INDEX OF SHEETS

STANDARDS:

280001-07 – EROSION CONTROL
515001-03 – NAME PLATES
630301-08 – SHOULDER WIDENING FOR TYPE 1 TERMINAL
725001-01 – REFLECTOR & TERMINAL MARKER PLACEMENT
701901-07 – TRAFFIC
BLR 21-9 – TRAFFIC
BLR 27-1 – TRAFFIC BARRIER TERMINAL, TYPE 5A

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PLANS FOR PROPOSED
SURFACE TRANSPORTATION PROGRAM–OFF SYSTEM BRIDGE

CRAWFORD COUNTY
SECTION 03-05116-00-BR
STRUCTURE NO. 017-3521
PROJECT NO. T1UI(050)
JOB NO. C-97-039-05
TR 221A OVER BIG CREEK

SCALES

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

SUMMARY OF QUANTITIES

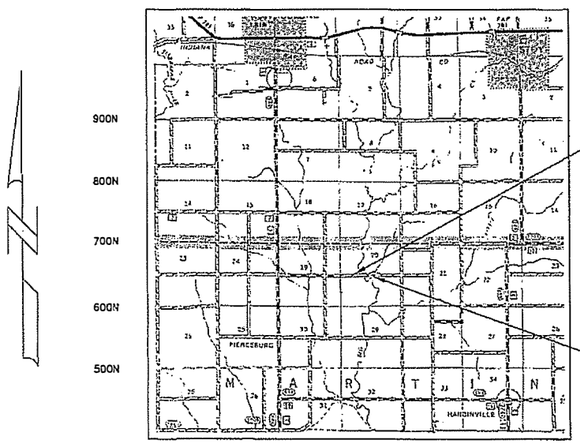
QUANTITY	UNIT	ITEM	CODE NO.
142	CU YD	GRANULAR BACKFILL FOR STRUCTURES	X5860110
1	L SUM	TRAFFIC CONTROL AND PROTECTION, (SPECIAL)	X7010216
136	FOOT	PIPE UNDERDRAINS FOR STRUCTURES 4"	Z0046304
0.3	ACRE	TREE REMOVAL, ACRES	20100500
95	CU YD	EARTH EXCAVATION	20200100
265	CU YD	CHANNEL EXCAVATION	20300100
2,019	CU YD	FURNISHED EXCAVATION	20400800
60	FOOT	PERIMETER EROSION BARRIER	28000400
740	TON	STONE DUMPED RIPRAP, CLASS A5	28100809
284	TON	AGGREGATE SURFACE COURSE, TYPE B	40200800
1	EACH	REMOVAL OF EXISTING STRUCTURES	50100100
210	CU YD	STRUCTURE EXCAVATION	50200100
35.0	CU YD	CONCRETE STRUCTURES	50300225
98.7	CU YD	CONCRETE SUPERSTRUCTURE	50300255
269	SQ YD	BRIDGE DECK GROOVING	50300260
382	SQ YD	PROTECTIVE COAT	50300300
1	L SUM	FURNISHING AND ERECTING STRUCTURAL STEEL	50500105
1,005	EACH	STUD SHEAR CONNECTORS	50500505
25,450	POUND	REINFORCEMENT BARS, EPOXY COATED	50800205
187	FOOT	STEEL RAILING, TYPE S1	50900205 △
440	FOOT	FURNISHING STEEL PILES HP 12X53	51201600
440	FOOT	DRIVING PILES	51202305
2	EACH	TEST PILES STEEL HP 12X53	51203600
10	EACH	PILE SHOES	51204650
1	EACH	NAME PLATES	51500100
20	EACH	ANCHOR BOLTS, 1"	52100520
70	SQ YD	GEOCOMPOSITE WALL DRAIN	59100100
2	EACH	TRAFFIC BARRIER TERMINAL, TYPE 5A	63100075 △
2	EACH	TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT	63100167 △
1	L SUM	MOBILIZATION	67100100
4	EACH	TERMINAL MARKER – DIRECT APPLIED	72501000 △

△ SPECIALTY ITEMS

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

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

R14W. 2ND P.M. | R13W. 2ND P.M.



SECTION 03-05116-00-BR
BEGINS STA. 12+00

STA.16+41 – SPECIAL BRIDGE DESIGN
PROPOSED STEEL PLATE GIRDER BRIDGE
W/CAST IN PLACE CONCRETE DECK
1 SPAN @ 92'-0", 28' ROWY, SKEW= 10°R.F.
PROPOSED STR. NO. 017-3521
EXISTING STR. NO. 017-3504

SECTION 03-05116-00-BR
ENDS STA. 20+00

LOCATION MAP

APPROXIMATE SCALE: 1 INCH = 1 MILE
NET LENGTH = 800 FT. = 0.151 MILES

JOHN A. STONE
062-055012
LICENSED PROFESSIONAL ENGINEER
STATE OF ILLINOIS

11/30/2017
ILLINOIS REGISTERED PROFESSIONAL ENGINEER # 55012
LICENSE EXPIRES NOVEMBER 30, 2019
PROFESSIONAL DESIGN FIRM #184-000832

ILLINOIS DEPARTMENT OF TRANSPORTATION

APPROVED: 11/30, 2017
Kurt R. Call
LOCAL AGENCY, COUNTY ENGINEER

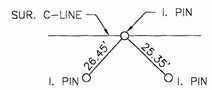
PASSED: 1-9, 2018
DISTRICT SEVEN ENGINEER
OF LOCAL ROADS & STREETS

RELEASING FOR BID
BASED ON LIMITED
REVIEW 1-9, 2018
REGION FOUR ENGINEER

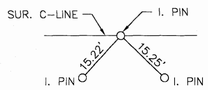
SECTION	03-05116-00-BR	TOTAL SHEETS	SHEET NO.
COUNTY	CRAWFORD	17	2
ROAD DIST.	MARTIN		
STA. 10+00	TO STA. 20+00		

CONTRACT 95819

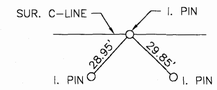
P.O.T. STA. 10+00



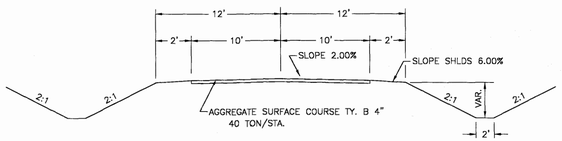
P.I. STA. 17+42.27



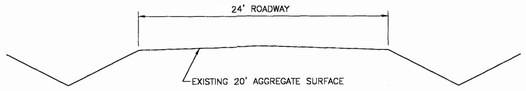
P.T. STA. 20+03.50



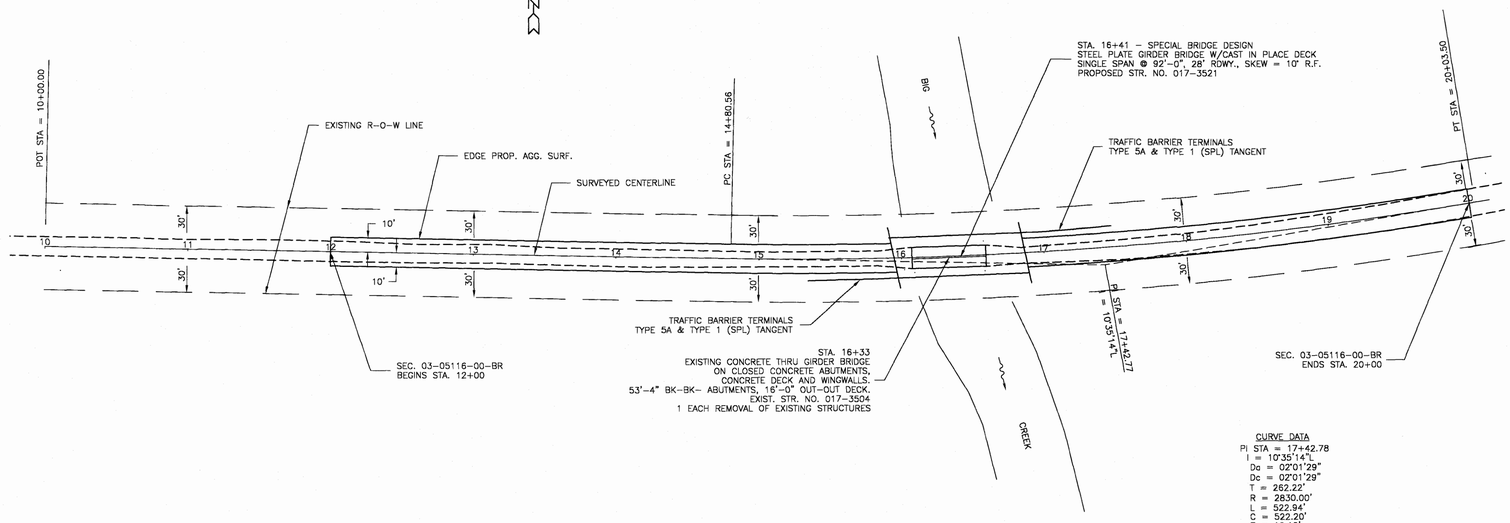
JOHN W. & TAMMY L. WRIGHT



TYPICAL CROSS SECTION OF PROPOSED ROADWAY



TYPICAL CROSS SECTION OF EXISTING ROADWAY



CURVE DATA
PI STA = 17+42.78
I = 10°35'14"L
Da = 02°01'29"
Dc = 02°01'29"
T = 262.22'
R = 2830.00'
L = 522.94'
O = 522.20'
E = 12.12'
M = 12.07'
NO SUPERELEVATION

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.

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

JIMMY J. & ELSIE J. FOX

UTILITIES
NONE

EARTHWORK SCHEDULE

96	CU YD	EARTH EXCAVATION
72	CU YD	EARTH EXCAVATION ADJUSTED 25%
2448	CU YD	EMBANKMENT
265	CU YD	CHANNEL EXCAVATION
199	CU YD	CHANNEL EXCAVATION ADJUSTED 25%
210	CU YD	STRUCTURE EXCAVATION
158	CU YD	STRUCTURE EXCAVATION ADJUSTED 25%
2019	CU YD	FURNISHED EXCAVATION

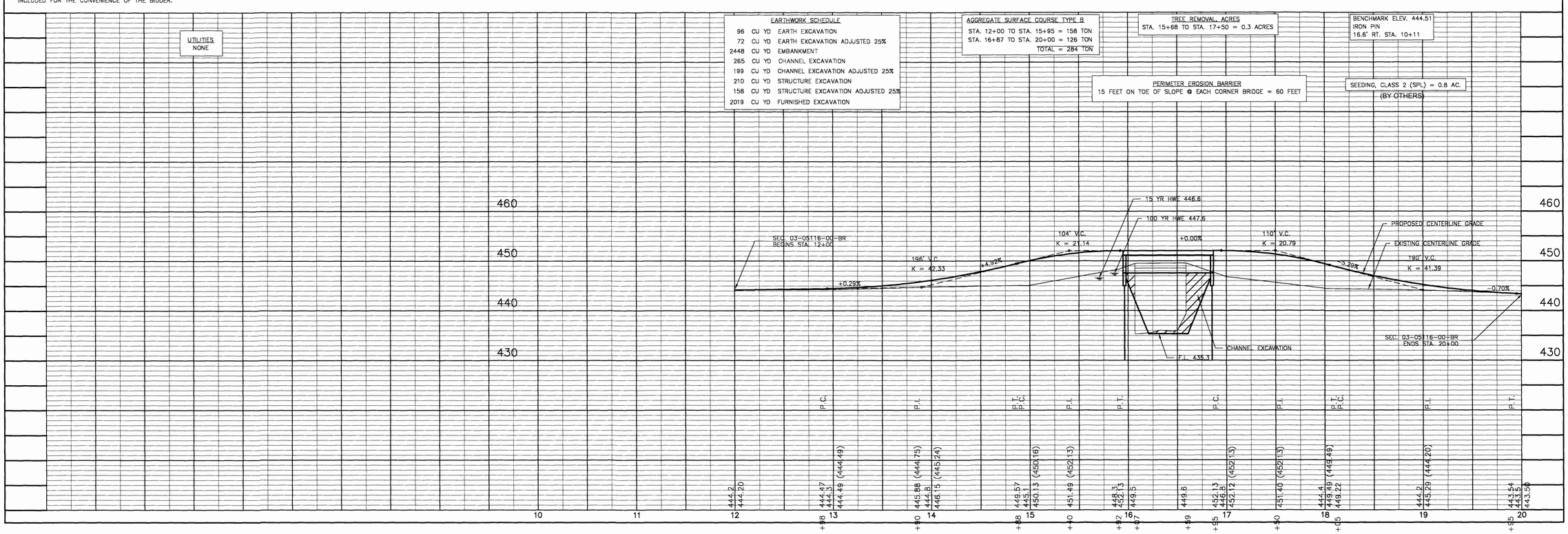
AGGREGATE SURFACE COURSE TYPE B
STA. 12+00 TO STA. 15+95 = 158 TON
STA. 16+87 TO STA. 20+00 = 126 TON
TOTAL = 284 TON

