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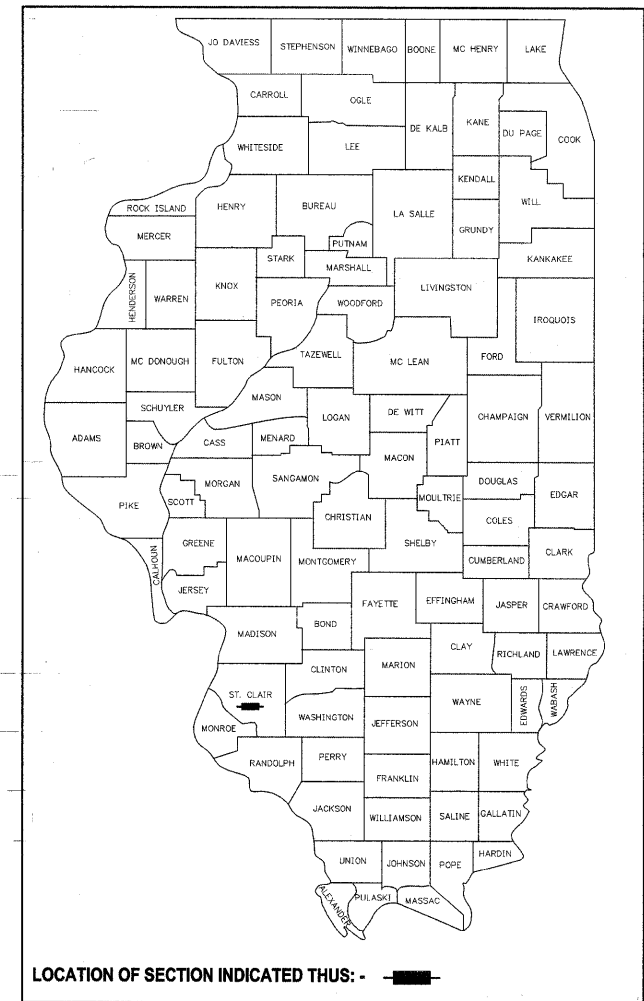
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F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	08-18101-04-BR	ST. CLAIR	16	1
PROJECT BROS 163(32)		ILLINOIS CONTRACT NO.		97466
FEDERAL AID PROJECT				

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**  
**DIVISION OF HIGHWAYS**

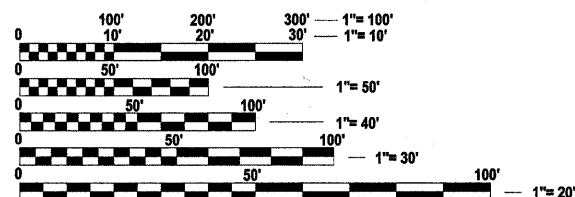
**PLANS FOR PROPOSED LOCAL AGENCY IMPROVEMENT**

**FEDERAL AID H.B.P. PROJECT**  
**T.R. 197 PRESS ROAD**  
**SECTION 08-18101-04-BR**  
**FED PROJECT NO. BROS-163(32)**  
**SMITHTON ROAD DISTRICT**  
**ST. CLAIR COUNTY**  
**CONSTRUCTION JOB NO. C-98-330-09**



SUMMARY OF QUANTITIES			
CODE NO.	ITEM	UNIT	QUANTITY
20200100	EARTH EXCAVATION	CU YD	66.6
20300100	CHANNEL EXCAVATION	CU YD	550.0
20400800	FURNISHED EXCAVATION	CU YD	763
25000200	SEEDING, CLASS 2	ACRE	0.3
25000400	NITROGEN FERTILIZER NUTRIENT	POUND	30
25000500	PHOSPHORUS FERTILIZER NUTRIENT	POUND	30
25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	30
25100115	MULCH, METHOD 2	ACRE	0.3
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	60
28000305	TEMPORARY DITCH CHECKS	FOOT	12
28000400	PERMETER EROSION BARRIER	FOOT	540
28100707	STONE DUMPED RIPRAP, CLASS A4	SQ YD	626
28200200	FILTER FABRIC	SQ YD	626
35100700	AGGREGATE BASE COURSE, TYPE A 8"	SQ YD	1477
40300100	BITUMINOUS MATERIALS (PRIME COAT)	GALLON	808
40300300	BITUMINOUS MATERIALS (COVER AND SEAL COATS)	GALLON	2216
40300500	COVER COAT AGGREGATE	TON	37
40300600	SEAL COAT AGGREGATE	TON	19
40603315	HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N70	TON	30.7
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50300225	CONCRETE STRUCTURES	CU YD	48.2
50300280	CONCRETE ENCASEMENT	CU YD	24.1
50400305	PRECAST PRESTRESSED CONCRETE DECK BEAMS (17')	SQ FT	3122
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	5300
50900205	STEEL RAILING, TYPE S1	FOOT	224
51201600	FURNISHING PILES HP 12x53	FOOT	648
51202305	DRIVING PILES	FOOT	648
51203600	TEST PILES STEEL HP 12x53	EACH	2
51204680	PILES SHOES	EACH	20
51500100	NAME PLATES	EACH	1
58100200	WATERPROOFING MEMBRANE SYSTEM	SQ YD	346.6
58300100	PORTLAND CEMENT MORTAR FAIRING COURSE	FOOT	670
59300100	CONTROLLED LOW STRENGTH MATERIAL	CU YD	29
60600095	CLASS SI CONCRETE (OUTLET)	CU YD	4.8
60602800	CONCRETE GUTTER, TYPE B	FOOT	270
63200310	GUARDRAIL REMOVAL	FOOT	77
66700205	PERMANENT SURVEY MARKERS, TYPE 1	EACH	2
67100100	MOBILIZATION	L SUM	1
70101830	TRAFFIC CONTROL AND PROTECTION, STD BLR 21	L SUM	1
72400100	REMOVE SIGN PANEL ASSEMBLY, TYPE A	EACH	4
72400200	REMOVE SIGN PANEL ASSEMBLY, TYPE B	EACH	1
72400600	RELOCATE SIGN PANEL ASSEMBLY, TYPE B	EACH	1
72900200	METAL POST, TYPE B	FOOT	13
78200530	BARRIER WALL MARKERS, TYPE C	EACH	4
78201000	TERMINAL MARKER-DIRECT APPLIED	EACH	4
X5020501	UNDERWATER STRUCTURE EXCAVATION PROT, LOC 1	EACH	1
X5020502	UNDERWATER STRUCTURE EXCAVATION PROT, LOC 2	EACH	1

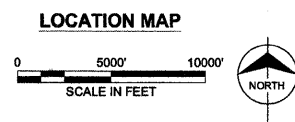
\*: SPECIAL PROVISION  
 \*\*: SPECIALTY ITEM



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 LOCATION INFORMATION FOR EXCAVATION  
 1-800-892-0123  
 OR 811

**PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS**



SMITHTON TOWNSHIP T. 1S., R. 8W.  
 S.E. 1/4 OF THE N.W. 1/4 SECTION 34 AND  
 N.E. 1/4 OF THE S.W. 1/4 SECTION 34

ROADWAY CLASSIFICATION: LOCAL ROAD  
 CURRENT ADT: 275  
 DESIGN SPEED: 40 MPH  
 DESIGN FREQUENCY: 20 YEAR STORM

LENGTH OF STRUCTURE = 110.5 FT. (0.021 MILE)  
 LENGTH OF ROADWAY = 624.5 FT. (0.118 MILE)  
 TOTAL PROJECT LENGTH = 735.0 FT. (0.139 MILE)

SECTION 08-18101-04-BR  
 BEGINS STA 31+00.00

SECTION 08-18101-04-BR  
 INCLUDES A 3-SPAN (110'-6")  
 PRECAST, PRESTRESSED  
 CONCRETE DECK BRIDGE  
 AT STA. 34+72.00

SECTION 08-18101-04-BR  
 ENDS STA 38+35.00

KIMBERLY A. RESTOFF  
 LICENSED PROFESSIONAL ENGINEER  
 4-12-11

KIMBERLY A. RESTOFF, P.E.  
 License Expiration Date: November 30, 2011

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS

APPROVED 5-31-2011  
*Robert Davis*  
 HIGHWAY COMMISSIONER

APPROVED June 8-2011  
*James V. Hills*  
 ACTING COUNTY ENGINEER

PASSED June 20-2011  
*[Signature]*  
 DISTRICT ENGINEER OF LOCAL ROADS AND STREETS

RELEASING FOR BID  
 BASED ON LIMITED  
 REVIEW June 20-2011  
*W. May C. Francis*  
 DEPUTY DIRECTOR OF HIGHWAYS, REGION 5 ENGINEER

**GENERAL NOTES**

- ALL MATERIAL DEEMED SALVAGABLE BY THE ENGINEER SHALL REMAIN THE PROPERTY OF THE ROAD DISTRICT. ALL OTHER MATERIALS SHALL BE DISPOSED OF BY THE CONTRACTOR, AT HIS OWN EXPENSE.
- THE FOLLOWING FACTORS WERE USED TO DETERMINE THE REQUIRED AMOUNT OF MATERIALS NEEDED:
 

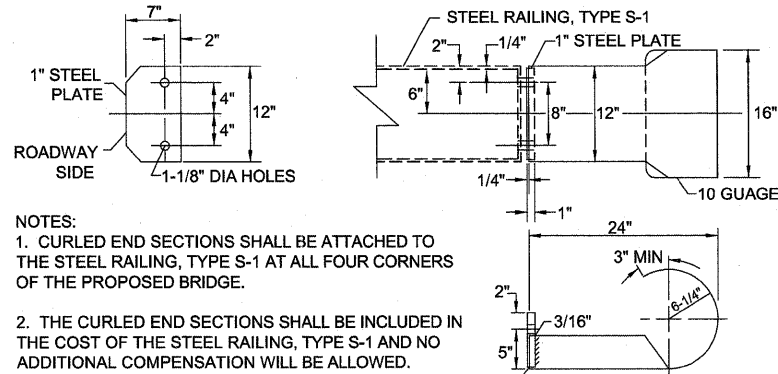
BITUMINOUS MATERIALS (PRIME COAT)	0.5 GALLON/SQ YD
BITUMINOUS MATERIALS (COVER AND SEAL COATS)	0.5 GALLON/SQ YD
COVER COAT AGGREGATE	25 POUNDS/SQ YD
SEAL COAT AGGREGATE	25 POUNDS/SQ YD
NITROGEN FERTILIZER NUTRIENT	90 LB/ACRE
PHOSPHORUS FERTILIZER NUTRIENT	90 LB/ACRE
POTASSIUM FERTILIZER NUTRIENT	90 LB/ACRE
HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N70	112 LBS/SQ YD/IN
- THE FOLLOWING MIXTURE REQUIREMENTS ARE APPLICABLE FOR THIS PROJECT:
 

LOCATION:	BRIDGE DECK
MIXTURE USE:	SURFACE COURSE
AC/PG:	PG 64-22
RAP % (MAX):	10%
DESIGN AIR VOIDS:	4% @ NDES=70
MIX COMPOSITION (GRADATION MIXTURE):	IL-9.5L
FRICTION AGG:	MIXTURE C
MIXTURE WEIGHT:	112 LBS/SQ YD/INCH
- THE CONTRACTOR SHALL NOT BE ALLOWED TO SET THE DECK BEAMS UNTIL THE STEEL RAILING HAS BEEN DELIVERED TO THE JOB SITE OR TO THE CONTRACTOR'S YARD. PROOF OF SUCH DELIVERY MUST BE PRESENTED TO THE ENGINEER, AT HIS REQUEST, PRIOR TO THE PLACEMENT OF THE BEAMS.
- THE FOLLOWING UTILITY COMPANIES MAY HAVE FACILITIES LOCATED WITHIN THE LIMITS OF CONSTRUCTION:
 

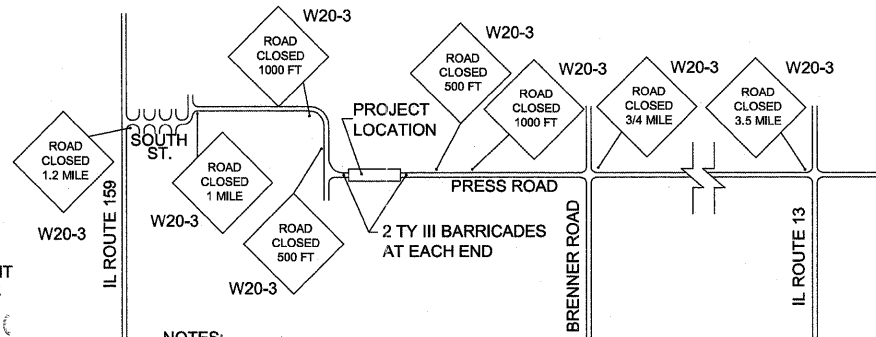
AT&T ILLINOIS	203 GOETHE AVENUE, COLLINSVILLE, IL 62234
FSH WATER COMMISSION	RR1, FREEBURG, IL 62243
MONROE COUNTY ELECTRIC CO-OP	P.O. BOX 128, WATERLOO, IL 62298
- THE LOCATION OF UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES HAS BEEN DETERMINED FROM SURFACE OBSERVATIONS, AVAILABLE SURVEYS, AND RECORDS, AND MUST BE CONSIDERED APPROXIMATE. THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS NOT PRESENTLY SHOWN OR KNOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXISTENCE AND LOCATION OF ALL UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES AND TO PROTECT THEM FROM DAMAGE DURING CONSTRUCTION. CONTACT J.U.L.I.E. BEFORE DIGGING AT 1-800-892-0123.
- THE CONTRACTOR'S ATTENTION IS CALLED TO THE PROPERTY MARKERS AND MONUMENTS, AND SECTION MARKERS THROUGHOUT THE PROJECT.
- THE CONTRACTOR MUST OBTAIN THE WRITTEN APPROVAL FROM THE ENGINEER FOR THE TYPE OF EQUIPMENT TO BE USED TO HAUL EARTH EXCAVATION MATERIALS ACROSS THE NEW BRIDGE STRUCTURE. ONLY RUBBER Tired EQUIPMENT WILL BE PERMITTED.
- WHEN THE CONTRACTOR PROPOSES TO PLACE ANY LOAD ON AN INCOMPLETE BRIDGE DECK OR OVERLOADS ON A COMPLETED BRIDGE DECK, THEY SHALL HAVE THE PROPOSED LOADING REVIEWED AND APPROVED BY A "STRUCTURAL ENGINEER" LICENSED IN THE STATE OF ILLINOIS.
 

THE "STRUCTURAL ENGINEER" SHALL INDICATE ANY LIMITING CONDITIONS FOR LOADING OF THE BRIDGE STRUCTURE. CONDITIONS FOR APPROVED LOADING MAY INCLUDE, BUT ARE NOT LIMITED TO, BACKFILLING AT ABUTMENTS, POURING OF END BLOCKS, GROUTING OF DECK AND DOWEL PINS, LOCATION OF EQUIPMENT ON THE DECK, MAXIMUM LOAD TO BE LIFTED BY THE EQUIPMENT, AND THE TYPE AND SIZE OF THE MATS TO BE PLACED ON THE BRIDGE DECK FOR THE EQUIPMENT OUTRIGGERS, ETC.

