

SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
03-00112-00-BR	WAYNE	10	1
FAS ROUTE 2821, COUNTY HIGHWAY 21			
ILLINOIS PROJECT BRS-2821 (107)			
OWENS CREEK BRIDGE CONTRACT NO. 95463			

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
PLANS FOR
PROPOSED LOCAL AGENCY IMPROVEMENT
FEDERAL-AID B.R.R.P. PROJECT BRS-2821 (107)

F. A. S. ROUTE 2821, COUNTY HIGHWAY 21
SECTION 03-00112-00-BR
WAYNE COUNTY PROJECT
C-97-027-06

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	COVER SHEET
2	PLAN - PROFILE
3	CROSS SECTIONS
4 - 10	BRIDGE PLANS

THE FOLLOWING STANDARDS ARE A PART OF THESE PLANS AND ARE INCLUDED AFTER SHEET NO. 10.

000001-04 STANDARD SYMBOLS, ABBREVIATIONS, AND PATTERNS
702001-06 TRAFFIC CONTROL DEVICES
BLR 21-6 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES

BEFORE DIGGING IN ILLINOIS
...CALL JULIE FIRST AT 1-800-892-0123

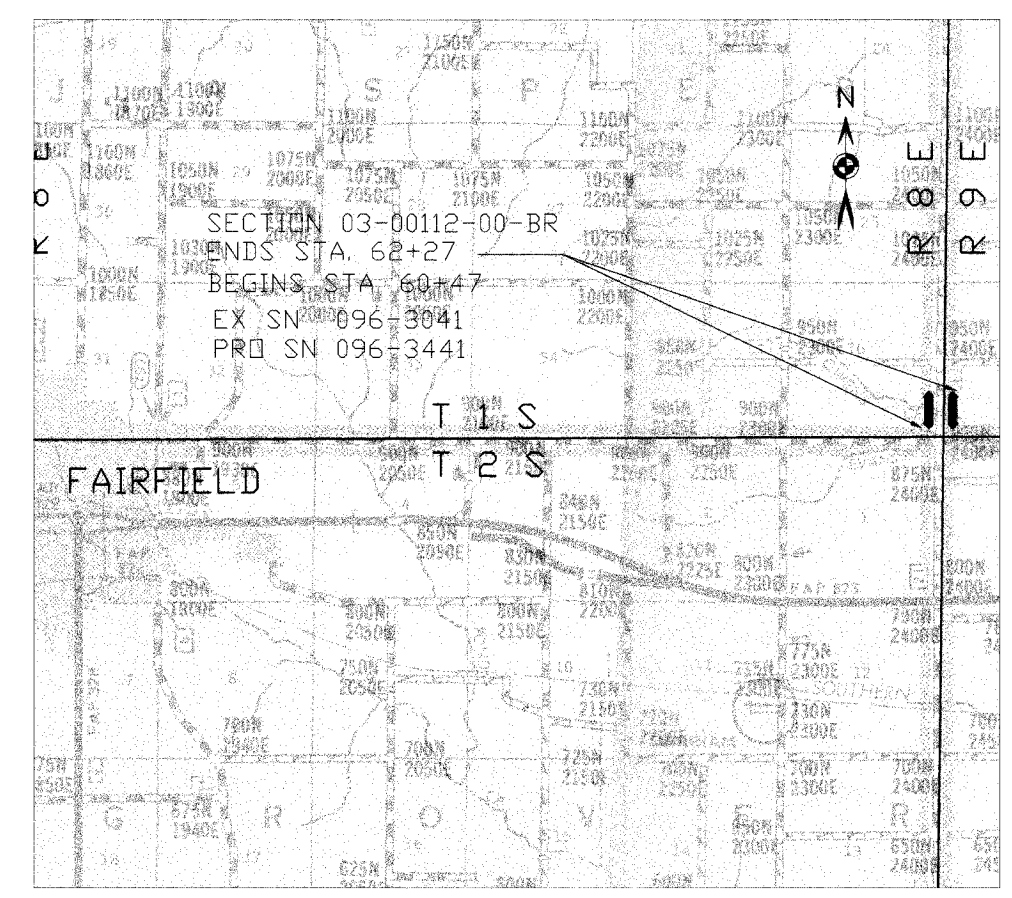
JASPER WATER WORKS
BILL YOUNG, OPERATOR
CELL PHONE (618)237-0164
HOME PHONE (618)842-2918

VERIZON
225 EAST CHESTNUT ST.
OLNEY, ILLINOIS
BRIAN VANGUNDY, ENGINEER
(618)395-6189

WAYNE / WHITE ELECTRIC COOP.
ROUTE 45 WEST
FAIRFIELD, ILLINOIS
AARON HAWLEY, ENGINEER
(618)-842-2196

FUNCTIONAL CLASS:
RURAL LOCAL ROAD
ADT = 250
DESIGN SPEED = 40 MPH
EXISTING STRUCTURE NO. 096-3041
PROPOSED STRUCTURE NO. 096-3441

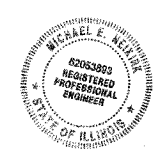
CONTRACT NO. 95463



GROSS LENGTH	180.0	FEET	0.034	MILES
OMISSIONS	0.00	FEET	0.00	MILES
NET LENGTH	180.0	FEET	0.034	MILES

PLANS PREPARED BY:
 NEIKIRK Engineering, LLC

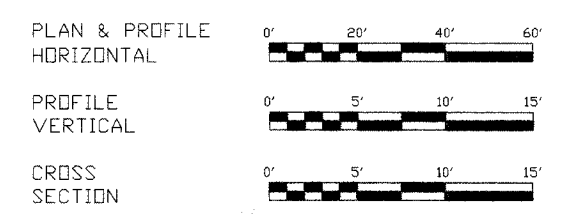
MICHAEL EUGENE NEIKIRK
ILL. REG. PROF. ENGINEER
REG. NO. 062-053893
EXPIRES 11-30-2007
DATE 1/11/06



SUMMARY OF QUANTITIES

QUANTITY	UNIT	ITEM	CODE NO.
150.00	TON	BITUMINOUS CONCRETE SURFACE COURSE, SUPERPAVE, MIXTURE "C", N50	X4066414
200.00	CU YD	CHANNEL EXCAVATION	20300100
90.00	CU YD	FURNISHED EXCAVATION	20400800
0.10	ACRE	SEEDING, CLASS 2 (SPECIAL)	25001000
200.00	TON	STONE DUMPED RIPRAP, CLASS A4	28100807
40.00	TON	AGGREGATE SHOULDERS, TYPE B	48101200
1.00	EACH	REMOVAL OF EXISTING STRUCTURES	50100100
20.80	CU YD	CONCRETE STRUCTURES	50300225
1680.00	SQ FT	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	50400505
2580.00	POUND	REINFORCEMENT BARS	50800105
120.00	FOOT	STEEL RAILING, TYPE S1	50900205
630.00	FOOT	FURNISHING STEEL PILES HP 10X57	51201500
630.00	FOOT	DRIVING STEEL PILES	51202700
1.00	EACH	TEST PILE STEEL HP 10X57	51203500
2.60	CU YD	CONCRETE ENCASEMENT	51204315
1.00	EACH	NAME PLATES	51500100
1.00	L SUM	MOBILIZATION	67100100
1.00	L SUM	TRAFFIC CONTROL AND PROTECTION STANDARD BLR 21	70101830

SCALES



APPROVED JAN. 11 20 06

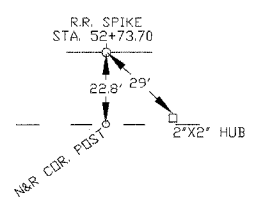
COUNTY ENGINEER

PASSED 2/24 20 06

DISTRICT SEVEN ENGINEER OF LOCAL ROADS & STREETS

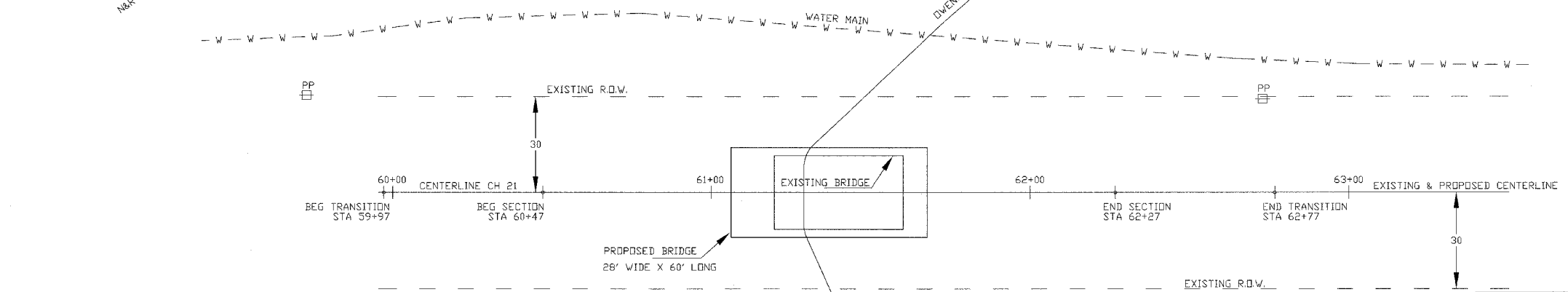
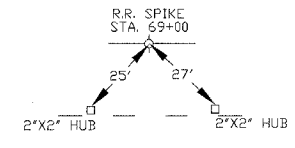
Releasing For Bid Based on Limited Review 2/24 20 06

