09-20-13 LETTING ITEM 067

INDEX OF SHEETS

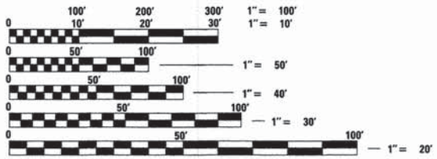
HIGHWAY STANDARDS (SEE SPECIFICATIONS)

000001-06	STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
280001-07	TEMPORARY EROSION CONTROL SYSTEMS
515001-03	NAME PLATE FOR BRIDGES
635006-03	REFLECTOR AND TERMINAL MARKER PLACEMENT
701901-02	TRAFFIC CONTROL DEVICES
B.L.R. 21-9	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

SOIL BORINGS (SEE SPECIFICATIONS)

DESIGN CLASSIFICATION: RURAL LOCAL ROAD
ADT_{2012} : 175

DESIGN SPEED: 30 MPH



FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES, REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES, IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.
JOINT UTILITY LOCATING INFORMATION FOR EXCAVATORS
1-800-892-0123 or 811 Website: http://www.illinois1call.com

GARY L. HAHN
62-42606
LICENSED PROFESSIONAL ENGINEER
STATE OF ILLINOIS

Gary L. Hahn 05-21-2013
GARY L. HAHN
CENTRALIA, ILLINOIS
ILLINOIS LICENSED PROFESSIONAL
ENGINEER NO. 62-42606
EXPIRES NOV. 30, 2013

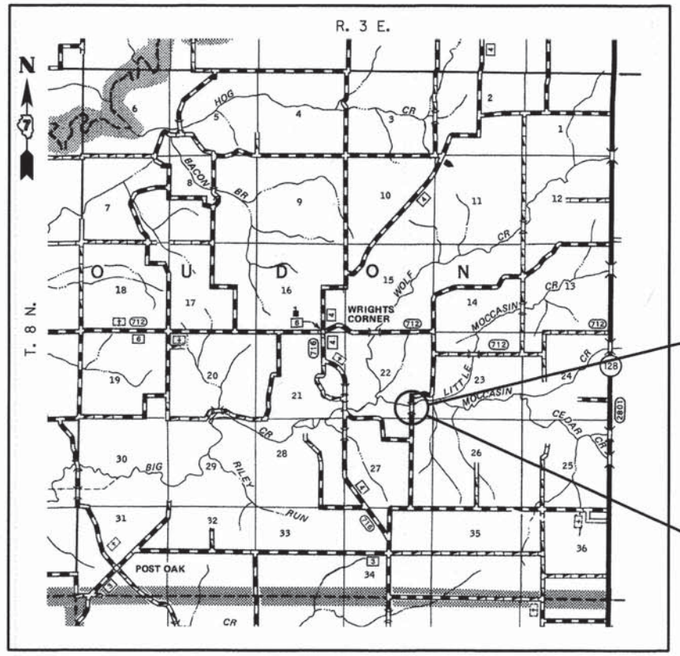
05/16/2013

RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED STP – BRIDGE

TR 492 OVER MOCCASIN CREEK
SECTION 08-08124-00-BR
PROJECT NO. BROS-0051(093)
LOUDON ROAD DISTRICT
FAYETTE COUNTY
JOB NO. C-97-039-13



LOCATION: NEAR THE SE CORNER OF THE NW 1/4, SE 1/4 OF SECTION 22, T8N, R3E, 3RD P.M.
NET LENGTH OF PROJECT: 619.24 FT. = 0.117 MI.

LOCATION OF SECTION INDICATED THUS: –

FAYETTE COUNTY
HIGHWAY DEPARTMENT

APPROVED 5-23, 2013
FAYETTE COUNTY, COUNTY ENGINEER

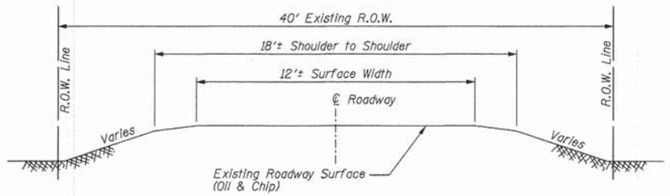
PASSED 6/4, 2013
DISTRICT SEVEN ENGINEER OF LOCAL ROADS & STREETS

RELEASING FOR BID BASED ON LIMITED REVIEW 6/4, 2013
DEPUTY DIRECTOR OF HIGHWAYS, REGION FOUR ENGINEER

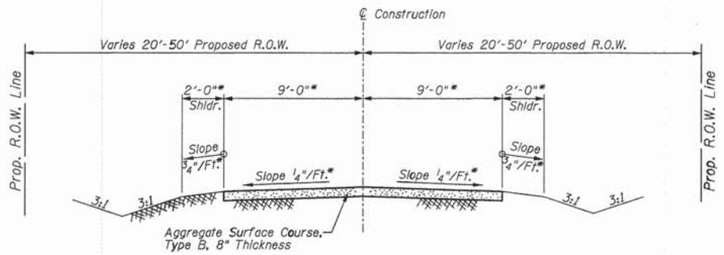
PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS

CONTRACT NO. 95712

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 492	08-08124-00-BR	FAYETTE	11	1
		CONTRACT NO. 95712		
RAAI JOB NO. 51012	ILLINOIS	FED. AID PROJECT		

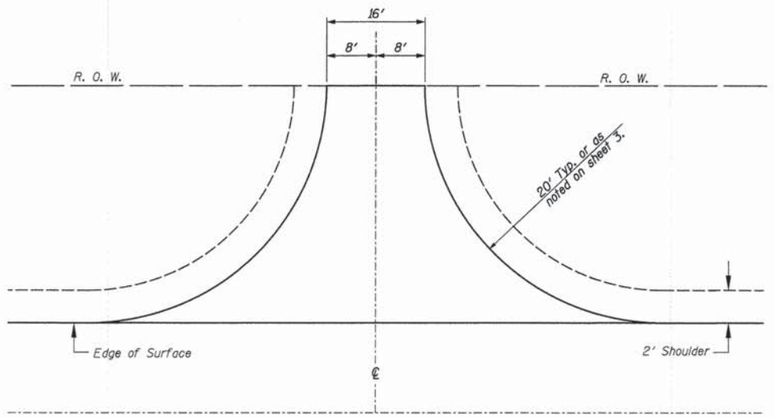


TYPICAL SECTION
EXISTING APPROACH ROADWAY



TYPICAL SECTION
PROPOSED APPROACH ROADWAY

* Varies in transitions



TYPICAL PRIVATE ENTRANCE

Aggregate Surface Course, Type B 6" Depth
Rt., Sta. 12+58 - 10 Ton
Lt., Sta. 16+32 - 27 Ton
Rt., Sta. 16+85 - 23 Ton
(Included in Summary of Quantities)

UTILITIES

Design Phase Locate: A0710621

Frontier Communications
Mark Burks
Phone: 217-854-2222

Southwestern Electric Co-op
Annette Brown
Phone: 618-664-1025 x5911

Fayette Water Company
Dennis Buchanan
Phone: 618-347-2430

Natural Gas Pipeline Co.
Greg Smith
Phone: 309-914-7848

SUMMARY OF QUANTITIES

	Code No.	Item	Unit	Quantity
	20100110	TREE REMOVAL (6 TO 15 UNITS DIAMETER)	UNIT	125
	20100210	TREE REMOVAL (OVER 15 UNITS DIAMETER)	UNIT	102
	20200100	EARTH EXCAVATION	CU YD	247
	20300100	CHANNEL EXCAVATION	CU YD	460
	20400800	FURNISHED EXCAVATION	CU YD	833
	20700110	POROUS GRANULAR EMBANKMENT	TON	90
	28000305	TEMPORARY DITCH CHECKS	FOOT	40
	28100807	STONE DUMPED RIPRAP, CLASS A4	TON	150
	40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	535
	50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
	50300225	CONCRETE STRUCTURES	CU YD	19.6
	50300280	CONCRETE ENCASEMENT	CU YD	2.8
	50400605	PRECAST PRESTRESSED CONCRETE DECK BEAMS (33" DEPTH)	SQ FT	1948
	50800105	REINFORCEMENT BARS	POUND	3600
*	50900205	STEEL RAILING, TYPE S1	FOOT	166
	51201600	FURNISHING STEEL PILES HP12X53	FOOT	231
	51202305	DRIVING PILES	FOOT	231
	51203600	TEST PILE STEEL HP12X53	EACH	1
	51500100	NAME PLATES	EACH	1
	542C0220	PIPE CULVERTS, CLASS C, TYPE 1 15"	FOOT	96
	67100100	MOBILIZATION	L SUM	1
*	78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
	X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.5

* Specialty Item

GENERAL NOTES

1. This section shall be constructed according to the plans, the Special Provisions, and the "Standard Specifications for Road and Bridge Construction", adopted January 1, 2012.
2. Roadway Centerline profiles refer to the finished surface.
3. If Ash trees are removed on the Project, the Contractor shall become familiar with and comply with measures specified by the Illinois Department of Agriculture (IDOA) to prevent the spread of the Emerald Ash Borer. The IDOA information for Ash tree removal can be found on the IDOA website at www.agr.state.il.us/eab .
4. Existing utilities shown are located from surface observations or information provided by the respective utilities and must be considered approximate. There may be others, the exact location of which are unknown and not shown. The Contractor will be responsible for notifying the respective utilities before work is begun. Field marking of underground utilities may be obtained by providing a minimum of 48 hours advance notice through the J.U.L.I.E. system by calling 1-800-892-0123, 811, or by direct contact with non-members of J.U.L.I.E.
5. The Aggregate Surface Course, Type B gradation shall be CA 6 or CA 10. Only crushed stone will be approved for use on this project.
6. The nominal thickness for surface course is shown on the Typical Sections, Standards, Schedules, or Special Details. The constructed thickness of the above item shall not be less than 90 percent of the nominal thickness at any location.
7. Factors used for quantity calculations are as follows:
   Porous Granular Embankment 2.1 tons/cu. yd.
   Stone Dumped Riprap 130 pounds/cu. ft.
   Aggregate Surface Course 2.1 tons/cu. yd.
8. Commitments: None as of April 1, 2013.

RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-002287

DESIGNED - BLT	REVISED -	
DRAWN - JN	REVISED -	
CHECKED - GLH	REVISED -	
DATE - 05/16/2013	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES, GENERAL NOTES, AND TYPICAL SECTIONS
STRUCTURE NO. 026-3458

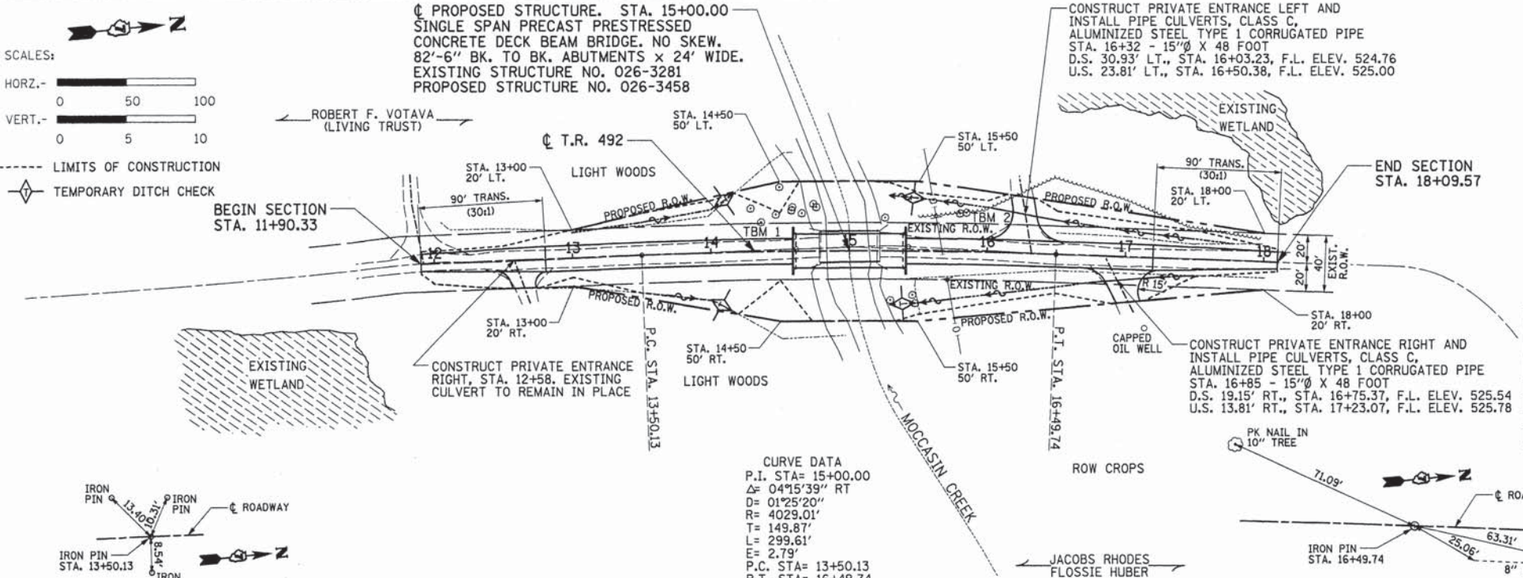
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 492	08-08124-00-BR	FAYETTE	11	2
		CONTRACT NO. 95712		
RAAI JOB NO. 51012	ILLINOIS FED. AID PROJECT			

SCALES:
HORZ.- 0 50 100
VERT.- 0 5 10

------ LIMITS OF CONSTRUCTION
TEMPORARY DITCH CHECK

℄ PROPOSED STRUCTURE. STA. 15+00.00
SINGLE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE. NO SKEW.
82'-6" BK. TO BK. ABUTMENTS x 24' WIDE.
EXISTING STRUCTURE NO. 026-3281
PROPOSED STRUCTURE NO. 026-3458

EXISTING STRUCTURE: TWO SPAN BRIDGE WITH PRECAST CONCRETE CHANNEL BEAMS ON CLOSED TIMBER ABUTMENTS AND TIMBER PILE BENT PIER, TO BE REMOVED. 44'L. x 22.5'W. NO SKEW. SEE SPECIAL PROVISIONS FOR SALVAGE.



CURVE DATA
P.I. STA= 15+00.00
Δ= 04°15'39" RT
D= 01°25'20"
R= 4029.01'
T= 149.87'
L= 299.61'
E= 2.79'
P.C. STA= 13+50.13
P.T. STA= 16+49.74

LINE TIES
P.C., STA. 13+50.13

LIMITS OF JURISDICTIONAL WETLAND. DURING CONSTRUCTION OF THE PROPOSED IMPROVEMENTS, THE CONTRACTOR SHALL EMPLOY ANY MEANS NECESSARY TO ENSURE THAT THIS AREA REMAINS UNDISTURBED FOR THE DURATION OF THE PROJECT.

THE EXISTING RIGHT OF WAY SHOWN HEREON HAS BEEN PROTRACTED FROM EXISTING RECORDS AND IS TO BE USED FOR REFERENCE PURPOSES ONLY. FURTHERMORE, NO COMPLETE SURVEY OF SAID R.O.W. IS IMPLIED BY THIS DRAWING.

LINE TIES
P.T., STA. 16+49.74

EARTHWORK SCHEDULE

LOCATION	EARTH EXCAVATION CU. YD.	EARTH EXCAVATION ADJUSTED FOR SHRINKAGE• CU. YD.	EMBANKMENT CU. YD.	EARTHWORK BALANCE•• WASTE (+) OR SHORTAGE (-) CU. YD.
STA. 11+90.33 TO STA. 14+58.75	83	62	400	-338
STA. 15+41.25 TO STA. 18+09.57	164	123	618	-495
TOTAL	247	185	1018	-833

•25% SHRINKAGE
••FURNISHED EXCAVATION

TREE REMOVAL (OVER 15 UNITS DIAMETER)

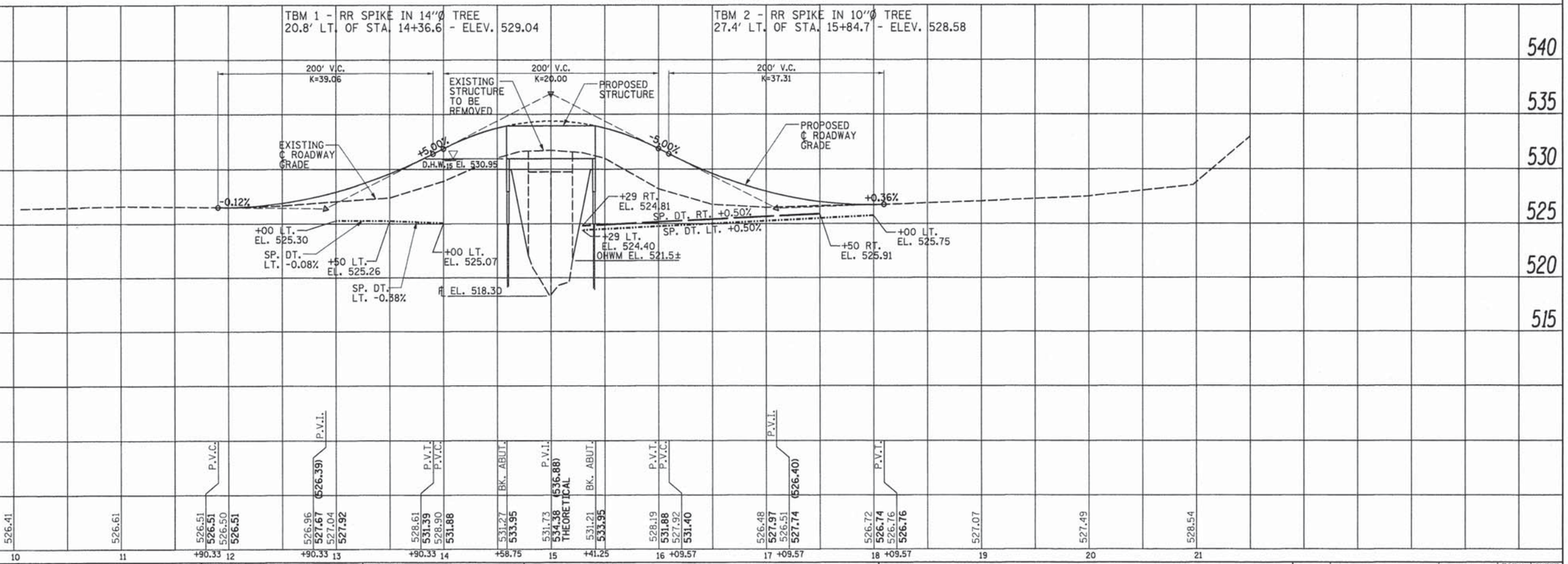
LOCATION	UNIT
31.1' LT., STA. 15+58.8	36
35.0' RT., STA. 15+29.4	30
26.8' LT., STA. 15+80.0	36
TOTAL	102

