06-15-12 LETTING ITEM 189

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 209	09-01194-00-BR	UNION	12	1
PROJECT NO. BROS-181(50)		CONTRACT NO. 99466		

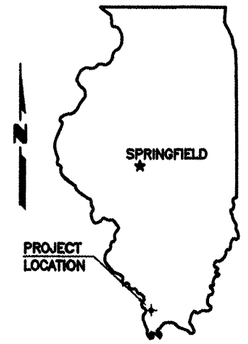
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED

HIGHWAY BRIDGE PROGRAM

TOWNSHIP ROUTE 209 (AIRPORT ROAD)
SECTION 09-01194-00-BR
PROJECT NO. BROS-181(50)
JOB NO. C-99-523-10
DUTCH CREEK

UNION COUNTY



INDEX OF SHEETS

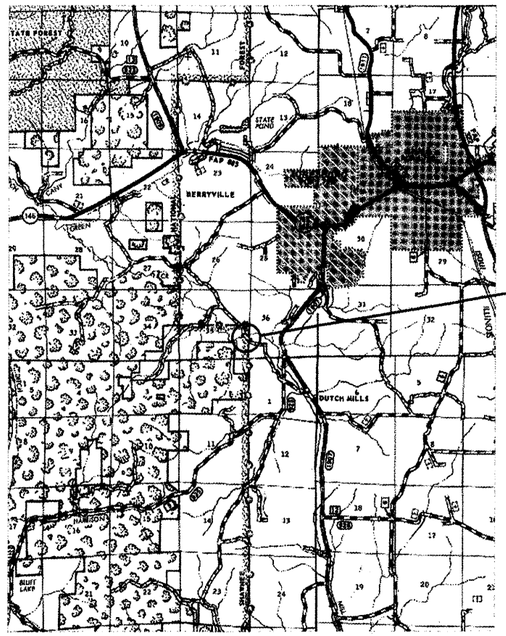
1. COVER SHEET
2. PLAN AND PROFILE
3. GENERAL PLAN AND ELEVATION
33" 33" X 36" PPC DECK BEAM
5. 33" X 36" PPC DECK BEAM DETAILS
6. ABUTMENT
7. STEEL RAILING, TYPE S1
8. NAME PLATES
9. PILING DETAILS
10. ROADWAY CROSS SECTIONS
11.-12. CHANNEL CROSS SECTIONS

STANDARDS 000001-06 STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
280001-06 TEMPORARY EROSION CONTROL SYSTEMS
635006-03 REFLECTOR AND TERMINAL MARKER PLACEMENT
701901-02 TRAFFIC CONTROL DEVICES
BLR 21-9 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES

SUMMARY OF QUANTITIES

CODE NO.	PAY ITEM	UNIT	TOTAL
* X0324028	GROUT FOR USE WITH RIPRAP	CU YD	81.0
* X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.5
20100500	TREE REMOVAL, ACRES	ACRE	0.2
20200100	EARTH EXCAVATION	CU YD	579
20300100	CHANNEL EXCAVATION	CU YD	197
28100809	STONE DUMPED RIPRAP, CLASS A5	TON	976
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	476
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50105220	PIPE CULVERT REMOVAL	FOOT	48
50200100	STRUCTURE EXCAVATION	CU YD	50
50300225	CONCRETE STRUCTURES	CU YD	20.4
50300280	CONCRETE ENCASEMENT	CU YD	3.4
50400605	PRECAST PRESTRESSED CONCRETE DECK BEAMS (33" DEPTH)	SQ FT	2,040
50800105	REINFORCEMENT BARS	POUND	2,444
Δ 50900205	STEEL RAILING, TYPE S1	FOOT	172
51201500	FURNISHING STEEL PILES HP10X57	FOOT	574
51202305	DRIVING PILES	FOOT	574
51203500	TEST PILE STEEL HP10X57	EACH	1
51204650	PILE SHOES	EACH	10
51500100	NAME PLATES	EACH	1
542D0229	PIPE CULVERTS, CLASS D, TYPE 1 24"	FOOT	62
67100100	MOBILIZATION	L SUM	1
Δ 78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4

Δ SPECIALTY ITEMS



LOCATION MAP
SCALE: 1" = 2 MILES

NET LENGTH OF IMPROVEMENT = 560.00 FT. = 0.1061 MILES

CLASSIFICATION : LOCAL ROAD (RURAL)
ADT : 100
DESIGN SPEED : 30 MPH

CONTRACT NO. 99466

E. MILLER ENGINEERING, INC.
CONSULTING ENGINEERS
HARRISBURG, ILLINOIS

EDWARD W. MILLER 25277 REGISTERED PROFESSIONAL ENGINEER OF ILLINOIS
3-26-12
Edward W. Miller
PROFESSIONAL ENGINEER
#062-025277
EXPIRES NOV. 30, 2013

Call Before You Dig
JULIE ILLINOIS ONE-CALL SYSTEM
1-800-892-0123

ILLINOIS DEPARTMENT OF TRANSPORTATION

Approved April 9, 2012
Union County Engineer

Passed 4/18/12
District 9 Engineer of Local Roads and Streets

Releasing for Bid Based on Limited Review 4/18/12
Deputy Director of Highways, Region 5 Engineer
Illinois Department of Transportation

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 209	09-01194-00-BR	UNION	12	2
PROJECT NO. BROS-181(50)		CONTRACT NO. 99466		

