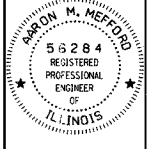


T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
231	03-09108-00-BR	EDWARDS	13	1
FED. ROAD DIST. NO. 7 ILLINOIS		FED. AID PROJECT		
PROJECT # BROS-047(24)		CONTRACT # 95518		
LEC JOB # H031007ED		ONION CREEK		

323 W. 3RD ST.
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47670
PHONE:
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(812)-385-2612

PROFESSIONAL
DESIGN FIRM
LAND SURVEY &
PROFESSIONAL
ENGINEERING
CORPORATION
184-000837
(62-032435)(35-002769)



AARON M. MEFFORD
NAME
Aaron M. Mefford
SIGNATURE
5-21-07
DATE
11-30-07
EXPIRES

ROAD DISTRICT NO. 14
OVER UNION CREEK
EDWARDS COUNTY, ILLINOIS

SHEET TITLE:
TITLE SHEET

SCALE:	VARIES
BY:	AMM
DATE:	5/20/07
REV:	

1 OF 13
SHEETS
SHEET NO.
1

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION PLANS FOR PROPOSED FEDERAL AID – H.B.P. PROJECT

**T.R. 231 EDWARDS COUNTY SECTION 03-09108-00-BR
PROJECT NO. BROS-047(24) JOB NO. C-97-072-07
CONTRACT #95518 ONION CREEK**

INDEX OF SHEETS

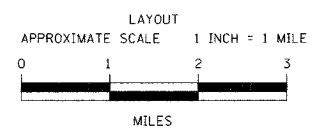
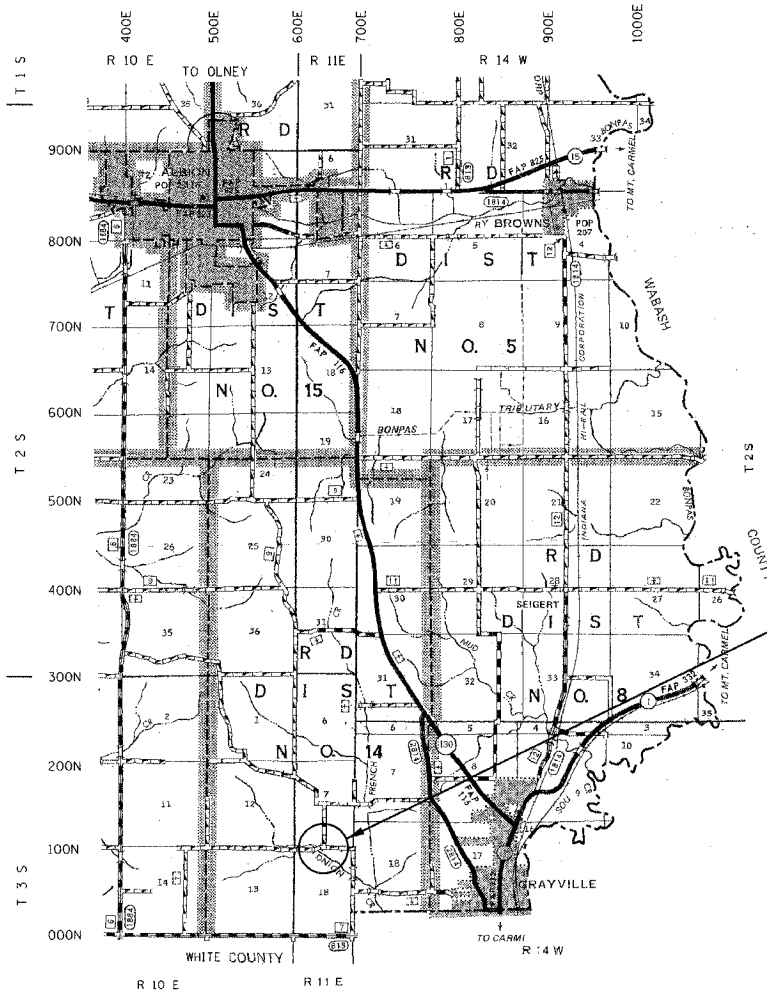
SHEET NO.	DESCRIPTION
1	TITLE SHEET & SUMMARY OF QUANTITIES
2	PLAN & PROFILE, TYPICAL SECTIONS & GENERAL NOTES
3-4	ROADWAY CROSS SECTIONS
5-12	BRIDGE DESIGN
13	CURLED END SECTIONS & STONE RIPRAP DITCH DESIGN

STANDARDS

000001-05	STANDARD SYMBOLS, ABBREVIATIONS & PATTERNS (8 SHEETS)
280001-04	TEMPORARY EROSION CONTROL SYSTEMS (2 SHEETS)
701901	TRAFFIC CONTROL DEVICES
B.L.R. 21-7	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS
B.L.R. 22-5	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS (TWO-LANE TWO-WAY RURAL TRAFFIC) (ROAD CLOSED TO THRU TRAFFIC)

SUMMARY OF QUANTITIES

QUANTITY	UNIT	ITEM	CODE NO.
441.00	CU YD	EARTH EXCAVATION	20200100
410.00	CU YD	CHANNEL EXCAVATION	20300100
46.00	CU YD	FURNISHED EXCAVATION	20400800
0.20	ACRE	SEEDING, CLASS 2 (SPECIAL)	25001000
1.00	EACH	TEMPORARY DITCH CHECKS	28000300
12.00	TON	AGGREGATE (EROSION CONTROL)	28001000
462.00	TON	STONE DUMPED RIPRAP, CLASS A4	28100807
12.00	TON	STONE RIPRAP DITCH	28102600
243.00	TON	AGGREGATE SURFACE COURSE, TYPE B	40200800
1.00	EACH	REMOVAL OF EXISTING STRUCTURES	50100100
21.40	CU YD	CONCRETE STRUCTURES	50300225
2.10	CU YD	CONCRETE ENCASEMENT	50300280
1440.00	SO FT	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	50400505
2620.00	POUND	REINFORCEMENT BARS	50800105
120.00	FOOT	STEEL RAILING, TYPE S1	50900205
182.00	FOOT	FURNISHING STEEL PILES HP10X42	51201400
182.00	FOOT	DRIVING PILES	51202305
1.00	EACH	TEST PILE STEEL HP10X42	51203400
1.00	EACH	NAME PLATES	51500100
1.00	L SUM	MOBILIZATION	67100100



GROSS LENGTH	435.00 FT	0.08 MILES
OMISSIONS	0.00 FT	0.00 MILES
NET LENGTH	435.00 FT	0.08 MILES

PLAN	1" = 50'	
PROFILE	1" = 50'	
PROFILE VERT.	1" = 5'	
CROSS SECTION	1" = 5'	

SECTION 03-09108-00-BR
BEGINS STATION 2+00

STATION 5+00, STRUCTURE NO. 024-3131
A 60' SINGLE SPAN PRECAST PRESTRESSED
CONCRETE DECK BEAM BRIDGE (27" DEPTH,
24' ROADWAY, 0.00% GRADE, 25° RT FORWARD
SKEW.

SECTION 03-09108-00-BR
ENDS STATION 6+35

APPROVED	<i>March 21</i>	20 <i>07</i>
	<i>[Signature]</i>	COUNTY ENGINEER
PASSED	<i>May 30</i>	20 <i>07</i>
	<i>[Signature]</i>	DISTRICT SEVEN ENGINEER OF LOCAL ROADS & STREETS
Releasing For Bid Based on Limited Review	<i>May 30</i>	20 <i>07</i>
	<i>[Signature]</i>	DEPUTY DIRECTOR OF HIGHWAYS, REGION FOUR ENGINEER
STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION		

DESIGN DESIGNATION:
DESIGN SPEED: 30 MPH
HIGHWAY CLASS - LOCAL ROAD
EXISTING STRUCTURE NO.: 024-3074
PROPOSED STRUCTURE NO.: 024-3131
CURRENT A.D.T. = 75
CONTRACT NO. 95518

**J.U.L.I.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
1-800-892-0123**

GENERAL NOTES:

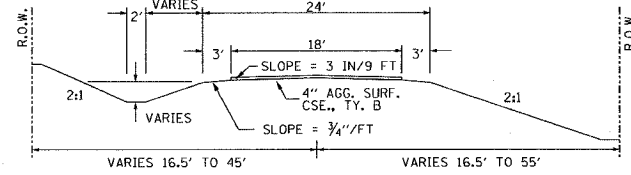
THIS SECTION SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PLANS, SPECIAL PROVISIONS AND "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", ADOPTED JANUARY 1, 2007.

THE WORK INVOLVED ON THIS SECTION CONSISTS OF THE REMOVAL OF THE EXISTING STRUCTURE, THE CONSTRUCTION OF A 60 FOOT LONG SINGLE SPAN PRECAST, PRESTRESSED CONCRETE DECK BEAM BRIDGE, EARTH APPROACHES, AGGREGATE SURFACE COURSE AND OTHER MISCELLANEOUS ITEMS NECESSARY TO COMPLETE THIS SECTION.

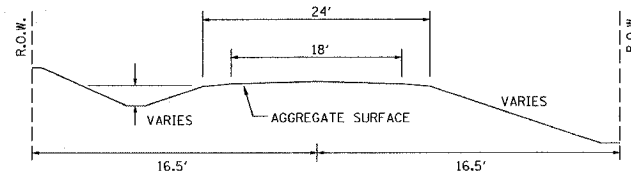
ALL ELEVATIONS ARE BASED ON U.S.G.S. MEAN SEA LEVEL DATUM.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT ALL THE UTILITIES, AFFECTING THE PROJECT, PRIOR TO CONSTRUCTION.

TYPICAL CROSS SECTION PROPOSED



TYPICAL CROSS SECTION EXISTING



UTILITIES:

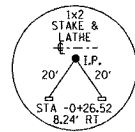
JULI.I.E. 1-800-892-0123

VERIZON
225 E. CHESTNUT
OLNEY, IL 62450
618-395-6181

WAYNE-WHITE ELECTRIC CO-OP
ROUTE 45 WEST
FAIRFIELD, IL 62837
618-842-2196

NOTE: CONSTRUCT SPECIAL DITCH
PAID AS EARTH EX.
STA 3+00 TO STA 4+75 RT

NOTE: CONSTRUCT STONE RIPRAP DITCH
STA 4+50 TO STA 4+75 RT (0.48 TON/LIN FT)
12 TON STONE RIPRAP DITCH ALLOWED IN PROPOSAL.
SEE SHEET NO. 13 FOR STONE RIPRAP DITCH DETAIL.



CURVE #1
P.I. STA: 0+97.68
Δ RT. 03°24'52"
D= 01°41'06"
R= 3400.00'
T= 101.34'
L= 202.62'
E= 1.51'
e= NONE
T.R.= NONE
S.E. RUN= NONE
P.C. STA= -0+03.66
P.T. STA= 1+98.95

WAYNE HINDERLITER

CURVE #3
P.I. STA: 5+84.59
Δ RT. 12°39'15"
D= 12°27'20"
R= 460.00'
T= 51.00'
L= 101.59'
E= 2.82'
e= NONE
T.R.= NONE
S.E. RUN= NONE
P.C. STA= 5+33.59
P.T. STA= 6+35.18

WAYNE HINDERLITER

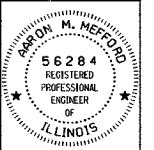
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
231	03-09108-00-BR	EDWARDS	13	2

323 W. 3RD ST.
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ENGINEERING CORPORATION
184-000387
(82-032435)(35-002769)



AARON M. MEFFORD

NAME

SIGNATURE

DATE

11-30-07
EXPIRES

ROAD DISTRICT NO. 14
OVER UNION CREEK
EDWARDS COUNTY, ILLINOIS

SHEET TITLE:

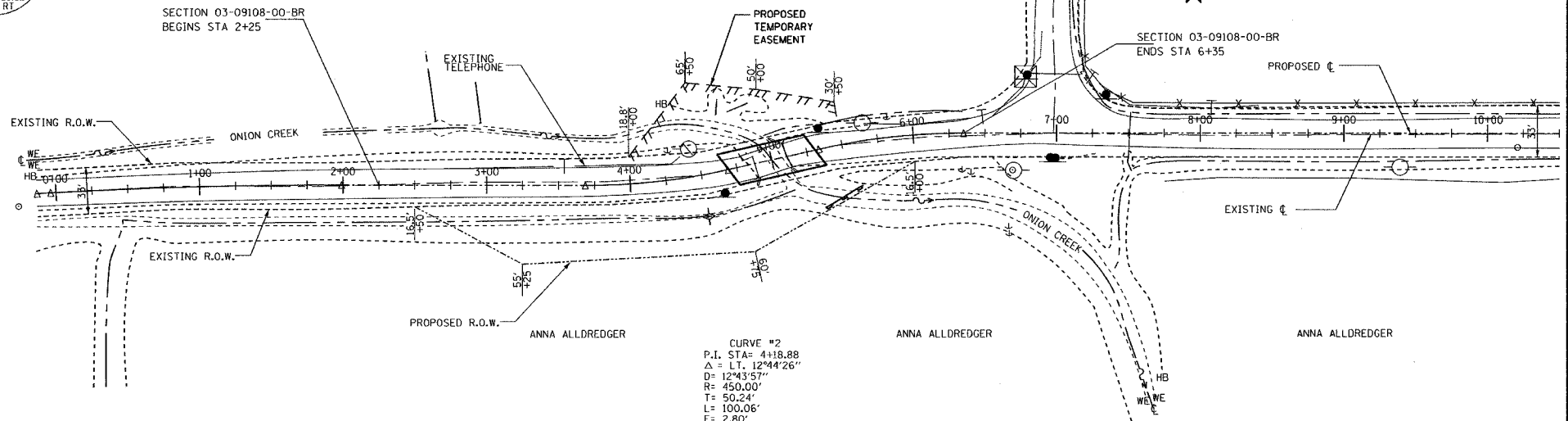
PLAN & PROFILE

SCALE: VARIES
BY: AMM
DATE: W67
REV:

2 OF 13
SHEETS

SHEET NO.

2



EXISTING BRIDGE STA 4+96.91; STRUCTURE NUMBER: 024-3074
A 24' LONG BRIDGE HAVING A CONCRETE DECK SUPPORTED
BY 8-12" STEEL BEAMS ON CONCRETE ABUTMENTS WITH
CONCRETE WINGS.

ONE (1) EACH-REMOVAL OF EXISTING STRUCTURES ALLOWED IN
THIS PROPOSAL.

CURVE #2
P.I. STA: 4+18.88
Δ = LT. 12°44'26"
D= 12°43'57"
R= 450.00'
T= 50.24'
L= 100.06'
E= 2.80'
e= NONE
T.R.= NONE
S.E. RUN= NONE
P.C. STA= 3+68.64
P.T. STA= 4+68.71

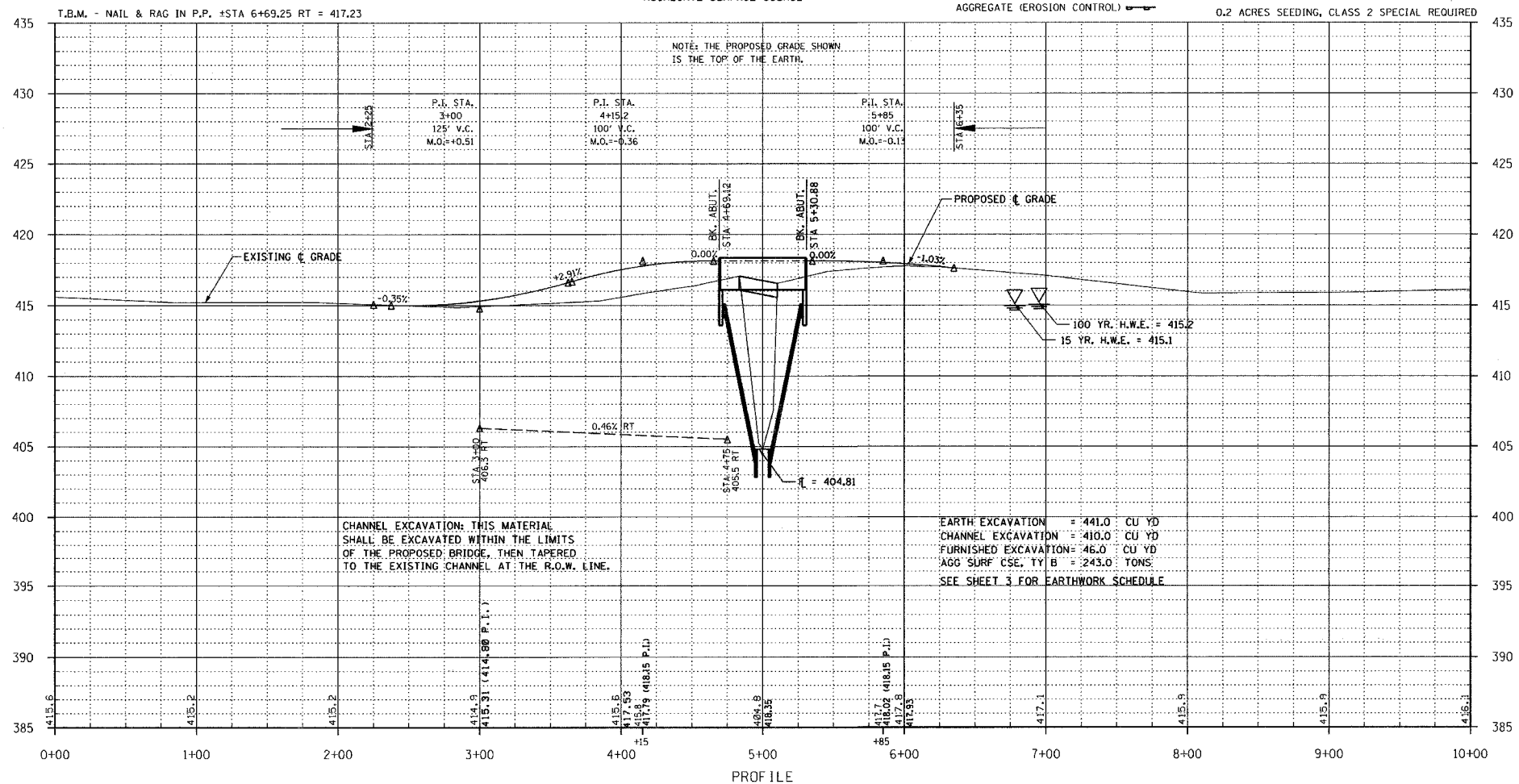
PROPOSED STRUCTURE: NO. 024-3131, STA 5+00,
A 60' LONG SINGLE SPAN P.P.C.D.B. BRIDGE WITH
27" DEPTH BEAMS, SPILL THROUGH TYPE ABUTMENTS,
24' WIDTH, 25° RT SKEW.