TREE REMOVAL, ACRES
STA. 15+68 TO STA. 17+50 = 0.3 ACRES

PERIMETER EROSION BARRIER
15 FEET ON TOE OF SLOPE @ EACH CORNER BRIDGE = 60 FEET

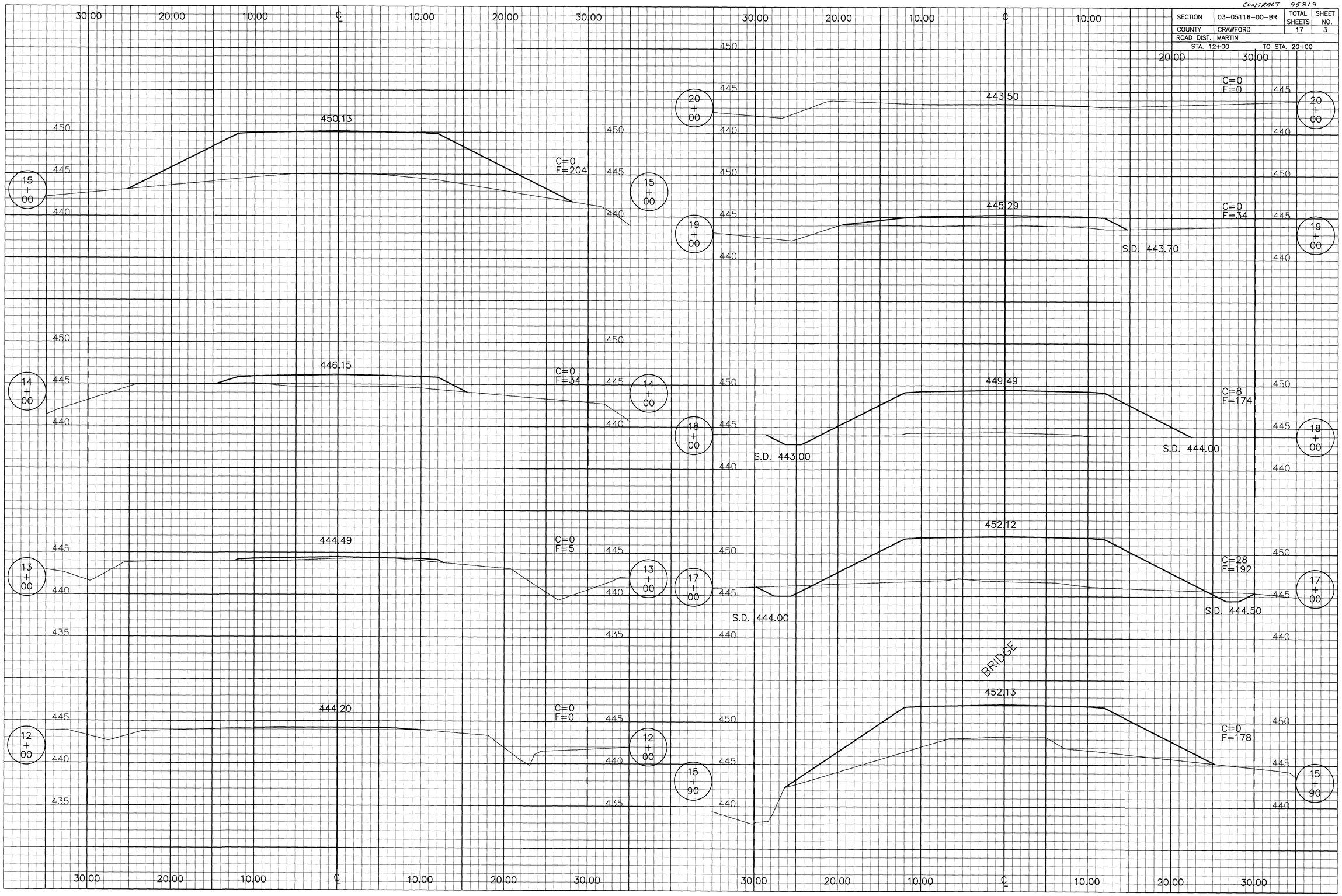
BENCHMARK ELEV. 444.51
IRON PIN
16.6' RT. STA. 10+11

SEEDING, CLASS 2 (SPL) = 0.8 AC.
(BY OTHERS)



CONTRACT 95819

SECTION	03-05116-00-BR	TOTAL SHEETS	SHEET NO.
COUNTY	CRAWFORD	17	3
ROAD DIST.	MARTIN		
STA. 12+00	TO STA. 20+00		

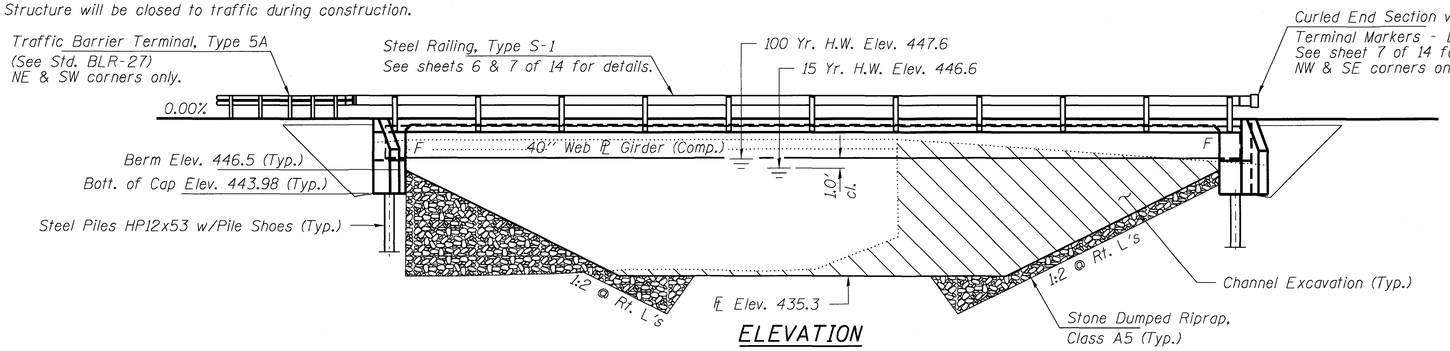


BENCHMARK: Iron Pin (Set) @ Edge of Pavement Rt., Sta. 15+94, Elev. 449.02

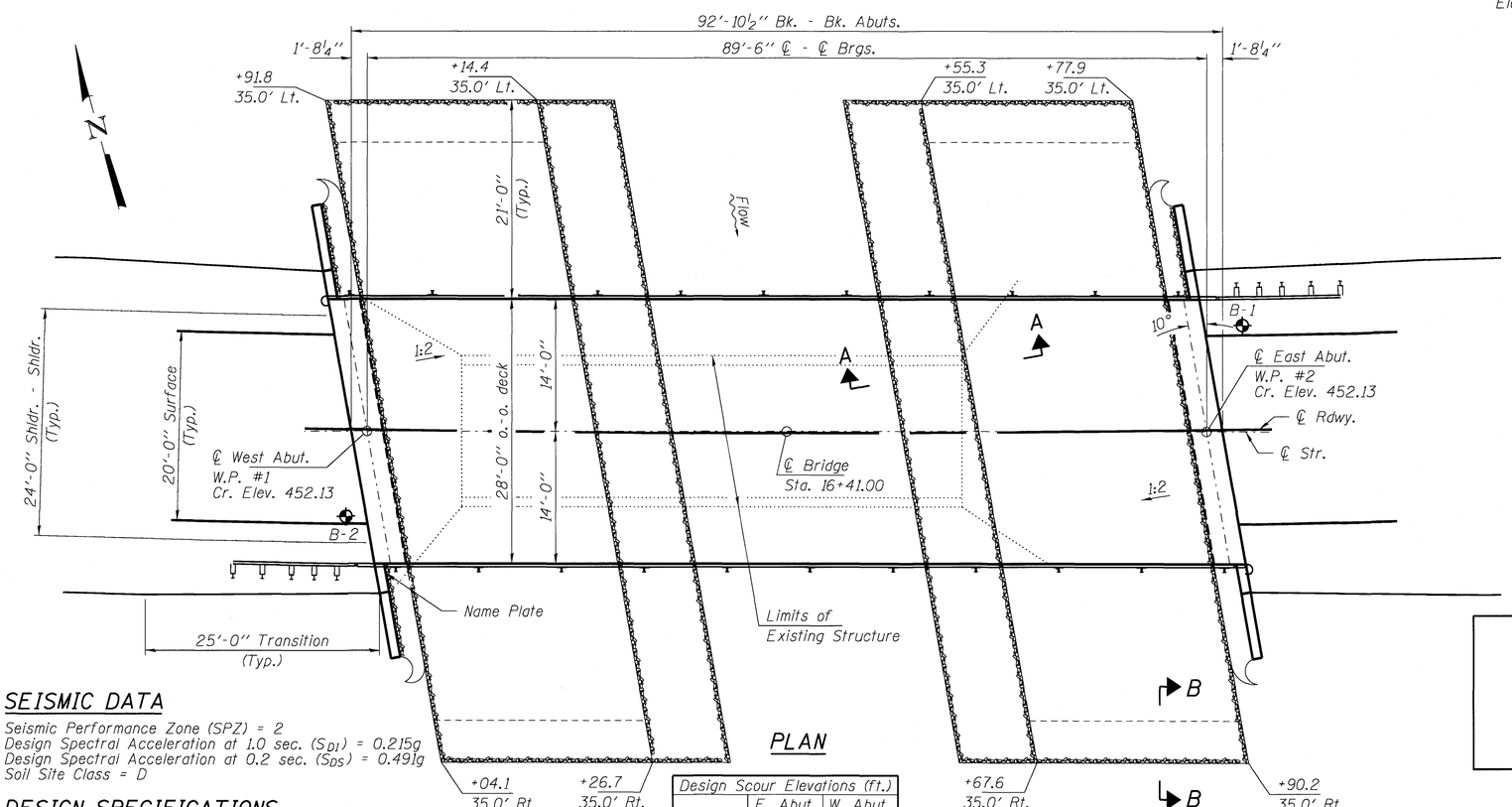
EXISTING STRUCTURE NO. 017-3504: Sta. 16+33 - Single span concrete thru girder bridge on closed concrete abutments, deck and wingwalls. 53.3' bk.-bk. abuts.; 16.0' o.-o. deck.

Structure will be closed to traffic during construction.

INDEX OF STRUCTURE SHEETS

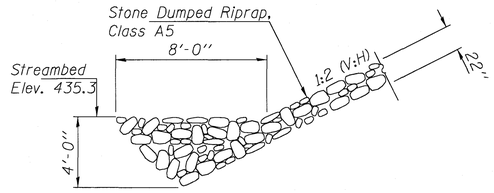


ELEVATION

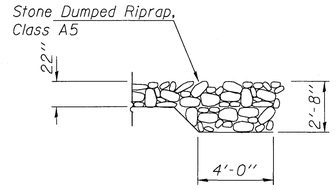


PLAN

Design Scour Elevations (ft.)		
	E. Abut.	W. Abut.
0100	444.0	440.0
0500	444.0	440.0

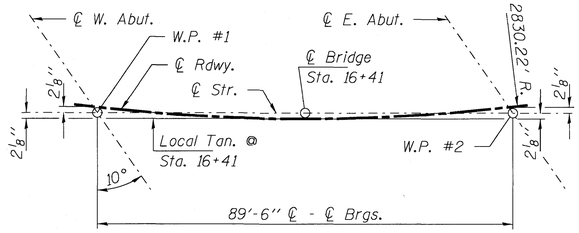


SECTION A-A

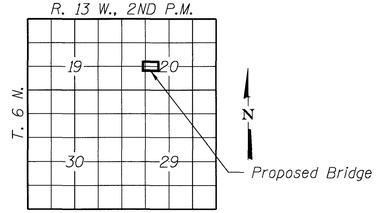


SECTION B-B

Note: See Special Provisions for Stone Dumped Riprap, Class A5.



OFFSET SKETCH



LOCATION SKETCH

SEISMIC DATA

Seismic Performance Zone (SPZ) = 2
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.215g
Design Spectral Acceleration at 0.2 sec. (S_{DS}) = 0.491g
Soil Site Class = D

DESIGN SPECIFICATIONS

2014 AASHTO LRFD Bridge Design Specifications, 7th Edition with 2015 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.)
fy = 50,000 psi (Structural Steel) (M270 Gr. 50W)

WATERWAY INFORMATION

Drainage Area = 72.4 Sq. Mi.

Existing Low Grade Elev. 404.2 @ Sta. 2+85
Proposed Low Grade Elev. 406.3 @ Sta. 1+75

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Natural H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
Design	15	7027	540	711	446.6	-	-	-	-
Base	100	11500	591	796	447.6	0.00	0.00	447.6	447.6
Max. Calc.									

