

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
PLANS FOR PROPOSED  
SURFACE TRANSPORTATION PROGRAM – BRIDGE  
JASPER COUNTY  
SECTION 05-10126-00-BR  
TR 259  
PROPOSED STRUCTURE NO. 040-3270  
PROJECT NO. BROS-0079(152)  
JOB NO. C-97-041-15

**INDEX OF SHEETS**

- 1 COVER SHEET
- 2 PLAN & PROFILE
- 3 CROSS SECTIONS
- 4-10 BRIDGE PLANS
- 11 BORINGS

- STANDARDS: 280001-07 - EROSION CONTROL  
515001-03 - NAME PLATE  
635006-03 - TERMINAL MARKERS  
701901-04 - TRAFFIC  
BLR 21-9 - TRAFFIC

**SCALES**

PLAN 1 INCH = 50 FEET  
PROFILE HORZ. 1 INCH = 50 FEET  
PROFILE VERT. 1 INCH = 10 FEET  
CROSS SECT. 1 INCH = 5 FEET

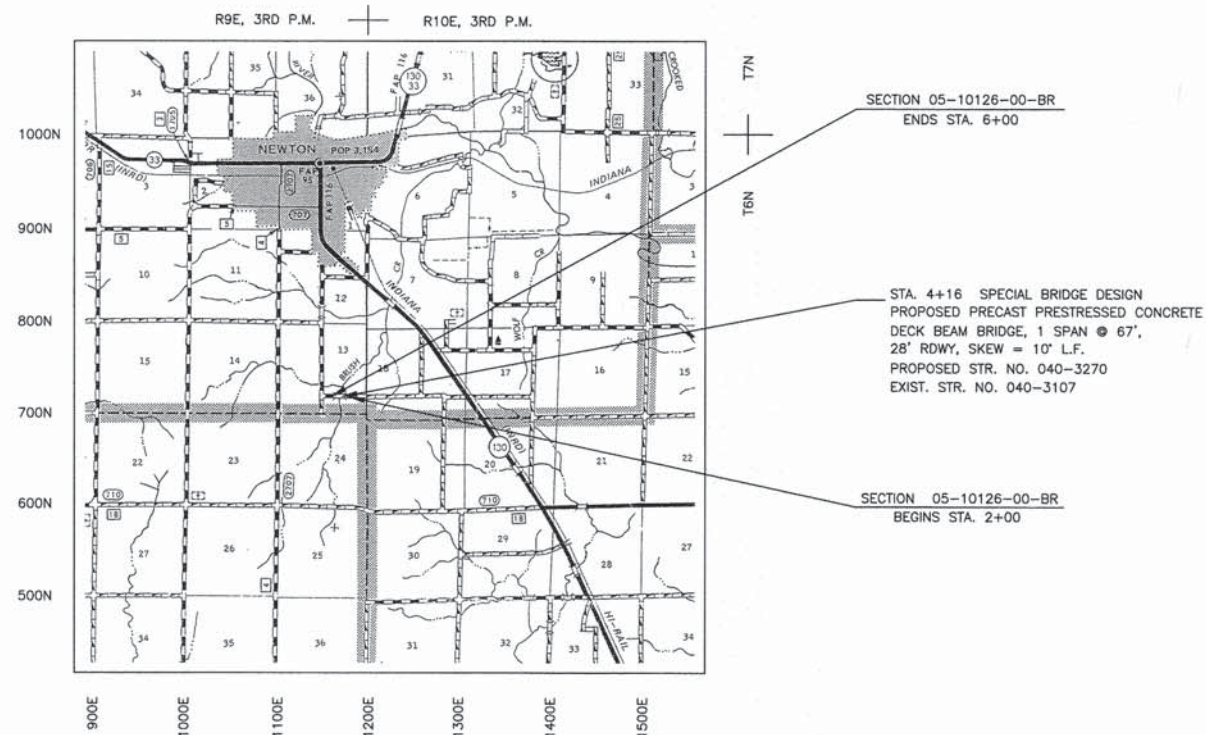
SUMMARY OF QUANTITIES

QUANTITY	UNIT	ITEM	CODE NO.
206	TON	AGGREGATE DITCH (SPECIAL)	X2830495
1	L SUM	TRAFFIC CONTROL AND PROTECTION, (SPECIAL)	X7010216
40	UNIT	TREE REMOVAL (OVER 15 UNITS DIAMETER)	20100210
252	CU YD	EARTH EXCAVATION	20200100
155	CU YD	CHANNEL EXCAVATION	20300100
182	CU YD	FURNISHED EXCAVATION	20400800
92	TON	POROUS GRANULAR EMBANKMENT	20700110
60	FOOT	PERIMETER EROSION BARRIER	28000400
270	TON	STONE DUMPED RIPRAP, CLASS A4	28100807
483	TON	AGGREGATE BASE COURSE, TYPE B	35101400
1	EACH	REMOVAL OF EXISTING STRUCTURES	50100100
28.0	CU YD	CONCRETE STRUCTURES	50300225
1876	SQ FT	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	50400505
2910	POUND	REINFORCEMENT BARS, EPOXY COATED	50800205
131	FOOT	STEEL RAILING, TYPE S1	50900205*
270	FOOT	FURNISHING STEEL PILES HP10X42	51201400
270	FOOT	DRIVING PILES	51202305
1	EACH	TEST PILE STEEL HP10X42	51203400
1	EACH	NAME PLATES	51500100
110	SQ FT	CONCRETE SEALER	58700300
1	L SUM	MOBILIZATION	67100100
4	EACH	TERMINAL MARKER - DIRECT APPLIED	78201000*

\*SPECIALTY ITEM

FUNCTIONAL CLASS: RURAL LOCAL ROAD  
ADT = 100  
DESIGN SPEED = 30 MPH

TOLL FREE JOINT UTILITY LOCATING  
INFORMATION FOR EXCAVATORS (J.U.L.I.E.)  
TELEPHONE NO. 1-800-892-0123



LOCATION MAP

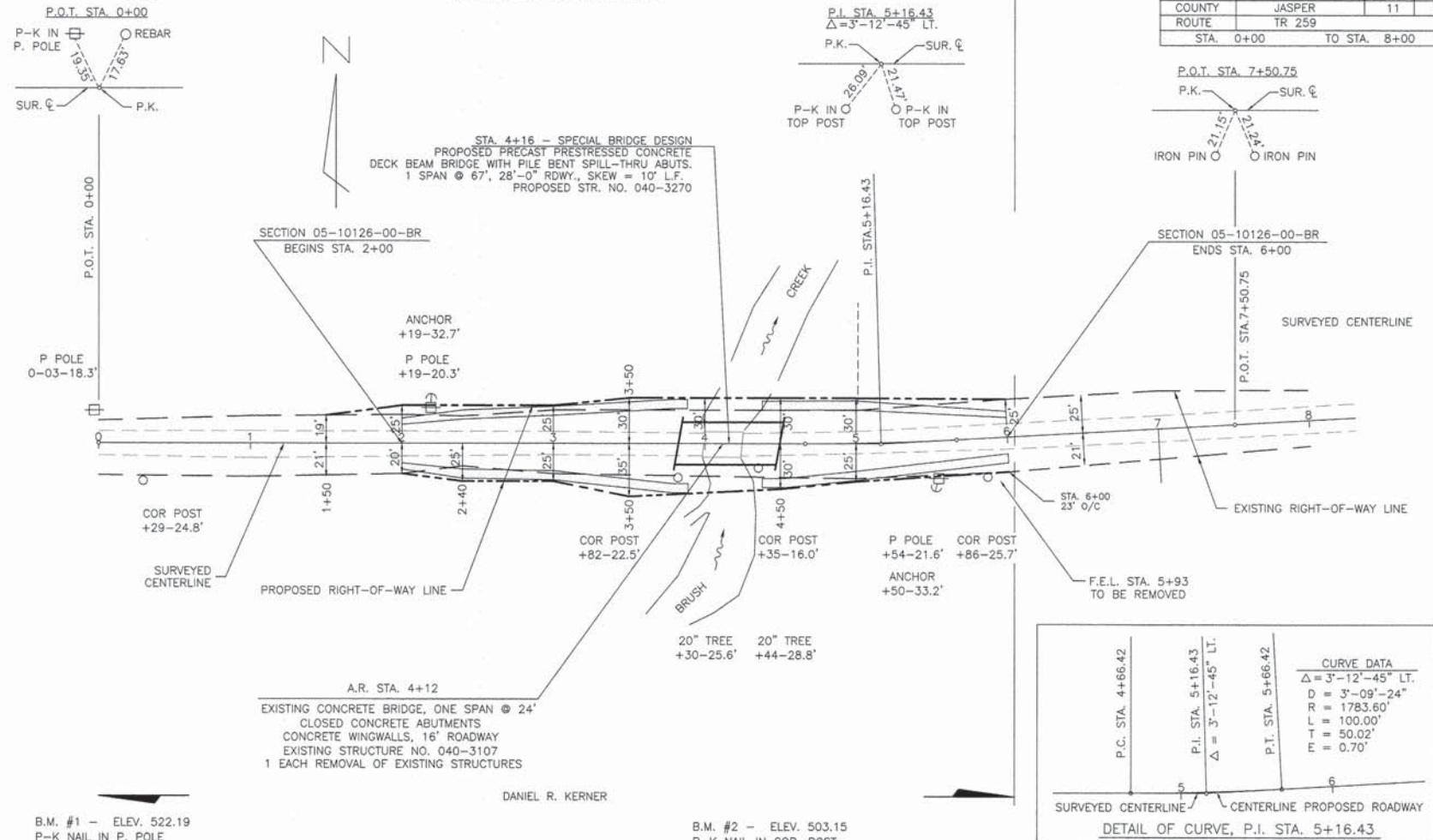
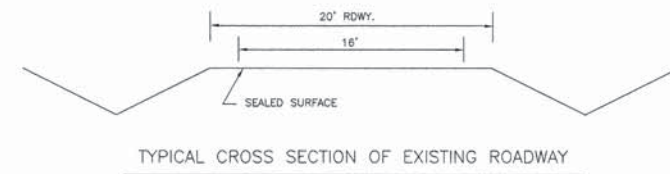
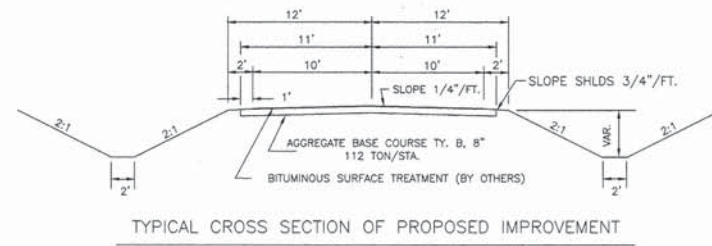
APPROXIMATE SCALE: 1 INCH = 1 MILE  
NET LENGTH = 400.00 FT. = 0.076 MILES