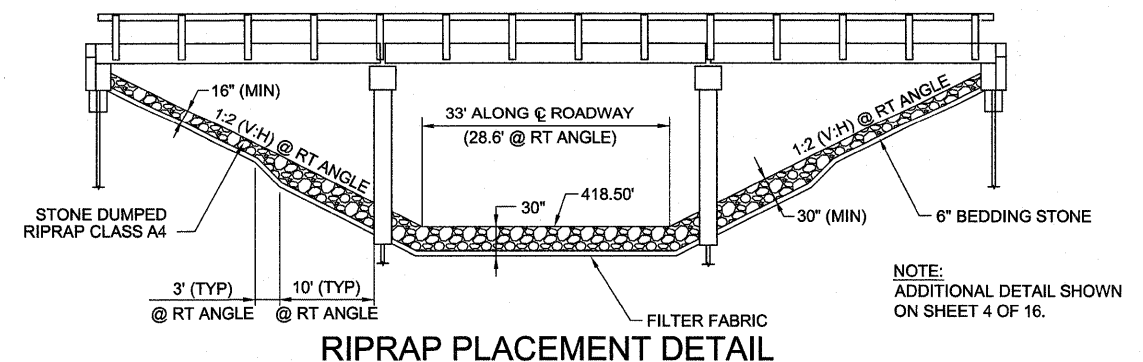
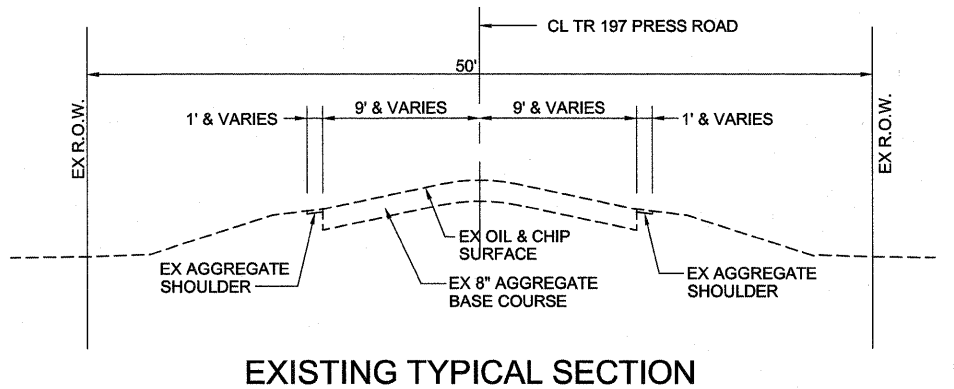
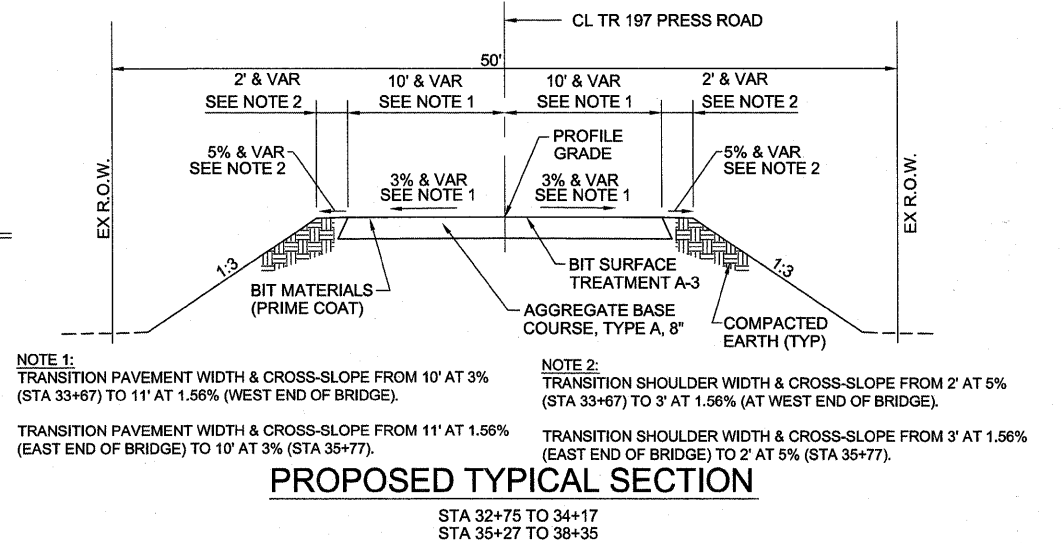
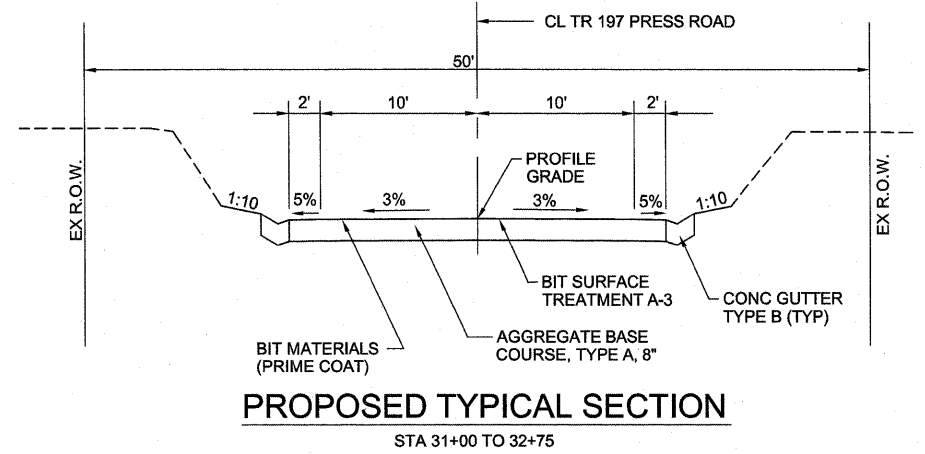
A COPY OF THE PLAN APPROVAL BY THE "STRUCTURAL ENGINEER" SHALL BE SUBMITTED TO THE OFFICE OF THE COUNTY ENGINEER PRIOR TO ANY LOADS BEING PALCED ON THE BRIDGE DECK. FURTHER, THE "STRUCTURAL ENGINEER" SHALL BE ON-SITE DURING THE PROPOSED STRUCTURE LOADING TO CERTIFY COMPLIANCE WITH HIS APPROVED PLAN.



**CURLLED END SECTION DETAILS**



**TRAFFIC CONTROL PLAN**



EROSION CONTROL SCHEDULE		
LOCATION	PERIMETER EROSION BARRIER (FOOT)	TEMPORARY DITCH CHECK (FOOT)
31+00 RT		6
31+00 LT		6
33+00 TO 34+00 LT	100	
33+00 TO 34+25 RT	125	
35+15 TO 36+50 LT	135	
35+30 TO 36+50 RT	120	
37+75 TO 38+35 LT	60	
TOTAL	540	12

FLEXIBLE PAVEMENT STRUCTURAL DESIGN INFORMATION	
AVERAGE ESTIMATED ADT (2010) = 275 ADT	
ROADWAY CLASSIFICATION - LOCAL ROAD	
PROPOSED MATERIAL:	
AGGREGATE BASE COURSE, TYPE A, 8"	
BITUMINOUS SURFACE TREATMENT A-3	

EARTHWORK SCHEDULE						
LOCATION	CUT VOLUME (EARTH EXCAVATION)	CHANNEL EXCAVATION	* UNSUITABLE EXCAVATION (NOT ADJ FOR SHRINK / SWELL)	EXCAVATION TO BE USED AS EMBANKMENT (ADJ FOR SHRINKAGE 25%)	FILL VOLUME (EMBANKMENT)	FURNISHED EXCAVATION
	CU YD	CU YD	CU YD	CU YD	CU YD	CU YD
31+00 TO 34+17	35.9	0.0	3.6	24.2	405.3	381.1
CHANNEL	0.0	550.0	550.0	0.0	0.0	0.0
35+27 TO 38+35	30.7	0.0	3.1	20.7	402.2	381.5
TOTAL	66.6	550.0	556.7	45.0	807.5	763.0

\* ESTIMATED AS 10% OF EARTH EXCAVATION AND CHANNEL EXCAVATION

FILE NAME = 53173-sh102\_gennote\_typical.dwg

DESIGNED -- K. RESTOFF  
 DRAWN -- D. MICKE  
 CHECKED -- M. HARRISON  
 DATE -- NOVEMBER 2010

REVISED --  
 REVISED --  
 REVISED --  
 REVISED --

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

GENERAL NOTES,  
 TYPICAL SECTIONS AND DETAILS

SCALE: N/A SHEET NO. 2 OF 16 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	08-18101-04-BR	ST. CLAIR	16	2
PROJECT BROS-163(32)			CONTRACT NO. 97466	
ILLINOIS FED. AID PROJECT				



**DESIGN SPECIFICATIONS**

2010 AASHTO LRFD Bridge Design Specifications

**SEISMIC DATA**

Seismic Performance Zone (SPZ) = 2  
 Design Spectral Acceleration at 1.0 sec. ( $S_{D1}$ ) = 0.26  
 Design Spectral Acceleration at 0.2 sec. ( $S_{D5}$ ) = 0.61  
 Soil Site Class = D

**LOADING HL-93**

Allow 50#/sq. ft. for future wearing surface.

**DESIGN STRESSES**

**FIELD UNITS**  
 $f'_c$  = 3,500 psi  
 $f_y$  = 60,000 psi (Reinforcement)  
 $f_y$  = 50,000 psi (M270 Grade 50)(Piling)

**HIGHWAY CLASSIFICATION**

Functional Class: Local Road (Non-Urban)  
 ADT: 275 (2010); 500 (2027)  
 ADTT: 6 (2010); 10 (2027)  
 DHV: 30 (2010)  
 Design Speed: 40 m.p.h.  
 Posted Speed: None  
 Two-Way Traffic  
 Directional Distribution: 50/50

Benchmark A (FEMA NAVD 29)  
 Chiseled "a" on Top of Concrete Wing Wall @ NE Corner of Press Road Bridge over Richland Creek (RM-340-3) Elev. 430.36

**DESIGN SCOUR ELEVATION TABLE**

Design Scour Elevation (ft.)	Abut. 1	Piers 2 & 3	Abut. 4
	432.92	418.50	432.36

**TOTAL BILL OF MATERIAL**

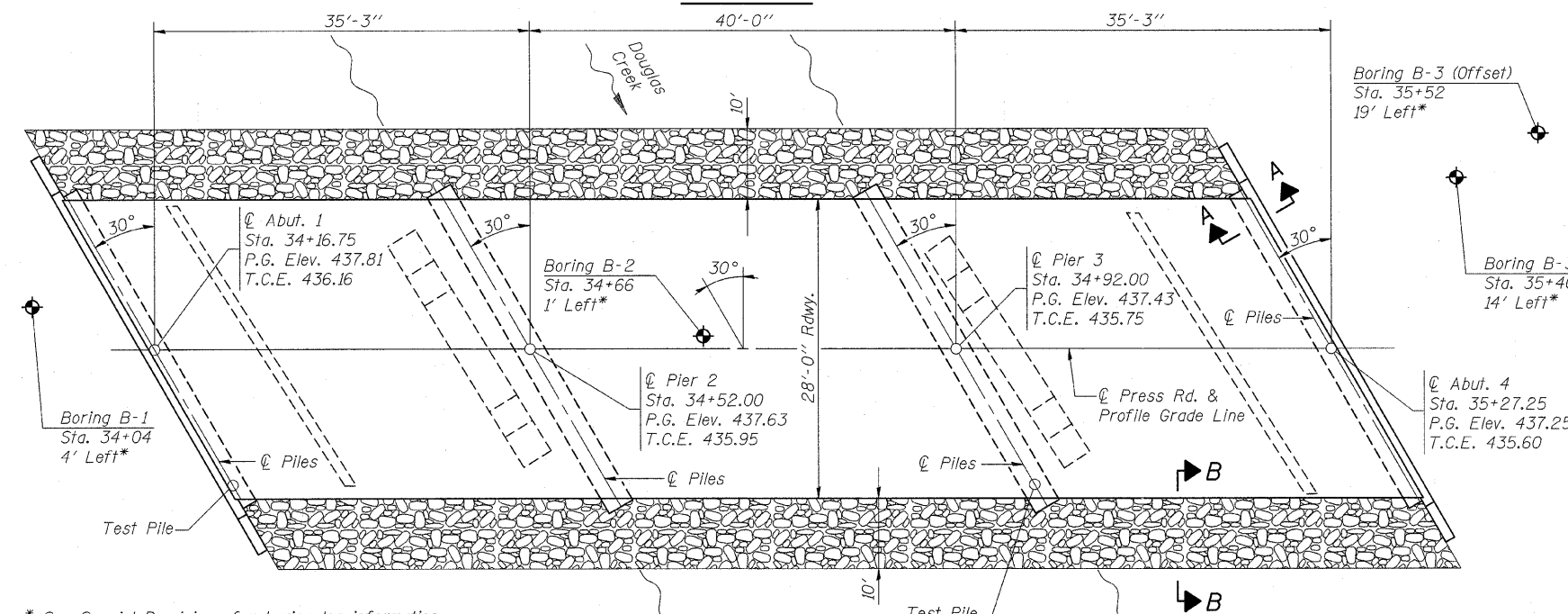
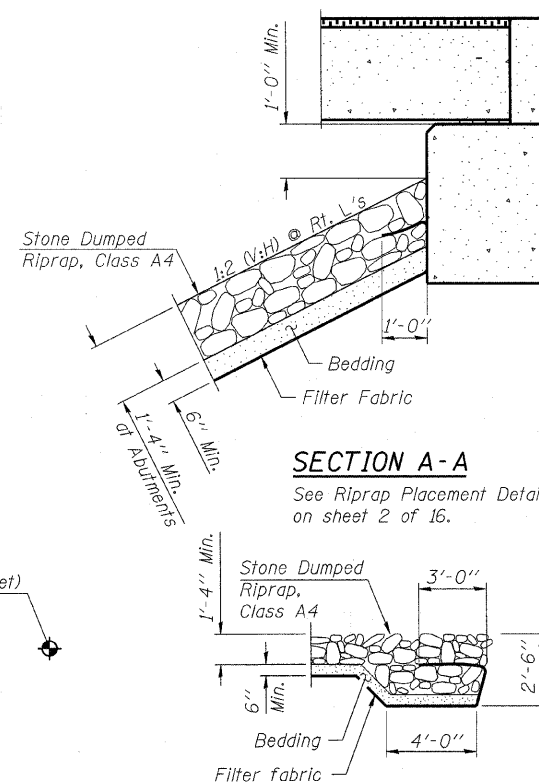
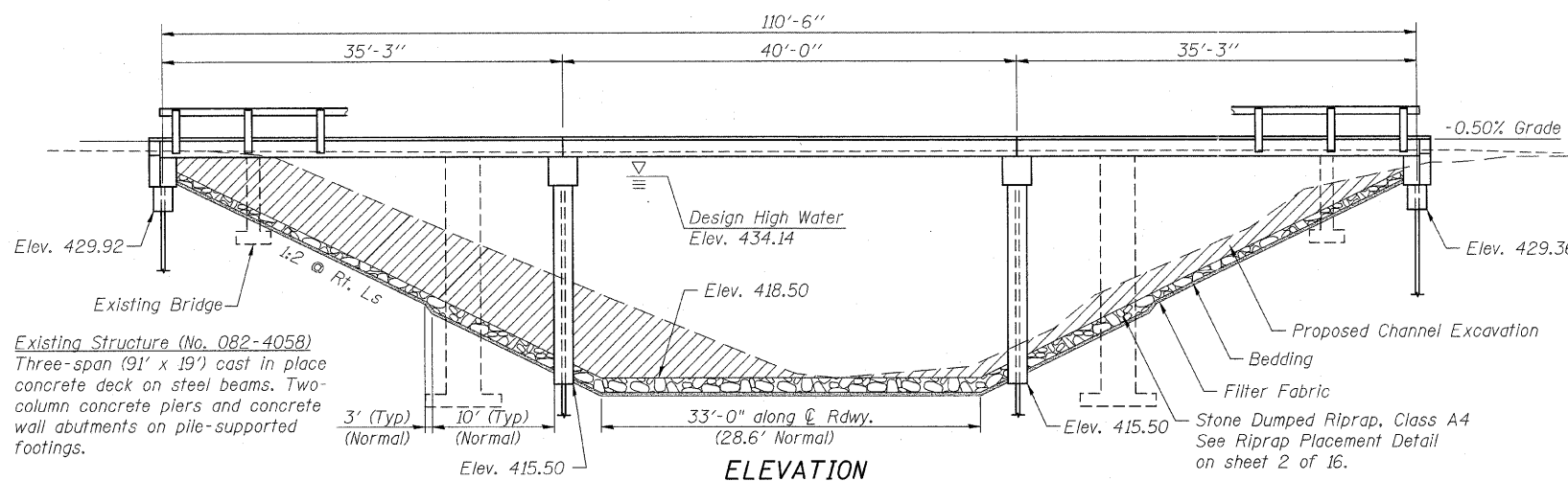
ITEM	UNIT	SUPER	SUB	TOTAL
Stone Dumped Riprap, Class A4	Sq. Yd.			626
Filter Fabric	Sq. Yd.			626
Hot-Mix Asphalt Surface Course, Mix "C", N70	Ton	30.7		30.7
Removal of Existing Structures	Each			1
Concrete Structures	Cu. Yd.		48.2	48.2
Concrete Encasement	Cu. Yd.		24.1	24.1
Precast Prestressed Conc. Deck Bms. (17" depth)	Sq. Ft.	3122		3122
Reinforcement Bars, Epoxy Coated	Pound		5300	5300
Steel Railing, Type S-1	Foot	224		224
Furnishing Steel Piles, HP12x53	Foot		648	648
Driving Piles	Foot		648	648
Test Pile, Steel HP12x53	Each		2	2
Pile Shoes	Each		20	20
Name Plates	Each			1
Waterproofing Membrane System	Sq. Yd.	346.6		346.6
Portland Cement Mortar Fairing Course	Foot	670		670
Controlled Low-Strength Material	Cu. Yd.		29.0	29.0
Underwater Structure Excavation Protection-Location 1	Each		1	1
Underwater Structure Excavation Protection-Location 2	Each		1	1

I certify that to the best knowledge, information and belief, this bridge design is structurally adequate for design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements for the current AASHTO Standard Specifications for Highway Bridges.