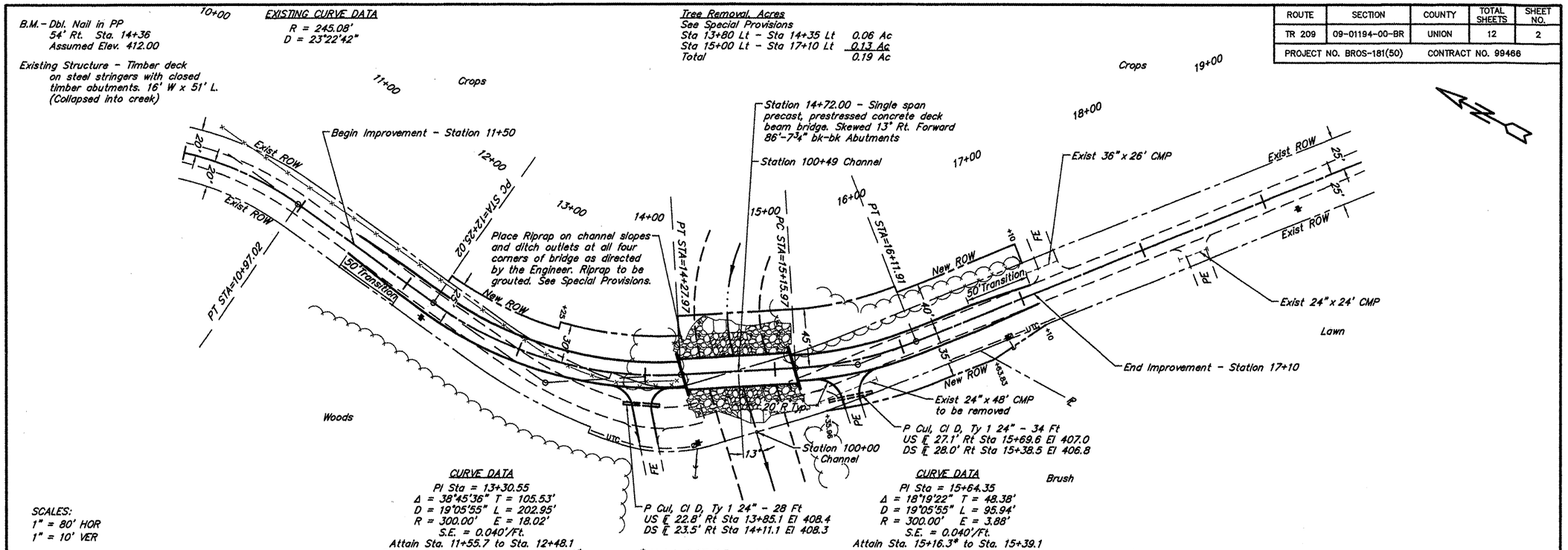
B.M. - Dbl. Nail in PP
54' Rt. Sta. 14+36
Assumed Elev. 412.00

Existing Structure - Timber deck on steel stringers with closed timber abutments. 16' W x 51' L. (Collapsed into creek)

EXISTING CURVE DATA
R = 245.08'
D = 23°22'42"

Tree Removal, Acres
See Special Provisions

Sta 13+80 Lt - Sta 14+35 Lt	0.06 Ac
Sta 15+00 Lt - Sta 17+10 Lt	0.13 Ac
Total	0.19 Ac

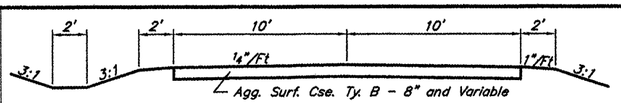


CURVE DATA
PI Sta = 13+30.55
Δ = 38°45'36" T = 105.53'
D = 19°05'55" L = 202.95'
R = 300.00' E = 18.02'
S.E. = 0.040'/Ft.
Attain Sta. 11+55.7 to Sta. 12+48.1
Remove Sta. 14+04.9 to Sta. 14+27.7*

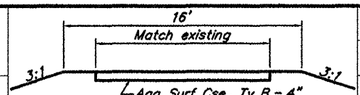
CURVE DATA
PI Sta = 15+64.35
Δ = 18°19'22" T = 48.38'
D = 19°05'55" L = 95.94'
R = 300.00' E = 3.88'
S.E. = 0.040'/Ft.
Attain Sta. 15+16.3* to Sta. 15+39.1
Remove Sta. 15+88.8 to Sta. 16+81.2

* Match 2.5% S.E. on bridge

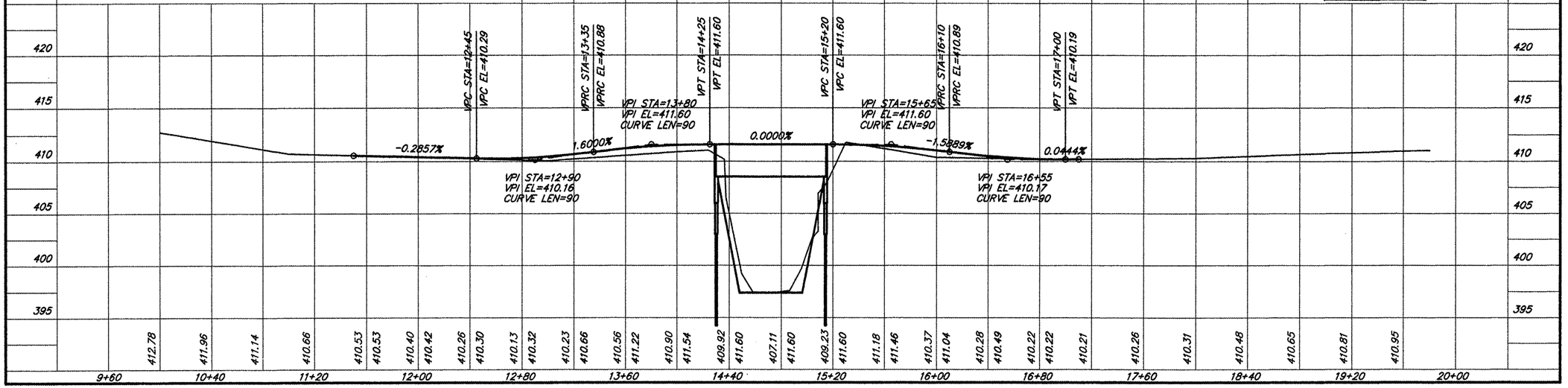
SCALES:
1" = 80' HOR
1" = 10' VER



TYPICAL ROADWAY SECTION

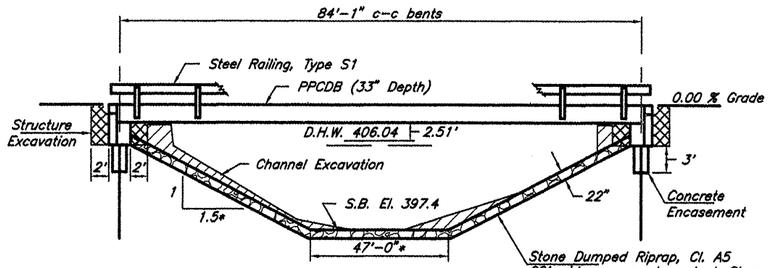


TYPICAL ENTRANCE



B.M.– Dbl. nail in PP
21' Rt. Sta. 14+49
Assumed Elev. 412.00

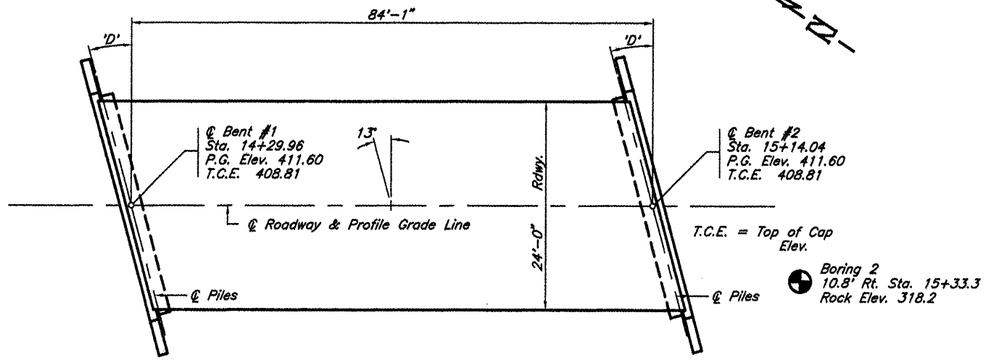
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 209	09–01194–00–BR	UNION	12	3
PROJECT NO. BROS–181(50)		CONTRACT NO. 99466		



