

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.S. 706	04-00111-00-BR	RICHLAND	13	1
CONTRACT NO. 95760		ILLINOIS		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
**PLANS FOR PROPOSED
HIGHWAY BRIDGE PROGRAM**
SECTION 04-00111-00-BR RICHLAND COUNTY
PROJECT BRS-0706(136)
JOB NO. C-97-089-10

F.A.S. 706

CONTRACT NO. 95760

Joint Utility Locating Information for Excavators

JULIE 1-800-892-0123

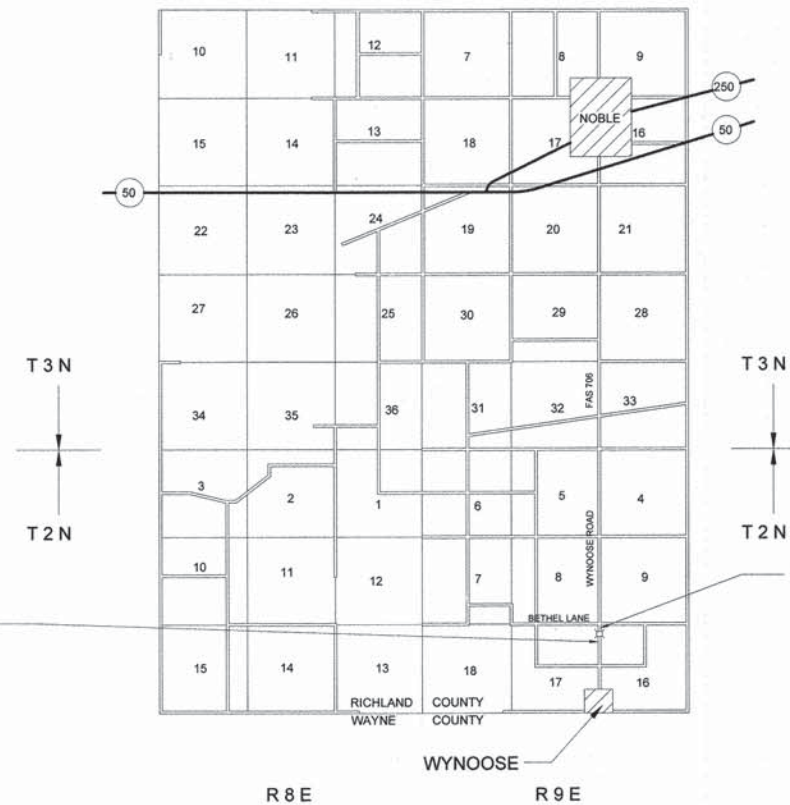
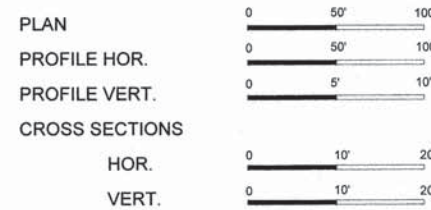


INDEX OF SHEETS

SHEET	ITEM
1	COVER SHEET
2	SUMMARY OF QUANTITIES
3	ROADWAY PLAN AND PROFILE
4	GENERAL PLAN AND ELEVATION
5	FOOTING DETAILS
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9	BORING LOGS
10-13	CROSS SECTIONS

STANDARD DRAWINGS

- STANDARD 000001-06
- STANDARD 280001-07
- STANDARD 515001-03
- STANDARD 701901-04
- STANDARD BLR 21-9
- STANDARD BLR 23-4
- STANDARD BLR 24-2
- STANDARD BLR 26-3
- STANDARD BLR 27-1



SECTION 04-00111-00-BR BEGINS STA. 3+75.00

ALUMINUM STRUCTURAL PLATE BOX CULVERT
 34'-11" SPAN X 10'-4" RISE
 35'-9" LONG (ALONG SKEW)
 30° SKEW RIGHT FORWARD
 EXISTING STRUCTURE NO. 080-3004
 PROPOSED STRUCTURE NO. 080-5008

FUNCTIONAL CLASSIFICATION - MINOR COLLECTOR
 ADT = 325
 DESIGN SPEED = 40 MPH

NET LENGTH SECTION 04-00111-00-BR = 525.00 Ft. = 0.099 Mi.



CHARLESTON ENGINEERING, INC.
 CONSULTING ENGINEERS
 105 NORTH KITCHELL
 P.O. BOX 397
 OLNEY, ILLINOIS 62450
 (618) 392-0736
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

APPROVED February 13 2015
Ronny A. Colwell, P.E.
 COUNTY ENGINEER

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PASSED 2-20 2015
Maureen K. Kostel
 DISTRICT SEVEN ENGINEER OF
 LOCAL ROADS AND STREETS

Releasing For Bid Based on Limited Review 2-20 2015
Roger L. Swickell
 DEPUTY DIRECTOR OF HIGHWAYS
 REGION FOUR ENGINEER

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 706	04-00111-00-BR	RICHLAND	13	2
CONTRACT NO. 95760		ILLINOIS		

DESIGN DATA

MINOR COLLECTOR
ADT = 325

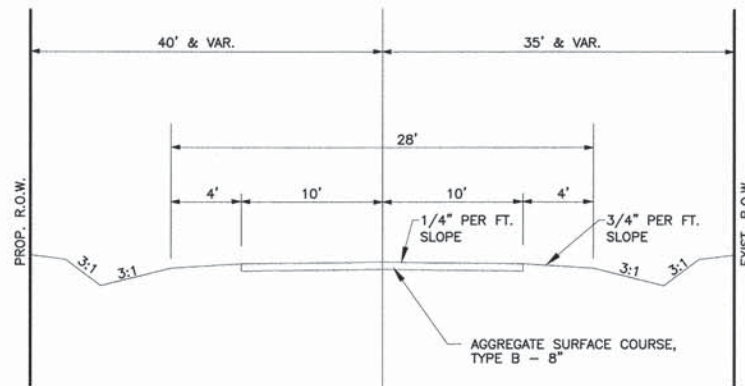
GENERAL NOTES

- 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.

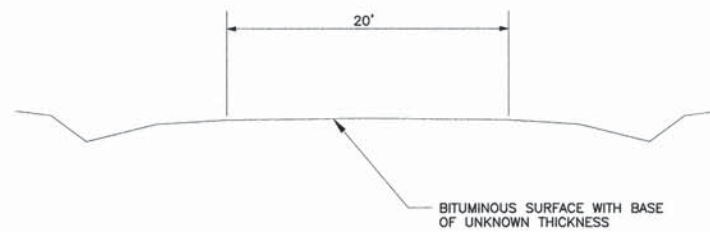
SUMMARY OF QUANTITIES

CODE NO.	ITEM	UNIT	QUANTITY
Δ LR631020	TRAFFIC BARRIER TERMINAL, TYPE 1	EACH	2
X0323265	REMOVE EXISTING RIPRAP	SQ YD	115
X0327301	RELOCATE EXISTING MAILBOX	EACH	1
X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.60
X7010216	TRAFFIC CONTROL AND PROTECTION, (SPECIAL)	L SUM	1
XX009012	ALUMINUM STRUCTURAL PLATE BOX CULVERT (SPECIAL), 122 SQUARE FEET	FOOT	36
20100110	TREE REMOVAL (6 TO 15 UNITS DIAMETER)	UNIT	55
20200100	EARTH EXCAVATION	CU YD	100
20400800	FURNISHED EXCAVATION	CU YD	275
20900110	POROUS GRANULAR BACKFILL	CU YD	475
28000305	TEMPORARY DITCH CHECKS	FOOT	14
28100807	STONE DUMPED RIPRAP, CLASS A4	TON	200
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	500
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50200100	STRUCTURE EXCAVATION	CU YD	475
Δ 50900205	STEEL RAILING, TYPE S1	FOOT	118
51500100	NAME PLATES	EACH	1
542D0220	PIPE CULVERTS, CLASS D, TYPE 1 15"	FOOT	78
59300100	CONTROLLED LOW-STRENGTH MATERIAL	CU YD	140
Δ 63100075	TRAFFIC BARRIER TERMINAL, TYPE 5A	EACH	2
67100100	MOBILIZATION	L SUM	1