SEE SHEETS 5-12 FOR THE DESIGN AND BILL OF MATERIALS.

NOTE: FILL NEXT TO BRIDGE TO BE
AGGREGATE SURFACE COURSE

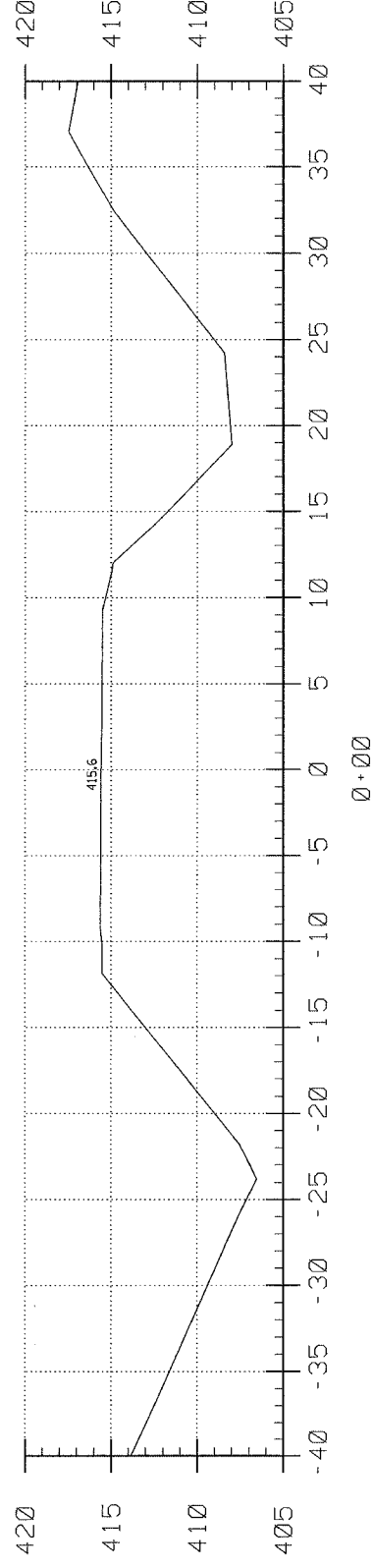
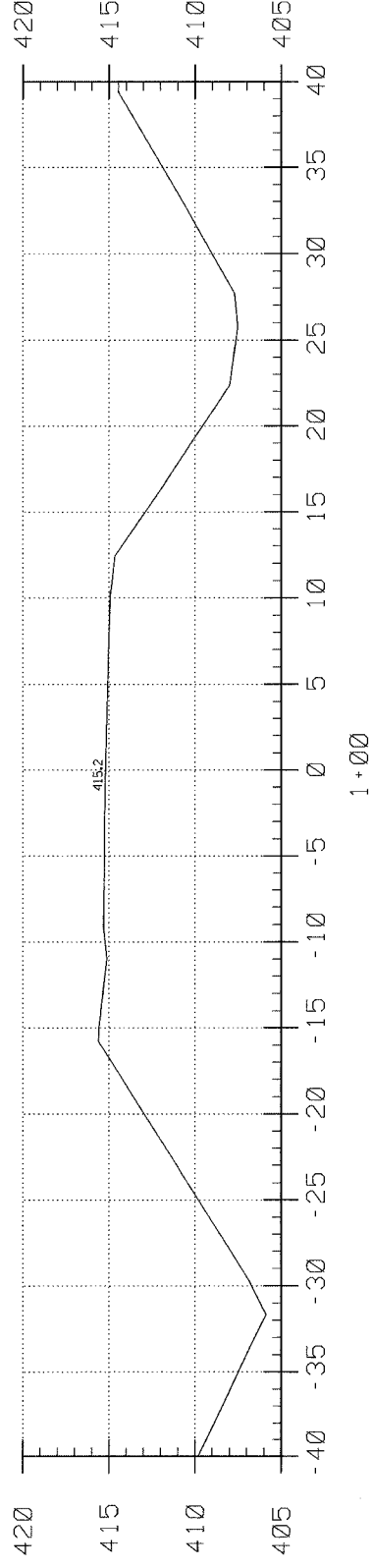
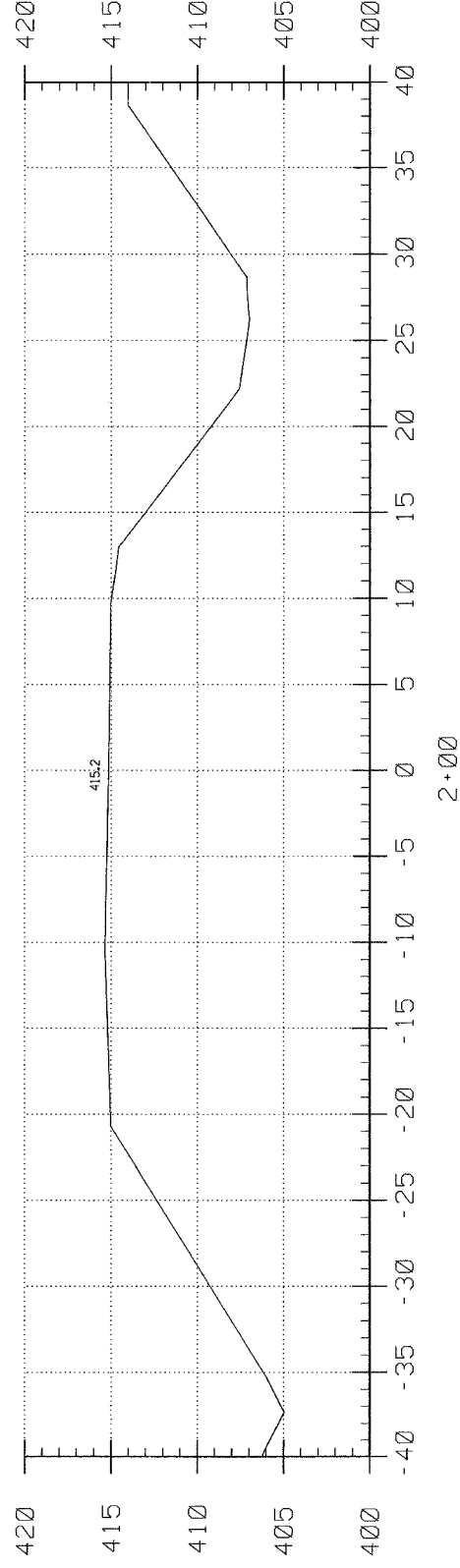
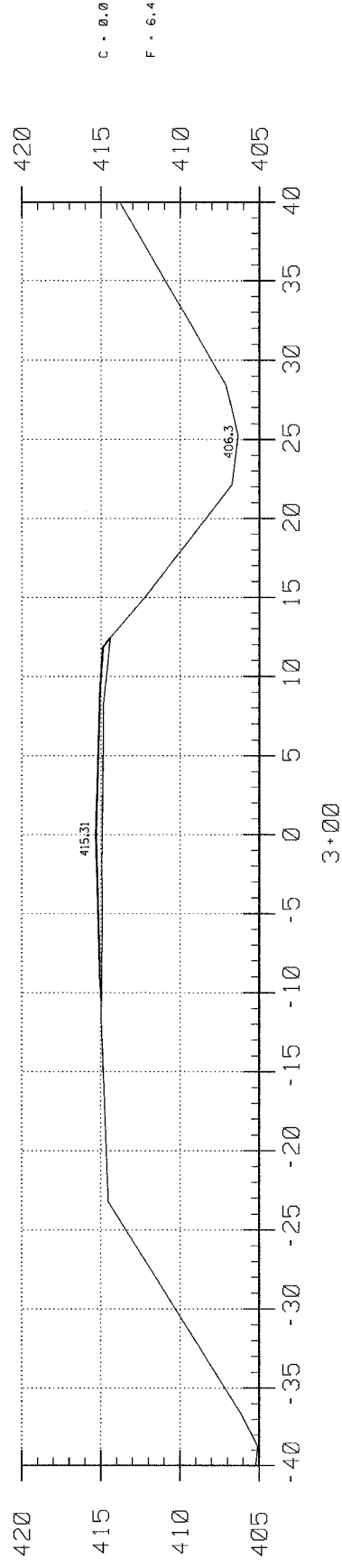
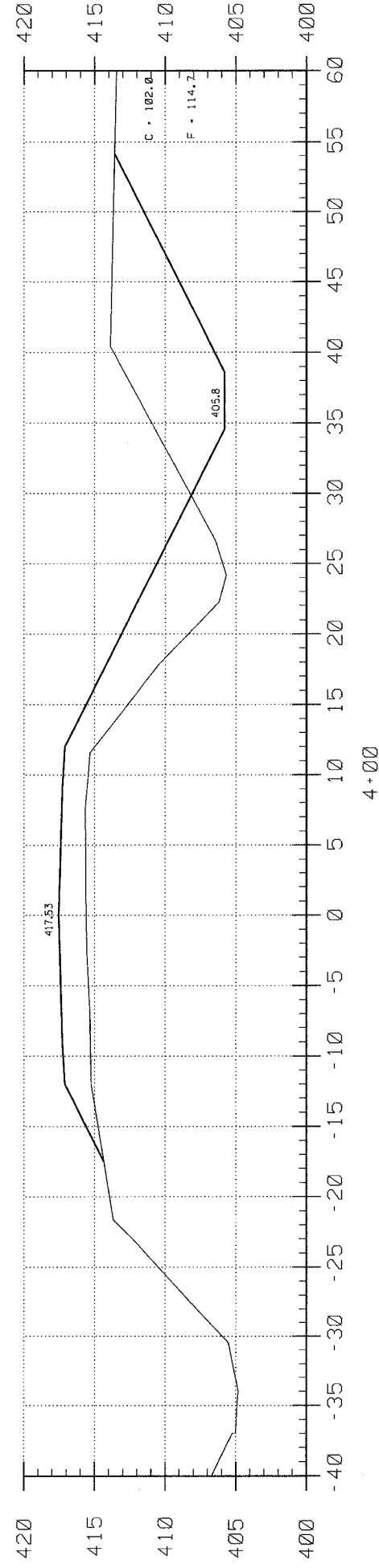
TEMPORARY DITCH CHECKS
AGGREGATE (EROSION CONTROL)

0.2 ACRES SEEDING, CLASS 2 SPECIAL REQUIRED



CHANNEL EXCAVATION: THIS MATERIAL
SHALL BE EXCAVATED WITHIN THE LIMITS
OF THE PROPOSED BRIDGE, THEN TAPERED
TO THE EXISTING CHANNEL AT THE R.O.W. LINE.

EARTH EXCAVATION = 441.0 CU YD
CHANNEL EXCAVATION = 410.0 CU YD
FURNISHED EXCAVATION = 46.0 CU YD
AGG SURF CSE, TY B = 243.0 TONS
SEE SHEET 3 FOR EARTHWORK SCHEDULE



EARTHWORK SCHEDULE

LOCATION	EARTH EXCAVATION		CHANNEL EXCAVATION		ESTIMATED UNSUITABLE MATERIAL		SUITABLE MATERIAL ADJUSTED FOR SHRINKAGE		EMBANKMENT		EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-)	
	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD
STA 0+00 TO 4+69	440.5	0.0	0.0	0.0	0.0	330.4	497.6	-167.2				
STA 4+69 TO 5+31	0.0	409.8	204.9	0.0	153.7	0.0	32.6	153.7				
STA 5+31 TO 10+00	0.8	0.0	0.0	0.0	0.6			-32.0				
TOTAL	441.3	409.8	204.9	484.7	530.2	-45.5						

ROAD DISTRICT NO. 14
OVER UNION CREEK
EDWARD COUNTY, ILLINOIS

SHEET TITLE:

CROSS-SECTIONS

SCALE: 1" = 5'
BY: AMM
DATE: 5/8/07
REV:

3 OF 13 SHEETS

SHEET NO. 3

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
231	03-09108-00-BR	EDWARDS	13	3
FED. ROAD DIST. NO. 7 ILLINOIS		ONION CREEK	CONTRACT NO. 95518	

323 W. 3RD ST.
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62863

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405 W. STATE ST.
SUITE 1
FRINCETON, IN
47670

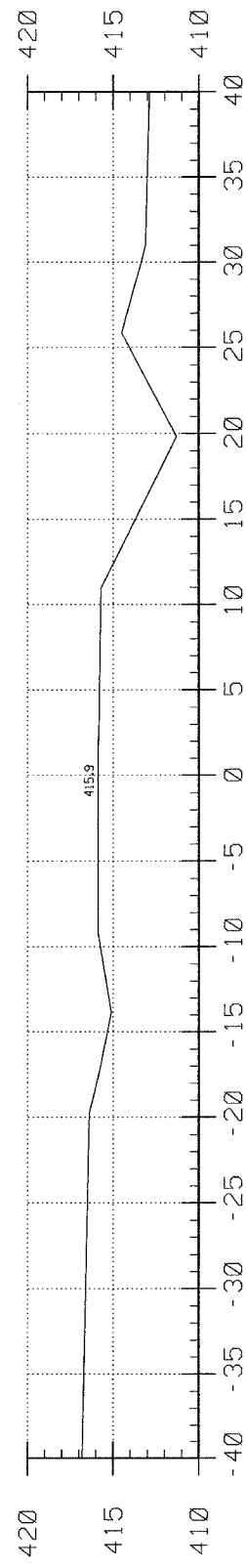
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(812)-385-2612



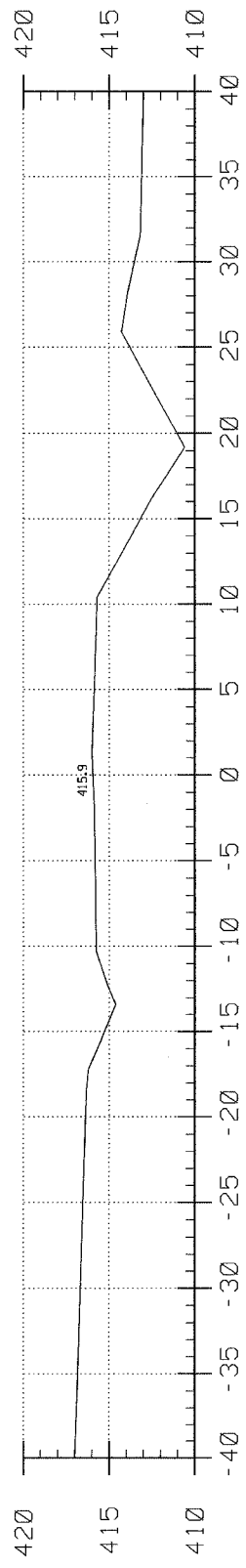
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184-000887
(82-032435)(85-002769)