* Normal to Channel

ELEVATION

Existing Structure – Timber deck on steel stringers with closed timber and concrete abutments. 16'W x 51'L (Structure collapsed into creek)



PLAN

Skew Angle "D" = 13° Right Forward

Boring 1
32.0' Rt. Sta. 14+30.7
Rock Elev. 367.1

GENERAL NOTES

1. Steel H piles shall meet AASHTO M270 Grade 50 specifications.
2. Test Piles shall be driven to 110% of the Nominal Required Bearing indicated in the pile data.
3. The Contractor shall drive one test piles, as specified, in a permanent location as directed by the Engineer before ordering the remaining piles.
4. See special provisions for boring logs.
5. A Corrosion inhibitor, as covered in the Standard Specifications, shall be used in the precast prestressed concrete deck beams.

TOTAL BILL OF MATERIAL

Item	Unit	Super	Sub.		Total
			Piers	Abuts.	
Channel Excavation	Cu. Yds.			197	197
Stone Dumped Riprap, Cl. A5	Tons			976	976
Removal of Existing Structures	Each				1
Structure Excavation	Cu. Yds.			50	50
Concrete Structures	Cu. Yds.			20.4	20.4
Concrete Encasement	Cu. Yds.			3.4	3.4
P.P. Conc. Dk. Bm. 33" Dp.	Sq. Ft.	2040			2040
Reinforcement Bars	Pound			2444	2444
Steel Railing, Type S1	Foot	172			172
Furnishing Steel Piles HP10X57	Foot			574	574
Driving Piles	Foot			574	574
Test Pile Steel HP10X57	Each			1	1
Pile Shoes	Each			10	10
Name Plates	Each			1	1

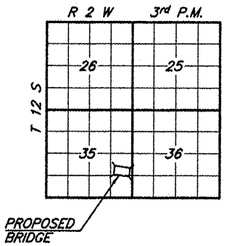
PILE DATA (2–ABUTS.)

Type & Size : HP10X57
Nominal Required Bearing : 330 kips
Factored Resistance Available : 155 kips
Estimated Length : 42 Feet Bent 1, 91 Feet Bent 2
Number Required : 10 (Includes 1 Test Pile located in Bent #2)

DUTCH CREEK
SEC. 09–01194–00–BR BUILT 20__
COUNTY UNIT ROAD DISTRICT
UNION COUNTY
LOADING HL–93
STR. NO. 091–3235

LETTERING FOR NAME PLATE

Locate Name Plate at Northwest Corner of Bridge (See Sheet 8)

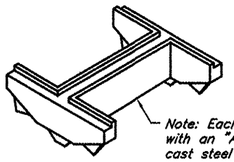


LOCATION SKETCH

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 type of structure and comply with the requirements of the current AASHTO LRFD Specifications.

Zeyn B. Uzman
S.E. #81–4745
Expires Nov. 30, 2012
12/29/11

LICENSED STRUCTURAL ENGINEER
ZEYN UZMAN 4745
STATE OF ILLINOIS



Note: Each pile shall be provided with an "APF HardBite" point or cast steel alternate, of the proper size, subject to approval of the Engineer.

PILE SHOES

DESIGN SPECIFICATIONS

2007 AASHTO LRFD Bridge Design Specifications and all applicable interims.

LOADING HL–93

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

SEISMIC DATA

Soil Site Class = D
Design Spectral Acceleration at 0.2 sec. (S_{DS}) = 1.154
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.507
Seismic Performance Zone (SPZ) = 5

WATERWAY INFORMATION

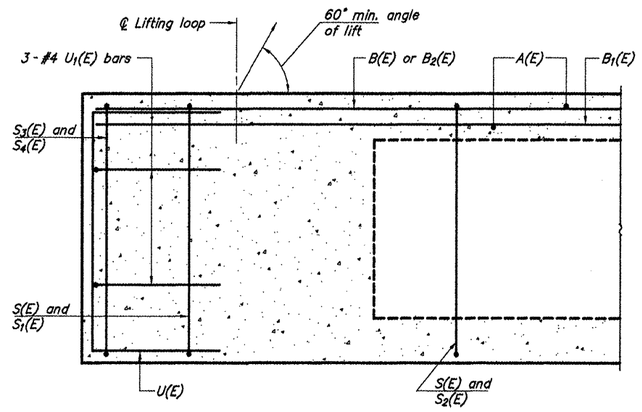
Drainage Area = 14.2 Sq. Mi. Low Grade Elev. = 410.2 At Sta. 16+95

Flood	Freq.	Q	Opening Sq. Ft.		Natural	Head–Ft.		Headwater El.	
	Yr.	C.F.S.	Exist.	Prop.	H.W.E.	Exist.	Prop.	Exist.	Prop.
Design	15	5030	422.2	518.3	406.04	1.40	0.17	407.44	406.21
Base	100	7870	539.0	693.2	408.33	2.46	0.43	410.79	408.76
Overtopping	±130	8315		710.7	408.64		1.56		410.20
Max. Calc.	500								

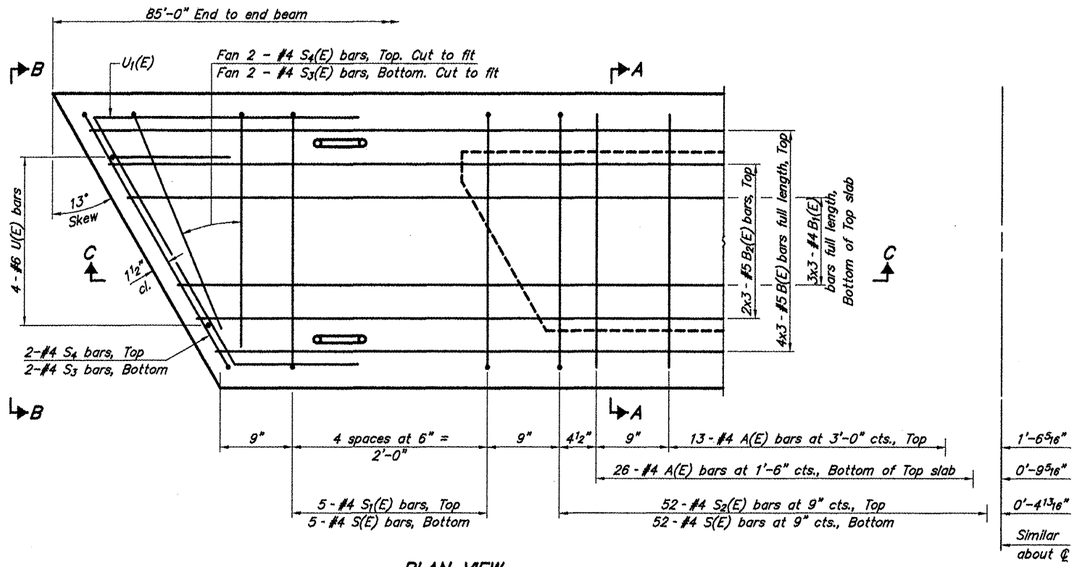
$Q_{(100)}$
Over Road Flow (Sq Ft): Exist. 226.7

