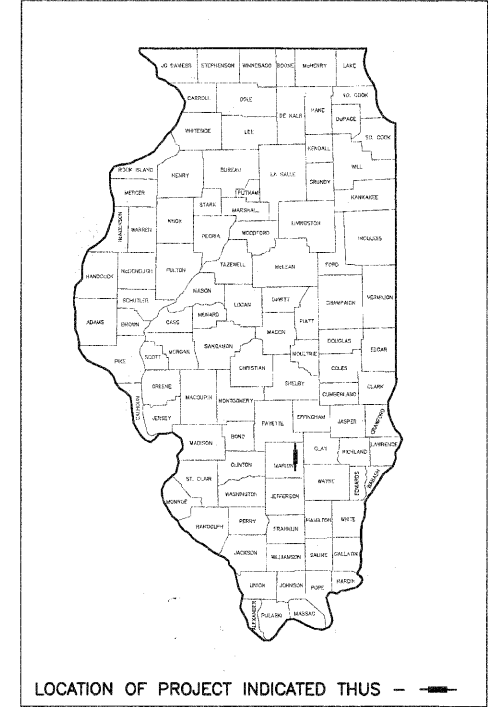


STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS PLANS FOR PROPOSED HIGHWAY BRIDGE PROGRAM

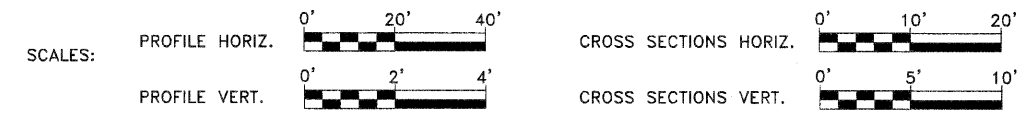
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T.R. 442	04-06116-00-BR	MARION	13	1
FEDERAL AID PROJECT		ILLINOIS PROJECT		

CONTRACT NO. 97451



INDEX OF SHEETS

1	COVER SHEET
2	TYPICAL CROSS SECTION, GENERAL NOTES, AND SUMMARY OF QUANTITIES
3	PLAN AND PROFILE
4-12	BRIDGE PLANS
13	CROSS SECTIONS



SECTION 04-06116-00-BR PROJECT NO. BROS-0121 (054) IUKA ROAD DISTRICT MARION COUNTY JOB NO. C-98-321-10 TR 442

STANDARDS

STANDARD 000001-06	STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
STANDARD 631026-05	TRAFFIC BARRIER TERMINAL, TYPE 5
STANDARD 635006-03	REFLECTOR AND TERMINAL MARKER PLACEMENT
STANDARD 701901-01	TRAFFIC CONTROL DEVICES
STANDARD B.L.R. 21-8	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

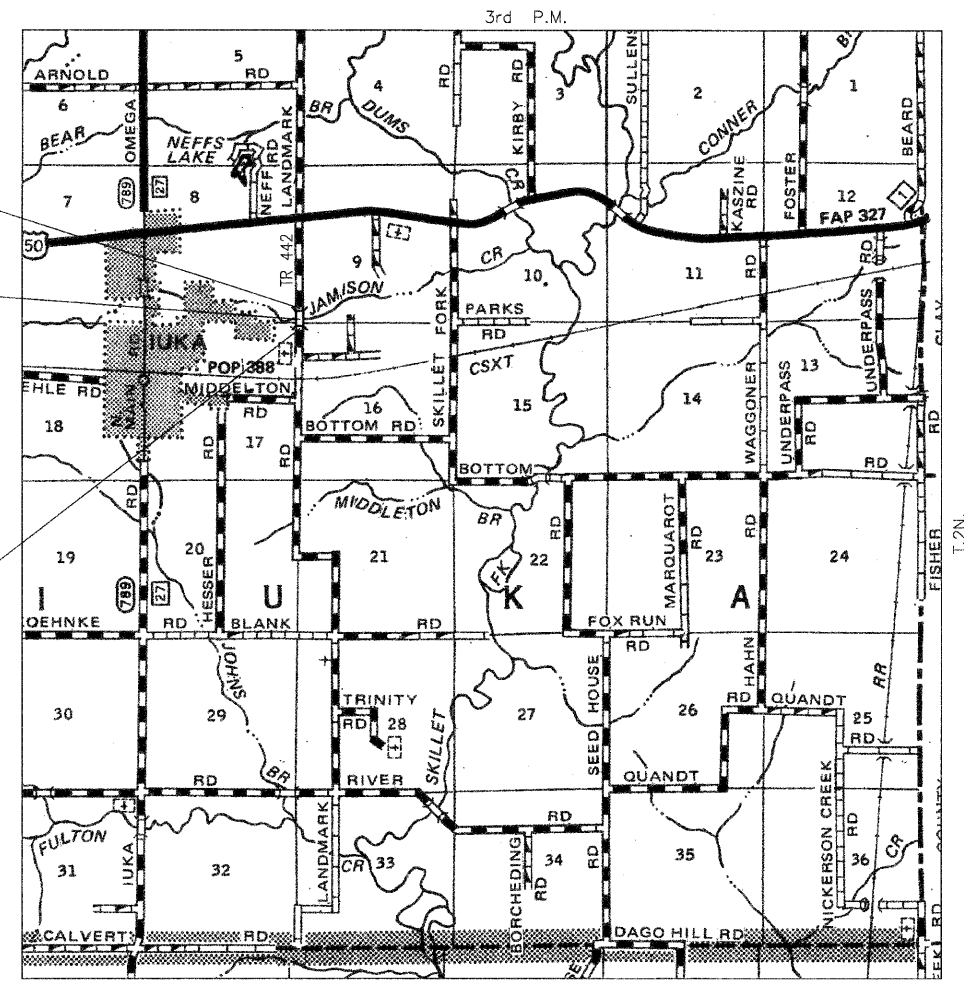
UTILITIES

AT&T/DISTRIBUTION (630)573-5450
BP OIL PIPELINE COMPANY ATTN: TERRY G. BARKER (765)342-7444
COUNTRYMARK COOPERATIVE, LLP ATTN: MICKEY SMITH (812)838-8111
NORTHEAST MARION COUNTY WATER ATTN: WALLY COX (618)533-6525
RACCOON WATER CO. ATTN: JASON GREEN (618)533-3474
TRI-COUNTY ELECT. CO-OP. ATTN: DENNIS IVERS (618)244-5151
ATMOS ENERGY ATTN: MORGAN KIRKLAND (270)685-8048

END SECTION 04-06116-00-BR
STA. 51+36.79

STA. 50+00 - CONSTRUCT SINGLE SPAN PRECAST
PRESTRESSED CONCRETE DECK BEAM BRIDGE
(63.58' BK. TO BK. ABUTMENTS) WITH
SPILL-THRU PILE BENT ABUTMENTS
15' SKEW, 24' ROADWAY
EXISTING STRUCTURE NO. 061-3195
PROPOSED STRUCTURE NO. 061-3312

BEGIN SECTION 04-06116-00-BR
STA. 48+73.21



R.4E.
LOCATION MAP
APPROXIMATE SCALE - 1" = 0.59 MILE
LENGTH OF IMPROVEMENTS - 263.58 FEET = 0.050 MILE

APPROVED October 29, 2010
Robert W. Stovall
IUKA ROAD DISTRICT COMMISSIONER

MARION COUNTY
HIGHWAY DEPARTMENT

APPROVED October 29, 2010
James C. Cunningham
MARION COUNTY ENGINEER

PASSED November 5, 2010
Mark
DISTRICT EIGHT ENGINEER OF
LOCAL ROADS & STREETS

Releasing For
Bid Based on
Limited Review November 5, 2010
Mary C. Parnis
DEPUTY DIRECTOR OF HIGHWAYS,
REGION FIVE ENGINEER

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PRINTED BY AUTHORITY OF THE STATE OF ILLINOIS



48 HOURS PRIOR TO EXCAVATION CALL J.U.L.I.E.:
811 OR 1-800-892-0123

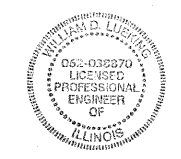
RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS



CLASS ROAD: LOCAL ROAD
A.D.T. = 175
3R

PREPARED FOR:
AECOM

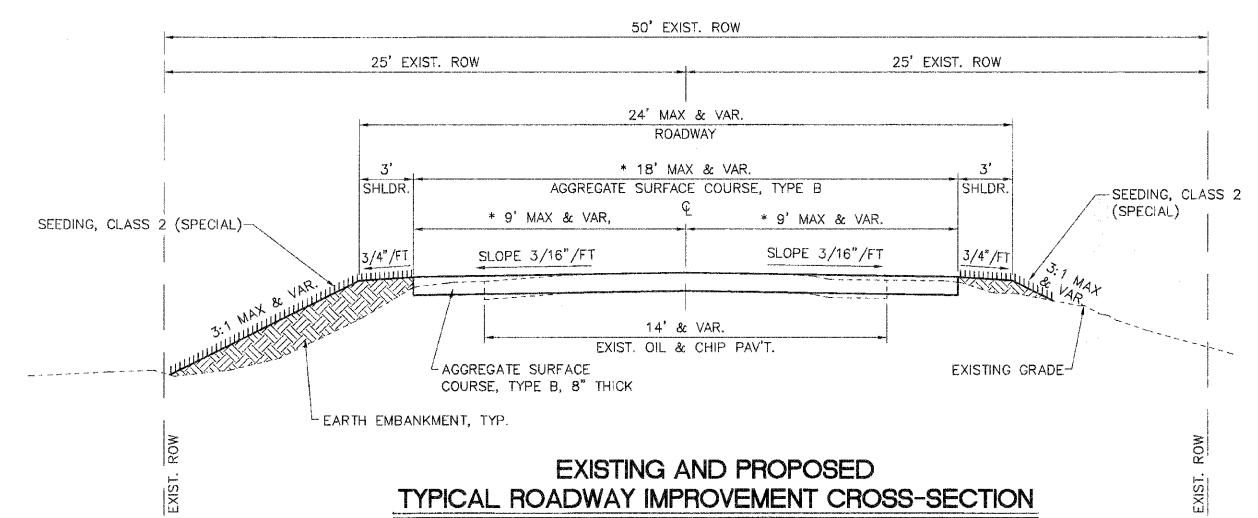
DATE: OCTOBER 27, 2010
RHUTASEL JOB NO. 50810



William D. Fickling
Oct 28, 2010
Co. Exp. 11/22/2011

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 442	04-06116-00-BR	MARION	13	2
FEDERAL AID PROJECT		ILLINOIS	PROJECT	

CONTRACT NO. 97451



**EXISTING AND PROPOSED
TYPICAL ROADWAY IMPROVEMENT CROSS-SECTION**

STA. 48+73.21 TO STA. 51+36.79

- * TRANSITION FROM 14' EXISTING TO 18' PROPOSED PAVEMENT
STA. 48+73.21 TO STA. 49+63.21
- * TRANSITION FROM 18' PROPOSED TO 14' EXISTING PAVEMENT
STA. 50+36.79 TO STA. 51+36.79

EXTRA BARS FOR TEST SAMPLES

BAR	NO.	SIZE	LENGTH	SHAPE
s	1	#4	9'-5"	□
u	1	#6	11'-1"	▭
p	1	#7	26'-5"	—

THESE BARS SHALL BE IDENTICAL TO AND DELIVERED WITH THE BARS OF THE SAME MARK LISTED ON THE BRIDGE SHEETS. ONE BAR OF EACH OF THESE MARKS 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 COST TO FURNISH THESE EXTRA BARS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE PER POUND FOR REINFORCEMENT BARS AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

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, 2007.
2. THE SHRINKAGE FACTOR FOR EMBANKMENT IS 25%.
3. BITUMINOUS SURFACE TREATMENT (A-2) WILL BE COMPLETED BY THE OWNER.
4. NO COMMITMENTS AS OF OCTOBER 31, 2010
5. 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.

SUMMARY OF QUANTITIES

CODE NO.	ITEM	QUANTITY	UNIT
20100110	TREE REMOVAL (6 TO 15 UNITS DIAMETER)	36	UNITS
20200100	EARTH EXCAVATION	70	CU. YD.
20300100	CHANNEL EXCAVATION	306	CU. YD.
28100809	STONE DUMPED RIPRAP, CLASS A5	250	TON
40200800	AGGREGATE SURFACE COURSE, TYPE B	149	TON
50100100	REMOVAL OF EXISTING STRUCTURES	1	EACH
50300225	CONCRETE STRUCTURES	19.4	CU. YD.
50300280	CONCRETE ENCASEMENT	2.1	CU. YD.
50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	1488	SQ. FT.
50800105	REINFORCEMENT BARS	2440	POUND
* 50900205	STEEL RAILING, TYPE S1	124	FOOT
51201400	FURNISHING STEEL PILES HP 10x42	167	FOOT
51202305	DRIVING PILES	167	FOOT
51203400	TEST PILE STEEL HP 10x42	1	EACH
51500100	NAME PLATES	1	EACH
67100100	MOBILIZATION	1	L. SUM
* 78201000	TERMINAL MARKER - DIRECT APPLIED	4	EACH
X25010000	SEEDING, CLASS 2 (SPECIAL)	0.1	ACRE

* SPECIALTY ITEM

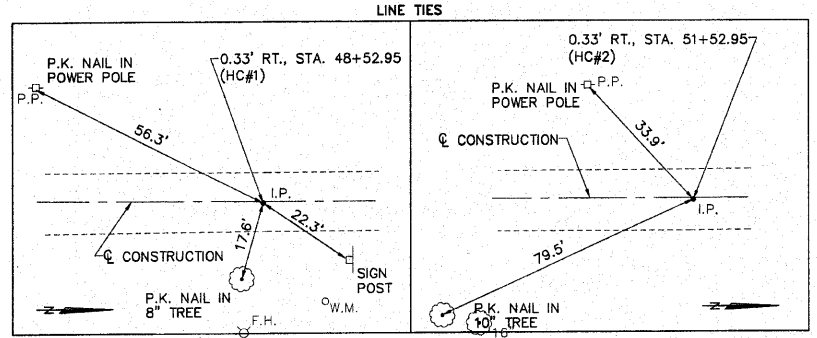
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T.R. 442	04-06116-00-BR	MARION	13	3

