

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
841	(34)BR-1	PERRY	33	1
		ILLINOIS	CONTRACT NO. 78156	

INDEX OF SHEETS

- 1 COVER SHEET, INDEX PF SHEETS
- 2 SIGNATURES, GENERAL NOTES, MIXTURE REQUIREMENTS, AND STANDARDS
- 3-7 SUMMARY OF QUANTITIES
- 8 TYPICAL SECTION
- 9 SCHEDULES OF QUANTITIES
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- 14-29 STRUCTURE PLANS
- 30-33 CROSS-SECTIONS

**PROPOSED  
HIGHWAY PLANS**

FAP ROUTE 841 (IL 154)  
SECTION (34)BR-1  
STRUCTURE NO. 073-0027  
OVER REESE CREEK  
SUPER STRUCTURE REPLACEMENT  
PERRY COUNTY  
C-99-010-10

NHPP-0841(016)

TRAFFIC DATA

2015 ADT = 2850 WITH 14.74 % TRUCKS

TOWNSHIP

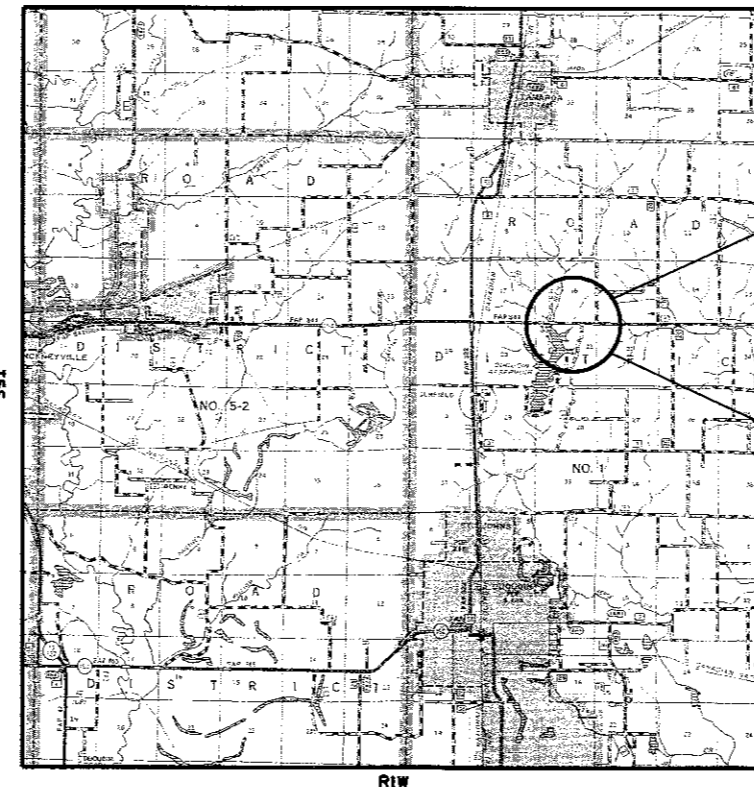
COUNTY UNIT ROAD DISTRICT

DESIGN DESIGNATION: NA  
COORDINATE SYSTEM: ILLINOIS COORDINATE SYSTEM, WEST ZONE  
POSTED SPEED: 55 MPH

J.U.L.I.E.  
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION  
1-800-892-0123  
OR 811

PROJECT ENGINEER: DAVID PICHE (618) 351-5227  
PROJECT DESIGNER: BILL PORTER (618) 351-5224

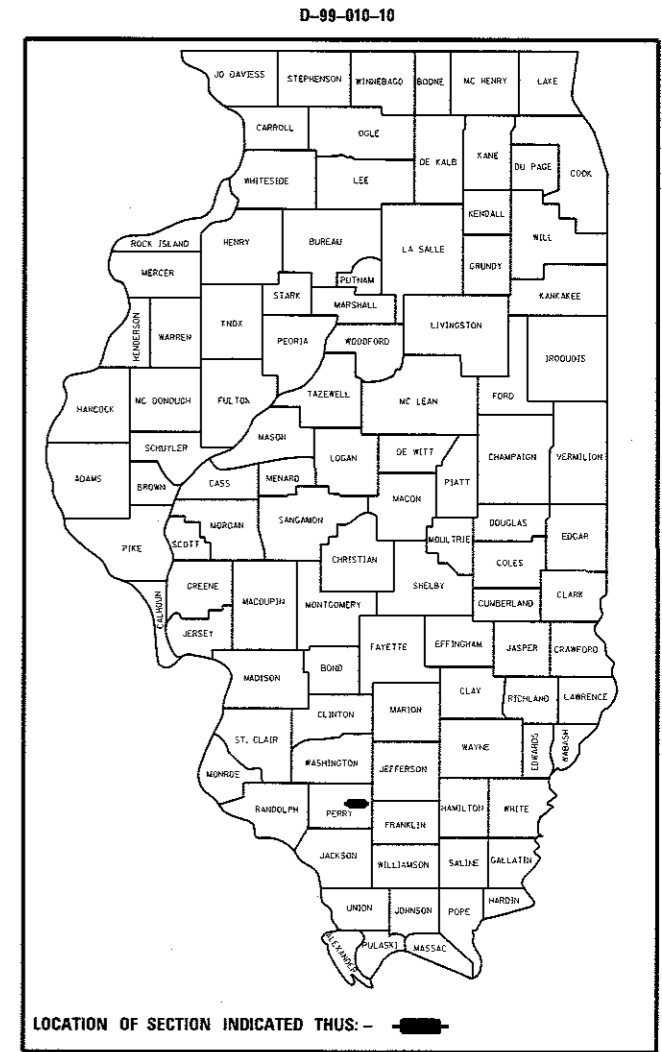
CONTRACT NO. 78156



⊕ EXISTING S.N. 073-0027  
STA 64+67.50  
83'-0" BK TO BK ABUTS, 0° SKEW  
33'-4" CLEAR WIDTH  
35'-0" OUT TO OUT

⊕ PROPOSED S.N. 073-0027  
STA 64+67.50  
83'-0" BK TO BK ABUTS, 0° SKEW  
34'-0" CLEAR WIDTH  
34'-0" OUT TO OUT

GROSS LENGTH = 160.0 FT. = 0.030 MILE  
NET LENGTH = 160.0 FT. = 0.030 MILE



STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

SUBMITTED June 22, 2017  
Jeffrey E. Keirn  
REGIONAL ENGINEER

Aug 18, 2017  
Matthew M. Adams, PE  
ENGINEER OF DESIGN AND ENVIRONMENT

Aug 18, 2017  
[Signature]  
DIRECTOR OF PROGRAM DEVELOPMENT

PRINTED BY THE AUTHORITY  
OF THE STATE OF ILLINOIS





# SUMMARY OF QUANTITIES - CONT

0014

PERRY
FAP 841 (IL 154)
80% FED / 20% STATE
RURAL

CODE NUMBER	ITEM DESCRIPTION	UNIT	TOTAL QUANTITY
50300260	BRIDGE DECK GROOVING	SQ YD	504
50300300	PROTECTIVE COAT	SQ YD	529
50301350	CONCRETE SUPERSTRUCTURE (APPROACH SLAB)	CU YD	102.7
50400305	PRECAST PRESTRESSED CONCRETE DECK BEAMS (17" DEPTH)	SQ FT	2,718
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	42,960
50800515	BAR SPLICERS	EACH	373
50901050	STEEL RAILING, TYPE SM	FOOT	210
59000200	EPOXY CRACK INJECTION	FOOT	10
51500100	NAME PLATES	EACH	1
60500060	REMOVING INLETS	EACH	2
* 63000001	STEEL PLATE BEAM GUARDRAIL, TYPE A, 6 FOOT POSTS	FOOT	25

||

\* SPECIALTY ITEM

# SUMMARY OF QUANTITIES - CONT

0014  
PERRY  
FAP 841 ( IL 154)  
80% FED / 20% STATE  
RURAL

CODE NUMBER	ITEM DESCRIPTION	UNIT	TOTAL QUANTITY
* 63100087	TRAFFIC BARRIER TERMINAL, TYPE 6A	EACH	3
63200310	GUARDRAIL REMOVAL	FOOT	225
67100100	MOBILIZATION	LSUM	1
70100450	TRAFFIC CONTROL AND PROTECTION, STANDARD 701201	LSUM	1
70100500	TRAFFIC CONTROL AND PROTECTION, STANDARD 701326	LSUM	1
70103815	TRAFFIC CONTROL SURVEILLANCE	CAL DA	4
70106500	TEMPORARY BRIDGE TRAFFIC SIGNALS	EACH	1
70300100	SHORT TERM PAVEMENT MARKING	FOOT	75
70300150	SHORT TERM PAVEMENT MARKING REMOVAL	SQ FT	25
70300220	TEMPORARY PAVEMENT MARKING - LINE 4"	FOOT	1,670

10

\* SPECIALTY ITEM

# SUMMARY OF QUANTITIES - CONT

0014  
PERRY  
FAP 841 ( IL 154)  
80% FED / 20% STATE  
RURAL

CODE NUMBER	ITEM DESCRIPTION	UNIT	TOTAL QUANTITY
70300280	TEMPORARY PAVEMENT MARKING - LINE 24"	FOOT	12
70400100	TEMPORARY CONCRETE BARRIER	FOOT	350
70400200	RELOCATE TEMPORARY CONCRETE BARRIER	FOOT	313
70600250	IMPACT ATTENUATORS, TEMPORARY (NON- REDIRECTIVE), TEST LEVEL 3	EACH	2
70600260	IMPACT ATTENUATORS, TEMPORARY (FULLY REDIRECTIVE, NARROW), TEST LEVEL 3	EACH	1
70600350	IMPACT ATTENUATORS, RELOCATE (NON- REDIRECTIVE), TEST LEVEL 3	EACH	2
* 78001110	PAINT PAVEMENT MARKING - LINE 4"	FOOT	1,670
* 78001180	PAINT PAVEMENT MARKING - LINE 24"	FOOT	12
* 78100100	RAISED REFLECTIVE PAVEMENT MARKER	EACH	4
* 78200005	GUARDRAIL REFLECTORS, TYPE A	EACH	6

\*  
\*  
\*  
\*

10

\* SPECIALTY ITEM

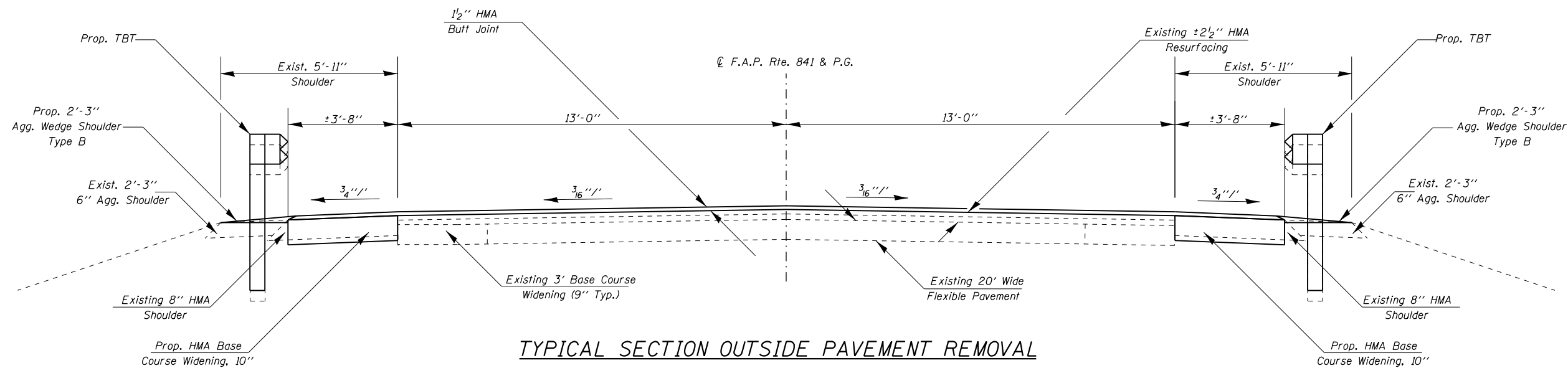
# SUMMARY OF QUANTITIES - CONT

0014  
PERRY  
FAP 841 (IL 154)  
80% FED / 20% STATE  
RURAL

CODE NUMBER	ITEM DESCRIPTION	UNIT	TOTAL QUANTITY
78300200	RAISED REFLECTIVE PAVEMENT MARKER REMOVAL	EACH	4
* 86200300	UNINTERRUPTABLE POWER SUPPLY, EXTENDED	EACH	1
X0327979	PAVEMENT MARKING REMOVAL - GRINDING	SQ FT	310
X0327985	TEMPORARY PAVEMENT MARKING REMOVAL	SQ FT	557
X5030305	CONCRETE WEARING SURFACE, 5"	SQ YD	302
X6310088	TRAFFIC BARRIER TERMINAL TYPE 6A (SPECIAL)	EACH	1
X7010202	TRAFFIC CONTROL AND PROTECTION, STANDARD 701321 (SPECIAL)	EACH	1
X7015005	CHANGEABLE MESSAGE SIGN	CAL DA	42
X7040125	PINNING TEMPORARY CONCRETE BARRIER	EACH	35
Z0001900	ASBESTOS BEARING PAD REMOVAL	EACH	28
Z0012754	STRUCTURAL REPAIR OF CONCRETE (DEPTH EQUAL TO OR LESS THAN 5 INCHES)	SQ FT	61.5

||  
\* SPECIALTY ITEM

FILE NAME =	USER NAME = hoisteedbr	DESIGNED -	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>SUMMARY OF QUANTITIES</b>			F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.				
						SCALE:	SHEET	OF	SHEETS	STA.	TO STA.	841	(34)BR-1	PERRY	33	7
												CONTRACT NO. 78156				
Default												ILLINOIS FED. AID PROJECT				



TYPICAL SECTION OUTSIDE PAVEMENT REMOVAL

FILE NAME =	USER NAME = halsteadtw	DESIGNED -	REVISED -
p:\11\084EBIDINTEG.illinois.gov\PIWIDOT\Documents\IDOT Offices\District 9\Projects\78156\Drawings\CAD\Sheets\78156-sht-plen.dgn		CHECKED -	REVISED -
Default	PLOT SCALE = 100.0000' / in.	DATE -	REVISED -
	PLOT DATE = 6/28/2017		

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**TYPICAL SECTION**

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
841	(34)BR-1	PERRY	33	8
CONTRACT NO. 78156			ILLINOIS FED. AID PROJECT	



REMOVAL SCHEDULE

LOCATION STATION	PAVEMENT REMOVAL	PAVED SHOULDER REMOVAL	REMOVING INLETS
IL 154 (FAP 841)	SQ YD	SQ YD	EACH
NW QUAD	76		1
STA. 62+65 TO STA. 64+14		61	
NE QUAD	76		
STA. 65+20 TO STA. 66+75		63	
SW QUAD	76		1
STA. 62+65.00 TO STA. 63+87.00		50	
SE QUAD	76		
STA. 65+47 TO STA. 67+00		63	
TOTALS	304	237	2

GUARDRAIL SCHEDULE

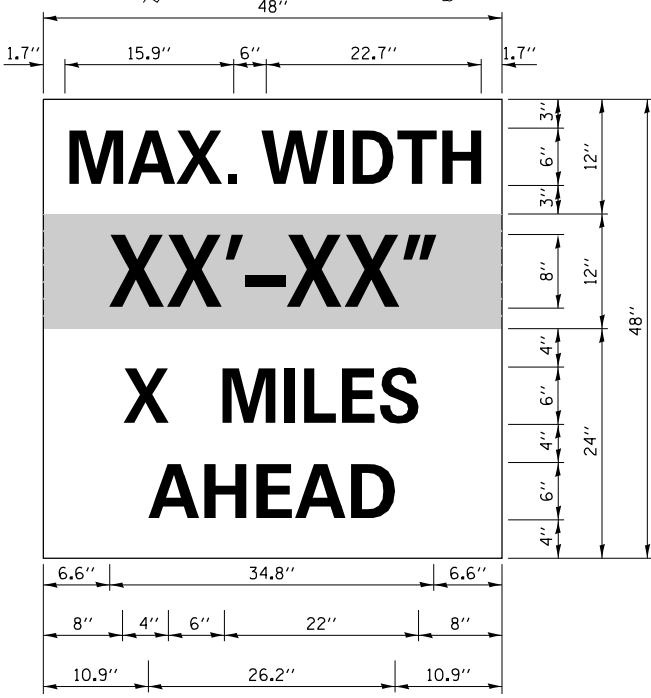
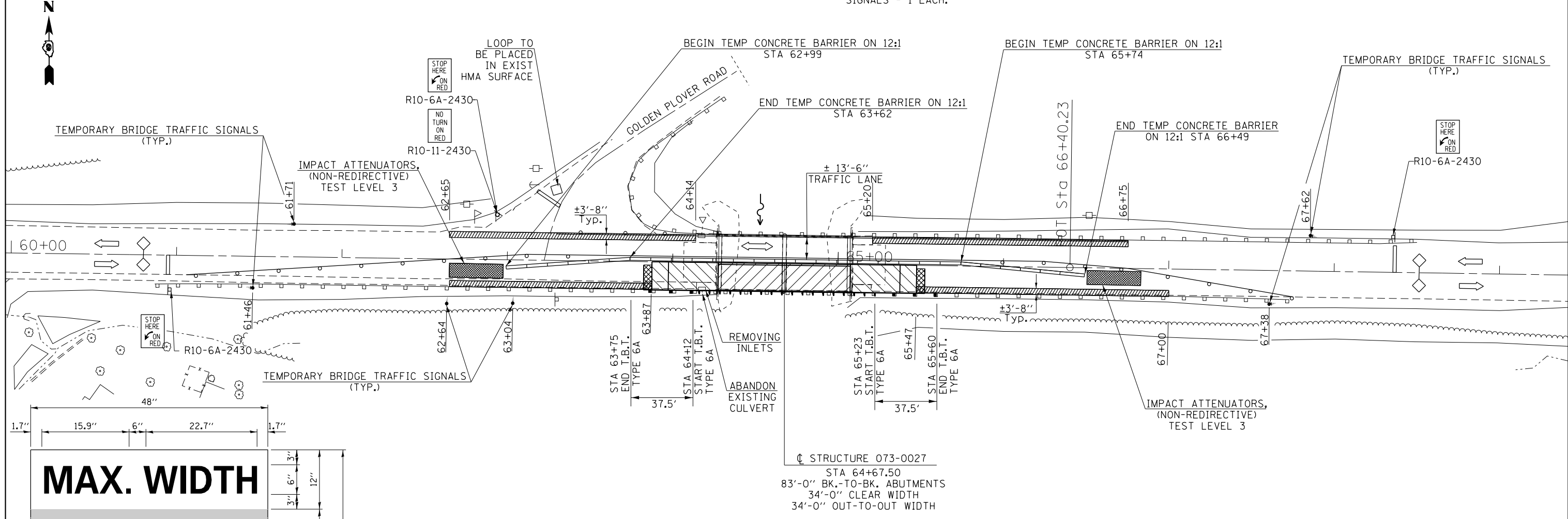
LOCATION STATION	TRAFFIC BARRIER TERMINAL TYPE 6A	TRAFFIC BARRIER TERMINAL TYPE 6A (SPL)	SPBGT TYPE A (6 FOOT POSTS)	GUARDRAIL REMOVAL	GUARDRAIL REFLECTORS, TYPE A
IL 146 (FAP 885)	EACH	EACH	FOOT	FOOT	EACH
NW QUAD				42.5	1
LT STA 63+85 TO STA 64+22		1			
NE QUAD				77.5	1
LT STA 65+23 TO STA 65+60	1				
LT STA 65+60 TO STA 65+85			25		
SW QUAD				52.5	1
RT STA 63+75 TO STA 64+12	1				
SE QUAD				52.5	1
RT STA 65+23 TO STA 65+60	1				
STEEL RAILING, TYPE SM					2
TOTALS	3	1	25	225	6

PAVEMENT MARKING SCHEDULE

LOCATION STATION	TEMPORARY PAVEMENT MARKING LINE 4"	TEMPORARY PAVEMENT MARKING REMOVAL	PAINT PAVEMENT MARKING LINE 4"	PAINT PAVEMENT MARKING LINE 24"	SHORT TERM PAVMENT MARKING	SHORT TERM PAVMENT MARKING REMOVAL	PAVEMENT MARKING REMOVAL GRINDING
IL 154	FOOT	SQ FT	FOOT	FOOT	FOOT	SQ FT	SQ FT
CL STA 60+94 TO STA 68+36	186	61	186		75	25	
LT STA 60+94 TO STA 68+36	742	248	742				
RT STA 60+94 TO STA 68+36	742	248	742				
STOP BAR (GOLDEN PLOVER ROAD)				12			
STAGE 1							
CL STA. 60+99 TO STA 63+27							76
CL STA 66+75 TO STA 68+35							54
LT STA 63+90 TO STA 66+75							95
STOP BAR (GOLDEN PLOVER ROAD)							12
STAGE 2							
RT STA 62+84 TO STA 63+83							33
RT STA 65+53 TO STA 66+72							40
TOTAL	1670	557	1670	12	75	25	310












- NOTES:**
1. TRAFFIC CONTROL SHALL BE ERECTED AS SHOWN AND ACCORDING TO "TRAFFIC CONTROL AND PROTECTION, STANDARD 701321 (SPECIAL)".
  2. SEE SPECIAL PROVISIONS FOR ADDITIONAL TRAFFIC CONTROL REQUIREMENTS.
  3. COORDINATE LOCATION OF SIGNALS WITH FINAL WORK AS DIRECTED BY THE ENGINEER.
  4. ADDITIONAL SIGNAGE FOR THE SIDE ROAD AND ADVANCE WIDTH RESTRICTION WARNING SHALL BE INCLUDED IN THE COST OF STANDARD 701321 (SPECIAL).
  5. THE DIMENSION SHOWN ON THE WIDTH RESTRICTION SIGN (W12-I102(O)-48) SHOWN ON STANDARD 701321 (SPECIAL) AND ON THE ADVANCE WARNING SIGN (W12-I103) SHOWN BELOW, SHALL BE 12'-0" FOR STAGE I CONSTRUCTION AND 11'-6" FOR STAGE II CONSTRUCTION.
  6. SEE STANDARD 701321 (SPECIAL) FOR COMPLETION OF STAGE CONSTRUCTION SIGNING AND ADVANCE DETECTOR LOOP PLACEMENT NOT SHOWN.
  7. ALL TRAFFIC SIGNALS SHOWN ARE INCLUDED IN TEMPORARY BRIDGE TRAFFIC SIGNALS - 1 EACH.
  8. THE ADDITIONAL DETECTOR LOOPS AT THE SIDE ROAD ARE INCLUDED IN TEMPORARY BRIDGE TRAFFIC SIGNALS - 1 EACH.
  9. TEMPORARY BRIDGE TRAFFIC SIGNALS SHALL BE A 3-PHASE SIGNAL WITH ACTUATION PROVIDED FOR THE SIDE ROAD (GOLDEN PLOVER RD.) AT STATION 63+41 LT.



