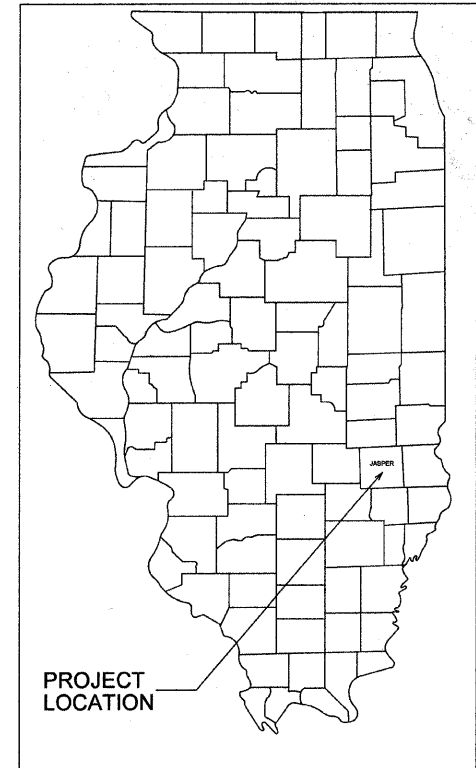


ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 186A	05-10127-00-BR	JASPER	15	1
CONTRACT NO. 95620		ILLINOIS	PROJECT BROS-079(140)	

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
**PLANS FOR PROPOSED  
HIGHWAY BRIDGE PROGRAM**  
SECTION 05-10127-00-BR JASPER COUNTY  
PROJECT BROS-079(140)  
JOB NO. C-97-062-10  
WADE ROAD DISTRICT  
T.R. 186A



CONTRACT NO. 95620

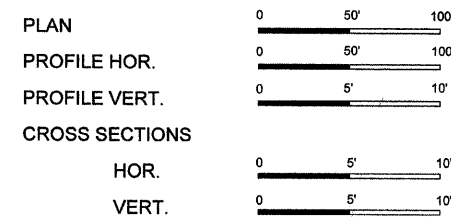
Joint Utility Locating Information for Excavators

JULIE 1-800-892-0123

INDEX OF SHEETS

SHEET	ITEM
1	COVER SHEET
2	SUMMARY OF QUANTITIES
3	ROADWAY PLAN AND PROFILE
4	EROSION CONTROL PLAN
5	GENERAL PLAN AND ELEVATION
6	SUPERSTRUCTURE
7	SUPERSTRUCTURE DETAILS
8	STEEL RAILING, TYPE S-1
9	SOUTH ABUTMENT DETAILS
10	NORTH ABUTMENT DETAILS
11	PILE DETAILS
12	BORING LOGS
13-15	CROSS SECTIONS

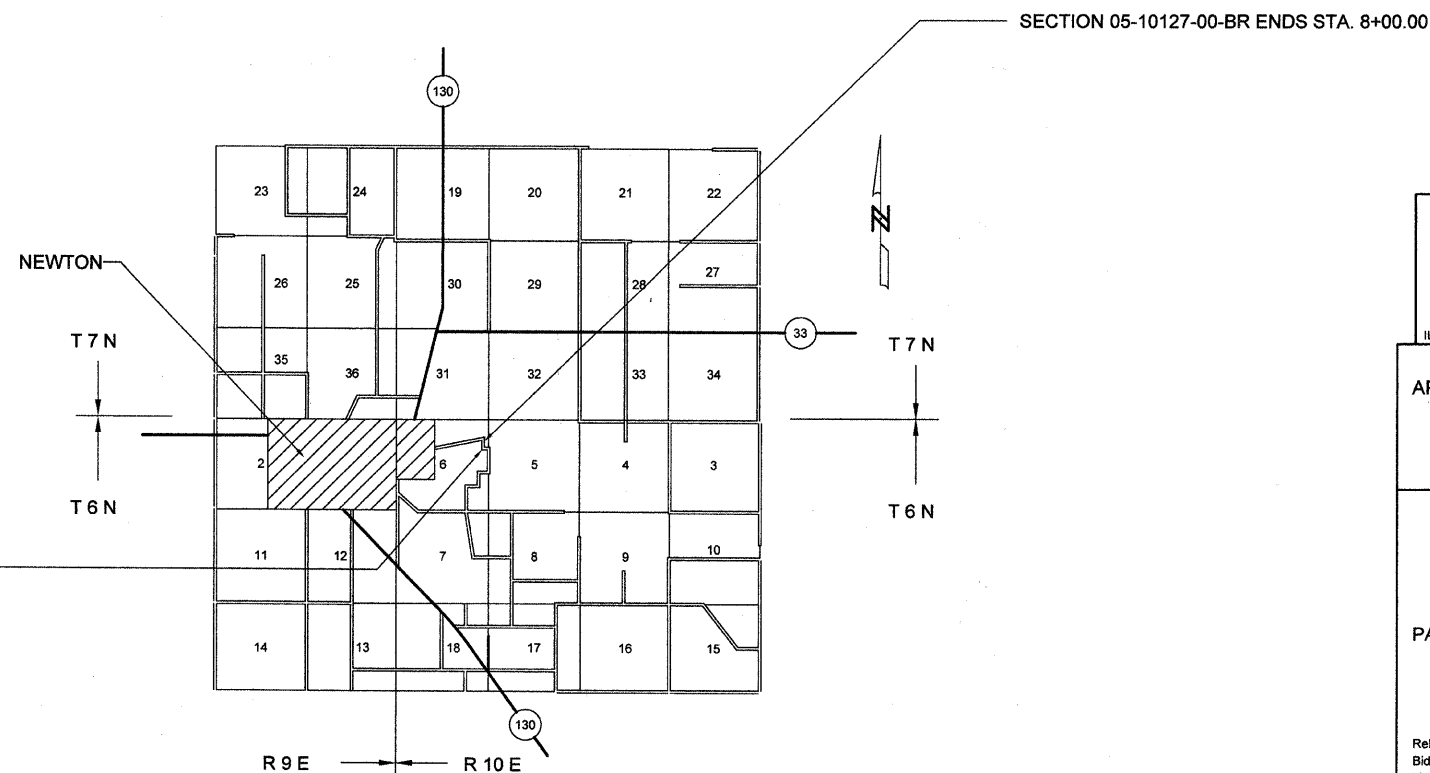
- STANDARD DRAWINGS
- STANDARD 000001-05
  - STANDARD 280001-05
  - STANDARD 515001-03
  - STANDARD 701901-01
  - STANDARD BLR 21-8
  - STANDARD BLR 22-6
  - STANDARD BLR 23-3
  - STANDARD BLR 26-2
  - STANDARD BLR 27-1



SECTION 05-10127-00-BR BEGINS STA. 2+00.00

SINGLE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE  
 76'-6" BK. - BK. ABUTMENTS  
 STEEL PILE SET IN ROCK - S. ABUTMENT  
 STEEL PILE / SPILLTHROUGH - N. ABUTMENT  
 27' DECK  
 EXISTING STRUCTURE NO. 040-3087  
 PROPOSED STRUCTURE NO. 040-3260

FUNCTIONAL CLASSIFICATION - LOCAL ROAD  
 ADT = 100  
 DESIGN SPEED = 30 MPH



NET LENGTH SECTION 05-10127-00-BR = 600.00 Ft. = 0.114 Mi.

*Robert A. Charleston*  
 Ill. Reg. Prof. Eng. # 28112  
 1/22/07  
 Lic. Expires 11/30/2011

2010 REGISTERED PROFESSIONAL ENGINEER OF ILLINOIS

**CHARLESTON ENGINEERING, INC.**  
 CONSULTING ENGINEERS  
 105 NORTH KITCHELL  
 P.O. BOX 387  
 OLNEY, ILLINOIS 62450  
 (618) 382-0736  
 ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

APPROVED 1-12 2010  
*Robert A. Charleston*  
 COUNTY ENGINEER

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

PASSED 1-12 2010  
*Marcus Eastell*  
 DISTRICT SEVEN ENGINEER OF LOCAL ROADS AND STREETS

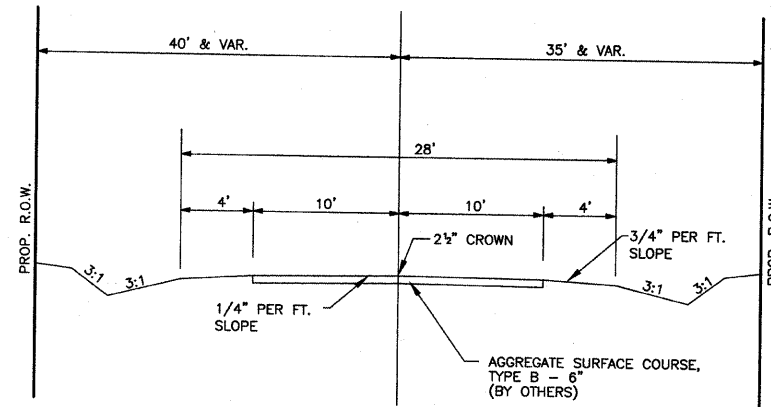
Releasing For Bid Based on Limited Review

1-12 2010  
*Robert F. Drakel*  
 DEPUTY DIRECTOR OF HIGHWAYS  
 REGION FOUR ENGINEER

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 186A	05-10127-00-BR	JASPER	15	2
CONTRACT NO. 95620		ILLINOIS	PROJECT BROS-079(140)	

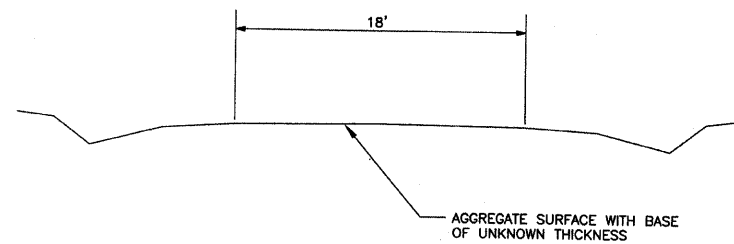
DESIGN DATA

LOCAL ROAD  
ADT = 100



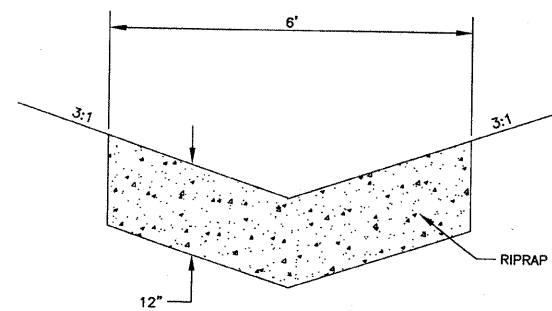
TYPICAL SECTION

PROPOSED



TYPICAL SECTION

EXISTING



STONE RIPRAP DITCH DETAIL

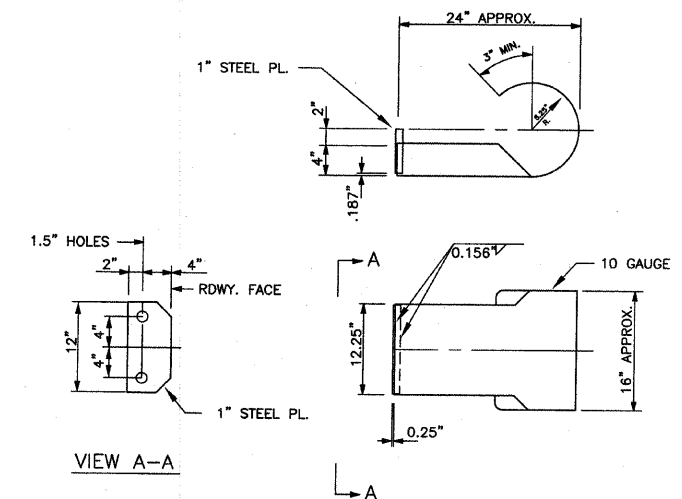
RT. 4+00 TO 4+75  
LT. 5+50 TO 6+10

GENERAL NOTES

- SEEDING: THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE APPLICABLE PORTIONS OF SECTION 250 OF THE STANDARD SPECIFICATIONS AND SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR SEEDING CLASS 2 (SPECIAL).
  - SPRING SEEDING SHALL EXTEND FROM JANUARY 1 TO JUNE 30
  - FALL SEEDING SHALL EXTEND FROM JULY 1 TO DECEMBER 31
- FERTILIZER NUTRIENTS SHALL BE APPLIED AT THE RATE OF 100 LB/ACRE
- MULCHING SHALL BE DONE IN ACCORDANCE WITH ARTICLE 251 OF THE STANDARD SPECIFICATIONS AND SHALL BE DONE BY METHOD 2, PROCEDURE 1 AT THE RATE OF 2 TONS PER ACRE.
- NO PAYMENT FOR OVERHAUL WILL BE MADE ON THIS SECTION.

