

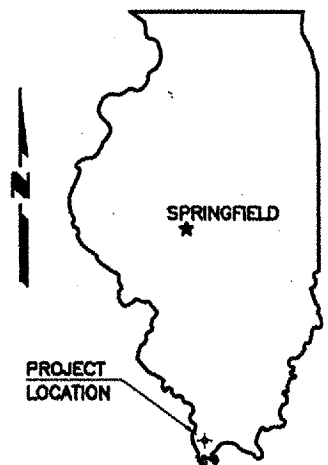
FEDERAL BUREAU OF
 200 FEB 26 A 11:41
 LOCAL ROADS & STREETS

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 39	06-01159-00-BR	ALEXANDER	10	1
PROJECT NO. BROS-003(13)		CONTRACT NO. 99320		

PLANS FOR PROPOSED
HIGHWAY BRIDGE PROGRAM

TOWNSHIP ROUTE 39 (RIFLE RANGE ROAD)
 COUNTY UNIT ROAD DISTRICT
 SECTION 06-01159-00-BR
 PROJECT NO. BROS-003(098)
 JOB NO. C-99-534-07
 HARTLINE CREEK



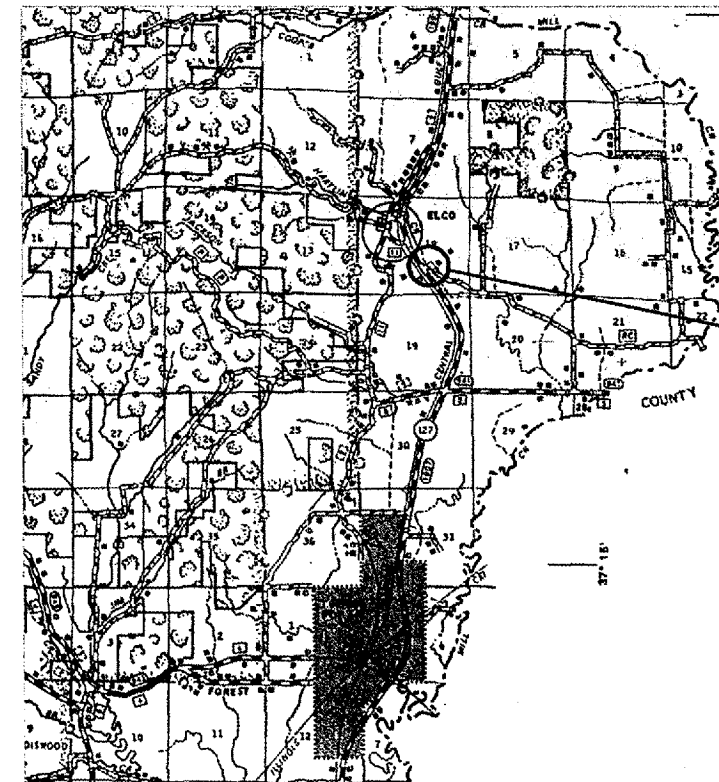
SUMMARY OF QUANTITIES

CODE NO.	PAY ITEM	UNIT	X081-2A TOTAL
20200100	EARTH EXCAVATION	CU YD	8
20300100	CHANNEL EXCAVATION	CU YD	23
20400100	BORROW EXCAVATION	CU YD	4
25000200	SEEDING, CLASS 2	ACRE	0.1
25000400	NITROGEN FERTILIZER NUTRIENT	POUND	9
25000500	PHOSPHORUS FERTILIZER NUTRIENT	POUND	9
25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	9
25000700	AGRICULTURAL GROUND LIMESTONE	TON	0.2
25100120	MULCH, METHOD 2	TON	0.2
28100809	STONE DUMPED RIPRAP, CLASS A5	TON	266
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	47
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50105220	PIPE CULVERT REMOVAL	FOOT	24
50200100	STRUCTURE EXCAVATION	CU YD	18
50300225	CONCRETE STRUCTURES	CU YD	17.8
50300280	CONCRETE ENCASEMENT	CU YD	2.1
50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ FT	1558
50800105	REINFORCEMENT BARS	POUND	2300
50900205	STEEL RAILING, TYPE S1	FOOT	130
51201005	FURNISHING METAL SHELL PILES 12"	FOOT	646
51202305	DRIVING PILES	FOOT	646
51203200	TEST PILE METAL SHELLS	EACH	1
51500100	NAME PLATES	EACH	1
54200229	PIPE CULVERTS, CLASS D, TYPE 1 24"	FOOT	28
67100100	MOBILIZATION	L SUM	1

ALEXANDER COUNTY

INDEX OF SHEETS

1. COVER SHEET
 2. PLAN AND PROFILE
 3. GENERAL PLAN AND ELEVATION
 4. DECK BEAMS 27" X 36"
 5. DECK BEAMS 27" X 48"
 6. ABUTMENTS
 7. STEEL RAILING
 8. NAME PLATE
 9. PILE DETAILS
 10. CROSS SECTIONS
- STANDARDS 000001-05 STANDARD SYMBOLS, ABBREVIATIONS & PATTERNS
 280001-04 TEMPORARY EROSION CONTROL SYSTEMS
 701901 TRAFFIC CONTROL DEVICES
 BLR-21-7 TRAFFIC CONTROL



LOCATION MAP

SCALE: 1" = 2 MILES

NET LENGTH OF IMPROVEMENT = 198.00 FT. = 0.0375 MILES

CLASSIFICATION : LOCAL ROAD
 ADT : 25
 DESIGN SPEED : 30 MPH

JOINT UTILITY LOCATION INFORMATION
 FOR EXCAVATION
 J.U.L.I.E. 1-800-892-0123
 CONTACT 48 HOURS BEFORE EXCAVATING



Edward W. Miller
 Edward W. Miller
 PROFESSIONAL ENGINEER
 #062-025277
 EXPIRES NOV. 30, 2009