BIG CREEK
BUILT 201_ BY
CRAWFORD COUNTY
SEC. 03-05116-00-BR
MARTIN ROAD DISTRICT
STR. NO. 017-3521
LOADING HL-93

NAME PLATE

See Std. 515001

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 01/05/2018
ILLINOIS STRUCTURAL ENGINEER NO. 081-6064

LICENSED STRUCTURAL ENGINEER ★ STEVEN W. MEGGINSON 081-6064 SPRINGFIELD, IL ★ STATE OF ILLINOIS

Expires 11-30-2018

GENERAL PLAN & ELEVATION
T.R. 221
SECTION 03-05116-00-BR
CRAWFORD COUNTY
STATION 16+41.00
STRUCTURE NO. 017-3521

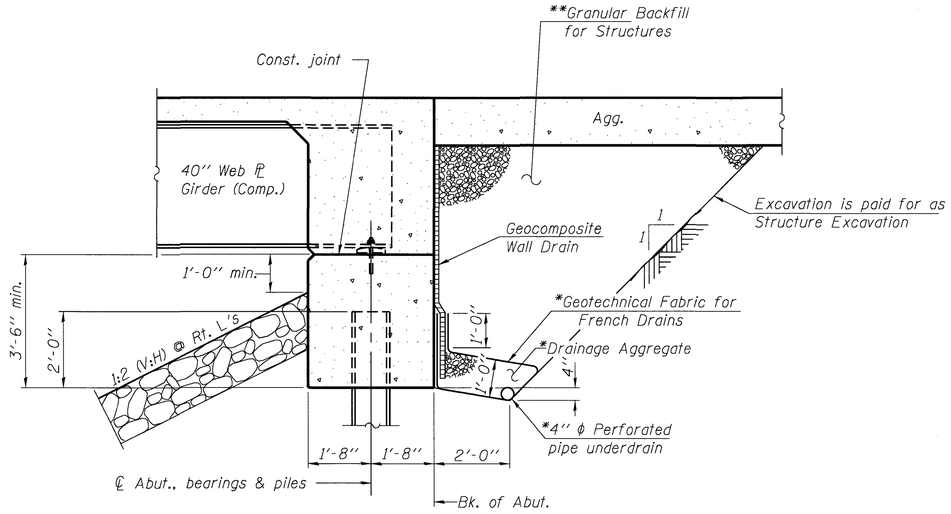
FILE NAME = 170498-sht-bridge.dgn
USER NAME = rhosick
PLOT SCALE =
PLOT DATE = 1/5/2018
3085 STEVENSON DRIVE, SUITE 201
SPRINGFIELD, ILLINOIS 62703
217.546.3400 www.hlrengineering.com
184.000959
ILLINOIS PROFESSIONAL DESIGN FIRM
LS / PE / SE CORPORATION

DESIGNED -		REVISED -
CHECKED -	S.W.M.	REVISED -
DRAWN -	D.A.B.	REVISED -
CHECKED -	S.W.M.	REVISED -

STATE OF ILLINOIS
CRAWFORD COUNTY HIGHWAY DEPARTMENT

GENERAL PLAN & ELEVATION
STRUCTURE NO. 017-3521
SHEET NO. 1 OF 14 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
221	03-05116-00-BR	CRAWFORD	17	4
MARTIN ROAD DISTRICT		CONTRACT NO. 95819		
ILLINOIS	FED. AID PROJECT			



SECTION THRU INTEGRAL ABUTMENT

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

Note:
All drainage system components shall extend to 2'-0" from the end of each wingwall except an outlet pipe shall extend until intersecting with the side slopes. The pipes shall drain into concrete headwalls. (See Article 601.05 of the Standard Specifications and Highway Standard 601101).

*Included in the cost of Pipe Underdrains for Structures. (See Special Provisions)

**Contractor shall compact item Granular Backfill for Structures as per Article 206.04 of the Standard Specfications.

GENERAL NOTES

Fasteners shall be ASTM A325 Type 1, mechanically galvanized bolts in painted areas and ASTM A325 Type 3 in unpainted areas. Bolts $\frac{3}{4}$"ϕ, holes $\frac{15}{16}$"ϕ, unless otherwise noted.

Calculated weight of Structural Steel = 52,610 lbs.

All structural steel shall be AASHTO M 270 Grade 50W.

No field welding is permitted except as specified in the contract documents.

Reinforcement bars designated (E) shall be epoxy coated.

Structural steel shall only be painted for a distance equal to the depth of embedment into the concrete cap plus 3 inches. Painted areas shall be primed in the shop with a Department approved zinc rich primer. Field painting will not be required.

Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.

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.

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	Cu. Yd.			265
Stone Dumped Riprap, Class A5	Ton			740
Protective Coat	Sq. Yd.	348	34	382
Removal of Existing Structures	Each			1
Structure Excavation	Cu. Yd.		210	210
Concrete Structures	Cu. Yd.		35.0	35.0
Concrete Superstructure	Cu. Yd.	98.7		98.7
Bridge Deck Grooving	Sq. Yd.	269		269
Furnishing and Erecting Structural Steel	L. Sum	1		1
Stud Shear Connectors	Each	1,005		1,005
Reinforcement Bars, Epoxy Coated	Pound	19,130	6,320	25,450
Steel Railing, Type S-1	Foot	187		187
Furnishing Steel Piles HP12x53	Foot		440	440
Driving Piles	Foot		440	440
Test Pile Steel HP12x53	Each		2	2
Pile Shoes	Each		10	10
Name Plates	Each		1	1
Anchor Bolts, 1"	Each		20	20
Geocomposite Wall Drain	Sq. Yd.		70	70
Terminal Marker - Direct Applied	Each		4	4
Granular Backfill for Structures	Cu. Yd.		142	142
Pipe Underdrains for Structures 4"	Foot		136	136

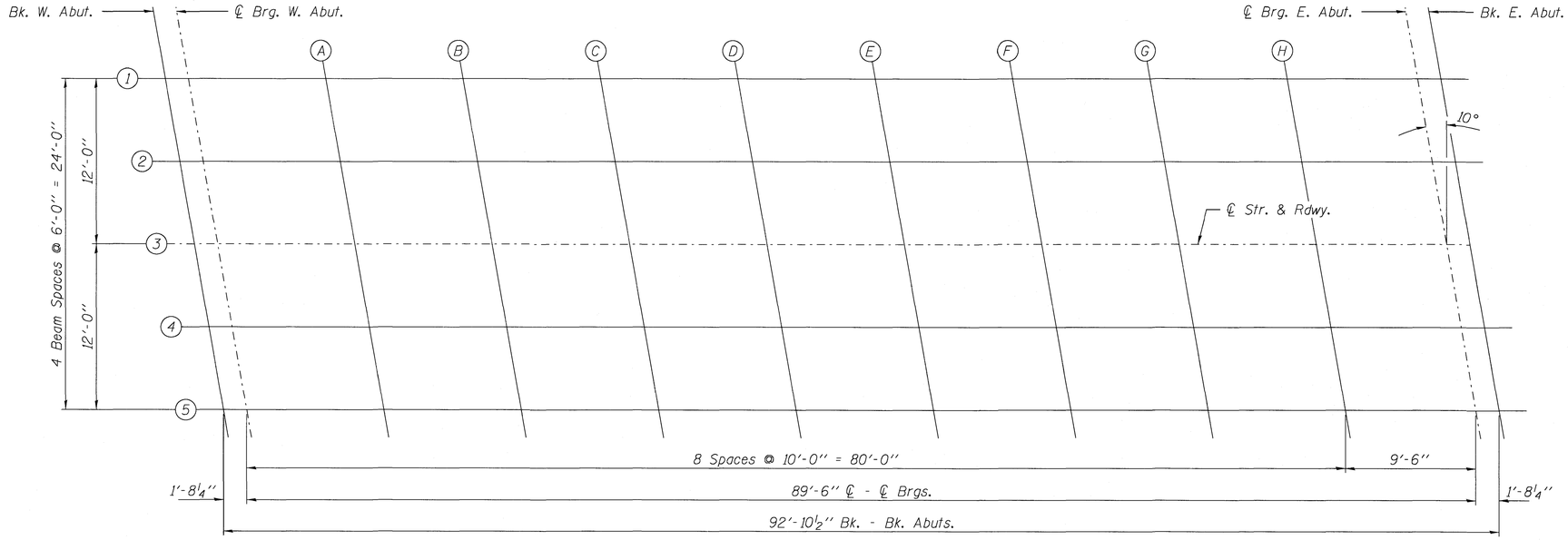
3085 STEVENSON DRIVE, SUITE 201
SPRINGFIELD, ILLINOIS 62703
217.546.3400 www.hlrengineering.com
184.000959
ILLINOIS PROFESSIONAL DESIGN FIRM
LS / PE / SE CORPORATION

FILE NAME = 170498-sht-bridge.dgn	USER NAME = rhosick	DESIGNED -	REVISED -
		CHECKED - S.W.M.	REVISED -
	PLOT SCALE =	DRAWN - D.A.B.	REVISED -
	PLOT DATE = 1/5/2018	CHECKED - S.W.M.	REVISED -

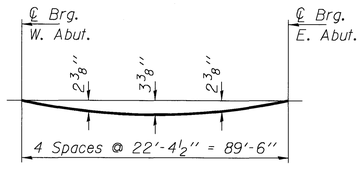
STATE OF ILLINOIS
CRAWFORD COUNTY HIGHWAY DEPARTMENT

GENERAL DETAILS
STRUCTURE NO. 017-3521
SHEET NO. 2 OF 14 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
221	03-05116-00-BR	CRAWFORD	17	5
MARTIN ROAD DISTRICT		CONTRACT NO. 95819		
ILLINOIS	FED. AID PROJECT			



PLAN

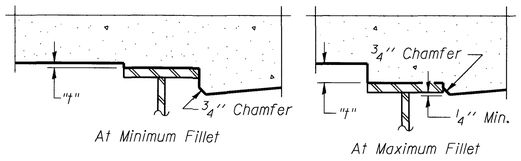


DEAD LOAD DEFLECTION DIAGRAM

(Includes weight of concrete only.)

Note:

The above deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown on sheet 4 of 14.



To determine "t": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown above. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown on sheet 4 of 14, minus slab thickness, equals the fillet heights "t" above top flange of beams.

FILLET HEIGHTS

3086 STEVENSON DRIVE, SUITE 201
SPRINGFIELD, ILLINOIS 62703
217.546.3400 www.hlrengineering.com
184.000969
ILLINOIS PROFESSIONAL DESIGN FIRM
LS / PE / SE CORPORATION

FILE NAME = 170498-sht-bridge.dgn	USER NAME = rhosick	DESIGNED -	REVISED -
		CHECKED - S.W.M.	REVISED -
	PLOT SCALE =	DRAWN - D.A.B.	REVISED -
	PLOT DATE = 1/5/2018	CHECKED - S.W.M.	REVISED -

STATE OF ILLINOIS
CRAWFORD COUNTY HIGHWAY DEPARTMENT

TOP OF SLAB ELEVATIONS
STRUCTURE NO. 017-3521
SHEET NO. 3 OF 14 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
221	03-05116-00-BR	CRAWFORD	17	6
MARTIN ROAD DISTRICT		CONTRACT NO. 95819		
	ILLINOIS FED. AID PROJECT			

BEAM 1

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	15+96.67	-12.00	451.88	451.88
℄ Brg. W. Abut.	15+98.37	-12.00	451.88	451.88
A	16+08.37	-12.00	451.88	451.97
B	16+18.37	-12.00	451.88	452.06
C	16+28.37	-12.00	451.88	452.12
D	16+38.37	-12.00	451.88	452.15
E	16+48.37	-12.00	451.88	452.15
F	16+58.37	-12.00	451.88	452.11
G	16+68.37	-12.00	451.88	452.05
H	16+78.37	-12.00	451.88	451.99
℄ Brg. E. Abut.	16+87.87	-12.00	451.88	451.97
Bk. E. Abut.	16+89.56	-12.00	451.88	451.88

BEAM 2

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	15+95.62	-6.00	452.01	452.01
℄ Brg. W. Abut.	15+97.31	-6.00	452.01	452.01
A	16+07.31	-6.00	452.01	452.10
B	16+17.31	-6.00	452.01	452.18
C	16+27.31	-6.00	452.01	452.24
D	16+37.31	-6.00	452.01	452.28
E	16+47.31	-6.00	452.01	452.27
F	16+57.31	-6.00	452.01	452.23
G	16+67.31	-6.00	452.01	452.17
H	16+77.31	-6.00	452.01	452.12
℄ Brg. E. Abut.	16+86.81	-6.00	452.01	452.09
Bk. E. Abut.	16+88.50	-6.00	452.01	452.01

℄ STRUCTURE, RDWY., & BEAM 3

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	15+94.56	0.00	452.13	452.13
℄ Brg. W. Abut.	15+96.25	0.00	452.13	452.13
A	16+06.25	0.00	452.13	452.22
B	16+16.25	0.00	452.13	452.31
C	16+26.25	0.00	452.13	452.37
D	16+36.25	0.00	452.13	452.40
E	16+46.25	0.00	452.13	452.40
F	16+56.25	0.00	452.13	452.36
G	16+66.25	0.00	452.13	452.30
H	16+76.25	0.00	452.13	452.24
℄ Brg. E. Abut.	16+85.75	0.00	452.13	452.22
Bk. E. Abut.	16+87.44	0.00	452.13	452.13

BEAM 4

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	15+93.50	6.00	452.01	452.01
℄ Brg. W. Abut.	15+95.19	6.00	452.01	452.01
A	16+05.19	6.00	452.01	452.10
B	16+15.19	6.00	452.01	452.18
C	16+25.19	6.00	452.01	452.24
D	16+35.19	6.00	452.01	452.28
E	16+45.19	6.00	452.01	452.27
F	16+55.19	6.00	452.01	452.23
G	16+65.19	6.00	452.01	452.17
H	16+75.19	6.00	452.01	452.12
℄ Brg. E. Abut.	16+84.69	6.00	452.01	452.09
Bk. E. Abut.	16+86.38	6.00	452.01	452.01

BEAM 5

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	15+92.44	12.00	451.88	451.88
℄ Brg. W. Abut.	15+94.13	12.00	451.88	451.88
A	16+04.13	12.00	451.88	451.97
B	16+14.13	12.00	451.88	452.06
C	16+24.13	12.00	451.88	452.12
D	16+34.13	12.00	451.88	452.15
E	16+44.13	12.00	451.88	452.15
F	16+54.13	12.00	451.88	452.11
G	16+64.13	12.00	451.88	452.05
H	16+74.13	12.00	451.88	451.99
℄ Brg. E. Abut.	16+83.63	12.00	451.88	451.97
Bk. E. Abut.	16+85.33	12.00	451.88	451.88

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184.000959
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LS / PE / SE CORPORATION

FILE NAME = 170498-sht-bridge.dgn | USER NAME = rhosick | PLOT SCALE = | PLOT DATE = 1/5/2018

