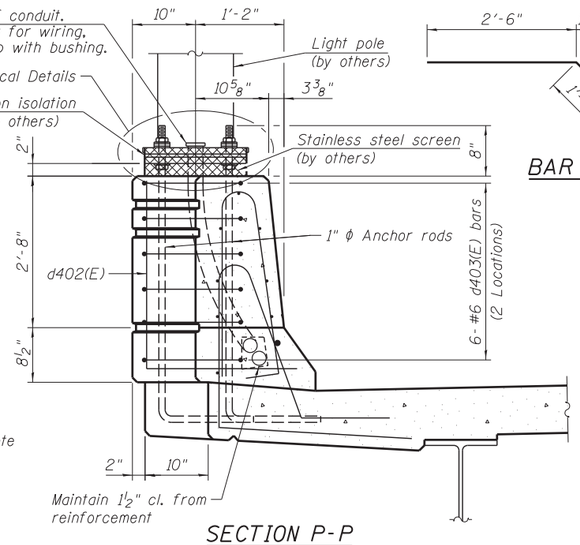


ANCHOR ROD

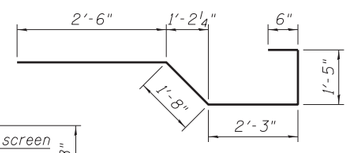
Diameter as specified for light poles.
(ASTM F 1554 Grade 105)
Full Length Hot Dipped Galvanized.



PLAN



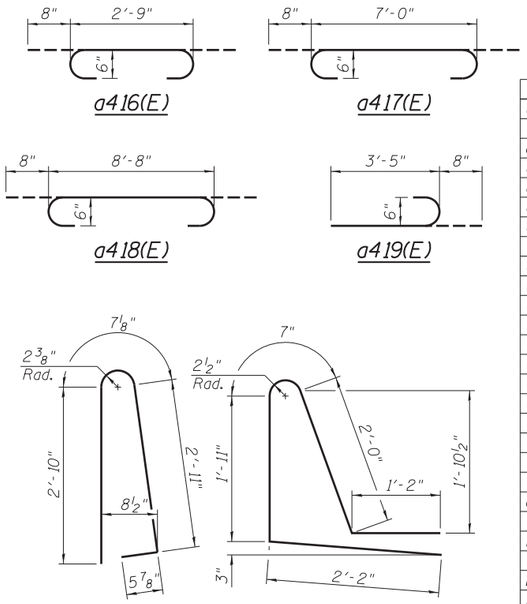
SECTION P-P



BAR x400(E)

SECTION THRU PARAPET

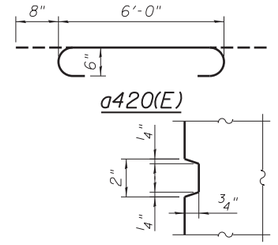
*2-2" ϕ Conduits for lighting in left Parapet
2-2" ϕ Conduits for ITS in right Parapet



SUPERSTRUCTURE BILL OF MATERIAL

S.N. 016-1503 (UNIT 2)

Bar	No.	Size	Length	Shape
a400(E)	586	#5	19'-3"	
a401(E)	418	#5	19'-3"	
a402(E)	586	#5	23'-3"	
a403(E)	418	#5	23'-3"	
a404(E)	71	#5	11'-3"	
a405(E)	51	#5	11'-3"	
a406(E)	16	#5	1'-6"	
a407(E)	1204	#6	6'-9"	
a408(E)	8	#5	31'-3"	
a409(E)	7	#5	31'-3"	
a410(E)	8	#5	16'-7"	
a411(E)	7	#5	16'-7"	
a412(E)	8	#5	21'-3"	
a413(E)	7	#5	21'-3"	
a414(E)	8	#5	21'-3"	
a415(E)	7	#5	21'-3"	
a416(E)	16	#6	4'-1"	
a417(E)	20	#6	8'-4"	
a418(E)	12	#6	10'-0"	
a419(E)	8	#6	4'-1"	
a420(E)	4	#6	7'-4"	
b400(E)	490	#5	28'-0"	
b401(E)	486	#5	31'-0"	
b402(E)	24	#5	21'-9"	
b403(E)	132	#6	30'-1"	
b404(E)	3	#5	3'-4"	
d400(E)	594	#5	6'-10"	
d401(E)	530	#5	7'-10"	
d402(E)	6	#6	5'-1"	
d403(E)	12	#6	8'-9"	
e400(E)	32	#4	19'-8"	
e401(E)	14	#4	15'-11"	
e402(E)	70	#4	15'-8"	
e403(E)	8	#4	25'-7"	
e404(E)	8	#8	27'-11"	
e405(E)	4	#8	19'-8"	
e406(E)	7	#4	17'-4"	
e407(E)	70	#4	17'-2"	
e408(E)	7	#4	17'-10"	
e409(E)	4	#4	27'-10"	
e410(E)	4	#4	28'-0"	
e411(E)	4	#8	30'-4"	
e412(E)	4	#8	30'-3"	
x400(E)	97	#5	8'-4"	
Reinforcement Bars, Epoxy Coated			Pound	110,370
Concrete Superstructure			Cu. Yd.	376.3
Bridge Deck Grooving (Longitudinal)			Sq. Yd.	1,093
Protective Coat			Sq. Yd.	1,389



REVEAL DETAIL

234_061503_60X07-Xsect_IV_Unit-2.dgn

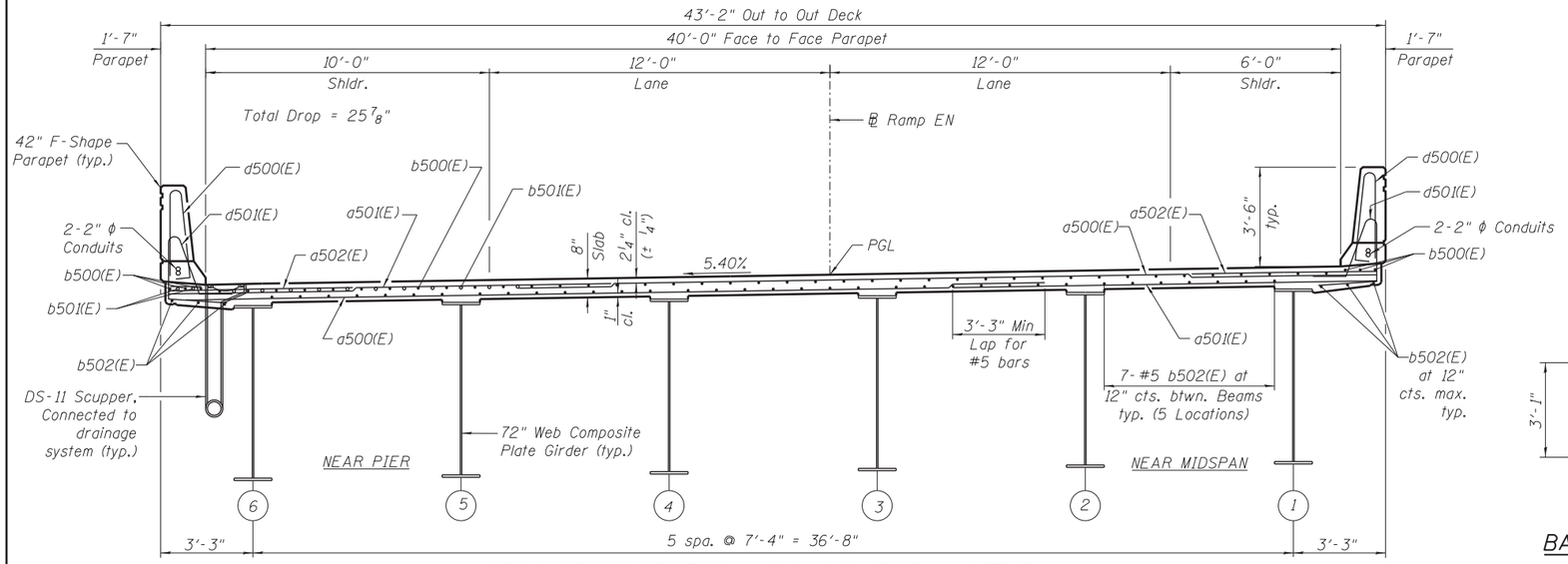
AECOM

USER NAME = kritzm	DESIGNED - AV	REVISED -	
	CHECKED - DD	REVISED -	
PLOT SCALE =	DRAWN - AV	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - EJO	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

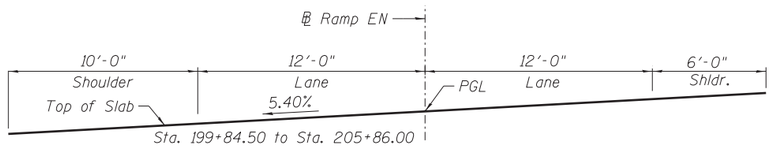
DECK CROSS SECTION & DETAILS IV – S.N. 016–1503 (UNIT 2)
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-85 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	608
		CONTRACT NO. 60X07		
		ILLINOIS FED. AID PROJECT		

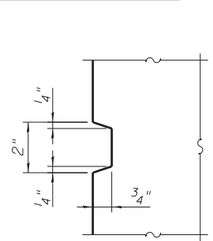


DECK CROSS SECTION - S.N. 016-1503 - UNIT 3

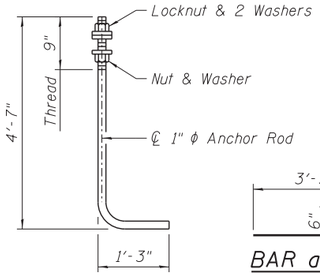
(Looking North)



DECK CROSS SLOPE DETAIL

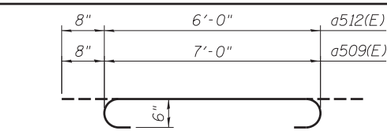


REVEAL DETAIL

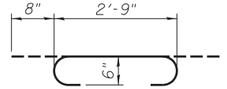


ANCHOR ROD

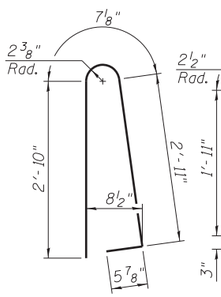
Diameter as specified for light poles. (ASTM F 1554 Grade 105)



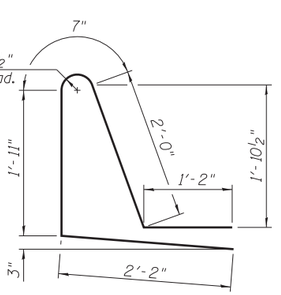
BAR a509(E) & a512(E)



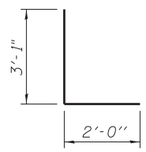
BAR a510(E)



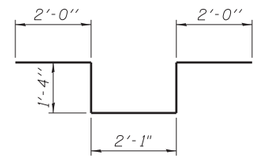
BAR d500(E)



BAR d501(E)



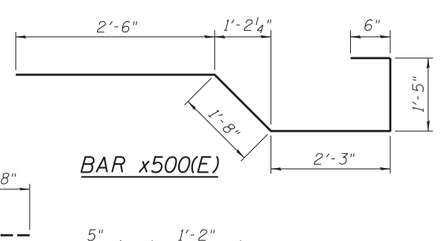
BAR d502(E)



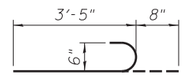
BAR d503(E)

SUPERSTRUCTURE BILL OF MATERIAL S.N. 016-1503 (UNIT 3)

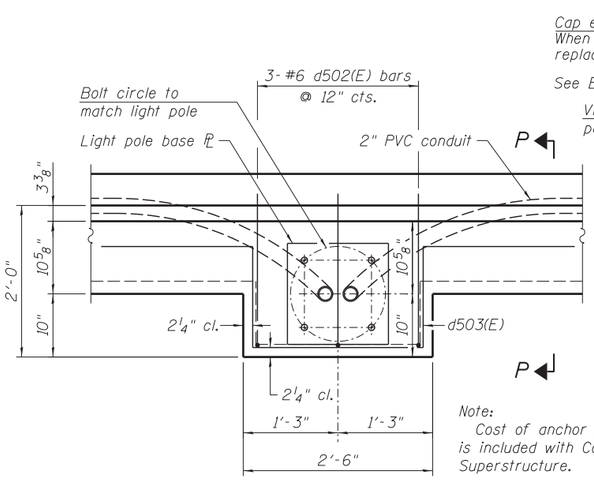
Bar	No.	Size	Length	Shape
a500(E)	2212	#5	30'-3"	
a501(E)	2212	#5	15'-6"	
a502(E)	2718	#6	6'-9"	
a503(E)	15	#5	21'-3"	
a504(E)	15	#5	21'-3"	
a505(E)	9	#5	11'-3"	
a506(E)	6	#5	11'-3"	
a507(E)	9	#5	31'-3"	
a508(E)	6	#5	31'-3"	
a509(E)	32	#6	8'-4"	
a510(E)	16	#6	4'-1"	
a511(E)	8	#6	4'-1"	
a512(E)	4	#6	7'-4"	
a513(E)	40	#5	1'-6"	
b500(E)	1104	#5	29'-1"	
b501(E)	387	#6	35'-1"	
b502(E)	1107	#5	26'-2"	
d500(E)	1471	#5	6'-10"	
d501(E)	1311	#5	7'-10"	
d502(E)	9	#6	5'-1"	
d503(E)	18	#6	8'-9"	
e500(E)	110	#4	19'-8"	
e501(E)	14	#4	17'-9"	
e502(E)	70	#4	18'-2"	
e503(E)	70	#4	19'-4"	
e504(E)	8	#4	29'-2"	
e505(E)	8	#4	31'-0"	
e506(E)	8	#8	31'-6"	
e507(E)	12	#8	19'-8"	
e508(E)	8	#8	33'-5"	
e509(E)	7	#4	16'-8"	
e510(E)	84	#4	16'-11"	
e511(E)	84	#4	18'-4"	
e512(E)	14	#4	18'-2"	
e513(E)	7	#4	16'-10"	
e514(E)	8	#4	31'-7"	
e515(E)	10	#4	27'-8"	
e516(E)	10	#8	28'-3"	
e517(E)	10	#8	30'-3"	
x500(E)	92	#5	8'-4"	
Reinforcement Bars, Epoxy Coated		Pound	251,410	
Concrete Superstructure		Cu. Yd.	878.5	
Bridge Deck Grooving (Longitudinal)		Sq. Yd.	2,534	
Protective Coat		Sq. Yd.	3,271	



BAR x500(E)



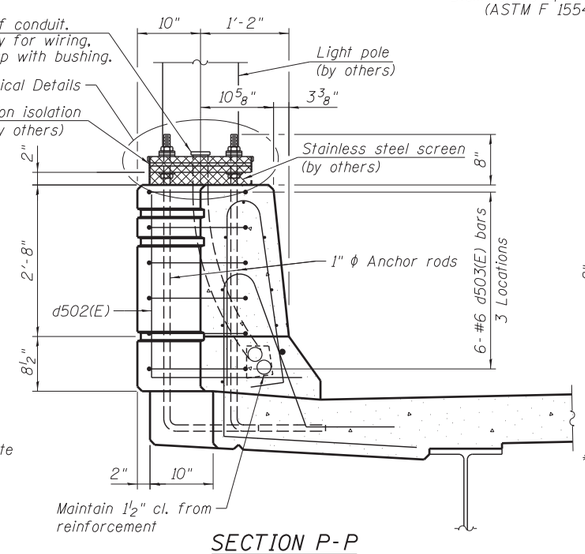
BAR a511(E)



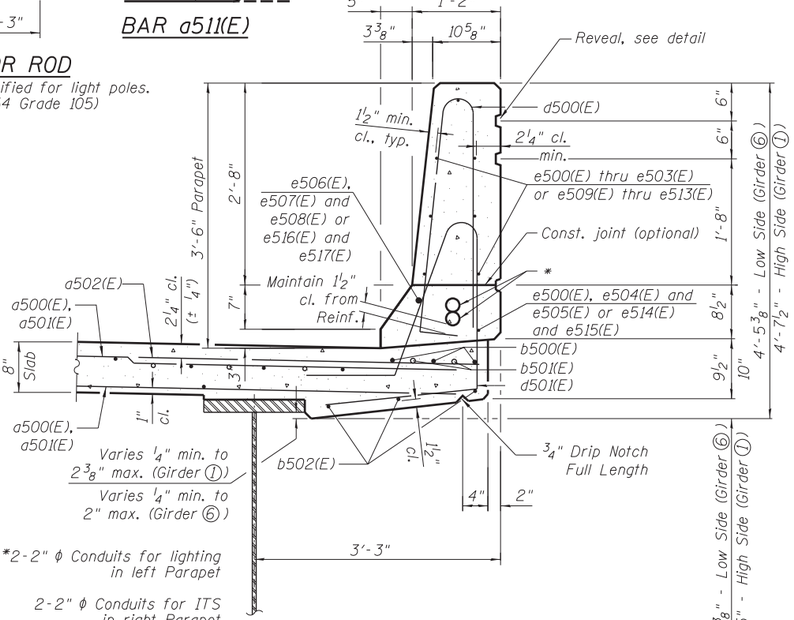
PLAN

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

LIGHT POLE MOUNTED ON PARAPET



SECTION P-P



SECTION THRU PARAPET

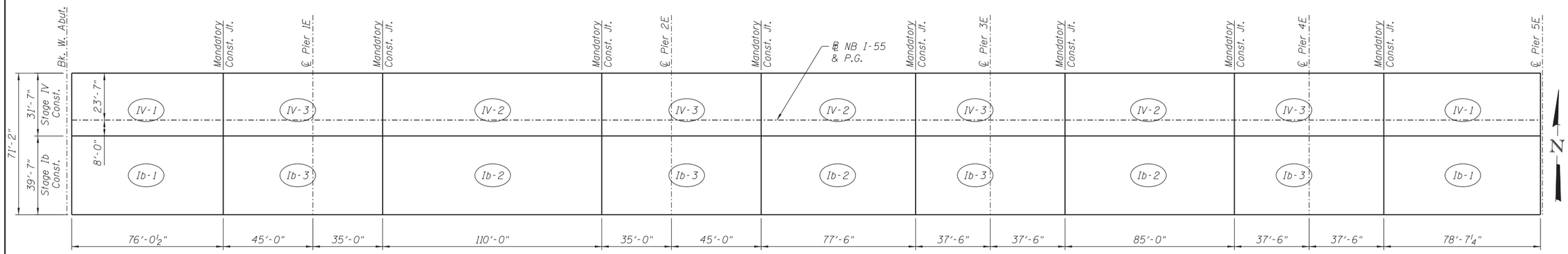
AECOM	USER NAME = kritzm	DESIGNED - CLS	REVISED -
		CHECKED - DD	REVISED -
	PLOT SCALE =	DRAWN - MRK	REVISED -
	PLOT DATE = 5/26/2015	CHECKED - EJO	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

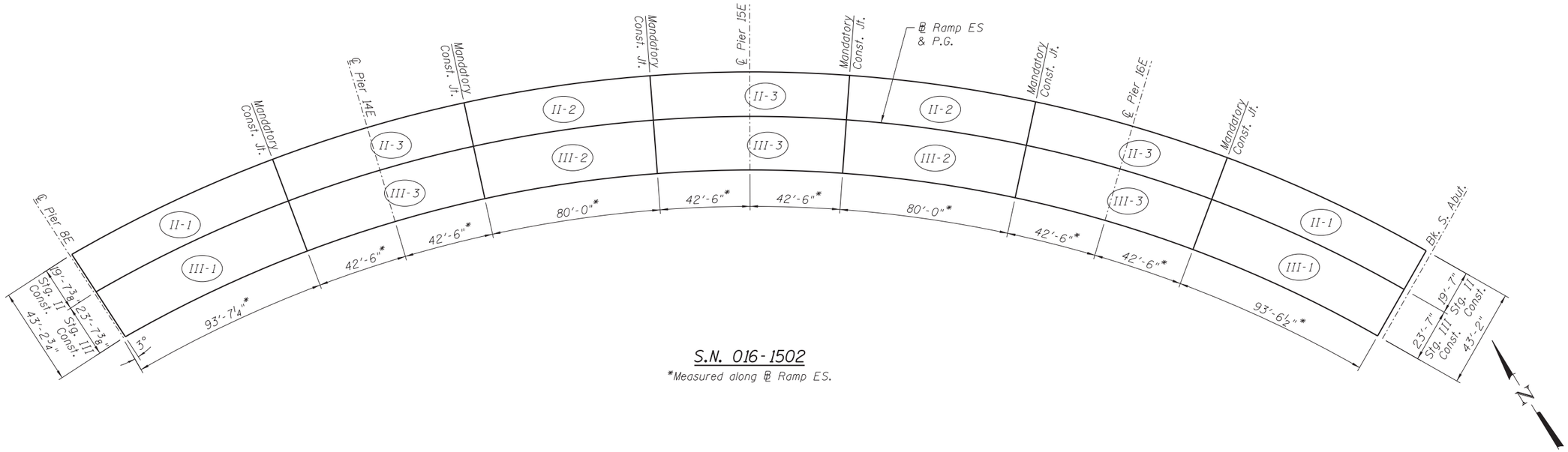
DECK CROSS SECTION & DETAILS V – S.N. 016–1503 (UNIT 3)
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-86 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	609
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

235_061503_60X07-Xsect_V_Unit-3.dgn



S.N. 016-1500



S.N. 016-1502

*Measured along ℄ Ramp ES.

NOTES:

When the deck pour is stopped for the day at one or more of these transverse bonded construction joints within the deck pouring sequence as shown, the next pour shall not be made until both of the following are met:

1. At least 72 hours shall have elapsed from the end of the previous pour.
2. The concrete strength shall have attained a minimum flexural strength of 650 psi, or a minimum compressive strength of 3,500 psi.

241_0160000_60X07_DeckPourSeq_1.dgn

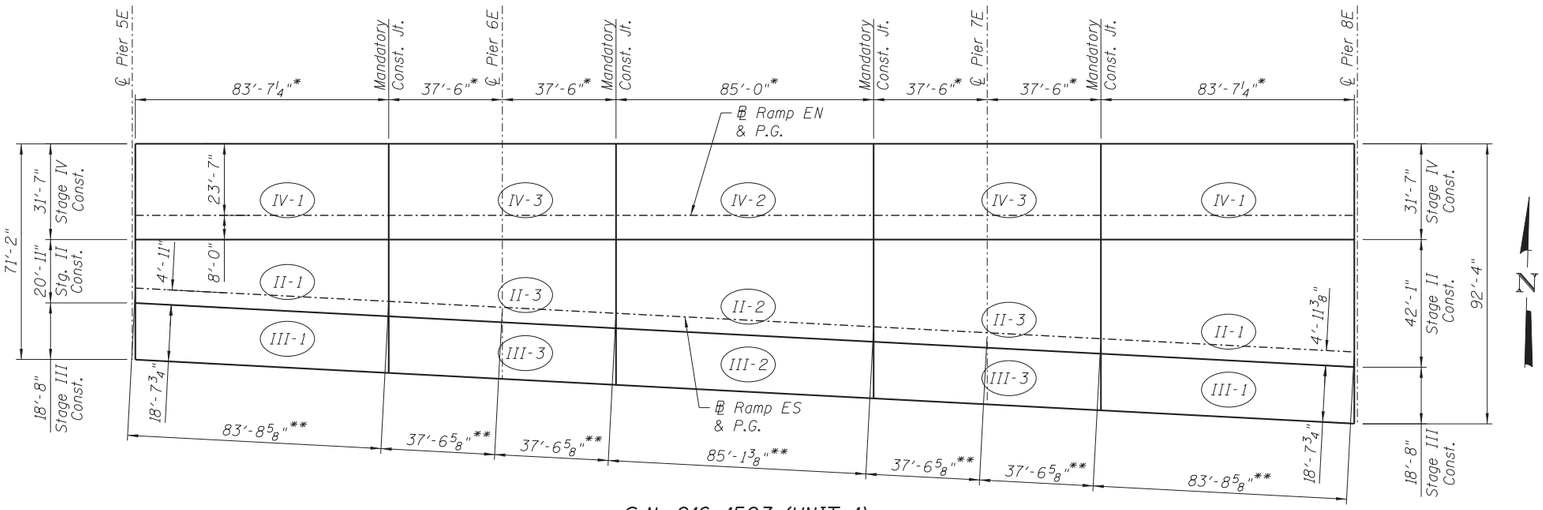
AECOM

USER NAME = kritzm	DESIGNED - CLS	REVISED -
	CHECKED - DD	REVISED -
PLOT SCALE =	DRAWN - BRD	REVISED -
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

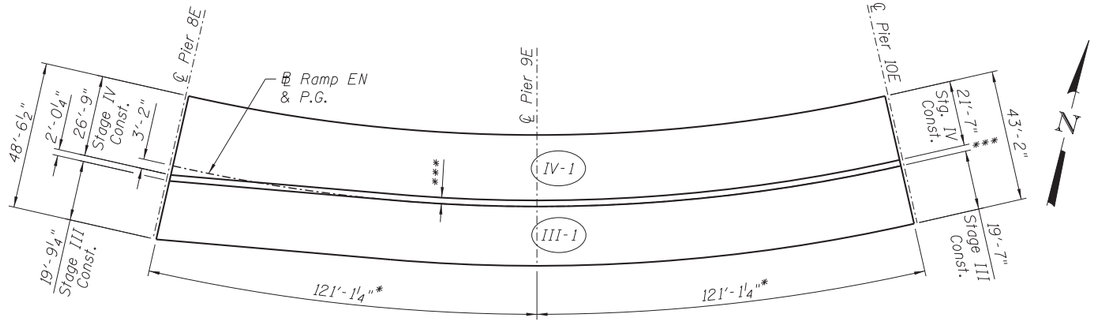
DECK POURING SEQUENCE I
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-87 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	610
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			



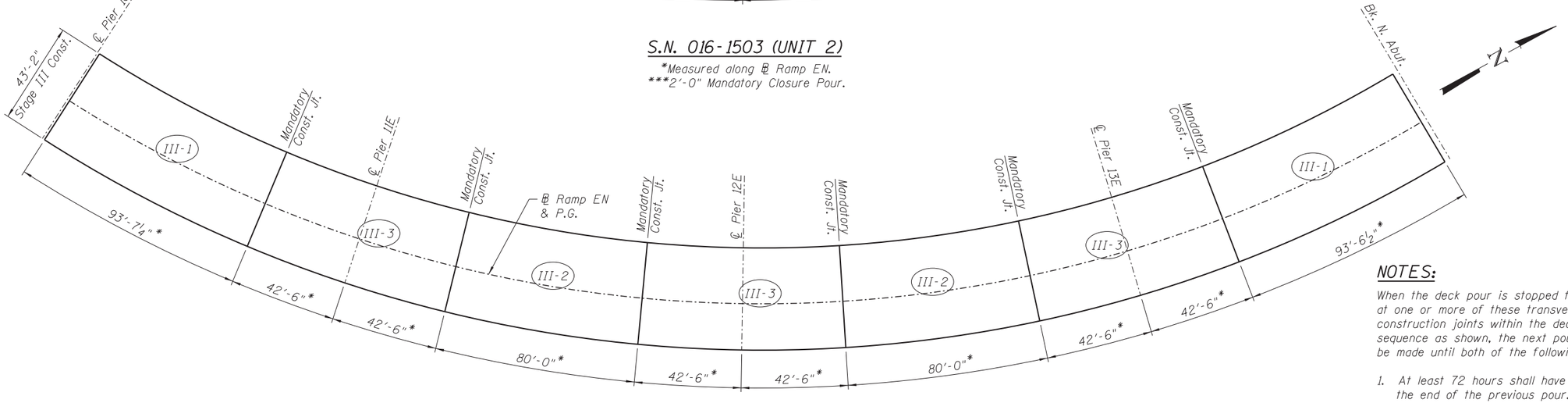
S.N. 016-1503 (UNIT 1)

*Measured along ℄ Ramp EN.
**Measured along ℄ Ramp ES.



S.N. 016-1503 (UNIT 2)

*Measured along ℄ Ramp EN.
***2'-0" Mandatory Closure Pour.



S.N. 016-1503 (UNIT 3)

*Measured along ℄ Ramp EN.

NOTES:

When the deck pour is stopped for the day at one or more of these transverse bonded construction joints within the deck pouring sequence as shown, the next pour shall not be made until both of the following are met:

1. At least 72 hours shall have elapsed from the end of the previous pour.
2. The concrete strength shall have attained a minimum flexural strength of 650 psi, or a minimum compressive strength of 3,500 psi.

242_0160000_60X07_DeckPourSeq_II.dgn

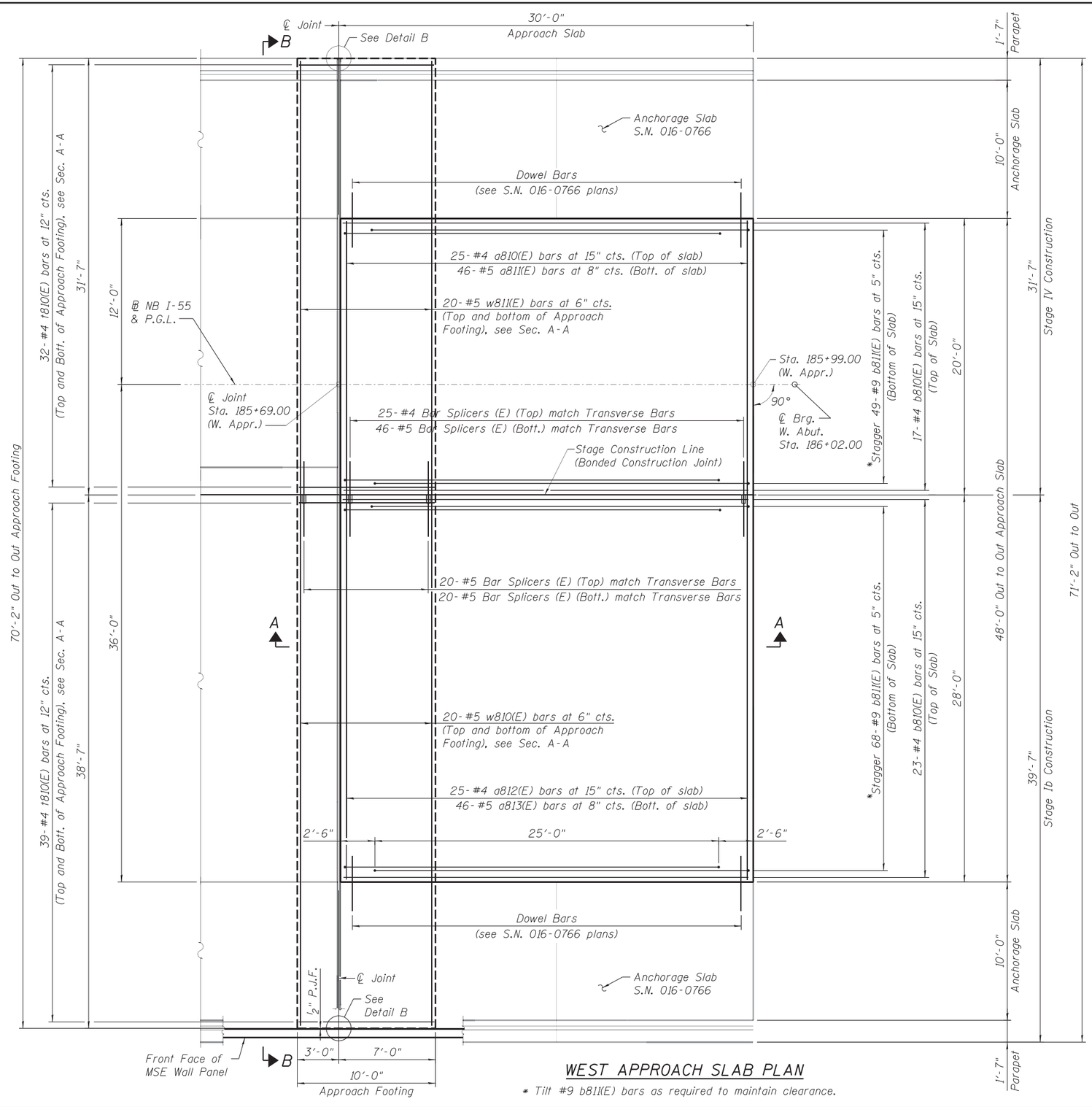
AECOM

USER NAME = kritzm	DESIGNED - CLS	REVISED -
	CHECKED - DD	REVISED -
PLOT SCALE =	DRAWN - BRD	REVISED -
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DECK POURING SEQUENCE II
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-88 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	611
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			



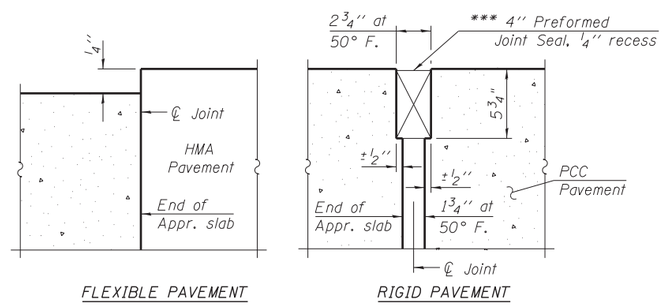
WEST APPROACH SLAB PLAN

* Tilt #9 b811(E) bars as required to maintain clearance.

NOTES:

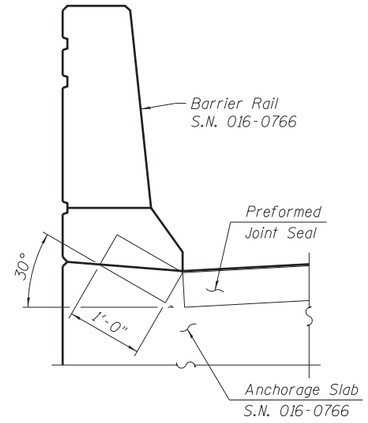
1. See Sheet S-90 for Sections A-A & B-B.

*** Cost included with Concrete Superstructure.



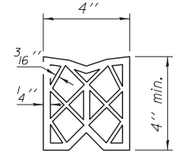
FLEXIBLE PAVEMENT — RIGID PAVEMENT

DETAIL A



DETAIL B

Angle Preformed Joint Seal @ 30°
@ barrier rail for drainage, typ.



PREFORMED JOINT SEAL

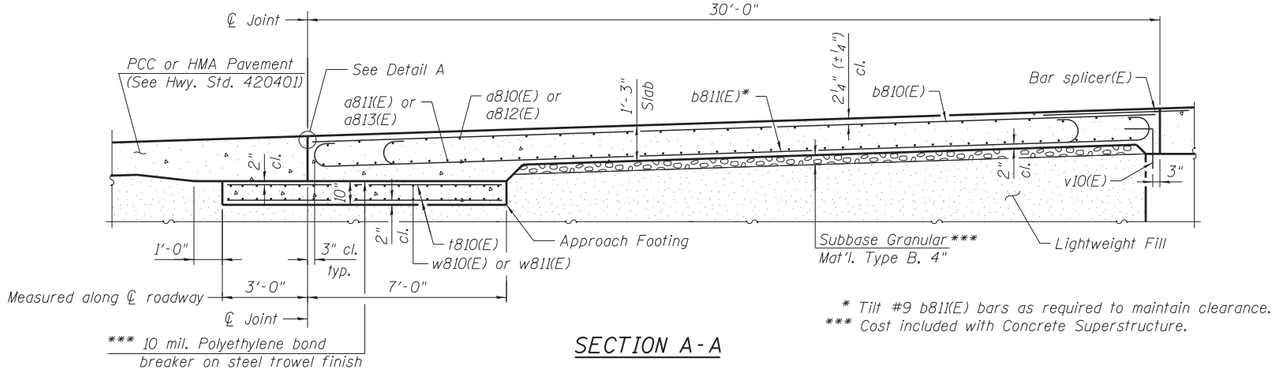
RME Rubinos & Mesia Engineers, Inc. 200 S. Michigan Avenue, Suite 1500, Chicago, IL 60604-2482	USER NAME = AVasonis	DESIGNED - TH	REVISED -
		CHECKED - MR	REVISED -
	PLOT SCALE =	DRAWN - AMV	REVISED -
	PLOT DATE = 5/26/2015	CHECKED - TH	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

WEST APPROACH SLAB PLAN – S.N. 016-1500
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-89 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	612
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

251_0161500_60X07_APPRW1.dgn

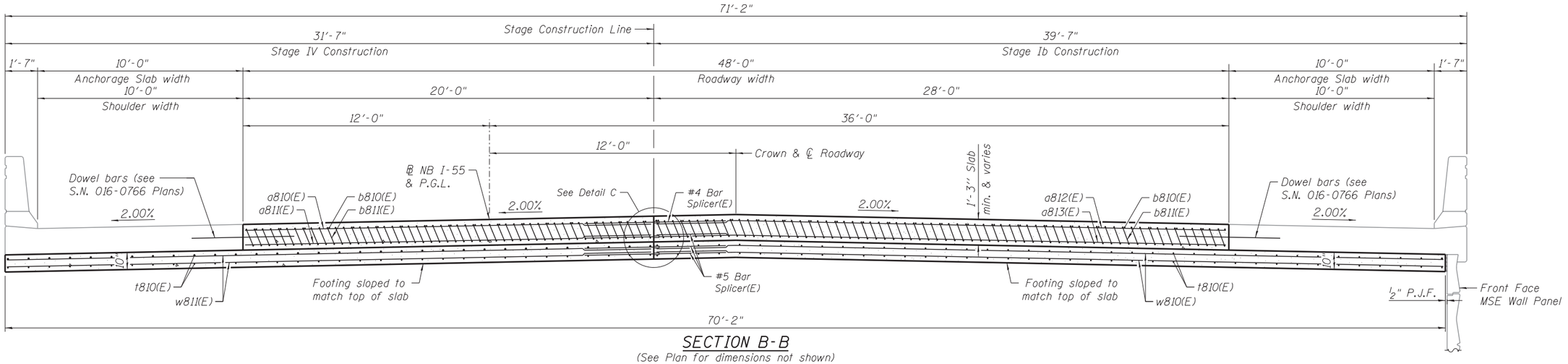


SECTION A-A

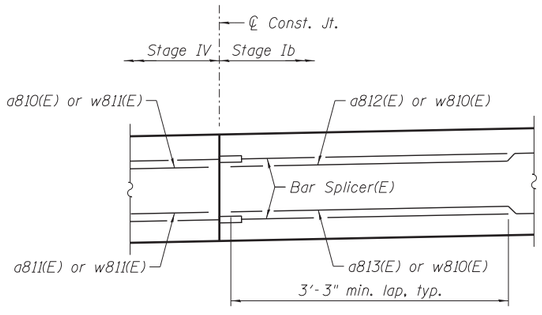
* Tilt #9 b811(E) bars as required to maintain clearance.
*** Cost included with Concrete Superstructure.

NOTES:

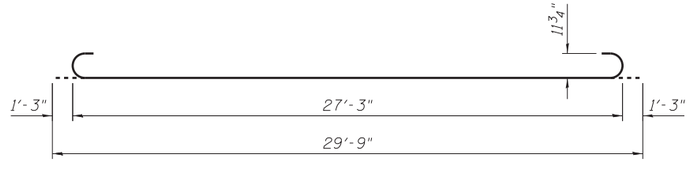
1. See sheet S-89 for Detail A.
2. Approach slab concrete shall be paid for as Concrete Superstructure.
3. Approach footing concrete shall be paid for as Concrete Structures.
4. Reinforcement shall be paid for as Reinforcement Bars, Epoxy Coated.
5. For v10(E) bar details, see sheet S-150.
6. The approach footing maximum applied service bearing pressure (Qmax) = 2.0 ksf.
7. Cost of excavation for approach footing included with Concrete Structures.
8. For bar splicer details, see sheet S-194.
9. For lightweight fill details, see Wall (SN 016-0766) plans.
10. For Anchor Slab Details, see Wall (SN 016-0766) plans.



SECTION B-B
(See Plan for dimensions not shown)



DETAIL C
(Longitudinal reinforcing not shown for clarity)



BAR b811(E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a810(E)	25	#4	19'-8"	——
a811(E)	46	#5	19'-8"	——
a812(E)	25	#4	27'-8"	——
a813(E)	46	#5	27'-8"	——
b810(E)	40	#4	29'-8"	——
b811(E)	117	#9	29'-9"	⊂——⊃
t810(E)	142	#4	9'-8"	——
w810(E)	40	#5	38'-3"	——
w811(E)	40	#5	31'-3"	——
Concrete Superstructure		Cu. Yd.	71.0	
Concrete Structures		Cu. Yd.	21.7	
Reinforcement Bars, Epoxy Coated		Pound	19,510	
Bridge Deck Grooving (Longitudinal)		Sq. Yd.	160	
Protective Coat		Sq. Yd.	160	

252_0161500_60X07_APPRW2.dgn

RME Rubinos & Mesia Engineers, Inc.
200 S. Michigan Avenue, Suite 1500, Chicago, IL 60604-2482

USER NAME = AVasonis	DESIGNED - TH	REVISED -	
	CHECKED - MR	REVISED -	
PLOT SCALE =	DRAWN - AMV	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - TH	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

WEST APPROACH SLAB DETAILS – S.N. 016-1500
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-90 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	613
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

N

10'-0"
Approach Foooting
7'-0" 3'-0"

℄ Joint

D

Anchorage Slab
S.N. 016-0773

Front Face
MSE Wall Panel

See Detail A

1'-7" Barrier Rail

6'-0" Anchorage Slab

Dowel Bars
(See S.N. 016-0773 Plans)

25-#4 a700(E) bars at 15" cts. (Top of slab)

46-#5 a701(E) bars at 8" cts.
(Bottom of slab)

90°00'00"

℄ Brg. S. Abut.
Sta. 503+43.55

℄ Ramp ES
& P.G.L.

Sta. 503+46.55
(S. Appr.)

Local Tangent at
Sta. 503+43.55

20-#5 w700(E) bars at 6" cts.
Top and bottom of Approach
Footing. See Section D-D

Sta. 503+76.55
(S. Appr.)

C

2'-6" 25'-0" 2'-6"

43'-2"

24'-0" out to out Approach Slab

20-#4 b700(E) bars at 15" cts. (Top of slab)

*Stagger 58-#9 b701(E) bars at 5" cts. (Bott. of slab)

41'-2½" out to out Approach Footing, North Edge

43-#4 t700(E) bars at 12" cts., flare as req'd
(Top and bottom of Approach Footing. See Sec. D-D)

41'-3" out to out Approach Footing, South Edge

10'-0" Anchorage Slab

Dowel Bars
(See S.N. 016-0773 Plans)

1'-7" Barrier Rail

Anchorage Slab
S.N. 016-0773

See Detail A

D

½" PJF ea. side

Front Face
MSE Wall Panel

30'-0"
Approach Slab

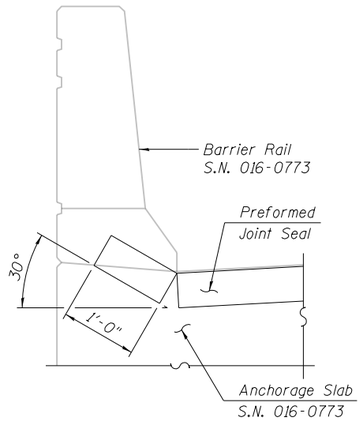
℄ Joint

SOUTH APPROACH PLAN - 016-1502

*Tilt #9 b701(E) bars as required to maintain clearance.

NOTES:

1. See Sheet S-92 for Sections C-C & D-D.
2. a700(E) and a701(E) bar spacings measured along ℄ Ramp ES.



DETAIL A

Angle Preformed Joint Seal @ 30°
@ barrier rail for drainage, typ.

253_0161502_60X07_APPRS3.dgn

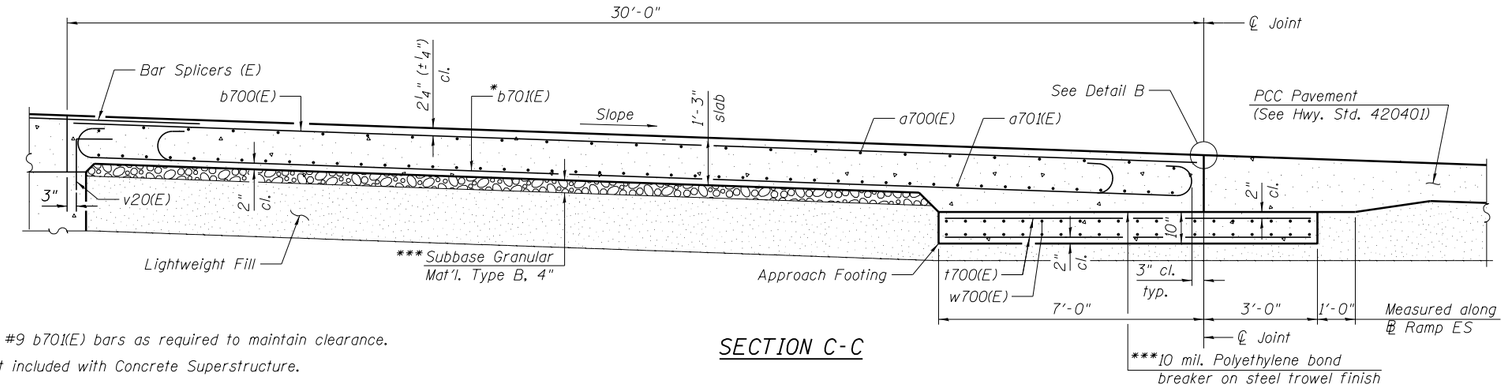
AECOM

USER NAME = kritzm	DESIGNED - EJM	REVISED -
	CHECKED - ATB	REVISED -
PLOT SCALE =	DRAWN - BRD	REVISED -
PLOT DATE = 6/26/2015	CHECKED - CLS	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOUTH APPROACH SLAB PLAN – S.N. 016–1502
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-91 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	614
		CONTRACT NO. 60X07		
	ILLINOIS	FED. AID PROJECT		



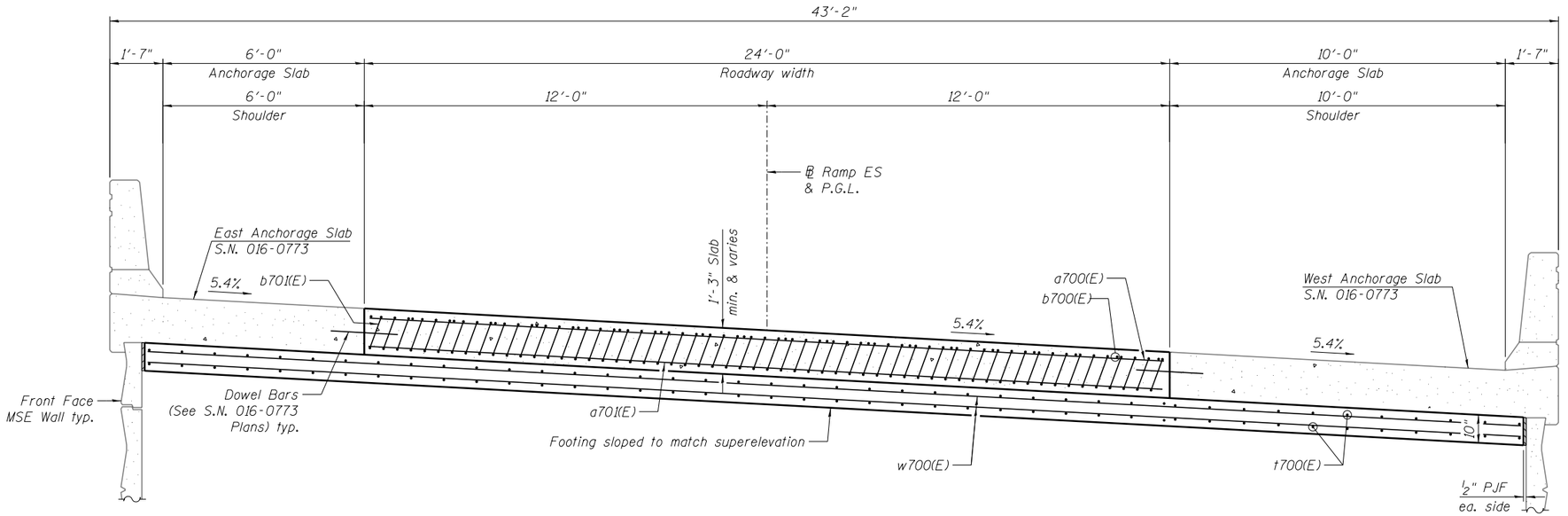
*Tilt #9 b701(E) bars as required to maintain clearance.

*** Cost included with Concrete Superstructure.

SECTION C-C

NOTES:

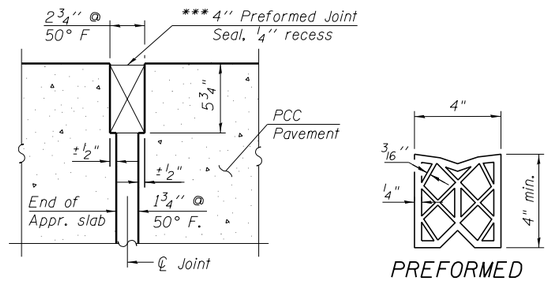
1. Approach slab shall be paid for as Concrete Superstructure.
2. Approach footing concrete shall be paid for as Concrete Structures.
3. Reinforcement shall be paid for as Reinforcement Bars, Epoxy Coated.
4. For v20(E) bar details, see Sheet S-153.
5. The approach footing maximum applied service bearing pressure (Qmax) = 2.0 ksf.
6. Cost of excavation for approach footing included with Concrete Structures.
7. For bar splicer details, see Sheet S-194.
8. For lightweight fill details, see wall (S.N. 016-0773) plans.
9. For Anchor Slab details, see Wall (S.N. 016-0773) plans.



SECTION D-D

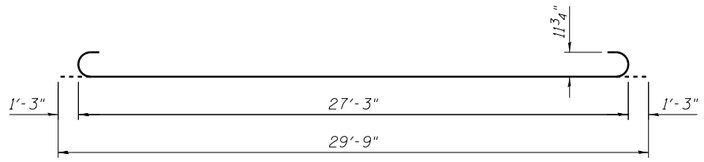
(See Plan for dimensions not shown)

*** Cost included with Concrete Superstructure.



DETAIL B

PREFORMED JOINT SEAL



BAR b701(E)

SOUTH APPROACH BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a700(E)	25	#4	23'-8"	
a701(E)	46	#5	23'-8"	
b700(E)	20	#4	29'-8"	
b701(E)	58	#9	29'-9"	
t700(E)	86	#4	9'-8"	
w700(E)	40	#5	40'-11"	
Concrete Superstructure			Cu. Yd.	35.6
Concrete Structures			Cu. Yd.	12.8
Reinforcement Bars, Epoxy Coated			Pound	10,060
Bridge Deck Grooving (Longitudinal)			Sq. Yd.	80
Protective Coat			Sq. Yd.	80

AECOM

USER NAME = kritzm	DESIGNED - EJM	REVISED -
	CHECKED - ATB	REVISED -
PLOT SCALE =	DRAWN - BRD	REVISED -
PLOT DATE = 6/26/2015	CHECKED - CLS	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOUTH APPROACH SLAB DETAILS – S.N. 016-1502
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-92 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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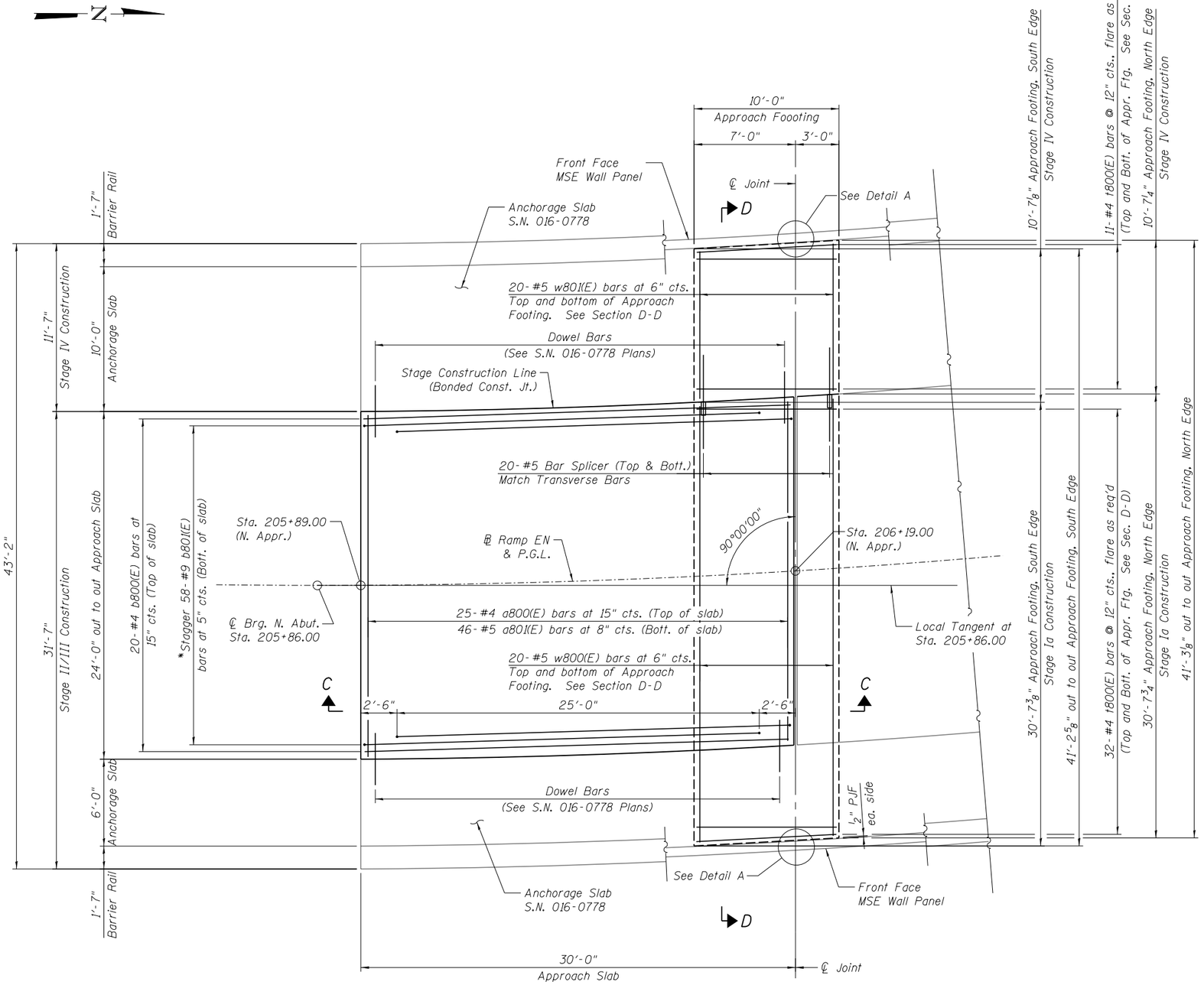
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

254_0161502_60X07_APPRS4.dgn

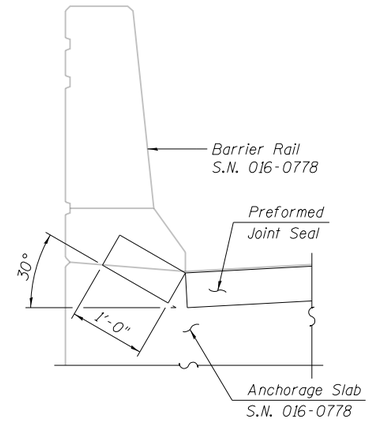


NORTH APPROACH PLAN - 016-1503

*Tilt #9 b801(E) bars as required to maintain clearance.

NOTES:

1. See Sheet S-94 for Sections C-C & D-D.
2. a800(E) and a801(E) bar spacings measured along ℄ Ramp EN.



DETAIL A

Angle Preformed Joint Seal @ 30° @ barrier rail for drainage, typ.

255_0161503_60X07_APPRN5.dgn

AECOM	USER NAME = kritzm	DESIGNED - EJM	REVISED -
		CHECKED - ATB	REVISED -
	PLOT SCALE =	DRAWN - BRD	REVISED -
	PLOT DATE = 6/26/2015	CHECKED - CLS	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

NORTH APPROACH SLAB PLAN – S.N. 016-1503
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-93 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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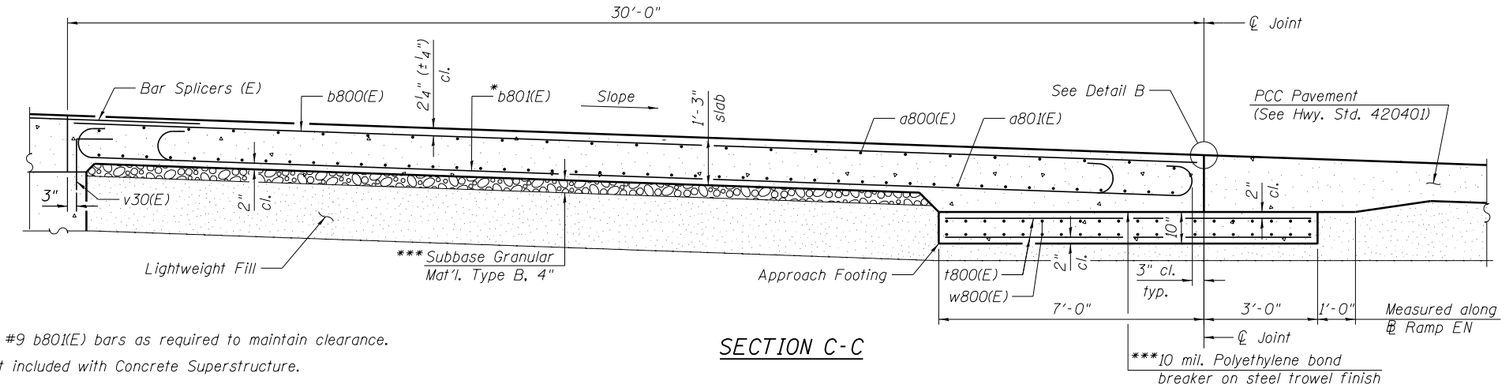
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			



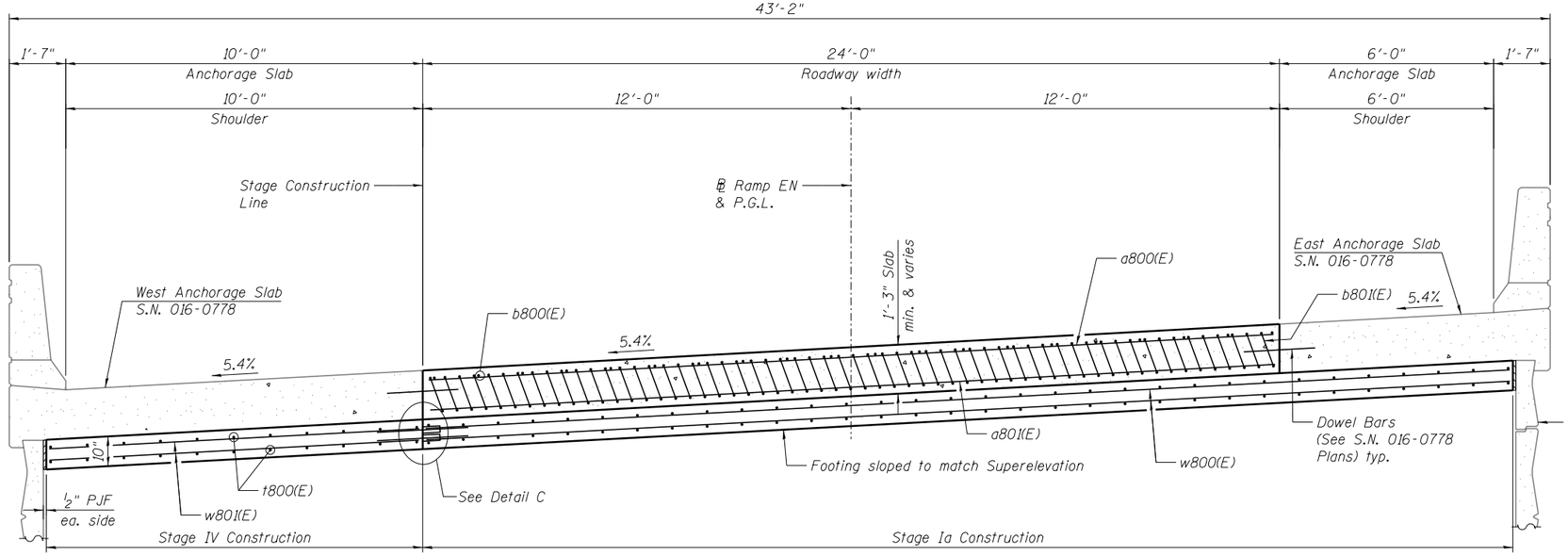
*Tilt #9 b801(E) bars as required to maintain clearance.

*** Cost included with Concrete Superstructure.

SECTION C-C

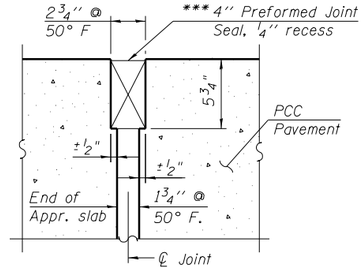
NOTES:

1. Approach slab shall be paid for as Concrete Superstructure.
2. Approach footing concrete shall be paid for as Concrete Structures.
3. Reinforcement shall be paid for as Reinforcement Bars, Epoxy Coated.
4. For v30(E) bar details, see Sheet S-155.
5. The approach footing maximum applied service bearing pressure (Qmax) = 2.0 ksf.
6. Cost of excavation for approach footing included with Concrete Structures.
7. For bar splicer details, see Sheet S-194.
8. For lightweight fill details, see wall (S.N. 016-0778) plans.
9. For Anchor Slab details, see Wall (S.N. 016-0778) plans.

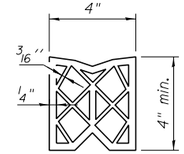


SECTION D-D
(See Plan for dimensions not shown)

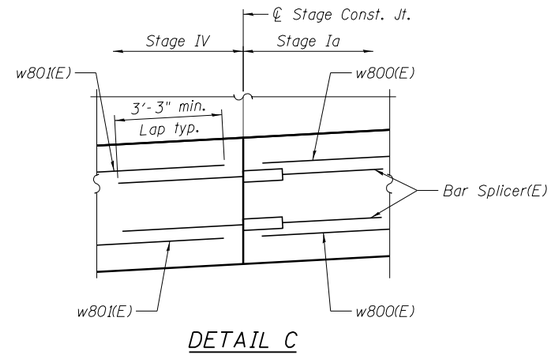
*** Cost included with Concrete Superstructure.



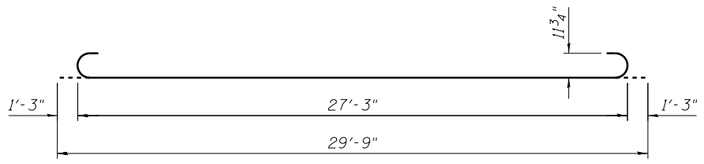
DETAIL B



PREFORMED JOINT SEAL



DETAIL C



BAR b801(E)

NORTH APPROACH BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a800(E)	25	#4	23'-8"	——
a801(E)	46	#5	23'-8"	——
b800(E)	20	#4	29'-8"	——
b801(E)	58	#9	29'-9"	⊂—⊃
t800(E)	86	#4	9'-8"	——
w800(E)	40	#5	31'-1"	——
w801(E)	40	#5	10'-6"	——
Concrete Superstructure			Cu. Yd.	35.6
Concrete Structures			Cu. Yd.	12.8
Reinforcement Bars, Epoxy Coated			Pound	10,090
Bridge Deck Grooving (Longitudinal)			Sq. Yd.	80
Protective Coat			Sq. Yd.	80

256_0161503_60X07_APPRN6.dgn

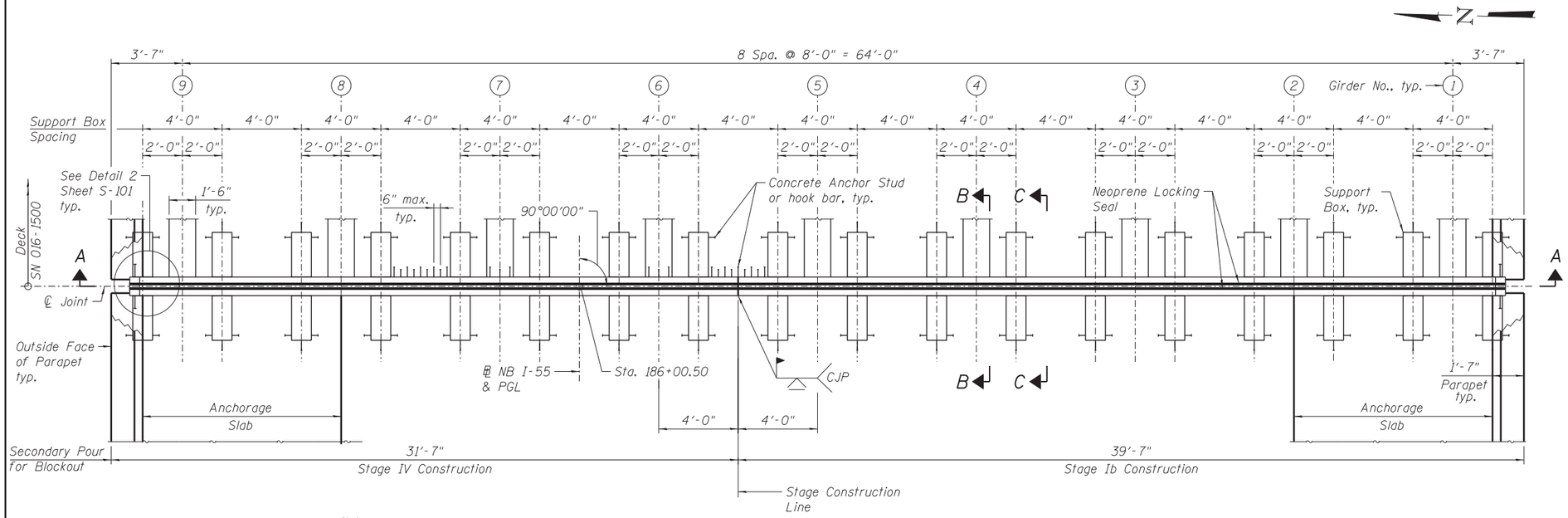
AECOM

USER NAME = kritzm	DESIGNED - EJM	REVISED -
	CHECKED - ATB	REVISED -
PLOT SCALE =	DRAWN - BRD	REVISED -
PLOT DATE = 6/26/2015	CHECKED - CLS	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

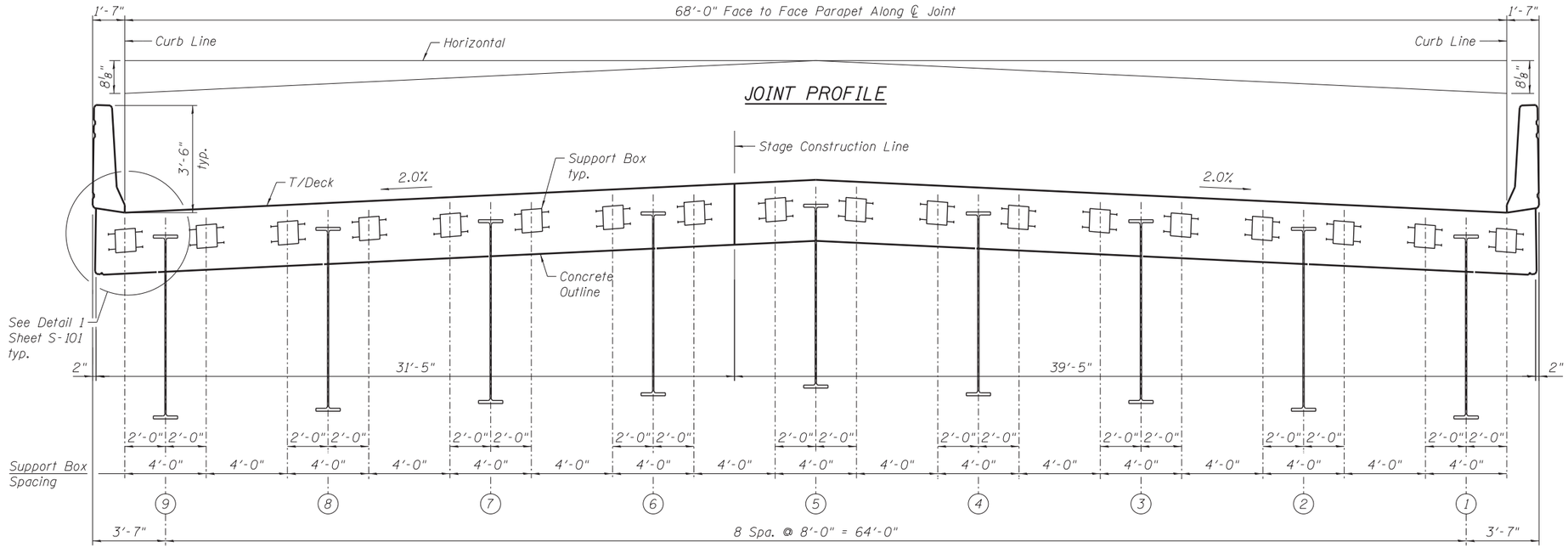
NORTH APPROACH SLAB DETAILS – S.N. 016-1503
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-94 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	617
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			



Note:
All concrete Anchor studs required are not shown on plans for clarity.

PLAN



JOINT PROFILE

SECTION A-A

(Looking East)

GENERAL NOTES:

1. Modular expansion joint shall be designed according to Section 14 of the 2012 AASHTO specifications for HL-93 truck loading with impact and the Special Provision.
2. The joint shall be a shop-fabricated modular assembly with multiple support bars, edge and separation beams and transverse neoprene seals, providing a continuous seal across the deck.
3. Joint shall be fabricated and installed according to the manufacturer's recommendations and as specified in the special provision for a modular joint system and as approved by the Engineer.
4. Joint shall be fabricated to conform to the roadway profile and cross-slopes.
5. All exposed structural steel elements such as separation beams, edge beams, support bars, sliding plate assemblies and cover plates shall be fabricated with AASHTO M270 Grade 50 ksi steel.
6. Modular expansion joints shall be shipped in one piece unless noted.
7. Concrete anchor studs attached to the modular expansion joint shall conform to the requirements of Article 1006.32 of the Standard Specifications. The cost of the Concrete Anchor Studs shall be included with Modular Expansion Joint Pay items.
8. No aluminum components shall be allowed.
9. All splices of center beams and edge beams located in the roadway shall be full penetration welds. (Upturn splices may be partial penetration welds)
10. See deck reinforcement plan sheet for bar size, designation and blockout dimensions.
11. The modular expansion joint system shall be limited to pre-approved systems as indicated in special provision for Modular Expansion Joint. The joint shall provide the movement as shown in Table A.
12. For Sections B-B and C-C, see Sheet S-101.
13. Modular expansion joints shall be assembled in their final relative position with the ends in place for shop inspection and acceptance.
14. Dimensions are measured along ℄ of Joint.
15. Support box dimensions and spacing shown are conceptual only and subject to refinement by joint manufacturer.

TABLE A

Location	Longitudinal Movement	Joint Size
West Abutment	$4\frac{5}{8}$"	6"

BILL OF MATERIAL

Item	Unit	Total
Modular Expansion Joint, 6"	Foot	68

281_0161500_60X07_EXP1_West.dgn

RME Rubinos & Mesia Engineers, Inc.
200 S. Michigan Avenue, Suite 1500, Chicago, IL 60604-2482

USER NAME = AVasonis	DESIGNED - PH	REVISED -	
	CHECKED - MR	REVISED -	
PLOT SCALE =	DRAWN - TM	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - PH	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

MODULAR EXPANSION JOINT – WEST ABUTMENT – S.N. 016-1500
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-95 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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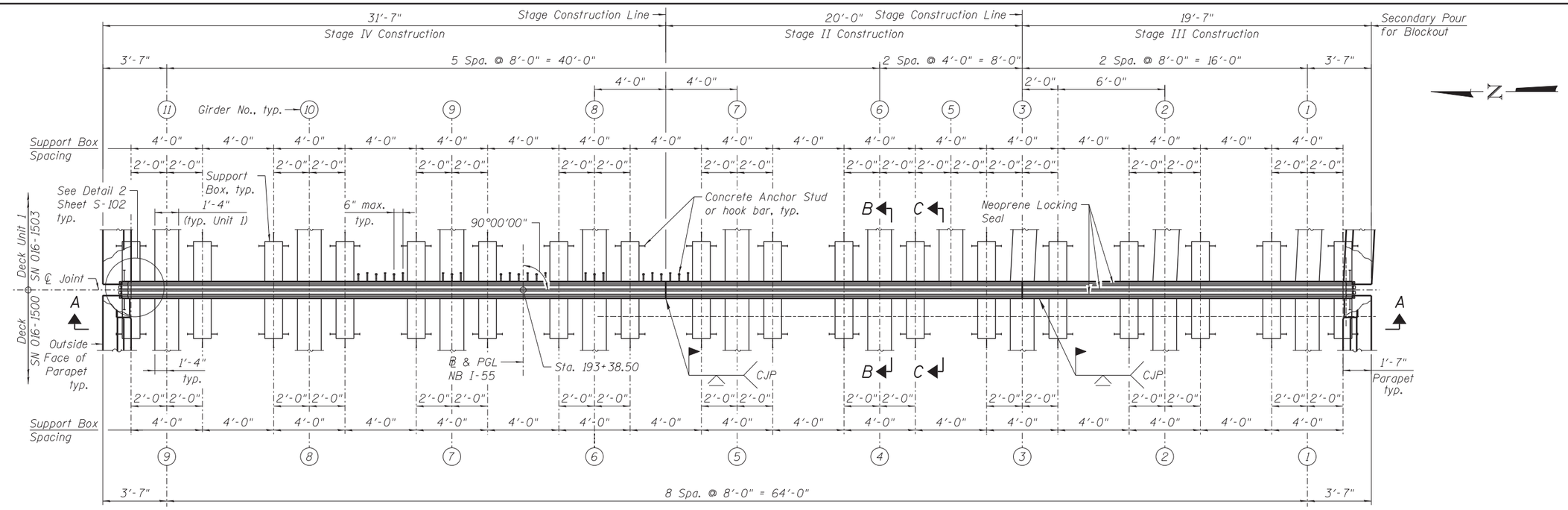
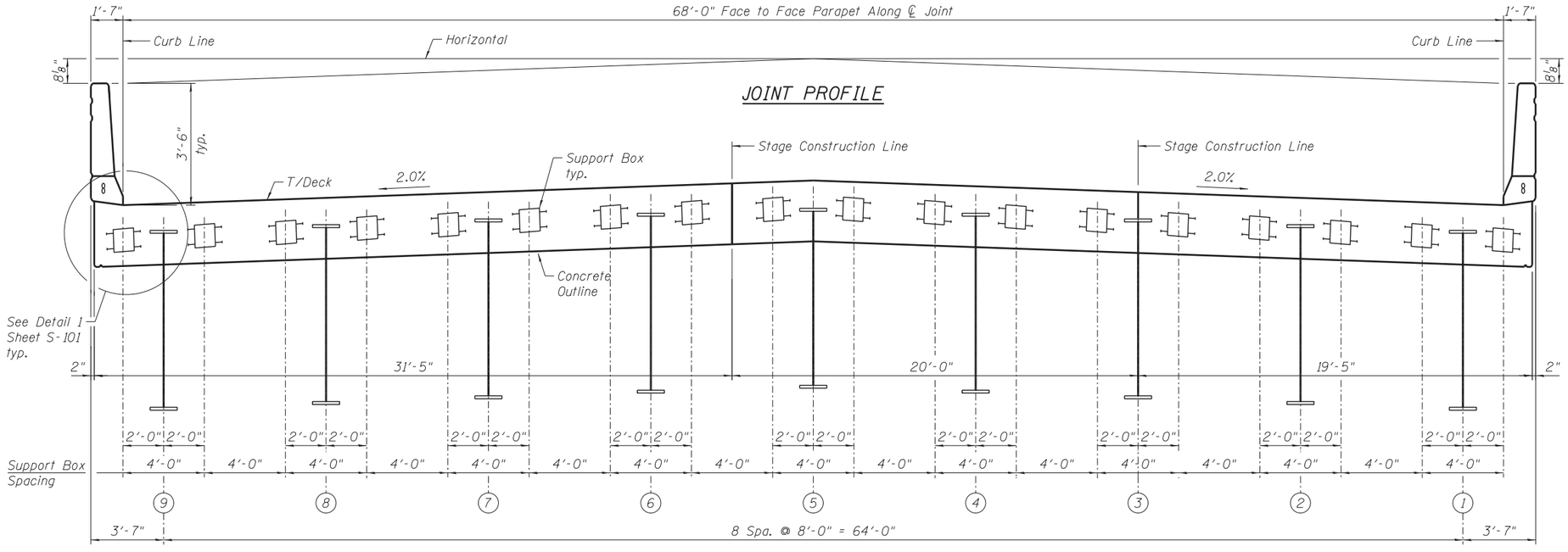
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			



PLAN

Note:
All concrete Anchor studs required are not shown on plans for clarity.



JOINT PROFILE

SECTION A-A
(Looking East)

NOTES:

1. For General Notes, see Sheet S-95 .
2. For Sections B-B and C-C, see Sheet S-102.
3. The modular expansion joint system shall be limited to pre-approved systems as indicated in special provision for Modular Expansion Joint. The joint shall provide the movement as shown in Table A.
4. Dimensions are measured along ℄ of Joint.
5. Support box dimensions and spacing shown are conceptual only and subject to refinement by joint manufacturer.

