

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
228	06-12122-00-BR	HAMILTON	15	1
FED. ROAD DIST. NO. 9 ILLINOIS		FED. AID PROJECT		323 W. 3RD. ST. P.O. BOX 100 MT. CARMEL, IL 62863
PROJECT # BROS-065(41)		CONTRACT # 99304		PHONE: (618)-262-8651 FAX: (618)-263-3327
JOB # C-99-511-07		HOGG CREEK		LEC JOB # H06102HM

405 W. STATE ST.
SUITE 1
PRINCETON, IN
47670
PHONE:
(812)-386-7611
FAX:
(812)-385-2812



PROFESSIONAL DESIGN FIRM
LAND SURVEY & PROFESSIONAL ENGINEERING CORPORATION
184-00087
(62-032435)(35-002769)



AARON M. MEFFORD
NAME
Aaron Mefford
SIGNATURE
9-10-07
DATE
11-30-07
EXPIRES

TWIGG TOWNSHIP
OVER HOGG CREEK
HAMILTON COUNTY, ILLINOIS

SHEET TITLE:
TITLE SHEET
SCALE: WRES
BY: AMM
DATE: 9/5/07
REV:
1 OF 15 SHEETS
SHEET NO. 1

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

T.R. 228 HAMILTON COUNTY SECTION 06-12122-00-BR
PROJECT NO. BROS-065(41) JOB NO. C-99-511-07
CONTRACT # 99304 HOGG 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
5-14	BRIDGE DESIGN
15	CURLED END SECTIONS & STONE RIPRAP DITCH DESIGN

THE FOLLOWING STANDARDS ARE A PART OF THESE PLANS AND ARE INCLUDED IN THE PROPOSAL:

000001-04	STANDARD SYMBOLS, ABBREVIATIONS & PATTERNS
280001-03	TEMPORARY EROSION CONTROL SYSTEMS
702001-06	TRAFFIC CONTROL DEVICES
720006-01	SIGN PANEL ERECTION DETAILS
720011	METAL POSTS FOR SIGNS, MARKERS & DELINEATORS
729001	APPLICATIONS OF TYPES A & B METAL POSTS (FOR SIGNS & MARKERS)
B.L.R. 21-6	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS
B.L.R. 22-4	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS (TWO-LANE TWO-WAY RURAL TRAFFIC) (ROAD CLOSED TO THRU TRAFFIC)

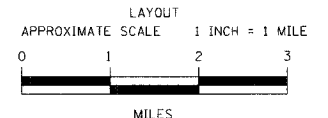
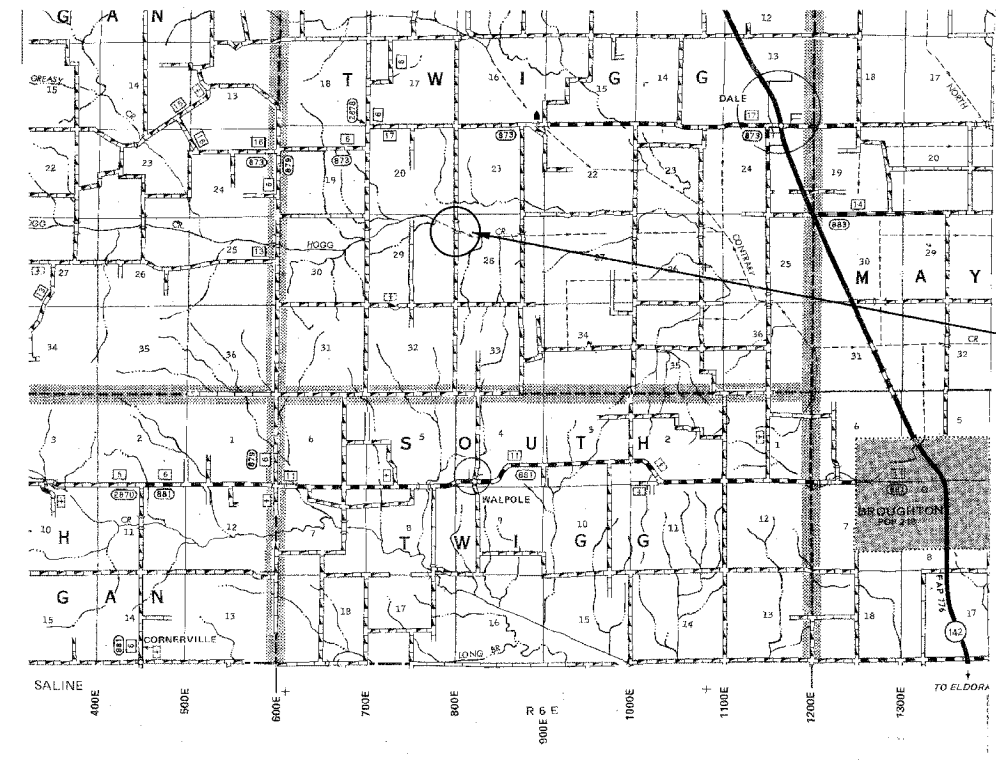
SUMMARY OF QUANTITIES

CODE NO.	ITEM	UNIT	QUANTITY
20100110	TREE REMOVAL (6 TO 15 UNITS DIAMETER)	UNIT	12.00
20100210	TREE REMOVAL (OVER 15 UNITS DIAMETER)	UNIT	18.00
20200100	EARTH EXCAVATION	CU YD	366.00
20300100	CHANNEL EXCAVATION	CU YD	369.00
25001000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.40
28000300	TEMPORARY DITCH CHECKS	EACH	6.00
28001000	AGGREGATE (EROSION CONTROL)	TON	25.00
28100807	STONE DUMPED RIPRAP, CLASS A4	TON	470.00
28102600	STONE RIPRAP DITCH	TON	16.00
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	390.00
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1.00
50300225	CONCRETE STRUCTURES	CU YD	37.60
50300280	CONCRETE ENCASEMENT	CU YD	4.70
50400405	PRECAST PRESTRESSED CONCRETE DECK BEAMS (21" DEPTH)	SQ FT	2760.00
50500505	STUD SHEAR CONNECTORS	EACH	36.00
50800105	REINFORCEMENT BARS	POUND	4340.00
50900205	STEEL RAILING, TYPE S1	FOOT	230.00
51201400	FURNISHING STEEL PILES HP10X42	FOOT	1080.00
51202305	DRIVING PILES	FOOT	1080.00
51500100	NAME PLATES	EACH	1.00
▲ 63100075	TRAFFIC BARRIER TERMINAL, TYPE 5A	EACH	1.00
67100100	MOBILIZATION	L SUM	1.00
72000100	SIGN PANEL - TYPE 1	SQ FT	12.50
72900100	METAL POST - TYPE A	FOOT	29.00
▲ LR631020	TRAFFIC BARRIER TERMINAL, TYPE 1	EACH	1.00

▲ SPECIALTY ITEM

DESIGN DESIGNATION:
DESIGN SPEED: 30 MPH
HIGHWAY CLASS - LOCAL ROAD
EXISTING STRUCTURE NO.: 033-3083
PROPOSED STRUCTURE NO.: 033-3307
CURRENT A.D.T. = 50
CONTRACT NO. 99304

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



	FOOT	MILES
GROSS LENGTH	703.00 FT	0.13 MILES
OMISSIONS	0.00 FT	0.00 MILES
NET LENGTH	703.00 FT	0.13 MILES

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

SECTION 06-12122-00-BR
BEGINS STATION 2+30

STATION 5+00, STRUCTURE NO. 033-3307
A 115' LONG TRIPLE SPAN PRECAST
PRESTRESSED CONCRETE DECK BEAM
BRIDGE (21" DEPTH, 24' ROADWAY,
0.00% GRADE, 30° LT. FWD. SKEW.

SECTION 06-12122-00-BR
ENDS STATION 9+33

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

APPROVED 9-10-07
Kim D. [Signature]
COUNTY ENGINEER

PASSED Sept. 11, 2007
Dennis W. Hillbman
ENGINEER OF LOCAL ROADS AND STREETS

RELEASING FOR BID
BASED ON LIMITED
REVIEW Sept. 12, 2007
Mary C. Lamie
MARY C. LAMIE, P.E.
DEPUTY DIRECTOR OF HIGHWAY
REGION FIVE ENGINEER

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
228	06-12122-00-BR	HAMILTON	15	2
323 W. 3RD ST. P.O. BOX 160 MT. CARMEL, IL 62863				
FED. ROAD DIST. NO. 9 ILLINOIS HOGG CREEK				
PROJECT * BR05-065(41) CONTRACT * 99304				
PHONE: (618)-262-8651 FAX: (618)-263-3327				

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.

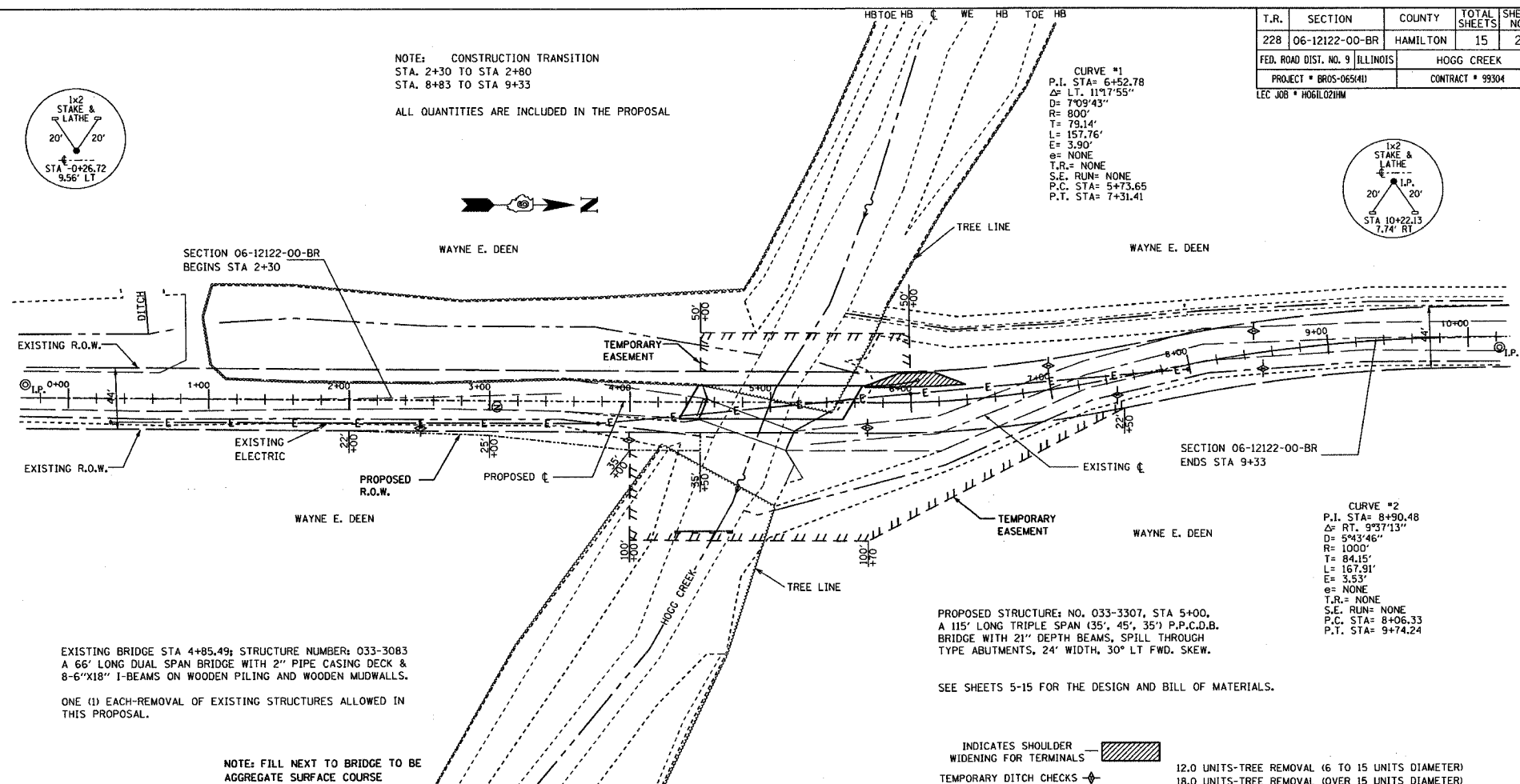
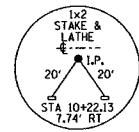
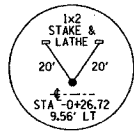
THE WORK INVOLVED ON THIS SECTION CONSISTS OF THE REMOVAL OF THE EXISTING STRUCTURE, THE CONSTRUCTION OF A 115 FOOT LONG TRIPLE SPAN (35', 45', 35') PRECAST, PRESTRESSED CONCRETE DECK BEAM BRIDGE, EARTH APPROACHES, AGGREGATE SURFACE COURSE AND OTHER MISCELLANEOUS ITEMS NECESSARY TO COMPLETE THIS SECTION.

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.

NOTE: CONSTRUCTION TRANSITION
STA. 2+30 TO STA 2+80
STA. 8+83 TO STA 9+33

ALL QUANTITIES ARE INCLUDED IN THE PROPOSAL



CURVE #1
P.I. STA= 6+52.78
ΔP LT. 117'55"
DE 1°09'43"
R= 800'
T= 79.14'
L= 157.76'
E= 3.90'
e= NONE
T.R.= NONE
S.E. RUN= NONE
P.C. STA= 5+13.65
P.T. STA= 7+31.41

CURVE #2
P.I. STA= 8+90.48
ΔP RT. 9°37'13"
D= 543'46"
R= 1000'
T= 84.15'
L= 167.91'
E= 3.53'
e= NONE
T.R.= NONE
S.E. RUN= NONE
P.C. STA= 8+06.33
P.T. STA= 9+74.24

PROPOSED STRUCTURE: NO. 033-3307, STA 5+00.
A 115' LONG TRIPLE SPAN (35', 45', 35') P.P.C.D.B.
BRIDGE WITH 21" DEPTH BEAMS, SPILL THROUGH
TYPE ABUTMENTS, 24' WIDTH, 30' LT FWD. SKEW.

SEE SHEETS 5-15 FOR THE DESIGN AND BILL OF MATERIALS.

EXISTING BRIDGE STA 4+85.49; STRUCTURE NUMBER: 033-30B3
A 66' LONG DUAL SPAN BRIDGE WITH 2" PIPE CASING DECK &
8-6"x18" I-BEAMS ON WOODEN PILING AND WOODEN MUDWALLS.

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

NOTE: FILL NEXT TO BRIDGE TO BE
AGGREGATE SURFACE COURSE

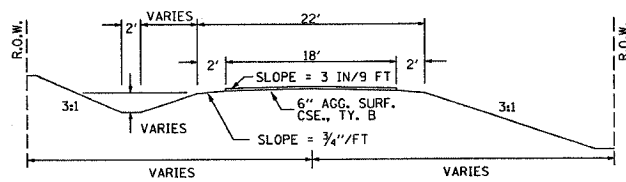
INDICATES SHOULDER
WIDENING FOR TERMINALS

TEMPORARY DITCH CHECKS

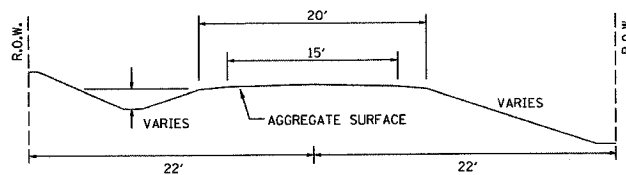
AGGREGATE (EROSION CONTROL)

12.0 UNITS-TREE REMOVAL (6 TO 15 UNITS DIAMETER)
18.0 UNITS-TREE REMOVAL (OVER 15 UNITS DIAMETER)
0.4 ACRES SEEDING, CLASS 2 SPECIAL REQUIRED

TYPICAL CROSS SECTION
PROPOSED



TYPICAL CROSS SECTION
EXISTING



NOTE: CONSTRUCT SPECIAL DITCH

STA 2+30 TO STA 4+30 RT
STA 5+70 TO STA 9+33 RT
STA 6+50 TO STA 9+00 LT

NOTE: CONSTRUCT STONE RIPRAP DITCH

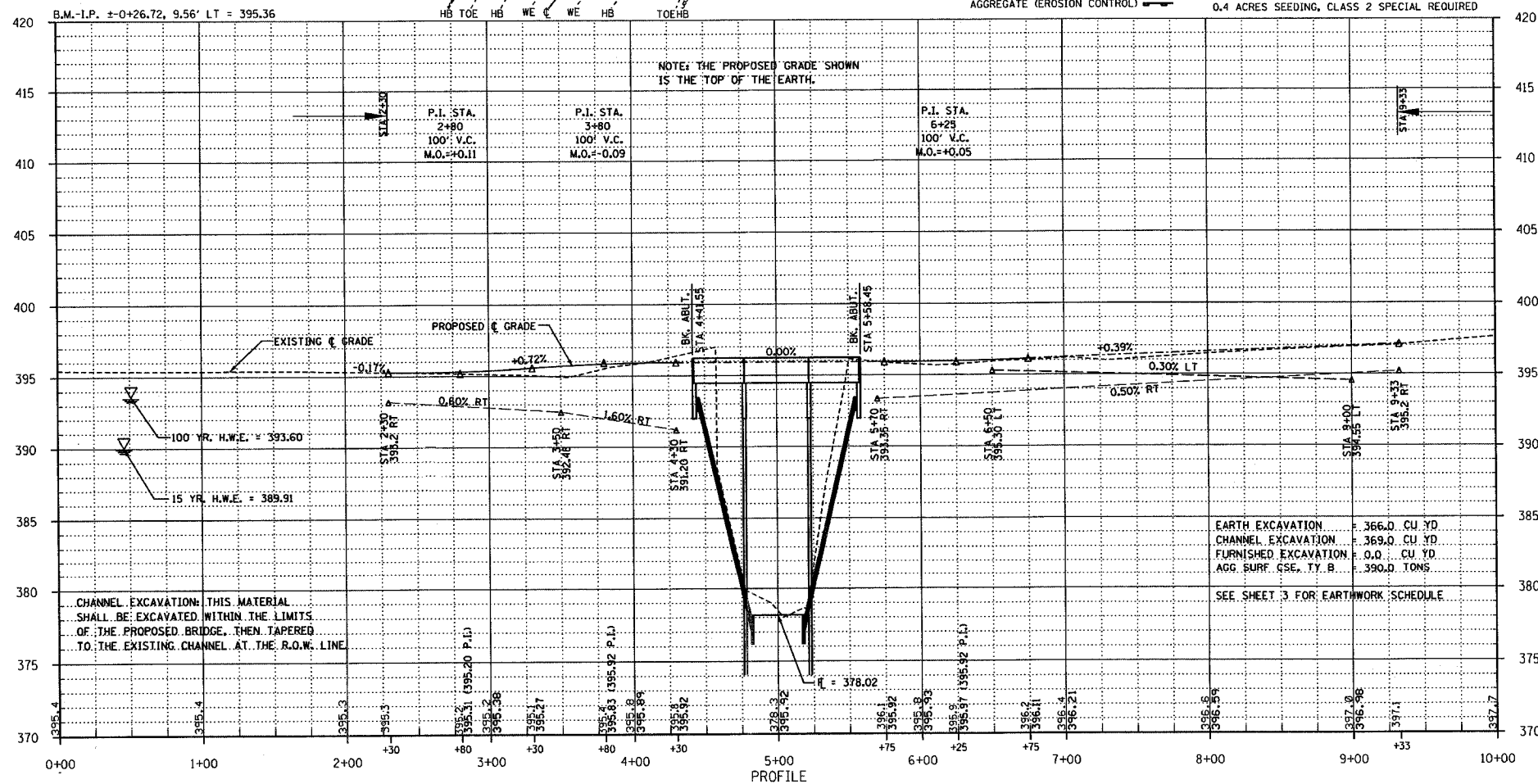
STA 4+05 TO STA 4+30 RT (0.62 TON/LIN FT)
16 TON STONE RIPRAP DITCH ALLOWED IN PROPOSAL.