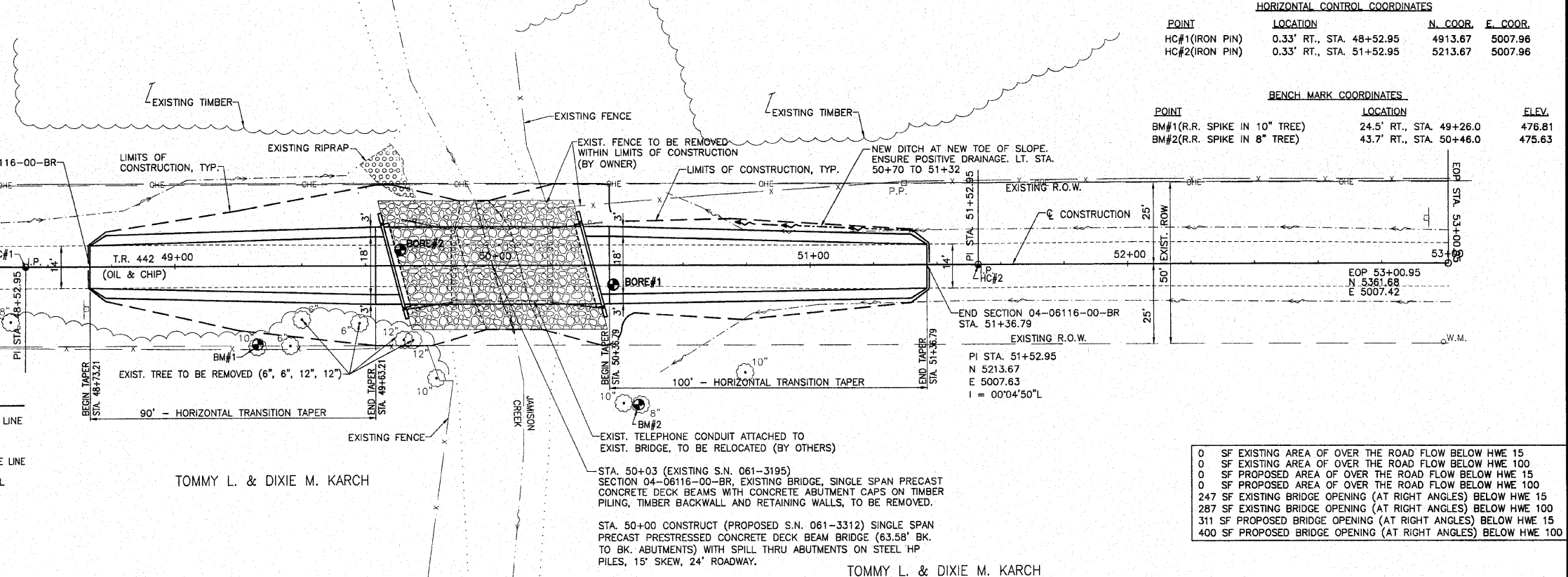
FEDERAL AID PROJECT	ILLINOIS PROJECT
	CONTRACT NO. 97451

HORIZONTAL CONTROL COORDINATES			
POINT	LOCATION	N. COOR.	E. COOR.
HC#1 (IRON PIN)	0.33' RT., STA. 48+52.95	4913.67	5007.96
HC#2 (IRON PIN)	0.33' RT., STA. 51+52.95	5213.67	5007.96

BENCH MARK COORDINATES		
POINT	LOCATION	ELEV.
BM#1 (R.R. SPIKE IN 10" TREE)	24.5' RT., STA. 49+26.0	476.81
BM#2 (R.R. SPIKE IN 8" TREE)	43.7' RT., STA. 50+46.0	475.63



KATHRYN JERVAN ESTATE



LEGEND

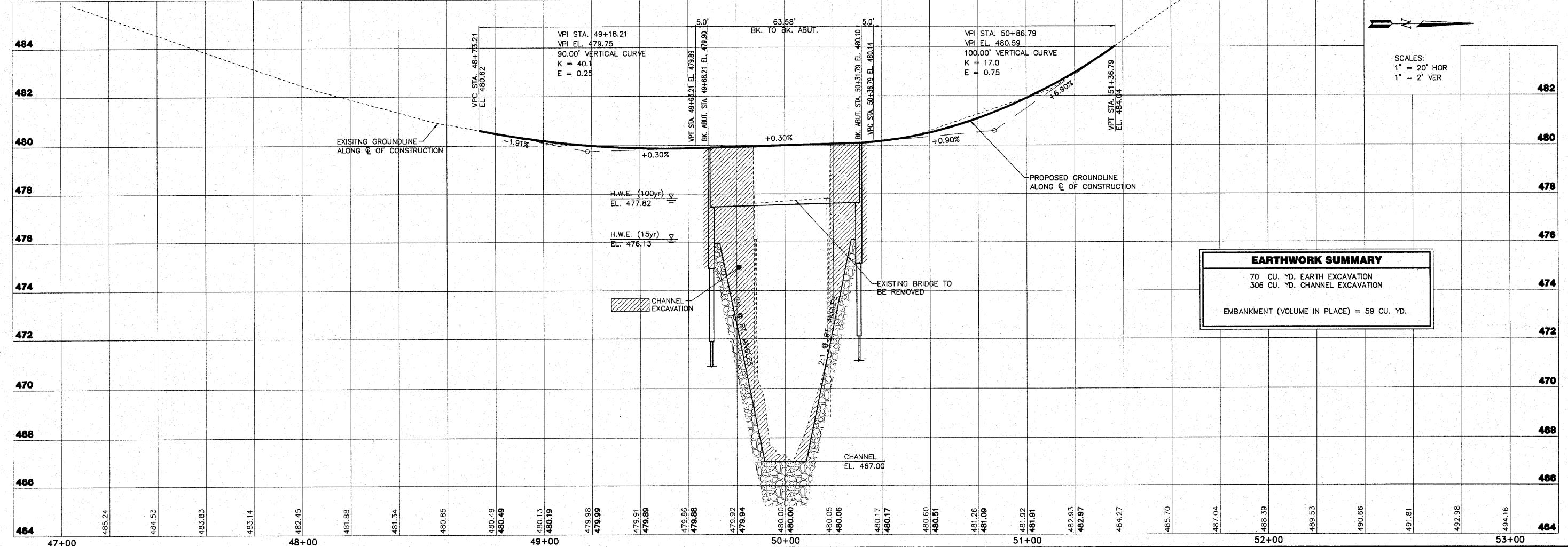
	EXISTING TREE		EXISTING OVERHEAD ELECTRIC LINE
	EXISTING TREE LINE		EXISTING POWER POLE
	EXISTING SIGN		EXISTING UNDERGROUND TELEPHONE LINE
	EXISTING IRON PIN		EXISTING TELEPHONE PEDESTAL
	EXISTING BENCH MARK		EXISTING WATER METER
	EXISTING SURFACE DRAINAGE		EXISTING FIRE HYDRANT
	EXISTING STREAM		EXISTING RIGHT-OF-WAY
	EXISTING FENCE		PROPOSED STONE DUMPED RIPRAP, CLASS A5

0 SF EXISTING AREA OF OVER THE ROAD FLOW BELOW HWE 15
0 SF EXISTING AREA OF OVER THE ROAD FLOW BELOW HWE 100
0 SF PROPOSED AREA OF OVER THE ROAD FLOW BELOW HWE 15
0 SF PROPOSED AREA OF OVER THE ROAD FLOW BELOW HWE 100
247 SF EXISTING BRIDGE OPENING (AT RIGHT ANGLES) BELOW HWE 15
287 SF EXISTING BRIDGE OPENING (AT RIGHT ANGLES) BELOW HWE 100
311 SF PROPOSED BRIDGE OPENING (AT RIGHT ANGLES) BELOW HWE 15
400 SF PROPOSED BRIDGE OPENING (AT RIGHT ANGLES) BELOW HWE 100

STA. 50+03 (EXISTING S.N. 061-3195)
SECTION 04-06116-00-BR, EXISTING BRIDGE, SINGLE SPAN PRECAST CONCRETE DECK BEAMS WITH CONCRETE ABUTMENT CAPS ON TIMBER PILING, TIMBER BACKWALL AND RETAINING WALLS, TO BE REMOVED.

STA. 50+00 CONSTRUCT (PROPOSED S.N. 061-3312) SINGLE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE (63.58' BK. TO BK. ABUTMENTS) WITH SPILL THRU ABUTMENTS ON STEEL HP PILES, 15' SKEW, 24' ROADWAY.

TOMMY L. & DIXIE M. KARCH



EARTHWORK SUMMARY

70 CU. YD. EARTH EXCAVATION
306 CU. YD. CHANNEL EXCAVATION
EMBANKMENT (VOLUME IN PLACE) = 59 CU. YD.

SCALES:
1" = 20' HOR
1" = 2' VER

B.M. - B.M. #1, R.R. Spike in 10" Tree, 24.5' RT., STA. 49+26.0, EL. 476.81
 B.M. #2, R.R. Spike in 8" Tree, 43.7' RT., STA. 50+46.0, EL. 475.63

Existing Structure - Single span precast concrete deck beams, steel railing, with concrete abutment caps, on timber piling, with timber backwall and timber retaining walls.

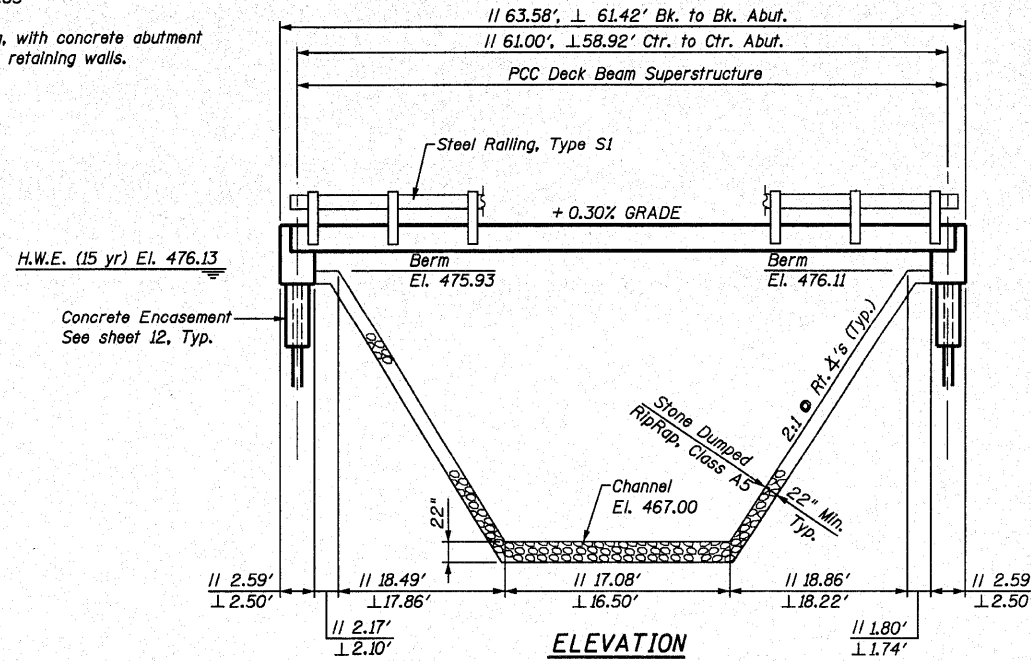
Salvage - Bridge Railing and posts.

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 442	04-06116-00-BR	MARION	13	4
FEDERAL AID PROJECT		ILLINOIS	PROJECT	

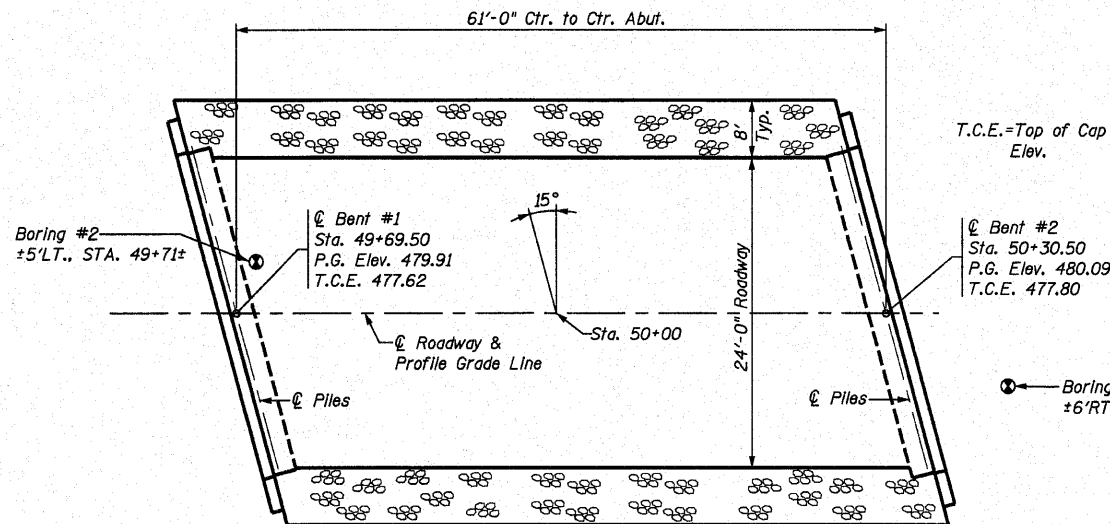
CONTRACT NO. 97451

GENERAL NOTES

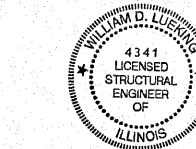
- The contractor shall drive 1 test pile, as specified, in a permanent location as directed by the Engineer before ordering the remaining piles.
- See Special Provisions for boring logs.
- Corrosion Inhibitor, per Article 1020.05(b)(12) and 1021.06 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.



Note:
 // Dimensions are parallel to roadway
 ⊥ Dimensions are perpendicular to channel



T.C.E. = Top of Cap Elev.