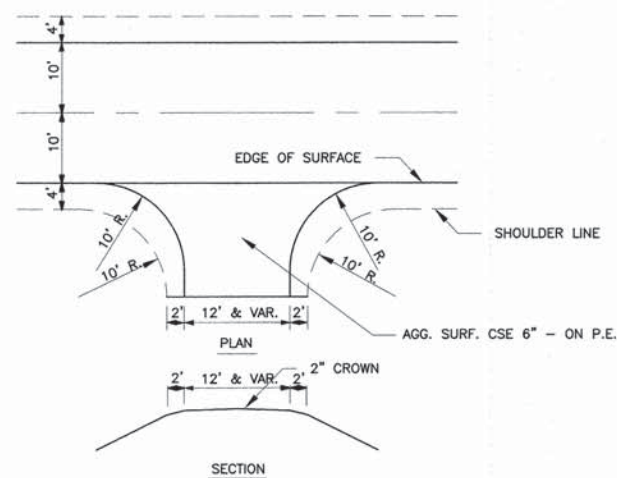
Δ SPECIALTY ITEMS



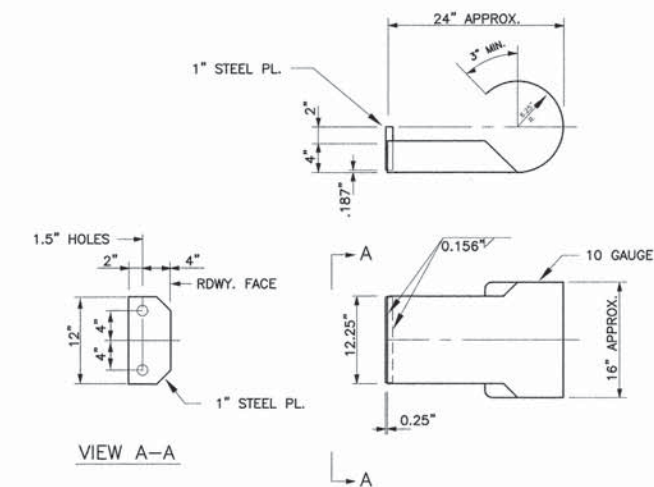
TYPICAL SECTION
PROPOSED



TYPICAL SECTION
EXISTING



ENTRANCE DETAIL

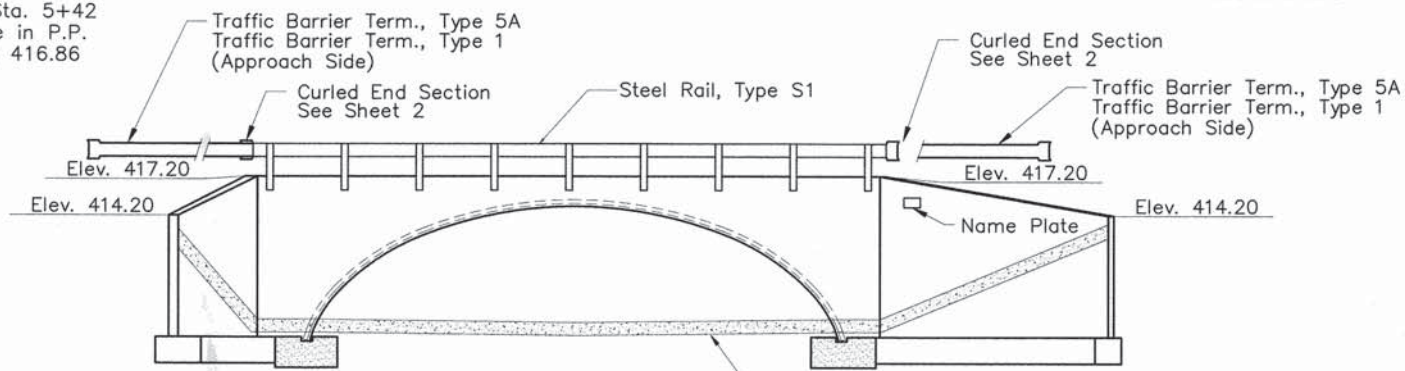


CURLED END SECTION DETAILS

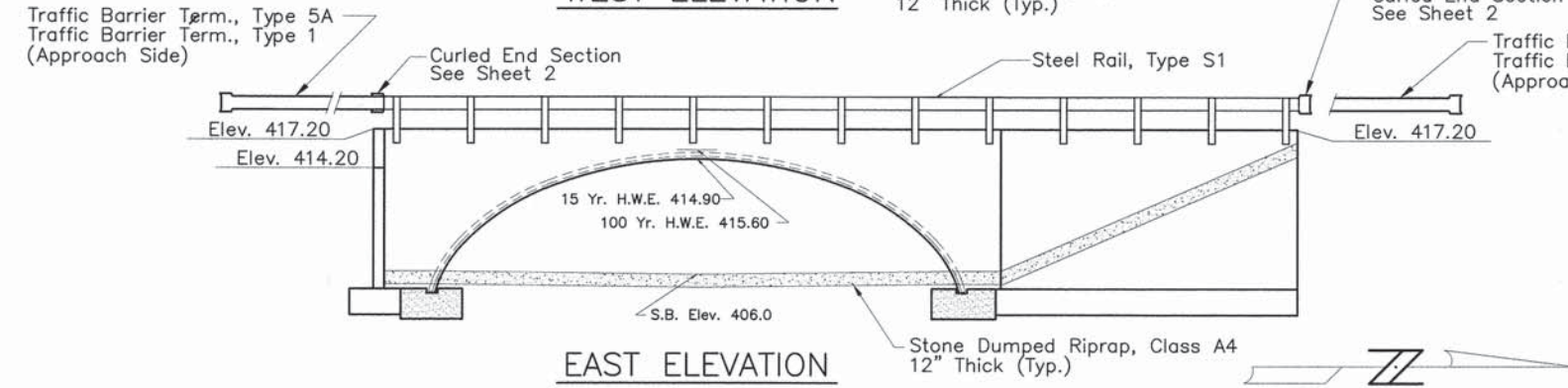
2 REQUIRED - COST INCLUDED IN
"STEEL RAILING, TYPE S-1"

B.M. - Lt. Sta. 5+42
Spike in P.P.
Elev. 416.86

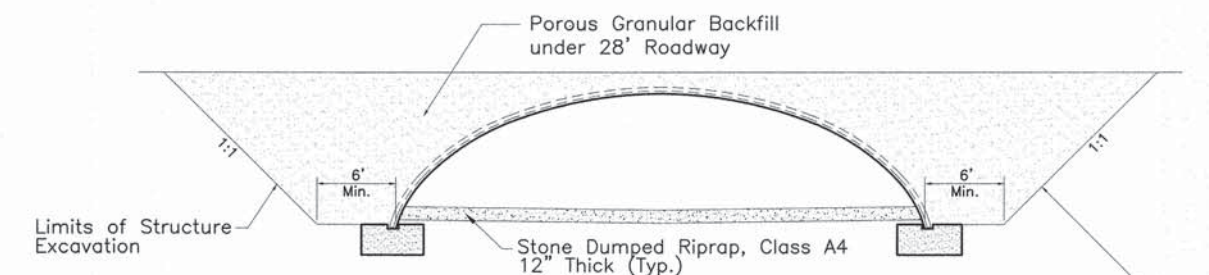
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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CONTRACT 95760		ILLINOIS		



WEST ELEVATION



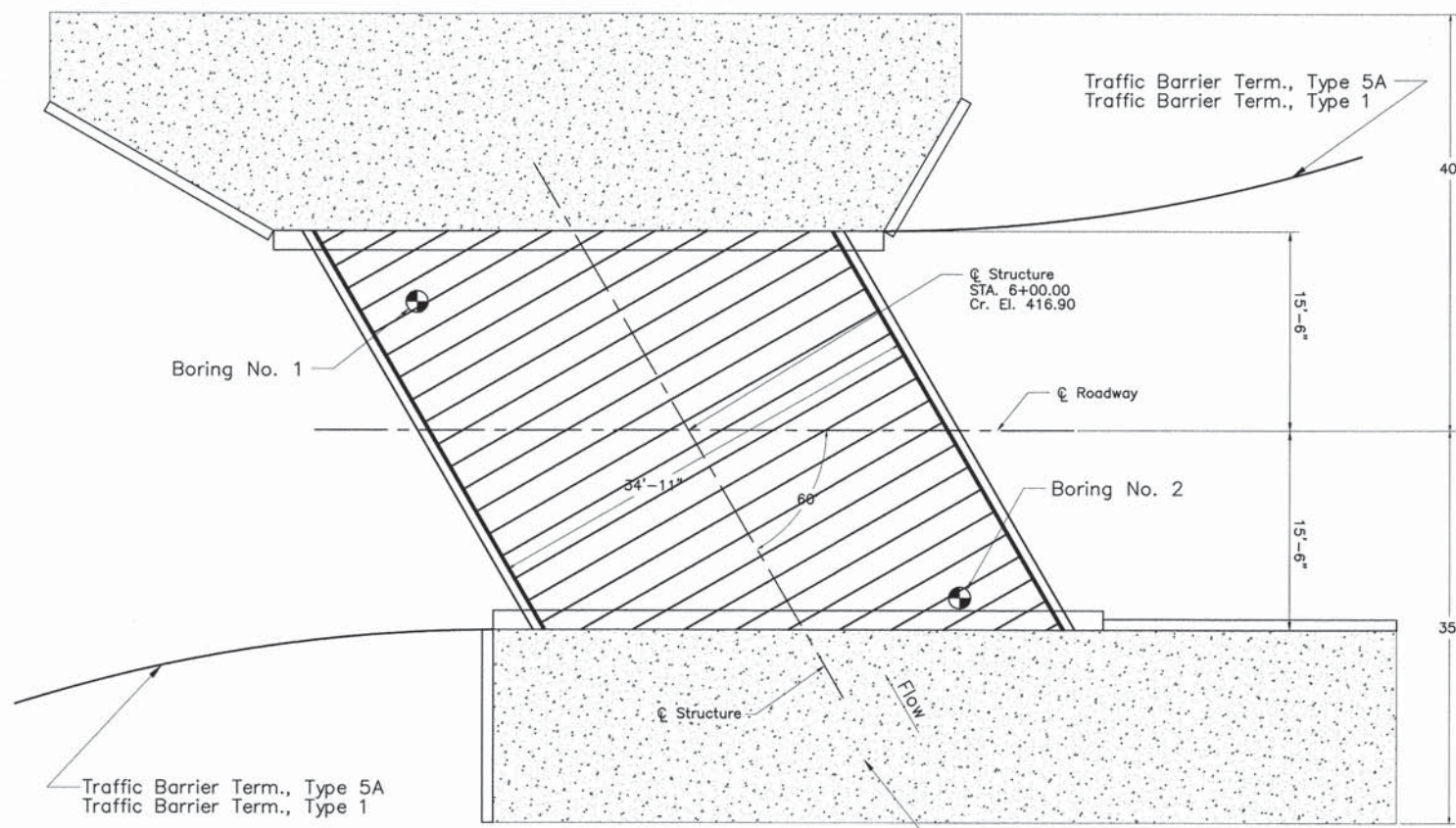
EAST ELEVATION



SECTION AT Q ROADWAY

GENERAL NOTES

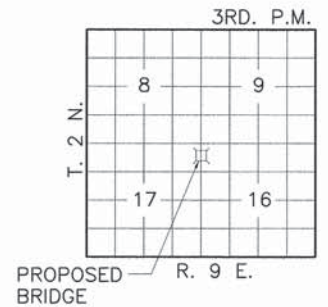
1. See Special Provisions for boring logs.
2. Aggregate CA-6 crushed stone shall be used for porous granular backfill.
3. The Aluminum Box Culvert System shall match the style, dimensions, and hydraulic opening as shown herein. The system shall be approved by the Engineer before installation.



