

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

CH 10
SECTION 08-00092-00-BR
MACOUPIN COUNTY
PROJECT BROS-0117 (077)
JOB NUMBER C-96-245-09

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 10	08-00092-00-BR	MACOUPIN	23	1
FED. ROAD DIST. NO.		ILLINOIS		

INDEX OF SHEETS

SHEET NO	TITLE
1	COVER SHEET
2	GENERAL NOTES
2	TYPICAL CROSS SECTIONS
2	ENTRANCE DETAILS
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6	SCHEDULE OF QUANTITIES
7	ALIGNMENT & CROSS TIES
8	PLAN & PROFILES
9	GUARDRAIL LAYOUT & SHOULDER WIDENING DETAILS
10-16	BRIDGE PLANS
17-23	CROSS SECTIONS

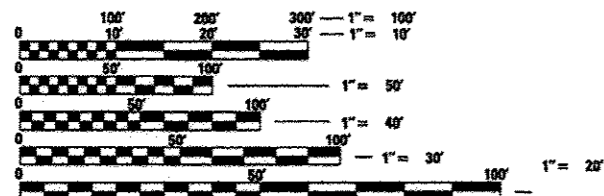
LIST OF ILLINOIS DOT HIGHWAY STANDARDS

280001-07	TEMPORARY EROSION CONTROL SYSTEMS
515001-03	NAME PLATE FOR BRIDGES
630301-06	SHOULDER WIDENING FOR TYPE 1 (SPECIAL) GUARDRAIL TERMINALS
635006-03	REFLECTOR AND TERMINAL MARKER PLACEMENT
635011-02	REFLECTOR MARKER AND MOUNTING DETAILS
701901-02	TRAFFIC CONTROL DEVICES
BLR 21-6	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES
BLR 26-3	STEEL PLATE BEAM GUARDRAIL
BLR 27-1	TRAFFIC BARRIER TERMINAL TYPE 5A

UTILITY CONTACTS:

UTILITY TYPE:	UTILITY TYPE:
WATER	ELECTRIC
CENTRAL MACOUPIN CITY	M.J.M. ELECTRIC COOPERATIVE
RURAL WATER	(217) 854-3137
(618) 498-6418	ATTN: CHARLIE BAKER
ATTN: BOB MANNIS	

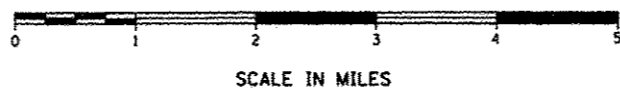
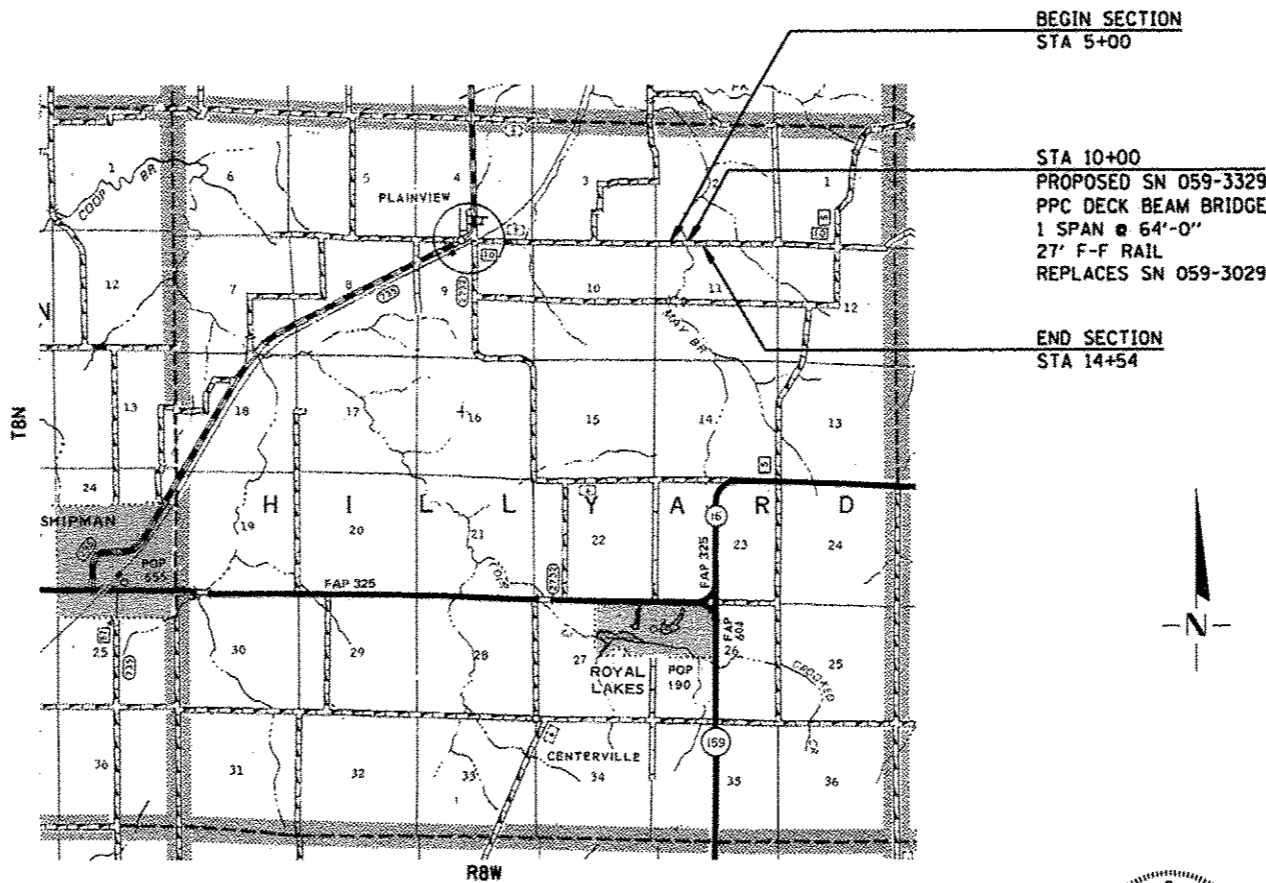
UTILITY TYPE:
TELEPHONE
FRONTIER COMMUNICATIONS
(402) 250-1095
ATTN: BILL DANIEL



FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.
 JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
 1-800-892-0123
 OR 811

CONTRACT NO. **93595**



NET LENGTH OF SECTION 954.00 FEET 0.181 MILES
 DESIGN CLASS: LOCAL ROAD <250 VPD

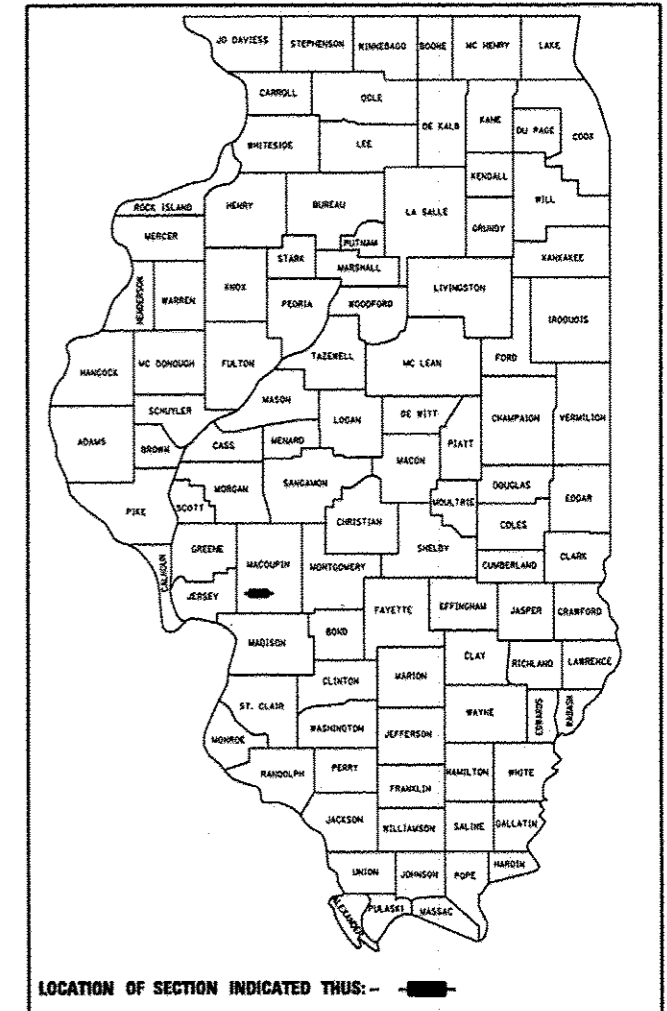
BEGIN SECTION
 STA 5+00

STA 10+00
 PROPOSED SN 059-3329
 PPC DECK BEAM BRIDGE
 1 SPAN @ 64'-0"
 27' F-F RAIL
 REPLACES SN 059-3029

END SECTION
 STA 14+54



Michael O. Cummins
 ILLINOIS PROFESSIONAL NO. 43244
 (Expires 11/30/13)



APPROVED	<u>1-11</u>	20 <u>13</u>
	<i>Thomas A. Reinhart</i>	COUNTY ENGINEER
PASSED	<u>January 15</u>	20 <u>13</u>
	<i>Terence J. Jula</i>	DISTRICT SIX ENGINEER OF LOCAL ROADS AND STREETS
PASSED	<u>January 15</u>	20 <u>13</u>
	<i>Ron Schamber</i>	DISTRICT ENGINEER OF CONSTRUCTION
RELEASED FOR BID BASED ON LIMITED REVIEW	<u>January 15</u>	20 <u>13</u>
	<i>Ben Drieder</i>	DEPUTY DIRECTOR OF HIGHWAYS, REGION FOUR ENGINEER

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

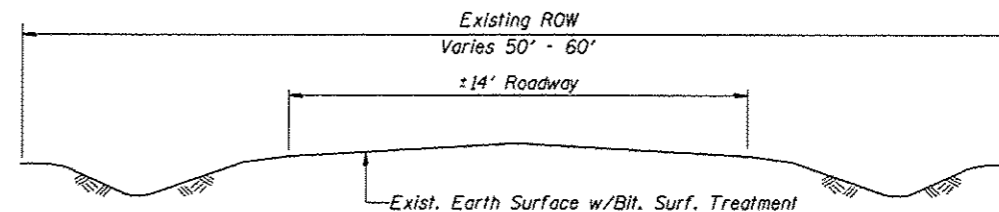
- WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED BEFORE ANY SUCH MONUMENTS ARE REMOVED. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL PROPERTY MARKS AND MONUMENTS UNTIL THE OWNER, AN AUTHORIZED SURVEYOR OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION.
- THE AREA TO BE SEEDED SHALL CONSIST OF ALL DISTURBED EARTH SURFACES WITHIN THE RIGHT OF WAY AS DIRECTED BY THE ENGINEER.

SEEDING CLASS 2 (SPECIAL) = 0.40 ACRE

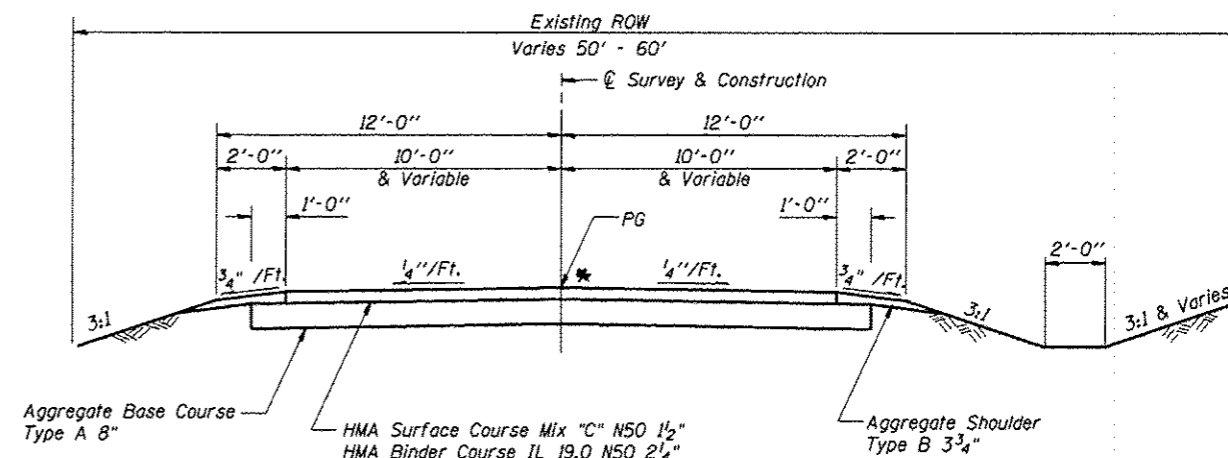
- ALL ELEVATIONS SHOWN ON THE PLANS ARE BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
- THE LOCATIONS OF EXISTING WATER MAINS, GAS MAINS, ELECTRIC POWER LINES, TELEPHONE LINES, AND OTHER UTILITIES AS SHOWN ON THE PLANS ARE BASED ON CAREFUL FIELD INVESTIGATION AND THE BEST INFORMATION AVAILABLE, BUT ARE NOT GUARANTEED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ASCERTAIN THEIR EXACT LOCATION FROM THE UTILITY COMPANIES, MUNICIPALITIES AND FIELD INSPECTION. SEE STANDARD SPECIFICATIONS.
- THE FOLLOWING MIXTURE REQUIREMENTS ARE APPLICABLE FOR THIS PROJECT:

LOCATION	CH 10	CH 10
MIXTURE USE:	BINDER	SURFACE
PG:	PG 64-22	PG 64-22
DESIGN AIR VOIDS:	4.0% @ $N_{des} = 50$	4.0% @ $N_{des} = 50$
MIXTURE COMPOSITION: (GRADATION MIXTURE)	IL 19.0	IL 9.5 OR 12.5
FRICTION AGGREGATE:	N/A	MIX "C"

BRIDGE OMISSION
STA. 9+67.21 TO STA. 10+32.71



TYPICAL EXISTING ROADWAY CROSS SECTION



* PAVEMENT MARKING BY OTHERS

Fill Section-Construct as Shown on Station Cross Sections

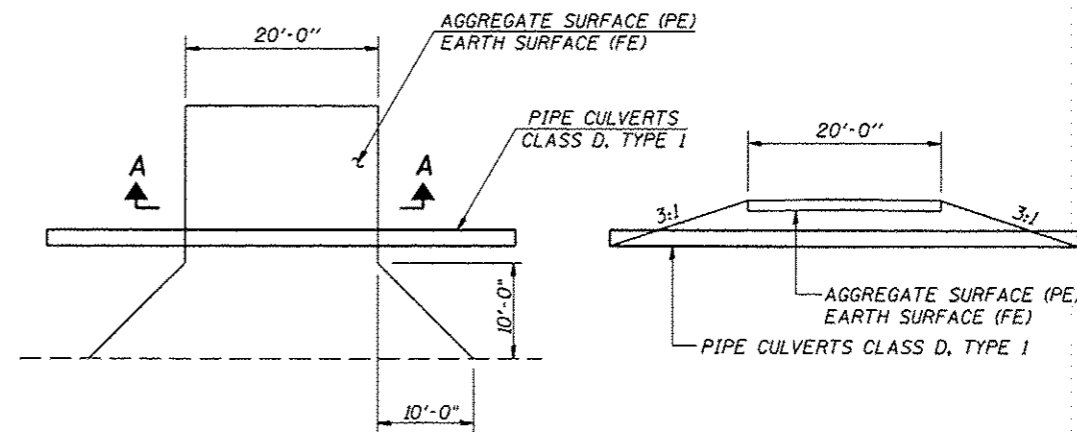
Cut Section-Construct as Shown on Station Cross Sections

TYPICAL PROPOSED ROADWAY CROSS SECTION

STA 5+75 TO STA 9+67.21
STA 10+32.79 TO STA 13+79
TRANSITION FROM EXISTING ROADWAY
TO PROPOSED ROADWAY STA 5+00 TO STA 5+75
TRANSITION FROM PROPOSED ROADWAY
TO EXISTING ROADWAY STA 13+79 TO STA 14+54

APPLICATION RATES USED IN QUANTITY CALCULATIONS

Granular Materials	2.05 Tons/Cu. Yd.
Riprap	1.50 Tons/Cu. Yd.
HMA	112 Lbs/Sq. Yd./1" Thickness
Bituminous Materials	0.30 Gallon/Sq. Yd.



