

INDEX OF SHEETS

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- 2 PLAN & PROFILE
- 3-9 BRIDGE PLANS
- 10 BORINGS

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANS FOR PROPOSED
SURFACE TRANSPORTATION PROGRAM-OFF SYSTEM BRIDGE
CRAWFORD COUNTY
SECTION 14-05118-00-BR
STRUCTURE NO. 017-3523
PROJECT NO. BROS-0033(052)
JOB NO. C-97-040-15
TR 76 OVER LITTLE CREEK

STANDARDS:
280001-07 - EROSION CONTROL
515001-03 - NAME PLATES
635006-03 - REFLECTOR & TERMINAL MARKER PLACEMENT
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

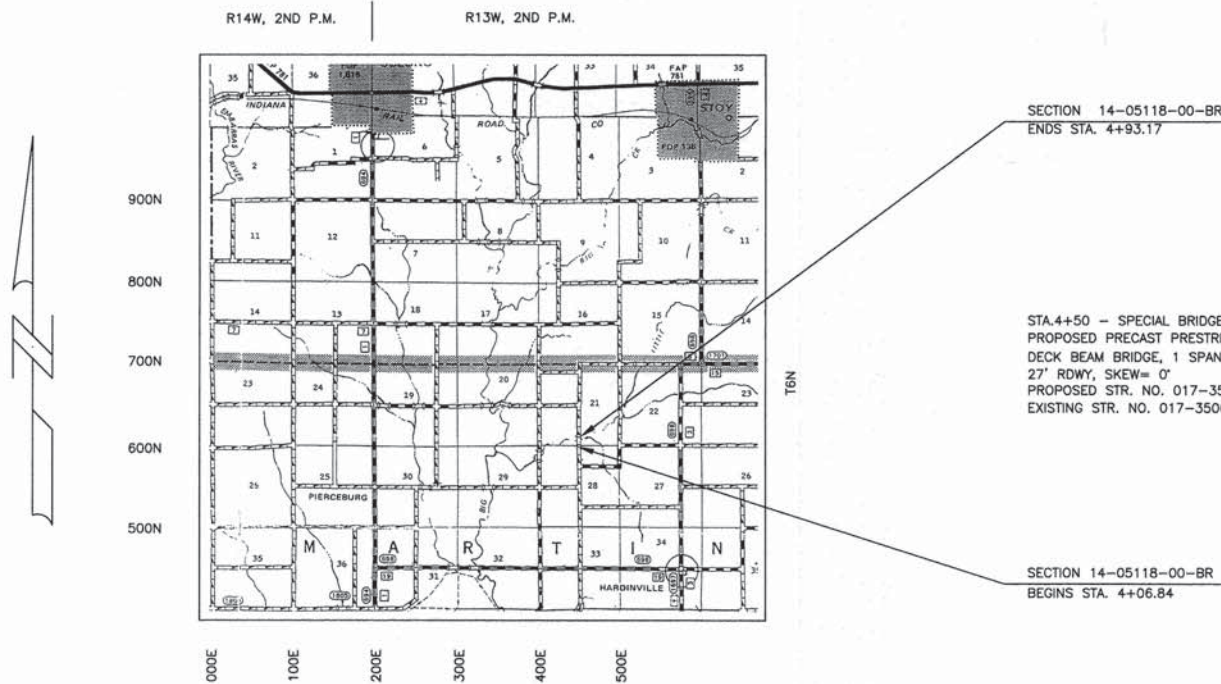
SUMMARY OF QUANTITIES

CODE NO.	QUANTITY	UNIT	ITEM
X7010216	1	L SUM	TRAFFIC CONTROL AND PROTECTION, (SPECIAL)
20300100	315	CU YD	CHANNEL EXCAVATION
20700110	56	TON	POROUS GRANULAR EMBANKMENT
28000400	60	FOOT	PERIMETER EROSION BARRIER
28100807	230	TON	STONE DUMPED RIPRAP, CLASS A4
50100100	1	EACH	REMOVAL OF EXISTING STRUCTURES
50300225	28.8	CU YD	CONCRETE STRUCTURES
50400605	2295	SQ FT	PRECAST PRESTRESSED CONCRETE DECK BEAMS (33" DEPTH)
50800205	3320	POUND	REINFORCEMENT BARS, EPOXY COATED
* 50900205	168	FOOT	STEEL RAILING, TYPE S1
51201400	495	FOOT	FURNISHING STEEL PILES HP 10X42
51202305	495	FOOT	DRIVING PILES
51203400	1	EACH	TEST PILES STEEL HP 10X42
51500100	1	EACH	NAME PLATES
58700300	104	SQ FT	CONCRETE SEALER
67100100	1	L SUM	MOBILIZATION
* 78201000	4	EACH	TERMINAL MARKER - DIRECT APPLIED

* SPECIALTY ITEMS

FUNCTIONAL CLASS: RURAL LOCAL ROAD
ADT = 75
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

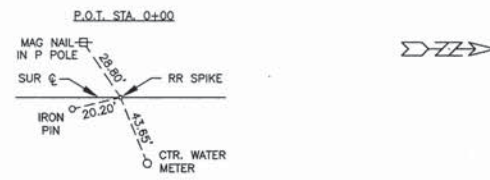
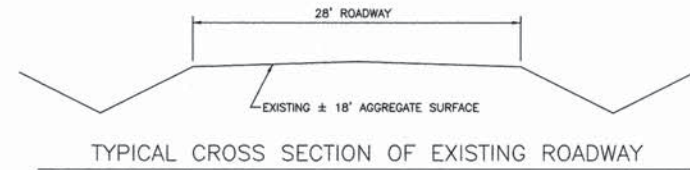
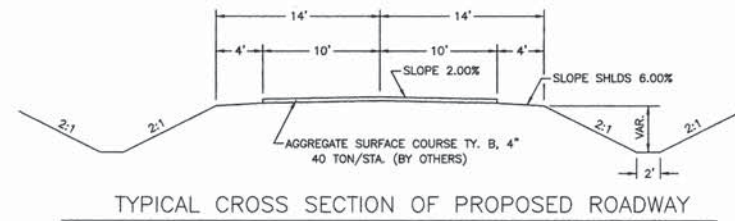
APPROXIMATE SCALE: 1 INCH = 1 MILE
NET LENGTH = 86.33 FT. = 0.016 MILES



John A. Stone 02/06/2015
ILLINOIS REGISTERED PROFESSIONAL ENGINEER # 55012
LICENSE EXPIRES NOVEMBER 30, 2015
PROFESSIONAL DESIGN FIRM #184-000832