TABLE A

Location	Longitudinal Movement	Joint Size
Pier 5E	$6\frac{7}{8}$"	9"

BILL OF MATERIAL

Item	Unit	Total
Modular Expansion Joint, 9"	Foot	68

RME Rubinos & Mesia Engineers, Inc.
200 S. Michigan Avenue, Suite 1500, Chicago, IL 60604-2482

USER NAME = AVasonis	DESIGNED - PH	REVISED -	
	CHECKED - MR	REVISED -	
PLOT SCALE =	DRAWN - AMV	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - PH	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

MODULAR EXPANSION JOINT – PIER 5E – S.N. 016–1500
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-96 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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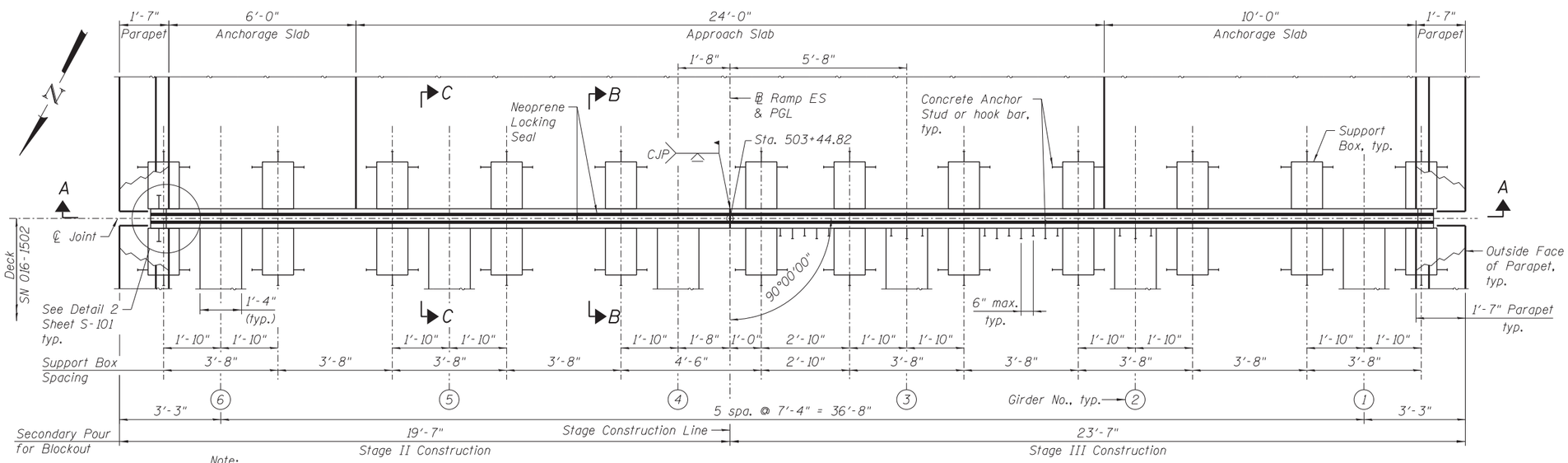
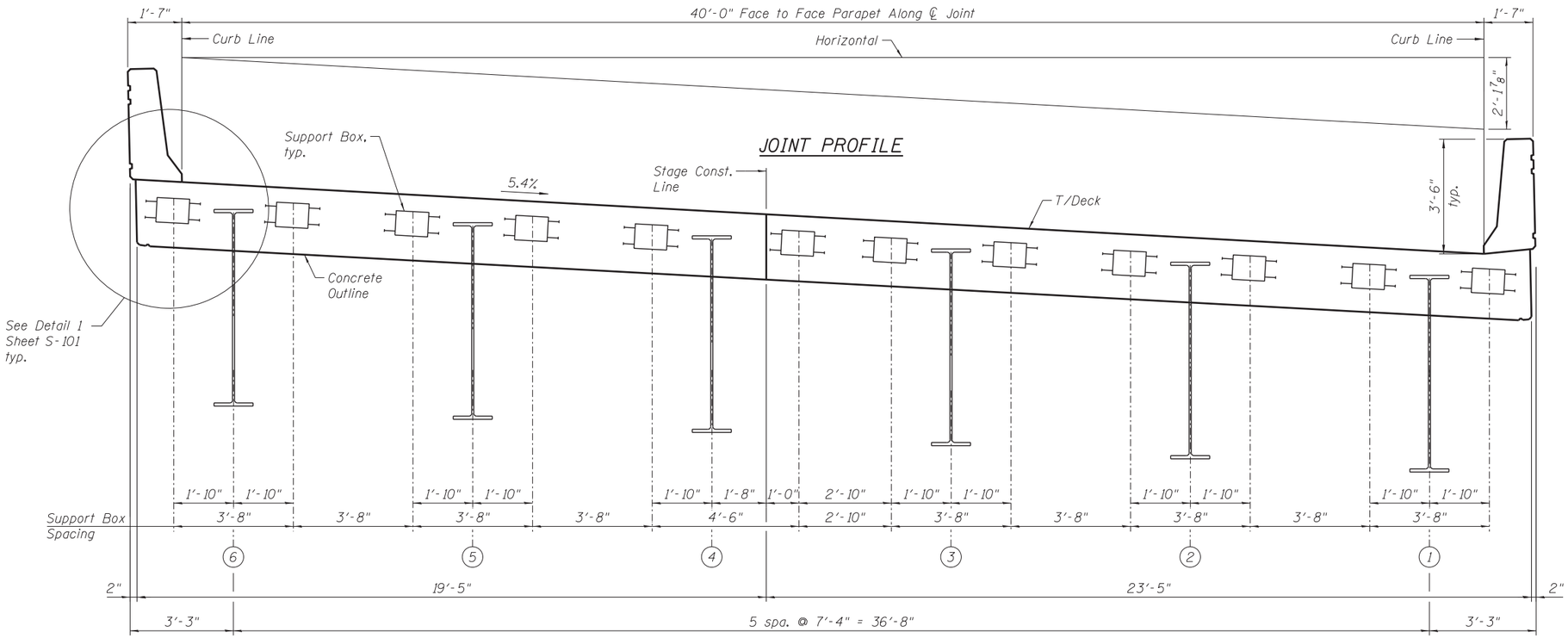
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

282_016I500_60X07_EXP2_5E.dgn



Note:
All Concrete Anchor Studs required are not shown on plans for clarity.

PLAN



JOINT PROFILE

SECTION A-A

(Looking Upstation)

GENERAL NOTES:

1. Modular expansion joint shall be designed according to Section 14 of the 2012 AASHTO specifications for HL-93 truck loading with impact and the Special Provision.
2. The joint shall be a shop-fabricated modular assembly with multiple support bars, edge and separation beams and transverse neoprene seals, providing a continuous seal across the deck.
3. Joint shall be fabricated and installed according to the manufacturer's recommendations and as specified in the special provision for a modular joint system and as approved the the Engineer.
4. Joint shall be fabricated to conform to the roadway profile and cross-slopes.
5. All exposed structural steel elements such as separation beams, edge beams, support bars, sliding plate assemblies and cover plates shall be fabricated with AASHTO M270 Grade 50 ksi steel.
6. Modular expansion joints shall be shipped in one piece unless noted.
7. Concrete anchor studs attached to the modular expansion joint shall conform to the requirements of Article 1006.32 of the Standard Specifications. The cost of the Concrete Anchor Studs shall be included with Modular Expansion Joint Pay items.
8. No aluminum components shall be allowed.
9. All splices of center beams and edge beams located in the roadway shall be full penetration welds. (Upturn splices may be partial penetration welds)
10. See deck reinforcement plan sheet for bar size, designation and blockout dimensions.
11. The swivel modular expansion joint system shall be limited to pre-approved systems as indicated in special provision for Modular Expansion Joint. The joint shall provide the movement as shown in Table A.
12. For Sections B-B and C-C, see Sheet S-101.
13. Modular expansion joints shall be assembled in their final relative position with the ends in place for shop inspection and acceptance.
14. All dimensions are measured along ℄ of Joint.
15. Support box dimensions and spacing shown are conceptual only and subject to refinement by joint manufacturer.

TABLE A

Location	Longitudinal Movement (Inch)	Joint Size
South Abutment	$4\frac{5}{8}$"	6"

BILL OF MATERIAL

Item	Unit	Total
Modular Exp. Jt.-Swivel 6"	Foot	40

283_0161502_60X07_EXP3_SA.dgn

AECOM

USER NAME = kritzm	DESIGNED - CLS	REVISED -
	CHECKED - ATB	REVISED -
PLOT SCALE =	DRAWN - MRK	REVISED -
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

MODULAR EXPANSION JOINT – SOUTH ABUTMENT – S.N. 016-1502
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-97 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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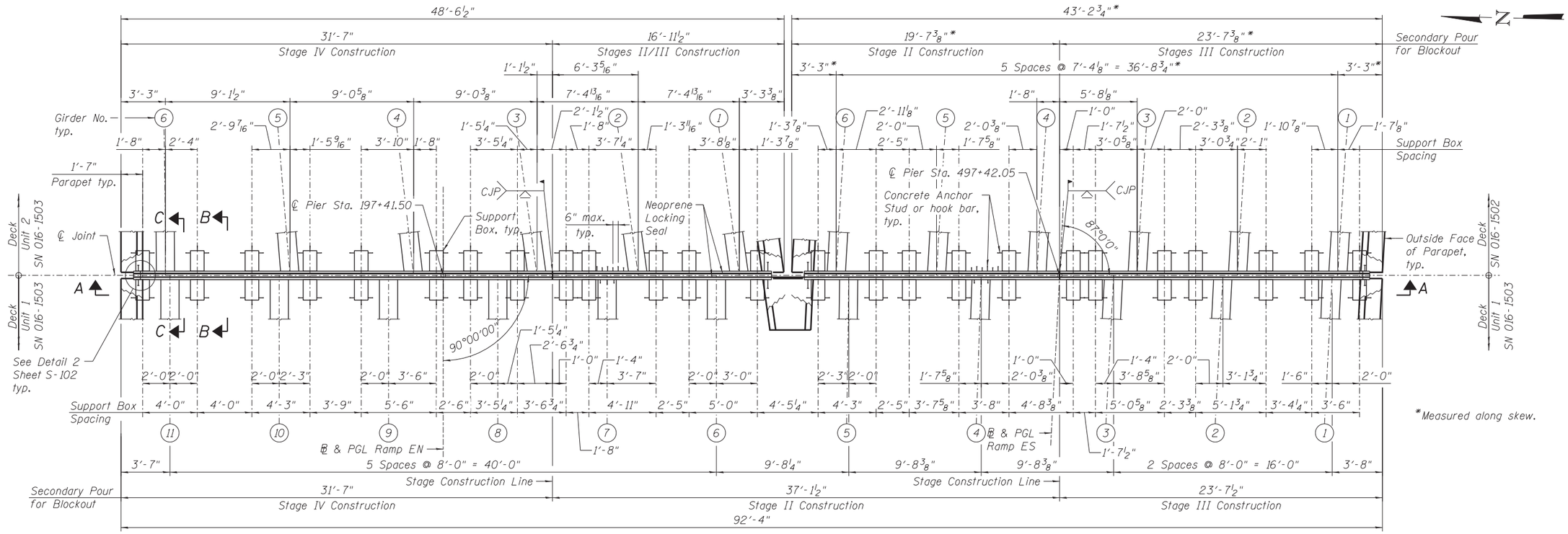
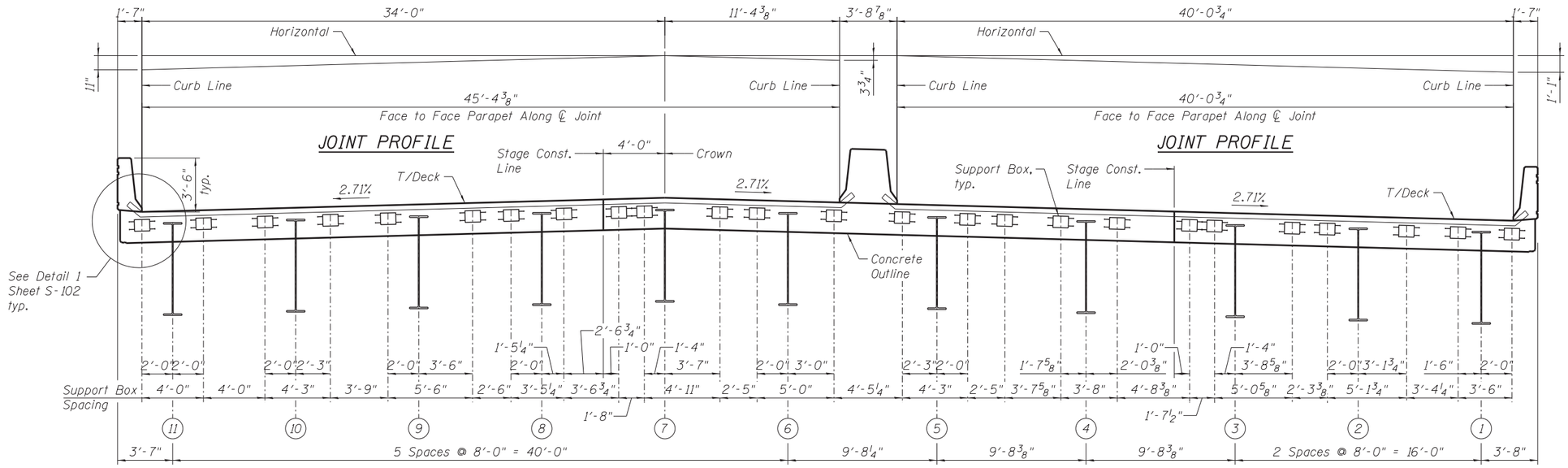
		CONTRACT NO. 60X07		
		ILLINOIS FED. AID PROJECT		



PLAN



SECTION A-A

(Looking Upstation)

NOTES:

1. For General Notes, see Sheet S-97.
2. For Sections B-B and C-C, see Sheet S-102.
3. The swivel modular expansion joint system shall be limited to pre-approved systems as indicated in special provision for Modular Expansion Joint. The joint shall provide the movement as shown in Table A.
4. All dimensions are measured along ℄ of Joint.
5. Support box dimensions and spacing shown are conceptual only and subject to refinement by joint manufacturer.
6. All concrete anchor studs required are not shown on plans for clarity.

TABLE A

Location	Longitudinal Movement (Inch)	Joint Size
Pier 8E (Ramp EN)	4"	9"
Pier 8E (Ramp ES)	5 3/8"	9"

BILL OF MATERIAL

Item	Unit	Total
Modular Exp. Jt.-Swivel 9"	Foot	86

284_0161503_60X07_EXP4_8E.dgn

AECOM

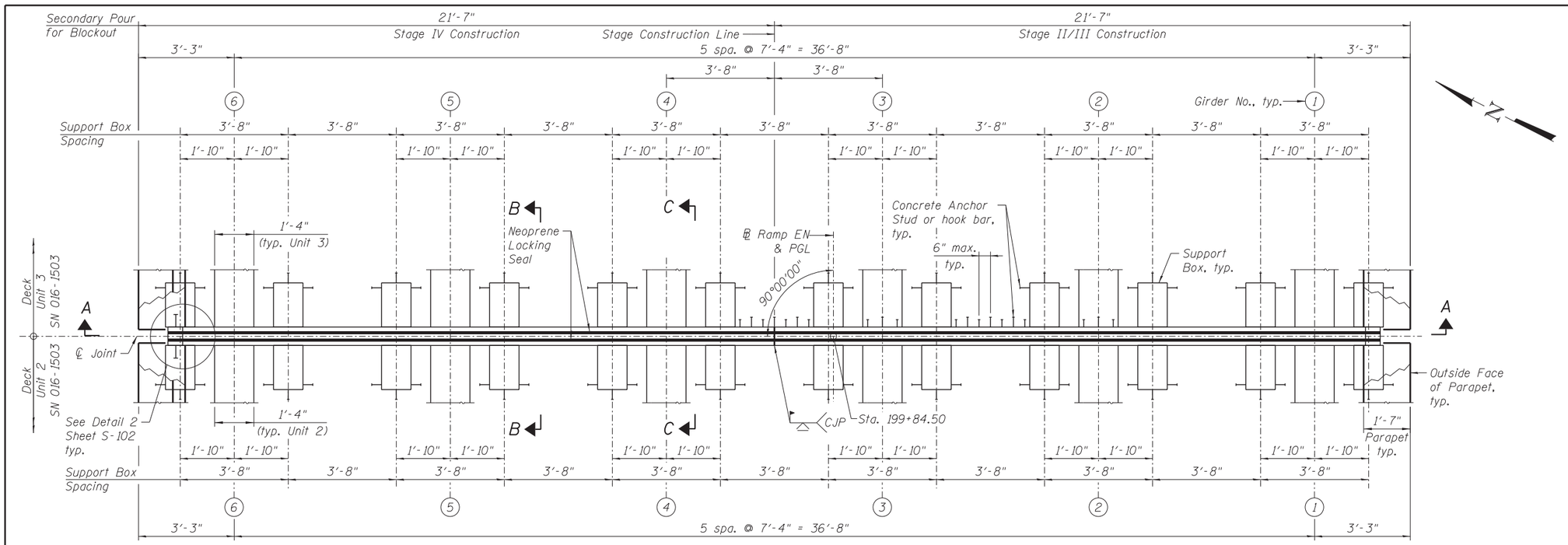
USER NAME = kritzm	DESIGNED - CLS	REVISED -	
	CHECKED - ATB	REVISED -	
PLOT SCALE =	DRAWN - MRK	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

MODULAR EXPANSION JOINT – PIER 8E – S.N. 016–1503
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)

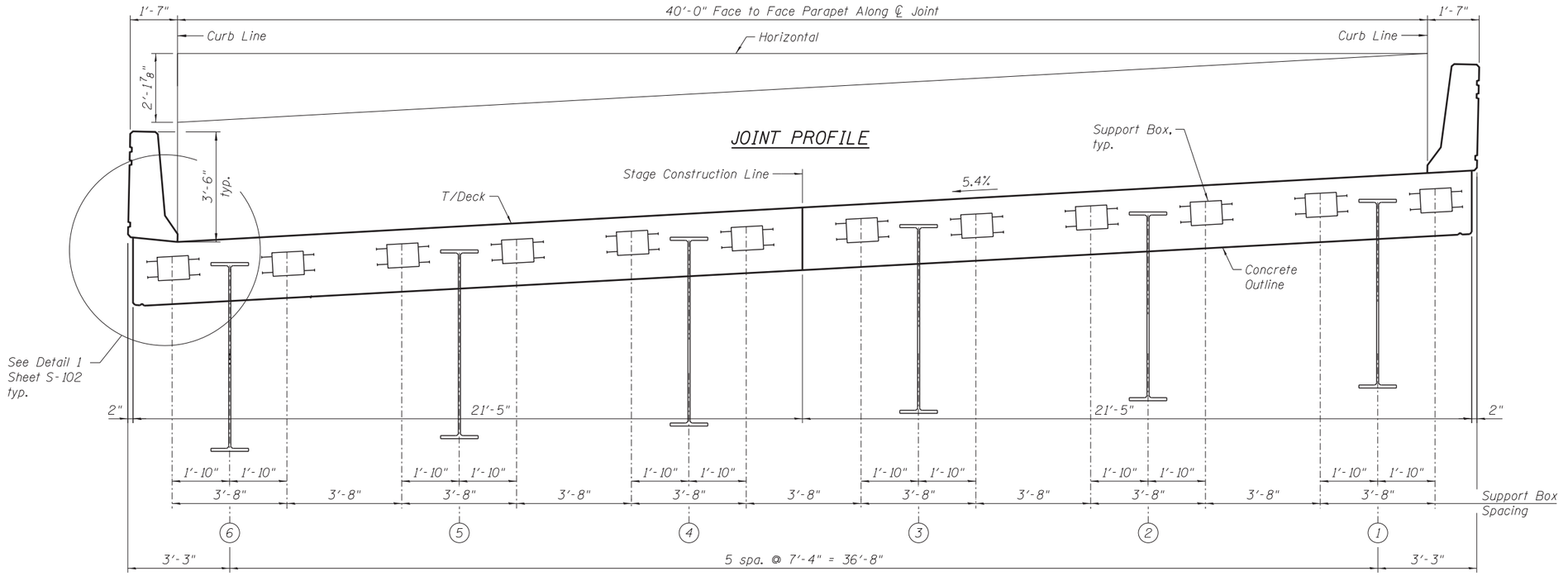
SHEET NO. S-98 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	621
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			



Note:
All Concrete Anchor Studs required are not shown on plans for clarity.

PLAN



SECTION A-A

(Looking Upstation)

NOTES:

1. For General Notes, see Sheet S-97.
2. For Sections B-B and C-C, see Sheet S-102.
3. The swivel modular expansion joint system shall be limited to pre-approved systems as indicated in special provision for Modular Expansion Joint. The joint shall provide the movement as shown in Table A.
4. All dimensions are measured along ℄ of Joint.
5. Support box dimensions and spacing shown are conceptual only and subject to refinement by joint manufacturer.

TABLE A

Location	Longitudinal Movement (Inch)	Joint Size
Pier 10E	4"	9"

BILL OF MATERIAL

Item	Unit	Total
Modular Exp. Jt.-Swivel 9"	Foot	40

285_0161503_60X07_EXPS_10E.dgn

AECOM

USER NAME = kritzm	DESIGNED - CLS	REVISED -
	CHECKED - ATB	REVISED -
PLOT SCALE =	DRAWN - MRK	REVISED -
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

MODULAR EXPANSION JOINT – PIER 10E – S.N. 016-1503
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)

SHEET NO. S-99 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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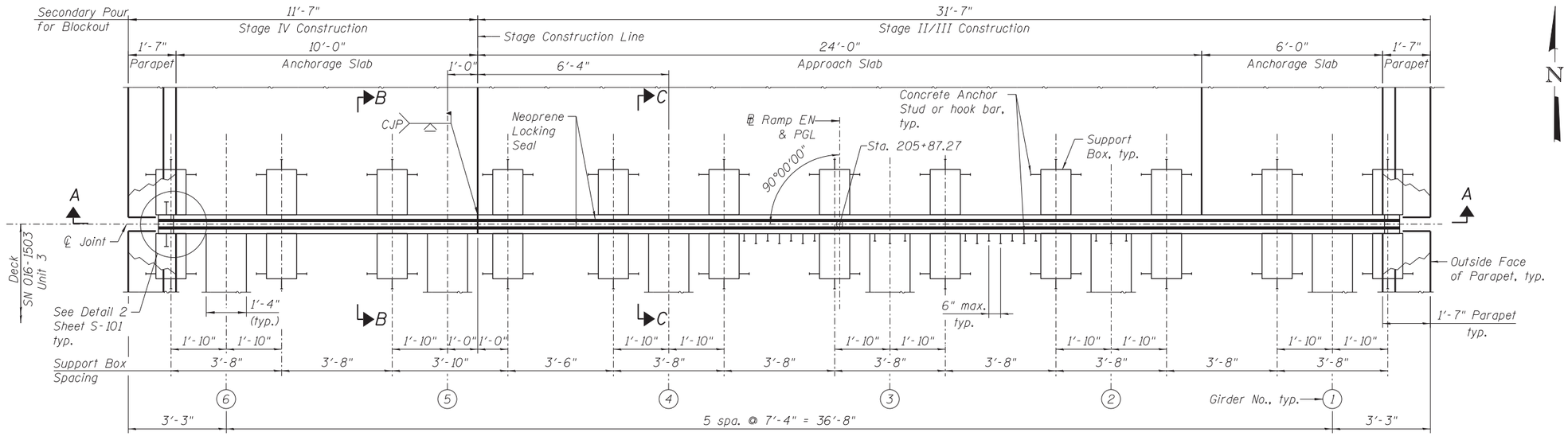
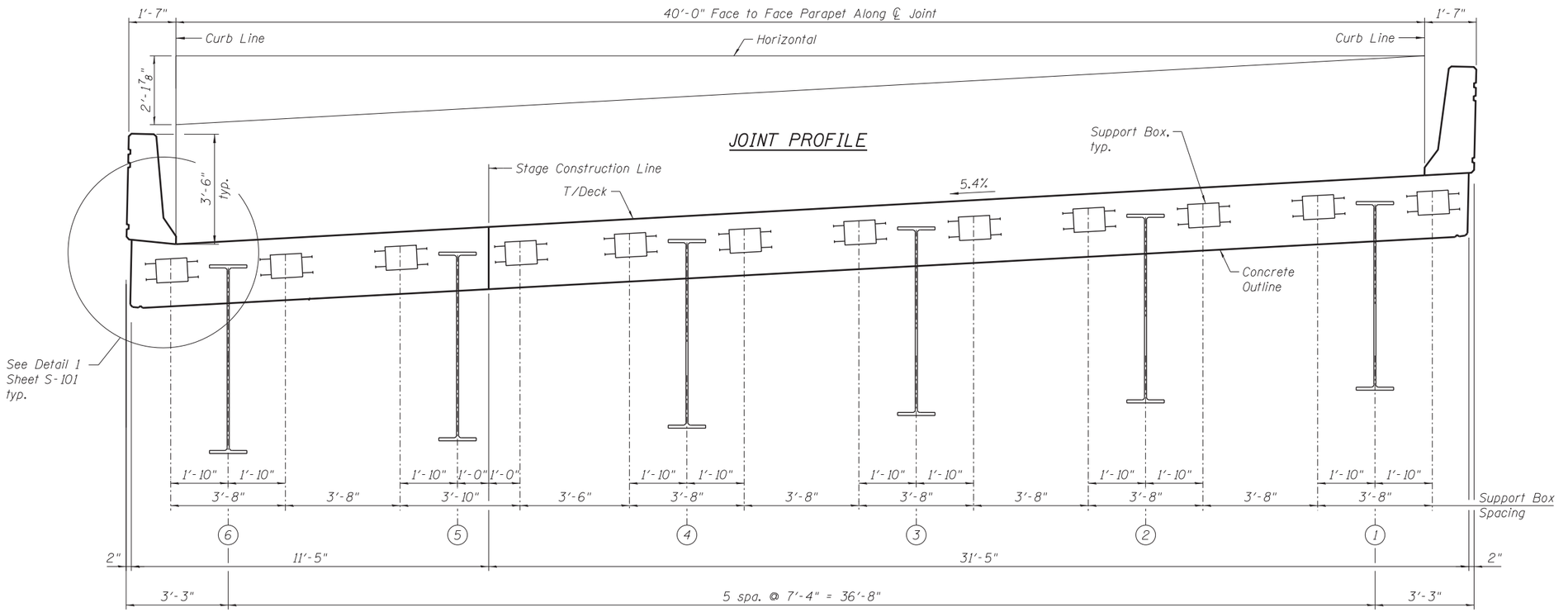
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			



Note:
All Concrete Anchor Studs required are not shown on plans for clarity.

PLAN



JOINT PROFILE

SECTION A-A

(Looking Upstation)

NOTES:

1. For General Notes, see Sheet S-97.
2. For Sections B-B and C-C, see Sheet S-101.
3. The swivel modular expansion joint system shall be limited to pre-approved systems as indicated in special provision for Modular Expansion Joint. The joint shall provide the movement as shown in Table A.
4. All dimensions are measured along ℄ of Joint.
5. Support box dimensions and spacing shown are conceptual only and subject to refinement by joint manufacturer.

TABLE A

Location	Longitudinal Movement (Inch)	Joint Size
North Abutment	5"	6"

BILL OF MATERIAL

Item	Unit	Total
Modular Exp. Jt.-Swivel 6"	Foot	40

286_0161503_60X07_EXP6_NA.dgn

AECOM

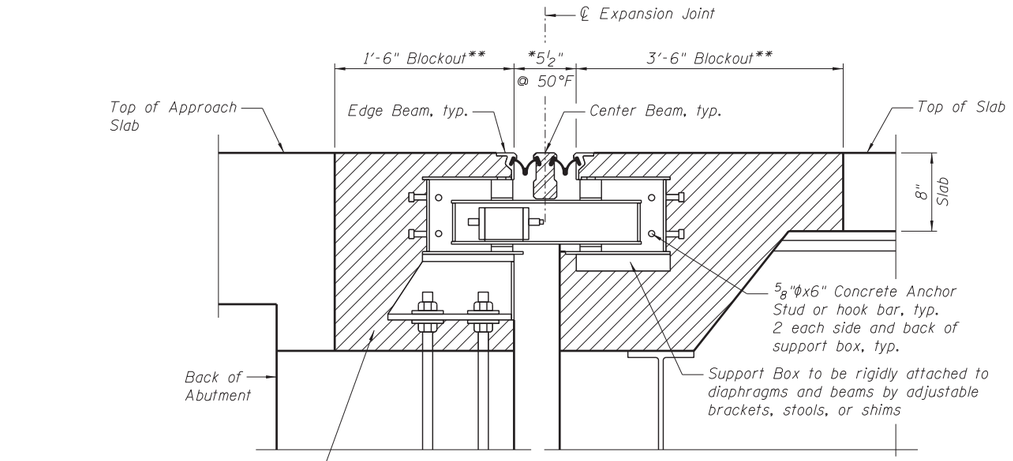
USER NAME = kritzm	DESIGNED - CLS	REVISED -	
	CHECKED - ATB	REVISED -	
PLOT SCALE =	DRAWN - MRK	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

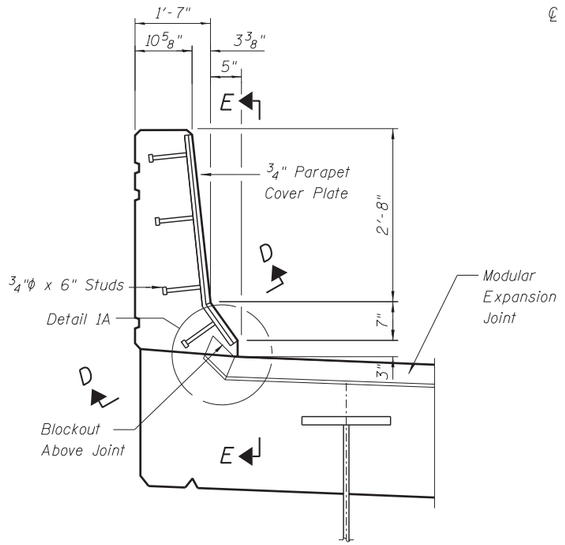
MODULAR EXPANSION JOINT – NORTH ABUTMENT – S.N. 016-1503
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)

SHEET NO. S-100 OF S-218 SHEETS

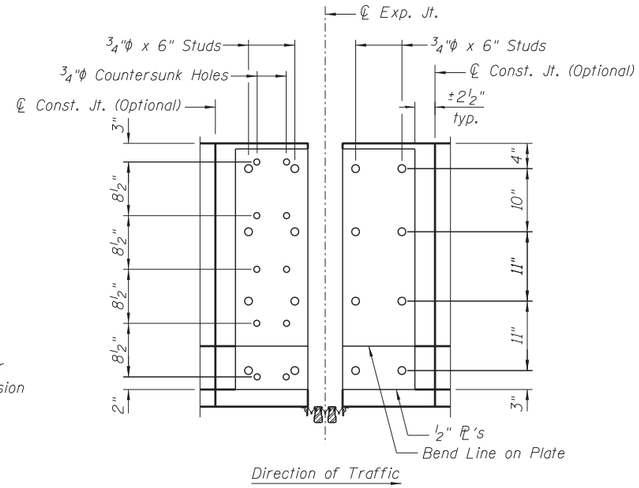
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	623
		CONTRACT NO. 60X07		
		ILLINOIS FED. AID PROJECT		



SECTION B-B

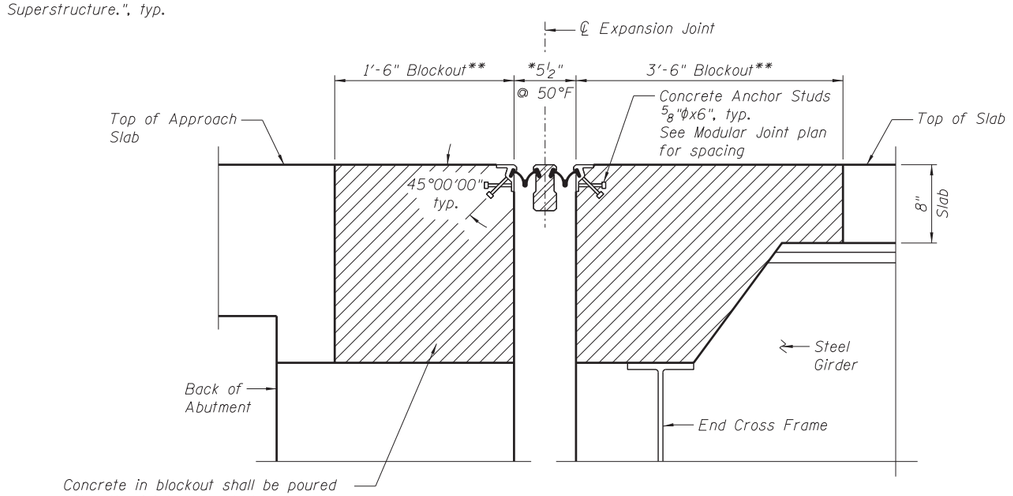


DETAIL 1



SECTION E-E

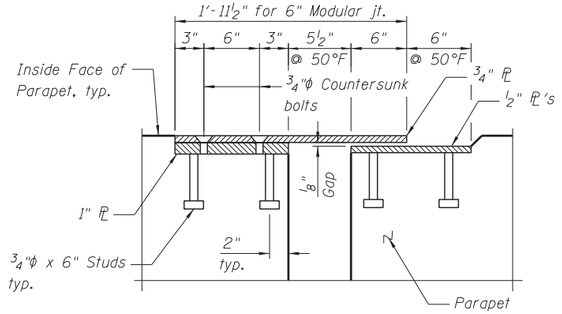
(Sliding plate not shown for clarity.)



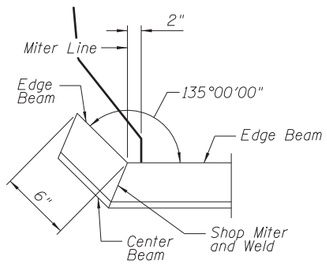
SECTION C-C

* Number of beams and seals determined by manufacturer

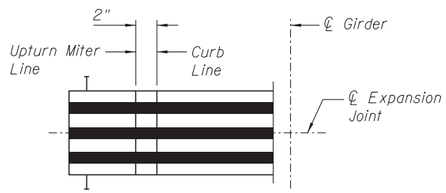
** Blockout dimensions to be verified by Contractor with Joint Manufacturer.



SECTION D-D



DETAIL 1A



DETAIL 2

287_0160000_60X07_EXP7_Mod 1.dgn

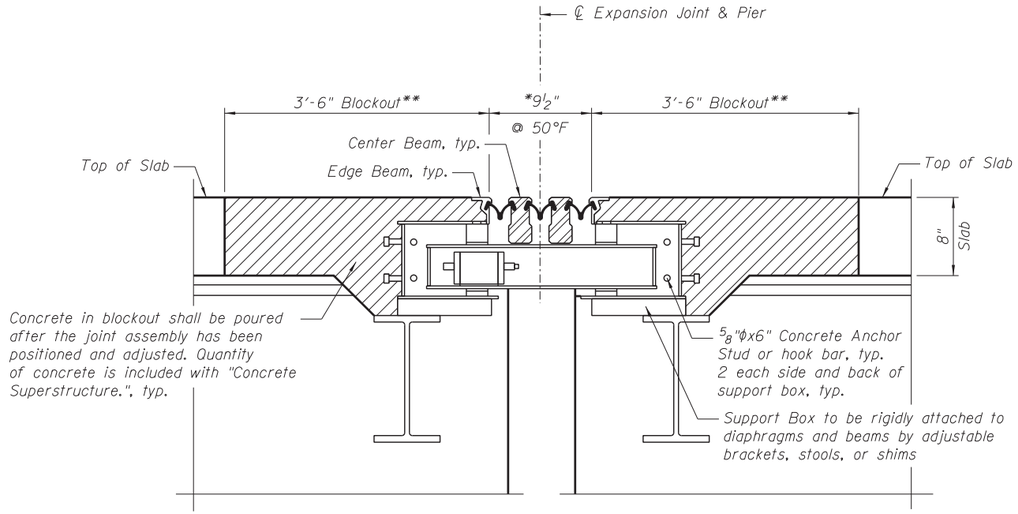
USER NAME = kritzm	DESIGNED - CLS	REVISED -	
	CHECKED - ATB	REVISED -	
PLOT SCALE =	DRAWN - MRK	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -	

AECOM

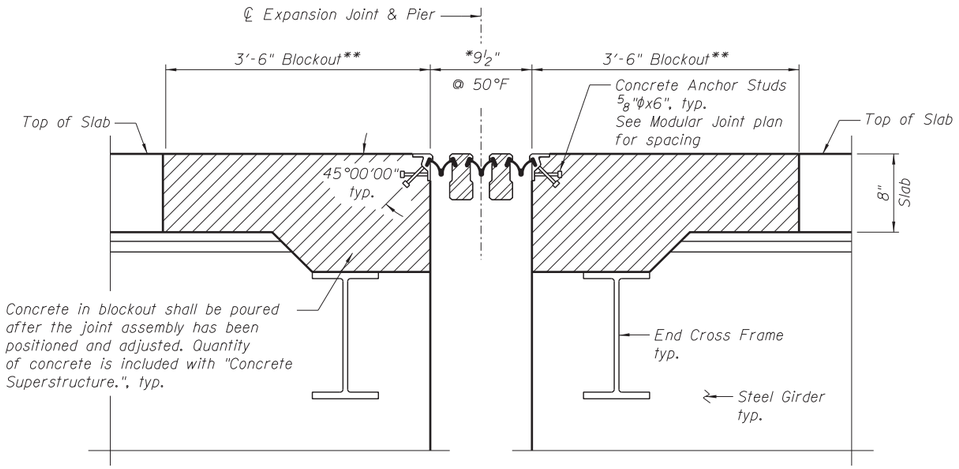
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

MODULAR EXPANSION JOINT DETAILS I
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-101 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	624
		CONTRACT NO. 60X07		
		ILLINOIS FED. AID PROJECT		



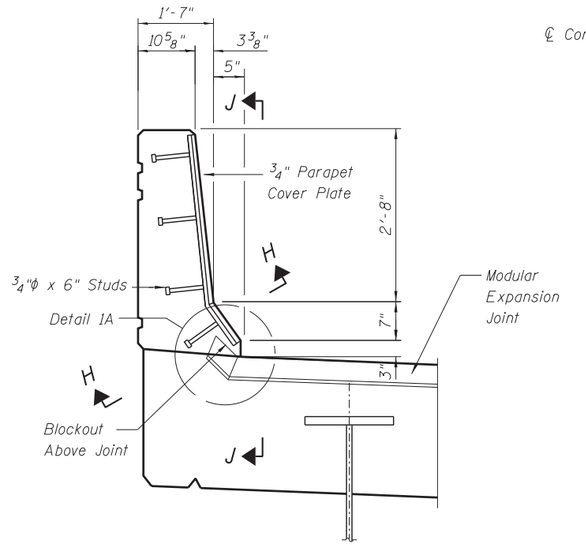
SECTION B-B



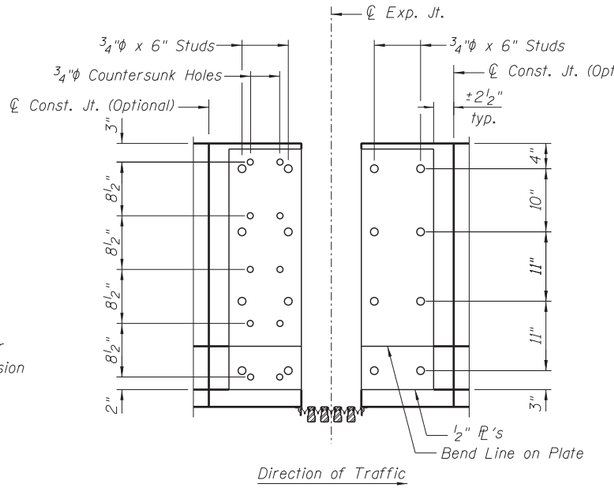
SECTION C-C

* Number of beams and seals determined by manufacturer

** Blockout dimensions to be verified by Contractor with Joint Manufacturer.



DETAIL 1

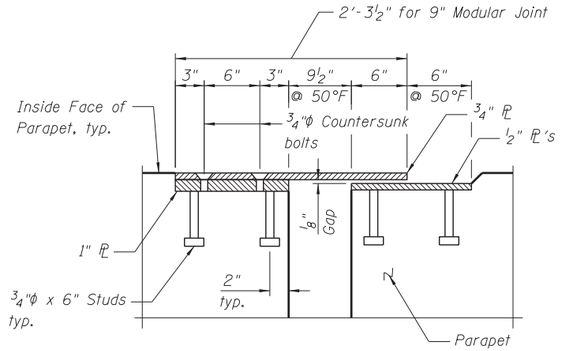


SECTION J-J

(Sliding plate not shown for clarity.)

DETAIL 1A

DETAIL 2

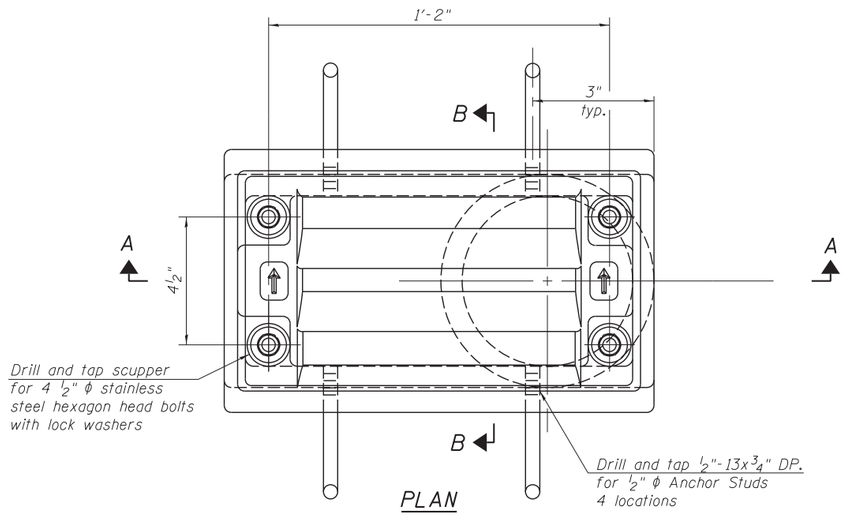


SECTION H-H

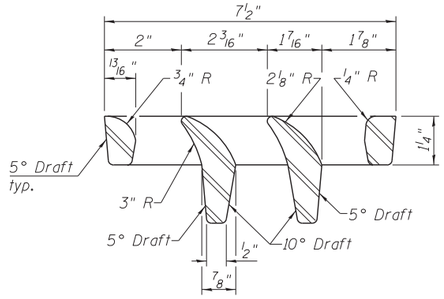
288_0160000_60X07_EXP8_Mod II.dgn

AECOM	USER NAME = kritzm	DESIGNED - CLS	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	MODULAR EXPANSION JOINT DETAILS II
		CHECKED - ATB	REVISED -		I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
	PLOT SCALE =	DRAWN - MRK	REVISED -		SHEET NO. S-102 OF S-218 SHEETS
	PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -		

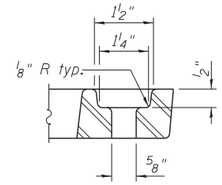
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	625
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			



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.

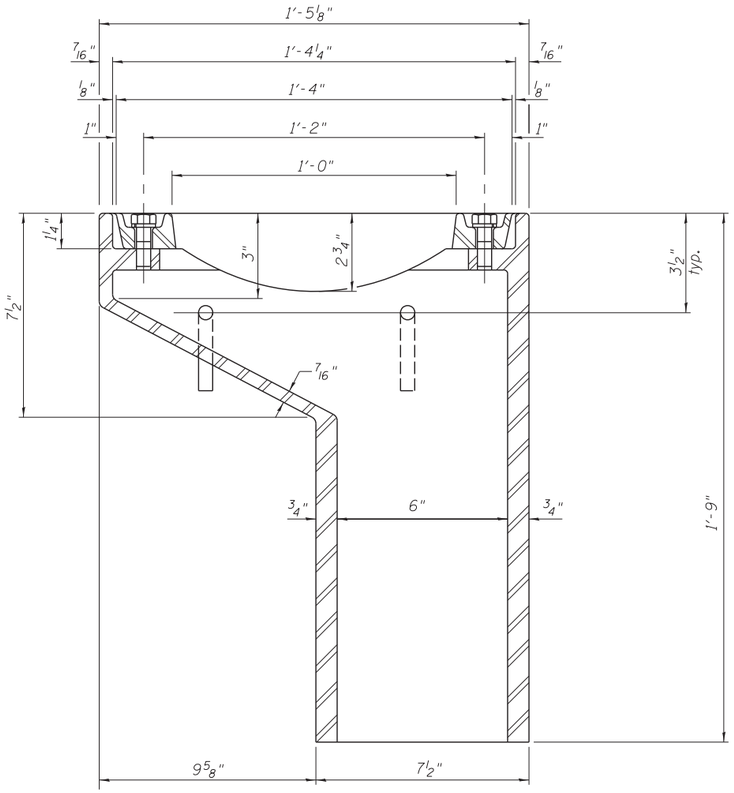
As an alternate, bolts, anchor studs, washers and nuts may be stainless steel according to Article 1006.29(d) of the Standard Specifications.

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.

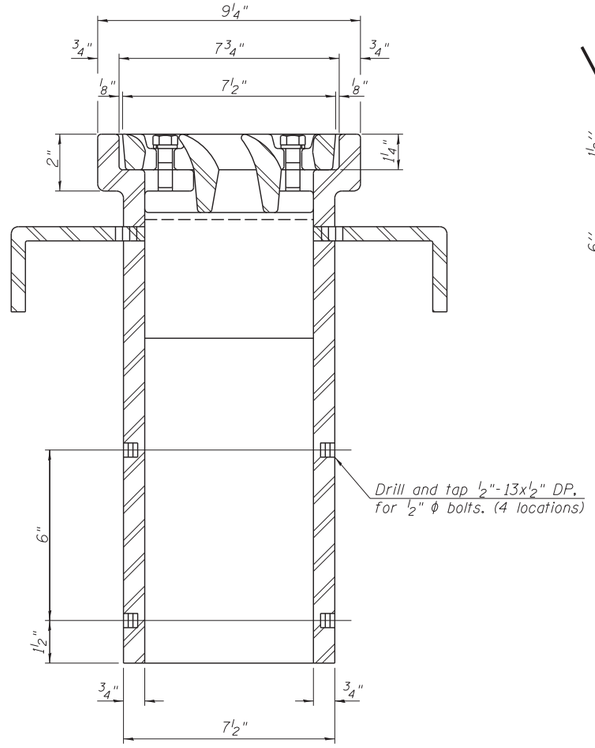
Cost of the Grate, Frame, Downspout, Anchor Studs, Bolts, Washers and Nuts including complete installation of the scupper shall be paid for at the contract unit price each for Drainage Scuppers, DS-11.

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.

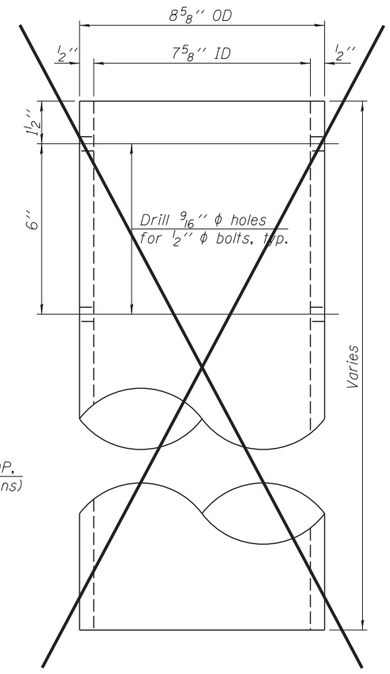


SECTION A-A

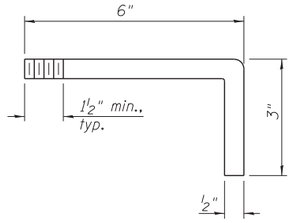
See Sheet S-3 through S-6 for scupper locations.



SECTION B-B



DOWNSPOUT



ANCHOR STUD DETAIL

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Drainage Scuppers, DS-11	Each	32

DS-11

7-1-10

300_0160000_60X07_SCUP.dgn

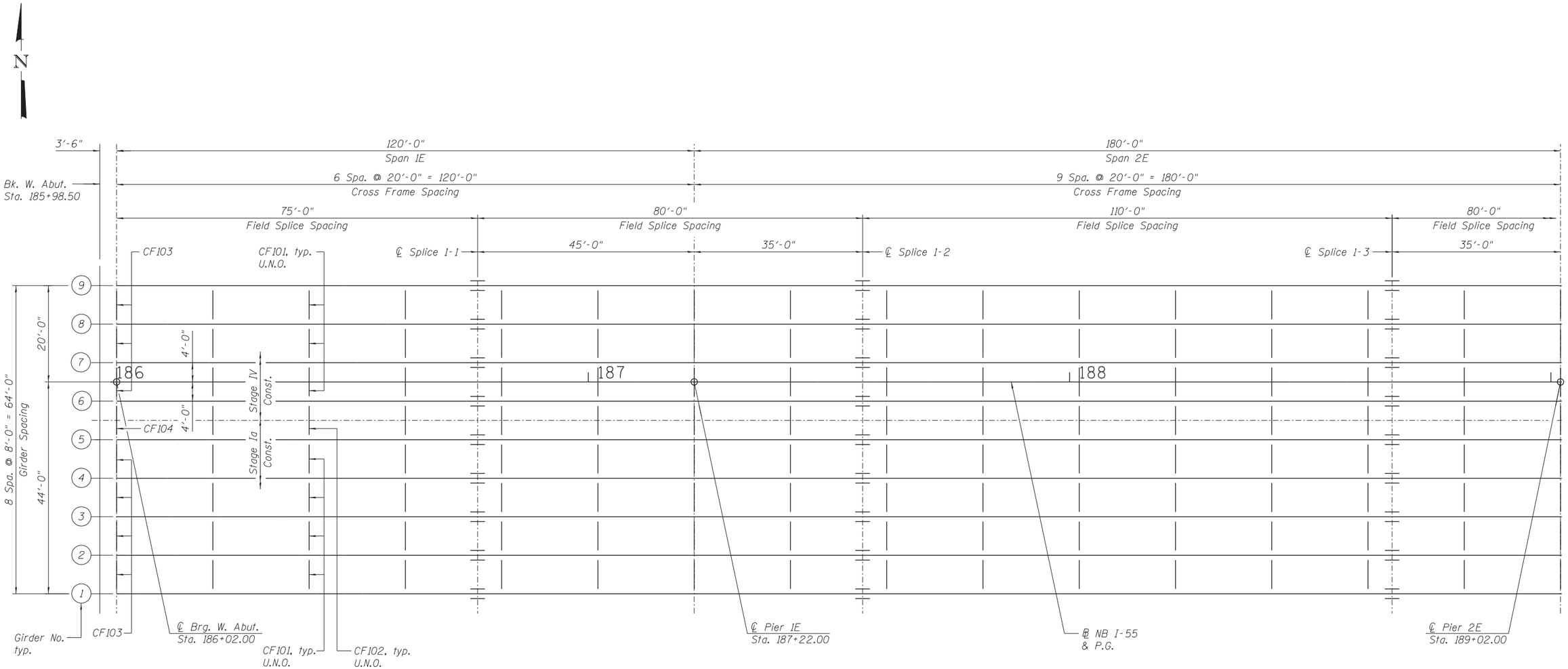
AECOM

USER NAME = kritzm	DESIGNED - CLS	REVISED -
	CHECKED - ATB	REVISED -
PLOT SCALE =	DRAWN - MRK	REVISED -
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DRAINAGE SCUPPERS, DS-11
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-103 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	626
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			



FRAMING PLAN I - S.N. 016-1500

NOTES:

1. See Sheets S-114 & S-115 for girder elevation.
2. See Sheets S-120 & S-121 for camber & top of web elevations.
3. See Sheets S-126 & S-127 for moment tables & reaction tables.
4. See Sheet S-132 for girder bolted field splice details.
5. See Sheet S-135 for girder cross frame details.

301_0161500_60X07_Framing Plan_I.dgn

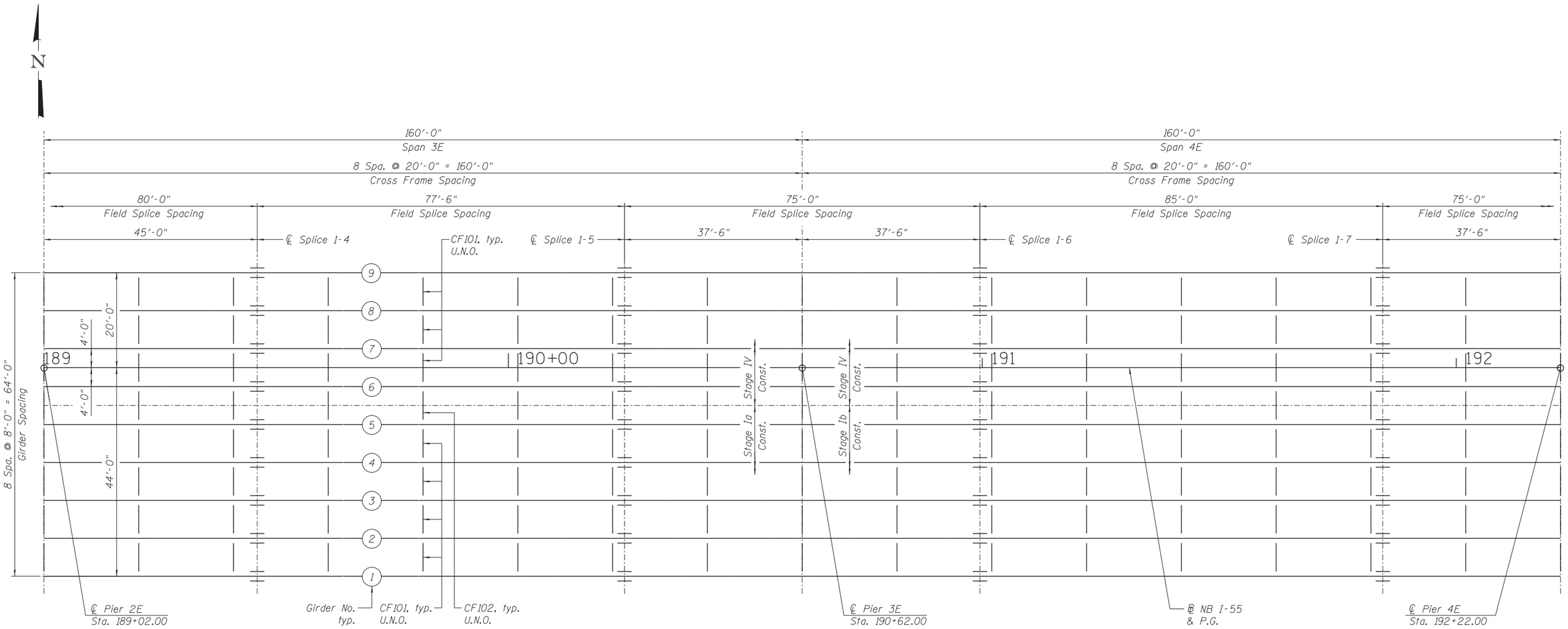
RME Rubinos & Mesia Engineers, Inc.
200 S. Michigan Avenue, Suite 1500, Chicago, IL 60604-2482

USER NAME = AVasonis	DESIGNED - TH	REVISED -	
	CHECKED - MR	REVISED -	
PLOT SCALE =	DRAWN - TM	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - TH	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER FRAMING PLAN I – S.N. 016–1500
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-104 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	627
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			



FRAMING PLAN II - S.N. 016-1500

NOTES:

1. See Sheets S-114 & S-115 for girder elevation.
2. See Sheets S-120 & S-121 for camber & top of web elevations.
3. See Sheets S-126 & S-127 for moment tables & reaction tables.
4. See Sheet S-132 for girder bolted field splice details.
5. See Sheet S-135 for girder cross frame details.

302_0161500_60X07_Framing Plan_II.dgn

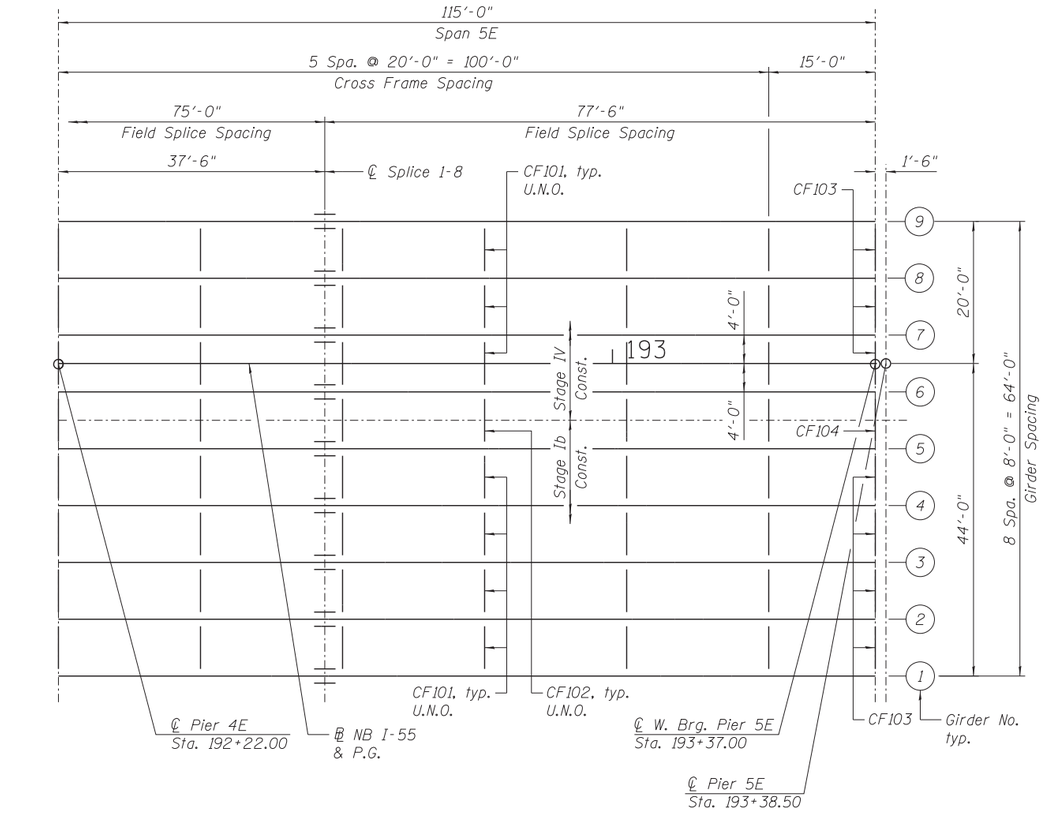
RME Rubinos & Mesia Engineers, Inc.
200 S. Michigan Avenue, Suite 1500, Chicago, IL 60604-2482

USER NAME = AVasonis	DESIGNED - TH	REVISED -	
	CHECKED - MR	REVISED -	
PLOT SCALE =	DRAWN - TM	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - TH	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER FRAMING PLAN II – S.N. 016–1500
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-105 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	628
		CONTRACT NO. 60X07		
	ILLINOIS	FED. AID PROJECT		



FRAMING PLAN III - S.N. 016-1500

NOTES:

1. See Sheets S-114 & S-115 for girder elevation.
2. See Sheets S-120 & S-121 for camber & top of web elevations.
3. See Sheets S-126 & S-127 for moment tables & reaction tables.
4. See Sheet S-132 for girder bolted field splice details.
5. See Sheet S-135 for girder cross frame details.

RME Rubinos & Mesia Engineers, Inc.
200 S. Michigan Avenue, Suite 1500, Chicago, IL 60604-2482

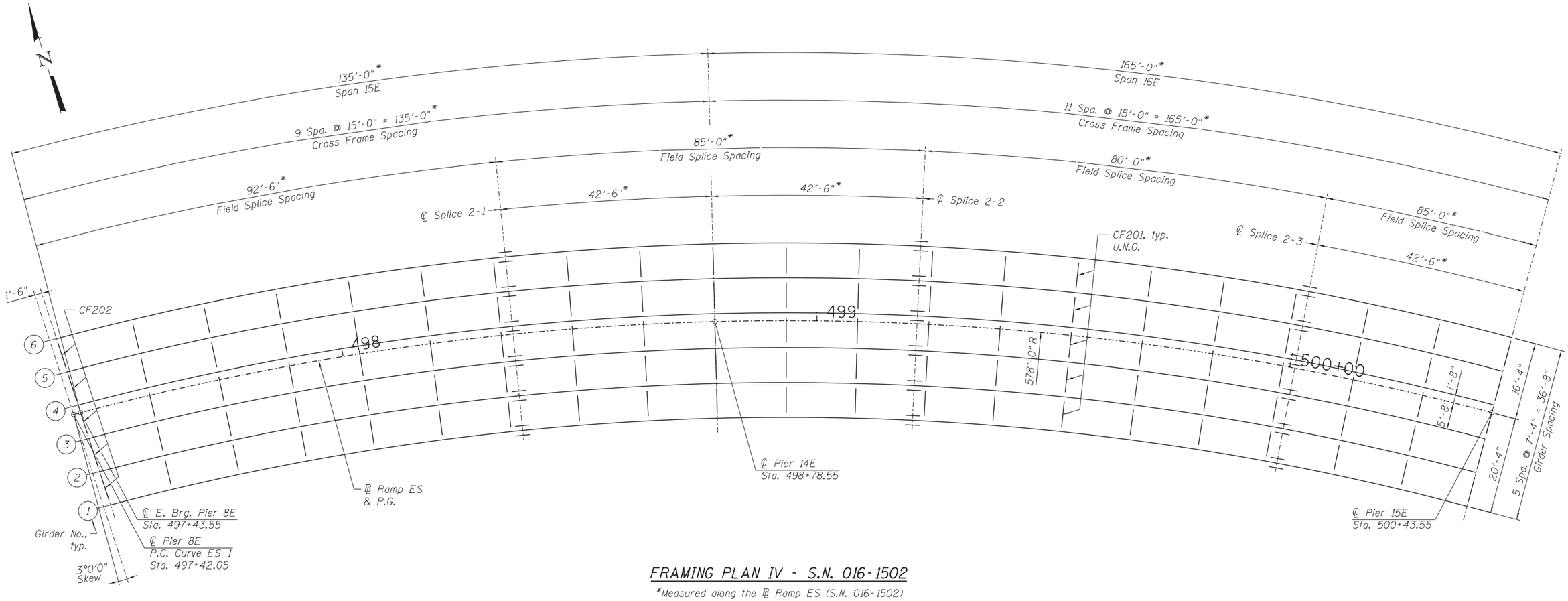
USER NAME = AVasonis	DESIGNED - TH	REVISED -	
	CHECKED - MR	REVISED -	
PLOT SCALE =	DRAWN - TM	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - TH	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER FRAMING PLAN III – S.N. 016–1500
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-106 OF S-218 SHEETS

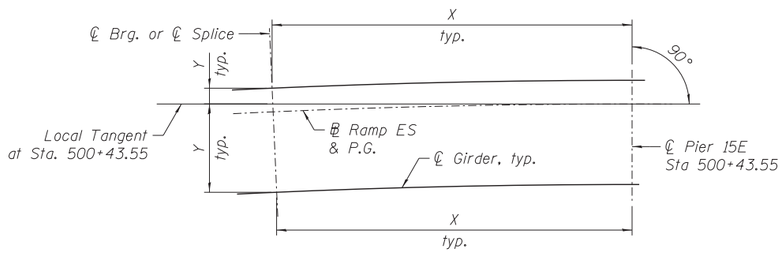
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	629
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

303_0161500_60X07_Framing Plan_III.dgn



FRAMING PLAN IV - S.N. 016-1502

*Measured along the ℄ Ramp ES (S.N. 016-1502) with all abutments and piers radial to alignment except Pier 8E which is skewed 3° from radial.



CURVED GIRDER LAYOUT

(X Measured along Local Tangent)

GIRDER COORDINATES - S.N. 016-1502

(All Dimensions in Feet)

Girder	℄ E. Brg. Pier 8E		℄ Splice 2-1		℄ Pier 14E		℄ Splice 2-2		℄ Splice 2-3	
	X	Y	X	Y	X	Y	X	Y	X	Y
1	-275.651	-93.223	-195.928	-55.885	-157.042	-42.902	-117.308	-32.811	-40.968	-21.840
2	-279.639	-87.055	-198.504	-49.019	-159.107	-35.865	-118.850	-25.642	-41.507	-14.527
3	-283.627	-80.887	-201.081	-42.153	-161.172	-28.829	-120.393	-18.473	-42.045	-7.213
4	-287.615	-74.720	-203.657	-35.287	-163.237	-21.792	-121.936	-11.303	-42.584	0.100
5	-291.603	-68.552	-206.234	-28.421	-165.303	-14.756	-123.478	-4.134	-43.123	7.414
6	-295.591	-62.385	-208.810	-21.556	-167.368	-7.719	-125.021	3.035	-43.662	14.727

NOTES:

1. See Sheet S-115 for girder elevation.
2. See Sheet S-122 for camber & top of web elevations.
3. See Sheet S-127 for moment tables & reaction tables.
4. See Sheet S-133 for girder bolted field splice details.
5. See Sheet S-136 for girder cross frame details.

304_0161502_60X07_Framing Plan_IV.dgn

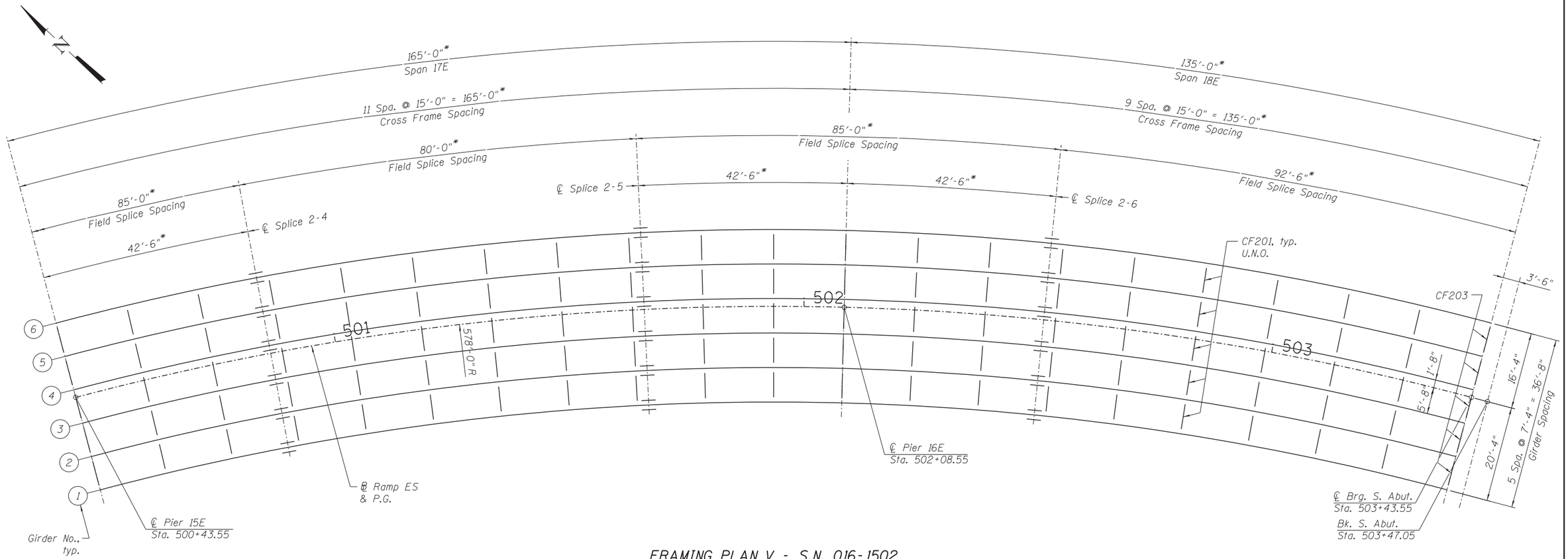
AECOM

USER NAME = kritzm	DESIGNED - CLS	REVISED -	
	CHECKED - ATB	REVISED -	
PLOT SCALE =	DRAWN - DD	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

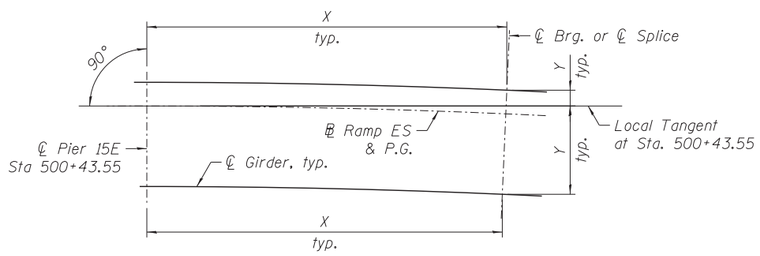
GIRDER FRAMING PLAN IV – S.N. 016–1502
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-107 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	630
		CONTRACT NO. 60X07		
	ILLINOIS	FED. AID PROJECT		



FRAMING PLAN V - S.N. 016-1502

*Measured along the ℄ Ramp ES (S.N. 016-1502) with all abutments and piers radial to alignment except Pier 8E which is skewed 3° from radial.



CURVED GIRDER LAYOUT

(X Measured along Local Tangent)

GIRDER COORDINATES - S.N. 016-1502

(All Dimensions in Feet)

Girder	℄ Splice 2-4		℄ Splice 2-5		℄ Pier 16E		℄ Splice 2-6		℄ Brg. S. Abut.	
	X	Y	X	Y	X	Y	X	Y	X	Y
1	40.968	-21.840	117.308	-32.811	157.042	-42.902	195.928	-55.885	276.624	-93.778
2	41.507	-14.527	118.850	-25.642	159.107	-35.865	198.504	-49.019	280.262	-87.410
3	42.045	-7.213	120.393	-18.473	161.172	-28.829	201.081	-42.153	283.900	-81.043
4	42.584	0.100	121.936	-11.303	163.237	-21.792	203.657	-35.287	287.537	-74.675
5	43.123	7.414	123.478	-4.134	165.303	-14.756	206.234	-28.421	291.175	-68.308
6	43.662	14.727	125.021	3.035	167.368	-7.719	208.810	-21.556	294.813	-61.940

NOTES:

1. See Sheet S-115 for girder elevation.
2. See Sheet S-122 for camber & top of web elevations.
3. See Sheet S-127 for moment tables & reaction tables.
4. See Sheet S-133 for girder bolted field splice details.
5. See Sheet S-136 for girder cross frame details.

305_0161502_60X07_Framing Plan_V.dgn

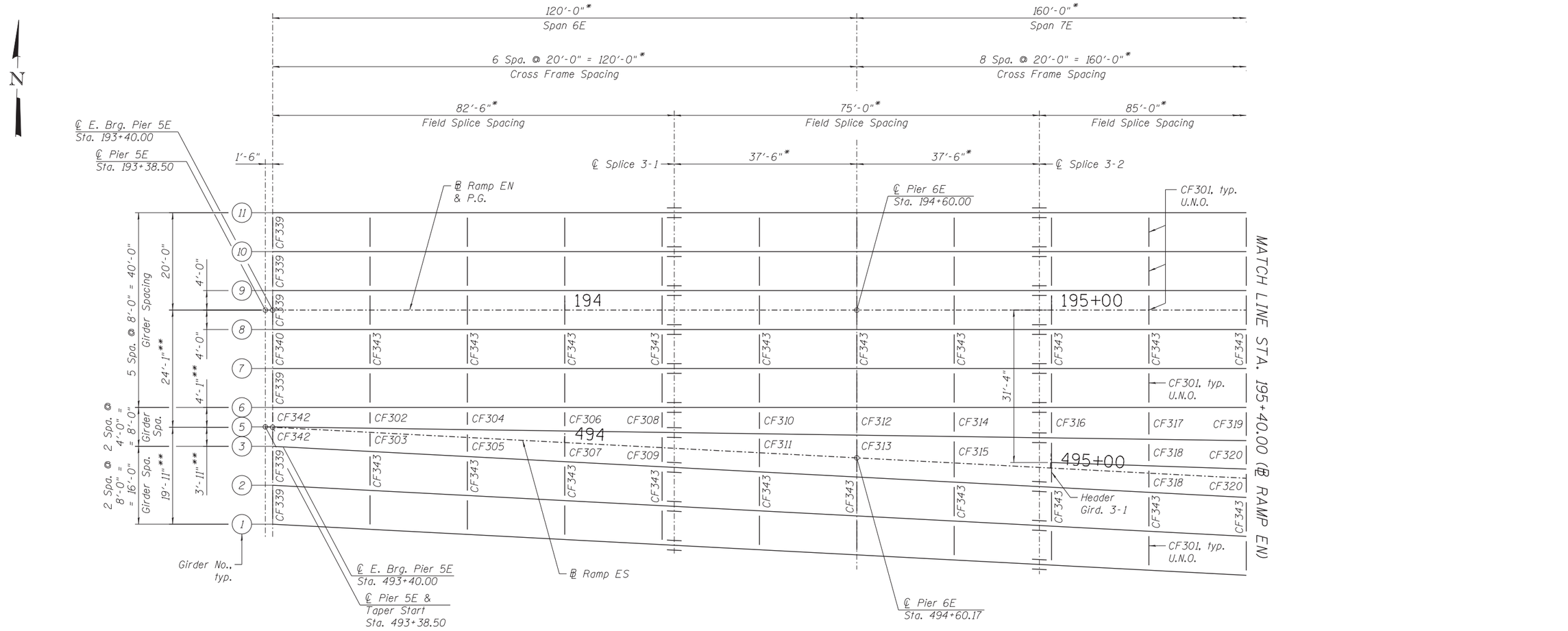
AECOM

USER NAME = kritzm	DESIGNED - CLS	REVISED -	
	CHECKED - ATB	REVISED -	
PLOT SCALE =	DRAWN - DD	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER FRAMING PLAN V – S.N. 016–1502
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-108 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	631
		CONTRACT NO. 60X07		
	ILLINOIS	FED. AID PROJECT		



FRAMING PLAN VI - S.N. 016-1503 (UNIT 1)

*Measured along the ℄ Ramp EN (S.N. 016-1503) with all abutments and piers radial to alignment.

**Measured along ℄ E. Brg. Pier 5E to the ℄ Ramp ES (S.N. 016-1503).

NOTES:

1. See Sheets S-116 and S-117 for girder elevation.
2. See Sheet S-123 for camber & top of web elevations.
3. See Sheets S-128 and S-129 for moment tables & reaction tables.
4. See Sheet S-134 for girder bolted field splice details.
5. See Sheet S-137 for girder cross frame details.

306_0161503_60X07_Framing Plan_VI.dgn

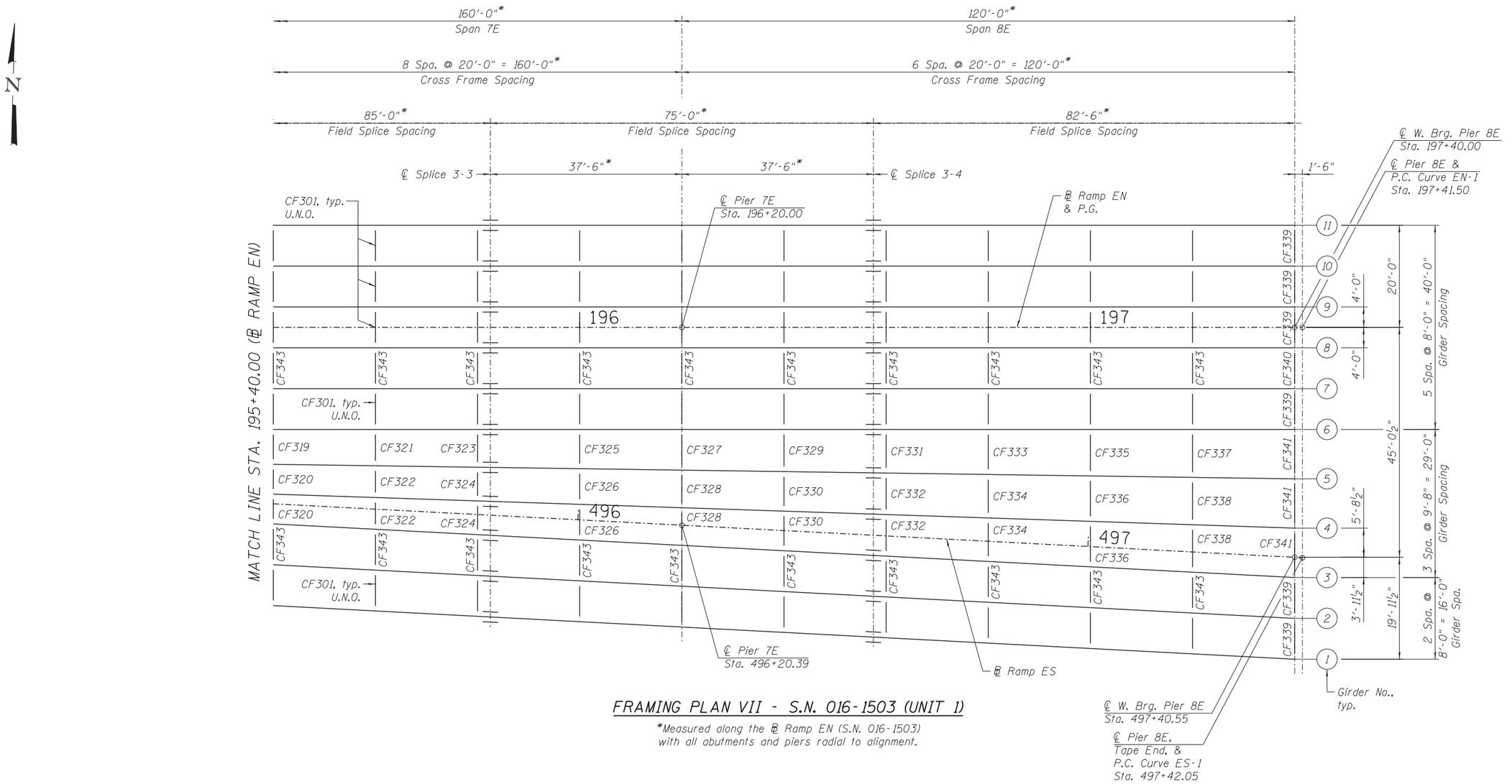
AECOM

USER NAME = kritzm	DESIGNED - CLS	REVISED -	
	CHECKED - ATB	REVISED -	
PLOT SCALE =	DRAWN - DD	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER FRAMING PLAN VI – S.N. 016–1503 (UNIT 1)
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-109 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	632
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			



FRAMING PLAN VII - S.N. 016-1503 (UNIT 1)

*Measured along the ℄ Ramp EN (S.N. 016-1503) with all abutments and piers radial to alignment.

NOTES:

1. See Sheets S-116 and S-117 for girder elevation.
2. See Sheet S-123 for camber & top of web elevations.
3. See Sheets S-128 and S-129 for moment tables & reaction tables.
4. See Sheet S-134 for girder bolted field splice details.
5. See Sheet S-137 for girder cross frame details.

307_0161503_60X07_Framing Plan_VII.dgn

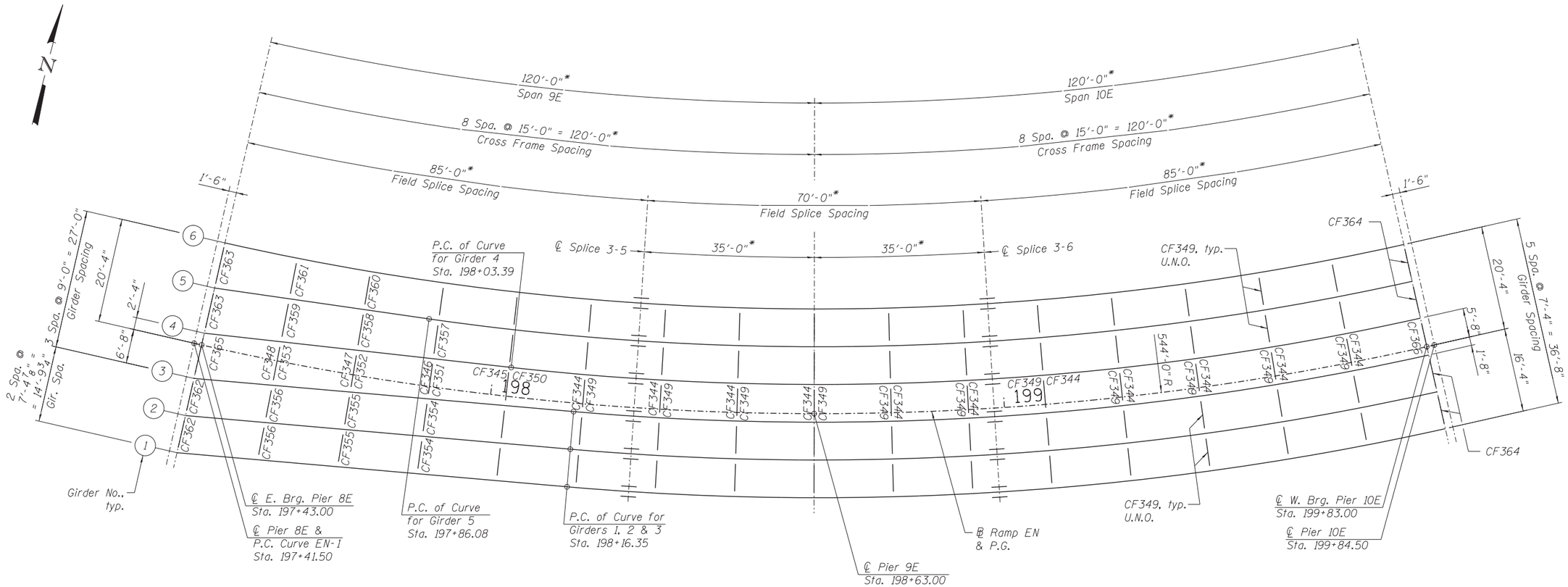
AECOM

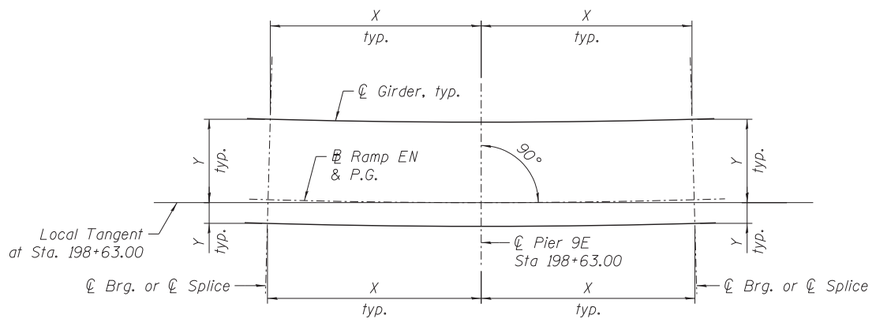
USER NAME = kritzm	DESIGNED - CLS	REVISED -	
	CHECKED - ATB	REVISED -	
PLOT SCALE =	DRAWN - DD	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER FRAMING PLAN VII – S.N. 016–1503 (UNIT 1)
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-110 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	633
		CONTRACT NO. 60X07		
	ILLINOIS	FED. AID PROJECT		





CURVED GIRDER LAYOUT

(X Measured along Local Tangent)

FRAMING PLAN VIII - S.N. 016-1503 (UNIT 2)

*Measured along the ℄ Ramp EN (S.N. 016-1503) with all abutments and piers radial to alignment.

