4-23-10 LETTING ITEM 213

INDEX OF SHEETS

STANDARDS: 280001–05 – EROSION CONTROL
515001–03 – NAME PLATE
635006–03 – TERMINAL MARKERS
701901–01 – TRAFFIC
BLR 21–8 – TRAFFIC
BLR 22–6 – TRAFFIC

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PLANS FOR PROPOSED
FEDERAL–AID HIGHWAY BRIDGE PROGRAM

T.R.39
JASPER COUNTY
SECTION 07–04124–00–BR
GROVE ROAD DISTRICT
STRUCTURE NO. 040–3259
PROJECT NO. BROS–0079(141)
JOB NO. C–97–066–10

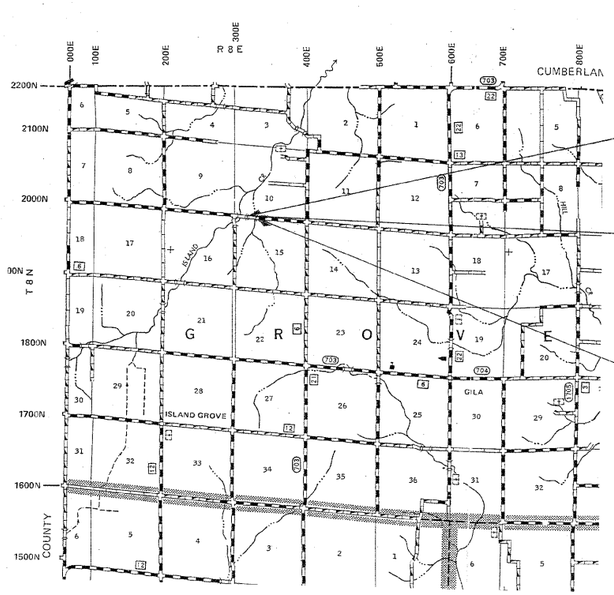
SCALES

PLAN	1 INCH = 50 FEET
PROFILE HORZ.	1 INCH = 50 FEET
PROFILE VERT.	1 INCH = 10 FEET
CROSS SECTION	1 INCH = 5 FEET

SUMMARY OF QUANTITIES

QTY	UNIT	ITEM	CODE NO
10	EACH	SETTING PILES IN ROCK	Z0065000
12	UNITS	TREE REMOVAL (6 TO 15 UNITS DIAMETER)	20100110
196	CU YD	EARTH EXCAVATION	20200100
480	CU YD	CHANNEL EXCAVATION	20300100
576	CU YD	FURNISHED EXCAVATION	20400800
122	TON	POROUS GRANULAR EMBANKMENT	20700110
0.53	ACRE	SEEDING, CLASS 2 (SPECIAL)	25001000
36	FOOT	TEMPORARY DITCH CHECKS	28000305
75	FOOT	PERIMETER EROSION BARRIER	28000400
205	TON	STONE DUMPED RIPRAP, CLASS A4	28100807
139	TON	STONE RIPRAP DITCH	28102600
1	EACH	REMOVAL OF EXISTING STRUCTURES	50100100
25.4	CU YD	CONCRETE STRUCTURES	50300225
2105	SQ FT	PRECAST PRESTRESSED CONCRETE DECK BEAMS (33" DEPTH)	50400605
3900	POUND	REINFORCEMENT BARS	50800105
152	FOOT	STEEL RAILING, TYPE S1	50900205 *
165	FOOT	FURNISHING STEEL PILES HP 12x53	51201600
1	EACH	NAME PLATES	51500100
102	FOOT	PIPE CULVERTS, CLASS D, TYPE 1 15"	542D0220
1	L SUM	MOBILIZATION	67100100
1	L SUM	TRAFFIC CONTROL AND PROTECTION	70101700
4	EACH	TERMINAL MARKER-DIRECT APPLIED	78201000 *

* SPECIALTY ITEMS



LOCATION MAP

APPROXIMATE SCALE: 1 INCH = 1 MILE
NET LENGTH = 500 L.F. = 0.095 MILES

FUNCTIONAL CLASS: RURAL LOCAL ROAD
ADT = 125
DESIGN SPEED = 30MPH

TOLL FREE JOINT UTILITY LOCATING
INFORMATION FOR EXCAVATORS (J.U.L.I.E.)
TELEPHONE NO. 1–800–892–0123 OR 811

PROFESSIONAL DESIGN FIRM #184–000832

02/11/2010
ILLINOIS REGISTERED PROFESSIONAL ENGINEER # 55012
LICENSE EXPIRES NOVEMBER 30, 2011

JOHN A. STOKE
062-055702
REGISTERED
PROFESSIONAL
ENGINEER
STATE OF ILLINOIS

ILLINOIS DEPARTMENT OF TRANSPORTATION

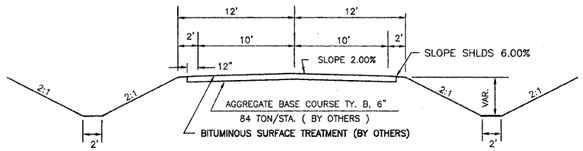
APPROVED: 2-12, 2010
JASPER COUNTY ENGINEER

PASSED: 2-19, 2010
DISTRICT SEVEN ENGINEER
OF LOCAL ROADS & STREETS

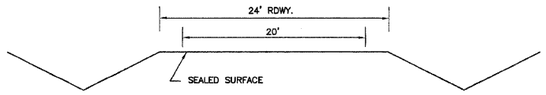
RELEASING FOR BID
BASED ON LIMITED
REVIEW 2-19, 2010
DEPUTY DIRECTOR OF HIGHWAYS,
REGION FOUR ENGINEER

CONTRACT 95622

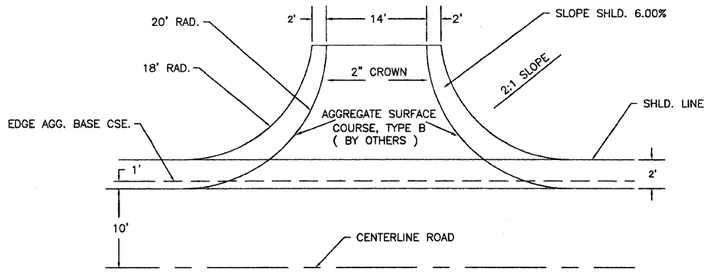
SECTION	07-04124-00-BR	TOTAL SHEETS	SHEET NO.
COUNTY	JASPER	9	2
ROAD DIST.	GROVE		
STA. 0+00	TO STA. 8+75.93		



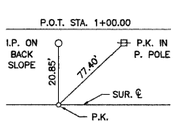
TYPICAL CROSS SECTION OF PROPOSED IMPROVEMENT

