

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 220 JOLLIFF BRIDGE ROAD	05-02111-00-BR	CLINTON	12	1

FEDERAL AID PROJECT
CONTRACT NO. 97329

HIGHWAY BRIDGE REPLACEMENT AND REHABILITATION PROGRAM DETAIL PLANS FOR

PROPOSED BRIDGE

T.R. 220 (JOLLIFF BRIDGE ROAD) OVER
A TRIBUTARY TO CROOKED CREEK

SECTION 05-02111-00-BR
CLINTON COUNTY - BROOKSIDE ROAD DISTRICT
PROJECT NO. : BROS-0027(037)
JOB NO. : C-98-317-08



LOCATION OF SECTION INDICATED THUS: ■

INDEX OF SHEETS

- COVER SHEET
- SUMMARY OF QUANTITIES AND TYPICAL CROSS SECTIONS
- PLAN AND PROFILE OF EXISTING AND PROPOSED ROADWAY
- CROSS SECTIONS EXISTING AND PROPOSED ROADWAY
- CROSS SECTIONS EXISTING AND PROPOSED ROADWAY
- GENERAL PLAN AND ELEVATION

BRIDGE STANDARDS

- CS-2827-60
- CB-2827-48
- CA-2827-10
- CR-TSM
- CN
- CX-1

HIGHWAY STANDARDS

- 280001-04
- 701901
- BLR 21-7

DESIGN CLASSIFICATION

LOCAL ROAD A.D.T. = 400 - 1000
CURRENT A.D.T. = 900
CLASSIFICATION: COLLECTOR

UTILITIES:

CALL J.U.L.I.E. BEFORE YOU DIG
1-800-892-0123

ELECTRIC & GAS

AMEREN IP
1008 EAST 14th ST.
CENTRALIA, IL. 62801
PHONE: 1-800-755-5000

TELEPHONE:

SBC AMERITECH ILLINOIS
203 GOETHE STREET
COLLINSVILLE, IL. 62234
PHONE: (618)346-6400
FAX: (618)346-6409

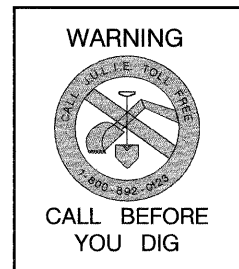
McLEOD USA
1-800-333-4059

WATER

CITY OF CENTRALIA
WATER AND SEWER DIVISION
114 E. 5th ST.
CENTRALIA, IL. 62801
PHONE: (618) 533-7640

OTHER

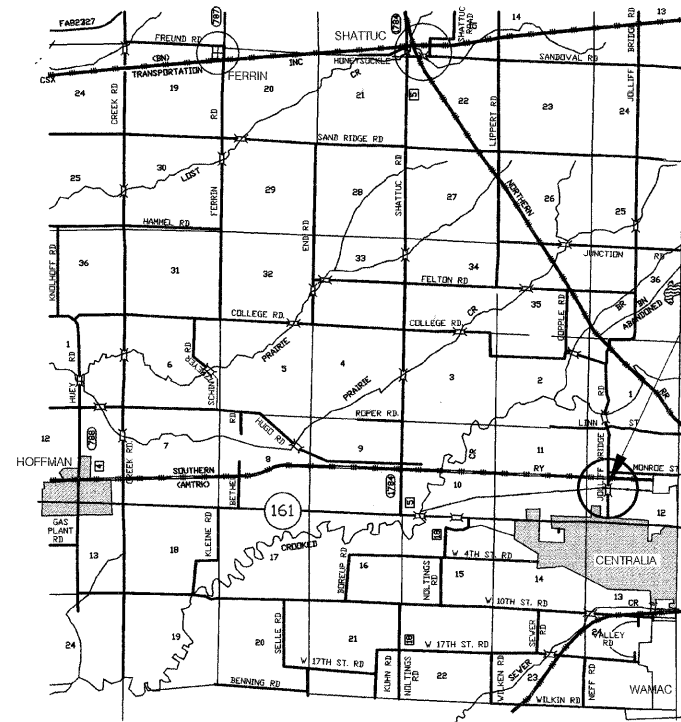
FARM BUREAU OIL
8125 JOLLIFF BRIDGE RD
CENTRALIA, IL. 62801
PHONE: (618) 532-6765



THESE PLANS WERE PREPARED BY ME OR BY A FULL TIME MEMBER OF MY STAFF WORKING UNDER MY PERSONAL SUPERVISION.



Daniel L. Behrens DATE 1-25-08
COUNTY ENGINEER
ILLINOIS P.E. # 62-050860 EXPIRES 11/30/09



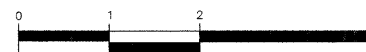
PROJECT LOCATION

PROPOSED STRUCTURE NO. 014-4054 @ STATION 10+00
SINGLE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAMS, (27" DEPTH) ON SPILL THRU PILE BENT ABUTMENTS MEASURING 61'-6" BK./BK. OF THE ABUTMENTS WITH A 28'-0" CLEAR ROADWAY WIDTH.

LOCATION MAP

NET LENGTH OF PROJECT = 161.5 FEET OR 0.031 MILES

GRAPHIC SCALE



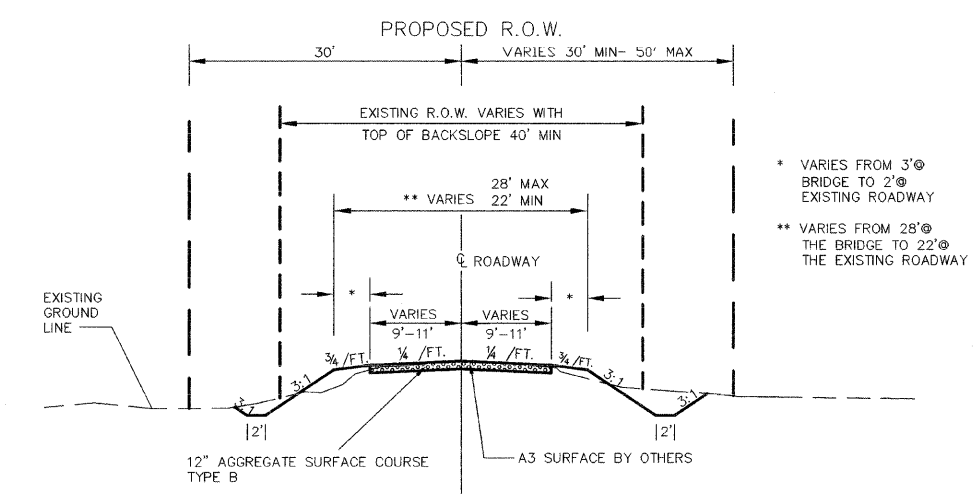
1 INCH = 1 MILE

ILLINOIS DEPARTMENT OF TRANSPORTATION		
APPROVED	1-25	2008
	<i>Daniel L. Behrens</i>	COUNTY ENGINEER
APPROVED	1-25	2008
	<i>John T. Smith</i>	BROOKSIDE ROAD DISTRICT HIGHWAY COMMISSIONER
PASSED	January 29,	2008
	<i>Richard C. Mankins</i>	DISTRICT 8 ENGINEER OF LOCAL ROADS & STREETS
RELEASE FOR BID BASED ON LIMITED REVIEW	January 29,	2008
	<i>Mary C. Amicuz</i>	DEPUTY DIRECTOR OF HIGHWAYS REGION 5 ENGINEER

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 220 JOLLIFF BRIDGE ROAD	05-02111-00-BR	CLINTON	12	2

CONTRACT NO. 97329

LOCATION OF WORK					ROAD STA.	BRIDGE STA.		
					9+19.25 TO 10+80.75	10+00		
SUMMARY OF QUANTITIES								
CODE NO.	ITEM	UNIT	QUANTITY	E000	X081-2A			
20100110	TREE REMOVAL (6 TO 15 UNITS DIAMETER)	UNIT	13	13				
20200100	EARTH EXCAVATION	CU. YD.	60	60				
20300100	CHANNEL EXCAVATION	CU. YD.	350		350			
28100807	STONE DUMPED RIP RAP, CLASS A4	TON	88		88			
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	150	150				
50100100	REMOVAL OF EXISTING STRUCTURE	EACH	1		1			
50300225	CONCRETE STRUCTURES	CU. YD.	20.8		20.8			
50300280	CONCRETE ENCASEMENT	CU. YD.	2.6		2.6			
50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ. FT.	1,680		1,680			
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	2,660	80.0	2,580			
50901050	STEEL RAILING TYPE SM	FOOT	120		120			
51201400	FURNISHING STEEL PILES, HP10X42	FOOT	315		315			
51202305	DRIVING PILES	FOOT	315		315			
51203400	TEST PILE STEEL HP10X42	EACH	1		1			
54200430	PIPE CULVERT, TYPE 1 RCCP 15"	FOOT	56	56				
54200433	PIPE CULVERT, TYPE 1, RCCP 18"	FOOT	56	56				
51500100	NAME PLATES	EACH	1		1			
67100100	MOBILIZATION	L.S.	1					



TYPICAL PROPOSED ROADWAY CROSS SECTION
STA. 9+19.25 TO STA. 10+80.75

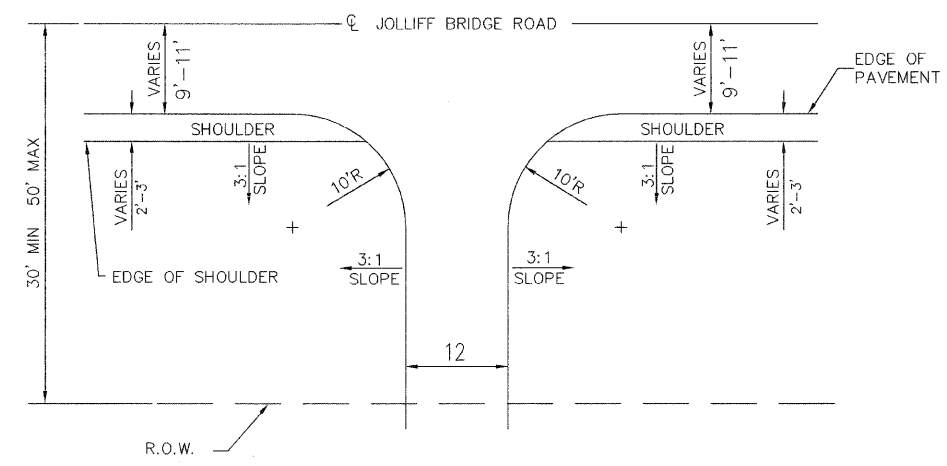
LOCATION	EARTH EXCAVATION	EARTH EXCAVATION ADJUSTED FOR SHRINKAGE	EMBANKMENT	EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-)
	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD
STA. 9+19.25 TO STA. 10+80.75	60	45	80	-35
ALLOWANCE FOR CHANNEL EXCAVATION	350	263	-	263
TOTAL	410	308	80	228

TREE REMOVAL, UNITS	
LOCATION	UNITS
STATION 9+44, 26' LT	6
STATION 9+45, 26' LT	7
TOTAL	13

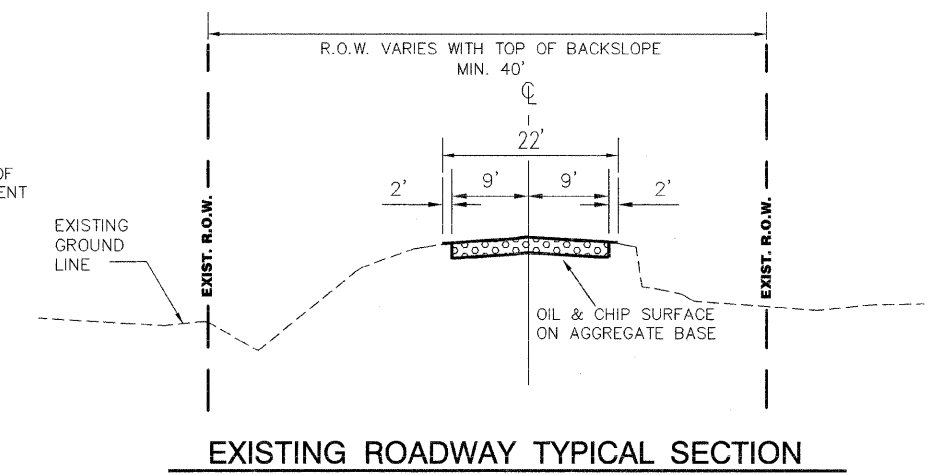
PAY ITEMS
EARTH EXCAVATION = 60 C.Y.
TO BE WASTED = 228 C.Y.
CHANNEL EXCAVATION = 350 C.Y.

EXTRA BARS FOR TEST SAMPLES
BILL OF MATERIALS

BAR	NO.	SIZE	LENGTH	SHAPE
h (E)	1	#4	5'-0"	—
p (E)	1	#7	28'-10"	—
u (E)	1	#6	11'-1"	□



TYPICAL FIELD ENTRANCE
STA. 9+20 LT., STA. 9+40 RT., & STA. 10+73 RT.