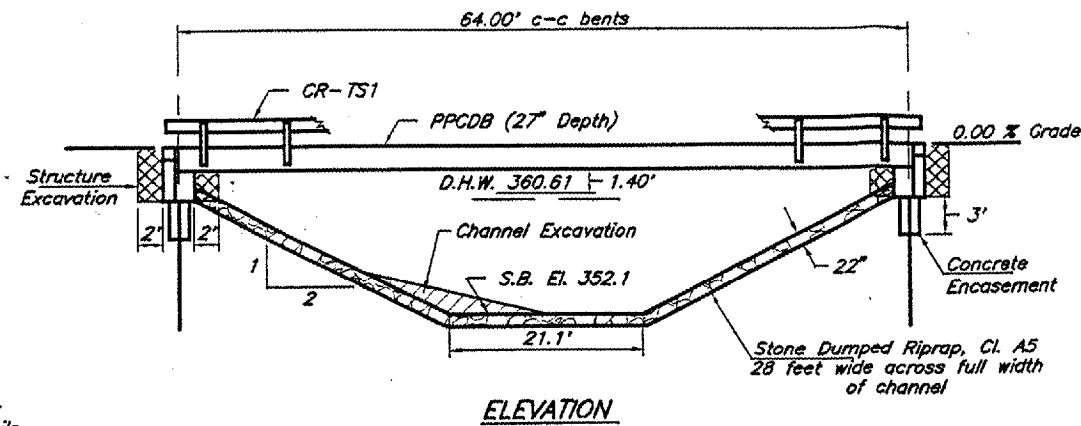
E. MILLER ENGINEERING, INC.
 CONSULTING ENGINEERS
 HARRISBURG, ILLINOIS

CONTRACT NO. 99320

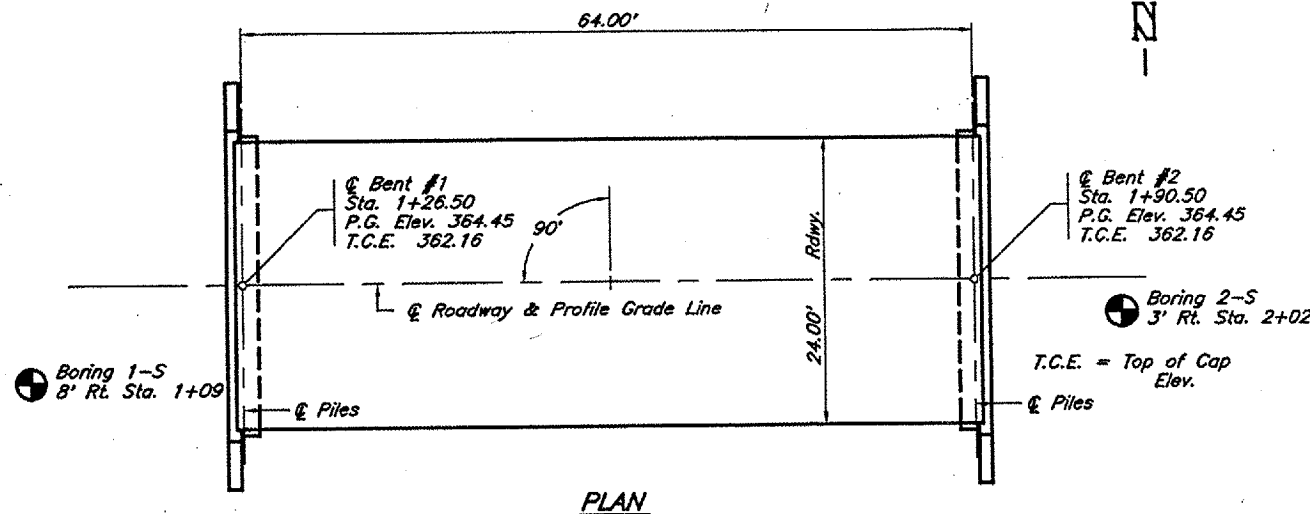
ILLINOIS DEPARTMENT OF TRANSPORTATION	
Approved	JANUARY 26, 2008 <i>[Signature]</i> Alexander County, Engineer
Passed	FEB. 22, 2008 <i>[Signature]</i> District 9 Engineer of Local Roads and Streets
Releasing for Bid Based on Limited Review	2-25-08 <i>[Signature]</i> Deputy Director of Highways, Region 5 Engineer

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 39	06-01159-00-BR	ALEXANDER	10	3
PROJECT NO. BR05-003(13)			CONTRACT NO. 99320	

B.M. - '□' chiseled on top of curb at SW corner of bridge 10.4' Rt. Station 1+21.5
Assumed Elev. 365.00



Existing Structure - 3 span precast concrete deck beams with concrete caps on open timber pile bent abutments and piers. 22.7' W X 73.0' L



GENERAL NOTES

1. Metal Shell piles shall meet ASTM A 252 Grade 3 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 pile, 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.	
Removal of Existing Structures	Each				1
Concrete Structures	Cu. Yds.			17.8	17.8
P.P. Conc. Dk. Bm. 27" Dp.	Sq. Ft.	1558			1558
Steel Railing, Type S1	Foot	130			130
Reinforcement Bars	Pound			2300	2300
Furnishing Metal Shell Piles 12"	Foot			646	646
Driving Piles	Foot			646	646
Test Pile Metal Shells	Each			1	1
Concrete Encasement	Cu. Yds.			2.1	2.1
Name Plates	Each			1	1
Structure Excavation	Cu. Yds.			18	18
Channel Excavation	Cu. Yds.			23	23
Stone Dumped Riprap, Class A5	Tons			266	266

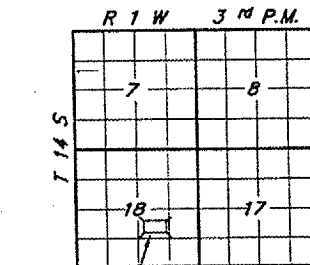
PILE DATA (2-ABUTS.)

Type & Size : Metal Shell 12" dia. x 0.25" walls
Nominal Required Bearing : 258 kips
Allowable Resistance Available : 86 kips
Estimated Length : 90 Feet Bent 1, 94 Feet Bent 2
Number Required : 8 (includes 1 Test Pile located in Bent #1)

HARTLINE CREEK
SEC. 06-01159-00-BR BUILT 20
COUNTY UNIT ROAD DISTRICT
ALEXANDER COUNTY
LOADING HS20
STR. NO. 002-3106

LETTERING FOR NAME PLATE

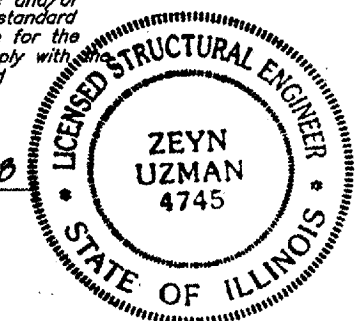
Locate Name Plate at Southwest Corner of Bridge (See Std. CN)



PROPOSED BRIDGE
LOCATION SKETCH

I certify that to the best of my knowledge, information and belief, the revised standard detail sheets and/or special component sheets included with the standard bridge detail sheets are structurally adequate for the design loading shown on the plans and comply with requirements of the current AASHTO Standard Specifications for Highway Bridges.

Zeyn B. Uzman
S.E. #81-4745
Expires Nov. 30, 2008



DESIGN SPECIFICATIONS

2002 AASHTO Standard Specifications - 17th ed.

LOADING HS20-44

Allow 25¢/sq. ft. for future wearing surface

SEISMIC DATA

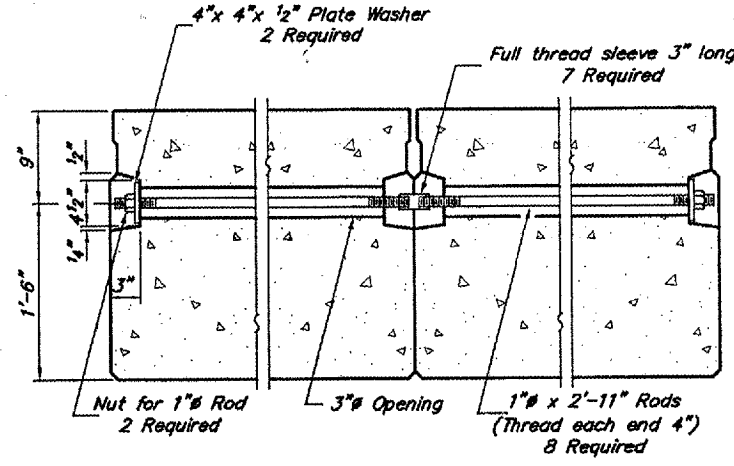
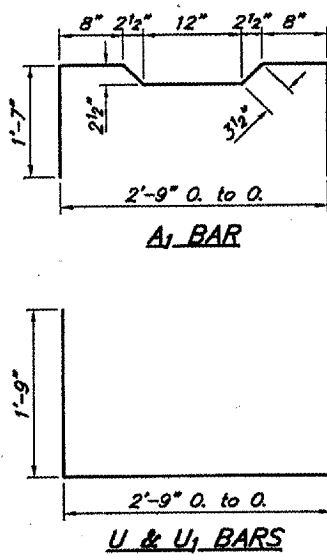
Seismic Performance Category (SPC) = B
Bedrock Acceleration Coefficient (A) = 17.0%
Site Coefficient (S) = 1.5