TREE REMOVAL (6 TO 15 UNITS DIAMETER)

LOCATION	UNIT
30.5' LT., STA. 14+28.7	15
20.8' LT., STA. 14+36.3	14
26.0' LT., STA. 14+46.9	8
46.0' LT., STA. 14+49.4	10
28.9' LT., STA. 14+58.2	14
26.8' LT., STA. 14+65.7	12
33.4' LT., STA. 14+74.1	8
31.0' LT., STA. 14+76.3	12
23.5' LT., STA. 15+25.8	12
31.1' RT., STA. 12+45.4	8
37.0' RT., STA. 15+47.4	12
TOTAL	125

PLAN — SURVEYED; PLOTTED; ALIGNMENT CHECKED; NOTE BOOK; RT. OF WAY CHECKED; NO.; CADD FILE NAME; BY; DATE

PROFILE — SURVEYED; PLOTTED; ZOOMED; NOTE BOOK; ELEV. NOTED; NO.; STRUCTURE ROTATING CHKD; BY; DATE



RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED	BLT	REVISED	-
DRAWN	JN	REVISED	-
CHECKED	GLH	REVISED	-
DATE	05/20/2013	REVISED	-

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

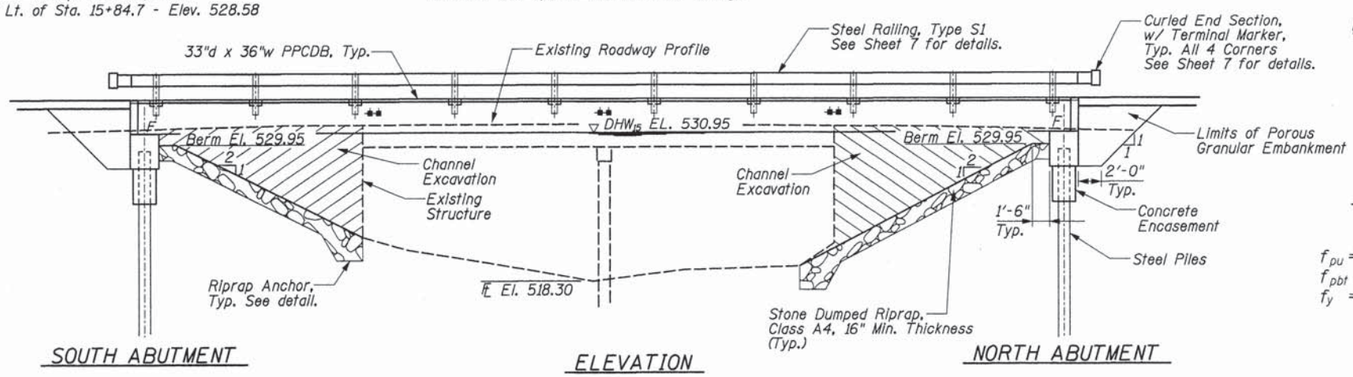
PLAN AND PROFILE OF ROADWAY
STRUCTURE NO. 026-3458
STA. 10+00 TO STA. 21+50

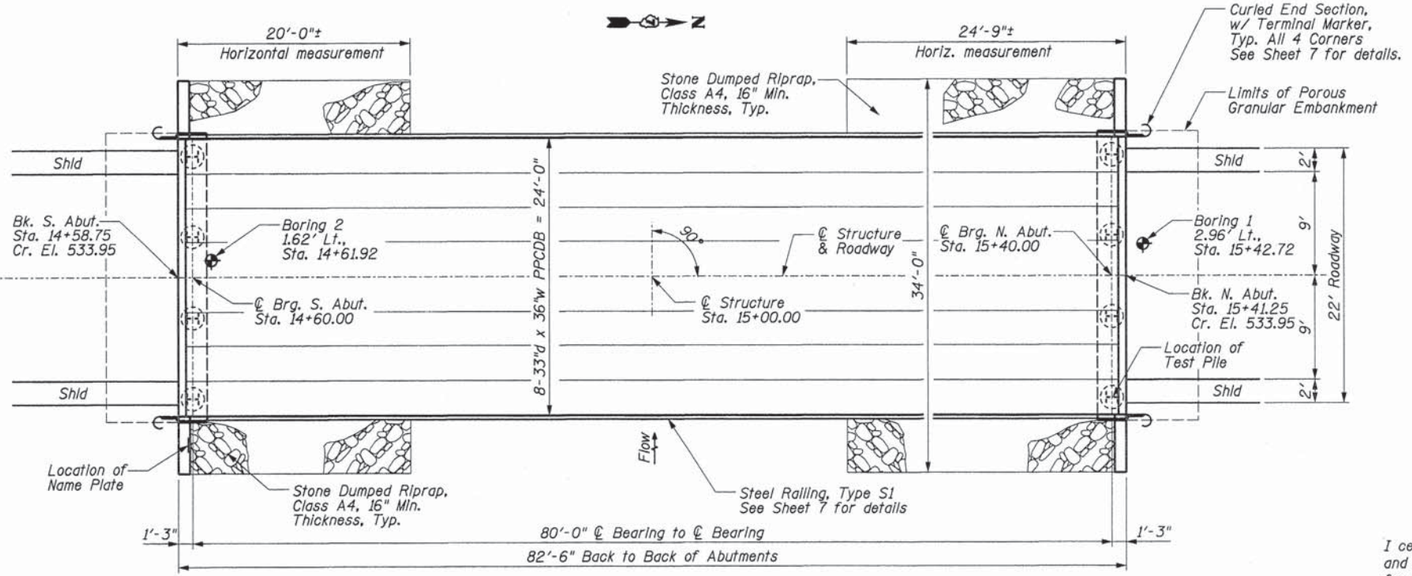
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 492	08-08124-00-BR	FAYETTE	11	3
		CONTRACT NO. 95712		
RAAI JOB NO. 51012	ILLINOIS	FED. AID PROJECT		

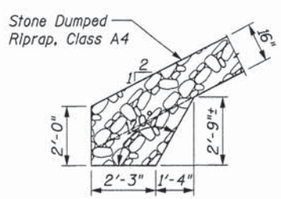
TBM 1 - RR spike in 14"ϕ tree,
20.8' Lt. of Sta. 14+36.6 - Elev. 529.04

TBM 2 - RR spike in 10"ϕ tree
27.4' Lt. of Sta. 15+84.7 - Elev. 528.58

Existing Structure: Structure No.: 026-3281. Two span bridge with precast concrete channel beams on closed timber abutments and timber pile bent pier. To be removed. 44'L. x 22.5'W. No Skew. See Special Provisions for salvage.



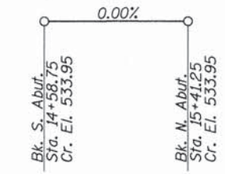




WATERWAY INFORMATION

Drainage Area = 33.65 sq. mi. Existing Low Grade Elev. 526.5 @ Sta. 17+00
Proposed Low Grade Elev. 526.5 @ Sta. 11+90

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Nat. H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
Design	15	5400	402	632	530.95	0.05	0.21	531.00	531.16
Base	100	8380	402	632	532.13	0.05	0.11	532.18	532.24
Overtopping	<1	800	280	325	526.47	0.05	0.04	526.52	526.51
Max. Calc.	500	11,300	402	632	533.08	0.04	0.10	533.12	533.18



LOADING HL-93

50#/sq. ft. included in dead load for future wearing surface.

DESIGN SPECIFICATIONS

2010 (4th ED.) AASHTO LRFD Bridge Design Specifications.

DESIGN STRESSES

FIELD UNITS

f'_c = 3,500 psi
f_y = 60,000 psi (reinforcement)

PRECAST PRESTRESSED UNITS

f'_c = 6,000 psi
f'_{ci} = 5,000 psi
f_{pu} = 270,000 psi (½" ϕ low lax. strands)
f_{pbt} = 201,960 psi (½" ϕ low lax. strands)
f_y = 60,000 psi (reinforcement)

SEISMIC DATA

Seismic Performance Zone (SPZ) = 2
Soil Site Classification = D
S_{D1} = 0.213 S_{DS} = 0.472

BILL OF MATERIALS (BRIDGE ONLY)

ITEM	UNIT	TOTAL
Channel Excavation	Cu Yd	460
Porous Granular Embankment	Ton	90
Stone Dumped Riprap, Class A4	Ton	150
Removal of Existing Structures	Each	1
Concrete Structures	Cu Yd	19.6
Concrete Encasement	Cu Yd	2.8
PPCDB (33" Depth)	Sq Ft	1948
Reinforcement Bars	Pound	3600
Steel Railing, Type S1	Foot	166
Furnishing Steel Piles HP12x53	Foot	231
Driving Piles	Foot	231
Test Pile Steel HP12x53	Each	1
Name Plates	Each	1
Terminal Marker - Direct Applied	Each	4

GENERAL NOTES

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

Channel excavation shall be excavated as shown within the limits of the proposed bridge, then tapered to the existing channel at the ROW line. If the Engineer deems the material satisfactory, it may be used to construct the roadway embankment.

See Specifications for Soil Borings.