PLAN

SECTION A-A

ENTRANCE DETAILS

93595

SUMMARY OF QUANTITIES				CONSTRUCTION CODE				
CODE NO.	ITEM	UNIT	TOTAL QUANTITY	80% FEDERAL 20% STATE				
				SN 059-3329 0011				
20200100	EARTH EXCAVATION	CU YD	235	235				
20300100	CHANNEL EXCAVATION	CU YD	100	100				
20400800	FURNISHED EXCAVATION	CU YD	2,955	2,955				
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	38	38				
28000305	TEMPORARY DITCH CHECKS	FOOT	136	136				
28000400	PERIMETER EROSION BARRIER	FOOT	483	483				
28000500	INLET AND PIPE PROTECTION	EACH	2	2				
28100207	STONE RIPRAP, CLASS A4	TON	240	240				
28200200	FILTER FABRIC	SQ YD	253	253				
35100100	AGGREGATE BASE COURSE, TYPE A	TON	990	990				
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	73	73				
40600100	BITUMINOUS MATERIALS (PRIME COAT)	GALLON	622	622				
40603080	HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50	TON	251	251				
40603310	HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N50	TON	166	166				

* SPECIAL PROVISION

93595

SUMMARY OF QUANTITIES				CONSTRUCTION CODE				
CODE NO.	ITEM	UNIT	TOTAL QUANTITY	80% FEDERAL 20% STATE				
				SN 059-3329 0011				
48101200	AGGREGATE SHOULDERS, TYPE B	TON	87	87				
* 50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1	1				
50105220	PIPE CULVERT REMOVAL	FOOT	26	26				
50300225	CONCRETE STRUCTURES	CU YD	24.4	24.4				
50300280	CONCRETE ENCASEMENT	CU YD	3.6	3.6				
* 50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ FT	1,728	1,728				
50800105	REINFORCEMENT BARS	POUND	2,880	2,880				
Δ 50900205	STEEL RAILING, TYPE S1	FOOT	131	131				
51201400	FURNISHING STEEL PILES HP10X42	FOOT	247	247				
51202305	DRIVING PILES	FOOT	247	247				
51203400	TEST PILE STEEL HP10X42	EACH	1	1				
51500100	NAME PLATES	EACH	1	1				
Δ 63000001	STEEL PLATE BEAM GUARD RAIL, TYPE A, 6 FOOT POSTS	FOOT	50	50				
Δ 63100075	TRAFFIC BARRIER TERMINAL, TYPE 5A	EACH	4	4				

* SPECIAL PROVISION

93595



JOB = 2265.11
 FILE NAME = 2228500.dgn
 PLOT SCALE = 20.0000' / 1" =
 PLOT DATE = 1/3/2013

DESIGNED - NAK
 DRAWN - SJS
 CHECKED - NAK
 DATE - 10/8/2012

REVISED -
 REVISED -
 REVISED -
 REVISED -

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

SCALE: SHEET NO. 2 OF 2 SHEETS STA. TO STA.

CH	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	08-0092-00-BR	MACOUPIN	23	4

CONTRACT NO.

FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT

SUMMARY OF QUANTITIES				CONSTRUCTION CODE					
CODE NO.	ITEM	UNIT	TOTAL QUANTITY	80% FEDERAL					
				20% STATE					
				SN 059-3329					
				0011					
Δ	63100167	TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT	EACH	4	4				
	67100100	MOBILIZATION	L SUM	1	1				
*	70101830	TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 21	L SUM	1	1				
Δ *	78200410	GUARDRAIL MARKERS, TYPE A	EACH	8	8				
Δ *	78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4	4				
	54200220	PIPE CULVERTS, CLASS D, TYPE 1 15"	FOOT	88	88				
*	X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.4	0.4				

* SPECIAL PROVISION Δ SPECIALTY ITEMS

93595

EARTHWORK

LOCATION	EXCAVATION CU YD	EXCAVATION ADJUSTED FOR EMBANKMENT SHRINKAGE CU YD	EMBANKMENT CU YD	EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-) CU YD
STA 05+00 TO STA 14+54	235	180	3,050	-2870
ENTRANCES AND SIDE ROADS				
LT STA 8+50	0	0	40	-40
LT STA 11+68	0	0	25	-25
RT STA 8+68	0	0	20	-20
TOTAL	235	180	3,135	-2,955

SHRINKAGE = 25%

SEEDING CLASS 2 (SPECIAL)

LOCATION	ACRE
LT STA 5+00 TO STA 8+40	0.08
LT STA 8+40 TO STA 9+70	0.04
LT STA 10+32 TO STA 11+60	0.07
LT STA 11+73 TO STA 14+54	0.03
RT STA 5+00 TO STA 8+62	0.05
RT STA 8+73 TO STA 9+70	0.06
RT STA 10+32 TO STA 14+54	0.05
TOTAL	0.38

TEMPORARY EROSION CONTROL SEEDING

LOCATION	POUND
LT STA 5+00 TO STA 8+40	8
LT STA 8+40 TO STA 9+70	4
LT STA 10+32 TO STA 11+60	7
LT STA 11+73 TO STA 14+54	3
RT STA 5+00 TO STA 8+62	5
RT STA 8+73 TO STA 9+70	6
RT STA 10+32 TO STA 14+54	5
TOTAL	38

TEMPORARY DITCH CHECKS

LOCATION	FOOT
LT STA 6+00	8
LT STA 9+50	8
LT STA 9+75	8
LT STA 10+25	8
LT STA 10+50	8
LT STA 11+00	8
LT STA 12+50	8
LT STA 13+50	8
RT STA 6+00	8
RT STA 9+50	8
RT STA 9+75	8
RT STA 10+25	8
RT STA 10+50	8
RT STA 11+00	8
RT STA 12+00	8
RT STA 12+50	8
RT STA 13+50	8
TOTAL	136

PERIMETER EROSION BARRIER

LOCATION	FOOT
LT STA 6+25 TO STA 8+35	210
LT STA 8+52 TO STA 9+00	48
RT STA 6+25 TO STA 8+50	225
TOTAL	483

INLET AND PIPE PROTECTION

LOCATION	EACH
LT STA 11+80	1
RT STA 8+52	1
TOTAL	2

AGGREGATE BASE COURSE, TYPE A

LOCATION	WIDTH	TON
STA 5+00 TO STA 9+67.21	22'	520.28
STA 10+32.71 TO STA 14+54	22'	469.14
TOTAL		989.42

BITUMINOUS MATERIALS (PRIME COAT)

LOCATION	WIDTH	GALLON
STA 5+00 TO STA 9+67.21	21'	327
STA 10+32.71 TO STA 14+54	21'	295
TOTAL		622

HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50

LOCATION	WIDTH	TON
STA 5+00 TO STA 9+67.21	20.25'	132
STA 10+32.71 TO STA 14+54	20.25'	119
TOTAL		251

HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N50

LOCATION	WIDTH	TON
STA 5+00 TO STA 9+67.21	20.00'	87
STA 10+32.71 TO STA 14+54	20.00'	79
TOTAL		166

AGGREGATE SHOULDERS, TYPE B

LOCATION	WIDTH	TON
LT STA 5+00.00 TO STA 8+35	2'	17.25
LT STA 8+67.10 TO STA 9+67	2'	5.15
LT STA 10+32.71 TO STA 11+52	2'	6.11
LT STA 11+81.55 TO STA 14+54	2'	14.01
RT STA 5+00.00 TO STA 8+53	2'	18.16
RT STA 8+81.10 TO STA 9+67	2'	4.43
RT STA 10+32.71 TO STA 14+54	2'	21.67
TOTAL		86.78

AGGREGATE SURFACE COURSE, TYPE B

LOCATION	LENGTH	WIDTH	TON
LT STA 8+50	51'	12'	27.51
LT STA 11+68	41'	14'	25.55
RT STA 8+68.00	35'	12'	19.76
TOTAL			72.82

PIPE CULVERT REMOVAL

LOCATION	TYPE	FOOT
LT STA 11+66	15" CMP	26
TOTAL		26

PIPE CULVERTS, CLASS D, TYPE 1 15"

LOCATION	FOOT
LT STA 11+66	26
RT STA 8+66.5	62
TOTAL	88

93595



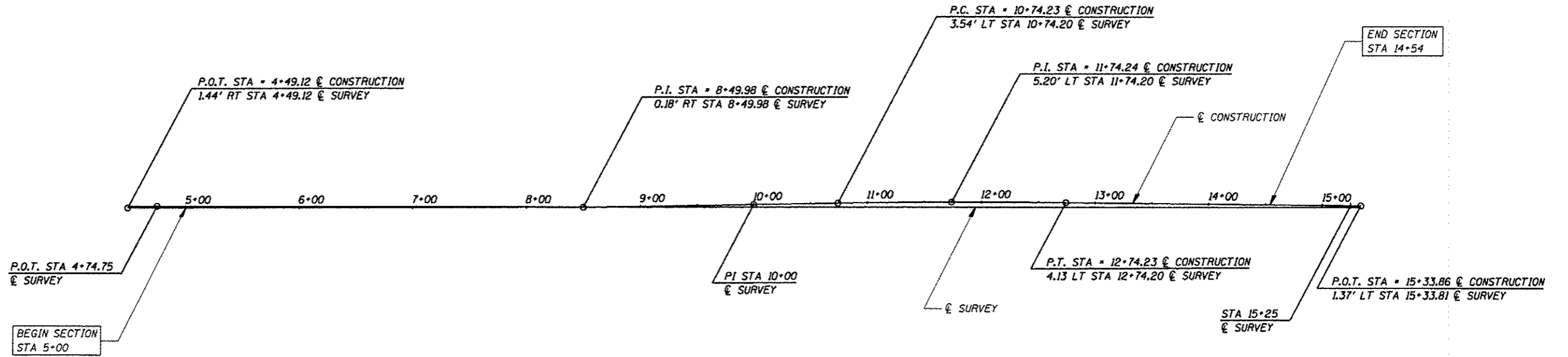
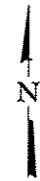
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FILE NAME : 2228typ.dgn	DRAWN - AJH	REVISED -
PLOT SCALE : 1/8"=1'-0"	CHECKED - NAK	REVISED -
PLOT DATE : 1/4/2013	DATE - 05/04/2009	REVISED -

**MACOUPIN COUNTY
CH 10 BRIDGE REPLACEMENT**

SCHEDULE OF QUANTITIES

SCALE:	SHEET NO. OF SHEETS	STA. TO STA.
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F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 10	08-00092-00-BR	MACOUPIN	23	6
CONTRACT NO.				
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				



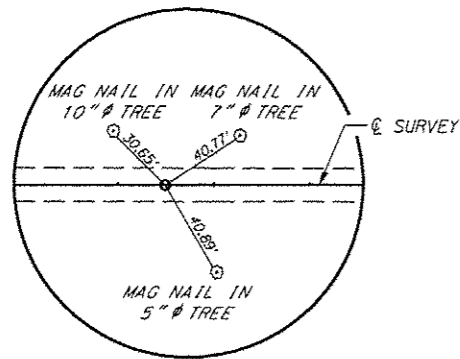
CURVE 1
 PI STA = 11+74.24
 $\Delta = 01^{\circ}33'40''$
 $D = 00^{\circ}46'50''$
 $T = 100.01$
 $R = 7340.68$
 $L = 200.00$
 $C = 199.99$
 $E = 0.68$
 PC STA = 10+74.23
 PI STA = 11+74.24
 SE = NORMAL CROWN

CENTERLINE CONSTRUCTION

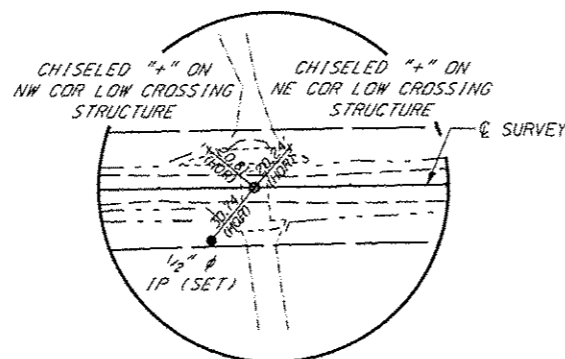
PI	STATION	NORTHING	EASTING
POT	4+49.12	998.62	449.13
PI	8+49.98	999.86	849.98
PC	10+74.23	1,003.57	1,074.20
PI	11+74.24	1,005.23	1,174.20
PT	12+74.23	1,004.16	1,274.20
POT	15+33.86	1,001.38	1,533.81

CENTERLINE SURVEY

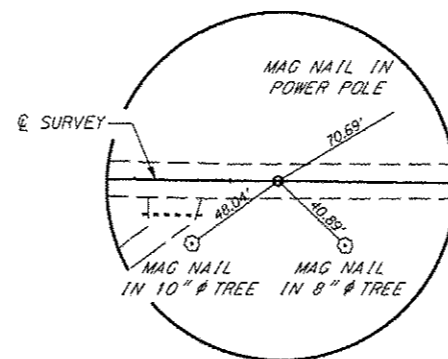
PI	STATION	NORTHING	EASTING
POT	4+74.75	1,000.06	474.75
PI	10+00.00	1,000.03	1,000.00
POT	15+25.00	1,000.01	1,525.00



**P.O.T. STA 4+74.75
MAG NAIL (SET)**



**P.I. STA 10+00.00
MAG NAIL (SET)**



**P.O.T. STA 15+25.00
MAG NAIL (SET)**

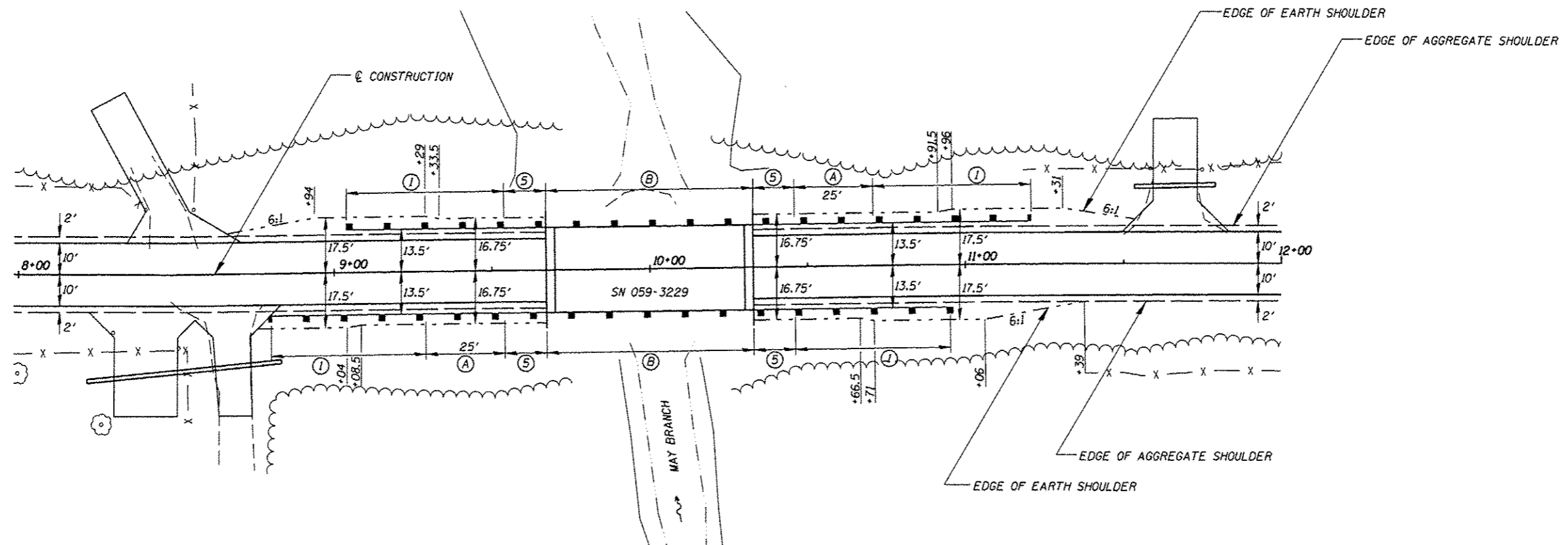
93595

PLAN

DATE	
BY	
CHECKED	
DESIGNED	
FILE NAME	
NO.	

PROFILE

DATE	
BY	
CHECKED	
DESIGNED	
FILE NAME	
NO.	



