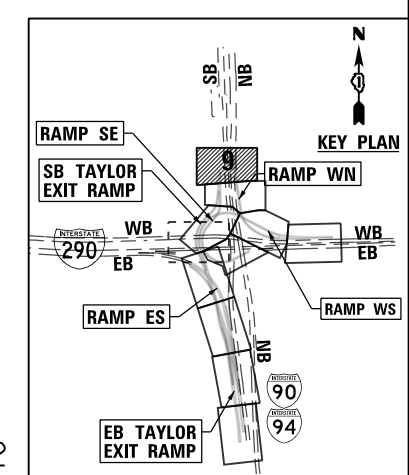
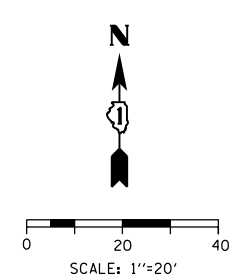
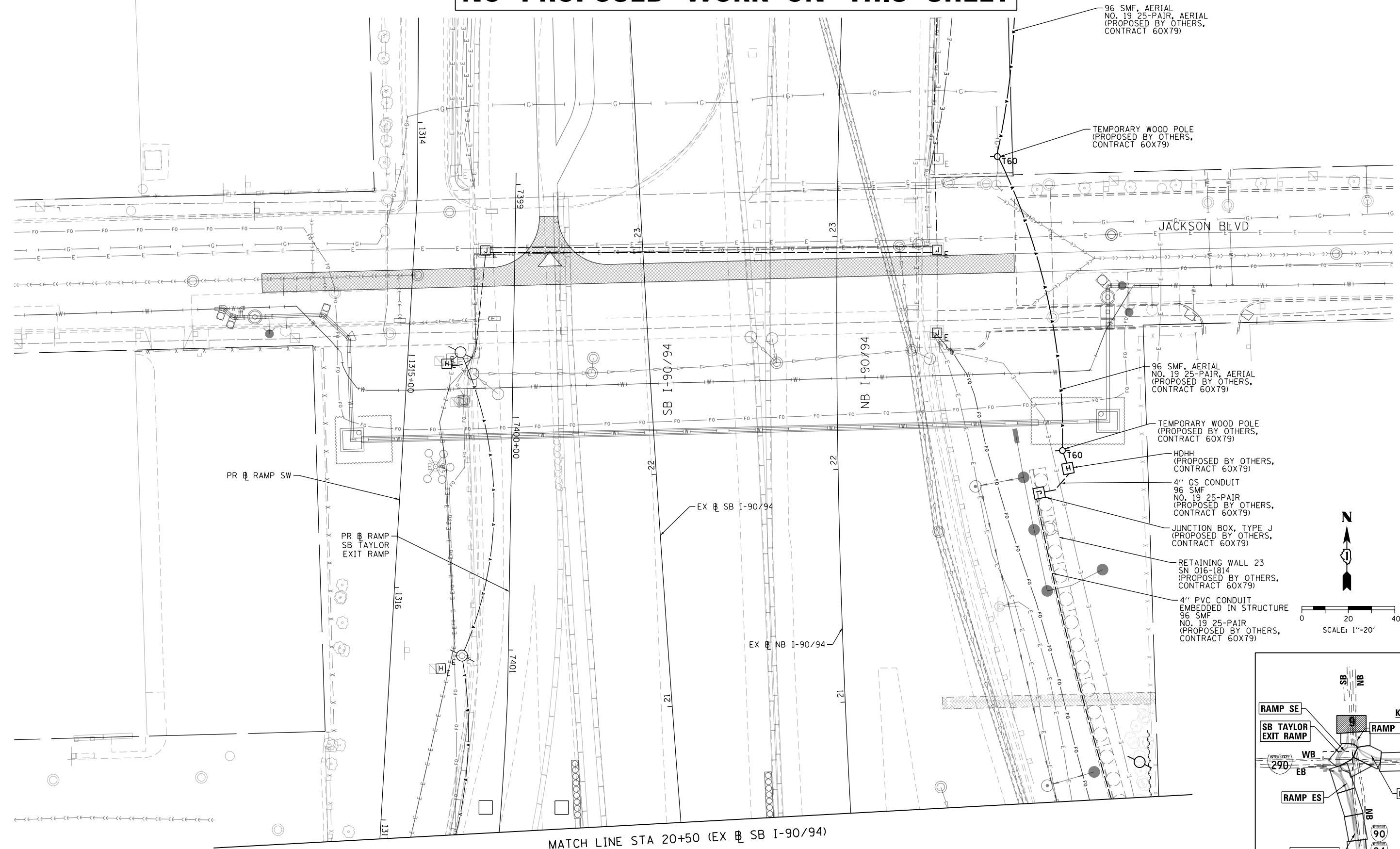




# NO PROPOSED WORK ON THIS SHEET



MATCH LINE STA 20+50 (EX  $\oplus$  SB I-90/94)  
SEE SHEET NO. 601

ITS-32

FILE PATH = p:\6179-PMINT\pcomon\line\local\AECOM\_D902\_NA\Documents\01\_Americas\T\engp\station\60269938\_Circle\Phase\_1\1000\_CAD\006\_Roadway\Sheets\60x93\_Contract\0160x93-Sht-ITS-32



D160X93-Sht-ITS-32  
USER NAME = patrick.jordan  
PLOT SCALE = 40.0000' / in.  
PLOT DATE = 7/29/2018

DESIGNED -	PTJ	REVISED -	
DRAWN -	CAM	REVISED -	
CHECKED -	MJL	REVISED -	
DATE -	7/30/2018	REVISED -	

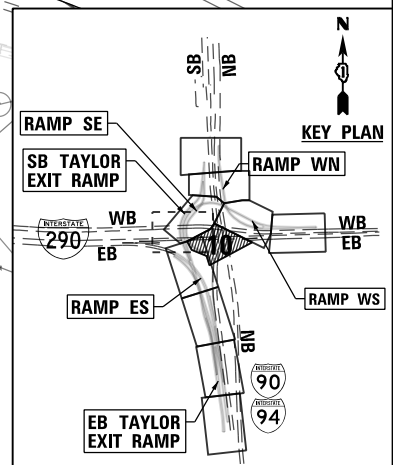
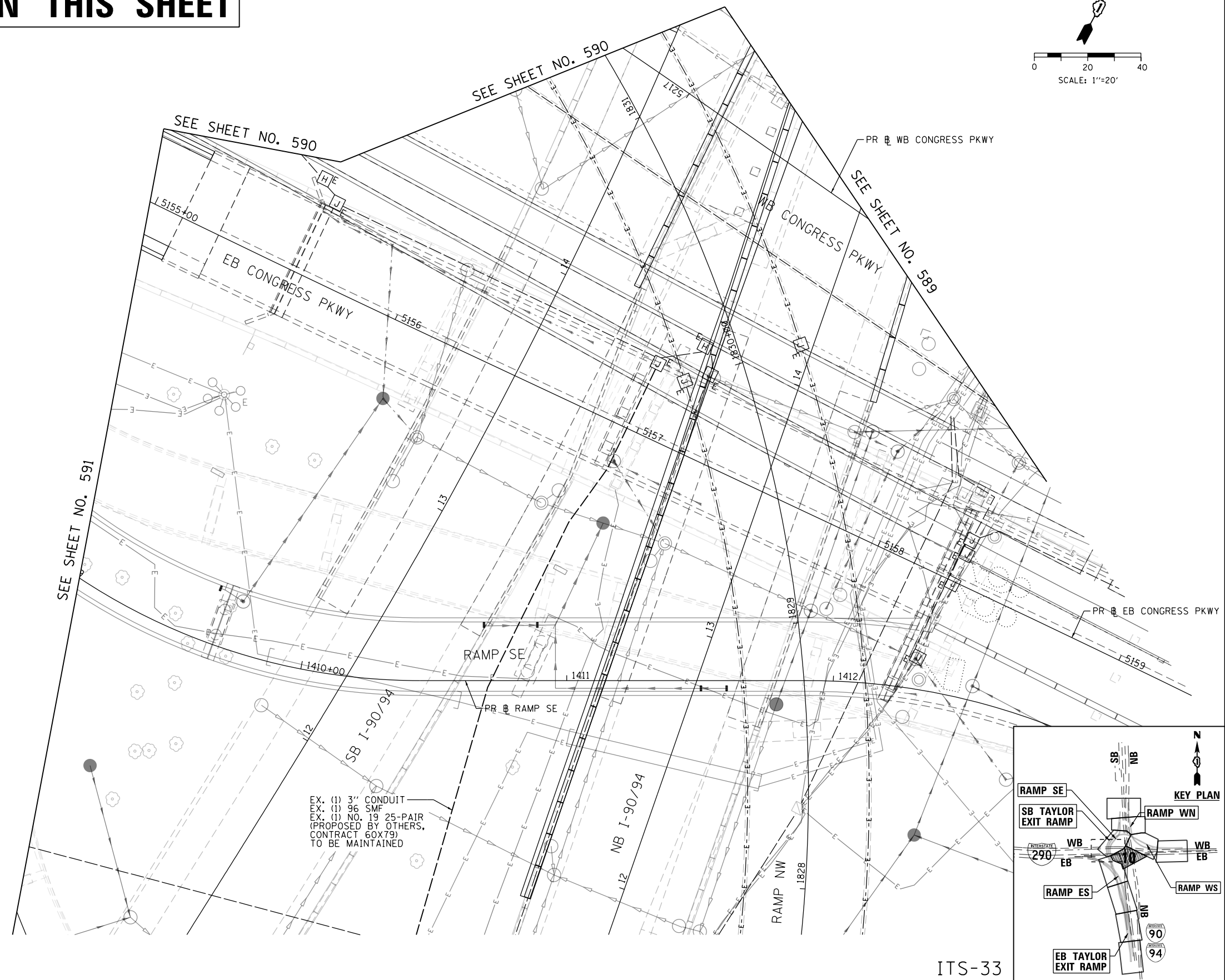
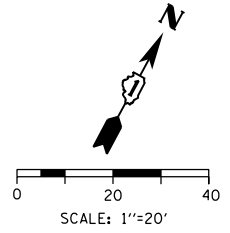
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**PROPOSED ITS PLAN**

SCALE: 1"=20'    SHEET 32 OF 45 SHEETS    STA. 6214+75    TO STA. 6218+25

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	602
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				

**NO PROPOSED WORK ON THIS SHEET**



EX. (1) 3" CONDUIT  
 EX. (1) 96 SMF  
 EX. (1) NO. 19 25-PAIR  
 (PROPOSED BY OTHERS,  
 CONTRACT 60X79)  
 TO BE MAINTAINED

ITS-33

FILE PATH = p:\61779-PMINT\pcomon\line\local\AECOM\0502\_NA\Documents\01\_Americas\T\engor\station\60269438\_Circle\Phase\_1\1000\_CAD\006\_Roadway\Sheets\60X93\_Contract\0160X93-Sht-ITS-33



D160X93-Sht-ITS-33  
 USER NAME = patrick.jordan  
 PLOT SCALE = 40.0000' / in.  
 PLOT DATE = 7/29/2018

DESIGNED -	PTJ	REVISED -	
DRAWN -	CAM	REVISED -	
CHECKED -	MJL	REVISED -	
DATE -	7/30/2018	REVISED -	

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**PROPOSED ITS PLAN**

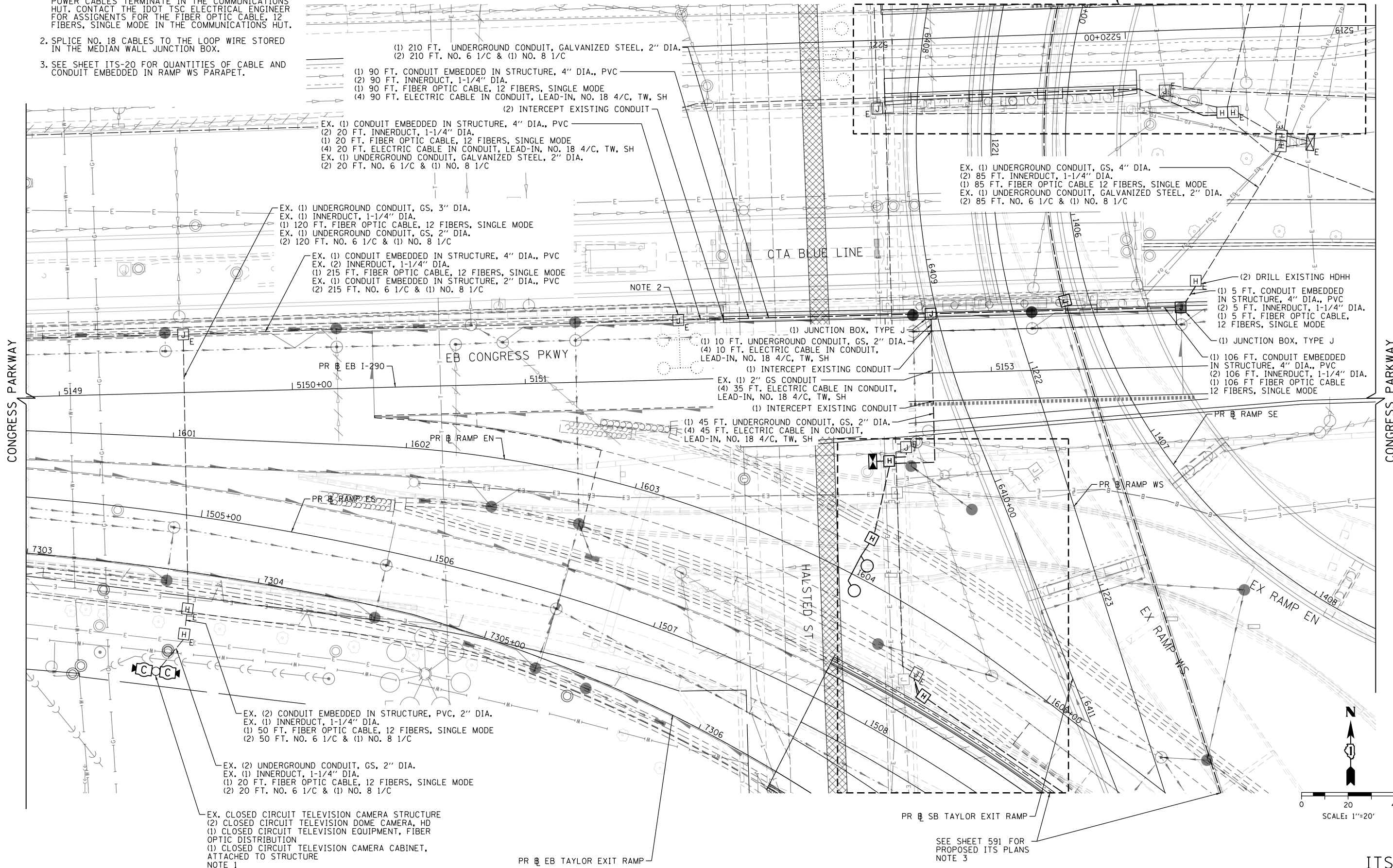
SCALE: 1"=20'    SHEET 33 OF 45 SHEETS    STA.    TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	603
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				

**NOTES:**

1. THE CCTV CAMERA SITE FIBER OPTIC CABLE AND POWER CABLES TERMINATE IN THE COMMUNICATIONS HUT. CONTACT THE IDOT TSC ELECTRICAL ENGINEER FOR ASSIGNMENTS FOR THE FIBER OPTIC CABLE, 12 FIBERS, SINGLE MODE IN THE COMMUNICATIONS HUT.
2. SPLICE NO. 18 CABLES TO THE LOOP WIRE STORED IN THE MEDIAN WALL JUNCTION BOX.
3. SEE SHEET ITS-20 FOR QUANTITIES OF CABLE AND CONDUIT EMBEDDED IN RAMP WS PARAPET.

SEE SHEET 590 FOR PROPOSED ITS PLANS



(1) 210 FT. UNDERGROUND CONDUIT, GALVANIZED STEEL, 2" DIA.  
(2) 210 FT. NO. 6 1/C & (1) NO. 8 1/C

(1) 90 FT. CONDUIT EMBEDDED IN STRUCTURE, 4" DIA., PVC  
(2) 90 FT. INNERDUCT, 1-1/4" DIA.  
(1) 90 FT. FIBER OPTIC CABLE, 12 FIBERS, SINGLE MODE  
(4) 90 FT. ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 18 4/C, TW, SH  
(2) INTERCEPT EXISTING CONDUIT

EX. (1) CONDUIT EMBEDDED IN STRUCTURE, 4" DIA., PVC  
(2) 20 FT. INNERDUCT, 1-1/4" DIA.  
(1) 20 FT. FIBER OPTIC CABLE, 12 FIBERS, SINGLE MODE  
(4) 20 FT. ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 18 4/C, TW, SH  
EX. (1) UNDERGROUND CONDUIT, GALVANIZED STEEL, 2" DIA.  
(2) 20 FT. NO. 6 1/C & (1) NO. 8 1/C

EX. (1) UNDERGROUND CONDUIT, GS, 3" DIA.  
EX. (1) INNERDUCT, 1-1/4" DIA.  
(1) 120 FT. FIBER OPTIC CABLE, 12 FIBERS, SINGLE MODE  
EX. (1) UNDERGROUND CONDUIT, GS, 2" DIA.  
(2) 120 FT. NO. 6 1/C & (1) NO. 8 1/C

EX. (1) CONDUIT EMBEDDED IN STRUCTURE, 4" DIA., PVC  
EX. (2) INNERDUCT, 1-1/4" DIA.  
(1) 215 FT. FIBER OPTIC CABLE, 12 FIBERS, SINGLE MODE  
EX. (1) CONDUIT EMBEDDED IN STRUCTURE, 2" DIA., PVC  
(2) 215 FT. NO. 6 1/C & (1) NO. 8 1/C

NOTE 2

(1) JUNCTION BOX, TYPE J  
(1) 10 FT. UNDERGROUND CONDUIT, GS, 2" DIA.  
(4) 10 FT. ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 18 4/C, TW, SH  
(1) INTERCEPT EXISTING CONDUIT

EX. (1) 2" GS CONDUIT  
(4) 35 FT. ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 18 4/C, TW, SH  
(1) INTERCEPT EXISTING CONDUIT

(1) 45 FT. UNDERGROUND CONDUIT, GS, 2" DIA.  
(4) 45 FT. ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 18 4/C, TW, SH  
(1) INTERCEPT EXISTING CONDUIT

EX. (1) UNDERGROUND CONDUIT, GS, 4" DIA.  
(2) 85 FT. INNERDUCT, 1-1/4" DIA.  
(1) 85 FT. FIBER OPTIC CABLE 12 FIBERS, SINGLE MODE  
EX. (1) UNDERGROUND CONDUIT, GALVANIZED STEEL, 2" DIA.  
(2) 85 FT. NO. 6 1/C & (1) NO. 8 1/C

(2) DRILL EXISTING HDHH  
(1) 5 FT. CONDUIT EMBEDDED IN STRUCTURE, 4" DIA., PVC  
(2) 5 FT. INNERDUCT, 1-1/4" DIA.  
(1) 5 FT. FIBER OPTIC CABLE, 12 FIBERS, SINGLE MODE  
(1) JUNCTION BOX, TYPE J

(1) 106 FT. CONDUIT EMBEDDED IN STRUCTURE, 4" DIA., PVC  
(2) 106 FT. INNERDUCT, 1-1/4" DIA.  
(1) 106 FT. FIBER OPTIC CABLE 12 FIBERS, SINGLE MODE

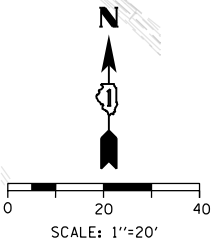
EX. (2) CONDUIT EMBEDDED IN STRUCTURE, PVC, 2" DIA.  
EX. (1) INNERDUCT, 1-1/4" DIA.  
(1) 50 FT. FIBER OPTIC CABLE, 12 FIBERS, SINGLE MODE  
(2) 50 FT. NO. 6 1/C & (1) NO. 8 1/C

EX. (2) UNDERGROUND CONDUIT, GS, 2" DIA.  
EX. (1) INNERDUCT, 1-1/4" DIA.  
(1) 20 FT. FIBER OPTIC CABLE, 12 FIBERS, SINGLE MODE  
(2) 20 FT. NO. 6 1/C & (1) NO. 8 1/C

EX. CLOSED CIRCUIT TELEVISION CAMERA STRUCTURE  
(2) CLOSED CIRCUIT TELEVISION DOME CAMERA, HD  
(1) CLOSED CIRCUIT TELEVISION EQUIPMENT, FIBER OPTIC DISTRIBUTION  
(1) CLOSED CIRCUIT TELEVISION CAMERA CABINET, ATTACHED TO STRUCTURE  
NOTE 1

PR EB TAYLOR EXIT RAMP

SEE SHEET 591 FOR PROPOSED ITS PLANS NOTE 3



ITS-34

FILE PATH = p:\617479-PM\INT\pccommon\line\local\AECOM\_D592\_NA\Documents\01\_Americas\T\engor\station\60269938\_Circle\Phase\_11\000\_CAD\006\_Roadway\Sheets\60x93\_Contract\0160x93-Sht-ITS-34



D160X93-Sht-ITS-34  
USER NAME = patrick.jordan  
PLOT SCALE = 40.0000' / in.  
PLOT DATE = 7/29/2018

DESIGNED - PTJ	REVISED -
DRAWN - CAM	REVISED -
CHECKED - MJL	REVISED -
DATE - 7/30/2018	REVISED -

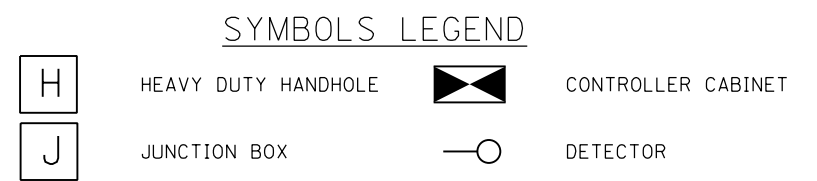
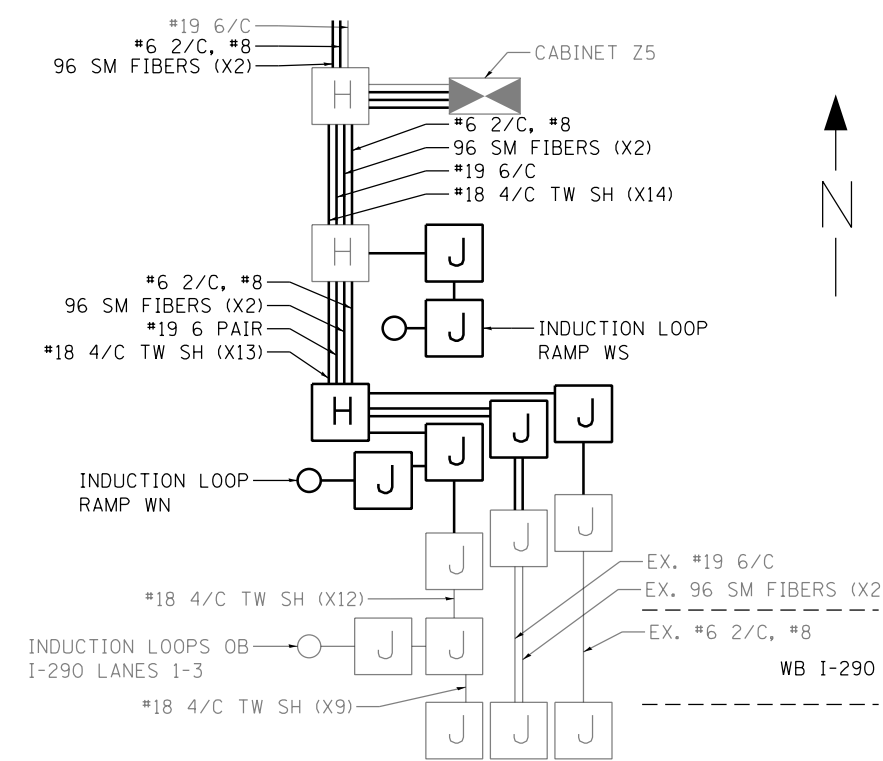
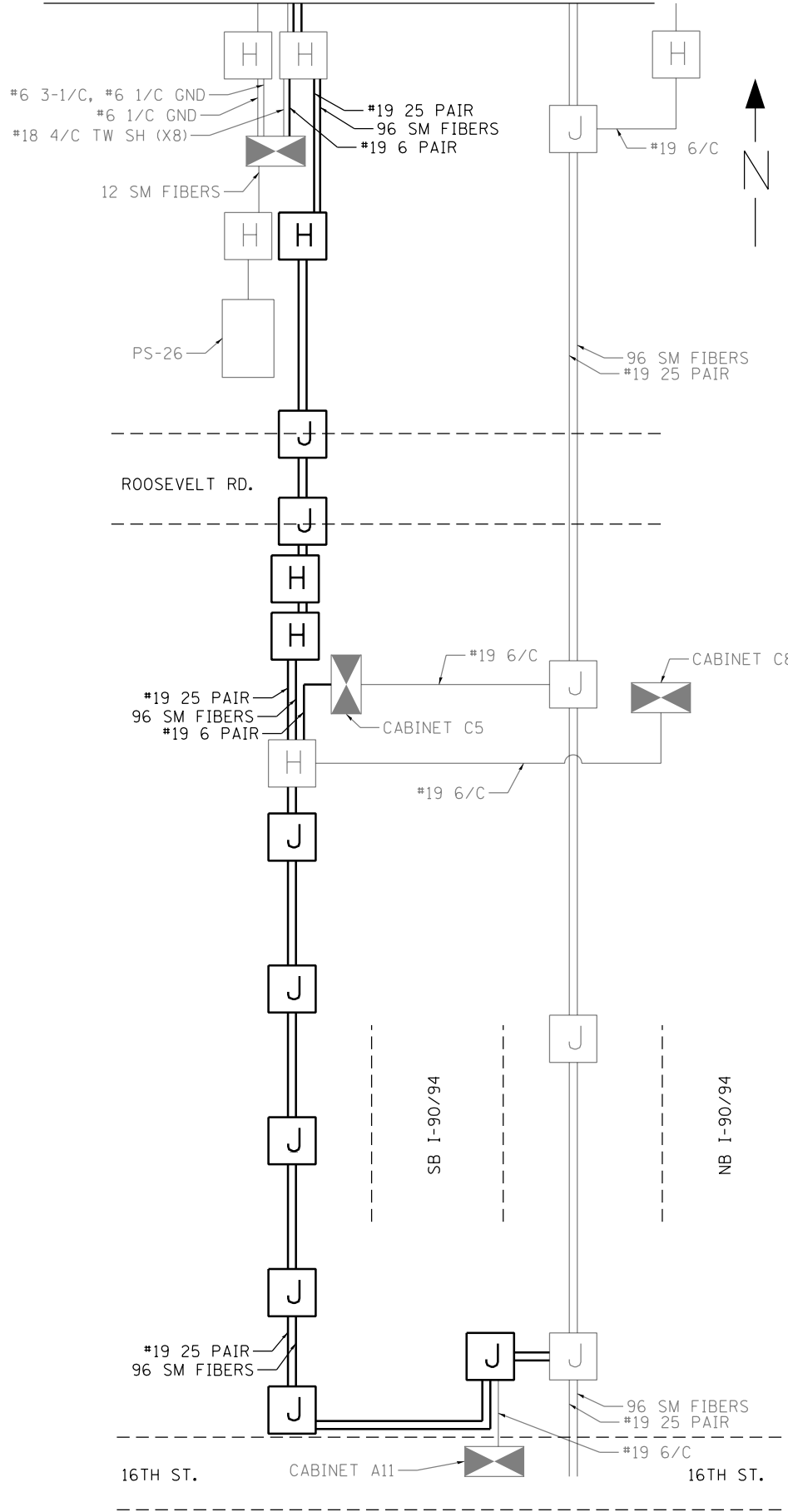
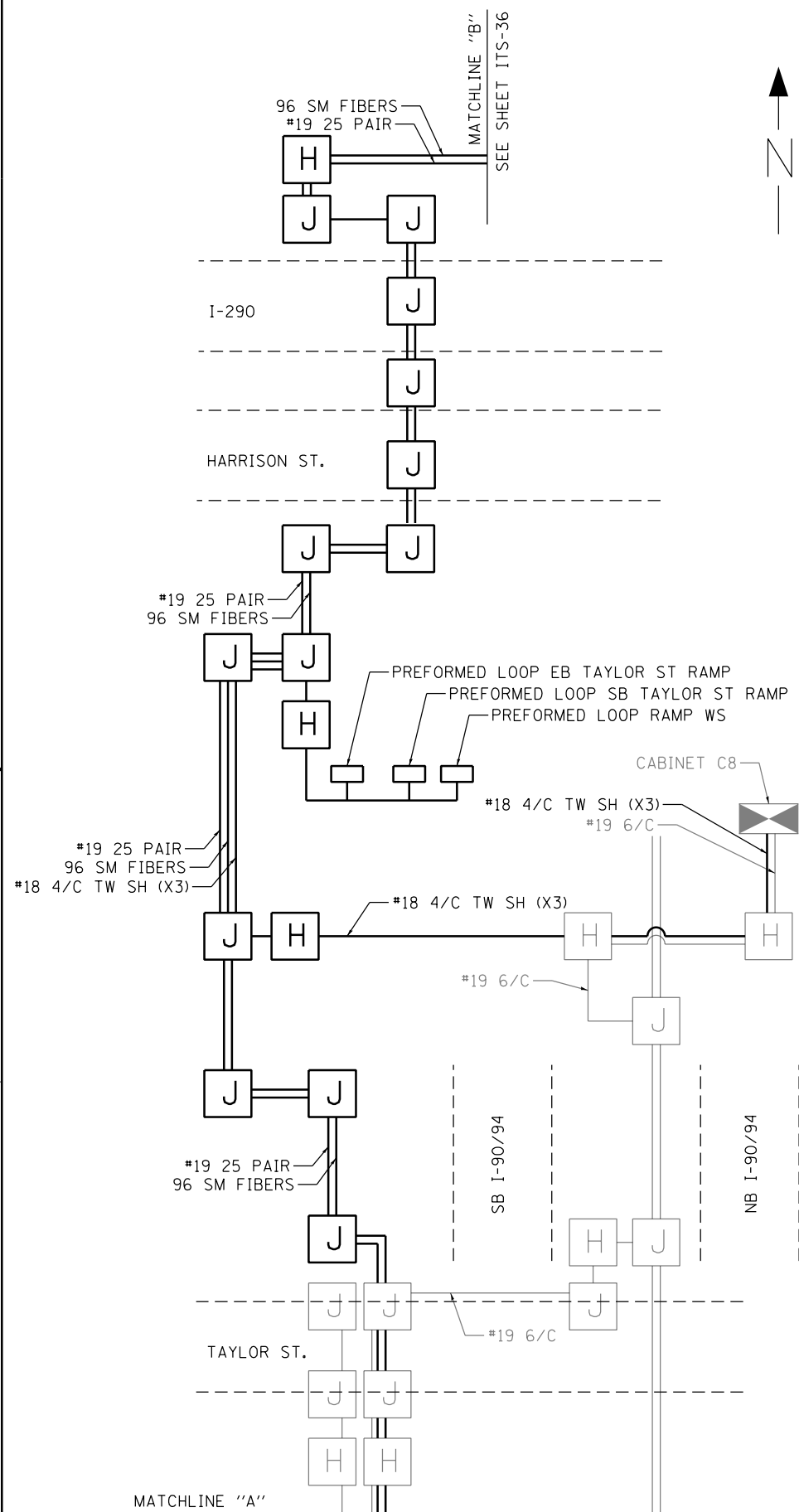
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

PROPOSED ITS PLAN

SCALE: 1"=20' SHEET 34 OF 45 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	604
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				





- NOTES:**
1. CONTRACT RELATED LINWORK APPEARS IN BOLD, ALL OTHER ITS INFRASTRUCTURE REPRESENTED ON THIS SHEET IS FOR REFERENCE.
  2. NOT TO SCALE

FILE PATH = p:\617479-PMINT\pccommon\line\local\AECOM\_D902\_NA\Documents\01\_Americas\T\_engspc\location\602694338\_Circle\Phase\_1\1000\_CAD\006\_Roadway\Sheets\60x93\_Contract\0160x93-sht-ITS-35



D160x93-sht-ITS-35  
 USER NAME = myersc  
 PLOT SCALE = 40.0000' / in.  
 PLOT DATE = 7/26/2018

DESIGNED -	PTJ	REVISED -	
DRAWN -	CAM	REVISED -	
CHECKED -	MJL	REVISED -	
DATE -	7/30/2018	REVISED -	

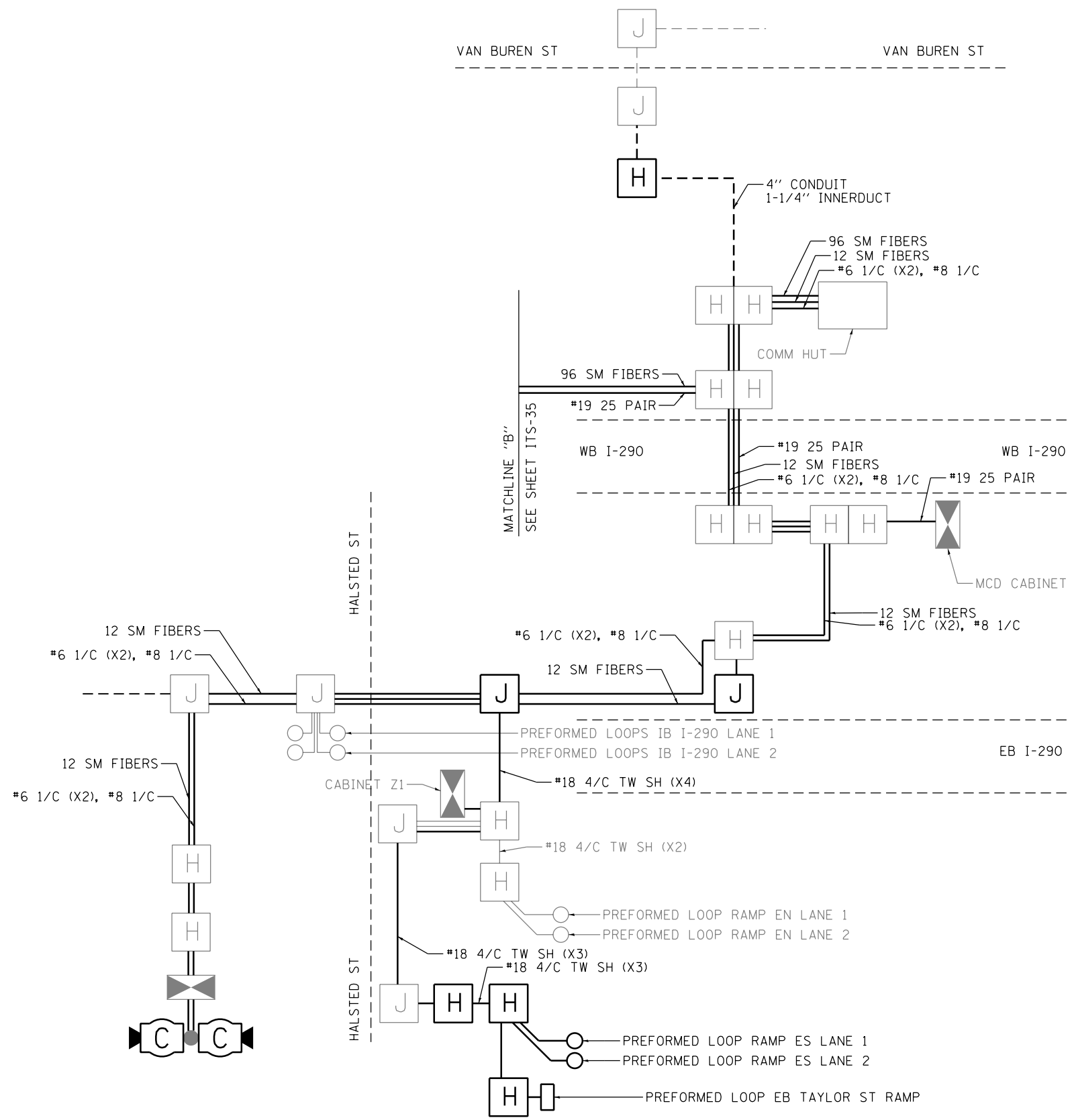
**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**WIRING DIAGRAM**

SCALE: N.T.S. SHEET 35 OF 45 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	605
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				

SHEETS ITS-20 TO ITS-21, ITS-34



**SYMBOLS LEGEND**

	HEAVY DUTY HANDHOLE		CONTROLLER CABINET
	JUNCTION BOX		DETECTOR
	CCTV CAMERA		

- NOTES:**
1. CONTRACT RELATED LINWORK APPEARS IN BOLD. ALL OTHER ITS INFRASTRUCTURE REPRESENTED ON THIS SHEET IS FOR REFERENCE.
  2. NOT TO SCALE

ITS-36

FILE PATH = p:\6179-PMINT\pccommon\line\local\AECOM\0902\MA\Documents\01\Americas\T\engpccommon\60269938\Circle\Phase\_1\1000\_CAD\006\_Roadway\Sheets\60X93\_Contract\0160X93-sht-ITS-36



D160X93-sht-ITS-36	DESIGNED - PTJ	REVISED -
USER NAME = myersc	DRAWN - CAM	REVISED -
PLOT SCALE = 40.0000' / in.	CHECKED - MJL	REVISED -
PLOT DATE = 7/26/2018	DATE - 7/30/2018	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

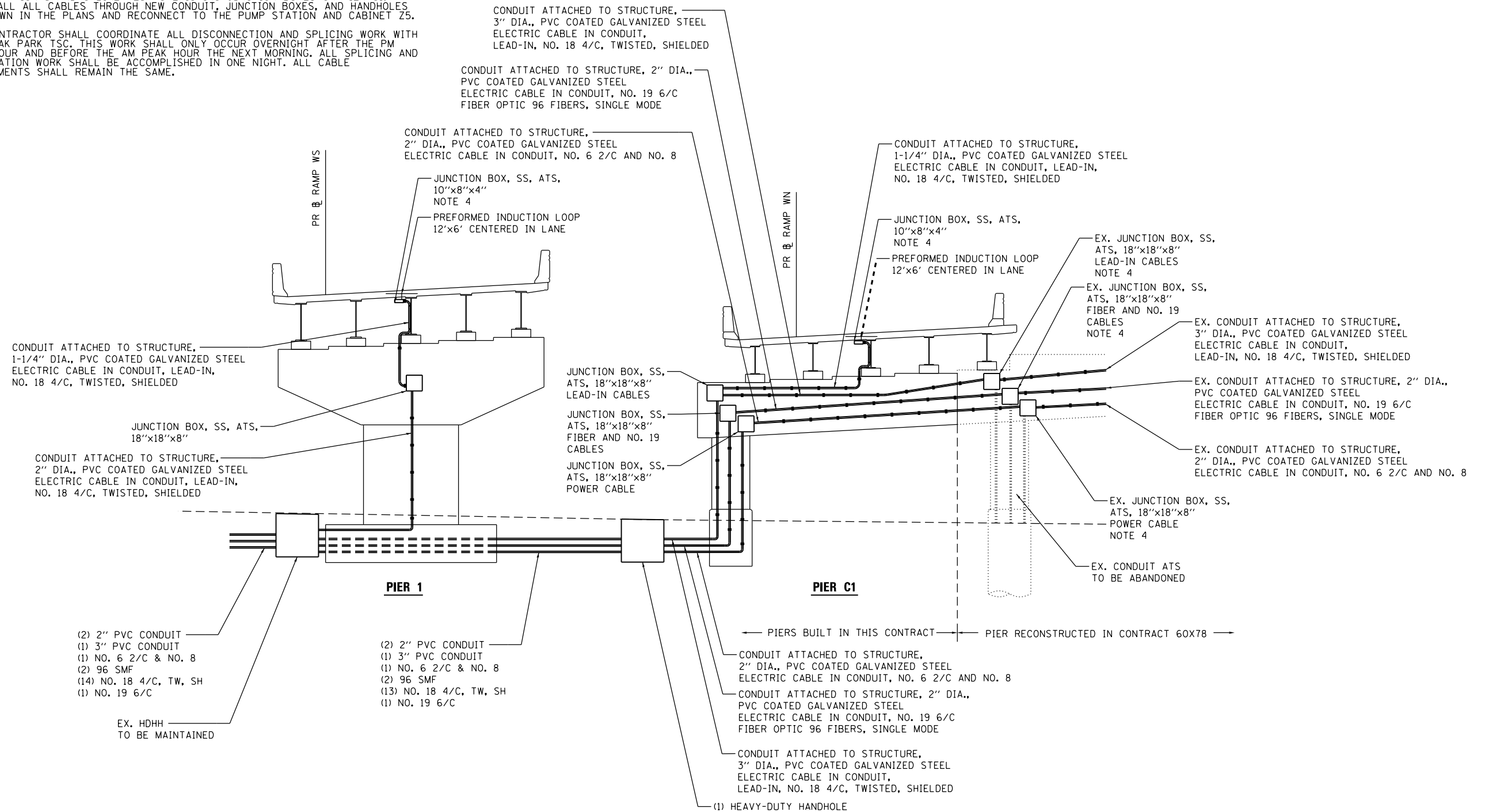
**WIRING DIAGRAM 2**

SCALE: N.T.S. SHEET 36 OF 45 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	606
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				

**NOTES:**

1. ALL EXISTING EQUIPMENT ATTACHED TO OR PART OF AN EXISTING STRUCTURE TO BE DEMOLISHED SHALL BE REMOVED AS PART OF THE STRUCTURAL REMOVAL PAY ITEMS, UNLESS OTHERWISE NOTED.
2. ALL QUANTITIES SHOWN ON SHEET ITS-19.
3. THE LOCATIONS OF THE ITS EQUIPMENT SHOWN ON THE PLAN ARE APPROXIMATIONS. THE FINAL INSTALLATION LOCATIONS OF THE ITS EQUIPMENT SHALL BE STAKED IN THE FIELD AND APPROVED BY THE ENGINEER PRIOR TO BEGINNING ANY WORK TO ENSURE THAT THERE ARE NO CONFLICTS WITH EXISTING/PROPOSED UTILITIES AND WORK PERFORMED BY OTHER DISCIPLINES.
4. DISCONNECT AND PULL BACK FIBER OPTIC, POWER, AND DETECTOR CABLES FROM PUMP STATION 5 AND CABINET Z5 TO EXISTING JUNCTION BOXES ON PIER C1. REINSTALL ALL CABLES THROUGH NEW CONDUIT, JUNCTION BOXES, AND HANDHOLES AS SHOWN IN THE PLANS AND RECONNECT TO THE PUMP STATION AND CABINET Z5.
5. THE CONTRACTOR SHALL COORDINATE ALL DISCONNECTION AND SPLICING WORK WITH IDOT/OAK PARK TSC. THIS WORK SHALL ONLY OCCUR OVERNIGHT AFTER THE PM PEAK HOUR AND BEFORE THE AM PEAK HOUR THE NEXT MORNING. ALL SPLICING AND TERMINATION WORK SHALL BE ACCOMPLISHED IN ONE NIGHT. ALL CABLE ASSIGNMENTS SHALL REMAIN THE SAME.



**PIER 1 & PIER C1  
(LOOKING EAST)**

ITS-37

FILE PATH = p:\617479-PMINT\pccommon\line\local\AECOM\0502\_NA\Documents\01\_Americas\T\engor-tation\60269938\_Circle\Phase\_11\000\_CAD\006\_Roadway\Sheets\60x93\_Contract\0160x93-shr-ITS-37



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USER NAME = myersc	DRAWN - CAM	REVISED -
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PLOT DATE = 7/26/2018	DATE - 7/30/2018	REVISED -

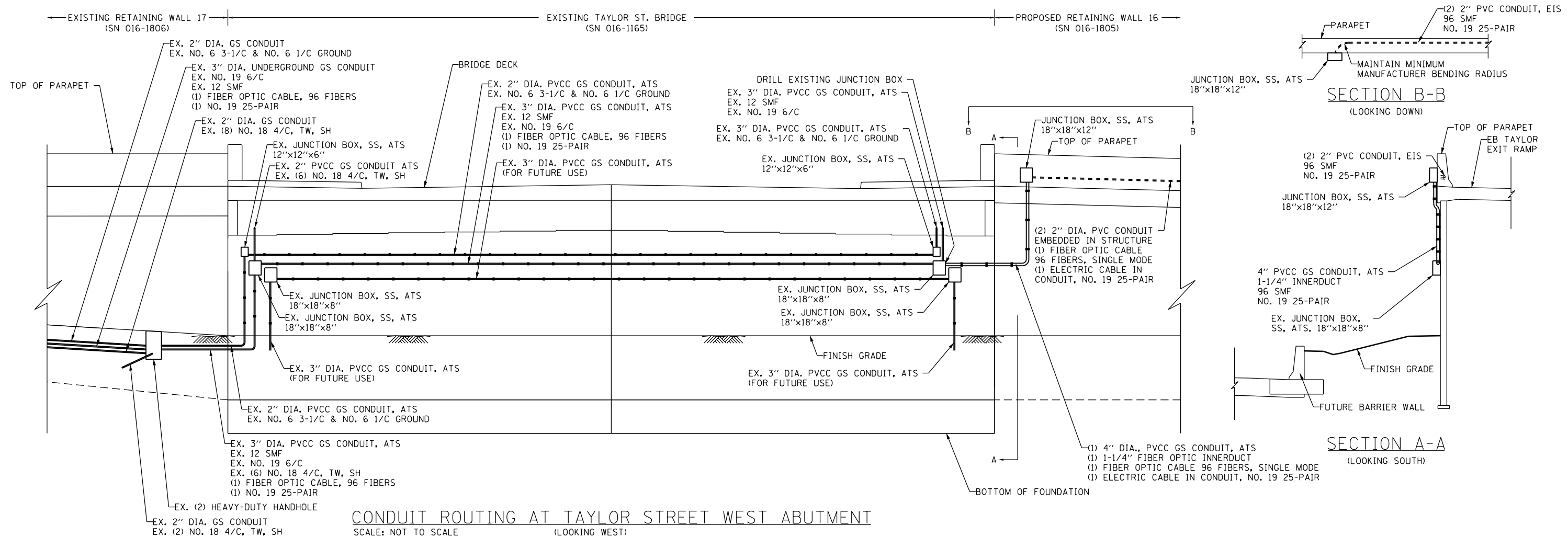
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**RAMP WS AND RAMP WN PIER DETAIL**

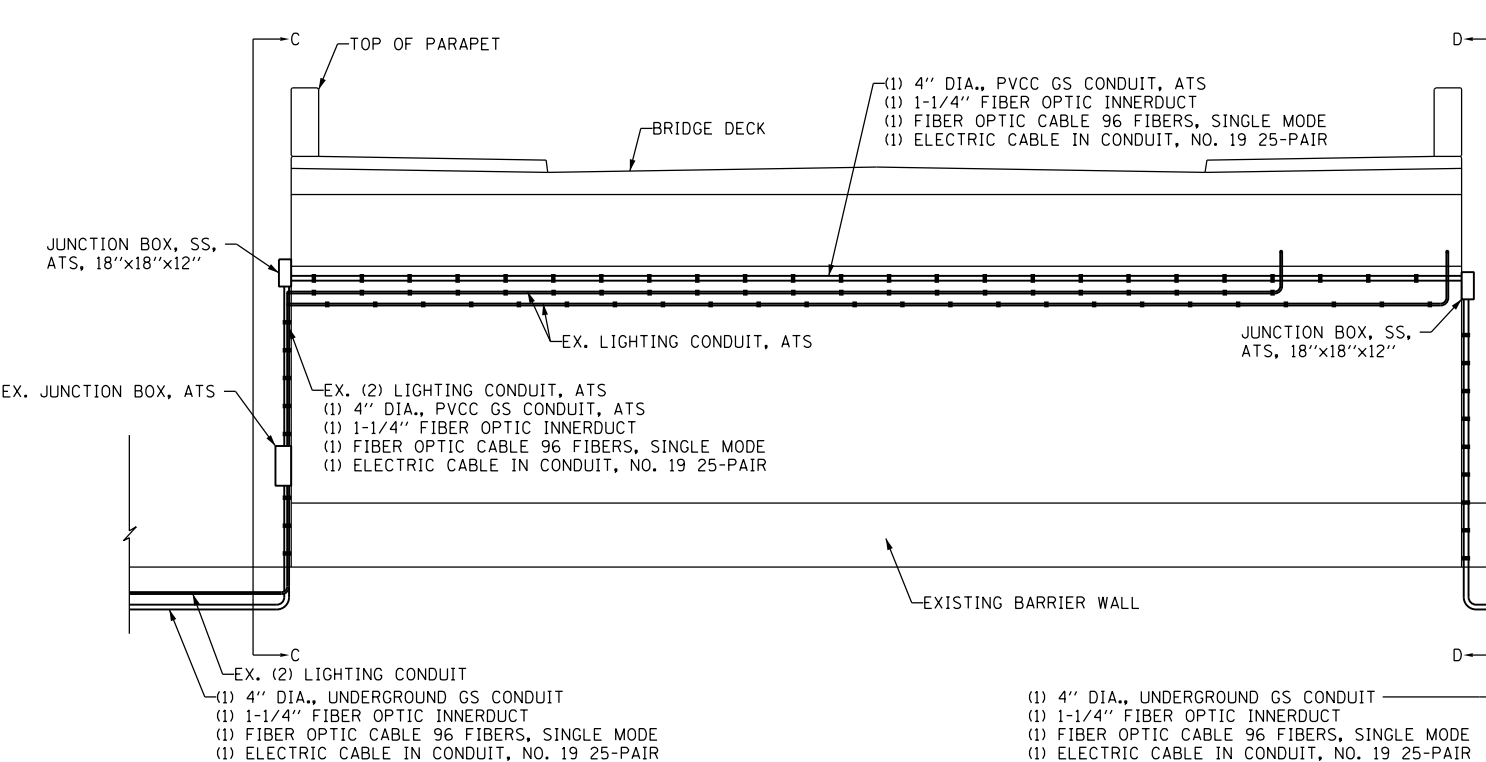
SCALE: N.T.S. SHEET 37 OF 45 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	607
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				

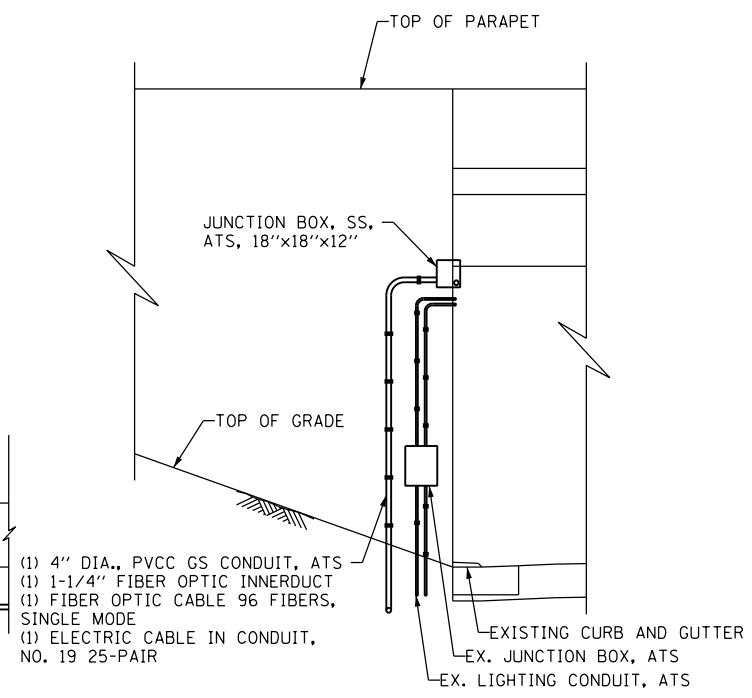
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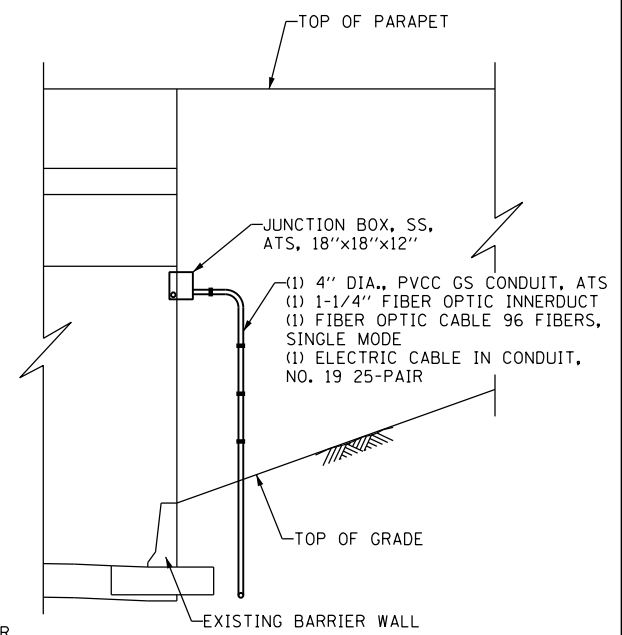
**CONDUIT ROUTING AT TAYLOR STREET WEST ABUTMENT**  
SCALE: NOT TO SCALE (LOOKING WEST)



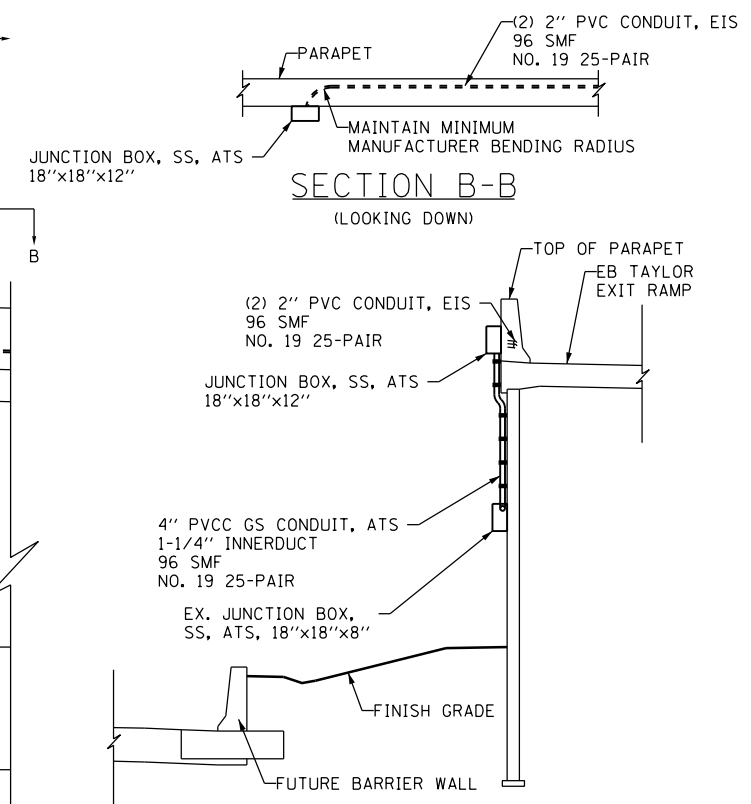
**CONDUIT ROUTING AT ROOSEVELT ROAD WEST ABUTMENT**  
SCALE: NOT TO SCALE (LOOKING WEST)



**SECTION C-C**  
(LOOKING NORTH)



**SECTION D-D**  
(LOOKING SOUTH)



**SECTION B-B**  
(LOOKING DOWN)



D160X93-sht-ITS-38  
 USER NAME = myersc  
 PLOT SCALE = 40.0000' / in.  
 PLOT DATE = 7/26/2018

DESIGNED - PTJ  
 DRAWN - CAM  
 CHECKED - MJL  
 DATE - 7/30/2018

DESIGNED -  
 REVISED -  
 DRAWN - CAM  
 REVISED -  
 CHECKED - MJL  
 REVISED -  
 DATE - 7/30/2018  
 REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**CONDUIT ATTACHED TO ABUTMENT  
INSTALLATION DETAIL**  
 SCALE: N.T.S. SHEET 38 OF 45 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	608
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				

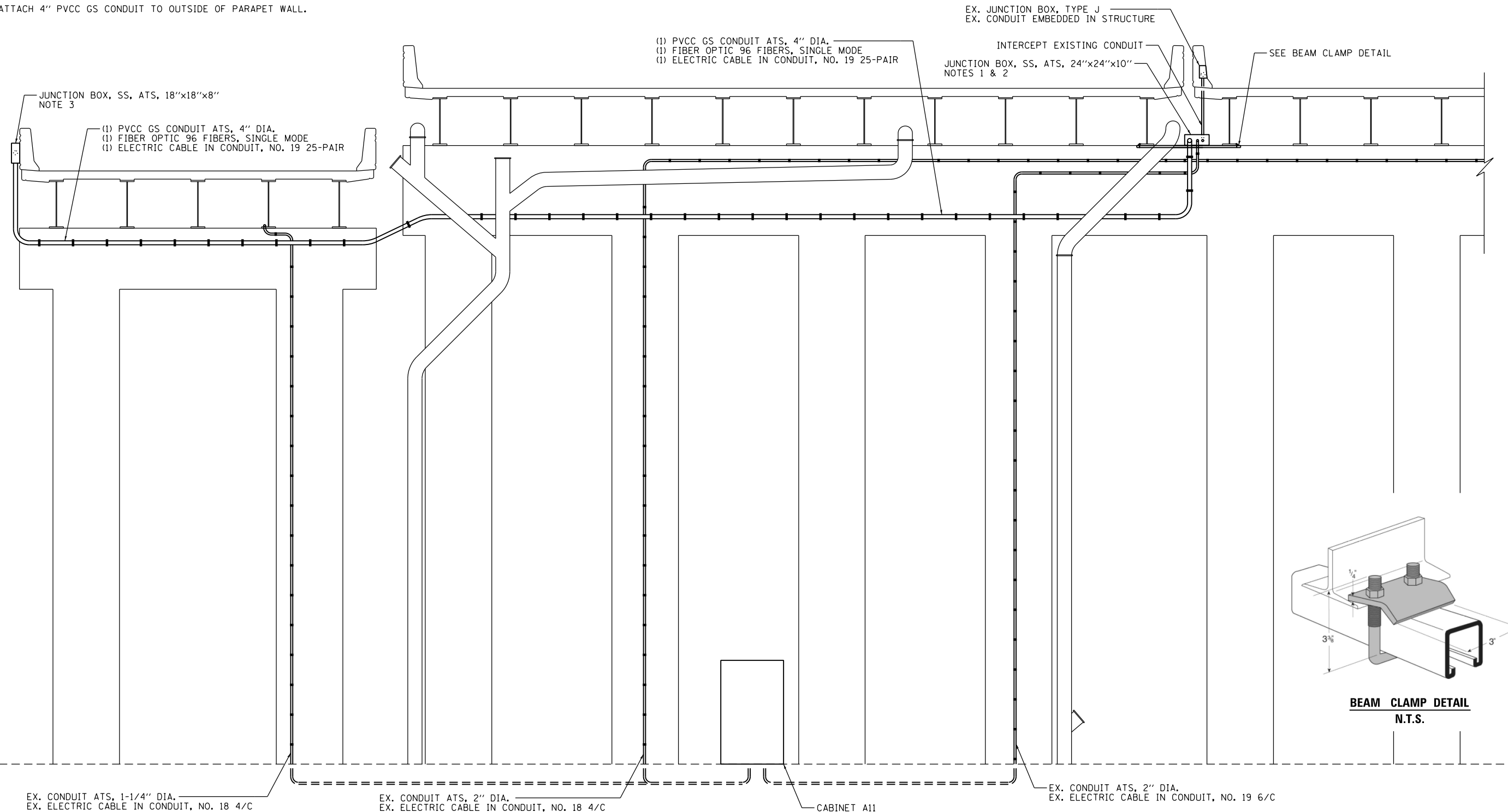
ITS-38





**NOTES:**

1. INSTALL JUNCTION BOX AND INTERCEPT EXISTING 2" CONDUIT WHERE THE CONDUIT DROPS OUT OF THE EXISTING JUNCTION BOX EMBEDDED IN MEDIAN WALL.
2. SPLICE THE EXISTING AND PROPOSED NO. 19 25-PAIR CABLES WITH THE EXISTING NO. 19 6/C CABLE IN THE PROPOSED JUNCTION BOX SUSPENDED BETWEEN NB AND SB I-90/94.
3. ATTACH 4" PVCC GS CONDUIT TO OUTSIDE OF PARAPET WALL.



**PIER 1 (SN 016-1110)  
(LOOKING NORTH)**

ITS-40

FILE PATH = p:\6179-PMINT\ecom\line\local\AECOM\0502\_NA\Documents\01\_Americas\T\_eng\p\station\60269938\_Circle\Phase\_1\000\_CAD\006\_Roadway\Sheets\60X93\_Contract\0160X93-sht-ITS-40



D160X93-sht-ITS-40	DESIGNED - PTJ	REVISED -
USER NAME = myersc	DRAWN - CAM	REVISED -
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PLOT DATE = 7/26/2018	DATE - 7/30/2018	REVISED -

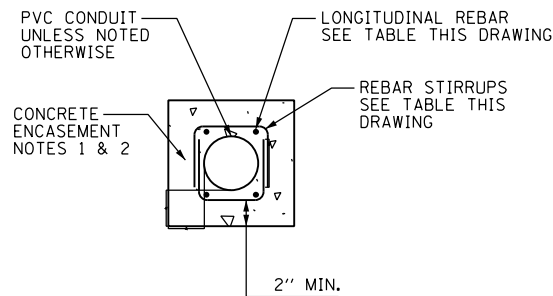
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**I-9094 ITS PIER DETAIL**

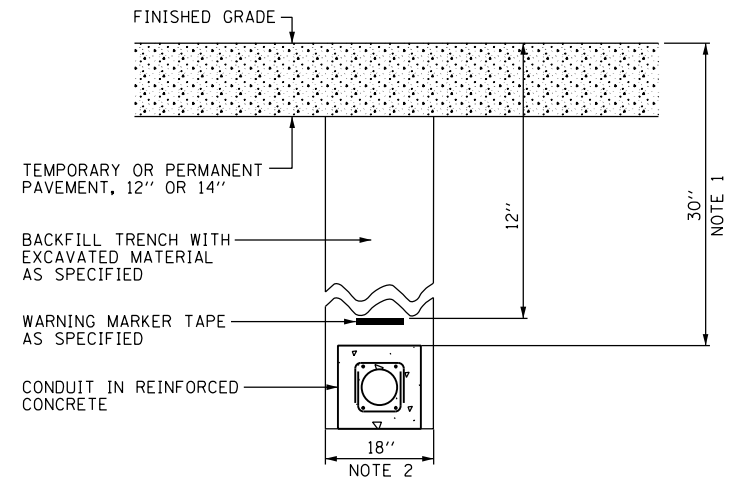
SCALE: N.T.S. SHEET 40 OF 45 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	610
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				


FILE PATH = p:\61779-PMINT.aecom\line\local\AECOM\_0902\_MA\Documents\01\_Americas\Tennessee\location\60269938\_Circle\Phase\_1\1000\_CAD\006\_Roadway\Sheets\60X93\_Contract\0160X93-sht-ITS-41



CONDUIT ENCASED IN REINFORCED CONCRETE DETAIL  
SCALE: NOT TO SCALE



TYPICAL CONDUIT UNDER PAVEMENT

CONDUIT REINFORCEMENT TABLE		
CONCRETE CROSS-SECTIONAL AREA SQ. INCHES	LONGITUDINAL REBAR	REBAR STIRRUPS
	BARS	
LESS THAN 450	#4	#3 AT 12" SPACING
451 TO 650	#5	#3 AT 12" SPACING
GREATER THAN 651	#6	#3 AT 12" SPACING

NOTES:

1. PROVIDE MINIMUM CLEARANCE SHOWN FROM TOP OF ENCASED CONDUIT TO FINISHED GRADE FOR ALL ENCASED CONDUITS, REGARDLESS OF SIZE. CONTRACTOR MUST INSTALL ENCASED CONDUITS SUCH THAT THEY WILL CLEAR ALL UNDERGROUND OBSTACLES.
2. TRENCH MUST HAVE MINIMUM WIDTH SHOWN FOR ALL ENCASED CONDUITS DETAILED ON THIS DRAWING. THE CONTRACTOR MUST INCREASE TRENCH WIDTH FOR ADDITIONAL CONDUITS, AS DIRECTED BY THE ENGINEER, AT NO ADDITIONAL COST.

ITS-41



D160X93-sht-ITS-41  
USER NAME = myersc  
PLOT SCALE = 40.0000' / in.  
PLOT DATE = 7/26/2018

DESIGNED - PTJ  
DRAWN - CAM  
CHECKED - MJL  
DATE - 7/30/2018

REVISED -  
REVISED -  
REVISED -  
REVISED -

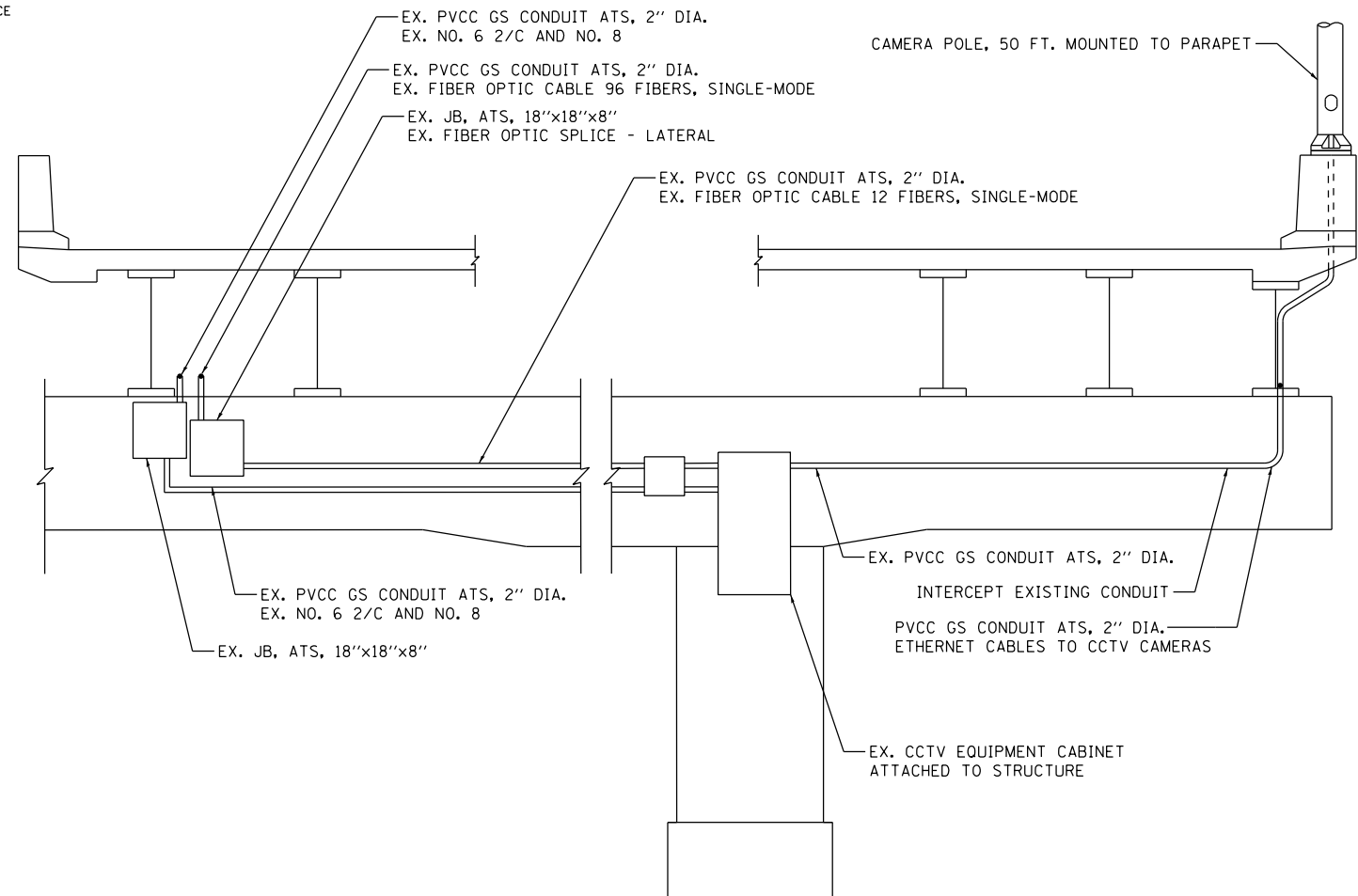
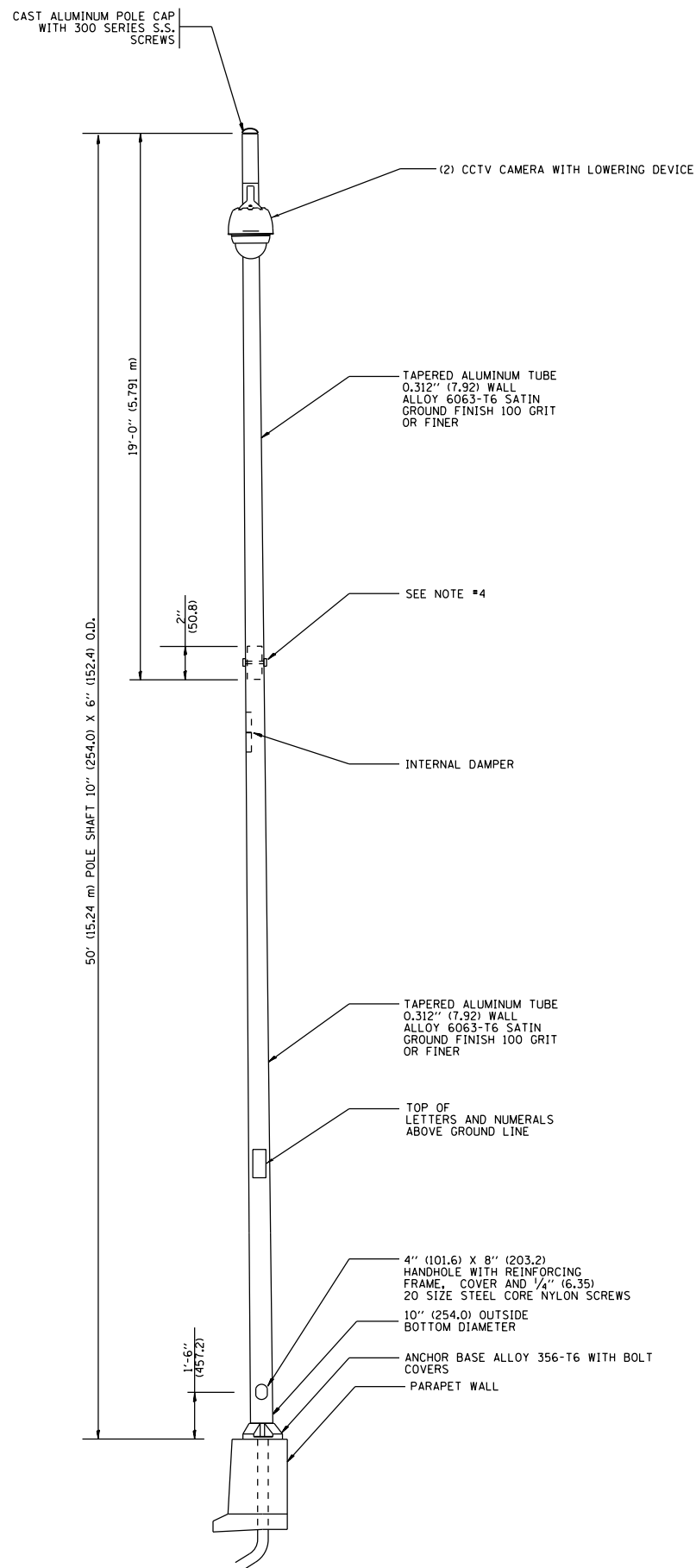
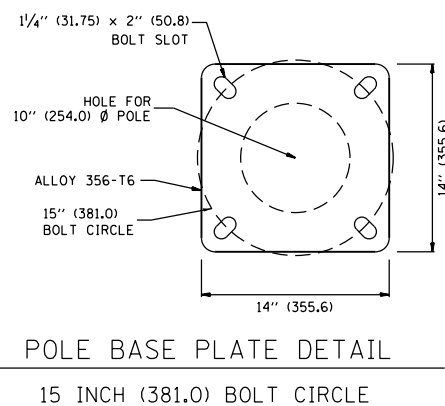
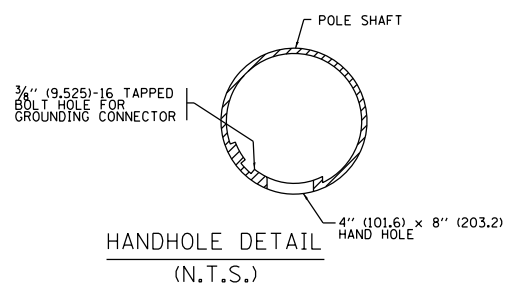
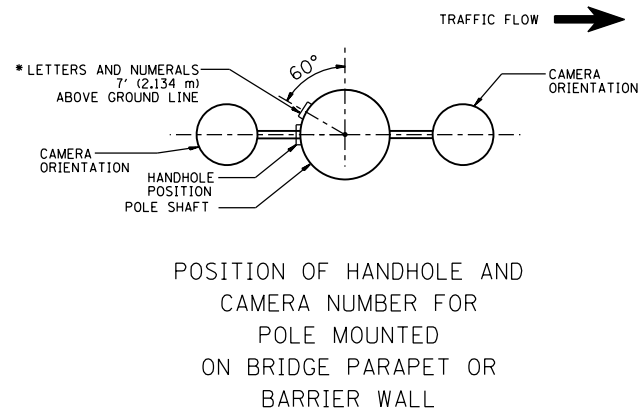
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ITS DETAIL

SCALE: N.T.S. SHEET 41 OF 45 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	611
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				

FILE PATH = p:\617479-PM\INT\pccommon\line\local\AECOM\0502\MA\Documents\01\Americas\T\engpccom\0502\60938 Circle\Phase 1\1000\_CAD\006\_Roadway\Sheets\60938\_Contract\01\60938-sht-ITS-42



**PIER (C6) WEST OF S. JEFFERSON STREET (LOOKING WEST)**

- NOTES:**
1. INSTALL NEW ETHERNET CABLES IN NEW CONDUITS AND CONNECT TO EXISTING CCTV CAMERA EQUIPMENT. THIS WORK WILL NOT BE PAID FOR SEPARATELY BUT WILL BE INCLUDED IN THE "CLOSED CIRCUIT" TELEVISION DOME CAMERA, HD" PAY ITEM.
  2. USE EXISTING FIBER ASSIGNMENTS FOR SPLICES AND CONNECTIONS.
  3. ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN.
  4. TWO PIECE SHAFT WILL BE MATCHED MARKED AND INTERCHANGEABLE BETWEEN DIFFERENT UNITS. FIELD DRILLING OF THE HOLES WILL NOT BE ALLOWED.
  5. THE POLE WILL MEET AASHTO DESIGN CRITERIA AS SPECIFIED.
  6. THE INSTALLING CONTRACTOR WILL PROVIDE A UL LISTED GROUNDING CONNECTOR. BURNDY K2C23, T&B SP4DL OR APPROVED EQUAL.
  7. POLES WILL BE INSTALLED IN ACCORDANCE TO MANUFACTURER'S INSTRUCTIONS.
  8. POLES WILL BE SET PLUMB ON THE FOUNDATION WITHOUT THE USE OF LEVELING NUTS, WASHERS OR SHIMS.

ITS-42



D160X93-sht-ITS-42  
 USER NAME = myersc  
 PLOT SCALE = 40.0000' / in.  
 PLOT DATE = 7/26/2018

DESIGNED - PTJ  
 DRAWN - CAM  
 CHECKED - MJL  
 DATE - 7/30/2018

REVISED -  
 REVISED -  
 REVISED -  
 REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

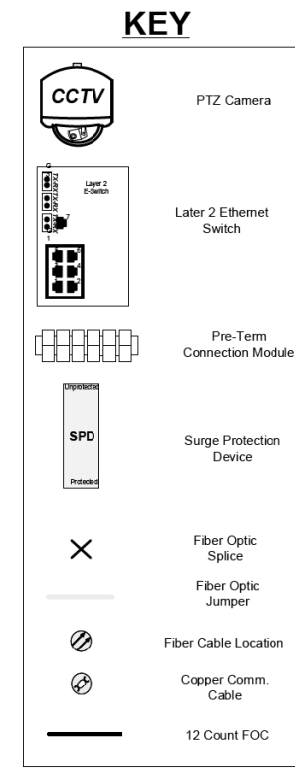
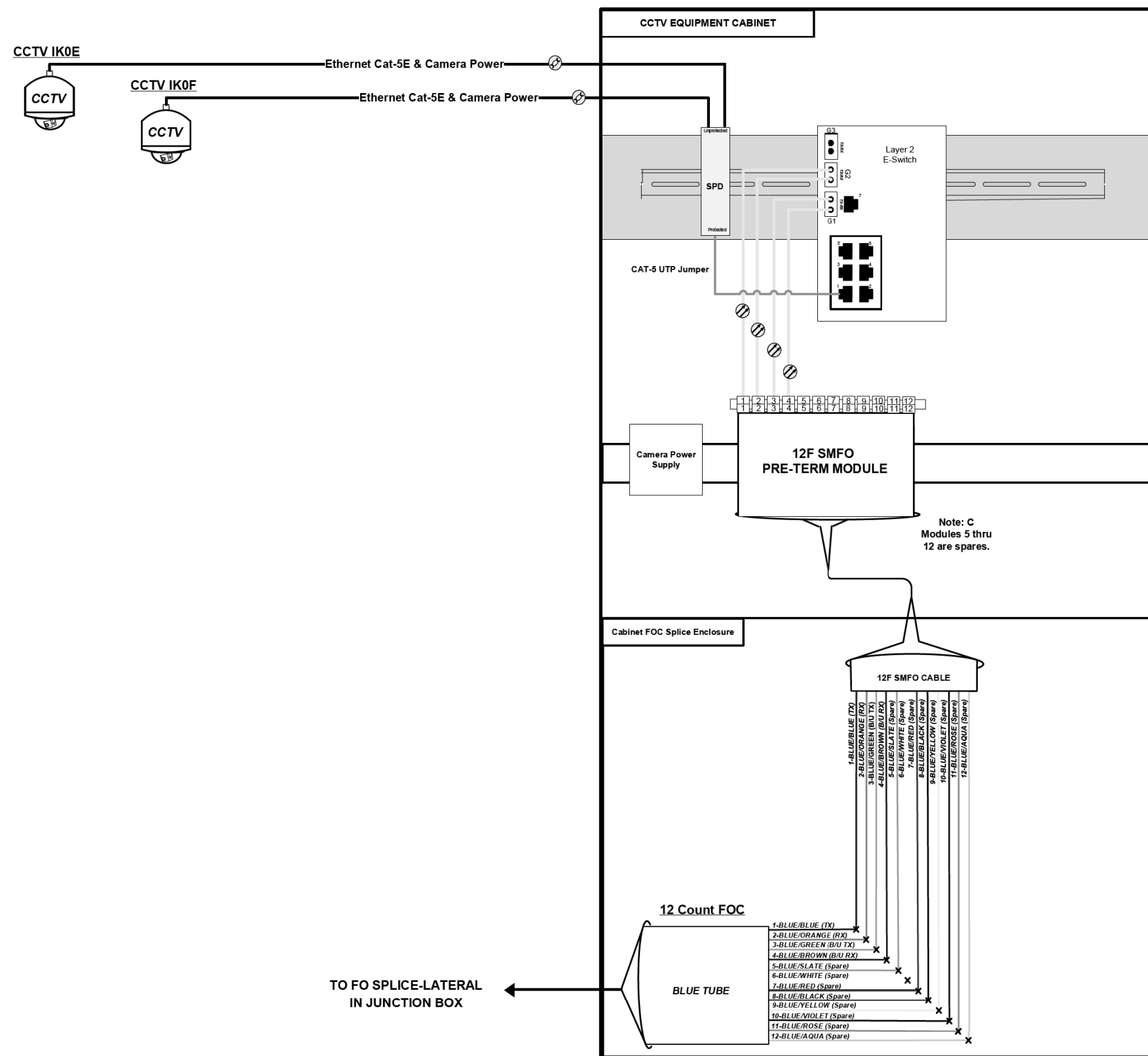
**CCTV CAMERA EQUIPMENT  
 INSTALLATION DETAIL - JEFFERSON ST.**

SCALE: N.T.S. SHEET 42 OF 45 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	612
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				



FILE PATH = p:\61779-PMINT\ecomom\line\loc\h\DCM\_D592\_NA\Documents\01\_Americas\T\_engor\station\60269938\_Circle\Phase\_1\1000\_CAD\006\_Roadway\Sheets\60X93\_Contract\0160X93-sht-ITS-43



**COMMUNICATIONS DETAIL  
CCTV IK0E & IK0F**

ITS-43



D160X93-sht-ITS-43  
USER NAME = myersc  
PLOT SCALE = 40.0000' / in.  
PLOT DATE = 7/26/2018

DESIGNED - PTJ  
DRAWN - CAM  
CHECKED - MJL  
DATE - 7/30/2018

REVISED -  
REVISED -  
REVISED -  
REVISED -

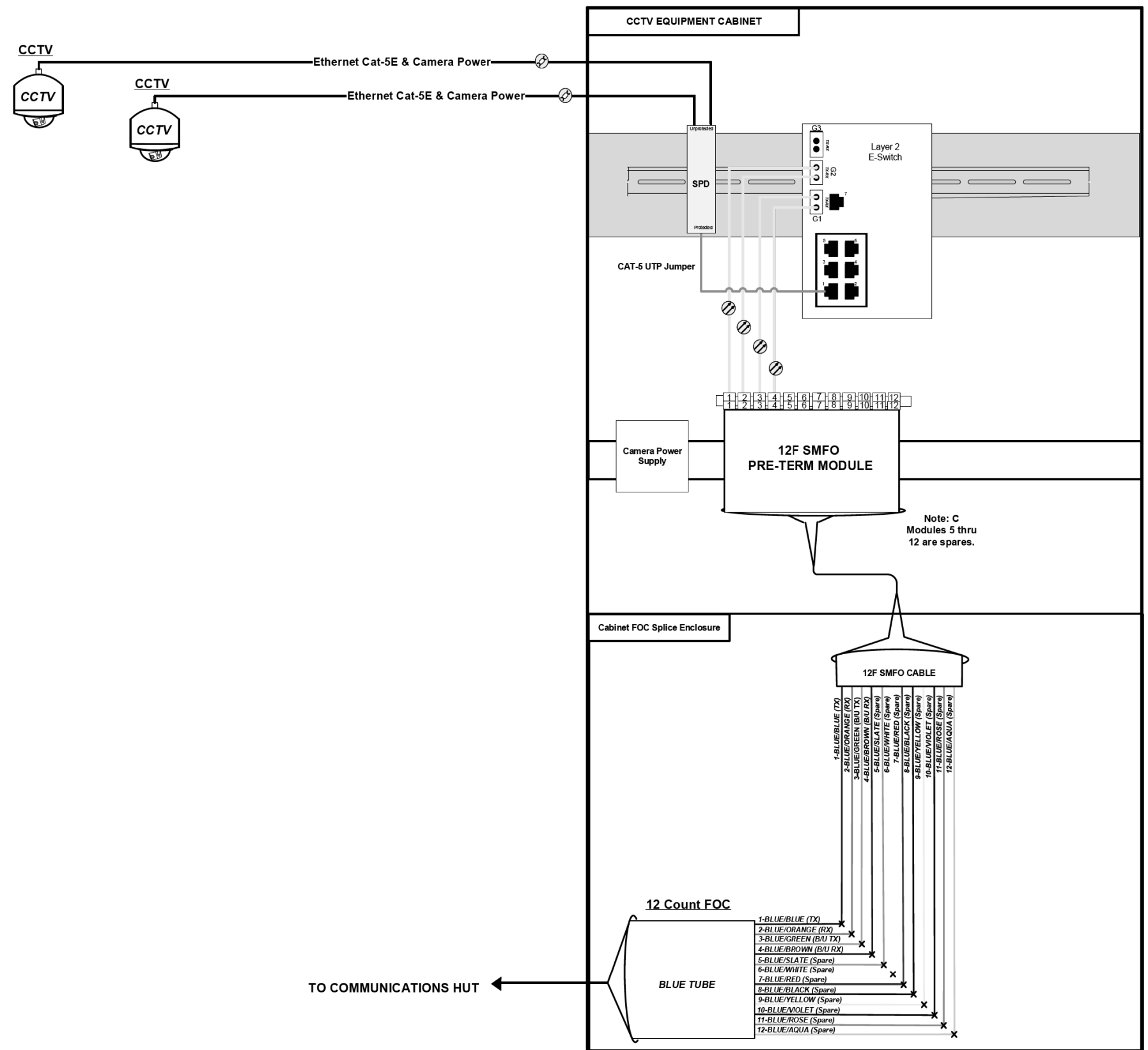
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**COMMUNICATIONS DETAIL  
CCTV IK0E AND IK0F**

SCALE: N.T.S. SHEET 43 OF 45 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	613
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				

FILE PATH = p:\61779-PMINT\ecom\line\loc\h\CDM\_D592\_NA\Documents\01\_Americas\T\engp\station\60269938\_Circle\Phase\_1\1000\_CAD\006\_Roadway\Sheets\60X93\_Contract\0160X93-sht-ITS-44



### KEY

- PTZ Camera
- Layer 2 Ethernet Switch
- Pre-Term Connection Module
- Surge Protection Device
- Fiber Optic Splice
- Fiber Optic Jumper
- Fiber Cable Location
- Copper Comm. Cable
- 12 Count FOC

## COMMUNICATIONS DETAIL CCTV

ITS-44



D160X93-sht-ITS-44	DESIGNED - PTJ	REVISED -
USER NAME = myersc	DRAWN - CAM	REVISED -
PLOT SCALE = 40.0000' / in.	CHECKED - MJL	REVISED -
PLOT DATE = 7/26/2018	DATE - 7/30/2018	REVISED -

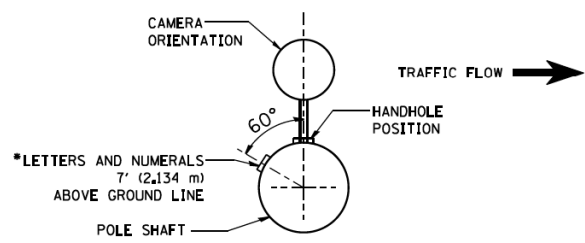
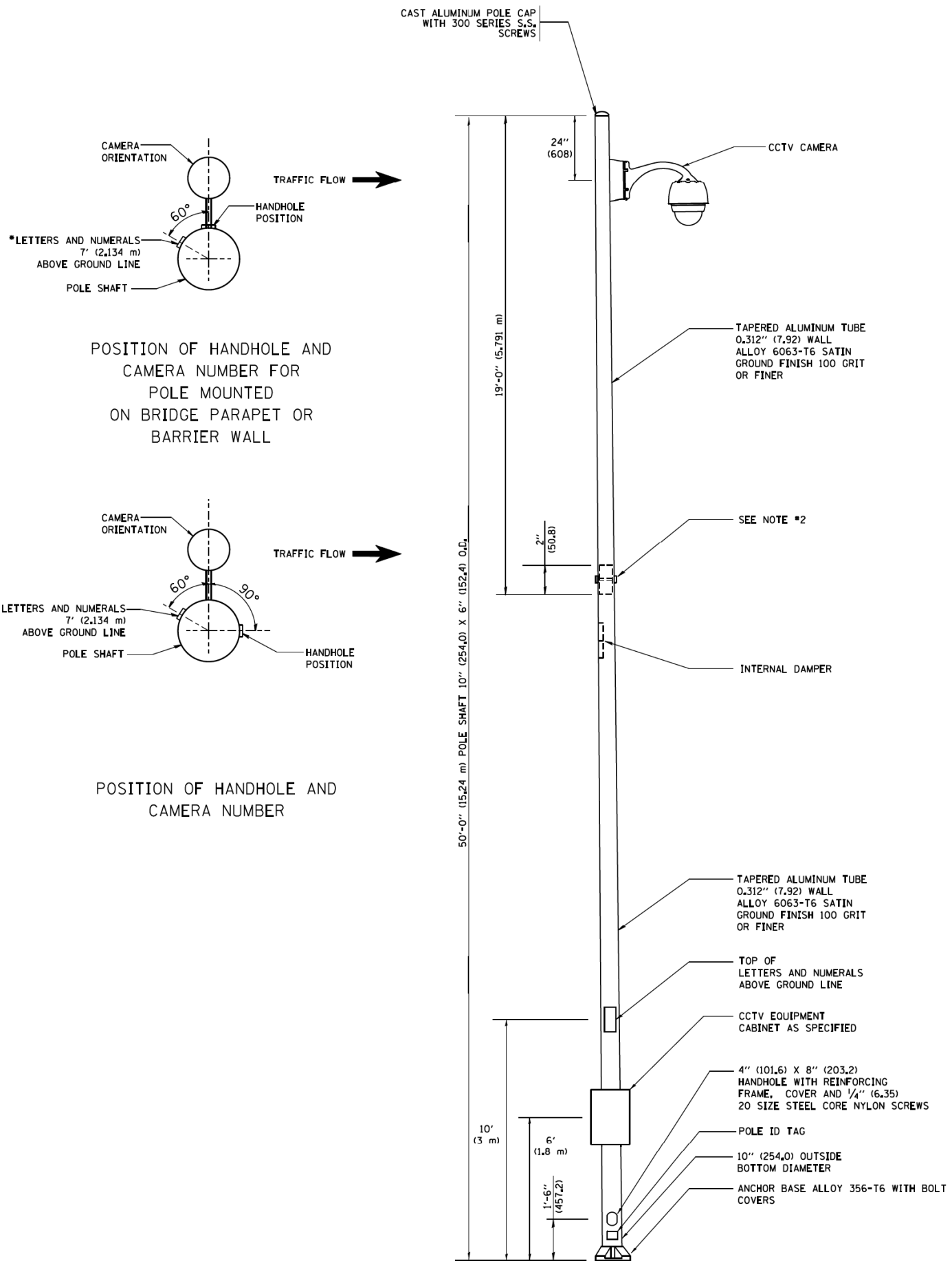
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

COMMUNICATIONS DETAIL CCTV

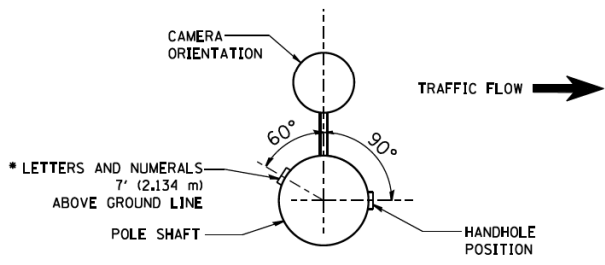
SCALE: N.T.S. SHEET 44 OF 45 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	614
CONTRACT NO. 60X93				

ILLINOIS FED. AID PROJECT

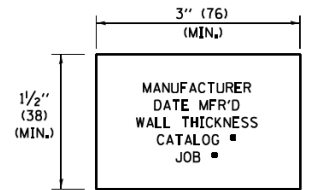


POSITION OF HANDHOLE AND CAMERA NUMBER FOR POLE MOUNTED ON BRIDGE PARAPET OR BARRIER WALL

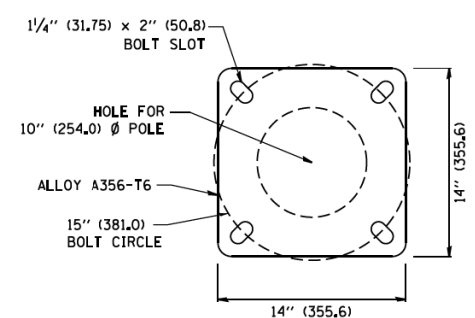


POSITION OF HANDHOLE AND CAMERA NUMBER

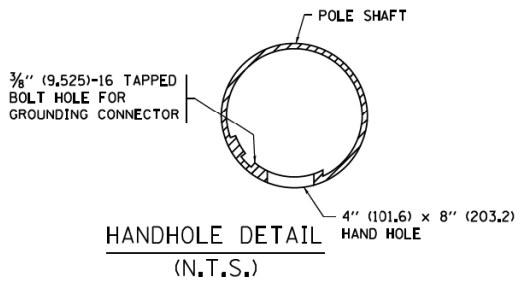
- NOTES:**
1. ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN.
  2. TWO PIECE SHAFT WILL BE MATCHED MARKED AND INTERCHANGEABLE BETWEEN DIFFERENT UNITS. FIELD DRILLING OF THE HOLES WILL NOT BE ALLOWED.
  3. THE POLE WILL MEET AASHTO DESIGN CRITERIA AS SPECIFIED.
  4. THE INSTALLING CONTRACTOR WILL PROVIDE A UL LISTED GROUNDING CONNECTOR, BURNDY K2C23, T&B SP4DL OR APPROVED EQUAL.
  5. POLES WILL BE INSTALLED IN ACCORDANCE TO MANUFACTURER'S INSTRUCTIONS.
  6. POLES WILL BE SET PLUMB ON THE FOUNDATION WITHOUT THE USE OF LEVELING NUTS, WASHERS OR SHIMS.



POLE ID TAG  
NTS



POLE BASE PLATE DETAIL  
15 INCH (381.0) BOLT CIRCLE



HANDHOLE DETAIL  
(N.T.S.)

FILE NAME =	USER NAME = drivakosgn	DESIGNED -	REVISED - R. TOMSONS 09-06-00	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>CCTV CAMERA STRUCTURE 50' (15.24 m) MOUNTING HEIGHT</b>			F.A. RTÉ.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
ca:\pwork\work\pwork\drivakosgn\d0108315\be000.dgn		DRAWN -	REVISED - R. TOMSONS 09-03-03		615	SCALE: NONE	SHEET NO. 1 OF 1 SHEETS	STA.	TO STA.	BE-1000	CONTRACT NO.	1972	615
		CHECKED -	REVISED - R. TOMSONS 02-27-13										
		DATE -	REVISED - R. TOMSONS 05-04-14										

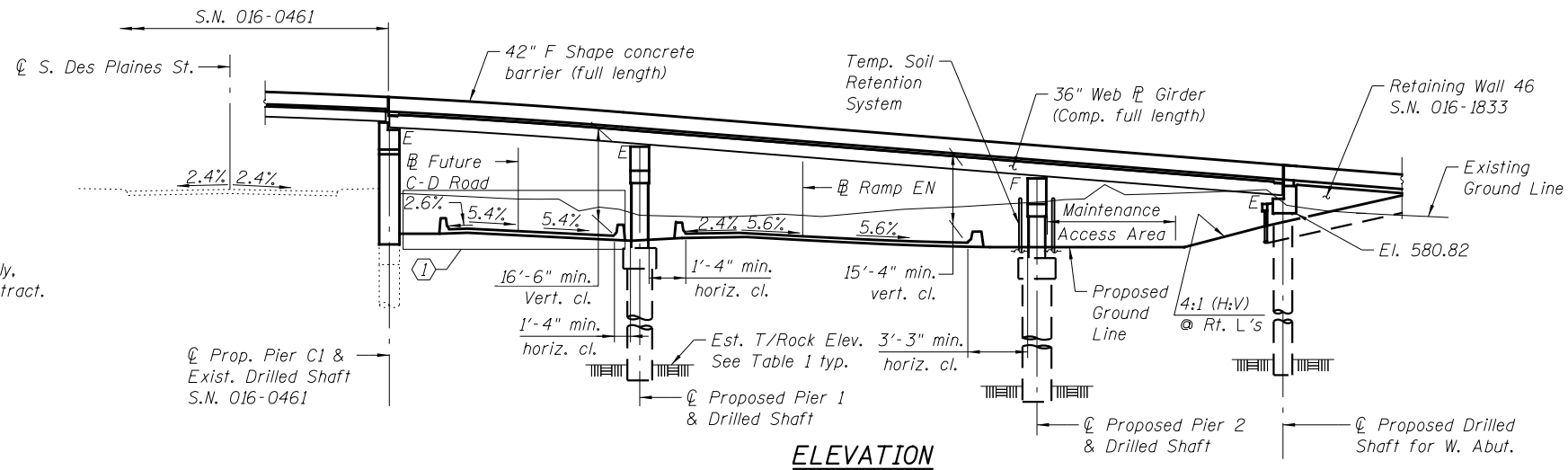
Bench Mark: Square cut at center of door entrance to 707 W. Harrison St; South side of Harrison St. ±90' west of west line of Des Plaines. Elev. 597.47. A t cut in the SE anchor bolt at the 11th street light N. of Roosevelt on the W. side of Halsted. Elev. 594.06.

Existing Structure: S.N. 016-2448 was originally built in 1960 under section 01016-IP. F.A.I. Route Number 94 carries WB I-290 traffic to NB I-90/94. The existing structure consists of a 5-span multi-beam superstructure and has an overall length of approx. 287'-0" and an out-to-out width of 29'-0". The existing superstructure consists of 7" thick concrete deck with 1/2" overlay. The existing substructure units are founded on drilled shafts and sub piers and consist of a closed abutment and multi columns piers. The existing structure is to be removed and replaced.

