

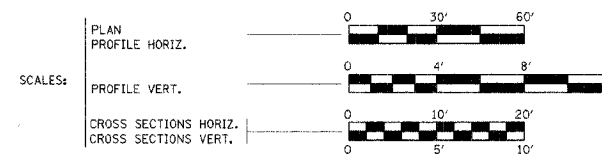
STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION PLANS FOR PROPOSED BRIDGE REPLACEMENT

ROUTE NO.	SECTION	COUNTY	DISTRICT	SHEET NO.
CH 2	*	FULTON	14	1
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	BR-5-452(115)

*04-00130-00-BR
CONTRACT #89373

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	COVER SHEET
2	SUMMARY OF QUANTITIES & TYPICAL CROSS SECTIONS
3	SCHEDULE OF QUANTITIES
4	PLAN & PROFILE
5-11	BRIDGE PLANS
12	TEMPORARY EROSION CONTROL PLAN
13	CROSS SECTIONS
14	BORING LOGS



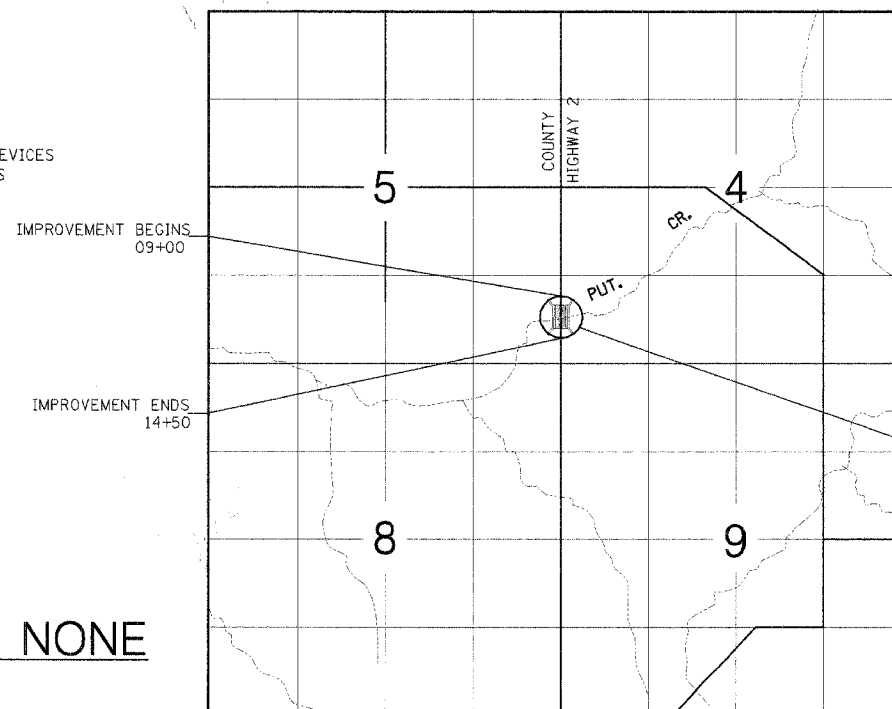
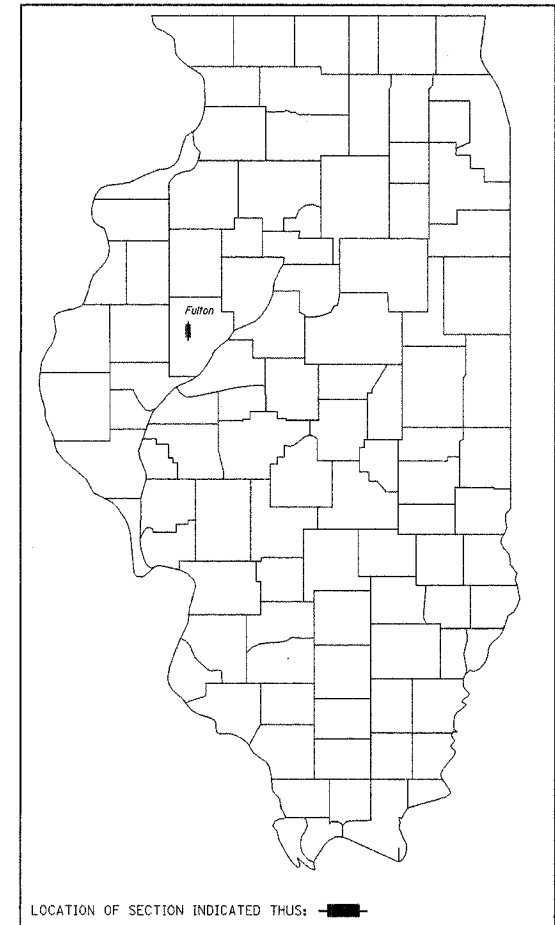
**FULTON COUNTY
SECTION 04-00130-00-BR
BRS-0452(115)
FAS 452**

COUNTY HIGHWAY 2 BRIDGE REPLACEMENT AND REHABILITATION PROGRAM

R 2 E, 4th P.M.

ILLINOIS DEPT. OF TRANSPORTATION STANDARD DRAWINGS

STANDARD NO.	DESCRIPTION
000001-04	STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
280001-02	TEMPORARY EROSION CONTROL SYSTEMS
515001-02	NAME PLATE FOR BRIDGES
701006-02	OFF ROAD OPERATIONS, 2L, 2W, 15' TO 24' FROM PAVEMENT EDGE
702001-06	TRAFFIC CONTROL DEVICES
631026-02	TRAFFIC BARRIER TERMINAL TYPE 5 & 5A
BLR 21-6	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION OF RURAL LOCAL HIGHWAYS
BLR 23-1	TRAFFIC BARRIER TERMINAL TYPE 1



PROPOSED STRUCTURE STA. 11+88
FIVE SPAN PRECAST PRESTRESSED
CONC. BRIDGE 302.27' BK. TO BK ABUTMENTS
SKEW RT. 30°, 28'-0" OUT TO OUT OF DECK
OLD STRUCTURE NO. 029-3013
NEW STRUCTURE NO. 029-3213

APPROVED 1-3 20-06
William C. Hub
COUNTY ENGINEER

APPROVED _____ 20-____
ROAD COMMISSIONER

PASSED 2-14 20-06
John Laballe
DISTRICT FOUR ENGINEER OF
LOCAL ROADS & STREETS

Releasing For Bid Based on Limited Review
FEB 14 20-06
Joseph E. Curran
DEPUTY DIRECTOR OF HIGHWAYS,
REGION THREE ENGINEER
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



Keith E. Brandau 12/15/05
KEITH E. BRANDAU
Illinois Licensed Professional Engineer Number 44096
License Expires 11/30/07

FRAUENHÖFFER
Frauenhoffer and Associates, P.C. Consulting Engineers
3002 Crossing Court Champaign, Il. 61822 217-351-6268

CAT. #033028-00
C-94-089-05

COMMITMENTS - NONE

LOCATION MAP
ADT = 500 (CURRENT), <500 (DESIGN)
FUNCTIONAL CLASS = MAJOR COLLECTOR
NET LENGTH OF SECTION = 550.00 FEET = 0.104 MILES

SUMMARY OF QUANTITIES

CONSTRUCTION TYPE CODE X081-2A

ROUTE NO.	SECTION	COUNTY	SHEET	SHEET NO.
C.H. 2	*	FULTON	14	2
FED. PROJ. NO.		ILLINOIS	FED. PROJ. NO.	BR-S-452(115)
STATE PROJ. NO.		*04-00130-00-BR		

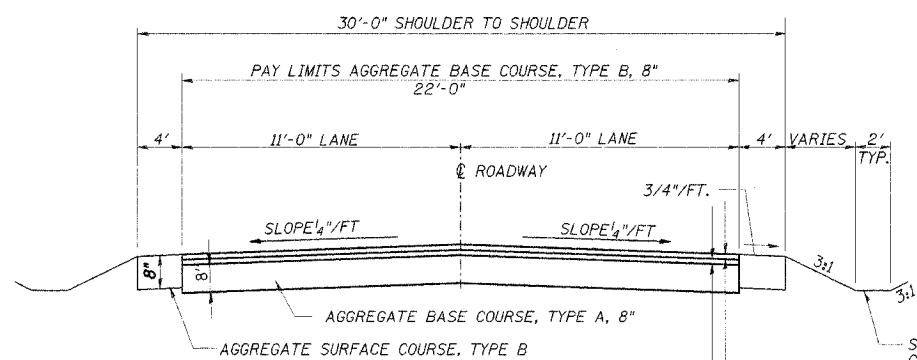
CONTRACT #89373

CODE NO.	ITEM	UNIT	TOTAL QUANTITIES
20100500	TREE REMOVAL, ACRES	ACRE	0.30
*20200100	EARTH EXCAVATION	CU. YD.	227
*20400800	FURNISHED EXCAVATION	CU. YD.	501
21101615	TOPSOIL FURNISH & PLACE, 4"	SQ. YD.	5179
25000200	SEEDING, CLASS 2	ACRE	1.07
25000400	NITROGEN FERTILIZER NUTRIENT	POUND	65
25000500	PHOSPHORUS FERTILIZER NUTRIENT	POUND	65
25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	65
25100115	MULCH, METHOD 2	ACRE	1.07
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	400
28000300	TEMPORARY DITCH CHECKS	EACH	8
28000400	PERIMETER EROSION BARRIER	FOOT	620
35100700	AGGREGATE BASE COURSE, TYPE A, 8"	SO. YD.	611
*40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	149
40300100	BITUMINOUS MATERIALS PRIME COAT	GALLON	279
40600300	AGGREGATE PRIME COAT	TON	0.91
*50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50104650	SLOPE WALL REMOVAL	SQ. YD.	620
50105220	PIPE CULVERT REMOVAL	FOOT	30
50200100	STRUCTURE EXCAVATION	CU. YD.	384
50300225	CONCRETE STRUCTURES	CU. YD.	215.2
50301200	CONCRETE WEARING SURFACE	SQ. YD.	946
50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ. FT.	8,388
50800105	REINFORCEMENT BARS	POUND	14,620
50800205	REINFORCEMENT BARS EPOXY COATED	POUND	12,980
50900205	STEEL RAILING, TYPE S-1	FOOT	600
51201400	FURNISHING STEEL PILES, HP 10 X 42	FOOT	3,080
51202700	DRIVING STEEL PILES	FOOT	3,080
51203400	TEST PILE, STEEL HP 10 X 42	EACH	6
51204600	METAL SHOES	EACH	44
51500100	NAME PLATE	EACH	1
63000000	STEEL PLATE BEAM GUARDRAIL, TYPE A	FOOT	100
63100075	TRAFFIC BARRIER TERMINAL, TYPE 5A	EACH	4
63200310	GUARDRAIL REMOVAL	FOOT	253
67100100	MOBILIZATION	LSUM	1.0
LR631020	TRAFFIC BARRIER TERMINAL, TYPE 1	EACH	4
*X0320678	TREE WHIP MIXTURE	EACH	8
X0322903	SAW CUTTING (FULL DEPTH)	FOOT	44
X4066414	BITUMINOUS CONCRETE SURFACE COURSE, SUPERPAVE, MIX "C" N50	TON	68
X4066614	BITUMINOUS CONCRETE BINDER COURSE, SUPERPAVE, MIX "C" IL-19.0 N50	TON	68
*XX004565	GROUTED RIPRAP	SQ. YD.	554
*XX004566	CONCRETE CUT-OFF WALL	CU. YD.	6.5
*XX004567	PIPE CULVERTS, TYPE 1 ALUMINIZED CORRUGATED STEEL PIPE, 18" DIA.	FOOT	50
XX005977	CONTROLLED LOW-STRENGTH MATERIAL (CLSM)	CU. YD.	70
Z0013798	CONSTRUCTION LAYOUT	L. SUM	1.0

*SEE SPECIAL PROVISIONS

NOTES:

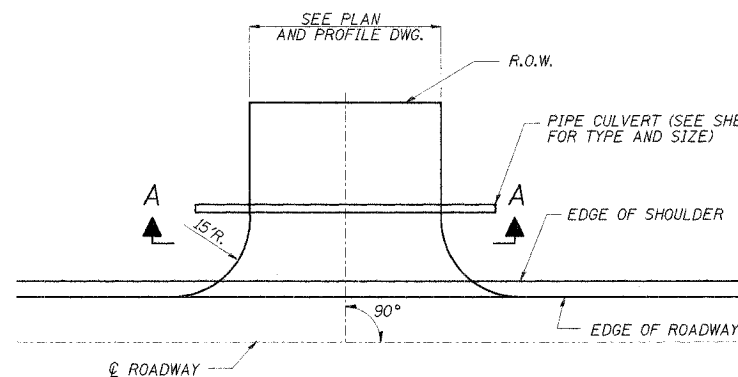
SEE PLAN AND PROFILE SHEET 4 FOR PAVEMENT AND SHOULDER TAPERS.



CONTRACTOR SHALL SAW CUT THE PAVEMENT, FULL DEPTH, FOR THE WIDTH OF THE PAVEMENT AT STATION 9+00.00 AND STATION 14+50.00

PROPOSED TYPICAL CROSS SECTION

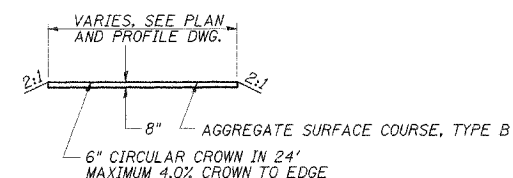
STA. 9+00.00 TO STA. 10+36.87
 STA. 13+39.13 TO STA. 14+50.00



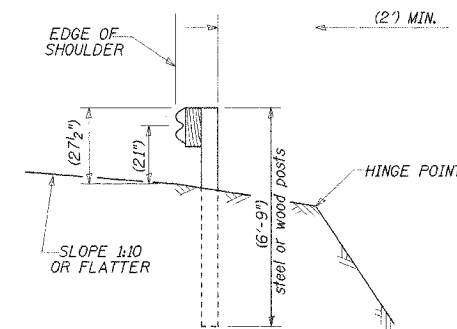
PLAN

FIELD ENTRANCE DETAIL

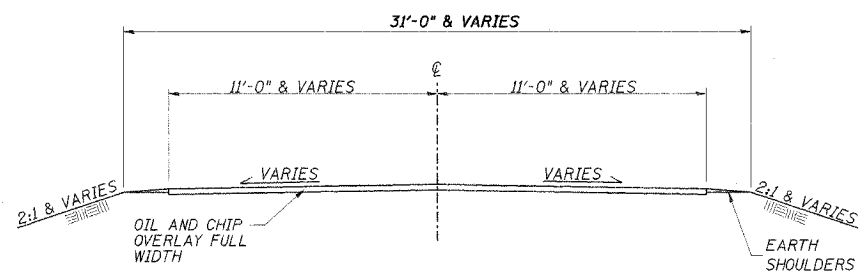
LT STA 10+25.25



SECTION A-A



TYPICAL GUARDRAIL SECTION



EXISTING TYPICAL CROSS SECTION

STA 9+00 TO STA. 10+88
 STA 12+88 TO STA. 14+50

GENERAL NOTES

1. The locations of Existing utilities as shown on the plan are for information only, and are not guaranteed. It shall be the Contractor's responsibility to ascertain their exact location from the utility companies and by field inspection.