GENERAL PLAN & ELEVATION
TOWNSHIP ROUTE 209 (AIRPORT ROAD)
DUTCH CREEK
SECTION 09–01194–00–BR
UNION COUNTY
STRUCTURE NO. 091–3235

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
TR 209	09-01194-00-BR	UNION	12	4
PROJECT NO. BROS-181(50)			CONTRACT NO. 99466	

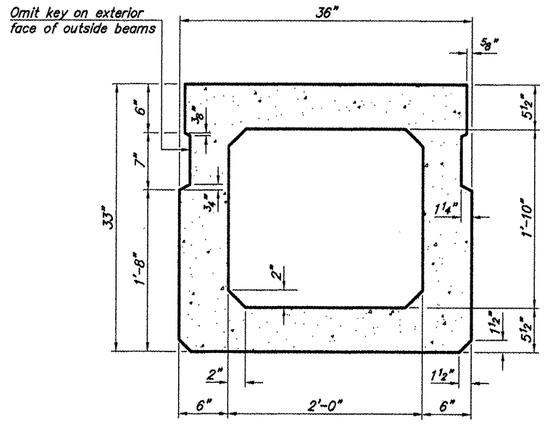


SECTION C-C

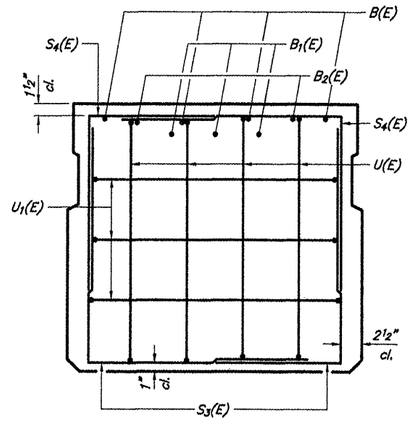


PLAN VIEW

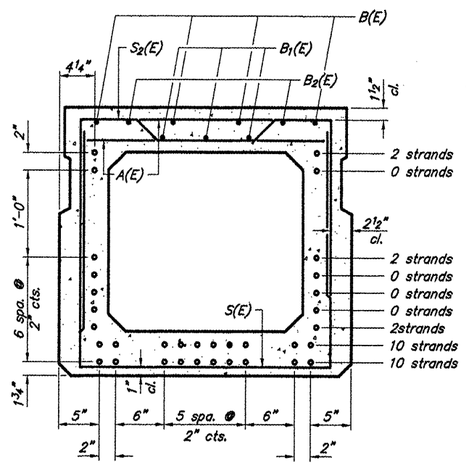
Note: Spacing of S(E) and S2(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.



SECTION A-A
(Showing dimensions)



VIEW B-B



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.

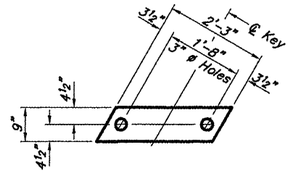
BAR LIST
ONE BEAM ONLY
(For information only)

Bar	No.	Size	Length	Shape
A(E)	78	#4	2'-7"	—
B(E)	12	#5	29'-8"	—
B1(E)	9	#4	29'-4"	—
B2(E)	6	#5	29'-8"	—
S(E)	114	#4	7'-5"	—
S1(E)	10	#4	6'-3"	—
S2(E)	104	#4	6'-6"	—
S3(E)	8	#4	4'-7"	—
S4(E)	8	#4	4'-0"	—
U(E)	8	#6	5'-0"	—
U1(E)	6	#4	5'-8"	—

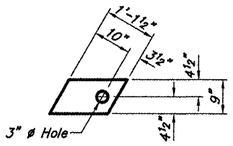
Bar Laps #4 bars = 1'-8"
#5 bars = 2'-2"

33" X 36" PPC DECK BEAM
TOWNSHIP ROUTE 209 (AIRPORT ROAD)
DUTCH CREEK
SECTION 09-01194-00-BR
UNION COUNTY
STRUCTURE NO. 091-3235

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
TR 209	09-01194-00-BR	UNION	12	5
PROJECT NO. BROS-181(50)			CONTRACT NO. 99466	



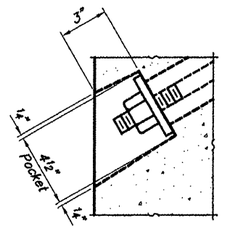
FABRIC BEARING PAD
(Interior)



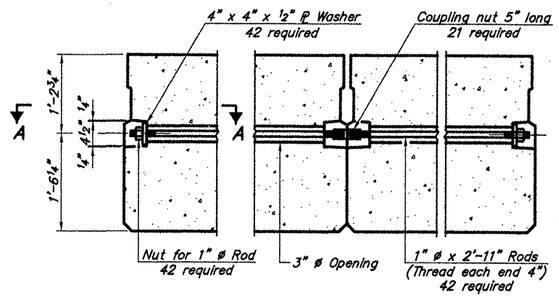
FABRIC BEARING PAD
(Exterior)

FIXED

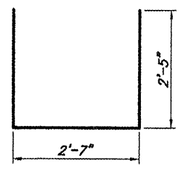
Note: Omit holes when using expansion bearings.