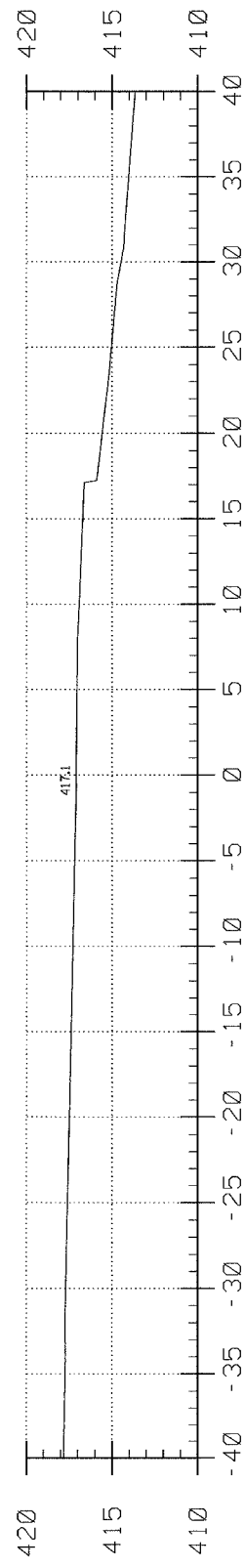
AARON M. MEFFORD
NAME
SIGNATURE
5-21-07
DATE
11-30-07 EXPIRES



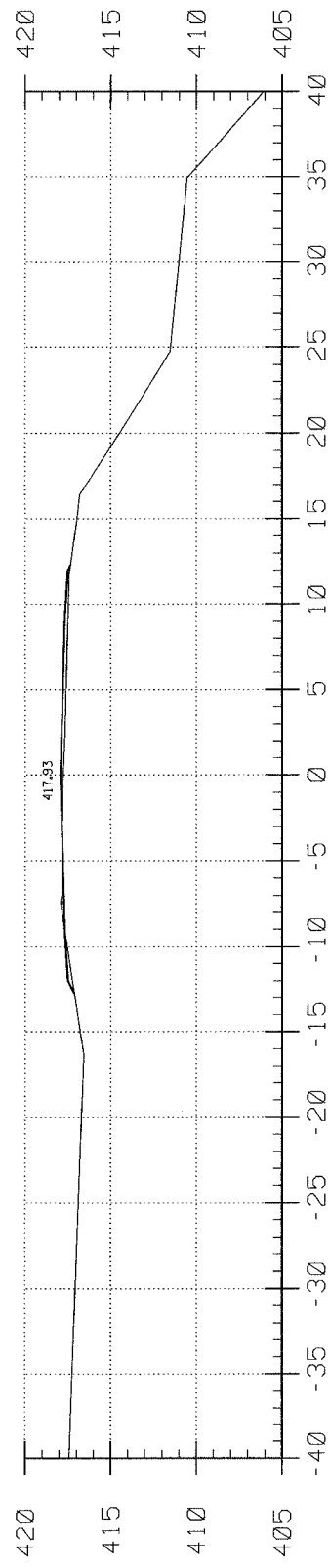
9+00



8+00



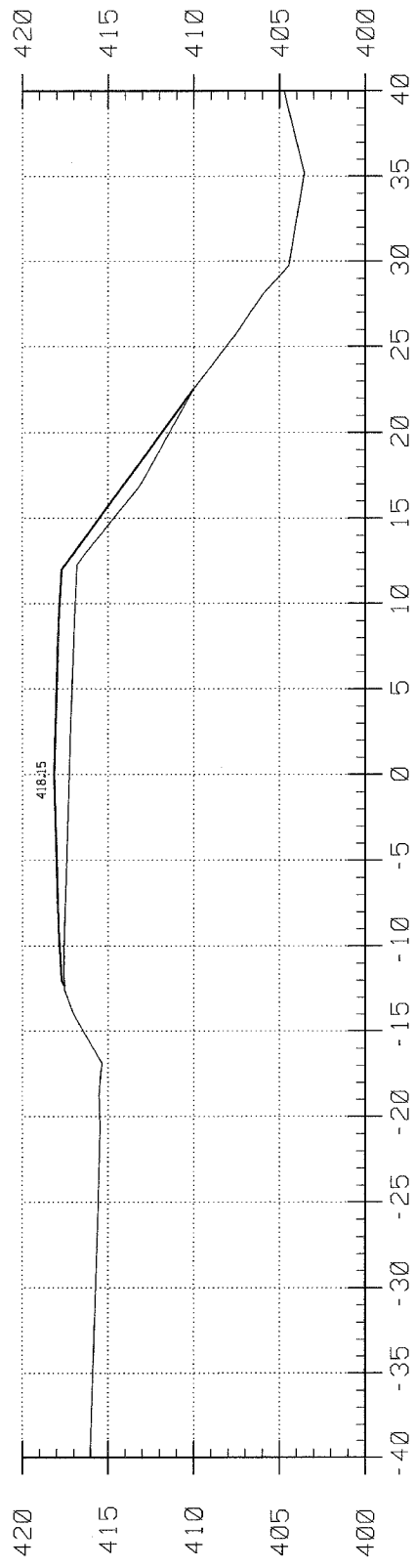
7+00



C = 0.4

F = 2.9

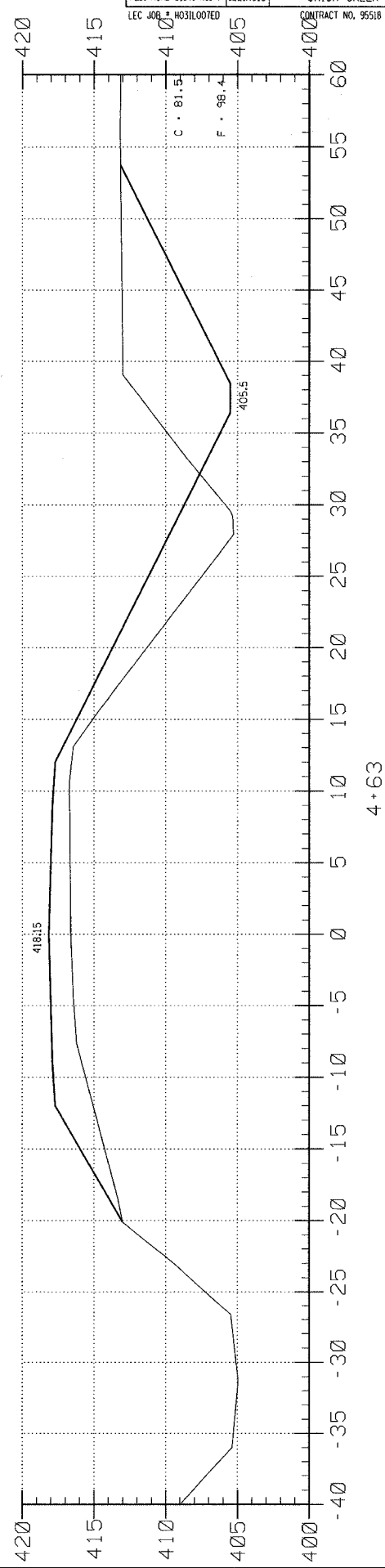
6+00



C = 0.0

F = 24.0

5+40



4+63

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
231	03-09108-00-BR	EDWARDS	13	4

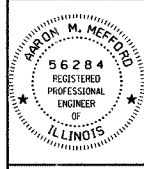
FED. ROAD DIST. NO. 7 ILLINOIS ONION CREEK
 LEC JOB # NOT LOOTED CONTRACT NO. 95518

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 CORPORATION
 184-000387
 (62-032435)(35-002769)



AARON M. MEFFORD
 NAME
Aaron Mefford
 SIGNATURE
 5-21-07
 DATE
 11-30-07
 EXPIRES

ROAD DISTRICT NO. 14
 OVER ONION CREEK
 EDWARD COUNTY, ILLINOIS

SHEET TITLE:

CROSS-SECTIONS

SCALE:	1" = 5'
BY:	AMM
DATE:	5/9/07
REV:	

4 OF 13
 SHEETS

SHEET NO.
 4

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
231	03-09108-00-BR	EDWARDS	13	5
FED. ROAD DIST. NO. 7 ILLINOIS		UNION CREEK		
PROJECT • BROS-047(24)		CONTRACT • 9551B		
LEC JOB # H03L007ED				

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AARON M. MEFFORD
NAME
SIGNATURE
DATE
11-30-07
EXPIRES

ROAD DISTRICT NO. 14
OVER UNION CREEK
EDWARDS COUNTY, ILLINOIS

SHEET TITLE:

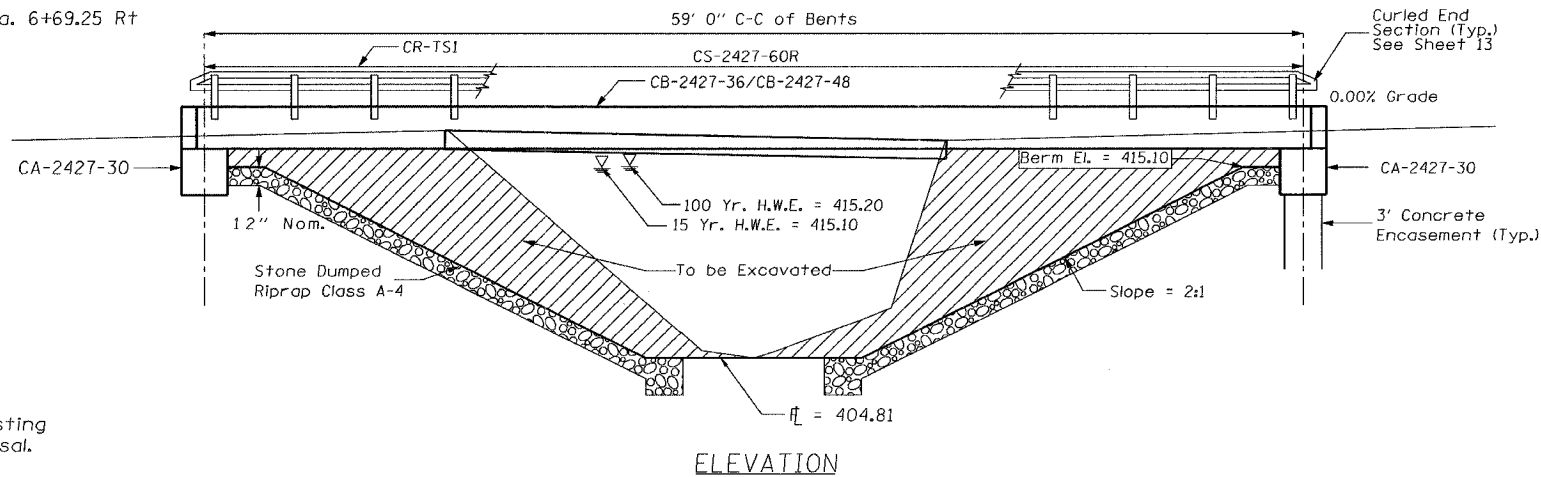
GENERAL PLAN AND ELEVATION

SCALE: NONE
BY: AMM
DATE: 5/21/07
REV:

5 OF 13 SHEETS

SHEET NO. 5

B.M. - Nail & Rag in P.P. ±Sta. 6+69.25 Rt
Elevation = 417.23



Existing Bridge Sta 4+96.91;
Structure Number: 024-3074
A 24' long bridge having a concrete deck supported by 8-12" steel beams on concrete abutments with concrete wings.

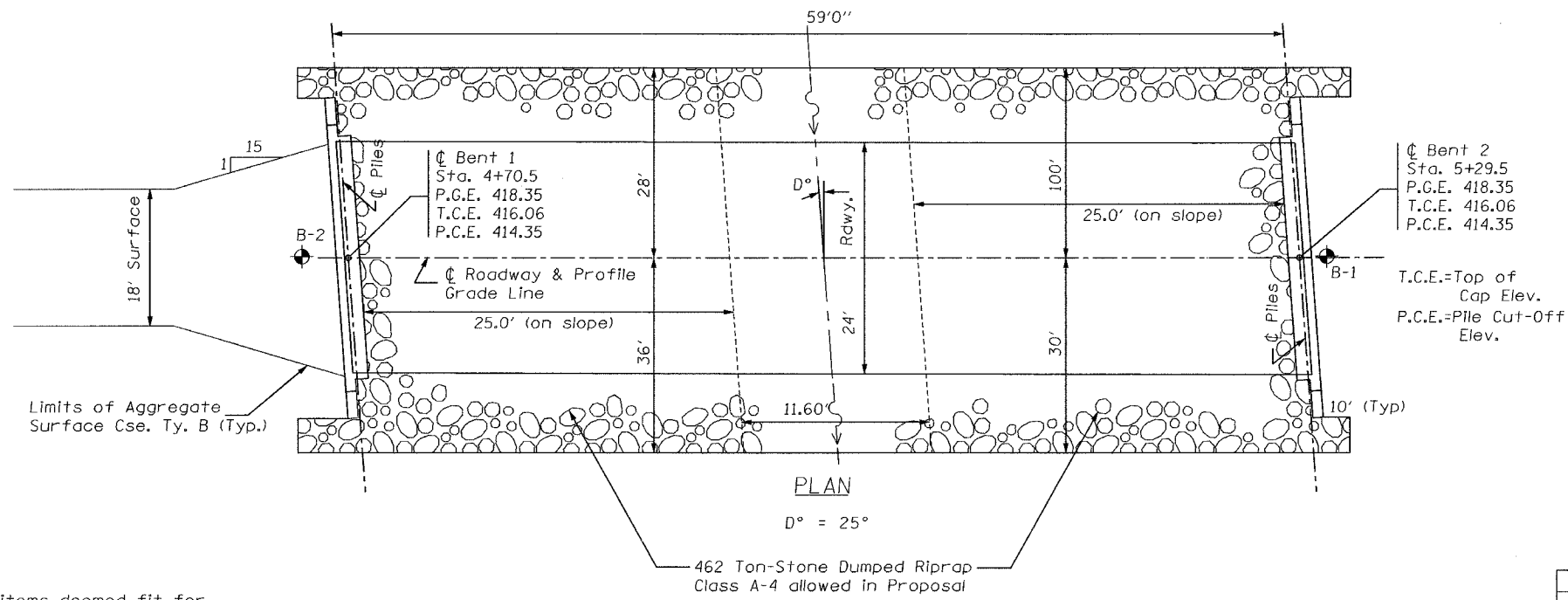
One (1) each removal of existing structures allowed in Proposal.

GENERAL NOTES

- The Contractor shall drive one test pile, as specified, in a permanent location as directed by the Engineer before ordering the remaining piles.
- See Special Provisions for boring logs.
- A Corrosion Inhibitor, as covered in the Special Provisions, shall be used in the concrete for Precast Prestressed Concrete Deck Beams.
- The Hot-Mix Asphalt Surf. Cse. and the Waterproofing Membrane System shown in these Plans shall not be provided.

Item	Unit	Super	Sub.		Total
			Piers	Abuts.	
Removal of Existing Structures	L Sum				1
Hot Mix Asphalt Surf. Cse.	Tons				
Waterproofing Membrane System	Sq.Yds.				
Concrete Structures	Cu.Yds.			21.4	21.4
P.P. Conc. Dk. Bm. 27" Dp.	Sq.Ft.	1440			1440
Steel Railing, Type S1	Lin.Ft.	120			120
Reinforcement Bars	Lbs.			2620	2620
Furnishing Steel Piles HP10X42	Lin.Ft.			182	182
Driving Piles	Lin.Ft.			182	182
Test Pile Steel HP10X42	Each			1	1
Name Plates	Each			1	1
Concrete Encasement	Cu.Yds.			2.1	2.1

NOTE: Four (4) Each Curled End Sections required. Item to be included in Steel Railing



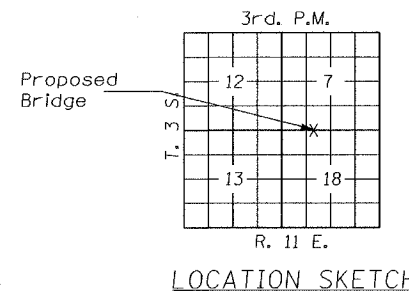
Limits of Aggregate Surface Cse. Ty. B (Typ.)

NOTE: All items deemed fit for use on other Rd. District projects shall become the property of the said Rd. District. These items shall be stored along the R.O.W. at no additional cost to the project.

PILE DATA (2-ABUTS.)