SEE SHEET NO. 15 FOR STONE RIPRAP DITCH DETAIL.

UTILITIES:
J.U.L.I.E. 1-800-892-0123
SOUTHEASTERN ILLINOIS
ELECTRIC CO-OP
800-833-2611

SCHEDULE FOR SIGNS AND POSTS

STA.	LOC.	MUTCD CODE	STYLE	SIZE	SO. FT.	METAL POST-TYPE A LENGTH
2+48.6	17' RT.	W1-3L	REVERSE TURN	30"x30"	6.25	14.00
12+99.2	17' LT.	W1-3L	REVERSE TURN	30"x30"	6.25	15.00



EARTH EXCAVATION 366.0 CU YD
CHANNEL EXCAVATION 369.0 CU YD
FURNISHED EXCAVATION 0.0 CU YD
AGG. SURF. CSE. TY. B 390.0 TONS

SEE SHEET 3 FOR EARTHWORK SCHEDULE

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



PROFESSIONAL DESIGN FIRM
LAND SURVEY & PROFESSIONAL ENGINEERING CORPORATION
184-000887
(62-032435)(35-002769)
AARON M. MEFFORD
REGISTERED PROFESSIONAL ENGINEER
OF ILLINOIS

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

TWIGG TOWNSHIP
OVER HOGG CREEK
HAMILTON COUNTY, ILLINOIS

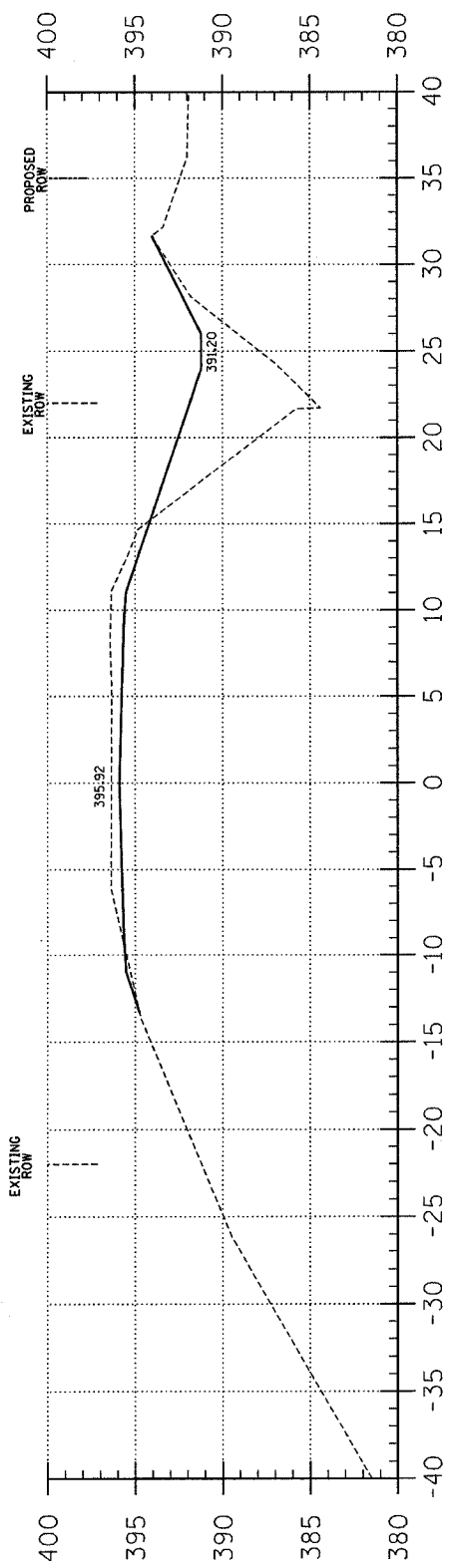
SHEET TITLE:
PLAN & PROFILE

SCALE: VARIES
BY: AMM
DATE: 8/9/07
REV:

2 OF 15
SHEETS

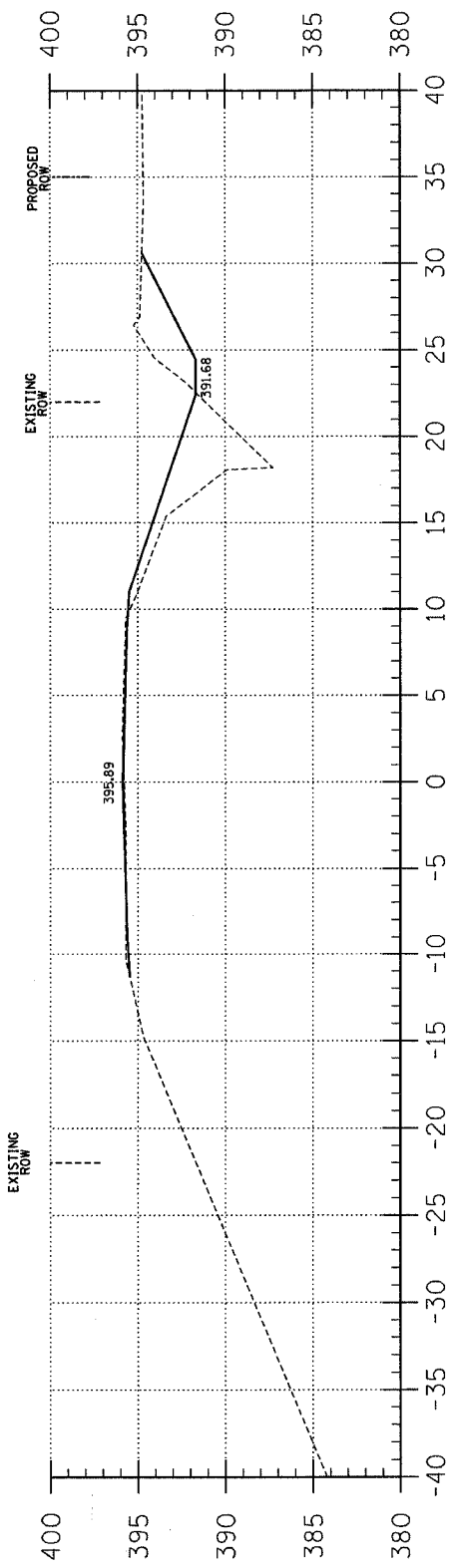
SHEET NO.
2

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
228	06-12122-00-BR	HAMILTON	15	3	323 W. 3RD ST. P.O. BOX 160 MT. CARMEL, IL 62863
FED. ROAD DIST. NO. 9 ILLINOIS		HOGG CREEK			PHONE: (618)-262-8651 FAX: (618)-263-3327
PROJECT * BR05-0654(1)		CONTRACT * 99304			405 W. STATE ST. SUITE 1 PRINCETON, IN 47670 PHONE: (812)-386-7611 FAX: (812)-385-2812
LEC JOB * H061L02HW					



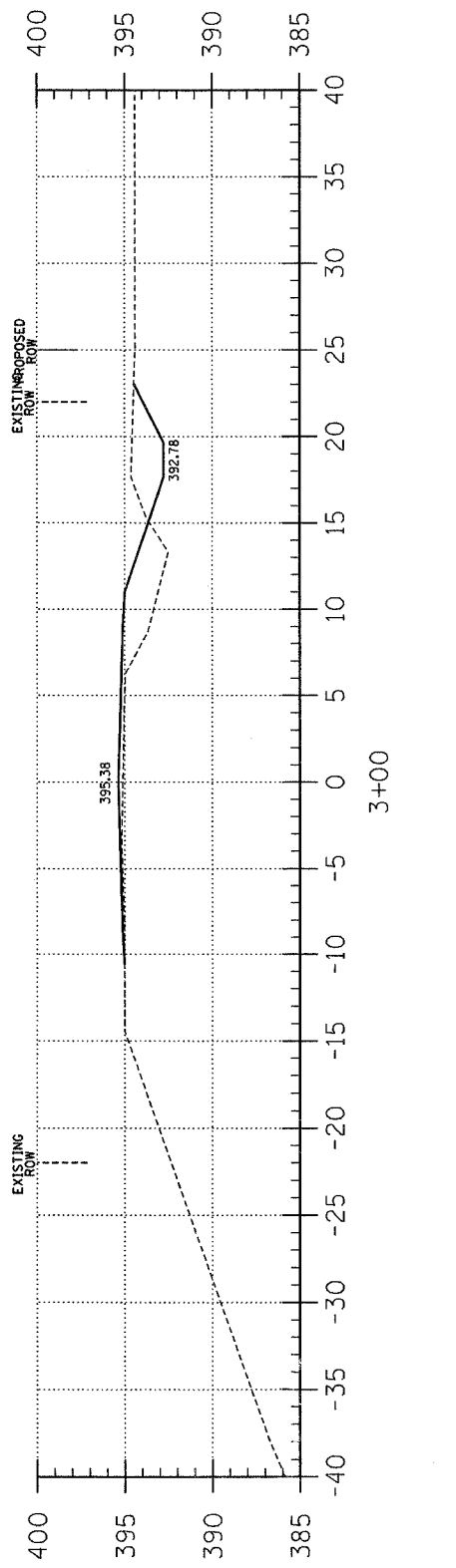
C = 14.0
F = 44.4

4+30



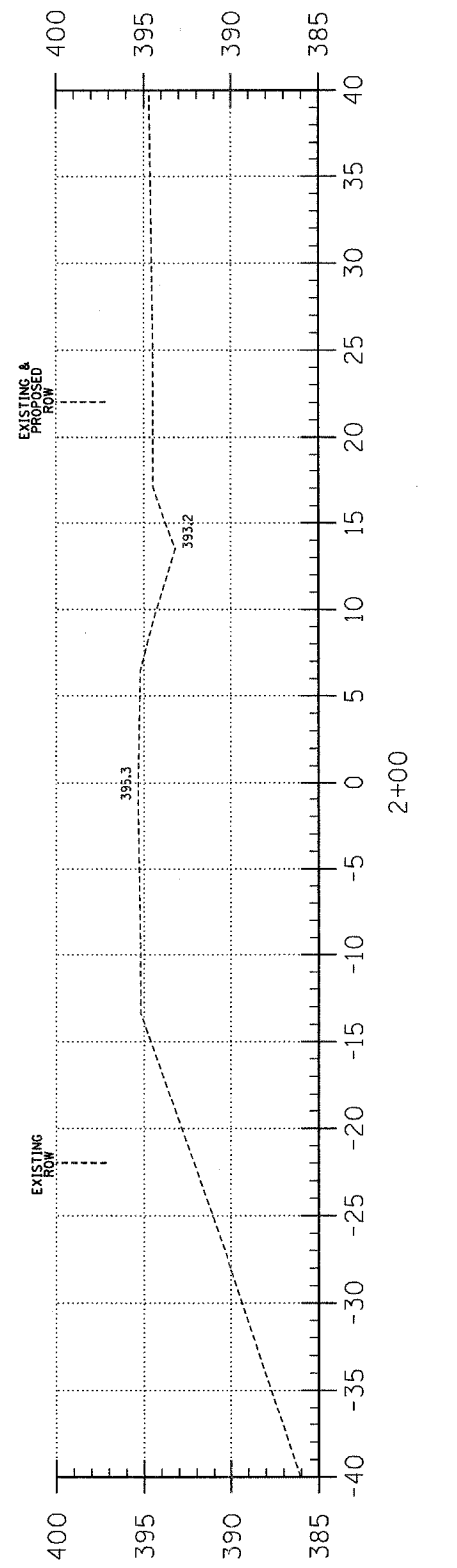
C = 13.2
F = 21.7

4+00

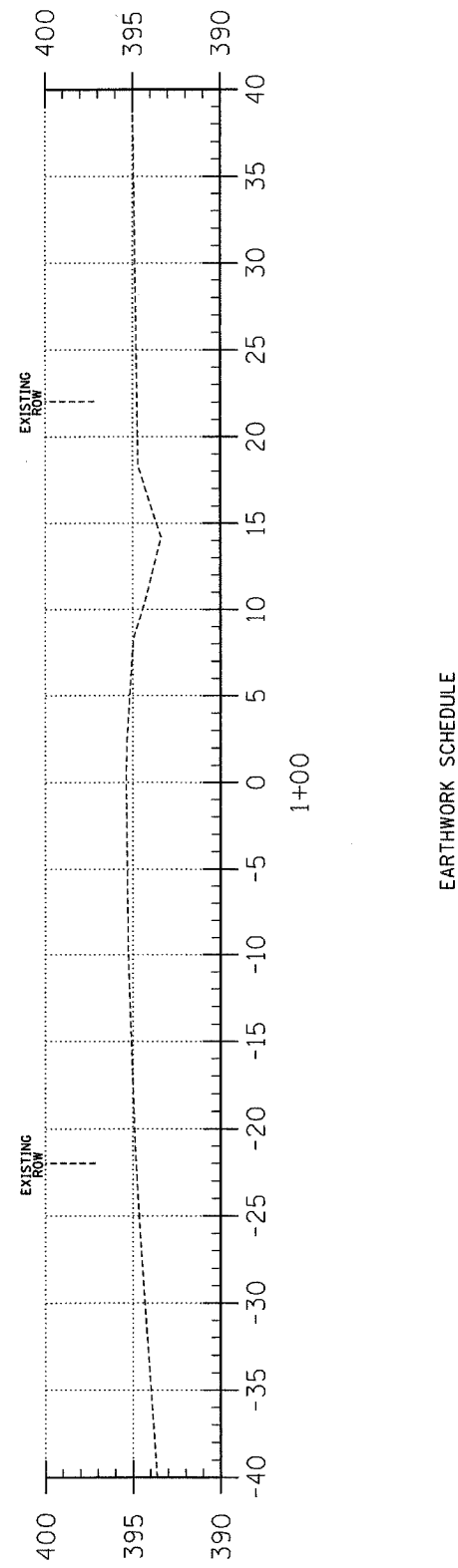


C = 10.0
F = 14.3

3+00



2+00



1+00

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
STA. 0+00 TO 4+41.5	91.4	0.0	0.0	68.5	153.2	-84.7
STA. 4+41.5 TO 5+58.4	0.0	369.2	184.6	136.5	0.0	136.5
STA. 5+58.4 TO 10+00	274.6	0.0	0.0	206.0	180.2	25.8
	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	366.0	369.2	184.6	413.0	333.4	79.6

TWIGG TOWNSHIP
OVER HOGG CREEK
HAMILTON COUNTY, ILLINOIS

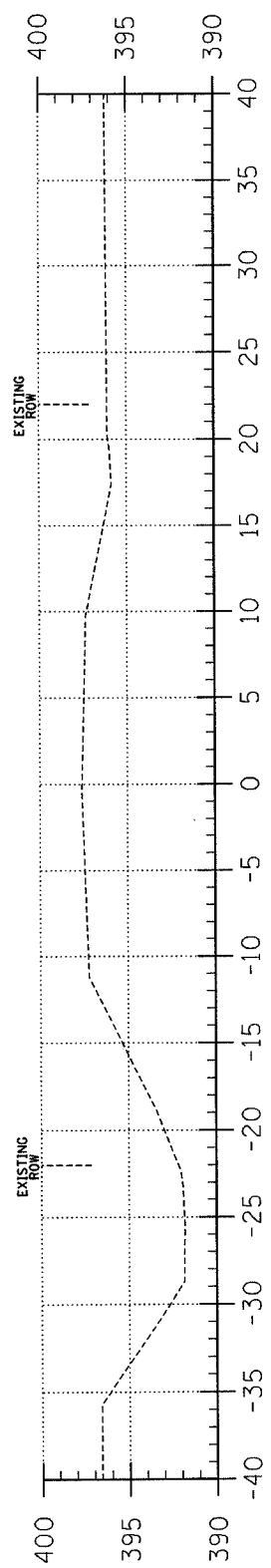
SHEET TITLE:
CROSS-SECTIONS
SCALE: T = S
BY: AMM
DATE: 8/29/07
REV: MLG
3 OF 15 SHEETS
SHEET NO.
3



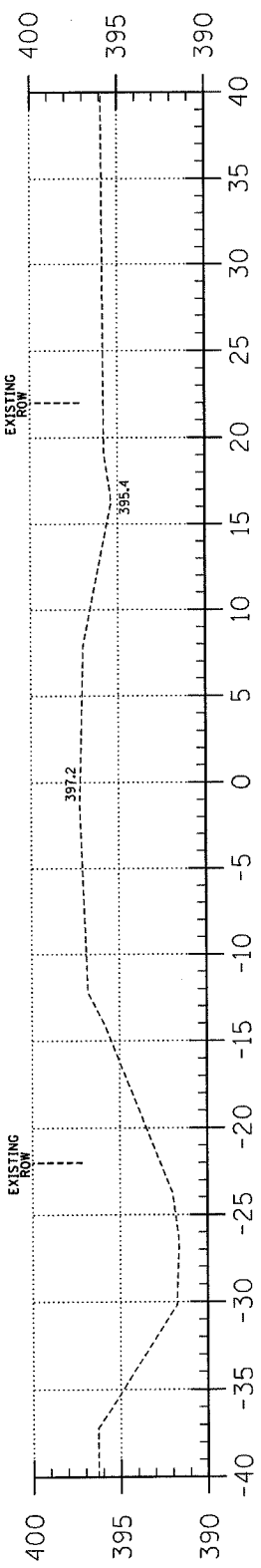
AARON M. MEFFORD
NAME
SIGNATURE
DATE
11-30-07
EXPIRES