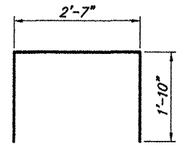
SECTION A-A



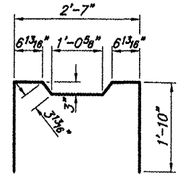
TYPICAL TRANSVERSE TIE ASSEMBLY



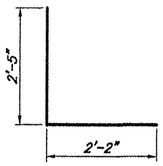
BAR S(E)



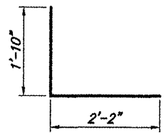
BAR S1(E)



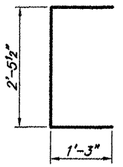
BAR S2(E)



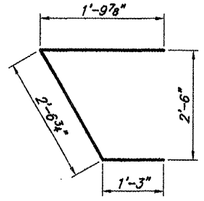
BAR S3(E)



BAR S4(E)



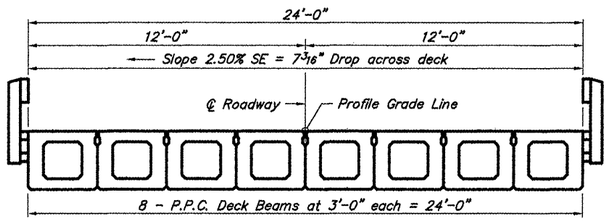
BAR U(E)



BAR U1(E)

PLAN VIEW

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



CROSS SECTION

LIFTING LOOP DETAIL

NOTES

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be ½" and the nominal cross-sectional area shall be 0.153 sq. in.

The 1" ø 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 ⅛" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.

A minimum 2½" ø 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.

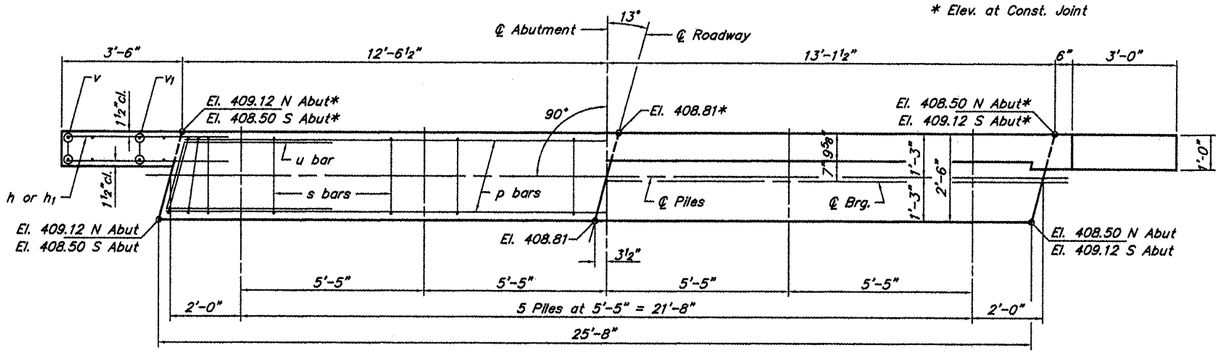
Compressive strength of prestressed concrete at release, f'ci, shall be 5000 psi.

BILL OF MATERIAL

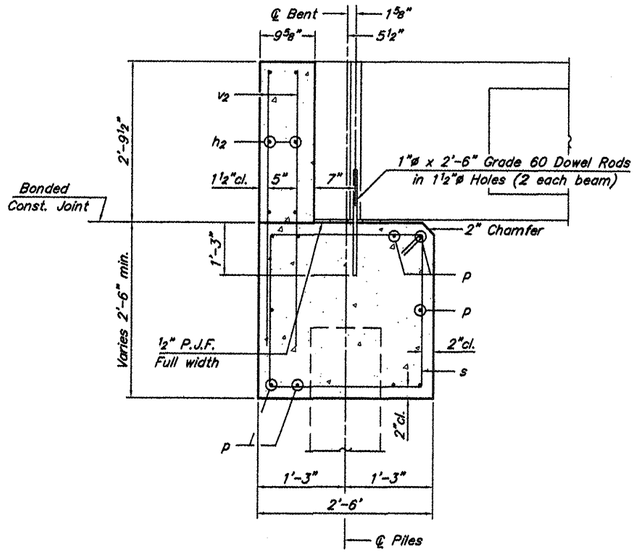
Precast Prestressed Concrete Deck Beams (33" depth)	Sq. Ft.	2040

33" X 36" PPC DECK BEAM DETAILS
TOWNSHIP ROUTE 209 (AIRPORT ROAD)
DUTCH CREEK
SECTION 09-01194-00-BR
UNION COUNTY
STRUCTURE NO. 091-3235

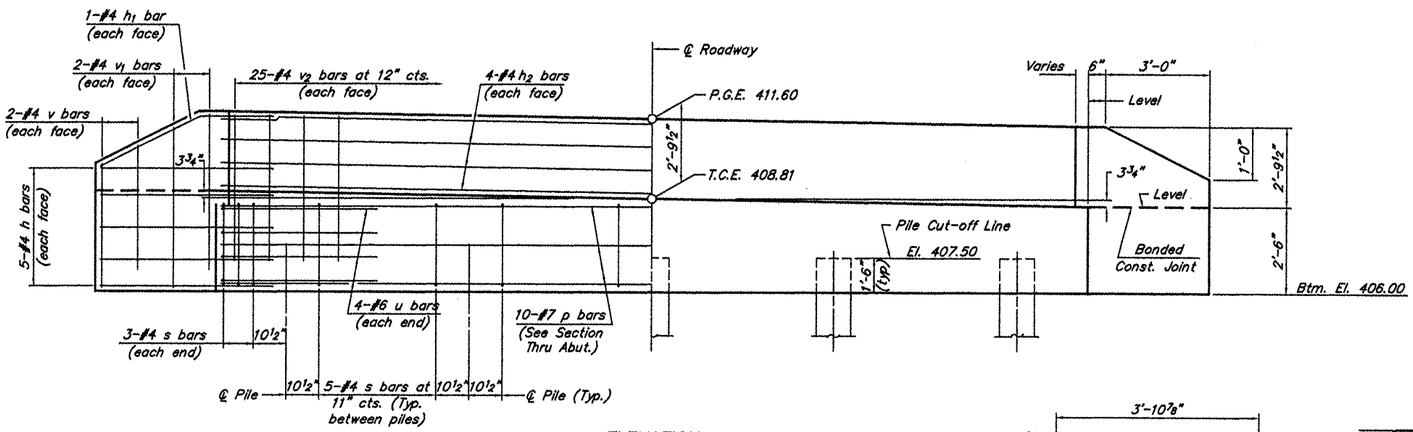
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 209	09-01194-00-BR	UNION	12	6
PROJECT NO. BROS-181(50)		CONTRACT NO. 99466		



PLAN



SECTION THRU ABUT.
(At Right Angles)



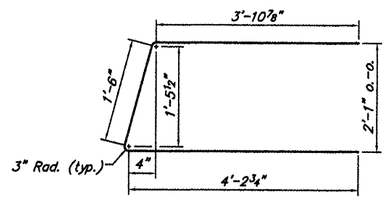
ELEVATION
(N. Abut. shown, reverse SE for S. Abut.)