EXISTING ROADWAY TYPICAL SECTION

GENERAL NOTES

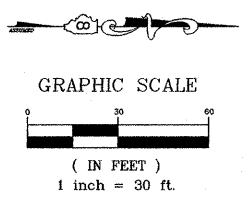
- ALL ELEVATION REFER TO U.S.G.S. MEAN SEA LEVEL
- TEMPORARY AND PERMANENT EROSION CONTROL MEASURES: THIS PROJECT REQUIRES ONLY MINIMAL EXCAVATION AND EMBANKMENT CONSTRUCTION WITH NO STOCKPILING OF TOPSOIL, OR BORROW AND THEREFORE REQUIRES MINIMAL EROSION CONTROL MEASURES WHICH WILL BE PROVIDED, PLACED AND MAINTAINED BY THE COUNTY HIGHWAY DEPARTMENT. ALL EROSION CONTROL METHODS WILL BE TO I.D.O.T. STANDARDS AND EACH CONTROL MEASURE SHALL BE APPROPRIATE TO ADDRESS THE SPECIFIC CONDITIONS INVOLVED AND PROPERLY MAINTAINED TO ENSURE CONTINUED EFFECTIVE OPERATION.
- UTILITIES ARE SHOWN IN ACCORDANCE WITH THE BEST AVAILABLE INFORMATION AND THEIR TRUE LOCATION IS NOT GUARANTEED TO BE AS SHOWN ON THE PLANS. IT WILL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT LOCATION OF ALL UTILITIES AND CARRY ON HIS OPERATIONS ACCORDINGLY.
- AGGREGATE SURFACE COURSE, TYPE B SHALL BE DONE ACCORDING TO SECTION 402 OF THE STANDARD SPECIFICATIONS AND THE DETAIL PLANS EXCEPT THE SURFACE COURSE SHALL BE APPLIED IN TWO 6" THICK LIFTS. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER TON FOR AGGREGATE SURFACE COURSE, TYPE B.

SUMMARY OF QUANTITIES
TYPICAL ROADWAY CROSS SECTIONS
T.R. 220 (JOLLIFF BRIDGE ROAD)
OVER CROOKED CREEK
SECTION 05-02111-00BR
CLINTON COUNTY

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 220 JOLIFF BRIDGE ROAD	05-02111-00-BR	CLINTON	12	3

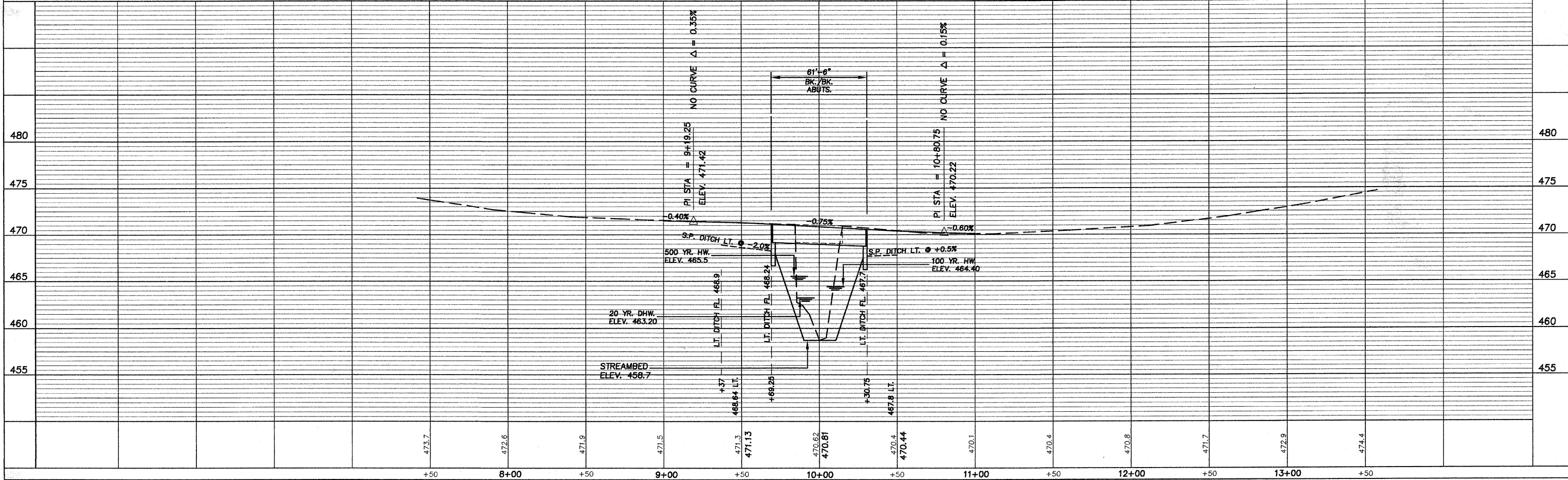
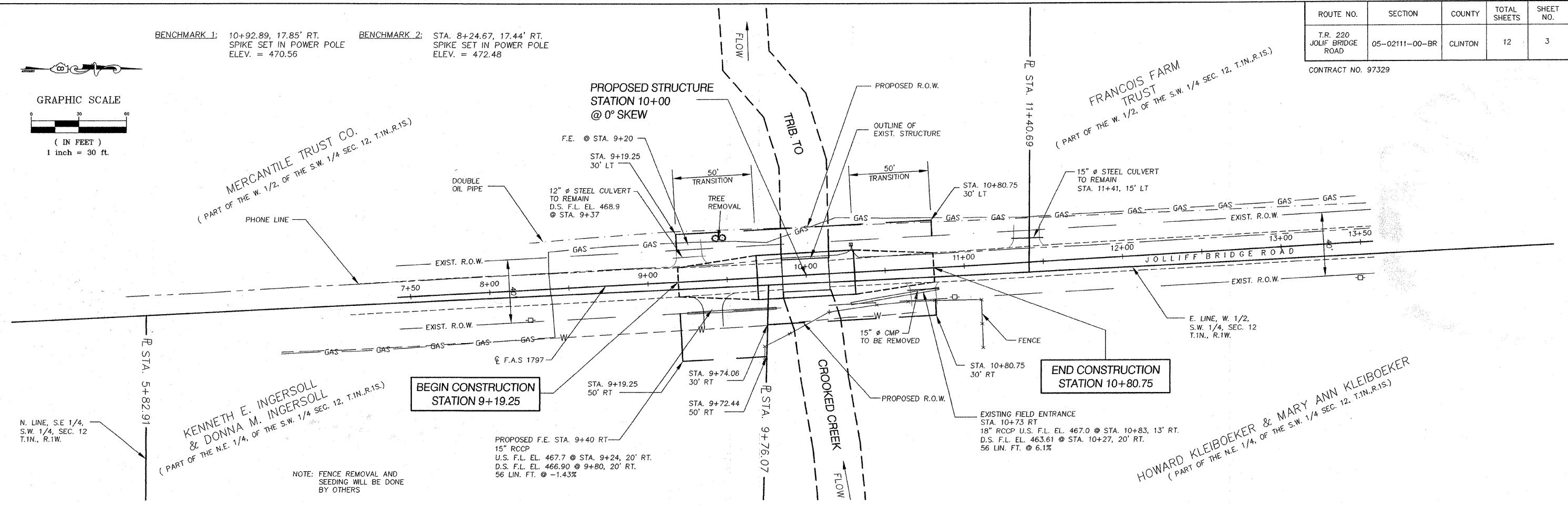
CONTRACT NO. 97329

BENCHMARK 1: 10+92.89, 17.85' RT. SPIKE SET IN POWER POLE ELEV. = 470.56
 BENCHMARK 2: STA. 8+24.67, 17.44' RT. SPIKE SET IN POWER POLE ELEV. = 472.48



DATE	BY	PLAN
		SURVEYED
		NOTE BOOK
		ALIGNMENT CHECKED
		RT. OF WAY CHECKED
		NO.

DATE	BY	PROFILE
		SURVEYED
		GRADES CHECKED
		B.M.'S NOTED
		STRUCTURE NOTATIONS CHECKED
		NO.

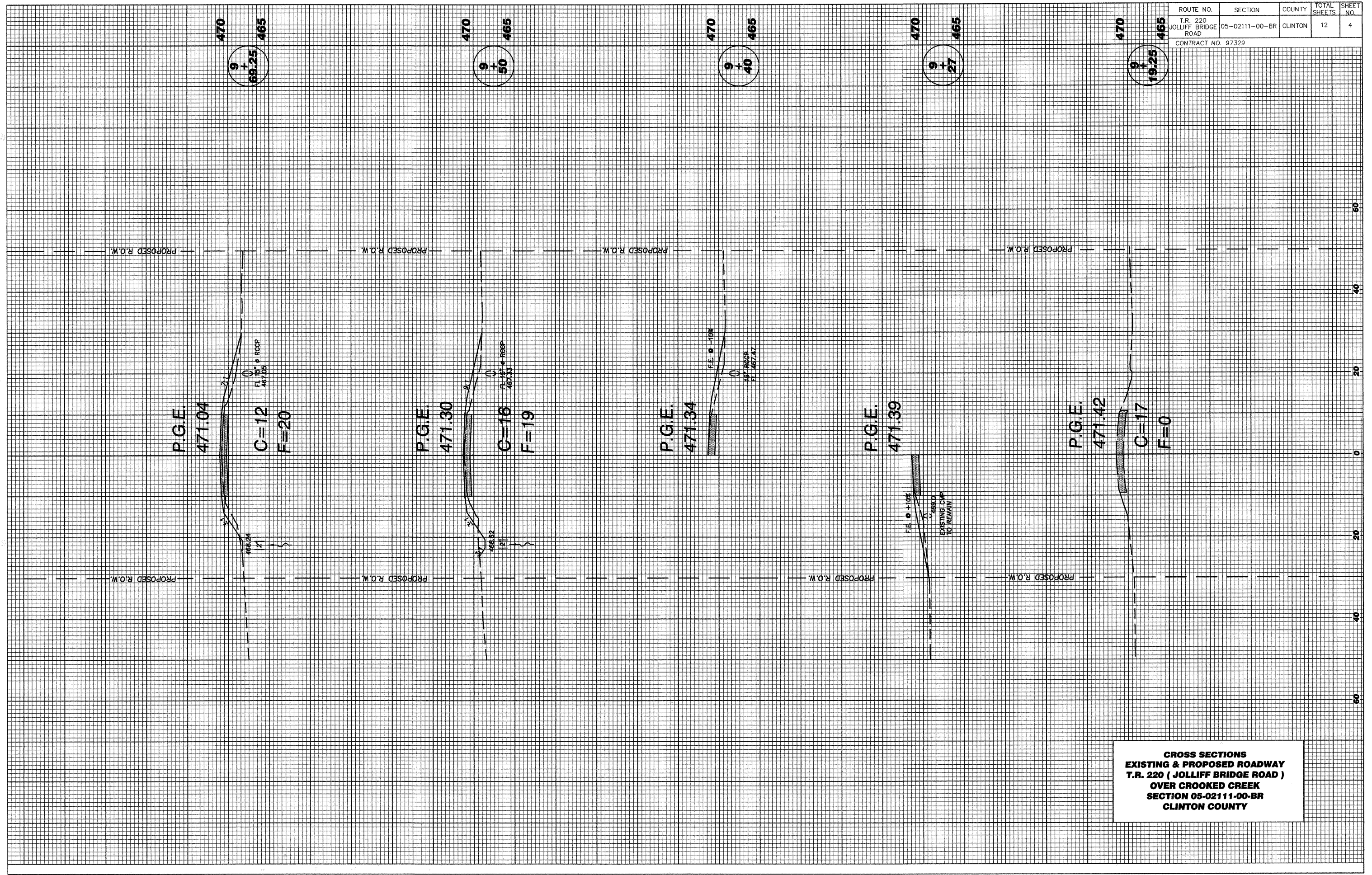


PLAN SURVEYED
 BY: _____
 DATE: _____
 NOTE BOOK NO. _____
 ALIGNMENT CHECKED
 BY: _____
 RT. OF WAY CHECKED
 BY: _____

PROFILE SURVEYED
 BY: _____
 DATE: _____
 NOTE BOOK NO. _____
 CROPPED CHECKED
 BY: _____
 B.M.'S NOTED
 BY: _____
 STRUCTURE NOTATION CHECKED
 BY: _____

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 220 JOLLIFF BRIDGE ROAD	05-02111-00-BR	CLINTON	12	4