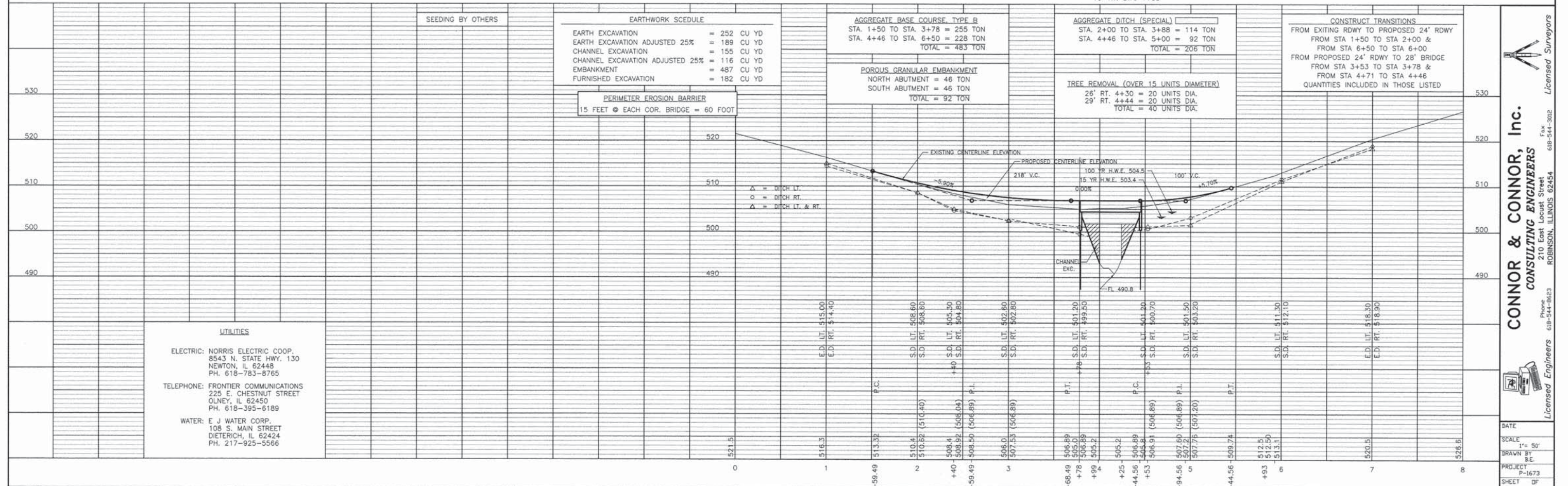
*[Signature]* 03/20/2015  
ILLINOIS REGISTERED PROFESSIONAL ENGINEER # 55012  
LICENSE EXPIRES NOVEMBER 30, 2015  
PROFESSIONAL DESIGN FIRM #184-000832

JASPER COUNTY HIGHWAY DEPARTMENT
APPROVED: <u>MARCH 20, 2015</u> <i>[Signature]</i> LOCAL AGENCY, COUNTY ENGINEER
PASSED: <u>Sept 3, 15</u> <i>[Signature]</i> DISTRICT SEVEN ENGINEER OF LOCAL ROADS & STREETS
RELEASING FOR BID BASED ON LIMITED REVIEW <u>9-3-15</u> <i>[Signature]</i> DEPUTY DIRECTOR OF HIGHWAYS, REGION FOUR ENGINEER

SECTION	05-10126-00-BR	TOTAL SHEETS	11	SHEET NO.	2
COUNTY	JASPER	TR	259		
ROUTE	STA. 0+00 TO STA. 8+00				



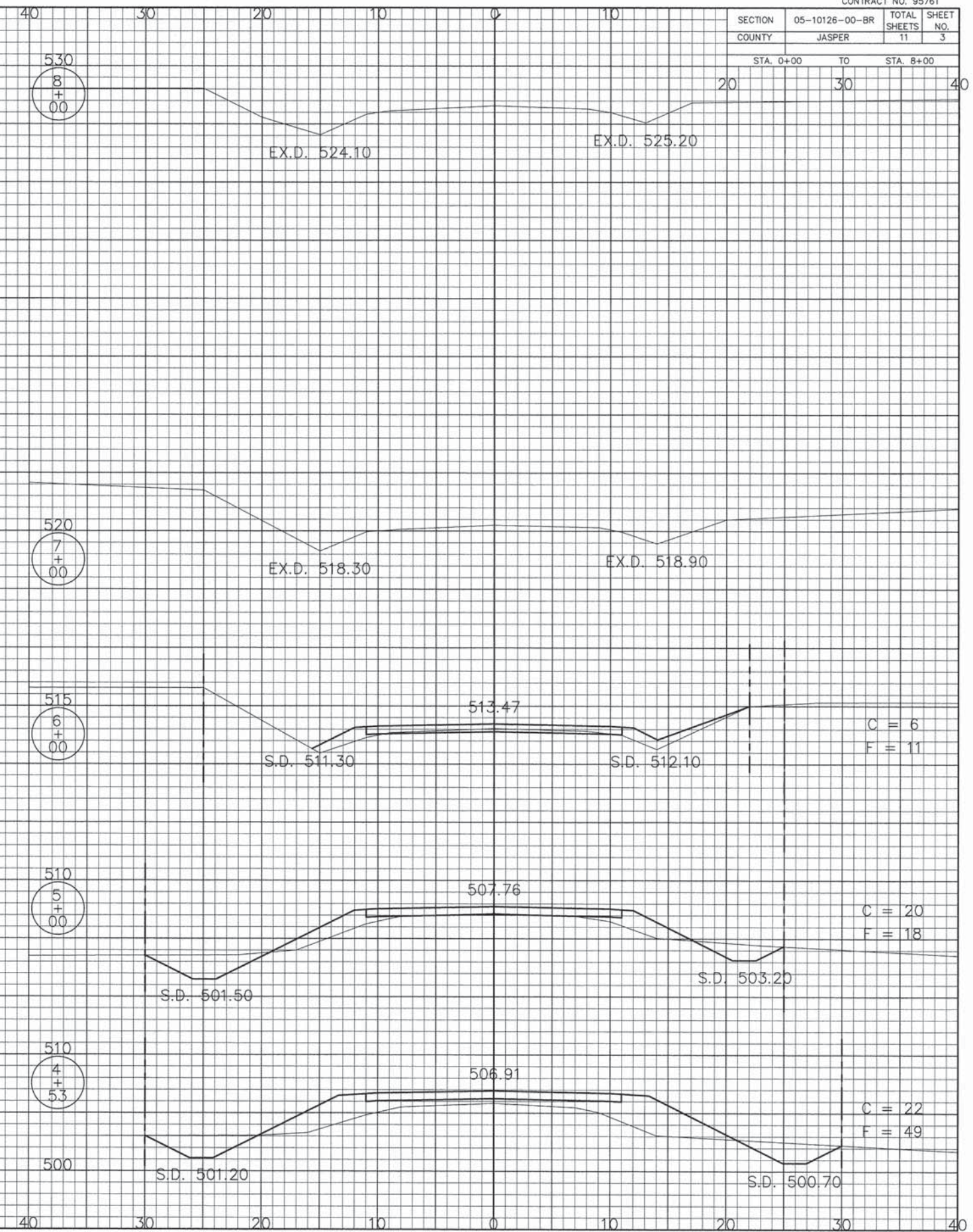
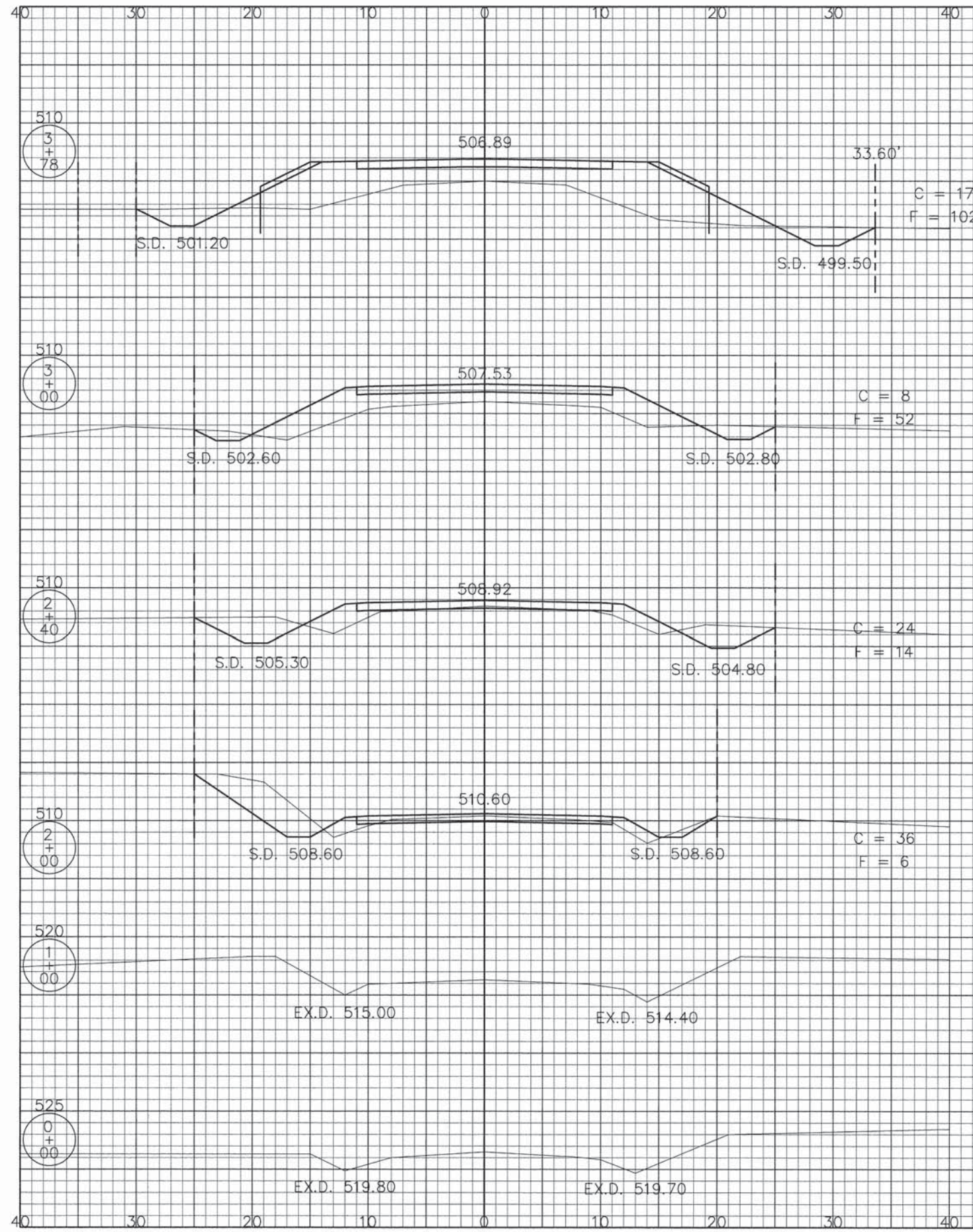
NOTE: WHEN THE PLANS OR SPECIAL PROVISIONS INCLUDE INFORMATION PERTAINING TO THE LOCATION OF UNDERGROUND UTILITY FACILITIES, SUCH INFORMATION REPRESENTS ONLY THE OPINION OF THE CRAWFORD COUNTY HIGHWAY DEPARTMENT AS TO THE LOCATION OF SUCH UTILITIES AND IS ONLY INCLUDED FOR THE CONVENIENCE OF THE BIDDER.