*Kevin P. Heffern*  
 Kevin P. Heffern, S.E.  
 4/12/11  
 Date

License No: 081-006834  
 Expiration: 11/30/2012



**GENERAL NOTES**

All materials required to be removed which are considered salvageable by the Engineer shall remain the property of the Road District. All others shall be disposed of by the Contractor at his own expense.

Reinforcement bars shall conform to the requirements of ASTM A 706 Gr. 60. See Special Provisions.

Reinforcement bars designated (E) shall be epoxy coated.

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

The embankment configuration shown shall be the minimum that must be placed and compacted prior to construction of the abutments.

Cost of excavation within the limits of Std Specification 502.12(6) shall be considered as included in the contract unit price for Concrete Structures or Concrete Encasement as applicable.

Excavation behind abutments and wingwalls shall be backfilled with Controlled Low-Strength Material according to Standard Specification 593.

**INDEX OF SHEETS**

- General Plan and Elevation
- PPC Deck Beam Superstructure (End Spans)
- PPC Deck Beam Superstructure (Interior Span)
- 17"x48" PPC Deck Beam (End Spans)
- 17"x48" PPC Deck Beam Details (End Spans)
- 17"x48" PPC Deck Beam (Interior Span)
- 17"x48" PPC Deck Beam Details (Interior Span)
- Abutments 1 & 4
- Piers 2 & 3
- Steel Railing, Type S-1
- HP Pile Details

**WATERWAY INFORMATION**

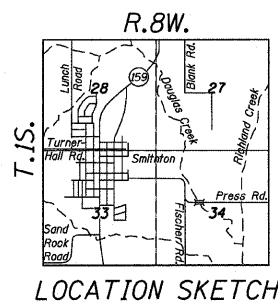
Drainage Area = 20.4 Sq. Mi. Low Grade Elev. 434.38 @ Sta. 37+65

Flood	Freq. Yr.	Opening Sq. Ft.		Nat. H.W.E.		Head - Ft.		Headwater El.	
		Exist.	Prop.	Exist.	Prop.	Exist.	Prop.	Exist.	Prop.
Design	20	3770	655	946	434.14	0.75	0.59	434.89	434.73
Base	100	5560	655	998	435.72	1.58	1.09	437.20	436.81
Overtop (Ex.)	15	3432	632	842	433.75	0.63	0.54	434.38	434.29
Overtop (Pr.)	16	3495	637	849	433.83	0.64	0.55	434.47	434.38
Max. Calc.	500	7580	655	998	437.15	0.65	1.21	437.80	438.36

DOUGLAS CREEK  
 BUILT 20L BY  
 SMITHTON ROAD DISTRICT  
 ST. CLAIR COUNTY  
 SEC. 08-18101-04-BR  
 STATION 34+72  
 STR. NO. 082-4158  
 LOADING HL-93

**LETTERING FOR NAME PLATE**

Locate Name Plate at S.W. Wingwall  
 (See Std. 515001)



FILE NAME = 53173-bridge sheets.dgn	DESIGNED - K. HEFFERN	REVISED -
	DRAWN - K. HEFFERN	REVISED -
	CHECKED - C. EPPERLY	REVISED -
	DATE - NOVEMBER 2010	REVISED -

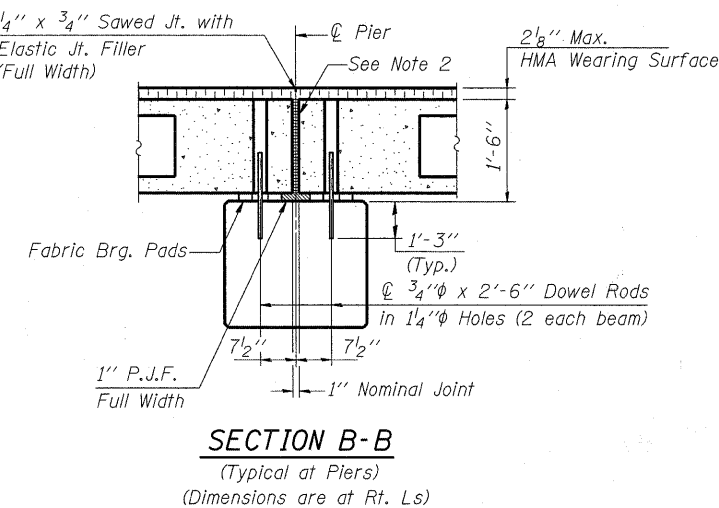
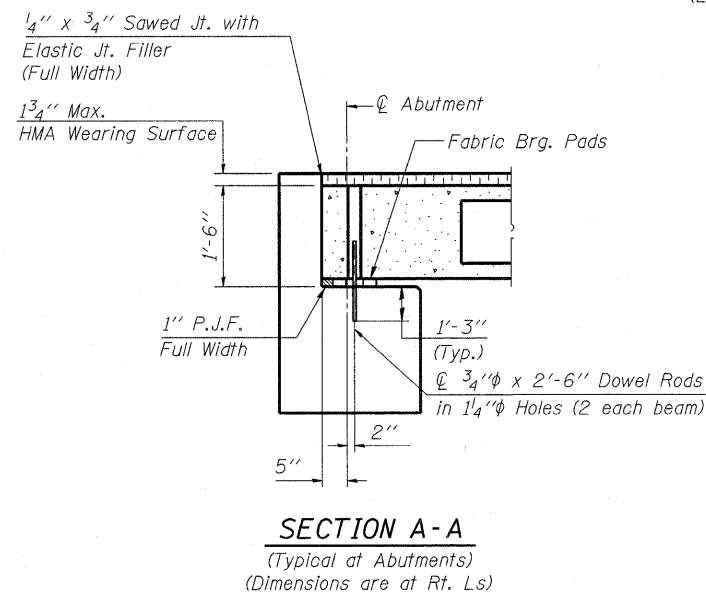
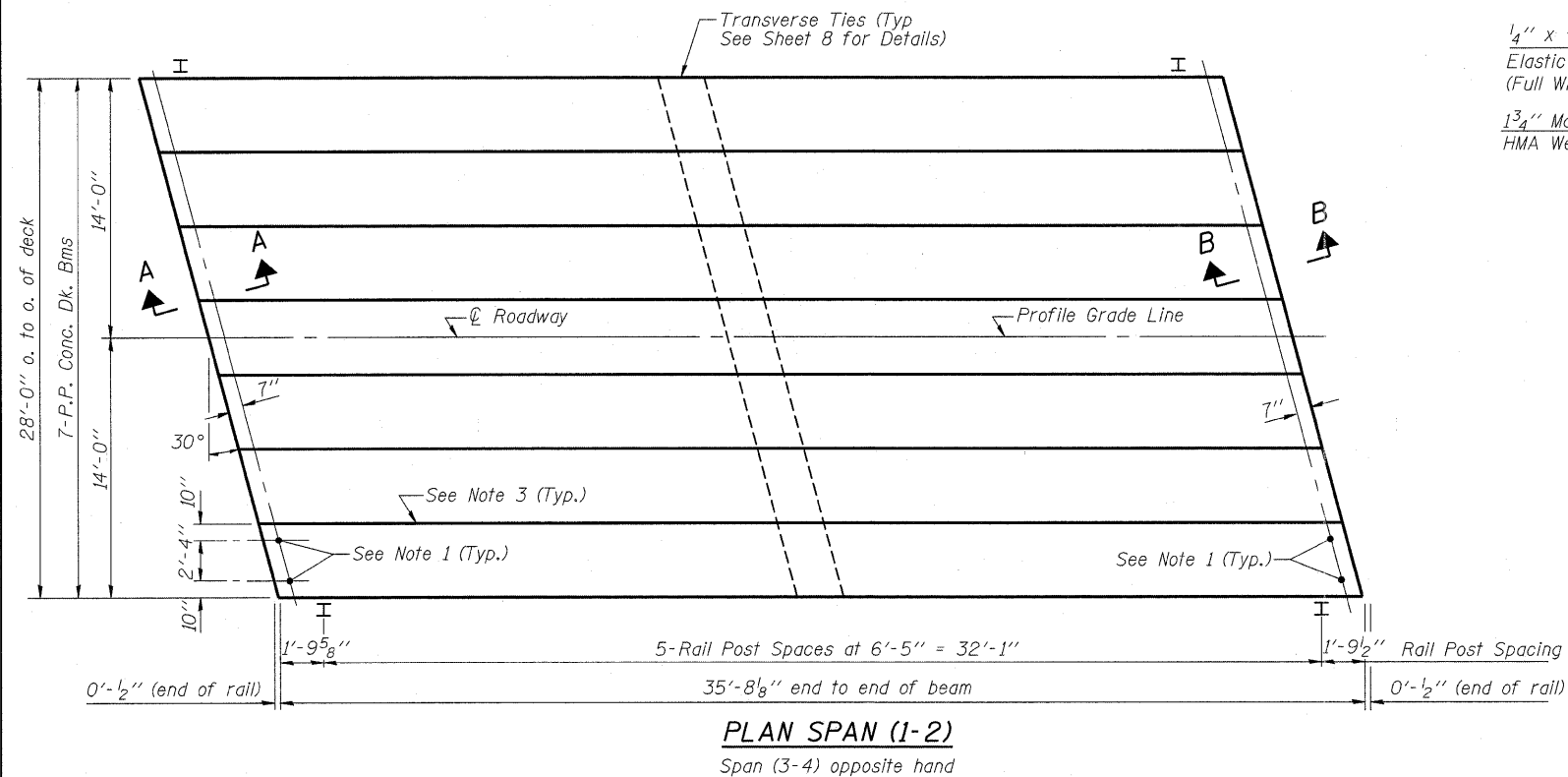
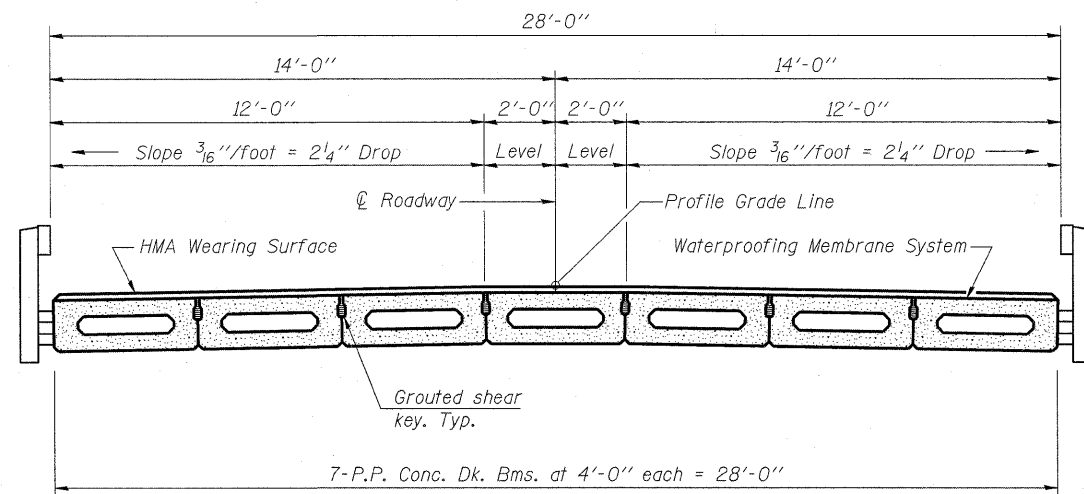
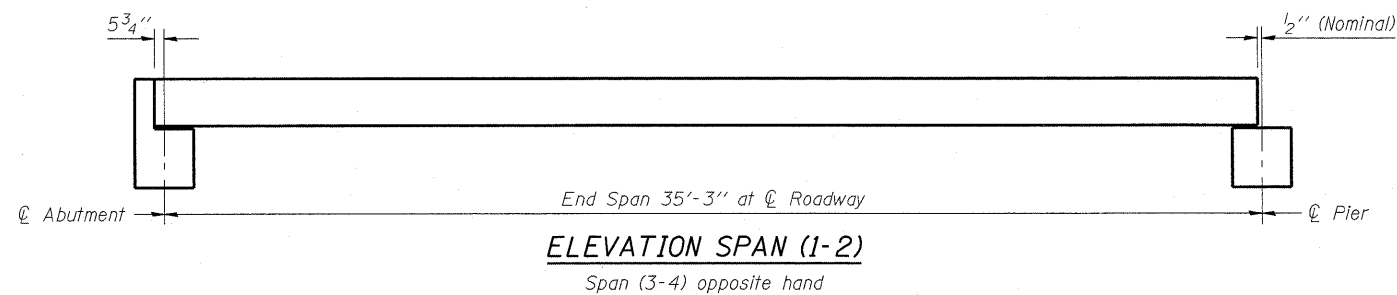
**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**GENERAL PLAN & ELEVATION  
 STRUCTURE NO. 082-4158**

SCALE: N/A SHEET NO. 4 OF 16 SHEETS STA. 34+16.75 TO STA. 35+27.25

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	08-18101-04-BR	ST. CLAIR	16	4
PROJECT BROS-163(32)			CONTRACT NO. 97466	

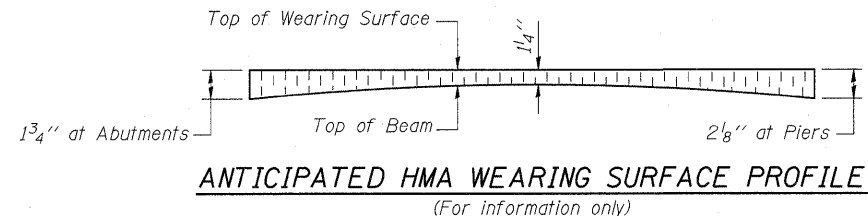
ILLINOIS FED. AID PROJECT



**BILL OF MATERIAL FOR ONE END SPAN**

ITEM	UNIT	QUANTITY
Hot-Mix Asphalt Surface Course, Mix "C", N70	Ton	10.0
Waterproofing Membrane System	Sq. Yd.	111.1
Portland Cement Mortar Fairing Course	Foot	215

- NOTES**
- 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.
  - Nominal 1" joint at centerline Pier shall be filled with non-shrink grout.
  - Longitudinal keys shall be grouted.