CONTRACT NO. 97329

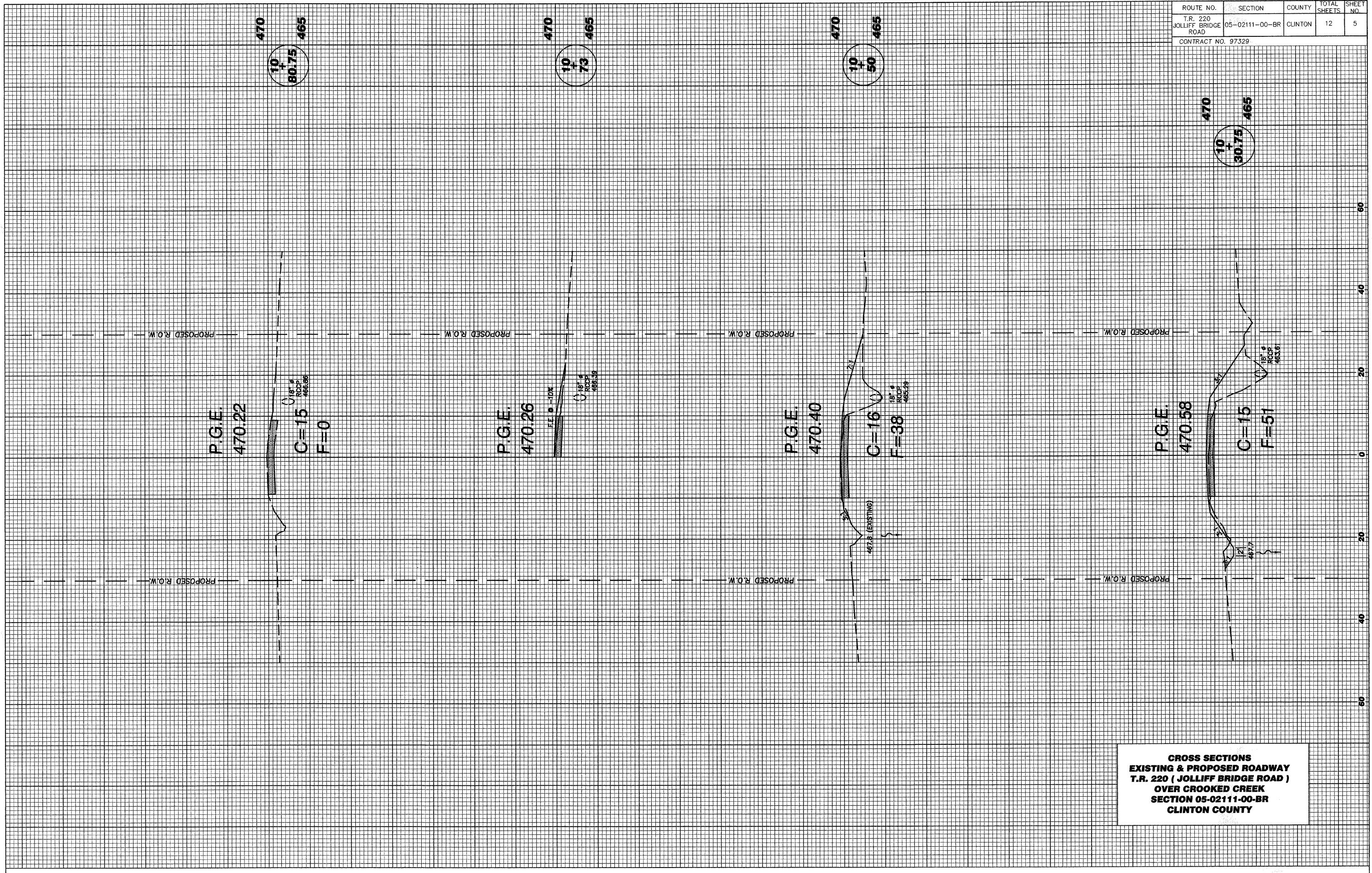


**CROSS SECTIONS
 EXISTING & PROPOSED ROADWAY
 T.R. 220 (JOLLIFF BRIDGE ROAD)
 OVER CROOKED CREEK
 SECTION 05-02111-00-BR
 CLINTON COUNTY**

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 220 JOLLIFF BRIDGE ROAD	05-02111-00-BR	CLINTON	12	5
CONTRACT NO. 97329				

PLAN
 SURVEYED _____
 PLOTTED _____
 NOTE BOOK _____
 NO. _____

PROFILE
 SURVEYED _____
 PLOTTED _____
 NOTE BOOK _____
 NO. _____



**CROSS SECTIONS
 EXISTING & PROPOSED ROADWAY
 T.R. 220 (JOLLIFF BRIDGE ROAD)
 OVER CROOKED CREEK
 SECTION 05-02111-00-BR
 CLINTON COUNTY**

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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CONTRACT NO. 97329

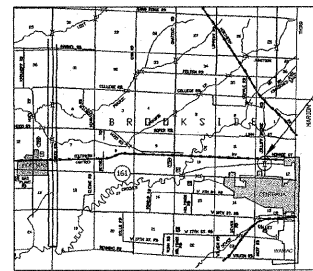
BENCHMARK: STA. 10+92.89, 17.85' RT. SPIKE SET IN POWER POLE ELEV. = 470.56
 STA. 8+24.67, 17.44' RT. SPIKE SET IN POWER POLE ELEV. = 472.48

EXISTING STRUCTURE S.N. 014-4001

THE EXISTING STRUCTURE IS A SINGLE SPAN PRECAST CONCRETE CHANNEL BEAM BRIDGE MEASURING 29.6 FEET BACK TO BACK ABUTMENTS. THE EXISTING DECK PROVIDES A CLEAR ROADWAY WIDTH OF 20.3 FEET. THE SUBSTRUCTURE CONSISTS OF PRECAST CONCRETE PILE CAPS WITH TIMBER PILES AND TIMBER BACKWALLS.

THE CONTRACTOR SHALL REMOVE AND DISPOSE OF THE EXISTING STRUCTURE IN ACCORDANCE WITH SECTION 501 OF THE STANDARD SPECIFICATIONS. EXCEPT THE ITEMS LISTED BELOW THAT ARE TO BE SALVAGED.

SALVAGE:
 THE CONTRACTOR SHALL SALVAGE AND STOCKPILE THE EXISTING CONCRETE RAIL POST AS DIRECTED BY THE ENGINEER. THE RAIL POST SHALL BECOME THE PROPERTY OF AND SHALL BE REMOVED FROM THE JOBSITE BY THE CLINTON COUNTY HIGHWAY DEPARTMENT.



LOCATION SKETCH

A TRIB. TO CROOKED CREEK
 BUILT 200_ BY
 BROOKSIDE ROAD DISTRICT
 SECTION 05-02111-00-BR
 STATION 10+00
 STR.NO. 014-4054 LOADING HS-20

NAME PLATE

LOCATE NAME PLATE AS SHOWN IN PLAN VIEW. (SEE STD. CN)

NORTH ABUTMENT

Pile Type: Steel HP 10X42
 Nominal Required Bearing: 162 Kips
 Allowable Resistance Available: 54 Kips
 Estimated Length: 35 FT.
 Number of Test Piles: 1
 Number of Production Piles: 4

SOUTH ABUTMENT

Pile Type: Steel HP 10X42
 Nominal Required Bearing: 162 Kips
 Allowable Resistance Available: 54 Kips
 Estimated Length: 35 FT.
 Number of Test Piles: 0
 Number of Production Piles: 5

DESIGN STRESSES

PRECAST PRESTRESSED UNITS

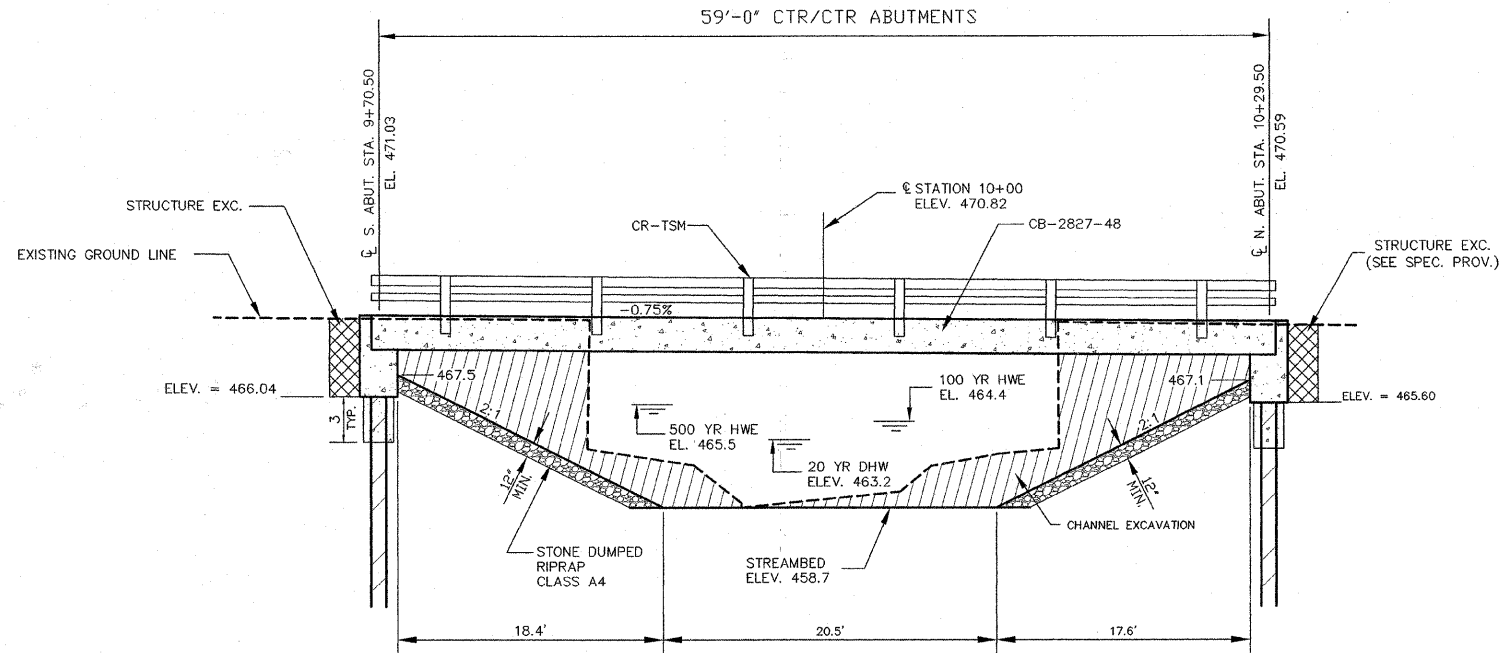
$f_c = 5000$ p.s.i.
 $f_{ci} = 4000$ p.s.i.
 $f_s = 270,000$ p.s.i. (1/2" ϕ STRAND)
 $f_{si} = 201,960$ p.s.i. (1/2" ϕ STRAND)
 $f_y = 60,000$ p.s.i.

CAST IN PLACE CONCRETE

$f_c = 3,500$ p.s.i.
 $f_y = 60,000$ p.s.i. (REINF.)