SUMMARY OF QUANTITIES			
CODE NO.	ITEM	UNIT	QUANTITY
* LR631020	TRAFFIC BARRIER TERMINAL, TYPE 1	EACH	2
Z0065000	SETTING PILES IN ROCK	EACH	5
20100110	TREE REMOVAL (6 TO 15 UNITS DIAMETER)	UNIT	159
20100210	TREE REMOVAL (OVER 15 UNITS DIAMETER)	UNIT	18
20200100	EARTH EXCAVATION	CU YD	70
20300100	CHANNEL EXCAVATION	CU YD	240
20400800	FURNISHED EXCAVATION	CU YD	2800
25001000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.40
28000305	TEMPORARY DITCH CHECKS	FOOT	20
28000400	PERIMETER EROSION BARRIER	FOOT	965
28100807	STONE DUMPED RIPRAP, CLASS A4	TON	180
28102600	STONE RIPRAP DITCH	TON	120
35101400	AGGREGATE BASE COURSE, TYPE B	TON	85
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50300225	CONCRETE STRUCTURES	CU YD	26.4
50300280	CONCRETE ENCASEMENT	CU YD	8.5
50400605	PRECAST PRESTRESSED CONCRETE DECK BEAMS (33" DEPTH)	SQ FT	2025
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	3000
* 50900205	STEEL RAILING, TYPE S1	FOOT	150
51201600	FURNISHING STEEL PILES HP 12X53	FOOT	187.5
51202305	DRIVING PILES	FOOT	120
51203600	TEST PILE STEEL HP 12X53	EACH	1
51500100	NAME PLATES	EACH	1
* 63100075	TRAFFIC BARRIER TERMINAL, TYPE 5A	EACH	2
67100100	MOBILIZATION	L. SUM	1

\* SPECIALTY ITEMS

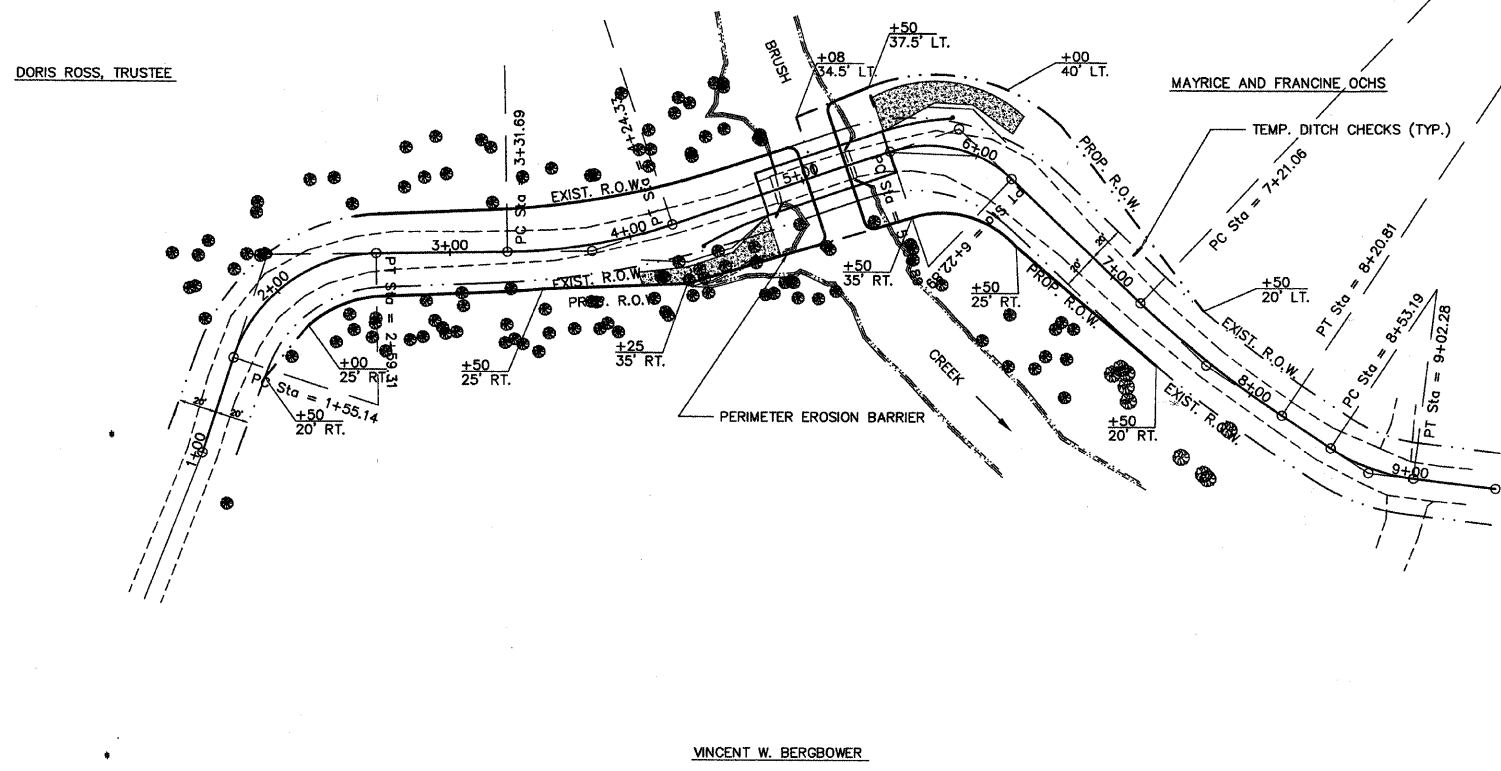


CURLED END SECTION DETAILS

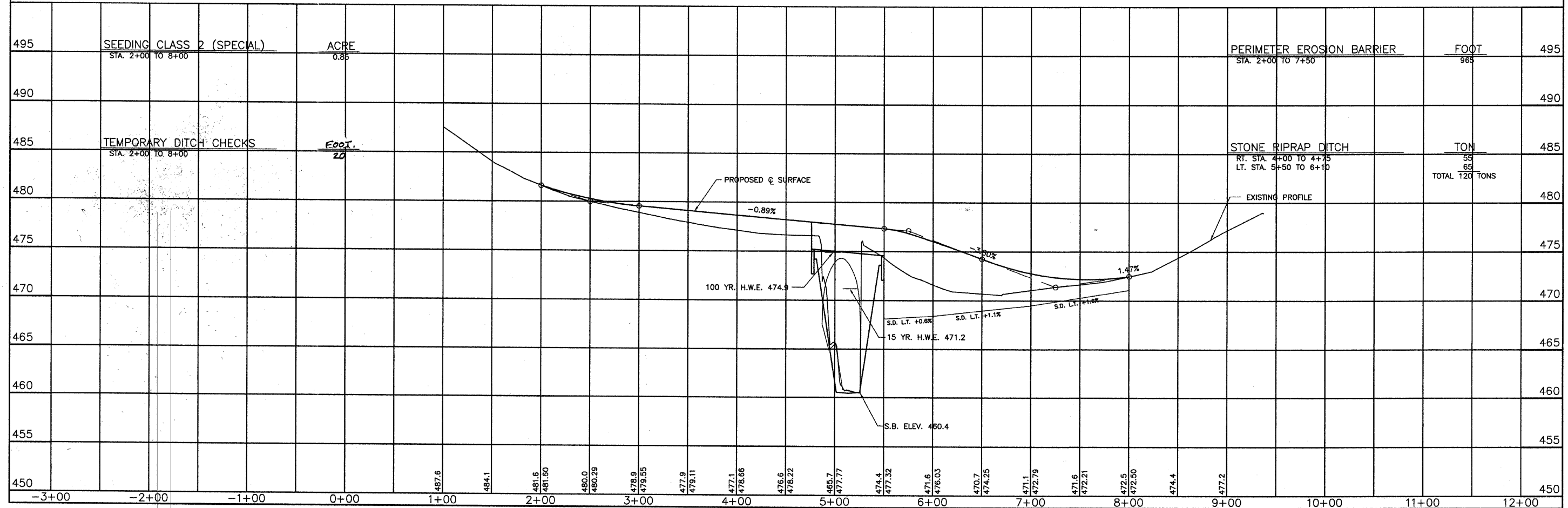
2 REQUIRED - COST INCLUDED IN  
"STEEL RAILING, TYPE S-1"



ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 186A	05-10127-00-BR	JASPER	15	4
CONTRACT NO. 95620		ILLINOIS	PROJECT BROS-079(140)	



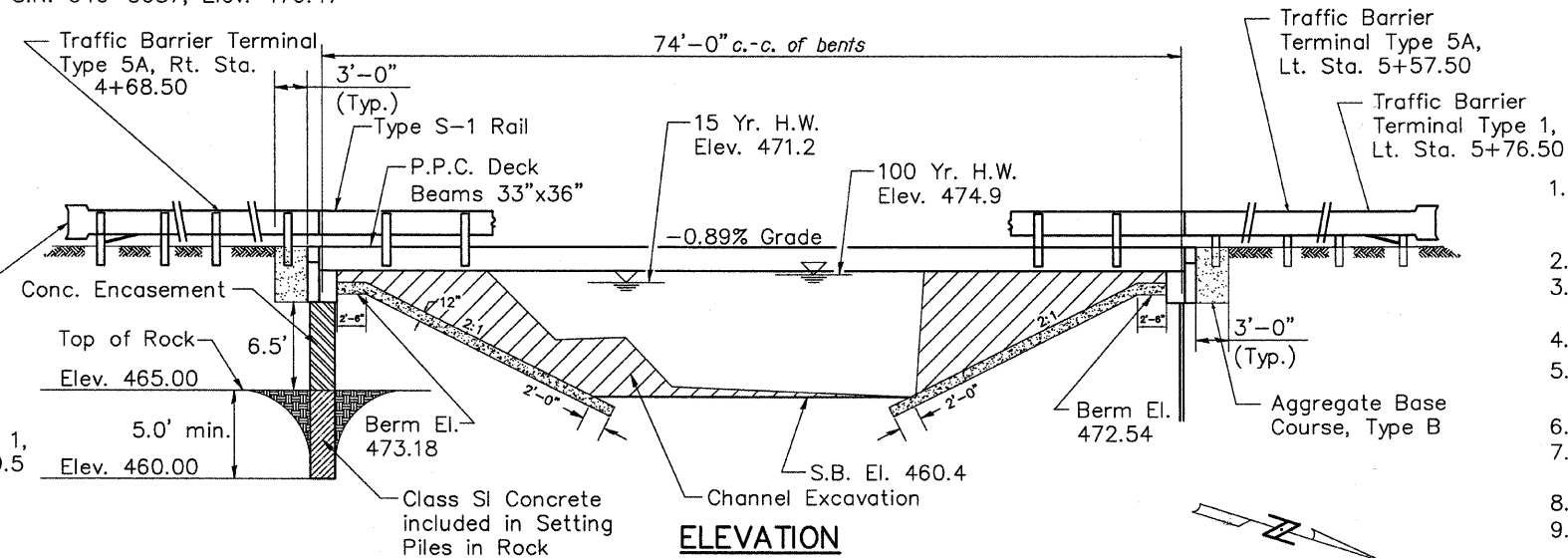
SCALES:  
 1" = 50' HOR  
 1" = 5' VER



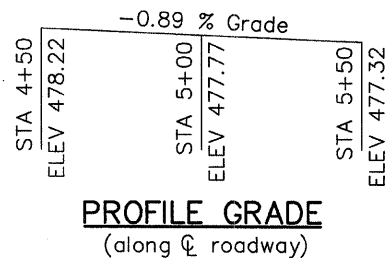
B.M.—Rt. Sta. 5+27, N.E. corner bridge curb of existing S.N. 040-3087, Elev. 476.47

Existing Structure - Existing structure No. 040-3087 consists of single span concrete arch bridge on closed concrete abutments. The bk. to bk. of abutments length is 42' and the out-to-out width is 15'. The existing structure shall be completely replaced. Road closure shall be used during construction.

Salvage - Any material deemed salvageable by the Engineer shall be stockpiled on the R.O.W. and shall become the property of Wade Road District. The Contractor shall dispose of all remaining material.



**ELEVATION**



**PROFILE GRADE**  
(along  $\phi$  roadway)

**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  
 $F'_s = 270,000$  psi ( $\frac{1}{2}$ " low relax. strands)  
 $F_{si} = 201,960$  psi ( $\frac{1}{2}$ " low relax. strands)

**LOADING HL-93**

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

STATION 5+14.25  
BRUSH CREEK  
SEC. 05-10127-00-BR BUILT 201\_  
WADE ROAD DISTRICT  
JASPER COUNTY  
LOADING HL-93  
STR. NO. 040-3260

**LETTERING FOR NAME PLATE**

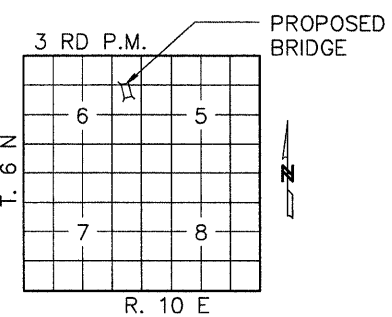
Locate Name Plate at S.E. Corner of Bridge (See Std. 515001)

**PILE DATA (SOUTH ABUT.)**

Type	HP 12 X 53
Nominal Required Bearing	Set in Rock
Factored Resistance Available	170 kips
Estimated Pile Length	13.5 Feet
Number of Production Piles	5
Number of Test Piles	0
Estimated Top of Rock Elevation	465.00
Rock Socket Depth	5.0 Feet
Rock Socket Diameter	2.0 Feet

Type	HP 12 X 53
Nominal Required Bearing	419 kips
Factored Resistance Available	170 kips
Estimated Pile Length	30 Feet
Number of Production Piles	4
Number of Test Piles	1

**PILE DATA (NORTH ABUT.)**



**LOCATION SKETCH**

**WATERWAY INFORMATION**

Drainage Area = 11.0 SQ MI		Low Grade Elev = 472.2 @ Sta. 7+55				
Flood	Freq. Yr.	Q. C.F.S.	Opening Sq. Ft. Exist. Prop.	Nat. H.W.E.	Head - Ft. Exist. Prop.	Headwater El. Exist. Prop.
Design	15	2380	317 426	471.2	0.6 0.0	471.8 471.2
Base	100	4140	390 656	474.9	0.3 0.2	475.2 475.1
Overtopping						
Max. Calc.	500					

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 186A	05-10127-00-BR	JASPER	15	5
CONTRACT NO. 95620		ILLINOIS	PROJECT BROS-079(140)	

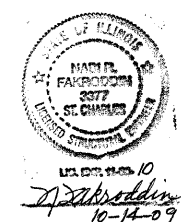
**GENERAL NOTES**

- The Contractor shall drive test pile(s) to 110% of the nominal required bearing specified in production locations at North abutment or approved by the Engineer before ordering the remainder of piles.
- See Bridge Plan Sheet 8 for boring logs.
- A Corrosion inhibitor, as covered in the Special Provisions, shall be used in the concrete for precast prestressed concrete deck beams.
- Concrete sealer shall be applied to exterior face of each fascia beam.
- Reinforcement bars shall conform to the requirements of AASHTO M31 or M322 Grade 60.
- The Steel H-piles shall be according to AASHTO M270 Grade 50.
- Reinforcement bars shall conform to the requirements of ASTM A 706 Fr 60 (IL Modified). See Special Provisions.
- Reinforcement bars designated (E) shall be epoxy coated.
- Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.