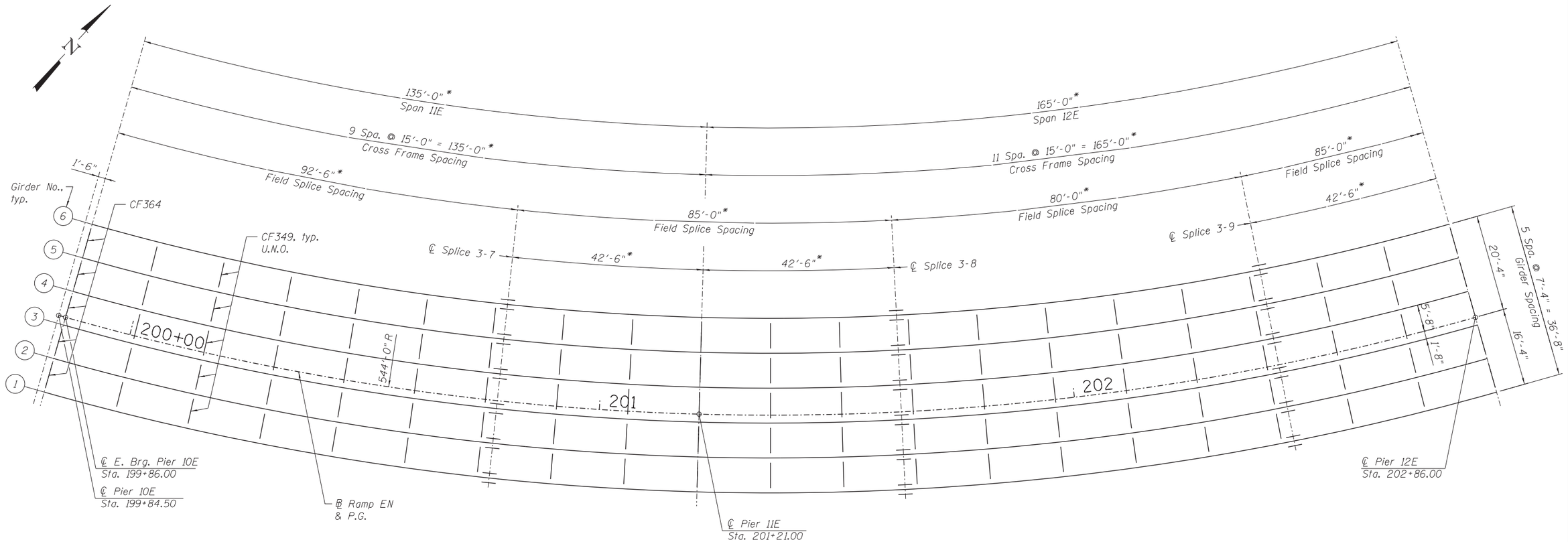
GIRDER COORDINATES - S.N. 016-1503 (UNIT 2)

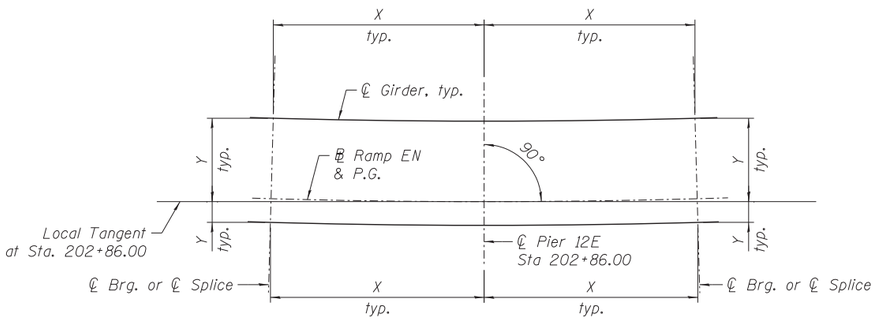
(All Dimensions in Feet)

Girder	℄ E. Brg. Pier 8E		℄ Splice 3-5		℄ Splice 3-6		℄ W. Brg. Pier 10E	
	X	Y	X	Y	X	Y	X	Y
1	-123.785	-7.758	-36.026	-15.174	36.026	-15.174	122.647	-2.746
2	-122.146	-0.539	-35.555	-7.856	35.555	-7.856	121.023	4.405
3	-120.506	6.681	-35.083	-0.538	35.083	-0.538	119.398	11.556
4	-118.512	15.457	-34.612	6.780	34.612	6.780	117.774	18.708
5	-116.519	24.234	-34.140	14.099	34.140	14.099	116.150	25.859
6	-114.525	33.010	-33.669	21.417	33.669	21.417	114.525	33.010

NOTES:

1. See Sheet S-118 for girder elevation.
2. See Sheet S-124 for camber & top of web elevations.
3. See Sheet S-130 for moment tables & reaction tables.
4. See Sheet S-134 for girder bolted field splice details.
5. See Sheet S-138 for girder cross frame details.





CURVED GIRDER LAYOUT

(X Measured along Local Tangent)

FRAMING PLAN IX - S.N. 016-1503 (UNIT 3)

*Measured along the ℄ Ramp EN (S.N. 016-1503) with all abutments and piers radial to alignment.

GIRDER COORDINATES - S.N. 016-1503 (UNIT 3)

(All Dimensions in Feet)

Girder	℄ E. Brg. Pier 10E		℄ Splice 3-7		℄ Pier 11E		℄ Splice 3-8		℄ Splice 3-9	
	X	Y	X	Y	X	Y	X	Y	X	Y
1	-293.620	66.757	-208.585	23.937	-167.360	9.244	-125.114	-2.187	-43.732	-14.624
2	-289.760	72.993	-205.855	30.743	-165.170	16.243	-123.477	4.962	-43.159	-7.313
3	-285.901	79.228	-203.125	37.549	-162.980	23.241	-121.839	12.110	-42.587	-0.002
4	-282.041	85.464	-200.395	44.356	-160.789	30.240	-120.202	19.258	-42.015	7.309
5	-278.182	91.699	-197.666	51.162	-158.599	37.238	-118.565	26.406	-41.442	14.620
6	-274.322	97.935	-194.936	57.968	-156.409	44.237	-116.927	33.554	-40.870	21.931

NOTES:

1. See Sheet S-119 for girder elevation.
2. See Sheet S-125 for camber & top of web elevations.
3. See Sheet S-131 for moment tables & reaction tables.
4. See Sheet S-134 for girder bolted field splice details.
5. See Sheet S-138 for girder cross frame details.

309_016I503_60X07_Framing Plan_IX.dgn

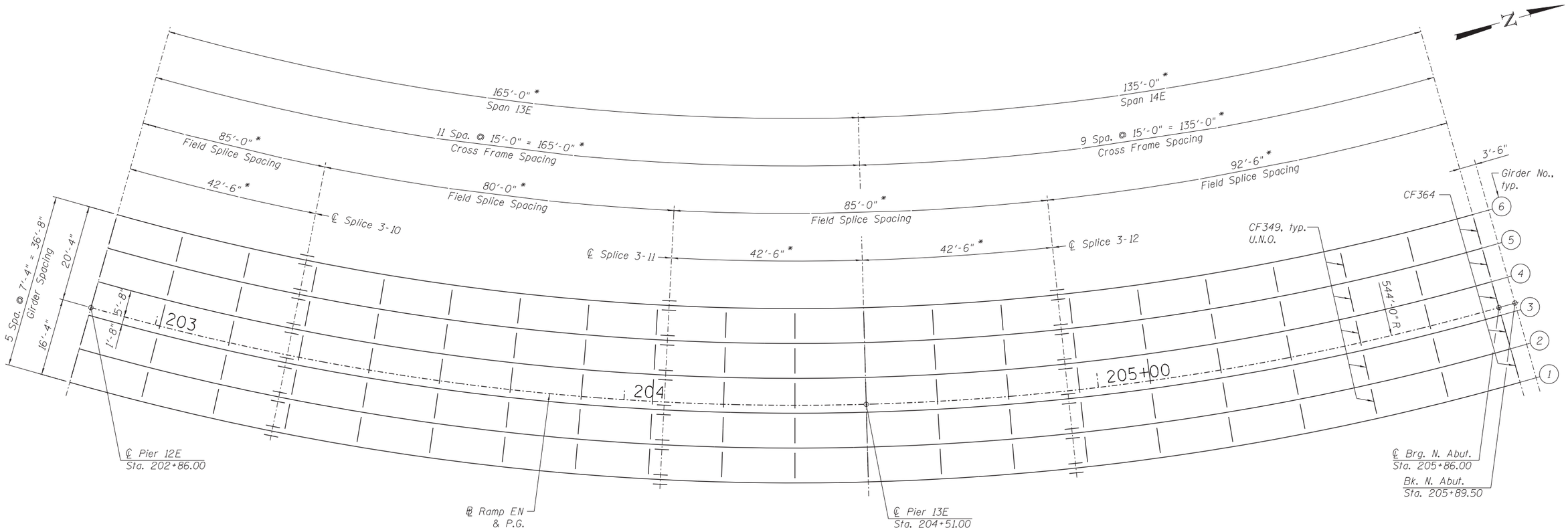
AECOM

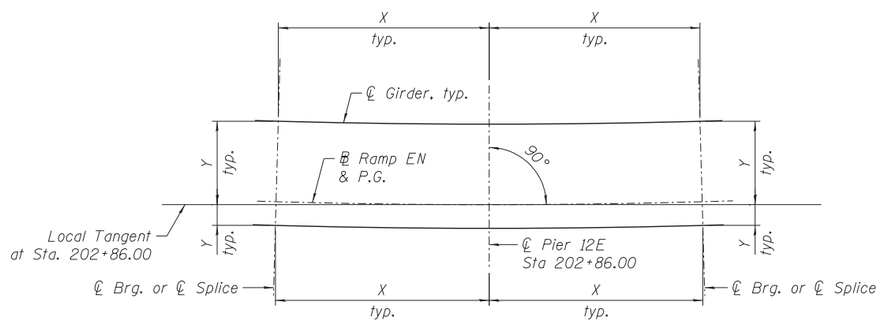
USER NAME = kritzm	DESIGNED - CLS	REVISED -	
	CHECKED - ATB	REVISED -	
PLOT SCALE =	DRAWN - DD	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER FRAMING PLAN IX – S.N. 016–1503 (UNIT 3)
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-112 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	635
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			





CURVED GIRDER LAYOUT

(X Measured along Local Tangent)

FRAMING PLAN X - S.N. 016-1503 (UNIT 3)

*Measured along the ℄ Ramp EN (S.N. 016-1503) with all abutments and piers radial to alignment.

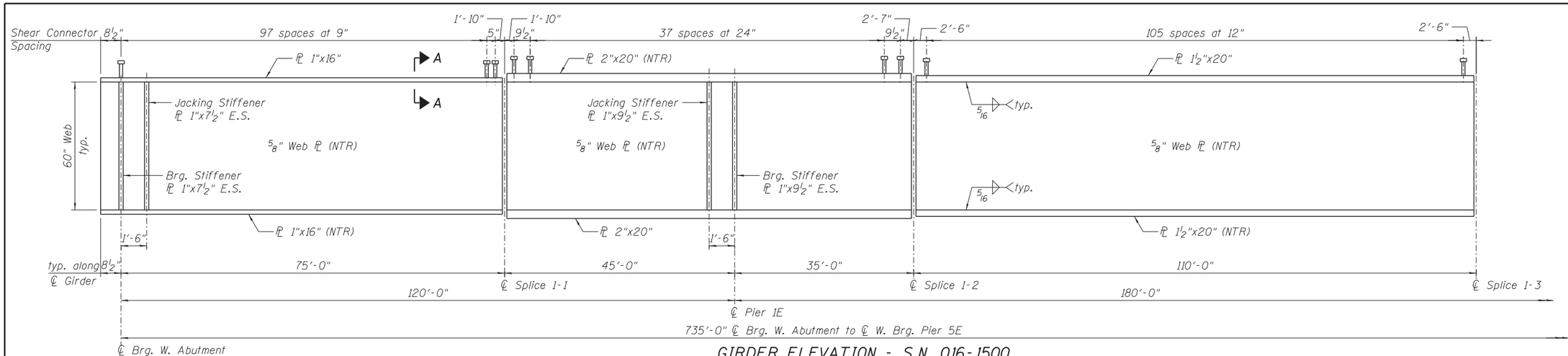
GIRDER COORDINATES - S.N. 016-1503 (UNIT 3)

(All Dimensions in Feet)

Girder	℄ Splice 3-10		℄ Splice 3-11		℄ Pier 13E		℄ Splice 3-12		℄ Brg. N. Abut.	
	X	Y	X	Y	X	Y	X	Y	X	Y
1	43.732	-14.624	125.114	-2.187	167.360	9.244	208.585	23.937	293.581	66.733
2	43.159	-7.313	123.477	4.962	165.170	16.243	205.855	30.743	289.739	72.980
3	42.587	-0.002	121.839	12.110	162.980	23.241	203.125	37.549	285.897	79.226
4	42.015	7.309	120.202	19.258	160.789	30.240	200.395	44.356	282.055	85.472
5	41.442	14.620	118.565	26.406	158.599	37.238	197.666	51.162	278.212	91.718
6	40.870	21.931	116.927	33.554	156.409	44.237	194.936	57.968	274.370	97.964

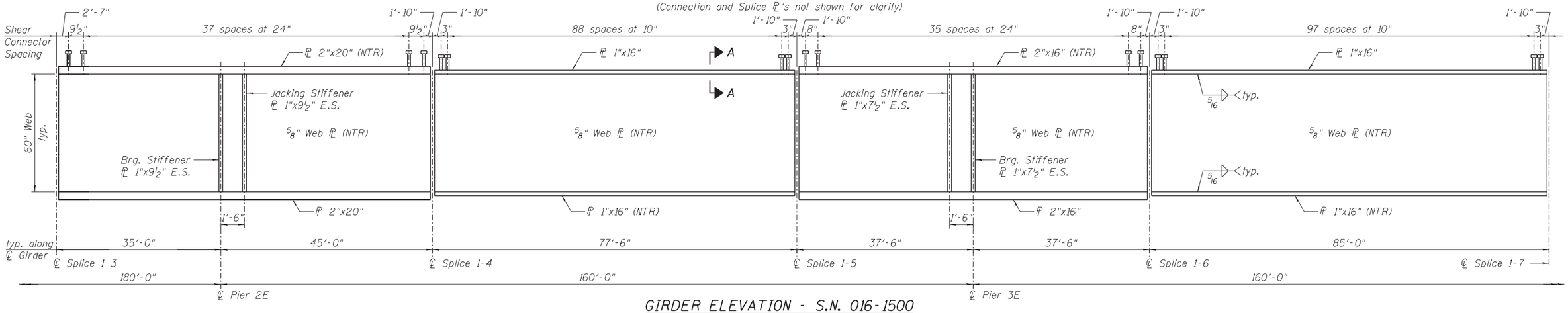
NOTES:

1. See Sheet S-119 for girder elevation.
2. See Sheet S-125 for camber & top of web elevations.
3. See Sheet S-131 for moment tables & reaction tables.
4. See Sheet S-134 for girder bolted field splice details.
5. See Sheet S-138 for girder cross frame details.



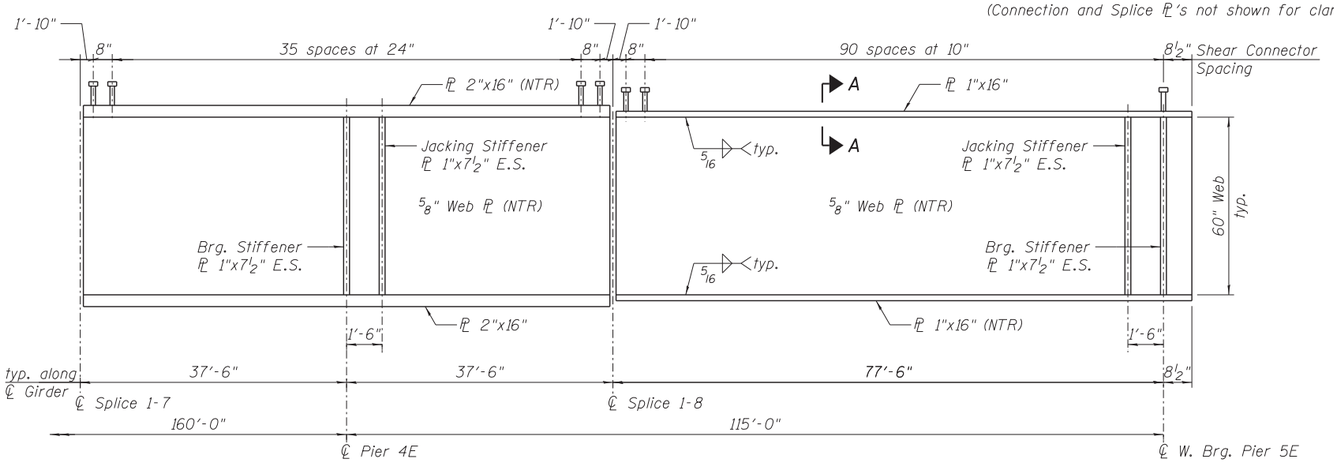
GIRDER ELEVATION - S.N. 016-1500

(Connection and Splice ℄'s not shown for clarity)



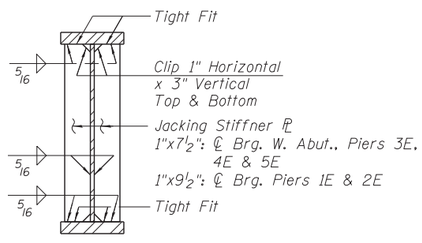
GIRDER ELEVATION - S.N. 016-1500

(Connection and Splice ℄'s not shown for clarity)

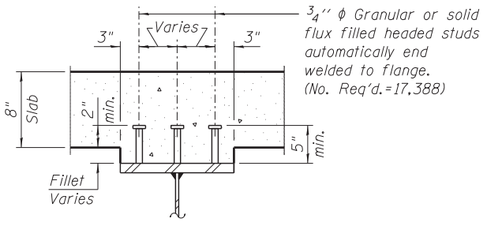


GIRDER ELEVATION - S.N. 016-1500

(Connection and Splice ℄'s not shown for clarity)



SECTION @ JACKING STIFFENERS



SECTION A-A

NOTES:

1. See Sheets S-104 thru S-106 for girder framing plan.
2. See Sheets S-120 and S-121 for camber & top of web elevations.
3. See Sheets S-126 and S-127 for moment tables & reaction tables.
4. See Sheet S-132 for girder bolted field splice details.
5. See Sheet S-135 for girder cross frame details.
6. All structural steel shall be AASHTO M270 Grade 50.
7. Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.

321_016I500_60X07_Girder Elevations_1.dgn

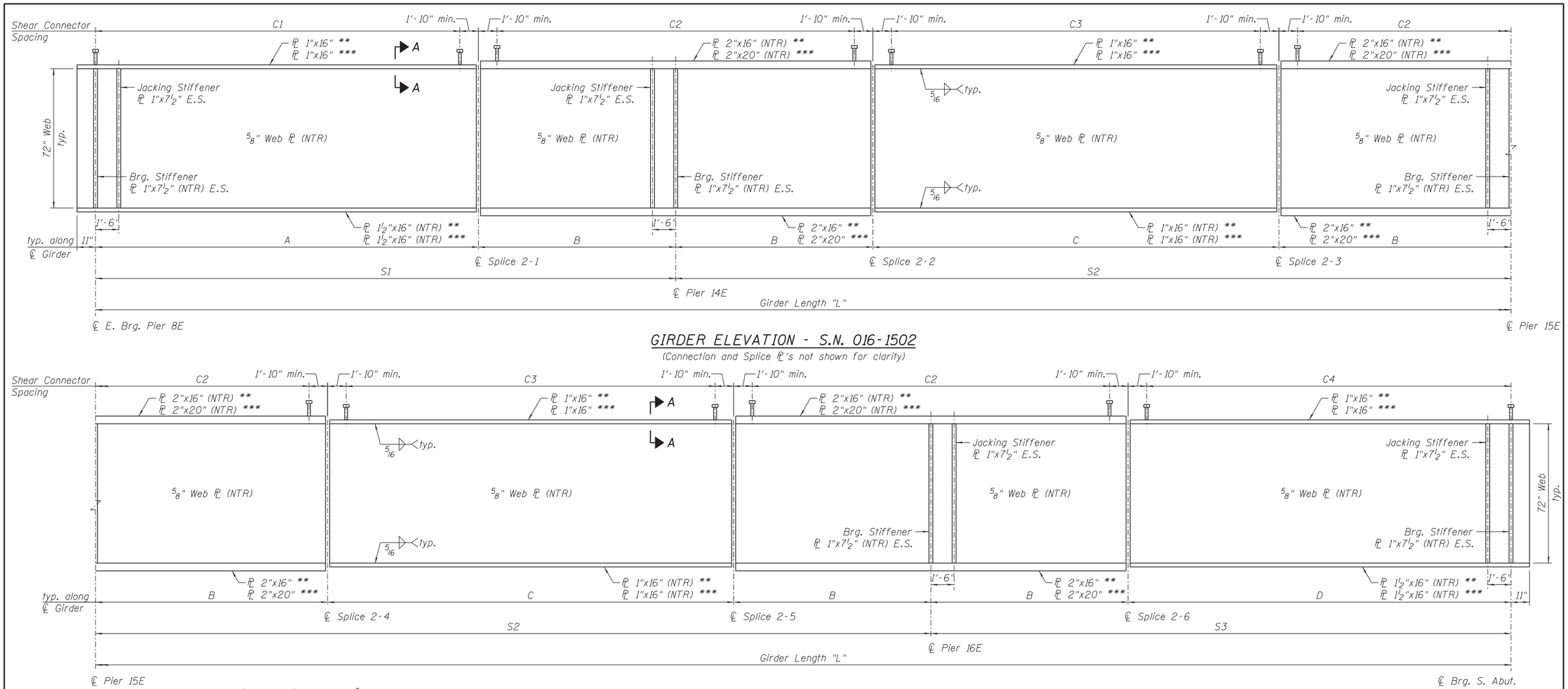
RME Rubinos & Mesia Engineers, Inc.
200 S. Michigan Avenue, Suite 1500, Chicago, IL 60604-2482

USER NAME = AVasonis	DESIGNED - TH	REVISED -	
	CHECKED - MR	REVISED -	
PLOT SCALE =	DRAWN - TM	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - TH	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER ELEVATIONS I – S.N. 016–1500
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-114 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	637
		CONTRACT NO. 60X07		
	ILLINOIS	FED. AID PROJECT		



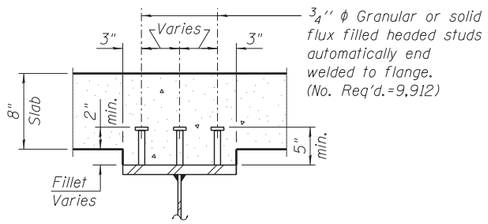
GIRDER ELEVATION - S.N. 016-1502

(Connection and Splice ℄'s not shown for clarity)

GIRDER ELEVATION - S.N. 016-1502

(Connection and Splice ℄'s not shown for clarity)

** Girders 1, 2, 3
*** Girders 4, 5, 6



SECTION A-A

GIRDER DIMENSIONS - S.N. 016-1502

(All dimensions in Feet)

Girder	Radius	L*	S1	S2	S3	A	B	C	D	C1	C2	C3	C4
1	557.667	577.776	129.134	159.196	130.251	88.129	41.005	77.186	89.246	86 Spa. @ 12"	62 Spa. @ 15"	73 Spa. @ 12"	87 Spa. @ 12"
2	565.000	585.791	131.250	161.289	131.964	89.705	41.544	78.201	90.420	87 Spa. @ 12"	63 Spa. @ 15"	74 Spa. @ 12"	88 Spa. @ 12"
3	572.333	593.806	133.365	163.382	133.676	91.282	42.083	79.216	91.593	89 Spa. @ 12"	64 Spa. @ 15"	75 Spa. @ 12"	89 Spa. @ 12"
4	579.667	601.822	135.481	165.476	135.389	92.858	42.623	80.231	92.767	91 Spa. @ 12"	65 Spa. @ 15"	76 Spa. @ 12"	90 Spa. @ 12"
5	587.000	609.837	137.596	167.569	137.102	94.435	43.162	81.246	93.940	92 Spa. @ 12"	66 Spa. @ 15"	77 Spa. @ 12"	92 Spa. @ 12"
6	594.333	617.852	139.712	169.663	138.815	96.011	43.701	82.261	95.114	113 Spa. @ 10"	83 Spa. @ 12"	94 Spa. @ 10"	111 Spa. @ 10"

* Girder Length "L" excludes girder ends beyond first & last bearings.

NOTES:

1. See Sheets S-107 and S-108 for girder framing plan.
2. See Sheet S-122 for camber & top of web elevations.
3. See Sheet S-127 for moment tables & reaction tables.
4. See Sheet S-133 for girder bolted field splice details.
5. See Sheet S-136 for girder cross frame details.
6. All structural steel shall be AASHTO M270 Grade 50.
7. Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.

322_0161502_60X07_Girder Elev_11.dgn

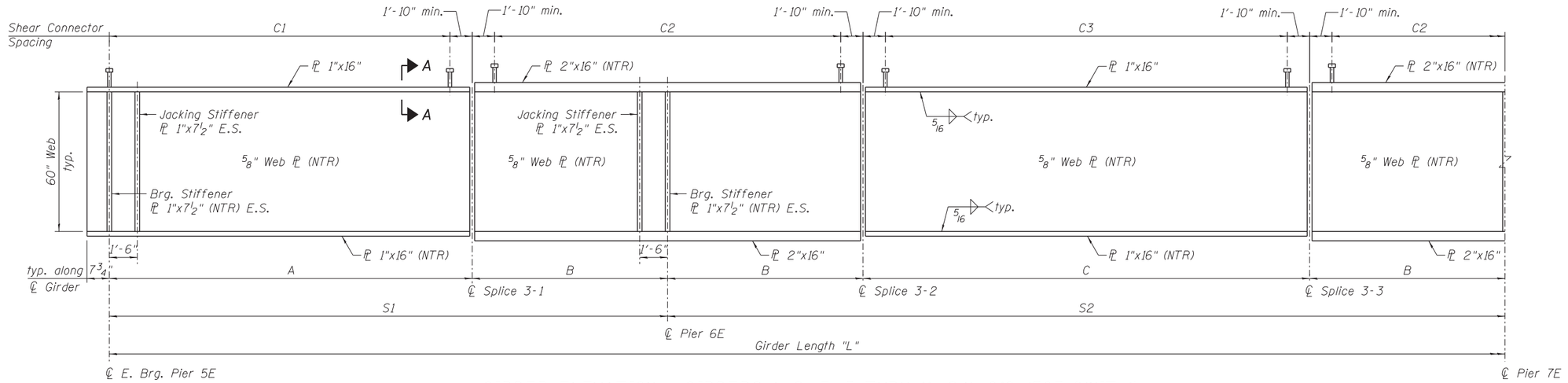
AECOM

USER NAME = kritzm	DESIGNED - CLS	REVISED -	
	CHECKED - ATB	REVISED -	
PLOT SCALE =	DRAWN - DD	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

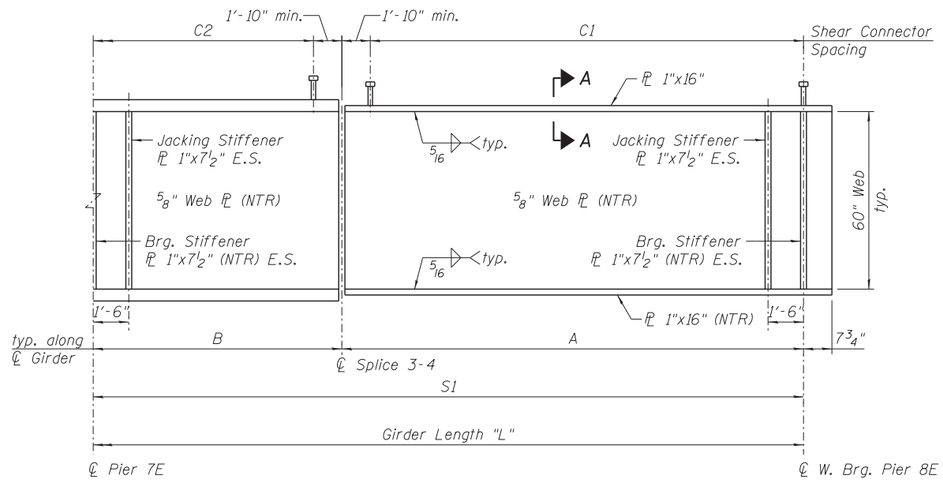
GIRDER ELEVATIONS II – S.N. 016–1502
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-115 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	638
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			



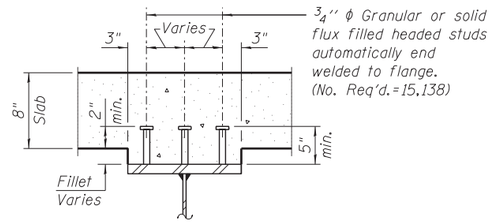
GIRDER ELEVATION - GIRDERS 1, 2, 3, 5 THRU 11, S.N. 016-1503 (UNIT 1)

(Connection and Splice ℄'s not shown for clarity)



GIRDER ELEVATION - GIRDERS 1, 2, 3, 5 THRU 11, S.N. 016-1503 (UNIT 1)

(Connection and Splice ℄'s not shown for clarity)



SECTION A-A

GIRDER DIMENSIONS - S.N. 016-1503 (UNIT 1)

(All dimensions in Feet)

Girder	L*	S1	S2	A	B	C	C1	C2	C3
1 thru 3	400.550	120.165	160.220	82.614	37.552	85.117	121 Spa. @ 8"	53 Spa. @ 16"	122 Spa. @ 8"
5	400.040	120.012	160.016	82.508	37.504	85.009	121 Spa. @ 8"	53 Spa. @ 16"	122 Spa. @ 8"
6 thru 11	400.000	120.000	160.000	82.500	37.500	85.000	121 Spa. @ 8"	53 Spa. @ 16"	122 Spa. @ 8"

* Girder Length "L" excludes girder ends beyond first & last bearings.

NOTES:

1. See Sheets S-109 and S-110 for girder framing plan.
2. See Sheet S-123 for camber & top of web elevations.
3. See Sheets S-128 and S-129 for moment tables & reaction tables.
4. See Sheet S-134 for girder bolted field splice details.
5. See Sheet S-137 for girder cross frame details.
6. See Sheet S-117 for Girder 4 and Header Girder 3-1 Elevations.
7. All structural steel shall be AASHTO M270 Grade 50.
8. Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.

323_016I503_60X07_Girder Elev_III.dgn

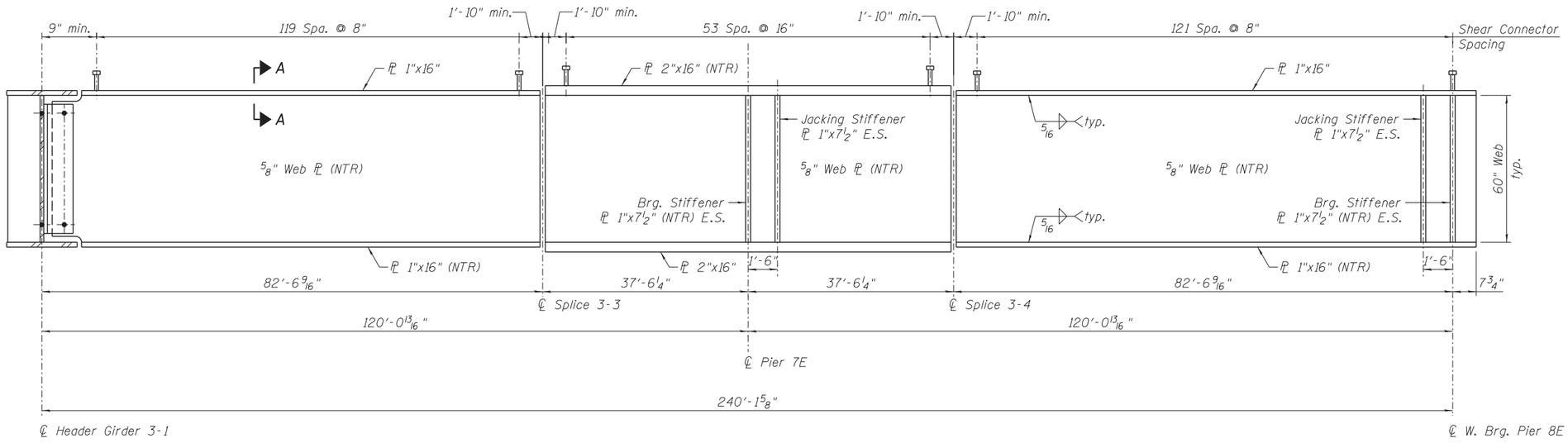
AECOM

USER NAME = kritzm	DESIGNED - CLS	REVISED -	
	CHECKED - ATB	REVISED -	
PLOT SCALE =	DRAWN - DD	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

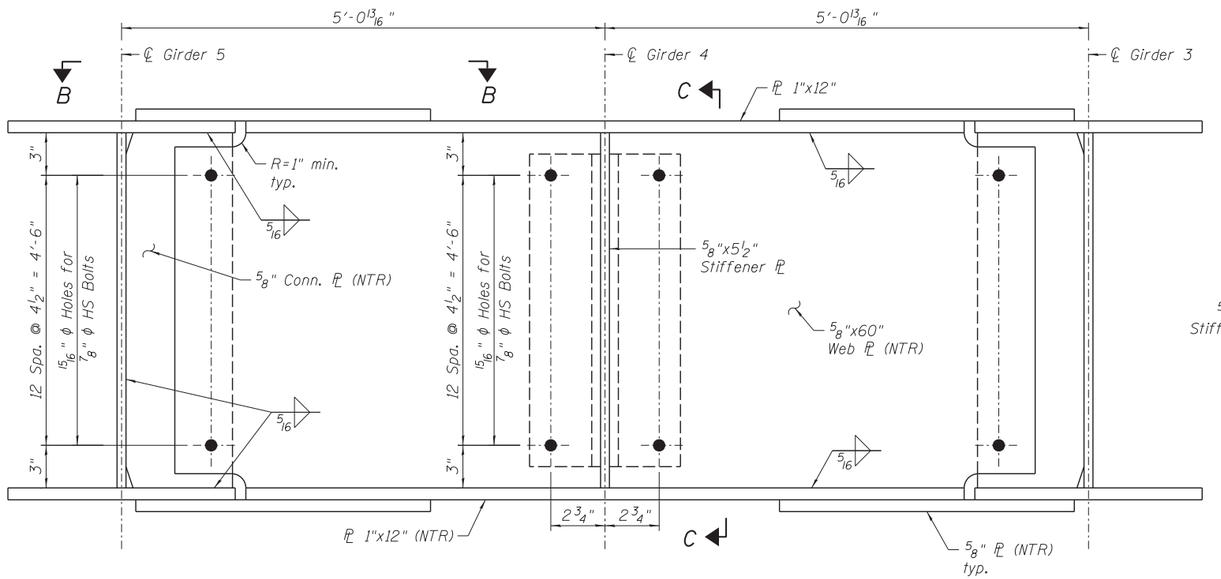
GIRDER ELEVATIONS III – S.N. 016–1503 (UNIT 1)
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-116 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	639
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			



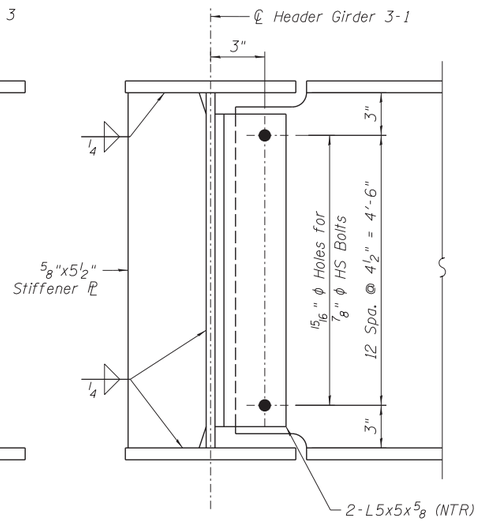
GIRDER ELEVATION - GIRDER 4 S.N. 016-1503 (UNIT 1)

(Connection and Splice ℄'s not shown for clarity)

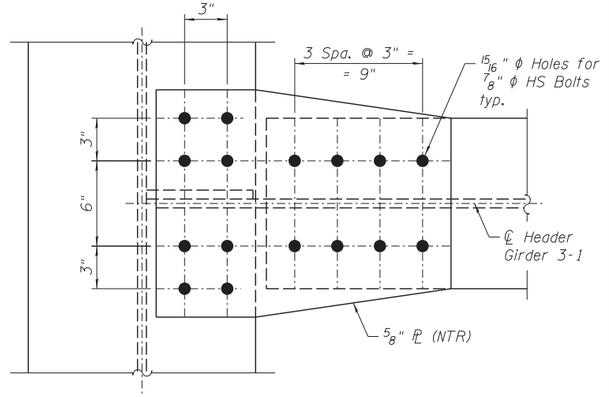


HEADER GIRDER 3-1 ELEVATION

(Looking upstation)



SECTION C-C



SECTION B-B

NOTES:

1. See Sheets S-109 and S-110 for girder framing plan.
2. See Sheet S-123 for camber & top of web elevations.
3. See Sheets S-128 and S-129 for moment tables & reaction tables.
4. See Sheet S-134 for girder bolted field splice details.
5. See Sheet S-137 for girder cross frame details.
6. See Sheet S-116 for Section A-A.
7. All structural steel shall be AASHTO M270 Grade 50.
8. Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.

AECOM

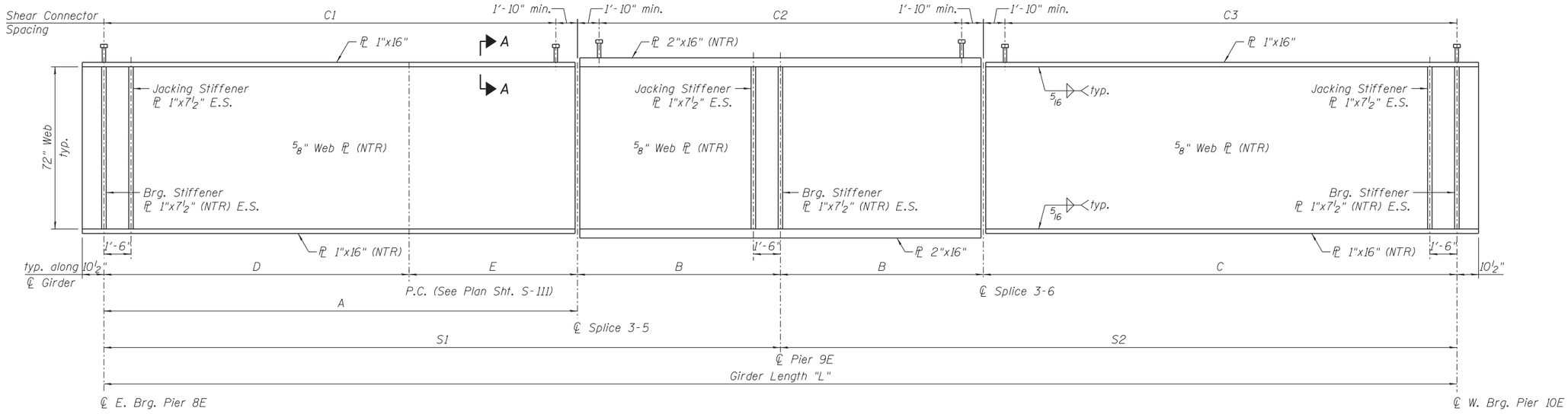
USER NAME = kritzm	DESIGNED - CLS	REVISED -
	CHECKED - ATB	REVISED -
PLOT SCALE =	DRAWN - DD	REVISED -
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER ELEVATIONS IV – S.N. 016-1503 (UNIT 1)
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-117 OF S-218 SHEETS

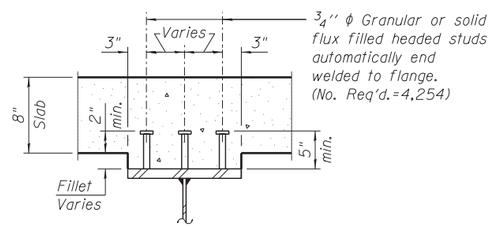
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	640
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

324_0161503_60X07_Girder Elev_IV.dgn



GIRDER ELEVATION - S.N. 016-1503 (UNIT 2)

(Connection and Splice ℄'s not shown for clarity)



SECTION A-A

GIRDER DIMENSIONS - S.N. 016-1503 (UNIT 2)

(All dimensions in Feet)

Girder	Radius	L*	S1	S2	A	B	C	D	E	C1	C2	C3
1	560.333	247.772	124.124	123.648	88.073	36.051	87.597	76.068	12.005	86 Spa. @ 12"	68 Spa. @ 12"	102 Spa. @ 10"
2	553.000	244.490	122.480	122.010	86.901	35.579	86.431	75.053	11.848	85 Spa. @ 12"	50 Spa. @ 16"	101 Spa. @ 10"
3	545.667	241.207	120.835	120.372	85.728	35.107	85.265	74.037	11.691	83 Spa. @ 12"	49 Spa. @ 16"	100 Spa. @ 10"
4	538.333	237.723	118.989	118.734	84.354	34.635	84.099	59.999	24.355	82 Spa. @ 12"	49 Spa. @ 16"	98 Spa. @ 10"
5	531.000	234.286	117.190	117.097	83.026	34.164	82.933	42.104	40.922	81 Spa. @ 12"	48 Spa. @ 16"	97 Spa. @ 10"
6	523.667	230.917	115.459	115.459	81.767	33.692	81.767	-	-	79 Spa. @ 12"	47 Spa. @ 16"	95 Spa. @ 10"

* Girder Length "L" excludes girder ends beyond first & last bearings.

NOTES:

1. See Sheet S-111 for girder framing plan.
2. See Sheet S-124 for camber & top of web elevations.
3. See Sheet S-130 for moment tables & reaction tables.
4. See Sheet S-134 for girder bolted field splice details.
5. See Sheet S-138 for girder cross frame details.
6. All structural steel shall be AASHTO M270 Grade 50.
7. Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.

325_0161503_60X07_Girder Elev_V.dgn

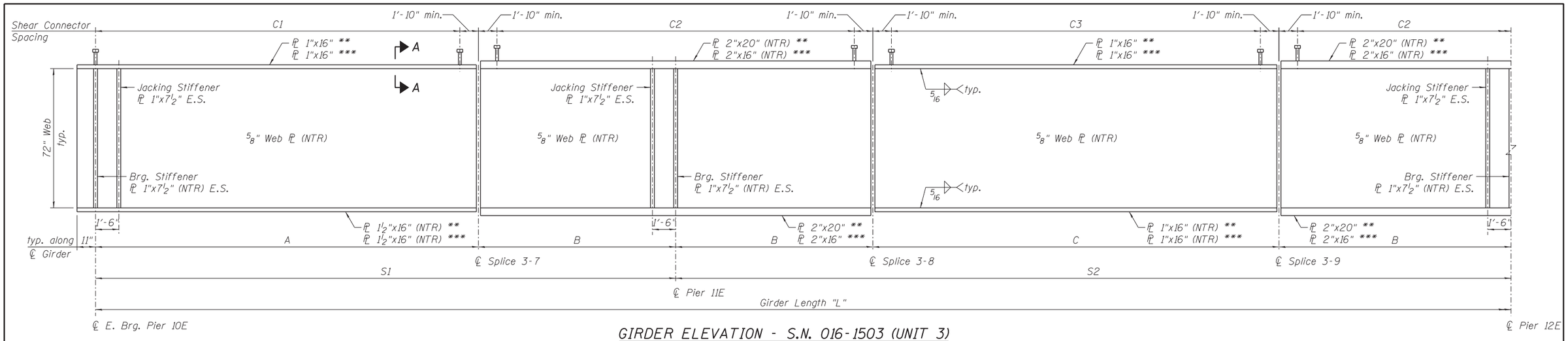
AECOM

USER NAME = kritzm	DESIGNED - CLS	REVISED -	
	CHECKED - ATB	REVISED -	
PLOT SCALE =	DRAWN - DD	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

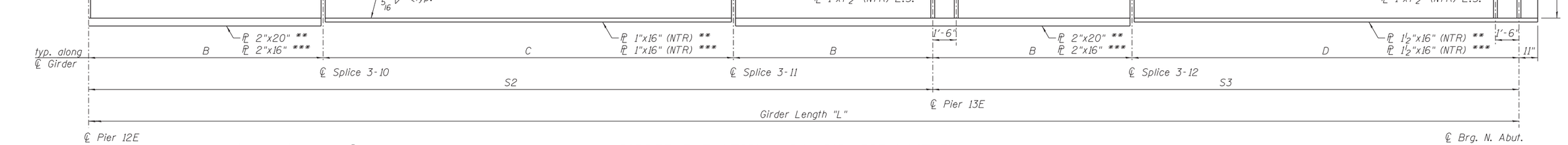
GIRDER ELEVATIONS V – S.N. 016–1503 (UNIT 2)
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-118 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	641
		CONTRACT NO. 60X07		
	ILLINOIS	FED. AID PROJECT		



GIRDER ELEVATION - S.N. 016-1503 (UNIT 3)

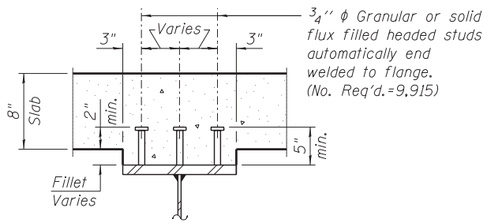
(Connection and Splice PL's not shown for clarity)



GIRDER ELEVATION - S.N. 016-1503 (UNIT 3)

(Connection and Splice PL's not shown for clarity)

** Girders 1, 2, 3
*** Girders 4, 5, 6



SECTION A-A

GIRDER DIMENSIONS - S.N. 016-1503 (UNIT 3)

(All dimensions in Feet)

Girder	Radius	L*	S1	S2	S3	A	B	C	D	C1	C2	C3	C4
1	560.333	618.060	139.098	169.954	139.053	95.322	43.776	82.402	95.277	112 Spa. @ 10"	83 Spa. @ 12"	94 Spa. @ 10"	112 Spa. @ 10"
2	553.000	609.951	137.258	167.730	137.233	94.055	43.203	81.324	94.030	92 Spa. @ 12"	66 Spa. @ 15"	77 Spa. @ 12"	92 Spa. @ 12"
3	545.667	601.843	135.418	165.506	135.414	92.788	42.630	80.245	92.783	90 Spa. @ 12"	65 Spa. @ 15"	76 Spa. @ 12"	90 Spa. @ 12"
4	538.333	593.734	133.578	163.281	133.594	91.521	42.057	79.167	91.536	89 Spa. @ 12"	64 Spa. @ 15"	75 Spa. @ 12"	89 Spa. @ 12"
5	531.000	585.626	131.738	161.057	131.774	90.254	41.484	78.088	90.290	88 Spa. @ 12"	63 Spa. @ 15"	74 Spa. @ 12"	88 Spa. @ 12"
6	523.667	577.517	129.898	158.833	129.954	88.987	40.911	77.010	89.043	87 Spa. @ 12"	62 Spa. @ 15"	73 Spa. @ 12"	87 Spa. @ 12"

* Girder Length "L" excludes girder ends beyond first & last bearings.

NOTES:

1. See Sheets S-112 thru S-113 for girder framing plan.
2. See Sheet S-125 for camber & top of web elevations.
3. See Sheet S-131 for moment tables & reaction tables.
4. See Sheet S-134 for girder bolted field splice details.
5. See Sheet S-138 for girder cross frame details.
6. All structural steel shall be AASHTO M270 Grade 50.
7. Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.

AECOM

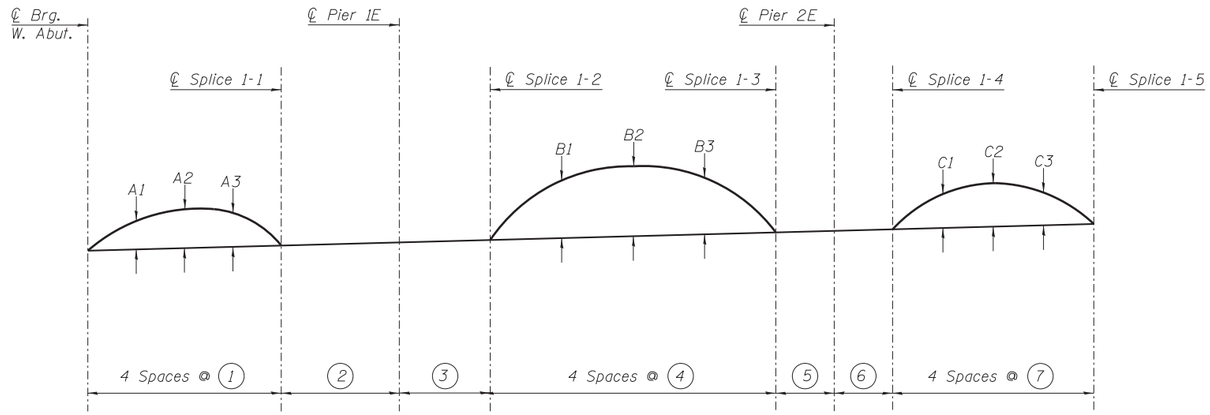
USER NAME = kritzm	DESIGNED - CLS	REVISED -	
	CHECKED - ATB	REVISED -	
PLOT SCALE =	DRAWN - DD	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER ELEVATIONS VI – S.N. 016–1503 (UNIT 3)
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-119 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	642
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

326_0161503_60X07_Girder Elev_VI.dgn



CAMBER DIAGRAM - S.N. 016-1500

(℄ Brg. W. Abut. to ℄ Splice 1-5)

TOP OF WEB ELEV * (in feet)								
Girder	℄ Brg. W. Abut.	℄ Splice 1-1	℄ Pier 1E	℄ Splice 1-2	℄ Splice 1-3	℄ Pier 2E	℄ Splice 1-4	℄ Splice 1-5
1	612.44	614.79	616.23	617.36	620.13	620.77	621.59	622.64
2	612.60	614.94	616.39	617.51	620.28	620.92	621.75	622.80
3	612.76	615.10	616.54	617.67	620.44	621.08	621.90	622.95
4	612.92	615.26	616.70	617.82	620.60	621.24	622.06	623.11
5	613.08	615.41	616.86	617.98	620.76	621.40	622.22	623.27
6	612.92	615.26	616.70	617.82	620.60	621.24	622.06	623.11
7	612.76	615.10	616.54	617.67	620.44	621.08	621.90	622.95
8	612.60	614.94	616.39	617.51	620.28	620.92	621.75	622.80
9	612.44	614.79	616.23	617.36	620.13	620.77	621.59	622.64

*For fabrication use only.

Girder	①	②	③	④	⑤	⑥	⑦
1	18.750′	45.000′	35.000′	27.500′	35.000′	45.000′	19.375′
2	18.750′	45.000′	35.000′	27.500′	35.000′	45.000′	19.375′
3	18.750′	45.000′	35.000′	27.500′	35.000′	45.000′	19.375′
4	18.750′	45.000′	35.000′	27.500′	35.000′	45.000′	19.375′
5	18.750′	45.000′	35.000′	27.500′	35.000′	45.000′	19.375′
6	18.750′	45.000′	35.000′	27.500′	35.000′	45.000′	19.375′
7	18.750′	45.000′	35.000′	27.500′	35.000′	45.000′	19.375′
8	18.750′	45.000′	35.000′	27.500′	35.000′	45.000′	19.375′
9	18.750′	45.000′	35.000′	27.500′	35.000′	45.000′	19.375′

CAMBER ORDINATES									
Girder	A1	A2	A3	B1	B2	B3	C1	C2	C3
1	1"	1 1/2"	1 1/4"	3 3/4"	4 3/4"	3 3/4"	2 1/2"	3"	2 1/2"
2	1"	1 1/2"	1 1/4"	3 3/4"	4 3/4"	3 3/4"	2 1/2"	3"	2 1/2"
3	1"	1 1/2"	1 1/4"	3 3/4"	4 3/4"	3 3/4"	2 1/2"	3"	2 1/2"
4	1"	1 1/2"	1 1/4"	3 3/4"	4 3/4"	3 3/4"	2 1/2"	3"	2 1/2"
5	1"	1 1/2"	1 1/4"	3 3/4"	4 3/4"	3 3/4"	2 1/2"	3"	2 1/2"
6	1"	1 1/2"	1 1/4"	3 3/4"	4 3/4"	3 3/4"	2 1/2"	3"	2 1/2"
7	1"	1 1/2"	1 1/4"	3 3/4"	4 3/4"	3 3/4"	2 1/2"	3"	2 1/2"
8	1"	1 1/2"	1 1/4"	3 3/4"	4 3/4"	3 3/4"	2 1/2"	3"	2 1/2"
9	1"	1 1/2"	1 1/4"	3 3/4"	4 3/4"	3 3/4"	2 1/2"	3"	2 1/2"

NOTES:

1. See Sheets S-104 thru S-106 for girder framing plan.
2. See Sheets S-114 and S-115 for girder elevation.
3. See Sheets S-126 and S-127 for moment tables & reaction tables.
4. See Sheet S-132 for girder bolted field splice details.
5. See Sheet S-135 for girder cross frame details.

331_0161500_60X07_Girder_Camber_1.dgn

RME Rubinos & Mesia Engineers, Inc.
200 S. Michigan Avenue, Suite 1500, Chicago, IL 60604-2482

USER NAME = AVasonis	DESIGNED - TH	REVISED -	
	CHECKED - MR	REVISED -	
PLOT SCALE =	DRAWN - TM	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - TH	REVISED -	

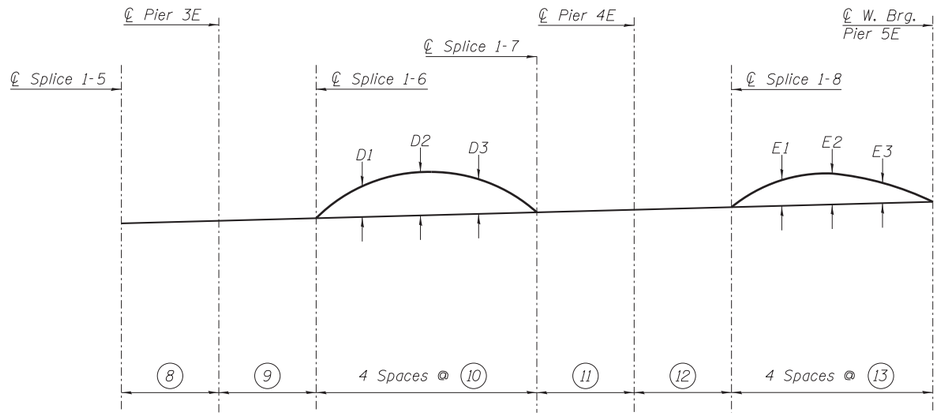
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER CAMBER I – S.N. 016–1500
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-120 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	643
		CONTRACT NO. 60X07		
		ILLINOIS FED. AID PROJECT		

NOTES:

1. See Sheets S-104 thru S-106 for girder framing plan.
2. See Sheets S-114 and S-115 for girder elevation.
3. See Sheets S-126 and S-127 for moment tables & reaction tables.
4. See Sheet S-132 for girder bolted field splice details.
5. See Sheet S-135 for girder cross frame details.



CAMBER DIAGRAM - S.N. 016-1500 (CONTINUED)

(℄ Splice 1-5 to ℄ W. Brg. Pier 5E)

TOP OF WEB ELEV * (in feet) (CONTINUED)							
Girder	℄ Splice 1-5	℄ Pier 3E	℄ Splice 1-6	℄ Splice 1-7	℄ Pier 4E	℄ Splice 1-8	℄ W. Brg. Pier 5E
1	622.64	622.99	623.34	623.81	623.98	624.15	624.66
2	622.80	623.15	623.49	623.97	624.14	624.30	624.82
3	622.95	623.30	623.65	624.12	624.29	624.46	624.98
4	623.11	623.46	623.81	624.28	624.45	624.62	625.14
5	623.27	623.62	623.97	624.44	624.61	624.78	625.30
6	623.11	623.46	623.81	624.28	624.45	624.62	625.14
7	622.95	623.30	623.65	624.12	624.29	624.46	624.98
8	622.80	623.15	623.49	623.97	624.14	624.30	624.82
9	622.64	622.99	623.34	623.81	623.98	624.15	624.66

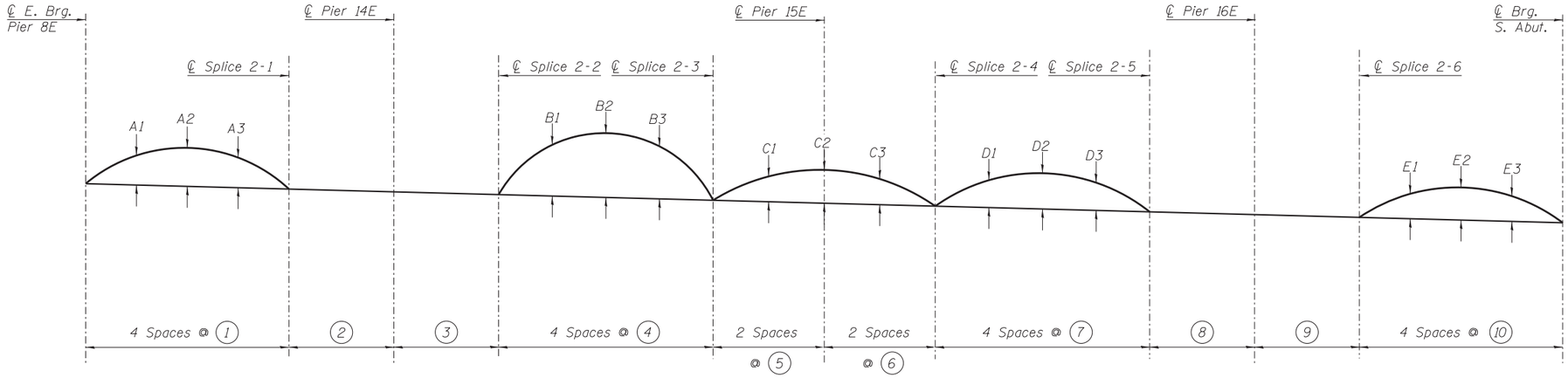
*For fabrication use only.

Girder	⑧	⑨	⑩	⑪	⑫	⑬
1	37.500′	37.500′	21.250′	37.500′	37.500′	19.375′
2	37.500′	37.500′	21.250′	37.500′	37.500′	19.375′
3	37.500′	37.500′	21.250′	37.500′	37.500′	19.375′
4	37.500′	37.500′	21.250′	37.500′	37.500′	19.375′
5	37.500′	37.500′	21.250′	37.500′	37.500′	19.375′
6	37.500′	37.500′	21.250′	37.500′	37.500′	19.375′
7	37.500′	37.500′	21.250′	37.500′	37.500′	19.375′
8	37.500′	37.500′	21.250′	37.500′	37.500′	19.375′
9	37.500′	37.500′	21.250′	37.500′	37.500′	19.375′

CAMBER ORDINATES (CONTINUED)						
Girder	D1	D2	D3	E1	E2	E3
1	2 1/2"	3"	2 1/2"	1 1/4"	1 1/2"	1"
2	2 1/2"	3"	2 1/2"	1 1/4"	1 1/2"	1"
3	2 1/2"	3"	2 1/2"	1 1/4"	1 1/2"	1"
4	2 1/2"	3"	2 1/2"	1 1/4"	1 1/2"	1"
5	2 1/2"	3"	2 1/2"	1 1/4"	1 1/2"	1"
6	2 1/2"	3"	2 1/2"	1 1/4"	1 1/2"	1"
7	2 1/2"	3"	2 1/2"	1 1/4"	1 1/2"	1"
8	2 1/2"	3"	2 1/2"	1 1/4"	1 1/2"	1"
9	2 1/2"	3"	2 1/2"	1 1/4"	1 1/2"	1"

NOTES:

1. See Sheets S-107 and S-108 for girder framing plan.
2. See Sheet S-115 for girder elevation.
3. See Sheet S-127 for moment tables & reaction tables.
4. See Sheet S-133 for girder bolted field splice details.
5. See Sheet S-136 for girder cross frame details.



CAMBER DIAGRAM - S.N. 016-1502

TOP OF WEB ELEVATIONS* (in feet) - UNIT 2										
Girder	℄ E. Brg. Pier 8E	℄ Splice 2-1	℄ Pier 14E	℄ Splice 2-2	℄ Splice 2-3	℄ Pier 15E	℄ Splice 2-4	℄ Splice 2-5	℄ Pier 16E	℄ Splice 2-6	℄ Brg. S. Abut.
1	624.77	622.81	622.18	621.54	619.99	618.44	616.54	612.84	610.87	608.90	604.69
2	624.99	623.21	622.58	621.94	620.39	618.84	616.93	613.24	611.27	609.31	605.09
3	625.20	623.62	622.98	622.33	620.78	619.24	617.33	613.63	611.67	609.71	605.48
4	625.41	624.03	623.38	622.73	621.18	619.63	617.73	614.02	612.07	610.12	605.88
5	625.61	624.44	623.78	623.12	621.58	620.03	618.13	614.42	612.48	610.53	606.28
6	625.82	624.85	624.18	623.52	621.98	620.42	618.53	614.82	612.88	610.94	606.67

*For fabrication use only.

CAMBER ORDINATES										
Girder	A1	A2	A3	B1	B2	B3	①	②	③	④
1	0 3/4"	1 1/4"	0 3/4"	3 1/4"	4 1/4"	3 1/4"	22.031′	41.005′	41.005′	19.296′
2	1"	1 1/2"	1 1/4"	3 1/4"	4 1/2"	3 1/4"	22.426′	41.544′	41.544′	19.550′
3	1 1/4"	2"	1 1/2"	3 1/4"	4 1/2"	3 1/4"	22.820′	42.083′	42.083′	19.804′
4	1 1/2"	2 1/4"	1 3/4"	3 1/4"	4 1/2"	3 1/4"	23.214′	42.623′	42.623′	20.058′
5	1 3/4"	2 3/4"	2"	3 1/4"	4 1/2"	3 1/2"	23.608′	43.162′	43.162′	20.311′
6	2"	3 1/4"	2 1/2"	3 1/4"	4 1/2"	3 1/2"	24.003′	43.701′	43.701′	20.565′

CAMBER ORDINATES (CONTINUED)					
Girder	C1	C2	C3	⑤	⑥
1	1 3/4"	2 1/4"	1 1/2"	20.502′	20.502′
2	1 3/4"	2 1/4"	1 1/2"	20.772′	20.772′
3	1 1/2"	2 1/4"	1 1/2"	21.042′	21.042′
4	1 1/2"	2 1/4"	1 1/2"	21.311′	21.311′
5	1 1/2"	2"	1 1/4"	21.581′	21.581′
6	1 1/2"	2"	1 1/4"	21.850′	21.850′

CAMBER ORDINATES (CONTINUED)										
Girder	D1	D2	D3	E1	E2	E3	⑦	⑧	⑨	⑩
1	1 3/4"	2 1/2"	1 3/4"	1 1/2"	1 3/4"	1 1/4"	19.296′	41.005′	41.005′	22.312′
2	1 3/4"	2 1/2"	1 3/4"	1 1/2"	2"	1 1/4"	19.550′	41.544′	41.544′	22.605′
3	1 3/4"	2 1/2"	1 3/4"	1 1/2"	2"	1 1/4"	19.804′	42.083′	42.083′	22.898′
4	1 3/4"	2 1/2"	1 3/4"	1 3/4"	2 1/4"	1 1/2"	20.058′	42.623′	42.623′	23.192′
5	2"	2 1/2"	2"	1 3/4"	2 1/2"	1 1/2"	20.311′	43.162′	43.162′	23.485′
6	2"	2 1/2"	2"	2"	2 3/4"	1 3/4"	20.565′	43.701′	43.701′	23.778′

333_016I502_60X07_Girder Camber_III.dgn

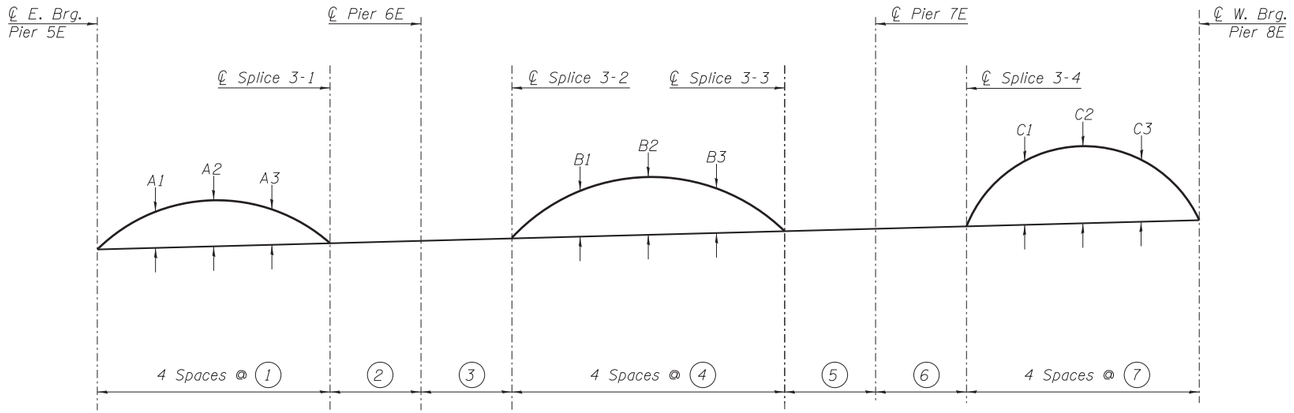
AECOM

USER NAME = kritzm	DESIGNED - VP	REVISED -
	CHECKED - AV	REVISED -
PLOT SCALE =	DRAWN - GF	REVISED -
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER CAMBER III – S.N. 016–1502
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-122 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	645
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			



CAMBER DIAGRAM - S.N. 016-1503 (UNIT 1)
(GIRDERS 1, 2, 3, 5 THRU 11)

** Elevation shown are measured at ℄ Header Girder for Girder 4.

TOP OF WEB ELEV * (in feet) - UNIT 1								
Girder	℄ E. Brg. Pier 5E	℄ Splice 3-1	℄ Pier 6E	℄ Splice 3-2	℄ Splice 3-3	℄ Pier 7E	℄ Splice 3-4	℄ W. Brg. Pier 8E
1	624.68	624.98	625.17	625.36	625.71	625.66	625.61	624.88
2	624.84	625.13	625.32	625.52	625.85	625.81	625.76	625.09
3	625.00	625.28	625.48	625.67	626.00	625.96	625.92	625.30
4	-	-	-	625.79**	626.13	626.11	626.08	625.56
5	625.08	625.42	625.64	625.87	626.26	626.25	626.24	625.82
6	625.16	625.52	625.76	625.99	626.41	626.41	626.41	626.07
7	625.32	625.68	625.92	626.15	626.57	626.57	626.57	626.29
8	625.16	625.53	625.76	625.99	626.42	626.41	626.41	626.07
9	625.00	625.38	625.60	625.83	626.27	626.26	626.25	625.86
10	624.84	625.22	625.45	625.68	626.11	626.10	626.09	625.65
11	624.68	625.07	625.30	625.53	625.96	625.95	625.94	625.44

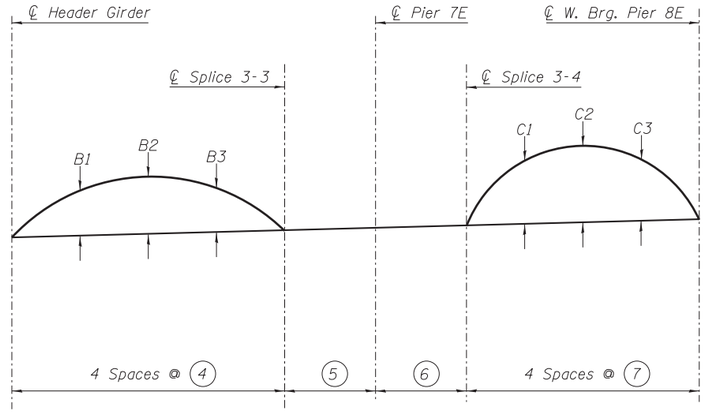
*For fabrication use only.

Girder	1	2	3	4	5	6	7
1	20.653	37.552	37.552	21.279	37.552	37.552	20.653
2	20.653	37.552	37.552	21.279	37.552	37.552	20.653
3	20.653	37.552	37.552	21.279	37.552	37.552	20.653
4	-	-	-	20.637	37.521	37.521	20.637
5	20.627	37.504	37.504	21.252	37.504	37.504	20.627
6	20.625	37.500	37.500	21.250	37.500	37.500	20.625
7	20.625	37.500	37.500	21.250	37.500	37.500	20.625
8	20.625	37.500	37.500	21.250	37.500	37.500	20.625
9	20.625	37.500	37.500	21.250	37.500	37.500	20.625
10	20.625	37.500	37.500	21.250	37.500	37.500	20.625
11	20.625	37.500	37.500	21.250	37.500	37.500	20.625

CAMBER ORDINATES - UNIT 1								
Girder	A1	A2	A3	B1	B2	B3	C1	C2	C3
1	1 1/4"	2"	1 1/2"	2 1/2"	3 1/4"	2 1/2"	3 1/2"	4 1/4"	3 1/4"
2	1"	1 3/4"	1 1/4"	2 1/4"	3"	2 1/4"	3"	4"	3"
3	1"	1 3/4"	1 1/4"	2 1/4"	3"	2 1/4"	2 3/4"	3 3/4"	2 3/4"
4	-	-	-	2 1/4"	2 3/4"	2 1/4"	2 1/2"	3 1/4"	2 1/2"
5	1"	1 1/2"	1 1/4"	2 1/4"	3"	2 1/4"	2"	2 3/4"	2"
6	1"	1 1/2"	1 1/4"	2 1/4"	3"	2 1/4"	1 3/4"	2 1/2"	1 1/2"
7	1"	1 3/4"	1 1/4"	2 1/4"	3"	2 1/4"	1 1/2"	2"	1"
8	1"	1 3/4"	1 1/4"	2 1/4"	3"	2 1/4"	1 3/4"	2 1/2"	1 1/2"
9	1"	1 3/4"	1 1/4"	2 1/4"	3"	2 1/4"	2"	2 3/4"	2"
10	1 1/4"	1 3/4"	1 1/2"	2 1/4"	3"	2 1/4"	2 1/4"	3"	2 1/2"
11	1 1/4"	2"	1 1/2"	2 1/2"	3 1/4"	2 1/2"	2 1/2"	3 1/2"	2 1/2"

NOTES:

1. See Sheets S-109 and S-110 for girder framing plan.
2. See Sheets S-116 and S-117 for girder elevation.
3. See Sheets S-128 and S-129 for moment tables & reaction tables.
4. See Sheet S-134 for girder bolted field splice details.
5. See Sheet S-137 for girder cross frame details.



CAMBER DIAGRAM - S.N. 016-1503 (UNIT 1)
(GIRDER 4)

334_0161503_60X07_Girder Camber_IV_Unit 1.dgn

AECOM

USER NAME = kritzm	DESIGNED - CLS	REVISED -	
	CHECKED - AV	REVISED -	
PLOT SCALE =	DRAWN - MRK	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -	

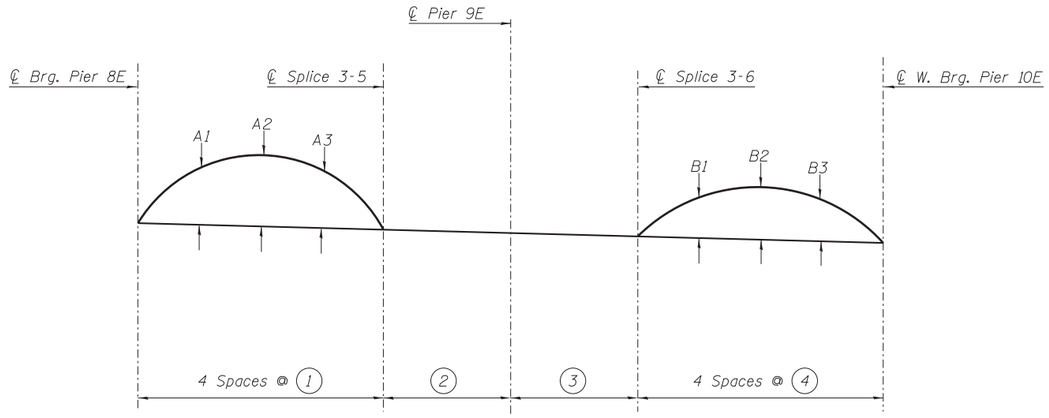
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER CAMBER IV – S.N. 016–1503 (UNIT 1)
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-123 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	646
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

NOTES:

1. See Sheet S-111 for girder framing plan.
2. See Sheet S-118 for girder elevation.
3. See Sheet S-130 for moment tables & reaction tables.
4. See Sheets S-134 for girder bolted field splice details.
5. See Sheet S-138 for girder cross frame details.



CAMBER DIAGRAM - S.N. 016-1503 (Unit 2)

TOP OF WEB ELEVATIONS* (in feet) - UNIT 2					
Girder	℄ E. Brg. Pier 8E	℄ Splice 3-5	℄ Pier 9E	℄ Splice 3-6	℄ W. Brg. Pier 10E
1	626.03	625.59	625.07	624.56	622.72
2	626.22	625.35	624.75	624.15	622.32
3	626.13	624.96	624.35	623.75	621.93
4	625.88	624.56	623.95	623.35	621.53
5	625.63	624.16	623.55	622.94	621.14
6	625.38	623.76	623.15	622.54	620.74

*For fabrication use only.

CAMBER ORDINATES - UNIT 2									
Girder	A1	A2	A3	B1	B2	B3	(1)	(2)	(3)	(4)
1	2 1/2"	3 1/2"	2 1/2"	1 3/4"	2 1/2"	1 1/2"	22.018'	36.051'	36.051'	21.899'
2	2 1/4"	3"	2 1/4"	1 3/4"	2 1/4"	1 1/4"	21.725'	35.579'	35.579'	21.608'
3	1 1/2"	2"	1 1/2"	1 3/4"	2 1/4"	1 1/4"	21.432'	35.107'	35.107'	21.316'
4	1 1/4"	1 3/4"	1 1/2"	1 1/2"	2"	1 1/4"	21.089'	34.635'	34.635'	21.025'
5	1 1/4"	1 3/4"	1 1/4"	1 1/2"	2"	1 1/4"	20.756'	34.164'	34.164'	20.733'
6	1 1/4"	2"	1 1/2"	1 1/2"	2"	1"	20.442'	33.692'	33.692'	20.442'

335_016I503_60X07_Girder Camber_V_Unit 2.dgn

AECOM

USER NAME = kritzm	DESIGNED - VP	REVISED -
	CHECKED - AV	REVISED -
PLOT SCALE =	DRAWN - VP	REVISED -
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -

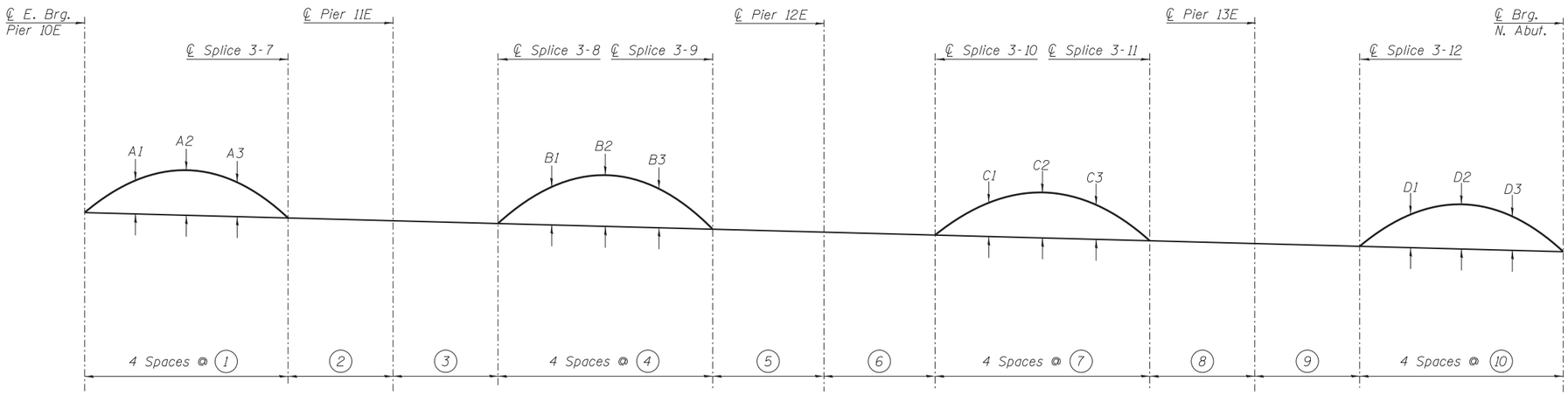
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER CAMBER V – S.N. 016–1503 (UNIT 2)
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-124 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	647
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

NOTES:

1. See Sheets S-112 thru S-113 for girder framing plan.
2. See Sheet S-119 for girder elevation.
3. See Sheets S-131 for moment tables & reaction tables.
4. See Sheet S-134 for girder bolted field splice details.
5. See Sheet S-138 for girder cross frame details.



CAMBER DIAGRAM - S.N. 016-1503 (UNIT 3)

TOP OF WEB ELEVATIONS* (in feet) - UNIT 3

Girder	℄ E. Brg. Pier 10E	℄ Splice 3-7	℄ Pier 11E	℄ Splice 3-8	℄ Splice 3-9	℄ Pier 12E	℄ Splice 3-10	℄ Splice 3-11	℄ Pier 13E	℄ Splice 3-12	℄ Brg. N. Abut.
1	622.65	620.47	619.43	618.40	616.53	615.53	614.52	612.62	611.65	610.68	608.49
2	622.25	620.06	619.03	618.00	616.13	615.13	614.12	612.22	611.24	610.26	608.09
3	621.86	619.65	618.63	617.61	615.73	614.73	613.72	611.83	610.84	609.85	607.70
4	621.46	619.24	618.23	617.21	615.33	614.33	613.32	611.43	610.44	609.44	607.30
5	621.06	618.83	617.83	616.82	614.93	613.93	612.93	611.04	610.04	609.04	606.91
6	620.67	618.42	617.42	616.43	614.54	613.53	612.53	610.64	609.64	608.63	606.51

*For fabrication use only.