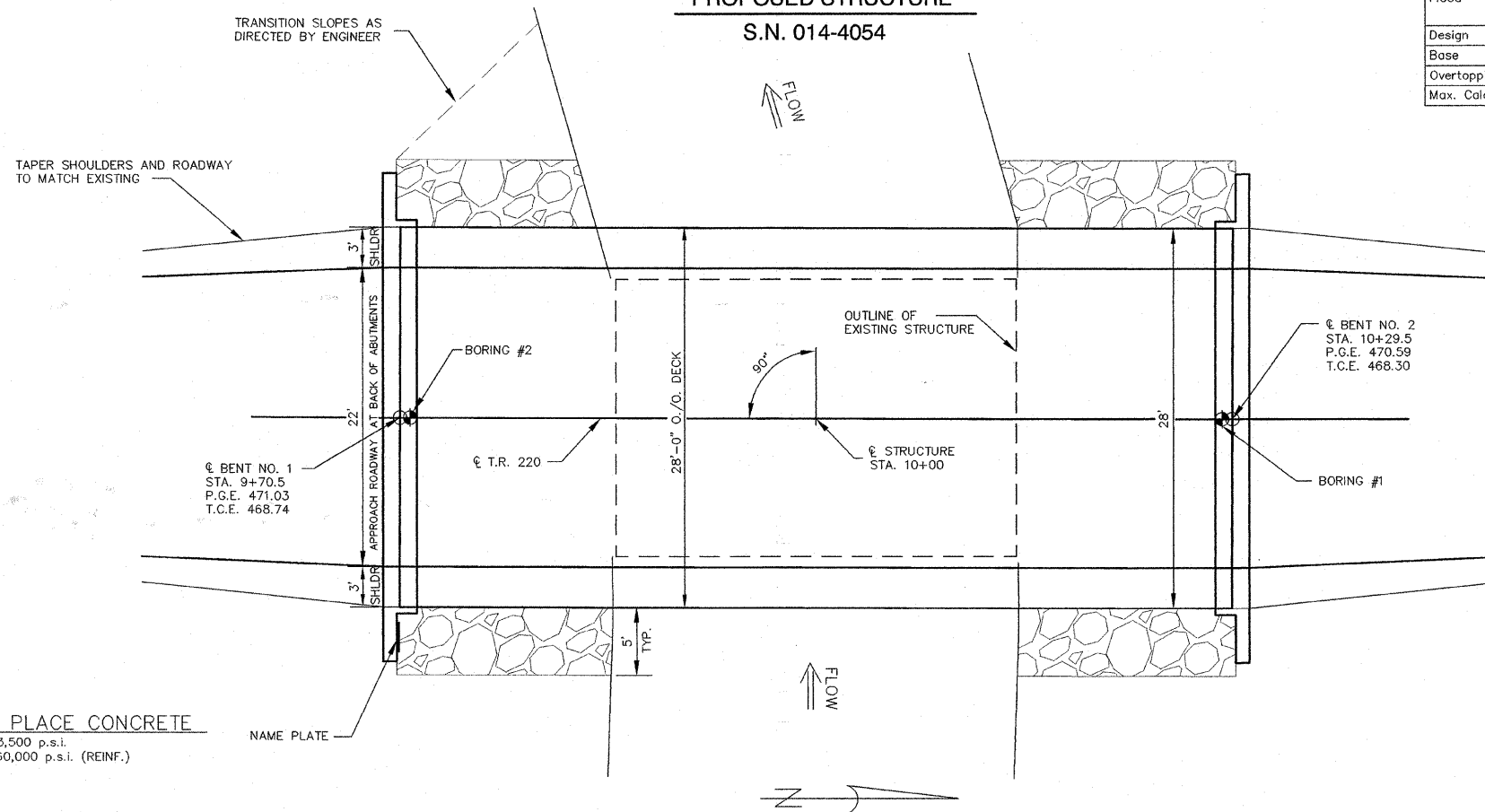
LOADING HS 20-44 LOAD FACTOR DESIGN

ALLOW 25 P.S.F. FOR FUTURE WEARING SURFACE
 2002 AASHTO



PROPOSED STRUCTURE

S.N. 014-4054



GENERAL NOTES

- THE CONTRACTOR SHALL DRIVE (1) HP 10X42 TEST PILE, AT BENT #1 IN A PERMANENT LOCATION AS DIRECTED BY THE ENGINEER BEFORE ORDERING REMAINING PILES. THE TEST PILES SHALL BE DRIVEN TO 110 PERCENT OF THE NOMINAL REQUIRED BEARING INDICATED IN THE PILE DATA INFORMATION.
- IN ADDITION TO ALL OTHER REQUIREMENTS OF SECTION 512 OF THE STANDARD SPECIFICATION, SPLICES FOR HP 10X42 PILES SHALL DEVELOP THE FULL CAPACITY OF THE STEEL'S CROSS SECTIONAL AREA OF THE PILE FOR TENSION, SHEAR AND BENDING FORCES. ONE APPROVED METHOD OF ACHIEVING THIS REQUIREMENT IS FULL PENETRATION BUTT WELD OF THE CROSS SECTION. OTHER TYPES OF SPLICES MEETING THE FULL CAPACITY REQUIREMENT MAY BE ALLOWED SUBJECT TO THE APPROVAL OF THE ENGINEER. ANY PROPOSAL BY THE CONTRACTOR TO USE AN ALTERNATE SPLICE METHOD MUST INCLUDE ADEQUATE DOCUMENTATION THAT THE FULL TENSION, SHEAR AND BENDING CAPACITIES WILL BE MET. APPROPRIATE WELDER QUALIFICATIONS WILL BE REQUIRED FOR THE POSITION AND PROCESSING USED IN SPLICING ALL PILES. NONDESTRUCTIVE TESTING OF COMPLETED WELDS WILL BE LIMITED TO VISUAL INSPECTION.
- KEYWAY SURFACES SHALL BE CLEANED TO REMOVE FORM OIL OR OTHER BOND BREAKING MATERIALS PRIOR TO SHIPMENT OF BEAMS. CLEANING SHALL BE DONE BY SANDBLASTING THE KEYWAY AREAS BETWEEN THE TOP OF THE BEAM AND THE BOTTOM EDGE OF THE KEY.
- CLASS SI CONCRETE SHALL BE USED THROUGHOUT EXCEPT IN THE DECK BEAMS.
- A CORROSION INHIBITOR, PER ARTICLE 1020.05(b)(12) OF THE STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION, SHALL BE USED IN THE CONCRETE FOR PRECAST PRESTRESSED CONCRETE DECK BEAMS.
- SEE SPECIAL PROVISIONS FOR BORING LOGS.

WATERWAY INFORMATION TABLE

Flood	Freq. Yr.	Q CFS	Opening Sq. ft.		Nat. H.W.E. F.T.	Head - Ft.		Headwater Elev. - Ft.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	20	555	71	172	463.2	1.3	0.2	464.5	463.4
Base	100	843	110	183	464.4	0.9	0.3	465.3	444.7
Overtopping	N/A								
Max. Calc.	500	1160	144	233	465.5	0.8	0.2	466.3	465.7

TOTAL BILL OF MATERIALS

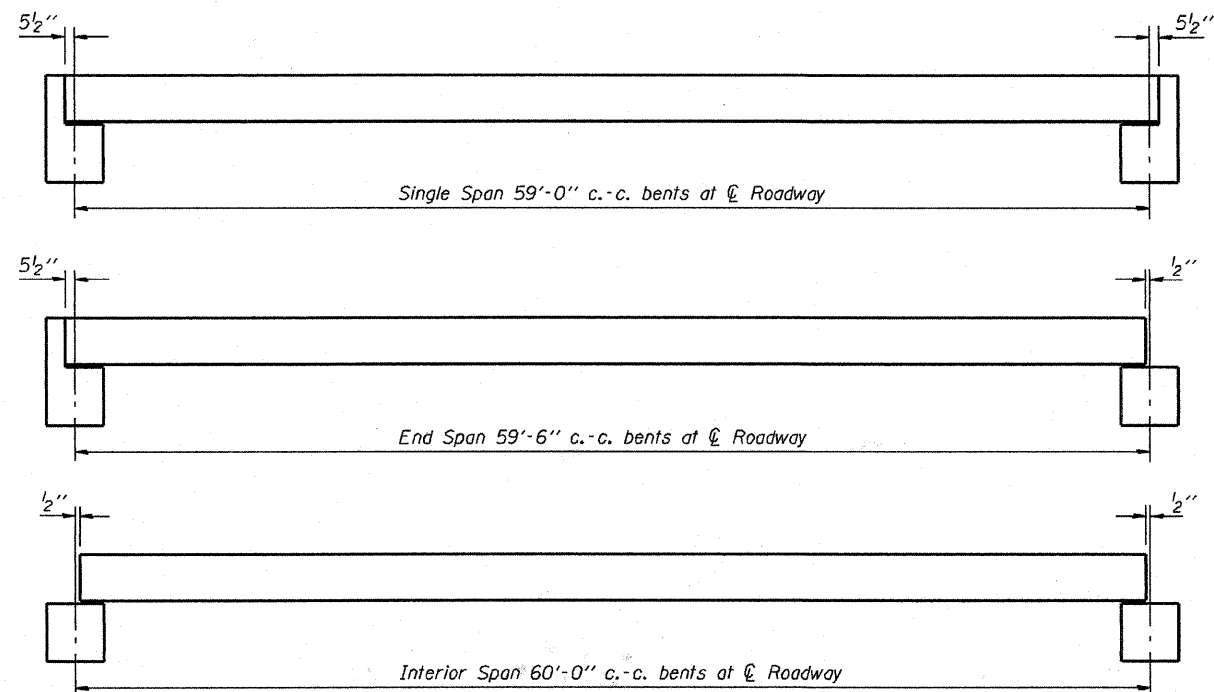
ITEM	UNIT	SUPER	SUB.	Total
Removal of Existing Structures	Each			1
Prec. Pres. Conc. Dk. Bms. 27" Depth	Sqr Ft.	1,680		1,680
Concrete Structures	Cu Yd.		20.8	20.8
Reinforcement Bars	Pound			2580
Furnishing Steel Piles, HP 10 X 42	Foot		315	315
Driving Piles	Foot		315	315
Test Piles Steel HP 10 X 42	Each		1	1
Steel Railing Type SM	Foot	120		120
Name Plates	Each			1
Channel Excavation	Cu Yd.			350
Stone Dumped RipRap, Class A4	Ton			88
Concrete Encasement	Cu Yd.		2.6	2.6

INDEX OF BRIDGE SHEETS

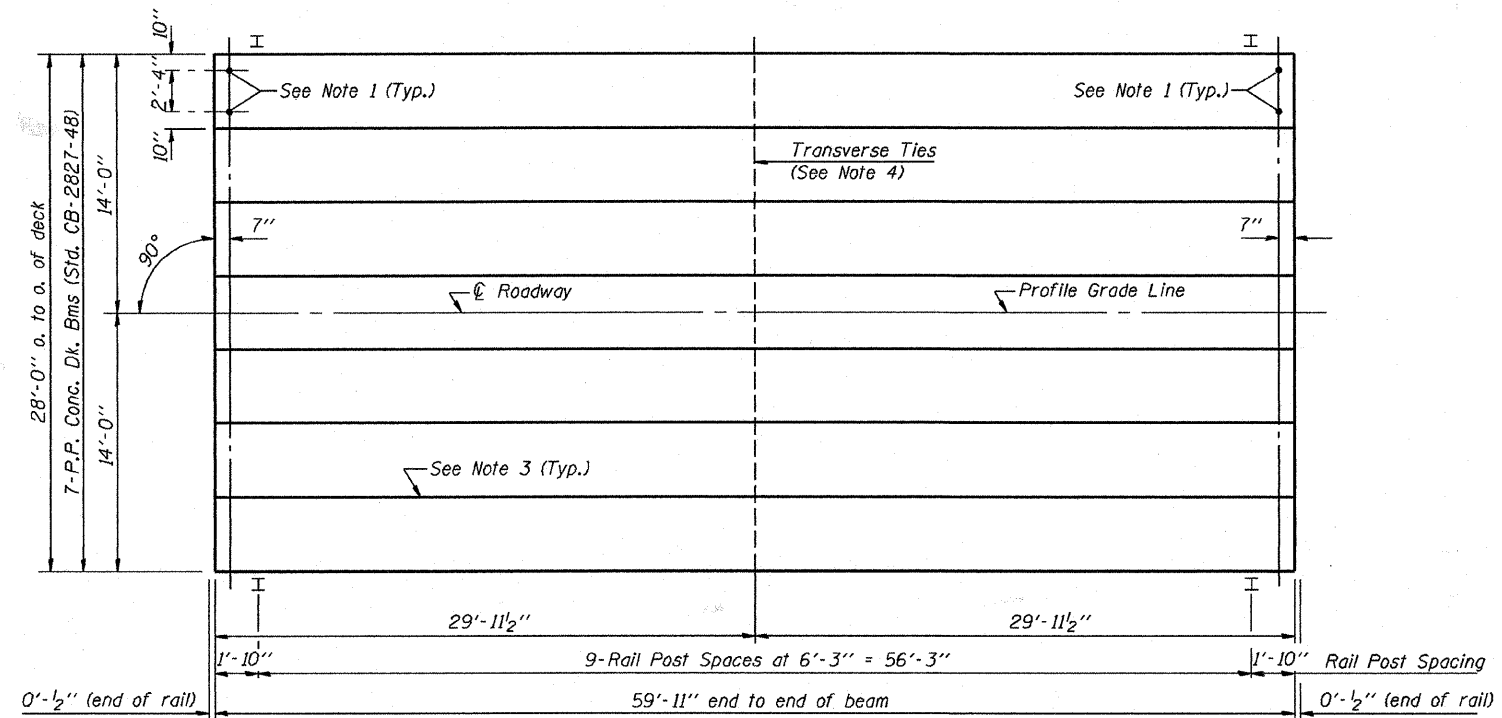
- GENERAL PLAN AND ELEVATION STANDARDS
- CS-2827-60
- CB-2827-48
- CA-2827-10
- CR-TSM
- CN
- CX-1

GENERAL PLAN & ELEVATION

T.R. 220 (JOLLIFF BRIDGE ROAD)
 OVER TRIB. TO CROOKED CREEK
 SECTION 05-02111-00-BR
 CLINTON COUNTY
 STATION 10+00
 STRUCTURE NO 014-4054



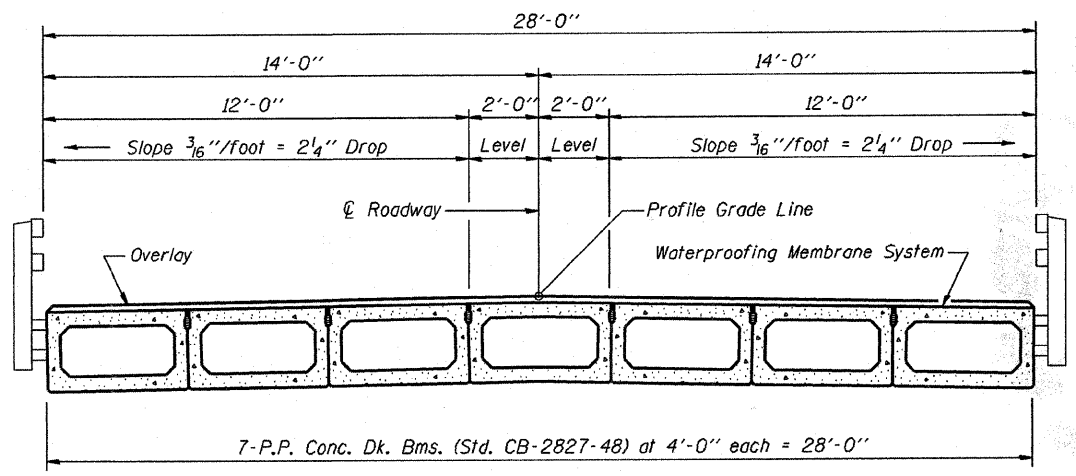
TYPICAL ELEVATIONS



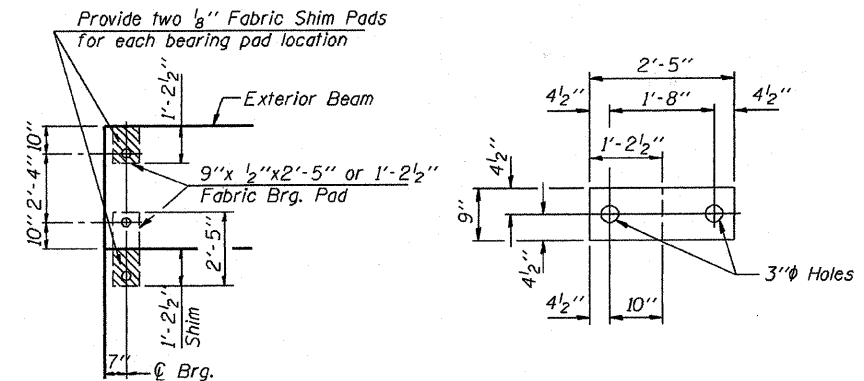
PLAN

NOTES

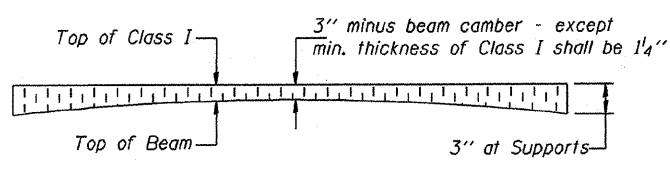
1. After beams have been erected, holes shall be drilled into substructure and anchor dowels placed. Dowel holes shall be filled with non-shrink grout to top of beam and allowed to cure min. 24 hrs. prior to grouting the shear keys.
2. Nominal 1" joint at \O Pier shall be filled with non-shrink grout.
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.