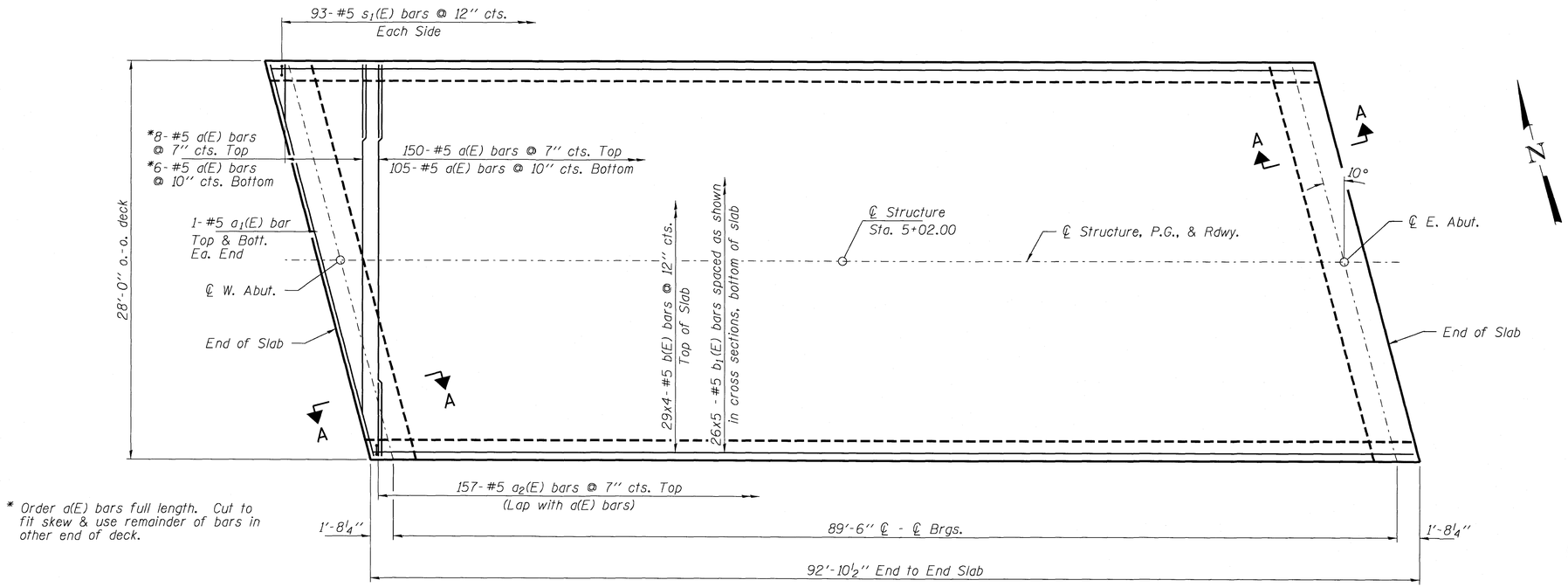
DESIGNED - | CHECKED - S.W.M. | DRAWN - D.A.B. | CHECKED - S.W.M.

REVISED - | REVISED - | REVISED - | REVISED -

STATE OF ILLINOIS
CRAWFORD COUNTY HIGHWAY DEPARTMENT

TOP OF SLAB ELEVATIONS
STRUCTURE NO. 017-3521
SHEET NO. 4 OF 14 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
221	03-05116-00-BR	CRAWFORD	17	7
MARTIN ROAD DISTRICT		CONTRACT NO. 95819		
ILLINOIS	FED. AID PROJECT			

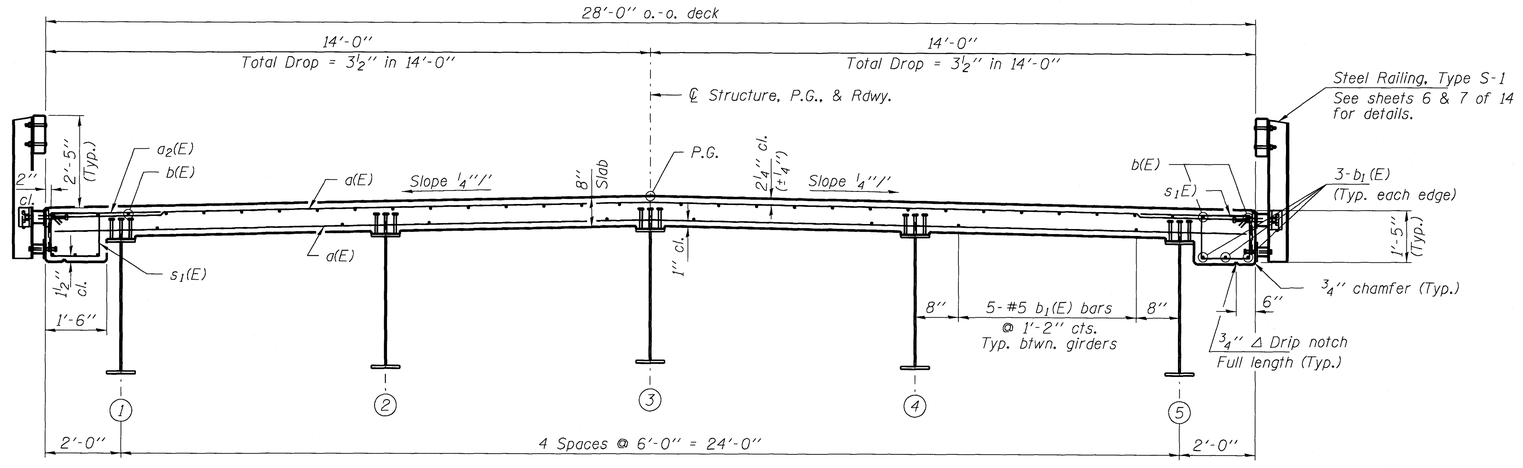


* Order d(E) bars full length. Cut to fit skew & use remainder of bars in other end of deck.

PLAN

MIN. BAR LAP
#5 bars = 2'-7"

Notes:
See sheet 6 of 14 for superstructure details.
See sheet 6 of 14 for SECTION A-A.
Bars indidcated thus 26x5-#5 etc. indicates 26 lines of bars with 5 lengths per line.



CROSS SECTION
(Looking East)

SUPERSTRUCTURE BILL OF MATERIAL

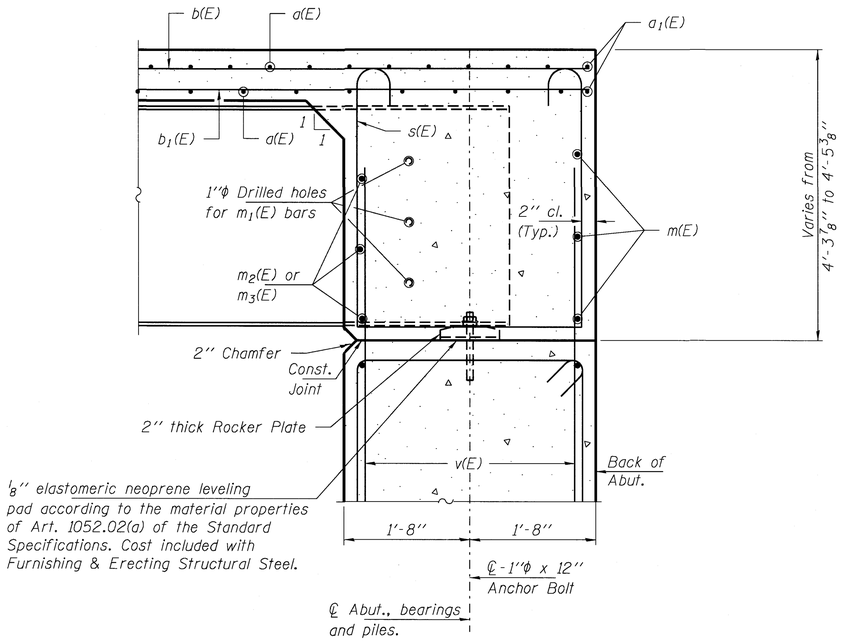
BAR	NO.	SIZE	LENGTH	SHAPE
d(E)	269	#5	27'-8"	
a_1(E)	4	#5	28'-1"	
a_2(E)	314	#6	6'-6"	
b(E)	116	#5	25'-1"	
b_1(E)	130	#5	20'-7"	
m(E)	6	#6	28'-7"	
m_1(E)	30	#5	4'-0"	
m_2(E)	24	#6	5'-8"	
m_3(E)	12	#6	1'-8"	
s(E)	60	#5	11'-6"	
s_1(E)	186	#5	5'-3"	
Concrete Superstructure		Cu. Yd.	98.7	
Bridge Deck Grooving		Sq. Yd.	269	
Protective Coat		Sq. Yd.	348	
Reinforcement Bars, Epoxy Coated		Pound	19,130	

FILE NAME = 170498-sht-bridge.dgn	USER NAME = rhosick	DESIGNED -	REVISED -
3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 217.546.3400 www.hlrengineering.com		CHECKED - S.W.M.	REVISED -
184.000959 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORPORATION	PLOT SCALE =	DRAWN - D.A.B.	REVISED -
	PLOT DATE = 1/5/2018	CHECKED - S.W.M.	REVISED -

STATE OF ILLINOIS
CRAWFORD COUNTY HIGHWAY DEPARTMENT

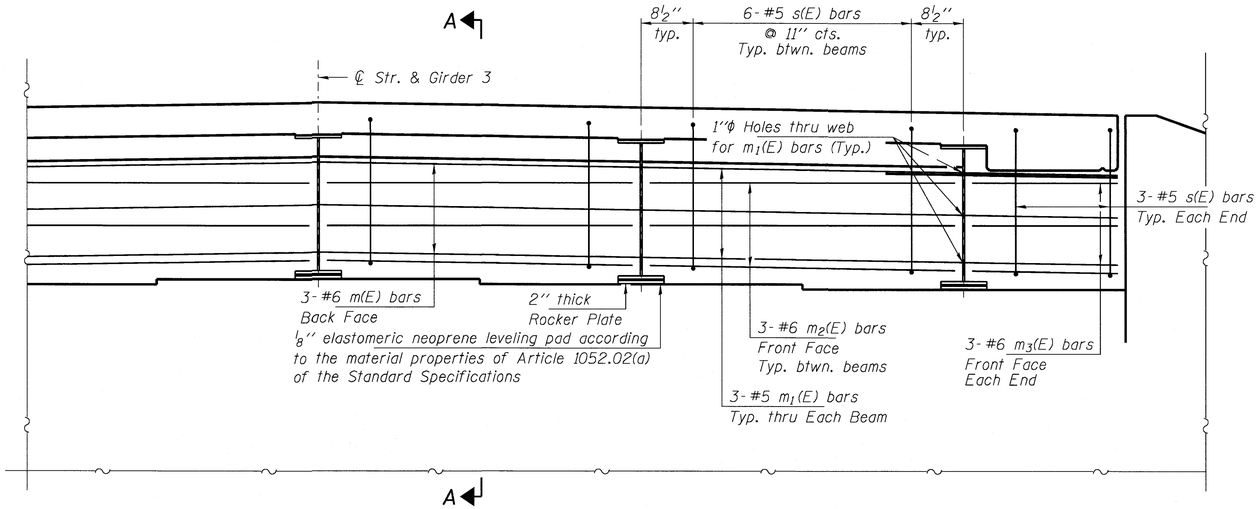
SUPERSTRUCTURE
STRUCTURE NO. 017-3521
SHEET NO. 5 OF 14 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
221	03-05116-00-BR	CRAWFORD	17	8
MARTIN ROAD DISTRICT		CONTRACT NO. 95819		
ILLINOIS FED. AID PROJECT				



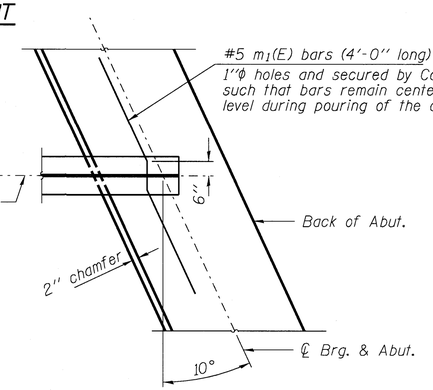
SECTION A-A

Dimensions at right angles to abutment, except as shown.



DIAPHRAGM ELEVATION AT ABUTMENT

Dimensions at right angles to beams
(West Abut. shown, East Abut. similar)



PLAN

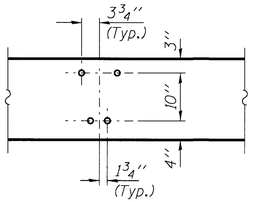
(Showing bottom flange of girder)

Notes:

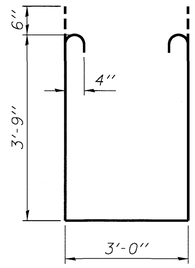
Reinforcement bars in diaphragm are billed with Superstructure on sheet 5 of 14.

Concrete in diaphragm is included with Concrete Superstructure on sheet 5 of 14.

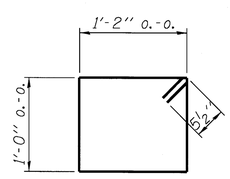
The s(E) bars shall be placed parallel to the beams. Spacing for these bars shall be at right angles to the beams.