STEEL PLATE BEAM GUARD RAIL, TYPE A, 6 FOOT POSTS

LOCATION	FOOT
LT STA 10+48.00 TO STA 10+71.00	25
RT STA 9+29.00 TO STA 9+54	25
TOTAL	50

TRAFFIC BARRIER TERMINAL, TYPE 5A

LOCATION	EACH
LT STA 9+54.00 TO STA 9+87.25	1
LT STA 10+32.75 TO STA 10+48.00	1
RT STA 9+54.00 TO STA 9+87.25	1
RT STA 10+32.75 TO STA 10+48.00	1
TOTAL	4

TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT

LOCATION	EACH
LT STA 9+04.00 TO STA 9+54.00	1
LT STA 10+71.00 TO STA 11+21.00	1
RT STA 8+79.00 TO STA 9+29.00	1
RT STA 10+48.00 TO STA 10+98.00	1
TOTAL	4

GUARDRAIL MARKERS TYPE A

LOCATION	EACH
LT STA 9+53.96 TO STA 10+70.96	4
RT STA 9+28.96 TO STA 10+45.96	4
TOTAL	8

TERMINAL MARKER - DIRECT APPLIED

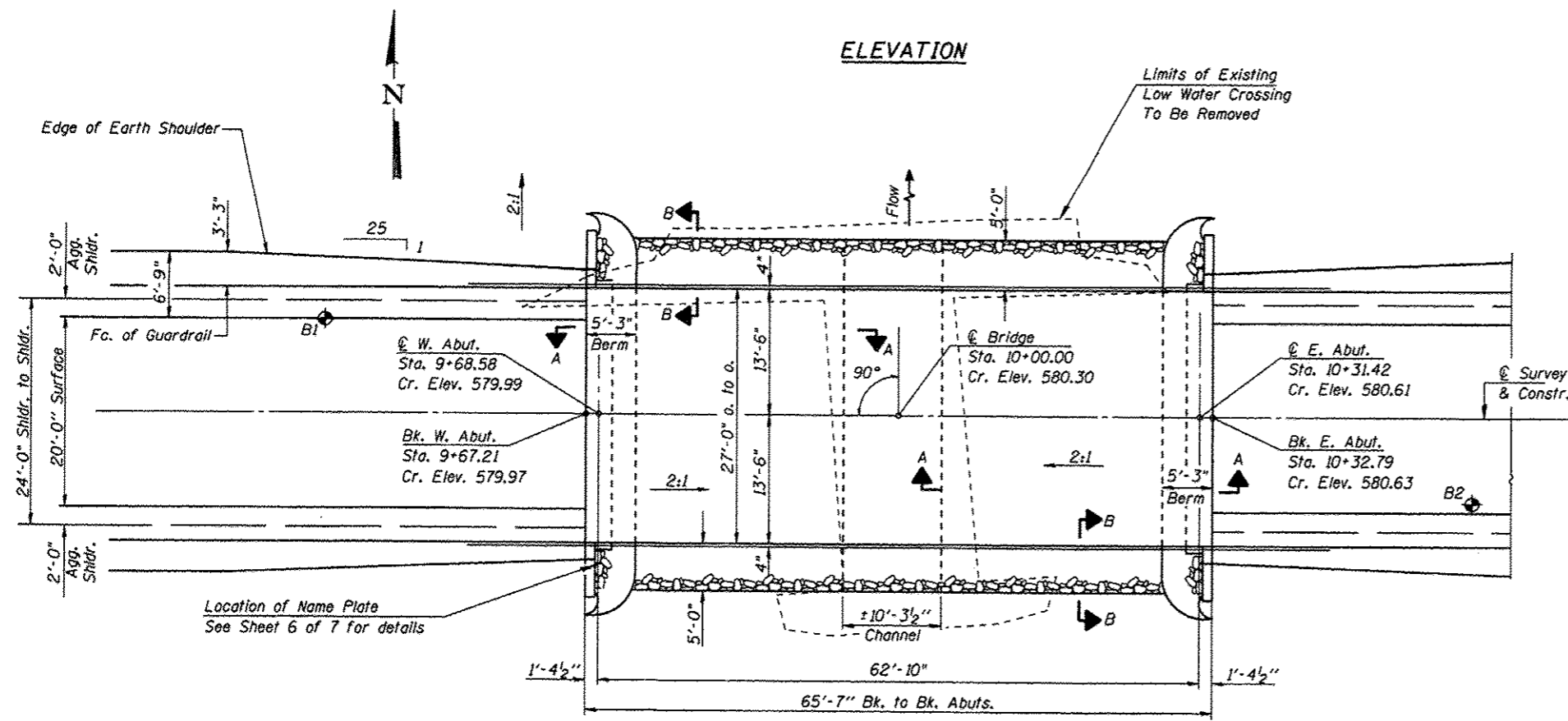
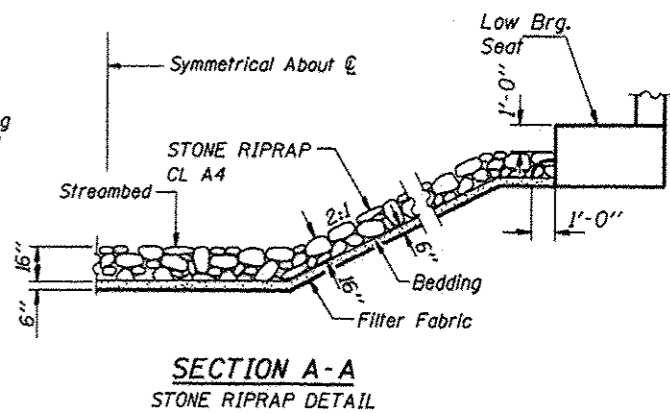
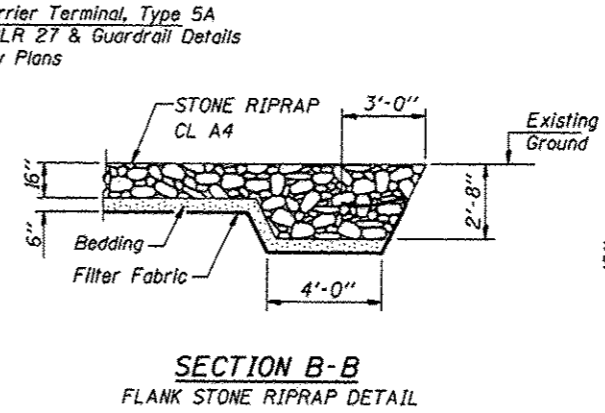
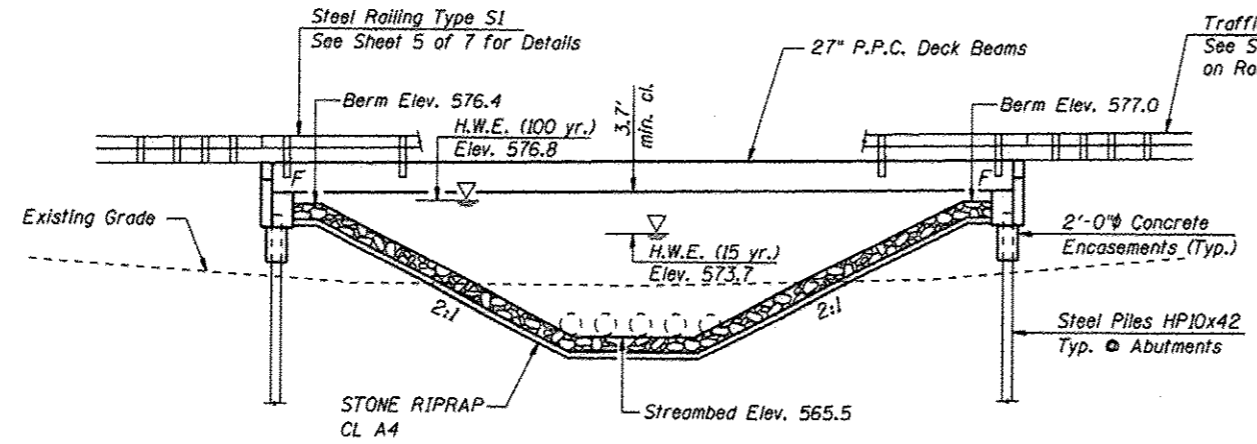
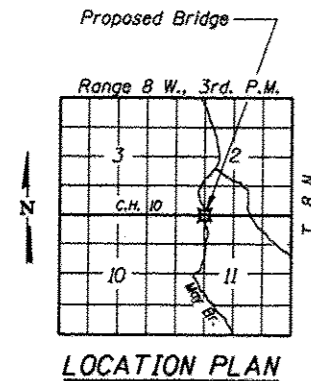
LOCATION	EACH
LT STA 9+04.00	1
LT STA 11+20.96	1
RT STA 8+79.00	1
RT STA 10+98.00	1
TOTAL	4

LEGEND

- (A) STEEL PLATE BEAM GUARDRAIL TYPE A (SEE STANDARD BLR 26)
- (I) TRAFFIC BARRIER TERMINAL TYPE 1 SPECIAL (TANGENT)
- (S) TRAFFIC BARRIER TERMINAL TYPE 5A (SEE STANDARD BLR 27)
- (B) STEEL RAILING TYPE S1

SEE STANDARD 630301 FOR DETAILS OF SHOULDER WIDENING FOR TYPE 1 GUARDRAIL TERMINALS

93595

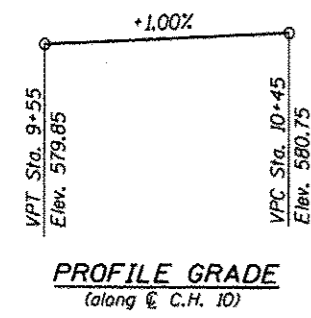


DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation (ft.)	W. Abut.	E. Abut.
	574.60	575.26

WATERWAY INFORMATION

Drainage Area	4.2 Sq. Mi.
Required Opening (15 Yr.)	220 Sq. Ft.
Existing Opening (15 Yr.)	13 Sq. Ft.
Approach Opening (15 Yr.)	360 Sq. Ft.
Proposed Opening (15 Yr.)	220 Sq. Ft.
Required Opening (100 Yr.)	374 Sq. Ft.
Existing Opening (100 Yr.)	13 Sq. Ft.
Approach Opening (100 Yr.)	890 Sq. Ft.
Proposed Opening (100 Yr.)	374 Sq. Ft.
Design Discharge (15 Yr.)	1640 C.F.S.
Created Head (15 Yr.)	0.8 Ft.
100 Year Discharge	2710 C.F.S.
100 Yr. Created Head	0.4 Ft.



DESIGN STRESSES

FIELD UNITS
 $f'_c = 3,500$ psi
 $f_y = 60,000$ psi (Reinforcement)

PRECAST PRESTRESSED UNITS
 $f'_c = 6,000$ psi
 $f'_{ci} = 5,000$ psi
 $f_{pu} = 270,000$ psi ($\frac{1}{2}$ " ϕ low lax. strands)
 $f_{psl} = 201,960$ psi ($\frac{1}{2}$ " ϕ low lax. strands)
 $f_y = 60,000$ psi (Reinforcement)

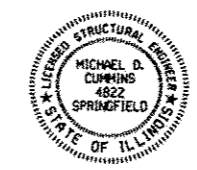
LOADING HL-93
 Design Specifications: 2007 AASHTO LRFD with 2008 Interims
 Allow 50#/Sq. Ft. for future wearing surface.

MAY BRANCH
 BUILT 20... BY
 MACOUPIN COUNTY
 SEC. 08-00092-00-BR
 COUNTY HIGHWAY 10
 F.A. PROJ. BROS-0117(077)
 STR. NO. 059-3329 LOADING HL93

LETTERING FOR NAME PLATE
 See Std. 515001

"I certify that to the best of my knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current 'AASHTO Standard Specifications for Highway Bridges'."

Michael D. Cummins 1/11/13
 ILLINOIS STRUCTURAL NO. 4822 (Expires 11/30/14)



GENERAL NOTES

See Special Provisions for Boring data.

Reinforcement bars shall conform to the requirements of ASTM A706 Grade 60.

Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.

The Steel H-Piles shall be according to AASHTO M270 Grade 50. The Contractor shall drive one steel test pile in a permanent location at the East Abutment, as directed by the Engineer, before ordering the remainder of piles. The test piles shall be driven to 110 percent of the Nominal Required Bearing indicated in the pile data information.

TOTAL BILL OF MATERIAL

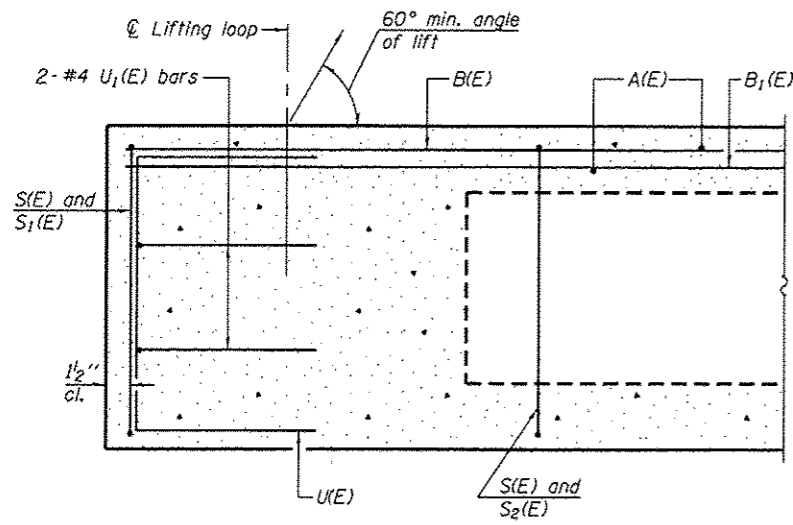
ITEM	UNIT	SUPER	SUB	TOTAL
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq. Ft.	1728		1728
Concrete Structures	Cu. Yd.		24.4	24.4
Reinforcement Bars	Pound		2880	2880
Steel Railing, Type S1	Foot	131		131
Name Plates	Each		1	1
Furnishing Steel Piles, HP10x42	Foot		247	247
Driving Piles	Foot		247	247
Test Pile, Steel HP10x42	Each		1	1
Stone Riprap Class A4	Ton		240	240
Concrete Encasement	Cu. Yd.		3.6	3.6
Filter Fabric	Sq Yd		253	253

* See Special Provisions

GENERAL PLAN & ELEVATION
 C.H. 10 OVER MAY BRANCH
 SECTION 08-00092-00-BR
 MACOUPIN COUNTY
 STATION 10+00
 STRUCTURE NO. 059-3329

CEC Cummins Engineering Corporation Civil and Structural Engineering	JOB = 2228	DESIGNED	A.A.N.
	FILE = 2228gpe.dgn	CHECKED	M.D.C.
	DATE = 5/14/2009	DRAWN	T.S.H.
		CHECKED	M.D.C.

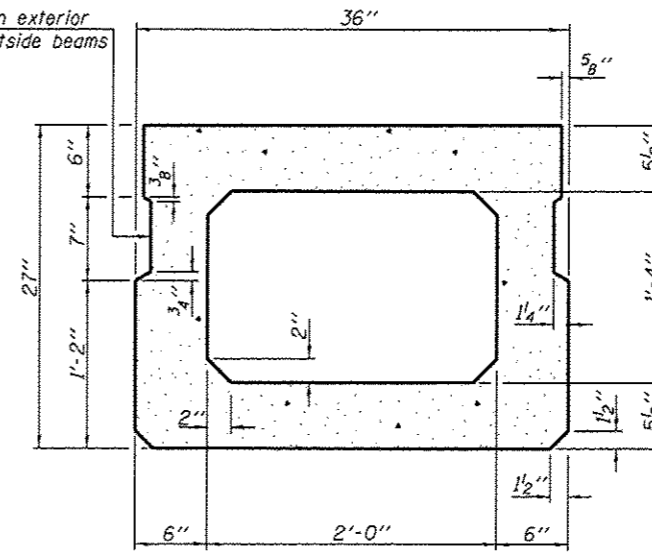
Sheet 1 of 7	RTE. CH 10	SECTION 08-00092-00-BR	COUNTY MACOUPIN	TOTAL SHEETS 23	SHEET NO. 10
			CONTRACT NO. 059-3329		
			FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT		



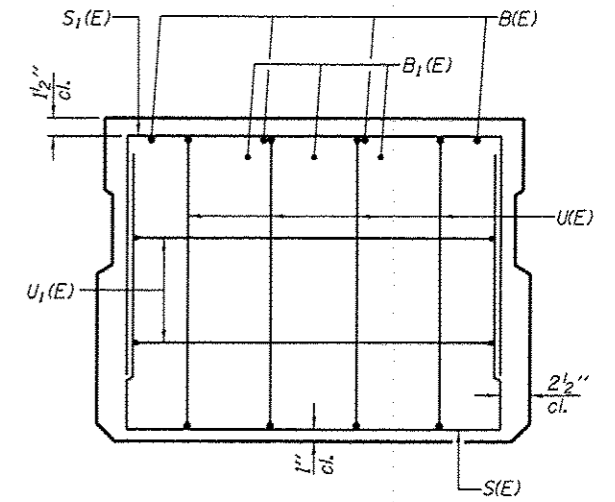
SECTION C-C

* Rail Post Anchor devices (specified elsewhere)
To be cast into Exterior Face of Outside Beams.

