07-31-2015 LETTING ITEM 084

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 20	12-00136-00-BR	MARION	11	1
		CONTRACT NO. 97589		
RAAI JOB NO. 51014	ILLINOIS	FED. AID PROJECT		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED STP–BRIDGE

CH 20 (BEE BRANCH ROAD) OVER DUMS CREEK SECTION 12–00136–00–BR PROJECT NO. BROS–0121(062) MARION COUNTY JOB NO. C–98–310–13

INDEX OF SHEETS

HIGHWAY STANDARDS (SEE SPECIFICATIONS)

000001-06	STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
515001-03	NAME PLATE FOR BRIDGES
630301-06	SHOULDER WIDENING FOR TYPE 1 (SPECIAL) GUARDRAIL TERMINALS
635006-03	REFLECTOR AND TERMINAL MARKER PLACEMENT
701901-04	TRAFFIC CONTROL DEVICES
BLR 21-9	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS
BLR 27-1	TRAFFIC BARRIER TERMINAL, TYPE 5A

SOIL BORINGS (SEE SPECIFICATIONS)

DESIGN CLASSIFICATION: RURAL LOCAL ROAD
ADT_{2015} : 200

DESIGN SPEED: 30 MPH

0 100' 200' 300' 1" = 100'
0 10' 20' 30' 1" = 10'
0 50' 100' 1" = 50'
0 50' 100' 1" = 40'
0 50' 100' 1" = 30'
0 50' 100' 1" = 20'

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

BRENT L. TAYLOR 062-066114 LICENSED PROFESSIONAL ENGINEER STATE OF ILLINOIS

Brent L. Taylor 02/10/2015

BRENT L. TAYLOR
CENTRALIA, ILLINOIS
ILLINOIS LICENSED PROFESSIONAL
ENGINEER NO. 062-066114
EXPIRES NOV. 30, 2015

02/10/2015

RHUTASEL and ASSOCIATES, INC.
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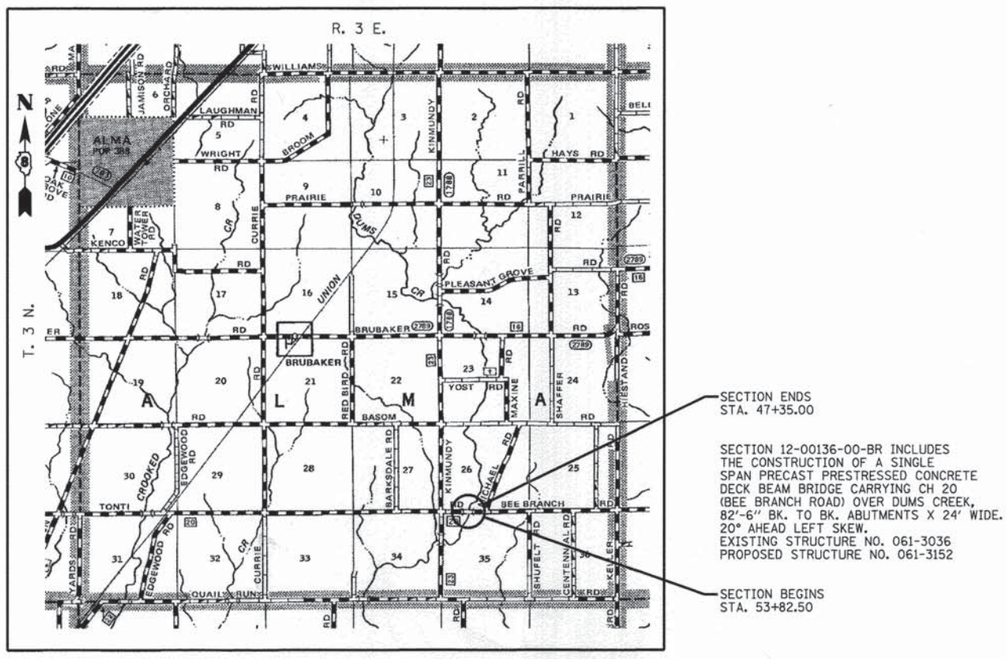
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

LOCATION OF SECTION INDICATED THUS: –■–



LOCATION: NEAR THE NW CORNER OF THE NE 1/4 OF THE NW 1/4, SECTION 35, T3N, R3E, 3RD P.M.
NET LENGTH OF PROJECT: 647.50 FT. = 0.123 MI.

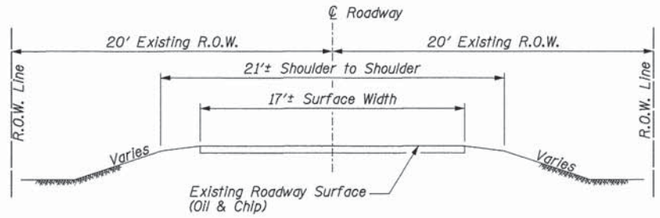
MARION COUNTY
HIGHWAY DEPARTMENT

APPROVED _____, 2015
MARION COUNTY, COUNTY ENGINEER

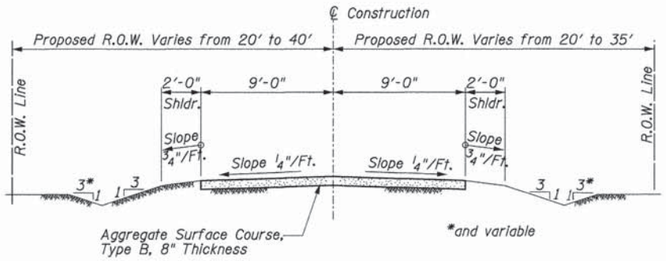
PASSED April 7, 2015
DISTRICT EIGHT ENGINEER OF LOCAL ROADS & STREETS

RELEASING FOR BID BASED ON LIMITED REVIEW April 7, 2015
DEPUTY DIRECTOR OF HIGHWAYS, REGION FIVE ENGINEER

PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS

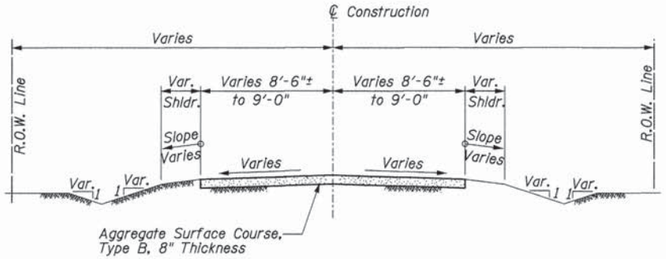


TYPICAL SECTION
EXISTING APPROACH ROADWAY



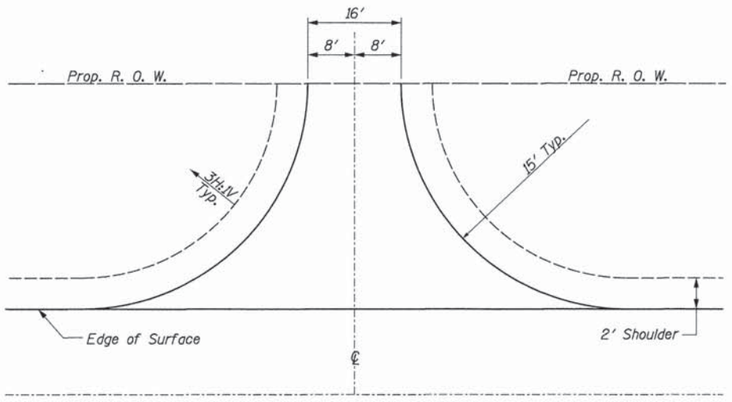
TYPICAL SECTION
PROPOSED APPROACH ROADWAY

Sta. 47+65.00 to Sta. 49+60.00
Sta. 50+42.50 to Sta. 53+52.50



TYPICAL TRANSITION SECTION
PROPOSED APPROACH ROADWAY

Sta. 47+35.00 to Sta. 47+65.00
Sta. 53+52.50 to Sta. 53+82.50



TYPICAL FIELD ENTRANCE

Rt., Sta. 52+31
(Earth surface)

UTILITIES

J.U.L.I.E. Dig No. X3640400

Electric
Tri-County Electric Cooperative
Dennis Ivers
3906 Broadway
Mount Vernon, IL 62864
Phone: 618-244-5151

Water
Northeast Marion County Water
Wally Cox Heneghan and Associates, PC
838 East McCord Street
Centralia IL 62801
Phone: 618-533-6525

Telephone:
AT&T
Todd Isaak (Engineering Dept.)
3526 State Route 161
Centralia, IL 62801
Phone: 618-533-3501

EXTRA BARS FOR TEST SAMPLES

Bar	No.	Size	Length	Shape
s	2	#4	11'-3"	
v_1	2	#5	6'-0"	——
h	2	#6	8'-0"	——
p	1	#7	26'-8"	——
Reinforcement Bars			Pound	110

These bars shall be identical to and delivered with the bars of the same mark listed on the bridge sheets. The bars listed above will be selected by the Engineer to be used as a test sample. This chart assumes that all bars of the same size on the job will have the same heat numbers. If bars of the same size on the job have different heat numbers, then the Contractor shall supply additional bars from other heat numbers for sampling by the Engineer at no additional cost.