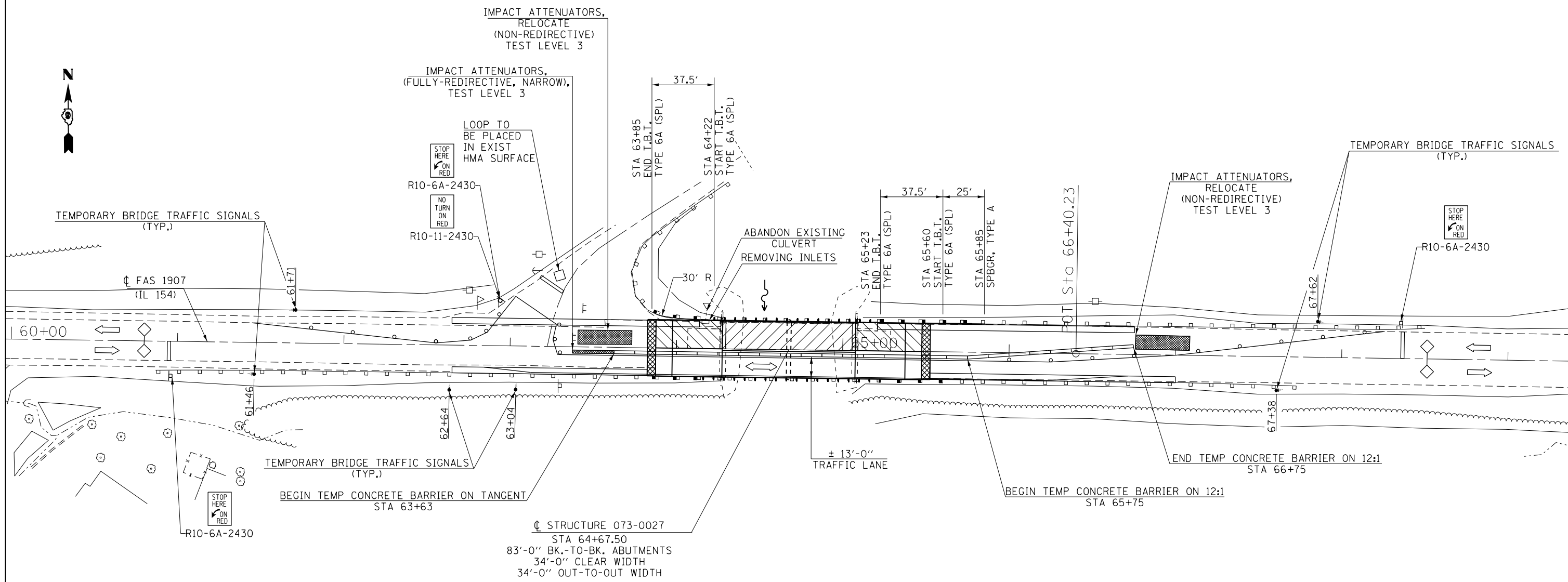
**W12-I103**  
 W12-I103 (WIDTH IS 80)  
 NO BORDER, BLACK ON WHITE:  
 "MAX WIDTH" D:  
 NO BORDER, BLACK ON ORANGE:  
 "XX'-XX''D:  
 NO BORDER, BLACK ON WHITE:  
 "X MILES" D: "AHEAD" D:

- NOTES FOR MAX WIDTH SIGNING:**
1. THE CONTRACTOR SHALL FURNISH THE POSTS AND ERECT THE SIGNS AT THE LOCATION DIRECTED BY THE ENGINEER. ALL SIGNS SHALL BE POST MOUNTED.
  2. THE NOTED WORK, INCLUDING SIGN, POSTS, HARDWARE AND LABOR SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE, EACH, FOR TRAFFIC CONTROL AND PROTECTION, STD. 701321 (SPECIAL) AND NO OTHER COMPENSATION WILL BE ALLOWED.
  3. THE "X" AHEAD WILL BE DETERMINED BY THE ENGINEER.

-  TEMP. RAMP
-  PAVED SHOULDER REMOVAL AND BASE COURSE WIDENING
-  DETECTOR LOOP
-  TYPE III BARRICADE
-  DRUM WITH STEADY BURNING BI-DIRECTIONAL LIGHT
-  TRAFFIC SIGNAL, SIGNAL DIRECTION INDICATED (10' MINIMUM TO BOTTOM OF SIGNAL)
-  TRAFFIC SIGNAL WITH BACKPLATE, SIGNAL DIRECTION INDICATED
-  SUPER STRUCTURE REMOVAL
-  PAVEMENT REMOVAL

FILE NAME =	USER NAME = halsteadtw	DESIGNED -	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>STAGE I TRAFFIC CONTROL</b>				F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
pw:\IL\084EBIDINTEG.illinois.gov\PIWIDOT\Documents\DOT Offices\District 9\Projects\78156\Drawings\CAD\Sheets\78156-sh1-pln.dgn		CHECKED -	REVISED -		841	(34)BR-1	PERRY	33	11				
Default	PLOT SCALE = 60.0000' / in.	DATE -	REVISED -		CONTRACT NO. 78156								
	PLOT DATE = 6/28/2017				ILLINOIS FED. AID PROJECT								

- NOTES:**
1. TRAFFIC CONTROL SHALL BE ERECTED AS SHOWN AND ACCORDING TO "TRAFFIC CONTROL AND PROTECTION, STANDARD 701321 (SPECIAL)".
  2. SEE SPECIAL PROVISIONS FOR ADDITIONAL TRAFFIC CONTROL REQUIREMENTS.
  3. COORDINATE LOCATION OF SIGNALS WITH FINAL WORK AS DIRECTED BY THE ENGINEER.
  4. ADDITIONAL SIGNAGE FOR ENTRANCES AND ADVANCE WIDTH RESTRICTION WARNING SHALL BE INCLUDED IN THE COST OF STANDARD 701321 (SPECIAL).
  5. THE DIMENSION SHOWN ON THE WIDTH RESTRICTION SIGN (W12-I102(0)-48) SHOWN ON STANDARD 701321 AND ON THE ADVANCE WARNING SIGN (W12-I103) SHOWN BELOW, SHALL BE 12'-0" FOR STAGE I CONSTRUCTION AND 11'-6" FOR STAGE II CONSTRUCTION.
  6. SEE STANDARD 701321 (SPECIAL) FOR COMPLETION OF STAGE CONSTRUCTION SIGNING AND ADVANCE DETECTOR LOOP PLACEMENT NOT SHOWN.
  7. ALL TRAFFIC SIGNALS SHOWN ARE INCLUDED IN TEMPORARY BRIDGE TRAFFIC SIGNALS - 1 EACH.
  8. THE ADDITIONAL DETECTOR LOOPS AT THE ENTRANCES ARE INCLUDED IN TEMPORARY BRIDGE TRAFFIC SIGNALS - 1 EACH.
  9. TEMPORARY BRIDGE TRAFFIC SIGNALS SHALL BE A 3-PHASE SIGNAL WITH ACTUATION PROVIDED FOR THE SIDE ROAD (GOLDEN PLOVER RD.) AT STATION 63+41 LT.

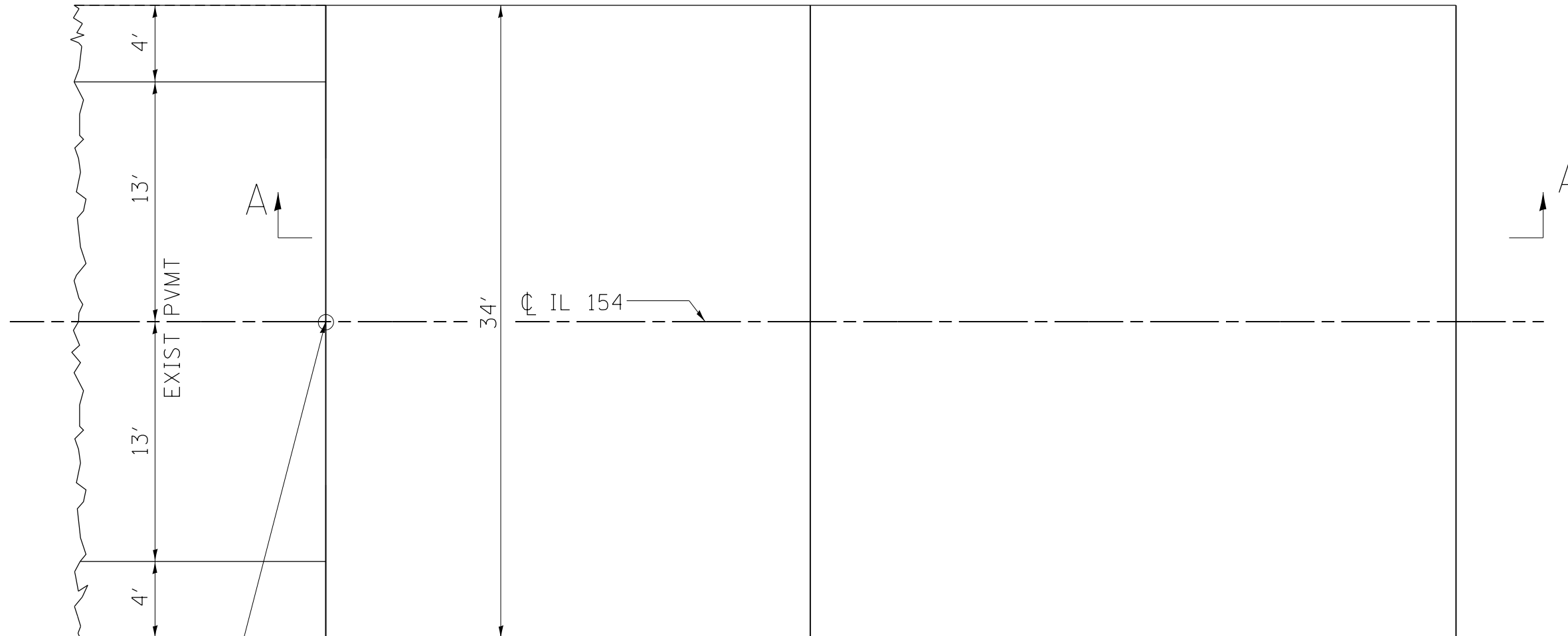


- ◇ DETECTOR LOOP
- ‡ TYPE III BARRICADE
- DRUM WITH STEADY BURNING BI-DIRECTIONAL LIGHT
- TRAFFIC SIGNAL, SIGNAL DIRECTION INDICATED (10' MINIMUM TO BOTTOM OF SIGNAL)
- TRAFFIC SIGNAL WITH BACKPLATE, SIGNAL DIRECTION INDICATED
- ▨ TEMP. RAMP
- ▨ SUPER STRUCTURE REMOVAL
- ▨ PAVEMENT REMOVAL

**STAGE II TRAFFIC**

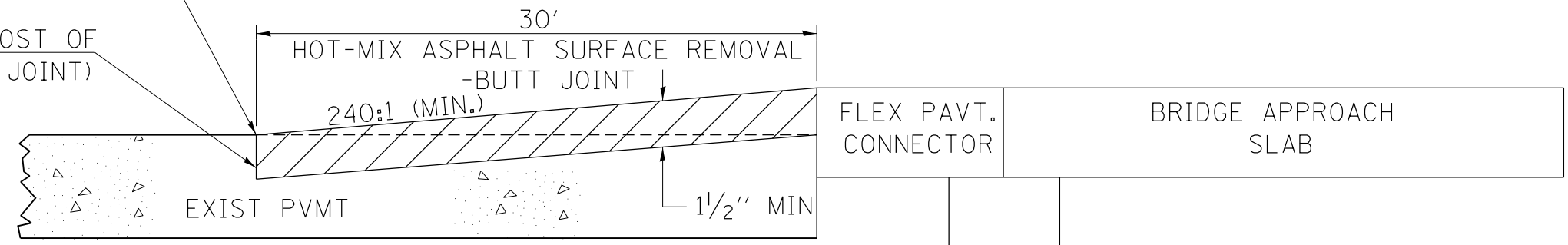
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pw:\IL\084EBIDINTEG.illinois.gov\PIWIDOT\Documents\IDOT Offices\District 9\Projects\78156\Drawings\CAD\Sheets\78156-sht-plen.dgn		CHECKED -	REVISED -		841	(34)BR-1	PERRY	33	12				
Default	PLOT SCALE = 60.0000' / in.	DATE -	REVISED -		CONTRACT NO. 78156								
	PLOT DATE = 6/28/2017				SCALE:	SHEET	OF	SHEETS	STA.	TO	STA.	ILLINOIS FED. AID PROJECT	

# BUTT JOINT



STA 63+57.5  
STA 65+77.5

SAW CUT (INCLUDED IN THE COST OF  
HMA SURFACE REMOVAL-BUTT JOINT)



SECTION A-A

REVISIONS	
DRAWN	10-17-90
REVISED	01-11-07
REVISED	3-25-08
REVISED	5-17-13

STD. 9-86

FILE NAME =	USER NAME = halsteadw	DESIGNED -	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>BUTT JOINT DETAIL</b>	SCALE:	SHEET OF SHEETS	STA. TO STA.	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
pw:\IL\084EBIDINTEG.illinois.gov\PI\DOT\Documents\IDOT Offices\District 9\Projects\78156\Drawings\CADsheets\78156-sht-plen.dgn									841	(34)BR-1	PERRY	33	13
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	PLOT DATE = 6/28/2017	DATE -	REVISED -										
ILLINOIS FED. AID PROJECT													CONTRACT NO. 78156

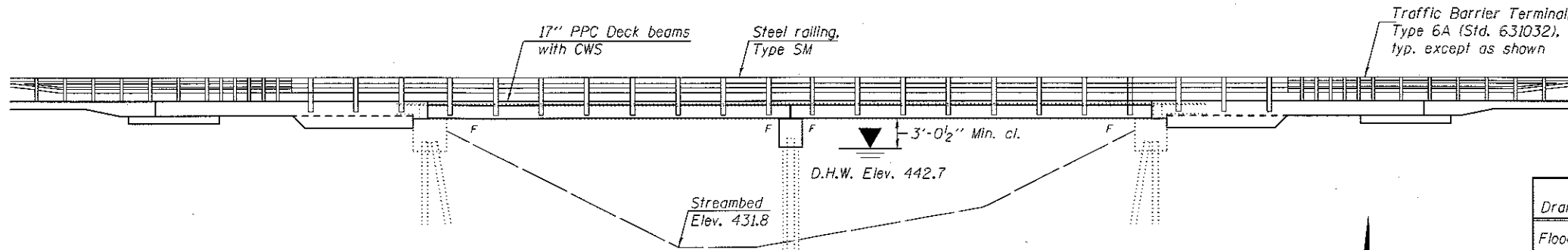
Bench Mark: B.M. 115 Square cut at the NW wingwall of Struct. No. 073-0027. Elev. 446.967

Existing structure: Structure No. 073-0027, 2 simple span PPC deck beams, built in 1985 at Sta. 64+67.50, as F.A. Route 841, Sec. 34B-1. The substructure is supported on H-piles, 83' back to back abutments. The existing superstructure is to be removed and replaced. Traffic is to be maintained utilizing stage construction.

Salvage: None

**INDEX OF SHEETS**

- 1 General Plan & Elevation
- 2 General Data & Stage Construction Details
- 3 Temporary Concrete Barrier for Stage Construction
- 4 Superstructure
- 5-6 Superstructure Details
- 7 17" x 36" PPC Deck Beam
- 8 17" x 36" PPC Deck Beam Details
- 9 17" x 48" PPC Deck Beam
- 10 17" x 48" PPC Deck Beam Details
- 11 Steel Railing, Type SM with Concrete Wearing Surface
- 12 Concrete Structural Repair
- 13 Pier Cap Details
- 14-15 Bridge Approach Slab Details
- 16 Bar Splicer Assembly & Mechanical Splicer Details

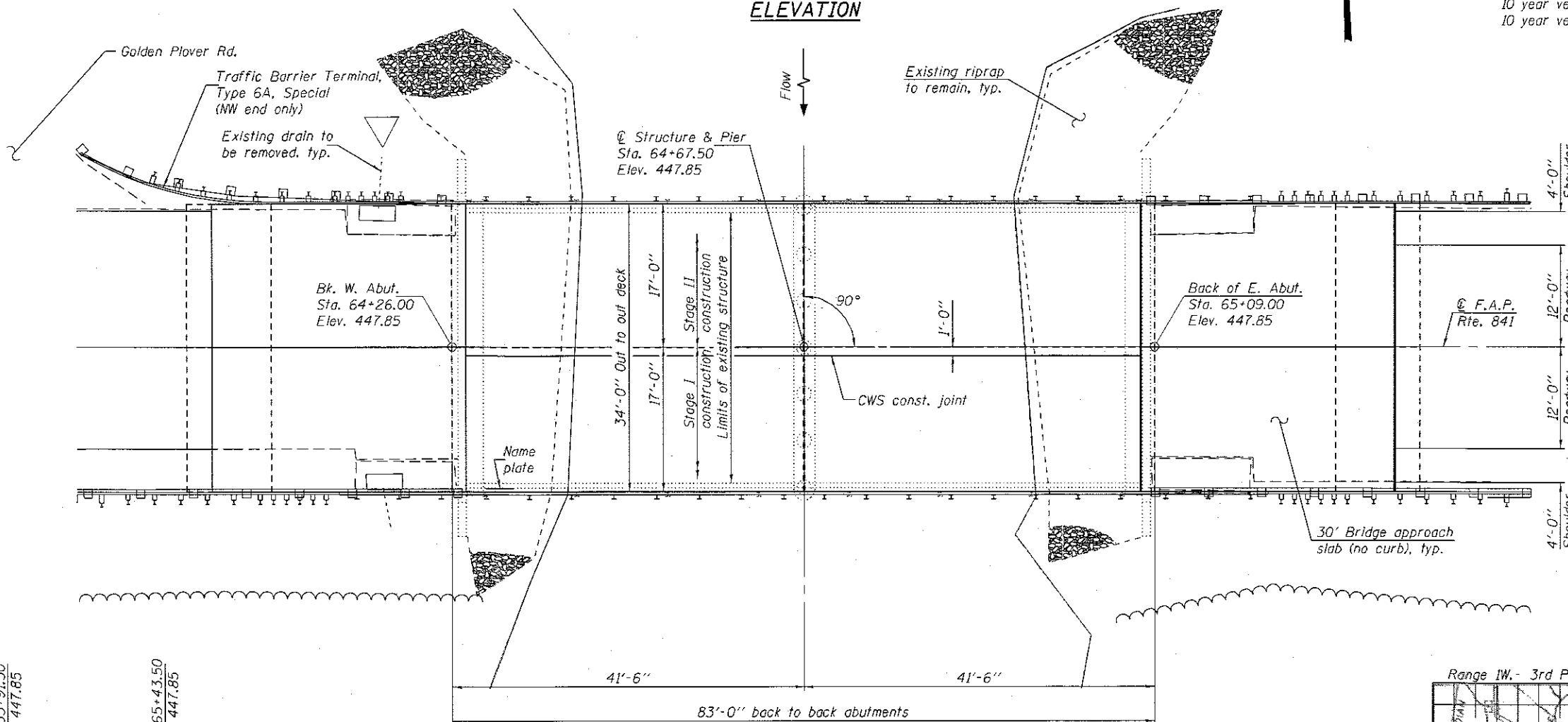


**WATERWAY INFORMATION**

Drainage Area = 9.52 mi <sup>2</sup>		Existing Low Grade Elev. 447.63 @ Sta. 64+50 Proposed Low Grade Elev. 447.85 @ Sta. 64+50							
Flood	Freq. Yr.	0 C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	10	1590	361.0	361.0	441.9	0.2	0.2	442.1	442.1
Base	50	2480	414.0	414.0	442.7	0.4	0.4	443.1	443.1
Max. Calc.	100	2870	427.0	427.0	442.9	0.6	0.6	443.5	443.5
	500	3880	476.0	476.0	443.6	1.1	1.1	444.7	444.7

10 year velocity through existing bridge = 4.4 ft/s  
10 year velocity through proposed bridge = 4.4 ft/s

**ELEVATION**



**LOADING HL-93**

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

**SEISMIC DATA**

Seismic Performance Category (SPC) = B  
Bedrock Acceleration Coefficient = 0.12  
Site Coefficient (S) = 1.5

**DESIGN SPECIFICATIONS**

2014 AASHTO LRFD Bridge Design Specifications, 7th Edition with 2016 Interims  
1995 FHWA Seismic Retrofitting Manual for Highway Bridges

**DESIGN STRESSES**

**FIELD & EXISTING UNITS**

f'c = 3,500 psi (Existing)  
f'c = 3,500 psi (Approach Footing)  
f'c = 4,000 psi (Approach Slab, Repairs)  
f'c = 5,000 psi (Concrete Wearing Surface)  
fy = 60,000 psi

**PRECAST PRESTRESSED UNITS**

f'c = 6,000 psi  
f'ci = 5,000 psi  
fpu = 270,000 psi (1/2" φ low lax strands)  
fpbt = 201,960 psi (1/2" φ low lax strands)

STATION 64+67.50  
BUILT 20 BY  
STATE OF ILLINOIS  
F.A.P. RTE. 841 SEC. (34)BR-1  
LOADING HL-93  
STRUCTURE NO. 073-0027

**NAME PLATE**

See Std. 515001

Existing Name Plate shall be cleaned and relocated next to new Name Plate. Cost included with Name Plates.

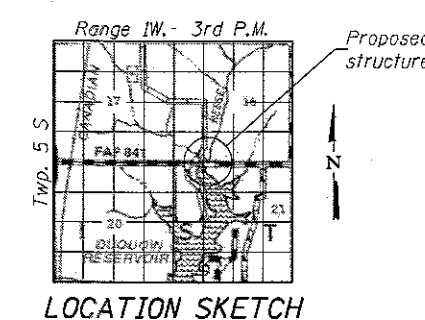
**GENERAL PLAN AND ELEVATION  
IL ROUTE 154 OVER REESE CREEK**

F.A.P. RT. 841 - SEC. (34)BR-1

PERRY COUNTY

STATION 64+67.50

STRUCTURE NO. 073-0027



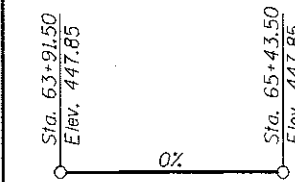
**LOCATION SKETCH**

**DESIGN SCOUR ELEVATION TABLE**

Event/Limit State	Design Scour Elevations (ft.)			Item 113
	W. Abut.	Pier	E. Abut.	
0100	442.67	422.20	442.75	5
0500	442.67	419.90	442.75	
Design	442.67	422.20	442.75	
Check	442.67	419.90	442.75	



**PLAN**



**PROFILE GRADE**  
(Along @ F.A.P. Rte. 841)

2-9-2017

DESIGNED - <i>Michael H. ...</i>	EXAMINED - <i>James F. ...</i>	DATE - 8/18/2017
CHECKED - <i>...</i>	PASSED - <i>...</i>	
DRAWN - <i>...</i>		
CHECKED - <i>...</i>		

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

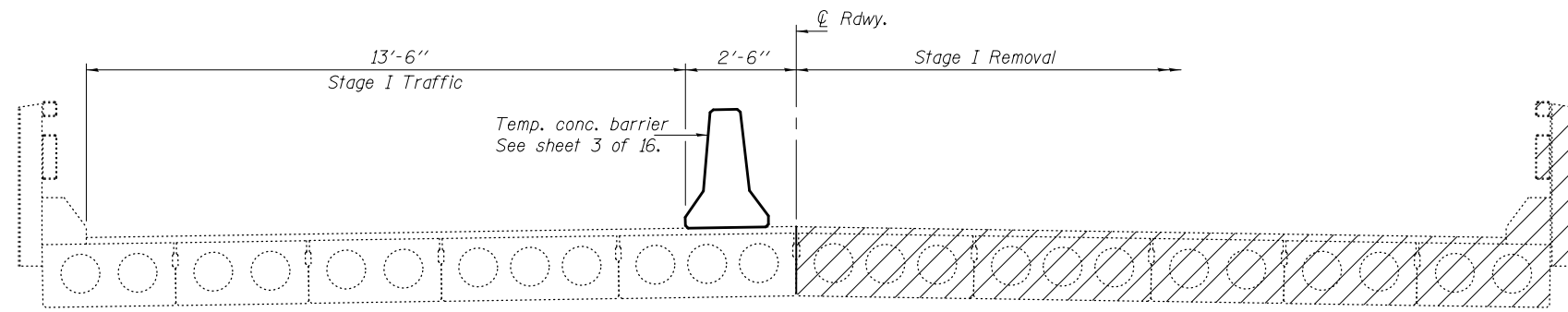
GENERAL PLAN & ELEVATION  
STRUCTURE NO. 073-0027  
SHEET NO. 1 OF 16 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
841	(34)BR-1	PERRY	33	14
			CONTRACT NO. 78156	
ILLINOIS FED. AID PROJECT				

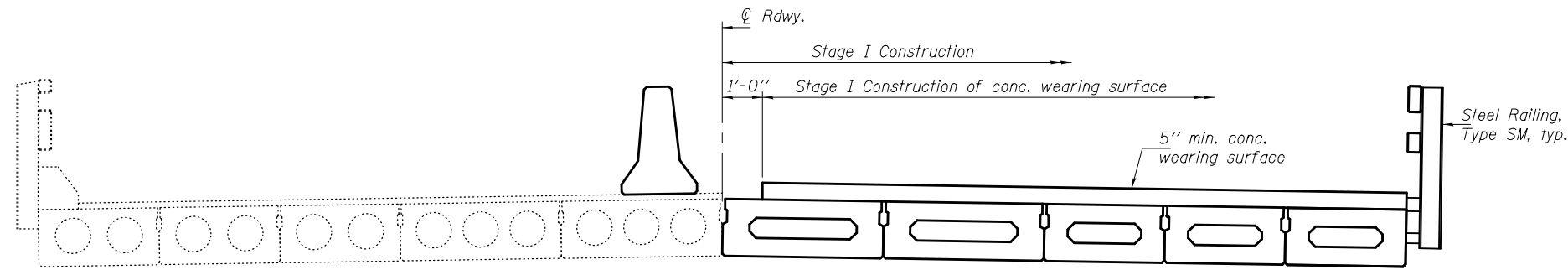
**GENERAL NOTES**

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.