Traffic Control: Existing Ramp WN & Ramp WS will be closed and traffic will be detoured during construction. Traffic on Ramp EN, I-290 and I-90/94 will be maintained with stage construction with exception of the full closure of Ramp EN during Stage 5 of Contract 60X93 and Stage 2 of Contract 60X79.

No Salvage.

① For information only, part of future contract.



**LEGEND:**

- ◆ Soil Boring Location
- W — Water Line
- E — Electric
- T — Telephone line
- CTV — Television line
- CS — Combined Sewer
- SS — Existing Storm Sewer
- FO — Fiber Optic
- G — Gas Line
- Fire Hydrant
- Light Pole
- Proposed Storm Sewer
- Proposed Inlet
- Proposed Manhole
- Proposed Catch Basin
- ◆ Point of Min. Vert. Cl.

**DESIGN SPECIFICATIONS**

2014 AASHTO LRFD Bridge Design Specifications 7th Edition with 2015 & 2016 Interim Revisions

**LOADING HL-93**

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

**DESIGN STRESSES**

**FIELD UNITS**

f'c = 3,500 psi  
 f'c = 4,000 psi (Superstructure Concrete)  
 fy = 60,000 psi (Reinforcement)  
 fy = 50,000 psi (M270 Grade 50)

**SEISMIC DATA**

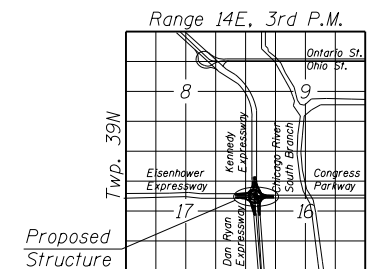
Seismic Performance Zone (SPZ) = 1  
 Design Spectral Acceleration at 1.0 sec. (S<sub>D1</sub>) = 0.085g  
 Design Spectral Acceleration at 0.2 sec. (S<sub>D5</sub>) = 0.144g  
 Soil Site Class = D

**TABLE 1**

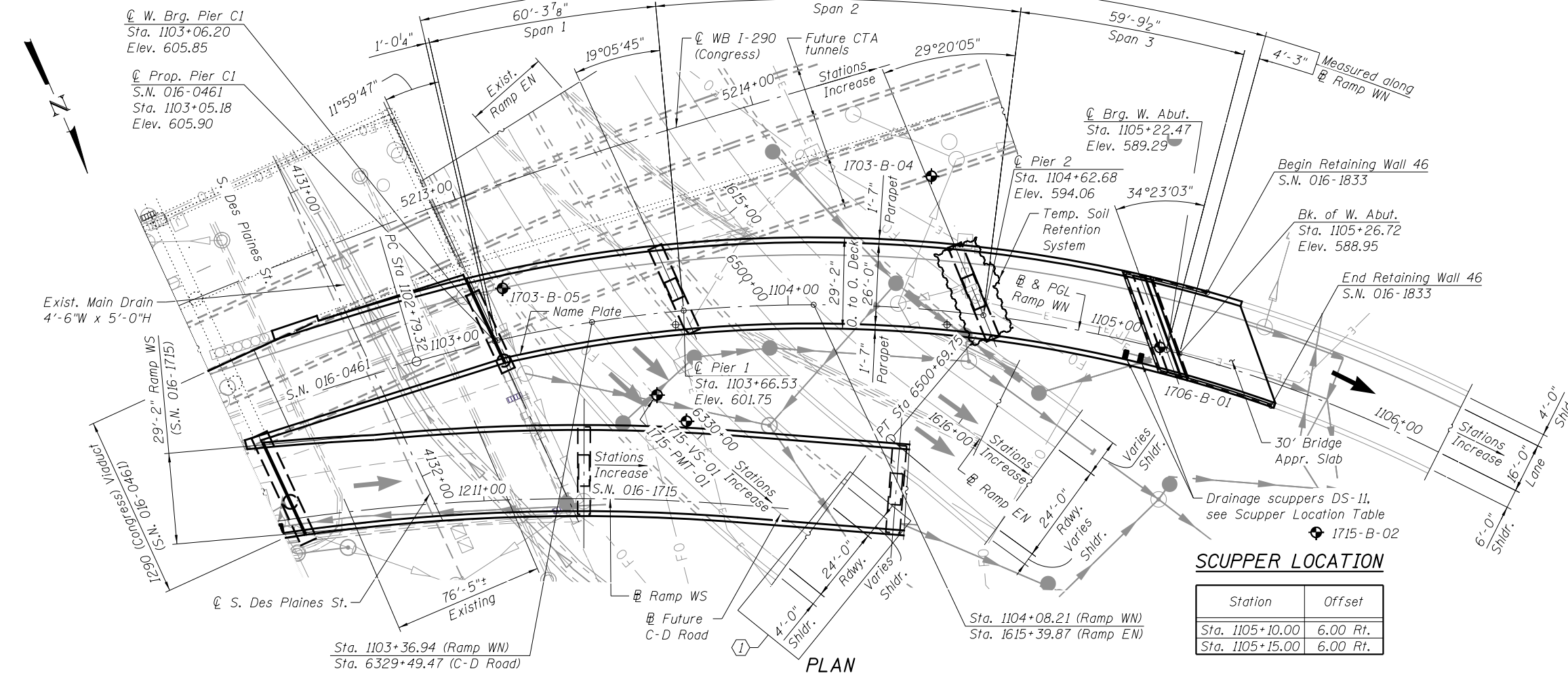
	Approx. T/Ground Elev.	Approx. T/Rock Elev.
Pier 1	583.10	480.40
Pier 2	582.70	478.70
W. Abut.	582.92	477.40



Signed *Jamal Grainawi*  
 JAMAL I. GRAINAWI, S.E. II. Lic. No. 081-005161 Expires 11-30-2018.  
 Date 7/18/18



**LOCATION SKETCH**

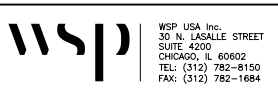


**SCUPPER LOCATION**

Station	Offset
Sta. 1105+10.00	6.00 Rt.
Sta. 1105+15.00	6.00 Rt.

**GENERAL PLAN & ELEVATION**  
**RAMP WN OVER**  
**I-90/94 C-D ROAD/RAMP EN**  
**F.A.I. RTE. 90/94/290**  
**SECTION 2014-013R&B-R**  
**COOK COUNTY**  
**STATION 1104+08.21**  
**STRUCTURE NO. 016-1706**

0161706-60X93-5001-GPE.dgn



USER NAME = ibrahiml	DESIGNED - PJL	REVISED -
PLOT SCALE = N.T.S.	CHECKED - MI	REVISED -
PLOT DATE = 7/30/2018	DRAWN - DCP	REVISED -
	CHECKED - JIG	REVISED -

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

SHEET NO. S1-1 OF S1-45 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	616
CONTRACT NO. 60X93				

ILLINOIS FED. AID PROJECT



**GENERAL NOTES:**

- Fasteners shall be ASTM A325 Type 1, hot dip galvanized bolts. Bolts 7/8"  $\phi$ , holes 15/16"  $\phi$ , unless otherwise noted.
- Calculated weight of Structural Steel = 218,050 lbs.
- All structural steel shall be AASHTO M270 Grade 50.
- All structural steel shall be metalized (thermal spraying) (see special provisions).
- No field welding is permitted except as specified in the contract documents.
- Reinforcement bars designated (E) shall be epoxy coated.
- Plan dimensions and details relative to existing plans are subject to nominal construction variations. The Contractor shall field verify existing dimensions and details affecting new construction and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.
- Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of 1/8" (0.01 ft.). Adjustment shall be made either by grinding the surface or by shimming the bearings.
- Concrete Sealer shall be applied to the designated areas of the Piers and W. Abutment.
- Slipforming of the parapet is not allowed.
- If the Contractor elects to use cantilever forming brackets on the exterior beams or girders, the brackets shall be placed at the same locations required for the hardwood blocks in Article 503.06(b) of the Standard Specifications. If additional cantilever forming brackets are required, hardwood blocking shall be wedged between the exterior and first interior beam at each of these additional bracket locations.
- The existing structural steel coating contains lead. The Contractor shall take appropriate precautions to deal with the presence of lead on this project.
- Structural steel erection shall be accomplished by a steel erection contractor or subcontractor certified as an Advanced Certified Steel Erector (ACSE) by the American Institute of Steel Construction (AISC). See special provision for "Erection of Complex Steel Structures".
- The Drilled Shaft quantities and reinforcement detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft locations and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.
- The Contractor shall field verify location of existing utilities prior to construction. The Contractor shall take precautions not to damage existing utilities. Any such damage shall be repaired by the Contractor at no additional cost.
- Limited groundwater elevation data is available in the boring logs. In addition, groundwater may also be present in deeper granular layers. The groundwater may rise in the shafts to an elevation above the top of granular layers. The Contractor shall consider this information when choosing construction methods. The Contractor will not be compensated for issues related to the groundwater elevation.
- The Contractor shall take all necessary precautions not to contaminate groundwater during the drilled shaft construction operation. The Contractor is responsible for the proper containment and disposal of the contaminated groundwater and spoils resulting from the Contractor's means and methods. No additional cost will be paid for this effort.
- The Contractor shall coordinate the construction of proposed structure with the construction of shared Pier C1 with I-290 Congress Viaduct (S.N. 016-0461) and Retaining Wall 46 (S.N. 016-1833). The construction of Pier 1 shall occur during closure of Ramp EN and work shall be coordinated with Contract 60X79. See MOT plan sheets and special provisions, including the "Available Work Areas and Sequencing Requirements" special provision, for additional construction and coordination requirements.
- Based on the high squeeze potential of the clay soils, the use of temporary casing will be required to Elev. +538.0 at W. Abutment in order to properly construct the drilled shaft. Casing may be removed or left in place as determined by the Contractor at no cost to the Department.
- The Contractor shall exercise extreme caution during construction to make certain that construction activities, live load surcharge and other loads applied to the structures will not have detrimental effects on the adjacent structures, buildings and utilities. See Contract Special Provision for details.
- The Contractor shall provide vibration and displacement monitoring at the locations specified in the Special Provision for "Construction Vibration Monitoring", to ensure that construction activities in the vicinity of the structures do not have detrimental effects on building foundations. No additional compensation shall be provided to the Contractor for alternative means and methods, or additional precautionary measures, required during removal/construction activities to satisfy these requirements. See Contract Special Provisions for details.

**INDEX OF SHEETS**

S1-1	General Plan & Elevation
S1-2	General Data
S1-3	Curve Data & Geometric Layout
S1-4	Substructure Layout
S1-5	Temporary Soil Retention System
S1-6	Existing Structure Removal Details I
S1-7	Existing Structure Removal Details II
S1-8	Top of Slab Elevation Plan
S1-9	Top of Slab Elevations I
S1-10	Top of Slab Elevations II
S1-11	Top of West Approach Slab Elevations
S1-12	Deck Plan I
S1-13	Deck Plan II
S1-14	Deck Details I
S1-15	Deck Details II
S1-16	W. Approach Slab Details I
S1-17	W. Approach Slab Details II
S1-18	Prefomed Joint Strip Seal - West Abutment
S1-19	Drainage Scupper Details, DS-II
S1-20	Drainage System Details
S1-21	Framing Plan
S1-22	Superstructure Steel Details I
S1-23	Superstructure Steel Details II
S1-24	Superstructure Steel Details III
S1-25	Superstructure Steel Details IV
S1-26	Superstructure Steel Details V
S1-27	Bearing Layout
S1-28	HLMR Guided Expansion Bearing Details I
S1-29	HLMR Guided Expansion Bearing Details II
S1-30	HLMR Fixed Bearing Details
S1-31	Pier 1
S1-32	Pier 1 Details
S1-33	Pier 2
S1-34	Pier 2 Details
S1-35	Architectural Details I
S1-36	Architectural Details II
S1-37	West Abutment
S1-38	West Abutment Details
S1-39	Bar Splicer Assembly and Mechanical Splicer Details
S1-40	Boring Logs I
S1-41	Boring Logs II
S1-42	Boring Logs III
S1-43	Boring Logs IV
S1-44	Boring Logs V
S1-45	Boring Logs VI

**TOTAL BILL OF MATERIAL**

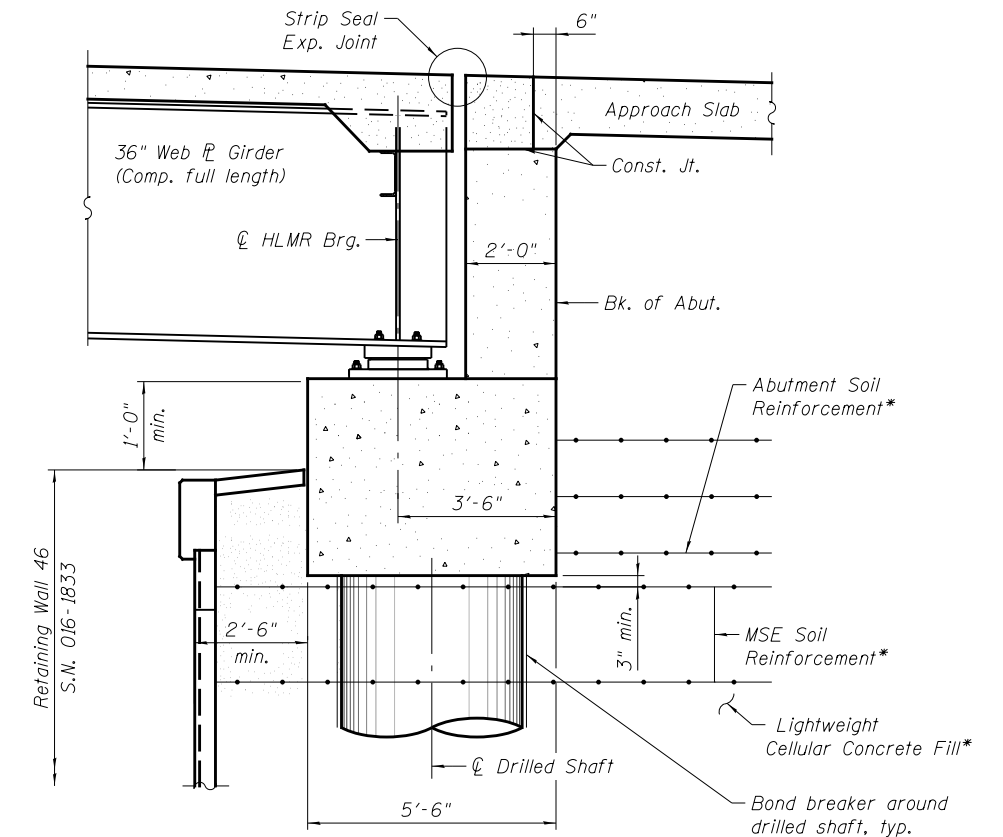
ITEM	UNIT	SUPER	SUB	TOTAL
Removal of Existing Structures No. 1	Each	-	1	1
Structure Excavation	Cu. Yd.	-	272	272
Concrete Structures	Cu. Yd.	-	202.4	202.4
Rubbed Finish	Sq. Ft.	-	1,241	1,241
Concrete Superstructure	Cu. Yd.	244.6	-	244.6
Form Liner Textured Surface	Sq. Ft.	-	434	434
Protective Coat	Sq. Yd.	978	-	978
Concrete Superstructure (Approach Slab)	Cu. Yd.	40.6	-	40.6
Furnishing and Erecting Structural Steel	L. Sum	0.1	-	0.1
Stud Shear Connectors	Each	3,600	-	3,600
Reinforcement Bars	Pound	-	79,380	79,380
Reinforcement Bars, Epoxy Coated	Pound	82,930	37,970	120,900
Bar Splicers	Each	-	34	34
Name Plates	Each	1	-	1
Permanent Casing	Foot	-	275	275
Drilled Shaft in Soil	Cu. Yd.	-	477	477
Drilled Shaft in Rock	Cu. Yd.	-	16	16
Prefomed Joint Strip Seal	Foot	34	-	34
Anchor Bolts, 1"	Each	-	80	80
Temporary Soil Retention System	Sq. Ft.	-	2,426	2,426
Concrete Sealer	Sq. Ft.	-	2,299	2,299
Crosshole Sonic Logging Access Ducts	Foot	-	498	498
Crosshole Sonic Logging Testing	Each	-	3	3
Bridge Deck Grooving (Longitudinal)	Sq. Yd.	641	-	641
High Load Multi-Rotational Bearings, Guided Expansion, 100k	Each	-	10	10
High Load Multi-Rotational Bearings, Guided Expansion, 250k	Each	-	5	5
High Load Multi-Rotational Bearings, Fixed, 250k	Each	-	5	5
Drainage Scuppers, DS-II	Each	2	-	2
Drainage System	L. Sum	0.1	-	0.1

STATION 1104+08.21  
SECTION 2014-013R&B  
BUILT BY  
STATE OF ILLINOIS  
F.A.I. ROUTE 90/94/290  
LOADING HL-93  
STRUCTURE NO. 016-1706

**NAME PLATE**  
See Std. 515001

\* This work is included in Retaining Wall 46 (S.N. 016-1833)

Note:  
Abutment Soil Reinforcement to resist lateral loads in lieu of the drilled shafts.



**SECTION THRU WEST ABUTMENT**

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

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**GENERAL DATA  
STRUCTURE NO. 016-1706**

SHEET NO. S1-2 OF S1-45 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	617
<b>CONTRACT NO. 60X93</b>				
ILLINOIS FED. AID PROJECT				

0161706-60X93-5002-1X.dgn



USER NAME = ibrahim1	DESIGNED - MI	REVISED -
PLOT SCALE = N.T.S.	CHECKED - P.JL	REVISED -
PLOT DATE = 7/30/2018	DRAWN - MI	REVISED -
	CHECKED - JIG	REVISED -

WSP USA Inc.  
30 N. LASALLE STREET  
SUITE 4000  
CHICAGO, IL 60602  
TEL: (312) 782-8150  
FAX: (312) 782-1884

**CURVE DATA**

(Ramp WN)  
 PROP. CURVE P-CIR-WN-2  
 P.I. Sta. = 1105+88.67  
 $\Delta = 69^\circ 00' 44''$  (Rt.)  
 $D = 12^\circ 43' 57''$   
 $R = 450.00'$   
 $T = 309.35'$   
 $L = 542.02'$   
 $E = 96.07'$   
 $e = 5.20\%$   
 $T.R. = NA$   
 $S.E. Run = 46'$   
 $P.C. Sta. = 1102+79.32$   
 $P.T. Sta. = 1108+21.34$   
 $DS = 30$

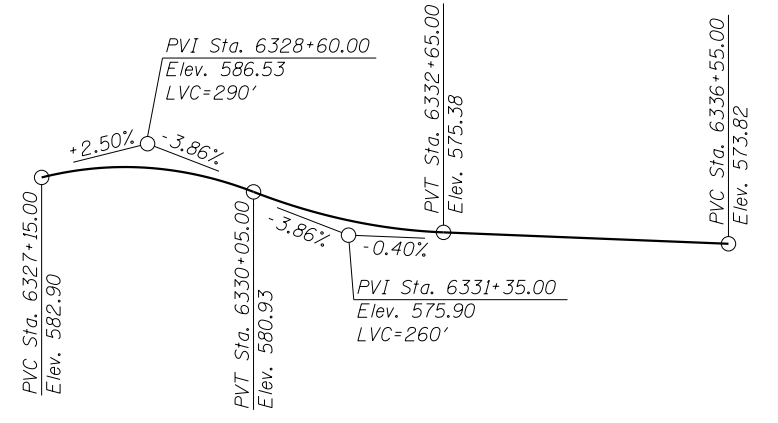
**CURVE DATA**

(Ramp EN)  
 PROP. CURVE P-CIR-EN-2  
 P.I. Sta. = 1624+41.43  
 $\Delta = 158^\circ 32' 09''$  (Lt.)  
 $D = 16^\circ 51' 06''$   
 $R = 340.00'$   
 $T = 1,793.89'$   
 $L = 940.77'$   
 $E = 1,485.82'$   
 $e = 5.60\%$   
 $T.R. = 37'$   
 $S.E. Run = 103'$   
 $P.C. Sta. = 1606+47.54$   
 $P.T. Sta. = 1615+88.31$   
 $DS = 30$

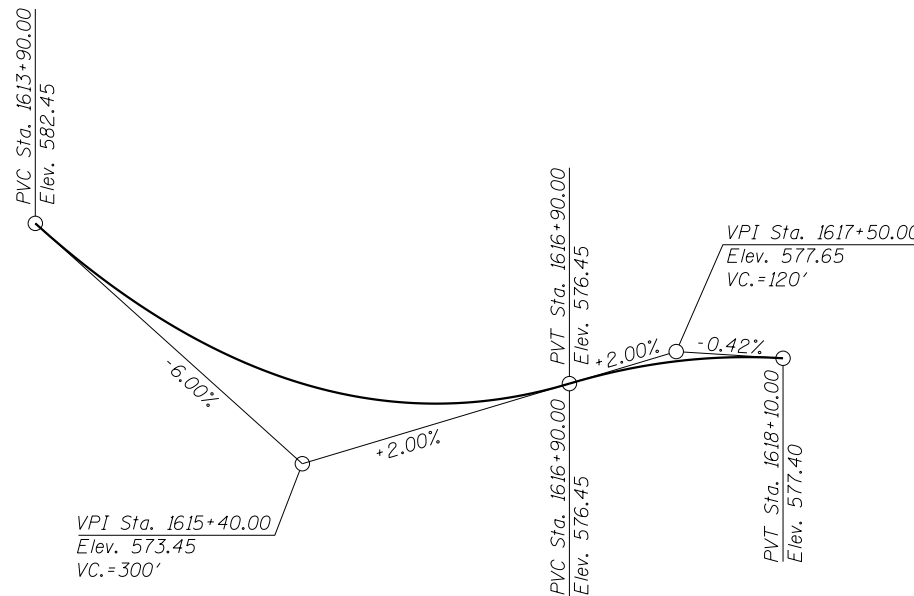
For information only,  
 part of future contract

**CURVE DATA**

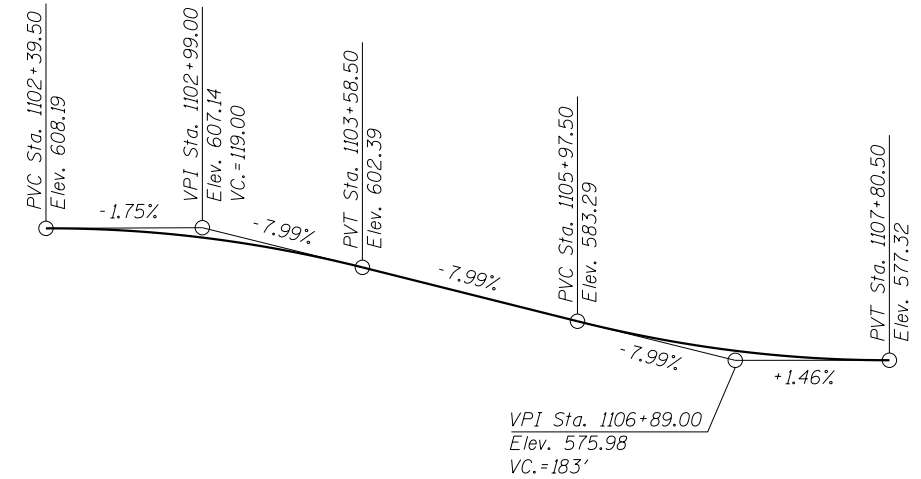
(NB C-D Road)  
 PROP. CURVE P-NCD-NX-4  
 P.I. Sta. = 6328+76.78  
 $\Delta = 59^\circ 05' 41''$  (Lt.)  
 $D = 14^\circ 08' 50''$   
 $R = 405.00'$   
 $T = 229.58'$   
 $L = 417.72'$   
 $E = 60.54'$   
 $e = 5.40\%$   
 $T.R. = 37'$   
 $S.E. Run = 99'$   
 $P.C. Sta. = 6326+47.20$   
 $P.T. Sta. = 6330+64.91$



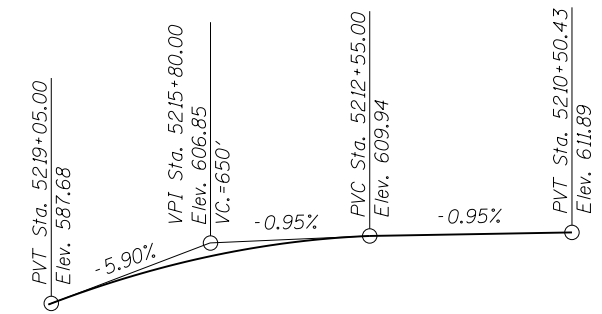
**PROFILE GRADE**  
 (Along NB C-D Road)



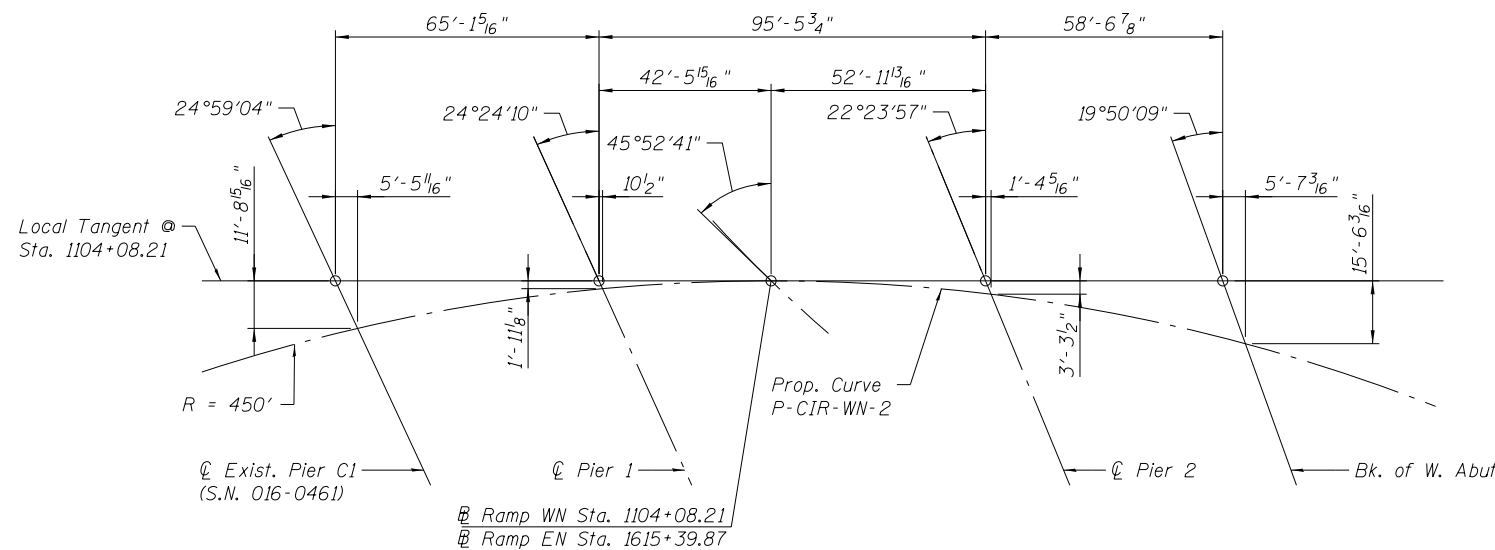
**PROFILE GRADE**  
 (Along Ramp EN)



**PROFILE GRADE**  
 (Along Ramp WN)



**PROFILE GRADE**  
 (Along WB I-290 (Congress))



**OFFSET SKETCH**

0161706-60X93-5003-DET.dgn



USER NAME = ibrahim1	DESIGNED - PJL	REVISED -
PLOT SCALE = N.T.S.	CHECKED - MI	REVISED -
PLOT DATE = 7/30/2018	DRAWN - MI	REVISED -
	CHECKED - JIG	REVISED -

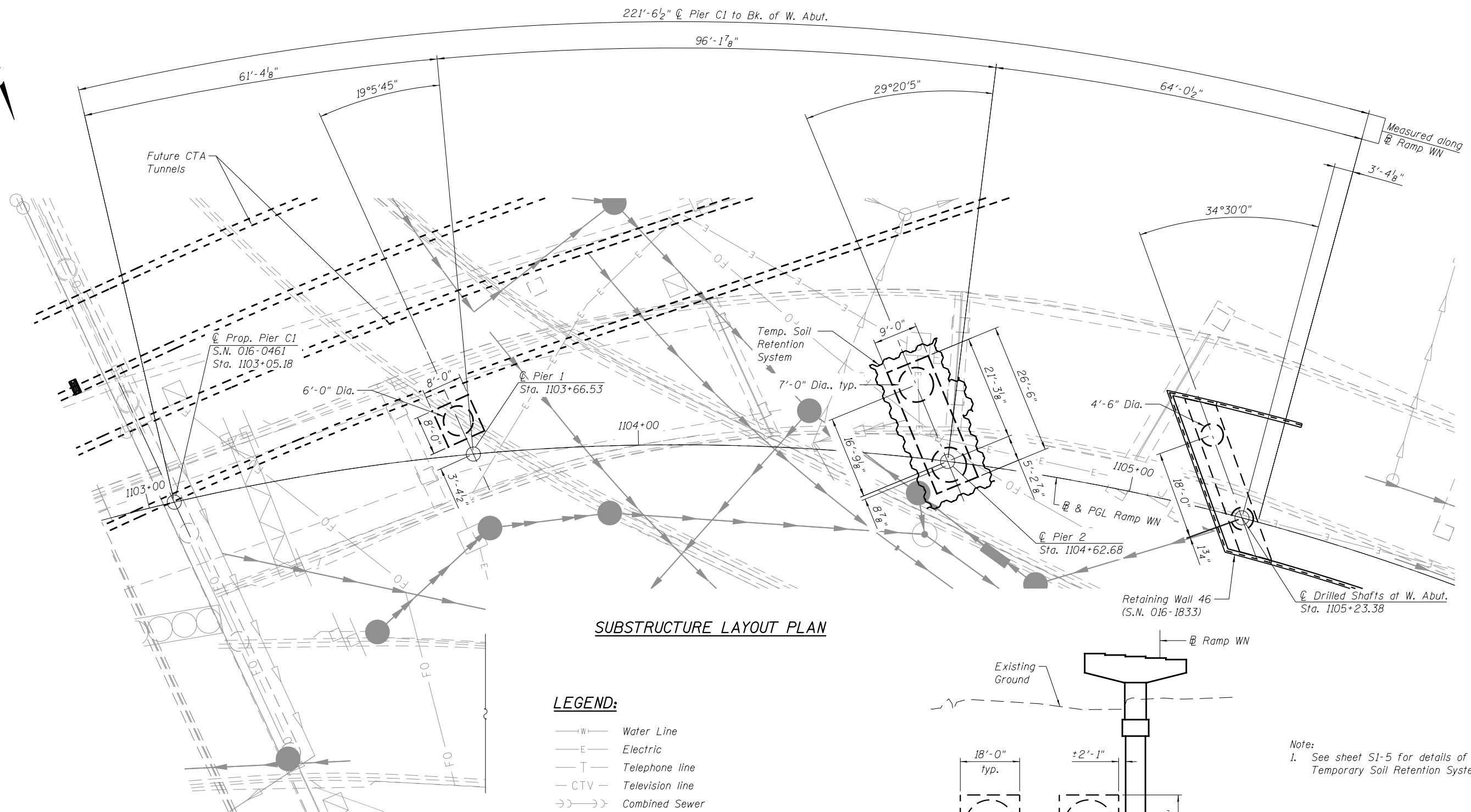
STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

CURVE DATA & GEOMETRIC LAYOUT  
 STRUCTURE NO. 016-1706

SHEET NO. S1-3 OF S1-45 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	618
CONTRACT NO. 60X93				

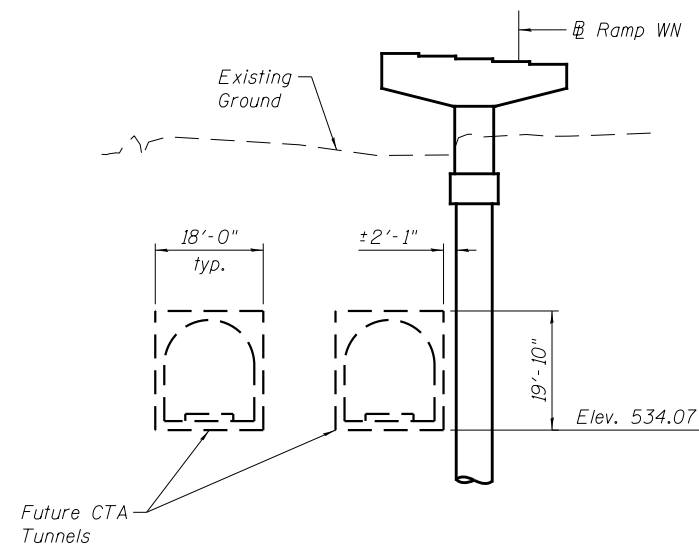
ILLINOIS FED. AID PROJECT



**SUBSTRUCTURE LAYOUT PLAN**

**LEGEND:**

- W— Water Line
- E— Electric
- T— Telephone line
- CTV— Television line
- ⇒⇒⇒ Combined Sewer
- ▽— Existing Storm Sewer
- FO— Fiber Optic
- G— Gas Line
- Fire Hydrant
- ⊗ Light Pole
- Proposed Storm Sewer
- Proposed Inlet
- Proposed Manhole
- Proposed Catch Basin



**CLEARANCE DIAGRAM  
FUTURE TUNNEL AT PIER 1  
(Looking West)**

Note:  
1. See sheet S1-5 for details of Temporary Soil Retention System.

0161706-60X93-S004-LAY.dgn



USER NAME = ibrahim1	DESIGNED - MI	REVISED -
PLOT SCALE = N.T.S.	CHECKED - PJL	REVISED -
PLOT DATE = 7/30/2018	DRAWN - MI	REVISED -
	CHECKED - JIG	REVISED -

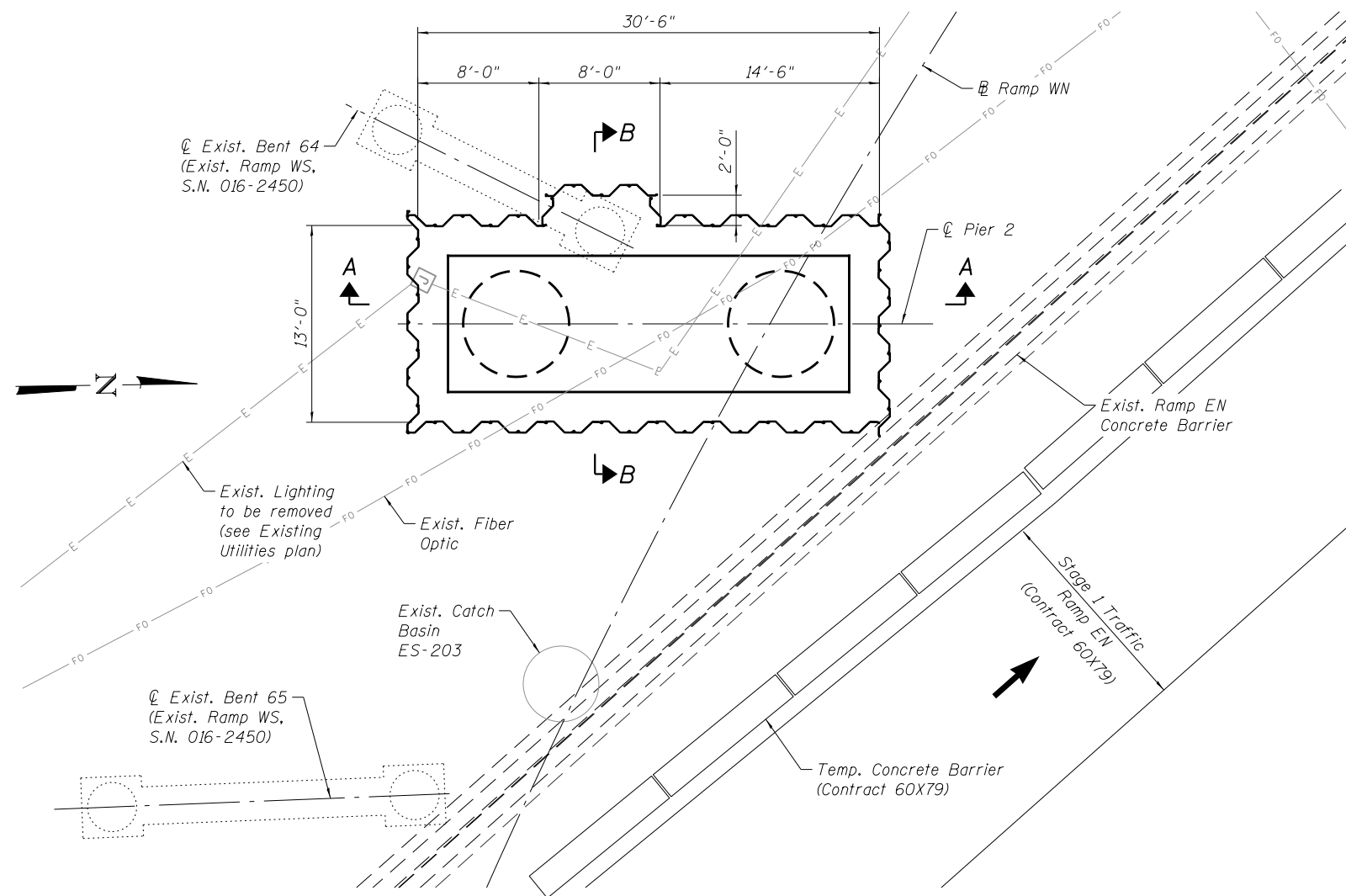
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**SUBSTRUCTURE LAYOUT  
STRUCTURE NO. 016-1706**

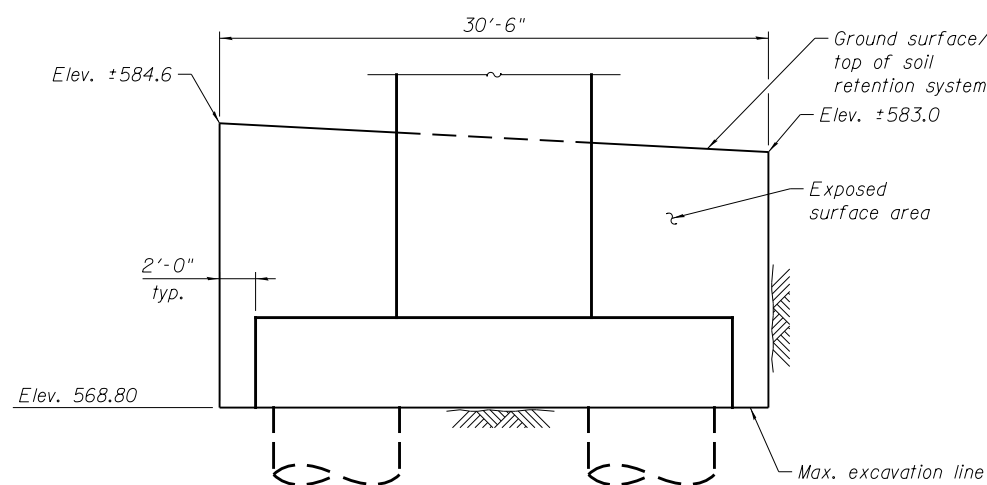
SHEET NO. S1-4 OF S1-45 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	619
<b>CONTRACT NO. 60X93</b>				

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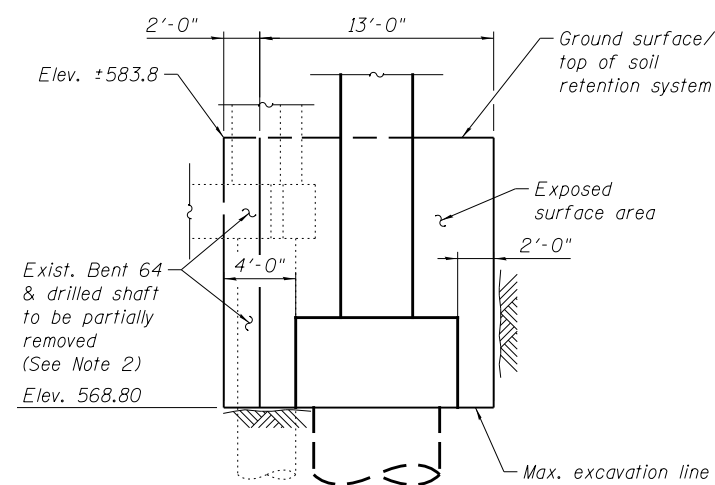


**PLAN - TEMPORARY SOIL RETENTION SYSTEM AT PIER 2**



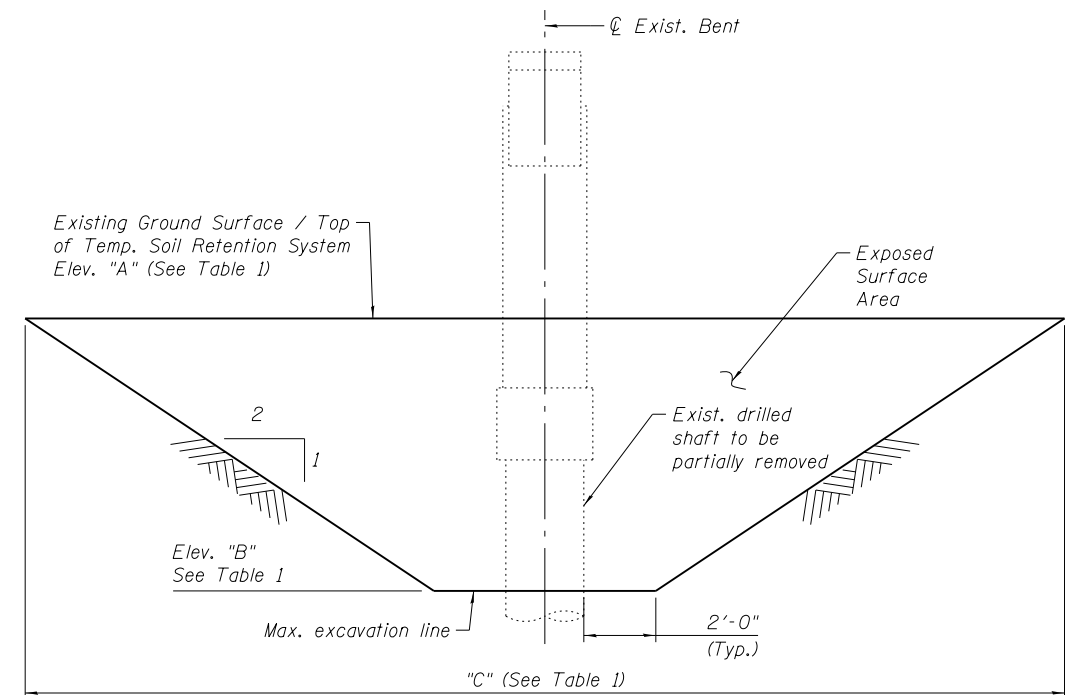
**SECTION A-A WEST TEMPORARY SOIL RETENTION SYSTEM**

(Looking West, East Temporary Soil Retention System similar but opposite hand)



**SECTION B-B NORTH TEMPORARY SOIL RETENTION SYSTEM**

(Looking North, South Temporary Soil Retention System similar but opposite hand)



**ELEVATION - TEMP. SOIL RETENTION SYSTEM AT EXIST. BENTS 41, 42, & 43**

**TABLE 1**

Structure	Elev. "A"	Elev. "B"	Length "C" (ft.)
Bent 41	+584.50	+570.96	+61
Bent 42	+583.00	+569.91	+59
Bent 43	+582.00	+574.48	+37

**Notes:**

1. Temporary Soil Retention System required for construction of Pier 2 and removal of Existing Bents 41 thru 43. Temporary Soil Retention System for removal of Exist. Bent 41 thru 43 shall not be allowed to be cut nor to remain in place.
2. See Ramp WS (S.N. 016-1715) for limits of Removal of Existing Structures No. 2 at Exist. Bent 64. The portions within the limits of the Temporary Soil Retention System shall be removed.
3. See sheet S1-6 for TSRS plan at Exist. Bents 41 thru 43.
4. A cantilever sheet piling design does not appear feasible and additional members or other retention systems may be necessary. The Contractor shall submit a Temporary Soil Retention System design including plan details and calculations for review and acceptance by the Engineer.
5. The Contractor shall take precautions to protect existing utilities and foundations during construction of the bridge. The utilities were located based on SUE and utility supplier information available at design.
6. Temporary Soil Retention System shall avoid existing roadway drainage.
7. Temporary Soil Retention System shall be installed without the use of impact-type pile drivers. The proposed equipment and procedures used for the installation of Temporary Soil Retention System shall be submitted to the Engineer for approval prior to their use. If vibratory equipment utilized, the Contractor shall also submit documentation regarding the operating noise levels and operating vibration characteristics of the equipment proposed. The approval of the equipment and procedure by the Engineer does not guarantee the performance in the field of the equipment will be acceptable. All provisions and requirements required under Construction Vibration Monitoring, Monitoring Adjacent Structures and Noise Compliance shall apply to work performed under this item. The costs incurred finding suitable equipment and procedures shall be included in the cost of Temporary Soil Retention System. No additional costs shall be paid for this effort.

**BILL OF MATERIAL**

Item	Unit	Total
Temporary Soil Retention System	Sq. Ft.	2,426

0161706-60X93-5005-TSR.dgn



USER NAME = ibrahiml	DESIGNED - P.JL	REVISED -
PLOT SCALE = N.T.S.	CHECKED - MI	REVISED -
PLOT DATE = 7/30/2018	DRAWN - P.JL	REVISED -
	CHECKED - JIG	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

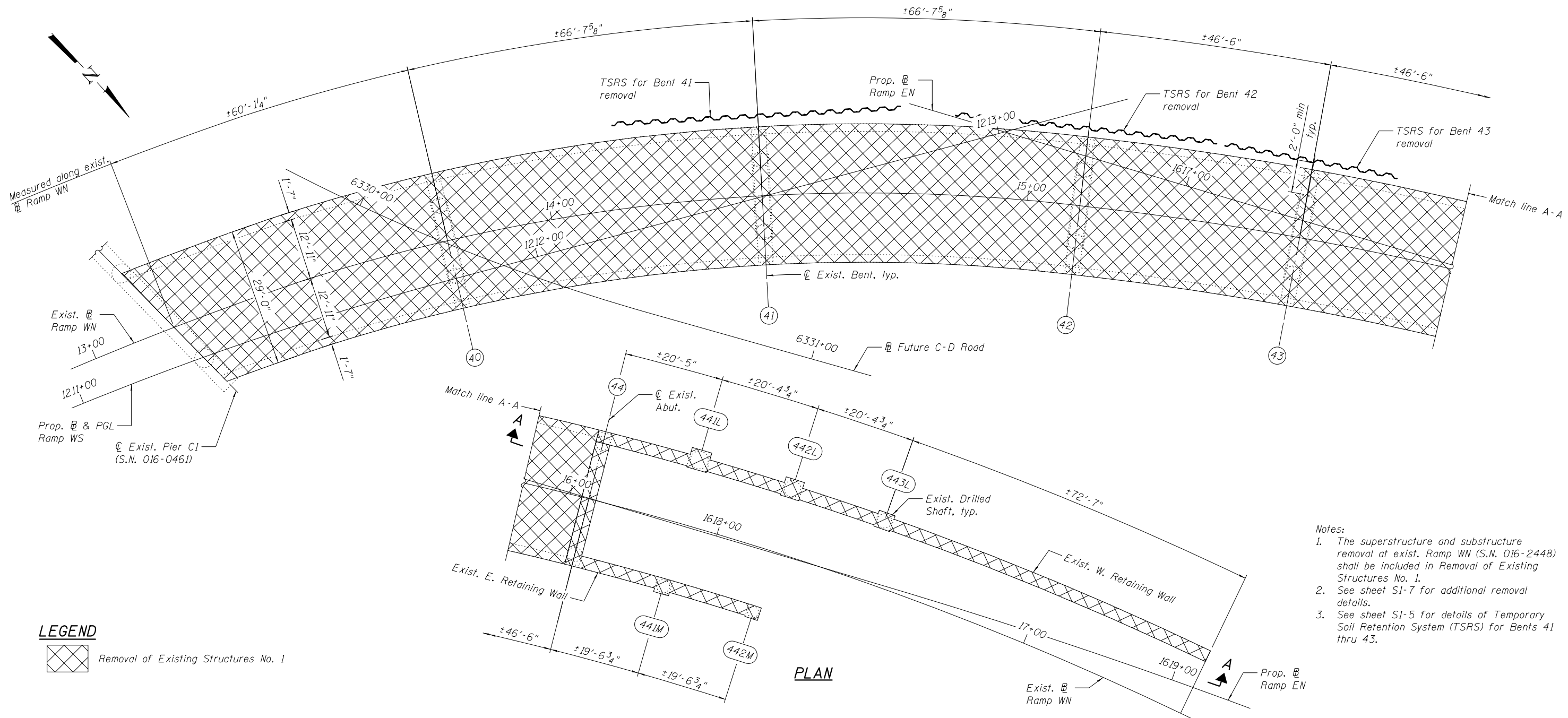
**TEMPORARY SOIL RETENTION SYSTEM  
STRUCTURE NO. 016-1706**

SHEET NO. S1-5 OF S1-45 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	620
				<b>CONTRACT NO. 60X93</b>

ILLINOIS FED. AID PROJECT



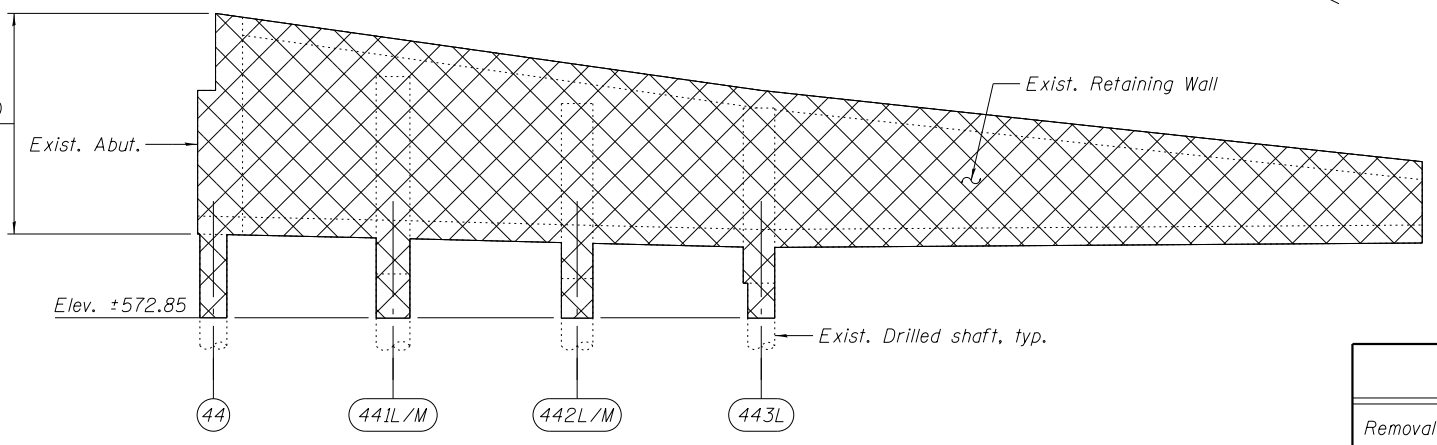


- Notes:
1. The superstructure and substructure removal at exist. Ramp WN (S.N. 016-2448) shall be included in Removal of Existing Structures No. 1.
  2. See sheet S1-7 for additional removal details.
  3. See sheet S1-5 for details of Temporary Soil Retention System (TSRS) for Bents 41 thru 43.

**LEGEND**  
 Removal of Existing Structures No. 1

**PLAN**

Varies ±12'-3 1/8" to 5'-6 1/4" (W. Retaining Wall)  
 Varies ±11'-4" to 6'-1 3/4" (E. Retaining Wall)



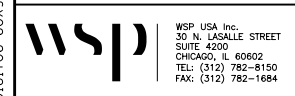
**SECTION A-A**

(Looking west at exist. W. Retaining Wall, exist. E. Retaining Wall opposite hand)

**BILL OF MATERIAL**

ITEM	UNIT	TOTAL
Removal of Existing Structures No. 1	Each	1

0161706-60X93-5006-ESR.dgn



WSP USA Inc.  
 30 N. LASALLE STREET  
 SUITE 4200  
 CHICAGO, IL 60602  
 TEL: (312) 782-8150  
 FAX: (312) 782-1684

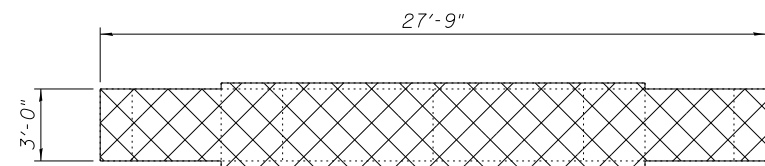
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**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

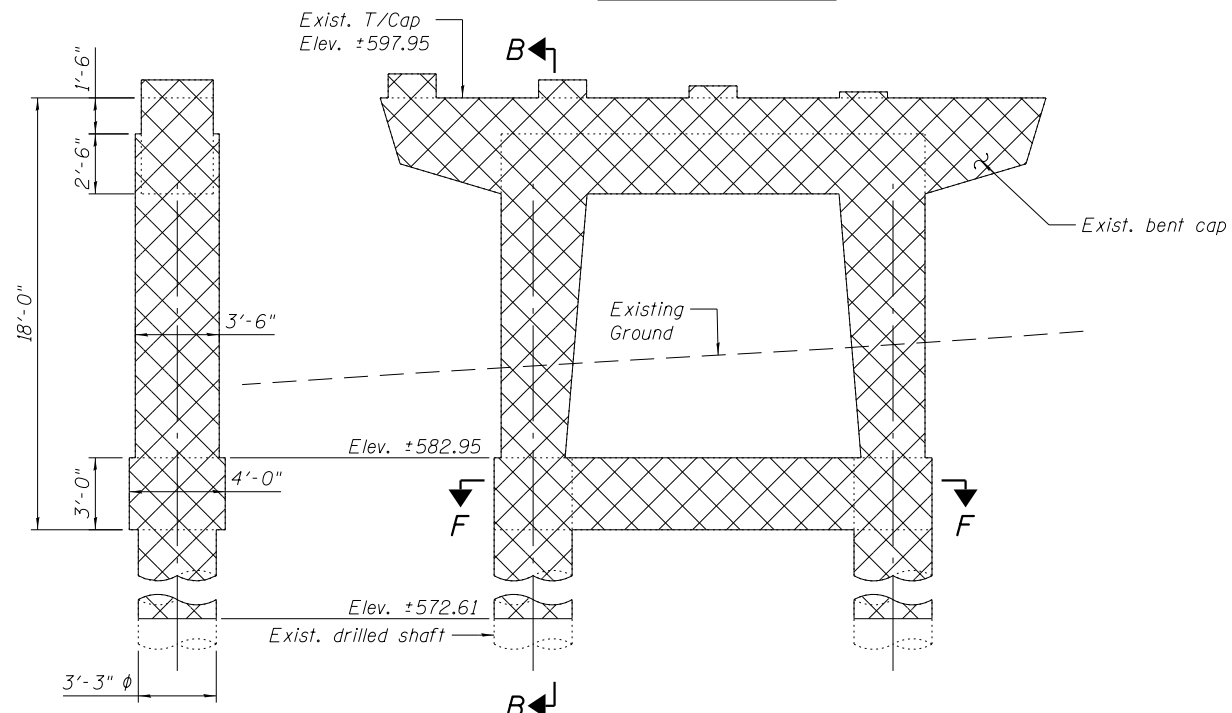
**EXISTING STRUCTURE REMOVAL DETAILS I  
 STRUCTURE NO. 016-1706**

SHEET NO. S1-6 OF S1-45 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	621
<b>CONTRACT NO. 60X93</b>				
ILLINOIS FED. AID PROJECT				

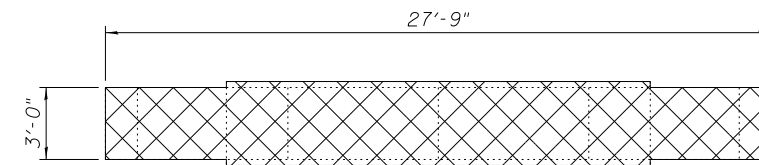


PLAN - BENT 40

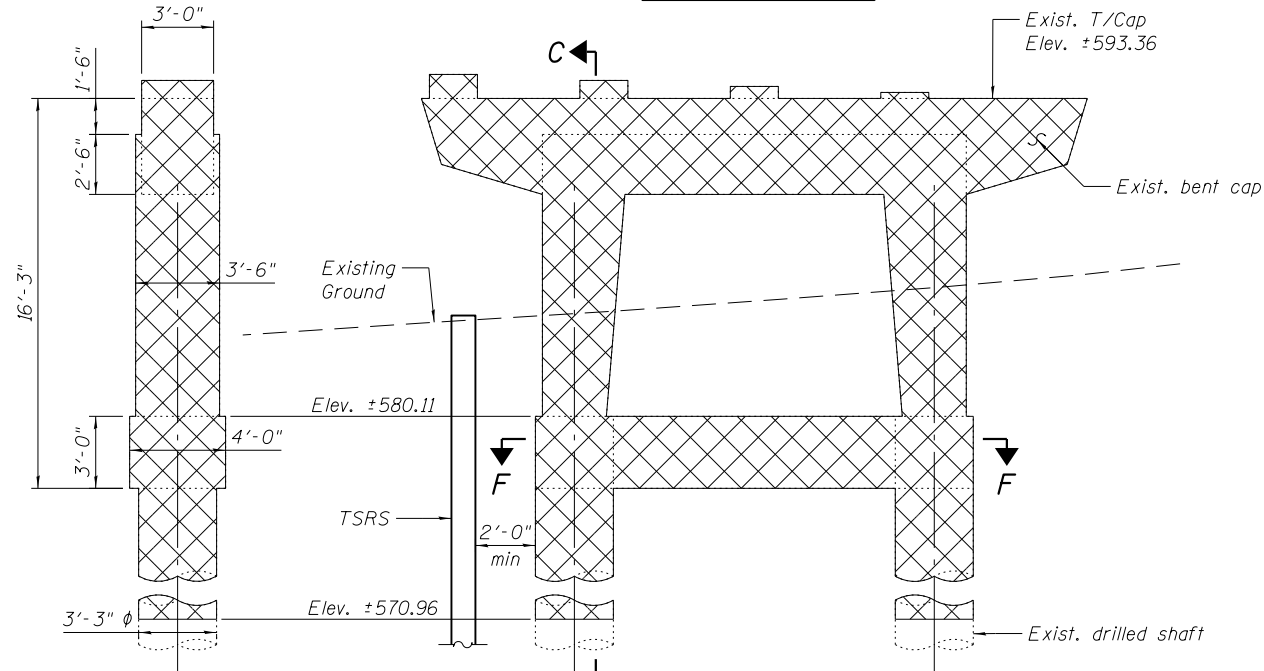


SECTION B-B

ELEVATION - BENT 40

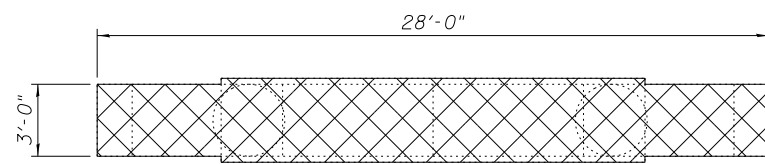


PLAN - BENT 41

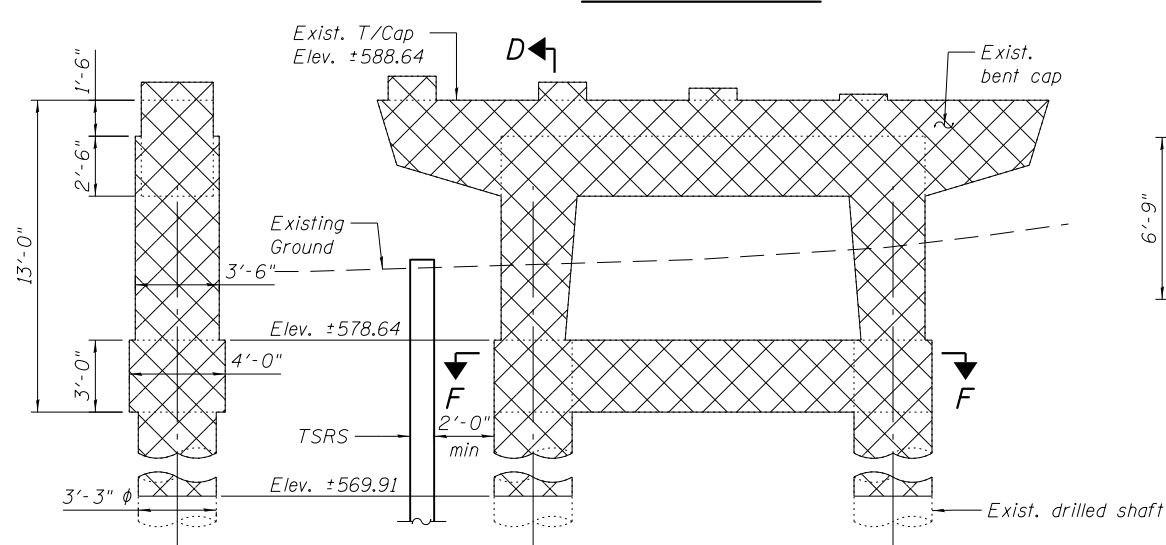


SECTION C-C

ELEVATION - BENT 41

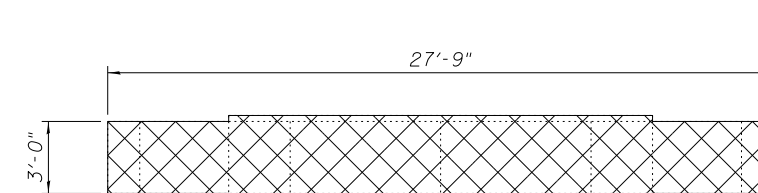


PLAN - BENT 42

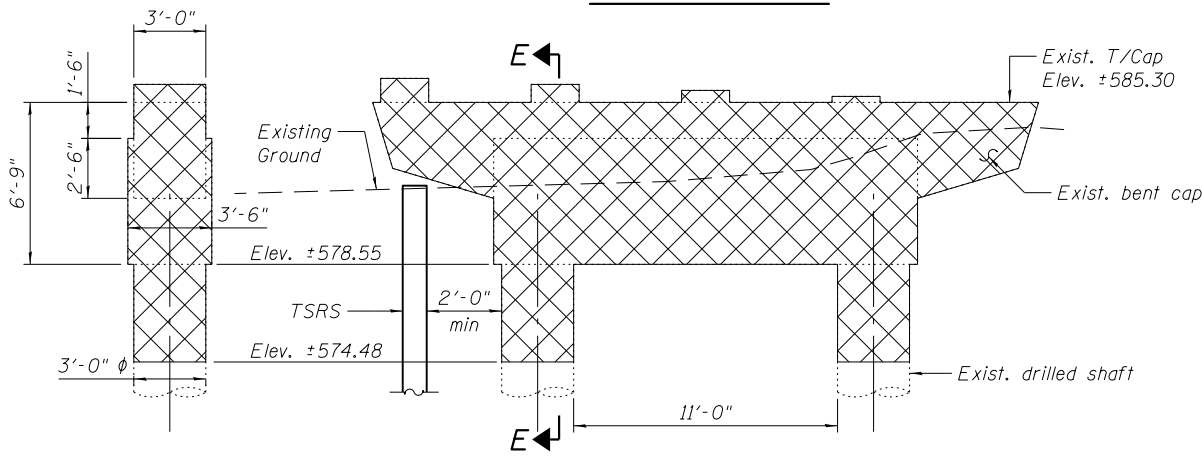


SECTION D-D

ELEVATION - BENT 42

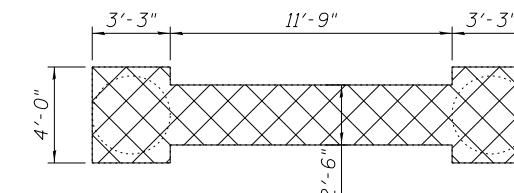


PLAN - BENT 43



SECTION E-E

ELEVATION - BENT 43



SECTION F-F  
(3 locations)

**LEGEND:**

Removal of Existing Structures No. 1

**Notes:**

1. The existing bent caps, columns, and drilled shafts removal at Exist. Ramp WN (S.N. 016-2448) shall be included in Removal of Existing Structures No. 1.
2. All elevations are looking upstation of exist. Ramp WN.
3. Exist. Bent elevations are based on field survey data.
4. Excavation around Exist. Ramp WN bents can be carried out with a slope 1 on 2 and without interfering with existing Ramp EN, except at locations of TSRS.

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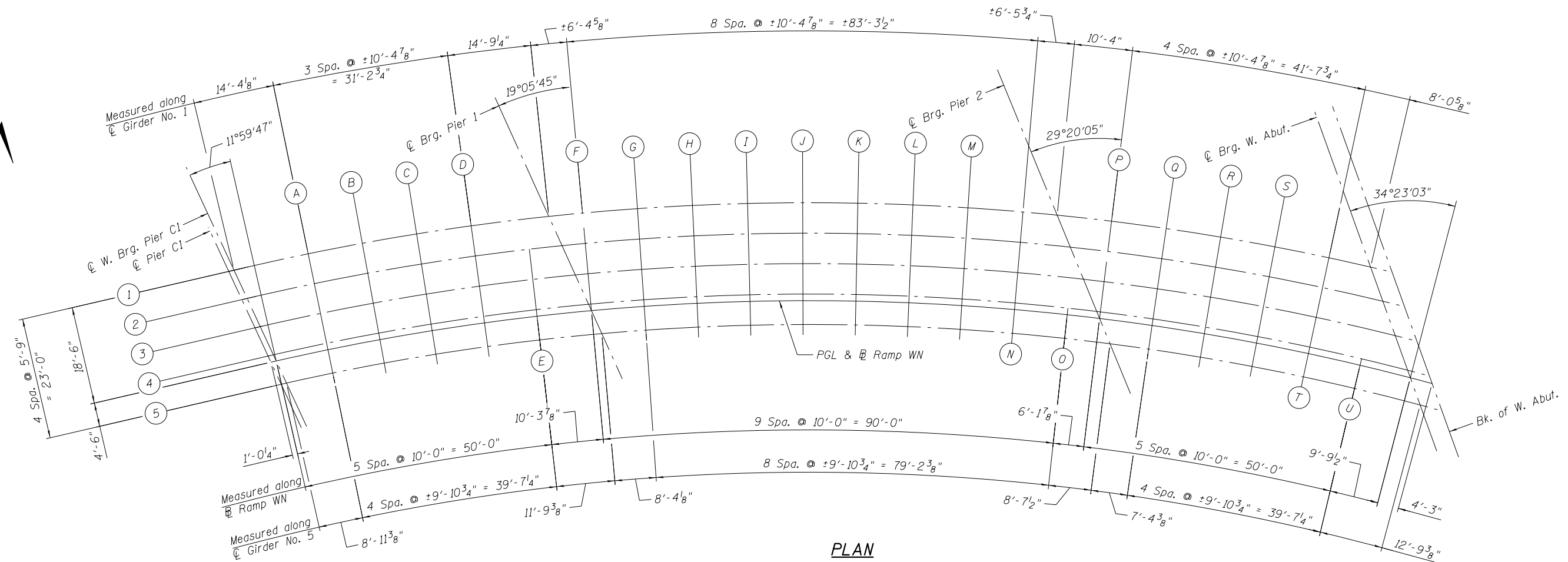
WSP USA Inc. 30 N. LASALLE STREET SUITE 4200 CHICAGO, IL 60602 TEL: (312) 782-8150 FAX: (312) 782-1684	USER NAME = ibrahim1	DESIGNED - MI	REVISED -
		CHECKED - P.JL	REVISED -
	PLOT SCALE = N.T.S.	DRAWN - MI	REVISED -
	PLOT DATE = 7/30/2018	CHECKED - JIG	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

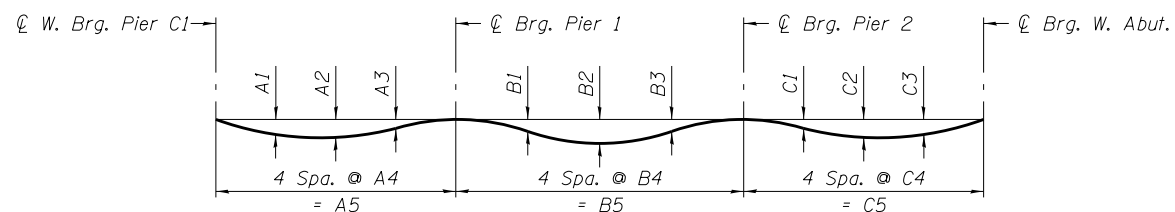
**EXISTING STRUCTURES REMOVAL DETAILS II  
STRUCTURE NO. 016-1706**

SHEET NO. S1-7 OF S1-45 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	622
<b>CONTRACT NO. 60X93</b>				
ILLINOIS FED. AID PROJECT				



**PLAN**



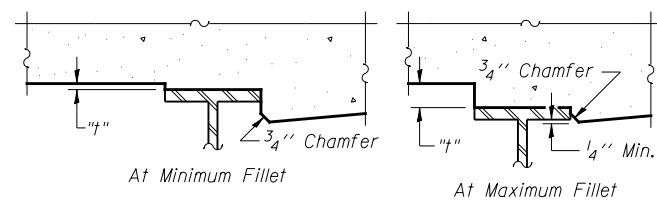
**DEAD LOAD DEFLECTION DIAGRAM**

(Includes weight of concrete only.)

Note:

The above deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown in tables, see sheet S1-9 & S1-10.

Negative deflection values indicate upward deflections.



**FILLET HEIGHTS**

To determine "t": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals in tables, see sheet S1-9 and S1-10. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown on this sheet, minus slab thickness, equals the fillet heights "t" above top flange of beams.

Girder No.	Span 1					Span 2					Span 3				
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	C4	C5
1	1/8"	1/8"	-1/8"	±15'-1"	60'-4 1/8"	1"	1 3/4"	1"	24'-0 1/2"	96'-2"	-1/8"	0	1/8"	±15'-0 3/8"	60'-0 3/8"
2	1/8"	0	0	15'-1"	60'-4"	3/4"	1 1/4"	3/4"	±24'-0 1/2"	96'-1 3/4"	-1/8"	0	0	±14'-11 7/8"	59'-11 3/8"
3	1/8"	0	0	15'-1"	60'-4"	5/8"	1 1/8"	3/4"	±24'-0 1/2"	96'-1 3/4"	-1/8"	0	0	14'-11 5/8"	59'-10 1/2"
4	1/8"	1/8"	0	±15'-1"	60'-3 7/8"	3/4"	1 1/4"	3/4"	±24'-0 1/2"	96'-1 3/4"	-1/8"	0	1/8"	±14'-11 3/8"	59'-9 5/8"
5	1/8"	1/8"	0	±15'-1"	60'-3 7/8"	3/4"	1 3/8"	3/4"	24'-0 1/2"	96'-2"	0	1/8"	1/8"	14'-11 1/4"	59'-9"

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USER NAME =	ibrahim1	DESIGNED -	MI	REVISED -	
		CHECKED -	PJL	REVISED -	
PLOT SCALE =	N.T.S.	DRAWN -	MI	REVISED -	
PLOT DATE =	7/30/2018	CHECKED -	JIG	REVISED -	

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**TOP OF SLAB ELEVATION PLAN  
STRUCTURE NO. 016-1706**

SHEET NO. S1-8 OF S1-45 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	623
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				

**GIRDER NO. 1**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
☉ Pier C1	1103+01.45	-18.50	607.05	607.05
☉ W. Brg. Pier C1	1103+02.43	-18.50	607.00	607.00
A	1103+16.20	-18.50	606.26	606.27
B	1103+26.20	-18.50	605.66	605.67
C	1103+36.20	-18.50	605.00	605.00
D	1103+46.20	-18.50	604.29	604.28
☉ Brg. Pier 1	1103+60.39	-18.50	603.20	603.20
F	1103+66.53	-18.50	602.71	602.73
G	1103+76.53	-18.50	601.91	601.97
H	1103+86.53	-18.50	601.11	601.20
I	1103+96.53	-18.50	600.31	600.43
J	1104+06.53	-18.50	599.51	599.66
K	1104+16.53	-18.50	598.71	598.83
L	1104+26.53	-18.50	597.91	598.01
M	1104+36.53	-18.50	597.11	597.17
N	1104+46.53	-18.50	596.32	596.34
☉ Brg. Pier 2	1104+52.75	-18.50	595.82	595.82
P	1104+62.68	-18.50	595.02	595.02
Q	1104+72.68	-18.50	594.23	594.22
R	1104+82.68	-18.50	593.43	593.43
S	1104+92.68	-18.50	592.63	592.64
T	1105+02.68	-18.50	591.83	591.83
☉ Brg. W. Abut.	1105+10.42	-18.50	591.21	591.21
Bk. of W. Abut.	1105+14.43	-18.50	590.89	590.89

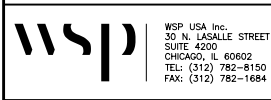
**GIRDER NO. 2**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
☉ Pier C1	1103+02.57	-12.75	606.70	606.70
☉ W. Brg. Pier C1	1103+03.57	-12.75	606.65	606.65
A	1103+16.20	-12.75	605.96	605.97
B	1103+26.20	-12.75	605.36	605.36
C	1103+36.20	-12.75	604.70	604.70
D	1103+46.20	-12.75	603.99	603.99
E	1103+56.20	-12.75	603.23	603.23
☉ Brg. Pier 1	1103+62.24	-12.75	602.75	602.75
G	1103+76.53	-12.75	601.61	601.65
H	1103+86.53	-12.75	600.81	600.87
I	1103+96.53	-12.75	600.01	600.09
J	1104+06.53	-12.75	599.21	599.31
K	1104+16.53	-12.75	598.41	598.50
L	1104+26.53	-12.75	597.61	597.69
M	1104+36.53	-12.75	596.82	596.87
N	1104+46.53	-12.75	596.02	596.04
☉ Brg. Pier 2	1104+55.74	-12.75	595.28	595.28
P	1104+62.68	-12.75	594.73	594.72
Q	1104+72.68	-12.75	593.93	593.92
R	1104+82.68	-12.75	593.13	593.13
S	1104+92.68	-12.75	592.33	592.33
T	1105+02.68	-12.75	591.53	591.53
☉ Brg. W. Abut.	1105+14.04	-12.75	590.62	590.62
Bk. of W. Abut.	1105+18.12	-12.75	590.30	590.30

**GIRDER NO. 3**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
☉ Pier C1	1103+03.73	-7.00	606.34	606.34
☉ W. Brg. Pier C1	1103+04.74	-7.00	606.29	606.29
A	1103+16.20	-7.00	605.66	605.67
B	1103+26.20	-7.00	605.06	605.06
C	1103+36.20	-7.00	604.40	604.40
D	1103+46.20	-7.00	603.69	603.69
E	1103+56.20	-7.00	602.93	602.93
☉ Brg. Pier 1	1103+64.14	-7.00	602.30	602.30
G	1103+76.53	-7.00	601.31	601.34
H	1103+86.53	-7.00	600.51	600.56
I	1103+96.53	-7.00	599.71	599.78
J	1104+06.53	-7.00	598.91	599.00
K	1104+16.53	-7.00	598.11	598.20
L	1104+26.53	-7.00	597.32	597.39
M	1104+36.53	-7.00	596.52	596.58
N	1104+46.53	-7.00	595.72	595.75
☉ Brg. Pier 2	1104+58.82	-7.00	594.74	594.74
P	1104+72.68	-7.00	593.63	593.62
Q	1104+82.68	-7.00	592.83	592.83
R	1104+92.68	-7.00	592.03	592.03
S	1105+02.68	-7.00	591.23	591.23
T	1105+12.68	-7.00	590.43	590.43
☉ Brg. W. Abut.	1105+17.77	-7.00	590.03	590.03
Bk. of W. Abut.	1105+21.93	-7.00	589.69	589.69

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USER NAME =	ibrahim1	DESIGNED -	MI	REVISED -	
		CHECKED -	PJL	REVISED -	
PLOT SCALE =	N.T.S.	DRAWN -	MI	REVISED -	
PLOT DATE =	7/30/2018	CHECKED -	JIG	REVISED -	

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**TOP OF SLAB ELEVATIONS I  
STRUCTURE NO. 016-1706**

SHEET NO. S1-9 OF S1-45 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	624
CONTRACT NO. 60X93			ILLINOIS FED. AID PROJECT	

**GIRDER NO. 4**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
☉ Pier C1	1103+04.92	-1.25	605.98	605.98
☉ W. Brg. Pier C1	1103+05.93	-1.25	605.93	605.93
A	1103+16.20	-1.25	605.36	605.37
B	1103+26.20	-1.25	604.76	604.77
C	1103+36.20	-1.25	604.10	604.11
D	1103+46.20	-1.25	603.39	603.40
E	1103+56.20	-1.25	602.63	602.63
☉ Brg. Pier 1	1103+66.10	-1.25	601.85	601.85
G	1103+76.53	-1.25	601.01	601.04
H	1103+86.53	-1.25	600.21	600.27
I	1103+96.53	-1.25	599.41	599.49
J	1104+06.53	-1.25	598.61	598.71
K	1104+16.53	-1.25	597.82	597.92
L	1104+26.53	-1.25	597.02	597.10
M	1104+36.53	-1.25	596.22	596.28
N	1104+46.53	-1.25	595.42	595.46
O	1104+56.53	-1.25	594.62	594.63
☉ Brg. Pier 2	1104+61.98	-1.25	594.18	594.18
Q	1104+72.68	-1.25	593.33	593.32
R	1104+82.68	-1.25	592.53	592.52
S	1104+92.68	-1.25	591.73	591.73
T	1105+02.68	-1.25	590.93	590.94
U	1105+12.68	-1.25	590.13	590.14
☉ Brg. W. Abut.	1105+21.62	-1.25	589.42	589.42
Bk. of W. Abut.	1105+25.85	-1.25	589.08	589.08

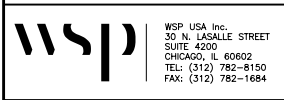
**PROFILE GRADE LINE**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
☉ Pier C1	1103+05.18	0.00	605.90	605.90
☉ W. Brg. Pier C1	1103+06.20	0.00	605.85	605.85
A	1103+16.20	0.00	605.30	605.30
B	1103+26.20	0.00	604.69	604.70
C	1103+36.20	0.00	604.04	604.05
D	1103+46.20	0.00	603.33	603.33
E	1103+56.20	0.00	602.57	602.57
☉ Brg. Pier 1	1103+66.53	0.00	601.75	601.75
G	1103+76.53	0.00	600.95	600.97
H	1103+86.53	0.00	600.15	600.20
I	1103+96.53	0.00	599.35	599.42
J	1104+06.53	0.00	598.55	598.64
K	1104+16.53	0.00	597.75	597.85
L	1104+26.53	0.00	596.95	597.04
M	1104+36.53	0.00	596.15	596.22
N	1104+46.53	0.00	595.35	595.40
O	1104+56.53	0.00	594.55	594.57
☉ Brg. Pier 2	1104+62.68	0.00	594.06	594.06
Q	1104+72.68	0.00	593.26	593.26
R	1104+82.68	0.00	592.46	592.46
S	1104+92.68	0.00	591.67	591.67
T	1105+02.68	0.00	590.87	590.87
U	1105+12.68	0.00	590.07	590.07
☉ Brg. W. Abut.	1105+22.47	0.00	589.29	589.29
Bk. of W. Abut.	1105+26.72	0.00	588.95	588.95

**GIRDER NO. 5**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
☉ Pier C1	1103+06.13	4.50	605.62	605.62
☉ W. Brg. Pier C1	1103+07.17	4.50	605.56	605.56
A	1103+16.20	4.50	605.06	605.07
B	1103+26.20	4.50	604.46	604.47
C	1103+36.20	4.50	603.80	603.81
D	1103+46.20	4.50	603.10	603.10
E	1103+56.20	4.50	602.33	602.33
☉ Brg. Pier 1	1103+68.10	4.50	601.39	601.39
G	1103+76.53	4.50	600.71	600.73
H	1103+86.53	4.50	599.91	599.96
I	1103+96.53	4.50	599.11	599.19
J	1104+06.53	4.50	598.32	598.41
K	1104+16.53	4.50	597.52	597.63
L	1104+26.53	4.50	596.72	596.81
M	1104+36.53	4.50	595.92	595.99
N	1104+46.53	4.50	595.12	595.17
O	1104+56.53	4.50	594.32	594.34
☉ Brg. Pier 2	1104+65.24	4.50	593.62	593.62
Q	1104+72.68	4.50	593.03	593.03
R	1104+82.68	4.50	592.23	592.23
S	1104+92.68	4.50	591.43	591.44
T	1105+02.68	4.50	590.63	590.64
U	1105+12.68	4.50	589.83	589.84
☉ Brg. W. Abut.	1105+25.59	4.50	588.80	588.80
Bk. of W. Abut.	1105+29.91	4.50	588.46	588.46

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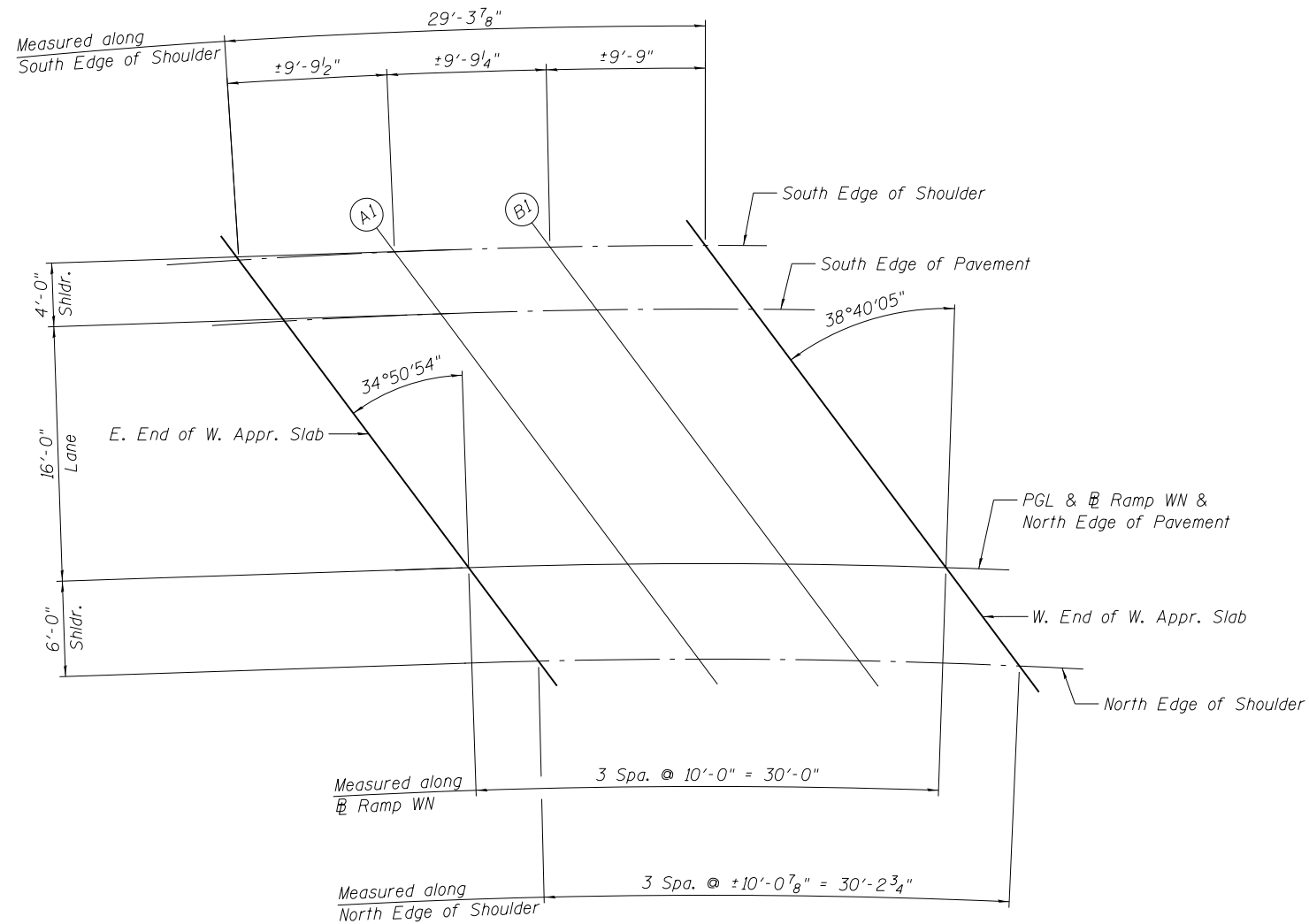
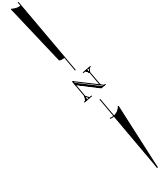
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PLOT SCALE =	N.T.S.	DRAWN -	MI	REVISED -	
PLOT DATE =	7/30/2018	CHECKED -	JIG	REVISED -	

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**TOP OF SLAB ELEVATIONS II  
STRUCTURE NO. 016-1706**

SHEET NO. S1-10 OF S1-45 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	625
<b>CONTRACT NO. 60X93</b>				
ILLINOIS FED. AID PROJECT				



**W. APPROACH SLAB PLAN**

**SOUTH EDGE OF SHOULDER**

Location	Station	Offset	Theoretical Grade Elevations
E. End of W. Appr. Slab	1105+12.91	-20.00	591.09
A1	1105+22.29	-20.00	590.34
B1	1105+31.65	-20.00	589.59
W. End of W. Appr. Slab	1105+40.99	-20.00	588.85

**PROFILE GRADE LINE AND NORTH EDGE OF PAV'T**

Location	Station	Offset	Theoretical Grade Elevations
E. End of W. Appr. Slab	1105+26.11	0.00	588.99
A1	1105+36.11	0.00	588.20
B1	1105+46.11	0.00	587.40
W. End of W. Appr. Slab	1105+56.11	0.00	586.60

**SOUTH EDGE OF PAV'T**

Location	Station	Offset	Theoretical Grade Elevations
E. End of W. Appr. Slab	1105+15.44	-16.00	590.68
A1	1105+24.94	-16.00	589.92
B1	1105+34.42	-16.00	589.16
W. End of W. Appr. Slab	1105+43.88	-16.00	588.41

**NORTH EDGE OF SHOULDER**

Location	Station	Offset	Theoretical Grade Elevations
E. End of W. Appr. Slab	1105+30.36	6.00	588.34
A1	1105+40.57	6.00	587.53
B1	1105+50.78	6.00	586.71
W. End of W. Appr. Slab	1105+61.00	6.00	585.90

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USER NAME =	ibrahim1	DESIGNED -	MI	REVISED -	
		CHECKED -	PJL	REVISED -	
PLOT SCALE =	N.T.S.	DRAWN -	MI	REVISED -	
PLOT DATE =	7/30/2018	CHECKED -	JIG	REVISED -	

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

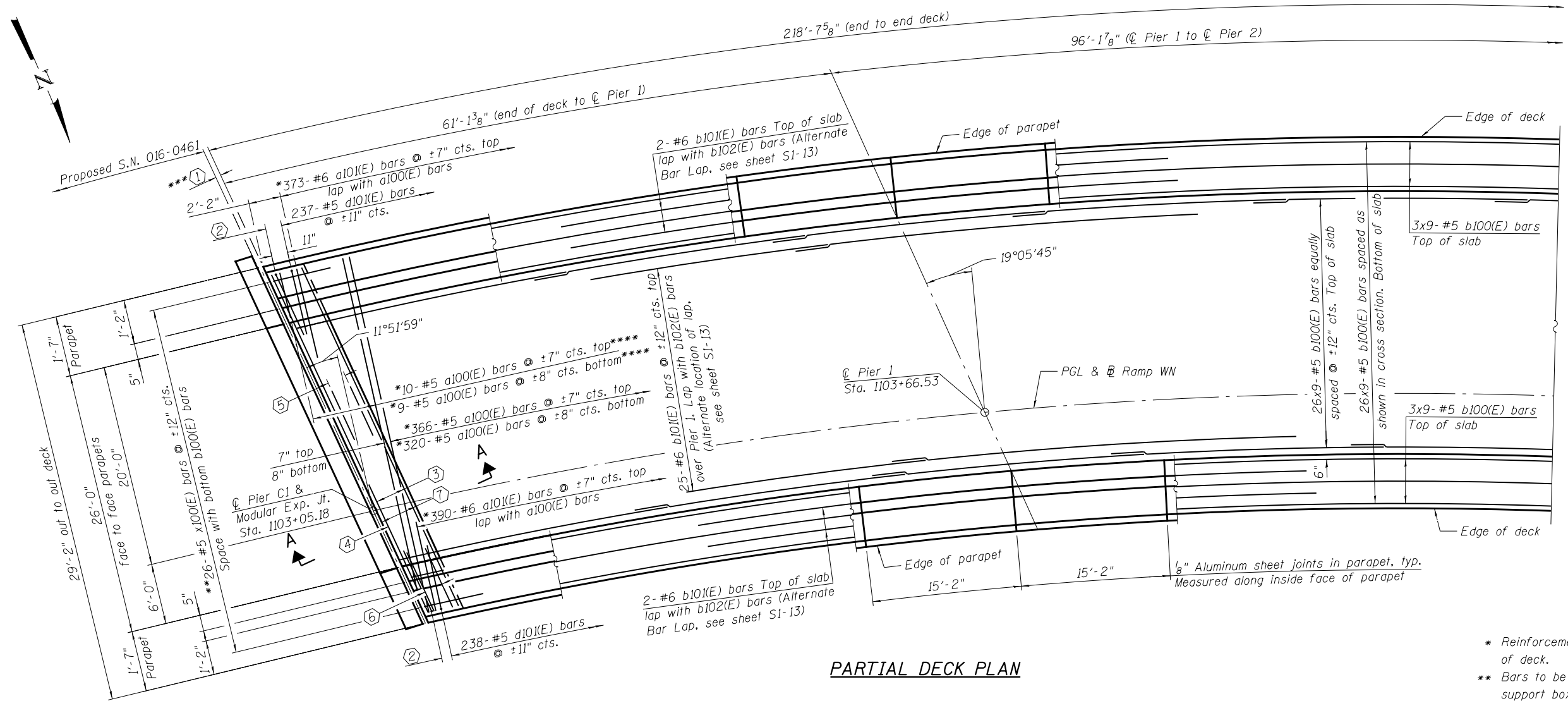
**TOP OF WEST APPROACH SLAB ELEVATIONS  
STRUCTURE NO. 016-1706**

SHEET NO. S1-11 OF S1-45 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	626
<b>CONTRACT NO. 60X93</b>				
ILLINOIS FED. AID PROJECT				

**MINIMUM BAR LAP**

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

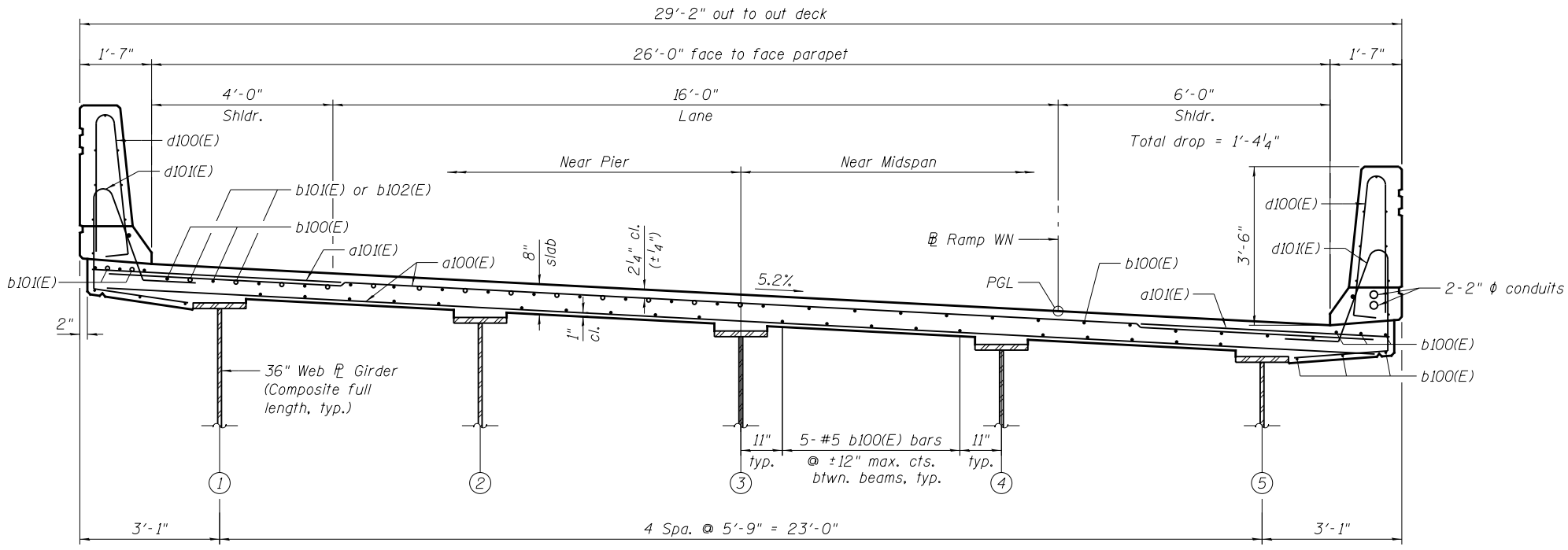


**PARTIAL DECK PLAN**

- ① 5 1/2" @ 50°F
- ② 1- #5 d10(E) bar along skew
- ③ 7- #5 a102(E) bars @ 6" cts. Place under b100(E) bars
- ④ 1- #5 a102(E) bar bottom
- ⑤ 4- #5 a103(E) headed bars bottom between beams
- ⑥ 4- #5 a104(E) headed bars bottom in overhang (Each side)
- ⑦ 3'-6" Blockout

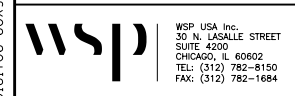
- \* Reinforcement spacing measured along left edge of deck.
- \*\* Bars to be adjusted and/or cut in field to miss support boxes and beam webs, as allowed by the Engineer. The Contractor shall reference and coordinate rebar installation with the approved modular joint shop drawings.
- \*\*\* Actual dimension of Modular Joint may vary depending on Manufacturer's design. For Modular joint opening see sheet SN 016-0461 (Contract 60X93) plan sheets.
- \*\*\*\* Order a100(E) bars full length. Cut to fit skew and discard remainder.

- Notes:
1. Stations are along  $\mathbb{E}$  & PGL Ramp WN unless noted otherwise.
  2. Dimensions radial from  $\mathbb{E}$  & PGL Ramp WN unless noted otherwise.
  3. Bars indicated thus 1 x 2-#8 etc. indicates 1 line of bars with 2 lengths per line.
  4. Bend longitudinal reinforcement bars as required to fit in the field.
  5. See sheet S1-13, for Section A-A and Alternate Bar Lap Details.
  6. See sheet S1-14, for parapet reinforcement.
  7. See sheet S1-15, for Bill of Material.
  8. Reinforcement bars shall not pass thru aluminum sheets and cork joint filler.