WATERWAY INFORMATION

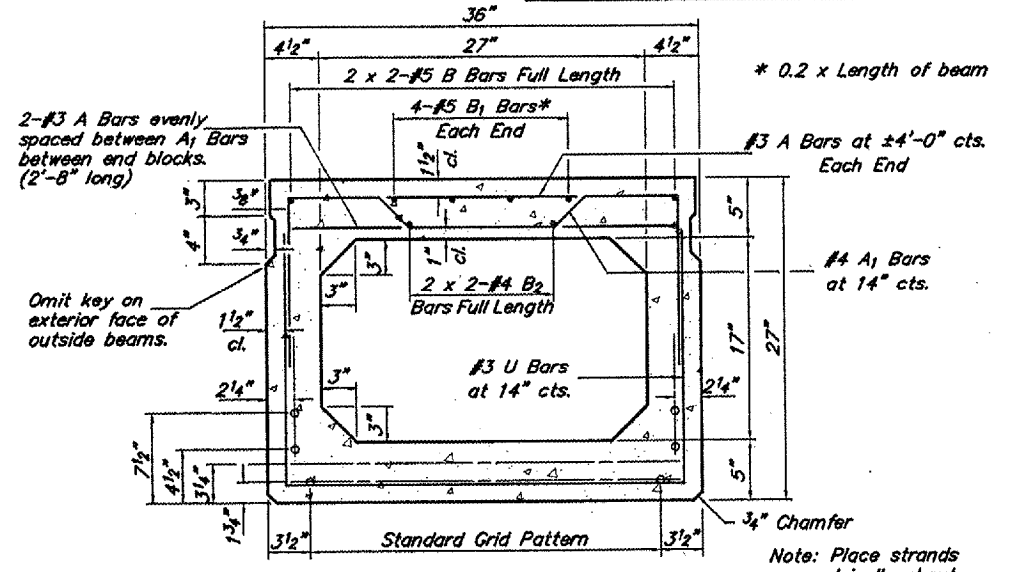
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Natural H.W.E.	Head-Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	15	1,973	335.7	324.4	360.61	0.54	0.00	361.15	360.61
Base	100	3,203	391.4	373.2	361.46	1.38	0.97	362.84	362.43
Overtopping									
Max. Calc.	500	4,228	404.6	361.97	361.97	2.45	2.14	364.42	364.11

GENERAL PLAN & ELEVATION
TOWNSHIP ROUTE 39
HARTLINE CREEK
SECTION 06-01159-00-BR
ALEXANDER COUNTY
STATION 1+58.50

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
TR 39	06-01159-00-BR	ALEXANDER	10	4
PROJECT NO. BROS-003(13)		CONTRACT NO. 99320		

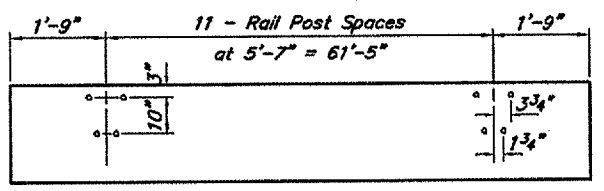


TYPICAL TRANSVERSE TIE ASSEMBLY

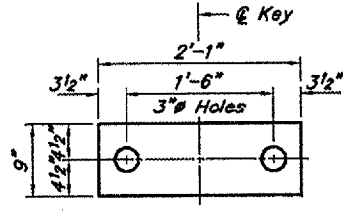


TYPICAL SECTION

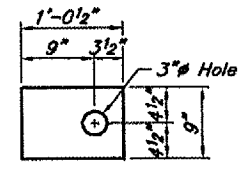
18-1/2# Strands Each Strand Stressed to 28,900 lbs.
 6-Strands 1 1/4" up, 8-Strands 3 1/4" up,
 2-Strands 4 1/2" up, 2-Strands 7 1/2" up.



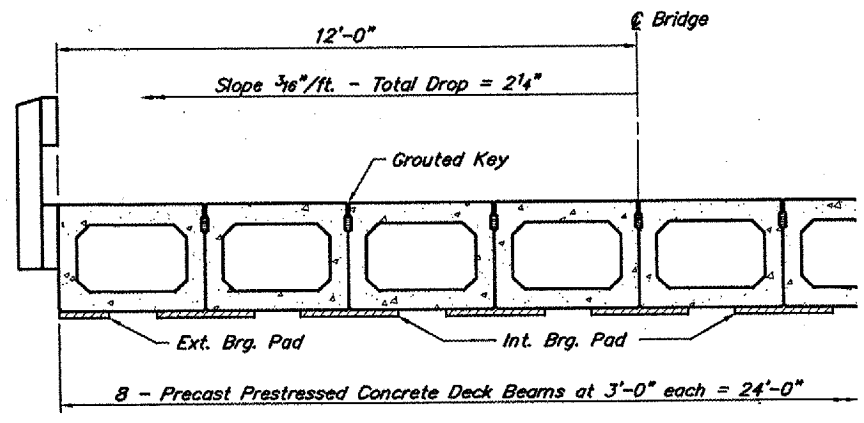
RAIL POST SPACING



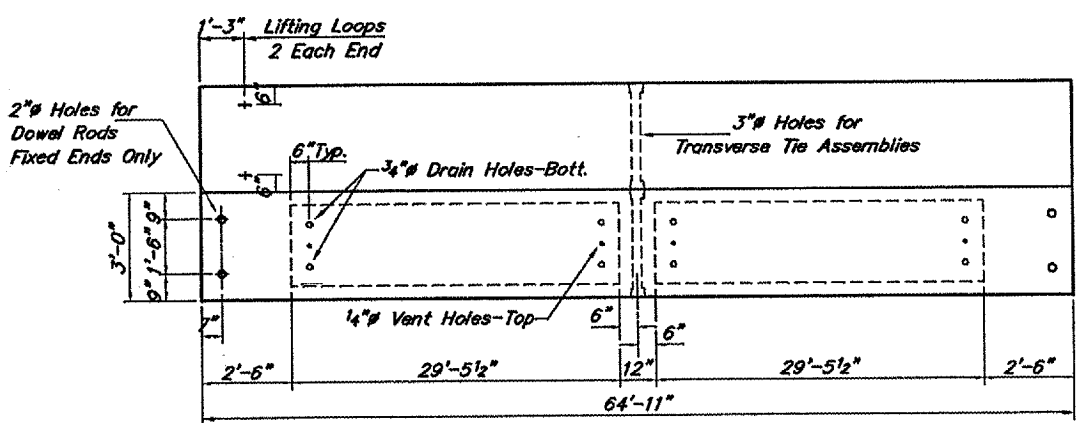
FABRIC BEARING PAD (Interior)