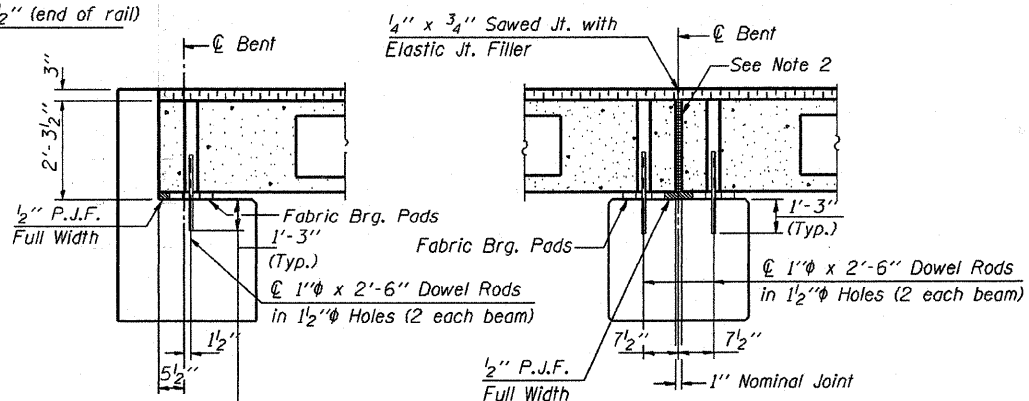
CROSS SECTION



1/2" FABRIC BRG. PAD DETAILS



PROFILE OF OVERLAY



SECTION AT ABUTS.
(Along \O Beams)

SECTION AT PIERS
(Along \O Beams)

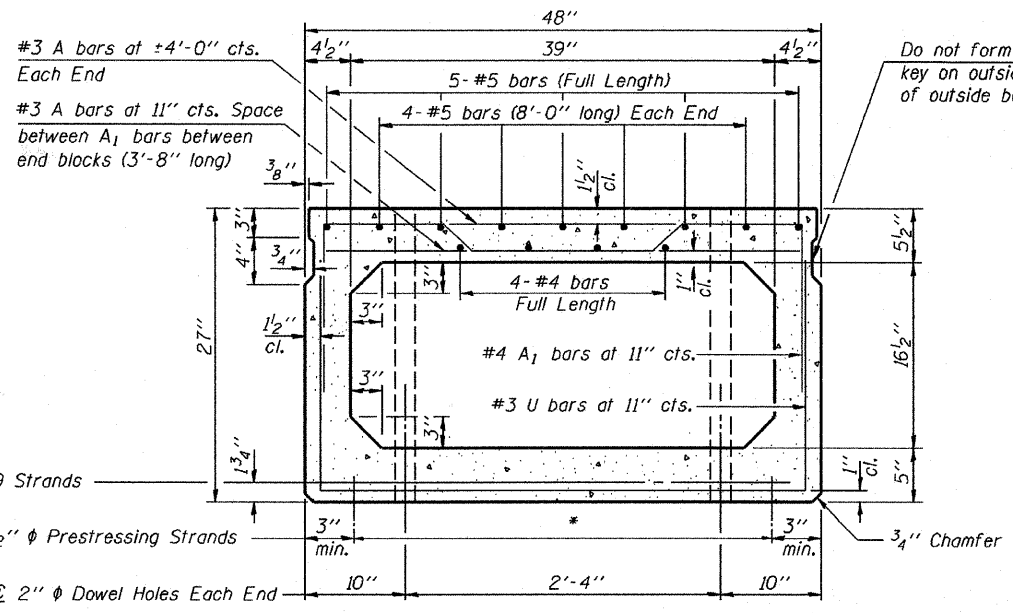
QUANTITIES FOR ONE SPAN

P.P. Conc. Dk. Bm. 17" Dp.	1680 Sq. Ft.
Steel Railing	120 Ft.
Waterproofing Membrane System	186.7 Sq. Yds.
Portland Cement Mortar	360 Ft.
Fairing Course	

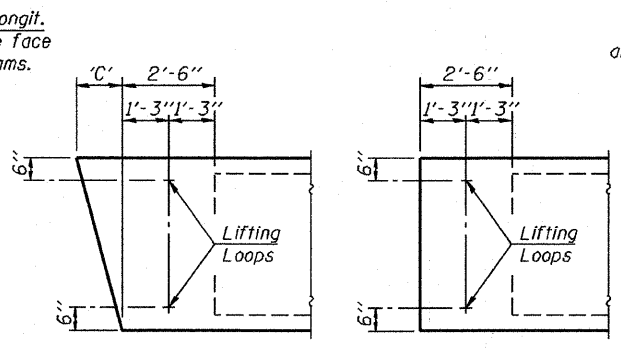
Note: Quantity of overlay for one span = 21.9 Tons

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

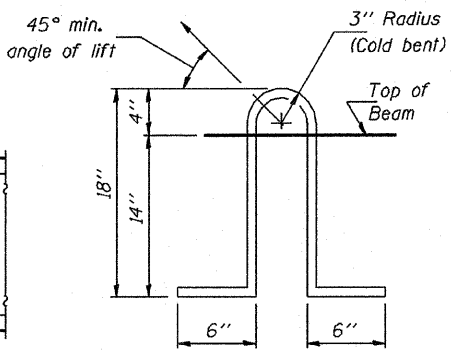


CROSS SECTION
(40' SPAN)



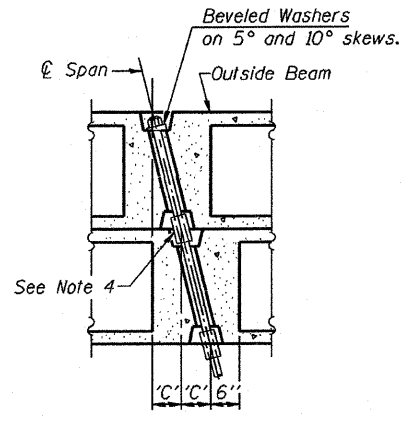
END BLOCK DETAILS

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.

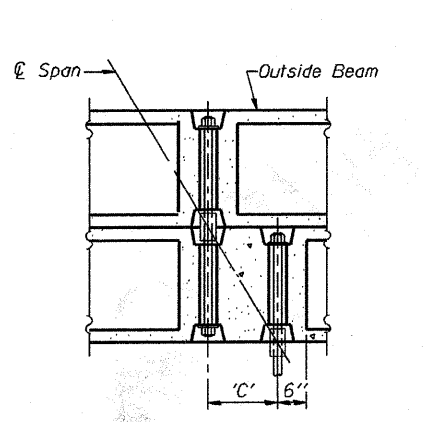


LIFTING LOOP DETAIL

Lifting loops shall be 3. 1/2 inch 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°)

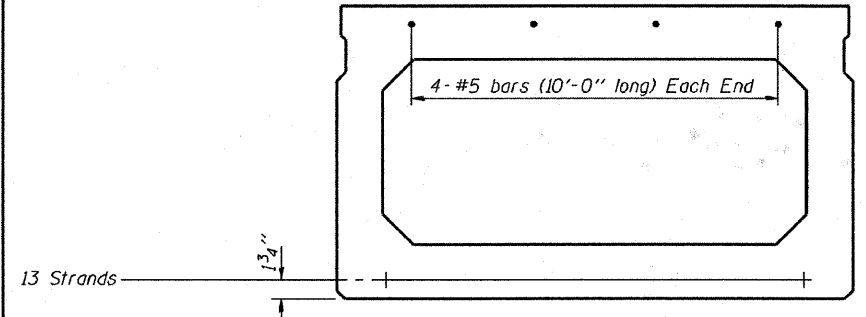
DIMENSION 'C'

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

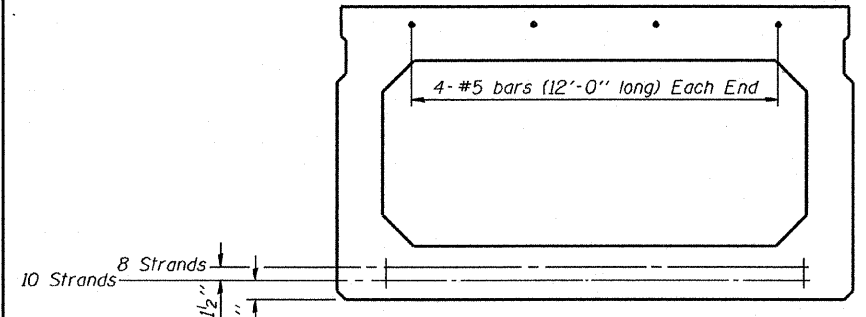
*** TRANSVERSE STRAND PLACEMENT GUIDELINES**

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".

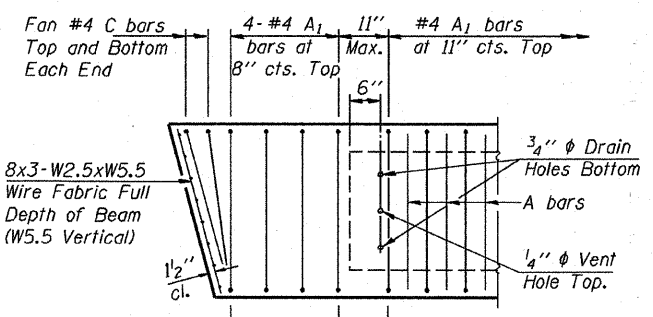
Vertical placement of strands shall not be adjusted to satisfy the above guidelines.



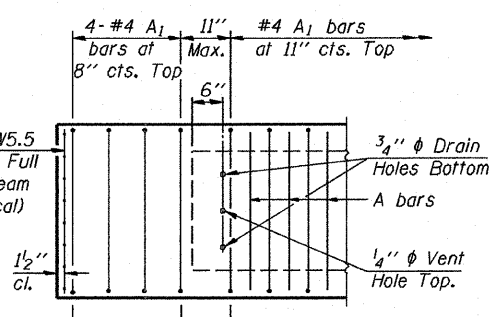
CROSS SECTION
(50' SPAN)



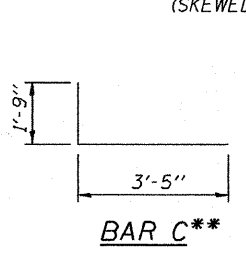
CROSS SECTION
(60' SPAN)



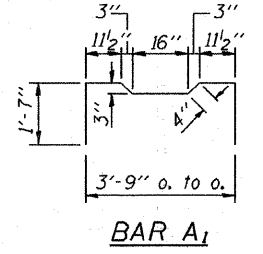
END REINFORCEMENT
(SKEWED)



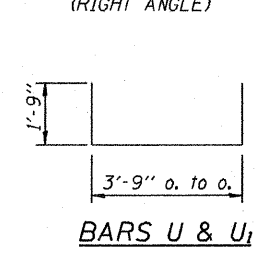
END REINFORCEMENT
(RIGHT ANGLE)



BAR C**



BAR A1



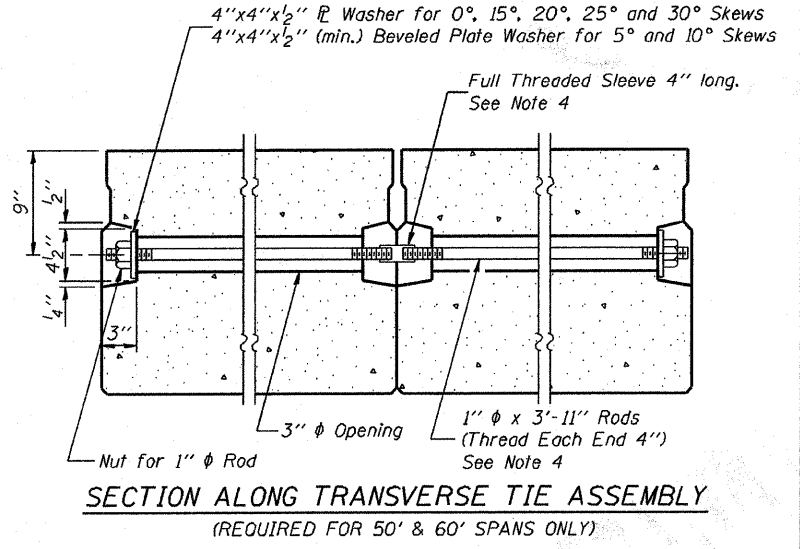
BARS U & U1

DESIGN STRESSES

- $f'_c = 5,000$ p.s.i.
- $f'_a = 4,000$ p.s.i.
- $f'_s = 270,000$ p.s.i. (1/2 inch diameter Strand)
- $f_{st} = 201,960$ p.s.i. (1/2 inch diameter Strand)
- $f_y = 60,000$ p.s.i.