CAMBER ORDINATES - UNIT 3

Girder	A1	A2	A3	B1	B2	B3	①	②	③	④	⑤	⑥
1	1 3/4"	2 3/4"	2"	2"	2 1/2"	2"	23.831'	43.776'	43.776'	20.600'	43.776'	43.776'
2	1 1/2"	2 1/2"	2"	2"	2 1/2"	2"	23.514'	43.203'	43.203'	20.331'	43.203'	43.203'
3	1 1/2"	2 1/4"	1 3/4"	2"	2 1/2"	2"	23.197'	42.630'	42.630'	20.061'	42.630'	42.630'
4	1 1/4"	2 1/4"	1 1/2"	1 3/4"	2 1/2"	1 3/4"	22.880'	42.057'	42.057'	19.792'	42.057'	42.057'
5	1 1/4"	2"	1 1/2"	1 3/4"	2 1/2"	1 3/4"	22.563'	41.484'	41.484'	19.522'	41.484'	41.484'
6	1 1/4"	1 3/4"	1 1/2"	1 3/4"	2 1/2"	1 3/4"	22.247'	40.911'	40.911'	19.252'	40.911'	40.911'

CAMBER ORDINATES - UNIT 3 (CONTINUED)

Girder	C1	C2	C3	D1	D2	D3	⑦	⑧	⑨	⑩
1	2"	2 1/2"	2"	2"	2 3/4"	1 3/4"	20.600'	43.776'	43.776'	23.819'
2	2"	2 1/2"	2"	2"	2 1/2"	1 1/2"	20.331'	43.203'	43.203'	23.508'
3	2"	2 1/2"	2"	1 3/4"	2 1/4"	1 1/2"	20.061'	42.630'	42.630'	23.196'
4	1 3/4"	2 1/2"	1 3/4"	1 1/2"	2 1/4"	1 1/4"	19.792'	42.057'	42.057'	22.884'
5	1 3/4"	2 1/2"	1 3/4"	1 1/2"	2"	1 1/4"	19.522'	41.484'	41.484'	22.572'
6	1 3/4"	2 1/2"	1 3/4"	1 1/2"	1 3/4"	1 1/4"	19.252'	40.911'	40.911'	22.261'

AECOM

USER NAME = kritzm	DESIGNED - VP	REVISED -
	CHECKED - ATB	REVISED -
PLOT SCALE =	DRAWN - GF	REVISED -
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER CAMBER VI – S.N. 016–1503 (UNIT 3)
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-125 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	648
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

336_016I503_60X07_Girder Camber_VI_Unit 3.dgn

INTERIOR GIRDER MOMENT TABLE										
		0.4 Sp. 1E	Pier 1E	0.5 Sp. 2E	Pier 2E	0.5 Sp. 3E	Pier 3E	0.5 Sp. 4E	Pier 4E	0.6 Sp. 5E
I_s	(in^4)	41,021	88,157	67,995	88,157	41,021	72,775	41,021	72,775	41,021
$I_c(n)$	(in^4)	88,398	-	125,799	-	88,398	133,311	88,398	133,311	88,398
$I_c(3n)$	(in^4)	65,898	-	95,898	-	65,898	101,722	65,898	101,722	65,898
$I_c(cr)$	(in^4)	-	97,761	-	97,761	-	-	-	-	-
S_s	(in^3)	1,323	2,755	2,159	2,755	1,323	2,274	1,323	2,274	1,323
$S_c(n)$	(in^3)	1,758	-	2,617	-	1,758	2,752	1,758	2,752	1,758
$S_c(3n)$	(in^3)	1,601	-	2,427	-	1,601	2,551	1,601	2,551	1,601
$S_c(cr)$	(in^3)	-	2,855	-	2,855	-	-	-	-	-
DC1	(k/')	1.07	1.24	1.17	1.24	1.07	1.18	1.07	1.18	1.07
M_{DC1}	('k)	724	3,156	1,753	3,238	760	2,607	1,082	2,543	788
DC2	(k/')	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
M_{DC2}	('k)	136	465	242	498	121	429	166	394	140
DW	(k/')	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
M_{DW}	('k)	264	938	523	1,016	245	861	361	782	274
M_{L+IM}	('k)	1,666	2,381	2,209	2,561	1,890	2,368	1,755	2,173	1,607
M_U (Strength I)	('k)	4,387	10,100	7,144	10,676	4,776	9,231	5,173	8,647	4,383
$\phi_f M_n$	('k)	9,063	12,856	13,154	12,853	9,050	10,751	8,849	10,754	9,026
f_s DC1	(ksi)	6.57	13.75	9.74	14.10	6.89	13.76	9.81	13.42	7.15
f_s DC2	(ksi)	1.02	1.95	1.20	2.09	0.91	2.02	1.24	1.85	1.05
f_s DW	(ksi)	1.98	3.94	2.59	4.27	1.84	4.05	2.71	3.68	2.05
f_s (L+IM)	(ksi)	11.37	10.01	10.13	10.76	12.90	10.33	11.98	9.48	10.97
f_s (Service II)	(ksi)	24.35	32.65	26.69	34.46	26.41	33.25	29.34	31.27	24.51
$0.95R_hF_{yf}$	(ksi)	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50
f_s (Total)(Strength I)	(ksi)	-	-	-	-	-	-	-	-	-
$\phi_f F_n$	(ksi)	-	-	-	-	-	-	-	-	-
V_f	(k)	51.54	57.28	40.39	55.10	47.99	57.13	55.54	56.76	51.02

INTERIOR GIRDER REACTION TABLE							
		W. Abut.	Pier 1E	Pier 2E	Pier 3E	Pier 4E	Pier 5E-W
R_{DC1}	(k)	42.8	209.3	210.7	183.3	182.4	43.9
R_{DC2}	(k)	8.2	34.3	34.9	32.3	31.7	8.0
R_{DW}	(k)	14.7	64.1	65.6	59.9	58.4	14.8
R_{L+IM}	(k)	87.0	178.3	179.9	174.6	170.6	86.2
R_{Total}	(k)	152.7	486.0	491.1	450.1	443.1	152.9

EXTERIOR GIRDER MOMENT TABLE										
		0.4 Sp. 1E	Pier 1E	0.5 Sp. 2E	Pier 2E	0.5 Sp. 3E	Pier 3E	0.5 Sp. 4E	Pier 4E	0.6 Sp. 5E
I_s	(in^4)	41,021	88,157	67,995	88,157	41,021	72,775	41,021	72,775	41,021
$I_c(n)$	(in^4)	87,245	-	124,143	-	87,245	-	87,245	-	87,245
$I_c(3n)$	(in^4)	64,962	-	94,758	-	64,962	-	64,962	-	64,962
$I_c(cr)$	(in^4)	-	97,290	-	97,290	-	81,825	-	81,825	-
S_s	(in^3)	1,323	2,755	2,159	2,755	1,323	2,274	1,323	2,274	1,323
$S_c(n)$	(in^3)	1,751	-	2,608	-	1,751	-	1,751	-	1,751
$S_c(3n)$	(in^3)	1,593	-	2,418	-	1,593	-	1,593	-	1,593
$S_c(cr)$	(in^3)	-	2,851	-	2,851	-	2,376	-	2,376	-
DC1	(k/')	1.14	1.31	1.25	1.31	1.14	1.25	1.14	1.25	1.14
M_{DC1}	('k)	740	3,210	1,772	3,293	770	2,656	1,093	2,591	804
DC2	(k/')	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
M_{DC2}	('k)	228	724	380	773	216	670	271	615	230
DW	(k/')	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
M_{DW}	('k)	231	832	480	905	219	762	332	688	241
M_{L+IM}	('k)	1,945	2,884	2,607	3,163	2,229	2,909	2,100	2,609	1,868
M_U (Strength I)	('k)	4,960	11,213	7,972	11,975	5,462	10,391	5,878	9,605	4,923
$\phi_f M_n$	('k)	9,015	12,845	13,094	12,842	9,003	10,739	8,803	10,742	8,979
f_s DC1	(ksi)	6.71	13.98	9.85	14.34	6.98	14.02	9.91	13.67	7.29
f_s DC2	(ksi)	1.72	3.05	1.89	3.25	1.63	3.38	2.04	3.11	1.73
f_s DW	(ksi)	1.74	3.50	2.38	3.81	1.65	3.85	2.50	3.47	1.82
f_s (L+IM)	(ksi)	13.33	12.14	12.00	13.31	15.28	14.69	14.39	13.18	12.80
f_s (Service II)	(ksi)	27.50	36.31	29.71	38.71	30.12	40.35	33.17	37.38	27.48
$0.95R_hF_{yf}$	(ksi)	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50
f_s (Total)(Strength I)	(ksi)	-	-	-	-	-	-	-	-	-
$\phi_f F_n$	(ksi)	-	-	-	-	-	-	-	-	-
V_f	(k)	61.60	69.37	50.89	68.62	57.92	71.56	52.53	71.10	61.40

EXTERIOR GIRDER REACTION TABLE							
		W. Abut.	Pier 1E	Pier 2E	Pier 3E	Pier 4E	Pier 5E-W
R_{DC1}	(k)	43.8	214.2	215.6	187.9	187.0	44.8
R_{DC2}	(k)	12.1	49.6	50.5	46.8	45.7	12.0
R_{DW}	(k)	12.3	54.8	56.2	51.0	49.5	12.5
R_{L+IM}	(k)	85.3	181.3	186.6	180.1	174.0	84.9
R_{Total}	(k)	153.5	499.9	508.9	465.8	456.2	154.2

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

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

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

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

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 or non-slender negative moment capacity according to Article A6.1.1 or A6.1.2 (kip-ft).

f_s DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).
M_{DC1} / S_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 (L+IM): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live load plus impact loads as calculated below (ksi).
$M_{L+IM} / S_c(n)$ or $M_{L+IM} / S_c(cr)$ as applicable.

f_s (Service II): Sum of stresses as computed below (ksi).
$f_{sDC1} + f_{sDC2} + f_{sDW} + 1.3\ f_s(L+IM)$

$0.95R_hF_{yf}$: Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

f_s (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).
$1.25\ (f_{sDC1} + f_{sDC2}) + 1.5\ f_{sDW} + 1.75\ f_s(L+IM)$

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

V_f: Maximum factored shear range in span computed according to Article 6.10.10. (kips)

341_016I500_60X07_Girder M&R Tables_1.dgn

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USER NAME = AVasonis	DESIGNED - TH	REVISED -	
	CHECKED - MR	REVISED -	
PLOT SCALE =	DRAWN - TM	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - TH	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER MOMENT & REACTION TABLES I – S.N. 016–1500
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-126 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	649
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

INTERIOR GIRDER 5 MOMENT TABLE					
		0.4 Sp. 15E or 0.6 Sp. 18E	Pier 14E or Pier 16E	0.5 Sp. 16E or 0.5 Sp. 17E	Pier 15E
I_s	(in^4)	72,131	128,987	62,075	128,987
$I_c(n)$	(in^4)	153,235	-	127,720	-
$I_c(3n)$	(in^4)	111,793	-	94,957	-
$I_c(cr)$	(in^4)	-	141,025	-	141,025
S_s	(in^3)	2,122	3,394	1,678	3,394
$S_c(n)$	(in^3)	2,770	-	2,215	-
$S_c(3n)$	(in^3)	2,515	-	2,005	-
$S_c(cr)$	(in^3)	-	3,502	-	3,502
S_{xc}	(in^3)	64	133	43	133
DC1	(k/')	1.06	1.20	1.04	1.20
M_{DC1}	('k)	1,375	3,481	854	3,126
DC2	(k/')	0.29	0.29	0.29	0.29
M_{DC2}	('k)	236	584	155	546
DW	(k/')	0.37	0.37	0.37	0.37
M_{DW}	('k)	446	970	318	916
M_{L+IM}	('k)	2,170	2,760	2,135	2,881
f_f (Strength I)	(ksi)	2.86	5.33	3.93	5.16
$M_u + \frac{1}{3} f_f S_{xc}$	('k)	6,541	11,603	5,530	11,235
$\phi_f M_n$	('k)	-	-	-	-
f_s DC1	(ksi)	7.78	12.31	6.11	11.05
f_s DC2	(ksi)	1.13	2.00	0.93	1.87
f_s DW	(ksi)	2.13	3.32	1.90	3.14
f_s (L+IM)	(ksi)	9.40	9.46	11.57	9.87
f_f (Service II)	(ksi)	2.19	4.14	2.99	3.99
$f_s + f/2$ (Service II)	(ksi)	24.35	31.99	25.47	30.89
$0.95R_hF_{yf}$	(ksi)	47.50	47.50	47.50	47.50
$f_s + f/3$ (Total)(Strength I)	(ksi)	31.72	41.19	33.20	39.85
$\phi_f F_n$	(ksi)	50.00	50.00	50.00	50.00
V_f	(k)	52.10	53.00	34.60	56.50

INTERIOR GIRDER 3 MOMENT TABLE					
		0.4 Sp. 15E or 0.6 Sp. 18E	Pier 14E or Pier 16E	0.5 Sp. 16E or 0.5 Sp. 17E	Pier 15E
I_s	(in^4)	72,131	107,077	62,075	107,077
$I_c(n)$	(in^4)	153,235	-	127,720	-
$I_c(3n)$	(in^4)	111,793	-	94,957	-
$I_c(cr)$	(in^4)	-	119,022	-	119,022
S_s	(in^3)	2,122	2,818	1,678	2,818
$S_c(n)$	(in^3)	2,770	-	2,215	-
$S_c(3n)$	(in^3)	2,515	-	2,005	-
$S_c(cr)$	(in^3)	-	2,933	-	2,933
S_{xc}	(in^3)	64	85	43	85
DC1	(k/')	1.06	1.14	1.04	1.14
M_{DC1}	('k)	1,186	2,722	809	2,604
DC2	(k/')	0.15	0.15	0.15	0.15
M_{DC2}	('k)	166	306	140	302
DW	(k/')	0.37	0.37	0.37	0.37
M_{DW}	('k)	390	818	306	807
M_{L+IM}	('k)	1,575	1,953	1,574	2,053
f_f (Strength I)	(ksi)	2.17	6.03	3.09	6.03
$M_u + \frac{1}{3} f_f S_{xc}$	('k)	5,078	8,601	4,444	8,607
$\phi_f M_n$	('k)	-	-	-	-
f_s DC1	(ksi)	6.71	11.59	5.79	11.09
f_s DC2	(ksi)	0.79	1.25	0.84	1.24
f_s DW	(ksi)	1.86	3.35	1.83	3.30
f_s (L+IM)	(ksi)	6.82	7.99	8.53	8.40
f_f (Service II)	(ksi)	1.66	4.69	2.36	4.68
$f_s + f/2$ (Service II)	(ksi)	19.06	28.92	20.72	28.89
$0.95R_hF_{yf}$	(ksi)	47.50	47.50	47.50	47.50
$f_s + f/3$ (Total)(Strength I)	(ksi)	24.83	37.07	26.98	37.07
$\phi_f F_n$	(ksi)	50.00	50.00	50.00	50.00
V_f	(k)	41.90	45.00	31.30	46.00

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

f_s DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).
M_{DC1} / S_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 (L+IM): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live plus impact loads as calculated below (ksi).
$M_{L+IM} / S_c(n)$ or $M_{L+IM} / S_c(cr)$ as applicable.

$f_s + f/2$ (Service II): Sum of stresses as computed below (ksi).
$f_{s\,DC1} + f_{sDC2} + f_{sDW} + 1.3\, f_s(L+IM) + f/2$

$0.95R_hF_{yf}$: Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

$f_s + f/3$ (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).
$1.25 (f_{sDC1} + f_{sDC2}) + 1.5\, f_{sDW} + 1.75\, f_s(L+IM) + f/3$

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

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

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

EXTERIOR GIRDER 6 MOMENT TABLE					
		0.4 Sp. 15E or 0.6 Sp. 18E	Pier 14E or Pier 16E	0.5 Sp. 16E or 0.5 Sp. 17E	Pier 15E
I_s	(in^4)	72,131	128,987	62,075	128,987
$I_c(n)$	(in^4)	150,757	-	125,804	-
$I_c(3n)$	(in^4)	110,043	-	93,539	-
$I_c(cr)$	(in^4)	-	140,375	-	140,375
S_s	(in^3)	2,122	3,394	1,678	3,394
$S_c(n)$	(in^3)	2,757	-	2,205	-
$S_c(3n)$	(in^3)	2,502	-	1,993	-
$S_c(cr)$	(in^3)	-	3,497	-	3,497
S_{xc}	(in^3)	64	133	43	133
DC1	(k/')	1.12	1.26	1.09	1.26
M_{DC1}	('k)	1,558	3,414	883	2,954
DC2	(k/')	0.29	0.29	0.29	0.29
M_{DC2}	('k)	343	717	213	660
DW	(k/')	0.27	0.27	0.27	0.27
M_{DW}	('k)	471	870	317	798
M_{L+IM}	('k)	2,974	3,339	2,755	3,451
f_f (Strength I)	(ksi)	3.82	5.84	4.85	5.58
$M_u + \frac{1}{3} f_f S_{xc}$	('k)	8,369	12,572	6,736	12,002
$\phi_f M_n$	('k)	-	-	-	-
f_s DC1	(ksi)	8.81	12.07	6.32	10.44
f_s DC2	(ksi)	1.65	2.46	1.28	2.26
f_s DW	(ksi)	2.26	2.99	1.91	2.74
f_s (L+IM)	(ksi)	12.94	11.46	15.00	11.84
f_f (Service II)	(ksi)	2.92	4.52	3.68	4.30
$f_s + f/2$ (Service II)	(ksi)	31.00	34.67	30.84	32.99
$0.95R_hF_{yf}$	(ksi)	47.50	47.50	47.50	47.50
$f_s + f/3$ (Total)(Strength I)	(ksi)	40.38	44.64	40.22	42.58
$\phi_f F_n$	(ksi)	50.00	50.00	50.00	50.00
V_f	(k)	76.30	80.00	56.10	80.20

INTERIOR GIRDER 3 REACTION TABLE				
		Pier 8E-E or S. Abut.	Pier 14E or Pier 16E	Pier 15E
R_{DC1}	(k)	53.0	184.1	178.6
R_{DC2}	(k)	5.3	17.5	17.1
R_{DW}	(k)	16.7	57.9	56.8
R_{L+IM}	(k)	84.4	149.9	151.3
R_{Total}	(k)	159.3	409.4	403.8

INTERIOR GIRDER 5 REACTION TABLE				
		Pier 8E-E or S. Abut.	Pier 14E or Pier 16E	Pier 15E
R_{DC1}	(k)	59.7	227.7	209.1
R_{DC2}	(k)	10.5	42.2	39.8
R_{DW}	(k)	18.0	65.8	62.4
R_{L+IM}	(k)	87.5	187.5	188.7
R_{Total}	(k)	175.6	523.1	500.0

EXTERIOR GIRDER 6 REACTION TABLE				
		Pier 8E-E or S. Abut.	Pier 14E or Pier 16E	Pier 15E
R_{DC1}	(k)	63.4	175.0	160.5
R_{DC2}	(k)	14.7	39.4	37.3
R_{DW}	(k)	18.0	44.2	41.7
R_{L+IM}	(k)	106.6	164.4	164.0
R_{Total}	(k)	202.6	423.0	403.4

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AECOM

USER NAME = kritzm	DESIGNED - DD	REVISED -	
	CHECKED - ATB	REVISED -	
PLOT SCALE =	DRAWN - DD	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER MOMENT & REACTION TABLES II – S.N. 016–1502
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-127 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	650
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

INTERIOR GIRDER 2 MOMENT TABLE						
		0.4 Sp. 6E	Pier 6E	0.5 Sp. 7E	Pier 7E	0.6 Sp. 8E
I_s	(in^4)	41,021	72,775	41,021	72,775	41,021
$I_c(n)$	(in^4)	88,398	-	88,398	-	88,398
$I_c(3n)$	(in^4)	65,898	-	65,898	-	65,898
$I_c(cr)$	(in^4)	-	82,287	-	82,287	-
S_s	(in^3)	1,323	2,274	1,323	2,274	1,323
$S_c(n)$	(in^3)	1,758	-	1,758	-	1,758
$S_c(3n)$	(in^3)	1,601	-	1,601	-	1,601
$S_c(cr)$	(in^3)	-	2,380	-	2,380	-
DC1	(k/')	1.07	1.18	1.07	1.18	1.07
M_{DC1}	('k)	836	2,584	993	2,632	955
DC2	(k/')	0.29	0.29	0.29	0.29	0.29
M_{DC2}	('k)	161	423	178	423	166
DW	(k/')	0.40	0.40	0.40	0.40	0.40
M_{DW}	('k)	281	797	343	811	330
M_{L+IM}	('k)	1,644	2,199	1,672	2,201	1,709
M_u (Strength I)	('k)	4,545	8,803	4,904	8,887	4,887
$\phi_f M_n$	('k)	8,996	10,752	8,898	10,750	8,922
f_s DC1	(ksi)	7.58	13.63	9.01	13.89	8.66
f_s DC2	(ksi)	1.21	2.13	1.33	2.13	1.24
f_s DW	(ksi)	2.11	4.02	2.57	4.09	2.47
f_s (L+IM)	(ksi)	11.22	11.09	11.41	11.10	11.67
f_s (Service II)	(ksi)	25.48	34.20	27.75	34.53	27.55
$0.95R_hF_{yf}$	(ksi)	47.50	47.50	47.50	47.50	47.50
f_s (Total)(Strength I)	(ksi)	-	-	-	-	-
$\phi_f F_n$	(ksi)	-	-	-	-	-
V_f	(k)	51.70	56.90	55.50	57.00	54.20

EXTERIOR GIRDER 1 MOMENT TABLE						
		0.4 Sp. 6E	Pier 6E	0.5 Sp. 7E	Pier 7E	0.6 Sp. 8E
I_s	(in^4)	41,021	72,775	41,021	72,775	41,021
$I_c(n)$	(in^4)	87,245	-	87,245	-	87,245
$I_c(3n)$	(in^4)	64,962	-	64,962	-	64,962
$I_c(cr)$	(in^4)	-	81,825	-	81,825	-
S_s	(in^3)	1,323	2,274	1,323	2,274	1,323
$S_c(n)$	(in^3)	1,751	-	1,751	-	1,751
$S_c(3n)$	(in^3)	1,593	-	1,593	-	1,593
$S_c(cr)$	(in^3)	-	2,376	-	2,376	-
DC1	(k/')	1.14	1.25	1.14	1.25	1.14
M_{DC1}	('k)	900	2,658	1,061	2,704	948
DC2	(k/')	0.29	0.29	0.29	0.29	0.29
M_{DC2}	('k)	253	633	270	631	252
DW	(k/')	0.30	0.30	0.30	0.30	0.30
M_{DW}	('k)	270	725	339	734	287
M_{L+IM}	('k)	1,954	2,622	2,039	2,629	1,959
M_u (Strength I)	('k)	5,266	9,790	5,741	9,871	5,359
$\phi_f M_n$	('k)	8,919	10,739	8,818	10,737	8,890
f_s DC1	(ksi)	8.16	14.02	9.62	14.27	8.60
f_s DC2	(ksi)	1.91	3.20	2.03	3.19	1.90
f_s DW	(ksi)	2.03	3.66	2.55	3.71	2.16
f_s (L+IM)	(ksi)	13.39	13.24	13.97	13.28	13.43
f_s (Service II)	(ksi)	29.51	38.10	32.38	38.43	30.11
$0.95R_hF_{yf}$	(ksi)	47.50	47.50	47.50	47.50	47.50
f_s (Total)(Strength I)	(ksi)	-	-	-	-	-
$\phi_f F_n$	(ksi)	-	-	-	-	-
V_f	(k)	61.70	68.80	63.00	70.40	64.90

INTERIOR GIRDER 2 REACTION TABLE					
		Pier 5E-E	Pier 6E	Pier 7E	Pier 8E-W
R_{DC1}	(k)	43.8	185.4	185.0	48.0
R_{DC2}	(k)	8.6	33.3	33.2	8.8
R_{DW}	(k)	14.6	59.2	59.3	16.2
R_{L+IM}	(k)	85.1	169.9	169.4	87.9
R_{Total}	(k)	152.2	447.7	446.9	160.9

EXTERIOR GIRDER 1 REACTION TABLE					
		Pier 5E-E	Pier 6E	Pier 7E	Pier 8E-W
R_{DC1}	(k)	47.0	188.8	191.1	48.2
R_{DC2}	(k)	12.7	45.9	46.1	12.5
R_{DW}	(k)	13.2	50.8	51.3	13.5
R_{L+IM}	(k)	86.5	173.8	174.4	85.4
R_{Total}	(k)	159.3	459.2	463.0	159.5

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

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

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

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

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 or non-slender negative moment capacity according to Article A6.1.1 or A6.1.2 (kip-ft).

f_s DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).
M_{DC1} / S_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 (L+IM): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live load plus impact loads as calculated below (ksi).
$M_{L+IM} / S_c(n)$ or $M_{L+IM} / S_c(cr)$ as applicable.

f_s (Service II): Sum of stresses as computed below (ksi).
$f_{sDC1} + f_{sDC2} + f_{sDW} + 1.3\ f_s(L+IM)$

$0.95R_hF_{yf}$: Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

f_s (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).
$1.25\ (f_{sDC1} + f_{sDC2}) + 1.5\ f_{sDW} + 1.75\ f_s(L+IM)$

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

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

343_0161503_60X07_Girder M&R Tables_III_Unit 1.dgn

AECOM

USER NAME = kritzm	DESIGNED - DD	REVISED -	
	CHECKED - ATB	REVISED -	
PLOT SCALE =	DRAWN - DD	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER MOMENT & REACTION TABLES III – S.N. 016–1503 (UNIT 1)
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-128 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	651
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

INTERIOR GIRDER 4 MOMENT TABLE				
		0.5 Sp. 7E	Pier 7E	0.6 Sp. 8E
I_s	(in^4)	41,021	72,775	41,021
$I_c(n)$	(in^4)	81,569	-	90,310
$I_c(3n)$	(in^4)	60,699	-	67,506
$I_c(cr)$	(in^4)	-	81,712	-
S_s	(in^3)	1,323	2,274	1,323
$S_c(n)$	(in^3)	1,716	-	1,769
$S_c(3n)$	(in^3)	1,555	-	1,614
$S_c(cr)$	(in^3)	-	2,375	-
DC1	(k/')	0.85	1.12	1.15
M_{DC1}	('k)	946	2,560	973
DC2	(k/')	0.15	0.15	0.15
M_{DC2}	('k)	37	58	16
DW	(k/')	0.29	0.37	0.44
M_{DW}	('k)	336	871	387
M_{L+IM}	('k)	1,287	1,944	1,591
M_u (Strength I)	('k)	3,985	7,981	4,601
$\phi_f M_n$	('k)	8,765	10,741	8,974
f_s DC1	(ksi)	8.58	13.51	8.82
f_s DC2	(ksi)	0.29	0.29	0.12
f_s DW	(ksi)	2.59	4.40	2.88
f_s (L+IM)	(ksi)	9.00	9.82	10.79
f_s (Service II)	(ksi)	23.16	30.97	25.85
$0.95R_hF_{yf}$	(ksi)	47.50	47.50	47.50
f_s (Total)(Strength I)	(ksi)	-	-	-
$\phi_f F_n$	(ksi)	-	-	-
V_f	(k)	37.10	36.40	42.60

INTERIOR GIRDER 5 MOMENT TABLE						
		0.4 Sp. 6E	Pier 6E	0.5 Sp. 7E	Pier 7E	0.6 Sp. 8E
I_s	(in^4)	41,021	72,775	41,021	72,775	41,021
$I_c(n)$	(in^4)	79,350	-	83,346	-	90,600
$I_c(3n)$	(in^4)	59,173	-	61,975	-	67,757
$I_c(cr)$	(in^4)	-	81,576	-	82,029	-
S_s	(in^3)	1,323	2,274	1,323	2,274	1,323
$S_c(n)$	(in^3)	1,702	-	1,727	-	1,770
$S_c(3n)$	(in^3)	1,540	-	1,566	-	1,616
$S_c(cr)$	(in^3)	-	2,373	-	2,378	-
DC1	(k/')	0.80	1.10	0.90	1.15	1.16
M_{DC1}	('k)	767	2,466	942	2,562	973
DC2	(k/')	0.15	0.15	0.15	0.15	0.15
M_{DC2}	('k)	16	35	5	-11	-17
DW	(k/')	0.26	0.36	0.32	0.38	0.44
M_{DW}	('k)	259	793	346	865	393
M_{L+IM}	('k)	1,179	1,884	1,356	2,033	1,599
M_u (Strength I)	('k)	3,431	7,613	4,076	8,044	4,583
$\phi_f M_n$	('k)	8,577	10,741	8,819	9,039	8,985
f_s DC1	(ksi)	6.96	13.01	8.54	13.52	8.82
f_s DC2	(ksi)	0.12	0.18	0.04	-0.06	-0.13
f_s DW	(ksi)	2.02	4.01	2.65	4.37	2.92
f_s (L+IM)	(ksi)	8.31	9.53	9.42	10.26	10.84
f_s (Service II)	(ksi)	19.91	29.58	23.48	31.17	25.70
$0.95R_hF_{yf}$	(ksi)	47.50	47.50	47.50	47.50	47.50
f_s (Total)(Strength I)	(ksi)	-	-	-	-	-
$\phi_f F_n$	(ksi)	-	-	-	-	-
V_f	(k)	37.50	34.20	39.80	50.90	42.60

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

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

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

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

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 or non-slender negative moment capacity according to Article A6.1.1 or A6.1.2 (kip-ft).

f_s DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).
M_{DC1} / S_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 (L+IM): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live load plus impact loads as calculated below (ksi).
$M_{L+IM} / S_c(n)$ or $M_{L+IM} / S_c(cr)$ as applicable.

f_s (Service II): Sum of stresses as computed below (ksi).
$f_{sDC1} + f_{sDC2} + f_{sDW} + 1.3\ f_s(L+IM)$

$0.95R_hF_{yf}$: Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

f_s (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).
$1.25\ (f_{sDC1} + f_{sDC2}) + 1.5\ f_{sDW} + 1.75\ f_s(L+IM)$

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

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

INTERIOR GIRDER 4 REACTION TABLE			
		Pier 7E	Pier 8E-W
R_{DC1}	(k)	178.6	50.7
R_{DC2}	(k)	2.8	0.5
R_{DW}	(k)	60.8	19.3
R_{L+IM}	(k)	143.1	93.0
R_{Total}	(k)	385.3	163.4

INTERIOR GIRDER 5 REACTION TABLE					
		Pier 5E-E	Pier 6E	Pier 7E	Pier 8E-W
R_{DC1}	(k)	37.2	178.1	179.9	50.8
R_{DC2}	(k)	0.9	1.9	0.0	0.0
R_{DW}	(k)	11.5	58.5	62.1	19.4
R_{L+IM}	(k)	62.1	146.4	149.8	92.7
R_{Total}	(k)	111.6	384.8	391.8	162.9

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USER NAME = kritzm	DESIGNED - DD	REVISED -	
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PLOT SCALE =	DRAWN - DD	REVISED -	
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER MOMENT & REACTION TABLES IV – S.N. 016–1503 (UNIT 1)
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-129 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	652
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

INTERIOR GIRDER 2 MOMENT TABLE				
		0.4 Sp. 9E	Pier 9E	0.6 Sp. 10E
I_s	(in^4)	62,075	107,077	62,075
$I_c(n)$	(in^4)	127,737	-	127,720
$I_c(3n)$	(in^4)	94,969	-	94,957
$I_c(cr)$	(in^4)	-	119,022	-
S_s	(in^3)	1,678	2,818	1,678
$S_c(n)$	(in^3)	2,215	-	2,215
$S_c(3n)$	(in^3)	2,005	-	2,005
$S_c(cr)$	(in^3)	-	2,933	-
S_{xc}	(in^3)	43	85	43
DC1	(k/')	1.03	1.14	1.03
M_{DC1}	('k)	1,003	2,523	1,062
DC2	(k/')	0.29	0.29	0.29
M_{DC2}	('k)	182	441	189
DW	(k/')	0.37	0.37	0.37
M_{DW}	('k)	328	744	346
M_{L+IM}	('k)	1,647	2,022	1,722
f_l (Strength I)	(ksi)	0.00	6.52	7.27
$M_u + 1/3\, f_l\, S_{xc}$	('k)	4,856	8,545	5,200
$\phi_f M_n$	('k)	-	-	-
f_s DC1	(ksi)	7.17	10.74	7.60
f_s DC2	(ksi)	1.09	1.80	1.13
f_s DW	(ksi)	1.96	3.04	2.07
f_s (L+IM)	(ksi)	8.92	8.27	9.33
f_l (Service II)	(ksi)	0.00	5.06	5.56
$f_s + f_l/2$ (Service II)	(ksi)	21.83	28.88	25.71
$0.95R_hF_{yf}$	(ksi)	47.50	47.50	47.50
$f_s + f_l/3$ (Total)(Strength I)	(ksi)	28.89	36.90	32.77
$\phi_f F_n$	(ksi)	50.00	50.00	50.00
Vr	(k)	52.30	54.30	51.10

EXTERIOR GIRDER 1 MOMENT TABLE				
		0.4 Sp. 9E	Pier 9E	0.6 Sp. 10E
I_s	(in^4)	62,075	107,077	62,075
$I_c(n)$	(in^4)	125,820	-	125,804
$I_c(3n)$	(in^4)	93,551	-	93,539
$I_c(cr)$	(in^4)	-	118,382	-
S_s	(in^3)	1,678	2,818	1,678
$S_c(n)$	(in^3)	2,205	-	2,205
$S_c(3n)$	(in^3)	1,993	-	1,993
$S_c(cr)$	(in^3)	-	2,927	-
S_{xc}	(in^3)	43	85	43
DC1	(k/')	1.09	1.20	1.09
M_{DC1}	('k)	1,017	2,544	1,179
DC2	(k/')	0.29	0.29	0.29
M_{DC2}	('k)	228	552	261
DW	(k/')	0.27	0.27	0.27
M_{DW}	('k)	303	678	360
M_{L+IM}	('k)	1,879	2,399	2,298
f_l (Strength I)	(ksi)	0.00	7.17	9.22
$M_u + 1/3\, f_l\, S_{xc}$	('k)	5,299	9,289	6,493
$\phi_f M_n$	('k)	-	-	-
f_s DC1	(ksi)	7.27	10.83	8.43
f_s DC2	(ksi)	1.37	2.26	1.57
f_s DW	(ksi)	1.82	2.78	2.17
f_s (L+IM)	(ksi)	10.23	9.83	12.51
f_l (Service II)	(ksi)	0.00	5.55	7.03
$f_s + f_l/2$ (Service II)	(ksi)	23.77	31.44	31.95
$0.95R_hF_{yf}$	(ksi)	47.50	47.50	47.50
$f_s + f_l/3$ (Total)(Strength I)	(ksi)	31.44	40.14	40.72
$\phi_f F_n$	(ksi)	50.00	50.00	50.00
Vr	(k)	58.30	80.20	75.40

INTERIOR GIRDER 2 REACTION TABLE				
		Pier 8E-E	Pier 9E	Pier 10E-W
R_{DC1}	(k)	48.7	193.6	50.5
R_{DC2}	(k)	9.3	37.5	9.4
R_{DW}	(k)	15.5	58.5	16.0
R_{L+IM}	(k)	78.2	167.0	83.7
R_{Total}	(k)	151.7	456.6	159.6

EXTERIOR GIRDER 1 REACTION TABLE				
		Pier 8E-E	Pier 9E	Pier 10E-W
R_{DC1}	(k)	48.7	157.3	54.3
R_{DC2}	(k)	11.3	36.4	12.6
R_{DW}	(k)	13.3	41.1	15.4
R_{L+IM}	(k)	75.4	155.4	98.5
R_{Total}	(k)	148.8	390.3	180.8

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

f_s DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).
M_{DC1} / S_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 (L+IM): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live plus impact loads as calculated below (ksi).
$M_{L+IM} / S_c(n)$ or $M_{L+IM} / S_c(cr)$ as applicable.

$f_s + f_l/2$ (Service II): Sum of stresses as computed below (ksi).
$f_{sDC1} + f_{sDC2} + f_{sDW} + 1.3\, f_s(L+IM) + f_l/2$

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

$f_s + f_l/3$ (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).
$1.25\,(f_{sDC1} + f_{sDC2}) + 1.5\, f_{sDW} + 1.75\, f_s(L+IM) + f_l/3$

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

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

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

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USER NAME = kritzm	DESIGNED - DD	REVISED -	
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PLOT SCALE =	DRAWN - DD	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -	

STATE OF ILLINOIS
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GIRDER MOMENT & REACTION TABLES V – S.N. 016–1503 (UNIT 2)
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-130 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	653
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

INTERIOR GIRDER 2 MOMENT TABLE					
		0.4 Sp. 11E or 0.6 Sp. 14E	Pier 11E or Pier 13E	0.5 Sp. 12E or 0.5 Sp. 13E	Pier 12E
I_s	(in^4)	72,131	128,987	62,075	128,987
$I_c(n)$	(in^4)	153,235	-	127,720	-
$I_c(3n)$	(in^4)	111,793	-	94,957	-
$I_c(cr)$	(in^4)	-	141,025	-	141,025
S_s	(in^3)	2,122	3,394	1,678	3,394
$S_c(n)$	(in^3)	2,770	-	2,215	-
$S_c(3n)$	(in^3)	2,515	-	2,005	-
$S_c(cr)$	(in^3)	-	3,502	-	3,502
S_{xc}	(in^3)	64	133	43	133
DC1	(k/')	1.06	1.20	1.04	1.20
M_{DC1}	('k)	1,375	3,555	840	3,002
DC2	(k/')	0.29	0.29	0.29	0.29
M_{DC2}	('k)	239	586	155	547
DW	(k/')	0.37	0.37	0.37	0.37
M_{DW}	('k)	454	971	320	915
M_{L+IM}	('k)	2,208	2,783	2,155	2,909
f_f (Strength I)	(ksi)	2.95	5.74	4.20	5.43
$M_u + \frac{1}{3} f_f S_{xc}$	('k)	6,625	11,758	5,555	11,141
$\phi_f M_n$	('k)	-	-	-	-
f_s DC1	(ksi)	7.78	12.57	6.01	10.61
f_s DC2	(ksi)	1.14	2.01	0.93	1.87
f_s DW	(ksi)	2.17	3.33	1.92	3.14
f_s (L+IM)	(ksi)	9.57	9.54	11.67	9.97
f_f (Service II)	(ksi)	2.26	4.46	3.20	4.20
$f_s + f/2$ (Service II)	(ksi)	24.65	32.53	25.63	30.68
$0.95R_hF_{yf}$	(ksi)	47.50	47.50	47.50	47.50
$f_s + f/3$ (Total)(Strength I)	(ksi)	32.12	41.81	33.37	39.56
$\phi_f F_n$	(ksi)	50.00	50.00	50.00	50.00
V_f	(k)	51.90	53.30	37.80	57.30

INTERIOR GIRDER 4 MOMENT TABLE					
		0.4 Sp. 11E or 0.6 Sp. 14E	Pier 11E or Pier 13E	0.5 Sp. 12E or 0.5 Sp. 13E	Pier 12E
I_s	(in^4)	72,131	107,077	62,075	107,077
$I_c(n)$	(in^4)	153,235	-	127,720	-
$I_c(3n)$	(in^4)	111,793	-	94,957	-
$I_c(cr)$	(in^4)	-	119,022	-	119,022
S_s	(in^3)	2,122	2,818	1,678	2,818
$S_c(n)$	(in^3)	2,770	-	2,215	-
$S_c(3n)$	(in^3)	2,515	-	2,005	-
$S_c(cr)$	(in^3)	-	2,933	-	2,933
S_{xc}	(in^3)	64	85	43	85
DC1	(k/')	1.06	1.14	1.04	1.14
M_{DC1}	('k)	1,129	2,708	842	2,621
DC2	(k/')	0.15	0.15	0.15	0.15
M_{DC2}	('k)	168	306	139	302
DW	(k/')	0.37	0.37	0.37	0.37
M_{DW}	('k)	391	818	305	807
M_{L+IM}	('k)	1,599	1,960	1,574	2,061
f_f (Strength I)	(ksi)	2.21	6.39	3.31	6.44
$M_u + \frac{1}{3} f_f S_{xc}$	('k)	5,053	8,606	4,485	8,654
$\phi_f M_n$	('k)	-	-	-	-
f_s DC1	(ksi)	6.38	11.53	6.02	11.16
f_s DC2	(ksi)	0.80	1.25	0.83	1.24
f_s DW	(ksi)	1.87	3.35	1.83	3.30
f_s (L+IM)	(ksi)	6.93	8.02	8.53	8.43
f_f (Service II)	(ksi)	1.70	4.97	2.53	5.00
$f_s + f/2$ (Service II)	(ksi)	18.91	29.04	21.03	29.16
$0.95R_hF_{yf}$	(ksi)	47.50	47.50	47.50	47.50
$f_s + f/3$ (Total)(Strength I)	(ksi)	24.64	37.16	27.33	37.35
$\phi_f F_n$	(ksi)	50.00	50.00	50.00	50.00
V_f	(k)	42.60	45.20	35.10	45.90

EXTERIOR GIRDER 1 MOMENT TABLE					
		0.4 Sp. 11E or 0.6 Sp. 14E	Pier 11E or Pier 13E	0.5 Sp. 12E or 0.5 Sp. 13E	Pier 12E
I_s	(in^4)	72,131	128,987	62,075	128,987
$I_c(n)$	(in^4)	150,757	-	125,804	-
$I_c(3n)$	(in^4)	110,043	-	93,539	-
$I_c(cr)$	(in^4)	-	140,375	-	140,375
S_s	(in^3)	2,122	3,394	1,678	3,394
$S_c(n)$	(in^3)	2,757	-	2,205	-
$S_c(3n)$	(in^3)	2,502	-	1,993	-
$S_c(cr)$	(in^3)	-	3,497	-	3,497
S_{xc}	(in^3)	64	133	43	133
DC1	(k/')	1.12	1.26	1.09	1.26
M_{DC1}	('k)	1,563	3,432	910	3,024
DC2	(k/')	0.29	0.29	0.29	0.29
M_{DC2}	('k)	346	717	216	667
DW	(k/')	0.27	0.27	0.27	0.27
M_{DW}	('k)	479	870	323	808
M_{L+IM}	('k)	3,039	3,367	2,795	3,497
f_f (Strength I)	(ksi)	4.06	6.25	5.24	6.03
$M_u + \frac{1}{3} f_f S_{xc}$	('k)	8,510	12,661	6,858	12,214
$\phi_f M_n$	('k)	-	-	-	-
f_s DC1	(ksi)	8.84	12.13	6.51	10.69
f_s DC2	(ksi)	1.66	2.46	1.30	2.29
f_s DW	(ksi)	2.30	2.99	1.94	2.77
f_s (L+IM)	(ksi)	13.23	11.55	15.21	12.00
f_f (Service II)	(ksi)	3.09	4.83	3.98	4.65
$f_s + f/2$ (Service II)	(ksi)	31.54	35.02	31.52	33.68
$0.95R_hF_{yf}$	(ksi)	47.50	47.50	47.50	47.50
$f_s + f/3$ (Total)(Strength I)	(ksi)	41.07	45.02	41.05	43.39
$\phi_f F_n$	(ksi)	50.00	50.00	50.00	50.00
V_f	(k)	78.30	81.80	62.00	82.20

INTERIOR GIRDER 2 REACTION TABLE				
		Pier 10E-E or N. Abut.	Pier 11E or Pier 13E	Pier 12E
R_{DC1}	(k)	58.6	235.7	200.3
R_{DC2}	(k)	10.4	42.7	40.2
R_{DW}	(k)	18.4	66.4	62.6
R_{L+IM}	(k)	88.7	190.2	190.2
R_{Total}	(k)	176.1	535.0	493.4

EXTERIOR GIRDER 1 REACTION TABLE				
		Pier 10E-E or N. Abut.	Pier 11E or Pier 13E	Pier 12E
R_{DC1}	(k)	65.1	173.3	163.4
R_{DC2}	(k)	14.9	39.0	36.9
R_{DW}	(k)	18.3	44.0	41.4
R_{L+IM}	(k)	110.0	165.4	162.3
R_{Total}	(k)	208.2	421.7	404.1

INTERIOR GIRDER 4 REACTION TABLE				
		Pier 10E-E or N. Abut.	Pier 11E or Pier 13E	Pier 12E
R_{DC1}	(k)	51.7	183.1	180.7
R_{DC2}	(k)	5.3	17.5	17.2
R_{DW}	(k)	16.6	57.7	56.9
R_{L+IM}	(k)	84.8	151.4	152.0
R_{Total}	(k)	158.3	409.5	406.9

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

f_s DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).
M_{DC1} / S_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 (L+IM): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live plus impact loads as calculated below (ksi).
$M_{L+IM} / S_c(n)$ or $M_{L+IM} / S_c(cr)$ as applicable.

$f_s + f/2$ (Service II): Sum of stresses as computed below (ksi).
$f_{s\,DC1} + f_{sDC2} + f_{sDW} + 1.3\, f_s(L+IM) + f/2$

$0.95R_hF_{yf}$: Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

$f_s + f/3$ (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).
$1.25 (f_{sDC1} + f_{sDC2}) + 1.5\, f_{sDW} + 1.75\, f_s(L+IM) + f/3$

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

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

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

346_0161503_60X07_Girder M&R Tables_VI_Unit 3.dgn

AECOM

USER NAME = kritzm	DESIGNED - DD	REVISED -	
	CHECKED - ATB	REVISED -	
PLOT SCALE =	DRAWN - DD	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER MOMENT & REACTION TABLES VI – S.N. 016–1503 (UNIT 3)
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-131 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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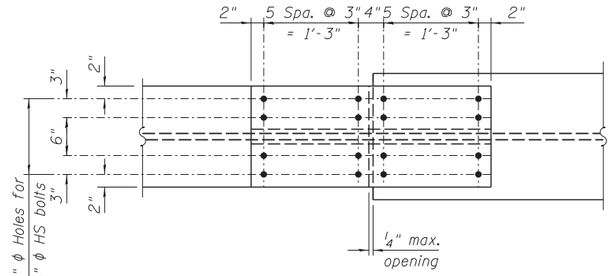
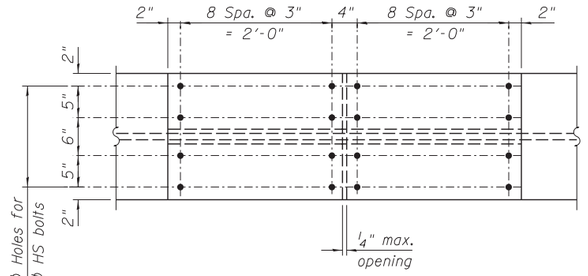
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			



TOP FLANGE SPLICE PLATE



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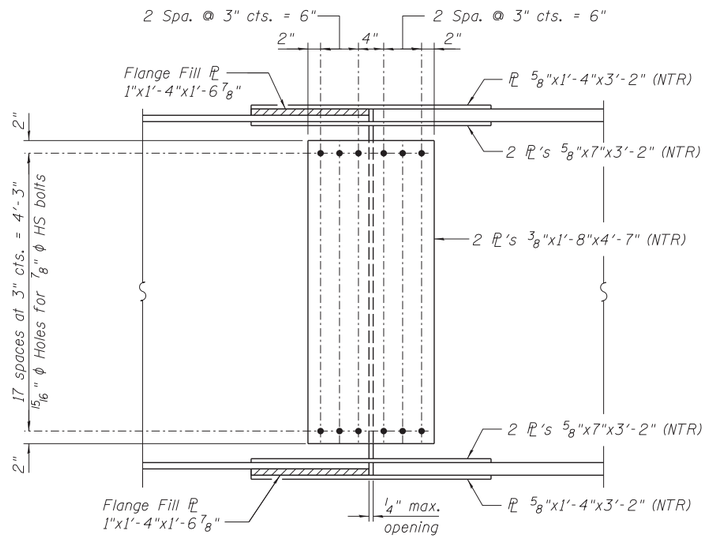
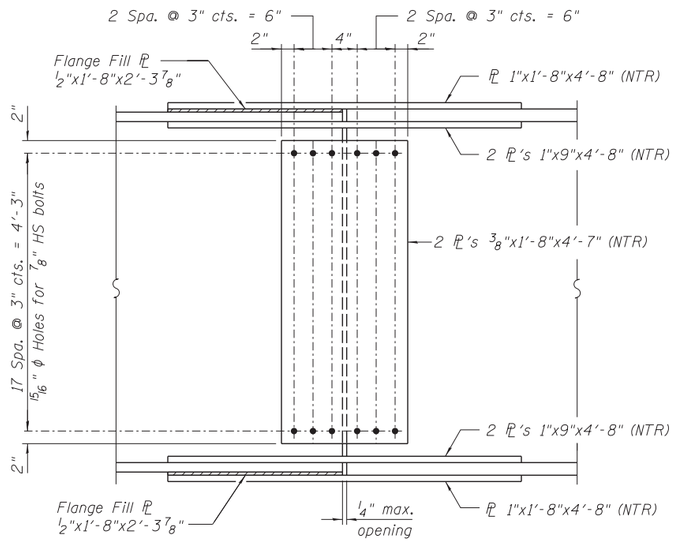


WEB SPLICE PLATE



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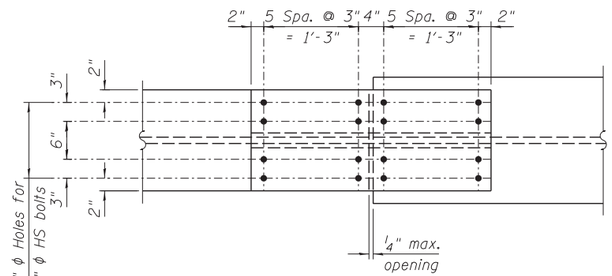
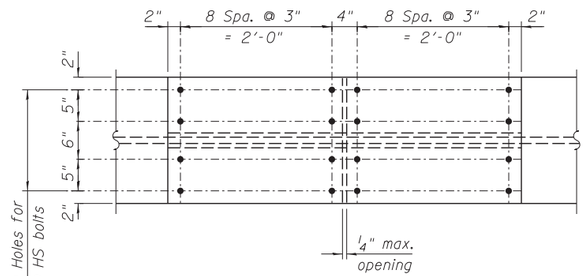


BOTTOM FLANGE SPLICE PLATE

SPLICES 1-1 & 1-4 THRU 1-8

(54 required)



BOTTOM FLANGE SPLICE PLATE

SPLICES 1-2 & 1-3

(18 required)

NOTES:

1. See Sheets S-104 thru S-106 for girder framing plan.
2. All structural steel shall be AASHTO M270 Grade 50.
3. Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.

RME Rubinos & Mesia Engineers, Inc.
200 S. Michigan Avenue, Suite 1500, Chicago, IL 60604-2482

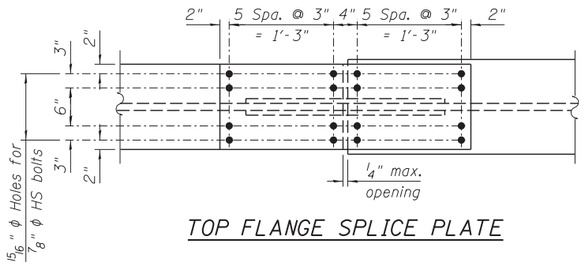
USER NAME = AVasonis	DESIGNED - TH	REVISED -	
	CHECKED - MR	REVISED -	
PLOT SCALE =	DRAWN - TM	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - TH	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER SPLICE DETAILS I – S.N. 016-1500
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-132 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	655
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

351_016I500_60X07_SPLC_I.dgn



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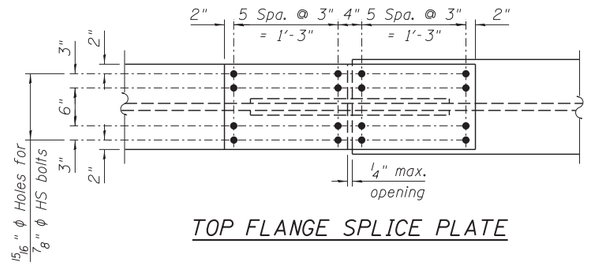

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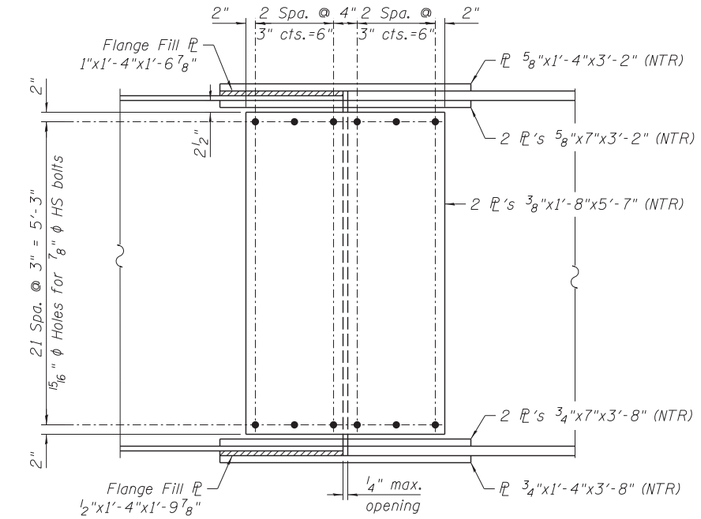

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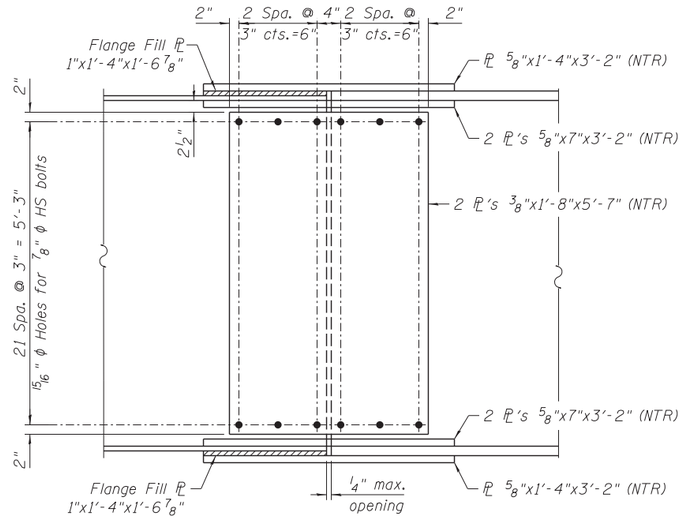

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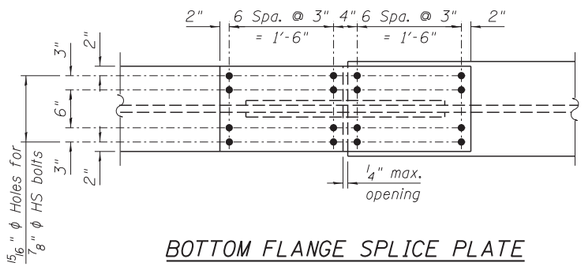
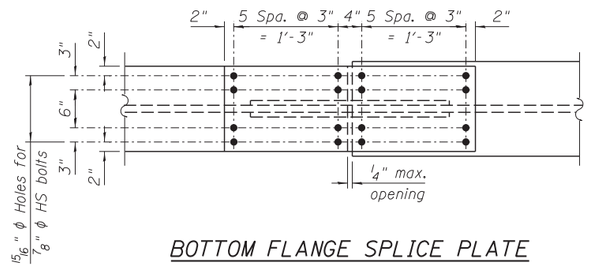


BOTTOM FLANGE SPLICE PLATE

SPLICES 2-1 & 2-6

(12 Required)



BOTTOM FLANGE SPLICE PLATE

SPLICES 2-2 THRU 2-5

(24 Required)

NOTES:

1. See Sheets S-107 and S-108 for girder framing plan.
2. All structural steel shall be AASHTO M270 Grade 50.
3. Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.

352_016I502_60X70_SPLC_II.dgn

AECOM

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	CHECKED - ATB	REVISED -	
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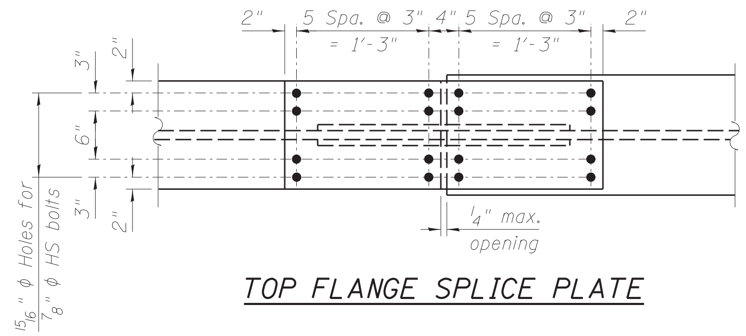
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER SPLICE DETAILS II – S.N. 016–1502
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-133 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	656
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			



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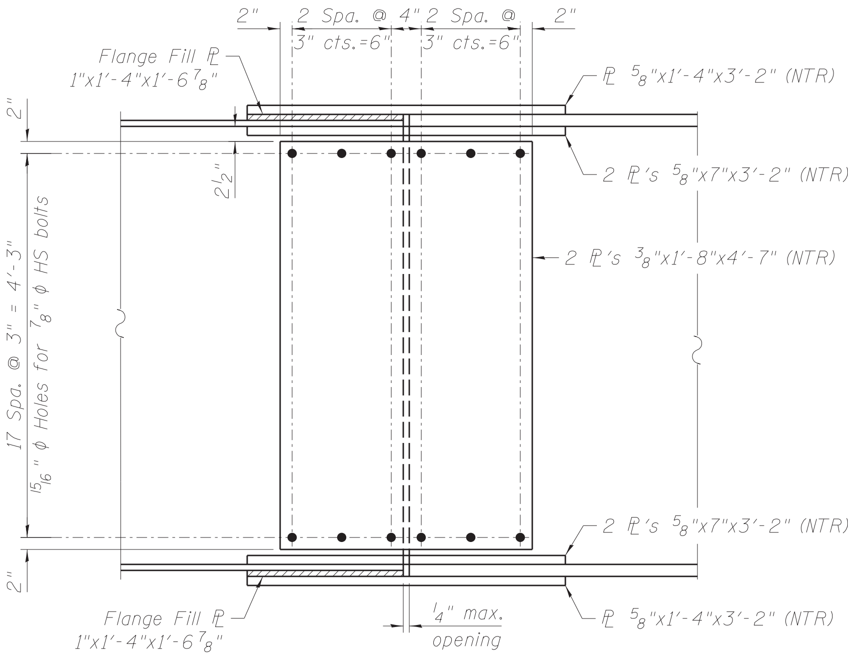

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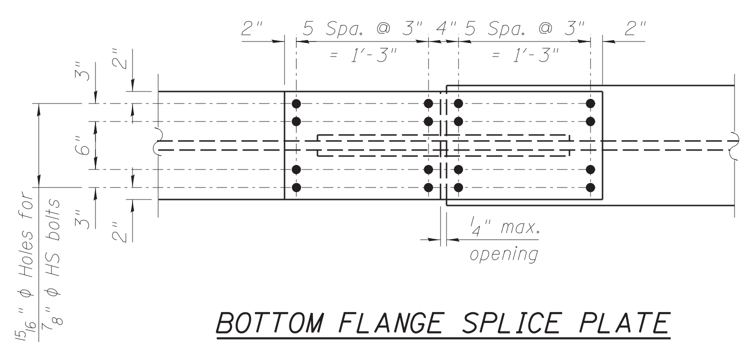
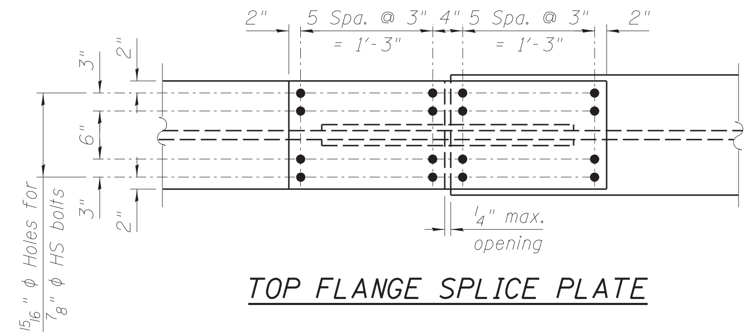


BOTTOM FLANGE SPLICE PLATE

SPLICES 3-1 THRU 3-4

(42 Required)



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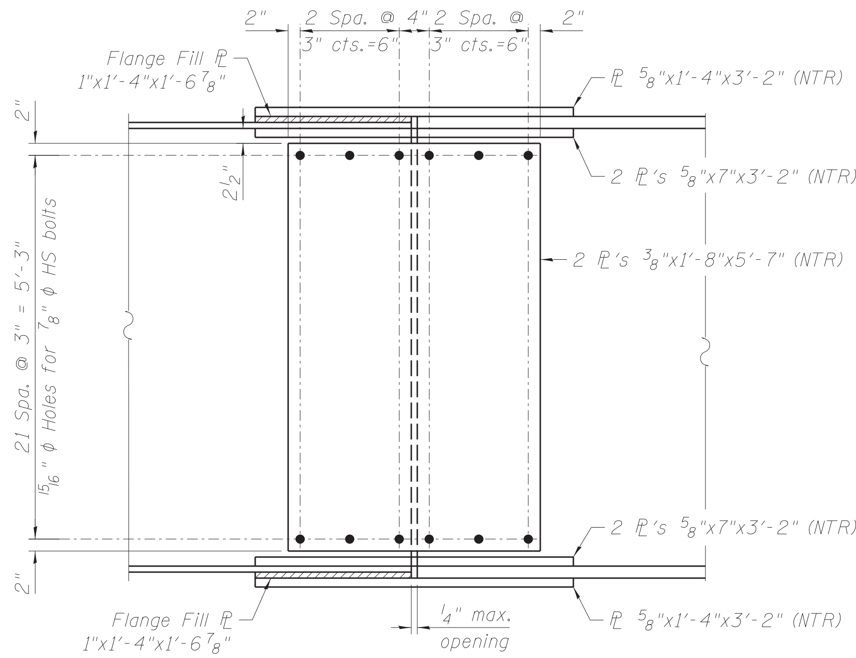

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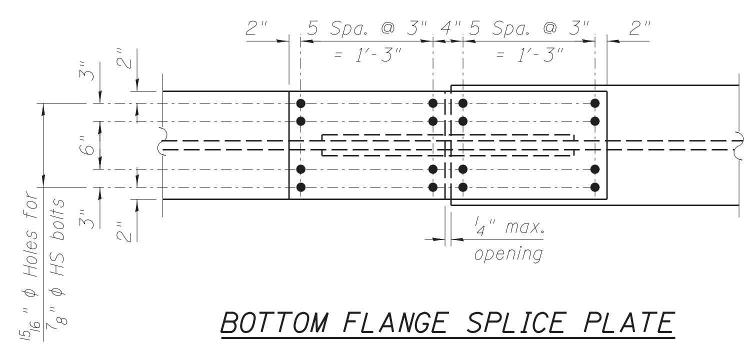
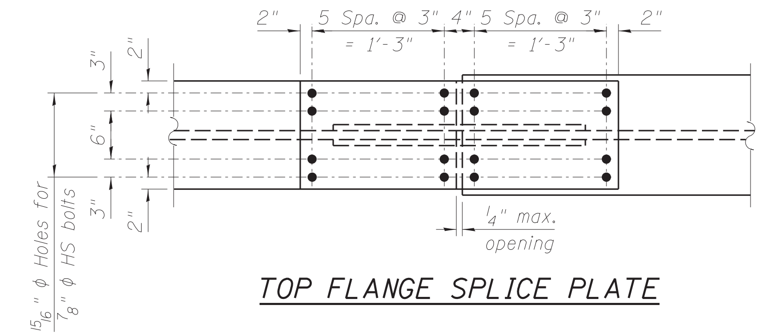


BOTTOM FLANGE SPLICE PLATE

SPLICES 3-5 & 3-6
SPLICES 3-8 THRU 3-11

(36 Required)



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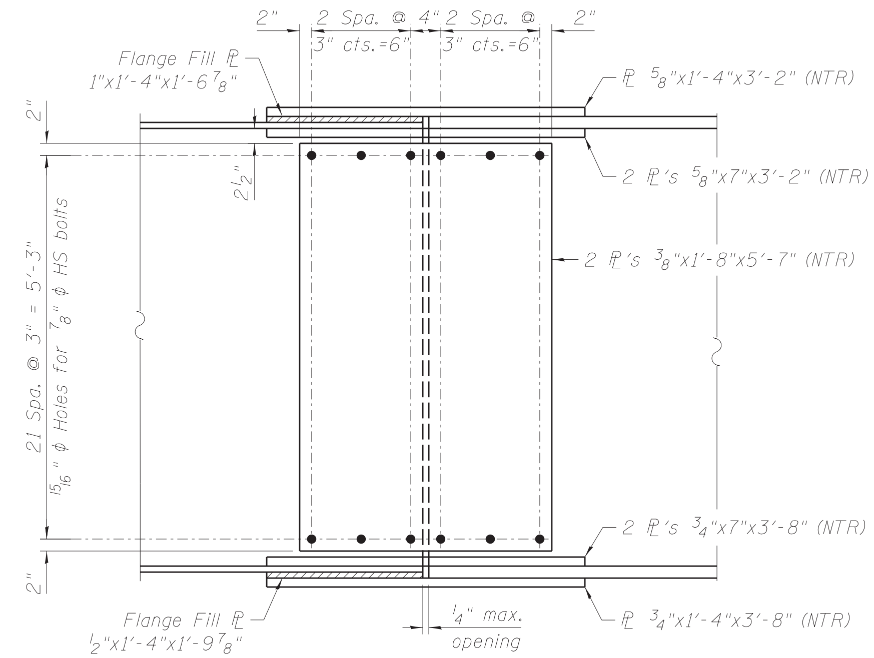

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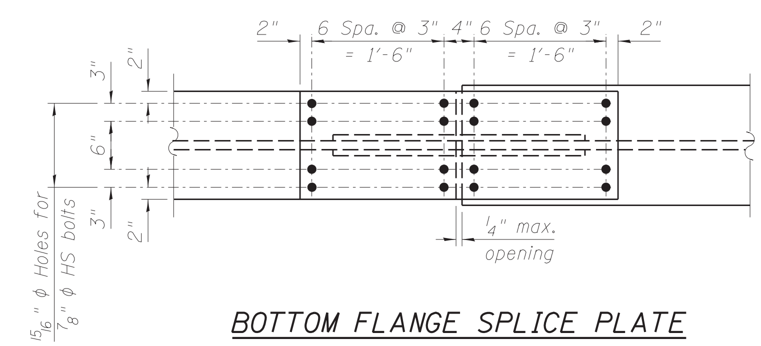


BOTTOM FLANGE SPLICE PLATE

SPLICES 3-7 & 3-12

(12 Required)

NOTES:

1. See Sheets S-109 and S-113 for girder framing plan.
2. All structural steel shall be AASHTO M270 Grade 50.
3. Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.

353.0161503.60X70_SPLC_III.dgn

AECOM

USER NAME = krltzm	DESIGNED - DD	REVISED -	
	CHECKED - ATB	REVISED -	
PLOT SCALE =	DRAWN - DD	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

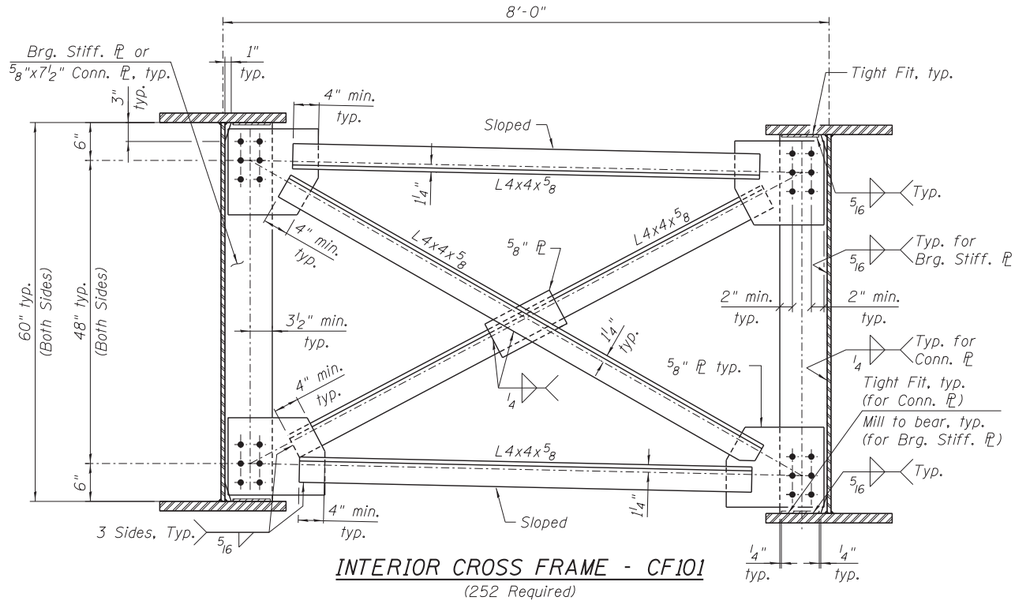
GIRDER SPLICE DETAILS III – S.N. 016–1503
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)

SHEET NO. S-134 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	657

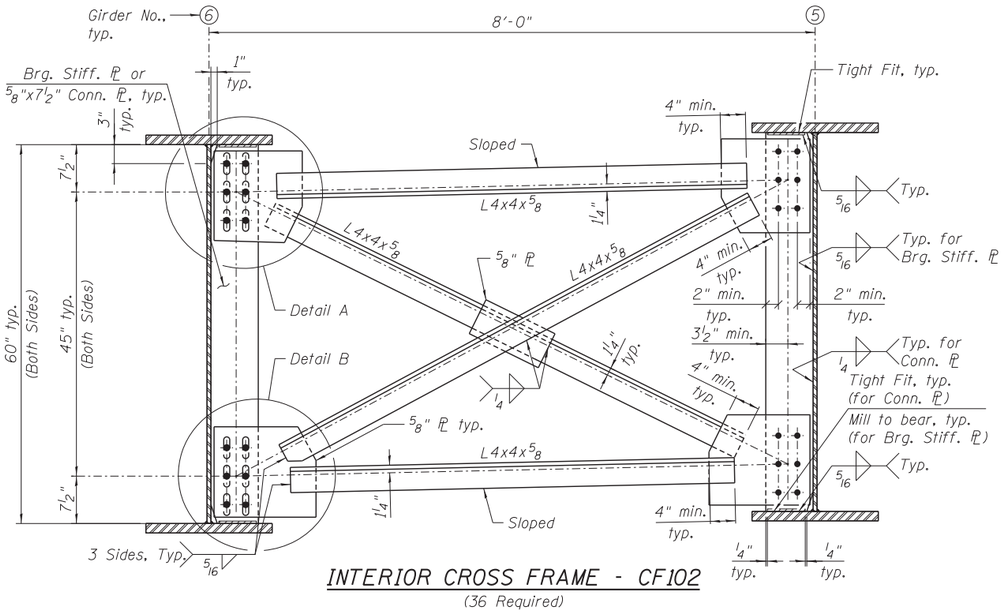
CONTRACT NO. 60X07

ILLINOIS FED. AID PROJECT



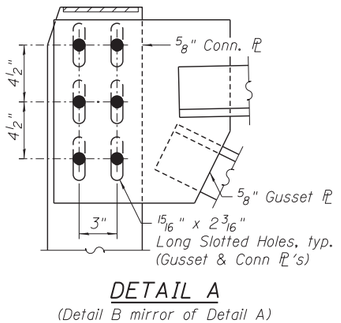
INTERIOR CROSS FRAME - CF101

(252 Required)



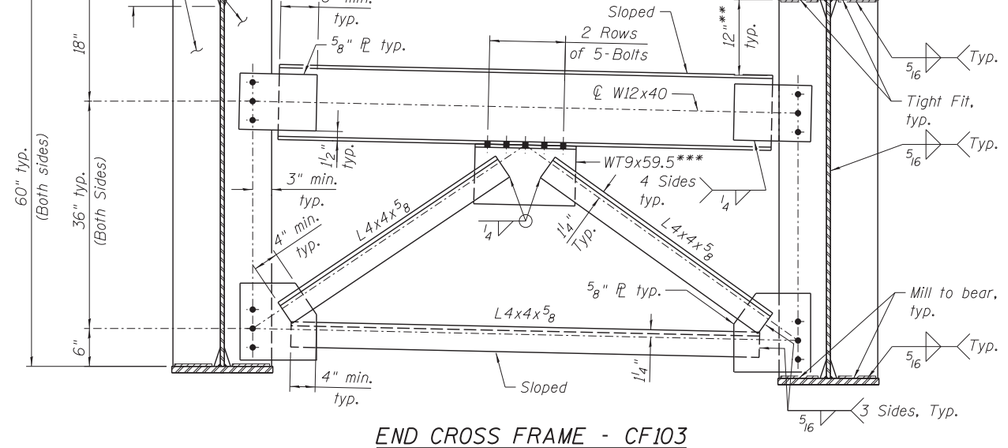
INTERIOR CROSS FRAME - CF102

(36 Required)



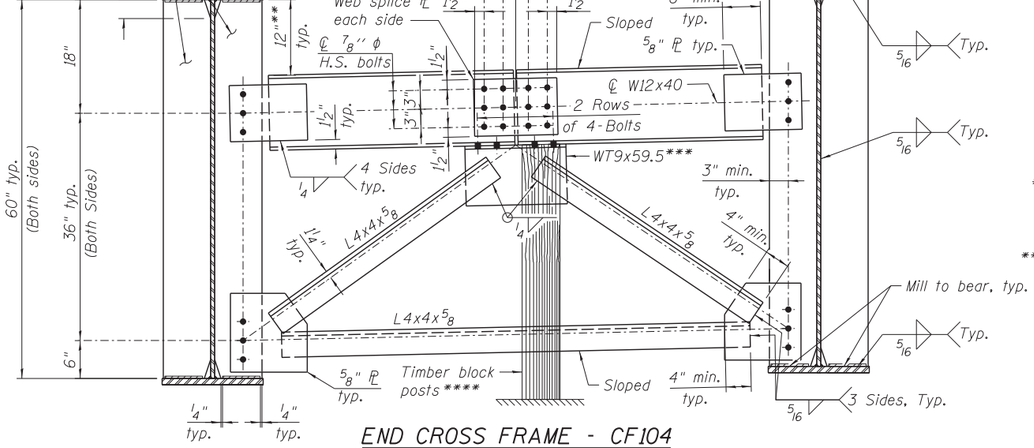
DETAIL A

(Detail B mirror of Detail A)



END CROSS FRAME - CF103

(14 Required)



END CROSS FRAME - CF104

(2 Required)

** Contractor to coordinate with Modular Joint Manufacturer.

*** Alternate WT shapes utilizing 5/8" nominal thickness are permitted to facilitate material acquisition.

**** Cost of Timber Block Posts is included with Structural Steel.

NOTES:

1. See Sheets S-104 thru S-106 for location of girder cross frames.
2. AASHTO M270 Grade 50 steel shall be used for all cross frames, connection plates, and bearing stiffeners, unless otherwise noted.
3. Intermediate transverse stiffeners shall use the same size clips & fillet welds as connection plates. Likewise, jacking stiffeners shall use the same size clips & fillet welds as the bearing stiffeners.
4. Fasteners shall be ASTM A325 Type 1, mechanically galvanized bolts. Bolts 7/8 in. ϕ, holes 1 1/16 in. ϕ, unless otherwise noted.
5. Two hardened washers required for each set of oversized holes.
6. Bolt spacing shall be 3" min. & edge distances shall be 2" min., unless otherwise noted.
7. 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.
8. Cross frame members (top & bottom chord, diagonals and gusset plates) shall be hot dipped galvanized. See special provision for "Metallizing Structural Steel" & "Hot-Dipped Galvanizing for Structural Steel".
9. Bolts in slots shall be finger tight until the Stage IV deck pour is complete.
10. Position slots so bolts start at one end with no concrete load and finish near the opposite end under deck load, allowing maximum displacement without laterally stressing main members.

END CROSS FRAME STAGE CONSTRUCTION SEQUENCE

1. Order top chord in two sections.
2. Attach Stage Ia/Ib section of top chord to Girder 5.
3. Place timber block posts between Stage Ia/Ib section of top chord and abutment bearing section.
4. Attach Stage IV section of top chord to both Girder 6 and Stage Ia/Ib section of top chord during Stage IV construction with splice plates.
5. Remove timber block posts.
6. Install WT, diagonal and bottom chord members.

361_0161500_60X07_XFRAM_1.dgn

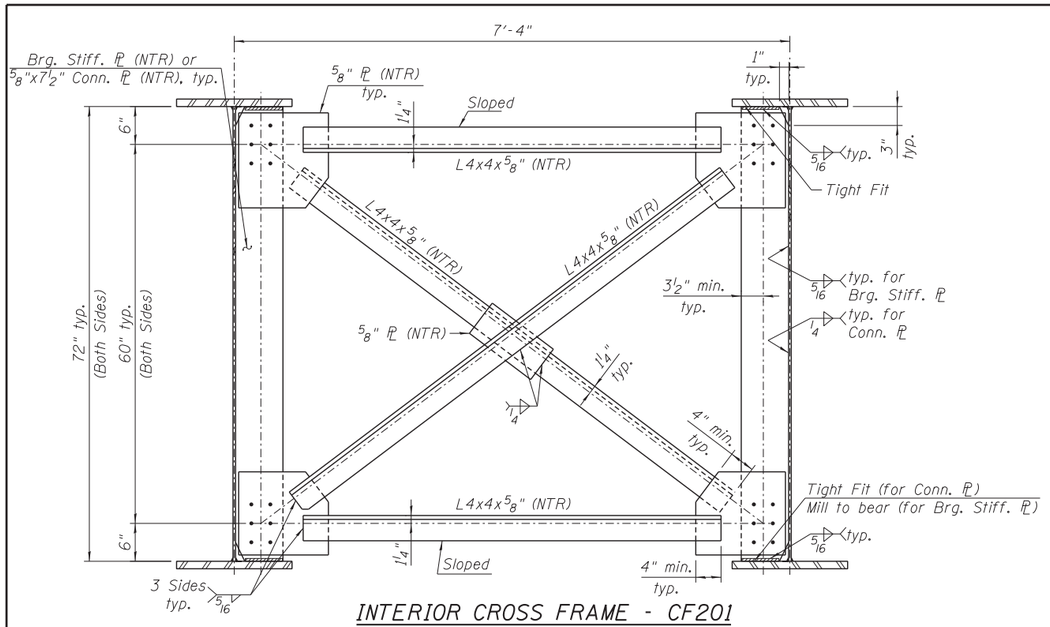
RME Rubinos & Mesia Engineers, Inc. 200 S. Michigan Avenue. Suite 1500. Chicago, IL 60604-2482

USER NAME = AVasonis	DESIGNED - TH	REVISED -	
	CHECKED - MR	REVISED -	
PLOT SCALE =	DRAWN - PH	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - TH	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

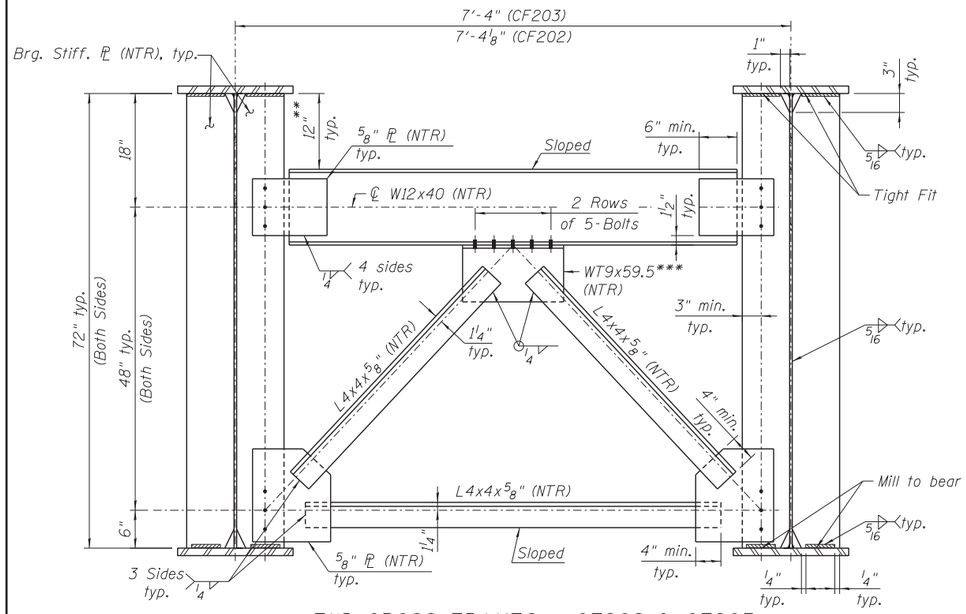
GIRDER CROSS FRAME DETAILS I – S.N. 016–1500
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-135 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	658
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			



INTERIOR CROSS FRAME - CF201

(195 Required)



END CROSS FRAMES - CF202 & CF203

(5 Required - CF202)
(5 Required - CF203)

**Contractor to coordinate with Modular Joint Manufacturer.

***Alternate WT shapes utilizing 5/8" nominal thickness are permitted to facilitate material acquisition.

NOTES:

1. See Sheets S-107 and S-108 for location of girder cross frames.
2. AASHTO M270 Grade 50 steel shall be used for all cross frames, connection plates, and bearing stiffeners, unless otherwise noted.
3. Intermediate transverse stiffeners shall use the same size clips & fillet welds as connection plates. Likewise, jacking stiffeners shall use the same size clips & fillet welds as the bearing stiffeners.
4. Fasteners shall be ASTM A325 Type 1, mechanically galvanized bolts. Bolts 7/8 in. ϕ, holes 15/16 in. ϕ, unless otherwise noted.
5. Two hardened washers required for each set of oversized holes.
6. Bolt spacing shall be 3" min. & edge distances shall be 2" min., unless otherwise noted.
7. All cross frames between girders shall be installed with erection pins and bolts in accordance with the erection plan submitted to and approved by the Engineer. Individual cross frames or diaphragms at supports may be temporarily disconnected to install bearing anchor rods.
8. Load carrying components designated "NTR" shall conform to the Impact Testing Requirements, Zone 2.
9. Cross frame members (top & bottom chord, diagonals and gusset plates) shall be hot dipped galvanized. See special provision for "Metallizing Structural Steel" & "Hot-dipped Galvanizing for Structural Steel".
10. The Contractor shall either:
    1. Ream diaphragm and/or cross frame connection holes during shop assembly, or
    2. Provide detailing and fabrication controls acceptable to the Engineer which ensures accuracy such that field reaming will not exceed the amount permitted in Article 505.08(I) of the Standard Specifications.