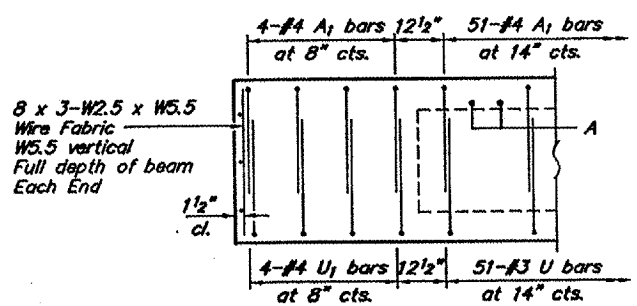
FABRIC BEARING PAD (Exterior)



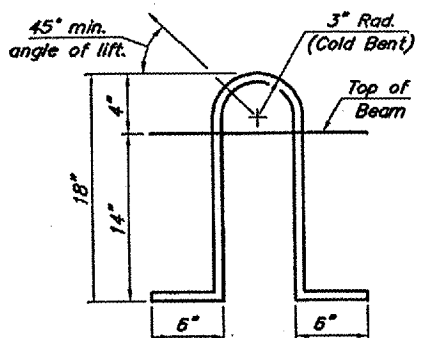
HALF CROSS SECTION



PLAN



END ELEVATION



LIFTING LOOP DETAIL

NOTES

Reinforcement bars shall conform to AASHTO M-31 or M-322, Grade 60. Prestressing steel shall be uncoated high strength, stress-relieved 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. Required release strength, fci, shall be 4,100 p.s.i. An equal substitution of the low-relaxation strands for the stress-relieved strands will be permitted.

Lifting loops shall be 3/4" diameter, 6x25 class wire rope with fiber core and shall have a minimum ultimate tensile strength of 46,000 lbs. or 3-1/2"-270 ksi strands, as shown.

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 the top of the beam and the bottom edge of the key.

The 1" 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.

The bearing seat surfaces shall be adjusted by shimming to assure firm and even bearing. Two 1/8" fabric adjusting shims of the dimensions of the Exterior Bearing Pad shall be provided for each bearing.

After beams have been erected, holes shall be drilled into substructure and anchor dowels placed. Dowel holes shall be filled with non-shrink grout to top of beam and allowed to cure a minimum of 24 hours prior to grouting the shear keys.

Nominal 1" joint at @ Pier shall be filled with non-shrink grout.

Rail Post Anchor Devices shall be cast into exterior face of outside beams as elsewhere specified.

Cost of reinforcement and accessories cast into the beam, of bearing pads, and of grouting longitudinal shear keys is incidental to Precast Prestressed Concrete Deck Beams.