DEPUTY DIRECTOR OF HIGHWAYS, REGION FOUR ENGINEER
STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION



ROBERT E. JESOP
 1321 W. DELAWARE
 FAIRFIELD, IL. 62837
 PART OF THE SE 1/4, OF THE SE 1/4
 OF SECTION 36

ROBERT E. JESOP
 1321 W. DELAWARE
 FAIRFIELD, IL. 62837
 PART OF THE SE 1/4, OF THE SE 1/4
 OF SECTION 36

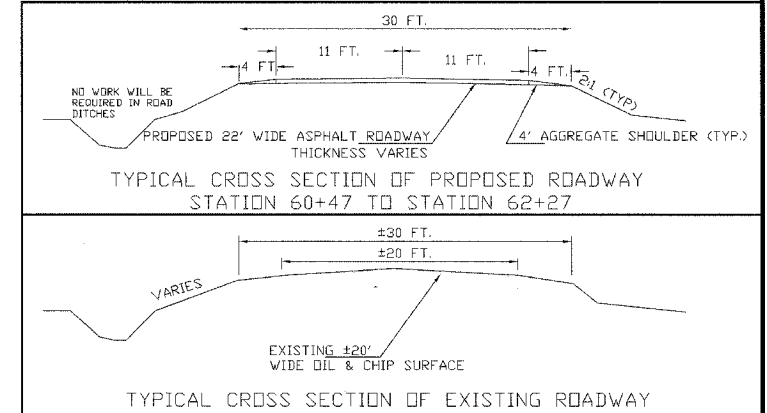


BITUMINOUS CONCRETE SURFACE COURSE, SUPERPAVE, MIXTURE 'C', N50

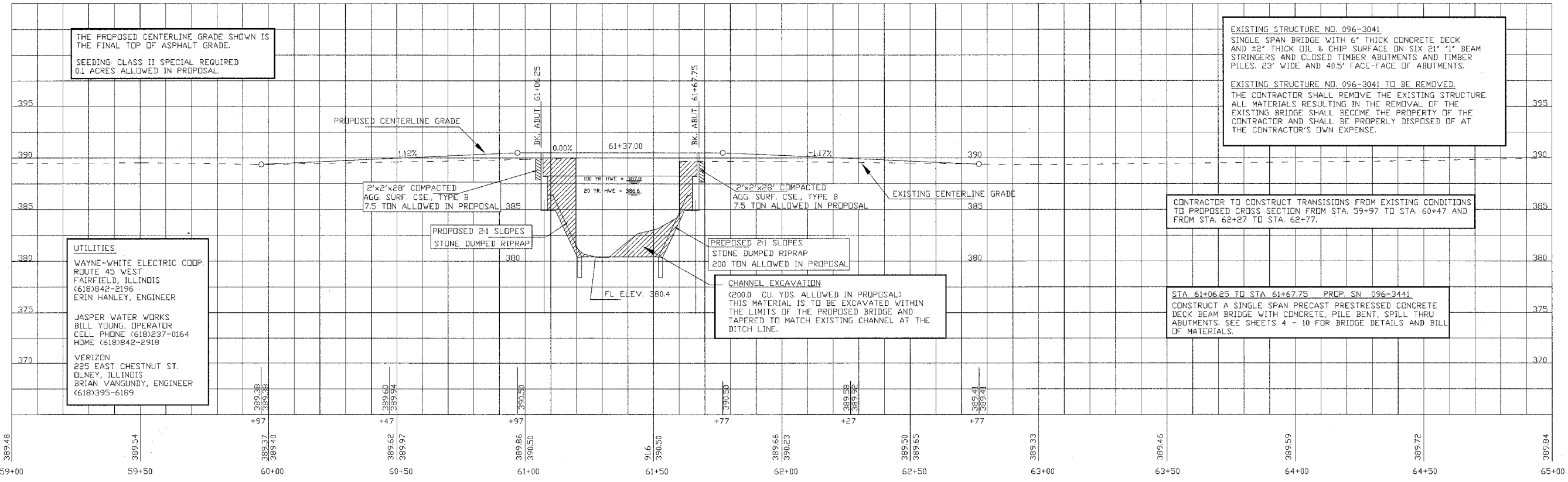
LOCATION:	STA. 59+97 - STA. 62+77
MIXTURE USE:	SURFACE COURSE
PG:	PG 64-22
RAP % (MAX):	15%
DESIGN AIR Voids:	4%
MIXTURE COMPOSITION:	CLASS I, TYPE 2, MIXTURE C, N-50
(GRADATION MIXTURE):	
FRICTION AGGREGATE:	MIXTURE C

GREG HIBNER & OTHERS
 c/o BRUCE HUBER
 4775 RUSTIC LANE
 DECATUR, IL. 62521
 PART OF THE SW 1/4, OF THE SW 1/4
 OF SECTION 31

GREG HIBNER & OTHERS
 c/o BRUCE HUBER
 4775 RUSTIC LANE
 DECATUR, IL. 62521
 PART OF THE SW 1/4, OF THE SW 1/4
 OF SECTION 31



BM - P.K. NAIL ON CENTERLINE AT STA. 58+00 = ELEVATION 389.50



THE PROPOSED CENTERLINE GRADE SHOWN IS THE FINAL TOP OF ASPHALT GRADE.
 SEEDING: CLASS II SPECIAL REQUIRED
 0.1 ACRES ALLOWED IN PROPOSAL.

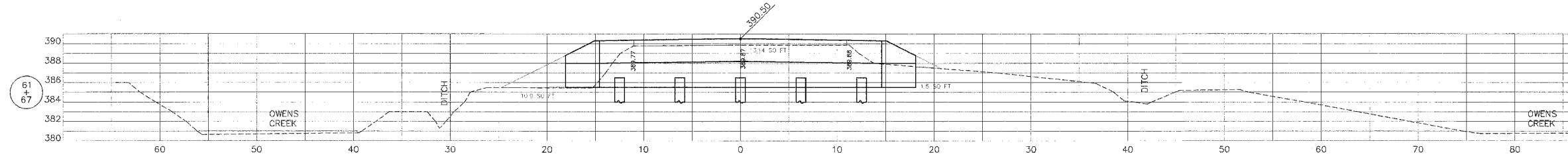
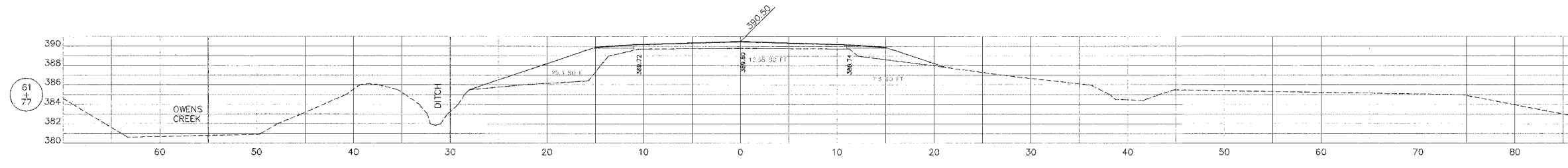
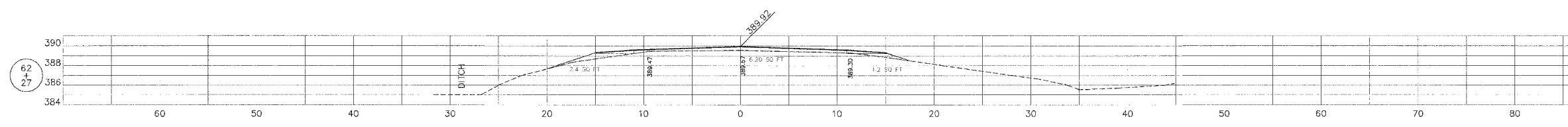
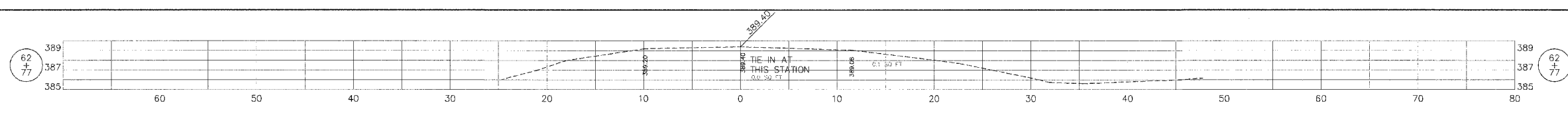
UTILITIES
 WAYNE-WHITE ELECTRIC COOP.
 ROUTE 45 WEST
 FAIRFIELD, ILLINOIS
 (618)842-2196
 ERIN HANLEY, ENGINEER
 JASPER WATER WORKS
 BILL YOUNG, OPERATOR
 CELL PHONE (618)237-0164
 HOME (618)842-2918
 VERIZON
 225 EAST CHESTNUT ST.
 OLNEY, ILLINOIS
 BRIAN VANGUNDY, ENGINEER
 (618)395-6189