DSGN	K.J. Hoffmann				
DR	K.J. Hoffmann				
CHK	K.E. Brandau				
APVD	K.E. Brandau	NO.	DATE	REVISION	BY

FRAUENHÖFFER

Frauenhoffer and Associates, P.C. Consulting Engineers
 3002 Crossing Court Champaign, IL 61822 217-351-6268

SUM. & SCHED. OF QUANTITIES AND TYP. SECTIONS

COUNTY HIGHWAY 2
 SECTION 04-00130-00-BR
 FULTON COUNTY

SHEET	2
DWG NO.	4056-sum.dgn
DATE	OCT 2005
PROJ NO.	4056

ROUTE NO.	SECTION	COUNTY	SHEET NO.	SHEET
C.H 2	*	Fulton	14	3
FED. ROAD DIST. NO. 7		ILL. PROJ. NO.	BR-S-452(115)	
*04-00130-00-BR				

CONTRACT #89373

SEEDING, CLASS 2	
LOCATION	ACRE
STA. 9+00 TO STA. 11+58	0.56
STA. 12+18 TO STA. 14+50	0.51
TOTAL	1.07

AGGREGATE BASE COURSE, TYPE A, 8"	
LOCATION	SQ YD
STA. 9+00 TO STA. 10+36.86	338
STA. 13+39.13 TO STA. 14+50	273
TOTAL	611

MULCH, METHOD 2	
LOCATION	ACRE
STA. 9+00 TO STA. 11+58	0.56
STA. 12+18 TO STA. 14+50	0.51
TOTAL	1.07

GUARDRAIL REMOVAL	
LOCATION	FT
RT. STA. 10+19 TO STA. 10+25	76
LT. STA. 10+57 TO STA. 10+82	25
RT. STA. 12+95 TO STA. 13+72	77
LT. STA. 12+82 TO STA. 13+57	75
TOTAL	253

PIPE CULVERTS, TYPE 1 ALUMINIZED CORRUGATED STEEL PIPE, 18" DIA	
LOCATION	FOOT
LT. STA 9+00 TO STA 9+50	50
TOTAL	50

TRAFFIC BARRIER TERMINAL, TYPE 5A	
LOCATION	EACH
LT. STA. 10+16.69 TO STA. 10+29.94	1
RT. STA. 10+32.85 TO STA. 10+46.10	1
LT. STA. 13+29.90 TO STA. 13+43.15	1
RT. STA. 13+46.06 TO STA. 13+59.31	1
TOTAL	4

PIPE CULVERT REMOVAL	
LOCATION	FOOT
LT. STA 10+26 TO STA 10+56	30
TOTAL	30

TRAFFIC BARRIER TERMINAL, TYPE 1	
LOCATION	EACH
LT. STA. 9+91.61 TO STA. 10+16.69	1
RT. STA. 9+07.85 TO STA. 9+32.85	1
LT. STA. 13+43.15 TO STA. 13+68.15	1
RT. STA. 13+59.31 TO STA. 13+84.31	1
TOTAL	4

AGGREGATE SURFACE COURSE, TYPE B	
LOCATION	TON
LT. STA 9+00 TO STA 10+29.31	22
RT. STA 9+00 TO STA 10+44.32	25
LT. STA 13+31.67 TO STA 14+50	20
RT. STA 13+46.69 TO STA 14+50	17
LT. STA 9+25	65
TOTAL	149

STEEL PLATE BEAM GUARDRAIL, TYPE A	
LOCATION	FOOT
RT. STA. 9+32.85 TO STA. 10+32.85	100
TOTAL	100

CONSTRUCTION LAYOUT	
LOCATION	L. SUM
SEC. 04 00130-00-BR	1
TOTAL	1

TREE REMOVAL	
LOCATION	ACRE
RT. STA. 10+20 TO STA. 11+75	0.11
RT. STA. 12+20 TO STA. 14+20	0.19
TOTAL	0.30

SAW CUTTING (FULL DEPTH)	
LOCATION	FOOT
STATION 9+00	22
STATION 14+50	22
TOTAL	44

BITUMINOUS MIXTURE REQUIREMENTS

The following mixture requirements are applicable for this project.

Mixture Use(s):	Surface Course	Binder Course
AC/PG:	64-22	64-22
RAP %: (Max)**	15%	25%
Design Air Voids:	4.2% @ N _{des} = 50	4.2% @ N _{des} = 50
Mixture Composition: (Gradation Mixture)	IL 9.5 or IL 12.5	IL 19.0
Friction Aggregate:	Mixture C	N/A

** If > 15% RAP is used, the contractor may be required to use a softer grade of asphalt as determined by the Materials Engineer.

STATION TO STATION	LENGTH (FT)	BIT. CONC. SLRF. CSE. SUPERPAVE MIX "C," N50 (TON)			BIT. CONC. BINDER CSE. SUPERPAVE MIX C, IL-19.0, N50 (TON)			BITUMINOUS MATERIALS PRIME COAT (GALLON)		AGGREGATE PRIME COAT (TON)
		WIDTH (FT)	AREA (SQ FT)	QUANTITY (TON)	WIDTH (FT)	AREA (SQ FT)	QUANTITY (TON)	RATE =	RATE =	SUB TOTAL
								0.38 GAL/SY	0.08 GAL/SY	
STA 9+00.00 TO STA 10+36.87	136.87	22.0	3011	38	22.0	3011	38	127	27	154
STA 13+39.13 TO STA 14+50.00	110.87	22.0	2439	30	22.0	2439	30	103	22	125
TOTAL				68			68			279
										0.91

DSGN	K.J. Hoffmann				
DR	R.T. Mumm				
CHK	K.E. Brandau				
APVD	K.E. Brandau	NO.	DATE	REVISION	BY

FRAUENHÖFFER

Frauenhoffer and Associates, P.C. Consulting Engineers
3002 Crossing Court Champaign, IL 61822 217-351-6268

SCHEDULE OF QUANTITIES

COUNTY HIGHWAY 2
SECTION 04-00130-00-BR
FULTON COUNTY

SHEET	3
DWG NO.	4056-sch.dgn
DATE	OCT 2005
PROJ NO.	4056

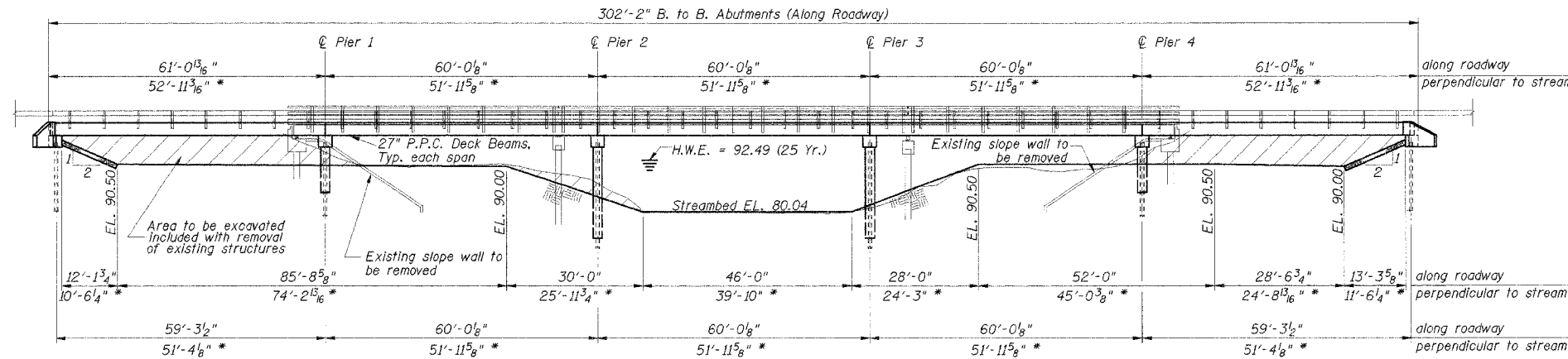
Existing Structure: (3 Spans) Steel girders supporting a concrete deck.
 Abutments/Piers caps are concrete supported on concrete piles.
 201' Long and 24' Wide.

BM #1 - Spike in power pole at Sta 0+60.00, 39.0' L.T., Elev. 97.51

ROUTE NO.	SECTION	COUNTY	SHEET NO.	TOTAL SHEETS
C.H. 2	*	Fulton	14	5
FEDERAL DIST. NO. 7		ILL. HIGHWAY PROJECT NO.	BR-5-452(10)	

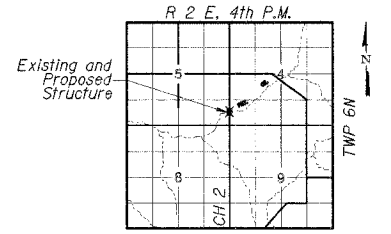
*04-00130-00-BR

CONTRACT #89373



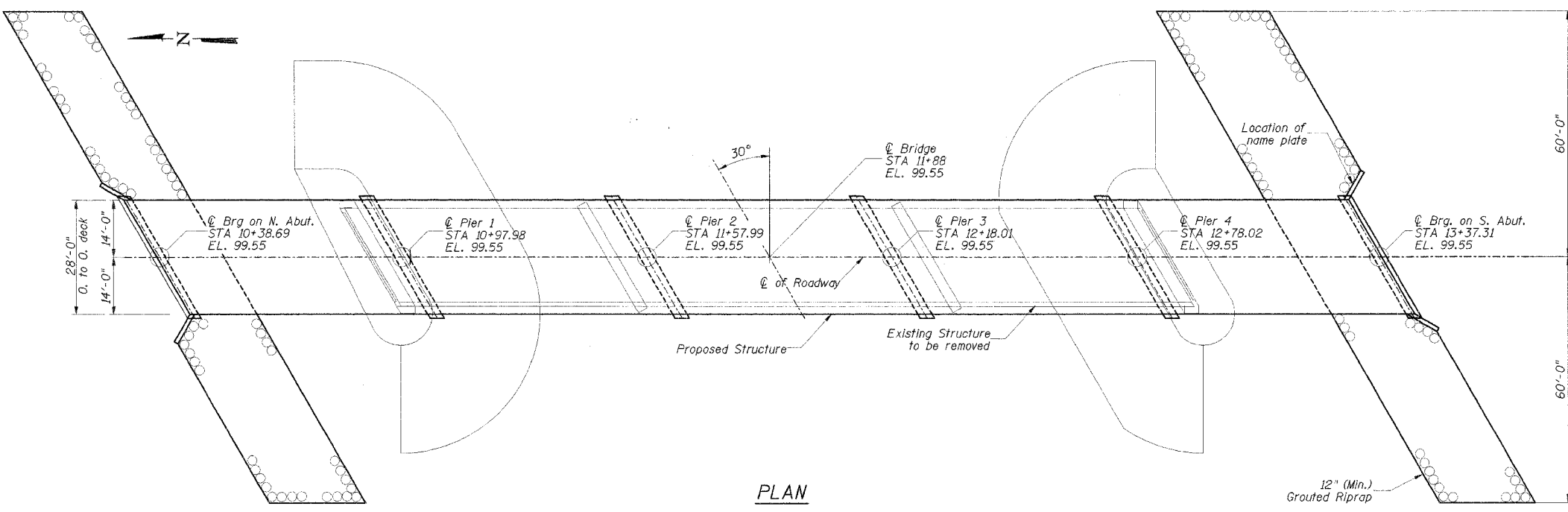
STRUCTURE NO. 029-3213
 SEC. 04-00130-00-BR
 COUNTY HIGHWAY 2
 FULTON COUNTY
 LOADING HS-20-44

NAME PLATE
 See Standard 515001

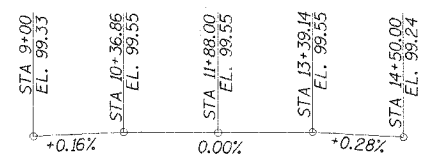


LOCATION SKETCH

Drainage Area	82.47 Sq. Mi.
Existing Opening (25 Yr.)	940.7 Sq. Ft.
Required Opening (25 Yr.)	1,212 Sq. Ft.
Proposed Opening (25 Yr.)	1,238.7 Sq. Ft.
Design Discharge (25 Yr.)	10,279 C.F.S.
Computed Discharge (100 Yr.)	14,283 C.F.S.
25 Yr. Head	0.33 Ft.
100 Yr. Head	0.77 Ft.



PLAN



PROFILE GRADE

DESIGN SPECIFICATIONS

AASHTO (2002)

DESIGN LOADING

HS 20-44
 25 P.S.F Future Wearing Surface

DESIGN STRESSES

- $f'_c = 3,500$ psi (Cast in Place Concrete)
- $f'_c = 5,000$ psi (P.P.C. Units)
- $f'_{cl} = 4,000$ psi (P.P.C. Units)
- $f_y = 60,000$ psi (Reinforcement)
- $f'_s = 270,000$ psi ($1/2$ " ϕ Strands)
- $f'_{sl} = 201,960$ psi ($1/2$ " ϕ Strands)

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Removal of Existing Structures	Each	1		1
Precast Prestressed Concrete Deck Beams (27" Deep)	Sq. Ft.	8,388		8,388
Steel Railing, Type S-1	Foot	600		600
Concrete Wearing Surface	Sq. Yd.	946		946
Reinforcement Bars - Epoxy Coated	Pounds	12,980		12,980
Furnishing Steel Piles, HP10x42	Foot		3,080	3,080
Driving Steel Piles	Foot		3,080	3,080
Test Piles, Steel HP10x42	Each	6		6
Metal Shoes	Each	44		44
Conc. Cut-off Wall	Cu. Yds.	6.5		6.5
Concrete Structures	Cu. Yds.	215.2		215.2
Name Plate	Each	1		1
Reinforcement Bars	Pound	14,620		14,620
Structure Excavation	Cu. Yds.	384		384
Controlled Low-Strength Material	Cu. Yds.	70		70

GENERAL NOTES

1. The Contractor shall drive 1 steel test pile in a permanent location at each abutment and pier as directed by the Engineer before ordering the remainder of piles.
2. Boring Data is shown only as a guide to bidders in estimating soil conditions which may be encountered during construction. See Sheet 14 for Boring Logs.
3. Class SI or MS Concrete shall be used in the abutments.

I certify that to the best of my 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 the requirements of the current "AASHTO Standard Specifications for Highway Bridges."