MIN. BAR LAP

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



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 inch 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. 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 inch.
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.

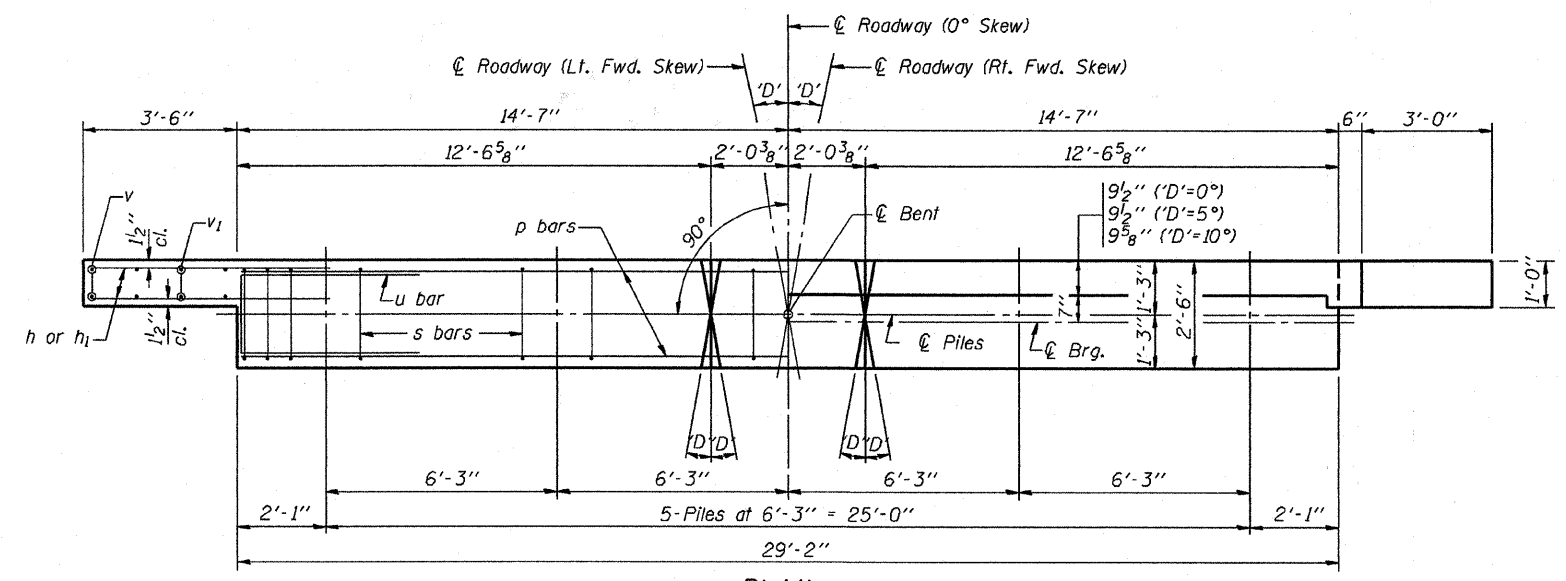
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 PASSED APRIL 4, 2005
 Thomas J. Tomagalak
 Engineer of Bridge Design
 APPROVED APRIL 4, 2005
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NOTE
 The std. reinf. and dimensions shown on the 40' span cross section is typical for all spans, except as shown.

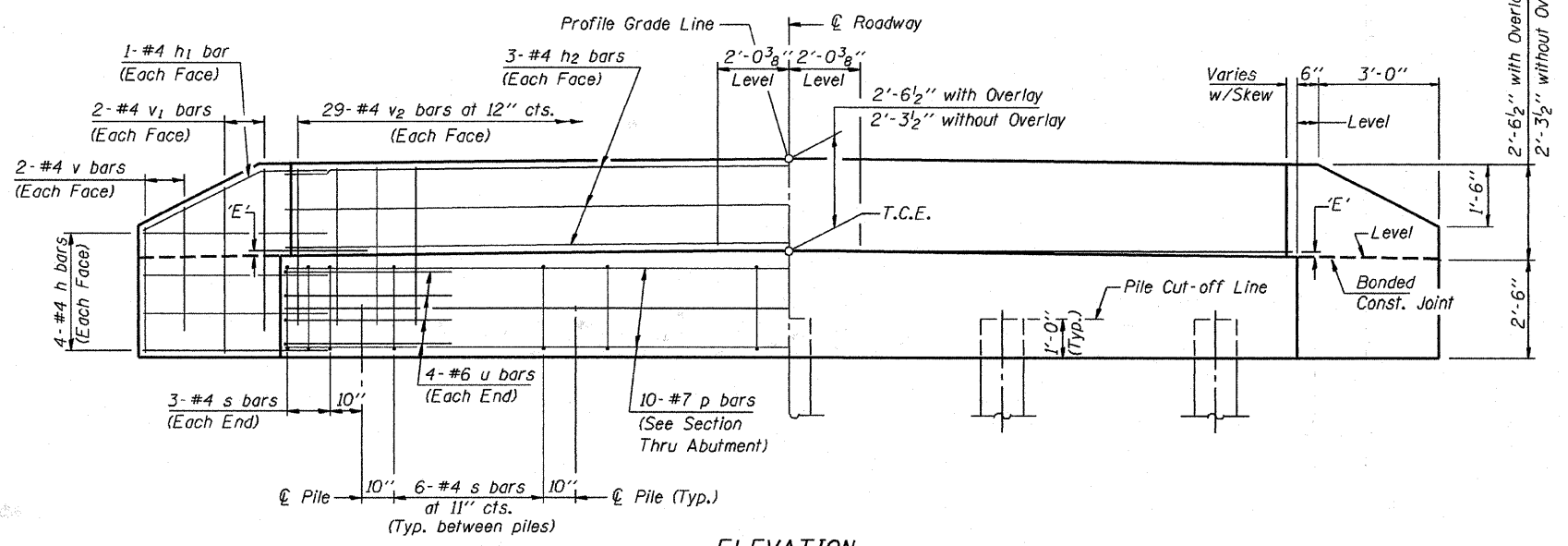
****NOTE:**
 The following number of C bars shall be used:
 Skew No.
 5° and 10° — 1
 15° and 20° — 2
 25° and 30° — 3

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 1/8"	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

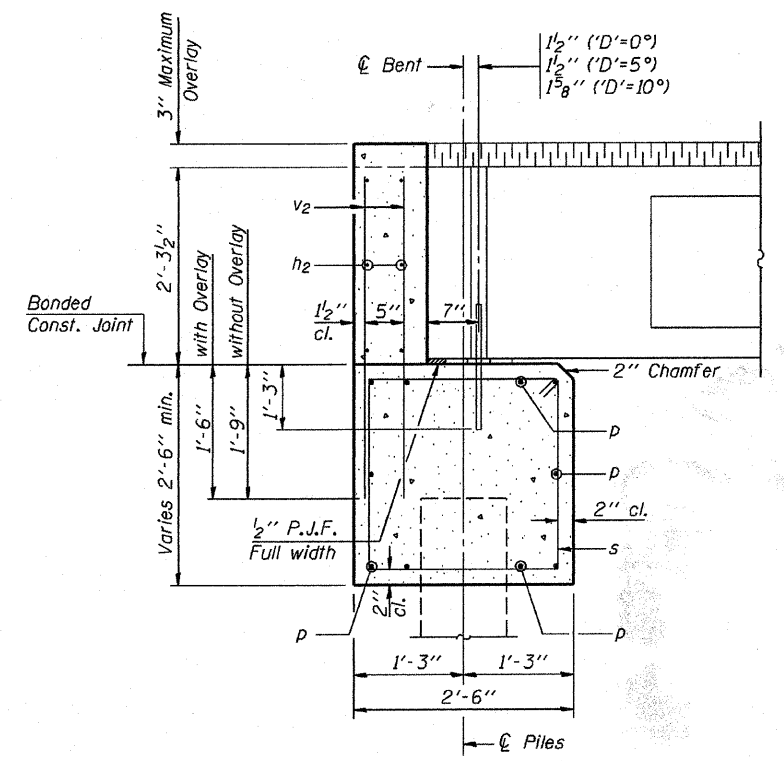
- The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.
- Reinforcement bars shall conform to the requirements of A.A.S.H.T.O. M-31 or M-322, Grade 60.
- Space reinforcement in cap to miss anchor bolts.

MAXIMUM PILE LOADS

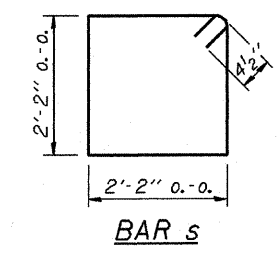
SPAN	TONS
40'	29
50'	33
60'	37

DESIGN STRESSES

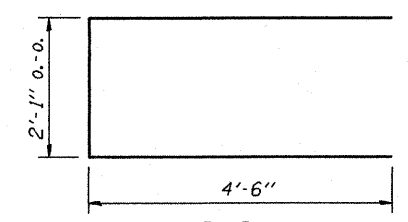
f'c = 3,500 psi
fy = 60,000 psi



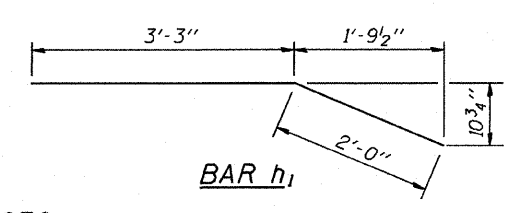
SECTION THRU ABUTMENT
(At Right Angles)



BAR s



BAR u



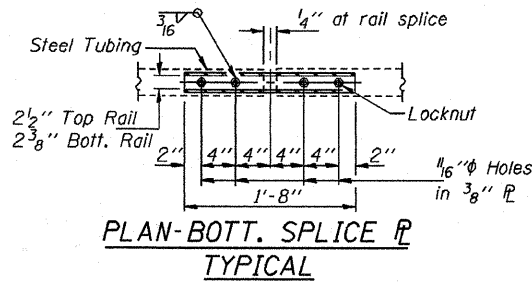
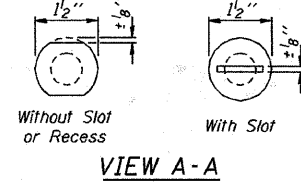
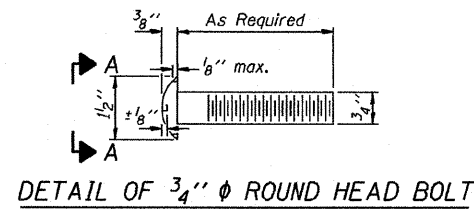
BAR h1

BILL OF MATERIAL FOR ONE ABUTMENT

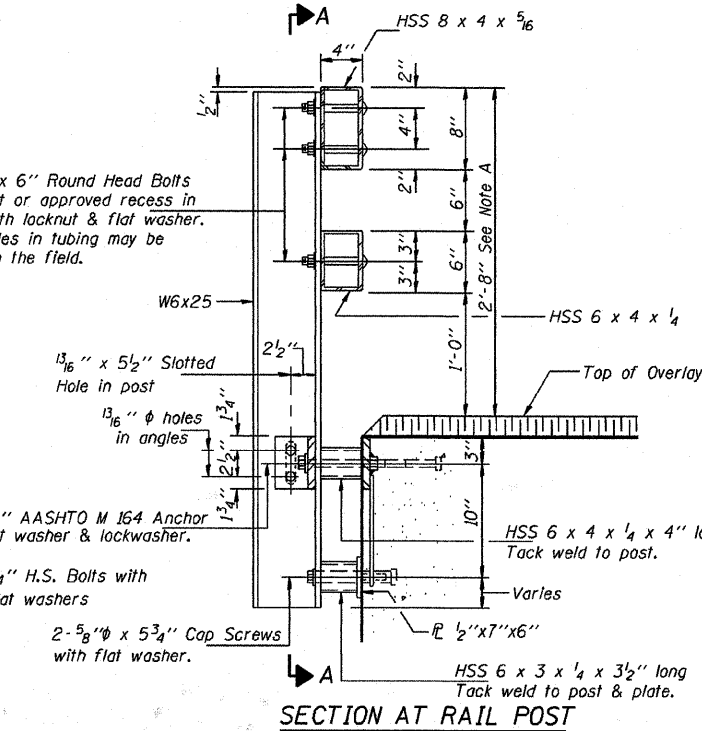
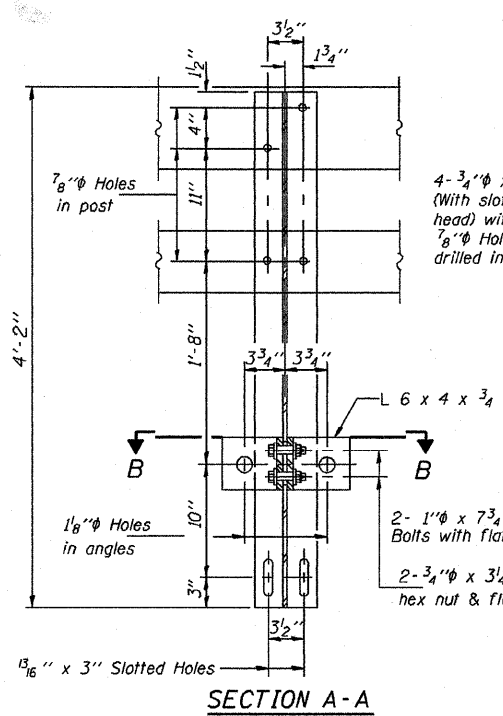
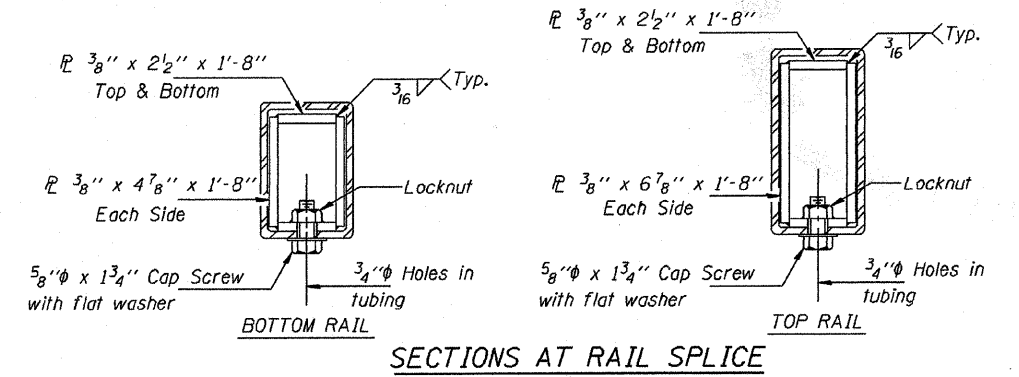
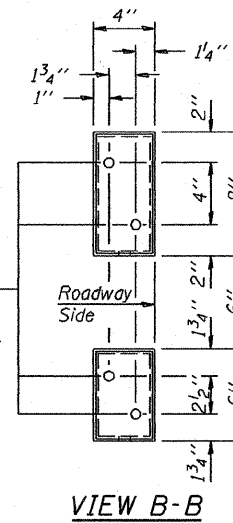
Bar	No.	Size	Length	Shape
h	16	#4	5'-0"	—
h1	4	#4	5'-3"	—
h2	6	#4	28'-10"	—
p	10	#7	28'-10"	—
s	30	#4	9'-5"	□
u	8	#6	11'-1"	□
v	8	#4	3'-2"	—
v1	8	#4	4'-2"	—
v2	58	#4	3'-11"	—
Concrete Structures			10.4	Cu. Yds.
Reinforcement Bars			1290	Lb.