The weight of these extra bars has been included in the Summary of Quantities for the project.

SUMMARY OF QUANTITIES

	Code No.	Item	Unit	Quantity
	20100500	Tree Removal, Acres	Acre	0.3
	20200100	Earth Excavation	Cu Yd	67
	20300100	Channel Excavation	Cu Yd	135
	20400800	Furnished Excavation	Cu Yd	1798
	20700110	Porous Granular Embankment	Ton	116
	28100807	Stone Dumped Riprap, Class A4	Ton	135
	40200800	Aggregate Surface Course, Type B	Ton	526
	50100100	Removal of Existing Structures	Each	1
	50300225	Concrete Structures	Cu Yd	25.8
	50300280	Concrete Encasement	Cu Yd	2.8
	50400605	Precast Prestressed Concrete Deck Beams (33" Depth)	Sq Ft	1946
	50800105	Reinforcement Bars	Pound	4190
*	50900205	Steel Railing, Type S1	Foot	165
	51201600	Furnishing Steel Piles HP12x53	Foot	153
	51202305	Driving Piles	Foot	153
	51203600	Test Pile Steel HP12x53	Each	1
	51500100	Name Plates	Each	1
*	63100075	Traffic Barrier Terminal, Type 5A	Each	2
*	63100167	Traffic Barrier Terminal, Type 1 (Special) Tangent	Each	2
	67100100	Mobilization	L Sum	1
*	78201000	Terminal Marker - Direct Applied	Each	4
	X2501000	Seeding, Class 2 (Special)	Acre	0.5
	X7010216	Traffic Control and Protection (Special)	L Sum	1

* 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. Existing utilities shown are located from surface observations or information provided by the respective utilities and must be considered approximate and are only included for the convenience of the bidder. 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.
4. 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.
5. The Aggregate Surface Course, Type B gradation shall be CA 6. Only crushed stone will be approved for use on this project.
6. 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.

7. Commitments: Existing fence removal and replacement within the limits of construction (NE, NW and SW quadrants of the proposed project) will be done by others and will be coordinated by the Marion County Highway Department. The removal will be completed prior to the start of construction.

   No tree clearing will be allowed or performed from April 1 through September 30. See Special Provisions.

   Impacts to trees will be mitigated by the Marion County Highway Department per IDOT Departmental Policy D&E-18 Preservation and Replacement of Trees.

   As of February 10, 2015, no other commitments have been made.

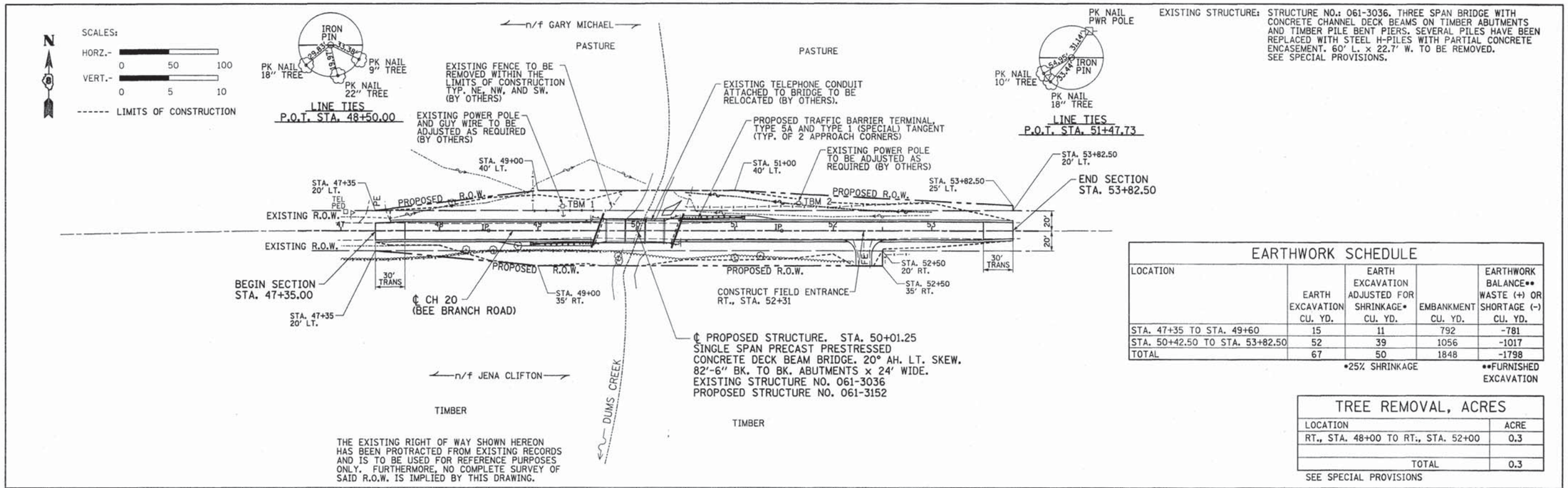
RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED - BLT	REVISED -	
DRAWN - JN	REVISED -	
CHECKED - WDL	REVISED -	
DATE - 02/10/2015	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES, TYPICAL SECTIONS, AND GENERAL NOTES

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 20	12-00136-00-BR	MARION	11	2
		CONTRACT NO. 97589		
RAAI JOB NO. 51014				



EXISTING STRUCTURE: STRUCTURE NO.: 061-3036. THREE SPAN BRIDGE WITH CONCRETE CHANNEL DECK BEAMS ON TIMBER ABUTMENTS AND TIMBER PILE BENT PIERS. SEVERAL PILES HAVE BEEN REPLACED WITH STEEL H-PILES WITH PARTIAL CONCRETE ENCASEMENT. 60' L. x 22.7' W. TO BE REMOVED. SEE SPECIAL PROVISIONS.

EARTHWORK SCHEDULE

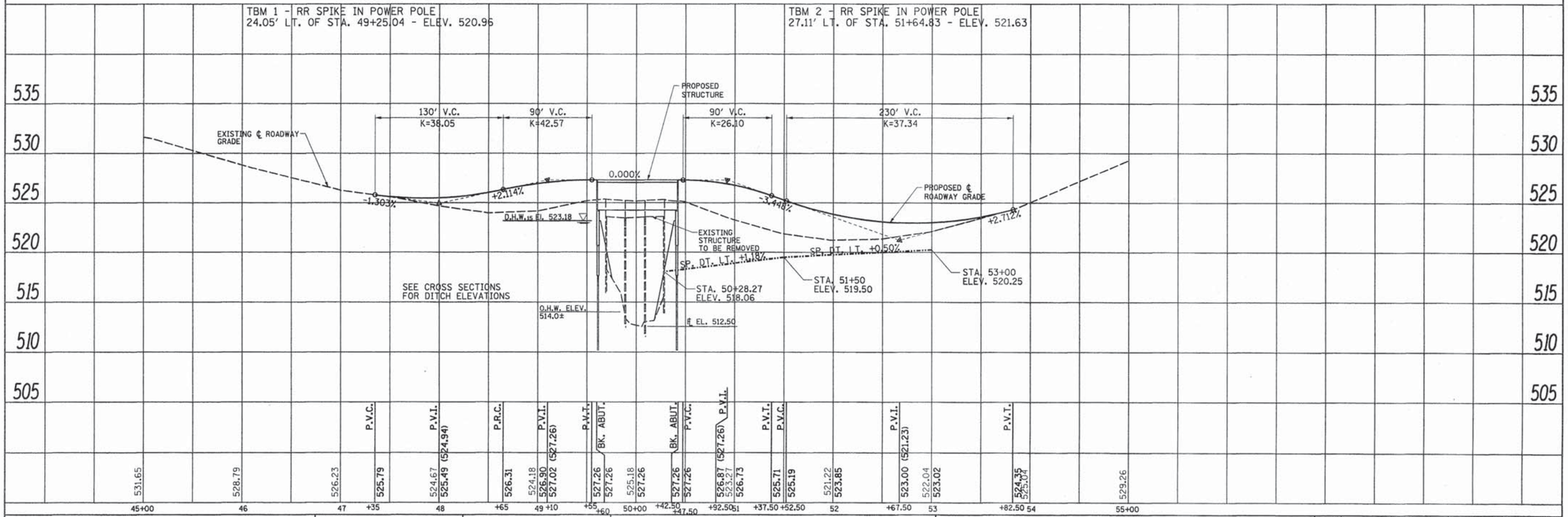
LOCATION	EARTH EXCAVATION CU. YD.	EARTH EXCAVATION ADJUSTED FOR SHRINKAGE* CU. YD.	EMBANKMENT CU. YD.	EARTHWORK BALANCE** WASTE (+) OR SHORTAGE (-) CU. YD.
STA. 47+35 TO STA. 49+60	15	11	792	-781
STA. 50+42.50 TO STA. 53+82.50	52	39	1056	-1017
TOTAL	67	50	1848	-1798