Keith E. Brandau 12/15/05
 KEITH E. BRANDAU
 Illinois Licensed Structural Engineer Number 4905
 License Expires 11/30/06



NO.	DATE	REVISION	BY	APVD
DSGN			K.J. Hoffmann	
DR			K.J. Hoffmann	
CHK			K.E. Brandau	
APVD			K.E. Brandau	

FRAUENHOFFER

Frauenhoffer and Associates, P.C. Consulting Engineers
 3002 Crossing Court Champaign, Il. 61822 217-351-6268

GENERAL PLAN AND ELEVATION

COUNTY HIGHWAY 2
 SECTION 04-00130-00-BR
 FULTON COUNTY

SHEET	5
DWG NO.	4056-gpe.dwg
DATE	NOV 2005
PROJ. NO.	4056

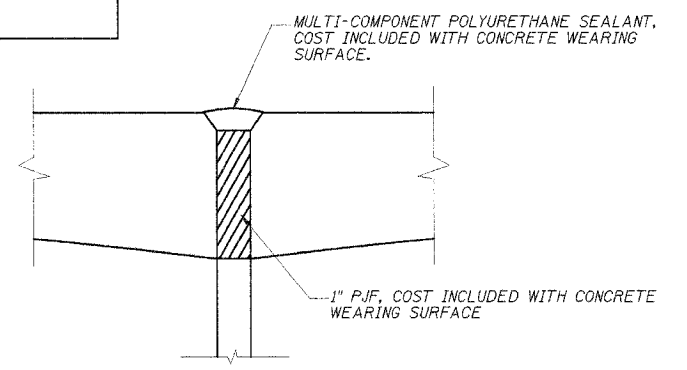
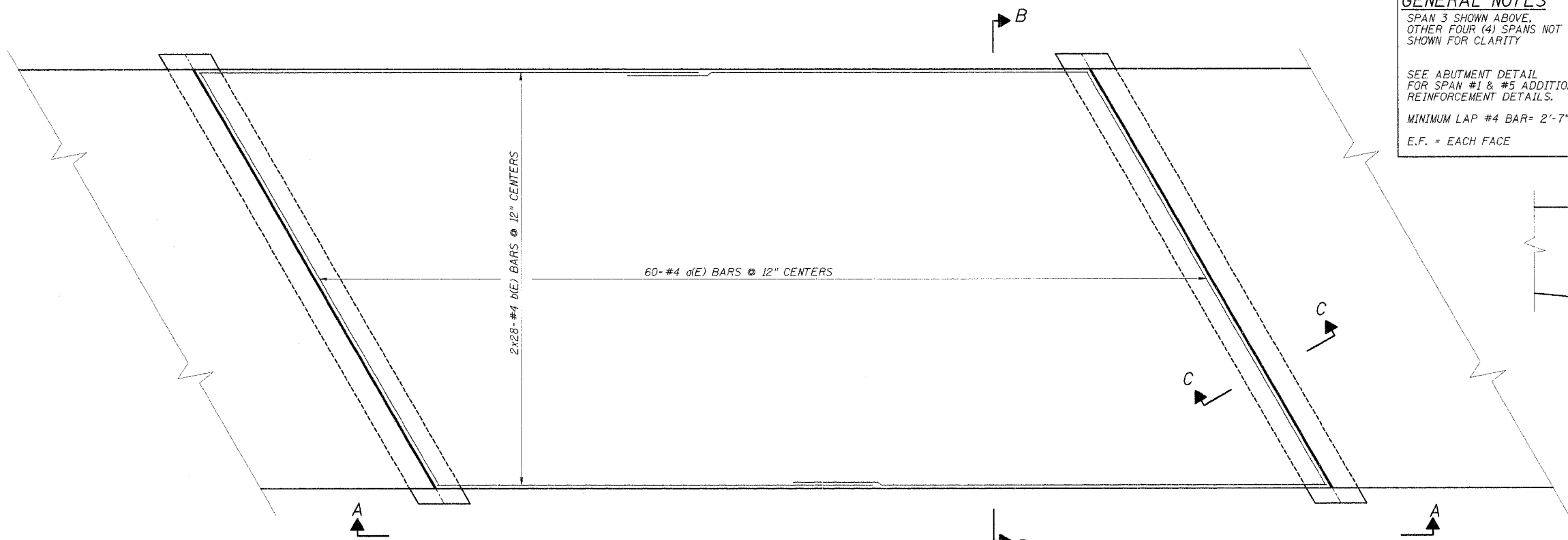
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 2	*	Fulton	14	6
FED. ROAD DIST. NO. 7	ILL. PROJ. NO.	FED. AID PROJECT NO.	BR-5-452(115)	

*04-00130-00-BR
CONTRACT #89373

GENERAL NOTES
 SPAN 3 SHOWN ABOVE,
 OTHER FOUR (4) SPANS NOT
 SHOWN FOR CLARITY

SEE ABUTMENT DETAIL
 FOR SPAN #1 & #5 ADDITIONAL
 REINFORCEMENT DETAILS.

MINIMUM LAP #4 BAR= 2'-7"
 E.F. = EACH FACE



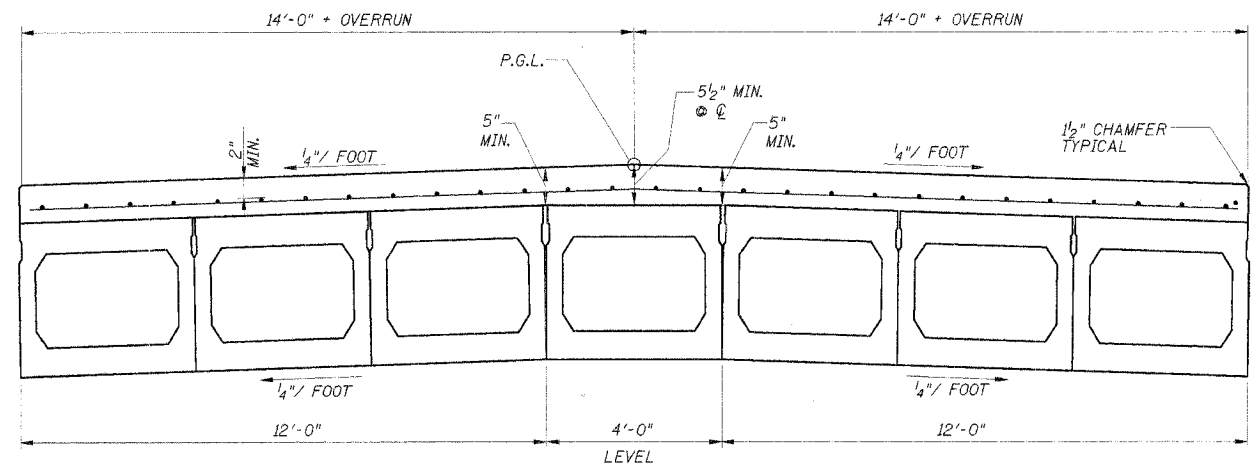
**SECTION C-C
 JOINT DETAIL**

TYPICAL SPAN
 ONE SPAN SHOWN, TYPICAL OF 5 SPANS,
 EXCEPT AS SHOWN IN THE ABUTMENT DETAIL

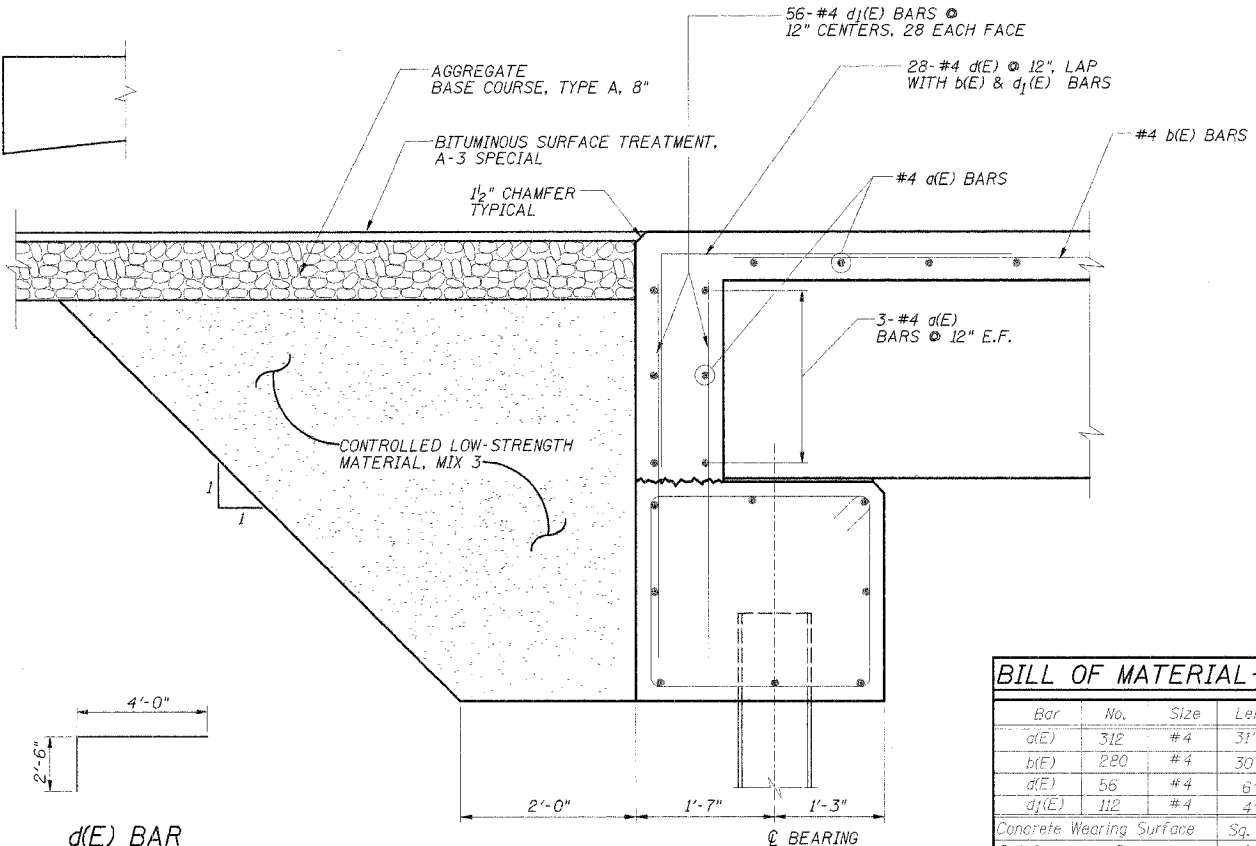
5" MIN. @ CENTER OF SPAN
 OF THE PPC DECK BEAMS



VIEW A-A



SECTION B-B



ABUTMENT DETAIL

BILL OF MATERIAL-2 ABUTS.

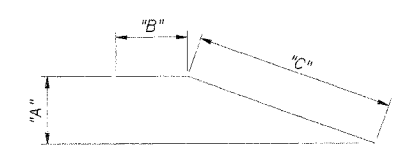
Bar	No.	Size	Length	Shape
d(E)	312	#4	31'-10"	—
b(E)	280	#4	30'-10"	—
d(E)	56	#4	6'-6"	—
d1(E)	112	#4	4'-6"	—
Concrete Wearing Surface		Sq. Yds.	946	
Reinforcement Bars (Epoxy Coated)		Lbs.	12,990	

DSGN	K.E. Brandau				
DR	R.T. Mumm				
CHK	K.E. Brandau				
APVD	K.E. Brandau	NO.	DATE	REVISION	BY

FRAUENHÖFFER
 Frauenhoffer and Associates, P.C. Consulting Engineers
 3002 Crossing Court Champaign, Il. 61822 217-361-6268

CONCRETE WEARING SURFACE DETAILS
 COUNTY HIGHWAY 2
 SECTION 04-00130-00-BR
 FULTON COUNTY

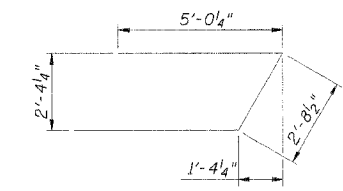
SHEET	6
DWG NO.	4066-over.dgn
DATE	NOV 2005
PROJ NO.	4056



BAR h20, h21, h26, h31

BAR	"A"	"B"	"C"
h20	7'-4 3/8"	0'-10"	8'-6"
h24	2'-10 3/4"	1'-3"	7'-0"
h25	5'-0"	0'-10"	7'-5"
h29	2'-10 3/4"	0'-3"	7'-0"
h33	2'-10 3/4"	1'-1"	7'-0"

BAR s20



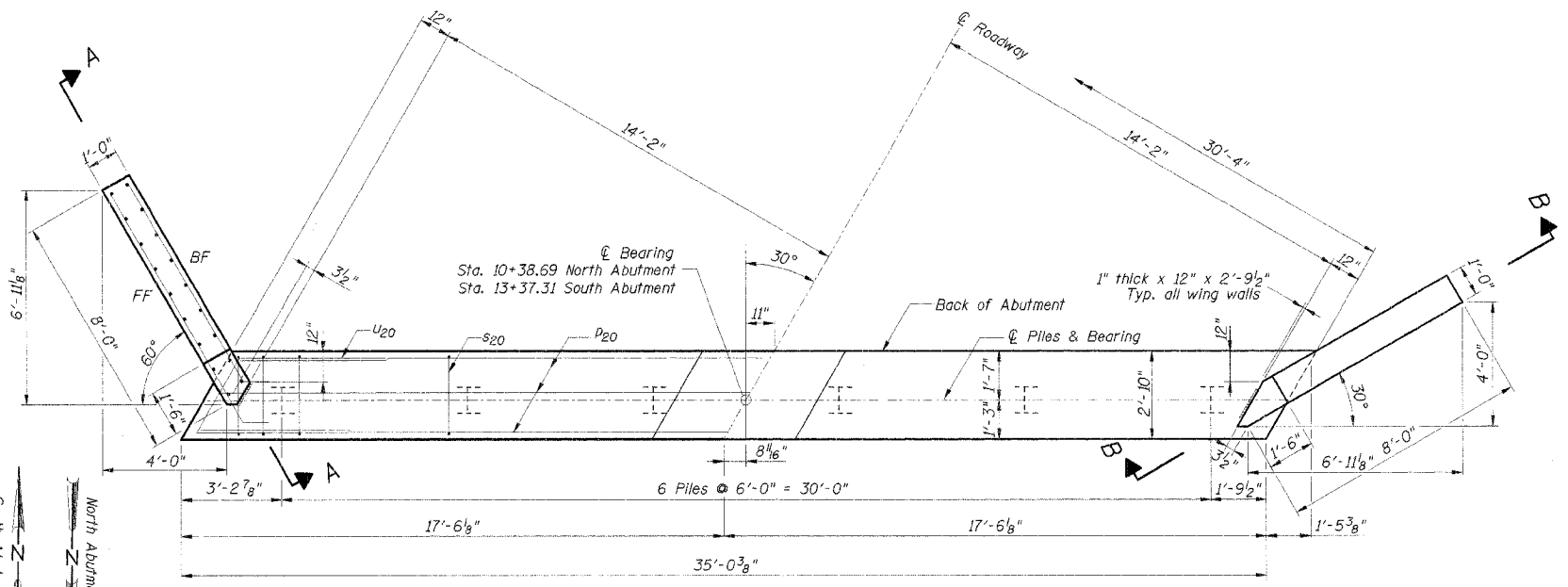
BAR U20

PILE DATA

Type: Steel HP10x42
 No. Required: 5 North Abutment
 5 South Abutment
 Capacity: 42 T/Pile @ both abutments
 Drive to refusal
 Est. Length: 70 Ft. N. Abutment
 70 Ft. S. Abutment
 Test Piles: 1 North Abutment
 1 South Abutment

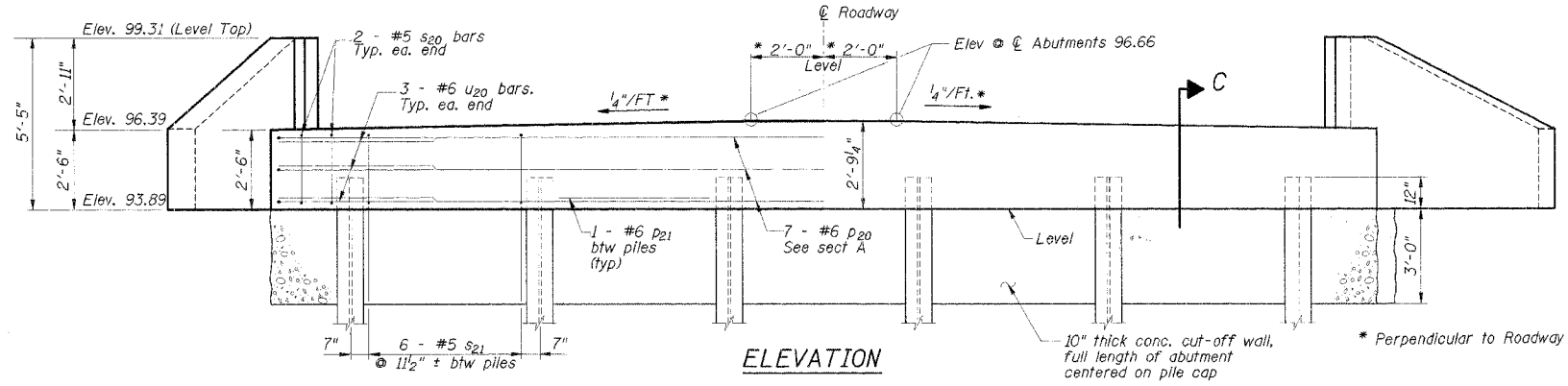
BILL OF MATERIAL-2 ABUTS.