Type: Steel Piles HP10X42
Nominal Required Bearing: 334.8 kips
Allowable Resistance Available: Drive to Refusal
Estimated Length: 26 Feet/Piles
Number Required: 8 (Includes 1 Test Pile in Bent #1)

STATION 5+00
UNION CREEK
SEC. 03-09108-00-BR BUILT 20
PROJECT NO. BROS-047(24)
EDWARDS COUNTY
LOADING HS20-44
STR. NO. 024-3131



LETTERING FOR NAME PLATE

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

WATERWAY INFORMATION

Drainage Area = 4.9 Sq. Mi. Low Grade Elev. = 415.16 At Sta. 2+00									
Flood	Freq. Yr.	Opening		Natural H.W.E.	Head-Ft.		Headwater El.		
		0 C.F.S.	Sq.Ft.		Exist.	Prop.	Exist.	Prop.	
Design	15	1420	160	415.10	0.18	0.05	415.28	415.15	
Base	100	2305	163	415.20	3.74	0.99	418.94	416.19	
Overtopping									
Max. Calc.	500	3045							

GENERAL PLAN & ELEVATION

TOWNSHIP ROUTE 231
OVER UNION CREEK
SECTION 03-09108-00-BR
EDWARDS COUNTY
STATION 5+00

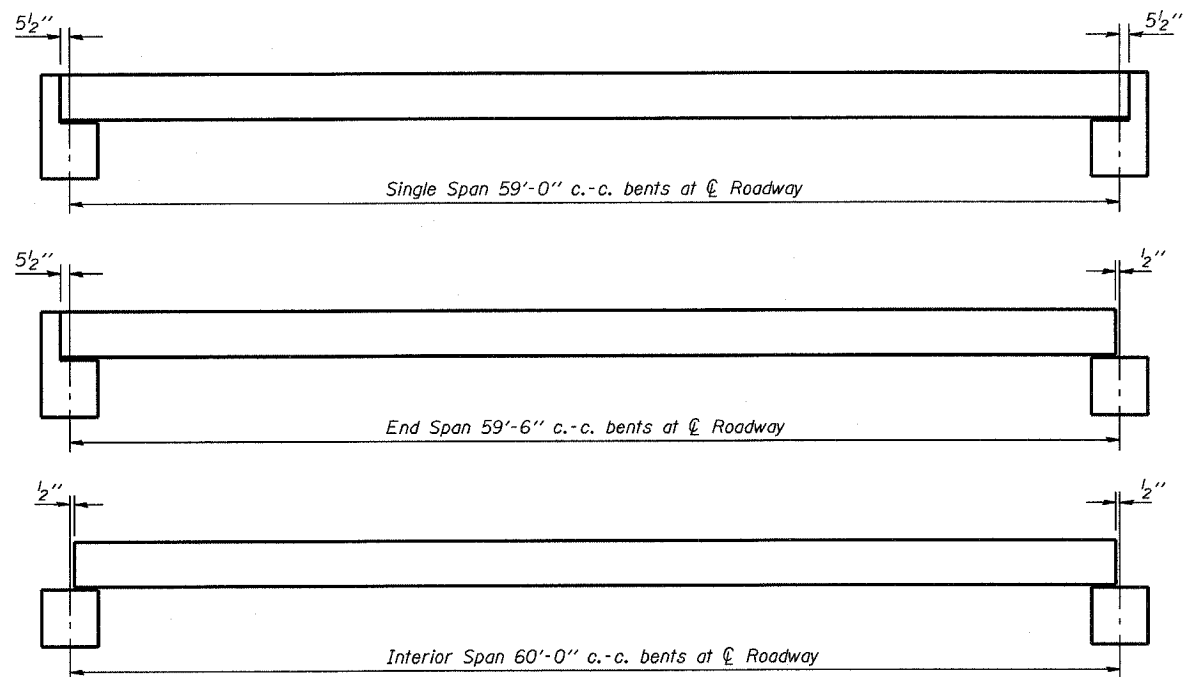
NOTE: The Article or Section Numbers Referencing the Standard Specifications for Road and Bridge Construction as shown on the Standard Bridge Plan Sheets Included with the contract plans should be interpreted as referring to the current edition of the Standard Specification (Adopted January 1, 2007) as shown in the "Article/Section No. Reference Table."

ARTICLE/SECTION NO. REFERENCE TABLE

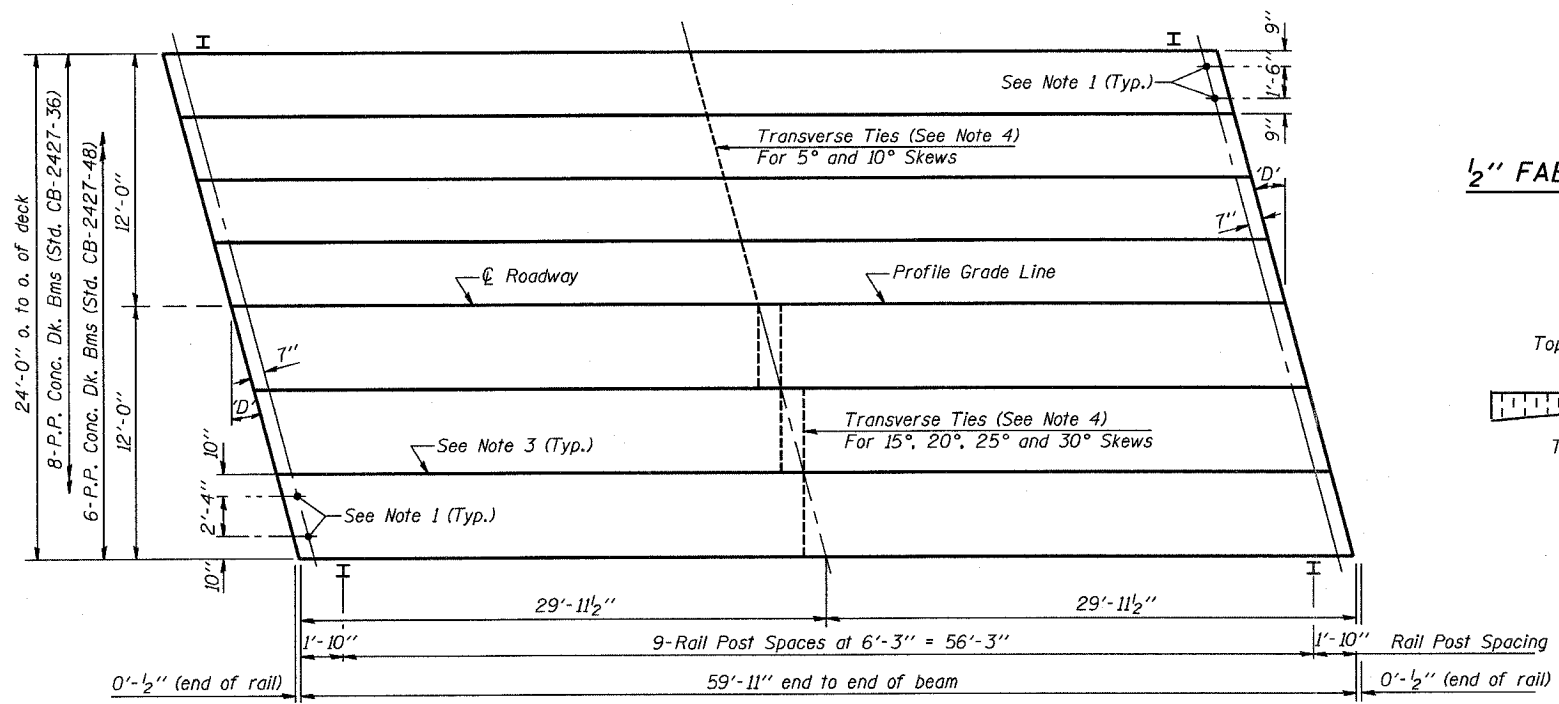
Previous No.	Current No.
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505.04	505.04
1006.05	1006.05
1006.32	1006.32
1060.07	1060.07
STD 631026	STD 631026

DESIGN SPECIFICATIONS

2002 AASHTO
HS 20-44 Loading, Load Factor Design



TYPICAL ELEVATIONS

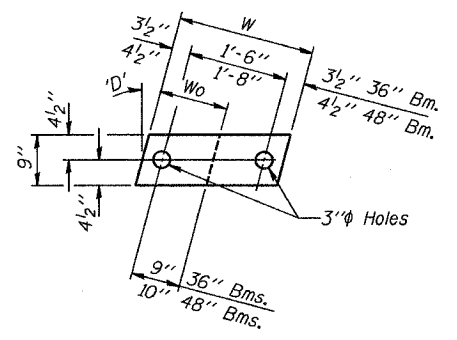
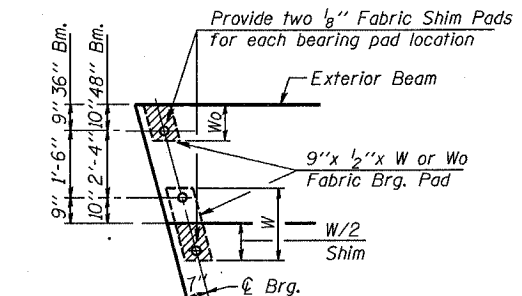


PLAN

('D' = Designated Skew Angle)

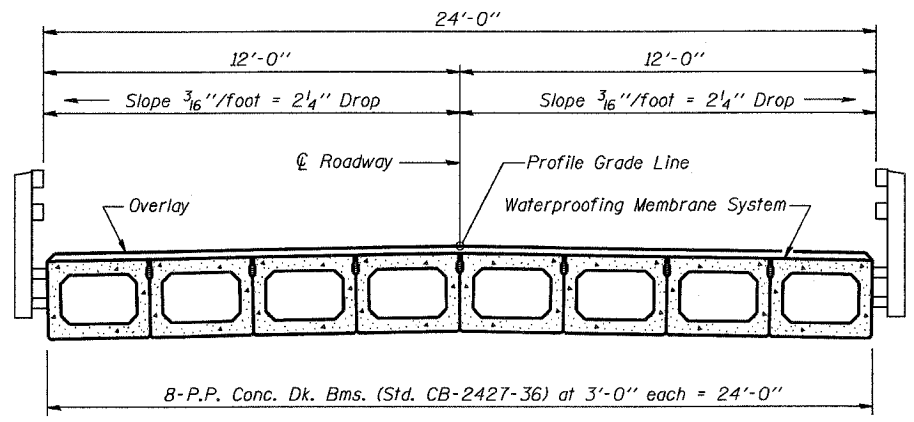
NOTES

1. 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 min. 24 hrs. prior to grouting the shear keys.
2. Nominal 1" joint at centerline pier shall be filled with non-shrink grout.
3. Longitudinal keys shall be grouted.
4. The 1" diameter rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets that receive transverse tie bar outside shall be filled with grout after transverse tie assembly is in place.

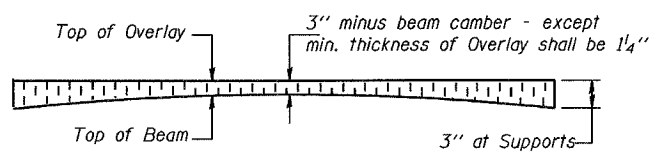
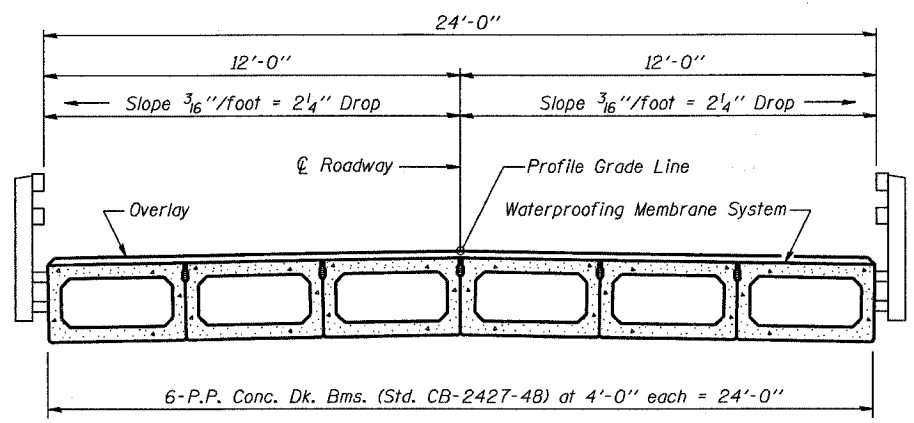


Beam	W	Wo
36"	2'-1"	1'-0 1/2"
48"	2'-5"	1'-2 1/2"

1/2" FABRIC BRG. PAD DETAILS



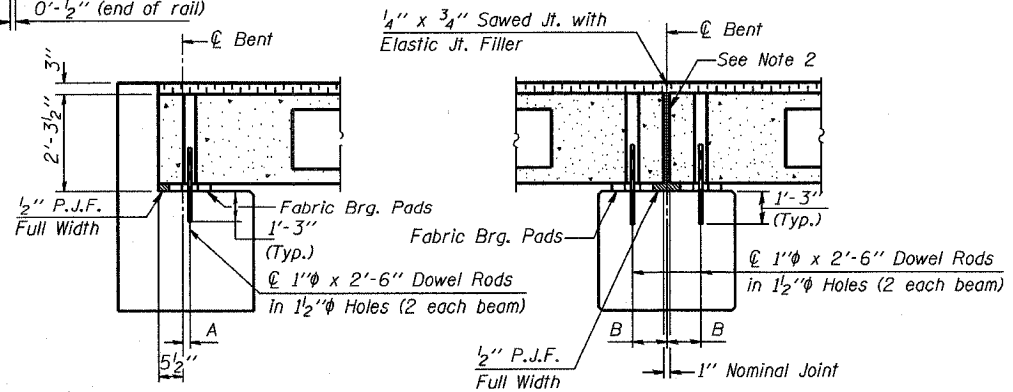
CROSS SECTION



PROFILE OF OVERLAY

DIMENSIONS 'A' AND 'B'

'D'	5°	10°	15°	20°	25°	30°
A	1 1/2"	1 5/8"	1 3/4"	1 7/8"	2 1/4"	2 5/8"
B	7 1/2"	7 3/8"	7 3/4"	8"	8 1/4"	8 5/8"



SECTION AT ABUTS.
(Along centerline Beams)

SECTION AT PIERS
(Along centerline Beams)

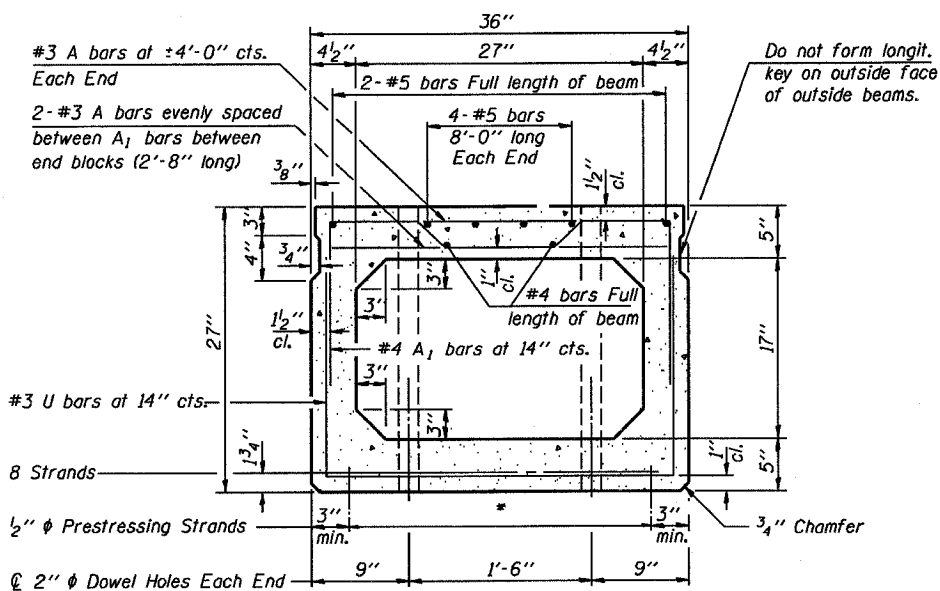
QUANTITIES FOR ONE SPAN

P.P.C. Conc. Dk. Bm. 27" Dp.	1440 Sq. Ft.
Steel Railing	120 Ft.
Waterproofing Membrane System	160.0 Sq. Yds.
Portland Cement Mortar	420 Ff.
Fairing Course	300 Ff.