*25% SHRINKAGE **FURNISHED EXCAVATION

TREE REMOVAL, ACRES

LOCATION	ACRE
RT., STA. 48+00 TO RT., STA. 52+00	0.3
TOTAL	0.3

SEE SPECIAL PROVISIONS



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	02/10/2015	REVISED	-

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLAN AND PROFILE OF ROADWAY

STA. 45+00 TO STA. 55+00

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 20	12-00136-00-BR	MARION	11	3
RAAI JOB NO. 51014		CONTRACT NO. 97589		

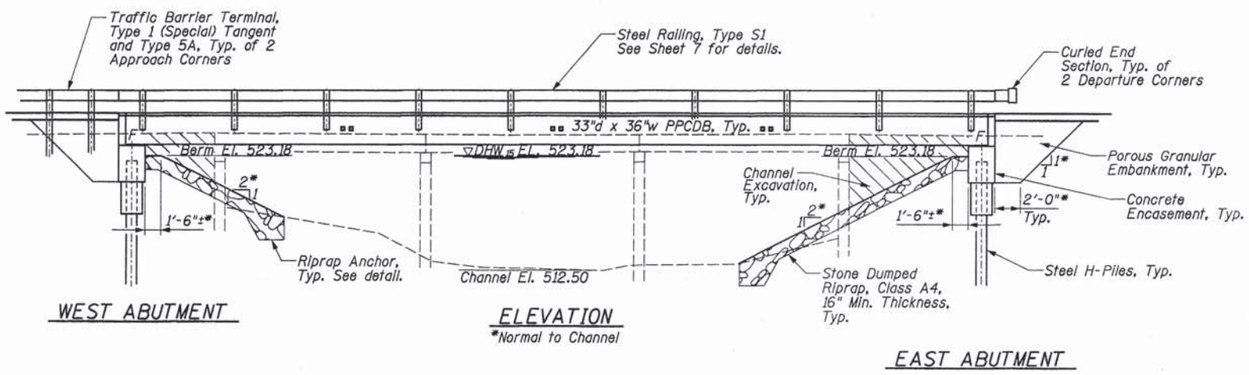
PLAN: DATE, BY, SURVEYED, PLOTTED, ALIGNMENT CHECKED, BEAR. & DIST. CHKD, NOTE BOOK, NO., CADD FILE NAME

PROFILE: DATE, BY, SURVEYED, PLOTTED, GRADES CHECKED, H & V SCALES, NOTE BOOK, NO., STRUCTURE NO(S)/PKG CHKD

TBM #1: RR Spike in power pole
24.05'± Lt. of Sta. 49+25.04 - Elev. 520.96

TBM #2: RR Spike in power pole
27.11'± Lt. of Sta. 51+64.83 - Elev. 521.63

Existing Structure: Structure No.: 061-3036. Three span bridge with concrete channel deck beams on timber abutments and timber pile bent piers. Several piles have been replaced with steel H-piles with partial concrete encasement. 60' L. x 22.7' W. To be removed. See Special Provisions.



WEST ABUTMENT

ELEVATION
*Normal to Channel

EAST ABUTMENT

LOADING HL-93

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

DESIGN SPECIFICATIONS

2012 (6th 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 ($\frac{1}{2}$" ϕ low lax. strands)
f_{pbt} = 201,960 psi ($\frac{1}{2}$" ϕ low lax. strands)
f_y = 60,000 psi (reinforcement)

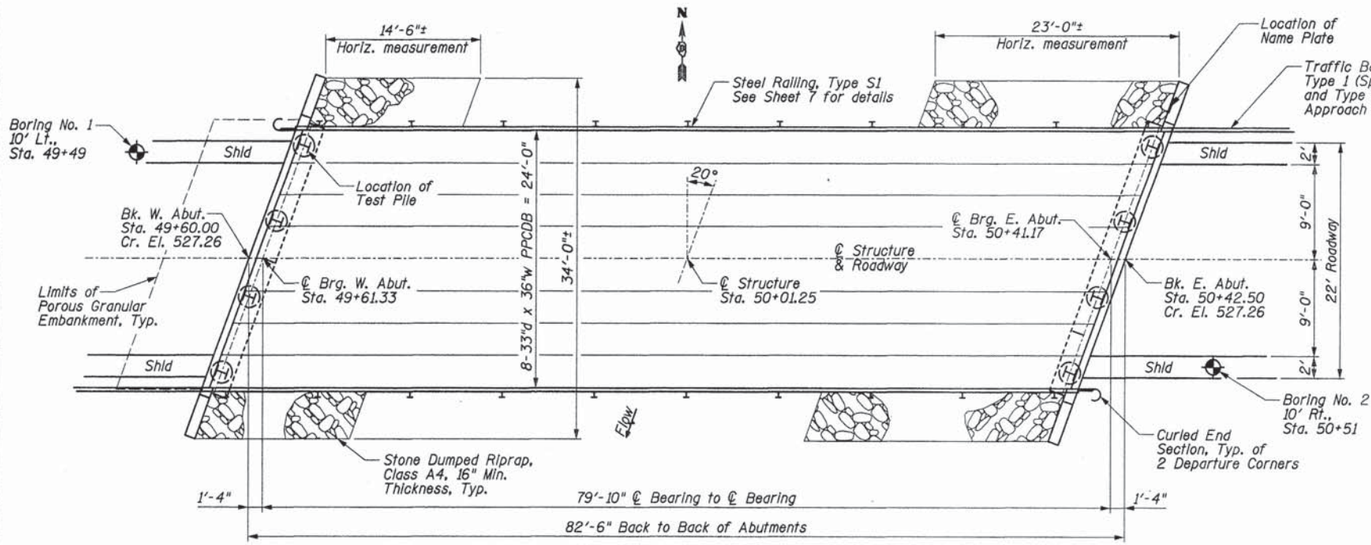
SEISMIC DATA

Seismic Performance Zone (SPZ) = 2
Soil Site Classification = D
S_{D1} = 0.261 S_{DS} = 0.615

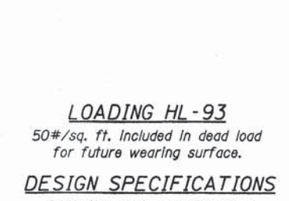
BILL OF MATERIALS (BRIDGE ONLY)

ITEM	UNIT	TOTAL
Channel Excavation	Cu Yd	135
Porous Granular Embankment	Ton	116
Stone Dumped Riprap, Class A4	Ton	135
Removal of Existing Structures	Each	1
Concrete Structures	Cu Yd	25.8
Concrete Encasement	Cu Yd	2.8
PPCDB (33" Depth)	Sq Ft	1946
* Reinforcement Bars	Pound	4190
Steel Railing, Type S1	Foot	165
Furnishing Steel Piles HP12x53	Foot	153
Driving Piles	Foot	153
Test Pile Steel HP12x53	Each	1
Name Plates	Each	1
Terminal Marker - Direct Applied	Each	4

*Includes test sample bars.
See Sheet 2.



PLAN



LOCATION SKETCH

GENERAL NOTES

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

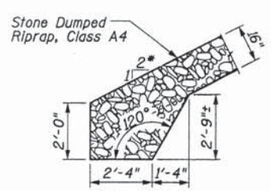
Channel excavation shall be excavated as shown within the limits of the proposed bridge, then tapered to the Right-of-Way line. If the Engineer deems the material satisfactory, it may be used to construct the roadway embankment.

See Section 502 of the Standard Specifications for Structural Excavation.

See Special Provisions 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, $\frac{1}{8}$" 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.