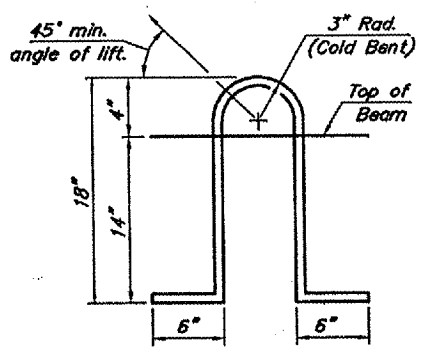
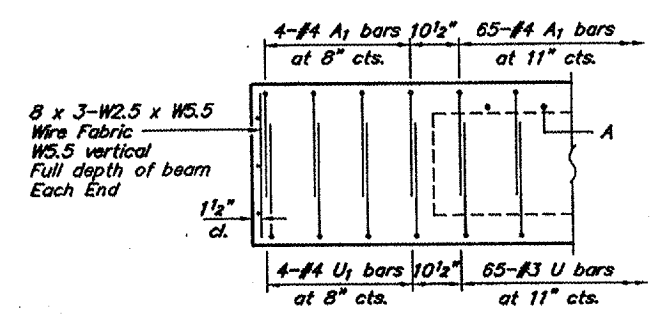
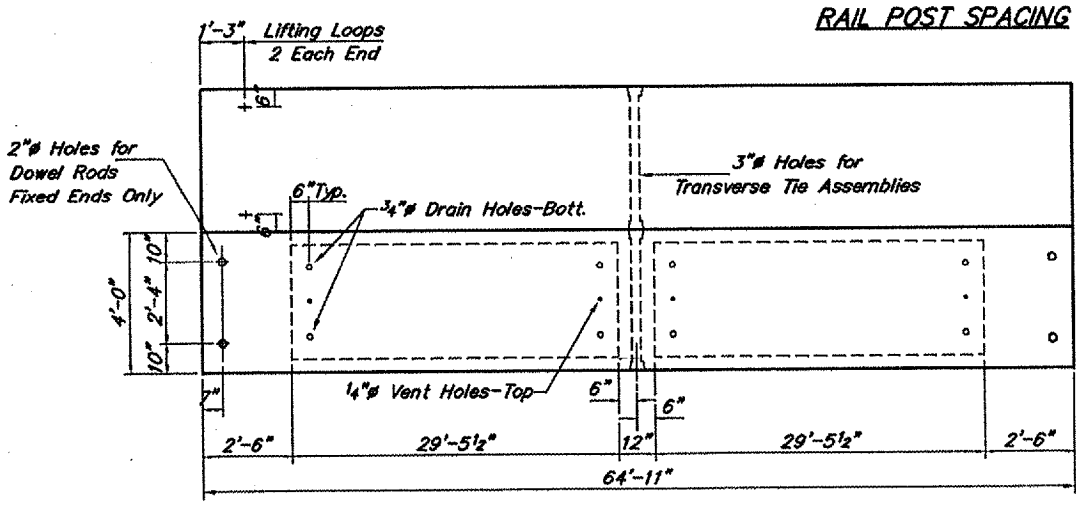
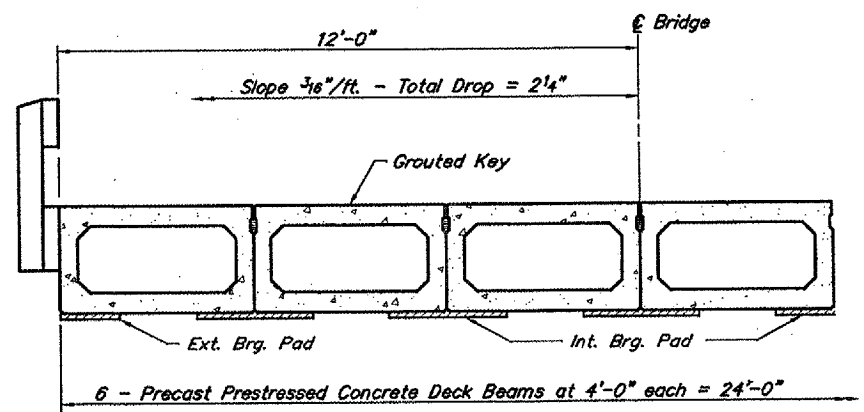
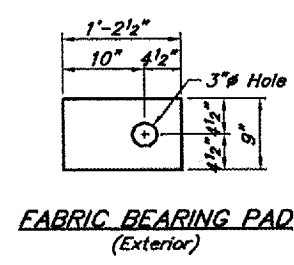
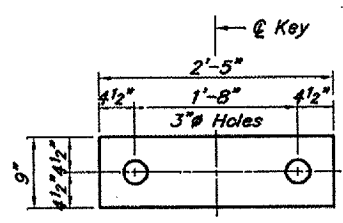
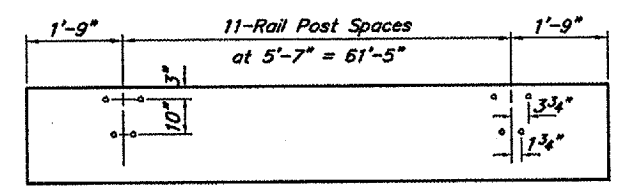
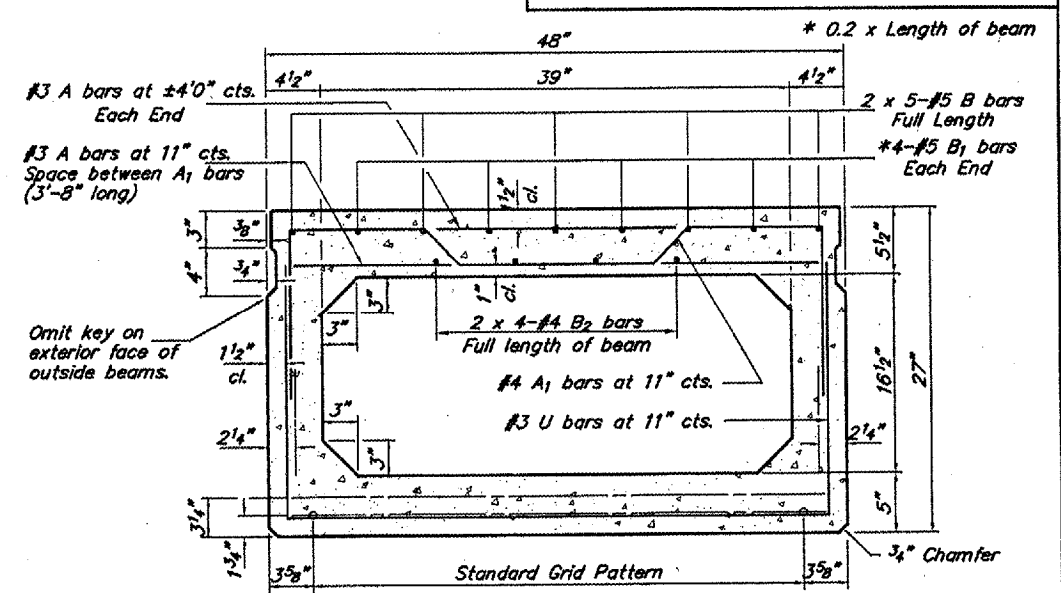
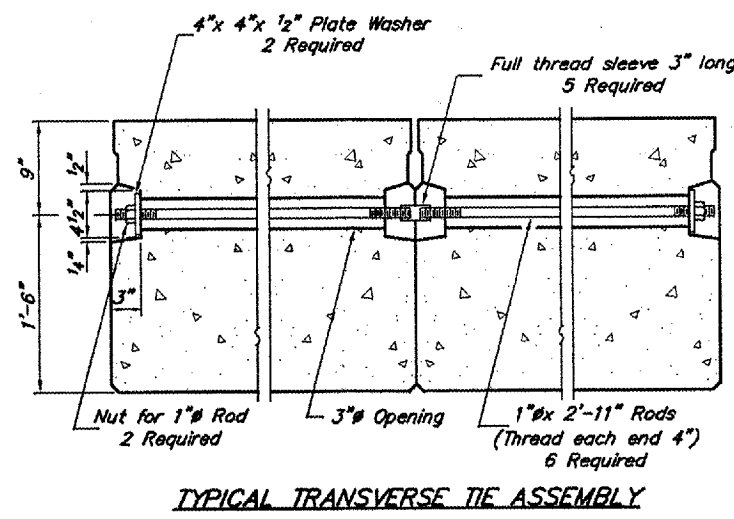
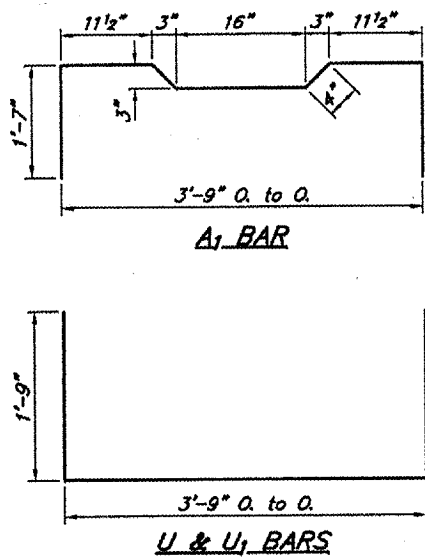
When Waterproofing Membrane System is specified, the top surface of the beams shall be finished in accordance with Article 504.06 of the Standard Specifications except that the surface shall not be roughened by brooming. The finished surface shall be free of depressions or high spots with sharp corners, and the top edge of keys shall be rounded or chamfered a min. of 1/4".

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
A	108	#3	2'-8"	U
A1	59	#4	6'-1"	U
B	4	#5	33'-5"	—
B1	8	#5	13'-0"	—
B2	4	#4	33'-2"	—
U	51	#3	6'-3"	U
U1	8	#4	6'-3"	U
Precast Prestressed Concrete Deck Beams		Sq. Ft.	1,558	

DECK BEAMS 27" X 36"
 HARTLINE CREEK
 SECTION 06-01159-00-BR
 ALEXANDER COUNTY

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 39	06-01159-00-BR	ALEXANDER	10	5
PROJECT NO. BROS-003(13)			CONTRACT NO. 99320	



NOTES

Reinforcement bars shall conform to AASHTO M-31 or M-322, Grade 60. Prestressing steel shall be uncoated high strength, stress-relieved 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. Required release strength, f_{ci}, shall be 4,050 p.s.i. An equal substitution of the low-relaxation strands for the stress-relieved strands will be permitted.

Lifting loops shall be 7/8" diameter, 6x25 class wire rope with fiber core and shall have a minimum ultimate tensile strength of 63,000 lbs. or 3-1/2" #270 ksi strands, as shown.

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 the top of the beam and the bottom edge of the key.

The 1" 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.

The bearing seat surfaces shall be adjusted by shimming to assure firm and even bearing. Two 1/8" fabric adjusting shims of the dimensions of the Exterior Bearing Pad shall be provided for each bearing.