Date: 10-28-2010

Date of License Expiration: 11-30-2010

Signature: William D. Lueking

I certify that to the best of my knowledge, information and belief, this bridge/box culvert 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.

DESIGN SPECIFICATIONS
 2007 AASHTO LRFD Bridge Design Specifications with 2008 Interims

LOADING HL-93

Allow 50# / Sq. Ft. for Future Wearing Surface.

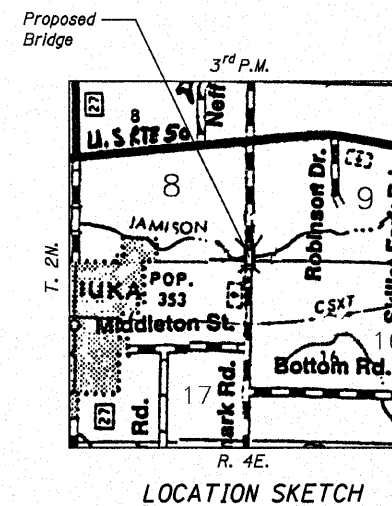
SEISMIC DATA

Seismic Performance Zone (SPZ) = 2
 Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 26.5
 Design Spectral Acceleration at 0.2 sec. (S_{D5}) = 63
 Soil Site Class = D

STATION 50+00
 JAMISON CREEK
 SEC. 04-06116-00-BR BUILT 201
 PROJECT NO. BROS-0121 (054)
 MARION COUNTY
 LOADING HL93
 STRUCTURE NO. 061-3312

LETTERING FOR NAME PLATE

Locate Name Plate at Northeast Corner of Bridge (See sheet 12)



INDEX OF SHEETS

- GENERAL PLAN AND ELEVATION
- P.C.C. DECK BEAM SUPERSTRUCTURE
- 36" P.C.C. DECK BEAM DETAILS AND SECTIONS
- 36" P.C.C. DECK BEAM DETAILS AND SECTIONS
- 48" P.C.C. DECK BEAM DETAILS AND SECTIONS
- 48" P.C.C. DECK BEAM DETAILS AND SECTIONS
- P.C.C. DECK BEAM PILE BENT ABUTMENT
- STEEL RAILING, TYPE S1
- NAME PLATE & PILE ENCASEMENT DETAILS

PILE DATA (2-ABUTS.)

Pile Type and Size: Steel Piles, HP10x42
 Nominal Required Bearing: 297 kips
 Allowable Resistance Available: 99 kips
 Estimated Pile Length: 25 Feet Bent #1, 23 Feet Bent #2
 Number of Production Piles: 7
 Number of Test Piles: 1 (located in Bent #1)

WATERWAY INFORMATION

Drainage Area = 3.7 Sq. Mi.		Low Grade Elev. 479.84 @ Sta. 49+54				
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.	Nat. H.W.E. Ft.	Head - Ft.	Headwater Elev. - Ft.
			Exlst. Prop.	Exlst. Prop.	Exlst. Prop.	Exlst. Prop.
Design	15	1313	247 311	476.13	0.20 0.12	476.33 476.25
Base	100	2269	287 400	477.82	0.46 0.23	478.28 478.05
Overtopping						
Max. Calc.	500	3119	303 412	478.94	1.02 0.56	479.96 479.50

RHUTASEL AND ASSOCIATES, INC.
 CONSULTING ENGINEERS & LAND SURVEYORS
 CENTRALIA, ILLINOIS FREEBURG, ILLINOIS

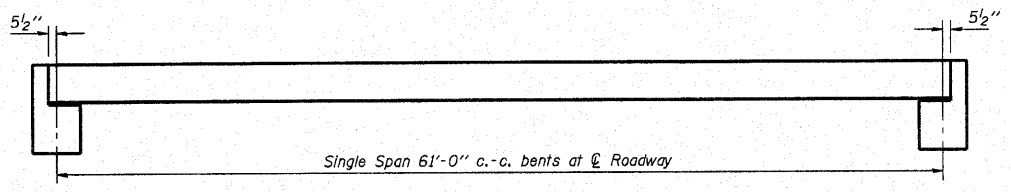
PREPARED FOR:
 AECOM
 200705485

Date: 10/27/2010
 Design: WDL
 Drawn: BLT
 Job No.: 50810

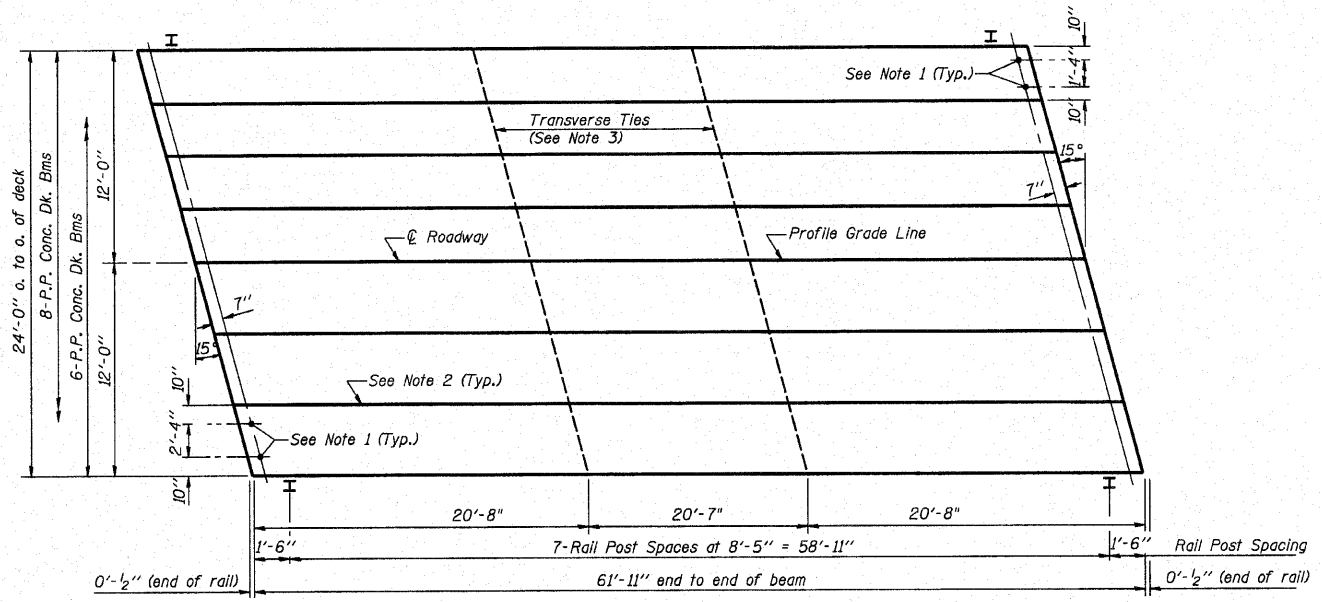
GENERAL PLAN AND ELEVATION
 TR 442
 OVER JAMISON CREEK
 SECTION 04-06116-00-BR
 MARION COUNTY
 STATION 50+00

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 442	04-0616-00-BR	MARION	13	5
FEDERAL AID PROJECT		ILLINOIS PROJECT		

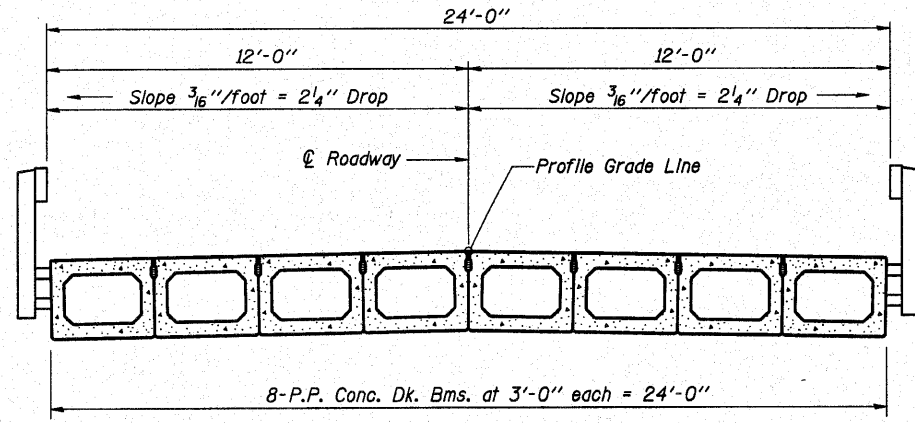
CONTRACT NO. 97451



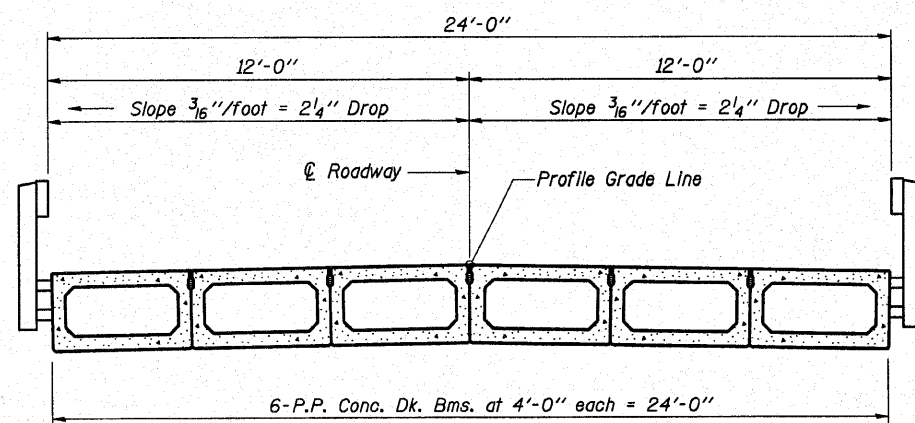
TYPICAL ELEVATION



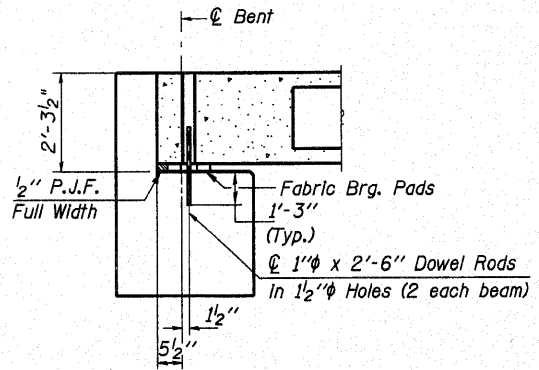
PLAN



CROSS SECTION



CROSS SECTION



SECTION AT ABUTS.
(Along Centerline Beams)

**BILL OF MATERIAL
QUANTITIES FOR ONE SPAN**

P.P. Conc. Dk. Bm. 27" Dp.	1488 Sq. Ft.
Steel Railing	124 Ft.

NOTES

1. After beams have been erected, holes shall be drilled into substructure and anchor dowels placed. Dowel holes shall be filled with non-shrink grout to top of beam and allowed to cure min. 24 hrs. prior to grouting the shear keys.
2. Longitudinal keys shall be grouted.
3. The 1" ϕ rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets that receive transverse tie bar outside shall be filled with grout after transverse tie assembly is in place. See sht. 7 and 9 for additional information.

RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS & LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS

PREPARED FOR:
AECOM
200705485

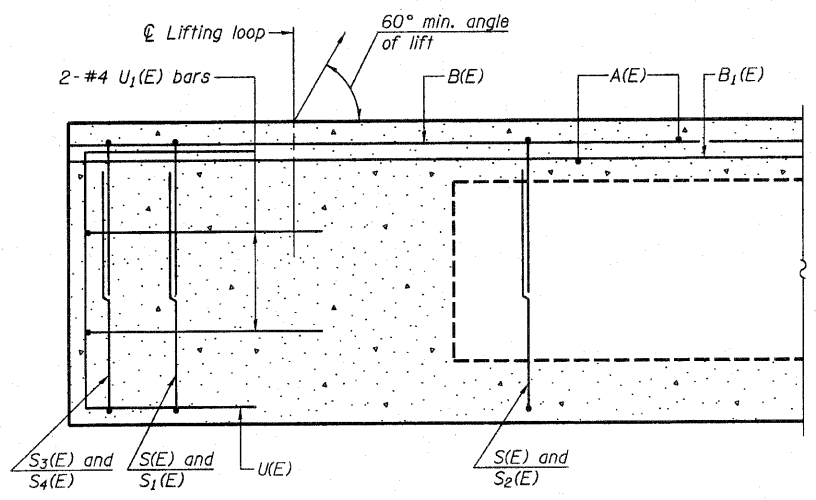
Date: 10/27/2010
Design: WDL
Drawn: BLT
Job No.: 50810

**P.P.C. DECK BEAM
SUPERSTRUCTURE**

24' ROADWAY
27" BEAMS
61' SPAN - 15° SKEW

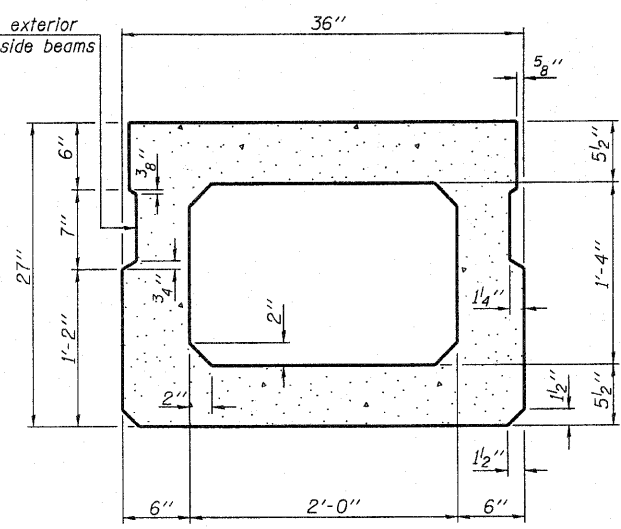
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T.R. 442	04-0618-00-BR	MARION	13	6
FEDERAL AID PROJECT		ILLINOIS	PROJECT	