**TOTAL BILL OF MATERIAL**

Item	Unit	Super	Sub.		Total
			Piers	Abuts.	
Removal of Existing Structures	Each	-	-	-	1
Concrete Structures	Cu. Yd.	-	-	26.4	26.4
Precast Prestressed Concrete Deck Beams (33" Depth)	Sq. Ft.	2025	-	-	2025
Steel Railing, Type S-1	Foot	150	-	-	150
Reinforcement Bars, Epoxy Coated	Pound	-	-	3000	3000
Furnishing Steel Piles HP 12x53	Foot	-	-	187.5	187.5
Setting Piles in Rock	Each	-	-	5	5
Driving Piles	Foot	-	-	120	120
Test Pile Steel HP 12x53	Each	-	-	1	1
Name Plates	Each	-	-	1	1
Concrete Encasement	Cu. Yd.	-	-	8.5	8.5
Aggregate Base Course, Type B	Tons	-	-	85	85
Stone Dumped Riprap, Class A4	Tons	-	-	180	180
Channel Excavation	Cu. Yd.	-	-	240	240

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.



**INDEX OF SHEETS**

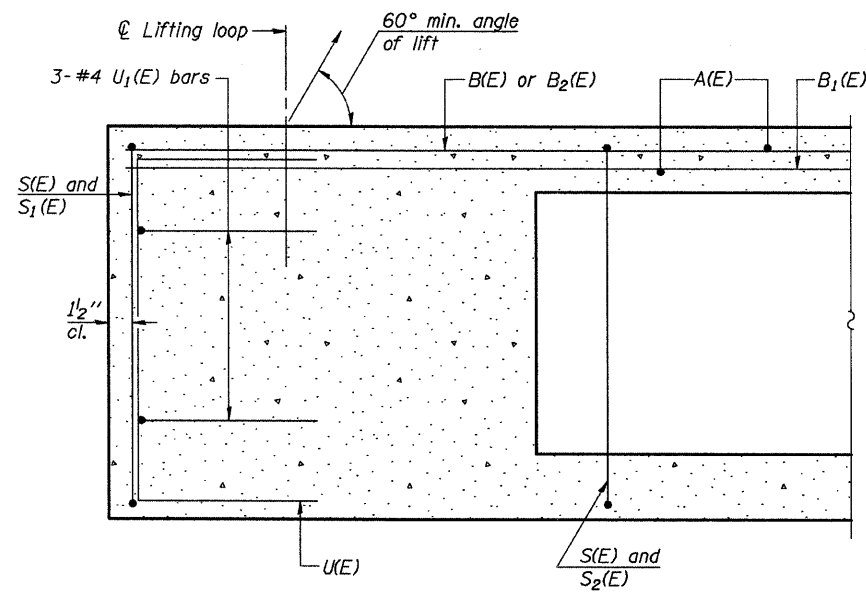
- General Plan & Elevation
- Superstructure
- Superstructure Details
- Steel Railing, Type S-1
- South Abutment Details
- North Abutment Details
- Pile Details
- Boring Logs

**CHARLESTON ENGINEERING, INC.**  
CONSULTING ENGINEERS  
105 NORTH KITCHELL  
P.O. BOX 387  
OLNEY, ILLINOIS 62450  
(618) 392-0736  
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

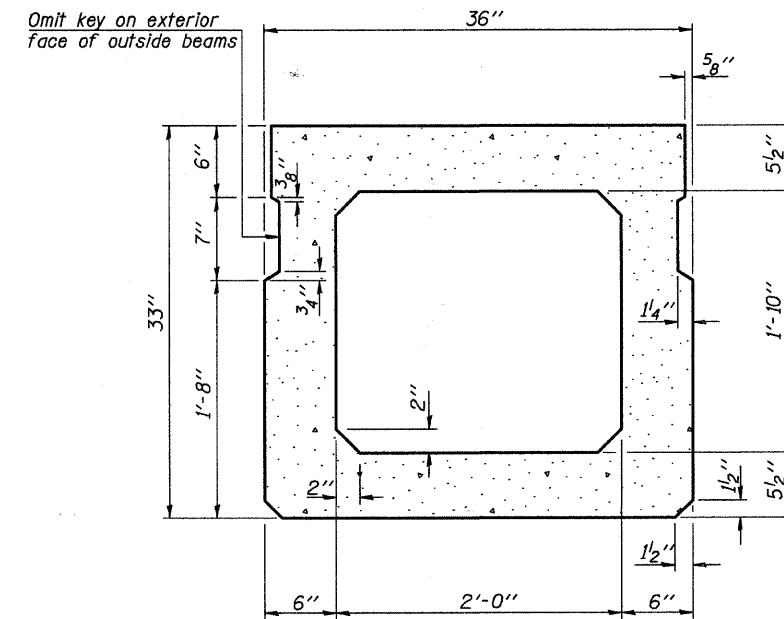
**GENERAL PLAN & ELEVATION**

**STRUCTURE NO. 040-3260**  
**T.R. 186A**  
**OVER BRUSH CREEK**  
**SECTION 05-10127-00-BR**  
**JASPER COUNTY**  
**STATION 5+14.25**

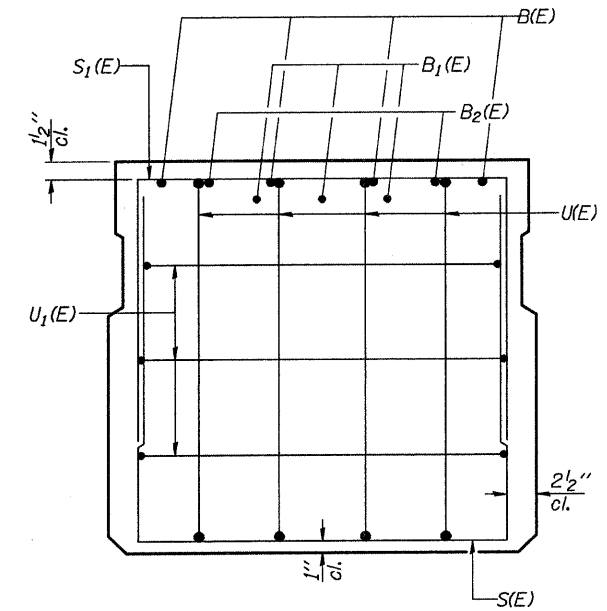
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 186A	05-10127-00-BR	JASPER	15	6
CONTRACT NO. 95620		ILLINOIS	PROJECT BROS-079(140)	



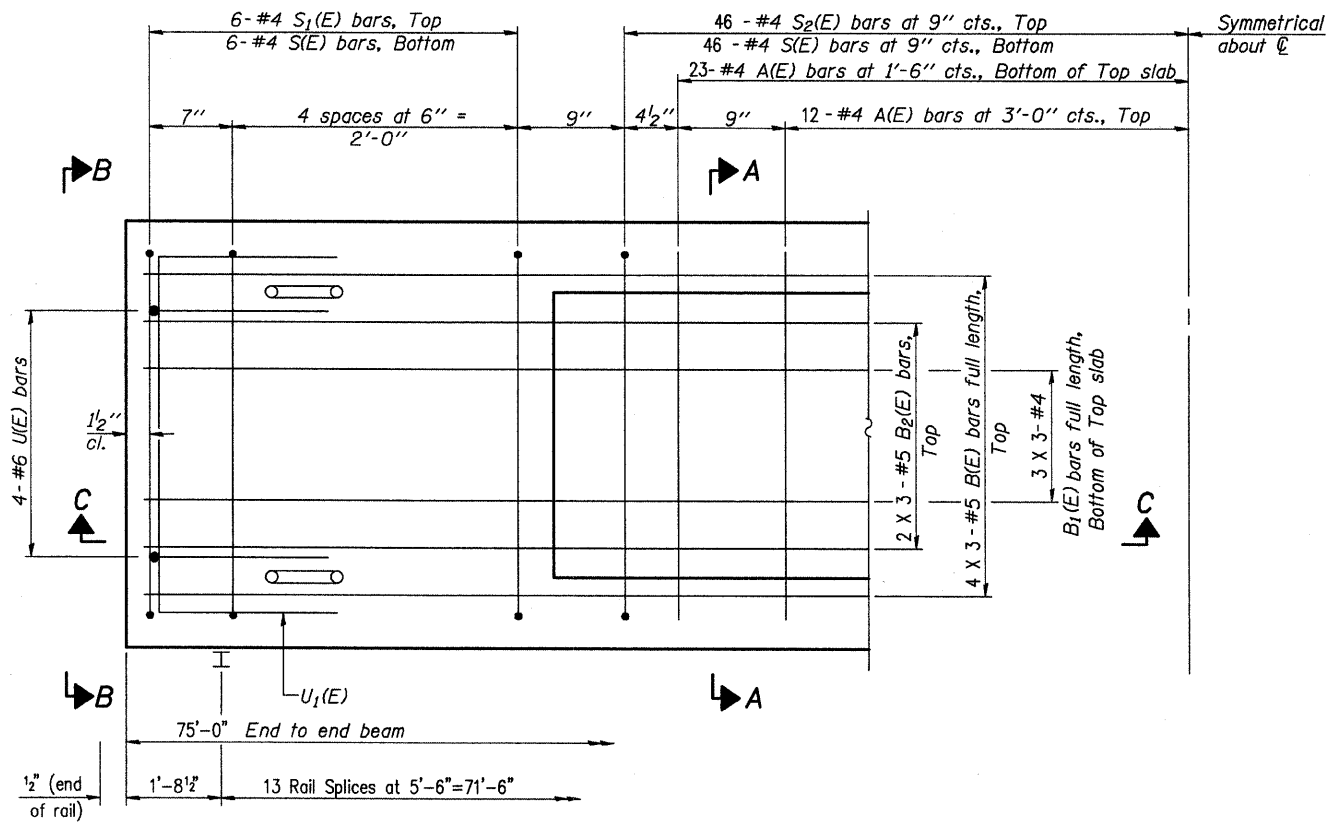
**SECTION C-C**



**SECTION A-A**  
(Showing dimensions)



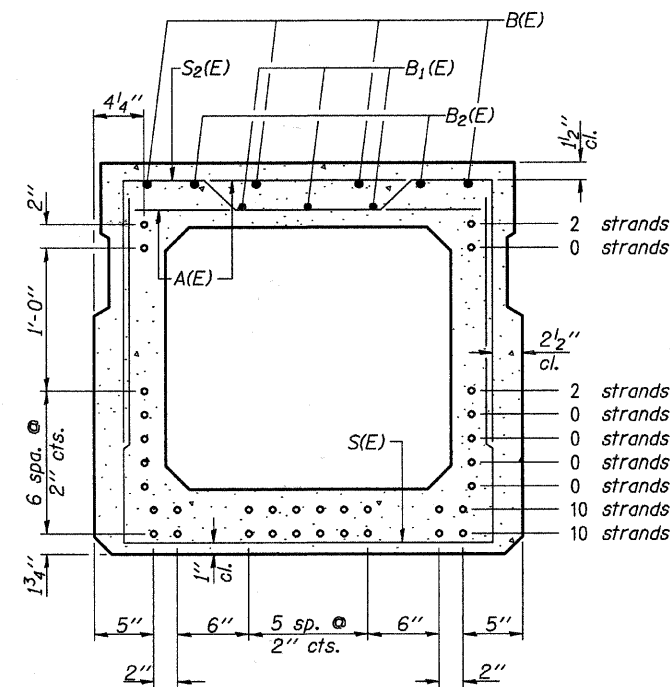
**VIEW B-B**



**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.

Bars indicated thus 4 X 3-#5 etc. indicates 4 lines of bars with 3 lengths per line.



**SECTION A-A**

(Showing reinforcement and permissible strand locations)

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

**MIN. BAR LAP**

- #4 1'-8"
- #5 2'-2"

**BAR LIST**  
**ONE BEAM ONLY**  
(For information only)

Bar	No.	Size	Length	Shape
A(E)	70	#4	2'-7"	—
B(E)	12	#5	26'-5"	—
B1(E)	9	#4	26'-5"	—
B2(E)	6	#5	26'-5"	—
S(E)	104	#4	7'-5"	□
S1(E)	12	#4	6'-3"	□
S2(E)	92	#4	6'-6"	□
UK(E)	8	#6	5'-0"	□
U1(E)	6	#4	5'-0"	□

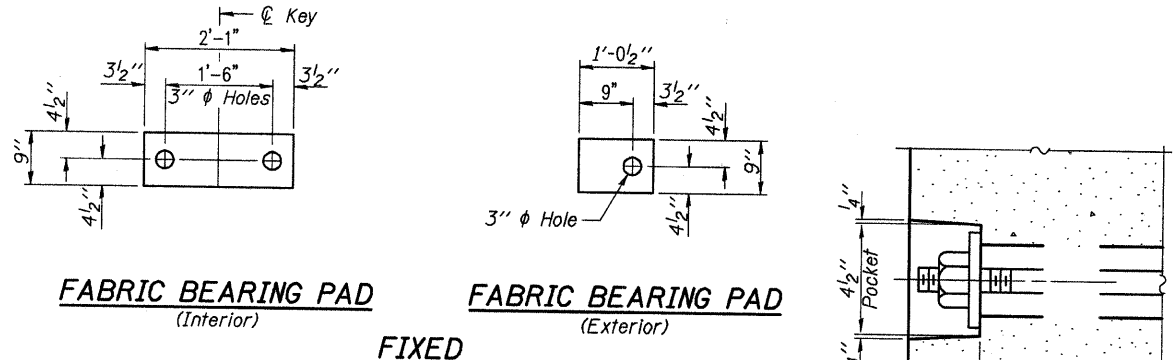
Note: See sheet 7 of 15 for additional details and Bill of Material.