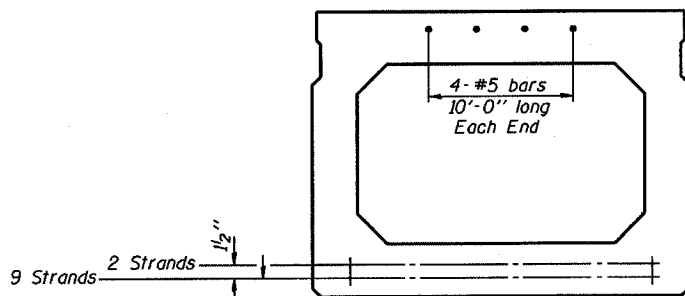
Note: Quantity of overlay for one span = 18.0 Tons

P.P.C. DECK BEAM SUPERSTRUCTURE			
24' RDWY.	27" BMS.	60' SPAN	RIGHT
STANDARD CS-2427-60R			

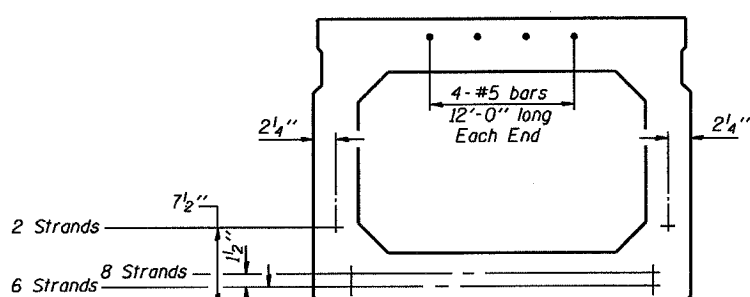
Illinois Department of Transportation
 PASSED APRIL 4, 2005
 Thomas J. Demagallibi
 Engineer of Bridge Design
 APPROVED APRIL 4, 2005
 Robert E. Anderson
 Engineer of Bridges and Structures



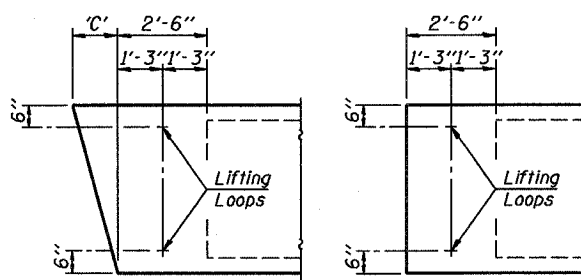
CROSS SECTION
(40' SPAN)



CROSS SECTION
(50' SPAN)

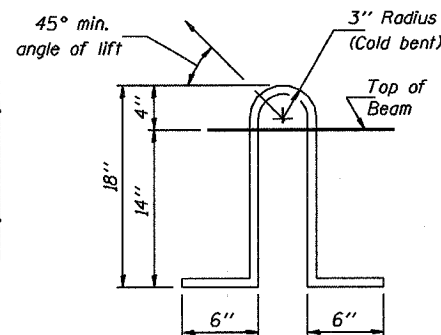


CROSS SECTION
(60' SPAN)



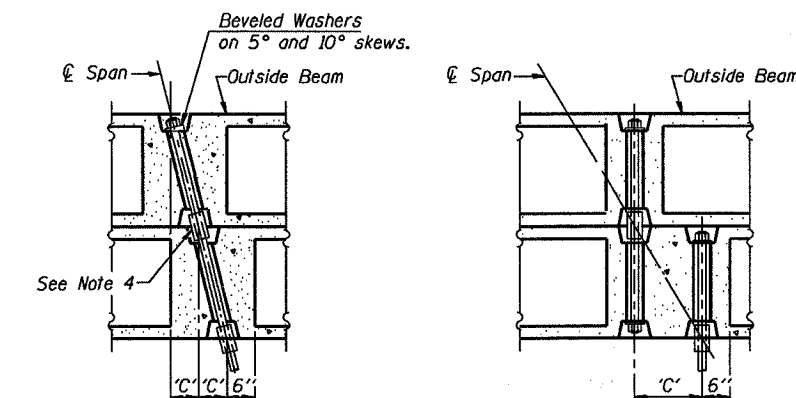
END BLOCK DETAILS

Each beam shall have four Lifting Loops, two at each end of beam cast in locations shown above. Loops shall be burned off after beams have been erected.



LIFTING LOOP DETAIL

Lifting loops shall be 2, 1/2" diameter-270 ksi strands, as shown. Alternate approved lifting devices are also acceptable.



PARTIAL PLAN TRANSVERSE TIE ASSEMBLY
(D'=0°, 5° and 10°)

PARTIAL PLAN TRANSVERSE TIE ASSEMBLY
(D'=15°, 20°, 25° and 30°)

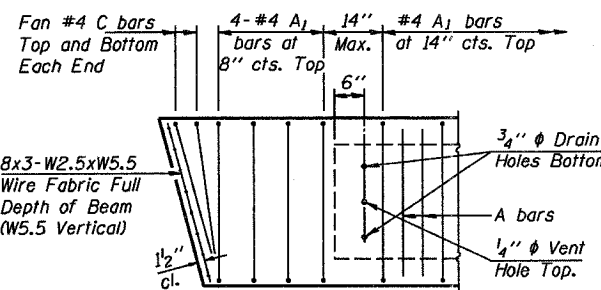
DIMENSION 'C'

Skew Angle 'D'	0°	5°	10°	15°	20°	25°	30°
Dimension 'C' (Inches)	0	3/8	6 3/8	9 5/8	13 3/8	16 3/4	20 3/4

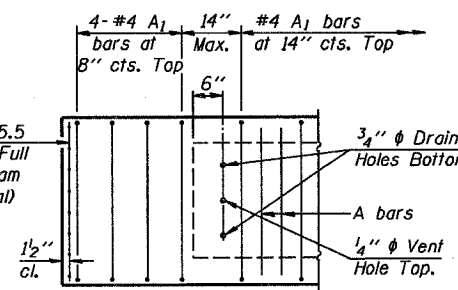
*** TRANSVERSE STRAND PLACEMENT GUIDELINES**

- Place strands symmetrically about centerline of beam.
- The minimum distance from center to center of strands in all directions shall be 2".
- The minimum clearance from strand to dowel hole shall be 1/2".
- The minimum clearance from strand to void shall be 1/2".

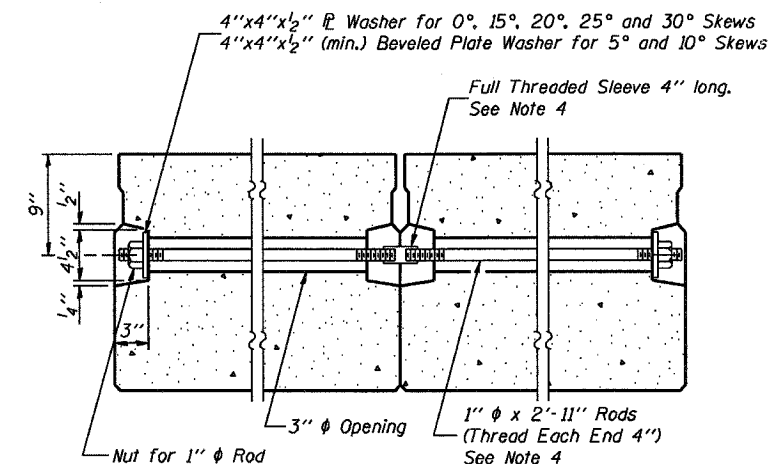
Vertical placement of strands shall not be adjusted to satisfy the above guidelines.



END REINFORCEMENT
(SKEWED)



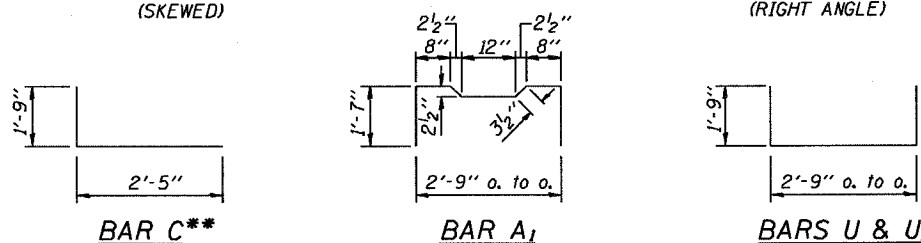
END REINFORCEMENT
(RIGHT ANGLE)



SECTION ALONG TRANSVERSE TIE ASSEMBLY
(REQUIRED FOR 50' & 60' SPANS ONLY)

NOTES

- Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270.
- The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 square inches.
- Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-322, Grade 60.
- On 0°, 5° and 10° skew, alternate approved transverse tie rods of increased segmental length are acceptable.
- Rail Post anchor devices shall be cast into outside beam as elsewhere specified.
- When a Waterproofing Membrane System is specified, the top surface of the beams shall be screeded with a straightedge and finished with a hand float. 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 minimum of 1/4".
- 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.



DESIGN STRESSES

$f'_c = 5,000$ p.s.i.
 $f'_{ci} = 4,000$ p.s.i.
 $f'_s = 270,000$ p.s.i. (1/2" diameter Strand)
 $f_{sl} = 201,960$ p.s.i. (1/2" diameter Strand)
 $f_y = 60,000$ p.s.i.

MIN. BAR LAP

#4 bars = 1'-4"
 #5 bars = 1'-8"

****NOTE:**
 The following number of C bars shall be used:

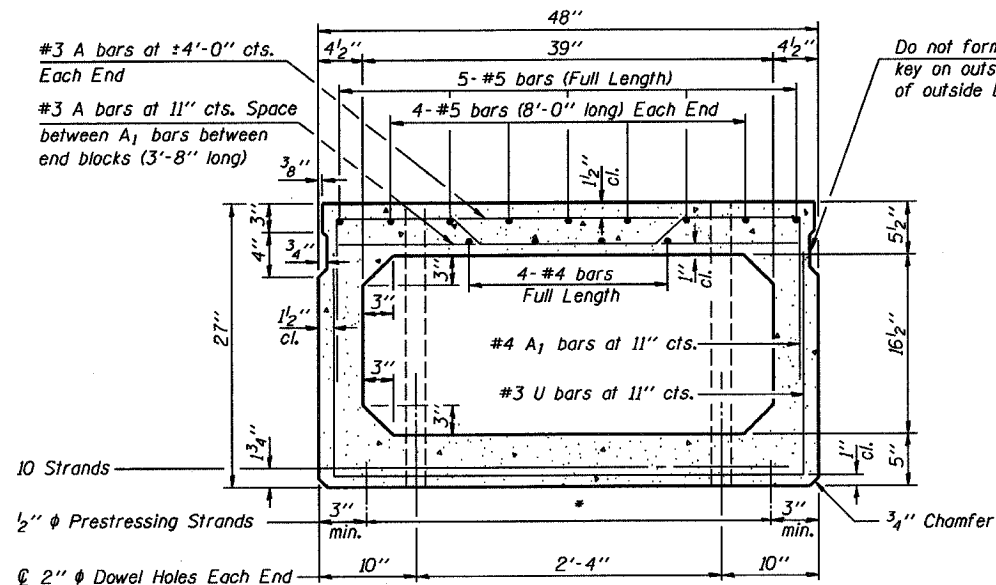
Skew	No.
5° and 10°	1
15° and 20°	2
25° and 30°	3

NOTE:
 The std. reinf. and dimensions shown on the 40' span cross section is typical for all spans, except as shown.

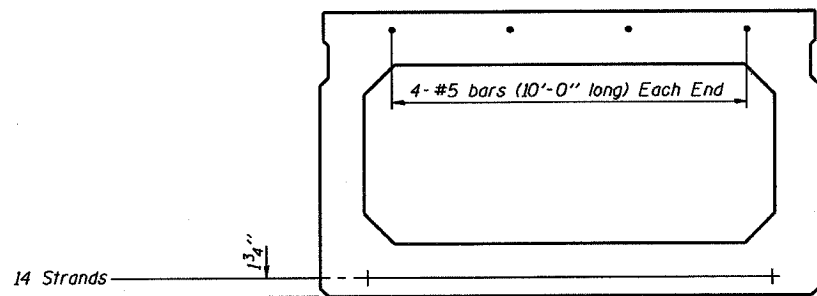
Illinois Department of Transportation
 PASSED APRIL 4, 2005
 Thomas S. Ramagala
 Engineer of Bridge Design
 APPROVED APRIL 4, 2005
 Ralph E. Anderson
 Engineer of Bridges and Structures

P.P.C. DECK BEAM DETAILS

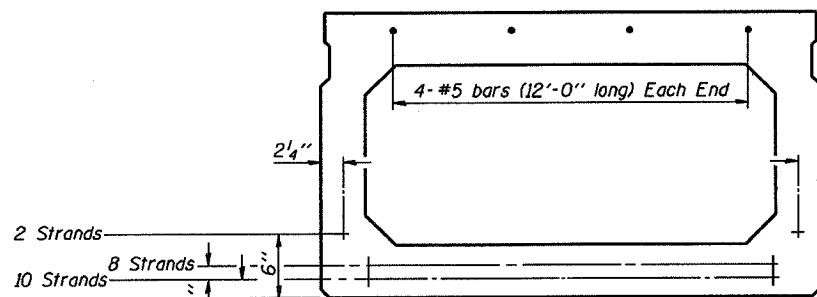
24' ROADWAY	27" x 36" BEAMS
STANDARD CB-2427-36	



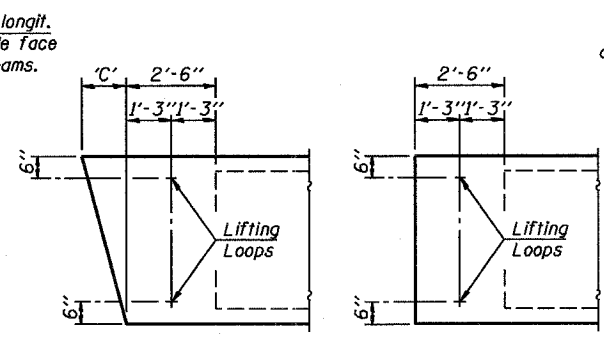
CROSS SECTION
(40' SPAN)



CROSS SECTION
(50' SPAN)

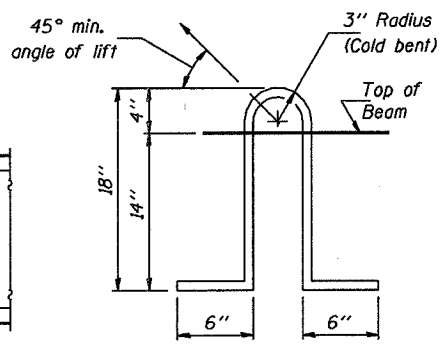


CROSS SECTION
(60' SPAN)



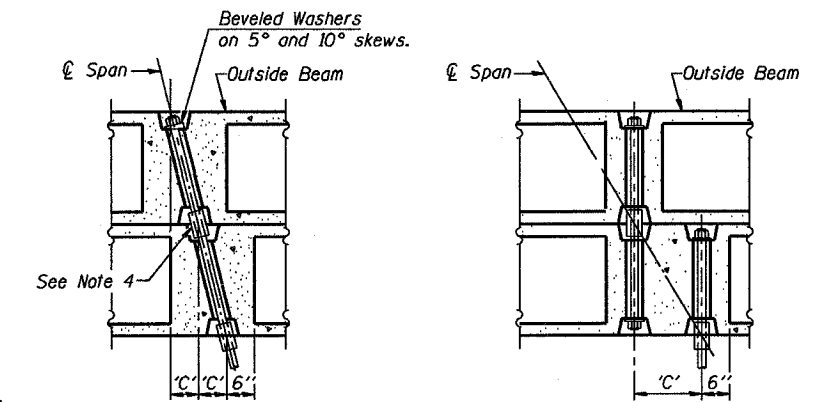
END BLOCK DETAILS

Each beam shall have four Lifting Loops, two at each end of beam cast in locations shown above. Loops shall be burned off after beams have been erected.



LIFTING LOOP DETAIL

Lifting loops shall be 3, 1/2" phi 270 ksi strands, as shown. Alternate approved lifting devices are also acceptable.



PARTIAL PLAN TRANSVERSE TIE ASSEMBLY
(D=0°, 5° and 10°)

PARTIAL PLAN TRANSVERSE TIE ASSEMBLY
(D=15°, 20°, 25° and 30°)

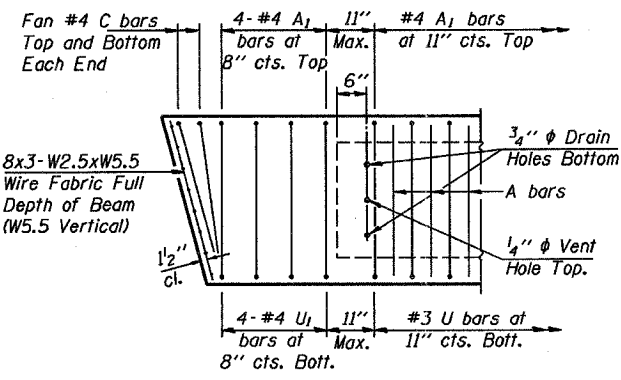
DIMENSION 'C'

Skew Angle 'D'	0°	5°	10°	15°	20°	25°	30°
Dimension 'C' (Inches)	0	4 1/4	8 1/2	12 7/8	17 1/2	22 3/8	27 3/4

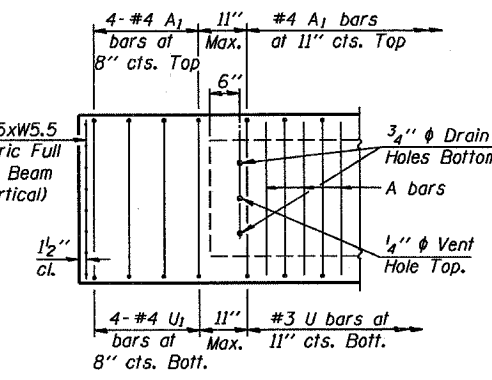
*** TRANSVERSE STRAND PLACEMENT GUIDELINES**

1. Place strands symmetrically about centerline of beam.
2. The minimum distance from center to center of strands in all directions shall be 2".
3. The minimum clearance from strand to dowel hole shall be 1/2".
4. The minimum clearance from strand to void shall be 1 1/2".

