

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS PLANS FOR PROPOSED HIGHWAY BRIDGE PROGRAM

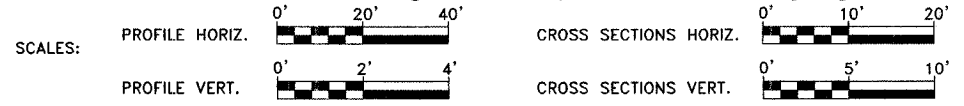
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 20	05-00124-00-BR	MARION	12	1
FEDERAL AID PROJECT		ILLINOIS	PROJECT	

CONTRACT NO. 97321



LOCATION OF PROJECT INDICATED THUS - - -

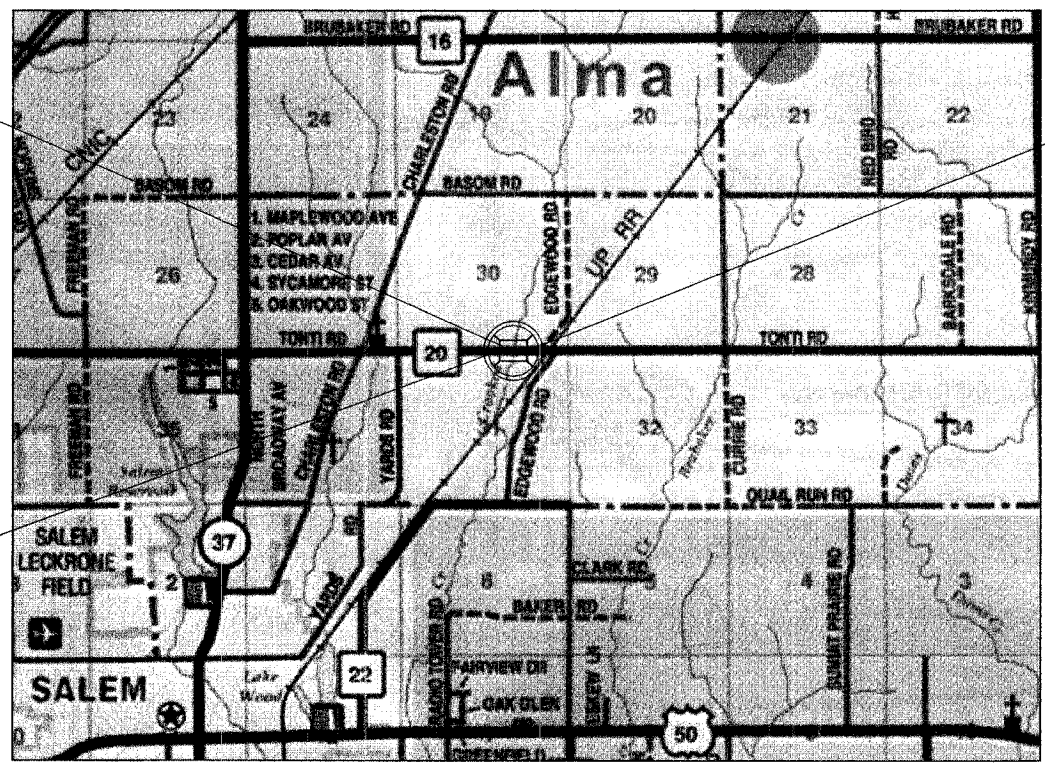
INDEX OF SHEETS	
1	COVER SHEET
2	TYPICAL CROSS SECTION, GENERAL NOTES, AND SUMMARY OF QUANTITIES
3	PLAN AND PROFILE SHEET
4-10	BRIDGE PLANS
11-12	CROSS SECTIONS
STANDARD 000001-05	STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
STANDARD 280001-04	TEMPORARY EROSION CONTROL SYSTEMS
STANDARD 630301-04	SHOULDER WIDENING FOR TYPE 1 (SPECIAL) GUARDRAIL TERMINALS
STANDARD 635006-02	REFLECTOR AND TERMINAL MARKER PLACEMENT
STANDARD 701901	TRAFFIC CONTROL DEVICES
STANDARD B.L.R. 21-7	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS
BLR 27	TRAFFIC BARRIER TERMINAL TYPE SA



SECTION 05-00124-00-BR PROJECT NO. BROS-0121(045) MARION COUNTY JOB NO. C-98-324-07

STA. 50+00 - CONSTRUCT SINGLE SPAN PRECAST
PRESTRESSED CONCRETE DECK BEAM BRIDGE
(61.66' BK. TO BK. ABUTMENTS) WITH
SPILL-THRU PILE BENT ABUTMENTS
20' SKEW, 28' ROADWAY
EXISTING STRUCTURE NO. 061-3035
PROPOSED STRUCTURE NO. 061-3303

LIST OF UTILITIES	
NAME	ADDRESS
AT&T	210 N. LOCUST - CENTRALIA, IL. 62801
ATMOS ENERGY	224 S. 6th ST. - VANDALIA, IL. 62471
CHARTER COMMUNICATIONS	5111 LAKE TER NE - MT. VERNON, IL. 62864
NORTH WEST MARION CO. WATER	5329 KINMUNDY ROAD - SALEM, IL. 62881
TRI-COUNTY ELECTRIC COOP.	3906 W. BROADWAY - MT. VERNON, IL. 62864
US SONET	123 E. MAIN ST. - SALEM, IL. 62881



LOCATION MAP
APPROXIMATE SCALE - 1" = 0.57 MILE
NET LENGTH OF IMPROVEMENTS - 61.66 FEET = 0.012 MILE
GROSS LENGTH OF IMPROVEMENTS - 181.66 FEET = 0.034 MILE

APPROVED 9-17, 2007
James E. Quinn
COUNTY ENGINEER

PASSED 10-22, 2007
[Signature]
DISTRICT EIGHT ENGINEER OF
LOCAL ROADS & STREETS

Releasing For
Bid Based on
Limited Review 10/22, 2007
Michael R. Quandt
DEPUTY DIRECTOR OF HIGHWAYS,
REGION FIVE ENGINEER

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



MICHAEL R. QUANDT
SIGN: *Michael R. Quandt* 9/12/07
EXP. DATE: 11/30/07



48 HOURS PRIOR TO EXCAVATION
CALL J.U.L.I.E.: (811) or 1-800-892-0123

CLASS ROAD: RURAL MINOR COLLECTOR
A.D.T. = 800
50 M.P.H.

STS CONSULTANTS
2524 South Broadway
Salem, Illinois 62881
PH (618) 548-3500
FAX (618) 548-5246
IL Design Firm Registration
No. 151-001518

DATE: SEPTEMBER 12, 2007
STS JOB NO. 30514

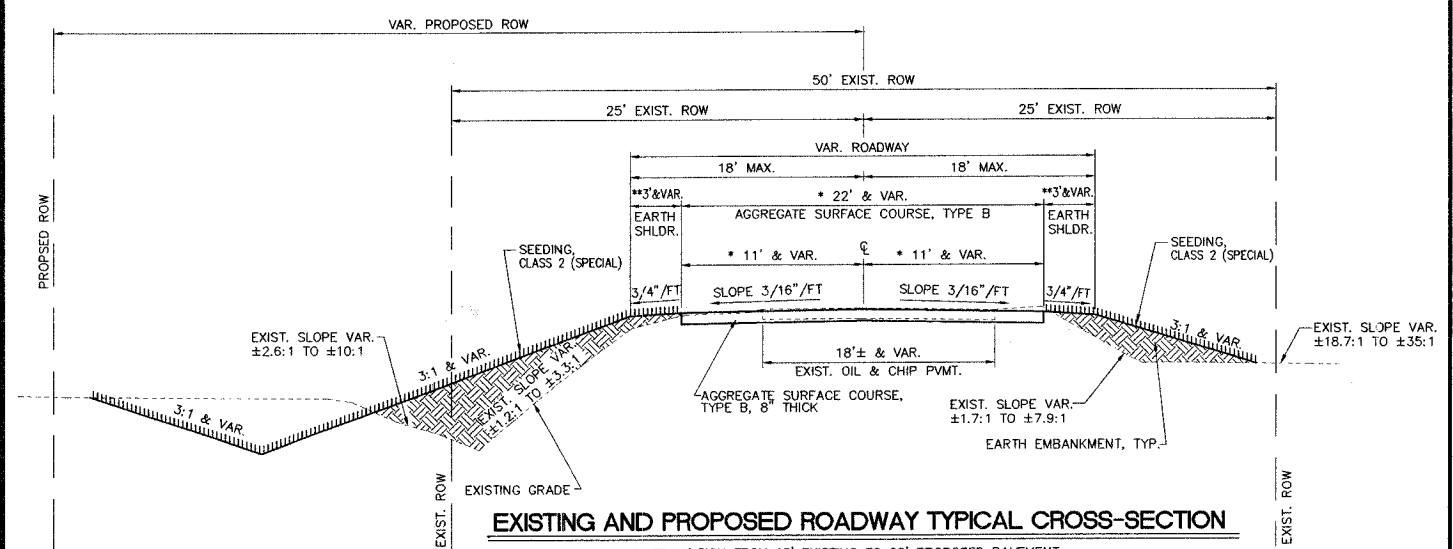
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 20	05-00124-00-BR	MARION	12	2
FEDERAL AID PROJECT		ILLINOIS	PROJECT	
CONTRACT NO. 97321				

EXTRA BARS FOR TEST SAMPLES

BAR	NO.	SIZE	LENGTH	SHAPE
s	1	#4	9'-5"	□
u	1	#6	11'-1"	▭
p	1	#7	30'-8"	—

THESE BARS SHALL BE IDENTICAL TO AND DELIVERED WITH THE BARS OF THE SAME MARK LISTED ON THE BRIDGE SHEETS. ONE BAR OF EACH OF THESE MARKS WILL BE SELECTED BY THE ENGINEER TO BE USED AS A TEST SAMPLE. THIS CHART ASSUMES THAT ALL BARS OF THE SAME SIZE ON THE JOB WILL HAVE THE SAME HEAT NUMBERS. IF BARS OF THE SAME SIZE ON THE JOB HAVE DIFFERENT HEAT NUMBERS, THEN THE CONTRACTOR SHALL SUPPLY ADDITIONAL BARS FROM OTHER HEAT NUMBERS FOR SAMPLING BY THE ENGINEER AT NO ADDITIONAL COST.

THE COST TO FURNISH THESE EXTRA BARS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE PER POUND FOR REINFORCEMENT BARS AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.



- * TRANSITION FROM 18' EXISTING TO 22' PROPOSED PAVEMENT STA. 49+09.17 TO STA. 49+59.17
- * TRANSITION FROM 22' PROPOSED TO 18' EXISTING PAVEMENT STA. 50+40.83 TO STA. 50+90.83
- * 22' PROPOSED PAVEMENT: STA. 49+59.17 TO STA. 49+69.17 AND FROM STA. 50+30.83 TO STA. 50+40.83
- ** 3' EARTH SHOULDER ON DEPARTURE CORNERS. VARIABLE WIDTH WIDTH EARTH SHOULDER ON APPROACH CORNERS (WIDENING FOR TRAFFIC BARRIER TERMINALS PER IDOT STANDARDS LISTED ON COVER SHEET).

GENERAL NOTES

1. THIS SECTION SHALL BE CONSTRUCTED ACCORDING TO THE PLANS, THE SPECIAL PROVISIONS AND THE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" ADOPTED JANUARY 1, 2007.
2. THE SHRINKAGE FACTOR FOR EMBANKMENT IS 25%.
3. EXCEPT FOR TREE REMOVAL AS SHOWN ON PLANS, ALL CLEARING AND GRUBBING IS TO BE INCLUDED IN THE UNIT PRICE BID FOR EARTH EXCAVATION.
4. BITUMINOUS SURFACE TREATMENT (A-2) WILL BE COMPLETED BY THE OWNER.