FILE NAME = 53173-bridge sheets.dgn

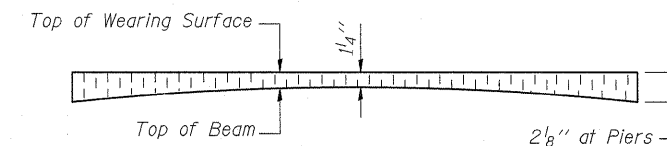
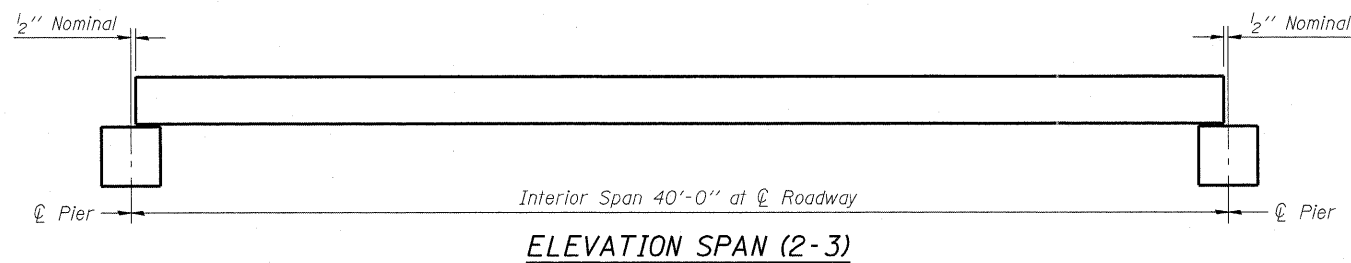
DESIGNED - K. HEFFERN	REVISED -
DRAWN - K. HEFFERN	REVISED -
CHECKED - C. EPPERLY	REVISED -
DATE - NOVEMBER 2010	REVISED -

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

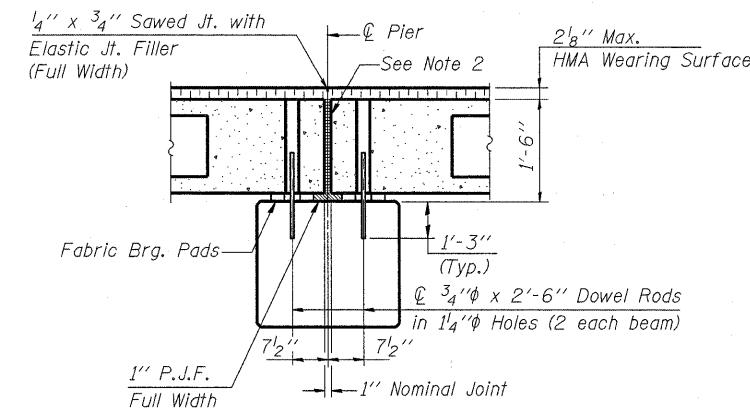
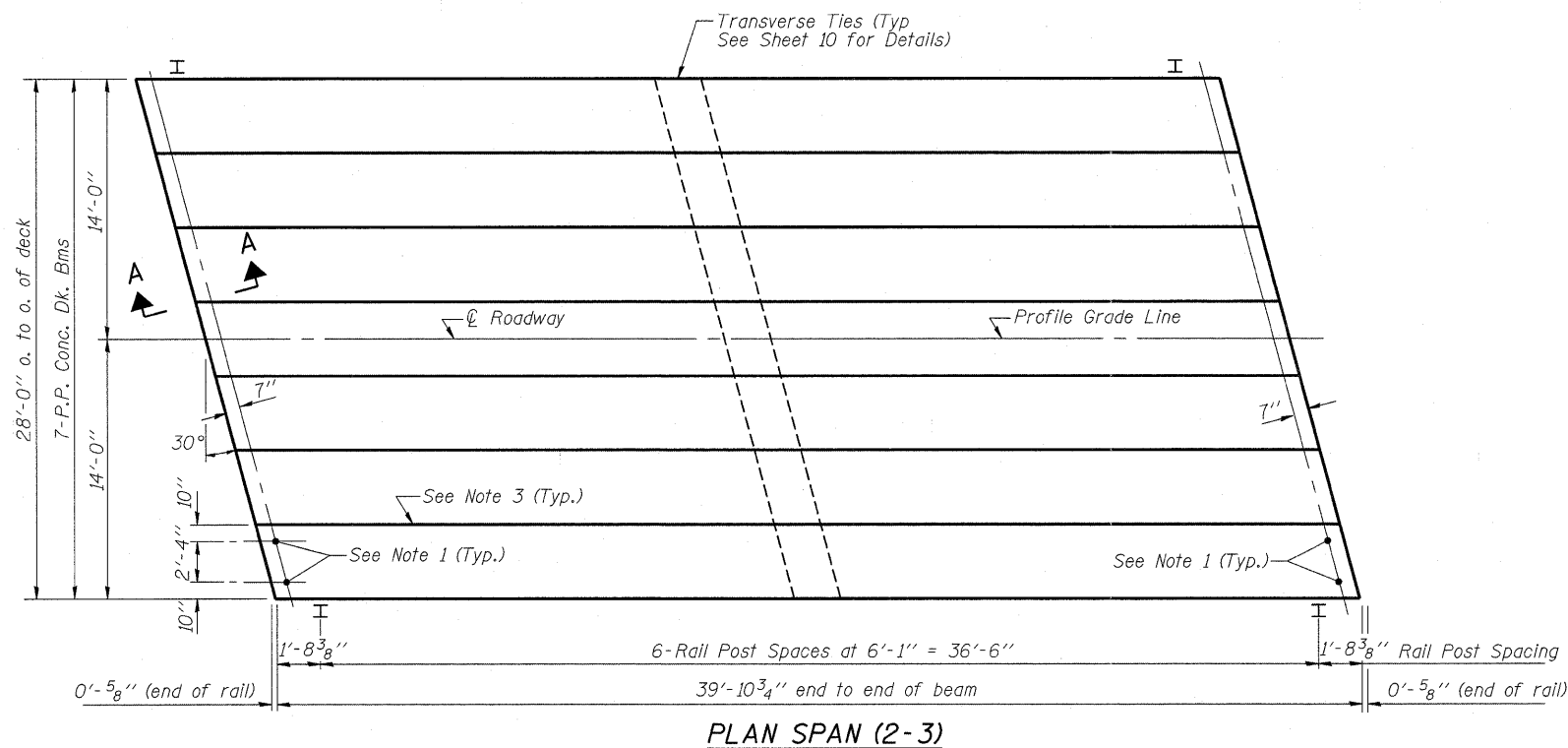
**PPC DECK BEAM SUPERSTRUCTURE (END SPANS)**  
**STRUCTURE NO. 082-4158**

SCALE: N/A SHEET NO. 5 OF 16 SHEETS STA. 34+16.75 TO STA. 35+27.25

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	08-18101-04-BR	ST. CLAIR	16	5
PROJECT BROS-163(32)			CONTRACT NO. 97466	
ILLINOIS FED. AID PROJECT				



**ANTICIPATED HMA WEARING SURFACE PROFILE**  
(For information only)



**SECTION A-A**  
(Typical at Piers)  
(Dimensions are at Rt. Ls)

**BILL OF MATERIAL FOR INTERIOR SPAN**

ITEM	UNIT	QUANTITY
Hot-Mix Asphalt Surface Course, Mix "C", N70	Ton	10.7
Waterproofing Membrane System	Sq. Yd.	124.4
Portland Cement Mortar Fairing Course	Foot	240

**NOTES**

- 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.
- Nominal 1" joint at  $\phi$  Pier shall be filled with non-shrink grout.
- Longitudinal keys shall be grouted.

FILE NAME =  
53173-bridge sheets.dgn

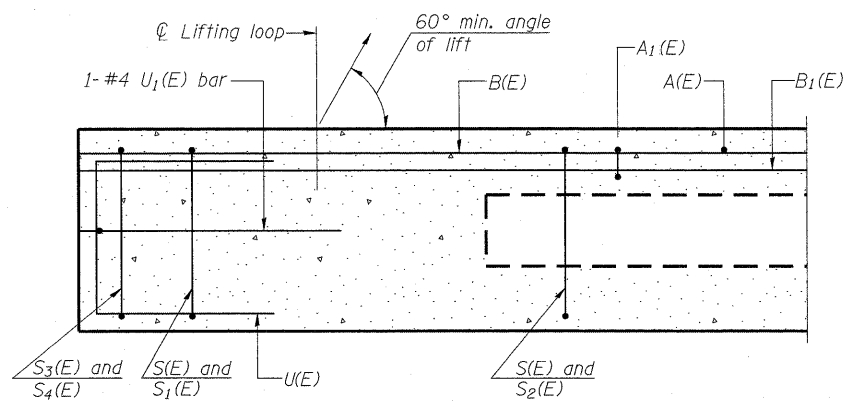
DESIGNED - K. HEFFERN	REVISED -
DRAWN - K. HEFFERN	REVISED -
CHECKED - C. EPPERLY	REVISED -
DATE - NOVEMBER 2010	REVISED -

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

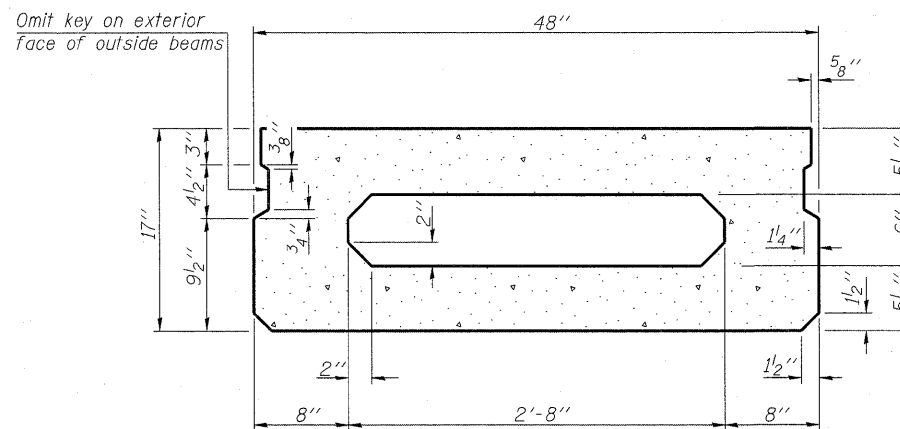
**PPC DECK BEAM SUPERSTRUCTURE (INTERIOR SPAN)**  
**STRUCTURE NO. 082-4158**

SCALE: N/A SHEET NO. 6 OF 16 SHEETS STA. 34+16.75 TO STA. 35+27.25

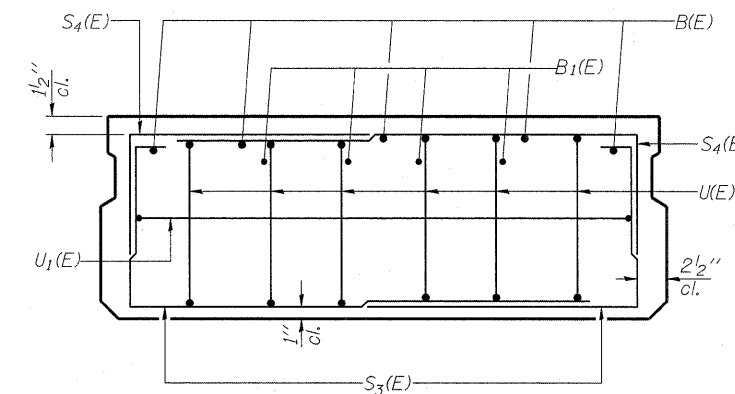
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	08-18101-04-BR	ST. CLAIR	16	6
PROJECT BROS-163(32)		CONTRACT NO. 97466		
ILLINOIS FED. AID PROJECT				



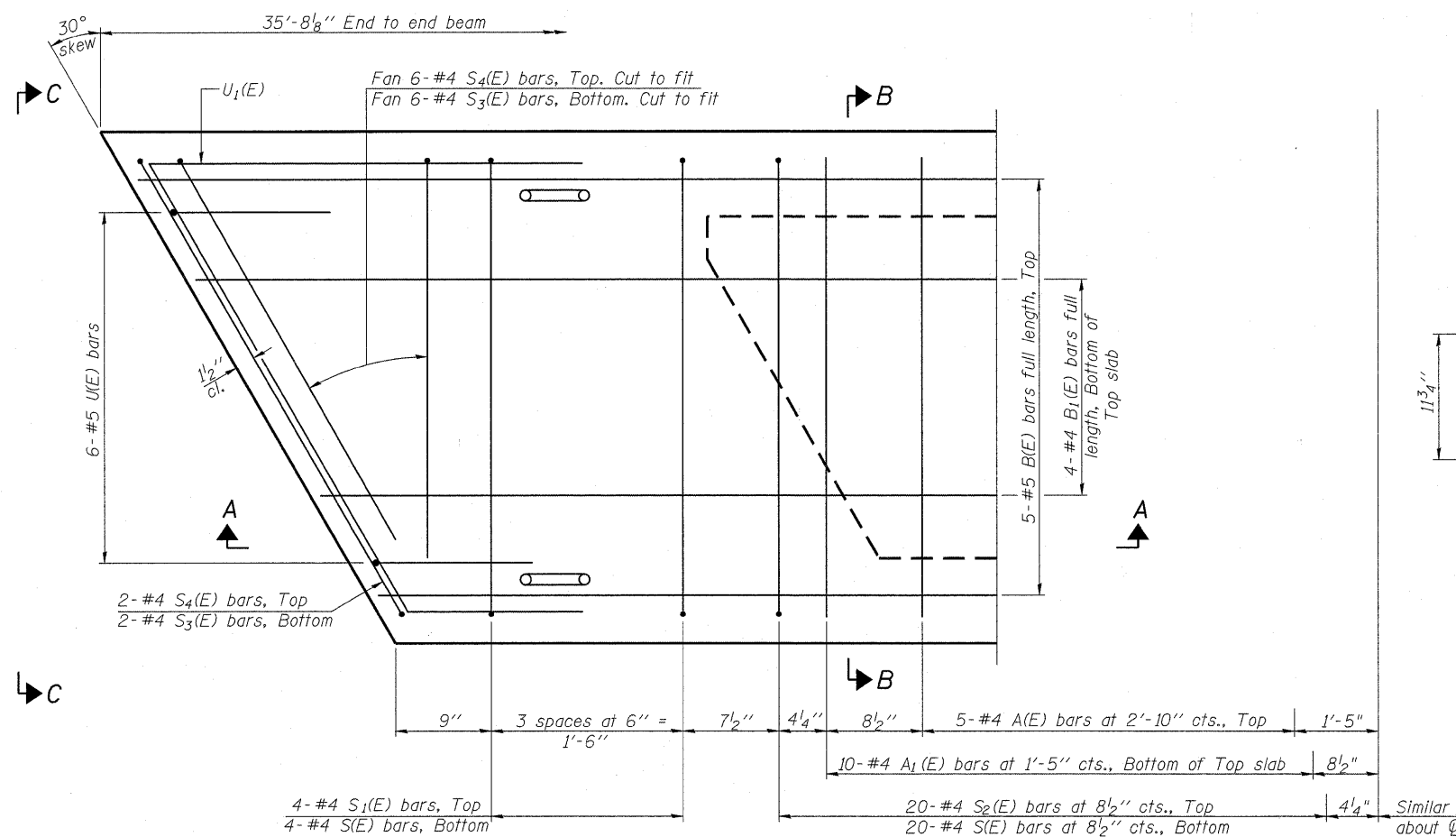
**SECTION A-A**



**SECTION B-B**  
(Showing dimensions)

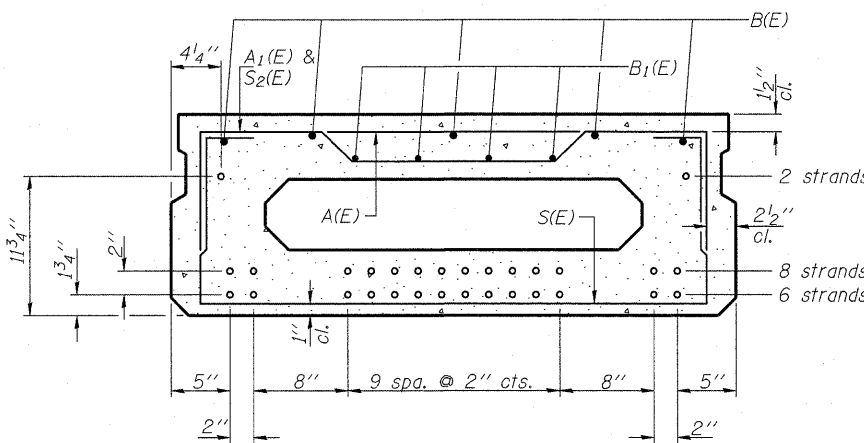


**VIEW C-C**



**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 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)	10	#4	3'-7"	—
A1(E)	20	#4	3'-10"	—
B(E)	5	#5	35'-5"	—
B1(E)	4	#4	35'-5"	—
S(E)	48	#4	6'-9"	U
S1(E)	8	#4	5'-3"	U
S2(E)	40	#4	5'-6"	U
S3(E)	16	#4	4'-8"	U
S4(E)	16	#4	3'-11"	U
U(E)	12	#5	3'-8"	U
U1(E)	2	#4	8'-7"	U

Note: See sheet 8 of 16 for additional details and Bill of Material.