PROFESSIONAL DESIGN FIRM
LAND SURVEY & PROFESSIONAL ENGINEERING CORPORATION
184-000887
(812-032435)(35-002769)

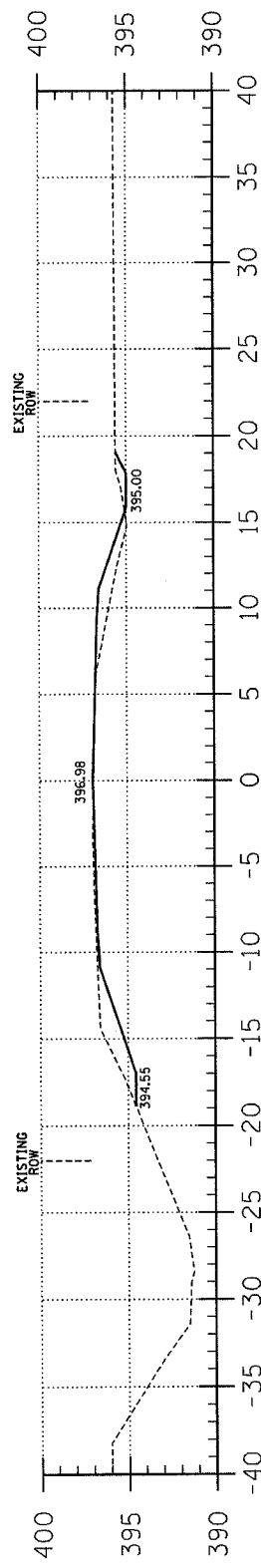




10+00

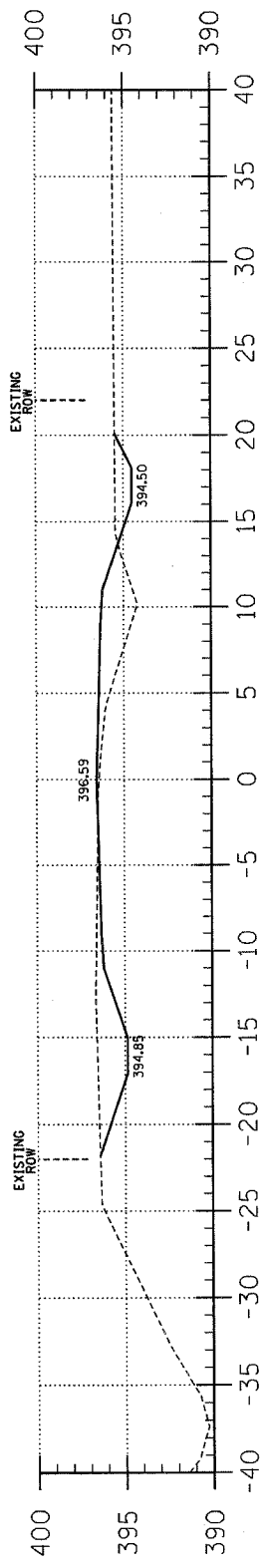


9+50



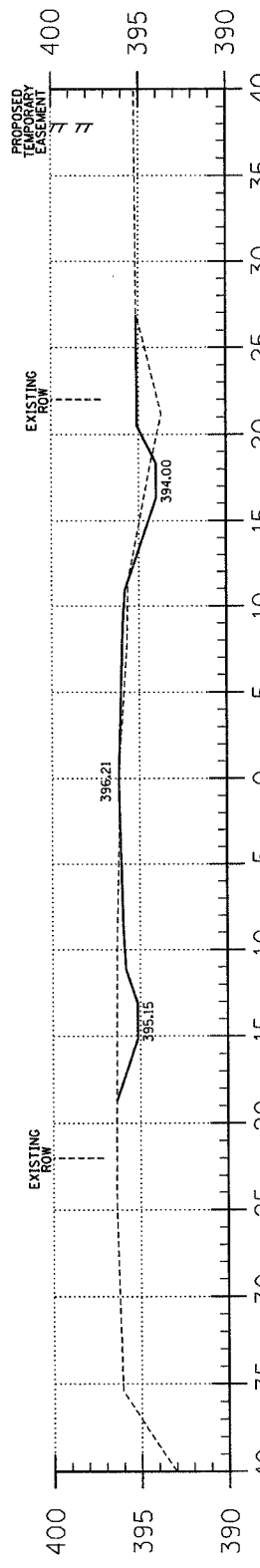
9+00

C = 7.4
F = 4.6



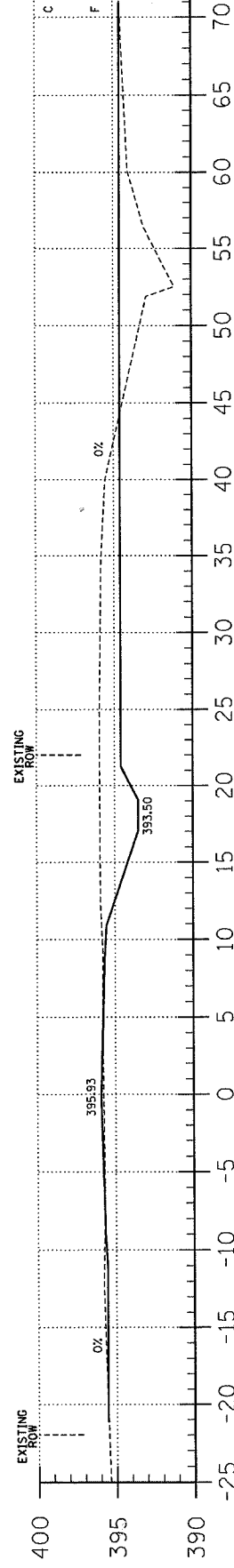
8+00

C = 17.9
F = 12.4

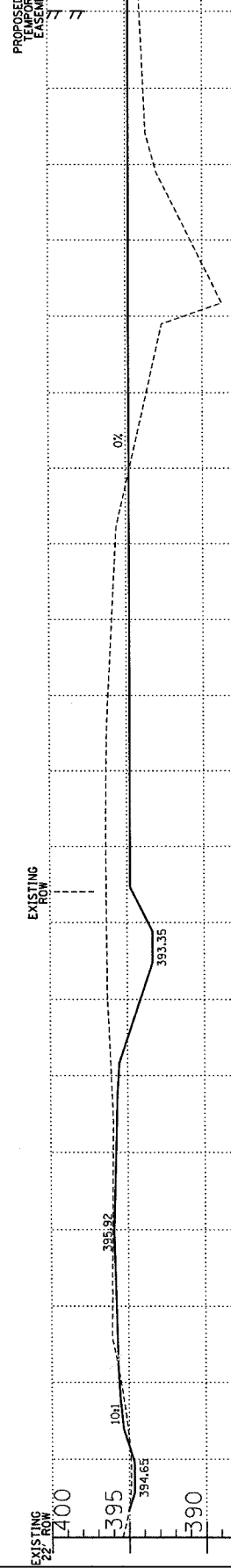


7+00

C = 11.2
F = 7.8



6+00



5+70

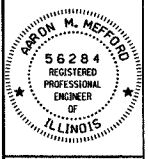
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
228	06-12122-00-BR	HAMILTON	15	4
FED. ROAD DIST. NO. 9 ILLINOIS		HOGG CREEK		
PROJECT * BR05-0654H		CONTRACT * 99304		
LEC JOB * H06IL02HM				

323 W. 3RD ST.
P.O. BOX 150
MT. CARMEL, IL
62863
PHONE:
(618)-262-8651
FAX:
(618)-263-3327

405 W. STATE ST
SUITE 1
PRINCETON, IN
47670
PHONE:
(612)-386-7611
FAX:
(612)-385-2812



PROFESSIONAL DESIGN FIRM
LAND SURVEY &
PROFESSIONAL
ENGINEERING
CORPORATION
184-00687
(82-032435)(35-002789)



AARON M. MEFFORD
NAME
Aaron M. Mefford
SIGNATURE
9-10-07
DATE
11-30-07
EXPIRES

TWIGG TOWNSHIP
OVER HOGG CREEK
HAMILTON COUNTY, ILLINOIS

SHEET TITLE:
CROSS-SECTIONS

SCALE: 1" = 5'

BY: AMM
DATE: 8/30/07
REV: MLG

4 OF 15 SHEETS

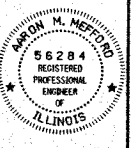
SHEET NO. 4

F.A.S.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
228	06-12122-00-BR	HAMILTON	15	5
FED. ROAD DIST. NO. 9 ILLINOIS		HOGG CREEK		
PROJECT # BR05-065(41)		CONTRACT # 99304		
LEC JOB # H061029M				

583 W. 3RD ST.
P.O. BOX 160
MT. CARMEL, IL
62863
PHONE:
(618)-268-8661
FAX:
(618)-268-8927

406 W. STATE ST.
SUITE 1
PRINCETON, IN
47870
PHONE:
(812)-366-7811
FAX:
(812)-366-2812

PROFESSIONAL
LAND SURVEYING
FIRM:
048-00082
PROFESSIONAL
ENGINEERING
CORPORATION:
184-00087



AARON M. MEFFORD
NAME
[Signature]
SIGNATURE
9-10-07
DATE
11-30-07
EXPIRES

TWIGG TOWNSHIP
OVER HOGG CREEK
HAMILTON COUNTY, ILLINOIS

SHEET TITLE:

GENERAL PLAN
AND ELEVATION

SCALE: NONE

BY: AMM

DATE: 0907

REV:

5 OF 15
SHEETS

SHEET NO.
5

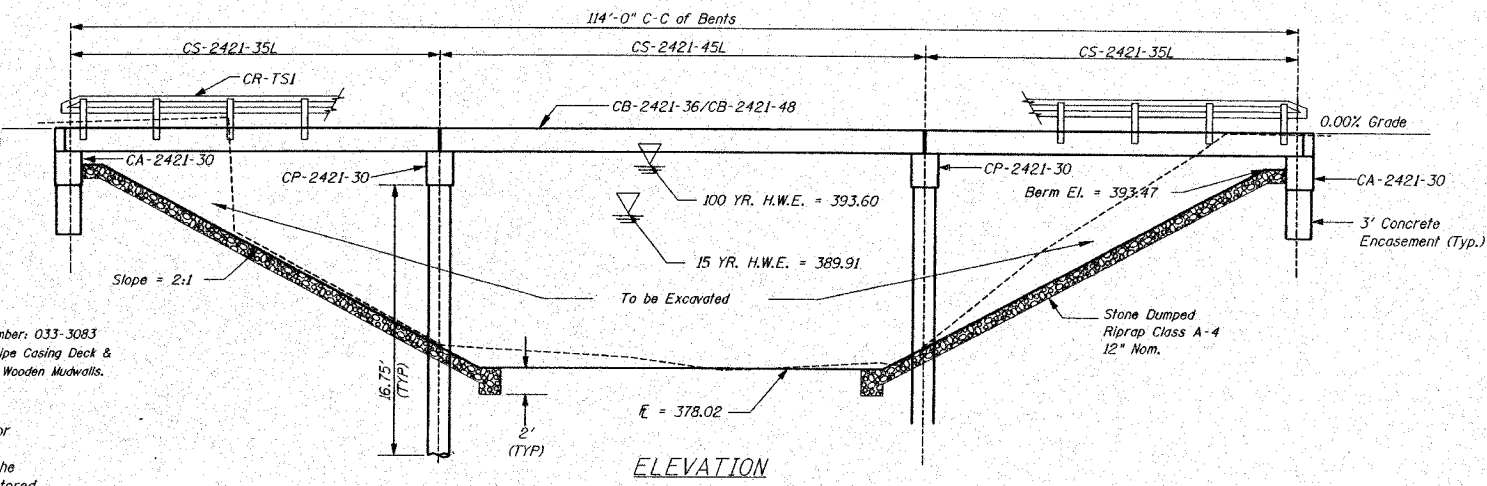
GENERAL NOTES

- The Contractor shall drive one test pile, as specified, in a permanent location as directed by the Engineer before starting 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 Bit Conc. Surf. Cse. Superpave and the Waterproofing Membrane System shown in these Plans shall not be provided.
- The Steel H-Piles shall be according to AASHTO M270 Grade 50.
- All HP piles shall be oriented with the strong axis along the centerline of the abutment.
- 2-3/4" shear studs will be required per pile which will be encased within the concrete cap.

Item	Unit	Super	Sub.		Total
			Piers	Abuts.	
Removal of Existing Structures	L. Sum				1
Bit Conc. Surf. Cse.	Tons				
Waterproofing Membrane System	Sq.Yds.				
Concrete Structures	Cu.Yds.		17.4	20.2	37.6
P.P. Conc. Dk. Bm. 21" Dp.	Sq.Ft.	2760			2760
Steel Rebar, Type S1	Lin.Ft.	230			230
Reinforcement Bars	Lbs.		1780	2560	4340
Furnishing Steel Piles HP10X42	Lin.Ft.		600	480	1080
Driving Piles	Lin.Ft.		600	480	1080
Test Pile Steel HP10X42	Each		1	1	1
Name Plates	Each		1	1	1
Concrete Encasement	Cu.Yds.		2.6	2.1	4.7
Stud Shear Connectors	Each		20	16	36

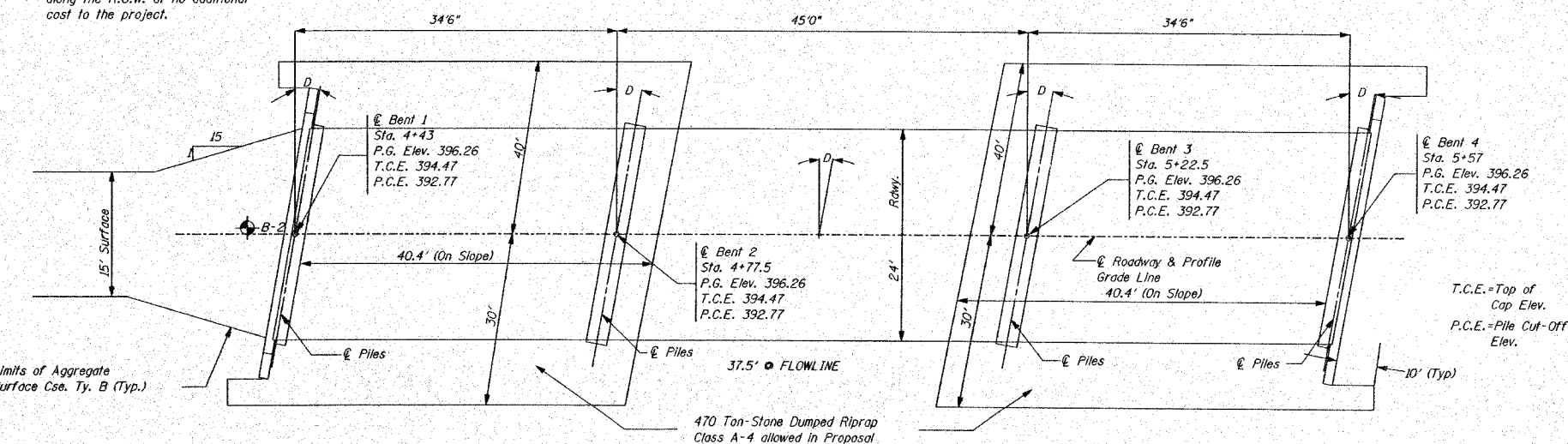
NOTE: See sheet two (2) of these plans for the Schedules of Traffic Barriers and Curled End Sections required on this Section.

B.M. I.P. ± 0+26.72, 9.56' LT.
Elev. = 395.36



Existing Bridge Sta 5+00; Structure Number: 033-3083
A 66' Long Dual Span Bridge with 2" Pipe Casing Deck & B-6"x18" I-Beams on Wooden Piling and Wooden Mudwalls.