NOTES

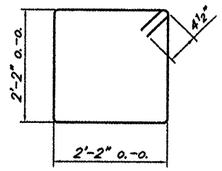
1. The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.
2. Reinforcement bars shall conform to A.A.S.H.T.O. M-31, M-42 or M-53, Grade 60.

DESIGN STRESSES

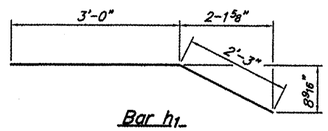
f'c = 3,500 psi
fy = 60,000 psi



Bar u



Bar s



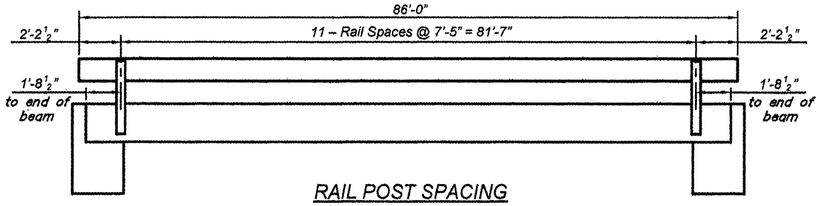
Bar h1

BILL OF MATERIAL FOR ONE ABUTMENT

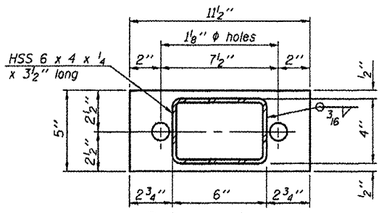
Bar	No.	Size	Length	Shape
h	20	#4	5'-3"	
h1	4	#4	5'-3"	
h2	8	#4	25'-4"	
p	10	#7	25'-4"	
s	26	#4	9'-5"	
u	8	#6	10'-5"	
v	8	#4	4'-2"	
v1	8	#4	4'-11"	
v2	50	#4	4'-5"	
Concrete Structures			10.2	Cu. Yds.
Reinforcement Bars			1222	Lbs.

ABUTMENT
TOWNSHIP ROUTE 209 (AIRPORT ROAD)
DUTCH CREEK
SECTION 09-01194-00-BR
UNION COUNTY
STRUCTURE NO. 091-3235

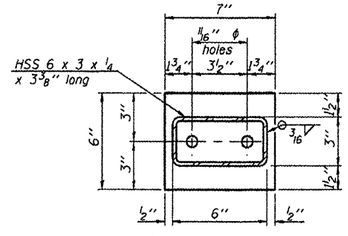
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 209	09-01194-00-BR	UNION	12	7
PROJECT NO. BROS-181(50)			CONTRACT NO. 99466	



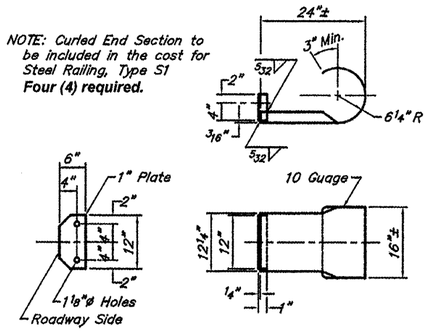
RAIL POST SPACING



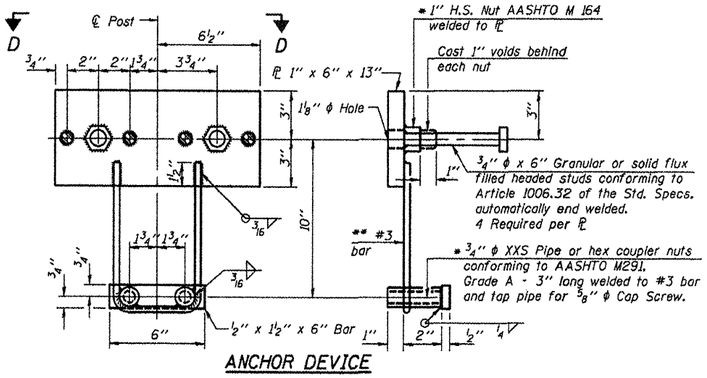
℄ 1/2" x 11 1/2" x 5"



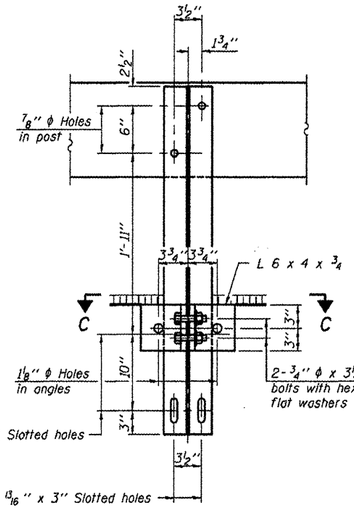
℄ 1/2" x 7" x 6"



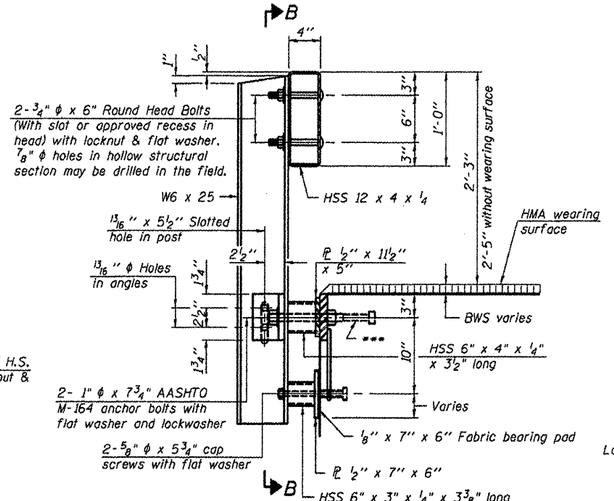
CURLED END SECTION DETAILS



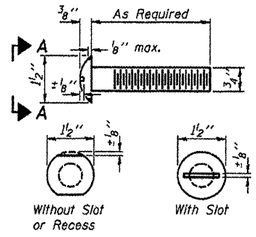
ANCHOR DEVICE



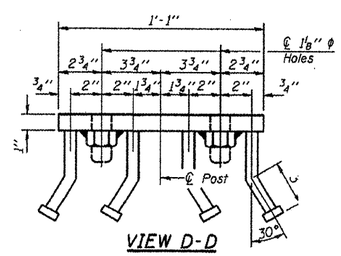
SECTION B-B



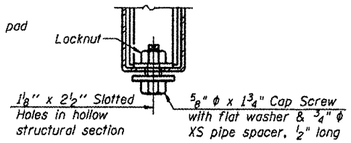
SECTION AT RAILING POST



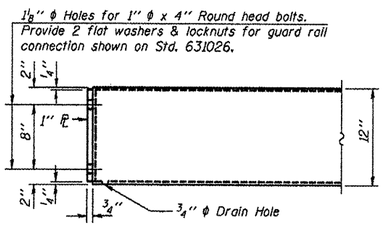
VIEW A-A ROUND HEAD BOLT

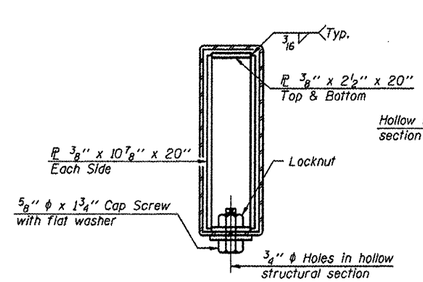


VIEW D-D

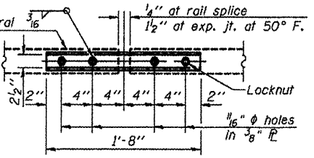


RAIL SPLICE CONNECTION AT EXPANSION JT.