Bar	No.	Size	Length	Shape
h20	12	#5	9'-4"	
h21	4	#5	6'-9"	
h22	4	#5	4'-11"	
h23	4	#5	3'-1"	
h24	4	#5	8'-3"	
h25	12	#5	8'-3"	
h26	2	#5	5'-9"	
h27	2	#5	3'-11"	
h28	2	#5	2'-1"	
h29	2	#5	7'-3"	
h30	2	#5	6'-7"	
h31	2	#5	4'-9"	
h32	2	#5	2'-11"	
h33	2	#5	8'-2"	
P20	14	#6	34'-8"	
P21	10	#6	3'-10"	
S20	62	#5	10'-3"	
U20	12	#6	12'-1"	
V20	16	#4	5'-1"	
V21	8	#4	4'-9"	
V22	8	#4	4'-4"	
V23	8	#4	3'-11"	
V24	8	#4	3'-6"	
V25	8	#4	3'-0"	
V26	8	#4	2'-7"	
V27	8	#4	2'-2"	
Concrete Structures		Cu. Yds.	24.1	
Reinforcement Bars		Lbs.	2350	
Test Pile, Steel HP10x42		Each	2	
Furnish Steel Pile, HP10x42		Foot	700	
Drive Steel Pile		Foot	700	
Metel Shoes		Each	10	
Name Plate		Each	1	
Concrete Cut-off Wall		Cu. Yds.	6.5	
Structure Excavation		Cu. Yds.	144	

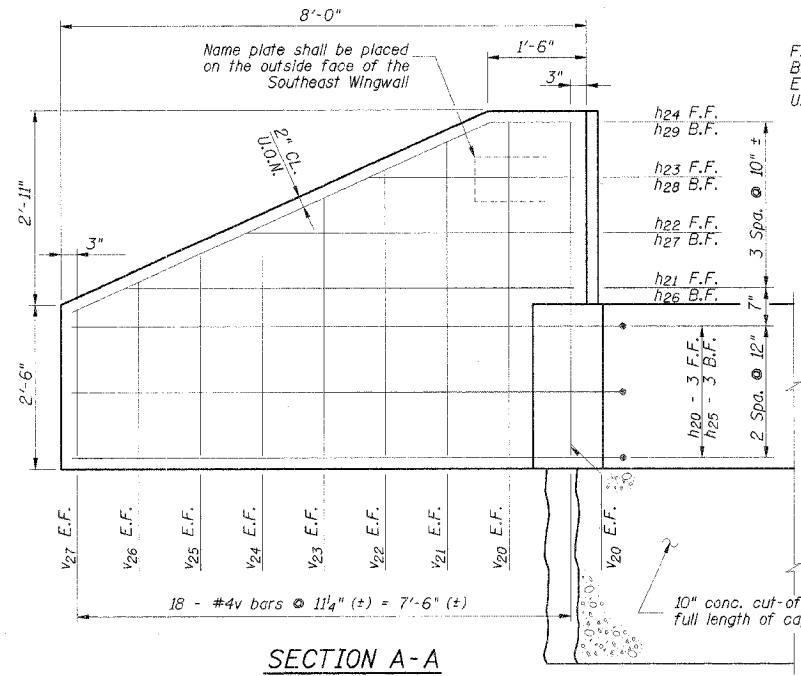


TOP PLAN

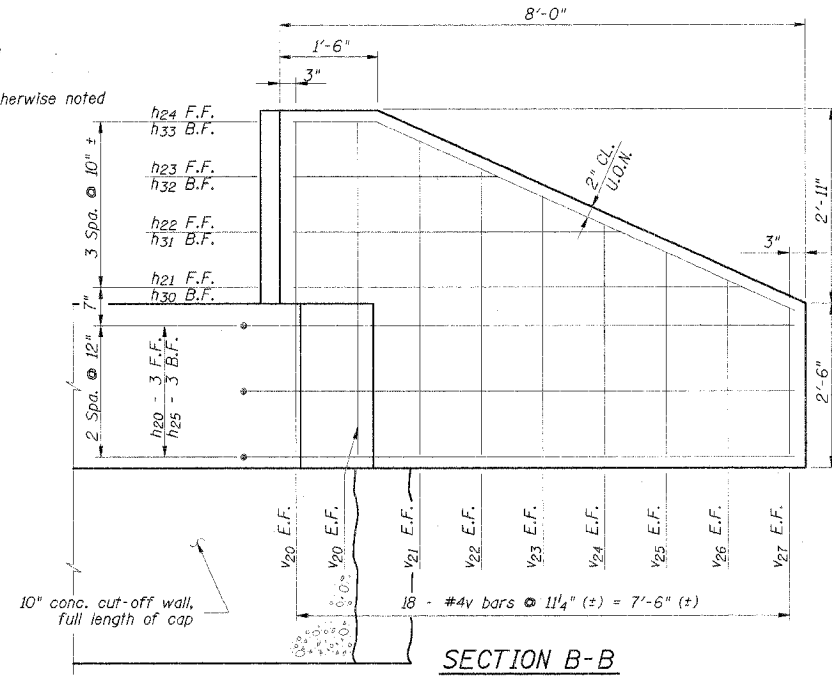
NOTE: All edges shall have Standard 3/4" Chamfer, except as noted.



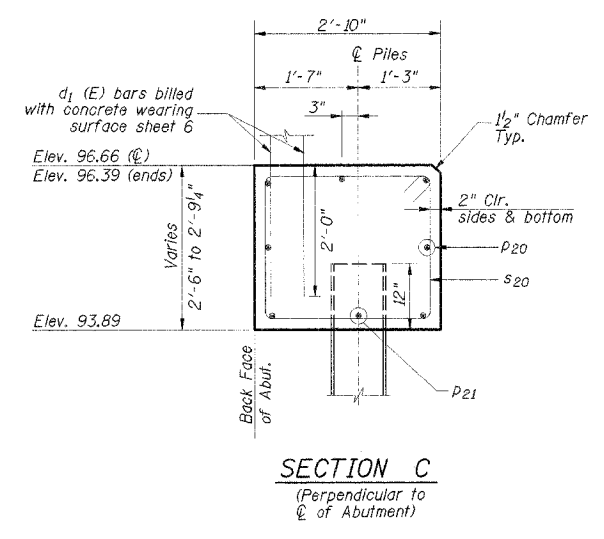
ELEVATION



SECTION A-A



SECTION B-B



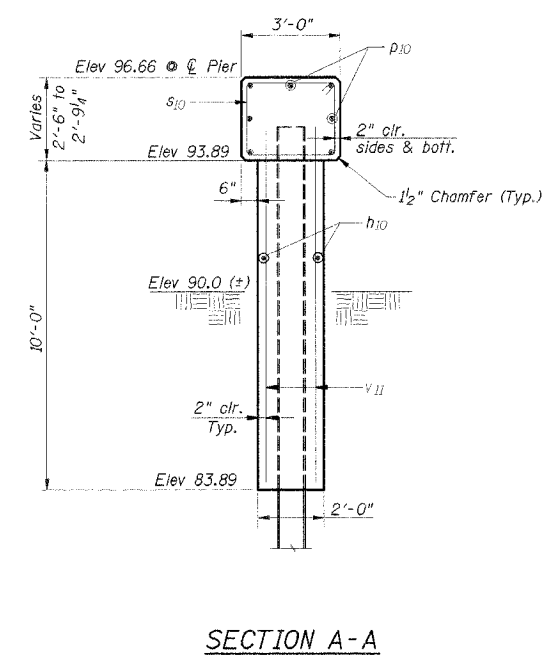
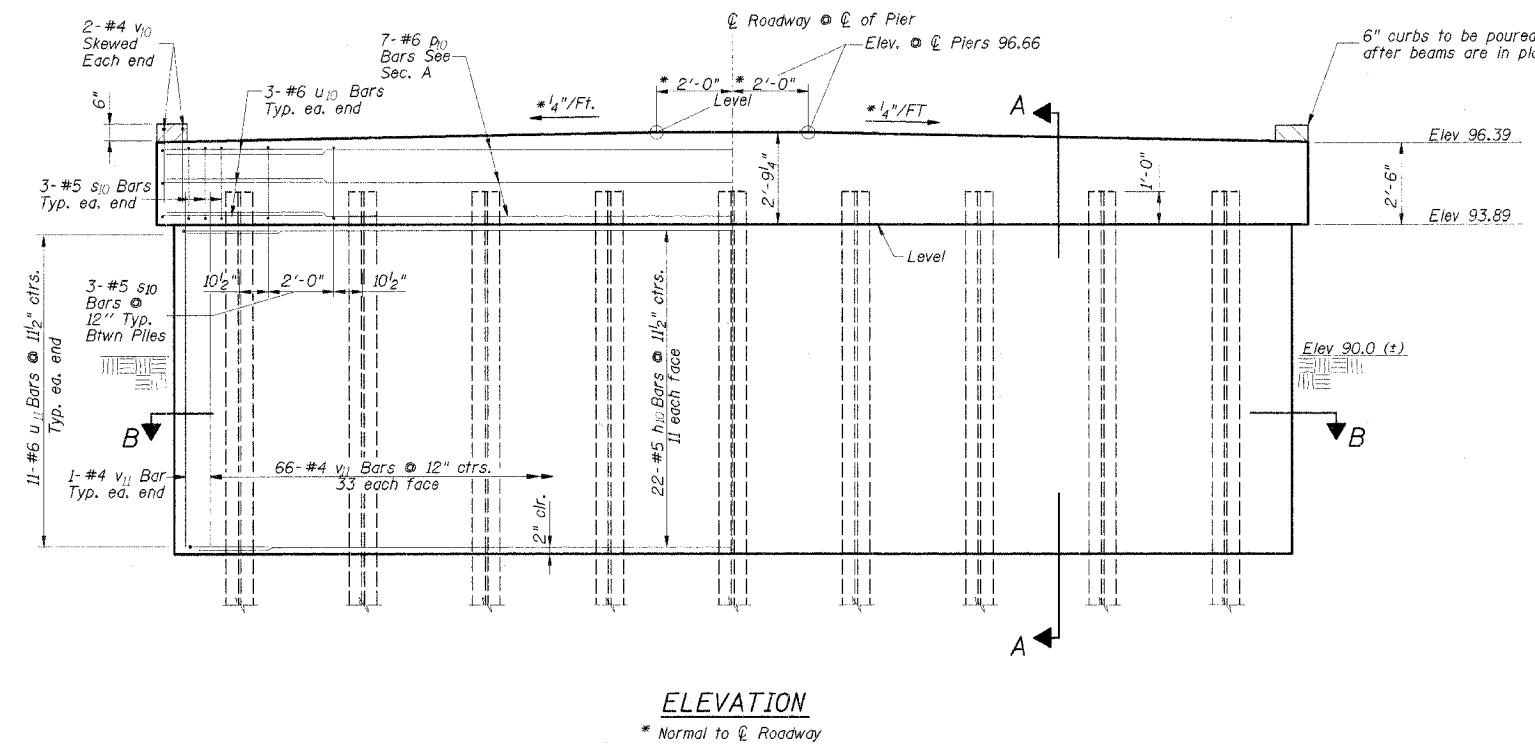
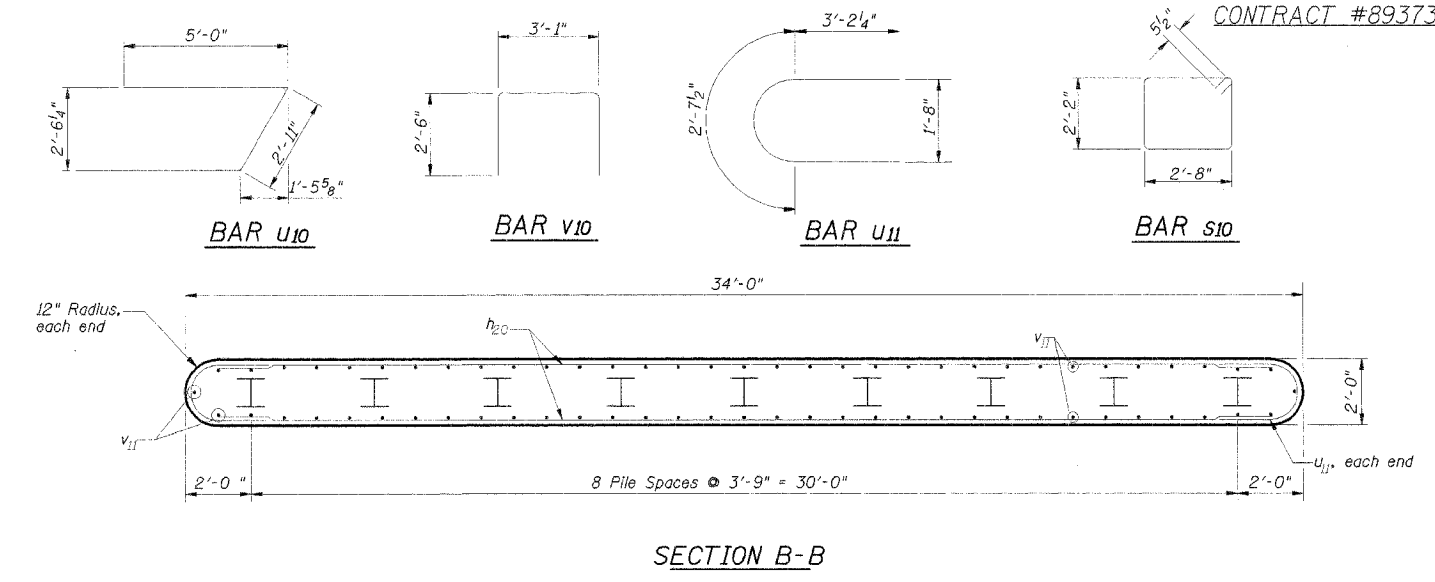
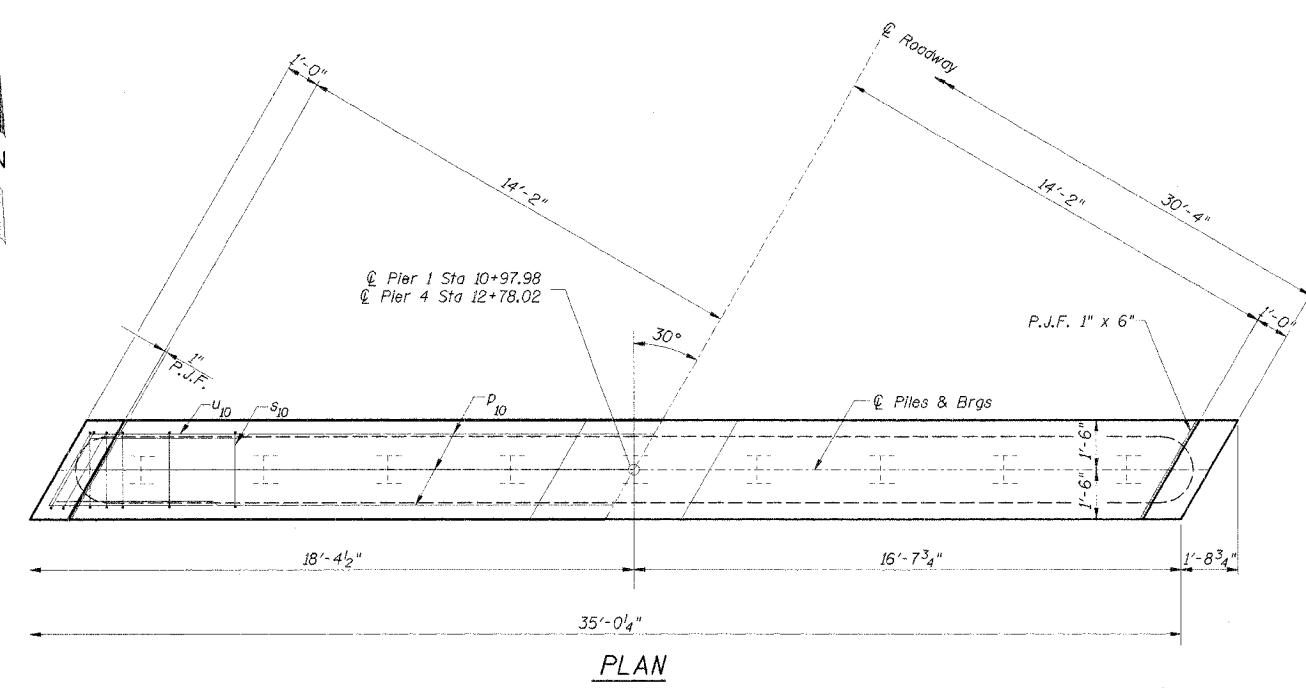
SECTION C
(Perpendicular to ϕ of Abutment)