Do not scale these drawings.

The abutment bearing seat surfaces for the precast prestressed concrete deck beams shall be adjusted by shimming to assure firm and even bearing. As required, ⅛" fabric adjusting shims of the dimensions of the Exterior Bearing Pad shall be provided for each bearing. The top surface of the beams shall be finished according to the IDOT Manual for Fabrication of Precast Prestressed Concrete Products.

MOCCASIN CREEK
BUILT 201_ BY
FAYETTE COUNTY
SEC. 08-08124-00-BR
LOADING HL-93
STR. NO. 026-3458

NAME PLATE

See Std. 515001

I certify that to the best of 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 Standard Specifications for Highway Bridges.

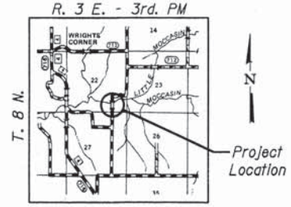
WILLIAM D. LUEKING 81-4341 LICENSED STRUCTURAL ENGINEER STATE OF ILLINOIS

William D. Lueking
William D. Lueking

05-21-2013
Date of Signing

11/30/2014
Date of License Expiration

R. 3 E. - 3rd. PM



LOCATION SKETCH

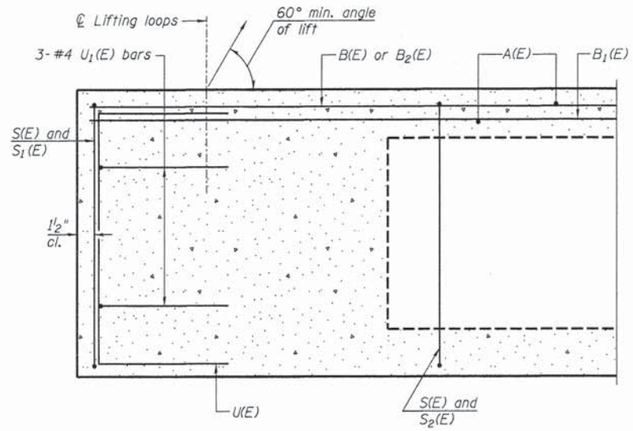
RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED	BLT	REVISED -
DRAWN	JN	REVISED -
CHECKED	WDL	REVISED -
DATE	05/20/2013	REVISED -

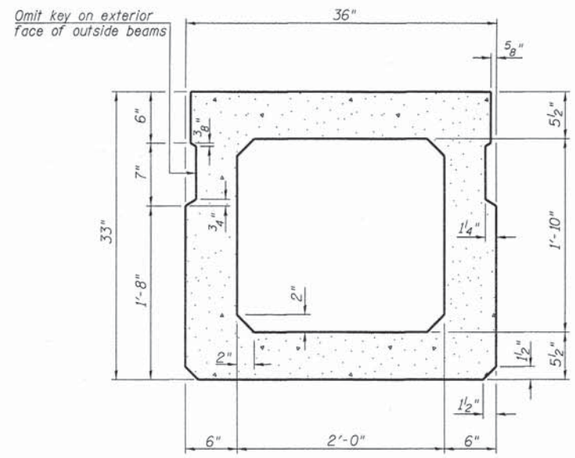
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN AND ELEVATION
STRUCTURE NO. 026-3458

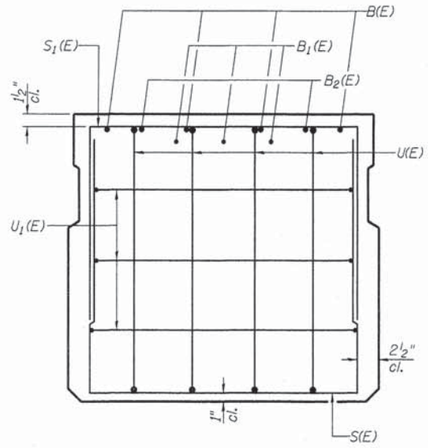
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 492	08-08124-00-BR	FAYETTE	11	4
		CONTRACT NO. 95712		
RAAI JOB NO. 51012	ILLINOIS	FED. AID PROJECT		



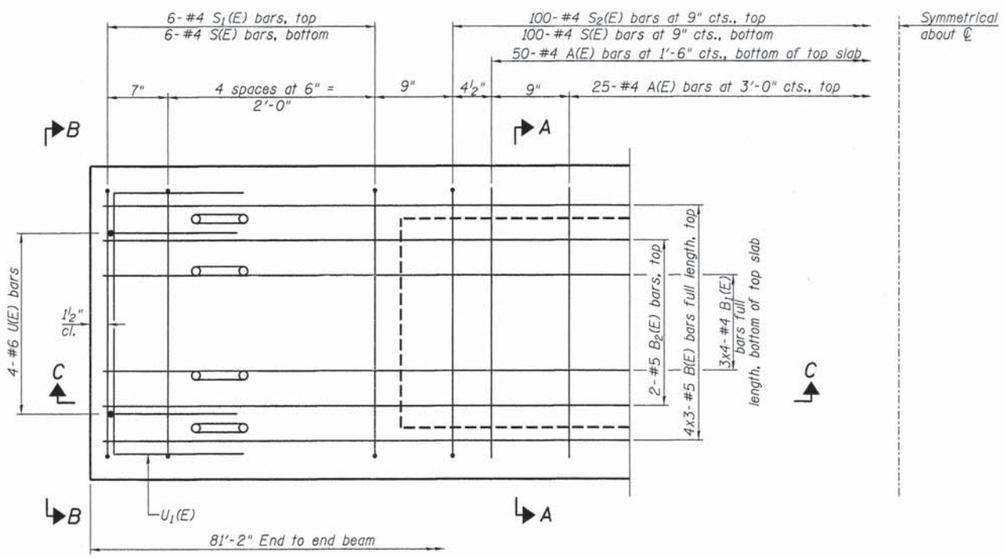
SECTION C-C



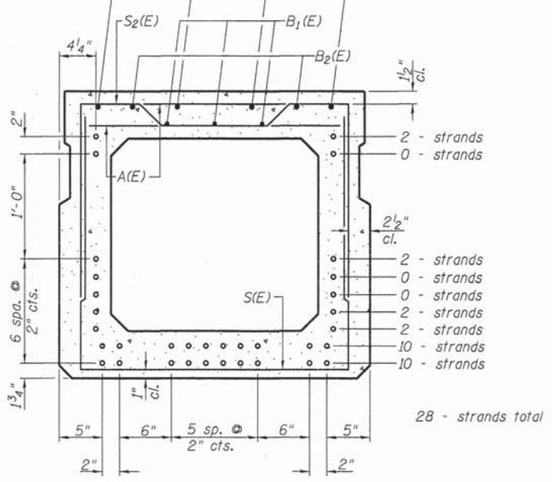
SECTION A-A
(Showing dimensions)



VIEW B-B



PLAN VIEW



SECTION A-A
(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)	75	#4	2'-7"	—
B(E)	12	#5	28'-8"	—
$B_1(E)$	12	#4	21'-9"	—
$B_2(E)$	4	#5	10'-0"	—
S(E)	112	#4	7'-5"	
$S_1(E)$	12	#4	6'-3"	
$S_2(E)$	100	#4	6'-6"	
U(E)	8	#6	5'-0"	
$U_1(E)$	6	#4	5'-0"	

Note: See sheet 6 for additional details and Bill of Material.

Notes: Spacing of S(E) and $S_2(E)$ 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"

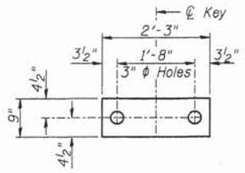
RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED - BLT	REVISED -	
DRAWN - JN	REVISED -	
CHECKED - WDL	REVISED -	
DATE - 05/20/2013	REVISED -	

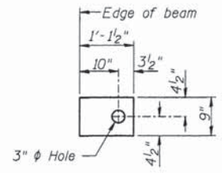
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PRECAST PRESTRESSED CONCRETE DECK BEAM DETAILS
STRUCTURE NO. 026-3458

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 492	08-08124-00-BR	FAYETTE	11	5
		CONTRACT NO. 95712		
RAAI JOB NO. 51012	ILLINOIS FED. AID PROJECT			



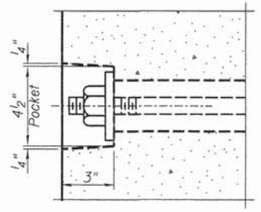
FABRIC BEARING PAD
(Interior)



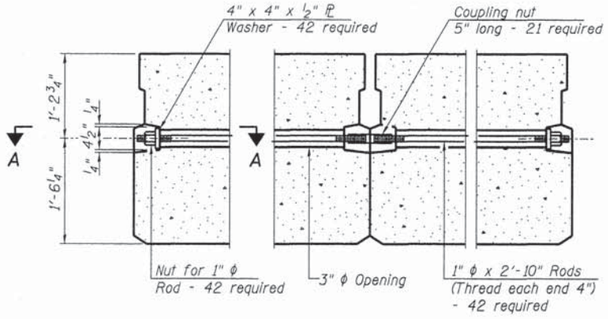
FABRIC BEARING PAD
(Exterior)

FIXED

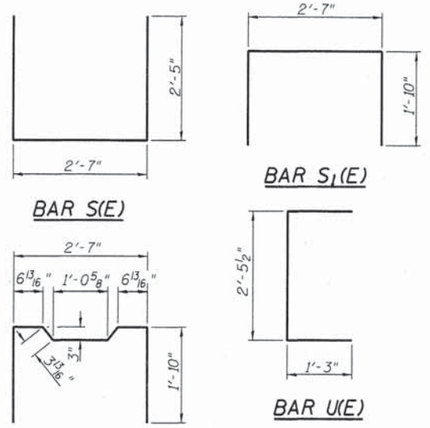
Note: All bearing pads shall be 1" thick.