PLAN

TOTAL BILL OF MATERIAL

Item	Unit	Total
Removal of Existing Structures	Each	1
Name Plates	Each	1
Aluminum Structural Plate Box Culvert (Special), 122 square feet	Foot	36
Porous Granular Backfill	Cu Yd	475
Structure Excavation	Cu Yd	475
Steel Railing, Type S1	Foot	118
Stone Dumped Riprap, Class A4	Ton	200
Controlled Low-Strength Material	Cu Yd	140



LOCATION SKETCH

STATION 6+00.00
HUGHES BRANCH
SEC. 04-00111-00-BR BUILT 20
RICHLAND COUNTY
LOADING HL93
STR. NO. 080-5008

LETTERING FOR NAME PLATE

Locate Name Plate on outside face of Southwest Wingwall (See Std. 515001)

WATERWAY INFORMATION

Drainage Area = 3.1 Sq. Mi. Low Grade Elev. = 493.2 @ Sta. 3+12

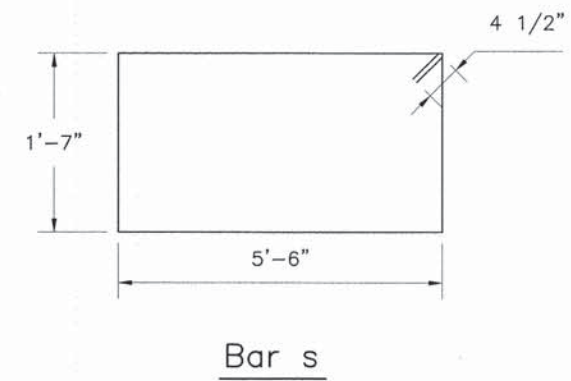
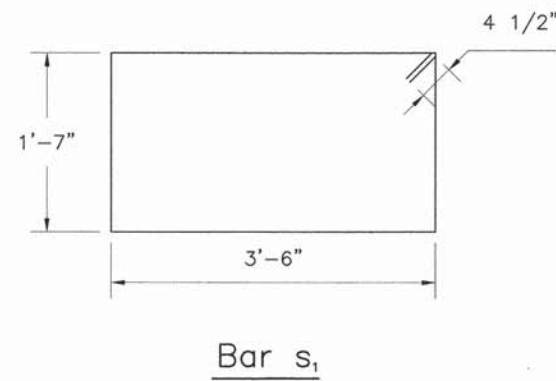
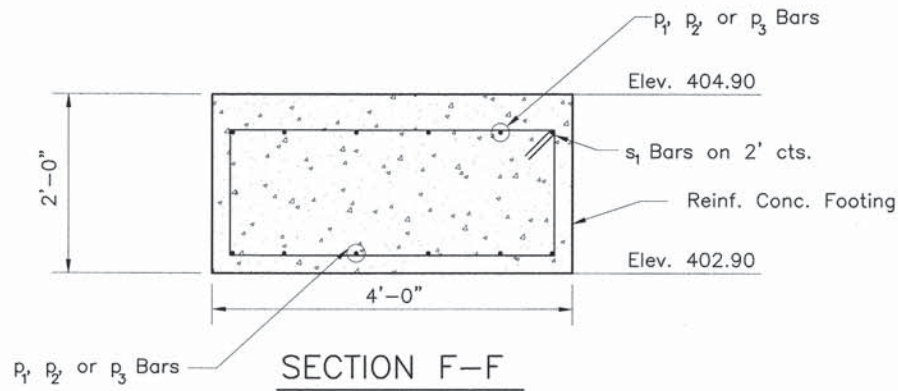
Flood	Freq. Yr.	Q ft ³ /s	Opening ft ²		Nat. H.W.E.	Head - ft		Headwater	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	20	1371	197	231	414.9	0.6	0.3	415.5	415.2
Base	100	2050	197	231	415.6	0.4	0.2	416.0	415.8
Overtopping									
Max. Calc.	500								

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

HL-93 LOADING

GENERAL PLAN & ELEVATION
F.A.S. 709
HUGHES BRANCH
SECTION 04-00111-00-BR
RICHLAND COUNTY
STATION 6+00.00

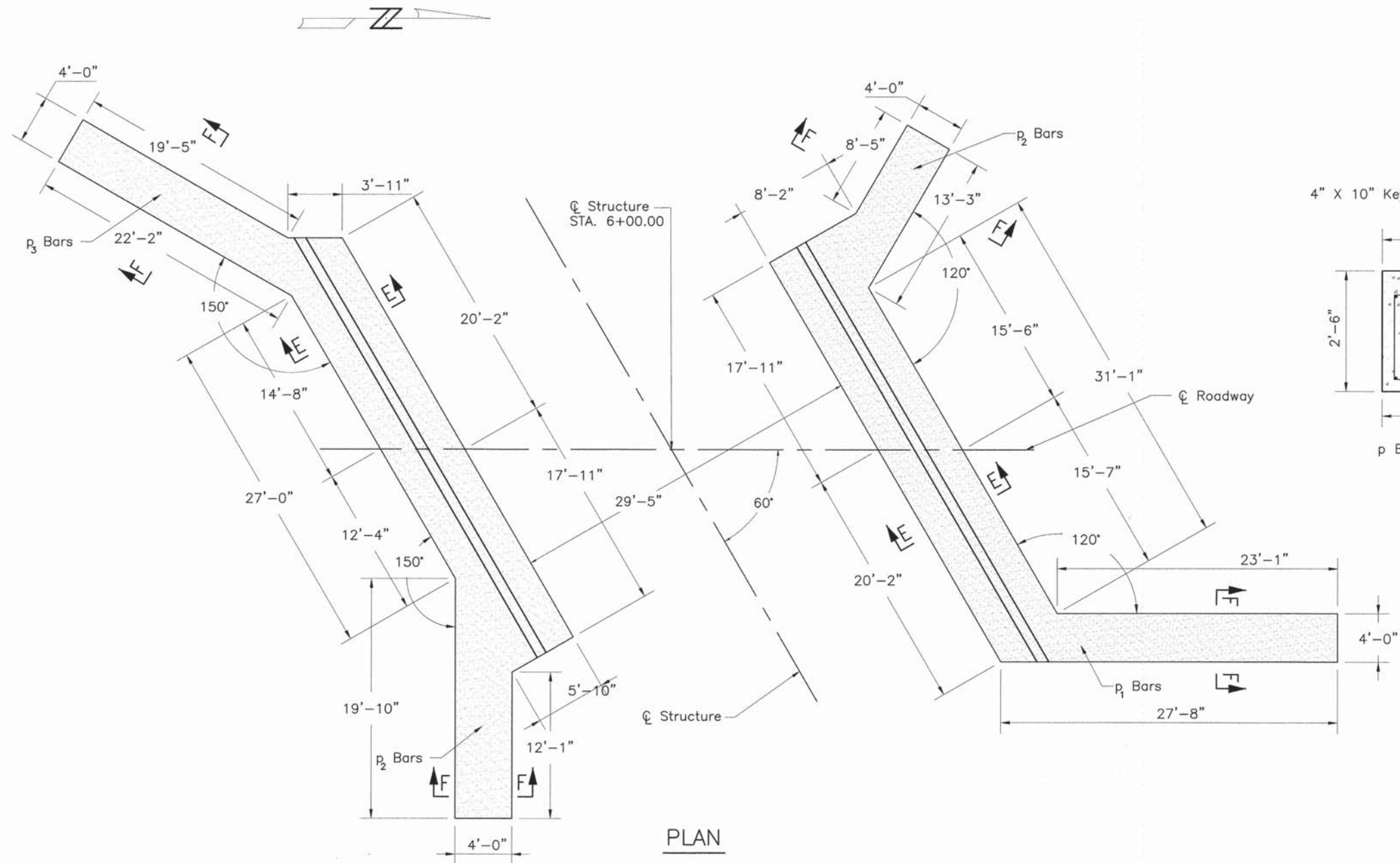
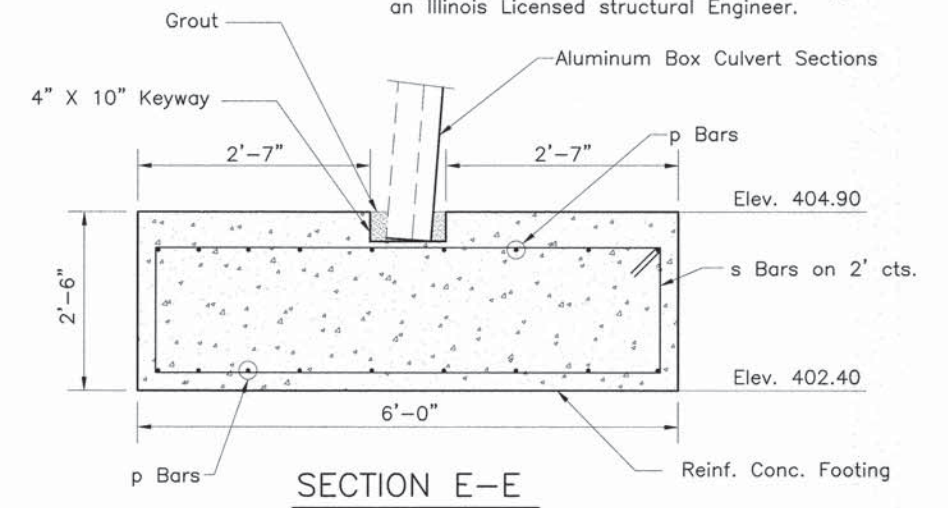
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BILL OF MATERIAL FOR TWO FOOTINGS

Bar	No.	Size	Length	Shape
p	36	#6	37'-9"	—
p ₁	12	#6	27'-4"	—
p ₂	24	#6	23'-0"	—
p ₃	12	#6	14'-0"	—
s	40	#4	14'-10"	□
s ₁	36	#4	10'-10"	□
Concrete Structures			65.1 Cu. Yds.	
Reinforcement Bars			4360 Lbs.	

* These items are included for information only. The footing design shall be sealed by an Illinois Licensed structural Engineer.



FOOTING DETAILS
F.A.S. 706
HUGHES BRANCH
SECTION 04-00111-00-BR
RICHLAND COUNTY
STATION 6+00.00

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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CONTRACT NO. 95760		ILLINOIS	PROJECT BRS-0706(136)	

NOTES

DESIGN DATA

Design Loading: HL-93
 Design Method: Load factor per AASHTO Specification
 Assumed Allowable Soil Bearing: 5000 PSF (Verify)