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



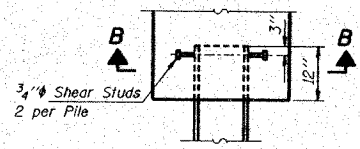
PLAN
D = 30"

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.
504.06	504.06
505.04	505.04
1006.05	1006.05
1006.32	1006.32
1060.07	1060.07
STD 631026	STD 631026

PILE DATA (2-PIERS)

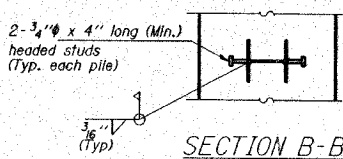
Type: Steel Piles HP10X42
Nominal Required Bearing: 330 Kips
Allowable Resistance Available: 110 Kips
Estimated Length: 60 Feet/Pile
Number Required: 10



PILE DETAIL
Typ. Each Pile

PILE DATA (2-ABUTS)

Type: Steel Piles HP10X42
Nominal Required Bearing: 330 Kips
Allowable Resistance Available: 110 Kips
Estimated Length: 60 Feet/Pile
Number Required: 8

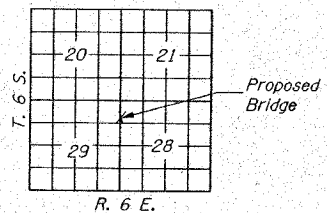


SECTION B-B

STATION 5+00
HOGG CREEK
SEC. 06-12122-00-BR BUILT 20
PROJECT NO. BR05-065(41)
HAMILTON COUNTY
LOADING HS 20-44
STR. NO. 033-3307

LETTERING FOR NAME PLATE

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



LOCATION SKETCH

INDEX OF SHEETS

- General Plan & Elevation
- Standard CS-2421-35L
- Standard CS-2421-45L
- Standard CB-2421-36
- Standard CB-2421-48
- Standard CA-2421-30
- Standard CP-2421-30
- Standard CR-TS1
- Standard CN
- Standard CX-1

WATERWAY INFORMATION

Drainage Area = 2.11 Sq. Mi. Low Grade Elev. = 395.28 At Sta. 2+30

Flood	Freq. Yr.	C.F.S.	Opening Sq.Ft.		Natural H.W.E.	Head-Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	15	2796	643	621	389.91	0.04			389.95
Base	100	4229	887	927	393.60	0.08	0.05	393.68	393.65
Max. Calc.	500	5349							

SEISMIC DATA
Seismic Performance Category (SPC) = B
Bedrock Acceleration Coefficient (A) = 0.10g
Site Coefficient (S) = 1.5

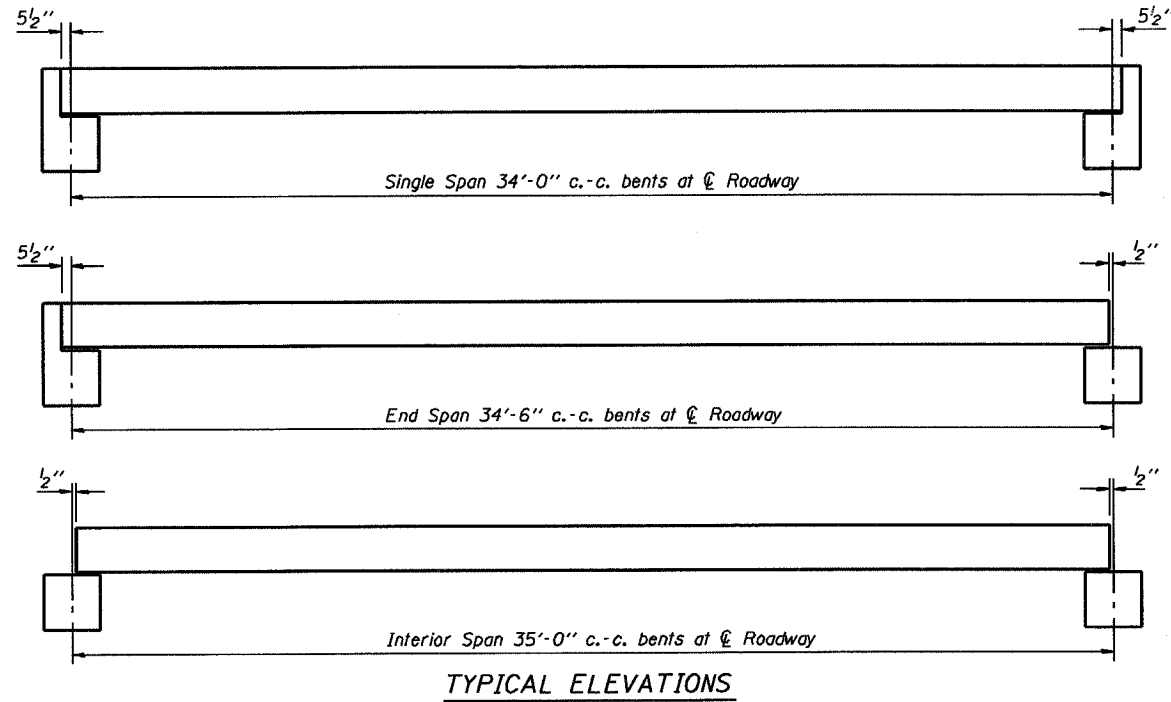
SCOTT & SNIP
081-4523
SPRINGFIELD, IL
STATE OF ILLINOIS

Expires 11-30-08

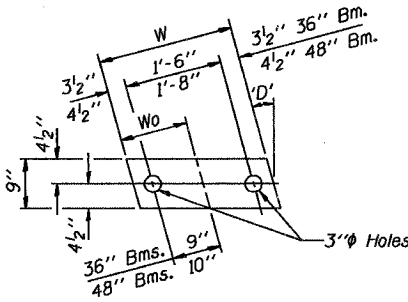
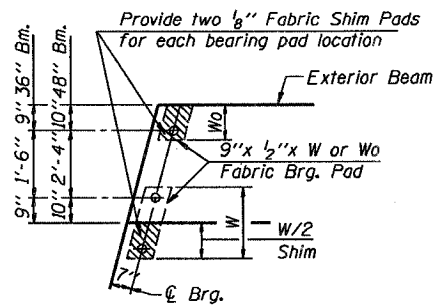
ILLINOIS STRUCTURAL NO. 6529
Complies with 2002 AASHTO Specifications for Seismic Design of Bridges.

DESIGN SPECIFICATIONS

2002 AASHTO
HS 20-44 Loading, Load Factor Design

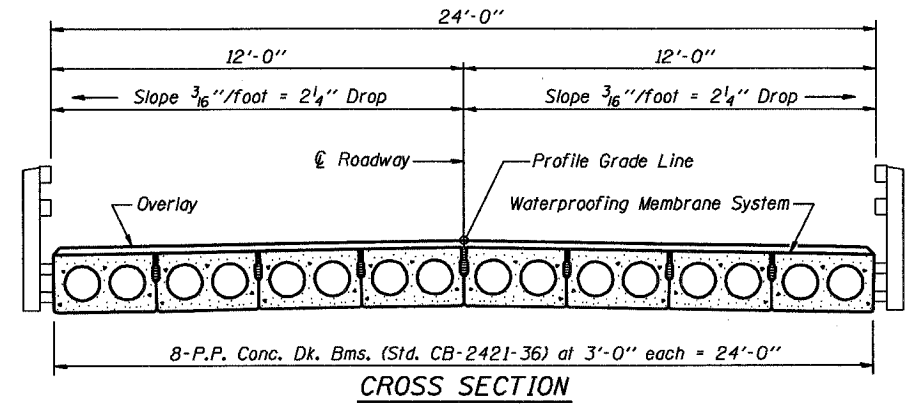


TYPICAL ELEVATIONS

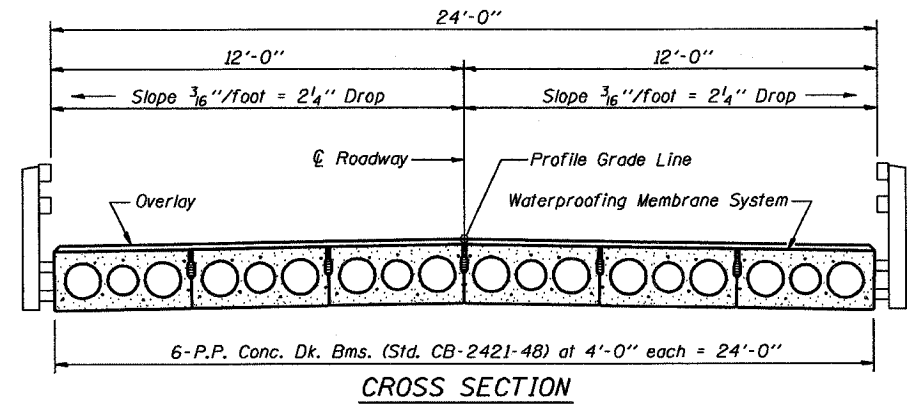


Beam	W	Wo
36"	2'-1"	1'-0 1/2"
48"	2'-5"	1'-2 1/2"

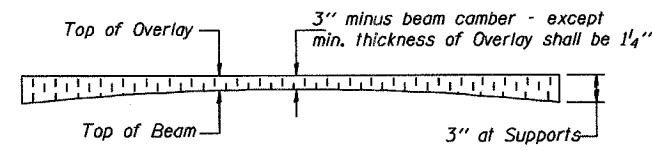
1/2" FABRIC BRG. PAD DETAILS



CROSS SECTION



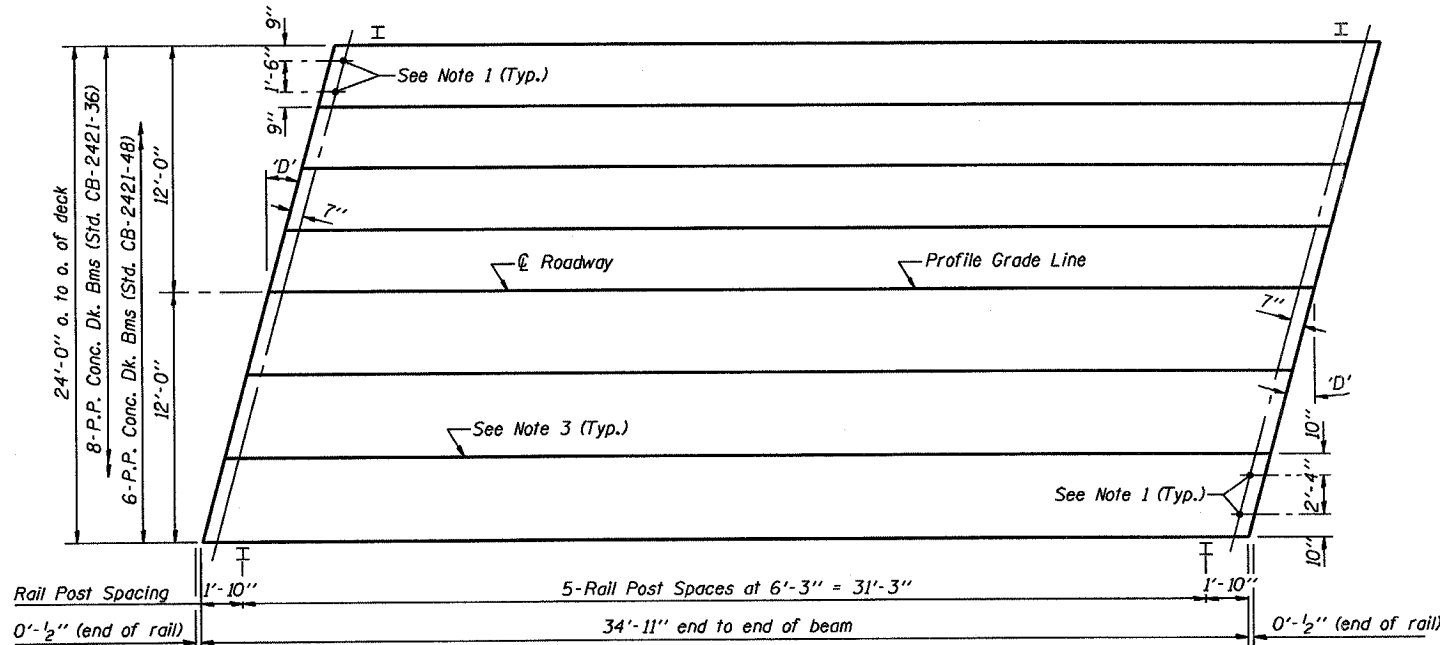
CROSS SECTION



PROFILE OF OVERLAY

DIMENSIONS 'A' AND 'B'

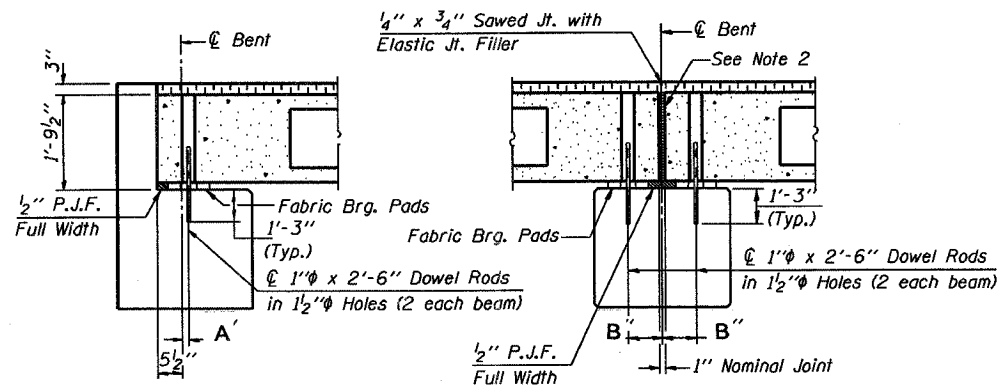
'D'	5°	10°	15°	20°	25°	30°
A	1 1/2"	1 5/8"	1 3/4"	1 7/8"	2 1/4"	2 5/8"
B	7 1/2"	7 5/8"	7 3/4"	8"	8 1/4"	8 5/8"



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 $\text{\textcircled{C}}$ Pier shall be filled with non-shrink grout.
3. Longitudinal keys shall be grouted.



SECTION AT ABUTS.
(Along $\text{\textcircled{C}}$ Beams)

SECTION AT PIERS
(Along $\text{\textcircled{C}}$ Beams)

QUANTITIES FOR ONE SPAN

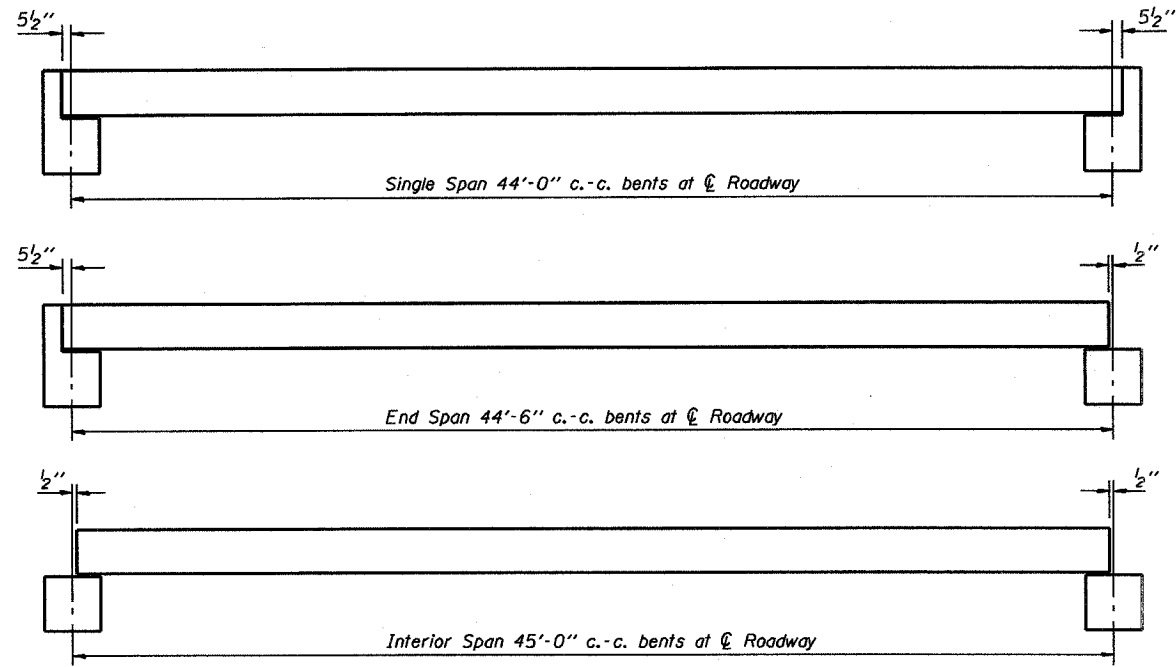
P.P. Conc. Dk. Bm. 17" Dp.	840 Sq. Ft.
Steel Railing	70 Ft.
Waterproofing Membrane System	93.3 Sq. Ft.
Portland Cement Mortar	245 Ft. 36"
Fairing Course	175 Ft. 48"

Note: Quantity of overlay for one span = 14.3 Tons

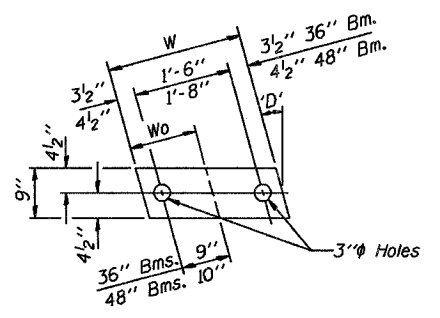
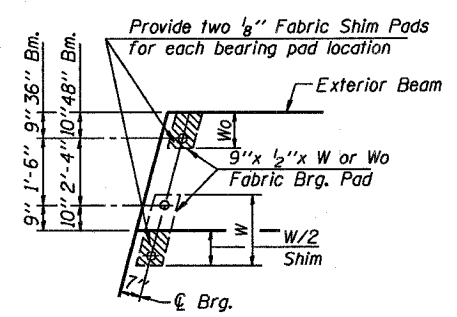
P.P.C. DECK BEAM
SUPERSTRUCTURE

24' RDWY.	21" BMS.	35' SPAN	LEFT
STANDARD CS-2421-35L			

Illinois Department of Transportation
 PASSED APRIL 4, 2005
 Thomas J. [Signature]
 Engineer of Bridge Design
 APPROVED APRIL 4, 2005
 Ralph E. [Signature]
 Engineer of Bridges and Structures

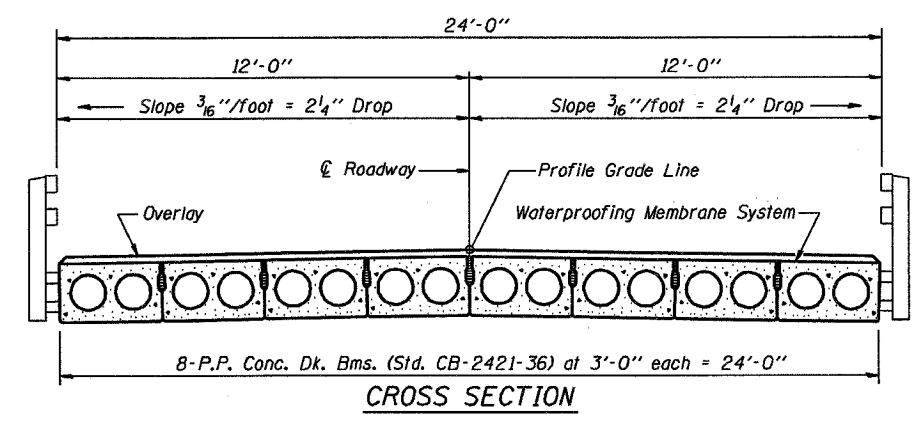


TYPICAL ELEVATIONS

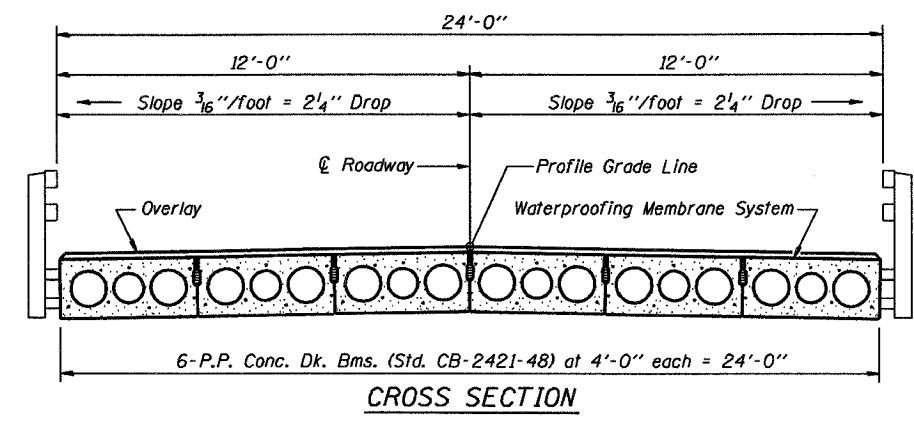


Beam	W	W0
36"	2'-1"	1'-0 1/2"
48"	2'-5"	1'-2 1/2"

