

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 28	*	**	24	1
PROJECT BRS-1741(103)				
* 03-00085-00-BR & 03-00126-00-BR				
** MACOUPIN COUNTY & MONTGOMERY COUNTY				

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

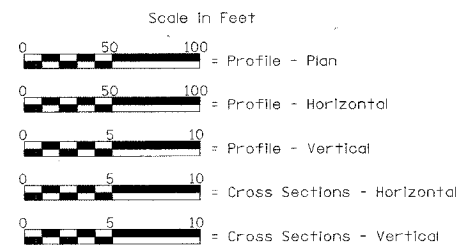
PLANS FOR PROPOSED
HIGHWAY BRIDGE PROGRAM
PROJECT NO. BRS-1741(103)
F.A.S. 1741 (C.H. 28) OVER MACOUPIN CREEK
SECTION 03-00085-00-BR
MACOUPIN COUNTY
SECTION 03-00126-00-BR
MONTGOMERY COUNTY
JOB NUMBER C-96-204-05

INDEX OF SHEETS

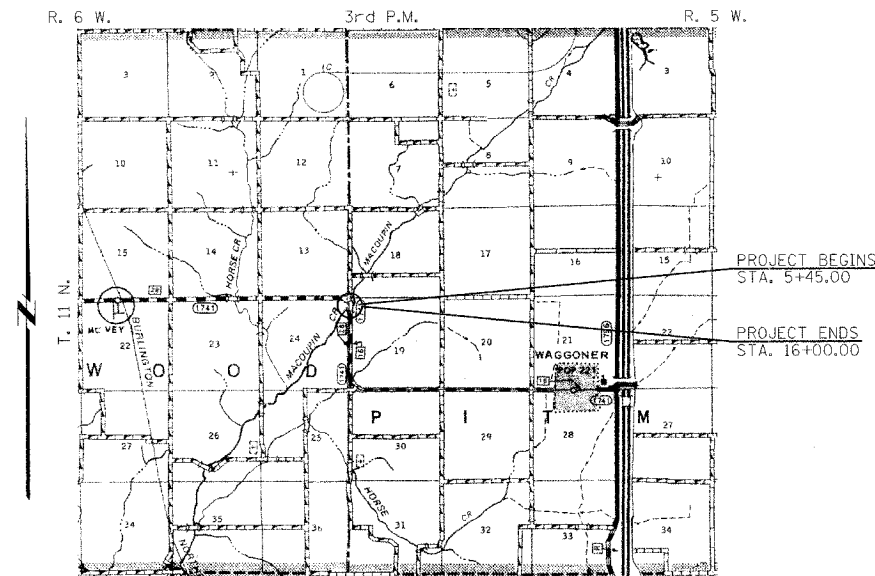
- 1 - TITLE SHEET
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- 3 - SCHEDULES, DETAILS & TYPICAL SECTIONS
- 4 - PLAN & PROFILE
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- 7 & 8 - DECK ELEVATIONS
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- STANDARD 000001-04
- STANDARD 280001-03
- STANDARD 515001-02
- STANDARD 630301-04
- STANDARD 631026-03
- STANDARD 635006-02
- STANDARD 666001
- STANDARD 701201-02
- STANDARD 702001-06
- STANDARD 780001-01
- STANDARD BLR 21-6

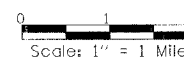


Land Section - 24
Land Quarter Section - N.E.
Design Class: Rural Collector
A.D.T. = 150 (1995)
A.D.T. = 195 (2021)



LOCATION PLAN

Length of Section - 1055.00 Feet = 0.200 Miles



EXISTING STRUCTURE: THREE SPAN CAST IN PLACE CONCRETE DECK BRIDGE WITH CONCRETE CURB AND RAILING ON STEEL STRINGERS WITH CONCRETE ABUTMENTS AND PIERS. ±106'-0" BK.-BK. ABUTMENTS, ±36'-6" (SPANS 1 & 3), ±33'-0" (SPAN 2), ±22'-0" OUT-OUT, DECK WIDTH, 0° SKEW. EXISTING STRUCTURE NO. 059-3027.

PROPOSED STRUCTURE: THREE SPAN REINFORCED CONCRETE DECK ON P.P.C. I-BEAMS ON SOLID CONCRETE PIERS AND INTEGRAL CONCRETE ABUTMENTS, 120'-0" BK.-BK. ABUTMENTS ALONG TANGENT, 40'-0" CLEAR DECK WIDTH, TYPE S1 RAILING, 15° SKEW RT. FORWARD. PROPOSED STRUCTURE NO. 059-3327



Christopher P. Kohlbus 9/8/06
EXPIRATION DATE: 11/30/07

APPROVED August 25, 2006 <i>Thomas A. Reinhart</i> MACOUPIN COUNTY ENGINEER
APPROVED August 3, 2006 <i>[Signature]</i> MONTGOMERY COUNTY ENGINEER
PASSED Oct 13, 2006 <i>[Signature]</i> DISTRICT SIX ENGINEER OF LOCAL ROADS & STREETS
PASSED Oct 16, 2006 <i>[Signature]</i> DISTRICT SIX CONSTRUCTION ENGINEER
Released For Bid Based on Limited Review Oct 13, 2006 <i>Christina M. Reed</i> DEPUTY DIRECTOR OF HIGHWAYS REGION FOUR ENGINEER STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

TOLL FREE
"JOINT UTILITY LOCATION INFORMATION FOR EXCAVATORS"
(CALL I.E.) TELEPHONE NUMBER
1-800-892-0123

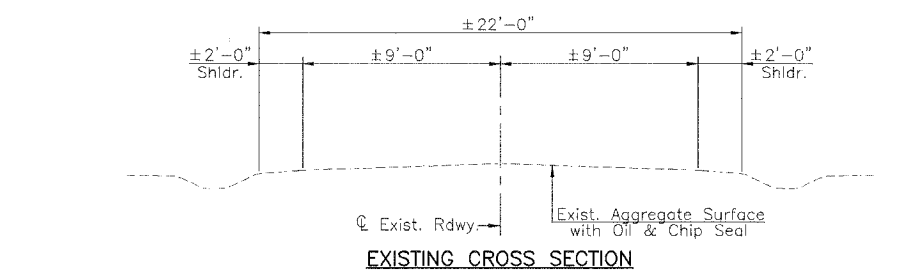
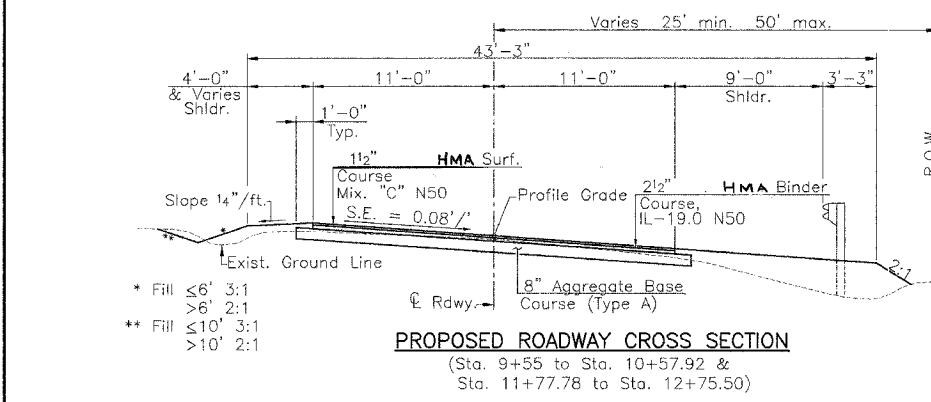
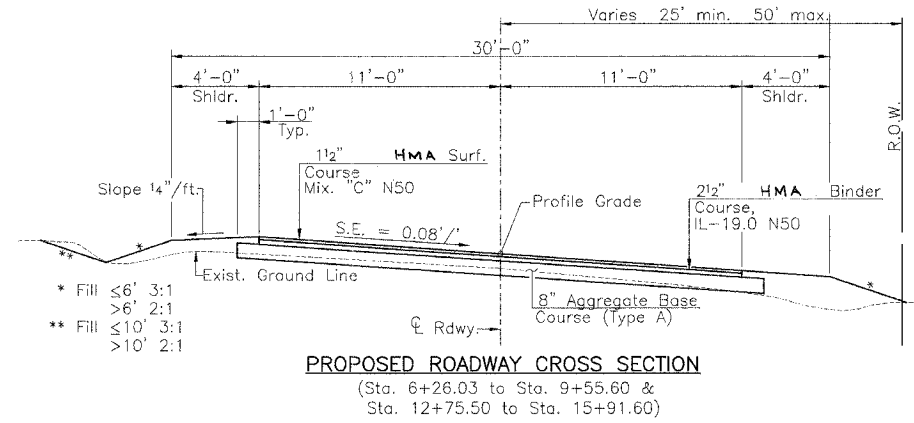
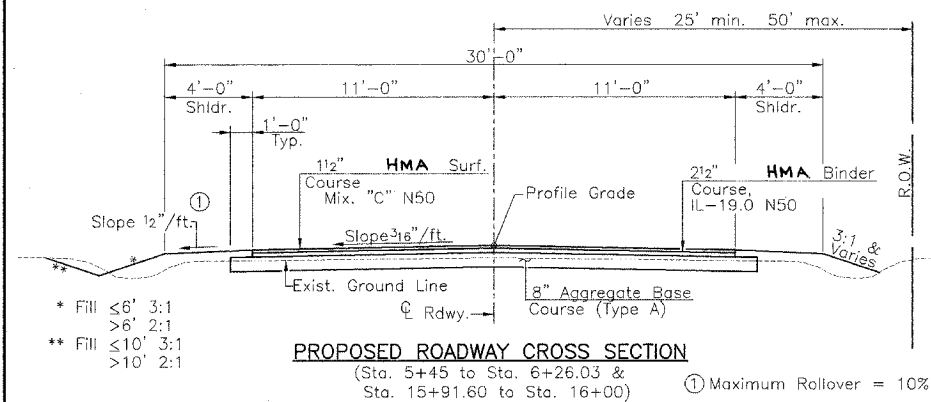
CONTRACT NO. 93428

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 28	*	**	24	2

PROJECT BRS-1741(103)
 * 03-00085-00-BR & 03-00126-00-BR
 ** MACOUPIN COUNTY & MONTGOMERY COUNTY

SUMMARY OF QUANTITIES

Code No.	Item	Unit	Quantity
20200100	Earth Excavation	Cu. Yd.	1127
20300100	Channel Excavation	Cu. Yd.	600
* 20400800	Furnished Excavation	Cu. Yd.	2224
* 25001000	Seeding Class 2 (Special)	Acre	1.4
28000250	Temporary Erosion Control Seeding	Pound	140
28000300	Temporary Ditch Checks	Each	8
28000400	Perimeter Erosion Barrier	Foot	1805
28100807	Stone Dumped Riprap, Class A4	Ton	693
28200200	Filter Fabric	Sq. Yd.	863
35100100	Aggregate Base Course, Type A	Ton	1382
40600100	Bituminous Materials (Prime Coat)	Gallon	935
40600982	Hot-Mix Asphalt Surface Removal - Butt Joint	Sq. Yd.	81
* 50100100	Removal of Existing Structures	Each	1
50200100	Structure Excavation	Cu. Yd.	143
50300225	Concrete Structures	Cu. Yd.	169.9
50300255	Concrete Superstructure	Cu. Yd.	165.8
50300260	Bridge Deck Grooving	Sq. Yd.	507
50300300	Protective Coat	Sq. Yd.	534
50400805	Furnishing and Erecting Precast Prestressed Concrete I Beams 36 In.	Foot	822.5
50800205	Reinforcement Bars, Epoxy Coated	Pound	45760
50900205	Steel Railing, Type S1	Foot	240
51201400	Furnishing Steel Piles HP 10 x 42	Foot	682
51202305	Driving Piles	Foot	682
51203400	Test Pile, Steel HP 10 x 42	Each	2
51500100	Name Plates	Each	1
54200223	Pipe Culverts, Class D, Type 1 18"	Foot	28
Δ 63100075	Traffic Barrier Terminal, Type 5A	Each	3
Δ* 63100167	Traffic Barrier Terminal, Type 1 Special (Tangent)	Each	3
66600105	Furnishing and Erecting Right of Way Markers	Each	4
67100100	Mobilization	L. Sum	1
* 70101700	Traffic Control And Protection	L. Sum	1
Δ 78001110	Paint Pavement Marking - Line 4"	Foot	2110
Δ 78201000	Terminal Marker - Direct Applied	Each	4
40603310	Hot-Mix Asphalt Surface Course, Mix "C" N50	Ton	181
40603080	Hot-Mix Asphalt Binder Course, IL-19.0 N50	Ton	301
* X5020501	Underwater Structure Excavation Protection - Location 1	Each	1
* X5020502	Underwater Structure Excavation Protection - Location 2	Each	1
* Z0013798	Construction Layout	L. Sum	1
* Z0014800	Culvert to be Cleaned	Foot	28



GENERAL NOTES

Where section or subsection stones are encountered, the Engineer shall be notified before such stones are removed. The contractor shall protect and preserve all property markers and monuments until the owner, authorized surveyor, or agent has witnessed or referenced their location.