CONOR & CONNOR, Inc.  
CONSULTING ENGINEERS  
210 East Locust Street  
ROBINSON, ILLINOIS 62454  
Phone 618-544-8623  
Fax 618-544-3022  
Licensed Surveyors

DATE	
SCALE	1" = 50'
DRAWN BY	B.E.
PROJECT	P-1673
SHEET	D

SECTION	05-10126-00-BR	TOTAL SHEETS	11	SHEET NO.	3
COUNTY	JASPER				
STA. 0+00	TO	STA. 8+00			

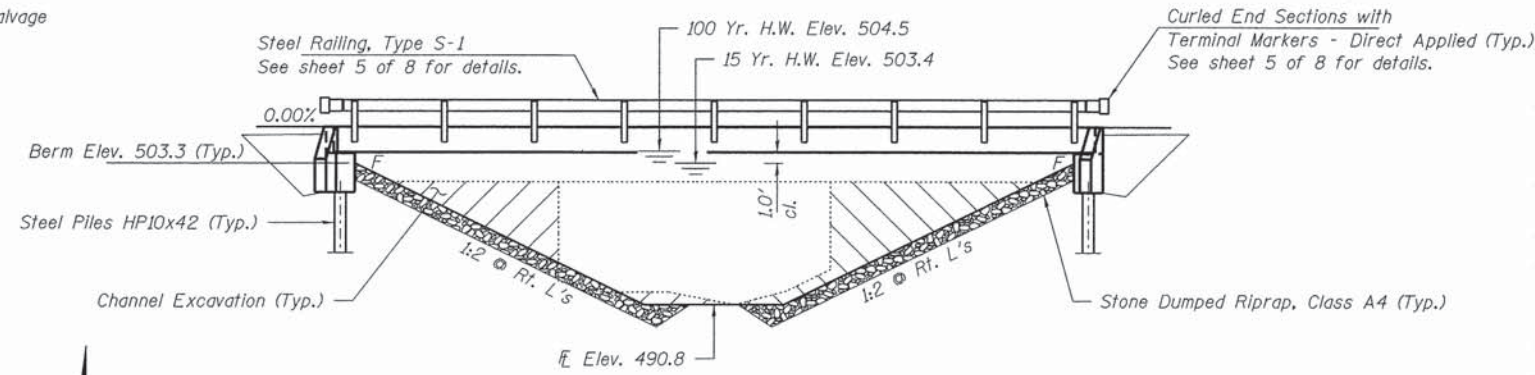


BENCHMARK: P-K Nail in corner post 16.0', Rt. Sta. 4+35, Elev. 503.15

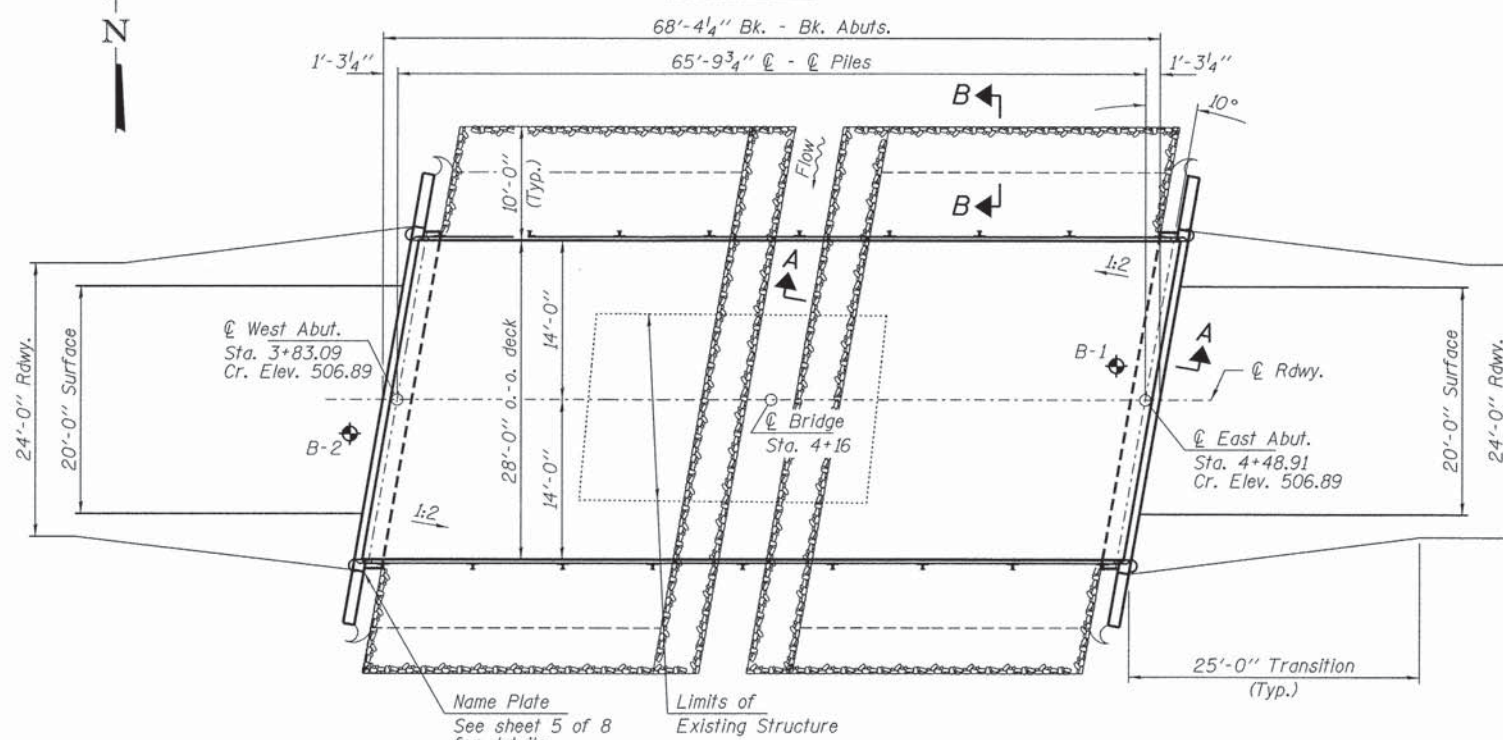
EXISTING STRUCTURE: Existing Concrete Bridge, Single span @ 24', Closed Concrete Abutments, Concrete Wingwalls, 16' Roadway

Structure closed to traffic during construction.

No Salvage



**ELEVATION**



**PLAN**

**DESIGN SPECIFICATIONS**

2012 AASHTO LRFD Bridge Design Specifications, 6th Edition with 2013 Interims.

**LOADING HL-93**

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

**DESIGN STRESSES**

**FIELD UNITS**

f'c = 3,500 psi  
fy = 60,000 psi (Reinf.)

**PRECAST PRESTRESSED UNITS**

f'c = 6,000 psi  
f'ci = 5,000 psi  
fpu = 270,000 psi (1/2" low lax. strands)  
fpbt = 201,960 psi (1/2" low lax. strands)  
fy = 60,000 psi (Reinf.)

**SEISMIC DATA**

Seismic Performance Zone (SPZ) = 2  
Design Spectral Acceleration at 1.0 sec. (S<sub>D1</sub>) = 0.159g  
Design Spectral Acceleration at 0.2 sec. (S<sub>D5</sub>) = 0.402g  
Soil Site Class = C

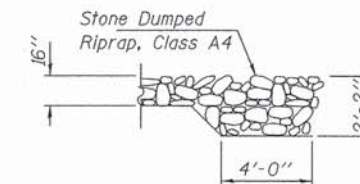
Design Scour Elevations (ft.)		
	S. Abut.	N. Abut.
Q100	500.8	500.8

**WATERWAY INFORMATION**

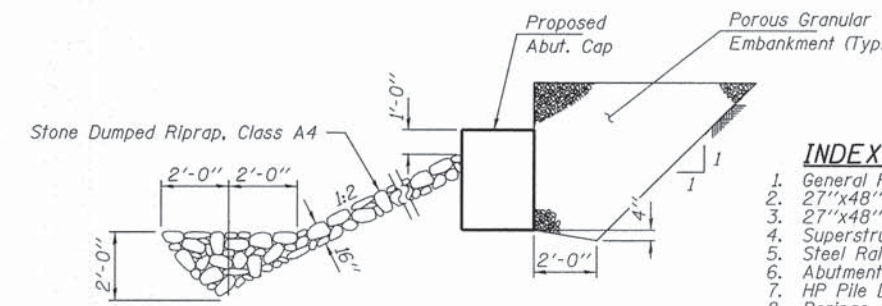
		Existing Low Grade Elev. 505.2 @ Sta. 4+00		Proposed Low Grade Elev. 505.2 @ Sta. 4+00	
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.	Natural Head - Ft.	Headwater El.
Design	15	1327	233	474	503.4
Base	100	2310	233	523	504.5
				1.6	502.9

I certify that to the best of my knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current "AASHTO LRFD Specifications."