SUMMARY OF QUANTITIES

CODE NO.	ITEM	QUANTITY	UNIT
20100110	TREE REMOVAL (6 TO 15 UNITS DIAMETER)	46	UNIT
20100210	TREE REMOVAL (OVER 15 UNITS DIAMETER)	40	UNIT
20100500	TREE REMOVAL, ACRES	0.01	ACRE
20200100	EARTH EXCAVATION	132	CU. YD.
20300100	CHANNEL EXCAVATION	308	CU. YD.
20400800	FURNISHED EXCAVATION	85	CU. YD.
25001000	SEEDING, CLASS 2 (SPECIAL)	0.19	ACRE
28000300	TEMPORARY DITCH CHECKS	2	EACH
28100807	STONE DUMPED RIPRAP, CLASS A4	165	TON
40200800	AGGREGATE SURFACE COURSE, TYPE B	120	TON
50100100	REMOVAL OF EXISTING STRUCTURES	1	EACH
50300225	CONCRETE STRUCTURES	22.2	CU. YD.
50300280	CONCRETE ENCASMENT	2.6	CU. YD.
50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	1680	SQ. FT.
50800105	REINFORCEMENT BARS	2680	POUND
50900205	STEEL RAILING, TYPE S1	120	FOOT
51201400	FURNISHING STEEL PILES HP 10x42	432	FOOT
51202305	DRIVING PILES	432	FOOT
51203400	TEST PILE STEEL HP 10x42	1	EACH
51204650	PILE SHOES	10	EACH
51500100	NAME PLATES	1	EACH
* 63100075	TRAFFIC BARRIER TERMINAL, TYPE 5A	2	EACH
* 63100167	TRAFFIC BARRIER TERMINAL TYPE 1, SPECIAL (TANGENT)	2	EACH
67100100	MOBILIZATION	1	L. SUM
* 78201000	TERMINAL MARKER - DIRECT APPLIED	4	EACH

STS CONSULTANTS
 2524 South Broadway
 Salem, Illinois 62881
 Ph(618)548-3500
 Fax(618)548-5246
 IL Design Firm Reg. No. 184-001518

**COUNTY HIGHWAY 20 (TONTI ROAD)
 SECTION 05-00124-00-BR
 MARION COUNTY, ILLINOIS**

**TYPICAL CROSS SECTION,
 GENERAL NOTES AND
 SUMMARY OF QUANTITIES**

SURVEY	JAS	CHECKED	DATE
DESIGN	DJC	APPROVED	09/12/07
DRAWN	BLT	REVISOR	REVISION
		JOB NO.	30514

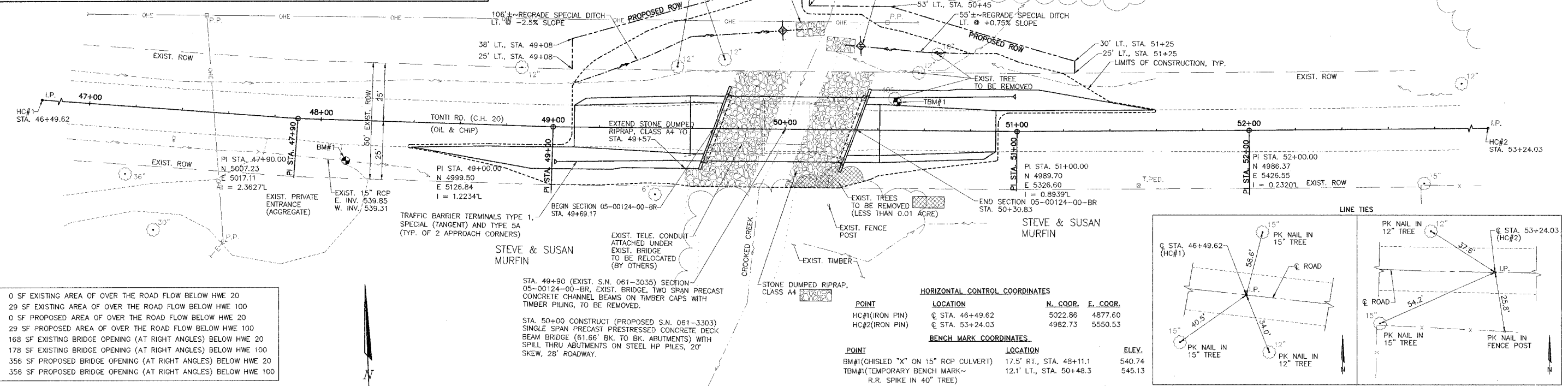
LEGEND

- P.P. ⚡ EXISTING POWER POLE
- EXISTING OVERHEAD ELECTRIC LINE
- x— EXISTING UNDERGROUND ELECTRIC LINE
- Ⓜ EXISTING MAILBOX
- ⚡ EXISTING SIGN
- T— EXISTING TELEPHONE LINE
- T.PED. □ EXISTING TELEPHONE PEDESTAL
- 12" ○ EXISTING TREE
- x— EXISTING TREE LINE
- x— EXISTING FENCE
- I.P. ● EXISTING IRON PIN
- ⊕ EXISTING BENCH MARK
- x— EXISTING SURFACE DRAINAGE
- x— EXISTING STREAM

CONSTRUCT SEEDING, CLASS 2 (SPECIAL)
STA. 48+39.36 TO STA. 51+58.52 = 0.19 ACRE

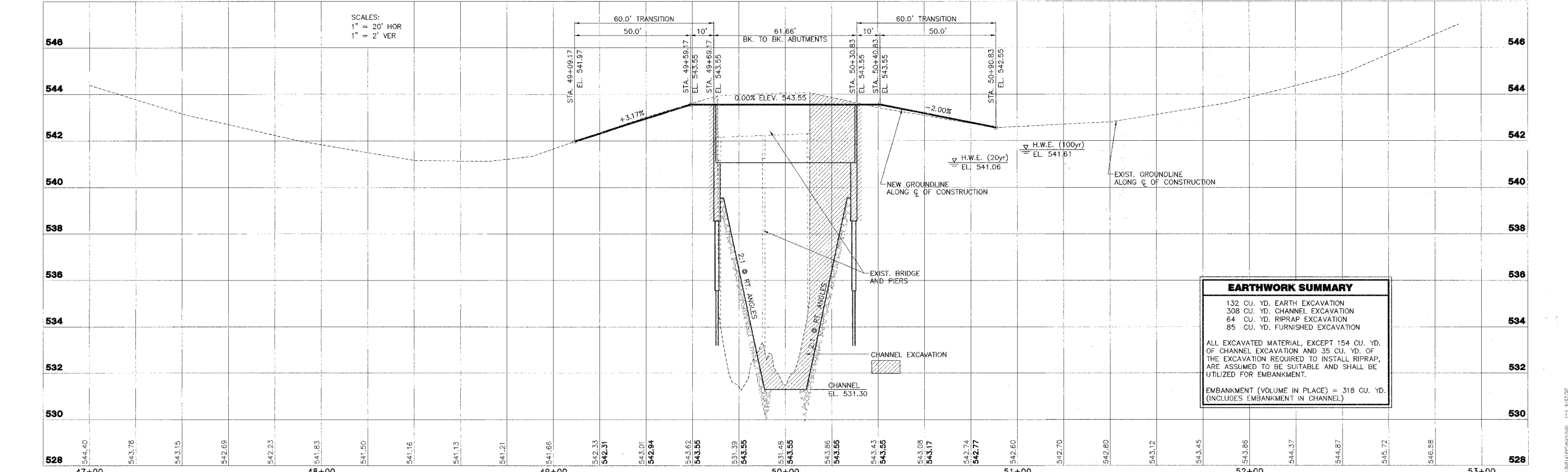
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 20	05-00124-00-BR	MARION	12	3
FEDERAL AID PROJECT		ILLINOIS	PROJECT	
CONTRACT NO. 97321				

NOTE:
TRANSITION FROM TYPICAL BRIDGE SECTION (12' LEFT AND 12' RIGHT OF @ CONSTRUCTION) TO EXISTING CONDITION AT 30' LEFT AND 25' RIGHT OF @ CONSTRUCTION



- 0 SF EXISTING AREA OF OVER THE ROAD FLOW BELOW HWE 20
- 29 SF EXISTING AREA OF OVER THE ROAD FLOW BELOW HWE 100
- 0 SF PROPOSED AREA OF OVER THE ROAD FLOW BELOW HWE 20
- 29 SF PROPOSED AREA OF OVER THE ROAD FLOW BELOW HWE 100
- 168 SF EXISTING BRIDGE OPENING (AT RIGHT ANGLES) BELOW HWE 20
- 178 SF EXISTING BRIDGE OPENING (AT RIGHT ANGLES) BELOW HWE 100
- 356 SF PROPOSED BRIDGE OPENING (AT RIGHT ANGLES) BELOW HWE 20
- 356 SF PROPOSED BRIDGE OPENING (AT RIGHT ANGLES) BELOW HWE 100

SCALES:
1" = 20' HOR
1" = 2' VER



EARTHWORK SUMMARY

132 CU. YD. EARTH EXCAVATION	534
308 CU. YD. CHANNEL EXCAVATION	532
64 CU. YD. RIPRAP EXCAVATION	532
85 CU. YD. FURNISHED EXCAVATION	532

ALL EXCAVATED MATERIAL, EXCEPT 154 CU. YD. OF CHANNEL EXCAVATION AND 35 CU. YD. OF THE EXCAVATION REQUIRED TO INSTALL RIPRAP, ARE ASSUMED TO BE SUITABLE AND SHALL BE UTILIZED FOR EMBANKMENT.

EMBANKMENT (VOLUME IN PLACE) = 318 CU. YD. (INCLUDES EMBANKMENT IN CHANNEL)

<p>STS CONSULTANTS 2524 South Broadway Salem, Illinois 62881 Ph:(618)549-3500 Fax:(618)548-5246 IL Design Firm Reg. No. 184-001518</p>	<p>COUNTY HIGHWAY 20 (TONTI ROAD) SECTION 05-00124-00-BR MARION COUNTY, ILLINOIS</p>		<p>SURVEY JAS</p>	<p>CHECKED</p>	<p>DATE 09/12/07</p>
	<p>PLAN AND PROFILE STA. 47+00 TO STA. 53+00</p>		<p>DESIGN MRO</p>	<p>APPROVED <i>ARQ</i></p>	<p>REVISED</p>
			<p>DRAWN RLT</p>		<p>JOB NO. 32514</p>

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

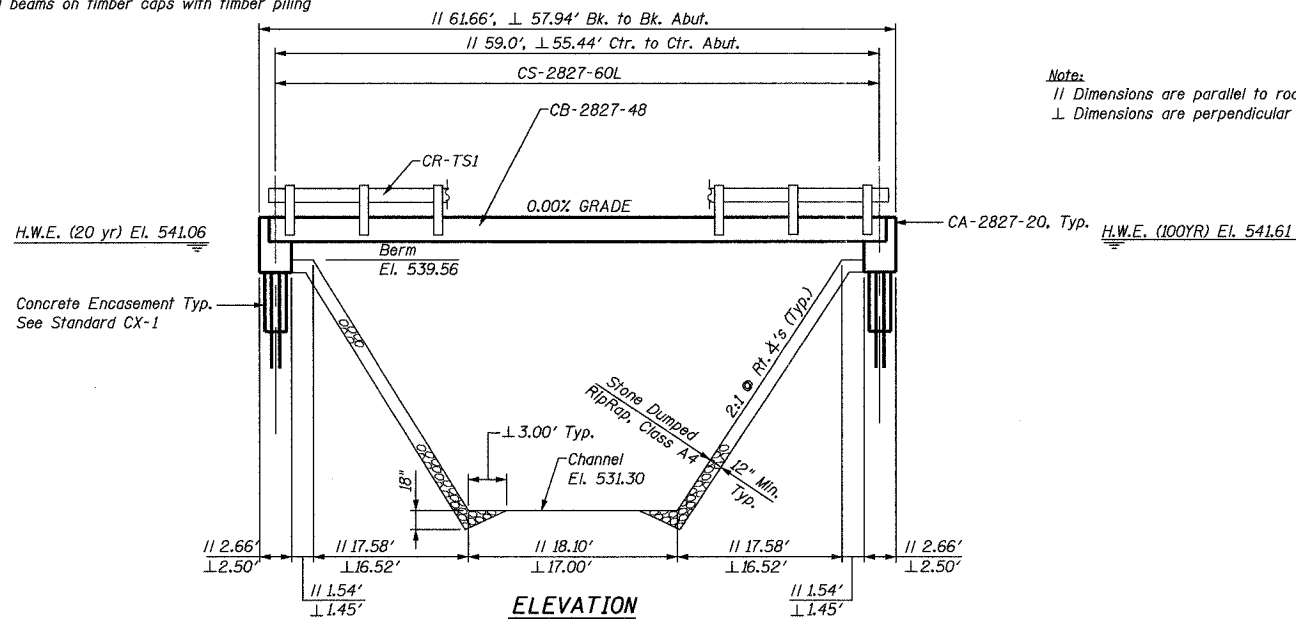
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 20	05-00124-00-BR	MARION	12	4
FEDERAL AID PROJECT		ILLINOIS	CONTRACT NO. 97321	