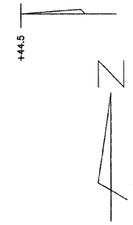


TYPICAL CROSS SECTION OF EXISTING ROADWAY

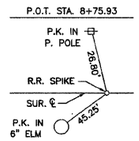


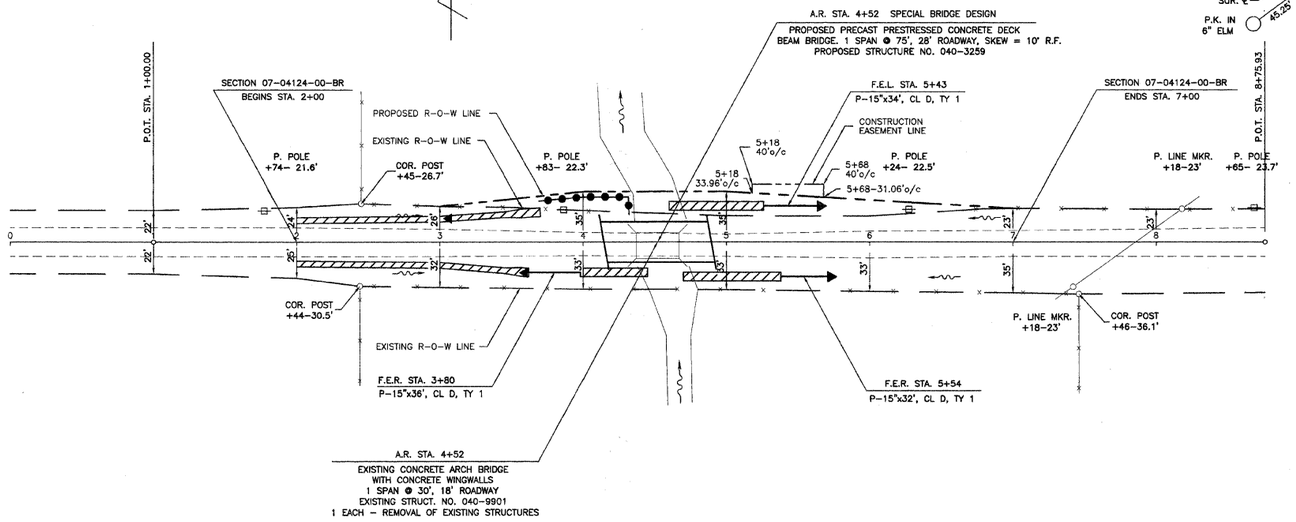
DETAIL OF FIELD ENTRANCE





MICHAEL J. BREER, TRUSTEE





BENCHMARK #1 ELEVATION 576.45
P.K. IN P. POLE, LT. STA. 1+74

BENCHMARK #2 ELEVATION 563.06
P.K. IN P. POLE, LT. STA. 7+46

TREE REMOVAL 6 TO 15 UNITS DIAMETER
RT. STA. 3+55 = 12 UNITS DIAMETER

SEEDING CLASS 2, SPECIAL
STA. 1+50 TO STA. 7+50 = 0.53 ACRES

STONE RIPRAP DITCH

LT. STA. 2+00 TO STA. 3+70	=	44 TON
RT. STA. 2+00 TO STA. 3+62	=	41 TON
RT. STA. 3+98 TO STA. 4+45	=	14 TON
LT. STA. 4+60 TO STA. 5+26	=	20 TON
RT. STA. 4+70 TO STA. 5+38	=	20 TON
TOTAL	=	139 TON

EARTHWORK SCHEDULE

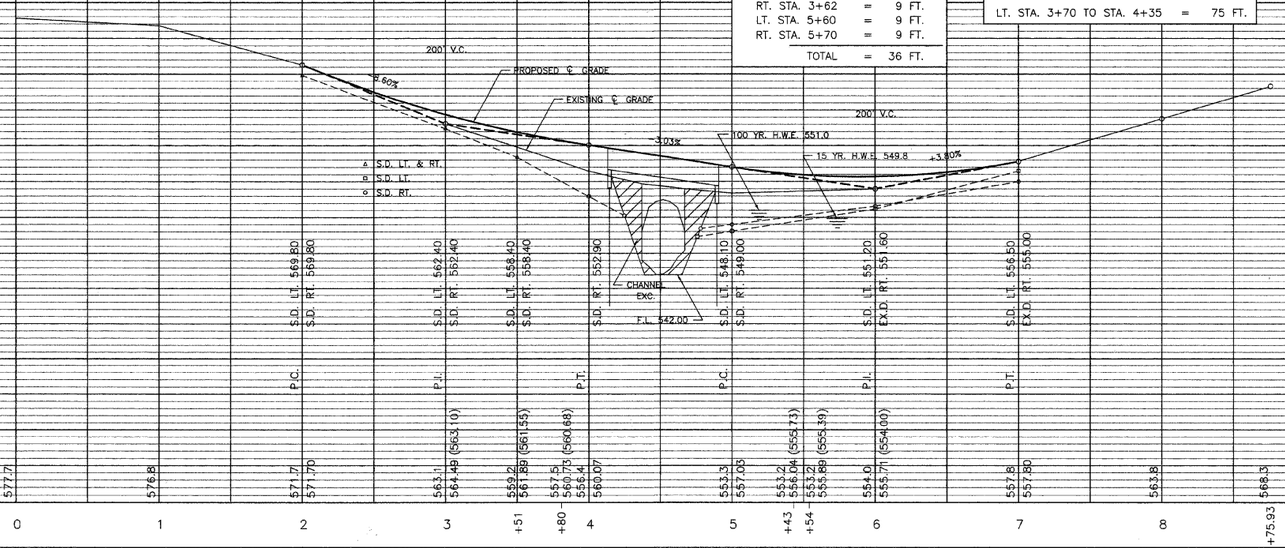
EARTH EXCAVATION	=	196 CU. YD.
EARTH EXCAVATION ADJUSTED 25%	=	147 CU. YD.
CHANNEL EXCAVATION	=	480 CU. YD.
CHANNEL EXCAVATION ADJUSTED 25%	=	360 CU. YD.
EMBANKMENT	=	1083 CU. YD.
FURNISHED EXCAVATION	=	576 CU. YD.

CONSTRUCT TRANSITIONS
FROM EXISTING RDWY. TO PROPOSED 24' RDWY.
STA. 1+50 TO STA. 2+00
STA. 7+00 TO STA. 7+50
FROM PROP. 24' RDWY. TO PROP. 28' RDWY.
STA. 3+81 TO STA. 4+11
STA. 4+93 TO STA. 5+23
QUANTITIES INCLUDED IN THOSE LISTED

TEMPORARY DITCH CHECKS

LT. STA. 3+00	=	9 FT.
RT. STA. 3+62	=	9 FT.
LT. STA. 5+60	=	9 FT.
RT. STA. 5+70	=	9 FT.
TOTAL	=	36 FT.

PERIMETER EROSION BARRIER
LT. STA. 3+70 TO STA. 4+35 = 75 FT.