**CROSS SECTION**  
(Looking upstation)

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		CHECKED -	PAL	REVISED -	
PLOT SCALE =	N.T.S.	DRAWN -	MI	REVISED -	
PLOT DATE =	7/30/2018	CHECKED -	JIG	REVISED -	

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**DECK PLAN I**  
**STRUCTURE NO. 016-1706**

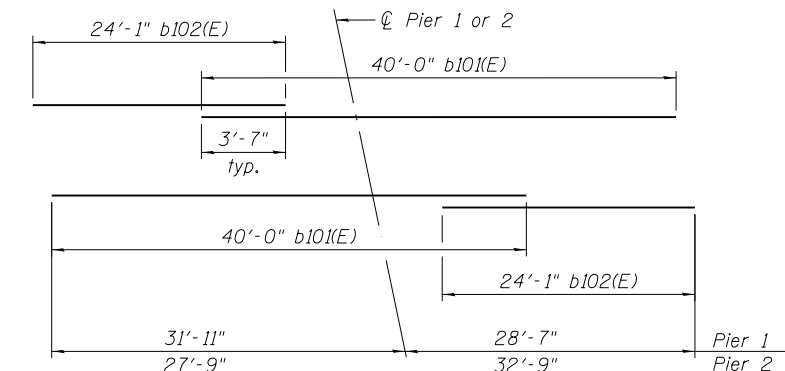
SHEET NO. S1-12 OF S1-45 SHEETS

F.A.I. RE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	627
<b>CONTRACT NO. 60X93</b>				

ILLINOIS FED. AID PROJECT

**MINIMUM BAR LAP**

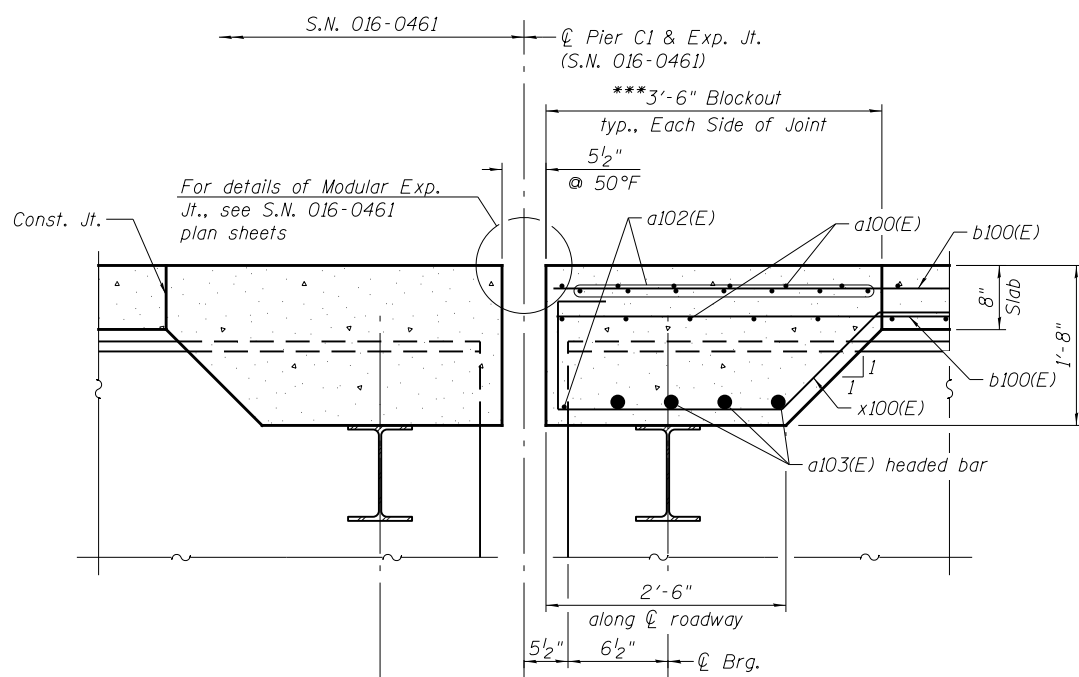
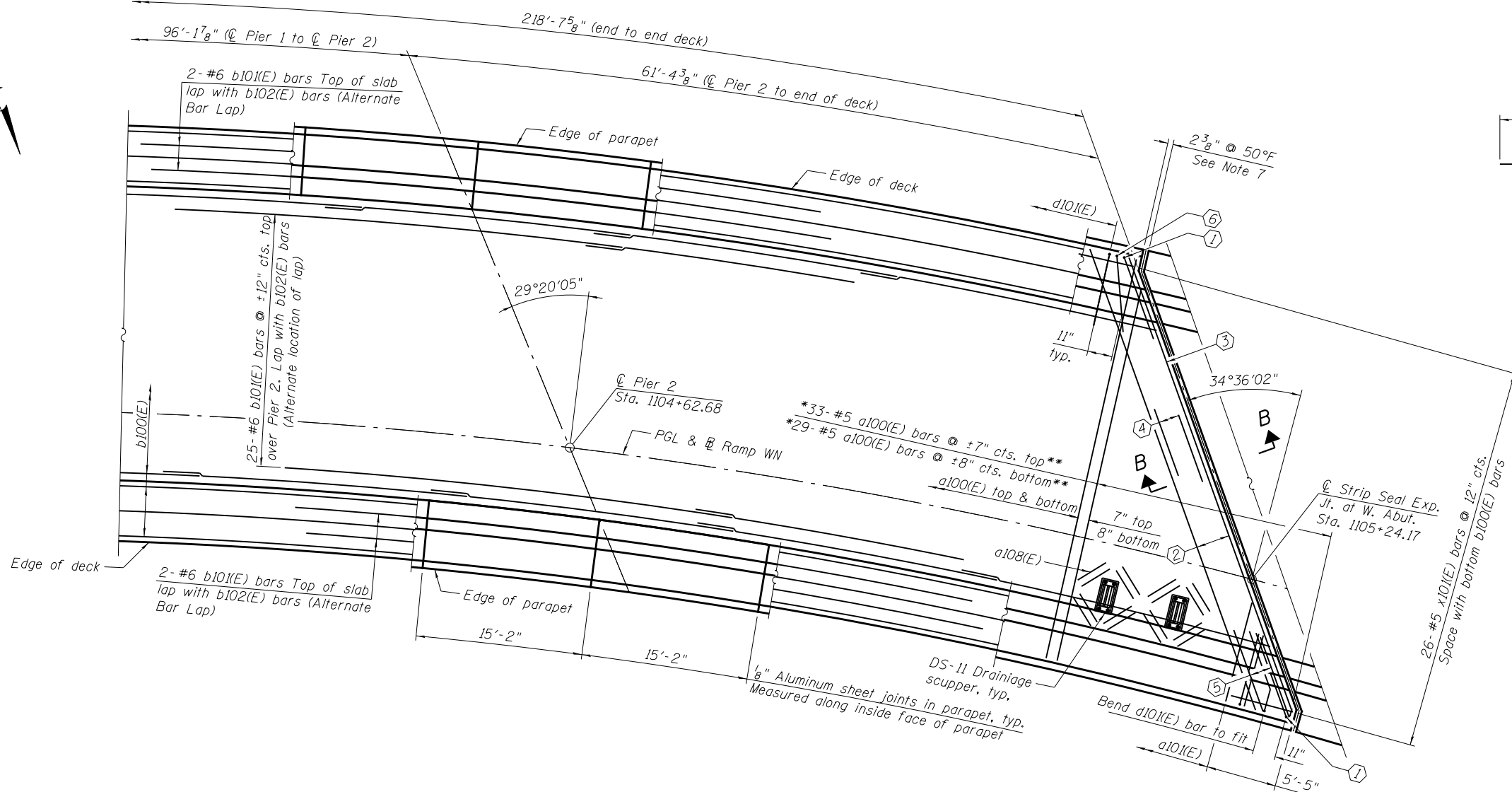
#5 bar = 3'-6"  
#6 bar = 3'-7"



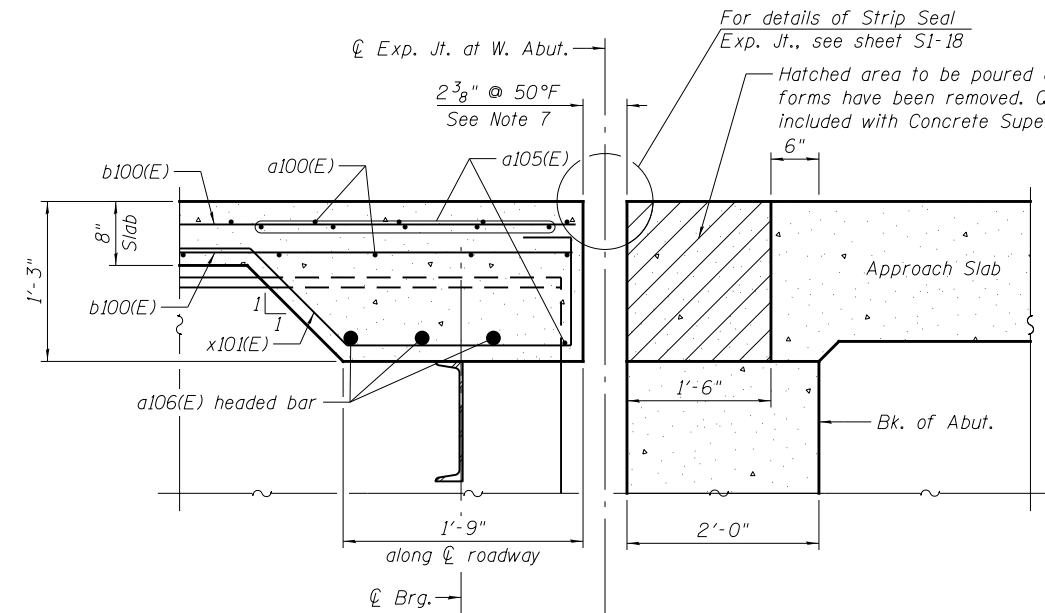
**ALTERNATE BAR LAP DETAIL**

- ① 1-#5 d101(E) bar along skew
- ② 5-#5 a105(E) bars @ 6" cts. Place under b100(E) bars
- ③ 1-#5 a105(E) bar bottom
- ④ 3-#5 a106(E) headed bars bottom between beams
- ⑤ 3-#5 a107(E) headed bars bottom in overhang (Each side)
- ⑥ 1-#5 d101(E) bar fit radially

\* Reinforcement spacing measured along left edge of deck.  
\*\* Order a100(E) bars full length. Cut to fit skew and discard remainder.  
\*\*\* Blockout dimension to be verified by Contractor with Joint Manufacturer.



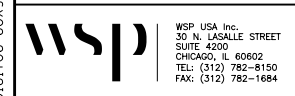
**SECTION A-A**



**SECTION B-B**

- Notes:
- Stations are along P & PGL Ramp WN unless noted otherwise.
  - Dimensions radial from P & PGL Ramp WN unless noted otherwise.
  - Bend longitudinal reinforcement bars as required to fit in the field.
  - See sheet S1-14, for parapet reinforcement.
  - See sheet S1-15, for Bill of Material and scupper reinforcement.
  - See sheet S1-19 for scupper details.
  - Dimensions are based on a Rolled Rail Strip Seal Joint. If the Contractor elects to use the Welded Rail Strip Seal Joint, deck dimensions may require adjustments to satisfy the details on sheet S1-18.
  - Place deck reinforcement to miss scupper locations.

0161706-60X93-5013-DEK.dgn



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		CHECKED -	PAL	REVISED -	
PLOT SCALE =	N.T.S.	DRAWN -	MI	REVISED -	
PLOT DATE =	7/30/2018	CHECKED -	JIG	REVISED -	

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**DECK PLAN II  
STRUCTURE NO. 016-1706**

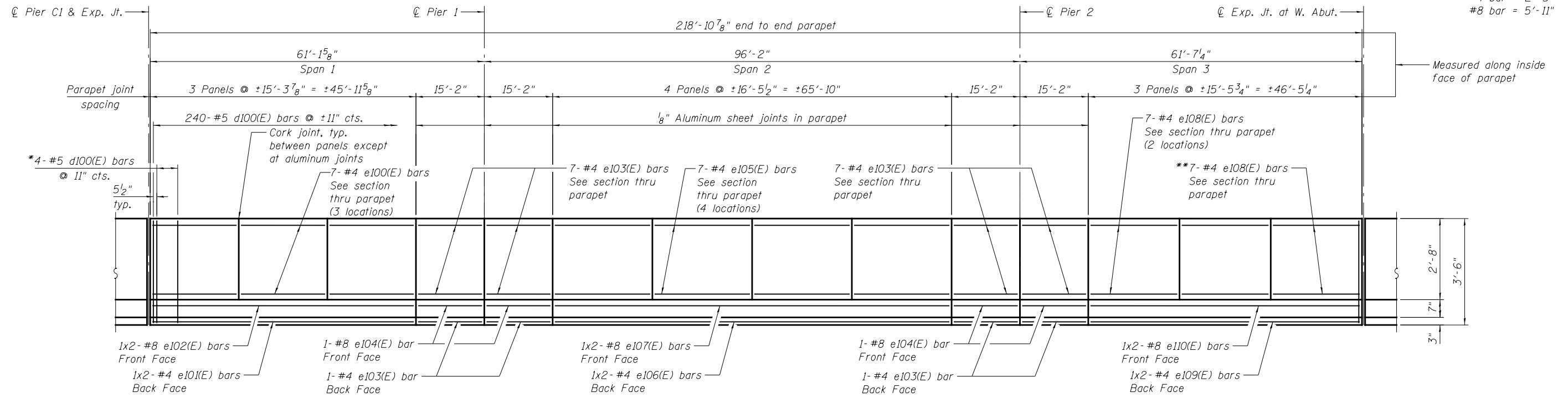
SHEET NO. S1-13 OF S1-45 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	628
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				

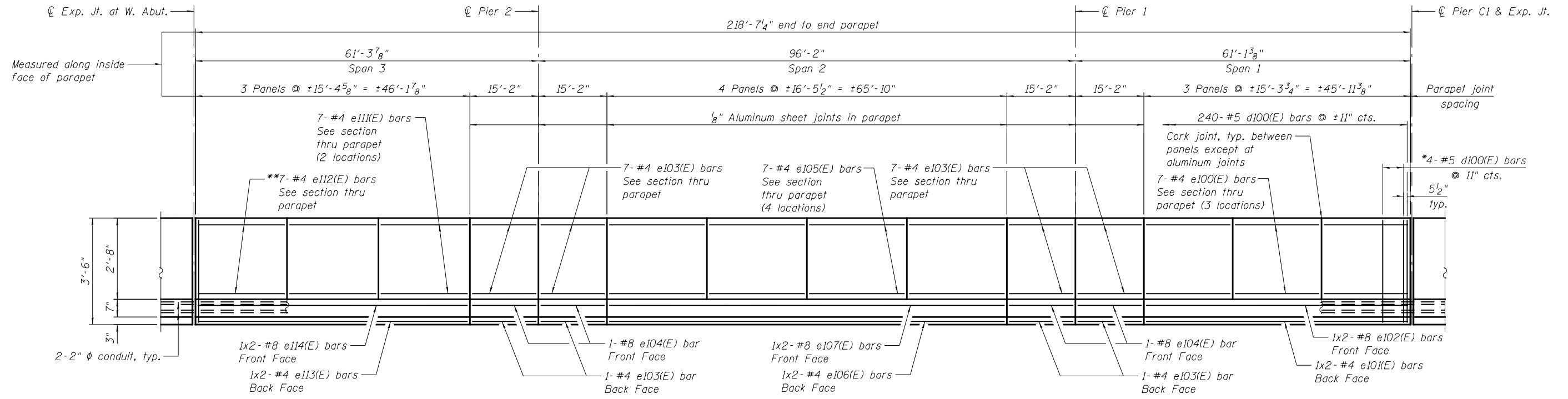


**MINIMUM BAR LAP**

#4 bar = 2'-5"  
#8 bar = 5'-11"



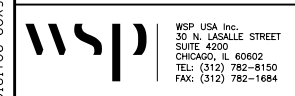
**INSIDE ELEVATION OF LEFT PARAPET**



**INSIDE ELEVATION OF RIGHT PARAPET**

- Notes:
- Contractor to provide expansion/deflection conduit fittings at all structural expansion joints.
  - Bars indicated thus 1x2- #8 etc. indicates 1 line of bars with 2 lengths per line.
  - Reinforcement bars shall not pass thru aluminum sheets and cork joint filler.
  - See sheet S1-15, for Section thru parapet details and Bill of Material.
- \* Typical at parapet ends and each side of aluminum sheeted joints (14 locations each parapet)  
\*\* Cut to fit as needed

0161706-60X93-S014-DET.dgn



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PLOT SCALE =	N.T.S.	DRAWN -	MI	REVISED -	
PLOT DATE =	7/30/2018	CHECKED -	JIG	REVISED -	

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**DECK DETAILS I  
STRUCTURE NO. 016-1706**

SHEET NO. S1-14 OF S1-45 SHEETS

F.A.I. R.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	629
<b>CONTRACT NO. 60X93</b>				

ILLINOIS FED. AID PROJECT

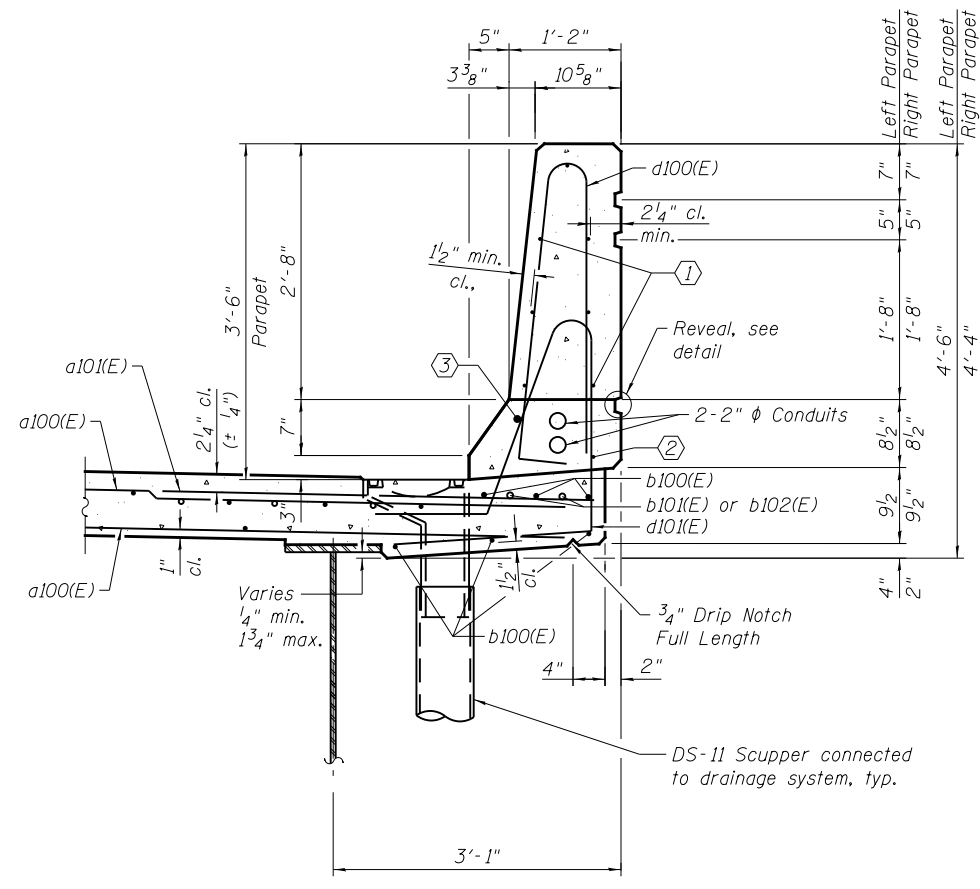
**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
a100(E)	767	#5	28'-6"	—
a101(E)	763	#6	6'-6"	—
a102(E)	8	#5	29'-1"	—
a103(E)	16	#5	5'-6"	—
a104(E)	8	#5	2'-7"	—
a105(E)	6	#5	34'-6"	—
a106(E)	12	#5	6'-7"	—
a107(E)	6	#5	3'-2"	—
a108(E)	16	#5	1'-6"	—
b100(E)	522	#5	27'-5"	—
b101(E)	58	#6	40'-0"	—
b102(E)	58	#6	24'-1"	—
d100(E)	592	#5	6'-10"	—
d101(E)	480	#5	7'-9"	—
e100(E)	42	#4	15'-0"	—
e101(E)	4	#4	24'-1"	—
e102(E)	4	#8	25'-10"	—
e103(E)	64	#4	14'-10"	—
e104(E)	8	#8	14'-10"	—
e105(E)	56	#4	16'-1"	—
e106(E)	4	#4	34'-0"	—
e107(E)	4	#8	35'-9"	—
e108(E)	21	#4	15'-2"	—
e109(E)	2	#4	24'-4"	—
e110(E)	2	#8	26'-1"	—
e111(E)	14	#4	15'-0"	—
e112(E)	7	#4	15'-11"	—
e113(E)	2	#4	24'-7"	—
e114(E)	2	#8	26'-4"	—
x100(E)	26	#5	8'-2"	—
x101(E)	26	#5	6'-5"	—
Reinforcement Bars, Epoxy Coated		Pound	63,520	
Concrete Superstructure		Cu. Yd.	236.2	
Protective Coat		Sq. Yd.	854	
Bridge Deck Grooving (Longitudinal)		Sq. Yd.	560	

- ① e100(E), e103(E), e105(E), e108(E), e111(E), or e112(E)
- ② e101(E), e103(E), e106(E), e109(E), e113(E)
- ③ e102(E), e104(E), e107(E), e110(E), e114(E)

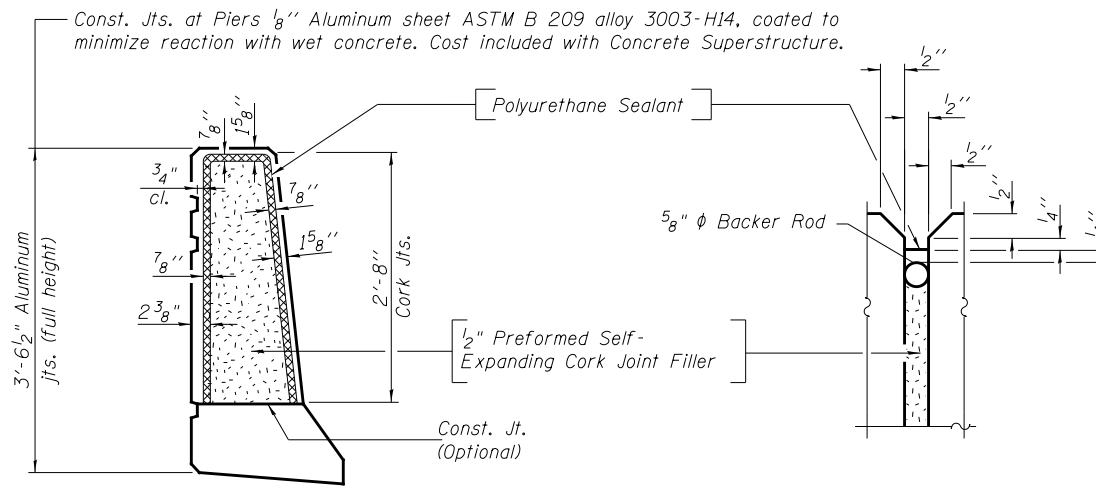
**Notes:**

- The 1/8" Aluminum sheet shall be ASTM B 209 alloy 3003-H14 and coated to minimize reaction with wet concrete. Cost included with Concrete Superstructure.
- The Polyurethane Sealant shall be according to Article 1050.04 of the Std. Spec. and the color shall be gray.
- The Preformed Self-Expanding Cork Joint Filler shall be according to Article 1051.07 of the Std. Spec. Cost included with Concrete Superstructure.
- Headed bars shall conform to ASTM A970 with threaded attachment; Class HA; and reinforcement bars conforming to ASTM A706. Cost included with Reinforcement Bars, Epoxy Coated.
- See sheet S1-19 for scupper details and S1-20 for drainage system details.

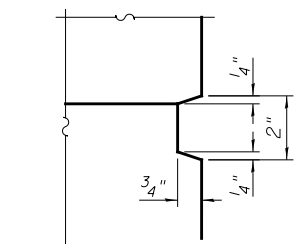


**SECTION THRU PARAPET**

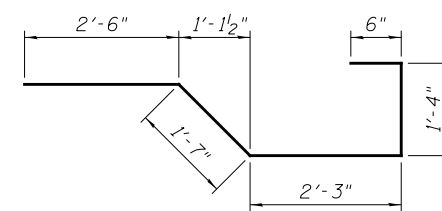
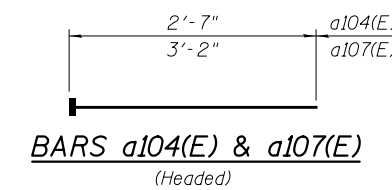
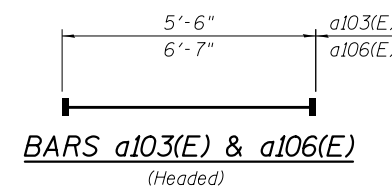
(Drainage Scupper, DS-11 Right parapet only)



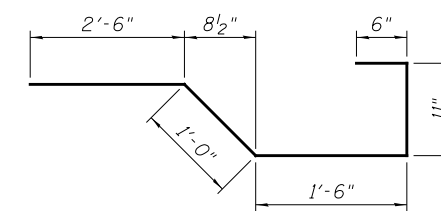
**PARAPET JOINT DETAILS**



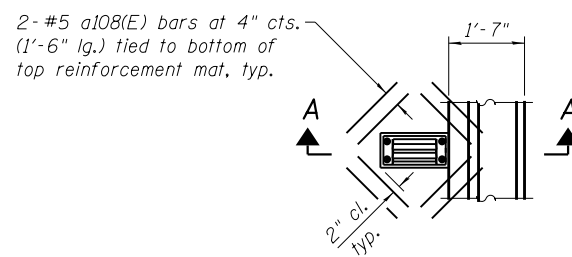
**REVEAL DETAIL**



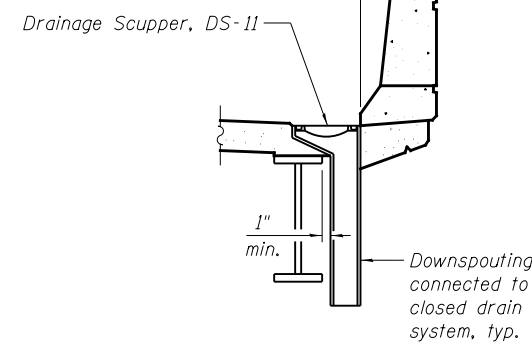
**BAR x100(E)**



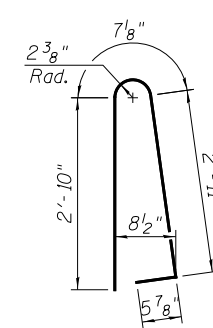
**BAR x101(E)**



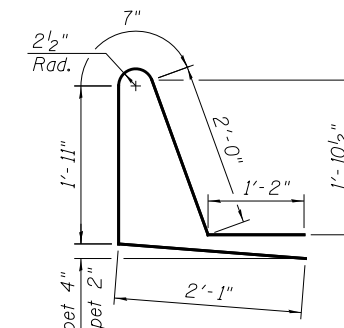
**DRAINAGE SCUPPER DS-11**



**SECTION A-A**



**BAR d100(E)**



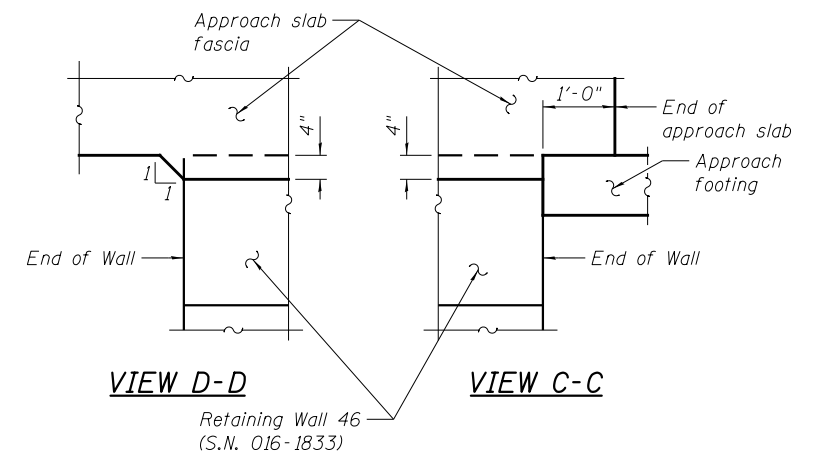
**BAR d101(E)**

**MINIMUM BAR LAP**

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

**TOP AND BOTTOM ELEVATIONS FOR APPROACH FOOTING**

Point	Station	West Approach		
		Offset	Top	Bottom
A	1105+31.60	-21.58	588.43	587.60
B	1105+47.22	0.00	586.06	585.22
C	1105+52.51	6.75	585.28	584.45
D	1105+60.04	6.75	584.68	583.85
E	1105+60.04	7.58	584.64	583.81
F	1105+43.44	-21.58	587.48	586.65
G	1105+59.97	0.00	585.04	584.21
H	1105+66.29	7.58	584.14	583.31



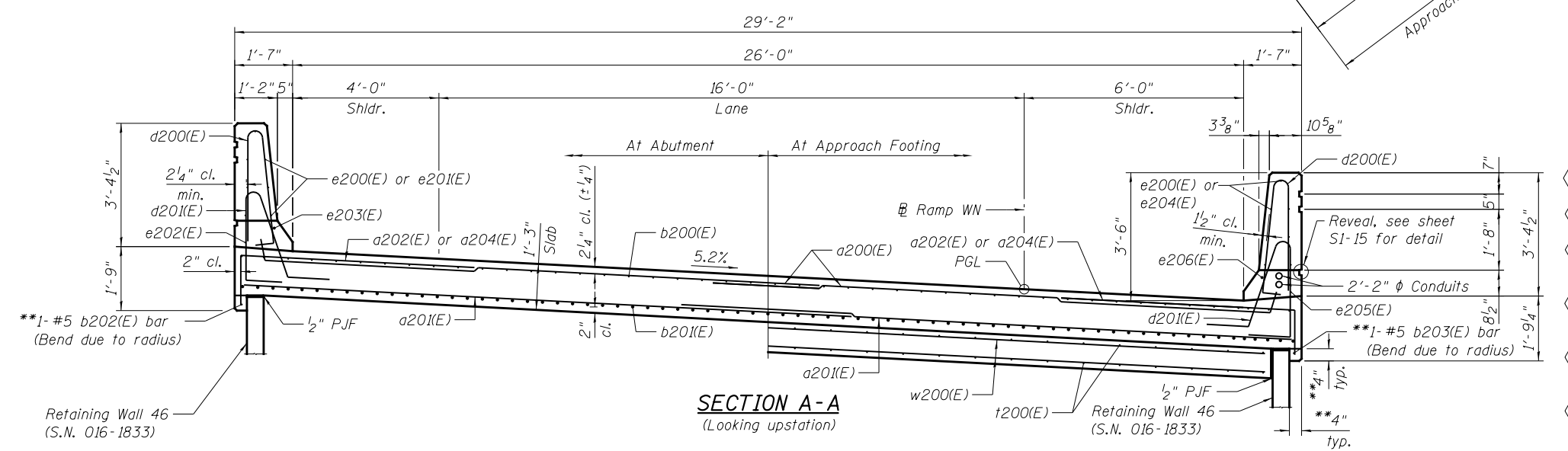
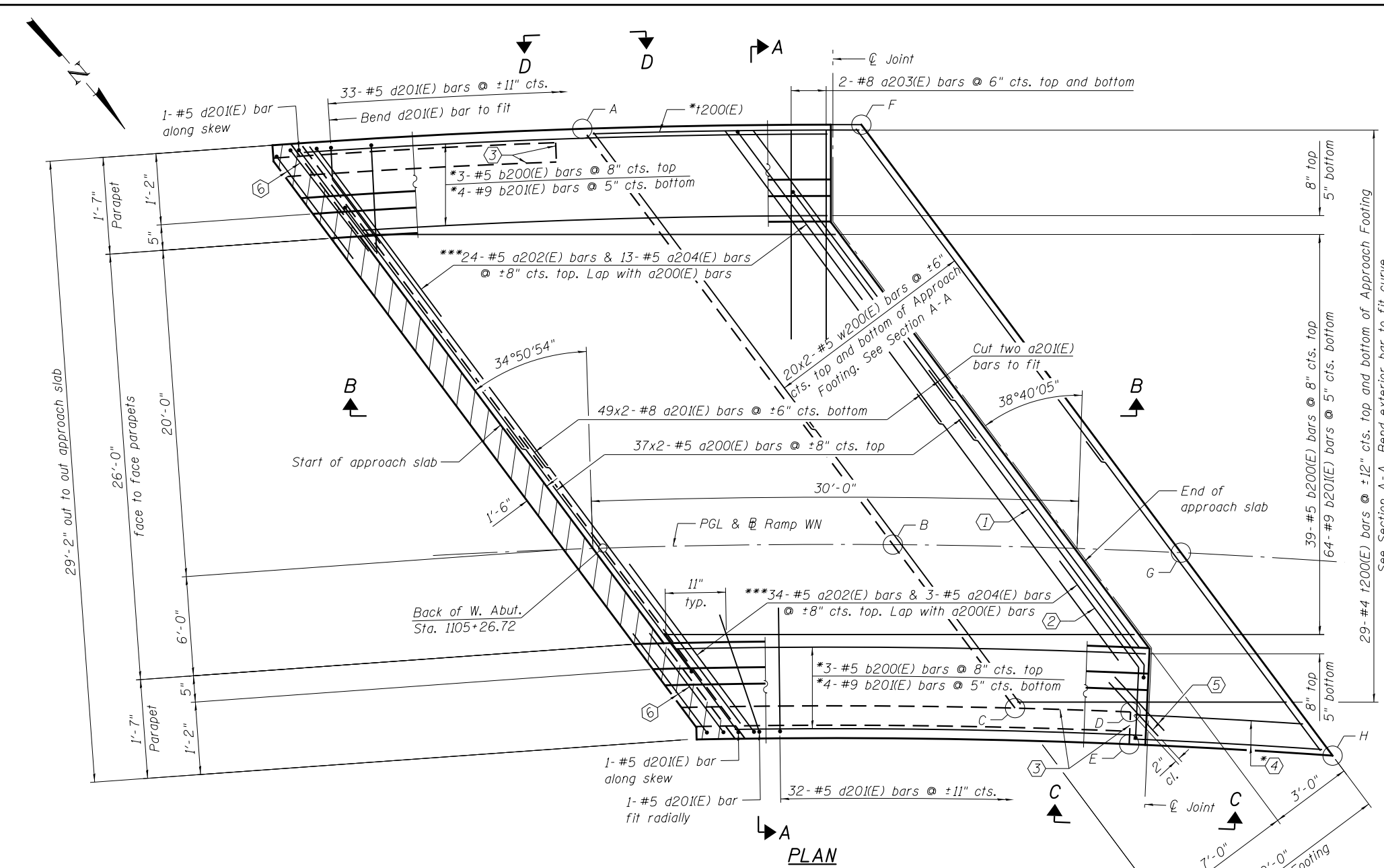
- \* Bend reinforcement to fit and cut to fit as needed
- \*\* Only within the limits of Retaining Wall 46 (S.N. 016-1833)
- \*\*\* a202(E) are within the Retaining Wall 46 limits

**LEGEND**

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

- Notes:
1. Stations are along  $\mathbb{E}$  & PGL Ramp WN unless noted otherwise.
  2. Dimensions radial from  $\mathbb{E}$  & PGL Ramp WN unless noted otherwise.
  3. See sheet S1-17, for Section B-B, parapet reinforcement, and Bill of Material.
  4. Reinforcement bars shall not pass thru cork joint filler.
  5. Bars indicated thus 1x2-#8 etc. indicates 1 line of bars with 2 lengths per line.

- ① Bend a200(E) bar to fit
- ② Bend a204(E) bar to fit
- ③ Limits of Retaining Wall 46 (S.N. 016-1833)
- ④ 2-#4 t201(E) bars @ 6" cts. top and bottom of Approach Footing
- ⑤ 2-#5 w201(E) bars @ 4" cts. top and bottom of Approach Footing
- ⑥ 3-#5 d201(E) bars along skew



USER NAME = ibrahiml  
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CHECKED - PAL  
DRAWN - MI  
CHECKED - JIG  
PLOT SCALE = N.T.S.  
PLOT DATE = 7/30/2018

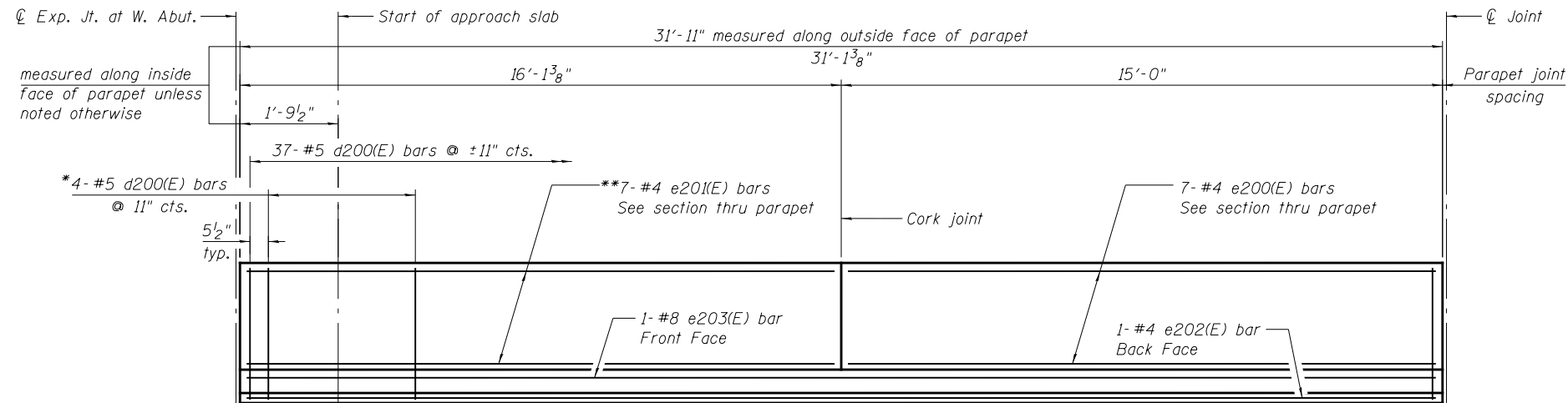
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REVISED -  
REVISED -  
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REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

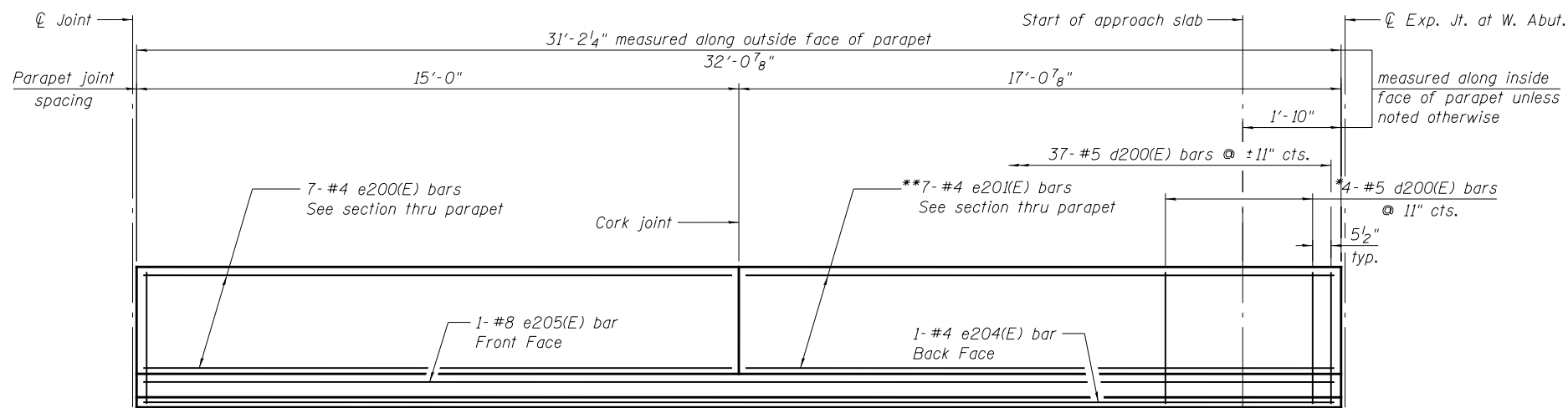
**W. BRIDGE APPROACH SLAB DETAILS I  
STRUCTURE NO. 016-1706**

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	631
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				

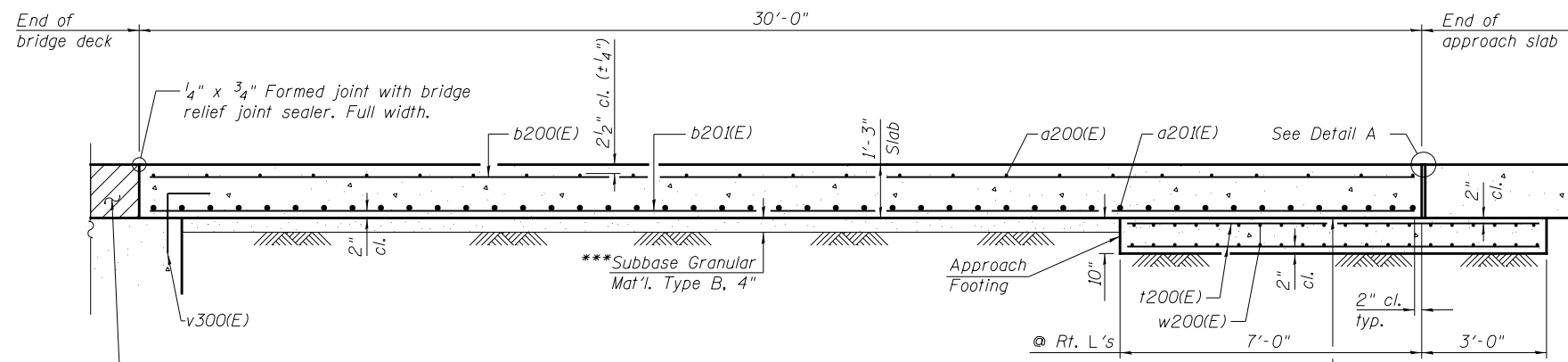
SHEET NO. S1-16 OF S1-45 SHEETS



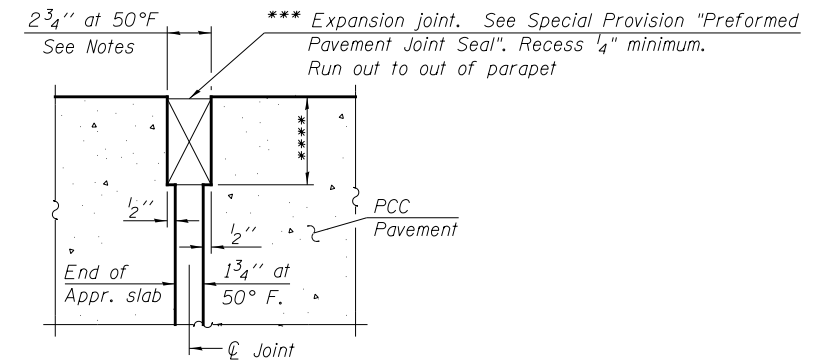
**INSIDE ELEVATION OF LEFT PARAPET**



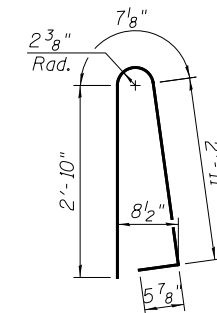
**INSIDE ELEVATION OF RIGHT PARAPET**



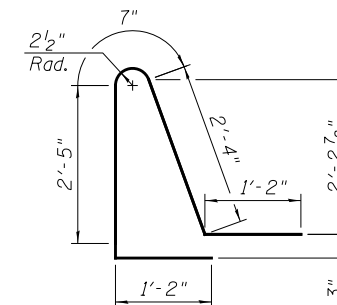
**SECTION B-B**



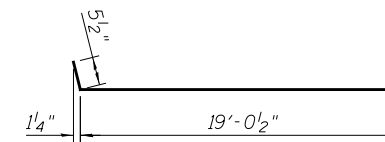
**DETAIL A**  
(@ Rt. L's)



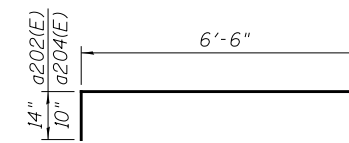
**BAR d200(E)**



**BAR d201(E)**



**BAR a200(E)**



**BAR a202(E) & a204(E)**

- \* Typical at parapet ends
- \*\* Cut to fit as needed
- \*\*\* Cost included with Concrete Superstructure (Approach Slab).
- \*\*\*\* Per manufacturer recommendations

**WEST APPROACH  
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
a200(E)	74	#5	19'-6"	—
a201(E)	98	#8	20'-11"	—
a202(E)	58	#5	7'-8"	—
a203(E)	4	#8	6'-6"	—
a204(E)	16	#5	7'-4"	—
b200(E)	45	#5	29'-8"	—
b201(E)	72	#9	29'-8"	—
b202(E)	1	#5	17'-10"	—
b203(E)	1	#5	27'-9"	—
d200(E)	90	#5	6'-10"	U
d201(E)	74	#5	7'-8"	U
e200(E)	14	#4	14'-9"	—
e201(E)	14	#4	16'-7"	—
e202(E)	1	#4	31'-7"	—
e203(E)	1	#8	31'-0"	—
e204(E)	1	#4	30'-10"	—
e205(E)	1	#8	31'-5"	—
t200(E)	58	#4	12'-4"	—
t201(E)	4	#4	5'-8"	—
w200(E)	40	#5	20'-1"	—
w201(E)	4	#5	2'-0"	—
Concrete Superstructure			Cu. Yd.	8.4
Concrete Superstructure (Approach Slab)			Cu. Yd.	40.6
Concrete Structures			Cu. Yd.	11.2
Reinforcement Bars, Epoxy Coated			Pound	19,410
Protective Coat			Sq. Yd.	124
Bridge Deck Grooving (Longitudinal)			Sq. Yd.	81

- Notes:
- The joint opening shall be adjusted for temperature per Article 520.04 of the Standard Specifications. However, since this detail is for jointless structures, the length of bridge used to calculate the adjustment shall be equal to half the total bridge length plus the length of the bridge approach slab.
  - Parapet concrete shall be paid for as Concrete Superstructure.
  - Approach slab shall be paid for as Concrete Superstructure (Approach Slab).
  - Approach footing concrete shall be paid for as Concrete Structures.
  - The approach footing maximum applied service bearing pressure (Q<sub>max</sub>) = 2.0 ksf.
  - Cost of excavation for approach footing included with Concrete Structures.
  - See sheet S1-15 for Section thru parapet details.

0161706-60X93-S017-APPR.dgn



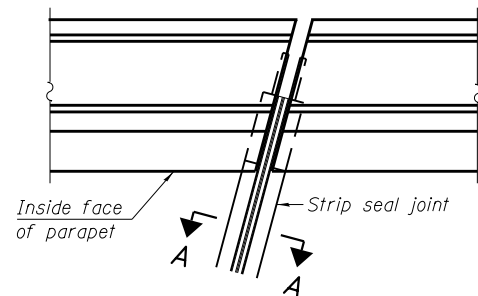
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	CHECKED - PAL	REVISED -
PLOT SCALE = N.T.S.	DRAWN - MI	REVISED -
PLOT DATE = 7/30/2018	CHECKED - JIG	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**W. BRIDGE APPROACH SLAB DETAILS II  
STRUCTURE NO. 016-1706**

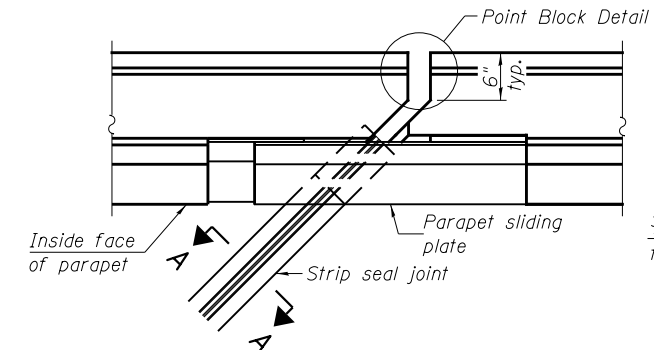
SHEET NO. S1-17 OF S1-45 SHEETS

F.A.I. R.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	632
<b>CONTRACT NO. 60X93</b>				
ILLINOIS FED. AID PROJECT				

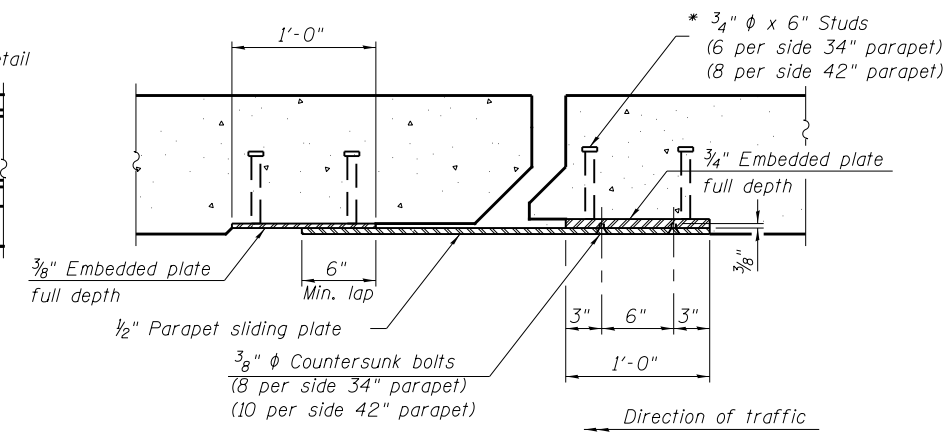


FOR SKEWS = 30°

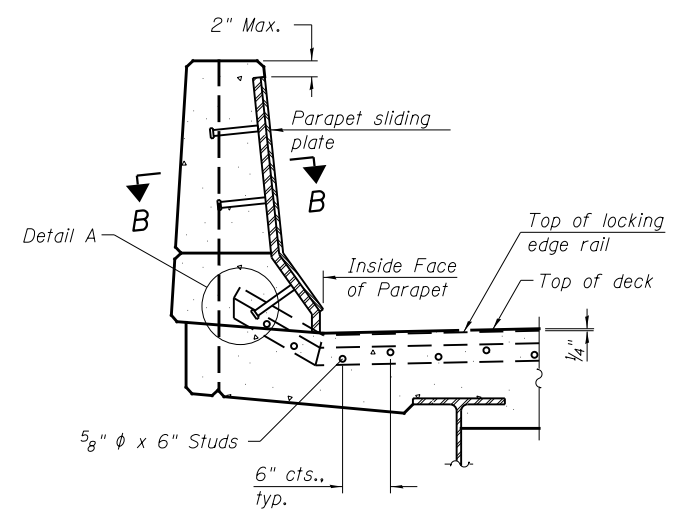
PLAN AT PARAPET



FOR SKEWS > 30°

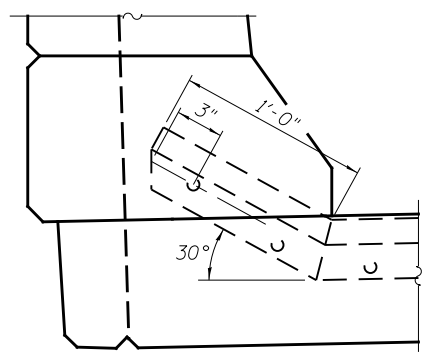


SECTION B-B

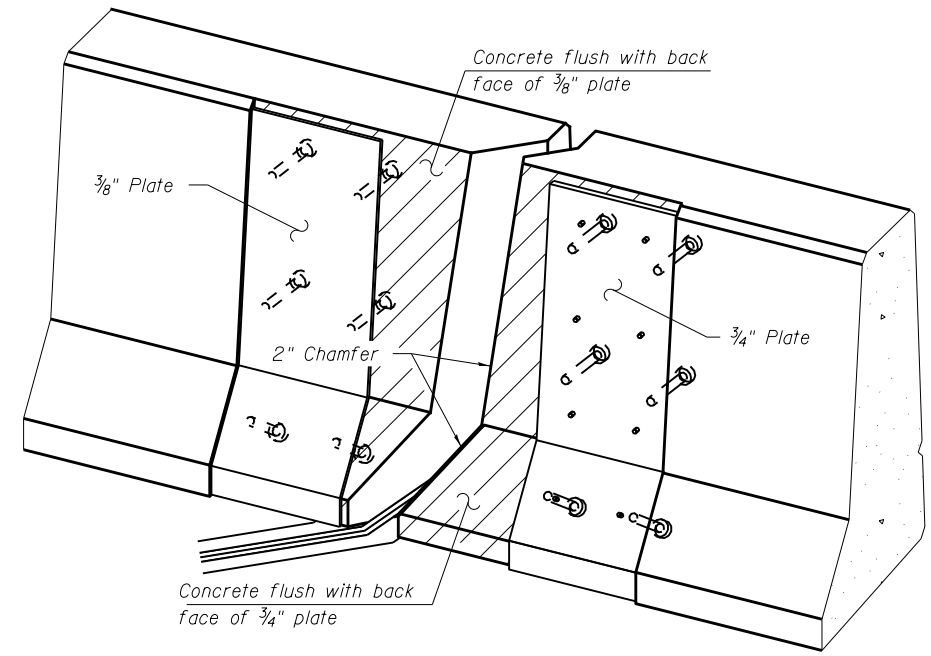


ELEVATION AT PARAPET

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

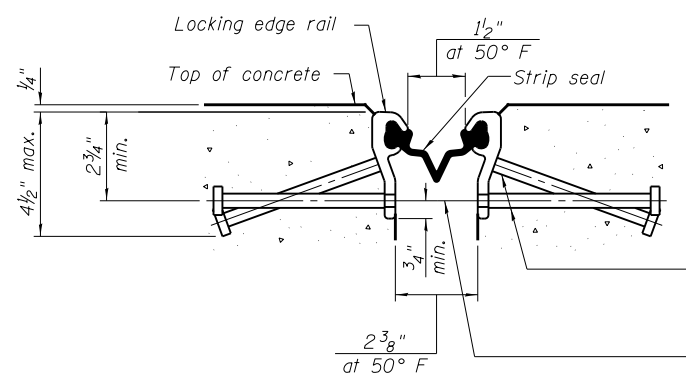


DETAIL A



TRIMETRIC VIEW

(Showing embedded plates only)

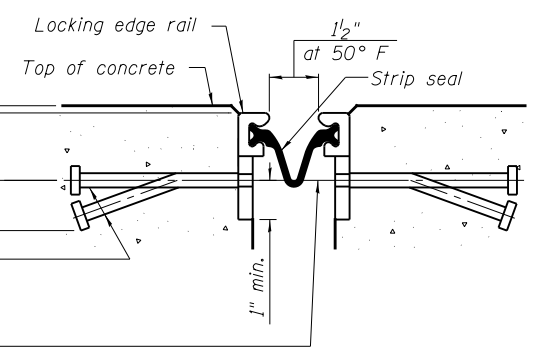


SHOWING ROLLED RAIL JOINT

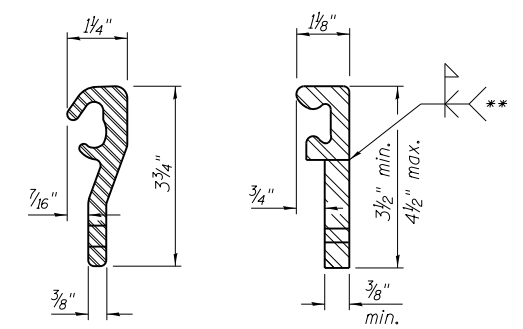
\* 5/8" phi x 6" studs @ 6" cts. (alternate angled/bent studs with horizontal studs)  
 3/8" phi threaded rods in 7/16" phi holes at ±4'-0" cts. for holding the proper joint opening based on the temperature during the deck pour. Place to miss studs. All rods shall be burned, or sawed off flush with the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

SECTION A-A

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

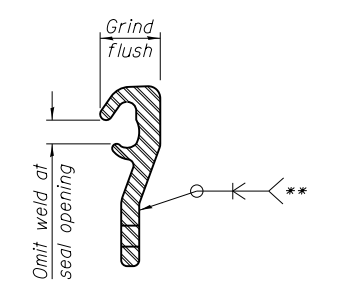


SHOWING WELDED RAIL JOINT



LOCKING EDGE RAILS

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



LOCKING EDGE RAIL SPLICE

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

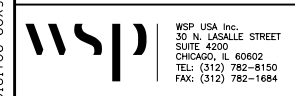
BILL OF MATERIAL

Item	Unit	Total
Preformed Joint Strip Seal	Foot	34

0161706-60X93-5018-EXP.dgn

EJ-SS

8-11-17



WSP USA Inc.  
 30 N. LASALLE STREET  
 SUITE 4200  
 CHICAGO, IL 60602  
 TEL: (312) 782-8150  
 FAX: (312) 782-1684

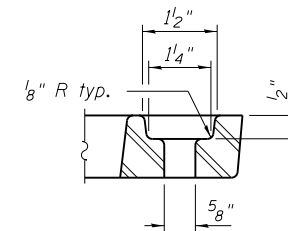
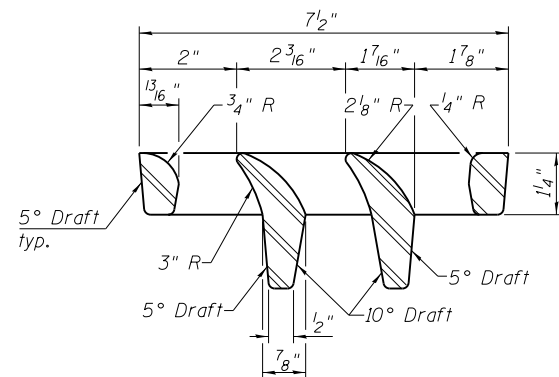
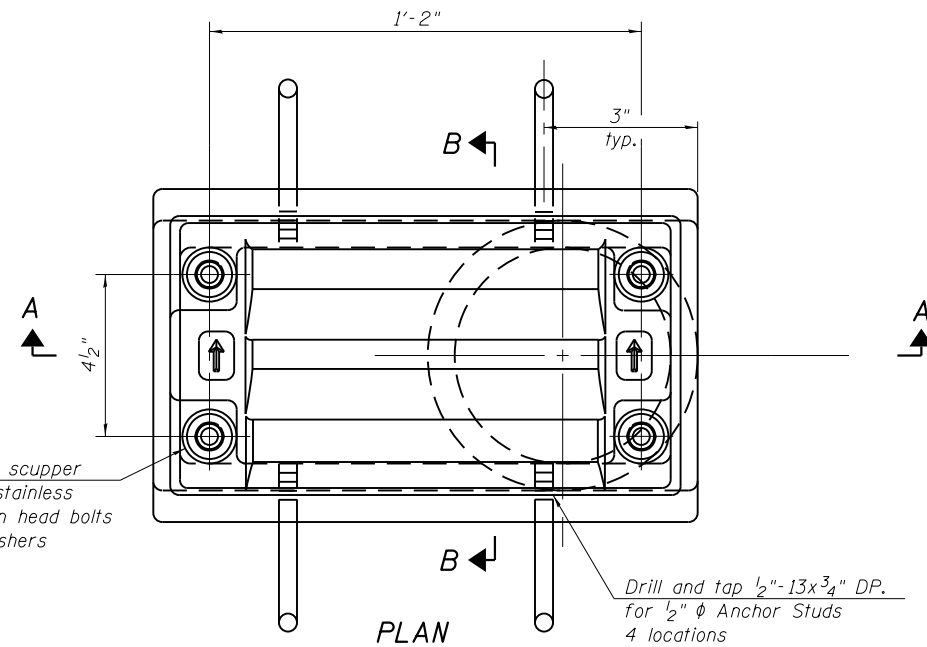
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CHECKED -	PJL	CHECKED -		REVISED -	
PLOT SCALE =	N.T.S.	DRAWN -	MI	REVISED -	
PLOT DATE =	7/30/2018	CHECKED -	JIG	REVISED -	

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

PREFORMED JOINT STRIP SEAL - WEST ABUTMENT  
 STRUCTURE NO. 016-1706

SHEET NO. S1-18 OF S1-45 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	633
CONTRACT NO. 60X93			ILLINOIS FED. AID PROJECT	



Notes:  
 All cast iron parts shall be gray iron conforming to the requirements of AASHTO M 105, Class 35B.  
 Bolts, anchor studs, washers and nuts shall conform to the requirements of ASTM A 307 and shall be galvanized according to AASHTO M 232.

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

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

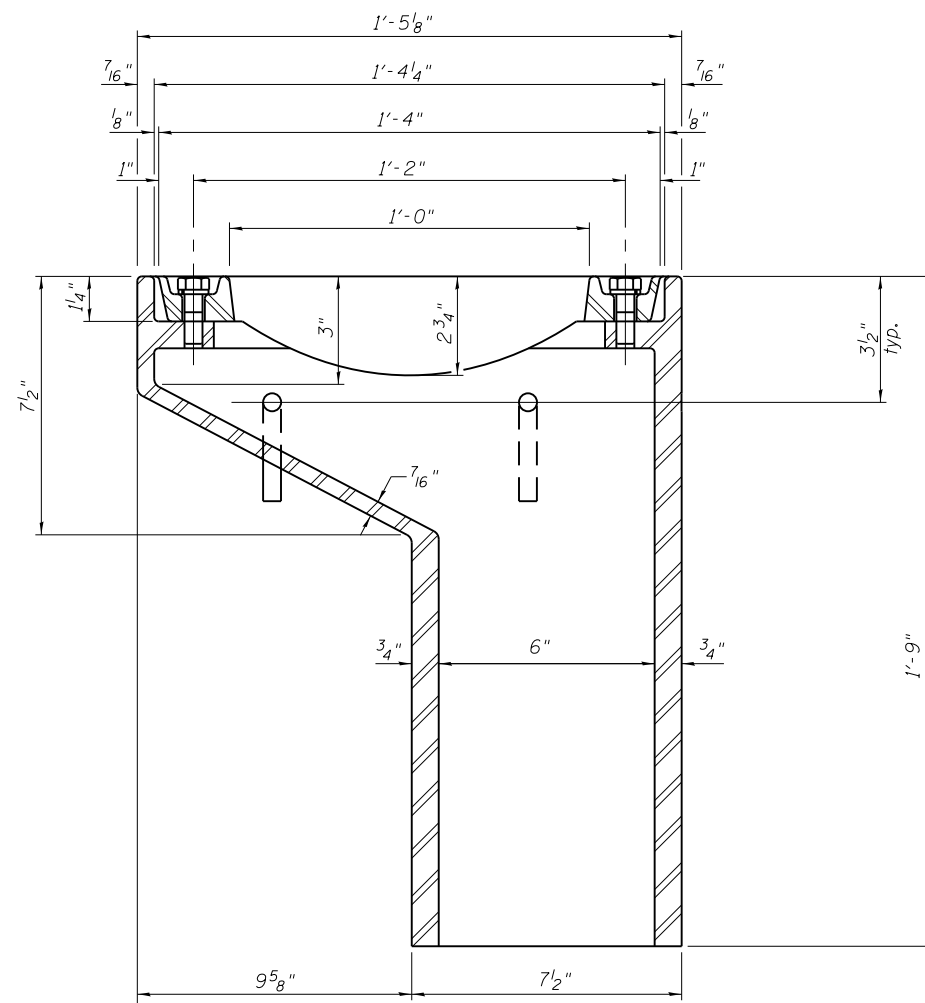
Structural steel weldments of equal sections and of the same configuration may be substituted for the cast iron scupper frame. Fillet or full penetration welds shall be used for the weldments. Details shall be submitted to the Engineer for approval. Structural steel weldments shall not be substituted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

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

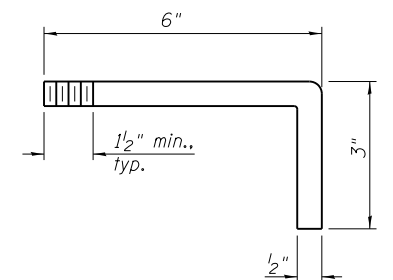
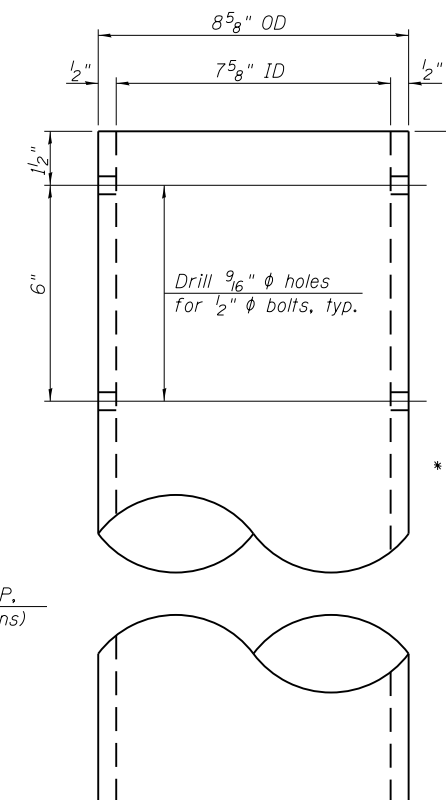
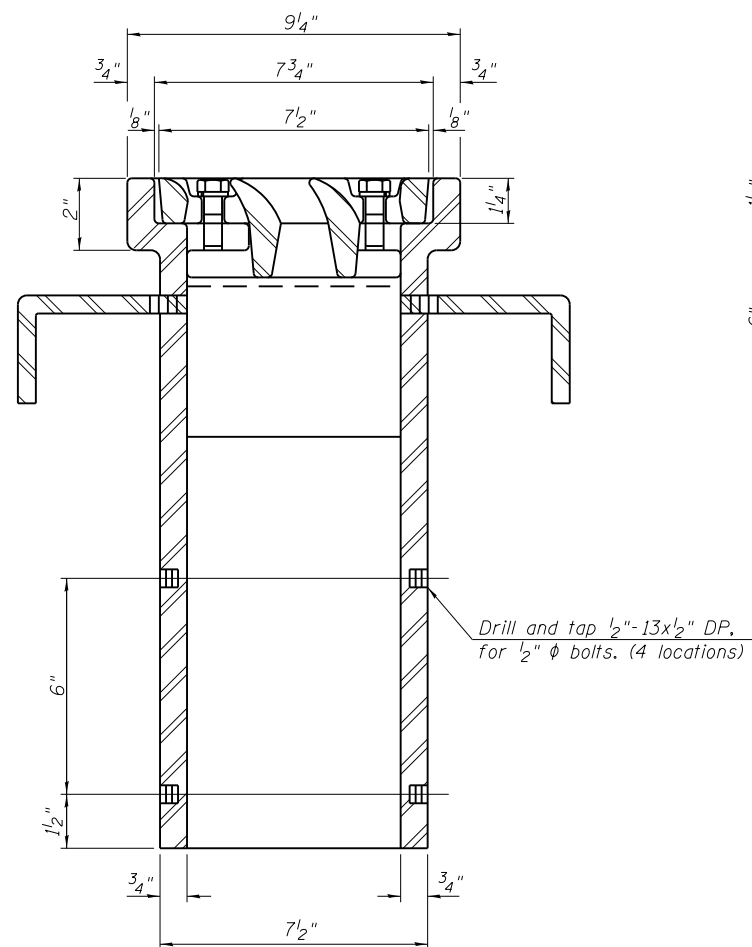
Cost of the Grate, Frame, Downspout, Anchor Studs, Bolts, Washers and Nuts including complete installation of the scupper shall be paid for at the contract unit price each for Drainage Scupper, DS-11.

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

\* Length of downspout to be coordinated with Drainage System



See sheet S1-15 for scupper location relative to parapet.



**ANCHOR STUD DETAIL**

**BILL OF MATERIAL**

ITEM	UNIT	QUANTITY
Drainage Scupper, DS-11	Each	2

DS-11

2-17-2017



USER NAME = ibrahim1	DESIGNED - MI	REVISED -
PLOT SCALE = N.T.S.	CHECKED - P.JL	REVISED -
PLOT DATE = 7/30/2018	DRAWN - MI	REVISED -
	CHECKED - JIG	REVISED -

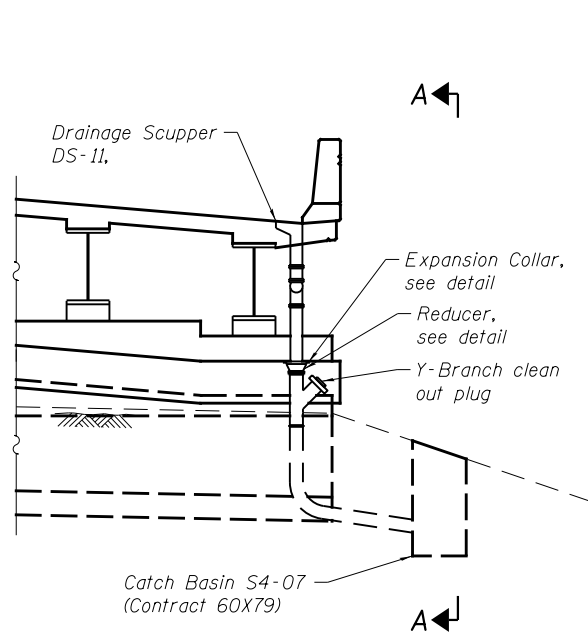
STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

DRAINAGE SCUPPER DETAILS, DS-11  
 STRUCTURE NO. 016-1706

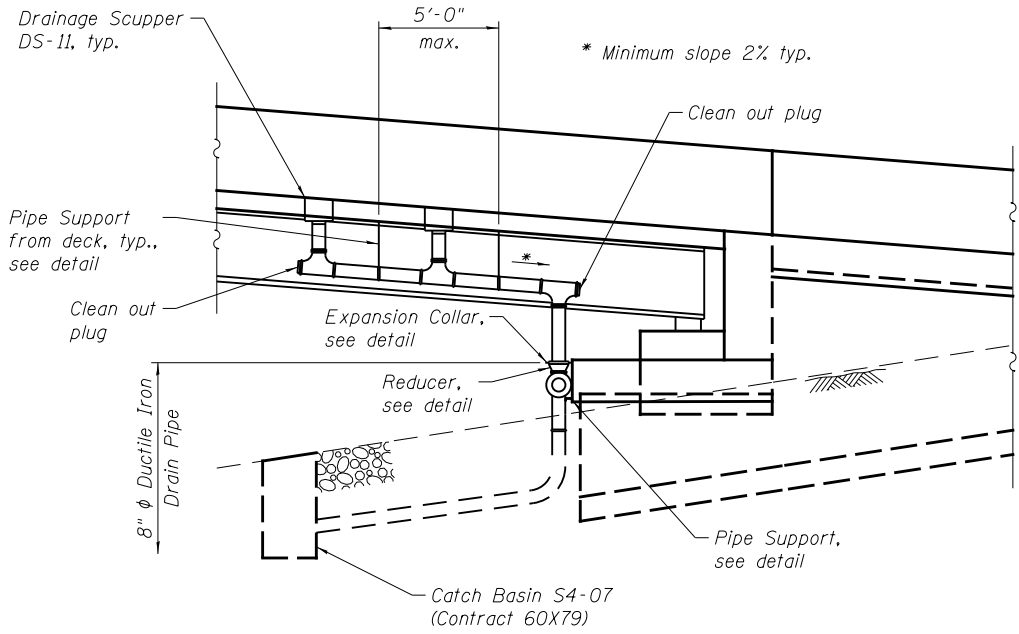
SHEET NO. S1-19 OF S1-45 SHEETS

F.A.I. R.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				

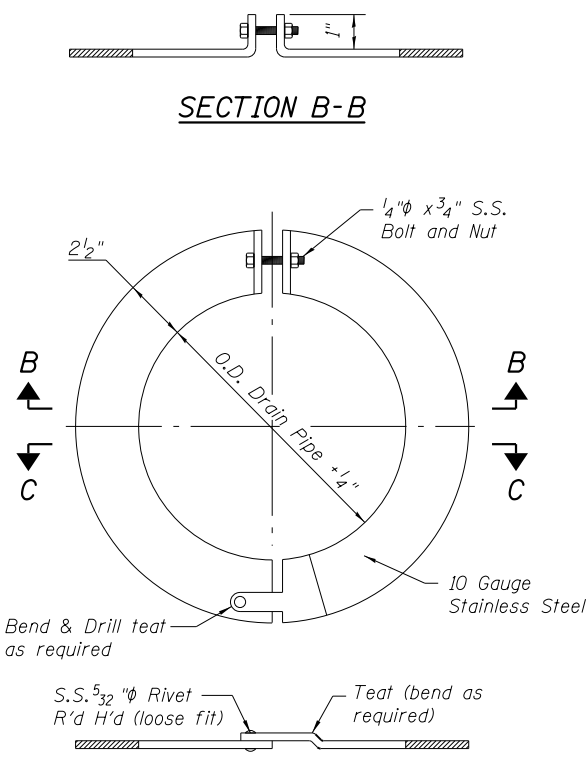
0161706-60X93-5019-SCP.dgn



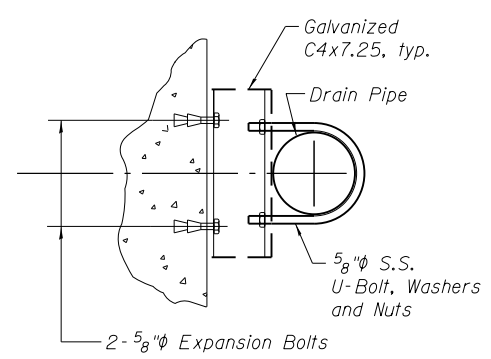
**ELEVATION W. ABUTMENT**  
(Looking West)



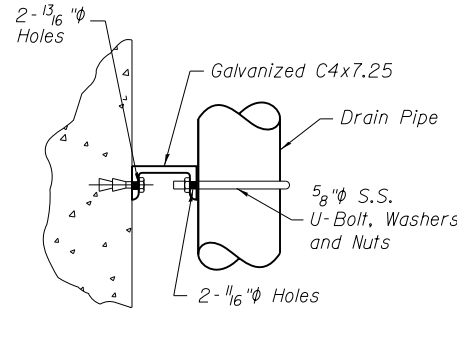
**VIEW A-A**  
(Looking South)



**SECTION B-B**  
**SECTION C-C**  
**DETAIL OF EXPANSION COLLAR**

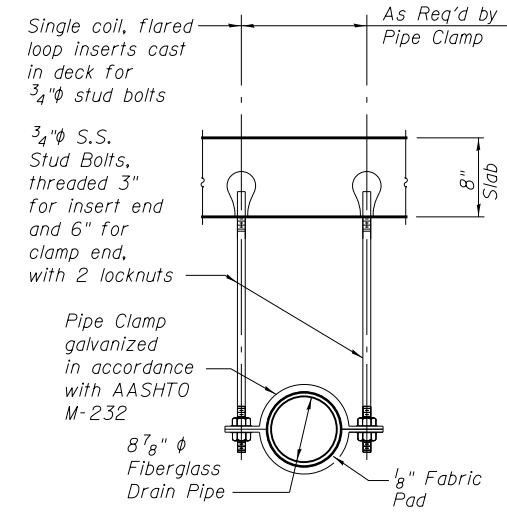


**PLAN**

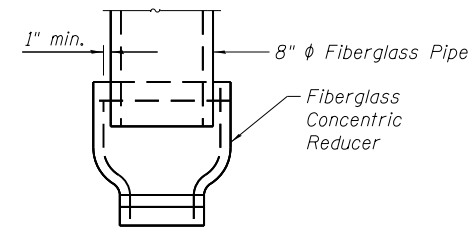


**ELEVATION**

**PIPE SUPPORT DETAIL**



**PIPE SUPPORT DETAIL**



**REDUCER DETAIL**

- Notes:
1. Drainage system shall connect to drainage structure. See drainage schedule for stationing and offsets of drainage structure. Coordinate with Contract 60X79 for drainage structure connection.
  2. S.S. denotes Stainless Steel.
  3. Provide structural support from proposed deck slab for drain pipe per manufacturer's recommendation, not to exceed 5' cts. Cost included with Drainage System.
  4. All pipe, pipe fittings and brackets needed shall be included with cost of Drainage System.
  5. See sheet S1-19 for Drainage Scupper details.

**BILL OF MATERIAL**

ITEM	UNIT	QUANTITY
Drainage System	L. Sum	0.1

0161706-60X93-S020-DRN.dgn



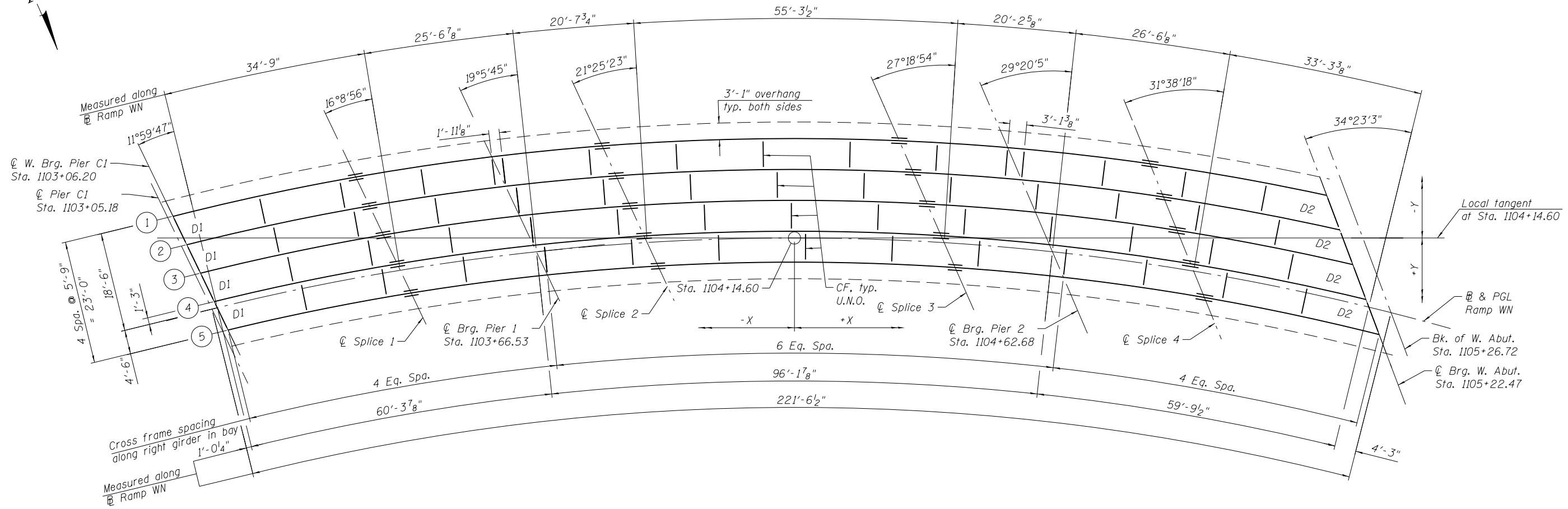
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PLOT DATE =	7/30/2018	CHECKED -	JIG	REVISED -	

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**DRAINAGE SYSTEM DETAILS**  
**STRUCTURE NO. 016-1706**

SHEET NO. S1-20 OF S1-45 SHEETS

F.A.I. R.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	635
			CONTRACT NO. 60X93	
ILLINOIS FED. AID PROJECT				



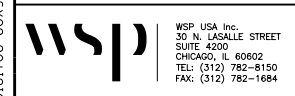
**FRAMING PLAN**

**LAYOUT DIMENSIONS (in feet)**

Girder	☐ W. Brg. Pier C1		☐ Splice 1		☐ Pier 1		☐ Splice 2		☐ Splice 3		☐ Pier 2		☐ Splice 4		☐ Brg. W. Abut.	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
1	-115.579	-4.020	-81.602	-11.339	-56.304	-15.104	-35.755	-17.134	19.494	-18.094	39.675	-16.817	66.124	-13.810	99.005	-7.920
2	-113.025	1.265	-79.029	-5.952	-53.721	-9.621	-33.166	-11.560	22.079	-12.223	42.248	-10.817	68.638	-7.631	101.425	-1.498
3	-110.469	6.553	-76.454	-0.559	-51.135	-4.130	-30.573	-5.976	24.673	-6.334	44.831	-4.796	71.163	-1.425	103.858	4.958
4	-107.912	11.843	-73.877	4.838	-48.546	1.369	-27.974	-0.382	27.275	-0.425	47.423	1.249	73.700	4.809	106.305	11.450
5	-105.353	17.136	-71.296	10.242	-45.952	6.876	-25.370	5.223	29.886	5.504	50.026	7.318	76.249	11.074	108.766	17.981

- Notes:
1. See sheet S1-22 for girder elevation.
  2. See sheet S1-23 for camber, dead load deflections & top of web elevations.
  3. See sheet S1-24 for moment tables & reaction tables.
  4. See sheet S1-25 for girder bolted field splice details.
  5. See sheet S1-26 for girder diaphragm & cross frame details.
  6. Girders spacing and cross frame orientations are radial to ☐ Ramp WN. End diaphragms orientations at ☐ W. Brg. Pier C1 & ☐ Brg. W. Abut. are skewed along the centerline of supports.
  7. The Contractor shall submit a comprehensive Steel Erection plan detailing the proposed methods, procedures, and plans for the erection of the structural steel to the desired lines, elevations, and geometry indicated in the Contract plans. Erection plans shall be complete in detail for all phases of the erection process and shall describe the erection procedures, sequences, geometry controls and adjustment procedures, temporary shoring or bracing, bearing and anchor bolt placement, bolt installation and tightening procedures, and shall include any necessary drawings and calculations. The Erection plan shall be prepared and sealed by an Illinois Licensed Structural Engineer and shall be submitted to the Engineer for review and acceptance.

0161706-60X93-5021-FRM.dgn



USER NAME =	ibrahim1	DESIGNED -	JZ	REVISED -	
		CHECKED -	PJL	REVISED -	
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PLOT DATE =	7/30/2018	CHECKED -	JIG	REVISED -	

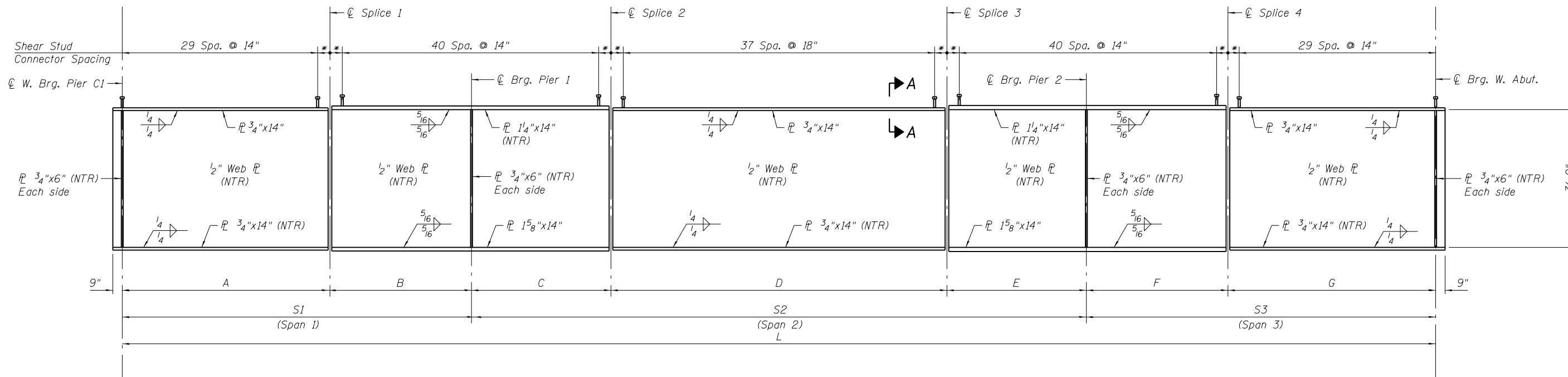
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**FRAMING PLAN  
STRUCTURE NO. 016-1706**

SHEET NO. S1-21 OF S1-45 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	636
<b>CONTRACT NO. 60X93</b>				
ILLINOIS FED. AID PROJECT				



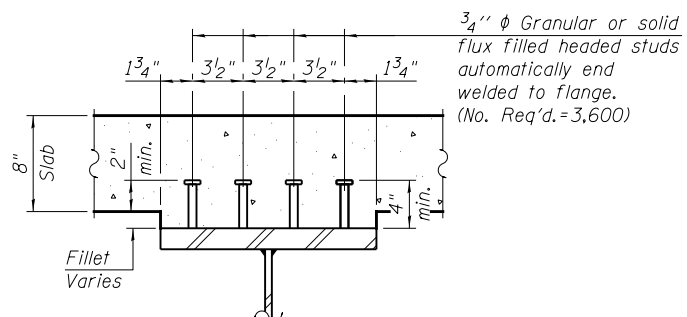


**GIRDER ELEVATION**

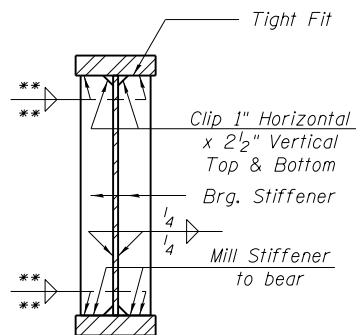
\* No shear connectors over splice plates.  
See sheet S1-25 for Shear Connector Detail.

**GIRDER DIMENSIONS (in feet)**

Girder	Radius	L	S1	S2	S3	A	B	C	D	E	F	G
1	468.50	216.542	60.345	96.163	60.034	34.765	25.580	20.650	55.289	20.224	26.623	33.412
2	462.75	216.435	60.337	96.150	59.948	34.761	25.576	20.648	55.282	20.220	26.585	33.363
3	457.00	216.348	60.331	96.146	59.870	34.759	25.573	20.647	55.280	20.218	26.551	33.320
4	451.25	216.281	60.328	96.151	59.803	34.757	25.571	20.648	55.283	20.219	26.521	33.282
5	445.50	216.237	60.326	96.166	59.745	34.756	25.570	20.650	55.292	20.224	26.494	33.251

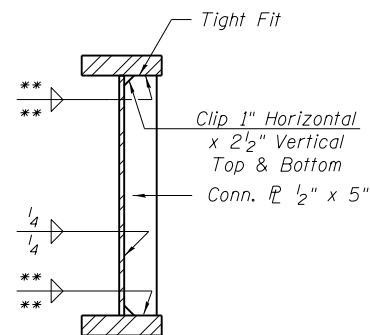


**SECTION A-A**



**BEARING STIFFENER**

(No. plates required = 40)

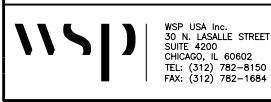


**CONNECTION PLATE**

(No. plates required = 98)

- Notes:
- All structural steel shall be AASHTO M270 Grade 50.
  - Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.

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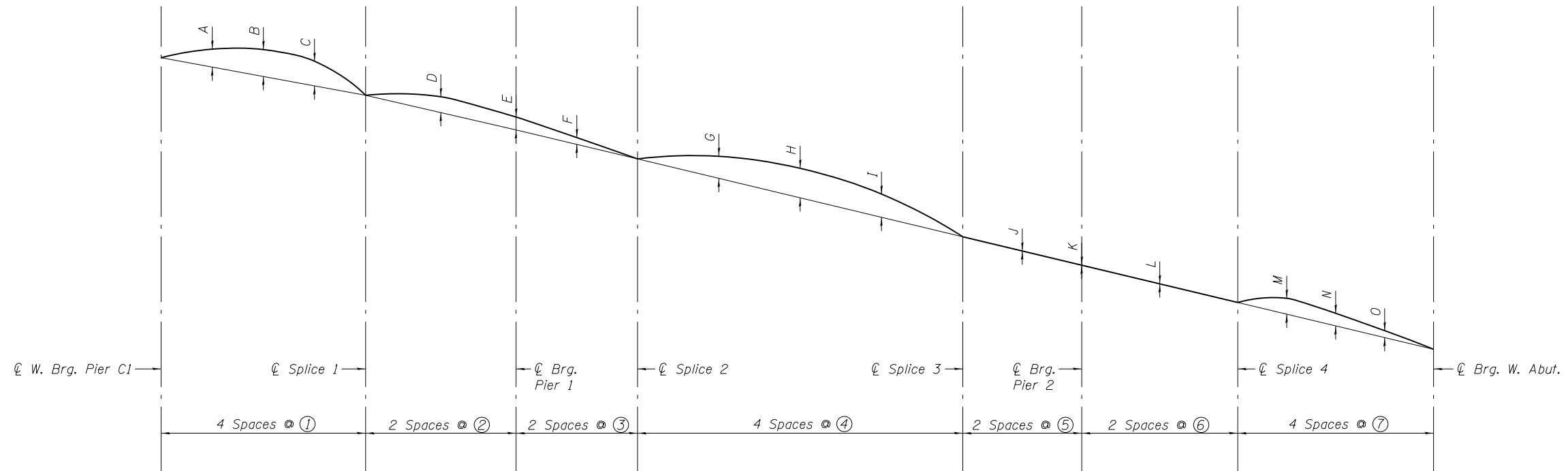
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		CHECKED -	PJL	REVISED -	
PLOT SCALE =	N.T.S.	DRAWN -	JZ	REVISED -	
PLOT DATE =	7/30/2018	CHECKED -	JIG	REVISED -	

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**SUPERSTRUCTURE STEEL DETAILS I  
STRUCTURE NO. 016-1706**

SHEET NO. S1-22 OF S1-45 SHEETS

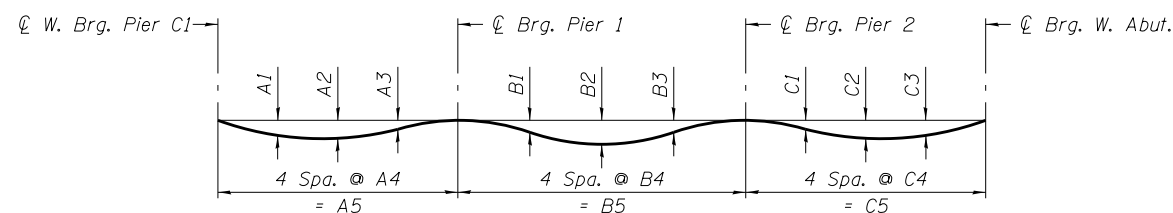
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	637
<b>CONTRACT NO. 60X93</b>				
ILLINOIS FED. AID PROJECT				



**CAMBER DIAGRAM**

**CAMBER DIMENSIONS**

Girder	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	①	②	③	④	⑤	⑥	⑦
1	1"	1 1/2"	1 3/8"	1"	3/4"	1/2"	1 1/2"	1 7/8"	1 5/8"	0	0	0	7/8"	5/8"	3/8"	8.691'	12.790'	10.325'	13.822'	10.112'	13.311'	8.353'
2	1"	1 1/2"	1 3/8"	1"	3/4"	1/2"	1 3/8"	1 5/8"	1 3/8"	0	0	0	7/8"	5/8"	3/8"	8.690'	12.788'	10.324'	13.821'	10.110'	13.293'	8.341'
3	1"	1 1/2"	1 3/8"	1"	5/8"	1/2"	1 3/8"	1 5/8"	1 3/8"	0	0	0	7/8"	5/8"	3/8"	8.690'	12.786'	10.324'	13.820'	10.109'	13.275'	8.330'
4	1"	1 1/2"	1 3/8"	7/8"	1/2"	3/8"	1 3/8"	1 5/8"	1 3/8"	0	0	0	7/8"	5/8"	3/8"	8.689'	12.785'	10.324'	13.821'	10.110'	13.260'	8.321'
5	1"	1 1/2"	1 3/8"	7/8"	1/2"	3/8"	1 3/8"	1 5/8"	1 3/8"	0	0	0	7/8"	5/8"	3/8"	8.689'	12.785'	10.325'	13.823'	10.112'	13.247'	8.313'



**DEAD LOAD DEFLECTION DIAGRAM**

(Includes weight of structural steel only.)

Note:

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

**TOP OF WEB ELEVATIONS**

(For Fabrication only)

Girder	W. Brg. Pier C1	Splice 1	Pier 1	Splice 2	Splice 3	Pier 2	Splice 4	Brg. W. Abut.
1	606.15	604.09	602.31	600.75	596.51	594.93	592.84	590.36
2	605.80	603.69	601.86	600.27	595.97	594.39	592.28	589.77
3	605.44	603.28	601.41	599.79	595.45	593.84	591.71	589.17
4	605.08	602.87	600.95	599.32	594.92	593.29	591.14	588.57
5	604.71	602.45	600.49	598.84	594.38	592.73	590.56	587.95

Girder	Span 1					Span 2					Span 3				
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	C4	C5
1	0	0	0	±15'-1"	60'-4 1/8"	3/16"	5/16"	3/16"	24'-0 1/2"	96'-2"	0	0	0	±15'-0 1/8"	60'-0 3/8"
2	0	0	0	15'-1"	60'-4"	3/16"	5/16"	3/16"	±24'-0 1/2"	96'-1 3/4"	0	0	0	±14'-11 7/8"	59'-11 3/8"
3	0	0	0	15'-1"	60'-4"	3/16"	5/16"	3/16"	±24'-0 1/2"	96'-1 3/4"	0	0	0	14'-11 5/8"	59'-10 1/2"
4	0	1/16"	0	±15'-1"	60'-3 7/8"	3/16"	5/16"	3/16"	±24'-0 1/2"	96'-1 3/4"	0	0	0	±14'-11 3/8"	59'-9 5/8"
5	0	0	0	±15'-1"	60'-3 7/8"	1/8"	1/4"	1/8"	24'-0 1/2"	96'-2"	0	0	0	14'-11 1/4"	59'-9"

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WSP USA Inc.  
30 N. LASALLE STREET  
SUITE 4200  
CHICAGO, IL 60602  
TEL: (312) 782-8150  
FAX: (312) 782-1684

USER NAME = ibrahiml  
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CHECKED - PJL  
PLOT SCALE = N.T.S.  
DRAWN - JZ  
PLOT DATE = 7/30/2018  
CHECKED - JIG

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

**SUPERSTRUCTURE STEEL DETAILS II  
STRUCTURE NO. 016-1706**

SHEET NO. S1-23 OF S1-45 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	638
<b>CONTRACT NO. 60X93</b>				
ILLINOIS FED. AID PROJECT				

EXTERIOR GIRDER 1 MOMENT TABLE						
	0.4 Sp. 1	Pier 1	0.5 Sp. 2	Pier 2	0.6 Sp. 3	
$I_s$	(in <sup>4</sup> )	9,035	15,895	9,035	15,895	9,035
$I_c(n)$	(in <sup>4</sup> )	24,570	—	24,570	—	24,570
$I_c(3n)$	(in <sup>4</sup> )	18,174	—	18,174	—	18,174
$I_c(cr)$	(in <sup>4</sup> )	—	19,692	—	19,692	—
$S_s$	(in <sup>3</sup> )	482	757	482	757	482
$S_c(n)$	(in <sup>3</sup> )	707	—	707	—	707
$S_c(3n)$	(in <sup>3</sup> )	643	—	643	—	643
$S_c(cr)$	(in <sup>3</sup> )	—	1,059	—	1,059	—
$S_{xc}$	(in <sup>3</sup> )	693	1,142	652	1,142	694
DC1	(k/')	0.80	0.85	0.80	0.86	0.80
M <sub>DC1</sub>	(k)	83	688	346	694	76
DC2	(k/')	0.59	0.59	0.59	0.59	0.59
M <sub>DC2</sub>	(k)	61	313	116	332	58
DW	(k/')	0.22	0.22	0.22	0.22	0.22
M <sub>DW</sub>	(k)	27	178	99	185	18
$M\ddot{\epsilon} \cdot IM$	(k)	575	978	678	1,087	527
$f_i$ (Strength I)	(ksi)	3.0	2.2	3.2	2.8	1.0
$M_u + \frac{1}{3} f_i S_{xc}$	(k)	1,284	3,301	1,970	3,550	1,135
$\phi_r M_n$	(k)	—	—	—	—	—
$f_s$ DC1	(ksi)	2.1	10.9	8.6	11.0	1.9
$f_s$ DC2	(ksi)	1.1	3.5	2.2	3.8	1.1
$f_s$ DW	(ksi)	0.5	2.0	1.8	2.1	0.3
$f_s$ ( $\ddot{\epsilon} + IM$ )	(ksi)	9.8	11.1	11.5	12.3	8.9
$f_i$ (Service II)	(ksi)	16.4	30.9	27.6	32.9	14.9
$f_s + \frac{1}{2} f_i$ (Service II)	(ksi)	17.5	31.7	28.8	33.9	15.3
$0.95R_n F_{yf}$	(ksi)	47.5	47.5	47.5	47.5	47.5
$f_s + \frac{1}{3}$						
(Total)(Strength I)	(ksi)	22.8	41.2	37.5	44.1	20.2
$\phi_r F_n$	(ksi)	50.0	50.0	50.0	50.0	50.0
V <sub>r</sub>	(k)	29.7	37.5	32.3	38.3	35.0

EXTERIOR GIRDER 1 REACTION TABLE					
	Pier C1	Pier 1	Pier 2	W. Abut.	
R <sub>DC1</sub>	(k)	14.4	73.3	73.0	14.2
R <sub>DC2</sub>	(k)	9.3	39.0	40.0	10.0
R <sub>DW</sub>	(k)	3.9	18.9	19.0	3.6
$R\ddot{\epsilon} \cdot IM$	(k)	60.1	93.8	99.6	69.9
R <sub>Total</sub>	(k)	87.7	225.1	231.6	97.7

INTERIOR GIRDER 2 MOMENT TABLE						
	0.4 Sp. 1	Pier 1	0.5 Sp. 2	Pier 2	0.6 Sp. 3	
$I_s$	(in <sup>4</sup> )	9,035	15,895	9,035	15,895	9,035
$I_c(n)$	(in <sup>4</sup> )	24,372	—	24,372	—	24,372
$I_c(3n)$	(in <sup>4</sup> )	17,976	—	17,976	—	17,976
$I_c(cr)$	(in <sup>4</sup> )	—	19,571	—	19,571	—
$S_s$	(in <sup>3</sup> )	482	757	482	757	482
$S_c(n)$	(in <sup>3</sup> )	705	—	705	—	705
$S_c(3n)$	(in <sup>3</sup> )	640	—	640	—	640
$S_c(cr)$	(in <sup>3</sup> )	—	1,049	—	1,049	—
$S_{xc}$	(in <sup>3</sup> )	690	1,119	659	1,119	692
DC1	(k/')	0.74	0.81	0.74	0.81	0.74
M <sub>DC1</sub>	(k)	96	608	285	604	88
DC2	(k/')	0.00	0.00	0.00	0.00	0.00
M <sub>DC2</sub>	(k)	10	135	85	129	4
DW	(k/')	0.29	0.29	0.29	0.29	0.29
M <sub>DW</sub>	(k)	38	213	115	221	32
$M\ddot{\epsilon} \cdot IM$	(k)	527	860	665	902	588
$f_i$ (Strength I)	(ksi)	5.9	0.1	3.2	0.3	2.3
$M_u + \frac{1}{3} f_i S_{xc}$	(k)	1,226	2,757	1,857	2,837	1,236
$\phi_r M_n$	(k)	—	—	—	—	—
$f_s$ DC1	(ksi)	2.4	9.6	7.1	9.6	2.2
$f_s$ DC2	(ksi)	0.2	1.5	1.6	1.5	0.1
$f_s$ DW	(ksi)	0.7	2.4	2.2	2.5	0.6
$f_s$ ( $\ddot{\epsilon} + IM$ )	(ksi)	9.0	9.8	11.3	10.3	10.0
$f_i$ (Service II)	(ksi)	14.9	26.4	25.6	27.0	15.9
$f_s + \frac{1}{2} f_i$ (Service II)	(ksi)	17.2	26.5	26.7	27.1	16.7
$0.95R_n F_{yf}$	(ksi)	47.5	47.5	47.5	47.5	47.5
$f_s + \frac{1}{3}$						
(Total)(Strength I)	(ksi)	22.0	34.9	—	35.8	22.0
$\phi_r F_n$	(ksi)	50.0	50.0	50.0	50.0	50.0
V <sub>r</sub>	(k)	24.8	31.7	22.8	28.5	26.5

INTERIOR GIRDER 2 REACTION TABLE					
	Pier C1	Pier 1	Pier 2	W. Abut.	
R <sub>DC1</sub>	(k)	13.6	75.0	75.1	13.5
R <sub>DC2</sub>	(k)	1.2	13.8	12.1	-1.2
R <sub>DW</sub>	(k)	5.0	27.0	27.2	4.8
$R\ddot{\epsilon} \cdot IM$	(k)	49.3	93.7	95.1	54.1
R <sub>Total</sub>	(k)	69.1	209.5	209.4	71.1

$I_s, S_s$ : 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<sup>4</sup> and in<sup>3</sup>).