AECOM

USER NAME = kritzm	DESIGNED - CLS	REVISED -
	CHECKED - ATB	REVISED -
PLOT SCALE =	DRAWN - DD	REVISED -
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER CROSS FRAME DETAILS II – S.N. 016–1502
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-136 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	659
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

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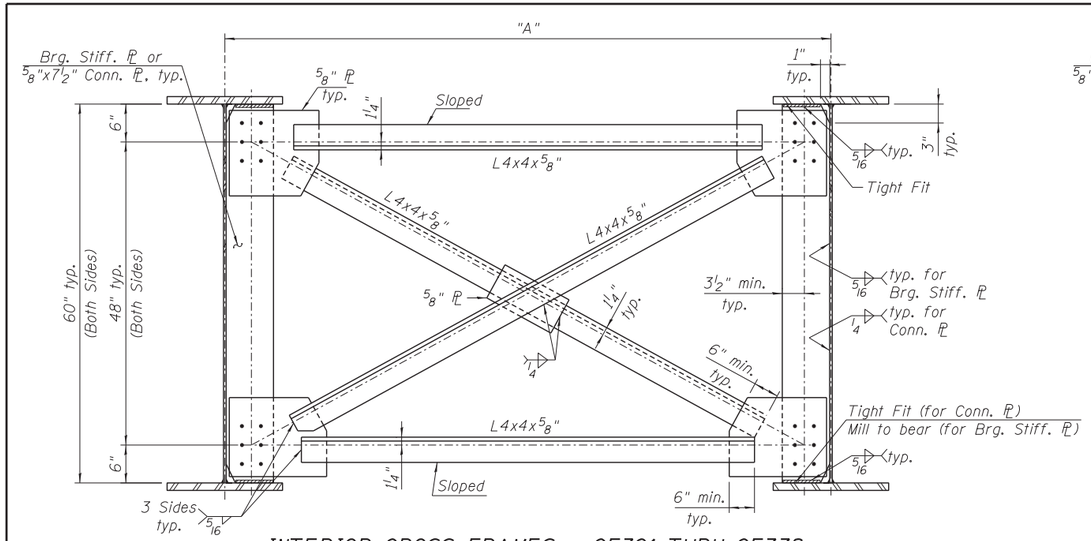
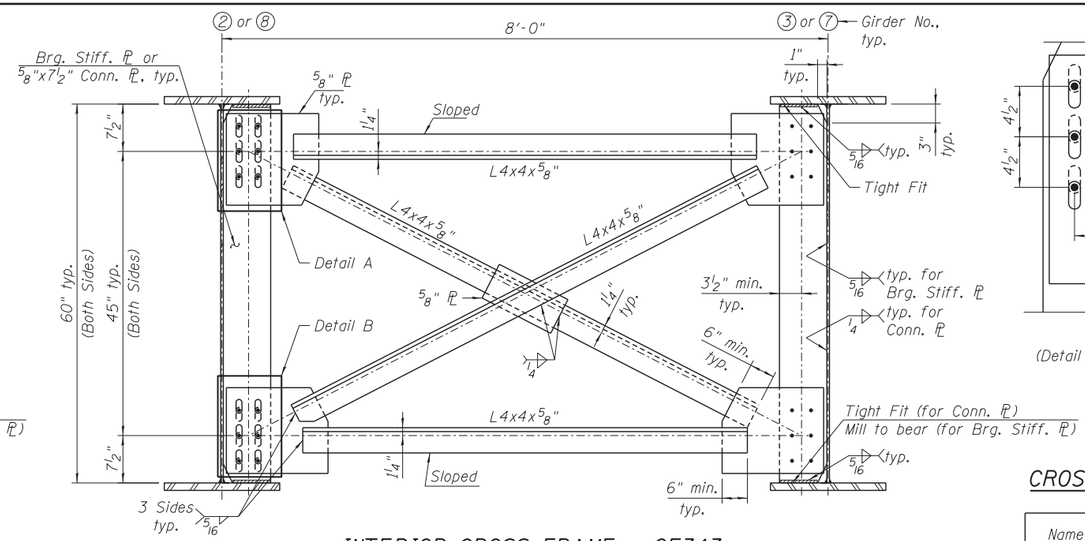


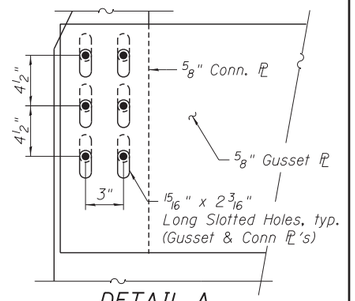
INTERIOR CROSS FRAMES - CF301 THRU CF338

(143 Required)



INTERIOR CROSS FRAME - CF343

(38 Required)

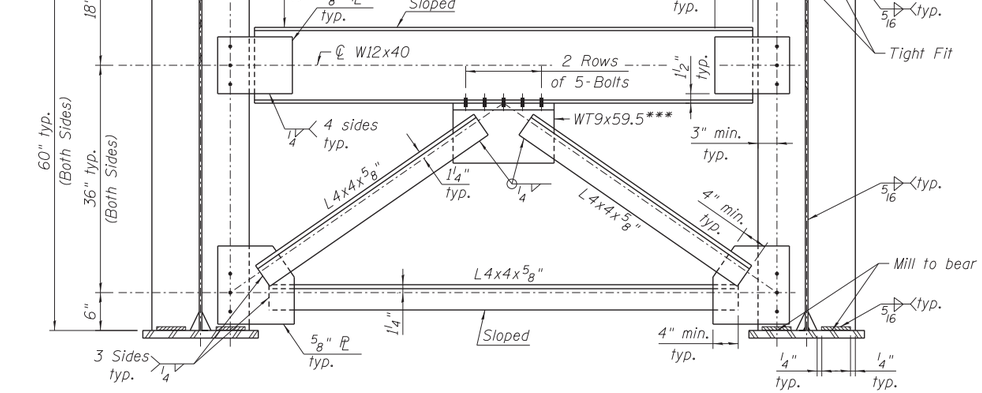


DETAIL A

(Detail B mirror of Detail A)

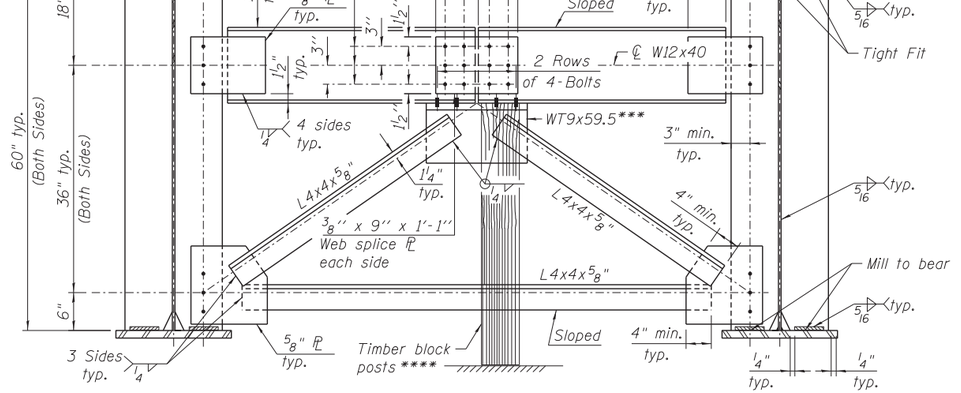
CROSS FRAME TABLE

Name	Quantity	"A"
CF301	95	8'-0"
CF302	1	4'-3 3/8"
CF303	1	4'-9 3/16"
CF304	1	4'-6 13/16"
CF305	1	5'-6 3/8"
CF306	1	4'-10 3/16"
CF307	1	6'-3 5/8"
CF308	1	5'-1 5/8"
CF309	1	7'-0 13/16"
CF310	1	5'-5"
CF311	1	7'-10"
CF312	1	5'-8 3/8"
CF313	1	8'-7 3/16"
CF314	1	5'-11 13/16"
CF315	1	9'-4 3/8"
CF316	1	6'-3 3/16"
CF317	1	6'-6 5/8"
CF318	2	5'-5 3/8"
CF319	1	6'-10"
CF320	2	5'-10"
CF321	1	7'-1 3/8"
CF322	2	6'-2 5/8"
CF323	1	7'-4 13/16"
CF324	2	6'-7 3/16"
CF325	1	7'-8 3/16"
CF326	2	6'-11 13/16"
CF327	1	7'-11 5/8"
CF328	2	7'-4 3/8"
CF329	1	8'-3"
CF330	2	7'-9"
CF331	1	8'-6 3/8"
CF332	2	8'-1 5/8"
CF333	1	8'-9 13/16"
CF334	2	8'-6 3/16"
CF335	1	9'-1 3/16"
CF336	2	8'-10 13/16"
CF337	1	9'-4 5/8"
CF338	2	9'-3 3/8"
CF339	12	8'-0"
CF341	3	9'-8"
CF342	2	4'-0"



END CROSS FRAMES - CF339, CF341 & CF342

(17 Required)



END CROSS FRAME - CF340

(2 Required)

**Contractor to coordinate with Modular Joint Manufacturer.

***Alternate WT shapes utilizing 5/8" nominal thickness are permitted to facilitate material acquisition.

****Cost of Timber Block Posts is included with Structural Steel.

END CROSS FRAME STAGE CONSTRUCTION SEQUENCE

1. Order top chord in two sections.
2. Attach Stage II section of top chord to Girder 7.
3. Place timber block posts between Stage II section of top chord and abutment bearing section.
4. Attach Stage IV section of top chord to both Girder 8 and Stage II section of top chord during Stage IV construction with splice plates.
5. Remove timber block posts.
6. Install WT, diagonal and bottom chord members.

NOTES:

1. See Sheets S-109 thru S-110 for location of girder cross frames.
2. AASHTO M270 Grade 50 steel shall be used for all cross frames, connection plates, and bearing stiffeners, unless otherwise noted.
3. Intermediate transverse stiffeners shall use the same size clips & fillet welds as connection plates. Likewise, jacking stiffeners shall use the same size clips & fillet welds as the bearing stiffeners.
4. Fasteners shall be ASTM A325 Type 1, mechanically galvanized bolts. Bolts 7/8 in. ϕ, holes 1 1/16 in. ϕ, unless otherwise noted.
5. Two hardened washers required for each set of oversized holes.
6. Bolt spacing shall be 3" min. & edge distances shall be 2" min., unless otherwise noted.
7. All cross frames or diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted. Individual cross frames or diaphragms at supports may be temporarily disconnected to install bearing anchor rods.
8. Cross frame members (top & bottom chord, diagonals and gusset plates) shall be hot dipped galvanized. See special provision for "Metallizing Structural Steel" & "Hot-dipped Galvanizing for Structural Steel".
9. Bolts in slots shall be finger tight until the second stage pour is complete.
10. Position slots so bolts start at one end with no concrete load and finish near the opposite end under deck load, allowing maximum displacement without laterally stressing main members.
11. The Contractor shall either:
    1. Ream diaphragm and/or cross frame connection holes during shop assembly, or
    2. Provide detailing and fabrication controls acceptable to the Engineer which ensures accuracy such that field reaming will not exceed the amount permitted in Article 505.08(I) of the Standard Specifications.

363_0161503_60X07_XFRAM_III.dgn

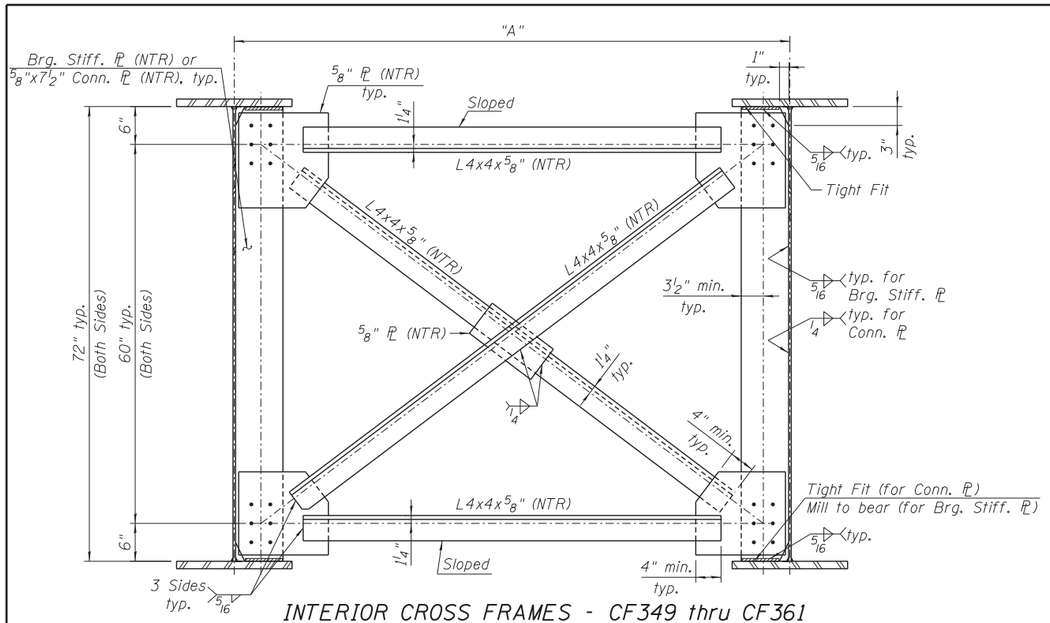
AECOM

USER NAME = kritzm	DESIGNED - CLS	REVISED -
	CHECKED - ATB	REVISED -
PLOT SCALE =	DRAWN - DD	REVISED -
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

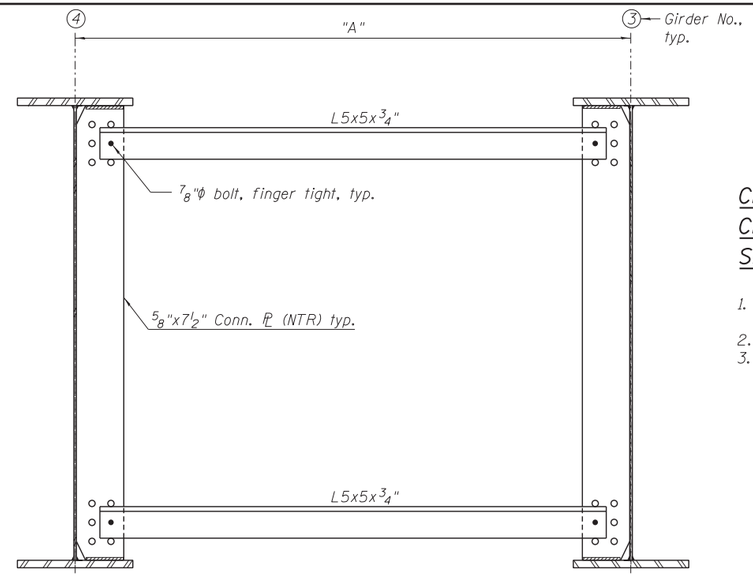
GIRDER CROSS FRAME DETAILS III – S.N. 016–1503 (UNIT 1)
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-137 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	660
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			



INTERIOR CROSS FRAMES - CF349 thru CF361

(270 Required)



TEMPORARY BRACING CROSS FRAMES - CF344 THRU CF348

(15 Required)

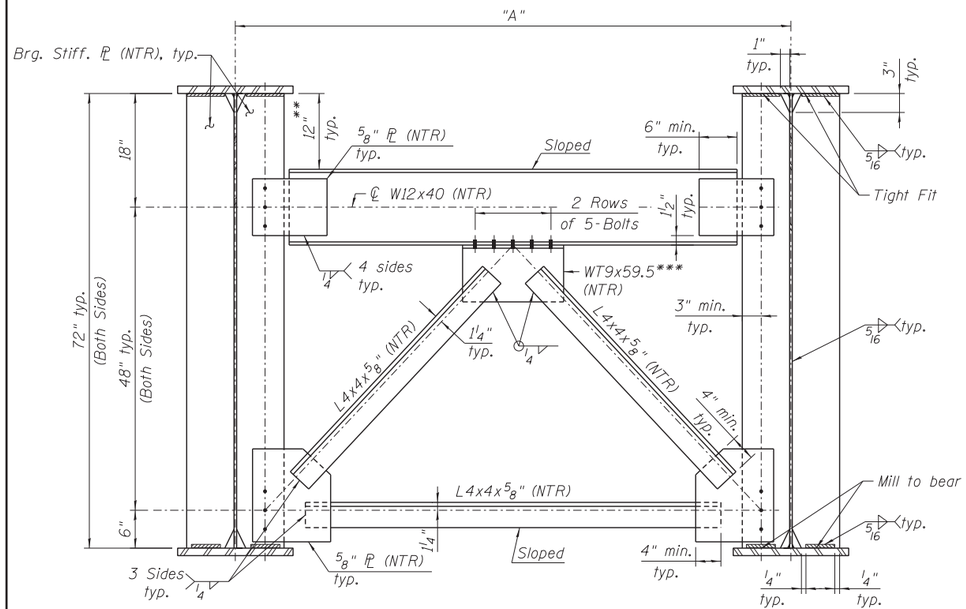
CROSS FRAMES CF344 THRU CF348 STAGE CONSTRUCTION SEQUENCE NOTES

1. Install Cross Frame CF344 thru CF348 prior to Stage IV deck pour.
2. Pour Stage IV concrete deck.
3. After deck has cured remove CF344 thru CF348 and install CF349 thru CF353.

**Contractor to coordinate with Modular Joint Manufacturer.

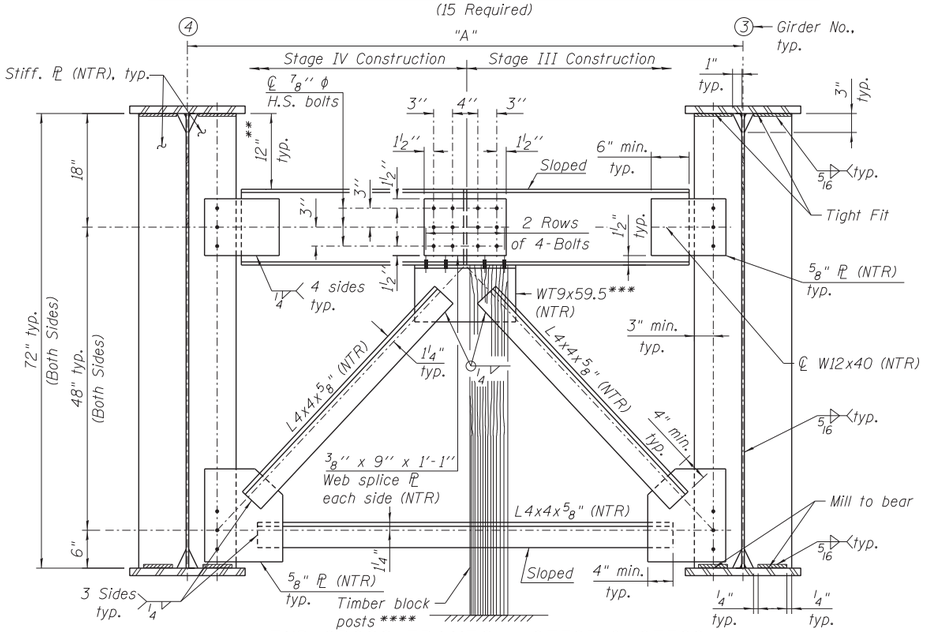
***Alternate WT shapes utilizing 5/8" nominal thickness are permitted to facilitate material acquisition.

****Cost of Timber Block Posts is included with Structural Steel.



END CROSS FRAMES - CF362 THRU CF364

(18 Required)



END CROSS FRAMES - CF365 & CF366

(2 Required)

CROSS FRAME TABLE

Name	Quantity	"A"
CF344	11	7'-4"
CF345	1	7'-6"
CF346	1	7'-10 5/16"
CF347	1	8'-2 3/4"
CF348	1	8'-7 5/16"
CF349	255	7'-4"
CF350	1	7'-6"
CF351	1	7'-10 5/16"
CF352	1	8'-2 3/4"
CF353	1	8'-7 5/16"
CF354	2	7'-4 1/8"
CF355	2	7'-4 1/4"
CF356	2	7'-4 1/2"
CF357	1	7'-6 9/16"
CF358	1	8'-0 1/4"
CF359	1	8'-6 1/16"
CF360	1	7'-5 13/16"
CF361	1	8'-0 1/2"
CF362	2	7'-4 13/16"
CF363	2	9'-0"
CF364	14	7'-4"
CF365	1	9'-0"
CF366	1	7'-4"

NOTES:

1. See Sheets S-111 thru S-113 for location of girder cross frames.
2. AASHTO M270 Grade 50 steel shall be used for all cross frames, connection plates, and bearing stiffeners, unless otherwise noted.
3. Intermediate transverse stiffeners shall use the same size clips & fillet welds as connection plates. Likewise, jacking stiffeners shall use the same size clips & fillet welds as the bearing stiffeners.
4. Fasteners shall be ASTM A325 Type 1, mechanically galvanized bolts. Bolts 7/8 in. ϕ, holes 15/16 in. ϕ, unless otherwise noted.
5. Two hardened washers required for each set of oversized holes.
6. Bolt spacing shall be 3" min. & edge distances shall be 2" min., unless otherwise noted.
7. All cross frames between girders shall be installed with erection pins and bolts in accordance with the erection plan submitted to and approved by the Engineer. Individual cross frames or diaphragms at supports may be temporarily disconnected to install bearing anchor rods.
8. Load carrying components designated "NTR" shall conform to the Impact Testing Requirements, Zone 2.
9. Cross frame members (top & bottom chord, diagonals and gusset plates) shall be hot dipped galvanized. See special provision for "Metallizing Structural Steel" & "Hot-dipped Galvanizing for Structural Steel".
10. The Contractor shall either:
    1. Ream diaphragm and/or cross frame connection holes during shop assembly, or
    2. Provide detailing and fabrication controls acceptable to the Engineer which ensures accuracy such that field reaming will not exceed the amount permitted in Article 505.08(I) of the Standard Specifications.

END CROSS FRAME STAGE CONSTRUCTION SEQUENCE

1. Order top chord in two sections.
2. Attach Stage III section of top chord to Girder 3.
3. Place timber block posts between Stage III section of top chord and abutment bearing section.
4. Attach Stage IV section of top chord to both Girder 4 and Stage III section of top chord during Stage IV construction with splice plates.
5. Remove timber block posts.
6. Install WT, diagonal and bottom chord members.

AECOM

USER NAME = kritzm	DESIGNED - CLS	REVISED -
	CHECKED - ATB	REVISED -
PLOT SCALE =	DRAWN - DD	REVISED -
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

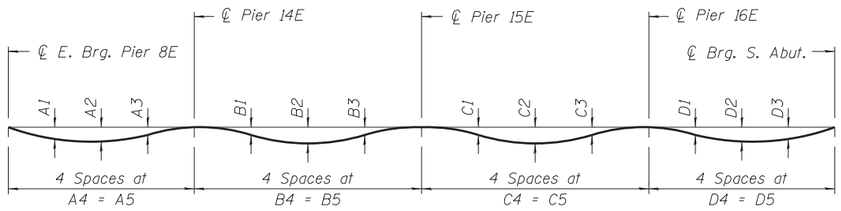
GIRDER CROSS FRAME DETAILS IV – S.N. 016–1503 (UNITS 2 & 3)
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-138 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	661
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

364_0161503_60X07_XFRAM_IV.dgn

NOTES:

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

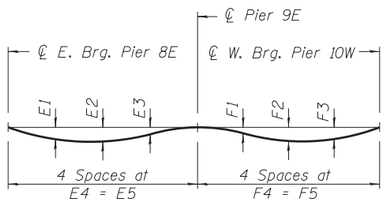


DEAD LOAD DEFLECTION DIAGRAM - S.N. 016-1502

(Includes weight of structural steel only.)

Girder No.	DEAD LOAD DEFLECTIONS - STEEL SELF WEIGHT ONLY - 016-1502									
	Span 15E					Span 16E				
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5
1	0 3/8"	0 3/8"	0 1/8"	32'-3 3/8"	129'-1 1/2"	0 1/4"	0 1/2"	0 1/4"	39'-9 5/8"	159'-2 3/8"
2	0 3/8"	0 1/2"	0 1/4"	32'-9 3/4"	131'-3"	0 1/4"	0 1/2"	0 1/4"	40'-3 7/8"	161'-3 1/2"
3	0 1/2"	0 1/2"	0 1/4"	33'-4 1/8"	133'-4 3/8"	0 1/4"	0 1/2"	0 1/4"	40'-10 1/8"	163'-4 5/8"
4	0 1/2"	0 5/8"	0 1/4"	33'-10 3/8"	135'-5 3/4"	0 1/4"	0 1/2"	0 1/4"	41'-4 3/8"	165'-5 3/4"
5	0 5/8"	0 3/4"	0 3/8"	34'-4 3/4"	137'-7 1/8"	0 1/4"	0 1/2"	0 1/4"	41'-10 3/4"	167'-6 7/8"
6	0 5/8"	0 3/4"	0 3/8"	34'-11 1/8"	139'-8 1/2"	0 1/4"	0 1/2"	0 1/4"	42'-5"	169'-8"

Girder No.	DEAD LOAD DEFLECTIONS - STEEL SELF WEIGHT ONLY - 016-1502 (CONTINUED)									
	Span 17E					Span 18E				
	C1	C2	C3	C4	C5	D1	D2	D3	D4	D5
1	0 1/4"	0 1/2"	0 1/4"	39'-9 5/8"	159'-2 3/8"	0 1/8"	0 3/8"	0 3/8"	32'-6 3/4"	130'-3"
2	0 1/4"	0 1/2"	0 1/4"	40'-3 7/8"	161'-3 1/2"	0 1/4"	0 1/2"	0 3/8"	32'-11 7/8"	131'-11 5/8"
3	0 1/4"	0 1/2"	0 1/4"	40'-10 1/8"	163'-4 5/8"	0 1/4"	0 1/2"	0 1/2"	33'-5"	133'-8 1/8"
4	0 1/4"	0 1/2"	0 1/4"	41'-4 3/8"	165'-5 3/4"	0 1/4"	0 5/8"	0 1/2"	33'-10 1/8"	135'-4 5/8"
5	0 1/4"	0 1/2"	0 1/4"	41'-10 3/4"	167'-6 7/8"	0 1/4"	0 5/8"	0 5/8"	34'-3 1/4"	137'-1 1/4"
6	0 1/4"	0 1/2"	0 1/4"	42'-5"	169'-8"	0 3/8"	0 3/4"	0 5/8"	34'-8 1/2"	138'-9 3/4"

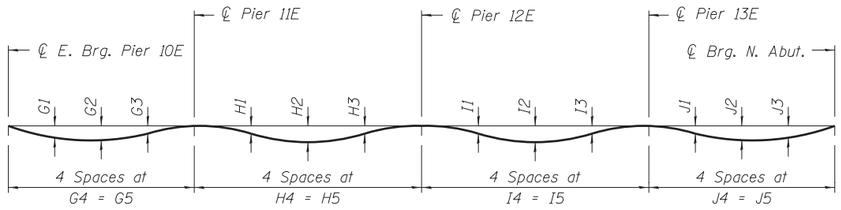


DEAD LOAD DEFLECTION DIAGRAM - S.N. 016-1503 (UNIT 2)

(Includes weight of structural steel only.)

Girder No.	DEAD LOAD DEFLECTIONS - STEEL SELF WEIGHT ONLY - 016-1503 (UNIT 2)									
	Span 9E					Span 10E				
	E1	E2	E3	E4	E5	F1	F2	F3	F4	F5
1	0 1/4"	0 1/4"	0 1/8"	31'-0 3/8"	124'-1 1/2"	0 1/8"	0 3/8"	0 1/4"	30'-11"	123'-7 3/4"
2	0 1/4"	0 1/4"	0 1/8"	30'-7 1/2"	122'-5 3/4"	0 1/8"	0 1/4"	0 1/4"	30'-6"	122'-0 1/8"
3	0 1/4"	0 1/4"	0 1/8"	30'-2 1/2"	120'-10"	0 1/8"	0 1/4"	0 1/4"	30'-1 1/8"	120'-4 1/2"
4	0 1/4"	0 1/4"	0 1/8"	29'-9"	118'-11 7/8"	0 1/8"	0 1/4"	0 1/4"	29'-8 1/4"	118'-8 3/4"
5	0 1/4"	0 1/4"	0 1/8"	29'-3 5/8"	117'-2 1/4"	0 1/8"	0 1/4"	0 1/4"	29'-3 1/4"	117'-1 1/8"
6	0 1/8"	0 1/4"	0 1/8"	28'-10 3/8"	115'-5 1/2"	0 1/8"	0 1/8"	0 1/8"	28'-10 3/8"	115'-5 1/2"

Girder No.	DEAD LOAD DEFLECTIONS - STEEL SELF WEIGHT ONLY - 016-1503 (UNIT 3)									
	Span 11E					Span 12E				
	G1	G2	G3	G4	G5	H1	H2	H3	H4	H5
1	0 5/8"	0 3/4"	0 3/8"	34'-9 1/4"	139'-1 1/8"	0 1/4"	0 1/2"	0 1/4"	42'-5 7/8"	169'-11 1/2"
2	0 5/8"	0 3/4"	0 3/8"	34'-3 3/4"	137'-3 1/8"	0 1/4"	0 1/2"	0 1/4"	41'-11 1/4"	167'-8 3/4"
3	0 1/2"	0 5/8"	0 1/4"	33'-10 1/4"	135'-5"	0 1/4"	0 1/2"	0 1/4"	41'-4 1/2"	165'-6 1/8"
4	0 1/2"	0 1/2"	0 1/4"	33'-4 3/4"	133'-6 7/8"	0 1/4"	0 1/2"	0 1/4"	40'-9 7/8"	163'-3 3/8"
5	0 3/8"	0 1/2"	0 1/4"	32'-11 1/4"	131'-8 7/8"	0 1/4"	0 1/2"	0 1/4"	40'-3 1/8"	161'-0 5/8"
6	0 3/8"	0 3/8"	0 1/8"	32'-5 3/4"	129'-10 3/4"	0 1/4"	0 1/2"	0 1/4"	39'-8 1/2"	158'-10"



DEAD LOAD DEFLECTION DIAGRAM - S.N. 016-1503 (UNIT 3)

(Includes weight of structural steel only.)

Girder No.	DEAD LOAD DEFLECTIONS - STEEL SELF WEIGHT ONLY - 016-1503 (UNIT 3 CONTINUED)									
	Span 13E					Span 14E				
	I1	I2	I3	I4	I5	J1	J2	J3	J4	J5
1	0 1/4"	0 1/2"	0 1/4"	42'-5 7/8"	169'-11 1/2"	0 3/8"	0 3/4"	0 5/8"	34'-9 1/8"	139'-0 5/8"
2	0 1/4"	0 1/2"	0 1/4"	41'-11 1/4"	167'-8 3/4"	0 3/8"	0 3/4"	0 5/8"	34'-3 3/4"	137'-2 3/4"
3	0 1/4"	0 1/2"	0 1/4"	41'-4 1/2"	165'-6 1/8"	0 1/4"	0 5/8"	0 1/2"	33'-10 1/4"	135'-5"
4	0 1/4"	0 1/2"	0 1/4"	40'-9 7/8"	163'-3 3/8"	0 1/4"	0 1/2"	0 1/2"	33'-4 3/4"	133'-7 1/8"
5	0 1/4"	0 1/2"	0 1/4"	40'-3 1/8"	161'-0 5/8"	0 1/4"	0 1/2"	0 3/8"	32'-11 3/8"	131'-9 1/4"
6	0 1/4"	0 1/2"	0 1/4"	39'-8 1/2"	158'-10"	0 1/8"	0 3/8"	0 3/8"	32'-5 7/8"	129'-11 1/2"

365_0161503_60X07_XFRAM_V.dgn

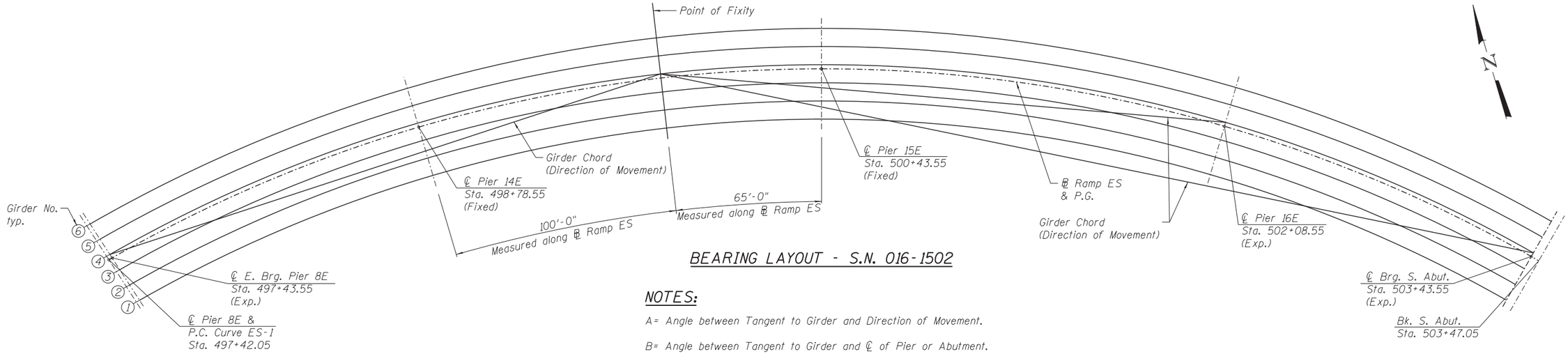
AECOM

USER NAME = kritzm	DESIGNED - VP	REVISED -	
	CHECKED - MK	REVISED -	
PLOT SCALE =	DRAWN - VP	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER CROSS FRAME DETAILS V
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-139 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	662
		CONTRACT NO. 60X07		
	ILLINOIS	FED. AID PROJECT		



BEARING LAYOUT - S.N. 016-1502

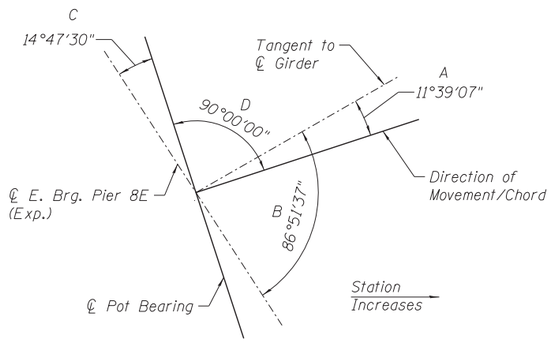
NOTES:

A= Angle between Tangent to Girder and Direction of Movement.

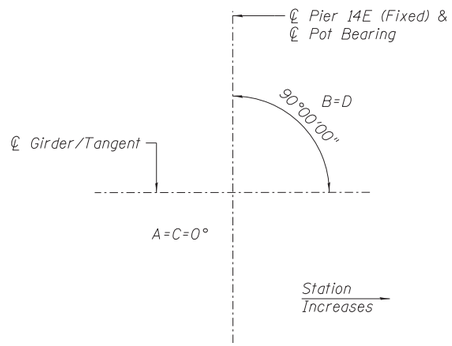
B= Angle between Tangent to Girder and ℄ of Pier or Abutment.

C= Setting angle between ℄ of Bearing Base Plate and ℄ of Pier or Abutment.

D= Set Bearing Base Plates at right angles to the Direction of Movement/Chord.

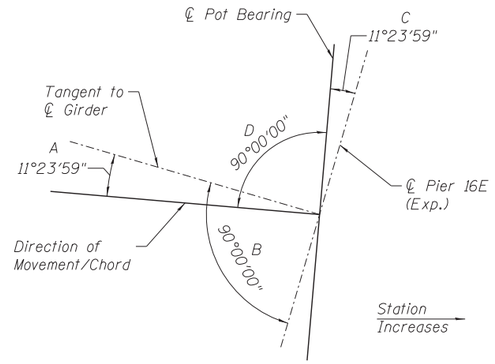


PIER 8E

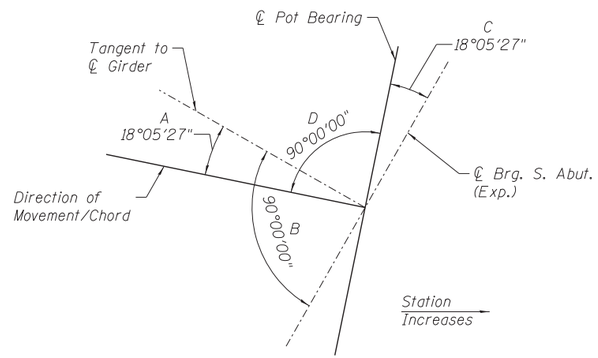


PIER 14E

(Pier 15E Similar)



PIER 16E



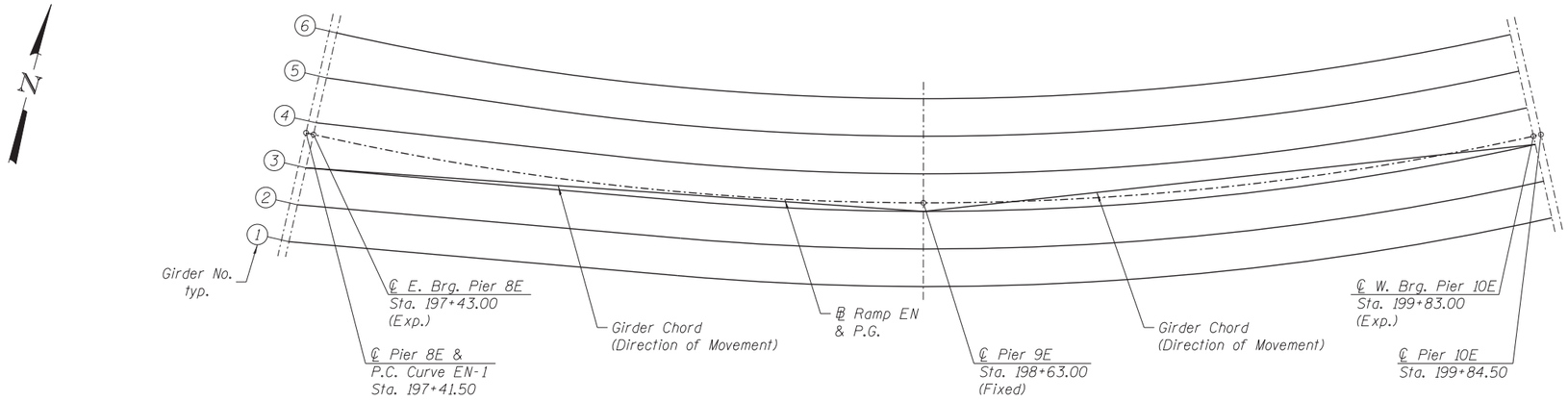
BRG. S. ABUTMENT

BEARING ORIENTATION - S.N. 016-1502

371_0161502_60X70_BRGL1.dgn

AECOM	USER NAME = kritzm	DESIGNED - MK	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	BEARING LAYOUT & ORIENTATION I – S.N. 016–1502 I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
		CHECKED - VP	REVISED -		
	PLOT SCALE =	DRAWN - MK	REVISED -		
	PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -		SHEET NO. S-140 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	663
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			



BEARING LAYOUT - S.N. 016-1503 (UNIT 2)

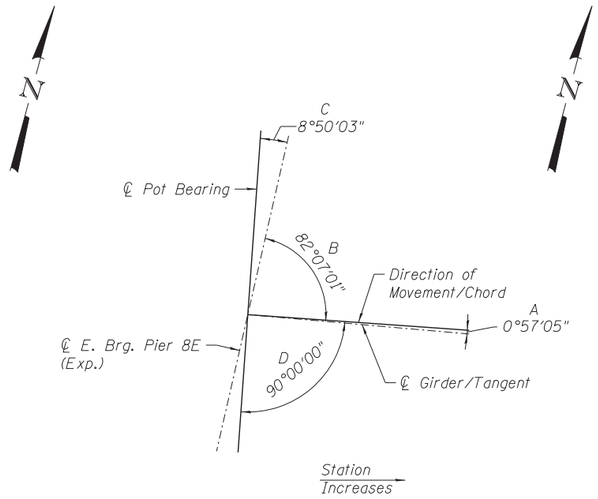
NOTES:

A= Angle between Tangent to Girder and Direction of Movement.

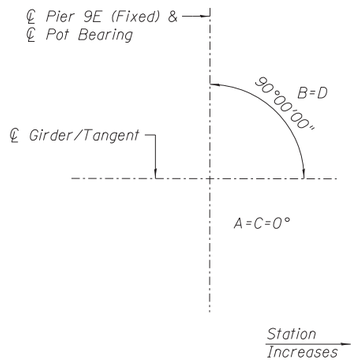
B= Angle between Tangent to Girder and ℄ of Pier or Abutment.

C= Setting angle between ℄ of Bearing Base Plate and ℄ of Pier or Abutment.

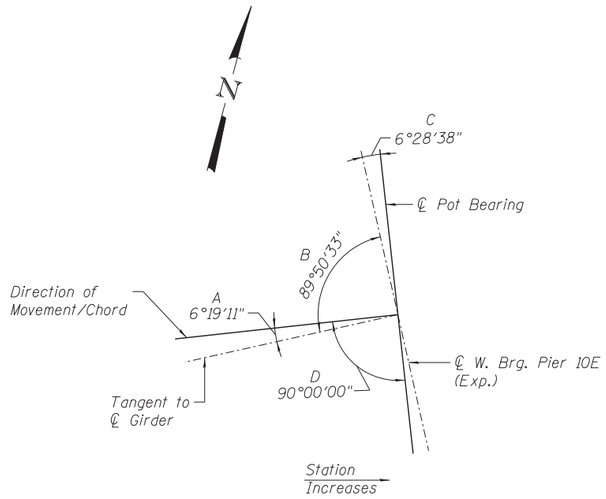
D= Set Bearing Base Plates at right angles to the Direction of Movement/Chord.



PIER 8E



PIER 9E

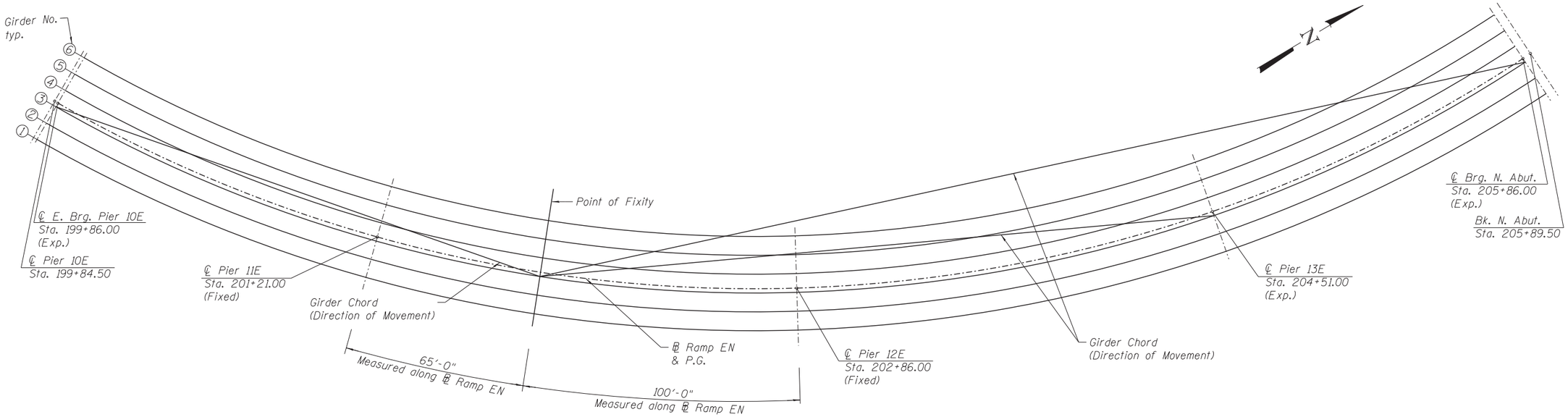


PIER 10E

BEARING ORIENTATION - S.N. 016-1503 (UNIT 2)

372_0161503_60X70_BRGL2.dgn

AECOM	USER NAME = kritzm	DESIGNED - MK	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	BEARING LAYOUT & ORIENTATION II – S.N. 016–1503 (UNIT 2) I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		CHECKED - VP	REVISED -			55	2013-049B	COOK	888	664
	PLOT SCALE =	DRAWN - MK	REVISED -					CONTRACT NO. 60X07		
	PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -		SHEET NO. S-141 OF S-218 SHEETS			ILLINOIS FED. AID PROJECT		



BEARING LAYOUT - S.N. 016-1503 (UNIT 3)

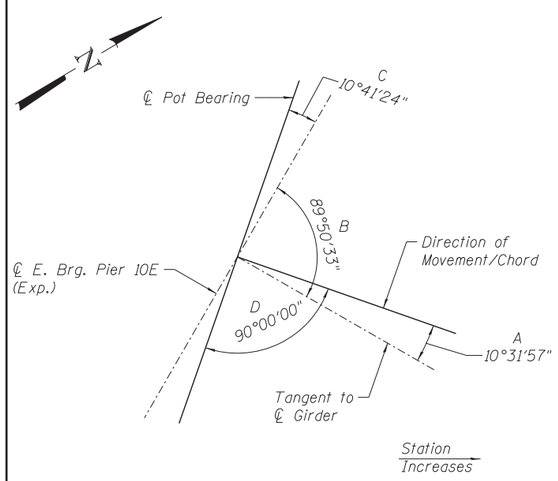
NOTES:

A= Angle between Tangent to Girder and Direction of Movement.

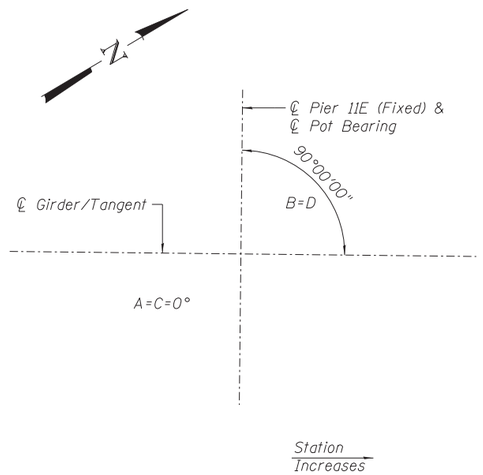
B= Angle between Tangent to Girder and ℄ of Pier or Abutment.

C= Setting angle between ℄ of Bearing Base Plate and ℄ of Pier or Abutment.

D= Set Bearing Base Plates at right angles to the Direction of Movement/Chord.

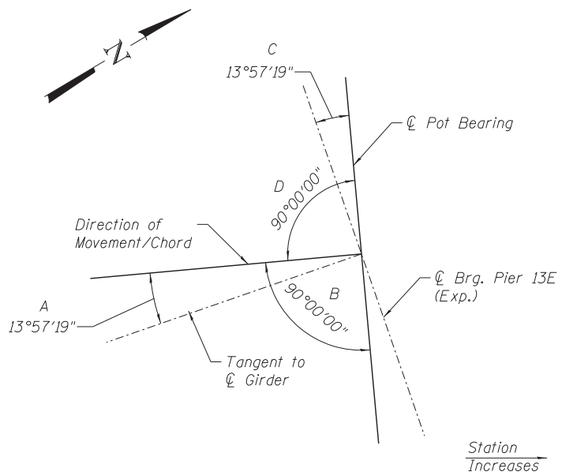


PIER 10E

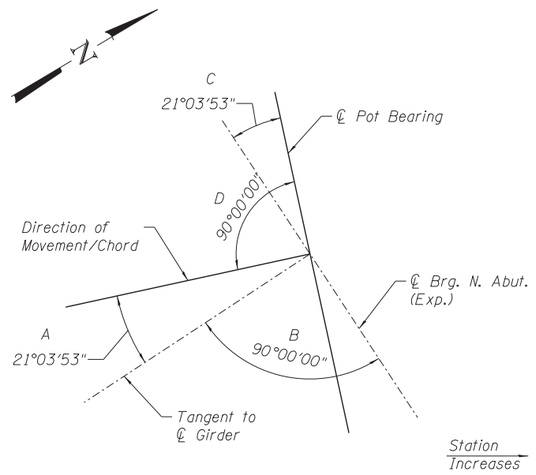


PIER 11E

(Pier 12E Similar)



PIER 13E

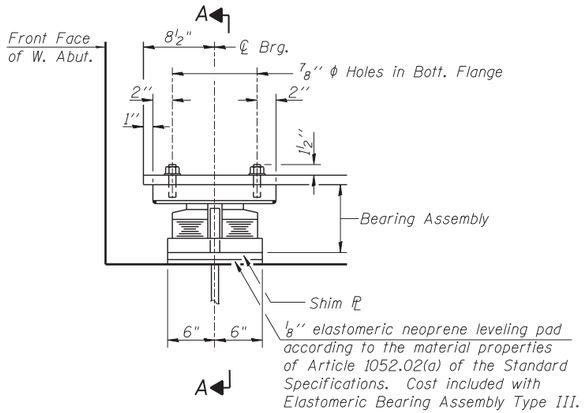


BRG. N. ABUTMENT

BEARING ORIENTATION - S.N. 016-1503 (UNIT 3)

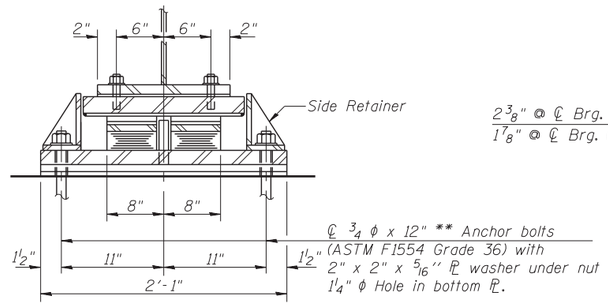
373_0161503_60X70_BRGL3.dgn

AECOM	USER NAME = kritzm	DESIGNED - MK	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	BEARING LAYOUT & ORIENTATION III – S.N. 016–1503 (UNIT 3) I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		CHECKED - VP	REVISED -			55	2013-049B	COOK	888	665
	PLOT SCALE =	DRAWN - MK	REVISED -						CONTRACT NO. 60X07	
	PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -		SHEET NO. S-142 OF S-218 SHEETS			ILLINOIS	FED. AID PROJECT	



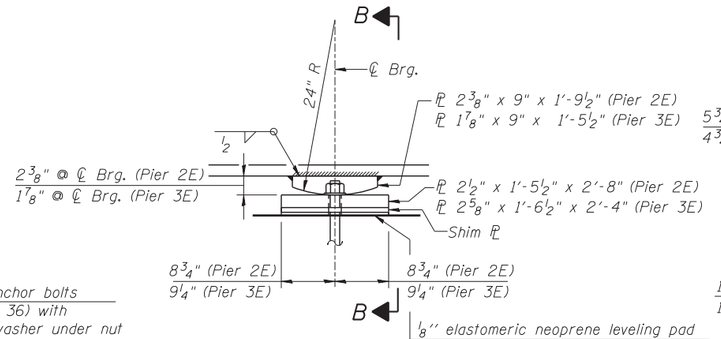
ELEVATION AT W. ABUT.

(Pier 5E-W similar)



SECTION A-A

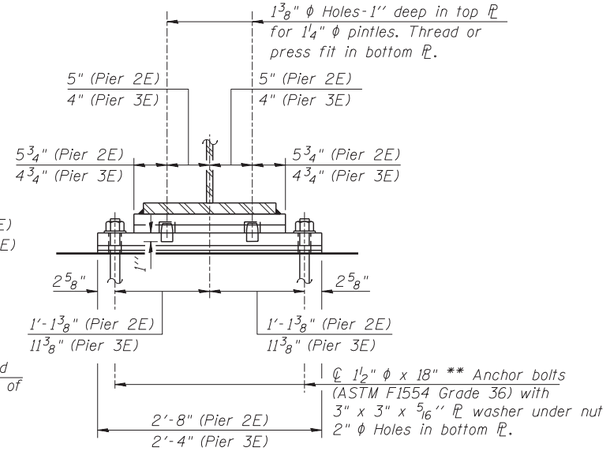
TYPE III ELASTOMERIC EXP. BRG.



ELEVATION AT PIER

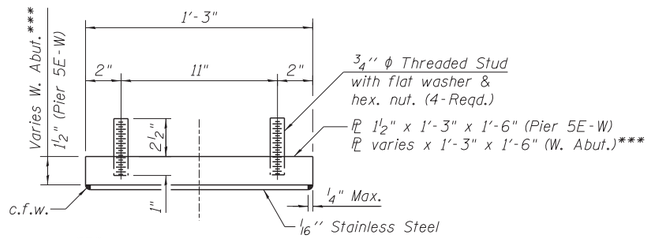
FIXED BEARING

(Pier 2E and Pier 3E)



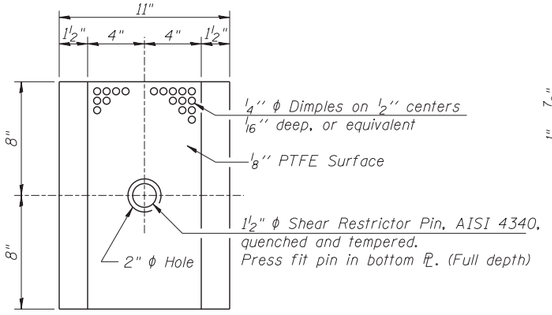
SECTION B-B

**Length shown is minimum required embedment length.

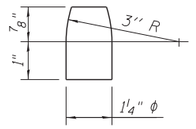


***See Tapered Top Plate Detail

TOP BEARING ASSEMBLY



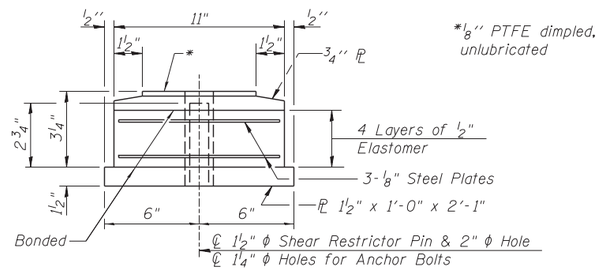
PLAN-PTFE ELASTOMERIC BRG.



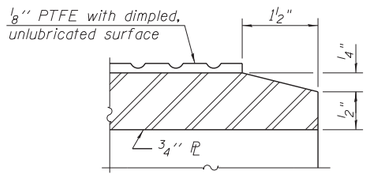
PINTLE

NOTES:

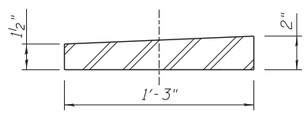
1. Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
2. Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.
3. Anchor bolts for Type III 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.
4. Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
5. Side retainers and other steel members required for the elastomeric bearing assembly shall be included in the cost of Elastomeric Bearing Assembly, Type III.
6. The ⅛" 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.
7. Bonding of ⅛" PTFE sheet during vulcanizing process will be permitted provided the process and method of adjusting assembly height is approved by the Engineer.
8. Fixed Bearing included in "Furnishing and Erecting Structural Steel."
9. Two ⅛ in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.
10. All bearing plates, side retainers, anchor bolts, nuts, washers and pintles shall be galvanized according to AASHTO M111 or M232 as applicable.
11. The structural steel for fixed and elastomeric Bearing Assembly shall conform to the requirements of AASHTO M 270 Grade 50.



*⅛" PTFE dimpled, unlubricated



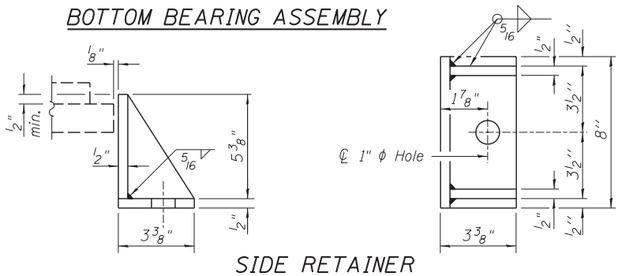
SECTION THRU PTFE



TAPERED TOP PL AT W. ABUT.

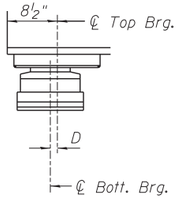
(Looking North)

BOTTOM BEARING ASSEMBLY



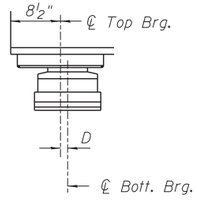
SIDE RETAINER

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=⅛" per each 100° of expansion for every 15° temp. change from the normal temp. of 50° F.

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly, Type III	Each	18
Anchor Bolts, ¾"	Each	36
Anchor Bolts, 1½"	Each	36

381_0161500_60X07_BRG5.dgn

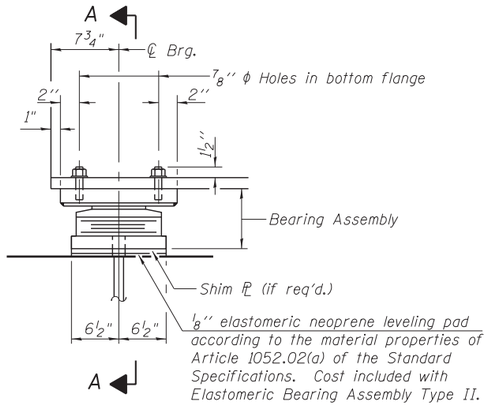
RME Rubinos & Mesia Engineers, Inc.
200 S. Michigan Avenue, Suite 1500, Chicago, IL 60604-2482

USER NAME = AVasonis	DESIGNED - MR	REVISED -
	CHECKED - TH	REVISED -
PLOT SCALE =	DRAWN - AMV	REVISED -
PLOT DATE = 5/26/2015	CHECKED - MR	REVISED -

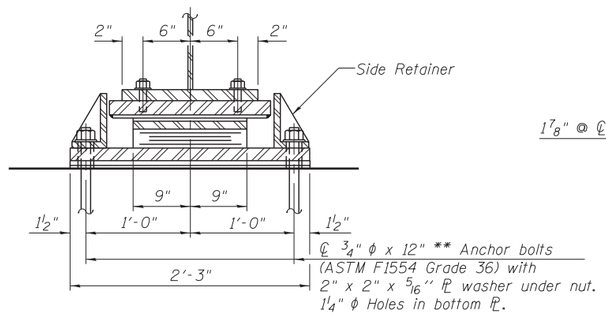
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ELASTOMERIC BEARING DETAILS I – S.N. 016–1500
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-143 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	666
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

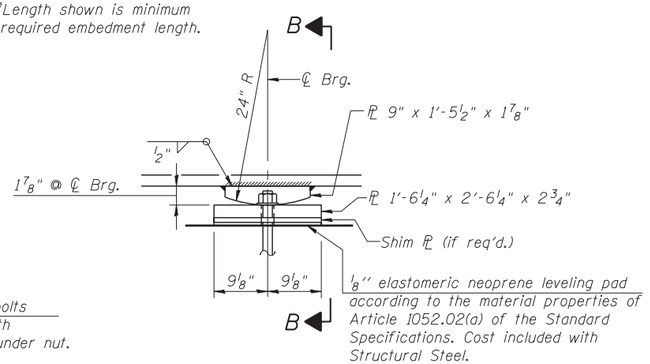


ELEVATION AT PIER

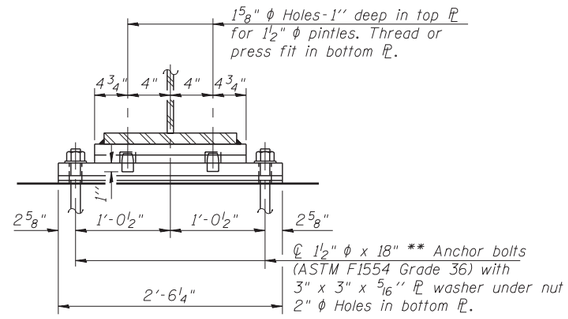


SECTION A-A

**Length shown is minimum required embedment length.



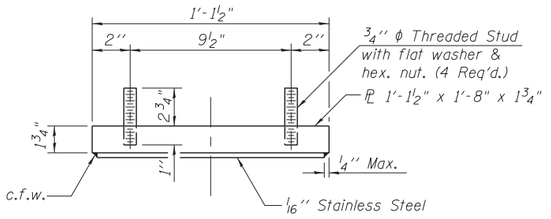
ELEVATION AT PIER



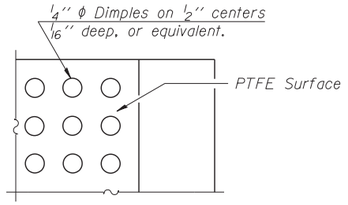
SECTION B-B

TYPE II ELASTOMERIC EXP. BRG.

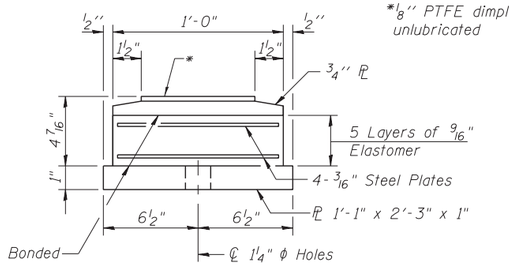
(Pier 5E-E and Pier 8E-W)



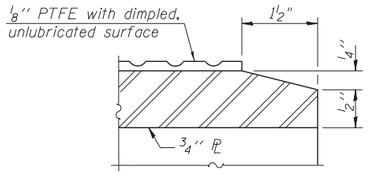
TOP BEARING ASSEMBLY



PLAN-PTFE SURFACE

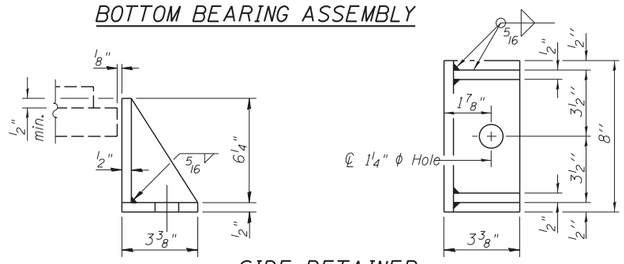


*1/8" PTFE dimpled, unlubricated



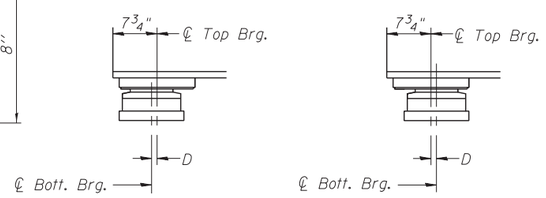
SECTION THRU PTFE

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.)

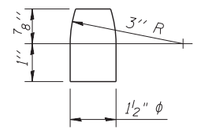
ABOVE 50°F. (move Bott. Brg. toward Fixed Brg.)

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.

FIXED BEARING

(Pier 6E and Pier 7E)



PINTLE

NOTES:

1. Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
2. Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.
3. 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.
4. Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
5. Side retainers and other steel members required for the elastomeric bearing assembly shall be included in the cost of Elastomeric Bearing Assembly, Type II.
6. 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.
7. 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.
8. Fixed Bearing included in "Furnishing and Erecting Structural Steel."
9. 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.
10. All bearing plates, side retainers, anchor bolts, nuts, washers and pintles shall be galvanized according to AASHTO M111 or M232 as applicable.
11. The structural steel for fixed and elastomeric Bearing Assembly shall conform to the requirements of AASHTO M 270 Grade 50.

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly, Type II	Each	21
Anchor Bolts, 3/4" ϕ	Each	42
Anchor Bolts, 1 1/2" ϕ	Each	42

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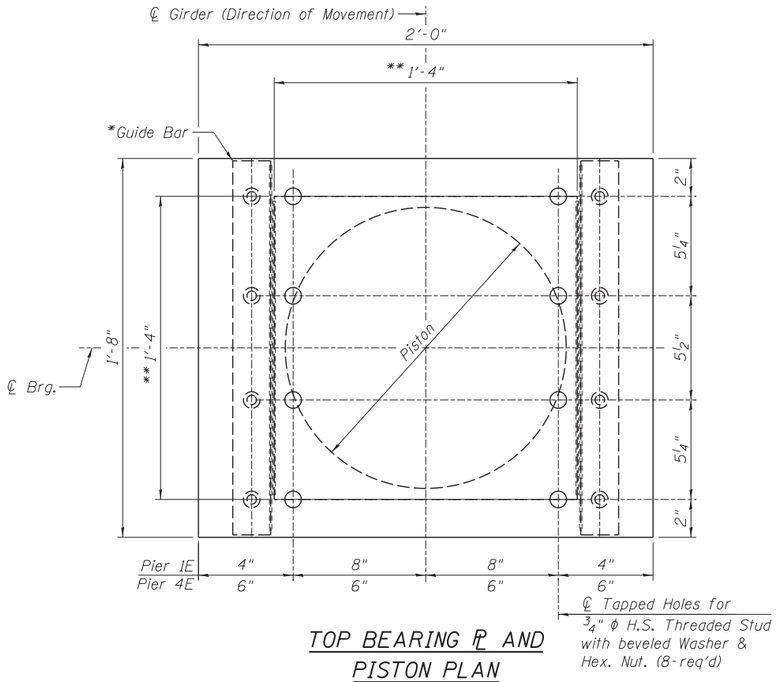
AECOM

USER NAME = kritzm	DESIGNED - VP	REVISED -	
	CHECKED - ATB	REVISED -	
PLOT SCALE =	DRAWN - VP	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -	

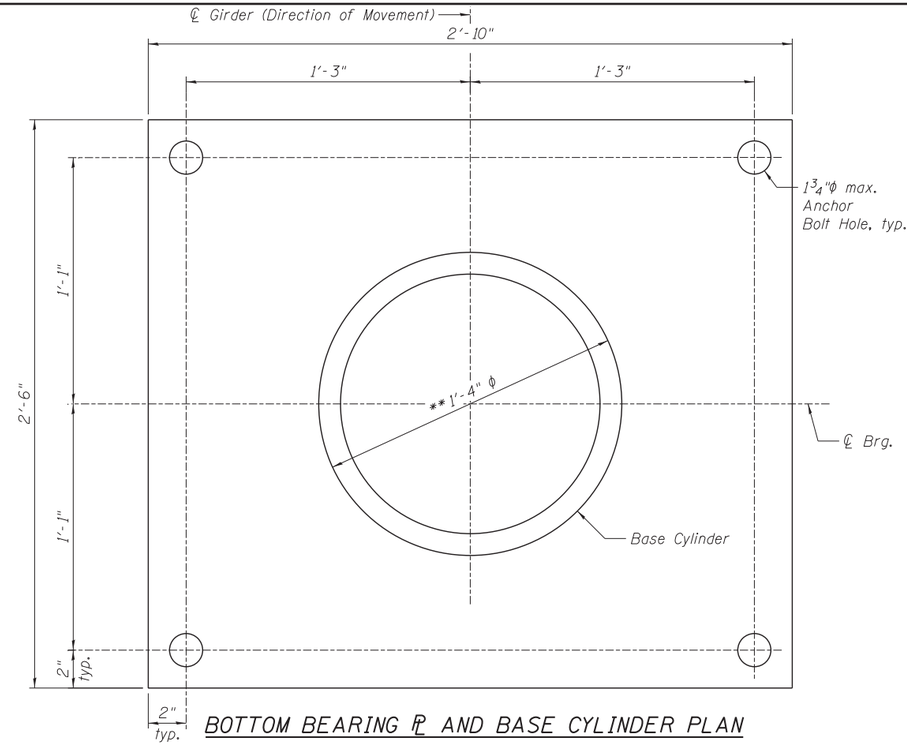
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ELASTOMERIC BEARING DETAILS II
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-144 OF S-218 SHEETS

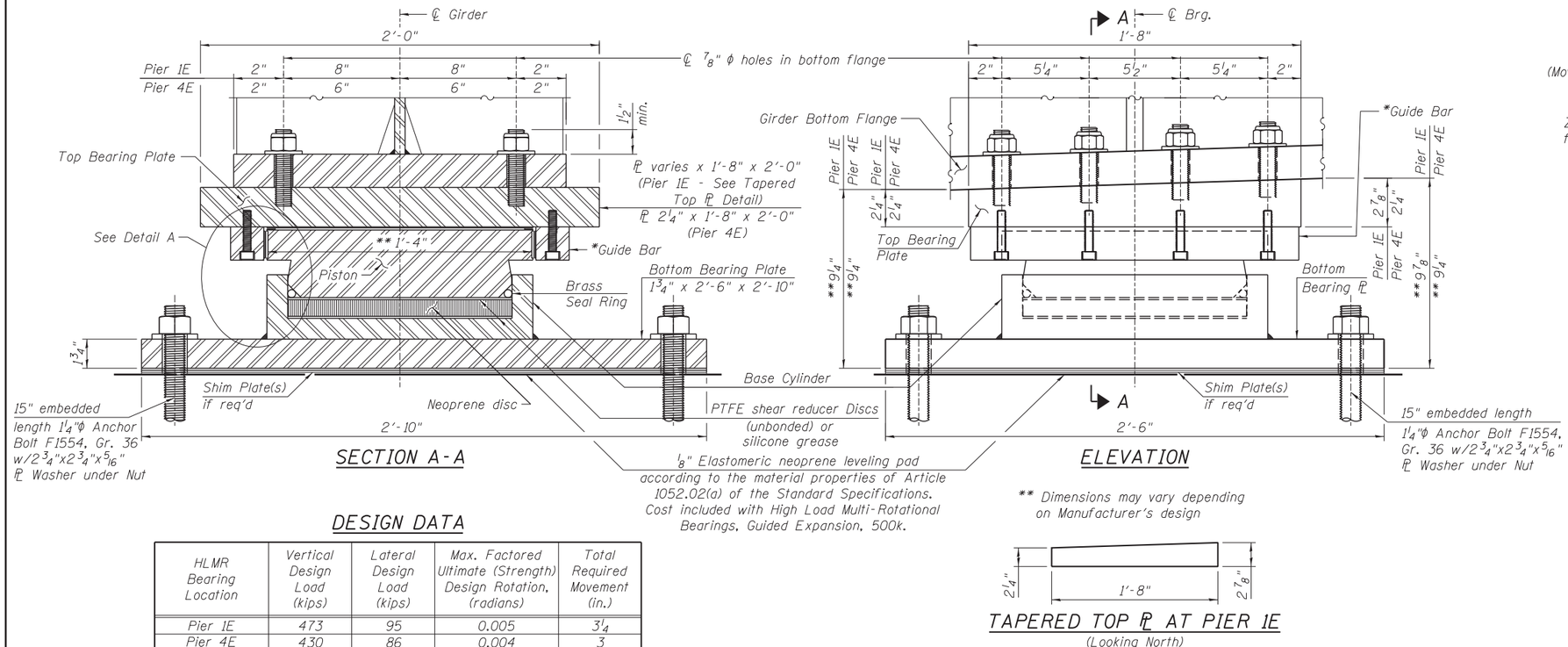
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	667
		CONTRACT NO. 60X07		
ILLINOIS	FED. AID PROJECT			



TOP BEARING ℄ AND PISTON PLAN



BOTTOM BEARING ℄ AND BASE CYLINDER PLAN



SECTION A-A

ELEVATION

** Dimensions may vary depending on Manufacturer's design

TAPERED TOP ℄ AT PIER 1E

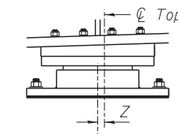
(Looking North)

DESIGN DATA

HLMR Bearing Location	Vertical Design Load (kips)	Lateral Design Load (kips)	Max. Factored Ultimate (Strength) Design Rotation, (radians)	Total Required Movement (in.)
Pier 1E	473	95	0.005	3¼
Pier 4E	430	86	0.004	3

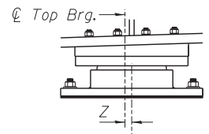
NOTES:

1. The Structural Steel for the top plate, guide bars, piston, base cylinder and bottom plate shall conform to the requirements of AASHTO M270 Grade 50.
2. Top & bottom plates, guide bars, piston, base cylinder, threaded studs, nuts, washers and shim plates are included in the cost of the Bearing Assembly.
3. Anchor bolts for bearings shall be placed in holes drilled in the concrete through holes in the bottom bearing plate after members are in place.
4. Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
5. The PTFE sliding surface shall be bonded with a two-component, medium viscosity epoxy resin, conforming to the requirements of the Federal Specification MMM-A-134, Type 1. The bond agent shall be applied on the full area of the contact surfaces.
6. Two ⅛" adjusting shims shall be provided for each bearing in addition to all other plates or shims & placed as shown on bearing details.
7. All bearing plates, anchor bolts, nuts and washers shall be galvanized according to AA5HTO M111 M232 as applicable.
8. All HLMR bearings shall be designed to carry minimum Factored Ultimate (Strength) Design Rotation of 0.02 radians. See Special Provision.
9. Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
10. Bearing dimensions and details shown are for a pot type HLMR bearing. Disc type HLMR bearing dimensions and details will vary.



BELOW 50° F

(Move bott. brg. away from Fixed Brg.)

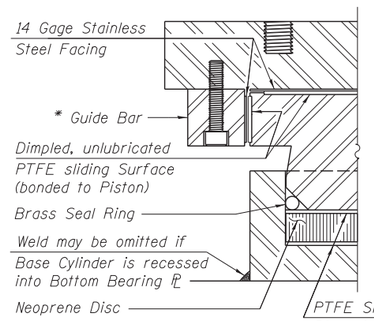


ABOVE 50° F

(Move bott. brg. toward Fixed Brg.)

SETTING ANCHOR BOLTS AT EXP. BRG.

Z = ⅛ in. per each 100 ft. of expansion for every 15° temperature change from the normal temperature of 50° F.



DETAIL A

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

BILL OF MATERIAL

Item	Unit	Total
High Load Multi-Rotational Bearings, Guided Expansion 500K	Each	18
Anchor Bolts, 1¼"	Each	72

RME Rubinos & Mesia Engineers, Inc. 200 S. Michigan Avenue, Suite 1500, Chicago, IL 60604-2482

USER NAME = AVasonis	DESIGNED - PH	REVISED -	
	CHECKED - PK	REVISED -	
PLOT SCALE =	DRAWN - PH	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - PK	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXPANSION POT BEARING DETAILS I – S.N. 016-1500
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-145 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	668
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

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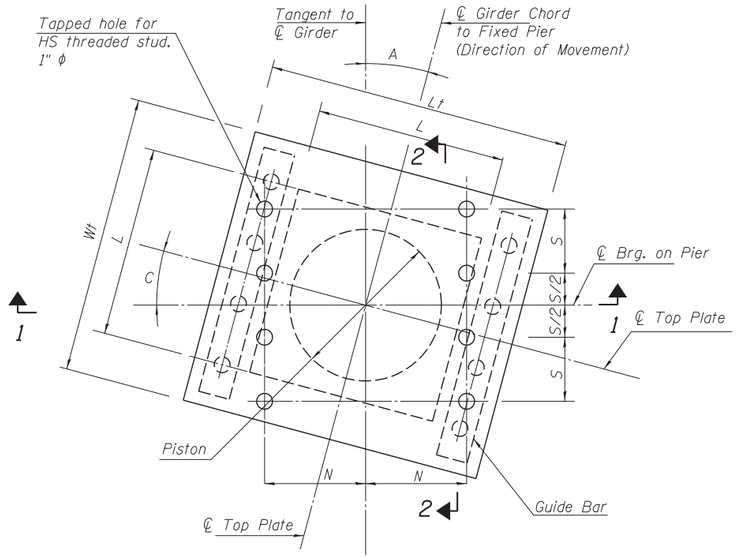
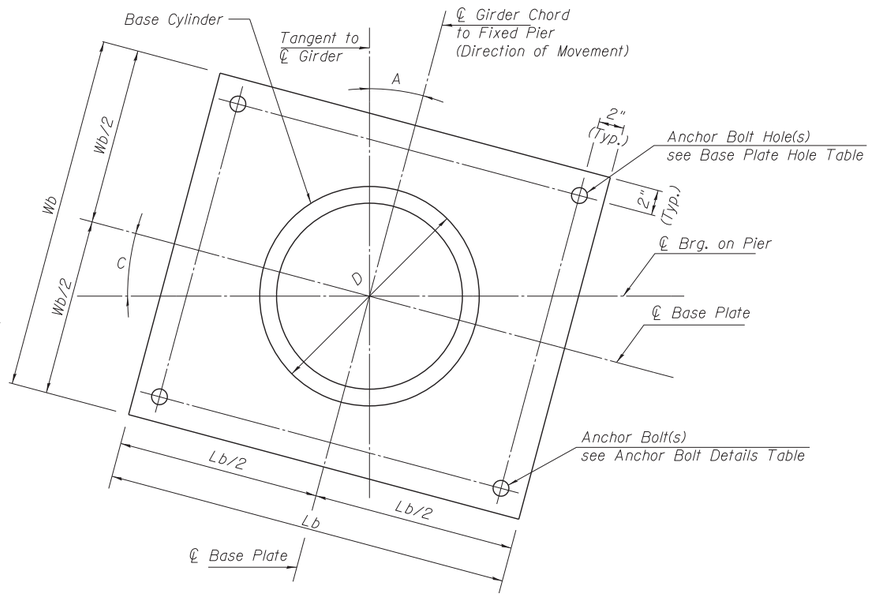
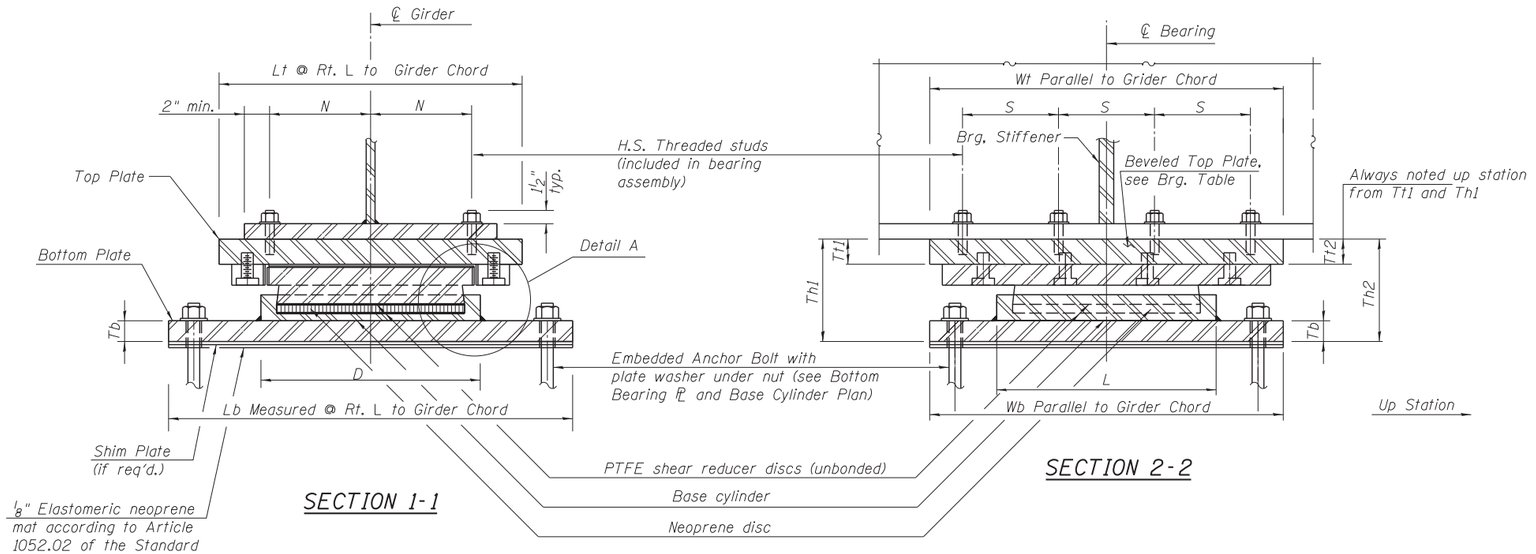


TOP BEARING ℄ AND PISTON PLAN

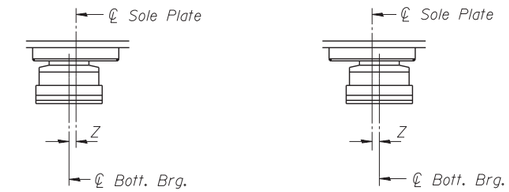


BOTTOM BEARING ℄ AND BASE CYLINDER PLAN



NOTES:

1. The Structural Steel for the top & bottom bearing plates shall be AASHTO M270 Grade 50.
2. For anchor bolt type and size, see Guided Expansion Bearing Dimensions Table on sheet S-147.
3. Top & bottom plates, threaded studs, washers & shim plates are included in the cost of the High Load Multi-Rotational Bearings, Guided Expansion.
4. Anchor bolts for bearings shall be placed in holes drilled in the concrete through holes in the bottom bearing plate after members are in place.
5. Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
6. The ⅛" PTFE sheet shall be bonded directly to the piston 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.
7. Two ⅛ in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.
8. Work this sheet with sheet S-147.
9. All bearing plates, anchor bolts, nuts, washers and pintles shall be galvanized according to AASHTO M111 or M232 as applicable.
10. If base cylinder is recessed into the bottom bearing plate, the thickness of the bottom plate shall be Tb plus the depth of the recess.