B.M. - B.M. #1, Chisled "X" on 15" RCP Culvert, 17.5' RT., STA. 48+11.1, EL. 540.74
T.B.M. #1, Temporary Bench Mark - R.R. Spike in 40" Tree, 12.1' LT., STA. 50+48.3, EL. 545.13

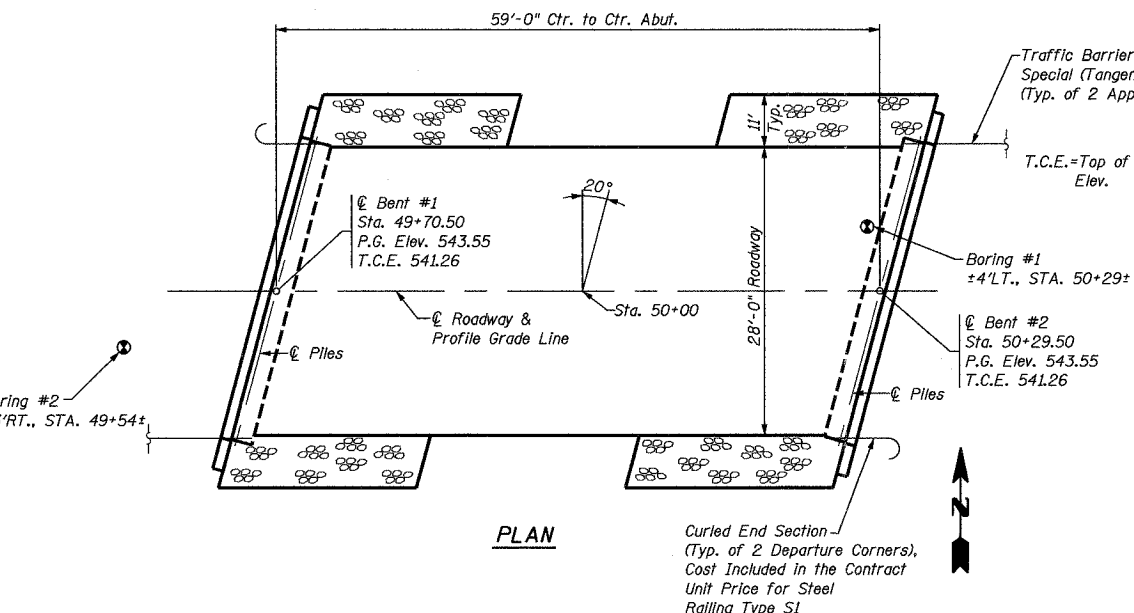
Existing Structure - Two span precast concrete channel beams on timber caps with timber piling

Salvage - None

Existing Known Utilities - Overhead electric, Telephone



Notes:
|| Dimensions are parallel to roadway
⊥ Dimensions are perpendicular to channel



Curled End Section (Typ. of 2 Departure Corners), Cost Included in the Contract Unit Price for Steel Railing Type S1

The standard detail sheets for this structure were assembled by me or persons under my direct supervision.



Date of License Expiration: 11/30/07

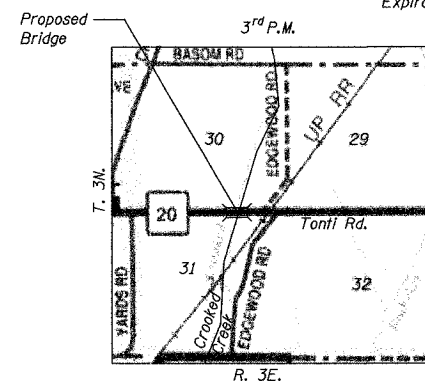
Date: 9/10/07
Signature: Michael R. Quardt

I certify these Standard Bridge Plans for foundation treatment only.



Date of License Expiration: 11/30/08

Date: 9/12/07
Signature: William D. Suckring



LOCATION SKETCH

DESIGN SPECIFICATIONS

2002 AASHTO Standard Specifications - 17th ed.

LOADING HS 20-44

Allow 25# / Sq. Ft. for Future Wearing Surface.

PILE DATA (2-ABUTS.)

Pile Type and Size:	Steel Piles, HP10x42
Nominal Required Bearing:	222 klps
Allowable Resistance Available:	74 klps
Estimated Pile Length:	48 Feet
Number of Production Piles:	9 (Provide Pile Shoes)
Number of Test Piles:	1 (located in Bent #2) (Provide Pile Shoes)

WATERWAY INFORMATION

Drainage Area = 9.25 Sq. Mi.		Low Grade Elev. 541.12 @ Sta. 48+72				
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.	Nat. H.W.E. Ft.	Head - Ft.	Headwater Elev. - Ft.
			Exist. Prop.	Exist. Prop.	Exist. Prop.	Exist. Prop.
Design	20	1955	168 356	541.06 N/A	0.24 0.56	N/A 541.30
Base	100	2892	178 356	541.61 N/A	0.56 N/A	542.17
Overtopping						
Max. Calc.	500					

INDEX OF SHEETS

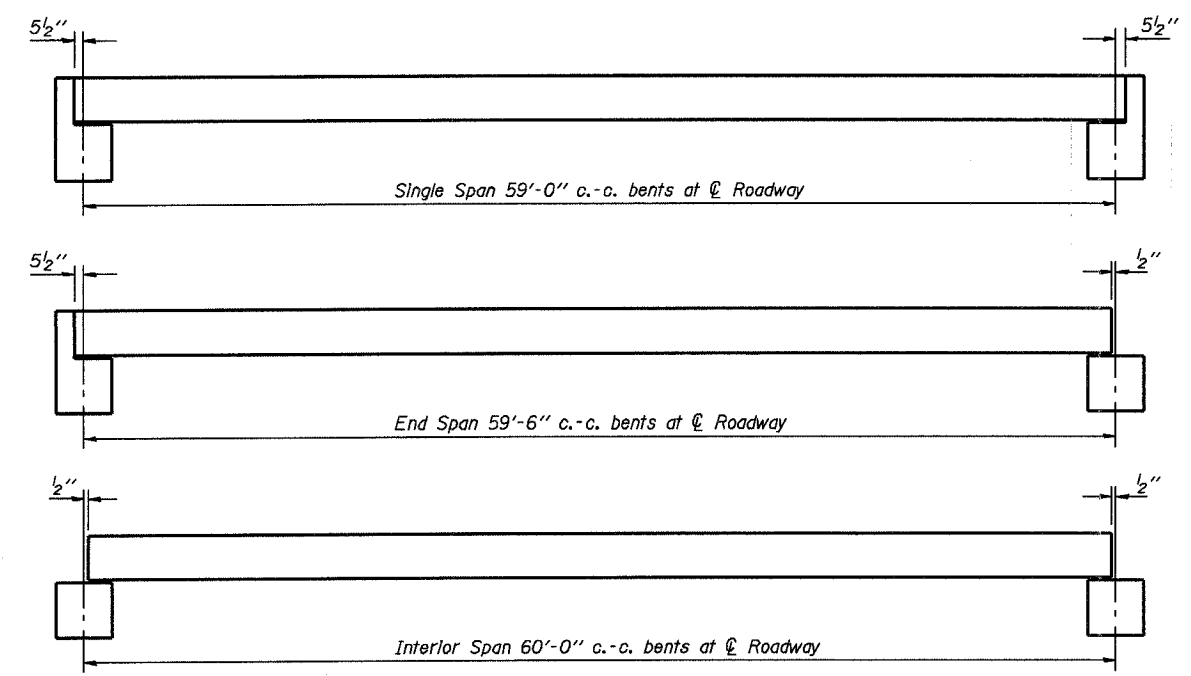
- General Plan & Elevation
- Standard CS-2827-60L
- Standard CB-2827-48
- Standard CA-2827-20
- Standard CR-TS1
- Standard CN
- Standard CX-1

GENERAL PLAN & ELEVATION
COUNTY HIGHWAY 20 (TONTI ROAD)
OVER CROOKED CREEK
SECTION 05-00124-00-BR
MARION COUNTY
STATION 50+00

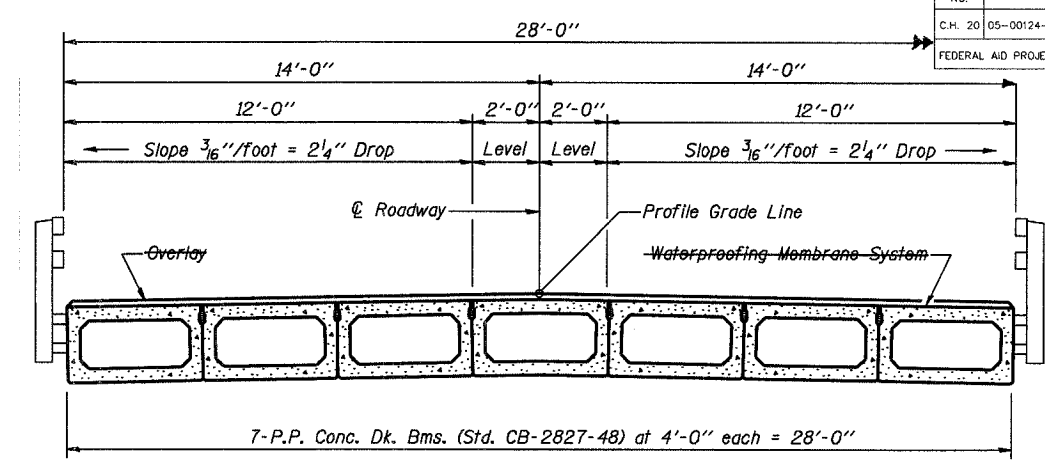
Date: SEPTEMBER 12, 2007

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 20	05-00124-00-BR	MARION	12	5
FEDERAL AID PROJECT		ILLINOIS	PROJECT	