$I_c(n), S_c(n)$ : 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<sup>4</sup> and in<sup>3</sup>).

$I_c(3n), S_c(3n)$ : 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<sup>4</sup> and in<sup>3</sup>).

$I_c(cr), S_c(cr)$ : 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<sup>4</sup> and in<sup>3</sup>).

$S_{xc}$ : 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<sup>3</sup>).

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

M<sub>DC1</sub>: 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<sub>DC2</sub>: 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<sub>DW</sub>: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).

$M\ddot{\epsilon} \cdot IM$ : Un-factored live load moment plus dynamic load allowance (Impact)(kip-ft.).

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

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

$\phi_r M_n$ : 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).  
 $M_{DC1} / S_{sc}$

$f_s$  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.

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

$f_s + \frac{1}{2} f_i$  (Service II): Sum of stresses as computed below (ksi).  
 $f_s DC1 + f_s DC2 + f_s DW + 1.3 f_s (\ddot{\epsilon} + IM) + \frac{1}{2} f_i$

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

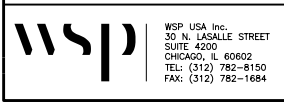
$f_s + \frac{1}{3}$  (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).  
 $1.25 (f_s DC1 + f_s DC2) + 1.5 f_s DW + 1.75 f_s (\ddot{\epsilon} + IM) + \frac{1}{3} f_i$

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

V<sub>r</sub>: Maximum factored shear range in span computed according to Article 6.10.10.

Note:  
 $M\ddot{\epsilon}$  and  $R\ddot{\epsilon}$  include the effects of centrifugal force and superelevation.

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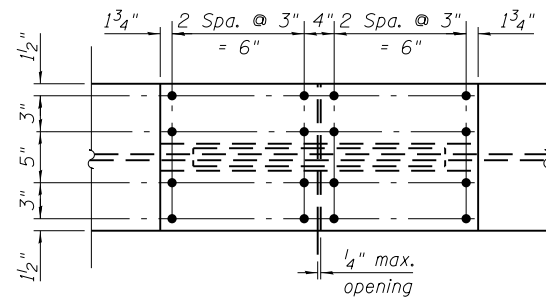
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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE STEEL DETAILS III  
STRUCTURE NO. 016-1706

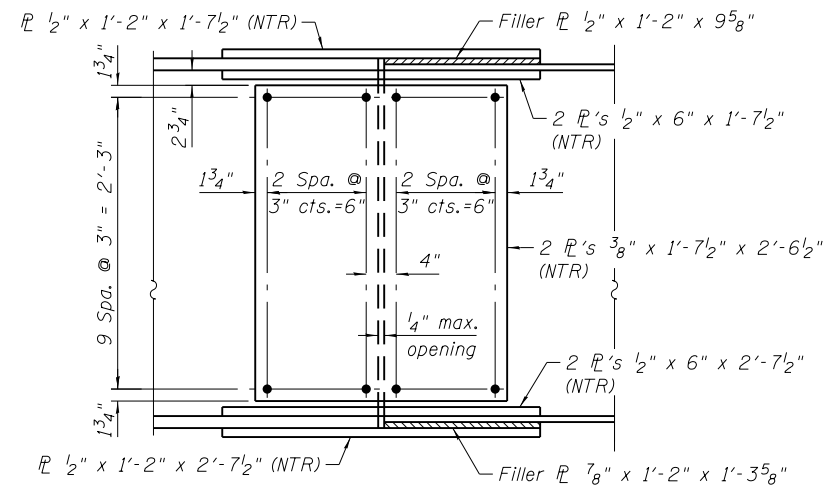
SHEET NO. S1-24 OF S1-45 SHEETS

F.A.I. R.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	639
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				

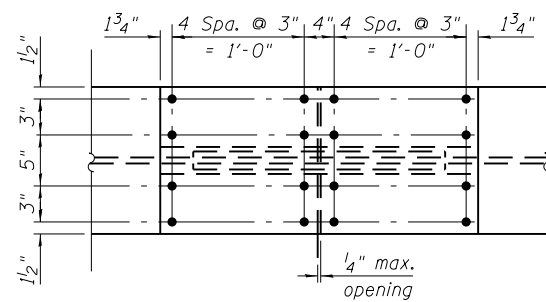


**TOP FLANGE SPLICE**

(Looking at top of top flange)

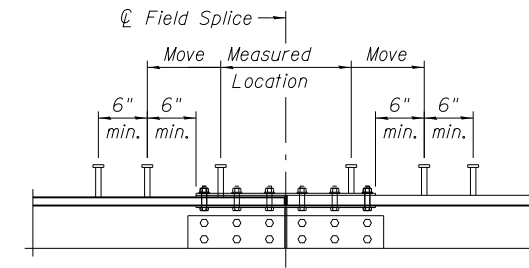


**WEB SPLICE ELEVATION**



**BOTTOM FLANGE SPLICE**

(Looking at bottom of bottom flange)



**SHEAR CONNECTOR DETAIL AT SPLICES**

DO NOT place shear connectors on splice plates. Move row of studs to 6" beyond nearest edge of splice plate from measured location.

Notes:

1. AASHTO M270 Grade 50 steel shall be used for all splice plates, except fill plates which may be AASHTO M270 Grade 36 or 50.
2. Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.

0161706-60X93-5025-DET.dgn



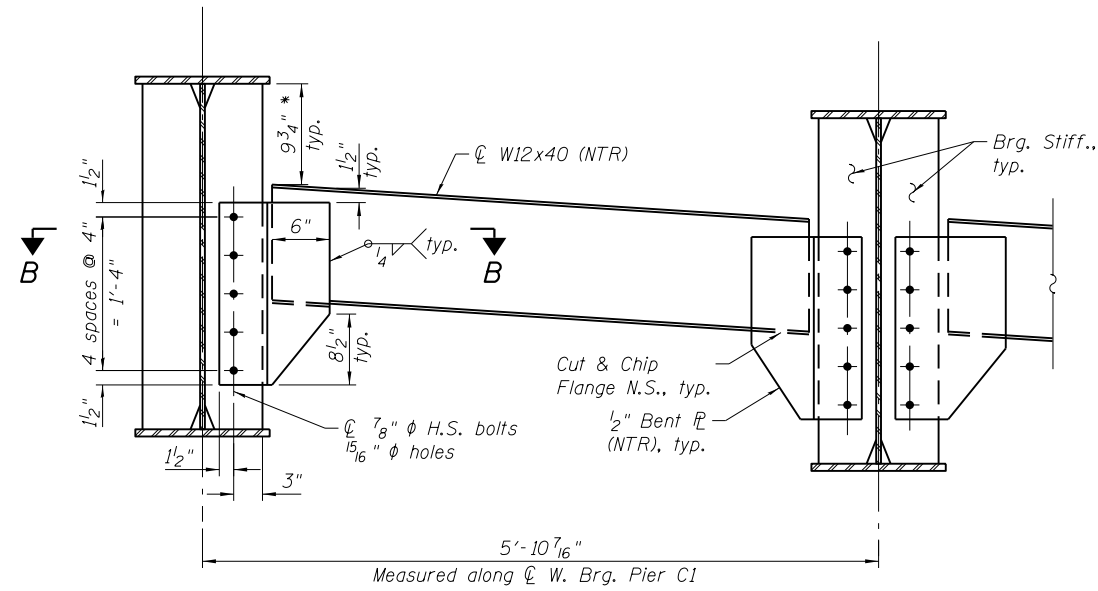
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PLOT SCALE =	N.T.S.	DRAWN -	JZ	REVISED -	
PLOT DATE =	7/30/2018	CHECKED -	JIG	REVISED -	

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**SUPERSTRUCTURE STEEL DETAILS IV  
STRUCTURE NO. 016-1706**

SHEET NO. S1-25 OF S1-45 SHEETS

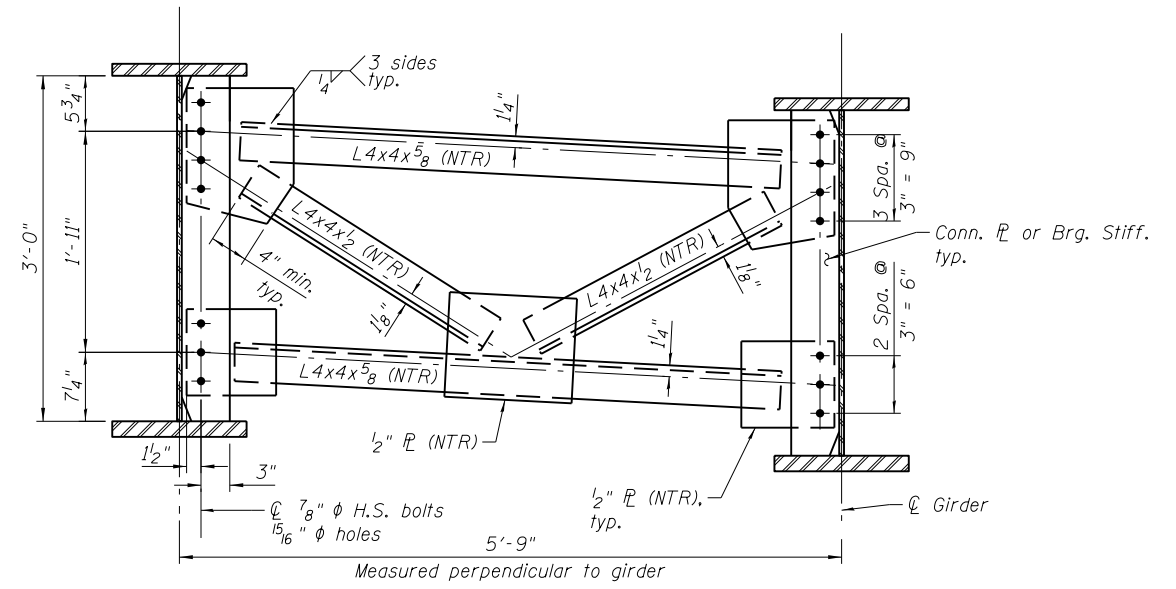
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	640
<b>CONTRACT NO. 60X93</b>				
ILLINOIS FED. AID PROJECT				



**END DIAPHRAGM D1**

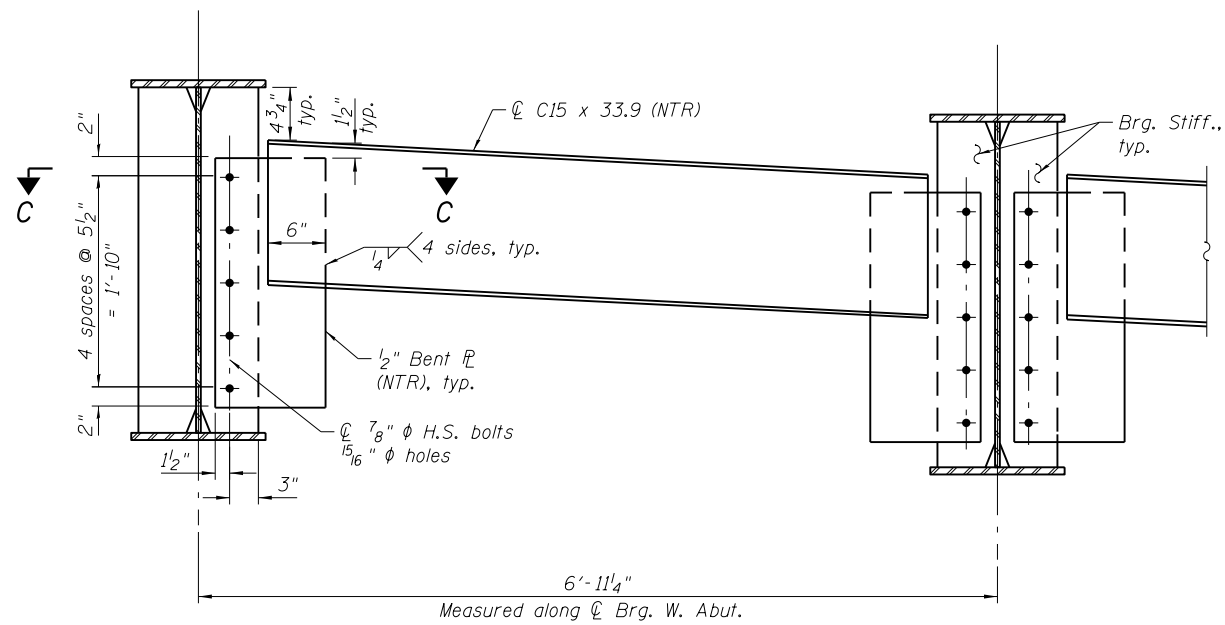
Looking upstation  
(4 Required)

\* Contractor to coordinate with Modular Joint Manufacturer.



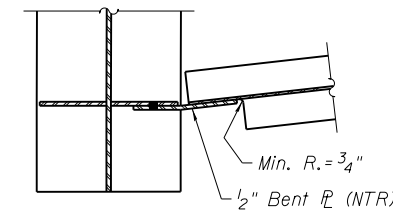
**INTERMEDIATE CROSS FRAME CF**

(54 Required)

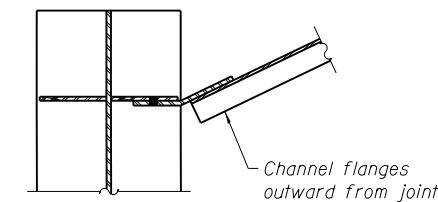


**END DIAPHRAGM D2**

Looking upstation  
(4 Required)



**SECTION B-B**



**SECTION C-C**

**Notes:**

1. See sheet S1-21 for location of girder cross frames and diaphragms.
2. Bolt spacing shall be 3" min. and edge distances shall be 1 1/2" min. unless noted otherwise.
3. All cross frames or diaphragms between girders shall be installed with erection pins and bolts in accordance with the erection plan approved by the Engineer. Individual cross frames or diaphragms at supports may be temporarily disconnected to install bearing anchor rods.
4. If any field reaming is required, two hardened washers are required for each oversized bolt hole.
5. The Contractor shall either:
  - a. Ream cross frame connection holes during shop assembly, or
  - b. Provide detailing fabrication controls acceptable to the Engineer which ensures accuracy such that field reaming will not exceed the amount permitted in Article 505.08(l) of the Standard Specifications.
6. Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.

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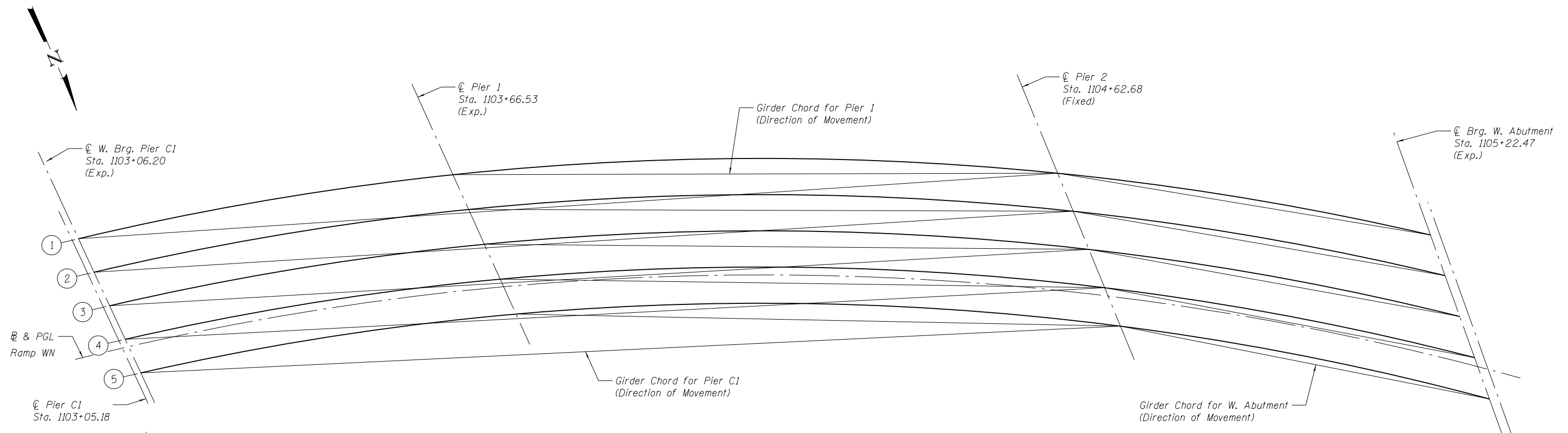
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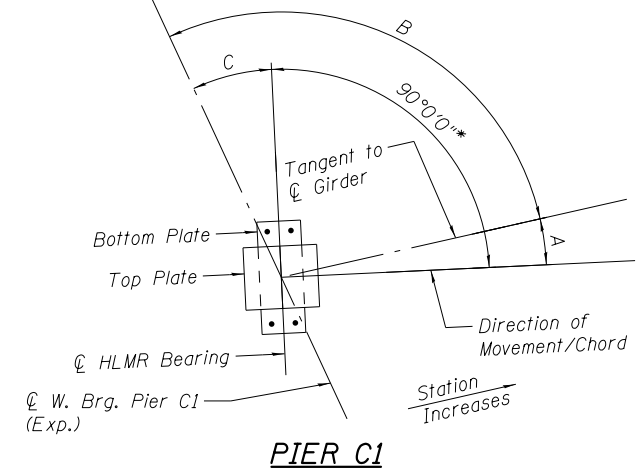
**SUPERSTRUCTURE STEEL DETAILS V  
STRUCTURE NO. 016-1706**

SHEET NO. S1-26 OF S1-45 SHEETS

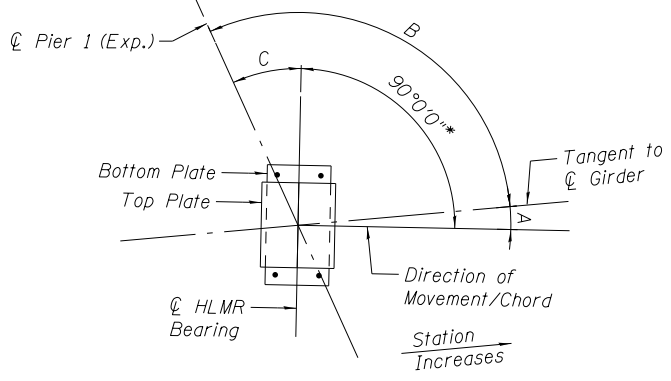
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90/94	2014-013R&B	COOK	1972	641
<b>CONTRACT NO. 60X93</b>				
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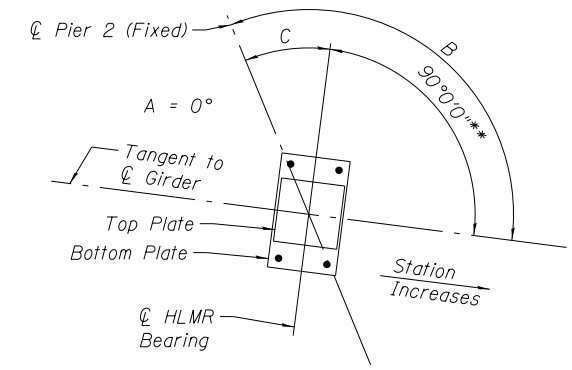
**BEARING LAYOUT PLAN**



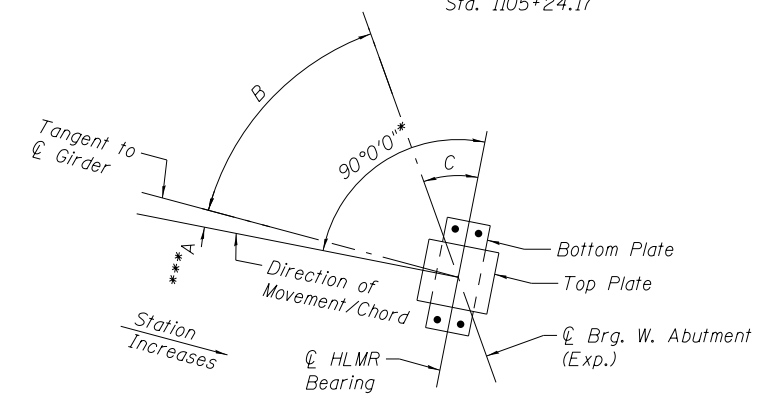
**PIER C1**



**PIER 1**



**PIER 2**



**W. ABUTMENT**

\*\*\* Angle "A" is positive CCW from Tangent to  $\text{\O}$  Girder.

**BEARING ORIENTATION**

**BEARING ORIENTATION ANGLES**

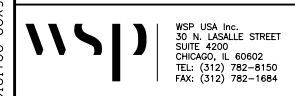
Girder	Pier C1			Pier 1			Pier 2			W. Abutment		
	A	B	C	A	B	C	A	B	C	***A	B	C
1	9°34'12"	101°30'58"	21°05'10"	5°52'49"	108°18'52"	24°11'41"	0°	118°04'16"	28°04'16"	3°40'16"	57°09'00"	29°10'44"
2	9°41'16"	101°39'40"	21°20'56"	5°57'09"	108°33'01"	24°30'10"	0°	118°27'05"	28°07'05"	3°42'41"	56°41'21"	29°35'58"
3	9°48'33"	101°48'36"	21°37'09"	6°01'37"	108°47'32"	24°49'10"	0°	118°50'34"	28°50'34"	3°45'11"	56°12'51"	30°01'58"
4	9°56'03"	101°57'46"	21°53'49"	6°06'15"	109°02'27"	25°08'43"	0°	119°14'45"	29°14'45"	3°47'48"	55°43'27"	30°28'45"
5	10°03'47"	102°07'10"	22°10'57"	6°11'02"	109°17'47"	25°28'49"	0°	119°39'38"	29°39'38"	3°50'31"	55°13'08"	30°56'22"

A = Angle between Tangent to Girder and Direction of Movement/Chord.  
 B = Angle between Tangent to Girder and  $\text{\O}$  of Pier.  
 C = Setting angle between  $\text{\O}$  of Bearing Base Plate and  $\text{\O}$  of Pier.

- \* Set Bearing Base Plates at right angle to the Direction of Movement/Chord.
- \*\* Set Bearing Base Plates at right angle to the Line Tangent to  $\text{\O}$  Girder

- Note:
1. Each Girder Chord is constructed as a straight line from  $\text{\O}$  bearing at a Fixed Pier, in the direction of expansion, to  $\text{\O}$  of bearing at each Expansion Pier/Abutment.
  2. See sheets S1-28 and S1-29 for bearing details at Pier C1, Pier 1, and W. Abutment.
  3. See sheet S1-30 for bearing details at Pier 2.

0161706-60X93-5027-BRG.dgn



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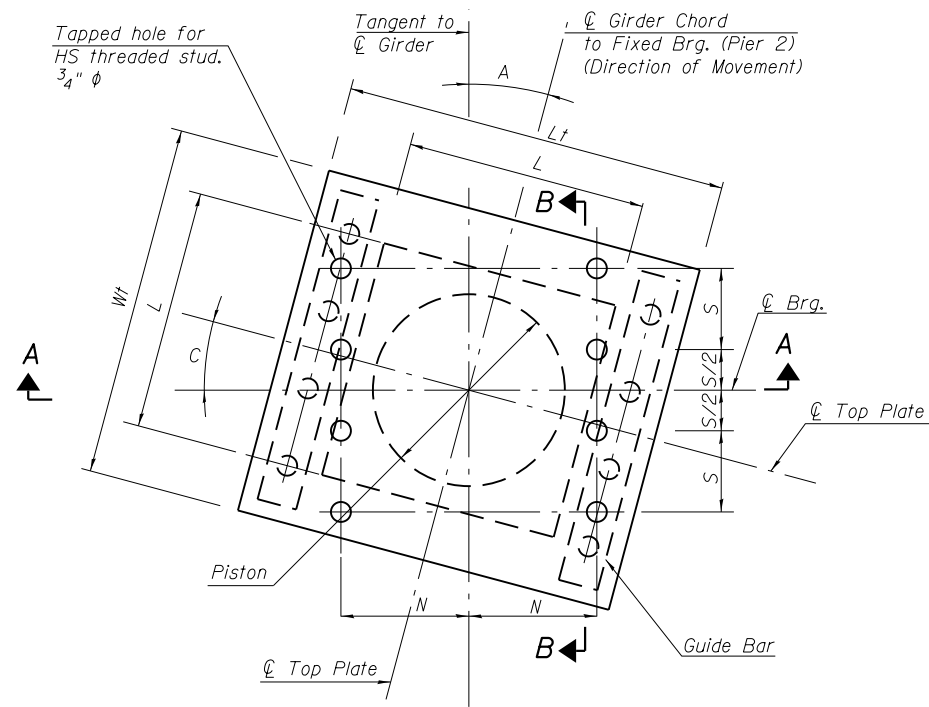
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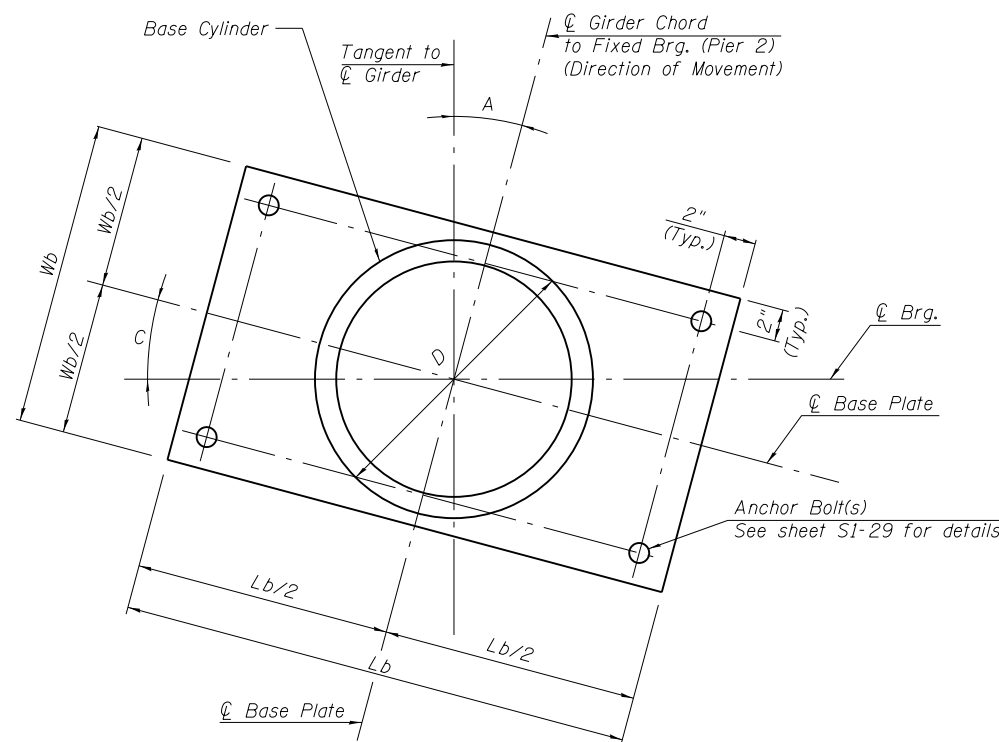
**BEARING LAYOUT  
 STRUCTURE NO. 016-1706**

SHEET NO. S1-27 OF S1-45 SHEETS

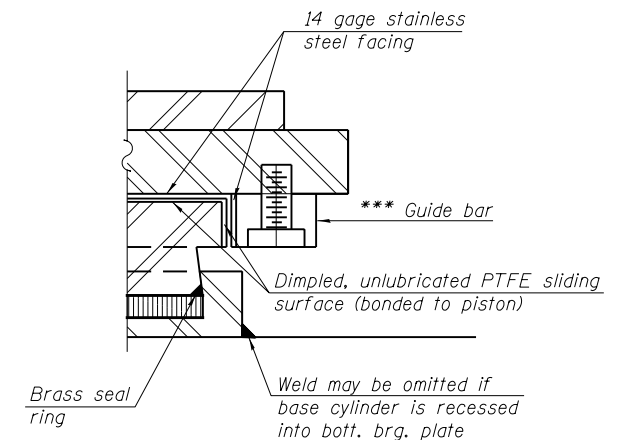
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<b>CONTRACT NO. 60X93</b>				
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**TOP BEARING PLATE AND PISTON PLAN**

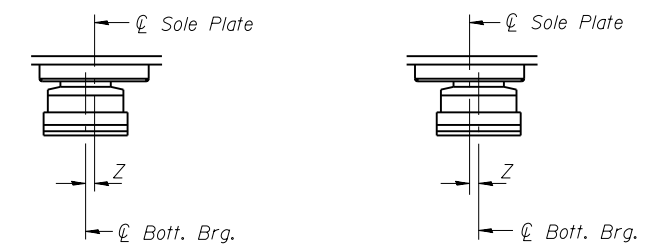


**BOTTOM BEARING PLATE AND BASE CYLINDER PLAN**



**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. If bolted connection is used, maintain a minimum clearance of 3" from the centerline of the pintles to the bolts in the guide bar.



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

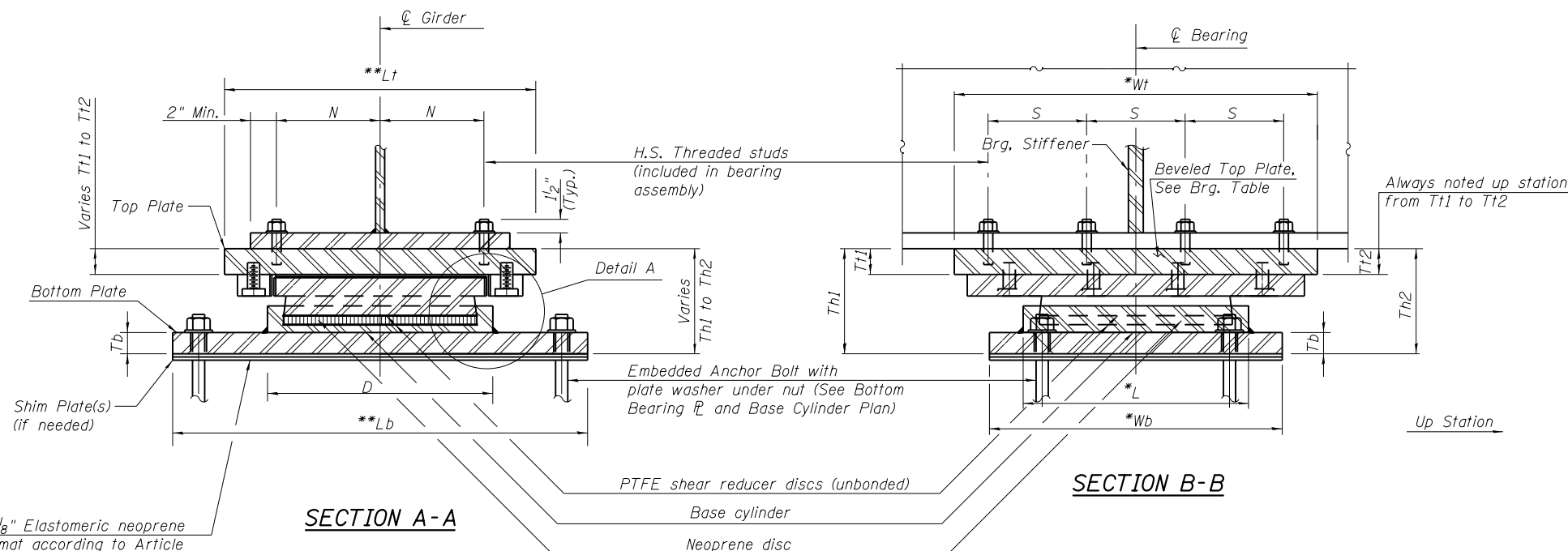
**ABOVE 50° F.**  
(Move bott. brg. toward fixed brg.)

**SETTING ANCHOR BOLTS AT EXP. BRG.**

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

**Notes:**

1. See sheet S1-27 for Bearing Layout and Orientation.
2. See sheet S1-29 for Guided Expansion Bearing Dimensions and Anchor Bolt Details Tables.
3. The Structural Steel for the top & bottom bearing plates shall be AASHTO M270 Grade 50.
4. Top & bottom plates, threaded studs, washers & shim plates are included in the cost of the Bearings.
5. Concrete holes for the anchor bolts shall be drilled thru the bottom bearing plate holes post girder and bearing installation.
6. Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
7. The 1/8" 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.
8. Two 1/8" adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.
9. All (embedded and separate) 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.
11. Bearing dimensions and details shown are for a pot, type HLMR bearing. Disc type HLMR bearing dimensions and details will vary.
12. Orientation and layout of angle "A" varies at each substructure location. See sheet S1-27 for bearing layout and orientation.



**SECTION A-A**

**SECTION B-B**

1/8" Elastomeric neoprene mat according to Article 1052.02(a) of the Standard Specifications (Cost included with bearing)

\* Measured parallel to girder chord.  
\*\* Measured @ Rt. L to girder chord.

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**HLMR GUIDED EXPANSION BEARING DETAILS I  
STRUCTURE NO. 016-1706**

SHEET NO. S1-28 OF S1-45 SHEETS

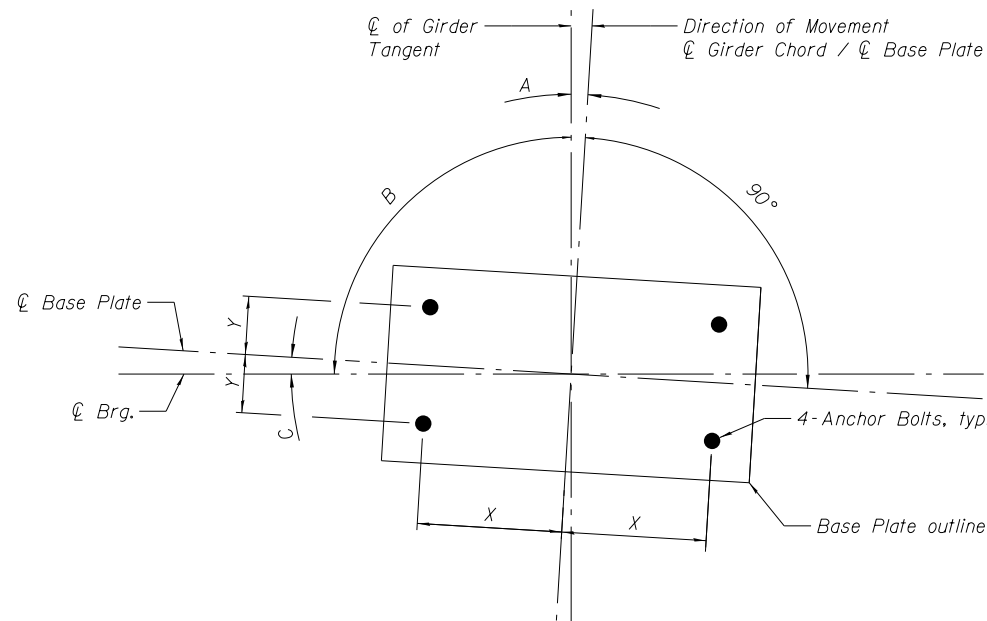
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90/94	2014-013R&B	COOK	1972	643
<b>CONTRACT NO. 60X93</b>				
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**GUIDED EXPANSION BEARING DIMENSIONS TABLE**

Brg. Location	HLMR Brg. Size	Vertical Design Load (kips)	Lateral Design Load (kips)	Total Required Movement (inches)	Design Rotation (radians)	Bottom Bearing Plate			Top Bearing Plate					*Th1	*Th2	*L	*D	
						Tb	Lb	Wb	Tt1	Tt2	Lt	Wt	N					S
Pier C1	100k	74.6	14.9	1"	0.007	1 <sup>5</sup> / <sub>8</sub> "	1'-10 <sup>1</sup> / <sub>2</sub> "	8 <sup>3</sup> / <sub>4</sub> "	2 <sup>1</sup> / <sub>2</sub> "	1 <sup>3</sup> / <sub>4</sub> "	1'-0 <sup>1</sup> / <sub>2</sub> "	1'-2 <sup>3</sup> / <sub>4</sub> "	3 <sup>1</sup> / <sub>2</sub> "	3 <sup>1</sup> / <sub>4</sub> "	7 <sup>3</sup> / <sub>8</sub> "	6 <sup>5</sup> / <sub>8</sub> "	7 <sup>1</sup> / <sub>2</sub> "	7 <sup>3</sup> / <sub>4</sub> "
Pier 1	250k	227.9	45.6	3 <sup>3</sup> / <sub>4</sub> "	0.007	1 <sup>3</sup> / <sub>4</sub> "	2'-0"	1'-0 <sup>3</sup> / <sub>4</sub> "	3 <sup>3</sup> / <sub>8</sub> "	2 <sup>1</sup> / <sub>4</sub> "	1'-5"	1'-2 <sup>3</sup> / <sub>4</sub> "	5"	3 <sup>1</sup> / <sub>4</sub> "	9 <sup>1</sup> / <sub>2</sub> "	8 <sup>3</sup> / <sub>8</sub> "	1'-0"	11 <sup>3</sup> / <sub>4</sub> "
W. Abutment	100k	82.7	16.5	1 <sup>1</sup> / <sub>2</sub> "	0.007	1 <sup>1</sup> / <sub>2</sub> "	1'-10 <sup>1</sup> / <sub>2</sub> "	8 <sup>3</sup> / <sub>4</sub> "	2 <sup>5</sup> / <sub>8</sub> "	1 <sup>1</sup> / <sub>2</sub> "	1'-0 <sup>1</sup> / <sub>2</sub> "	1'-2 <sup>1</sup> / <sub>4</sub> "	3 <sup>3</sup> / <sub>4</sub> "	3 <sup>1</sup> / <sub>4</sub> "	7 <sup>3</sup> / <sub>8</sub> "	6 <sup>1</sup> / <sub>4</sub> "	7 <sup>1</sup> / <sub>2</sub> "	7 <sup>3</sup> / <sub>4</sub> "

\*Dimensions may vary depending on manufacturer's design



**ANCHOR BOLT LOCATION DETAIL**

Location	X	Y	A	B	C
Pier C1	9 <sup>1</sup> / <sub>4</sub> "	2 <sup>3</sup> / <sub>8</sub> "	**	**	**
Pier 1	10"	4 <sup>3</sup> / <sub>8</sub> "	**	**	**
W. Abutment	9 <sup>1</sup> / <sub>4</sub> "	2 <sup>3</sup> / <sub>8</sub> "	**	**	**

\*\*Angle varies by girder. See sheet S1-27 for Bearing Orientation Angles Table.

**ANCHOR BOLT DETAILS FOR ALL BEARINGS**

Anchor Bolt Specification Grade	Bolt Dia. x Length	Base Plate Max. Hole $\phi$	Plate Washer
F1554, Grade 36	1" x 12"	1 <sup>1</sup> / <sub>2</sub> "	2 <sup>1</sup> / <sub>4</sub> "x2 <sup>1</sup> / <sub>4</sub> "x <sup>5</sup> / <sub>16</sub> "

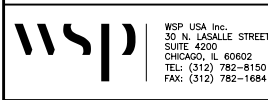
**BILL OF MATERIAL**

ITEM	UNIT	TOTAL
High Load Multi-Rotation Bearings, Guided Expansion, 100k.	Each	10
High Load Multi-Rotation Bearings, Guided Expansion, 250k.	Each	5
Anchor Bolts, 1"	Each	60

Notes:

- Orientation and layout of angle "A" varies at each substructure location. See sheet S1-27 for Bearing Layout and Orientation.
- 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.

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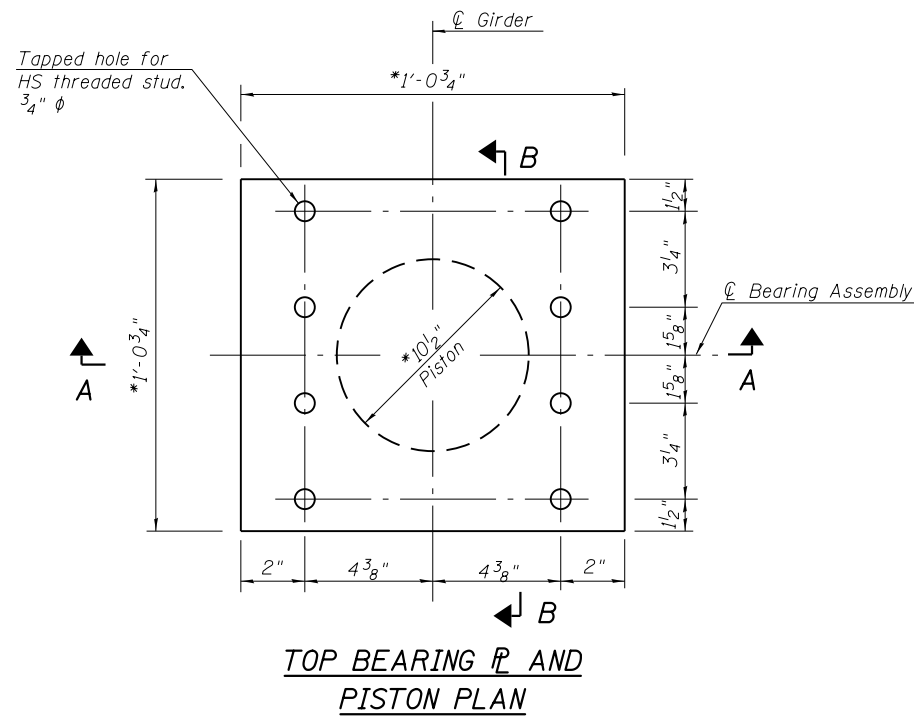
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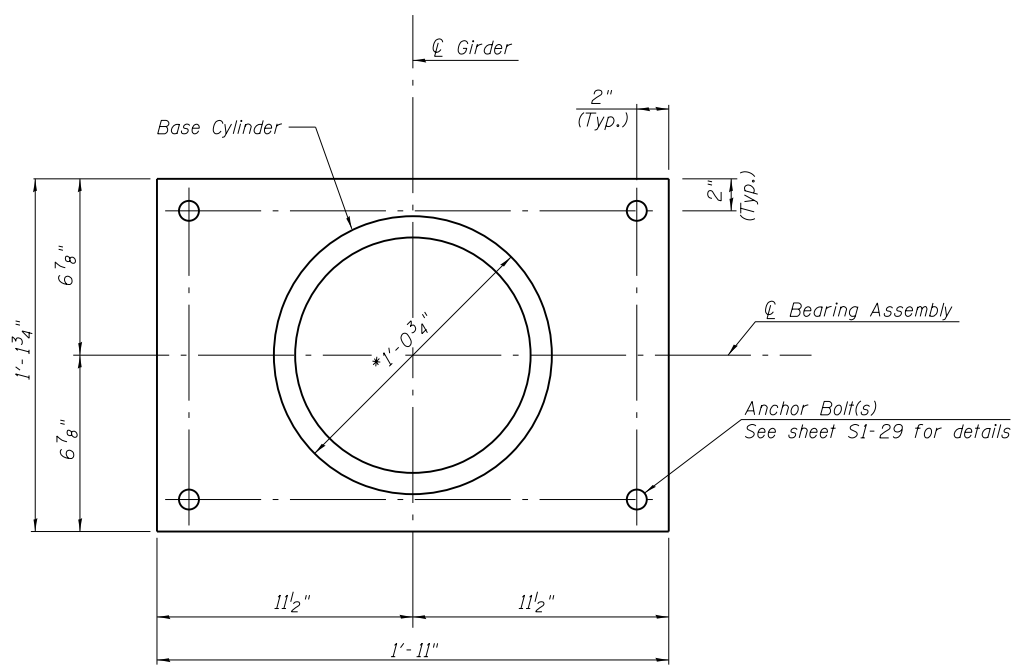
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STRUCTURE NO. 016-1706**

SHEET NO. S1-29 OF S1-45 SHEETS

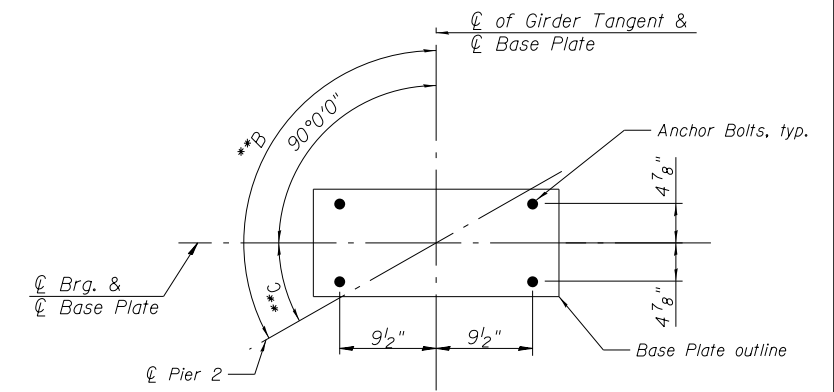
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90/94	2014-013R&B	COOK	1972	644
CONTRACT NO. 60X93			ILLINOIS FED. AID PROJECT	



**TOP BEARING PLATE AND PISTON PLAN**



**BOTTOM BEARING PLATE AND BASE CYLINDER PLAN**

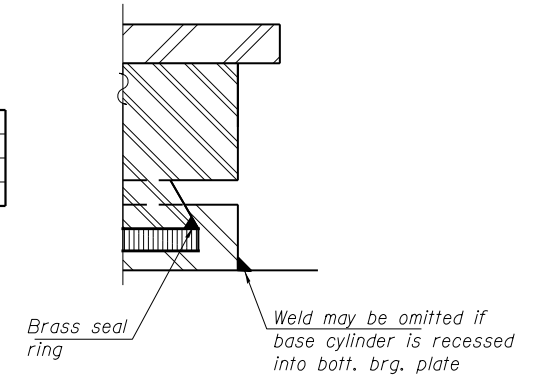


**ANCHOR BOLT LOCATION DETAIL**

\*\*Angle varies by girder. See sheet S1-27 for Bearing Orientation Angles Table.

**DESIGN DATA**

Bearing Manufacturer Design Criteria	Pier 2
Vertical Design Load (kips)	222.5
Horizontal Design Load (kips), $H_u$	44.5
Design Rotation (rad), $\theta_u$	0.007



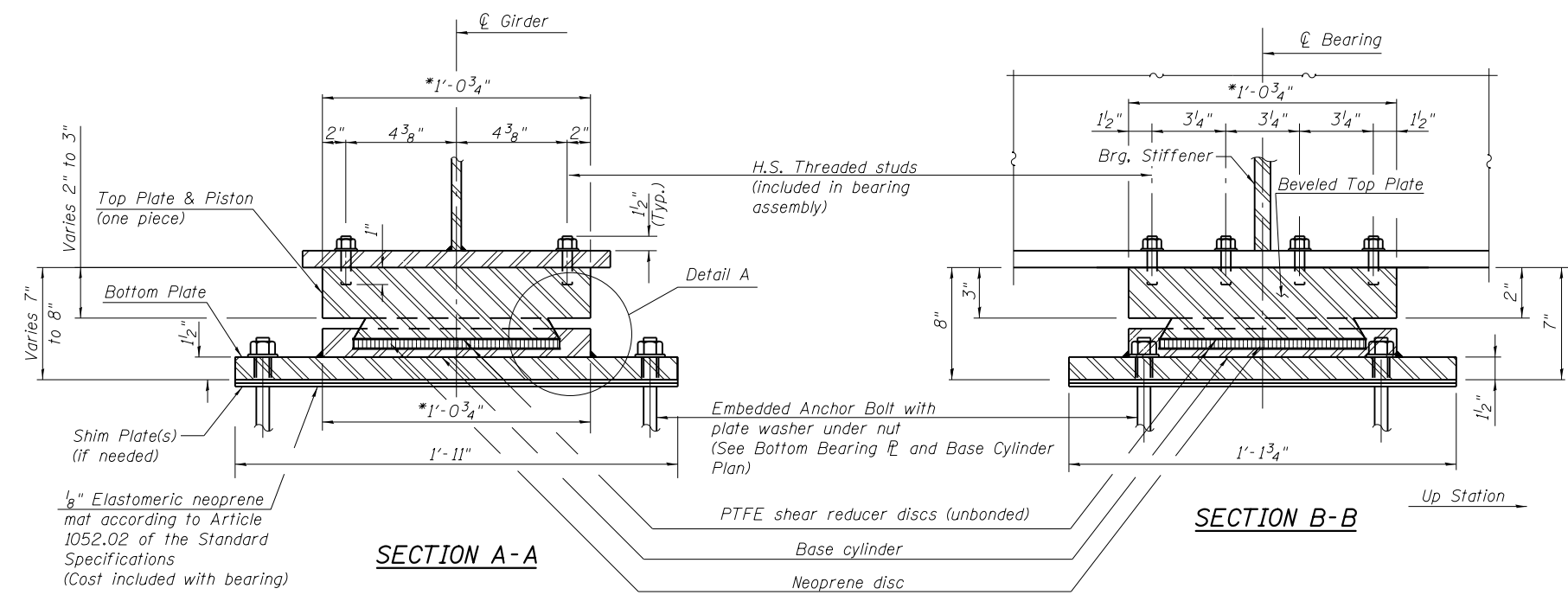
**DETAIL A**

**BILL OF MATERIAL**

Item	Unit	Total
High Load Multi-Rotation Bearings, Fixed 250k.	Each	5
Anchor Bolts, 1"	Each	20

**Notes:**

- See sheet S1-27 for Bearing Layout and Orientation.
- See sheet S1-29 for Anchor Bolt Details Table.
- The Structural Steel for the top & bottom bearing plates shall be AASHTO M270 Grade 50.
- Top & bottom plates, threaded studs, washers & shim plates are included in the cost of the Bearings.
- Concrete holes for the anchor bolts shall be drilled thru the bottom bearing plate holes post girder and bearing installation.
- Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
- Two 1/8" adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.
- All (embedded and separate) bearing plates, anchor bolts, nuts, washers and pintles shall be galvanized according to AASHTO M111 or M232 as applicable.
- If base cylinder is recessed into the bottom bearing plate, the thickness of the bottom plate shall be  $T_b$  plus the depth of the recess.
- Bearing dimensions and details shown are for a pot, type HLMR bearing. Disc type HLMR bearing dimensions and details will vary.

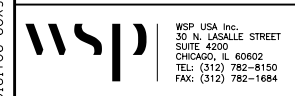


**SECTION A-A**

**SECTION B-B**

\*Dimensions may vary depending on Manufacturer's design.

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**HLMR FIXED BEARING DETAILS  
STRUCTURE NO. 016-1706**

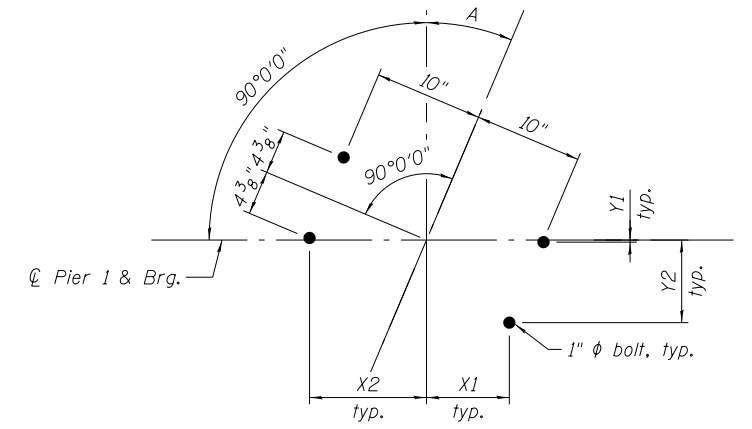
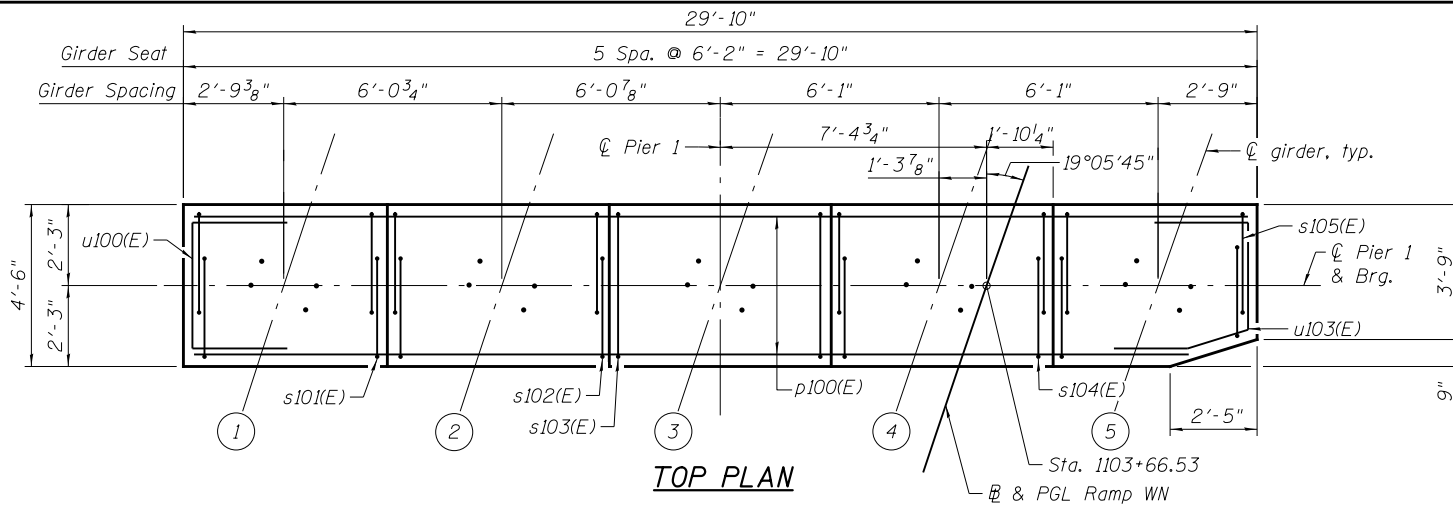
SHEET NO. S1-30 OF S1-45 SHEETS

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CONTRACT NO. 60X93			ILLINOIS FED. AID PROJECT	

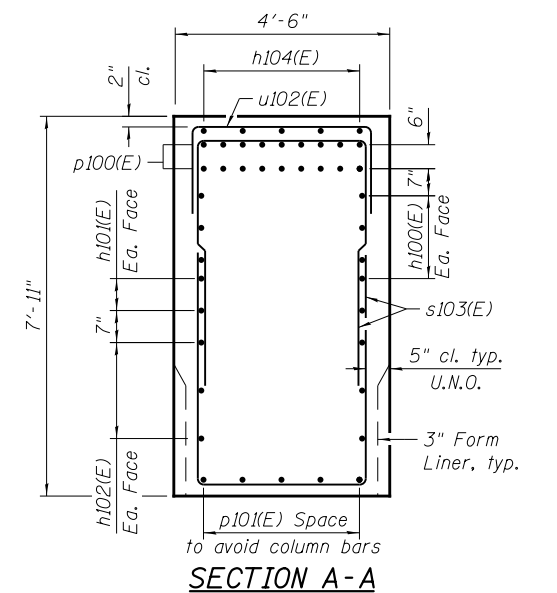
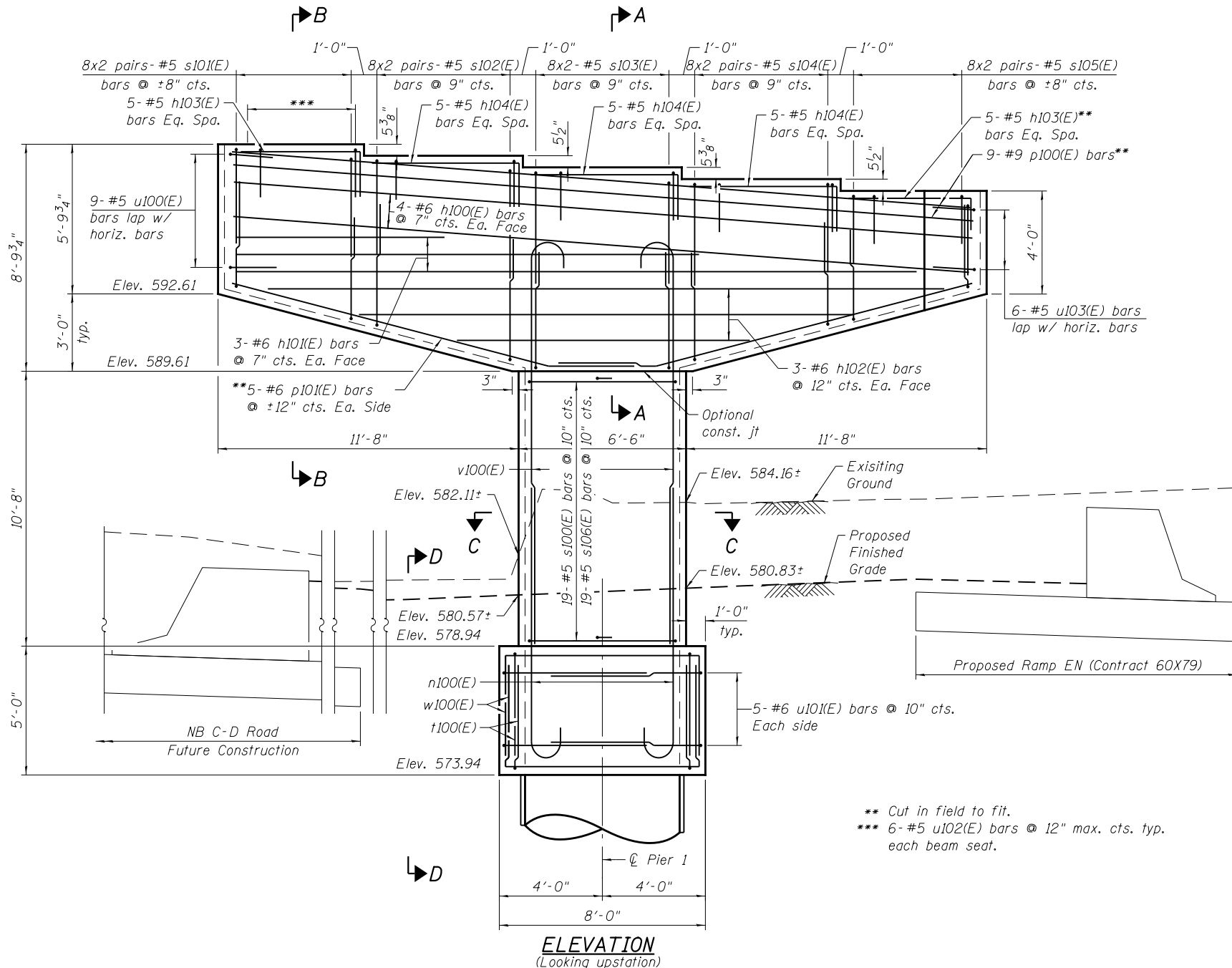
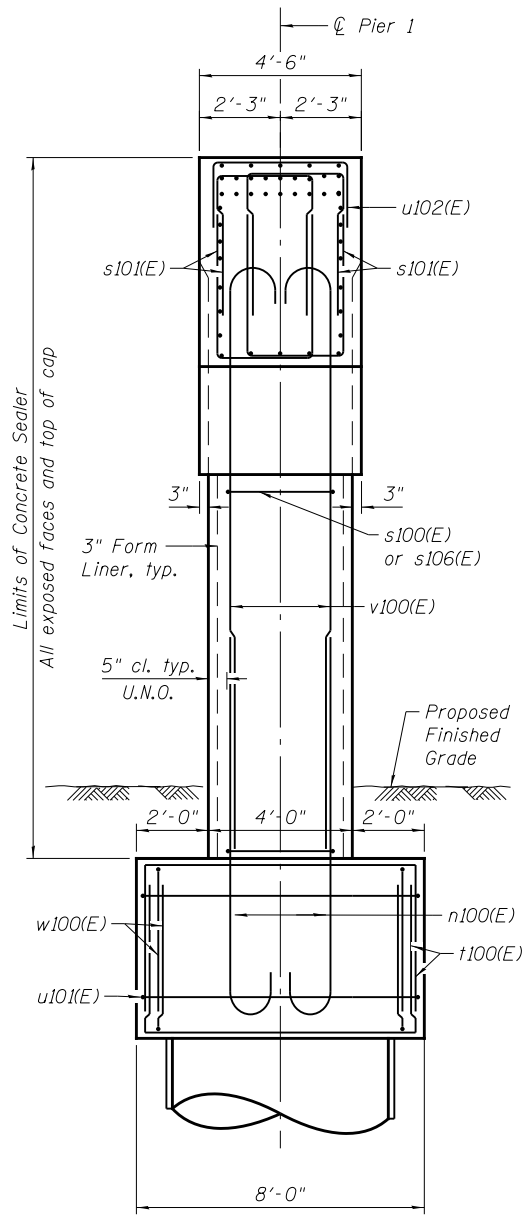
**TOP OF SEAT ELEVATION**

Girder No.	*Seat Elevation
1	598.42
2	597.97
3	597.52
4	597.07
5	596.61

\* Elevations are based on bearing heights shown in sheet S1-29. Contractor shall adjust these elevations if bearing heights are different, subject to approval by the engineer.



Girder	A	X1	X2	Y1	Y2
1	18°28'58"	7 <sup>5</sup> / <sub>16</sub> "	10 <sup>15</sup> / <sub>16</sub> "	1/8"	8 <sup>1</sup> / <sub>16</sub> "
2	18°41'56"	7 <sup>5</sup> / <sub>16</sub> "	10 <sup>15</sup> / <sub>16</sub> "	3/16"	8 <sup>1</sup> / <sub>8</sub> "
3	18°57'18"	7/4"	10 <sup>15</sup> / <sub>16</sub> "	1/4"	8 <sup>3</sup> / <sub>16</sub> "
4	19°10'55"	7 <sup>3</sup> / <sub>16</sub> "	10 <sup>15</sup> / <sub>16</sub> "	5/16"	8 <sup>3</sup> / <sub>16</sub> "
5	19°26'55"	7 <sup>7</sup> / <sub>8</sub> "	10 <sup>15</sup> / <sub>16</sub> "	3/8"	8 <sup>1</sup> / <sub>4</sub> "



**MINIMUM BAR LAP**

- #5 bar = 3'-3"
- #6 bar = 3'-10"
- #8 bar = 5'-6"

**Notes:**

- Space reinforcement in cap to miss anchor bolts.
- Pour steps monolithically with cap.
- Bars equally spaced, unless otherwise noted.
- Apply concrete sealer to all exposed concrete surfaces of the pier.
- All edges shall have standard 3/4" chamfer, unless otherwise noted.
- Bars indicated thus: 8x2- #5 etc. indicates 8 lines of bars with 2 lengths per line.
- See sheet S1-32 for Section B-B, Section C-C, and View D-D.

\*\* Cut in field to fit.  
\*\*\* 6- #5 u102(E) bars @ 12" max. cts. typ. each beam seat.

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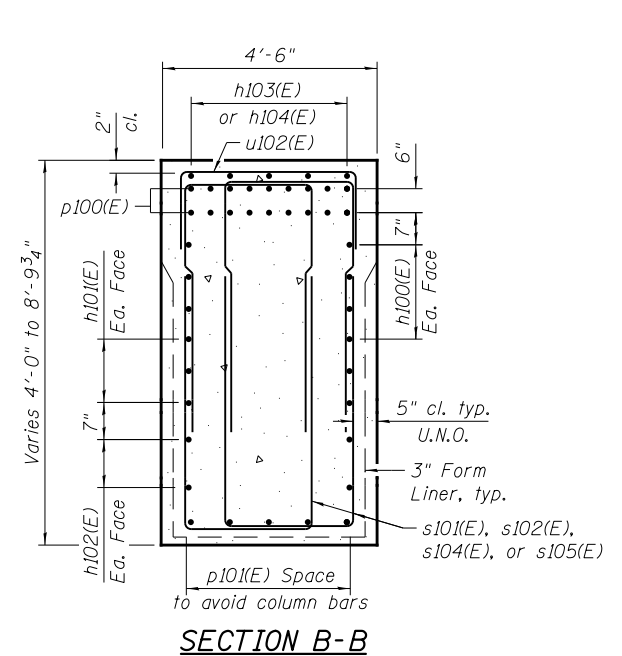
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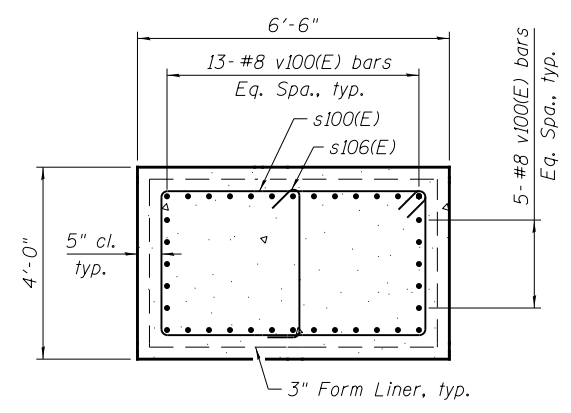
**PIER 1  
STRUCTURE NO. 016-1706**

SHEET NO. S1-31 OF S1-45 SHEETS

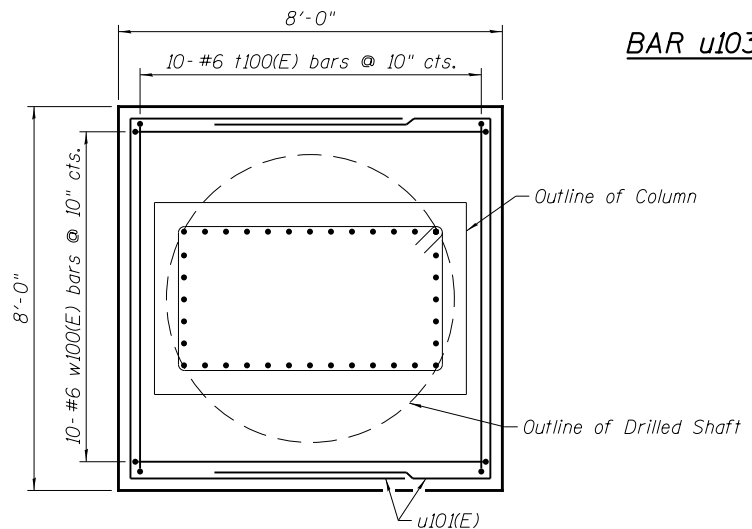
F.A.I. R.T.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	646
<b>CONTRACT NO. 60X93</b>				
ILLINOIS FED. AID PROJECT				



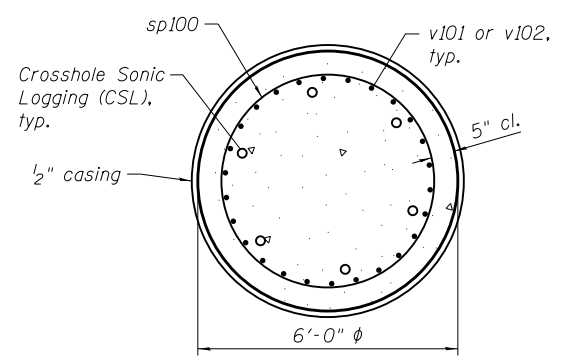
**SECTION B-B**



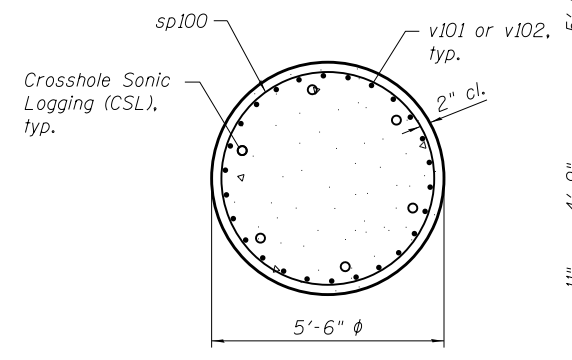
**SECTION C-C**



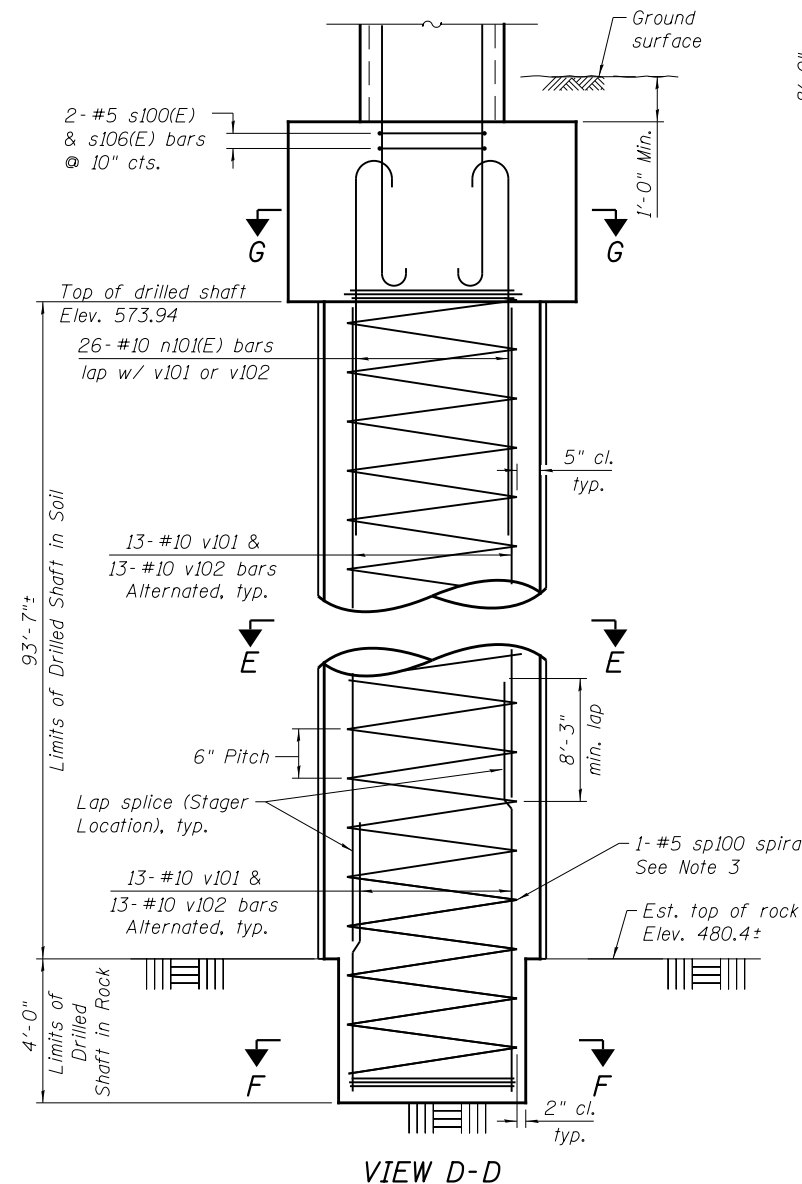
**SECTION G-G**



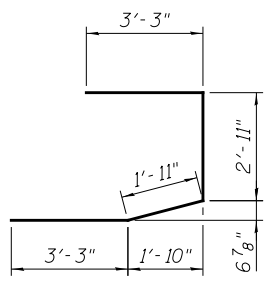
**SECTION E-E**



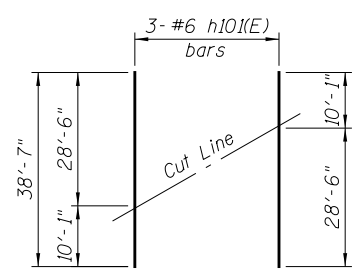
**SECTION F-F**



**VIEW D-D**

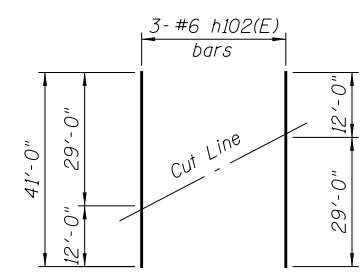


**BAR u103(E)**



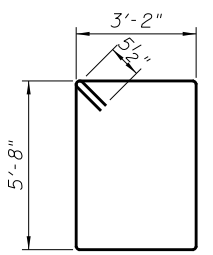
**CUTTING DIAGRAM**

Order bars full length. Cut as shown. Use the remainder on opposite side.

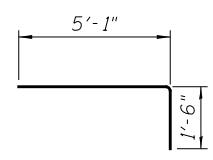


**CUTTING DIAGRAM**

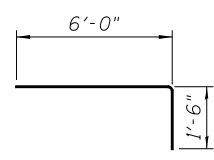
Order bars full length. Cut as shown. Use the remainder on opposite side.



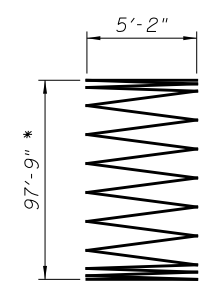
**BAR s100(E)**



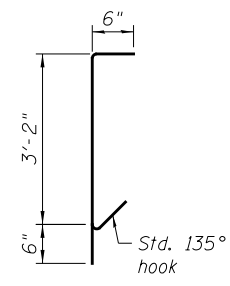
**BAR h103(E)**



**BAR h104(E)**

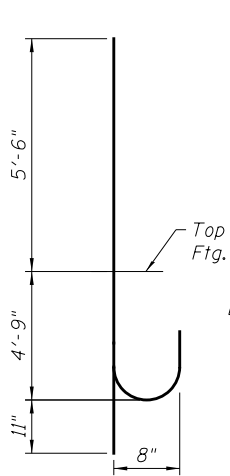


**BAR sp100**

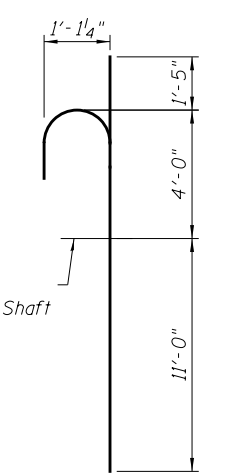


**BAR s106(E)**

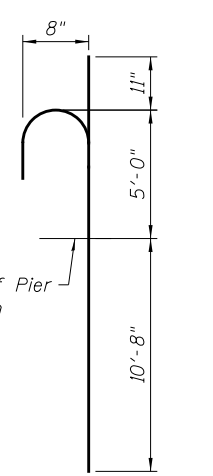
**MINIMUM BAR LAP (E)**  
#10 bar = 10'-10"



**BAR n100(E)**



**BAR n101(E)**



**BAR v100(E)**

**A & B DIMENSIONS**

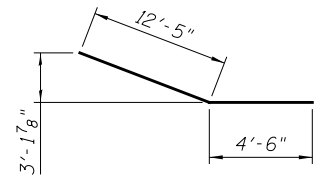
Bar	A	B
s101(E)	5'-0"	2'-9"
s102(E)	5'-7"	2'-9"
s103(E)	5'-3"	3'-8"
s104(E)	5'-1"	2'-9"
s105(E)	4'-0"	2'-9"
t100(E)	4'-1"	7'-6"
u100(E)	3'-3"	3'-6"
u101(E)	5'-9"	7'-8"
u102(E)	1'-6"	3'-8"
w100(E)	4'-1"	7'-6"

\*\* Cut legs in field to fit

**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h100(E)	8	#6	29'-0"	┌───┐
h101(E)	3	#6	38'-7"	┌───┐
h102(E)	3	#6	41'-0"	┌───┐
h103(E)	10	#5	6'-7"	┌───┐
h104(E)	15	#5	7'-6"	┌───┐
n100(E)	36	#8	11'-2"	┌───┐
n101(E)	26	#10	16'-5"	┌───┐
p100(E)	18	#9	29'-0"	┌───┐
p101(E)	10	#6	16'-11"	┌───┐
s100(E)	21	#5	18'-9"	┌───┐
s101(E)	32	#5	12'-9"	┌───┐
s102(E)	32	#5	13'-11"	┌───┐
s103(E)	16	#5	14'-4"	┌───┐
s104(E)	32	#5	12'-11"	┌───┐
s105(E)	32	#5	10'-9"	┌───┐
s106(E)	21	#5	4'-2"	┌───┐
sp100	1	#5	97'-9"	WWW
t100(E)	20	#6	15'-8"	┌───┐
u100(E)	9	#5	10'-0"	┌───┐
u101(E)	10	#5	19'-2"	┌───┐
u102(E)	30	#5	6'-8"	┌───┐
u103(E)	6	#5	11'-4"	┌───┐
v100(E)	36	#8	16'-7"	┌───┐
v101	26	#10	60'-0"	┌───┐
v102	26	#10	45'-10"	┌───┐
w100(E)	20	#6	15'-8"	┌───┐
Structure Excavation		Cu. Yd.	53	
Concrete Structures		Cu. Yd.	55.8	
Reinforcement Bars		Pound	15,210	
Reinforcement Bars, Epoxy Coated		Pound	11,360	
Permanent Casing		Foot	94	
Drilled Shaft in Soil		Cu. Yd.	98	
Drilled Shaft in Rock		Cu. Yd.	4	
Concrete Sealer		Sq. Ft.	946	
Crosshole Sonic Logging Access Ducts		Foot	98	
Crosshole Sonic Logging Testing		Each	1	

\* Length is height of spiral

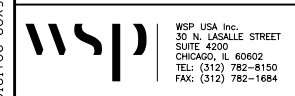


**BAR p101(E)**

Notes:

1. Perform Crosshole Sonic Logging (CSL) testing on Drilled Shaft.
2. The quantities and reinforcement detailing are based on the top of shaft and the estimated top of rock elevations shown and may change based on the actual top of rock elevations and the final top of shaft elevation.
3. For #5 sp100 spiral:
  - 1) Provide 1/2 extra turns top and bottom. Extend spiral 2" into pier footing. Provide 4-#4 spacers or equivalent.
  - 2) When splicing spiral reinforcement is necessary, the spiral shall be provided with 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 degree standard hook.

0161706-60X93-5032-DET.dgn



WSP USA Inc.  
30 N. LASALLE STREET  
SUITE 4000  
CHICAGO, IL 60602  
TEL: (312) 782-8150  
FAX: (312) 782-1884

USER NAME =	ibrahim1	DESIGNED -	JZ	REVISED -	
		CHECKED -	MS	REVISED -	
PLOT SCALE =	N.T.S.	DRAWN -	JZ	REVISED -	
PLOT DATE =	7/30/2018	CHECKED -	JIG	REVISED -	

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**PIER 1 DETAILS  
STRUCTURE NO. 016-1706**

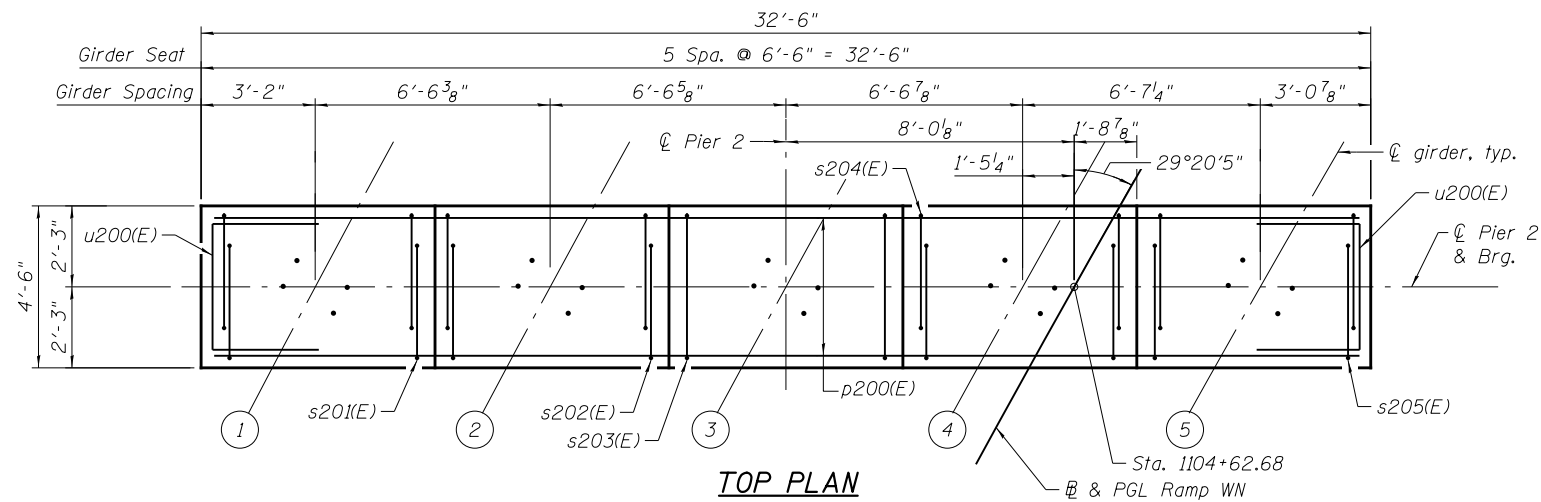
SHEET NO. S1-32 OF S1-45 SHEETS

F.A.I. R.T.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	647
CONTRACT NO. 60X93			ILLINOIS FED. AID PROJECT	

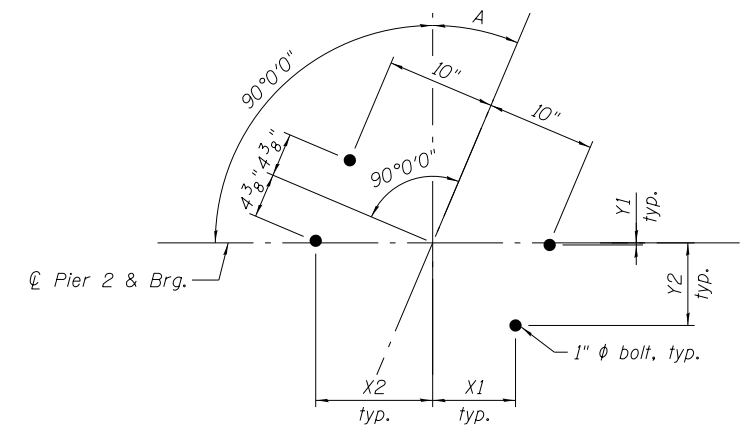
**TOP OF SEAT ELEVATION**

Girder No.	*Seat Elevation
1	591.16
2	590.62
3	590.08
4	589.53
5	588.97

\* Elevations are based on bearing heights shown in sheet S1-30. Contractor shall adjust these elevations if bearing heights are different, subject to approval by the engineer.



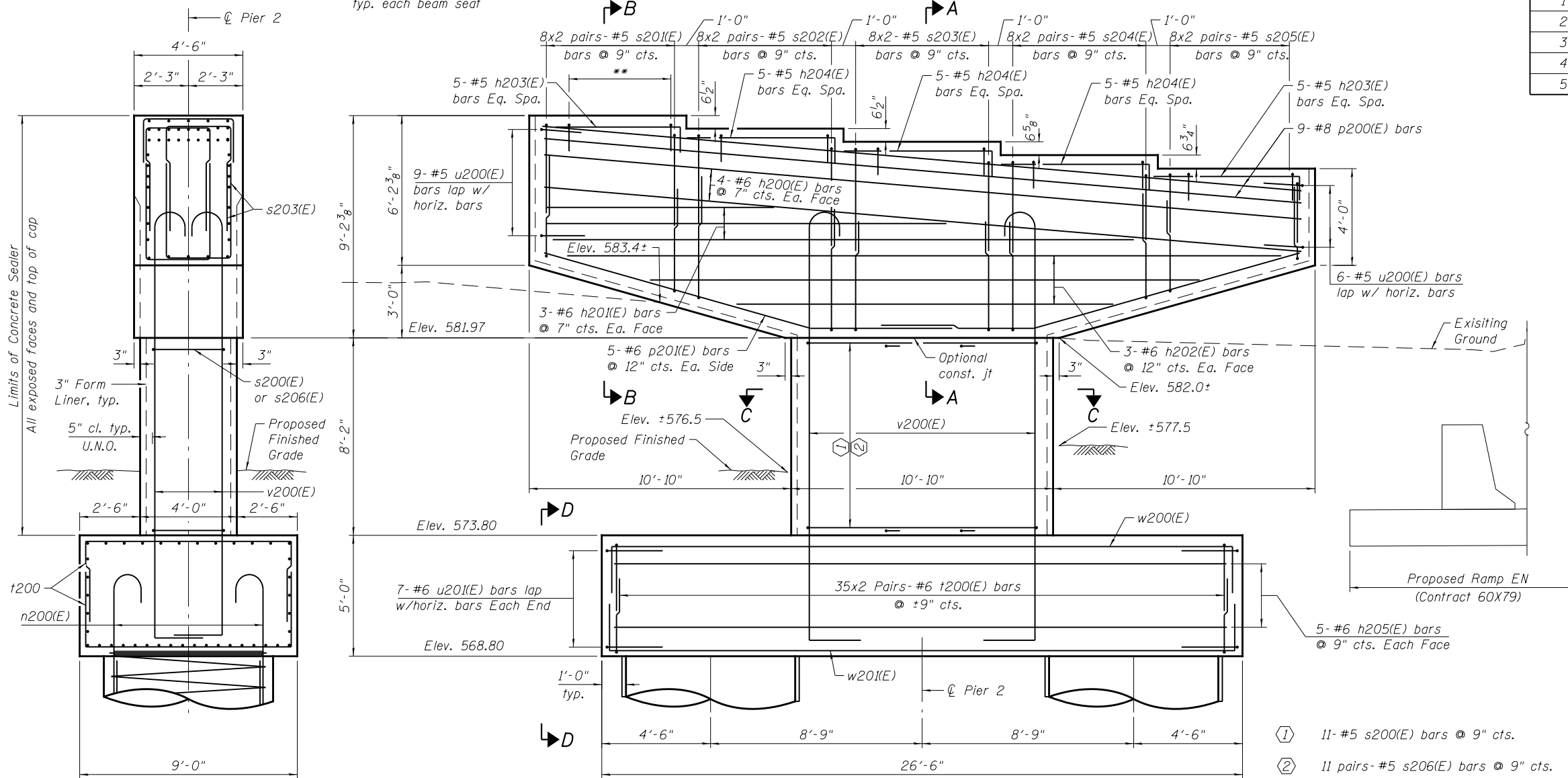
**TOP PLAN**



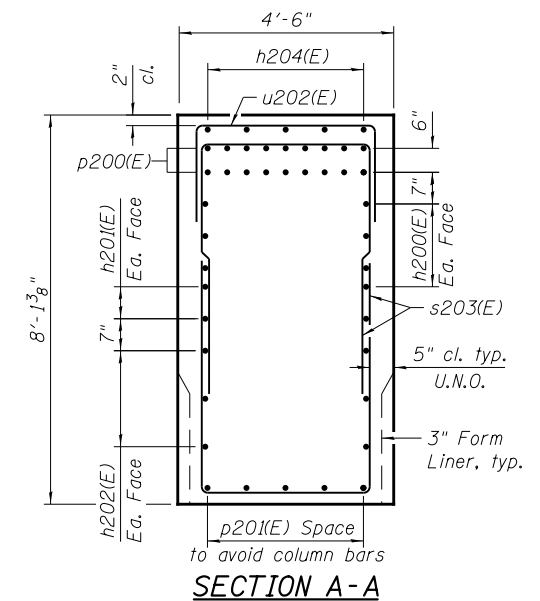
**ANCHOR BOLT LAYOUT**

Girder	A	X1	X2	Y1	Y2
1	28°04'16"	6 1/16"	10 1/16"	3 1/16"	8 3/4"
2	28°27'05"	6"	10 1/16"	1/4"	8 13/16"
3	28°50'34"	6"	10 1/16"	5/16"	8 7/8"
4	29°14'45"	5 5/16"	10 1/16"	3/8"	8 7/8"
5	29°39'38"	5 3/16"	10 1/16"	7/16"	8 5/16"

\*\* 6- #5 u202(E) bars @ 12" max. cts., typ. each beam seat



**ELEVATION**  
(Looking upstation)



**SECTION A-A**

**MINIMUM BAR LAP**

#5 bar = 3'-3"  
#6 bar = 3'-10"

**Notes:**

- Space reinforcement in cap to miss anchor bolts.
- Pour steps monolithically with cap.
- Bars equally spaced, unless otherwise noted.
- Apply concrete sealer to all exposed concrete surfaces of the pier.
- All edges shall have standard 3/4" chamfer, unless otherwise noted.
- Bars indicated thus: 8x2- #5 etc. indicates 8 lines of bars with 2 lengths per line.
- See sheet S1-34 for Section B-B, Section C-C, and View D-D.

- ① 11- #5 s200(E) bars @ 9" cts.
- ② 11 pairs- #5 s206(E) bars @ 9" cts.

0161706-60X93-5033-PR2.dgn



WSP USA Inc.  
30 N. LA SALLE STREET  
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CHICAGO, IL 60602  
TEL: (312) 782-8150  
FAX: (312) 782-1684

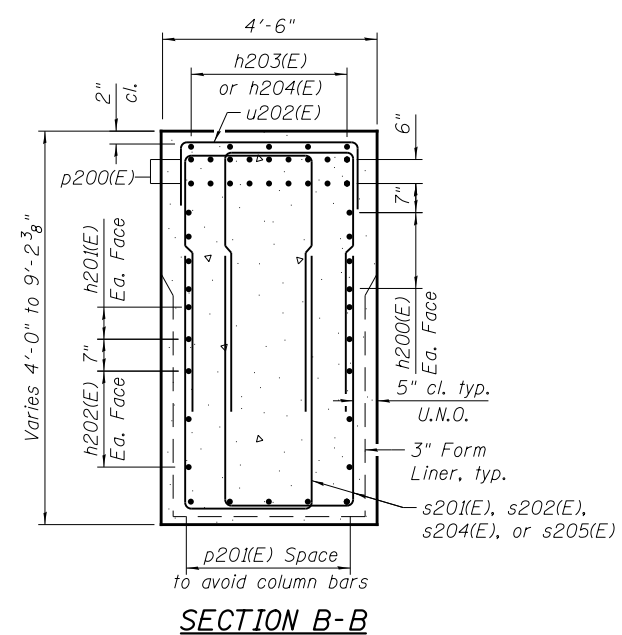
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		CHECKED -	MS	REVISED -	
PLOT SCALE =	N.T.S.	DRAWN -	JZ	REVISED -	
PLOT DATE =	7/30/2018	CHECKED -	JIG	REVISED -	

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

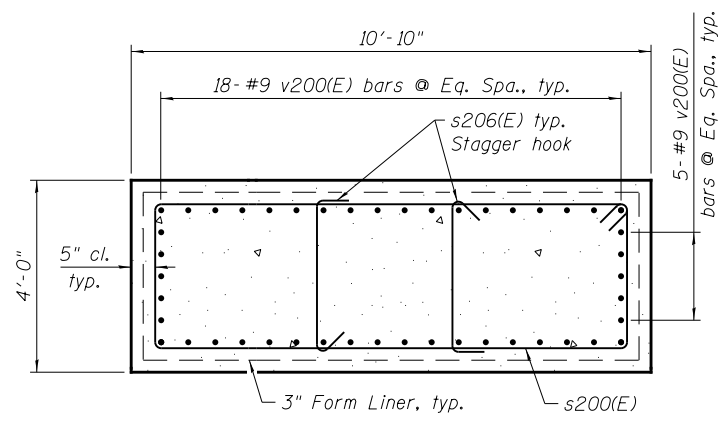
**PIER 2  
STRUCTURE NO. 016-1706**

SHEET NO. S1-33 OF S1-45 SHEETS

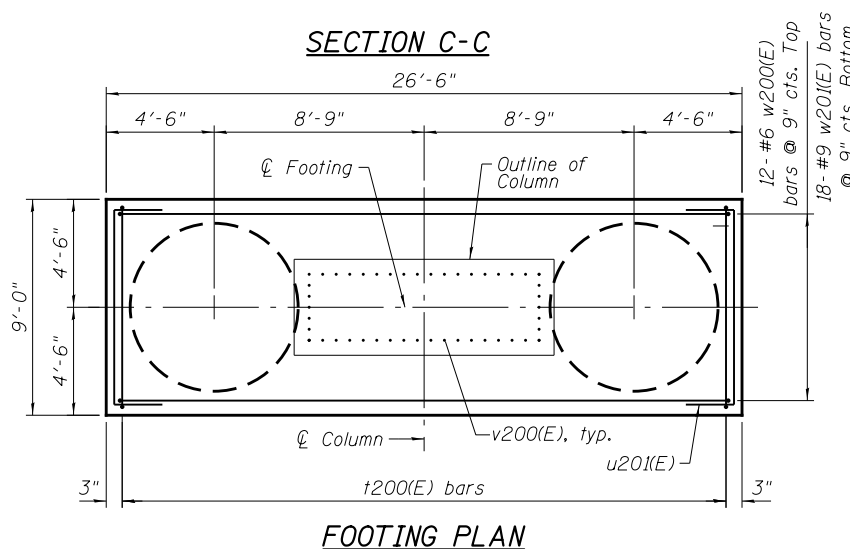
F.A.I. R.T.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	648
<b>CONTRACT NO. 60X93</b>				
ILLINOIS FED. AID PROJECT				



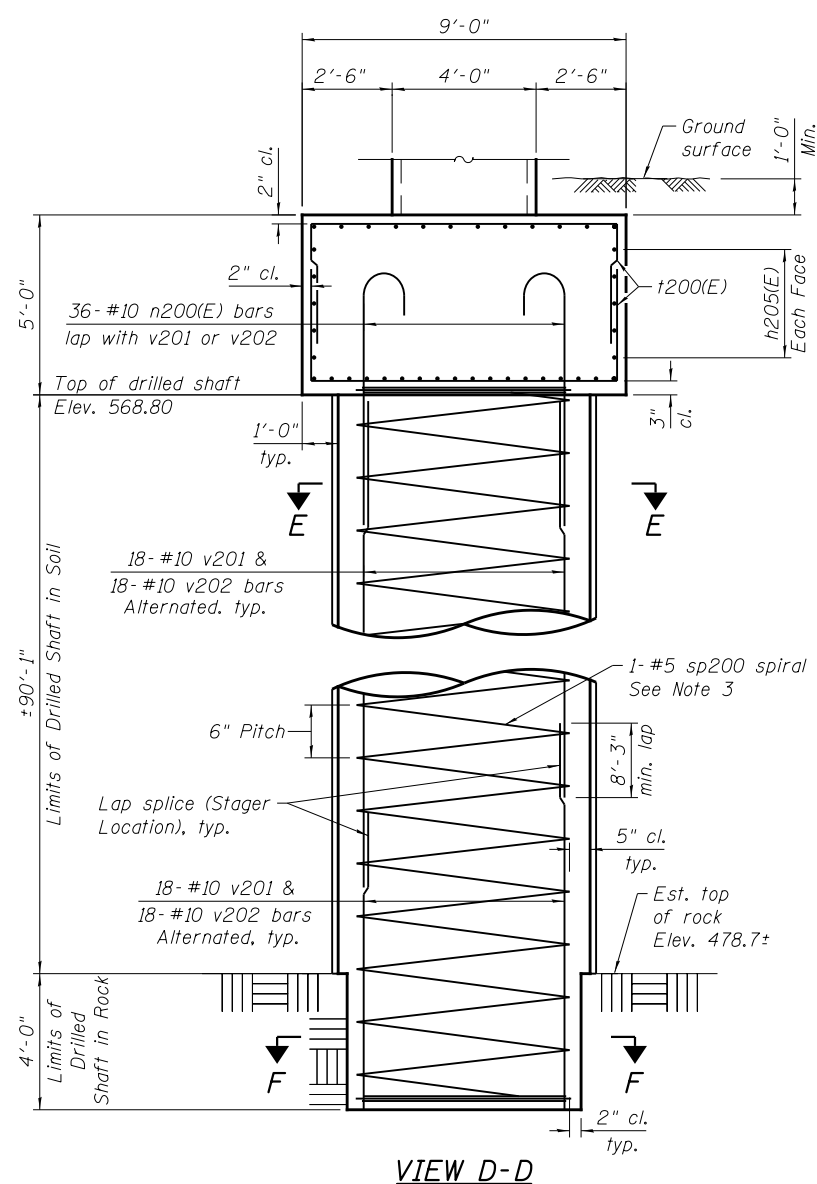
**SECTION B-B**



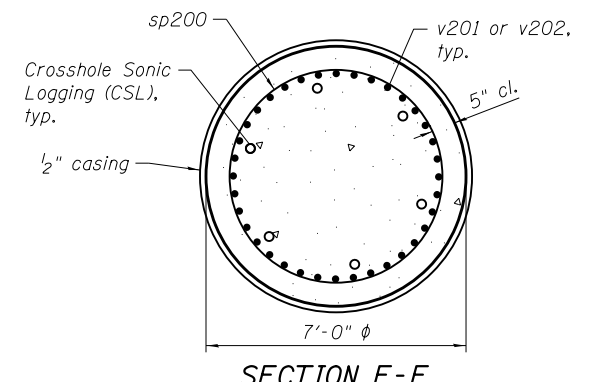
**SECTION C-C**



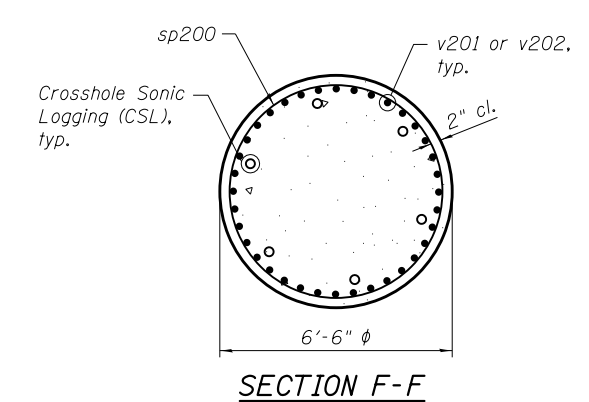
**FOOTING PLAN**



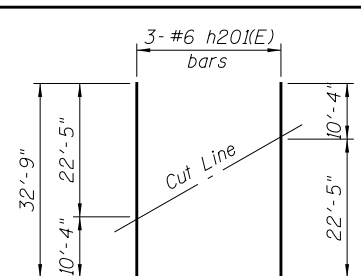
**VIEW D-D**



**SECTION E-E**

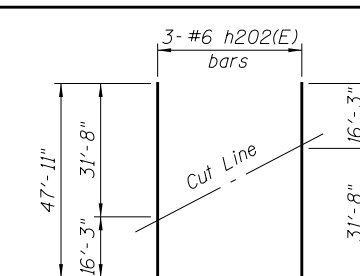


**SECTION F-F**



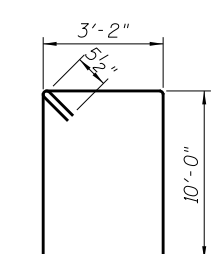
**CUTTING DIAGRAM**

Order bars full length. Cut as shown. Use the remainder on opposite side.