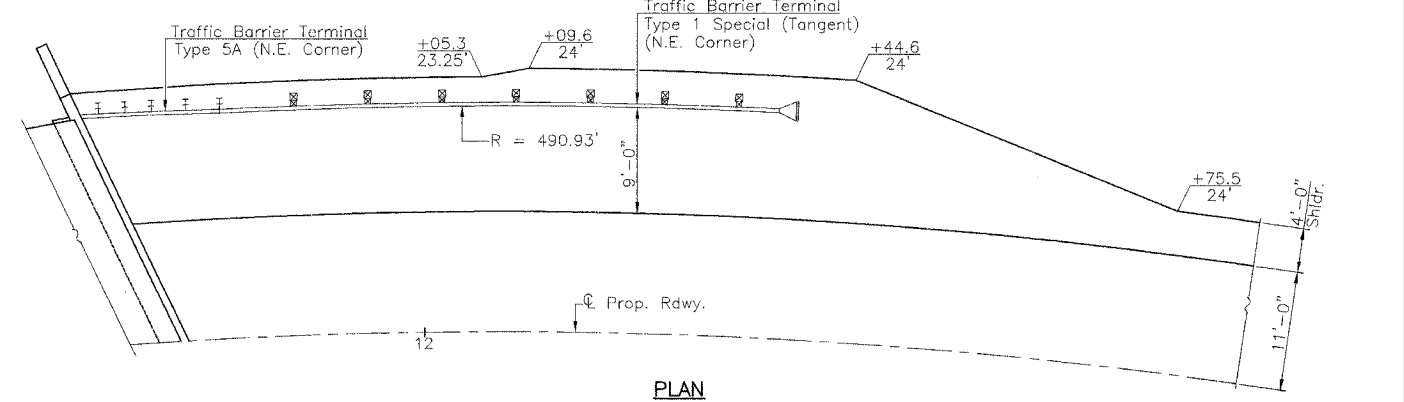
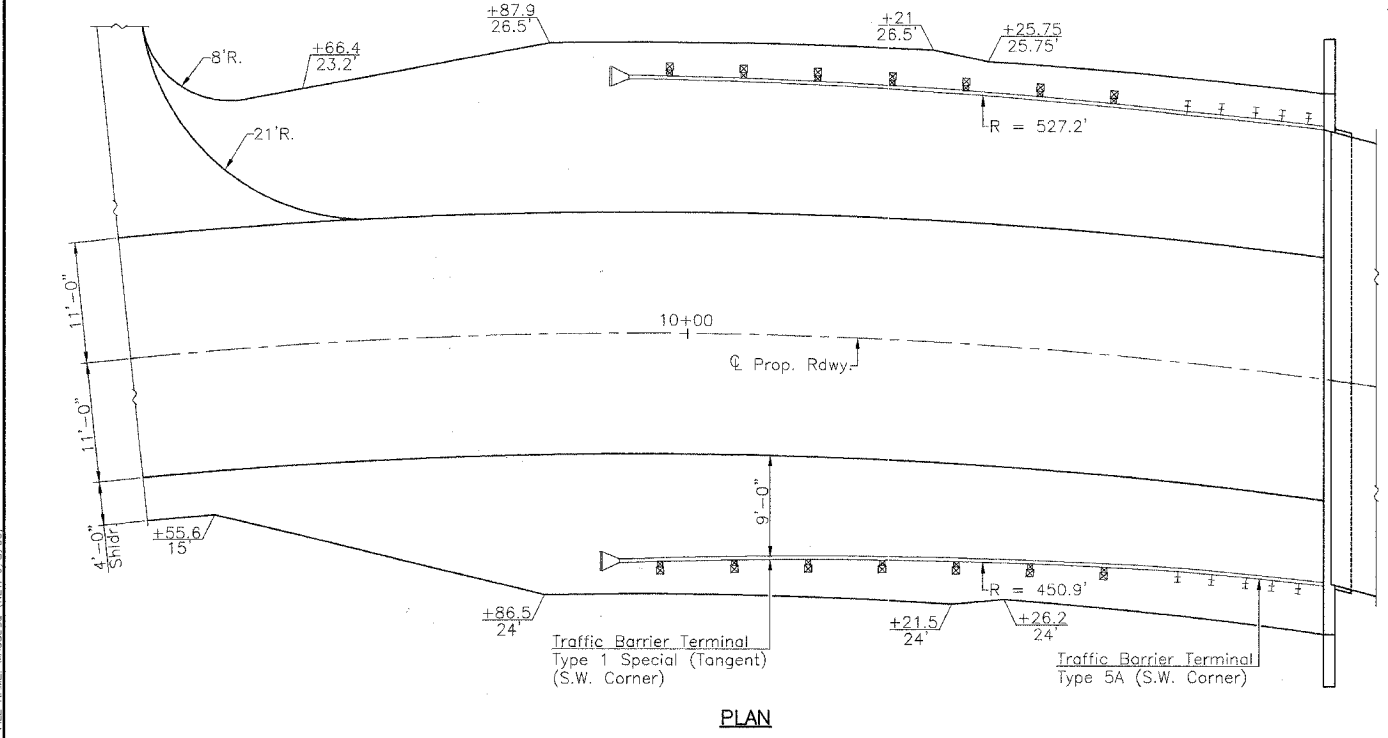
Seeding: Fertilizer nutrients shall be applied at a ratio of 1:1:1 and at a rate of 270 pounds per acre.

Mulch shall be applied at the rate of 2 tons per acre.

Bituminous Materials computed at the rate of 0.375 Gal./Sq. Yd.

Areas to be seeded shall consist of all disturbed earth surfaces within the right-of-way as directed by the Engineer.

Hot-Mix Asphalt quantities based on 112 lb./Sq. Yd./Inch.



SUMMARY OF QUANTITIES, DETAILS & TYPICAL SECTIONS
 C.H. 28 OVER MACOUPIN CREEK
 SECTION 03-00085-00-BR
 MACOUPIN COUNTY
 SECTION 03-00126-00-BR
 MONTGOMERY COUNTY

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 28	*	**	24	3

PROJECT BRS-1741(103)
 * 03-00085-00-BR & 0 -00126-00-BR
 ** MACOUPIN COUNTY & MONTGOMERY COUNTY

EARTHWORK SCHEDULE

Location	Earth Excavation	Earth Excavation Adjusted For Shrinkage	Embankment	Earthwork Balance Waste (+) or Shortage (-)
	Cubic Yard	Cubic Yard	Cubic Yard	Cubic Yard
Sta. 5+45 to Sta. 6+00	11	8	5	3
Sta. 6+00 to Sta. 7+00	48	36	54	-18
Sta. 7+00 to Sta. 8+00	35	26	169	-143
Sta. 8+00 to Sta. 9+00	13	10	387	-377
Sta. 9+00 to Sta. 10+00	133	100	750	-638
Sta. 10+00 to Sta. 10+50	137	103	488	-377
Sta. 10+50 to Sta. 10+57.92	23	17	77	-59
Bridge Omission - Sta. 10+57.92 to Sta. 11+77.78				
Sta. 11+77.78 to Sta. 12+00	94	71	202	-131
Sta. 12+00 to Sta. 13+00	350	262	778	-516
Sta. 13+00 to Sta. 14+00	185	139	344	-205
Sta. 14+00 to Sta. 15+00	72	54	69	-15
Sta. 15+00 to Sta. 16+00	26	19	46	-27
Total	1127	845	***3069	***-2224

*** Quantity has been reduced by 300 Cu. Yds. (50% of Channel Excavation that may be used in the Embankment as directed by the Engineer.)

SCHEDULE PAINT PAVEMENT MARKING - LINE 4"

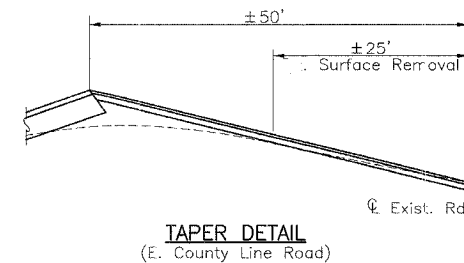
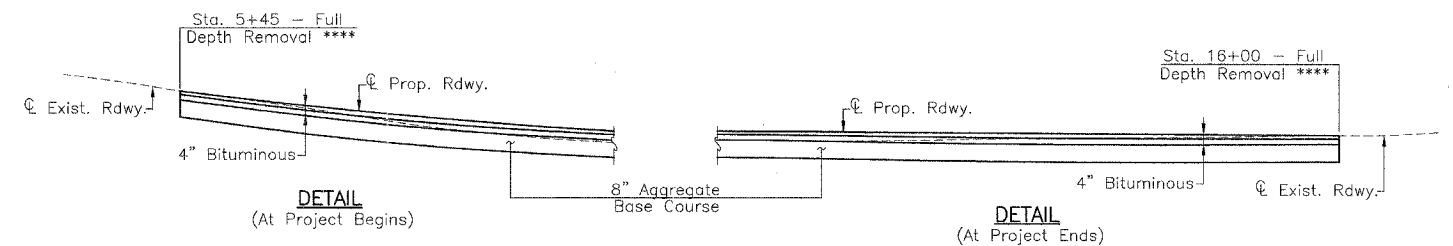
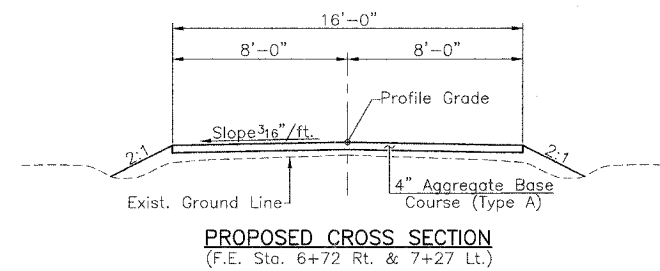
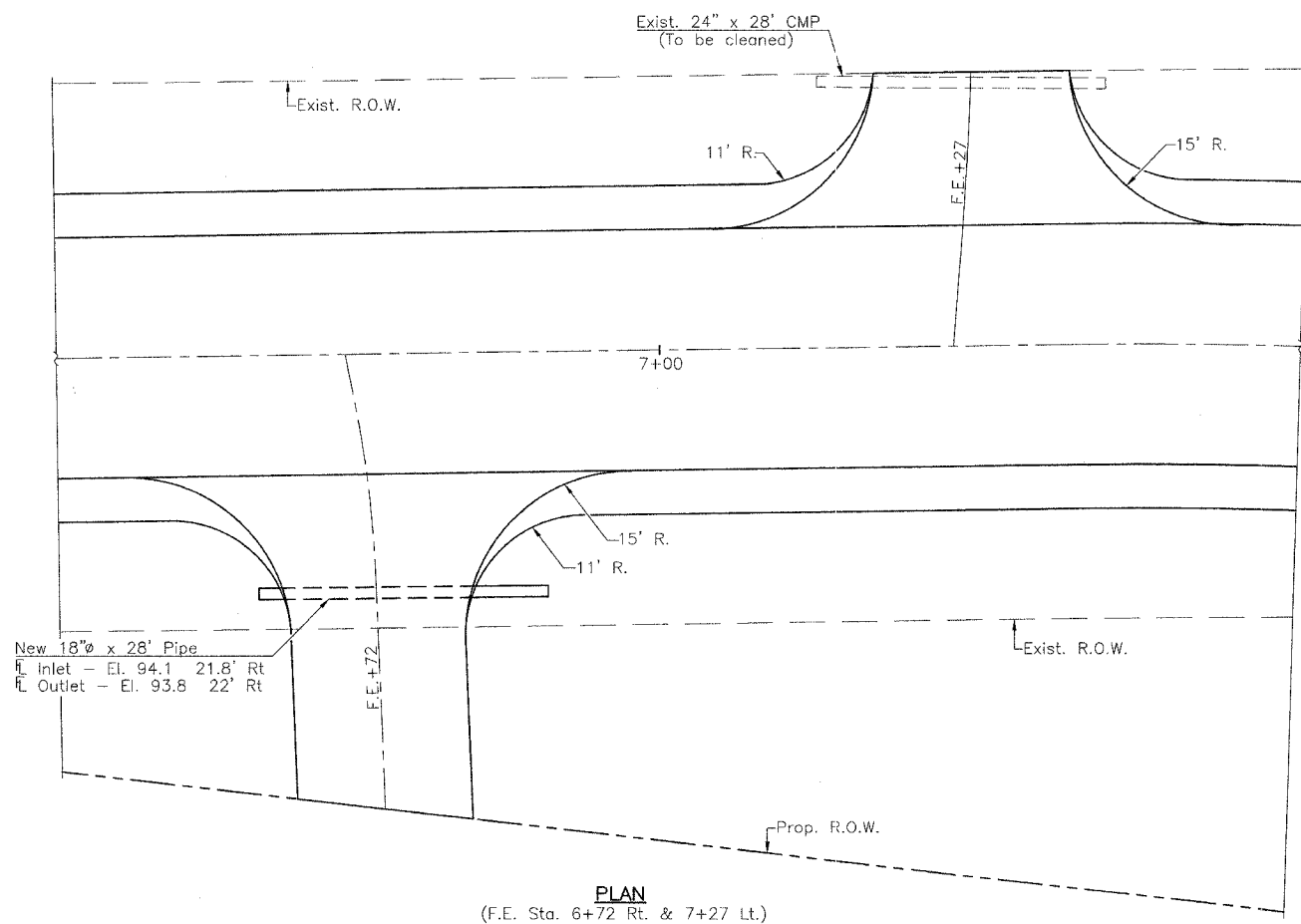
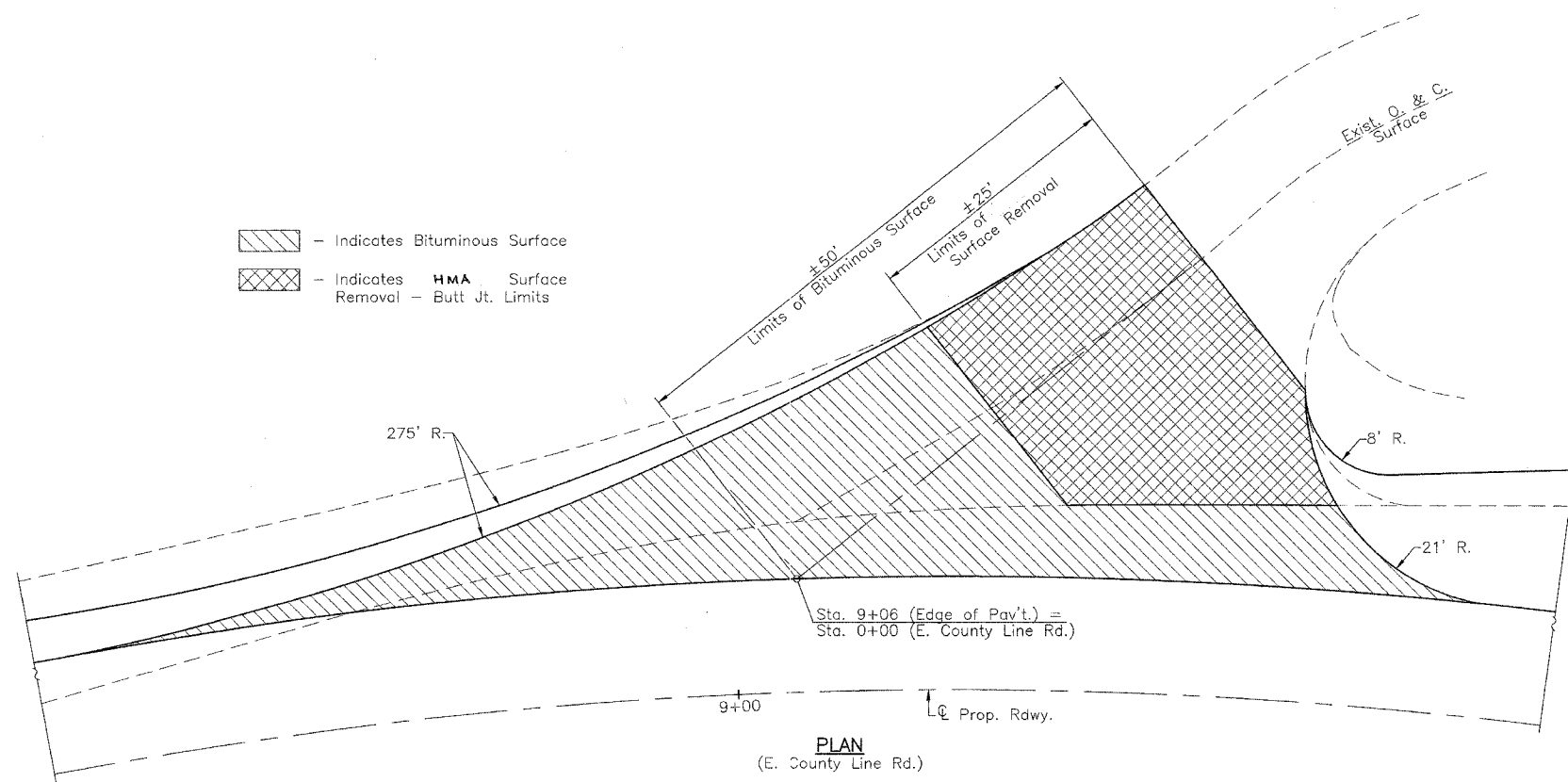
Location	Yellow Solid No Passing Line (Foot)	Total (Foot)
Sta. 5+45 to Sta. 16+00	2110	2110