EXISTING STRUCTURE NO. 096-3041
 SINGLE SPAN BRIDGE WITH 6" THICK CONCRETE DECK AND ±2" THICK OIL & CHIP SURFACE ON SIX 21" 1" BEAM STRINGERS AND CLOSED TIMBER ABUTMENTS AND TIMBER PILES. 23' WIDE AND 40.5' FACE-TO-FACE OF ABUTMENTS.
 EXISTING STRUCTURE NO. 096-3041 TO BE REMOVED.
 THE CONTRACTOR SHALL REMOVE THE EXISTING STRUCTURE. ALL MATERIALS RESULTING IN THE REMOVAL OF THE EXISTING BRIDGE SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE PROPERLY DISPOSED OF AT THE CONTRACTOR'S OWN EXPENSE.

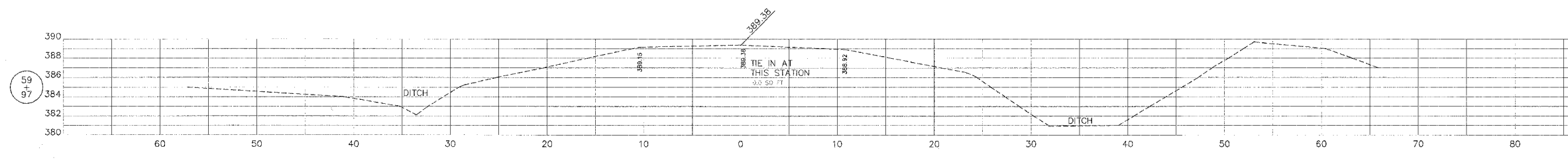
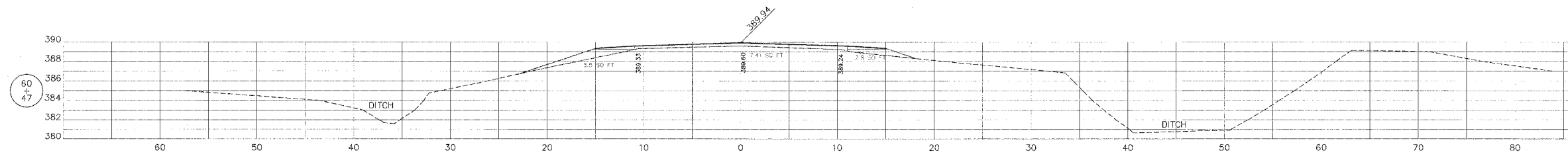
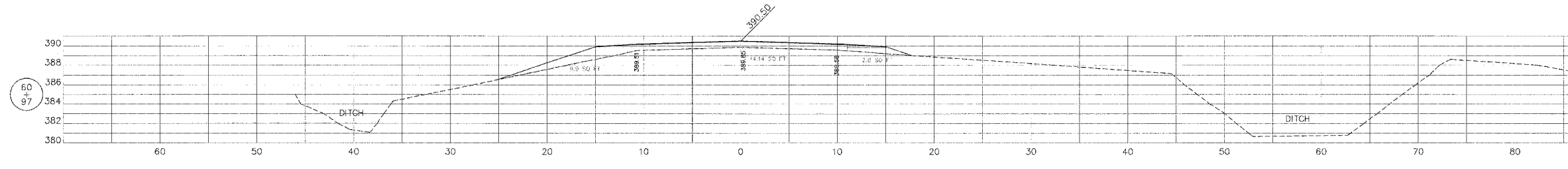
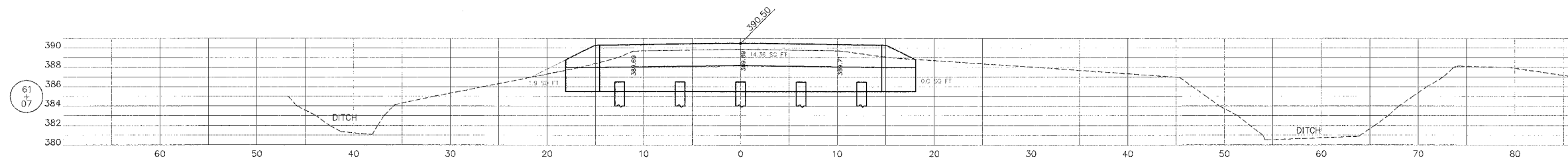
CONTRACTOR TO CONSTRUCT TRANSITIONS FROM EXISTING CONDITIONS TO PROPOSED CROSS SECTION FROM STA. 59+97 TO STA. 60+47 AND FROM STA. 62+27 TO STA. 62+77.

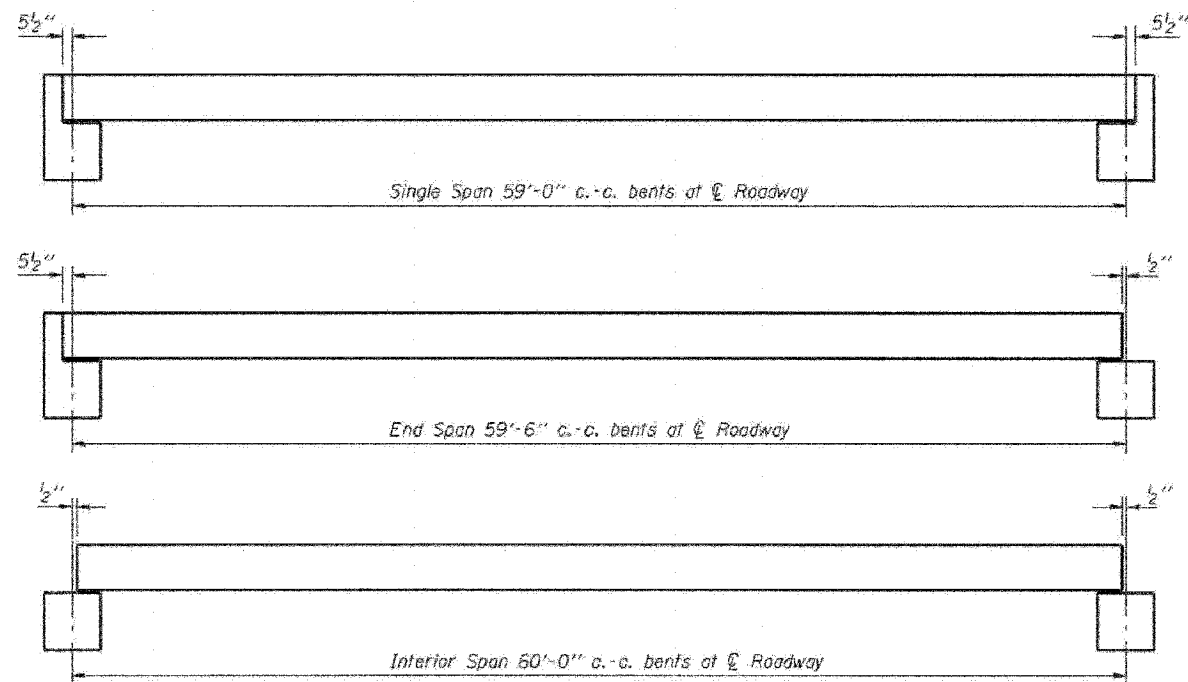
STA. 61+06.25 TO STA. 61+67.75 PROP. SN 096-3441
 CONSTRUCT A SINGLE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE WITH CONCRETE, PILE BENT, SPILL THRU ABUTMENTS. SEE SHEETS 4 - 10 FOR BRIDGE DETAILS AND BILL OF MATERIALS.

SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
03-00112-00-BR	WAYNE	10	3
FAS ROUTE 2821		ILLINOIS PROJECT	
BRIDGE CROSS SECTIONS		CON # 95463	

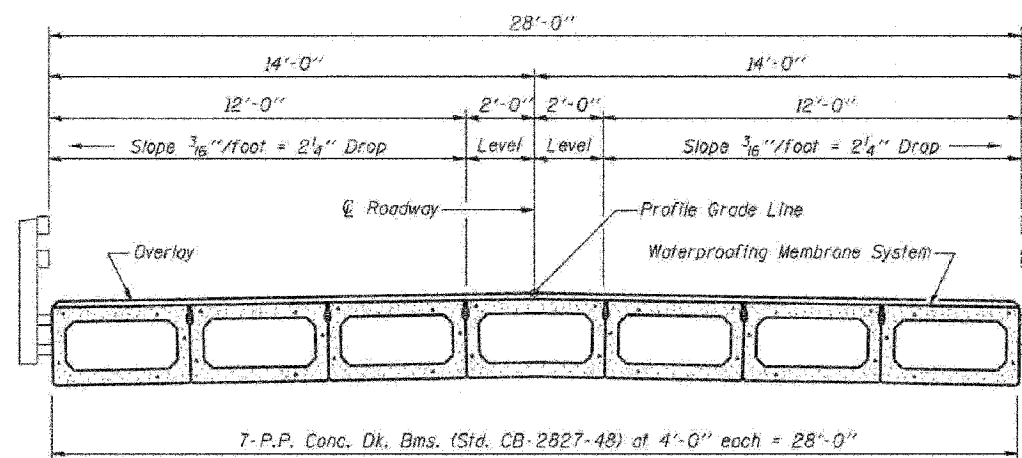


BRIDGE

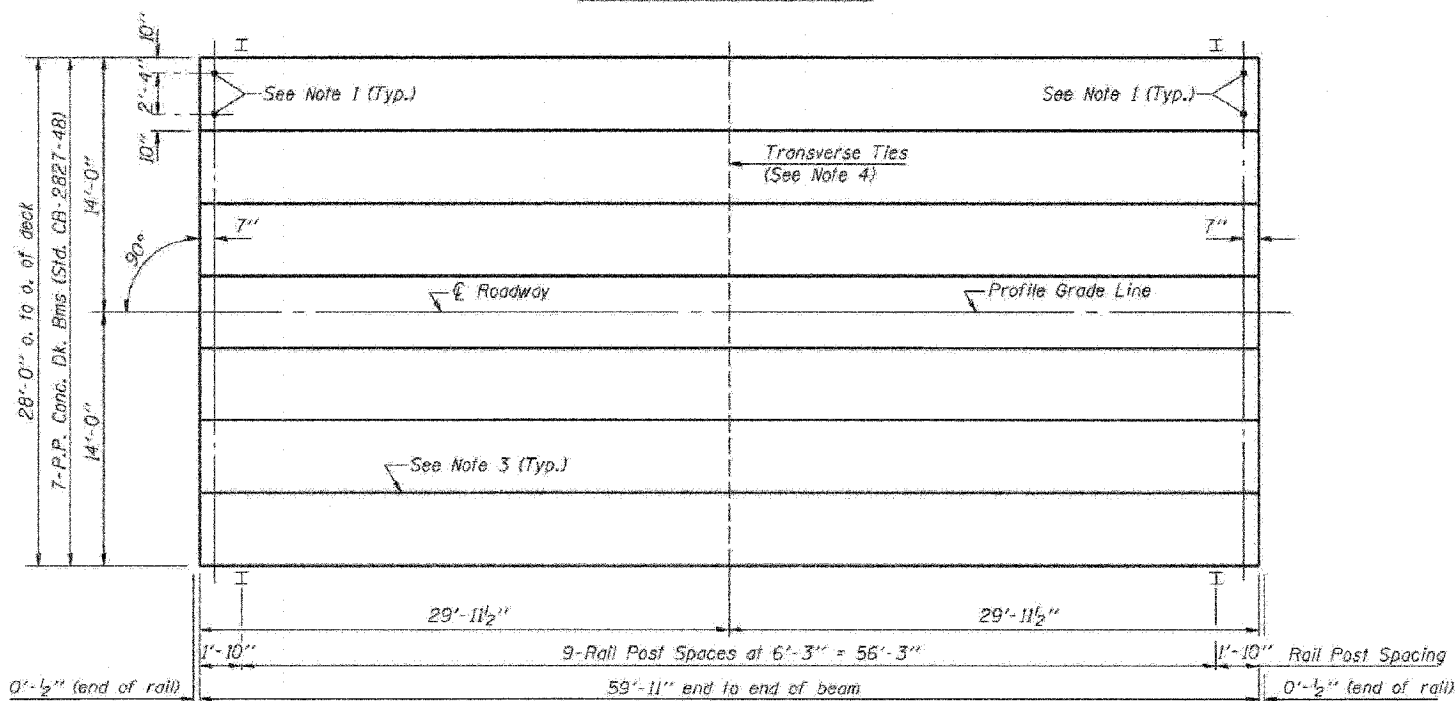




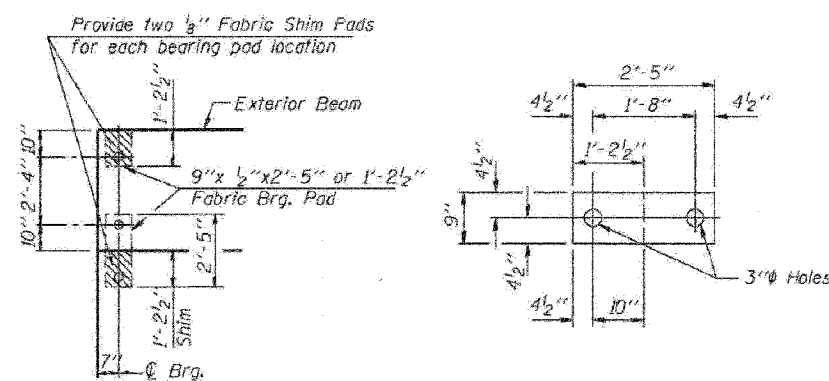
TYPICAL ELEVATIONS



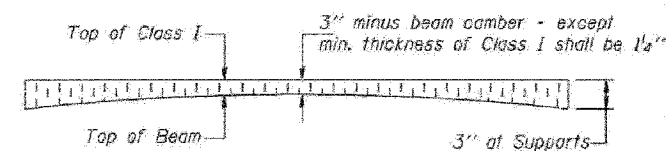
CROSS SECTION



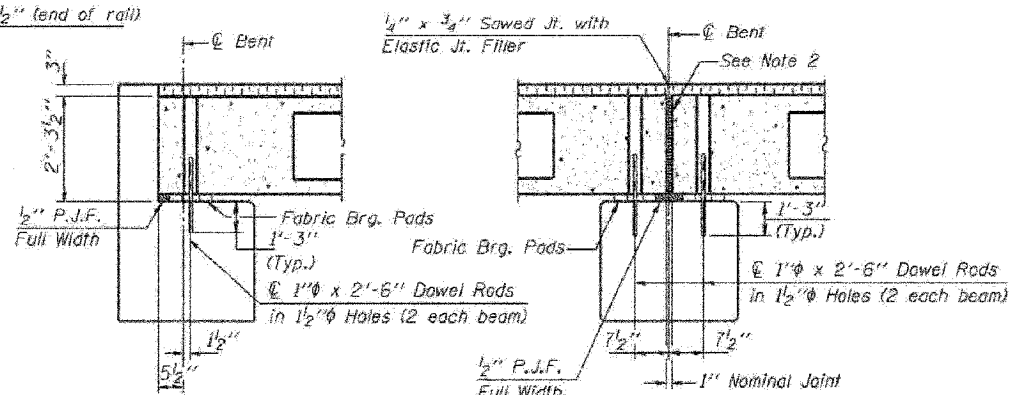
PLAN



1/2" FABRIC BRG. PAD DETAILS



PROFILE OF OVERLAY



SECTION AT ABUTS.
 (Along Q Beams)

SECTION AT PIERS
 (Along Q Beams)

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 Q Pier shall be filled with non-shrink grout.
3. Longitudinal keys shall be grouted.
4. The 1" ϕ 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

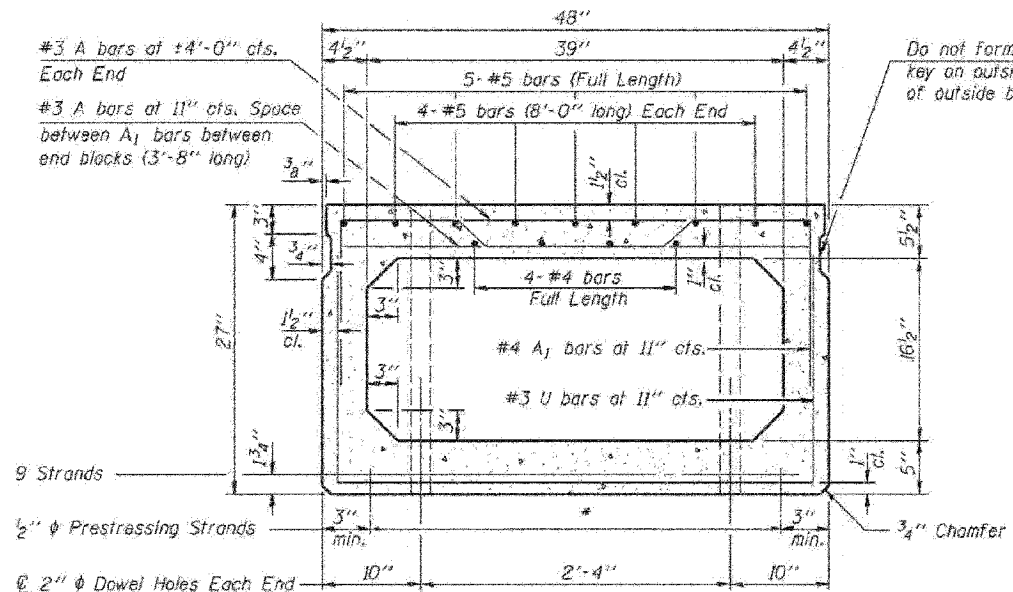
P.P. Conc. Dk. Bm. 27" Dp.	1680 Sq. Ft.
Steel Railing	120 Ft.
Waterproofing Membrane System	186.7 Sq. Yds.
ParHand Cement Mortar	
Fairing Course	360 Ft.