Steven W. Meigs 03/19/2015  
ILLINOIS STRUCTURAL ENGINEER NO. 081-6064



**SECTION B-B**



**SECTION A-A**

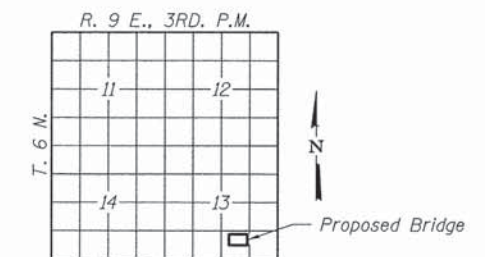
Note: See Special Provisions for Stone Dumped Riprap, Class A4.

**GENERAL NOTES**

Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.  
The Contractor shall drive test piles to 100% of the nominal required bearing specified in production locations at West Abutment or approved by the Engineer before ordering the remainder of piles.  
Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60.  
All bars to be epoxy coated.  
Excavation required to construct the Abutments shall be included in the cost of Concrete Structures. No additional compensation will be allowed for Structure Excavation.  
All proposed construction activities shall be in accordance with Nationwide Permit number 14 of the Department of the Army authorized under Section 404 of the Clean Water Act.  
The IEPA has issued Section 401 Water Quality Certification for this activity. See Special Provisions for conditions.  
Concrete sealer shall be applied to the designated areas of the abutments.

**INDEX OF STRUCTURE SHEETS**

1. General Plan & Elevation
2. 27"x48" PPC Deck Beam
3. 27"x48" PPC Deck Beam Details
4. Superstructure Details
5. Steel Railing, Type S-1
6. Abutments
7. HP Pile Details
8. Borings



**LOCATION SKETCH**

BRUSH CREEK  
BUILT 201 BY  
JASPER COUNTY  
SEC. 05-10126-00-BR  
T.R. 259  
STR. NO. 040-3270  
LOADING HL-93

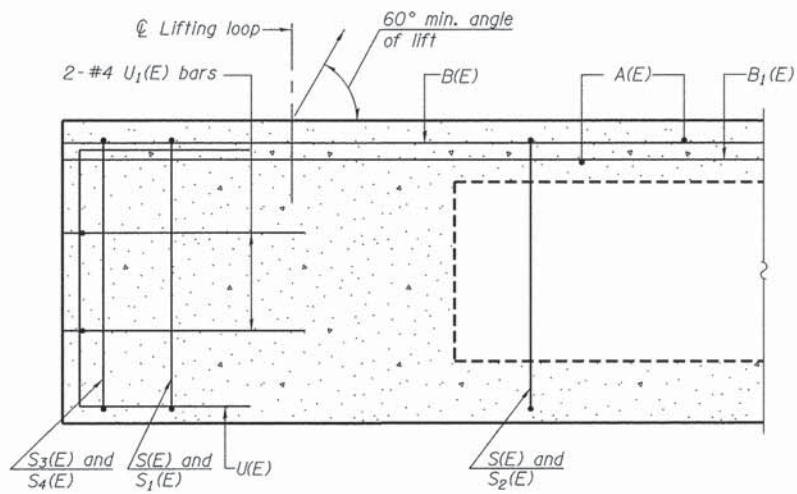
**NAME PLATE**

See Std. 515001

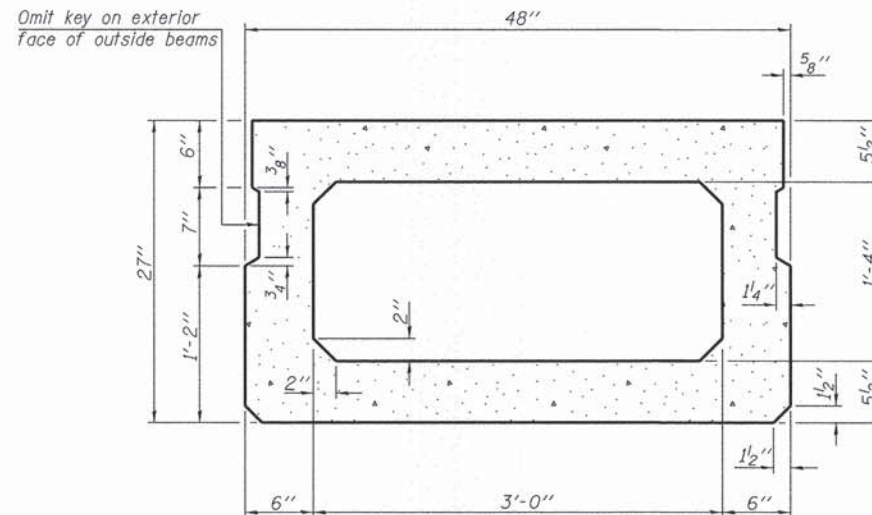
**TOTAL BILL OF MATERIAL**

ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	Cu. Yd.			155
Stone Dumped Riprap, Class A4	Ton			270
Removal of Existing Structures	Each			1
Concrete Structures	Cu. Yd.		28.0	28.0
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq. Ft.	1,876		1,876
Reinforcement Bars, Epoxy Coated	Pound		2,910	2,910
Steel Railing, Type S-1	Foot	131		131
Furnishing Steel Piles HP10x42	Foot		270	270
Driving Piles	Foot		270	270
Test Pile HP10x42	Each		1	1
Name Plates	Each		1	1
Terminal Marker - Direct Applied	Each	4		4
Concrete Sealer	Sq. Ft.		110	110

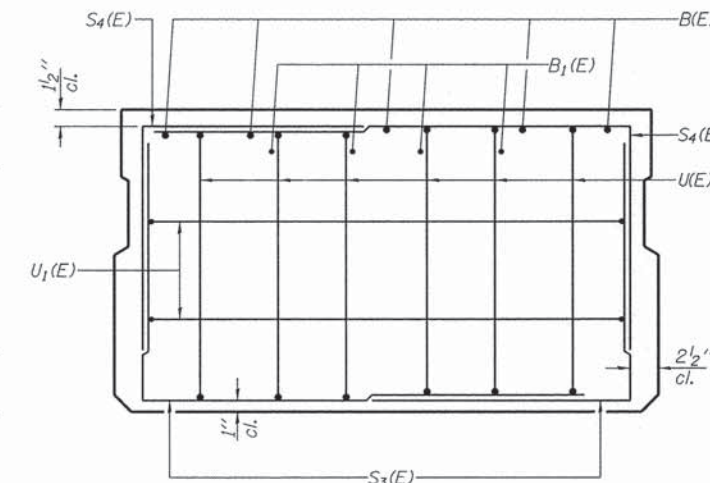
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HAMPTON, LENZINI AND RENWICK, INC. 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62708	PLOT SCALE =	CHECKED - S.W.M.	REVISED -			259	05-10126-00-BR	JASPER	11	4
ELR ILLINOIS PROFESSIONAL DESIGN FIRM L1 / PE / SE CORP. 184-00589	PLOT DATE = 3/19/2015	DRAWN - R.D.H.	REVISED -			WADE ROAD DISTRICT				CONTRACT NO. 95761
		CHECKED - S.W.M.	REVISED -			ILLINOIS				FED. AID PROJECT



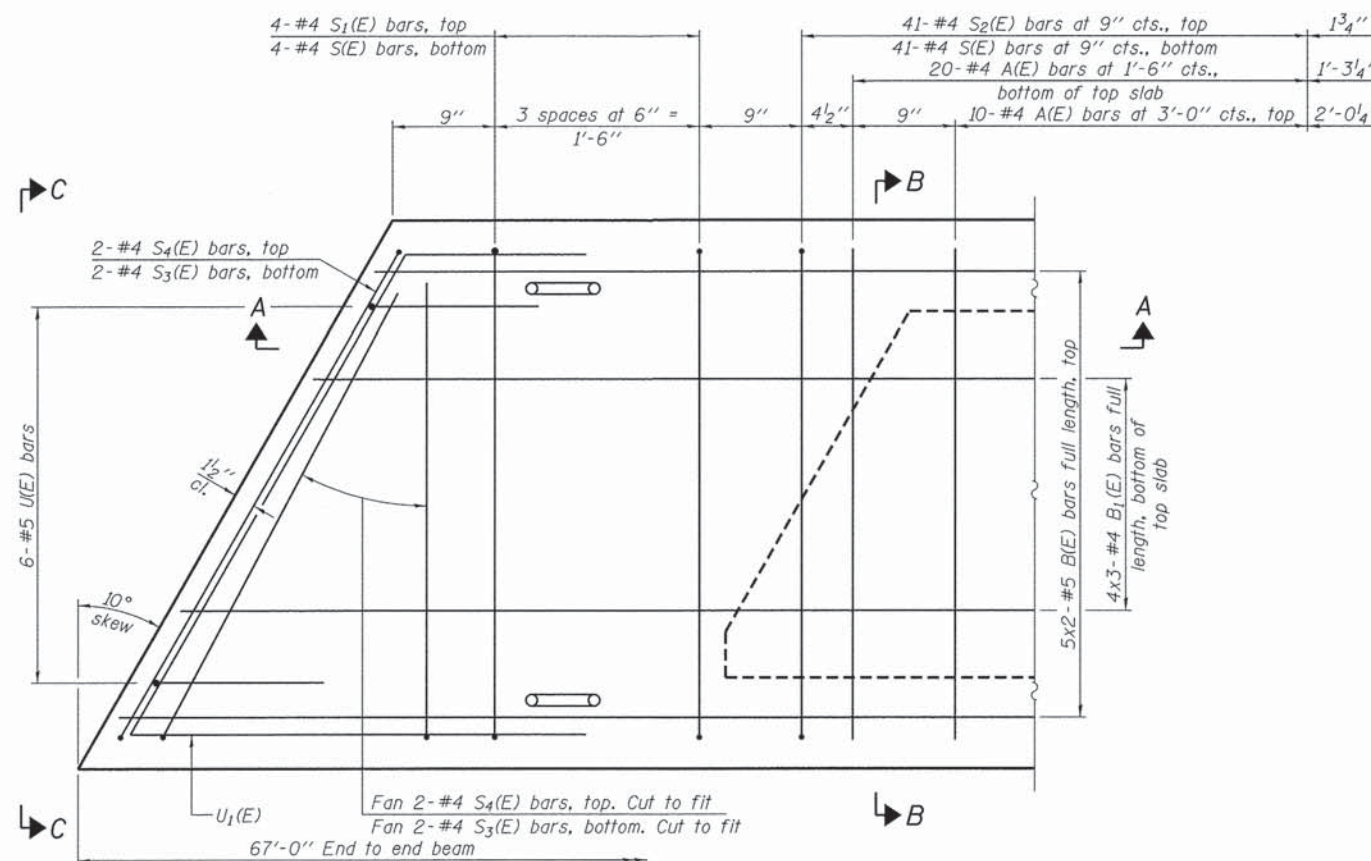
SECTION A-A



SECTION B-B  
(Showing dimensions)