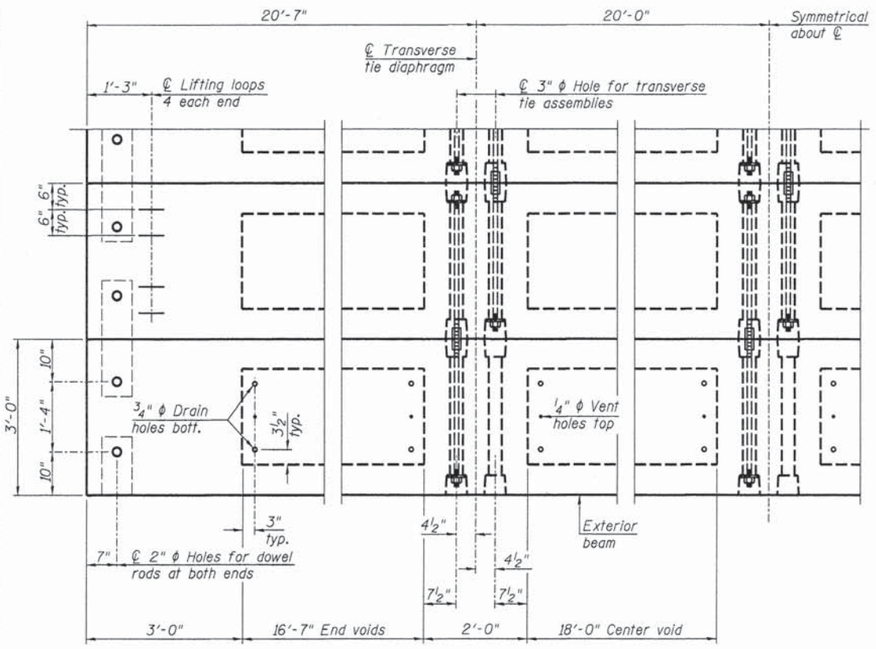


SECTION A-A



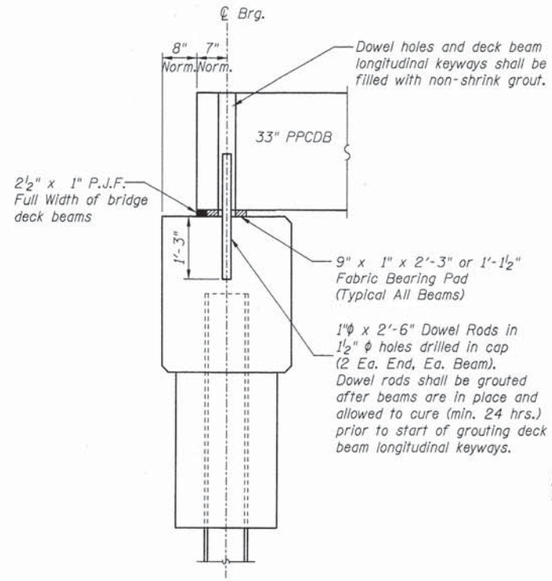
TYPICAL TRANSVERSE TIE ASSEMBLY



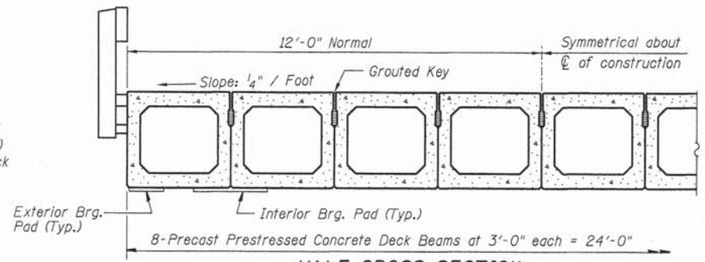


PLAN VIEW

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

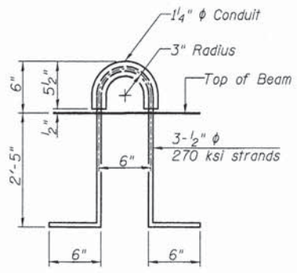


FIXED BEARING
ABUTMENT



HALF CROSS SECTION

See Sheet 7 for the details showing the spacing and mounting of posts and rails to the PPCDB.



LIFTING LOOP DETAIL

NOTES

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be ½" and the nominal cross-sectional area shall be 0.153 sq. in.

The 1" ϕ 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 the requirements of ASTM A 706 Grade 60 (IL Modified).

Two ⅛" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.

A minimum 2½" ϕ lifting pin shall be used to engage the lifting loops during handling.

Corrosion Inhibitor, per Article 1020.05(b)(12) and 1021.06 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.

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (33" depth)	Sq. Ft.	1948

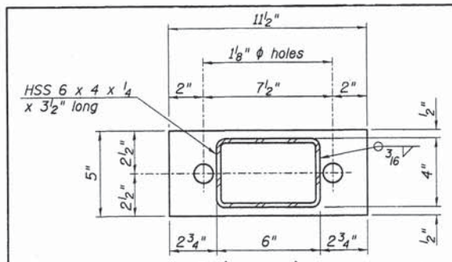
RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED - BLT	REVISED -	
DRAWN - JN	REVISED -	
CHECKED - WDL	REVISED -	
DATE - 05/20/2013	REVISED -	

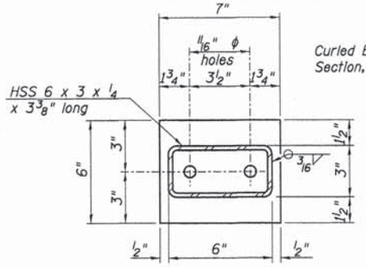
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PRECAST PRESTRESSED CONCRETE DECK BEAM DETAILS
STRUCTURE NO. 026-3458

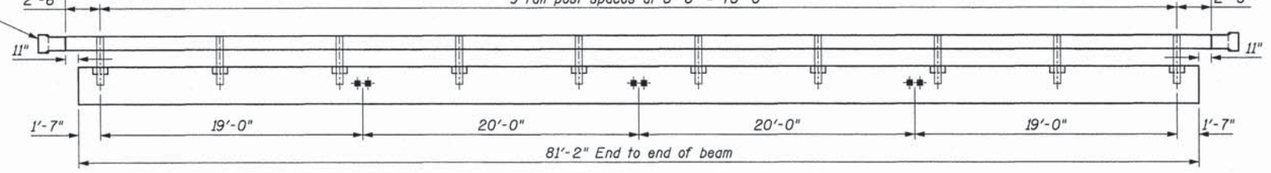
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 492	08-08124-00-BR	FAYETTE	11	6
		CONTRACT NO. 95712		
RAAI JOB NO. 51012	ILLINOIS	FED. AID PROJECT		



PL ½" x 11½" x 5"

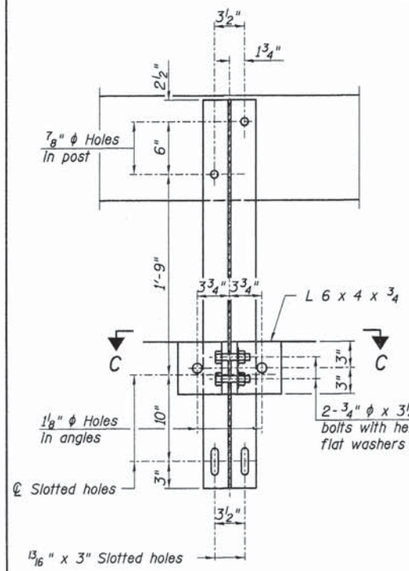


PL ½" x 7" x 6"

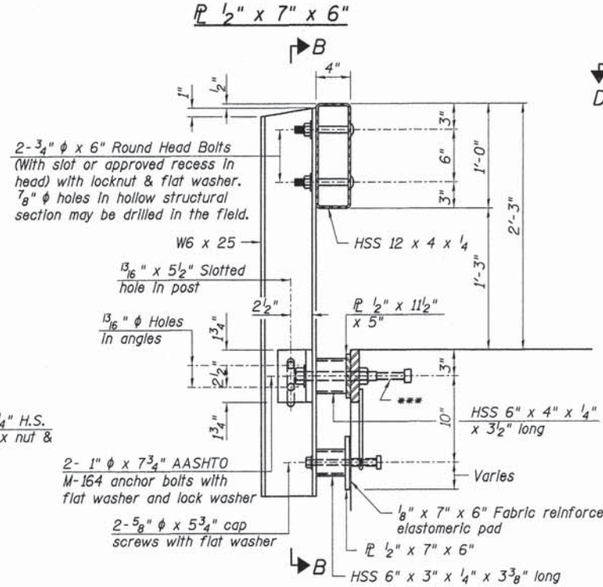


RAIL POST SPACING

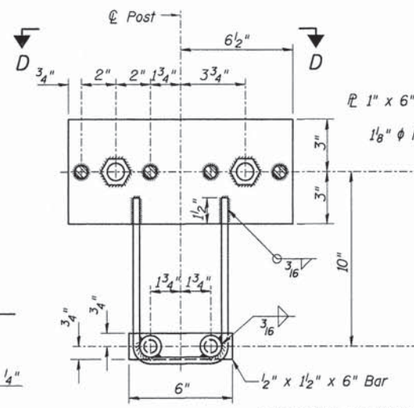
Note: The cost of the Curled End Sections shall be included in the contract unit price per foot for "STEEL RAILING, TYPE S1", and no additional compensation will be allowed.