**33" x 36" PPC DECK BEAM**

**CHARLESTON ENGINEERING, INC.**  
CONSULTING ENGINEERS  
105 NORTH KITCHELL  
P.O. BOX 387  
OLNEY, ILLINOIS 62450  
(618) 362-0736  
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

**SUPERSTRUCTURE**  
**STRUCTURE NO. 040-3260**  
**T.R. 186A**  
**OVER BRUSH CREEK**  
**SECTION 05-10127-00-BR**  
**JASPER COUNTY**  
**STATION 5+14.25**

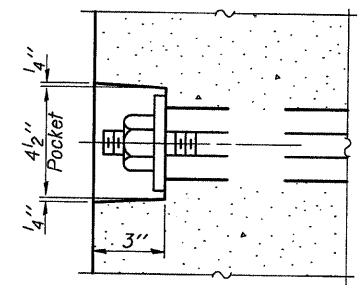
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 186A	05-10127-00-BR	JASPER	15	7
CONTRACT NO. 95620		ILLINOIS	PROJECT BROS-079(140)	



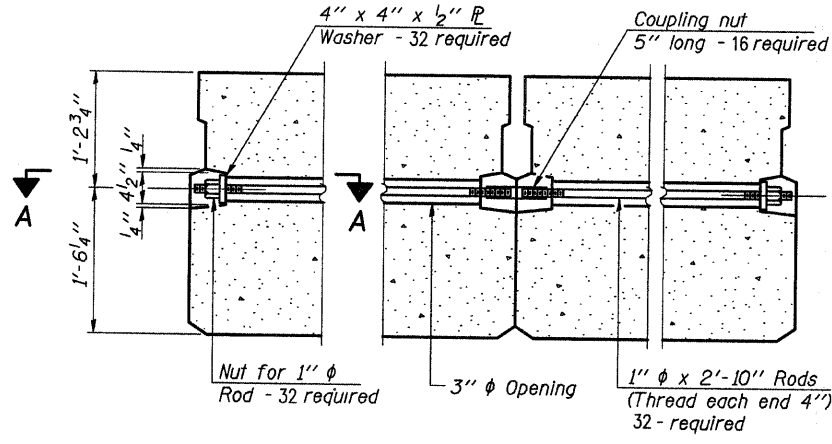
**FABRIC BEARING PAD**  
(Interior)      **FABRIC BEARING PAD**  
(Exterior)

**FIXED**

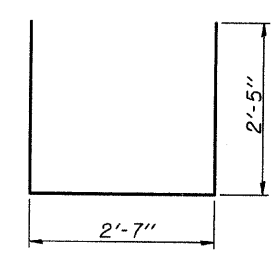
Note: Omit holes when using expansion bearings.



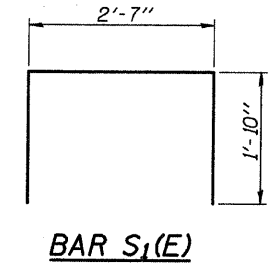
**SECTION A-A**



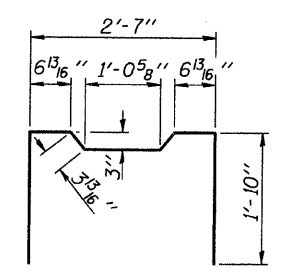
**TYPICAL TRANSVERSE TIE ASSEMBLY**



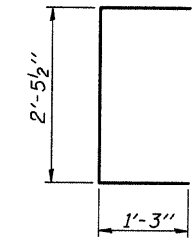
**BAR S(E)**



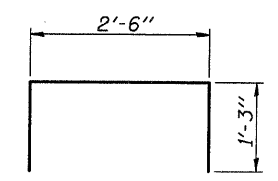
**BAR S<sub>1</sub>(E)**



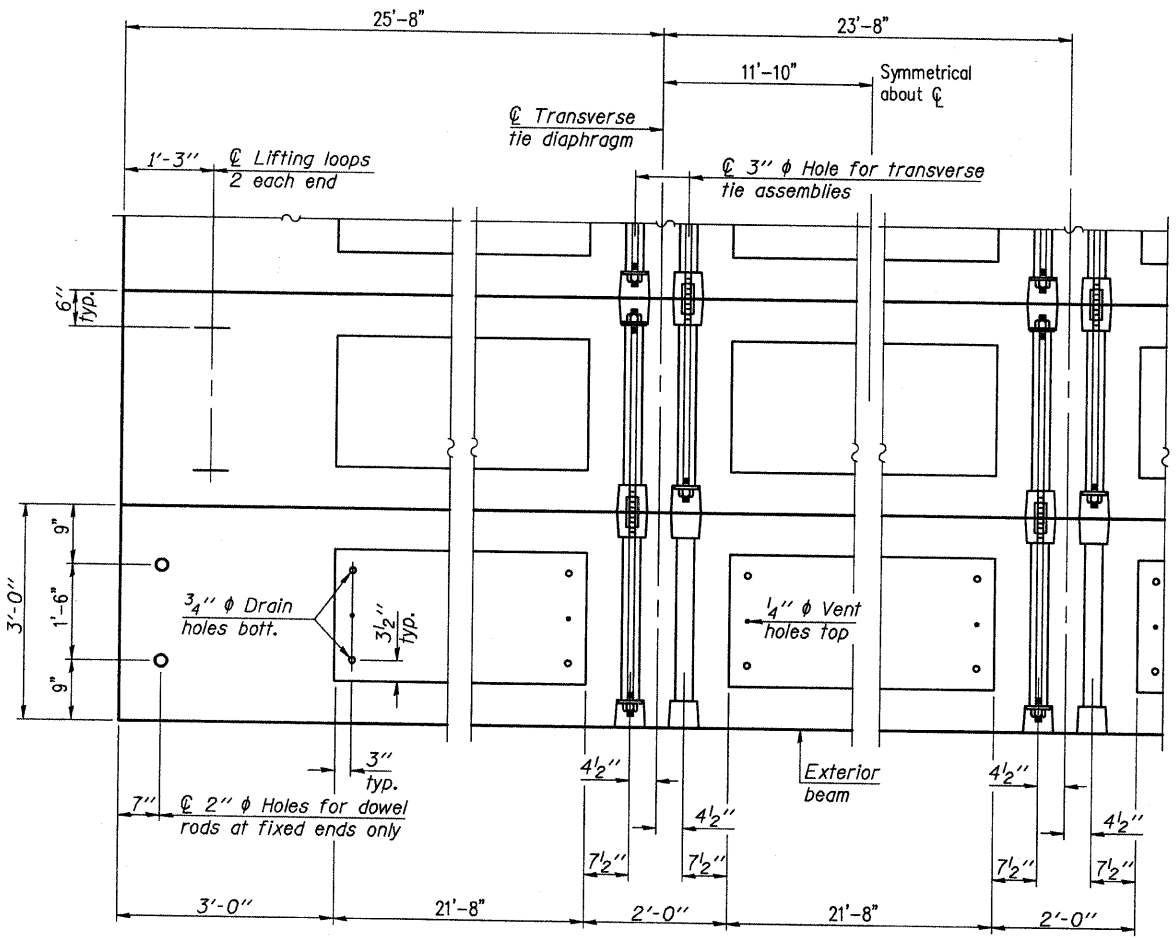
**BAR S<sub>2</sub>(E)**



**BAR U(E)**



**BAR U<sub>1</sub>(E)**

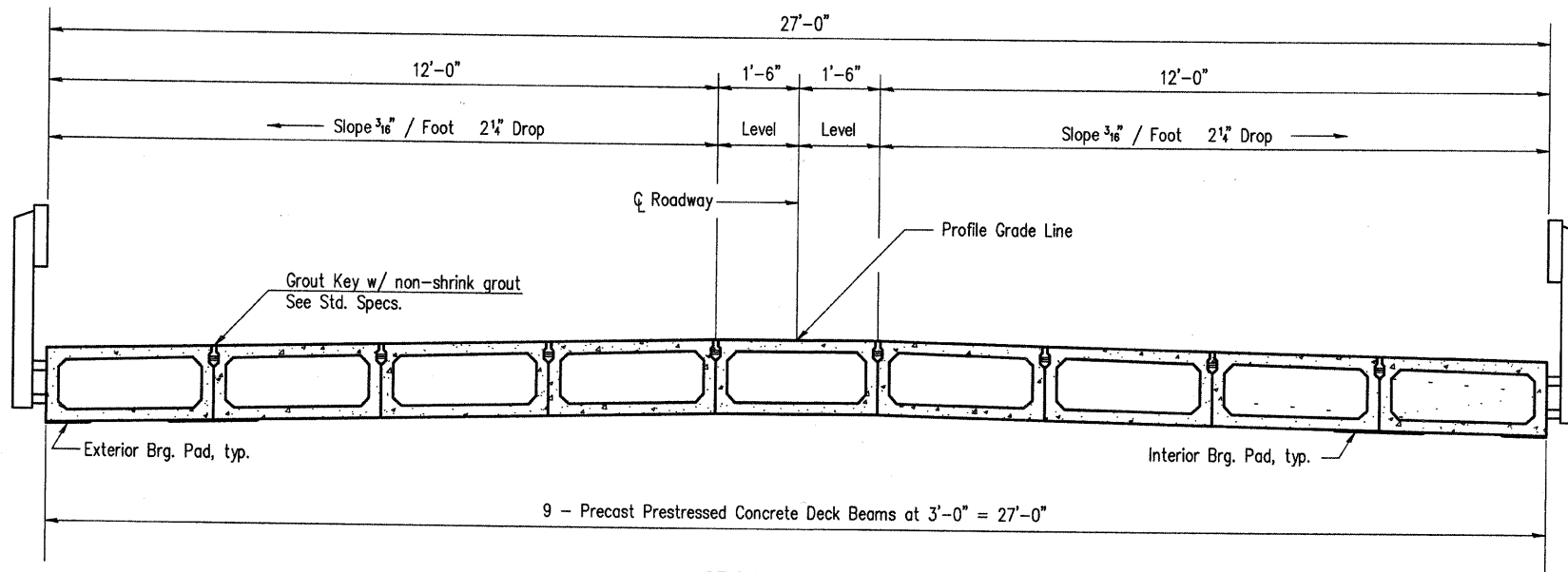


**PLAN VIEW**

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 3/8" 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.

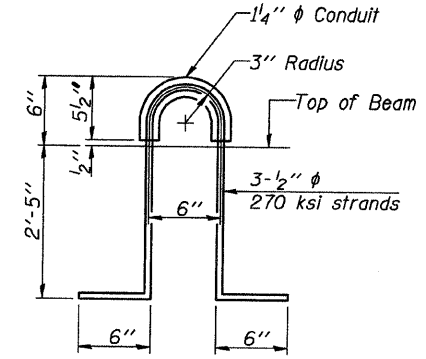


**CROSS SECTION**

Steel Bridge Rail, Type S-1, See Sheet 8 of 15 for complete details

**BILL OF MATERIAL**

Precast Prestressed Conc. Deck Bms. (33" depth)	Sq. Ft.	2025
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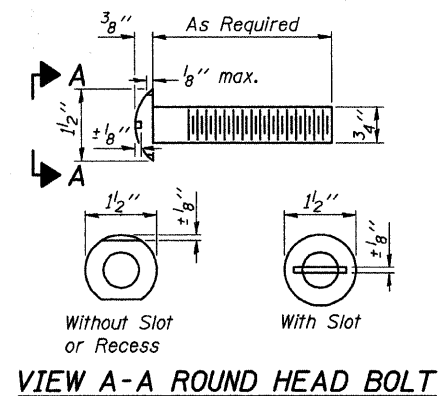


**LIFTING LOOP DETAIL**

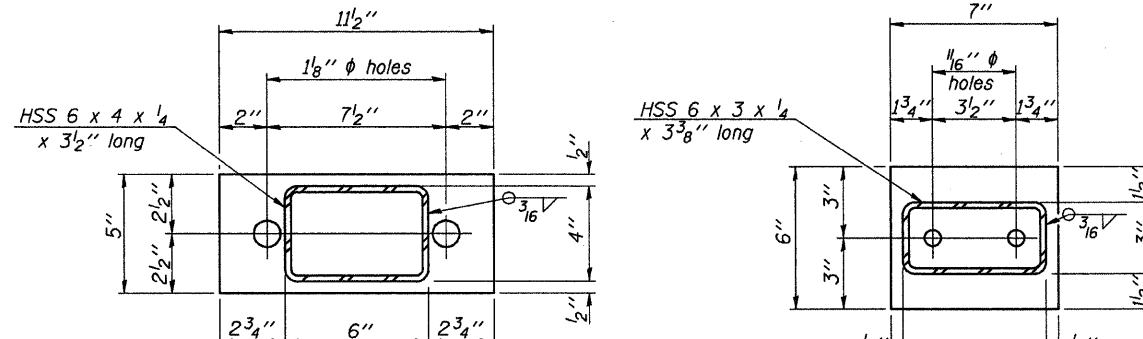
**CHARLESTON ENGINEERING, INC.**  
CONSULTING ENGINEERS  
105 NORTH KITCHELL  
P.O. BOX 307  
OLNEY, ILLINOIS 62450  
(618) 392-0739  
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.002513

**SUPERSTRUCTURE DETAILS**  
**STRUCTURE NO. 040-3260**  
**T.R. 186A**  
**OVER BRUSH CREEK**  
**SECTION 05-10127-00-BR**  
**JASPER COUNTY**  
**STATION 5+14.25**