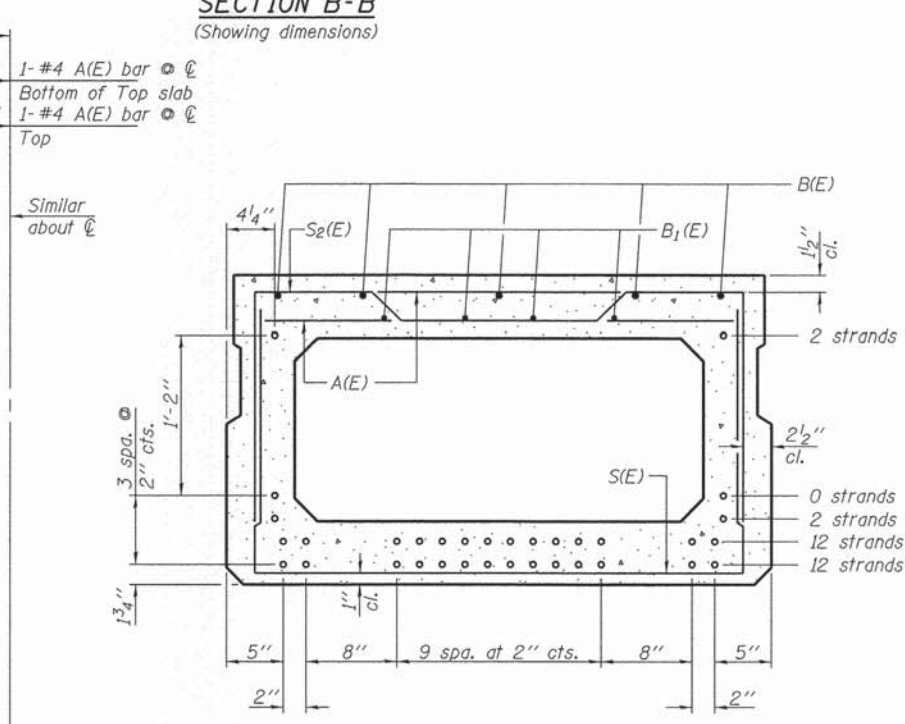
VIEW C-C



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.

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



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.

BAR LIST  
ONE BEAM ONLY

(For information only)

Bar	No.	Size	Length	Shape
A(E)	62	#4	3'-7"	—
B(E)	10	#5	34'-8"	—
B1(E)	12	#4	23'-7"	—
S(E)	90	#4	7'-5"	┌
S1(E)	8	#4	6'-11"	┌
S2(E)	82	#4	7'-2"	┌
S3(E)	8	#4	4'-8"	┌
S4(E)	8	#4	4'-5"	┌
U(E)	12	#5	4'-6"	┌
U1(E)	4	#4	6'-8"	┌

Note: See sheet 3 of 8 for additional details and Bill of Material.

MINIMUM BAR LAP

#4 bar = 2'-0"  
#5 bar = 2'-6"

PD-2748-L

7-1-10

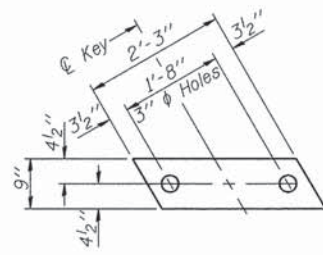
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ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000558	PLOT SCALE =	DRAWN - R.D.H.	REVISED -
	PLOT DATE = 3/19/2015	CHECKED - S.W.M.	REVISED -

STATE OF ILLINOIS  
JASPER COUNTY HIGHWAY DEPARTMENT

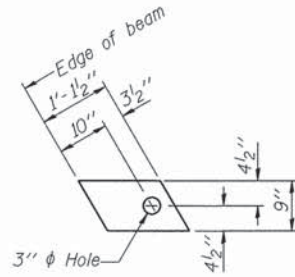
27" x 48" PPC DECK BEAM  
STRUCTURE NO. 040-3270

SHEET NO. 2 OF 8 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
259	05-10126-00-BR	JASPER	11	5
WADE ROAD DISTRICT			CONTRACT NO. 95761	
	ILLINOIS		FED. AID PROJECT	

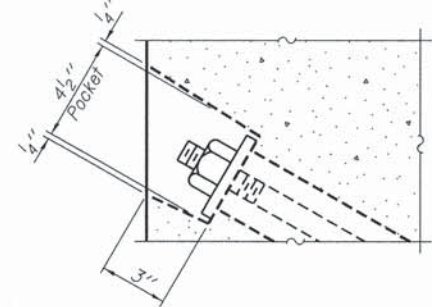


**FABRIC BEARING PAD**  
(Interior - 12 Req'd.)

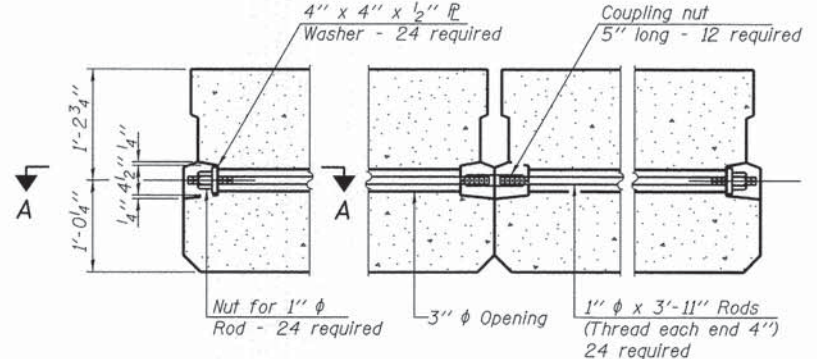


**FABRIC BEARING PAD**  
(Exterior - 4 Req'd.)

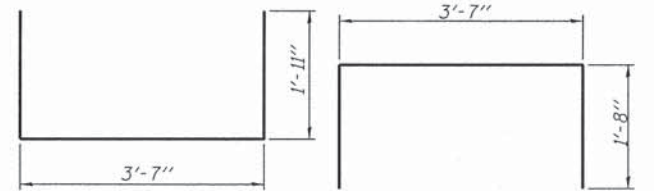
**Notes:**  
All bearing pads shall be 1" thick.  
Omit holes when using expansion bearings.  
Expansion bearing pad shall be bonded to the substructure.