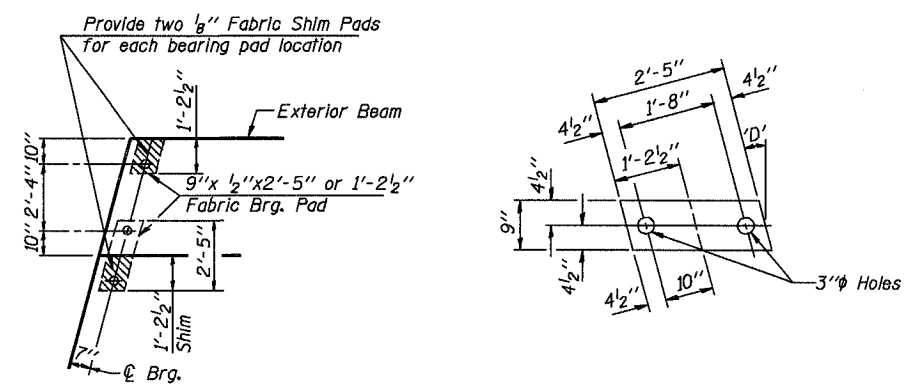
CONTRACT NO. 97321



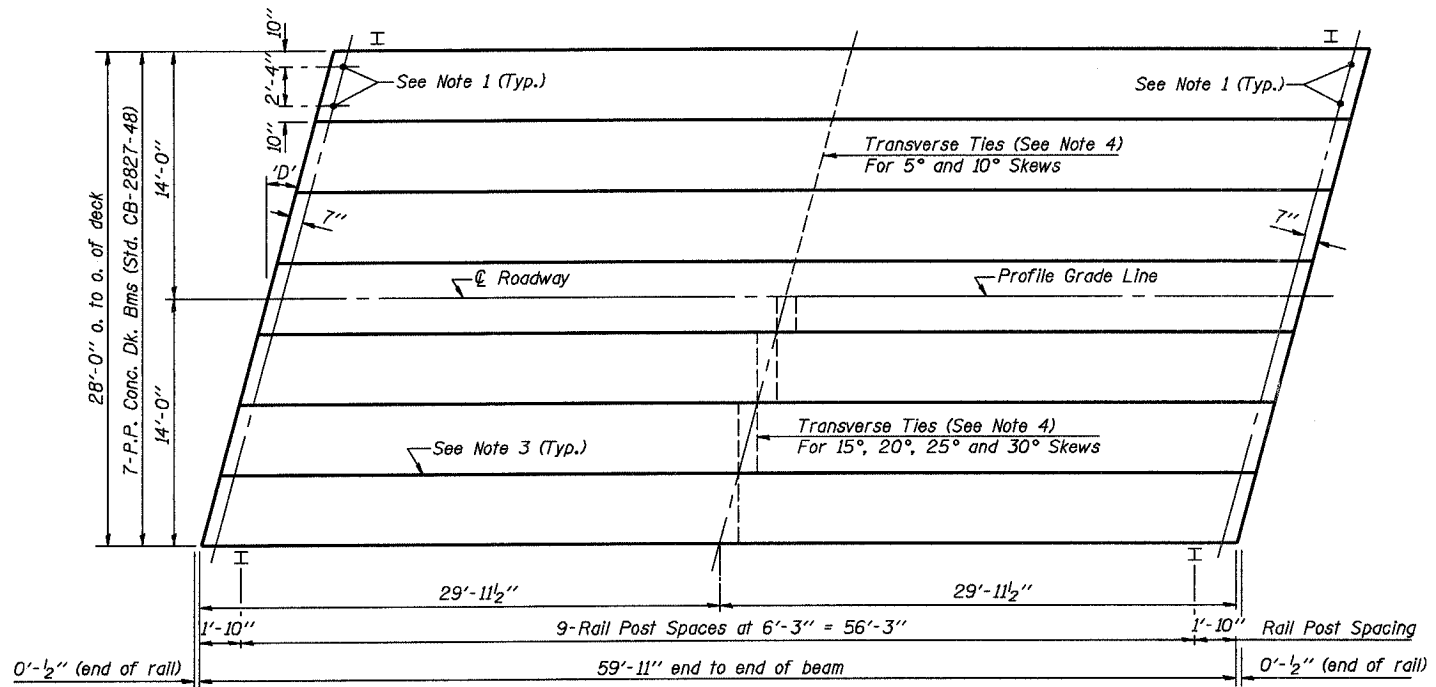
TYPICAL ELEVATIONS



CROSS SECTION

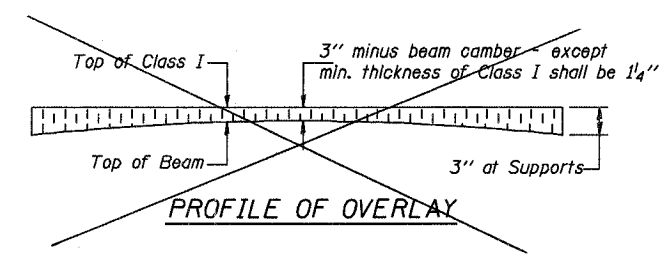


1/2" FABRIC BRG. PAD DETAILS



PLAN

('D' = Designated Skew Angle)

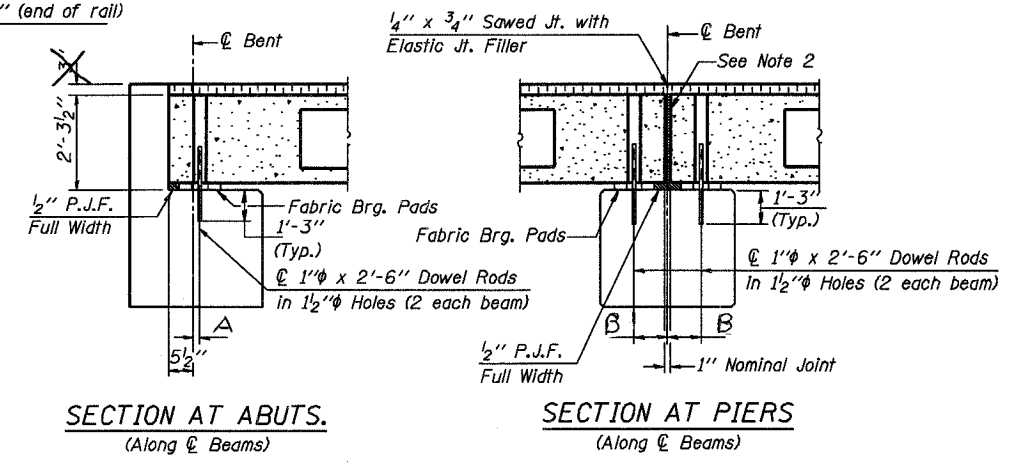


PROFILE OF OVERLAY

DIMENSIONS 'A' AND 'B'

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

- 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 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.



SECTION AT ABUTS.
(Along centerline Beams)

SECTION AT PIERS
(Along centerline Beams)

QUANTITIES FOR ONE SPAN

P.P. Conc. Dk. Bm. 27" Dp.	1680 Sq. Ft.
Steel Railing	120 Ft.
Waterproofing Membrane System	196.7 Sq. Yds.
Portland 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	LEFT
STANDARD CS-2827-60L			

Illinois Department of Transportation

PASSED APRIL 4, 2005

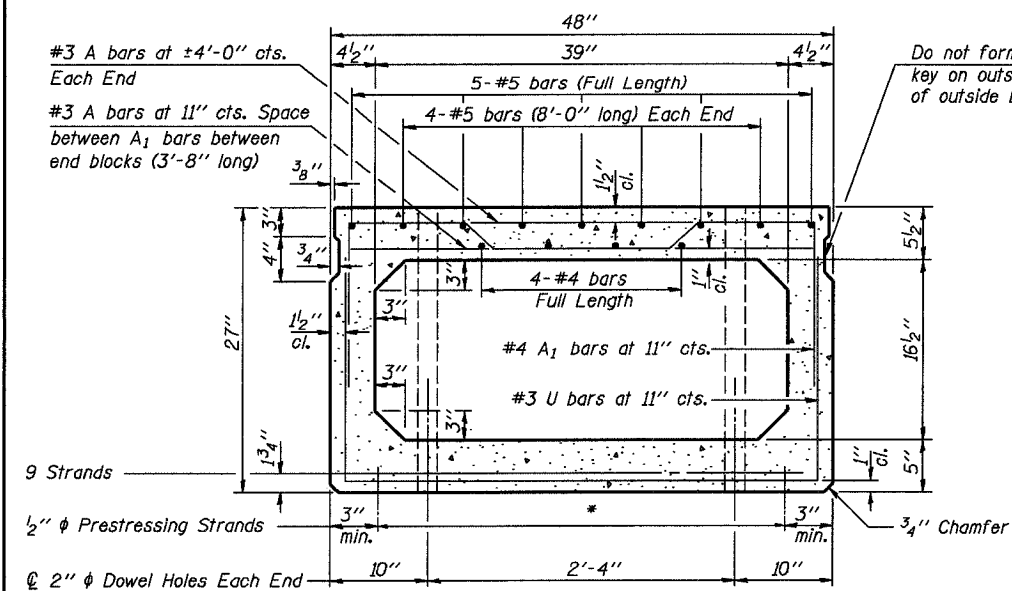
Thomas S. Romagosa
Engineer of Bridge Design

APPROVED APRIL 4, 2005

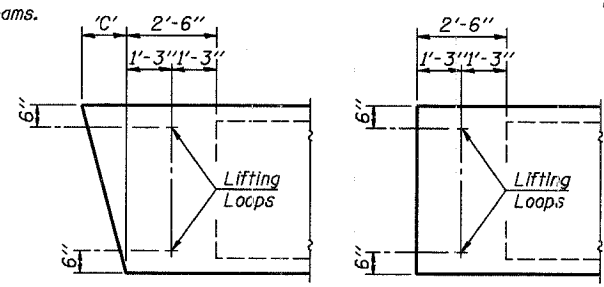
Walsh E. Walker
Engineer of Bridges and Structures

DATE: 1-1-05/MSJ

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 20	05-00124-00-BR	MARION	12	6
FEDERAL AID PROJECT		ILLINOIS	PROJECT	
CONTRACT NO. 97321				



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" 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°)

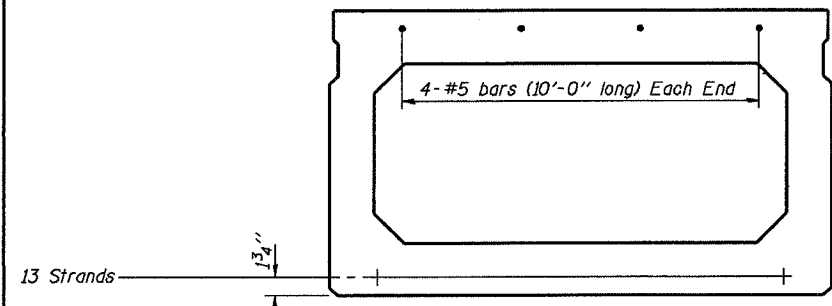
DIMENSION 'C'

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

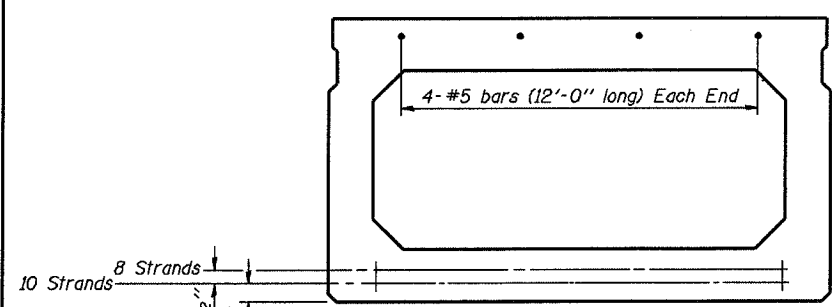
*** TRANSVERSE STRAND PLACEMENT GUIDELINES**

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

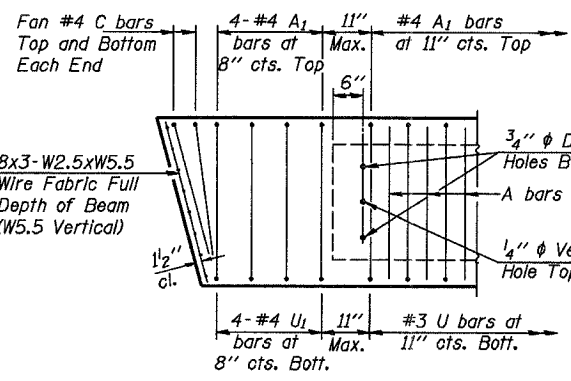
Vertical placement of strands shall not be adjusted to satisfy the above guidelines.



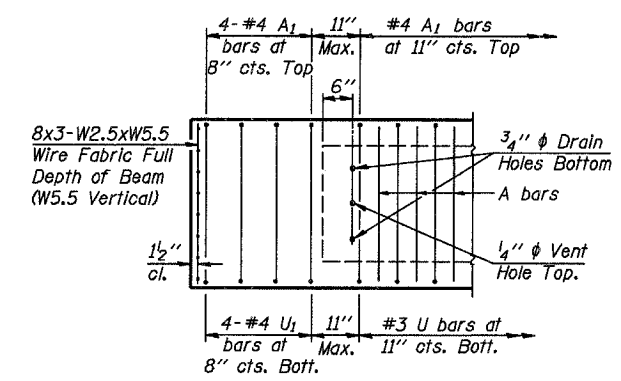
CROSS SECTION
(50' SPAN)



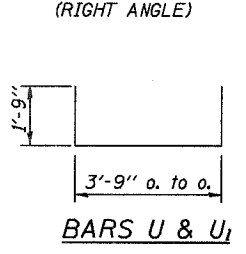
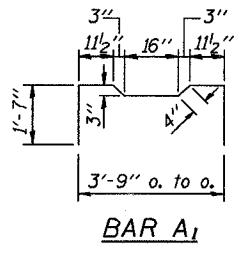
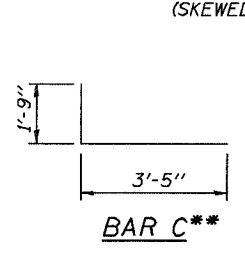
CROSS SECTION
(60' SPAN)



END REINFORCEMENT
(SKEWED)



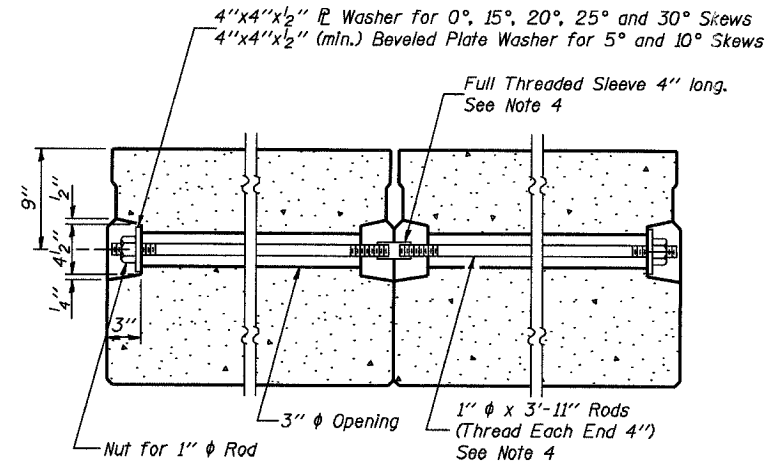
END REINFORCEMENT
(RIGHT ANGLE)



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_{st} = 201,960 p.s.i. (1/2" φ 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

- Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270.
- The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 square inches.
- Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-322, Grade 60.
- On 0°, 5° and 10° skews, alternate approved transverse tie rods of increased segmental length are acceptable.
- Roll Post anchor devices shall be cast into outside beam as elsewhere specified.
- When a Waterproofing Membrane System is specified, the top surface of the beams shall be screeded with a straightedge and finished with a hand float. The finished surface shall be free of depressions or high spots with sharp corners and the top edge of keys shall be rounded or chamfered a minimum of 1/4".
- Keyway surfaces shall be cleaned to remove form oil or other bond breaking material prior to shipment of the beams. Cleaning shall be done by sandblasting the keyway areas between the top of the beam and the bottom edge of the key.