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 186A	05-10127-00-BR	JASPER	15	8
CONTRACT NO. 95620		ILLINOIS	PROJECT BROS-079(140)	

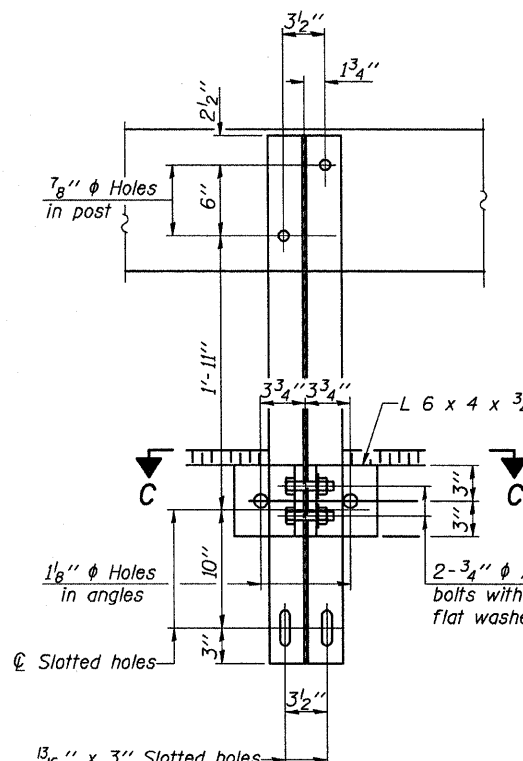


VIEW A-A ROUND HEAD BOLT

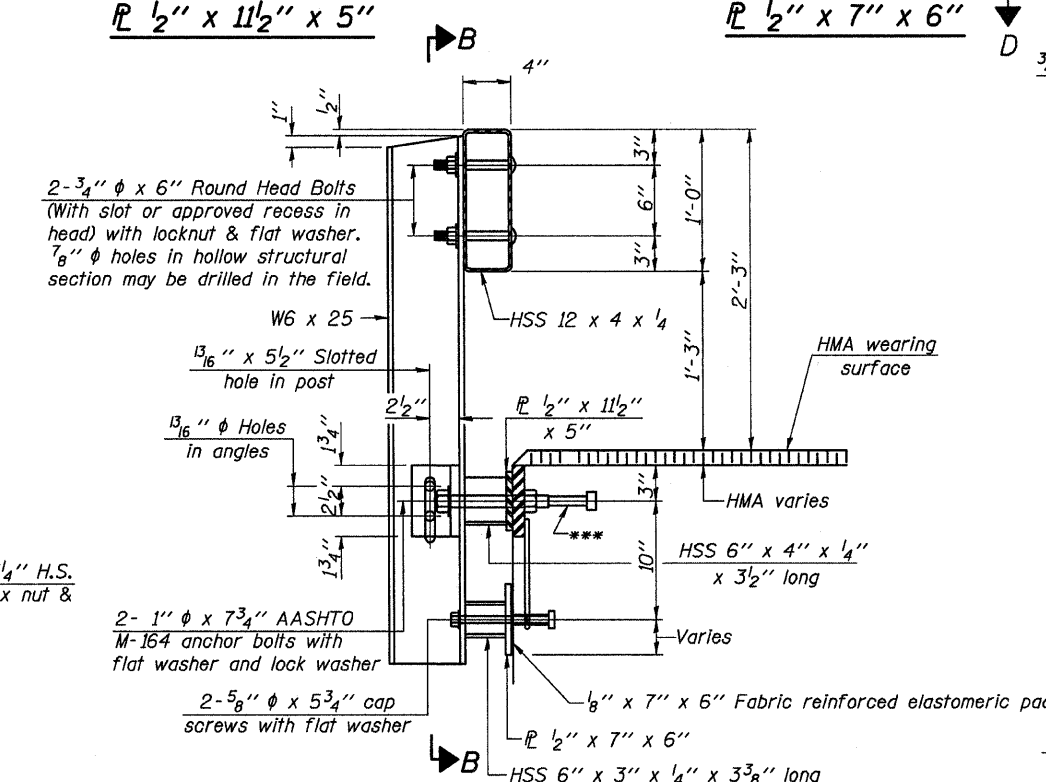


PL 1/2" x 11 1/2" x 5"

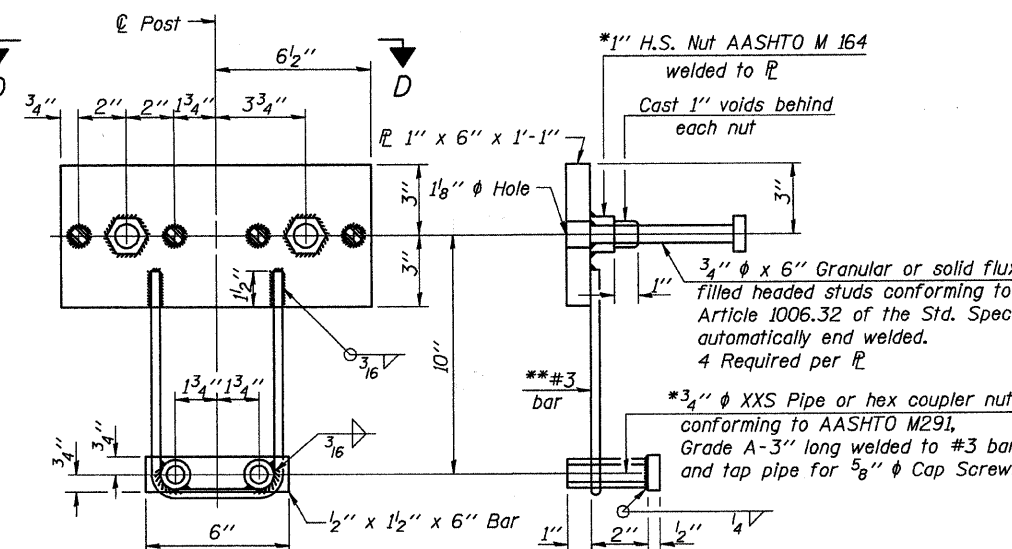
PL 1/2" x 7" x 6"



SECTION B-B

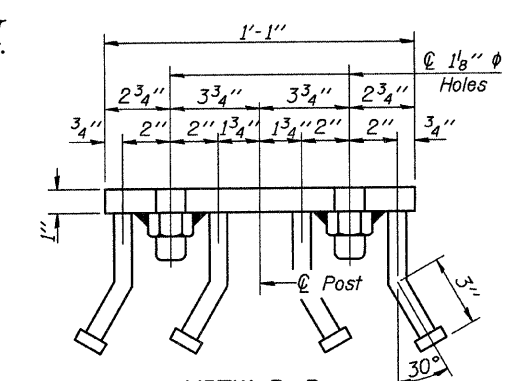


SECTION AT RAILING POST

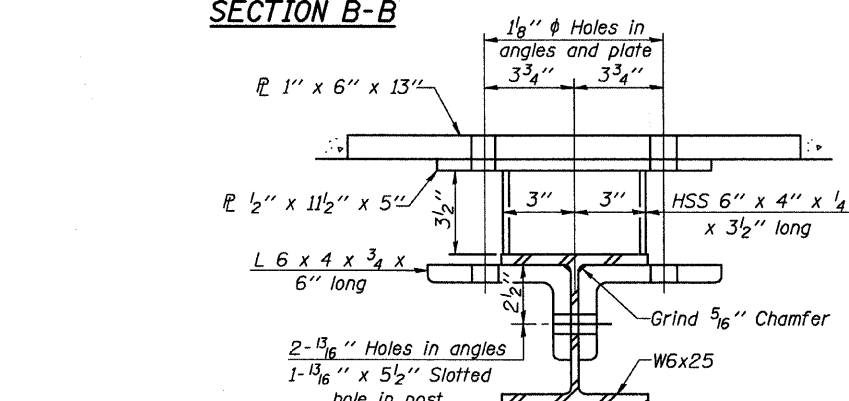


ANCHOR DEVICE

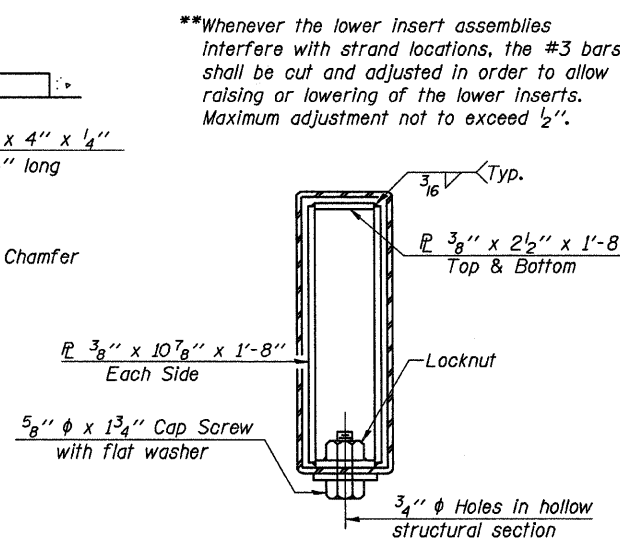
Notes:  
 All field drilled holes shall be coated with an approved zinc rich paint before erection.  
 For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type S-1.  
 All steel rail elements 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.



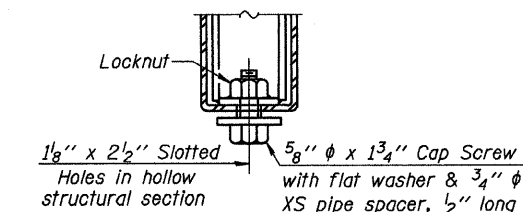
VIEW D-D



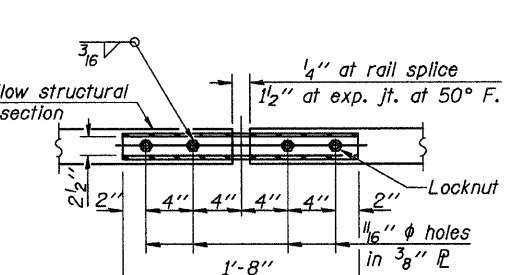
SECTION C-C



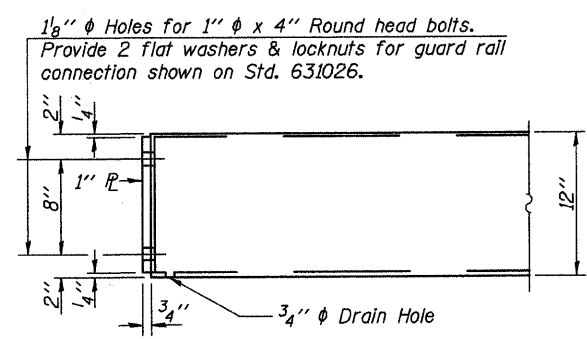
SECTIONS AT RAIL SPLICE



RAIL SPLICE CONNECTION AT EXPANSION JT.



PLAN-BOTTOM SPLICE PL TYPICAL



END OF RAIL DETAILS

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	150

STEEL RAILING, TYPE S-1

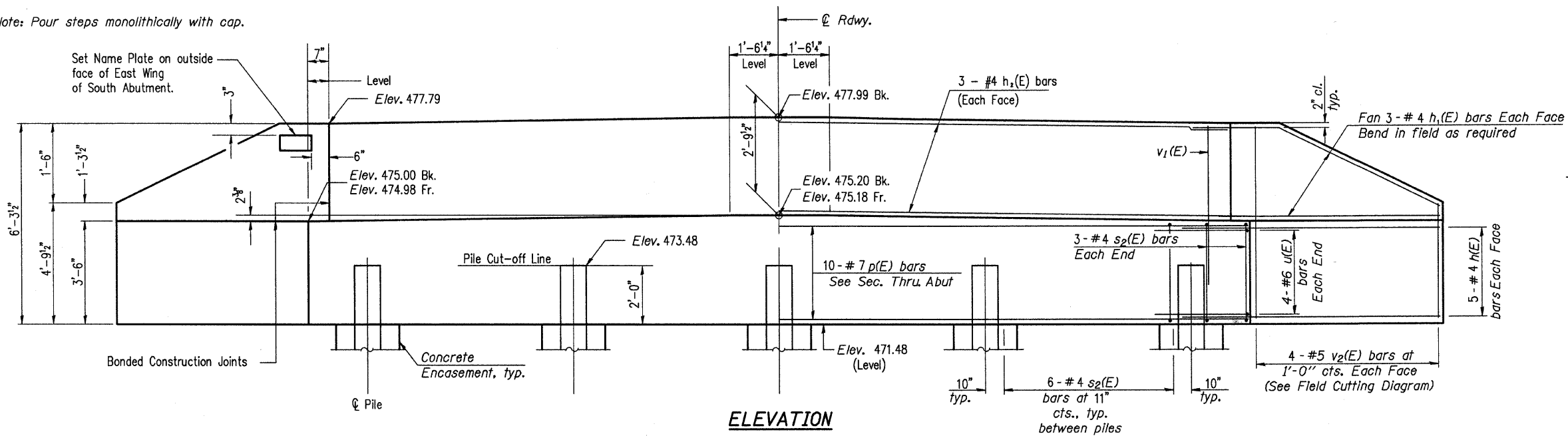
CHARLESTON ENGINEERING, INC.  
 CONSULTING ENGINEERS  
 105 NORTH KITCHELL  
 P.O. BOX 397  
 OLNEY, ILLINOIS 62450  
 (618) 362-0736  
 ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

STEEL RAILING, TYPE S1  
 STRUCTURE NO. 040-3260  
 T.R. 186A  
 OVER BRUSH CREEK  
 SECTION 05-10127-00-BR  
 JASPER COUNTY  
 STATION 5+14.25