UTILITIES

ELECTRIC: NORRIS ELECTRIC COOP
8543 N. STATE HWY. 130
NEWTON, IL 62448
618-783-8765

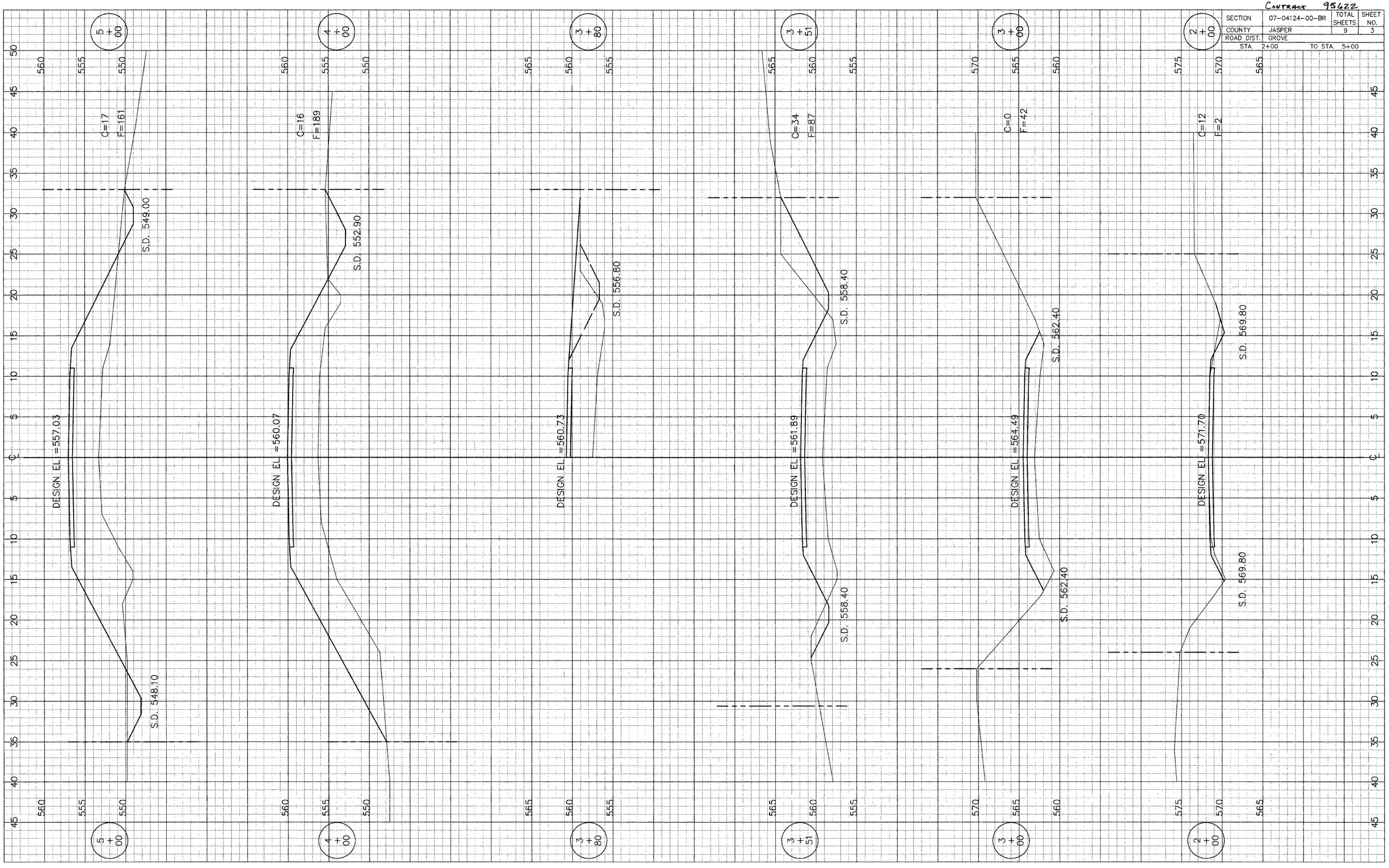
PIPELINE: MARATHON PIPELINE LLC
1-800-537-6644

CONNOR & CONNOR, Inc.
CONSULTING ENGINEERS
209 North Cross Street
ROBINSON, ILLINOIS 62454
Phone 618-544-8623
Fax 618-544-3012
Licensed Engineers
Licensed Surveyors

DATE	02/11/2010
SCALE	1"= 50'
DRAWN BY	DJC
PROJECT	P- 1541
SHEET	OF

CONTRACT 95622

SECTION	07-04124-00-BR	TOTAL SHEETS	SHEET NO.
COUNTY	JASPER	9	3
ROAD DIST.	GROVE		
STA. 2+00	TO STA. 5+00		



CONTRACT 95622

SECTION	07-04124-00-BR	TOTAL SHEETS	SHEET NO.
COUNTY	JASPER	9	4
ROAD DIST.	GROVE		

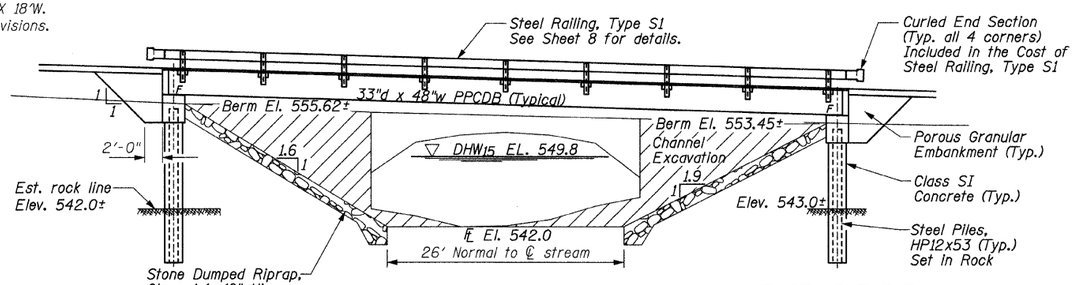
STA. 5+43 TO STA. 7+00

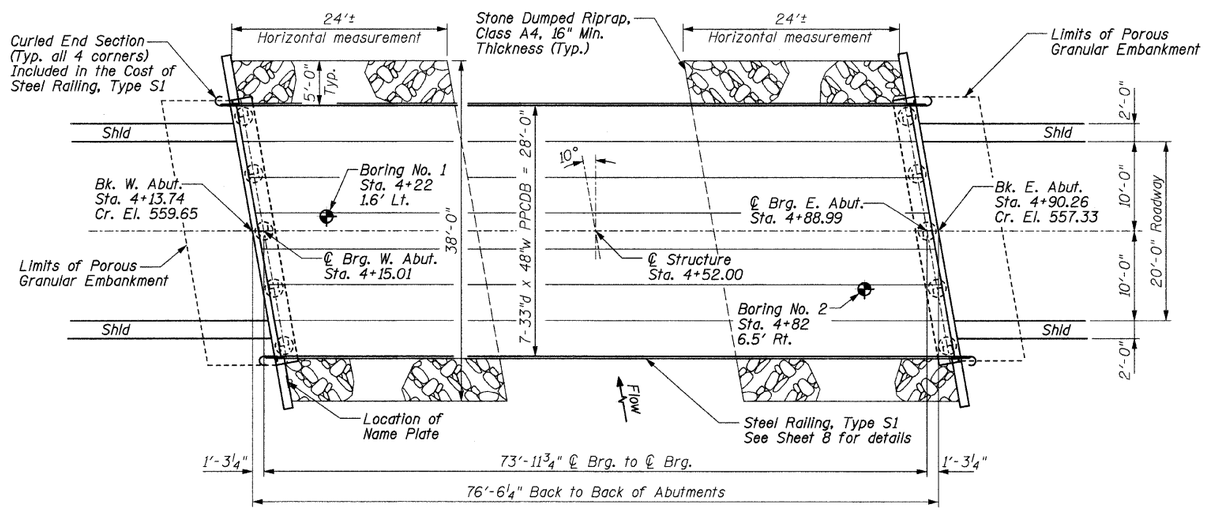
BM #1 - PK nail in power pole,
21.6'± Lt. of Sta. 1+74 - Elev. 576.45

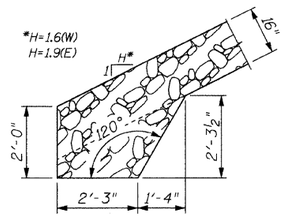
BM #2 - PK nail in power pole,
22'± Lt. of Sta. 7+46 - Elev. 563.06

Existing Structure No. 040-9901:
Single span concrete arch bridge with concrete wingwalls. 30'L. X 18'W.
No skew. See Special Provisions.

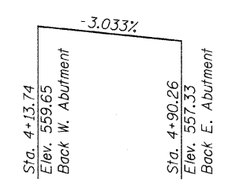
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



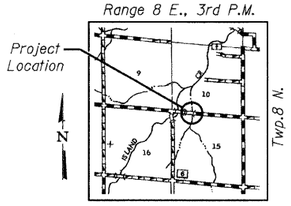




RIPRAP ANCHOR DETAIL



PROFILE GRADE ACROSS STRUCTURE
(along ℄ TR 39)



LOCATION SKETCH

WATERWAY INFORMATION
(By Connor & Connor, Inc.)

Drainage Area = 3.56 sq. mi. Low Grade Elev. 555.69 @ Sta. 5+88.73

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Nat. H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
Design	15	1120	182	299	549.80		0.80		550.60
Base	100	1920	204	357	551.00	1.90	1.00	552.90	552.00

STATION 4+52.00
BUILT 2010 BY
JASPER COUNTY
TR 39 SEC. 07-04124-00-BR
LOADING HL-93
STRUCTURE NO. 040-3259

NAME PLATE
See Std. 515001

LOADING HL-93
50#/sq. ft. included in dead load for future wearing surface.