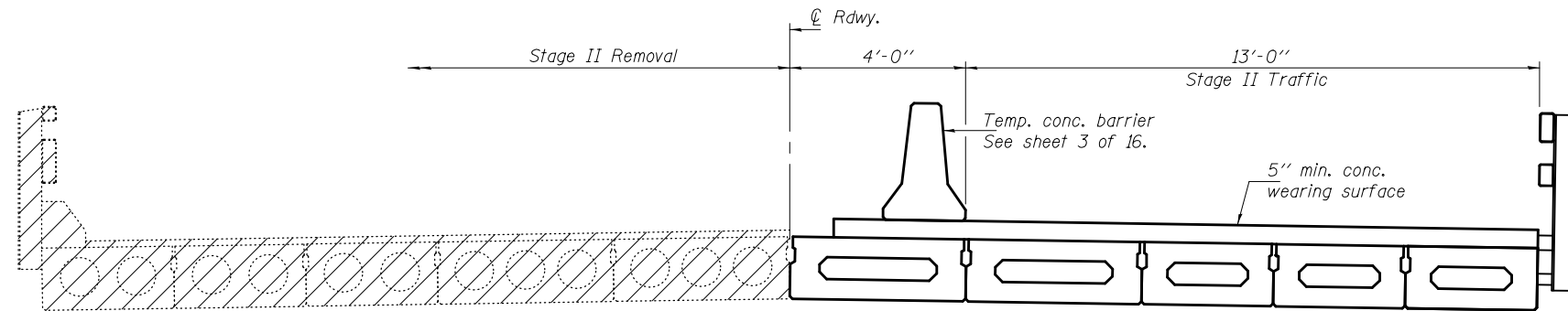
Reinforcement bars designated (E) shall be epoxy coated.



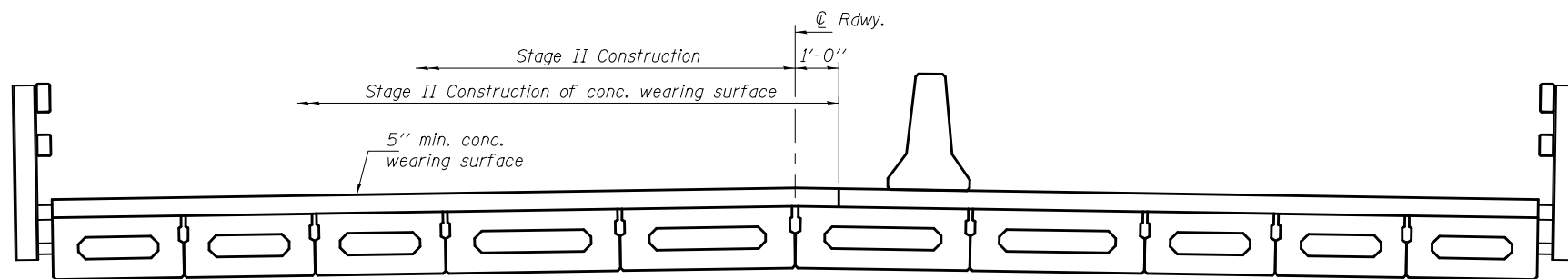
**STAGE I REMOVAL**



**STAGE I CONSTRUCTION**



**STAGE II REMOVAL**



**STAGE II CONSTRUCTION**

Notes: All sections are looking East.  
 Hatched area indicates removal of existing superstructure.  
 For quantity of temporary concrete barrier, see Roadway Plans.  
 The cost of the removal of the existing steel handrail shall be included with Removal of Existing Superstructures.

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	SUPER	SUB	TOTAL
Removal of Existing Superstructures	Each	1		1
Concrete Structures	Cu. Yd.		24.6	24.6
Concrete Superstructure (Approach Slab)	Cu. Yd.	102.7		102.7
Bridge Deck Grooving	Sq. Yd.	504.0		504.0
Protective Coat	Sq. Yd.	529.0		529.0
Concrete Wearing Surface, 5"	Sq. Yd.	302.0		302.0
Precast Prestressed Concrete Deck Beams (17" Depth)	Sq. Ft.	2718		2718
Reinforcement Bars, Epoxy Coated	Pound	42,450	510	42,960
Bar Splicers	Each	373		373
Steel Railing, Type SM	Foot	210.0		210.0
Name Plates	Each	1		1
Asbestos Bearing Pad Removal	Each	28		28
Structural Repair of Concrete (Depth ≤ 5")	Sq. Ft.		61.5	61.5
Epoxy Crack Injection	Foot		10	10

DESIGNED - Victor M. Mercado-Vazquez  
 CHECKED - Cory D. Koltvelt  
 DRAWN - h.t. duong  
 CHECKED - VMMV / CDK / GRA

EXAMINED - *Joanne F. Duff*  
 ACTING ENGINEER OF BRIDGE DESIGN  
 PASSED - *Carl Pinger*  
 ACTING ENGINEER OF BRIDGES AND STRUCTURES

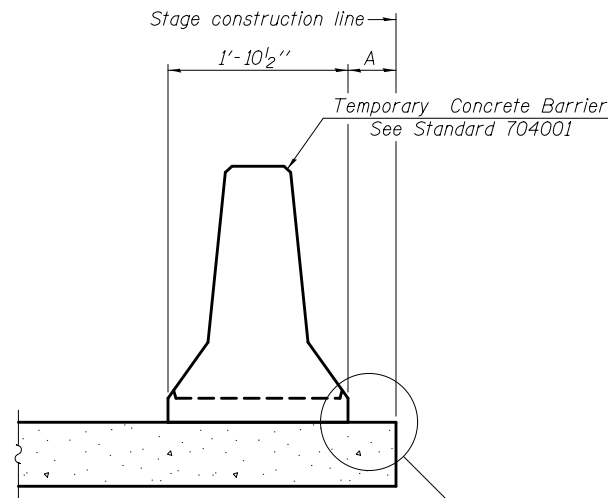
DATE - AUGUST 18, 2017

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**GENERAL DATA & STAGE CONSTRUCTION DETAILS  
 STRUCTURE NO. 073-0027**

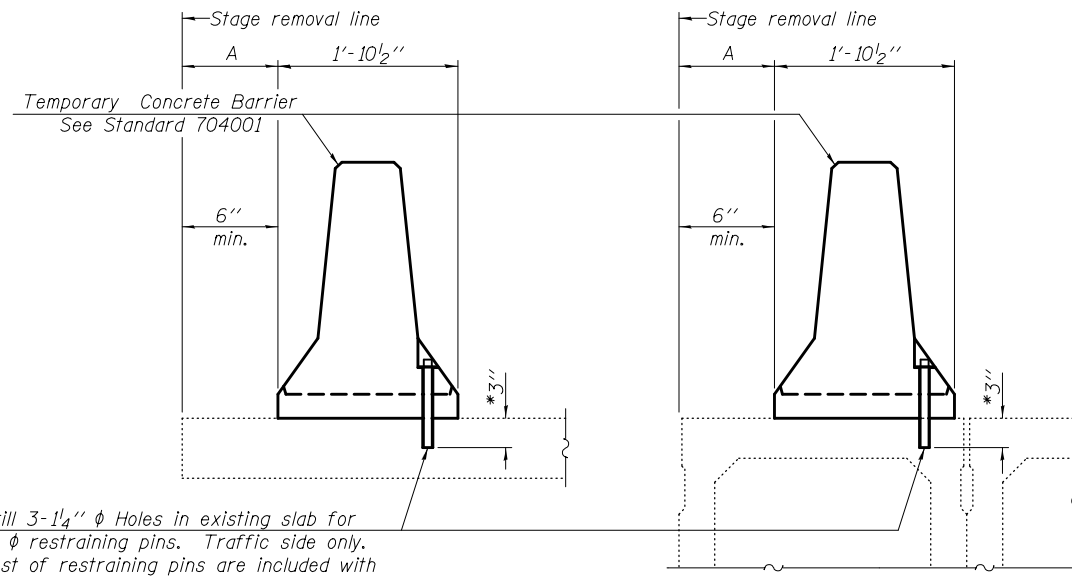
SHEET NO. 2 OF 16 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
841	(34)BR-1	PERRY	33	15
CONTRACT NO. 78156			ILLINOIS FED. AID PROJECT	



When "A" is 3'-1" or less, the temporary concrete barrier shall be restrained to the new slab according to Detail I, II or III. No restraint is required when "A" is greater than 3'-1".

**NEW SLAB OR NEW DECK BEAM**

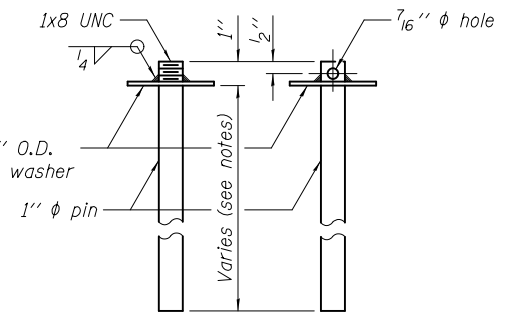


Drill 3-1/4"  $\phi$  Holes in existing slab for 1"  $\phi$  restraining pins. Traffic side only. Cost of restraining pins are included with Temporary Concrete Barrier. No restraint is required when "A" is greater than 3'-1".

**EXISTING SLAB**

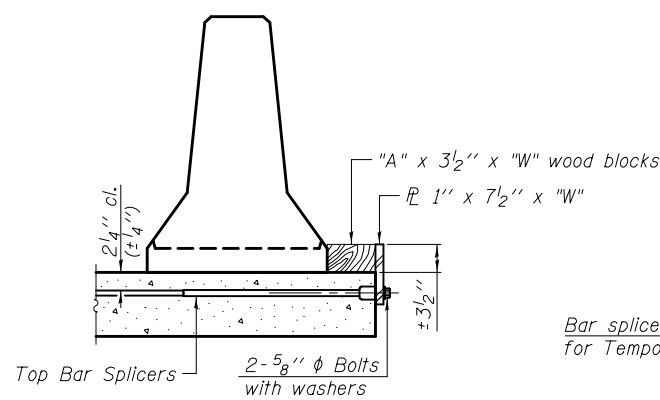
\* When hot-mix asphalt wearing surface is present, embedment shall be 3" plus the wearing surface depth.

**EXISTING DECK BEAM**

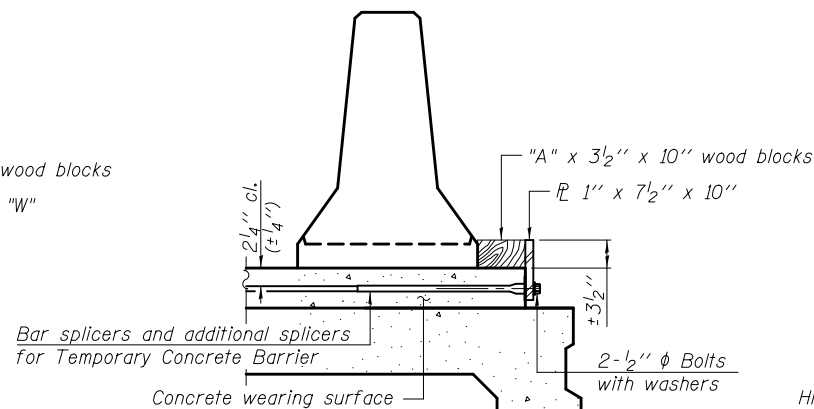


**RESTRAINING PIN**

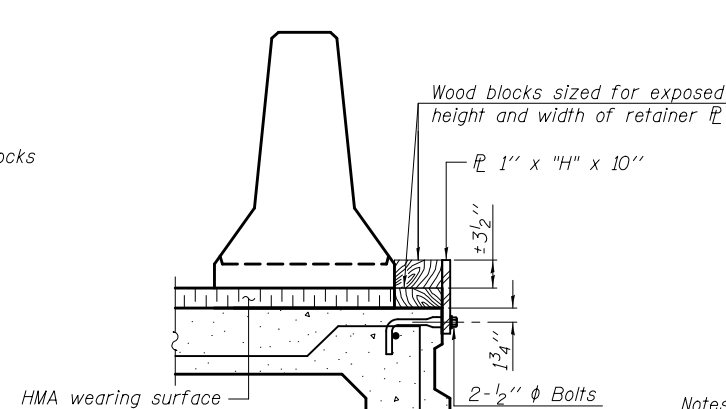
**SECTIONS THRU SLAB OR DECK BEAM**



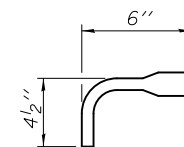
**DETAIL I**



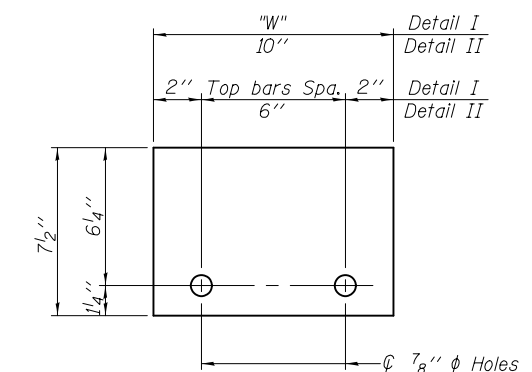
**DETAIL II**



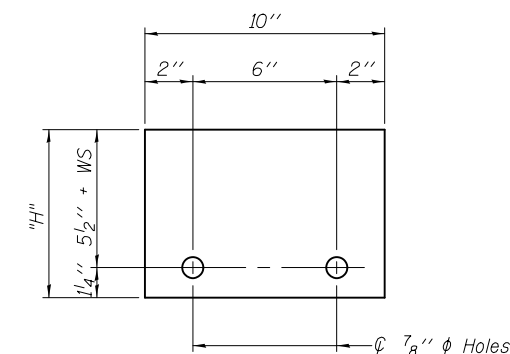
**DETAIL III**



**BAR SPLICER FOR #4 BAR - DETAIL III**



**STEEL RETAINER 1" x 7 1/2" x "W"**  
(Detail I and II)



**STEEL RETAINER 1" x "H" x 10"**  
(Detail III)

**Notes:**  
 Cost of retainer assembly is included with Temporary Concrete Barrier.  
 A retainer assembly shall be located at the approximate  $\phi$  of each temporary concrete barrier.  
 The retainer plate shall not be removed until the concrete on the adjacent stage is ready to be poured. For Detail III applications the retainer plate shall not be removed until just prior to placing the adjacent beam.  
 When the 'A' dimension is less than 1 1/2", the wood block shall be omitted and the barrier shall be placed in direct contact with the steel retainer plate. For deck beam applications the minimum required 'A' distance is 6" to accommodate the shear key clamping device.

**Detail I -** Installation for a new bridge deck or bridge slab.  
**Detail II -** Installation for a new deck beam with an initial concrete wearing surface. Additional bar splicers shall be provided at 6'-0" centers and paired with the bar splicers of the concrete wearing surface reinforcement to accommodate the installation of the retainer assemblies. The cost of the additional bar splicers is included with the concrete wearing surface.  
**Detail III -** Installation for a new deck beam with no initial wearing surface or with an initial hot-mix asphalt (HMA) wearing surface present. The deck beam directly beneath the temporary concrete barrier shall be fabricated with bar splicer inserts in the side of the beam, as detailed, to accommodate the installation of the retainer assemblies. A pair of bar splicers, 6" apart, shall be placed at 6'-0" centers along the length of the beam. The cost of the bar splicers is included with the deck beam.

R-27 11-22-2016

DESIGNED - Victor M. Mercado-Vazquez	EXAMINED - <i>Joanne F. [Signature]</i>	DATE - AUGUST 18, 2017
CHECKED - Cory D. Koltvelt	PASSED - <i>Carl [Signature]</i>	
DRAWN - h.t. duong		
CHECKED - VMMV / CDK / GRA		

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

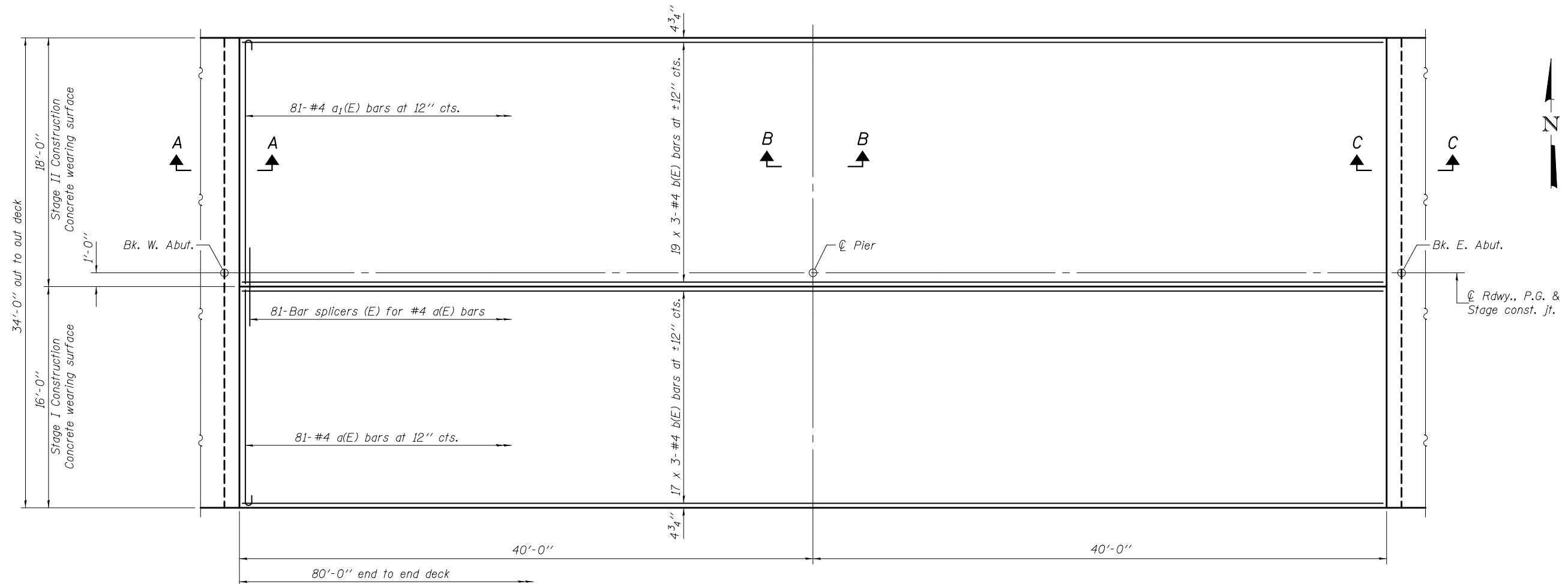
**TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION  
STRUCTURE NO. 073-0027**

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
841	(34)BR-1	PERRY	33	16
CONTRACT NO. 78156				

SHEET NO. 3 OF 16 SHEETS

ILLINOIS FED. AID PROJECT

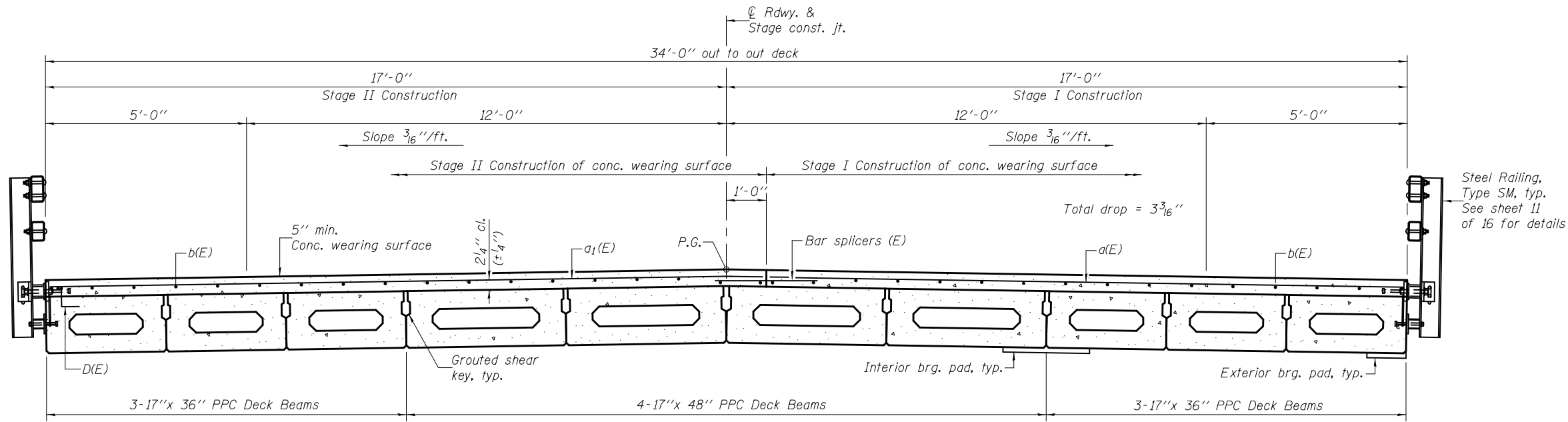




PLAN

MIN. BAR LAP  
#4 bar = 2'-2"

Notes:  
See sheets 5 & 6 of 16 for Superstructure Details and Bill of Material.  
Bars indicated thus 19 x 3-#4 etc. indicates 19 lines of bars with 3 lengths per line.