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Cost of reinforcement and accessories cast into the beam, of bearing pads, and of grouting longitudinal shear keys is incidental to Precast Prestressed Concrete Deck Beams.

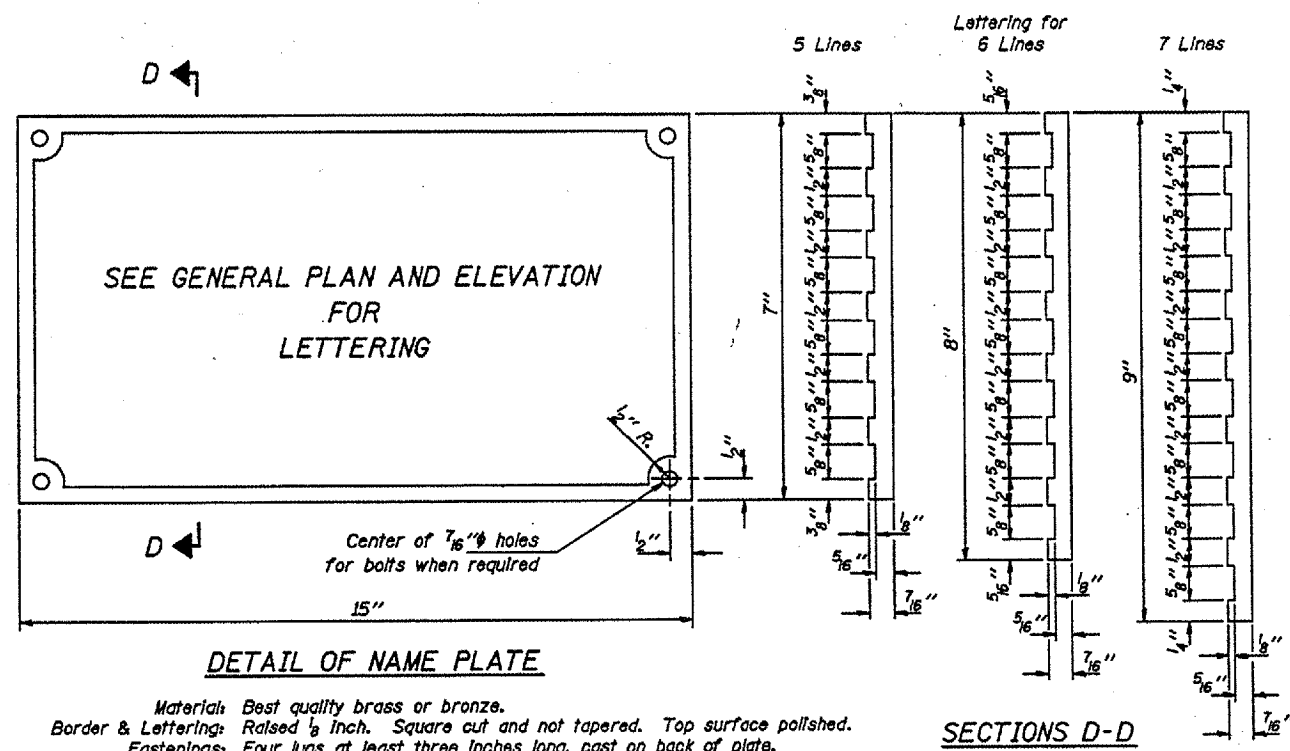
When Waterproofing Membrane System is specified, the top surface of the beams shall be finished in accordance with Article 504.06 of the Standard Specifications except that the surface shall not be roughened by brooming. The finished surface shall be free of depressions or high spots with sharp corners, and the top edge of keys shall be rounded or chamfered a min. of 1/4".

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
A	X	#3	3'-8"	—
A ₁	X	#4	7'-1"	—
B	10	#5	33'-5"	—
B ₁	8	#5	13'-0"	—
B ₂	8	#4	33'-2"	—
U	65	#3	7'-3"	—
U ₁	8	#4	7'-3"	—
Precast Prestressed Concrete Deck Beams			Sq. Ft.	1,558

DECK BEAMS 27" X 48"
HARTLINE CREEK
SECTION 06-01159-00-BR
ALEXANDER COUNTY

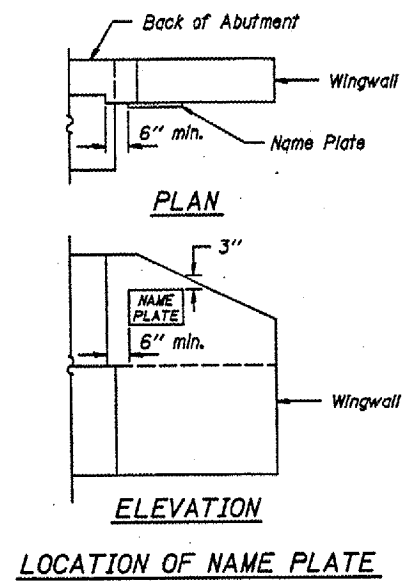
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 39	06-01159-00-BR	ALEXANDER	10	8
PROJECT NO. BROS-003(13)			CONTRACT NO. 99320	



DETAIL OF NAME PLATE

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.

SECTIONS D-D



LOCATION OF NAME PLATE

Illinois Department of Transportation

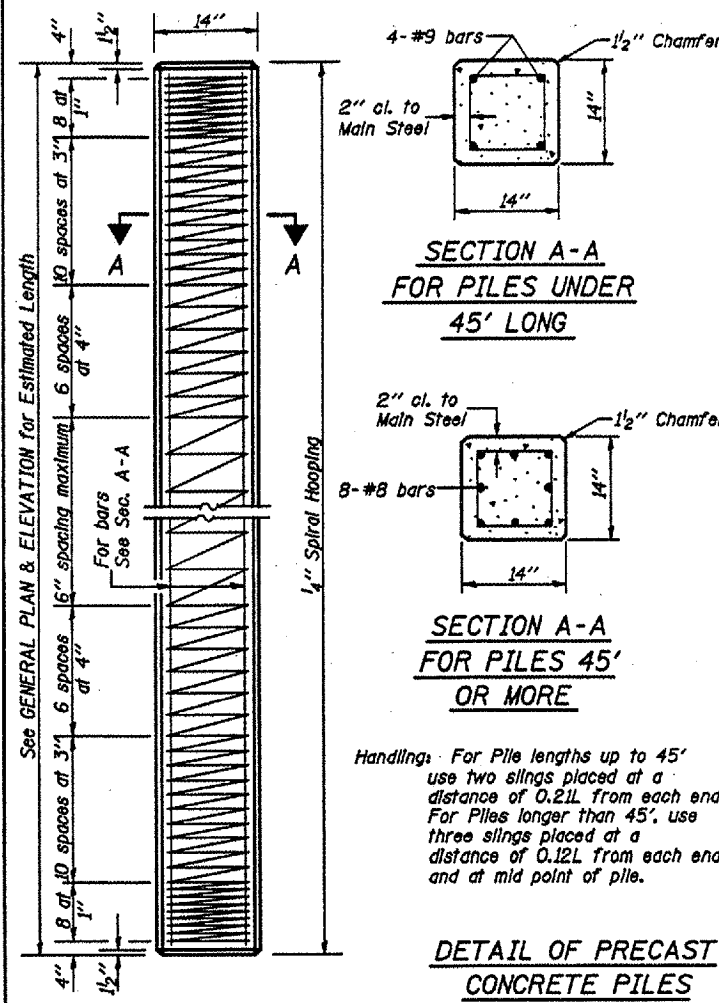
PASSED APRIL 4, 2005
Thomas S. Hennig
 Engineer of Design