DSGN	K.J. Hoffmann				
DR	K.J. Hoffmann				
CHK	K.E. Brandau				
APVD	K.E. Brandau	NO.	DATE	REVISION	BY

FRAUENHOFFER
 Frauenhoffer and Associates, P.C. Consulting Engineers
 3002 Crossing Court Champaign, IL 61822 217-351-6268

ABUTMENTS
 COUNTY HIGHWAY 2
 SECTION 04-00130-00-BR
 FULTON COUNTY

SHEET 7
 DWG NO. 4056-abt.dgn
 DATE OCT 2005
 PROJ NO. 4056



PIERS 1 & 4
BILL OF MATERIAL - 2 PIERS

Bar	No.	Size	Length	Shape
h10	44	#5	32'-0"	—
p10	14	#6	34'-7"	—
s10	60	#5	10'-7"	⊠
u10	12	#6	12'-11"	U
u11	44	#6	9'-0"	U
v10	8	#4	8'-1"	⊏
v11	136	#4	10'-10"	—
Concrete Structures		Cu. Yds.	70.7	
Reinforcement Bars		Lbs.	4710	
Test Pile, Steel HP10x42		Each	2	
Furnish Steel Piles, HP10x42		Foot	1120	
Driving Steel Piles		Foot	1120	
Metal Shoes		Each	16	
Structure Excavation		Cu. Yds.	103	

PILE DATA

Type: Steel HP 10 x 42
 No. Required: 8 Pier 1
 8 Pier 4
 Capacity: 42 T/Pile
 drive to refusal @ Piers 1 & 4
 Est. Length: 70 ft. Each Pier
 Test Piles: 1 Pier 1
 1 Pier 4

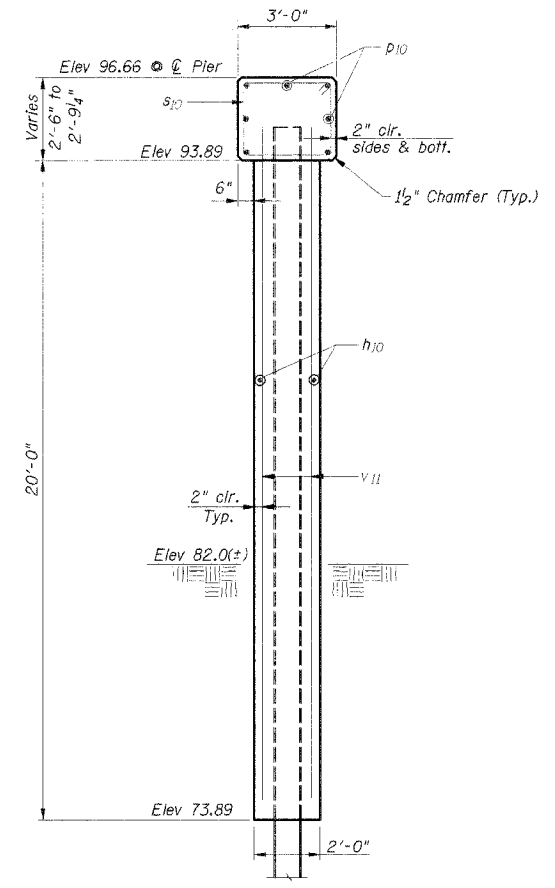
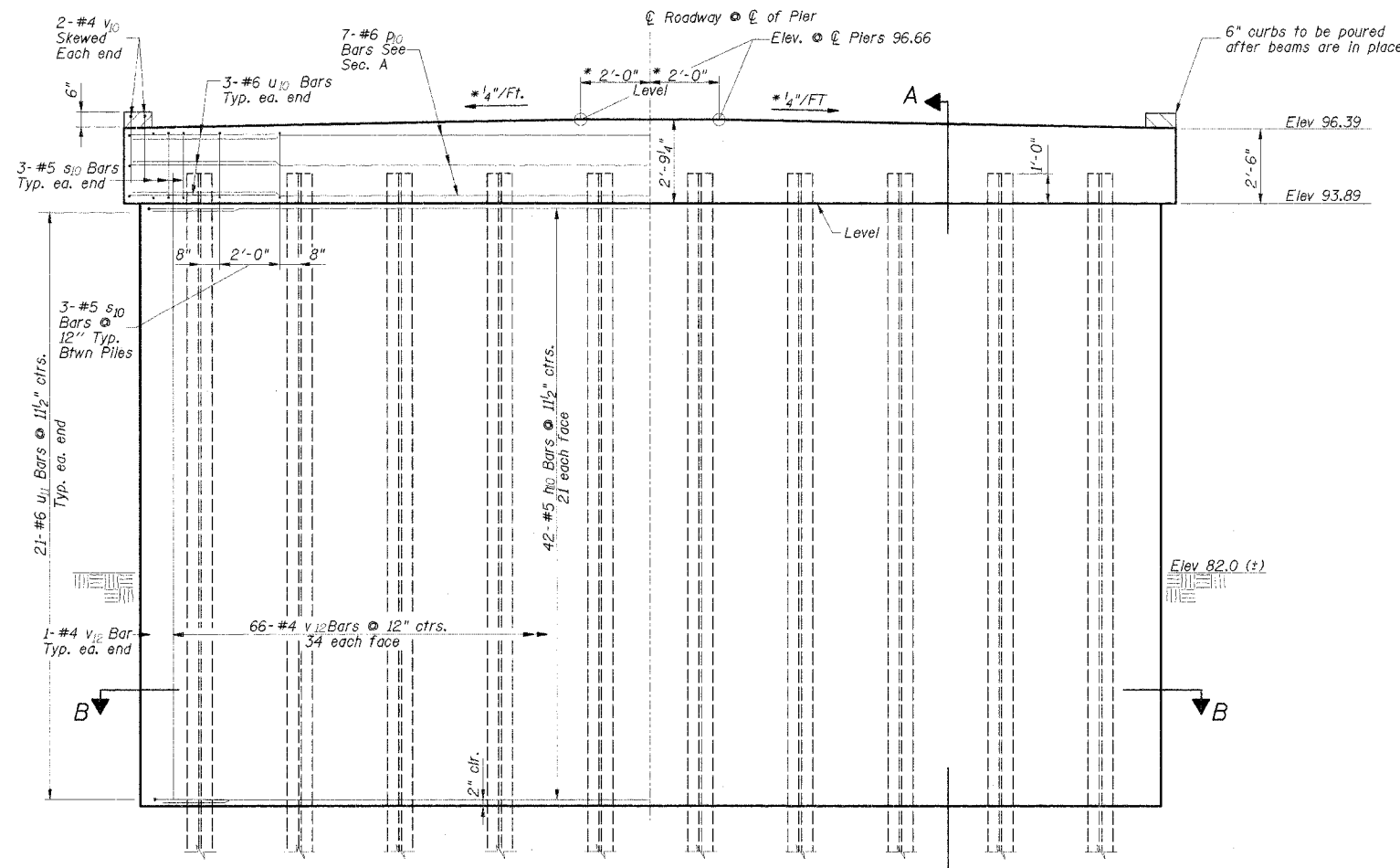
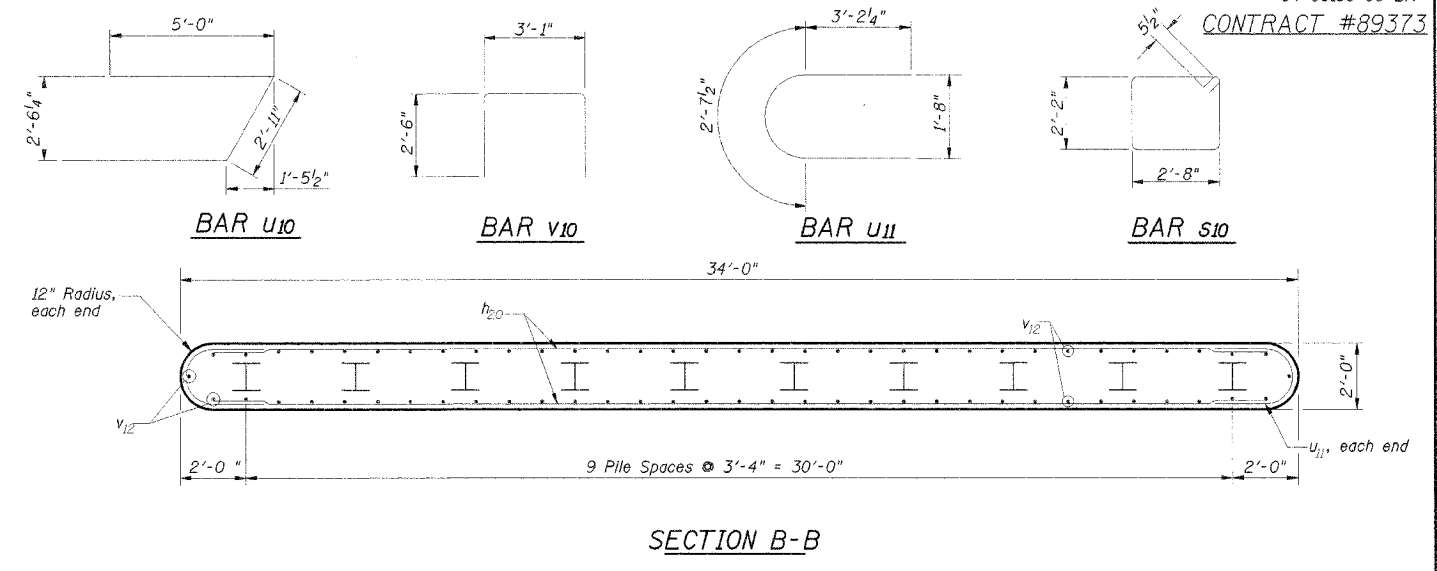
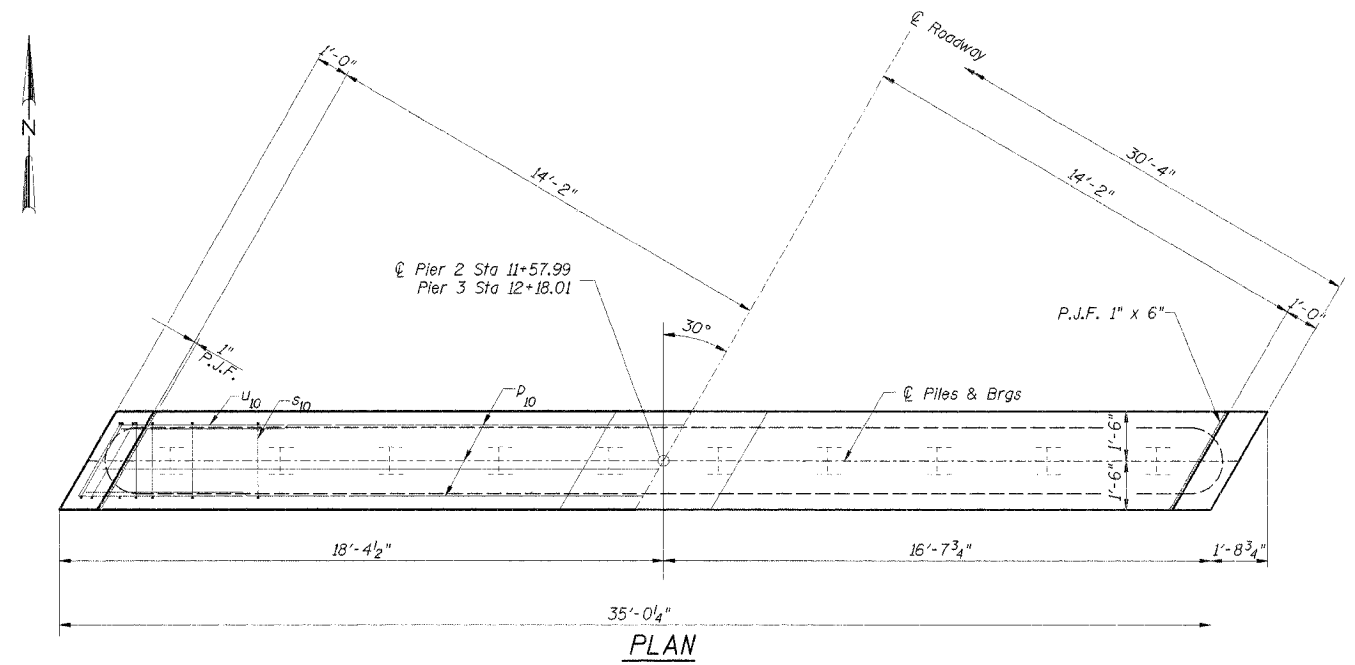
DSGN	K.J. Hoffmann				
DR	K.J. Hoffmann				
CHK	K.E. Brandau				
APVD	K.E. Brandau	NO.	DATE	REVISION	BY

FRAUENHOFFER

Frauenhoffer and Associates, P.C. Consulting Engineers
 3002 Crossing Court Champaign, Il. 61822 217-361-6268

PIERS 1 & 4
 COUNTY HIGHWAY 2
 SECTION 04-00130-00-BR
 FULTON COUNTY

SHEET 8
 DWG NO. 4056PR14
 DATE OCT 2005
 PROJ NO. 4056



**PIERS 2 & 3
BILL OF MATERIAL-2 PIERS**

Bar	No.	Size	Length	Shape
h10	84	#5	32'-0"	—
P10	14	#6	34'-7"	—
S10	66	#5	10'-7"	⊠
U10	12	#6	12'-11"	U
U11	84	#6	9'-0"	U
V10	3	#4	8'-1"	⊏
V12	136	#4	20'-10"	—
Concrete Structures		Cu. Yds.	120.4	
Reinforcement Bars		Lbs.	7560	
Test Pile, Steel HP10x42		Each	2	
Furnish Steel Piles, HP10x42		Foot	1260	
Driving Steel Piles		Foot	1260	
Metal Shoes		Each	18	
Structure Excavation		Cu. Yds.	137	