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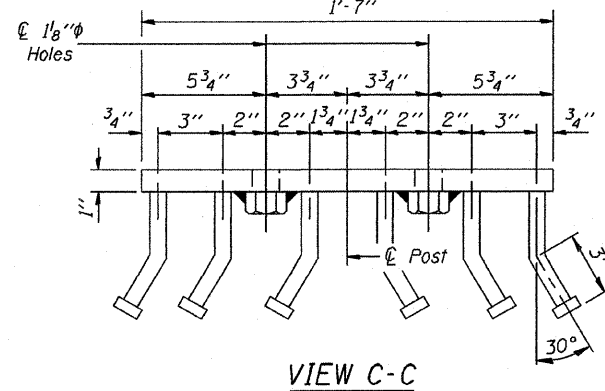
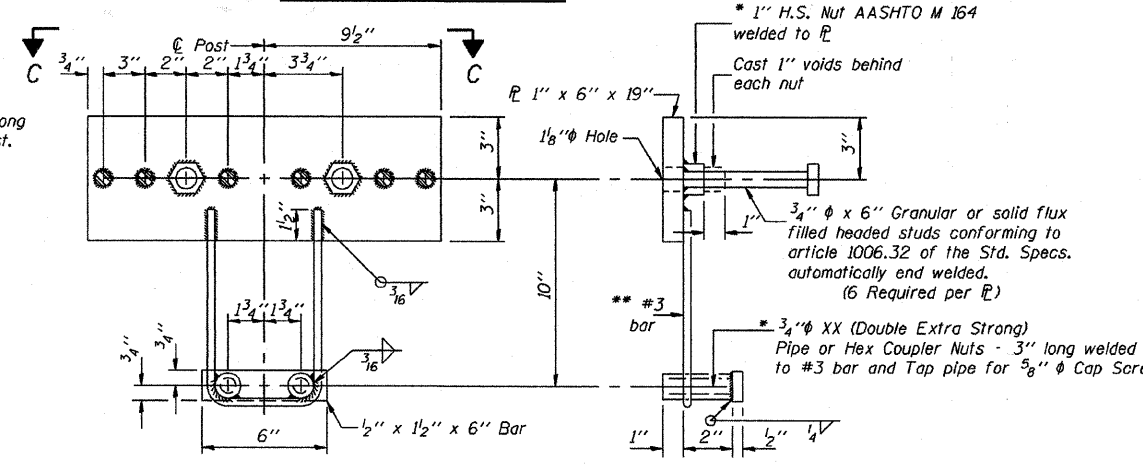
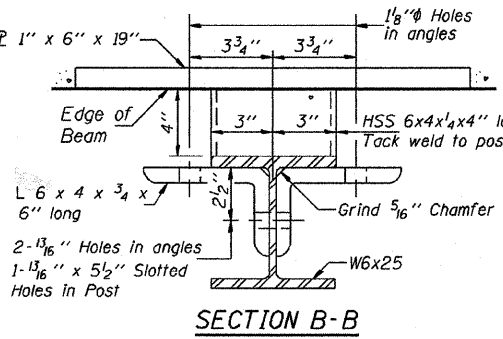
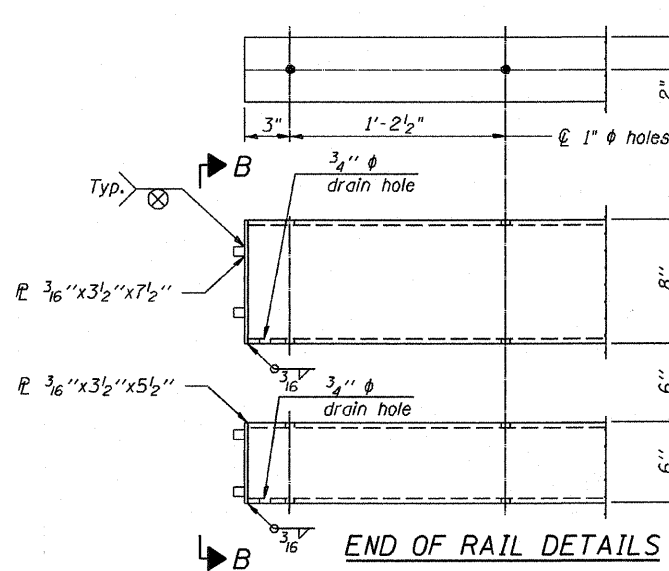
**P.P.C. DECK BEAMS
 PILE BENT ABUTMENT**
 28' RDWY. | 27' BMS. 'D'=0°, 5° OR 10°
 STANDARD CA-2827-10



4 - 5/8" reduced base welded studs. Provide 4 - 5/8" washers and self-locking nuts or nuts and jam nuts for guardrail connection shown on Std. 631032



Note A: Where no overlay is to be provided, adjust top of rail to lay parallel to grade 2'-10" max. above top of beam



NOTES

Hollow structural steel tubing shall conform to the requirements of ASTM designation A 500 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 requirements of ASTM designation A 307 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 SM.

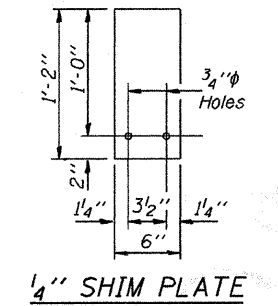
All field drilled holes shall be coated with an approved zinc rich paint before erection.

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

The 1/2" x 7" x 6" plates that come in contact with concrete shall receive two coats of asphalt paint conforming to Section 1060.07 Type II or place 1/8" fabric bearing pads between the plates and concrete.

The 3/4" high strength bolts used to connect the 6 x 4 x 1/4 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 6'-3".



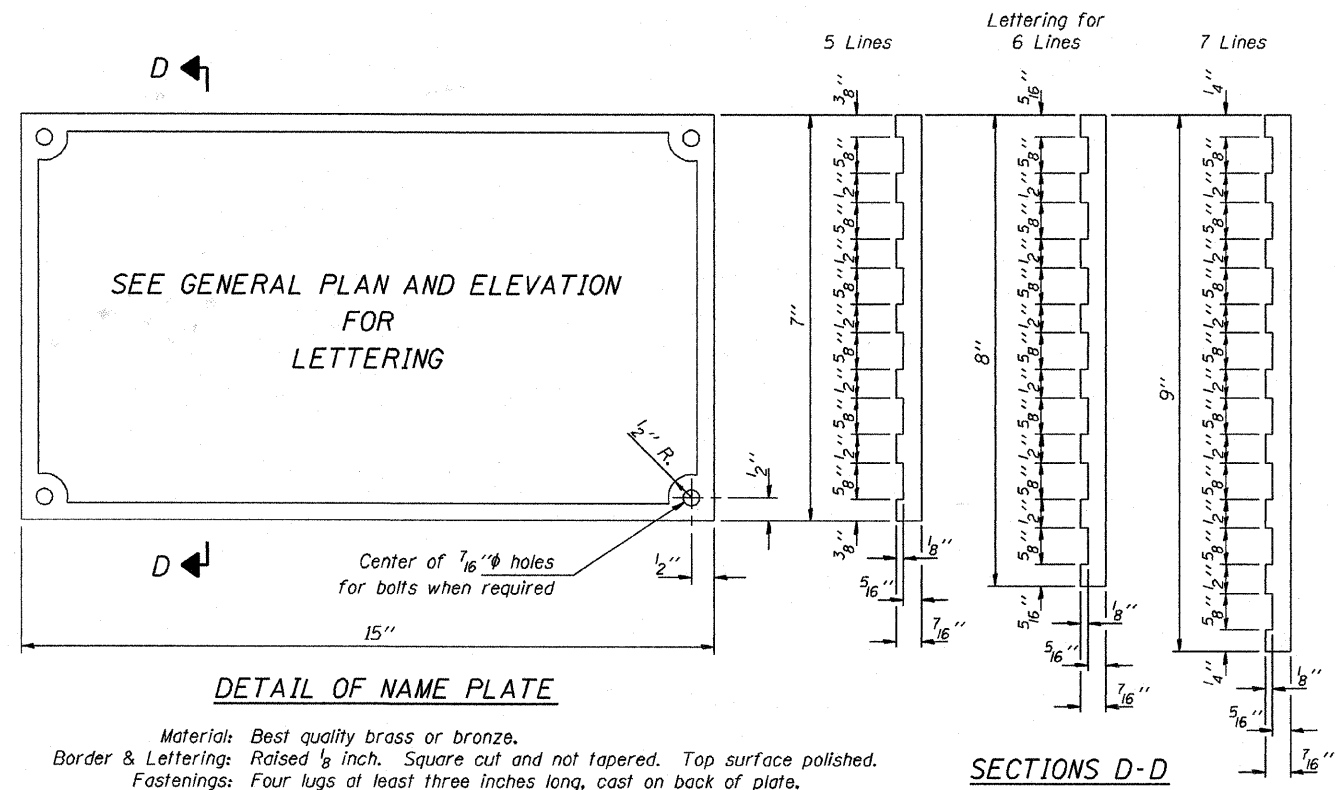
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 PASSED APRIL 4, 2005
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 APPROVED APRIL 4, 2005
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ANCHOR DEVICE

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

** 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".

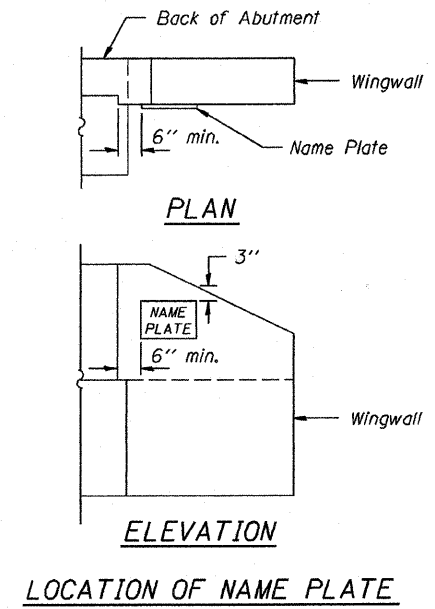
STEEL BRIDGE RAIL, TYPE SM
 STANDARD CR-TSM