CROSS SECTION  
(Looking East)

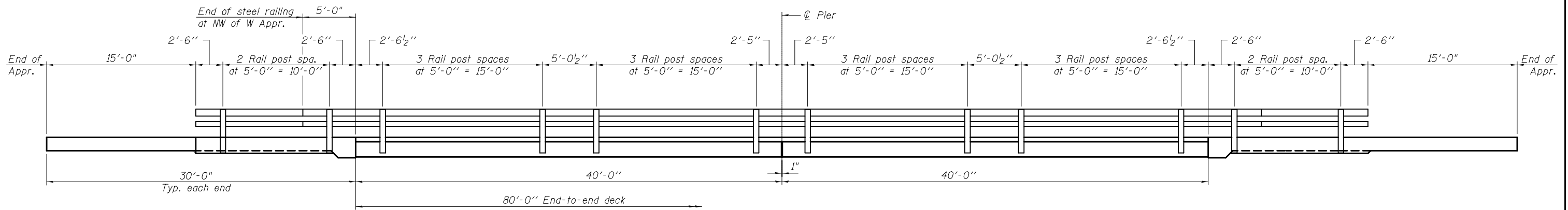
DESIGNED - Victor M. Mercado-Vazquez	EXAMINED - <i>Joanne F. [Signature]</i>	DATE - AUGUST 18, 2017
CHECKED - Cory D. Koltvelt	PASSED - <i>Carl [Signature]</i>	
DRAWN - h.t. duong		
CHECKED - VMMV / CDK / GRA		

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

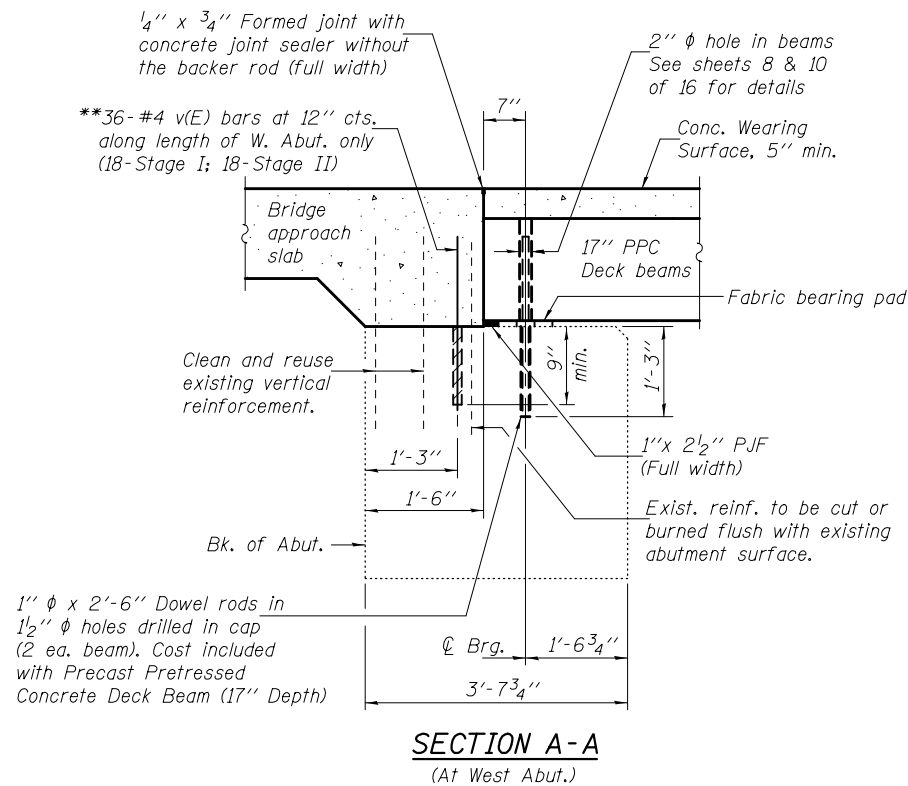
SUPERSTRUCTURE  
STRUCTURE NO. 073-0027  
SHEET NO. 4 OF 16 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
841	(34)BR-1	PERRY	33	17
CONTRACT NO. 78156				

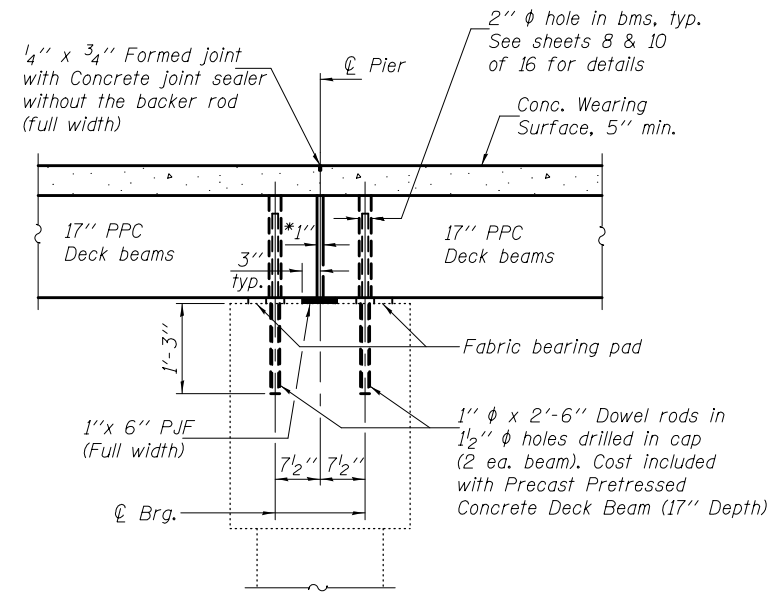
ILLINOIS FED. AID PROJECT



**RAIL POST SPACING**

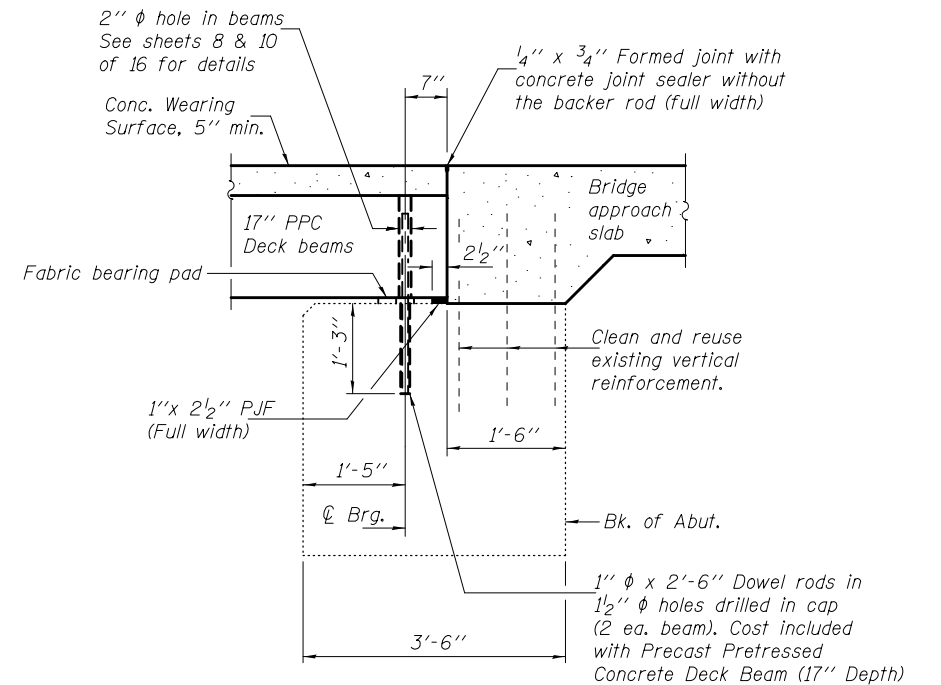


**SECTION A-A**  
(At West Abut.)



**SECTION B-B**

\*1" Jt. shall be filled with non-shrink grout. 1" dimension may vary to accommodate tolerance in beam lengths.



**SECTION C-C**  
(At East Abut.)

\*\*Epoxy grout v(E) bars in 9" min. drilled holes according to Section 584 of the Std. Specs.

Notes: All concrete wearing surfaces shall be placed prior to casting a backwall and/or approach slab. See sheets 8 & 10 of 16 for fabric bearing pad details. Existing vertical reinforcement bars extending into the new construction shall be cleaned, straightened and incorporated into the new construction. Cost included with Removal of Existing Superstructures. Burn existing dowel rods flush with existing abutment and pier surfaces. Grind existing dowel rods smooth and seal with epoxy. Cost included with Removal of Existing Superstructures.

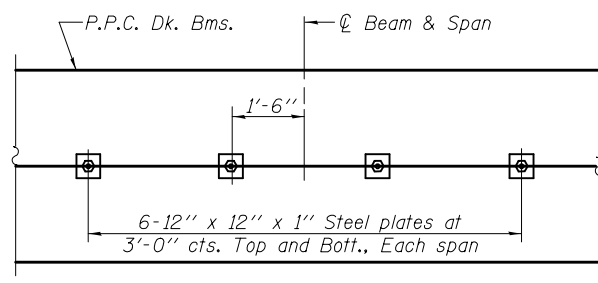
DESIGNED - Victor M. Mercado-Vazquez	EXAMINED - <i>Joanne F. [Signature]</i>	DATE - AUGUST 18, 2017
CHECKED - Cory D. Koltvelt	PASSED - <i>Carl [Signature]</i>	
DRAWN - h.t. duong		
CHECKED - VMMV / CDK / GRA		

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**SUPERSTRUCTURE DETAILS  
STRUCTURE NO. 073-0027**

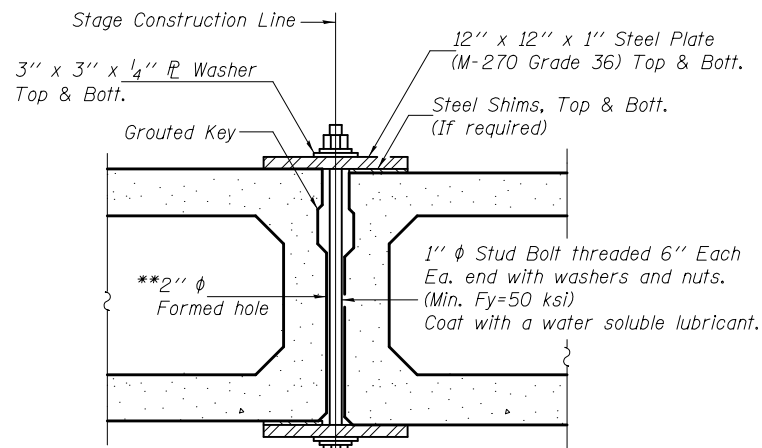
SHEET NO. 5 OF 16 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
841	(34)BR-1	PERRY	33	18
CONTRACT NO. 78156			ILLINOIS FED. AID PROJECT	

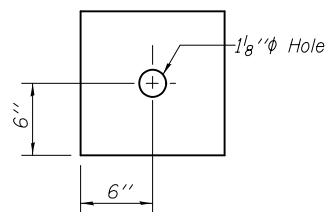


**PLAN**

Space plates to miss Temporary Bridge Rail Posts.



**SECTION**

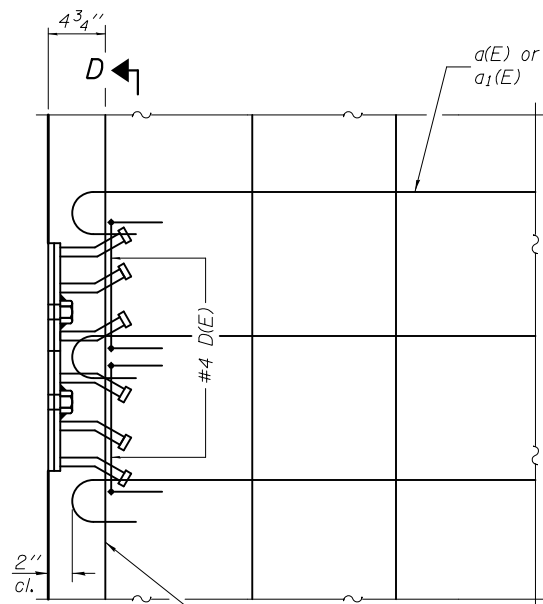


**CLAMPING PLATE**

**SHEAR KEY CLAMPING DETAILS AT STAGE CONSTRUCTION JOINT**

Cost included with Precast Prestressed Concrete Deck Beams. See Stage Construction Details for traffic lanes.

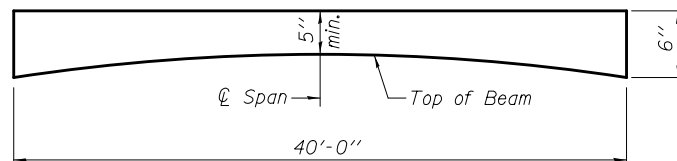
\*\*Cast semicircular recesses in the sides of each beam adjacent to the stage construction line. These recesses should align to form a hole at the appropriate locations for the clamping device bolts.



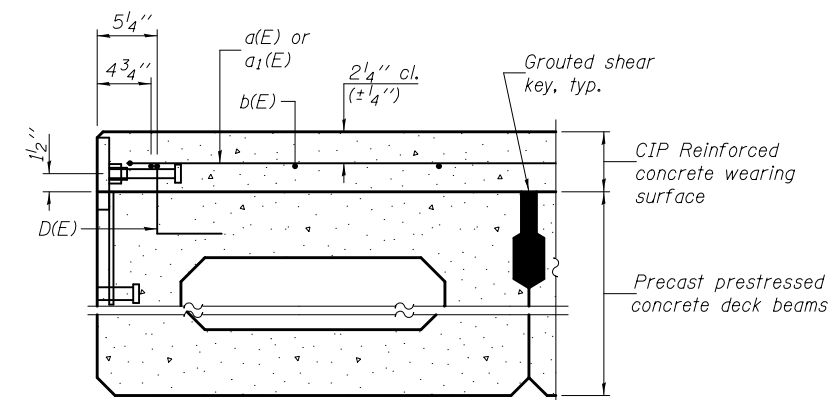
**PLAN**

Notes:  
Formwork necessary for the wearing surface may be secured utilizing the bottom rail anchorage inserts and/or additional inserts cast into the beam.

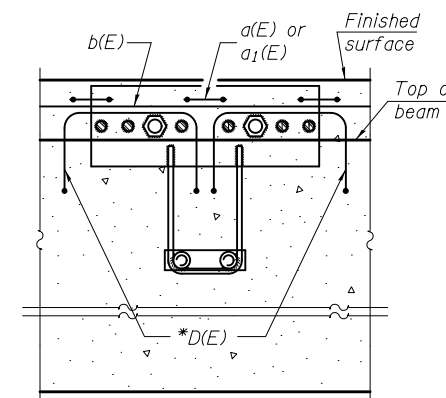
**MIN. BAR LAP**  
#4 bar = 2'-2"



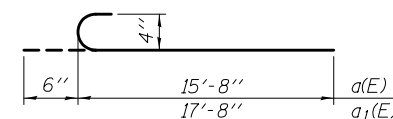
**REINFORCED CONCRETE WEARING SURFACE PROFILE**  
Typical each span



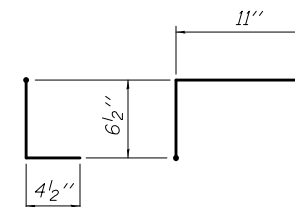
**SECTION THRU FASCIA BEAM**



**SECTION D-D**



**BARS a(E) & a1(E)**



**BAR D(E)**

\*Place 2-#4 D(E) bars in beam at each post location as shown. D(E) bar included in cost of beam.

**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
a(E)	81	#4	16'-2"	—
a1(E)	81	#4	18'-2"	—
b(E)	108	#4	28'-5"	—
v(E)	36	#4	2'-4"	—
Reinforcement Bars, Epoxy Coated			Lbs.	3,960
Concrete Wearing Surface, 5"			Sq. Yd.	302

DESIGNED - Victor M. Mercado-Vazquez	EXAMINED - <i>Joanne F. [Signature]</i>	DATE - AUGUST 18, 2017
CHECKED - Cory D. Koltvelt	PASSED - <i>Carl [Signature]</i>	
DRAWN - h.t. duong		
CHECKED - VMMV / CDK / GRA		

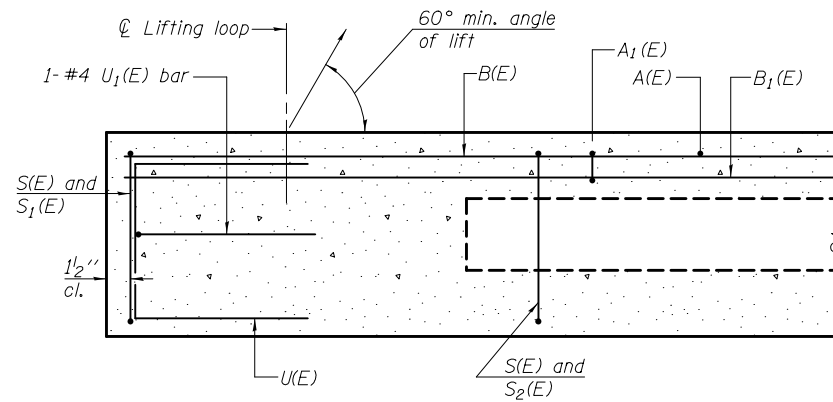
**STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION**

**SUPERSTRUCTURE DETAILS STRUCTURE NO. 073-0027**

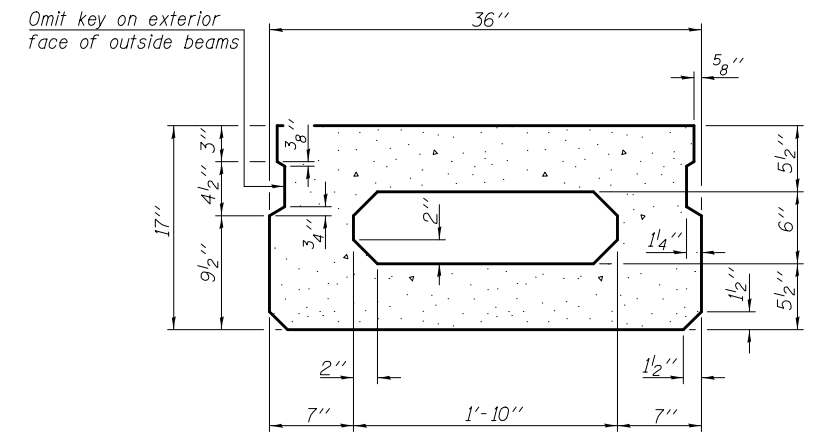
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
841	(34)BR-1	PERRY	33	19
CONTRACT NO. 78156				

SHEET NO. 6 OF 16 SHEETS

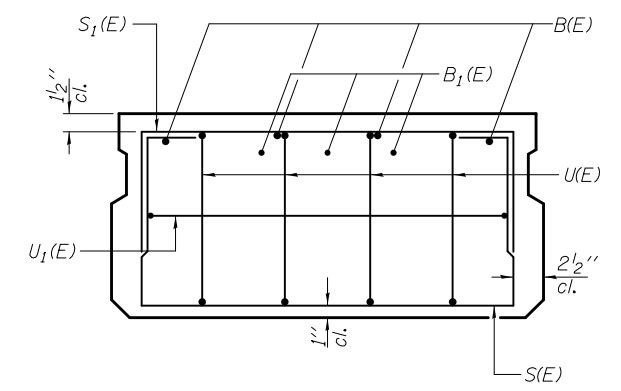
ILLINOIS FED. AID PROJECT



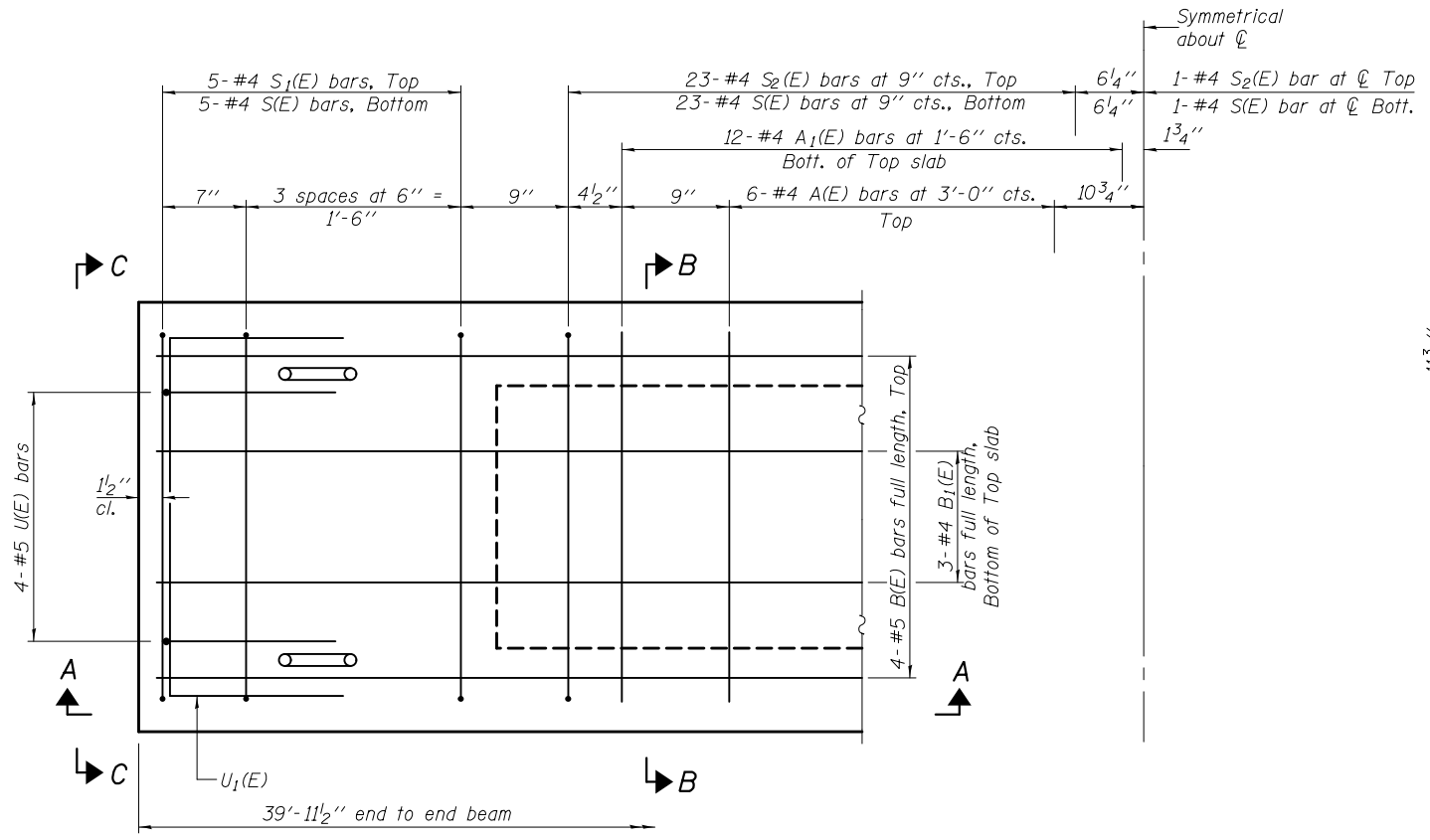
**SECTION A-A**



**SECTION B-B**  
(Showing dimensions)

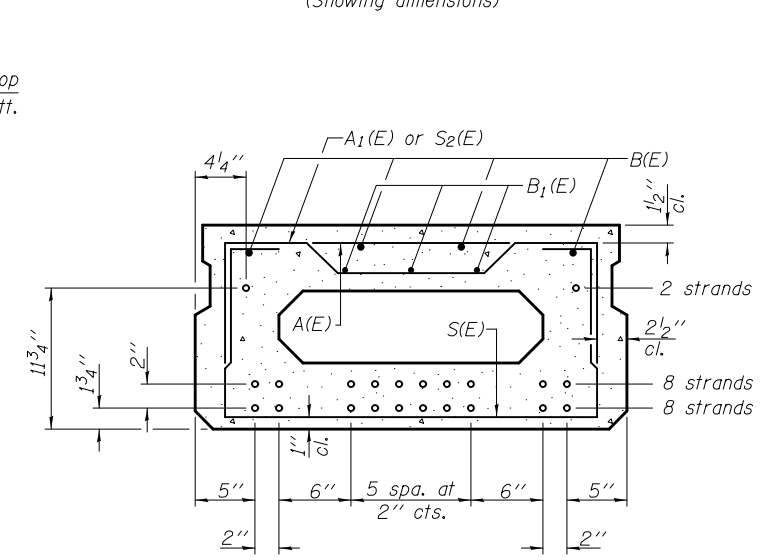


**VIEW C-C**



**PLAN VIEW**

Note: Spacing of S(E) and S2(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.