**SECTION A-A**

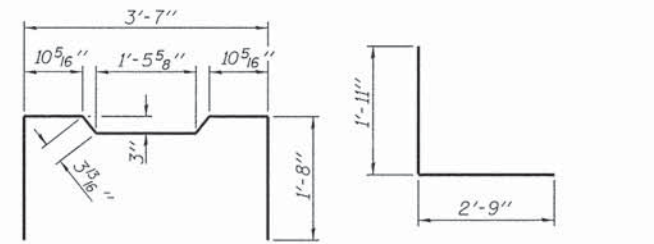


**TYPICAL TRANSVERSE TIE ASSEMBLY**



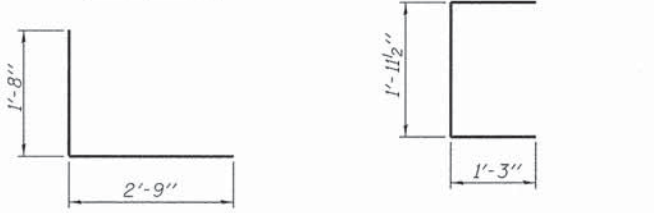
**BAR S1(E)**

**BAR S2(E)**



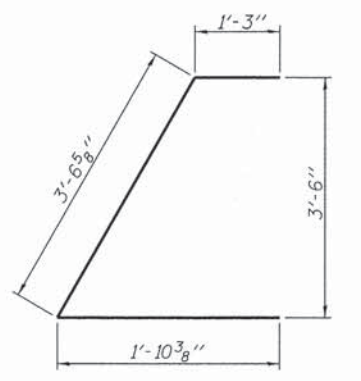
**BAR S3(E)**

**BAR S4(E)**

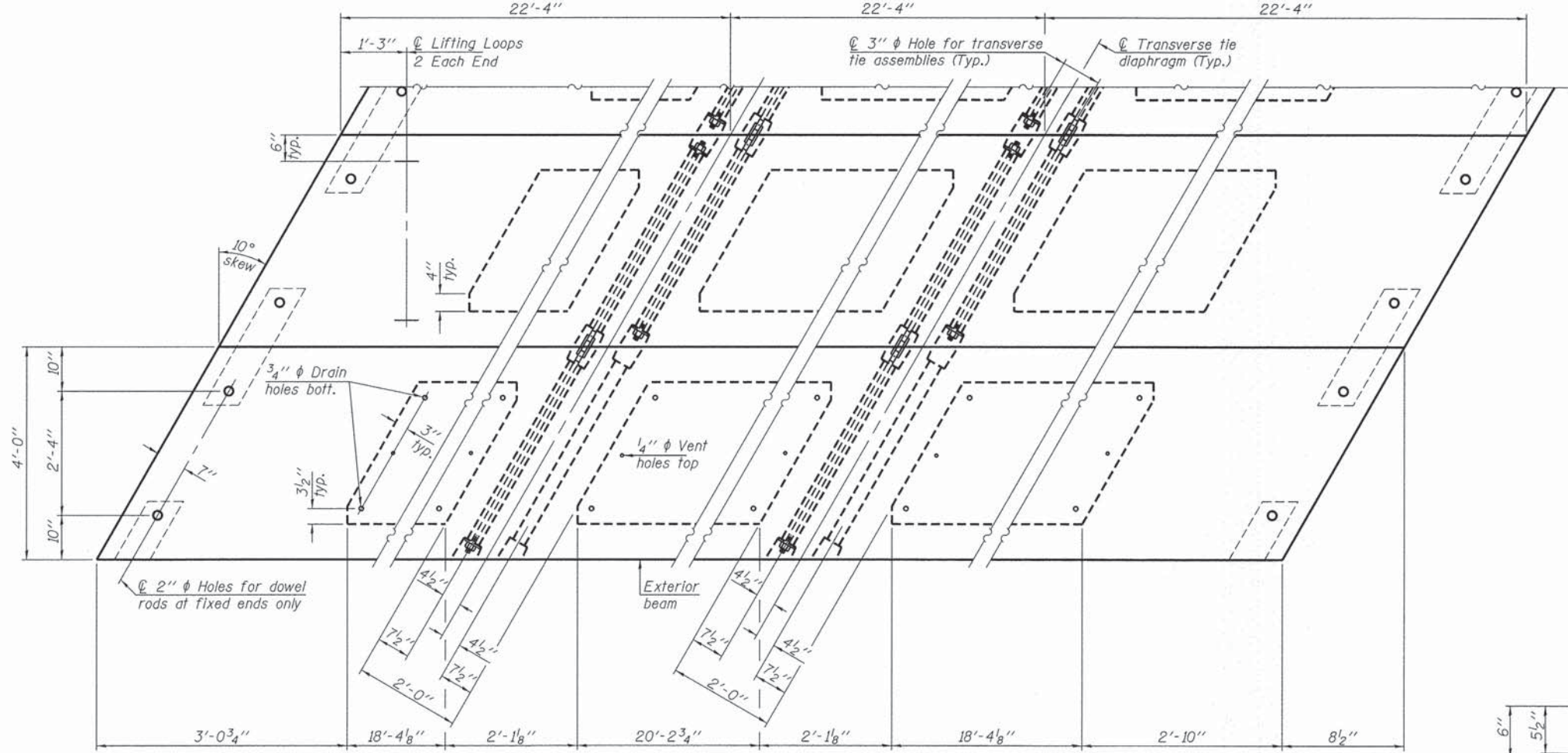


**BAR U1(E)**

**BAR U2(E)**



**BAR U3(E)**

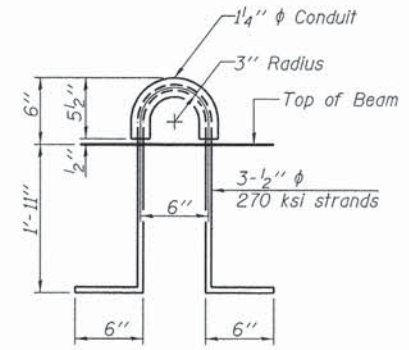


**PLAN VIEW**

**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.  
Reinforcement bars shall conform to ASTM A 706, Grade 60. (See Special Provisions).  
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)(12) 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.  
Reinforcement bars designated (E) shall be epoxy coated.

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



**LIFTING LOOP DETAIL**

**BILL OF MATERIAL**

Precast Prestressed Conc. Deck Bms. (27" depth)	Sq. Ft.	1,876
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PD-2748-LD 7-1-10

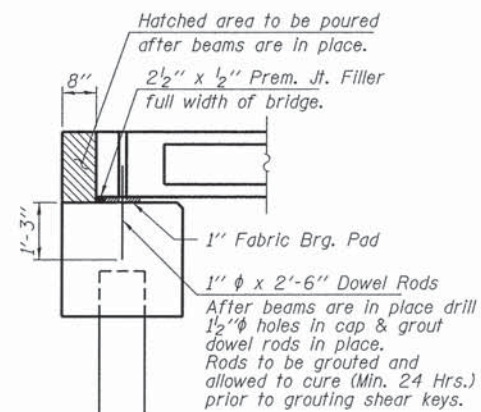
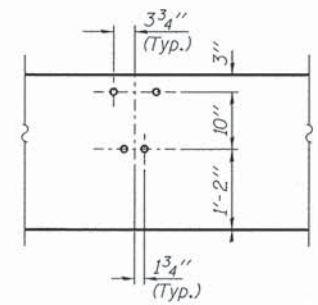
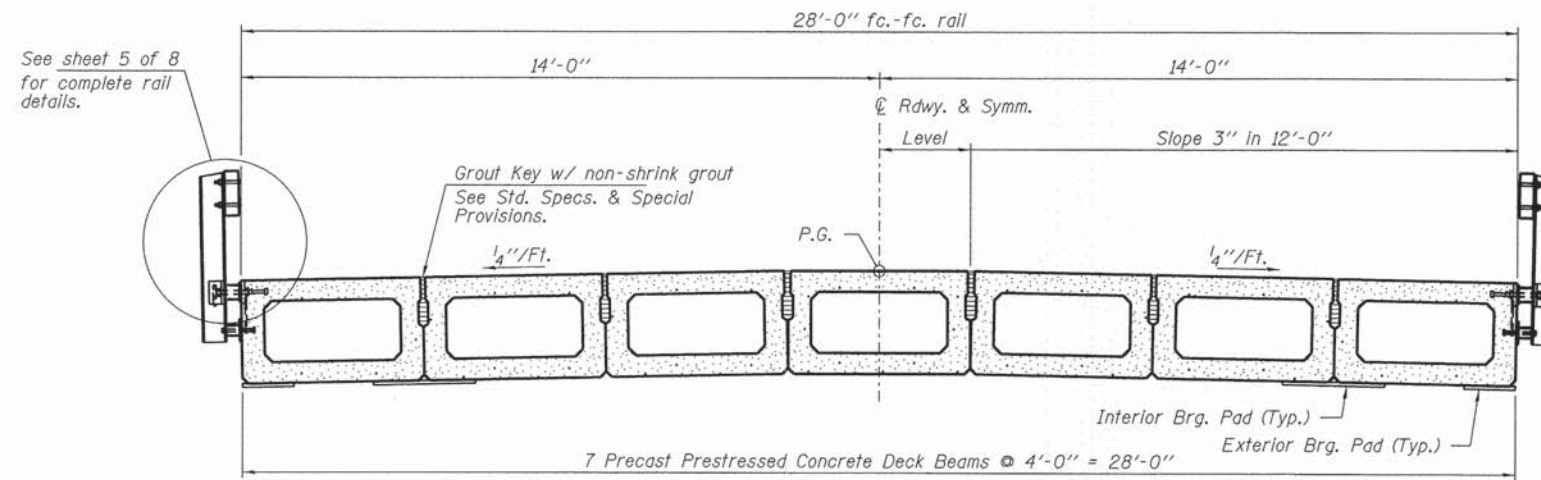
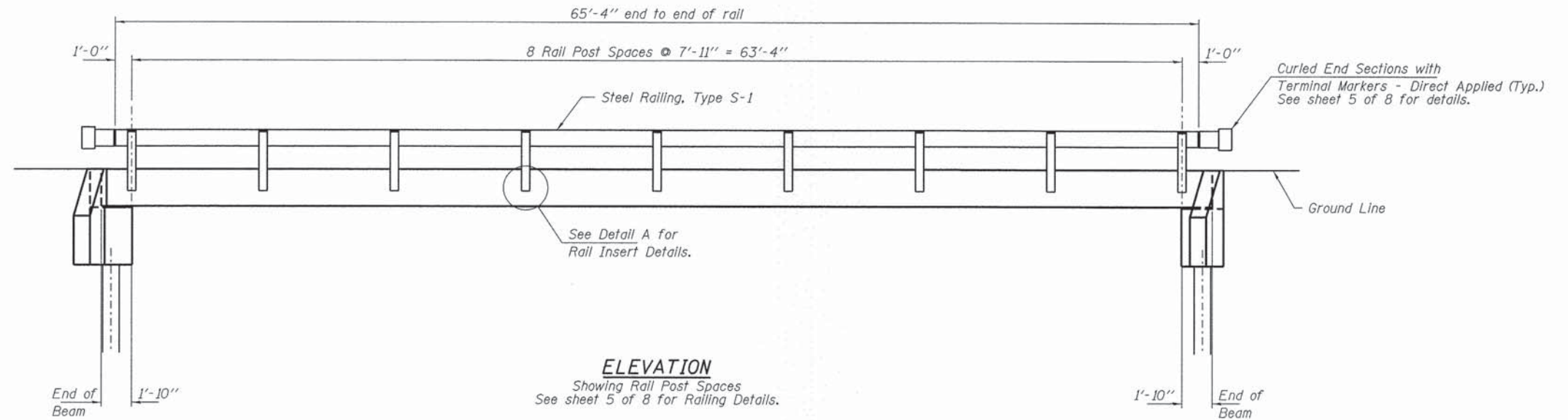
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3055 STEVENSON DRIVE, SUITE 201		DRAWN - R.D.H.	REVISED -
SPRINGFIELD, ILLINOIS 62733	PLOT SCALE =	CHECKED - S.W.M.	REVISED -
ILLINOIS PROFESSIONAL DESIGN FIRM	PLOT DATE = 3/19/2015		
LS / PE / SE CORP. 184.000950			

**STATE OF ILLINOIS**  
**JASPER COUNTY HIGHWAY DEPARTMENT**

**27" x 48" PPC DECK BEAM DETAILS**  
**STRUCTURE NO. 040-3270**

SHEET NO. 3 OF 8 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
259	05-10126-00-BR	JASPER	11	6
WADE ROAD DISTRICT			CONTRACT NO. 95761	
		ILLINOIS	FED. AID PROJECT	