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 J. Samsa (Signature)

Engineer of Bridge Design

APPROVED APRIL 4, 2005

Ralph E. Anderson (Signature)

Engineer of Bridges and Structures

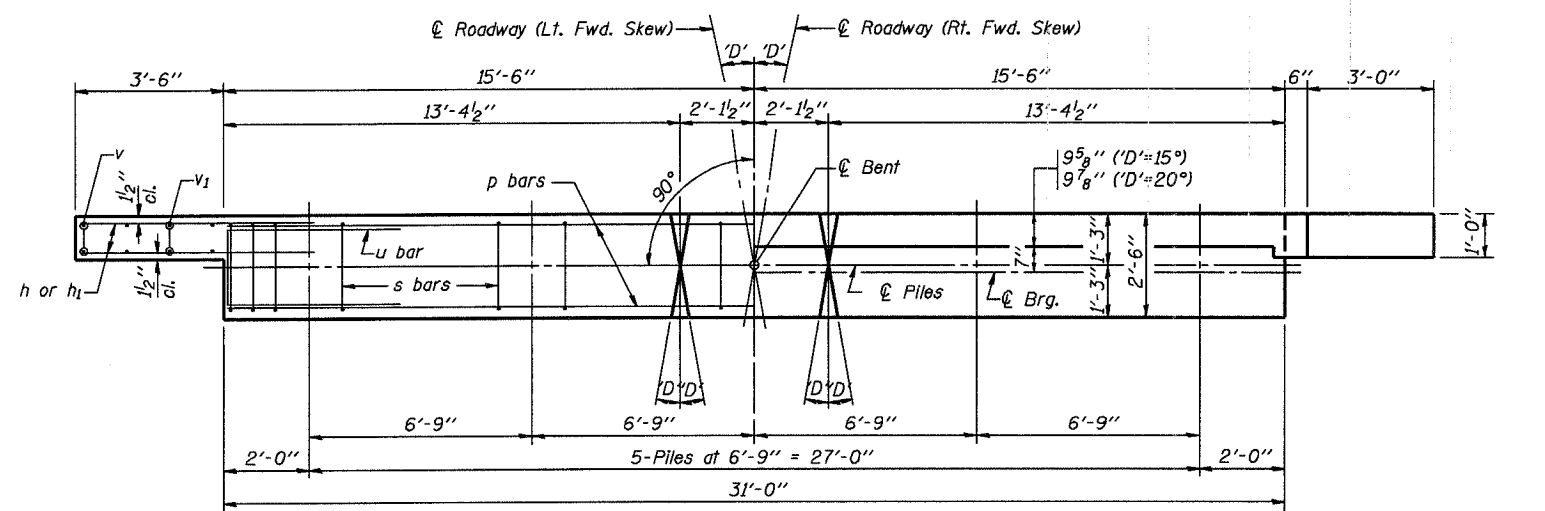
P.P.C. DECK BEAM DETAILS

28' ROADWAY | 27" x 48" BEAMS

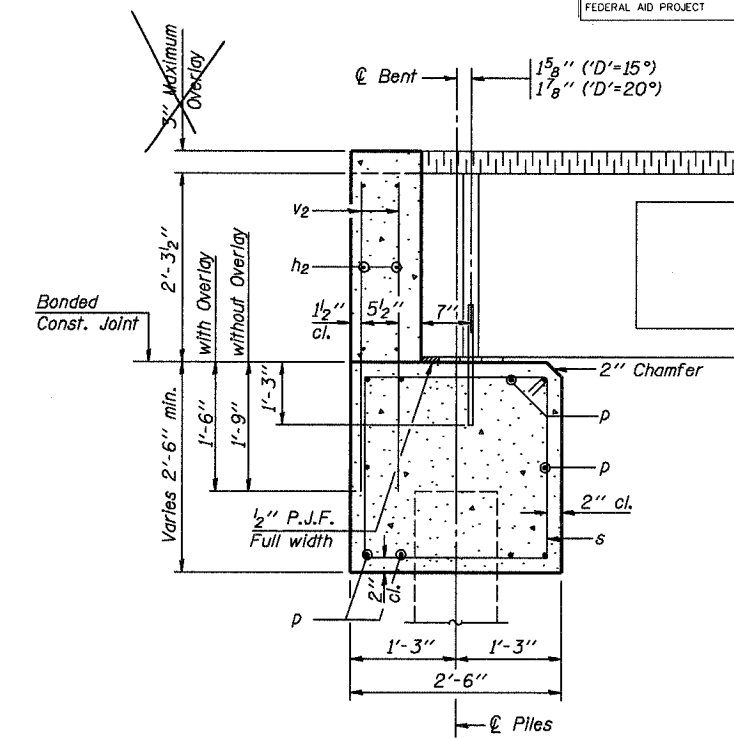
STANDARD CB-2827-48

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 20	05-00124-00-BR	MARION	12	7
FEDERAL AID PROJECT		ILLINOIS	PROJECT	

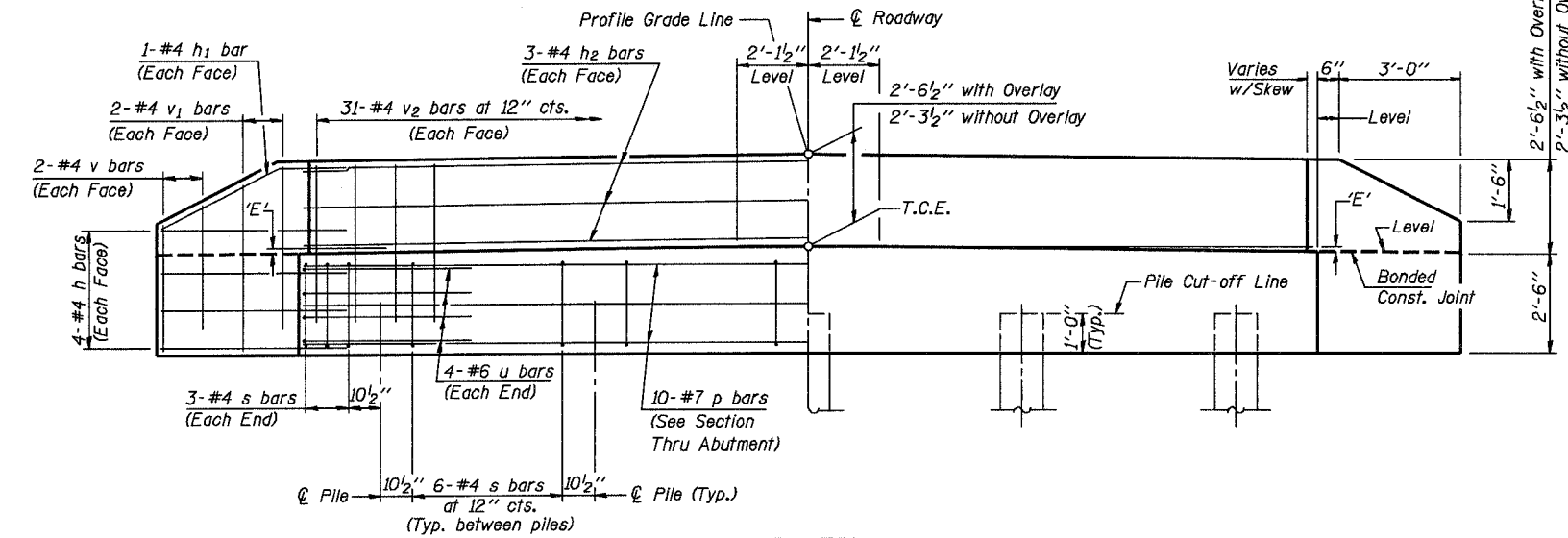
CONTRACT NO. 97321



PLAN
(*'D'* = Designated Skew Angle)



SECTION THRU ABUTMENT
(At Right Angles)



ELEVATION

DIMENSION 'E'

GRADE	<i>'D'</i> = 15°		<i>'D'</i> = 20°	
	UPGRADE END	DOWNGRADE END	UPGRADE END	DOWNGRADE END
0%	2 3/8"	2 3/8"	2 3/8"	2 3/8"
Over 0% to 1%	2 1/4"	2 5/8"	2 1/8"	2 5/8"
Over 1% to 2%	1 3/4"	3"	1 1/2"	3 1/8"
Over 2% to 3%	1 3/8"	3 1/2"	1"	3 3/4"
Over 3% to 4%	1"	3 7/8"	3/8"	4 1/4"

NOTES

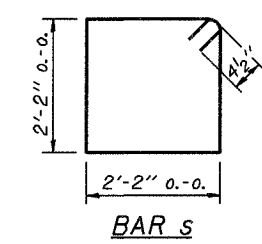
- The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.
- Reinforcement bars shall conform to the requirements of A.A.S.H.T.O. M-31 or M-322, Grade 60.
- Space reinforcement in cap to miss anchor bolts.

MAXIMUM PILE LOADS

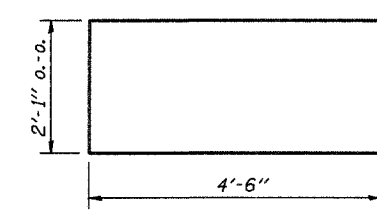
SPAN	TONS
40'	29
60'	33
60'	37

DESIGN STRESSES

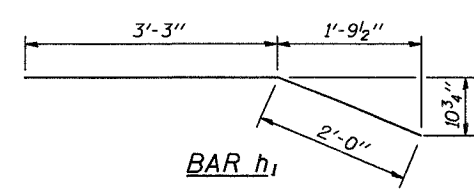
$f'_c = 3,500 \text{ psi}$
 $f_y = 60,000 \text{ psi}$



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	30'-8"	—
p	10	#7	30'-8"	—
s	30	#4	9'-5"	□
u	8	#6	11'-1"	□
v	8	#4	3'-2"	—
v1	8	#4	4'-2"	—
v2	62	#4	3'-11"	—
Concrete Structures			11.1 Cu. Yds.	
Reinforcement Bars			1340 Lb.	

P.P.C. DECK BEAMS		
PILE BENT ABUTMENT		
28' RDWY.	27" BMS.	<i>'D'</i> = 15° OR 20°
STANDARD CA-2827-20		

Illinois Department of Transportation

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

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

1861-1-T 03/05/05

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 20	05-00124-00-BR	MARION	12	8
FEDERAL AID PROJECT		ILLINOIS	PROJECT	

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.

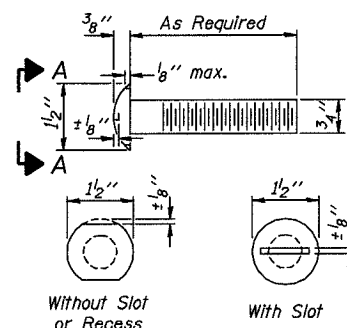
All field drilled holes shall be coated with an approved zinc rich paint before erection.

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.