SCHEDULE FURNISHING AND ERECTING R.O.W. MARKERS

Location	Quantity (Each)
Sta. 5+45, 2994' Rt.	1
Sta. 7+39 50' Rt.	1
Sta. 14+78.81 50' Rt.	1
Sta. 16+00, 30' Rt.	1
Total	4

HMA MIXTURE REQUIREMENTS

Mixture Use	Surface Course	Binder Course
AC/PG	PG64-22	PG64-22
RAP % (MAX.)	15	25
Design Air Voids	4% @ Ndes = 50	4% @ Ndes = 50
(Gradation Mixture)	IL 9.5 or 12.5	IL-19.0
Friction Agg.	Mix. "C"	N/A



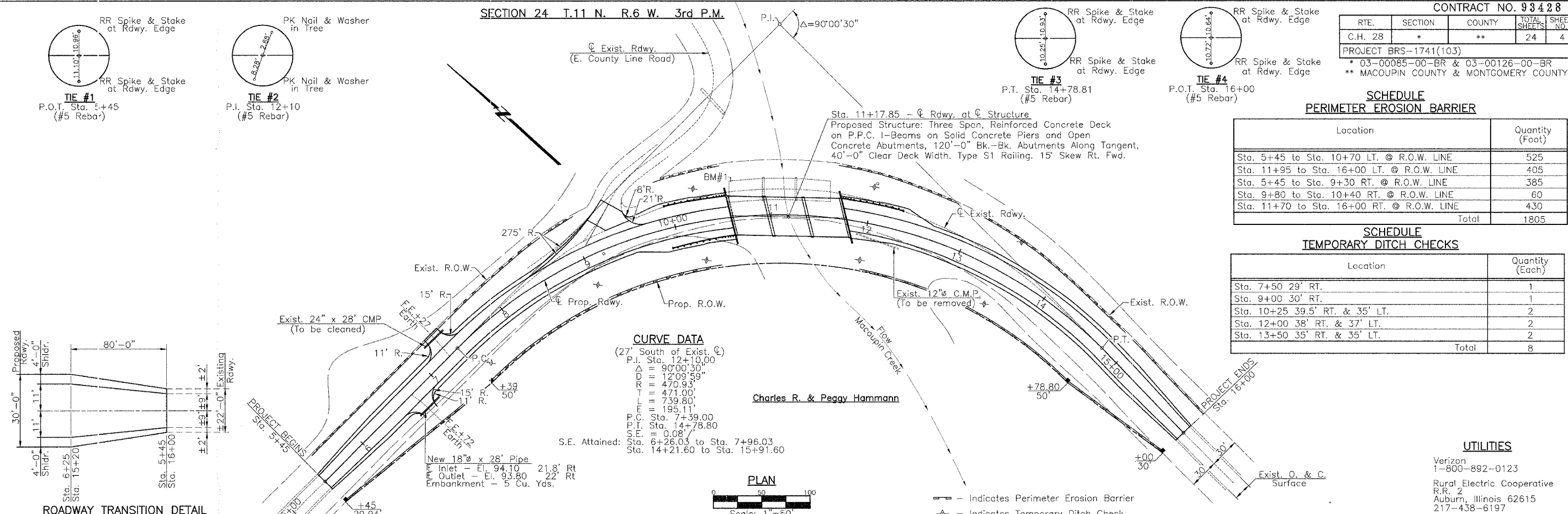
**** - Cost included with Earth Excavation

SCHEDULES, DETAILS & TYPICAL SECTIONS
 C.H. 28 OVER MACOUPIN CREEK
 SECTION 03-00085-00-BR
 MACOUPIN COUNTY
 SECTION 03-00126-00-BR
 MONTGOMERY COUNTY

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 28	*	**	24	4

PROJECT BRS-1741(103)
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 ** MACOUPIN COUNTY & MONTGOMERY COUNTY

SECTION 24 T.11 N. R.6 W. 3rd P.M.



SCHEDULE PERIMETER EROSION BARRIER

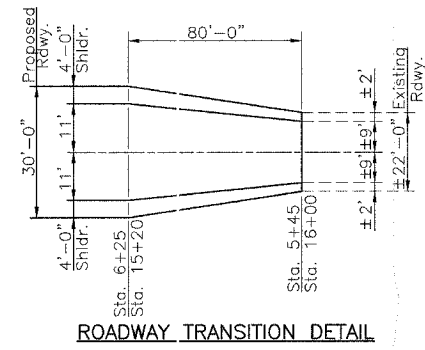
Location	Quantity (Foot)
Sta. 5+45 to Sta. 10+70 LT. @ R.O.W. LINE	525
Sta. 11+95 to Sta. 16+00 LT. @ R.O.W. LINE	405
Sta. 5+45 to Sta. 9+30 RT. @ R.O.W. LINE	385
Sta. 9+80 to Sta. 10+40 RT. @ R.O.W. LINE	60
Sta. 11+70 to Sta. 16+00 RT. @ R.O.W. LINE	430
Total	1805

SCHEDULE TEMPORARY DITCH CHECKS

Location	Quantity (Each)
Sta. 7+50 29' RT.	1
Sta. 9+00 30' RT.	1
Sta. 10+25 39.5' RT. & 35' LT.	2
Sta. 12+00 38' RT. & 37' LT.	2
Sta. 13+50 35' RT. & 35' LT.	2
Total	8

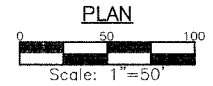
UTILITIES

Verizon
1-800-892-0123
Rural Electric Cooperative
R.R. 2
Auburn, Illinois 62615
217-438-6197

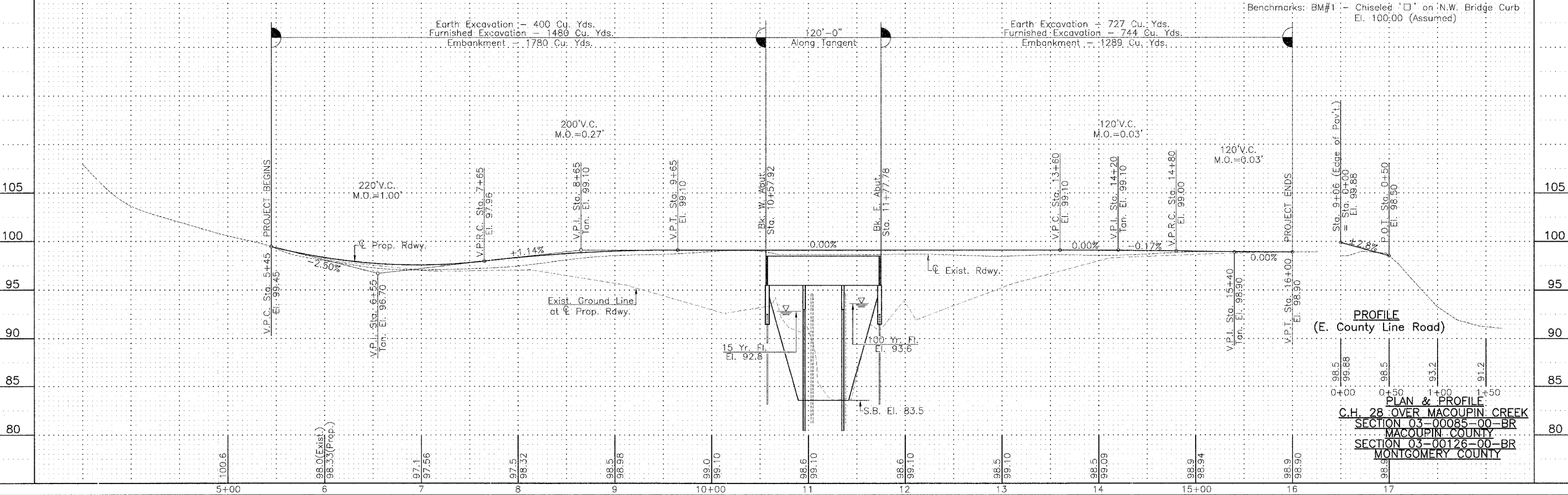


CURVE DATA

(27' South of Exist. C.)
 P.I. Sta. 12+10.00
 $\Delta = 90^{\circ}00'30''$
 $D = 1209.59'$
 $R = 470.83'$
 $L = 471.00'$
 $E = 739.80'$
 $S.E. = 195.11'$
 P.C. Sta. 7+39.00
 P.T. Sta. 14+78.80
 S.P.E. = 0.08
 S.E. Attained: Sta. 6+26.03 to Sta. 7+96.03
 Sta. 14+21.60 to Sta. 15+91.60



— Indicates Perimeter Erosion Barrier
 ◆ Indicates Temporary Ditch Check



PROFILE (E. County Line Road)
 PLAN & PROFILE
 C.H. 28 OVER MACOUPIN CREEK
 SECTION 03-00085-00-BR
 MACOUPIN COUNTY
 SECTION 03-00126-00-BR
 MONTGOMERY COUNTY

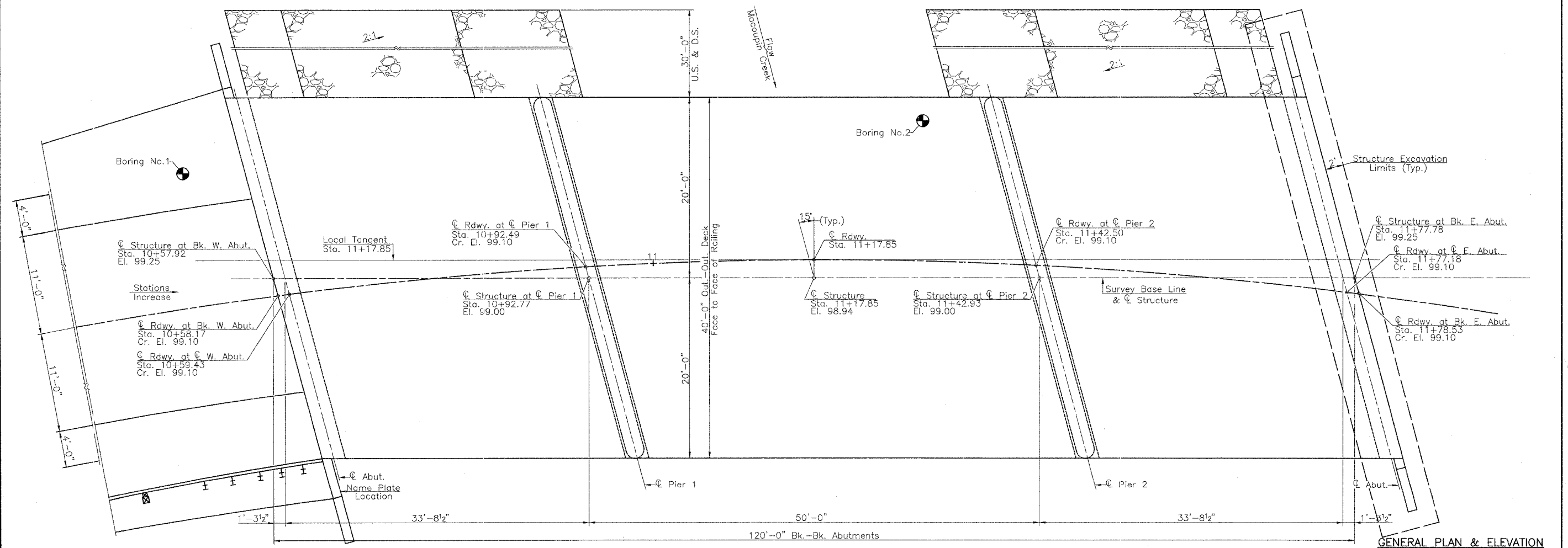
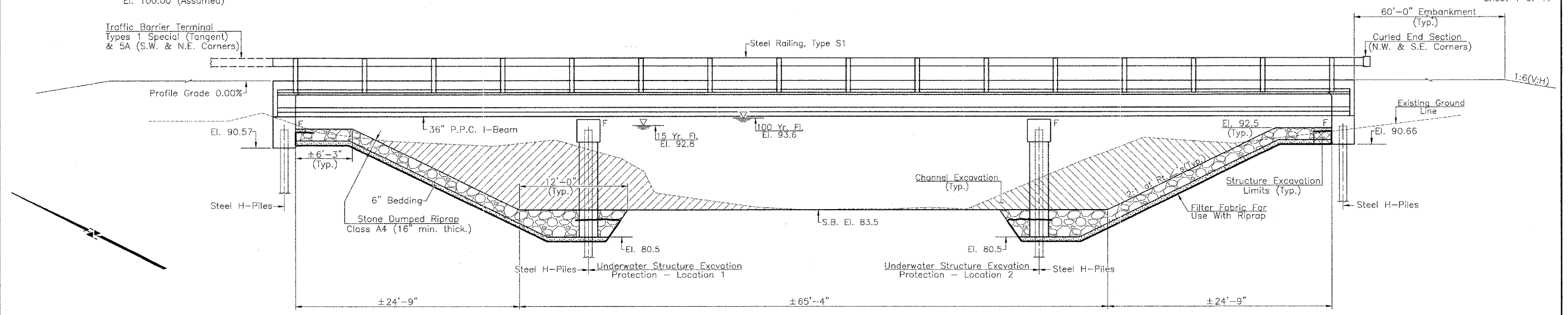
RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 28	*	**	24	5

PROJECT BRS-1741(103)
 * 03-00085-00-BR & 03-00126-00-BR
 ** MACOUPIIN COUNTY & MONTGOMERY COUNTY
 Sheet 1 of 17

Existing Structure: Three Span Cast In Place Concrete Deck Bridge with Concrete Curb and Railing on Steel Stringers with Concrete Abutments and Piers. ±106'-0" Bk.-Bk. Abutments, ±36'-6" (Spans 1 & 3), ±33'-0" (Span 2), ±22'-0" Out. - Out. Deck Width. 0' Skew. Existing Structure No. 059-3027. Salvage to County.