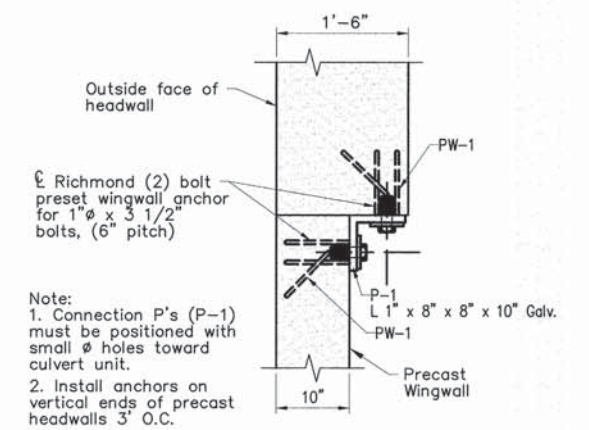
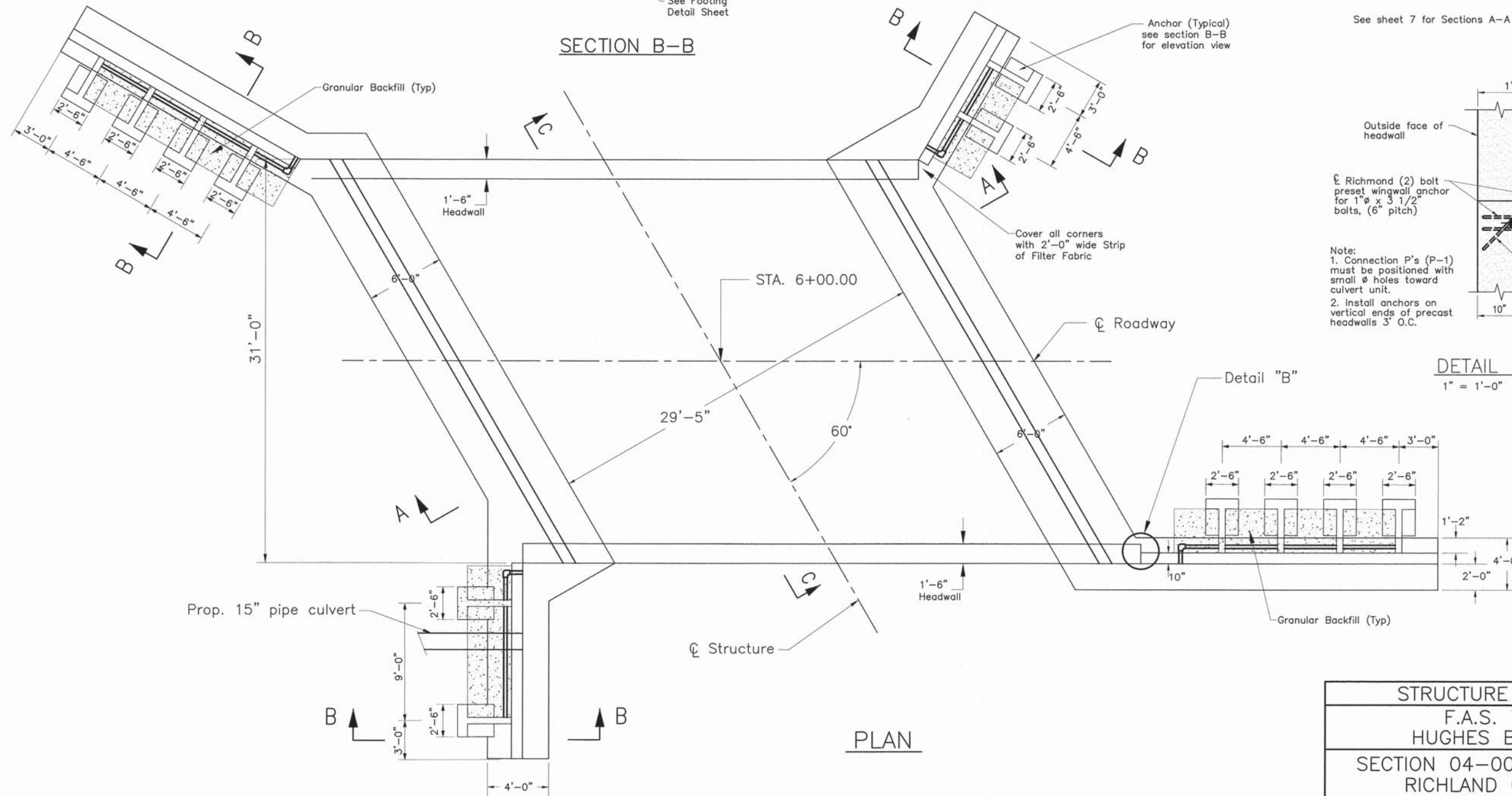
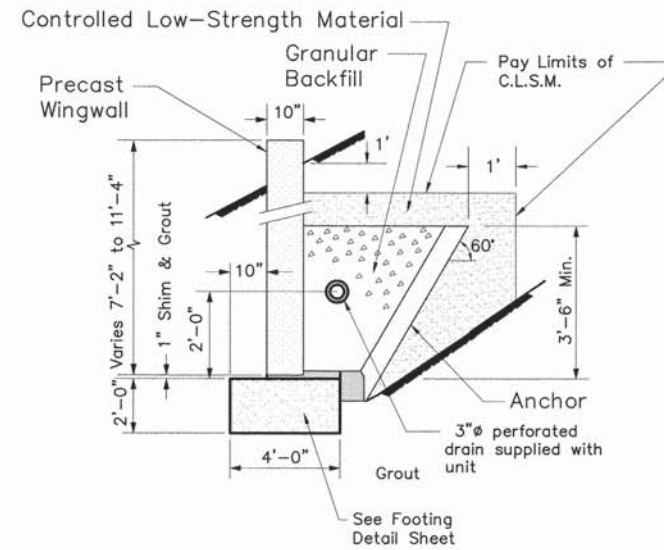
MATERIALS

Concrete for Footings and Wingwalls shall have a minimum compressive strength of 4000 psi.
 Reinforcing steel for Footings and Wingwalls shall conform to AASHTO M-31, M-42, or M-53, Grade 60.
 The granular backfill around the drain pipes shall be CA-7 gravel and shall be included in the cost of the Aluminum Structural Plate Box Culvert, (Special), 122 Sq. Ft.

WINGWALL ANCHORS

The actual number and size of wingwall anchors shall be determined by the bridge manufacturer.

See sheet 7 for Sections A-A & C-C

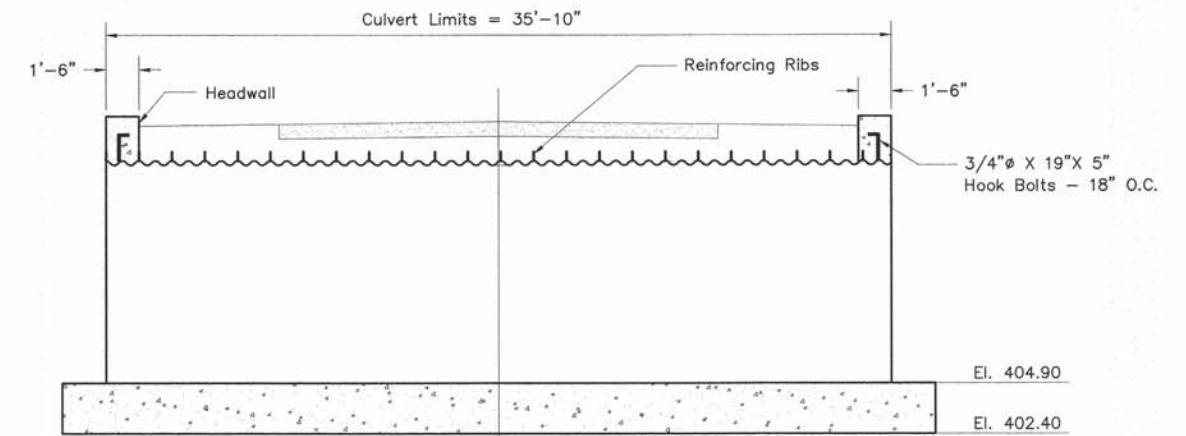


Note:
 1. Connection P's (P-1) must be positioned with small diameter holes toward culvert unit.
 2. Install anchors on vertical ends of precast headwalls 3' O.C.

DETAIL "B"
 1" = 1'-0"

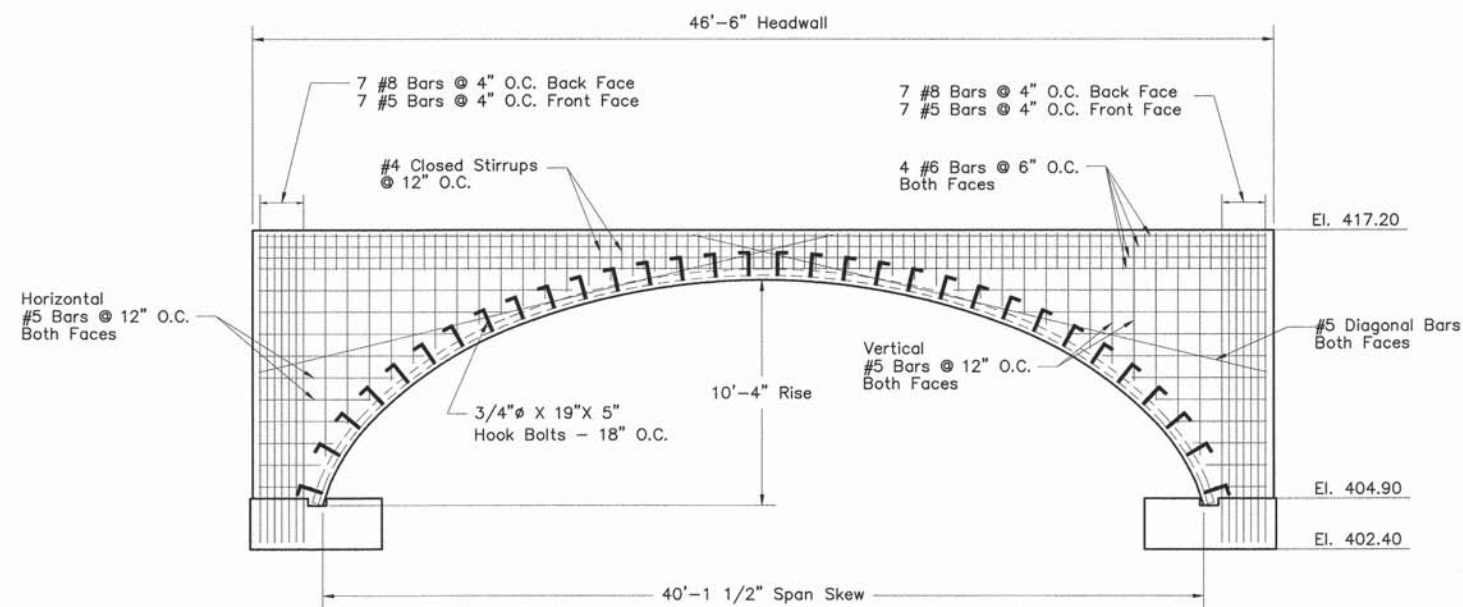
STRUCTURE DETAILS
F.A.S. 706
HUGHES BRANCH
SECTION 04-00111-00-BR
RICHLAND COUNTY
STATION 6+00.00

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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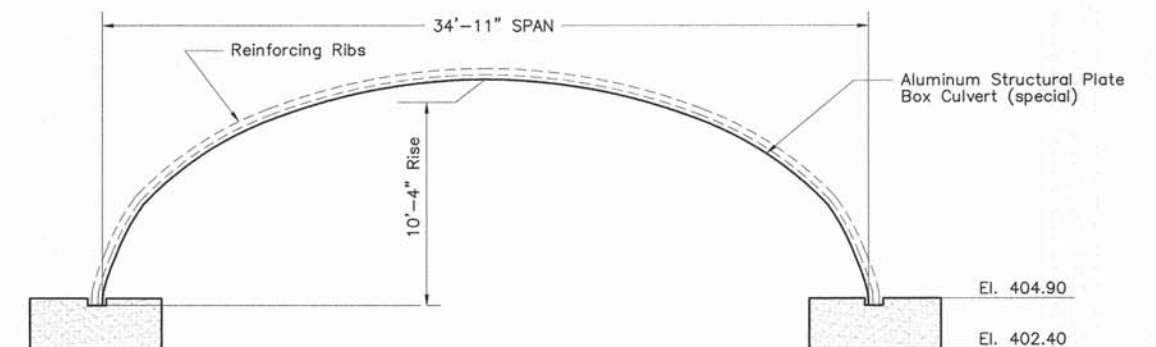
SEC C-C

1/4" = 1'-0"



HEADWALL DETAIL

* These items are included for information only. The headwall design shall be sealed by an Illinois Licensed structural Engineer.