CONTRACT NO. 97451

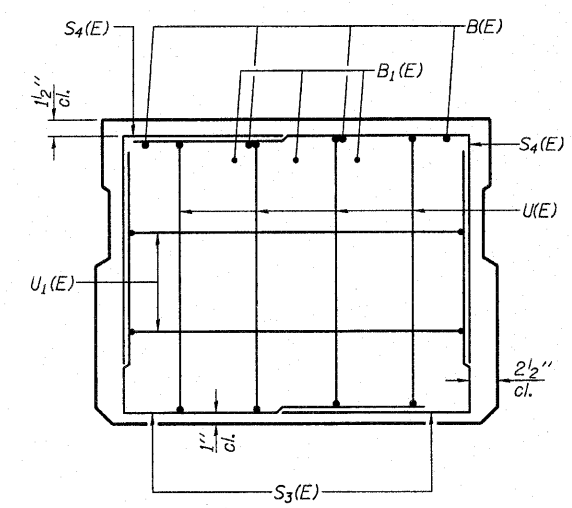


SECTION C-C

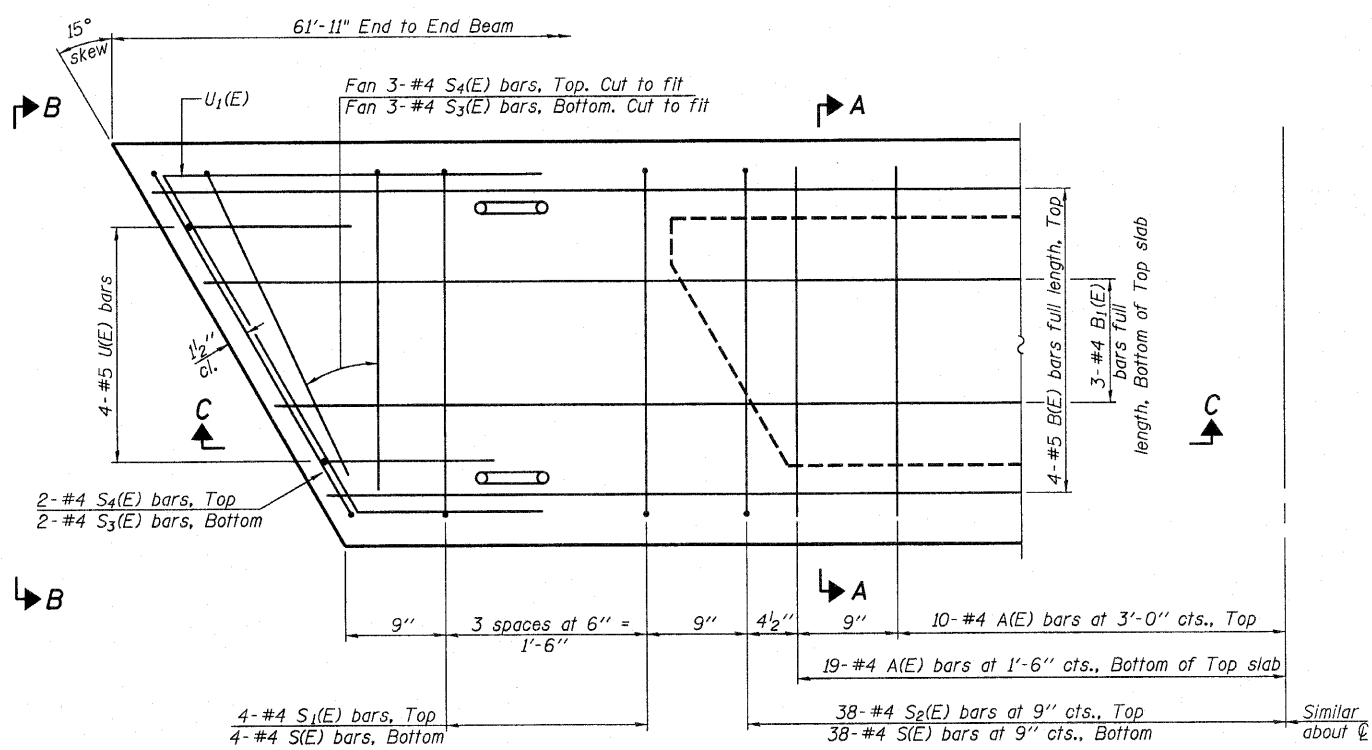
Omit key on exterior face of outside beams



SECTION A-A
(Showing dimensions)

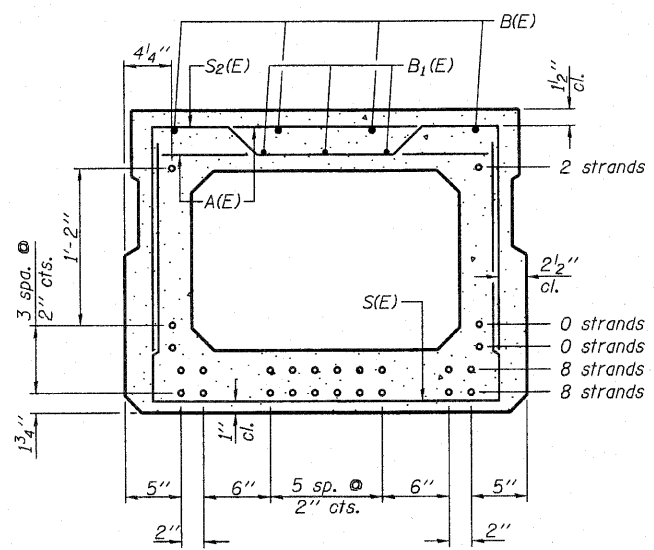


VIEW B-B



PLAN VIEW

Note: Spacing of S(E) and S2(E) bars may be adjusted up to 4 inches in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.



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

18 - 1/2" Strands
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)	58	#4	2'-7"	—
B(E)	4	#5	61'-8"	—
B1(E)	3	#4	61'-8"	—
S(E)	84	#4	6'-5"	┘
S1(E)	8	#4	5'-11"	┘
S2(E)	76	#4	6'-2"	┘
S3(E)	10	#4	4'-6"	┘
S4(E)	10	#4	4'-3"	┘
U(E)	8	#5	4'-6"	┘
U1(E)	4	#4	5'-9"	┘

Note: See sheet 7 for additional details. See sheet 5 for Bill of Material.

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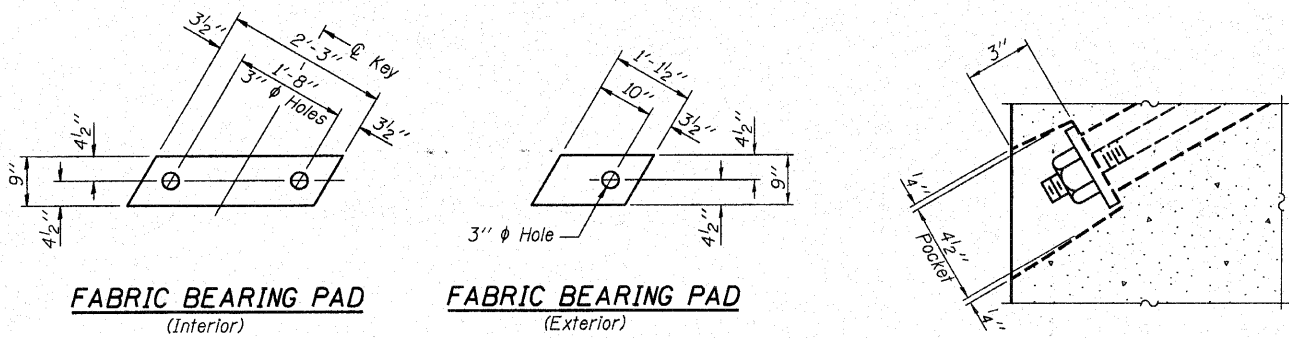
PREPARED FOR:
AECOM
200705485

Date: 10/27/2010
Design: WDL
Drawn: BLT
Job No.: 50810

**P.P.C. DECK BEAM
DETAILS AND SECTIONS**
**24' ROADWAY
27" x 36" BEAMS
RIGHT FORWARD 15° SKEW**

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 442	04-0616-00-BR	MARION	13	7
FEDERAL AID PROJECT		ILLINOIS	PROJECT	

CONTRACT NO. 97451

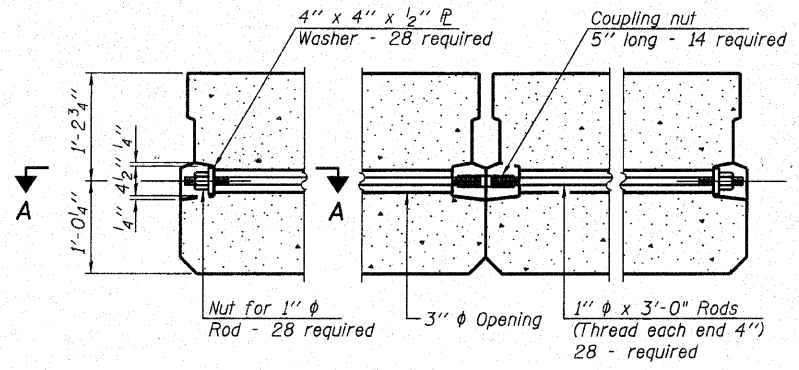


FABRIC BEARING PAD
(Interior)

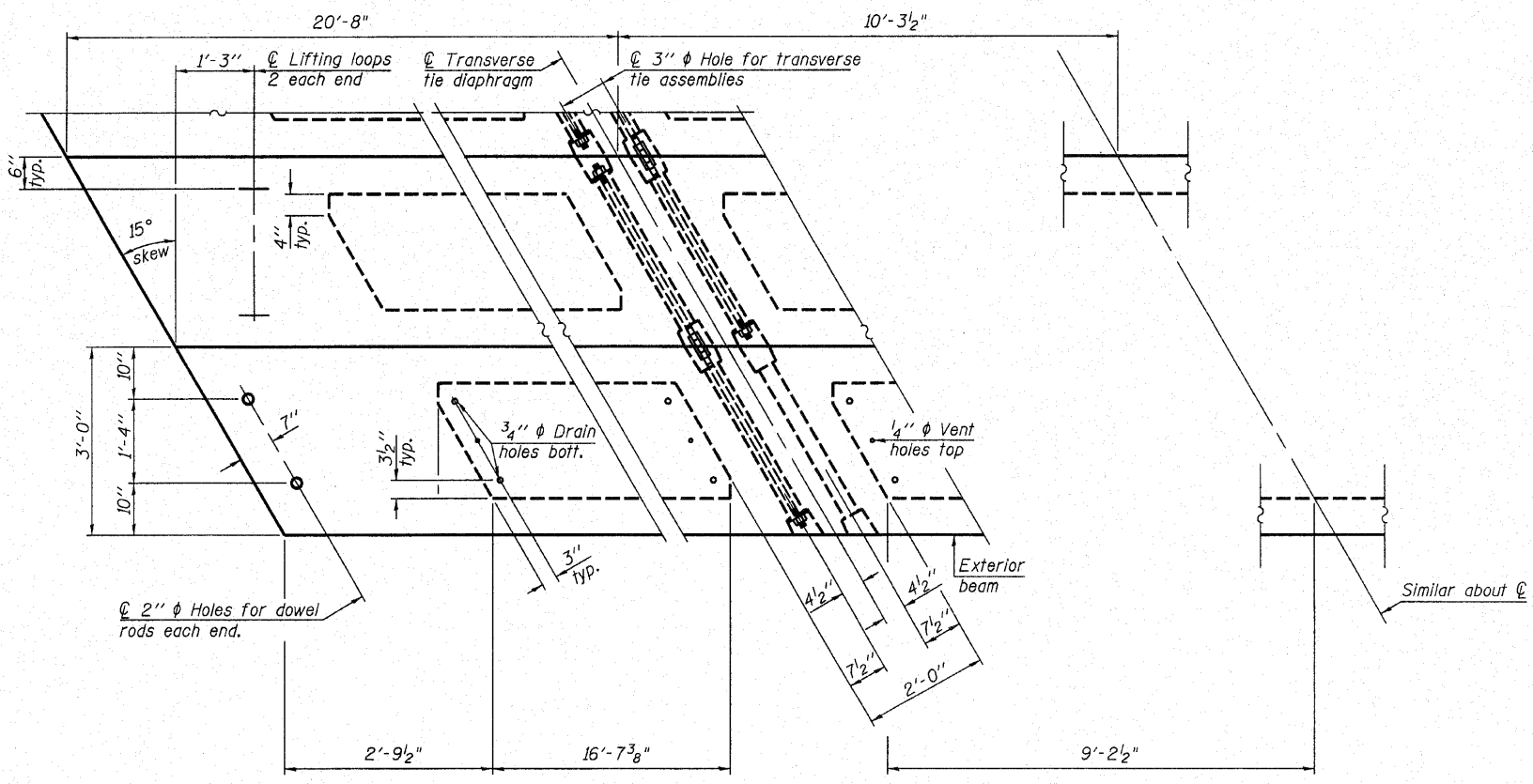
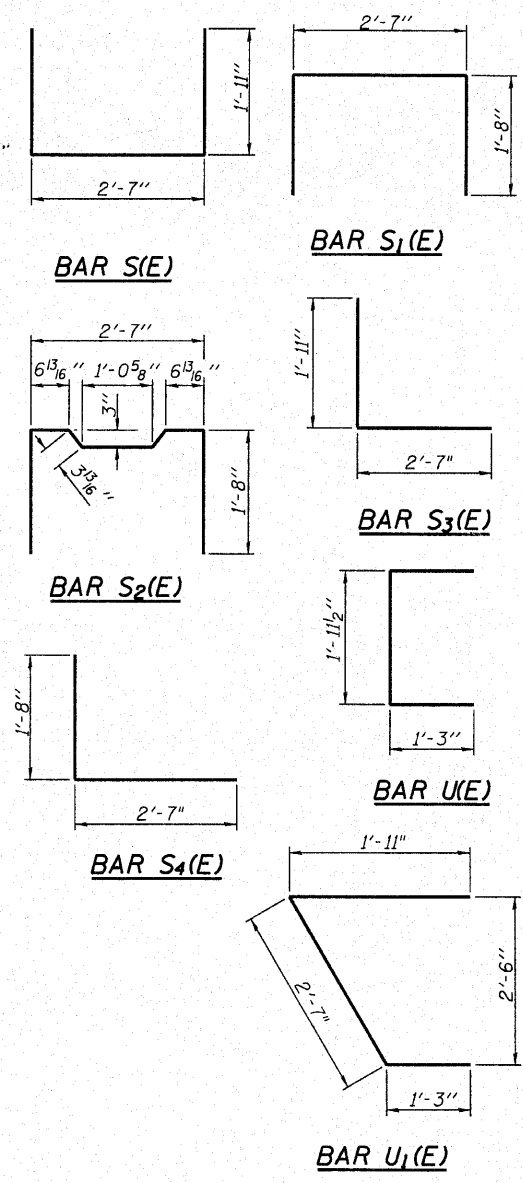
FABRIC BEARING PAD
(Exterior)

FIXED

SECTION A-A



TYPICAL TRANSVERSE TIE ASSEMBLY



PLAN VIEW

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

NOTES

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. The 1" rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place.