**SECTION B-B**  
(Showing reinforcement and permissible strand locations)

Note: Place the number of strands specified in each row symmetrically about the centerline of beam in the permissible strand locations shown.

**MINIMUM BAR LAP**  
#4 bar = 1'-11"  
#5 bar = 2'-6"

**BAR LIST**  
**ONE BEAM ONLY**  
(For information only)

Bar	No.	Size	Length	Shape
A(E)	12	#4	2'-7"	—
A1(E)	24	#4	2'-10"	—
B(E)	4	#5	39'-8"	—
B1(E)	3	#4	39'-8"	—
S(E)	57	#4	5'-9"	□
S1(E)	10	#4	4'-3"	□
S2(E)	47	#4	4'-6"	□
U(E)	8	#5	3'-8"	□
U1(E)	2	#4	5'-0"	□

Note: See sheet 8 of 16 for additional details and Bill of Material.

PD-1736-0 06-01-16

DESIGNED - Victor M. Mercado-Vazquez  
CHECKED - Cory D. Koltvelt  
DRAWN - h.t. duong  
CHECKED - VMMV / CDK / GRA

EXAMINED - *Joanne F. [Signature]*  
PASSED - *Carl [Signature]*  
ACTING ENGINEER OF BRIDGE DESIGN  
ACTING ENGINEER OF BRIDGES AND STRUCTURES

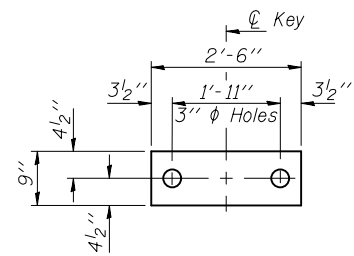
DATE - AUGUST 18, 2017

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

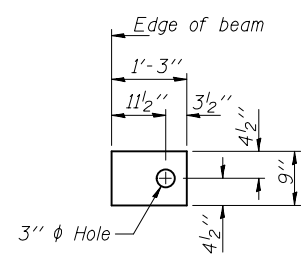
**17" x 36" PPC DECK BEAM**  
**STRUCTURE NO. 073-0027**

SHEET NO. 7 OF 16 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
841	(34)BR-1	PERRY	33	20
				CONTRACT NO. 78156
ILLINOIS FED. AID PROJECT				



**FABRIC BEARING PAD**  
(Interior)

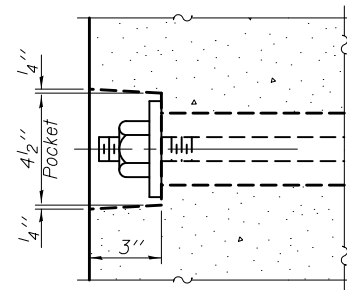


**FABRIC BEARING PAD**  
(Exterior)

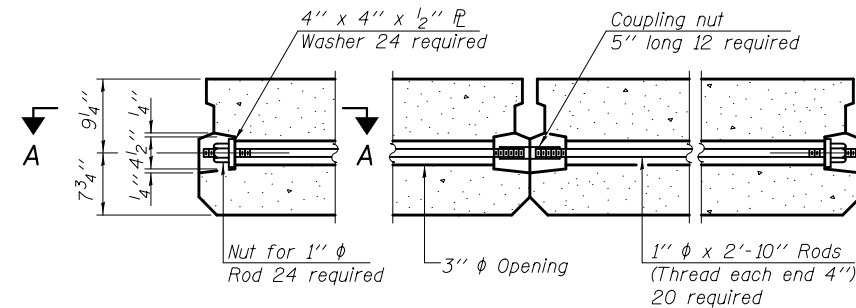
**FIXED**

Notes:

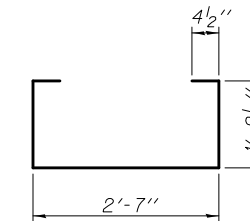
- All bearing pads shall be 1/2" thick.
- Omit holes when using expansion bearings.
- Expansion bearing pad shall be bonded to the substructure.



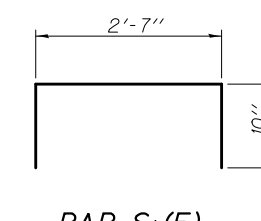
**SECTION A-A**



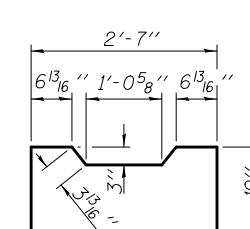
**TYPICAL TRANSVERSE TIE ASSEMBLY**



**BAR S(E)**

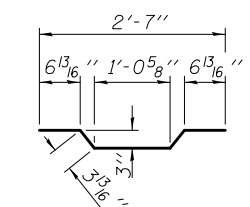


**BAR S1(E)**

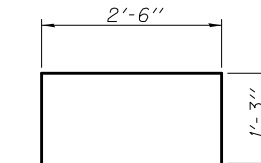


**BAR U(E)**

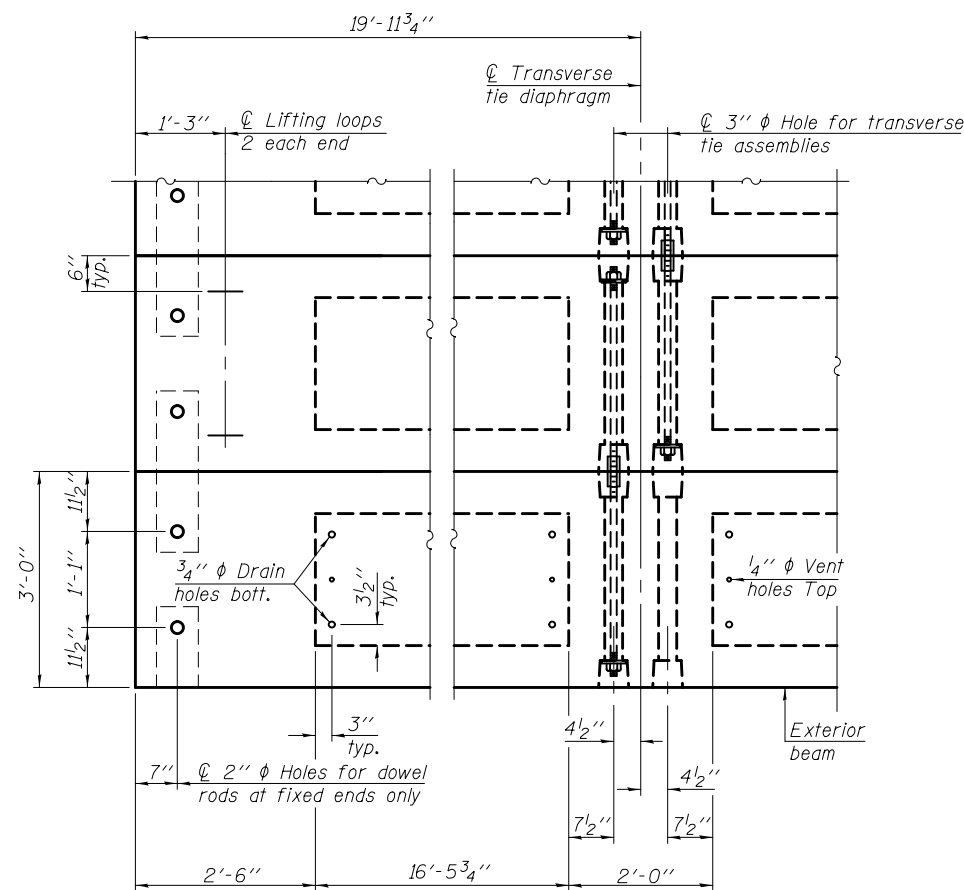
**BAR S2(E)**



**BAR A1(E)**



**BAR U1(E)**

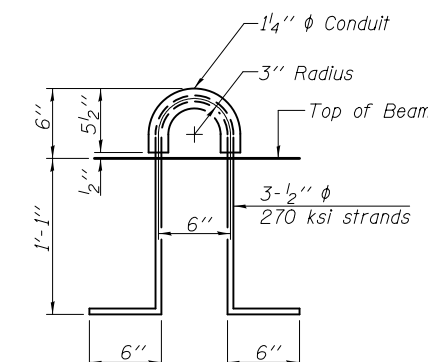


**PLAN VIEW**

Note: Connect beams in pairs with the transverse tie configuration shown.

**NOTES**

- Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in.
- The 1" rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place.
- Two 1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.
- A minimum 2 1/2" diameter lifting pin shall be used to engage the lifting loops during handling.
- Corrosion Inhibitor, per Article 1020.05(b)(10) and 1021.07 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.
- Compressive strength of prestressed concrete, f'c, shall be 6000 psi.
- Compressive strength of prestressed concrete at release, f'ci, shall be 5000 psi.



**LIFTING LOOP DETAIL**

**BILL OF MATERIAL**

Precast Prestressed Conc. Deck Bms. (17" depth)	Sq. Ft.	1439
---	---------	------

PD-1736-0D

1-28-16

DESIGNED - Victor M. Mercado-Vazquez  
CHECKED - Cory D. Koltvelt  
DRAWN - h.t. duong  
CHECKED - VMV / CDK / GRA

EXAMINED  
PASSED

ACTING ENGINEER OF BRIDGE DESIGN  
ACTING ENGINEER OF BRIDGES AND STRUCTURES

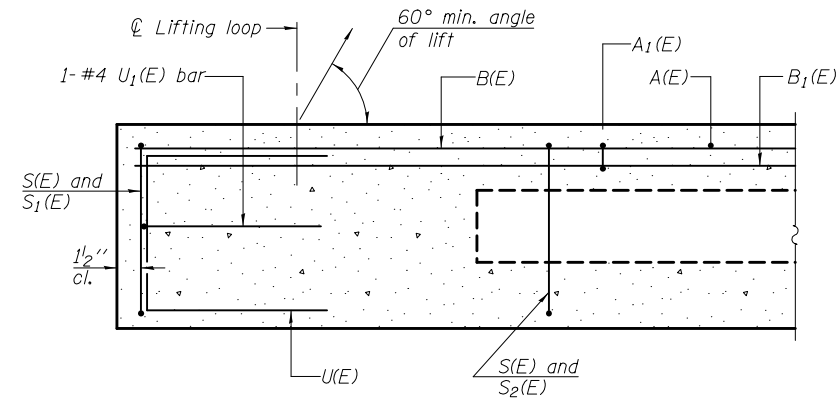
DATE - AUGUST 18, 2017

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

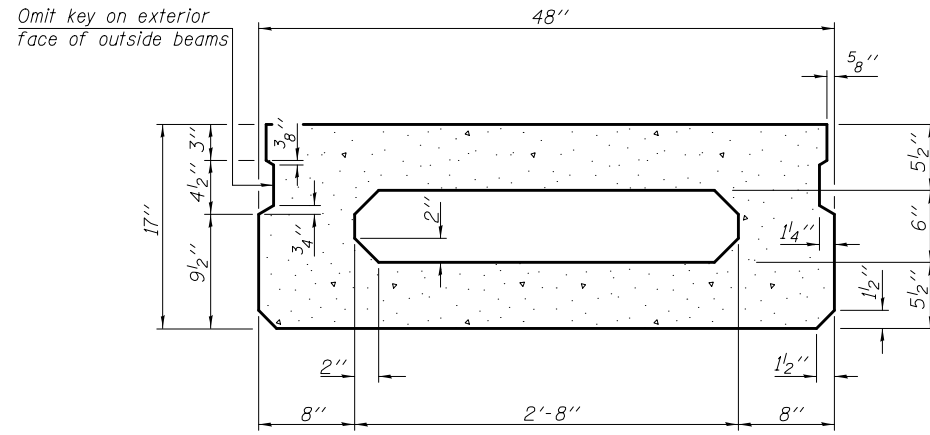
17" x 36" PPC DECK BEAM DETAILS  
STRUCTURE NO. 073-0027

SHEET NO. 8 OF 16 SHEETS

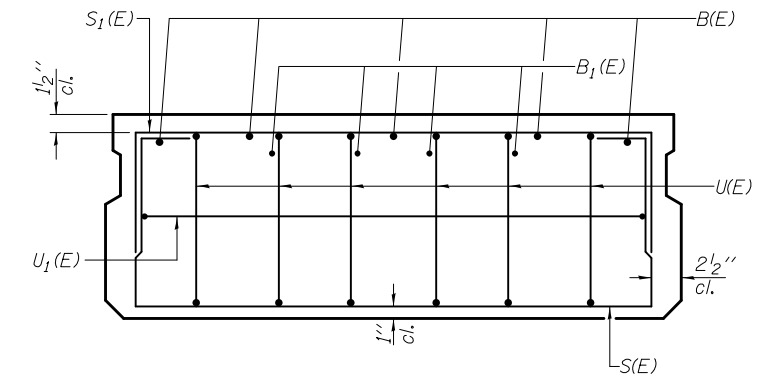
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
841	(34)BR-1	PERRY	33	21
CONTRACT NO. 78156				
ILLINOIS FED. AID PROJECT				



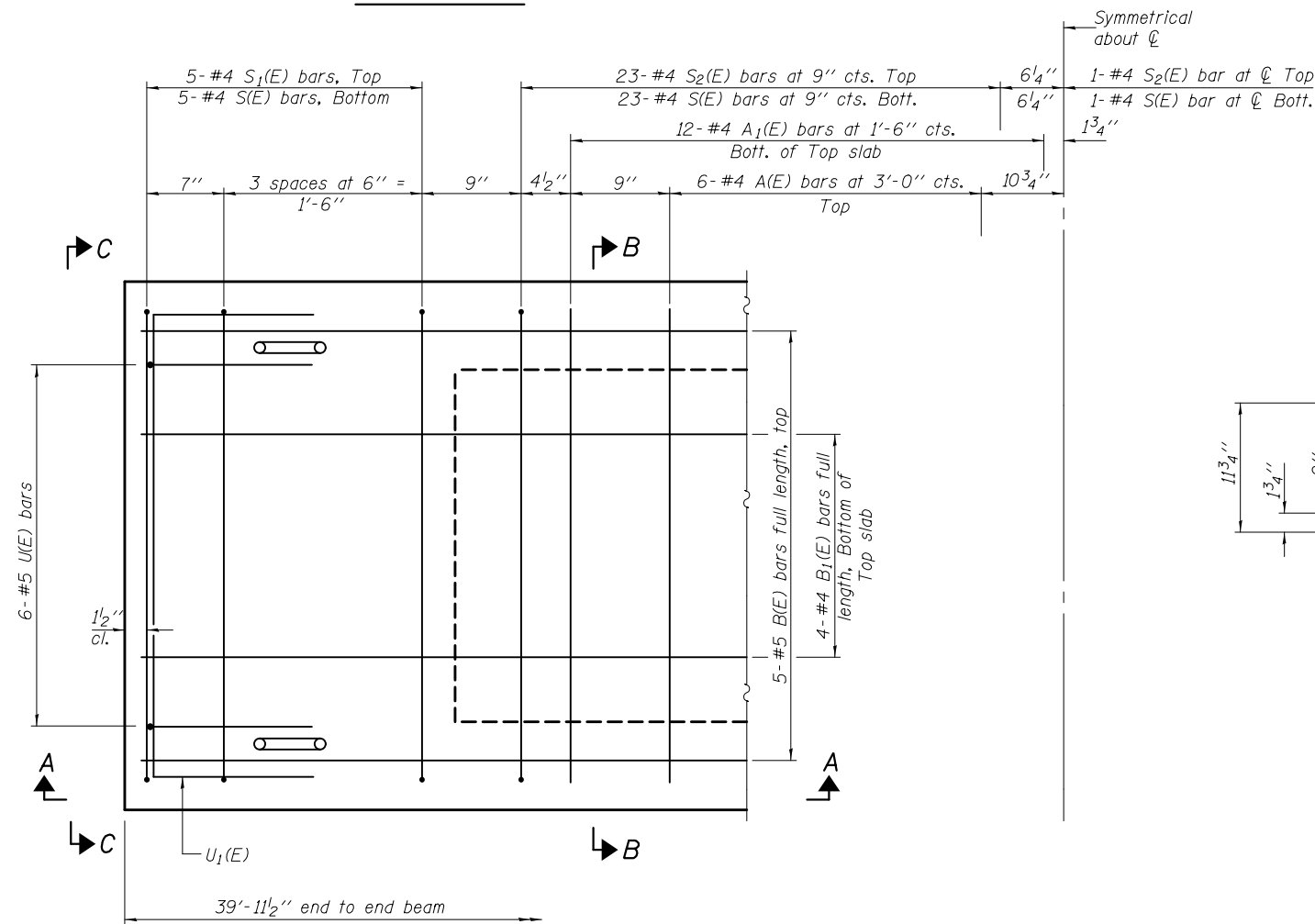
**SECTION A-A**



**SECTION B-B**  
(Showing dimensions)

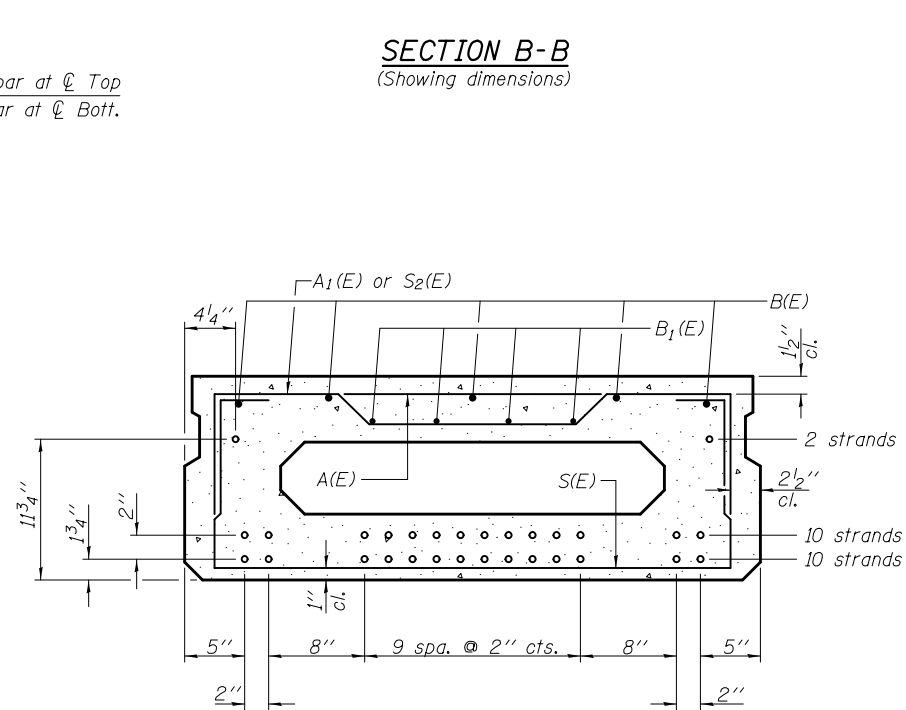


**VIEW C-C**



**PLAN VIEW**

Note: Spacing of S(E) and S2(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.



**SECTION B-B**

(Showing reinforcement and permissible strand locations)  
Note: Place the number of strands specified in each row symmetrically about the centerline of beam in the permissible strand locations shown.

**MINIMUM BAR LAP**

#4 bar = 1'-11"  
#5 bar = 2'-6"

**BAR LIST**  
**ONE BEAM ONLY**  
(For information only)

Bar	No.	Size	Length	Shape
A(E)	12	#4	3'-7"	—
A1(E)	24	#4	3'-10"	—
B(E)	5	#5	39'-8"	—
B1(E)	4	#4	39'-8"	—
S(E)	57	#4	6'-9"	□
S1(E)	10	#4	5'-3"	□
S2(E)	47	#4	5'-6"	□
U(E)	12	#5	3'-8"	□
U1(E)	2	#4	6'-0"	□

Note: See sheet 10 of 16 for additional details and Bill of Material.

PD-1748-0 06-01-16

DESIGNED - Victor M. Mercado-Vazquez  
CHECKED - Cory D. Koltvelt  
DRAWN - h.t. duong  
CHECKED - VMMV / CDK / GRA

EXAMINED - *Joanne F. [Signature]*  
PASSED - *Carl [Signature]*  
ACTING ENGINEER OF BRIDGE DESIGN  
ACTING ENGINEER OF BRIDGES AND STRUCTURES

DATE - AUGUST 18, 2017

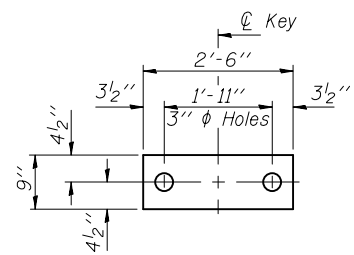
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**17" x 48" PPC DECK BEAM**  
**STRUCTURE NO. 073-0027**

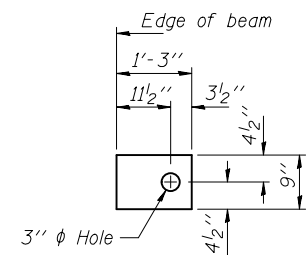
SHEET NO. 9 OF 16 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
841	(34)BR-1	PERRY	33	22
CONTRACT NO. 78156				

ILLINOIS FED. AID PROJECT



**FABRIC BEARING PAD**  
(Interior)

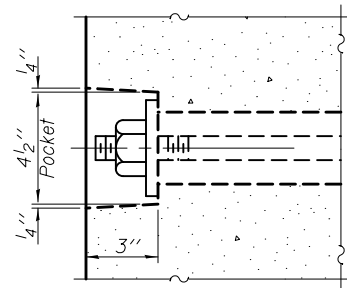


**FABRIC BEARING PAD**  
(Exterior)

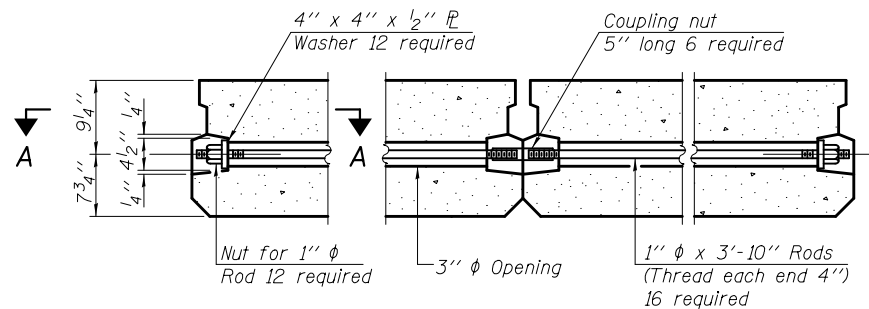
**FIXED**

Notes:

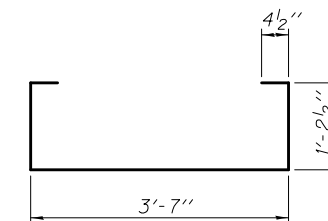
All bearing pads shall be 1/2" thick.  
Omit holes when using expansion bearings.  
Expansion bearing pad shall be bonded to the substructure.