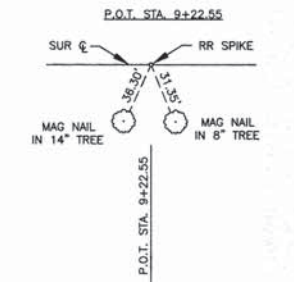
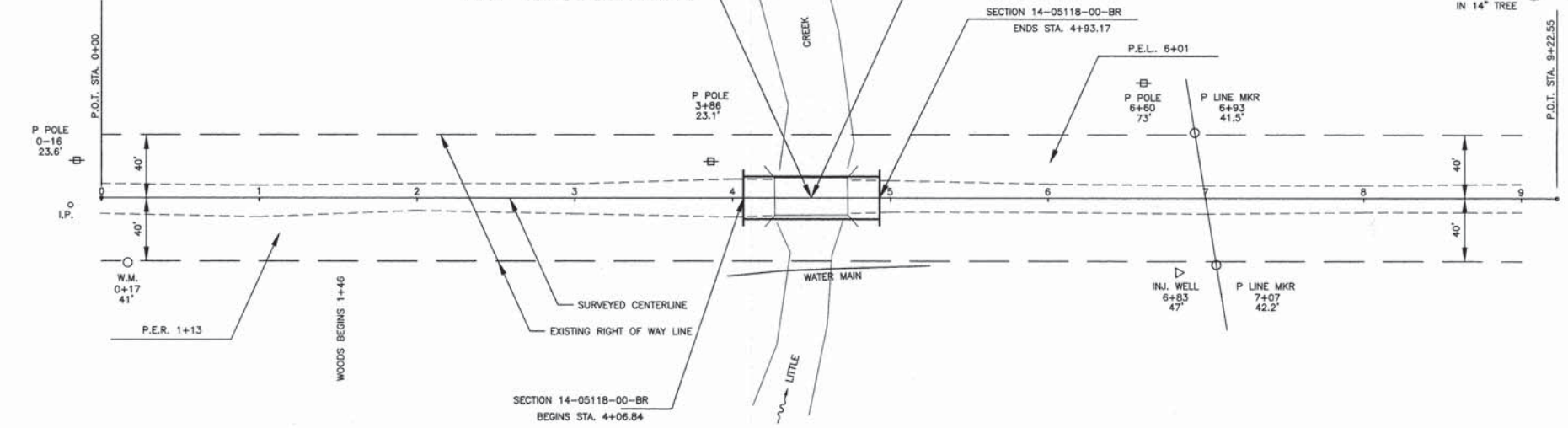
ILLINOIS DEPARTMENT OF TRANSPORTATION	
APPROVED:	<i>R/L</i> , 2015 <i>Mark R. Child</i> LOCAL AGENCY, COUNTY ENGINEER
PASSED:	<i>2/18</i> , 2015 <i>Maurice E. Kastl</i> DISTRICT SEVEN ENGINEER OF LOCAL ROADS & STREETS
RELEASING FOR BID BASED ON LIMITED REVIEW	<i>2/18</i> , 2015 <i>Kevin L. Dushill</i> DEPUTY DIRECTOR OF HIGHWAYS, REGION FOUR ENGINEER

SECTION	14-05118-00-BR	TOTAL SHEETS	10	SHEET NO.	2
COUNTY	CRAWFORD	CONT. NO.	95756		
STA. 0+00		TO STA. 9+22.55			



STA. 4+50 - EXISTING I-BEAM BRIDGE
WITH CLOSED TIMBER BACKED ABUTMENTS
ON TIMBER PILES, TIMBER WINGWALLS AND DECK
1 SPAN @ 47 FEET, 24' RDWY
EXISTING STRUCTURE NO. 017-3506
1 EACH - REMOVAL OF EXISTING STRUCTURE

STA. 4+50 SPECIAL BRIDGE DESIGN
PROPOSED PRECAST PRESTRESSED CONCRETE
DECK BEAM BRIDGE WITH SPILL THRU ABUTS.
1 SPAN @ 85', 27'-0" ROADWAY
PROPOSED STRUCTURE NO. 017-3523

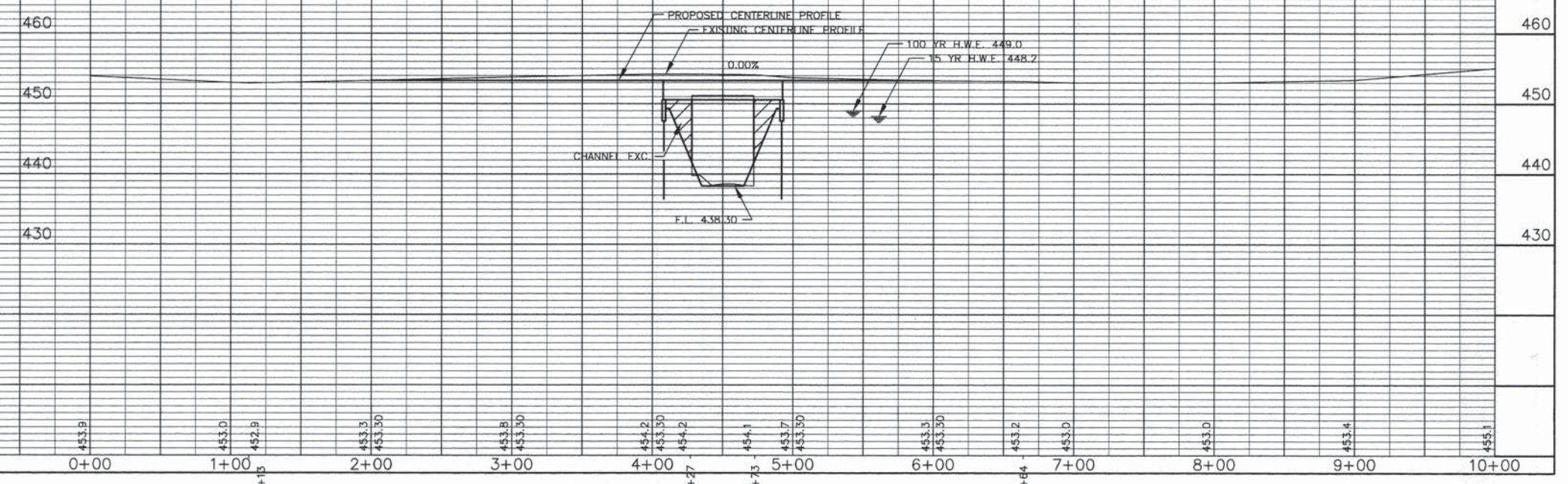


B.M. #1 - ELEV. 452.13
MAG NAIL IN POWER POLE
23.6' LT. STA. 0-16

B.M. #2 - ELEV. 448.24
MAG NAIL IN POWER POLE
73' LT. STA. 6+60

SCALES:
1" = 50' HOR
1" = 10' VER

- PERIMETER EROSION BARRIER ALONG CHANNEL SLOPE AT EACH CORNER OF BRIDGE = 60 FEET
- POROUS GRANULAR EMBANKMENT SOUTH ABUTMENT = 28 TONS NORTH ABUTMENT = 28 TONS TOTAL = 56 TONS
- SEEDING (BY OTHERS)
- TREE REMOVAL (BY OTHERS)

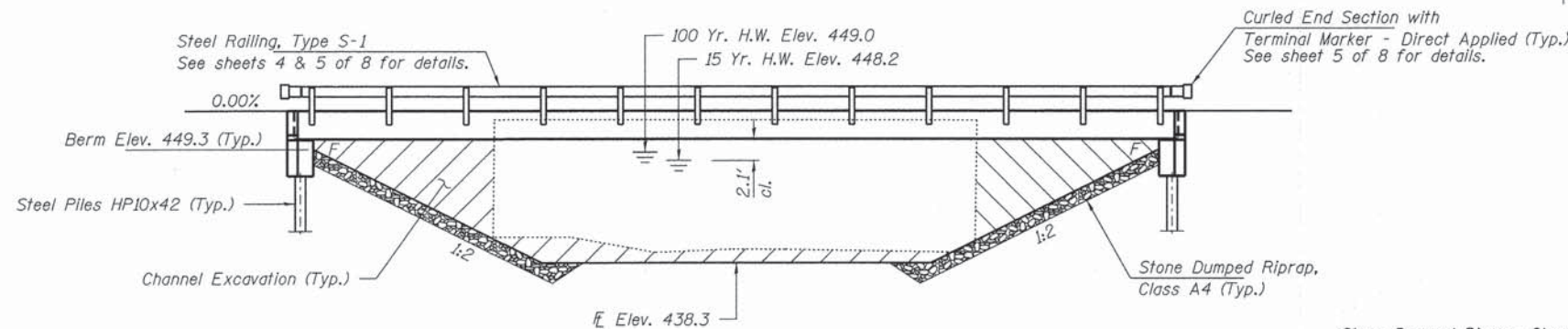


UTILITIES
WATER: HARDINVILLE WATER CO.
P.O. BOX 164
4440 N 575TH ST.
ROBINSON, IL 62454
618-557-3556
ELECTRIC: NORRIS ELECTRIC COOP
8543 N. STATE HWY. 130
NEWTON, IL 62448
PH. 618-783-8765