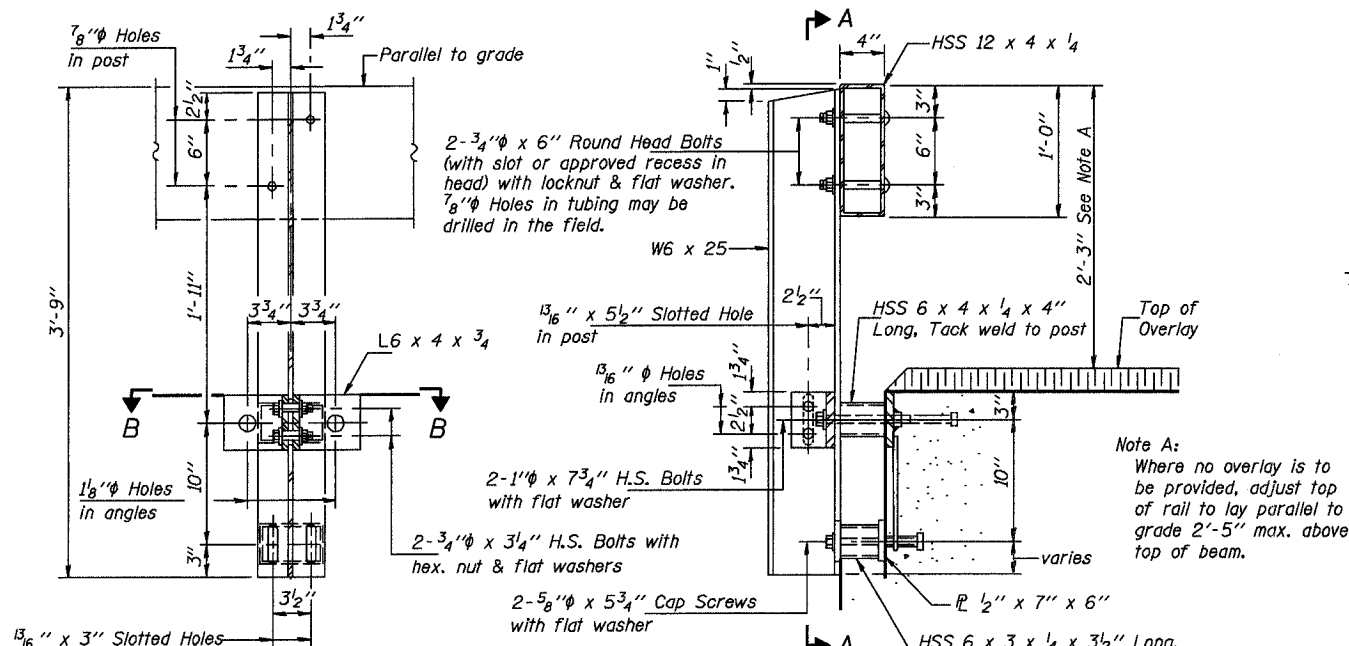
The 3/4" high strength bolts used to connect the 6 x 4 x 3/4 angles to the post shall be tightened according to Article 505.04 (FX2) of the Standard Specifications. The 1" high strength bolts connecting the angles to the concrete shall be tightened to a snug fit and given an additional 1/8 turn. The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

CONTRACT NO. 97321

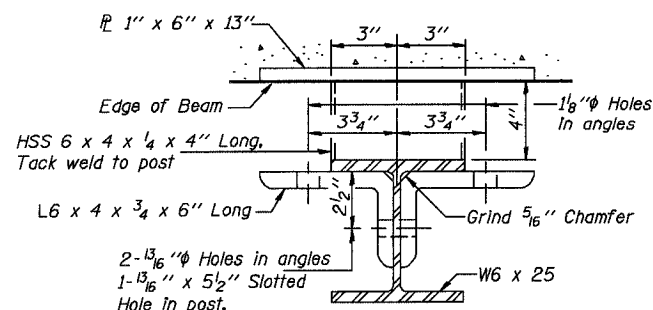


**VIEW A-A
ROUND HEAD BOLT**

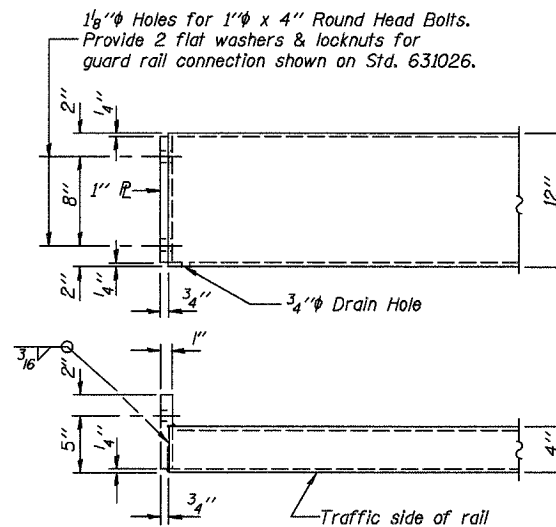


SECTION A-A

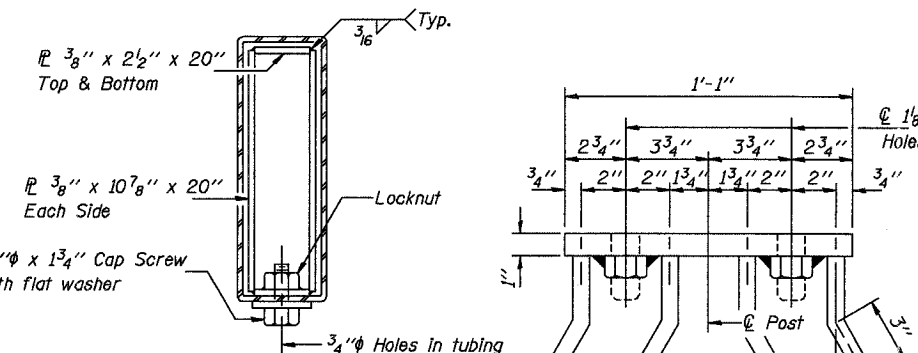
SECTION AT RAIL POST



SECTION B-B

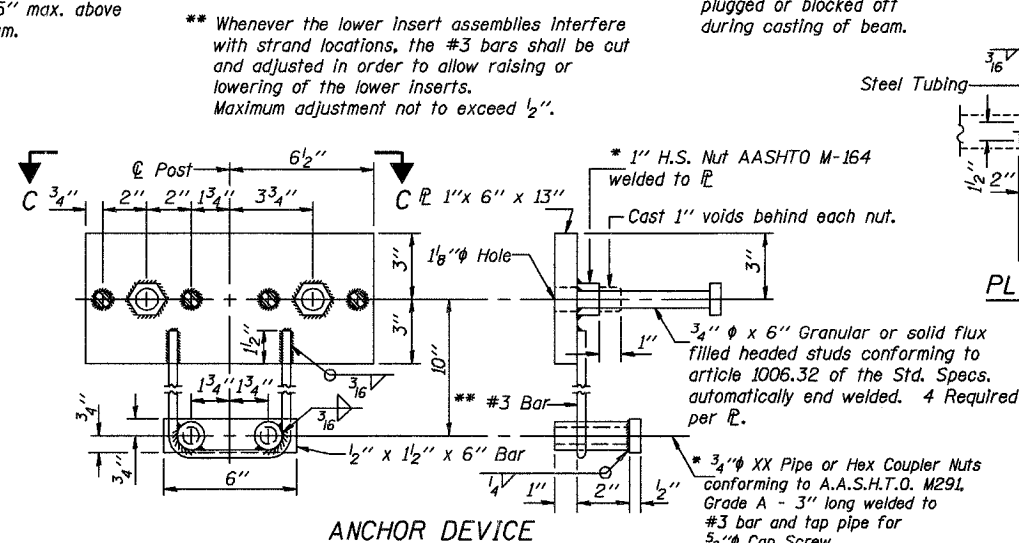


END OF RAIL DETAILS



SECTION AT RAIL SPLICE

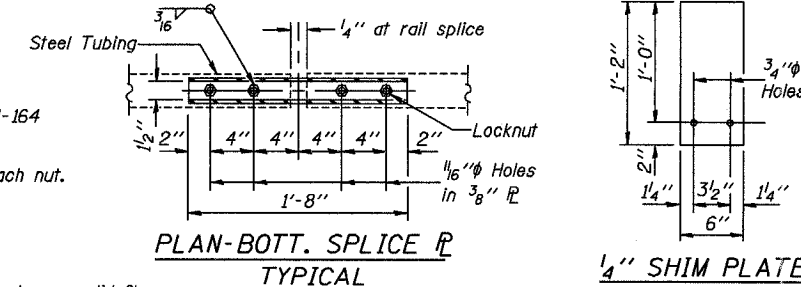
VIEW C-C



ANCHOR DEVICE

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

** Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 1/2".



PLAN-BOTT. SPLICE TYPICAL

1/4" SHIM PLATE

Illinois Department of Transportation

PASSED APRIL 4, 2005

Thomson, N. (Signature)

Engineer of Bridge Design

APPROVED APRIL 4, 2005

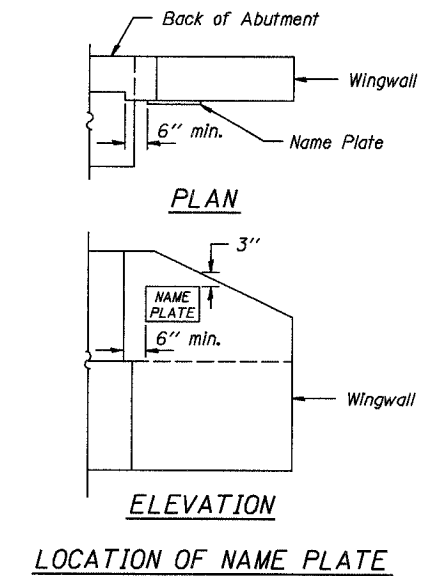
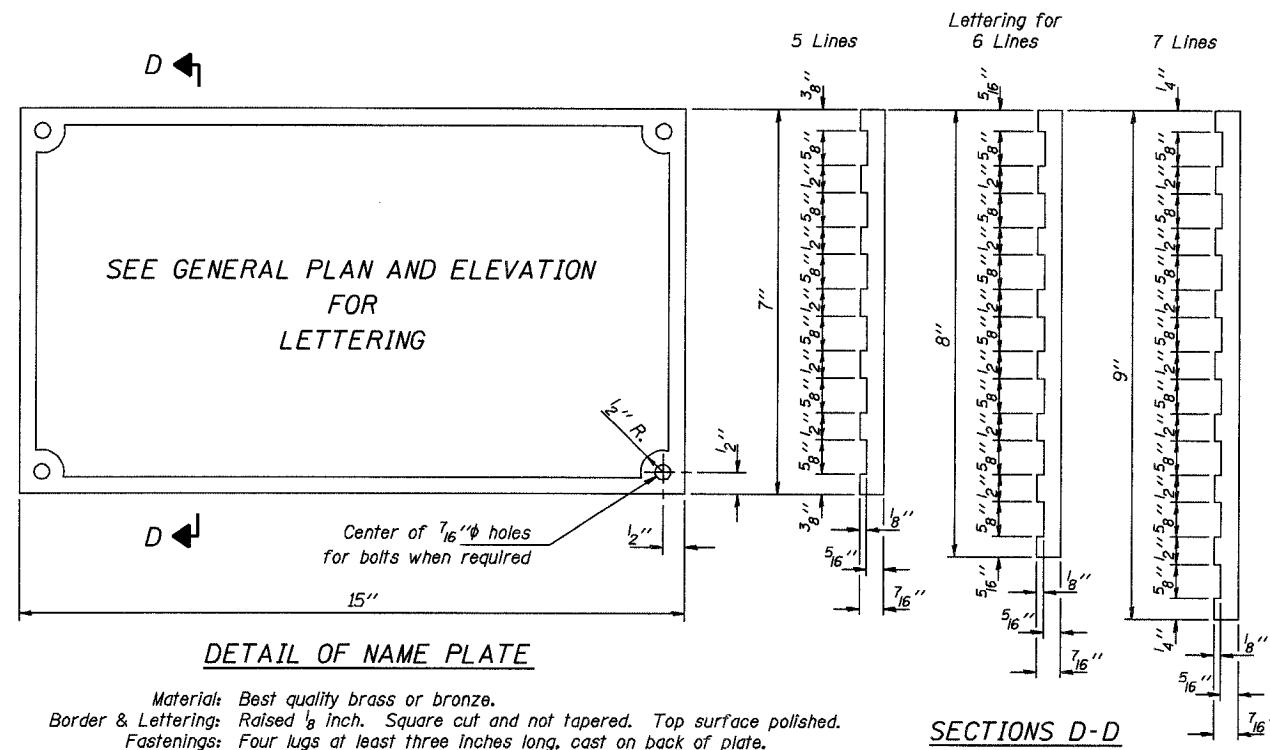
Robert E. (Signature)

Engineer of Bridges and Structures

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

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 20	05-00124-00-BR	MARION	12	9
FEDERAL AID PROJECT		ILLINOIS	PROJECT	