APPROVED APRIL 4, 2005
Robert E. Anderson
 Engineer of Bridges and Structures

SHE-1-A, GENISS

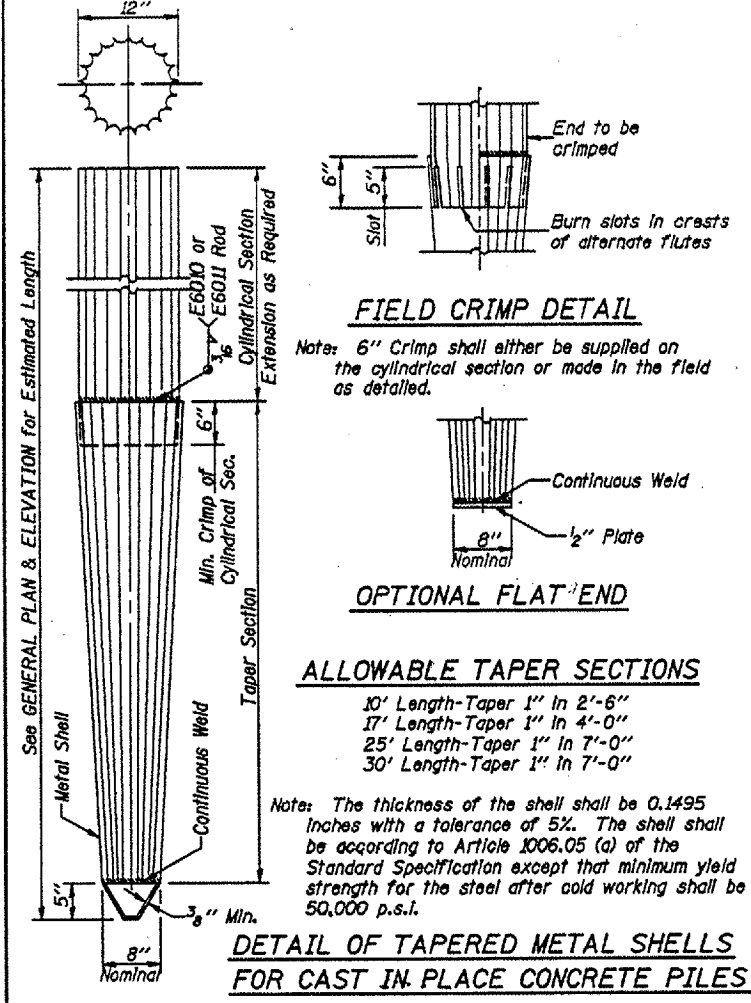
NAME PLATE
 STANDARD CN

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 39	06-01159-00-BR	ALEXANDER	10	9
PROJECT NO. BROS-003(13)			CONTRACT NO. 99320	



Handling: For Pile lengths up to 45' use two slings placed at a distance of 0.21L from each end. For Piles longer than 45', use three slings placed at a distance of 0.12L from each end and at mid point of pile.