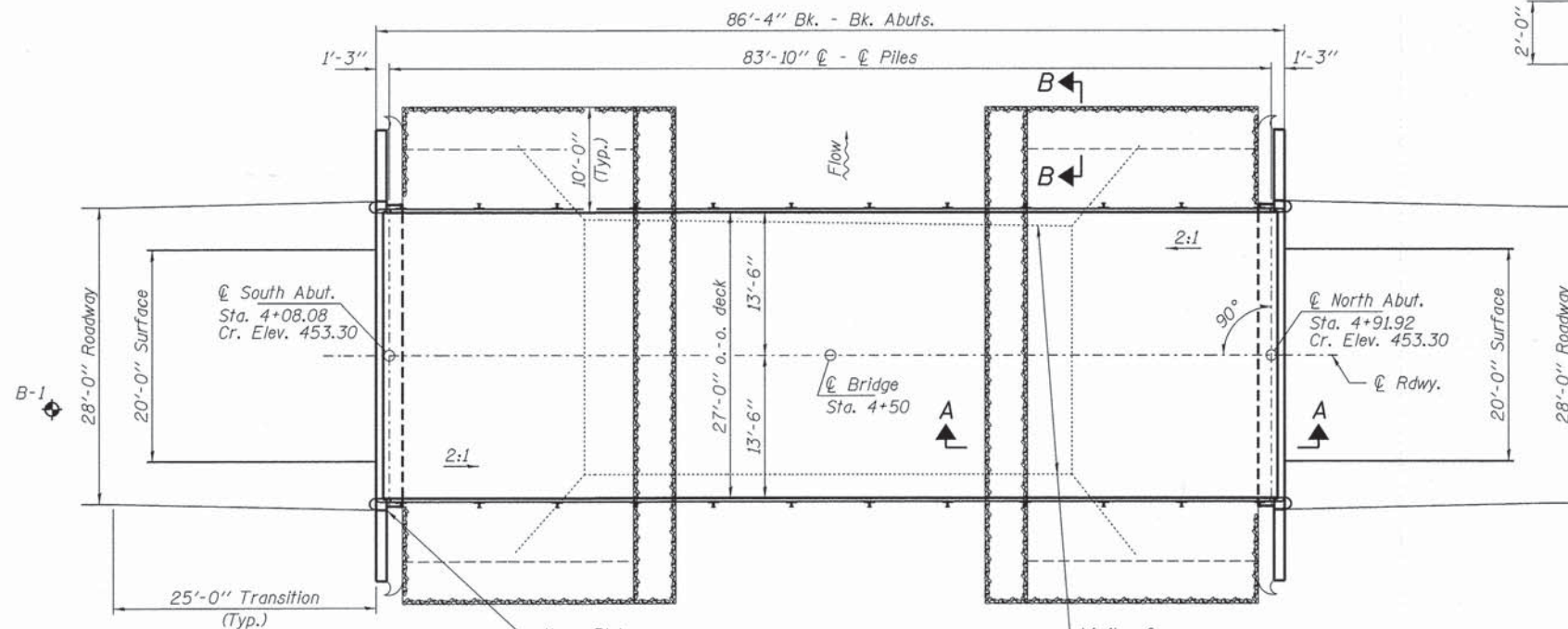
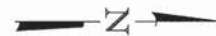
EXISTING STRUCTURE: Sta. 4+50, Str. No. 017-3506. I-Beam bridge with closed timber backed abutments timber wingwalls and deck.

Structure closed to traffic during construction.

Salvage: Steel I-beams to be salvaged to the county. See Special Provisions.



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. (SD1) = 0.215g
Design Spectral Acceleration at 0.2 sec. (SDS) = 0.493g
Soil Site Class = D

WATERWAY INFORMATION

Drainage Area = 14.40 Sq. Mi. Existing Low Grade Elev. 453.3 @ Sta. 4+50
Proposed Low Grade Elev. 453.3 @ Sta. 4+50

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Natural H.W.E.		Head - Ft.		Headwater El.	
			Exist.	Prop.	Exist.	Prop.	Exist.	Prop.		
Design/Overtop	15	2680	415	504	448.2					
Base	100	4500	450	562	449.0	1.7	1.5	450.7	450.5	

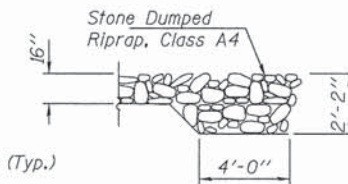
Design Scour Elevations (ft.)		
	S. Abut.	N. Abut.
Q100	446.0	446.0

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."

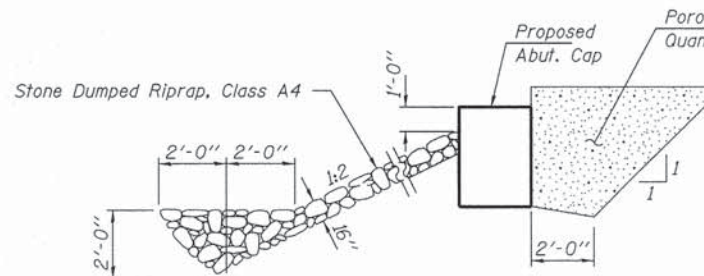
Steven W. Megginson 02/09/2015
ILLINOIS STRUCTURAL ENGINEER NO. 081-6064



Expires 11-30-2016



SECTION B-B



SECTION A-A

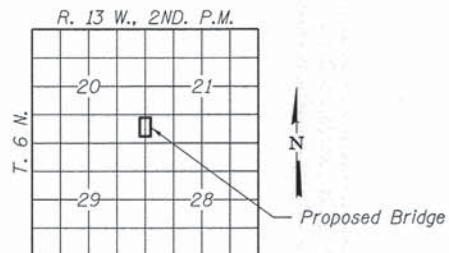
Note: See Special Provisions for Stone Dumped Riprap, Class A4.

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 110% of the nominal required bearing specified in production locations at the South 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. See Special Provisions.
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. 33"x36" PPC Deck Beam
3. 33"x36" PPC Deck Beam Details
4. Superstructure Details
5. Steel Railing, Type S-1
6. Abutments
7. HP Pile Details
8. Borings