DESIGN SPECIFICATIONS
2007 (4th Ed.) AASHTO LRFD Bridge Design Specifications, with 2008 & 2009 Interims.

DESIGN STRESSES
FIELD UNITS
f'_c = 3,500 psi
f_y = 60,000 psi (reinforcement)

PRECAST PRESTRESSED UNITS
f'_c = 6,000 psi
f'_{ci} = 5,000 psi
f_{pu} = 270,000 psi (½" ϕ low lax. strands)
f_{pbt} = 201,960 psi (½" ϕ low lax. strands)
f_y = 60,000 psi (reinforcement)

SEISMIC DATA
Seismic Performance Zone (SPZ) = 2
Soil Site Classification = D
S_{D1} = 0.206 S_{DS} = 0.460

GENERAL NOTES

Reinforcement bars shall conform to the requirements of ASTM A 706 Grade 60 (IL Modified). See Special Provisions.

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

See Section 502 of the Standard Specifications for Structural Excavation.

Channel excavation shall be excavated as shown within the limits of the proposed bridge, then tapered to the existing channel at the ROW line. If the Engineer deems the material satisfactory, it may be used to construct the roadway embankment.

See Special Provisions for Soil Borings.

Do not scale these drawings.

The Steel H-piles shall be according to AASHTO M270 Grade 50.

The abutment bearing seat surfaces for the precast prestressed concrete deck beams shall be adjusted by shimming to assure firm and even bearing. As required, ⅛" fabric adjusting shims of the dimensions of the Exterior Bearing Pad shall be provided for each bearing.

A corrosion inhibitor shall be used in the concrete for the precast prestressed deck beams, according to Aticle 1020.05(b)(12) and 1021.06 of the Standard Specifications.

BILL OF MATERIALS (BRIDGE ONLY)

ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	Cu Yd	-	480	480
Porous Granular Embankment	Ton	-	122	122
Stone Dumped Riprap, Class A4	Ton	-	205	205
Removal of Existing Structures	Each	1	-	1
Concrete Structures	Cu Yd	-	25.4	25.4
PPCDB (33" Depth)	Sq Ft	2105	-	2105
Reinforcement Bars	Pound	-	3900	3900
Steel Railing, Type S1	Foot	152	-	152
Furnishing Steel Piles HP12x53	Foot	-	165	165
Setting Piles in Rock	Each	-	10	10
Name Plates	Each	-	1	1
Terminal Marker - Direct Applied	Each	4	-	4

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

GARY L. HAHN
81-4853
LICENSED
STRUCTURAL
ENGINEER
STATE OF ILLINOIS

Gary L. Hahn
Gary L. Hahn

02-10-2010
Date of Signing

11-30-2010
Date of License Expiration

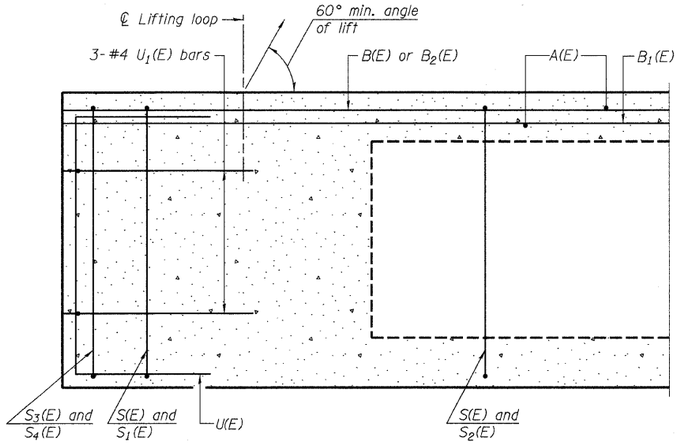
RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

GENERAL PLAN AND ELEVATION
TR 39 OVER TRIBUTARY TO ISLAND CREEK
SECTION 07-04124-00-BR
JASPER COUNTY
STATION 4+52.00
STRUCTURE NO. 040-3259

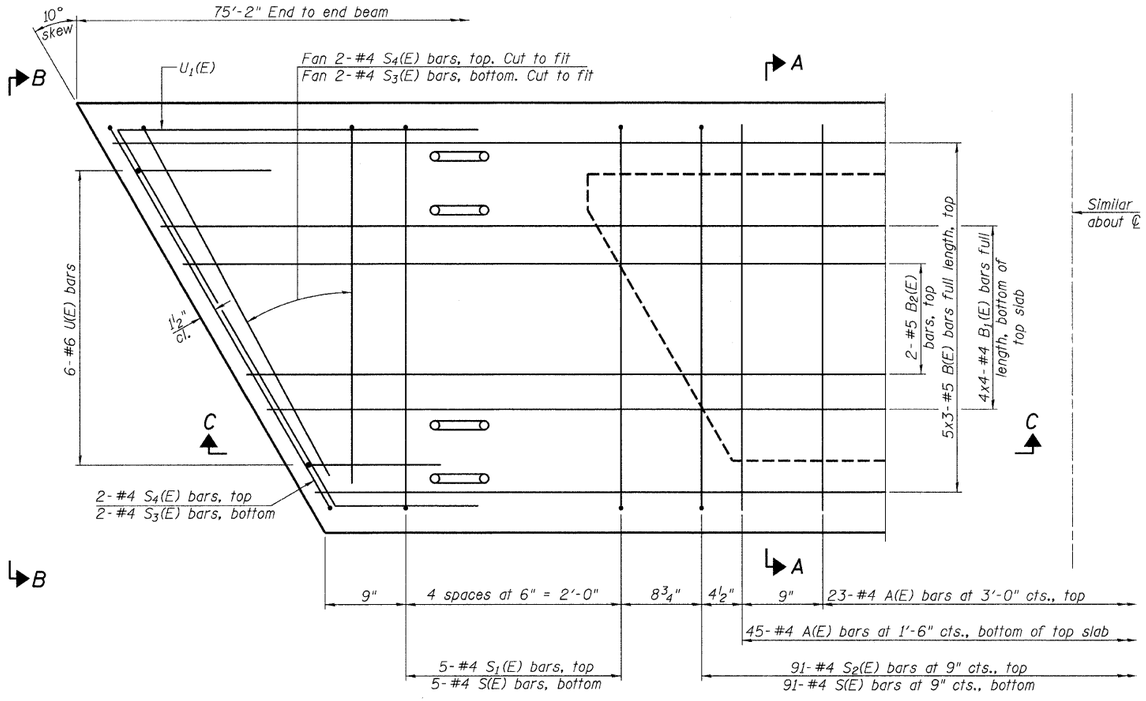
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 39	07-04124-00-BR	JASPER	9	5
		CONTRACT NO. 95622		
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