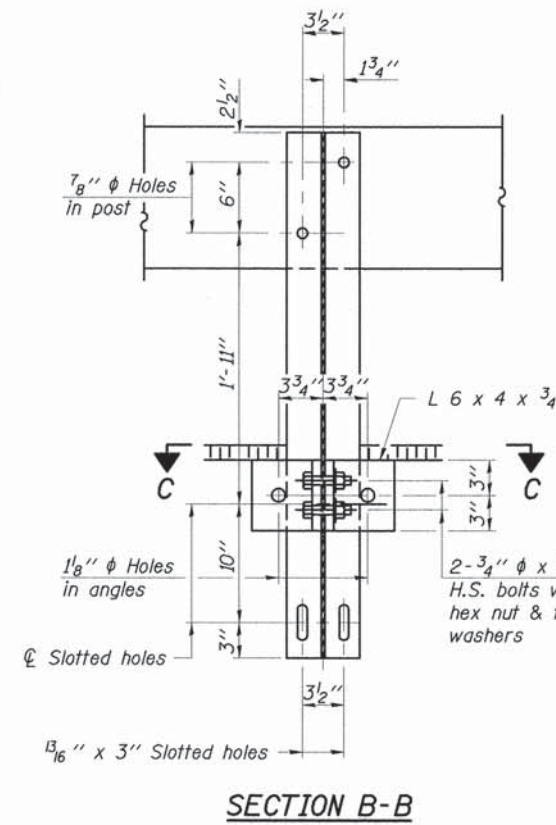
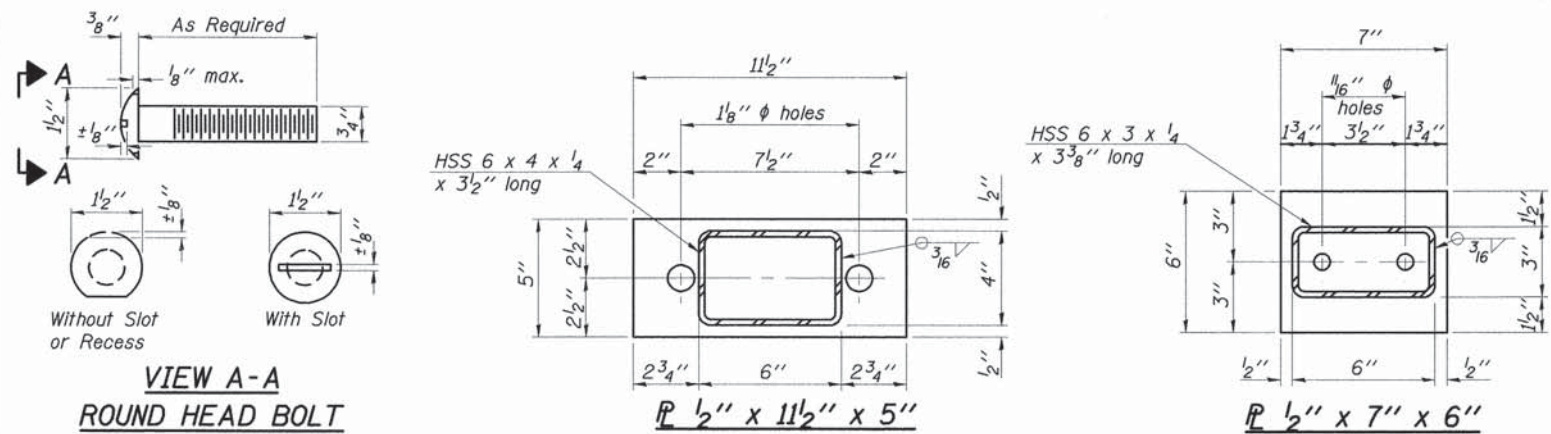


SECTION A-A

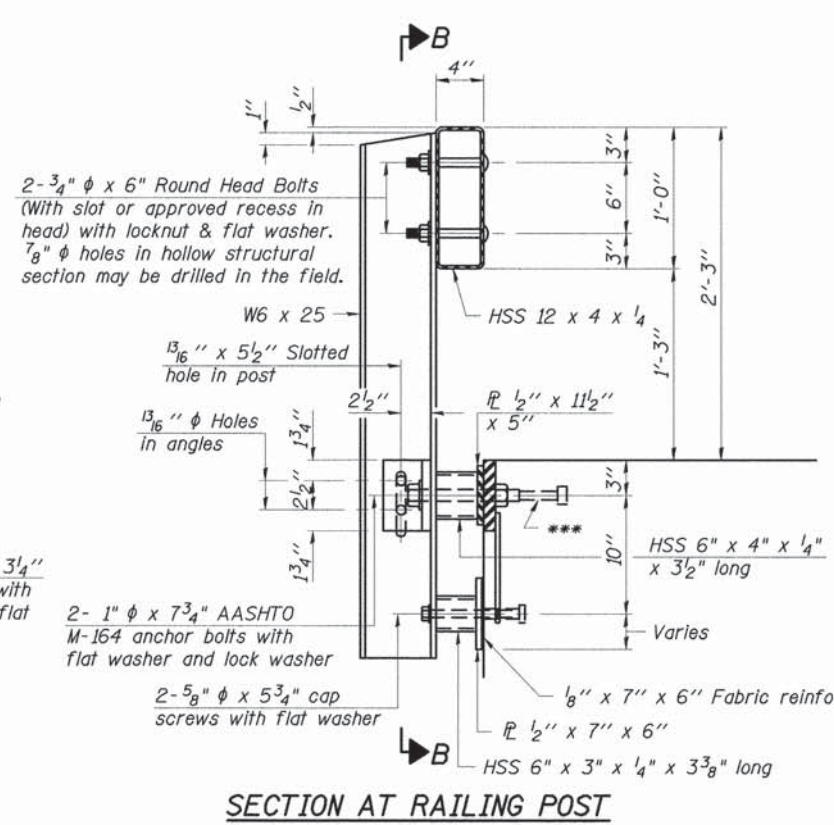
1/4" = 1'-0"

STRUCTURE DETAILS
F.A.S. 706
HUGHES BRANCH
SECTION 04-00111-00-BR
RICHLAND COUNTY
STATION 6+00.00

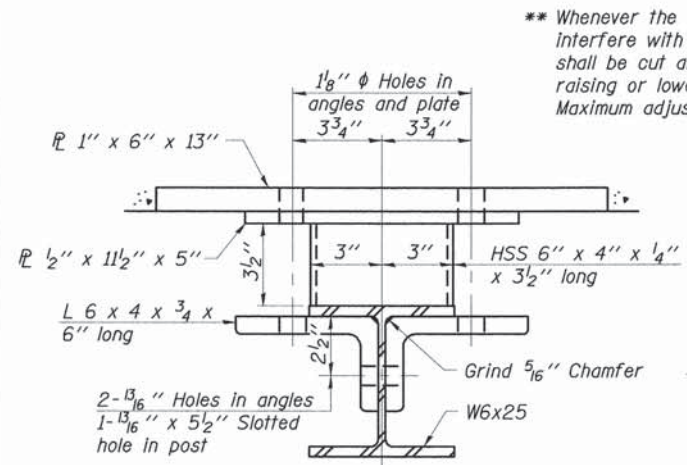
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.S. 706	04-00111-00-BR	RICHLAND	13	8
CONTRACT NO. 95760		ILLINOIS		