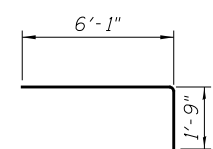


**CUTTING DIAGRAM**

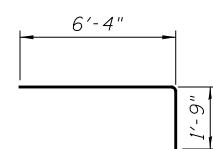
Order bars full length. Cut as shown. Use the remainder on opposite side.



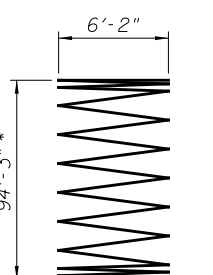
**BAR s200(E)**



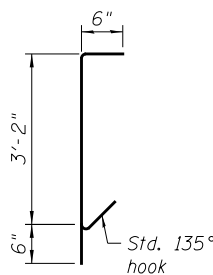
**BAR h203(E)**



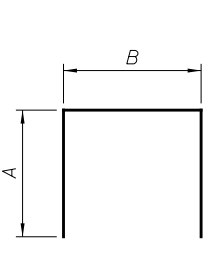
**BAR h204(E)**



**BAR sp200**



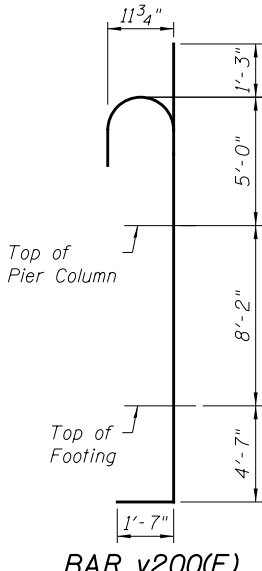
**BAR s206(E)**



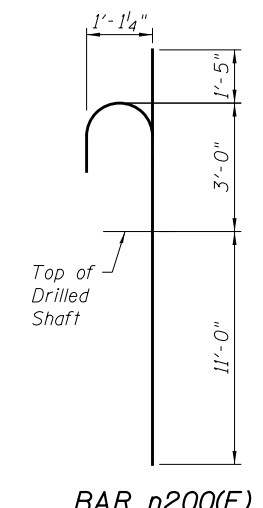
**A & B DIMENSIONS**

**MINIMUM BAR LAP (E)**

#10 bar = 10'-10"



**BAR v200(E)**



**BAR n200(E)**

Bar	A	B
s201(E)	5'-5"	2'-9"
s202(E)	5'-9"	2'-9"
s203(E)	5'-6"	3'-8"
s204(E)	5'-3"	2'-9"
s205(E)	4'-3"	2'-9"
t200(E)	4'-3"	8'-8"
u200(E)	3'-3"	3'-6"
u201(E)	3'-10"	8'-6"
u202(E)	1'-9"	3'-8"
w200(E)	1'-0"	26'-0"
w201(E)	1'-7"	26'-0"

\*\* Cut legs in field to fit

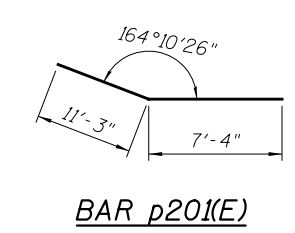
Notes:

1. Perform Crosshole Sonic Logging (CSL) testing on Drilled Shaft.
2. The quantities and reinforcement detailing are based on the top of shaft and the estimated top of rock elevations shown and may change based on the actual top of rock elevations and the final top of shaft elevation.
3. For #5 sp200 spirals:
  - 1) Provide 1/2 extra turns top and bottom. Extend spiral 2" into pier footing. Provide 4-#4 spacers or equivalent.
  - 2) When splicing spiral reinforcement is necessary, the spiral shall be provided with 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.

**BILL OF MATERIAL**

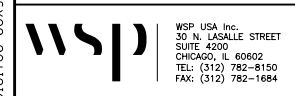
Bar	No.	Size	Length	Shape
h200(E)	8	#6	31'-8"	—
h201(E)	3	#6	32'-9"	—
h202(E)	3	#6	47'-11"	—
h203(E)	10	#5	7'-10"	—
h204(E)	15	#5	8'-1"	—
h205(E)	10	#6	26'-2"	—
n200(E)	72	#10	15'-5"	—
p200(E)	18	#8	31'-8"	—
p201(E)	10	#6	18'-7"	—
s200(E)	11	#5	27'-3"	—
s201(E)	32	#5	13'-7"	—
s202(E)	32	#5	14'-3"	—
s203(E)	16	#5	14'-8"	—
s204(E)	32	#5	13'-3"	—
s205(E)	32	#5	11'-3"	—
s206(E)	22	#5	4'-2"	—
sp200	2	#5	94'-3"	—
t200(E)	70	#6	17'-2"	—
u200(E)	15	#5	10'-0"	—
u201(E)	14	#6	16'-2"	—
u202(E)	30	#5	7'-2"	—
v200(E)	46	#9	20'-7"	—
v201	72	#10	55'-0"	—
v202	72	#10	47'-4"	—
w200(E)	12	#6	28'-0"	—
w201(E)	18	#9	29'-2"	—
Structure Excavation			Cu. Yd.	219
Concrete Structures			Cu. Yd.	96.0
Reinforcement Bars			Pound	39,450
Reinforcement Bars, Epoxy Coated			Pound	18,360
Permanent Casing			Foot	181
Drilled Shaft in Soil			Cu. Yd.	257
Drilled Shaft in Rock			Cu. Yd.	10
Concrete Sealer			Sq. Ft.	1,012
Crosshole Sonic Logging Access Ducts			Foot	189
Crosshole Sonic Logging Testing			Each	1

\* Length is height of spiral



**BAR p201(E)**

0161706-60X93-5034-DET.dgn



WSP USA Inc.  
30 N. LASALLE STREET  
SUITE 4000  
CHICAGO, IL 60602  
TEL: (312) 782-8150  
FAX: (312) 782-1684

USER NAME =	ibrahim1	DESIGNED -	JZ	REVISED -	
		CHECKED -	MS	REVISED -	
PLOT SCALE =	N.T.S.	DRAWN -	JZ	REVISED -	
PLOT DATE =	7/30/2018	CHECKED -	JIG	REVISED -	

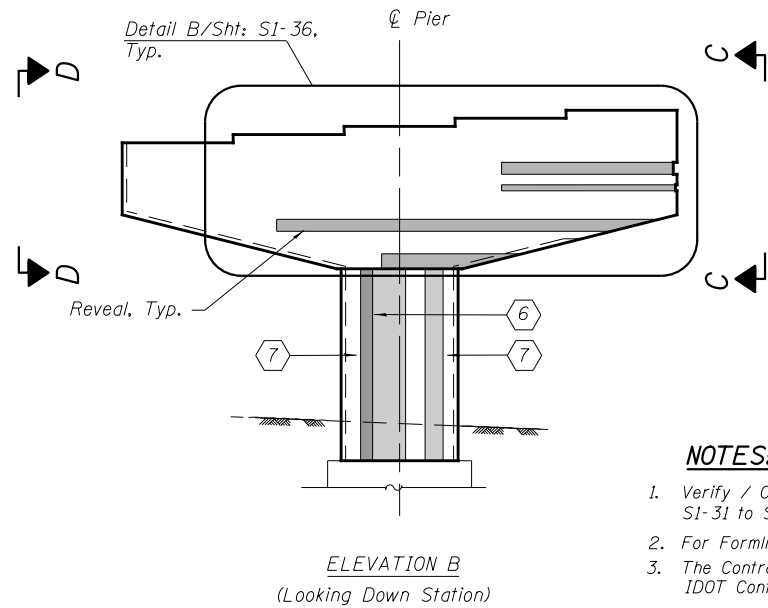
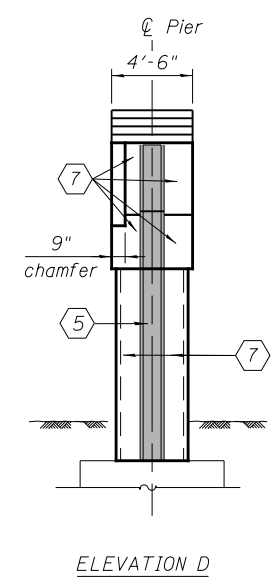
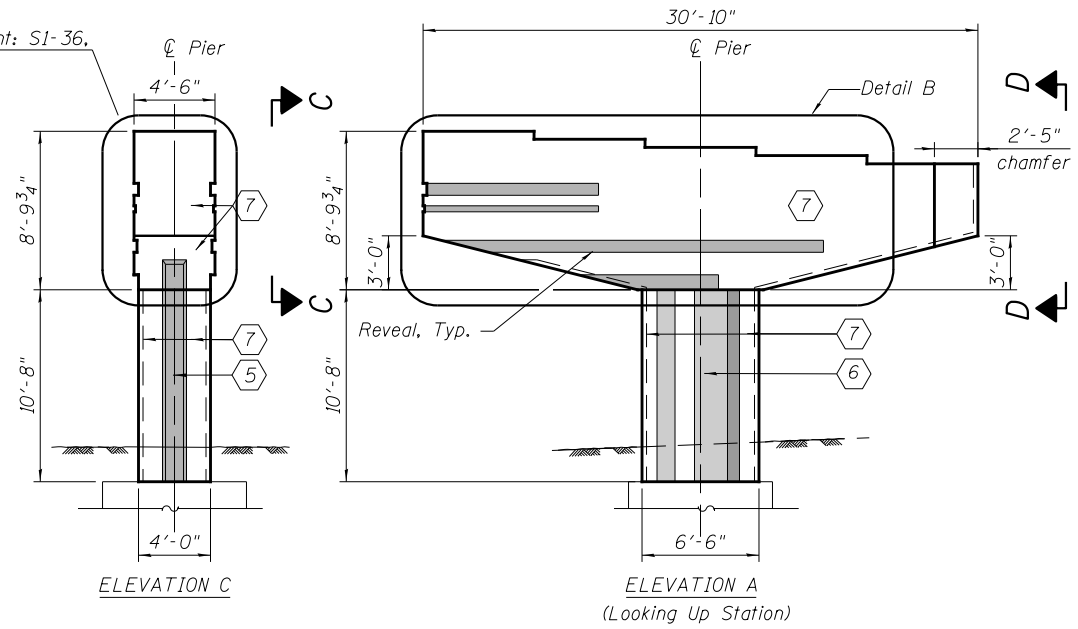
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**PIER 2 DETAILS  
STRUCTURE NO. 016-1706**

SHEET NO. S1-34 OF S1-45 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	649
CONTRACT NO. 60X93			ILLINOIS FED. AID PROJECT	

Detail A/Sht: S1-36, Typ.

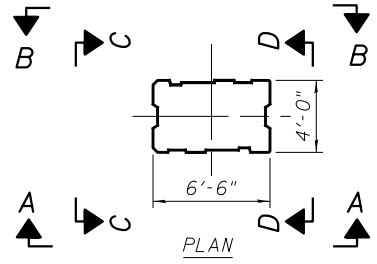


**NOTES:**

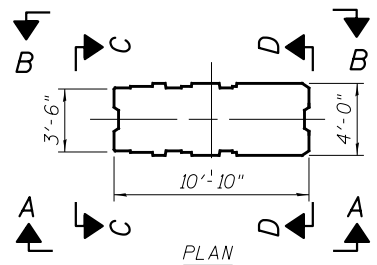
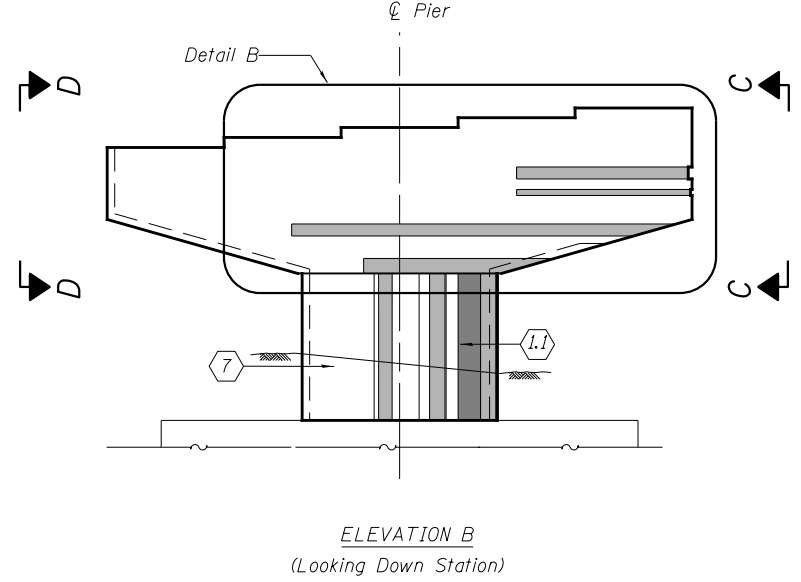
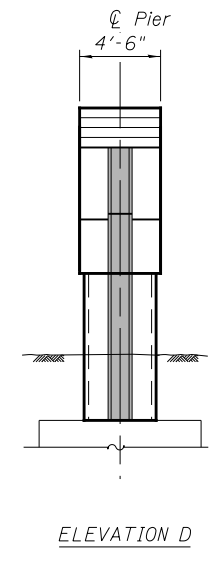
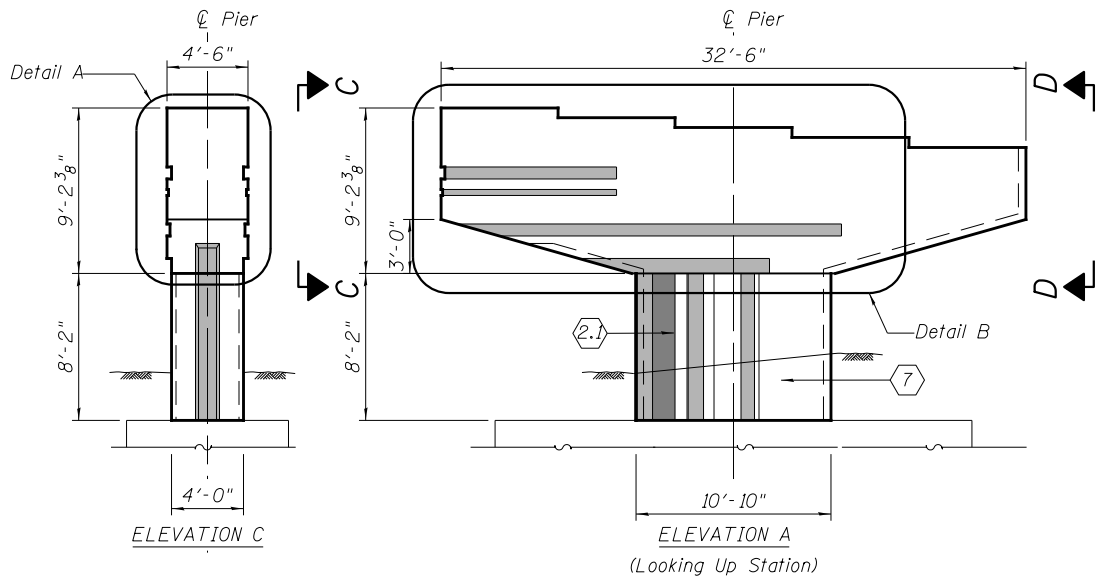
1. Verify / Coordinate pier dimensions with drawings S1-31 to S1-34.
2. For Formliner and Reveal details see drawing S1-36.
3. The Contractor can choose to reuse formliners from IDOT Contract 60W28/Structure 016-1705.
4. Designation of formliners: (1.1); (2.1); (5) and (6), used in these drawings, matches the designation used for IDOT Contract 60W28/Structure 016-1705.
5. For Detail A and Detail B, see Sheet S1-36.

**LEGEND:**

- (1.1) (2.1) (5) (6) Formliner Panel Designation
- (7) Contractor's form: Rubbed Finish at all concrete surface on columns and pier caps, exposed to view and not indicated as textured formliner or textured reveal.
- (A) Texture: Light Sandblast: Max Depth: 0.0625"
- (B) Texture: Medium Sandblast: Max Depth: 0.125"
- (C) Texture: Smooth



**PIER 1**



**PIER 2**

0161706-60X93-S035-Pier-Arch-1.dgn



USER NAME = ibrahiml	DESIGNED - JZ	REVISED -
	CHECKED - MI	REVISED -
PLOT SCALE = N.T.S.	DRAWN - MR	REVISED -
PLOT DATE = 7/30/2018	CHECKED - JIG	REVISED -

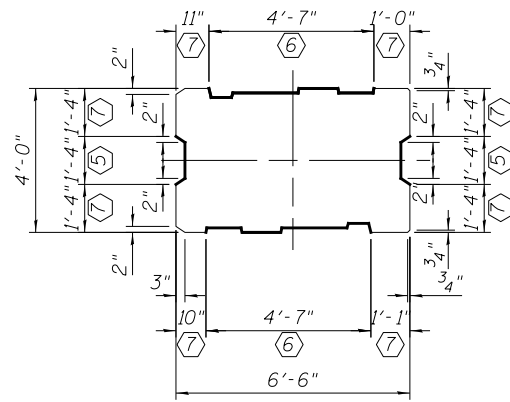
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**ARCHITECTURAL DETAILS I  
STRUCTURE NO. 016-1706**

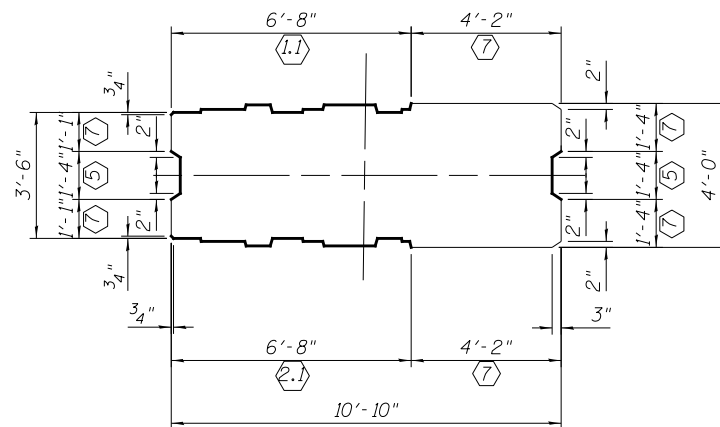
SHEET NO. S1-35 OF S1-45 SHEETS

F.A.I. RE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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<b>CONTRACT NO. 60X93</b>				
ILLINOIS FED. AID PROJECT				





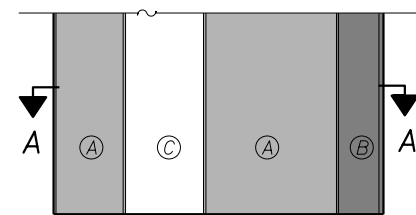
**FORMLINER LAYOUT  
PIER 1**



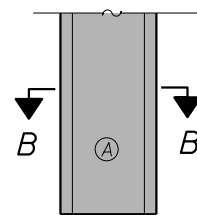
**FORMLINER LAYOUT  
PIER 2**

**LEGEND:**

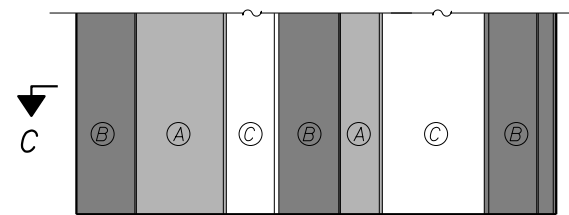
- ①②⑤⑥ Formliner Panel Designation
- ⑦ Contractor's form: Rubbed Finish at all concrete surface on columns and pier caps, exposed to view and not indicated as textured formliner or textured reveal.
- Ⓐ Texture: Light Sandblast: Max Depth: 0.0625"
- Ⓑ Texture: Medium Sandblast: Max Depth: 0.125"
- Ⓒ Texture: Smooth



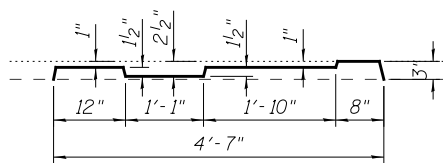
**ELEVATION**



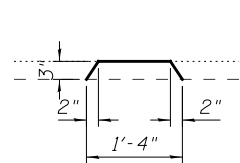
**ELEVATION**



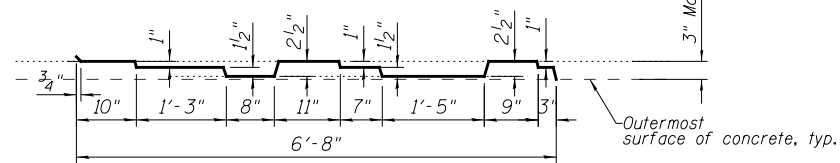
**ELEVATION**



**SECTION A-A  
FORMLINER ⑥**



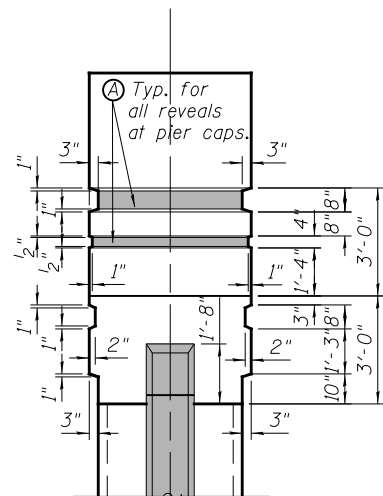
**SECTION B-B  
FORMLINER ⑤**



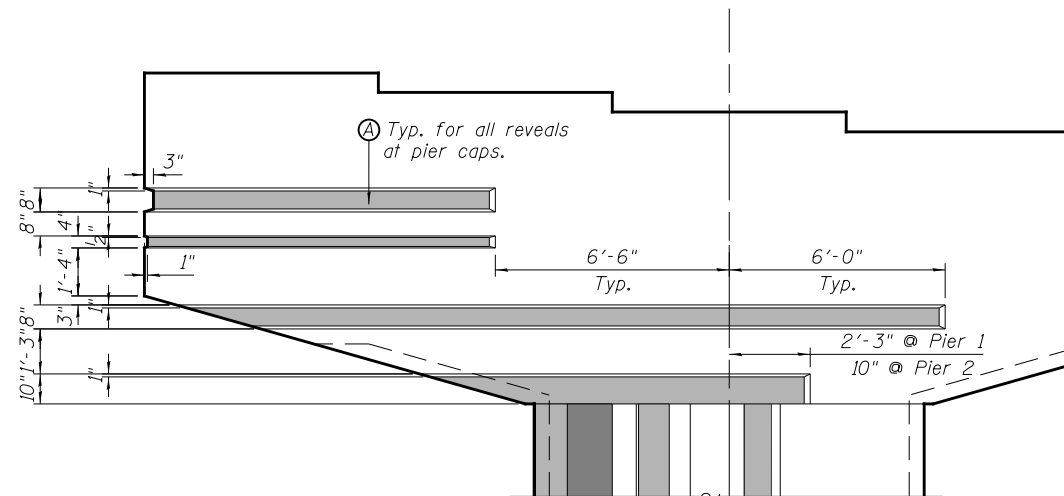
**SECTION C-C  
FORMLINER ②.1  
FORMLINER ①.1 SIM. - (Opposite Hand)**

**NOTES:**

1. Verify / coordinate pier dimensions with drawings S1-31 to S1-34
2. Unless otherwise noted on plans, draft at formliner will be 1/4" per inch depth, typ.
3. Maximum depth of formliner texture at columns and maximum depth of reveals at pier caps is 3".
4. The Contractor can choose to reuse formliners from Contract 60W28/ Structure 016-1705
5. Designation of formliners: ①.1, ②.2, ⑤ and ⑥, used in these drawings, matches the designations used for IDOT Contract 60W28/ Structure 016-1705.



**DETAIL A**



**DETAIL B**

**PIER CAP REVEAL DETAIL AT PIER 1 & 2**

**TABLE 1**

Pier	Form Liner Textured Surface (Sq. Ft.)	Rubbed Finish (Sq. Ft.)
1	213	596
2	221	645

**BILL OF MATERIAL**

ITEM	UNIT	QUANTITY
Form Liner Textured Surface	Sq. Ft.	434
Rubbed Finish	Sq. Ft.	1,241

0161706-60X93-S036-Pier-Arch-2.dgn



WSP USA Inc.  
30 N. LA SALLE STREET  
SUITE 4000  
CHICAGO, IL 60602  
TEL: (312) 782-8150  
FAX: (312) 782-1684

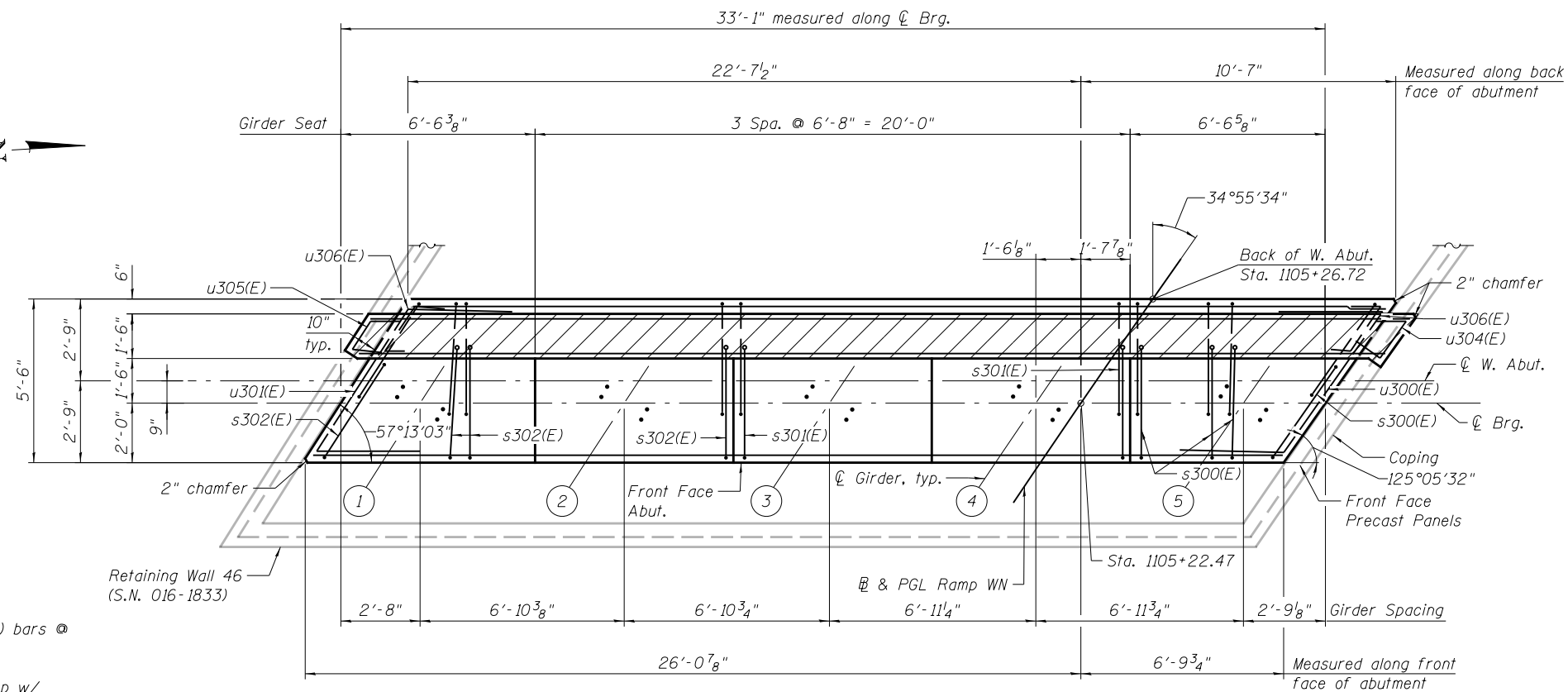
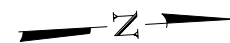
USER NAME =	ibrahim1	DESIGNED -	JZ	REVISED -	
		CHECKED -	MI	REVISED -	
PLOT SCALE =	N.T.S.	DRAWN -	MR	REVISED -	
PLOT DATE =	7/30/2018	CHECKED -	JIG	REVISED -	

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**ARCHITECTURAL DETAILS II  
STRUCTURE NO. 016-1706**

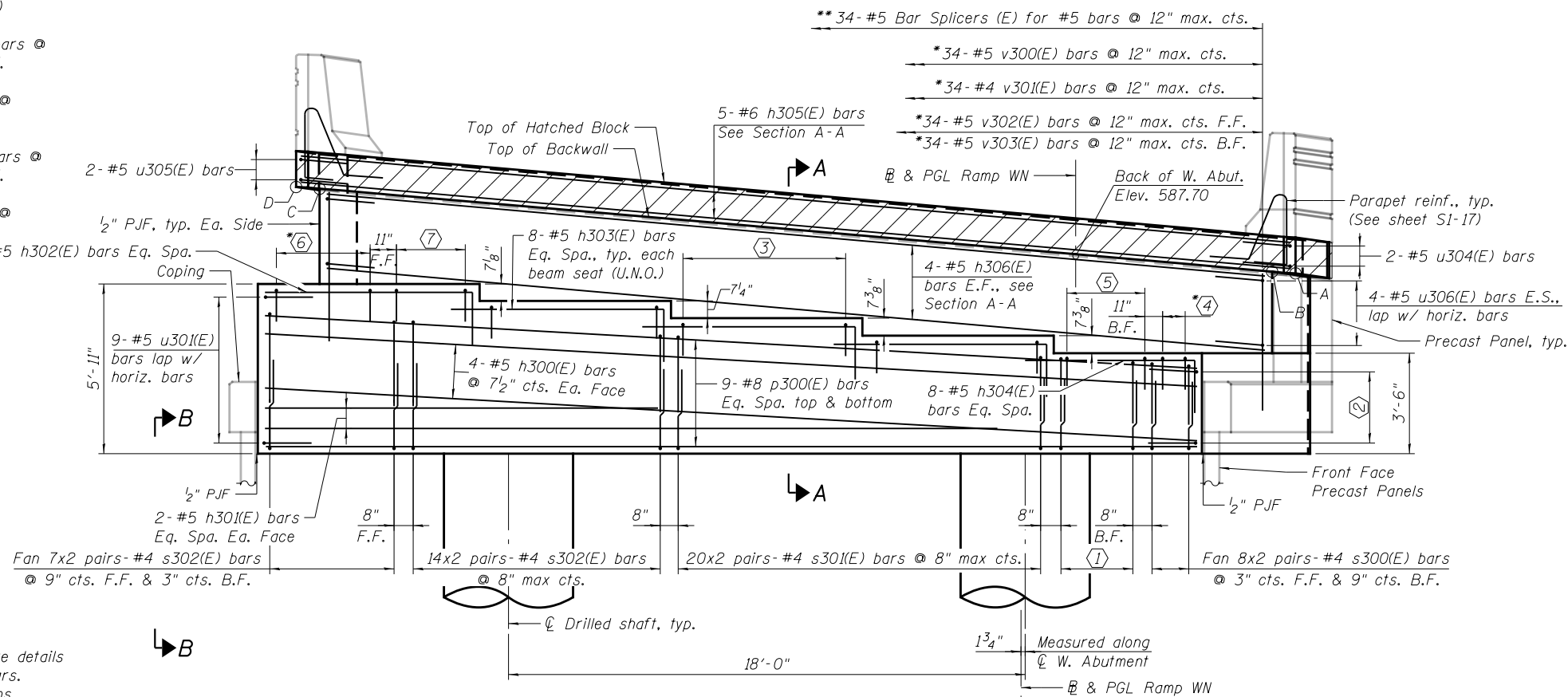
SHEET NO. S1-36 OF S1-45 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	651
<b>CONTRACT NO. 60X93</b>				
ILLINOIS FED. AID PROJECT				

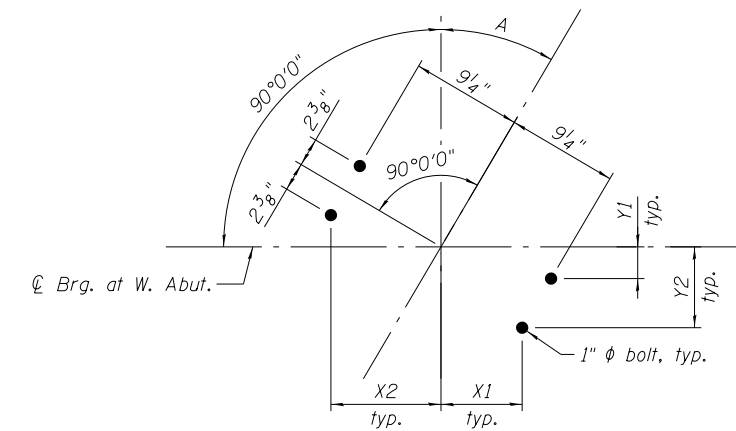


**PLAN**

- ① 5x2 pairs-#4 s300(E) bars @ 8" max. cts.
- ② 6-#5 u300(E) bars lap w/ horiz. bars
- ③ 8-#5 u303(E) bars @ ±11" cts., typ. each beam seat (U.N.O)
- ④ Fan 6 pairs-#5 u302(E) bars @ 3" cts. F.F. & 11" cts. B.F.
- ⑤ 4 pairs-#5 u302(E) bars @ ±11" cts.
- ⑥ Fan 5 pairs-#5 u302(E) bars @ 11" cts. F.F. & 3" cts. B.F.
- ⑦ 4 pairs-#5 u302(E) bars @ ±11" cts.



**ELEVATION**  
(Looking upstation)



**ANCHOR BOLT LAYOUT**

Girder	A	X1	X2	Y1	Y2
1	32°51'00"	6 <sup>15</sup> / <sub>16</sub> "	9 <sup>1</sup> / <sub>4</sub> "	2 <sup>7</sup> / <sub>16</sub> "	6 <sup>9</sup> / <sub>16</sub> "
2	33°18'39"	6 <sup>7</sup> / <sub>8</sub> "	9 <sup>3</sup> / <sub>16</sub> "	2 <sup>1</sup> / <sub>2</sub> "	6 <sup>5</sup> / <sub>8</sub> "
3	33°47'09"	6 <sup>13</sup> / <sub>16</sub> "	9 <sup>3</sup> / <sub>16</sub> "	2 <sup>9</sup> / <sub>16</sub> "	6 <sup>11</sup> / <sub>16</sub> "
4	34°16'33"	6 <sup>3</sup> / <sub>4</sub> "	9 <sup>3</sup> / <sub>16</sub> "	2 <sup>5</sup> / <sub>8</sub> "	6 <sup>3</sup> / <sub>4</sub> "
5	34°46'52"	6 <sup>1</sup> / <sub>16</sub> "	9 <sup>8</sup> / <sub>16</sub> "	2 <sup>1</sup> / <sub>16</sub> "	6 <sup>13</sup> / <sub>16</sub> "

**TOP OF SEAT ELEVATION**

Girder No.	***Seat Elevation
1	586.73
2	586.14
3	585.54
4	584.93
5	584.32

\*\*\* Elevations are based on bearing heights shown in sheet S1-29. Contractor shall adjust these elevations if bearing heights are different, subject to approval by the engineer.

**TOP BACKWALL / BOTTOM HATCHED BLOCK ELEVATIONS**

Location	Front Face	Back Face
A - Right Edge of Hatched Block	587.10	586.92
B - Right Edge of Backwall	587.16	586.96
C - Left Edge of Backwall	590.05	589.87
D - Left Edge of Hatched Block	590.11	590.00

**MINIMUM BAR LAP**  
#4 bar = 2'-3"

- Notes:
- Space reinforcement in cap to miss anchor bolts.
  - Pour steps monolithically with cap.
  - Bars equally spaced, unless otherwise noted.
  - Hatched area to be poured after superstructure false work has been removed. Quantity of concrete included with Concrete Superstructure.
  - Apply concrete sealer to all exposed concrete surfaces of the abutment.
  - All edges shall have standard 3/4" chamfer, unless otherwise noted.
  - Bars indicated thus: 8x2-#5 etc. indicates 8 lines of bars with 2 lengths per line.
  - See sheet S1-38 for Section A-A and View B-B.
  - See sheet S1-39 for Bar Splicer Assembly.

\* See Section A-A for more details  
\*\* Alternate with v302(E) bars.  
Place parallel to the beams.

0161706-60X93-5037-W.Abut.dgn



USER NAME =	ibrahim1	DESIGNED -	MI	REVISED -	
		CHECKED -	JZ	REVISED -	
PLOT SCALE =	N.T.S.	DRAWN -	MI	REVISED -	
PLOT DATE =	7/30/2018	CHECKED -	JIG	REVISED -	

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**WEST ABUTMENT**  
**STRUCTURE NO. 016-1706**

SHEET NO. S1-37 OF S1-45 SHEETS

F.A.I. R.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	652
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				

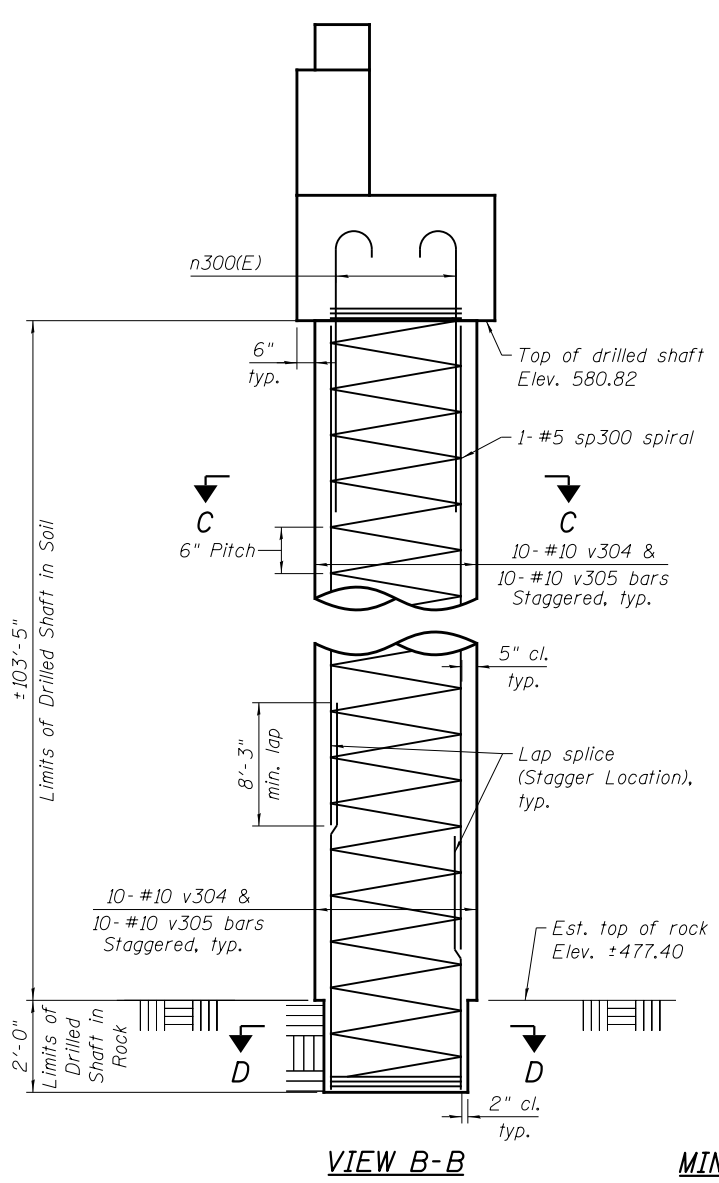
**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h300(E)	8	#5	32'-7"	—
h301(E)	2	#5	37'-3"	—
h302(E)	4	#5	14'-10"	—
h303(E)	24	#5	9'-6"	—
h304(E)	4	#5	16'-11"	—
h305(E)	5	#6	34'-8"	—
h306(E)	8	#5	32'-11"	—
n300(E)	40	#10	14'-11"	—
p300(E)	18	#8	32'-7"	—
s300(E)	52	#4	9'-1"	—
s301(E)	80	#4	9'-11"	—
s302(E)	84	#4	11'-5"	—
sp300	2	#5	105'-7"	WWW
u300(E)	6	#5	13'-1"	—
u301(E)	9	#5	12'-11"	—
u302(E)	38	#5	7'-3"	—
u303(E)	24	#5	8'-10"	—
u304(E)	2	#5	3'-9"	—
u305(E)	2	#5	3'-3"	—
u306(E)	8	#5	4'-1"	—
v300(E)	34	#5	3'-9"	—
v301(E)	34	#4	2'-10"	—
v302(E)	34	#5	6'-6"	—
v303(E)	34	#5	5'-3"	—
v304	40	#10	60'-0"	—
v305	40	#10	53'-8"	—
Concrete Structures		Cu. Yd.	39.4	
Reinforcement Bars		Pound	24,720	
Reinforcement Bars, Epoxy Coated		Pound	8,250	
Drilled Shaft in Soil		Cu. Yd.	122	
Drilled Shaft in Rock		Cu. Yd.	2	
Concrete Sealer		Sq. Ft.	341	
Crosshole Sonic Logging Access Ducts		Foot	211	
Crosshole Sonic Logging Testing		Each	1	

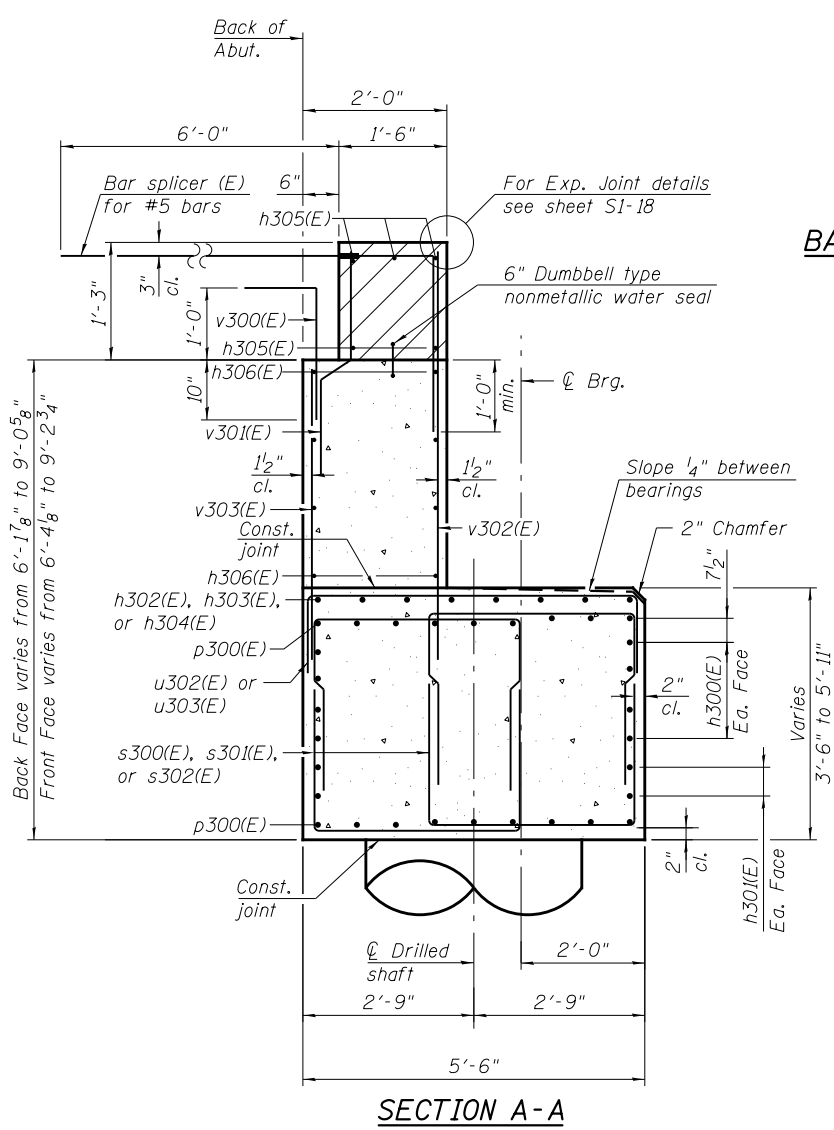
\* Length is height of spiral

**Notes:**

1. Perform Crosshole Sonic Logging (CSL) testing on Drilled Shaft.
2. The quantities and reinforcement detailing are based on the top of shaft and the estimated top of rock elevations shown and may change based on the actual top of rock elevations and the final top of shaft elevation.
3. For #5 sp300 spiral:
  - 1) Provide 1/2 extra turns top and bottom. Extend spiral 2" into abutment. Provide 4- #4 spacers or equivalent.
  - 2) When splicing spiral reinforcement is necessary, the spiral shall be provided with 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.
4. Structure Excavation for W. Abutment is included in the Structure Excavation of Retaining Wall 46 (S.N. 016-1833).
5. When the Contractor's means and methods include initiating drilling at a depth below the proposed elevation of the top of shaft, the costs for drilled shaft construction in depths between the elevation where drilling is initiated and the proposed elevation of the top of shaft shall be included in the cost of Drilled Shaft in Soil.

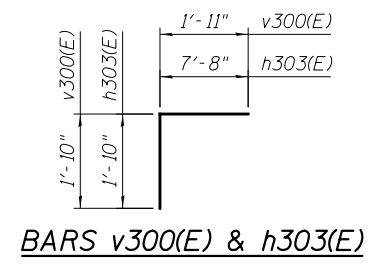


**VIEW B-B**

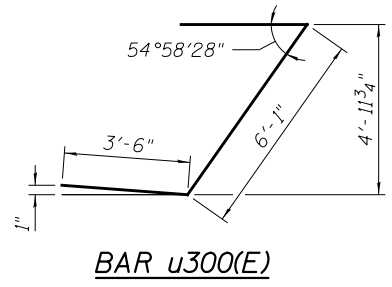


**SECTION A-A**

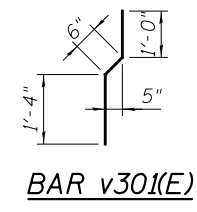
**MINIMUM BAR LAP (E)**  
#10 bar = 10'-10"



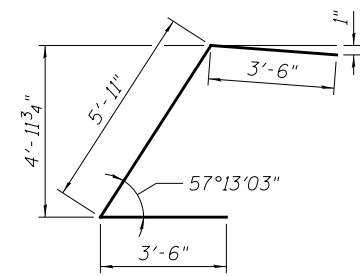
**BARS v300(E) & h303(E)**



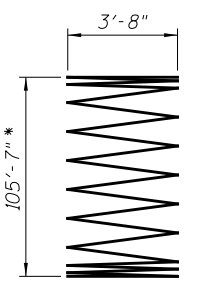
**BAR u300(E)**



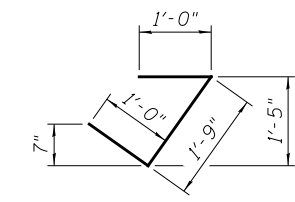
**BAR v301(E)**



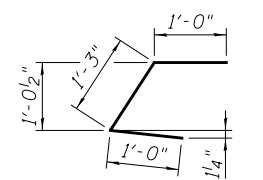
**BAR u301(E)**



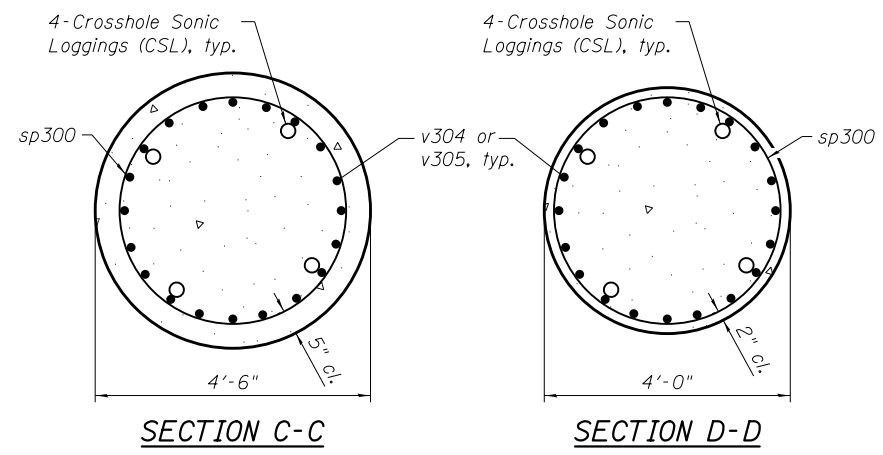
**BAR sp300**



**BAR u304(E)**

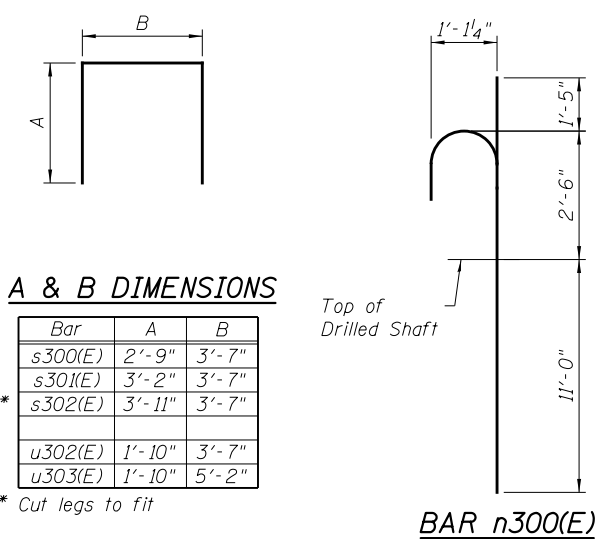


**BAR u305(E)**

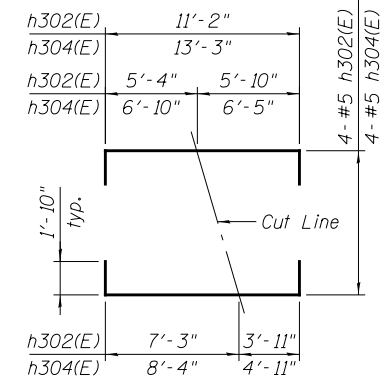


**SECTION C-C**

**SECTION D-D**

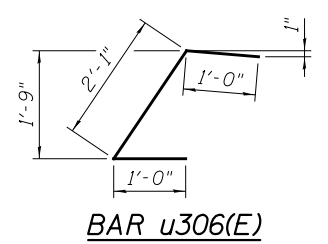


**BAR n300(E)**

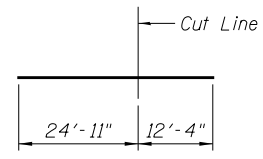


**CUTTING DIAGRAM**

Order bars full length. Cut as shown.



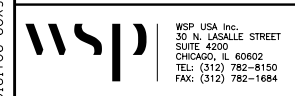
**BAR u306(E)**



**BAR h301(E)**

Order bars full length. Cut as shown.

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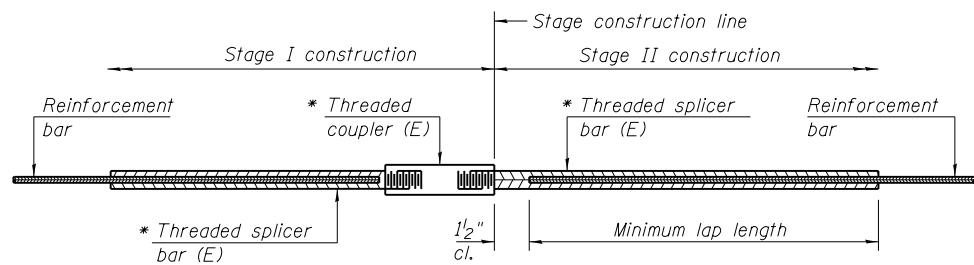
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PLOT SCALE = N.T.S.	CHECKED - JZ	REVISED -
PLOT DATE = 7/30/2018	DRAWN - MI	REVISED -
	CHECKED - JIG	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**WEST ABUTMENT DETAILS  
STRUCTURE NO. 016-1706**

SHEET NO. S1-38 OF S1-45 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	653
<b>CONTRACT NO. 60X93</b>				
ILLINOIS FED. AID PROJECT				

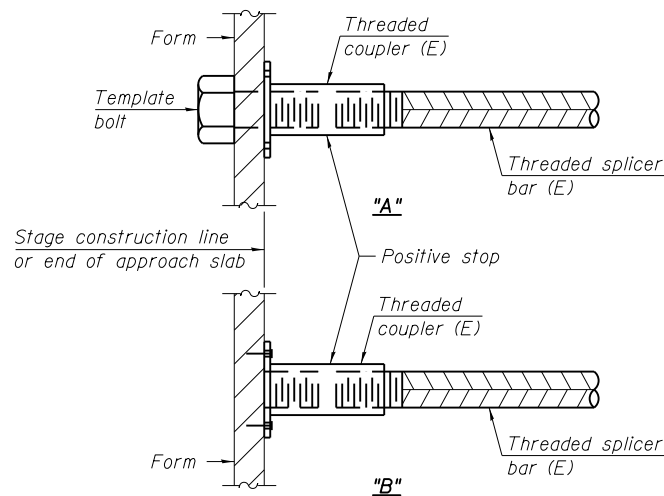


**STANDARD BAR SPLICER ASSEMBLY**

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

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

Location	Bar size	No. assemblies required	Minimum lap length

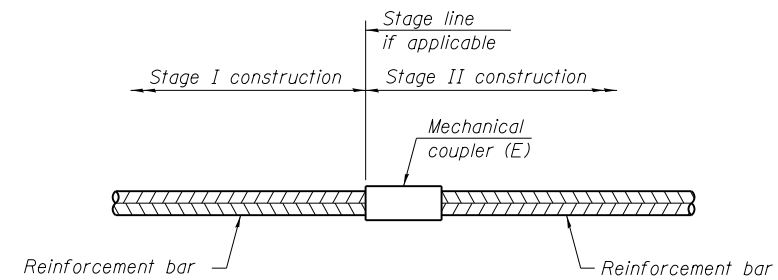


**INSTALLATION AND SETTING METHODS**

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

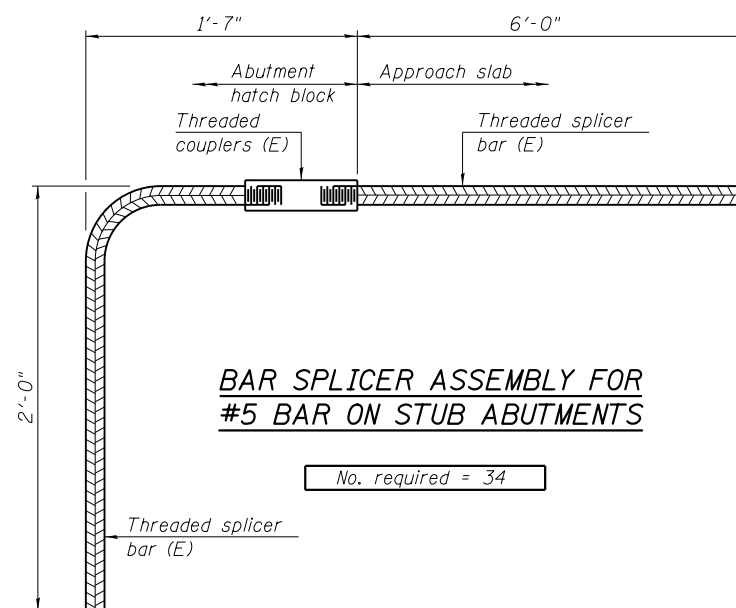
"B" : Set bar splicer assembly by nailing to wood forms or cementing to steel forms.

(E) : Indicates epoxy coating.



**STANDARD MECHANICAL SPLICER**

Location	Bar size	No. assemblies required



**BAR SPLICER ASSEMBLY FOR #5 BAR ON STUB ABUTMENTS**

No. required = 34

**NOTES**

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

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

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

BSD-1

2-17-2017



WSP USA Inc.  
30 N. LASALLE STREET  
SUITE 4200  
CHICAGO, IL 60602  
TEL: (312) 782-8150  
FAX: (312) 782-1684

USER NAME = ibrahim1	DESIGNED - NJP	REVISED -
PLOT SCALE = N.T.S.	CHECKED - PJL	REVISED -
PLOT DATE = 7/30/2018	DRAWN - NJP	REVISED -
	CHECKED - JIG	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

BAR SPLICER ASSEMBLY AND MECHANICAL SPLICER DETAILS  
STRUCTURE NO. 016-1706

SHEET NO. S1-39 OF S1-45 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	654
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				

0161706-60X93-5039-SPL.dgn



Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample No.	SPT Values (blows/in)	Qu (tsf)	Moisture Content (%)	Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample No.	SPT Values (blows/in)	Qu (tsf)	Moisture Content (%)
581.1	Stiff to very stiff, brown and gray SILTY CLAY LOAM, trace gravel --FILL--	1	6	7	2.00	25							
		2	4	4	1.48	22							
	Very soft to medium stiff, gray CLAY to SILTY CLAY, trace gravel	3	2	2	0.66	24							
		4	1	2	0.41	25							
		5	1	1	0.33	24							
		6	1	1	0.25	25							
		7	1	1	0.25	25							
		8	1	3	0.33	17							
		9	2	2	0.25	25							
		10	2	3	0.33	26							
539.9	Very stiff to hard, gray SILTY CLAY, trace gravel	11	2	2	0.25	22							
		12	1	2	0.25	28							
		17	12	20	6.64	14							
		13	1	2	0.16	28							
		14	1	2	0.25	28							
		15	1	2	0.25	25							
		16	9	16	2.54	14							

GENERAL NOTES				WATER LEVEL DATA			
Begin Drilling	10-21-2013	Complete Drilling	10-22-2013	While Drilling	▽	89.00 ft	
Drilling Contractor	Wang Testing Services	Drill Rig	D-25 ATV	At Completion of Drilling	▽	89.00 ft	
Driller	P&N	Logger	D. Kolpacki	Checked by	C. Marin		
Drilling Method	2.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion			Time After Drilling	NA		
				Depth to Water	▽	NA	
				The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.			

Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample No.	SPT Values (blows/in)	Qu (tsf)	Moisture Content (%)	Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample No.	SPT Values (blows/in)	Qu (tsf)	Moisture Content (%)
509.9	Very dense, gray SILTY LOAM, trace gravel	17	12	20	6.64	14							
		18	28	24	NP	15							
		19	18	25	5.41	13							
		20	17	21	4.10	13							
		21	15	27	8.28	15							
527.9	Dense, gray SANDY LOAM, trace gravel --Moist--	22	50	5	NP	10							
		23	28	38	10.00	12							
		24	14	24	NP	23							
		25	50	4	NP	17							
		26	50	4	NP	14							
504.9	Hard, gray SILTY CLAY LOAM, trace gravel	27	50	5	NP	16							
		28	14	24	NP	23							
		29	18	25	5.41	13							
		30	17	21	4.10	13							
		31	15	27	8.28	15							
497.6	Very dense, gray SILT, trace gravel --Saturated--	32	14	24	NP	23							
		33	18	25	5.41	13							
		34	17	21	4.10	13							
		35	15	27	8.28	15							
489.9	Very dense, gray GRAVELLY SAND --Saturated--	36	14	24	NP	23							
		37	18	25	5.41	13							
		38	17	21	4.10	13							
		39	15	27	8.28	15							

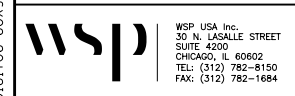
GENERAL NOTES				WATER LEVEL DATA			
Begin Drilling	10-21-2013	Complete Drilling	10-22-2013	While Drilling	▽	89.00 ft	
Drilling Contractor	Wang Testing Services	Drill Rig	D-25 ATV	At Completion of Drilling	▽	89.00 ft	
Driller	P&N	Logger	D. Kolpacki	Checked by	C. Marin		
Drilling Method	2.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion			Time After Drilling	NA		
				Depth to Water	▽	NA	
				The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.			

Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample No.	SPT Values (blows/in)	Qu (tsf)	Moisture Content (%)	Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample No.	SPT Values (blows/in)	Qu (tsf)	Moisture Content (%)
454.9	--HARD DRILLING-- Very dense, greenish gray SILT/SHALE, some DOLOSTONE fragments --WEATHERED BEDROCK--	27	50	5	NP	16							
479.6	Boring terminated at 107.00 ft												

GENERAL NOTES				WATER LEVEL DATA			
Begin Drilling	10-21-2013	Complete Drilling	10-22-2013	While Drilling	▽	89.00 ft	
Drilling Contractor	Wang Testing Services	Drill Rig	D-25 ATV	At Completion of Drilling	▽	89.00 ft	
Driller	P&N	Logger	D. Kolpacki	Checked by	C. Marin		
Drilling Method	2.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion			Time After Drilling	NA		
				Depth to Water	▽	NA	
				The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.			

Note:  
 1. Boring Log 1703-B-05 station & offset along baseline Ramp WN is Sta. 1103+11.23, Offset 15.91' (Lt).

0161706-60X93-S041-BOR.dgn



WSP USA Inc.  
 30 N. LA SALLE STREET  
 SUITE 4000  
 CHICAGO, IL 60602  
 TEL: (312) 782-8150  
 FAX: (312) 782-1884

USER NAME =	ibrahim1	DESIGNED -	PJL	REVISED -	
		CHECKED -	MI	REVISED -	
PLOT SCALE =	N.T.S.	DRAWN -	PJL	REVISED -	
PLOT DATE =	7/30/2018	CHECKED -	JIG	REVISED -	

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

BORING LOGS II  
 STRUCTURE NO. 016-1706

SHEET NO. S1-41 OF S1-45 SHEETS

F.A.I. R.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	656
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				



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 Fax: 630 953-9938

**BORING LOG 1706-B-01** Page 1 of 3  
 WEI Job No.: 1100-04-01  
 Client: AECOM  
 Project: Circle Interchange Reconstruction  
 Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88  
 Elevation: 586.37 ft  
 North: 1898150.62 ft  
 East: 1171768.12 ft  
 Station: 1105+20.24  
 Offset: 0.3829' LT

Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blows/in)	Qu (tsf)	Moisture Content (%)	Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blows/in)	Qu (tsf)	Moisture Content (%)
586.1	13-inch thick ASPHALT -PAVEMENT-	0						586.1							
585.3	10-inch thick CONCRETE -PAVEMENT-	1						585.3							
585.1	Medium dense, brown CRUSHED STONE -BASE COURSE-	2	1	12	8	NP	7	585.1							
	Medium dense, brown, fine SAND -FILL-	5	2	4	7	NP	23								
579.2	Very stiff (2.5P), brown and gray SILTY CLAY LOAM, trace gravel -FILL-	3	3	4	4	NP	16	579.2							
	Very soft to medium stiff, gray CLAY to SILTY CLAY, trace gravel	4	4	1	3	0.57	22								
		5	5	2	2	0.25	22								
		6	6	1	3	0.74	19								
		7	7	2	2	0.49	21								
		8	8	1	3	0.41	25								
		9	9	0	1	0.33	26								
		10	10	1	2	0.25	25								
		25						539.6	Very stiff to hard, gray SILTY CLAY LOAM, trace gravel	50	16	5	8	3.61	21

**GENERAL NOTES**  
 Begin Drilling 03-16-2014 Complete Drilling 03-18-2014  
 Drilling Contractor Wang Testing Services Drill Rig B-57 TMR  
 Driller P&P Logger D. Kolpacki Checked by C. Marin  
 Drilling Method 3.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion

**WATER LEVEL DATA**  
 While Drilling 57.00 ft  
 At Completion of Drilling NA  
 Time After Drilling 24 hours  
 Depth to Water 57.00 ft  
 The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

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**BORING LOG 1706-B-01** Page 2 of 3  
 WEI Job No.: 1100-04-01  
 Client: AECOM  
 Project: Circle Interchange Reconstruction  
 Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88  
 Elevation: 586.37 ft  
 North: 1898150.62 ft  
 East: 1171768.12 ft  
 Station: 1105+20.24  
 Offset: 0.3829' LT

Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blows/in)	Qu (tsf)	Moisture Content (%)	Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blows/in)	Qu (tsf)	Moisture Content (%)
529.4	Very dense, gray GRAVELLY LOAM	55	17	8	19	5.08	15	529.4	Very dense, gray GRAVELLY SILTY LOAM	80	22	32	50	8.33	9
		60	18	15	25	NP	10								
524.6	Hard, gray SILTY CLAY LOAM to SILTY LOAM, trace gravel	65	19	18	21	4.50	12								
		70	20	15	24	4.50	14								
		75	21	15	32	10.25	13								
		80	22	32	50	8.33	9								
		85	23	50	5	NP	11								
		90	24	50	5	NP	12								
		95	25	27	38	5.00	16								
		100	26	13	40	4.92	17								
		105													
		110													
		115													
		120													
		125													

**GENERAL NOTES**  
 Begin Drilling 03-16-2014 Complete Drilling 03-18-2014  
 Drilling Contractor Wang Testing Services Drill Rig B-57 TMR  
 Driller P&P Logger D. Kolpacki Checked by C. Marin  
 Drilling Method 3.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion

**WATER LEVEL DATA**  
 While Drilling 57.00 ft  
 At Completion of Drilling NA  
 Time After Drilling 24 hours  
 Depth to Water 57.00 ft  
 The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

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**BORING LOG 1706-B-01** Page 3 of 3  
 WEI Job No.: 1100-04-01  
 Client: AECOM  
 Project: Circle Interchange Reconstruction  
 Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88  
 Elevation: 586.37 ft  
 North: 1898150.62 ft  
 East: 1171768.12 ft  
 Station: 1105+20.24  
 Offset: 0.3829' LT

Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blows/in)	Qu (tsf)	Moisture Content (%)	Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blows/in)	Qu (tsf)	Moisture Content (%)
480.4		105						480.4							
		110													
		115													
		120													
		125													

**GENERAL NOTES**  
 Begin Drilling 03-16-2014 Complete Drilling 03-18-2014  
 Drilling Contractor Wang Testing Services Drill Rig B-57 TMR  
 Driller P&P Logger D. Kolpacki Checked by C. Marin  
 Drilling Method 3.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion

**WATER LEVEL DATA**  
 While Drilling 57.00 ft  
 At Completion of Drilling NA  
 Time After Drilling 24 hours  
 Depth to Water 57.00 ft  
 The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

Note:  
 1. Station and offsets are measured along baseline Ramp WN.

0161706-60X93-5042-B01.dgn



USER NAME = ibrahiml	DESIGNED - PJL	REVISED -
PLOT SCALE = N.T.S.	DRAWN - PJL	REVISED -
PLOT DATE = 7/30/2018	CHECKED - JIG	REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

BORING LOGS III  
 STRUCTURE NO. 016-1706  
 SHEET NO. S1-42 OF S1-45 SHEETS

F.A.I. R.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	657
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				

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**BORING LOG 1715-B-02**  
 WEI Job No.: 1100-04-01  
 Client: **AECOM**  
 Project: **Circle Interchange Reconstruction**  
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88  
 Elevation: 578.98 ft  
 North: 1898224.57 ft  
 East: 1171745.64 ft  
 Station: 1213+66.68  
 Offset: 5.771 LT

Page 1 of 3

Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blows/in)	Qu (tsf)	Moisture Content (%)	Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blows/in)	Qu (tsf)	Moisture Content (%)
578.0	2-inch thick ASPHALT -PAVEMENT-														
578.0	10-inch thick CONCRETE -PAVEMENT-														
578.0	Loose, light brown CRUSHED STONE -BASE COURSE-														
578.0	Soft to medium stiff, gray CLAY to SILTY CLAY, trace gravel	1	1	4	NP			27							
		2	2	0		0.82									
		3	3	2		0.41									
		4	4	2		0.49									
		5	5	1		0.74									
		6	6	0		0.33									
		7	7	1		0.33									
		8	8	1		0.25									
		9	9	0		0.25									
		10	10	1		0.50									
		11	11	2		0.41									
		12	12	1		0.57									
		13	13	2		0.33									
		14	14	4		0.67									

**GENERAL NOTES**  
 Begin Drilling: 02-23-2014  
 Complete Drilling: 03-23-2014  
 Drilling Contractor: Wang Testing Services  
 Driller: P&P  
 Drilling Method: 3.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion

**WATER LEVEL DATA**  
 While Drilling: 3.00 ft  
 At Completion of Drilling: mud in the borehole  
 Time After Drilling: 24 hours  
 Depth to Water: 72.00 ft

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

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**BORING LOG 1715-B-02**  
 WEI Job No.: 1100-04-01  
 Client: **AECOM**  
 Project: **Circle Interchange Reconstruction**  
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88  
 Elevation: 578.98 ft  
 North: 1898224.57 ft  
 East: 1171745.64 ft  
 Station: 1213+66.68  
 Offset: 5.771 LT

Page 2 of 3

Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blows/in)	Qu (tsf)	Moisture Content (%)	Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blows/in)	Qu (tsf)	Moisture Content (%)
537.2	Very stiff, gray SILTY CLAY LOAM, trace gravel	15	15	7		3.36									
		16	16	6		2.54									
		17	17	14		NP									
		18	18	18		8.19									
527.2	Dense, gray SILT -Wet-	19	19	20		5.74									
		20	20	30		NP									
		21	21	30		NP									
		22	22	60		NP									
622.2	Hard, gray SILTY CLAY LOAM to SILTY LOAM, trace gravel	23	23	50		NP									
		24	24	50		NP									

**GENERAL NOTES**  
 Begin Drilling: 02-23-2014  
 Complete Drilling: 03-23-2014  
 Drilling Contractor: Wang Testing Services  
 Driller: P&P  
 Drilling Method: 3.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion

**WATER LEVEL DATA**  
 While Drilling: 3.00 ft  
 At Completion of Drilling: mud in the borehole  
 Time After Drilling: 24 hours  
 Depth to Water: 72.00 ft

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

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**BORING LOG 1715-B-02**  
 WEI Job No.: 1100-04-01  
 Client: **AECOM**  
 Project: **Circle Interchange Reconstruction**  
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88  
 Elevation: 578.98 ft  
 North: 1898224.57 ft  
 East: 1171745.64 ft  
 Station: 1213+66.68  
 Offset: 5.771 LT

Page 3 of 3

Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blows/in)	Qu (tsf)	Moisture Content (%)	Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blows/in)	Qu (tsf)	Moisture Content (%)
		23	23	50		NP									
		24	24	50		NP									
488.0	-VERY HARD, STEADY DRILLING-- -WEATHERED BEDROCK-- -ROLLER BIT REFUSAL--														
486.0	Boring terminated at 93.00 ft														

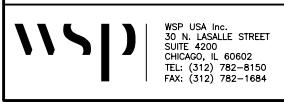
**GENERAL NOTES**  
 Begin Drilling: 02-23-2014  
 Complete Drilling: 03-23-2014  
 Drilling Contractor: Wang Testing Services  
 Driller: P&P  
 Drilling Method: 3.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion

**WATER LEVEL DATA**  
 While Drilling: 3.00 ft  
 At Completion of Drilling: mud in the borehole  
 Time After Drilling: 24 hours  
 Depth to Water: 72.00 ft

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

Note:  
 1. Boring Log 1715-B-02 station & offset along baseline Ramp WN is Sta. 2105+90.96, Offset 39.59' (Rt).

0161706-60X93-5043-B01.dgn



USER NAME = ibrahiml	DESIGNED - P.JL	REVISED -
PLOT SCALE = N.T.S.	DRAWN - P.JL	REVISED -
PLOT DATE = 7/30/2018	CHECKED - JIG	REVISED -

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**BORING LOGS IV**  
**STRUCTURE NO. 016-1706**

F.A.I. R.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	658
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				

SHEET NO. S1-43 OF S1-45 SHEETS



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**BORING LOG 1715-PMT-01**  
 WEI Job No.: 1100-04-01  
 Client: **AECOM**  
 Project: **Circle Interchange Reconstruction**  
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88  
 Elevation: 586.37 ft  
 North: 1898101.38 ft  
 East: 1171922.25 ft  
 Station: 1211+54.22  
 Offset: 33.6196 LT

Page 1 of 3

Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blows/in)	Qu (tsf)	Moisture Content (%)	Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blows/in)	Qu (tsf)	Moisture Content (%)
	Drilled without sampling														

GENERAL NOTES				WATER LEVEL DATA			
Begin Drilling	04-24-2014	Complete Drilling	04-24-2014	While Drilling	NA		
Drilling Contractor	Wang Testing Services	Drill Rig	D-25 ATV	At Completion of Drilling	NA		
Driller	N&J	Logger	A. Happel	Time After Drilling	NA		
Checked by	C. Marin	Drilling Method	2.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion				
The stratification lines represent the approximate boundary between soil types. The actual transition may be gradual.							

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**BORING LOG 1715-PMT-01**  
 WEI Job No.: 1100-04-01  
 Client: **AECOM**  
 Project: **Circle Interchange Reconstruction**  
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88  
 Elevation: 586.37 ft  
 North: 1898101.38 ft  
 East: 1171922.25 ft  
 Station: 1211+54.22  
 Offset: 33.6196 LT

Page 2 of 3

Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blows/in)	Qu (tsf)	Moisture Content (%)	Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blows/in)	Qu (tsf)	Moisture Content (%)
	SILTY CLAY LOAM, little gravel														
	--Pressure Meter Test--														
531.4	Hard, gray SILTY CLAY, little gravel	55		1	11 11 20	4.10 B	16								
	--Pressure Meter Test--														
	Very dense, gray SANDY GRAVEL														
499.6	Hard, gray SILTY CLAY LOAM	60		1											
	--Pressure Meter Test--														
496.9	Very dense, gray SANDY GRAVEL	65		5	34 40	29 2	15								
494.6	Very dense, gray SILTY LOAM, trace gravel	70		2	18 29 48	7.38 S	13								
	--Pressure Meter Test--														
512.1	Very dense, gray SILTY LOAM to	75		2											
	--Pressure Meter Test--														
	--HARD DRILLING 95-98.5 ft-- --Possible Cobbles--														
	Boring terminated at 114.50 ft	115													

GENERAL NOTES				WATER LEVEL DATA			
Begin Drilling	04-24-2014	Complete Drilling	04-24-2014	While Drilling	NA		
Drilling Contractor	Wang Testing Services	Drill Rig	D-25 ATV	At Completion of Drilling	NA		
Driller	N&J	Logger	A. Happel	Time After Drilling	NA		
Checked by	C. Marin	Drilling Method	2.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion				
The stratification lines represent the approximate boundary between soil types. The actual transition may be gradual.							

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 Fax: 630 953-9938

**BORING LOG 1715-PMT-01**  
 WEI Job No.: 1100-04-01  
 Client: **AECOM**  
 Project: **Circle Interchange Reconstruction**  
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88  
 Elevation: 586.37 ft  
 North: 1898101.38 ft  
 East: 1171922.25 ft  
 Station: 1211+54.22  
 Offset: 33.6196 LT

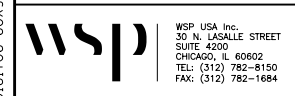
Page 3 of 3

Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blows/in)	Qu (tsf)	Moisture Content (%)	Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blows/in)	Qu (tsf)	Moisture Content (%)
	Very dense, gray SANDY GRAVEL														
484.6	Strong, light gray and white, poor rock mass quality, bedded, moderately wuggy porous, fresh DOLOSTONE, up to 7-inch beds, 3-inch spaced joints, horizontal joints with 0.05 to more than 0.2-inch infilling, hard joint wall, with greenish gray argillaceous infill, and silty surfaces.	105		8			12								
480.4	--Pressure Meter Test--														
	--Run 1-RECOVERY=77%-- --RQD=40%--														
471.9	Boring terminated at 114.50 ft	115													

GENERAL NOTES				WATER LEVEL DATA			
Begin Drilling	04-24-2014	Complete Drilling	04-24-2014	While Drilling	NA		
Drilling Contractor	Wang Testing Services	Drill Rig	D-25 ATV	At Completion of Drilling	NA		
Driller	N&J	Logger	A. Happel	Time After Drilling	NA		
Checked by	C. Marin	Drilling Method	2.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion				
The stratification lines represent the approximate boundary between soil types. The actual transition may be gradual.							

Note:  
 1. Boring Log 1715-PMT-01 station & offset along baseline Ramp WN is Sta. 1103+54.92, Offset 26.02' (Rt).

0161706-60X93-5044-Bor.dgn



USER NAME =	ibrahim1	DESIGNED -	PJL	REVISED -	
		CHECKED -	MI	REVISED -	
PLOT SCALE =	N.T.S.	DRAWN -	PJL	REVISED -	
PLOT DATE =	7/30/2018	CHECKED -	JIG	REVISED -	

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**BORING LOGS V  
 STRUCTURE NO. 016-1706**

SHEET NO. S1-44 OF S1-45 SHEETS

F.A.I. R.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	659
<b>CONTRACT NO. 60X93</b>				
ILLINOIS FED. AID PROJECT				

**Wang Engineering**  
 wangeng@wangeng.com  
 1145 N Main Street  
 Lombard, IL 60148  
 Telephone: 630 953-9928  
 Fax: 630 953-9938

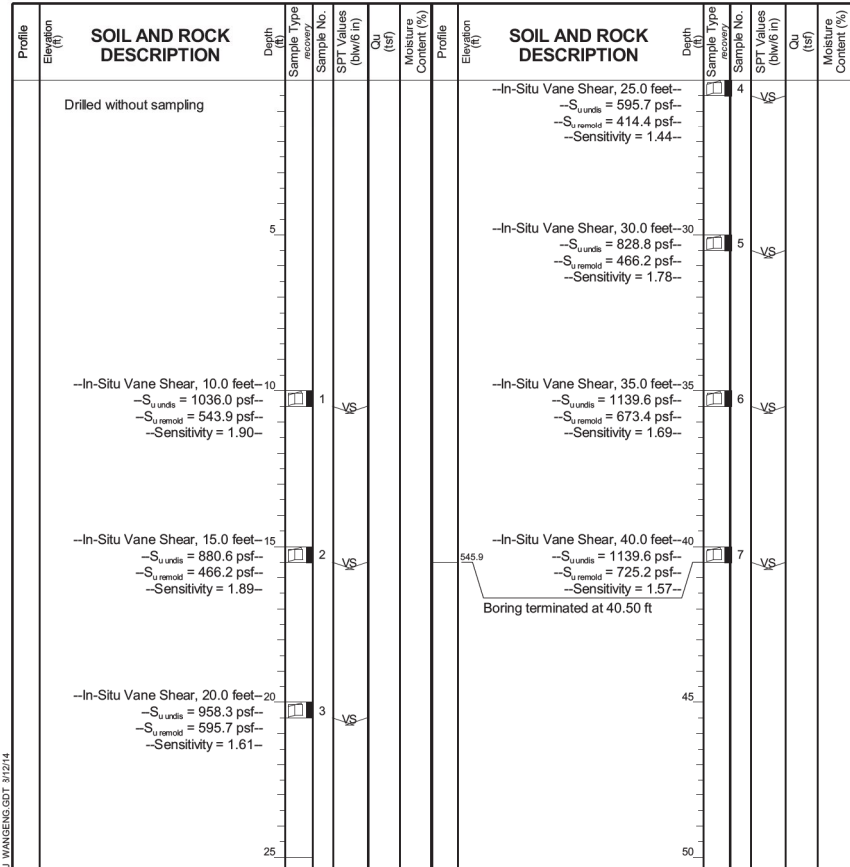
**BORING LOG 1715-VS-01**

Page 1 of 1

WEI Job No.: 1100-04-01

Client: **AECOM**  
 Project: **Circle Interchange Reconstruction**  
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88  
 Elevation: 586.35 ft  
 North: 1898112.83 ft  
 East: 1171916.87 ft  
 Station: 1211+63.60  
 Offset: 25.6304 LT



**GENERAL NOTES**

Begin Drilling 03-27-2014 Complete Drilling 03-27-2014  
 Drilling Contractor **Wang Testing Services** Drill Rig **D-25 ATV**  
 Driller **N&J** Logger **F. Bozga** Checked by **C. Marin**  
 Drilling Method **3.25" HSA, boring backfilled upon completion**

**WATER LEVEL DATA**

While Drilling **NA**  
 At Completion of Drilling **NA**  
 Time After Drilling **NA**  
 Depth to Water **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

Note:  
 1. Boring Log 1715-B-02 station & offset along baseline Ramp WN is Sta. 1103+64.03, Offset 35.40' (Rt).

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USER NAME = ibrahim1	DESIGNED - P.JL	REVISED -
PLOT SCALE = N.T.S.	CHECKED - MI	REVISED -
PLOT DATE = 7/30/2018	DRAWN - P.JL	REVISED -
	CHECKED - JIG	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**BORING LOGS VI  
 STRUCTURE NO. 016-1706**

SHEET NO. S1-45 OF S1-45 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-013R&B	COOK	1972	660
<b>CONTRACT NO. 60X93</b>				

ILLINOIS FED. AID PROJECT

Bench Mark: Chisel "X" on chain bolt of fire hydrant in front of 555 W. Harrison St. Elev. 594.46.

Existing Structure: SN 016-2452. Constructed in 1960 under F.A.I. Route 1, Section 2424.28-B. Fourteen span bridge that measures 787'-4" from back of north abutment to centerline of east pier. Out-to-Out width of 29'-0". The spans are supported by 36" wide flange beams, concrete T-beams and a reinforced concrete slab. Substructure is reinforced concrete closed abutment, multi-column and solid wall piers founded on bell caissons. The existing bridge is to be removed and replaced.

The existing bridge will be closed and traffic will be detoured during construction. Traffic on I-290 and I-90/94 will be maintained with stage construction.

No Salvage.

**SEISMIC DATA**

Seismic Performance Zone (SPZ) = 1  
 Design Spectral Acceleration at 1.0 sec. (S<sub>D1</sub>) = 0.125g  
 Design Spectral Acceleration at 0.2 sec. (S<sub>D5</sub>) = 0.225g  
 Soil Site Class = E

**DESIGN SPECIFICATIONS**

2014 AASHTO LRFD Bridge Design Specifications  
 7th Edition with 2015 and 2016 Interim Specifications

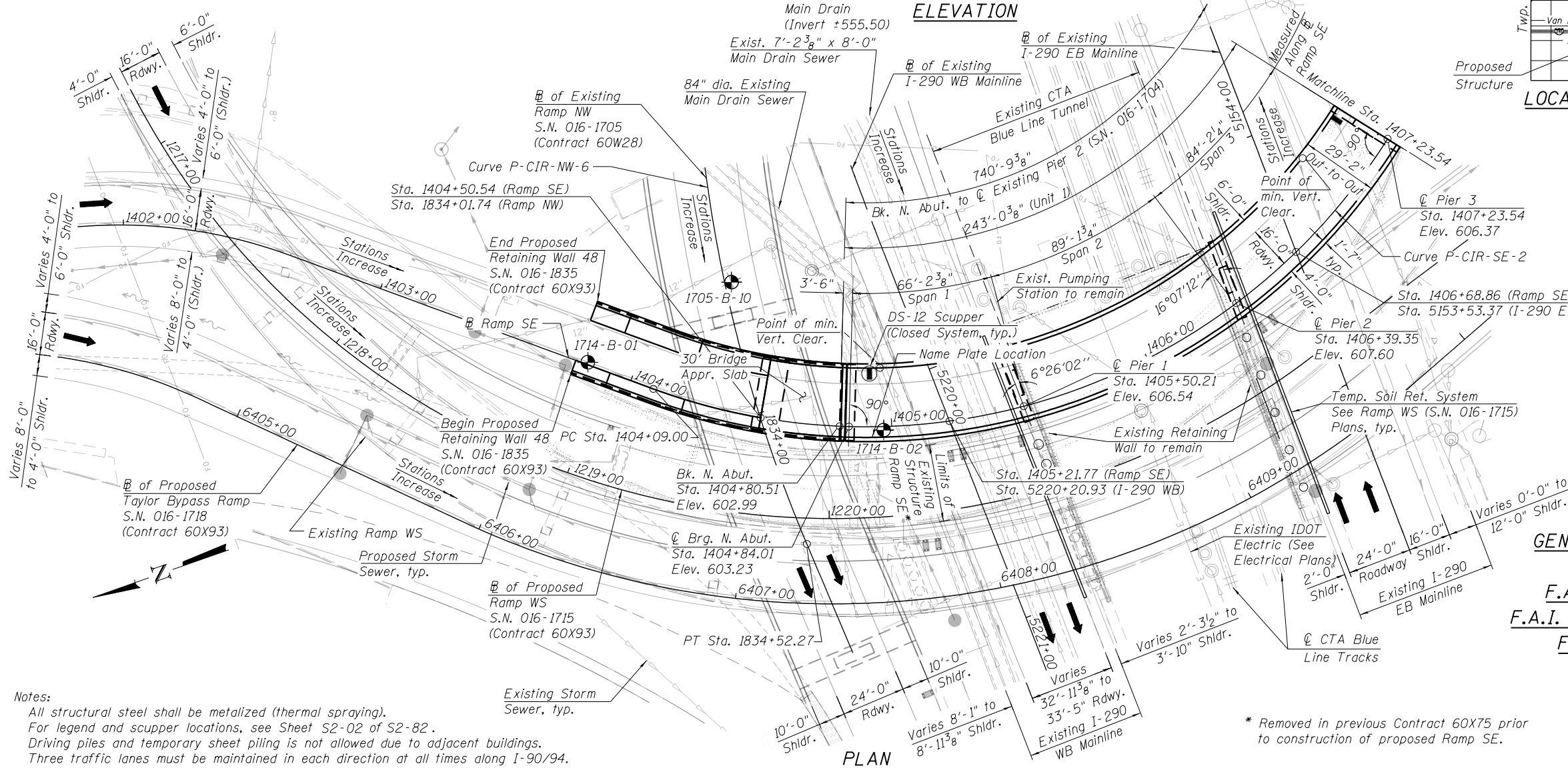
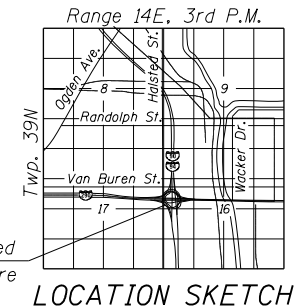
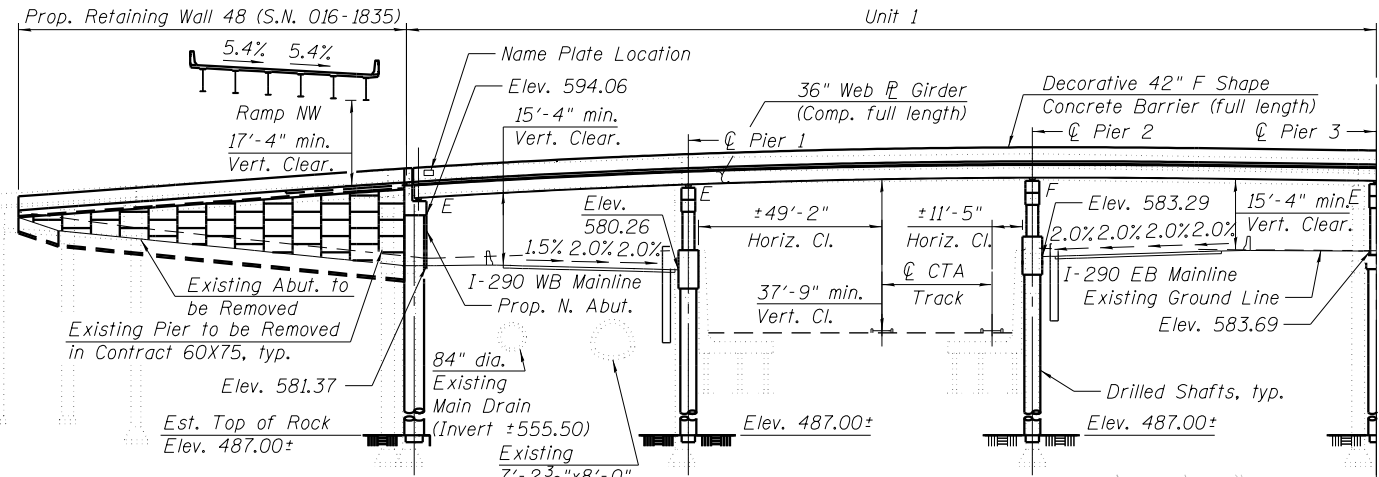
**DESIGN STRESSES**

**FIELD UNITS**

f'c = 3,500 psi  
 f'c = 4,000 psi (Superstructure Concrete)  
 fy = 60,000 psi (Reinforcement)  
 fy = 50,000 psi (M270 Grade 50)

**LOADING HL-93**

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



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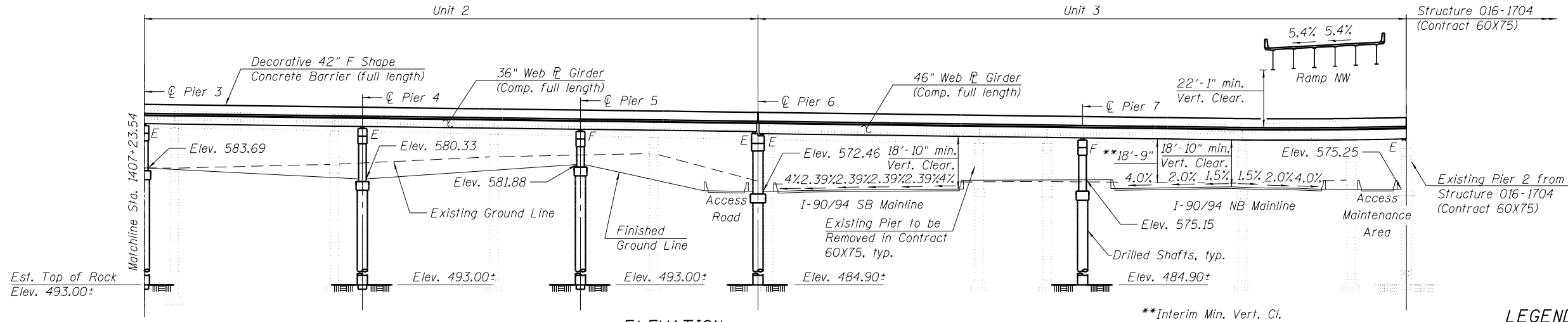
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CHECKED - MDS	REVISOR	REVISOR
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PLOT DATE = 7/26/2018	CHECKED - MDS	REVISOR

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

SHEET NO. S2-01 OF S2-82 SHEETS

F.A.I. RTE. 90/94/290	SECTION 2014-013 R&B-R	COUNTY COOK	TOTAL SHEETS 1972	SHEET NO. 661
CONTRACT NO. 60X93			ILLINOIS FED. AID PROJECT	



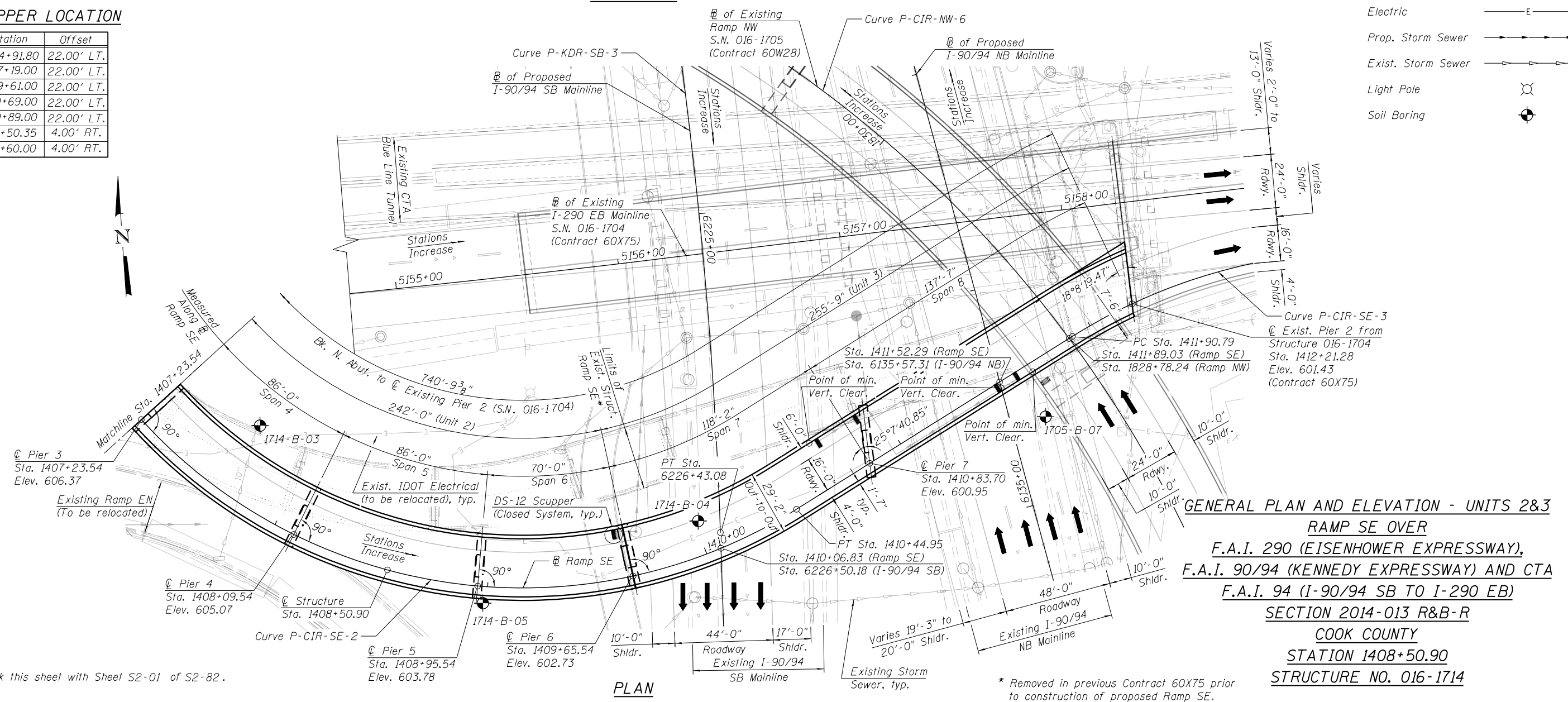


**SCUPPER LOCATION**

Station	Offset
1404+91.80	22.00' LT.
1407+19.00	22.00' LT.
1409+61.00	22.00' LT.
1410+69.00	22.00' LT.
1410+89.00	22.00' LT.
1411+50.35	4.00' RT.
1411+60.00	4.00' RT.