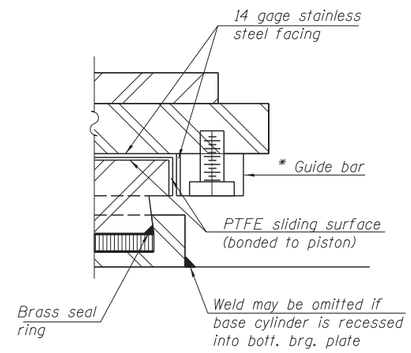


BELOW 50° F. (move Bott. Brg. away from Fixed Brg.)

ABOVE 50° F. (move Bott. Brg. toward Fixed Brg.)

SETTING ANCHOR BOLTS AT EXP. BRG.

Z = ⅛" per each 100' of expansion for every 15° temp. change from the normal temp. of 50° F.



DETAIL A

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

ANCHOR BOLT DETAILS TABLE

Bolt Dia. x Length**	Plate Washer
1" x 12"	2¼"x2¼"x5/16"
1¼" x 15"	2¾"x2¾"x5/16"

**Length shown is minimum required embedment length.

BASE PLATE HOLE TABLE

Anchor Bolt ϕ	Max. Hole ϕ
1"	1½"
1¼"	1¾"

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AECOM

USER NAME = kritzm	DESIGNED - VP	REVISED -	
	CHECKED - EJM	REVISED -	
PLOT SCALE =	DRAWN - BRD	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - VP	REVISED -	

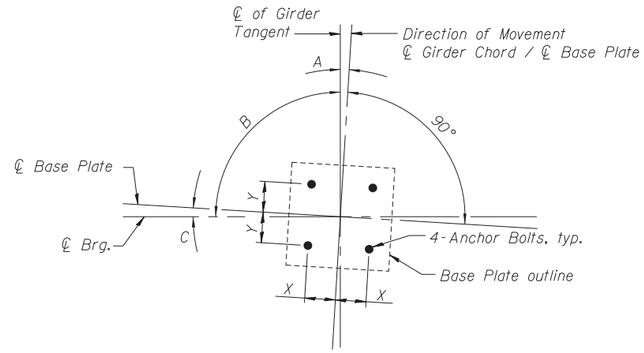
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXPANSION POT BEARING DETAILS II
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-146 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	669
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

GUIDED EXPANSION BEARING DIMENSIONS TABLE

Brg. Location	Vertical Design Load (kips)	Lateral Design Load (kips)	Max. Factored Ultimate (Strength) Design Rotation, (radians)	Total Required Movement (inches)	Quantity	Bottom Bearing Plate			Top Bearing Plate						Th1	Th2	L	D	Anchor Bolt Dia.	Anchor Bolt Specification Grade
						Tb	Lb	Wb	Tt1	Tt2	Lt	Wt	N	S						
Pier 8E-E (SN 016-1503)	200	33	0.006	1 1/2"	6	1 1/4"	2'-6"	2'-1"	1 3/4"	1 1/2"	1'-8"	1'-7"	6"	5"	8"	7 3/4"	10 1/4"	11 3/4"	1"	F1554, Grade 55
Pier 10E-W	200	36	0.008	1 1/2"	6	1 1/4"	2'-6"	2'-1"	2"	1 1/2"	1'-8"	1'-7"	6"	5"	8 1/4"	7 3/4"	10 1/4"	11 3/4"	1"	F1554, Grade 55
Pier 10E-E	250	41	0.010	2 1/2"	6	1 1/4"	2'-6"	2'-2"	2"	1 1/2"	1'-8"	1'-8"	6"	5"	8 3/8"	7 7/8"	11 1/4"	1'-0 7/8"	1"	F1554, Grade 55
Pier 13E	550	106	0.003	3 1/4"	6	1 1/2"	2'-11"	2'-7"	3"	2 3/8"	2'-1"	2'-1"	6"	7"	11 3/8"	10 3/4"	1'-4 1/4"	1'-7 3/4"	1 1/4"	F1554, Grade 55
N Abutment	250	42	0.010	5"	6	1 1/4"	2'-6"	2'-2"	2"	1 1/2"	1'-8"	1'-8"	6"	5"	8 3/8"	7 7/8"	11 1/4"	1'-0 7/8"	1"	F1554, Grade 55
Pier 8E-E (SN 016-1502)	250	41	0.009	3"	6	1 1/4"	2'-6"	2'-2"	1 7/8"	1 1/2"	1'-8"	1'-8"	6"	5"	8 1/4"	7 7/8"	11 1/4"	1'-0 7/8"	1"	F1554, Grade 55
Pier 16E	550	105	0.003	2 3/4"	6	1 1/2"	2'-11"	2'-7"	3 5/8"	2 3/8"	2'-1"	2'-1"	6"	7"	1'-0"	10 3/4"	1'-4 1/4"	1'-7 3/4"	1 1/4"	F1554, Grade 55
S Abutment	250	41	0.010	4 1/2"	6	1 1/4"	2'-6"	2'-2"	2 1/2"	1 1/2"	1'-8"	1'-8"	6"	5"	8 7/8"	7 7/8"	11 1/4"	1'-0 7/8"	1"	F1554, Grade 55



ANCHOR BOLT LOCATION DETAIL

Brg. Location	X	Y	A	B	C
Pier 8E-E (SN 016-1503)	1'-1"	10 1/2"	0°57'05"	82°07'01"	8°50'03"
Pier 10E-W	1'-1"	10 1/2"	6°19'11"	89°50'33"	6°28'38"
Pier 10E-E	1'-1"	11"	10°31'57"	89°50'33"	10°41'24"
Pier 13E	1'-3 1/2"	1'-1 1/2"	13°57'19"	90°00'00"	13°57'19"
N Abutment	1'-1"	11"	21°03'53"	90°00'00"	21°03'53"
Pier 8E-E (SN 016-1502)	1'-1"	11"	11°39'07"	86°51'37"	14°47'30"
Pier 16E	1'-3 1/2"	1'-1 1/2"	11°23'59"	90°00'00"	11°23'59"
S Abutment	1'-1"	11"	18°05'27"	90°00'00"	18°05'27"

BILL OF MATERIAL

Item	Unit	Total
High Load Multi-Rotational Bearings, Guided Expansion 200K.	Each	12
High Load Multi-Rotational Bearings, Guided Expansion 250K.	Each	24
High Load Multi-Rotational Bearings, Guided Expansion 550K.	Each	12
Anchor Bolts, 1"	Each	144
Anchor Bolts, 1 1/4"	Each	48

NOTES:

1. All HLMR bearings shall be designed to carry minimum Factored Ultimate (Strength) Design Rotation of 0.02 radians. See Special Provision.
2. Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
3. Work this sheet with sheet S-146.
4. See Sheets S-140, S-141 and S-142 for bearing layout & orientation.

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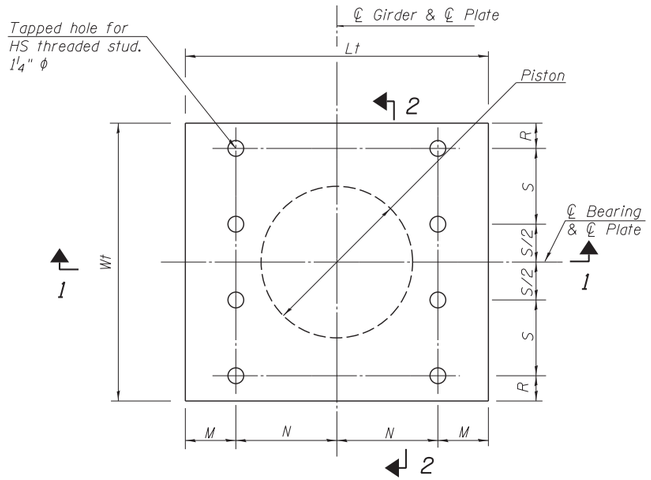
AECOM

USER NAME = kritzm	DESIGNED - VP	REVISED -
	CHECKED - EJM	REVISED -
PLOT SCALE =	DRAWN - VP	REVISED -
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -

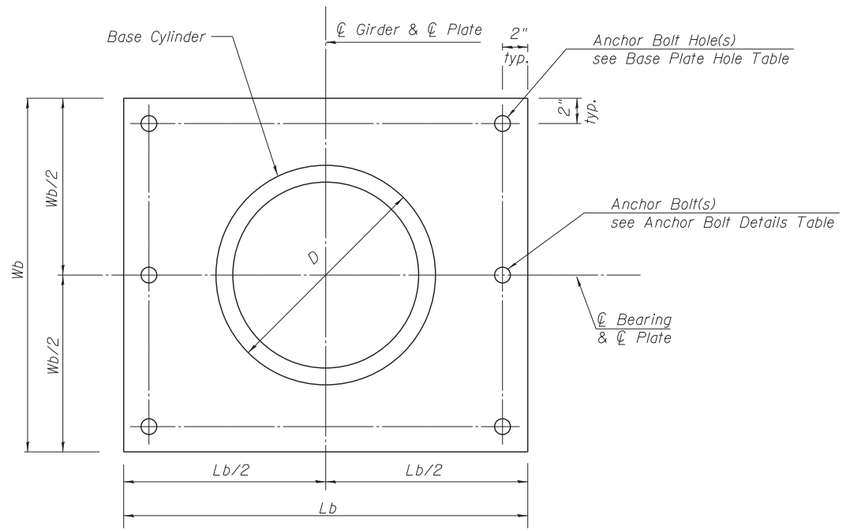
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXPANSION POT BEARING DETAILS III
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-147 OF S-218 SHEETS

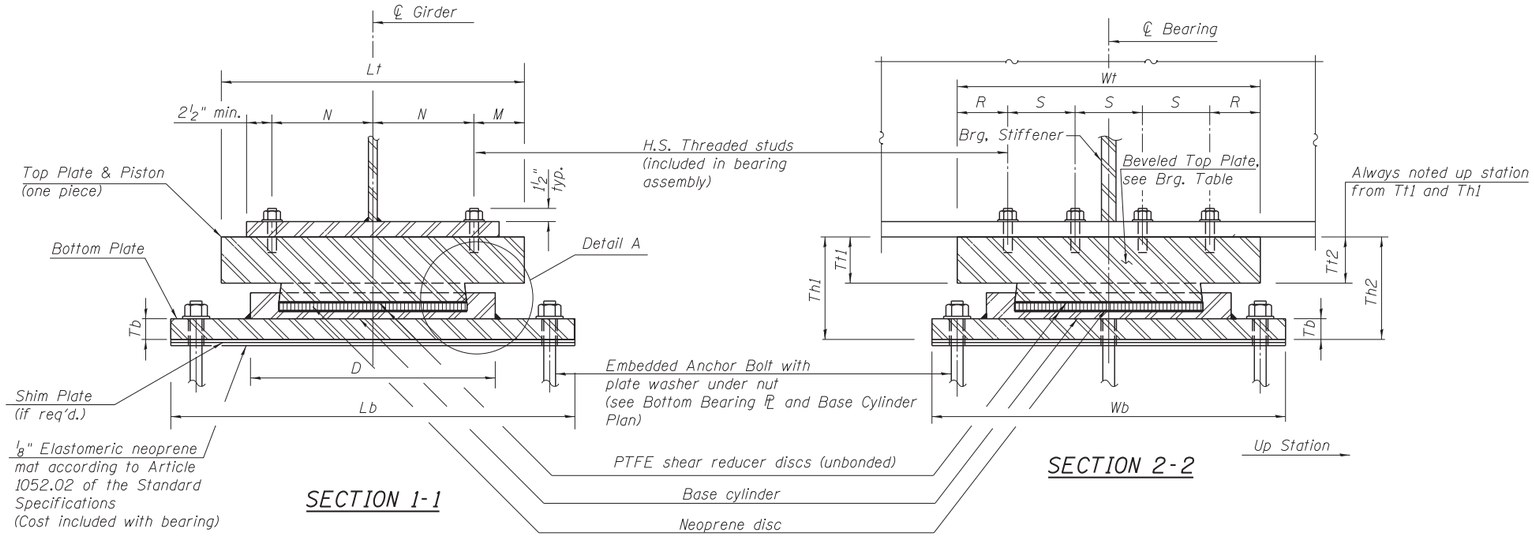
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	670
		CONTRACT NO. 60X07		
		ILLINOIS FED. AID PROJECT		

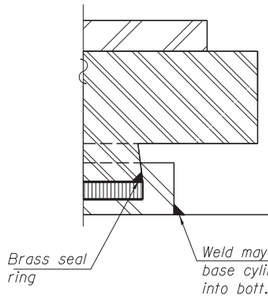


TOP BEARING ℄ AND PISTON PLAN



BOTTOM BEARING ℄ AND BASE CYLINDER PLAN





DETAIL A

ANCHOR BOLT DETAILS TABLE

Bolt Dia. x Length**	Plate Washer
1" x 12"	2¼"x2¼"x⅝"

**Length shown is minimum required embedment length.

BASE PLATE HOLE TABLE

Anchor Bolt ϕ	Max. Hole ϕ
1"	1½"

NOTES:

1. The Structural Steel for the top & bottom bearing plates shall be AASHTO M270 Grade 50.
2. For anchor bolt type and size, see Fixed Bearing Dimensions Table on sheet S-149.
3. Top & bottom plates, threaded studs, washers & shim plates are included in the cost of the High Load Multi-Rotation Bearings, Fixed.
4. Anchor bolts for bearings shall be placed in holes drilled in the concrete through holes in the bottom bearing plate after members are in place.
5. Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
6. Two ⅛ in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.
7. Work this sheet with sheet S-149.
8. All bearing plates, anchor bolts, nuts, washers and pintles shall be galvanized according to AASHTO M111 or M232 as applicable.
9. If base cylinder is recessed into the bottom bearing plate, the thickness of the bottom plate shall be Tb plus the depth of the recess.

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AECOM

USER NAME = kritzm	DESIGNED - VP	REVISED -
	CHECKED - EJM	REVISED -
PLOT SCALE =	DRAWN - BRD	REVISED -
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -

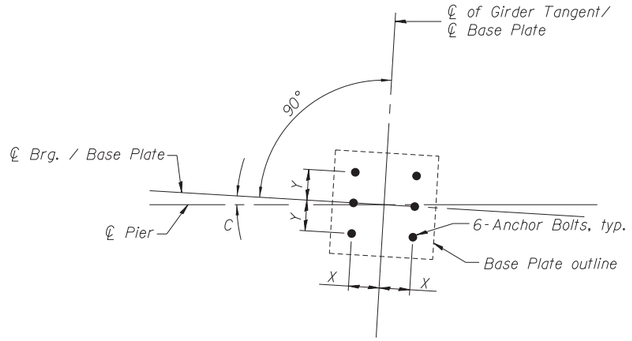
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FIXED POT BEARING DETAILS I
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-148 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	671
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

FIXED BEARING DIMENSIONS TABLE

Brg. Location	Vertical Design Load (kips)	Lateral Design Load (kips)	Max. Factored Ultimate (Strength) Design Rotation, (radians)	Quantity	Bottom Bearing Plate			Top Bearing Plate								Th1	Th2	D	Anchor Bolt Dia.	Anchor Bolt Specification Grade
					Tb	Lb	Wb	Tt1	Tt2	Lt	Wt	M	N	R	S					
Pier 9E	500	91	0.002	6	1 1/2"	3'-2"	3'-2"	2 5/8"	2 1/8"	2'-4"	2'-4"	8 1/2"	5 1/2"	3 1/2"	7"	10 3/4"	10 1/4"	1'-7 3/8"	1"	F1554, Grade 55
Pier 11E	550	107	0.002	6	1 5/8"	3'-2"	3'-2"	3"	2 1/4"	2'-4"	2'-4"	8 1/2"	5 1/2"	3 1/2"	7"	11 1/2"	10 3/4"	1'-7 3/4"	1"	F1554, Grade 55
Pier 12E	500	99	0.003	6	1 1/2"	3'-2"	3'-2"	2 7/8"	2 1/8"	2'-4"	2'-4"	8 1/2"	5 1/2"	3 1/2"	7"	11"	10 1/4"	1'-7 3/8"	1"	F1554, Grade 55
Pier 14E	550	105	0.003	6	1 5/8"	3'-2"	3'-2"	2 3/4"	2 1/4"	2'-4"	2'-4"	8 1/2"	5 1/2"	3 1/2"	7"	11 1/4"	10 3/4"	1'-7 3/4"	1"	F1554, Grade 55
Pier 15E	500	100	0.003	6	1 1/2"	3'-2"	3'-2"	3 3/8"	2 1/8"	2'-4"	2'-4"	8 1/2"	5 1/2"	3 1/2"	7"	11 1/2"	10 1/4"	1'-7 3/8"	1"	F1554, Grade 55



ANCHOR BOLT LOCATION DETAIL

Brg. Location	X	Y	C
Pier 9E	1'-5"	1'-5"	0°00'00"
Pier 11E	1'-5"	1'-5"	0°00'00"
Pier 12E	1'-5"	1'-5"	0°00'00"
Pier 14E	1'-5"	1'-5"	0°00'00"
Pier 15E	1'-5"	1'-5"	0°00'00"

BILL OF MATERIAL

Item	Unit	Total
High Load Multi-Rotational Bearings, Fixed 500K	Each	18
High Load Multi-Rotational Bearings, Fixed 550K	Each	12
Anchor Bolts, 1"	Each	180

NOTES:

1. All HLMR bearings shall be designed to carry minimum Factored Ultimate (Strength) Design Rotation of 0.02 radians. See Special Provision.
2. Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
3. Work this sheet with sheet S-148.
4. See Sheets S-140, S-141 and S-142 for bearing layout & orientation.

387_0160000_60X07_BRG07.dgn

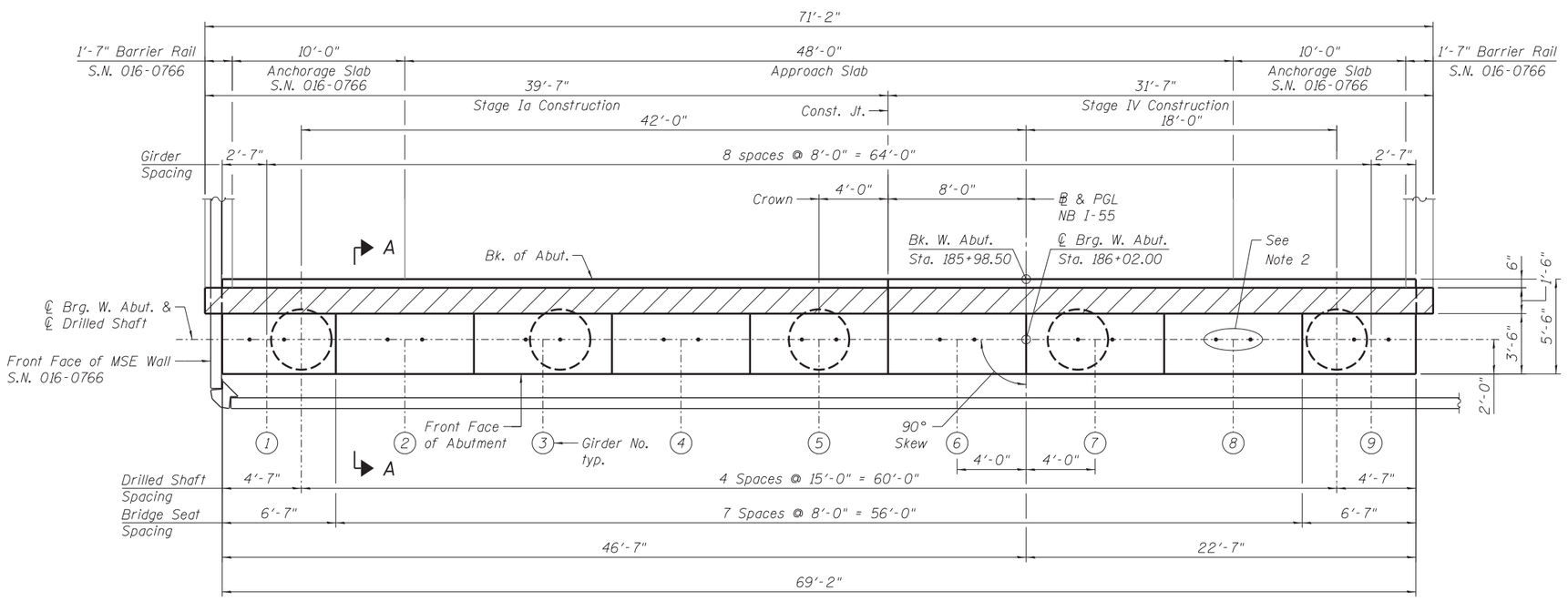
AECOM

USER NAME = kritzm	DESIGNED - VP	REVISED -	
	CHECKED - EJM	REVISED -	
PLOT SCALE =	DRAWN - BRD	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - VP	REVISED -	

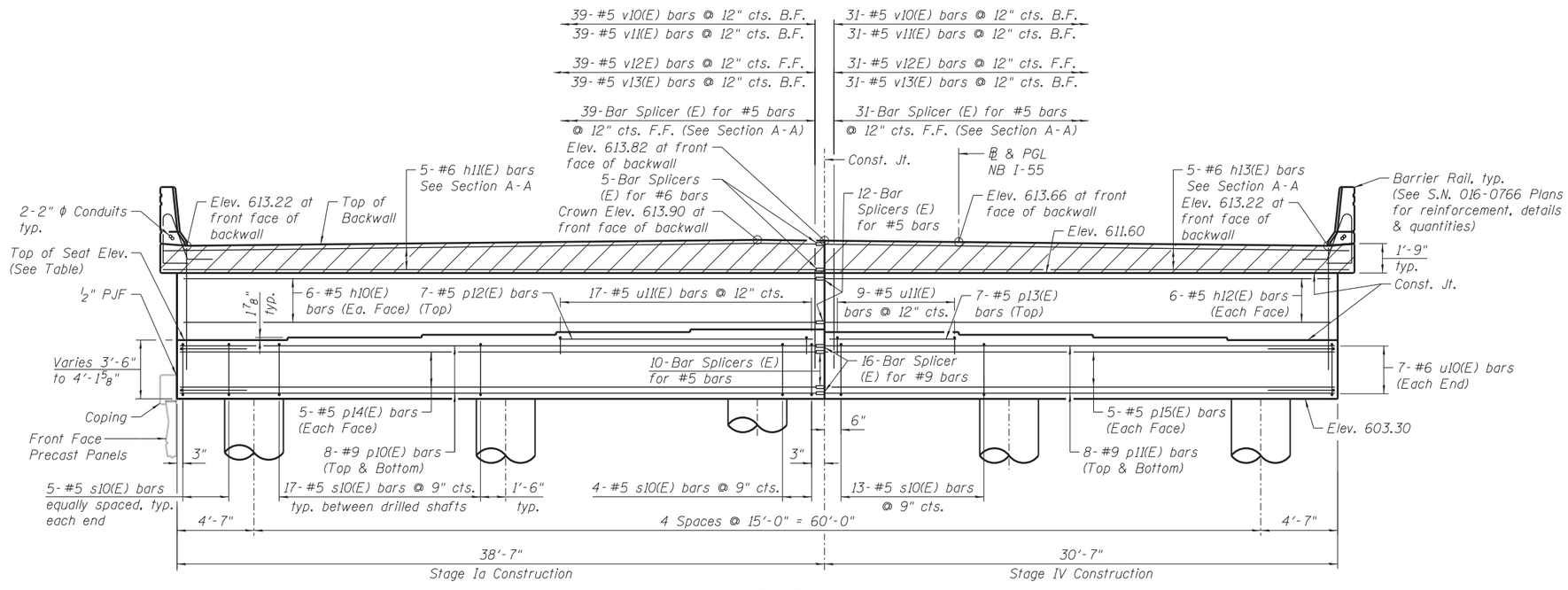
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FIXED POT BEARING DETAILS II
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-149 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	672
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			



PLAN



ELEVATION
(Looking West)

NOTES:

1. Pour steps monolithically with cap.
2. For Anchor Bolt Details, see Sheet S-143.
3. Hatched area to be poured after superstructure false work has been removed. Quantity of concrete included with Concrete Superstructure.
4. Concrete Sealer shall be applied to all exposed surfaces of the backwall, bridge seats and cap.
5. Space reinforcement bars in cap to miss anchor bolts.
6. For Section A-A, see Sheet S-151.
7. A Drilled Shaft shall be tested in accordance with Special Provision for Crosshole Sonic Logging.

TOP OF SEAT ELEVATION

Girder No.	Seat Elevation
1	606.80
2	606.96
3	607.12
4	607.28
5	607.44
6	607.28
7	607.12
8	606.96
9	606.80

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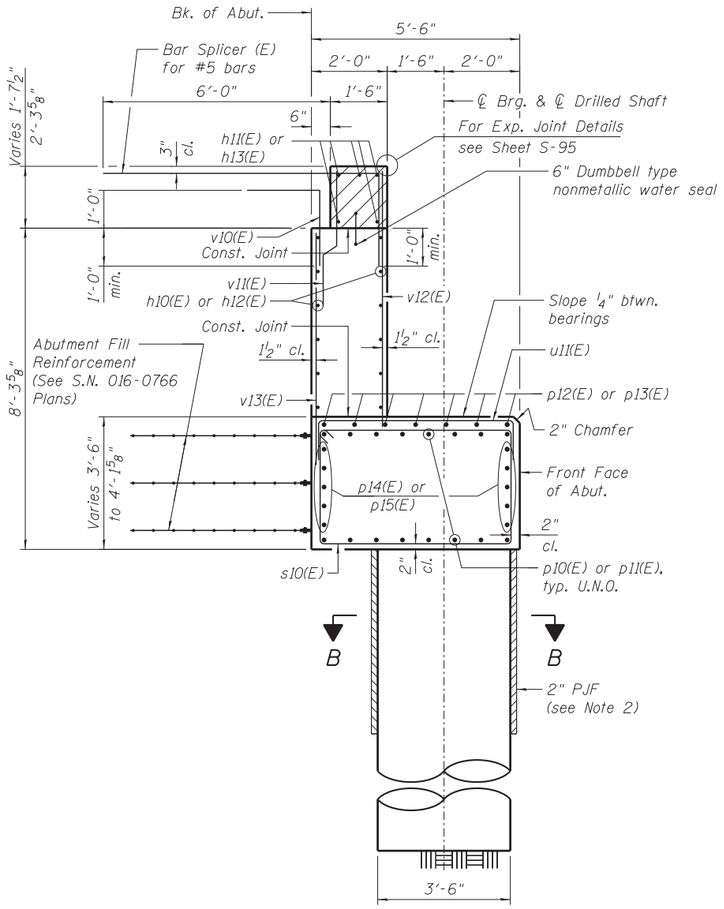
RME Rubinos & Mesia Engineers, Inc.
200 S. Michigan Avenue, Suite 1500, Chicago, IL 60604-2482

USER NAME = AVasonis	DESIGNED - TH	REVISED -	
	CHECKED - MR	REVISED -	
PLOT SCALE =	DRAWN - AMV	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - TH	REVISED -	

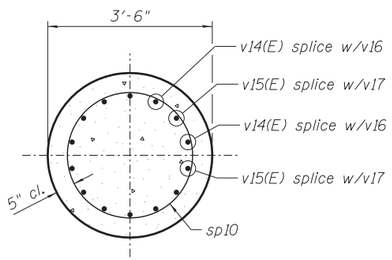
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

WEST ABUTMENT PLAN & ELEVATION – S.N. 016–1500
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-150 OF S-218 SHEETS

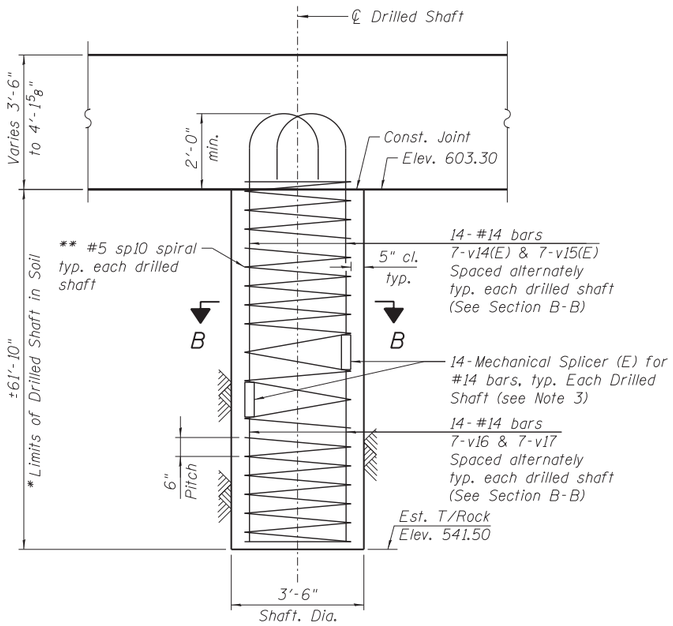
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	673
		CONTRACT NO. 60X07		
	ILLINOIS	FED. AID PROJECT		



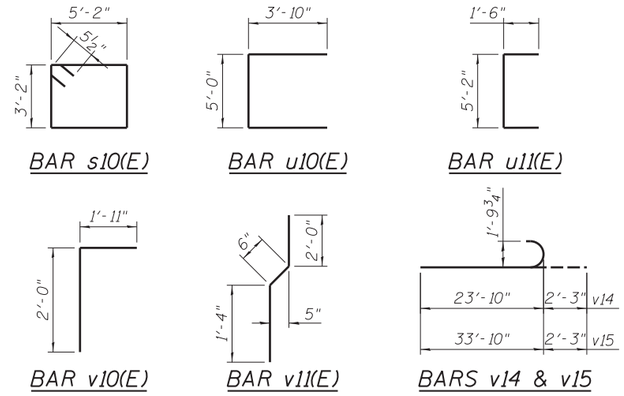
SECTION A-A



SECTION B-B



DRILLED SHAFT ELEVATION



*The quantities & detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.

**Provide 1½ extra turns, shop welded together per AWS D1.4 top and bottom of each drilled shaft. Extend spiral 2" into the abutment cap. Provide min. 4-#4 spacers or equivalent.

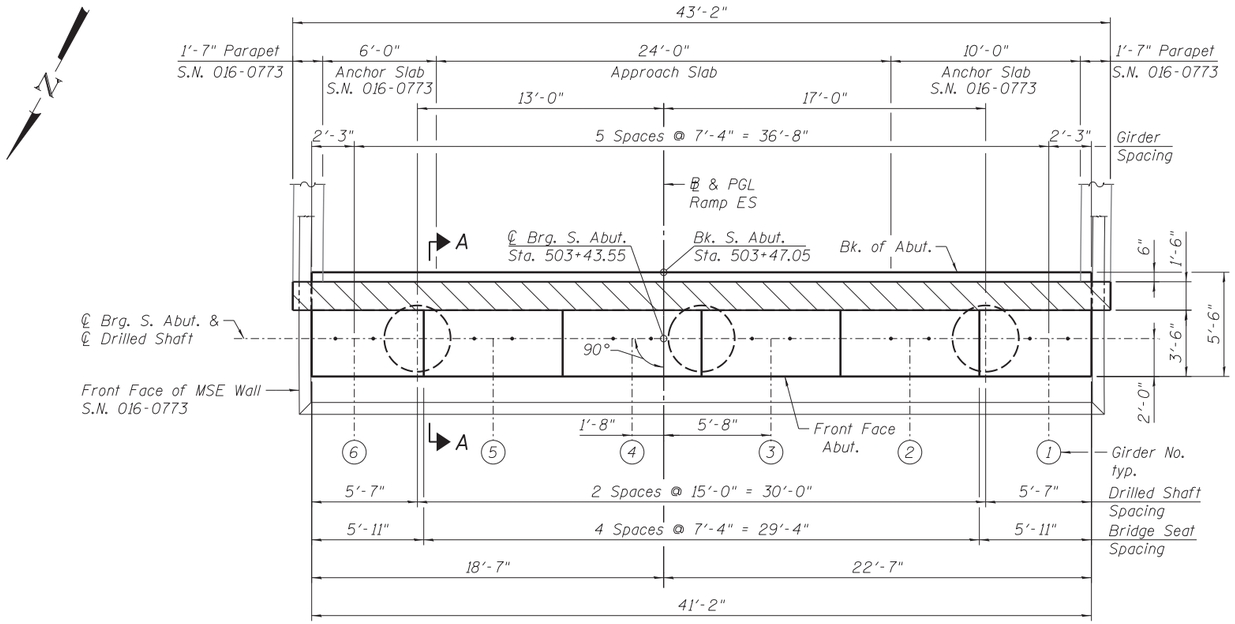
WEST ABUTMENT BILL OF MATERIAL

	Bar	No.	Size	Length	Shape
	h10(E)	12	#5	38'-3"	——
	h11(E)	5	#6	39'-3"	——
	h12(E)	12	#5	30'-3"	——
	h13(E)	5	#6	31'-3"	——
	p10(E)	16	#9	38'-3"	——
	p11(E)	16	#9	30'-3"	——
	p12(E)	7	#5	15'-8"	——
	p13(E)	7	#5	7'-8"	——
	p14(E)	10	#5	38'-3"	——
	p15(E)	10	#5	30'-3"	——
	s10(E)	78	#5	17'-7"	□
***	sp10	5	#5	62'-0"	∿∿∿
	u10(E)	14	#6	12'-8"	⊏
	u11(E)	26	#5	8'-2"	[
	v10(E)	70	#5	3'-11"	⌊——
	v11(E)	70	#5	3'-10"	—\
	v12(E)	70	#5	8'-5"	——
	v13(E)	70	#5	7'-2"	——
	v14(E)	35	#14	26'-1"	—)
	v15(E)	35	#14	36'-1"	—)
	v16	35	#14	40'-0"	——
	v17	35	#14	30'-0"	——
	Concrete Structures			Cu. Yd.	76.4
	Reinforcement Bars, Epoxy Coated			Pound	26,260
	Reinforcement Bars			Pound	24,190
	Drilled Shaft in Soil			Cu. Yd.	110.2
	Concrete Sealer			Sq. Ft.	828
	Crosshole Sonic Logging			Each	1

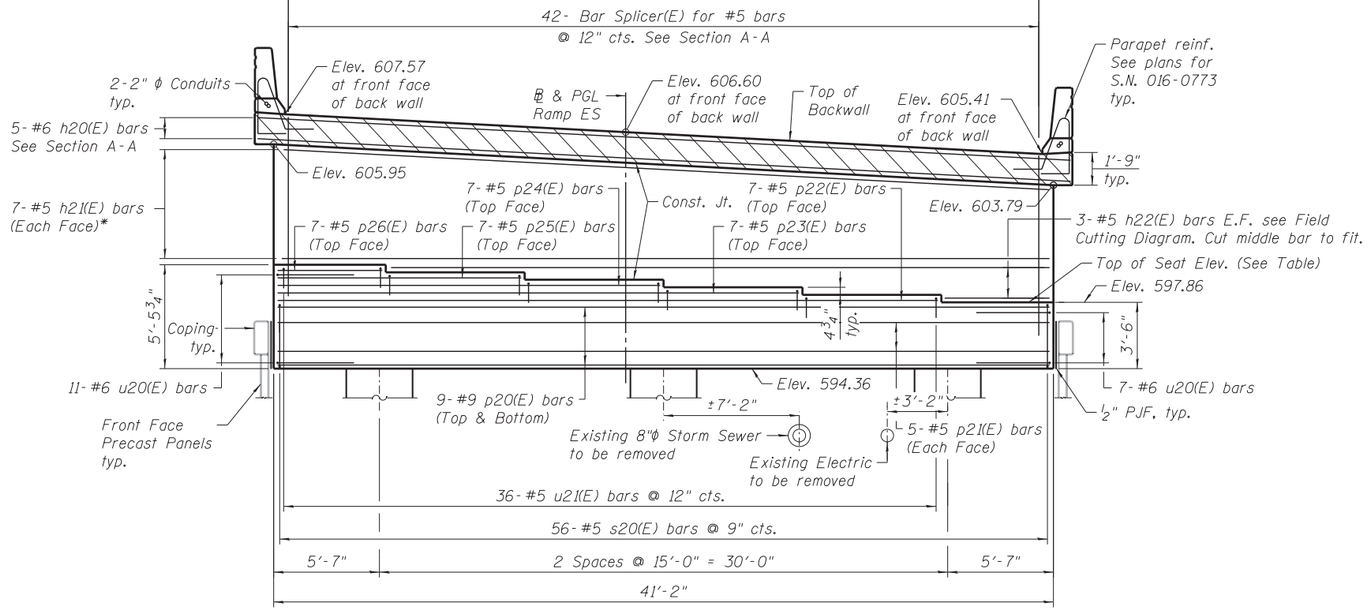
***Length is height of spiral

NOTES:

1. When splicing spiral reinforcement is necessary, the spiral shall be provided with 1½ extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4 or shall both terminate with a 135° standard hook.
2. Install 2" PJF from bottom of abutment to Elev. 592.41. Cost is included in Drilled Shaft in Soil.
3. For details & quantity of Bar Splicers, & Mechanical Splicer see Sheet S-194.
4. Drilled Shaft quantity from top of existing ground elev. to bottom of abutment cap elev. shall be included with Drilled Shaft in Soil.
5. Contractor shall use Mechanical Splicers in drilled shafts that will fit between spirals. Contractor shall field adjust spiral pitch to 12" max. at Mechanical Splicer location.



PLAN



ELEVATION
(Looking South)

* Flare bars as required.

NOTES:

1. Pour steps monolithically with cap.
2. For Anchor Bolt Details, see Sheet S-144.
3. Hatched area to be poured after superstructure false work has been removed. Quantity of concrete included with Concrete Superstructure.
4. Concrete Sealer shall be applied to abutment backwall, bearing seats and exposed faces of abutment cap.
5. Space bars in cap to miss anchor bolts.
6. For Section A-A, see Sheet S-153.
7. A Drilled Shaft shall be tested in accordance with Special Provision for Crosshole Sonic Logging.

TOP OF SEAT ELEVATION

Girder No.	Seat Elevation
1	597.86
2	598.25
3	598.65
4	599.05
5	599.44
6	599.84

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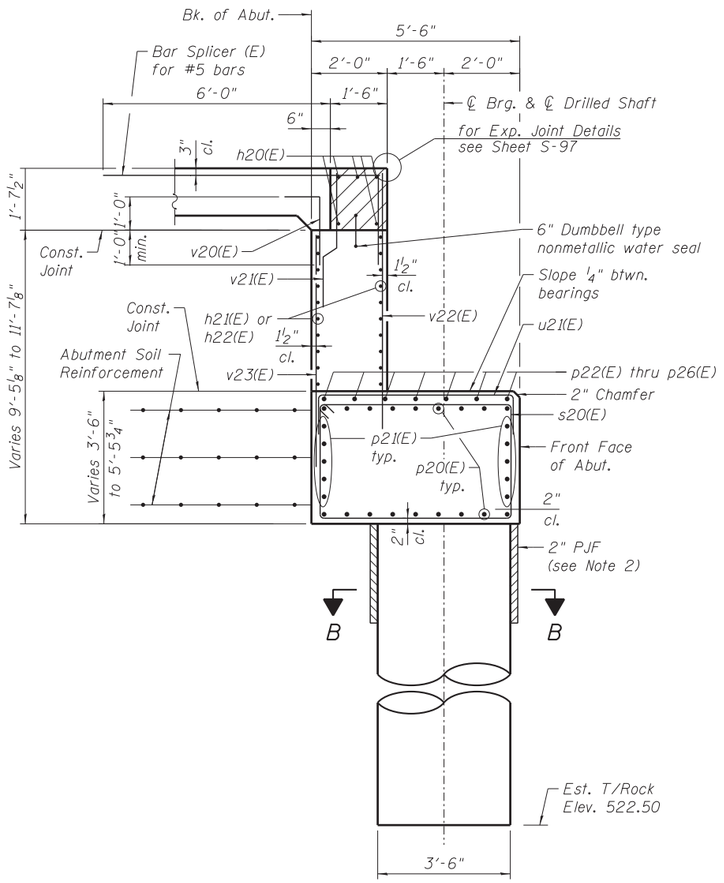
AECOM

USER NAME = kritzm	DESIGNED - VP	REVISED -	
	CHECKED - EJM	REVISED -	
PLOT SCALE =	DRAWN - MRK	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -	

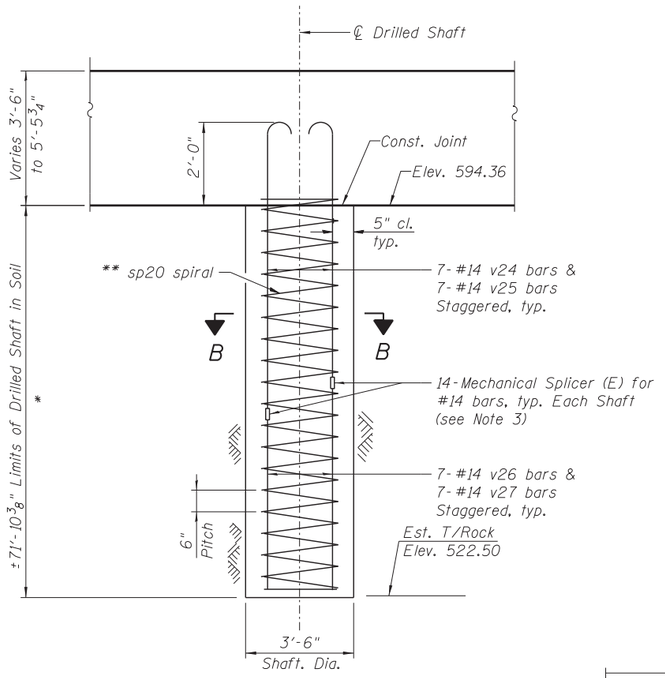
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOUTH ABUTMENT PLAN & ELEVATION – S.N. 016–1502
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-152 OF S-218 SHEETS

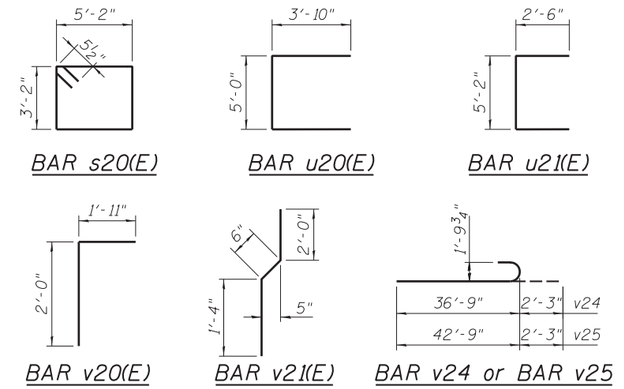
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	675
		CONTRACT NO. 60X07		
	ILLINOIS	FED. AID PROJECT		



SECTION A-A



ABUTMENT SHAFT ELEVATION



* The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.

** Provide 1½ extra turns, shop welded together per AWS D1.4 top and bottom. Extend spiral 3" into the abutment cap. Provide 4-#4 spacers or equivalent.

SECTION B-B

FIELD CUTTING DIAGRAMS

Order h22(E) bars Full Length. Cut as shown & use remainder of bars in opposite face.

SOUTH ABUTMENT BILL OF MATERIAL

	Bar	No.	Size	Length	Shape
	h20(E)	5	#6	42'-10"	——
	h21(E)	14	#5	40'-10"	——
	h22(E)	3	#5	40'-8"	——
	p20(E)	18	#9	40'-10"	——
	p21(E)	10	#5	40'-10"	——
	p22(E)	7	#5	34'-11"	——
	p23(E)	7	#5	27'-7"	——
	p24(E)	7	#5	20'-3"	——
	p25(E)	7	#5	12'-11"	——
	p26(E)	7	#5	5'-3"	——
	s20(E)	56	#5	17'-7"	□
***	sp20	3	#5	71'-11"	∿∿∿
	u20(E)	18	#6	12'-8"	⊏
	u21(E)	36	#5	10'-2"	[
	v20(E)	42	#5	3'-11"	└
	v21(E)	42	#5	3'-10"	⌐
	v22(E)	42	#5	11'-1"	——
	v23(E)	42	#5	9'-5"	——
	v24	21	#14	39'-0"	⌒
	v25	21	#14	45'-0"	⌒
	v26	21	#14	37'-2"	——
	v27	21	#14	31'-2"	——
	Concrete Superstructure			Cu. Yd.	4.2
	Concrete Structures			Cu. Yd.	56.1
	Reinforcement Bars, Epoxy Coated			Pound	7,700
	Reinforcement Bars			Pound	28,330
	Drilled Shaft in Soil			Cu. Yd.	76.9
	Concrete Sealer			Sq. Ft.	577
	Crosshole Sonic Logging			Each	1

*** Length is height of spiral

NOTES:

1. When splicing spiral reinforcement is necessary, the spiral shall be provided with 1½ extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4 or shall both terminate with a 135° standard hook.
2. Install 2" PJF from bottom of abutment to Elev. 589.60. Cost is included in Drilled Shaft In Soil.
3. For details and quantity of Bar Splicers, see Sheet S-194 .
4. Drilled Shaft quantity from top of existing ground elev. to bottom of abutment cap elev. shall be included with Drilled Shaft In Soil.
5. Contractor shall use Mechanical splicers in drilled shafts that will fit between spirals. Contractor shall field adjust spiral pitch to 12" max. at Mechanical Splicer location.

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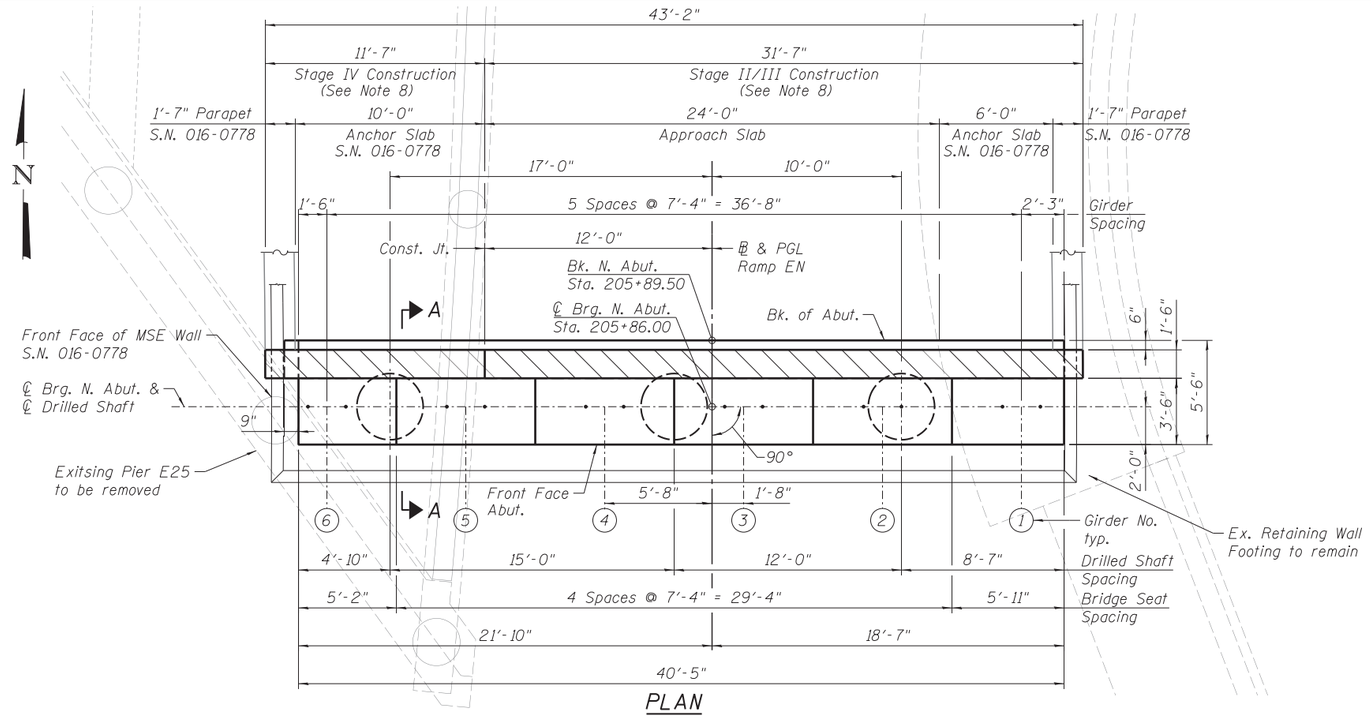
AECOM

USER NAME = kritzm	DESIGNED - VP	REVISED -	
	CHECKED - EJM	REVISED -	
PLOT SCALE =	DRAWN - MRK	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -	

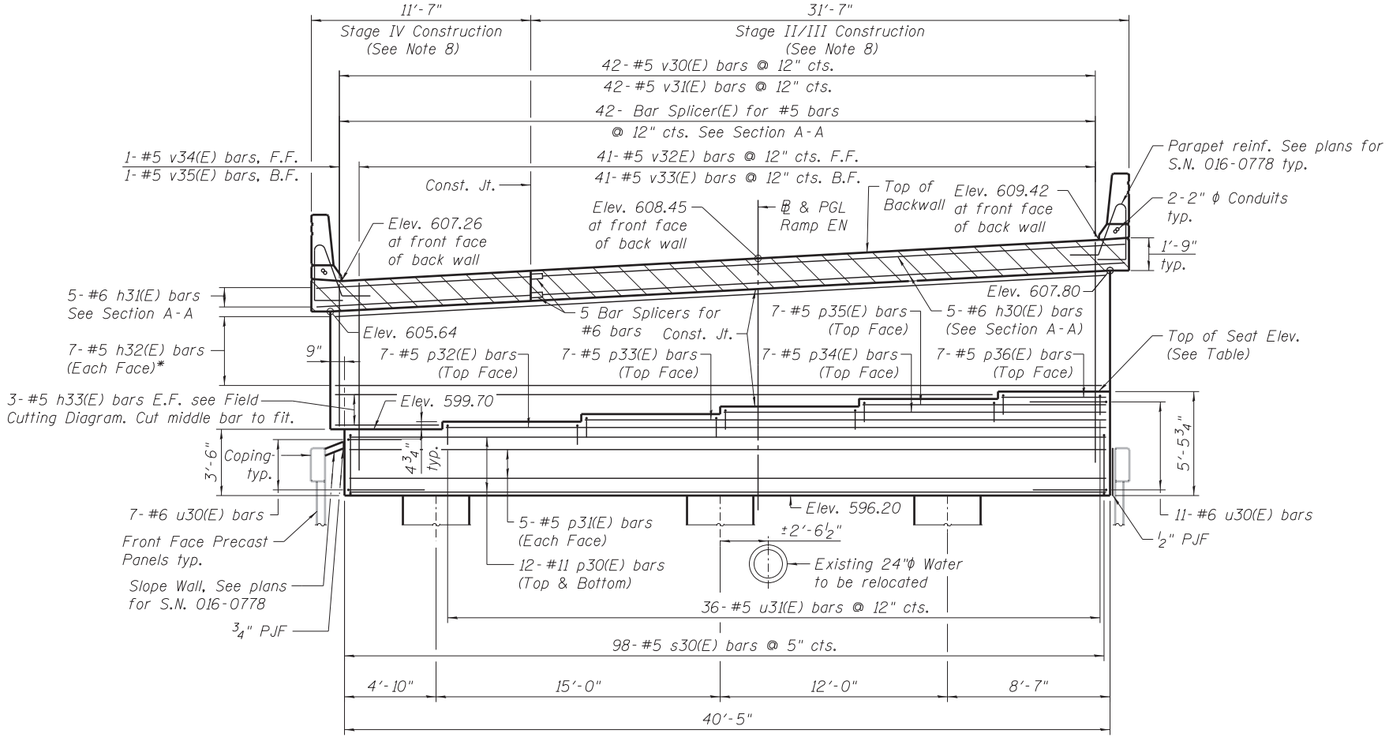
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOUTH ABUTMENT SECTIONS & DETAILS – S.N. 016-1502
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-153 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	676
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			



PLAN



ELEVATION
(Looking South)

* Flare bars as required.

NOTES:

1. Pour steps monolithically with cap.
2. For Anchor Bolt Details, see Sheet S-147.
3. Hatched area to be poured after superstructure false work has been removed. Quantity of concrete included with Concrete Superstructure.
4. Concrete Sealer shall be applied to abutment backwall, bearing seats and exposed faces of abutment cap.
5. Space bars in cap to miss anchor bolts.
6. For Section A-A, see Sheet S-155.
7. A Drilled Shaft shall be tested in accordance with Special Provision for Crosshole Sonic Logging.
8. Construction Staging required for hatched area only.
9. Contractor is recommended to use permanent casing at shaft near existing footing to avoid undermining existing footing bearing capacity.

TOP OF SEAT ELEVATION

Girder No.	Seat Elevation
1	601.68
2	601.28
3	600.88
4	600.49
5	600.09
6	599.70

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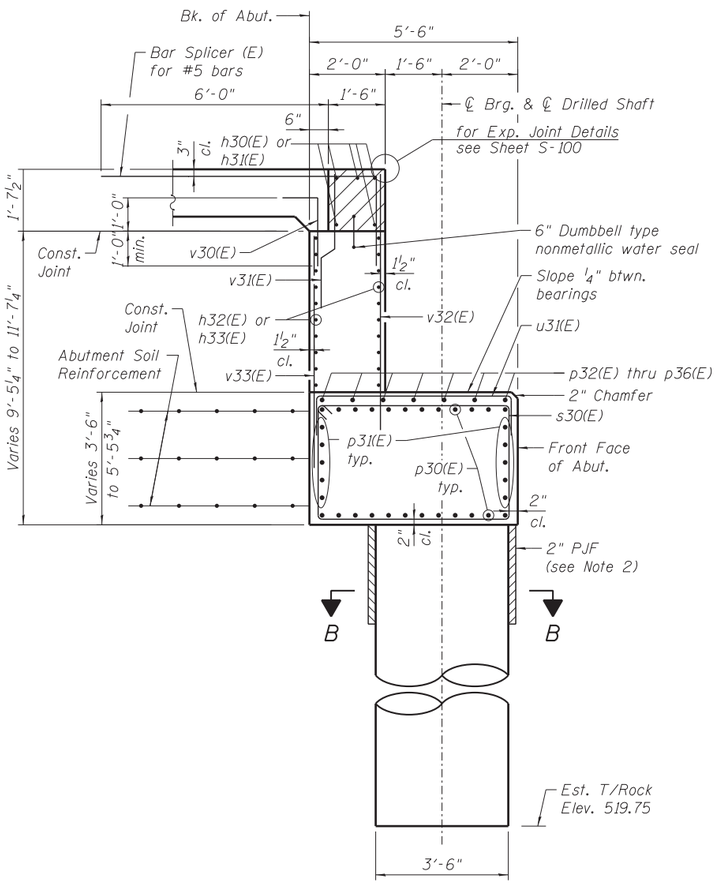
AECOM

USER NAME = kritzm	DESIGNED - VP	REVISED -
	CHECKED - EJM	REVISED -
PLOT SCALE =	DRAWN - MRK	REVISED -
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -

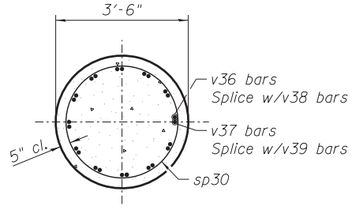
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

NORTH ABUTMENT PLAN & ELEVATION – S.N. 016-1503
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-154 OF S-218 SHEETS

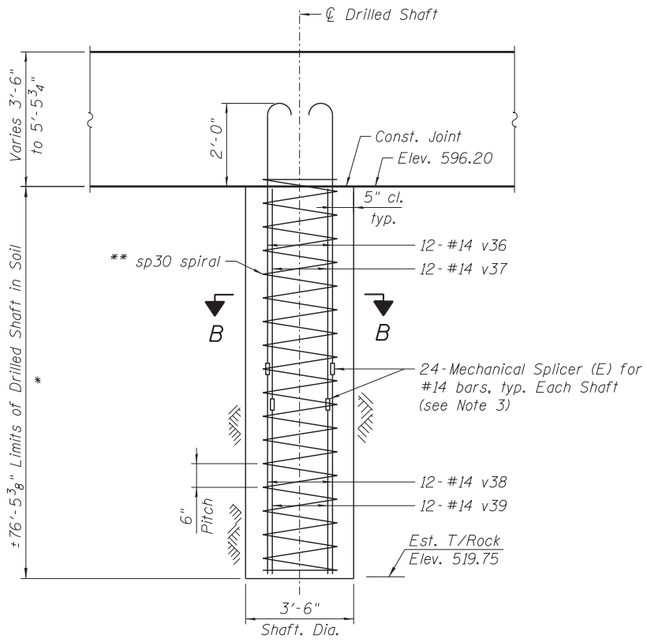
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	677
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			



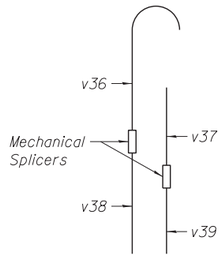
SECTION A-A



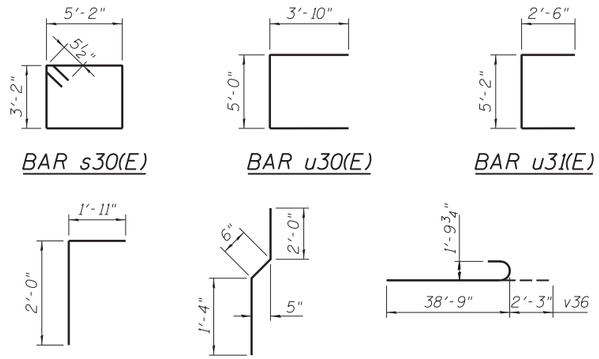
SECTION B-B



ABUTMENT SHAFT ELEVATION

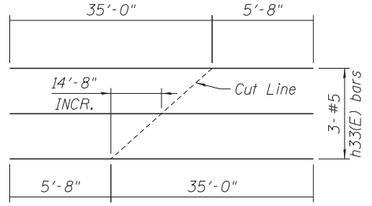


BARS v36 thru v39



* The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.

** Provide 1½ extra turns, shop welded together per AWS D1.4 top and bottom. Extend spiral 3" into the abutment cap. Provide 4-#4 spacers or equivalent.



FIELD CUTTING DIAGRAMS

Order h33(E) bars Full Length. Cut as shown & use remainder of bars in opposite face.

NORTH ABUTMENT
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h30(E)	5	#6	31'-5"	——
h31(E)	5	#6	11'-5"	——
h32(E)	14	#5	40'-10"	——
h33(E)	3	#5	40'-8"	——
p30(E)	24	#11	40'-1"	——
p31(E)	10	#5	40'-1"	——
p32(E)	7	#5	34'-11"	——
p33(E)	7	#5	27'-7"	——
p34(E)	7	#5	20'-3"	——
p35(E)	7	#5	12'-11"	——
p36(E)	7	#5	5'-7"	——
s30(E)	98	#5	17'-7"	□
*** sp30	3	#5	76'-6"	^^^
u30(E)	18	#6	12'-8"	⊏
u31(E)	36	#5	10'-2"	⊏
v30(E)	42	#5	3'-11"	⌞
v31(E)	42	#5	3'-10"	⌞
v32(E)	41	#5	11'-0"	——
v33(E)	41	#5	9'-5"	——
v34(E)	1	#5	7'-2"	——
v35(E)	1	#5	5'-9"	——
v36	36	#14	41'-0"	⌒
v37	36	#14	42'-5"	——
v38	36	#14	39'-9"	——
v39	36	#14	34'-0"	——
Concrete Superstructure		Cu. Yd.	4.2	
Concrete Structures		Cu. Yd.	55.6	
Reinforcement Bars, Epoxy Coated		Pound	11,050	
Reinforcement Bars		Pound	47,380	
Drilled Shaft in Soil		Cu. Yd.	81.8	
Concrete Sealer		Sq. Ft.	567	
Crosshole Sonic Logging		Each	1	

***Length is height of spiral

NOTES:

1. When splicing spiral reinforcement is necessary, the spiral shall be provided with 1½ extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4 or shall both terminate with a 135° standard hook.
2. Install 2" PJF from bottom of abutment to Elev. 592.35. Cost is included in Drilled Shaft In Soil.
3. For details and quantity of Bar Splicers, see Sheet S-194.
4. Drilled Shaft quantity from top of existing ground elev. to bottom of abutment cap elev. shall be included with Drilled Shaft In Soil.
5. Contractor shall use Mechanical splicers in drilled shafts that will fit between spirals. Contractor shall field adjust spiral pitch to 12" max. at Mechanical Splicer location.

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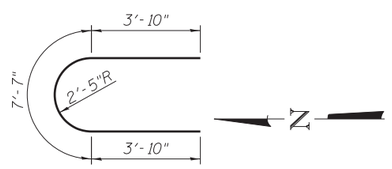
AECOM

USER NAME = kritzm	DESIGNED - VP	REVISED -
	CHECKED - EJM	REVISED -
PLOT SCALE =	DRAWN - MRK	REVISED -
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -

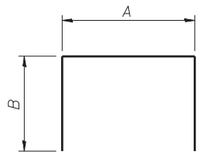
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

NORTH ABUTMENT SECTIONS & DETAILS – S.N. 016-1503
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-155 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	678
		CONTRACT NO. 60X07		
		ILLINOIS FED. AID PROJECT		



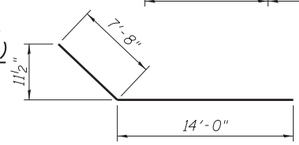
BAR s103(E)



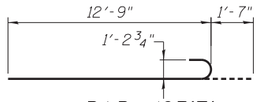
BARS s101(E), s102(E), s105(E), s106(E), s107(E), s108(E), u101(E) & u102(E)

A & B DIMENSIONS

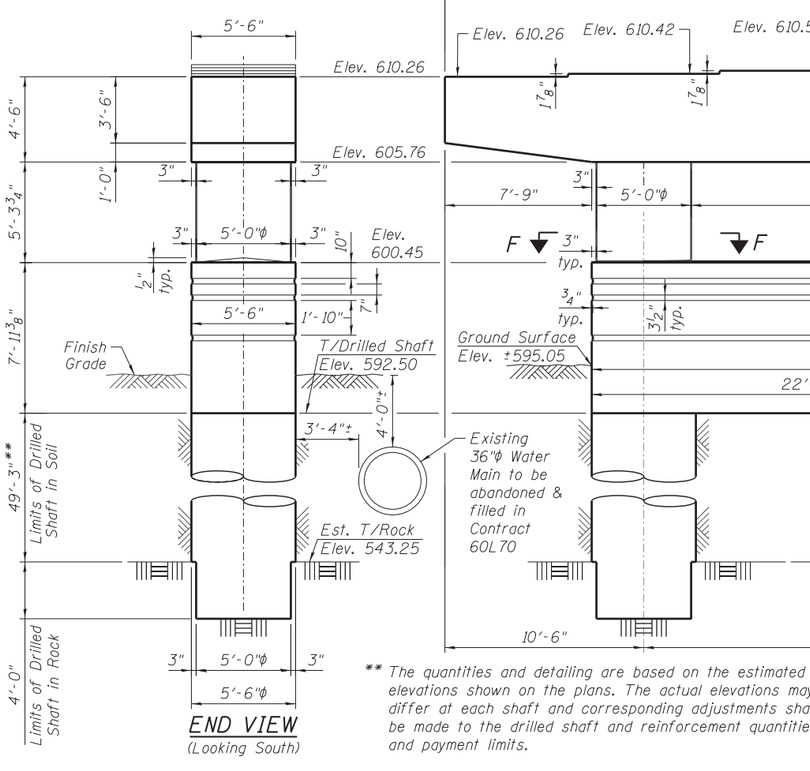
Bar	A	B
s101(E)	5'-0"	7'-7"
s102(E)	5'-0"	3'-10"
s105(E)	3'-4"	3'-9"
s106(E)	3'-4"	3'-6"
s107(E)	3'-4"	3'-4"
s108(E)	3'-4"	3'-2"
u101(E)	5'-0"	3'-10"
u102(E)	5'-2"	1'-6"



BAR p103(E)



BAR v103(E)

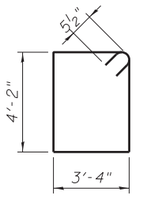


END VIEW
(Looking South)

TOP PLAN

*** Contractor to verify Mechanical Splicer dimensions and adjust bars accordingly.

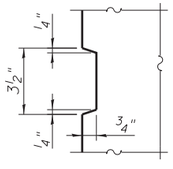
SECTION F-F
Column bars not shown for clarity.



BAR s104(E)

** The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.

ELEVATION
(Looking East)



REVEAL DETAIL

NOTES:

1. Space reinforcement in cap to miss anchor bolts.
2. Pour steps monolithically with cap.
3. For Anchor Bolts Details, see Sheet S-145.
4. For Sections and Details, see Sheet S-157.
5. A drilled shaft shall be tested in accordance with Special Provision for Crosshole Sonic Logging.
6. Reveals for the Crashwall shall be made of rubber material capable of reproducing the same quality texture on flat and curved surfaces.
7. Reveals will not be paid for separately and are included with Concrete Structures Pay Item.

BILL OF MATERIAL

	Bar	No.	Size	Length	Shape
	h101(E)	14	#5	28'-6"	
	h102(E)	14	#6	31'-1"	
	h103(E)	14	#5	19'-6"	
	h104(E)	14	#6	22'-1"	
	h105(E)	8	#5	38'-10"	
	h106(E)	8	#5	29'-10"	
	h107(E)	8	#5	16'-4"	
	h108(E)	8	#5	7'-4"	
	h109(E)	2	#5	35'-1"	
	h110(E)	2	#5	26'-0"	
	p101(E)	12	#11	31'-3"	
	p102(E)	12	#11	22'-3"	
	p103(E)	24	#11	21'-8"	
	p104(E)	12	#11	38'-10"	
	p105(E)	12	#11	29'-10"	
	p106(E)	12	#11	23'-8"	
	s101(E)	65	#6	20'-2"	
	s102(E)	65	#6	12'-8"	
	s103(E)	18	#6	15'-3"	
	s104(E)	208	#5	15'-11"	
	s105(E)	64	#5	10'-10"	
	s106(E)	48	#5	10'-4"	
	s107(E)	24	#5	10'-0"	
	s108(E)	16	#5	9'-8"	
*	sp101	3	#5	53'-5"	
*	sp102(E)	3	#5	5'-8"	
	u101(E)	10	#6	12'-8"	
	u102(E)	26	#5	8'-2"	
	v101	48	#14	53'-3"	
	v102(E)	57	#11	17'-4"	
	v103(E)	57	#11	14'-4"	
	v104(E)	12	#6	7'-7"	

Structure Excavation	Cu. Yd.	60
Concrete Structures	Cu. Yd.	162.2
Reinforcement Bars, Epoxy Coated	Pound	34,320
Reinforcement Bars	Pound	24,550
Drilled Shaft in Soil	Cu. Yd.	130.0
Drilled Shaft in Rock	Cu. Yd.	8.7
Concrete Sealer	Sq. Ft.	2,781
Crosshole Sonic Logging	Each	1

* Length is height of spiral.

RME Rubinos & Mesia Engineers, Inc.
200 S. Michigan Avenue, Suite 1500, Chicago, IL 60604-2482

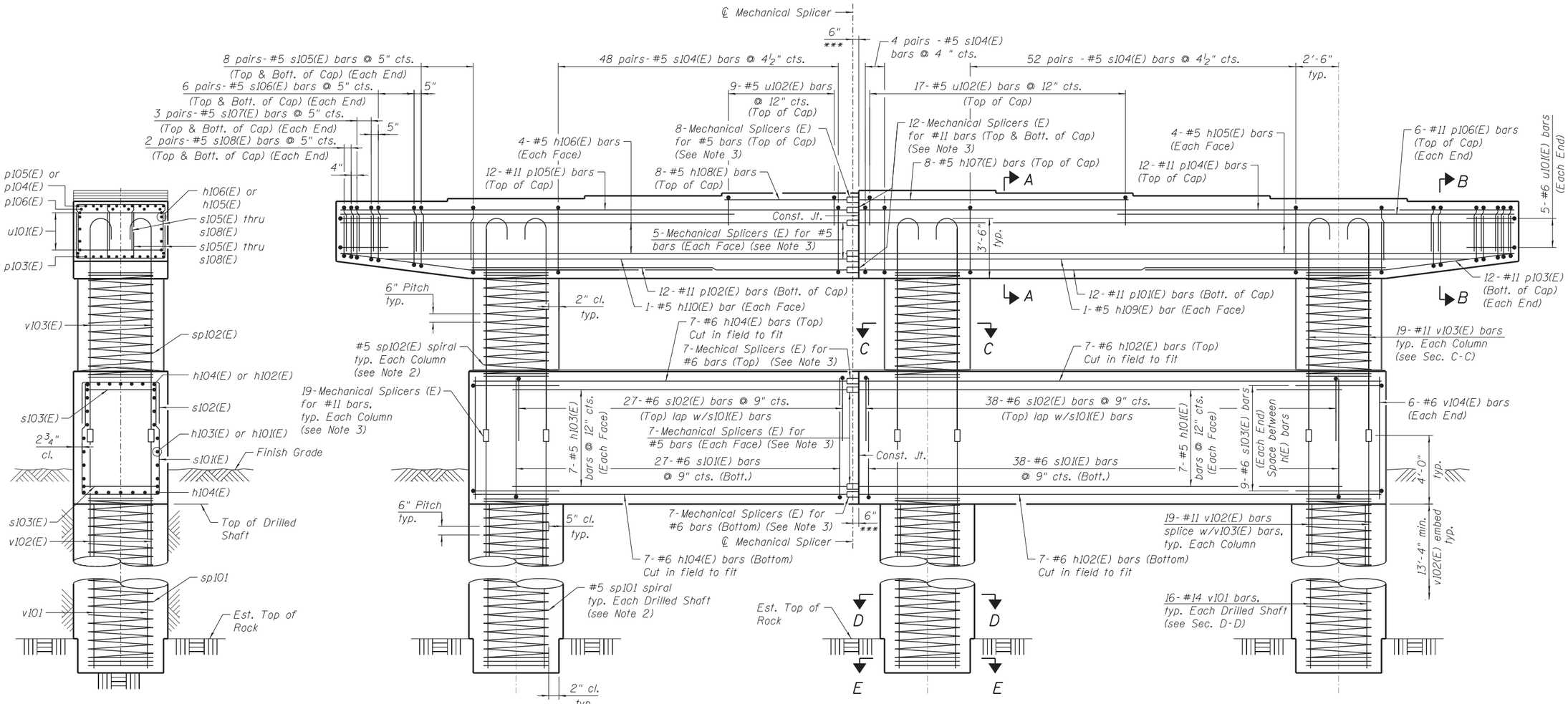
USER NAME = AVasonis	DESIGNED - TH	REVISED -	
	CHECKED - MR	REVISED -	
PLOT SCALE =	DRAWN - TM	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - TH	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 1E PLAN & ELEVATION – S.N. 016-1500
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-156 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	679
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

411_0161500_60X07_Pier1-1.dgn

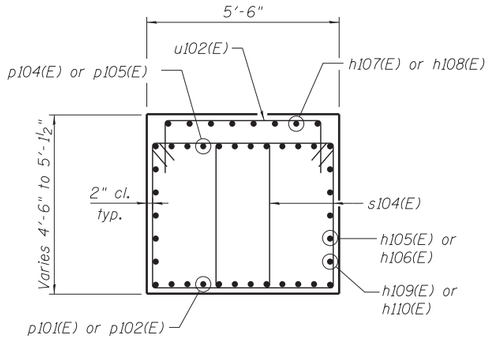


END VIEW

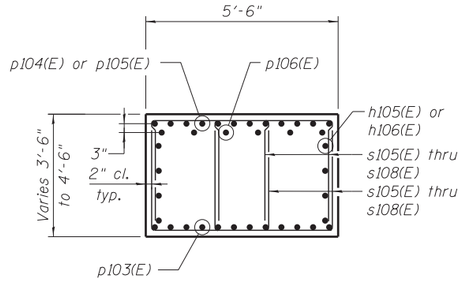
ELEVATION
(Looking East)

*** Contractor to verify Mechanical Splicer dimensions and adjust bars accordingly.

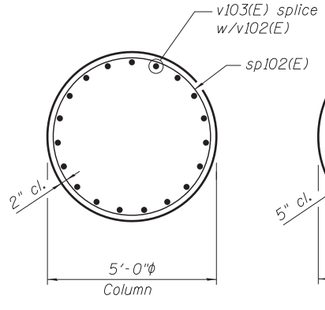
TYP. MIN. BAR LAP
(Unless Noted Otherwise)
#5 bar = 3'-3"
#6 bar = 3'-10"
#11 bar = 13'-4"



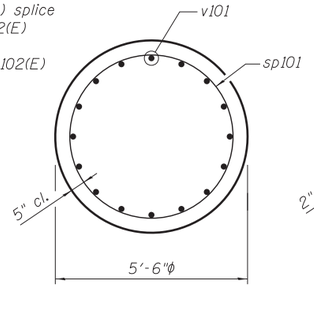
SECTION A-A



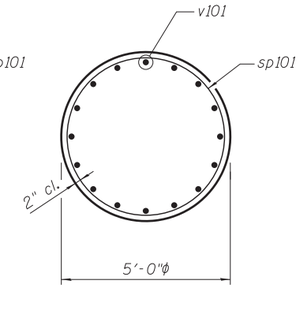
SECTION B-B



SECTION C-C



SECTION D-D



SECTION E-E

NOTES:

1. Bars noted thus, 3x2 - #5 indicates 3 lines of bars with 2 lengths of bars per line.
2. #5 sp101 or #5 sp102(E) spiral
   1) Provide 1½ extra turns, shop welded together per AWS D1.4 top and bottom. Extend spiral 2" into crashwall or pier cap. Provide 4 - #4 spacers or equivalent.
   2) When splicing spiral reinforcement is necessary, the spiral shall be provided with 1½ extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4 or shall both terminate with a 135° standard hook.
3. For Mechanical Splicer details and quantities See Sheet S-194.

412_016I500_60X07_Pier1-2.dgn

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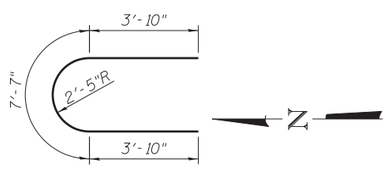
PLOT SCALE =	DRAWN - TM	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - TH	REVISED -	

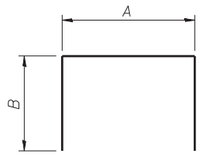
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 1E DETAILS – S.N. 016–1500
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-157 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	680
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			



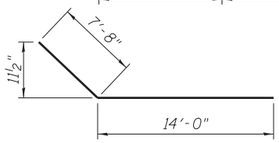
BAR s203(E)



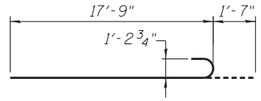
BARS s201(E), s202(E), s205(E), s206(E), s207(E), s208(E), u201(E) & u202(E)

A & B DIMENSIONS

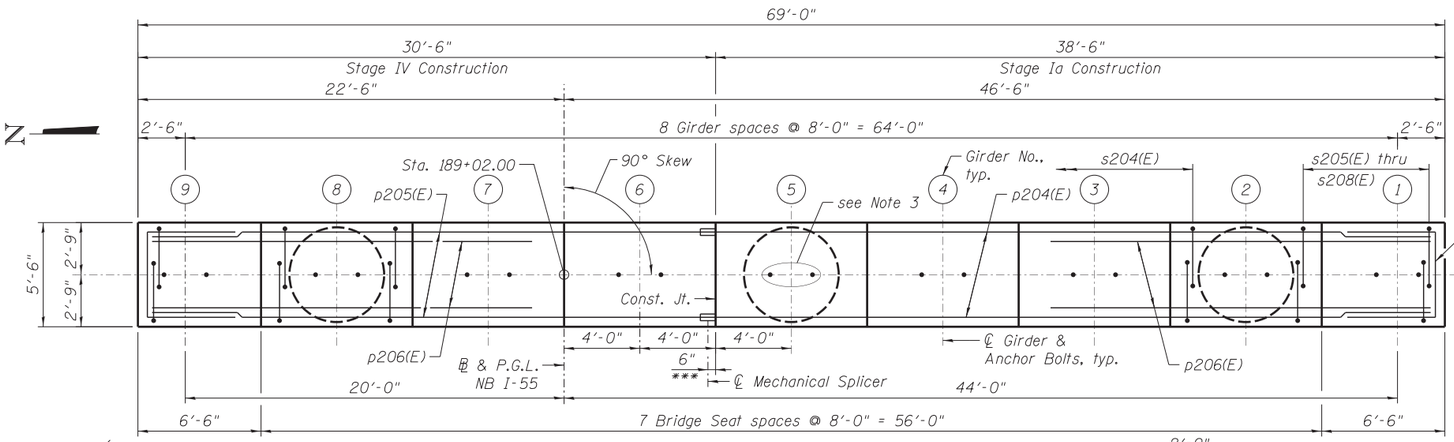
Bar	A	B
s201(E)	5'-0"	8'-0"
s202(E)	5'-0"	3'-10"
s205(E)	3'-4"	3'-9"
s206(E)	3'-4"	3'-6"
s207(E)	3'-4"	3'-4"
s208(E)	3'-4"	3'-2"
u201(E)	5'-0"	3'-10"
u202(E)	5'-2"	1'-6"



BAR p203(E)

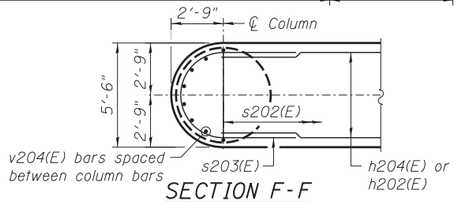


BAR v203(E)



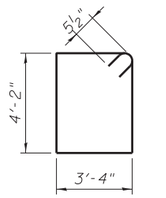
TOP PLAN

***Contractor to verify Mechanical Splicer dimensions and adjust bars accordingly.

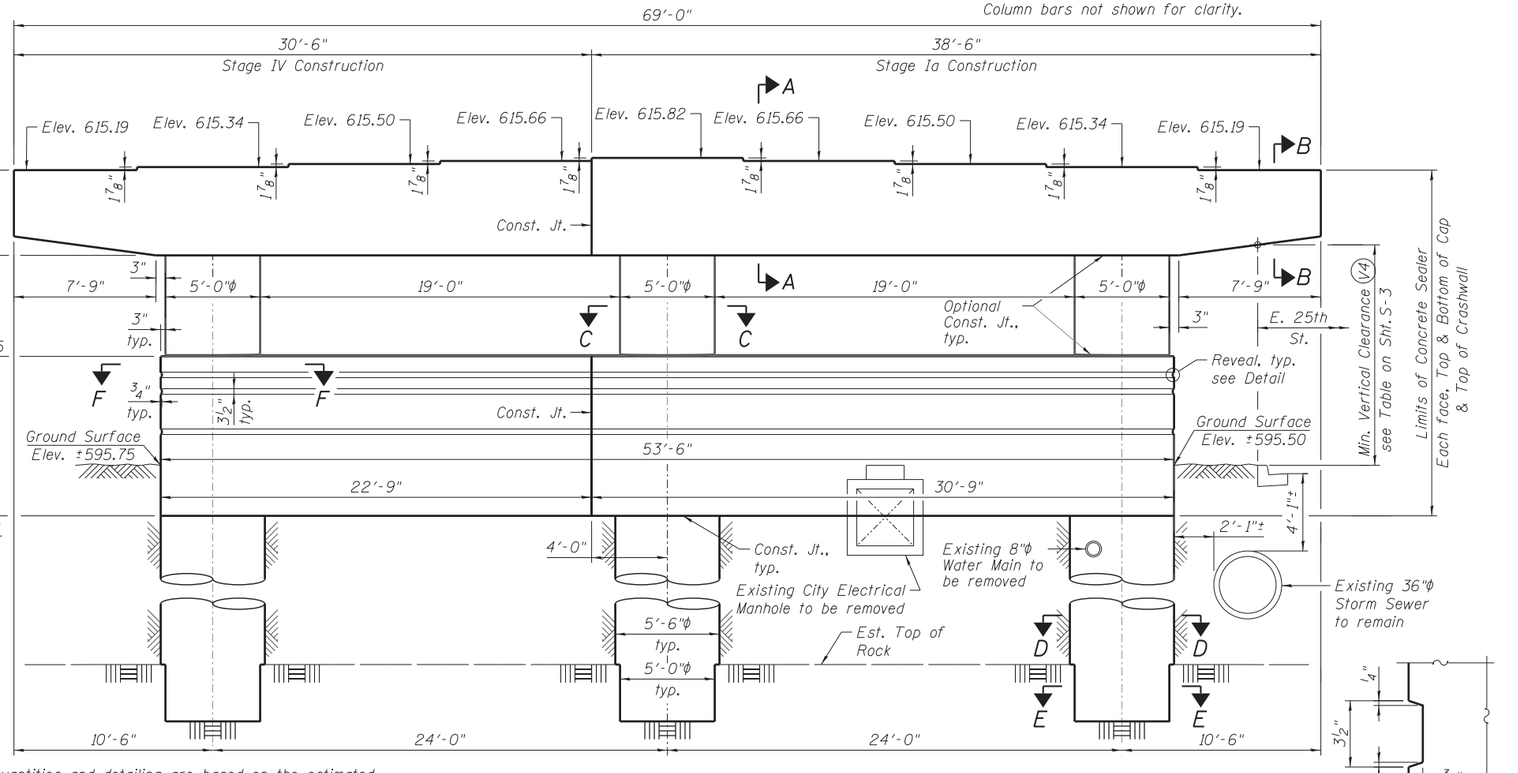


SECTION F-F

Column bars not shown for clarity.