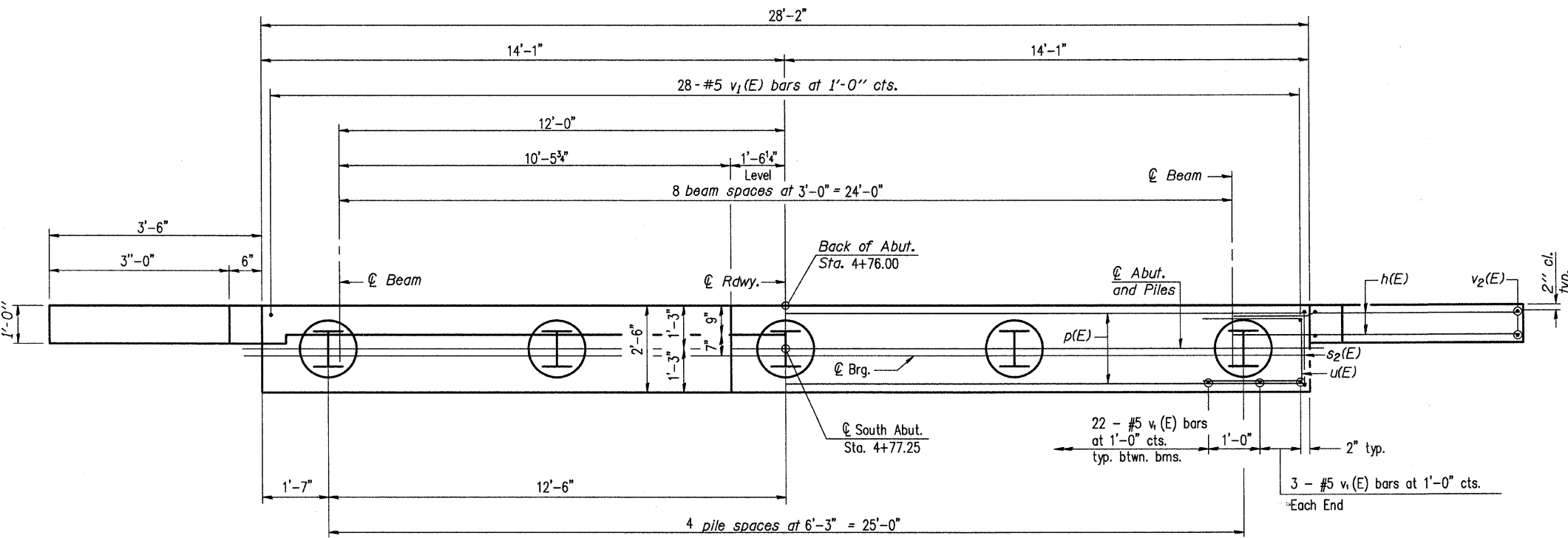


ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 186A	05-10127-00-BR	JASPER	15	9
CONTRACT NO. 95620		ILLINOIS	PROJECT BROS-079(140)	

Note: Four steps monolithically with cap.



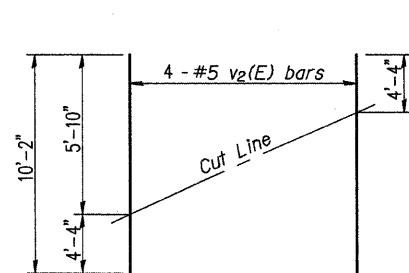
**ELEVATION**



**PLAN**

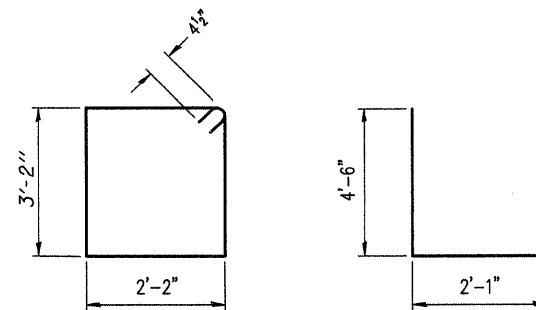
**PILE DATA**

Type: HP 12X53  
 Nominal Required Bearing: Set in Rock  
 Factored Resistance Available: 170 kips  
 Est. Length: 13.5 Feet  
 No. Production Piles: 5  
 No. Test Piles: 0  
 Estimated Top of Rock Elevation: 465.00  
 Rock Socket Depth: 5.00 ft  
 Rock Socket Diameter: 2.00 ft



**FIELD CUTTING DIAGRAM**

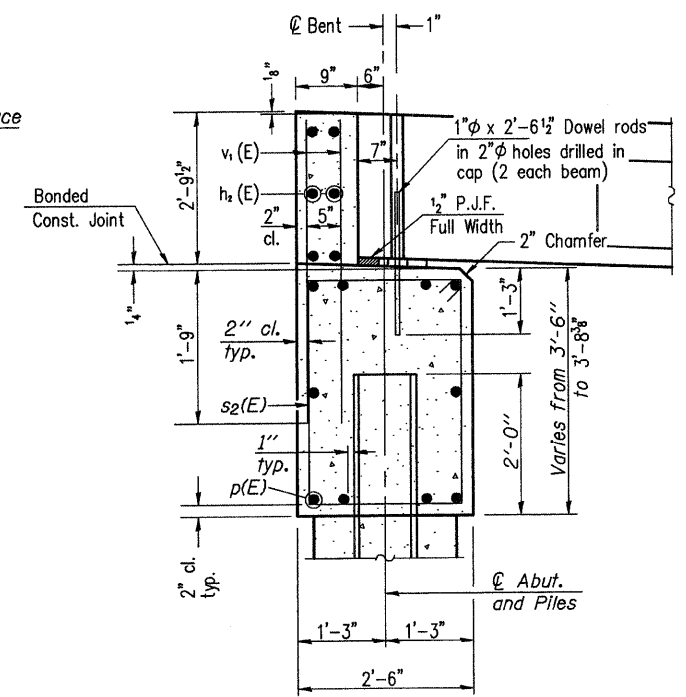
Order v2(E) full length. Cut as shown and use remainder of bars in opposite face.



**BAR s2(E)**

**BAR u(E)**

**ABUTMENTS**



**SEC. THRU ABUT.**

**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h(E)	20	#4	5'-0"	—
h1(E)	12	#4	5'-3"	—
h2(E)	6	#4	27'-10"	—
p(E)	10	#7	27'-10"	—
s2(E)	30	#4	11'-5"	□
u(E)	8	#6	11'-1"	—
v1(E)	56	#5	4'-5"	—
v2(E)	8	#5	10'-2"	—
Concrete Structures		Cu. Yd.	13.2	
Reinforcement Bars, Epoxy Coated		Pound	1500	
Furnishing Steel Piles HP 12X53		Foot	67.5	
Setting Piles in Rock		Each	5	
Test Pile		Each	0	
Concrete Encasement		Cu. Yd.	6.7	

- Notes: 1. The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.  
 2. Space reinforcement in cap to miss anchor bolts.

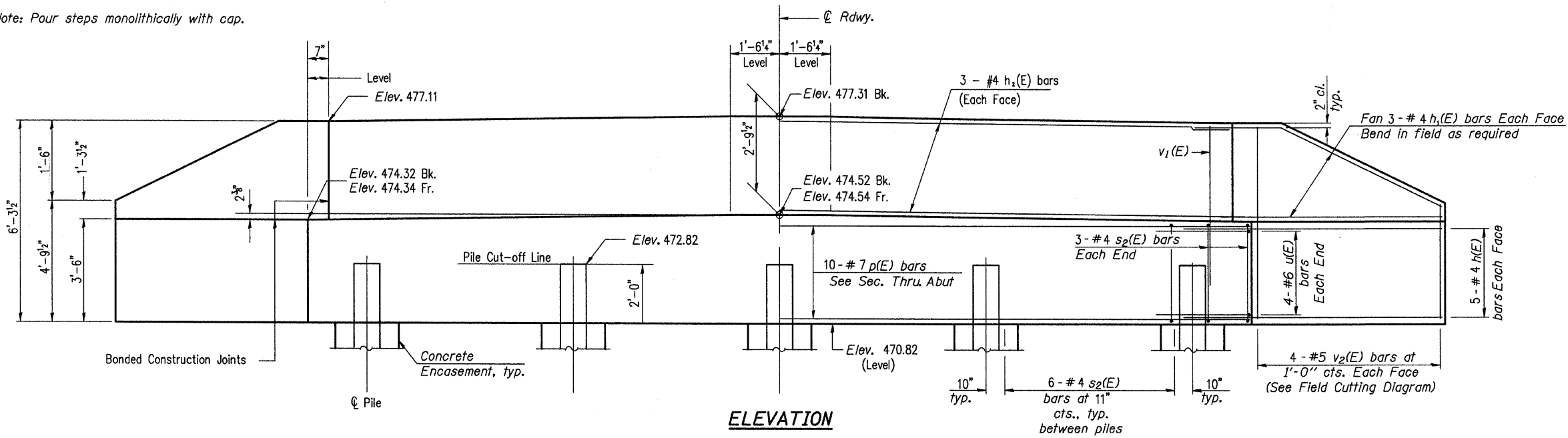
For details of piles and Concrete Encasement, see sheet 11 of 15.

**CHARLESTON ENGINEERING, INC.**  
 CONSULTING ENGINEERS  
 105 NORTH KITCHELL  
 P.O. BOX 387  
 OLNEY, ILLINOIS 62450  
 (618) 392-0793  
 ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184 003513

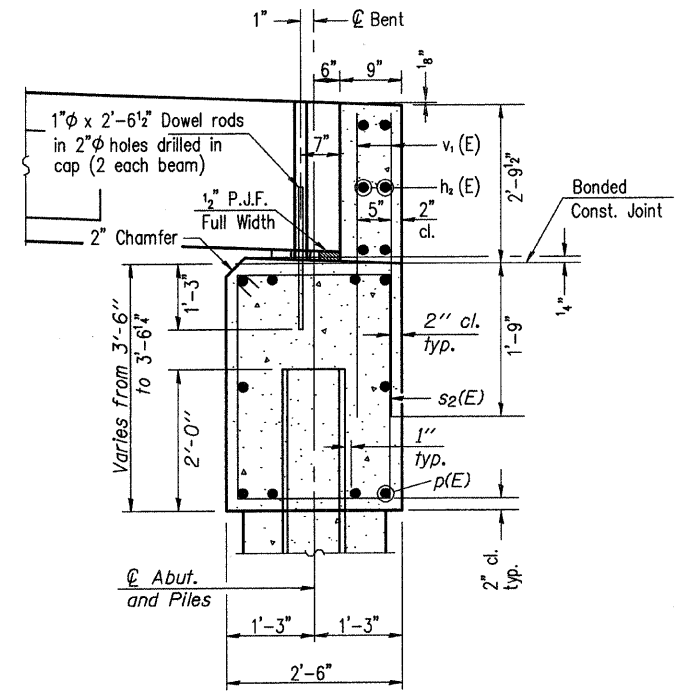
**SOUTH ABUTMENT DETAILS**  
**STRUCTURE NO. 040-3260**  
**T.R. 186A**  
**OVER BRUSH CREEK**  
**SECTION 05-10127-00-BR**  
**JASPER COUNTY**  
**STATION 5+14.25**

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 186A	05-10127-00-BR	JASPER	15	10
CONTRACT NO. 95620		ILLINOIS	PROJECT BROS-079(140)	

Note: Four steps monolithically with cap.



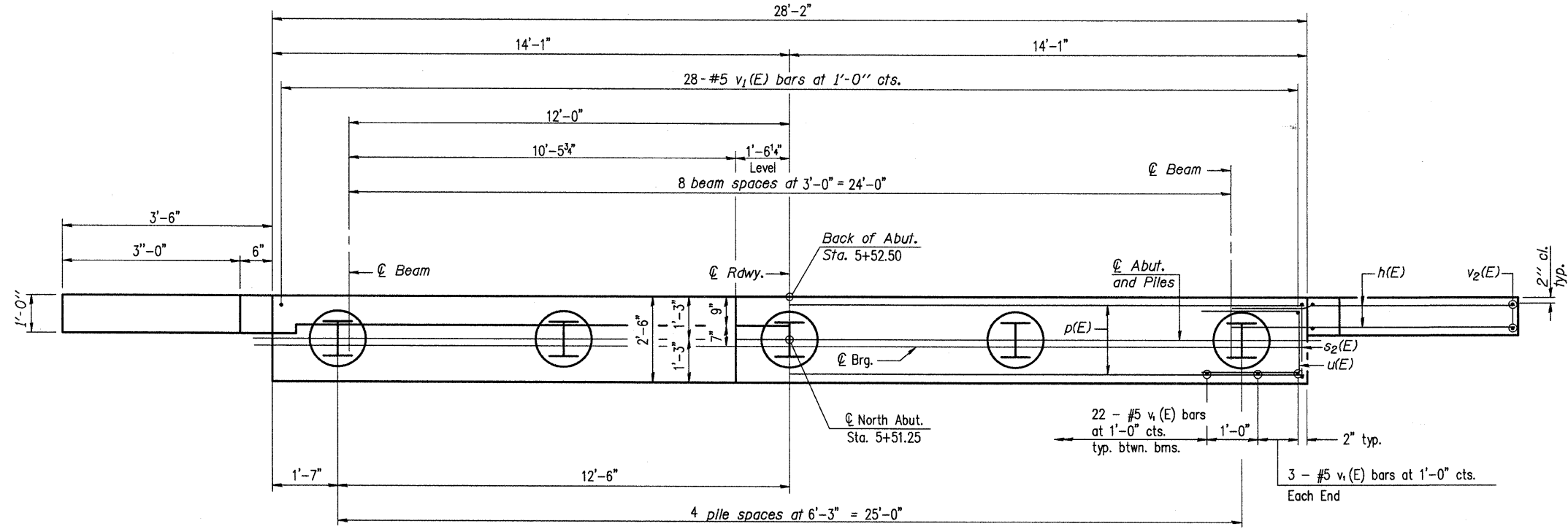
**ELEVATION**



**SEC. THRU ABUT.**

**BILL OF MATERIAL**

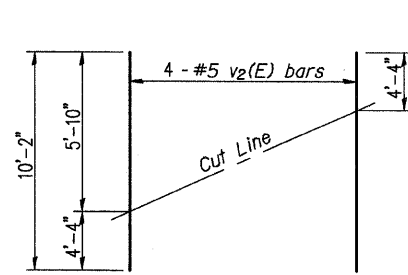
Bar	No.	Size	Length	Shape
h(E)	20	#4	5'-0"	—
h1(E)	12	#4	5'-3"	—
h2(E)	6	#4	27'-10"	—
p(E)	10	#7	27'-10"	—
s2(E)	30	#4	11'-5"	□
u(E)	8	#6	11'-1"	—
v1(E)	56	#5	4'-5"	—
v2(E)	8	#5	10'-2"	—
Concrete Structures			Cu. Yd.	13.2
Reinforcement Bars, Epoxy Coated			Pound	1500
Furnishing Steel Piles HP 12X53			Foot	120
Driving Piles			Foot	120
Test Pile			Each	1
Concrete Encasement			Cu. Yd.	1.8



**PLAN**

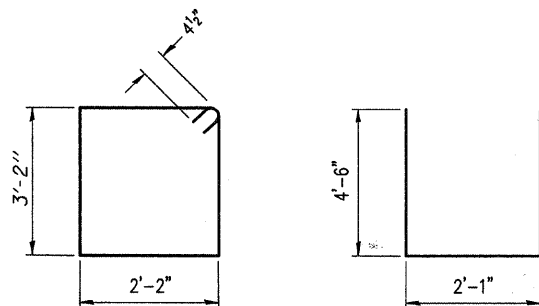
**PILE DATA**

Type: HP 12X53  
 Nominal Required Bearing: 419 kips  
 Factored Resistance Available: 170 kips  
 Est. Length: 30 Feet  
 No. Production Piles: 4  
 No. Test Piles: 1



**FIELD CUTTING DIAGRAM**

Order v2(E) full length. Cut as shown and use remainder of bars in opposite face.