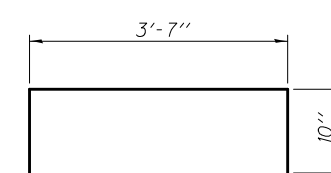
**SECTION A-A**



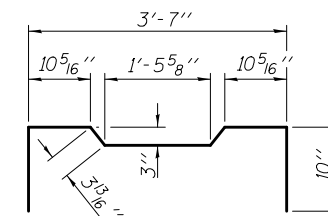
**TYPICAL TRANSVERSE TIE ASSEMBLY**



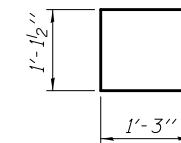
**BAR S(E)**



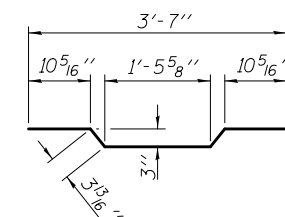
**BAR S1(E)**



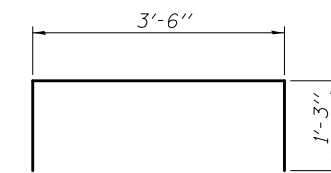
**BAR S2(E)**



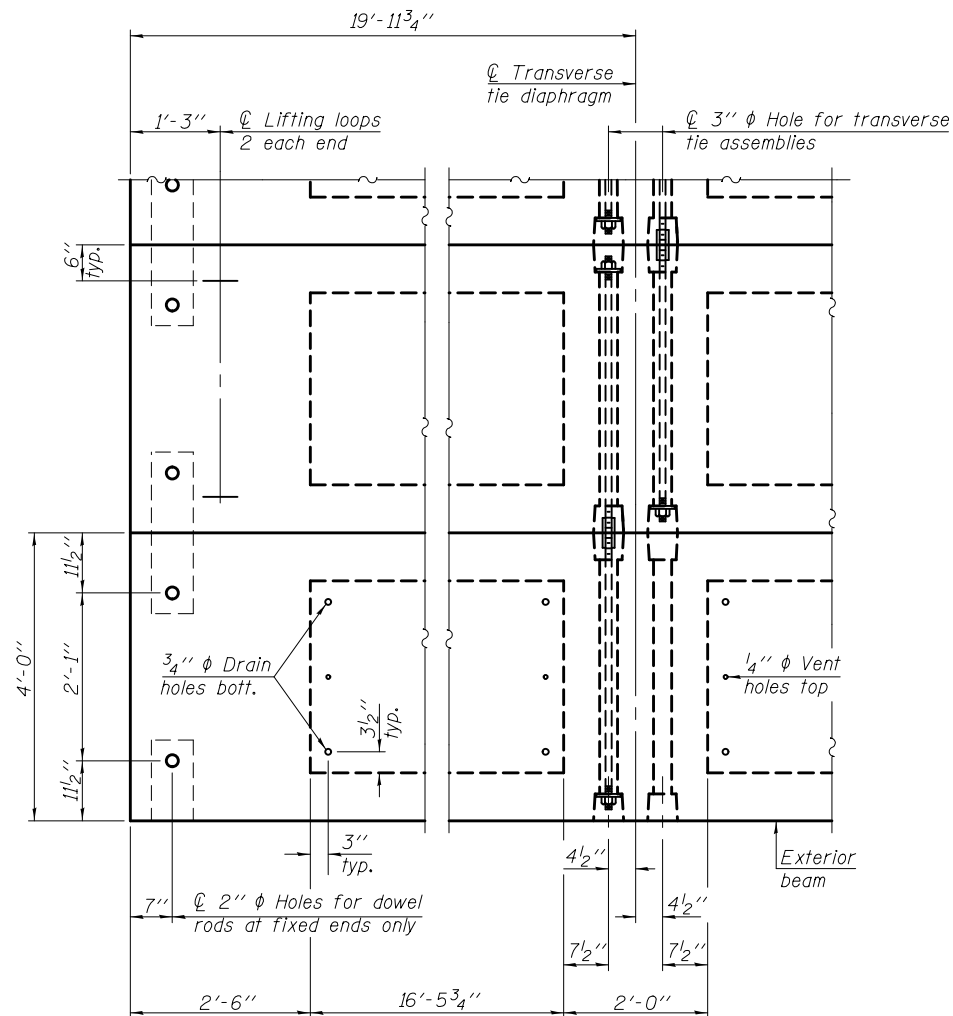
**BAR U(E)**



**BAR A1(E)**

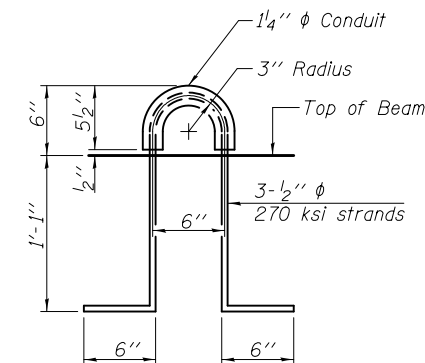


**BAR U1(E)**



**PLAN VIEW**

Note: Connect beams in pairs with the transverse tie configuration shown.



**LIFTING LOOP DETAIL**

**BILL OF MATERIAL**

Material	Sq. Ft.	Quantity
Precast Prestressed Conc. Deck Bms. (17" depth)	1279	23

**NOTES**

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in.  
The 1" rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place.  
Two 1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.  
A minimum 2 1/2" diameter lifting pin shall be used to engage the lifting loops during handling.  
Corrosion Inhibitor, per Article 1020.05(b)(10) and 1021.07 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.  
Compressive strength of prestressed concrete, f'c, shall be 6000 psi.  
Compressive strength of prestressed concrete at release, f'ci, shall be 5000 psi.

PD-1748-0D

1-28-16

DESIGNED - Victor M. Mercado-Vazquez  
CHECKED - Cory D. Koltvelt  
DRAWN - h.t. duong  
CHECKED - VMMV / CDK / GRA

EXAMINED  
PASSED

ACTING ENGINEER OF BRIDGE DESIGN  
ACTING ENGINEER OF BRIDGES AND STRUCTURES

DATE - AUGUST 18, 2017

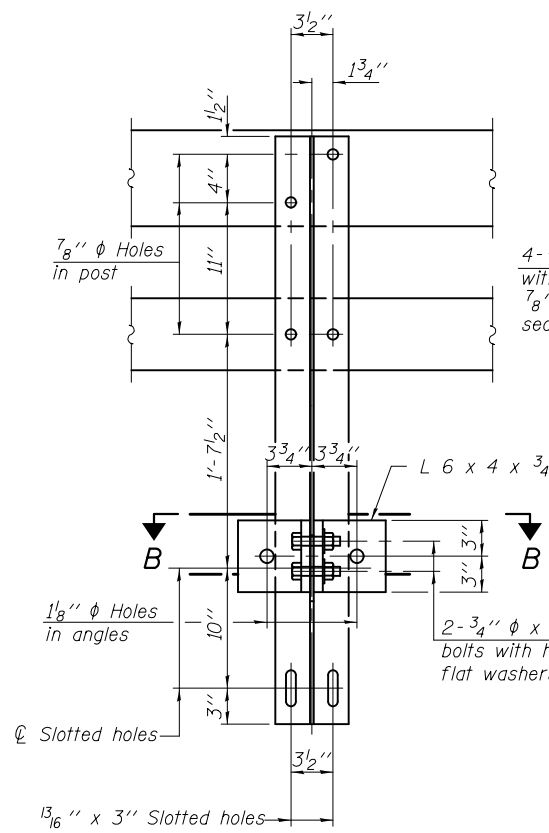
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

17" x 48" PPC DECK BEAM DETAILS  
STRUCTURE NO. 073-0027

SHEET NO. 10 OF 16 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
841	(34)BR-1	PERRY	33	23
CONTRACT NO. 78156				

ILLINOIS FED. AID PROJECT



SECTION A-A

4-3/4" φ x 6" Round Head Bolts with locknut & flat washer.  
7/8" φ holes in hollow structural section may be drilled in the field.

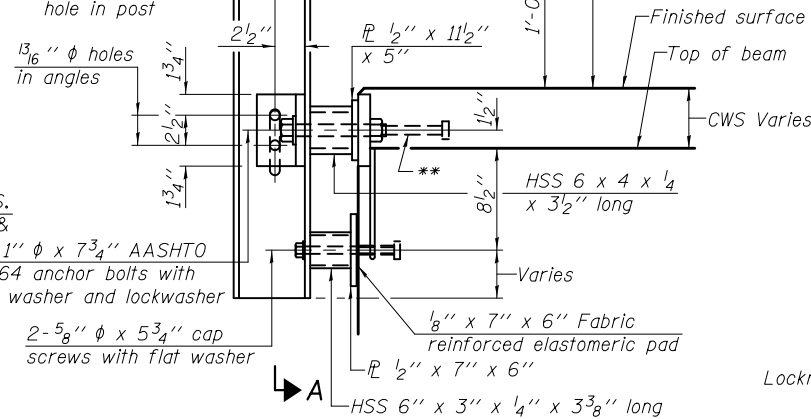
13/16" x 5 1/2" slotted hole in post  
13/16" φ holes in angles

2-3/4" φ x 3 1/4" H.S. bolts with hex nut & flat washers

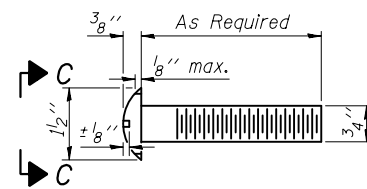
2-1" φ x 7 3/4" AASHTO M-164 anchor bolts with flat washer and lockwasher

2-5/8" φ x 5 3/4" cap screws with flat washer

SECTION AT RAIL POST



DETAIL OF 3/4" φ ROUND HEAD BOLT



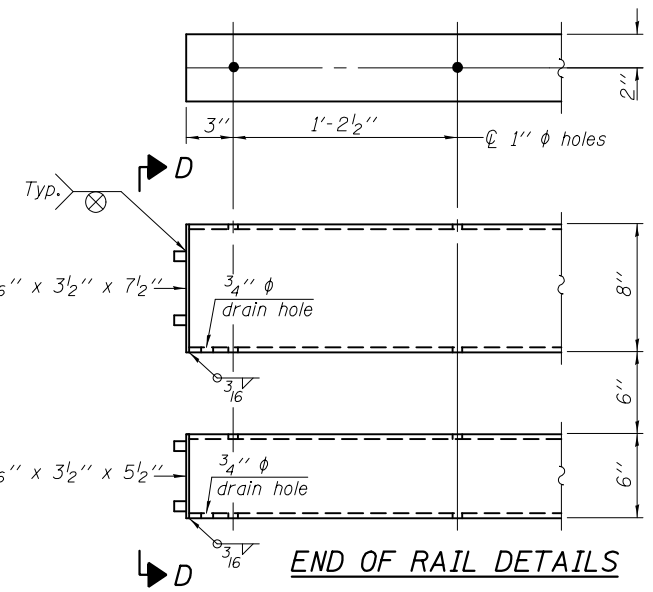
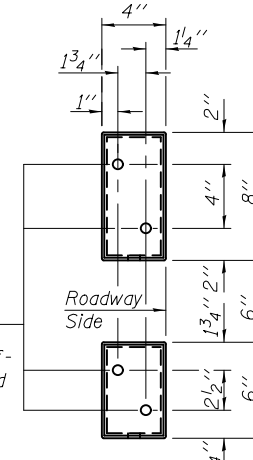
With Slot (shown) or Approved Recess

Without Slot or Recess

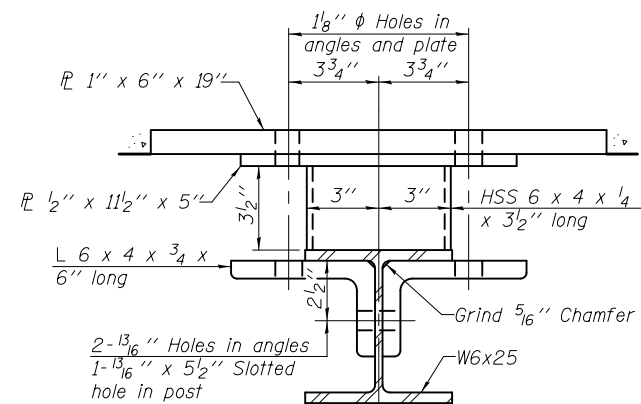
VIEW C-C

φ - 5/8" reduced base welded studs. Provide 4-5/8" washers and self-locking nuts or nuts and jam nuts for guardrail connection shown on Std. 631032.

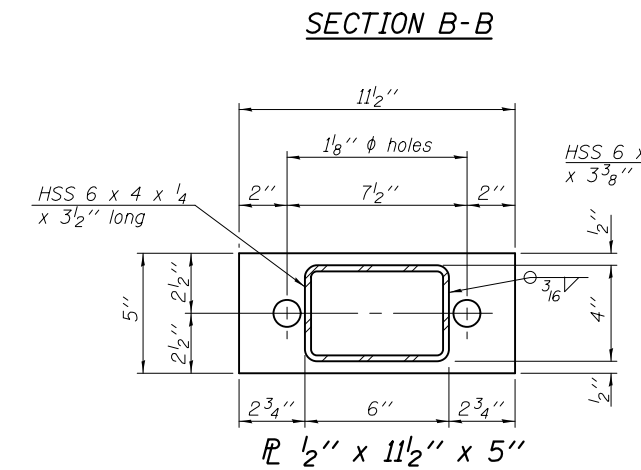
VIEW D-D



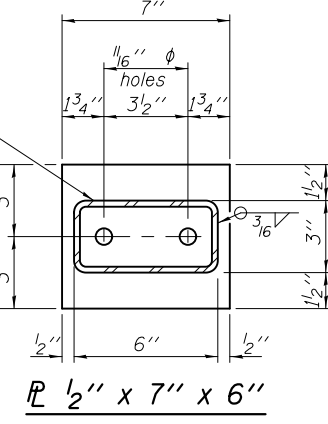
END OF RAIL DETAILS



SECTION B-B

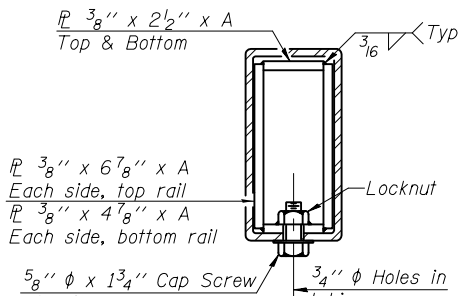
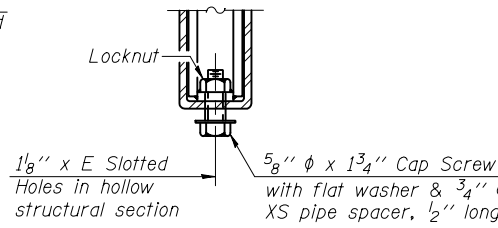


SECTION AT RAIL POST

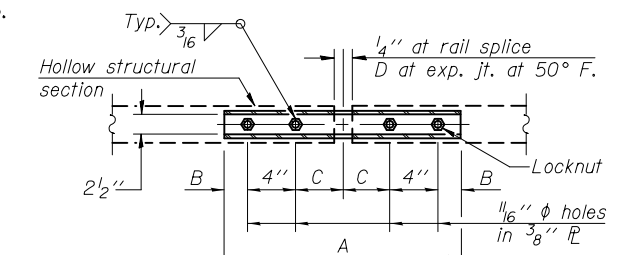


SECTION AT RAIL POST

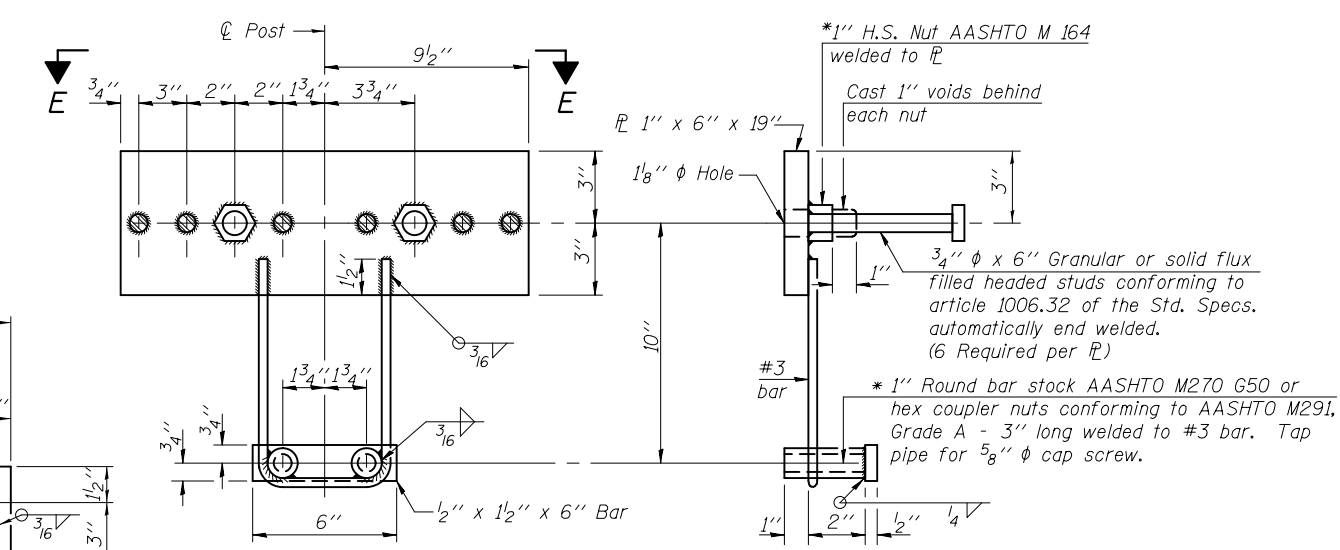
RAIL SPLICE CONNECTION AT EXPANSION JT.



SECTION AT RAIL SPLICE



PLAN-BOTT. SPLICE AT TYPICAL



ANCHOR DEVICE

SPLICE DIMENSIONS

T	D	A	B	C	E
≤ 4"	2 1/2"	1'-8"	2"	4"	2 1/2"
> 4" ≤ 6 1/2"	3 3/4"	2'-0"	2 1/2"	5 1/2"	3 1/2"
> 6 1/2" ≤ 9"	5"	2'-4"	3 1/2"	6 1/2"	9"
> 9" ≤ 13"	7"	2'-10"	4 1/2"	8 1/2"	11"
Rail Splice	4"	1'-8"	2"	4"	—

T = Total movement at expansion joint as shown on the design plans.

\*Threaded areas shall be plugged or blocked off during casting of beam. Galvanized after fabrication.

Notes:  
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type SM.  
Steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.  
\*\* The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type SM	Foot	210

R-34CWS

11-22-2016 (6'-3" Maximum Post Spacing) (5" minimum to 7 1/8" maximum CWS thickness)

DESIGNED - Victor M. Mercado-Vazquez  
CHECKED - Cory D. Koltvelt  
DRAWN - h.t. duong  
CHECKED - VMV / CDK / GRA

EXAMINED  
PASSED

ACTING ENGINEER OF BRIDGES AND STRUCTURES

DATE - AUGUST 18, 2017

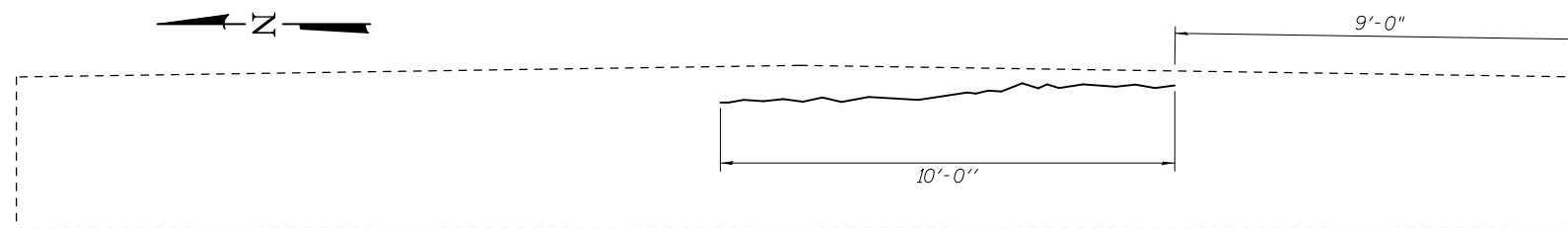
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

STEEL RAILING, TYPE SM WITH CONCRETE WEARING SURFACE  
STRUCTURE NO. 073-0027

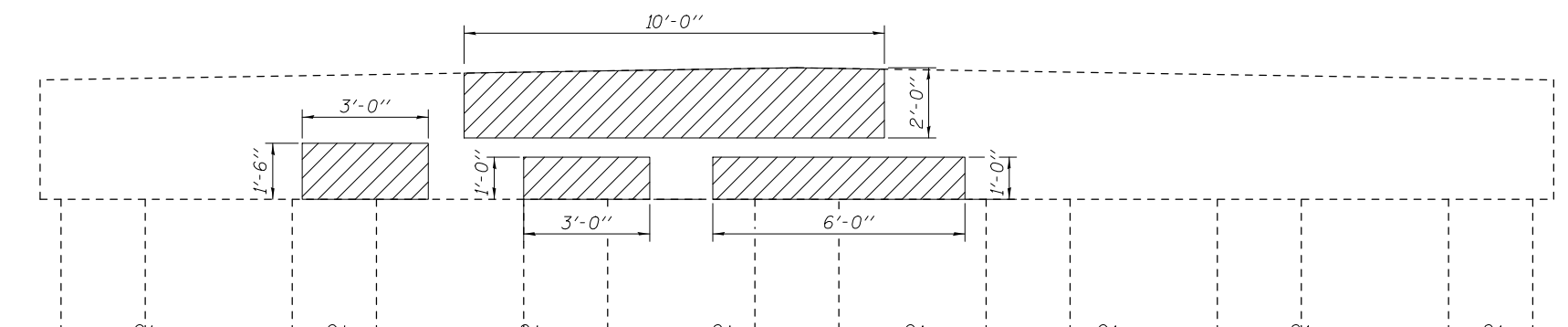
SHEET NO. 11 OF 16 SHEETS

F.A.P. SECTION COUNTY TOTAL SHEETS SHEET NO.  
RTE. 841 (34)BR-1 PERRY 33 24  
CONTRACT NO. 78156  
ILLINOIS FED. AID PROJECT

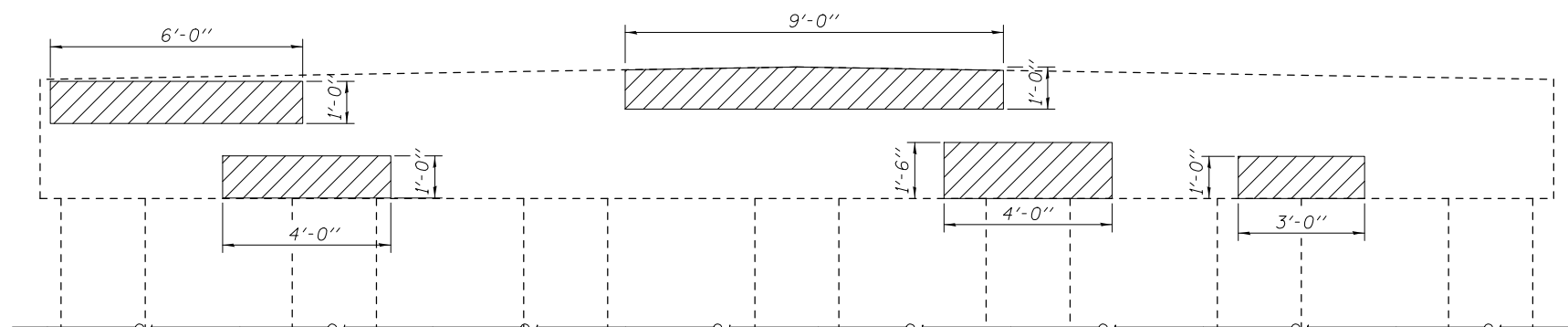




**EAST ABUTMENT ELEVATION**



**PIER - WEST FACE**  
(Looking East)



**PIER - EAST FACE**  
(Looking West)

Notes: Locations of repair areas to be verified by engineer in field.  
For details of replacing the concrete to be repaired, see sheet 13 of 16.