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

FILE NAME =  
E3173-bridge sheets.dgn

DESIGNED - K. HEFFERN  
DRAWN - C. BECKER  
CHECKED - C. EPPERLY  
DATE - NOVEMBER 2010

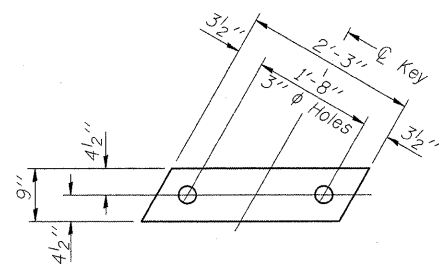
REVISED -  
REVISED -  
REVISED -  
REVISED -

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

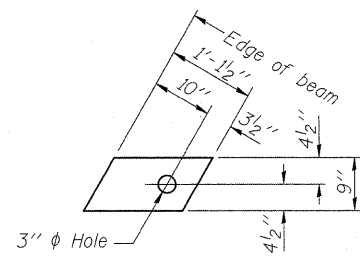
**17"x48" PPC DECK BEAM (END SPANS)**  
**STRUCTURE NO. 082-4158**

SCALE: N/A SHEET NO. 7 OF 16 SHEETS STA. 34+16.75 TO STA. 35+27.25

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	08-18101-04-BR	ST. CLAIR	16	7
PROJECT BROS-163(32)			CONTRACT NO. 97466	
ILLINOIS FED. AID PROJECT				



**FABRIC BEARING PAD**  
(Interior)

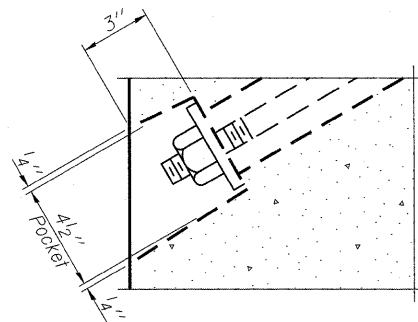


**FABRIC BEARING PAD**  
(Exterior)

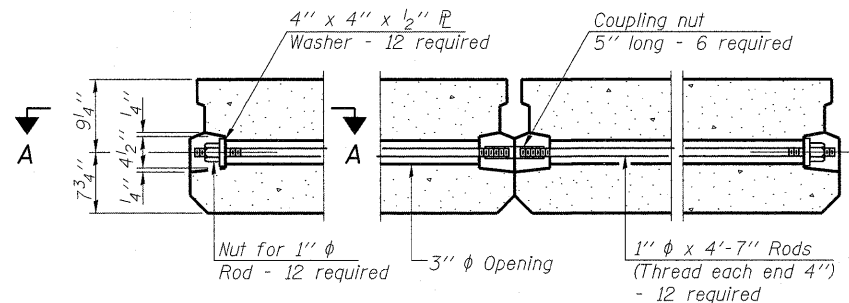
**Notes:**

**FIXED**

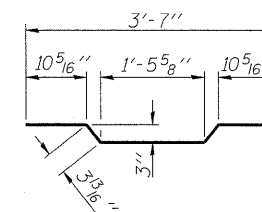
All bearing pads shall be 1" thick.  
Omit holes when using expansion bearings.  
Expansion bearing pad shall be bonded to the substructure.



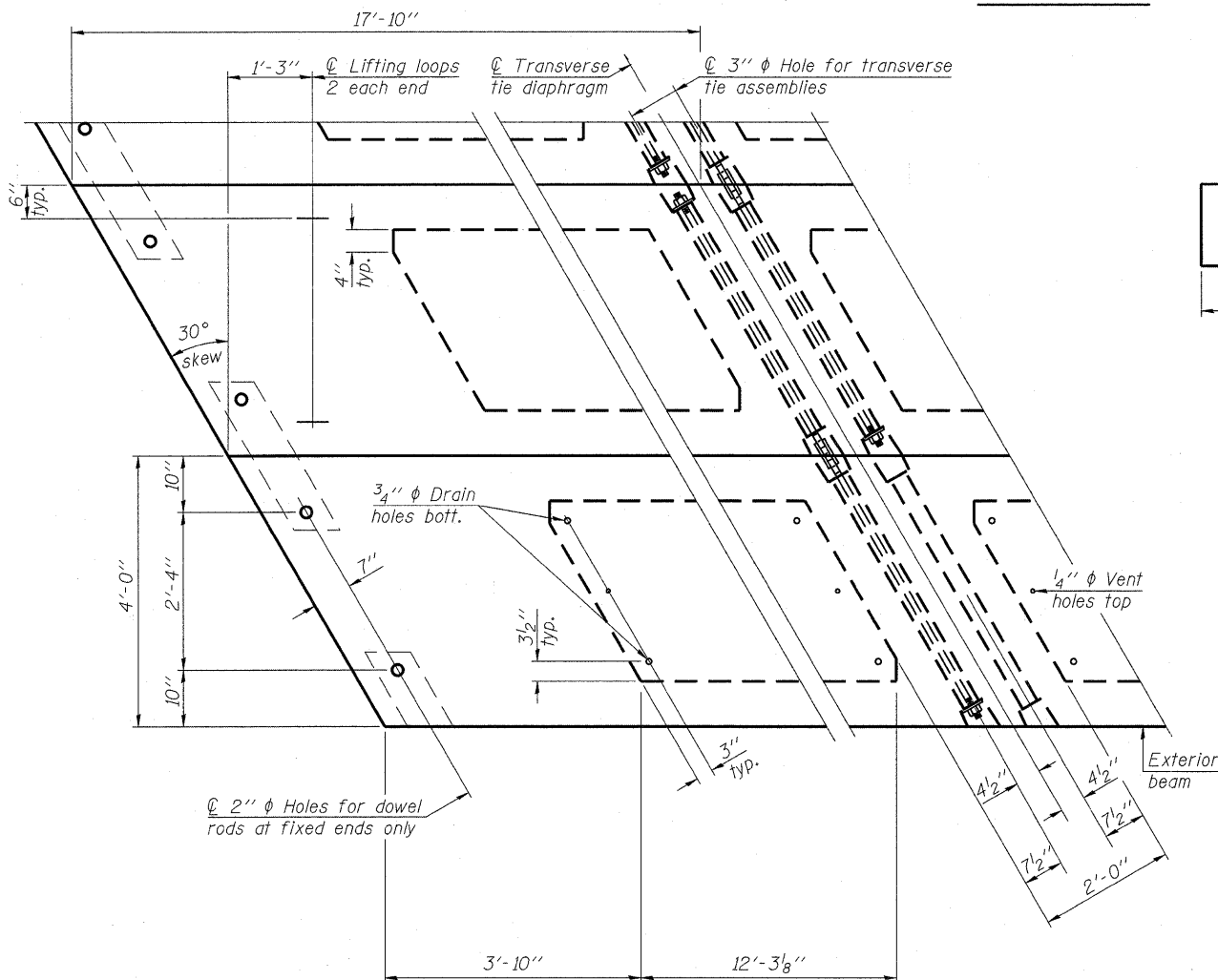
**SECTION A-A**



**TYPICAL TRANSVERSE TIE ASSEMBLY**



**BAR A1(E)**



**PLAN VIEW**

**NOTES**

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. The 1" rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place.  
Reinforcement bars shall conform to ASTM A 706, Grade 60. (See Special Provisions).  
Two 1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.  
A minimum 2 1/2" diameter lifting pin shall be used to engage the lifting loops during handling.  
Corrosion Inhibitor, per Article 1020.05(b)(12) and 1021.06 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.

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

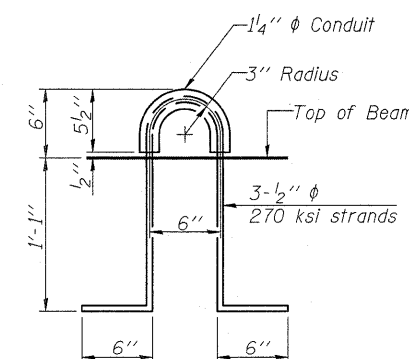
**17"x48" PPC DECK BEAM DETAILS (END SPANS)**  
**STRUCTURE NO. 082-4158**

SCALE: N/A SHEET NO. 8 OF 16 SHEETS STA. 34+16.75 TO STA. 35+27.25

**BILL OF MATERIAL**  
**FOR ONE END SPAN**

Precast Prestressed Conc. Deck Bms. (17" depth)	Sq. Ft.	1001
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**LIFTING LOOP DETAIL**



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

FILE NAME = 53173-bridge sheets.dgn

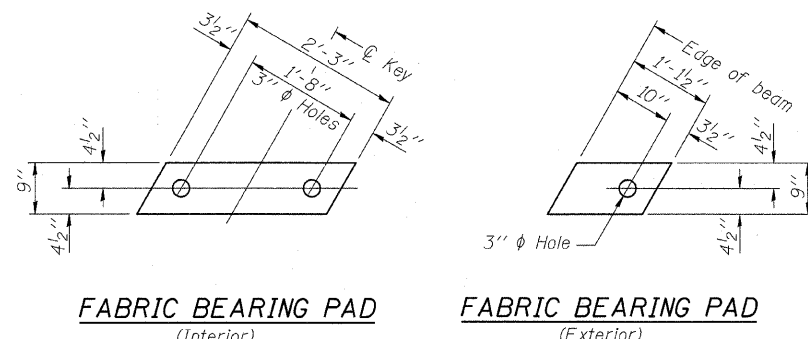
DESIGNED - K. HEFFERN  
DRAWN - C. BECKER  
CHECKED - C. EPPERLY  
DATE - NOVEMBER 2010

REVISED -  
REVISED -  
REVISED -  
REVISED -

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	08-18101-04-BR	ST. CLAIR	16	8
PROJECT BROS-163(32)		CONTRACT NO. 97466		
ILLINOIS FED. AID PROJECT				

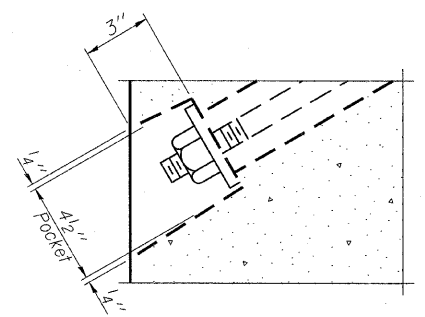




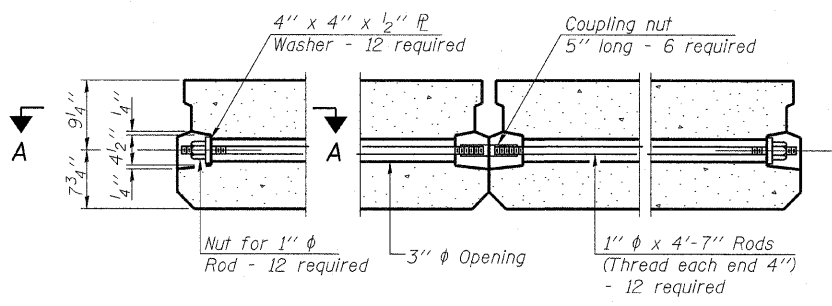


**FABRIC BEARING PAD**  
(Interior)      **FABRIC BEARING PAD**  
(Exterior)

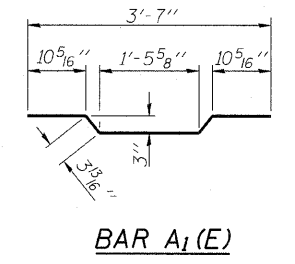
**Notes:**  
**FIXED**  
All bearing pads shall be 1" thick.  
Omit holes when using expansion bearings.  
Expansion bearing pad shall be bonded to the substructure.



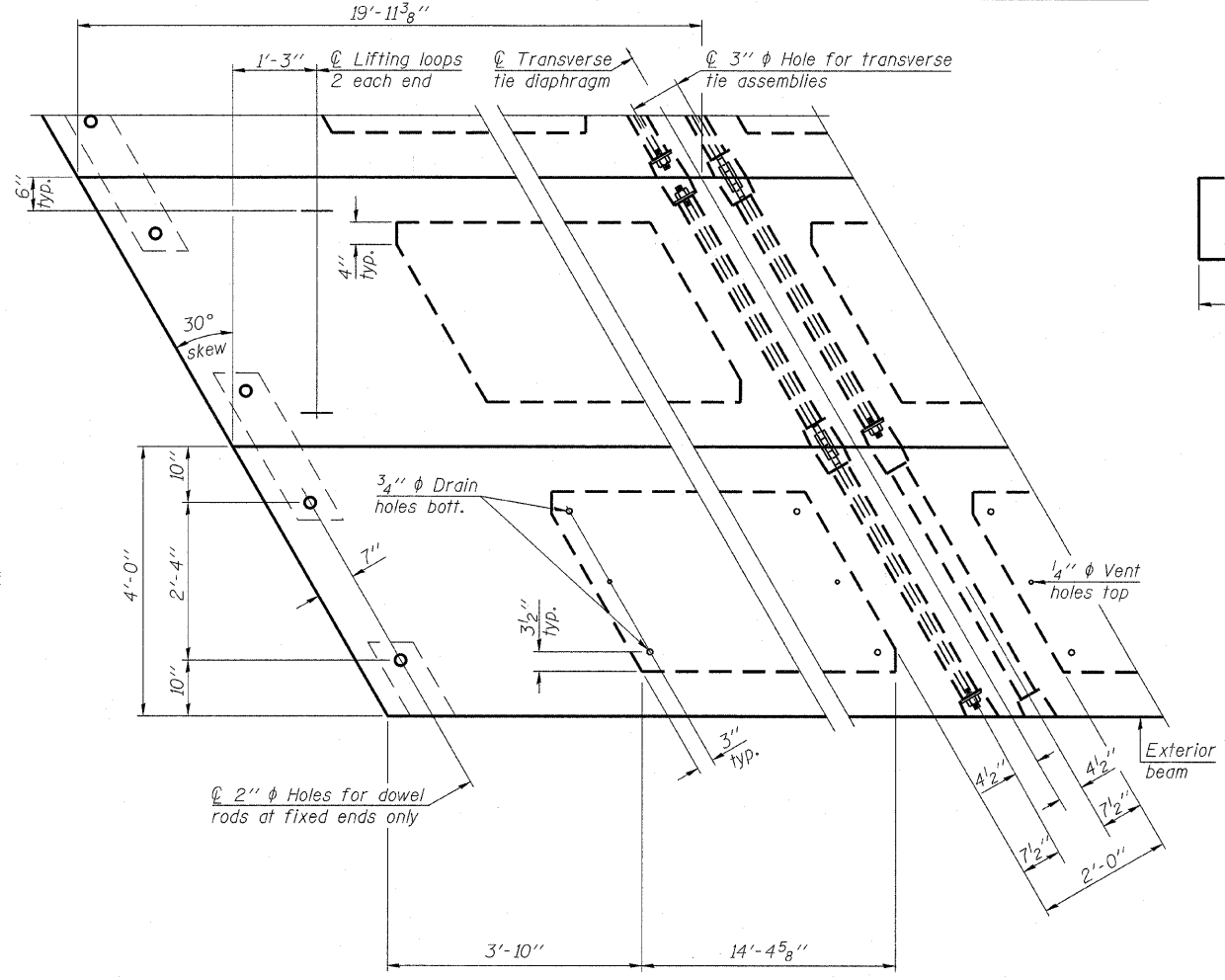
**SECTION A-A**



**TYPICAL TRANSVERSE TIE ASSEMBLY**



**BAR A1(E)**



**PLAN VIEW**

**NOTES**

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. The 1" 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 5/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.  
A minimum 2 1/2" diameter lifting pin shall be used to engage the lifting loops during handling.  
Corrosion Inhibitor, per Article 1020.05(b)(12) and 1021.06 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.