Benchmarks: BM#1 - Chiseled '□' on N.W. Bridge Curb El. 100.00 (Assumed)

Estimated Existing Quantities: Concrete Superstructure - 61.2 Cu. Yds.
 Concrete Substructure - 68.0 Cu. Yds.
 Structural Steel - 50100 lbs.



GENERAL PLAN & ELEVATION
 C.H. 28 OVER MACOUPIN CREEK
 SECTION 03-00085-00-BR
 MACOUPIN COUNTY
 SECTION 03-00126-00-BR
 MONTGOMERY COUNTY

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 28	*	**	24	6

PROJECT BRS-1741(103)
 * 03-00085-00-BR & 03-00126-00-BR
 ** MACOUPIN COUNTY & MONTGOMERY COUNTY
 Sheet 2 of 17

TOTAL BILL OF MATERIAL

Item	Super	Sub	Total
Channel Excavation		600	600
Stone Dumped Riprap, Class A4		693	693
Filter Fabric		863	863
Removal of Existing Structures			1
Structure Excavation		143	143
Concrete Superstructure	165.8		165.8
Concrete Structures		169.9	169.9
Furnishing and Erecting Precast Prestressed Concrete "I" Beams (36" Depth)	822.5		822.5
Reinforcement Bars, Epoxy Coated	30960	14800	45760
Steel Railing, Type S1		240	240
Furnishing Steel Piles HP 10x42		682	682
Driving Piles		682	682
Test Pile, Steel HP 10x42		2	2
Name Plates		1	1
Bridge Deck Grooving	507		507
Protective Coat	534		534
Underwater Structure Excavation Protection - Location 1		1	1
Underwater Structure Excavation Protection - Location 2		1	1

IDNR/DWR Permit D52005003 issued for the construction of this project

WATERWAY INFORMATION

Drainage Area = 26.7 Sq. Miles		Low Grade Elev. = 97.47		@ Sta. 7+00		
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.	Nat. H.W.E.	Head-Ft.	Headwater El.
			Exist. Prop.		Exist. Prop.	Exist. Prop.
Design	15	2225	516 760	92.8	0.7 0.2	93.5 93.2
Base	100	3422	596 848	93.6	1.0 0.4	94.6 94.4
Exist. Overtop, Greater than 500 Years						
Prop. Overtop, Greater than 500 Years						
Max. Calc.	500	4369	647 904	94.1	1.5 0.7	95.6 95.2

DESIGN STRESSES

FIELD UNITS

f'c = 3500 psi
 fy = 60000 psi (Reinf.)

PRECAST PRESTRESSED UNITS

f'c = 6000 psi
 f'ci = 5000 psi
 f's = 270000 psi (1/2" low lax strands)
 f'si = 201960 psi (1/2" low lax strands)

GENERAL NOTES

Reinforcement bars shall conform to the requirements of A.A.S.H.T.O. M-31 or M322, Grade 60.
 The layout of the riprap slopedwall may be varied to suit conditions in the field as determined by the engineer.
 The Contractor shall drive two (2) Steel HP 10x42 test piles in permanent locations. One at the East Abutment and one at Pier #1 as directed by the Engineer before ordering the remainder of piles.
 The embankment configuration shown shall be the minimum embankment that must be constructed prior to construction of the abutments.
 All construction joints shall be bonded.

DESIGN SPECIFICATIONS

2002 A.A.S.H.T.O. Specifications.

LOADING HS 20-44

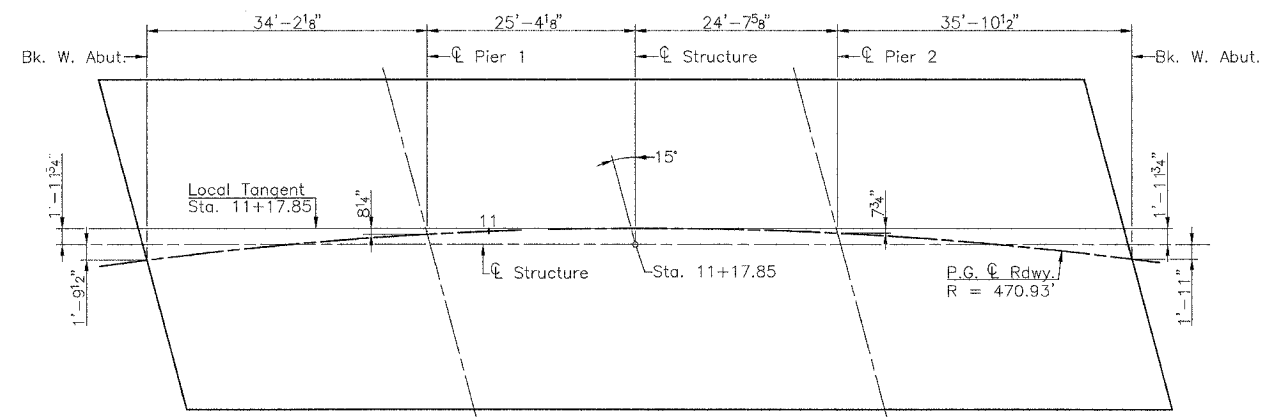
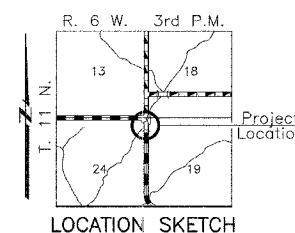
Allow 50#/sq. ft. for future wearing surface.

SEISMIC DATA

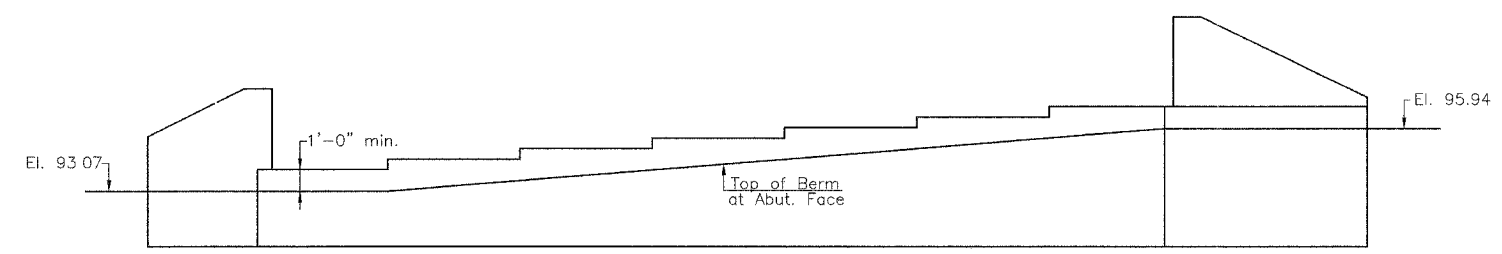
Seismic Performance Category (SPC) = A
 Bedrock Acceleration Coefficient (A) = 0.065 g
 Site Coefficient (s) = 1.5

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 "A.A.S.H.T.O. Standard Specifications for Highway Bridges".

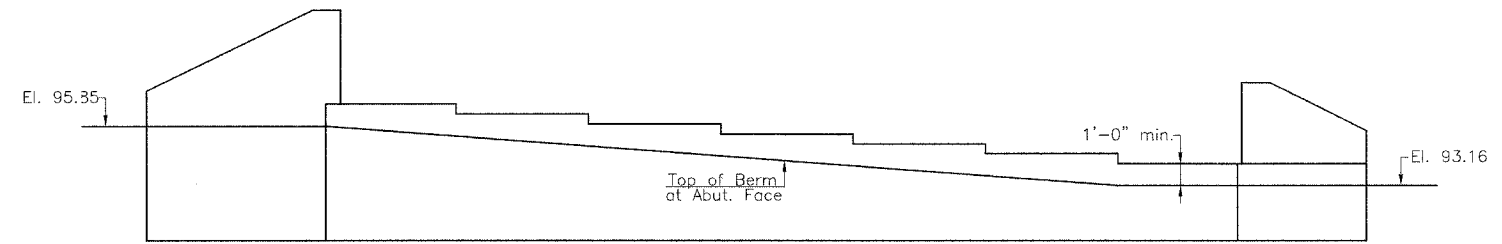
Gerald B. Rotherham
 Expiration Date 11/30/2006



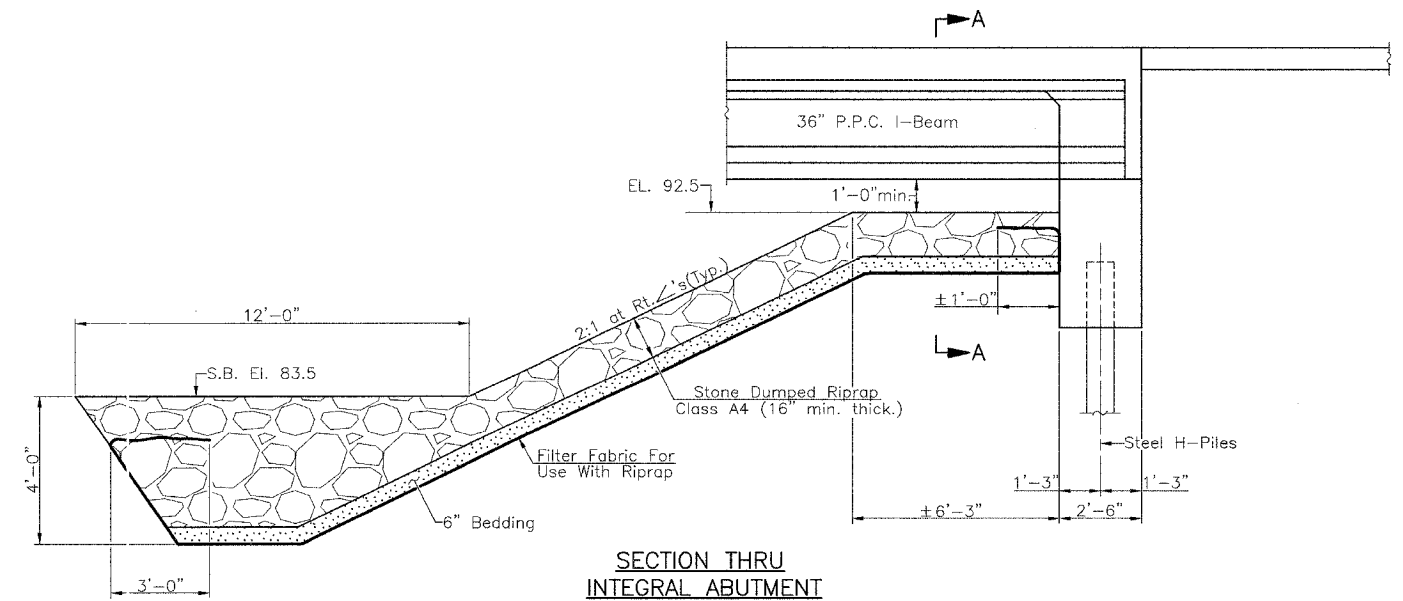
OFFSET SKETCH
 (Dimensions Along Local Tangent)



SECTION A-A
 (West Abutment, Looking West)



SECTION A-A
 (East Abutment, Looking East)

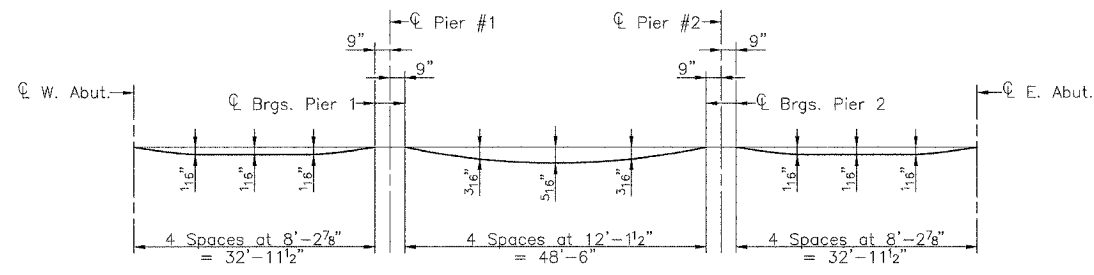


SECTION THRU
 INTEGRAL ABUTMENT

MACOUPIN CREEK
 BUILT 200 BY
 MACOUPIN COUNTY
 SECTION 03-00085-00-BR
 STA. 11+17.85
 STR. NO. 059-3327 LOADING HS20
NAME PLATE
 (Standard 515001)

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 28	*	**	24	7

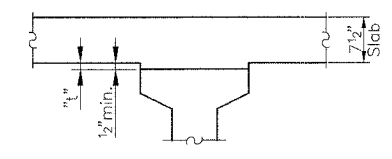
PROJECT BRS-1741(103)
 * 03-00085-00-BR & 03-00126-00-BR
 ** MACOUPIN COUNTY & MONTGOMERY COUNTY
 Sheet 3 of 17



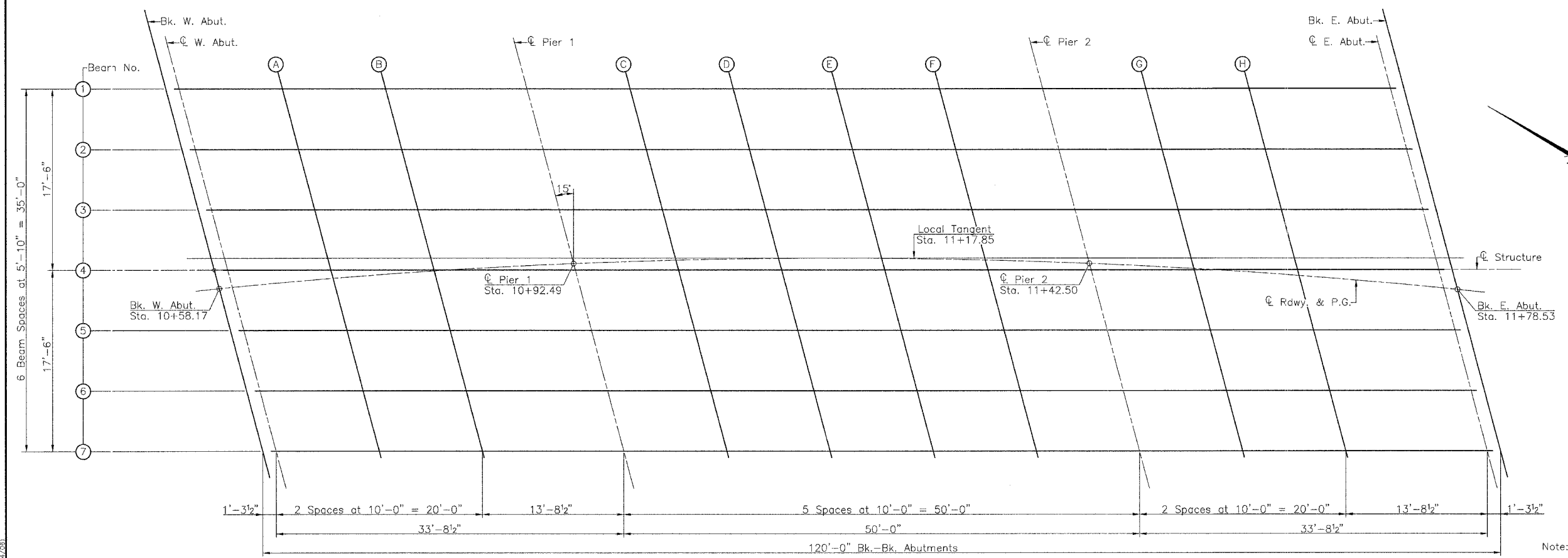
DEAD LOAD DEFLECTION DIAGRAM

(Includes weight of concrete, excluding beams).