Note: Quantity of overlay for one span = 21.9 Tons

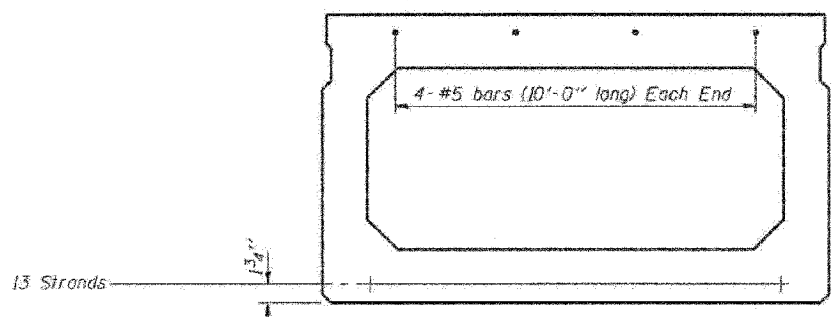
P.P.C. DECK BEAM
 SUPERSTRUCTURE

28" RDWY.	27" BMS.	60' SPAN	0° SKEW
STANDARD CS-2827-60			

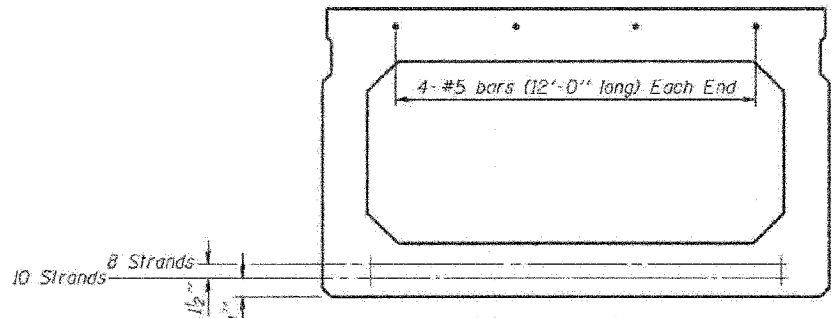
Illinois Department of Transportation
 PASSED APRIL 4, 2005
 Thomas J. [Signature]
 Engineer of Bridge Design
 APPROVED APRIL 4, 2005
 Ralph E. [Signature]
 Engineer of Bridges and Structures



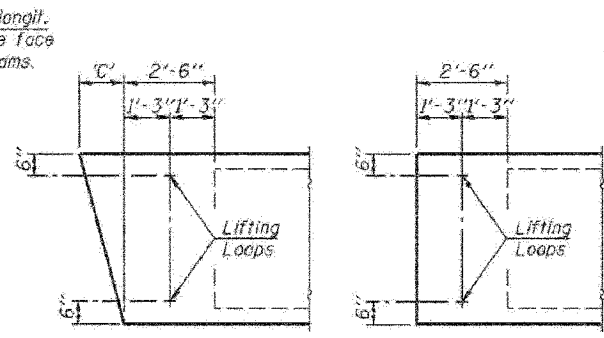
CROSS SECTION
 (40' SPAN)



CROSS SECTION
 (50' SPAN)

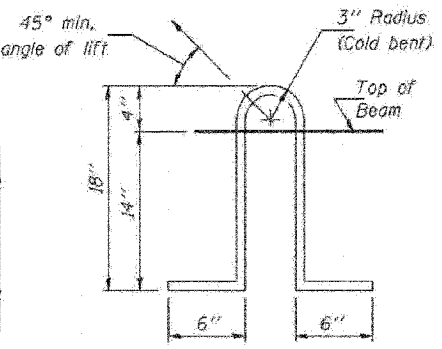


CROSS SECTION
 (60' SPAN)



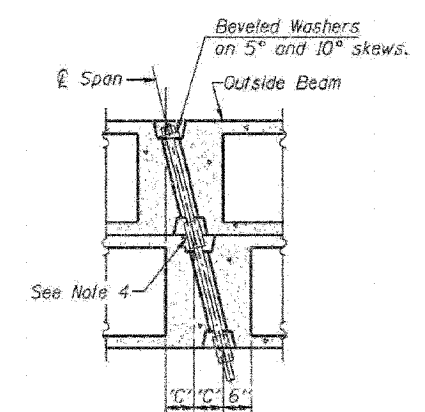
END BLOCK DETAILS

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.

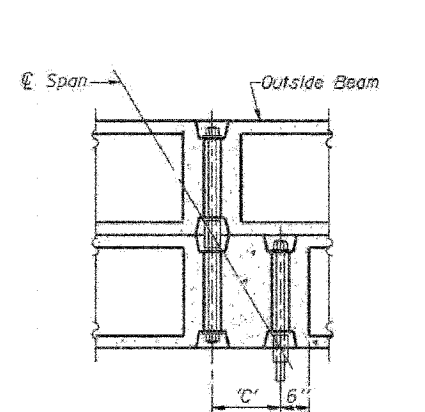


LIFTING LOOP DETAIL

Lifting loops shall be 3/2" #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°)

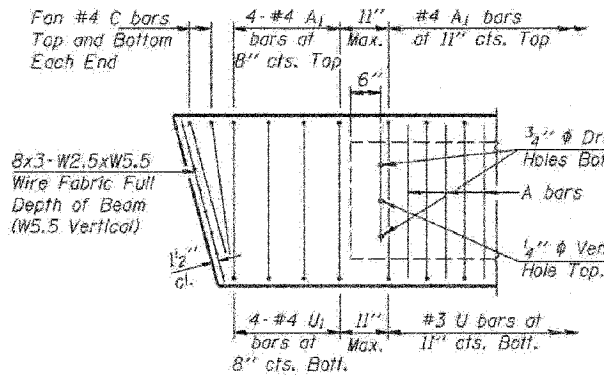
DIMENSION 'C'

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

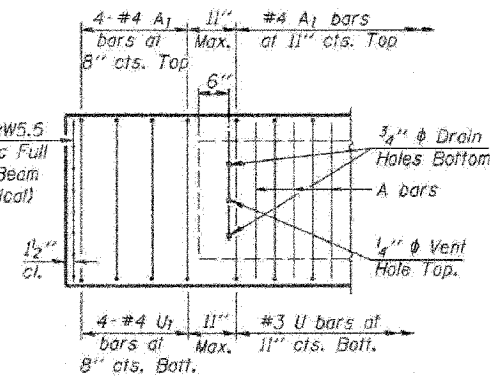
*** TRANSVERSE STRAND PLACEMENT GUIDELINES**

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 1/2".

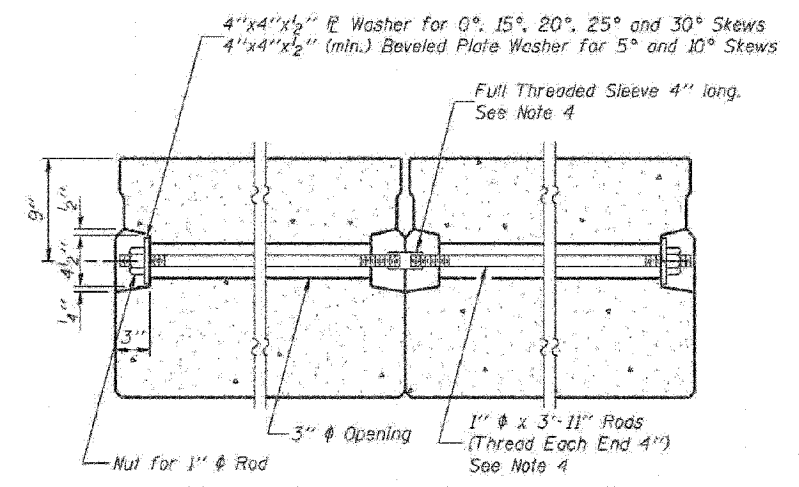
Vertical placement of strands shall not be adjusted to satisfy the above guidelines.