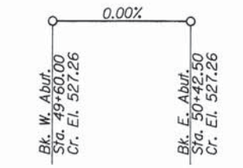


RIPRAP ANCHOR DETAIL

WATERWAY INFORMATION

Drainage Area = 13.75 sq. mi. Existing Low Grade Elev. 521.22 @ Sta. 52+00.00
Proposed Low Grade Elev. 522.97 @ Sta. 52+81.11

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	3000	513	535	523.18	0.36	0.45	523.54	523.63
Base	100	4760	534	614	524.21	0.52	0.95	524.73	525.16
Base	500	6500	534	618	525.03	0.58	0.60	525.61	526.63



GRADE ON STRUCTURE
(along ℄ CH 20)

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
William D. Lueking
02/11/2015
Date of Signing
11/30/2016
Date of License Expiration

WILLIAM D. LUEKING 081-004341 LICENSED STRUCTURAL ENGINEER STATE OF ILLINOIS

DUMS CREEK
BUILT 201_ BY
MARION COUNTY
SEC. 12-00136-00-BR
CH 20 STA. 50+01.25
LOADING HL-93
STRUCTURE NO. 061-3152

NAME PLATE
See Std. 515001

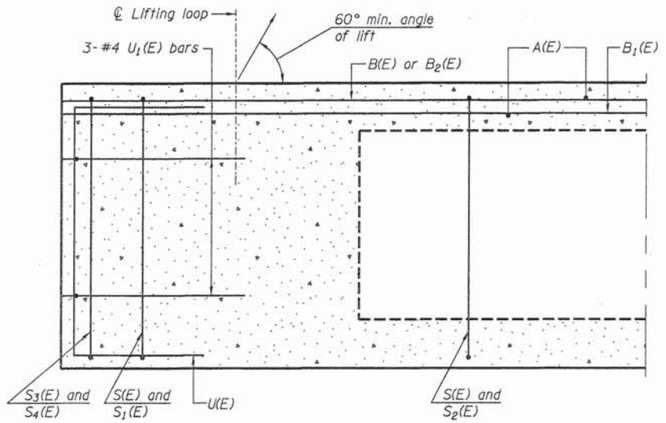
RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED - BLT		REVISED -
DRAWN - JN		REVISED -
CHECKED - WDL		REVISED -
DATE - 02/10/2015		REVISED -

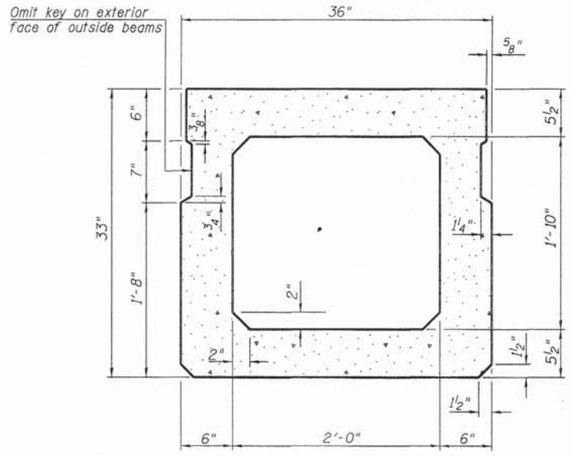
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN AND ELEVATION

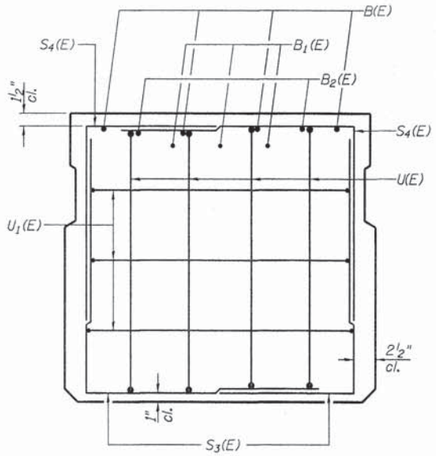
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 20	12-00136-00-BR	MARION	11	4
		CONTRACT NO. 97589		
RAAI JOB NO. 51014				



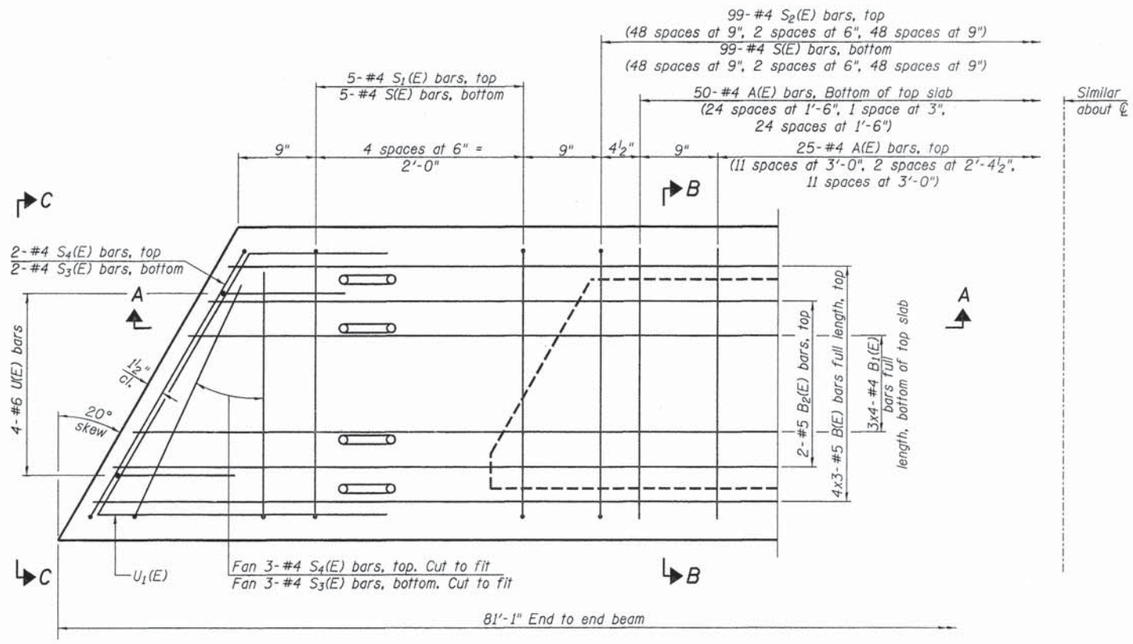
SECTION A-A



SECTION B-B
(Showing dimensions)



VIEW C-C

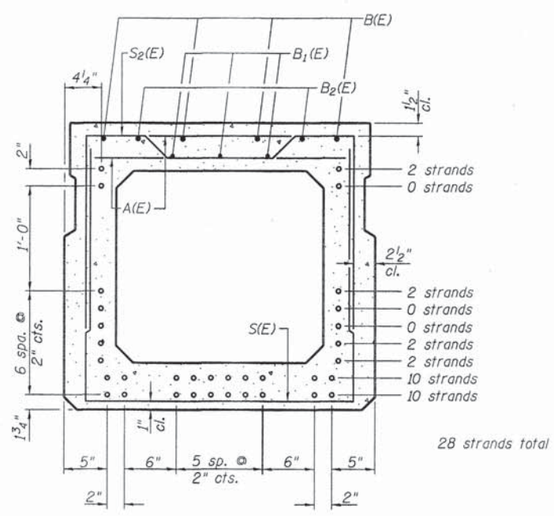


PLAN VIEW

Note: 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"



28 strands total

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

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

BAR LIST
ONE BEAM ONLY
(For information only)

Bar	No.	Size	Length	Shape
A(E)	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)	109	#4	7'-5"	—
$S_1(E)$	10	#4	6'-3"	—
$S_2(E)$	99	#4	6'-6"	—
$S_3(E)$	10	#4	4'-10"	⌐
$S_4(E)$	10	#4	4'-3"	⌐
U(E)	8	#6	5'-0"	⌐
$U_1(E)$	6	#4	6'-1"	⌐

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

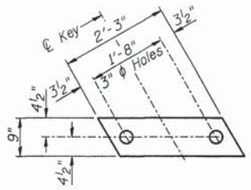
RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED - BLT	REVISED -	
DRAWN - JN	REVISED -	
CHECKED - WDL	REVISED -	
DATE - 02/10/2015	REVISED -	

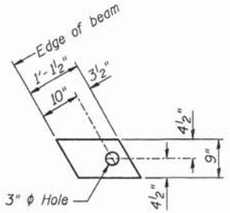
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PRECAST PRESTRESSED CONCRETE DECK BEAM DETAILS

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 20	12-00136-00-BR	MARION	11	5
		CONTRACT NO. 97589		
RAAI JOB NO. 51014				



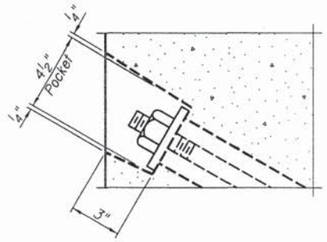
FABRIC BEARING PAD
(Interior)



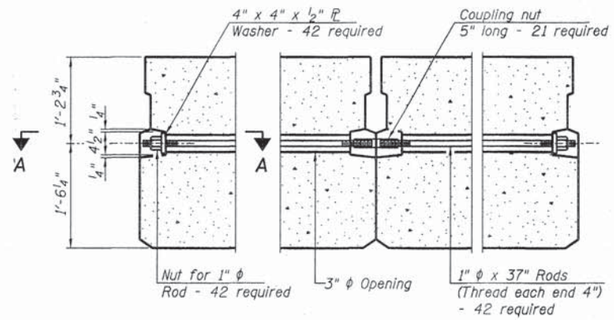
FABRIC BEARING PAD
(Exterior)

FIXED

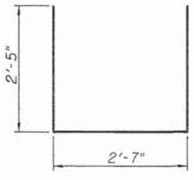
Notes: All bearing pads shall be 1" thick.