**LEGEND**

Structural Repair of Concrete (Depth ≤ 5")

**BILL OF MATERIAL**

Item	Unit	Quantity
Structural Repair of Concrete (Depth ≤ 5")	Sq. Ft.	61.5
Epoxy Crack Injection	Foot	10

DESIGNED - Victor M. Mercado-Vazquez  
 CHECKED - Cory D. Koltvelt  
 DRAWN - h.t. duong  
 CHECKED - VMMV / CDK / GRA

EXAMINED   
 ACTING ENGINEER OF BRIDGE DESIGN  
 PASSED   
 ACTING ENGINEER OF BRIDGES AND STRUCTURES

DATE - AUGUST 18, 2017

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

**CONCRETE STRUCTURAL REPAIR**  
**STRUCTURE NO. 073-0027**

SHEET NO. 12 OF 16 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
841	(34)BR-1	PERRY	33	25
CONTRACT NO. 78156				
ILLINOIS FED. AID PROJECT				

**Notes:**

The 1"  $\phi$  bars shall be tightened to snug tight per Article 505.04 of the Standard Specifications and the threads set.

Threaded bars shall be in accordance with ASTM A193 B7, Nuts shall be in accordance with ASTM A194.

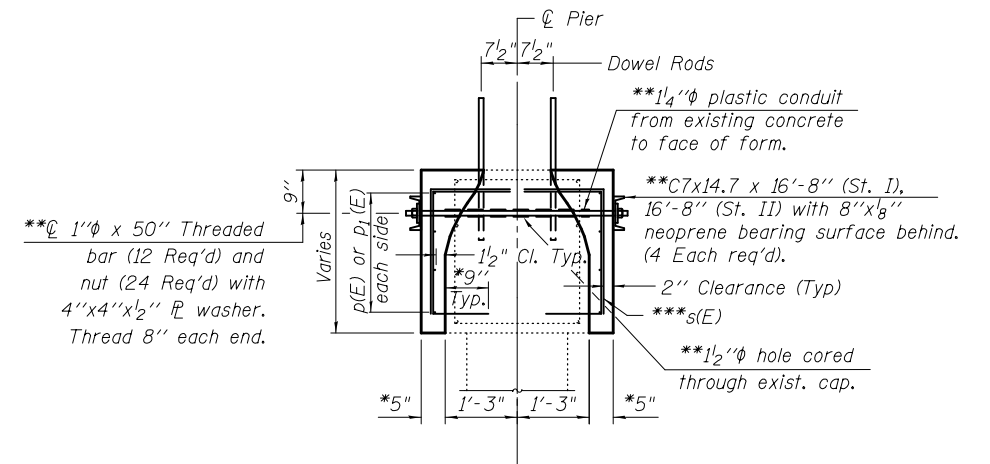
Threaded bars, nuts, and washers shall be galvanized according to AASHTO M232.

Channels shall be galvanized according to AASHTO M111.

\* Concrete to be poured monolithically with delaminated areas to be repaired.

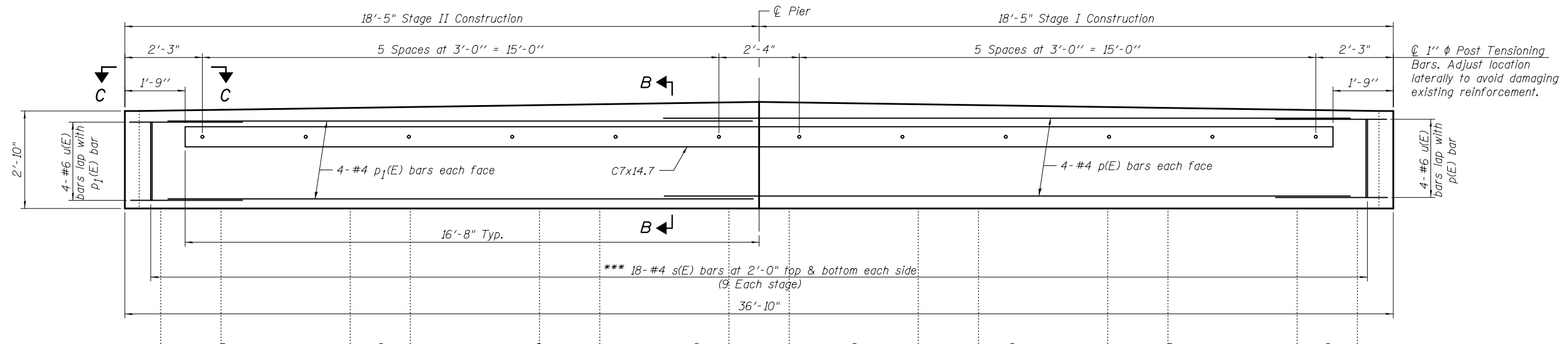
\*\* Cost to be included with Concrete Structures.

\*\*\* Drill and epoxy grout 9" min. into existing cap according to Article 584 of the Standard Specifications. Trim leg to maintain minimum clearance. Cost included with Reinforcement Bars, Epoxy Coated.



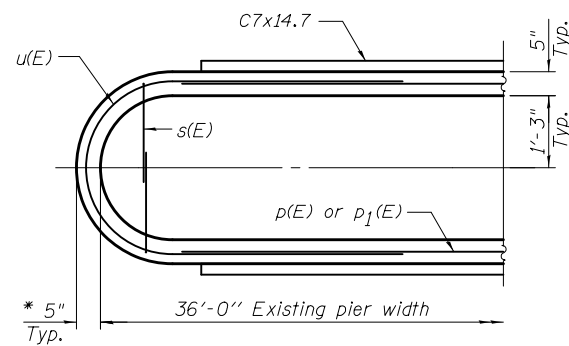
**SECTION B-B**

Liberally grease and wrap Threaded bar in waxed paper prior to insertion.

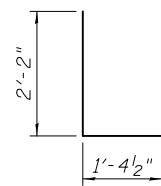


**SECTION A-A**

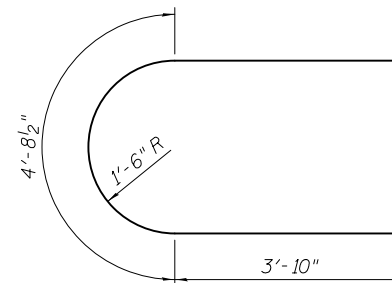
(Looking East)



**VIEW C-C**



**BAR s(E)**



**BAR u(E)**

**MINIMUM BAR LAP**

#4 BAR = 2'-7"  
#6 BAR = 3'-10"

**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
p(E)	8	#4	19'-6"	—
p1(E)	8	#4	16'-7"	—
s(E)	72	#4	3'-7"	L
u(E)	8	#6	12'-5"	U
Concrete Structures			Cu. Yd.	3.6
Reinforcement Bars, Epoxy Coated			Pound	510

DESIGNED - Victor M. Mercado-Vazquez  
CHECKED - Cory D. Koltvelt  
DRAWN - h.t. duong  
CHECKED - VMMV / CDK / GRA

EXAMINED - *Joanne F. [Signature]*  
PASSED - *Carl [Signature]*  
ACTING ENGINEER OF BRIDGE DESIGN  
ACTING ENGINEER OF BRIDGES AND STRUCTURES

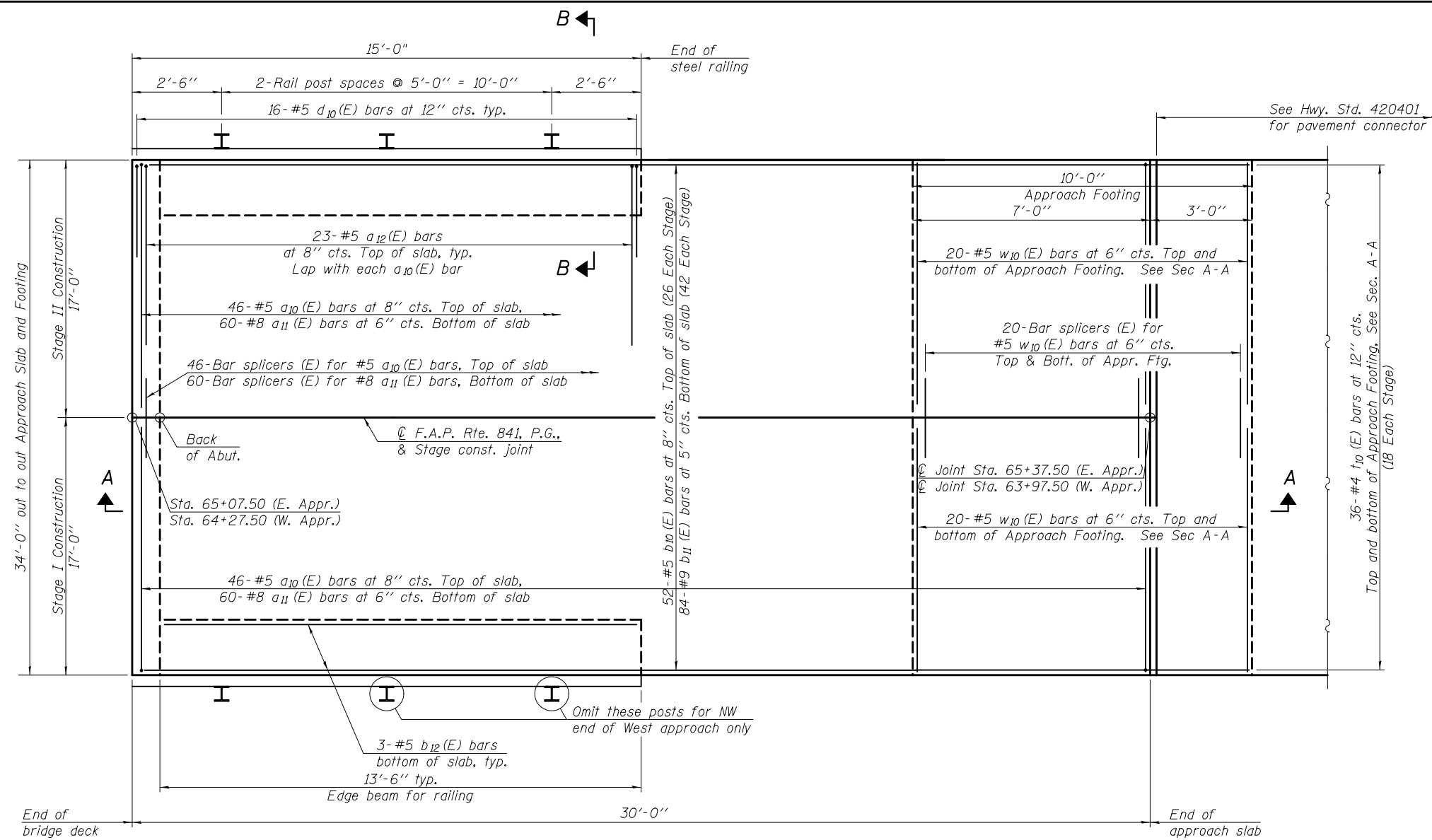
DATE - AUGUST 18, 2017

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

PIER CAP DETAILS  
STRUCTURE NO. 073-0027

SHEET NO. 13 OF 16 SHEETS

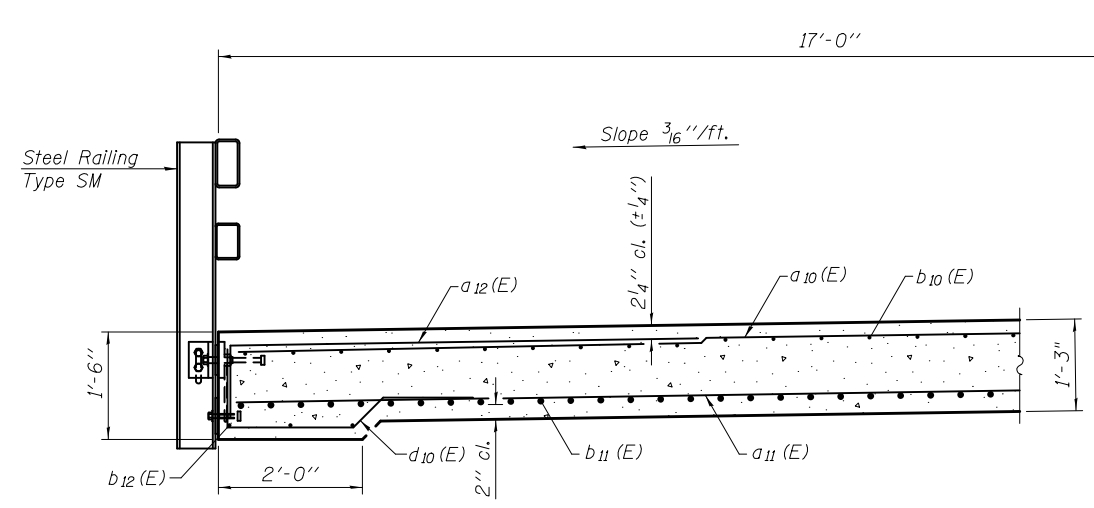
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
841	(34)BR-1	PERRY	33	26
				CONTRACT NO. 78156
ILLINOIS FED. AID PROJECT				



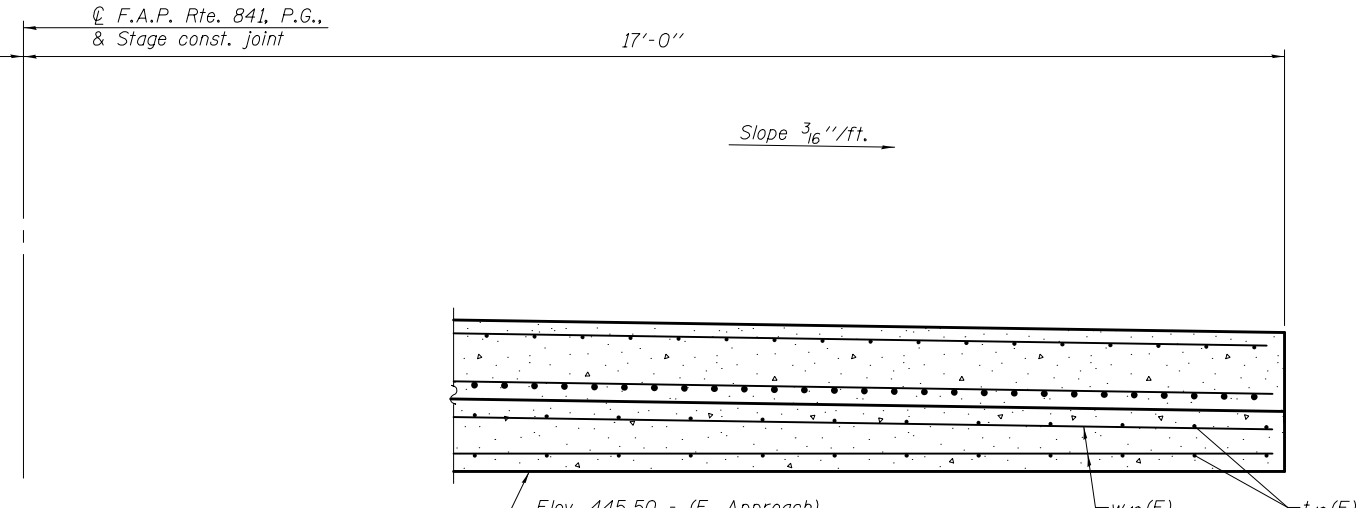
Note: See Sheet 14 of 16 for Section B-B.

**PLAN**

(East Approach shown - West Approach similar by mirror image except as shown)



**NEAR ABUTMENT**



**CROSS SECTION**

(Looking East)

**AT APPROACH FOOTING**

DESIGNED - Victor M. Mercado-Vazquez	EXAMINED - <i>Joanne F. [Signature]</i>	DATE - AUGUST 18, 2017
CHECKED - Cory D. Koltvelt	PASSED - <i>Carl [Signature]</i>	
DRAWN - h.t. duong		
CHECKED - VMMV / CDK / GRA		

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

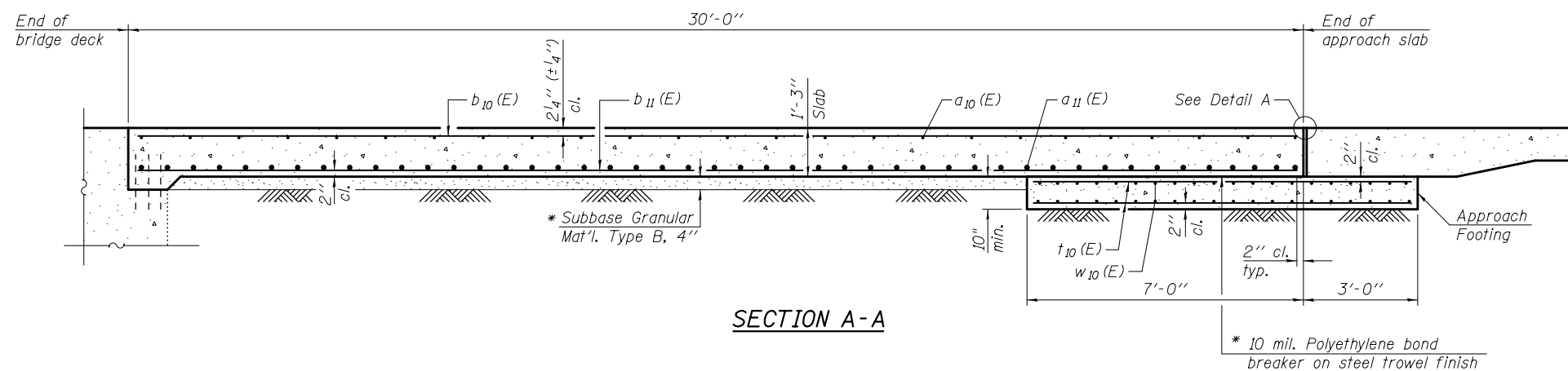
**BRIDGE APPROACH SLAB DETAILS  
STRUCTURE NO. 073-0027**

F.A.P. RTE. 841	SECTION (34)BR-1	COUNTY PERRY	TOTAL SHEETS 33	SHEET NO. 27
CONTRACT NO. 78156				

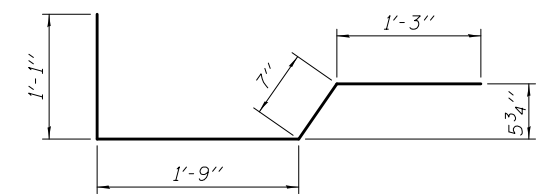
SHEET NO. 14 OF 16 SHEETS

ILLINOIS FED. AID PROJECT

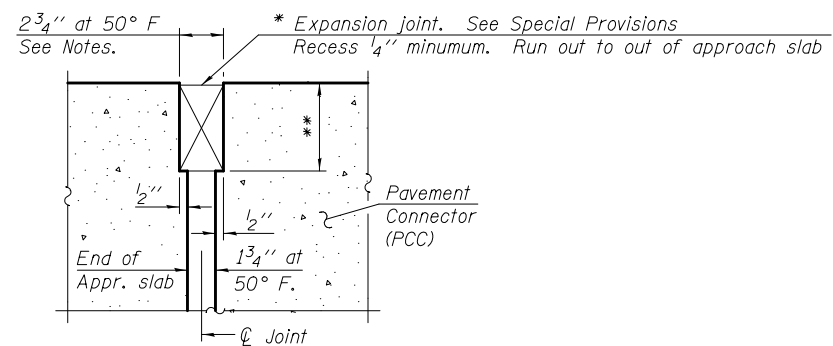
Notes:  
 The joint opening shall be adjusted for temperature per Article 520.04 of the Standard Specifications. However, since this detail is for jointless structures, the length of bridge used to calculate the adjustment shall be equal to half the total bridge length plus the length of the bridge approach pavement.  
 Approach slab shall be paid for as Concrete Superstructure (Approach Slab).  
 Approach footing concrete shall be paid for as Concrete Structures.  
 The approach footing maximum applied service bearing pressure ( $Q_{max}$ ) = 2.0 ksf.  
 Cost of excavation for approach footing included with Concrete Structures.  
 For railing details, see sheet 11 of 16.