LOCATION SKETCH

LITTLE CREEK
BUILT 201_ BY
T.R. 76
CRAWFORD COUNTY
SEC. 14-05118-00-BR
STR. NO. 017-3523
LOADING HL-93

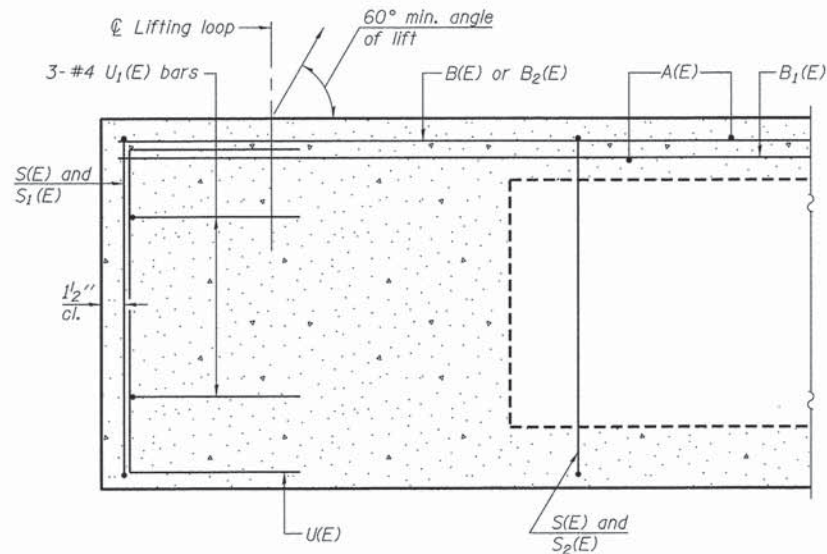
NAME PLATE

See Std. 515001

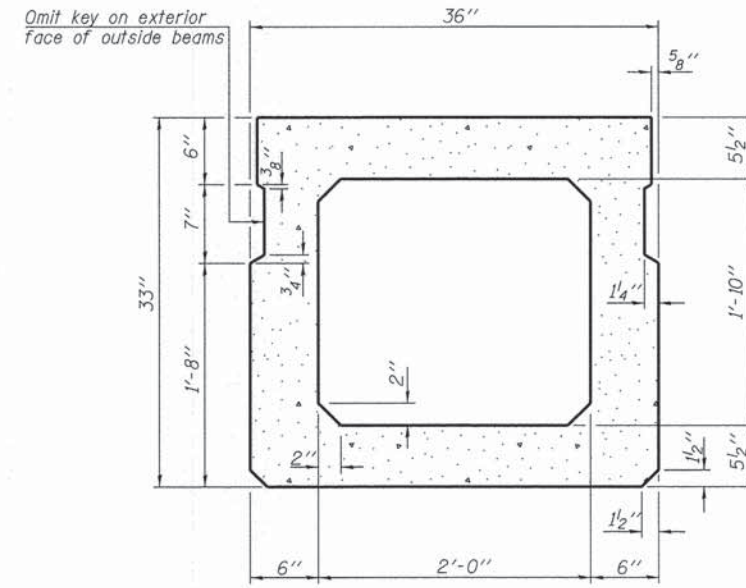
TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	Cu. Yd.			315
Stone Dumped Riprap, Class A4	Ton			230
Removal of Existing Structures	Each			1
Concrete Structures	Cu. Yd.		28.8	28.8
Precast Prestressed Concrete Deck Beams (33" Depth)	Sq. Ft.	2,295		2,295
Reinforcement Bars, Epoxy Coated	Pound		3,320	3,320
Steel Railing, Type S-1	Foot	168		168
Furnishing Steel Piles HP10x42	Foot		495	495
Driving Piles	Foot		495	495
Test Pile Steel HP10x42	Each		1	1
Name Plates	Each		1	1
Terminal Marker - Direct Applied	Each		4	4
Concrete Sealer	Sq. Ft.		104	104

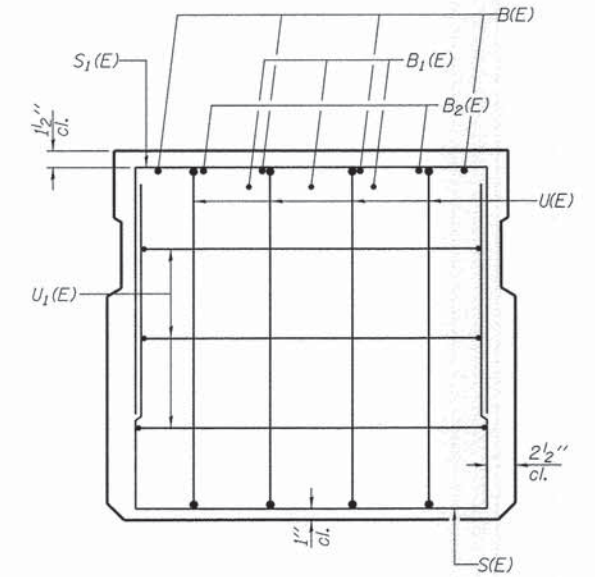
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HAMPTON, LENZINI AND RENWICK, INC.		CHECKED - S.W.M.	REVISED -			76	14-05118-00-BR	CRAWFORD	10	3	
3035 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62761	PLOT SCALE =	DRAWN - R.D.H.	REVISED -			MARTIN ROAD DISTRICT					CONTRACT NO. 95756
ILLINOIS PROFESSIONAL DESIGN FIRM L.S. / P.E. / S.E. CORP. 184.000559	PLOT DATE = 2/9/2015	CHECKED - D.A.B.	REVISED -			ILLINOIS FED. AID PROJECT					