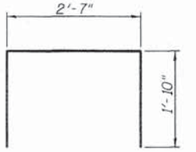
SECTION A-A



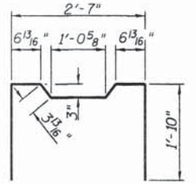
TYPICAL TRANSVERSE TIE ASSEMBLY



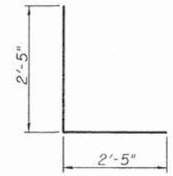
BAR S(E)



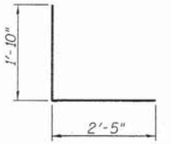
BAR S_1(E)



BAR S_2(E)

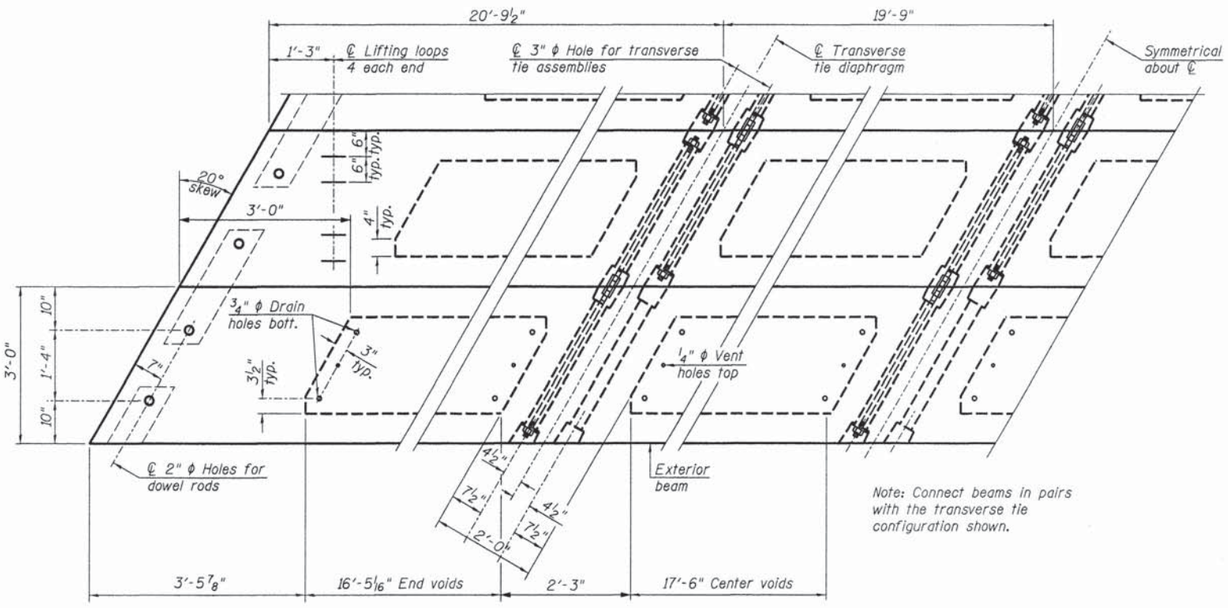


BAR S_3(E)



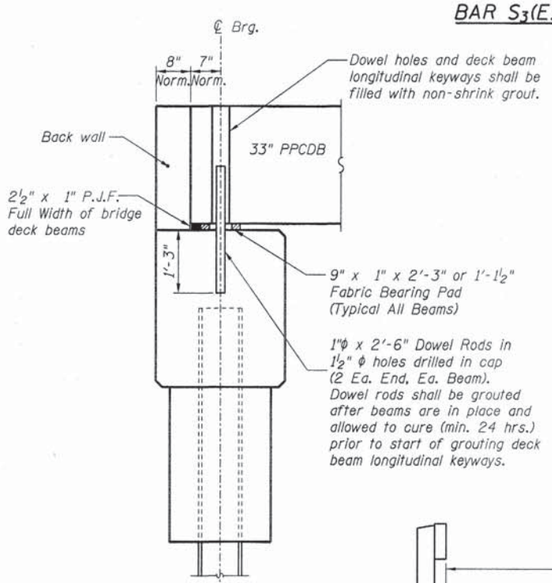
BAR S_4(E)

BAR U(E)

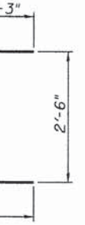


PLAN VIEW

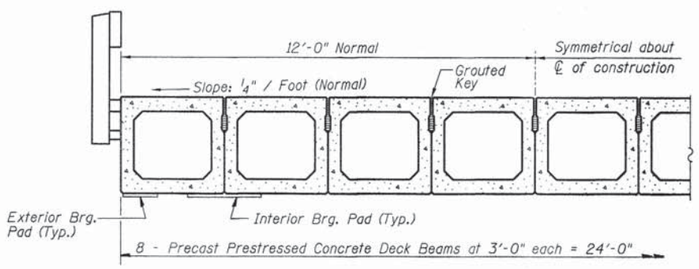
Note: Connect beams in pairs with the transverse tie configuration shown.



FIXED BEARING
ABUTMENT
(Normal to ℄)

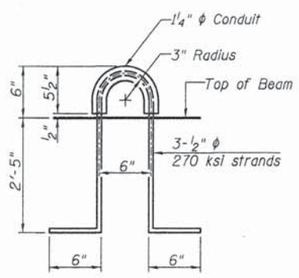


BAR U_1(E)



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 ASTM A 706, Grade 60, Illinois 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.

In addition to the requirements set forth by the IDOT "Manual for Fabrication of Precast Prestressed Concrete Products", Section 3.2.5 "Features Common to Deck Beams with Void Tubes", Paragraph (4) "Air Vents" - after the vent tubes are removed or cut flush with the concrete, the holes immediately shall be filled with epoxy resin, nonshrink grout or other approved material, to a minimum depth of 2", to prevent rain water or water from subsequent curing from entering the void tubes.

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (33" depth)	Sq. Ft.	1946

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DESIGNED - BLT		REVISED -
DRAWN - JN		REVISED -
CHECKED - WDL		REVISED -
DATE - 02/10/2015		REVISED -

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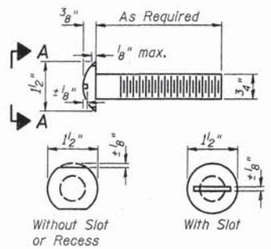
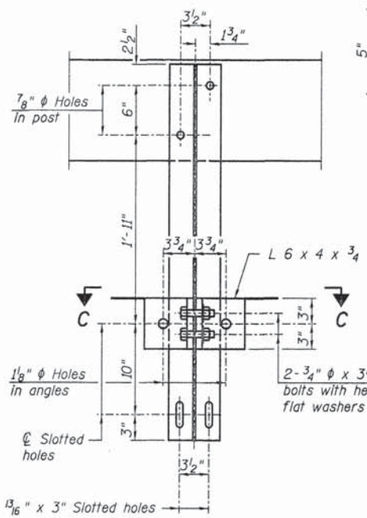
DEPARTMENT OF TRANSPORTATION

PRECAST PRESTRESSED CONCRETE DECK BEAM DETAILS

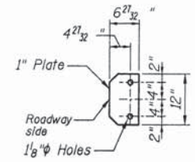
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 20	12-00136-00-BR	MARION	11	6
		CONTRACT NO. 97589		
RAAI JOB NO. 51014				

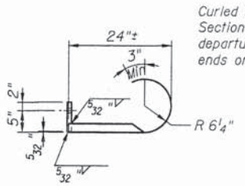


VIEW A-A ROUND HEAD BOLT

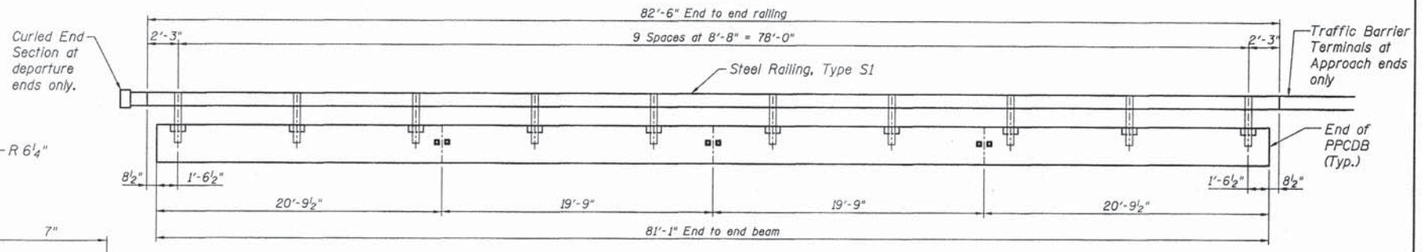


SECTION B-B



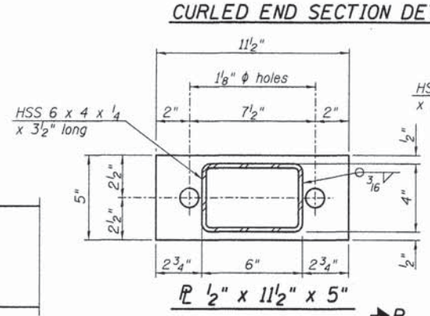


CURLED END SECTION DETAILS

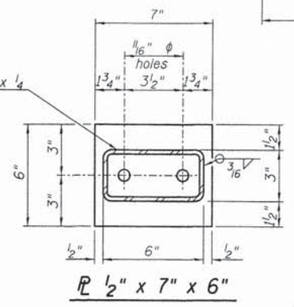


ELEVATION

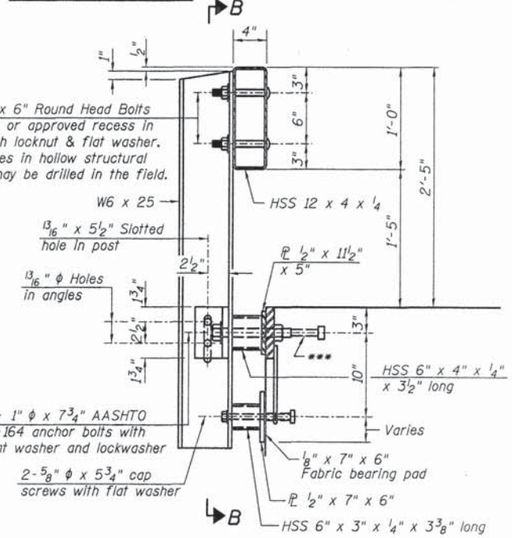
Note: The cost of the Curled End Sections shall be included in the contract unit price per foot for "STEEL RAILING, TYPE S1", and no additional compensation will be allowed.