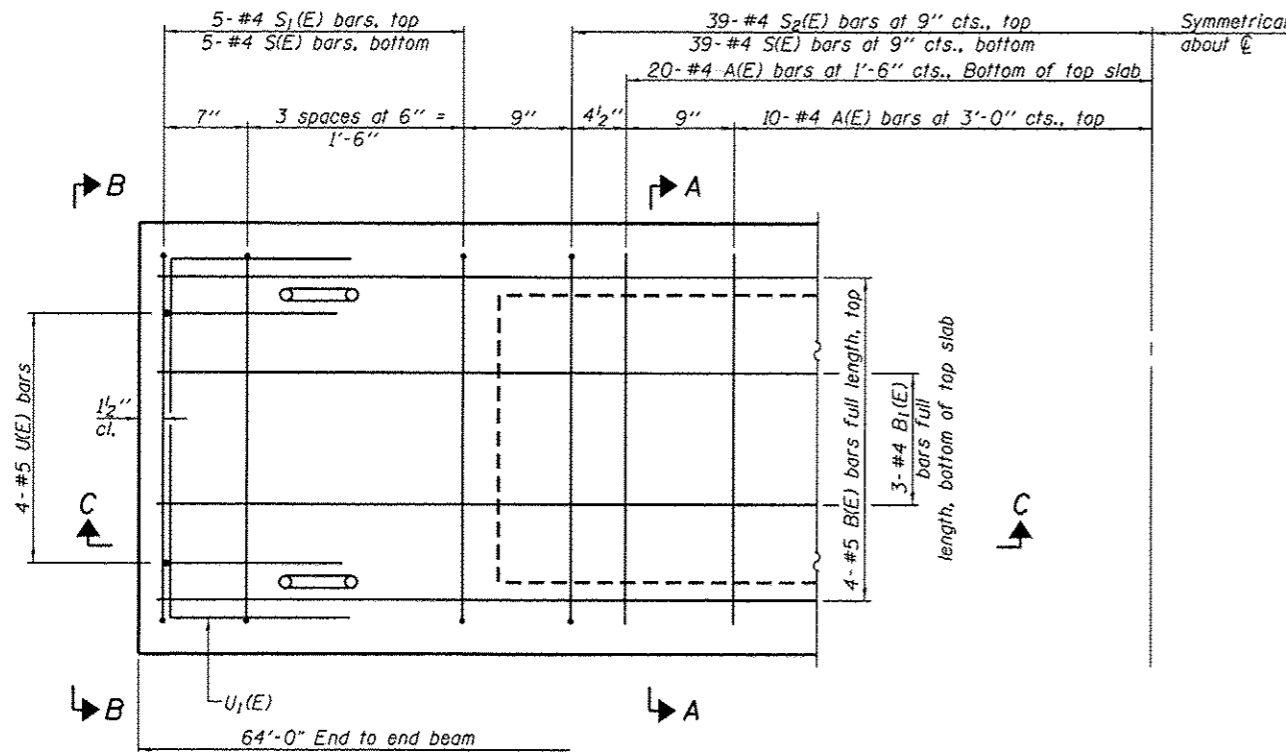
* Omit key on exterior
face of outside beams



SECTION A-A
(Showing dimensions)

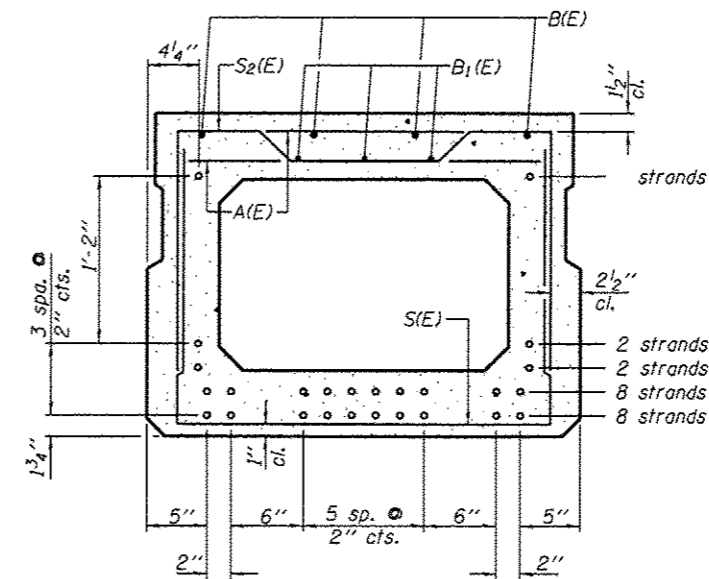


VIEW B-B



PLAN VIEW

Note: Spacing of S(E) and S2(E) bars may be adjusted
up to 4\"/>



SECTION A-A

(Showing reinforcement and permissible strand locations)
Note: Place the number of strands specified in each row
symmetrically about the centerline of beam in the
permissible strand locations shown.

BAR LIST
ONE BEAM ONLY
(For information only)

Bar	No.	Size	Length	Shape
A(E)	60	#4	2'-7"	—
B(E)	4	#5	63'-9"	—
B1(E)	3	#4	63'-9"	—
S(E)	88	#4	6'-5"	U
S1(E)	10	#4	5'-11"	U
S2(E)	78	#4	6'-2"	U
U(E)	8	#5	4'-8"	C
U1(E)	4	#4	5'-0"	C

Note: See sheet 3 of 7 for additional details
and Bill of Material.

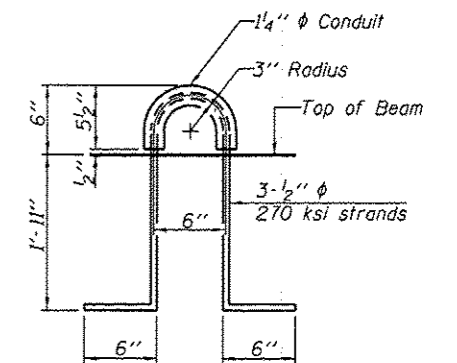
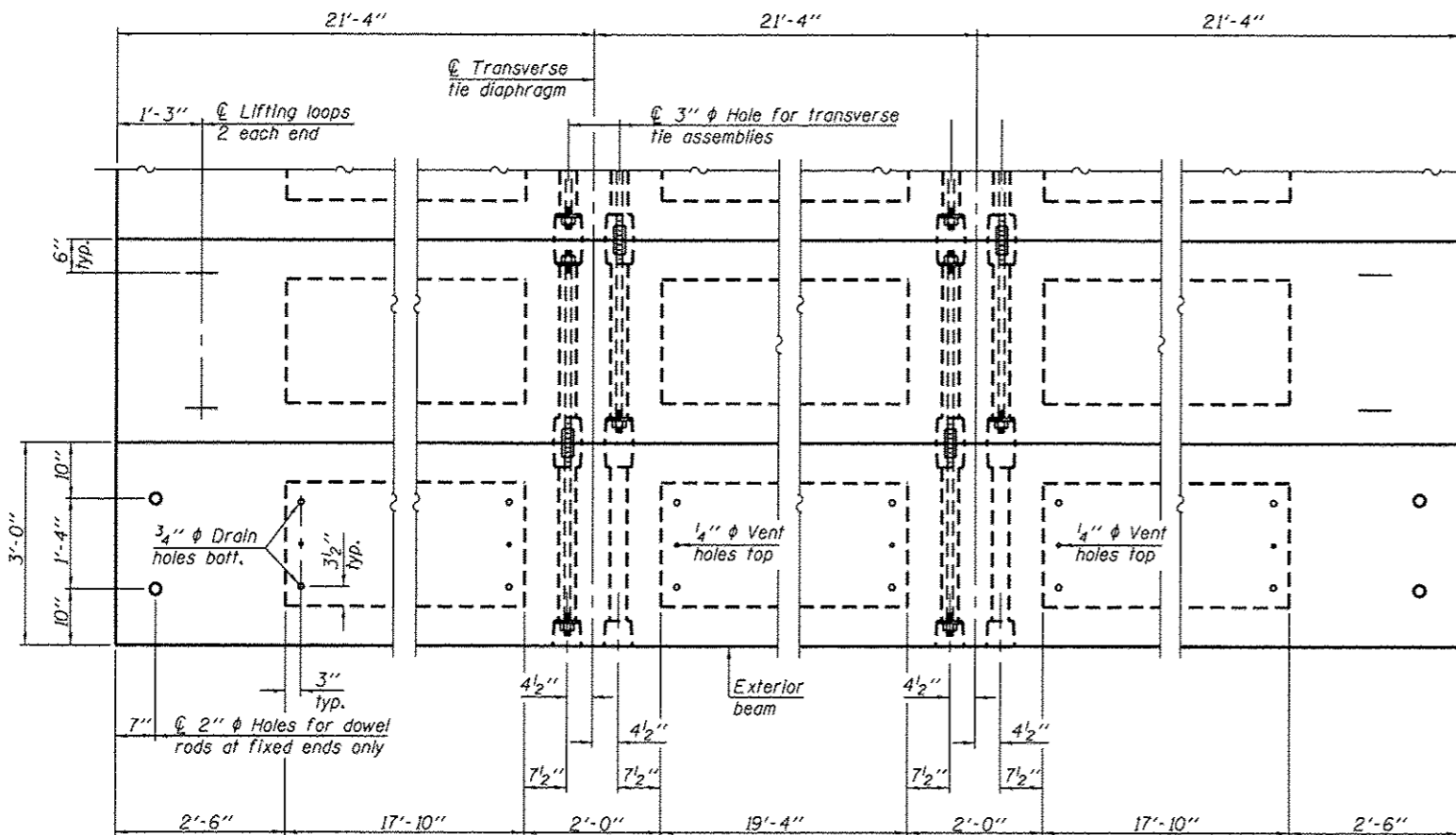
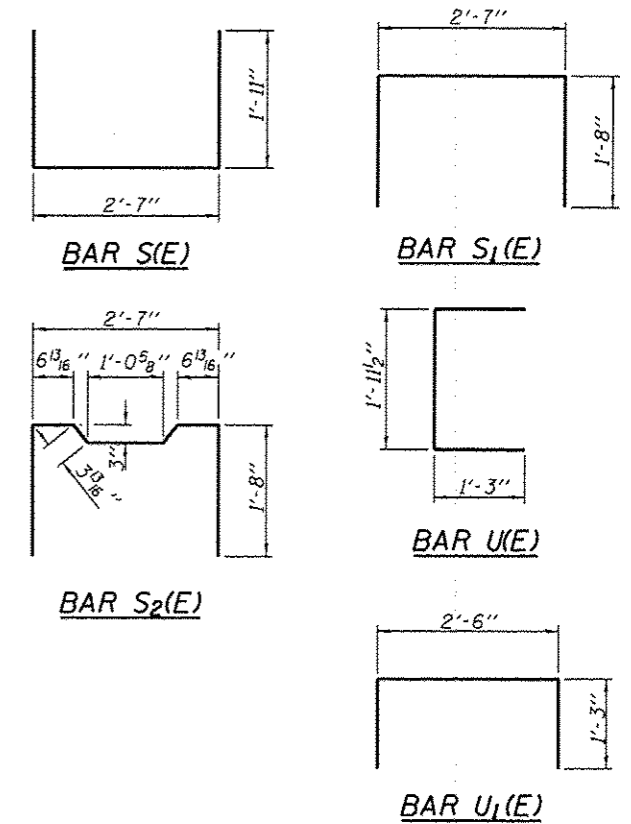
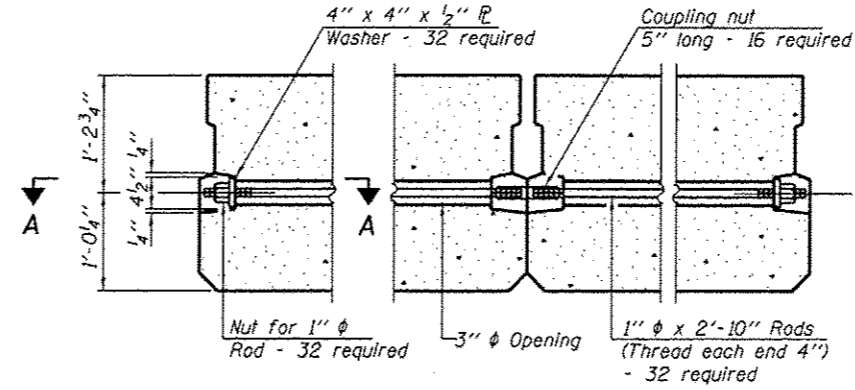
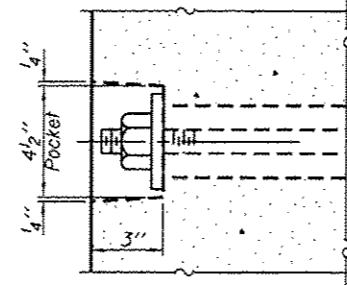
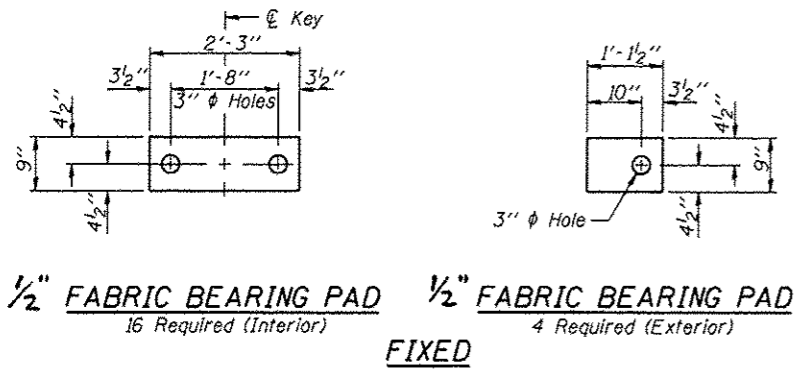
PD-2736-0

10-1-08

CEC Cummins
Engineering
Corporation
Civil and Structural Engineering

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FILE = 2228super.dgn	CHECKED	M.D.C.
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Sheet 2 of 7	RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	CH 10	08-00092-00-BR	MACOUPIN	23	11
	CONTRACT NO.				
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		93595	



Note: Connect beams in pairs with the transverse tie configuration shown.

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 sq. in. The 1" rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place.

Reinforcement bars shall conform to ASTM A 706, Grade 60. (See Special Provisions). Two 1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.

A minimum 2 1/2" diameter lifting pin shall be used to engage the lifting loops during handling. Corrosion Inhibitor, per Article 1020.05(b)(10) and 1021.07 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams. Compressive strength of prestressed concrete, f'c, shall be 6000 psi. Compressive strength of prestressed concrete at release, f'ci, shall be 5000 psi.