Note: The above deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown on sheet 4 of 17.



To determine "t": After all precast prestressed beams have been erected, elevations of the top flanges of the beams shall be taken at intervals shown below. These elevations subtracted from the 'Theoretical Grade Elevations Adjusted for Dead Load Deflections' minus slab thickness, equals the fillet heights "t" above top flanges of beams.



PLAN

Note: Work this sheet with sheet 4 of 17.

DECK ELEVATIONS
 C.H. 28 OVER MACOUPIN CREEK
 SECTION 03-00085-00-BR
 MACOUPIN COUNTY
 SECTION 03-00126-00-BR
 MONTGOMERY COUNTY

FILE NAME: MACBRDLD (REV. 8/2/03)

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 28	*	**	24	8

PROJECT BRS-1741(103)

* 03-00085-00-BR & 03-00126-00-BR

** MACOUPIN COUNTY & MONTGOMERY COUNTY

BEAM 1

Location	Station	Offset	Theoretical Grade Elevation	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	10+55.59	19.80	100.684	100.684
☉ W. Abut.	10+56.82	19.63	100.670	100.670
A	10+66.36	18.44	100.575	100.580
B	10+75.95	17.45	100.496	100.501
☉ Pier #1	10+89.14	16.42	100.414	100.414
C	10+98.80	15.91	100.373	100.387
D	11+08.47	15.61	100.349	100.371
E	11+18.15	15.52	100.341	100.363
F	11+27.83	15.63	100.350	100.364
☉ Pier #2	11+37.50	15.94	100.375	100.375
G	11+47.16	16.46	100.417	100.422
H	11+56.79	17.18	100.475	100.479
☉ E. Abut.	11+69.93	18.51	100.580	100.580
Bk. E. Abut.	11+71.17	18.65	100.592	100.592

BEAM 2

Location	Station	Offset	Theoretical Grade Elevation	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	10+56.35	13.81	100.205	100.205
☉ W. Abut.	10+57.59	13.64	100.192	100.192
A	10+67.26	12.47	100.098	100.103
B	10+76.96	11.50	100.020	100.025
☉ Pier #1	10+90.32	10.50	99.940	99.940
C	11+00.10	10.02	99.902	99.916
D	11+09.89	9.75	99.880	99.902
E	11+19.69	9.69	99.875	99.897
F	11+29.48	9.83	99.886	99.900
☉ Pier #2	11+39.27	10.18	99.914	99.914
G	11+49.04	10.74	99.959	99.964
H	11+58.78	11.50	100.020	100.025
☉ E. Abut.	11+72.07	12.89	100.131	100.131
Bk. E. Abut.	11+73.32	13.04	100.143	100.143

BEAM 3

Location	Station	Offset	Theoretical Grade Elevation	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	10+57.12	7.82	99.726	99.726
☉ W. Abut.	10+58.39	7.66	99.713	99.713
A	10+68.17	6.50	99.620	99.625
B	10+78.00	5.55	99.544	99.549
☉ Pier #1	10+91.53	4.59	99.467	99.467
C	11+01.43	4.14	99.431	99.445
D	11+11.34	3.89	99.412	99.434
E	11+21.26	3.86	99.409	99.431
F	11+31.17	4.04	99.423	99.437
☉ Pier #2	11+41.08	4.43	99.454	99.454
G	11+50.96	5.03	99.502	99.507
H	11+60.82	5.83	99.567	99.571
☉ E. Abut.	11+74.26	7.28	99.682	99.682
Bk. E. Abut.	11+75.52	7.43	99.695	99.695

BEAM 4 & ☉ STRUCTURE

Location	Station	Offset	Theoretical Grade Elevation	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	10+57.92	1.84	99.247	99.247
☉ W. Abut.	10+59.20	1.68	99.234	99.234
A	10+69.11	0.54	99.143	99.148
B	10+79.07	-0.39	99.069	99.074
☉ Pier #1	10+92.77	-1.32	98.995	98.995
C	11+02.79	-1.74	98.960	98.974
D	11+12.83	-1.96	98.943	98.965
E	11+22.87	-1.96	98.943	98.965
F	11+32.91	-1.74	98.960	98.974
☉ Pier #2	11+42.93	-1.32	98.995	98.995
G	11+52.93	-0.68	99.046	99.051
H	11+62.90	0.17	99.114	99.118
☉ E. Abut.	11+76.50	1.68	99.234	99.234
Bk. E. Abut.	11+77.78	1.84	99.247	99.247

P.G. & ☉ ROADWAY

Location	Station	Offset	Theoretical Grade Elevation	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	10+58.17	0.00	99.100	99.100
☉ W. Abut.	10+59.43	0.00	99.100	99.100
A	10+69.20	0.00	99.100	99.105
B	10+79.00	0.00	99.100	99.105
☉ Pier #1	10+92.49	0.00	99.100	99.100
C	11+02.38	0.00	99.100	99.114
D	11+12.33	0.00	99.100	99.122
E	11+22.32	0.00	99.100	99.122
F	11+32.38	0.00	99.100	99.114
☉ Pier #2	11+42.50	0.00	99.100	99.100
G	11+52.70	0.00	99.100	99.105
H	11+62.97	0.00	99.100	99.105
☉ E. Abut.	11+77.18	0.00	99.100	99.100
Bk. E. Abut.	11+78.53	0.00	99.100	99.100

BEAM 5

Location	Station	Offset	Theoretical Grade Elevation	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	10+58.74	-4.14	98.768	98.768
☉ W. Abut.	10+60.03	-4.30	98.756	98.756
A	10+70.07	-5.42	98.666	98.671
B	10+80.16	-6.33	98.594	98.598
☉ Pier #1	10+94.04	-7.22	98.522	98.522
C	11+04.19	-7.62	98.490	98.504
D	11+14.36	-7.80	98.476	98.498
E	11+24.52	-7.77	98.478	98.500
F	11+34.69	-7.52	98.498	98.512
☉ Pier #2	11+44.83	-7.06	98.536	98.536
G	11+54.95	-6.38	98.590	98.595
H	11+65.04	-5.48	98.661	98.666
☉ E. Abut.	11+78.80	-3.91	98.787	98.787
Bk. E. Abut.	11+80.09	-3.74	98.801	98.801

BEAM 6

Location	Station	Offset	Theoretical Grade Elevation	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	10+59.58	-10.13	98.290	98.290
☉ W. Abut.	10+60.89	-10.28	98.277	98.277
A	10+71.06	-11.38	98.189	98.194
B	10+81.28	-12.27	98.119	98.123
☉ Pier #1	10+95.34	-13.13	98.050	98.050
C	11+05.62	-13.50	98.020	98.034
D	11+15.92	-13.65	98.008	98.030
E	11+26.22	-13.58	98.014	98.036
F	11+36.51	-13.29	98.037	98.051
☉ Pier #2	11+46.78	-12.79	98.077	98.077
G	11+57.02	-12.06	98.135	98.140
H	11+67.23	-11.12	98.210	98.215
☉ E. Abut.	11+81.15	-9.49	98.341	98.341
Bk. E. Abut.	11+82.45	-9.31	98.355	98.355

BEAM 7

Location	Station	Offset	Theoretical Grade Elevation	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	10+60.44	-16.11	97.811	97.811
☉ W. Abut.	10+61.77	-16.26	97.799	97.799
A	10+72.08	-17.34	97.713	97.718
B	10+82.43	-18.20	97.644	97.648
☉ Pier #1	10+96.68	-19.03	97.578	97.578
C	11+07.10	-19.37	97.551	97.565
D	11+17.53	-19.48	97.541	97.563
E	11+27.96	-19.38	97.550	97.572
F	11+38.38	-19.05	97.576	97.590
☉ Pier #2	11+48.78	-18.51	97.619	97.619
G	11+59.15	-17.74	97.681	97.686
H	11+69.48	-16.76	97.759	97.764
☉ E. Abut.	11+83.55	-15.05	97.896	97.896
Bk. E. Abut.	11+84.87	-14.87	97.910	97.910

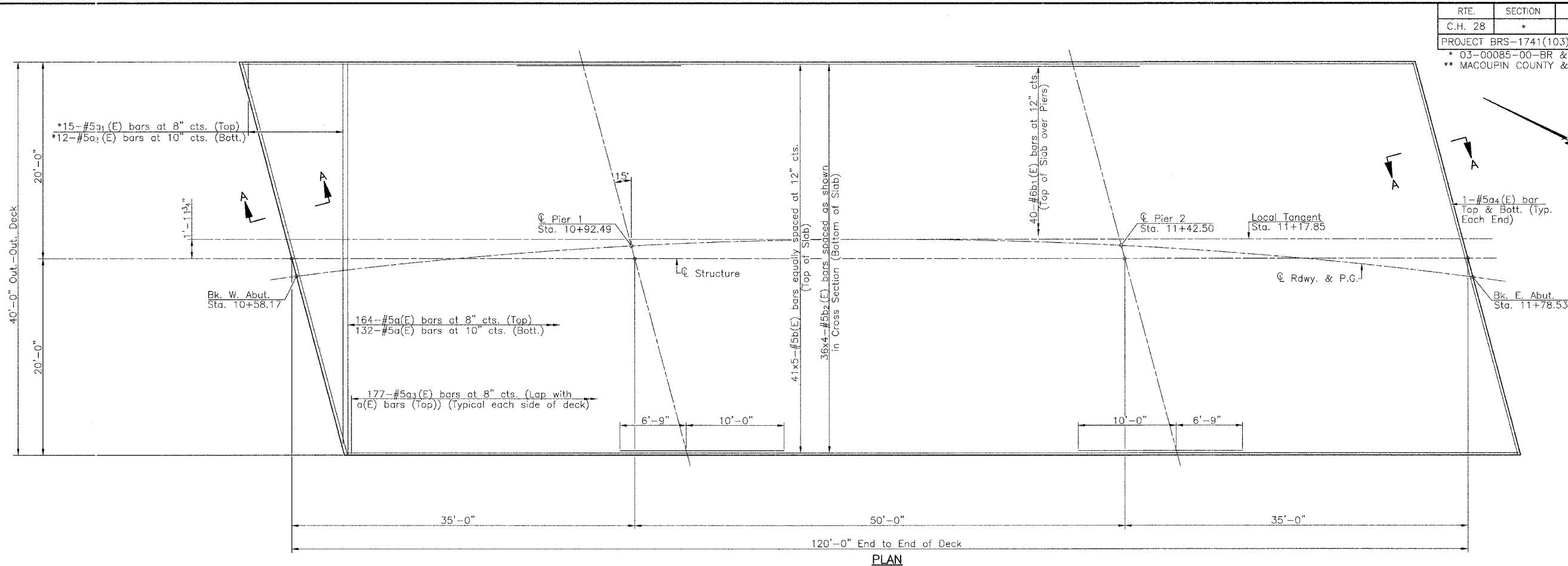
For Elevation Location Plan see Sheet 3 of 17.
Offsets are from ☉ Rdwy.