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

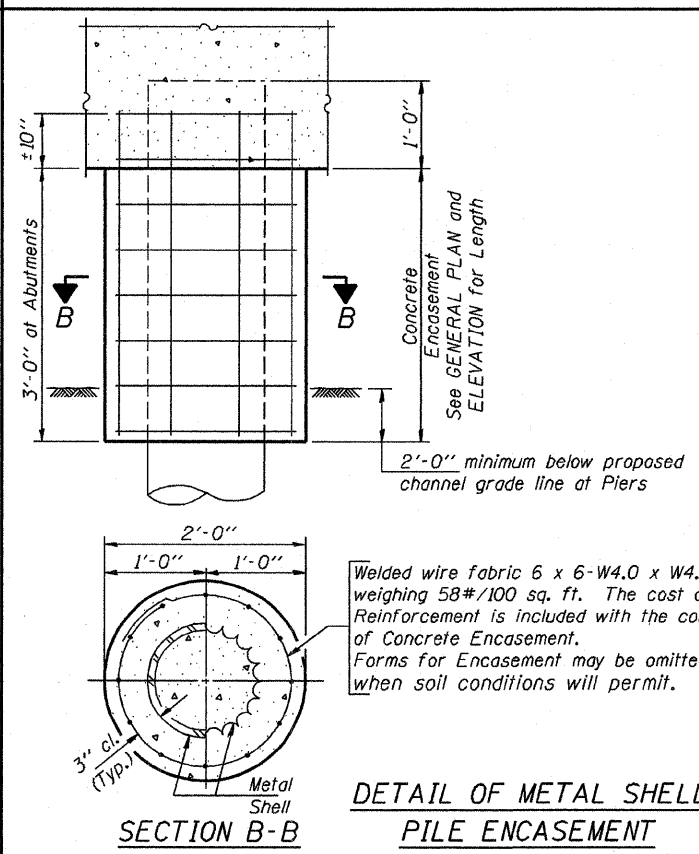
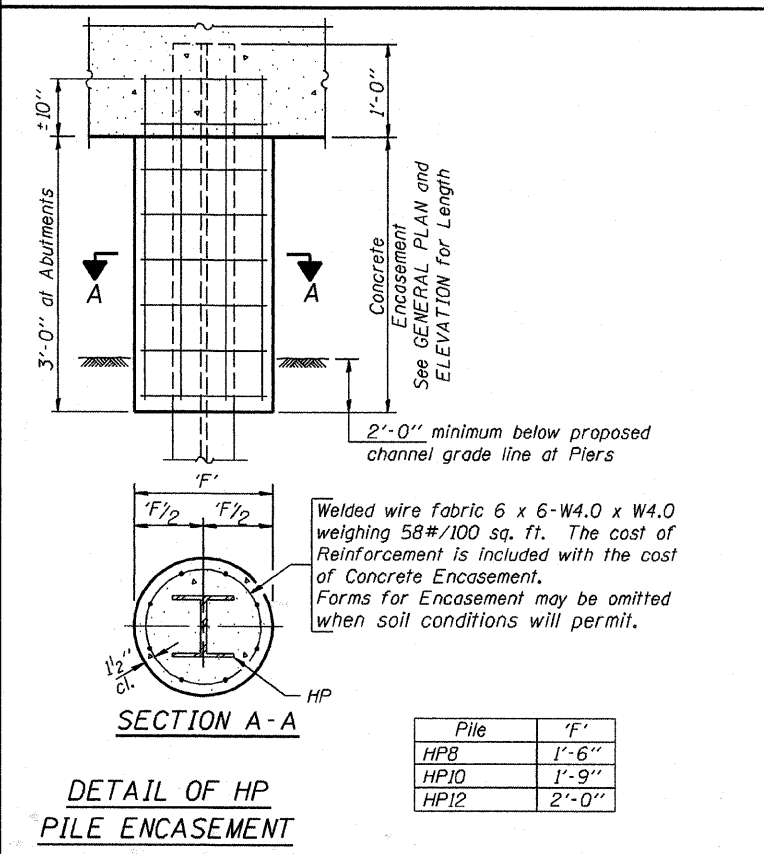
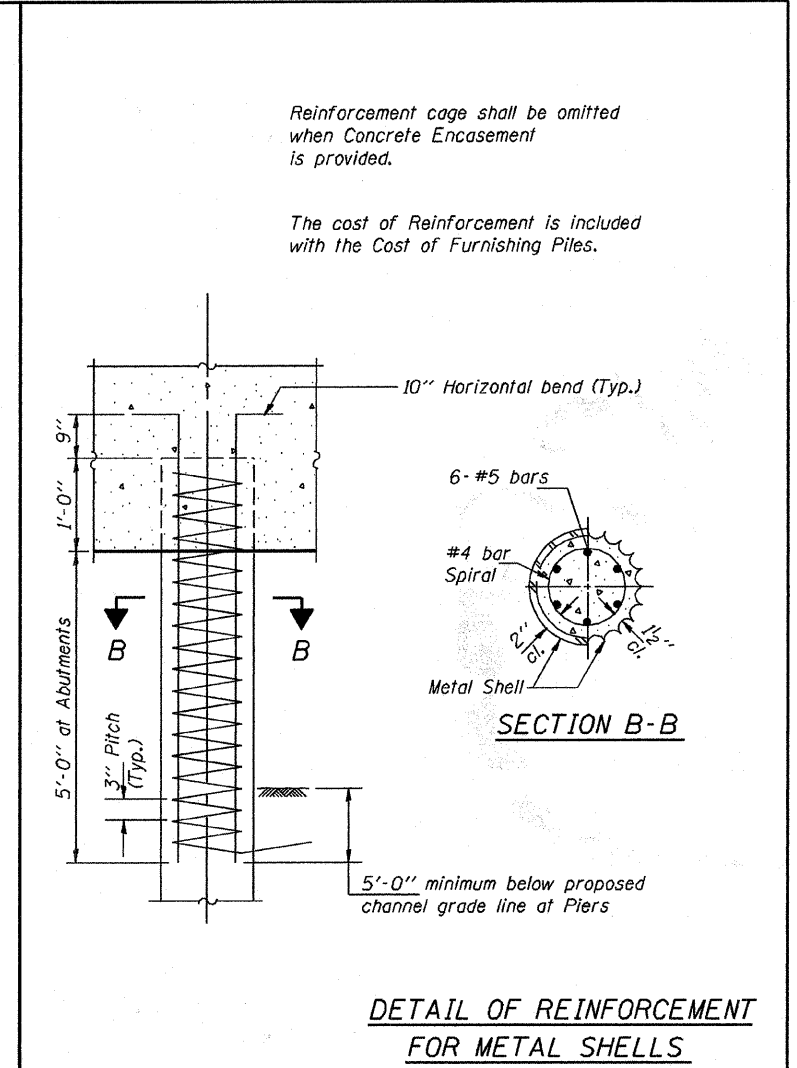
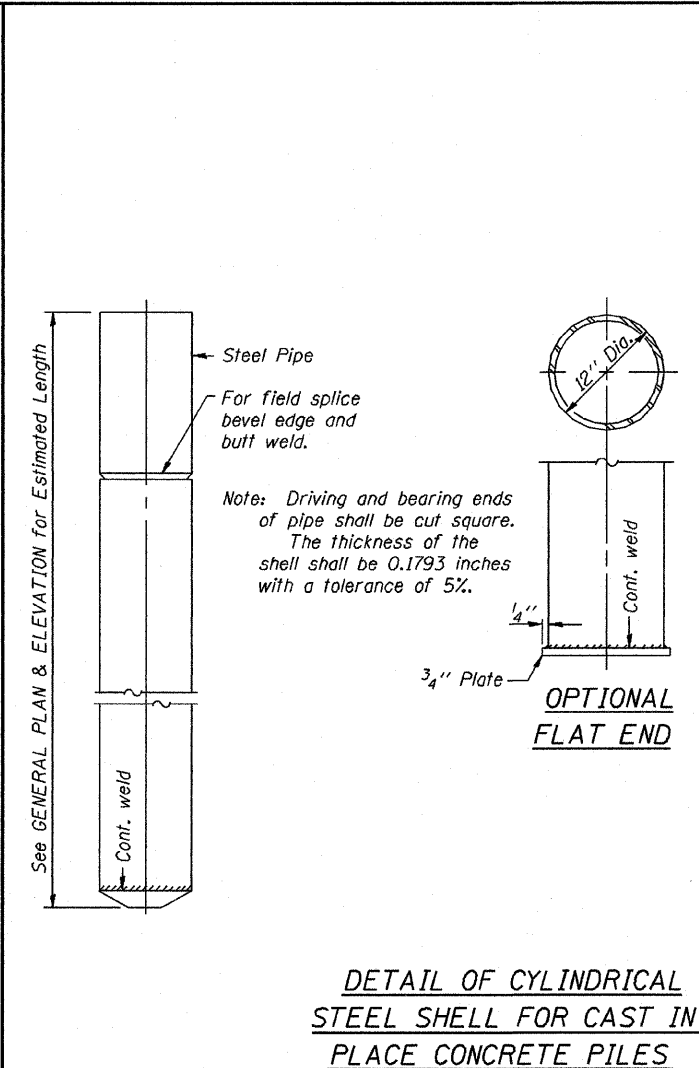
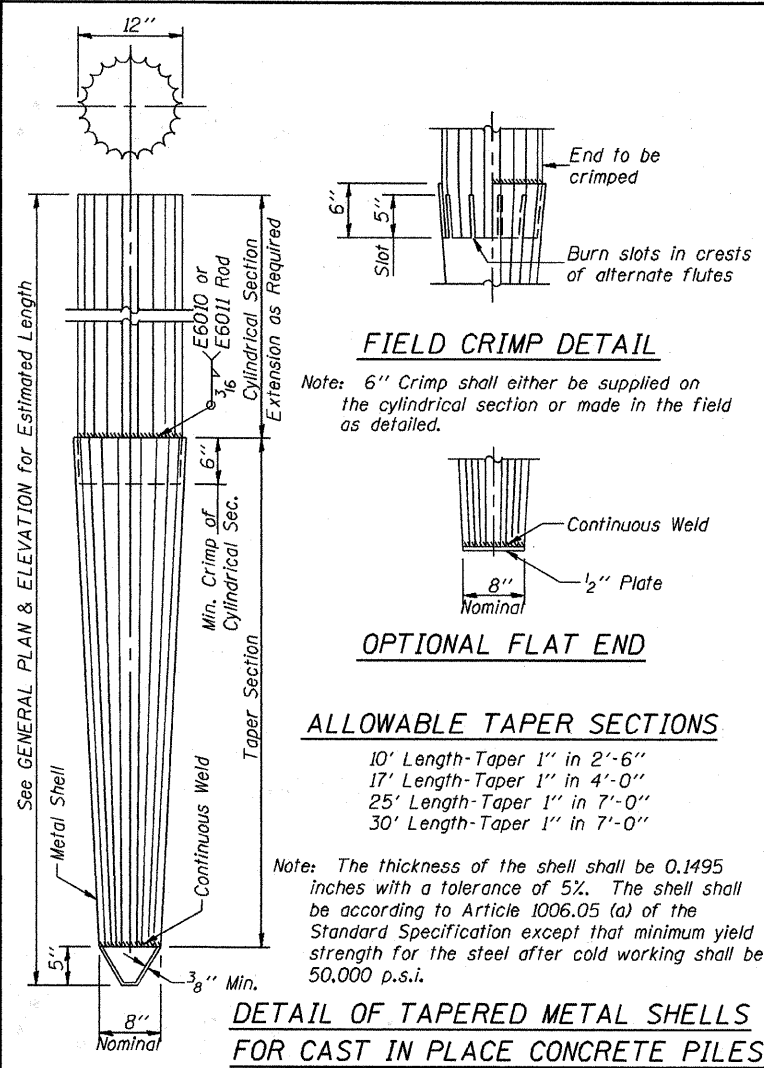
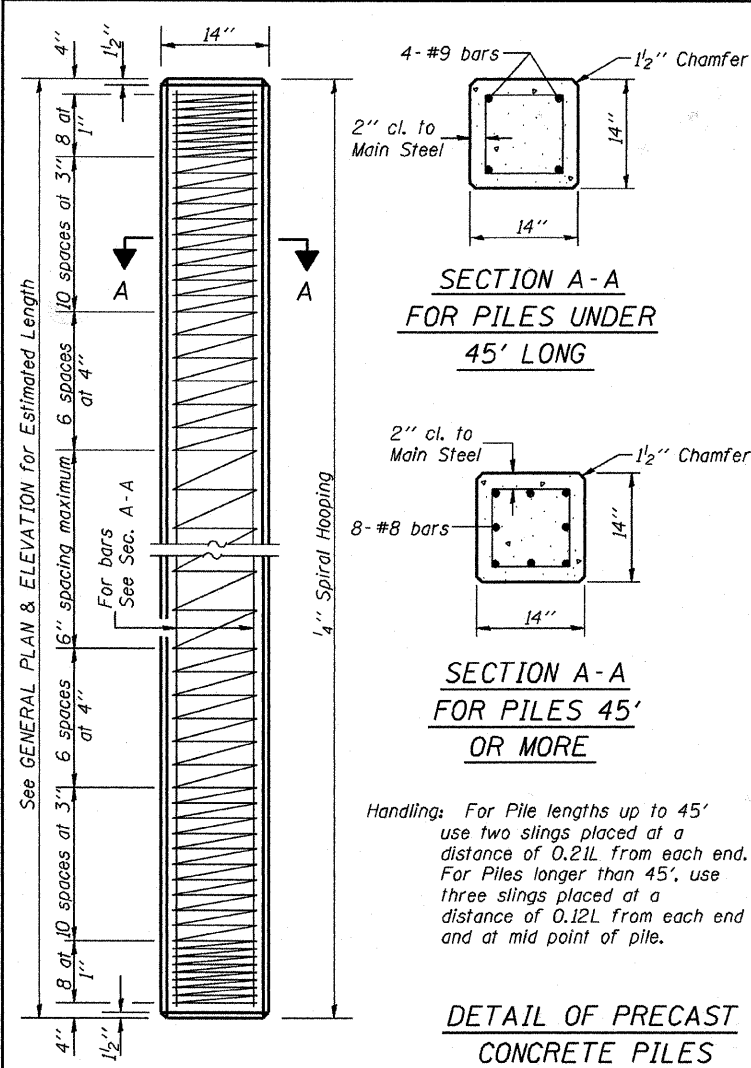
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ISSUED 7-1-99/SSJ

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
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1858-H-188