**LEGEND**

Electric	— E —
Prop. Storm Sewer	→ → →
Exist. Storm Sewer	→ → →
Light Pole	⊙
Soil Boring	⊙



**GENERAL NOTES:**

- Fasteners shall be ASTM A325 Type 1, hot dip galvanized bolts. Bolts 7/8 in. φ, holes 15/16 in. φ, unless otherwise noted.
- Calculated weight of Structural Steel = 900,960 pounds.
- All structural steel shall be AASHTO M270 Grade 50.
- All structural steel shall be metalized (thermal spraying) (see special provisions).
- Expansion joint plates and attached bars shall be shop painted with the inorganic zinc rich primer.
- No field welding is permitted except as specified in the contract documents.
- Reinforcement bars designated (E) shall be epoxy coated.
- Plan dimensions and details relative to existing plans are subject to nominal construction variations. The Contractor shall field verify existing dimensions and details affecting new construction and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in scope of work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.
- Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of 1/8 in. (0.01 ft.). Adjustment shall be made either by grinding the surface or by shimming the bearings.
- Concrete Sealer shall be applied to the designated areas of the Piers and Abutments.
- The Contractor shall exercise extreme caution during construction to make certain that construction activities, live load surcharge and other loads applied to the structures will not have detrimental effects on the adjacent building foundations and the existing main drain. Any damage during construction shall be repaired by the contractor at his expense and no charge to the department. Driving piles and temporary sheet piling is not allowed.
- Slipforming of parapets is not allowed.
- For the Conduits Embedded in Structure details and quantities, see Civil and Electrical Plans. Embedded conduits shall be PVC.
- For drilled shaft locations where permanent casing is required as shown on the plans, the casing will be paid for under the Permanent Casing pay item. If Contractor elects to use permanent casing for ease of construction in locations where permanent casing is not required on the plans, the casing will not be paid for separately and is included in the Drilled Shaft in Soil pay item.
- Limited groundwater elevation data is available in the boring logs. In addition, groundwater may also be present in deeper granular layers. The groundwater may rise in the shafts to an elevation above the top of granular layers. The Contractor shall consider this information when choosing construction methods. The Contractor will not be compensated for issues related to the groundwater elevation.
- The Contractor shall take all necessary precautions not to contaminate groundwater during the drilled shaft construction operation. Contractor is responsible for the proper containment and disposal of the contaminated groundwater and spoils resulting from Contractor's means and methods. No additional cost will be paid for this effort.
- The Contractor shall field verify location of existing utilities prior to construction. The Contractor shall take precautions not to damage existing utilities. Any such damage shall be repaired by the Contractor at no additional cost.
- Structural steel erection shall be accomplished by a steel erection contractor or subcontractor certified as an Advanced Certified Steel Erector (ACSE) by the American Institute of Steel Construction (AISC). See special provision for Erection of Complex Steel Structures.
- The Drilled Shaft quantities and reinforcement detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft locations and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.
- Based on the squeeze potential of the clay soils, the use of temporary casing will be required to Elevation 540.00 in order to properly construct the drilled shafts. Casing may be pulled or left in place, as determined by the Contractor at no cost to the Department.
- The Contractor shall coordinate the construction of the proposed structure with the construction of the proposed Retaining Wall 48 and the proposed Ramp WS bridge. See MOT plan sheets and special provisions, including the Available Work Areas and Sequencing Requirements special provision, for additional construction and coordination requirements.
- The Contractor shall provide vibration and displacement monitoring at the locations specified in the Special Provision for Construction Vibration Monitoring and Monitoring Adjacent Structures, to ensure that removal/construction activities in the vicinity of the structures do not have detrimental effects on building foundations. No additional compensation shall be provided to the Contractor for alternative means and methods, or additional precautionary measures, required during removal/construction activities to satisfy these requirements. See Contract Special Provisions for details.
- The Contractor may encounter abandoned foundation elements that obstruct construction of the proposed structure. Removal and disposal of portion of abandoned foundation elements shall be per special provision "Abandoned Foundation Removal". See Civil plans for approximate location and quantity.

**EXISTING STRUCTURE ASSESSMENT NOTES**

- In order to construct proposed superstructure and substructure elements, Contractor may elect to support temporary construction material and/or equipment, on the existing structures in the vicinity of the proposed structure. The Contractor shall submit Structural Assessment Report(s) for approval prior to beginning the work. See Special Provision.
- An Existing Structure Information Package (ESIP) will be provided by the Department to the Contractor upon request.
- The Contractor shall retain the services of an engineering firm, prequalified in the IDOT consultant selection category of Highway Bridge (Adv. Typical), for preparation of the Structural Assessment Report(s). Contractor's pre-approval shall not be applicable for this project. See Special Provision.

Current existing structure Load Rating on file:

S.N. 016-1713 (Harrison St over SB I-90/94)  
Inventory Rating Factor: 2.19 (HL-93)  
Operating Rating Factor: 2.84 (HL-93)  
Live Load Restriction: None

S.N. 016-1029 (EB I-290 over I-90/94)  
Inventory: 0.86 (HS20)  
Operating: 1.43 (HS20)  
Live Load Restriction: None

S.N. 016-1716 (Halsted St over I-290 & CTA)  
Inventory Rating Factor: 1.12 (HL-93)  
Operating Rating Factor: 1.45 (HL-93)  
Live Load Restriction: None

S.N. 016-2450 (WB I-290 to SB I-90/94)  
Inventory: 0.71 (H20)  
Operating: 1.18 (H20)  
Live Load Restriction: None

- Inventory and Operating Ratings and Live Load Restrictions are provided for information only. Inventory and Operating Ratings are based on live loading and configuration as noted. Live Load Restrictions are based on Illinois legal loads and configurations. The Ratings and Live load Restrictions are not necessarily representative of capacities to support the Contractor's equipment.
- The contractor is advised that the existing structures may contain members in deteriorated conditions with reduced load carrying capacities. It is the Contractor's responsibility to account for the condition of existing structures when developing construction procedures for using them to support construction loads.
- The contractor shall verify that the structural demands of the applied loads due to the Contractor's means and methods will not exceed the available capacity of the structure at the time loads are applied. Most likely, the Contractor will be required to provide additional shoring under the existing bridges (or other methods of retrofitting) to support construction loads. Design, installation and subsequent removal of such shoring system will be the responsibility of the Contractor and will not be paid separately.
- The Contractor shall use caution and not damage any component of the existing structure. Upon completion of work and prior to allowing traffic back on the existing structure the contractor must restore existing structure in its original condition.

**TOTAL BILL OF MATERIAL**

Item	Unit	Super	Sub	Total Quantity
Concrete Removal	Cu. Yd.		83	83
Structure Excavation	Cu. Yd.		471	471
Concrete Structures	Cu. Yd.		533.6	533.6
Rubbed Finish	Sq. Ft.		3,642	3,642
Concrete Superstructure	Cu. Yd.	785.8		785.8
Form Liner Textured Surface	Sq. Ft.		2,298	2,298
Protective Coat	Sq. Yd.	2,924		2,924
Concrete Superstructure (Approach Slab)	Cu. Yd.	41.0		41.0
Furnishing And Erecting Structural Steel	L. Sum	0.2		0.2
Stud Shear Connectors	Each	10,530		10,530
Reinforcement Bars	Pound		183,220	183,220
Reinforcement Bars, Epoxy Coated	Pound	222,420	104,610	327,030
Bar Splicers	Each		30	30
Name Plates	Each	1		1
Permanent Casing	Foot		557	557
Drilled Shaft In Soil	Cu. Yd.		848.1	848.1
Drilled Shaft In Rock	Cu. Yd.		12.9	12.9
Preformed Joint Strip Seal	Foot	124		124
Anchor Bolts, 3/4"	Each		200	200
Anchor Bolts, 1"	Each		20	20
Concrete Sealer	Sq. Ft.		8,713	8,713
Geocomposite Wall Drain	Sq. Yd.		47	47
Granular Backfill Special	Cu. Yd.		19	19
Crosshole Sonic Logging Access Ducts	Foot		1,857	1,857
Crosshole Sonic Logging Testing	Each		8	8
Earth Excavation (Special)	Cu. Yd.		37	37
Bridge Deck Grooving (Longitudinal)	Sq. Yd.	2,130		2,130
High Load Multi-Rotational Bearings, Guided Expansion, 150K	Each		20	20
High Load Multi-Rotational Bearings, Guided Expansion, 200K	Each		10	10
High Load Multi-Rotational Bearings, Guided Expansion, 250K	Each		5	5
High Load Multi-Rotational Bearings, Guided Expansion, 300K	Each		5	5
High Load Multi-Rotational Bearings, Fixed - 250K	Each		5	5
High Load Multi-Rotational Bearings, Fixed - 300K	Each		5	5
High Load Multi-Rotational Bearings, Fixed - 450K	Each		5	5
Drainage Scuppers, DS-12	Each		7	7
Drainage System	L. Sum	0.1		0.1
Pipe Underdrains For Structures 4"	Foot		55	55
CTA Protective Shield	L. Sum	0.33		0.33

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- S2-02 General Plan and Elevation 2
- S2-03 General Data 1
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- S2-05 Foundation Layout
- S2-06 Existing Structure Removal Details
- S2-07 Top of Slab Elevations 1 - Unit 1
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- S2-81 Boring Logs 6
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**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

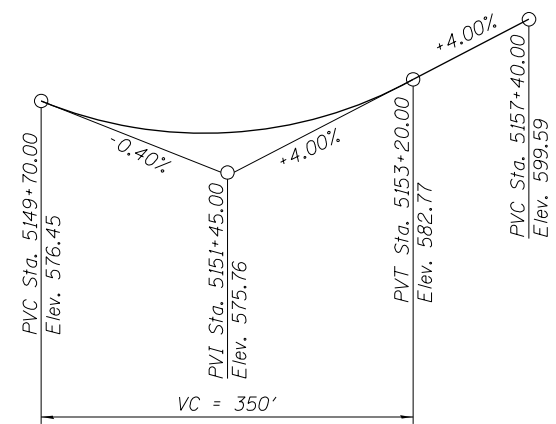
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SHEET NO. S2-03 OF S2-82 SHEETS

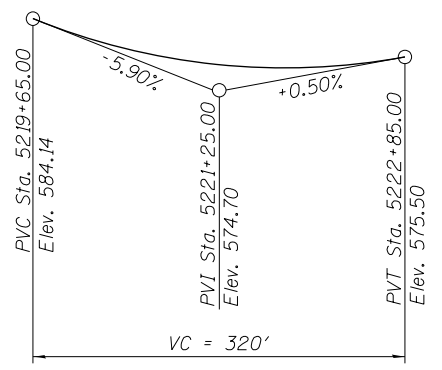
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90/94/290	2014-013 R&B-R	COOK	1972	663
CONTRACT NO. 60X93			ILLINOIS FED. AID PROJECT	

STATION 1408+50.90  
 BUILT 20-- BY  
 STATE OF ILLINOIS  
 F.A.I. RT. 90/94/290 SEC. 2014-013 R&B-R  
 LOADING HL-93  
 STR. NO. 016-1714

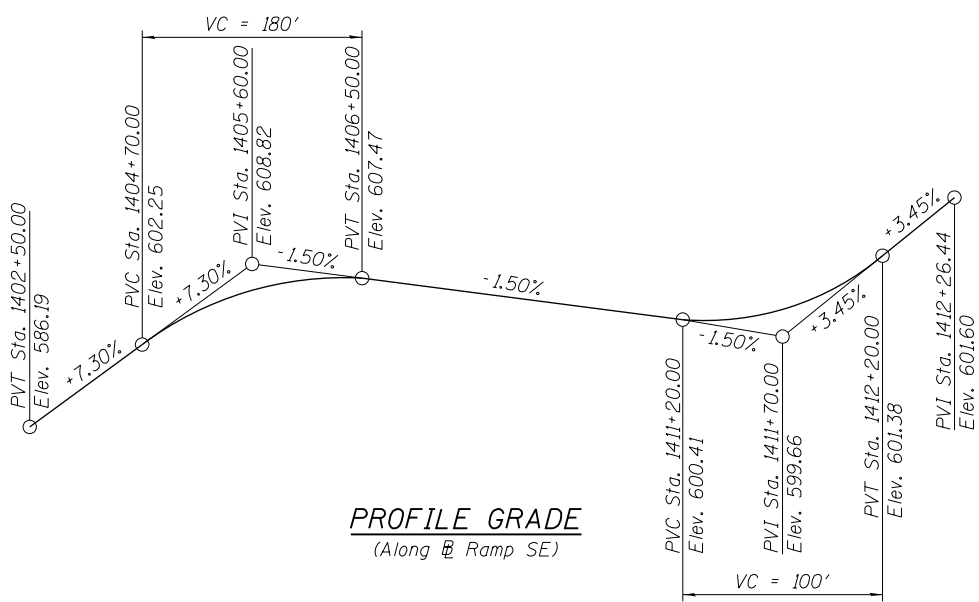
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 See Std. 515001



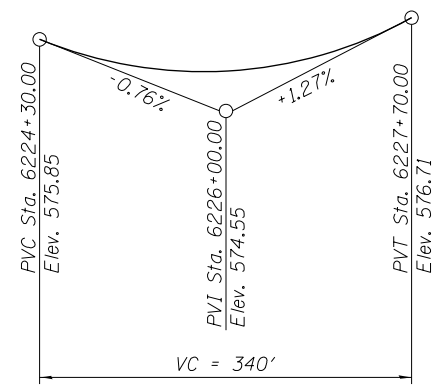
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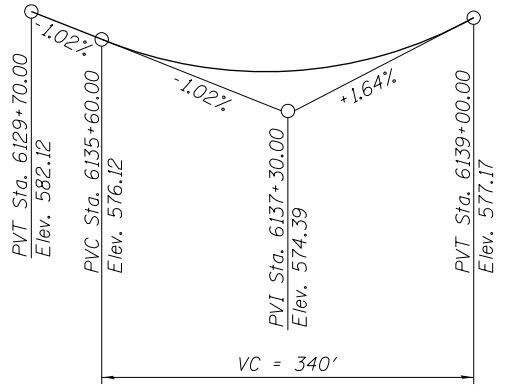
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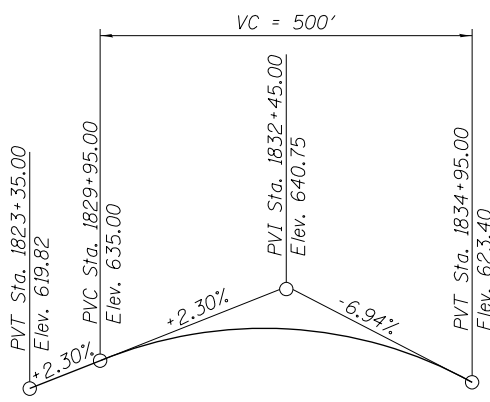
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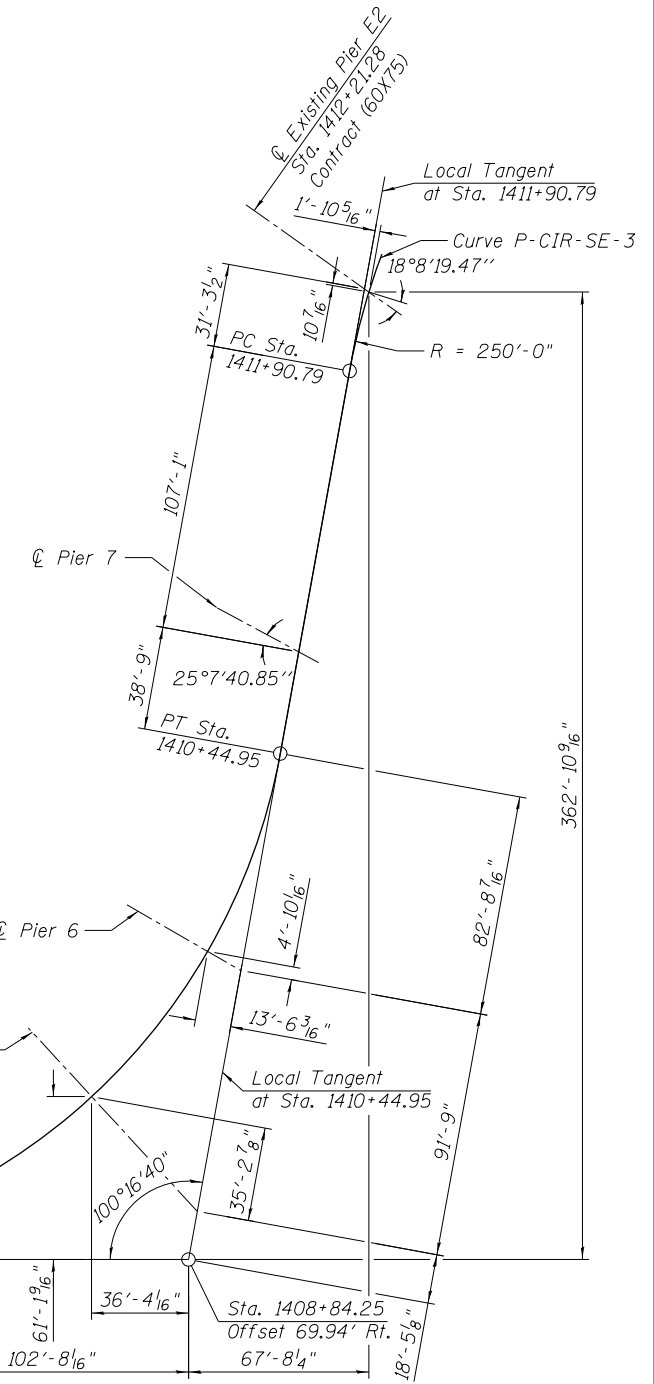
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 (Along SB I-90/94)



**PROFILE GRADE**  
 (Along NB I-90/94)



**PROFILE GRADE**  
 (Along Ramp NW)



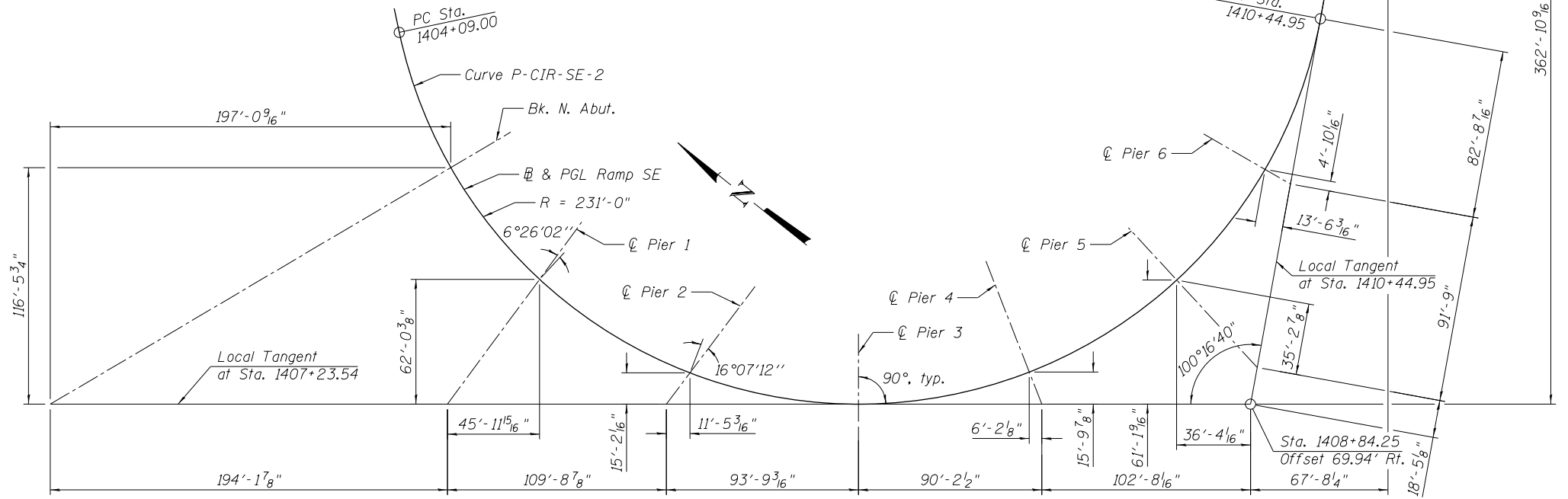
**OFFSET SKETCH**

(All piers are radial or perpendicular to Ramp SE unless noted otherwise.)

**CURVE DATA**  
 (Ramp SE)

P-CIR-SE-2	P-CIR-SE-3
P.I. Sta. = 1415+83.08	P.I. Sta. = 1412+44.91
$\Delta = 157^\circ 44' 18''$ (LT)	$\Delta = 24^\circ 25' 53''$ (RT)
D = 24°48'12"	D = 22°55'06"
R = 231.00'	R = 250.00'
T = 1174.08'	T = 54.12'
L = 635.96'	L = 106.60'
E = 965.59'	E = 5.79'
e = 5.6%	e = 5.4%
T.R. = NA	T.R. = NA
S.E. Run = 128'	S.E. Run = 78'
P.C. Sta. = 1404+09.00	P.C. Sta. = 1411+90.79
P.T. Sta. = 1410+44.95	P.T. Sta. = 1412+97.39

<b>CURVE DATA</b> (Ramp NW)	<b>CURVE DATA</b> (F.A.I. Rte. SB 90/94)
P-CIR-NW-6	P-KDR-SB-3
P.I. Sta. = 1831+44.22	P.I. Sta. = 6224+30.06
$\Delta = 88^\circ 30' 25''$ (LT)	$\Delta = 11^\circ 28' 39''$ (RT)
D = 10°36'37"	D = 2°41'06"
R = 540.00'	R = 2,134.00'
T = 526.11'	T = 214.46'
L = 834.16'	L = 427.48'
E = 213.92'	E = 10.75'
e = 5.4%	e = 4.2%
T.R. = NA	T.R. = NA
S.E. Run = 66'	S.E. Run = 203'
P.C. Sta. = 1826+18.11	P.C. Sta. = 6222+15.60
P.T. Sta. = 1834+52.27	P.T. Sta. = 6226+43.08



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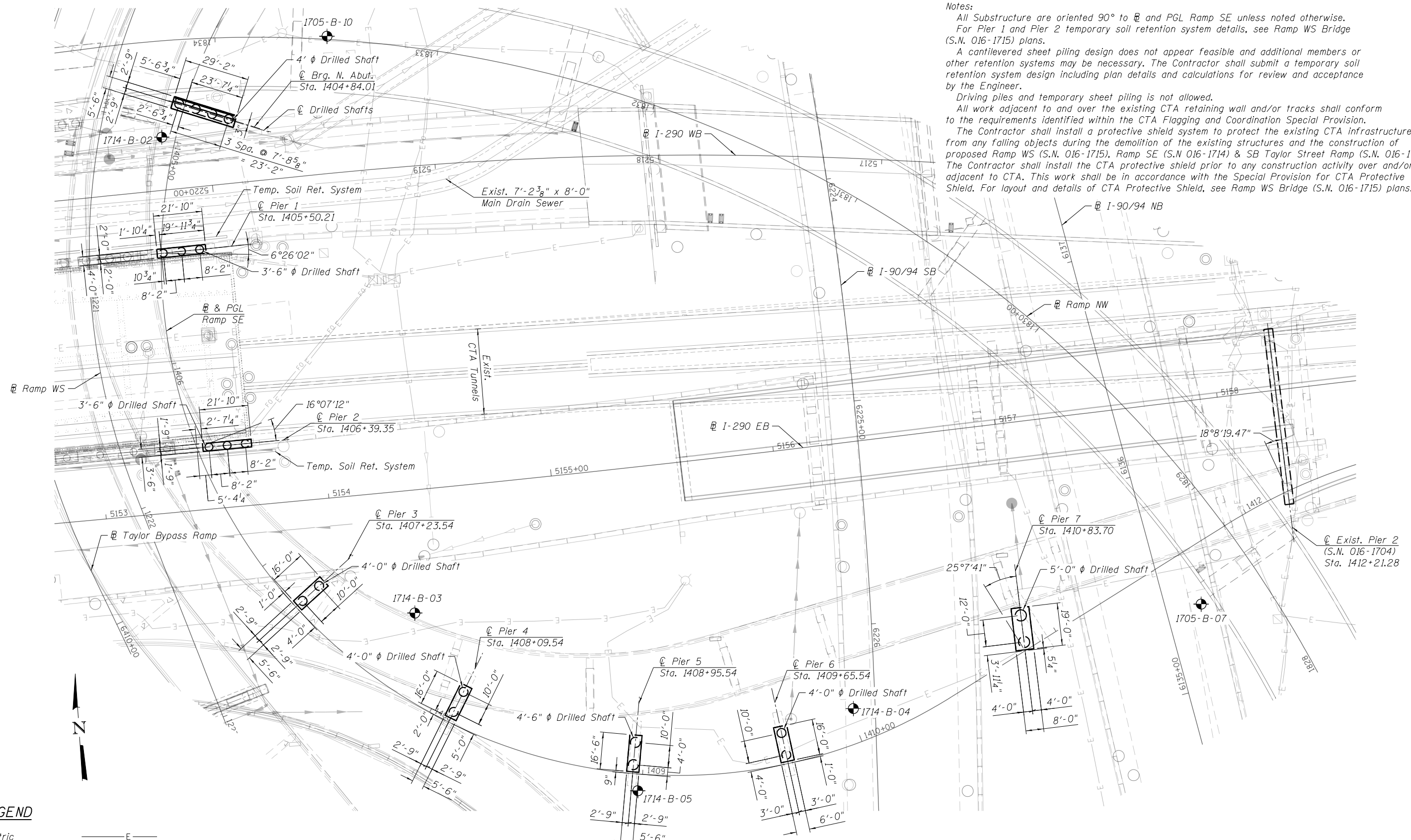
STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

GENERAL DATA 2  
 STRUCTURE NO. 016-1714

SHEET NO. S2-04 OF S2-82 SHEETS

F.A.I. RTE. 90/94/290	SECTION 2014-013 R&B-R	COUNTY COOK	TOTAL SHEETS 1972	SHEET NO. 664
CONTRACT NO. 60X93				ILLINOIS FED. AID PROJECT

**Notes:**  
 All Substructure are oriented 90° to  $\bar{E}$  and PGL Ramp SE unless noted otherwise.  
 For Pier 1 and Pier 2 temporary soil retention system details, see Ramp WS Bridge (S.N. 016-1715) plans.  
 A cantilevered sheet piling design does not appear feasible and additional members or other retention systems may be necessary. The Contractor shall submit a temporary soil retention system design including plan details and calculations for review and acceptance by the Engineer.  
 Driving piles and temporary sheet piling is not allowed.  
 All work adjacent to and over the existing CTA retaining wall and/or tracks shall conform to the requirements identified within the CTA Flagging and Coordination Special Provision.  
 The Contractor shall install a protective shield system to protect the existing CTA infrastructure from any falling objects during the demolition of the existing structures and the construction of proposed Ramp WS (S.N. 016-1715), Ramp SE (S.N. 016-1714) & SB Taylor Street Ramp (S.N. 016-1718). The Contractor shall install the CTA protective shield prior to any construction activity over and/or adjacent to CTA. This work shall be in accordance with the Special Provision for CTA Protective Shield. For layout and details of CTA Protective Shield, see Ramp WS Bridge (S.N. 016-1715) plans.



**SUBSTRUCTURE LAYOUT PLAN**

**LEGEND**

- Electric ——— E ———
- Exist. Storm Sewer ———>——>
- Prop. Storm Sewer ———>——>
- Light Pole ——— ⊗ ———
- Soil Boring ——— ⊕ ———
- Exist. Catch Basin ——— ○ ———
- Prop. Catch Basin ——— ⊙ ———
- Exist. Manhole ——— ⊗ ———
- Prop. Manhole ——— ⊕ ———

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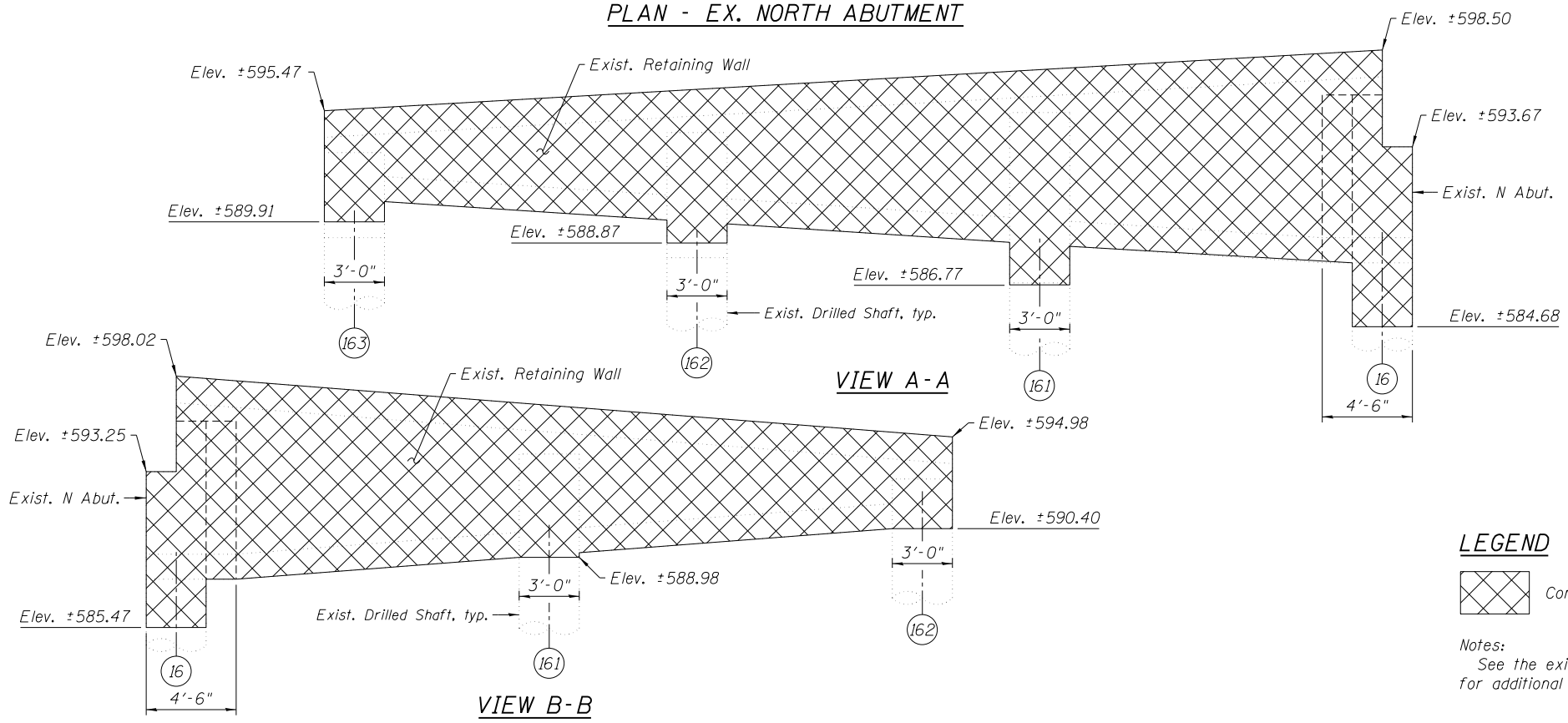
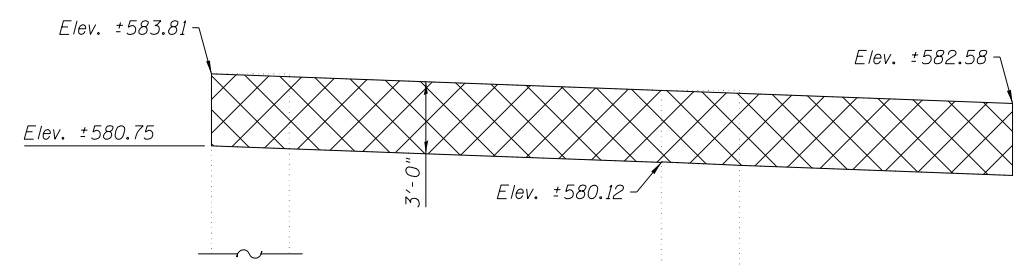
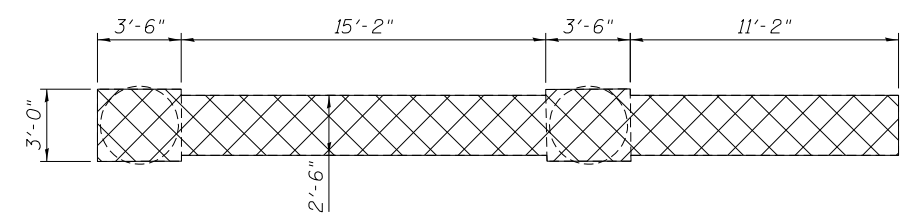
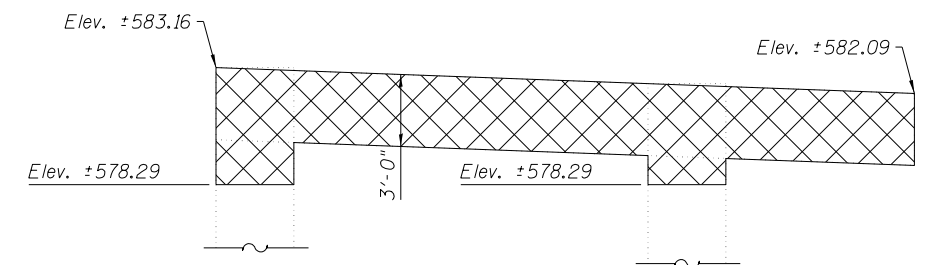
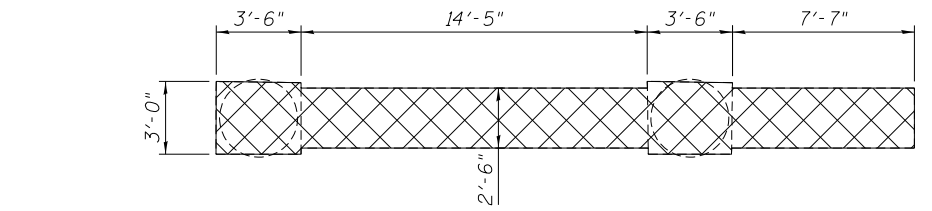
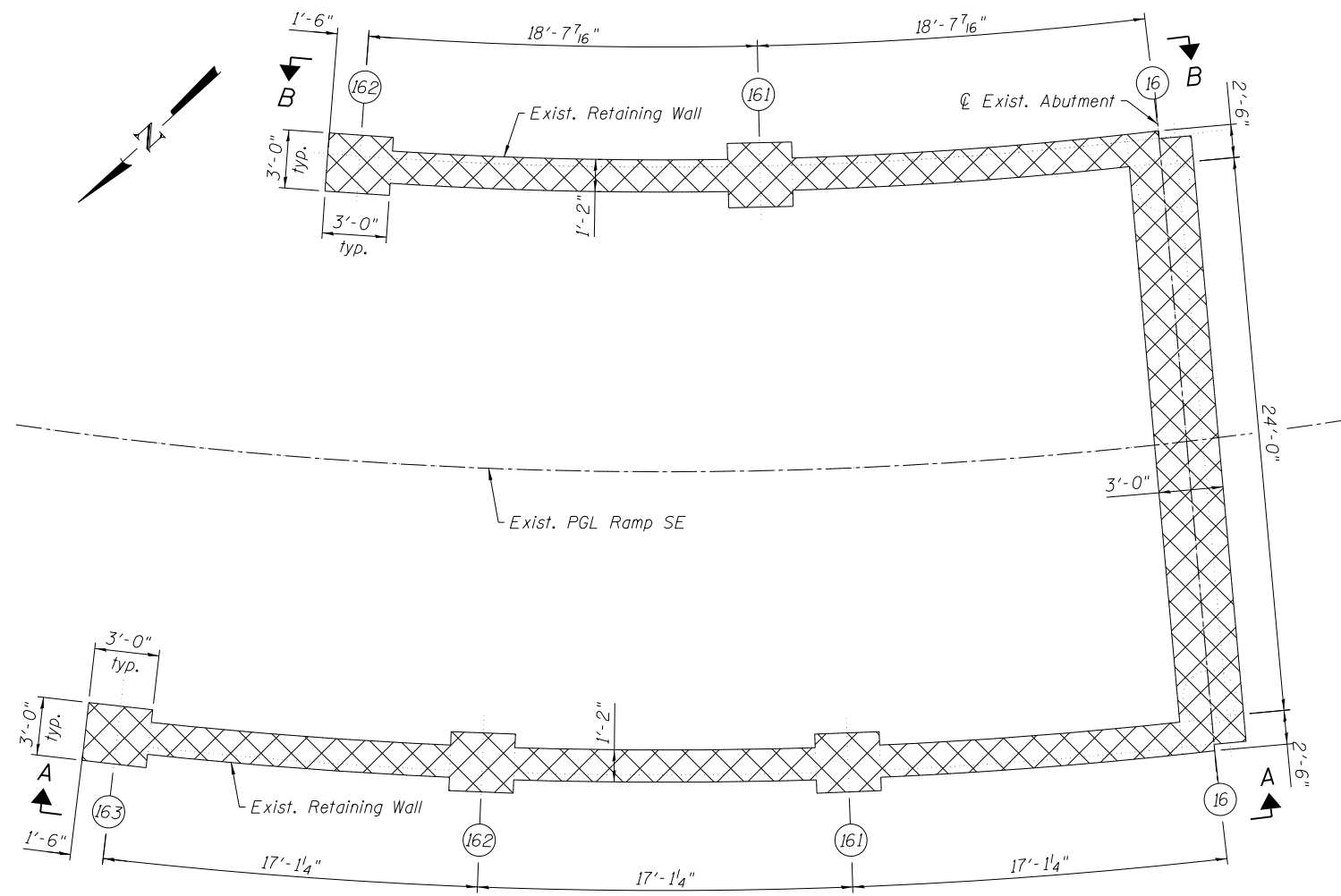
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	CHECKED - JRM	REVISED

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**FOUNDATION LAYOUT  
STRUCTURE NO. 016-1714**

SHEET NO. S2-05 OF S2-82 SHEETS

F.A.I. R.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013 R&B-R	COOK	1972	665
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				



**LEGEND**

Concrete Removal

Notes:  
See the existing Ramp SE Bridge plans for additional information.

**BILL OF MATERIAL**

Item	Unit	Total
Concrete Removal	Cu. Yd.	83

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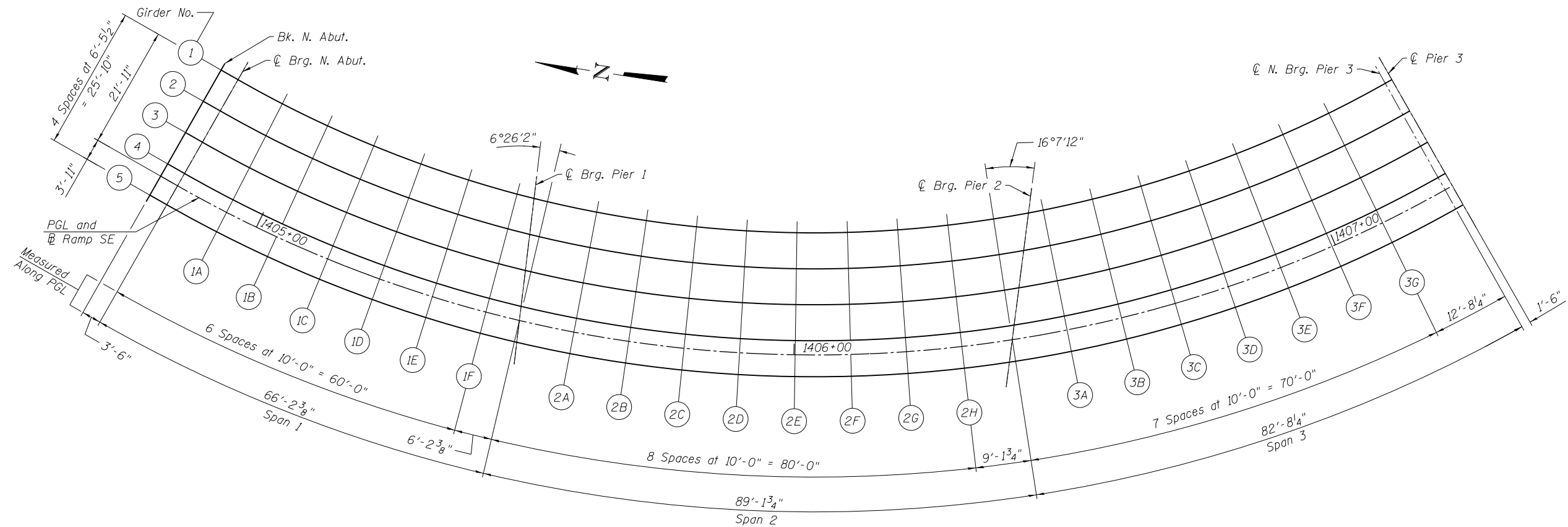
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**EXISTING STRUCTURE REMOVAL DETAILS  
STRUCTURE NO. 016-1714**

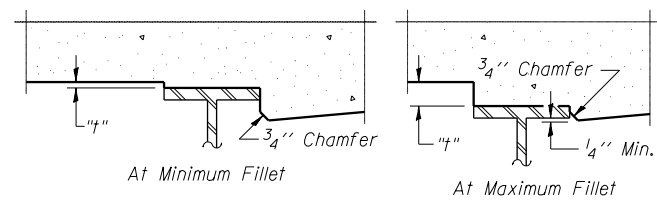
SHEET NO. S2-06 OF S2-82 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013 R&B-R	COOK	1972	666
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				





PLAN - UNIT 1

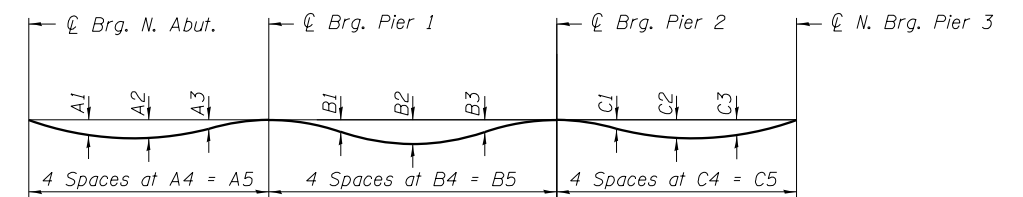


To determine "t": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown above. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown on sheets S2-08 and S2-09 of S2-82, minus slab thickness, equals the fillet heights "t" above top flange of beams.

FILLET HEIGHTS

Note:

The deflections below are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown on sheets S2-08 and S2-09 of S2-82. Dead load deflection assumes a continuous deck pour sequence in the direction of increasing station.



DEAD LOAD DEFLECTION DIAGRAM

(Includes weight of concrete only.)

Girder No.	DEAD LOAD DEFLECTIONS														
	Span 1					Span 2					Span 3				
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	C4	C5
1	1/8"	1/8"	1/8"	14'-4 3/8"	57'-5 3/8"	1/2"	7/8"	5/8"	22'-4 9/16"	89'-6 3/16"	1/8"	3/8"	3/8"	17'-1 1/16"	68'-5 3/4"
2	1/4"	1/4"	1/8"	15'-0 1/8"	60'-0 7/16"	1/2"	3/4"	1/2"	22'-4 3/16"	89'-4 1/16"	1/4"	1/2"	1/2"	18'-2 1/16"	72'-8 1/8"
3	1/4"	3/8"	1/8"	15'-7 13/16"	62'-7 5/16"	3/8"	3/4"	3/8"	22'-3 13/16"	89'-3 3/8"	3/8"	3/4"	5/8"	19'-2 9/16"	76'-10 3/8"
4	3/8"	1/2"	1/4"	16'-3 9/16"	65'-2 3/16"	3/8"	5/8"	1/4"	22'-3 9/16"	89'-2 1/8"	1/2"	1"	7/8"	20'-3 1/8"	81'-0 9/16"
5	1/2"	5/8"	1/4"	16'-11 5/16"	67'-9 1/4"	3/8"	1/2"	1/8"	22'-3 1/4"	89'-0 7/8"	5/8"	1 1/4"	1"	21'-3 1/16"	85'-2 5/8"

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PLOT DATE = 8/21/2018	CHECKED - WJC/JM	REVISED

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

TOP OF SLAB ELEVATIONS 1 - UNIT 1  
STRUCTURE NO. 016-1714

SHEET NO. S2-07 OF S2-82 SHEETS

F.A.I. R.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013 R&B-R	COOK	1972	667
CONTRACT NO. 60X93			ILLINOIS FED. AID PROJECT	

**GIRDER 1**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	1404+80.14	-21.92	601.74	601.74
CL. Brg. N. Abut.	1404+84.01	-21.92	602.00	602.00
1A	1404+94.01	-21.92	602.64	602.65
1B	1405+04.01	-21.92	603.23	603.24
1C	1405+14.01	-21.92	603.76	603.78
1D	1405+24.01	-21.92	604.26	604.26
1E	1405+34.01	-21.92	604.70	604.70
1F	1405+44.01	-21.92	605.09	605.09
CL. Brg. Pier 1	1405+47.48	-21.92	605.21	605.21
2A	1405+60.21	-21.92	605.62	605.64
2B	1405+70.21	-21.92	605.89	605.93
2C	1405+80.21	-21.92	606.10	606.16
2D	1405+90.21	-21.92	606.27	606.34
2E	1406+00.21	-21.92	606.39	606.46
2F	1406+10.21	-21.92	606.45	606.52
2G	1406+20.21	-21.92	606.47	606.52
2H	1406+30.21	-21.92	606.45	606.47
CL. Brg. Pier 2	1406+46.38	-21.92	606.30	606.30
3A	1406+49.35	-21.92	606.25	606.25
3B	1406+59.35	-21.92	606.10	606.11
3C	1406+69.35	-21.92	605.95	605.97
3D	1406+79.35	-21.92	605.80	605.83
3E	1406+89.35	-21.92	605.65	605.68
3F	1406+99.35	-21.92	605.50	605.53
3G	1407+09.35	-21.92	605.35	605.37
CL. N. Brg. Pier 3	1407+22.04	-21.92	605.16	605.16
CL. Pier 3	1407+23.54	-21.92	605.14	605.14

**GIRDER 2**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	1404+80.26	-15.46	602.11	602.11
CL. Brg. N. Abut.	1404+84.01	-15.46	602.36	602.36
1A	1404+94.01	-15.46	603.00	603.01
1B	1405+04.01	-15.46	603.59	603.61
1C	1405+14.01	-15.46	604.13	604.15
1D	1405+24.01	-15.46	604.62	604.63
1E	1405+34.01	-15.46	605.06	605.06
1F	1405+44.01	-15.46	605.45	605.45
CL. Brg. Pier 1	1405+48.35	-15.46	605.61	605.61
2A	1405+60.21	-15.46	605.98	606.00
2B	1405+70.21	-15.46	606.25	606.29
2C	1405+80.21	-15.46	606.46	606.52
2D	1405+90.21	-15.46	606.63	606.70
2E	1406+00.21	-15.46	606.75	606.81
2F	1406+10.21	-15.46	606.82	606.87
2G	1406+20.21	-15.46	606.84	606.87
2H	1406+30.21	-15.46	606.81	606.82
CL. Brg. Pier 2	1406+44.15	-15.46	606.69	606.69
3A	1406+49.35	-15.46	606.62	606.62
3B	1406+59.35	-15.46	606.47	606.48
3C	1406+69.35	-15.46	606.31	606.34
3D	1406+79.35	-15.46	606.16	606.21
3E	1406+89.35	-15.46	606.01	606.06
3F	1406+99.35	-15.46	605.86	605.91
3G	1407+09.35	-15.46	605.71	605.74
CL. N. Brg. Pier 3	1407+22.04	-15.46	605.52	605.52
CL. Pier 3	1407+23.54	-15.46	605.50	605.50

**GIRDER 3**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	1404+80.36	-9.00	602.48	602.48
CL. Brg. N. Abut.	1404+84.01	-9.00	602.72	602.72
1A	1404+94.01	-9.00	603.36	603.38
1B	1405+04.01	-9.00	603.95	603.98
1C	1405+14.01	-9.00	604.49	604.52
1D	1405+24.01	-9.00	604.98	605.00
1E	1405+34.01	-9.00	605.42	605.43
1F	1405+44.01	-9.00	605.81	605.81
CL. Brg. Pier 1	1405+49.16	-9.00	606.00	606.00
2A	1405+60.21	-9.00	606.34	606.36
2B	1405+70.21	-9.00	606.61	606.64
2C	1405+80.21	-9.00	606.82	606.87
2D	1405+90.21	-9.00	606.99	607.05
2E	1406+00.21	-9.00	607.11	607.16
2F	1406+10.21	-9.00	607.18	607.22
2G	1406+20.21	-9.00	607.20	607.22
2H	1406+30.21	-9.00	607.17	607.18
CL. Brg. Pier 2	1406+42.06	-9.00	607.07	607.07
3A	1406+49.35	-9.00	606.98	606.98
3B	1406+59.35	-9.00	606.83	606.85
3C	1406+69.35	-9.00	606.68	606.72
3D	1406+79.35	-9.00	606.53	606.59
3E	1406+89.35	-9.00	606.38	606.44
3F	1406+99.35	-9.00	606.23	606.28
3G	1407+09.35	-9.00	606.08	606.11
CL. N. Brg. Pier 3	1407+22.04	-9.00	605.88	605.88
CL. Pier 3	1407+23.54	-9.00	605.86	605.86

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**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**TOP OF SLAB ELEVATIONS 2 - UNIT 1  
STRUCTURE NO. 016-1714**

SHEET NO. S2-08 OF S2-82 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013 R&B-R	COOK	1972	668
CONTRACT NO. 60X93			ILLINOIS FED. AID PROJECT	

**GIRDER 4**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	1404+80.47	-2.54	602.85	602.85
CL. Brg. N. Abut.	1404+84.01	-2.54	603.09	603.09
1A	1404+94.01	-2.54	603.72	603.75
1B	1405+04.01	-2.54	604.31	604.35
1C	1405+14.01	-2.54	604.85	604.89
1D	1405+24.01	-2.54	605.34	605.37
1E	1405+34.01	-2.54	605.78	605.80
1F	1405+44.01	-2.54	606.17	606.18
CL. Brg. Pier 1	1405+49.92	-2.54	606.38	606.38
2A	1405+60.21	-2.54	606.71	606.72
2B	1405+70.21	-2.54	606.97	607.00
2C	1405+80.21	-2.54	607.19	607.23
2D	1405+90.21	-2.54	607.35	607.40
2E	1406+00.21	-2.54	607.47	607.52
2F	1406+10.21	-2.54	607.54	607.57
2G	1406+20.21	-2.54	607.56	607.58
2H	1406+30.21	-2.54	607.53	607.53
CL. Brg. Pier 2	1406+40.09	-2.54	607.45	607.45
3A	1406+49.35	-2.54	607.34	607.35
3B	1406+59.35	-2.54	607.19	607.23
3C	1406+69.35	-2.54	607.04	607.10
3D	1406+79.35	-2.54	606.89	606.97
3E	1406+89.35	-2.54	606.74	606.82
3F	1406+99.35	-2.54	606.59	606.66
3G	1407+09.35	-2.54	606.44	606.48
CL. N. Brg. Pier 3	1407+22.04	-2.54	606.25	606.25
CL. Pier 3	1407+23.54	-2.54	606.22	606.22

**PGL & B ROADWAY**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	1404+80.51	0.00	602.99	602.99
CL. Brg. N. Abut.	1404+84.01	0.00	603.23	603.23
1A	1404+94.01	0.00	603.86	603.89
1B	1405+04.01	0.00	604.45	604.50
1C	1405+14.01	0.00	604.99	605.04
1D	1405+24.01	0.00	605.48	605.52
1E	1405+34.01	0.00	605.92	605.95
1F	1405+44.01	0.00	606.32	606.32
CL. Brg. Pier 1	1405+50.21	0.00	606.54	606.54
2A	1405+60.21	0.00	606.85	606.86
2B	1405+70.21	0.00	607.11	607.14
2C	1405+80.21	0.00	607.33	607.37
2D	1405+90.21	0.00	607.50	607.54
2E	1406+00.21	0.00	607.61	607.66
2F	1406+10.21	0.00	607.68	607.71
2G	1406+20.21	0.00	607.70	607.72
2H	1406+30.21	0.00	607.67	607.67
CL. Brg. Pier 2	1406+39.35	0.00	607.60	607.60
3A	1406+49.35	0.00	607.48	607.50
3B	1406+59.35	0.00	607.33	607.37
3C	1406+69.35	0.00	607.18	607.25
3D	1406+79.35	0.00	607.03	607.12
3E	1406+89.35	0.00	606.88	606.97
3F	1406+99.35	0.00	606.73	606.81
3G	1407+09.35	0.00	606.58	606.63
CL. N. Brg. Pier 3	1407+22.04	0.00	606.39	606.39
CL. Pier 3	1407+23.54	0.00	606.37	606.37

**GIRDER 5**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	1404+80.56	3.92	603.22	603.22
CL. Brg. N. Abut.	1404+84.01	3.92	603.45	603.45
1A	1404+94.01	3.92	604.08	604.11
1B	1405+04.01	3.92	604.67	604.72
1C	1405+14.01	3.92	605.21	605.27
1D	1405+24.01	3.92	605.70	605.75
1E	1405+34.01	3.92	606.14	606.17
1F	1405+44.01	3.92	606.54	606.54
CL. Brg. Pier 1	1405+50.65	3.92	606.77	606.77
2A	1405+60.21	3.92	607.07	607.08
2B	1405+70.21	3.92	607.33	607.35
2C	1405+80.21	3.92	607.55	607.58
2D	1405+90.21	3.92	607.71	607.76
2E	1406+00.21	3.92	607.83	607.87
2F	1406+10.21	3.92	607.90	607.92
2G	1406+20.21	3.92	607.92	607.93
2H	1406+30.21	3.92	607.89	607.89
CL. Brg. Pier 2	1406+38.24	3.92	607.83	607.83
3A	1406+49.35	3.92	607.70	607.72
3B	1406+59.35	3.92	607.55	607.60
3C	1406+69.35	3.92	607.40	607.48
3D	1406+79.35	3.92	607.25	607.35
3E	1406+89.35	3.92	607.10	607.20
3F	1406+99.35	3.92	606.95	607.04
3G	1407+09.35	3.92	606.80	606.86
CL. N. Brg. Pier 3	1407+22.04	3.92	606.61	606.61
CL. Pier 3	1407+23.54	3.92	606.59	606.59

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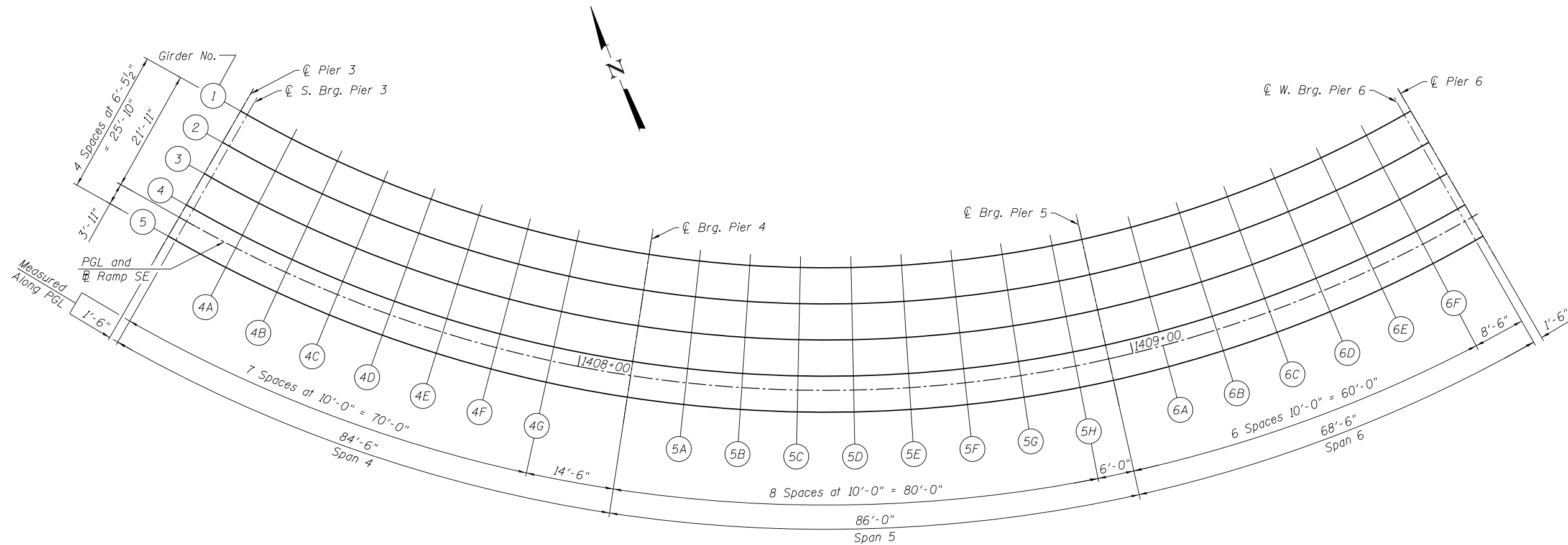
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**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

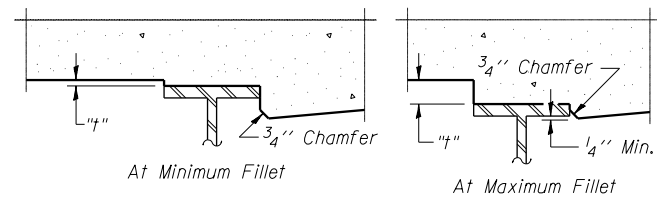
**TOP OF SLAB ELEVATIONS 3 - UNIT 1  
STRUCTURE NO. 016-1714**

SHEET NO. S2-09 OF S2-82 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013 R&B-R	COOK	1972	669
ILLINOIS FED. AID PROJECT			CONTRACT NO. 60X93	



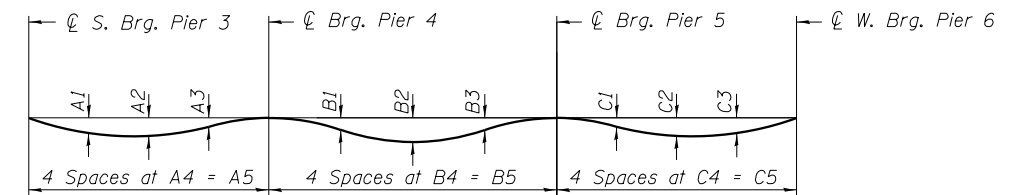
PLAN - UNIT 2



To determine "t": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown above. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown on sheets S2-11 and S2-12 of S2-82, minus slab thickness, equals the fillet heights "t" above top flange of beams.

FILLET HEIGHTS

Note:  
The deflections below are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown on sheets S2-11 and S2-12 of S2-82. Dead load deflection assumes a continuous deck pour sequence in the direction of increasing station.



DEAD LOAD DEFLECTION DIAGRAM

(Includes weight of concrete only.)

Girder No.	DEAD LOAD DEFLECTIONS														
	Span 4					Span 5					Span 6				
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	C4	C5
1	3/8"	1"	5/8"	19'-1 7/16"	76'-5 13/16"	1/8"	3/8"	3/8"	19'-5 1/2"	77'-10 1/16"	1/8"	3/8"	3/8"	15'-6"	62'-0"
2	7/8"	1 1/8"	3/4"	19'-8 9/16"	78'-10 1/8"	1/8"	3/8"	3/8"	20'-0 3/4"	80'-2 15/16"	1/4"	1/2"	1/2"	15'-11 3/4"	63'-11"
3	1"	1 1/4"	3/4"	20'-3 5/8"	81'-2 1/2"	1/8"	3/8"	1/4"	20'-7 15/16"	82'-7 13/16"	1/4"	5/8"	1/2"	16'-5 1/2"	65'-10"
4	1 1/8"	1 1/2"	7/8"	20'-10 1/16"	83'-6 13/16"	1/8"	3/8"	1/4"	21'-3 3/16"	85'-0 5/8"	3/8"	5/8"	1/2"	16'-11 1/4"	67'-8 5/16"
5	1 3/8"	1 5/8"	7/8"	21'-5 13/16"	85'-11 13/16"	1/8"	3/8"	1/4"	21'-10 3/8"	87'-5 1/2"	3/8"	3/4"	5/8"	17'-5"	69'-7 5/16"

10/17/14 AM 0161714-60X93-S010-TopSlab\_Deck2-1.dgn



USER NAME = wjcolletti	DESIGNED - WJC	REVISED
	CHECKED - JNP	REVISED
PLOT SCALE = 21:4 in / in.	DRAWN - JNP	REVISED
PLOT DATE = 8/21/2018	CHECKED - WJC/JM	REVISED

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

TOP OF SLAB ELEVATIONS 1 - UNIT 2  
STRUCTURE NO. 016-1714

SHEET NO. S2-10 OF S2-82 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013 R&B-R	COOK	1972	670
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				

**GIRDER 1**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
CL. Pier 3	1407+23.54	-21.92	605.14	605.14
CL. S. Brg. Pier 3	1407+25.04	-21.92	605.12	605.12
4A	1407+35.04	-21.92	604.97	605.00
4B	1407+45.04	-21.92	604.82	604.88
4C	1407+55.04	-21.92	604.67	604.74
4D	1407+65.04	-21.92	604.52	604.59
4E	1407+75.04	-21.92	604.36	604.43
4F	1407+85.04	-21.92	604.21	604.26
4G	1407+95.04	-21.92	604.06	604.09
CL. Brg. Pier 4	1408+09.54	-21.92	603.85	603.85
5A	1408+19.54	-21.92	603.70	603.70
5B	1408+29.54	-21.92	603.55	603.56
5C	1408+39.54	-21.92	603.40	603.42
5D	1408+49.54	-21.92	603.25	603.28
5E	1408+59.54	-21.92	603.10	603.13
5F	1408+69.54	-21.92	602.94	602.97
5G	1408+79.54	-21.92	602.79	602.81
5H	1408+89.54	-21.92	602.64	602.65
CL. Brg. Pier 5	1408+95.54	-21.92	602.55	602.55
6A	1409+05.54	-21.92	602.40	602.41
6B	1409+15.54	-21.92	602.25	602.28
6C	1409+25.54	-21.92	602.10	602.14
6D	1409+35.54	-21.92	601.95	601.99
6E	1409+45.54	-21.92	601.80	601.83
6F	1409+55.54	-21.92	601.65	601.67
CL. W. Brg. Pier 6	1409+64.04	-21.92	601.52	601.52
CL. Pier 6	1409+65.54	-21.92	601.50	601.50

**GIRDER 2**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
CL. Pier 3	1407+23.54	-15.46	605.50	605.50
CL. S. Brg. Pier 3	1407+25.04	-15.46	605.48	605.48
4A	1407+35.04	-15.46	605.33	605.37
4B	1407+45.04	-15.46	605.18	605.25
4C	1407+55.04	-15.46	605.03	605.12
4D	1407+65.04	-15.46	604.88	604.97
4E	1407+75.04	-15.46	604.73	604.81
4F	1407+85.04	-15.46	604.58	604.63
4G	1407+95.04	-15.46	604.43	604.46
CL. Brg. Pier 4	1408+09.54	-15.46	604.21	604.21
5A	1408+19.54	-15.46	604.06	604.06
5B	1408+29.54	-15.46	603.91	603.92
5C	1408+39.54	-15.46	603.76	603.78
5D	1408+49.54	-15.46	603.61	603.64
5E	1408+59.54	-15.46	603.46	603.49
5F	1408+69.54	-15.46	603.31	603.33
5G	1408+79.54	-15.46	603.16	603.17
5H	1408+89.54	-15.46	603.01	603.01
CL. Brg. Pier 5	1408+95.54	-15.46	602.92	602.92
6A	1409+05.54	-15.46	602.77	602.78
6B	1409+15.54	-15.46	602.62	602.64
6C	1409+25.54	-15.46	602.46	602.50
6D	1409+35.54	-15.46	602.31	602.36
6E	1409+45.54	-15.46	602.16	602.20
6F	1409+55.54	-15.46	602.01	602.03
CL. W. Brg. Pier 6	1409+64.04	-15.46	601.89	601.89
CL. Pier 6	1409+65.54	-15.46	601.86	601.86

**GIRDER 3**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
CL. Pier 3	1407+23.54	-9.00	605.86	605.86
CL. S. Brg. Pier 3	1407+25.04	-9.00	605.84	605.84
4A	1407+35.04	-9.00	605.69	605.73
4B	1407+45.04	-9.00	605.54	605.62
4C	1407+55.04	-9.00	605.39	605.49
4D	1407+65.04	-9.00	605.24	605.35
4E	1407+75.04	-9.00	605.09	605.18
4F	1407+85.04	-9.00	604.94	605.01
4G	1407+95.04	-9.00	604.79	604.82
CL. Brg. Pier 4	1408+09.54	-9.00	604.57	604.57
5A	1408+19.54	-9.00	604.42	604.42
5B	1408+29.54	-9.00	604.27	604.28
5C	1408+39.54	-9.00	604.12	604.14
5D	1408+49.54	-9.00	603.97	604.00
5E	1408+59.54	-9.00	603.82	603.85
5F	1408+69.54	-9.00	603.67	603.69
5G	1408+79.54	-9.00	603.52	603.53
5H	1408+89.54	-9.00	603.37	603.37
CL. Brg. Pier 5	1408+95.54	-9.00	603.28	603.28
6A	1409+05.54	-9.00	603.13	603.14
6B	1409+15.54	-9.00	602.98	603.01
6C	1409+25.54	-9.00	602.83	602.87
6D	1409+35.54	-9.00	602.68	602.73
6E	1409+45.54	-9.00	602.53	602.57
6F	1409+55.54	-9.00	602.38	602.40
CL. W. Brg. Pier 6	1409+64.04	-9.00	602.25	602.25
CL. Pier 6	1409+65.54	-9.00	602.23	602.23

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USER NAME = wjcolletti	DESIGNED - WJC	REVISED
	CHECKED - JM	REVISED
PLOT SCALE = 0:2.0000 '1" / in.	DRAWN - JNP	REVISED
PLOT DATE = 7/26/2018	CHECKED - WJC/JM	REVISED

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**TOP OF SLAB ELEVATIONS 2 - UNIT 2  
STRUCTURE NO. 016-1714**

SHEET NO. S2-11 OF S2-82 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013 R&B-R	COOK	1972	671
ILLINOIS FED. AID PROJECT			CONTRACT NO. 60X93	

**GIRDER 4**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
CL. Pier 3	1407+23.54	-2.54	606.22	606.22
CL. S. Brg. Pier 3	1407+25.04	-2.54	606.20	606.20
4A	1407+35.04	-2.54	606.05	606.10
4B	1407+45.04	-2.54	605.90	605.99
4C	1407+55.04	-2.54	605.75	605.87
4D	1407+65.04	-2.54	605.60	605.72
4E	1407+75.04	-2.54	605.45	605.56
4F	1407+85.04	-2.54	605.30	605.38
4G	1407+95.04	-2.54	605.15	605.19
CL. Brg. Pier 4	1408+09.54	-2.54	604.93	604.93
5A	1408+19.54	-2.54	604.78	604.78
5B	1408+29.54	-2.54	604.63	604.64
5C	1408+39.54	-2.54	604.48	604.50
5D	1408+49.54	-2.54	604.33	604.36
5E	1408+59.54	-2.54	604.18	604.21
5F	1408+69.54	-2.54	604.03	604.05
5G	1408+79.54	-2.54	603.88	603.89
5H	1408+89.54	-2.54	603.73	603.73
CL. Brg. Pier 5	1408+95.54	-2.54	603.64	603.64
6A	1409+05.54	-2.54	603.49	603.50
6B	1409+15.54	-2.54	603.34	603.37
6C	1409+25.54	-2.54	603.19	603.24
6D	1409+35.54	-2.54	603.04	603.09
6E	1409+45.54	-2.54	602.89	602.93
6F	1409+55.54	-2.54	602.74	602.76
CL. W. Brg. Pier 6	1409+64.04	-2.54	602.61	602.61
CL. Pier 6	1409+65.54	-2.54	602.59	602.59

**PGL & B ROADWAY**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
CL. Pier 3	1407+23.54	0.00	606.37	606.37
CL. S. Brg. Pier 3	1407+25.04	0.00	606.34	606.34
4A	1407+35.04	0.00	606.19	606.25
4B	1407+45.04	0.00	606.04	606.14
4C	1407+55.04	0.00	605.89	606.02
4D	1407+65.04	0.00	605.74	605.87
4E	1407+75.04	0.00	605.59	605.71
4F	1407+85.04	0.00	605.44	605.52
4G	1407+95.04	0.00	605.29	605.34
CL. Brg. Pier 4	1408+09.54	0.00	605.07	605.07
5A	1408+19.54	0.00	604.92	604.92
5B	1408+29.54	0.00	604.77	604.78
5C	1408+39.54	0.00	604.62	604.64
5D	1408+49.54	0.00	604.47	604.50
5E	1408+59.54	0.00	604.32	604.35
5F	1408+69.54	0.00	604.17	604.19
5G	1408+79.54	0.00	604.02	604.03
5H	1408+89.54	0.00	603.87	603.87
CL. Brg. Pier 5	1408+95.54	0.00	603.78	603.78
6A	1409+05.54	0.00	603.63	603.65
6B	1409+15.54	0.00	603.48	603.52
6C	1409+25.54	0.00	603.33	603.38
6D	1409+35.54	0.00	603.18	603.24
6E	1409+45.54	0.00	603.03	603.08
6F	1409+55.54	0.00	602.88	602.91
CL. W. Brg. Pier 6	1409+64.04	0.00	602.75	602.75
CL. Pier 6	1409+65.54	0.00	602.73	602.73

**GIRDER 5**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
CL. Pier 3	1407+23.54	3.92	606.59	606.59
CL. S. Brg. Pier 3	1407+25.04	3.92	606.56	606.56
4A	1407+35.04	3.92	606.41	606.47
4B	1407+45.04	3.92	606.26	606.37
4C	1407+55.04	3.92	606.11	606.25
4D	1407+65.04	3.92	605.96	606.10
4E	1407+75.04	3.92	605.81	605.93
4F	1407+85.04	3.92	605.66	605.75
4G	1407+95.04	3.92	605.51	605.56
CL. Brg. Pier 4	1408+09.54	3.92	605.29	605.29
5A	1408+19.54	3.92	605.14	605.14
5B	1408+29.54	3.92	604.99	605.00
5C	1408+39.54	3.92	604.84	604.86
5D	1408+49.54	3.92	604.69	604.72
5E	1408+59.54	3.92	604.54	604.57
5F	1408+69.54	3.92	604.39	604.41
5G	1408+79.54	3.92	604.24	604.25
5H	1408+89.54	3.92	604.09	604.09
CL. Brg. Pier 5	1408+95.54	3.92	604.00	604.00
6A	1409+05.54	3.92	603.85	603.87
6B	1409+15.54	3.92	603.70	603.74
6C	1409+25.54	3.92	603.55	603.61
6D	1409+35.54	3.92	603.40	603.47
6E	1409+45.54	3.92	603.25	603.30
6F	1409+55.54	3.92	603.10	603.13
CL. W. Brg. Pier 6	1409+64.04	3.92	602.97	602.97
CL. Pier 6	1409+65.54	3.92	602.95	602.95

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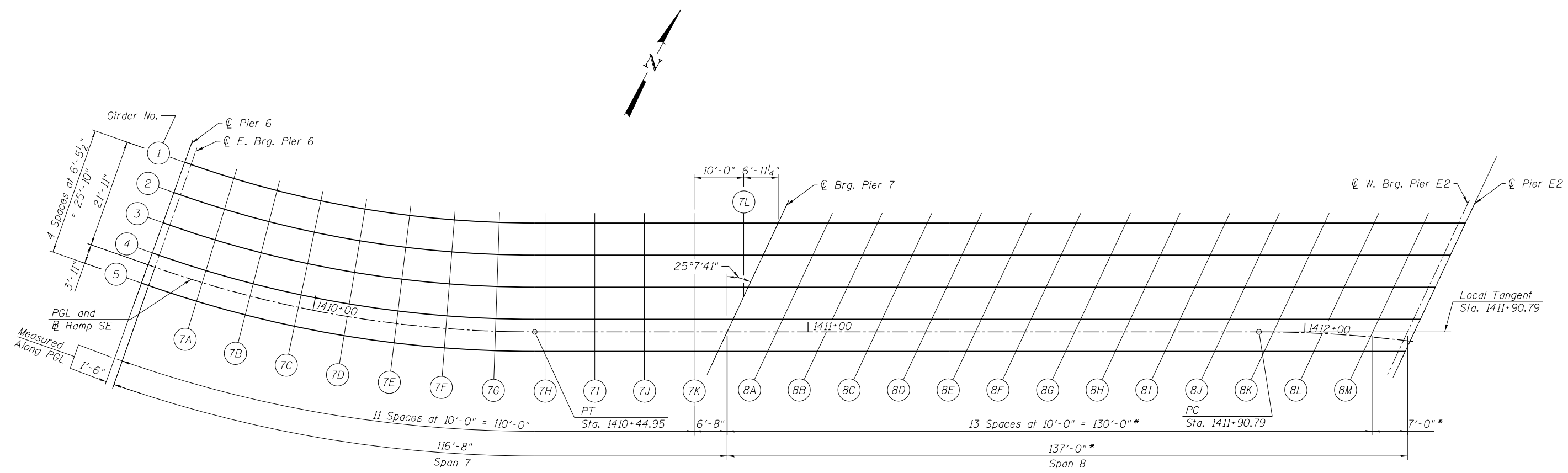
USER NAME = wjcolletti	DESIGNED - WJC	REVISED
	CHECKED - JM	REVISED
PLOT SCALE = 0:2.0000 '1" / in.	DRAWN - JNP	REVISED
PLOT DATE = 7/26/2018	CHECKED - WJC/JM	REVISED

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**TOP OF SLAB ELEVATIONS 3 - UNIT 2  
STRUCTURE NO. 016-1714**

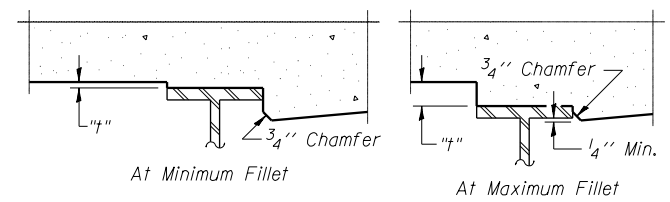
SHEET NO. S2-12 OF S2-82 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013 R&B-R	COOK	1972	672
ILLINOIS FED. AID PROJECT			CONTRACT NO. 60X93	



\*Dim. measured along local tangent

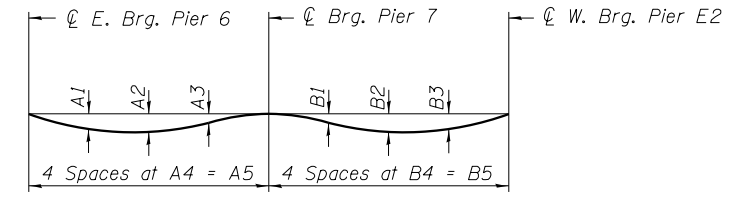
PLAN - UNIT 3



To determine "t": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown above. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown on sheets S2-14 and S2-15 of S2-82, minus slab thickness, equals the fillet heights "t" above top flange of beams.

FILLET HEIGHTS

Note:  
The deflections below are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown on sheets S2-14 and S2-15 of S2-82. Dead load deflection assumes a continuous deck pour sequence in the direction of increasing station.



Girder No.	DEAD LOAD DEFLECTIONS									
	Span 7					Span 8				
	A1	A2	A3	A4	A5	B1	B2	B3	B4*	B5*
1	5/8"	5/8"	1/8"	29'-10 5/8"	119'-6 9/16"	1 5/8"	3 1/4"	2 3/4"	34'-3"	137'-0"
2	3/4"	7/8"	1/4"	29'-8 1/16"	118'-8 3/8"	1 1/2"	3 1/8"	2 5/8"	34'-3"	137'-0"
3	1"	1"	3/8"	29'-5 9/16"	117'-10 1/8"	1 1/2"	3"	2 1/2"	34'-3"	137'-0"
4	1 1/4"	1 3/8"	1/2"	29'-3"	116'-11 15/16"	1 3/8"	2 3/4"	2 3/8"	34'-3"	137'-0"
5	1 1/2"	1 5/8"	5/8"	29'-0 7/16"	116'-1 1/16"	1 1/4"	2 5/8"	2 3/8"	34'-3"	137'-0"

10/17/14 5:43 AM 0161714-60X93-S013-TopSlab\_Deck3-1.dgn



USER NAME = wjcolletti	DESIGNED - WJC	REVISED
	CHECKED - JM	REVISED
PLOT SCALE = 21:4 in / in.	DRAWN - JNP	REVISED
PLOT DATE = 8/21/2018	CHECKED - WJC/JM	REVISED

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

TOP OF SLAB ELEVATIONS 1 - UNIT 3  
STRUCTURE NO. 016-1714

SHEET NO. S2-13 OF S2-82 SHEETS

F.A.I. RTE. 90/94/290	SECTION 2014-013 R&B-R	COUNTY COOK	TOTAL SHEETS 1972	SHEET NO. 673
CONTRACT NO. 60X93			ILLINOIS FED. AID PROJECT	

**GIRDER 1**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
CL. Pier 6	1409+65.54	-21.92	601.50	601.50
CL. E. Brg. Pier 6	1409+67.04	-21.92	601.48	601.48
7A	1409+77.04	-21.92	601.33	601.35
7B	1409+87.04	-21.92	601.18	601.22
7C	1409+97.04	-21.92	601.10	601.14
7D	1410+07.04	-21.92	601.04	601.10
7E	1410+17.04	-21.92	600.98	601.04
7F	1410+27.04	-21.92	600.93	600.98
7G	1410+37.04	-21.92	600.87	600.91
7H	1410+47.04	-21.92	600.82	600.84
7I	1410+57.04	-21.92	600.76	600.77
7J	1410+67.04	-21.92	600.71	600.71
7K	1410+77.04	-21.92	600.65	600.64
7L	1410+87.04	-21.92	600.60	600.59
CL. Brg. Pier 7	1410+93.98	-21.92	600.56	600.56
8A	1411+03.98	-21.92	600.50	600.53
8B	1411+13.98	-21.92	600.45	600.52
8C	1411+23.98	-21.92	600.40	600.52
8D	1411+33.98	-21.92	600.39	600.55
8E	1411+43.98	-21.92	600.41	600.62
8F	1411+53.98	-21.92	600.47	600.72
8G	1411+63.98	-21.92	600.58	600.85
8H	1411+73.98	-21.92	600.74	601.02
8I	1411+83.98	-21.92	600.95	601.22
8J	1411+93.72	-21.94	601.21	601.44
8K	1412+02.91	-22.24	601.49	601.68
8L	1412+12.06	-22.90	601.82	601.95
8M	1412+21.15	-23.93	602.19	602.24
CL. W. Brg. Pier E2	1412+27.47	-24.87	602.45	602.45
CL. Pier E2	1412+28.71	-25.08	602.49	602.49

**GIRDER 2**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
CL. Pier 6	1409+65.54	-15.46	601.86	601.86
CL. E. Brg. Pier 6	1409+67.04	-15.46	601.84	601.84
7A	1409+77.04	-15.46	601.69	601.72
7B	1409+87.04	-15.46	601.54	601.59
7C	1409+97.04	-15.46	601.44	601.50
7D	1410+07.04	-15.46	601.35	601.43
7E	1410+17.04	-15.46	601.27	601.35
7F	1410+27.04	-15.46	601.19	601.26
7G	1410+37.04	-15.46	601.10	601.16
7H	1410+47.04	-15.46	601.02	601.06
7I	1410+57.04	-15.46	600.94	600.96
7J	1410+67.04	-15.46	600.85	600.86
7K	1410+77.04	-15.46	600.77	600.77
7L	1410+87.04	-15.46	600.69	600.68
CL. Brg. Pier 7	1410+90.95	-15.46	600.66	600.66
8A	1411+00.95	-15.46	600.57	600.60
8B	1411+10.95	-15.46	600.49	600.55
8C	1411+20.95	-15.46	600.41	600.52
8D	1411+30.95	-15.46	600.35	600.51
8E	1411+40.95	-15.46	600.35	600.55
8F	1411+50.95	-15.46	600.39	600.63
8G	1411+60.95	-15.46	600.49	600.75
8H	1411+70.95	-15.46	600.63	600.90
8I	1411+80.95	-15.46	600.83	601.09
8J	1411+90.94	-15.46	601.07	601.30
8K	1412+00.35	-15.65	601.35	601.53
8L	1412+09.74	-16.22	601.68	601.81
8M	1412+19.07	-17.17	602.05	602.10
CL. W. Brg. Pier E2	1412+25.56	-18.05	602.32	602.32
CL. Pier E2	1412+26.83	-18.24	602.38	602.38

**GIRDER 3**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
CL. Pier 6	1409+65.54	-9.00	602.23	602.23
CL. E. Brg. Pier 6	1409+67.04	-9.00	602.20	602.20
7A	1409+77.04	-9.00	602.05	602.09
7B	1409+87.04	-9.00	601.90	601.97
7C	1409+97.04	-9.00	601.78	601.87
7D	1410+07.04	-9.00	601.67	601.77
7E	1410+17.04	-9.00	601.56	601.65
7F	1410+27.04	-9.00	601.45	601.53
7G	1410+37.04	-9.00	601.33	601.40
7H	1410+47.04	-9.00	601.22	601.27
7I	1410+57.04	-9.00	601.11	601.14
7J	1410+67.04	-9.00	601.00	601.01
7K	1410+77.04	-9.00	600.89	600.89
7L	1410+87.04	-9.00	600.78	600.78
CL. Brg. Pier 7	1410+87.92	-9.00	600.77	600.77
8A	1410+97.92	-9.00	600.66	600.68
8B	1411+07.92	-9.00	600.55	600.60
8C	1411+17.92	-9.00	600.43	600.54
8D	1411+27.92	-9.00	600.34	600.49
8E	1411+37.92	-9.00	600.29	600.48
8F	1411+47.92	-9.00	600.29	600.52
8G	1411+57.92	-9.00	600.35	600.60
8H	1411+67.92	-9.00	600.45	600.71
8I	1411+77.92	-9.00	600.60	600.85
8J	1411+87.92	-9.00	600.80	601.02
8K	1411+97.67	-9.10	601.04	601.22
8L	1412+07.30	-9.57	601.35	601.47
8M	1412+16.88	-10.42	601.72	601.77
CL. W. Brg. Pier E2	1412+23.54	-11.24	602.01	602.01
CL. Pier E2	1412+24.85	-11.42	602.07	602.07

5:39:34 PM 01/17/14-60X93-S014-TopSlab\_Deck3-2.dgn



USER NAME = wjcolletti	DESIGNED - WJC	REVISED
	CHECKED - JM	REVISED
PLOT SCALE = 0:2.0000 '1" / in.	DRAWN - JNP	REVISED
PLOT DATE = 7/26/2018	CHECKED - WJC/JM	REVISED

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**TOP OF SLAB ELEVATIONS 2 - UNIT 3  
STRUCTURE NO. 016-1714**

SHEET NO. S2-14 OF S2-82 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013 R&B-R	COOK	1972	674
ILLINOIS FED. AID PROJECT			CONTRACT NO. 60X93	



**GIRDER 4**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
CL. Pier 6	1409+65.54	-2.54	602.59	602.59
CL. E. Brg. Pier 6	1409+67.04	-2.54	602.56	602.56
7A	1409+77.04	-2.54	602.41	602.46
7B	1409+87.04	-2.54	602.26	602.34
7C	1409+97.04	-2.54	602.12	602.23
7D	1410+07.04	-2.54	601.98	602.10
7E	1410+17.04	-2.54	601.84	601.96
7F	1410+27.04	-2.54	601.70	601.81
7G	1410+37.04	-2.54	601.56	601.65
7H	1410+47.04	-2.54	601.43	601.48
7I	1410+57.04	-2.54	601.29	601.32
7J	1410+67.04	-2.54	601.15	601.16
7K	1410+77.04	-2.54	601.01	601.01
CL. Brg. Pier 7	1410+84.89	-2.54	600.90	600.90
8A	1410+94.89	-2.54	600.76	600.78
8B	1411+04.89	-2.54	600.62	600.67
8C	1411+14.89	-2.54	600.48	600.57
8D	1411+24.89	-2.54	600.35	600.48
8E	1411+34.89	-2.54	600.26	600.43
8F	1411+44.89	-2.54	600.22	600.43
8G	1411+54.89	-2.54	600.22	600.46
8H	1411+64.89	-2.54	600.28	600.53
8I	1411+74.89	-2.54	600.39	600.63
8J	1411+84.89	-2.54	600.55	600.76
8K	1411+94.85	-2.58	600.76	600.93
8L	1412+04.73	-2.94	601.02	601.14
8M	1412+14.58	-3.69	601.35	601.40
CL. W. Brg. Pier E2	1412+21.42	-4.45	601.63	601.63
CL. Pier E2	1412+22.77	-4.62	601.68	601.68

**PGL & B ROADWAY**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
CL. Pier 6	1409+65.54	0.00	602.73	602.73
CL. E. Brg. Pier 6	1409+67.04	0.00	602.71	602.71
7A	1409+77.04	0.00	602.56	602.60
7B	1409+87.04	0.00	602.41	602.49
7C	1409+97.04	0.00	602.26	602.37
7D	1410+07.04	0.00	602.11	602.24
7E	1410+17.04	0.00	601.96	602.09
7F	1410+27.04	0.00	601.81	601.92
7G	1410+37.04	0.00	601.66	601.75
7H	1410+47.04	0.00	601.50	601.57
7I	1410+57.04	0.00	601.35	601.39
7J	1410+67.04	0.00	601.20	601.22
7K	1410+77.04	0.00	601.05	601.05
CL. Brg. Pier 7	1410+83.70	0.00	600.95	600.95
8A	1410+93.70	0.00	600.80	600.82
8B	1411+03.70	0.00	600.65	600.70
8C	1411+13.70	0.00	600.50	600.59
8D	1411+23.70	0.00	600.36	600.49
8E	1411+33.70	0.00	600.25	600.42
8F	1411+43.70	0.00	600.19	600.40
8G	1411+53.70	0.00	600.18	600.42
8H	1411+63.70	0.00	600.22	600.47
8I	1411+73.70	0.00	600.32	600.55
8J	1411+83.70	0.00	600.46	600.66
8K	1411+93.69	0.00	600.65	600.81
8L	1412+03.55	0.00	600.88	600.99
8M	1412+13.26	0.00	601.16	601.21
CL. W. Brg. Pier E2	1412+19.97	0.00	601.38	601.38
CL. Pier E2	1412+21.28	0.00	601.43	601.43

**GIRDER 5**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
CL. Pier 6	1409+65.54	3.92	602.95	602.95
CL. E. Brg. Pier 6	1409+67.04	3.92	602.93	602.93
7A	1409+77.04	3.92	602.78	602.83
7B	1409+87.04	3.92	602.63	602.73
7C	1409+97.04	3.92	602.46	602.60
7D	1410+07.04	3.92	602.30	602.44
7E	1410+17.04	3.92	602.13	602.28
7F	1410+27.04	3.92	601.96	602.09
7G	1410+37.04	3.92	601.79	601.90
7H	1410+47.04	3.92	601.63	601.70
7I	1410+57.04	3.92	601.46	601.50
7J	1410+67.04	3.92	601.29	601.31
7K	1410+77.04	3.92	601.13	601.13
CL. Brg. Pier 7	1410+81.86	3.92	601.05	601.05
8A	1410+91.86	3.92	600.88	600.89
8B	1411+01.86	3.92	600.71	600.76
8C	1411+11.86	3.92	600.54	600.63
8D	1411+21.86	3.92	600.38	600.50
8E	1411+31.86	3.92	600.24	600.41
8F	1411+41.86	3.92	600.16	600.36
8G	1411+51.86	3.92	600.13	600.35
8H	1411+61.86	3.92	600.14	600.37
8I	1411+71.86	3.92	600.21	600.43
8J	1411+81.86	3.92	600.32	600.52
8K	1411+91.88	3.91	600.48	600.65
8L	1412+02.03	3.67	600.71	600.82
8M	1412+12.14	3.02	601.00	601.05
CL. W. Brg. Pier E2	1412+19.19	2.32	601.25	601.25
CL. Pier E2	1412+20.57	2.16	601.31	601.31

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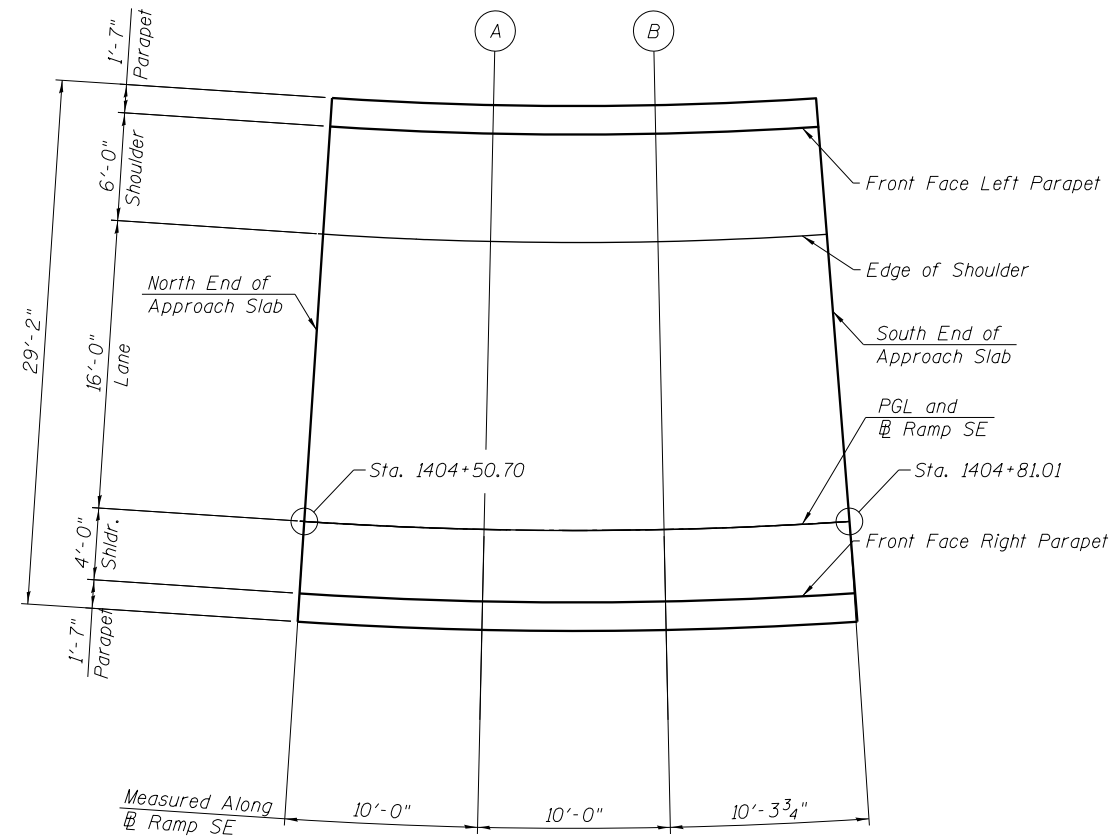
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PLOT DATE = 7/26/2018	CHECKED - WJC/JM	REVISED

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**TOP OF SLAB ELEVATIONS 3 - UNIT 3  
STRUCTURE NO. 016-1714**

SHEET NO. S2-15 OF S2-82 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013 R&B-R	COOK	1972	675
CONTRACT NO. 60X93			ILLINOIS FED. AID PROJECT	



PLAN

FRONT FACE LEFT PARAPET

Location	Station	Offset	Theoretical Grade Elevations
N. End Appr. Slab	1404+50.70	-22.00	599.78
A	1404+60.70	-22.00	600.41
B	1404+70.70	-22.00	601.07
S. End Appr. Slab	1404+80.69	-22.00	601.77

PGL & RAMP SE

Location	Station	Offset	Theoretical Grade Elevations
N. End Appr. Slab	1404+50.70	0.00	600.84
A	1404+60.70	0.00	601.57
B	1404+70.70	0.00	602.30
S. End Appr. Slab	1404+81.01	0.00	603.03

EDGE OF SHOULDER

Location	Station	Offset	Theoretical Grade Elevations
N. End Appr. Slab	1404+50.70	-16.00	600.07
A	1404+60.70	-16.00	600.73
B	1404+70.70	-16.00	601.41
S. End Appr. Slab	1404+80.78	-16.00	602.12

FRONT FACE RIGHT PARAPET

Location	Station	Offset	Theoretical Grade Elevations
N. End Appr. Slab	1404+50.70	4.00	601.04
A	1404+60.70	4.00	601.79
B	1404+70.70	4.00	602.53
S. End Appr. Slab	1404+81.06	4.00	603.25

5:39:40 PM 01/17/14-60X93-S016-TopSlab\_NorthApproach.dgn



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PLOT DATE = 7/26/2018	CHECKED - WJC	REVISED

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

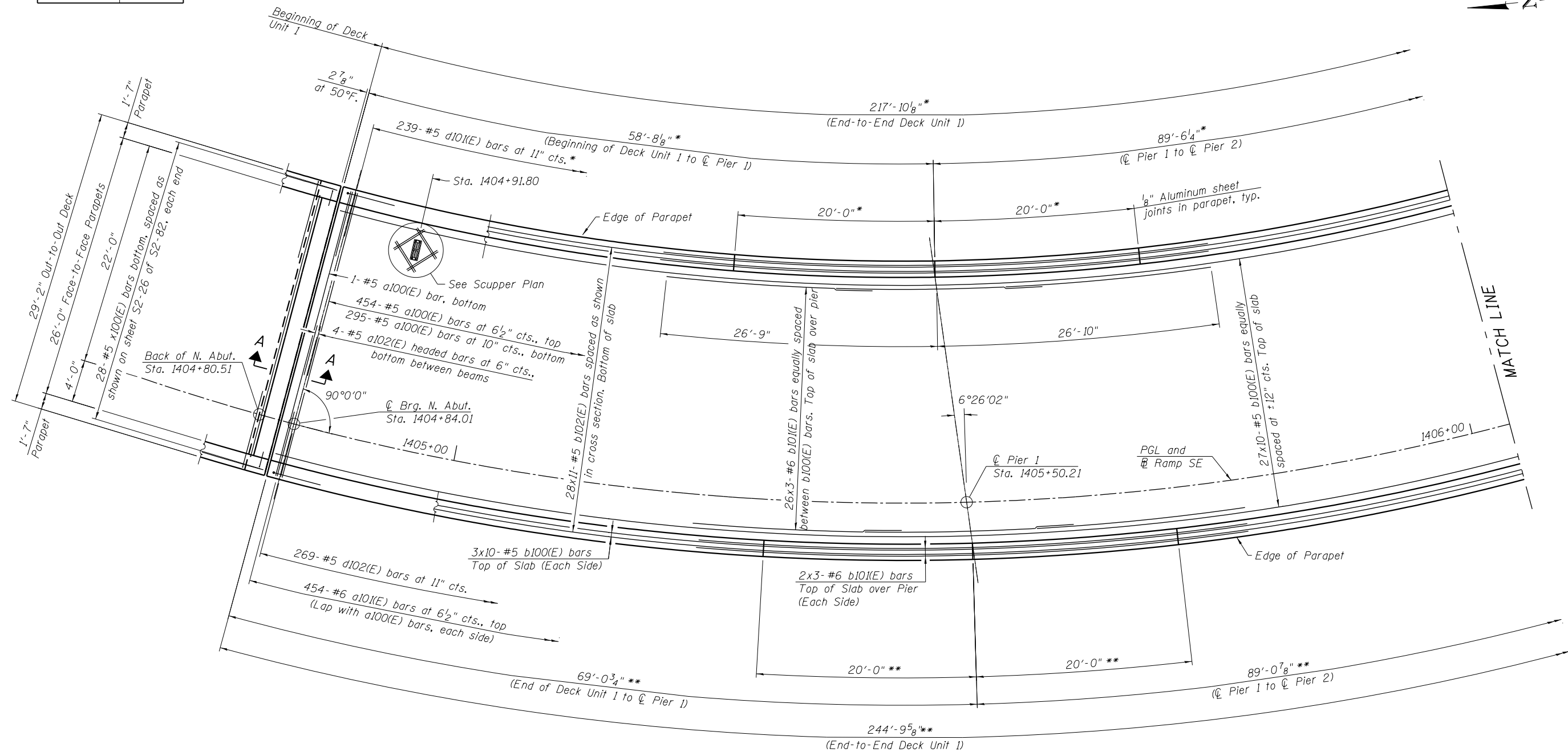
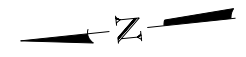
**TOP OF NORTH APPROACH SLAB ELEVATIONS  
STRUCTURE NO. 016-1714**

SHEET NO. S2-16 OF S2-82 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013 R&B-R	COOK	1972	676
CONTRACT NO. 60X93			ILLINOIS FED. AID PROJECT	

Minimum Bar Laps	
Bar	Lap
#5	3'-6"
#6	3'-7"

\* Dimensions along inside face of left parapet.  
 \*\* Dimensions along inside face of right parapet.



DECK PLAN 1 - UNIT 1

Notes:  
 See Sheet S2-26 of S2-82 for Section A-A, notes, cross section, superstructure details, Bill of Material, and Scupper Plan.  
 Bars indicated 28x10-#5 etc. indicates 28 lines of bars with 10 lengths per line.  
 Bend longitudinal reinforcement bars as required to fit in the field.