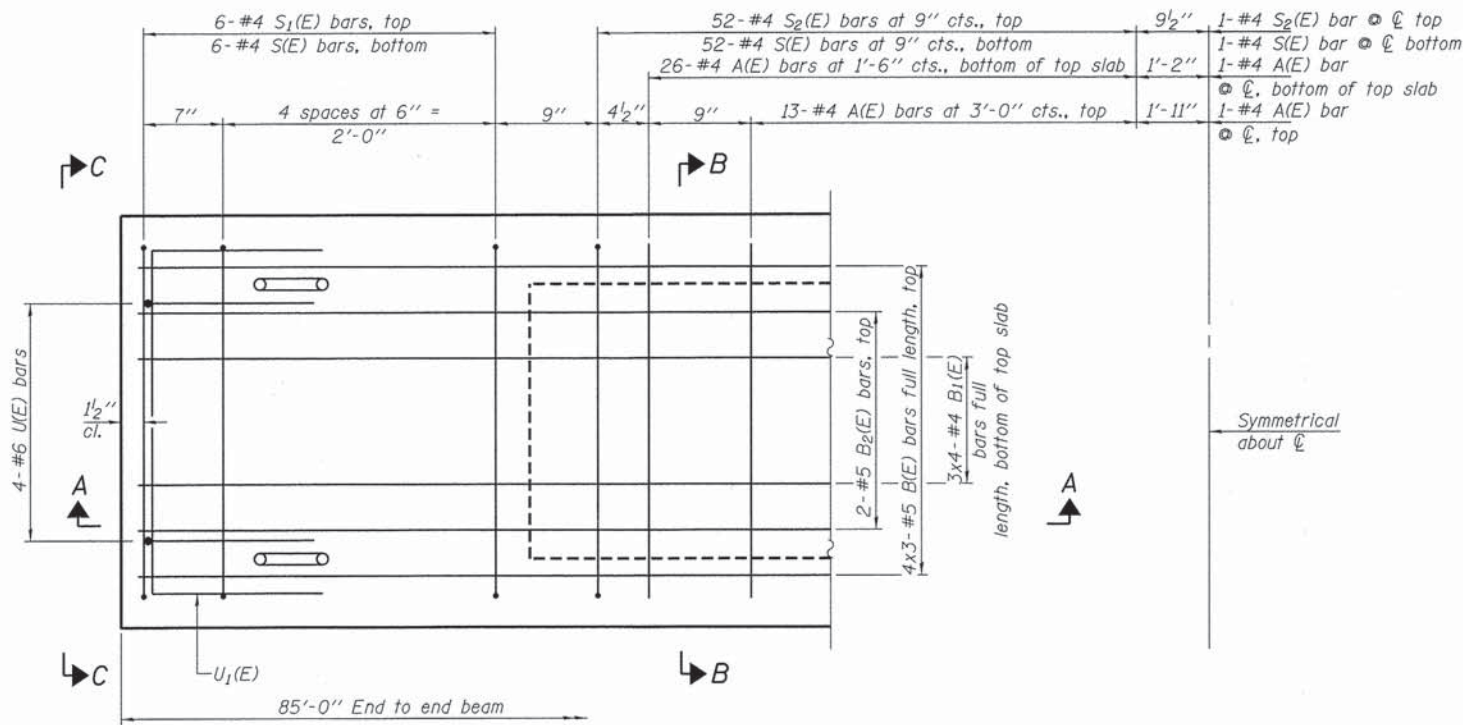
SECTION A-A



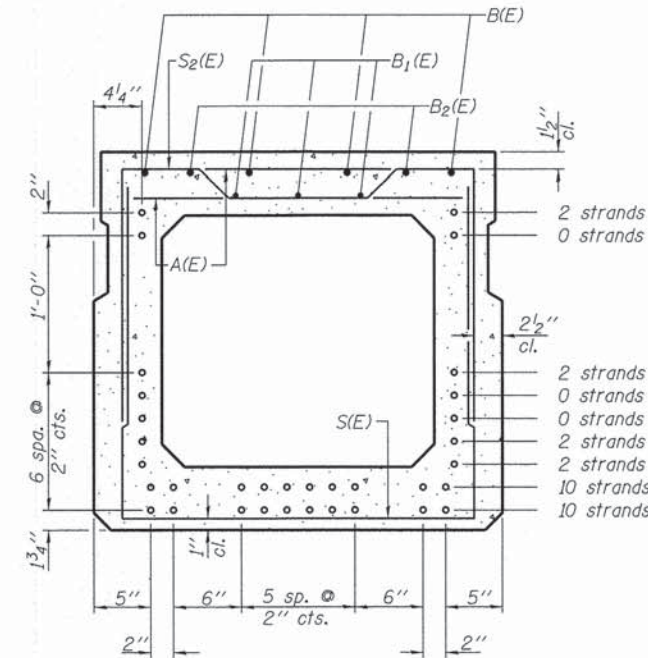
SECTION B-B
(Showing dimensions)



VIEW C-C



PLAN VIEW



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)	80	#4	2'-7"	—
B(E)	12	#5	29'-11"	—
B1(E)	12	#4	22'-9"	—
B2(E)	4	#5	10'-0"	—
S(E)	117	#4	7'-5"	U
S1(E)	12	#4	6'-3"	U
S2(E)	105	#4	6'-6"	U
U(E)	8	#6	5'-0"	U
U1(E)	6	#4	5'-0"	U

Note: See sheets 3 & 4 of 8 for additional details and Bill of Material.

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 4x3-#5 etc. indicates 4 lines of bars with 3 lengths per line.

MINIMUM BAR LAP
#4 bar = 2'-0"
#5 bar = 2'-6"

PD-3336-0

7-1-10

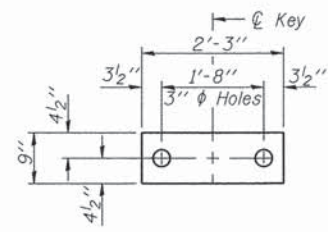
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PLOT DATE = 2/9/2015		DRAWN - R.D.H.	REVISED -
		CHECKED - D.A.B.	REVISED -

STATE OF ILLINOIS
CRAWFORD COUNTY HIGHWAY DEPARTMENT

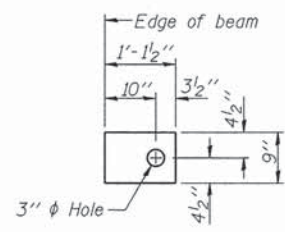
33" x 36" PPC DECK BEAM
STRUCTURE NO. 017-3523

SHEET NO. 2 OF 8 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
76	14-05118-00-BR	CRAWFORD	10	4
MARTIN ROAD DISTRICT		CONTRACT NO. 95756		
ILLINOIS FED. AID PROJECT				



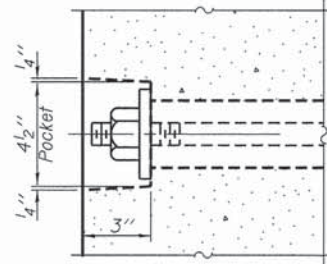
FABRIC BEARING PAD
(Interior - 16 Req'd)



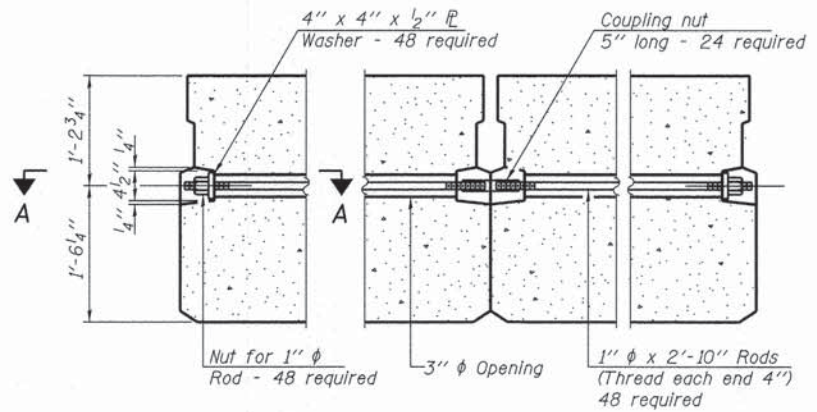
FABRIC BEARING PAD
(Exterior - 4 Req'd)