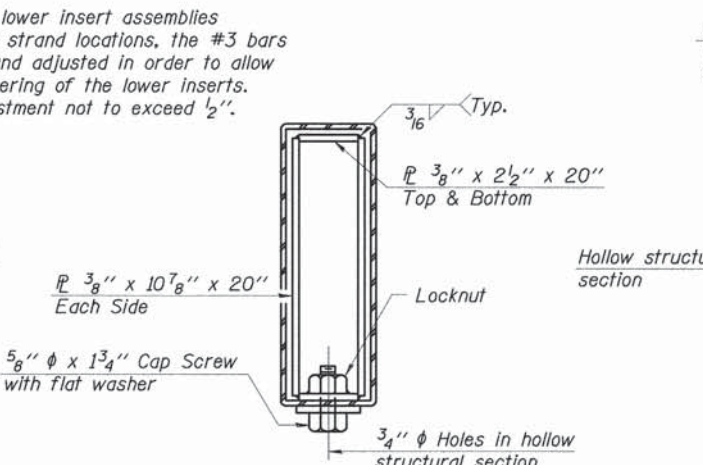
SECTION B-B



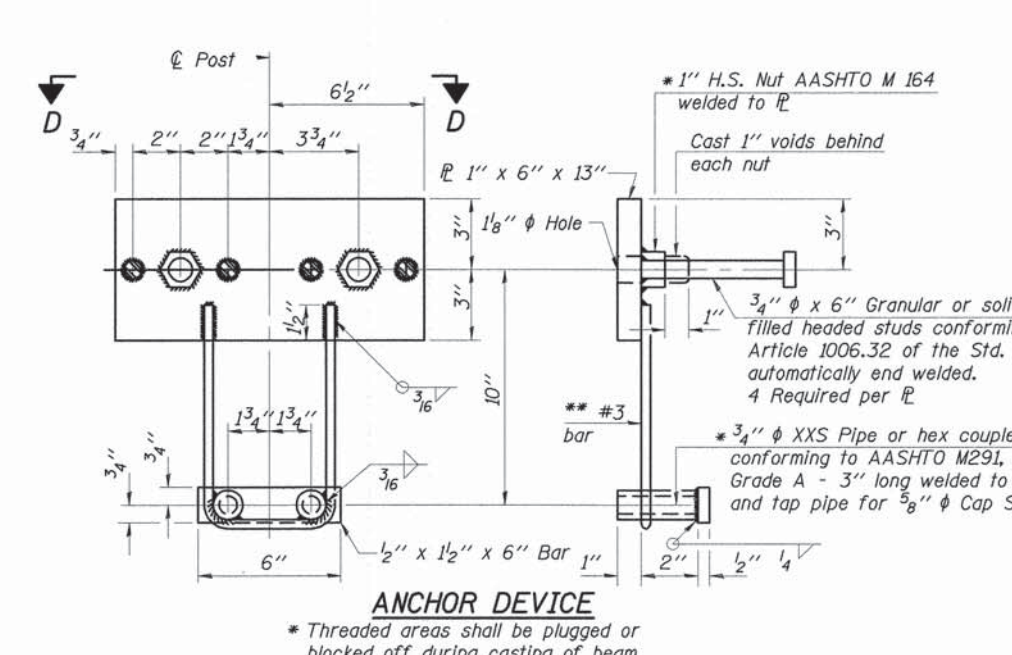
SECTION AT RAILING POST



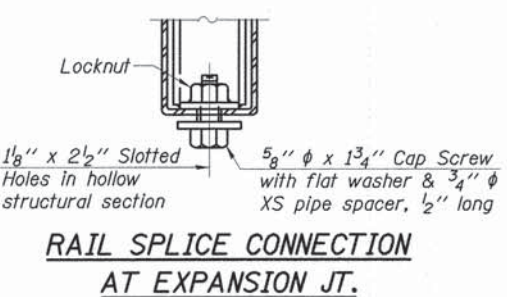
SECTION C-C



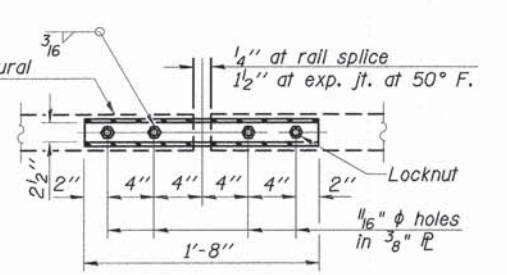
SECTIONS AT RAIL SPLICE



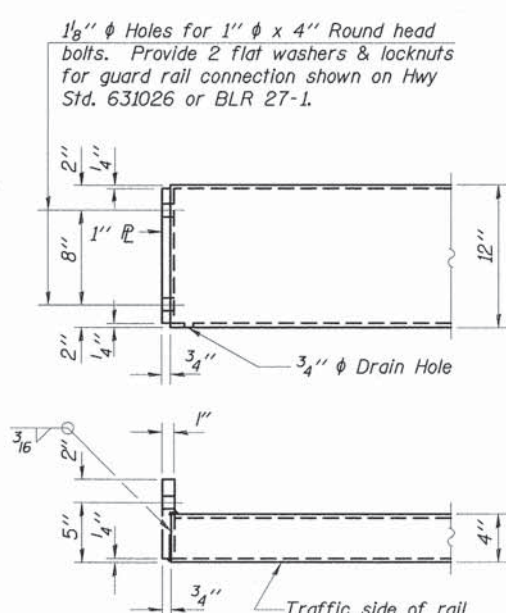
ANCHOR DEVICE



RAIL SPLICE CONNECTION AT EXPANSION JT.

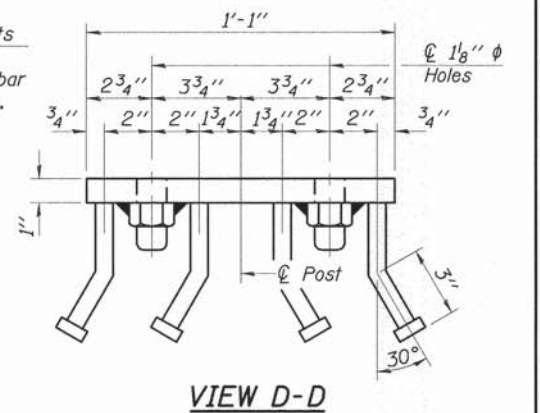


PLAN-BOTT. SPLICE TYPICAL



END OF RAIL DETAILS

Notes:
 All field drilled holes shall be coated with an approved zinc rich paint before erection.
 For multi-span bridges, sufficient 1/4 inch x 6 inch x 1'-2 inch 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

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	118

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 S-1
STRUCTURE NO. 080-5008
F.A.S. 706
OVER HUGHES BRANCH
SECTION 04-00111-00-BR
RICHLAND COUNTY
STATION 6+00.00

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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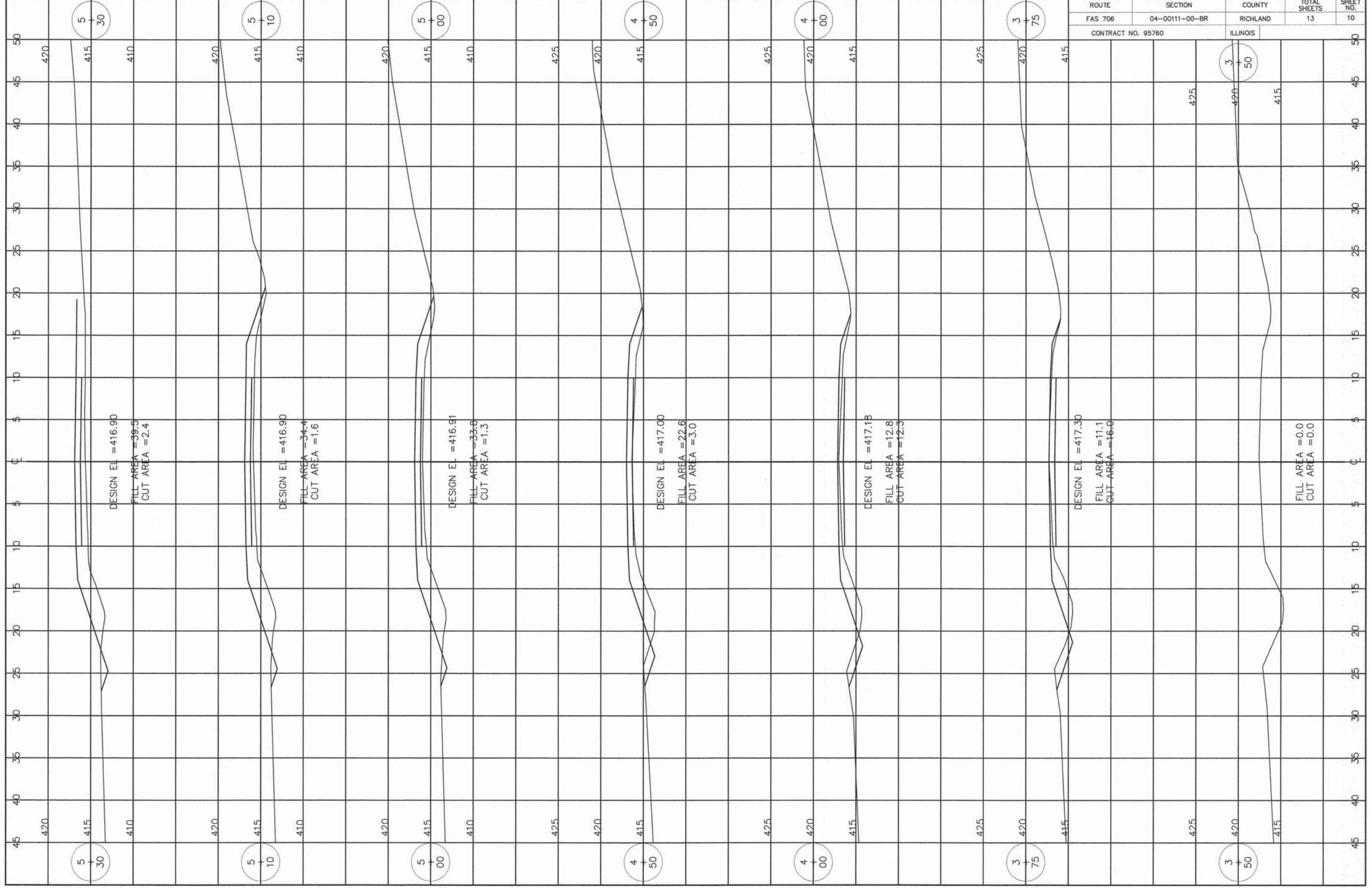
NOBLE										BORING No. B-1			water level reading		
ENGINEERING CONSULTANTS										County: Richland, IL		Sheet No. 1 of 1		1st encounter: 24'	
Client: Richland County Highway Dept.										Weather: Sunny		Temperature: low 90's		water level reading	
Driller: Noble Engineering Consultants										Date Start: 7-02-12		Surface Elevation: 99		@completion wet cave	
Location: Structure #080-3004										Date Finished: 7-02-12		Driller: Tony Schocker		Backfill: Soil cuttings	
Depth	Sample No.	Sample Depth	N-Value	Blow Count	Recovery (%)	Qp (tsf)*	Soil Description	W %	USC Class.	Elev.**					
1							0.0'-0.2' Topsoil			98					
2	SS-1	1.0'-2.5'	49	12-26-23	80	-	0.2'-3.5' silt, clay, sand, etc FILL	4.6	FLL	97					
3										96					
4	SS-2	3.5'-5.0'	10	2-4-6	100	2.25		17.2	CL	95					
5										94					
6	SS-3	6.0'-7.5'	11	2-5-6	100	3.25	3.5'-24.0' SILTY CLAY, trace gravel, trace sand, moist silty fine sand seam at 9.5'. very stiff to hard, brown	21.0	CL	93					
7										92					
8										91					
9	SS-4	8.5'-10.0'	15	2-4-11	100	3.0		20.3	CL	90					
10										89					
11										88					
12										87					
13										86					
14	SS-5	13.5'-15.0'	17	4-7-10	100	4.5+		10.8	CL	85					
15										84					
16										83					
17										82					
18										81					
19	SS-6	18.5'-20.0'	28	7-12-16	100	-		12.2	CL	80					
20										79					
21										78					
22										77					
23										76					
24	SS-7	23.5'-25.0'	65	12-28-37	100	4.5+	24.0'-30.0' SILTY FINE TO MEDIUM SAND, trace gravel, very dense, saturated, gray	16.6	SM	75					
25										74					
26										73					
27										72					
28										71					
29										70					
30	SS-8	28.5'-30.0'	100+	79-100/4'	100	-	AR 30'		SM	69					
Drilling Method: HSA (3-3/4" ID)										comments		* Qp test is an estimate of the unconfined compressive strength performed by a compact calibrated spring loaded cylinder			
Depth: 0' to 30'												** ground surface elevation at boring location is estimated and is not surveyed and is based on bridge deck elevation of 100			
Drill Rig: Mobile B-47															
Sampling: split spoon (SS)															