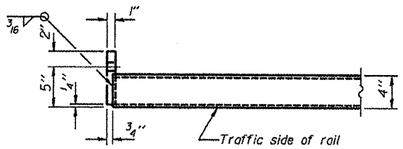




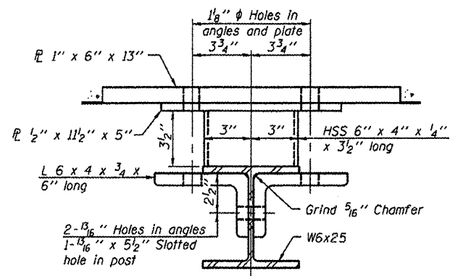
SECTIONS AT RAIL SPLICE



PLAN-BOTT. SPLICE ℄ TYPICAL



END OF RAIL DETAILS



SECTION C-C

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.

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

** 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".

*** 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.

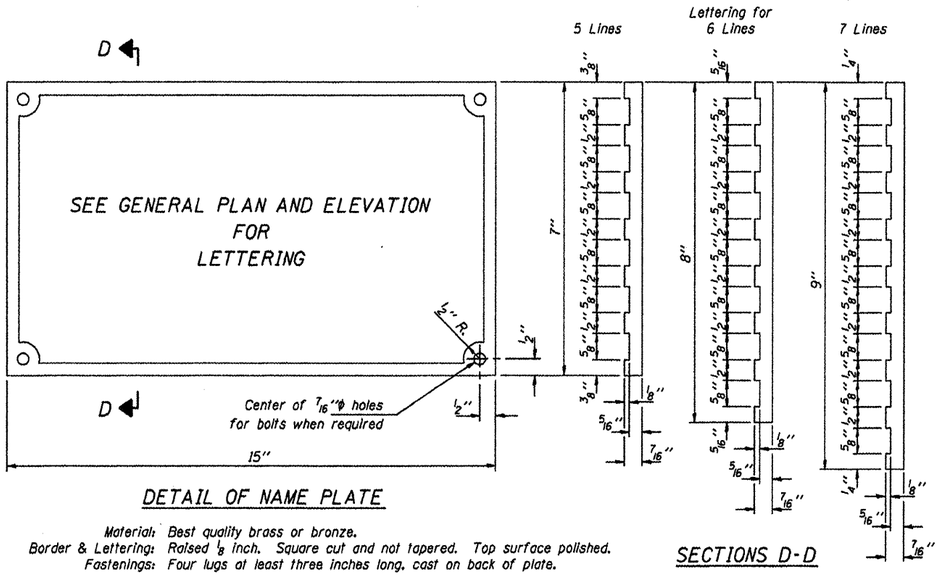
10'-9" Maximum Post Spacing

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	172

STEEL RAILING, TYPE S-1
TOWNSHIP ROUTE 209 (AIRPORT ROAD)
DUTCH CREEK
SECTION 09-01194-00-BE
UNION COUNTY
STRUCTURE NO. 091-3235

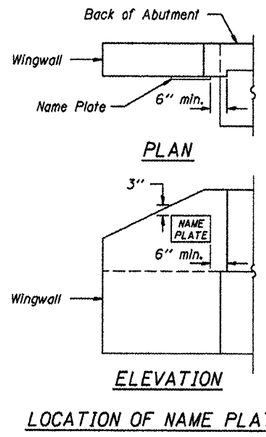
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 209	09-01194-00-BR	UNION	12	8
PROJECT NO. BROS-181(50)			CONTRACT NO. 99466	



DETAIL OF NAME PLATE

SECTIONS D-D

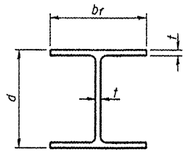
Material: Best quality brass or bronze.
Border & Lettering: Raised 1/8 inch. Square cut and not tapered. Top surface polished.
Fastenings: Four lugs at least three inches long, cast on back of plate.



LOCATION OF NAME PLATE

NAME PLATES
TOWNSHIP ROUTE 209 (AIRPORT ROAD)
DUTCH CREEK
SECTION 09-01194-00-BR
UNION COUNTY
STRUCTURE NO. 091-3235

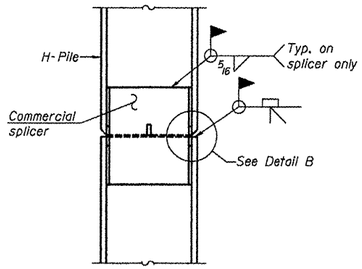
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 209	09-01194-00-BR	UNION	12	9
PROJECT NO. BROS-181(50)			CONTRACT NO. 99466	



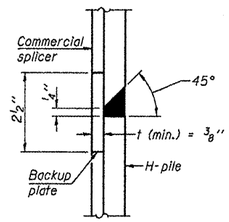
STEEL PILE TABLE

Designation	Depth d	Flange width b_f	Web and Flange thickness t	Encasement diameter A	Encasement Quantity/Ft. C.Y.
HP 14x117	14 1/4"	14 7/8"	13/16"	30"	0.173
x102	14"	14 3/4"	11/16"	30"	0.174
x89	13 7/8"	14 3/4"	5/8"	30"	0.175
x73	13 5/8"	14 5/8"	1/2"	30"	0.176
HP 12x84	12 1/4"	12 1/4"	11/16"	24"	0.110
x74	12 1/8"	12 1/4"	5/8"	24"	0.111
x63	12"	12 1/8"	1/2"	24"	0.112
x53	11 3/4"	12"	7/16"	24"	0.112
HP 10x57	10"	10 1/4"	9/16"	24"	0.112
x42	9 3/4"	10 1/8"	7/16"	24"	0.113
HP 8x36	8"	8 1/8"	7/16"	18"	0.063

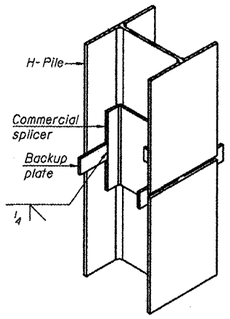
Note: The steel H-piles shall be according to AASHTO M270 Grade 50.