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**17"x48" PPC DECK BEAM DETAILS (INTERIOR SPAN)**  
**STRUCTURE NO. 082-4158**

SCALE: N/A      SHEET NO. 10 OF 16 SHEETS      STA. 34+16.75 TO STA. 35+27.25

DESIGNED - K. HEFFERN	REVISED -
DRAWN - C. BECKER	REVISED -
CHECKED - C. EPPERLY	REVISED -
DATE - NOVEMBER 2010	REVISED -

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	08-18101-04-BR	ST. CLAIR	16	10
PROJECT BROS-163(32)			CONTRACT NO. 97466	
ILLINOIS FED. AID PROJECT				

BILL OF MATERIAL		
Precast Prestressed Conc. Deck Bms. (17" depth)	Sq. Ft.	1120



**LIFTING LOOP DETAIL**

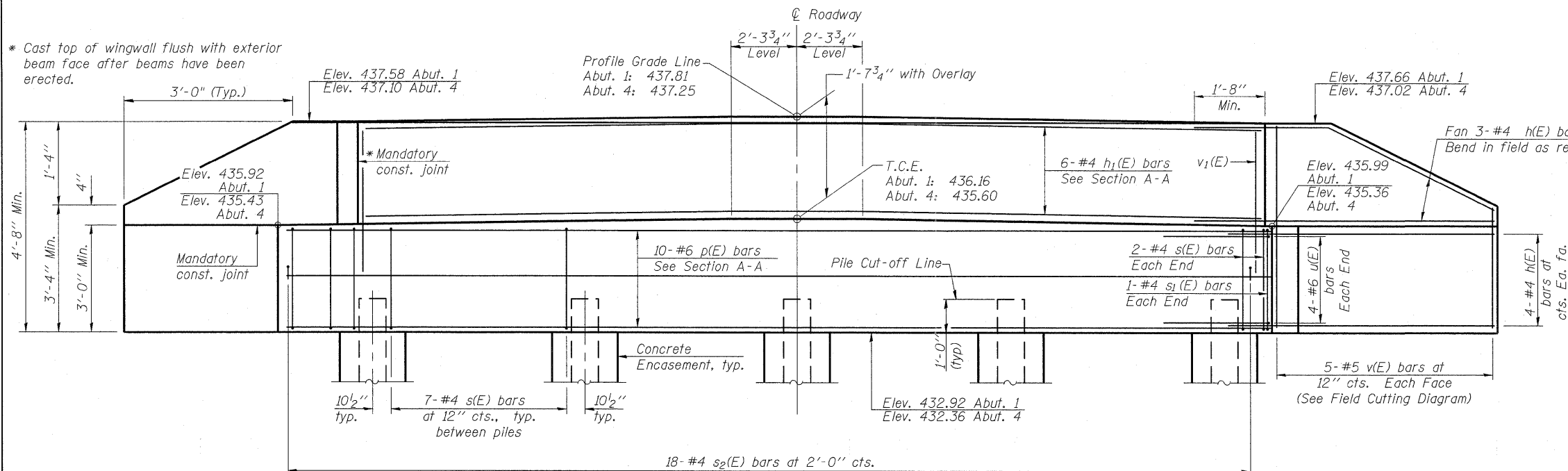


**BAR U1(E)**

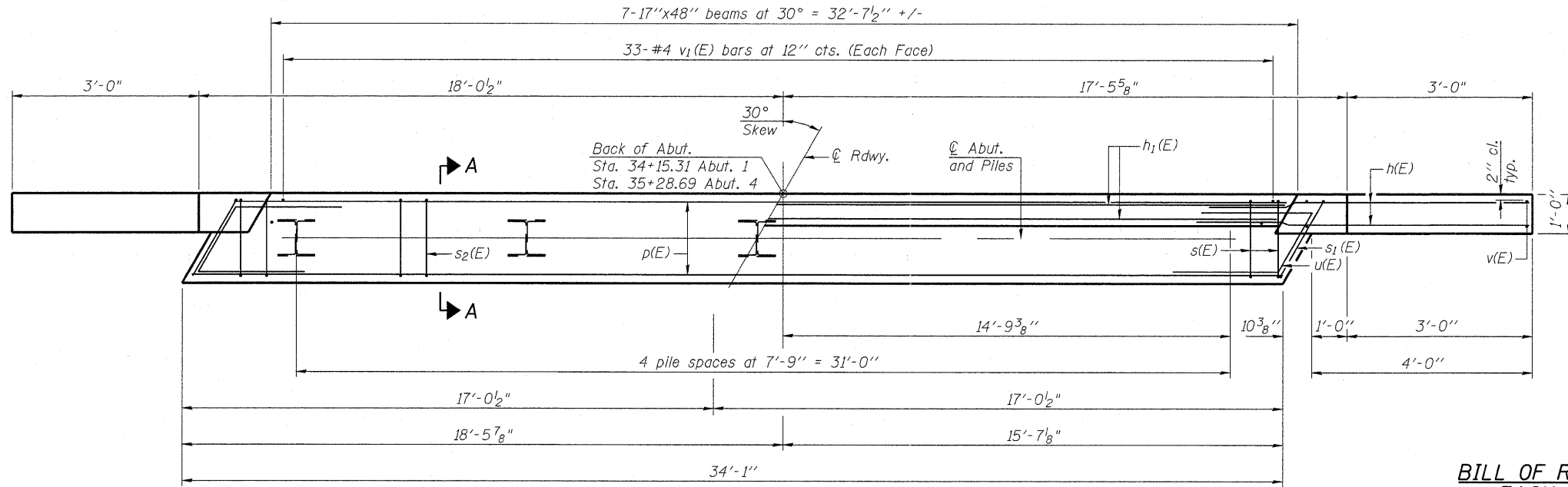
FILE NAME = 53173-bridge\_sheets.dgn

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

\* Cast top of wingwall flush with exterior beam face after beams have been erected.



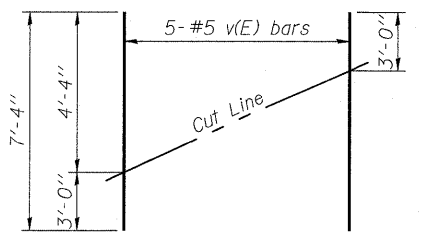
**ELEVATION**  
Abut. 1: Looking West  
Abut. 2: Looking East



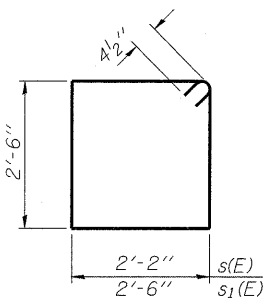
**PLAN**

**PILE DATA**

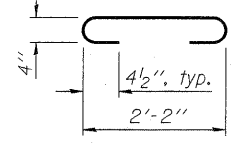
Type: HP12x53  
Nominal Required Bearing: 182 k/pile  
Factored Resistance Available: 210 k/pile  
Abut. 1:  
No. Production Piles: 4  
No. Test Piles: 1  
Abut. 4:  
No. Production Piles: 5  
No. Test Piles: 0  
Est. Length: 33 Ft. (Abut. 1)  
33 Ft. (Abut. 4)



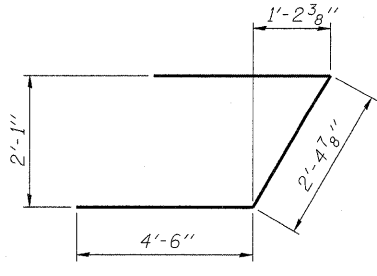
**FIELD CUTTING DIAGRAM**  
Order v(E) full length. Cut as shown and use remainder of bars in opposite face.



**BARS s(E) & s1(E)**



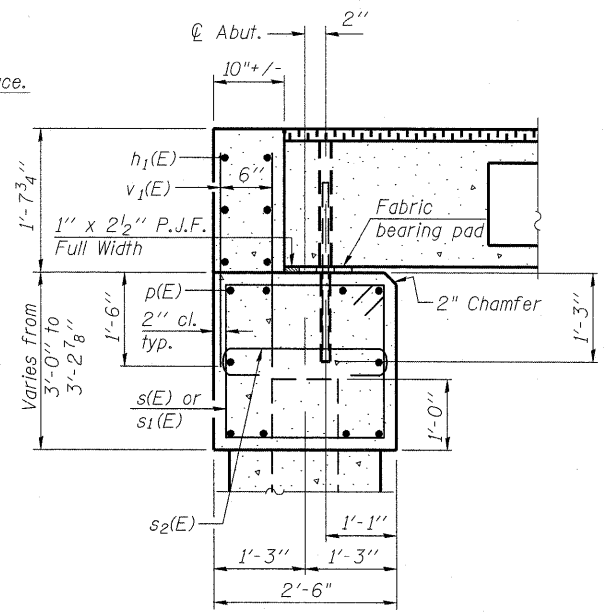
**BAR s2(E)**



**BAR u(E)**

**BILL OF REINFORCEMENT EACH ABUTMENT**

Bar	No.	Size	Length	Shape
h(E)	28	#4	5'-9"	—
h1(E)	6	#4	32'-3"	—
p(E)	10	#6	33'-9"	—
s(E)	32	#4	10'-1"	□
s1(E)	2	#4	10'-9"	□
s2(E)	18	#4	3'-2"	U
u(E)	8	#6	11'-5"	J
v(E)	10	#5	7'-4"	—
v1(E)	66	#4	3'-0"	—



**SECTION A-A**  
(Dimensions are at Rt. L's)

**BILL OF MATERIAL ABUTMENTS 1 & 4**

		Abut. 1	Abut. 4
Concrete Structures	Cu. Yd.	12.9	12.9
Reinforcement Bars, Epoxy Coated	Pound	1360	1360
Furnishing Steel Piles, HP12x53	Foot	132	165
Driving Piles	Foot	132	165
Test Pile, Steel HP12x53	Each	1	0
Pile Shoes	Each	5	5
Concrete Encasement	Cu. Yd.	1.8	1.8
Controlled Low-Strength Material	Cu. Yd.	14.5	14.5

For details of piles including Seismic Pile Anchorage, Pile Shoes and Concrete Encasement, see sheet 14 of 16.

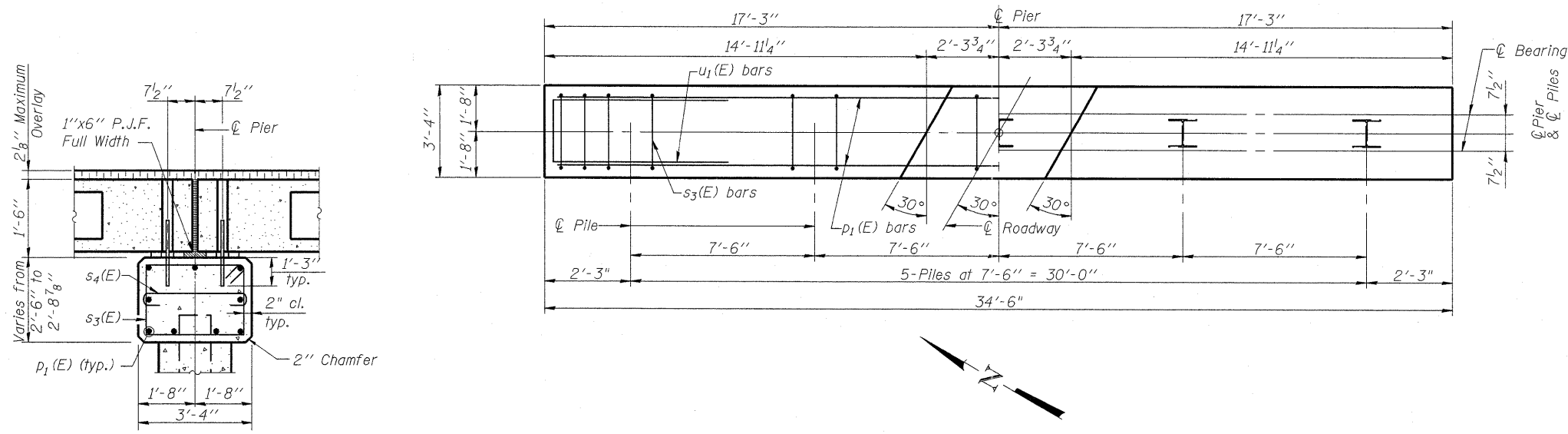
FILE NAME = 53173-bridge sheets.dgn

DESIGNED - K. HEFFERN	REVISED -
DRAWN - C. BECKER	REVISED -
CHECKED - C. EPPERLY	REVISED -
DATE - NOVEMBER 2010	REVISED -

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

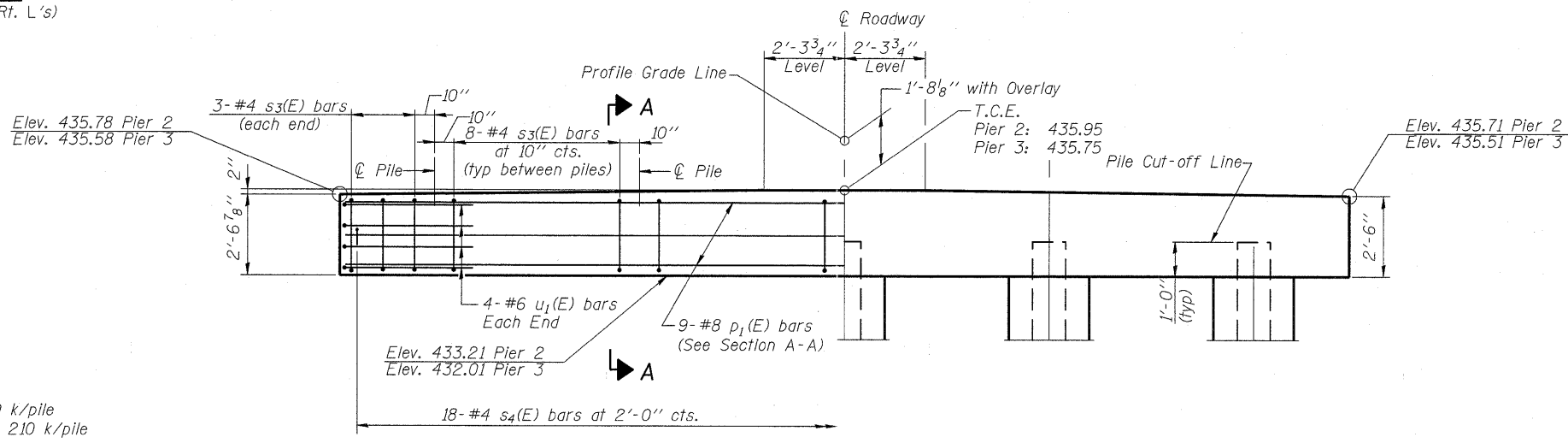
**ABUTMENTS 1 & 4**  
**STRUCTURE NO. 082-4158**  
SCALE: N/A SHEET NO. 11 OF 16 SHEETS STA. 34+16.75 TO STA. 35+27.25

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	08-18101-04-BR	ST. CLAIR	16	11
PROJECT BROS-163(32)		CONTRACT NO. 97466		
ILLINOIS FED. AID PROJECT				



**SECTION A-A**  
(Dimensions are at Rt. L's)

**TOP PLAN**



**ELEVATION**  
(Looking East)

**PILE DATA**

Type: HP12x53  
 Nominal Required Bearing: 300 k/pile  
 Factored Resistance Available: 210 k/pile  
 Pier 2:  
 No. Production Piles: 5  
 No. Test Piles: 0  
 Pier 3:  
 No. Production Piles: 4  
 No. Test Piles: 1  
 Est. Length: 39 Ft. (Pier 2)  
 39 Ft. (Pier 3)

**BILL OF MATERIAL  
PIERS 2 & 3**

		Pier 2	Pier 3
Concrete Structures	Cu. Yd.	11.2	11.2
Reinforcement Bars, Epoxy Coated	Pound	1290	1290
Furnishing Steel Piles, HP12x53	Foot	195	156
Driving Piles	Foot	195	156
Test Pile, Steel HP12x53	Each	0	1
Pile Shoes	Each	5	5
Concrete Encasement	Cu. Yd.	10.3	10.2
Underwater Structure Excavation Protection - Location 1	Each	1	-
Underwater Structure Excavation Protection - Location 2	Each	-	1

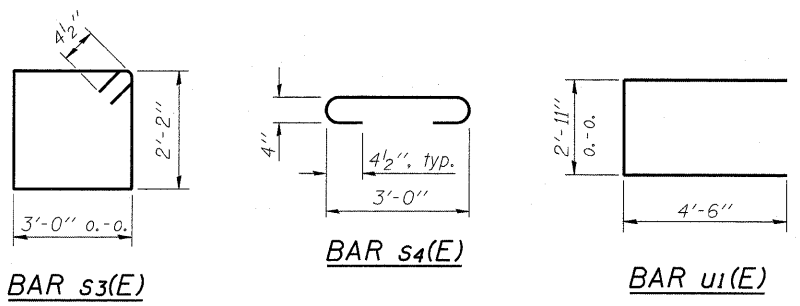
For details of piles including Seismic Pile Anchorage, Pile Shoes and Concrete Encasement, see sheet 14 of 16.