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (27" depth)	Sq. Ft.	1728
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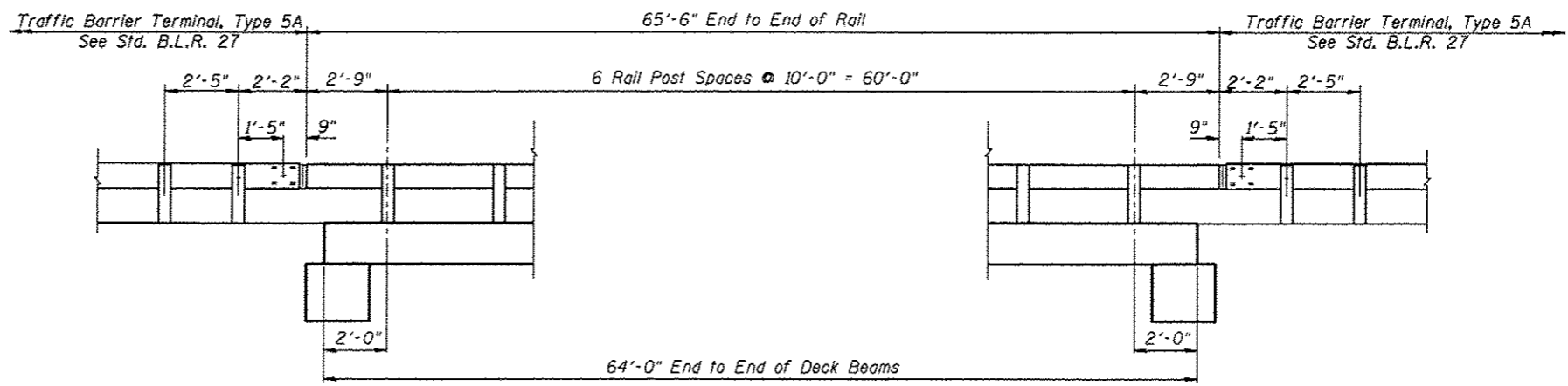
PD-2736-0D

10-1-08

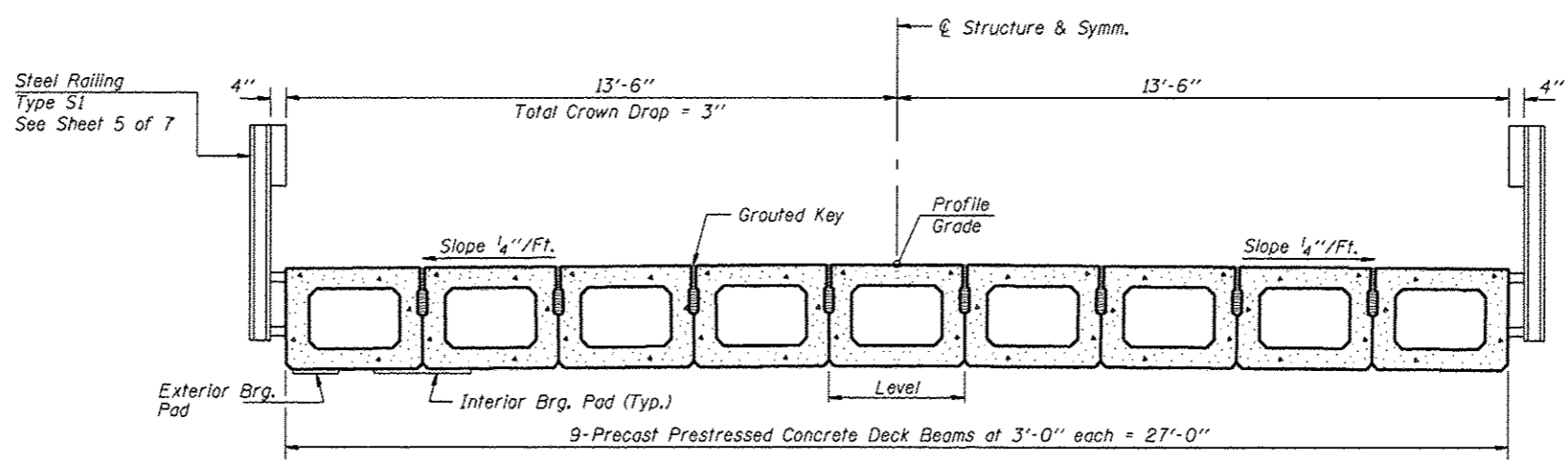
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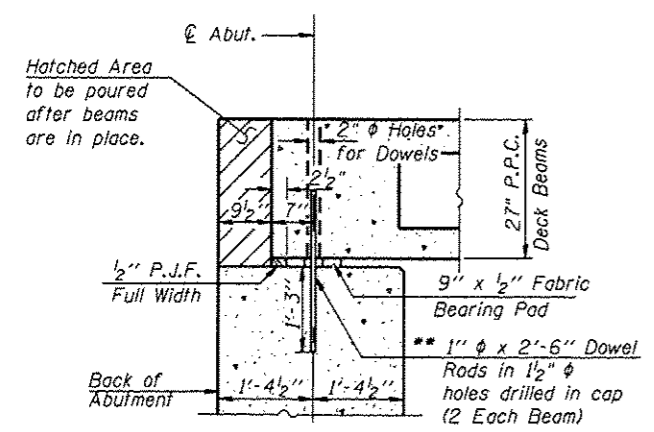
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	CH 10	08-00092-00-BR	MACOUPIN	23	12
CONTRACT NO.					
FED. ROAD DIST. NO. [ILLINOIS] FED. AID PROJECT					



RAIL ELEVATION



CROSS SECTION



SECTION THRU ABUT.

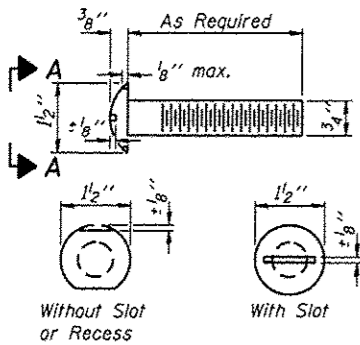
** After beams have been erected, holes shall be drilled into substructure and anchor dowels placed. Dowel holes shall be filled with non-shrink grout to top of beam and allowed to cure min. 24 hrs. prior to grouting the shear keys.

Notes:
See Sheet 2 & 3 of 7 for Superstructure
See Sheet 5 of 7 for Steel Railing, Type S1

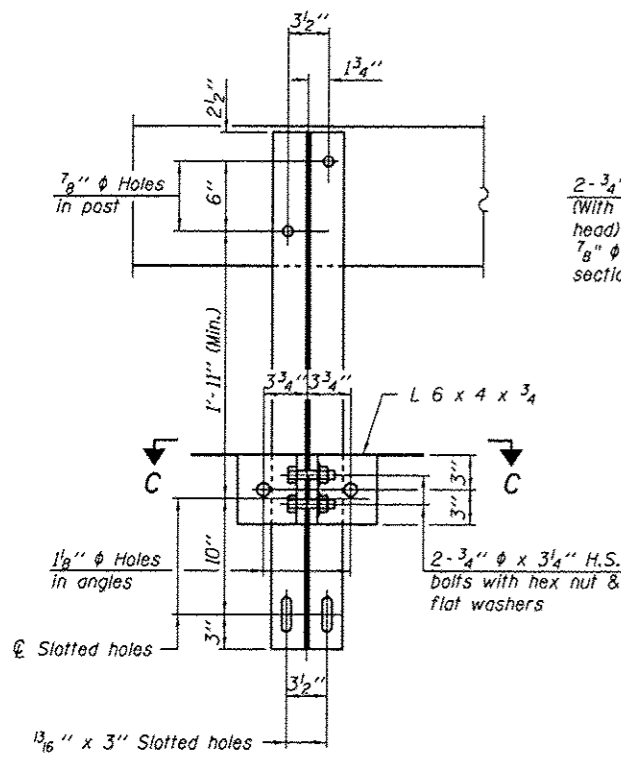
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		DATE = 5/14/2009	DRAWN	T.S.H.
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Sheet 4 of 7	RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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	CONTRACT NO.				
	FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

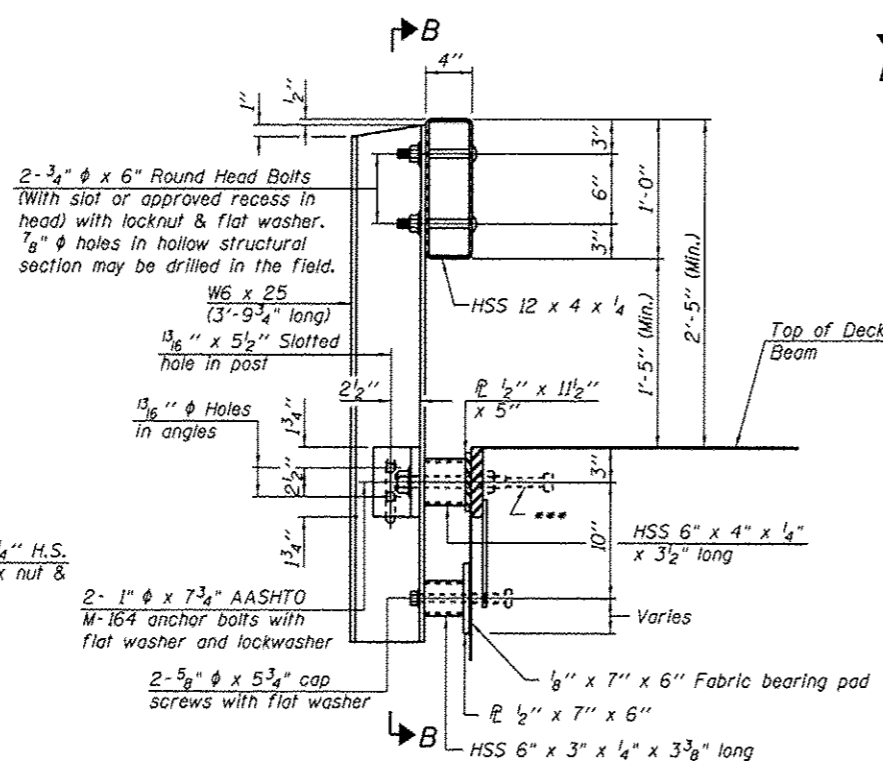
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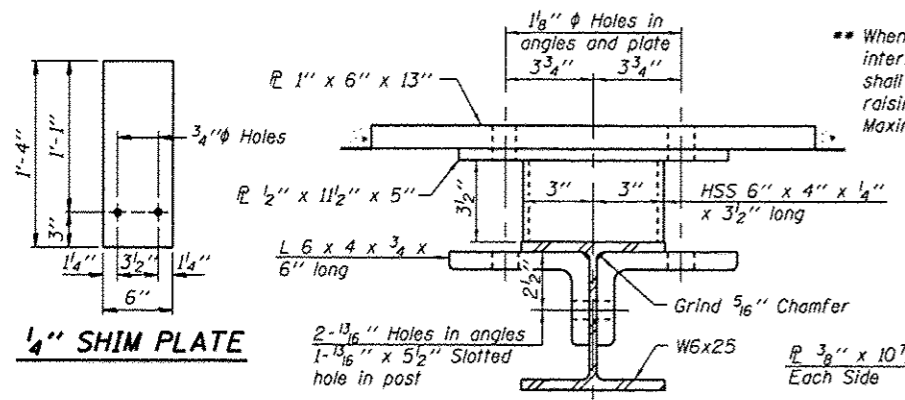
**VIEW A-A
ROUND HEAD BOLT**



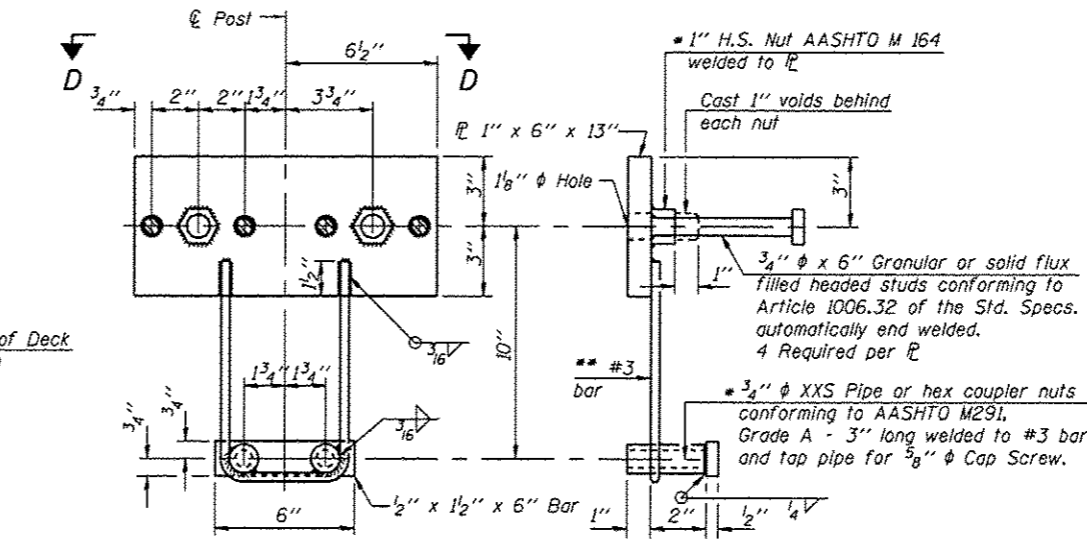
SECTION B-B



SECTION AT RAILING POST

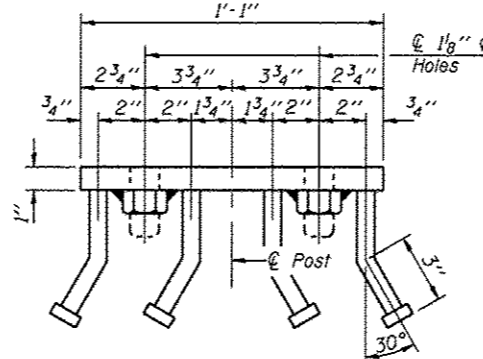


SECTION C-C

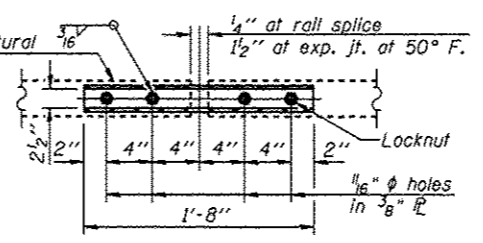


ANCHOR DEVICE

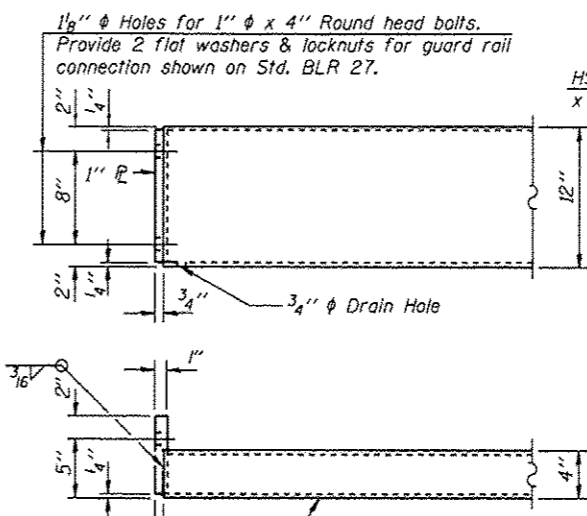
Threaded areas shall be plugged or blocked off during casting of beam.



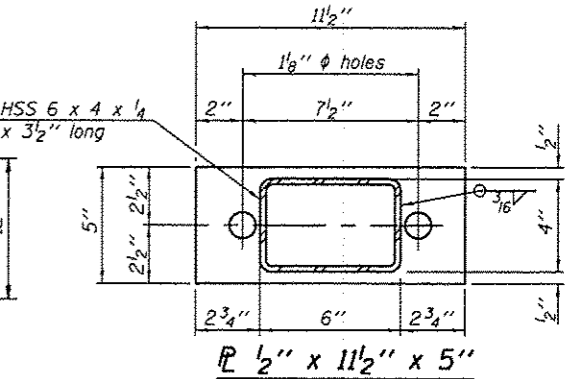
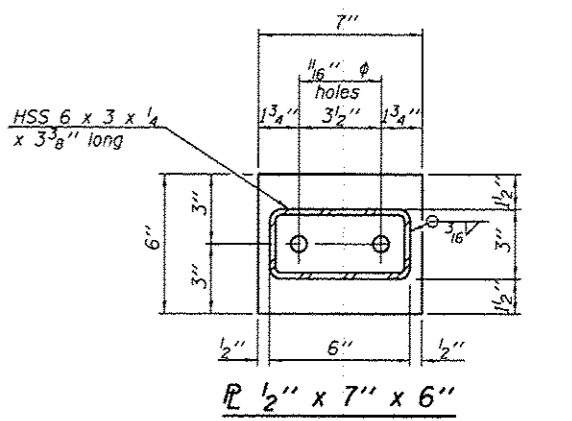
VIEW D-D



PLAN-BOTT. SPLICE TYPICAL



END OF RAIL DETAILS



BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S1	Foot	131

**STEEL RAILING, TYPE S-1
STRUCTURE NO. 059-3329**

Notes:
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 Railing, Type S1.
All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.
*** The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.