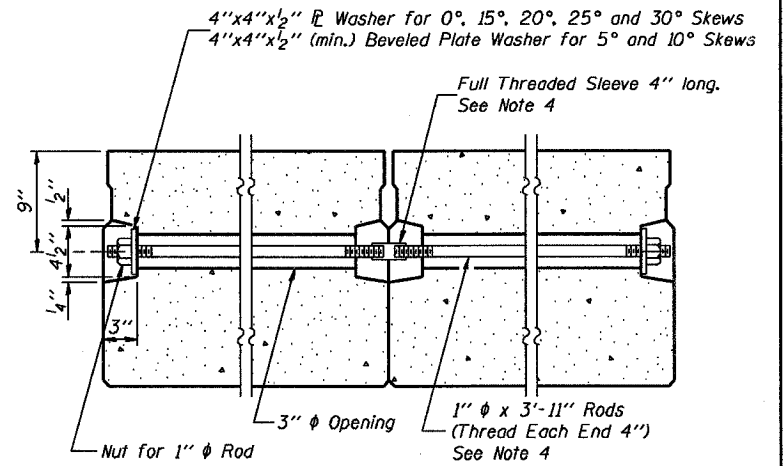
Vertical placement of strands shall not be adjusted to satisfy the above guidelines.



END REINFORCEMENT
(SKEWED)



END REINFORCEMENT
(RIGHT ANGLE)



SECTION ALONG TRANSVERSE TIE ASSEMBLY
(REQUIRED FOR 50' & 60' SPANS ONLY)

NOTES

1. Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270.
2. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 square inches.
3. Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-322, Grade 60.
4. On 0°, 5° and 10° skews, alternate approved transverse tie rods of increased segmental length are acceptable.
5. Rail Post anchor devices shall be cast into outside beam as elsewhere specified.
6. When a Waterproofing Membrane System is specified, the top surface of the beams shall be screeded with a straightedge and finished with a hand float. 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 minimum of 1/4".
7. 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.

DESIGN STRESSES

- $f'_c = 5,000$ p.s.i.
- $f'_{ci} = 4,000$ p.s.i.
- $f'_s = 270,000$ p.s.i. (1/2" phi Strand)
- $f_{sl} = 201,960$ p.s.i. (1/2" phi Strand)
- $f_y = 60,000$ p.s.i.

MIN. BAR LAP

- #4 bars = 1'-4"
- #5 bars = 1'-8"

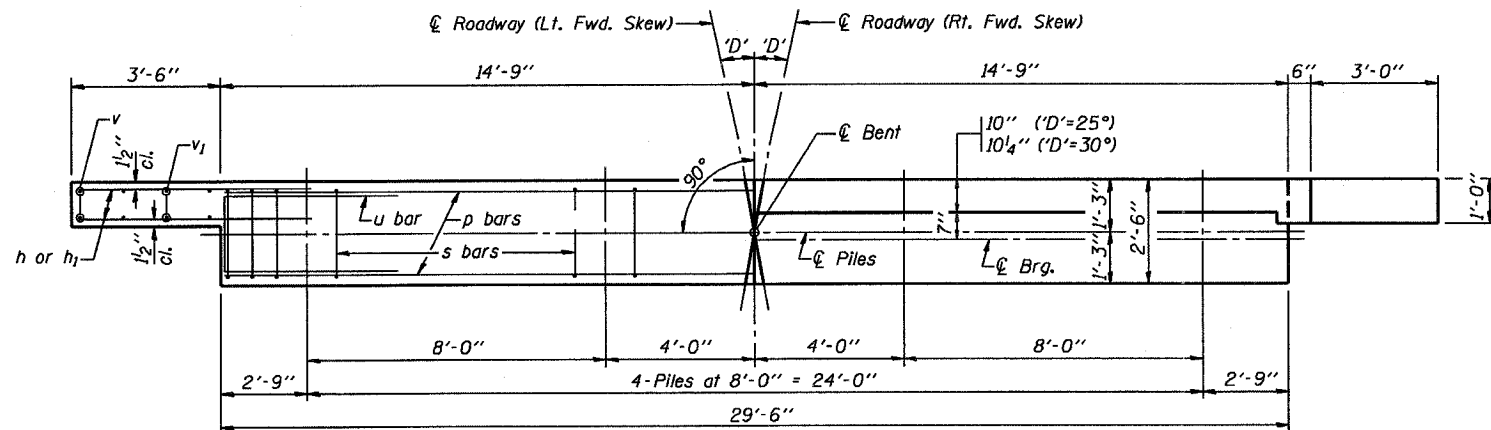
****NOTE:**
The following number of C bars shall be used:
Skew No.
5° and 10° — 1
15° and 20° — 2
25° and 30° — 3

NOTE

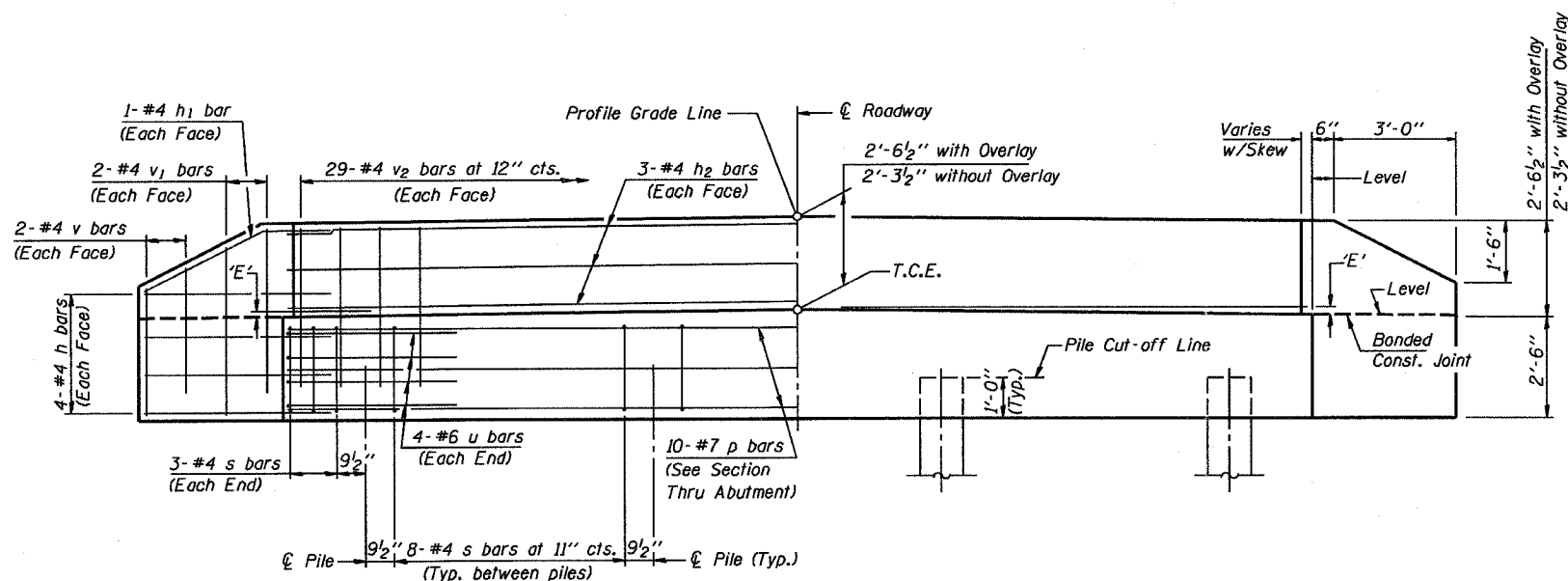
The std. reinf. and dimensions shown on the 40' span cross section is typical for all spans, except as shown.

Illinois Department of Transportation
PASSED APRIL 4, 2005
Thomas J. Noman (Signature)
Engineer of Bridge Design
APPROVED APRIL 4, 2005
Ralph E. Anderson (Signature)
Engineer of Bridges and Structures

P.P.C. DECK BEAM DETAILS
24' ROADWAY | 27" x 48" BEAMS
STANDARD CB-2427-48



PLAN
(D'=Designated Skew Angle)



ELEVATION

DIMENSION 'E'

GRADE	'D'=25°		'D'=30°	
	UPGRADE END	DOWNGRADE END	UPGRADE END	DOWNGRADE END
0%	2 1/2"	2 1/2"	2 3/8"	2 3/8"
Over 0% to 1%	2 1/8"	2 7/8"	2"	2 1/8"
Over 1% to 2%	1 3/8"	3 5/8"	1"	3 3/4"
Over 2% to 3%	5/8"	4 3/8"	1/2"	4 5/8"
Over 3% to 4%	0"	5 1/8"		

NOTES

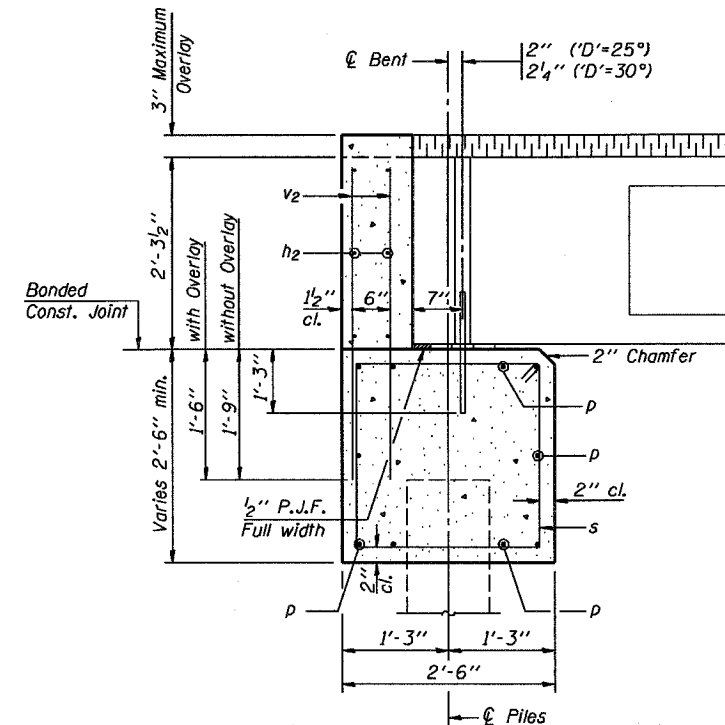
- The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.
- Reinforcement bars shall conform to the requirements of A.A.S.H.T.O. M-31 or M-322, Grade 60.
- Space reinforcement in cap to miss anchor bolts.

MAXIMUM PILE LOADS

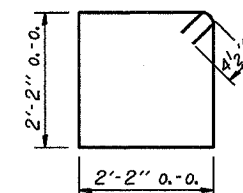
SPAN	TONS
40'	34
50'	38
60'	43

DESIGN STRESSES

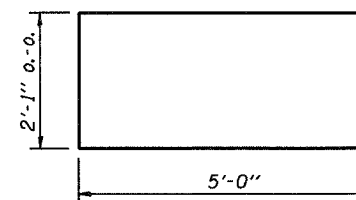
f'c = 3,500 psi
fy = 60,000 psi



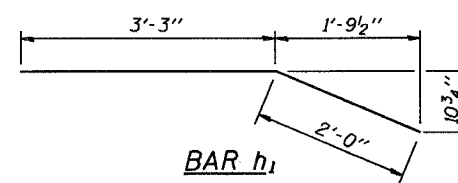
SECTION THRU ABUTMENT
(At Right Angles)



BAR s



BAR u



BAR h1

BILL OF MATERIAL FOR ONE ABUTMENT

Bar	No.	Size	Length	Shape
h	16	#4	5'-0"	—
h1	4	#4	5'-3"	—
h2	6	#4	29'-2"	—
p	10	#7	29'-2"	—
s	30	#4	9'-5"	□
u	8	#6	12'-1"	□
v	8	#4	3'-2"	—
v1	8	#4	4'-2"	—
v2	58	#4	3'-11"	—
Concrete Structures			10.7 Cu. Yds.	
Reinforcement Bars			1310 Lb.	

**P.P.C. DECK BEAMS
PILE BENT ABUTMENT**

24' RDWY. 27" BMS. 'D'=25° OR 30°

STANDARD CA-2427-30

Illinois Department of Transportation
PASSED APRIL 4, 2005
Thames S. Nimmagadda
Engineer of Bridge Design
APPROVED APRIL 4, 2005
Ralph E. Anderson
Engineer of Bridges and Structures

NOTES

Hollow structural steel tubing shall conform to the requirements of ASTM designation A500 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 A307 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 according to AASHTO M 232.

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

Railing shall be according to 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.

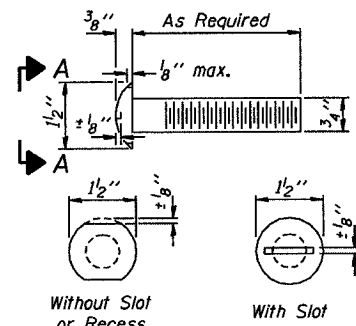
For multi-span bridges, sufficient 1/2" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with STEEL RAILING, TYPE S-1.

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

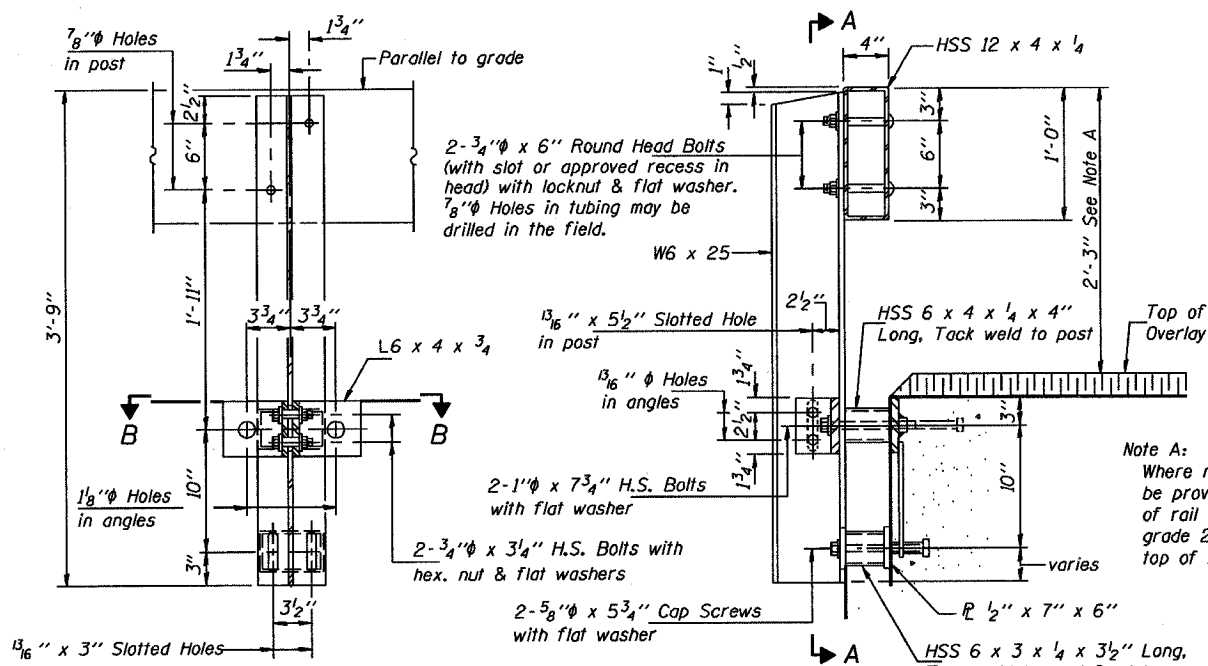
The 1/2" x 7" x 6" plates that come in contact with concrete shall either receive two coats of asphalt paint conforming to Section 1060.07 Type II, or 1/2" fabric bearing pads shall be placed between the plates and concrete.