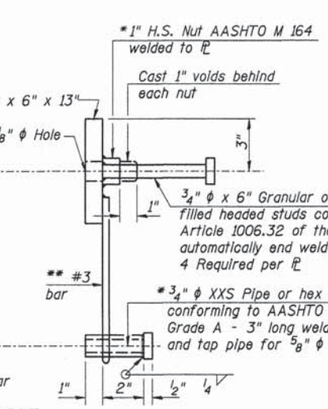
SECTION B-B



SECTION AT RAILING POST

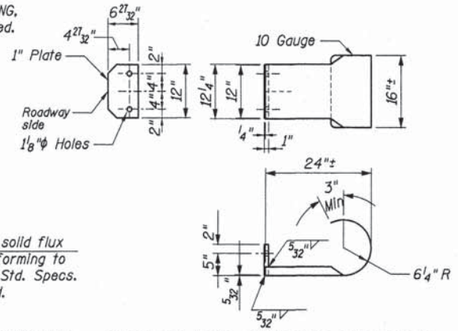


ANCHOR DEVICE



** Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed ½".

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



CURLED END SECTION DETAILS

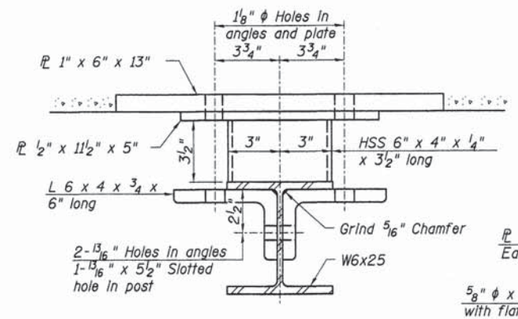
Notes:

All field drilled holes shall be coated with an approved zinc rich paint before erection.

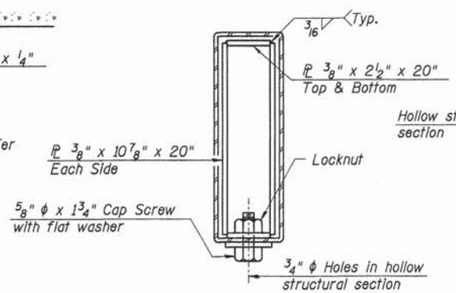
For multi-span bridges, sufficient ¼" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type S1.

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

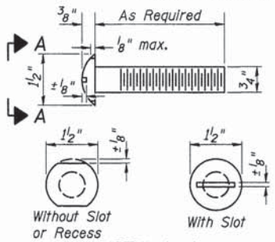
*** The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.



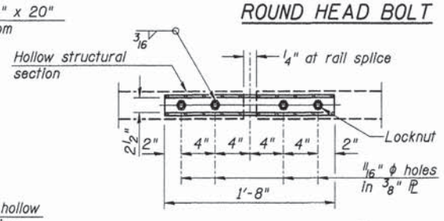
SECTION C-C



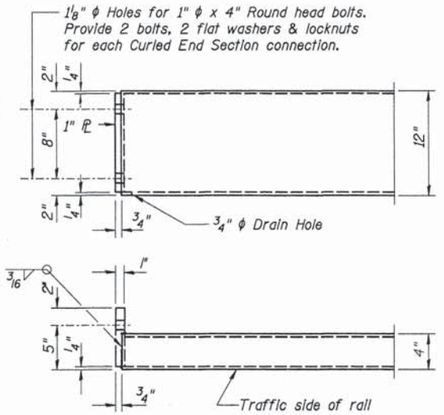
SECTIONS AT RAIL SPLICE



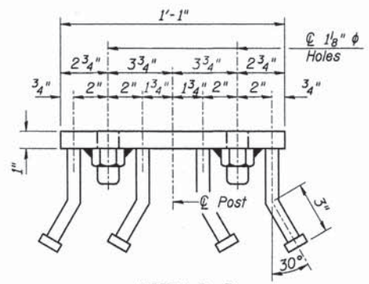
VIEW A-A
ROUND HEAD BOLT



PLAN-BOTT. SPLICE PL
TYPICAL



END OF RAIL DETAILS



VIEW D-D

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S1	Foot	166

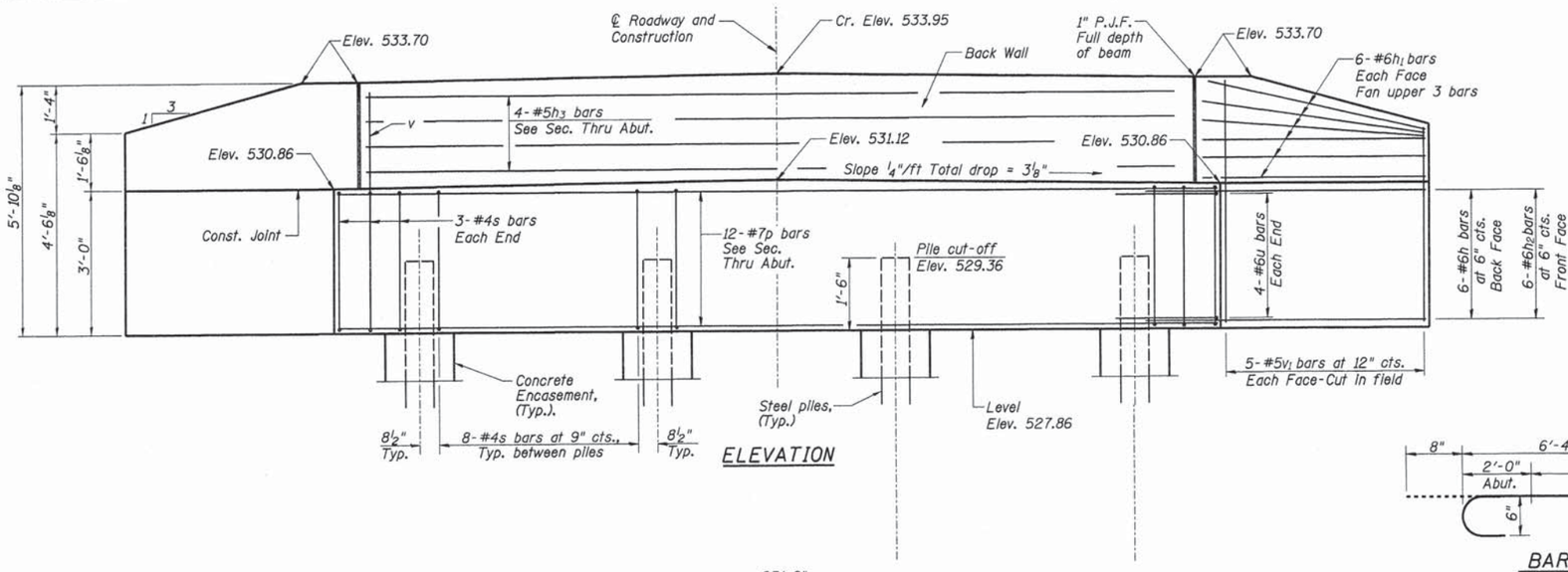
RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED - BLT		REVISED -
DRAWN - JN		REVISED -
CHECKED - WDL		REVISED -
DATE - 05/20/2013		REVISED -

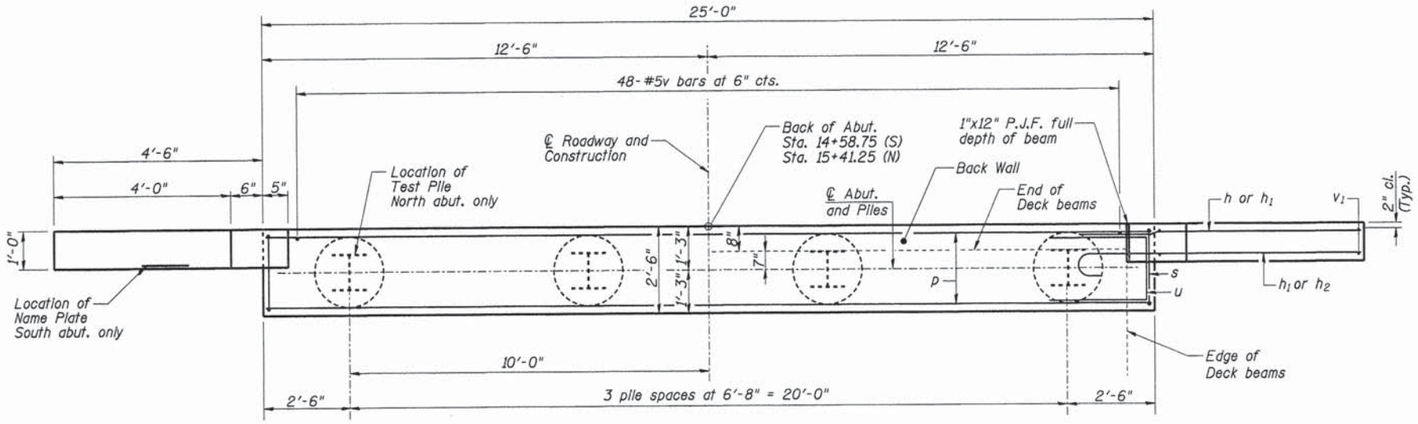
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STEEL RAILING, TYPE S1 DETAILS
STRUCTURE NO. 026-3458