CONTRACT NO. 97321



Illinois Department of Transportation

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

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

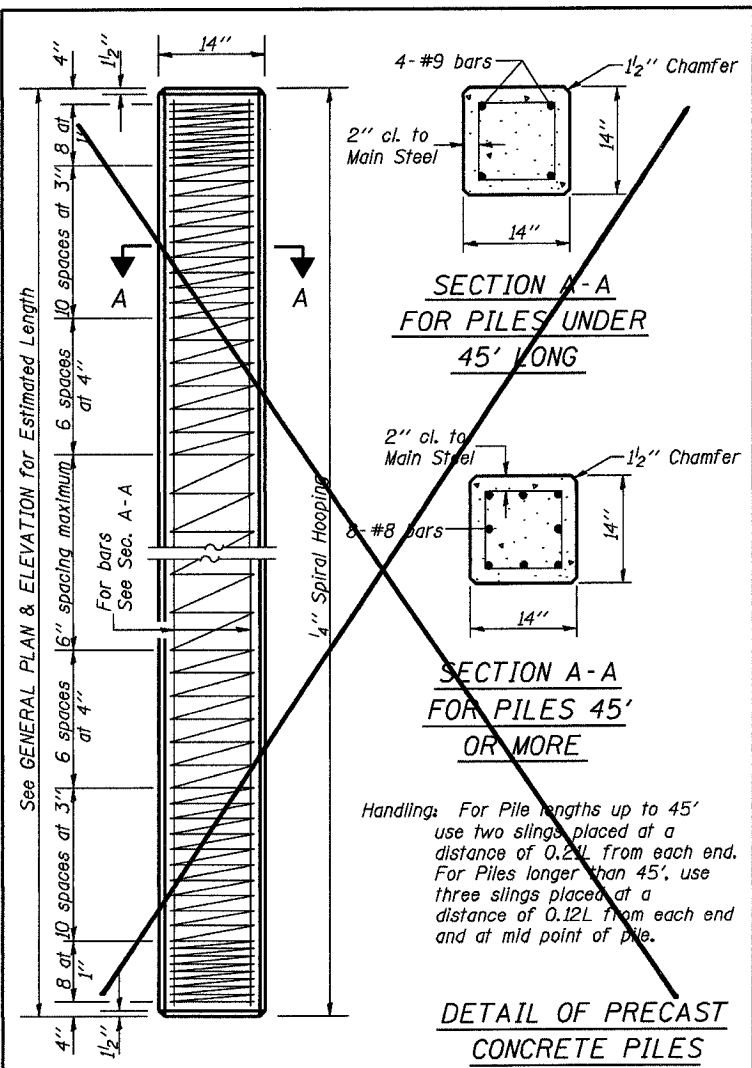
ISSUED 7-1-2005

NAME PLATE
STANDARD CN

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 20	05-00124-00-BR	MARION	12	10
FEDERAL AID PROJECT		ILLINOIS	PROJECT	
				CONTRACT NO. 97321

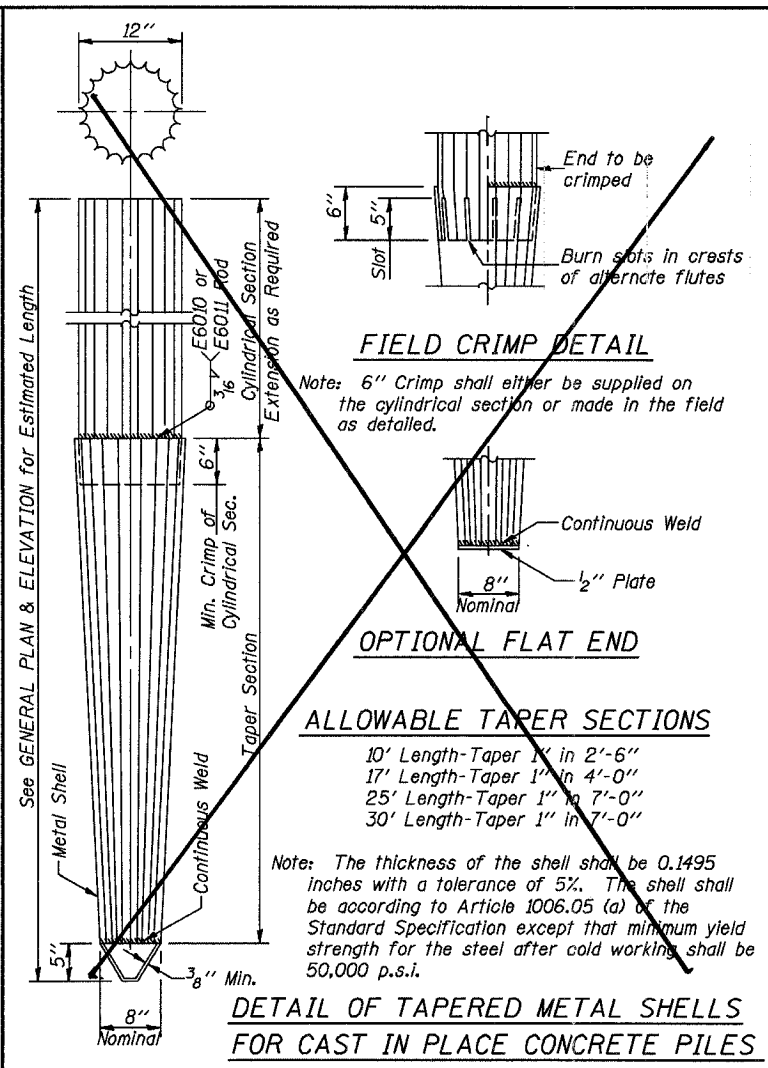
Reinforcement cage shall be omitted when Concrete Encasement is provided.

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

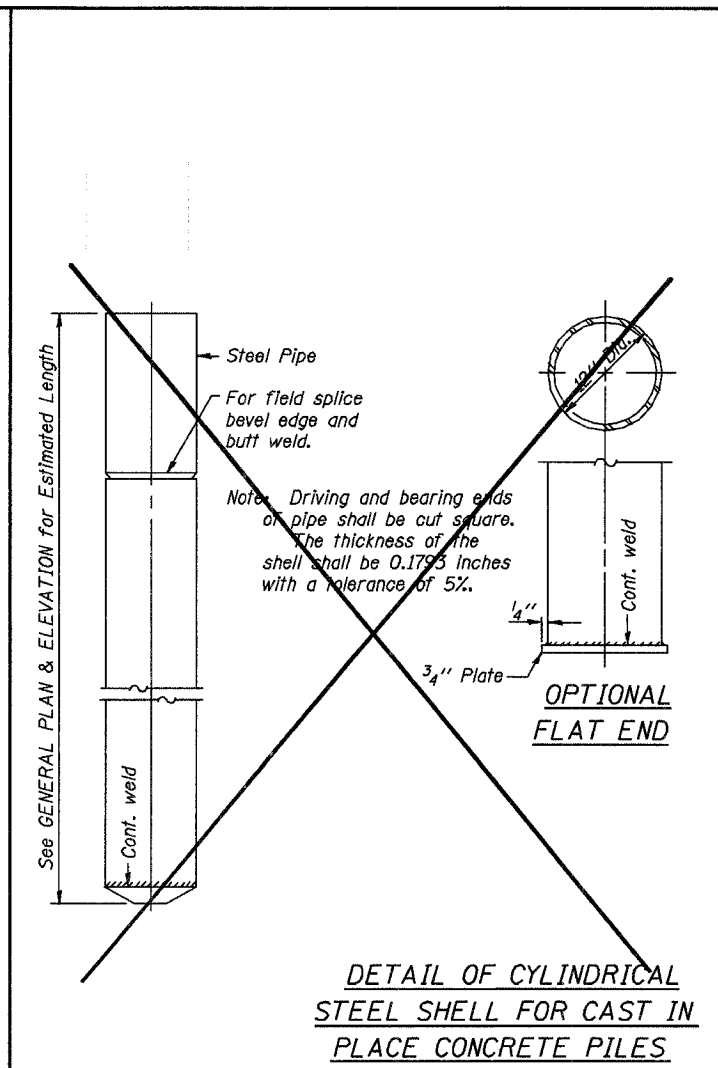


Handling: For Pile lengths up to 45' use two slings placed at a distance of 0.2L from each end. For Piles longer than 45', use three slings placed at a distance of 0.12L from each end and at mid point of pile.