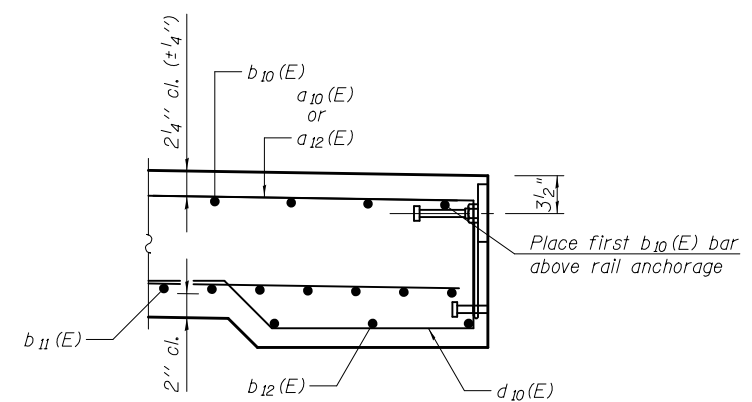
SECTION A-A



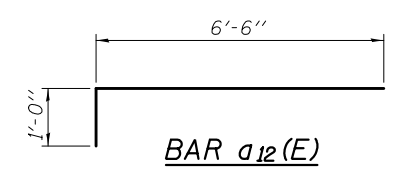
BAR  $d_{10}(E)$



DETAIL A



SECTION B-B

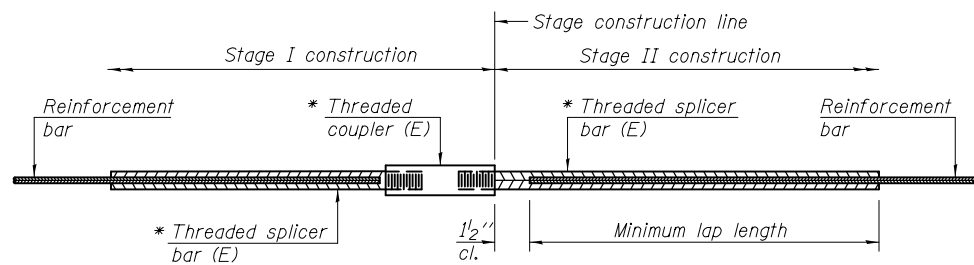


BAR  $a_{12}(E)$

TWO APPROACHES  
 BILL OF MATERIAL

Bar	No.	Size	Length	Shape
$a_{10}(E)$	184	#5	16'-8"	—
$a_{11}(E)$	240	#8	16'-8"	—
$a_{12}(E)$	92	#5	7'-6"	—
$b_{10}(E)$	104	#5	29'-8"	—
$b_{11}(E)$	168	#9	29'-8"	—
$b_{12}(E)$	12	#5	13'-3"	—
$d_{10}(E)$	64	#5	4'-8"	L
$t_{10}(E)$	72	#4	9'-8"	—
$w_{10}(E)$	160	#5	16'-8"	—
Concrete Superstructure (Approach Slab)		Cu. Yd.	102.7	
Concrete Structures		Cu. Yd.	21.0	
Reinforcement Bars, Epoxy Coated		Pound	38,490	

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

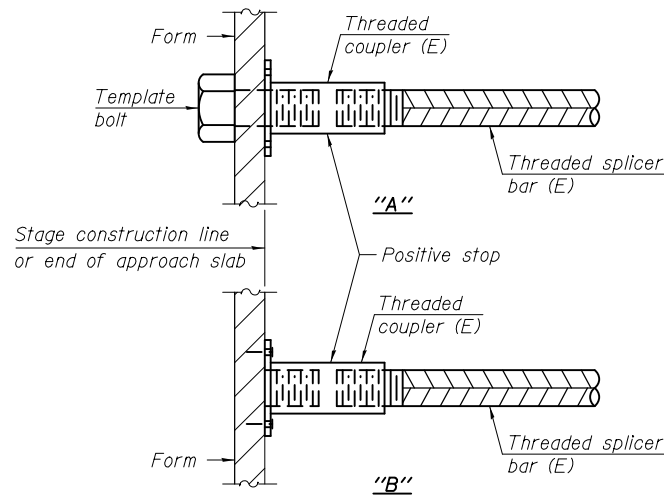


**STANDARD BAR SPLICER ASSEMBLY**

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

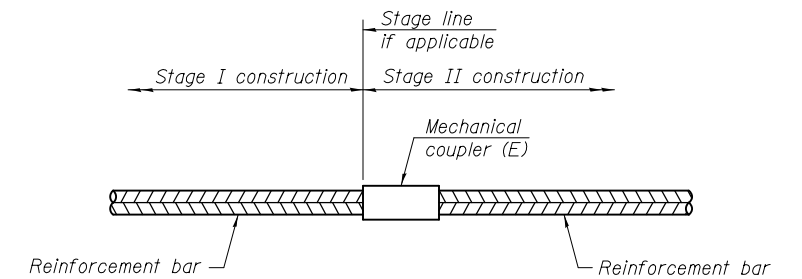
\* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

Location	Bar size	No. assemblies required	Minimum lap length
C.W.S.	#4	81	2'-4"
Appr. & Appr. Ftg.	#5	172	2'-7"
Appr.	#8	120	5'-5"



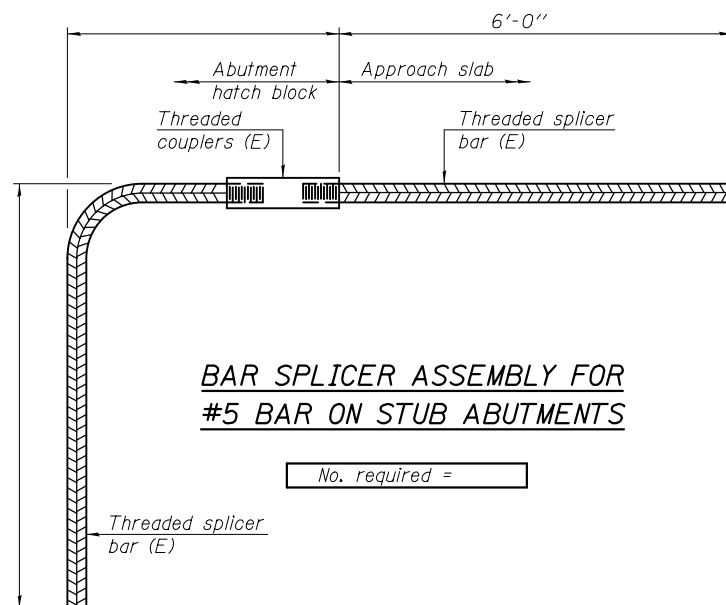
**INSTALLATION AND SETTING METHODS**

"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 =

**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

11-22-2016

DESIGNED - Victor M. Mercado-Vazquez	EXAMINED - <i>Joanne F. [Signature]</i>	DATE - AUGUST 18, 2017
CHECKED - Cory D. Koltvelt	PASSED - <i>Carl [Signature]</i>	
DRAWN - h.t. duong		
CHECKED - VMMV / CDK / GRA		

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

BAR SPLICER ASSEMBLY AND MECHANICAL SPLICER DETAILS  
STRUCTURE NO. 073-0027

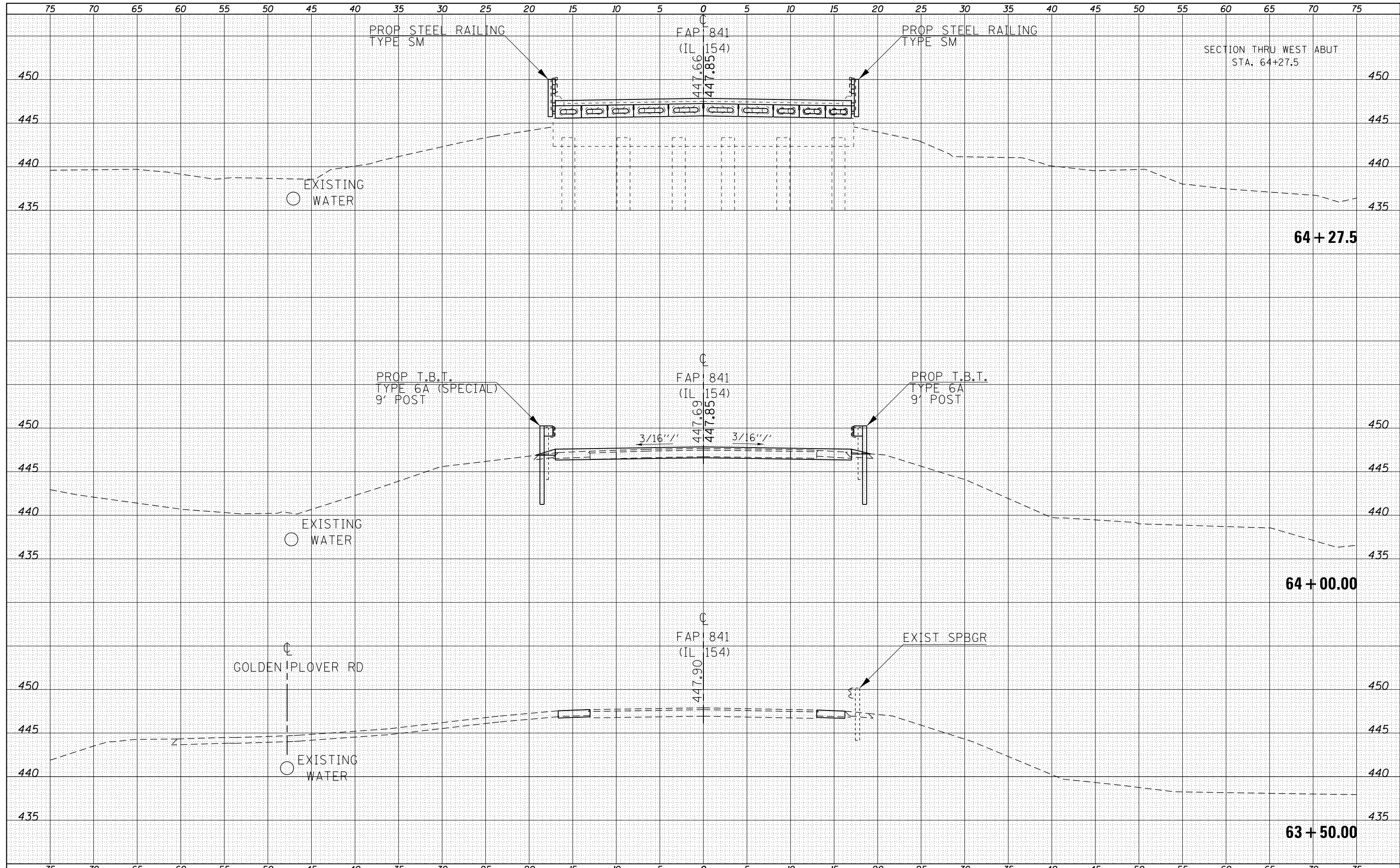
SHEET NO. 16 OF 16 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
841	(34)BR-1	PERRY	33	29
CONTRACT NO. 78156				

ILLINOIS FED. AID PROJECT

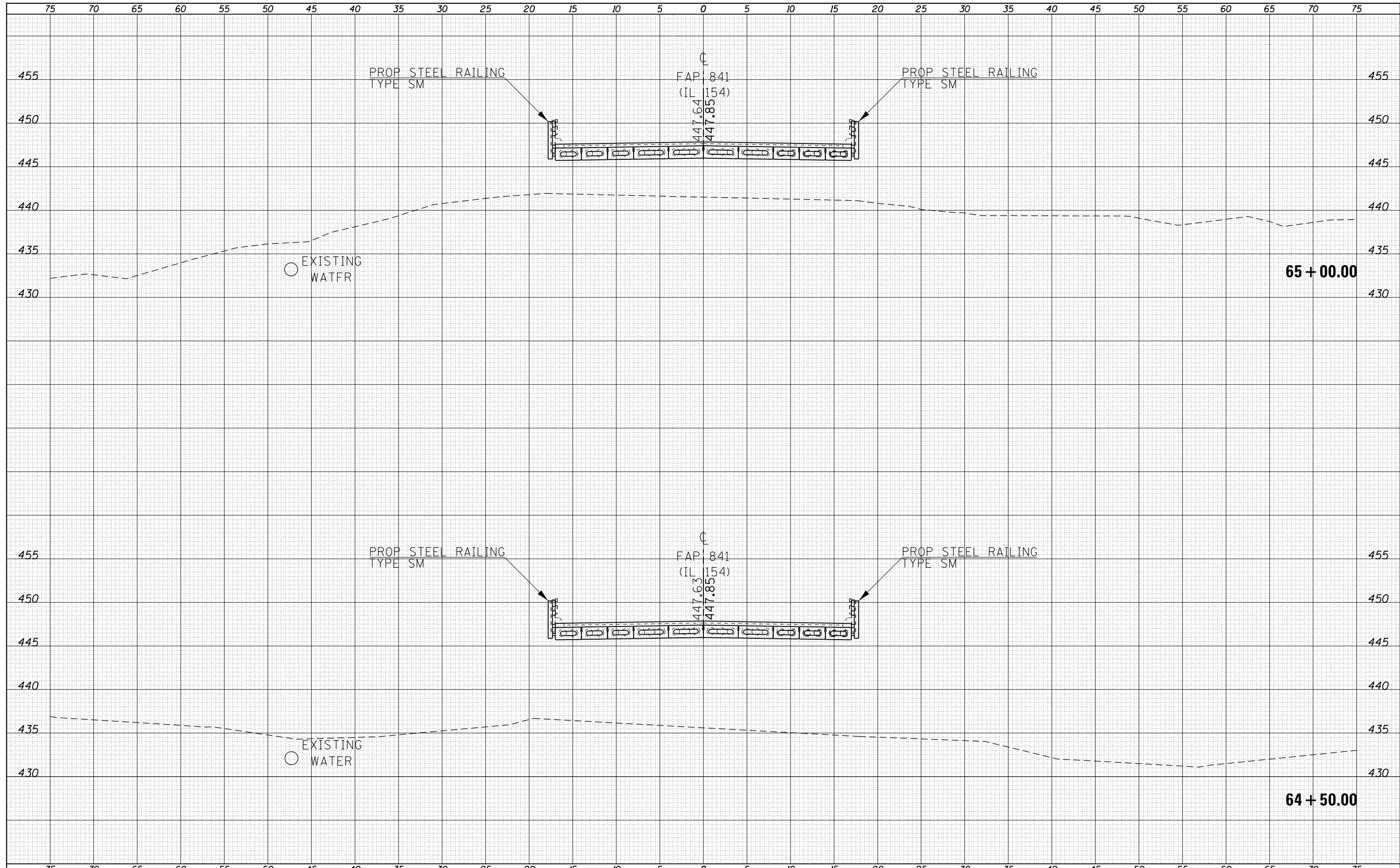
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BY	
FINAL SURVEY	
SURVEYED	
PLOTTED	
TEMPLATE	
NOTE BOOK	
AREAS CHECKED	
NO.	

DATE	
BY	
ORIGINAL SURVEY	
SURVEYED	
PLOTTED	
TEMPLATE	
NOTE BOOK	
AREAS CHECKED	
NO.	



DATE	
BY	
SURVEYED	
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TEMPLATE	
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CHECKED	
FINAL SURVEY	
NOTE BOOK	
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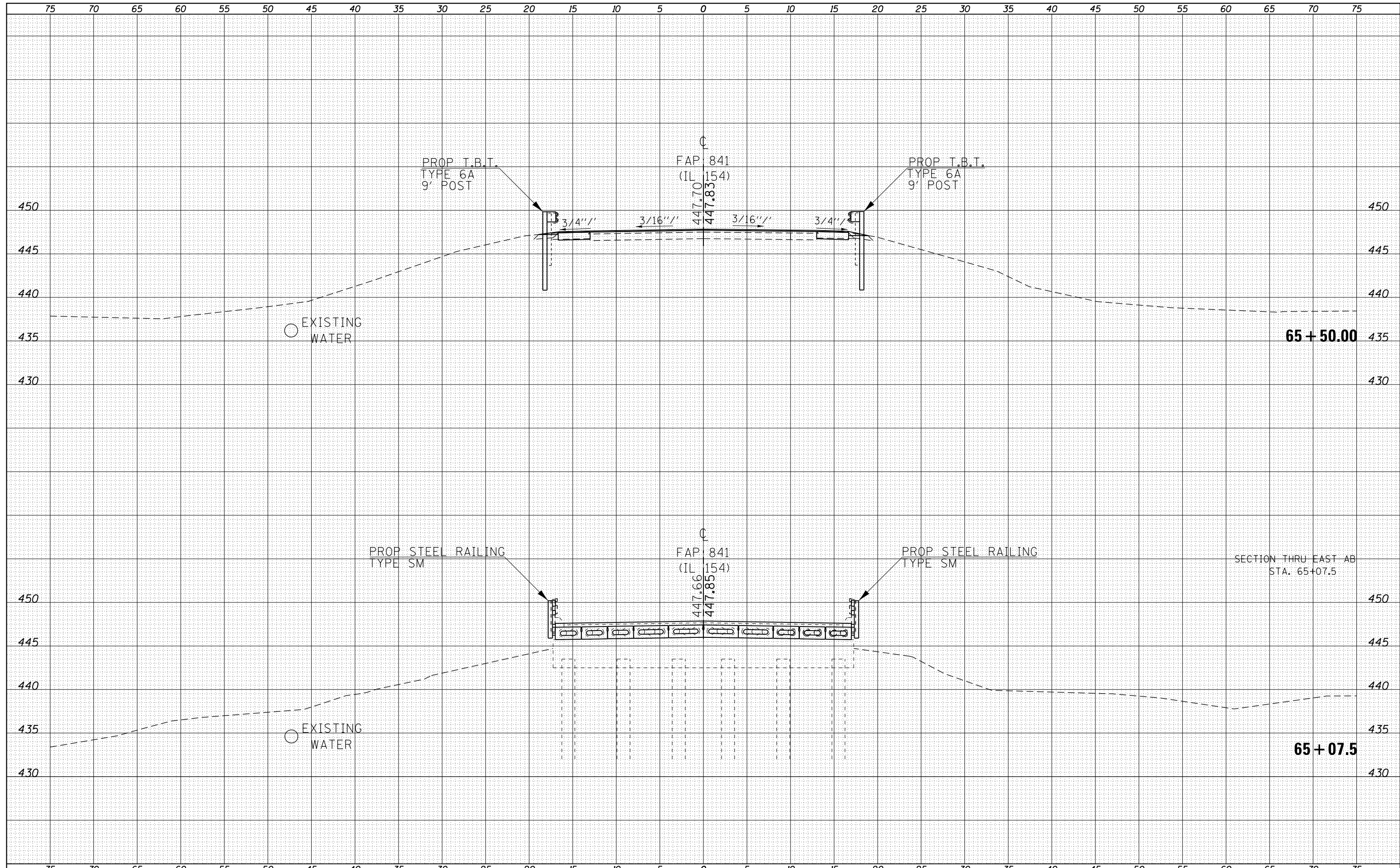
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PLOTTED	
TEMPLATE	
AREAS	
CHECKED	
ORIGINAL SURVEY	
NOTE BOOK	
NO.	



FILE NAME =	USER NAME = halsteadtw	DESIGNED -	REVISIED -	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>IL 154</b> <b>CROSS SECTIONS</b>	F.A.P. RTÉ.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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PLLOT DATE = 6/28/2017	DATE -	REVISIED -	REVISIED -			CONTRACT NO. 78156			ILLINOIS FED. AID PROJECT	
						SCALE: 1"=5'	SHEET NO.	OF SHEETS	STA. 64+50.00	TO STA. 65+00.00

DATE	
BY	
SURVEYED	
PLOTTED	
TEMPLATE	
AREAS	
CHECKED	
FINAL SURVEY	
NOTE BOOK	
NO.	

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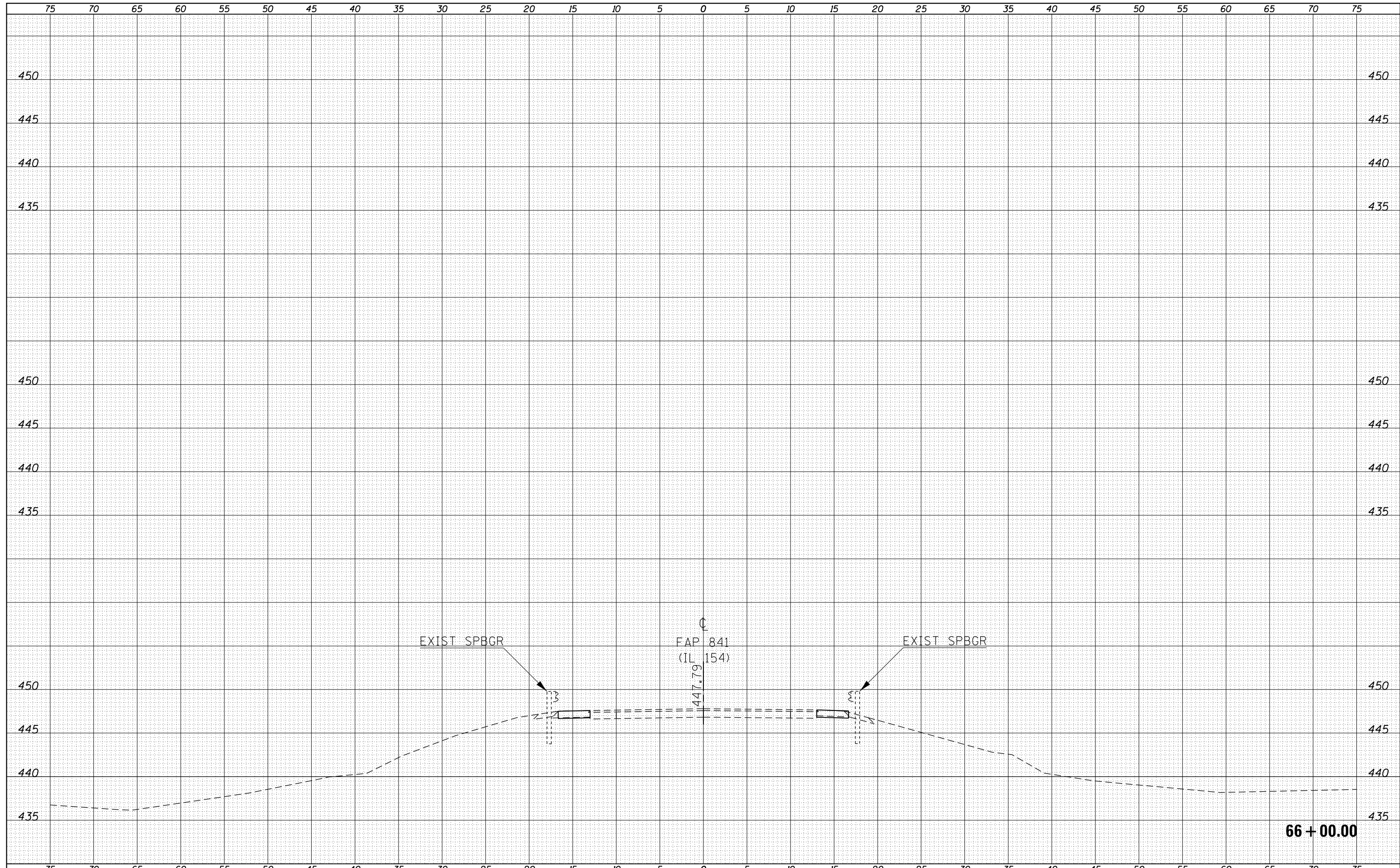


FILE NAME =	USER NAME = halsteadw	DESIGNED -	REVISIED -	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>IL 154</b> <b>CROSS SECTIONS</b>	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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PLOT SCALE = 10.0000' / in.	CHECKED -	REVISIED -	REVISIED -			CONTRACT NO. 78156				
PLOT DATE = 6/28/2017	DATE -	REVISIED -	REVISIED -			SCALE: 1"=5'	SHEET NO.	OF SHEETS	STA. 65+09.00	TO STA. 65+50.00



DATE	
BY	
FINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
NO.	TEMPLATE
	AREAS
	CHECKED

DATE	
BY	
ORIGINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
NO.	TEMPLATE
	AREAS
	CHECKED



FILE NAME =	USER NAME = halsteadw	DESIGNED -	REVISIED -	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>IL 154</b> <b>CROSS SECTIONS</b>	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
p:\1\084EBIDINTEG\Illinois.gov\PIDOT\Documents\IDOT Offices\District 9\Projects\78156\CADD\Drawings\78156-sht-XS154.dgn	DRWN	REVISIED -	REVISIED -			841	(34)BR-1	PERRY	33	33
PLOT SCALE = 10.0000' / in.	CHECKED -	REVISIED -	REVISIED -			CONTRACT NO. 78156			ILLINOIS FED. AID PROJECT	
PLOT DATE = 6/28/2017	DATE -	REVISIED -	REVISIED -			SCALE: 1"=5'	SHEET NO. OF SHEETS	STA. 66+00.00 TO STA. 67+00.00		