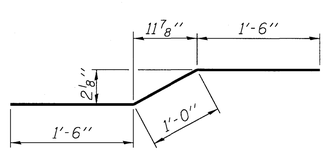
DETAIL A



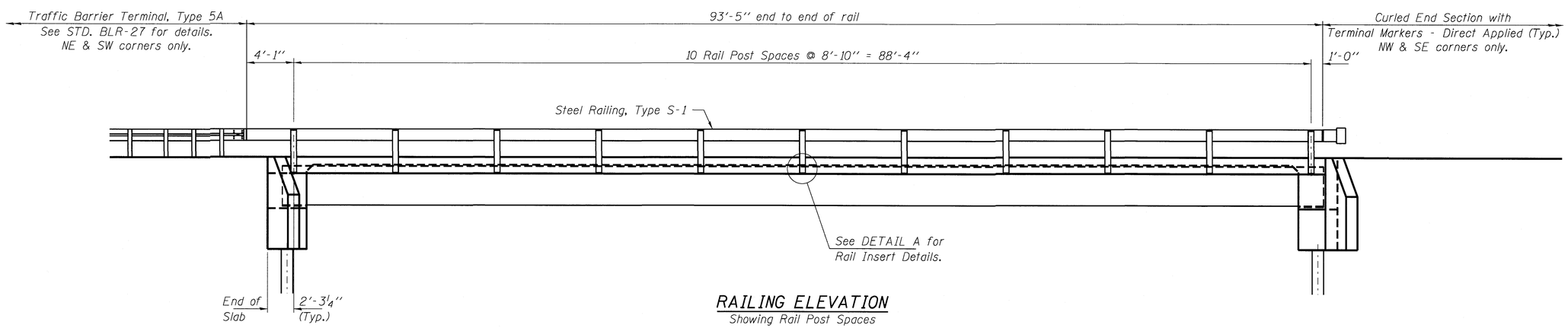
BAR s(E)



BAR s_1(E)



BAR m_1(E)



RAILING ELEVATION

Showing Rail Post Spaces

See sheet 7 of 14 for Railing Details.

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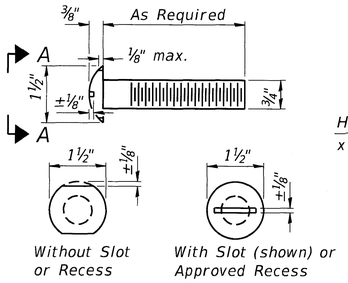
FILE NAME = 170498-sht-bridge.dgn	USER NAME = rhosick	DESIGNED -	REVISED -
		CHECKED - S.W.M.	REVISED -
	PLOT SCALE =	DRAWN - D.A.B.	REVISED -
	PLOT DATE = 1/5/2018	CHECKED - S.W.M.	REVISED -

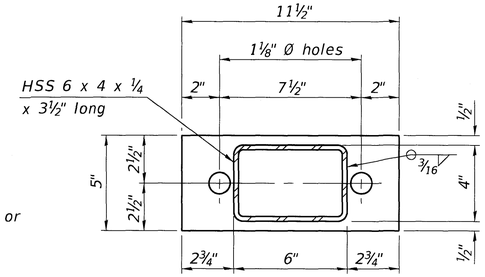
STATE OF ILLINOIS
CRAWFORD COUNTY HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS
STRUCTURE NO. 017-3521
SHEET NO. 6 OF 14 SHEETS

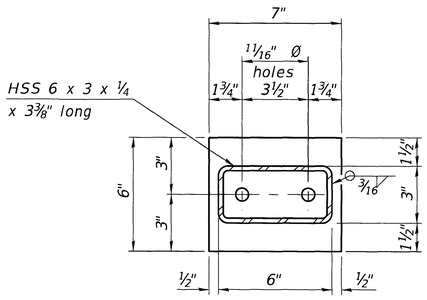
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
221	03-05116-00-BR	CRAWFORD	17	9
MARTIN ROAD DISTRICT		CONTRACT NO. 95819		
ILLINOIS FED. AID PROJECT				



VIEW A-A
ROUND HEAD BOLT

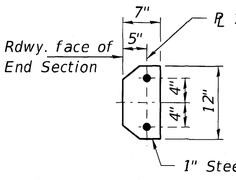


PL 1/2" x 11 1/2" x 5"

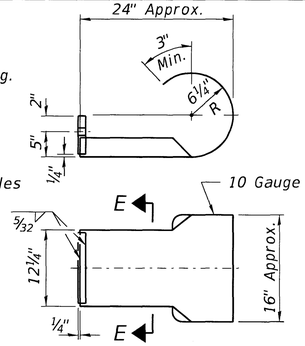


PL 1/2" x 7" x 6"

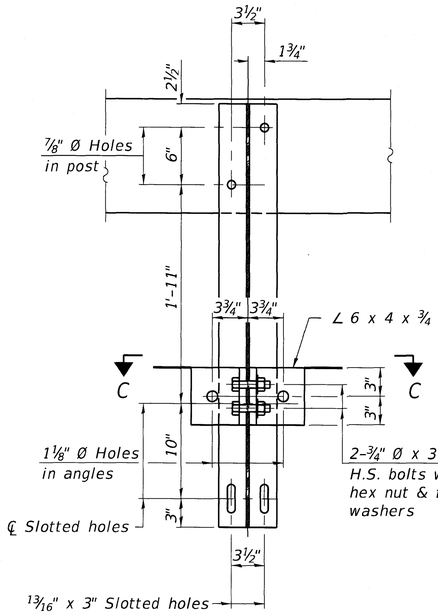
Note: Cost of curled end sections shall be included with the Steel Railing. (2 Required) (NW & SE corners)



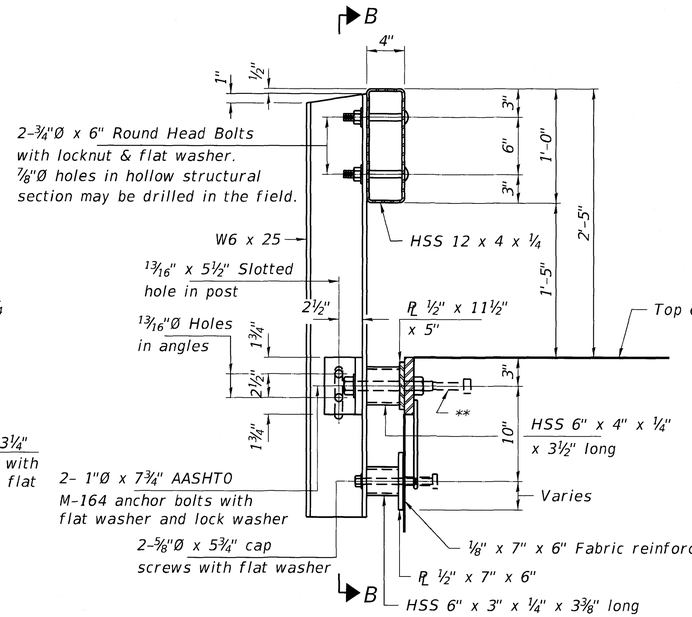
SECTION E-E



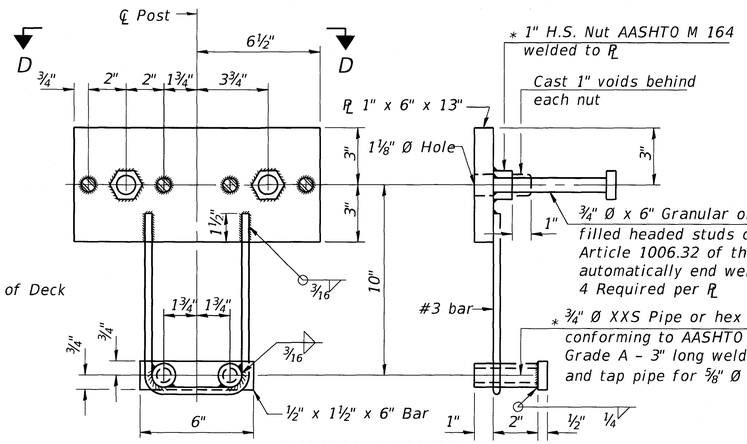
CURLED END SECTION DETAILS



SECTION B-B



SECTION AT RAILING POST



ANCHOR DEVICE

* Threaded areas shall be plugged or blocked off during casting of beam.

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	1/4"	1'-8"	2"	4"	———

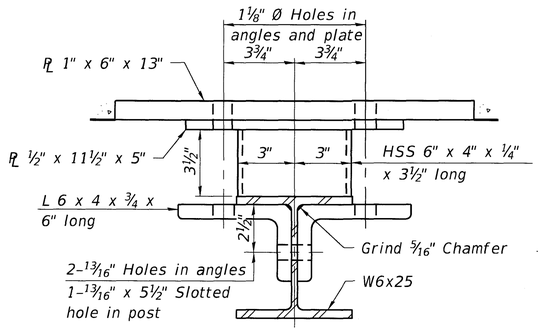
T = Total movement at expansion joint as shown on the design plans.

Notes:

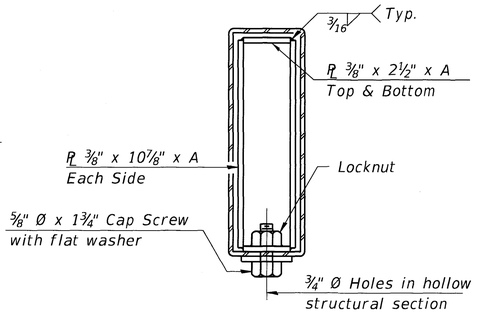
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type S-1.

All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.

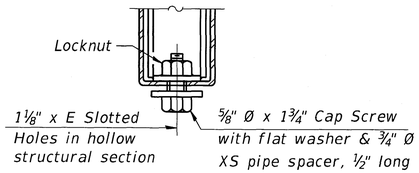
** The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device. The anchorage studs may be bent down 1/2" to accommodate the top reinforcement bar placement.



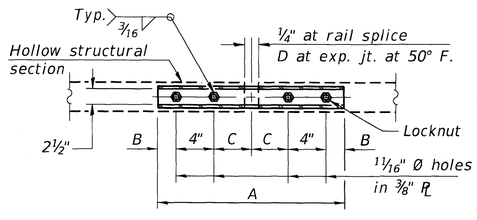
SECTION C-C



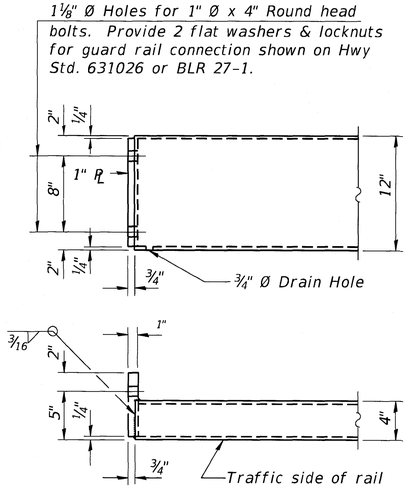
SECTIONS AT RAIL SPLICE



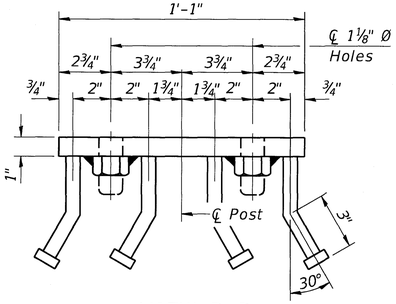
RAIL SPLICE CONNECTION AT EXPANSION JT.



PLAN-BOTT. SPLICE PL TYPICAL



END OF RAIL DETAILS



VIEW D-D

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	187

R-23A

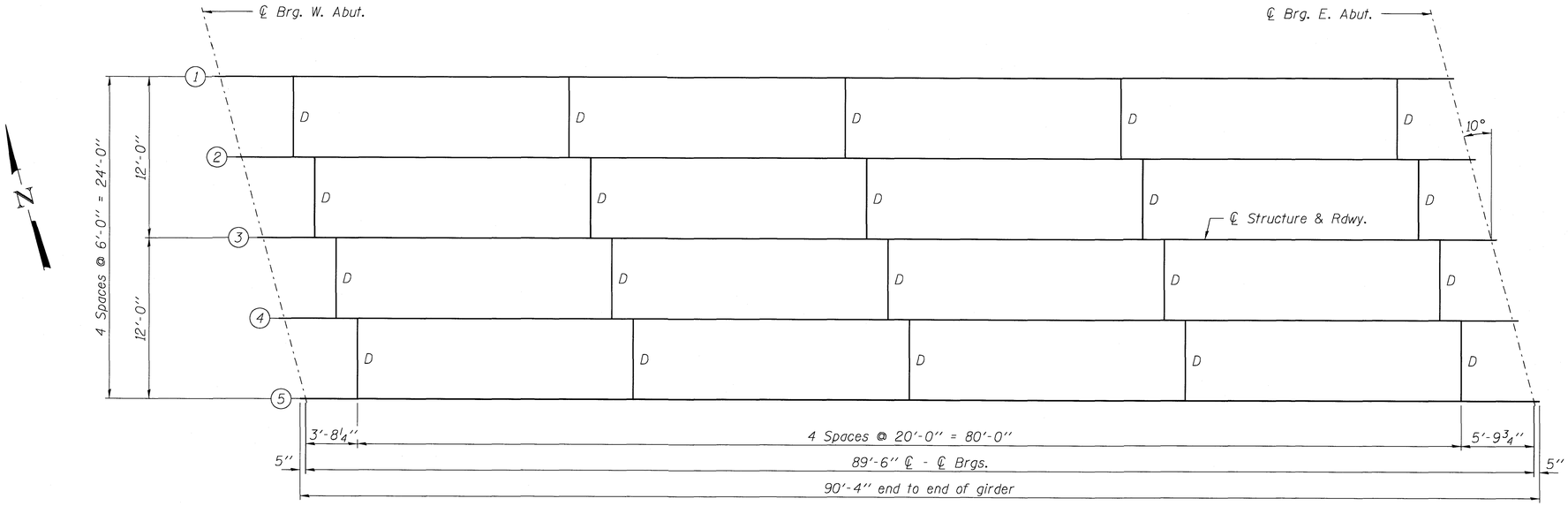
2-17-2017 (10'-9" Maximum Post Spacing)

FILE NAME = 170498-sht-bridge.dgn	USER NAME = rhosick	DESIGNED -	REVISED -
3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 217.546.3400 www.hlrengineering.com 184.000959 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORPORATION		CHECKED - S.W.M.	REVISED -
	PLOT SCALE =	DRAWN - D.A.B.	REVISED -
	PLOT DATE = 1/5/2018	CHECKED - S.W.M.	REVISED -