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

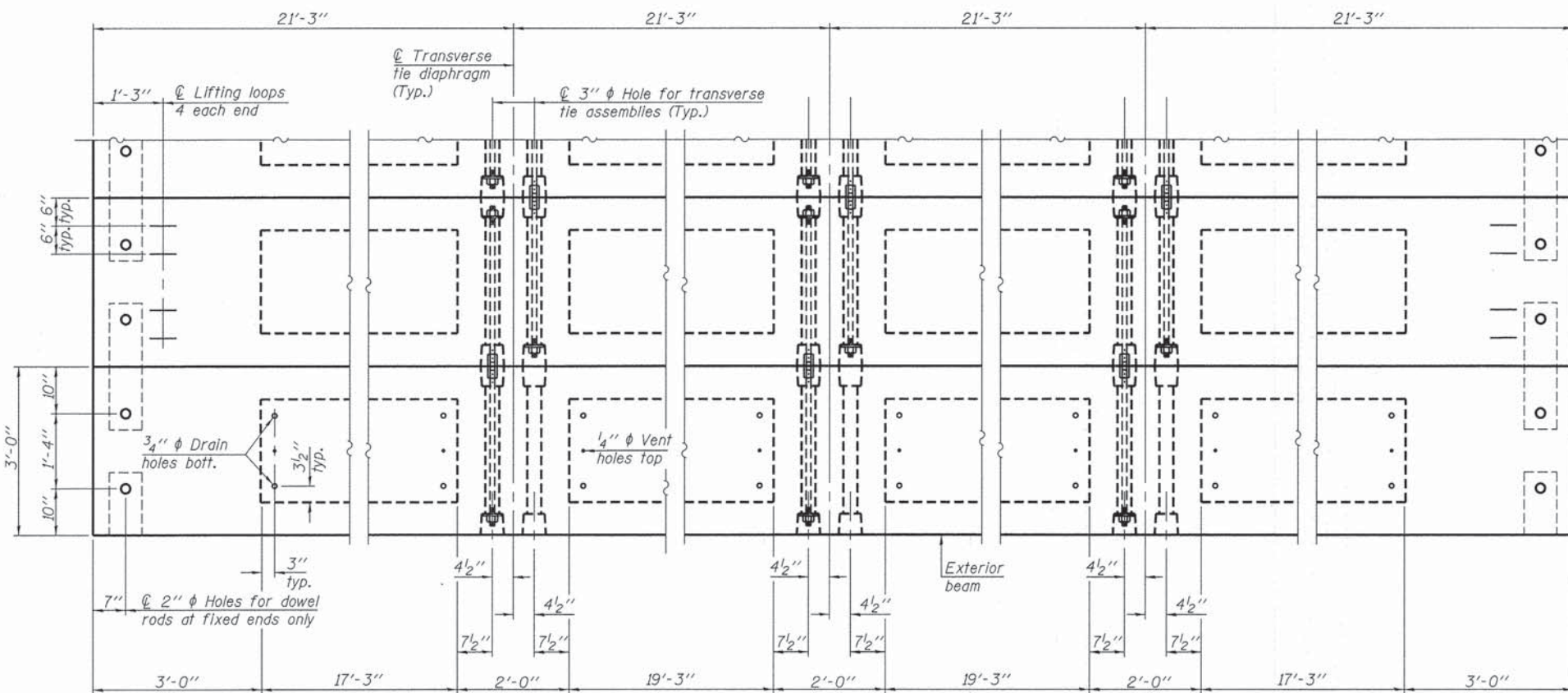
FIXED



SECTION A-A



TYPICAL TRANSVERSE TIE ASSEMBLY

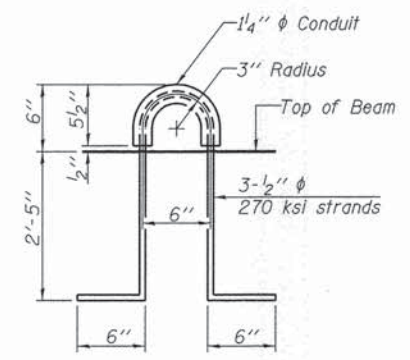
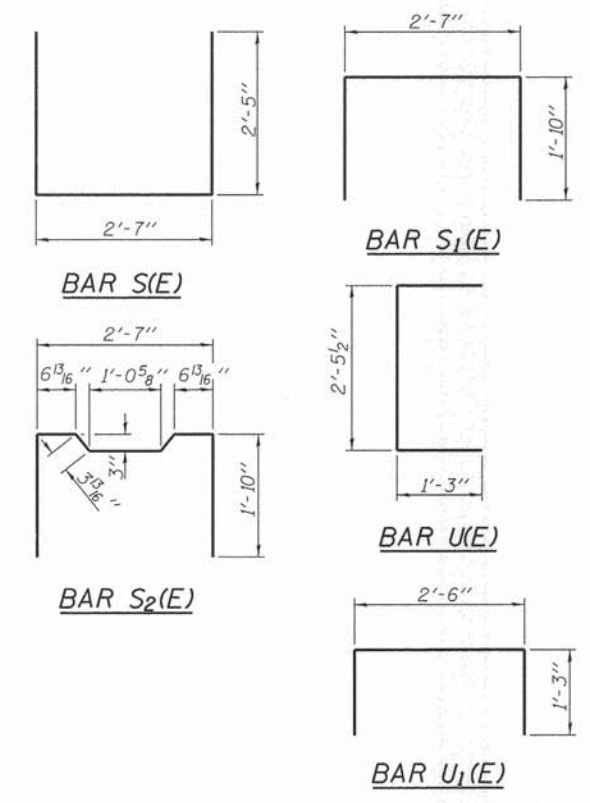


PLAN VIEW

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" diameter 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.
All reinforcement 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. (33" depth)	Sq. Ft.	2,295
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PD-3336-0D 7-1-10

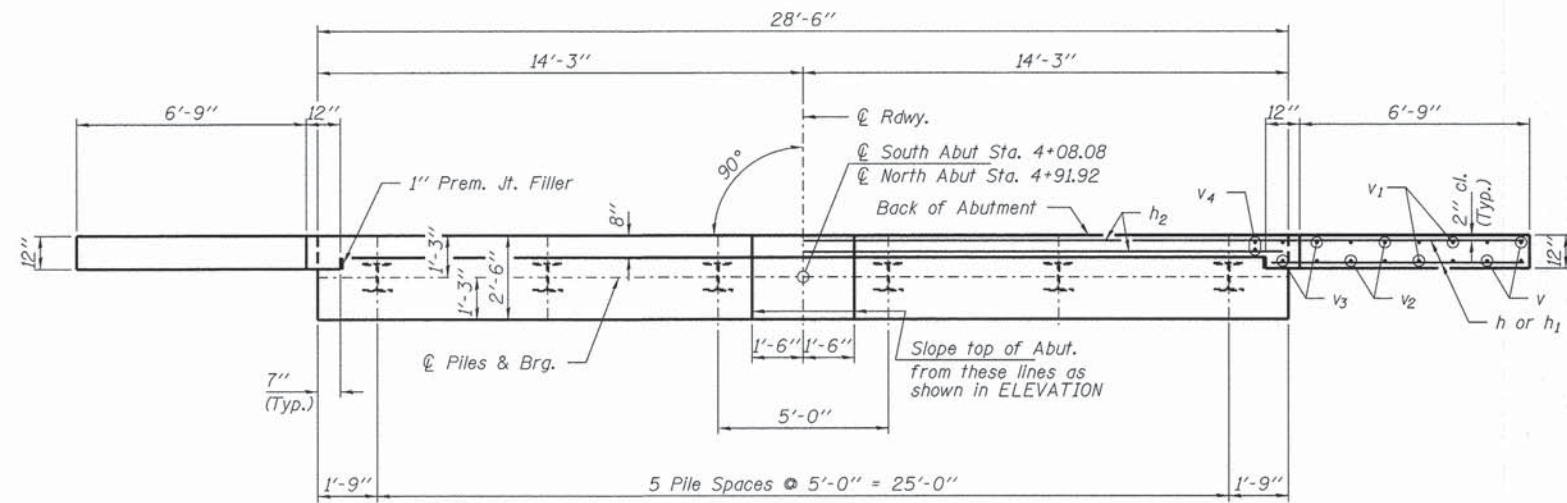
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3343 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703	PLOT SCALE =	DRAWN - R.D.H.	REVISED -
ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000859	PLOT DATE = 2/9/2015	CHECKED - D.A.B.	REVISED -

**STATE OF ILLINOIS
CRAWFORD COUNTY HIGHWAY DEPARTMENT**

**33" x 36" PPC DECK BEAM DETAILS
STRUCTURE NO. 017-3523**

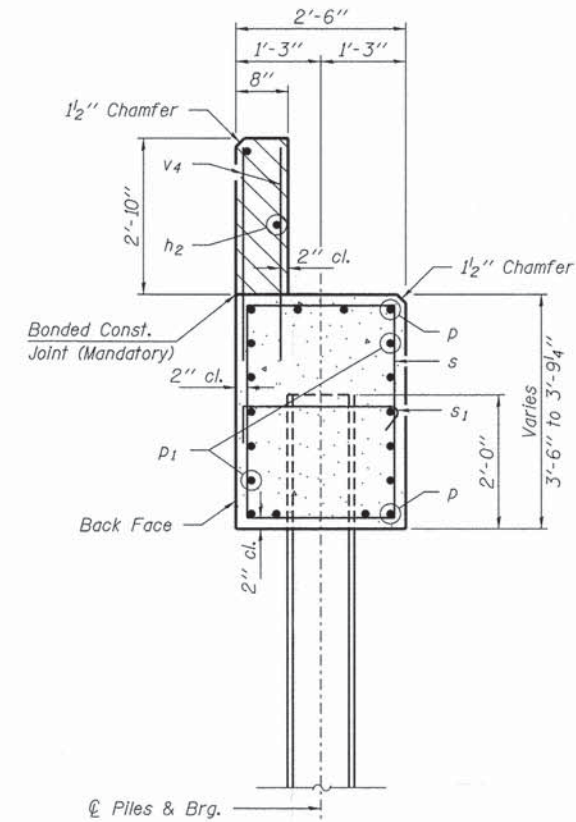
SHEET NO. 3 OF 8 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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MARTIN ROAD DISTRICT		CONTRACT NO. 95756		
[ILLINOIS] FED. AID PROJECT				