END REINFORCEMENT
 (SKEWED)



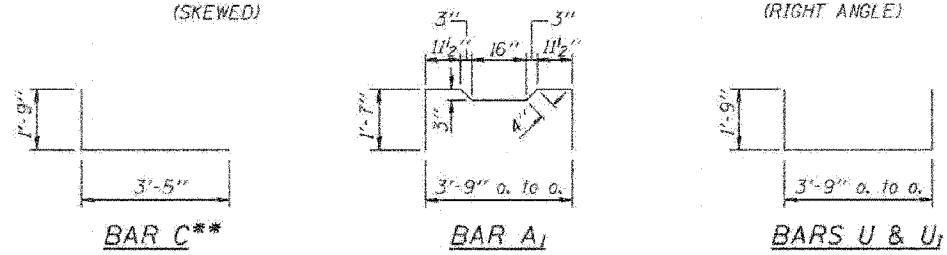
END REINFORCEMENT
 (RIGHT ANGLE)



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.
- $f'_t = 4,000$ p.s.i.
- $f'_s = 270,000$ p.s.i. (1/2" # Strand)
- $f_{si} = 201,960$ p.s.i. (1/2" # Strand)
- $f_y = 60,000$ p.s.i.

MIN. BAR LAP

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

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

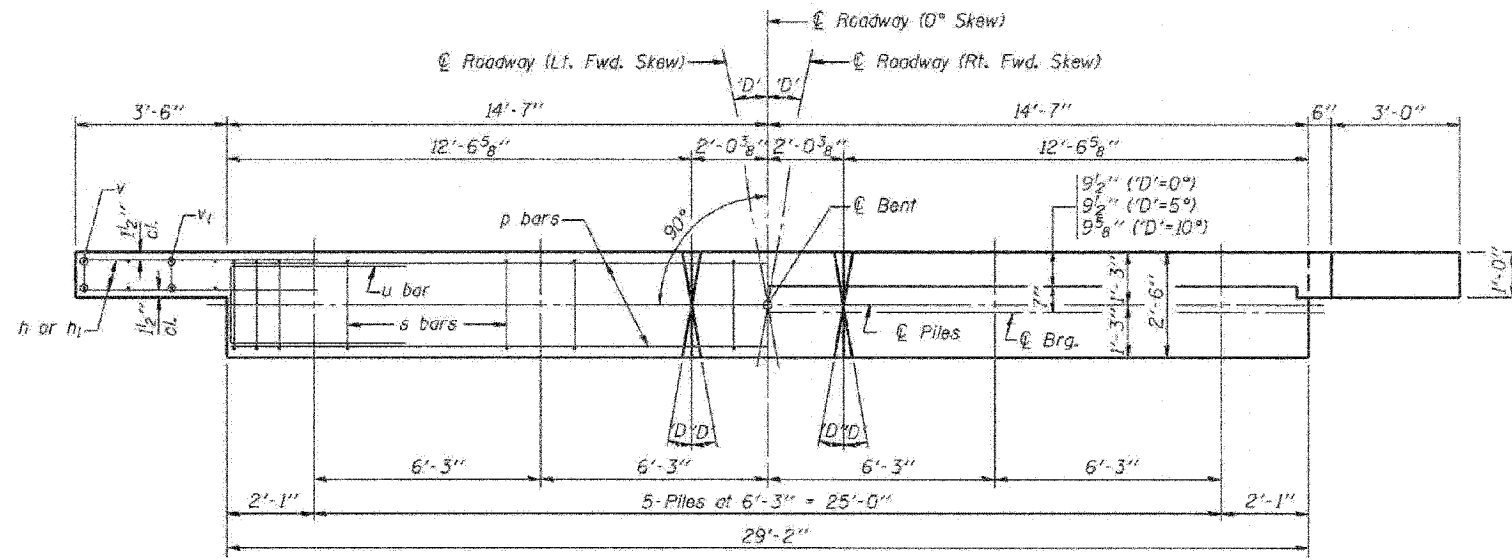
****NOTE:**
 The following number of C bars shall be used:

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

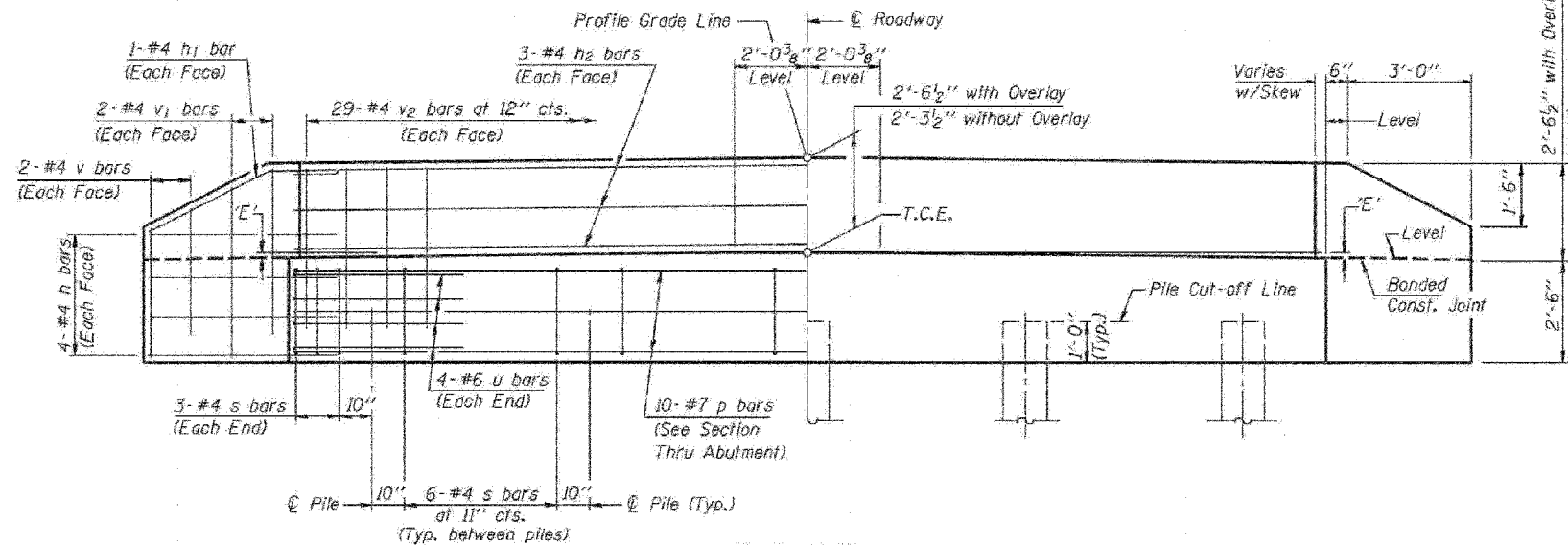
Illinois Department of Transportation
 PASSED APRIL 4, 2005
 Thomas S. Ranganath
 Engineer of Bridge Design
 APPROVED APRIL 4, 2005
 Ralph E. Anderson
 Engineer of Bridges and Structures

P.P.C. DECK BEAM DETAILS

28' ROADWAY	27" x 48" BEAMS
STANDARD CB-2827-48	



PLAN
 ('D' = Designated Skew Angle)



ELEVATION

DIMENSION 'E'

GRADE	'D'=0°		'D'=5°		'D'=10°	
	UPGRADE END	DOWNGRADE END	UPGRADE END	DOWNGRADE END	UPGRADE END	DOWNGRADE END
0%	2 3/8"	2 3/8"	2 3/8"	2 3/8"	2 3/8"	2 3/8"
Over 0% to 1%	2 3/8"	2 3/8"	2 1/4"	2 3/8"	2 1/8"	2 1/2"
Over 1% to 2%	2 3/8"	2 3/8"	2 1/2"	2 1/2"	1 7/8"	2 3/4"
Over 2% to 3%	2 3/8"	2 3/8"	2"	2 5/8"	1 5/8"	3"
Over 3% to 4%	2 3/8"	2 3/8"	1 7/8"	2 3/4"	1 3/8"	3 1/4"

NOTES

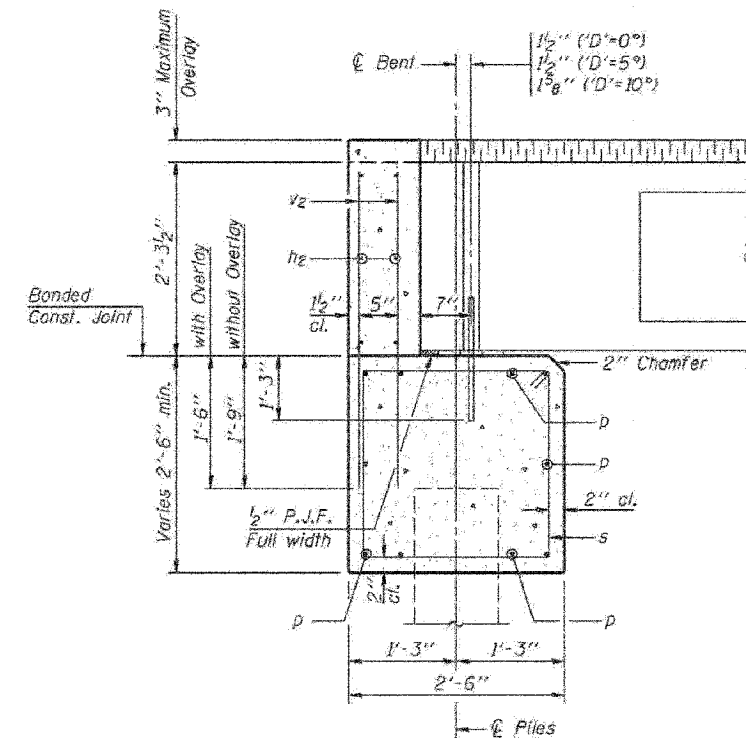
- The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.
- Reinforcement bars shall conform to the requirements of A.A.S.H.T.O. M-31 or M-322, Grade 60.
- Space reinforcement in cap to miss anchor bolts.