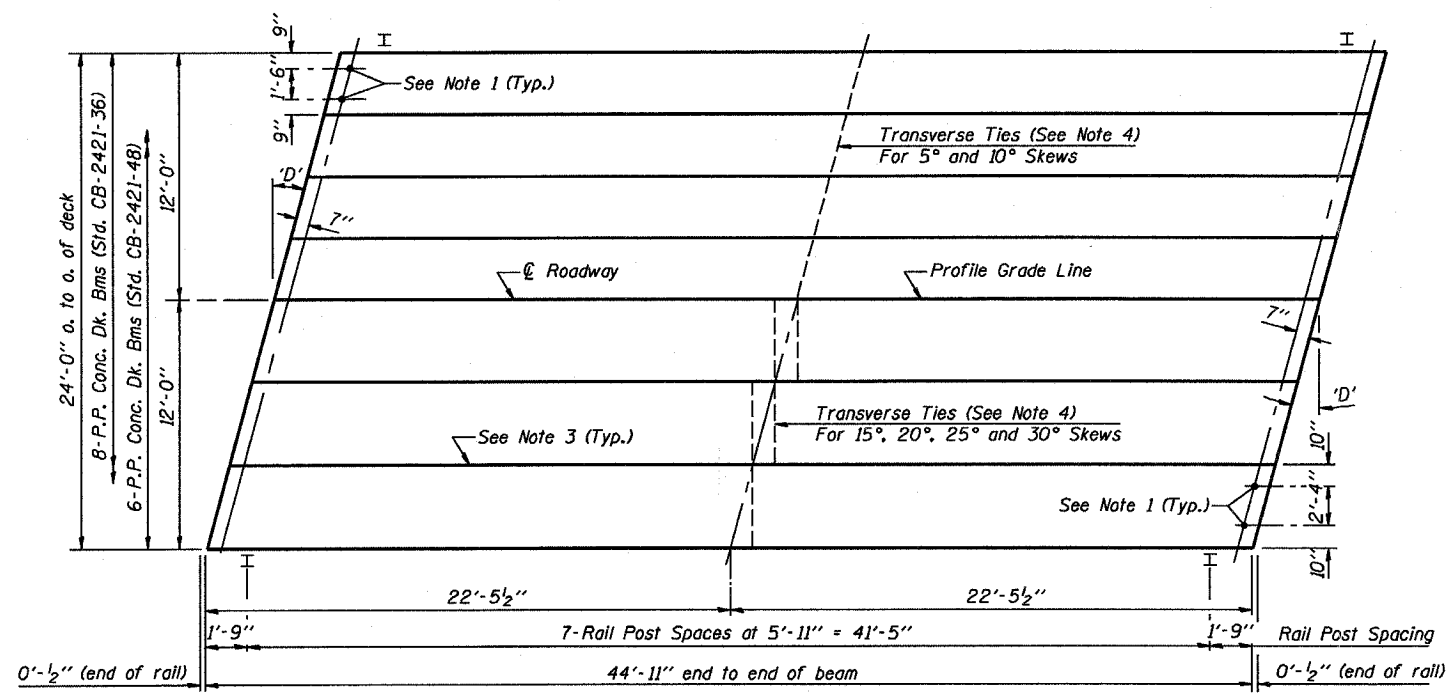
1/2" FABRIC BRG. PAD DETAILS



CROSS SECTION

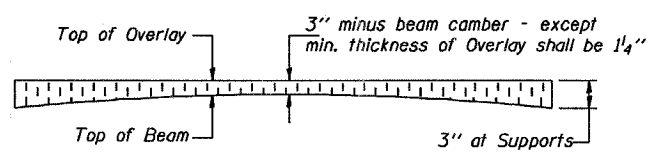


CROSS SECTION



PLAN

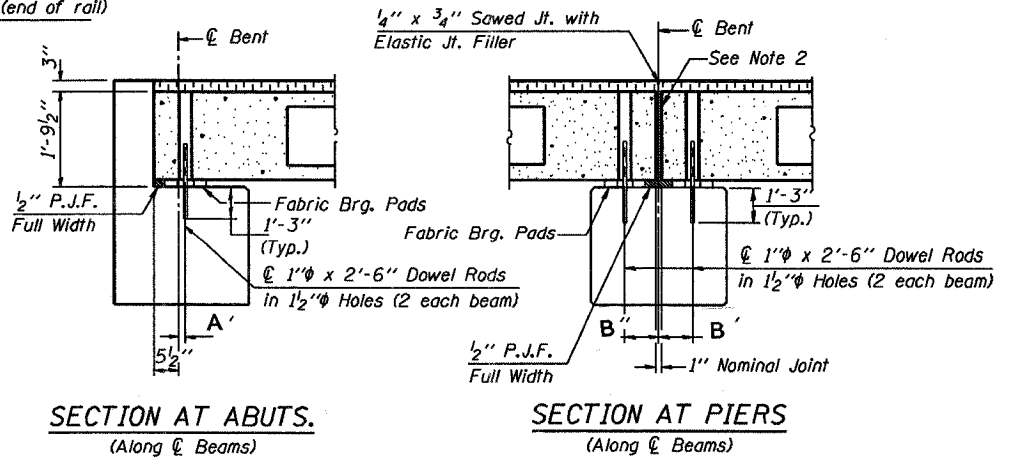
('D' = Designated Skew Angle)



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 5/8"	7 3/4"	8"	8 1/4"	8 5/8"



SECTION AT ABUTS.
(Along centerline of Beams)

SECTION AT PIERS
(Along centerline of Beams)

NOTES

- 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.
- Nominal 1" joint at centerline of Pier shall be filled with non-shrink grout.
- Longitudinal keys shall be grouted.
- 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.

QUANTITIES FOR ONE SPAN

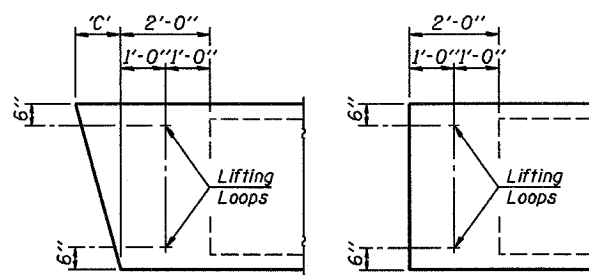
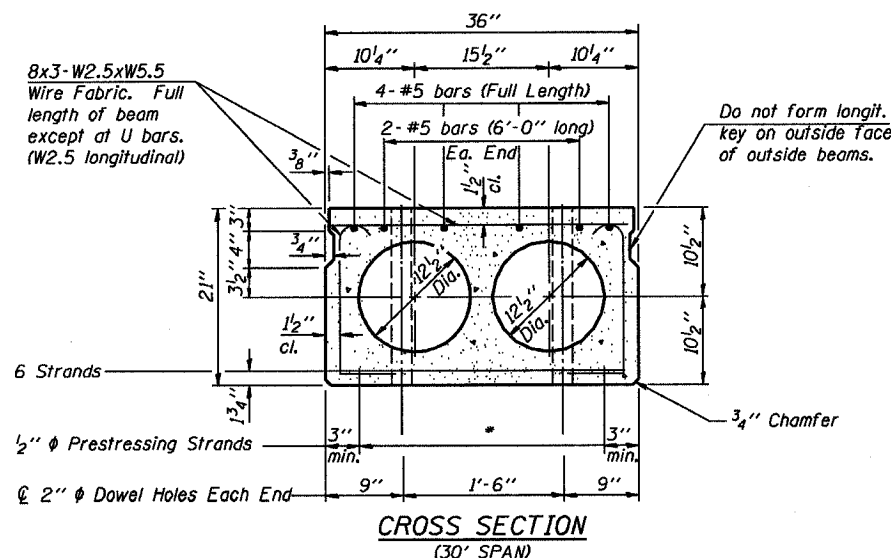
P.P. Conc. Dk. Bm. 21" Dp.	1080 Sq. Ft.
Steel Railing	90 Ft.
Waterproofing Membrane System	1200 Sq. Yds.
Portland Cement Mortar	315 Ft. 36"
Fairing Course	225 Ft. 48"

Note: Quantity of overlay for one span = 15.3 Tons

P.P.C. DECK BEAM
SUPERSTRUCTURE

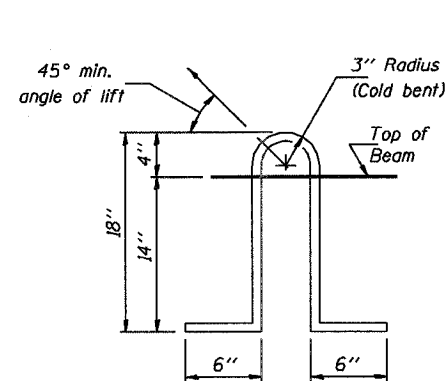
24' RDWY.	21" BMS.	45' SPAN	LEFT
STANDARD CS-2421-45L			

Illinois Department of Transportation
PASSED APRIL 4, 2005
Theresa Romagosa
Engineer of Bridge Design
APPROVED APRIL 4, 2005
Ralph E. Anderson
Engineer of Bridges and Structures
1861-1-1 03/15/01



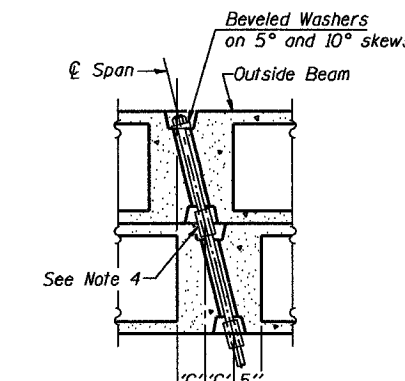
END BLOCK DETAILS

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.

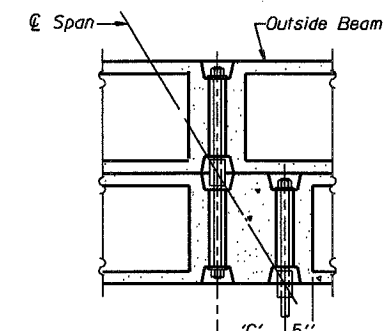


LIFTING LOOP DETAIL

Lifting loops shall be 2. 1/2" φ-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°)

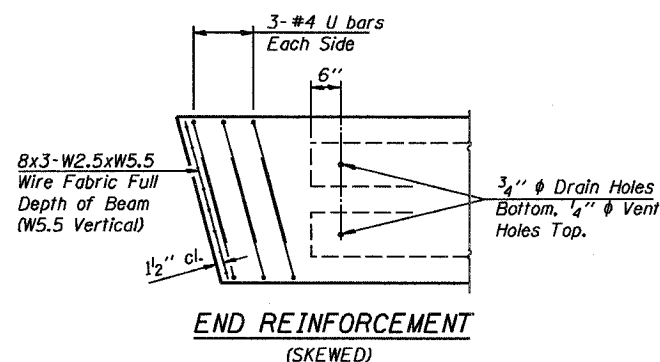
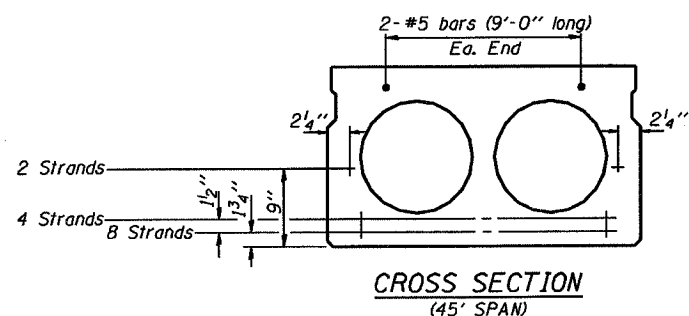
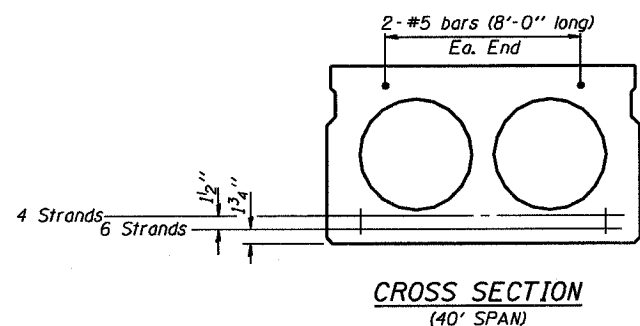
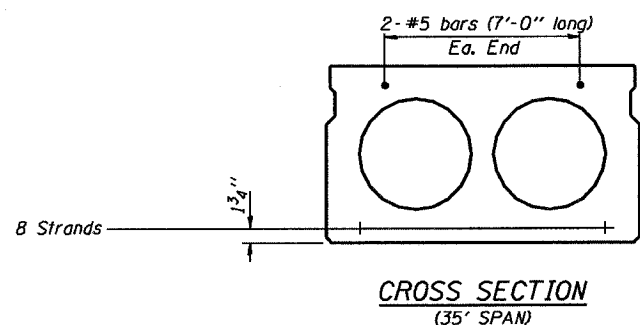
DIMENSION 'C'

Skew Angle 'D'	0°	5°	10°	15°	20°	25°	30°
Dimension 'C' (Inches)	0	3 3/8	6 3/8	9 5/8	13 1/8	16 3/4	20 3/4

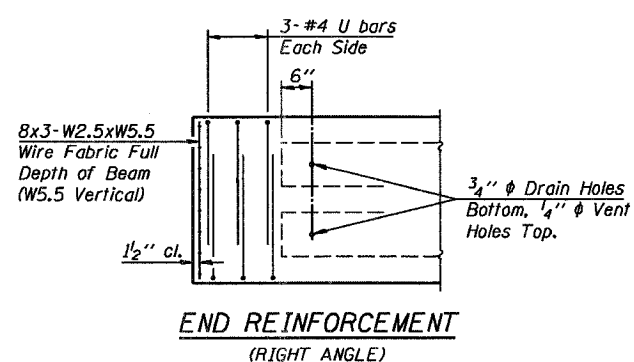
*** TRANSVERSE STRAND PLACEMENT GUIDELINES**

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".

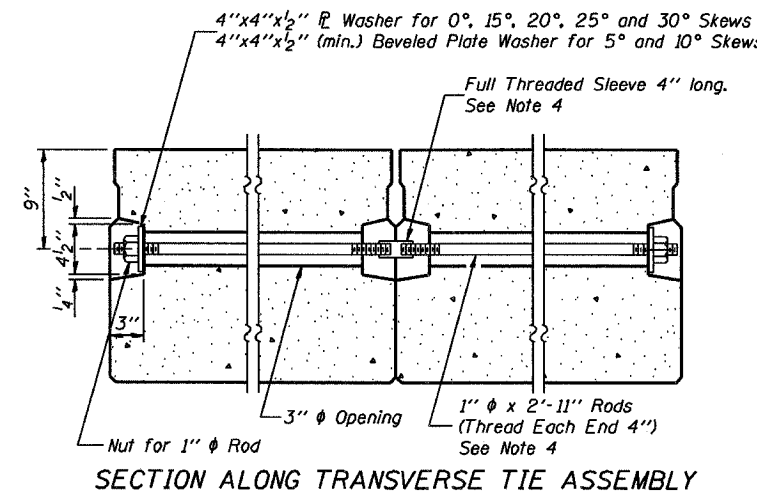
Vertical placement of strands shall not be adjusted to satisfy the above guidelines.



END REINFORCEMENT (SKEWED)



END REINFORCEMENT (RIGHT ANGLE)



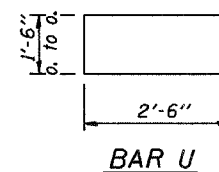
SECTION ALONG TRANSVERSE TIE ASSEMBLY
(REQUIRED FOR 45' SPAN ONLY)

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° skewers, 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.

MIN. BAR LAP

#5 bars = 1'-8"



BAR U

DESIGN STRESSES

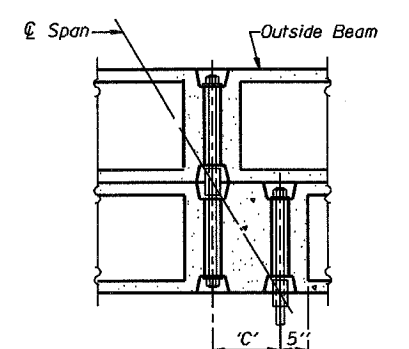
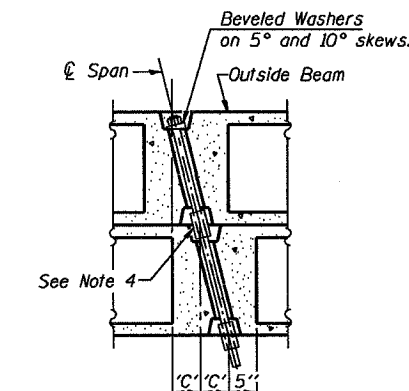
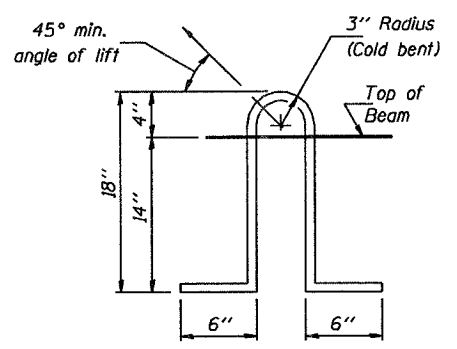
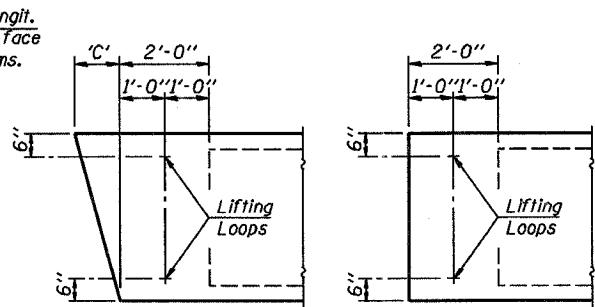
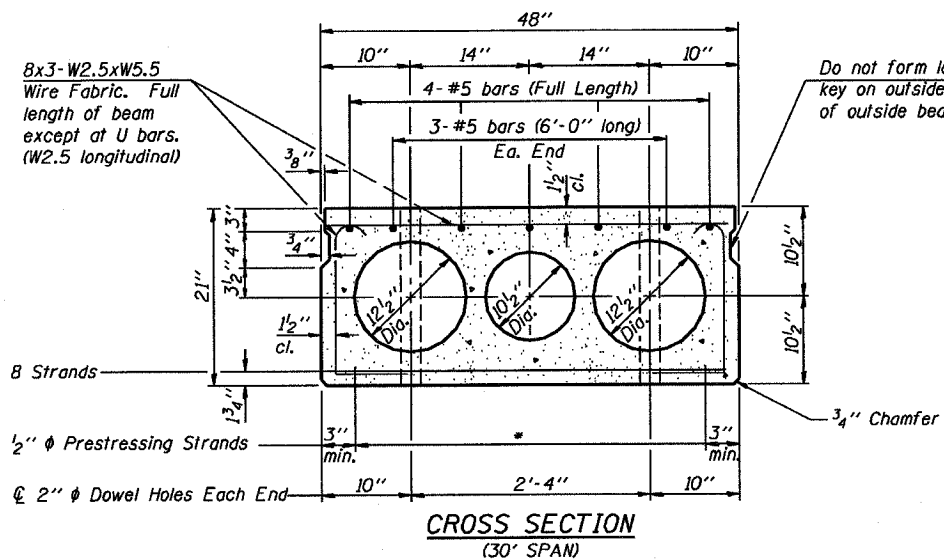
- $f_c = 5,000$ p.s.i.
- $f_{ci} = 4,000$ p.s.i.
- $f_s = 270,000$ p.s.i. (1/2" φ Strand)
- $f_{sl} = 201,960$ p.s.i. (1/2" φ Strand)
- $f_y = 60,000$ p.s.i.