NOBLE										BORING No. B-2			water level reading		
ENGINEERING CONSULTANTS										County: Richland, IL		Sheet No. 1 of 2		1st encounter: 9'	
Client: Richland County Highway Dept.										Weather: Sunny		Temperature: low 90's		water level reading	
Driller: Noble Engineering Consultants										Date Start: 7-02-12		Surface Elevation: 99		@completion wet cave	
Location: Structure #080-3004										Date Finished: 7-02-12		Driller: Tony Schocker		Backfill: Soil cuttings	
Depth	Sample No.	Sample Depth	N-Value	Blow Count	Recovery (%)	Qp (tsf)*	Soil Description	W %	USC Class.	Elev.**					
1							0.0'-0.1' Topsoil			98					
2	SS-1	1.0'-2.5'	8	7-4-4	80	-	0.1'-5.0' silt, clay, sand, etc FILL	13.1	FLL	97					
3										96					
4	SS-2	3.5'-5.0'	4	1-2-2	100	-		12.6	FLL	95					
5										94					
6	SS-3	6.0'-7.5'	3	1-1-2	100	-	5.0'-12.5' CLAYEY SILT, trace to some sand, very loose, moist, brown mottled gray	22.1	ML	93					
7										92					
8										91					
9	SS-4	8.5'-10.0'	4	1-1-3	100	-		25.8	ML	90					
10										89					
11										88					
12										87					
13										86					
14	SS-5	13.5'-15.0'	26	6-10-16	100	4.5+	12.5'-24.0' SILTY CLAY, trace gravel, trace sand, moist silty fine sand seam at 9', hard, brown	11.4	CL	85					
15										84					
16										83					
17										82					
18										81					
19	SS-6	18.5'-20.0'	30	12-16-14	80	4.5+		18.8	CL	80					
20										79					
21										78					
22										77					
23										76					
24	SS-7	23.5'-25.0'	28	6-10-18	100	-	24.0'-33.0' SILTY FINE TO MEDIUM SAND, trace gravel, medium dense to dense, saturated, gray	20.0	SM	75					
25										74					
26										73					
27										72					
28										71					
29										70					
30	SS-8	28.5'-30.0'	45	23-25-20	100	-		13.1	SM	69					
Drilling Method: HSA (3-3/4" ID)										comments		* Qp test is an estimate of the unconfined compressive strength performed by a compact calibrated spring loaded cylinder			
Depth: 0' to 47'												** ground surface elevation at boring location is estimated and is not surveyed and is based on bridge deck elevation of 100			
Drill Rig: Mobile B-47															
Sampling: split spoon (SS)															

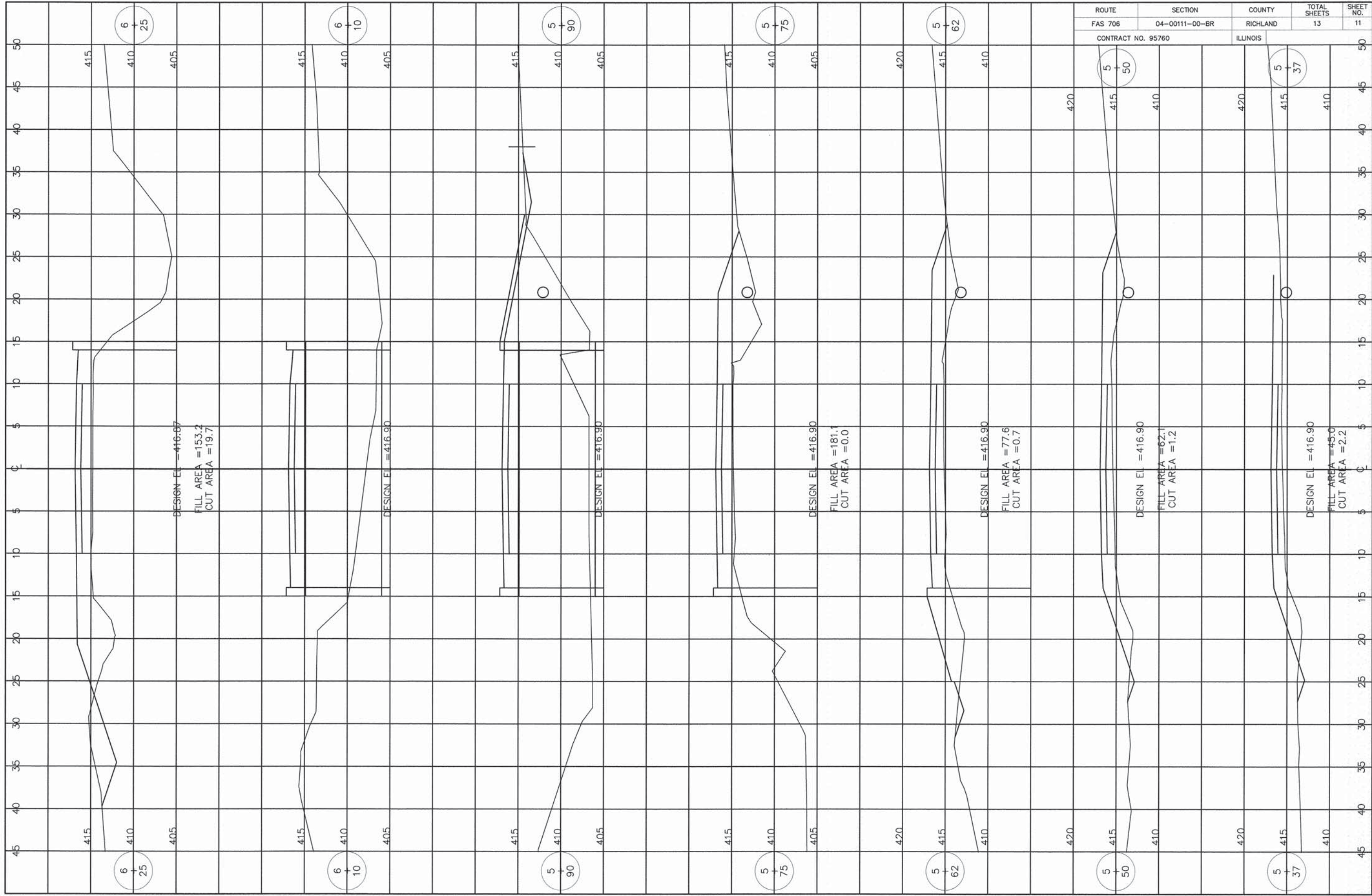
NOBLE										BORING No. B-2			water level reading		
ENGINEERING CONSULTANTS										County: Richland, IL		Sheet No. 2 of 2		1st encounter: 9'	
Client: Richland County Highway Dept.										Weather: Sunny		Temperature: low 90's		water level reading	
Driller: Noble Engineering Consultants										Date Start: 7-02-12		Surface Elevation: 99		@completion wet cave	
Location: Structure #080-3004										Date Finished: 7-02-12		Driller: Tony Schocker		Backfill: Soil cuttings	
Depth	Sample No.	Sample Depth	N-Value	Blow Count	Recovery (%)	Qp (tsf)*	Soil Description	W %	USC Class.	Elev.**					
31										68					
32										67					
33										66					
34	SS-8	33.5'-35.0'	26	9-13-14	100	4.5+	24.0'-33.0' SILTY FINE TO MEDIUM SAND, trace gravel, medium dense to dense, saturated, gray	12.8	CL-ML	65					
35										64					
36										63					
37										62					
38										61					
39	SS-10	38.5'-40.0'	48	12-19-30	100	4.5+	33.0'-47.0' CLAYEY SILT (SH), trace to some sand, trace gravel, hard, gray	12.9	CL-ML	60					
40										59					
41										58					
42										57					
43										56					
44	SS-11	43.5'-45.0'	56	14-29-27	100	4.5+				55					
45										54					
46										53					
47	SS-12	47-48.5'	100+	100/1'	0	-	AR 47'			52					
48							EOB 47'			51					
49															
50															
Drilling Method: HSA (3-3/4" ID)										comments		* Qp test is an estimate of the unconfined compressive strength performed by a compact calibrated spring loaded cylinder			
Depth: 0' to 47'												** ground surface elevation at boring location is estimated and is not surveyed and is based on bridge deck elevation of 100			
Drill Rig: Mobile B-47															
Sampling: split spoon (SS)															

CHARLESTON ENGINEERING, INC.
CONSULTING ENGINEERS
105 NORTH KITCHELL
P.O. BOX 597
OLNEY, ILLINOIS 62450
(618) 352-0736
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

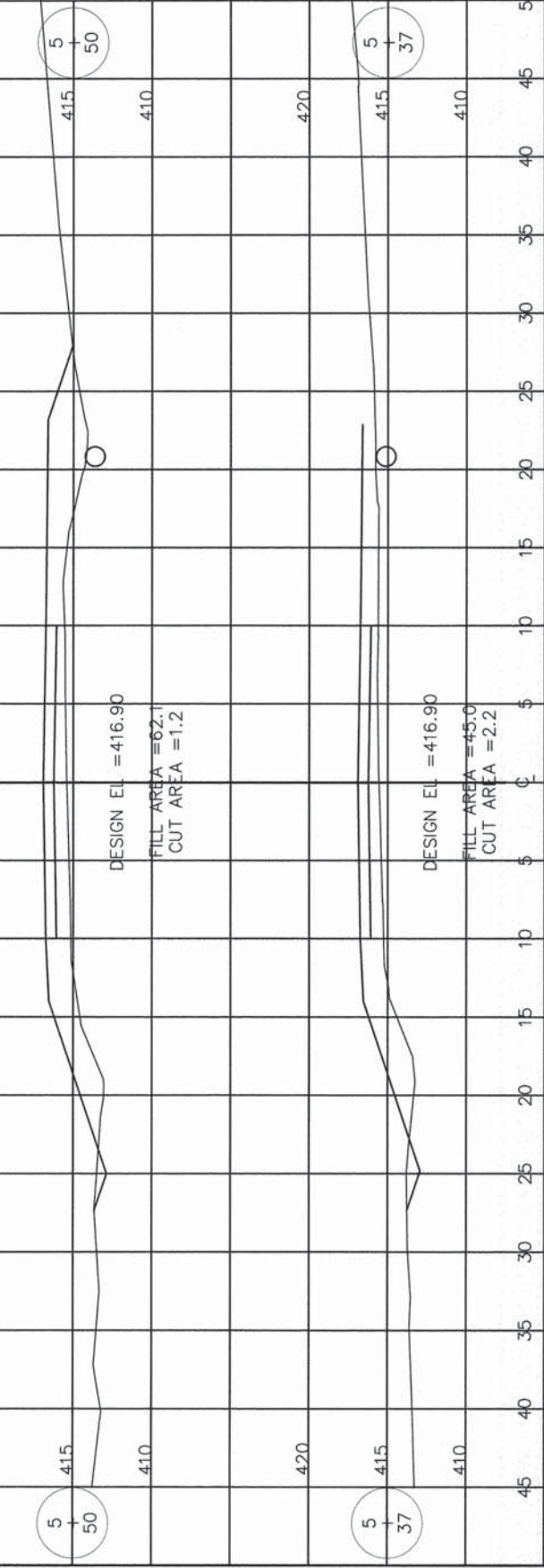
BORING LOGS
STRUCTURE NO. 080-5008
F.A.S. 706
OVER HUGHES BRANCH
SECTION 04-00111-00-BR
RICHLAND COUNTY
STATION 6+00.00