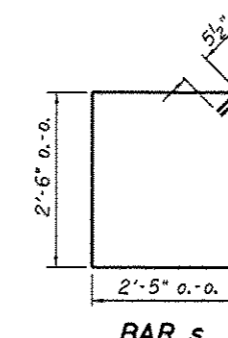
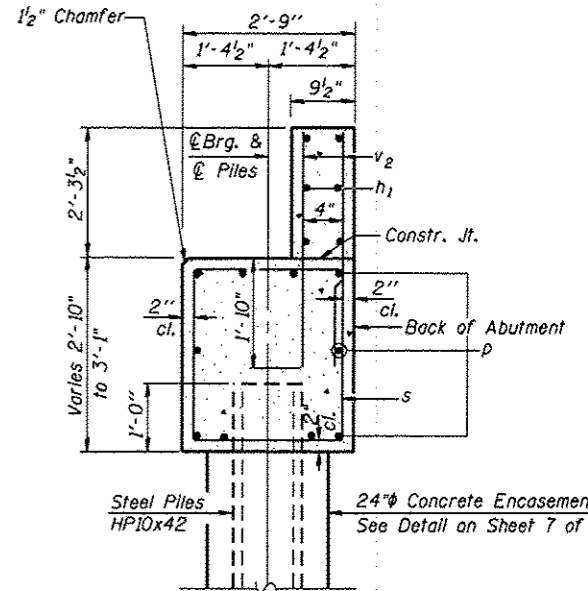
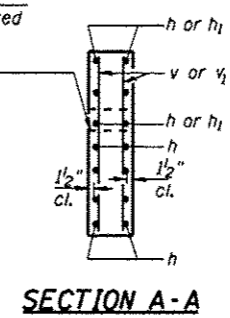
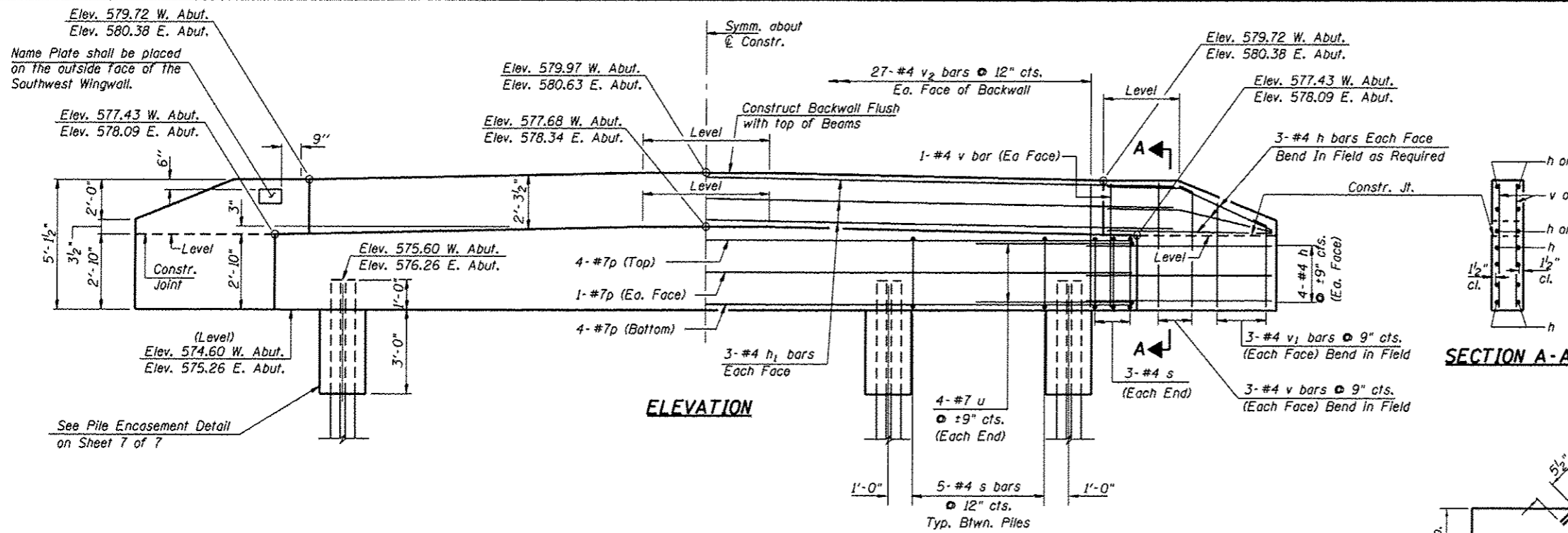
R-23A 5-16-08 (10'-9" Maximum Post Spacing)

CEC Civil and Structural Engineering	Cummins Engineering Corporation	JOB = 2228	DESIGNED A.A.M.
		FILE = 2228rail.dgn	CHECKED M.D.C.
		DATE = 5/14/2009	DRAWN T.S.H.
			CHECKED M.D.C.

SECTIONS AT RAIL SPLICE

Sheet 5 of 7	RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	CH 10	08-00092-00-BR	MACOUPIN	23	14
	CONTRACT NO.				
	FED. ROAD DIST. NO.			ILLINOIS FED. AID PROJECT	

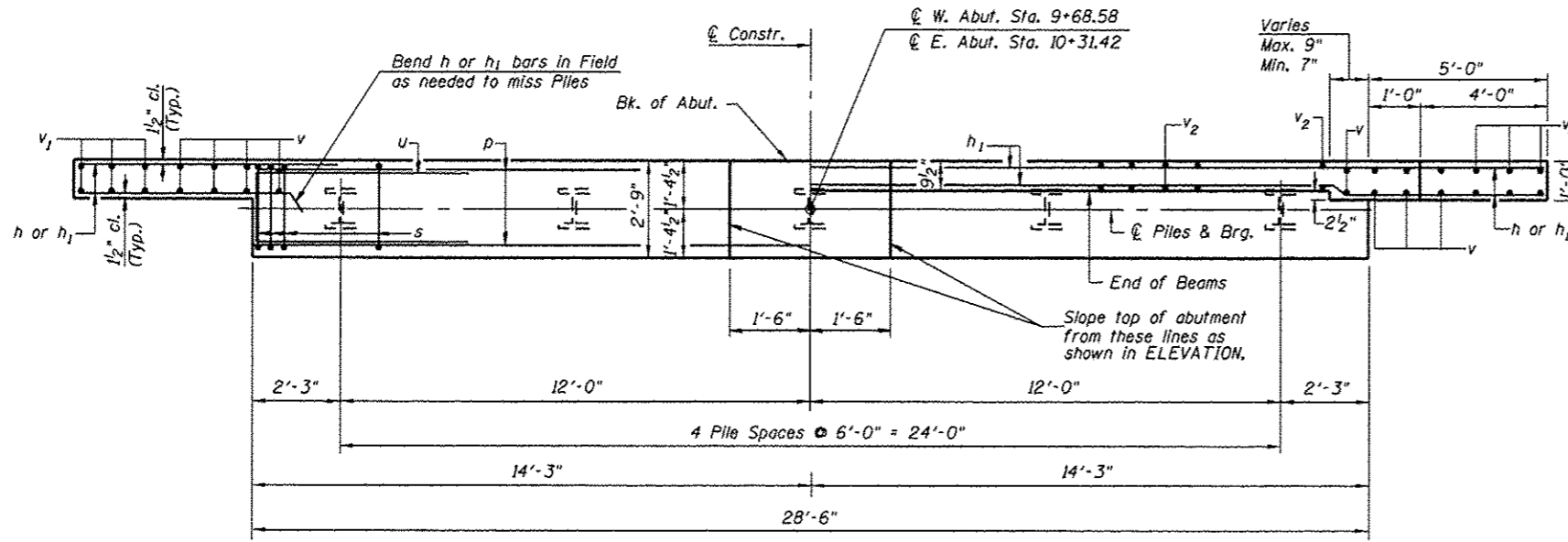
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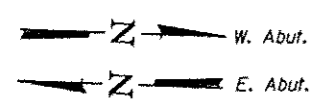
BILL OF MATERIAL-2 ABUTS.

BAR	NO.	SIZE	LENGTH	SHAPE
h	56	#4	6'-10"	—
h ₁	12	#4	30'-6"	—
p	20	#7	28'-2"	—
s	52	#4	10'-9"	□
u	16	#7	12'-4"	—
v	32	#4	4'-8"	—
v ₁	24	#4	3'-10"	—
v ₂	108	#4	4'-0"	—
Concrete Structures			Cu. Yd.	24.4
Reinforcement Bars			Pound	2880
Name Plates			Each	1
Steel Piles HP10x42			Foot	247
Test Pile Steel HP10x42			Each	1
Concrete Encasement			Cu. Yd.	3.6

Note: After beams are in place and dowel rods grouted, the backwall and the portions of the wingwalls above the construction joint shall be poured.



PLAN

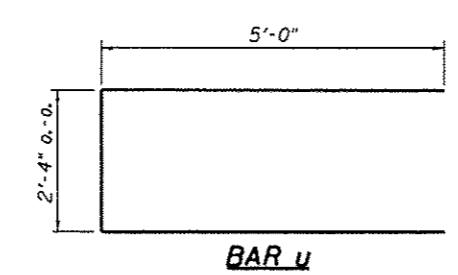


PILE DATA

Type: Steel HP10x42
 Nominal Required Bearing: 335 kips (Refusal)
 Factored Resistance Available: 167 kips
 No. Required: 10 piles *
 Estimated Length: 27 ft. @ W Abut.
 28 ft. @ E Abut.

Note:
 The Steel H-Piles shall be according to AASHTO M270 Grade 50.

*Includes one steel test piles HP10x42 to be driven in a permanent location at the East Abut. as directed by the Engineer before ordering the remainder of piles. The test pile shall be driven to 110 percent of the Nominal Required Bearing indicated in the pile data information.

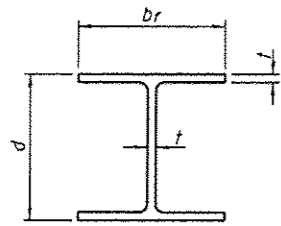


**ABUTMENTS
 STRUCTURE NO. 059-3329**

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		DATE = 5/14/2009	DRAWN	T.S.H.
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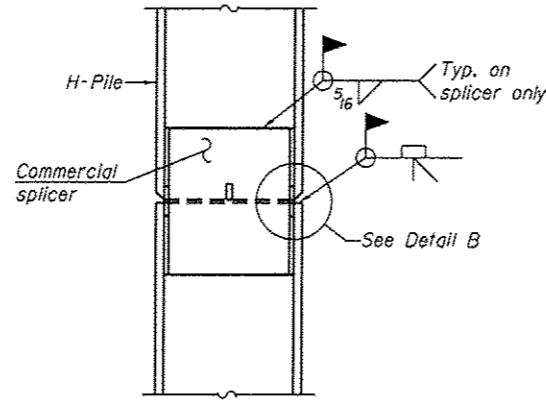
Sheet 6 of 7	RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	CH 10	08-00092-00-BR	MACOUPIN	23	15
CONTRACT NO.					
FED. ROAD DIST. NO. ILLINDIS FED. AID PROJECT					

93595

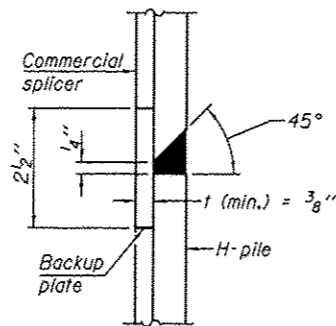


STEEL PILE TABLE

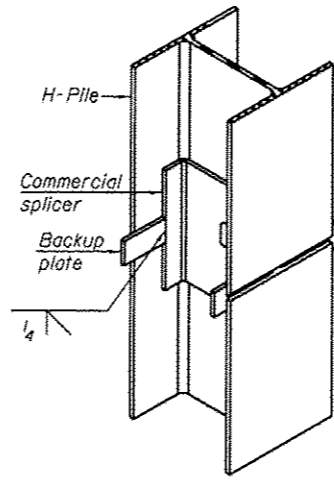
Designation	Depth d	Flange width br	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	13/16"	30"
x102	14"	14 3/4"	1/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	1/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"
x53	11 3/4"	12"	7/16"	24"
HP 10x57	10"	10 1/4"	9/16"	24"
x42	9 3/4"	10 1/8"	7/16"	24"
HP 8x36	8"	8 1/8"	7/16"	18"



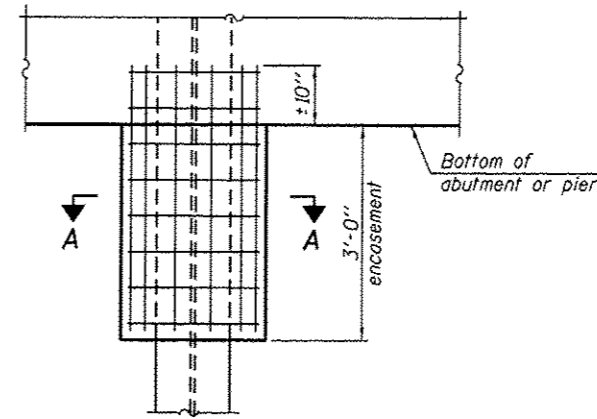
ELEVATION



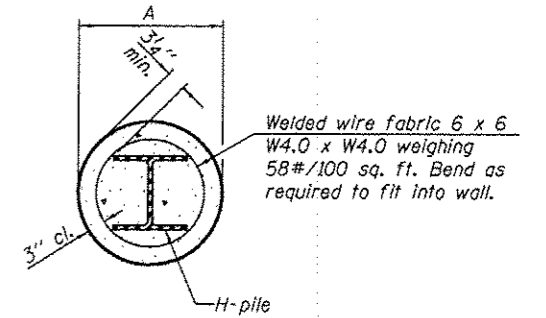
DETAIL "B"



ISOMETRIC VIEW



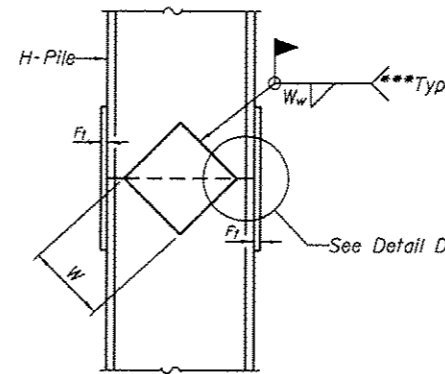
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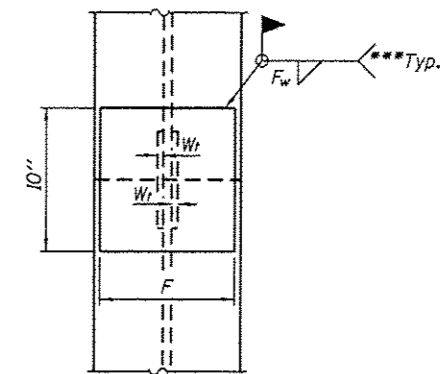
SECTION A-A

Note: Forms for encasement may be omitted when soil conditions permit.

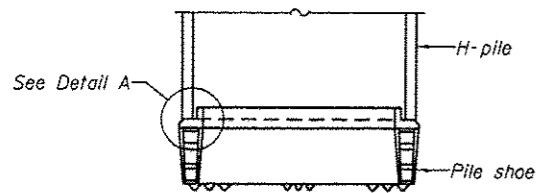
PILE ENCASEMENT



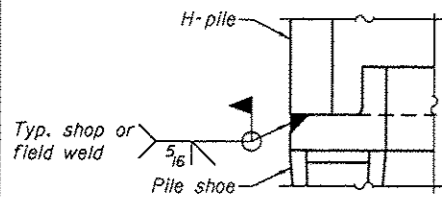
ELEVATION



END VIEW

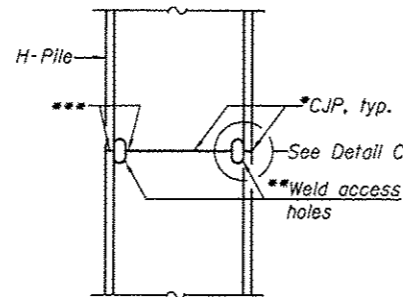


ELEVATION

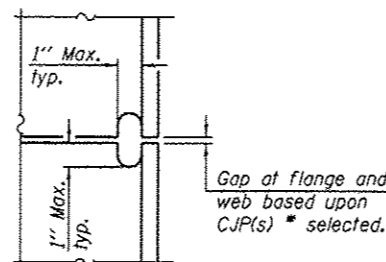


DETAIL A

H-PILE SHOE ATTACHMENT

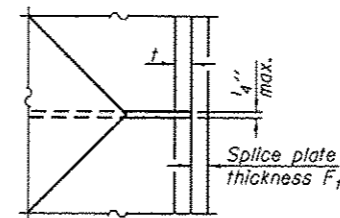


ELEVATION



DETAIL C

COMPLETE PENETRATION WELD SPLICE



DETAIL D

WELDED PLATE FIELD SPLICE

Designation	F	Ft	Fw	W	Wt	Ww
HP 14x117	12 1/2"	1"	7/8"	7 3/4"	5 1/2"	1/2"
x102	12 1/2"	7/8"	3/4"	7 3/4"	5 1/2"	1/2"
x89	12 1/2"	3/4"	1/16"	7 3/4"	5 1/2"	1/2"
x73	12 1/2"	5/8"	9/16"	7 3/4"	5 1/2"	1/2"
HP 12x84	10"	7/8"	1/16"	6 1/2"	5 1/2"	1/2"
x74	10"	7/8"	1/16"	6 1/2"	5 1/2"	1/2"
x63	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
x53	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
HP 10x57	8"	3/4"	9/16"	5 1/4"	1/2"	3/8"
x42	8"	5/8"	9/16"	5 1/4"	1/2"	3/8"
HP 8x36	7"	5/8"	7/16"	4 1/4"	1/2"	3/8"

Note: The steel H-piles shall be according to AASHTO M270 Grade 50.

*Use joint conforming to Figure 3.4 in AWS D1.1 Structure Welding Code-Steel.