ELEVATION

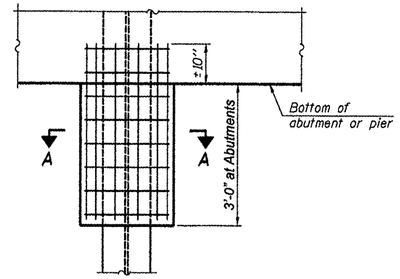


DETAIL "B"

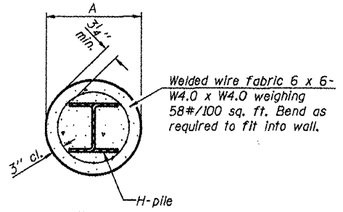


ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE



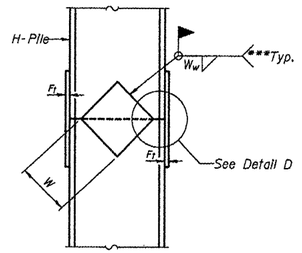
ELEVATION



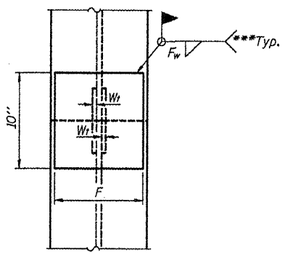
Note:
Forms for encasement may be omitted when soil conditions permit.

SECTION A-A

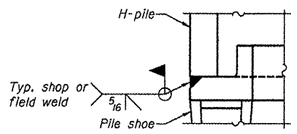
PILE ENCASEMENT



ELEVATION

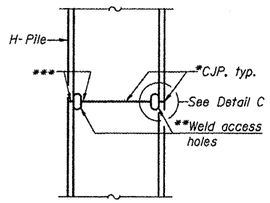


END VIEW

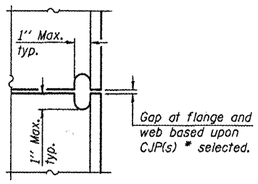


DETAIL A

H-PILE SHOE ATTACHMENT

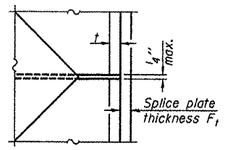


ELEVATION



DETAIL C

COMPLETE PENETRATION WELD SPLICE



DETAIL D

Designation	F	F_t	F_w	W	W_t	W_w
HP 14x117	12 1/2"	1"	7/8"	7 3/4"	5/8"	1/2"
x102	12 1/2"	7/8"	3/4"	7 3/4"	5/8"	1/2"
x89	12 1/2"	3/4"	11/16"	7 3/4"	5/8"	1/2"
x73	12 1/2"	5/8"	9/16"	7 3/4"	5/8"	1/2"
HP 12x84	10"	7/8"	11/16"	6 1/2"	5/8"	1/2"
x74	10"	7/8"	11/16"	6 1/2"	5/8"	1/2"
x63	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
x53	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"

WELDED PLATE FIELD SPLICE

*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.

PILING DETAILS
TOWNSHIP ROUTE 209 (AIRPORT ROAD)
DUTCH CREEK
SECTION 09-01194-00-BR
UNION COUNTY
STRUCTURE NO. 091-3235

UNION COUNTY SHEET 10 OF 12
SECTION 09-01194-00-BR
PROJ. NO. BROS-181(50) CONT. NO. 99466
TOWNSHIP ROUTE 209 (AIRPORT ROAD)
DUTCH CREEK

End Improvement – Station 17+10

Exist. ROW

410.19

C – 30

F – 3

407.5

Sta 17+10

New ROW

New ROW

410.39

C – 35

F – 20

407.3

406.0

Sta 16+11.91

411.04

C – 28

F – 55

407.1

405.7

411.59

C – 97

F – 94

406.8

Exist. ROW

405.3

New ROW

Included with Channel Excavation

Structure Excavation limits

411.60

C – 57

F – 88

405.2

Included with Channel Excavation

Str. Ex. Limits

411.60

C – 47

F – 49

408.3

408.1

Sta 14+27.97

411.54

C – 45

F – 9

408.4

408.2

Sta 13+25

New ROW

410.45

C – 24

F – 4

408.8

408.6

Sta 12+25.02

410.42

C – 16

F – 2

409.2

409.0

Begin Improvement – Station 50

Exist. ROW

Exist. ROW

100+50

Riprap to be Grouted

Stone Dumped Riprap. Class A5 - 168.4 SF

Channel Excavation C - 53 F - 88

396.4

100+45

Channel ℄ Sta. 100+45 = Road ℄ Sta. 144+72
Skewed 13° Rt. Forward to Road ℄

Riprap to be Grouted

Str. Ex.

Stone Dumped Riprap. Class A5 - 174.0 SF

Channel Excavation C - 65 F - 41

396.4

100+35

Str. Ex.

Riprap to be Grouted

Stone Dumped Riprap. Class A5 - 170.0 SF

Channel Excavation C - 125 F - 0

1' Typ.

396.4

100+25

Str. Ex.

Riprap to be Grouted

Stone Dumped Riprap. Class A5 - 165.3 SF

Channel Excavation C - 122 F - 0

396.4

100+15

Riprap to be Grouted

Stone Dumped Riprap. Class A5 - 108.3 SF

Channel Excavation C - 98 F - 0

396.4

100+05

Channel Excavation limits - 88.42'

Begin Channel Excavation at Station 100+00

Channel Excavation C - 13 F - 30

396.4

410
405
400
395
℄
5
10
15
20
25
30
35
40
45

100+85

End Channel Excavation at Station 100+98

Riprap to be Grouted

Stone Dumped Riprap, Class A5 - 80.9 SF

Channel Excavation C - 2 F - 4

100+75

Riprap to be Grouted

Str. Ex.

Stone Dumped Riprap, Class A5 - 178.5 SF

Channel Excavation C - 7 F - 24

100+65

Riprap to be Grouted

Str. Ex.

Stone Dumped Riprap, Class A5 - 180.2 SF

Channel Excavation C - 46 F - 28

Channel Excavation limits - 88.42'

100+55

Riprap to be Grouted

1' Typ.

Str. Ex.

Stone Dumped Riprap, Class A5 - 173.1 SF

Channel Excavation C - 53 F - 61

℄

410 405 400 395 390

45 40 35 30 25 20 15 10 5 ℄ 5 10 15 20 25 30 35 40 45