DECK ELEVATIONS
C.H. 28 OVER MACOUPIN CREEK
SECTION 03-00085-00-BR
MACOUPIN COUNTY
SECTION 03-00126-00-BR
MONTGOMERY COUNTY

FILE NAME: MACOUPIN.D (REV. 8/2/08)

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 28	*	**	24	9

PROJECT BRS-1741(103)
 * 03-00085-00-BR & 03-00126-00-BR
 ** MACOUPIN COUNTY & MONTGOMERY COUNTY
 Sheet 5 of 17



PLAN

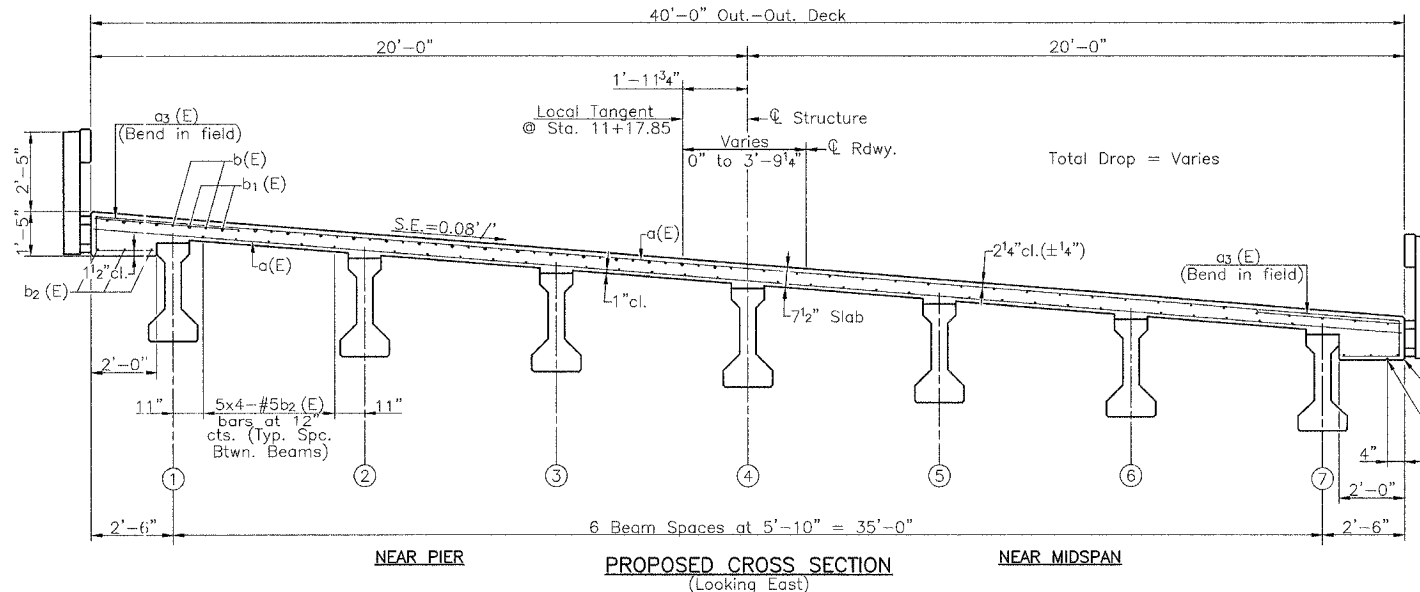
Min. Bar Lap
 #5 bars = 1'-8"

* Order a1(E) & a2(E) bars full length.
 Cut to fit skew and use remainder of bars
 in opposite end.

SUPERSTRUCTURE
 BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a(E)	296	#5	39'-9"	---
a1(E)	15	#5	40'-10"	---
a2(E)	12	#5	38'-5"	---
a3(E)	354	#5	7'-4"	---
a4(E)	4	#5	41'-1"	---
b(E)	205	#5	25'-8"	---
b1(E)	80	#6	16'-9"	---
b2(E)	144	#5	31'-7"	---
m(E)	10	#6	41'-1"	---
m1(E)	28	#6	8'-8"	---
m2(E)	36	#6	4'-2"	---
m3(E)	4	#6	1'-6"	---
m4(E)	48	#4	5'-2"	---
m5(E)	14	#8	5'-6"	---
s(E)	72	#4	9'-9"	□
s1(E)	60	#4	9'-8"	┌┐

Reinforcement Bars, Epoxy Coated Pound 30960
 Concrete Superstructures Cu. Yd. 165.8



PROPOSED CROSS SECTION
 (Looking East)

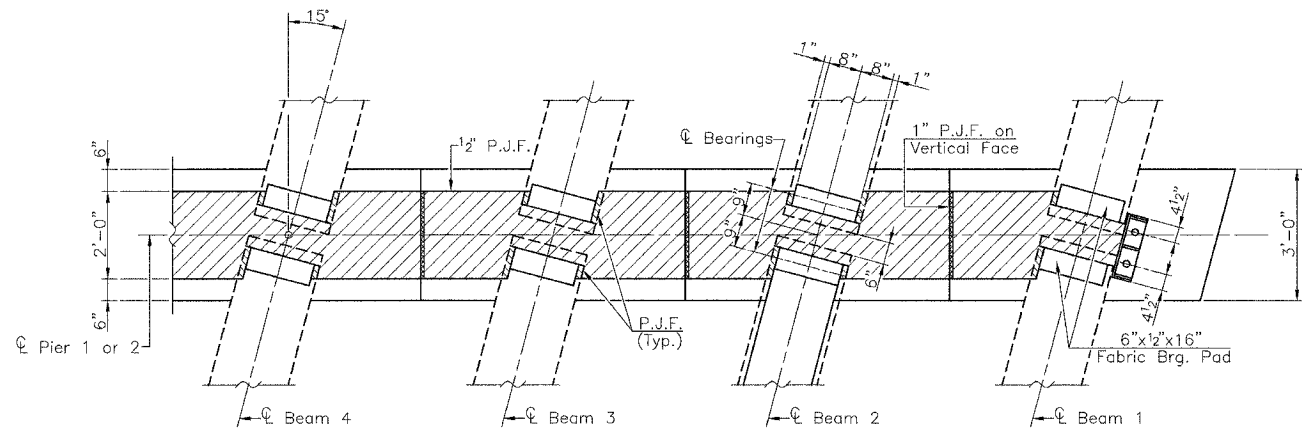
Notes: See Sheet No. 6 of 17 for Diaphragm Details and Section A-A.
 Bars indicated thus 36 x 4-#5 etc. indicates 36 lines of bars with 4 lengths per line.
 Reinforcement bars designated (E) shall be epoxy coated.
 Reinforcement in the top of the deck may be placed with a 1 1/2" min. clearance in the area of the rail post anchor devices. The studs of the anchor devices shall be placed below the top reinforcement bars and outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.

SUPERSTRUCTURE
 C.H. 28 OVER MACOUPIN CREEK
 SECTION 03-00085-00-BR
 MACOUPIN COUNTY
 SECTION 03-00126-00-BR
 MONTGOMERY COUNTY

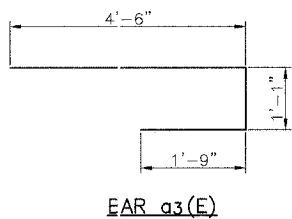
RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 28	*	**	24	10

PROJECT BRS-1741(103)
 * 03-00085-00-BR & 03-00126-00-BR
 ** MACOUPIN COUNTY & MONTGOMERY COUNTY
 Sheet 6 of 17

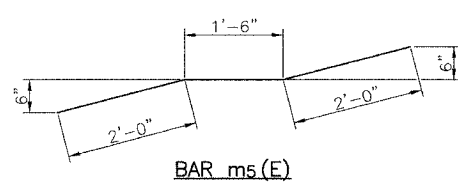
Notes: Reinforcement bars shown on this sheet are included in Bill of Material on Sheet No. 5 of 17.
 Concrete in diaphragms is included with Concrete Superstructure on sheet 5 of 17.
 The s(E) and s₁(E) bars shall be placed parallel to the beams. Spacing of these bars shall be at right angles to the beams.
 The side retainer shall be galvanized after shop fabrication according to A.A.S.H.T.O. M 11 and ASTM A 385. Cost of the side retainers and anchor bolts shall be included with Concrete Superstructures.
 Cost of 90 lb. roofing felt is included with Concrete Superstructure. See Sheet 16 of 17 for anchor bolt details.



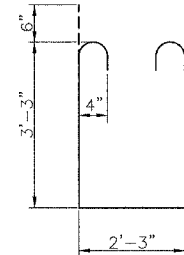
PARTIAL PLAN AT PIER
 (Showing Bearing Pad and P.J.F. Details)



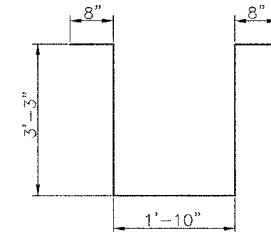
BAR a3(E)



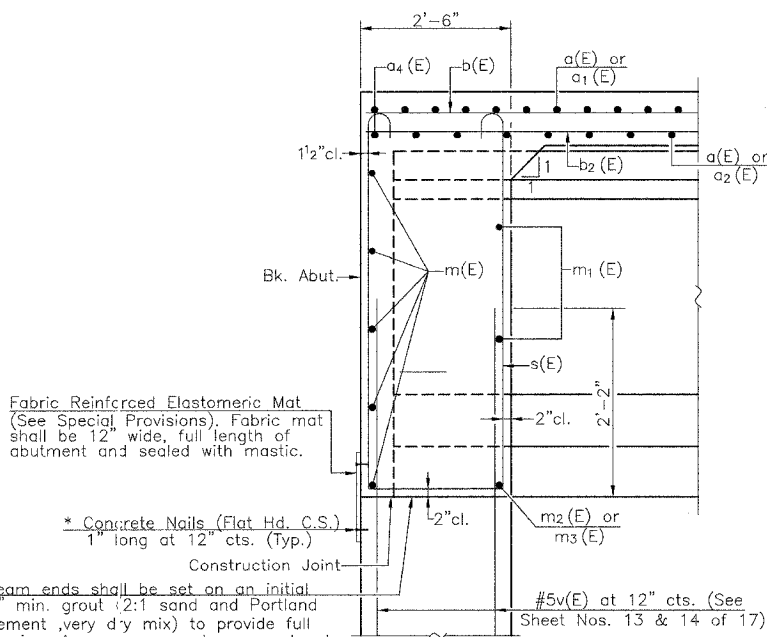
BAR m5(E)



BAR s(E)



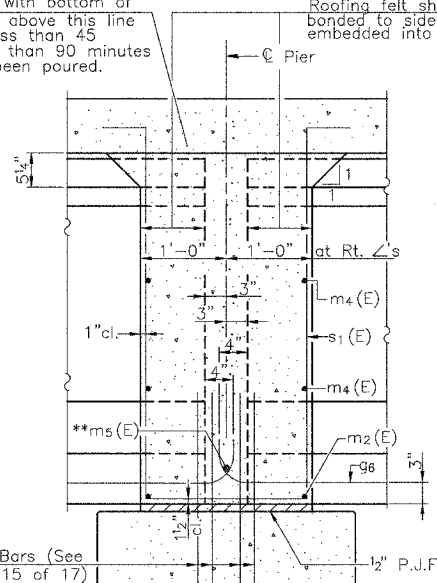
BAR s1(E)



SECTION A-A AT ABUTMENT

(Dimensions at rt. angles to abut.)

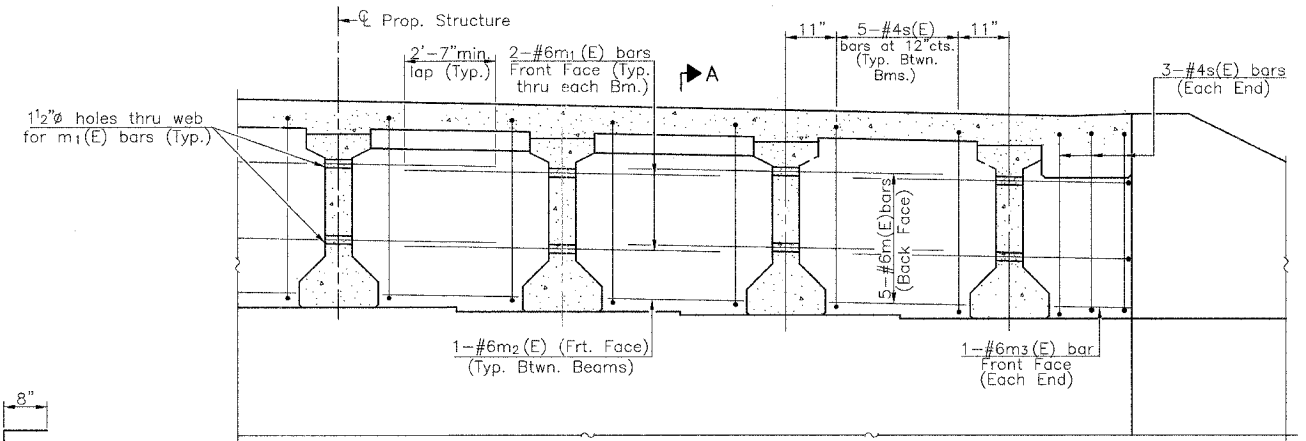
Pour diaphragm flush with bottom of slab. Concrete in slab above this line shall be placed not less than 45 minutes but not more than 90 minutes after diaphragm has been poured.
 Roofing felt shall be bonded to side of beam embedded into diaphragm.



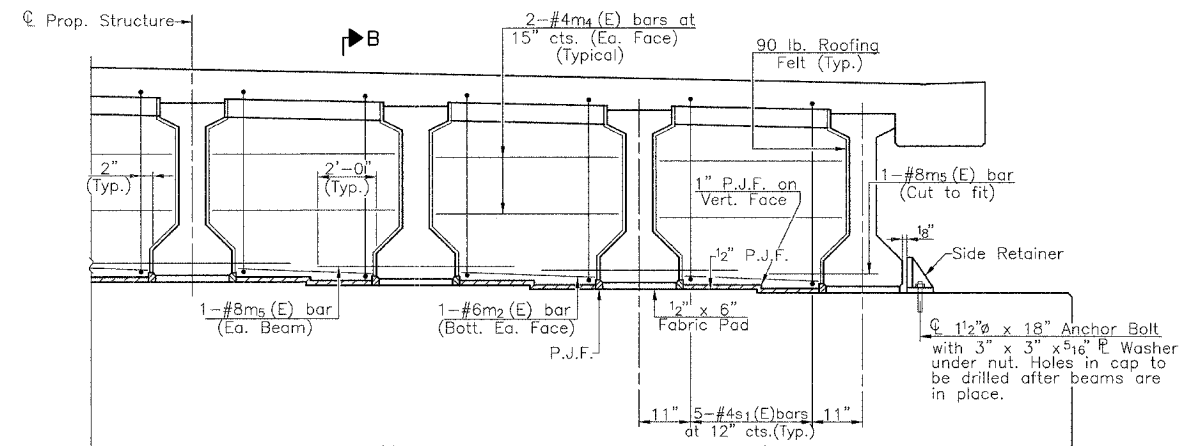
SECTION B-B AT PIER

(Dimensions along ϕ of beam)

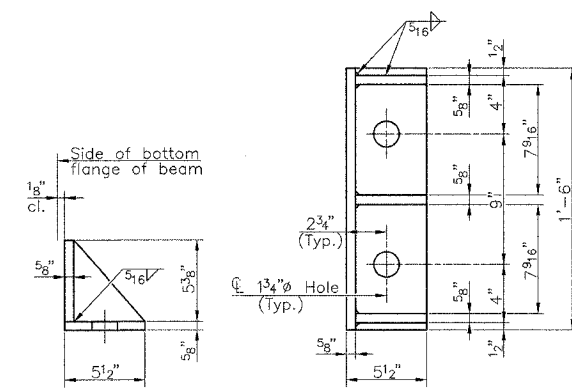
** Tightly fasten the #8 bars together with No.9 wire ties.