MAXIMUM PILE LOADS

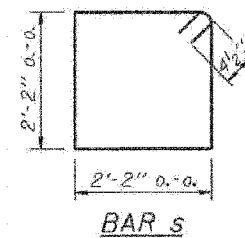
SPAN	TONS
40'	29
50'	33
60'	37

DESIGN STRESSES

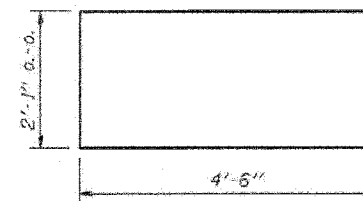
$f'_c = 3,500$ psi
 $f_y = 60,000$ psi



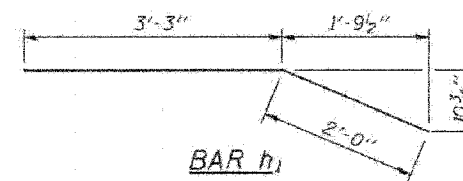
SECTION THRU ABUTMENT
 (At Right Angles)



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	28'-10"	—
p	10	#7	28'-10"	—
s	30	#4	9'-5"	□
u	8	#6	11'-1"	□
v	8	#4	3'-2"	—
v1	8	#4	4'-2"	—
v2	56	#4	3'-11"	—
Concrete Structures			10.4	Cu. Yds.
Reinforcement Bars			1290	Lb.

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

28' RDWY.	27" BMS.	'D'=0°, 5° OR 10°
STANDARD CA-2827-10		

Illinois Department of Transportation
 PASSED APRIL 4, 2005
 Thomas J. Donaghy
 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.

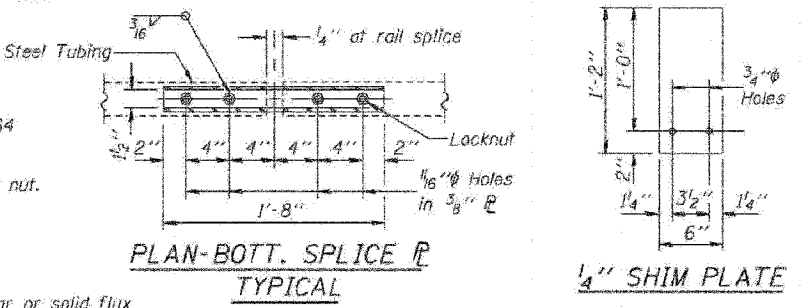
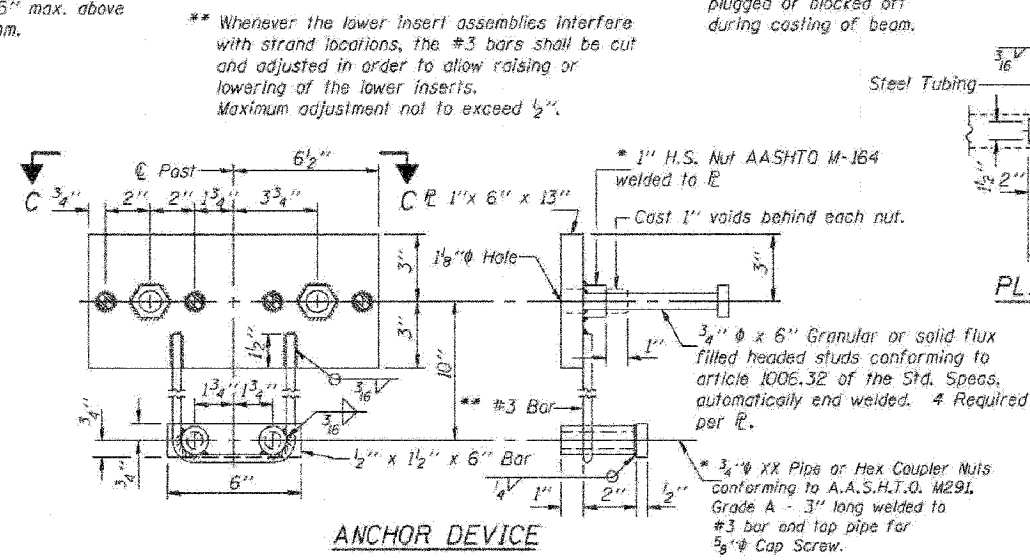
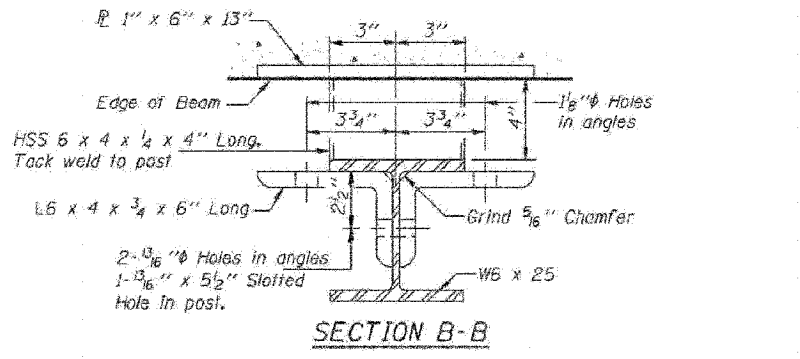
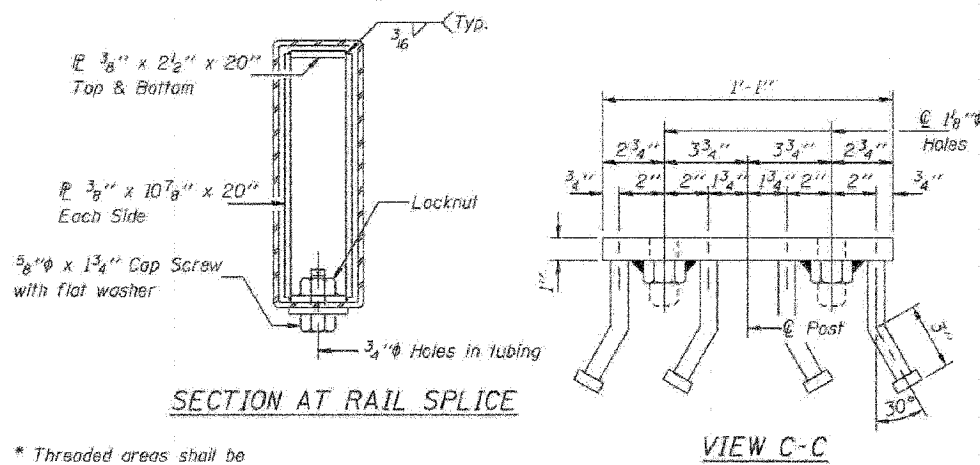
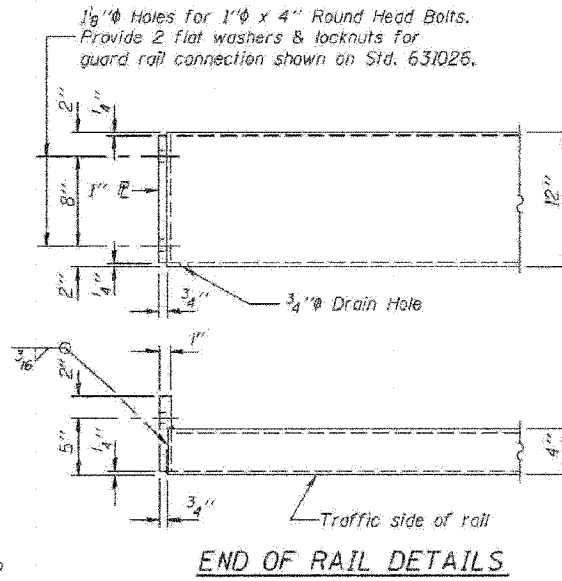
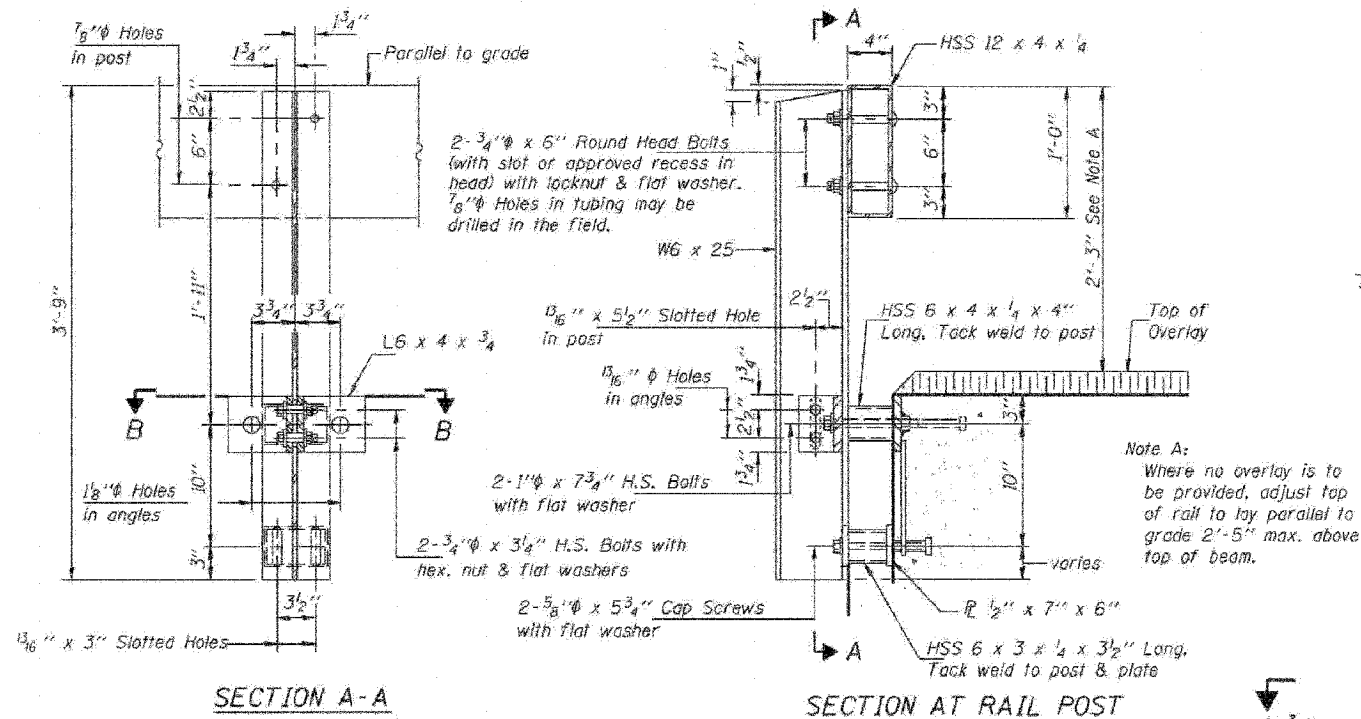
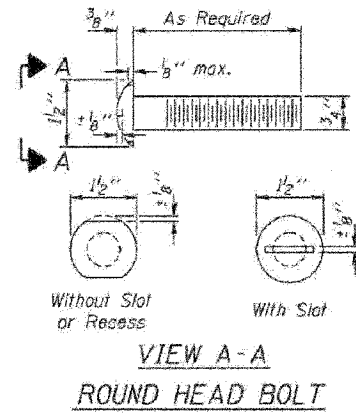
For multi-span bridges, sufficient 1/2" x 6" x 1'-2" galvanized steel slims shall be provided to align rail between adjacent spans. Cost included with STEEL RAILING, TYPE S-1.