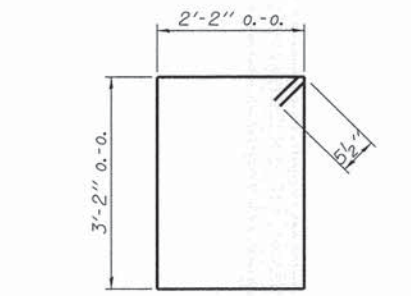
PLAN

Note: Concrete sealer shall be applied to all exposed surfaces of the bearing area.

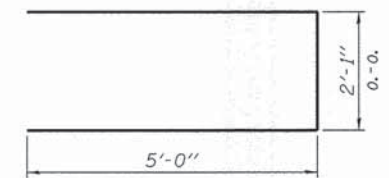


SECTION A-A

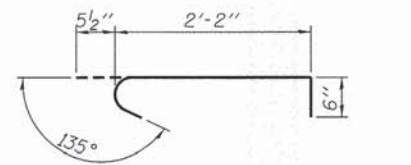
Hatched area to be poured after beams are in place.



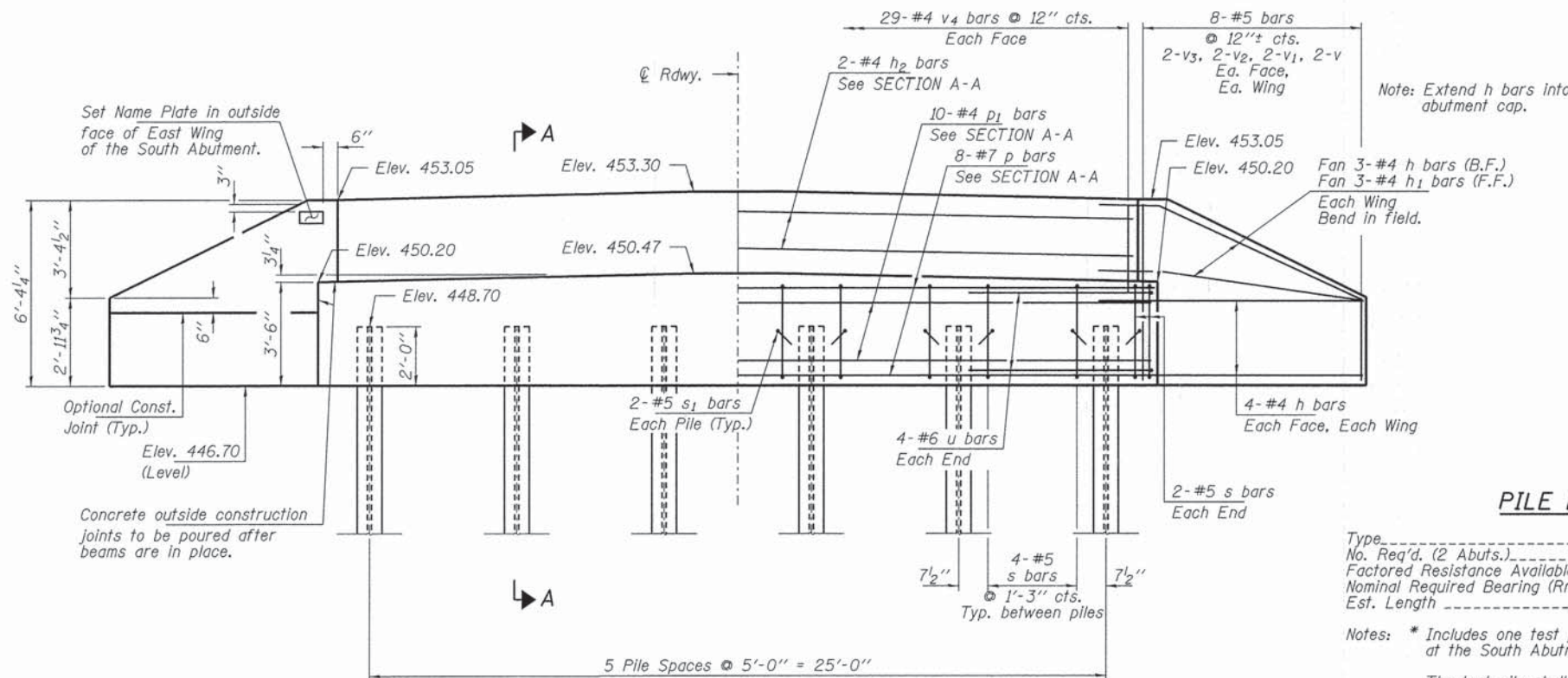
BAR s



BAR u



BAR s1



ELEVATION

PILE DATA

Type ----- Steel HP10x42
 No. Req'd. (2 Abuts.) ----- 12
 Factored Resistance Available (Rf) ----- 184 Kips/Pile
 Nominal Required Bearing (Rn) ----- 335 Kips/Pile
 Est. Length ----- 45 Ft/Pile

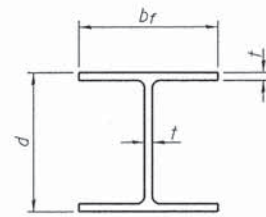
Notes: * Includes one test pile to be driven in a permanent location at the South Abutment.

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

BILL OF MATERIAL - 2 ABUTS.

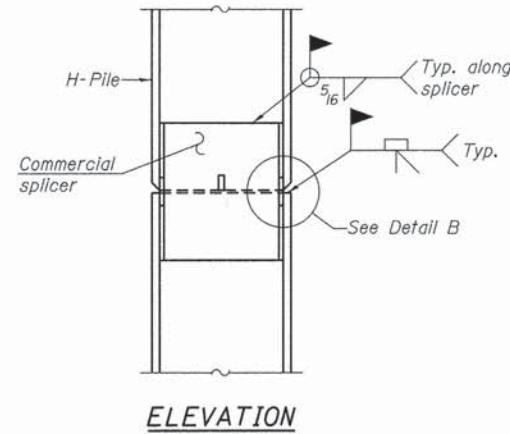
BAR	NO.	SIZE	LENGTH	SHAPE	
h	44	#4	9'-0"	—	
h1	12	#4	7'-6"	—	
h2	4	#4	28'-2"	—	
p	16	#7	28'-2"	—	
p1	20	#4	28'-2"	—	
s	48	#5	11'-7"	□	
s1	24	#5	3'-2"	┌	
u	16	#6	12'-1"	—	
v	16	#5	2'-9"	—	
v1	16	#5	3'-9"	—	
v2	16	#5	4'-10"	—	
v3	16	#5	5'-11"	—	
v4	116	#5	3'-8"	—	
Concrete Structures				Cu. Yd.	28.8
Reinforcement Bars, Epoxy Coated				Pound	3,320
Steel Piles HP10x42				Foot	495
Test Pile Steel HP10x42				Each	1
Name Plates				Each	1
Concrete Sealer				Sq. Ft.	104