Reinforcement bars shall conform to ASTM A 706, Grade 60. (See Special Provisions). Two 1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.

A minimum 2 1/2" 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.

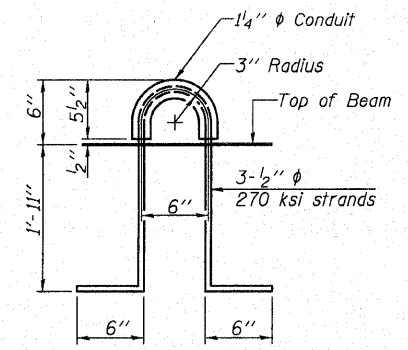
Compressive strength of prestressed concrete at release, f'_{ci} , shall be 5000 psi.

Rail post anchor devices shall be cast into outside beam as elsewhere specified.

Keyway surfaces shall be cleaned to remove form oil or other bond breaking material prior to shipment of the beams. Cleaning shall be done by sandblasting the keyway areas between the top of the beam and the bottom edge of the key.

DESIGN STRESSES

- $f'_s = 270,000$ p.s.i. (1/2" ϕ Strand)
- $f_{sl} = 201,960$ p.s.i. (1/2" ϕ Strand)
- $F_t = 30,900$ lbs per strand
- $f_y = 60,000$ p.s.i. Reinf. bars
- $f'_c = 6,000$ p.s.i.
- $f'_{ci} = 5,000$ p.s.i.



LIFTING LOOP DETAIL

Note: See sheet 5 for Bill of Material.

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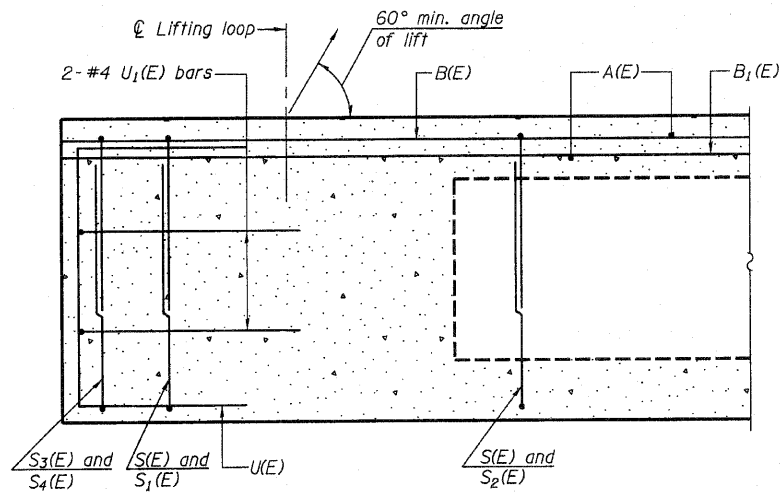
PREPARED FOR
AECOM
200705485

Date: 10/27/2010
Design: WDL
Drawn: BLT
Job No.: 50810

**P.P.C. DECK BEAM
DETAILS AND SECTIONS**
**24' ROADWAY
27" x 36" BEAMS
RIGHT FORWARD 15° SKEW**

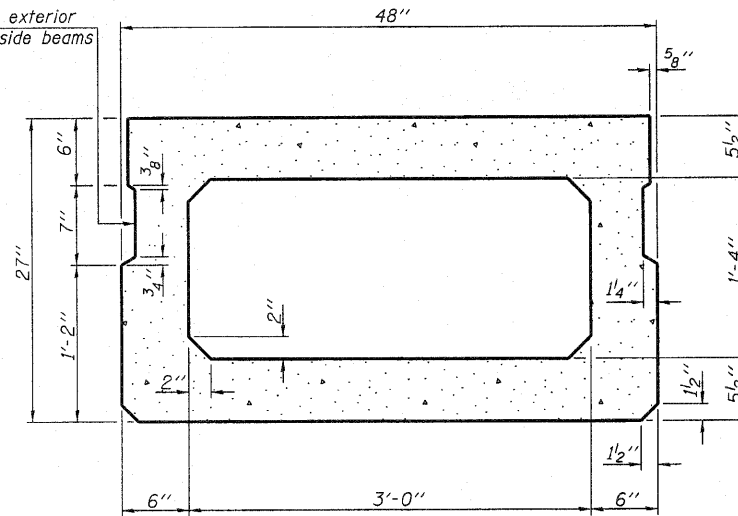
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 442	04-0616-00-BR	MARION	13	8
FEDERAL AID PROJECT		ILLINOIS PROJECT		

CONTRACT NO. 97451

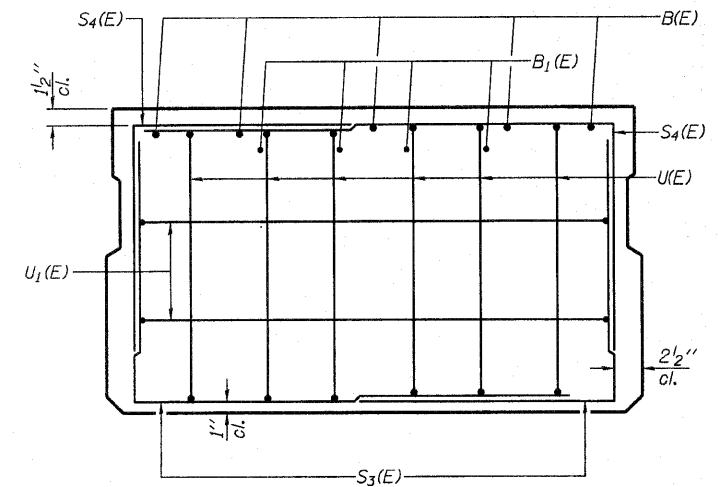


SECTION C-C

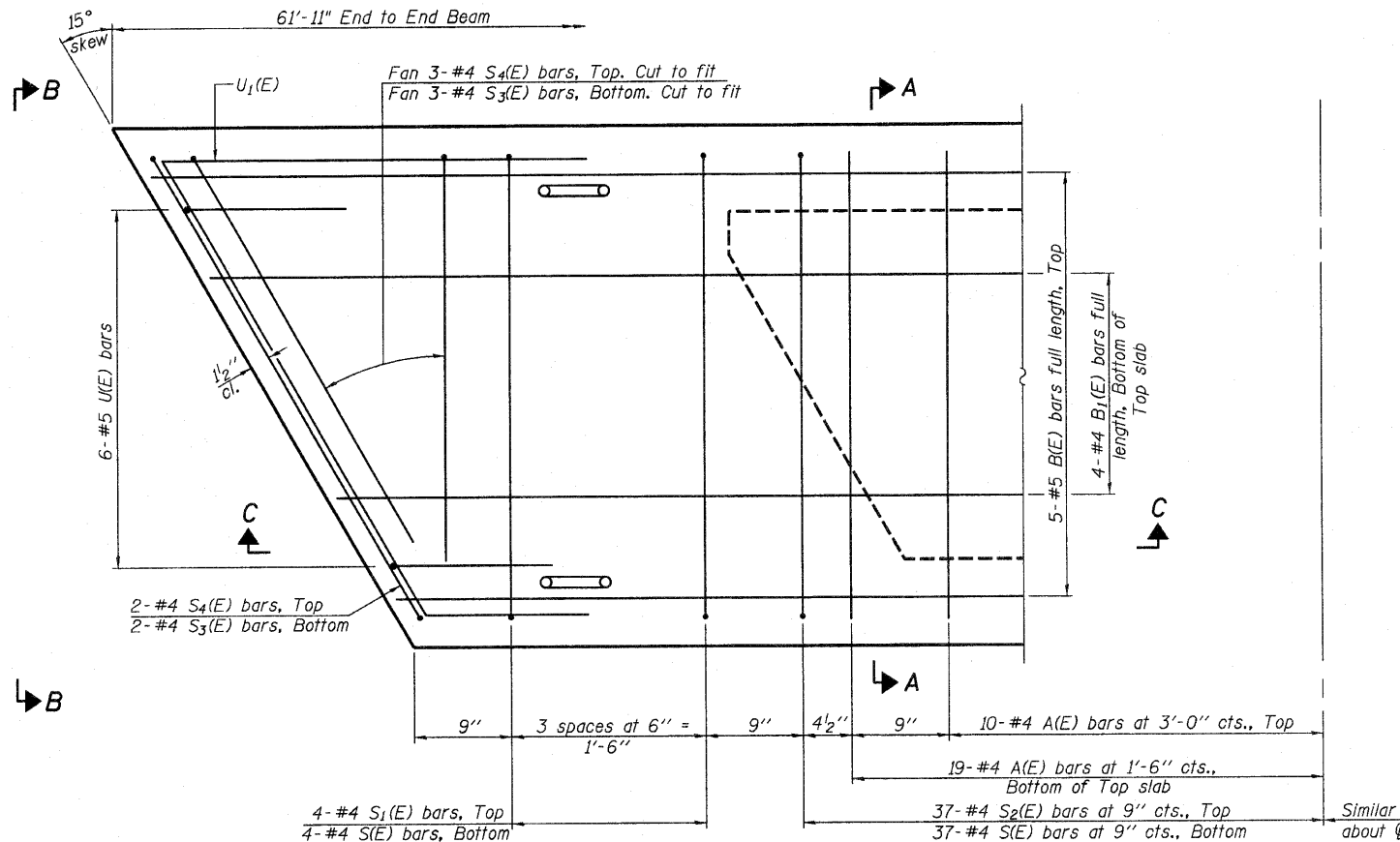
Omit key on exterior face of outside beams



SECTION A-A
(Showing dimensions)

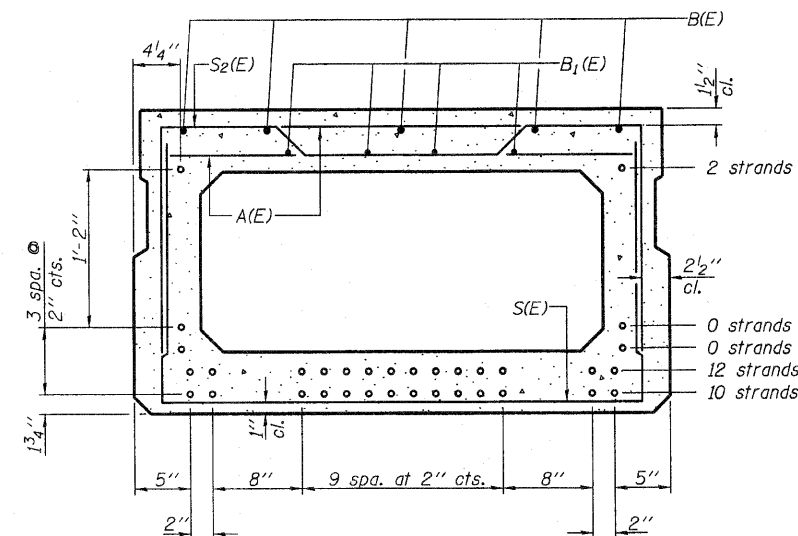


VIEW B-B



PLAN VIEW

Note: Spacing of S(E) and S2(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.



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

24 - 1/2" Strands

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

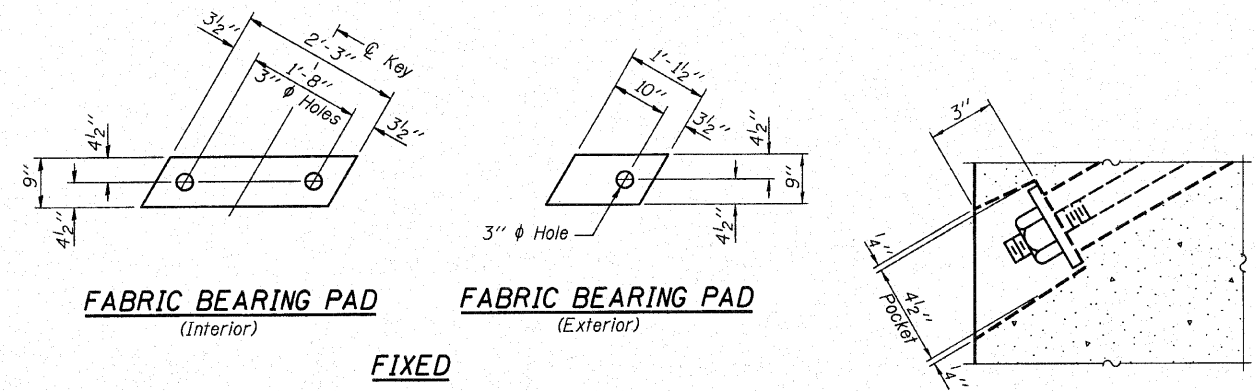
BAR LIST
ONE BEAM ONLY
(For information only)

Bar	No.	Size	Length	Shape
A(E)	58	#4	3'-7"	—
B(E)	5	#5	61'-8"	—
B1(E)	4	#4	61'-8"	—
S(E)	82	#4	7'-5"	┌
S1(E)	8	#4	6'-11"	┌
S2(E)	74	#4	7'-2"	┌
S3(E)	10	#4	5'-7"	┌
S4(E)	10	#4	5'-4"	┌
U(E)	12	#5	4'-6"	┌
U1(E)	4	#4	7'-1"	┌

Note: See sheet 9 for additional details.
See sheet 5 for Bill of Material.