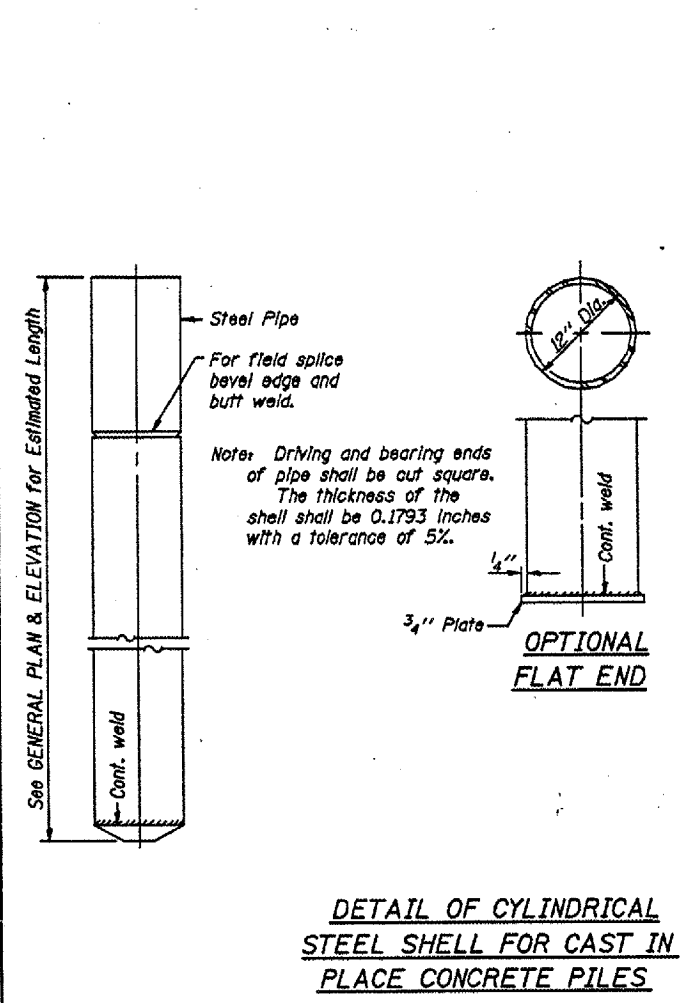
DETAIL OF PRECAST CONCRETE PILES



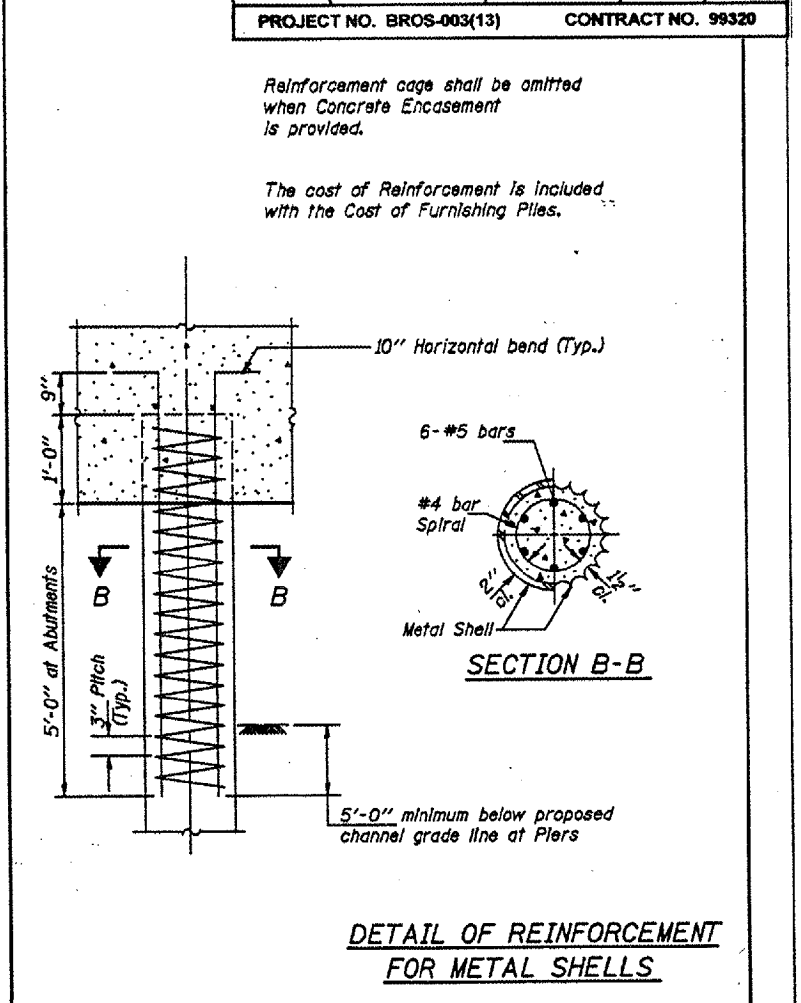
ALLOWABLE TAPER SECTIONS
 10' Length-Taper 1" in 2'-6"
 17' Length-Taper 1" in 4'-0"
 25' Length-Taper 1" in 7'-0"
 30' Length-Taper 1" in 7'-0"

Note: The thickness of the shell shall be 0.1495 inches with a tolerance of 5%. The shell shall be according to Article 1006.05 (a) of the Standard Specification except that minimum yield strength for the steel after cold working shall be 50,000 p.s.i.

DETAIL OF TAPERED METAL SHELLS FOR CAST IN-PLACE CONCRETE PILES



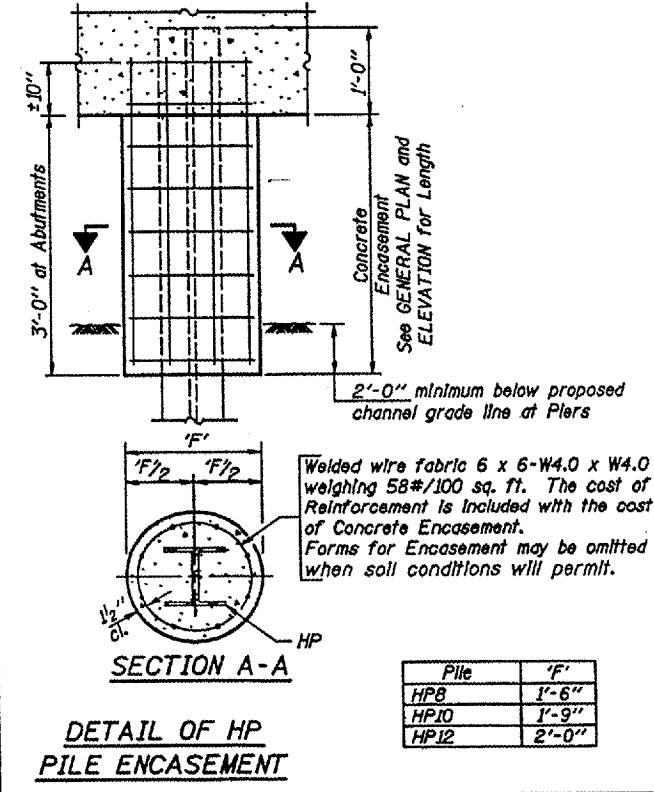
DETAIL OF CYLINDRICAL STEEL SHELL FOR CAST IN-PLACE CONCRETE PILES



Reinforcement cage shall be omitted when Concrete Encasement is provided.

The cost of Reinforcement is included with the Cost of Furnishing Piles.

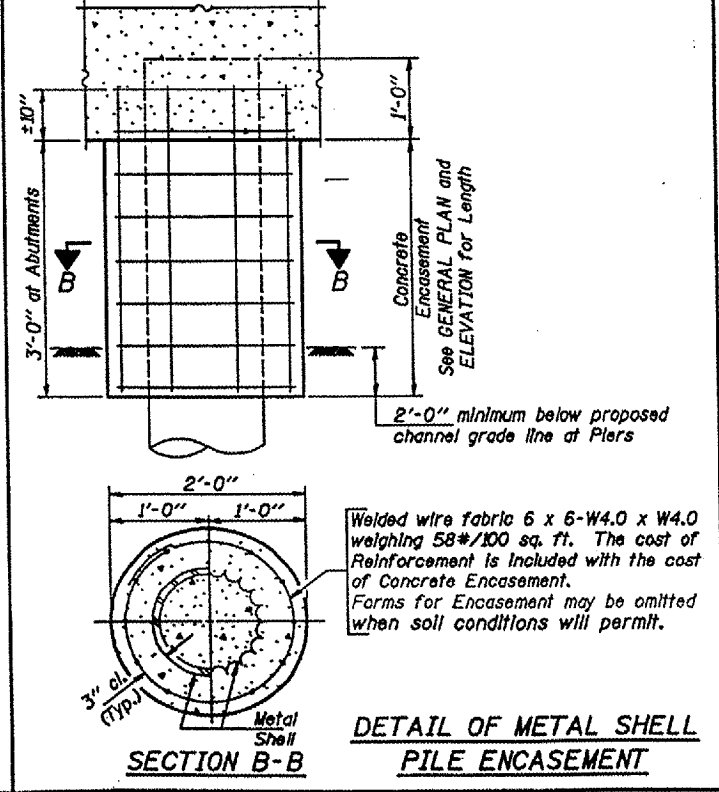
DETAIL OF REINFORCEMENT FOR METAL SHELLS



Welded wire fabric 6 x 6-W4.0 x W4.0 weighing 58#/100 sq. ft. The cost of Reinforcement is included with the cost of Concrete Encasement. Forms for Encasement may be omitted when soil conditions will permit.

Pile	'F'
HP8	1'-6"
HP10	1'-9"
HP12	2'-0"

DETAIL OF HP PILE ENCASEMENT



Welded wire fabric 6 x 6-W4.0 x W4.0 weighing 58#/100 sq. ft. The cost of Reinforcement is included with the cost of Concrete Encasement. Forms for Encasement may be omitted when soil conditions will permit.

DETAIL OF METAL SHELL PILE ENCASEMENT

QUANTITIES/FT. OF ENCASEMENT (STEEL PILES)

Pile Size	Item	Quantity
HP8	Concrete Encasement	0.063 C.Y.
HP10	Concrete Encasement	0.086 C.Y.
HP12	Concrete Encasement	0.112 C.Y.

(METAL SHELL PILES)

Pile Size	Item	Quantity
12" Dia.	Concrete Encasement	0.087 C.Y.

PILE DETAILS

STANDARD CX-1

Illinois Department of Transportation

PASSED FEBRUARY 1, 2000

Approved by: *Thomas J. Hensel*
 Engineer of Bridge Design

APPROVED FEBRUARY 1, 2000

Approved by: *Robert E. Anderson*
 Engineer of Bridges and Structures