02/10/2010 RAAI #5109

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

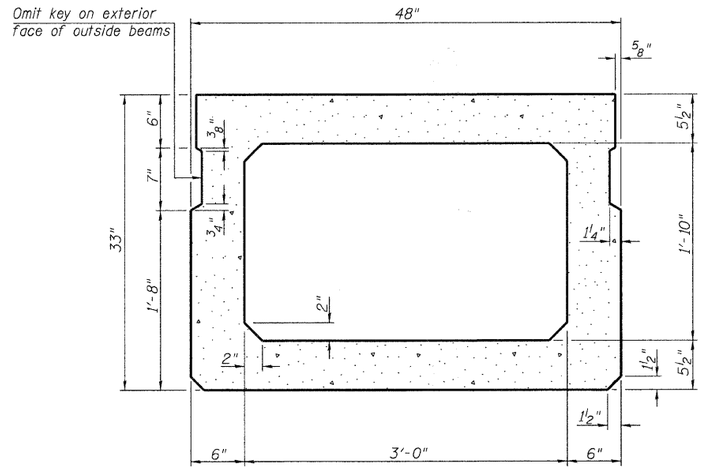


SECTION C-C

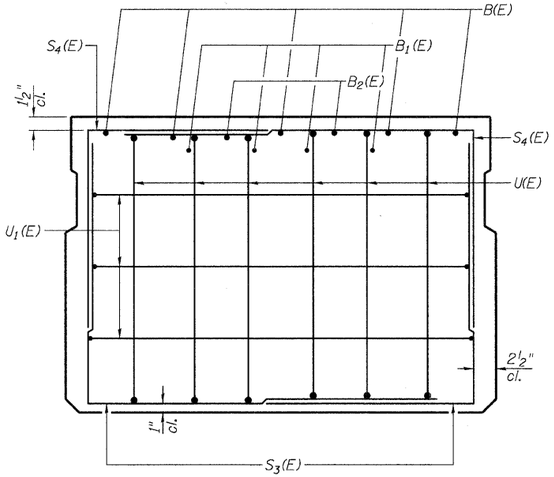


PLAN VIEW

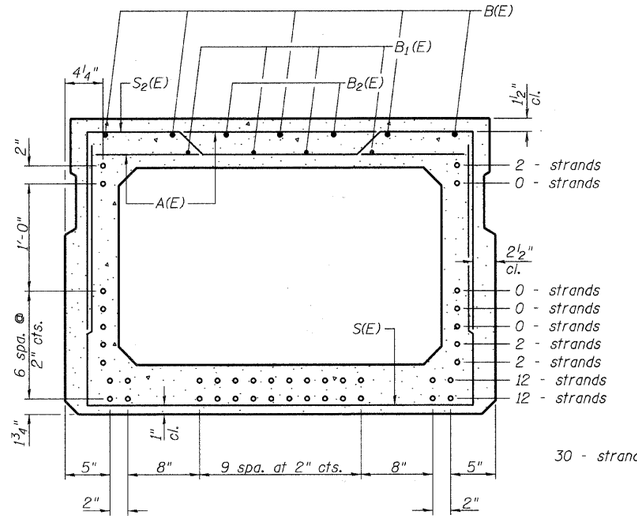
Note: Spacing of S(E) and $S_2(E)$ bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.
Bars indicated thus 4x2-#5 etc. indicates 4 lines of bars with 2 lengths per line.



SECTION A-A
(Showing dimensions)



VIEW B-B



30 - strands total

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.

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

BAR LIST
ONE BEAM ONLY
(For information only)

Bar	No.	Size	Length	Shape
A(E)	68	#4	3'-7"	—
B(E)	15	#5	26'-8"	—
$B_1(E)$	16	#4	20'-3"	—
$B_2(E)$	4	#5	10'-0"	—
S(E)	101	#4	8'-5"	⊔
$S_1(E)$	10	#4	7'-3"	⊔
$S_2(E)$	91	#4	7'-6"	⊔
$S_3(E)$	4	#4	5'-3"	⊔
$S_4(E)$	4	#4	4'-8"	⊔
U(E)	12	#6	5'-0"	⊓
$U_1(E)$	6	#4	6'-8"	⊓

Note: See Sheet 7 of 9 for additional details and Bill of Material.

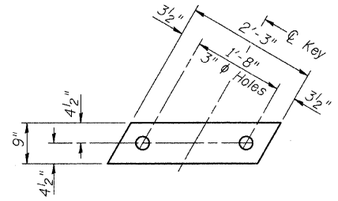
33" X 48" PPC DECK BEAM DETAILS
STRUCTURE NO. 040-3259

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 39	07-04124-00-BR	JASPER	9	6
		CONTRACT NO. 95622		
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

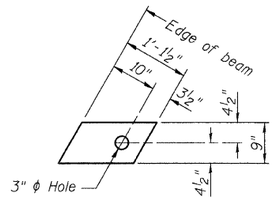
02/10/2010 RAAI #51109

PD-3348-R 11-1-09

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



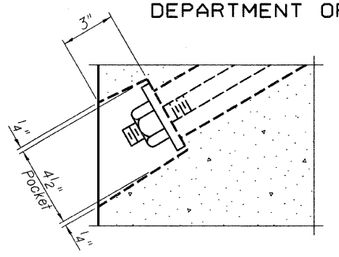
FABRIC BEARING PAD
(Interior)



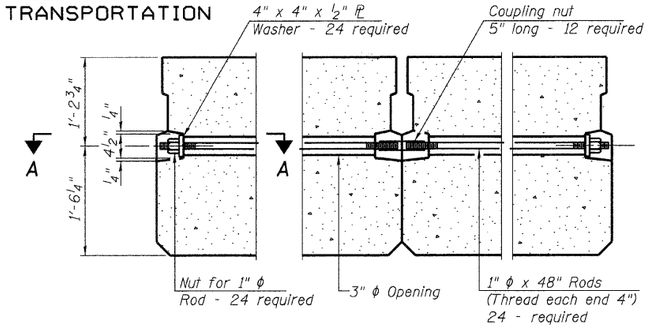
FABRIC BEARING PAD
(Exterior)

FIXED

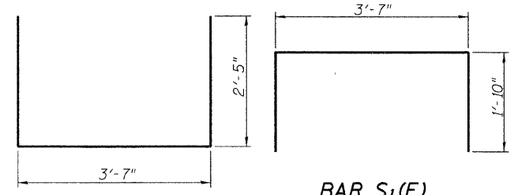
Note: All bearing pads shall be 1" thick.



SECTION A-A

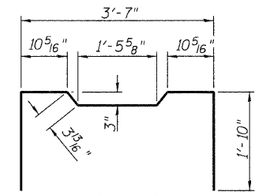


TYPICAL TRANSVERSE TIE ASSEMBLY

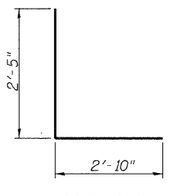


BAR S(E)

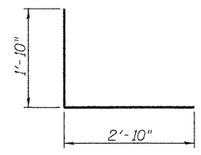
BAR S1(E)



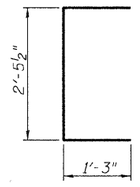
BAR S2(E)



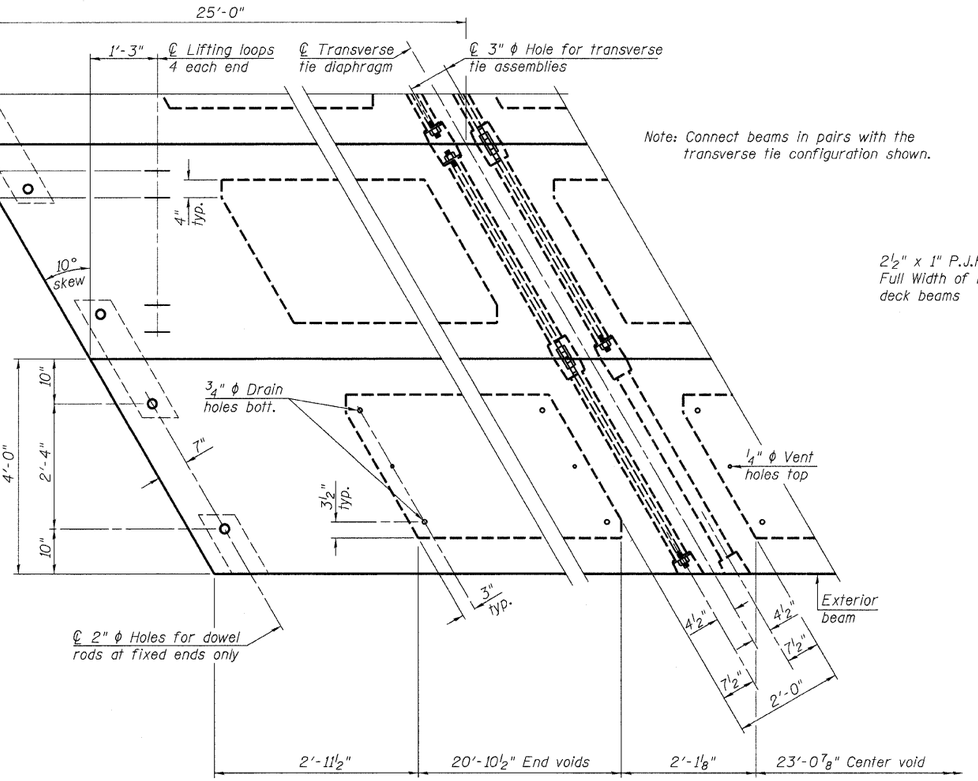
BAR S3(E)