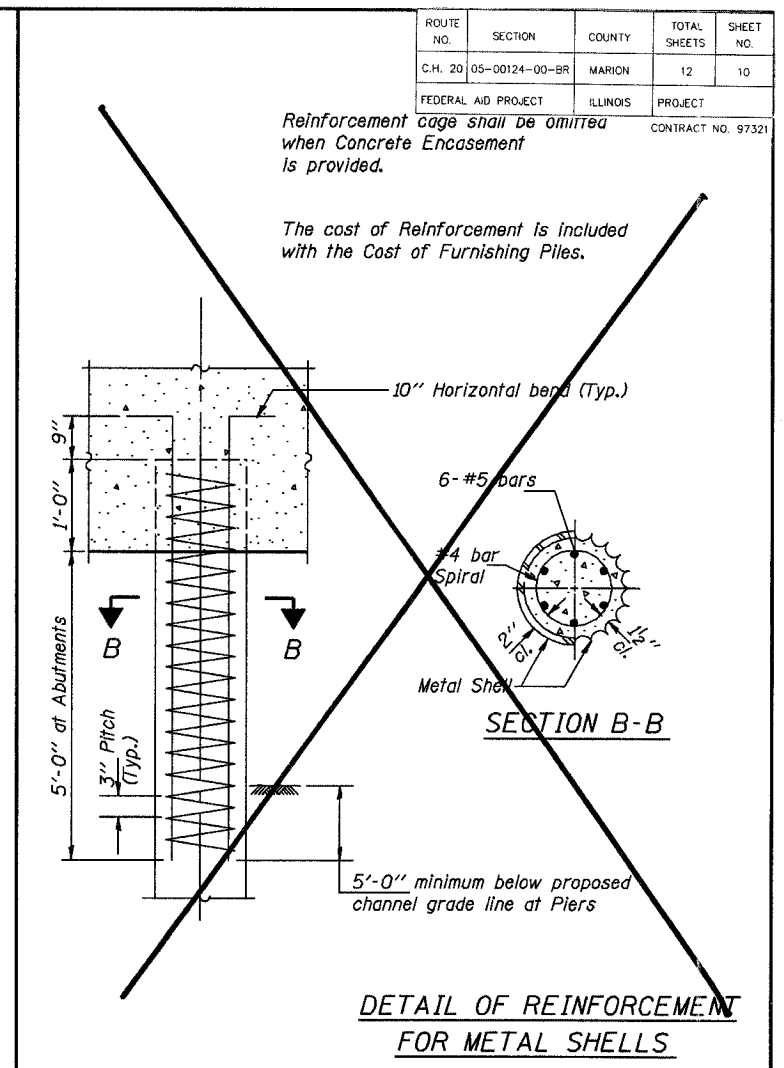
DETAIL OF PRECAST CONCRETE PILES



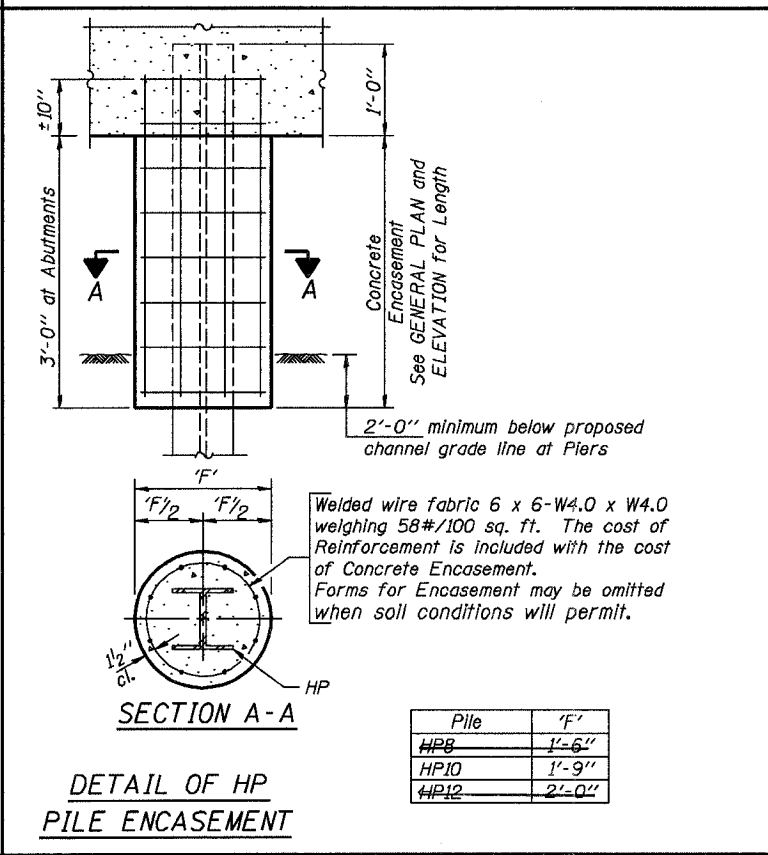
DETAIL OF TAPERED METAL SHELLS FOR CAST IN PLACE CONCRETE PILES



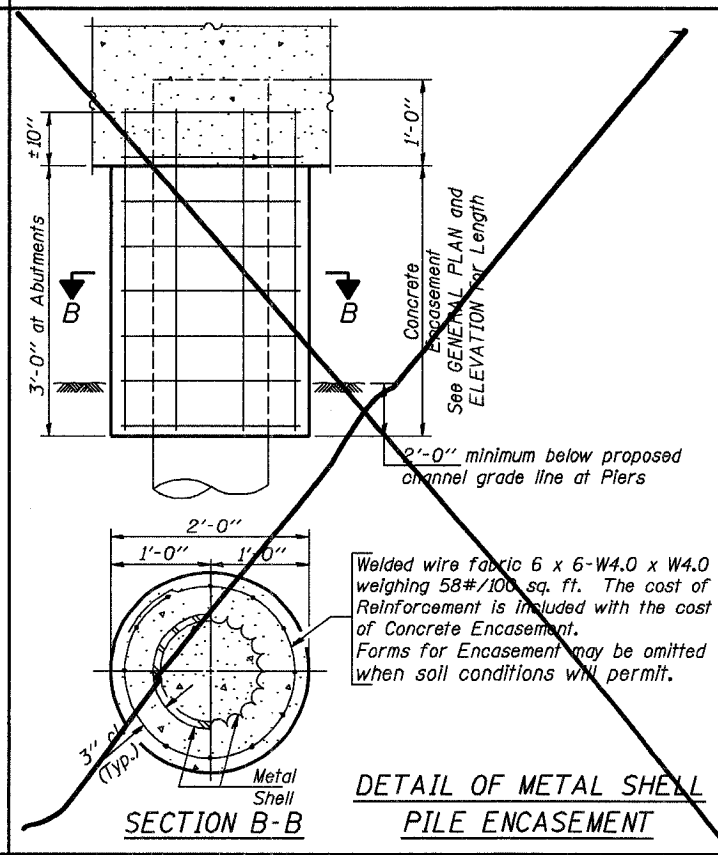
DETAIL OF CYLINDRICAL STEEL SHELL FOR CAST IN PLACE CONCRETE PILES



DETAIL OF REINFORCEMENT FOR METAL SHELLS



DETAIL OF HP PILE ENCASEMENT



DETAIL OF METAL SHELL PILE ENCASEMENT

QUANTITIES/FT. OF ENCASEMENT (STEEL PILES)

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

(METAL SHELL PILES)

Pile Size	Item	Quantity
12" Dia.	Concrete Encasement	0.007 C.Y.

PILE DETAILS

STANDARD CX-1

Illinois Department of Transportation

PASSED FEBRUARY 1, 2000

Thomas J. Demasak
Engineer of Bridge Design

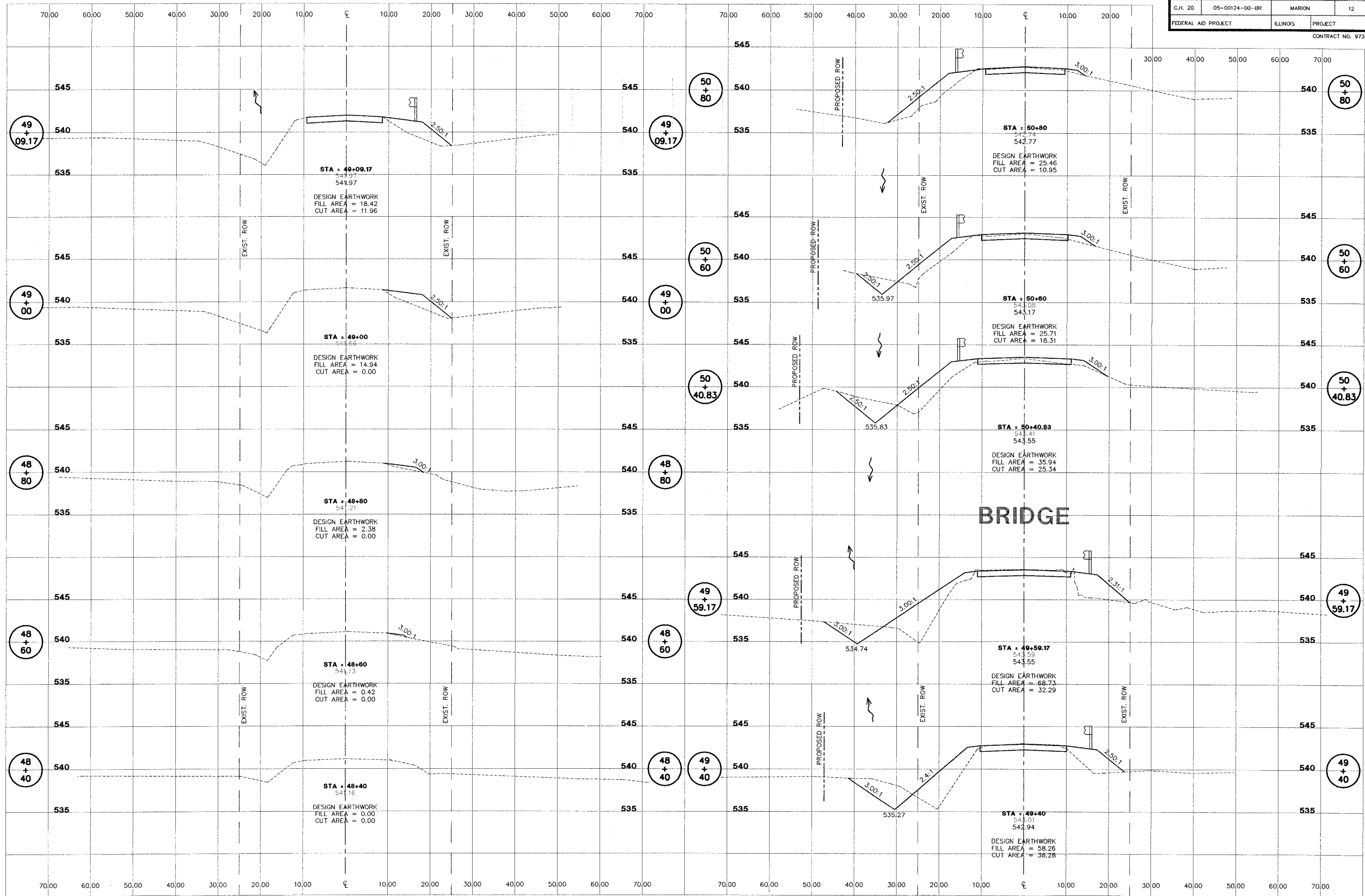
APPROVED FEBRUARY 1, 2000

Ralph E. Anderson
Engineer of Bridges and Structures

1864-1-03155

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 20	05-00124-00-BR	MARION	12	11
FEDERAL AID PROJECT		ILLINOIS	PROJECT	

CONTRACT NO. 97321



STS CONSULTANTS
 2524 South Broadway
 Salem, Illinois 62881
 Ph (618) 548-3500
 Fax (618) 548-5246
 IL Design Firm Reg. No. 184-001518

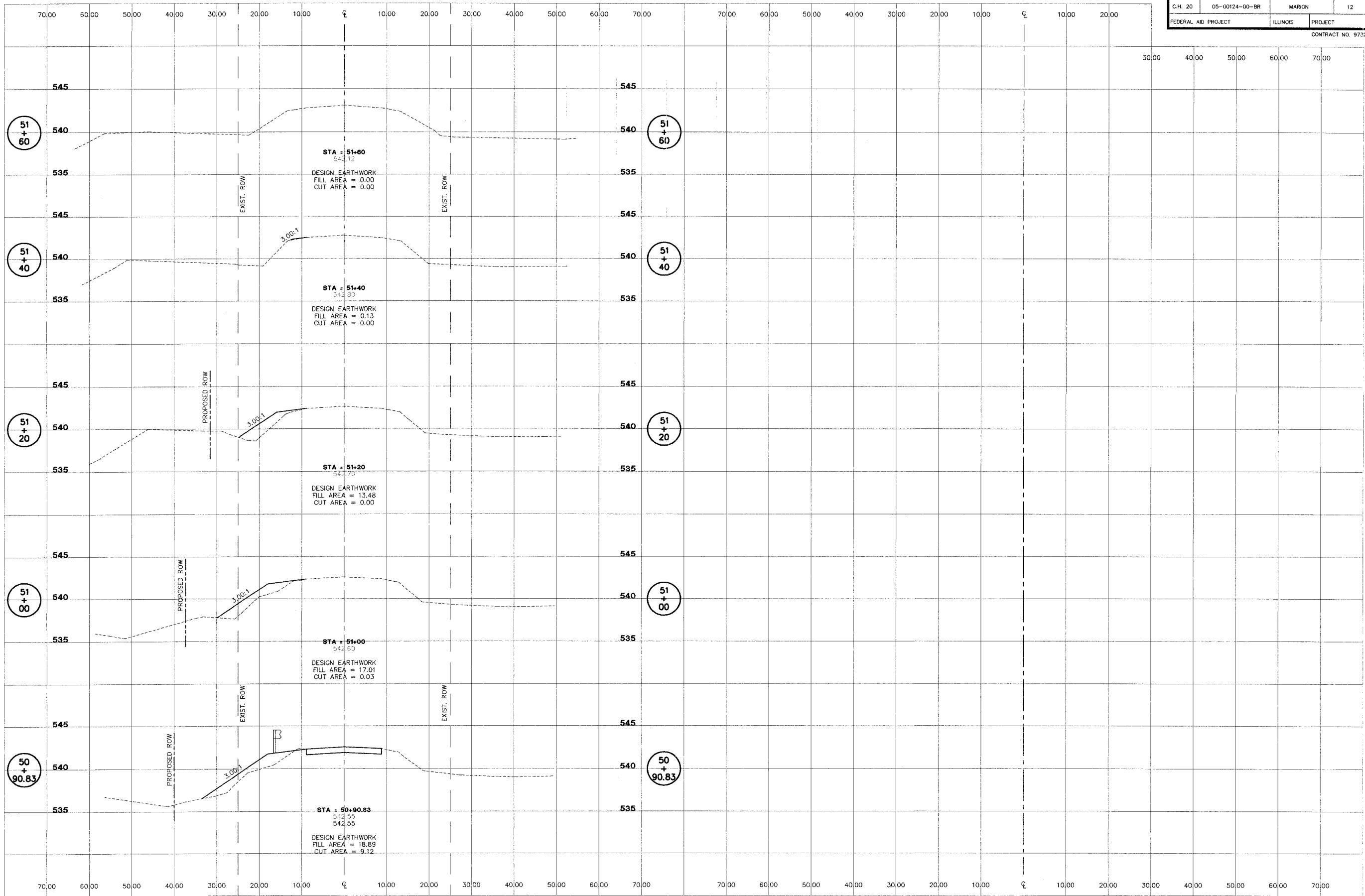
COUNTY HIGHWAY 20 (TONTI ROAD)
SECTION 05-00124-00-BR
MARION COUNTY, ILLINOIS

CROSS SECTIONS
STA. 48+40 TO STA. 50+80

SURVEY	JAS	CHECKED	DATE
DESIGN	MRQ	APPROVED	09/12/07
DRAWN	BIL	REVISOR	
		JOB NO.	30514

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 20	05-00124-00-BR	MARION	12	12
FEDERAL AID PROJECT		ILLINOIS	PROJECT	

CONTRACT NO. 97321



STS CONSULTANTS
 2524 South Broadway
 Salem, Illinois 62881
 PH(618)548-3500
 FAX(618)548-5246
 IL Design Firm Reg. No. 184-001518

COUNTY HIGHWAY 20 (TONTI ROAD)
SECTION 05-00124-00-BR
MARION COUNTY, ILLINOIS

CROSS SECTIONS
STA. 50+90.83 TO STA. 51+60

SURVEY	JAS	CHECKED	DATE
DESIGN	MRQ	APPROVED	09/12/07
DRAWN	BLT	REVISED	
			JOB NO. 30514