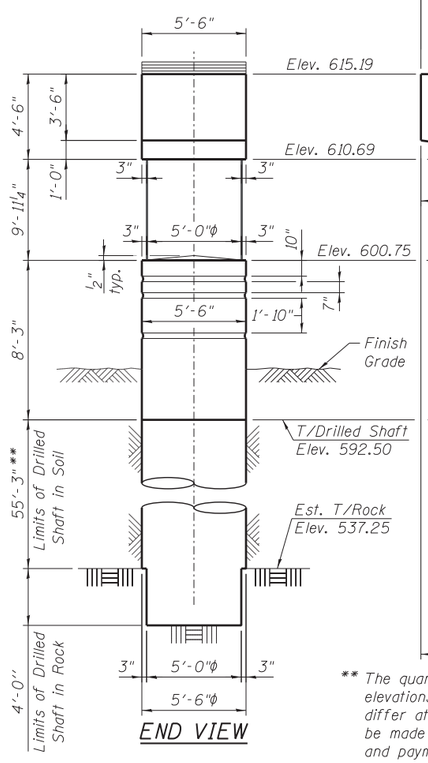


BAR s204(E)



ELEVATION

(Looking East)



END VIEW

** The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.

REVEAL DETAIL

NOTES:

1. Space reinforcement in cap to miss anchor bolts.
2. Pour steps monolithically with cap.
3. For Anchor Bolts Details, see Sheet S-145.
4. For Sections and Details, see Sheet S-159.
5. A drilled shaft shall be tested in accordance with Special Provision for Crosshole Sonic Logging.
6. Reveals for the Crashwall shall be made of rubber material capable of reproducing the same quality texture on flat and curved surfaces.
7. Reveals will not be paid for separately and are included with Concrete Structures Pay Item.
8. Contractor to locate and protect existing 36" ϕ Water Main prior to drilling foundation.

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h201(E)	16	#5	28'-6"	——
h202(E)	14	#6	31'-1"	——
h203(E)	16	#5	19'-6"	——
h204(E)	14	#6	22'-1"	——
h205(E)	8	#5	38'-10"	——
h206(E)	8	#5	29'-10"	——
h207(E)	8	#5	16'-4"	——
h208(E)	8	#5	7'-4"	——
h209(E)	2	#5	35'-1"	——
h210(E)	2	#5	26'-0"	——
p201(E)	12	#11	31'-3"	——
p202(E)	12	#11	22'-3"	——
p203(E)	24	#11	21'-8"	⟍
p204(E)	12	#11	38'-10"	——
p205(E)	12	#11	29'-10"	——
p206(E)	12	#11	23'-8"	——
s201(E)	65	#6	21'-0"	⊔
s202(E)	65	#6	12'-8"	⊓
s203(E)	20	#6	15'-3"	⊂
s204(E)	208	#5	15'-11"	⊐
s205(E)	64	#5	10'-10"	⊓
s206(E)	48	#5	10'-4"	⊓
s207(E)	24	#5	10'-0"	⊓
s208(E)	16	#5	9'-8"	⊓
* sp201	3	#5	59'-5"	⩙
* sp202(E)	3	#5	10'-3"	⩙
u201(E)	10	#6	12'-8"	▭
u202(E)	26	#5	8'-2"	⊓
v201	48	#14	59'-3"	——
v202(E)	57	#11	17'-4"	——
v203(E)	57	#11	19'-4"	⊃
v204(E)	12	#6	8'-0"	——

Structure Excavation		Cu. Yd.	66
Concrete Structures		Cu. Yd.	175.5
Reinforcement Bars, Epoxy Coated		Pound	36,480
Reinforcement Bars		Pound	27,290
Drilled Shaft in Soil		Cu. Yd.	145.8
Drilled Shaft in Rock		Cu. Yd.	8.7
Concrete Sealer		Sq. Ft.	3,034
Crosshole Sonic Logging		Each	1

* Length is height of spiral.

413.0161500_60X07_Pier2-1.dgn

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200 S. Michigan Avenue, Suite 1500, Chicago, IL 60604-2482

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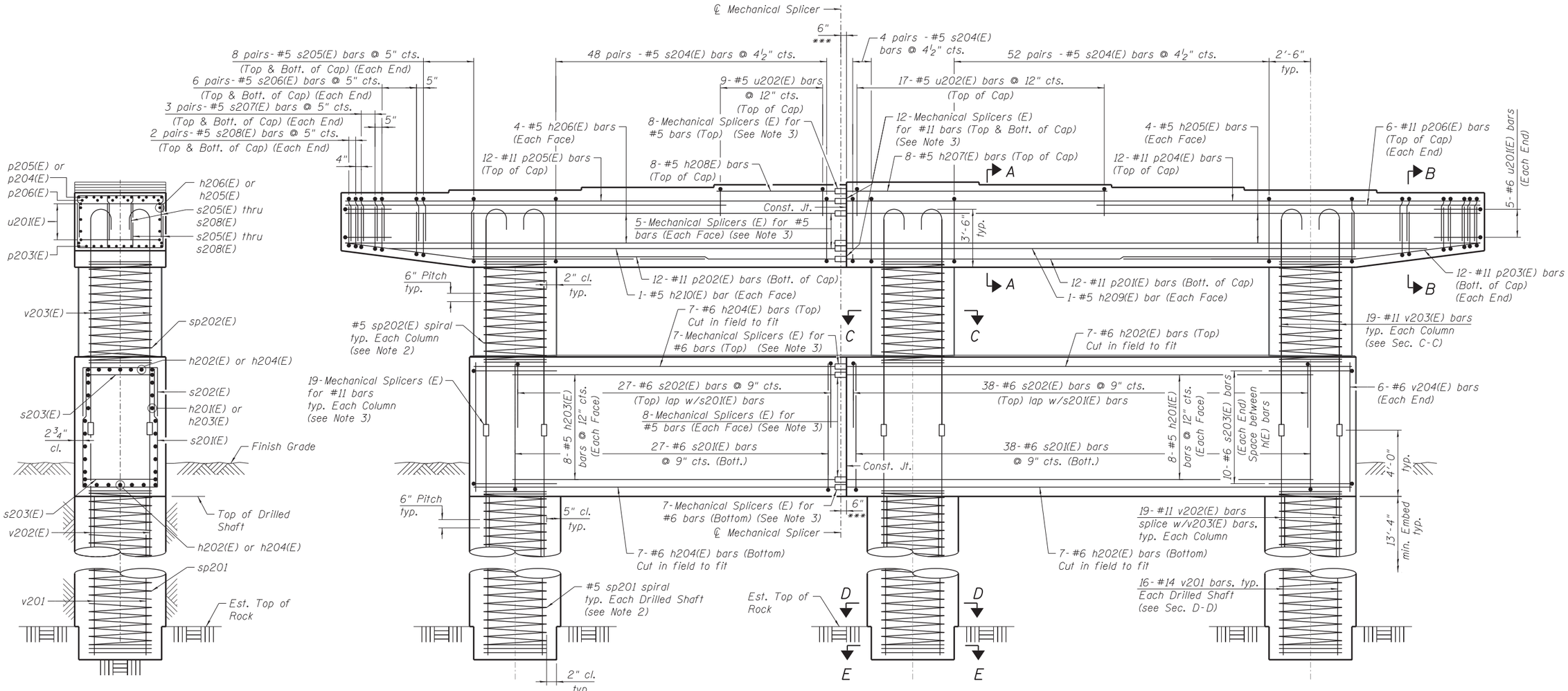
PLOT SCALE =	DRAWN - TM	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - TH	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 2E PLAN & ELEVATION – S.N. 016-1500
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-158 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	681
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

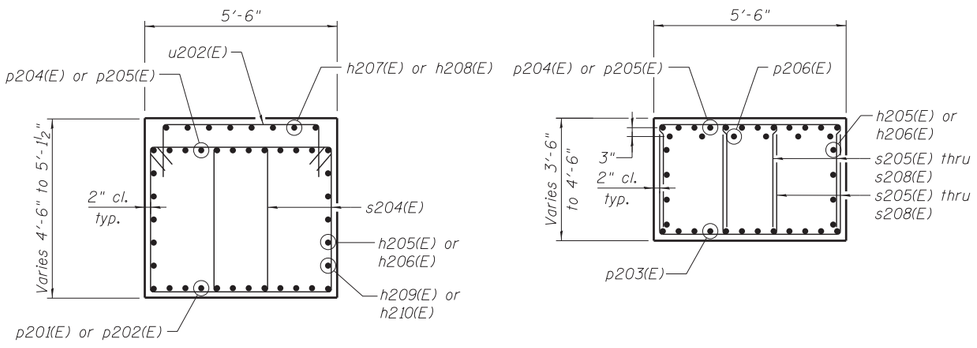


END VIEW

ELEVATION
(Looking East)

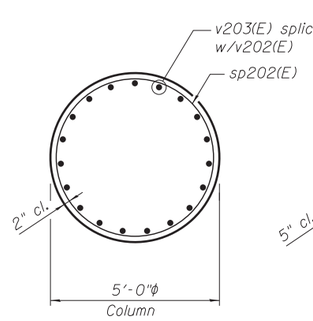
*** Contractor to verify Mechanical Splicer dimensions and adjust bars accordingly.

TYP. MIN. BAR LAP
(Unless Noted Otherwise)
#5 bar = 3'-3"
#6 bar = 3'-10"
#11 bar = 13'-4"

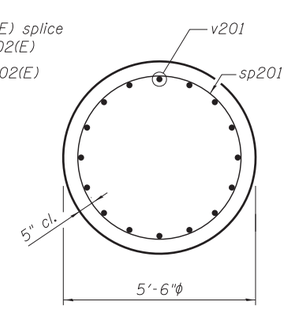


SECTION A-A

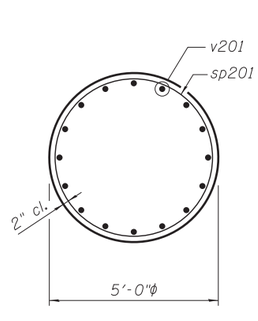
SECTION B-B



SECTION C-C



SECTION D-D



SECTION E-E

NOTES:

1. Bars noted thus, 3x2 - #5 indicates 3 lines of bars with 2 lengths of bars per line.
2. #5 sp201 or #5 sp202(E) spiral
   1) Provide 1½ extra turns, shop welded together per AWS D1.4 top and bottom. Extend spiral 2" into crashwall or pier cap. Provide 4 - #4 spacers or equivalent.
   2) When splicing spiral reinforcement is necessary, the spiral shall be provided with 1½ extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4 or shall both terminate with a 135° standard hook.
3. For Mechanical Splicer details and quantities See Sheet S-194.

414_0161500_60X07_Pier2-2.dgn

RME Rubinos & Mesia Engineers, Inc.
200 S. Michigan Avenue, Suite 1500, Chicago, IL 60604-2482

USER NAME = AVasonis	DESIGNED - TH	REVISED -	
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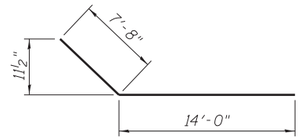
PLOT SCALE =	DRAWN - TM	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - TH	REVISED -	

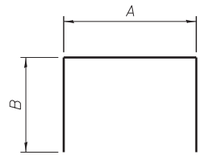
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 2E DETAILS – S.N. 016-1500
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-159 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	682
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

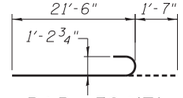


BAR p303(E)

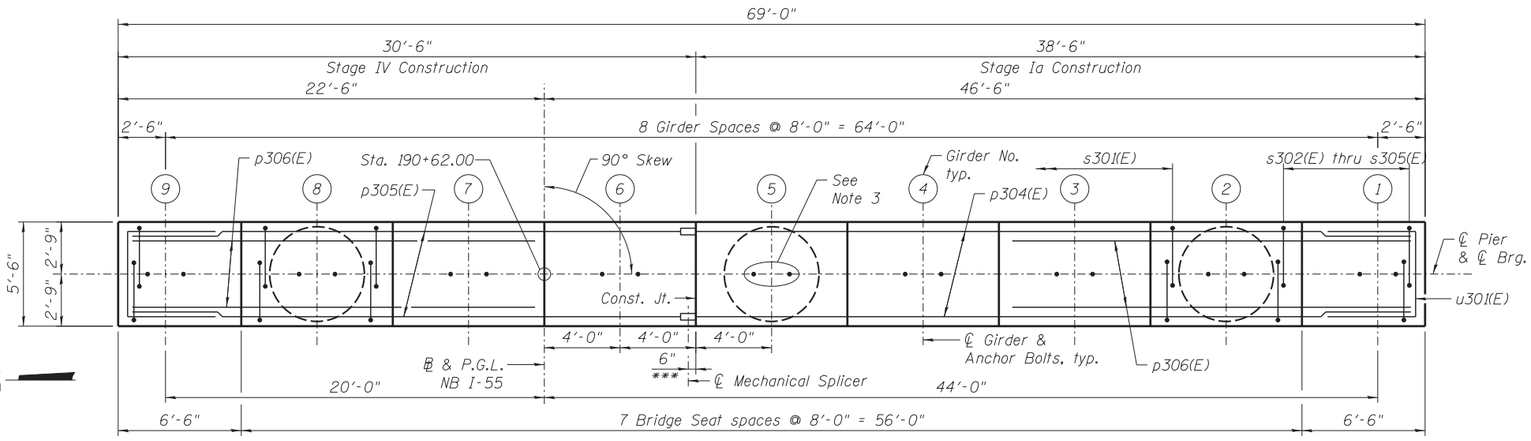


BARS s302(E), s303(E), s304(E), s305(E) u301(E) & U302(E) A & B DIMENSIONS

Bar	A	B
s302(E)	3'-4"	3'-9"
s303(E)	3'-4"	3'-6"
s304(E)	3'-4"	3'-4"
s305(E)	3'-4"	3'-2"
u301(E)	5'-0"	3'-10"
u302(E)	5'-2"	1'-6"



BAR v304(E)

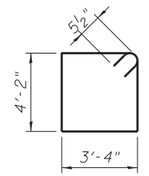


TOP PLAN

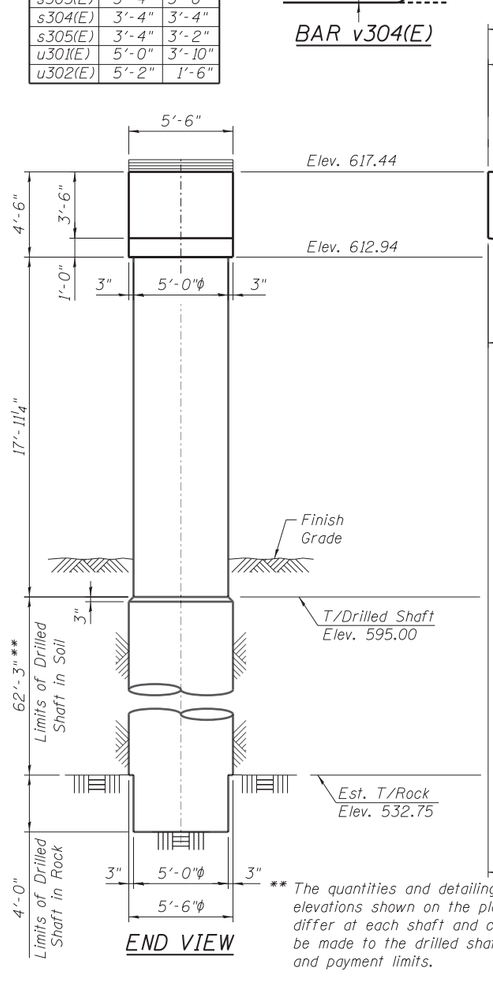
*** Contractor to verify Mechanical Splicer dimensions and adjust bars accordingly.

NOTES:

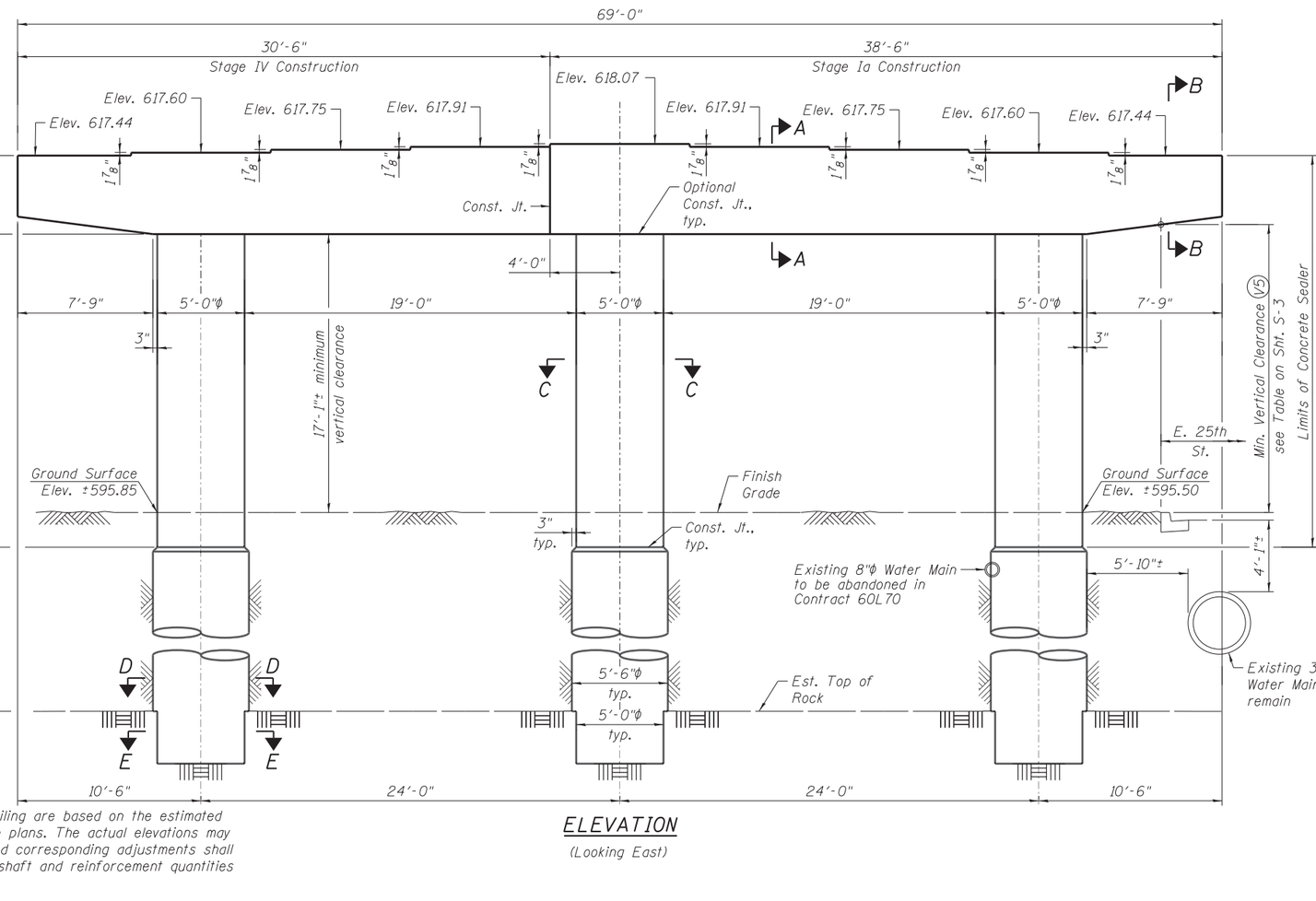
1. Space reinforcement in cap to miss anchor bolts.
2. Pour steps monolithically with cap.
3. For Anchor Bolts Details, see Sheet S-145.
4. For Sections and Details, see Sheet S-161.
5. A drilled shaft shall be tested in accordance with Special Provision for Crosshole Sonic Logging.
6. Contractor to locate and protect existing 36"ϕ Water Main prior to drilling foundation.



BAR s301(E)



END VIEW



ELEVATION

(Looking East)

** The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h301(E)	8	#5	38'-10"	
h302(E)	8	#5	29'-10"	
h303(E)	8	#5	16'-4"	
h304(E)	8	#5	7'-4"	
h305(E)	2	#5	35'-1"	
h306(E)	2	#5	26'-0"	
p301(E)	12	#11	31'-3"	
p302(E)	12	#11	22'-3"	
p303(E)	24	#11	21'-8"	
p304(E)	12	#11	38'-10"	
p305(E)	12	#11	29'-10"	
p306(E)	12	#11	23'-8"	
s301(E)	208	#5	15'-11"	
s302(E)	64	#5	10'-10"	
s303(E)	48	#5	10'-4"	
s304(E)	24	#5	10'-0"	
s305(E)	16	#5	9'-8"	
* sp301	3	#5	66'-0"	
* sp302(E)	3	#5	18'-2"	
u301(E)	10	#6	12'-8"	
u302(E)	26	#5	8'-2"	
v301	48	#14	45'-0"	
v302	48	#14	21'-0"	
v303(E)	57	#11	26'-8"	
v304(E)	57	#11	23'-1"	
Concrete Structures			Cu. Yd.	104.9
Reinforcement Bars, Epoxy Coated			Pound	35,360
Reinforcement Bars			Pound	30,360
Drilled Shaft in Soil			Cu. Yd.	164.3
Drilled Shaft in Rock			Cu. Yd.	8.7
Concrete Sealer			Sq. Ft.	2,247
Crosshole Sonic Logging			Each	1

* Length is height of spiral.

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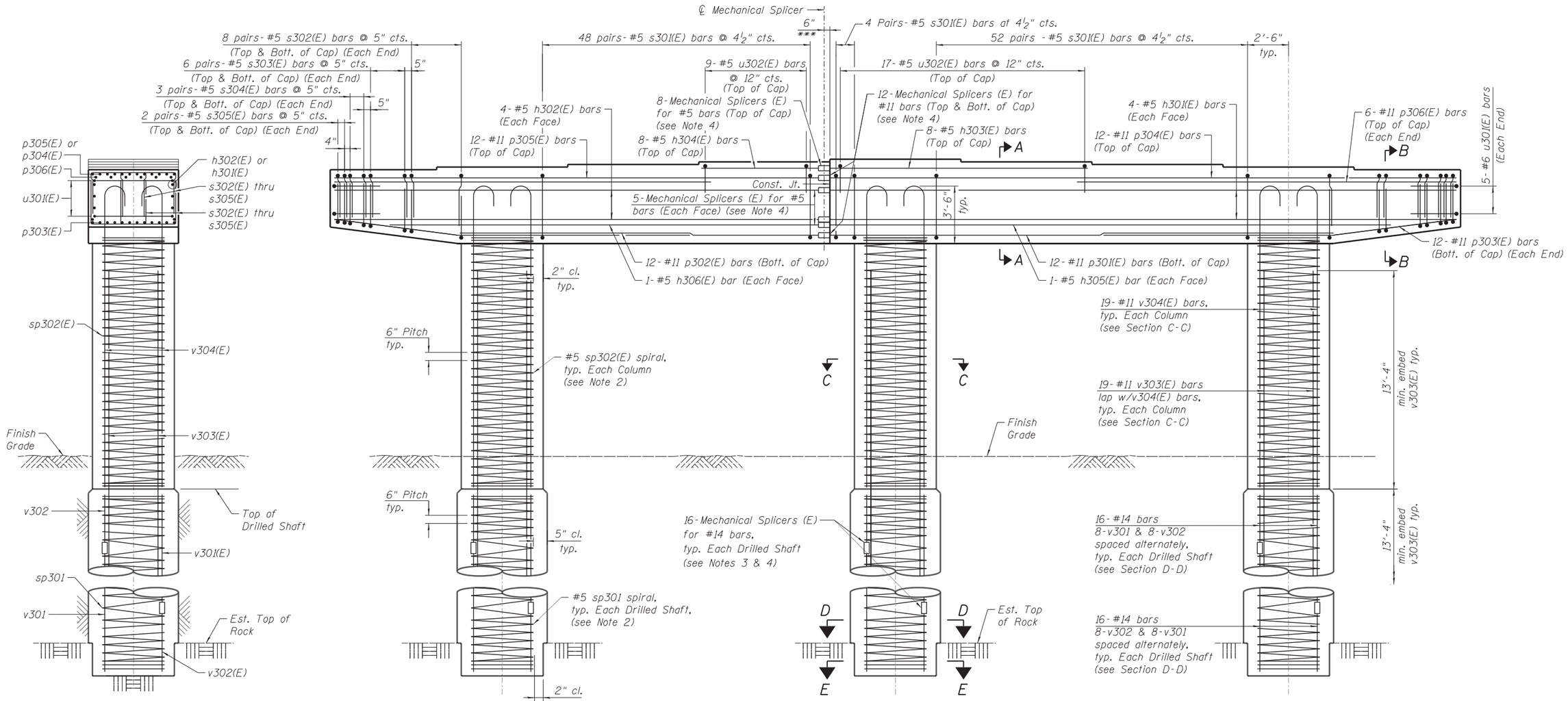
PLOT SCALE =	DRAWN - TM	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - TH	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 3E PLAN & ELEVATION – S.N. 016-1500
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-160 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	683
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

415_0161500_60X07_Pier3-1.dgn

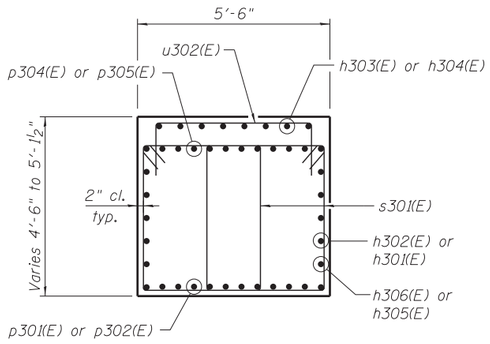


END VIEW

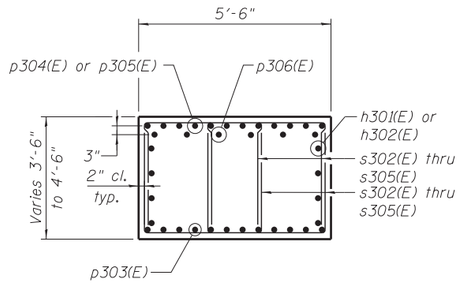
ELEVATION
(Looking East)

*** Contractor to verify Mechanical Splicer dimensions and adjust bars accordingly.

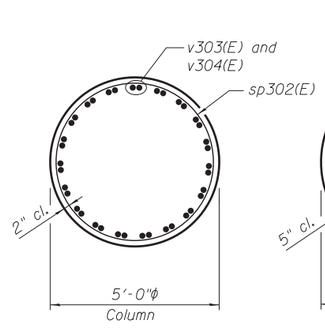
TYP. MIN. BAR LAP
(Unless Noted Otherwise)
#5 bar = 3'-3"
#11 bar = 13'-4"



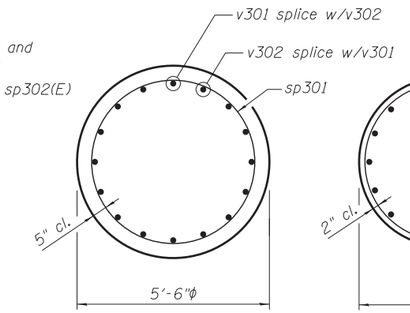
SECTION A-A



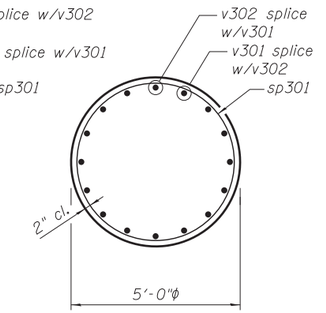
SECTION B-B



SECTION C-C



SECTION D-D



SECTION E-E

NOTES:

1. Bars noted thus, 3x2 - #5 indicates 3 lines of bars with 2 lengths of bars per line.
2. #5 sp301 or #5 sp302(E) spiral
   1) Provide 1½ extra turns, shop welded together per AWS D1.4 top and bottom. Extend spiral 2" into pier cap. Provide 4 - #4 spacers or equivalent.
   2) When splicing spiral reinforcement is necessary, the spiral shall be provided with 1½ extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4 or shall both terminate with a 135° standard hook.
3. Contractor shall use Mechacnical Splicers in drilled shaft that will fit between spirals. Contractor shall field adjust spiral pitch to 12" maximum at Mechanical Splicer locations.
4. For Mechanical Splicer details and quantities See Sheet S-194 .

RME Rubinos & Mesia Engineers, Inc.
200 S. Michigan Avenue, Suite 1500, Chicago, IL 60604-2482

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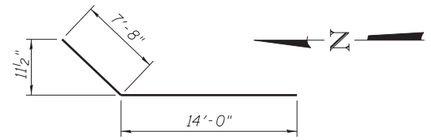
PLOT SCALE =	DRAWN - TM	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - TH	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

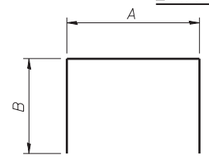
PIER 3E DETAILS – S.N. 016-1500
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-161 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	684
		CONTRACT NO. 60X07		
	ILLINOIS	FED. AID PROJECT		

416_0161500_60X07_Pier3-2.dgn



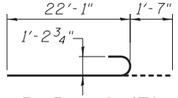
BAR p403(E)



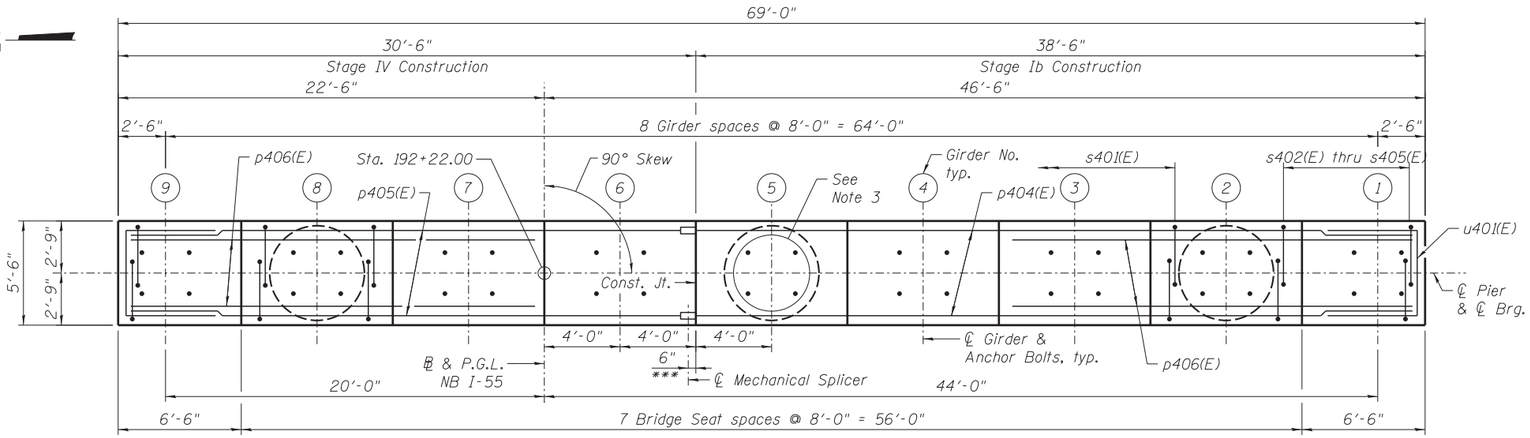
BARS s402(E), s403(E), s404(E), s405(E), u401(E) & u402(E)

A & B DIMENSIONS

Bar	A	B
s402(E)	3'-4"	3'-9"
s403(E)	3'-4"	3'-6"
s404(E)	3'-4"	3'-4"
s405(E)	3'-4"	3'-2"
u401(E)	5'-0"	3'-10"
u402(E)	5'-2"	1'-6"

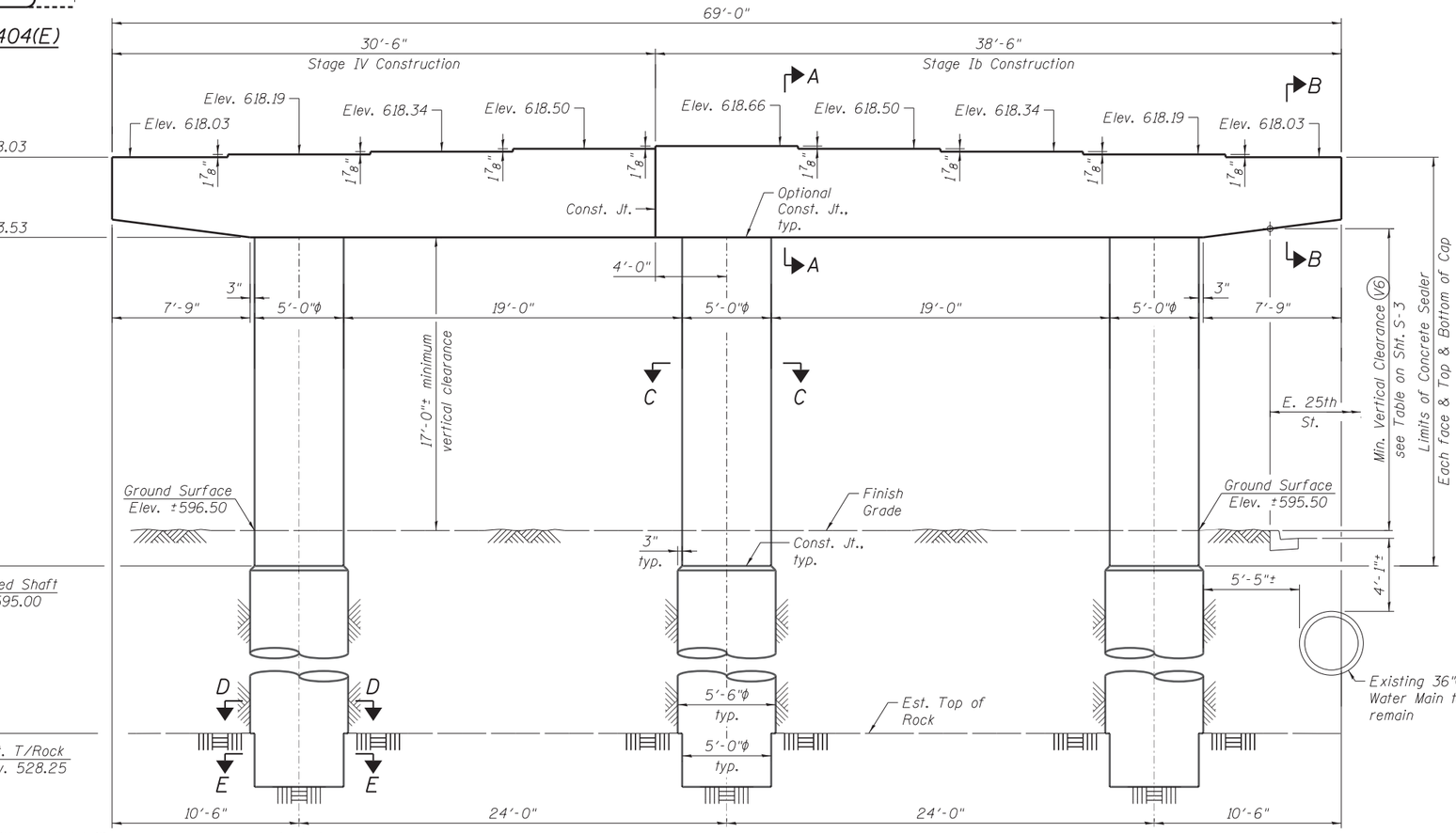


BAR v404(E)



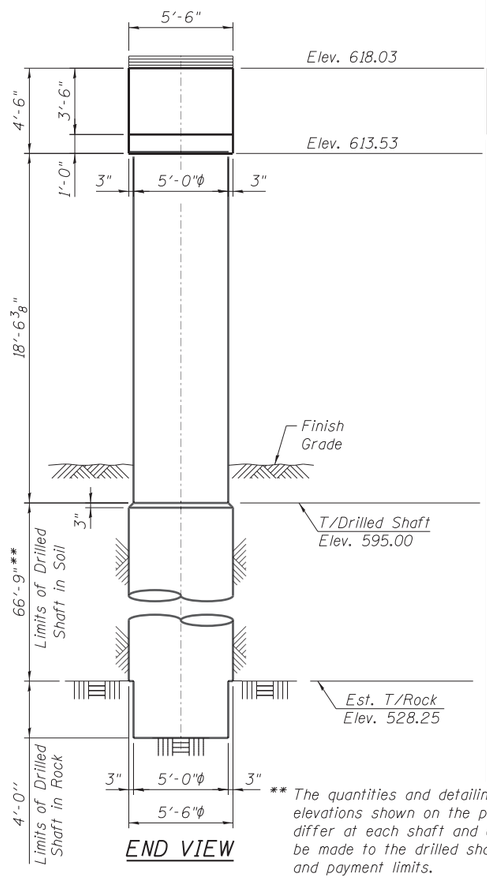
TOP PLAN

***Contractor to verify Mechanical Splicer dimensions and adjust bars accordingly.



ELEVATION

(Looking East)

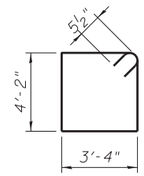


END VIEW

** The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.

NOTES:

1. Space reinforcement in cap to miss anchor bolts.
2. Pour steps monolithically with cap.
3. For Anchor Bolts Details, see Sheet S-145.
4. For Sections and Details, see Sheet S-163.
5. A drilled shaft shall be tested in accordance with Special Provision for Crosshole Sonic Logging.
6. Contractor to locate and protect existing 36"ϕ Water Main prior to drilling foundation.

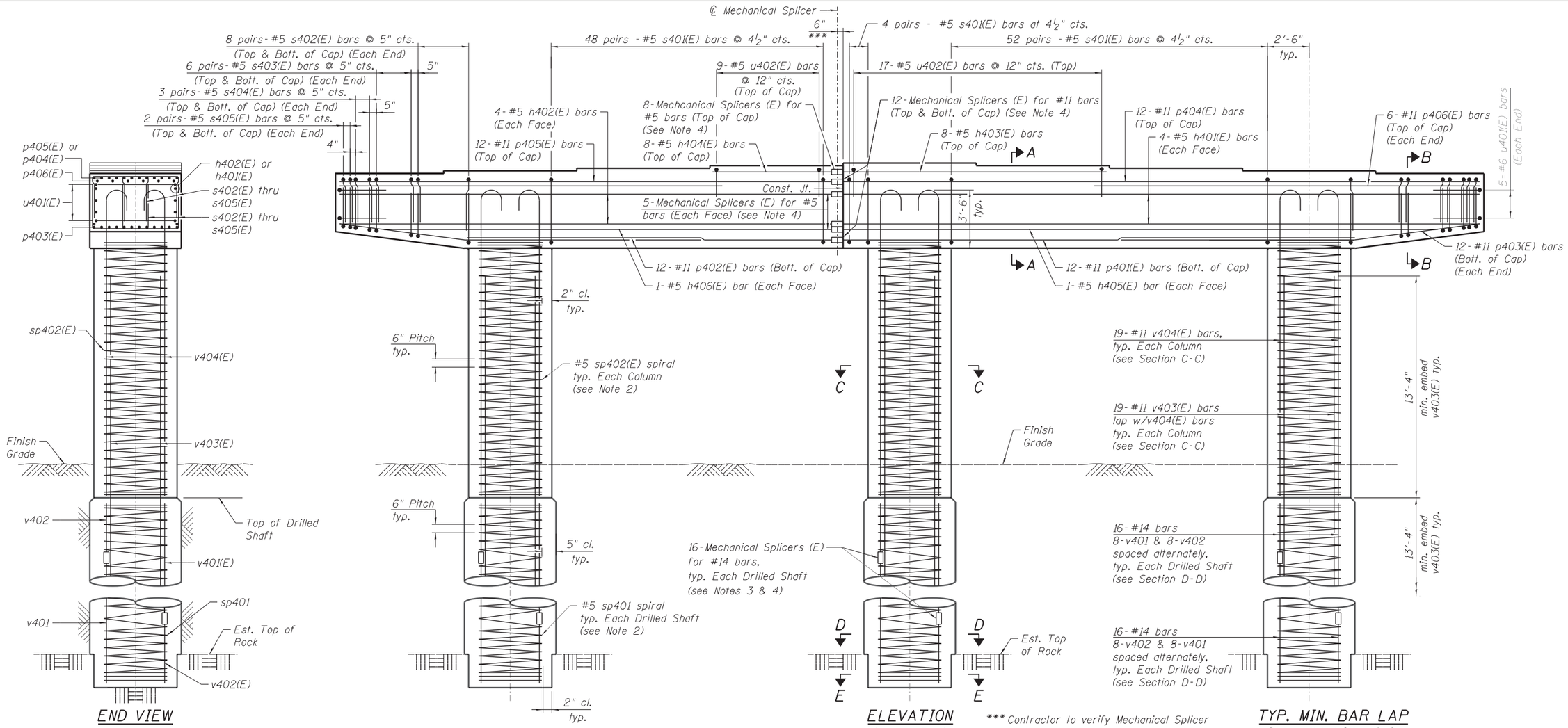


BAR s401(E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h401(E)	8	#5	38'-10"	——
h402(E)	8	#5	29'-10"	——
h403(E)	8	#5	16'-4"	——
h404(E)	8	#5	7'-4"	——
h405(E)	2	#5	35'-1"	——
h406(E)	2	#5	26'-0"	——
p401(E)	12	#11	31'-3"	——
p402(E)	12	#11	22'-3"	——
p403(E)	24	#11	21'-8"	⟍
p404(E)	12	#11	38'-10"	——
p405(E)	12	#11	29'-10"	——
p406(E)	12	#11	23'-8"	——
s401(E)	208	#5	15'-11"	□
s402(E)	64	#5	10'-10"	⊓
s403(E)	48	#5	10'-4"	⊓
s404(E)	24	#5	10'-0"	⊓
s405(E)	16	#5	9'-8"	⊓
* sp401	3	#5	70'-6"	∧∧∧
* sp402(E)	3	#5	18'-9"	∧∧∧
u401(E)	10	#6	12'-8"	▭
u402(E)	26	#5	8'-2"	⊓
v401	48	#14	45'-0"	——
v402	48	#14	25'-6"	——
v403(E)	57	#11	26'-8"	——
v404(E)	57	#11	23'-8"	⊃
Concrete Structures			Cu. Yd.	106.2
Reinforcement Bars, Epoxy Coated			Pound	35,580
Reinforcement Bars			Pound	32,420
Drilled Shaft in Soil			Cu. Yd.	176.2
Drilled Shaft in Rock			Cu. Yd.	8.7
Concrete Sealer			Sq. Ft.	2,275
Crosshole Sonic Logging			Each	1

* Length is height of spiral.

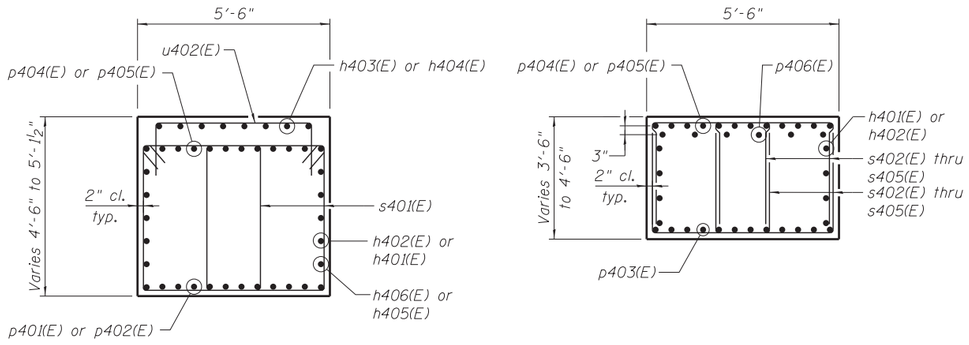


END VIEW

ELEVATION
(Looking East)

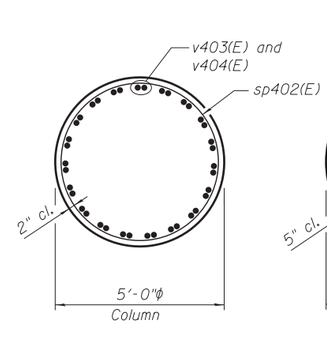
*** Contractor to verify Mechanical Splicer dimensions and adjust bars accordingly.

TYP. MIN. BAR LAP
(Unless Noted Otherwise)
#5 bar = 3'-3"
#11 bar = 13'-4"

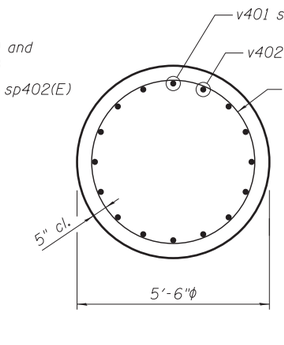


SECTION A-A

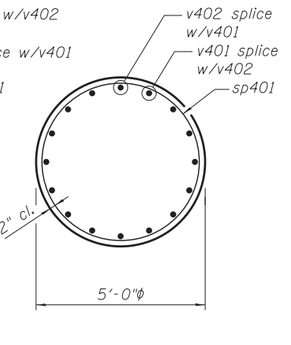
SECTION B-B



SECTION C-C



SECTION D-D



SECTION E-E

NOTES:

1. Bars noted thus, 3x2 - #5 indicates 3 lines of bars with 2 lengths of bars per line.
2. #5 sp301 or #5 sp302(E) spiral
   1) Provide 1½ extra turns, shop welded together per AWS D1.4 top and bottom. Extend spiral 2" into pier cap. Provide 4 - #4 spacers or equivalent.
   2) When splicing spiral reinforcement is necessary, the spiral shall be provided with 1½ extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4 or shall both terminate with a 135° standard hook.
3. Contractor shall use Mechanical Splicers in drilled shaft that will fit between spirals. Contractor shall field adjust spiral pitch to 12" maximum at Mechanical Splicer locations.
4. For Mechanical Splicer details and quantities See Sheet S-194 .

RME Rubinos & Mesia Engineers, Inc.
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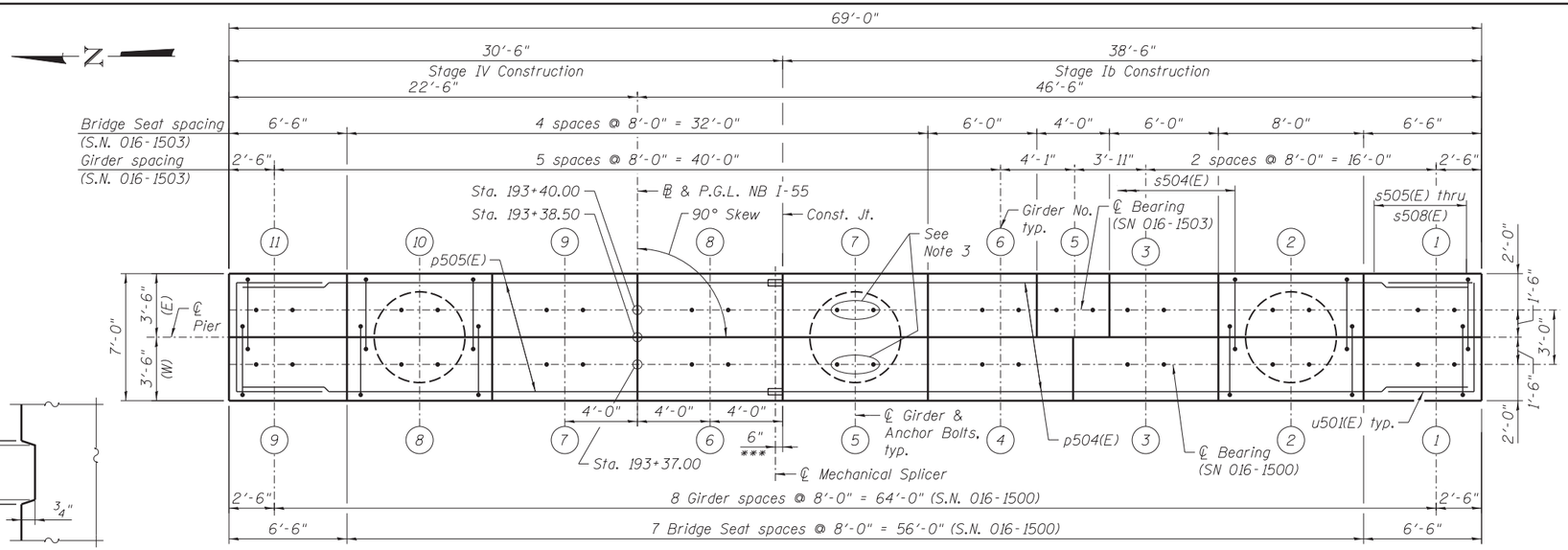
PLOT SCALE =	DRAWN - TM	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - TH	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 4E DETAILS – S.N. 016–1500
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-163 OF S-218 SHEETS

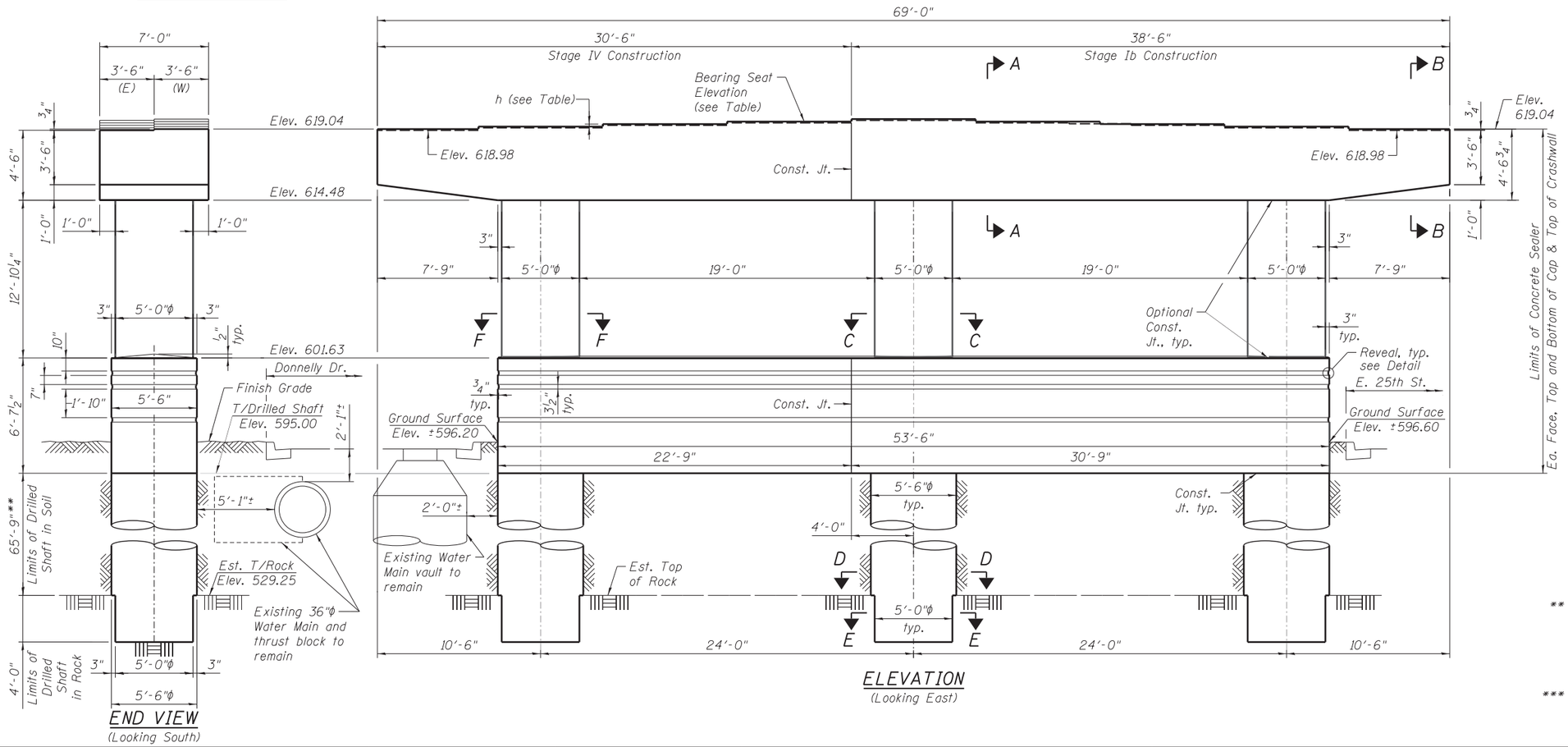
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	686
		CONTRACT NO. 60X07		
	ILLINOIS	FED. AID PROJECT		

418_0161500_60X07_Pier4-2.dgn



REVEAL DETAIL

TOP PLAN



ELEVATION
(Looking East)

END VIEW
(Looking South)

NOTES:

1. Space reinforcement in cap to miss anchor bolts.
2. Pour steps monolithically with cap.
3. For Anchor Bolt Details, see Sheets S-143 & S-144.
4. For Sections, Details and Reinforcement see Sheets S-165 & S-166.
5. A drilled shaft shall be tested in accordance with Special Provision for Crosshole Sonic Logging.
6. Reveals for the Crashwall shall be made of rubber material capable of reproducing the same quality texture on flat and curved surfaces.
7. Reveals will not be paid for separately and are included with Concrete Structures Pay Item.
8. Contractor to locate and protect existing 36"ϕ Water Main prior to drilling foundation.

BEARING SEAT ELEVATIONS				
Structure	Unit	Girder No.	Elev	h
016-1500	1	1	619.04	---
016-1500	1	2	619.20	1 7/8"
016-1500	1	3	619.36	1 7/8"
016-1500	1	4	619.52	1 7/8"
016-1500	1	5	619.68	1 7/8"
016-1500	1	6	619.52	1 7/8"
016-1500	1	7	619.36	1 7/8"
016-1500	1	8	619.20	1 7/8"
016-1500	1	9	619.04	---

BEARING SEAT ELEVATIONS				
Structure	Unit	Girder No.	Elev	h
016-1503	1	1	618.98	---
016-1503	1	2	619.14	1 7/8"
016-1503	1	3	619.30	1 7/8"
016-1503	1	5	619.38	1"
016-1503	1	6	619.46	1"
016-1503	1	7	619.62	1 7/8"
016-1503	1	8	619.46	1 7/8"
016-1503	1	9	619.30	1 7/8"
016-1503	1	10	619.14	1 7/8"
016-1503	1	11	618.98	---

** The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.

*** Contractor to verify Mechanical Splicer dimensions and adjust bars accordingly.

RME Rubinos & Mesia Engineers, Inc.
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USER NAME = AVasonis	DESIGNED - TH	REVISED -	
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PLOT SCALE =	DRAWN - AMV	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - TH	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 5E PLAN & ELEVATION – S.N. 016-1500
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-164 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	687
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

419_0161500_60X07_Pier5-1.dgn

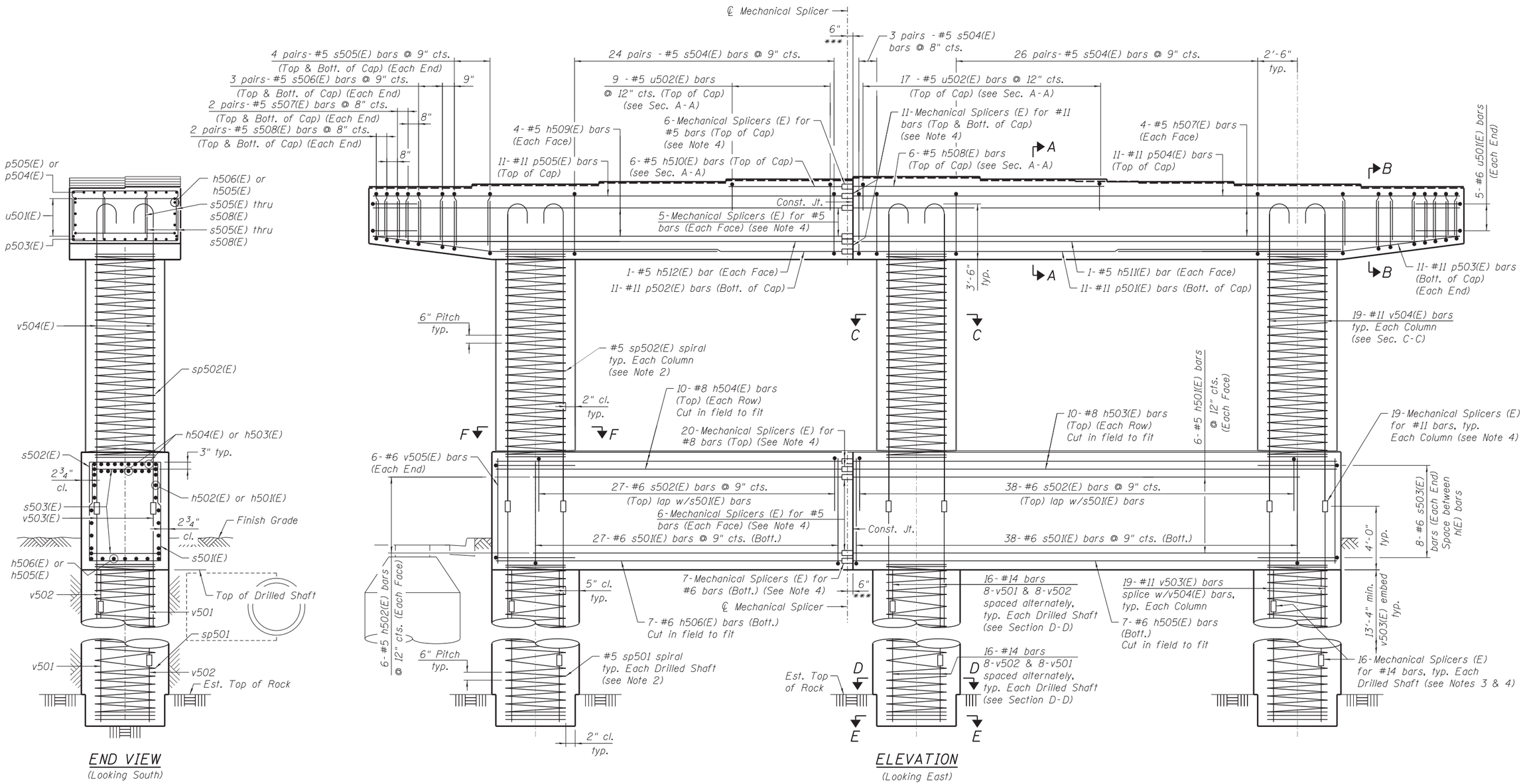
NOTES:

1. Bars noted thus, 3x2-#5 indicates 3 lines of bars with 2 lengths of bars per line.
2. #5 sp501 or #5 sp502(E) spiral
   1) Provide $1\frac{1}{2}$ extra turns, shop welded together per AWS D1.4 top and bottom. Extend spiral 2" into crashwall or pier cap. Provide 4-#4 spacers or equivalent.
   2) When splicing spiral reinforcement is necessary, the spiral shall be provided with $1\frac{1}{2}$ extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4 or shall both terminate with a 135° standard hook.
3. Contractor shall use Mechanical Splicers in drilled shaft that will fit between spirals. Contractor shall field adjust spiral pitch to 12" maximum at Mechanical Splicer locations.
4. For Mechanical Splicer details and quantities See Sheet S-194.

*** Contractor to verify Mechanical Splicer dimensions and adjust bars accordingly.

TYP. MIN. BAR LAP

(Unless Noted Otherwise)
#5 bar = 3'-3"
#6 bar = 3'-10"
#11 bar = 13'-4"



END VIEW
(Looking South)

ELEVATION
(Looking East)

420_0161500_60X07_Pier-5-2.dgn

USER NAME = AVasonis	DESIGNED - TH	REVISED -	
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PLOT SCALE =	DRAWN - AMV	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - TH	REVISED -	

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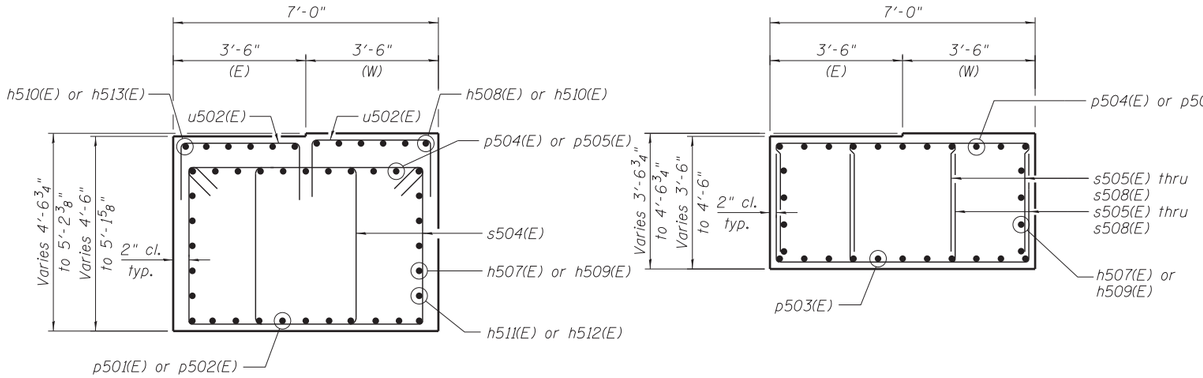
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

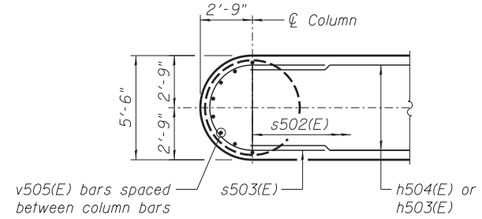
PIER 5E DETAILS I – S.N. 016-1500
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-165 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	688
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			



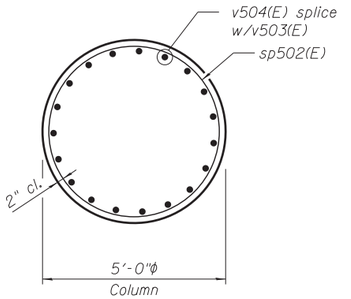
SECTION A-A

SECTION B-B

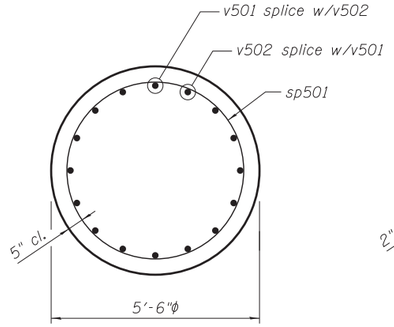


SECTION F-F

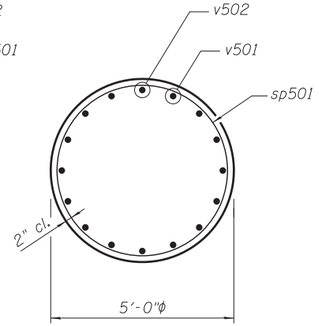
Column bars not shown for clarity.



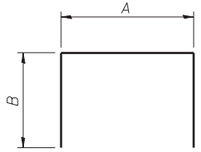
SECTION C-C



SECTION D-D



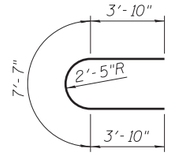
SECTION E-E



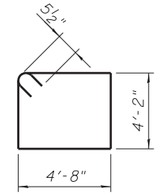
BARS s501(E), s502(E), s505(E), s506(E), s507(E), s508(E), u501(E) & u502(E)

A & B DIMENSIONS

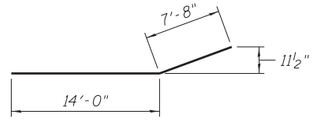
Bar	A	B
s501(E)	5'-0"	6'-3"
s502(E)	5'-0"	3'-10"
s505(E)	4'-8"	3'-9"
s506(E)	4'-8"	3'-7"
s507(E)	4'-8"	3'-5"
s508(E)	4'-8"	3'-3"
u501(E)	6'-6"	3'-10"
u502(E)	3'-2"	1'-6"



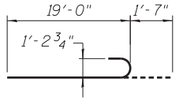
BAR s503(E)



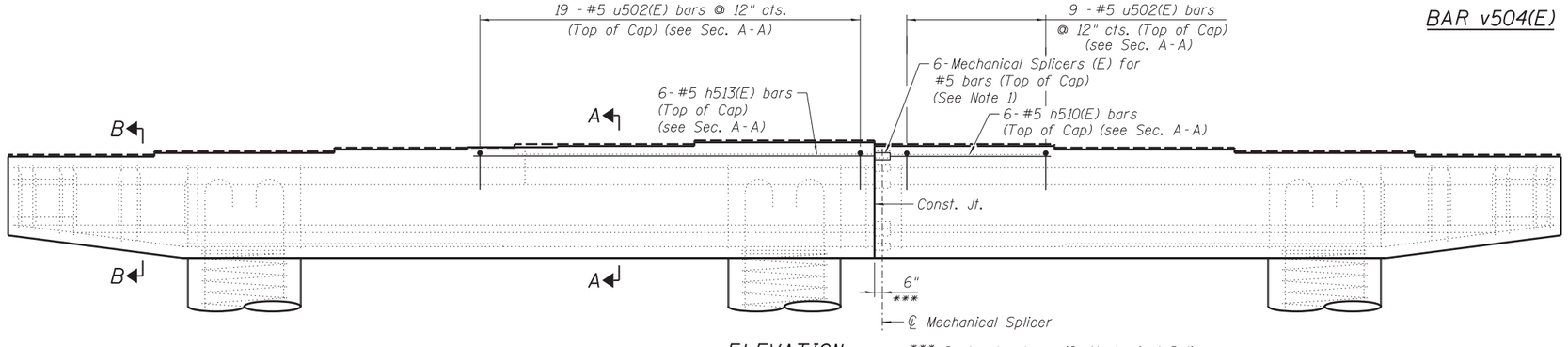
BAR s504(E)



BAR p503(E)



BAR v504(E)



ELEVATION

(Looking West)

*** Contractor to verify Mechanical Splicer dimensions and adjust bars accordingly.

BILL OF MATERIAL

	Bar	No.	Size	Length	Shape
	h501(E)	12	#5	28'-6"	
	h502(E)	12	#5	19'-6"	
	h503(E)	20	#8	31'-1"	
	h504(E)	20	#8	22'-1"	
	h505(E)	7	#6	31'-1"	
	h506(E)	7	#6	22'-1"	
	h507(E)	8	#5	38'-10"	
	h508(E)	6	#5	16'-4"	
	h509(E)	8	#5	29'-10"	
	h510(E)	12	#5	7'-4"	
	h511(E)	2	#5	35'-1"	
	h512(E)	2	#5	26'-0"	
	h513(E)	6	#5	18'-4"	
	p501(E)	11	#11	31'-3"	
	p502(E)	11	#11	22'-3"	
	p503(E)	22	#11	21'-8"	
	p504(E)	11	#11	38'-10"	
	p505(E)	11	#11	29'-10"	
	s501(E)	65	#6	17'-6"	
	s502(E)	65	#6	12'-8"	
	s503(E)	16	#6	15'-3"	
	s504(E)	106	#5	18'-7"	
	s505(E)	32	#5	12'-2"	
	s506(E)	24	#5	11'-10"	
	s507(E)	16	#5	11'-6"	
	s508(E)	16	#5	11'-2"	
*	sp501	3	#5	69'-11"	
*	sp502(E)	3	#5	13'-2"	
	u501(E)	10	#6	14'-2"	
	u502(E)	54	#5	6'-2"	
	v501	48	#14	45'-0"	
	v502	48	#14	24'-9"	
	v503(E)	57	#11	17'-4"	
	v504(E)	57	#11	20'-7"	
	v505(E)	12	#6	6'-3"	
	Structure Excavation		Cu. Yd.	22	
	Concrete Structures		Cu. Yd.	183.1	
	Reinforcement Bars, Epoxy Coated		Pound	34,640	
	Reinforcement Bars		Pound	32,100	
	Drilled Shaft in Soil		Cu. Yd.	173.6	
	Drilled Shaft in Rock		Cu. Yd.	8.7	
	Concrete Sealer		Sq. Ft.	3,202	
	Crosshole Sonic Logging		Each	1	

*Length is height of spiral.

NOTES:

1. For Mechanical Splicer details and quantities, see Sheet S-194.

RME Rubinos & Mesia Engineers, Inc.
200 S. Michigan Avenue, Suite 1500, Chicago, IL 60604-2482

USER NAME = AVasonis	DESIGNED - TH	REVISED -	
	CHECKED - MR	REVISED -	
PLOT SCALE =	DRAWN - AMV	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - TH	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 5E DETAILS II – S.N. 016–1500
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)

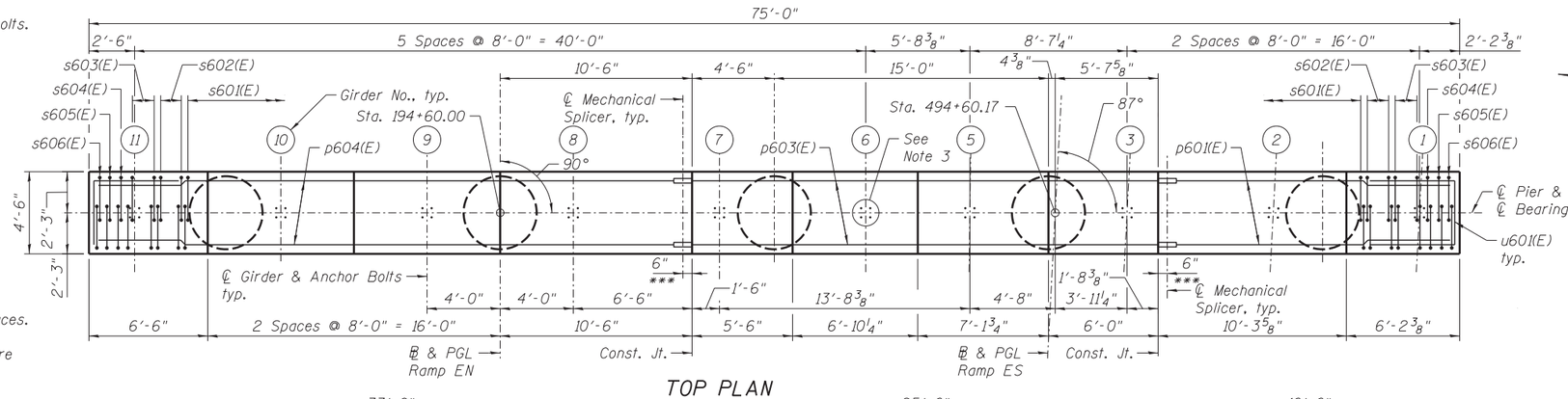
SHEET NO. S-166 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	689
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

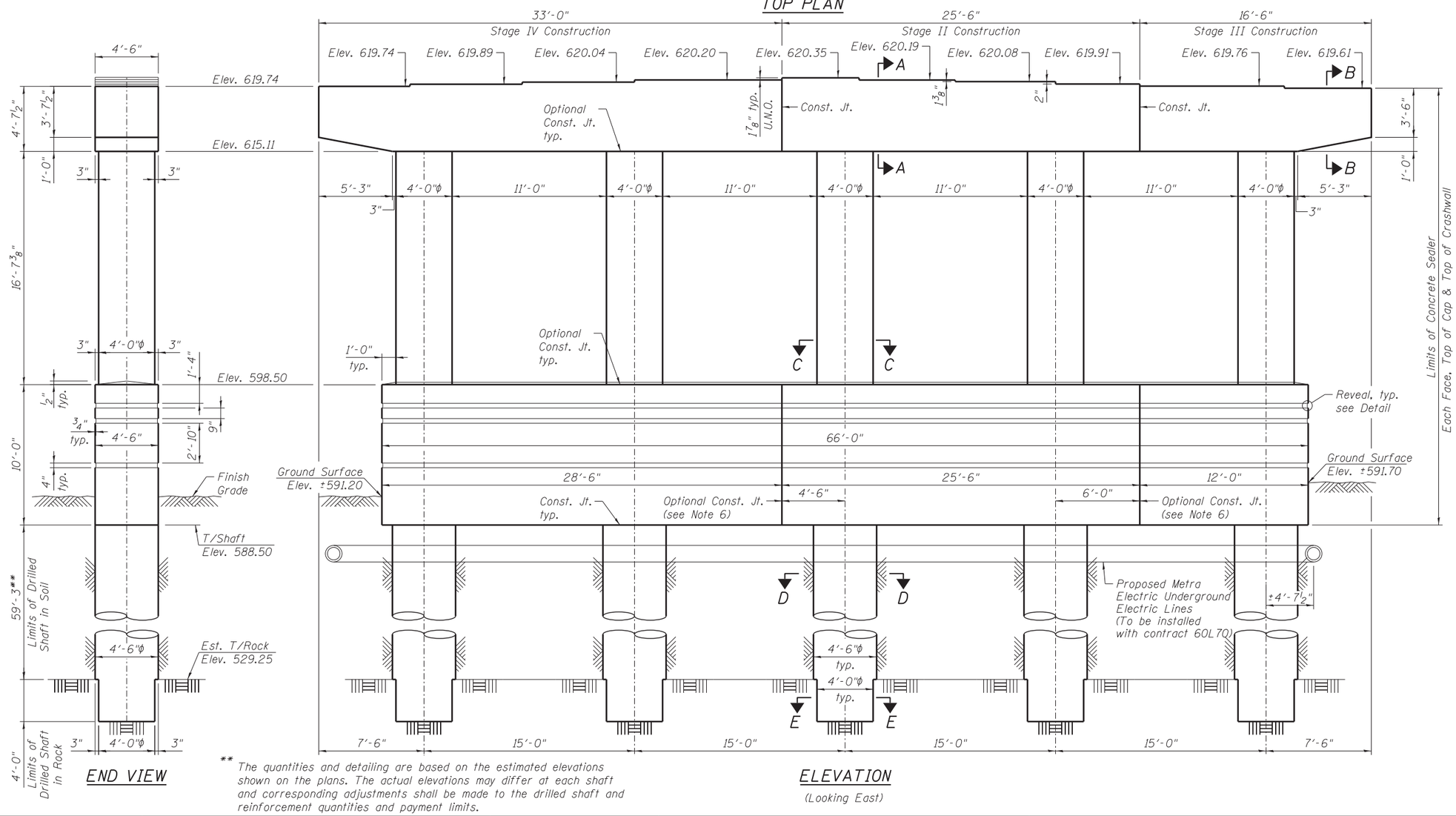
421_0161500_60X07_Pier5-3.dgn

NOTES:

1. Space reinforcement in cap to miss anchor bolts.
2. Pour steps monolithically with cap.
3. For Anchor Bolts Details, see Sheet S-144.
4. For Sections and Details, see Sheet S-168.
5. A drilled shaft shall be tested in accordance with Special Provision for Crosshole Sonic Logging.
6. Construction joint can be avoided using low-clearance construction techniques.
7. Reveals for the Crashwall shall be made of rubber material capable of reproducing the same quality texture on flat and curved surfaces.
8. Reveals will not be paid for separately and are included with Concrete Structures Pay Item.



TOP PLAN



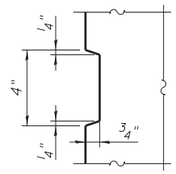
END VIEW

ELEVATION

(Looking East)

** The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.

*** Contractor to verify Mechanical Splicer dimensions and adjust bars accordingly.



REVEAL DETAIL

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h601(E)	2	#5	13'-5"	
h602(E)	12	#5	15'-10"	
h603(E)	14	#5	26'-6"	
h604(E)	2	#5	29'-11"	
h605(E)	12	#5	32'-4"	
h606(E)	7	#5	25'-2"	
h607(E)	7	#5	5'-2"	
h608(E)	7	#5	18'-2"	
h609(E)	18	#5	11'-3"	
h610(E)	18	#5	26'-6"	
h611(E)	18	#5	27'-9"	
h612(E)	14	#6	11'-3"	
h613(E)	14	#6	26'-6"	
h614(E)	14	#6	27'-9"	
p601(E)	10	#11	15'-10"	
p602(E)	10	#11	15'-10"	
p603(E)	20	#11	26'-6"	
p604(E)	10	#11	32'-4"	
p605(E)	10	#11	27'-2"	
p606(E)	10	#11	19'-2"	
s601(E)	312	#5	14'-11"	
s602(E)	48	#5	10'-4"	
s603(E)	32	#5	9'-10"	
s604(E)	4	#5	13'-3"	
s605(E)	4	#5	13'-1"	
s606(E)	4	#5	12'-11"	
s607(E)	182	#6	17'-6"	
* sp601(E)	5	#5	17'-2"	
* sp602	5	#5	63'-6"	
u601(E)	14	#6	11'-8"	
u602(E)	46	#5	7'-2"	
u603(E)	22	#6	11'-6"	
v601(E)	115	#11	26'-9"	
v602(E)	14	#6	9'-8"	
v603(E)	115	#11	18'-4"	
v604	50	#14	40'-0"	
v605	50	#14	23'-3"	
v606	50	#14	23'-3"	
v607	50	#14	40'-0"	

Structure Excavation	Cu. Yd.	66
Concrete Structures	Cu. Yd.	208.7
Reinforcement Bars, Epoxy Coated	Pound	54,330
Reinforcement Bars	Pound	56,200
Drilled Shaft in Soil	Cu. Yd.	174.6
Drilled Shaft in Rock	Cu. Yd.	9.4
Concrete Sealer	Sq. Ft.	4,053
Crosshole Sonic Logging	Each	1

*Length is height of spiral

AECOM

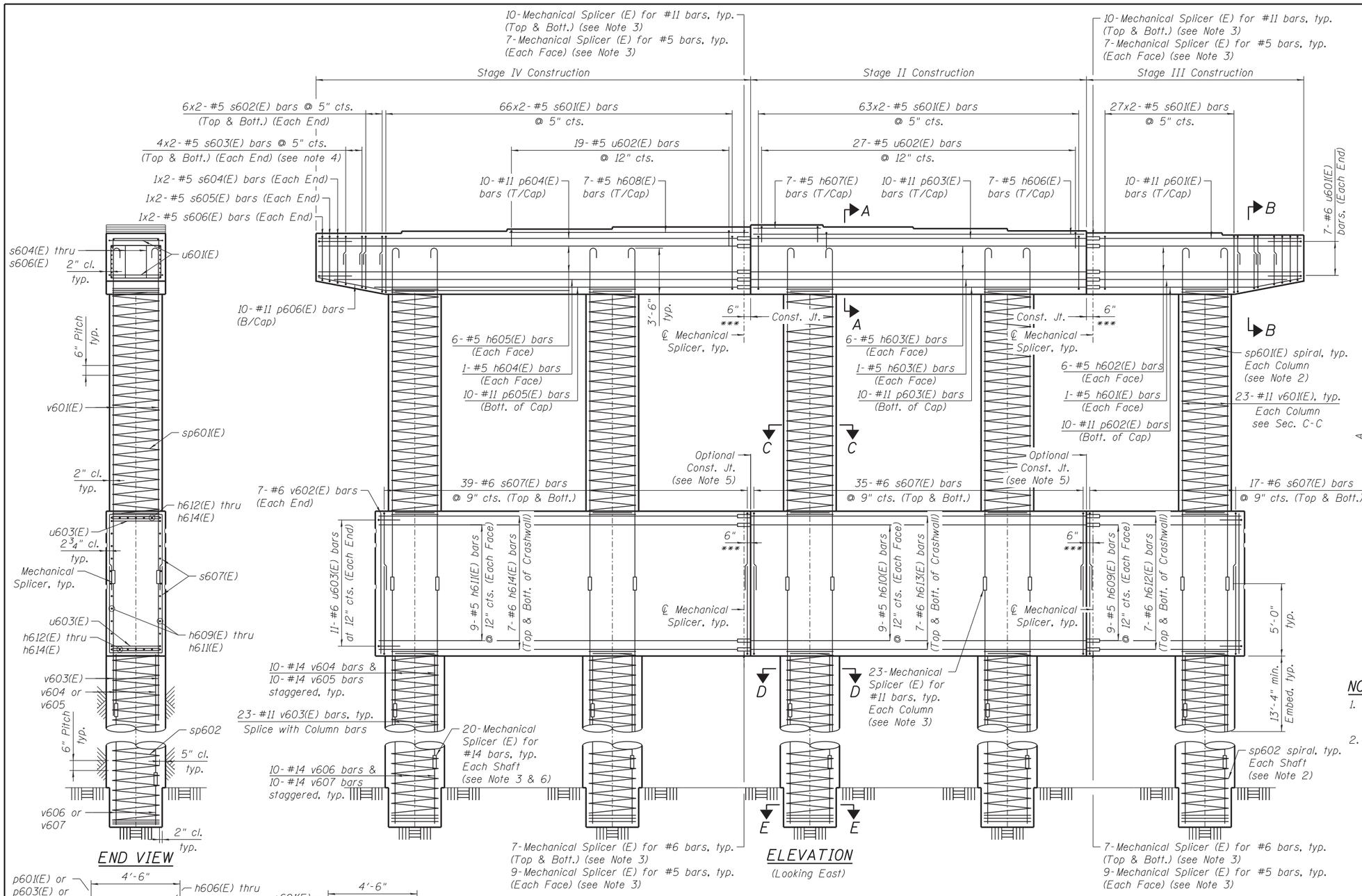
USER NAME = kritzm	DESIGNED - VP	REVISED -
	CHECKED - EJM	REVISED -
PLOT SCALE =	DRAWN - MRK	REVISED -
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

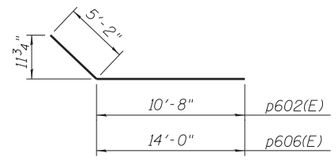
PIER 6E PLAN & ELEVATION – S.N. 016-1503
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-167 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	690
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

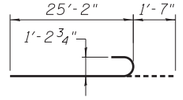
422_0161503_60X07_Pier6-1.dgn



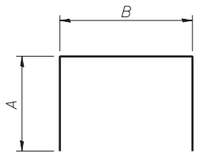
*** Contractor to verify Mechanical Splicer dimensions and adjust bars accordingly.