All reinforcement bars shall be epoxy coated

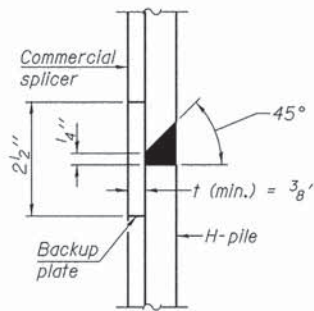


STEEL PILE TABLE

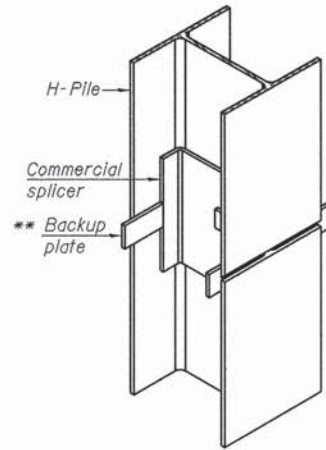
Designation	Depth d	Flange width br	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	1 5/16"	30"
x102	14"	14 3/4"	1 1/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	1 1/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"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

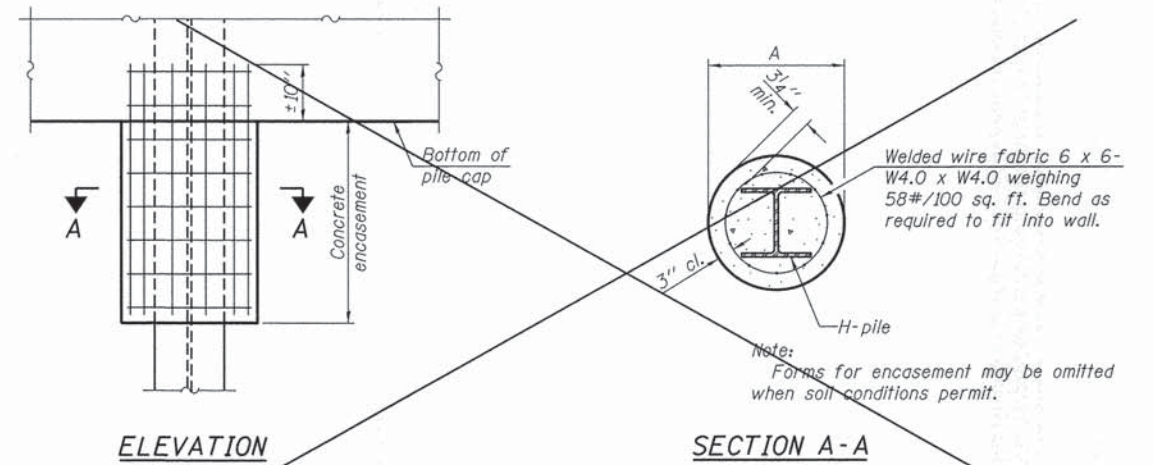


DETAIL "B"



ISOMETRIC VIEW

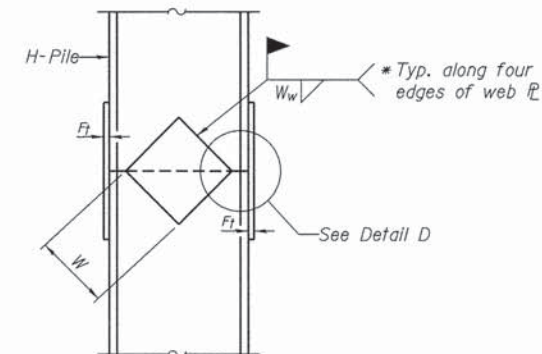
WELDED COMMERCIAL SPLICE



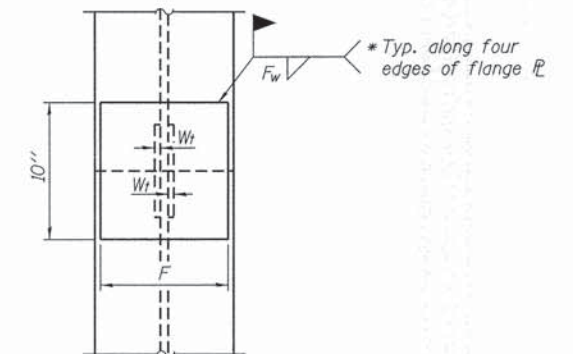
ELEVATION

SECTION A-A

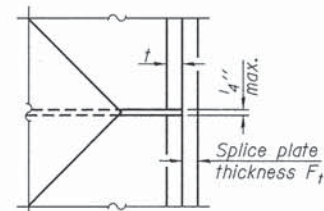
PILE ENCASEMENT (Not Required)



ELEVATION



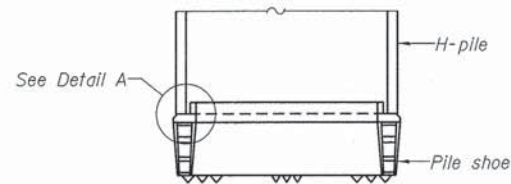
END VIEW



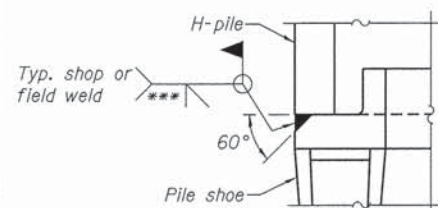
DETAIL D

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 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 1/16"	6 1/2"	5/8"	1/2"
x74	10"	7/8"	1 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"

WELDED PLATE FIELD SPLICE

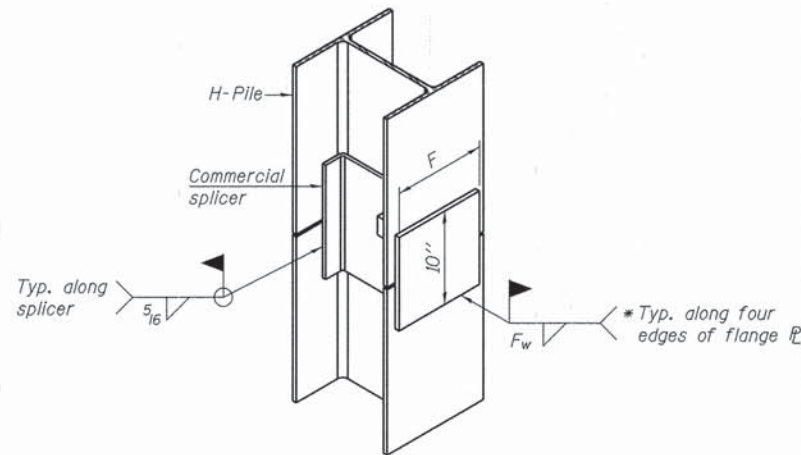


ELEVATION



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 * 140124-sht-bridge.dgn	USER NAME *	DESIGNED - T.J.A.	REVISED -	STATE OF ILLINOIS CRAWFORD COUNTY HIGHWAY DEPARTMENT	HP PILE DETAILS STRUCTURE NO. 017-3523	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
HAMPTON, LENZINI AND RENWICK, INC. 3503 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703	CHECKED - S.W.M.	REVISED -	76			14-05118-00-BR	CRAWFORD	10	9	
ILLINOIS PROFESSIONAL DESIGN FIRM L5 / PE / SE CORP. 184.000859	DRAWN - R.D.H.	REVISED -	MARTIN ROAD DISTRICT			CONTRACT NO. 95756				
PLOT SCALE =	CHECKED - D.A.B.	REVISED -	ILLINOIS FED. AID PROJECT							
PLOT DATE = 2/9/2015			SHEET NO. 7 OF 8 SHEETS							