5:39:44 PM 0161714-60X93-S017-Deck\_Plan1-1.dgn



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	CHECKED - JNP	REVISED

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

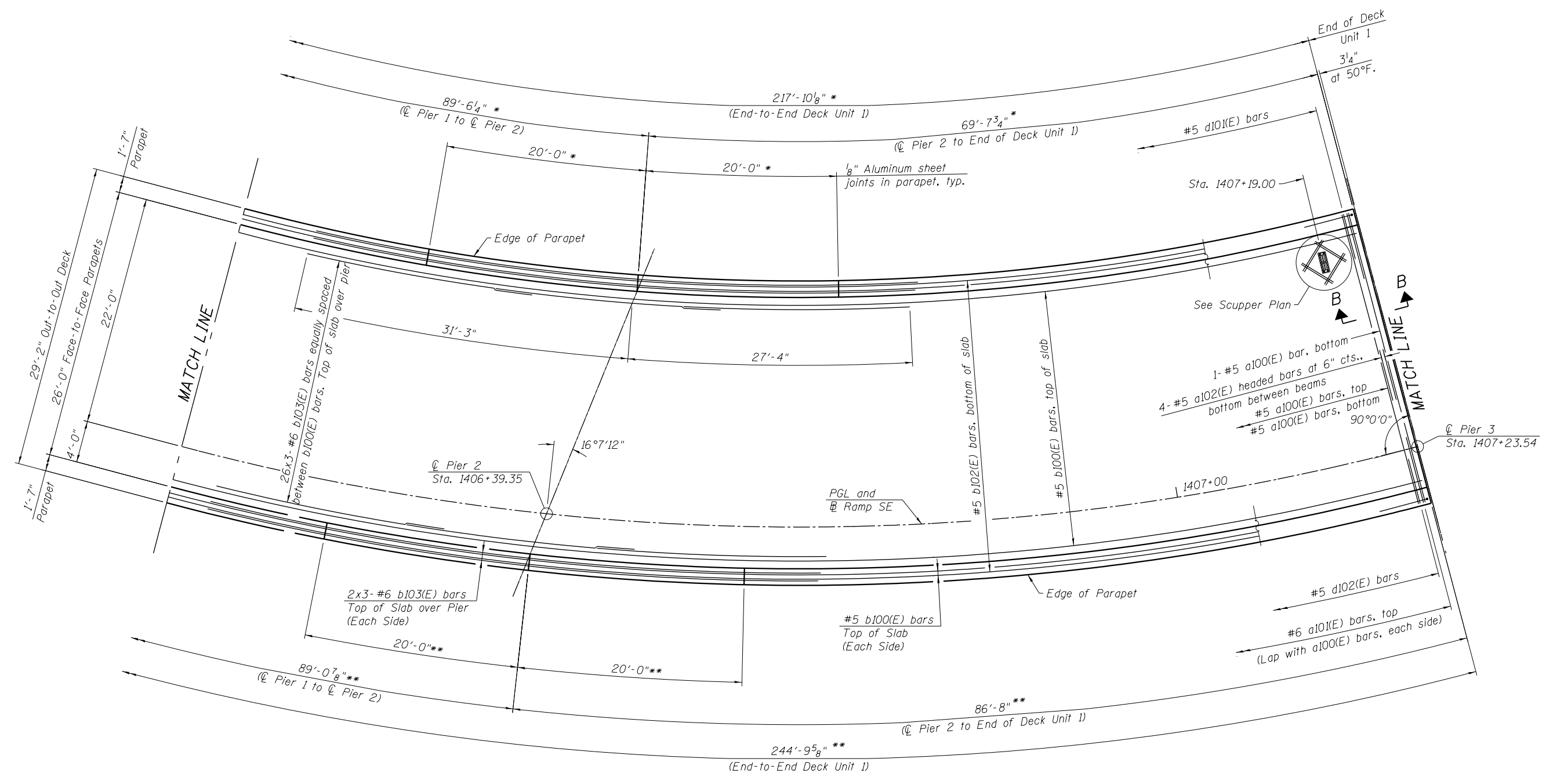
DECK PLAN 1 - UNIT 1  
 STRUCTURE NO. 016-1714

SHEET NO. S2-17 OF S2-82 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013 R&B-R	COOK	1972	677
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				

Minimum Bar Laps	
Bar	Lap
#5	3'-6"
#6	3'-7"

\* Dimensions along inside face of left parapet.  
 \*\* Dimensions along inside face of right parapet.



**DECK PLAN 2 - UNIT 1**

Notes:  
 See Sheet S2-26 of S2-82 for Section B-B, notes, cross section, superstructure details, Bill of Material, and Scupper Plan.  
 Bend longitudinal reinforcement bars as required to fit in the field.  
 Bars indicated 28x10- #5 etc. indicates 28 lines of bars with 10 lengths per line.

5:39:48 PM 0161714-60X93-S018-Deck\_Plan1-2.dgn



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	CHECKED - JNP	REVISED

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

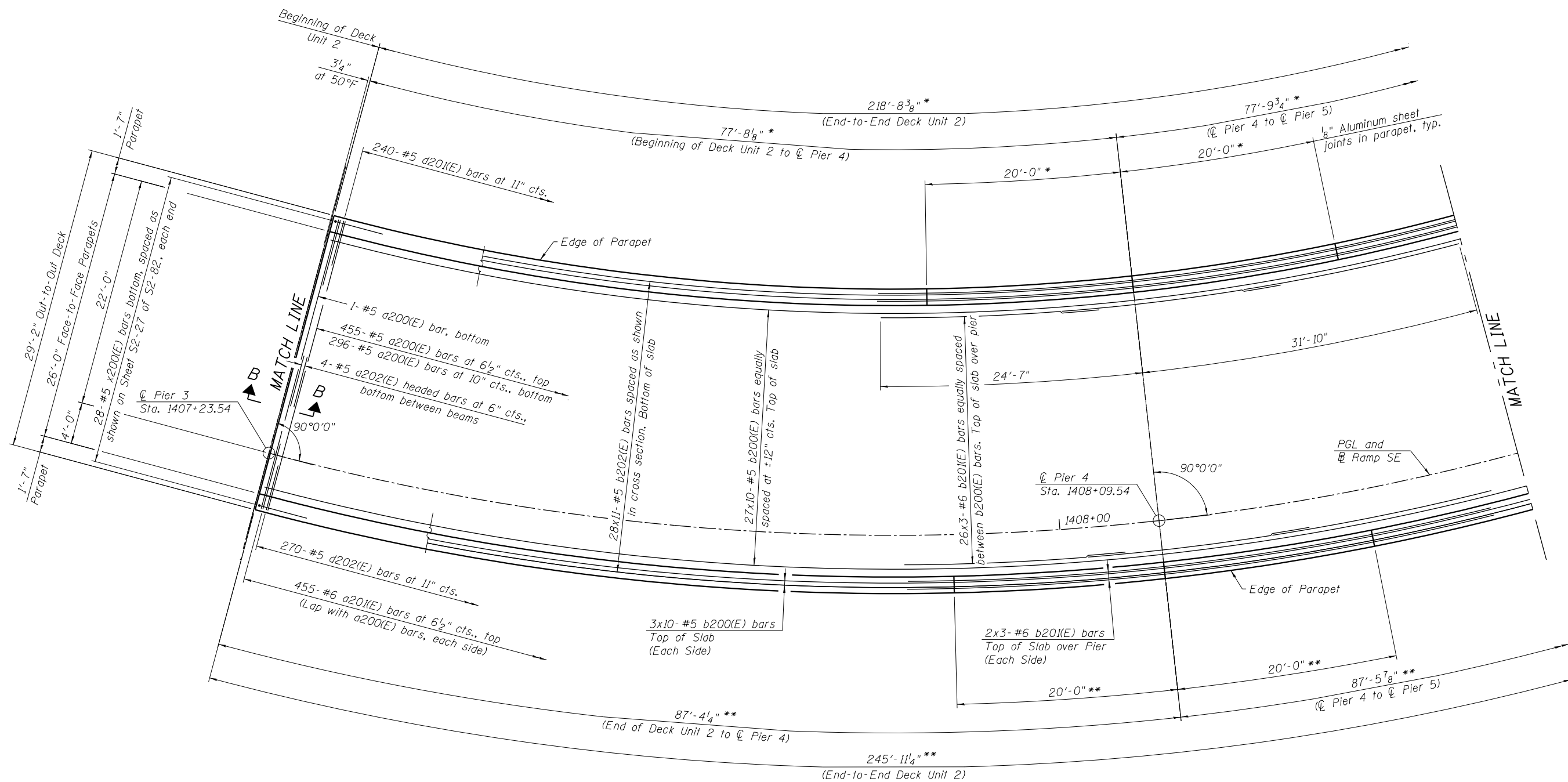
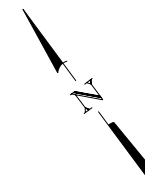
**DECK PLAN 2 - UNIT 1  
 STRUCTURE NO. 016-1714**

SHEET NO. S2-18 OF S2-82 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013 R&B-R	COOK	1972	678
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				

Minimum Bar Laps	
Bar	Lap
#5	3'-6"
#6	3'-7"

\* Dimensions along inside face of left parapet.  
 \*\* Dimensions along inside face of right parapet.



DECK PLAN 1 - UNIT 2

Notes:  
 See Sheet S2-27 of S2-82 for notes, cross section, superstructure details, Bill of Material, and Scupper Plan.  
 See Sheet S2-26 of S2-82 for Section B-B.  
 Bend longitudinal reinforcement bars as required to fit in the field.  
 Bars indicated 28x10-#5 etc. indicates 28 lines of bars with 10 lengths per line.

5:39:52 PM 0161714-60X93-S019-Deck\_Plan2-1.dgn



USER NAME = wjcolletti	DESIGNED - RVV	REVISED
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PLOT DATE = 7/26/2018	DRAWN - GJZ	REVISED
	CHECKED - JNP	REVISED

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

DECK PLAN 1 - UNIT 2  
 STRUCTURE NO. 016-1714

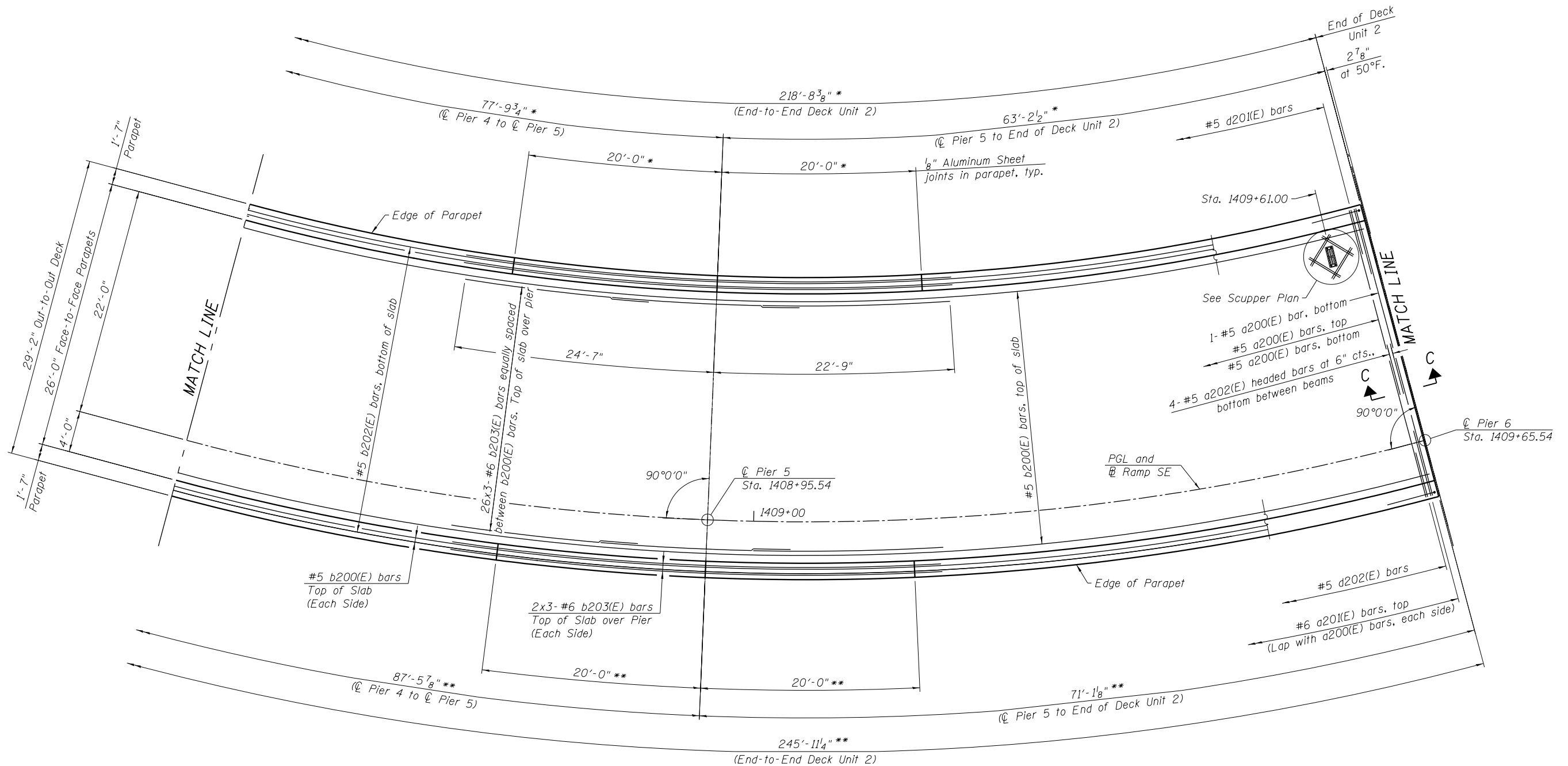
SHEET NO. S2-19 OF S2-82 SHEETS

F.A.I. R.T.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013 R&B-R	COOK	1972	679
CONTRACT NO. 60X93				

ILLINOIS FED. AID PROJECT

Minimum Bar Laps	
Bar	Lap
#5	3'-6"
#6	3'-7"

\* Dimensions along inside face of left parapet.  
 \*\* Dimensions along inside face of right parapet.



**DECK PLAN 2 - UNIT 2**

Notes:  
 See Sheet S2-27 of S2-82 for notes, cross section, superstructure details, Bill of Material, and Scupper Plan.  
 See Sheet S2-28 of S2-82 for Section C-C.  
 Bend longitudinal reinforcement bars as required to fit in the field.  
 Bars indicated 28x10-#5 etc. indicates 28 lines of bars with 10 lengths per line.

5:39:56 PM 0161714-60X93-S020-Deck\_Plan2-2.dgn



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	CHECKED - JNP	REVISED

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

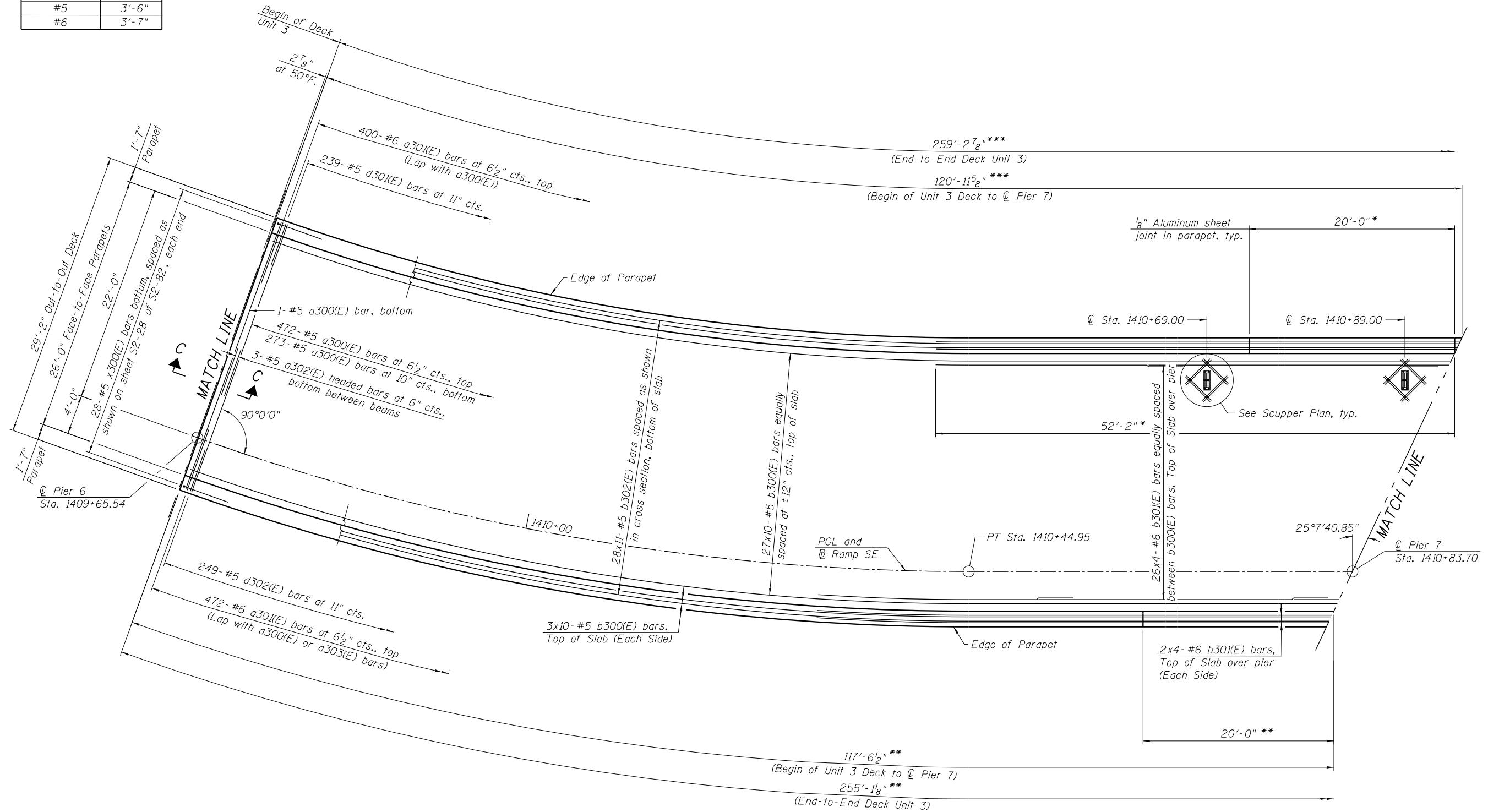
**DECK PLAN 2 - UNIT 2  
 STRUCTURE NO. 016-1714**

SHEET NO. S2-20 OF S2-82 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013 R&B-R	COOK	1972	680
				CONTRACT NO. 60X93
ILLINOIS FED. AID PROJECT				

Minimum Bar Laps	
Bar	Lap
#5	3'-6"
#6	3'-7"

- \* Dimensions along inside face of left parapet.
- \*\* Dimensions along inside face of right parapet.
- \*\*\* Dimensions along outside edge of deck.



**DECK PLAN 1 - UNIT 3**

Notes:  
 See Sheet S2-28 and S2-29 of S2-82 for Section C-C, notes, cross section, superstructure details, Bill of Material, and Scupper Plan.  
 Bend longitudinal reinforcement bars as required to fit in the field.  
 Bars indicated 28x10-#5 etc. indicates 28 lines of bars with 10 lengths per line.

5:40:00 PM 0161714-60X93-S021-Deck\_Plan3-1.dgn



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	CHECKED - JNP	REVISED

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

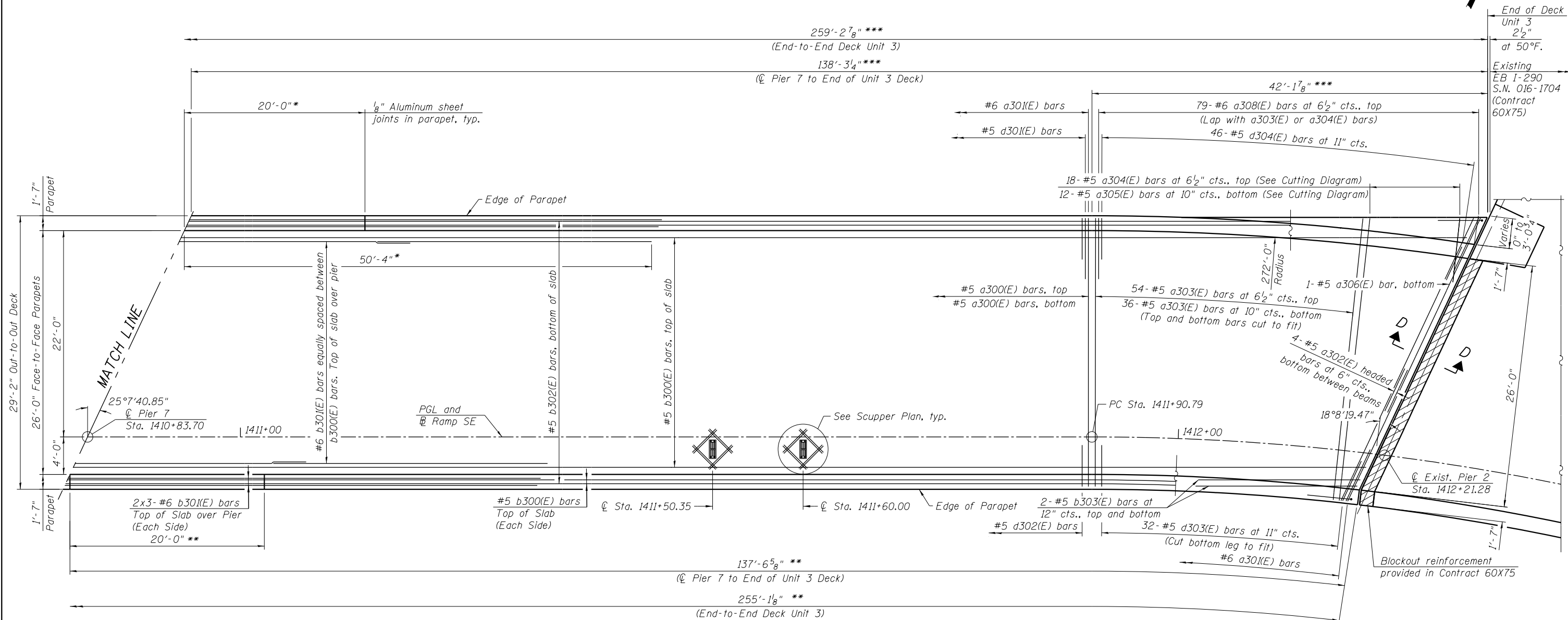
**DECK PLAN 1 - UNIT 3  
STRUCTURE NO. 016-1714**

SHEET NO. S2-21 OF S2-82 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013 R&B-R	COOK	1972	681
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				

Minimum Bar Laps	
Bar	Lap
#5	3'-6"
#6	3'-7"

\* Dimensions along inside face of left parapet.  
 \*\* Dimensions along inside face of right parapet.  
 \*\*\* Dimensions along outside edge of deck.



DECK PLAN 2 - UNIT 3

Notes:  
 See Sheet S2-28 and S2-29 of S2-82 for Section D-D, superstructure details and Bill of Material.  
 Bend longitudinal reinforcement bars as required to fit in the field.  
 Bars indicated 28x10-#5 etc. indicates 28 lines of bars with 10 lengths per line.

5:40:03 PM 0161714-60X93-S022-Deck\_Plan3-2.dgn



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PLOT DATE = 7/26/2018	CHECKED - JNP	REVISED

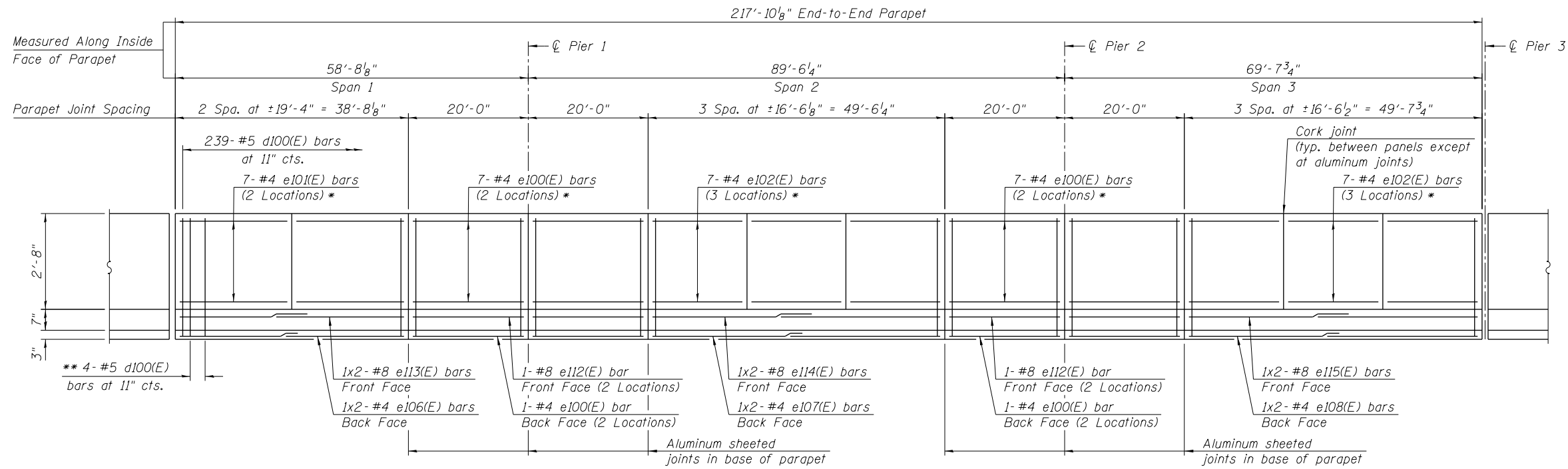
STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

DECK PLAN 2 - UNIT 3  
 STRUCTURE NO. 016-1714

SHEET NO. S2-22 OF S2-82 SHEETS

F.A.I. R.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013 R&B-R	COOK	1972	682
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				

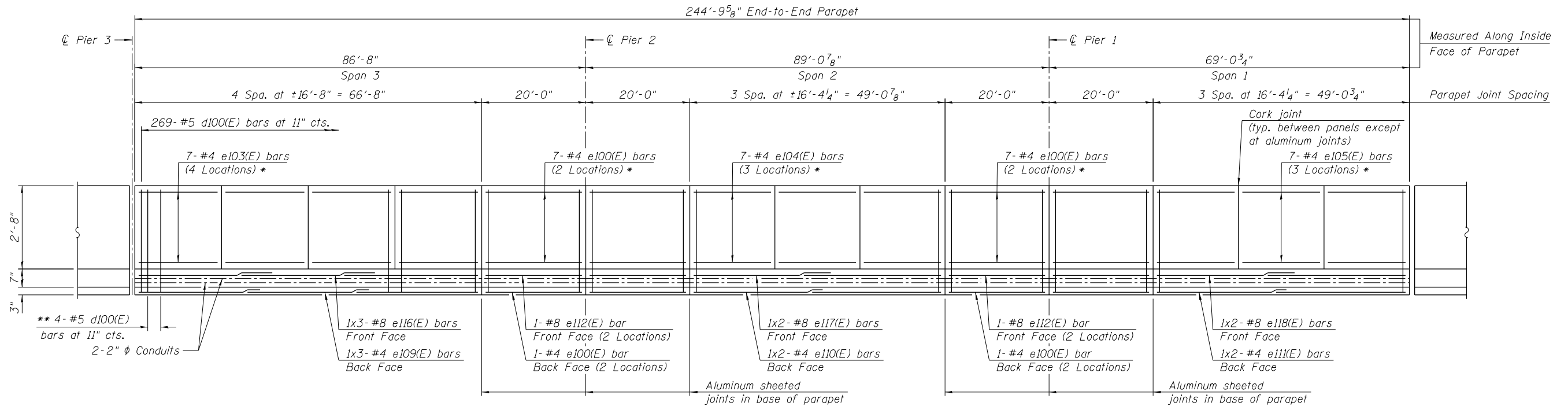




**INSIDE ELEVATION OF LEFT PARAPET - UNIT 1**

\* See section thru parapet on Sheet S2-26 of S2-82.

\*\* Space between already specified d100(E) bars. Typical at parapet ends and each side of aluminum shield joints. (14 locations Left Parapet) (14 locations Right Parapet)



**INSIDE ELEVATION OF RIGHT PARAPET - UNIT 1**

Notes:  
Contractor to provide expansion/deflection conduit fittings at all structural expansion joints. See lighting plans for expansion/deflection fitting installation details.  
Bars indicated Locations: 1x4- #8 etc. indicates one line of bars with 4 lengths per line.  
For parapet details, see Sheet S2-26 of S2-82.

Minimum Bar Laps	
Bar	Lap
#4	2'-5"
#8	5'-11"

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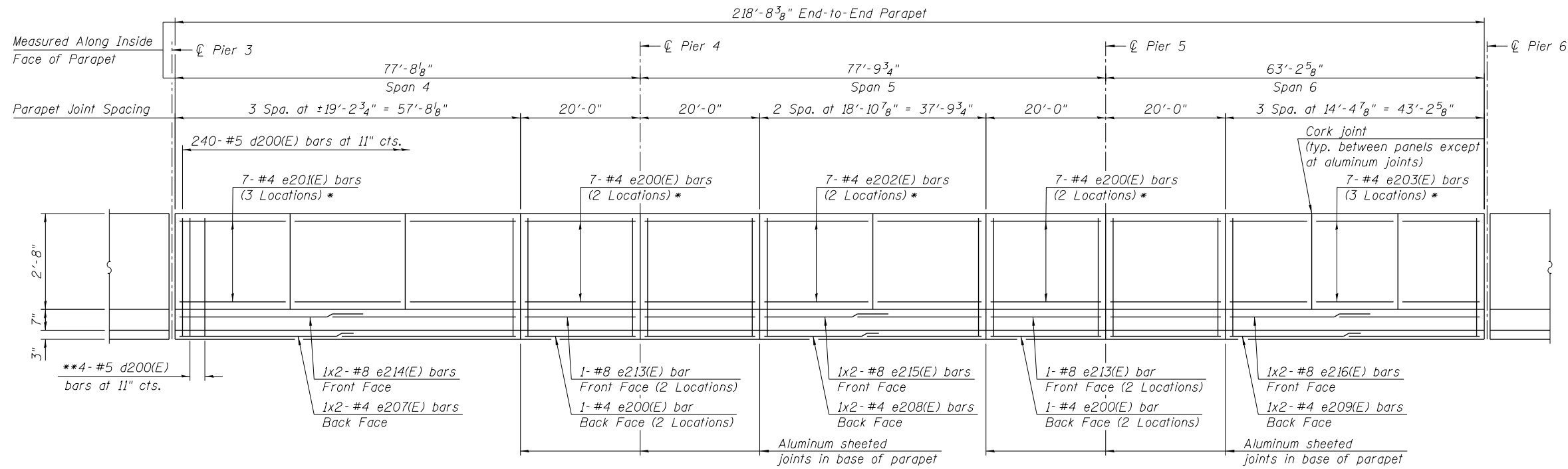
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PLOT DATE = 7/26/2018	CHECKED - JNP	REVISED

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**PARAPET ELEVATIONS - UNIT 1  
STRUCTURE NO. 016-1714**

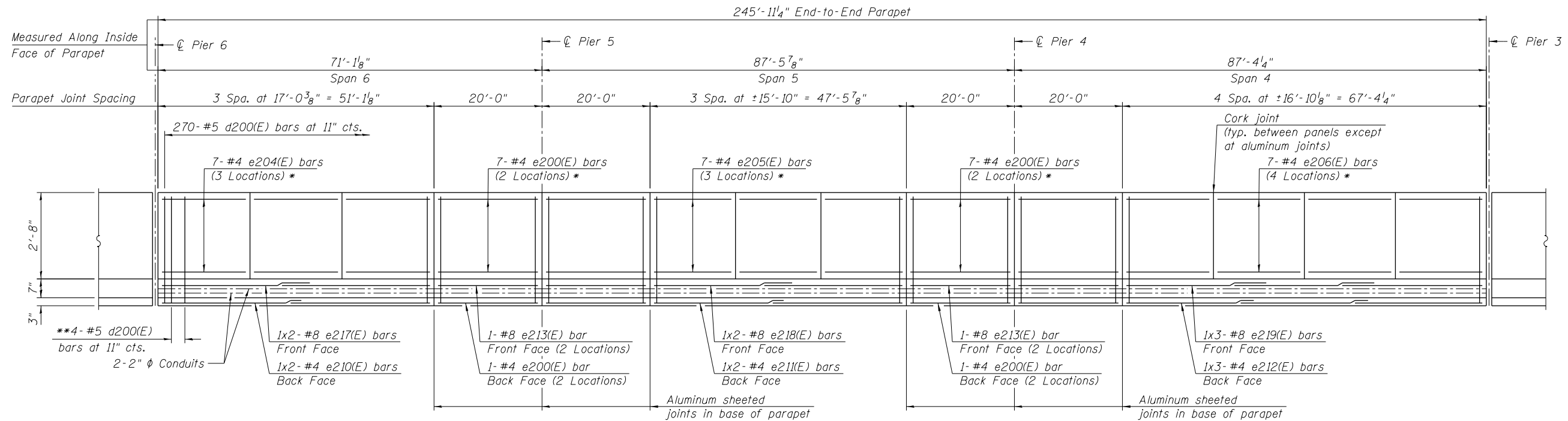
SHEET NO. S2-23 OF S2-82 SHEETS

F.A.I. R.T.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013 R&B-R	COOK	1972	683
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				



**INSIDE ELEVATION OF LEFT PARAPET - UNIT 2**

\* See section thru parapet on Sheet S2-27 of S2-82.  
 \*\* Space between already specified d200(E) bars. Typical at parapet ends and each side of aluminum shield joints. (14 locations Left Parapet) (14 locations Right Parapet)



**INSIDE ELEVATION OF RIGHT PARAPET - UNIT 2**

Notes:  
 Contractor to provide expansion/deflection conduit fittings at all structural expansion joints. See lighting plans for expansion/deflection fitting installation details.  
 Bars indicated Locations: 1x4-#8 etc. indicates one line of bars with 4 lengths per line.  
 For parapet details, see Sheet S2-27 of S2-82.

Minimum Bar Laps	
Bar	Lap
#4	2'-5"
#8	5'-11"

5:40:09 PM 0161714-60X93-S024-Parapet2.dgn



USER NAME = wjcolletti	DESIGNED - RVV	REVISED
PLOT SCALE = 21.3333' / in.	CHECKED - WJC	REVISED
PLOT DATE = 7/26/2018	DRAWN - GJZ	REVISED
	CHECKED - JNP	REVISED

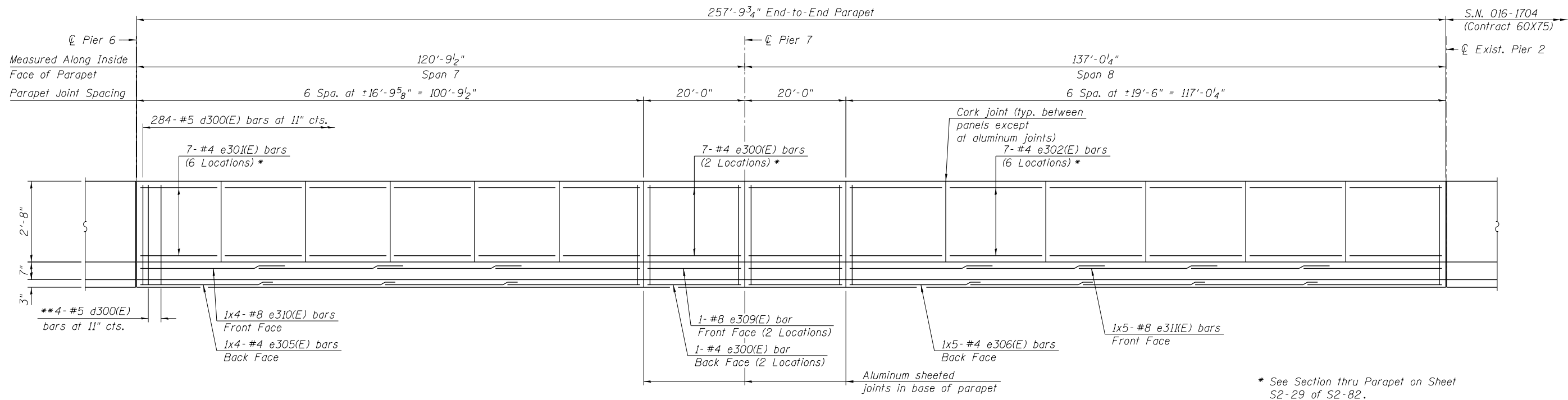
**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**PARAPET ELEVATIONS - UNIT 2  
 STRUCTURE NO. 016-1714**

SHEET NO. S2-24 OF S2-82 SHEETS

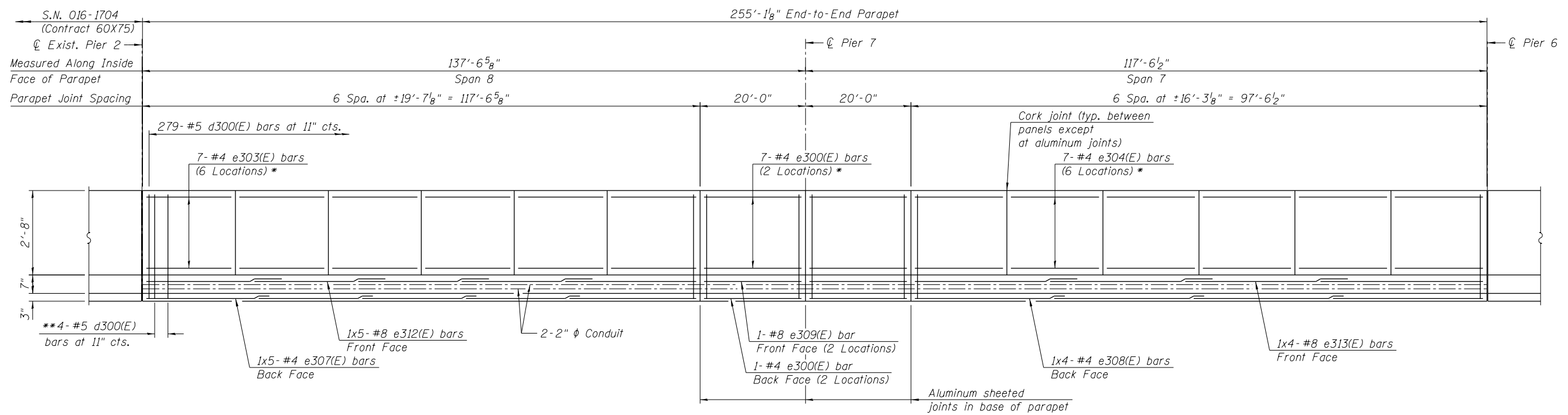
F.A.I. R.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013 R&B-R	COOK	1972	684
CONTRACT NO. 60X93				

ILLINOIS FED. AID PROJECT



**INSIDE ELEVATION OF LEFT PARAPET - UNIT 3**

\* See Section thru Parapet on Sheet S2-29 of S2-82.  
 \*\* Space between already specified d300(E) bars. Typical at parapet ends and each side of aluminum shield joints. (8 locations Left Parapet) (8 locations Right Parapet)



**INSIDE ELEVATION OF RIGHT PARAPET - UNIT 3**

Notes:  
 Contractor to provide expansion/deflection conduit fittings at all structural expansion joints. See lighting plans for expansion/deflection fitting installation details.  
 Bars indicated 1x4- #8 etc. indicates one line of bars with 4 lengths per line.  
 For parapet details, see Sheet S2-28 and S2-29 of S2-82.

Minimum Bar Laps	
Bar	Lap
#4	2'-5"
#8	5'-11"

5:40:11 PM 0161714-60X93-S025-Parapet3.dgn



USER NAME = wjcolletti	DESIGNED - RVV	REVISED
	CHECKED - WJC	REVISED
PLOT SCALE = 21.3333' / in.	DRAWN - GJZ	REVISED
PLOT DATE = 7/26/2018	CHECKED - JNP	REVISED

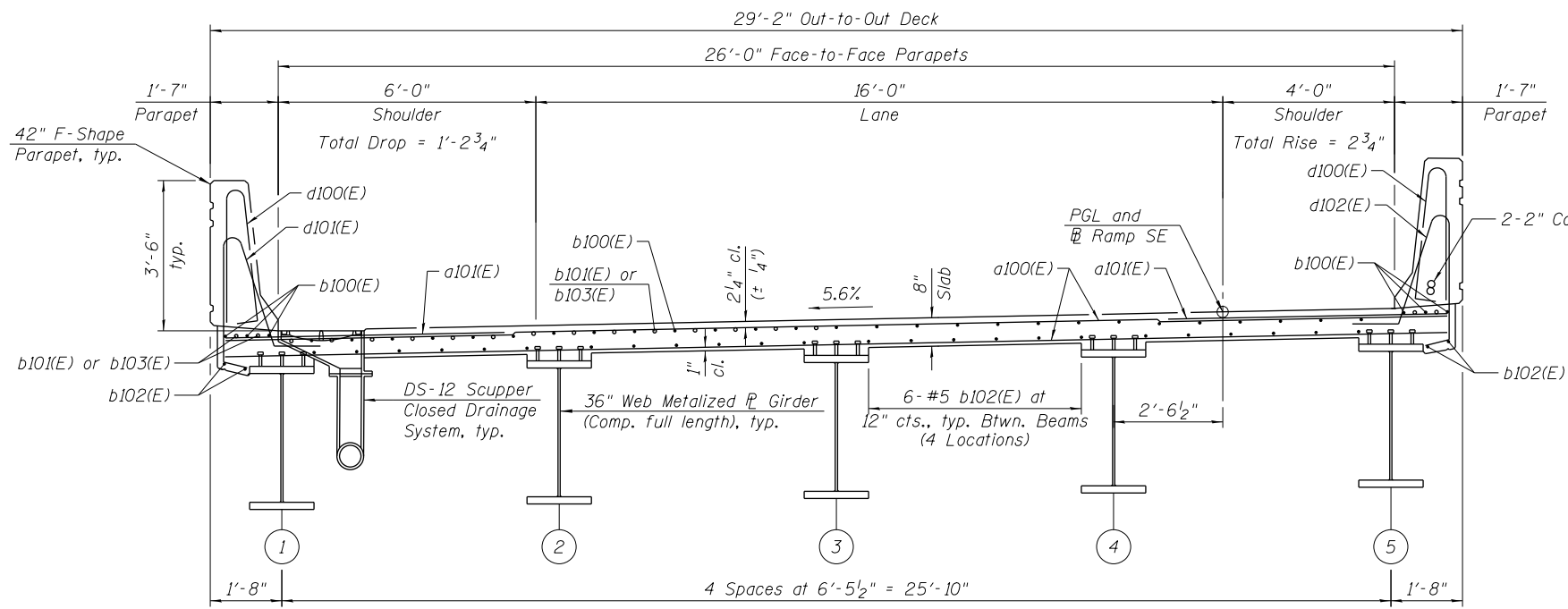
**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**PARAPET ELEVATIONS - UNIT 3  
 STRUCTURE NO. 016-1714**

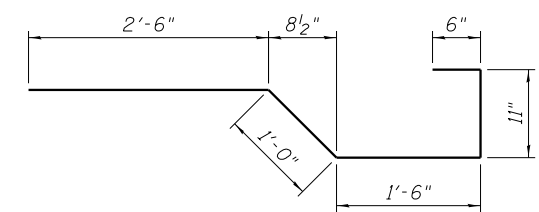
SHEET NO. S2-25 OF S2-82 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013 R&B-R	COOK	1972	685
CONTRACT NO. 60X93				

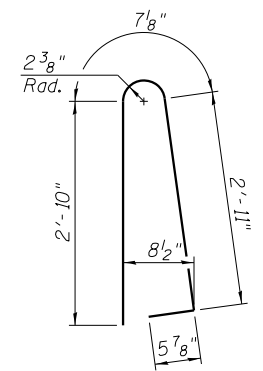
ILLINOIS FED. AID PROJECT



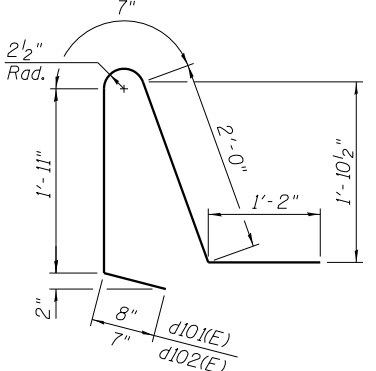
**NEAR PIER** **DECK CROSS SECTION - UNIT 1** **NEAR MIDSPAN**  
(Looking Upstation)  
(Dimensions measured perpendicular to baseline)



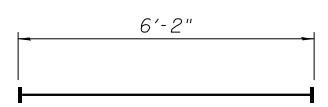
**BAR x100(E)**



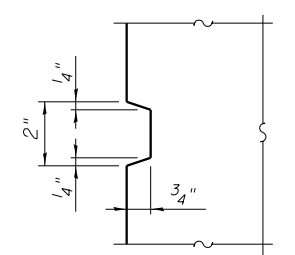
**BAR d100(E)**



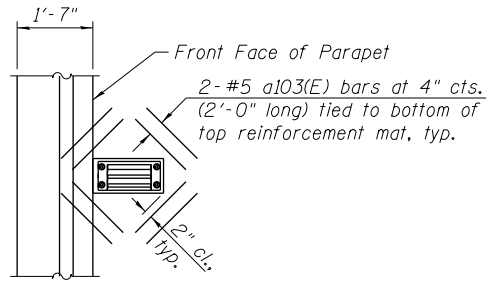
**BARS d101(E) AND d102(E)**



**BAR a102(E)**  
(Headed)



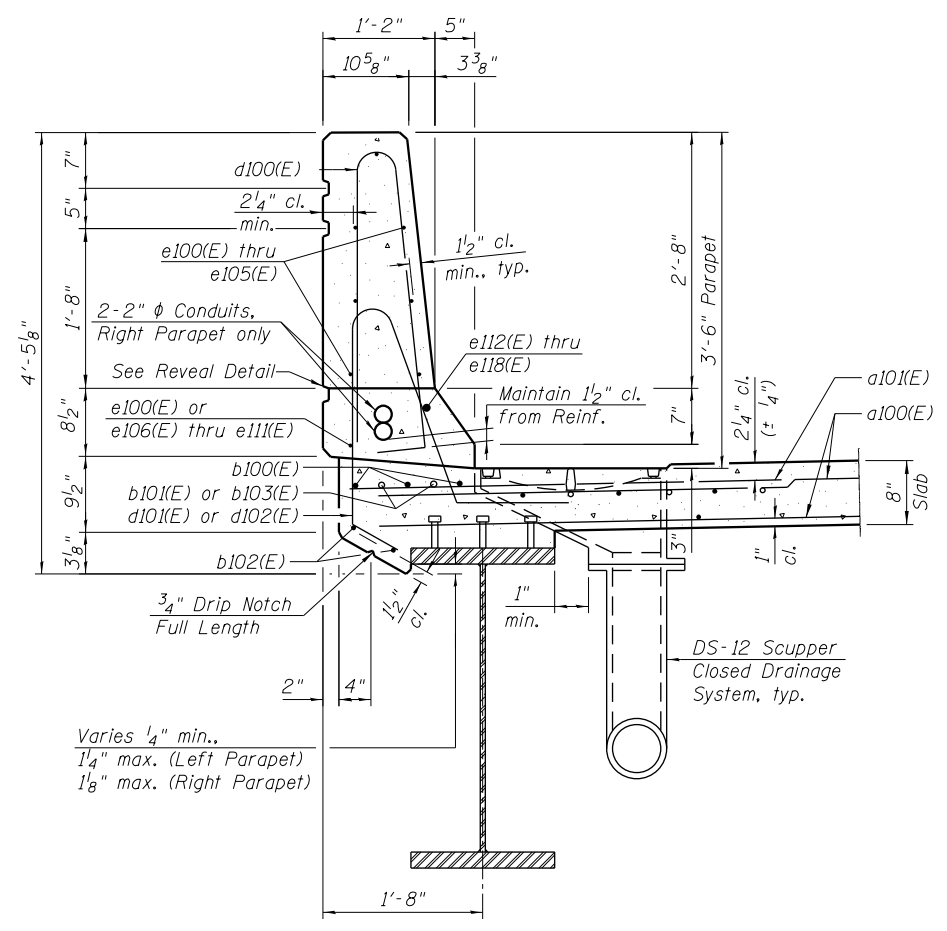
**REVEAL DETAIL**



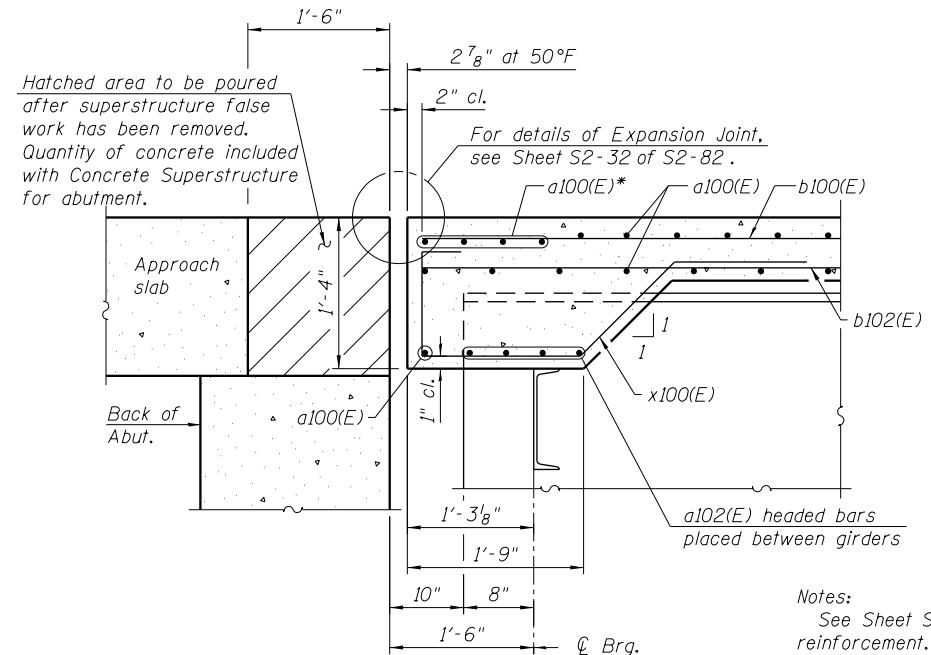
**SCUPPER PLAN**

Note:  
Cut longitudinal reinforcement to clear drainage scuppers.

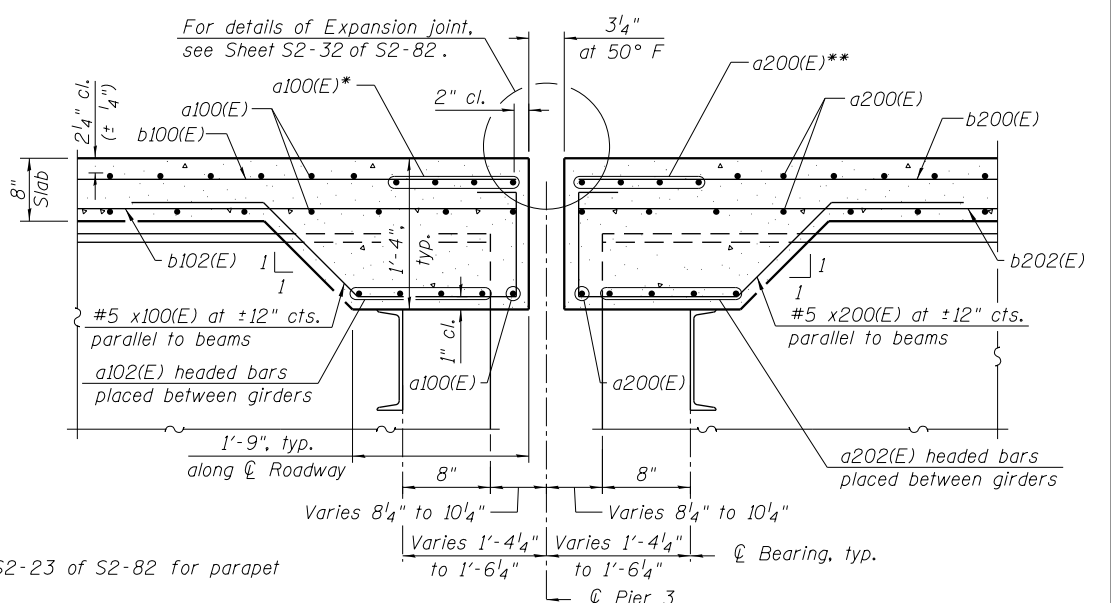
- \* 4- #5 a100(E) bars at 6 1/2" cts. placed under b100(E) bars.
- \*\* 4- #5 a200(E) bars at 6 1/2" cts. placed under b200(E) bars.



**SECTION THRU PARAPET**



**SECTION A-A**  
(Horiz. Dims. at RT L's to Q Brg.)



**SECTION B-B**  
(Horiz. Dims. at RT L's to Q Brg.)

Notes:  
See Sheet S2-23 of S2-82 for parapet reinforcement.  
For Scupper locations, see Sheet S2-17 and S2-18 of S2-82.

**SUPERSTRUCTURE**  
**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape	
a100(E)	751	#5	28'-7"		
a101(E)	908	#6	6'-6"		
a102(E)	32	#5	6'-2"		
a103(E)	16	#5	2'-0"		
b100(E)	330	#5	27'-8"		
b101(E)	90	#6	28'-7"		
b102(E)	308	#5	25'-6"		
b103(E)	90	#6	21'-11"		
d100(E)	620	#5	6'-10"		
d101(E)	239	#5	6'-4"		
d102(E)	269	#5	6'-3"		
e100(E)	64	#4	19'-8"		
e101(E)	14	#4	19'-1"		
e102(E)	42	#4	16'-2"		
e103(E)	28	#4	16'-4"		
e104(E)	21	#4	16'-0"		
e105(E)	21	#4	16'-1"		
e106(E)	2	#4	20'-6"		
e107(E)	2	#4	25'-10"		
e108(E)	2	#4	25'-11"		
e109(E)	3	#4	23'-9"		
e110(E)	2	#4	25'-7"		
e111(E)	2	#4	25'-9"		
e112(E)	8	#8	19'-8"		
e113(E)	2	#8	22'-3"		
e114(E)	2	#8	27'-7"		
e115(E)	2	#8	27'-8"		
e116(E)	3	#8	26'-1"		
e117(E)	2	#8	27'-4"		
e118(E)	2	#8	27'-6"		
x100(E)	56	#5	6'-5"		
Reinforcement Bars, Epoxy Coated				Pound	66,770
Concrete Superstructure				Cu. Yd.	247.6
Protective Coat				Sq. Yd.	903
Bridge Deck Grooving (Longitudinal)				Sq. Yd.	658

5:40:15 PM 0161714-60X93-S026-Deck\_Section1.dgn



USER NAME = wjcolletti	DESIGNED - RVV	REVISED
PLOT SCALE = 4.0000' / in.	CHECKED - WJC	REVISED
PLOT DATE = 7/26/2018	DRAWN - GJZ	REVISED
	CHECKED - JNP	REVISED

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

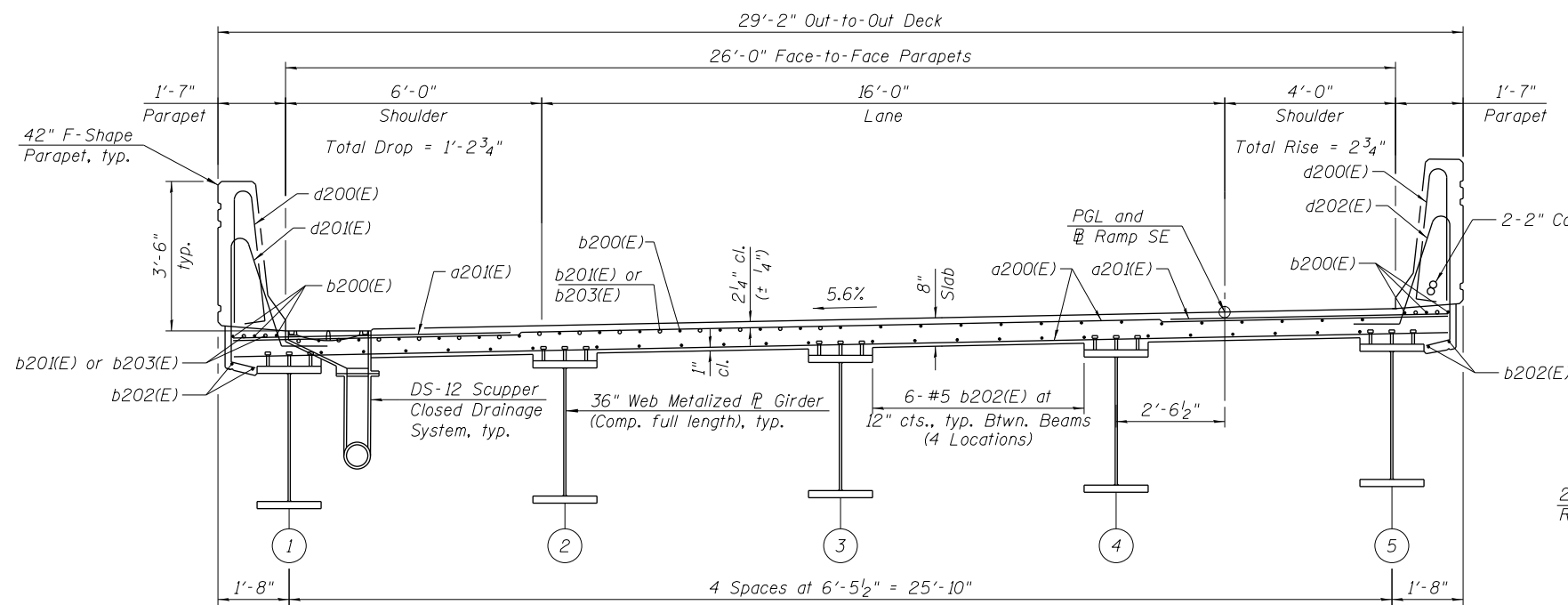
**DECK CROSS SECTION - UNIT 1**  
**STRUCTURE NO. 016-1714**

SHEET NO. S2-26 OF S2-82 SHEETS

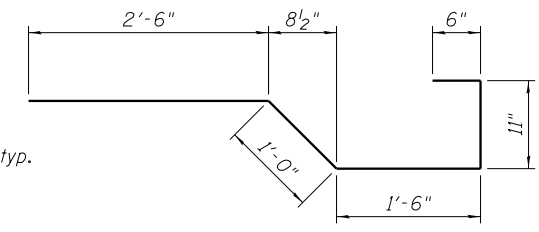
F.A.I. R.T.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013 R&B-R	COOK	1972	686
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				

**SUPERSTRUCTURE  
BILL OF MATERIAL**

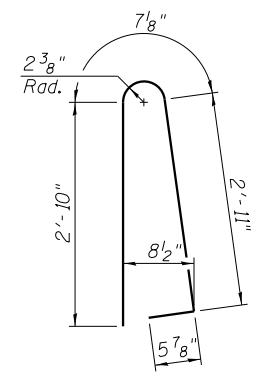
Bar	No.	Size	Length	Shape
a200(E)	753	#5	28'-7"	
a201(E)	910	#6	6'-6"	
a202(E)	32	#5	6'-2"	
a203(E)	8	#5	2'-0"	
b200(E)	330	#5	27'-9"	
b201(E)	90	#6	20'-3"	
b202(E)	308	#5	25'-7"	
b203(E)	90	#6	18'-2"	
d200(E)	622	#5	6'-10"	
d201(E)	240	#5	6'-4"	
d202(E)	270	#5	6'-3"	
e200(E)	64	#4	19'-8"	
e201(E)	21	#4	18'-11"	
e202(E)	14	#4	18'-7"	
e203(E)	21	#4	14'-1"	
e204(E)	21	#4	16'-8"	
e205(E)	21	#4	15'-6"	
e206(E)	28	#4	16'-6"	
e207(E)	2	#4	29'-11"	
e208(E)	2	#4	20'-0"	
e209(E)	2	#4	22'-8"	
e210(E)	2	#4	26'-8"	
e211(E)	2	#4	25'-0"	
e212(E)	3	#4	24'-0"	
e213(E)	8	#8	19'-8"	
e214(E)	2	#8	31'-8"	
e215(E)	2	#8	21'-9"	
e216(E)	2	#8	24'-5"	
e217(E)	2	#8	28'-5"	
e218(E)	2	#8	26'-9"	
e219(E)	3	#8	26'-4"	
x200(E)	56	#5	6'-5"	
Reinforcement Bars, Epoxy Coated	Pound	65,170		
Concrete Superstructure	Cu. Yd.	246.7		
Protective Coat	Sq. Yd.	905		
Bridge Deck Grooving (Longitudinal)	Sq. Yd.	660		



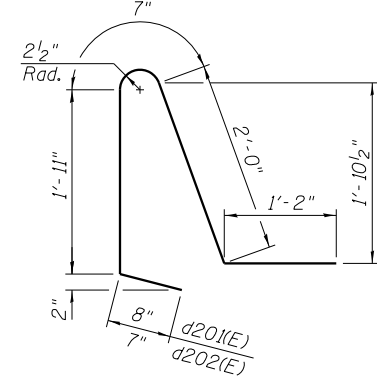
**DECK CROSS SECTION - UNIT 2**  
(Looking Upstation)  
(Dimensions measured perpendicular to baseline)



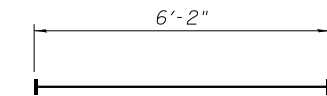
**BAR x200(E)**



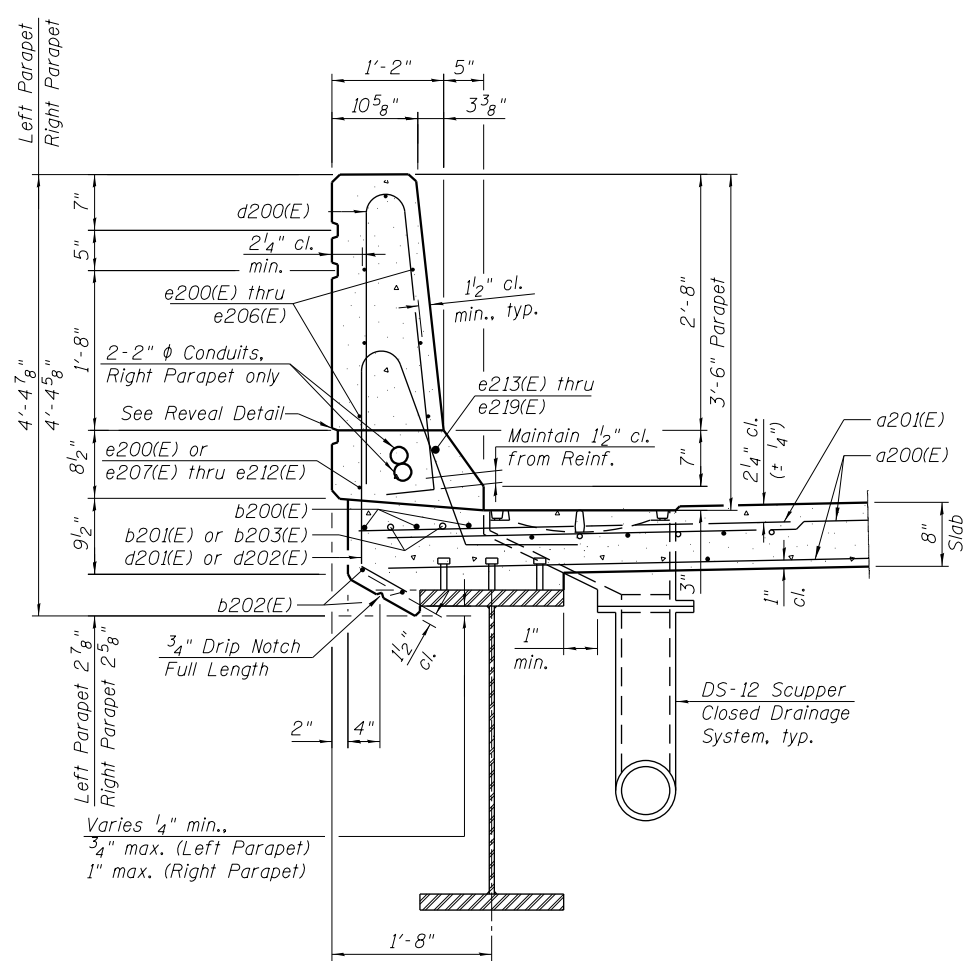
**BAR d200(E)**



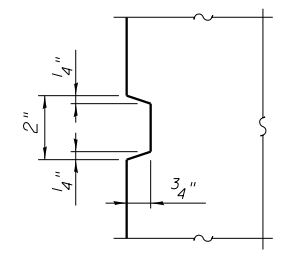
**BARS d201(E) AND d202(E)**



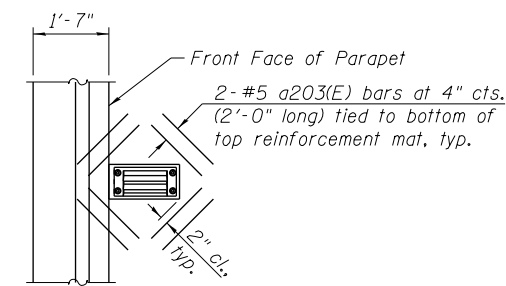
**BAR a202(E)**  
(Headed)



**SECTION THRU PARAPET**



**REVEAL DETAIL**



**SCUPPER PLAN**

Note:  
Cut longitudinal reinforcement to clear drainage scuppers.

Notes:  
See Sheet S2-24 of S2-82 for parapet reinforcement.  
For Scupper locations, see Sheet S2-20 of S2-82.

5:40:18 PM 0161714-60X93-S027-Deck\_Section2.dgn



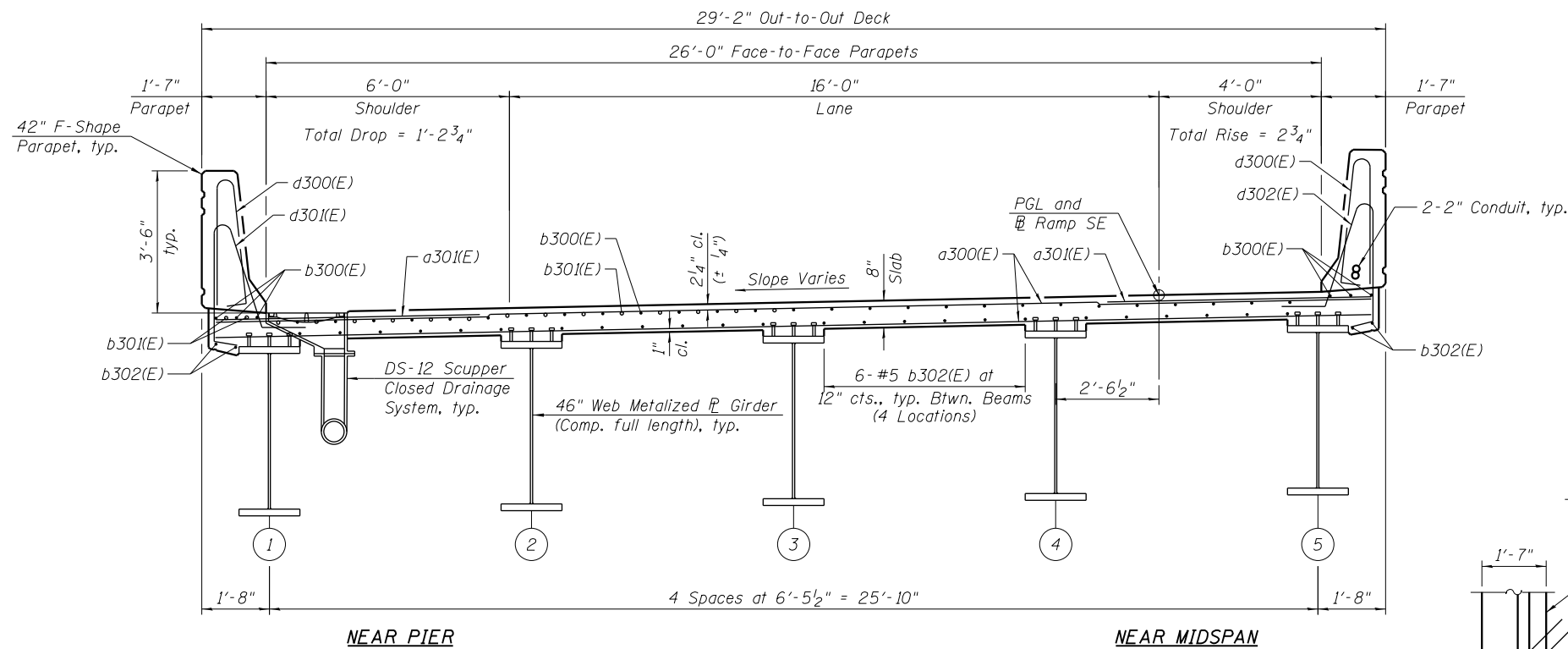
USER NAME = wjcolletti	DESIGNED - RVV	REVISED
PLOT SCALE = 4.0000' / in.	CHECKED - WJC	REVISED
PLOT DATE = 7/26/2018	DRAWN - GJZ	REVISED
	CHECKED - JNP	REVISED

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**DECK CROSS SECTION - UNIT 2  
STRUCTURE NO. 016-1714**

SHEET NO. S2-27 OF S2-82 SHEETS

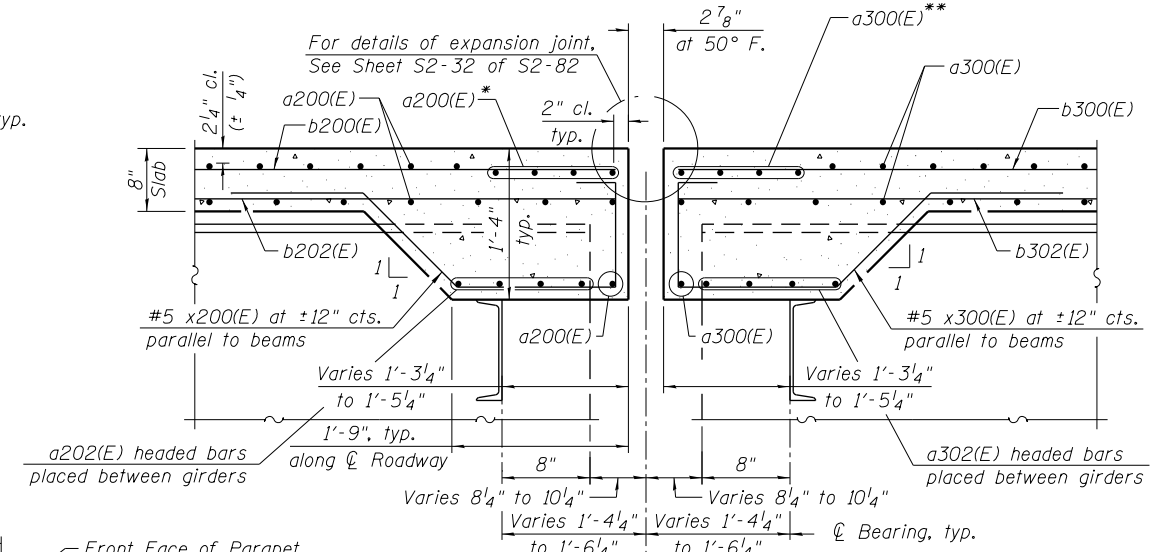
F.A.I. R.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013 R&B-R	COOK	1972	687
CONTRACT NO. 60X93			ILLINOIS FED. AID PROJECT	



**DECK CROSS SECTION - UNIT 3**

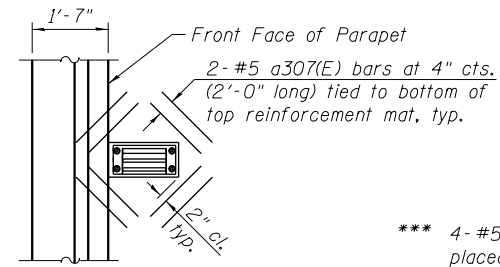
(Looking Upstation)  
(Dimensions measured perpendicular to baseline)  
(Sta. 1409+65.54 to Sta. 1411+90.79)

- \* 4- #5 a200(E) bars at 6 1/2" cts. placed under b200(E) bars.
- \*\* 4- #5 a300(E) bars at 6 1/2" cts. placed under b300(E) bars.



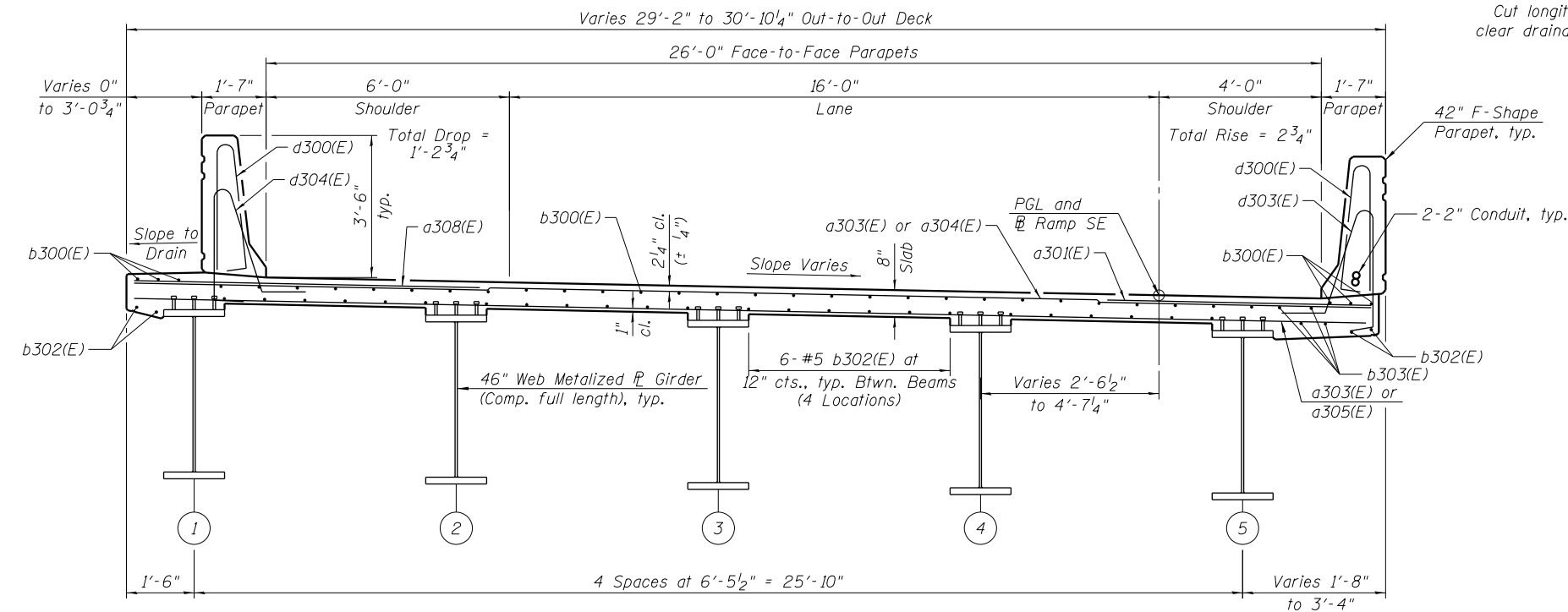
**SECTION C-C**

(Horiz. Dims. at RT L's to Cl Brg.)



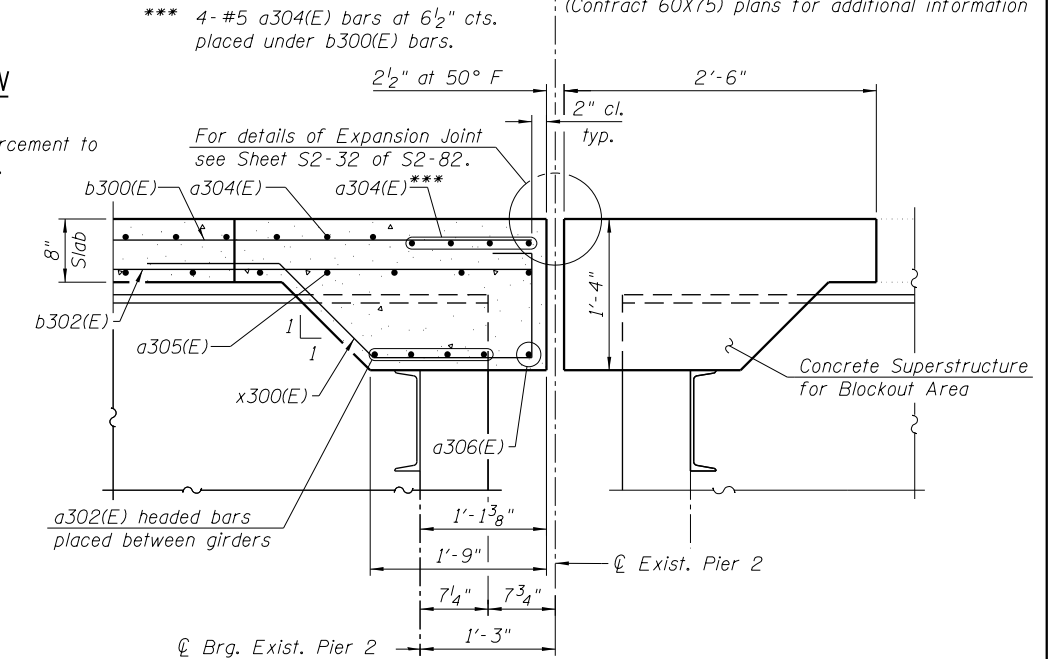
**SCUPPER PLAN**

Note:  
Cut longitudinal reinforcement to clear drainage scuppers.



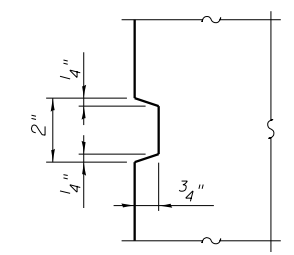
**DECK CROSS SECTION - UNIT 3**

(Looking Upstation)  
(Dimensions measured perpendicular to baseline)  
(Sta. 1411+90.79 to Sta. 1412+21.14)



**SECTION D-D**

(Horiz. Dims. at RT L's to Cl Brg.)



**REVEAL DETAIL**

Notes:  
See Sheet S2-25 of S2-82 for parapet reinforcement.  
For scupper locations, see Sheet S2-21 and S2-22 of S2-82.

5:40:22 PM 0161714-60X93-S028-Deck-Section3.dgn



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PLOT SCALE = 4:0 'sin / in.	CHECKED - WJC	REVISED
PLOT DATE = 7/26/2018	DRAWN - GJZ	REVISED
	CHECKED - JNP	REVISED

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

DECK CROSS SECTION 1 - UNIT 3  
STRUCTURE NO. 016-1714

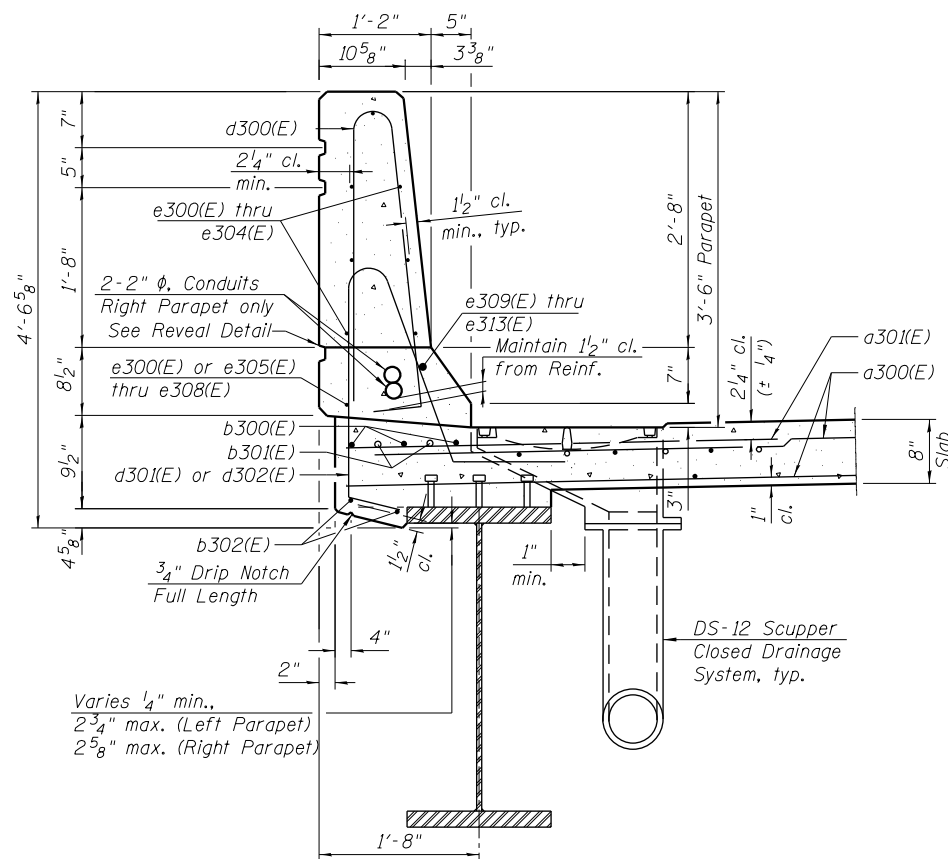
SHEET NO. S2-28 OF S2-82 SHEETS

F.A.I. R.T.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013 R&B-R	COOK	1972	688
CONTRACT NO. 60X93				

ILLINOIS FED. AID PROJECT

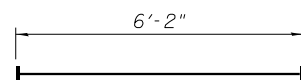
**SUPERSTRUCTURE  
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
a300(E)	780	#5	28'-7"	—
a301(E)	872	#6	6'-6"	—
a302(E)	24	#5	6'-2"	—
a303(E)	91	#5	30'-3"	—
a304(E)	13	#5	29'-4"	—
a305(E)	9	#5	27'-10"	—
a306(E)	2	#5	33'-9"	—
a307(E)	32	#5	2'-0"	—
b300(E)	330	#5	29'-1"	—
b301(E)	120	#6	25'-5"	—
b302(E)	308	#5	26'-9"	—
b303(E)	4	#5	17'-3"	—
d300(E)	627	#5	6'-10"	—
d301(E)	239	#5	6'-4"	—
d302(E)	249	#5	6'-3"	—
d303(E)	32	#5	7'-0"	—
d304(E)	46	#5	6'-10"	—
e300(E)	32	#4	19'-8"	—
e301(E)	42	#4	16'-5"	—
e302(E)	42	#4	19'-2"	—
e303(E)	42	#4	19'-3"	—
e304(E)	42	#4	15'-11"	—
e305(E)	4	#4	27'-0"	—
e306(E)	5	#4	25'-4"	—
e307(E)	5	#4	25'-5"	—
e308(E)	4	#4	26'-2"	—
e309(E)	4	#8	19'-8"	—
e310(E)	4	#8	29'-8"	—
e311(E)	5	#8	28'-1"	—
e312(E)	5	#8	28'-3"	—
e313(E)	4	#8	28'-9"	—
x300(E)	56	#5	6'-4"	—
Reinforcement Bars, Epoxy Coated	Pound		71,390	
Concrete Superstructure	Cu. Yd.		280.6	
Protective Coat	Sq. Yd.		1,001	
Bridge Deck Grooving (Longitudinal)	Sq. Yd.		729	

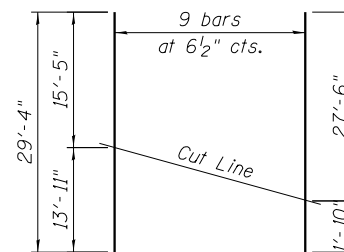


**SECTION THRU PARAPET**

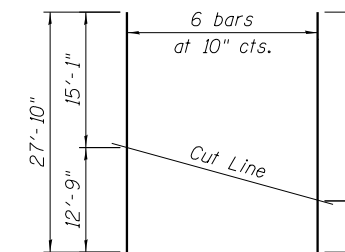
(Sta. 1409+65.54 to Sta. 1411+90.79, Left Parapet)  
(Sta. 1409+65.54 to Sta. 1412+19.80, Right Parapet)



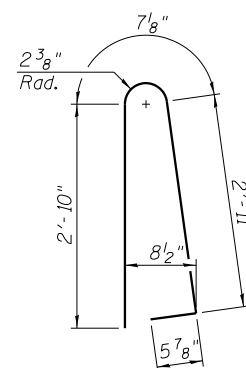
**BAR a302(E)**  
(Headed)



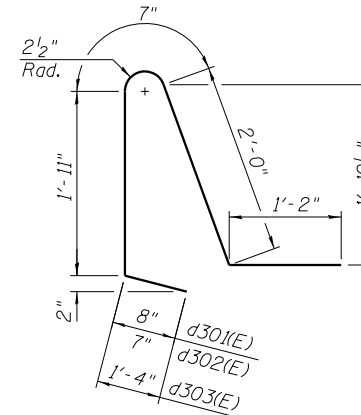
**BAR a304(E)**  
CUTTING DIAGRAM



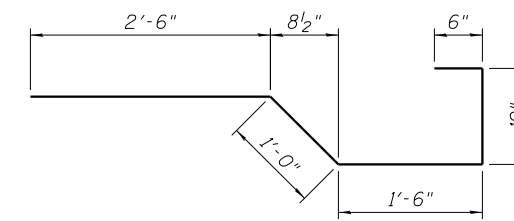
**BAR a305(E)**  
CUTTING DIAGRAM



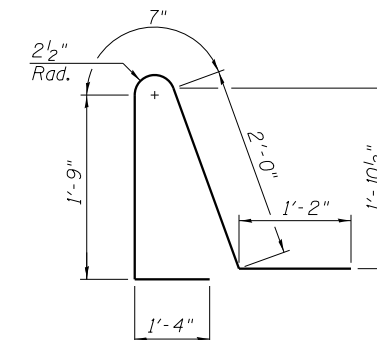
**BAR d300(E)**



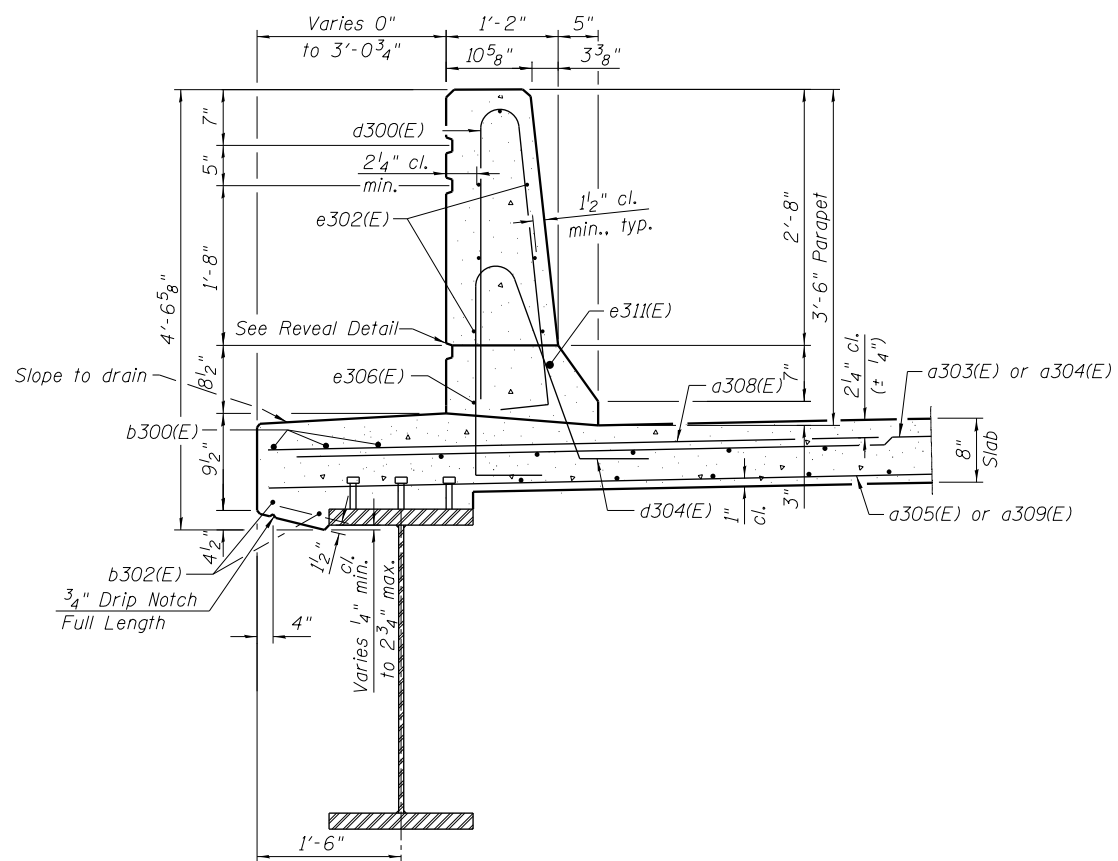
**BAR d301(E), d302(E), AND d303(E)**



**BAR x300(E)**

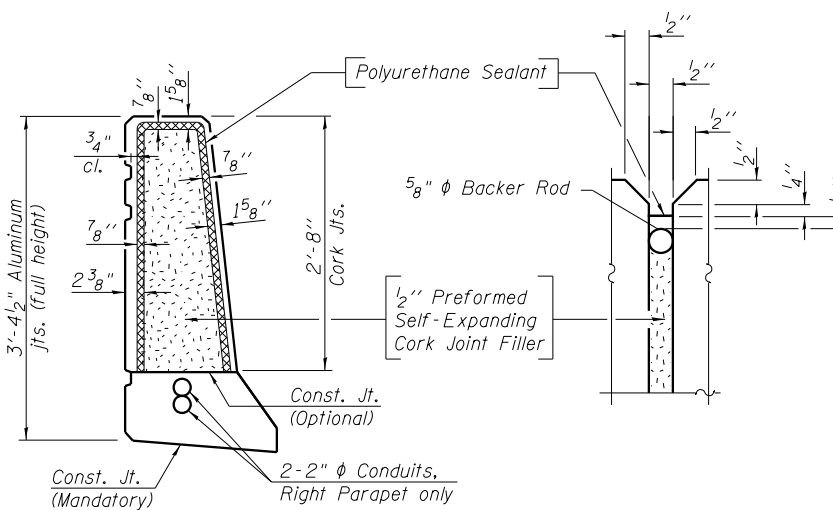


**BAR d304(E)**



**SECTION THRU PARAPET**

(Sta. 1411+90.79 to Sta. 1412+28.18, Left Parapet)



**PARAPET JOINT DETAILS**

**Notes:**  
The 1/8" Aluminum sheet shall be ASTM B 209 alloy 3003-H14 and coated to minimize reaction with wet concrete. Cost included with Concrete Superstructure.  
The Polyurethane Sealant shall be according to Article 1050.04 of the Std. Spec. and the color shall be gray.  
Headed bars shall conform to ASTM A970 with threaded attachment; Class HA; and reinforcement bars conforming to ASTM A706. Cost included with Reinforcement Bars, Epoxy Coated.  
See Sheet S2-25 of S2-82 for parapet reinforcement.

5:40:25 PM 0161714-60X93-S029-SuperStruct\_Detalls.dgn



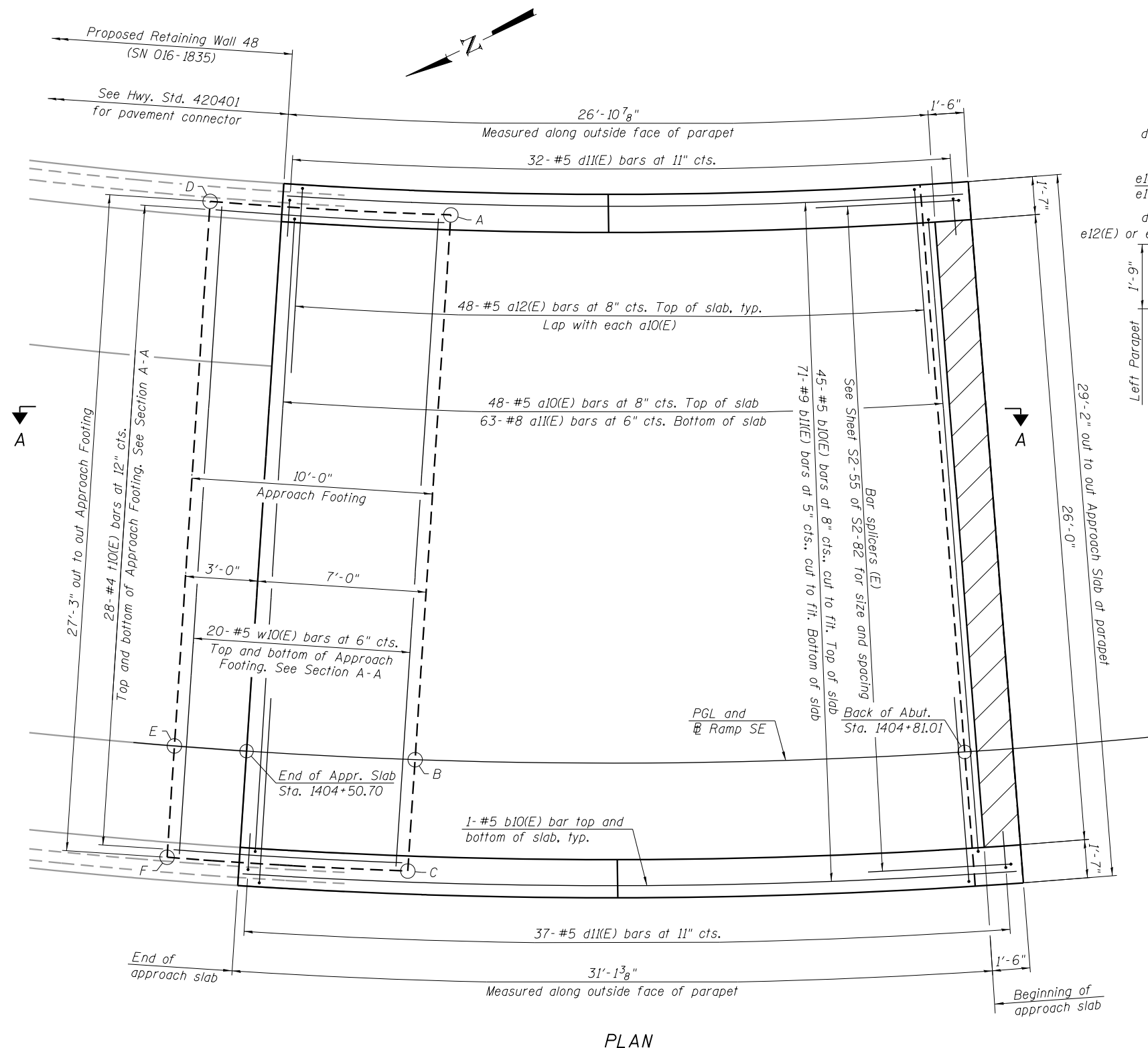
USER NAME = wjcolletti	DESIGNED - RVV	REVISED
	CHECKED - WJC	REVISED
PLOT SCALE = 32.0000' / in.	DRAWN - RVV	REVISED
PLOT DATE = 7/26/2018	CHECKED - JNP	REVISED

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

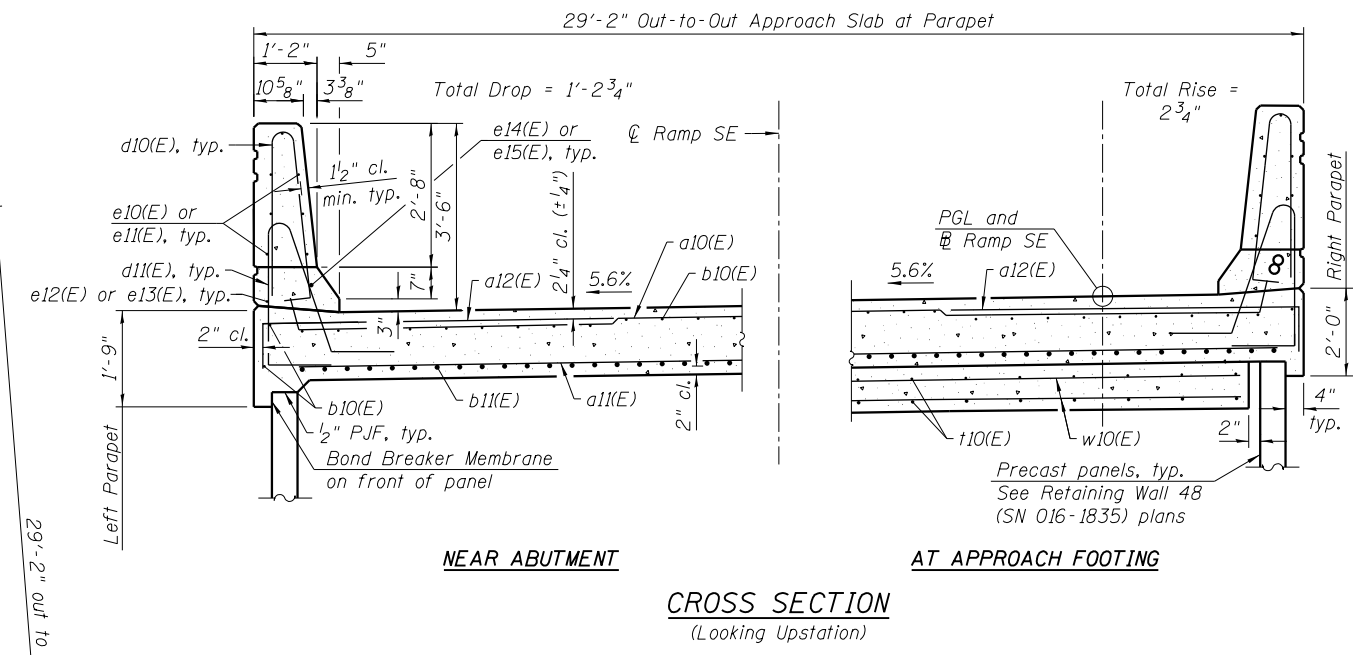
**DECK CROSS SECTION 2 - UNIT 3  
STRUCTURE NO. 016-1714**

SHEET NO. S2-29 OF S2-82 SHEETS

F.A.I. R.T.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013 R&B-R	COOK	1972	689
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				



**PLAN**



**CROSS SECTION**  
(Looking Upstation)

**TOP AND BOTTOM ELEVATIONS FOR APPROACH FOOTING**

Point	North Approach	
	Top	Bottom
A	598.74	597.91
B	599.85	599.02
C	600.09	599.25
D	598.04	597.20
E	599.12	598.29
F	599.35	598.51

Note:  
See Sheet S2-31 of S2-82 for Section A-A and notes.