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 492	08-08124-00-BR	FAYETTE	11	7
		CONTRACT NO. 95712		
RAAI JOB NO. 51012	ILLINOIS	FED. AID PROJECT		

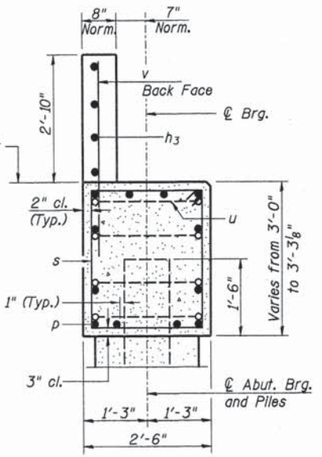


ELEVATION

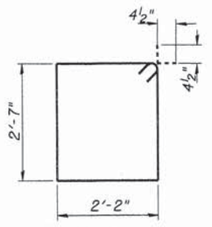


PLAN

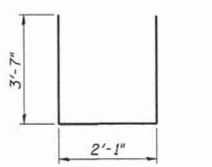
BAR h_2



SEC. THRU ABUT.
(Normal to ℄)



BAR s



BAR u

BILL OF MATERIAL FOR ONE ABUTMENT

Bar	No.	Size	Length	Shape
h	12	#6	8'-0"	
h_1	24	#6	4'-7"	
h_2	12	#6	7'-0"	
h_3	4	#5	23'-8"	
p	12	#7	24'-8"	
s	30	#4	10'-3"	
u	8	#6	9'-3"	
v	48	#5	4'-6"	
v_1	20	#5	5'-6"	CUT IN FIELD

Concrete Structures		Cu. Yd.	9.8
Concrete Encasement		Cu. Yd.	1.4
Reinforcement Bars		Pound	1800
Furnishing Steel Piles, HP12x53	Foot	S. Abut.	132
		N. Abut.	99
Driving Piles	Foot	S. Abut.	132
		N. Abut.	99
Test Pile, Steel HP12x53	Each	S. Abut.	0
		N. Abut.	1

For details of piles and Concrete Encasement, see sheet 9.

PILE DATA SOUTH ABUTMENT

Type:	Steel HP12x53
Nominal Required Bearing:	413 kips
Factored Resistance Available:	227 kips
Estimated Length:	33'/pile
No. Production Piles	4
No. Test Piles	0

PILE DATA NORTH ABUTMENT

Type:	Steel HP12x53
Nominal Required Bearing:	413 kips
Factored Resistance Available:	227 kips
Estimated Length:	33'/pile
No. Production Piles	3
No. Test Piles	1

GENERAL NOTES

All exposed edges shall have standard 3/4" chamfer, unless otherwise noted.

Reinforcement bars shall conform to ASTM A 706 (IL Modified), Grade 60.

All clearances between rebar and form surface shall be 2", unless otherwise noted.

Space reinforcement in cap to miss PPCDB dowel rods.

The Steel H-piles shall be according to AASHTO M270 Grade 50.

The Contractor shall drive one (1) Steel HP12x53 Test Pile in a production location as shown on the plans or as directed by the Engineer before ordering the remainder of the piles.

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

The backwall and the portion of the wingwalls above the construction joint shall be cast against the in-place PPCDB.

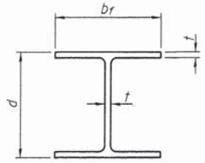
RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED	BLT	REVISED	-
DRAWN	JN	REVISED	-
CHECKED	WDL	REVISED	-
DATE	05/20/2013	REVISED	-

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ABUTMENT DETAILS
STRUCTURE NO. 026-3458

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 492	08-08124-00-BR	FAYETTE	11	8
		CONTRACT NO. 95712		
RAAI JOB NO. 51012	ILLINOIS	FED. AID PROJECT		



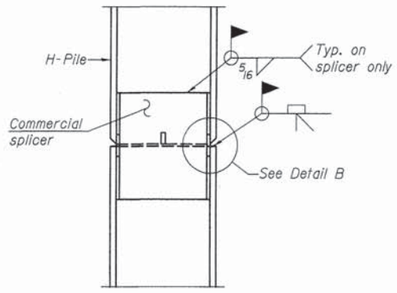
STEEL PILE TABLE

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

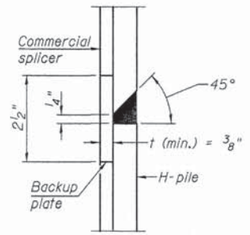
ELEVATION

DETAIL A

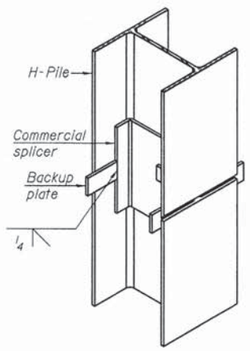
H-PILE SHOE ATTACHMENT



ELEVATION

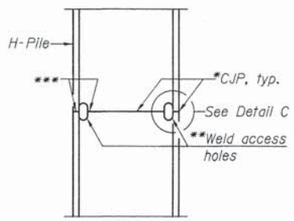


DETAIL "B"

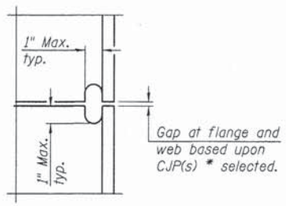


ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE



ELEVATION



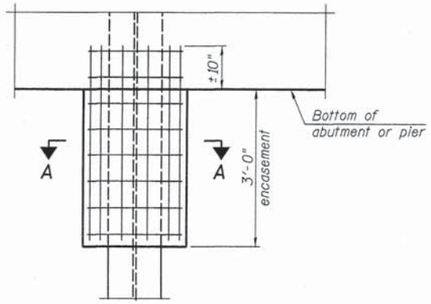
DETAIL C

COMPLETE PENETRATION WELD SPLICE

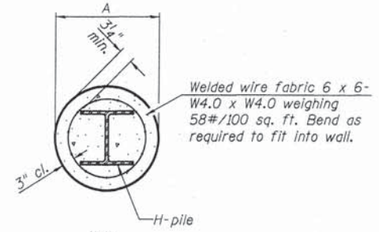
* Use joint conforming to Figure 3.4 in AWS D1.1, Structure Welding Code - Steel.

** Preparation per Fig. 5.2 in AWS D1.1, Structure Welding Code - Steel.

*** Interrupt welds ¼" from end of each pile.



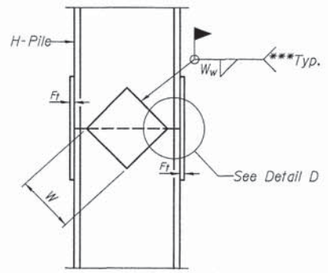
ELEVATION



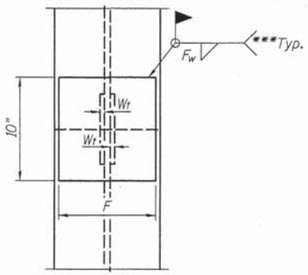
Note:
Forms for encasement may be omitted when soil conditions permit.

SECTION A-A

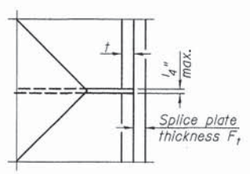
PILE ENCASEMENT



ELEVATION



END VIEW



DETAIL D

Designation	F	F_t	F_w	W	W_t	W_w
HP 14x117	$12\frac{1}{2}$"	1"	$\frac{7}{8}$"	$7\frac{3}{4}$"	$\frac{5}{8}$"	$\frac{1}{2}$"
x102	$12\frac{1}{2}$"	$\frac{7}{8}$"	$\frac{3}{4}$"	$7\frac{3}{4}$"	$\frac{5}{8}$"	$\frac{1}{2}$"
x89	$12\frac{1}{2}$"	$\frac{3}{4}$"	$\frac{11}{16}$"	$7\frac{3}{4}$"	$\frac{5}{8}$"	$\frac{1}{2}$"
x73	$12\frac{1}{2}$"	$\frac{5}{8}$"	$\frac{9}{16}$"	$7\frac{3}{4}$"	$\frac{5}{8}$"	$\frac{1}{2}$"
HP 12x84	10"	$\frac{7}{8}$"	$\frac{11}{16}$"	$6\frac{1}{2}$"	$\frac{5}{8}$"	$\frac{1}{2}$"
x74	10"	$\frac{7}{8}$"	$\frac{11}{16}$"	$6\frac{1}{2}$"	$\frac{5}{8}$"	$\frac{1}{2}$"
x63	10"	$\frac{5}{8}$"	$\frac{1}{2}$"	$6\frac{1}{2}$"	$\frac{1}{2}$"	$\frac{3}{8}$"
x53	10"	$\frac{5}{8}$"	$\frac{1}{2}$"	$6\frac{1}{2}$"	$\frac{1}{2}$"	$\frac{3}{8}$"
HP 10x57	8"	$\frac{3}{4}$"	$\frac{9}{16}$"	$5\frac{1}{4}$"	$\frac{1}{2}$"	$\frac{3}{8}$"
x42	8"	$\frac{5}{8}$"	$\frac{9}{16}$"	$5\frac{1}{4}$"	$\frac{1}{2}$"	$\frac{3}{8}$"
HP 8x36	7"	$\frac{5}{8}$"	$\frac{7}{16}$"	$4\frac{1}{4}$"	$\frac{1}{2}$"	$\frac{3}{8}$"