**Preparation per Fig. 5.2 in AWS D1.1, Structure Welding Code-Steel.

***Interrupt welds 1/4" from end of each pile.

F-HP

5-16-08

CEC Cummins Engineering Corporation
Civil and Structural Engineering

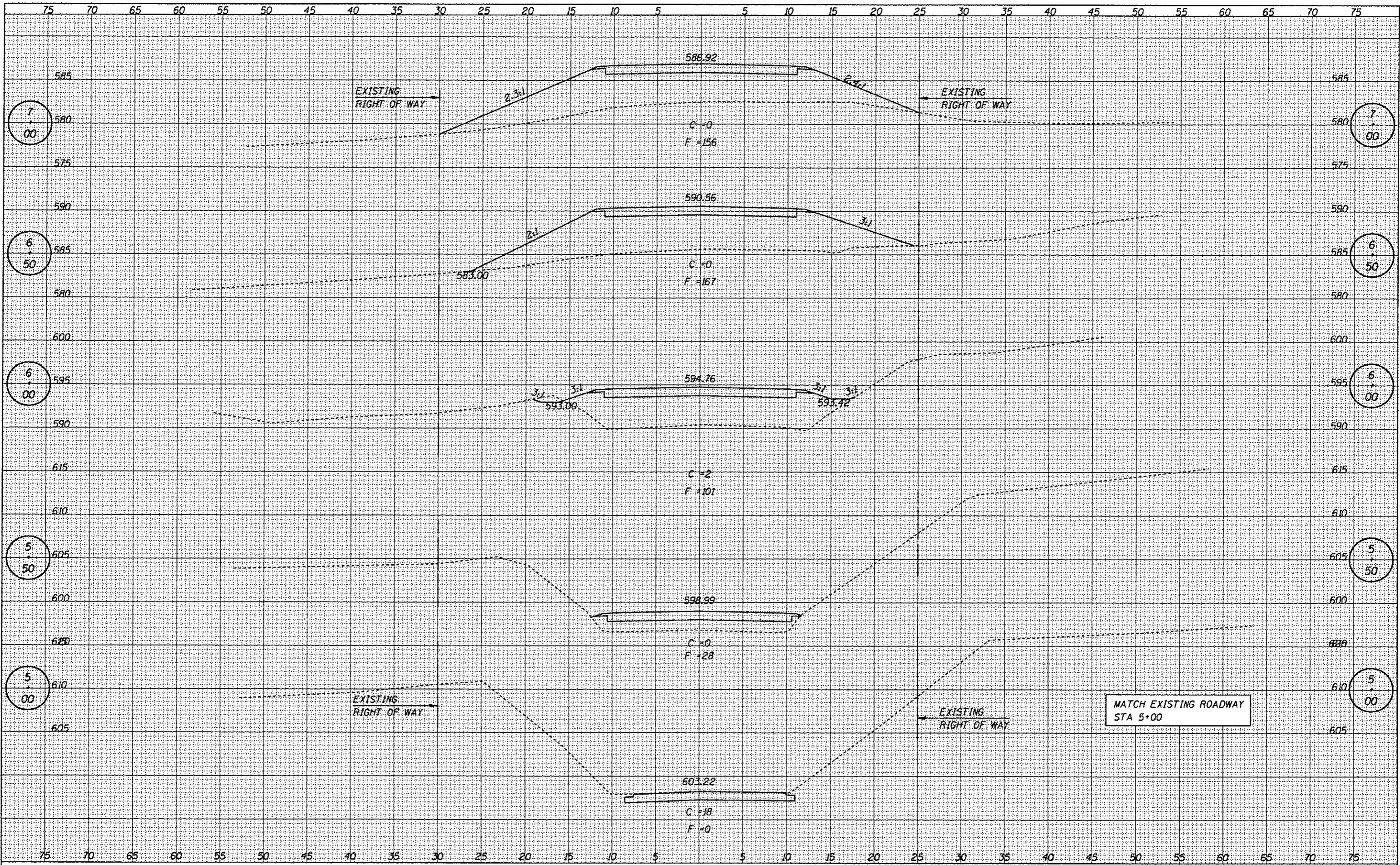
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DATE = 5/14/2009	DRAWN	T.S.H.
	CHECKED	M.D.C.

HP PILE DETAILS
STRUCTURE NO. 059-3329

Sheet 7 of 7	RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	CH 10	08-00092-00-BR	MACOUPIN	23	16
	CONTRACT NO.				
FED. ROAD DIST. NO. [ILLINOIS] FED. AID PROJECT 93595					

DATE	
BY	
FINAL SURVEY	
PLOTTED	
NOTE BOOK	
AREAS CHECKED	

DATE	
BY	
ORIGINAL SURVEY	
PLOTTED	
NOTE BOOK	
AREAS CHECKED	



CEC Cummins Engineering Corporation
Civil and Structural Engineering

JOB # 2228
FILE NAME = 2228***.dgn
PLOT SCALE = 1/8" = 1'-0"
PLOT DATE = 1/3/2013

DESIGNED - NAK
DRAWN - AJH
CHECKED - NAK
DATE - 05/04/2009

REVISED -
REVISED -
REVISED -
REVISED -

**MACOUPIN COUNTY
CH 10 BRIDGE REPLACEMENT**

CROSS SECTIONS - CH 10

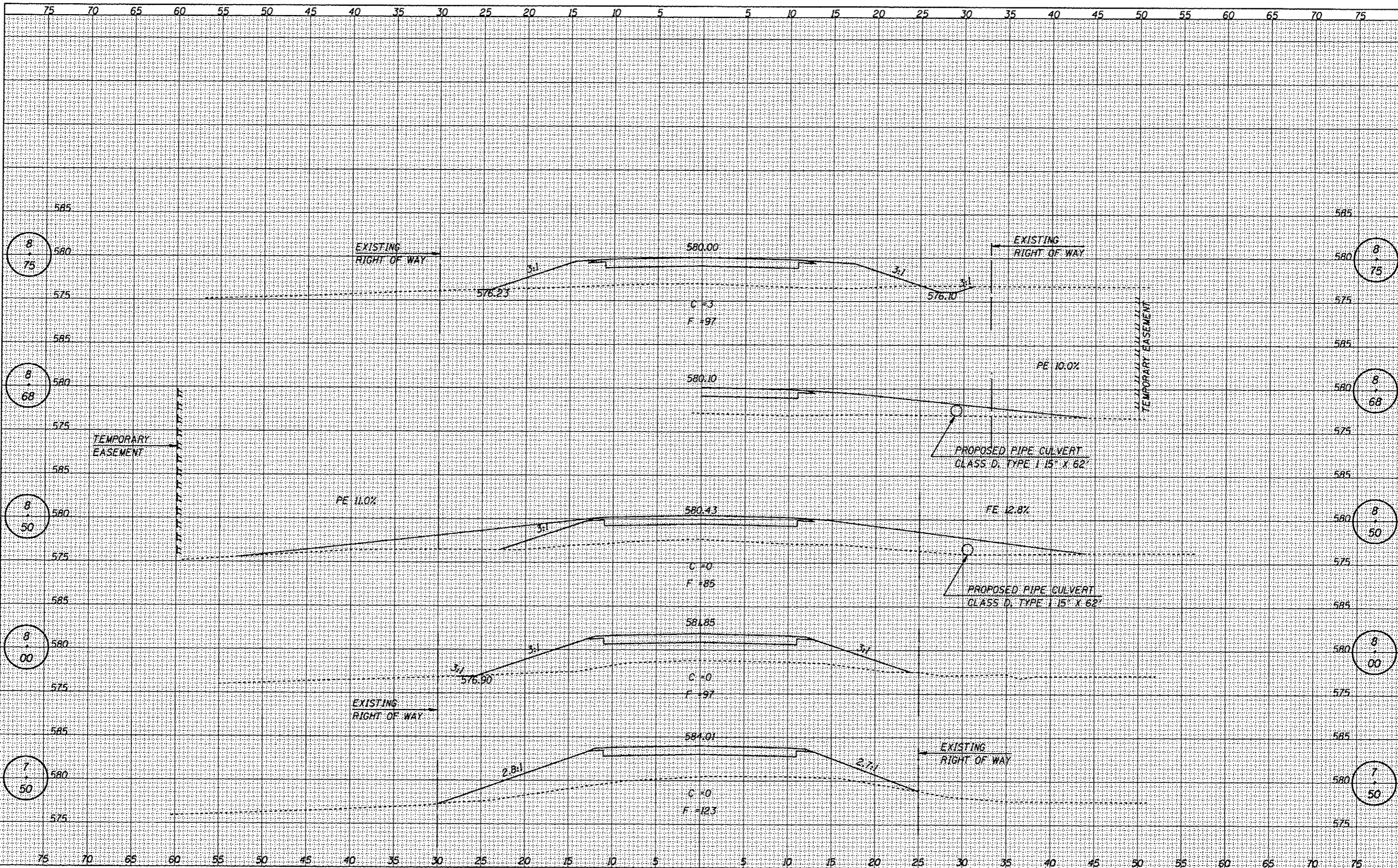
SCALE: SHEET NO. OF SHEETS STA. TO STA.

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 10	08-00092-00-BR	MACOUPIN	23	17
CONTRACT NO.				
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

93595

DATE	
BY	
SAVED	
PLotted	
TEMPLATE	
AREAS	
CHECKED	
NO.	

DATE	
BY	
SAVED	
PLotted	
TEMPLATE	
AREAS	
CHECKED	
NO.	



CEC Cummins Engineering Corporation
Civil and Structural Engineering

JOB # 2228
FILE NAME = 2228.dgn
PLOT SCALE = 10,0000 ft / in.
PLOT DATE = 1/3/2013

DESIGNED - NAK
DRAWN - AJH
CHECKED - NAK
DATE - 05/04/2009

REVISED -
REVISED -
REVISED -
REVISED -

**MACOUPIN COUNTY
CH 10 BRIDGE REPLACEMENT**

CROSS SECTIONS - CH 10

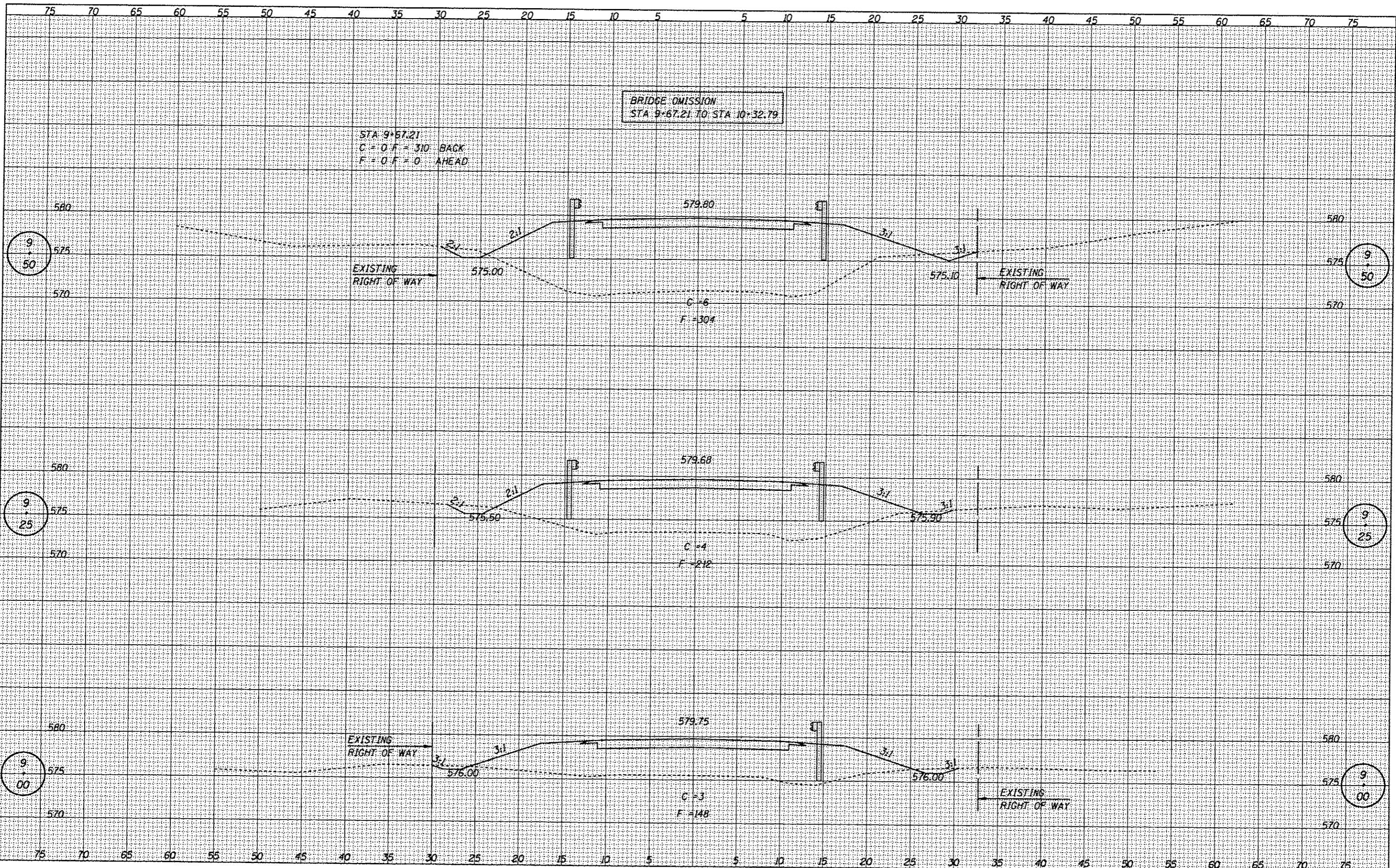
SCALE: SHEET NO. OF SHEETS STA. TO STA.

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 10	08-00092-00-BR	MACOUPIN	23	18
CONTRACT NO.				
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

93595

DATE	
BY	
SURVEYED	
PLOTTED	
TEMPLATE	
NOTE BOOK	
AREAS CHECKED	
NO.	

DATE	
BY	
SURVEYED	
PLOTTED	
TEMPLATE	
NOTE BOOK	
AREAS CHECKED	
NO.	



BRIDGE OMISSION
STA 9+67.21 TO STA 10+32.79

STA 9+57.21
C = 0. F = 310 BACK
F = 0. F = 0 AHEAD

9
50

9
50

9
25

9
25

9
00

9
00



JOB #	2228	DESIGNED -	NAK	REVISED -	
FILE NAME	2228xxxx.dgn	DRAWN -	AJH	REVISED -	
PLOT SCALE	1/8" = 1' / in.	CHECKED -	NAK	REVISED -	
PLOT DATE	1/3/2013	DATE	05/04/2009	REVISED -	

MACOUPIN COUNTY
CH 10 BRIDGE REPLACEMENT

CROSS SECTIONS - CH 10

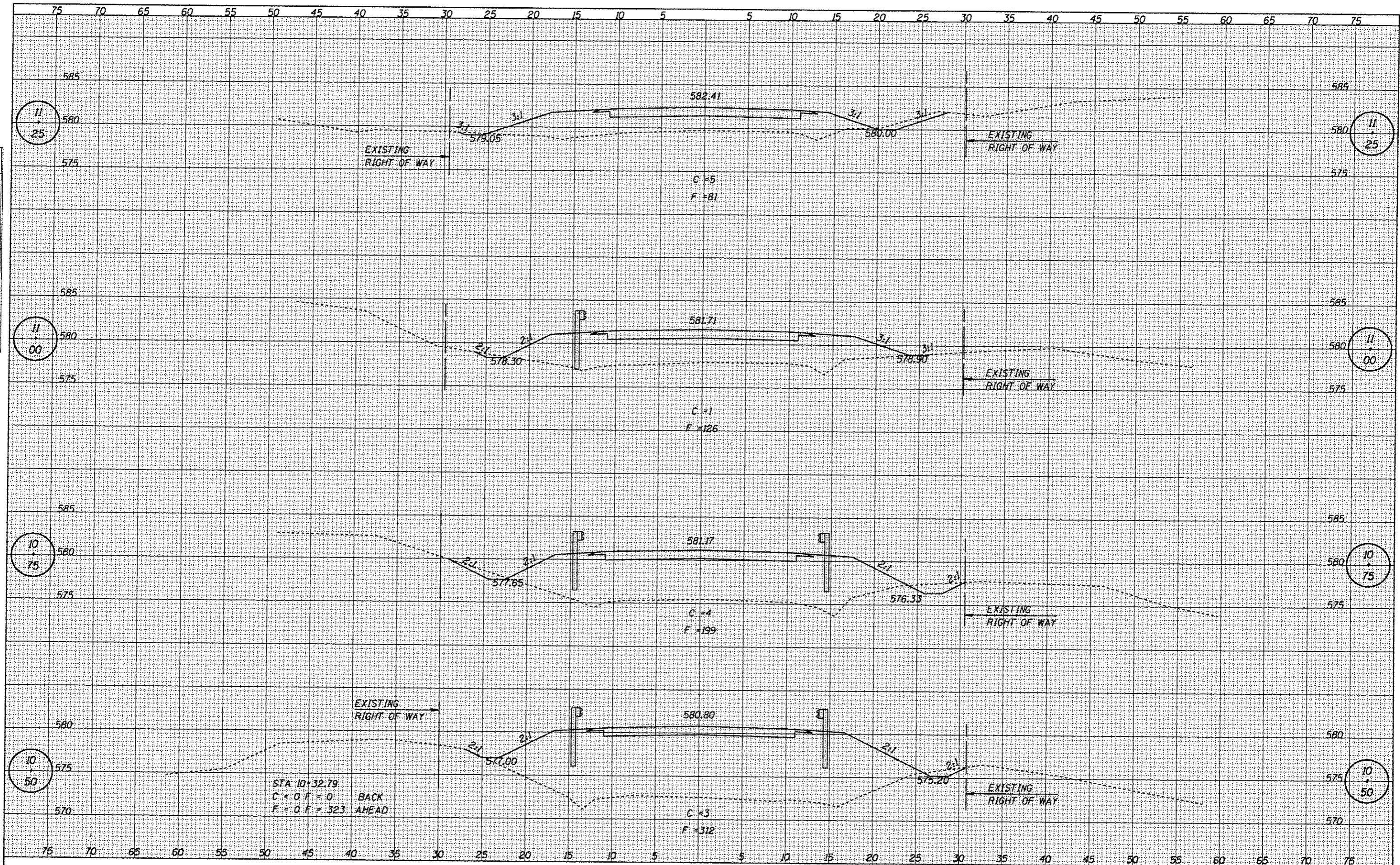
SCALE:	SHEET NO.	OF	SHEETS	STA.	TO	STA.
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F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 10	08-00092-00-BR	MACOUPIN	23	19
CONTRACT NO.				
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