DIAPHRAGM ELEVATION AT ABUTMENT



DIAPHRAGM AT PIER



SIDE RETAINER

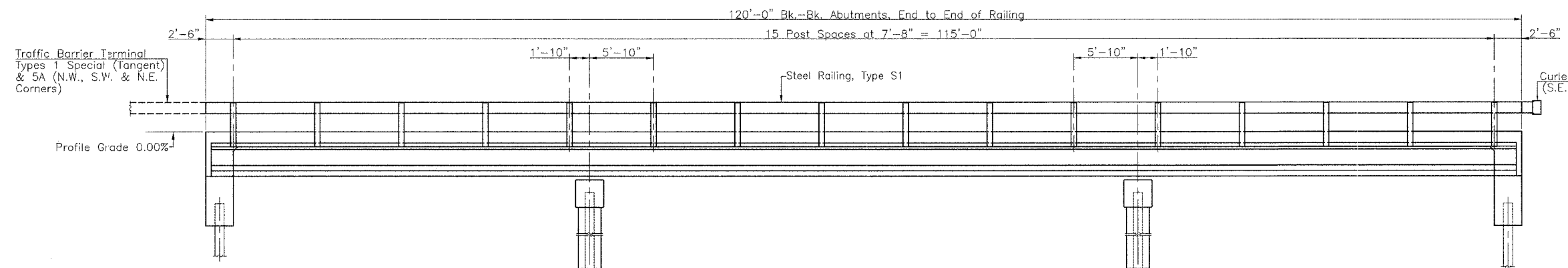
Equivalent rolled angle with stiffeners will be allowed in lieu of webbed plates.

DIAPHRAGM DETAILS
 C.H. 28 OVER MACOUPIN CREEK
 SECTION 03-00085-00-BR
 MACOUPIN COUNTY
 SECTION 03-00126-00-BR
 MONTGOMERY COUNTY

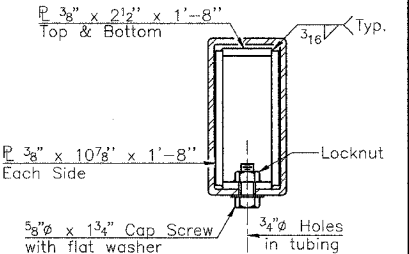
FILE NAME: MACROD (REV. 9/16/08)

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 28	*	**	24	11

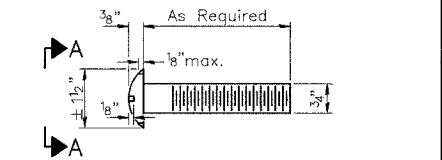
PROJECT BRS-174(103)
 * 03-00085-00-BR & 03-00126-00-BR
 ** MACOUPIN COUNTY & MONTGOMERY COUNTY
 Sheet 7 of 17



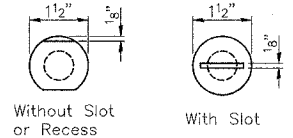
ELEVATION
(Showing Outside Face of Rail)



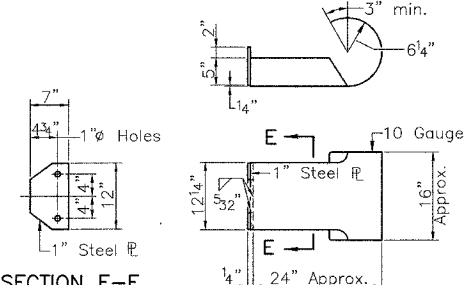
SECTION AT RAIL SPLICE



DETAIL OF 3/4" ROUND HEAD BOLT

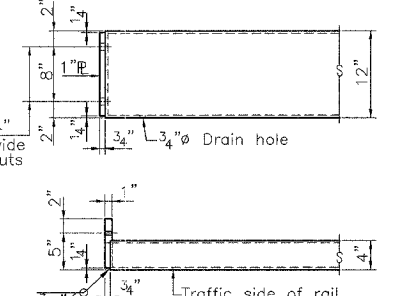


VIEW A-A

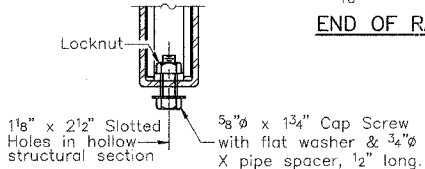


SECTION E-E

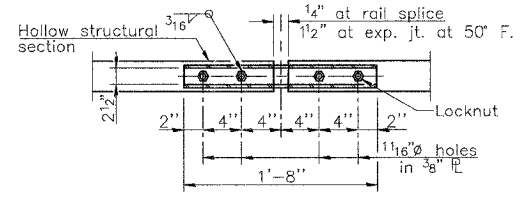
CURLED END SECTION DETAILS (1 Required)



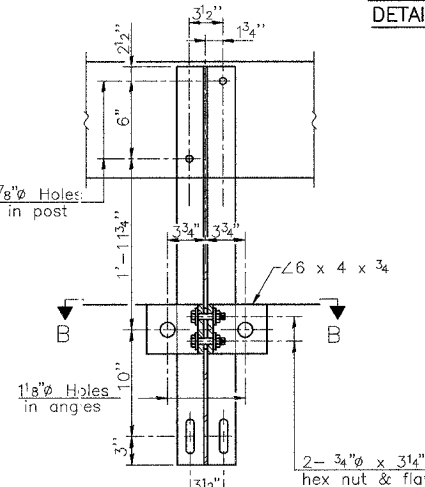
END OF RAIL DETAILS



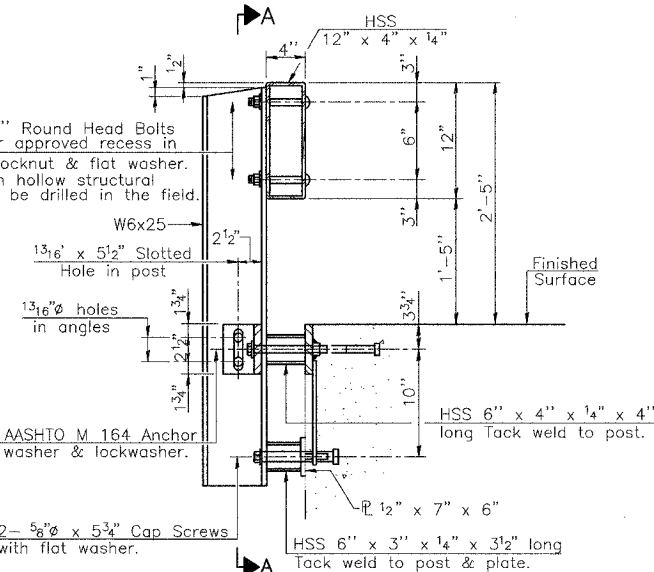
RAIL SPLICE CONNECTION AT EXPANSION JT.



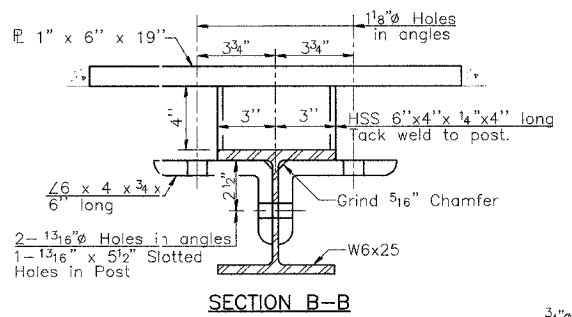
PLAN-BOTT. SPLICE P. TYPICAL



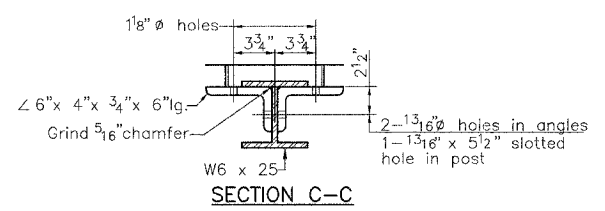
SECTION A-A



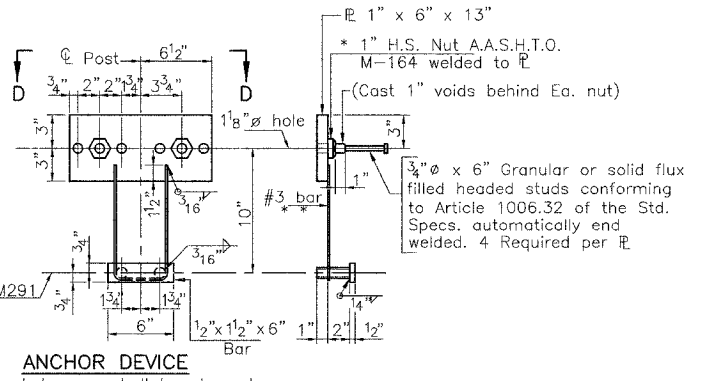
SECTION AT RAIL POST



SECTION B-B



SECTION C-C



ANCHOR DEVICE

3/4" X XS Pipe or Hex Nuts conforming to A.A.S.H.T.O. M291 Grade A-3, long welded to #3 bar and top pipe for 5/8" Cap Screw.

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

NOTES

Hollow structural sections 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 S1.
 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.
 For the 1/2" x 7" x 6" plates that come in contact with concrete, 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 3/4" angles to the post shall be tightened according to Article 505.04(f)(2) of the Standard Specifications. The 1" high strength bolts connecting the angles to the concrete shall be tightened to a snug fit and given an additional 1/8 turn. The 5/8" cap screws in bottom of posts shall be tightened to a snug fit only.
 The cost of curled end sections shall be included in the contract unit price per foot for Steel Railing, Type S1.

BILL OF MATERIAL

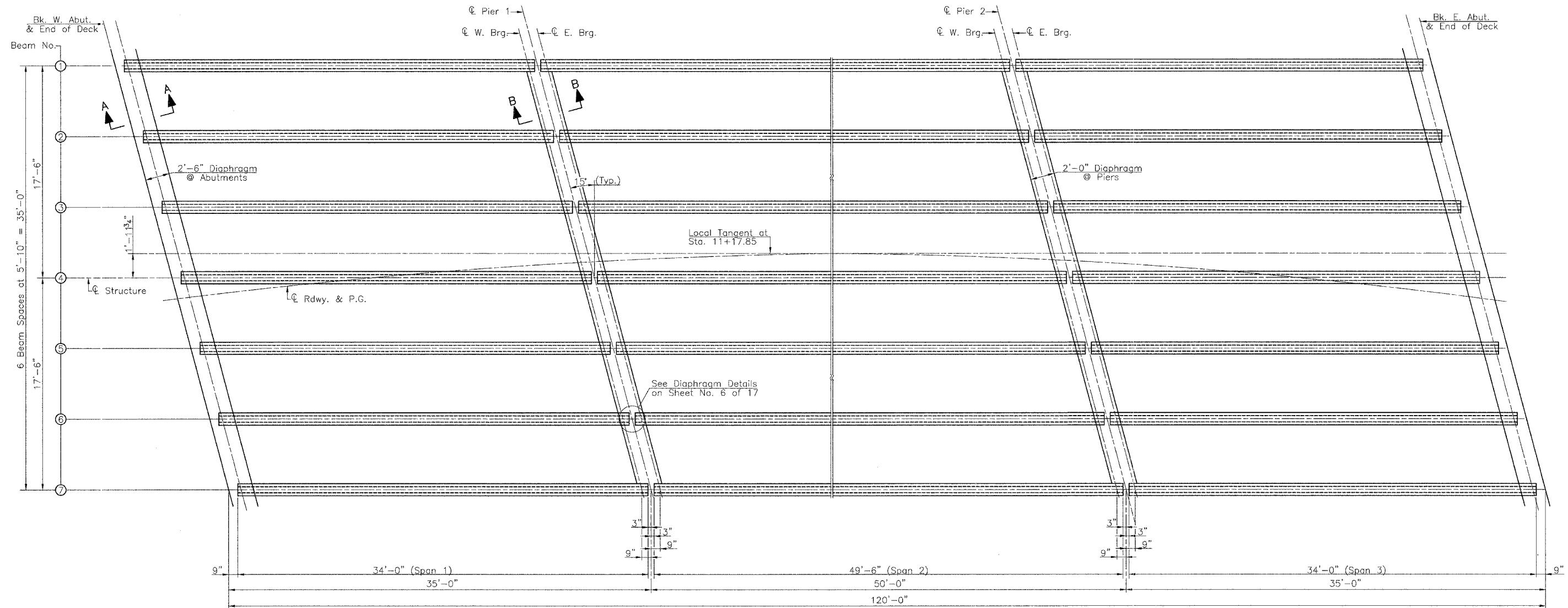
Item	Unit	Quantity
Steel Railing, Type S1	Foot	240

RAILING
 C.H. 28 OVER MACOUPIN CREEK
 SECTION 03-00085-00-BR
 MACOUPIN COUNTY
 SECTION 03-00126-00-BR
 MONTGOMERY COUNTY

FILE NAME: MAGERL (REV. 6/4/78)

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 28	*	**	24	12

PROJECT BRS-1741(103)
 * 03-00085-00-BR & 03-00126-00-BR
 ** MACOUPIN COUNTY & MONTGOMERY COUNTY
 Sheet 8 of 17



FRAMING PLAN

Note: For Section A-A & Section B-B see Sheet 6 of 17.