5:40:30 PM 0161714-60X93-S030-Appr Slab\_Details1.dgn



USER NAME = wjcolletti	DESIGNED - RVV	REVISED
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PLOT DATE = 7/26/2018	DRAWN - RVV	REVISED
	CHECKED - JNP	REVISED

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**NORTH APPROACH SLAB DETAILS 1**  
**STRUCTURE NO. 016-1714**

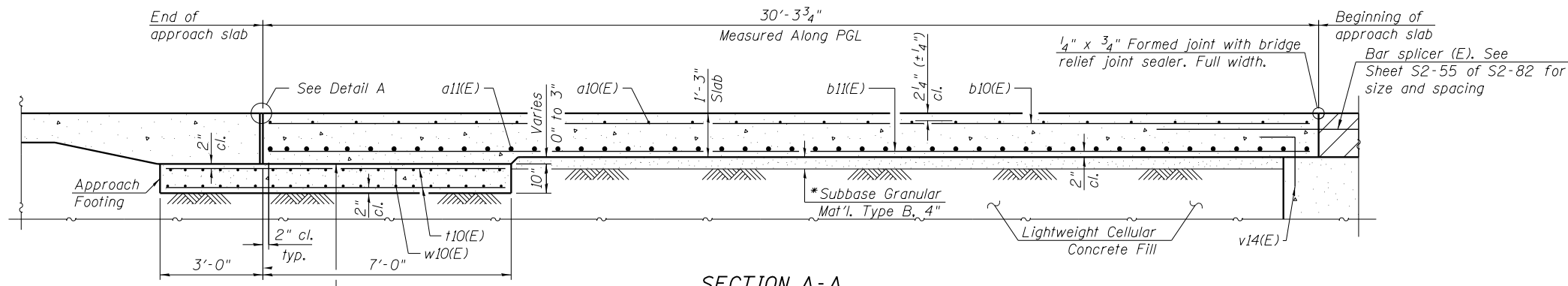
SHEET NO. S2-30 OF S2-82 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				

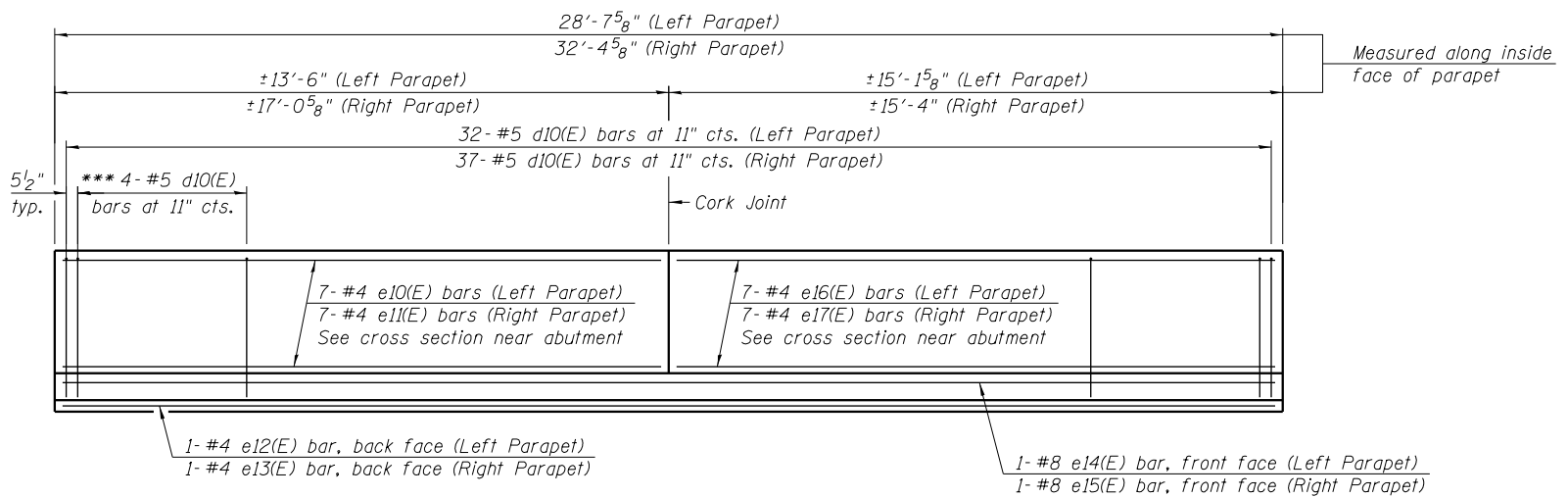


Notes:

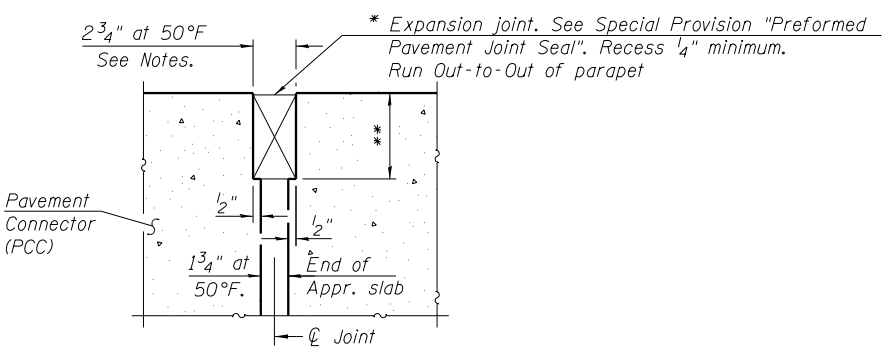
Parapet concrete shall be paid for as Concrete Superstructure.  
 Approach slab shall be paid for as Concrete Superstructure (Approach Slab).  
 Approach footing concrete shall be paid for as Concrete Structures.  
 The approach footing maximum applied service bearing pressure (Qmax) = 2.0 ksf.  
 Cost of excavation for approach footing included with Concrete Structures.  
 For v14(E) bar details, see Sheet S2-56 of S2-82.  
 See Retaining Wall 48 (SN 016-1835) for MSE retaining wall details.



\* 10 mil. Polyethylene bond breaker on steel trowel finish

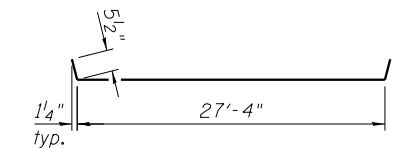


\*\*\* Typical at parapet ends.  
 (Parapet length includes the 1'-6" length above the abutment backwall)

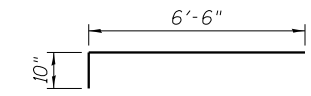


DETAIL A

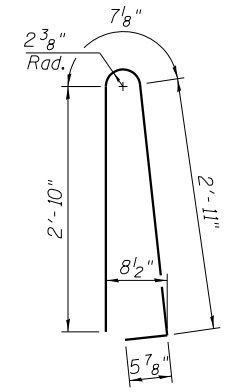
\* Cost included with Concrete Superstructure (Approach Slab).  
 \*\* Per manufacturer recommendations



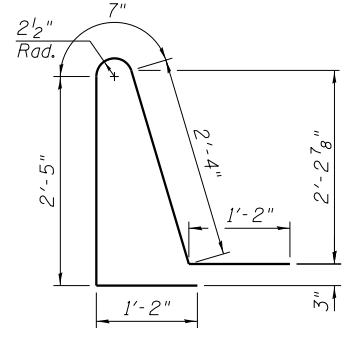
BAR a10(E)



BAR a12(E)



BAR d10(E)



BAR d11(E)

NORTH APPROACH  
 BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a10(E)	48	#5	28'-3"	U
a11(E)	63	#8	28'-10"	U
a12(E)	96	#5	7'-4"	U
b10(E)	49	#5	30'-9"	U
b11(E)	71	#9	30'-9"	U
d10(E)	69	#5	6'-10"	D
d11(E)	69	#5	7'-8"	D
e10(E)	7	#4	13'-2"	U
e11(E)	7	#4	16'-8"	U
e12(E)	1	#4	28'-3"	U
e13(E)	1	#4	32'-0"	U
e14(E)	1	#8	28'-3"	U
e15(E)	1	#8	32'-0"	U
e16(E)	7	#4	14'-9"	U
e17(E)	7	#4	15'-0"	U
t10(E)	56	#4	9'-8"	U
w10(E)	40	#5	28'-10"	U
Bridge Deck Grooving (Longitudinal)			Sq. Yd.	83
Concrete Superstructure (Approach Slab)			Cu. Yd.	8.8
Concrete Structures (Approach Slab)			Cu. Yd.	41.0
Concrete Structures			Cu. Yd.	8.5
Protective Coat			Sq. Yd.	115
Reinforcement Bars, Epoxy Coated			Pound	19,090

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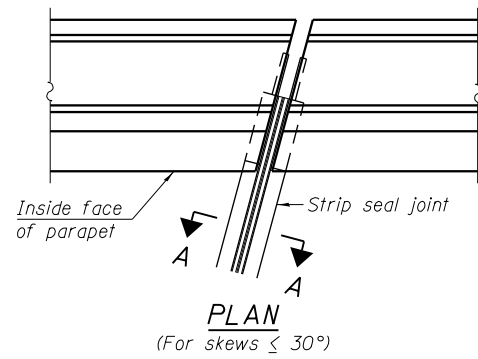
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STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

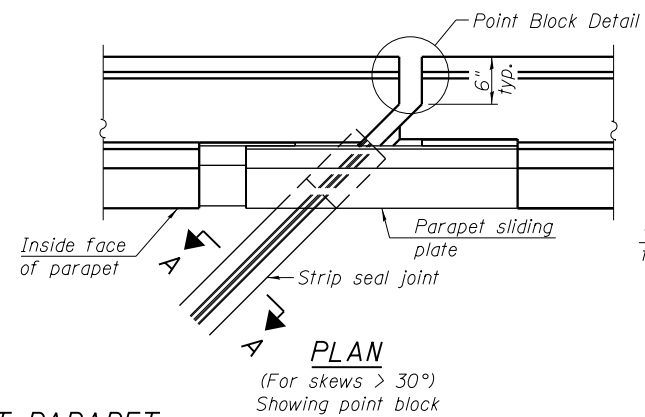
NORTH APPROACH SLAB DETAILS 2  
 STRUCTURE NO. 016-1714

SHEET NO. S2-31 OF S2-82 SHEETS

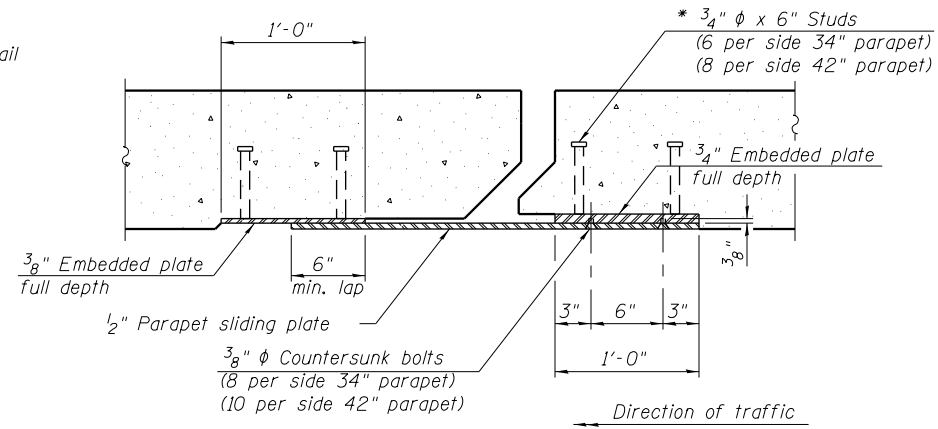
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013 R&B-R	COOK	1972	691
CONTRACT NO. 60X93			ILLINOIS FED. AID PROJECT	



**PLAN AT PARAPET**

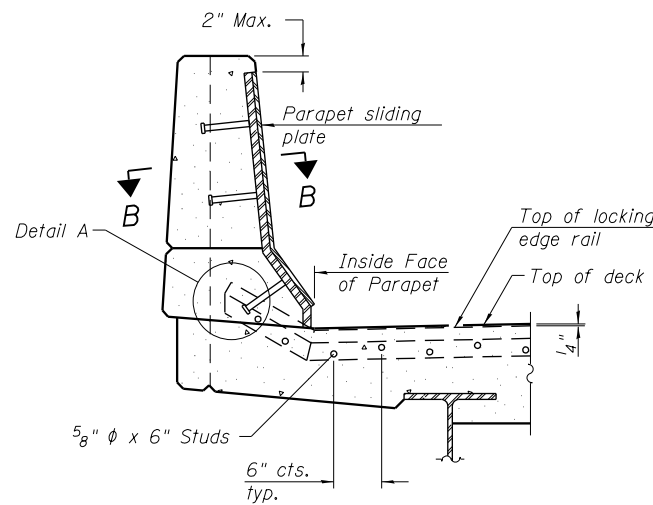


**PLAN AT PARAPET**  
(For skews > 30°)  
Showing point block



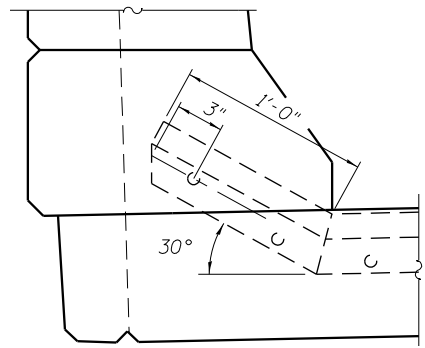
**SECTION B-B**

**Notes:**  
The strip seal shall be made continuous and shall have a minimum thickness of 1/4". The configuration of the strip seal shall match the configuration of the locking edge rails. Open or "webbed" strip seal gland configurations are not permitted. The gland shall be sized for a maximum rated movement of 4 inches.  
The locking edge rails depicted are configured for typical applications and are conceptual only. The actual configuration of the locking edge rails and matching strip seal may vary from manufacturer to manufacturer provided they fit the application and meet the minimum anchorage shown. Flanged edge rails, however, will not be allowed. Locking edge rails may exceed the 4 1/2" maximum depth provided the anchorage system is revised according to the manufacturer's recommendation.  
The manufacturer's recommended installation methods shall be followed.  
All steel components shall be galvanized after fabrication according to Article 520.03 of the Standard Specifications.  
The Maximum space between locking edge rail segments shall be 3/16" and sealed with a suitable sealant; however, any rail joint within 10' measured perpendicular to the face of the curb or parapet shall be welded as shown in the locking edge rail splice detail.

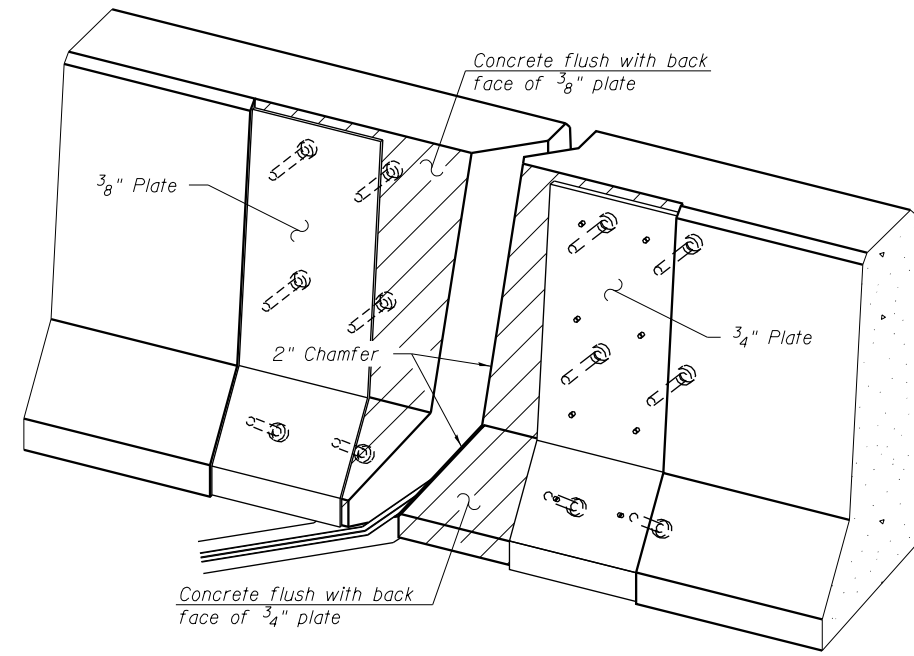


**ELEVATION AT PARAPET**

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

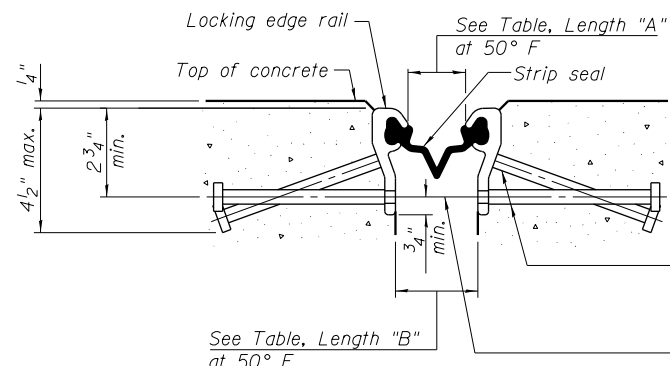


**DETAIL A**



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

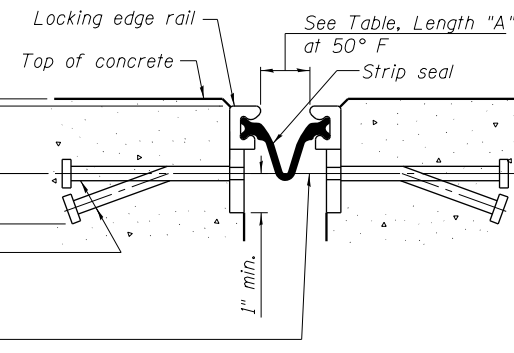
All steel components shall be galvanized after fabrication according to Article 520.03 of the Standard Specifications.  
The Maximum space between locking edge rail segments shall be 3/16" and sealed with a suitable sealant; however, any rail joint within 10' measured perpendicular to the face of the curb or parapet shall be welded as shown in the locking edge rail splice detail.  
Cost of parapet sliding plates, embedded plates, and anchorage studs included with Preformed Joint Strip Seal.  
34" F-shape barrier shown, 42" F-shape similar as noted.  
The concrete opening below the strip seal will vary based on the locking edge rail chosen by the Contractor. Deck and parapet lengths shown elsewhere in the plans are dimensioned to the concrete opening, not the joint opening, and are based on the rolled locking edge rail. If the Contractor elects to use a different locking edge rail, dimensional adjustments may be required. One exception to this would be the strip seal joint at the end of the precast bridge approach slab. For these cases the pavement connector length shall be adjusted, not the length of the bridge approach slab.



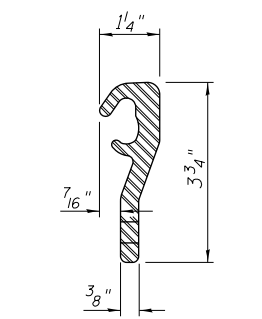
**SHOWING ROLLED RAIL JOINT**

\*5/8" x 6" studs @ 6" cts. (alternate angled/bent studs with horizontal studs)

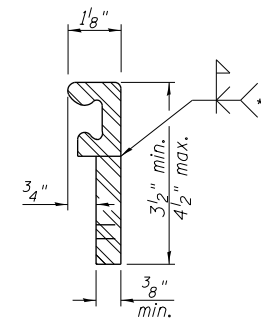
3/8" threaded rods in 7/16" holes at ±4'-0" cts. for holding the proper joint opening based on the temperature during the deck pour. Place to miss studs. All rods shall be burned, or sawed off flush with the plates after concrete is set.



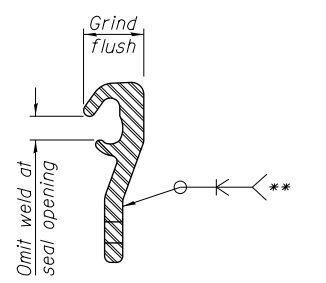
**SHOWING WELDED RAIL JOINT**



**ROLLED EXTRUDED RAIL**



**WELDED RAIL**



**LOCKING EDGE RAIL SPLICE**

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

**LOCKING EDGE RAILS**

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

**BILL OF MATERIAL**

Item	Unit	Total
Preformed Joint Strip Seal	Foot	124

Location	Length "A"	Length "B"
North Abutment	2"	2 7/8"
Pier 3	2 3/8"	3 1/4"
Pier 6	2"	2 7/8"
Existing Pier 2	1 5/8"	2 1/2"

**SECTION A-A**

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

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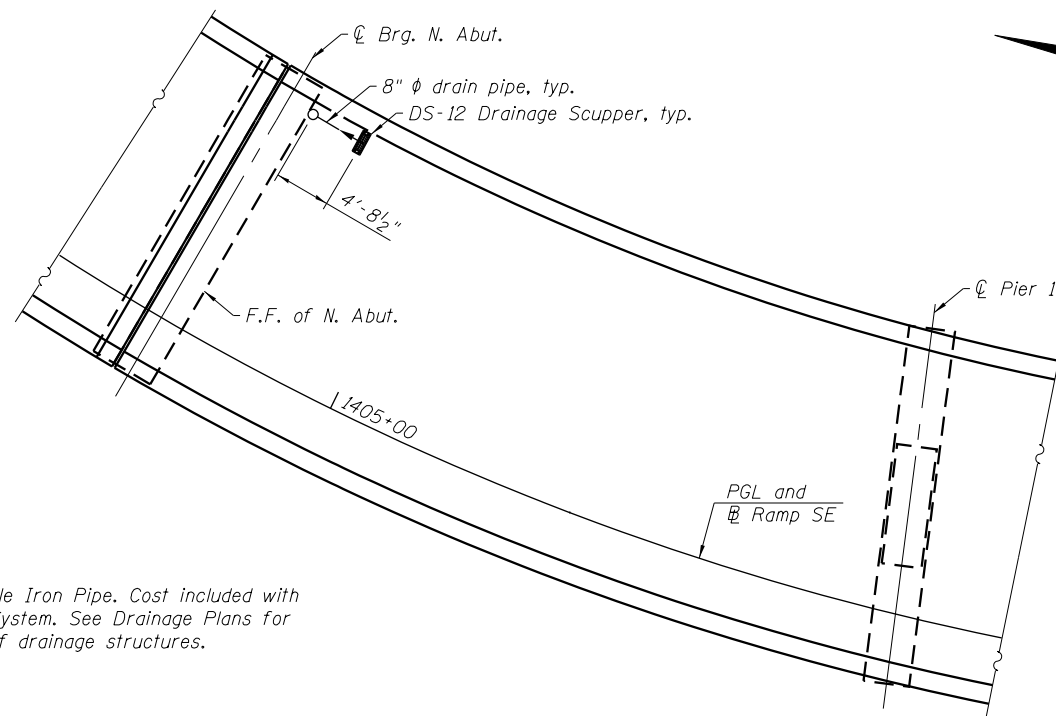
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**STATE OF ILLINOIS  
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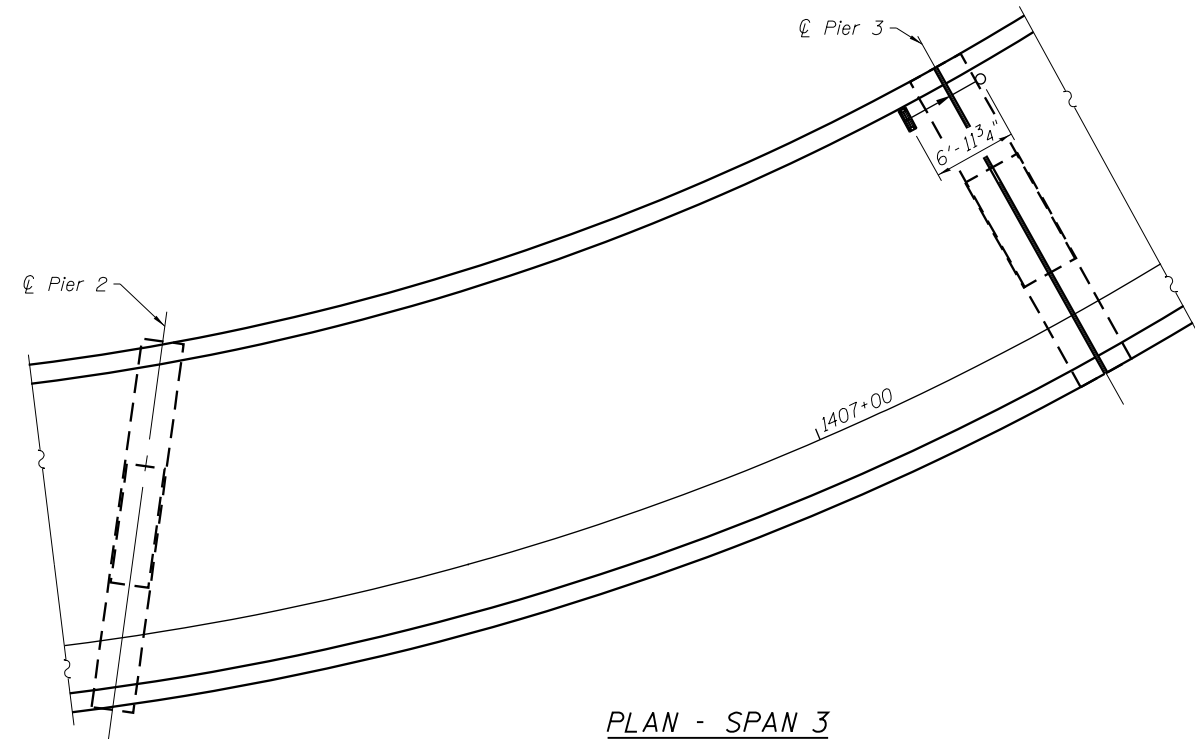
**EXPANSION JOINT DETAILS  
STRUCTURE NO. 016-1714**

SHEET NO. S2-32 OF S2-82 SHEETS

F.A.I. R.T.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013 R&B-R	COOK	1972	692
CONTRACT NO. 60X93			ILLINOIS FED. AID PROJECT	

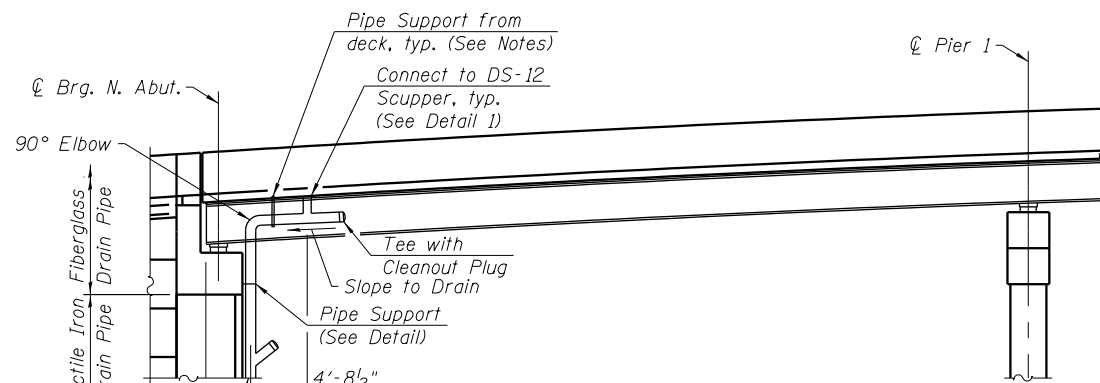


PLAN - SPAN 1



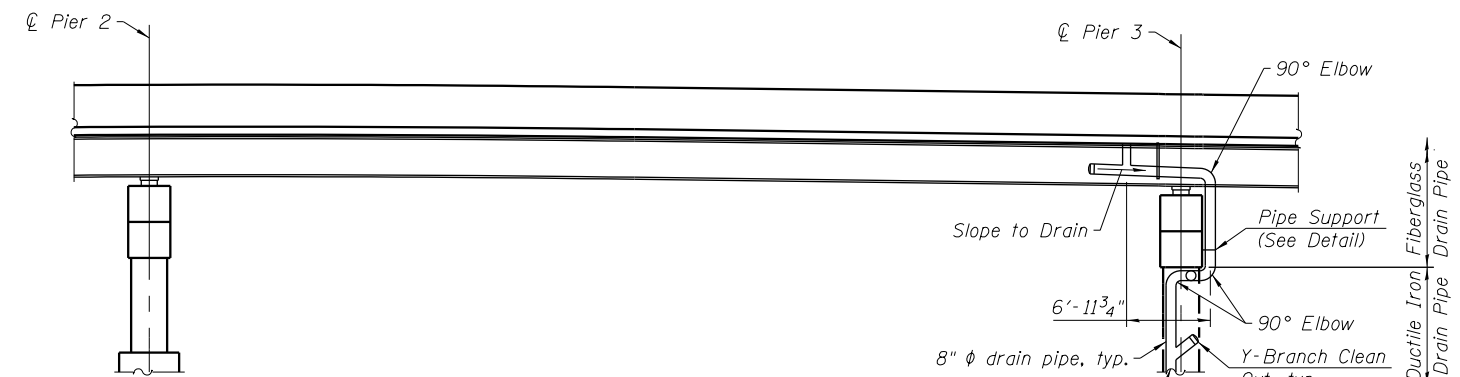
PLAN - SPAN 3

\*\*\*8"  $\phi$  Ductile Iron Pipe. Cost included with Drainage System. See Drainage Plans for locations of drainage structures.



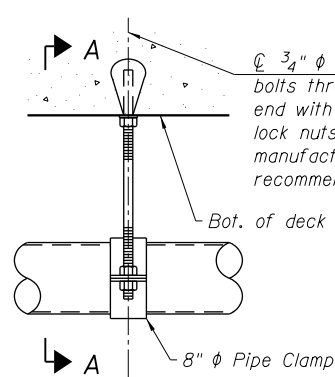
ELEVATION - SPAN 1

Connect to roadway drainage structure ES1100\*\*\*  
(Drainage System is located between Girders 1 & 2)

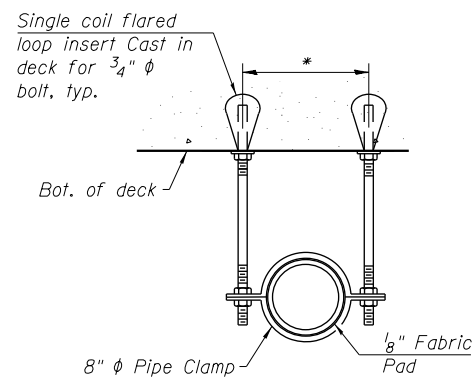


ELEVATION - SPAN 3

(Drainage System is located between Girders 1 & 2)  
Connect to existing roadway drainage structure ES1006\*\*\*

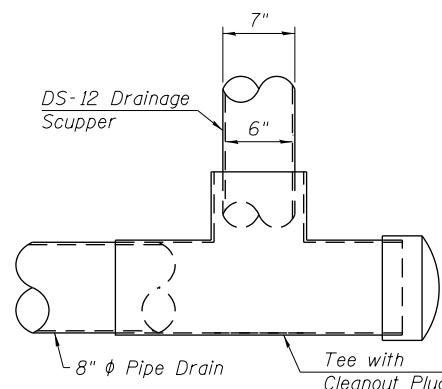


PIPE BRACKET DETAIL

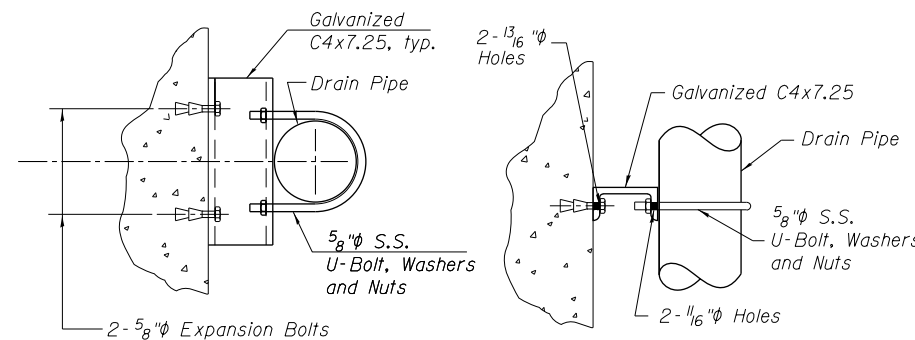


SECTION A-A

\* Dimension as required by Pipe Clamp



DETAIL 1



PLAN

ELEVATION

PIPE SUPPORT DETAIL

**LEGEND**

————> Indicates direction of flow

Notes:  
Provide structural support from proposed deck slab for drain pipe per manufacturer's recommendation, not to exceed 6' cts. Cost included with Drainage System.  
All pipes, pipe fittings, brackets, inserts, bolts, and splash blocks needed shall be included with cost of Drainage System.  
The drainage system shall be painted with a finish coat of gray, Munsell No. 5B 7/1. Cost included with Drainage System.  
For Bill of Material and typical pier elevation, see sheet S2-34 of S2-82.

10/17/14 AM 0161714-60X93-Drainage\_System1.dgn



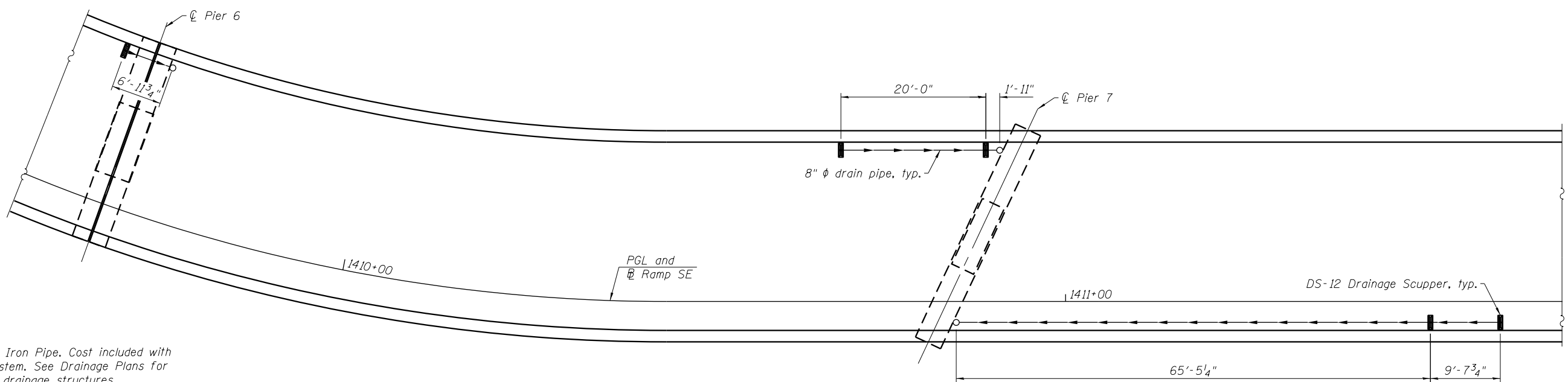
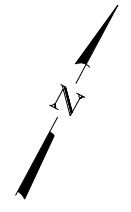
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STATE OF ILLINOIS  
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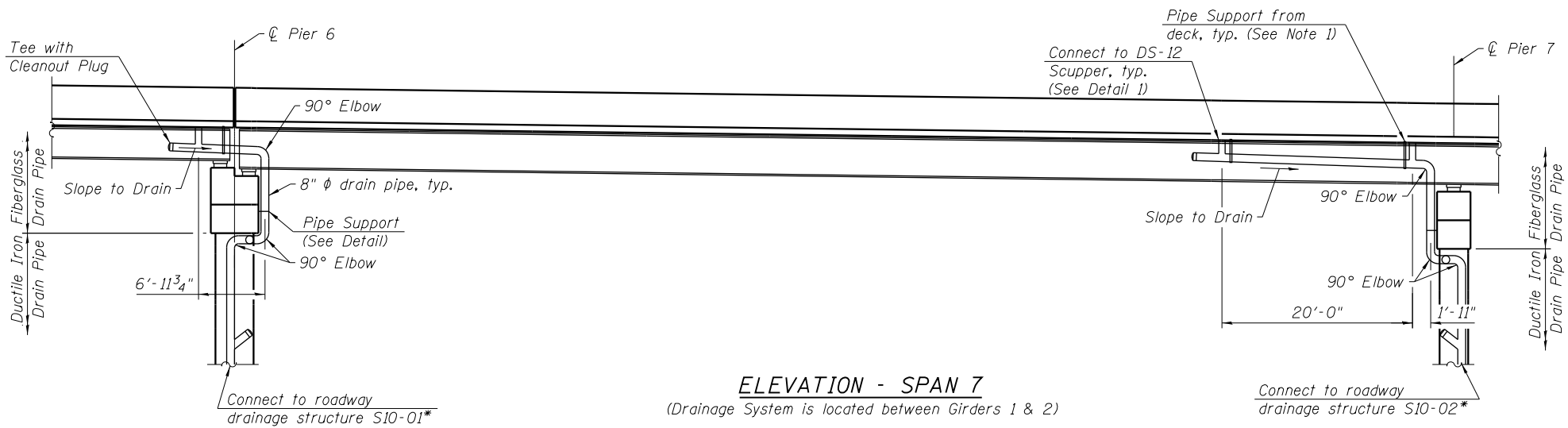
BRIDGE DRAINAGE SYSTEM 1  
STRUCTURE NO. 016-1714

SHEET NO. S2-33 OF S2-82 SHEETS

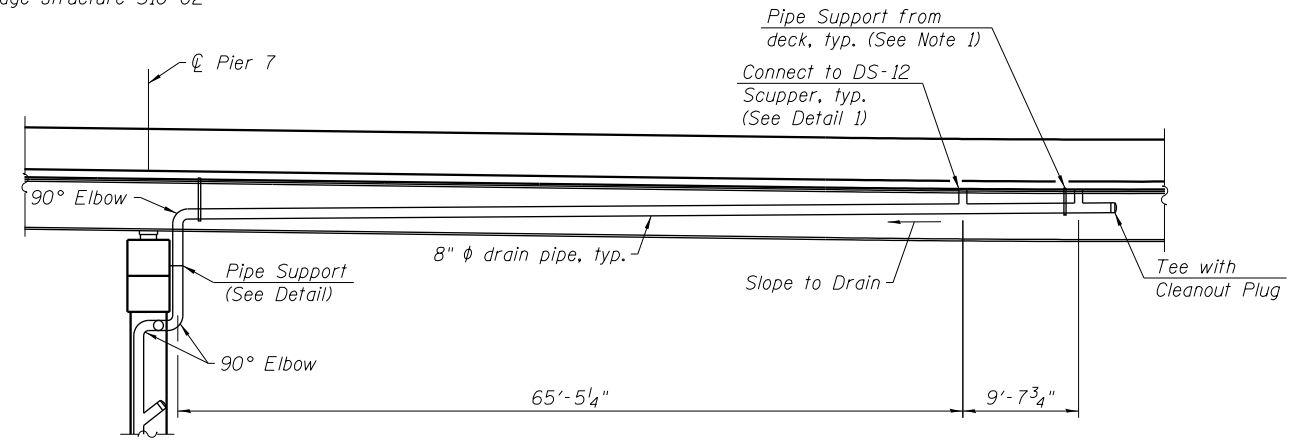
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013 R&B-R	COOK	1972	693
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				



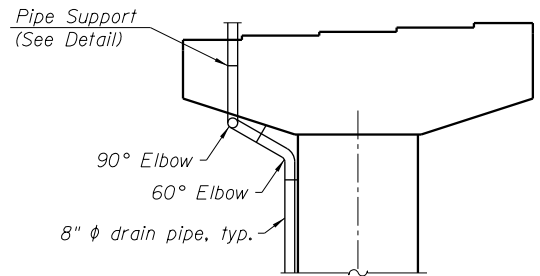
**PLAN - SPANS 7 & 8**



**ELEVATION - SPAN 7**  
(Drainage System is located between Girders 1 & 2)



**ELEVATION - SPAN 8**  
(Drainage System is located between Girders 4 & 5)



**TYPICAL PIER ELEVATION**

Notes:  
See Sheet S2-33 of S2-82 for notes, Detail 1, Pipe Support Detail, and Pipe Bracket Detail.

**LEGEND**  
→ Indicates direction of flow

**BILL OF MATERIAL**

Item	Unit	Quantity
Drainage System	L. Sum	0.1

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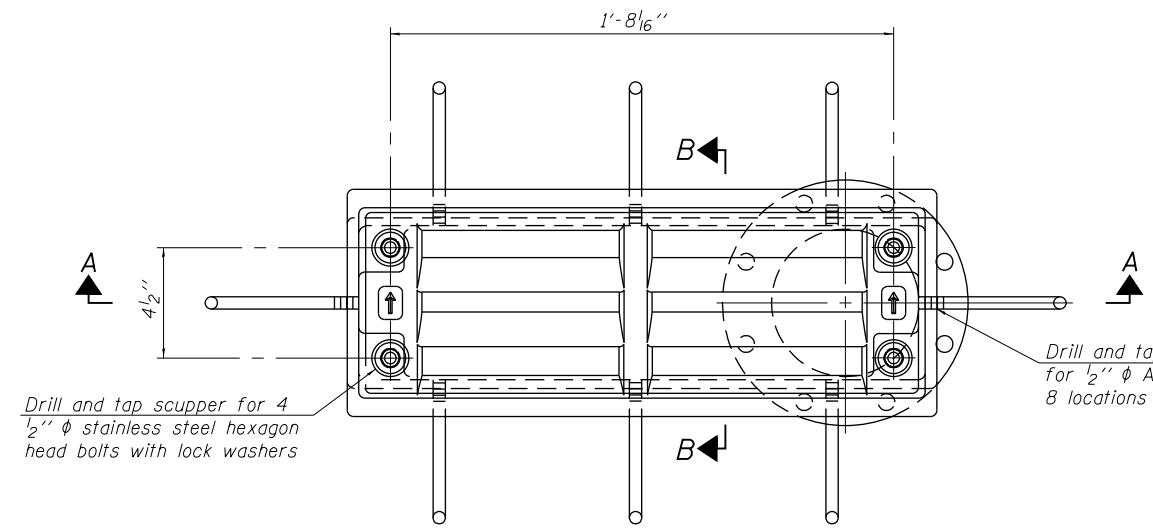
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PLOT DATE = 7/26/2018	CHECKED - WJC	REVISED

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**BRIDGE DRAINAGE SYSTEM 2  
STRUCTURE NO. 016-1714**

SHEET NO. S2-34 OF S2-82 SHEETS

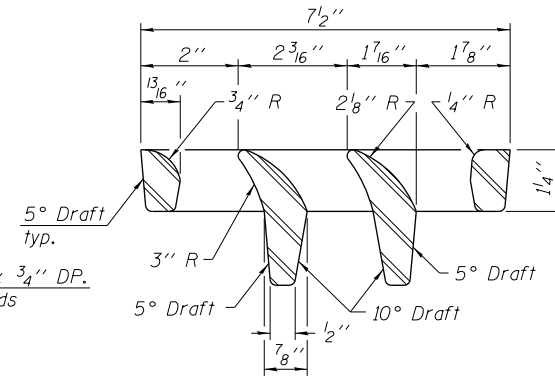
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CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				



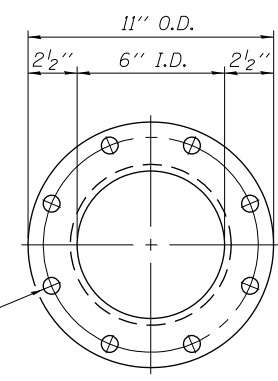
Drill and tap scupper for 4 1/2" φ stainless steel hexagon head bolts with lock washers

Drill and tap 1/2"-13 x 3/4" DP. for 1/2" φ Anchor Studs 8 locations

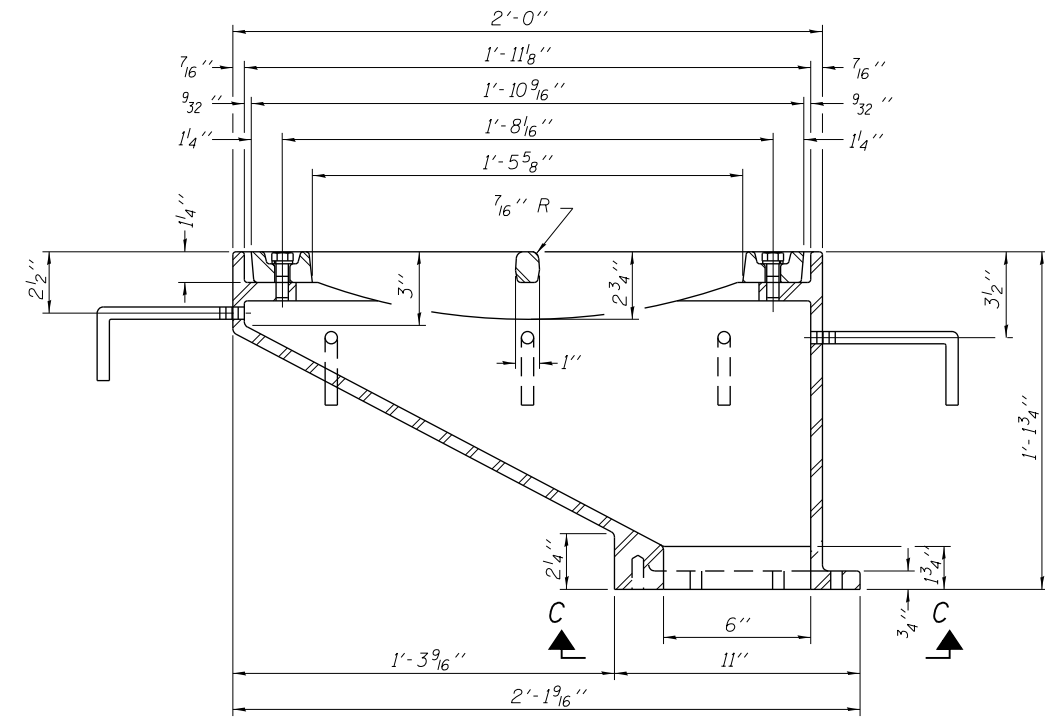
PLAN



VANE GRATE DETAIL

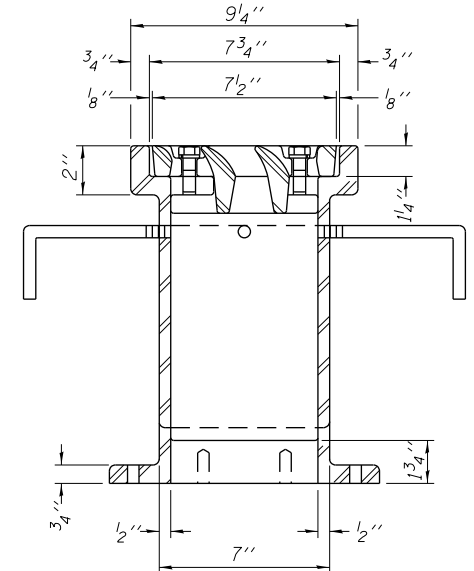


8- 9/16" φ holes on an 9 1/2" φ bolt circle

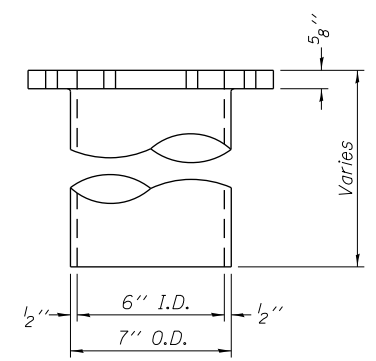


SECTION A-A

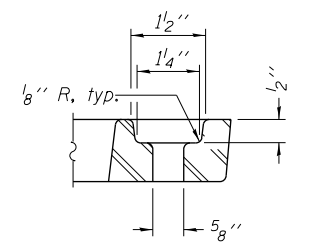
See Sheets S2-33 and S2-34 of S2-82 for scupper location relative to parapet.



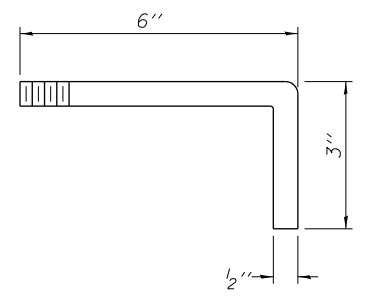
SECTION B-B



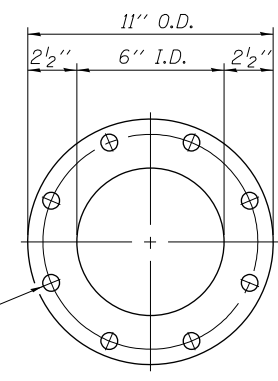
DOWNSPOUT



BOLT HOLE DETAIL



ANCHOR STUD DETAIL



VIEW C-C

Drill and tap 8 holes for 1/2"-13 bolts on a 9 1/2" φ bolt circle. (2 blind holes are 1 1/4" deep, 6 thru holes)

**Notes:**  
 All cast iron parts shall be gray iron conforming to the requirements of AASHTO M 105, Class 35B.  
 Bolts, anchor studs, washers and nuts shall conform to the requirements of ASTM A 307 and shall be galvanized according to AASHTO M 232.  
 Downspouts located on the exterior side of a painted steel fascia beam shall be painted with the finish coat specified for the exterior side of the fascia beam.  
 As an alternate, bolts, anchor studs, washers and nuts may be stainless steel according to Article 1006.29(d) of the Standard Specifications.  
 Structural steel weldments of equal sections and of the same configuration may be substituted for the cast iron scupper frame. Fillet or full penetration welds shall be used for the weldments. Details shall be submitted to the Engineer for approval. Structural steel weldments shall not be substituted for the cast iron scupper grate. Structural steel frames and downspouts shall be galvanized according to AASHTO M111.  
 The Contractor shall take appropriate measures to assure that Protective Coat is not applied to the scupper.  
 Cost of the Grate, Frame, Downspout, Anchor Studs, Bolts, Washers and Nuts including complete installation of the scupper shall be paid for at the contract unit price each for Drainage Scupper, DS-12.  
 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.

**BILL OF MATERIAL**

Item	Unit	Quantity
Drainage Scupper, DS-12	Each	7

5:40:49 PM 0161714-60X93-S035-Drainage\_Scupper.dgn



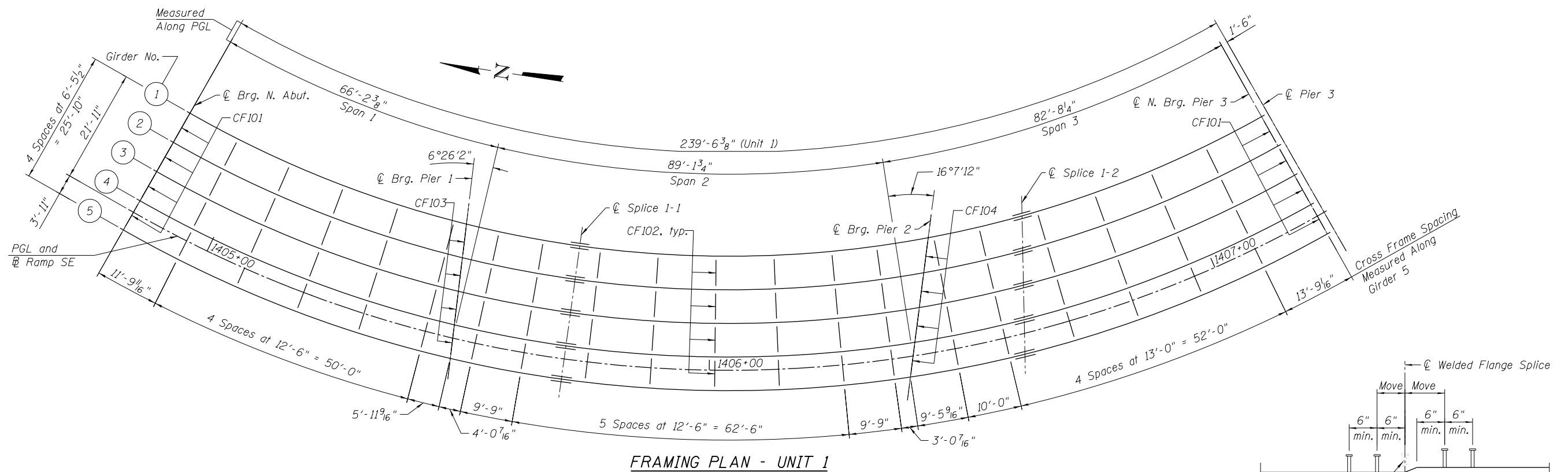
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**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

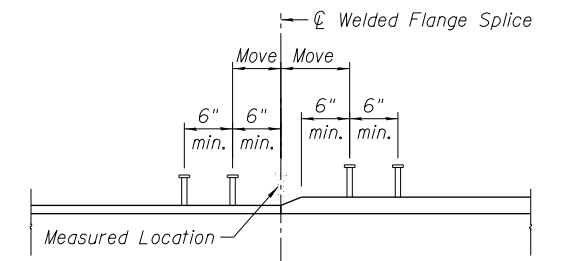
**DRAINAGE SCUPPER, DS-12  
 STRUCTURE NO. 016-1714**

SHEET NO. S2-35 OF S2-82 SHEETS

F.A.I. RE.:	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013 R&B-R	COOK	1972	695
			CONTRACT NO. 60X93	
ILLINOIS FED. AID PROJECT				

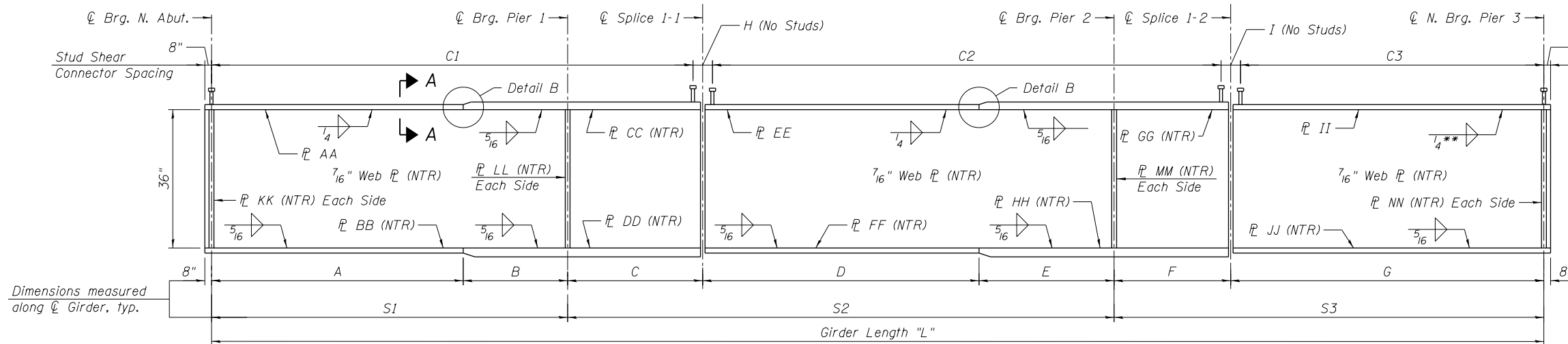


**FRAMING PLAN - UNIT 1**



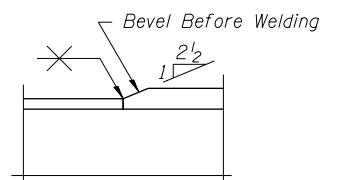
**SHEAR CONNECTOR DETAIL AT WELDED FLANGE SPLICE TRANSITIONS**

Do not place shear connectors on welded splice.  
Move row of studs to 6" beyond nearest edge of flange transition from measured location.



**GIRDER ELEVATION - UNIT 1**

\*\* Use 5/16" weld for Girders 4 and 5.



**DETAIL B**

**PLATE GIRDER DIMENSIONS - UNIT 1**

Girder	AA	BB	CC	DD	EE	FF	GG	HH	II	JJ	KK	LL	MM	NN
1, 2, 3	3/4"x14"	1"x14"	7/8"x14"	1/4"x14"	3/4"x14"	1"x14"	1/4"x14"	1 3/4"x14"	3/4"x14"	1/4"x14"	7/8"x6 1/2"	7/8"x6 1/2"	7/8"x6 1/2"	7/8"x6 1/2"
4, 5	3/4"x16"	1"x16"	7/8"x16"	1/4"x16"	3/4"x16"	1 1/8"x16"	1/2"x16"	2"x16"	1"x16"	1 3/4"x16"	7/8"x7 1/2"	7/8"x7 1/2"	7/8"x7 1/2"	7/8"x7 1/2"

**GIRDER DIMENSIONS - UNIT 1**

(All dimensions in feet)

Girder	Radius	L*	S1	S2	S3	A	B	C	D	E	F	G	H	I	C1	C2	C3
1	209.083	215.447	57.453	89.516	68.478	40.731	16.723	22.197	45.567	21.752	18.522	49.956	2'-7"	2'-7"	86 Spa. at 11"	84 Spa. at 12"	45 Spa. at 13"
2	215.542	222.102	60.034	89.397	72.671	41.989	18.045	22.077	45.439	21.881	19.511	53.160	2'-7"	2'-7"	108 Spa. at 9"	102 Spa. at 10"	63 Spa. at 10"
3	222.000	228.757	62.614	89.285	76.859	43.247	19.367	21.958	45.313	22.014	20.497	56.362	2'-7"	2'-7"	93 Spa. at 9"	93 Spa. at 11"	61 Spa. at 11"
4	228.458	235.412	65.193	89.178	81.041	44.505	20.688	21.839	45.190	22.149	21.481	59.561	3'-1"	3'-7"	114 Spa. at 9"	94 Spa. at 11"	64 Spa. at 11"
5	234.917	242.067	67.772	89.075	85.219	45.763	22.009	21.720	45.068	22.288	22.462	62.757	3'-1"	3'-7"	88 Spa. at 12"	75 Spa. at 14"	53 Spa. at 14"

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

**Notes:**

All structural steel shall be AASHTO M 270, Grade 50.  
Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.  
For Section A-A, see Sheet S2-38 of S2-82.  
For cross frame details, see Sheet S2-46 of S2-82.  
Girder spacings and cross frame orientations are radial to the Ramp SE, except at Brg. Pier 1 and Brg. Pier 2 where the Brg. and cross frame orientations are parallel to the respective centerline of supports.

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USER NAME = wjcolletti	DESIGNED - WJC	REVISED
PLOT SCALE = 21:4 in / in.	CHECKED - ZTW	REVISED
PLOT DATE = 7/26/2018	DRAWN - WJC	REVISED
	CHECKED - JRM	REVISED

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**GIRDER FRAMING PLAN - UNIT 1  
STRUCTURE NO. 016-1714**

SHEET NO. S2-36 OF S2-82 SHEETS

F.A.I. R.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013 R&B-R	COOK	1972	696
CONTRACT NO. 60X93			ILLINOIS FED. AID PROJECT	

EXTERIOR GIRDER 1 MOMENT TABLE - UNIT 1						
	0.4 Sp. 1	Pier 1	0.5 Sp. 2	Pier 2	0.6 Sp. 3	
$I_s$	(in <sup>4</sup> )	9,931	11,719	9,931	16,186	10,915
$I_c(n)$	(in <sup>4</sup> )	27,158	-	27,158	-	30,896
$I_c(3n)$	(in <sup>4</sup> )	19,350	-	19,350	-	21,615
$I_c(cr)$	(in <sup>4</sup> )	-	15,195	-	19,782	-
$S_s$	(in <sup>3</sup> )	572	687	572	931	673
$S_c(n)$	(in <sup>3</sup> )	820	-	820	-	958
$S_c(3n)$	(in <sup>3</sup> )	743	-	743	-	870
$S_c(cr)$	(in <sup>3</sup> )	-	766	-	1,007	-
$S_{xc}$	(in <sup>3</sup> )	33	41	33	57	41
DC1	(k/')	0.67	0.69	0.67	0.73	0.69
M <sub>DC1</sub>	(k)	104	404	234	547	149
DC2	(k/')	0.24	0.24	0.24	0.24	0.24
M <sub>DC2</sub>	(k)	45	178	97	213	60
DW	(k/')	0.26	0.26	0.26	0.26	0.26
M <sub>DW</sub>	(k)	34	120	73	150	51
$M_{\xi} + 1M$	(k)	564	750	683	882	673
$f_t$ (Strength I)	(k)	8.86	18.38	12.46	15.77	8.79
$M_u + 1/3 f_t S_{xc}$	(k)	1230	2240	1731	2744	1526
$\phi_f M_n$	(k)	-	-	-	-	-
$f_s$ DC1	(ksi)	2.17	7.05	4.91	7.05	2.65
$f_s$ DC2	(ksi)	0.73	2.79	1.57	2.53	0.83
$f_s$ DW	(ksi)	0.54	1.88	1.18	1.79	0.70
$f_s$ ( $\xi + 1M$ )	(ksi)	8.25	11.75	10.00	10.52	8.43
$f_t$ (Service II)	(ksi)	1.32	4.07	2.93	3.77	1.59
$f_s + 1/2$ (Service II)	(ksi)	14.83	29.02	22.13	26.93	15.94
0.95R <sub>n</sub> F <sub>yf</sub>	(ksi)	47.50	47.50	47.50	47.50	47.50
$f_s + 1/3$ (Total)(Strength I)	(ksi)	21.83	41.80	31.53	38.32	23.09
$\phi_f F_n$	(ksi)	50.00	50.00	50.00	50.00	50.00
V <sub>r</sub>	(k)	28.40	32.83	25.57	37.32	37.13

EXTERIOR GIRDER 5 MOMENT TABLE - UNIT 1						
	0.4 Sp. 1	Pier 1	0.5 Sp. 2	Pier 2	0.6 Sp. 3	
$I_s$	(in <sup>4</sup> )	11,100	13,139	11,675	21,358	16,256
$I_c(n)$	(in <sup>4</sup> )	29,281	-	31,368	-	41,225
$I_c(3n)$	(in <sup>4</sup> )	20,830	-	22,097	-	28,620
$I_c(cr)$	(in <sup>4</sup> )	-	16,671	-	24,969	-
$S_s$	(in <sup>3</sup> )	643	775	702	1,200	1,025
$S_c(n)$	(in <sup>3</sup> )	899	-	979	-	1,368
$S_c(3n)$	(in <sup>3</sup> )	817	-	889	-	1,246
$S_c(cr)$	(in <sup>3</sup> )	-	853	-	1,272	-
$S_{xc}$	(in <sup>3</sup> )	43	53	48	85	75
DC1	(k/')	0.69	0.71	0.70	0.78	0.75
M <sub>DC1</sub>	(k)	266	459	210	789	472
DC2	(k/')	0.24	0.24	0.24	0.24	0.24
M <sub>DC2</sub>	(k)	91	179	70	265	151
DW	(k/')	0.26	0.26	0.26	0.26	0.26
M <sub>DW</sub>	(k)	75	135	76	209	135
$M_{\xi} + 1M$	(k)	710	830	816	1,055	985
$f_t$ (Strength I)	(k)	11.23	17.49	10.48	14.45	9.83
$M_u + 1/3 f_t S_{xc}$	(k)	1815	2480	1906	3510	2726
$\phi_f M_n$	(k)	-	-	-	-	-
$f_s$ DC1	(ksi)	4.96	7.11	3.59	7.89	5.52
$f_s$ DC2	(ksi)	1.34	2.52	0.94	2.50	1.45
$f_s$ DW	(ksi)	1.11	1.90	1.03	1.97	1.30
$f_s$ ( $\xi + 1M$ )	(ksi)	9.47	11.68	10.01	9.95	8.64
$f_t$ (Service II)	(ksi)	2.69	3.86	2.29	3.94	3.16
$f_s + 1/2$ (Service II)	(ksi)	21.07	28.65	19.71	27.26	21.10
0.95R <sub>n</sub> F <sub>yf</sub>	(ksi)	47.50	47.50	47.50	47.50	47.50
$f_s + 1/3$ (Total)(Strength I)	(ksi)	29.85	41.16	28.21	38.17	29.08
$\phi_f F_n$	(ksi)	50.00	50.00	50.00	50.00	50.00
V <sub>r</sub>	(k)	30.18	34.98	30.14	33.85	30.86

INTERIOR GIRDER 3 MOMENT TABLE - UNIT 1						
	0.4 Sp. 1	Pier 1	0.5 Sp. 2	Pier 2	0.6 Sp. 3	
$I_s$	(in <sup>4</sup> )	9,931	11,719	9,931	16,186	10,915
$I_c(n)$	(in <sup>4</sup> )	29,109	-	29,109	-	33,269
$I_c(3n)$	(in <sup>4</sup> )	21,198	-	21,198	-	23,778
$I_c(cr)$	(in <sup>4</sup> )	-	16,160	-	20,808	-
$S_s$	(in <sup>3</sup> )	572	687	572	931	673
$S_c(n)$	(in <sup>3</sup> )	835	-	835	-	976
$S_c(3n)$	(in <sup>3</sup> )	764	-	764	-	894
$S_c(cr)$	(in <sup>3</sup> )	-	784	-	1,025	-
$S_{xc}$	(in <sup>3</sup> )	33	41	33	57	41
DC1	(k/')	0.83	0.85	0.83	0.89	0.84
M <sub>DC1</sub>	(k)	192	458	225	671	270
DC2	(k/')	0.24	0.24	0.24	0.24	0.24
M <sub>DC2</sub>	(k)	43	97	65	144	74
DW	(k/')	0.26	0.26	0.26	0.26	0.26
M <sub>DW</sub>	(k)	67	162	83	217	100
$M_{\xi} + 1M$	(k)	577	734	665	873	691
$f_t$ (Strength I)	(k)	10.80	19.53	12.71	17.69	11.02
$M_u + 1/3 f_t S_{xc}$	(k)	1413	2243	1662	2901	1803
$\phi_f M_n$	(k)	-	-	-	-	-
$f_s$ DC1	(ksi)	4.03	8.00	4.72	8.65	4.81
$f_s$ DC2	(ksi)	0.67	1.49	1.02	1.69	1.00
$f_s$ DW	(ksi)	1.05	2.48	1.31	2.54	1.34
$f_s$ ( $\xi + 1M$ )	(ksi)	8.29	11.23	9.55	10.22	8.50
$f_t$ (Service II)	(ksi)	2.32	4.42	2.88	4.54	2.74
$f_s + 1/2$ (Service II)	(ksi)	17.69	28.77	20.91	28.43	19.57
0.95R <sub>n</sub> F <sub>yf</sub>	(ksi)	47.50	47.50	47.50	47.50	47.50
$f_s + 1/3$ (Total)(Strength I)	(ksi)	25.55	41.74	30.09	40.51	27.82
$\phi_f F_n$	(ksi)	50.00	50.00	50.00	50.00	50.00
V <sub>r</sub>	(k)	27.97	37.66	23.89	29.30	26.15

EXTERIOR GIRDER 1 REACTION TABLE - UNIT 1					
	N. Abut.	Pier 1	Pier 2	N. Brg. Pier 3	
R <sub>DC1</sub>	(k)	12.1	62.2	71.8	14.3
R <sub>DC2</sub>	(k)	8.9	35.8	36.2	9.9
R <sub>DW</sub>	(k)	3.4	17.8	18.7	4.2
R $\xi + 1M$	(k)	53.8	114.0	121.4	58.6
R <sub>Total</sub>	(k)	78.1	229.8	248.2	87.0

INTERIOR GIRDER 3 REACTION TABLE - UNIT 1					
	N. Abut.	Pier 1	Pier 2	N. Brg. Pier 3	
R <sub>DC1</sub>	(k)	18.2	68.5	84.3	21.0
R <sub>DC2</sub>	(k)	1.8	8.6	13.5	2.7
R <sub>DW</sub>	(k)	6.5	24.9	29.0	7.5
R $\xi + 1M$	(k)	68.6	100.6	108.0	66.1
R <sub>Total</sub>	(k)	95.1	202.6	234.7	97.4

EXTERIOR GIRDER 5 REACTION TABLE - UNIT 1					
	N. Abut.	Pier 1	Pier 2	N. Brg. Pier 3	
R <sub>DC1</sub>	(k)	21.0	59.1	69.8	29.9
R <sub>DC2</sub>	(k)	11.1	31.6	33.4	13.8
R <sub>DW</sub>	(k)	5.9	16.6	18.4	8.2
R $\xi + 1M$	(k)	51.7	86.9	92.5	57.2
R <sub>Total</sub>	(k)	89.7	194.2	214.0	109.1

$I_s, S_s$ : 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.<sup>4</sup> and in.<sup>3</sup>).

$I_c(n), S_c(n)$ : 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.<sup>4</sup> and in.<sup>3</sup>).

$I_c(3n), S_c(3n)$ : 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.<sup>4</sup> and in.<sup>3</sup>).

$I_c(cr), S_c(cr)$ : 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.<sup>4</sup> and in.<sup>3</sup>).

$S_{xc}$ : 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.<sup>3</sup>).

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

M<sub>DC1</sub>: 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<sub>DC2</sub>: 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<sub>DW</sub>: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).

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

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

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

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

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

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

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

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

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

0.95R<sub>n</sub>F<sub>yf</sub>: Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

$f_s + 1/3$  (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).  
 $1.25 (f_s DC1 + f_s DC2) + 1.5 f_s DW + 1.75 f_s (\xi + 1M) + 1/3$

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

V<sub>r</sub>: Maximum factored shear range in span computed according to Article 6.10.10.

Note:  
 $M_{\xi}$  and  $R_{\xi}$  include the effects of centrifugal force and superelevation.

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	CHECKED - ZTW	REVISED
PLOT SCALE = 0:2.0000 " = 1 in.	DRAWN - WJC	REVISED
PLOT DATE = 7/26/2018	CHECKED - JRM	REVISED

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL DETAILS 1 - UNIT 1  
STRUCTURE NO. 016-1714

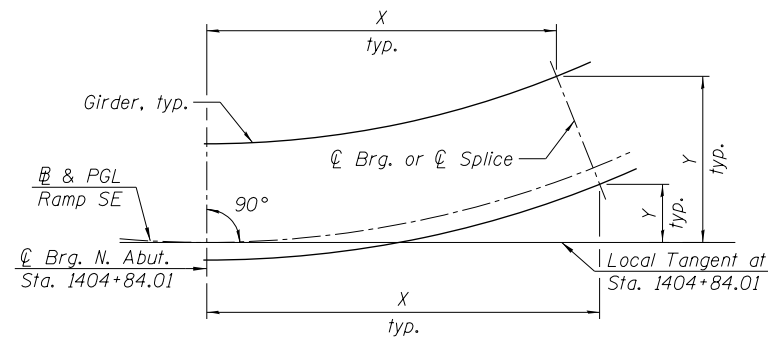
SHEET NO. S2-37 OF S2-82 SHEETS

F.A.I. R.T.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013 R&B-R	COOK	1972	697
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				

### GIRDER COORDINATES - UNIT 1

(All dimensions in feet)

Girder	☐ Brg. N. Abut.		☐ Brg. Pier 1		☐ Splice 1-1		☐ Brg. Pier 2		☐ Splice 1-2		☐ N. Brg. Pier 3	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
1	0.000	21.917	56.733	29.761	77.738	36.906	135.162	71.479	148.745	84.062	179.294	123.439
2	0.000	15.458	59.260	23.765	80.139	30.910	137.745	65.215	152.168	78.346	184.832	120.116
3	0.000	9.000	61.787	17.771	82.541	24.915	140.320	58.970	155.584	72.640	190.370	116.794
4	0.000	2.542	64.312	11.781	84.942	18.920	142.889	52.742	158.994	66.945	195.909	113.471
5	0.000	-3.917	66.836	5.792	87.343	12.924	145.451	46.528	162.399	61.258	201.447	110.149



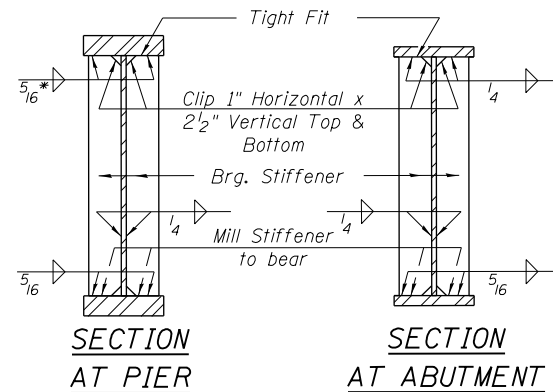
### CURVED GIRDER LAYOUT

(X Measured along Local Tangent)

### TOP OF WEB ELEVATIONS - UNIT 1

(For fabrication use only)

Girder	☐ Brg. N. Abut.	☐ Brg. Pier 1	☐ Splice 1-1	☐ Brg. Pier 2	☐ Splice 1-2	☐ N. Brg. Pier 3
1	601.18	604.37	605.10	605.42	605.10	604.34
2	601.54	604.77	605.46	605.81	605.50	604.70
3	601.90	605.15	605.81	606.20	605.90	605.06
4	602.26	605.54	606.16	606.56	606.27	605.40
5	602.62	605.93	606.52	606.94	606.67	605.76



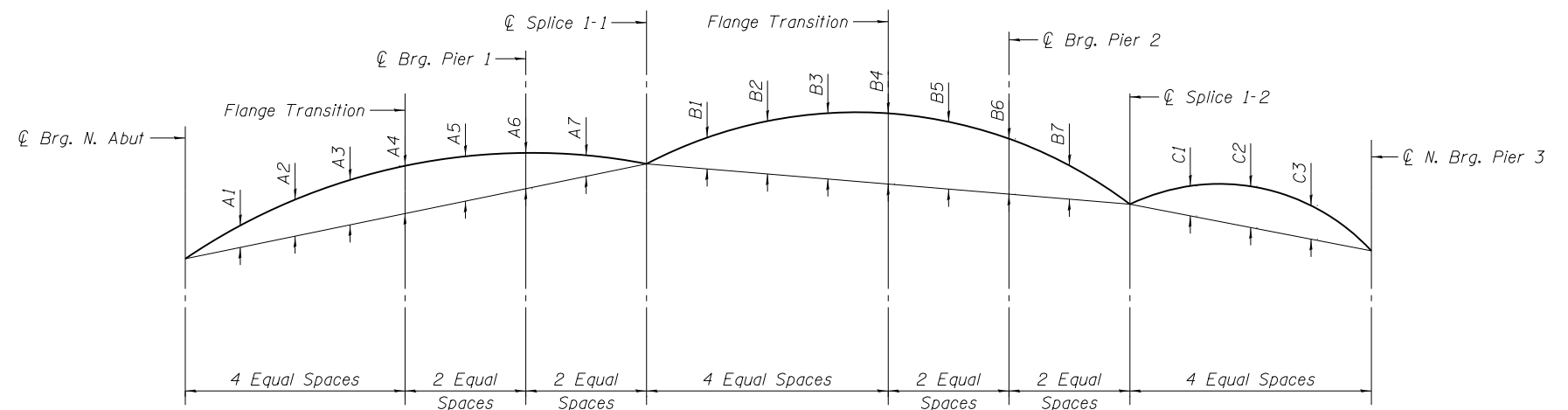
SECTION AT PIER

SECTION AT ABUTMENT

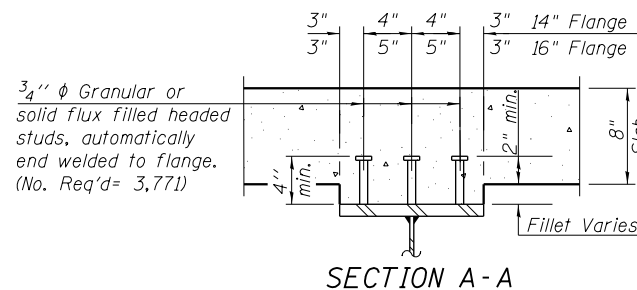
\* Use 1/4" weld for Girders 1 through 3 at Pier 3.

### CAMBER TABLE - UNIT 1

Girder	A1	A2	A3	A4	A5	A6	A7	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3
1	2 5/8"	4 1/2"	5 1/2"	5 5/8"	5 1/4"	4 3/8"	2 7/8"	3 7/8"	6"	6 7/8"	6 1/2"	5 5/8"	3 7/8"	2 1/8"	0"	0"	0"
2	2 3/4"	4 5/8"	5 5/8"	5 3/4"	5 1/4"	4 3/8"	2 3/4"	3 3/4"	5 3/4"	6 3/4"	6 1/4"	5 3/8"	3 7/8"	2 5/8"	0"	0"	0"
3	2 3/4"	4 3/4"	5 3/4"	5 7/8"	5 1/4"	4 1/4"	2 3/4"	3 1/2"	5 1/2"	6 1/8"	6"	5 1/4"	3 7/8"	2 1/4"	0"	0"	0"
4	2 7/8"	4 7/8"	5 7/8"	6"	5 3/8"	4 1/4"	2 5/8"	3 3/8"	5 3/8"	5 5/8"	5"	3 3/4"	2 5/8"	1"	1 1/4"	3/4"	
5	2 7/8"	5"	6"	6 1/8"	5 1/2"	4 1/4"	2 5/8"	3"	4 7/8"	5 3/8"	5 1/4"	4 3/4"	3 3/4"	2 1/4"	1 1/4"	1 1/2"	7/8"



### CAMBER DIAGRAM - UNIT 1



SECTION A-A

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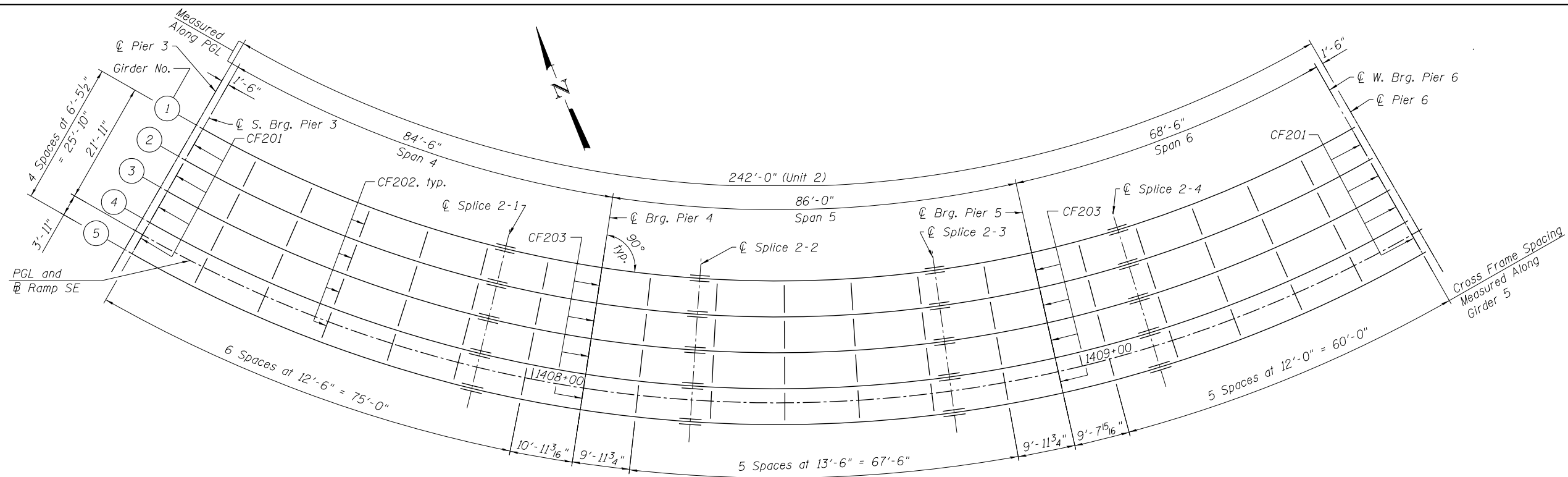
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL DETAILS 2 - UNIT 1  
STRUCTURE NO. 016-1714

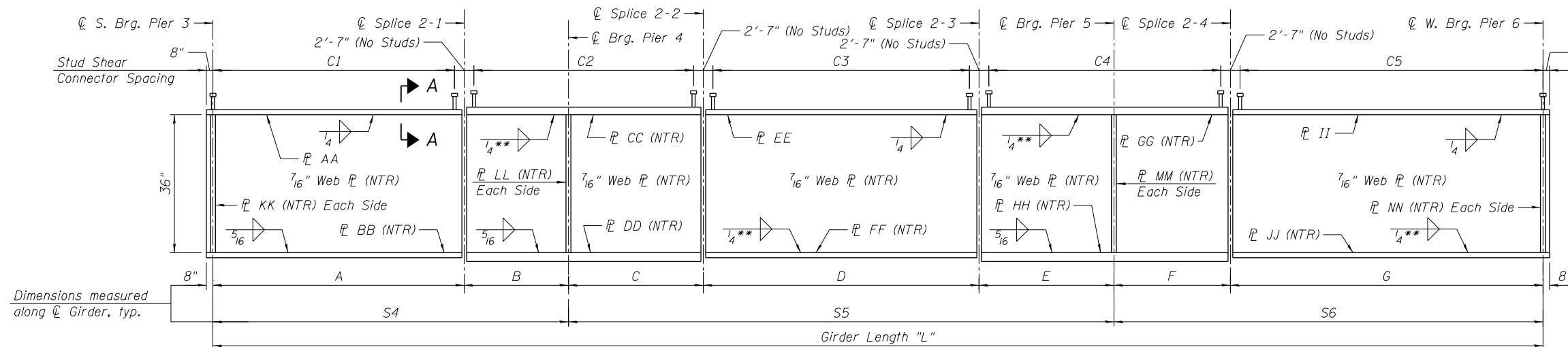
SHEET NO. S2-38 OF S2-82 SHEETS

F.A.I. RTE. 90/94/290	SECTION 2014-013 R&B-R	COUNTY COOK	TOTAL SHEETS 1972	SHEET NO. 698
CONTRACT NO. 60X93				ILLINOIS FED. AID PROJECT





FRAMING PLAN - UNIT 2



GIRDER ELEVATION - UNIT 2

PLATE GIRDER DIMENSIONS - UNIT 2

Girder	AA	BB	CC	DD	EE	FF	GG	HH	II	JJ	KK	LL	MM	NN
1, 2, 3	3/4"x14"	7/8"x14"	3/4"x14"	1 3/8"x14"	3/4"x14"	3/4"x14"	3/4"x14"	1"x14"	3/4"x14"	3/4"x14"	7/8"x6 1/2"	7/8"x6 1/2"	7/8"x6 1/2"	7/8"x6 1/2"
4, 5	3/4"x16"	2 3/8"x16"	7/8"x16"	2"x16"	3/4"x16"	1 1/4"x16"	7/8"x16"	1 1/4"x16"	3/4"x16"	1 1/8"x16"	7/8"x7 1/2"	7/8"x7 1/2"	7/8"x7 1/2"	7/8"x7 1/2"

Notes:  
 All structural steel shall be AASHTO M 270, Grade 50.  
 Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.  
 For Section A-A, see Sheet S2-41 of S2-82.  
 For cross frame details, see Sheet S2-46 of S2-82.  
 Girder spacings and cross frame orientations are radial to the Ramp SE.

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

GIRDER DIMENSIONS - UNIT 2

(All dimensions in feet)

Girder	Radius	L*	S4	S5	S6	A	B	C	D	E	F	G	C1	C2	C3	C4	C5
1	209.083	216.324	76.483	77.841	62.001	58.758	17.725	17.725	42.390	17.725	16.066	45.935	54 Spa. at 13"	33 Spa. at 12"	40 Spa. at 12"	32 Spa. at 12"	45 Spa. at 12"
2	215.542	223.006	78.845	80.245	63.916	60.573	18.273	18.273	43.699	18.273	16.562	47.354	60 Spa. at 12"	41 Spa. at 10"	50 Spa. at 10"	39 Spa. at 10"	56 Spa. at 10"
3	222.000	229.688	81.208	82.649	65.831	62.387	18.820	18.820	45.009	18.820	17.058	48.773	62 Spa. at 12"	39 Spa. at 11"	47 Spa. at 11"	40 Spa. at 10"	57 Spa. at 10"
4	228.458	236.370	83.570	85.054	67.746	64.202	19.368	19.368	46.318	19.368	17.555	50.192	63 Spa. at 12"	44 Spa. at 10"	53 Spa. at 10"	42 Spa. at 10"	59 Spa. at 10"
5	234.917	243.052	85.933	87.458	69.661	66.017	19.915	19.915	47.627	19.915	18.051	51.610	60 Spa. at 13"	32 Spa. at 14"	39 Spa. at 14"	36 Spa. at 12"	47 Spa. at 13"

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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

GIRDER FRAMING PLAN - UNIT 2  
STRUCTURE NO. 016-1714

SHEET NO. S2-39 OF S2-82 SHEETS

F.A.I. R.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013 R&B-R	COOK	1972	699
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				

EXTERIOR GIRDER 1 MOMENT TABLE - UNIT 2						
	0.4 Sp. 4	Pier 4	0.5 Sp. 5	Pier 5	0.6 Sp. 6	
$I_s$	(in <sup>4</sup> )	9,384	11,361	8,792	9,931	8,792
$I_c(n)$	(in <sup>4</sup> )	25,209	-	23,204	-	23,204
$I_c(3n)$	(in <sup>4</sup> )	18,133	-	16,852	-	16,852
$I_c(cr)$	(in <sup>4</sup> )	-	15,219	-	13,223	-
$S_s$	(in <sup>3</sup> )	521	723	469	572	469
$S_c(n)$	(in <sup>3</sup> )	750	-	681	-	681
$S_c(3n)$	(in <sup>3</sup> )	679	-	615	-	615
$S_c(cr)$	(in <sup>3</sup> )	-	816	-	648	-
$S_{xc}$	(in <sup>3</sup> )	29	45	25	33	25
DC1	(k/')	0.67	0.69	0.66	0.67	0.66
M <sub>DC1</sub>	(k)	236	463	157	344	163
DC2	(k/')	0.24	0.24	0.24	0.24	0.24
M <sub>DC2</sub>	(k)	92	206	66	162	70
DW	(k/')	0.26	0.26	0.26	0.26	0.26
M <sub>DW</sub>	(k)	79	147	47	106	53
$M_{\xi} + 1M$	(k)	743	887	638	754	600
$f_t$ (Strength I)	(k)	15.15	25.21	14.16	20.40	13.72
$M_u + 1/3 f_t S_{xc}$	(k)	1841	2640	1475	2130	1429
$\phi_r M_n$	(k)	-	-	-	-	-
$f_s$ DC1	(ksi)	5.43	7.69	4.01	7.23	4.18
$f_s$ DC2	(ksi)	1.63	3.03	1.29	3.00	1.36
$f_s$ DW	(ksi)	1.40	2.16	0.91	1.97	1.03
$f_s$ ( $\xi + 1M$ )	(ksi)	11.88	13.04	11.26	13.96	10.58
$f_t$ (Service II)	(ksi)	3.38	4.30	2.60	4.44	2.76
$f_s + 1/2$ (Service II)	(ksi)	25.61	31.98	22.14	32.56	21.70
0.95R <sub>n</sub> F <sub>yt</sub>	(ksi)	47.50	47.50	47.50	47.50	47.50
$f_s + 1/3$ (Total)(Strength I)	(ksi)	36.78	47.86	32.41	46.96	31.55
$\phi_r F_n$	(ksi)	50.00	50.00	50.00	50.00	50.00
V <sub>r</sub>	(k)	28.40	32.83	25.57	37.32	37.13

EXTERIOR GIRDER 5 MOMENT TABLE - UNIT 2						
	0.4 Sp. 4	Pier 4	0.5 Sp. 5	Pier 5	0.6 Sp. 6	
$I_s$	(in <sup>4</sup> )	15,827	16,041	12,210	13,139	11,675
$I_c(n)$	(in <sup>4</sup> )	49,290	-	33,392	-	31,368
$I_c(3n)$	(in <sup>4</sup> )	32,032	-	23,301	-	22,097
$I_c(cr)$	(in <sup>4</sup> )	-	20,575	-	16,671	-
$S_s$	(in <sup>3</sup> )	1,252	1,119	760	775	702
$S_c(n)$	(in <sup>3</sup> )	1,758	-	1,058	-	979
$S_c(3n)$	(in <sup>3</sup> )	1,592	-	962	-	889
$S_c(cr)$	(in <sup>3</sup> )	-	1,231	-	853	-
$S_{xc}$	(in <sup>3</sup> )	101	85	53	53	48
DC1	(k/')	0.77	0.76	0.71	0.71	0.70
M <sub>DC1</sub>	(k)	611	733	178	459	321
DC2	(k/')	0.24	0.24	0.24	0.24	0.24
M <sub>DC2</sub>	(k)	163	257	66	193	102
DW	(k/')	0.26	0.26	0.26	0.26	0.26
M <sub>DW</sub>	(k)	166	198	59	135	94
$M_{\xi} + 1M$	(k)	1,083	1,001	798	841	760
$f_t$ (Strength I)	(k)	8.17	23.42	9.62	17.74	11.07
$M_u + 1/3 f_t S_{xc}$	(k)	3136	3342	1804	2515	2013
$\phi_r M_n$	(k)	-	-	-	-	-
$f_s$ DC1	(ksi)	5.86	7.86	2.80	7.10	5.49
$f_s$ DC2	(ksi)	1.23	2.50	0.83	2.71	1.37
$f_s$ DW	(ksi)	1.25	1.93	0.73	1.90	1.26
$f_s$ ( $\xi + 1M$ )	(ksi)	7.39	9.76	9.06	11.83	9.32
$f_t$ (Service II)	(ksi)	2.47	3.70	2.28	3.92	2.90
$f_s + 1/2$ (Service II)	(ksi)	19.19	26.83	17.27	29.05	21.68
0.95R <sub>n</sub> F <sub>yt</sub>	(ksi)	47.50	47.50	47.50	47.50	47.50
$f_s + 1/3$ (Total)(Strength I)	(ksi)	26.40	40.73	24.69	41.73	30.46
$\phi_r F_n$	(ksi)	50.00	50.00	50.00	50.00	50.00
V <sub>r</sub>	(k)	30.18	34.98	30.14	33.85	30.86

INTERIOR GIRDER 3 MOMENT TABLE - UNIT 2						
	0.4 Sp. 4	Pier 4	0.5 Sp. 5	Pier 5	0.6 Sp. 6	
$I_s$	(in <sup>4</sup> )	9,384	11,361	8,792	9,931	8,792
$I_c(n)$	(in <sup>4</sup> )	26,958	-	24,756	-	24,756
$I_c(3n)$	(in <sup>4</sup> )	19,821	-	18,380	-	18,380
$I_c(cr)$	(in <sup>4</sup> )	-	16,290	-	14,122	-
$S_s$	(in <sup>3</sup> )	521	723	469	572	469
$S_c(n)$	(in <sup>3</sup> )	765	-	694	-	694
$S_c(3n)$	(in <sup>3</sup> )	699	-	633	-	633
$S_c(cr)$	(in <sup>3</sup> )	-	837	-	665	-
$S_{xc}$	(in <sup>3</sup> )	29	45	25	33	25
DC1	(k/')	0.82	0.85	0.82	0.83	0.82
M <sub>DC1</sub>	(k)	336	560	158	397	226
DC2	(k/')	0.24	0.24	0.24	0.24	0.24
M <sub>DC2</sub>	(k)	88	121	37	80	56
DW	(k/')	0.26	0.26	0.26	0.26	0.26
M <sub>DW</sub>	(k)	107	193	56	145	78
$M_{\xi} + 1M$	(k)	615	789	594	702	544
$f_t$ (Strength I)	(k)	15.56	25.88	14.02	20.94	14.59
$M_u + 1/3 f_t S_{xc}$	(k)	1781	2554	1375	2059	1432
$\phi_r M_n$	(k)	-	-	-	-	-
$f_s$ DC1	(ksi)	7.75	9.30	4.04	8.33	5.79
$f_s$ DC2	(ksi)	1.52	1.74	0.69	1.44	1.05
$f_s$ DW	(ksi)	1.84	2.77	1.06	2.61	1.48
$f_s$ ( $\xi + 1M$ )	(ksi)	9.66	11.31	10.26	12.66	9.41
$f_t$ (Service II)	(ksi)	4.68	4.90	2.57	4.78	3.69
$f_s + 1/2$ (Service II)	(ksi)	26.01	30.96	20.43	31.23	22.40
0.95R <sub>n</sub> F <sub>yt</sub>	(ksi)	47.50	47.50	47.50	47.50	47.50
$f_s + 1/3$ (Total)(Strength I)	(ksi)	36.44	46.37	30.15	45.26	32.11
$\phi_r F_n$	(ksi)	50.00	50.00	50.00	50.00	50.00
V <sub>r</sub>	(k)	27.97	37.66	23.89	29.30	26.15

EXTERIOR GIRDER 1 REACTION TABLE - UNIT 2					
	S. Brg. Pier 3	Pier 4	Pier 5	W. Brg. Pier 6	
R <sub>DC1</sub>	(k)	17.0	68.4	58.0	14.5
R <sub>DC2</sub>	(k)	11.2	39.5	35.2	9.9
R <sub>DW</sub>	(k)	5.6	20.6	17.1	4.4
R $\xi + 1M$	(k)	63.1	117.0	110.5	55.1
R <sub>Total</sub>	(k)	96.9	245.5	220.8	84.0

INTERIOR GIRDER 3 REACTION TABLE - UNIT 2					
	S. Brg. Pier 3	Pier 4	Pier 5	W. Brg. Pier 6	
R <sub>DC1</sub>	(k)	22.8	74.8	62.7	19.2
R <sub>DC2</sub>	(k)	2.8	9.9	7.5	2.2
R <sub>DW</sub>	(k)	7.1	25.9	22.9	6.7
R $\xi + 1M$	(k)	65.8	101.4	97.7	60.5
R <sub>Total</sub>	(k)	98.5	212.0	190.8	88.6

EXTERIOR GIRDER 5 REACTION TABLE - UNIT 2					
	S. Brg. Pier 3	Pier 4	Pier 5	W. Brg. Pier 6	
R <sub>DC1</sub>	(k)	34.9	75.5	60.5	23.4
R <sub>DC2</sub>	(k)	14.3	37.1	33.3	11.5
R <sub>DW</sub>	(k)	9.2	19.9	16.8	6.6
R $\xi + 1M$	(k)	59.1	91.0	84.2	51.4
R <sub>Total</sub>	(k)	117.5	223.6	194.7	93.0

$I_s, S_s$ : 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.<sup>4</sup> and in.<sup>3</sup>).

$I_c(n), S_c(n)$ : 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.<sup>4</sup> and in.<sup>3</sup>).

$I_c(3n), S_c(3n)$ : 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.<sup>4</sup> and in.<sup>3</sup>).

$I_c(cr), S_c(cr)$ : 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.<sup>4</sup> and in.<sup>3</sup>).

$S_{xc}$ : 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.<sup>3</sup>).

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

M<sub>DC1</sub>: 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<sub>DC2</sub>: 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<sub>DW</sub>: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).

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

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

$f_t$ : 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.).

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

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

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

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

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

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

0.95R<sub>n</sub>F<sub>yt</sub>: Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

$f_s + 1/3$  (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).  
 $1.25 (f_s DC1 + f_s DC2) + 1.5 f_s DW + 1.75 f_s (\xi + 1M) + 1/3$

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

V<sub>r</sub>: Maximum factored shear range in span computed according to Article 6.10.10.

Note:  
 $M_{\xi}$  and  $R_{\xi}$  include the effects of centrifugal force and superelevation.

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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL DETAILS 1 - UNIT 2  
STRUCTURE NO. 016-1714

F.A.I. R.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013 R&B-R	COOK	1972	700
CONTRACT NO. 60X93				
ILLINOIS FED. AID PROJECT				

SHEET NO. S2-40 OF S2-82 SHEETS