NOTE

The std. reinf. and dimensions shown on the 30' span cross section is typical for all spans, except as shown.

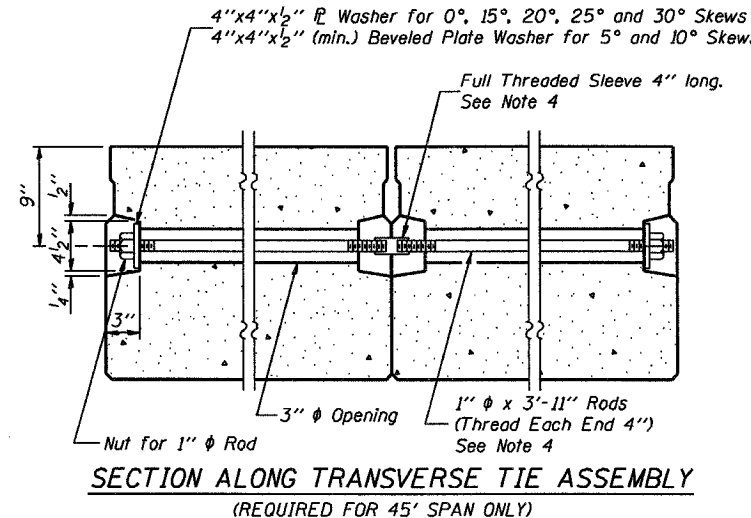
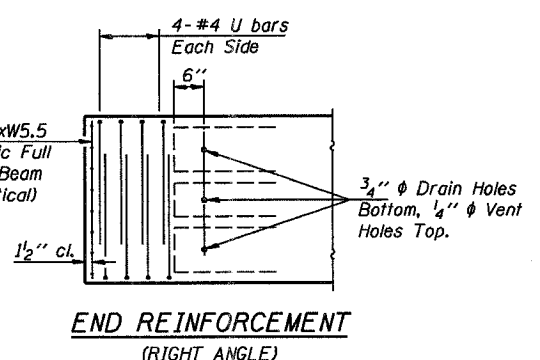
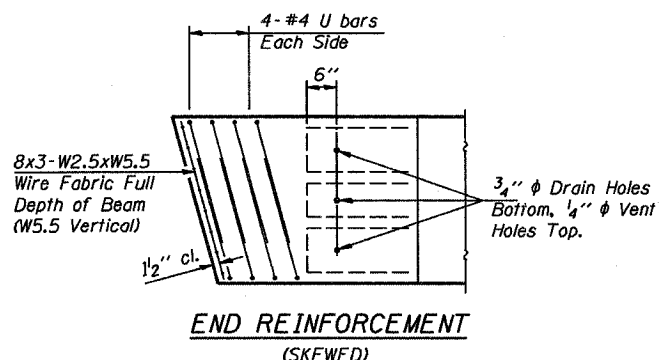
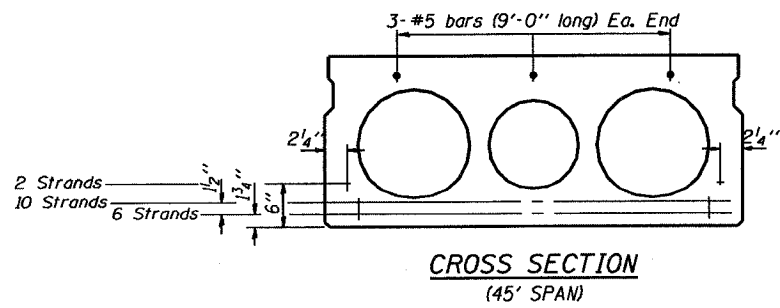
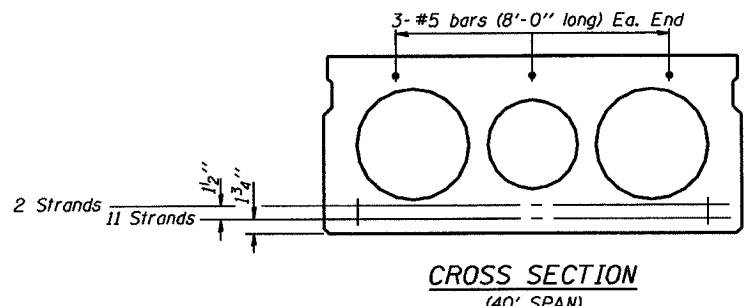
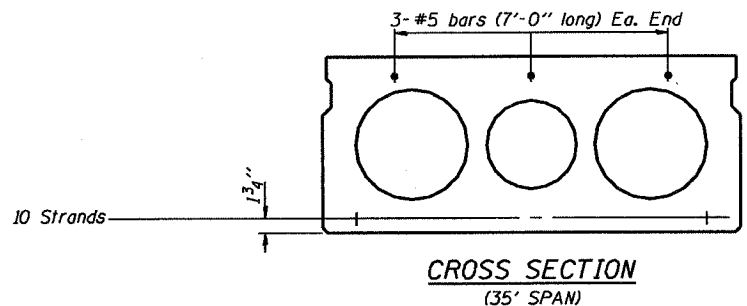
Illinois Department of Transportation
PASSED APRIL 4, 2005
Theresa J. Romagnoli
Engineer of Bridge Design
APPROVED APRIL 4, 2005
Ralph E. Anderson
Engineer of Bridges and Structures

P.P.C. DECK BEAM DETAILS
24' ROADWAY | 21" x 36" BEAMS
STANDARD CB-2421-36



DIMENSION 'C'

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

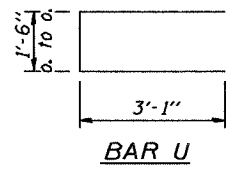


*** TRANSVERSE STRAND PLACEMENT GUIDELINES**

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 1/2".

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

MIN. BAR LAP
#5 bars = 1'-8"



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" ϕ Strand)
- $f_{si} = 201,960$ p.s.i. (1/2" ϕ Strand)
- $f_y = 60,000$ p.s.i.

NOTES

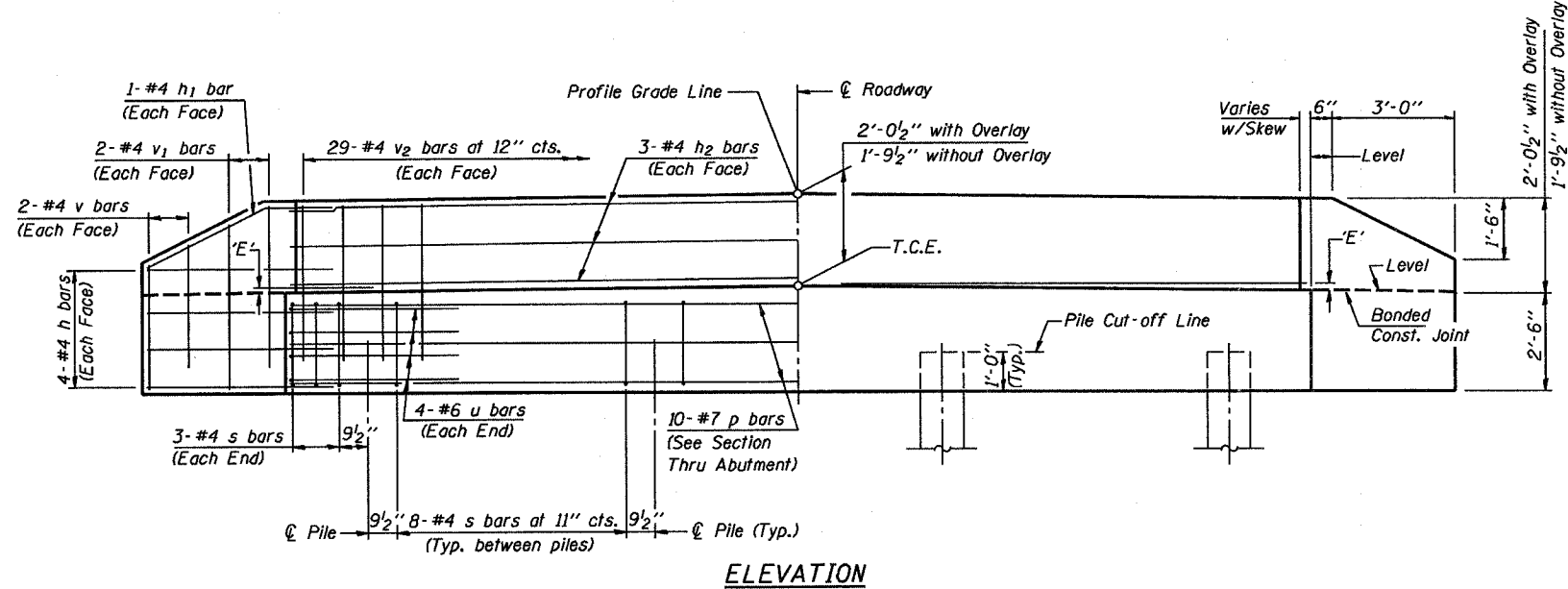
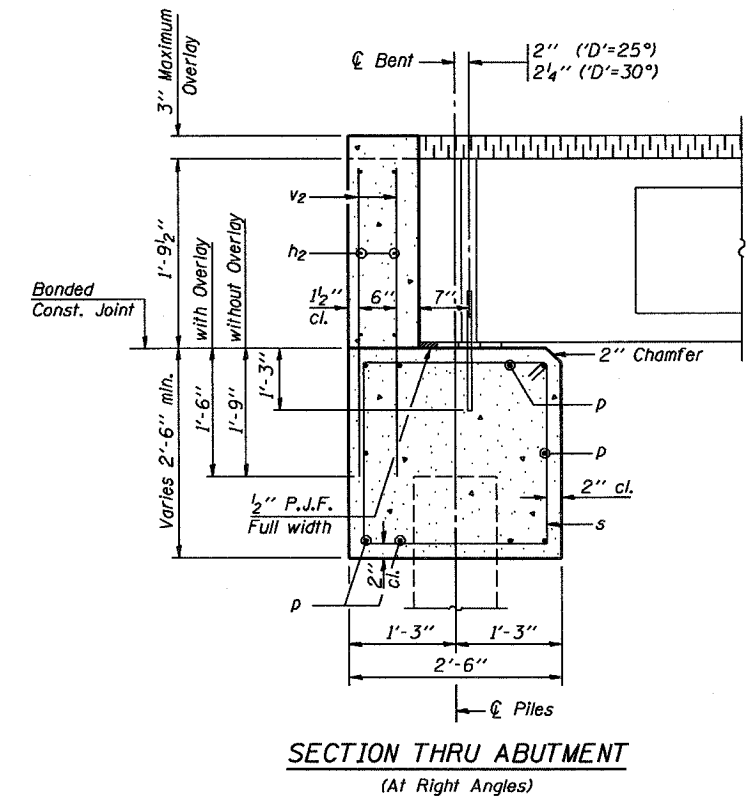
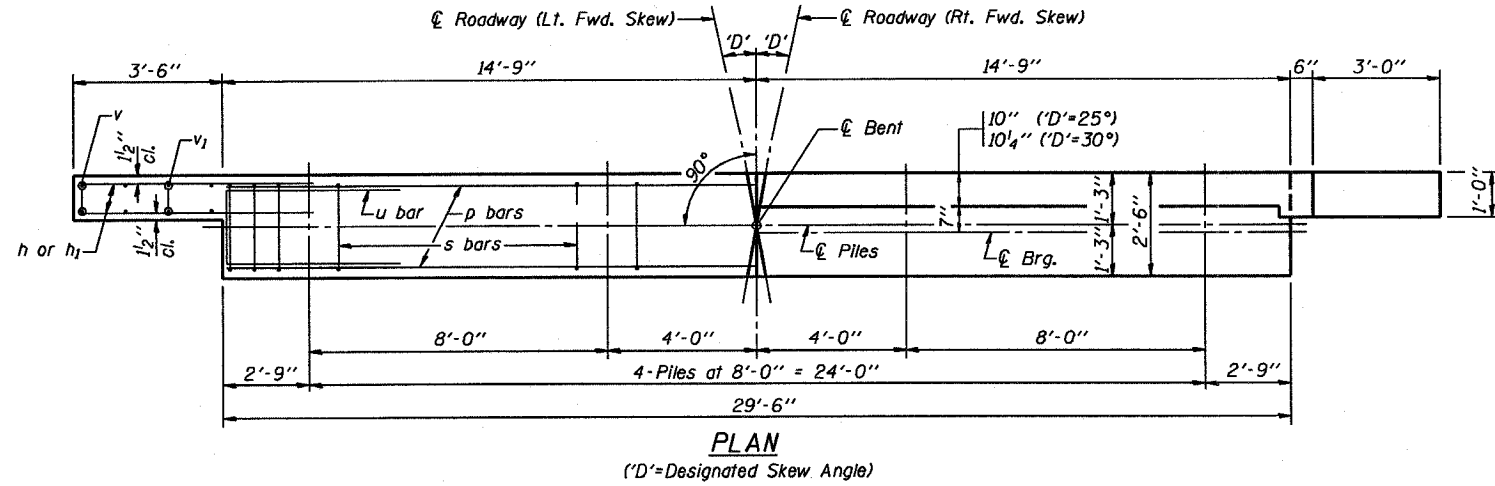
1. Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270.
2. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 square inches.
3. Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-322, Grade 60.
4. On 0°, 5° and 10° skew angles, alternate approved transverse tie rods of increased segmental length are acceptable.
5. Roll 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.

Illinois Department of Transportation
PASSED APRIL 4, 2005
Theresa J. Demko
Engineer of Bridge Design
APPROVED APRIL 4, 2005
Ralph E. Anderson
Engineer of Bridges and Structures

NOTE
The std. reinf. and dimensions shown on the 30' span cross section is typical for all spans, except as shown.

P.P.C. DECK BEAM DETAILS

24' ROADWAY	21" x 48" BEAMS
STANDARD CB-2421-48	



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 7/8"
Over 1% to 2%	1 3/8"	3 5/8"	1"	3 3/4"
Over 2% to 3%	5/8"	4 3/8"	1/8"	4 5/8"
Over 3% to 4%	0"	5/8"		

NOTES

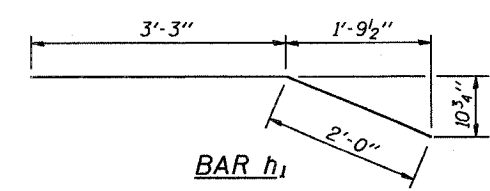
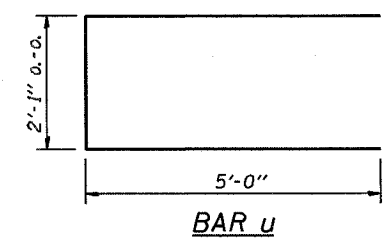
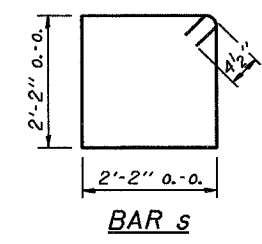
- The Backwall and the portion of the Wingwall above the bonded construction joint shall be cast against the in-place beam.
- Reinforcement bars shall conform to the requirements of A.A.S.H.T.O. M-31 or M-322, Grade 60.
- Space reinforcement in cap to miss anchor bolts.