PILE DATA

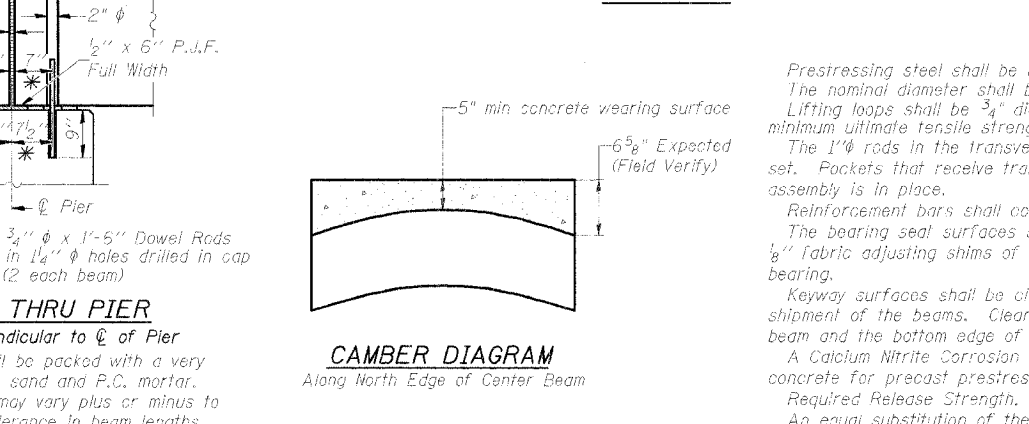
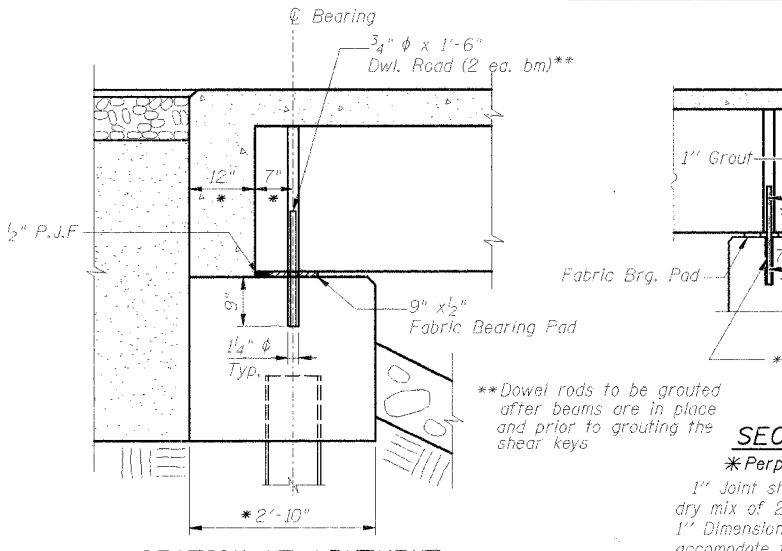
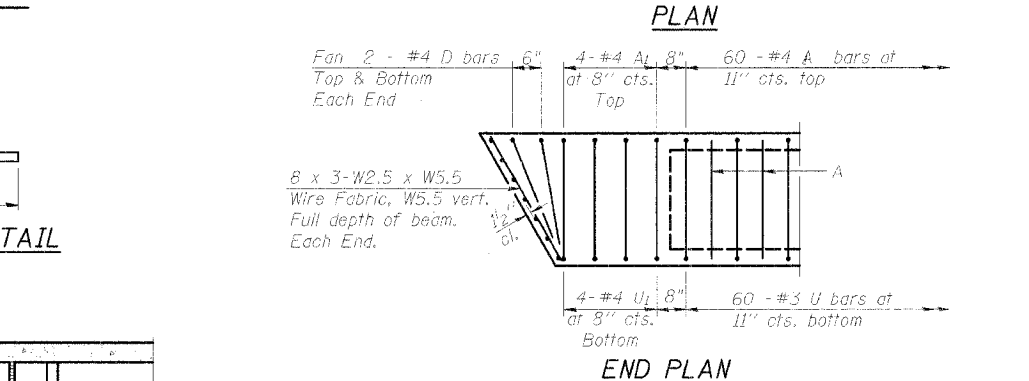
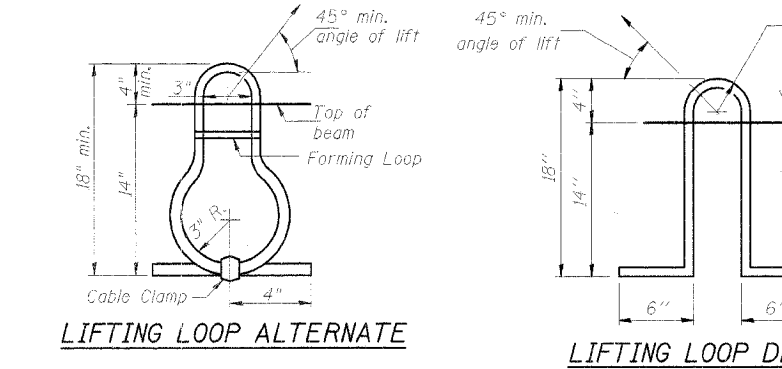
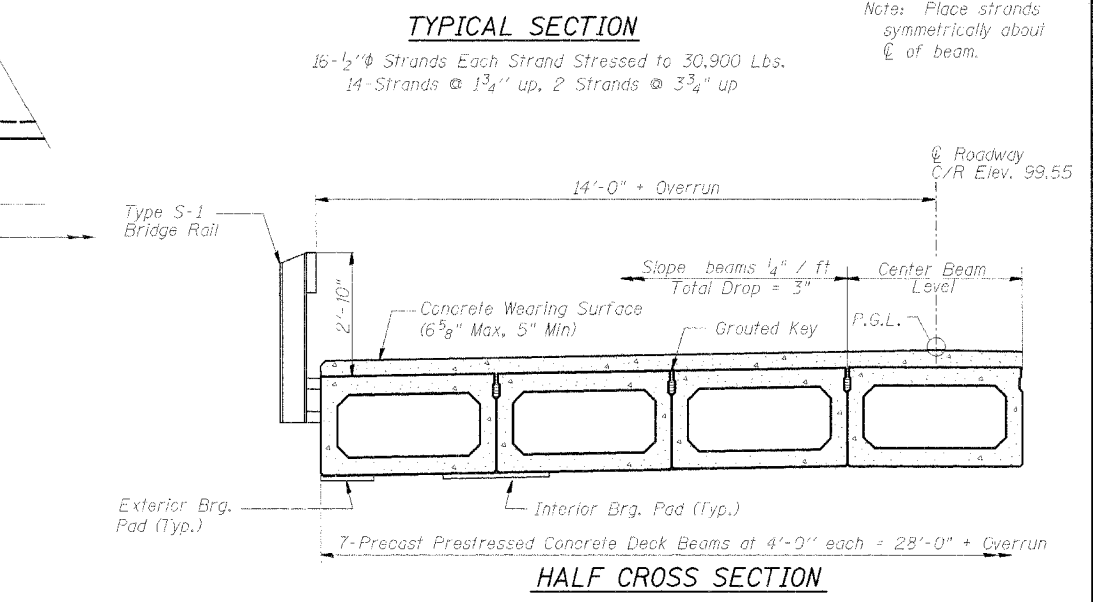
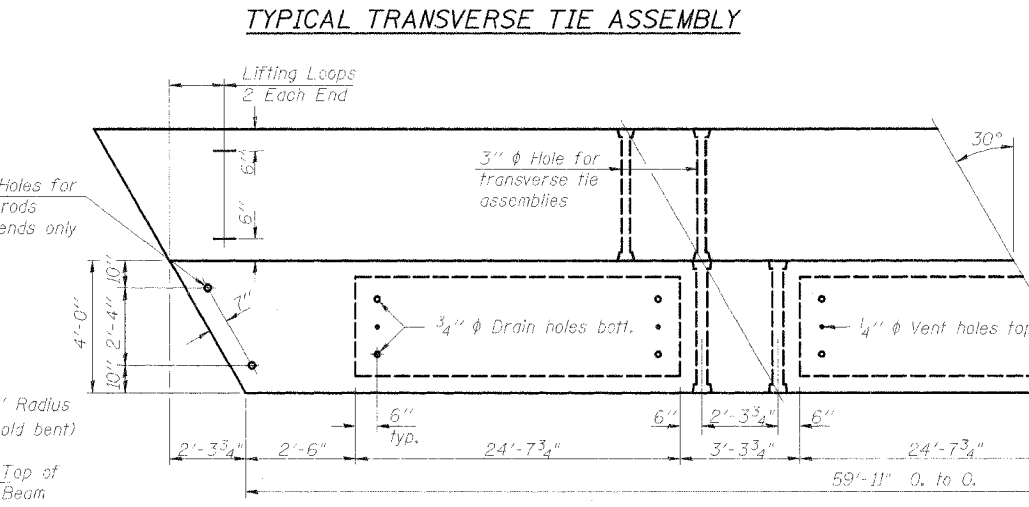
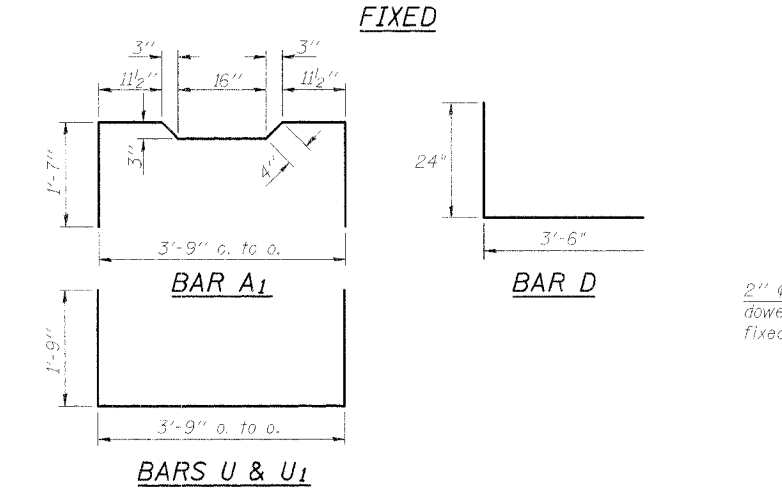
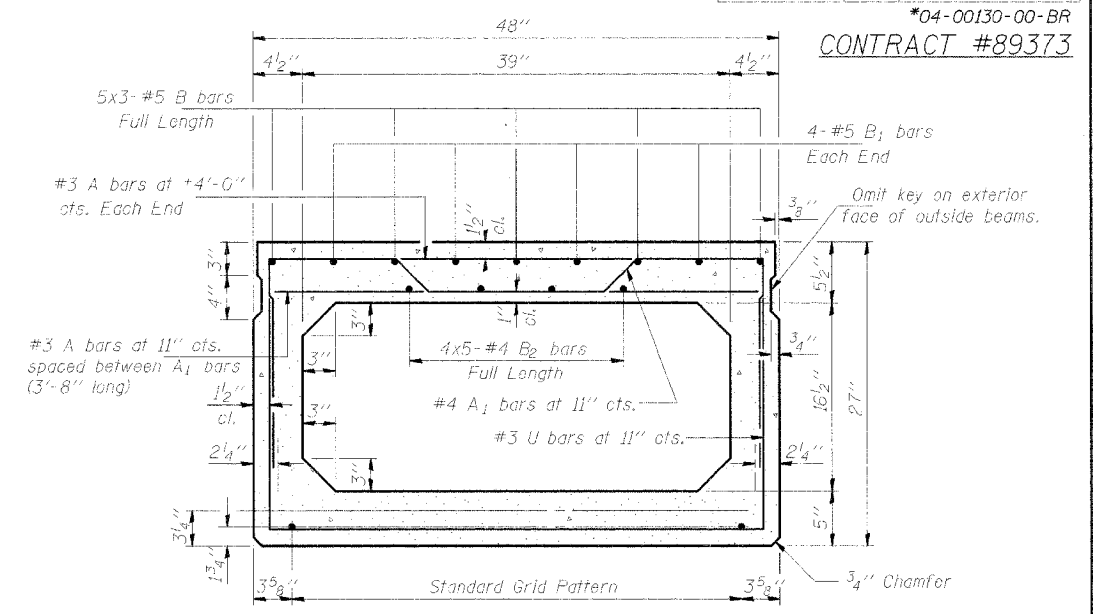
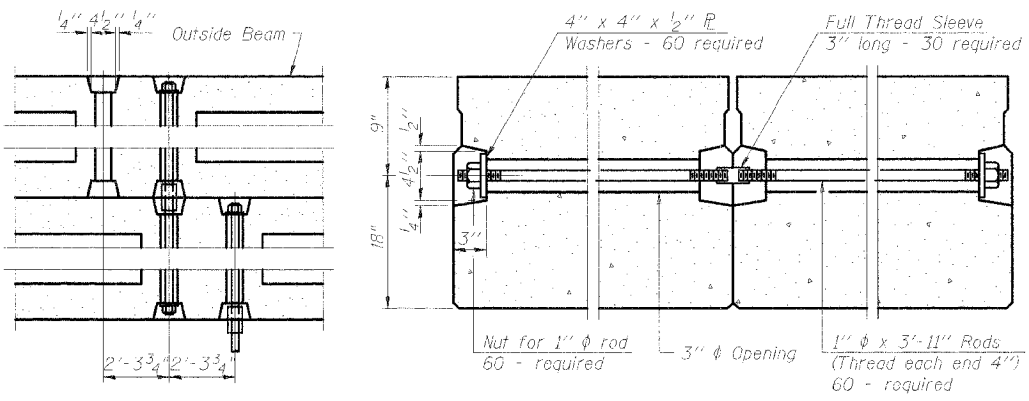
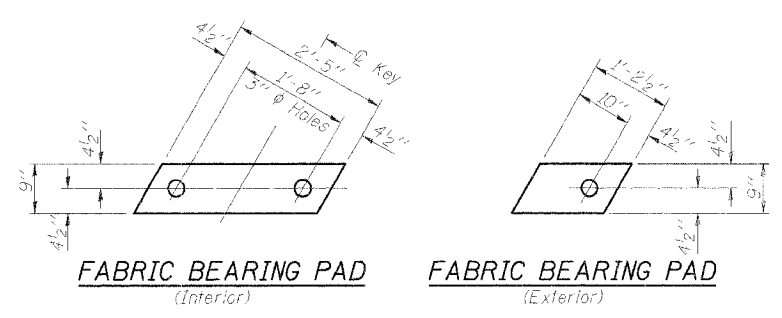
Type: Steel HP 10 x 42
 No. Required: 9 Pier 2, 9 Pier 3
 Capacity: 42 T/Pile drive to refusal all Piers
 Est. Length: 70 ft. Each Pier
 Test Piles: 1 Pier 2, 1 Pier 3

DSGN	K.J. Hoffmann				
DR	K.J. Hoffmann				
CHK	K.E. Brandau				
APVD	K.E. Brandau	NO.	DATE	REVISION	BY

FRAUENHOFFER
 Frauenhoffer and Associates, P.C. Consulting Engineers
 3002 Crossing Court Champaign, IL 61822 217-361-6268

PIERS 2 & 3
 COUNTY HIGHWAY 2
 SECTION 04-00130-00-BR
 FULTON COUNTY

SHEET 9
 DWG NO. 4054PR23
 DATE OCT 2005
 PROJ NO. 4056



SECTION AT ABUTMENT
 * Perpendicular to ϕ of abutment.

SEC. THRU PIER
 * Perpendicular to ϕ of Pier
 1" Joint shall be packed with a very dry mix of 2:1 sand and P.C. mortar.
 1" Dimension may vary plus or minus to accommodate tolerance in beam lengths.