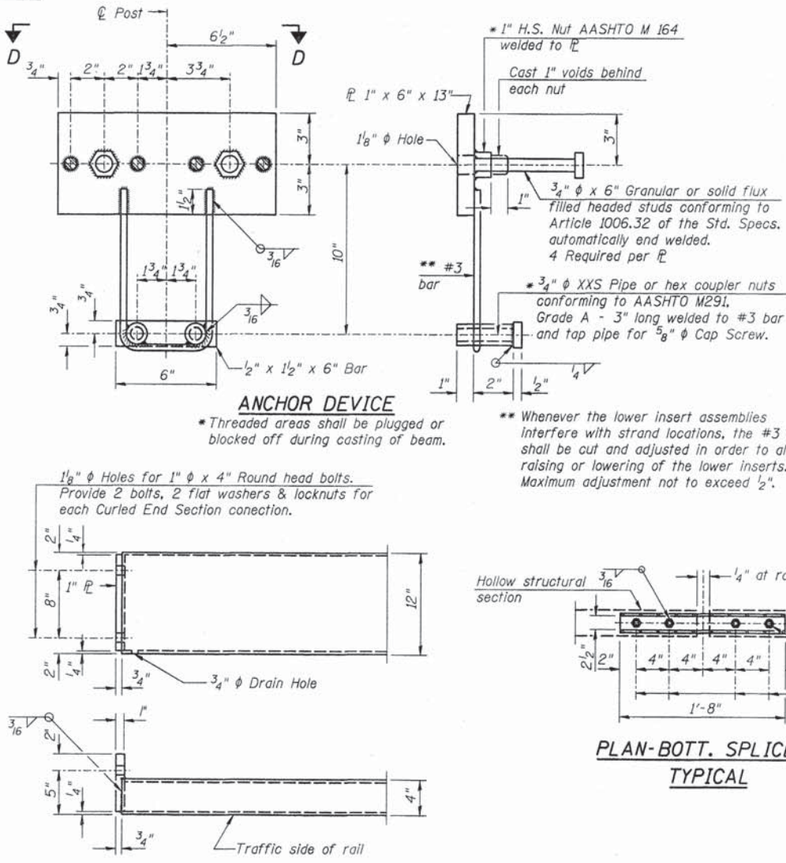
℄ 1/2" x 11 1/2" x 5"



℄ 1/2" x 7" x 6"



SECTION AT RAILING POST



ANCHOR DEVICE

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

** 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 1/2".

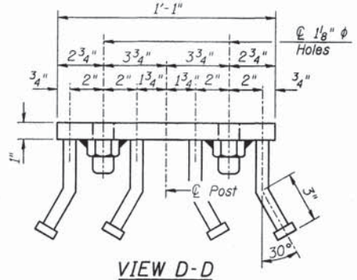
Notes:

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

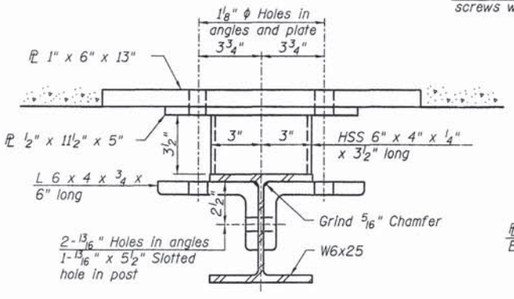
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type S1.

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

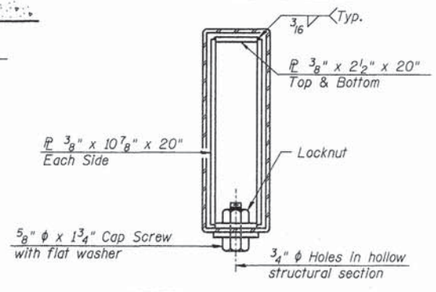
*** The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.



VIEW D-D



SECTION C-C



SECTIONS AT RAIL SPLICE

END OF RAIL DETAILS

PLAN-BOTT. SPLICE ℄ TYPICAL

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S1	Foot	165

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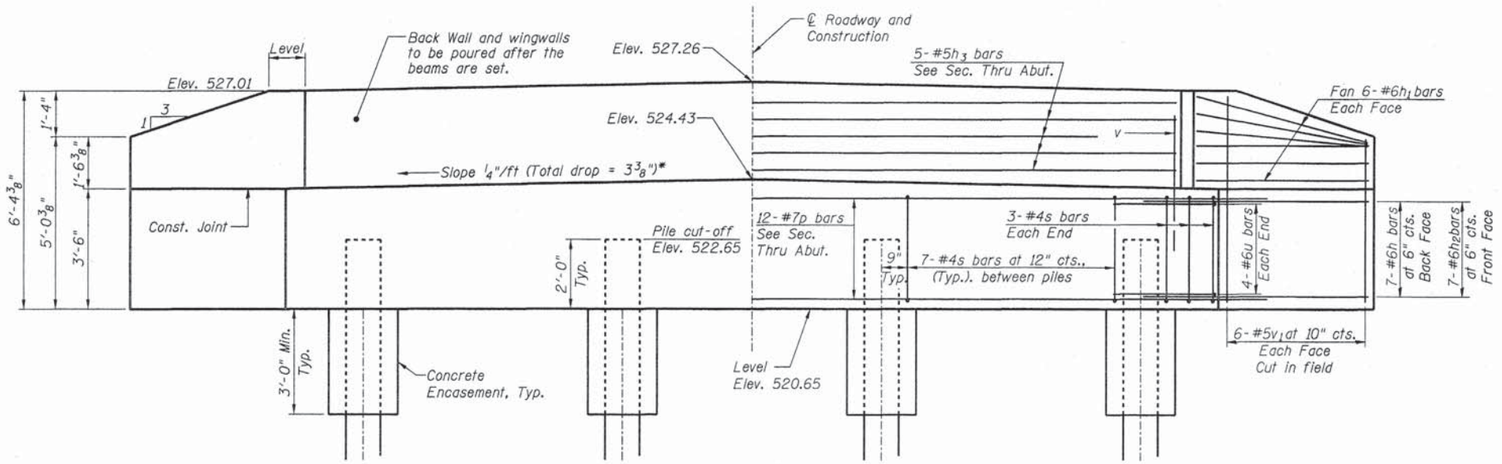
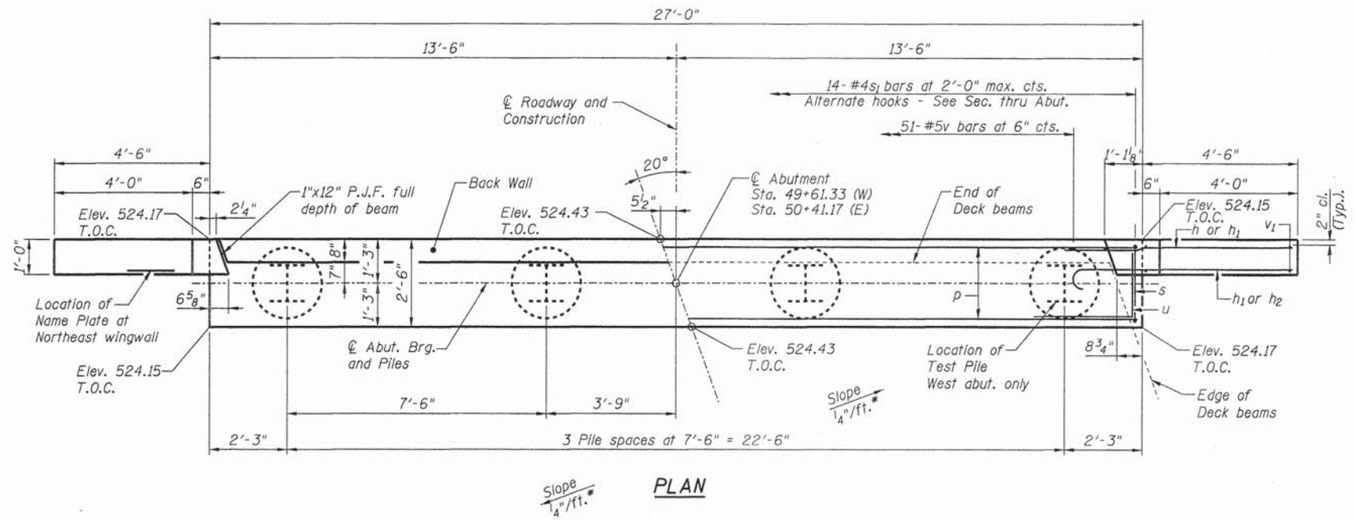
STEEL RAILING, TYPE S1 DETAILS