MAXIMUM PILE LOADS

SPAN	TONS
30'	27
35'	30
40'	32
45'	34

DESIGN STRESSES

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

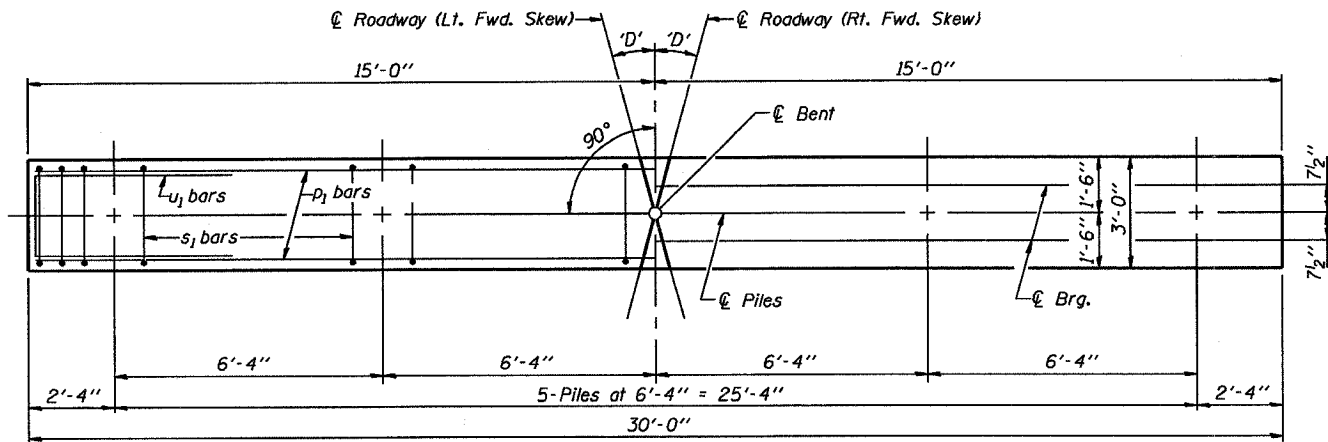


BILL OF MATERIAL FOR ONE ABUTMENT

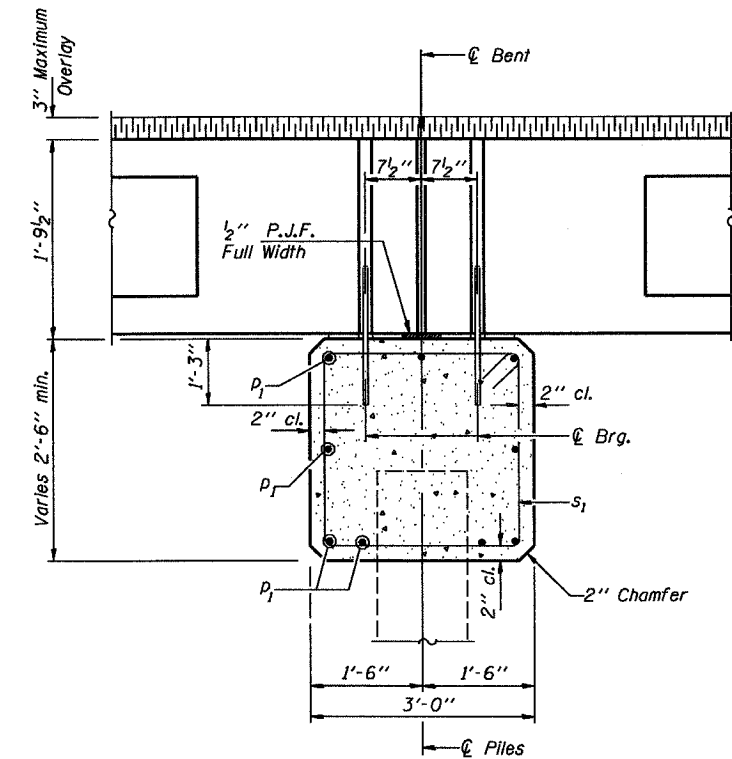
Bar	No.	Size	Length	Shape
h	16	#4	5'-0"	—
h1	4	#4	5'-3"	—
h2	6	#4	29'-2"	—
p	10	#7	29'-2"	—
s	30	#4	9'-5"	□
u	8	#6	12'-1"	□
v	8	#4	2'-8"	—
v1	8	#4	3'-8"	—
v2	58	#4	3'-5"	—
Concrete Structures			10.1 Cu. Yds.	
Reinforcement Bars			1280 Lb.	

P.P.C. DECK BEAMS
PILE BENT ABUTMENT
24' RDWY. 21" BMS. 'D'=25° OR 30°
STANDARD CA-2421-30

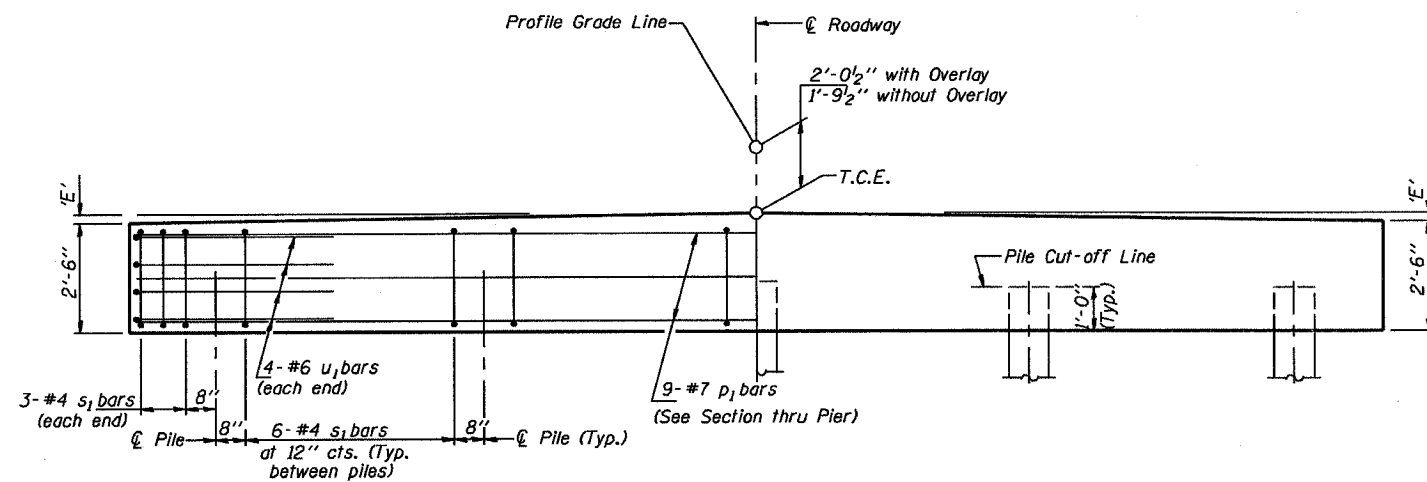
Illinois Department of Transportation
PASSED APRIL 4, 2005
Thomas S. Noman (Signature)
Engineer of Bridge Design
APPROVED APRIL 4, 2005
Ralph E. Anderson (Signature)
Engineer of Bridges and Structures



PLAN
('D' = Designated Skew Angle)



SECTION THRU PIER
(At Right Angles)



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 9/8"	2 9/8"	2"	2 7/8"
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"		

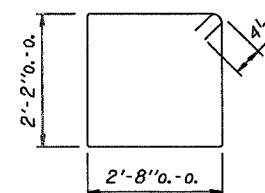
MAXIMUM PILE LOADS

SPAN	TONS
30'	33
35'	36
40'	39
45'	48

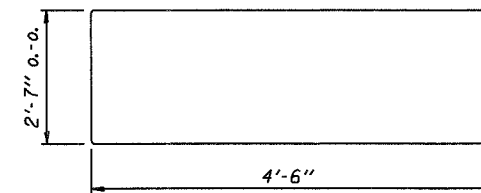
Longer of Either Span Supported by Pier.

DESIGN STRESSES

$f'_c = 3,500$ psi
 $f_y = 60,000$ psi



BAR s₁



BAR u₁

BILL OF MATERIAL FOR ONE PIER

Bar	No.	Size	Length	Shape
p ₁	9	#7	29'-8"	—
s ₁	30	#4	10'-5"	□
u ₁	8	#6	11'-7"	□
Concrete Structures			8.7	Cu. Yds.
Reinforcement Bars			890	Lb.

NOTE

Reinforcement bars shall conform to the requirements of A.A.S.H.T.O. M-31 or M-322, Grade 60.

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

24' RDWY.	21" BMS.	'D'=25° OR 30°
STANDARD CP-2421-30		

Illinois Department of Transportation
PASSED APRIL 4, 2005
Theresa J. Domagala
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.

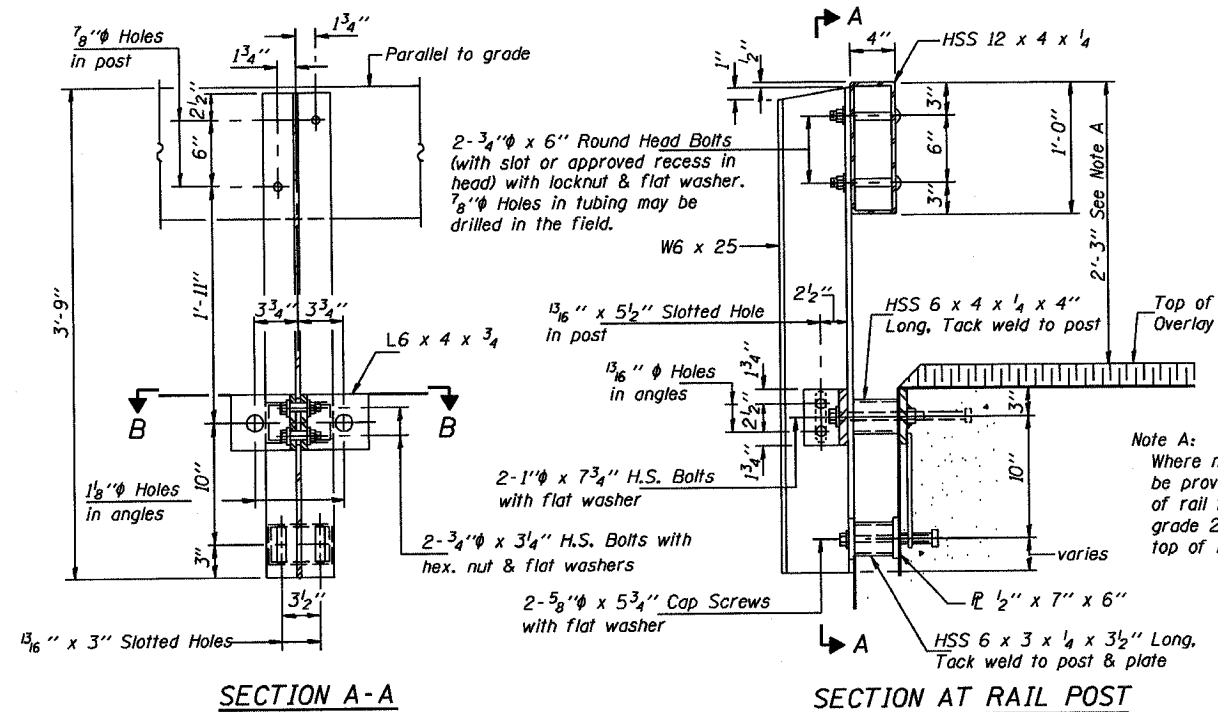
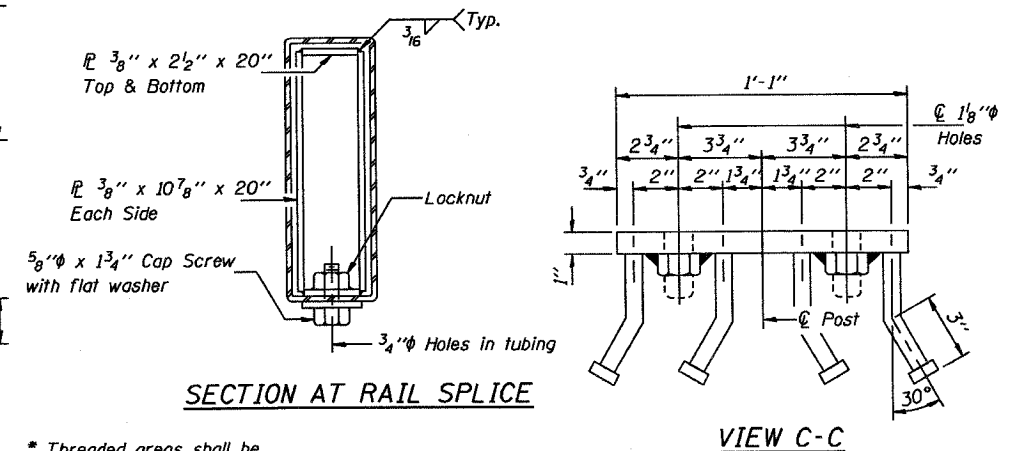
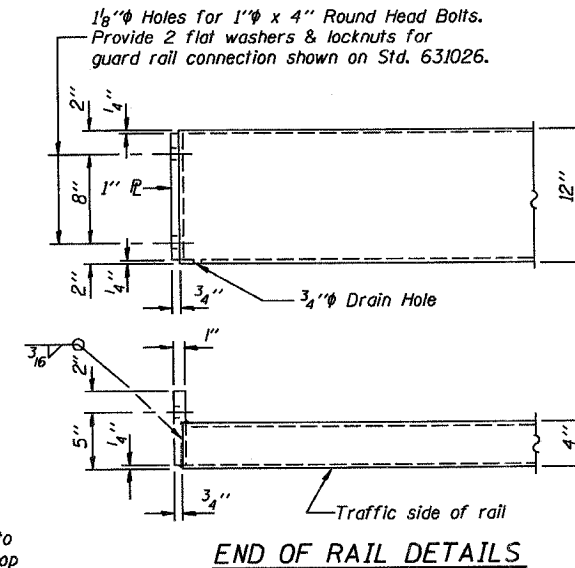
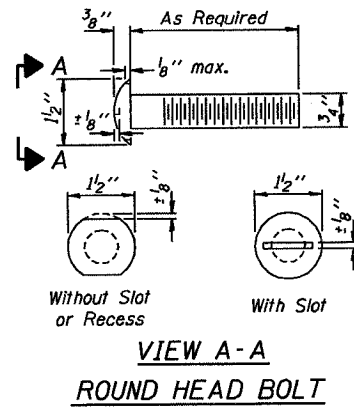
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with STEEL RAILING, TYPE S-1.

All 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 1/8" fabric bearing pads shall be placed between the plates and concrete.

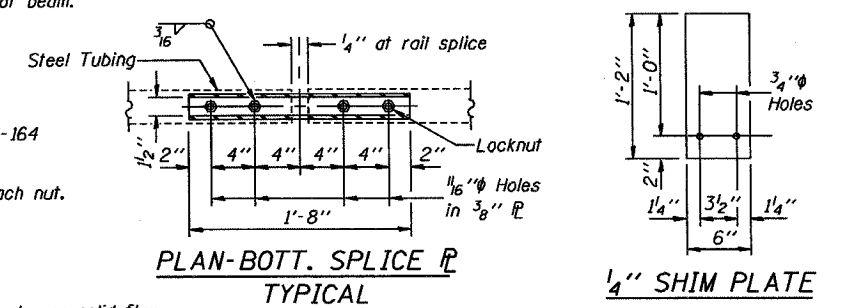
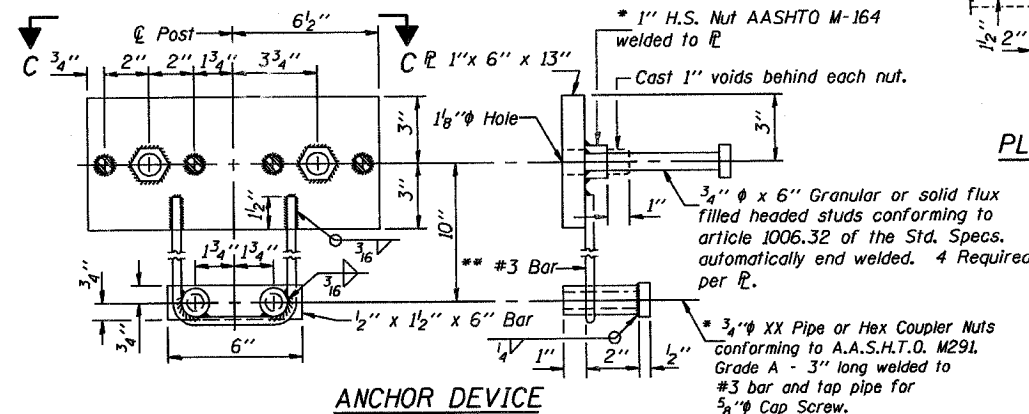
The 3/4" high strength bolts used to connect the 6 x 4 x 3/4 angles to the post shall be tightened according to Article 505.04 (FX2) of the Standard Specifications. The 1" high strength bolts connecting the angles to the concrete shall be tightened to a snug fit and given an additional 1/8 turn. The 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.



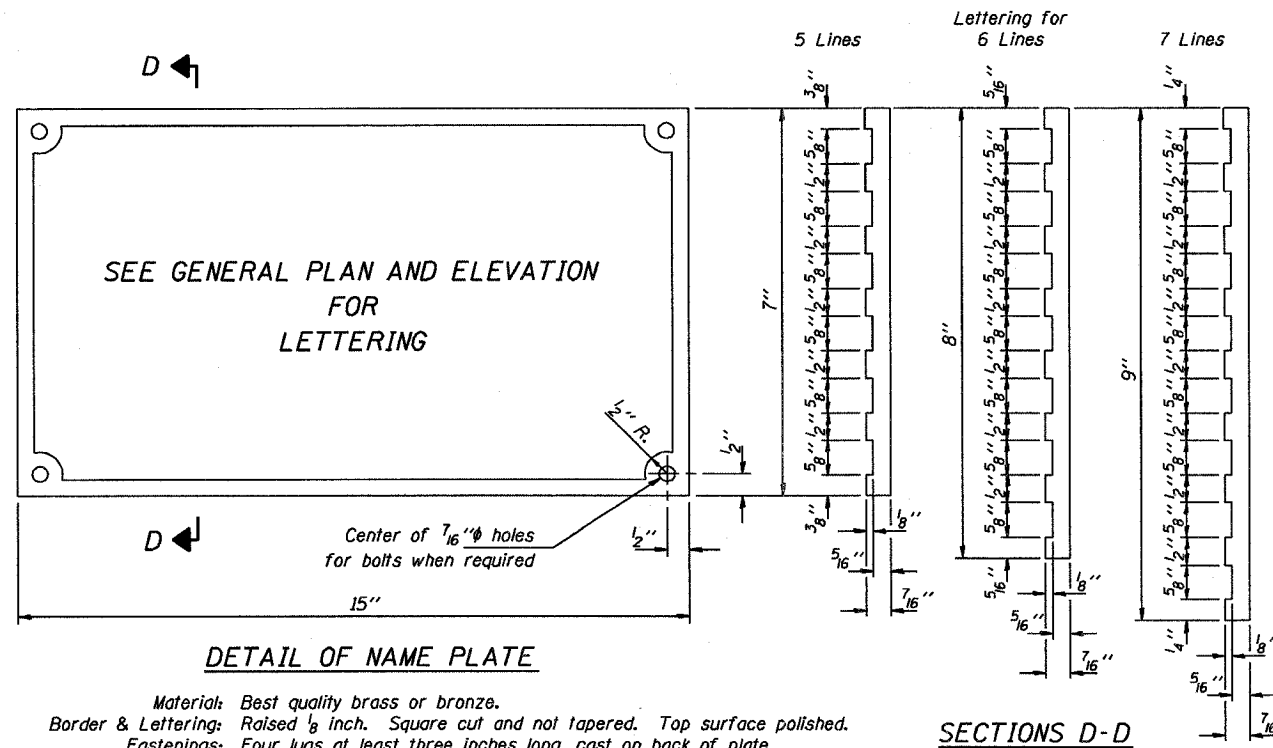
Note A:
Where no overlay is to be provided, adjust top of rail to lay parallel to grade 2'-5" max. above top of beam.

** 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".



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

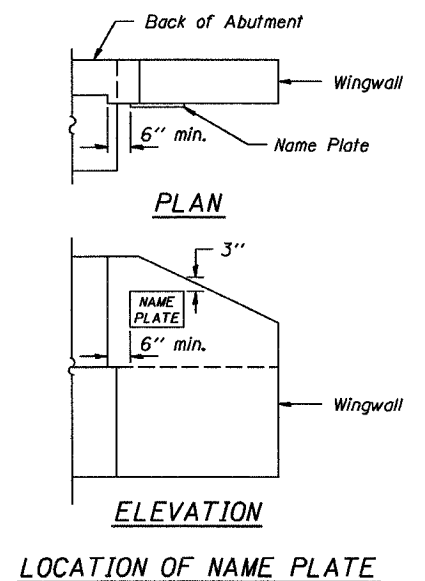
STEEL RAILING, TYPE S-1
STANDARD CR-TS1



DETAIL OF NAME PLATE

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.