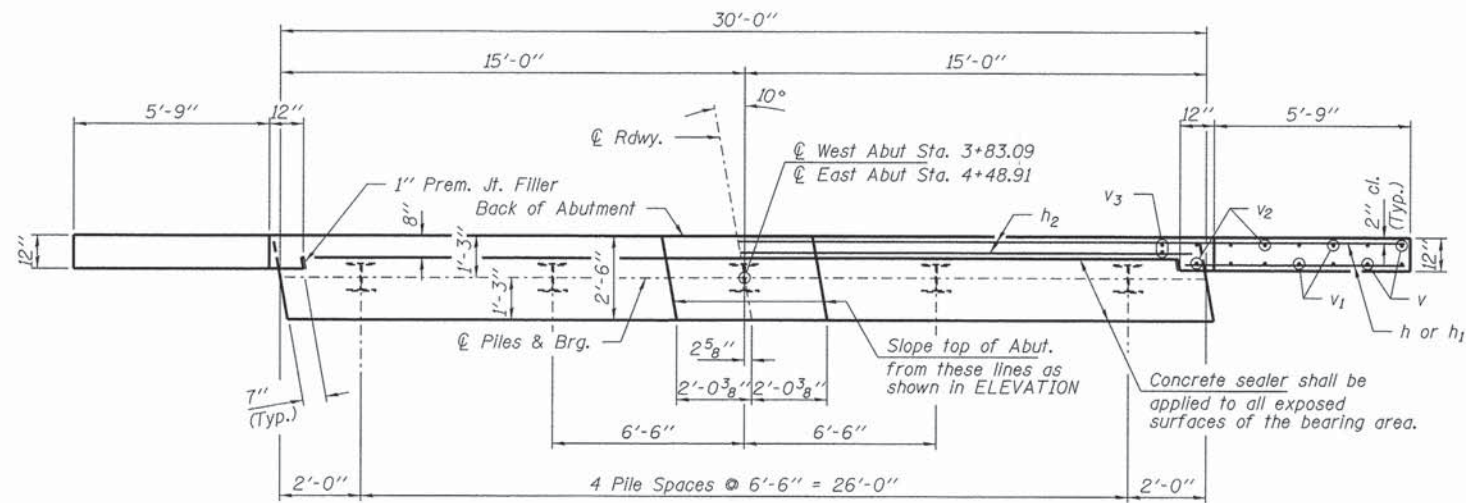


**SECTION AT ABUTMENTS**  
© Rt. L's

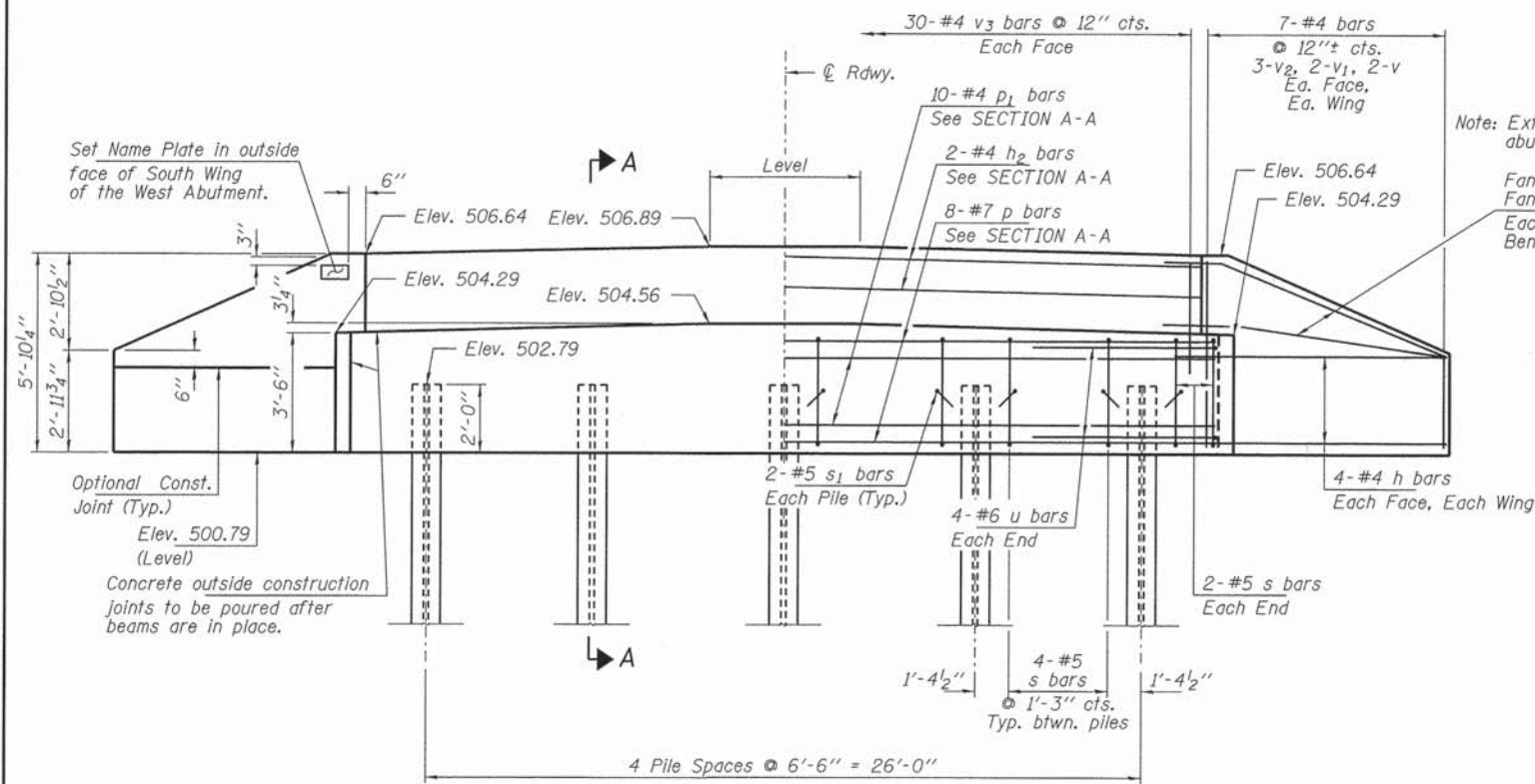
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<b>HAMPTON, LENZINI AND RENWICK, INC.</b> <small>3048 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62761</small>	PLOT SCALE =	CHECKED - S.W.M.	REVISED -			259	05-10126-00-BR	JASPER	11	7
<b>ILLINOIS PROFESSIONAL DESIGN FIRM</b> <small>LLP / P.E. / S.E. CORP. 184-000988</small>	PLOT DATE = 3/19/2015	DRAWN - R.D.H.	REVISED -			WADE ROAD DISTRICT	CONTRACT NO. 95761			
						SHEET NO. 4 OF 8 SHEETS		ILLINOIS		FED. AID PROJECT



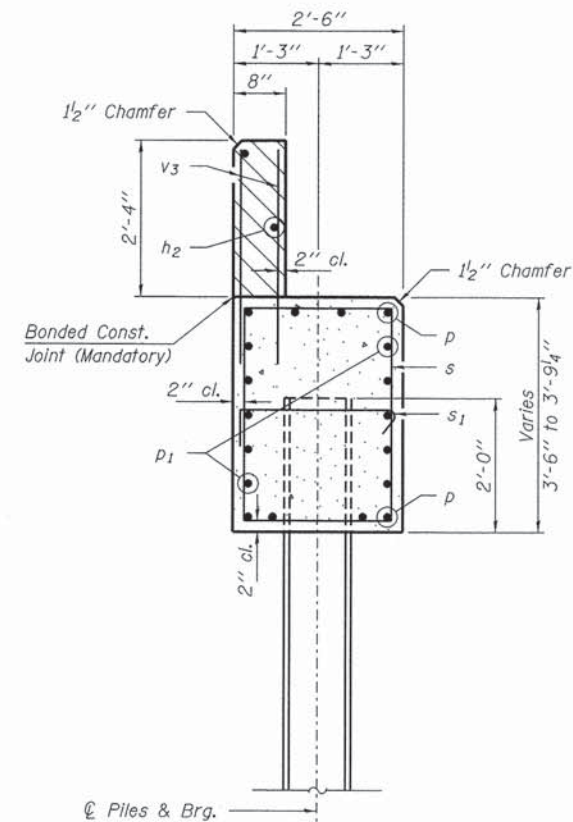




PLAN

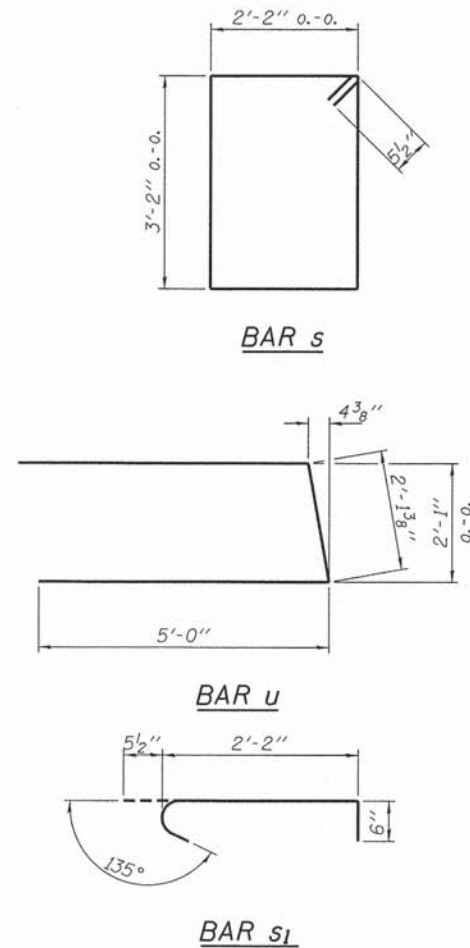


ELEVATION



SECTION A-A

Hatched area to be poured after beams are in place.



Note: Extend h bars into abutment cap.  
Fan 2-#4 h bars (B.F.)  
Fan 2-#4 h1 bars (F.F.)  
Each Wing Bend in field.

PILE DATA

Type Steel HP10x42  
No. Req'd. (2 Abuts.) 10  
Factored Resistance Available (Rf) 184 Kips/Pile  
Nominal Required Bearing (Rn) 335 Kips/Pile  
Est. Length 30 Ft/Pile

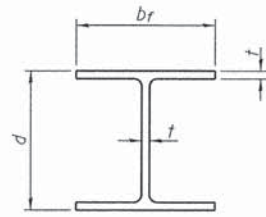
Notes \* Includes one test pile to be driven in permanent location at the West Abutment.

The test piles shall be driven to 110 percent of the Nominal Required Bearing indicated in the pile data information.

BILL OF MATERIAL - 2 ABUTS.