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 20	12-00136-00-BR	MARION	11	7
		CONTRACT NO. 97589		
RAAI JOB NO. 51014				

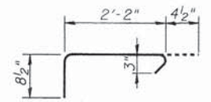


ELEVATION

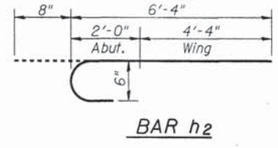
*Normal to ℄ Roadway



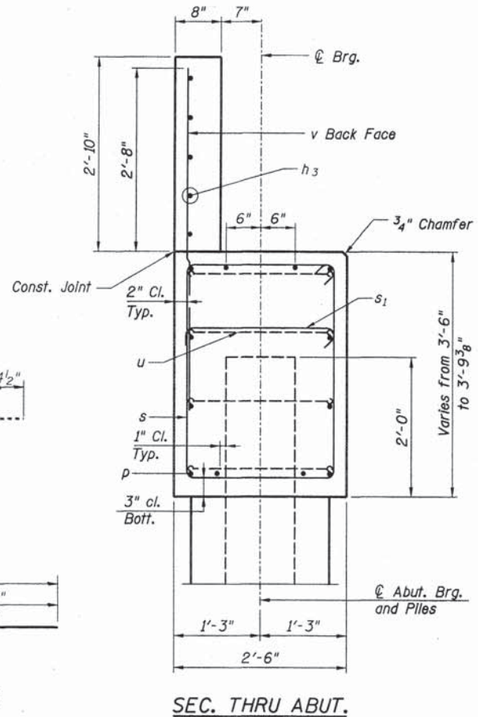
PLAN



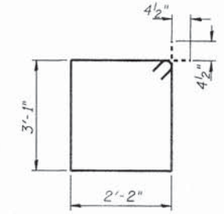
BAR s_1



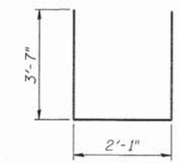
BAR h_2



SEC. THRU ABUT.
(Normal to ℄)



BAR s



BAR u

BILL OF MATERIAL FOR ONE ABUTMENT

Bar	No.	Size	Length	Shape
h	14	#6	8'-0"	
h_1	24	#6	5'-3"	CUT IN FIELD
h_2	14	#6	7'-0"	
h_3	5	#5	25'-3"	
p	12	#7	26'-8"	
s	27	#4	11'-3"	
s_1	14	#4	3'-3"	
u	8	#6	9'-3"	
v	51	#5	4'-9"	
v_1	24	#5	6'-0"	CUT IN FIELD
Concrete Structures			Cu Yd	12.9
Concrete Encasement			Cu Yd	1.4
Reinforcement Bars			Pound	2040
Furnishing Steel Piles, HP12x53	Foot		W. Abut.	69
			E. Abut.	84
Driving Piles	Foot		W. Abut.	69
			E. Abut.	84
Test Pile, Steel HP12x53	Each		W. Abut.	1
			E. Abut.	0

For details of piles and Concrete Encasement, see HP Pile Details sheet.

PILE DATA WEST ABUTMENT

Type:	Steel HP 12x53
Nominal Required Bearing:	418kips
Factored Resistance Available:	230 kips
Estimated Length:	23'/pile
No. Production Piles:	3
No. Test Piles:	1

PILE DATA EAST ABUTMENT

Type:	Steel HP 12x53
Nominal Required Bearing:	418 kips
Factored Resistance Available:	230 kips
Estimated Length:	21'/pile
No. Production Piles:	4
No. Test Piles:	0

GENERAL NOTES

Reinforcement bars shall conform to the requirements of ASTM A 706 Grade 60 (IL Modified).

All exposed edges shall have standard 3/4" chamfer, unless otherwise noted or as directed by the Engineer.

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 Test Pile(s) of the size and location as indicated on the plans and 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.

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CHECKED - WDL		REVISED -
DATE - 02/10/2015		REVISED -

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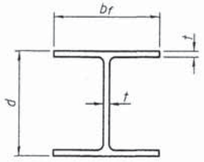
DEPARTMENT OF TRANSPORTATION

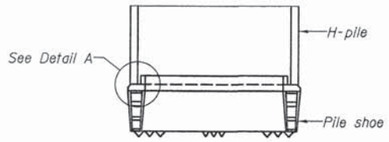
ABUTMENT DETAILS

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 20	12-00136-00-BR	MARION	11	8
		CONTRACT NO. 97589		
RAAI JOB NO. 51014				

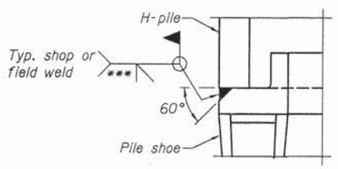


STEEL PILE TABLE

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

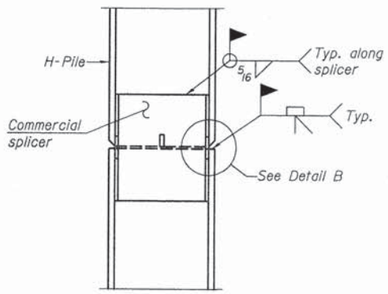


ELEVATION



DETAIL A

H-PILE SHOE ATTACHMENT



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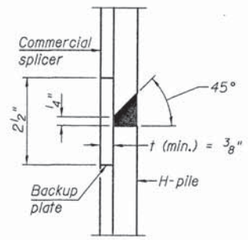
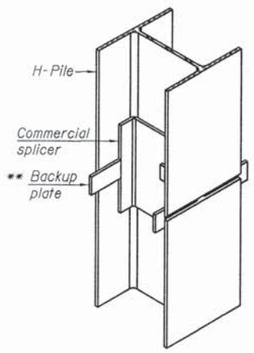
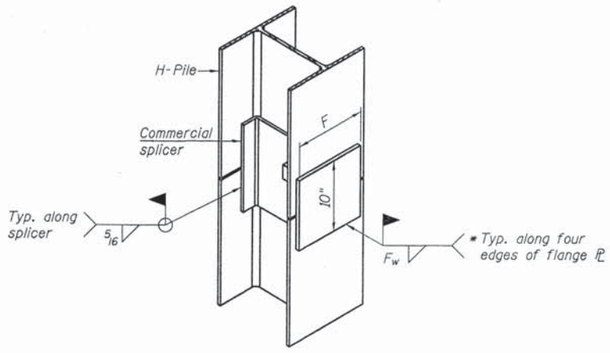


DETAIL "B"



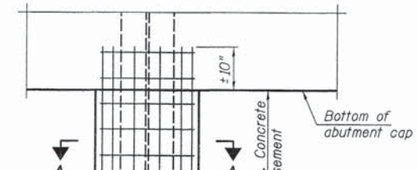
ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE

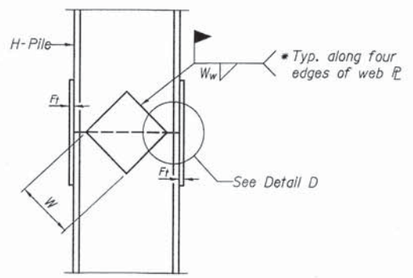


ISOMETRIC VIEW

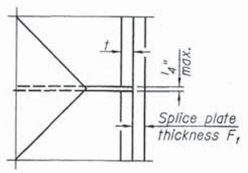
WELDED COMMERCIAL SPLICE ALTERNATE



ELEVATION

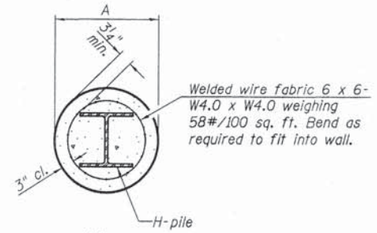


ELEVATION



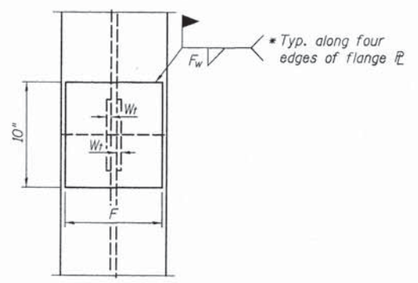
DETAIL D

PILE ENCASEMENT



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

SECTION A-A



END VIEW

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

WELDED PLATE FIELD SPLICE

* Interrupt welds 1/4" from end of web and/or each flange.