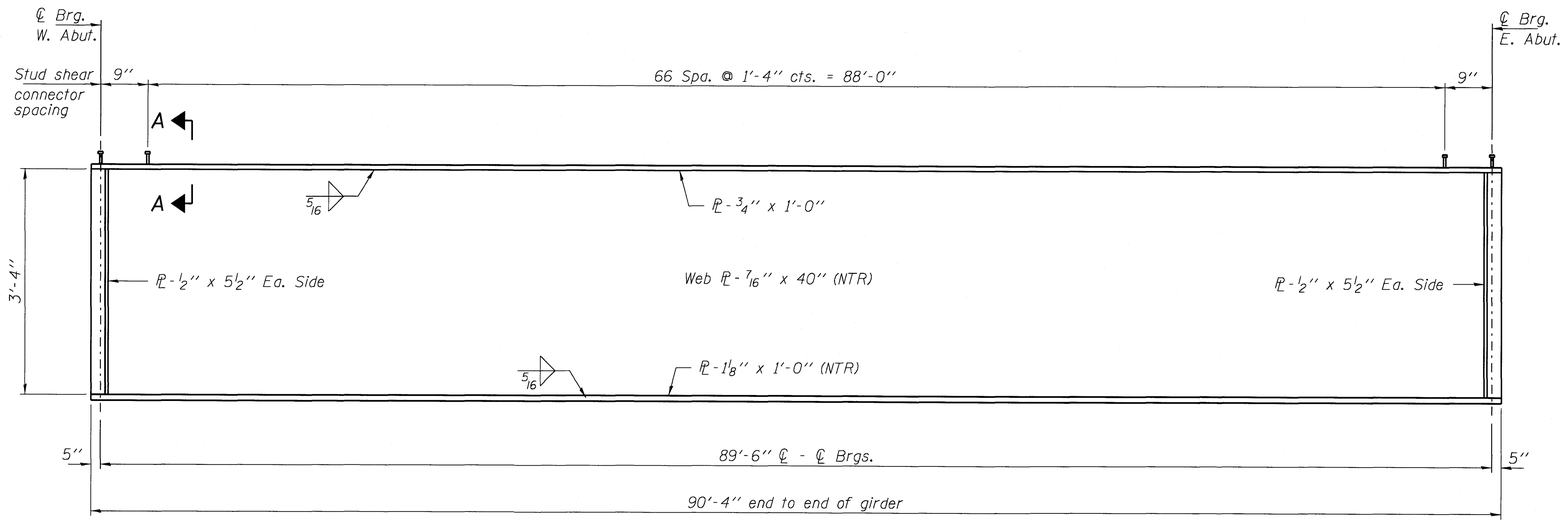
STATE OF ILLINOIS
CRAWFORD COUNTY HIGHWAY DEPARTMENT

STEEL RAILING, TYPE S-1
STRUCTURE NO. 017-3521
SHEET NO. 7 OF 14 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
221	03-05116-00-BR	CRAWFORD	17	10
MARTIN ROAD DISTRICT		CONTRACT NO. 95819		
ILLINOIS FED. AID PROJECT				



FRAMING PLAN

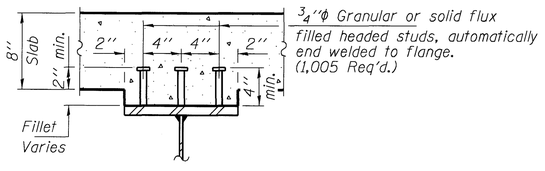


GIRDER ELEVATION

Location	℄ Brg. W. Abut.	℄ Brg. E. Abut.
BEAM 1	451.15	451.15
BEAM 2	451.28	451.28
BEAM 3	451.40	451.40
BEAM 4	451.28	451.28
BEAM 5	451.15	451.15

TOP OF WEB ELEVATIONS

(For fabrication only)
(Does not include Dead Load Deflections)



SECTION A-A

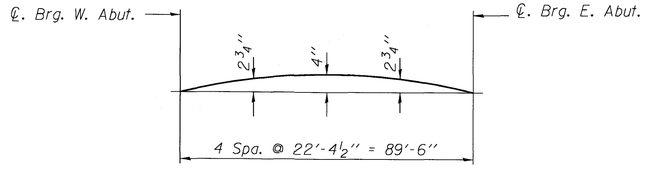
Notes:

All girders and splices, including bearing stiffeners, shall be AASHTO M270 Grade 50W.

For additional structural steel details see sheets 9 & 10 of 14.

All cross frames and diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted. Individual cross frames or diaphragms at supports may be temporarily disconnected to install bearing anchor rods.

Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.



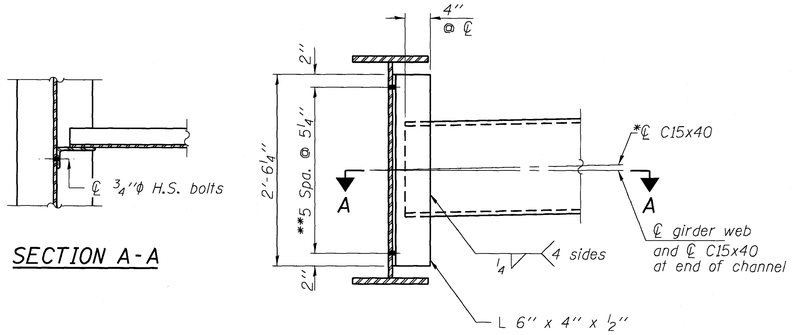
CAMBER DIAGRAM

FILE NAME = 170498-sht-bridge.dgn	USER NAME = rhosick	DESIGNED -	REVISED -
3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 217.546.3400 www.hlrengineering.com 184.000959 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORPORATION		CHECKED - S.W.M.	REVISED -
	PLOT SCALE =	DRAWN - D.A.B.	REVISED -
	PLOT DATE = 1/5/2018	CHECKED - S.W.M.	REVISED -

STATE OF ILLINOIS
CRAWFORD COUNTY HIGHWAY DEPARTMENT

STRUCTURAL STEEL
STRUCTURE NO. 017-3521
SHEET NO. 8 OF 14 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
221	03-05116-00-BR	CRAWFORD	17	11
MARTIN ROAD DISTRICT		CONTRACT NO. 95819		
ILLINOIS	FED. AID PROJECT			



SECTION A-A

INTERIOR DIAPHRAGM D

(20 required)

Notes:

Two hardened washers required for each set of oversized holes.

*Alternate channels C15X50 are permitted to facilitate material acquisition. Calculated weight of structural steel is based on C15x40 section. The alternate, if utilized, shall be provided at no additional cost to the Department.

**¾" ϕ HS bolts, 15/16" ϕ holes

INTERIOR GIRDER MOMENT TABLE		
		0.5 Sp. 1
I_s	(in^4)	11,557
$I_c(n)$	(in^4)	31,420
$I_c(3n)$	(in^4)	22,864
$I_c(cr)$	(in^4)	13,910
S_s	(in^3)	500
$S_c(n)$	(in^3)	866
$S_c(3n)$	(in^3)	793
$S_c(cr)$	(in^3)	525
DC1	(k/')	0.84
M_{DC1}	('k)	883
DC2	(k/')	0.03
M_{DC2}	('k)	32
DW	(k/')	0.30
M_{DW}	('k)	318
M_{L+IM}	('k)	1,313
M_U (Strength I)	('k)	3,919
$\phi_f M_n$	('k)	4,287
f_s DC1	(ksi)	21.2
f_s DC2	(ksi)	0.5
f_s DW	(ksi)	4.8
f_s (L+IM)	(ksi)	18.2
f_s (Service II)	(ksi)	50.1
$0.95R_hF_{yf}$	(ksi)	47.5
f_s (Total)(Strength I)	(ksi)	-
$\phi_f F_n$	(ksi)	-
V_f	(k)	25.8

INTERIOR GIRDER REACTION TABLE		
		Abutment
R_{DC1}	(k)	38.4
R_{DC2}	(k)	1.4
R_{DW}	(k)	13.8
R_{L+IM}	(k)	81.6
R_{Total}	(k)	135.2

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

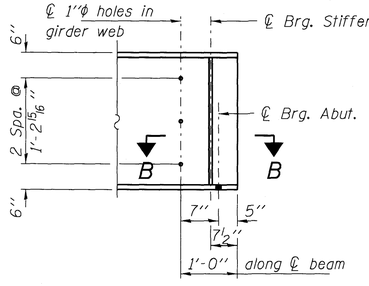
f_s (Service II): Sum of stresses as computed below (ksi).
$f_{sDC1} + f_{sDC2} + f_{sDW} + 1.3\ f_s(L+IM)$

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

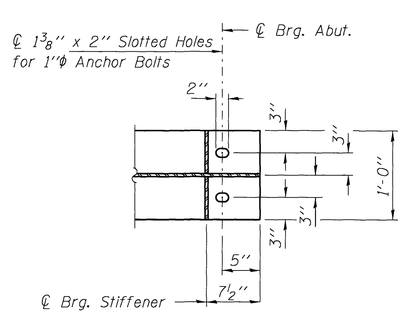
f_s (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).
$1.25\ (f_{sDC1} + f_{sDC2}) + 1.5\ f_{sDW} + 1.75\ f_s(L+IM)$

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

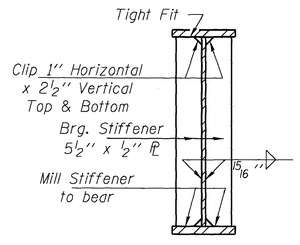
V_f: Maximum factored shear range in span computed according to Article 6.10.10.



TYP. END OF GIRDER ELEVATION



SECTION B-B



SECTION AT ABUTMENT BEARING STIFFNER PL'S

Notes:

For additional structural steel details see sheets 8 & 10 of 14.

All diaphragms and connecting plates or angles, including stiffeners, shall be AASHTO M270, Grade 50W.

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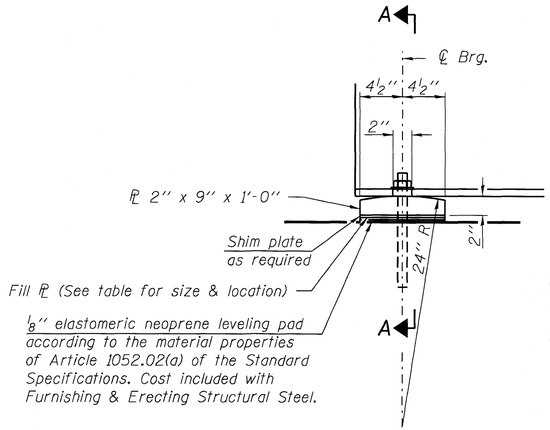
FILE NAME = 170498-sht-bridge.dgn	USER NAME = rhosick	DESIGNED -	REVISED -
		CHECKED - S.W.M.	REVISED -
	PLOT SCALE =	DRAWN - D.A.B.	REVISED -
	PLOT DATE = 1/5/2018	CHECKED - S.W.M.	REVISED -

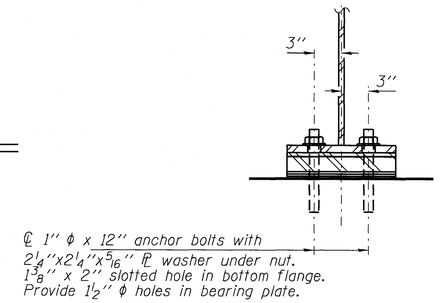
STATE OF ILLINOIS
CRAWFORD COUNTY HIGHWAY DEPARTMENT

STRUCTURAL STEEL DETAILS
STRUCTURE NO. 017-3521
SHEET NO. 9 OF 14 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
221	03-05116-00-BR	CRAWFORD	17	12
MARTIN ROAD DISTRICT		CONTRACT NO. 95819		
ILLINOIS	FED. AID PROJECT			



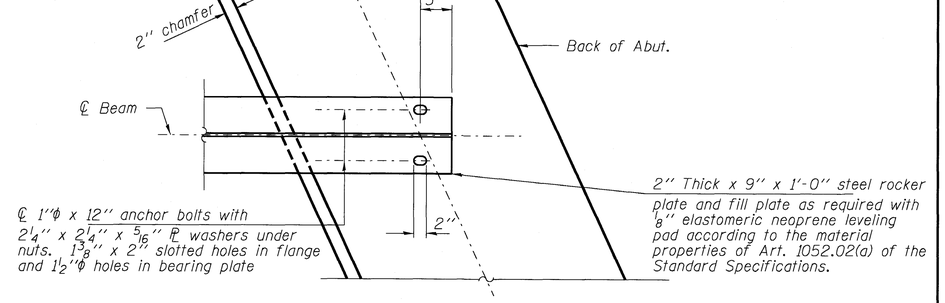
ELEVATION



SECTION A-A

FIXED BEARING AT ABUTMENT

(10 required)



PLAN

(Showing bottom flange of steel beam at abutments)

Notes:

Two ⅛'' adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.

Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.

All steel plates of the bearing assembly shall be M270 Grade 50W.

Drilled and set anchor bolts shall be installed according to Art. 521.06 of the Standard Specifications.