NOTES

Prestressing steel shall be uncoated high strength, stress-relieved 7-wire strand, Grade 270. The nominal diameter shall be $\frac{1}{2}$ " and the nominal cross-sectional area shall be 0.153 sq. in. Lifting loops shall be $\frac{3}{4}$ " diameter, 6x25 class wire rope with fiber core and shall have a minimum ultimate tensile strength of 46,000 lbs. or 3- $\frac{1}{2}$ " ϕ -270 ksi strands, as shown. The 1" ϕ rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets that receive transverse tie bar on outside shall be filled with grout after transverse tie assembly is in place. Reinforcement bars shall conform to the requirements of AASHTO M-31, M-42 or M-53 Grade 60. The bearing seal surfaces shall be adjusted by shimming to assure firm and even bearing. Two $\frac{1}{2}$ " fabric adjusting shims of the dimensions of the Exterior Bearing Pad shall be provided for each bearing. Keyway surfaces shall be cleaned to remove form oil or other bond breaking material prior to shipment of the beams. Cleaning shall be done by sandblasting the keyway areas between top of the beam and the bottom edge of the key. A Calcium Nitrite Corrosion Inhibitor, as covered in the Special Provisions, shall be used in the concrete for precast prestressed concrete deck beams. Required Release Strength, f'_{ci} , shall be 4000 p.s.i. An equal substitution of the low-relaxation strands for the stress-relieved strands will be permitted.

BILL OF MATERIAL

ONE BEAM				
Bar	No.	Size	Length	Shape
A	63	#3	3'-8"	—
A ₁	58	#4	7'-1"	┌
B	15	#5	21'-7"	—
B ₁	8	#5	11'-1"	—
B ₂	20	#4	13'-7"	—
U ₁	8	#3	7'-3"	┌
U	60	#4	7'-3"	┌
Precast Prestressed Conc. Deck Bms.		Sq. Ft.	8388*	

* Total Quantity of Beams

DSGN	K.J. Hoffmann				
DR	K.J. Hoffmann				
CHK	K.E. Brandau				
APVD	K.E. Brandau	NO.	DATE	REVISION	BY

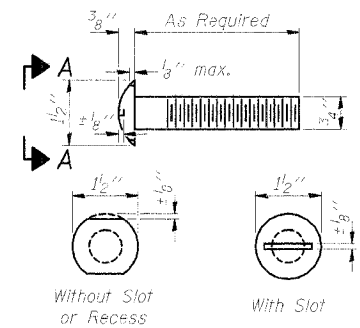
FRAUENHOFFER

Frauenhoffer and Associates, P.C. Consulting Engineers
 3002 Crossing Court Champaign, IL 61822 217-351-6268

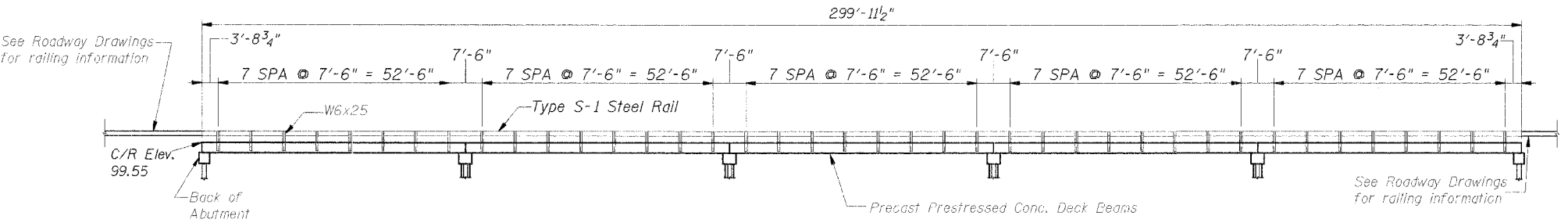
SUPERSTRUCTURE DETAILS - SPANS 1-5

COUNTY HIGHWAY 2
 SECTION 04-00130-00-BR
 FULTON COUNTY

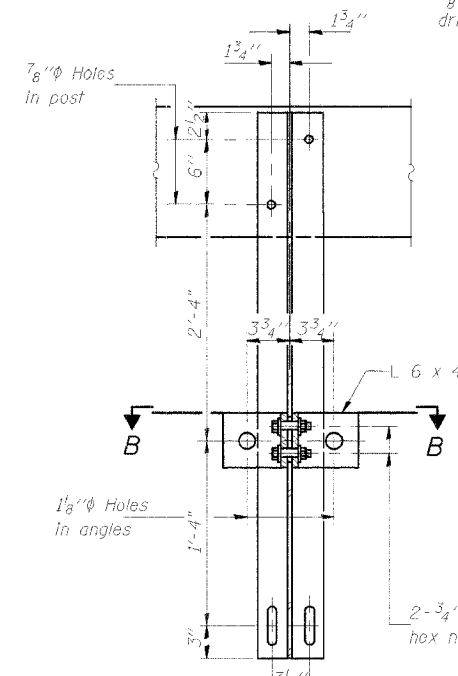
SHEET	10
DWG NO.	4056-sup.dgn
DATE	OCT 2005
PROJ NO.	4056



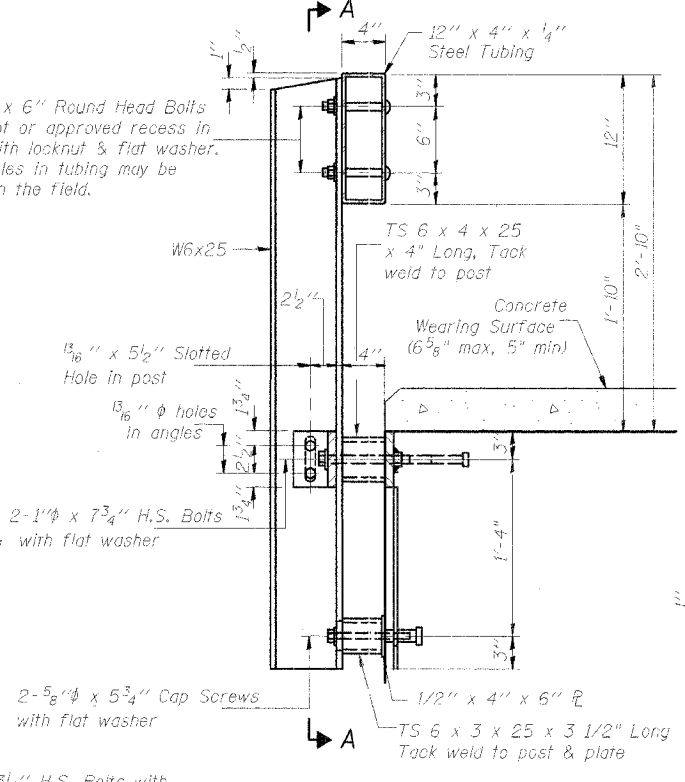
VIEW A-A
ROUND HEAD BOLT



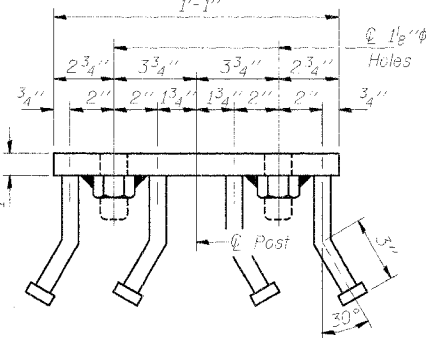
STEEL RAILING ELEVATION



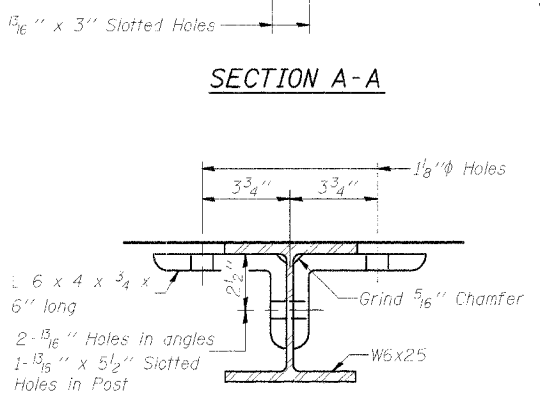
SECTION A-A



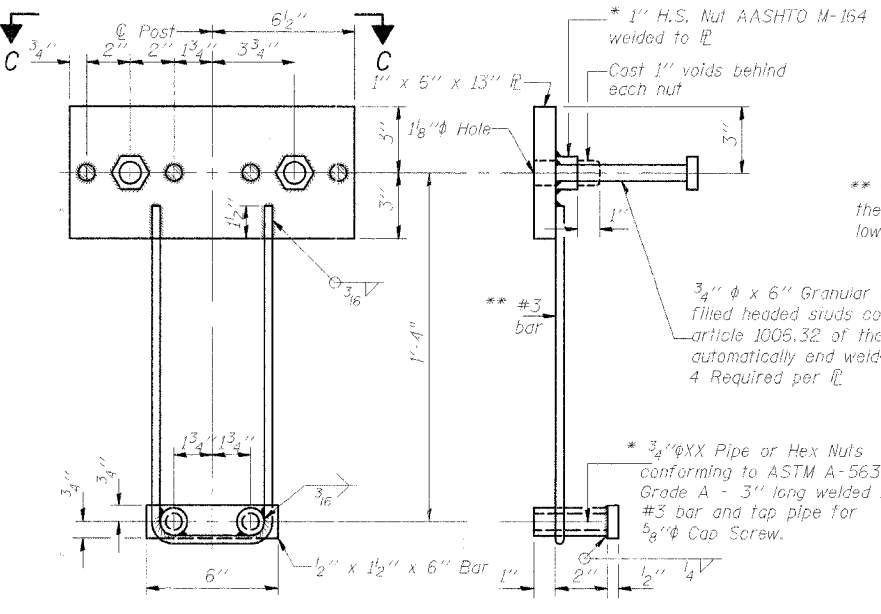
SECTION AT RAIL POST



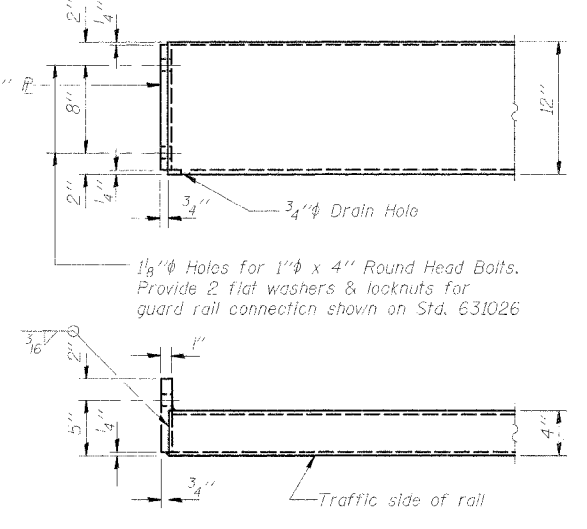
VIEW C-C



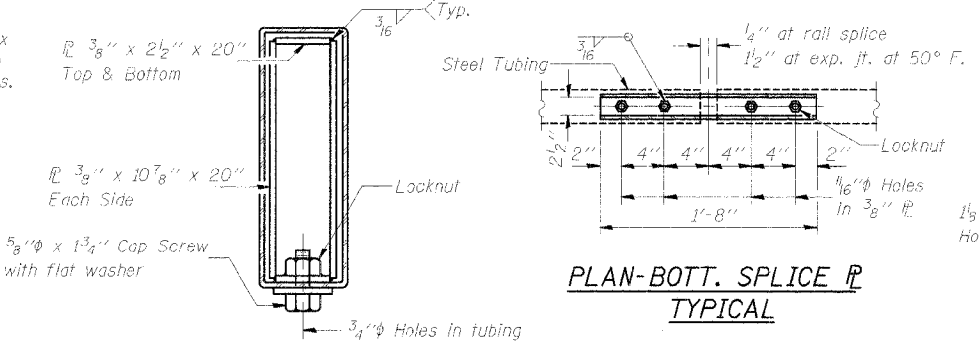
SECTION B-B



ANCHOR DEVICE



END OF RAIL DETAILS



SECTIONS AT RAIL SPLICE

NOTES

Hollow structural steel tubing shall conform to the requirements of ASTM designation A-500 Grade B Structural Steel Tubing and shall meet the longitudinal CVN requirements of 15 ft-lbs at 0° F.

All other steel shapes and plates shall conform to the requirements of AASHTO M-270 Grade 36 except posts and angles shall conform to AASHTO M-270, Grade 50.

Bolts, cap screws, and nuts shall conform to the requirement of ASTM designation A-307 except for high strength bolts, nuts and washers noted which shall conform to AASHTO M-164.

All bolts, nuts, cap screws, washers and lock washers shall be galvanized in accordance with AASHTO M-232.

All posts, railing, rail splices, anchor devices and angles shall be galvanized after shop fabrication in accordance with AASHTO M-111 and ASTM A-385. Galvanized rail shall not be painted.

Railing shall be in accordance with Section 509 of the Standard Specifications, except as noted, and will be paid for at the contract unit price per foot for STEEL RAILING, TYPE S-1.

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

The lower portion of the post flange in contact with concrete shall receive two coats of asphalt paint conforming to Section 1060.07 Type II or place 1/8 inch fabric bearing pad between the post and concrete.

The 3/4 inch high strength bolts used to connect the 6 x 4 x 3/4 angles to the post shall be tightened in accordance with Article 505.04(f)(3) of the Standard Specifications. The 1 inch high strength bolts connecting the angles to the concrete shall be tightened to a snug fit and given an additional 1/4 turn. The 5/8 inch cap screws in bottom of posts shall be tightened to a snug fit only.

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing Type S-1	Foot	600

** Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 1/2 inch.

3/4 inch diameter x 6 inch Granular or solid flux filled headed studs conforming to article 1006.32 of the Std. Specs. automatically end welded. 4 Required per post.

3/4 inch diameter XX Pipe or Hex Nuts conforming to ASTM A-563, Grade A - 3 inch long welded to #3 bar and tap pipe for 5/8 inch diameter Cap Screw.