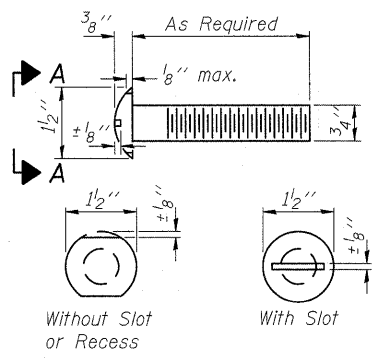
**BILL OF REINFORCEMENT  
EACH PIER**

Bar	No.	Size	Length	Shape
p <sub>1</sub> (E)	9	#8	34'-2"	—
s <sub>3</sub> (E)	38	#4	11'-1"	□
s <sub>4</sub> (E)	18	#4	4'-0"	U
u <sub>1</sub> (E)	8	#6	11'-11"	—

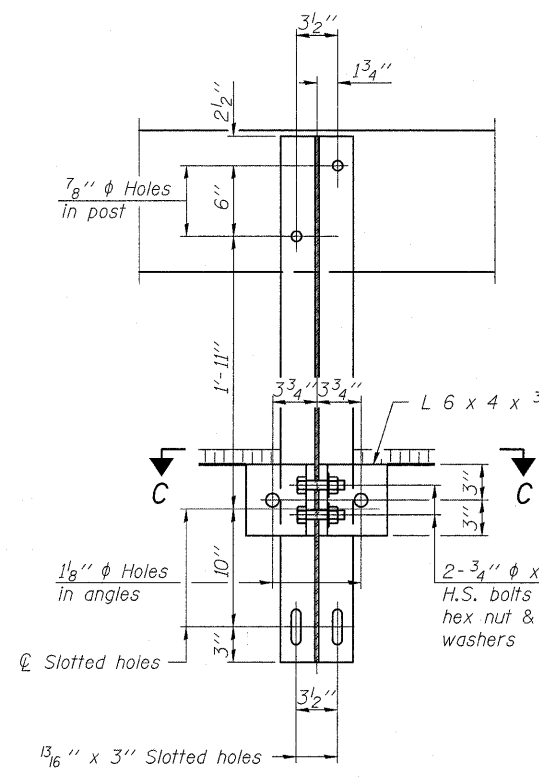
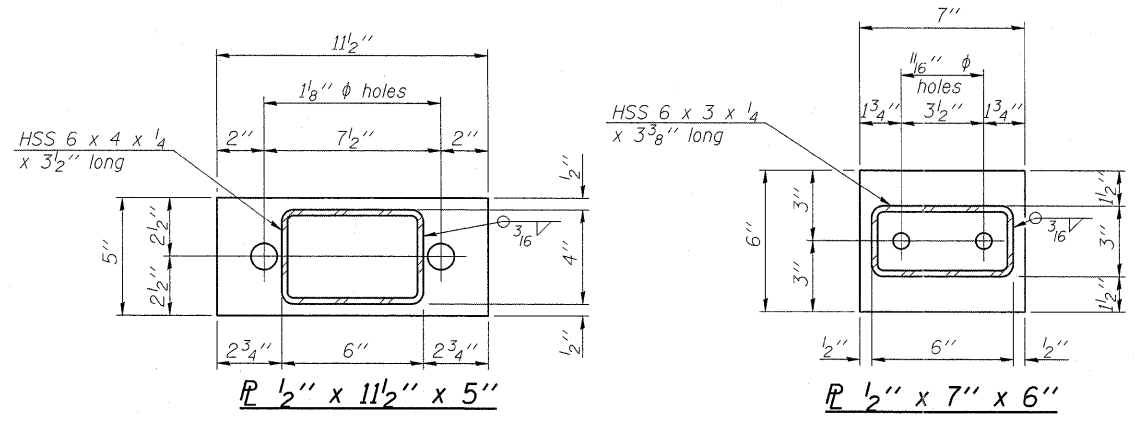
**NOTES**

If a portion of the concrete encasement is under water, reinforcement may be placed underwater into forms. Concrete shall be tremied according to Article 503.08 of the Standard Specifications to an elevation of 1'-0" above the water line at the time of construction.

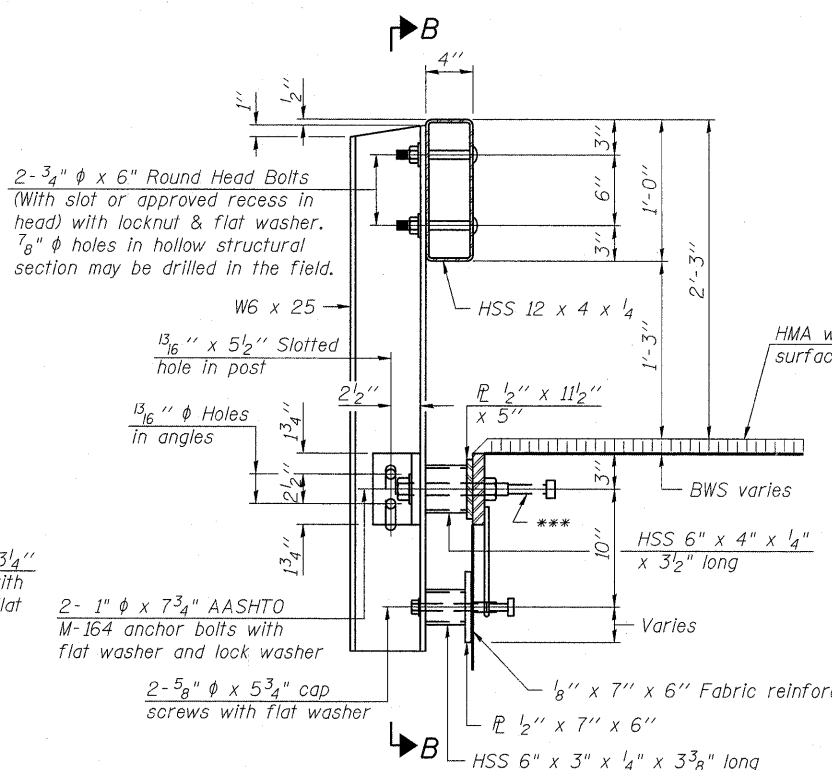




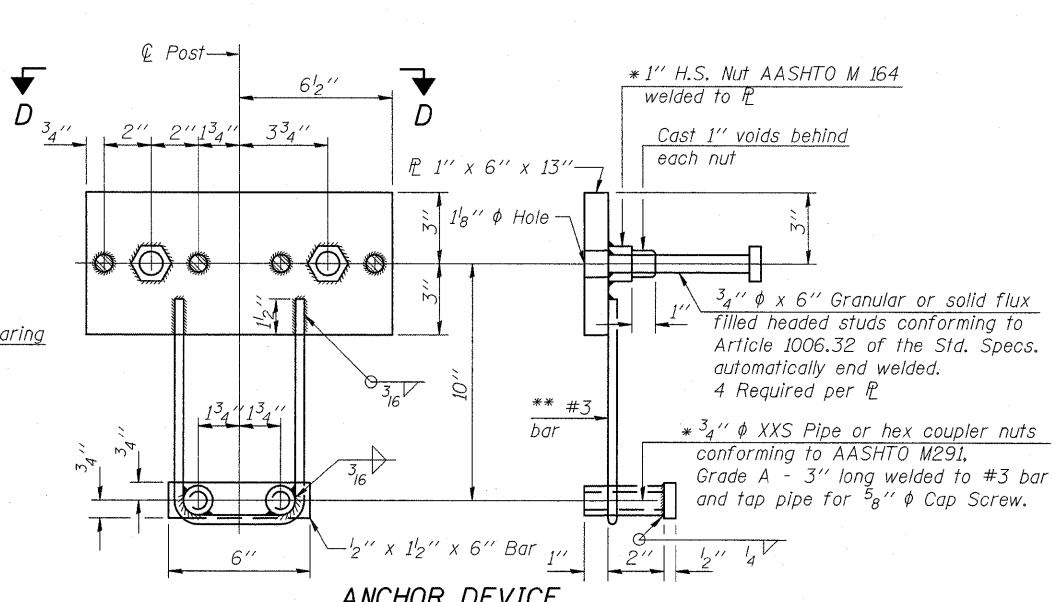
**VIEW A-A  
ROUND HEAD BOLT**



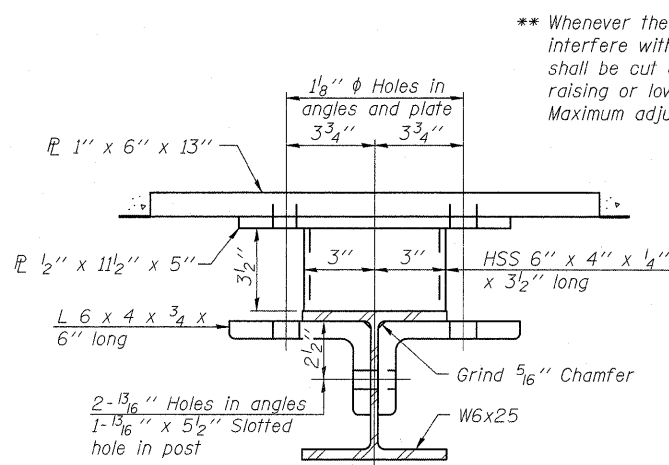
**SECTION B-B**



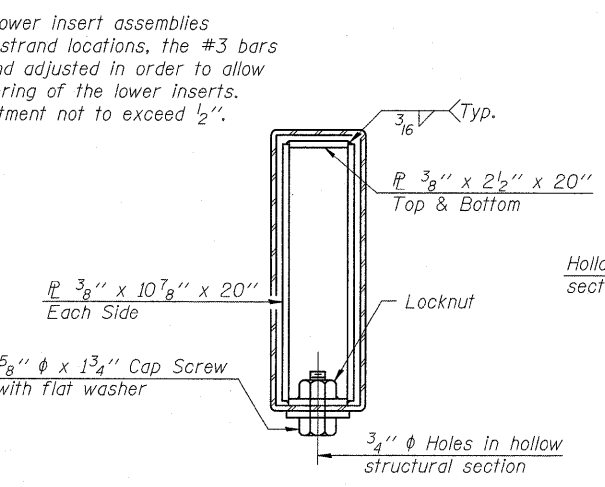
**SECTION AT RAILING POST**



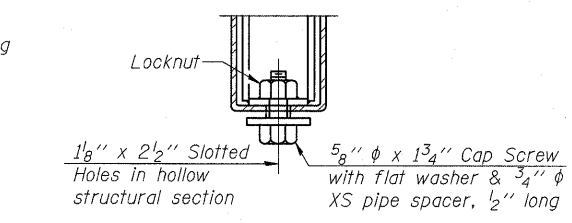
**ANCHOR DEVICE**



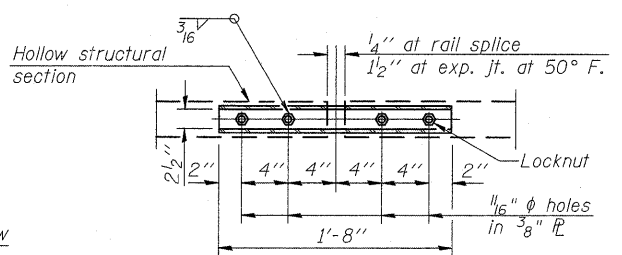
**SECTION C-C**



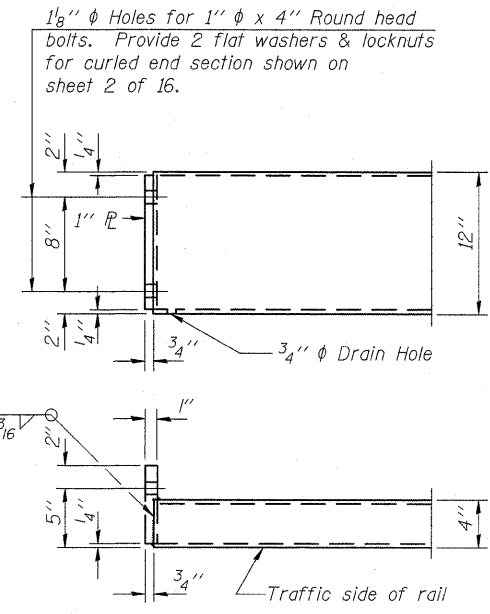
**SECTIONS AT RAIL SPLICE**



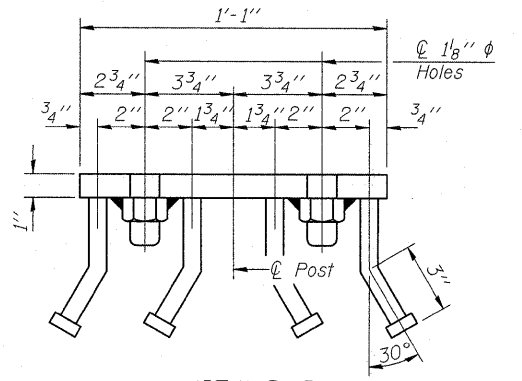
**RAIL SPLICE CONNECTION  
AT EXPANSION JT.**



**PLAN-BOTT. SPLICE R  
TYPICAL**



**END OF RAIL DETAILS**



**VIEW D-D**

**BILL OF MATERIAL**

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	224

**Notes:**  
 All field drilled holes shall be coated with an approved zinc rich paint before erection.  
 For multi-span bridges, sufficient 1/4\"/>

FILE NAME = 53173-bridge sheets.dgn

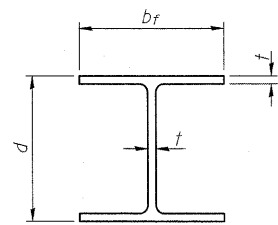
DESIGNED - K. HEFFERN	REVISED -
DRAWN - C. BECKER	REVISED -
CHECKED - C. EPPERLY	REVISED -
DATE - NOVEMBER 2010	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**STEEL RAILING, TYPE S-1  
STRUCTURE NO. 082-4158**

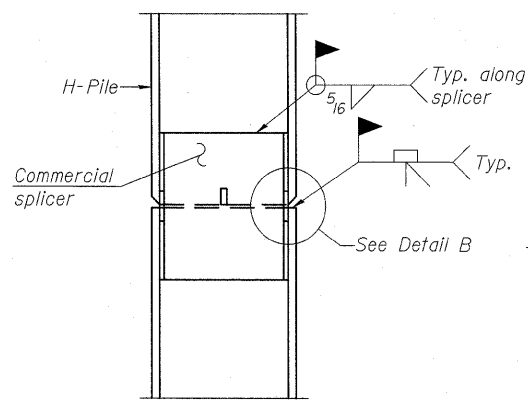
SCALE: N/A SHEET NO. 13 OF 16 SHEETS STA. 34+16.75 TO STA. 35+27.25

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	08-18101-04-BR	ST. CLAIR	16	13
PROJECT BROS-163(32)		CONTRACT NO. 97466		
ILLINOIS FED. AID PROJECT				

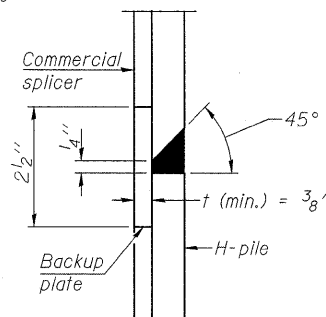


**STEEL PILE TABLE**

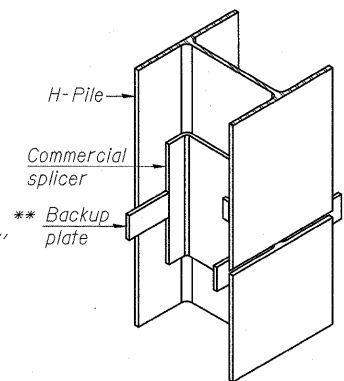
Designation	Depth d	Flange width bf	Web and Flange thickness t	Encasement diameter A
HP 12x53	11 <sup>3</sup> / <sub>4</sub> "	12"	7 <sup>1</sup> / <sub>16</sub> "	24"



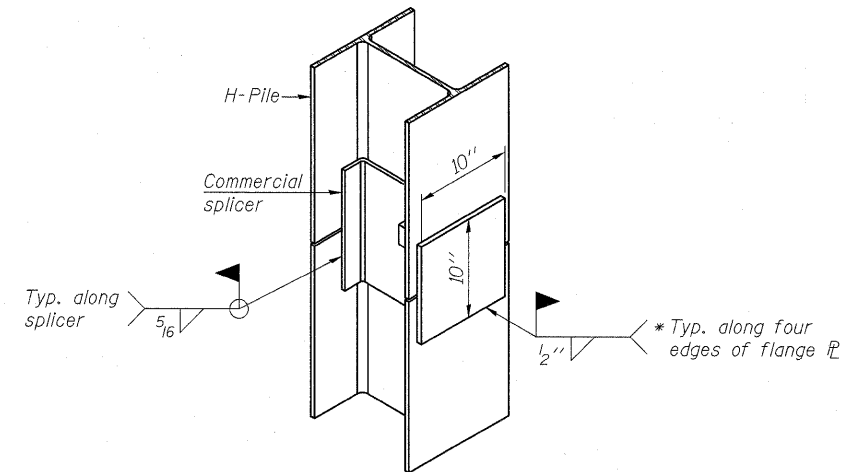
**ELEVATION**



**DETAIL "B"**



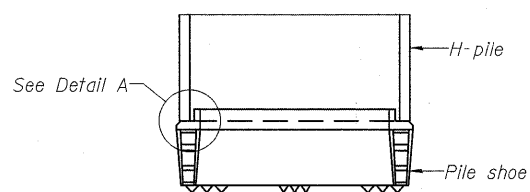
**ISOMETRIC VIEW**



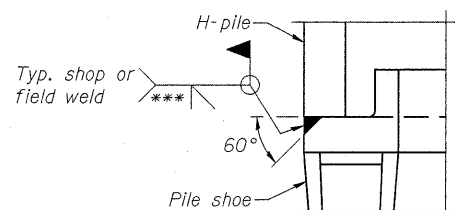
**ISOMETRIC VIEW**

**WELDED COMMERCIAL SPLICE ALTERNATE**

- \* Interrupt welds 1/4" from end of web and/or each flange.
- \*\* Remove portions of backup plates that extend outside the flanges.
- \*\*\* Weld size per pile shoe manufacturer (5/16" min.).