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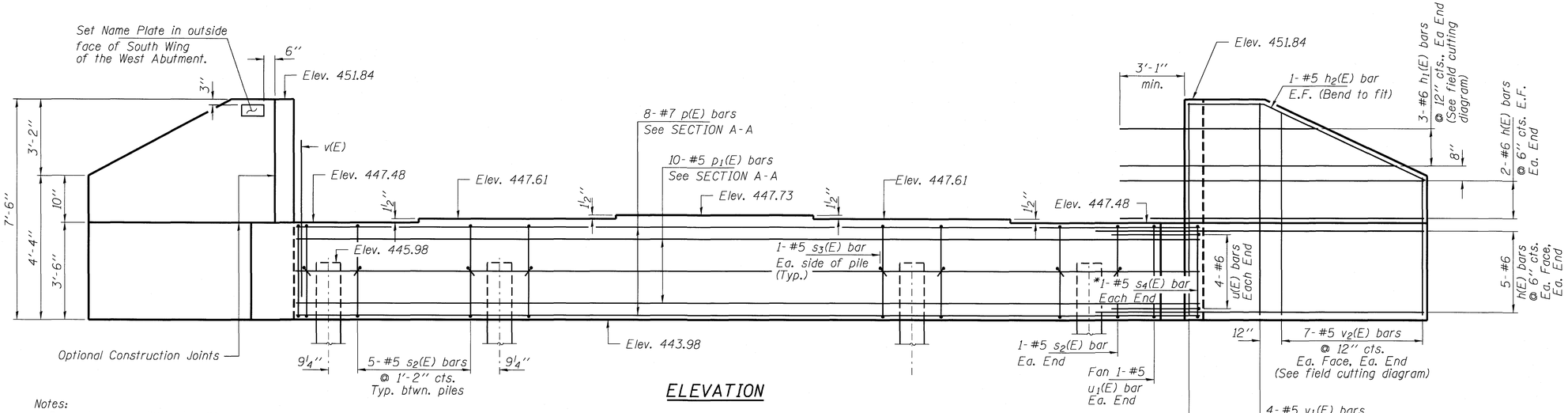
	PLOT DATE = 1/5/2018	CHECKED - S.W.M.	REVISED -

STATE OF ILLINOIS
CRAWFORD COUNTY HIGHWAY DEPARTMENT

STRUCTURAL STEEL DETAILS
STRUCTURE NO. 017-3521
SHEET NO. 10 OF 14 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
221	03-05116-00-BR	CRAWFORD	17	13
MARTIN ROAD DISTRICT		CONTRACT NO. 95819		
	ILLINOIS	FED. AID PROJECT		



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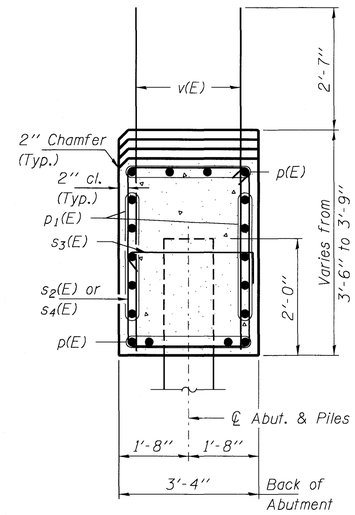
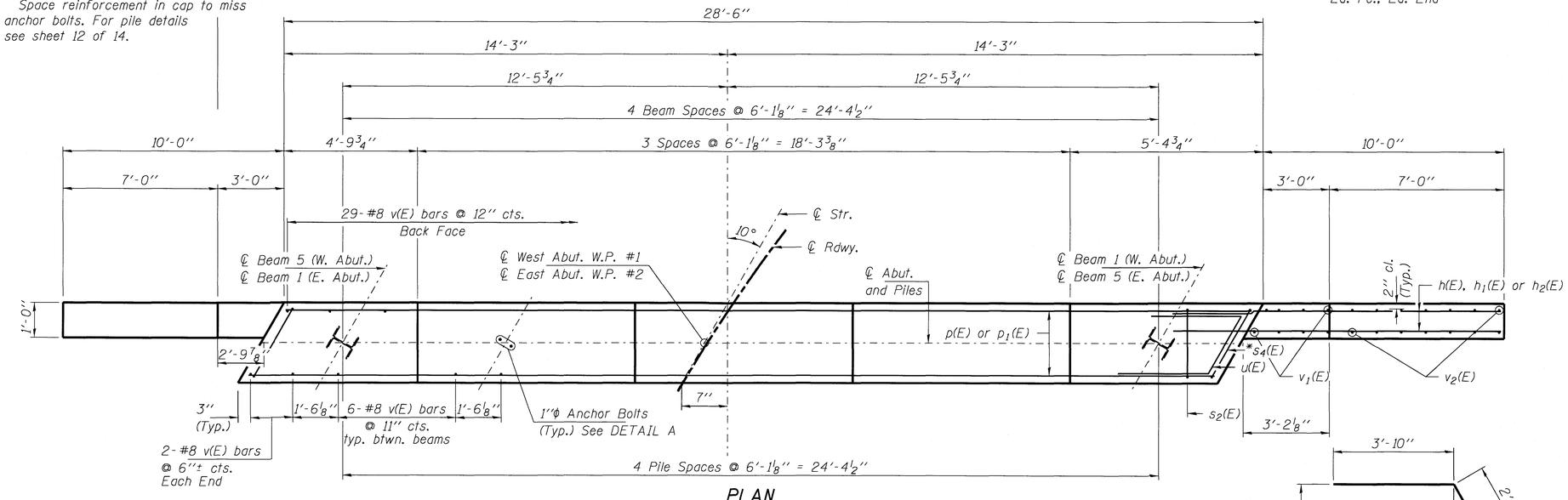


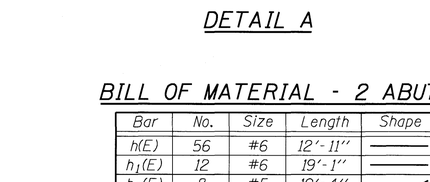
SECTION A-A

Dimensions at right angles to abutment.

Notes:
Pour steps monolithically with cap.
Space reinforcement in cap to miss anchor bolts. For pile details see sheet 12 of 14.



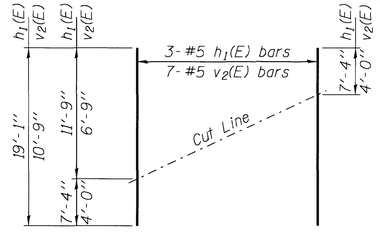
PLAN



DETAIL A

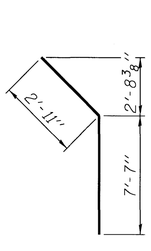
PILE DATA

Type: Steel HP12x53 /w Pile Shoes
Nominal Required Bearing: 419 Kips/pile
Factored Resistance Available: 230 Kips/pile
Est. Length: 55'
No. Production Piles: 8
No. Test Piles: 2

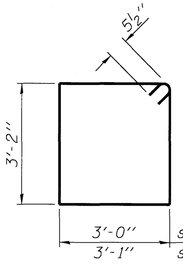


FIELD CUTTING DIAGRAM

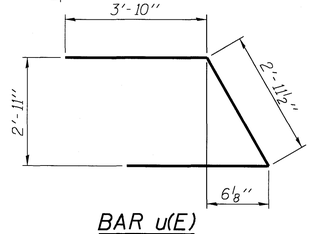
Order $h_1(E)$ and $v_2(E)$ full length. Cut as shown and use remainder of bars in opposite face.



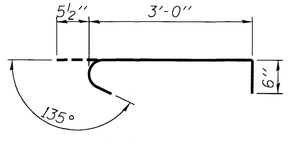
BAR $h_2(E)$



BARS $s_2(E)$ & $s_4(E)$



BAR u(E)



BAR $s_3(E)$

BILL OF MATERIAL - 2 ABUTS.

Bar	No.	Size	Length	Shape
h(E)	56	#6	12'-11"	
$h_1(E)$	12	#6	19'-1"	
$h_2(E)$	8	#5	10'-4"	
p(E)	16	#7	28'-2"	
$p_1(E)$	20	#5	28'-2"	
$s_2(E)$	44	#5	13'-3"	
$s_3(E)$	20	#5	4'-0"	
$s_4(E)$	4	#5	13'-5"	
u(E)	16	#6	10'-8"	
v(E)	114	#8	5'-11"	
$v_1(E)$	32	#5	7'-2"	
$v_2(E)$	28	#5	10'-9"	
Protective Coat		Sq. Yd.	34	
Concrete Structures		Cu. Yd.	35.0	
Reinforcement Bars, Epoxy Coated		Pound	6,320	
Furnishing Steel Piles, HP12x53		Foot	440	
Driving Piles		Foot	440	
Test Pile Steel HP12x53		Each	2	
Pile Shoes		Each	10	

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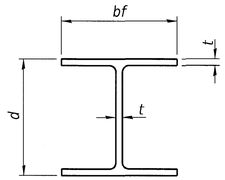
	PLOT DATE = 1/5/2018	CHECKED - S.W.M.	REVISED -

STATE OF ILLINOIS
CRAWFORD COUNTY HIGHWAY DEPARTMENT

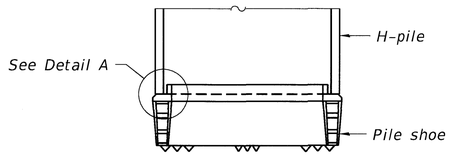
ABUTMENTS
STRUCTURE NO. 017-3521
SHEET NO. 11 OF 14 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
221	03-05116-00-BR	CRAWFORD	17	14
MARTIN ROAD DISTRICT		CONTRACT NO. 95819		
ILLINOIS FED. AID PROJECT				

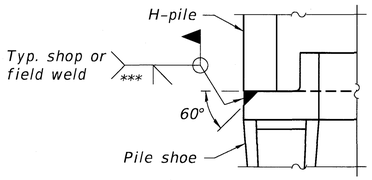


STEEL PILE TABLE

Designation	Depth d	Flange width bf	Web and Flange thickness t	Encasement diameter A
HP 14x117	14¼"	14⅞"	13/16"	30"
x102	14"	14¾"	11/16"	30"
x89	13⅞"	14¾"	⅝"	30"
x73	13⅝"	14⅝"	½"	30"
HP 12x84	12¼"	12¼"	11/16"	24"
x74	12⅛"	12¼"	⅝"	24"
x63	12"	12⅛"	½"	24"
x53	11¾"	12"	7/16"	24"
HP 10x57	10"	10¼"	9/16"	24"
x42	9¾"	10⅛"	7/16"	24"
HP 8x36	8"	8⅛"	7/16"	18"



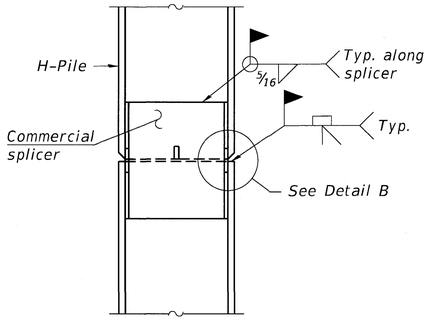
ELEVATION



DETAIL A

SHOE ATTACHMENT

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



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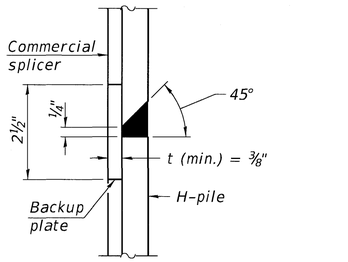
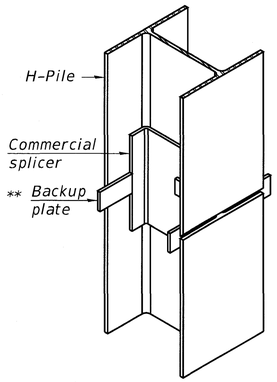
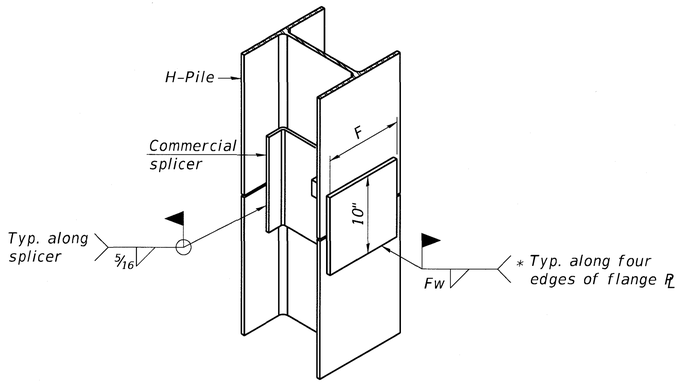


DETAIL "B"



ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE



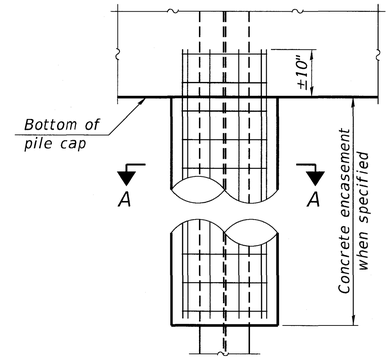
ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE ALTERNATE

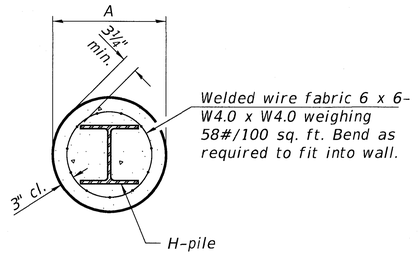
* Interrupt welds ¼" from end of web and/or each flange.

** Remove portions of backup plates that extend outside the flanges.

*** Weld size per pile shoe manufacturer (5/16" min.).



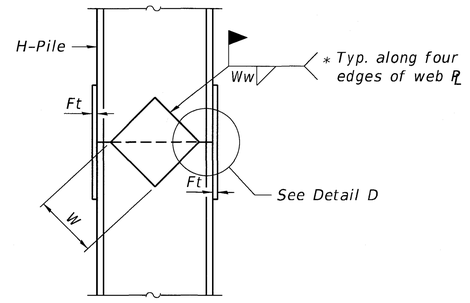
ELEVATION



SECTION A-A

INDIVIDUAL PILE CONCRETE ENCASEMENT

(Forms for encasement may be omitted when soil conditions permit).