The 3/4" high strength bolts used to connect the 6 x 4 x 3/4 angles to the post shall be tightened according to Article 505.04 (f)(2) of the Standard Specifications. The 1" high strength bolts connecting the angles to the concrete shall be tightened to a snug fit and given an additional 1/2 turn. The 5/8" cap screws in bottom of posts shall be tightened to a snug fit only.

The maximum allowable rail post spacing shall be 10'-6". The rail post spacing shown elsewhere in the plans is based on the allowable spacing for another type of rail. When this type of rail is used, the number of posts may be decreased and the post spacing increased to provide equal post spaces of 10'-6" or less.

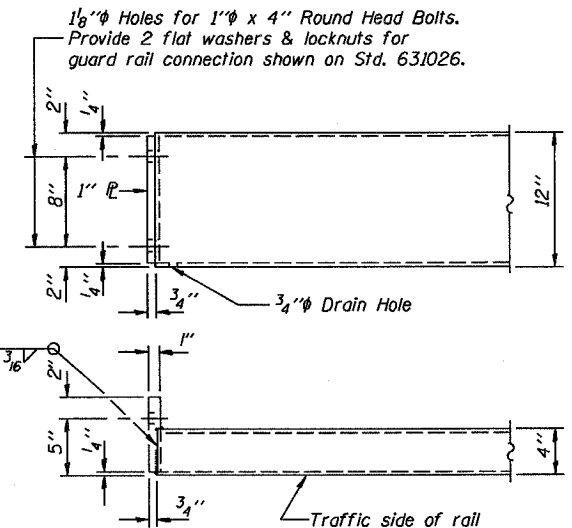


**VIEW A-A
ROUND HEAD BOLT**

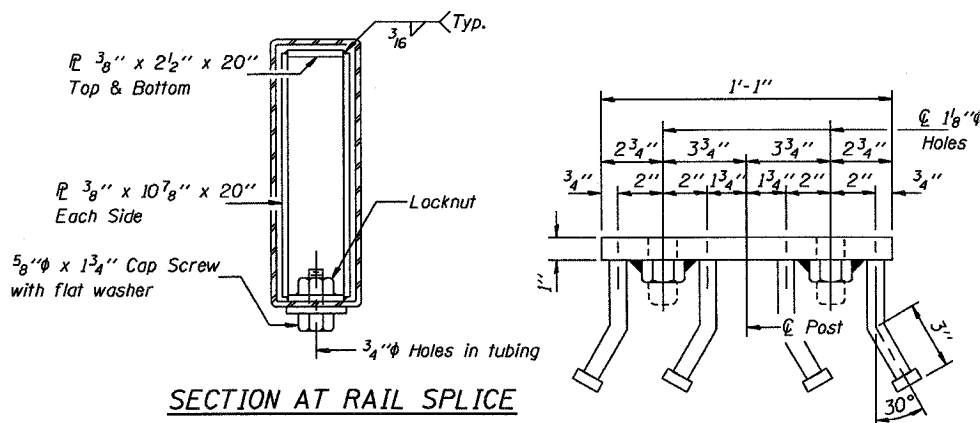


SECTION A-A

SECTION AT RAIL POST

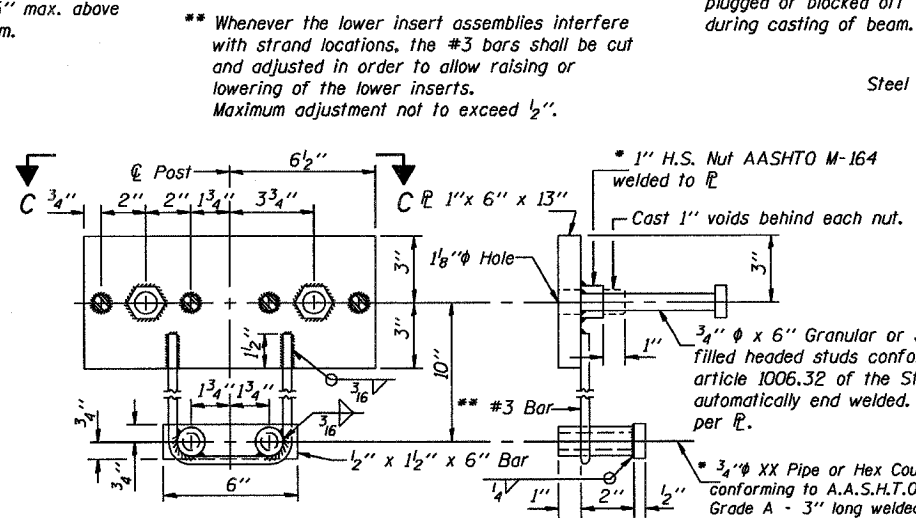


END OF RAIL DETAILS

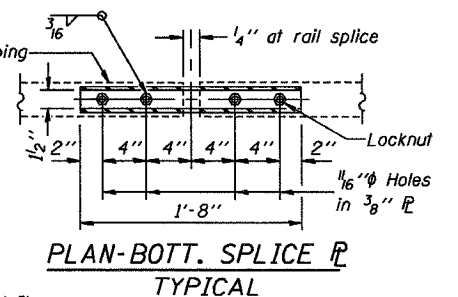


SECTION AT RAIL SPLICE

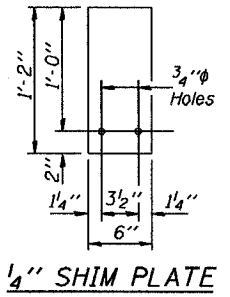
VIEW C-C



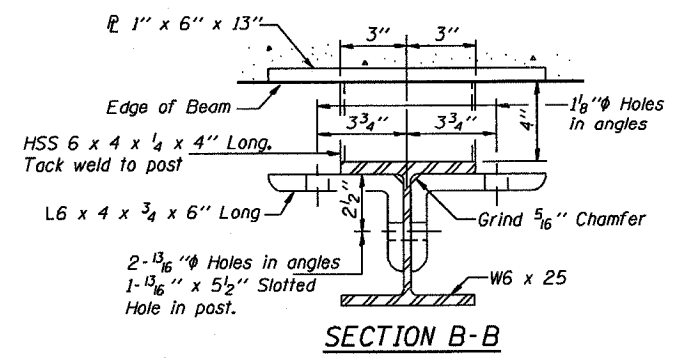
ANCHOR DEVICE



PLAN-BOTT. SPLICE TYPICAL



1/4\"/>



SECTION B-B

* 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\".

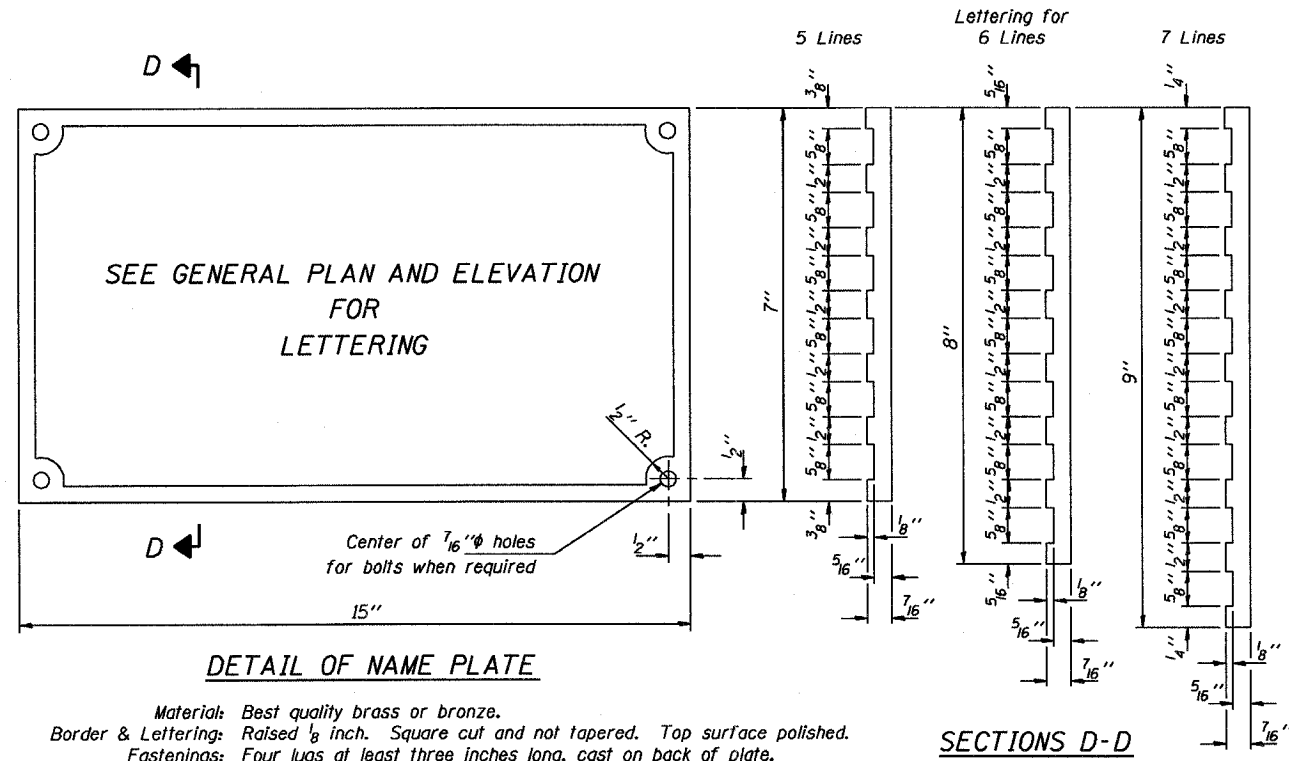
Note A: Where no overlay is to be provided, adjust top of rail to lay parallel to grade 2'-5\" max. above top of beam.

* 1\"/>

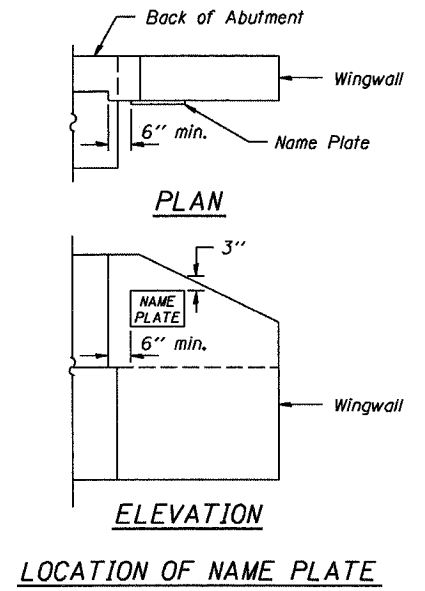
* 3/4\"/>

Illinois Department of Transportation
 PASSED APRIL 4, 2005
 Thomas S. Nanna (Signature)
 Engineer of Bridge Design
 APPROVED APRIL 4, 2005
 Ralph E. Anderson (Signature)
 Engineer of Bridges and Structures