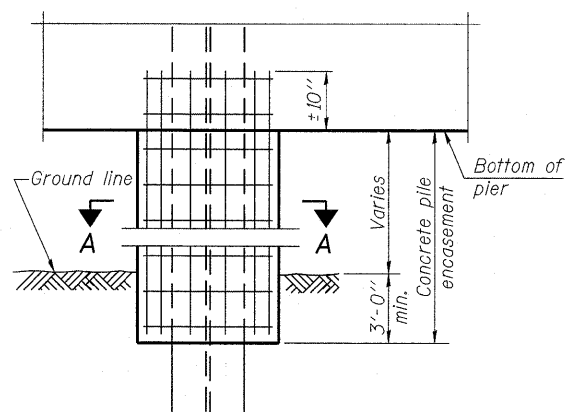


**ELEVATION**

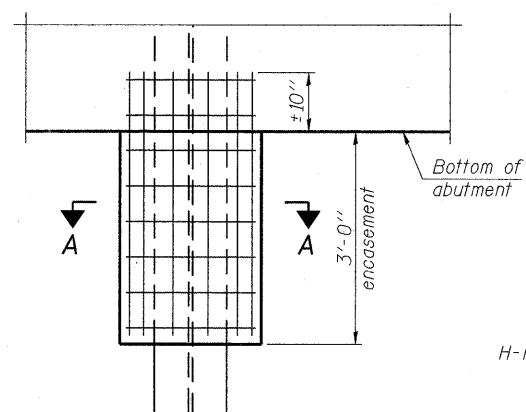


**DETAIL A**

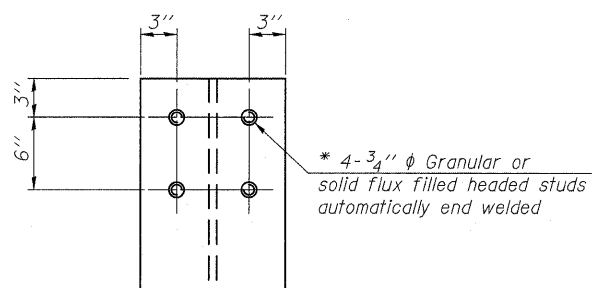
**H-PILE SHOE ATTACHMENT**



**ELEVATION AT PIERS**

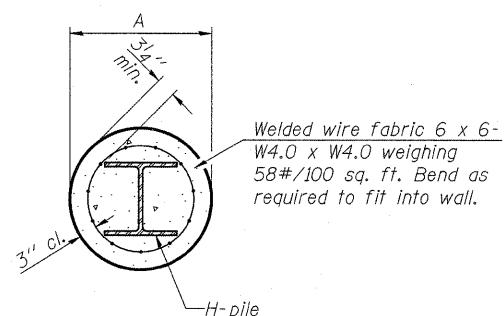


**ELEVATION AT ABUTMENTS**



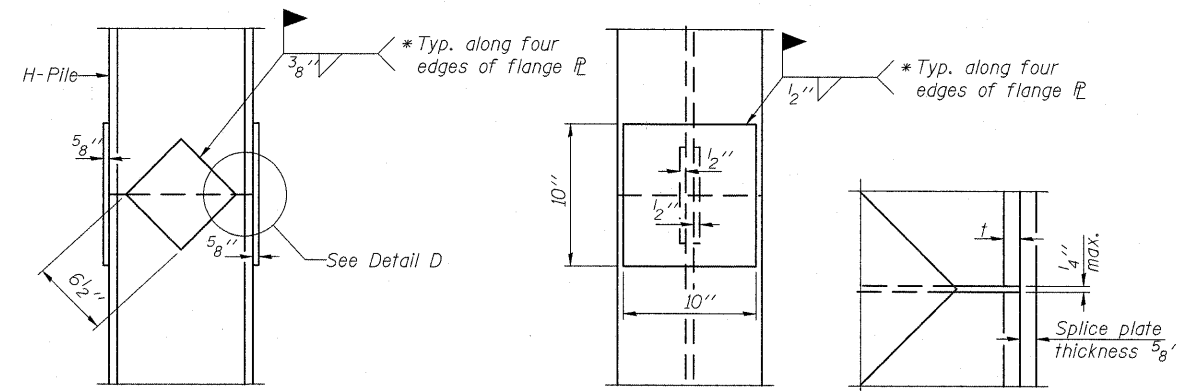
**SEISMIC PILE ANCHORAGE**

\* Typical each flange, each pile.  
Cost included with Furnishing Piles.



**SECTION A-A**

**PILE ENCASUREMENT**



**ELEVATION**

**END VIEW**

**DETAIL D**

**WELDED PLATE FIELD SPLICE**

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

FILE NAME =  
53173-bridge sheets.dgn

DESIGNED - K. HEFFERN  
DRAWN - C. BECKER  
CHECKED - C. EPPERLY  
DATE - NOVEMBER 2010

REVISED -  
REVISED -  
REVISED -  
REVISED -

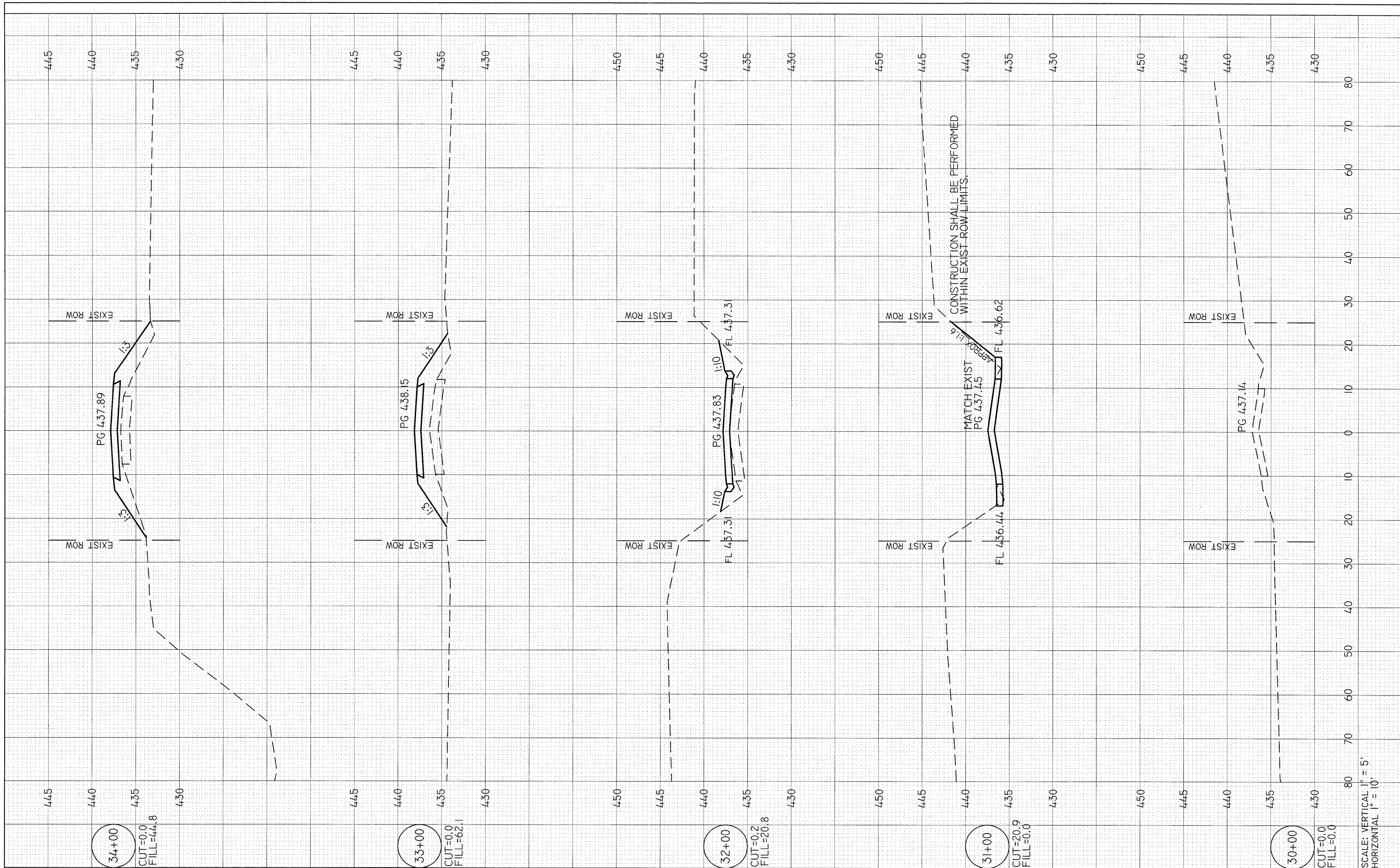
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**HP PILE DETAILS  
STRUCTURE NO. 082-4158**  
SCALE: N/A SHEET NO. 14 OF 16 SHEETS STA. 34+16.75 TO STA. 35+27.25

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	08-18101-04-BR	ST. CLAIR	16	14
PROJECT BROS-163(32)			CONTRACT NO. 97466	
[ILLINOIS] FED. AID PROJECT				

FINAL SURVEY NO.	BY	DATE
REVISIONS		
NO.		

ORIGINAL SURVEY NO.	BY	DATE
REVISIONS		
NO.		



34+00  
CUT=0.0  
FILL=44.8

33+00  
CUT=0.0  
FILL=62.1

32+00  
CUT=0.2  
FILL=20.8

31+00  
CUT=20.9  
FILL=0.0

30+00  
CUT=0.0  
FILL=0.0

SCALE: VERTICAL 1" = 5'  
HORIZONTAL 1" = 10'

FILE NAME = 53173-sht11-xsc.dwg

DESIGNED -- K. RESTOFF	REVISED --
DRAWN -- D. MICKÉ	REVISED --
CHECKED -- M. HARRISON	REVISED --
DATE -- NOVEMBER 2010	REVISED --

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

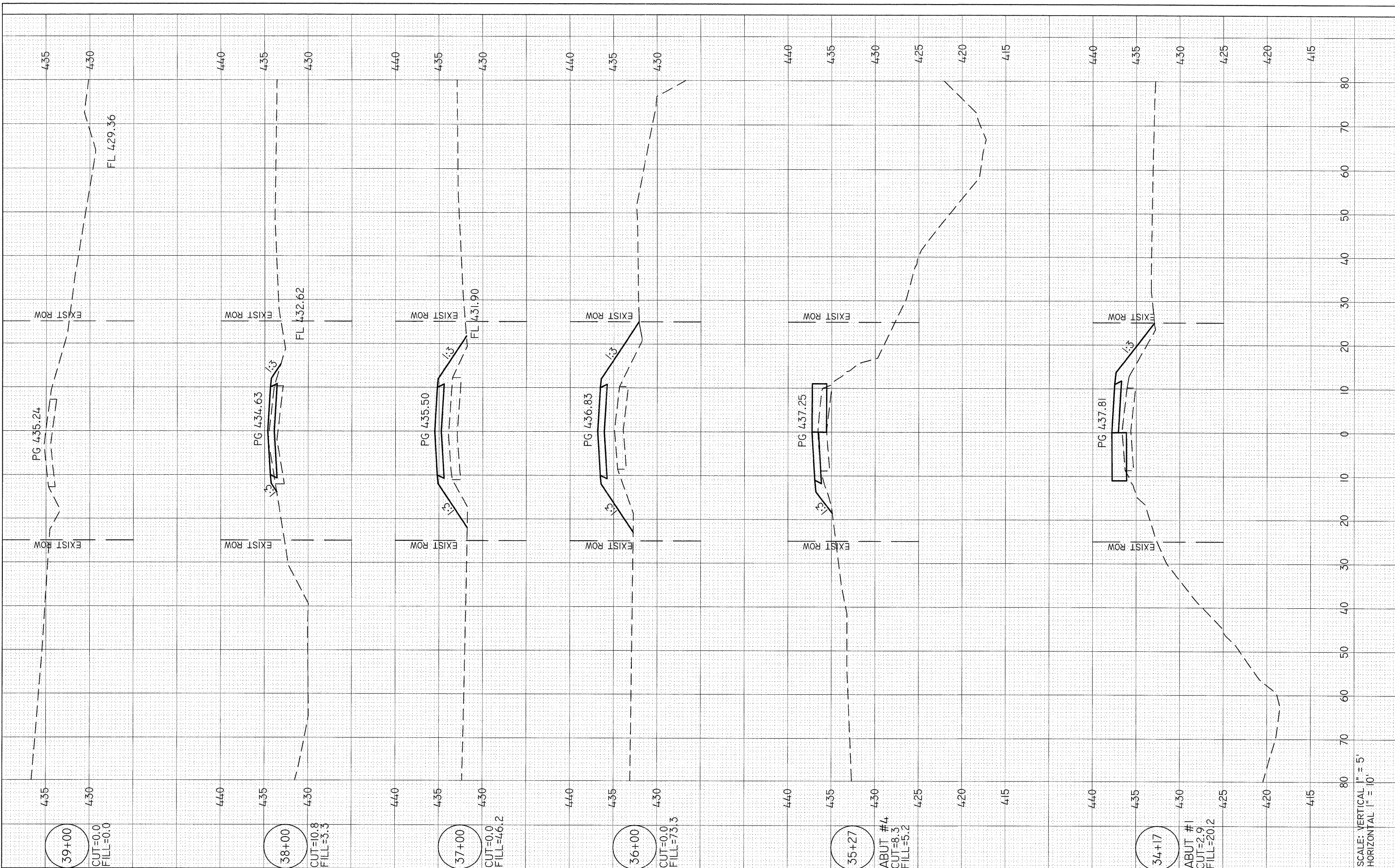
CROSS SECTIONS

SCALE: SHEET NO. 15 OF 16 SHEETS STA. 30+00 TO STA. 34+00

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	08-18101-04-BR	ST. CLAIR	16	15
PROJECT BROS-163(32)			CONTRACT NO. 97466	
ILLINOIS FED. AID PROJECT				

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

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



SCALE: VERTICAL 1" = 5'  
HORIZONTAL 1" = 10'

FILE NAME = 53173-sh111-xsc.dwg

DESIGNED - K. RESTOFF	REVISED -
DRAWN - D. MICKE	REVISED -
CHECKED - M. HARRISON	REVISED -
DATE - NOVEMBER 2010	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**CROSS SECTIONS**

SCALE: SHEET NO. 16 OF 16 SHEETS STA. 34+17 TO STA. 39+00

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	08-18101-04-BR	ST. CLAIR	16	16
PROJECT BROS-163(32)			CONTRACT NO. 97466	
ILLINOIS FED. AID PROJECT				