93595

DATE	
BY	
REVISIONS	
1. SURVEYED	
2. PLOTTED	
3. CHECKED	
4. APPROVED	
5. ASSES. CHECKED	

DATE	
BY	
REVISIONS	
1. SURVEYED	
2. PLOTTED	
3. CHECKED	
4. APPROVED	
5. ASSES. CHECKED	



CEC Cummins Engineering Corporation Civil and Structural Engineering	JOB # 2228	DESIGNED - NAK	REVISED -
	FILE NAME = 2228.mxd	DRAWN - AJH	REVISED -
	PLOT SCALE = 10,0000' / 1"	CHECKED - NAK	REVISED -
	PLOT DATE = 1/3/2013	DATE - 05/04/2009	REVISED -

**MACOUPIN COUNTY
CH 10 BRIDGE REPLACEMENT**

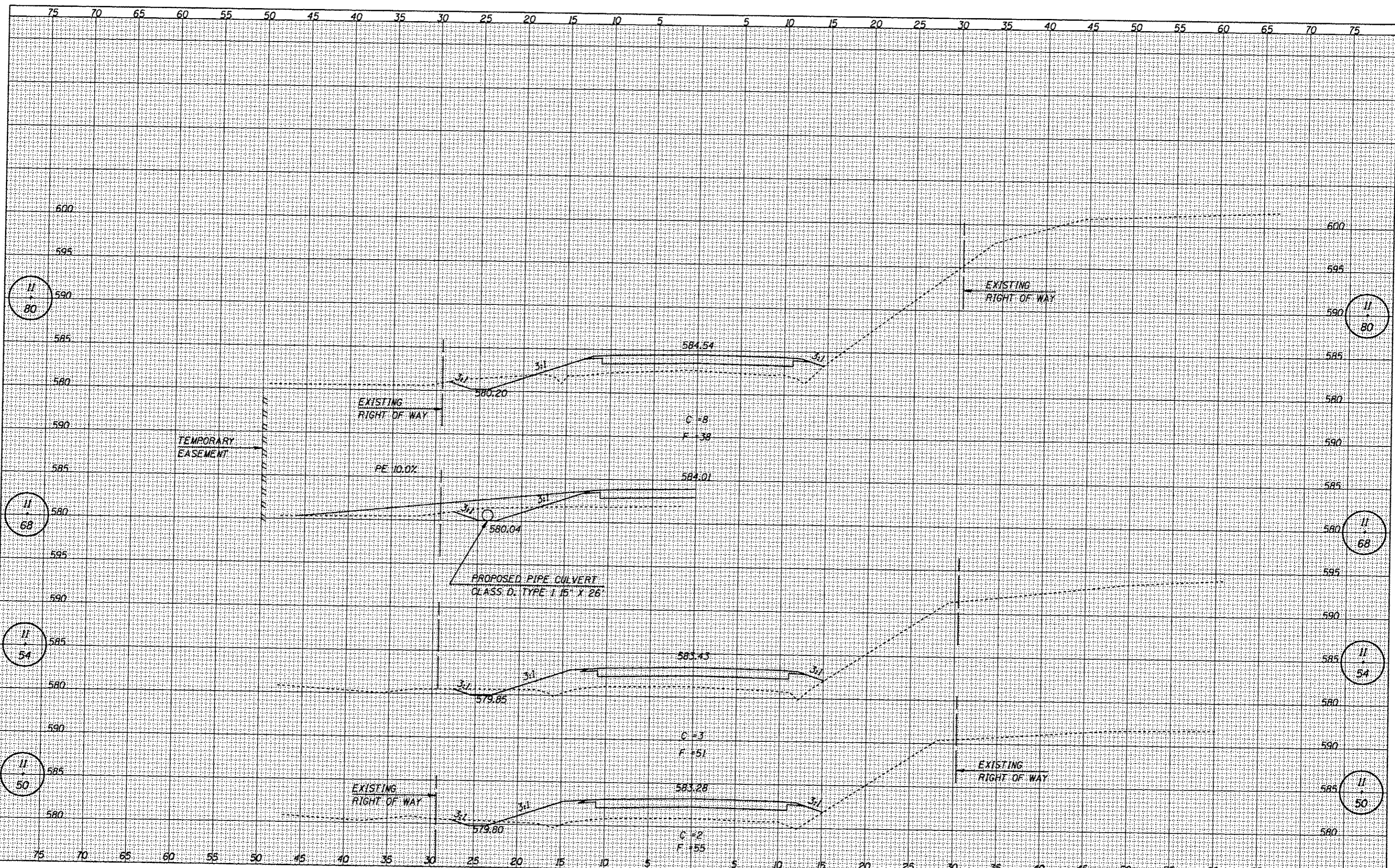
CROSS SECTIONS - CH 10

SCALE:	SHEET NO. OF SHEETS	STA. TO STA.
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F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 10	08-00092-00-BR	MACOUPIN	23	20
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT	93595	

DATE	
BY	
FINAL SURVEY	
PLOTTED	
NOTE BOOK	
NO.	

DATE	
BY	
ORIGINAL SURVEY	
PLOTTED	
NOTE BOOK	
NO.	



CEC Cummins
Engineering
Corporation
Civil and Structural Engineering

JOB # 2228	DESIGNED - NAK	REVISED -
FILE NAME = 2228***.dgn	DRAWN - AJH	REVISED -
PLOT SCALE = 1/8" = 1'-0"	CHECKED - NAK	REVISED -
PLOT DATE = 1/3/2013	DATE - 05/04/2009	REVISED -

**MACOUPIN COUNTY
CH 10 BRIDGE REPLACEMENT**

CROSS SECTIONS - CH 10

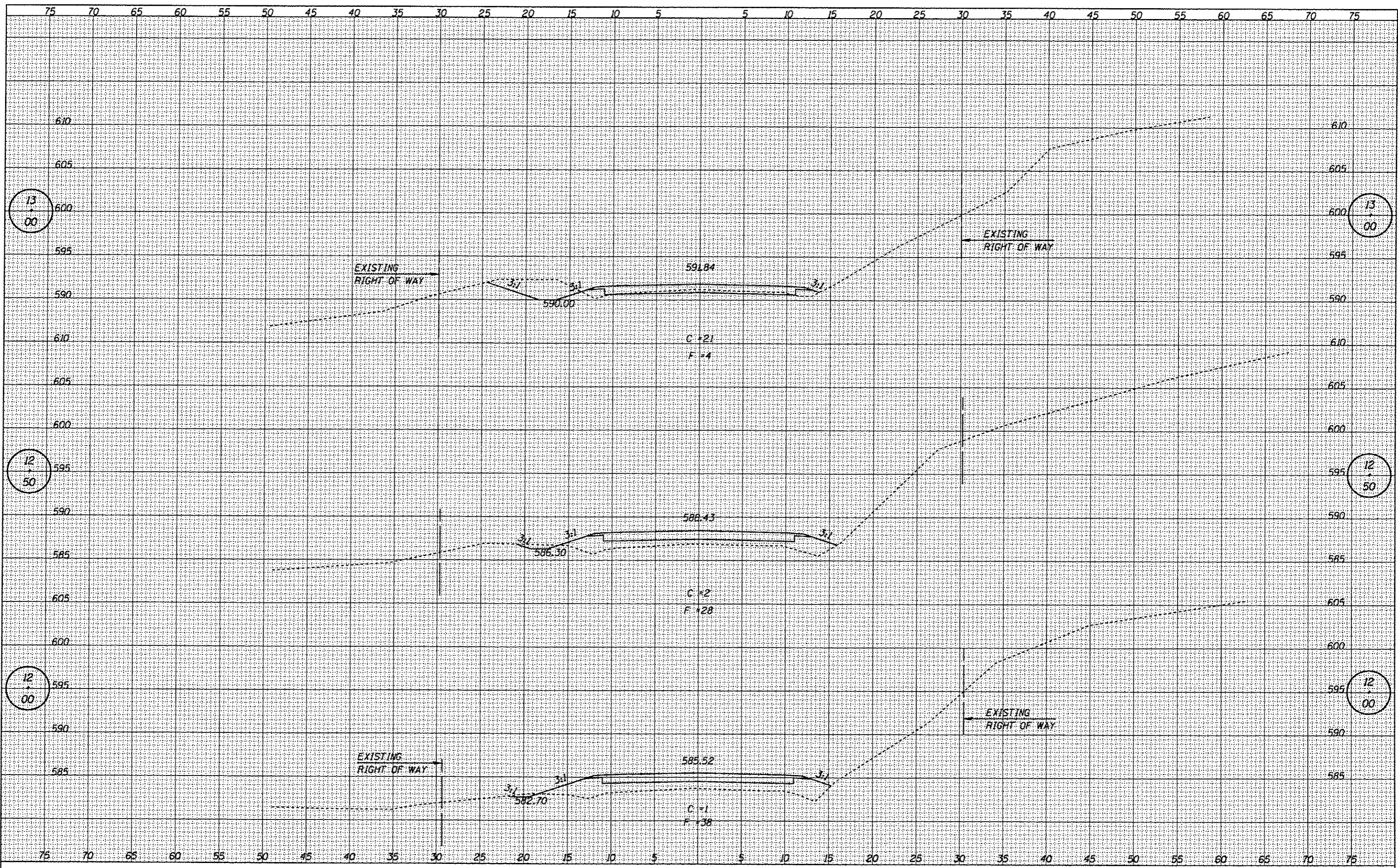
SCALE: SHEET NO. OF SHEETS STA. TO STA.

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 10	08-00092-00-BR	MACOUPIN	23	21
CONTRACT NO.				
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

93595

DATE	
BY	
SURVEYED	
PLOTTED	
EMPLATE	
NOTE BOOK	
AREAS CHECKED	

DATE	
BY	
SURVEYED	
PLOTTED	
EMPLATE	
NOTE BOOK	
AREAS CHECKED	



CEC Cummins Engineering Corporation
Civil and Structural Engineering

JOB # 2228
FILE NAME = 2228.ssd.dgn
PLOT SCALE = 1/8,000 ft / in.
PLOT DATE = 1/3/2013

DESIGNED -	NAK	REVISED -	
DRAWN -	AJH	REVISED -	
CHECKED -	NAK	REVISED -	
DATE -	05/04/2009	REVISED -	

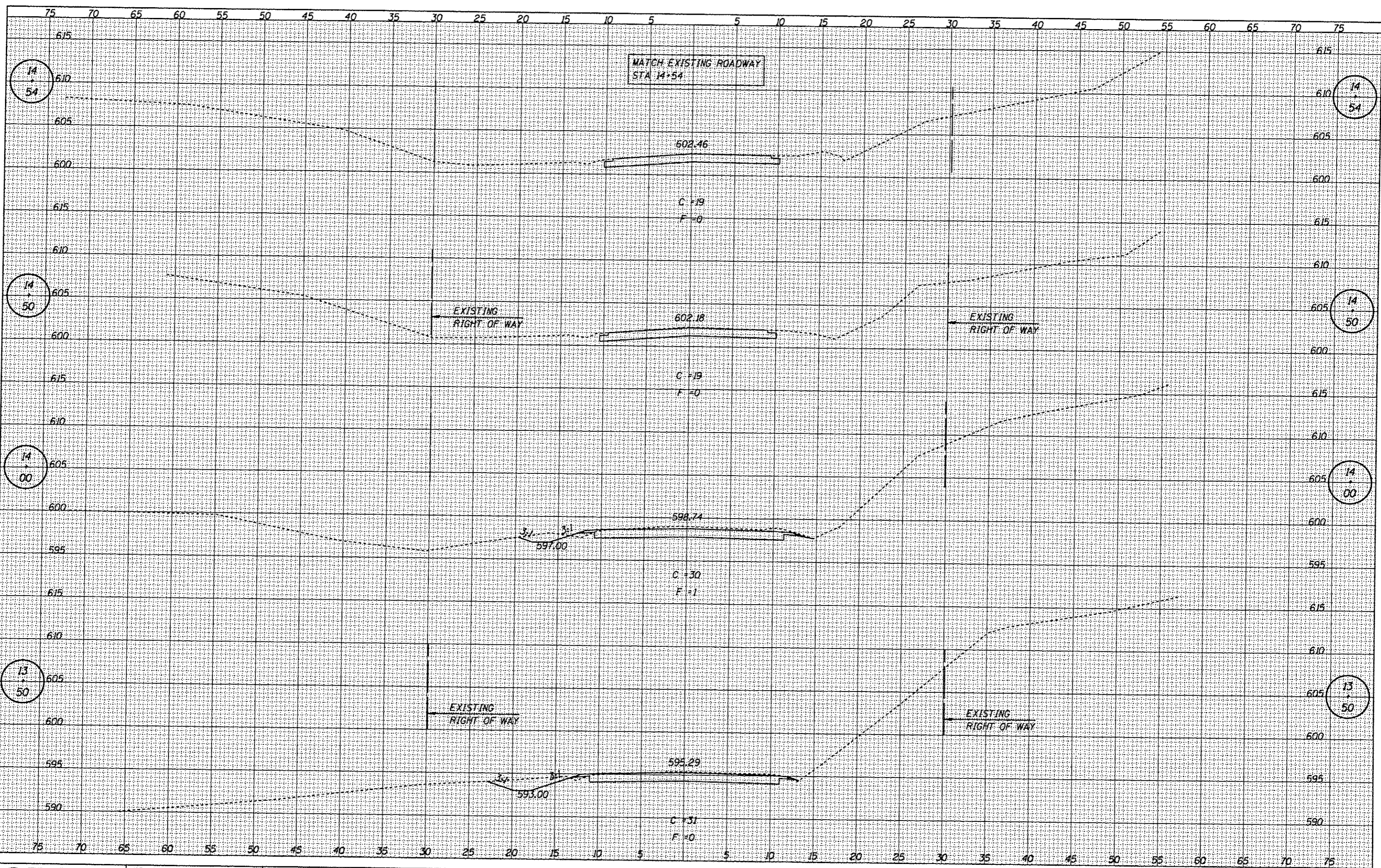
**MACOUPIN COUNTY
CH 10 BRIDGE REPLACEMENT**

CROSS SECTIONS - CH 10

SCALE: SHEET NO. OF SHEETS STA. TO STA.

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 10	08-00092-00-BR	MACOUPIN	23	22
CONTRACT NO.				
FED. ROAD DIST. NO.			ILLINOIS FED. AID PROJECT	

93595



DATE: _____
 BY: _____
 SURVEYED: _____
 PLOTTED: _____
 CHECKED: _____
 ORIGINAL SURVEY: _____
 NOTE BOOK: _____
 NO. _____

DATE: _____
 BY: _____
 SURVEYED: _____
 PLOTTED: _____
 CHECKED: _____
 ORIGINAL SURVEY: _____
 NOTE BOOK: _____
 NO. _____



JOB # 2228	DESIGNED - NAK	REVISED -
FILE NAME = 2228***.dgn	DRAWN - AJH	REVISED -
PLOT SCALE = 10.0000' = 1"	CHECKED - NAK	REVISED -
PLOT DATE = 1/3/2013	DATE - 05/04/2009	REVISED -

**MACOUPIN COUNTY
 CH 10 BRIDGE REPLACEMENT**

CROSS SECTIONS - CH 10

SCALE: _____ SHEET NO. _____ OF _____ SHEETS STA. _____ TO STA. _____

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 10	08-00092-00-BR	MACOUPIN	23	23
CONTRACT NO. 98595				
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				