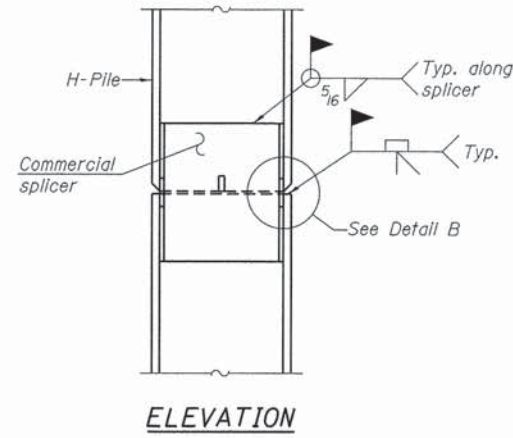
BAR	NO.	SIZE	LENGTH	SHAPE	
h	40	#4	8'-0"	—	
h1	8	#4	6'-6"	—	
h2	4	#4	29'-8"	—	
p	16	#7	29'-8"	—	
p1	20	#4	29'-8"	—	
s	40	#5	11'-7"	□	
s1	20	#5	3'-2"	┌	
u	16	#6	12'-2"	┌	
v	16	#4	2'-9"	—	
v1	16	#4	3'-9"	—	
v2	24	#4	4'-10"	—	
v3	120	#4	3'-2"	—	
Concrete Structures				Cu. Yd.	28.0
Reinforcement Bars, Epoxy Coated				Pound	2,910
Steel Piles HP10x42				Foot	270
Test Pile HP10x42				Each	1
Name Plates				Each	1
Concrete Sealer				Sq. Ft.	110

All reinforcement bars shall be epoxy coated

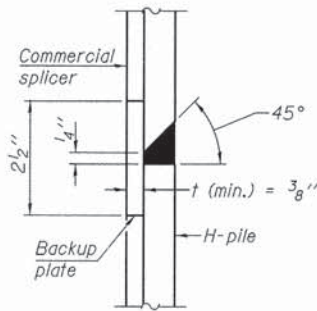


**STEEL PILE TABLE**

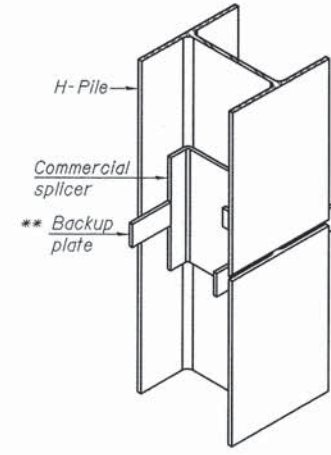
Designation	Depth d	Flange width br	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	13/16"	30"
x102	14"	14 3/4"	1/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	1/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"
x53	11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



**ELEVATION**

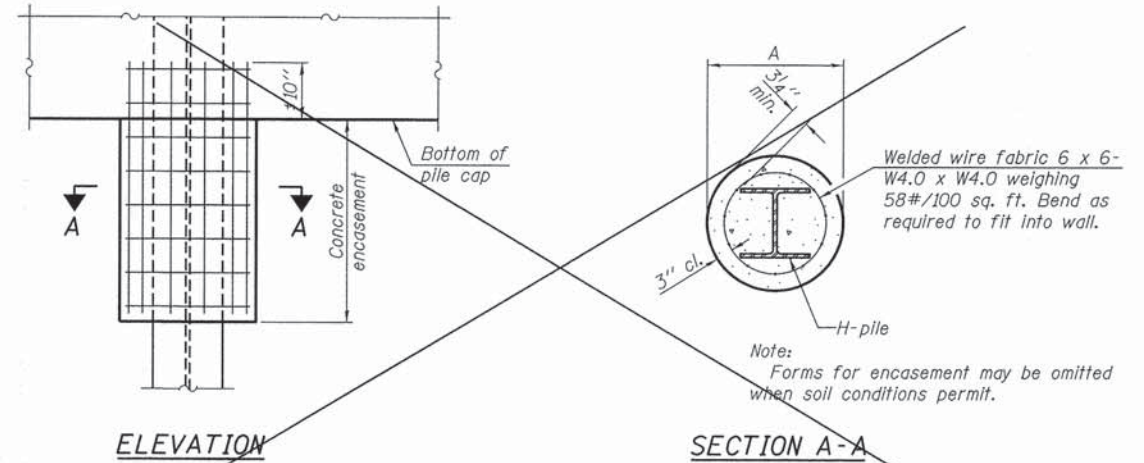


**DETAIL "B"**



**ISOMETRIC VIEW**

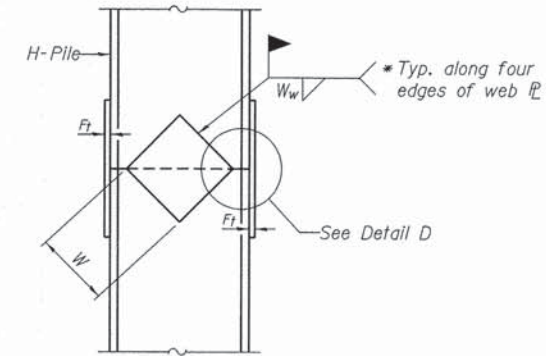
**WELDED COMMERCIAL SPLICE**



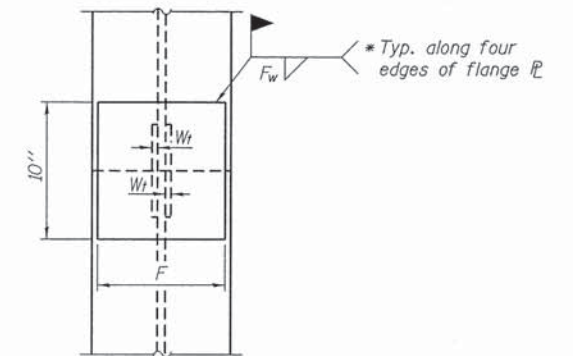
**ELEVATION**

**SECTION A-A**

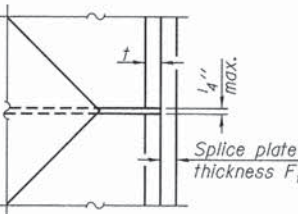
**PILE ENCASEMENT**  
Not Required



**ELEVATION**



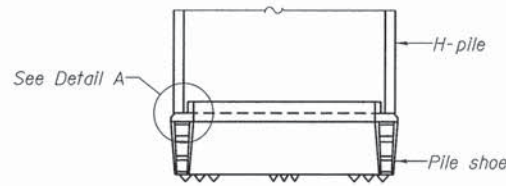
**END VIEW**



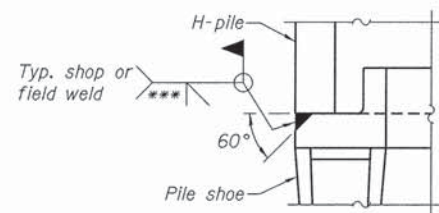
**DETAIL D**

**WELDED PLATE FIELD SPLICE**

Designation	F	Ft	Fw	W	Wt	Ww
HP 14x117	12 1/2"	1"	7/8"	7 3/4"	5/8"	1/2"
x102	12 1/2"	7/8"	3/4"	7 3/4"	5/8"	1/2"
x89	12 1/2"	3/4"	1/16"	7 3/4"	5/8"	1/2"
x73	12 1/2"	5/8"	9/16"	7 3/4"	5/8"	1/2"
HP 12x84	10"	7/8"	1/16"	6 1/2"	5/8"	1/2"
x74	10"	7/8"	1/16"	6 1/2"	5/8"	1/2"
x63	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
x53	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
HP 10x57	8"	3/4"	9/16"	5 1/4"	1/2"	3/8"
x42	8"	5/8"	9/16"	5 1/4"	1/2"	3/8"
HP 8x36	7"	5/8"	7/16"	4 1/4"	1/2"	3/8"

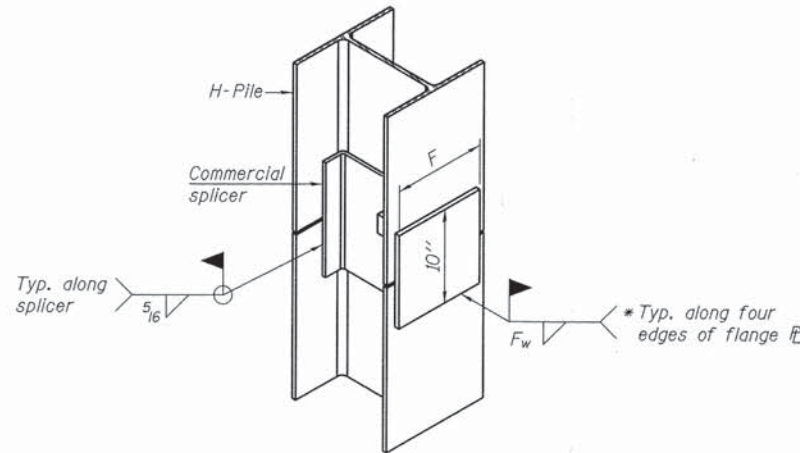


**ELEVATION**



**DETAIL A**

**H-PILE SHOE ATTACHMENT**



**ISOMETRIC VIEW**

**WELDED COMMERCIAL SPLICE ALTERNATE**

- \* Interrupt welds 1/4" from end of web and/or each flange.
- \*\* Remove portions of backup plates that extend outside the flanges.
- \*\*\* Weld size per pile shoe manufacturer (5/16" min.).

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

F-HP

1-27-12

FILE NAME = 150005-sht-br1dgv.dgn	USER NAME =	DESIGNED - J.R.T.	REVISED -	<b>STATE OF ILLINOIS JASPER COUNTY HIGHWAY DEPARTMENT</b>	<b>HP PILE DETAILS STRUCTURE NO. 040-3270</b>	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
HAMPTON, LENZINI AND RENWICK, INC. 3048 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703	PLOT SCALE =	CHECKED - S.W.M.	REVISED -			259	05-10126-00-BR	JASPER	11	10	
ILLINOIS PROFESSIONAL DESIGN FIRM L3 / PE / SE CORP. 184.000899	PLOT DATE = 3/19/2015	DRAWN - R.D.H.	REVISED -			WADE ROAD DISTRICT	CONTRACT NO. 95761				
		CHECKED - S.W.M.	REVISED -			ILLINOIS		FED. AID PROJECT			

SHEET NO. 7 OF 8 SHEETS