BAR S4(E)

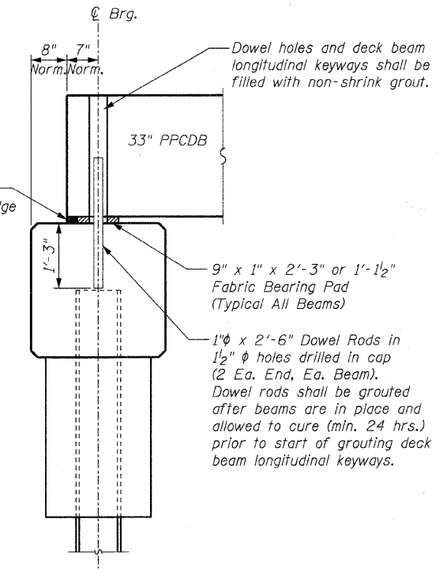


BAR U(E)

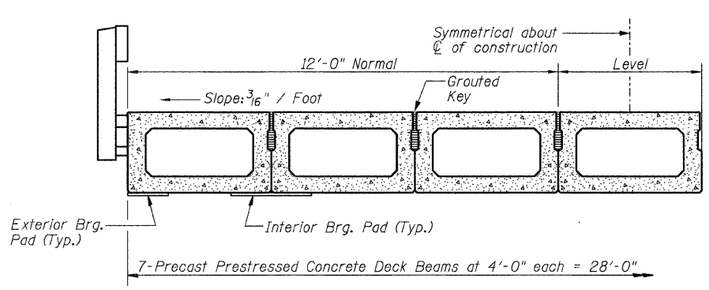


PLAN VIEW

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

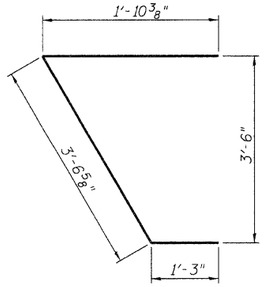


FIXED BEARING
ABUTMENT

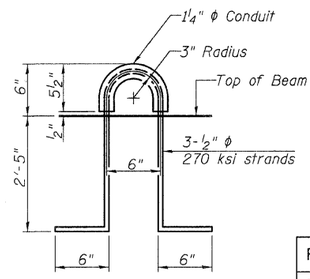


HALF CROSS SECTION

See Sheet 8 for the details showing the spacing and mounting of posts and rails to the PPCDB.



BAR U1(E)



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" ϕ 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" ϕ 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 Conc. Deck Bms. (33" depth)	Sq. Ft.	2105

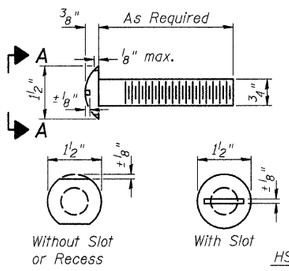
33" X 48" PPC DECK BEAM DETAILS
STRUCTURE NO. 040-3259

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 39	07-04124-00-BR	JASPER	9	7
		CONTRACT NO. 95622		
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

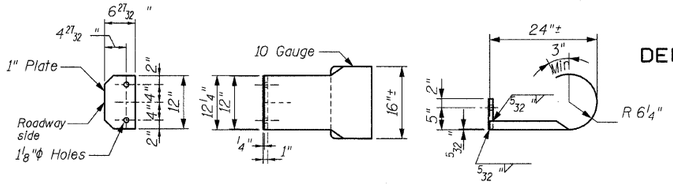
PD-3348-RD 11-1-09

02/10/2010 RAAI #51109

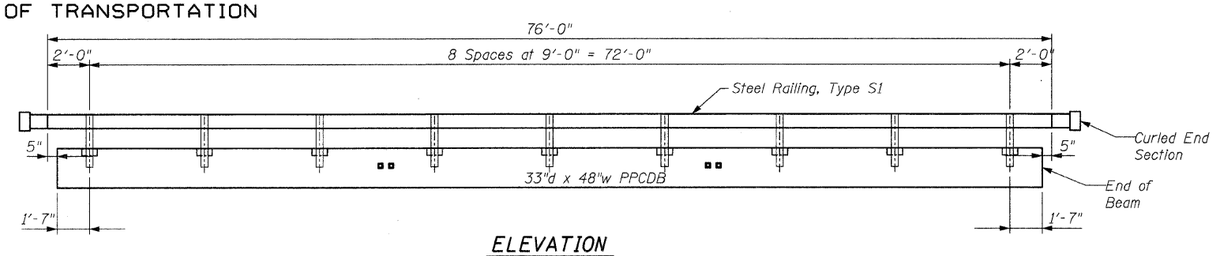
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



VIEW A-A
ROUND HEAD BOLT

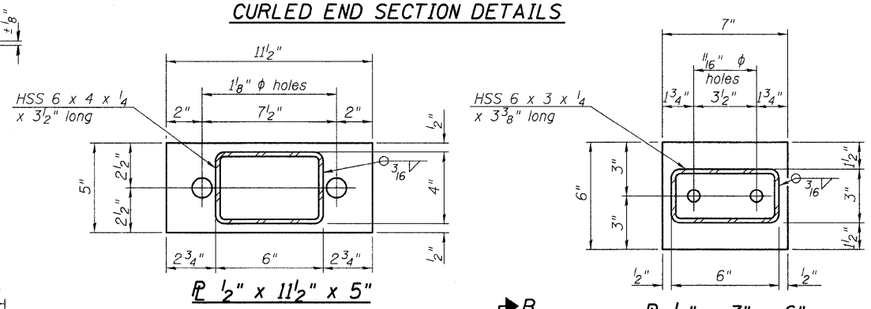


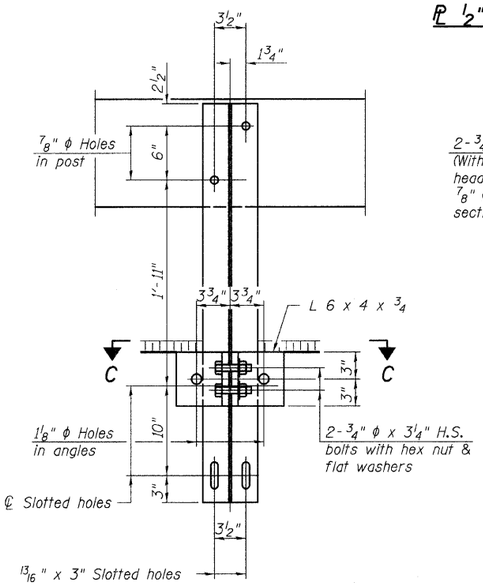
CURLED END SECTION DETAILS



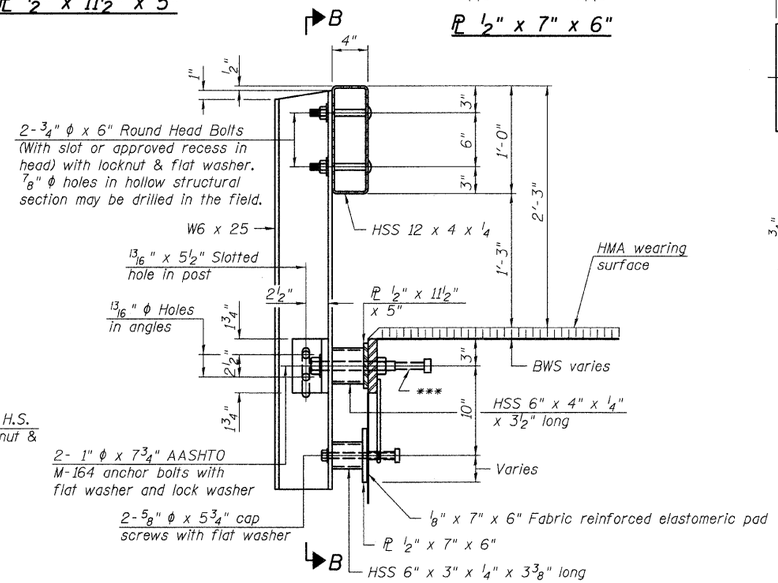
ELEVATION

Note: The cost of the Curled End Sections shall be included in the contract unit price per foot for "STEEL RAILING, TYPE S1", and no additional compensation will be allowed.