**BAR s2(E)**

**BAR u(E)**

- Notes:
- The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.
  - Space reinforcement in cap to miss anchor bolts.
  - The test pile shall be driven to 110 percent of the Nominal Required Bearing indicated in the pile data information.

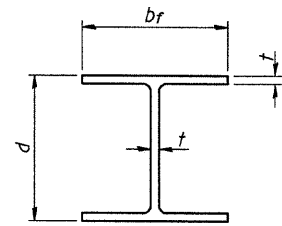
For details of piles and Concrete Encasement, see sheet 11 of 15.

**CHARLESTON ENGINEERING, INC.**  
 CONSULTING ENGINEERS  
 105 NORTH KITCHELL  
 P.O. BOX 387  
 OLNEY, ILLINOIS 62450  
 (618) 362-0736  
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184 003513

**NORTH ABUTMENT DETAILS**  
 STRUCTURE NO. 040-3260  
 T.R. 186A  
 OVER BRUSH CREEK  
 SECTION 05-10127-00-BR  
 JASPER COUNTY  
 STATION 5+14.25

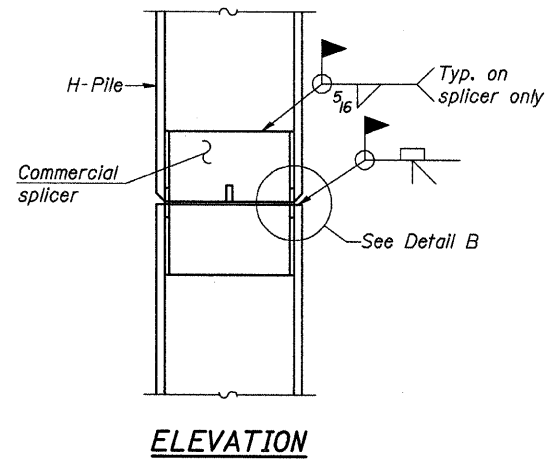
**ABUTMENTS**

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 186A	05-10127-00-BR	JASPER	15	11
CONTRACT NO. 95620		ILLINOIS	PROJECT BROS-079(140)	

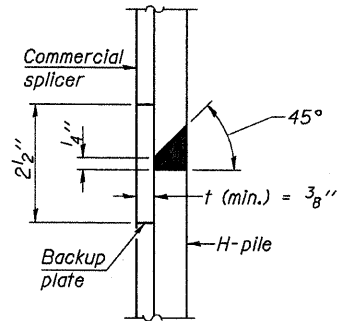


**STEEL PILE TABLE**

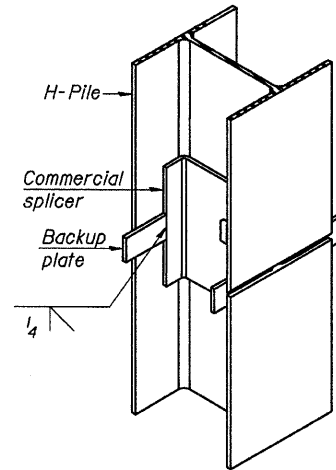
Designation	Depth d	Flange width bf	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	13/16"	30"
x102	14"	14 3/4"	1/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	1/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 5/8"	1/2"	24"
HP 12x53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



**ELEVATION**

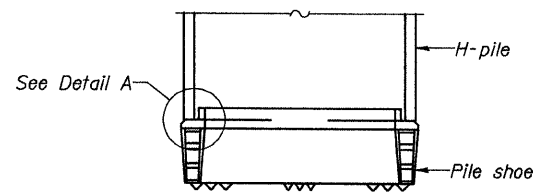


**DETAIL "B"**

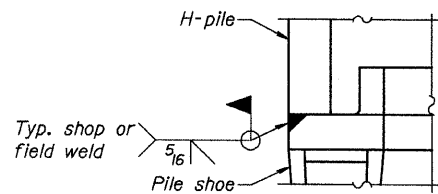


**ISOMETRIC VIEW**

**WELDED COMMERCIAL SPLICE**

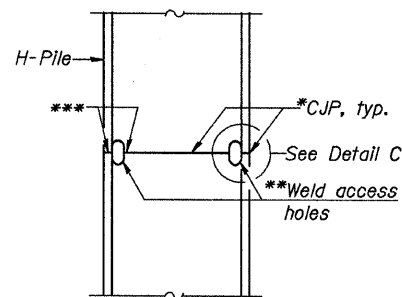


**ELEVATION**



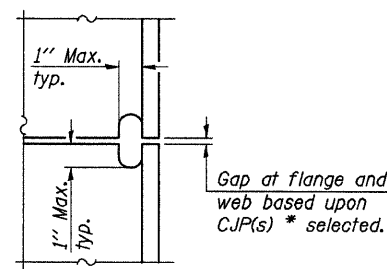
**DETAIL A**

**H-PILE SHOE ATTACHMENT**



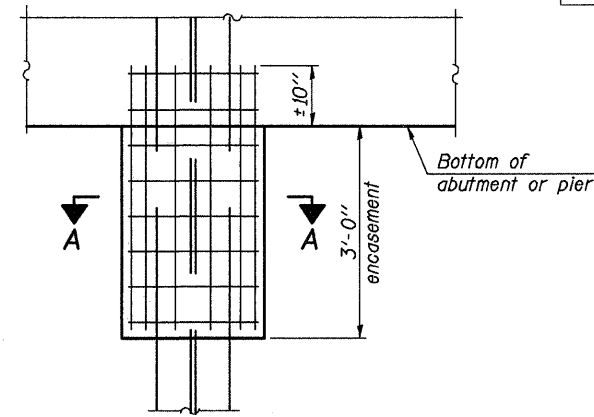
**ELEVATION**

**COMPLETE PENETRATION WELD SPLICE**



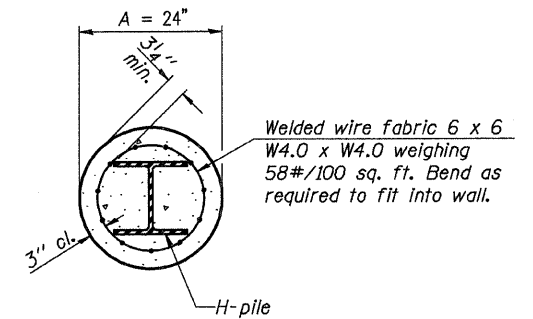
**DETAIL C**

\*Use joint conforming to Figure 3.4 in AWS D1.1, Structure Welding Code-Steel.  
 \*\*Preparation per Fig. 5.2 in AWS D1.1, Structure Welding Code-Steel.  
 \*\*\*Interrupt welds 1/4" from end of each pile.



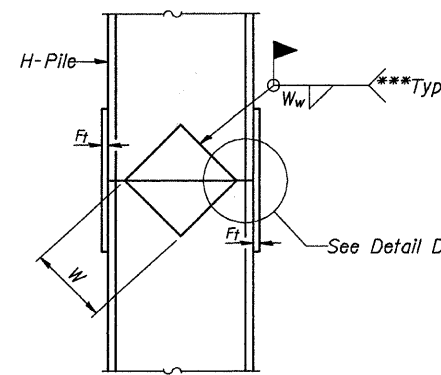
**ELEVATION**

**PILE ENCASEMENT**

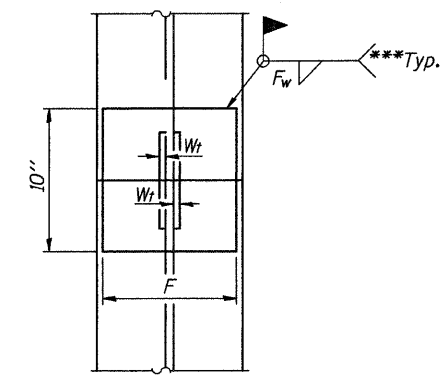


**SECTION A-A**

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

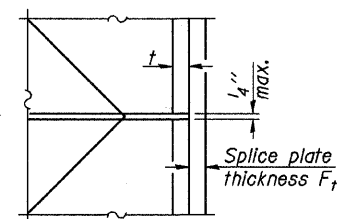


**ELEVATION**



**END VIEW**

Designation	F	F <sub>t</sub>	F <sub>w</sub>	W	W <sub>t</sub>	W <sub>w</sub>
HP 14x117	12 1/2"	1"	7/8"	7 3/4"	5 5/8"	1/2"
x102	12 1/2"	7/8"	3/4"	7 3/4"	5 5/8"	1/2"
x89	12 1/2"	3/4"	1/16"	7 3/4"	5 5/8"	1/2"
x73	12 1/2"	5/8"	9/16"	7 3/4"	5 5/8"	1/2"
HP 12x84	10"	7/8"	1/16"	6 1/2"	5 5/8"	1/2"
x74	10"	7/8"	1/16"	6 1/2"	5 5/8"	1/2"
x63	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
HP 12x53	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"



**DETAIL D**

**WELDED PLATE FIELD SPLICE**

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

**HP PILE DETAILS**

CHARLESTON ENGINEERING, INC.  
 CONSULTING ENGINEERS  
 105 NORTH KITCHELL  
 P.O. BOX 387  
 OLNEY, ILLINOIS 62450  
 (618) 392-0736  
 ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184 002513

**PILE DETAILS**

**STRUCTURE NO. 040-3260**  
**T.R. 186A**  
**OVER BRUSH CREEK**  
**SECTION 05-10127-00-BR**  
**JASPER COUNTY**  
**STATION 5+14.25**

HOLCOMB FOUNDATION ENGINEERING INC.  
P.O. Box 88 618-529-5262  
Carbondale, Il. 62903 618-457-8991 fax Page 1 of 1

Bridge Foundation Boring Log

Project: H-09118 Bridge over Brush Creek Date: 05/13/2009  
Section: 05-10127-00-BR Station \_\_\_\_\_ Bored by: D. Russell  
Structure: \_\_\_\_\_ Checked By: J. Holcomb  
County: Jasper

Boring No.	Station	Offset	Elevation	N	Qu	w	%	Surface Water Elev.	Ground Water Elev. During Drilling	Ground Water Elev. Upon Completion	Soil Description
1	5+53	15' LT	471.9	0					457.9	467.9	shale (continued)
			467.9	4	1.58	29					Gray Mottled Brown Silty CLAY (A-6)
			467.9	5	0.88	20					Gray Mottled Brown Sandy CLAY (A-6)
			443.4	2	0.58	29					LIMESTONE
			442.9	2	0.58	29					End of Boring @ -29.0'
			460.4	5		18					Gray Mottled Brown Clayey SAND (A-2-4)
			457.9	4		20					Gray Fine to Medium SAND (A-2-4) with clay
			455.4	11		18					Gray Mottled Brown Fine to Med. SAND (A-2-4) with clay and sandstone fragments
			452.9			7					Gray SAND (A-2-4) with gravel
			450.4	60	4.75	15					Gray SHALE

N = Standard Penetration Test Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with a 140 lbs. hammer falling 30"  
Qu - Unconfined Compressive Strength in tons/sq.ft.  
w - Water Content - percentage of oven dry weight - %  
B = Bulge Failure  
S = Shear Failure  
E = Estimated Value  
P = Penetrometer

HOLCOMB FOUNDATION ENGINEERING INC.  
P.O. Box 88 618-529-5262  
Carbondale, Il. 62903 618-457-8991 fax Page 1 of 1

Bridge Foundation Boring Log

Project: H-09118 Bridge over Brush Creek Date: 05/14/2009  
Section: 05-10127-00-BR Station \_\_\_\_\_ Bored by: D. Russell  
Structure: \_\_\_\_\_ Checked By: J. Holcomb  
County: Jasper