**STEEL RAILING, TYPE S-1
STANDARD CR-TS1**



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



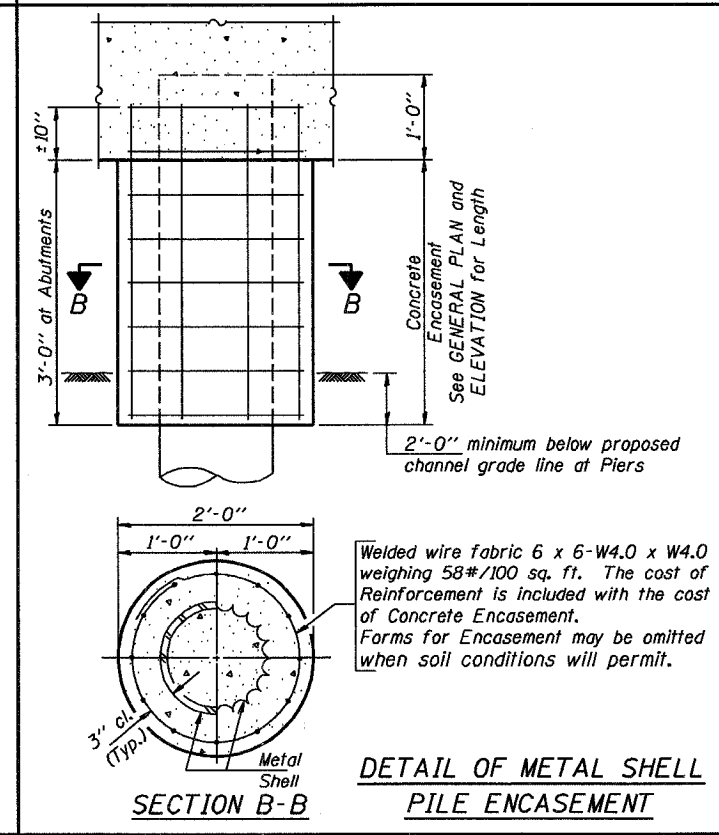
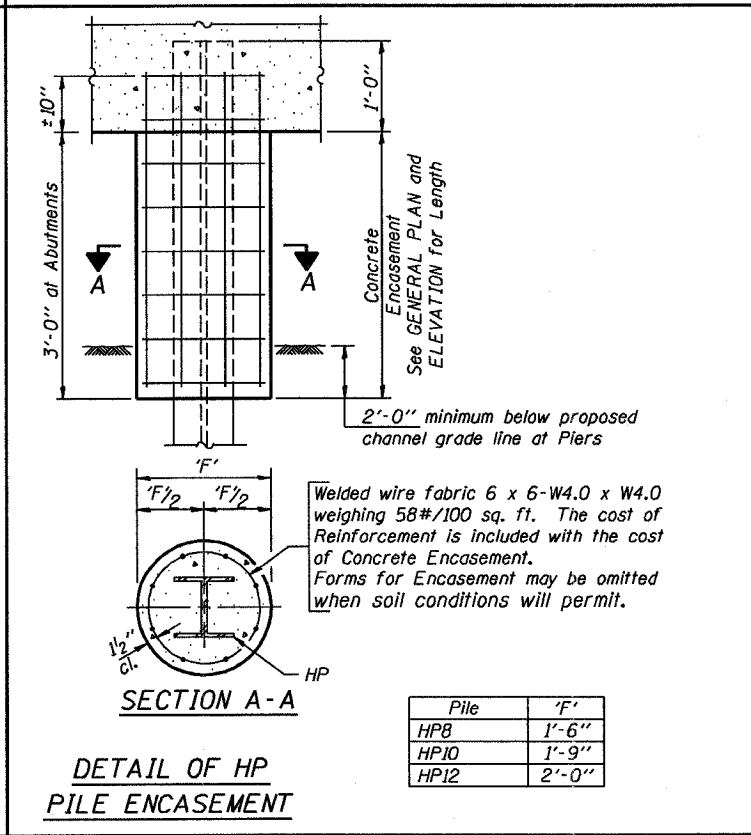
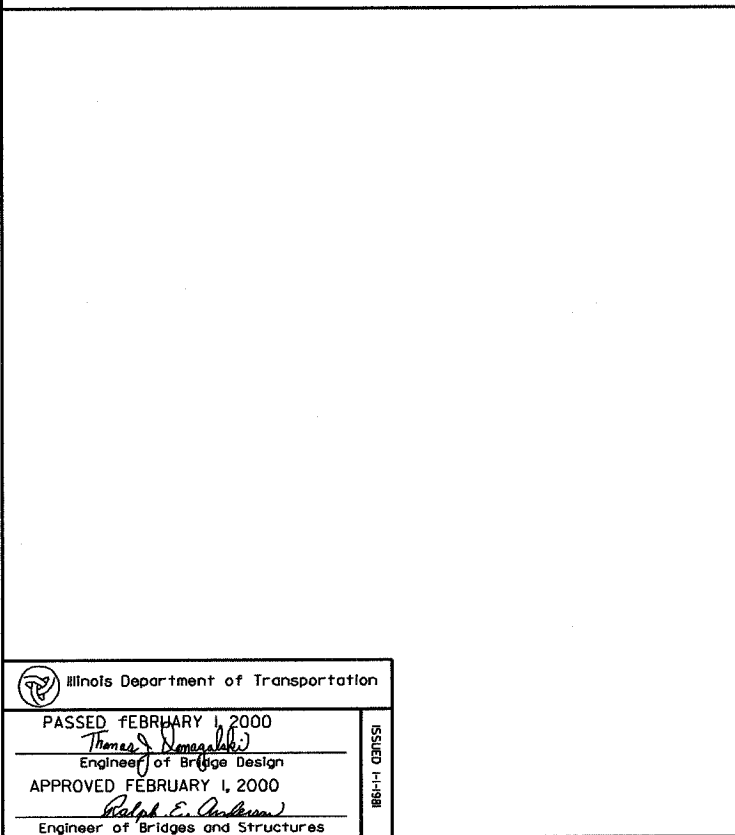
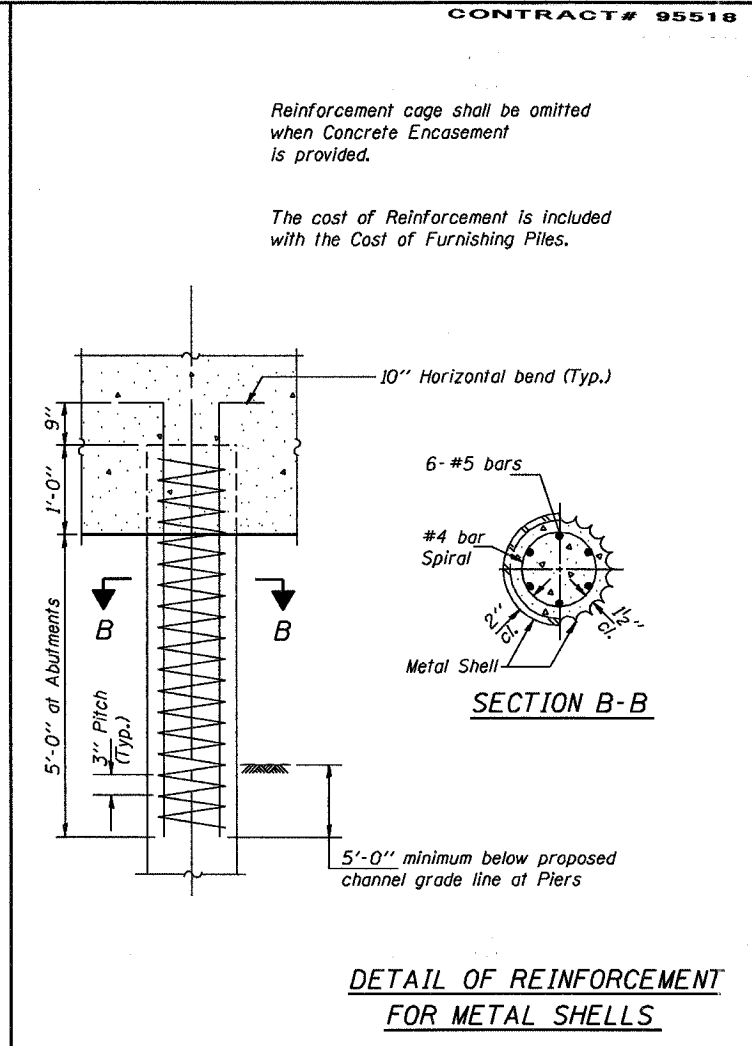
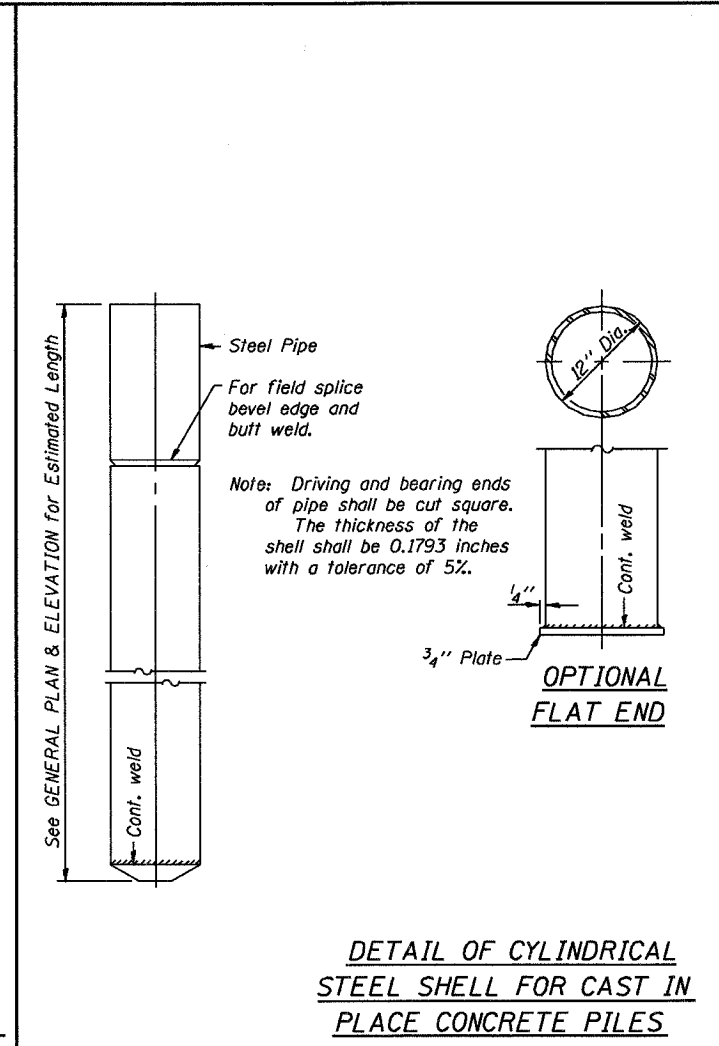
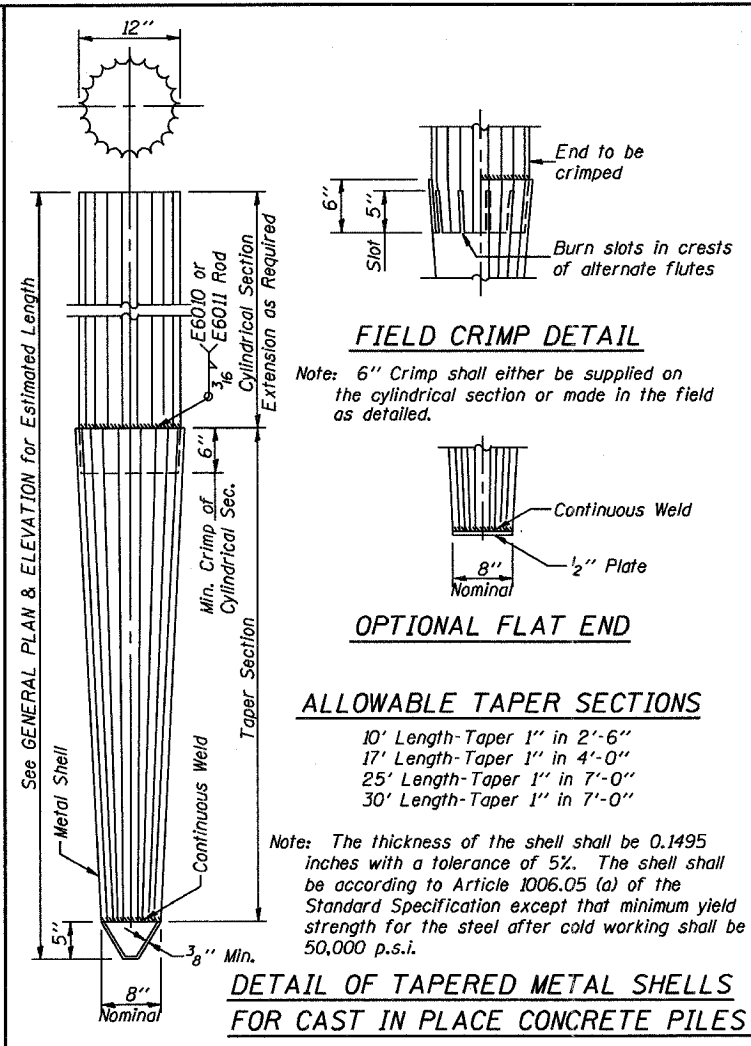
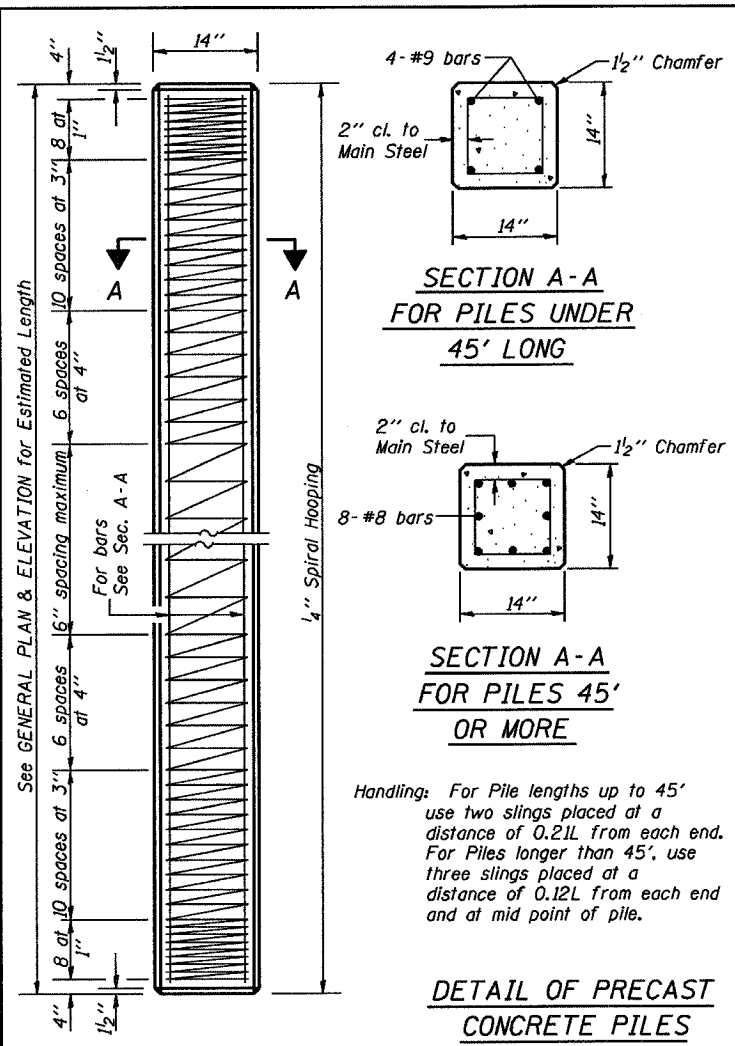
Illinois Department of Transportation

PASSED APRIL 4, 2005
Thomas S. Namasinski
 Engineer of Bridge Design

APPROVED APRIL 4, 2005
Ralph E. Coulson
 Engineer of Bridges and Structures

ISSUED 7-1-995

NAME PLATE
 STANDARD CN



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.

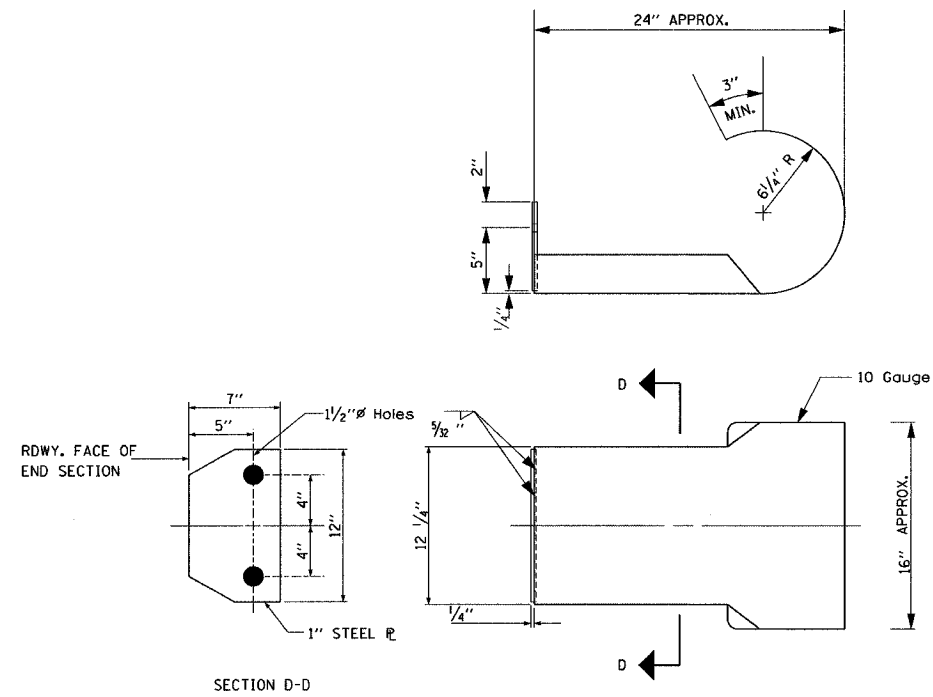
PILE DETAILS

STANDARD CX-1

Illinois Department of Transportation
PASSED FEBRUARY 1, 2000
Thomas J. Demagala
Engineer of Bridge Design
APPROVED FEBRUARY 1, 2000
Ralph E. Walker
Engineer of Bridges and Structures

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
231	03-09108-00-BR	EDWARDS	13	13
FED. ROAD DIST. NO. 7		ILLINOIS	UNION CREEK	
PROJECT # BROS-047(24)		CONTRACT NO. 95518		
LEC JOB #H03IL007ED				

CURLED END SECTION DETAIL



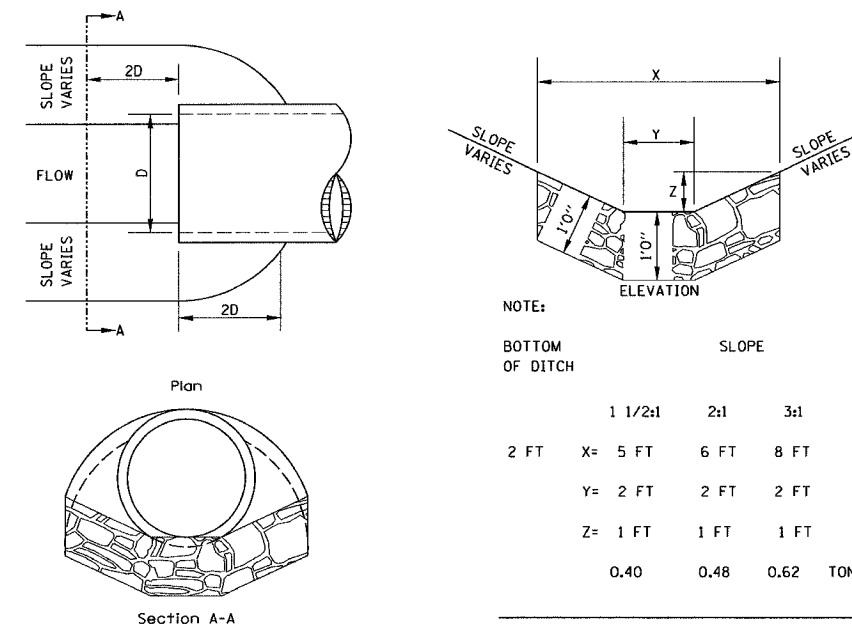
ALL OTHER STEEL SHAPES AND PLATES SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION M-183 EXCEPT POSTS AND ANGLES SHALL CONFORM TO A.A.S.H.T.O. M-223, GRADE 50.

BOLTS, CAP SCREWS, AND NUTS SHALL CONFORM TO THE REQUIREMENT OF A.S.T.M. DESIGNATION A-307 EXCEPT FOR HIGH STRENGTH BOLTS, NUTS, AND WASHERS NOTED WHICH SHALL CONFORM TO A.A.S.H.T.O. DESIGNATION M-164.

ALL BOLTS, NUTS, CAP SCREWS, WASHERS, AND LOCK WASHERS SHALL BE GALVINIZED IN ACCORDANCE WITH A.A.S.H.T.O. DESIGNATION M-232.

ALL FIELD DRILLED HOLES SHALL BE COATED WITH AN APPROVED ZINC RICH PAINT BEFORE ERRECTION.

STONE RIPRAP DITCH DESIGN



NOTE: FOR PLACEMENT, QUALITY GRADATION AND OTHER MISCELLANEOUS REQUIREMENTS FOR STONE RIPRAP DITCH-SEE SPECIAL PROVISIONS.

NOTE:

BOTTOM OF DITCH	SLOPE			TON/LIN. FT
	1 1/2:1	2:1	3:1	
2 FT	X= 5 FT	6 FT	8 FT	
	Y= 2 FT	2 FT	2 FT	
	Z= 1 FT	1 FT	1 FT	
	0.40	0.48	0.62	TON/LIN. FT

BOTTOM OF DITCH	SLOPE			TON/LIN. FT
	1 1/2:1	2:1	3:1	
3 FT	X= 6 FT	7 FT	9 FT	
	Y= 3 FT	3 FT	3 FT	
	Z= 1 FT	1 FT	1 FT	
	0.48	0.56	0.70	TON/LIN. FT

BOTTOM OF DITCH	SLOPE			TON/LIN. FT
	1 1/2:1	2:1	3:1	
4 FT	X= 7 FT	8 FT	10 FT	
	Y= 4 FT	4 FT	4 FT	
	Z= 1 FT	1 FT	1 FT	
	0.56	0.64	0.78	TON/LIN. FT