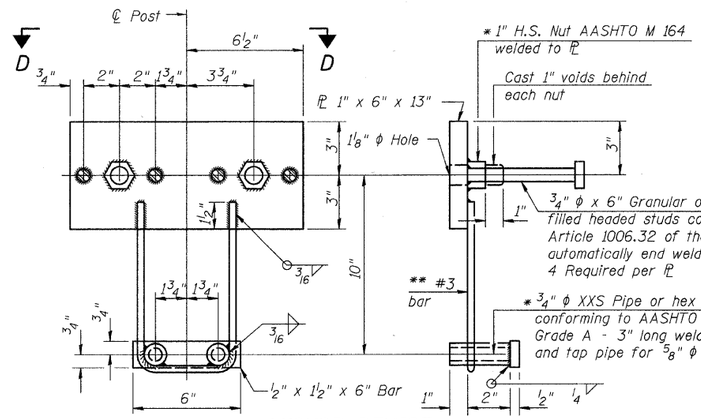




SECTION B-B



SECTION AT RAILING POST

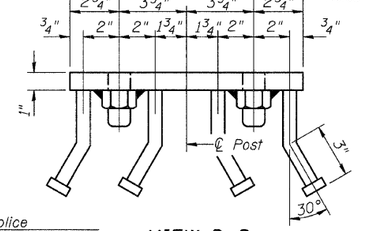


ANCHOR DEVICE

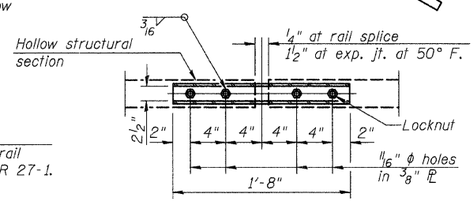
* Threaded areas shall be plugged or blocked off during casting of beam.

** 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".

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 S1.
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.



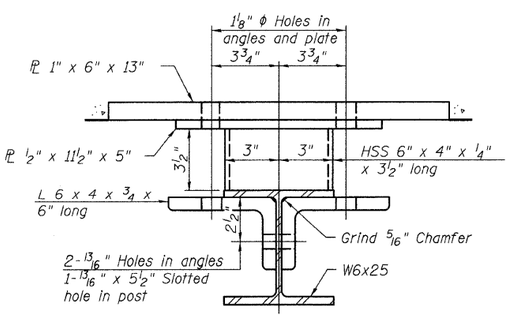
VIEW D-D



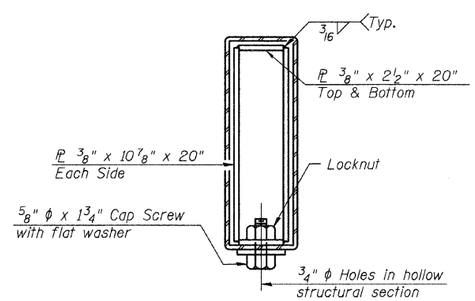
PLAN-BOTT. SPLICE PL TYPICAL

BILL OF MATERIAL

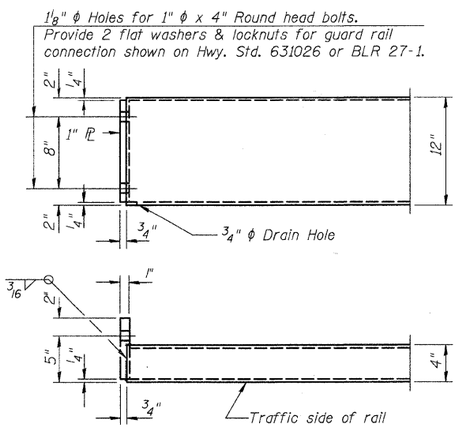
Item	Unit	Quantity
Steel Railing, Type S1	Foot	152



SECTION C-C



SECTIONS AT RAIL SPLICE



END OF RAIL DETAILS

STEEL RAILING, TYPE S1 DETAILS
STRUCTURE NO. 040-3259

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 39	07-04124-00-BR	JASPER	9	8
		CONTRACT NO. 95622		
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

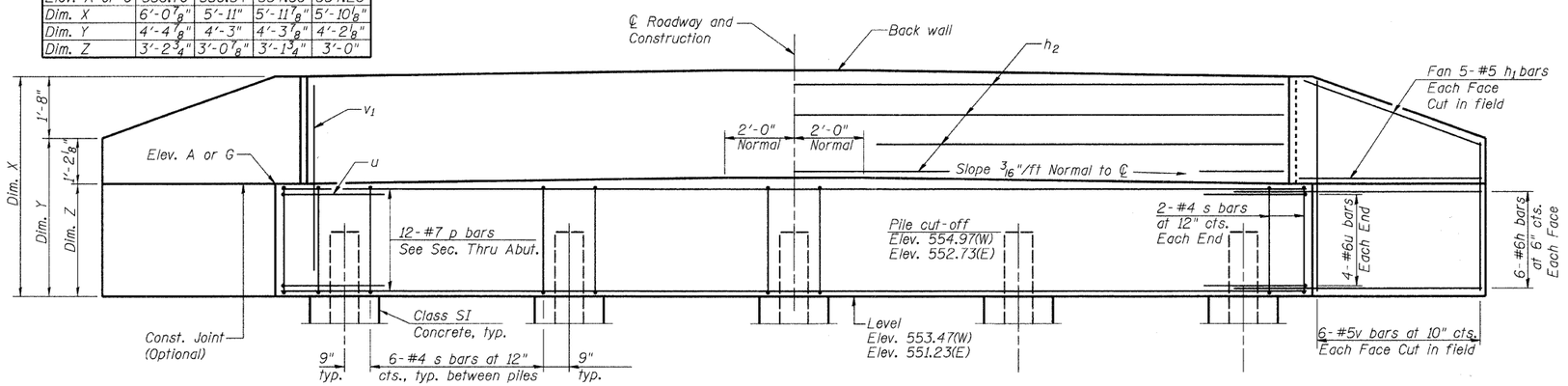
R-23A 11-1-09 (10'-9" Maximum Post Spacing)