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 442	04-0616-00-BR	MARION	13	9
FEDERAL AID PROJECT		ILLINOIS PROJECT		

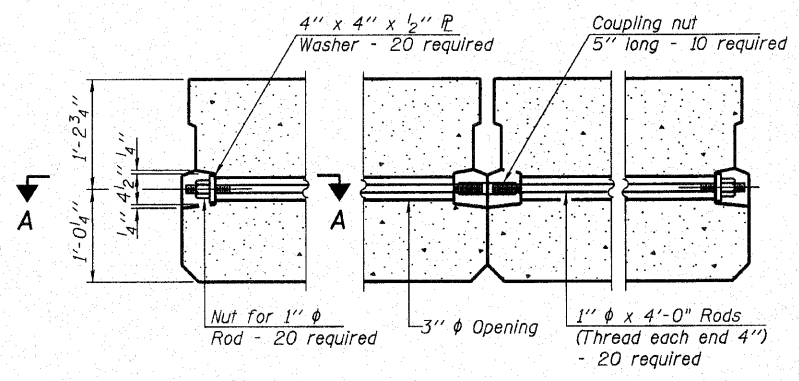
CONTRACT NO. 97451



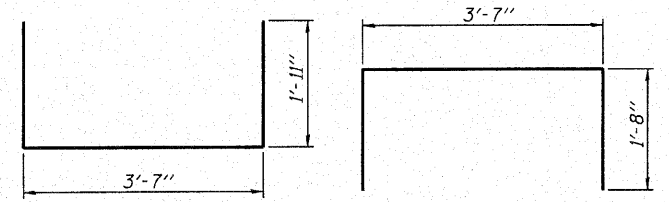
FABRIC BEARING PAD
(Interior)

FABRIC BEARING PAD
(Exterior)

FIXED

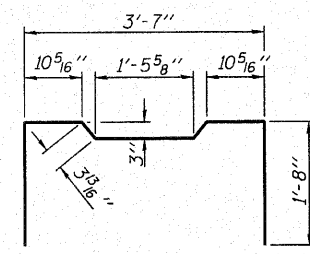


TYPICAL TRANSVERSE TIE ASSEMBLY



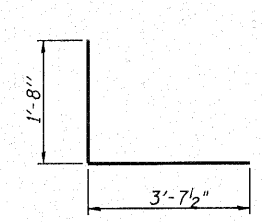
BAR S1(E)

BAR S2(E)



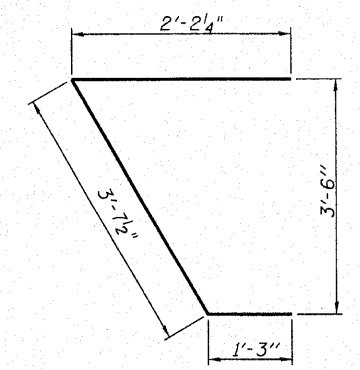
BAR S3(E)

BAR S4(E)

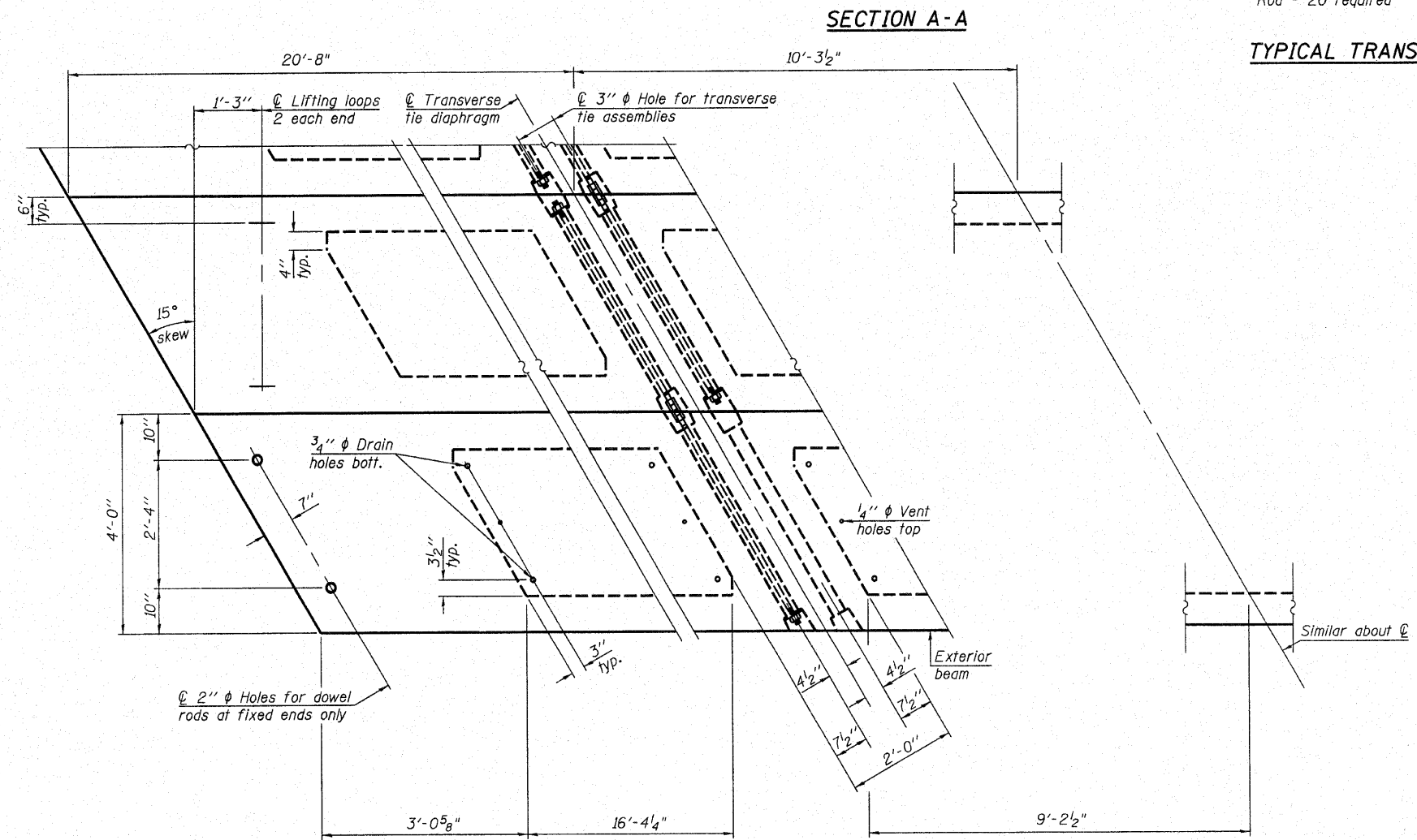


BAR U1(E)

BAR U2(E)



BAR U3(E)



PLAN VIEW

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

NOTES

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. The 1" rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place.

Reinforcement bars shall conform to ASTM A 706, Grade 60. (See Special Provisions).

Two 1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.

A minimum 2 1/2" 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.

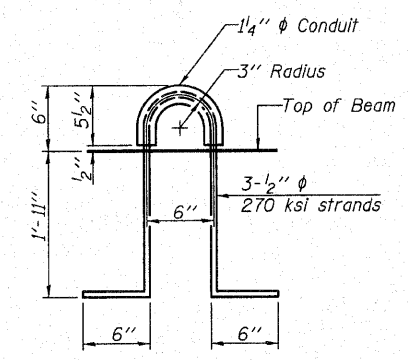
Compressive strength of prestressed concrete at release, f'ci, shall be 5000 psi.

Rail post anchor devices shall be cast into outside beam as elsewhere specified.

Keyway surfaces shall be cleaned to remove form oil or other bond breaking material prior to shipment of the beams. Cleaning shall be done by sandblasting the keyway areas between the top of the beam and the bottom edge of the key.

DESIGN STRESSES

f's = 270,000 p.s.i. (1/2" Strand)
 f'sl = 201,960 p.s.i. (1/2" Strand)
 F1 = 30,900 lbs per strand
 fy = 60,000 p.s.i. Reinf. bars
 f'c = 6,000 p.s.i.
 f'ci = 5,000 p.s.i.



LIFTING LOOP DETAIL

Note: See sheet 5 for Bill of Material.

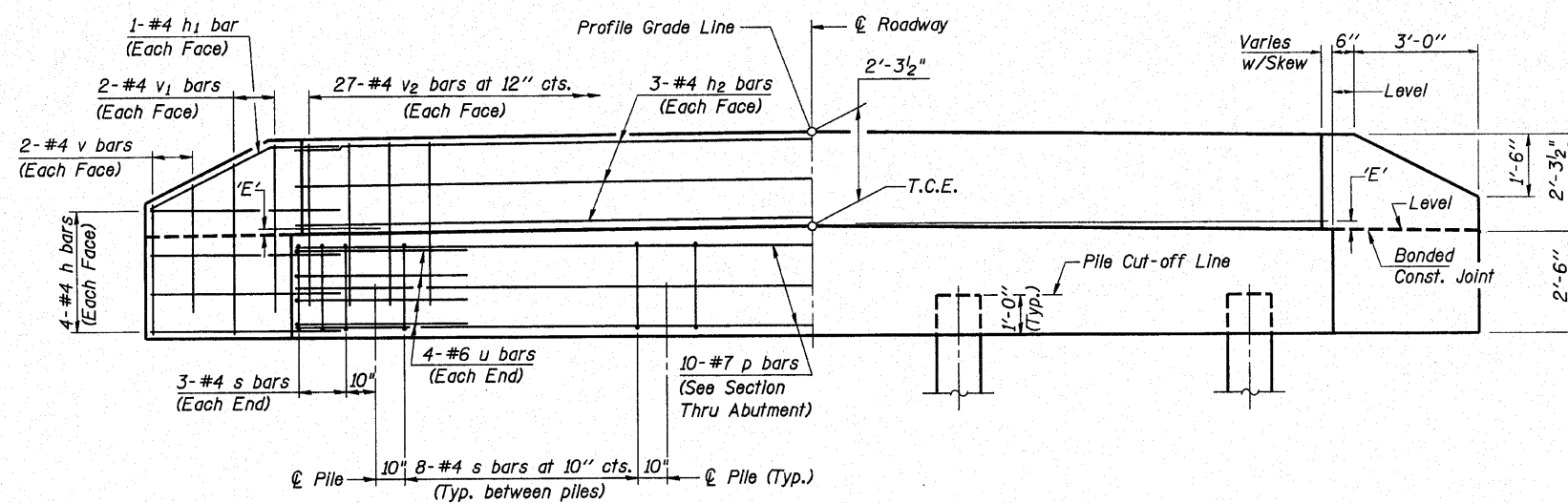
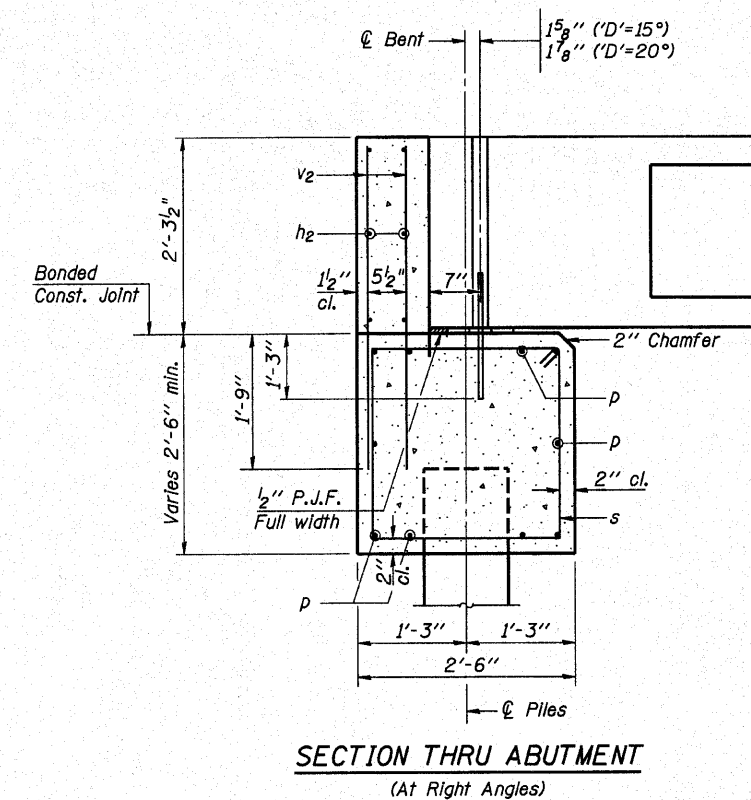
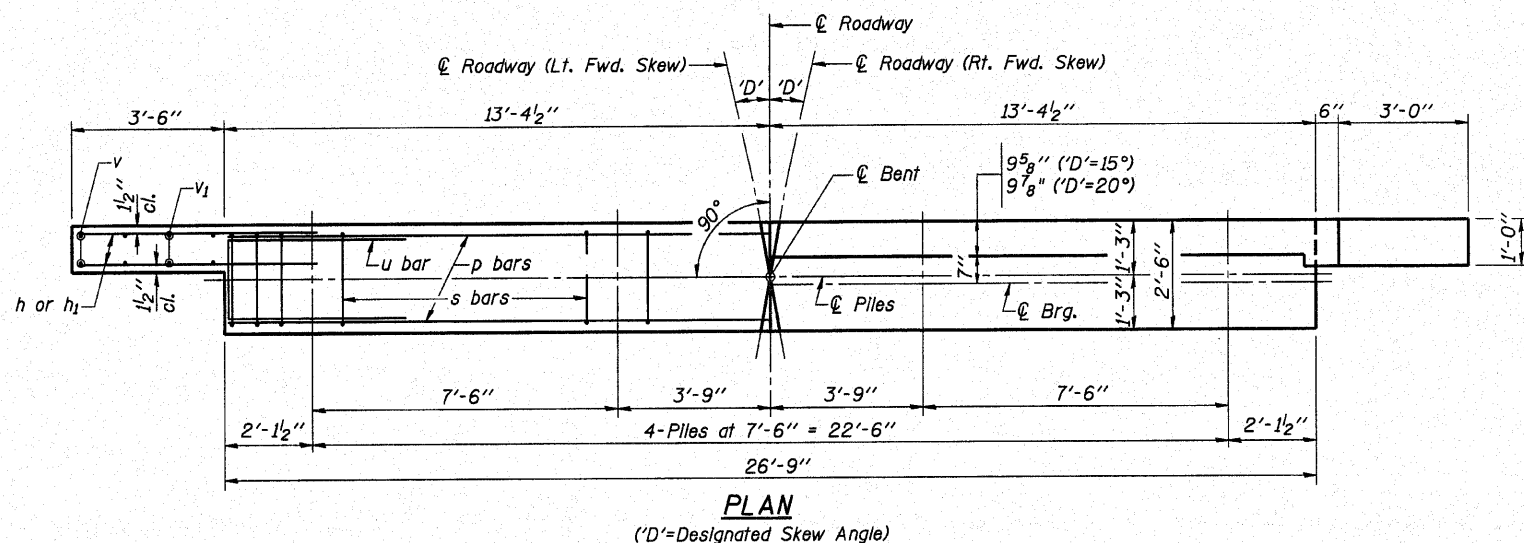
RHUTASEL and ASSOCIATES, INC.
 CONSULTING ENGINEERS • LAND SURVEYORS
 CENTRALIA, ILLINOIS FREEBURG, ILLINOIS