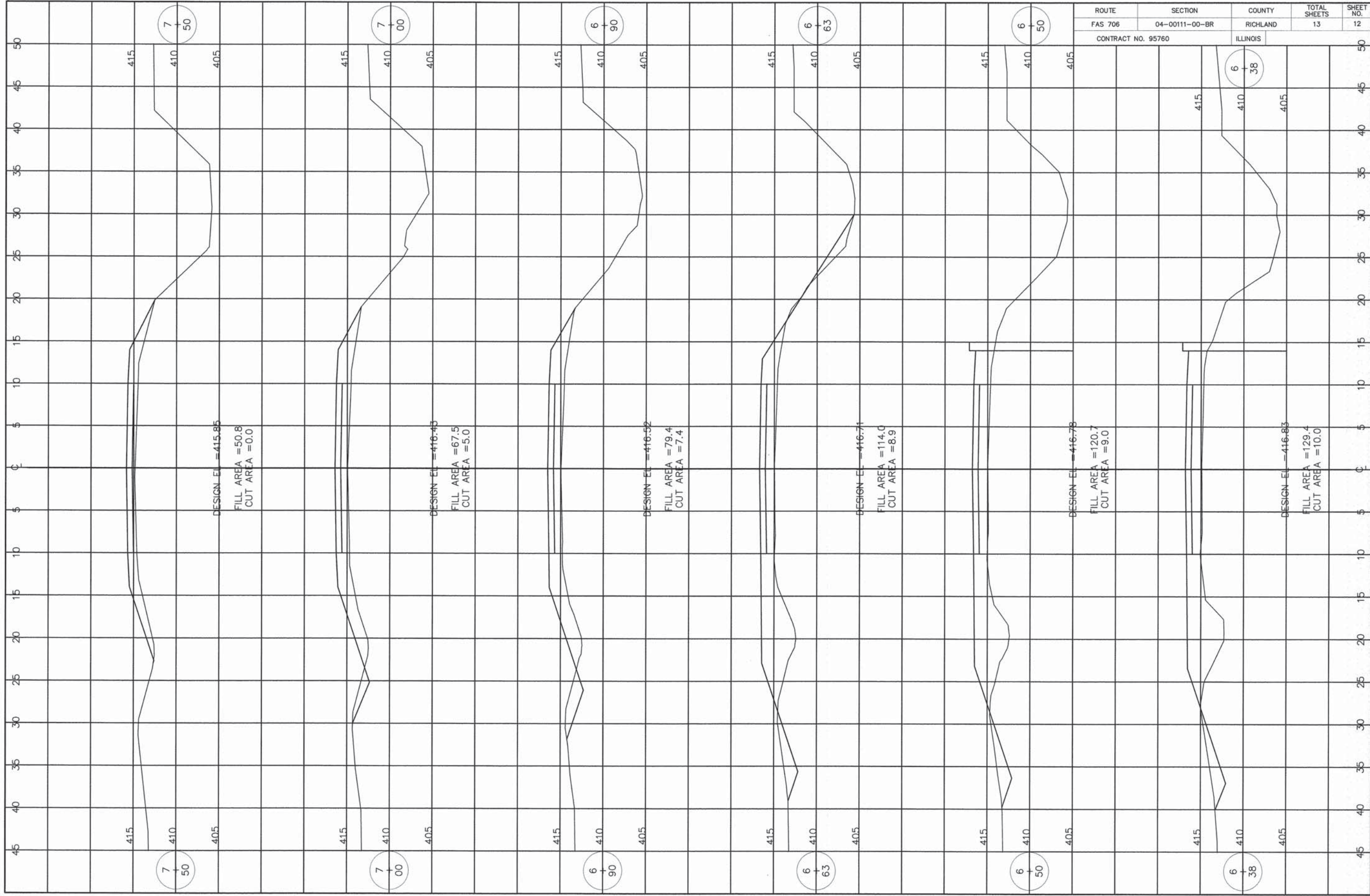


ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 706	04-00111-00-BR	RICHLAND	13	10
CONTRACT NO. 95760		ILLINOIS		



ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 706	04-00111-00-BR	RICHLAND	13	11
CONTRACT NO. 95760		ILLINOIS		





ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 706	04-00111-00-BR	RICHLAND	13	12
CONTRACT NO. 95760		ILLINOIS		

7
|
50

415
410
405

DESIGN EL = 415.85
FILL AREA = 50.8
CUT AREA = 0.0

7
|
50

415
410
405

7
|
00

415
410
405

DESIGN EL = 416.43
FILL AREA = 67.5
CUT AREA = 5.0

7
|
00

415
410
405

6
|
90

415
410
405

DESIGN EL = 416.52
FILL AREA = 79.4
CUT AREA = 7.4

6
|
90

415
410
405

6
|
63

415
410
405

DESIGN EL = 416.71
FILL AREA = 114.0
CUT AREA = 8.9

6
|
63

415
410
405

6
|
50

415
410
405

DESIGN EL = 416.78
FILL AREA = 120.7
CUT AREA = 9.0

6
|
50

415
410
405

6
|
38

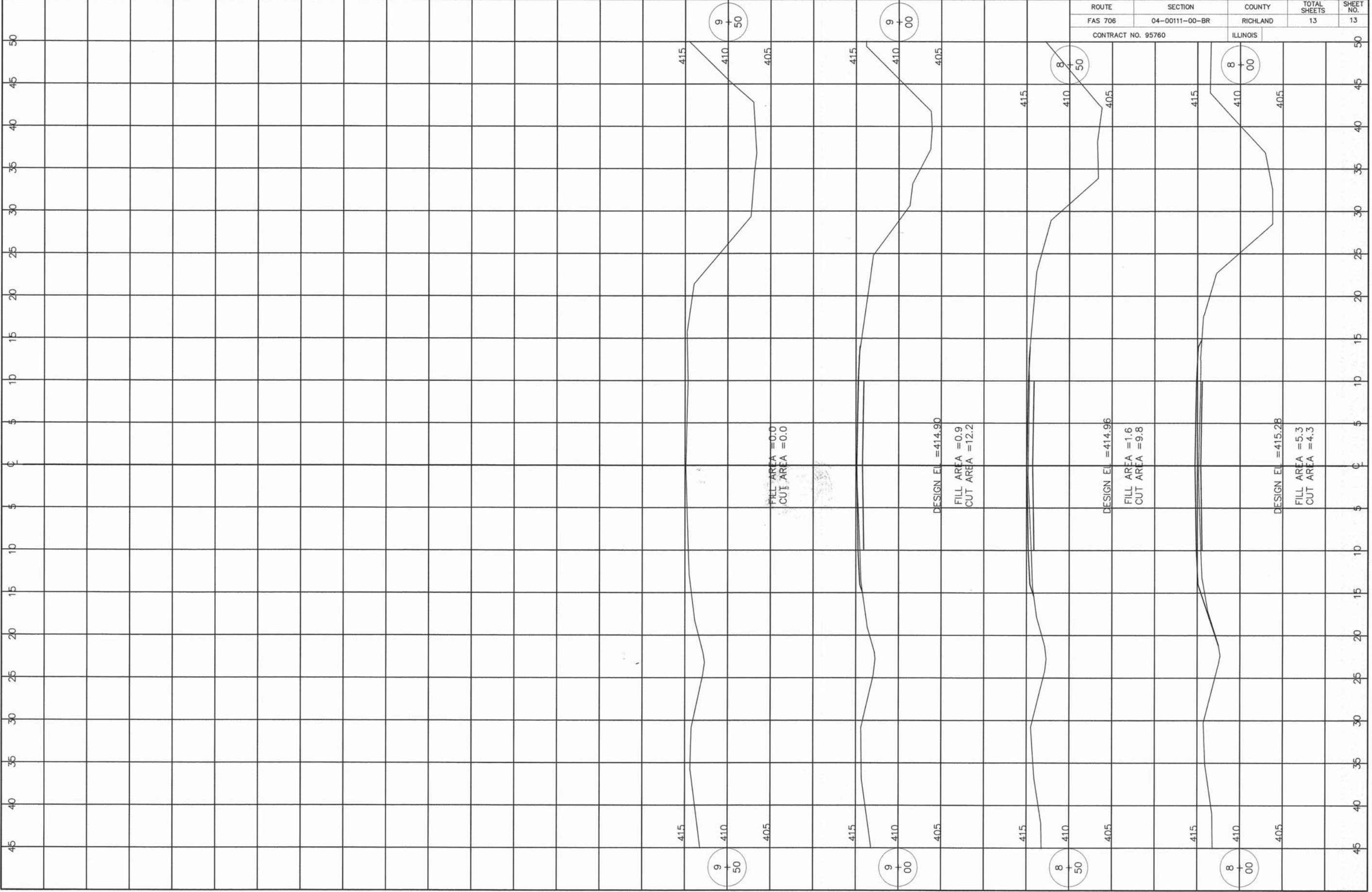
415
410
405

DESIGN EL = 416.83
FILL AREA = 129.4
CUT AREA = 10.0

6
|
38

415
410
405

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 706	04-00111-00-BR	RICHLAND	13	13
CONTRACT NO. 95760		ILLINOIS		



9
+
50

9
+
00

8
+
50

8
+
00

9
+
50

9
+
00

8
+
50

8
+
00

45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50

415 410 405 415 410 405 415 410 405 415 410 405 415 410 405

FILL AREA = 0.9
CUT AREA = 12.2

DESIGN EL = 414.90

FILL AREA = 5.3
CUT AREA = 4.3

DESIGN EL = 415.28

FILL AREA = 1.6
CUT AREA = 9.8

DESIGN EL = 414.96

FILL AREA = 0.0
CUT AREA = 0.0

DESIGN EL = 414.90