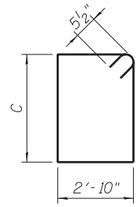


BAR p602(E) & BAR p606(E)



BAR v601(E)





BARS A & B DIMENSIONS

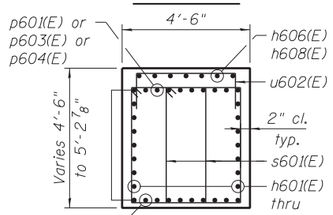
Bar	A	B
s602(E)	3'-9"	2'-10"
s603(E)	3'-6"	2'-10"
s607(E)	6'-9"	4'-0"
u601(E)	3'-10"	4'-0"
u602(E)	1'-6"	4'-2"
u603(E)	3'-10"	3'-10"

BARS C DIMENSIONS

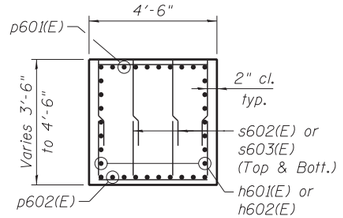
Bar	C
s601(E)	4'-2"
s604(E)	3'-4"
s605(E)	3'-3"
s606E)	3'-2"

NOTES:

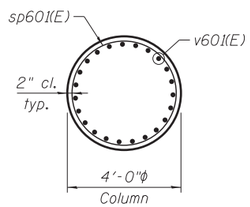
1. Bars noted thus, 3x2-#5 indicates 3 lines of bars with 2 lengths of bars per line.
2. #5 sp601(E) or #5 sp602 spiral
   1) Provide $1\frac{1}{2}$ extra turns, shop welded together per AWS D1.4 top and bottom. Extend spiral 3" into crashwall or pier cap. Provide 4-#4 spacers or equivalent.
   2) When splicing spiral reinforcement is necessary, the spiral shall be provided with $1\frac{1}{2}$ extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4 or shall both terminate with a 135° standard hook.
3. For Details and Quantities of Mechanical Splicers, see Sheet S-194 .
4. Cut s603(E) bars in the field to fit. Minimum bar lap at field cut location shall not be less than 3'-3".
5. Construction joint can be avoided using low-clearance construction techniques.
6. Contractor shall use Mechanical Splicers in drilled shaft that will fit between spirals. Contractor shall field adjust spiral pitch to 12" maximum at Mechanical Splicer locations.



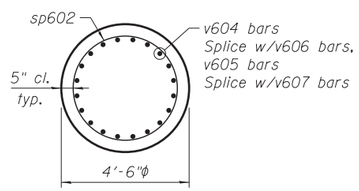
SECTION A-A



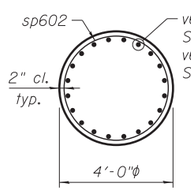
SECTION B-B



SECTION C-C



SECTION D-D



SECTION E-E

TYP. MIN. BAR LAP

(Unless Noted Otherwise)
#5 bar = 3'-3"
#6 bar = 3'-10"
#11 bar = 13'-4"

423_0161503_60X07_Pier6-2.dgn

AECOM

USER NAME = kritzm	DESIGNED - VP	REVISED -
	CHECKED - EJM	REVISED -
PLOT SCALE =	DRAWN - MRK	REVISED -
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -

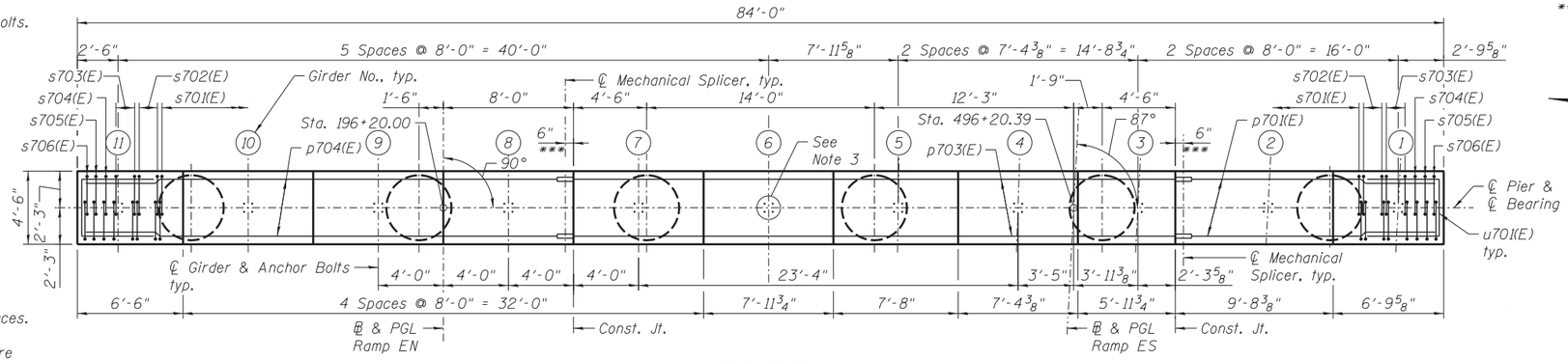
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 6E DETAILS – S.N 016-1503
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-168 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	691
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

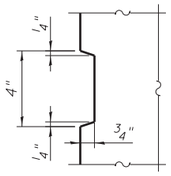
NOTES:

1. Space reinforcement in cap to miss anchor bolts.
2. Pour steps monolithically with cap.
3. For Anchor Bolts Details, see Sheet S-144.
4. For Sections and Details, see Sheet S-170.
5. A drilled shaft shall be tested in accordance with Special Provision for Crosshole Sonic Logging.
6. Construction joint can be avoided using low-clearance construction techniques.
7. Reveals for the Crashwall shall be made of rubber material capable of reproducing the same quality texture on flat and curved surfaces.
8. Reveals will not be paid for separately and are included with Concrete Structures Pay Item.

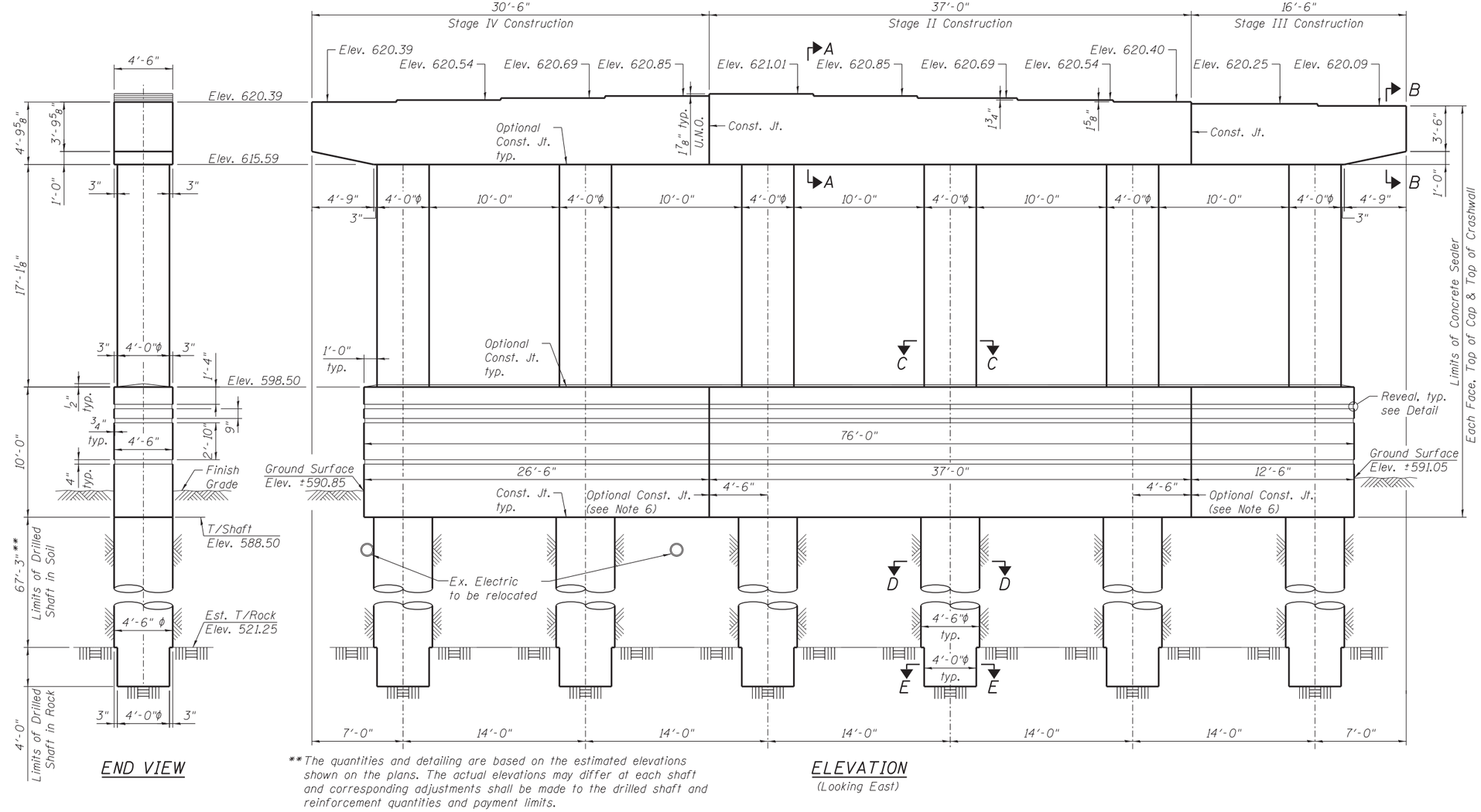


TOP PLAN

***Contractor to verify Mechanical Splicer dimensions and adjust bars accordingly.



REVEAL DETAIL



END VIEW

ELEVATION
(Looking East)

** The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h701(E)	2	#5	13'-8"	
h702(E)	12	#5	15'-10"	
h703(E)	14	#5	38'-0"	
h704(E)	2	#5	27'-8"	
h705(E)	12	#5	29'-10"	
h706(E)	7	#5	36'-8"	
h707(E)	7	#5	15'-8"	
h708(E)	7	#5	23'-8"	
h709(E)	18	#5	11'-9"	
h710(E)	18	#5	38'-0"	
h711(E)	18	#5	25'-9"	
h712(E)	14	#6	11'-9"	
h713(E)	14	#6	38'-0"	
h714(E)	14	#6	25'-9"	
p701(E)	10	#11	15'-10"	
p702(E)	10	#11	15'-10"	
p703(E)	20	#11	38'-0"	
p704(E)	10	#11	29'-10"	
p705(E)	10	#11	25'-2"	
p706(E)	10	#11	18'-8"	
s701(E)	360	#5	14'-11"	
s702(E)	40	#5	10'-4"	
s703(E)	32	#5	9'-10"	
s704(E)	4	#5	13'-4"	
s705(E)	4	#5	13'-2"	
s706(E)	4	#5	13'-0"	
s707(E)	208	#6	17'-6"	
* sp701(E)	6	#5	17'-8"	
* sp702	6	#5	71'-6"	
u701(E)	14	#6	11'-8"	
u702(E)	63	#5	7'-2"	
u703(E)	22	#6	11'-6"	
v701(E)	138	#11	27'-3"	
v702(E)	14	#6	9'-8"	
v703(E)	138	#11	18'-4"	
v704	60	#14	35'-6"	
v705	60	#14	31'-3"	
v706	60	#14	35'-9"	
v707	60	#14	40'-0"	
Structure Excavation		Cu. Yd.	60	
Concrete Structures		Cu. Yd.	243.5	
Reinforcement Bars, Epoxy Coated		Pound	63,890	
Reinforcement Bars		Pound	75,940	
Drilled Shaft in Soil		Cu. Yd.	237.7	
Drilled Shaft in Rock		Cu. Yd.	11.2	
Concrete Sealer		Sq. Ft.	4,709	
Crosshole Sonic Logging		Each	1	

*Length is height of spiral

424_0161503_60X07_Pier7-1.dgn

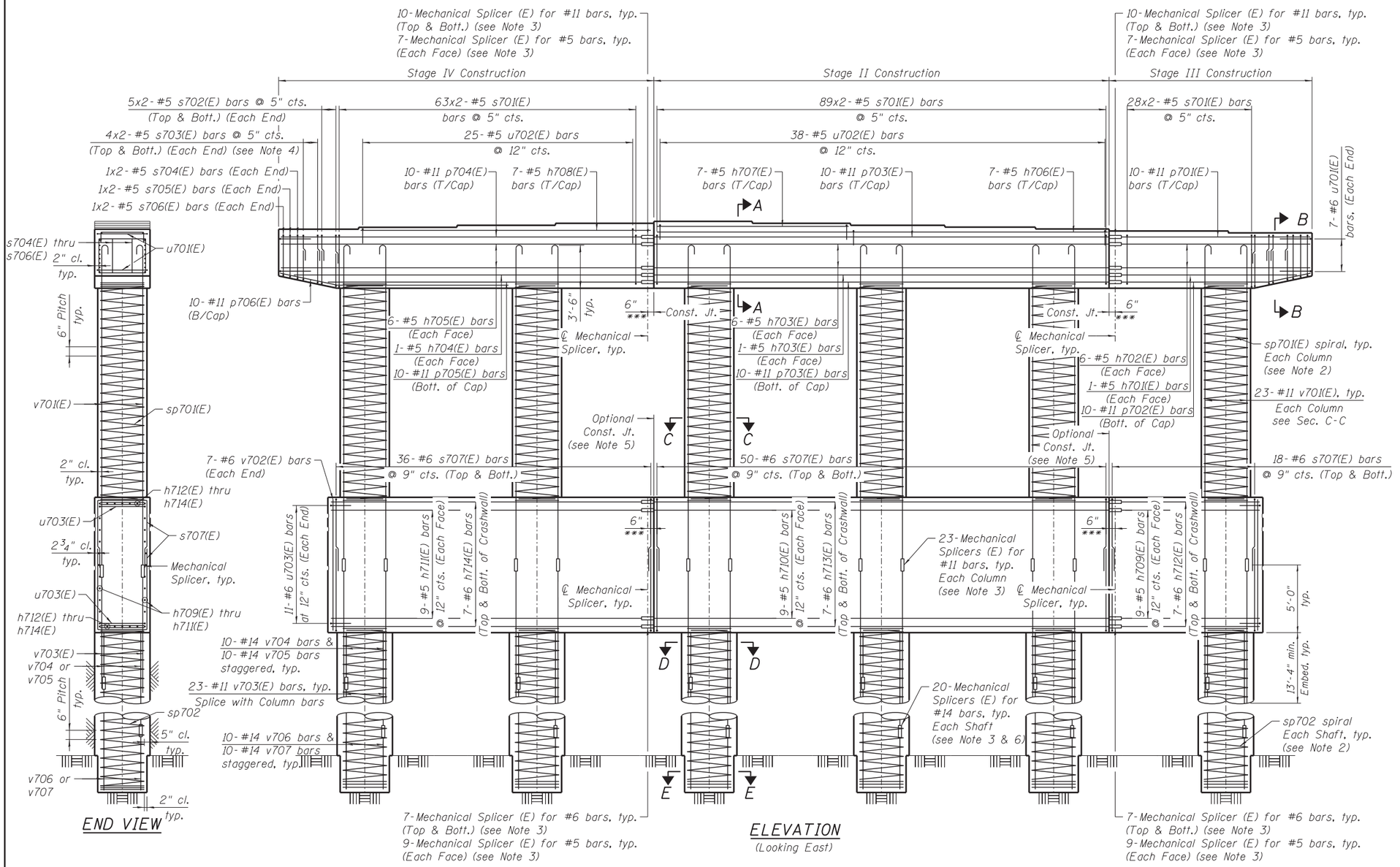
AECOM

USER NAME = kritzm	DESIGNED - VP	REVISED -
	CHECKED - EJM	REVISED -
PLOT SCALE =	DRAWN - MRK	REVISED -
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 7E PLAN & ELEVATION – S.N. 016–1503
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-169 OF S-218 SHEETS

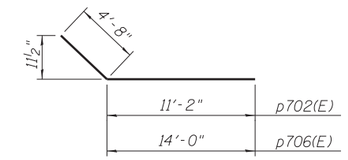
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	692
		CONTRACT NO. 60X07		
		ILLINOIS FED. AID PROJECT		



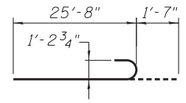
END VIEW

ELEVATION
(Looking East)

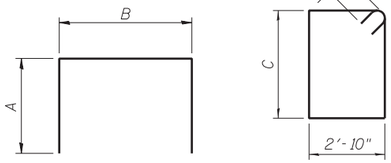
***Contractor to verify Mechanical Splicer dimensions and adjust bars accordingly.



BAR p702(E) & BAR p706(E)



BAR v701(E)



BARS
A & B DIMENSIONS

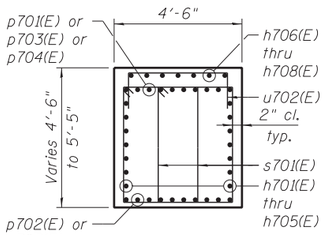
Bar	A	B
s702(E)	3'-9"	2'-10"
s703(E)	3'-6"	2'-10"
s707(E)	6'-9"	4'-0"
u701(E)	3'-10"	4'-0"
u702(E)	1'-6"	4'-2"
u703(E)	3'-10"	3'-10"

BARS
C DIMENSIONS

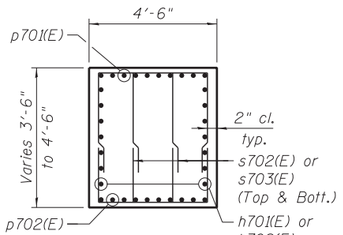
Bar	C
s701(E)	4'-2"
s704(E)	3'-4 1/2"
s705(E)	3'-3 1/2"
s706E)	3'-2 1/2"

NOTES:

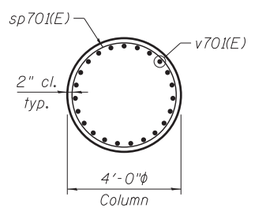
1. Bars noted thus, 3x2-#5 indicates 3 lines of bars with 2 lengths of bars per line.
2. #5 sp701(E) or #5 sp702 spiral
   1) Provide 1 1/2 extra turns, shop welded together per AWS D1.4 top and bottom. Extend spiral 3" into crashwall or pier cap. Provide 4-#4 spacers or equivalent.
   2) When splicing spiral reinforcement is necessary, the spiral shall be provided with 1 1/2 extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4 or shall both terminate with a 135° standard hook.
3. For Details and Quantities of Mechanical Splicers, see Sheet S-194 .
4. Cut s703(E) bars in the field to fit. Minimum bar lap at field cut location shall not be less than 3'-3".
5. Construction joint can be avoided using low-clearance construction techniques.
6. Contractor shall use Mechanical Splicers in drilled shaft that will fit between spirals. Contractor shall field adjust spiral pitch to 12" maximum at Mechanical Splicer locations.



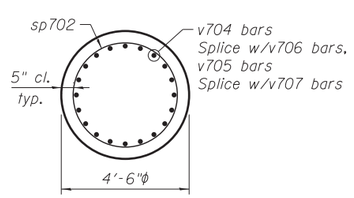
SECTION A-A



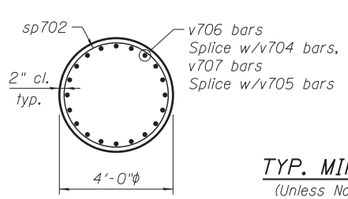
SECTION B-B



SECTION C-C



SECTION D-D



SECTION E-E

TYP. MIN. BAR LAP
(Unless Noted Otherwise)
#5 bar = 3'-3"
#6 bar = 3'-10"
#11 bar = 13'-4"

USER NAME = kritzm	DESIGNED - VP	REVISED -	
	CHECKED - EJM	REVISED -	
PLOT SCALE =	DRAWN - MRK	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -	

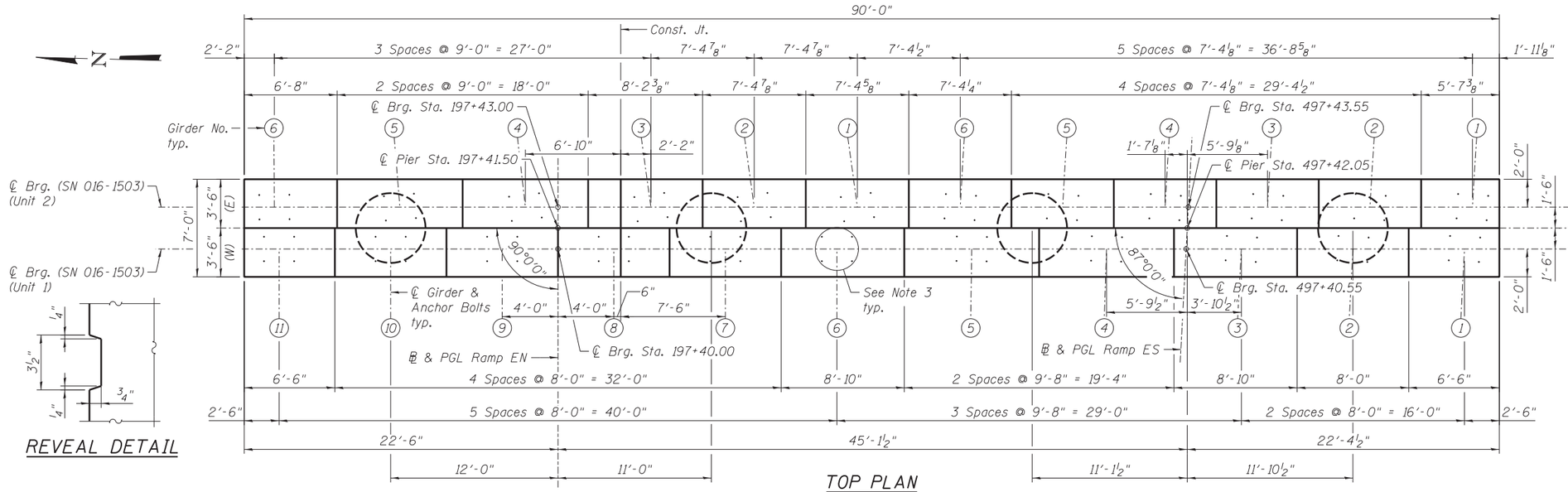
AECOM

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 7E DETAILS – S.N. 016-1503
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-170 OF S-218 SHEETS

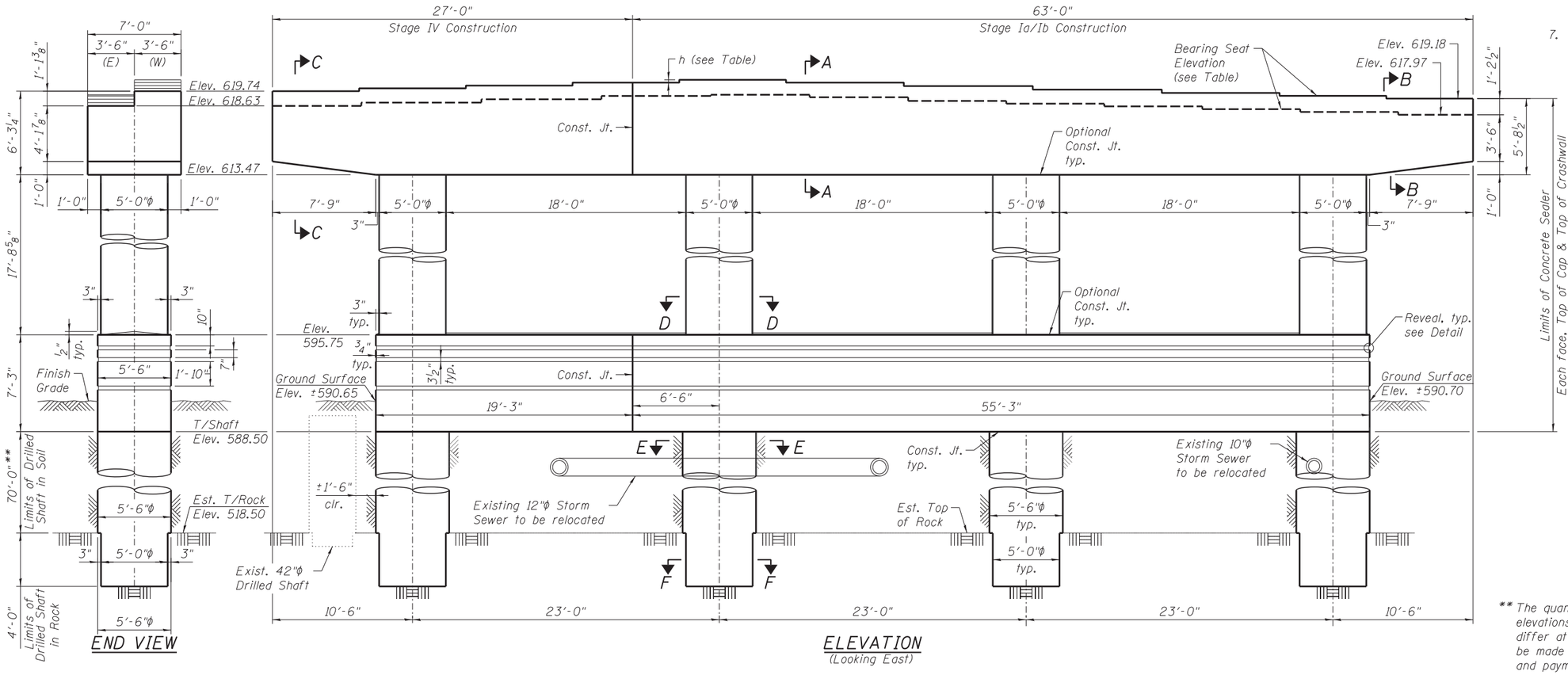
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	693
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

425_0161503_60X07_Pier7-2.dgn



REVEAL DETAIL

TOP PLAN



ELEVATION
(Looking East)

END VIEW

NOTES:

1. Space reinforcement in cap to miss anchor bolts.
2. Pour steps monolithically with cap.
3. For Anchor Bolts Details see sheet S-146.
4. For Sections, Details and Reinforcement, see Sheets S-172, S-173 & S-174.
5. A drilled shaft shall be tested in accordance with Special Provision for Crosshole Sonic Logging.
6. Reveals for the Crashwall shall be made of rubber material capable of reproducing the same quality texture on flat and curved surfaces.
7. Reveals will not be paid for separately and are included with Concrete Structures Pay Item.

BEARING SEAT ELEVATIONS

Structure	Unit	Girder No.	Elev	h
SN 016-1503	1	11	619.74	---
SN 016-1503	1	10	619.95	2 1/2"
SN 016-1503	1	9	620.16	2 1/2"
SN 016-1503	1	8	620.38	2 5/8"
SN 016-1503	1	7	620.59	2 1/2"
SN 016-1503	1	6	620.38	2 1/2"
SN 016-1503	1	5	620.12	3 1/8"
SN 016-1503	1	4	619.86	3 1/8"
SN 016-1503	1	3	619.61	3"
SN 016-1503	1	2	619.39	2 5/8"
SN 016-1503	1	1	619.18	2 1/2"

BEARING SEAT ELEVATIONS

Structure	Unit	Girder No.	Elev	h
SN 016-1503	2	6	618.63	---
SN 016-1503	2	5	618.88	3"
SN 016-1503	2	4	619.13	3"
SN 016-1503	2	3	619.38	3"
SN 016-1503	2	2	619.47	1 1/8"
SN 016-1503	2	1	619.28	2 1/4"
SN 016-1502	-	6	619.01	3 1/4"
SN 016-1502	-	5	618.80	2 1/2"
SN 016-1502	-	4	618.60	2 3/8"
SN 016-1502	-	3	618.39	2 1/2"
SN 016-1502	-	2	618.18	2 1/2"
SN 016-1502	-	1	617.97	2 1/2"

** The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.

AECOM

USER NAME = kritzm	DESIGNED - EJM	REVISED -	
	CHECKED - VP	REVISED -	
PLOT SCALE =	DRAWN - BRD	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 8E PLAN & ELEVATION – S.N. 016-1503
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-171 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	694
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

426_016I503_60X07_Pier8-1.dgn

NOTES:

1. Bars noted thus, 3x2-#5 indicates 3 lines of bars with 2 lengths of bars per line.

2. #5 sp801 or #5 sp802(E) spiral.

   1) Provide $1\frac{1}{2}$ extra turns, shop welded together per AWS D1.4 top and bottom. Extend spiral 3" into crashwall or pier cap. Provide 4-#4 spacers or equivalent.

   2) When splicing spiral reinforcement is necessary, the spiral shall be provided with $1\frac{1}{2}$ extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4 or shall both terminate with a 135° standard hook.

3. Contractor shall use Mechanical Splicers in drilled shaft that will fit between spirals. Contractor shall field adjust spiral pitch to 12" maximum at Mechanical Splicer locations.

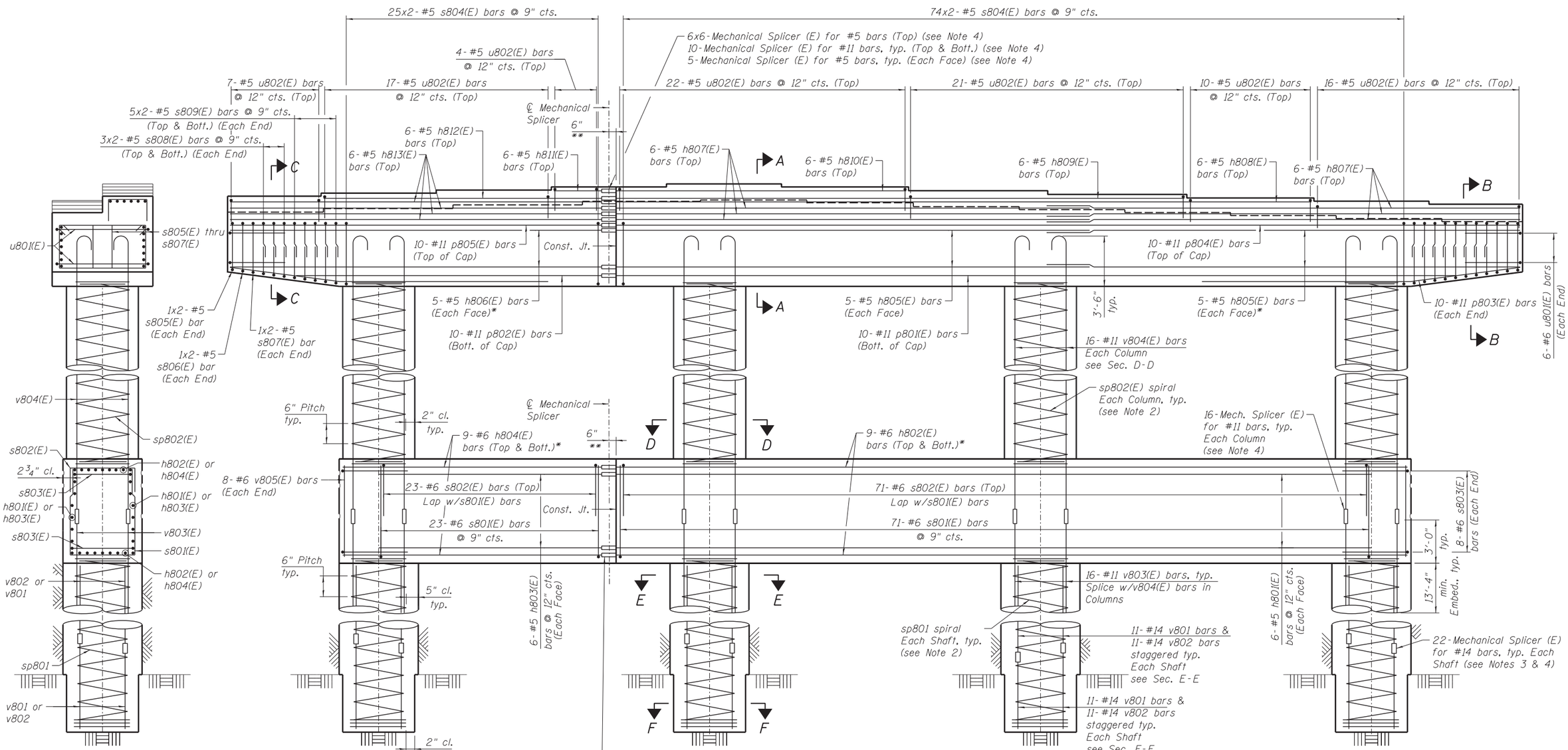
4. For Mechanical Splicer details and quantities See Sheet S-194 .

* Cut in field to fit.

** Contractor to verify Mechanical Splicer dimensions and adjust bars accordingly.

TYP. MIN. BAR LAP

(Unless Noted Otherwise)
#5 bar = 3'-3"
#6 bar = 3'-10"
#11 bar = 13'-4"



END VIEW

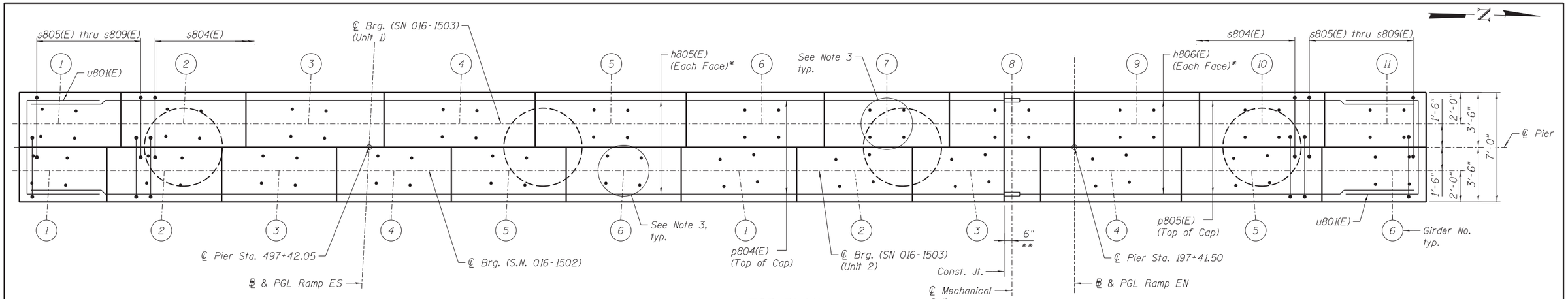
ELEVATION
(Looking East)

USER NAME = kritzm	DESIGNED - EJM	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
	CHECKED - VP	REVISED -	
PLOT SCALE =	DRAWN - BRD	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -	

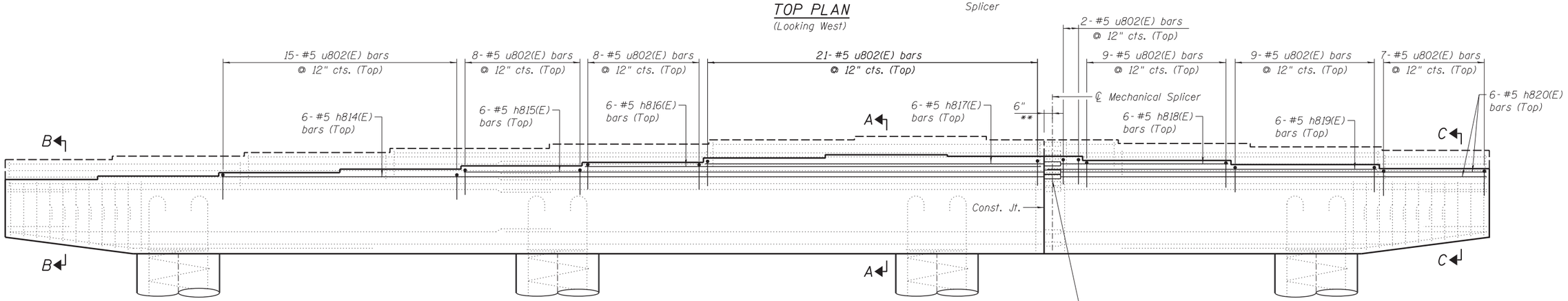
PIER 8E DETAILS I – S.N. 016-1503
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-172 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	695
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

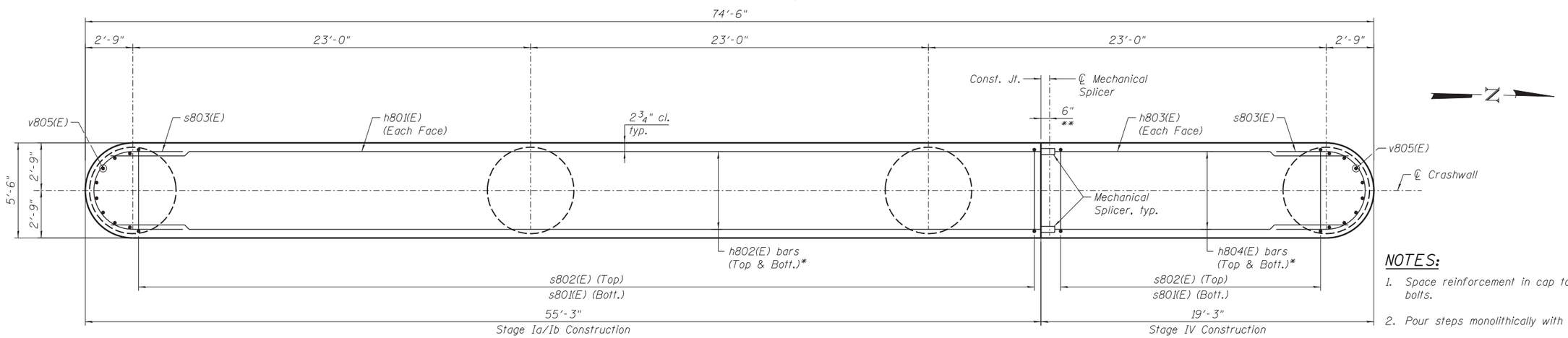
427_0161503_60X07_Pier 8-2.dgn



TOP PLAN
(Looking West)



CAP ELEVATION
(Looking West)



CRASHWALL PLAN
(Looking West)

* Cut in field to fit.

** Contractor to verify Mechanical Splicer dimensions and adjust bars accordingly.

NOTES:

1. Space reinforcement in cap to miss anchor bolts.
2. Pour steps monolithically with cap.
3. For Anchor Bolts Details see sheet S-146.
4. For Mechanical Splicer Details and quantities see sheet S-194.

428_016I503_60X07_Pier8-3.dgn

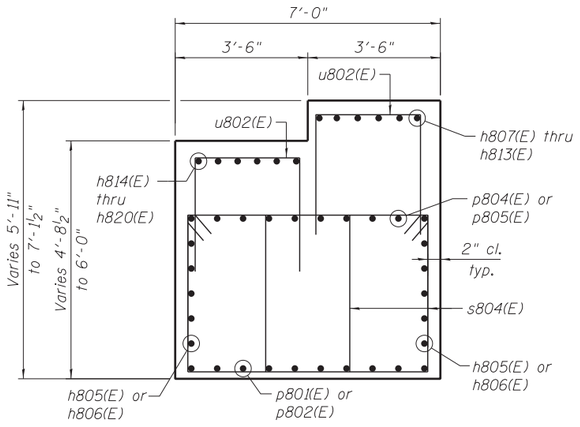
AECOM

USER NAME = kritzm	DESIGNED - EJM	REVISED -
	CHECKED - VP	REVISED -
PLOT SCALE =	DRAWN - BRD	REVISED -
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -

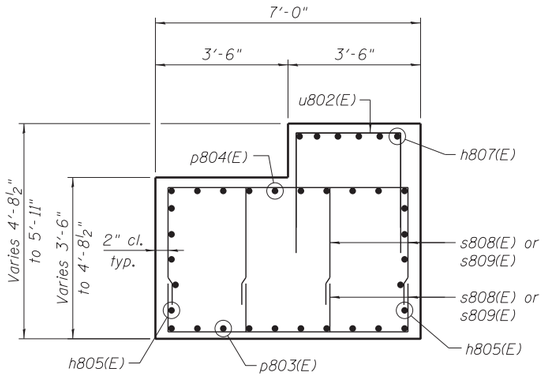
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 8E DETAILS II – S.N. 016–1503
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-173 OF S-218 SHEETS

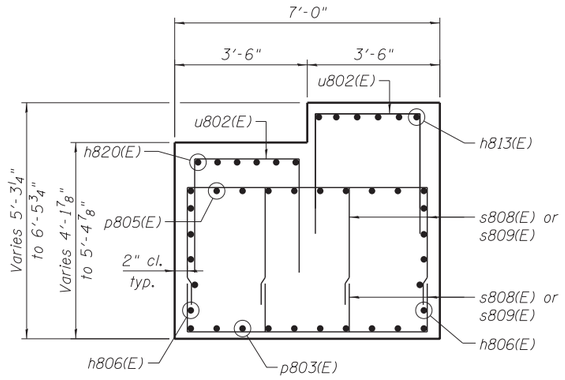
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	696
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			



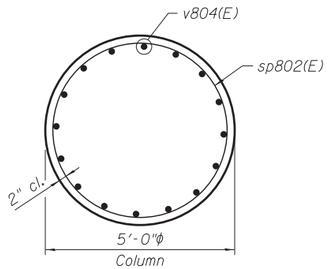
SECTION A-A



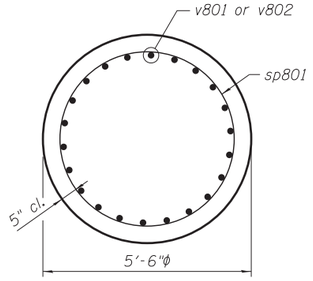
SECTION B-B



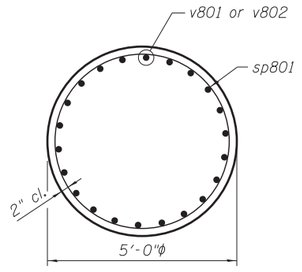
SECTION C-C



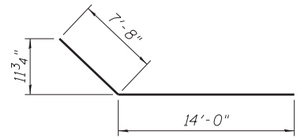
SECTION D-D



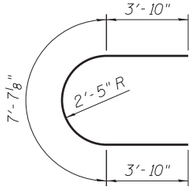
SECTION E-E



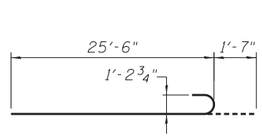
SECTION F-F



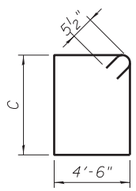
BAR p803(E)



BAR s803(E)



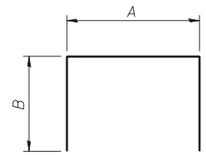
BAR v804(E)



BARS

C DIMENSIONS

Bar	C
s804(E)	4'-2"
s805(E)	3'-2"
s806(E)	3'-3½"
s807(E)	3'-4½"



BARS

A & B DIMENSIONS

Bar	A	B
s801(E)	5'-0"	6'-2"
s802(E)	5'-0"	3'-10"
s808(E)	4'-6"	3'-6"
s809(E)	4'-6"	3'-9"
u801(E)	6'-6"	3'-10"
u802(E)	3'-2"	3'-0"

BILL OF MATERIAL

	Bar	No.	Size	Length	Shape
	h801(E)	12	#5	53'-0"	
	h802(E)	18	#6	55'-7"	
	h803(E)	12	#5	17'-0"	
	h804(E)	18	#6	18'-7"	
	h805(E)	20	#5	33'-4"	
	h806(E)	10	#5	26'-4"	
	h807(E)	36	#5	33'-4"	
	h808(E)	6	#5	46'-4"	
	h809(E)	6	#5	36'-8"	
	h810(E)	6	#5	20'-10"	
	h811(E)	6	#5	3'-10"	
	h812(E)	6	#5	19'-10"	
	h813(E)	24	#5	26'-4"	
	h814(E)	6	#5	50'-5"	
	h815(E)	6	#5	35'-9"	
	h816(E)	6	#5	28'-4"	
	h817(E)	6	#5	21'-0"	
	h818(E)	6	#5	10'-8"	
	h819(E)	6	#5	19'-8"	
	h820(E)	12	#5	26'-4"	
	p801(E)	10	#11	55'-9"	
	p802(E)	10	#11	18'-9"	
	p803(E)	20	#11	21'-8"	
	p804(E)	10	#11	64'-4"	
	p805(E)	10	#11	26'-4"	
	s801(E)	94	#6	18'-10"	
	s802(E)	94	#6	12'-8"	
	s803(E)	16	#6	15'-3"	
	s804(E)	198	#5	18'-3"	
	s805(E)	4	#5	16'-4"	
	s806(E)	4	#5	16'-6"	
	s807(E)	4	#5	16'-8"	
	s808(E)	24	#5	11'-5"	
	s809(E)	40	#5	12'-0"	
*	sp801	4	#5	74'-3"	
*	sp802(E)	4	#5	18'-0"	
	u801(E)	14	#6	14'-2"	
	u802(E)	176	#5	9'-2"	
	v801	88	#14	45'-0"	
	v802	88	#14	29'-0"	
	v803(E)	64	#11	16'-4"	
	v804(E)	64	#11	27'-2"	
	v805(E)	12	#6	6'-11"	

Structure Excavation	Cu. Yd.	59
Concrete Structures	Cu. Yd.	297.5
Reinforcement Bars, Epoxy Coated	Pound	47,870
Reinforcement Bars	Pound	59,090
Drilled Shaft in Soil	Cu. Yd.	246.4
Drilled Shaft in Rock	Cu. Yd.	11.7
Concrete Sealer	Sq. Ft.	4,880
Crosshole Sonic Logging	Each	1

*Length is height of spiral

429_0161503_60X07_Pier 8-4.dgn

AECOM

USER NAME = kritzm	DESIGNED - EJM	REVISED -	
	CHECKED - VP	REVISED -	
PLOT SCALE =	DRAWN - BRD	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - CLS	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 8E DETAILS III – S.N. 016–1503
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-174 OF S-218 SHEETS

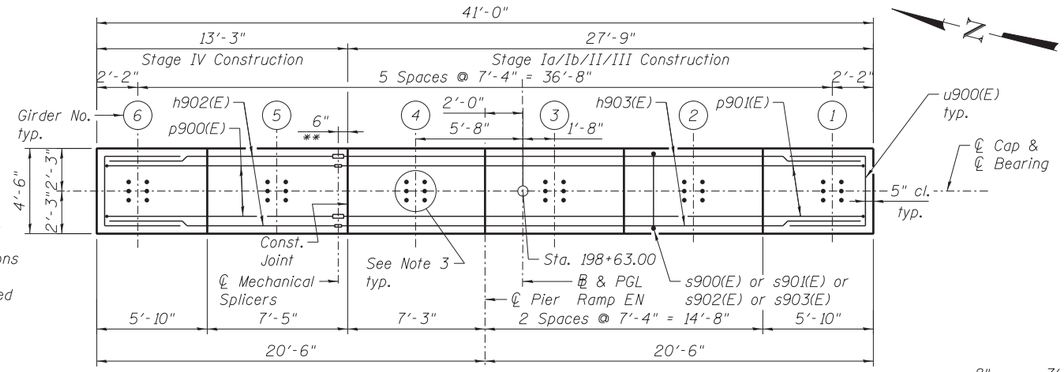
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	697
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

NOTES:

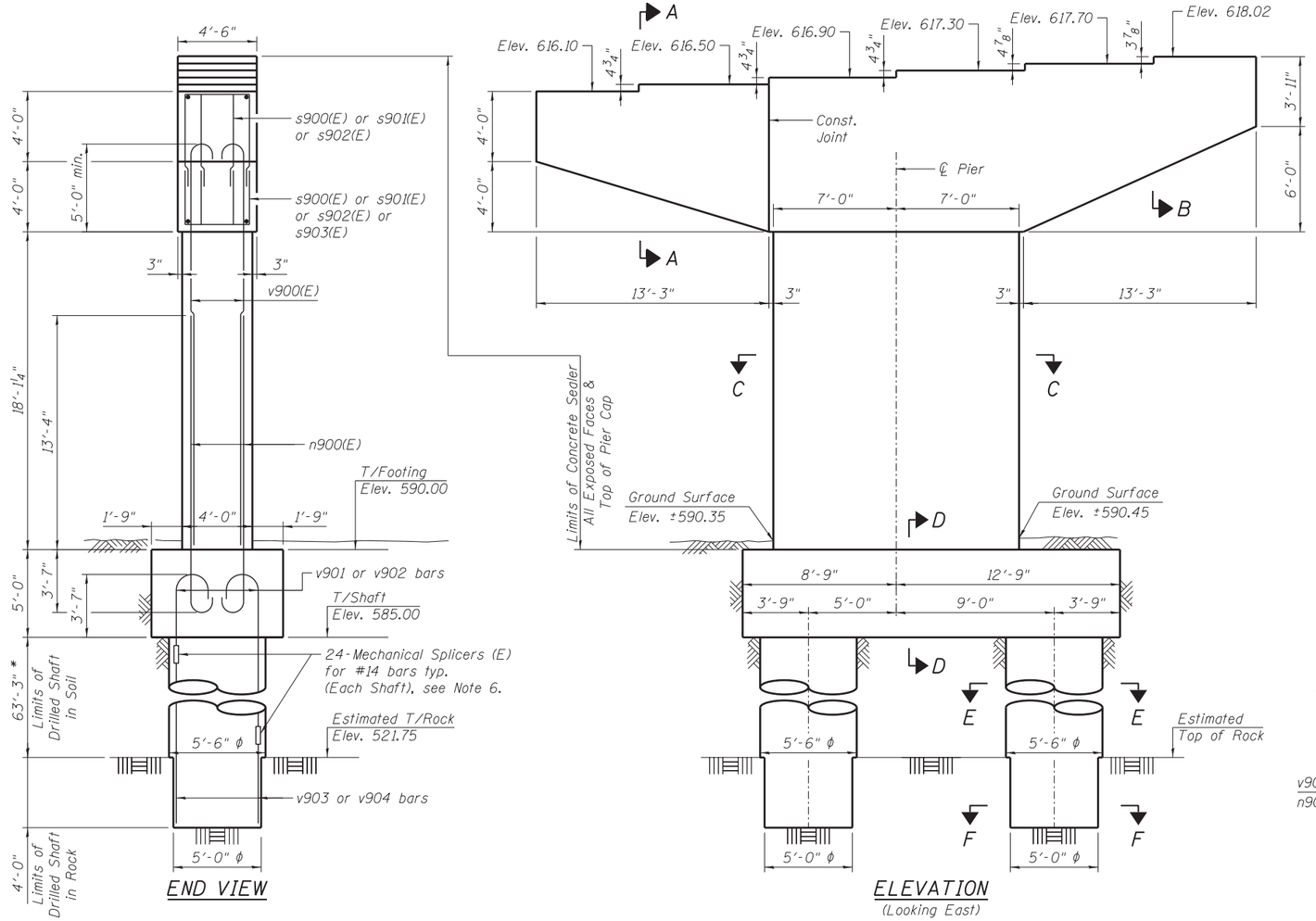
1. Pour steps monolithically with cap.
2. ℄ of Pier is radial to ℄ Ramp EN at Sta. 198+63.00.
3. For Anchor Bolts Details, See sheet S-149.
4. For Architectural Details, see Sheets S-191 thru S-193.
5. For Sections and Details, see Sheet S-176.
6. For Mechanical Splicer Details and Quantities, see Sheet S-194.

* The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.

** Contractor to verify Mechanical Splicer dimensions & adjust bars accordingly.

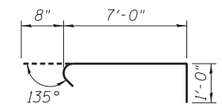


TOP PLAN



END VIEW

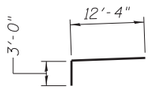
ELEVATION
(Looking East)



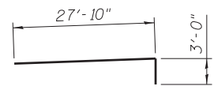
BAR t902(E)

MIN. LAP LENGTH

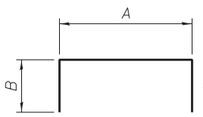
#6 bars: 3'-10"
#11 bars: 13'-4"



BAR p900(E)



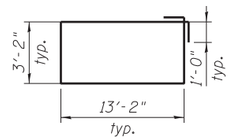
BAR p901(E)



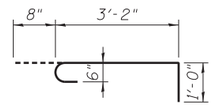
BENT BAR

A & B DIMENSIONS

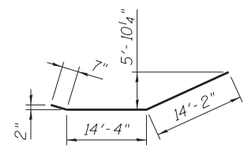
Bar	A	B
s900(E)	2'-6"	4'-3"
s901(E)	2'-6"	4'-11"
s902(E)	2'-6"	6'-0"
s903(E)	3'-8"	6'-0"
t901(E)	21'-0"	2'-9"
u900(E)	3'-6"	4'-0"
u901(E)	7'-0"	4'-0"
u902(E)	3'-8"	1'-0"



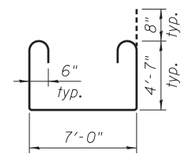
BAR s904(E)



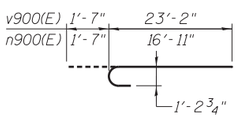
BAR s905(E) ***



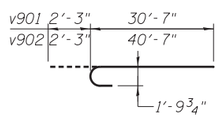
BAR p905(E)



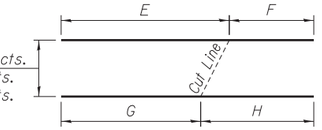
BAR t900(E)



BARS v900(E) & n900(E)



BARS v901 & v902



FIELD CUTTING DIAGRAMS

Order h907(E), h908(E), & h909(E) bars full length. Cut as shown & use remainder of bars.

E, F, G, & H DIMENSIONS

Bar	E	F	G	H
h907(E)	13'-10"	8'-5"	12'-0"	10'-3"
h908(E)	11'-4"	1'-9"	7'-6"	5'-7"
h909(E)	22'-10"	16'-5"	20'-3"	19'-0"

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h900(E)	10	#5	4'-10"	
h901(E)	20	#5	6'-6"	
h902(E)	12	#7	12'-4"	
h903(E)	12	#7	27'-10"	
h904(E)	2	#7	6'-3"	
h905(E)	2	#7	23'-7"	
h906(E)	2	#7	24'-5"	
h907(E)	4	#7	22'-3"	
h908(E)	6	#7	13'-1"	
h909(E)	6	#7	39'-3"	
h910(E)	14	#11	21'-0"	
n900(E)	52	#11	18'-6"	
p900(E)	7	#11	15'-4"	
p901(E)	7	#11	30'-10"	
p902(E)	14	#11	12'-0"	
p903(E)	14	#11	27'-6"	
p904(E)	6	#8	12'-10"	
p905(E)	6	#8	29'-1"	
s900(E)	56	#6	11'-0"	
s901(E)	44	#6	12'-4"	
s902(E)	84	#6	14'-6"	
s903(E)	28	#6	15'-8"	
s904(E)	19	#6	34'-8"	
s905(E)	114	#6	4'-10"	
sp900	2	#6	67'-6"	
t900(E)	43	#6	17'-6"	
t901(E)	30	#11	26'-6"	
t902(E)	43	#6	8'-8"	
u900(E)	12	#6	11'-6"	
u901(E)	14	#6	15'-0"	
u902(E)	42	#6	5'-8"	
v900(E)	52	#11	24'-9"	
v901	24	#14	32'-10"	
v902	24	#14	42'-10"	
v903	24	#14	30'-0"	
v904	24	#14	40'-0"	
Concrete Structures			Cu. Yd.	117.8
Reinforcement Bars, Epoxy Coated			Pound	33,900
Reinforcement Bars			Pound	32,830
Drilled Shaft in Soil			Cu. Yd.	111.4
Drilled Shaft in Rock			Cu. Yd.	5.9
Concrete Sealer			Sq. Ft.	1,607
Structure Excavation			Cu. Yd.	59
Crosshole Sonic Logging			Each	1

***Length is height of spiral

AECOM

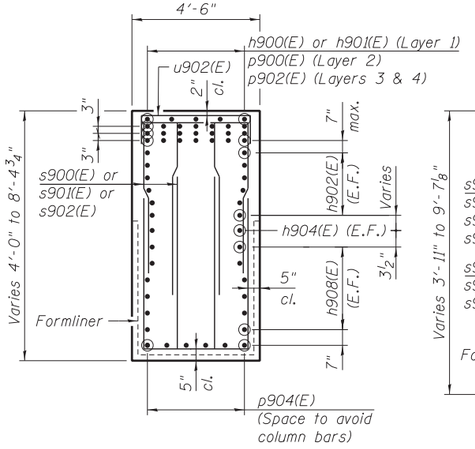
USER NAME = kritzm	DESIGNED - AA	REVISED -
	CHECKED - ATB	REVISED -
PLOT SCALE =	DRAWN - GF	REVISED -
PLOT DATE = 5/26/2015	CHECKED - AA	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

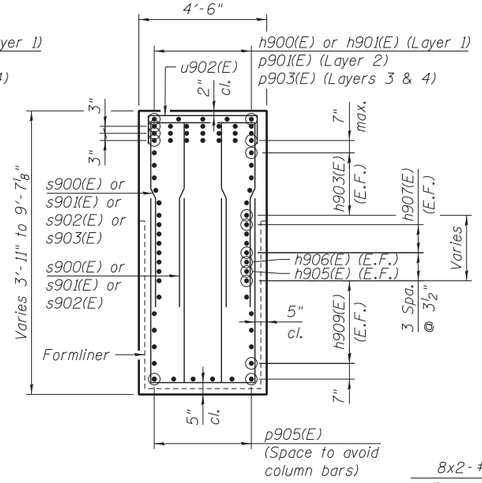
PIER 9E PLAN & ELEVATION – S.N. 016-1503
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-175 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	698
		CONTRACT NO. 60X07		
		ILLINOIS FED. AID PROJECT		

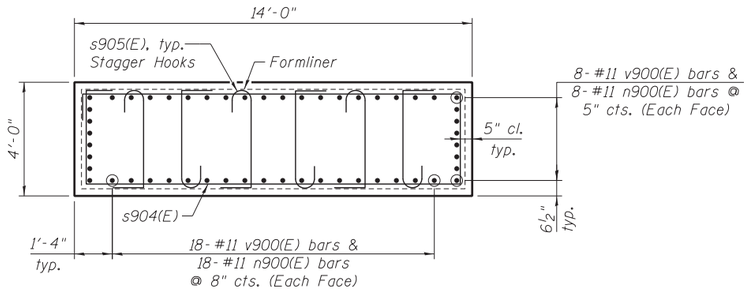
430_0161503_60X07_Pier9-1.dgn



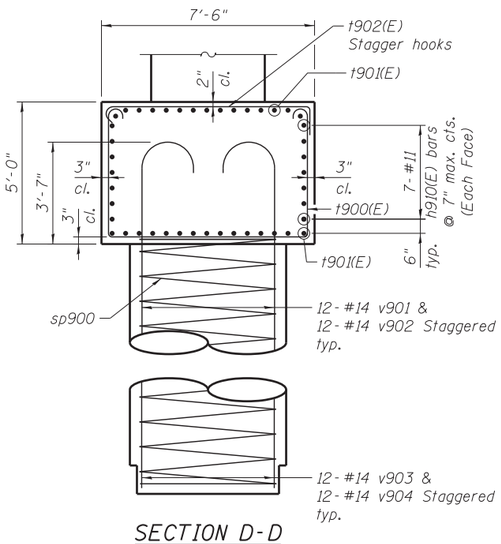
SECTION A-A



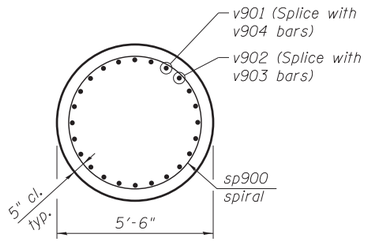
SECTION B-B



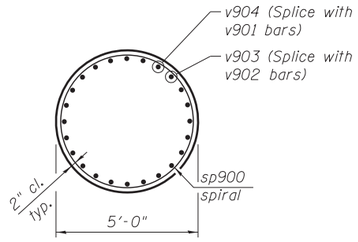
SECTION C-C



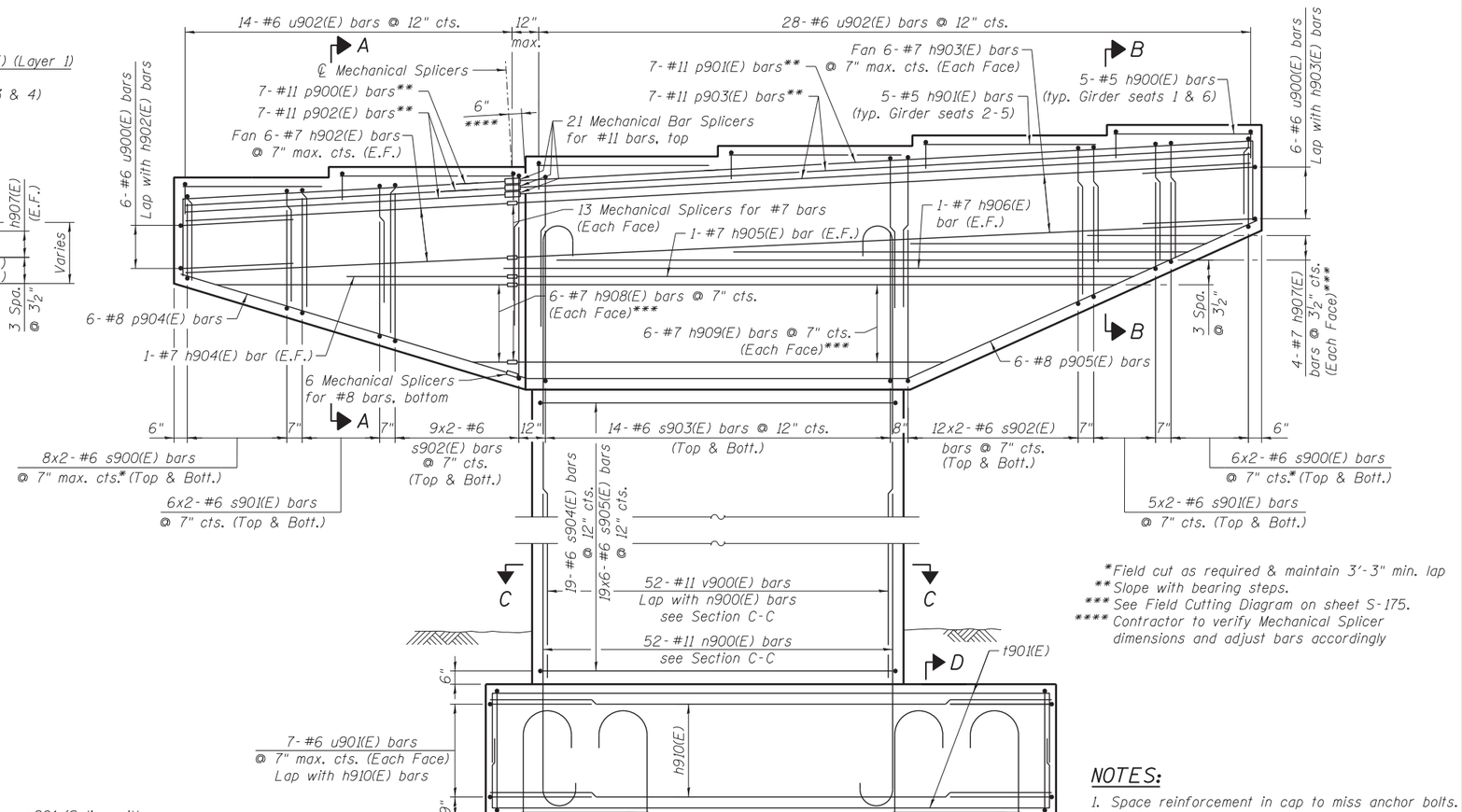
SECTION D-D



SECTION E-E



SECTION F-F



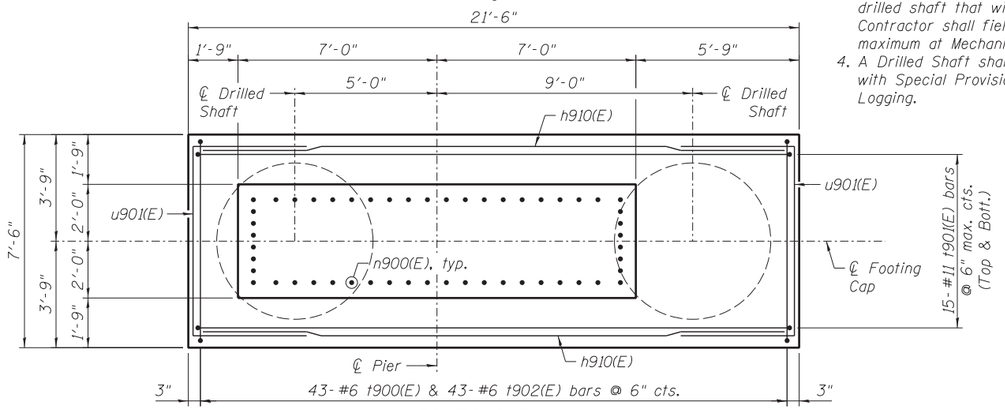
ELEVATION

(Looking East)

*Field cut as required & maintain 3'-3" min. lap
**Slope with bearing steps.
***See Field Cutting Diagram on sheet S-175.
****Contractor to verify Mechanical Splicer dimensions and adjust bars accordingly

NOTES:

1. Space reinforcement in cap to miss anchor bolts.
2. sp900 spiral:
   1) Provide 1 1/2 extra turns top and bottom. Extend spiral 3" into pile cap. Provide 4-#4 spacers or equivalent.
   2) When splicing spiral reinforcement is necessary, the spirals shall be provided with 1 1/2 extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4, or shall both terminate with a 135° standard hook.
3. Contractor shall use Mechanical Splicers in drilled shaft that will fit between spirals. Contractor shall field adjust spiral pitch to 12" maximum at Mechanical Splicer locations.
4. A Drilled Shaft shall be tested in accordance with Special Provisions for Crosshole Sonic Logging.



FOOTING PLAN

USER NAME = kritzm	DESIGNED - AA	REVISED -	
	CHECKED - ATB	REVISED -	
PLOT SCALE =	DRAWN - GF	REVISED -	
PLOT DATE = 5/26/2015	CHECKED - AA	REVISED -	

AECOM

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 9E DETAILS – S.N. 016-1503
I-55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-176 OF S-218 SHEETS

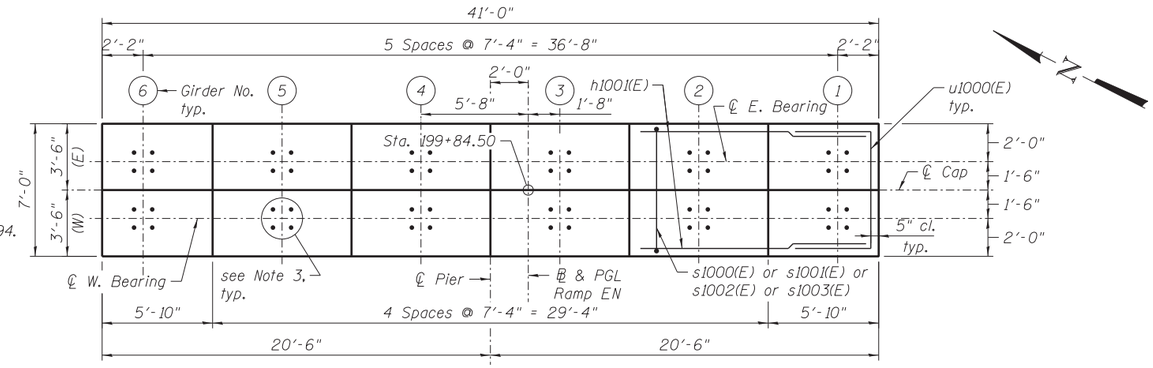
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	699
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

431_016I503_60X07_Pier9-2.dgn

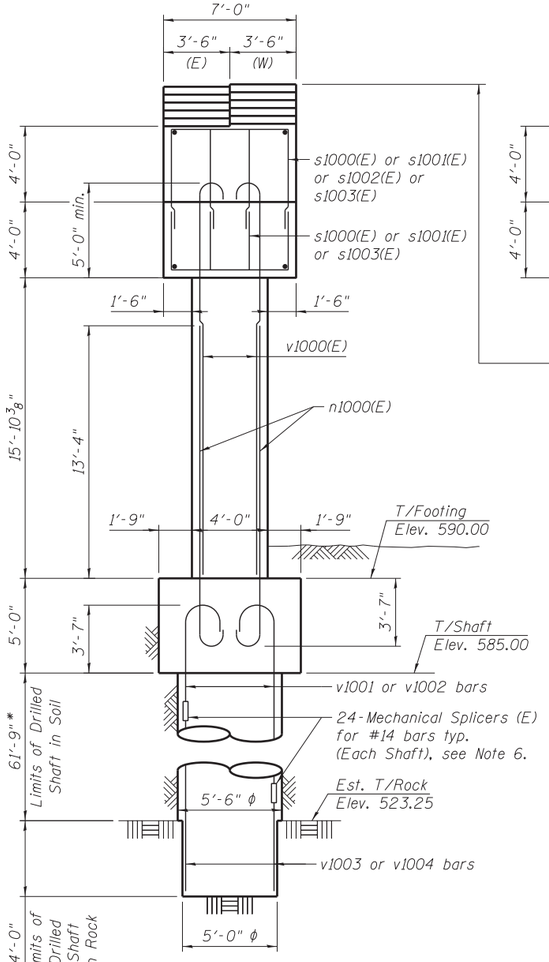
NOTES:

1. Pour steps monolithically with cap.
2. ℄ of Pier is radial to ℄ Ramp EN at Sta. 199+84.50.
3. For Anchor Bolts Details, See sheet S-147.
4. For Architectural Details, see Sheets S-191 thru S-193.
5. For Sections and Details, see Sheet S-178.
6. For Mechanical Splicer Details and Quantities, see Sheet S-194.

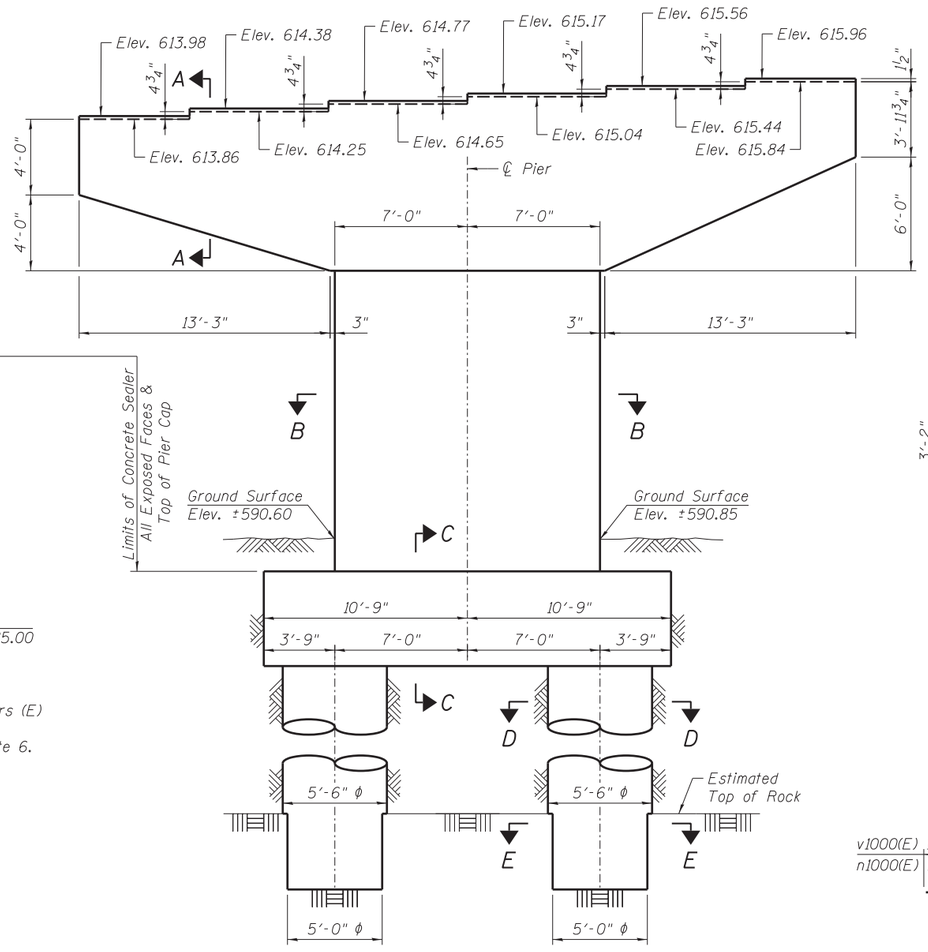
* The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.



TOP PLAN



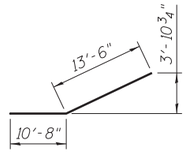
END VIEW



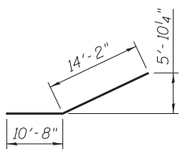
ELEVATION
(Looking East)

TYP. MIN. LAP LENGTH

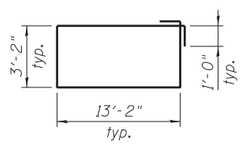
#6 bars: 3'-10"
#8 bars: 6'-9"
#11 bars: 13'-4"



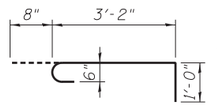
BAR p1002(E)



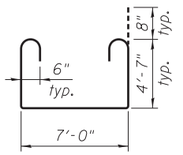
BAR p1003(E)



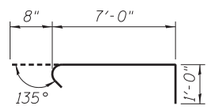
BAR s1004(E)



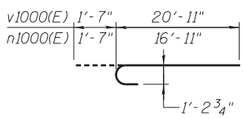
BAR s1005(E)



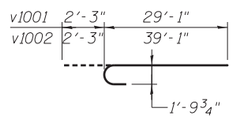
BAR t1000(E)



BAR t1003(E)

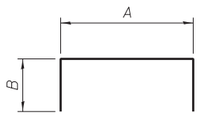


BARS v1000(E) & n1000(E)

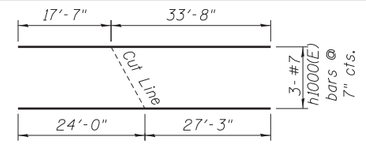


BARS v1001 & v1002

BENT BAR A & B DIMENSIONS

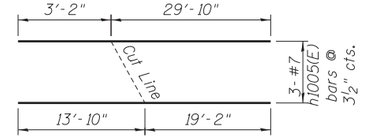


Bar	A	B
p1000(E)	40'-2"	3'-0"
s1000(E)	4'-6"	5'-1"
s1001(E)	4'-6"	6'-3"
s1002(E)	6'-2"	6'-3"
s1003(E)	4'-6"	4'-3"
t1001(E)	21'-0"	3'-0"
t1002(E)	21'-0"	2'-6"
u1000(E)	6'-0"	4'-0"
u1001(E)	7'-0"	4'-0"
u1002(E)	6'-2"	1'-0"



FIELD CUTTING DIAGRAM

Order h1000(E) bars full length. Cut as shown and use remainder of bars.



FIELD CUTTING DIAGRAM

Order h1005(E) bars full length. Cut as shown and use remainder of bars.

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h1000(E)	6	#7	51'-3"	
h1001(E)	12	#7	40'-2"	
h1002(E)	14	#6	21'-0"	
h1003(E)	32	#5	6'-6"	
h1004(E)	16	#5	4'-10"	
h1005(E)	6	#7	33'-0"	
n1000(E)	52	#11	18'-6"	
p1000(E)	9	#11	46'-2"	
p1001(E)	9	#11	39'-6"	
p1002(E)	9	#8	24'-2"	
p1003(E)	9	#8	24'-10"	
s1000(E)	32	#6	14'-8"	
s1001(E)	44	#6	17'-0"	
s1002(E)	26	#6	18'-8"	
s1003(E)	36	#6	13'-0"	
s1004(E)	17	#6	34'-8"	
s1005(E)	102	#6	4'-10"	
sp1000	2	#6	66'-0"	
t1000(E)	43	#6	17'-6"	
t1001(E)	8	#11	27'-0"	
t1002(E)	8	#11	26'-0"	
t1003(E)	43	#6	8'-8"	
u1000(E)	12	#6	14'-0"	
u1001(E)	14	#6	15'-0"	
u1002(E)	42	#6	8'-2"	
v1000(E)	52	#11	22'-6"	
v1001	24	#14	31'-4"	
v1002	24	#14	41'-4"	
v1003	24	#14	30'-0"	
v1004	24	#14	40'-0"	
Concrete Structures		Cu. Yd.	141.9	
Reinforcement Bars, Epoxy Coated		Pound	29,280	
Reinforcement Bars		Pound	32,140	
Drilled Shaft in Soil		Cu. Yd.	108.7	
Drilled Shaft in Rock		Cu. Yd.	5.9	
Concrete Sealer		Sq. Ft.	1,727	
Structure Excavation		Cu. Yd.	63	
Crosshole Sonic Logging		Each	1	

**Length is height of spiral

AECOM

USER NAME = kritzm	DESIGNED - AA	REVISED -
	CHECKED - ATB	REVISED -
PLOT SCALE =	DRAWN - GF	REVISED -
PLOT DATE = 5/26/2015	CHECKED - AA	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 10E PLAN & ELEVATION – S.N. 016–1503
I–55 & LAKE SHORE DRIVE INTERCHANGE (INBOUND STRUCTURES)
SHEET NO. S-177 OF S-218 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2013-049B	COOK	888	700
		CONTRACT NO. 60X07		
	ILLINOIS FED. AID PROJECT			

432_0161503_60X07_Pier10-1.dgn