PREPARED FOR:
ASCUM
 200705485

Date: 10/27/2010
 Design: WDL
 Drawn: BLT
 Job No.: 50810

**P.P.C. DECK BEAM
 DETAILS AND SECTIONS**

**24' ROADWAY
 27" x 48" BEAMS
 RIGHT FORWARD 15° SKEW**

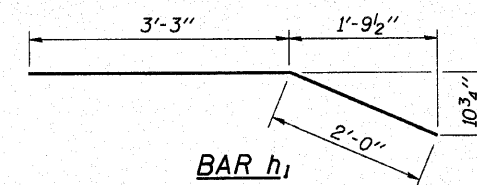
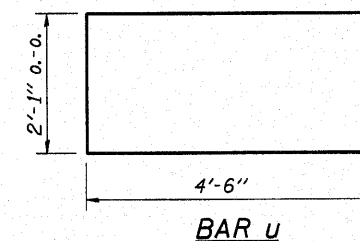
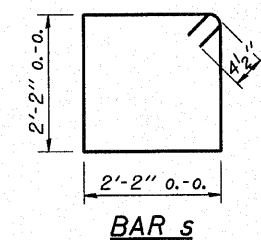


DIMENSION 'E'

GRADE	'D'=15°		'D'=20°	
	UPGRADE END	DOWNGRADE END	UPGRADE END	DOWNGRADE END
0%	2 3/8"	2 3/8"	2 3/8"	2 3/8"
Over 0% to 1%	2 1/4"	2 5/8"	2 1/8"	2 5/8"
Over 1% to 2%	1 3/4"	3"	1 1/2"	3 1/8"
Over 2% to 3%	1 3/8"	3 1/2"	1"	3 3/4"
Over 3% to 4%	1"	3 7/8"	3/8"	4 1/4"

BILL OF MATERIAL FOR ONE ABUTMENT

Bar	No.	Size	Length	Shape
h	16	#4	5'-0"	—
h1	4	#4	5'-3"	—
h2	6	#4	26'-5"	—
p	10	#7	26'-5"	—
s	30	#4	9'-5"	□
u	8	#6	11'-1"	□
v	8	#4	3'-2"	—
v1	8	#4	4'-2"	—
v2	54	#4	3'-11"	—
Concrete Structures			9.7 Cu. Yds.	
Reinforcement Bars			1220 Lb.	



NOTES

- The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.
- Reinforcement bars shall conform to the requirements of A.A.S.H.T.O. M-31 or M-322, Grade 60.
- Space reinforcement in cap to miss anchor bolts.

DESIGN STRESSES

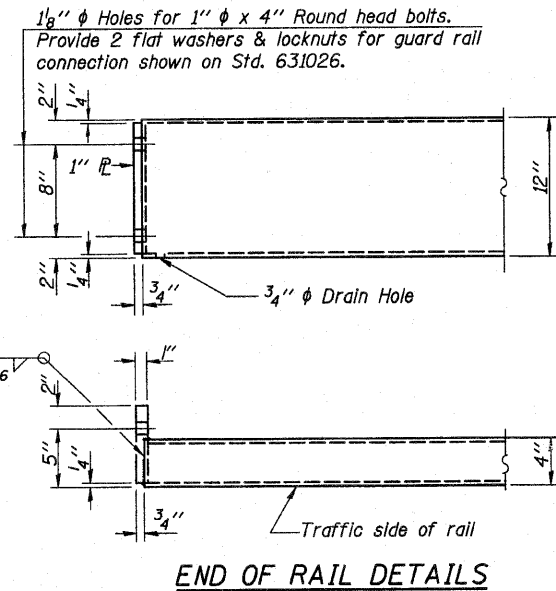
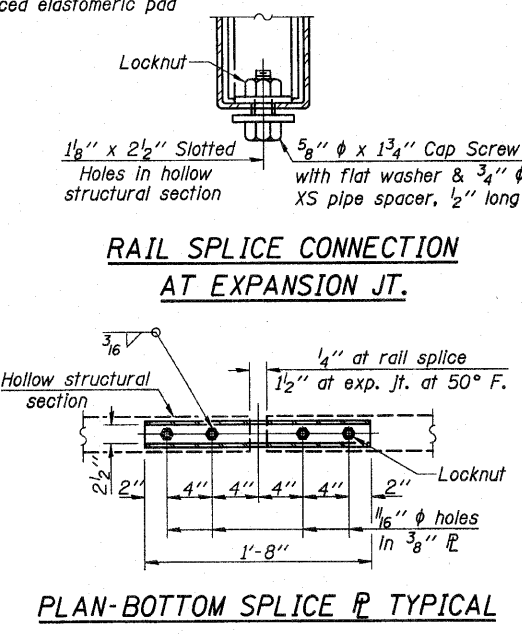
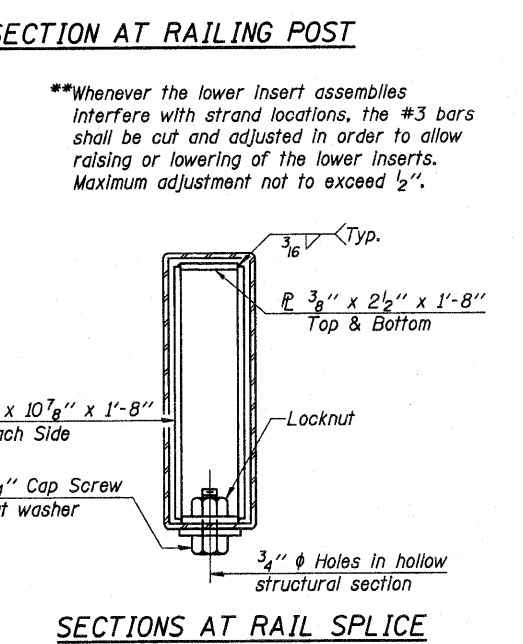
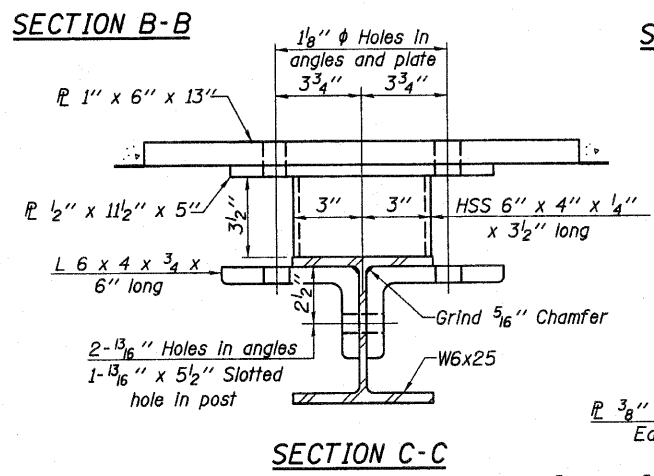
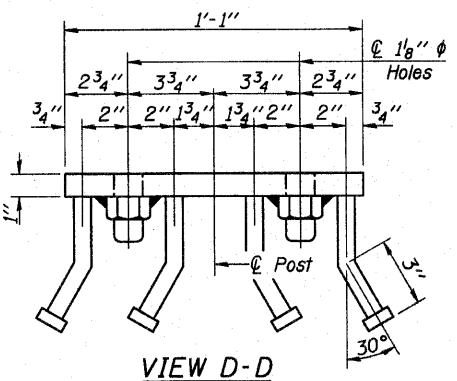
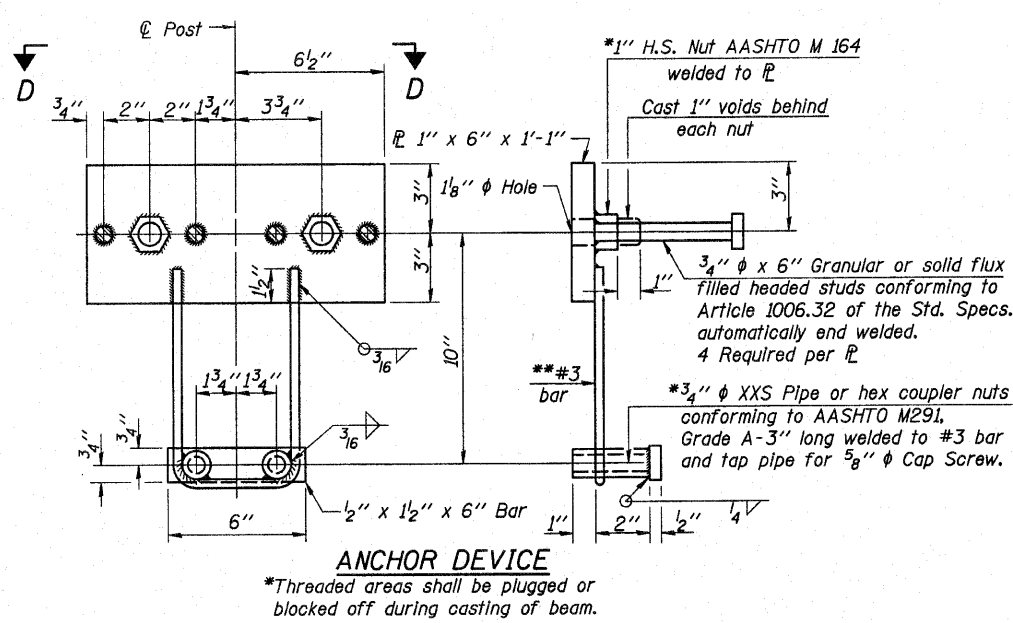
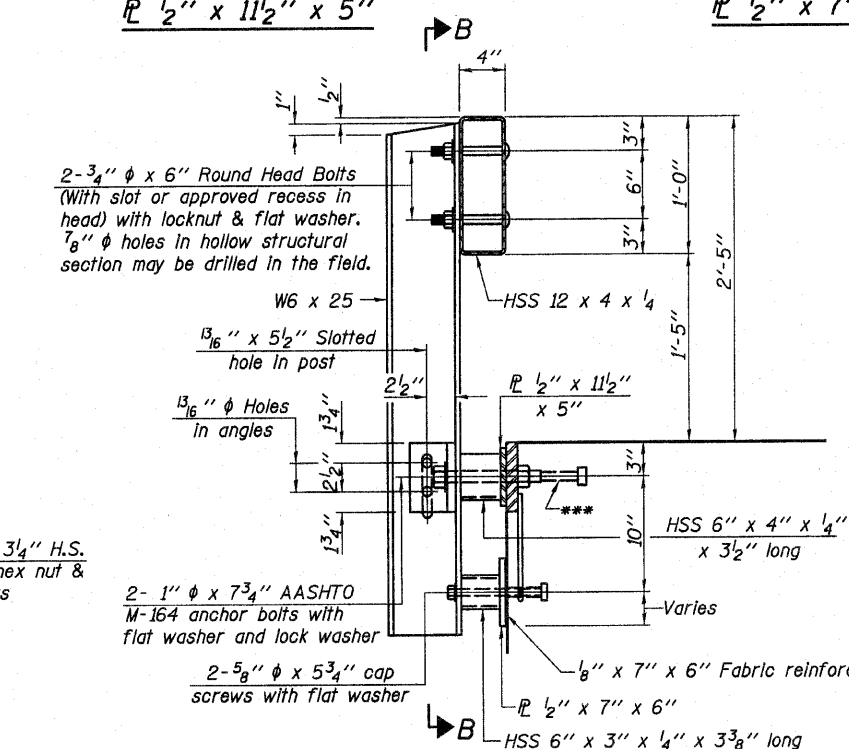
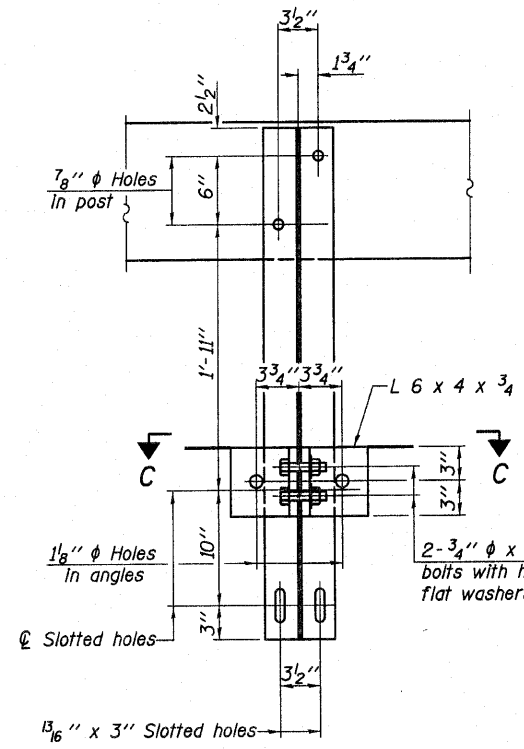
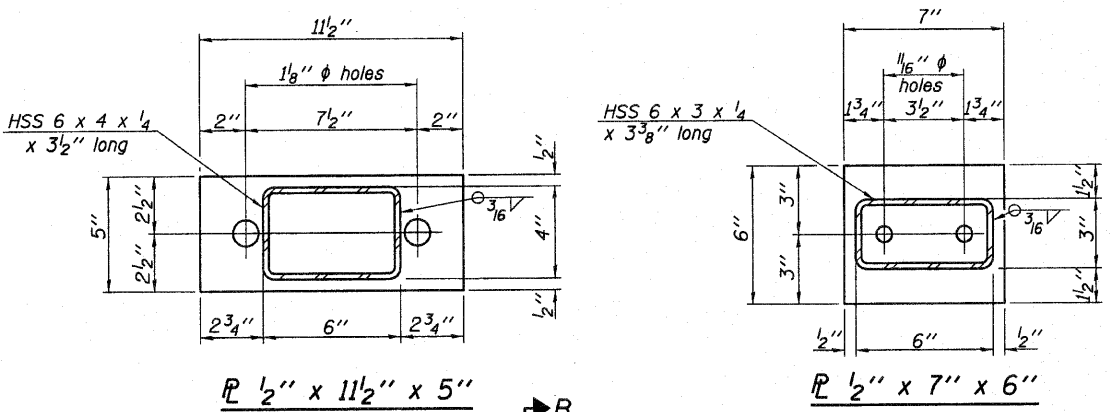
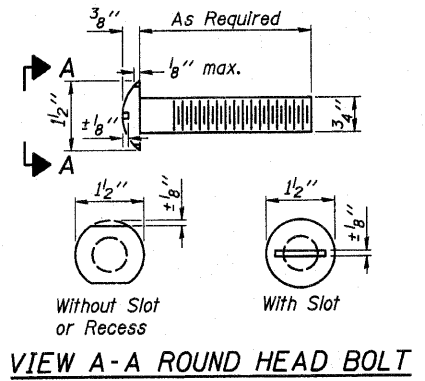
f'c = 3,500 psi
fy = 60,000 psi