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.

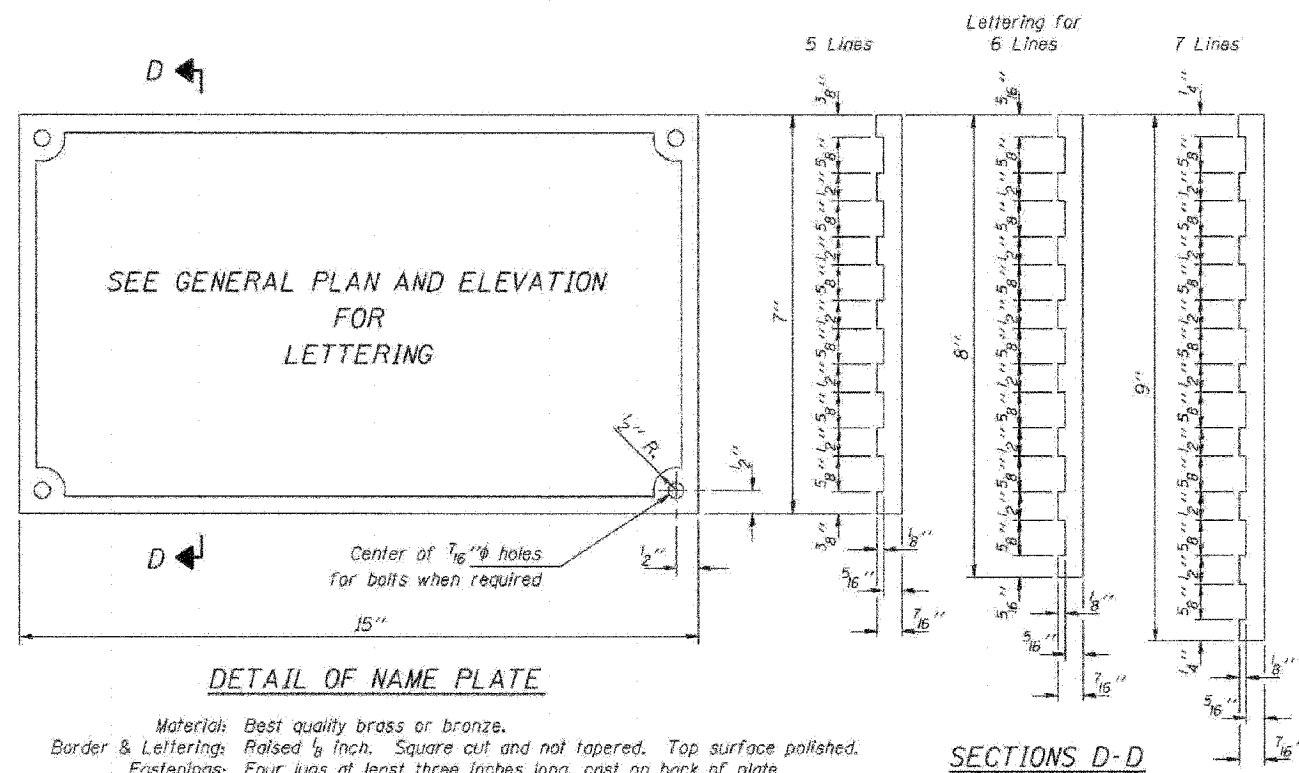
The 3/4" high strength bolts used to connect the 6 x 4 x 3/4 angles to the post shall be tightened according to Article 505.04 (f)(2) of the Standard Specifications. The 1" high strength bolts connecting the angles to the concrete shall be tightened to a snug fit and given an additional 1/2 turn. The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



Illinois Department of Transportation
 PASSED APRIL 4, 2005
 Theresia Namagalla
 Engineer of Design
 APPROVED APRIL 4, 2005
 Robert E. Anderson
 Engineer of Bridges and Structures

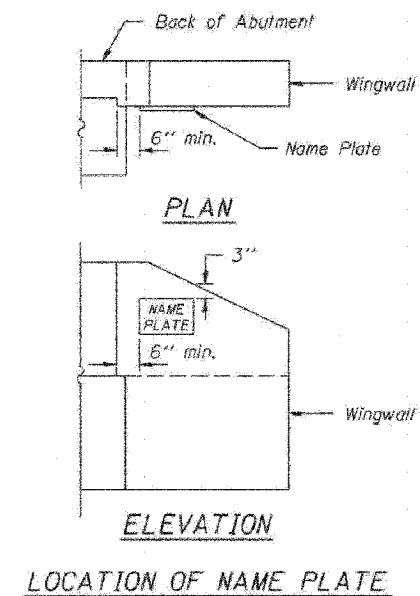
STEEL RAILING, TYPE S-1
 STANDARD CR-TS1



DETAIL OF NAME PLATE

Material: Best quality brass or bronze.
 Border & Lettering: Raised 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. [Signature]
 Engineer of Bridge Design
 APPROVED APRIL 4, 2005
 [Signature]
 Engineer of Bridges and Structures

NAME PLATE
 STANDARD CN