SECTIONS D-D



LOCATION OF NAME PLATE

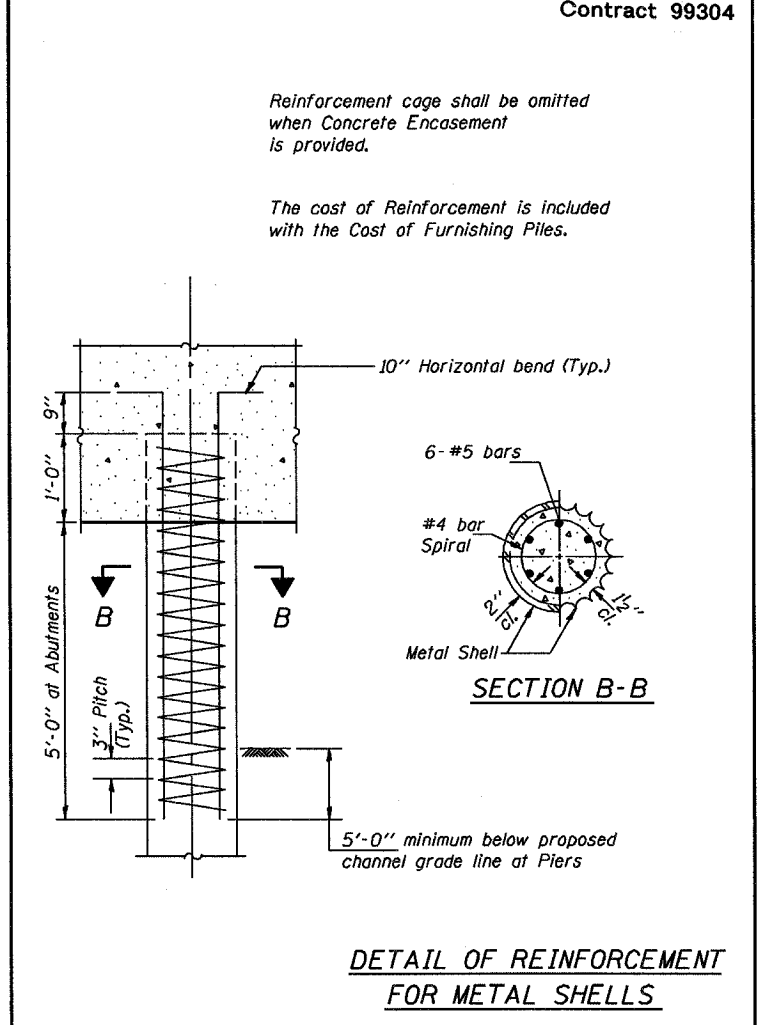
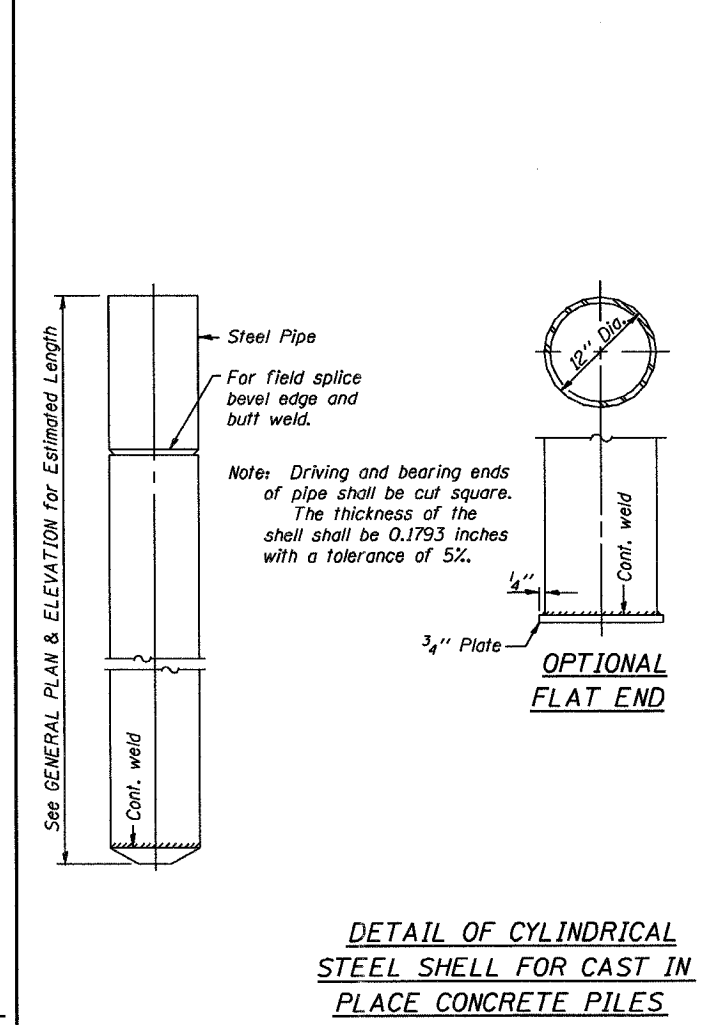
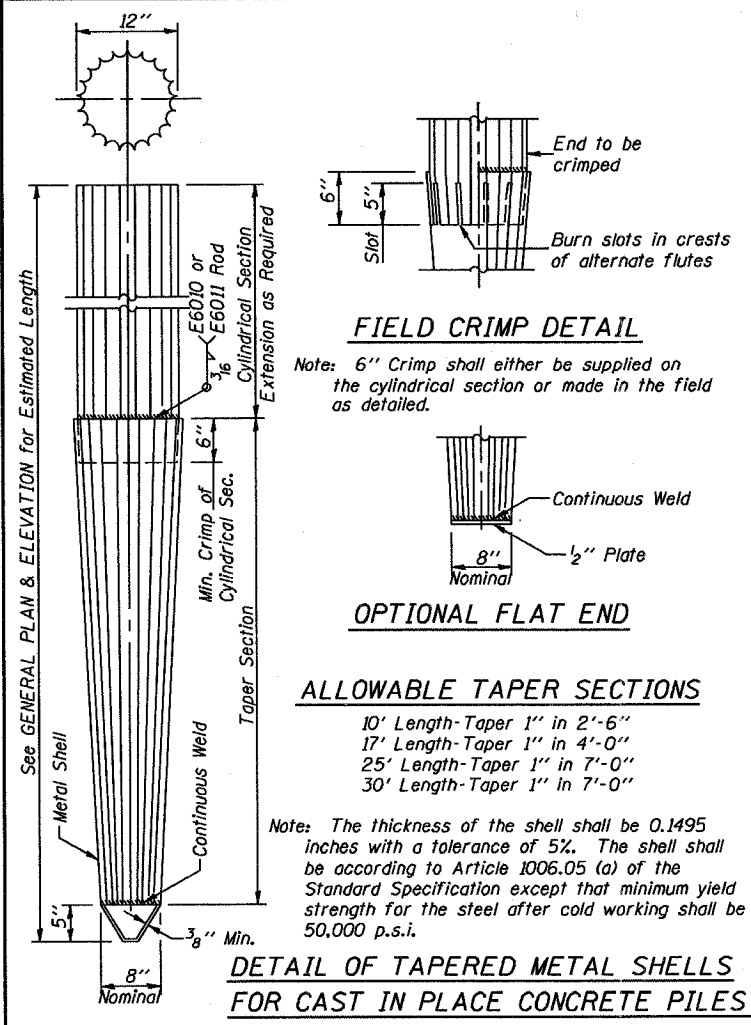
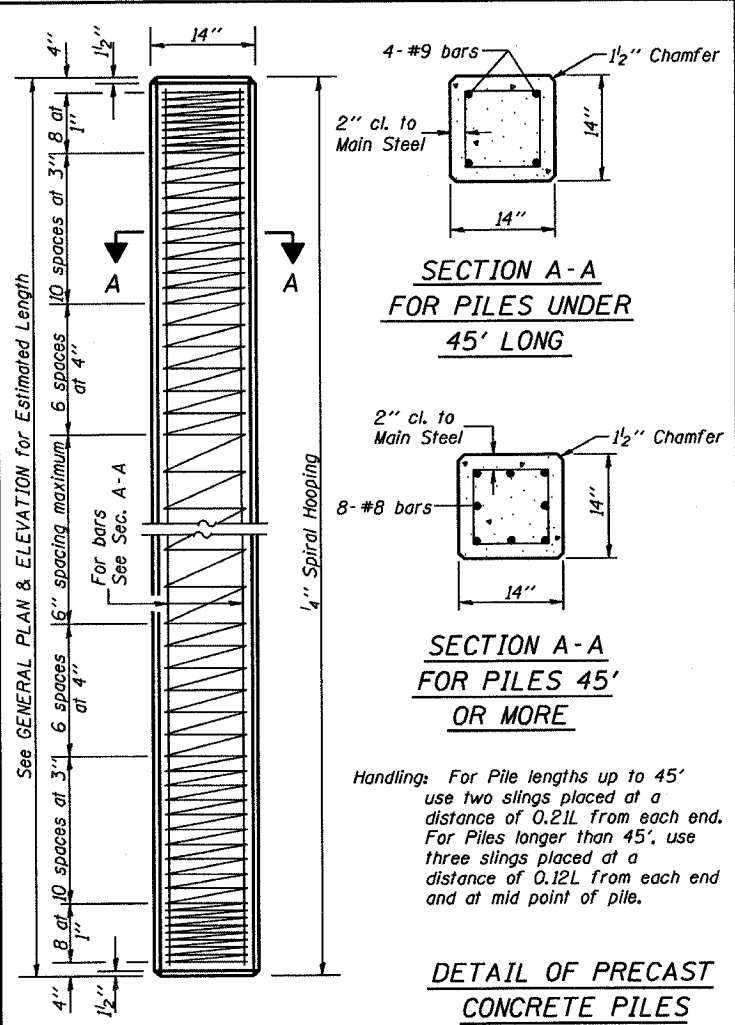
Illinois Department of Transportation

PASSED APRIL 4, 2005
Thomas J. Demko
Engineer of Bridge Design

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

566F-1-2 03/95/1

NAME PLATE
STANDARD CN



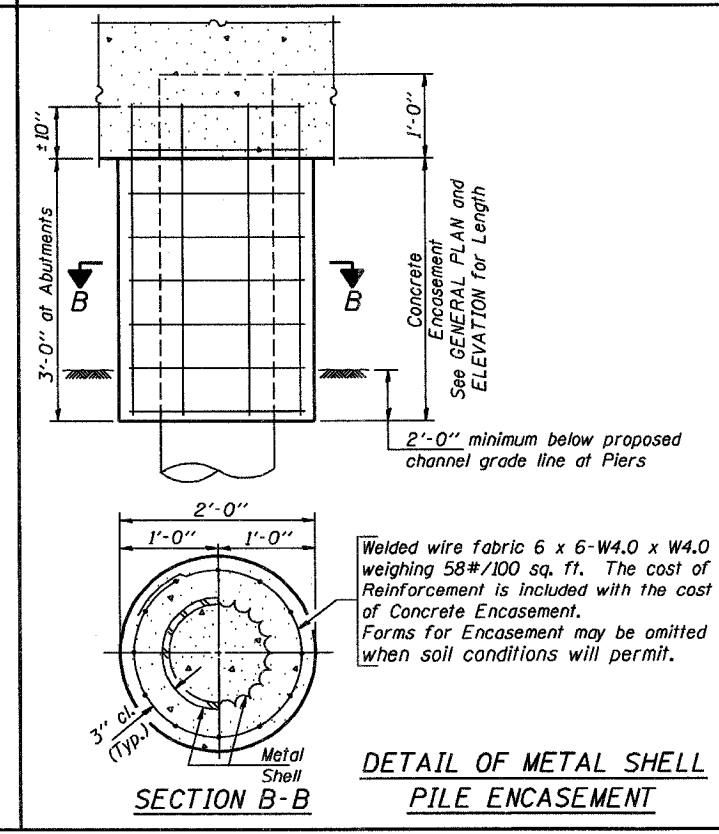
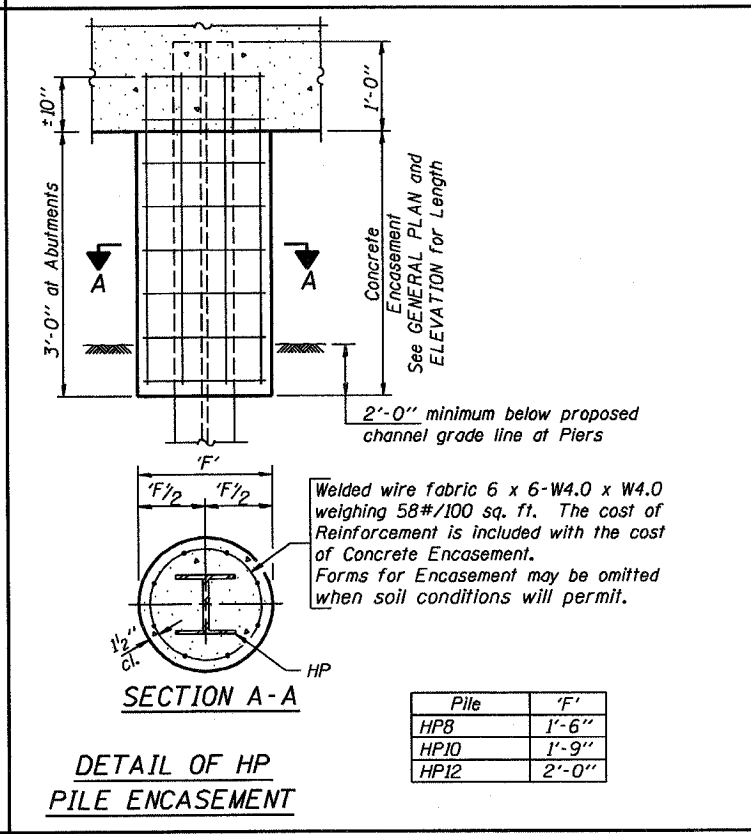
Illinois Department of Transportation

PASSED FEBRUARY 1, 2000

Engineer of Bridge Design

APPROVED FEBRUARY 1, 2000

Engineer of Bridges and Structures



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.

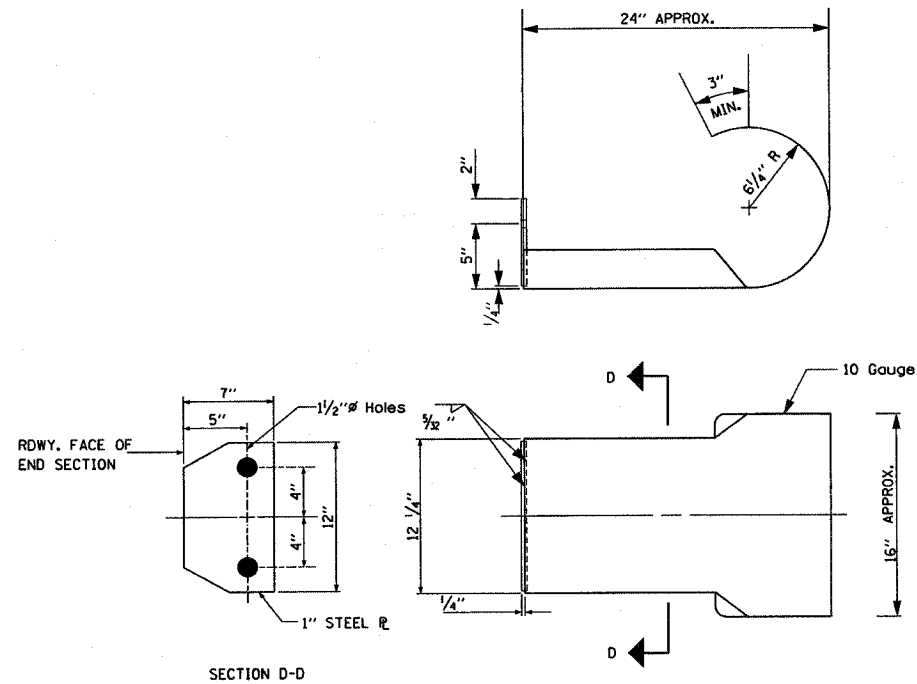
(METAL SHELL PILES)

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

PILE DETAILS

STANDARD CX-1

CURLED END SECTION DETAIL



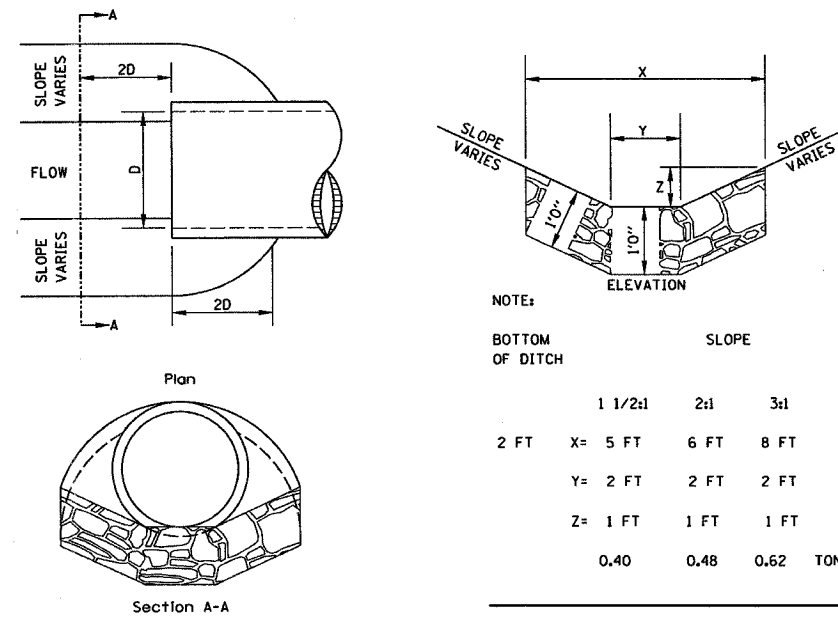
ALL OTHER STEEL SHAPES AND PLATES SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION M-183 EXCEPT POSTS AND ANGLES SHALL CONFORM TO A.A.S.H.T.O. M-223, GRADE 50.

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 GALVANIZED 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			
	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			
	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			
	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