**P.P.C. DECK BEAMS
PILE BENT ABUTMENT**

**24' ROADWAY
27" BEAMS
'D'=15° OR 20°**

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 442	04-0616-00-BR	MARION	13	11
FEDERAL AID PROJECT	ILLINOIS	PROJECT		

CONTRACT NO. 97451



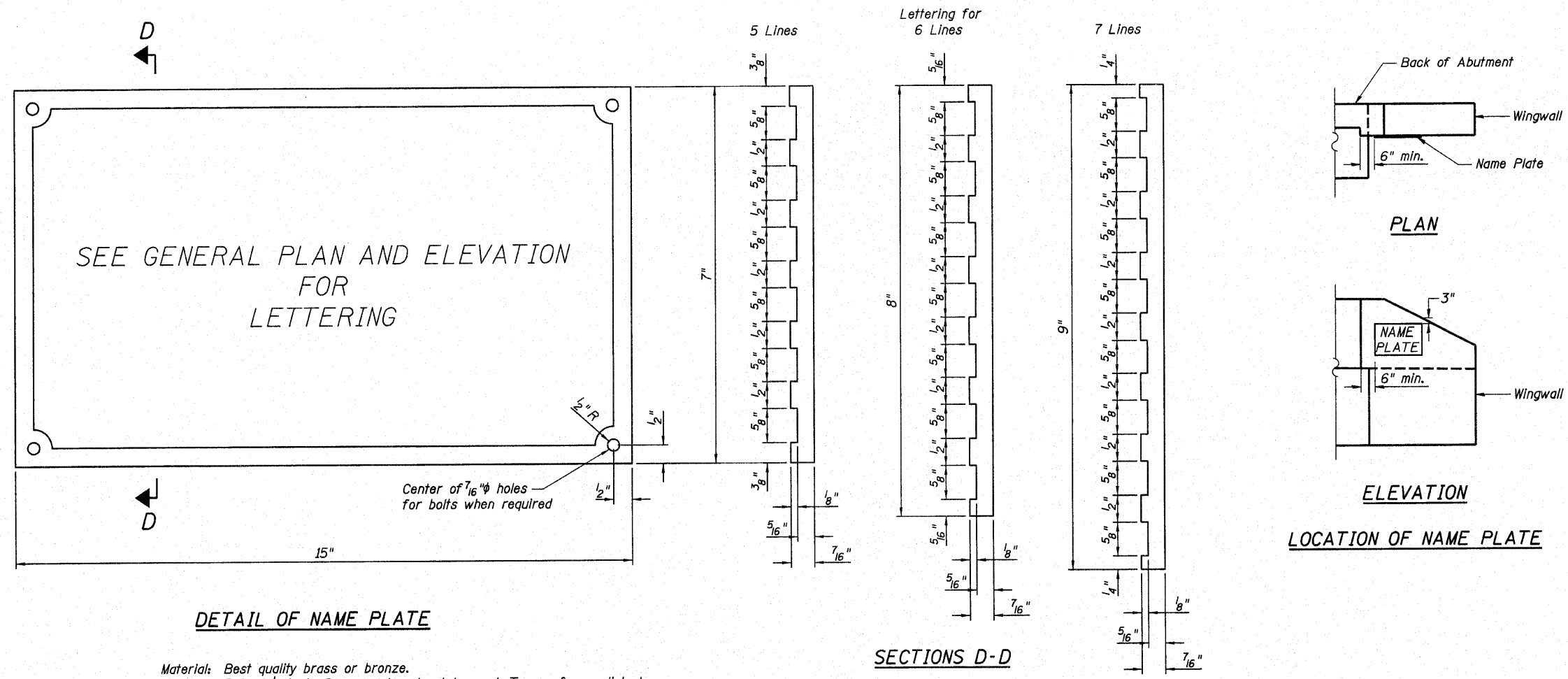
Notes:
 All field drilled holes shall be coated with an approved zinc rich paint before erection.
 For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type S-1.
 All steel rail elements shall 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 maximum allowable rail post spacing shall be 10'-9". The rail post spacing shown elsewhere in the plans is based on the allowable spacing for another type of rail. When this type of rail is used, the number of posts may be decreased and the post spacing increased to provide equal post spaces of 10'-9" or less.
 See Special Provisions for curled end section.

(10'-9" Maximum Post Spacing)

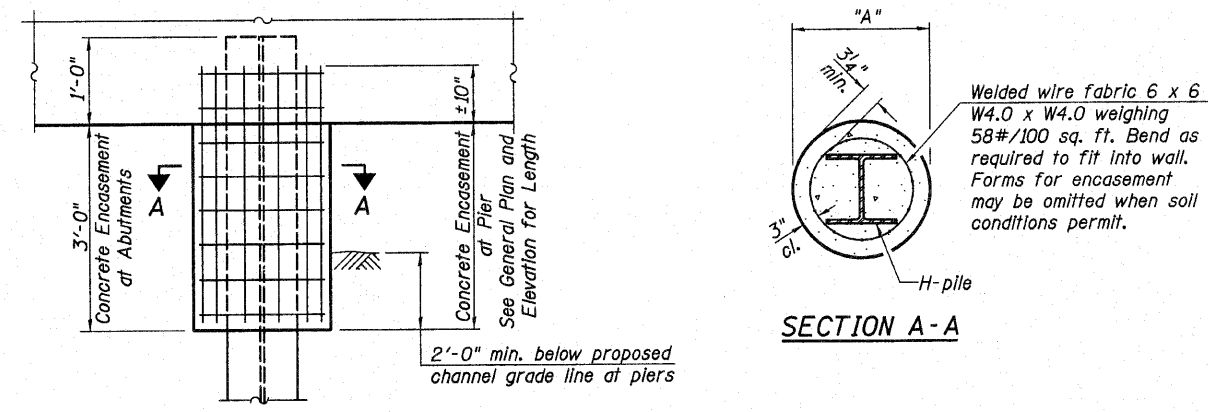
See sheet 5 for Steel Railing Quantities.

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 442	04-06116-00-BR	MARTON	13	12
FEDERAL AID PROJECT		ILLINOIS	PROJECT	

CONTRACT NO. 97451



Material: Best quality brass or bronze.
 Border and Lettering: Raised $\frac{1}{8}$ inch. Square cut and not tapered. Top surface polished.
 Fastenings: Four lugs at least three inches long, cast on back of plate.



PILE ENCASEMENT

Pile	"A"
HP8	1'-6"
HP10	1'-9"
HP12	2'-0"

PILE ENCASEMENT QUANTITIES
(Steel Piles)

Pile Size	Item	Unit	Quantity
HP10	Concrete Encasement	Cu Yd.	0.086

Quantities per foot of Encasement.

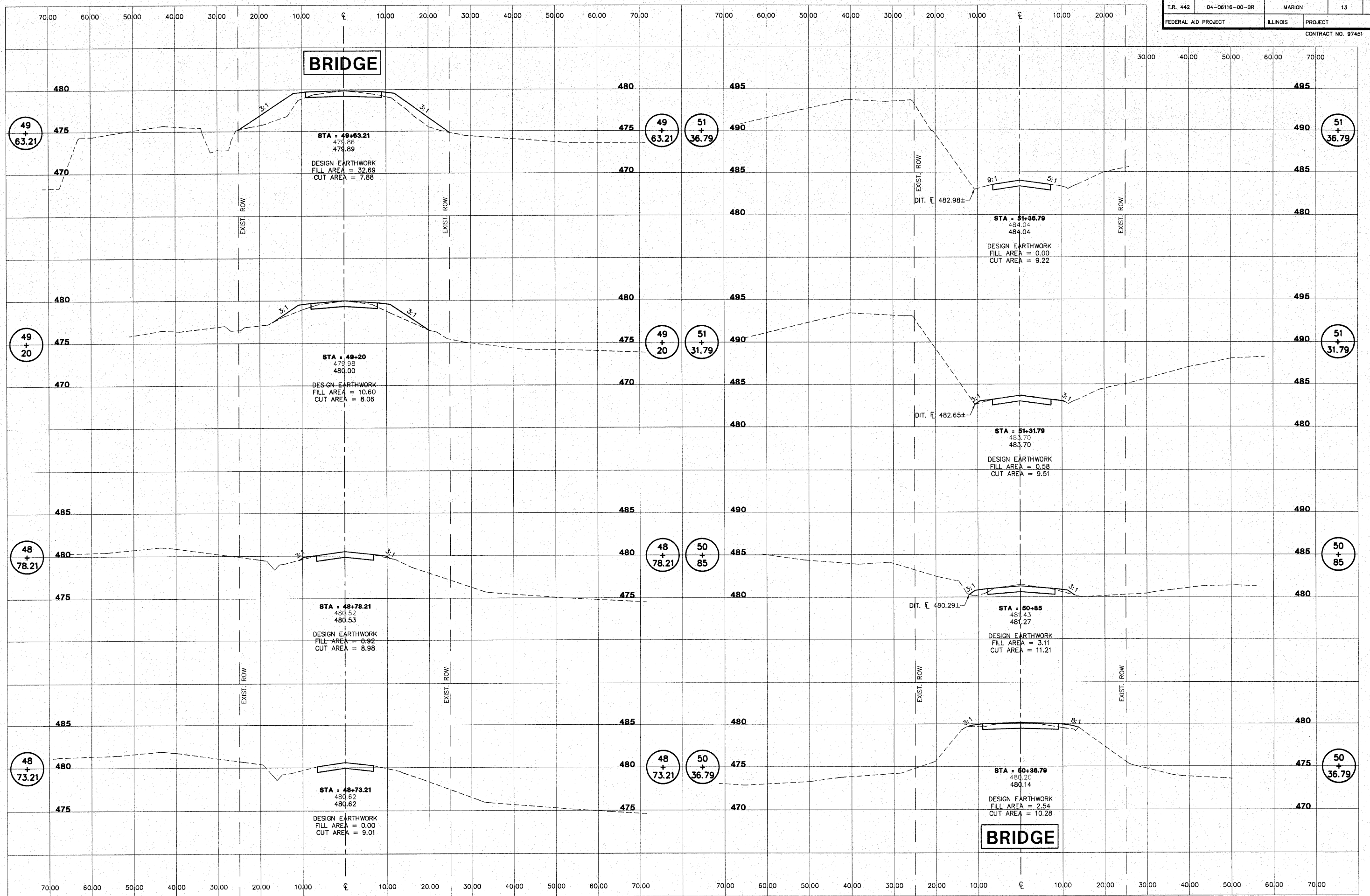
NAME PLATE & PILE ENCASEMENT DETAILS

RHUTASEL and ASSOCIATES, INC.
 CONSULTING ENGINEERS • LAND SURVEYORS
 CENTRALIA, ILLINOIS FREEBURG, ILLINOIS

PREPARED FOR:
AECOM
 200705485

Date: 10/27/2010
 Design: WDL
 Drawn: BLT
 Job No.: 50810

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 442	04-06116-00-BR	MARION	13	13
FEDERAL AID PROJECT		ILLINOIS	PROJECT	
CONTRACT NO. 97451				



RHUTASEL and ASSOCIATES, INC.
 CONSULTING ENGINEERS • LAND SURVEYORS
 CENTRALIA, ILLINOIS FREEBURG, ILLINOIS

PREPARED FOR
AECOM
 200705485

T.R. 442, SECTION 04-06116-00-BR
IUKA ROAD DISTRICT
MARION COUNTY, ILLINOIS

CROSS SECTIONS
STA. 48+73.21 TO STA. 51+36.79

SURVEY	JAS	CHECKED	DATE
DESIGN	MRQ	APPROVED	10/27/10
DRAWN	JMW	REVISION	JOB NO.
			50810

N:\data\2010\restoration\50810\EP\0001001_10-27-10