WELDED PLATE FIELD SPLICE

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

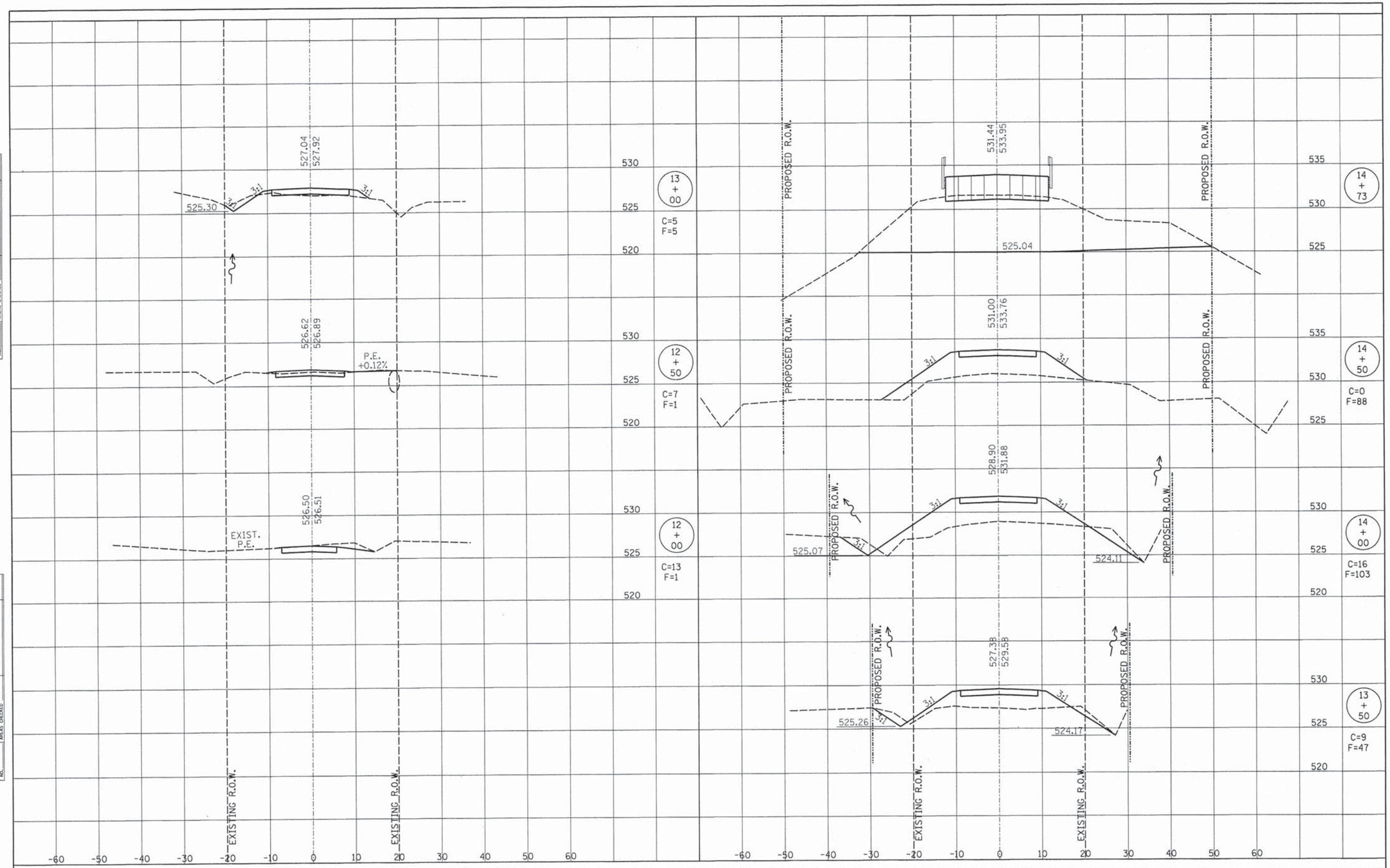
RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED - BLT	REVISED -	
DRAWN - JN	REVISED -	
CHECKED - WDL	REVISED -	
DATE - 05/20/2013	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

HP PILE DETAILS
STRUCTURE NO. 026-3458

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 492	08-08124-00-BR	FAYETTE	11	9
		CONTRACT NO. 95712		
RAAI JOB NO. 51012	ILLINOIS FED. AID PROJECT			



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

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

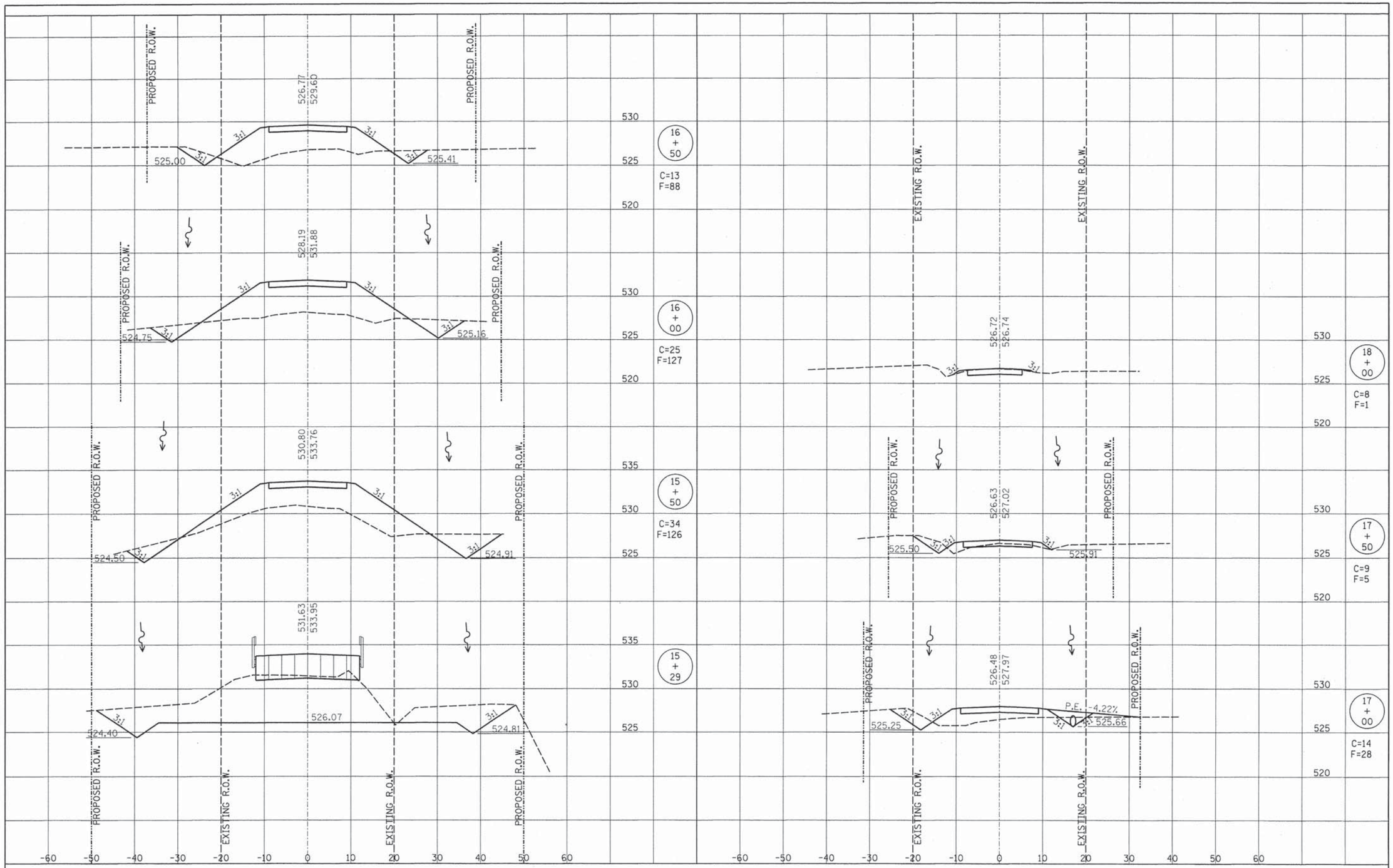
RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED - BLT	REVISED -	
DRAWN - JN	REVISED -	
CHECKED - GLH	REVISED -	
DATE - 05/20/2013	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS OF ROADWAY
STRUCTURE NO. 026-3458
STA. 12+00 TO STA. 14+73

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 492	08-08124-00-BR	FAYETTE	11	10
		CONTRACT NO. 95712		
RAAI JOB NO. 51012	ILLINOIS FED. AID PROJECT			



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

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

RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED - BLT	REVISED -	
DRAWN - JN	REVISED -	
CHECKED - GLH	REVISED -	
DATE - 05/20/2013	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS OF ROADWAY
STRUCTURE NO. 026-3458
STA. 15+29 TO STA. 18+00

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 492	08-08124-00-BR	FAYETTE	11	11
		CONTRACT NO. 95712		
RAAI JOB NO. 51012	ILLINOIS FED. AID PROJECT			