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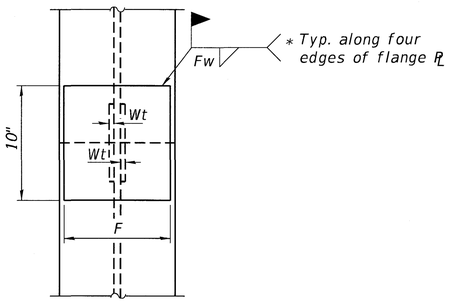
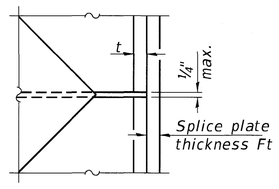


END VIEW



DETAIL D

Designation	F	Ft	Fw	W	Wt	Ww
HP 14x117	12½"	1"	⅞"	7¾"	⅝"	½"
x102	12½"	⅞"	¾"	7¾"	⅝"	½"
x89	12½"	¾"	11/16"	7¾"	⅝"	½"
x73	12½"	⅝"	9/16"	7¾"	⅝"	½"
HP 12x84	10"	⅞"	11/16"	6½"	⅝"	½"
x74	10"	⅞"	11/16"	6½"	⅝"	½"
x63	10"	⅝"	½"	6½"	½"	⅜"
x53	10"	⅝"	½"	6½"	½"	⅜"
HP 10x57	8"	¾"	9/16"	5¼"	½"	⅜"
x42	8"	⅝"	9/16"	5¼"	½"	⅜"
HP 8x36	7"	⅝"	7/16"	4¼"	½"	⅜"

WELDED PLATE FIELD SPLICE

F-HP 8-11-2017

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	PLOT SCALE =	DRAWN - D.A.B.	REVISED -
	PLOT DATE = 1/5/2018	CHECKED - S.W.M.	REVISED -

STATE OF ILLINOIS
CRAWFORD COUNTY HIGHWAY DEPARTMENT

HP PILE DETAILS
STRUCTURE NO. 017-3521
SHEET NO. 12 OF 14 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
221	03-05116-00-BR	CRAWFORD	17	15
MARTIN ROAD DISTRICT		CONTRACT NO. 95819		
ILLINOIS FED. AID PROJECT				

SRS ENGINEERS, INC.
CONSULTING ENGINEERS 2900 N. MARTIN LUTHER KING JR. DRIVE DECATUR, ILLINOIS 62526

SOIL BORING LOG

Date 07/16/2004

ROUTE ____ DESCRIPTION Bridge Boring LOGGED BY D. Baldwin/T. Mathias

SECTION 03-05116-00-BR LOCATION Martin Road District SEC. ____ TWP. ____ RNG. ____ PM

COUNTY Crawford County, IL DRILLING METHOD Hollow Stem Auger HAMMER TYPE 140# Safety

STRUCT. NO. ____
Station ____
BORING NO. B-1
Station 16+43
Offset 9 FT. LT
Ground Surface Elev. 448.6 ft

Surface Water Elev. ____ ft
Stream Bed Elev. ____ ft
Groundwater Elev.:
First Encounter 14.5 ft
Upon Completion ____ ft
After 24 Hrs 15.0 ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Material
				SILTY CLAY LOAM - Dark Brown, moist, low plasticity, tr. sand, tr. gravel, organics A-6
				446.6 2.0
	5			SILTY CLAY LOAM - Brown, moist, stiff, low plasticity, tr. sand, tr. gravel, organics
	5		18	
	6			
-5	6			
	6		20	
	8			
				439.6 7.0
	3			SILT LOAM - Mottled Brown-Gray, moist, stiff, low plasticity, tr. sand, organics A-4
	4	.85	27	
	5			
				- very soft
-10	1			
	1	.4	25	
	2			
				- creek bed @ 12.0 ft. 12.0
	1			- firm
	2	.4	25	
	2			
				434.1 14.5
	1			SILT CLAY LOAM - Brown, moist, low-medium plasticity tr. sand, tr. gravel A-6
-15	2	.3	30	
	2			
				431.6 17.0
	2			SANDY CLAY LOAM - Brown, very moist, low-medium plasticity, tr. gravel 18.0 A-2-6
	2		22	
	2			CLAYEY SAND - Gray, very moist, low-medium plasticity tr. gravel - free water @ 19.5 ft 19.5 A-1-B
-20	5			

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Material
	6		21	SAND - Gray, saturated, medium dense, fine-medium, tr. gravel A-1-B
	6			
	1+			
			16	
				424.1 24.5
-25	1			SILTY CLAY LOAM - Gray, moist, firm, medium-high plasticity, tr. sand, trace gravel A-6
	2		38	
	3			- sand lenses
				421.6 27.0
	2			SITLY CLAY LOAM - Gray, moist, stiff, low-medium plasticity, tr. sand, tr. gravel
	3	1.2	30	
	6			
-30	2			
	3	.8	42	
	5			
				416.1 32.5
	3			ORGANIC SILT - Dark Brown, moist, very stiff, low plasticity, tr. sand, tr. gravel A-5
	4	.95	47	
	5			
				34.5
-35	7			SILTY CLAY LOAM - Gray, moist, stiff, low-medium plasticity, tr. sand, tr. gravel A-6
	7	.85	42	
	10			
				37.0
	4			CLAYEY SAND - Gray, very moist, firm, low plasticity, tr. gravel A-2-6
	4	.25	19	
	4			
-40	5			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS 137 (3/01)

SRS ENGINEERS, INC.
CONSULTING ENGINEERS 2900 N. MARTIN LUTHER KING JR. DRIVE DECATUR, ILLINOIS 62526

SOIL BORING LOG

Date 07/16/2004

ROUTE ____ DESCRIPTION Bridge Boring LOGGED BY D. Baldwin/T. Mathias

SECTION 03-05116-00-BR LOCATION Martin Road District SEC. ____ TWP. ____ RNG. ____ PM

COUNTY Crawford County, IL DRILLING METHOD Hollow Stem Auger HAMMER TYPE 140# Safety

STRUCT. NO. ____
Station ____
BORING NO. B-1
Station 16+43
Offset 9 FT. LT
Ground Surface Elev. 448.6 ft

Surface Water Elev. ____ ft
Stream Bed Elev. ____ ft
Groundwater Elev.:
First Encounter 14.5 ft
Upon Completion ____ ft
After 24 Hrs 15.0 ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Material
	4		20	CLAYEY SAND - Gray, very moist, firm, low plasticity, tr. gravel A-2-6
	3			
	1			
	4		25	
	5			SAND - Gray, saturated, loose, medium-coarse, tr. gravel A-1-B
45	7			- medium dense
	10		13	- wash water added
	13			
	8			
	12		19	
	7			
				399.1 49.5
50	10			SILTY CLAY LOAM - Gray, moist, hard, low plasticity, tr. sand, tr. gravel A-6
	17	3.5	13	
	23			- sand lenses and seams
	8			
	30	2.0	14	
	30+			
				393.6 54.0
55	12			SAND - Gray, very moist, very dense, fine A-1-B
	26		19	
	34+			
	13			
	28	3.3	13	
	30			SILTY CLAY LOAM - Gray, moist, hard, low plasticity, tr. sand, tr. gravel A-6
60	28			

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Material
	60+		14	- sand lenses and seams
	28			
	60+		13	
				385.1 63.5
				END OF BORING @ 63.5 ft. Boring backfilled with spoil and capped with concrete cylinder upon completion
65				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS 137 (3/01)

BORING B-1

FILE NAME = 170498-sht-bridge.dgn	USER NAME = rhosick	DESIGNED -	REVISED -
		CHECKED - S.W.M.	REVISED -
	PLOT SCALE =	DRAWN - D.A.B.	REVISED -
	PLOT DATE = 1/5/2018	CHECKED - S.W.M.	REVISED -

3085 STEVENSON DRIVE, SUITE 201
SPRINGFIELD, ILLINOIS 62703
217.546.3400 www.hirengineering.com
184.000959
ILLINOIS PROFESSIONAL DESIGN FIRM
LB / PE / SE CORPORATION

STATE OF ILLINOIS
CRAWFORD COUNTY HIGHWAY DEPARTMENT

BORINGS
STRUCTURE NO. 017-3521
SHEET NO. 13 OF 14 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
221	03-05116-00-BR	CRAWFORD	17	16
MARTIN ROAD DISTRICT		CONTRACT NO. 95819		
ILLINOIS FED. AID PROJECT				

SHS ENGINEERS, INC.
CONSULTING ENGINEERS 2900 N. MARTIN LUTHER KING JR. DRIVE DECATUR, ILLINOIS 62526

SOIL BORING LOG

Date 07/16/2004

ROUTE _____ DESCRIPTION Bridge Boring LOGGED BY D. Baldwin/T. Mathias

SECTION 03-05116-00-BR LOCATION Martin Road District SEC. ____ TWP. ____ RNG. ____ PM

COUNTY Crawford County, IL DRILLING METHOD Hollow Stem Auger HAMMER TYPE 140# Safety

STRUCT. NO. _____
Station _____

BORING NO. B-2
Station 15+94
Offset 9 FT. RT
Ground Surface Elev. 448.5 ft

Surface Water Elev. ____ ft
Stream Bed Elev. ____ ft

Groundwater Elev.:
First Encounter 15.0 ft
Upon Completion ____ ft
After 24 Hrs 0 ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				SILTY CLAY LOAM - Dark Brown, moist, low plasticity, tr. sand, tr. gravel, organics — A-6
				2.0
				SILTY CLAY LOAM - Mottled Brown, moist, stiff, low plasticity, tr. sand, tr. gravel, organics — A-4
	6			
	6	.85	21	
	7			
-5	4			
	4		22	
	4			
-10	1			
	2	.95	25	
	4			
437.0	11.5			
				SANDY CLAY LOAM - Brown, moist, firm, low plasticity, tr. sand, tr. gravel — A-6
	2			13.0
	2		22	- creek bed @ 12.0 ft.
	3			SILTY CLAY LOAM - Mottled Brown, moist, firm, low plasticity, tr. gravel — A-4
-15	3			* free water @ 14.5 ft.
	3	.3	27	
	3			
430.5	18.0			
				SANDY CLAY LOAM - Brown, moist, firm, low-medium plasticity, tr. sand, tr. gravel — A-4
	2			
	2		22	- sand seams
-20	2			
				20.5
				SILT CLAY LOAM - Gray, moist, low-medium plasticity, tr. gravel — A-6
	3			
	5			
	2			
	2	.5	33	
	2			
-25	1			
	2	.4	41	
	2			
421.5	27.0			
				ORGANIC SILT - Brown, moist, stiff, low plasticity, tr. sand, tr. gravel — A-5
	2			28.0
	4	.4	27	
	4			SITLY CLAY LOAM - Gray, moist, stiff, low-medium plasticity, tr. sand, tr. gravel — A-6
-30	3			
	4		27	
	7			SAND - Gray, wet, medium dense, fine, tr. gravel — A-1-B
				32.0
	13			SAND - Gray, wet, medium dense, medium-coarse, tr. gravel — A-1-B
	8		14	
	10			
414.0	34.5			
-35	6			ORGANIC SILT - Dark Brown, moist, very stiff, low plasticity, tr. sand, tr. gravel — A-5
	16	4.4	11	36
	23			
				SILTY CLAY LOAM - Gray, moist, hard, low-medium plasticity, tr. sand, tr. gravel — A-6
	14			
	35	7.9	10	
	25			- sand seams
-40	16			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS 137 (3/01)

SHS ENGINEERS, INC.
CONSULTING ENGINEERS 2900 N. MARTIN LUTHER KING JR. DRIVE DECATUR, ILLINOIS 62526

SOIL BORING LOG

Date 07/16/2004

ROUTE _____ DESCRIPTION Bridge Boring LOGGED BY D. Baldwin/T. Mathias

SECTION 03-05116-00-BR LOCATION Martin Road District SEC. ____ TWP. ____ RNG. ____ PM

COUNTY Crawford County, IL DRILLING METHOD Hollow Stem Auger HAMMER TYPE 140# Safety

STRUCT. NO. _____
Station _____

BORING NO. B-2
Station 15+94
Offset 9 FT. RT
Ground Surface Elev. 448.5 ft

Surface Water Elev. ____ ft
Stream Bed Elev. ____ ft

Groundwater Elev.:
First Encounter 15.0 ft
Upon Completion ____ ft
After 24 Hrs 0 ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				SITLY CLAY LOAM - Gray, moist, hard, low-medium plasticity, tr. sand, tr. gravel — A-6
	40		10	
	20			
	18			
	35	8.0	9.3	
	25			
403.5	45.0			
	26			
				SAND - Gray, saturated, very dense, fine-medium, tr. gravel — A-1-B
	60+		12	46.0
				END OF BORING @ 46.0 ft. Boring backfilled with spoil and capped with concrete cylinder upon completion

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS 137 (3/01)

BORING B-2

FILE NAME = 170498-sht-bridge.dgn	USER NAME = rhosick	DESIGNED -	REVISED -	STATE OF ILLINOIS CRAWFORD COUNTY HIGHWAY DEPARTMENT	BORINGS STRUCTURE NO. 017-3521
3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 217.546.3400 www.hirengineering.com 184.000959 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORPORATION		CHECKED - S.W.M.	REVISED -		SHEET NO. 14 OF 14 SHEETS
	PLOT SCALE =	DRAWN - D.A.B.	REVISED -		
	PLOT DATE = 1/5/2018	CHECKED - S.W.M.	REVISED -		

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
221	03-05116-00-BR	CRAWFORD	17	17
MARTIN ROAD DISTRICT		CONTRACT NO. 95819		
	ILLINOIS FED. AID PROJECT			