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

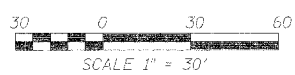
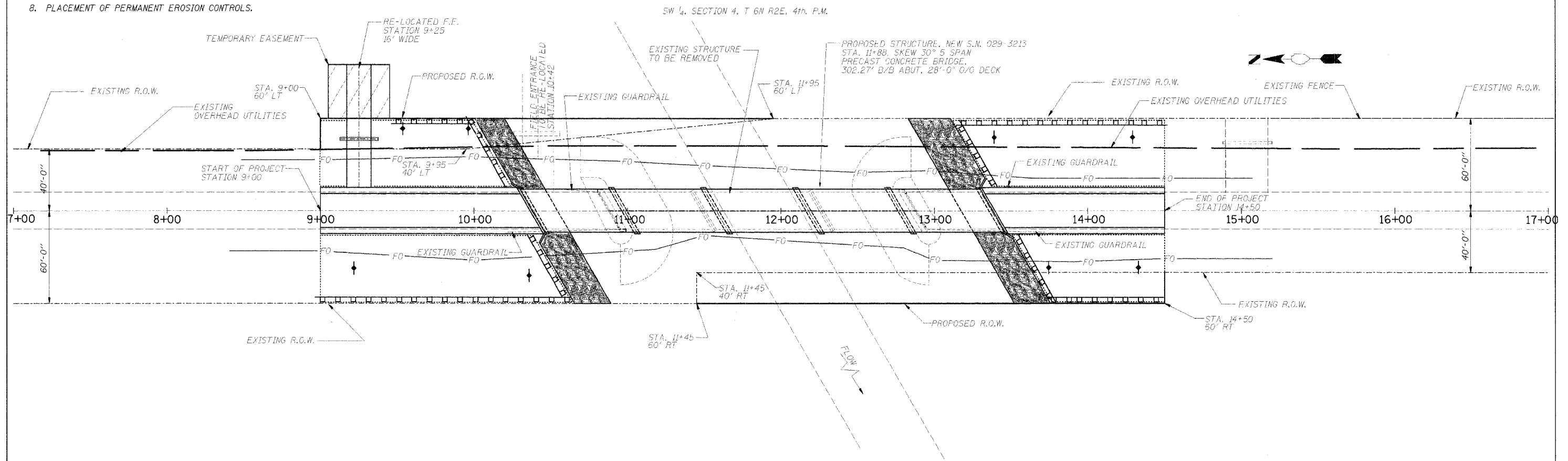
DSGN	K.J. Hoffmann				
DR	K.J. Hoffmann				
CHK	K.E. Brandau				
APVD	K.E. Brandau	NO.	DATE	REVISION	BY

FRAUENHÖFFER
Frauenhoffer and Associates, P.C. Consulting Engineers
3002 Crossing Court Champaign, IL 61822 217-351-6268

STEEL RAILING TYPE S-1
COUNTY HIGHWAY 2
SECTION 04-00130-00-BR
FULTON COUNTY
SHEET 11
DWG NO. 4056-s1.dgn
DATE OCT 2005
PROJ NO. 4056

INTENDED SEQUENCE

1. PLACEMENT OF PERIMETER EROSION CONTROL BARRIER PRIOR TO COMMENCEMENT OF ANY WORK. SEE STANDARD 280001.
2. REMOVAL OF THE EXISTING STRUCTURE.
3. CONSTRUCTION OF NEW SUBSTRUCTURE.
4. CONSTRUCTION OF THE NEW SUPERSTRUCTURE.
5. THE PLACEMENT AND MAINTENANCE OF TEMPORARY EROSION CONTROLS.
6. FINAL GRADING AND SHAPING INCLUDING PLACEMENT OF AGGREGATE BASE COURSE & BITUMINOUS SURFACE.
7. REMOVAL AND PROPER CLEAN UP OF TEMPORARY EROSION CONTROLS.
8. PLACEMENT OF PERMANENT EROSION CONTROLS.



PERMANENT EROSION CONTROL

- Grouted RipRap
- Seeding, Cl. 2 with Fertilizer and Mulch

TEMPORARY EROSION CONTROL

- Temporary Ditch Check
- Perimeter Erosion Barrier

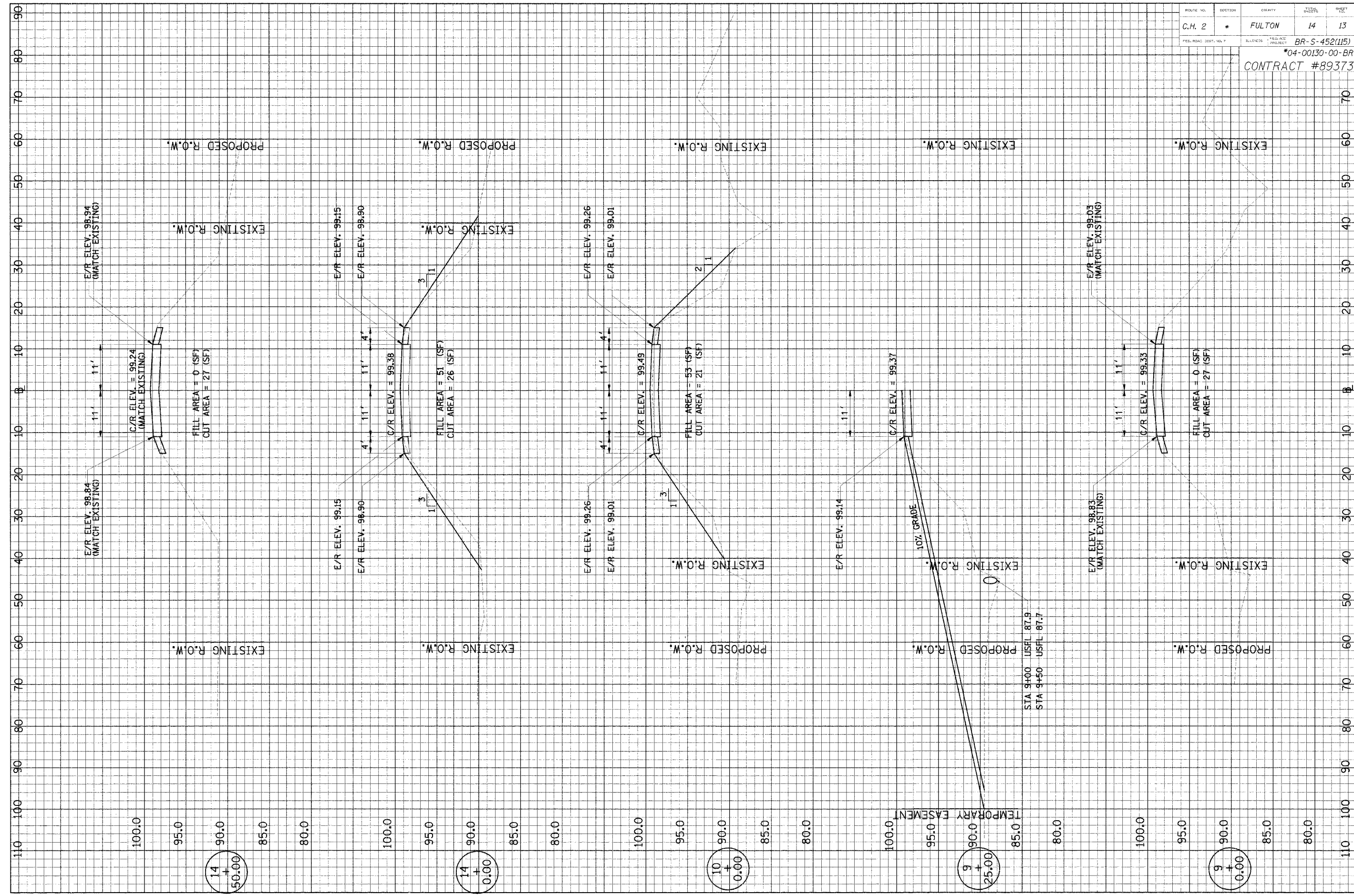
PERIMETER EROSION BARRIER

STA	OFFSET	TO	STA	OFFSET	LENGTH
9+45	60' LT		10+00	60' LT	55 FT
10+00	60' LT		10+20	15' LT	50 FT
9+00	60' RT		10+60	60' RT	160 FT
10+35	15' RT		10+60	60' RT	50 FT
13+20	60' LT		14+50	60' LT	130 FT
13+20	60' LT		13+40	15' LT	50 FT
13+55	15' RT		13+75	60' RT	50 FT
13+75	60' RT		14+50	60' RT	75 FT
TOTAL					620 FT

TEMPORARY DITCH CHECKS

STA	OFFSET	QUANTITY
9+25	RT.	1 EACH
9+50	LT.	1 EACH
10+00	LT.	1 EACH
10+25	RT.	1 EACH
13+40	LT.	1 EACH
13+75	RT.	1 EACH
14+30	LT. & RT.	2 EACH
TOTAL		8 EACH

TEMPORARY EROSION CONTROL		
Bill of Materials		
Item	Unit	Quantity
Temporary Erosion Control Seeding	Pound	400
Temporary Ditch Checks	Each	8
Perimeter Erosion Barrier	Foot	620



14
+
50.00

14
+
0.00

10
+
0.00

9
+
25.00

9
+
0.00

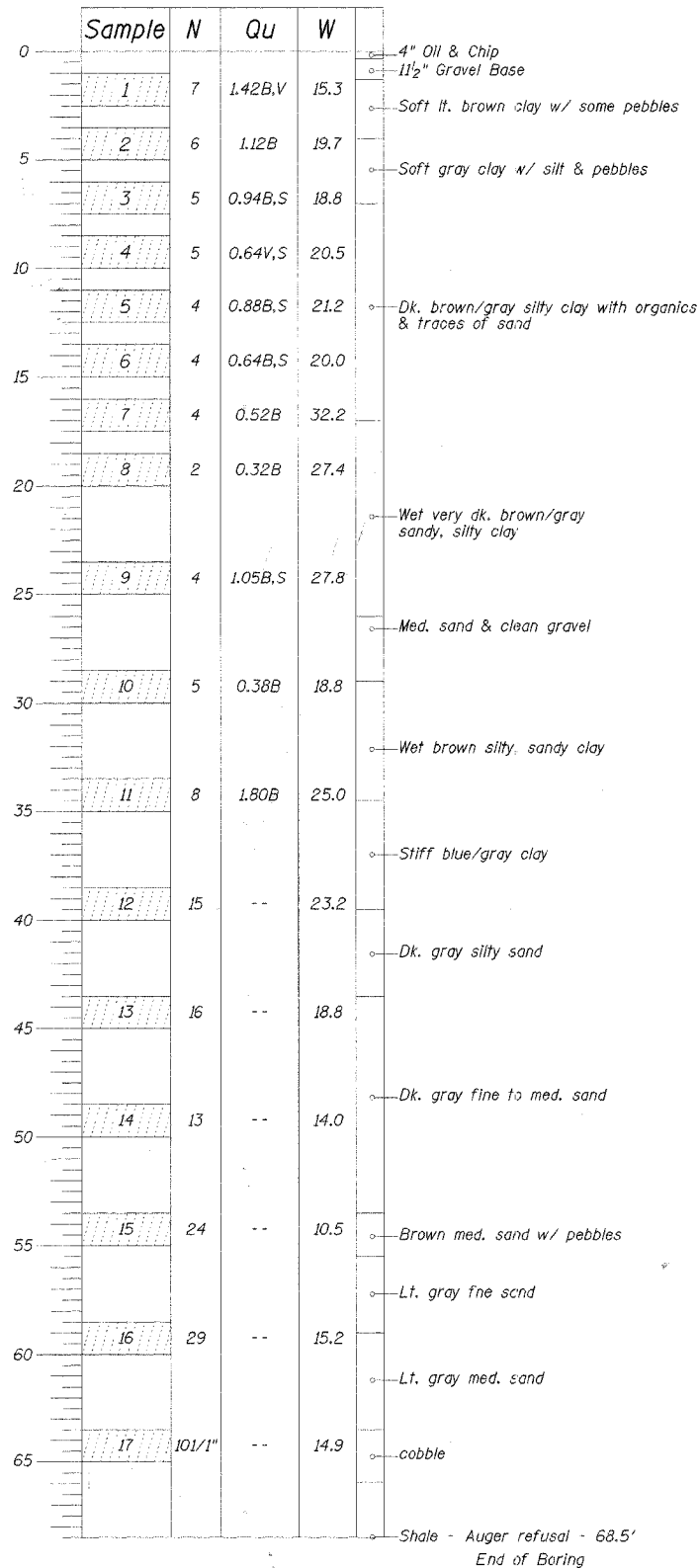
STA 94+00 USFL 87.9
STA 94+50 USFL 87.7

TEMPORARY EASEMENT

BORING B-1

Location: STA 10+79, 4.5' East of C of roadway
Elev. 99.30

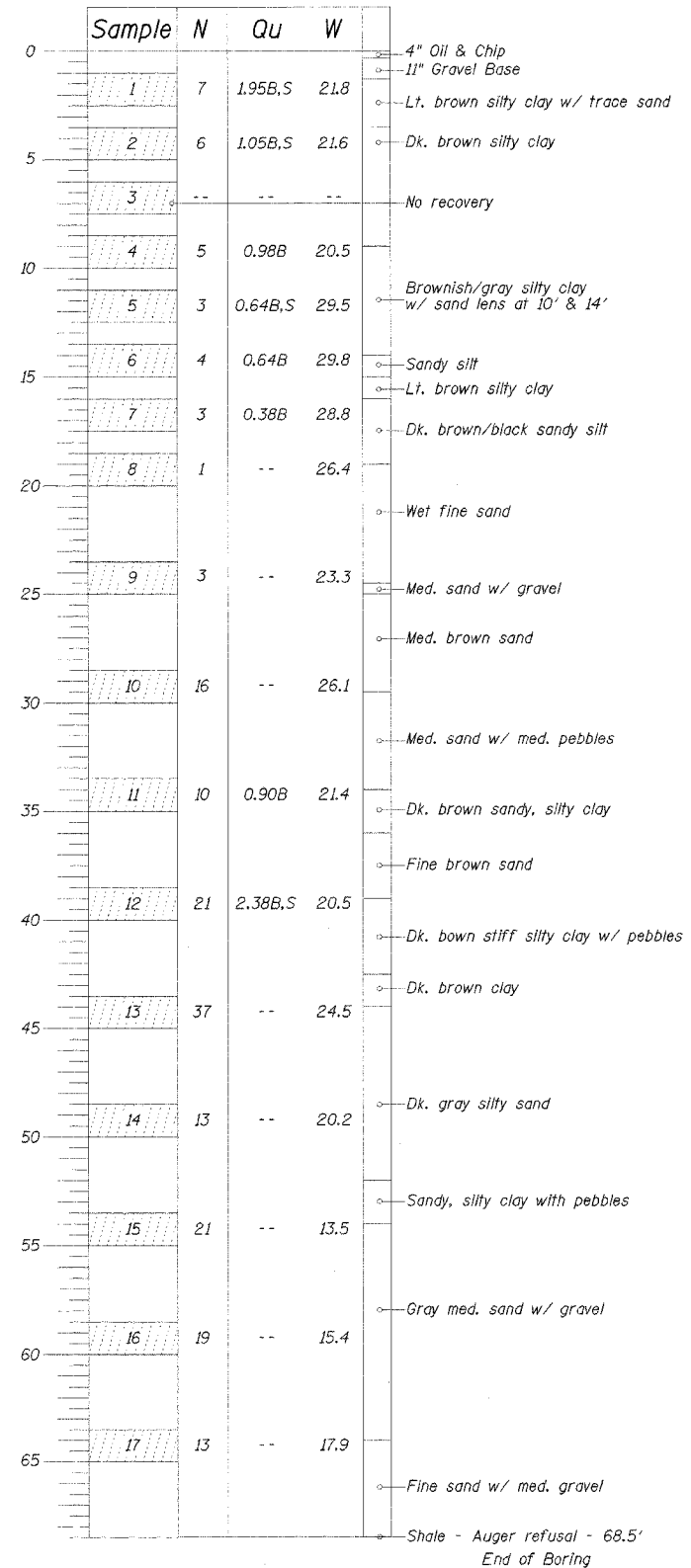
Water Levels
While Drilling: 25'
At Completion: 20'



BORING B-2

Location: STA 13+03.5, 5' West of C of roadway
Elev. 99.44

Water Levels
While Drilling: 18'
At Completion: 20'



BORING DATA

N - Standard Penetration Test - Blows per foot to drive 2" O.D. split spoon sampler 12" with 140 lb. hammer falling 30".
Qu - Unconfined Compressive Strength - Tons/Sq. Ft.
W - Water Content - Percentage of oven dry weight - %
B - Bulge Failure, V - Shear Failure, S - Splitting Failure
E - Estimated Value

CH 2	*	Fulton	14	14
PROJECT NO. 04-00130-00-BR		SHEET NO. 14		
CONTRACT #89373		*04-00130-00-BR		

DSGN					
DR					
CHK					
APVD	NO.	DATE	REVISION	BY	APVD

FRAUENHOFFER

Frauenhoffer and Associates, P.C. Consulting Engineers
3002 Crossing Court Champaign, IL 61822 217-361-6268

BORINGS

COUNTY HIGHWAY 2
SECTION 04-00130-00-BR
FULTON COUNTY

SHEET	14
DWG. NO.	borings.dwg
DATE	OCT 2005
PROJ. NO.	4056