02/10/2010 RAA1 #5109

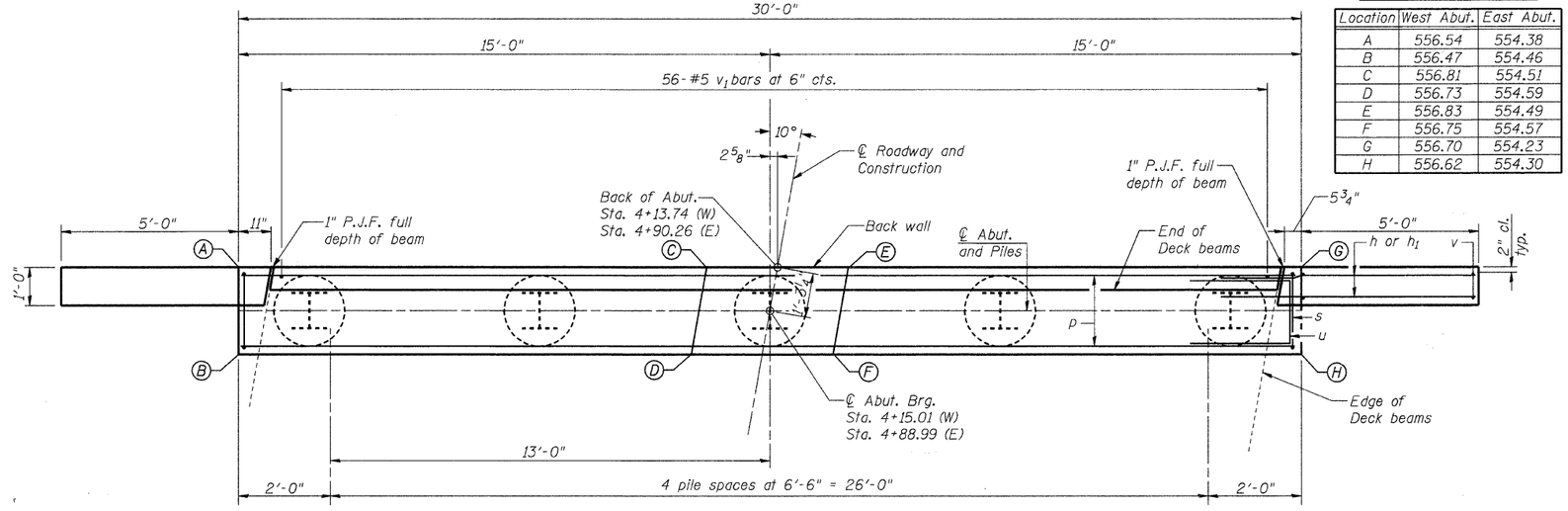
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

WINGWALL ELEVATIONS AND DIMENSIONS

Location	NW Wing	SW Wing	NE Wing	SW Wing
Top Wing	559.54	559.39	557.22	557.07
Bott. Cap	553.47	553.47	551.23	551.23
Elev. A or G	556.70	556.54	554.38	554.23
Dim. X	6'-0 7/8"	5'-11"	5'-11 7/8"	5'-10 1/8"
Dim. Y	4'-4 7/8"	4'-3"	4'-3 7/8"	4'-2 1/8"
Dim. Z	3'-2 3/4"	3'-0 7/8"	3'-1 3/4"	3'-0"



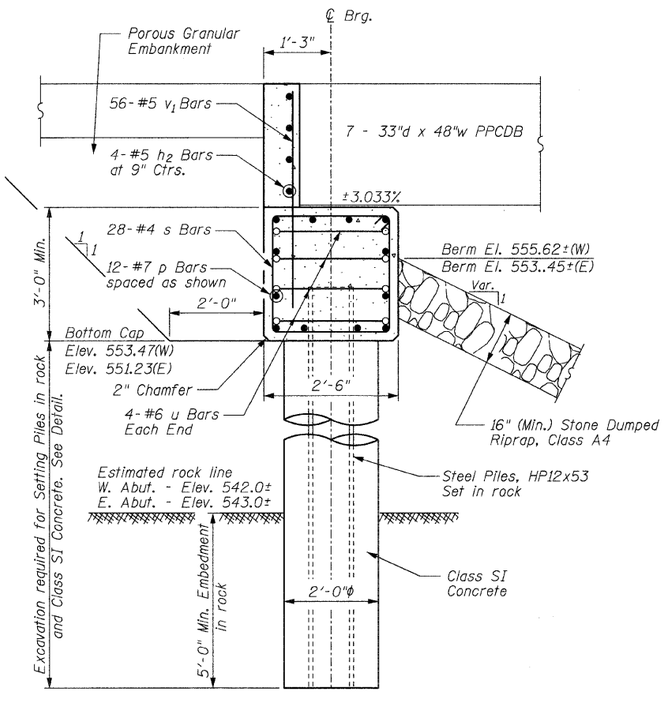
ELEVATION



PLAN

TOP OF ABUTMENT CAP ELEVATIONS

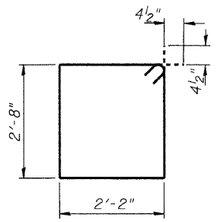
Location	West Abut.	East Abut.
A	556.54	554.38
B	556.47	554.46
C	556.81	554.51
D	556.73	554.59
E	556.83	554.49
F	556.75	554.57
G	556.70	554.23
H	556.62	554.30



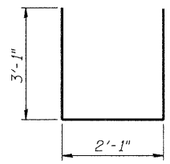
SECTION THRU ABUTMENT

BILL OF MATERIAL FOR ONE ABUTMENT

Bar	No.	Size	Length	Shape
h	24	#6	8'-0"	
h_1	20	#5	5'-9"	CUT IN FIELD
h_2	4	#5	28'-0"	
p	12	#7	29'-8"	
s	28	#4	10'-5"	
u	8	#6	8'-3"	
v	24	#5	5'-8"	
v_1	56	#5	4'-6"	
Concrete Structures			Cu Yd	12.7
Reinforcement Bars			Pound	1950
Furnishing Steel	W. Abut.		Foot	90
Piles, HP12x53	E. Abut.		Foot	75
Setting Piles In Rock	W. Abut.		Each	5
	E. Abut.		Each	5



BAR s



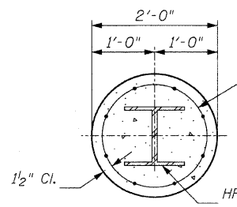
BAR u

PILE DATA: WEST ABUTMENT

Type:	Steel HP12x53
Nominal Required Bearing:	Set in Rock
Factored Resistance Available:	210 kips
Estimated Length:	18 foot/pile
No. of Production Piles:	5
No. of Test Piles:	0
Estimated Top of Rock Elevation:	542.0±
Rock Socket Depth:	5.0 Foot (Min.)
Rock Socket Diameter:	2.0 Foot

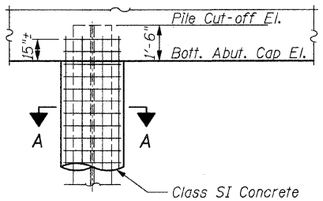
PILE DATA: EAST ABUTMENT

Type:	Steel HP12x53
Nominal Required Bearing:	Set in Rock
Factored Resistance Available:	210 kips
Estimated Length:	15 foot/pile
No. of Production Piles:	5
No. of Test Piles:	0
Estimated Top of Rock Elevation:	543.0±
Rock Socket Depth:	5.0 Foot (Min.)
Rock Socket Diameter:	2.0 Foot



SECTION A-A

Welded wire fabric 6 x 6 - W4.0 x W4.0 weighing 58#/100 sq. ft. The cost of soil & rock excavation, reinforcement, and Class SI Concrete shall be included in the contract unit price per each for Setting Piles In Rock and no additional compensation will be allowed. Forms for Concrete Encasement may be omitted when soil conditions permit.



PILE ENCASEMENT DETAIL

GENERAL NOTES

All exposed edges shall have standard 3/4" chamfer, unless otherwise noted.

All clearances between rebar and form surface shall be 2", unless otherwise noted.

Space reinforcement in cap to miss PPCDB dowel rods.

The Steel H-piles shall be according to AASHTO M270 Grade 50.

ABUTMENT DETAILS STRUCTURE NO. 040-3259

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 39	07-04124-00-BR	JASPER	9	9
		CONTRACT NO. 95622		
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

02/10/2010 RAAI #5109

AI-0 10-1-08