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

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

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

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 - 02/10/2015	REVISED -	

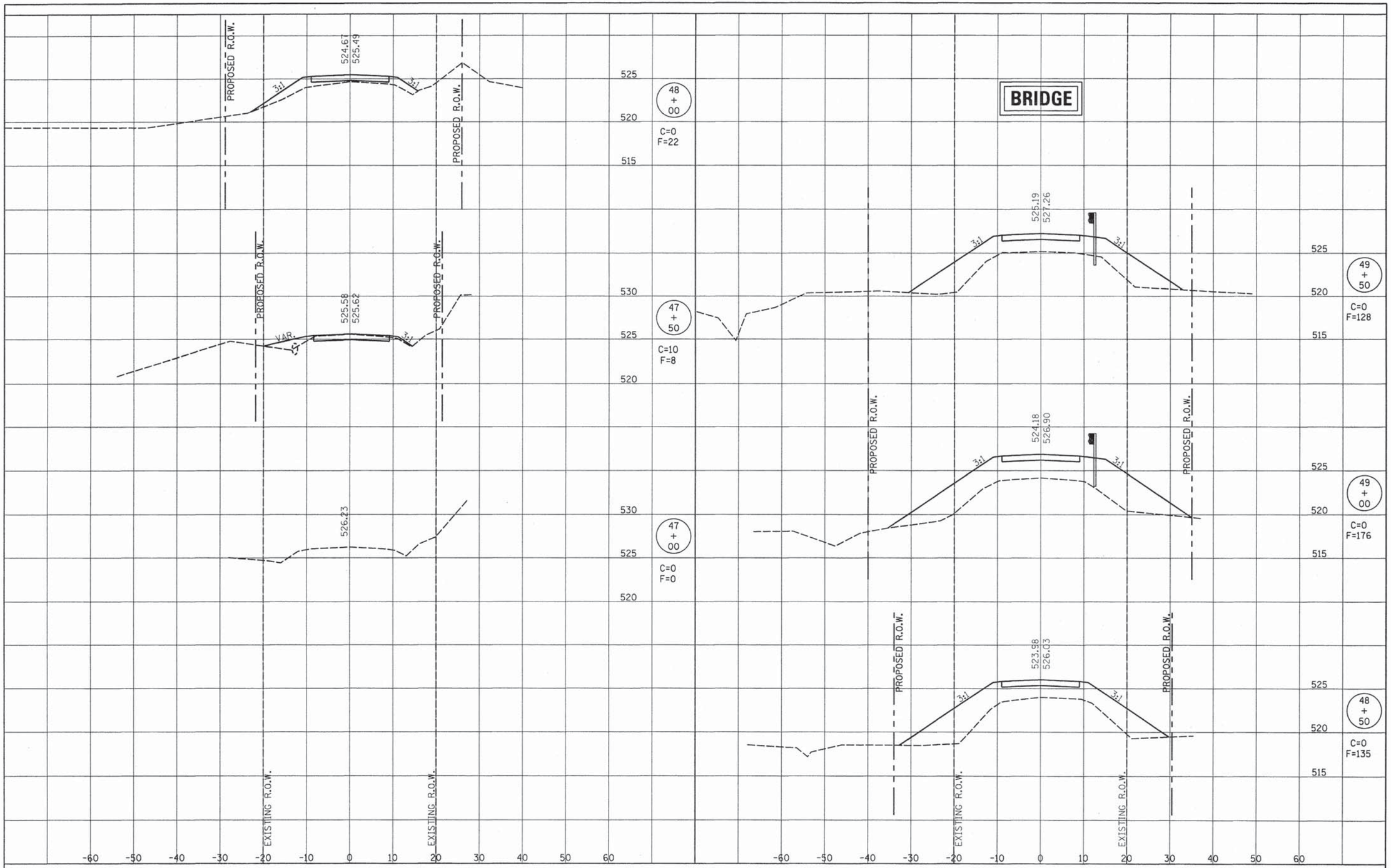
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

HP PILE DETAILS

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 20	12-00136-00-BR	MARION	11	9
		CONTRACT NO. 97589		
RAAI JOB NO. 51014				

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

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



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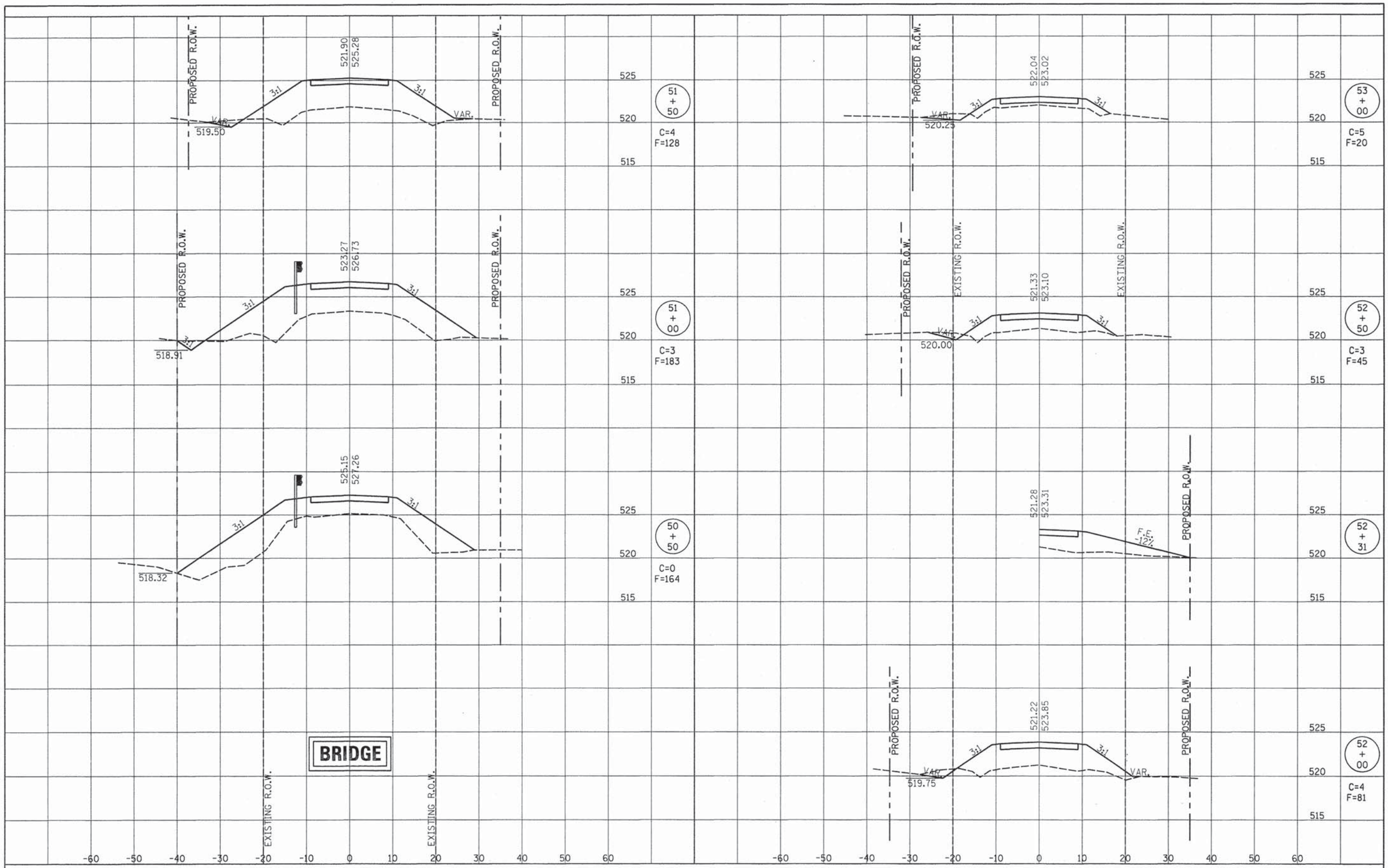
DESIGNED - BLT	REVISED -	
DRAWN - JN	REVISED -	
CHECKED - GLH	REVISED -	
DATE - 02/10/2015	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS OF ROADWAY

STA. 47+00 TO STA. 49+50

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 20	12-00136-00-BR	MARION	11	10
		CONTRACT NO. 97589		
RAAI JOB NO. 51014				



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

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

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ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED	BLT	REVISED -
DRAWN	JN	REVISED -
CHECKED	GLH	REVISED -
DATE	02/10/2015	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS OF ROADWAY

STA. 50+50 TO STA. 53+00

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 20	12-00136-00-BR	MARION	11	11
		CONTRACT NO. 97589		
RAAI JOB NO. 51014				