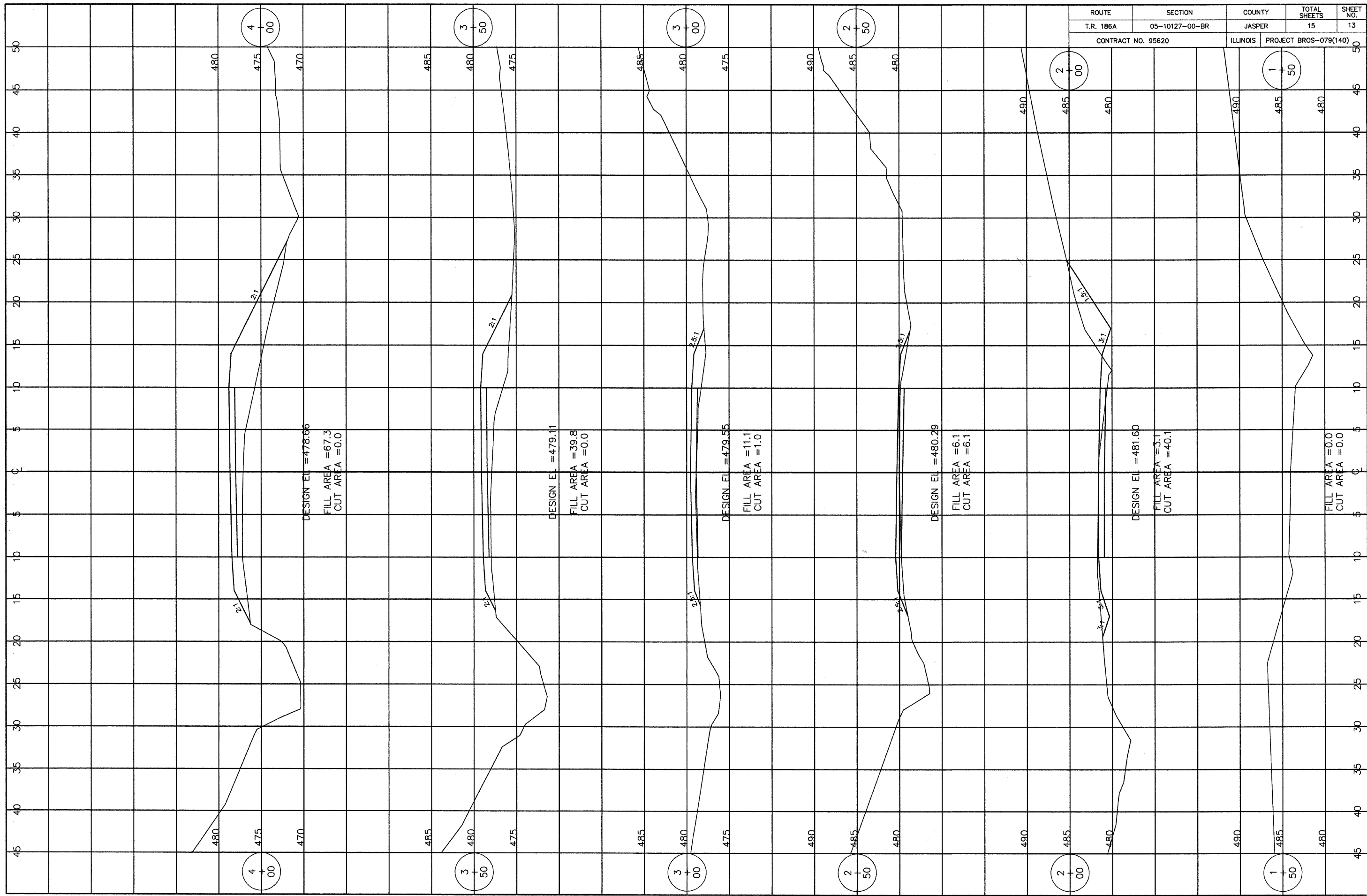
Boring No.	Station	Offset	Elevation	N	Qu	w	%	Surface Water Elev.	Ground Water Elev. During Drilling	Ground Water Elev. Upon Completion	Soil Description
2	4+71	6' LT	476.0	0					none	none	
			469.5								6" Crushed Stone & Clay
			469.5	42							Brown Mottled Gray Sandy SHALE
			469.5	13	1.45	13					
			469.5	44		13					
			465.5	92		9					
			464.5	100	2	2					Gray LIMESTONE
			464.0								Gray-Brown SHALE
			462.0								Black COAL
			462.0								Gray SHALE
			460.0								End of Boring @ -16.0'

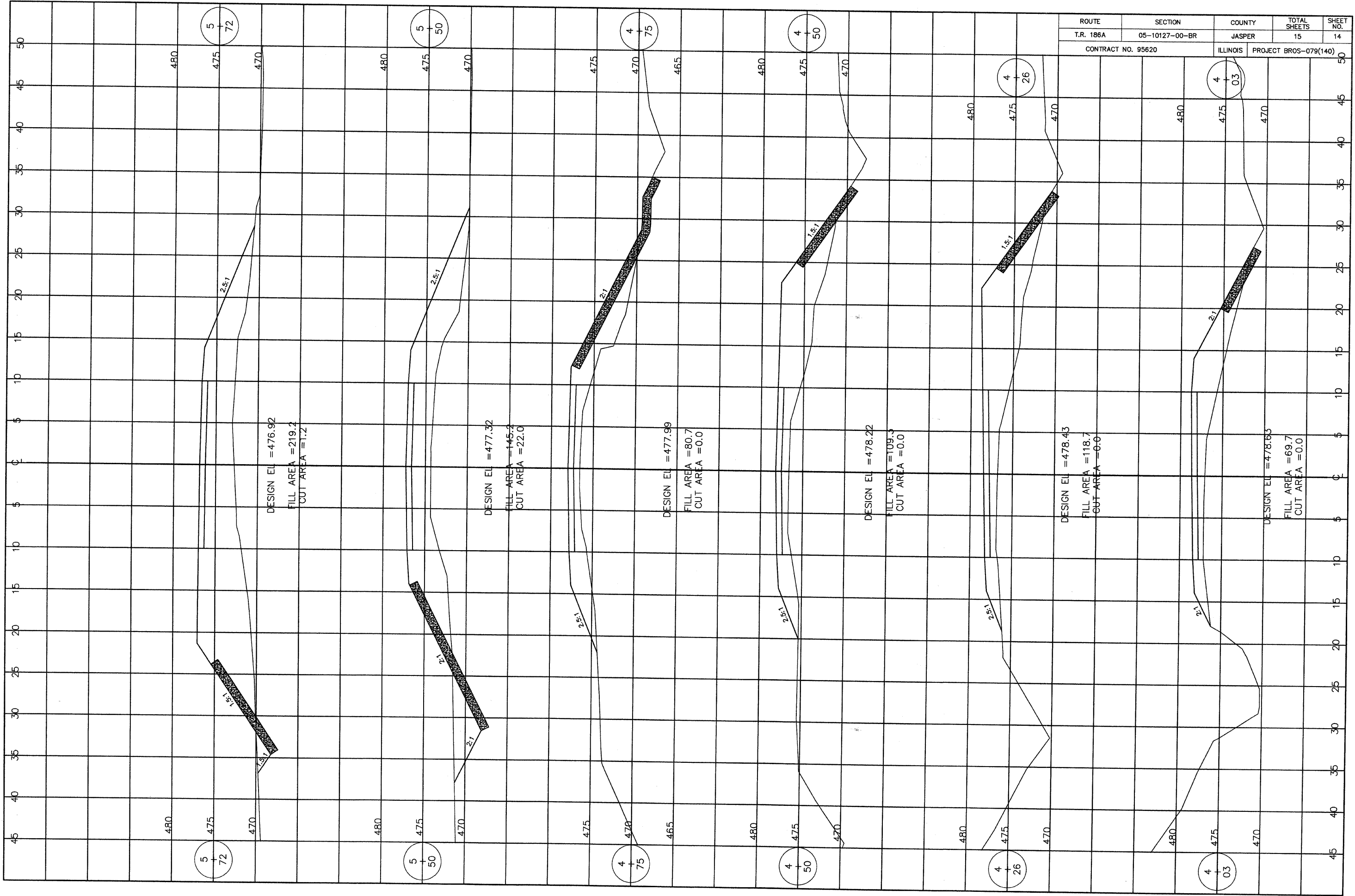
N = Standard Penetration Test Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with a 140 lbs. hammer falling 30"  
Qu - Unconfined Compressive Strength in tons/sq.ft.  
w - Water Content - percentage of oven dry weight - %  
B = Bulge Failure  
S = Shear Failure  
E = Estimated Value  
P = Penetrometer

Rock Core Data  
Recovery = 91.3%  
ROD = 36.7%

CHARLESTON ENGINEERING, INC.  
CONSULTING ENGINEERS  
105 NORTH KITCHELL  
P.O. BOX 397  
OLNEY, ILLINOIS 62450  
(618) 392-0738  
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184 003513

**BORING LOGS**  
**STRUCTURE NO. 040-3260**  
**T.R. 186A**  
**OVER BRUSH CREEK**  
**SECTION 05-10127-00-BR**  
**JASPER COUNTY**  
**STATION 5+14.25**





ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 186A	05-10127-00-BR	JASPER	15	14

CONTRACT NO. 95620 ILLINOIS PROJECT BROS-079(140)

DESIGN EL = 476.92  
 FILL AREA = 219.2  
 CUT AREA = 1.2

DESIGN EL = 477.32  
 FILL AREA = 145.3  
 CUT AREA = 22.0

DESIGN EL = 477.99  
 FILL AREA = 80.7  
 CUT AREA = 0.0

DESIGN EL = 478.22  
 FILL AREA = 109.3  
 CUT AREA = 0.0

DESIGN EL = 478.43  
 FILL AREA = 118.7  
 CUT AREA = 0.0

DESIGN EL = 478.63  
 FILL AREA = 69.7  
 CUT AREA = 0.0

5  
72

5  
50

4  
75

4  
50

4  
26

4  
03

5  
72

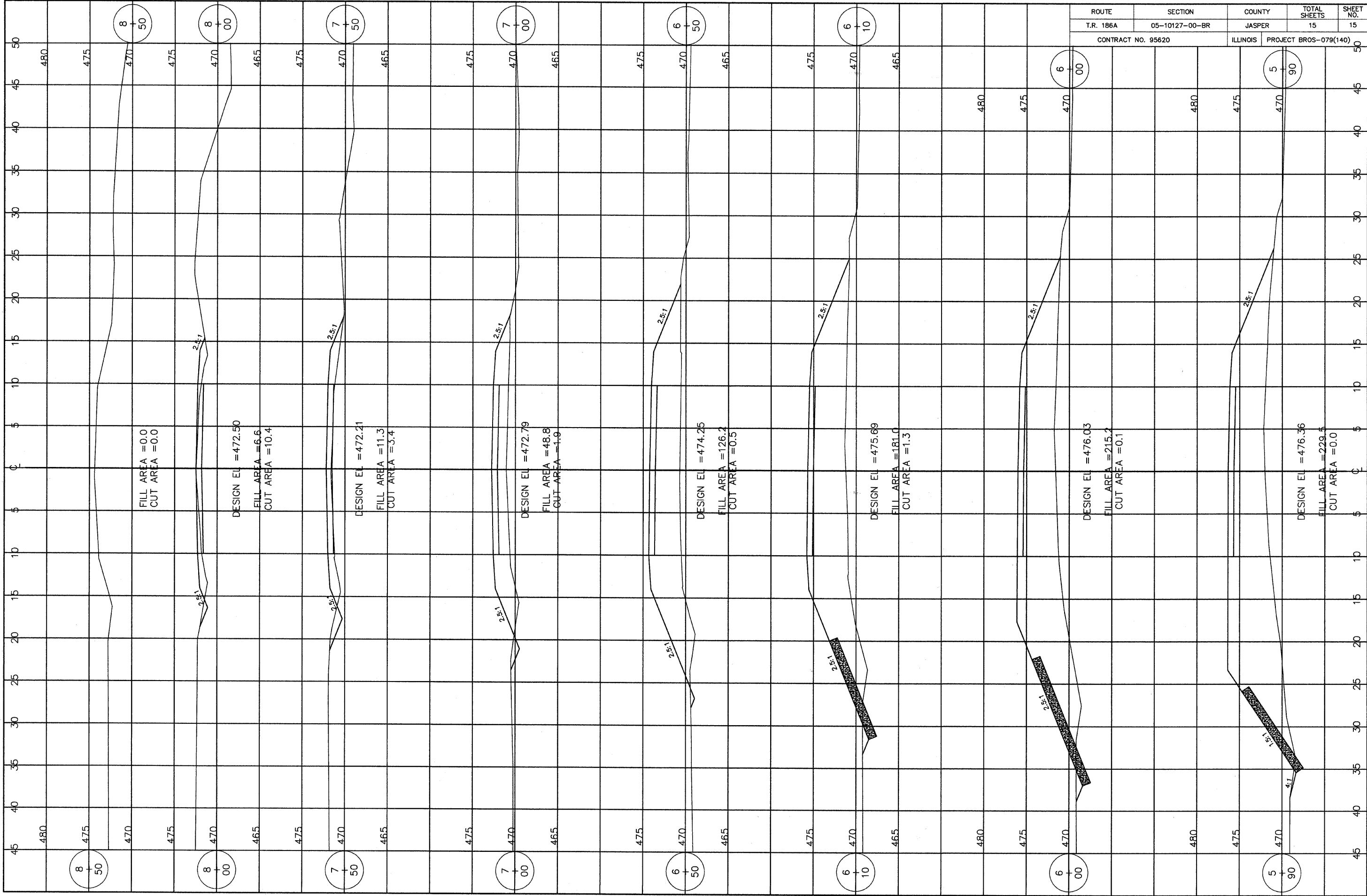
5  
50

4  
75

4  
50

4  
26

4  
03



ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 186A	05-10127-00-BR	JASPER	15	15

CONTRACT NO. 95620 ILLINOIS PROJECT BROS-079(140)