FRAMING PLAN
 C.H. 28 OVER MACOUPIN CREEK
 SECTION 03-00085-00-BR
 MACOUPIN COUNTY
 SECTION 03-00126-00-BR
 MONTGOMERY COUNTY

FILE NAME: MACOUPIN-183 (REV. 8/4/08)

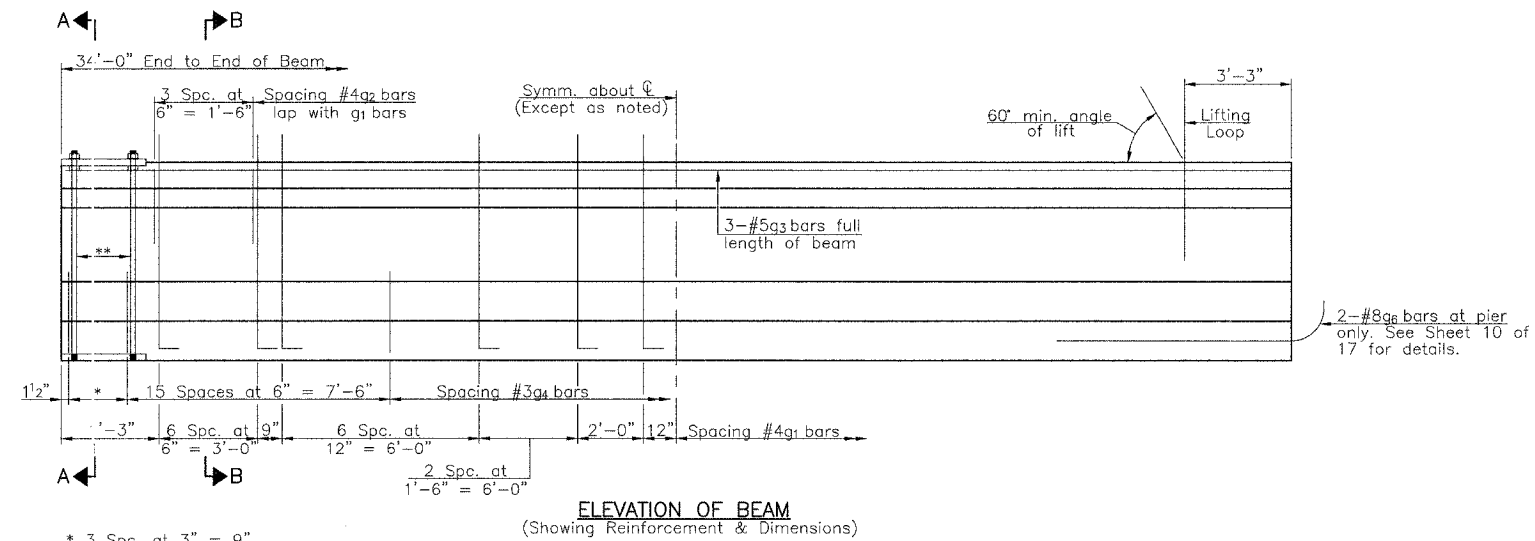
RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 28	*	**	24	13

PROJECT BRS-1741(103)

* 03-00085-00-BR & 03-00126-00-BR

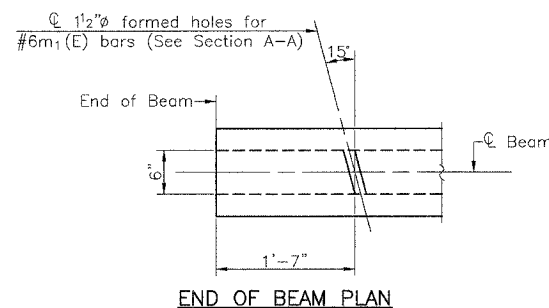
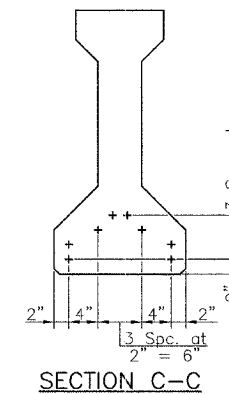
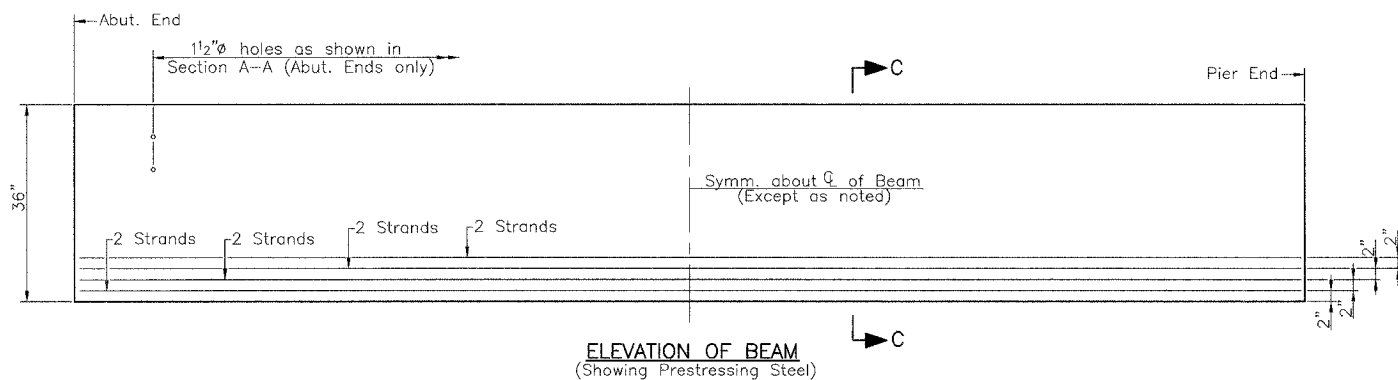
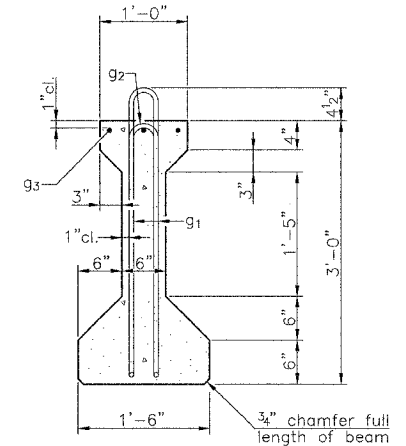
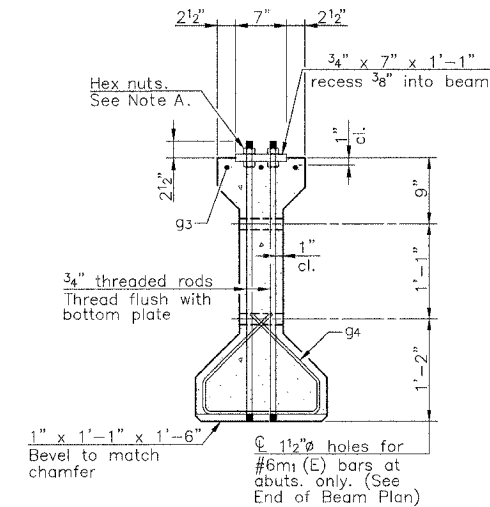
** MACOUPIN COUNTY & MONTGOMERY COUNTY

Sheet 9 of 17



- * 3 Spc. at 3" = 9"
- ** 4-3/4" Threaded Dowel Rods at 3" cts. (Ea. Face)

Note A:
Hex nuts (Top and Bottom) with lock washers top only. Tighten sufficiently to compress lock washers.



BAR LIST
ONE BEAM ONLY

BAR	NO.	SIZE	LENGTH	SHAPE
g1	34	#4	7'-5"	∩L
g2	8	#4	3'-10"	∩
g3	3	#5	33'-8"	—
g4	34	#3	4'-1"	∩
g6	2	#8	3'-9"	—

Notes:
See sheet 10 of 17 for additional details and Bill of Material.
Required release strength, f'ci, shall be 5000 psi.

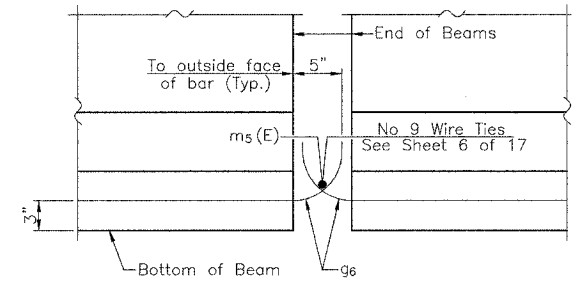
BEAM DETAILS (SPANS 1 & 3)
C.H. 28 OVER MACOUPIN CREEK
SECTION 03-00085-00-BR
MACOUPIN COUNTY
SECTION 03-00126-00-BR
MONTGOMERY COUNTY

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 28	*	**	24	14

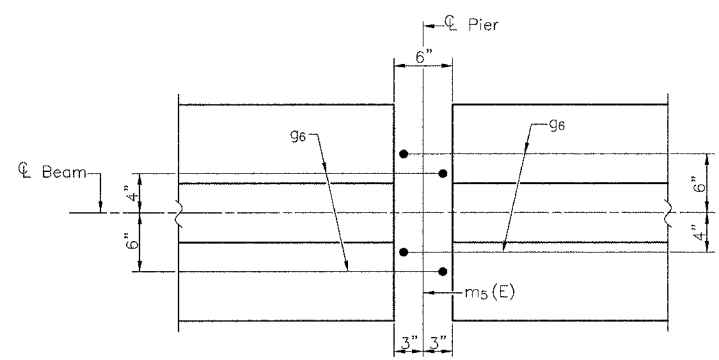
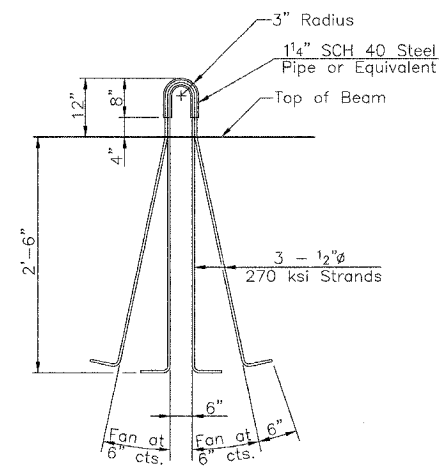
PROJECT BRS-1741(103)
 * 03-00085-00-BR & 03-00126-00-BR
 ** MACOUPIN COUNTY & MONTGOMERY COUNTY
 Sheet 10 of 17

NOTES

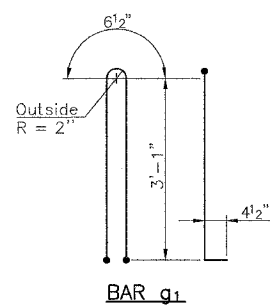
Inserts for $\frac{3}{4}$ " threaded dowel rods when specified are to be two strut coil type for interior beams and single coil flared loop type for exterior beams.
 Prestressing steel shall be uncoated high strength low relaxation 7 - wire strand grade 270.
 The nominal diameter shall be 12" and the nominal cross-sectional area shall be 0.153 sq. in.
 Non-prestressing steel shall conform to AASHTO designation M-31 Or M 322, Grade 60.
 A minimum 2 1/2" lifting pin shall be used to engage the lifting loops during handling.
 Reinforcement bars designated (E) shall be epoxy coated.
 Cut g6 bars when necessary to maintain 1 1/2" clearance.
 The bottom plates and studs shall be galvanized according to AASHTO M111 and ASTM A385.
 Threaded rods shall be ASTM F 1554 Grade 55.
 The cut strands at each beam shall be given two coats of zinc dust. Spray or paint meeting the requirements of ASTM A 780. The zinc dust spray or paint shall be applied before corrosion appears and allowed to dry according to the manufacturers specifications prior to another coat of zinc. A concrete sealer meeting the requirements of Section 507 of the Standard Specifications shall be applied to all portions of the I-Beam or Bulb-T Beam. Except the top surface of the top flange and the bottom surface of the bottom flange starting at each beam end and extending out a distance of 36 inches. The sealer shall be applied after visible crack growth has subsided. This work shall be performed by the producer and is included with the cost of the beam.



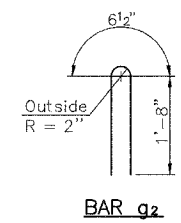
ELEVATION OF BEAM AT PIER



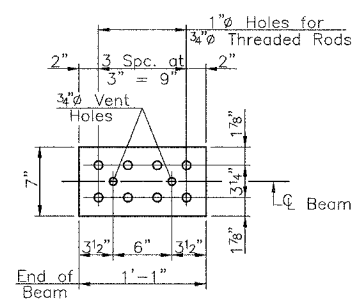
PLAN OF BEAM AT PIER



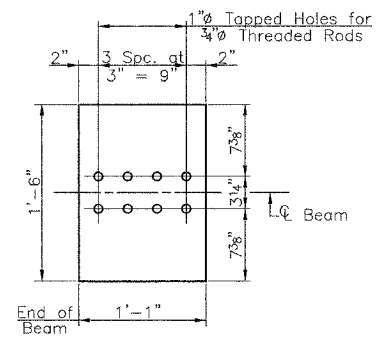
BAR g1



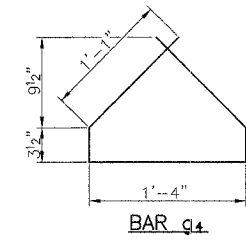
BAR g2



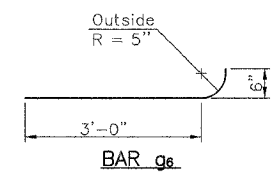
TOP PLATE



BOTTOM PLATE



BAR g4



BAR g6

BILL OF MATERIAL

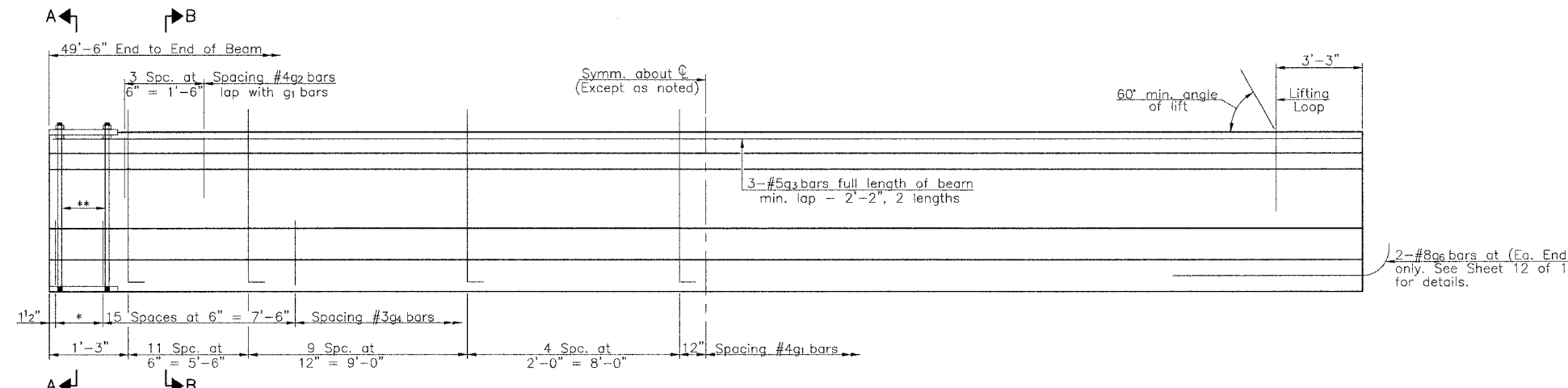
Item	Unit	Total
Furnishing and Erecting Precast Prestressed Concrete I-Beams, 36"	Foot	476

BEAM DETAILS (SPANS 1 & 3)
 C.H. 28 OVER MACOUPIN CREEK
 SECTION 03-00085-00-BR
 MACOUPIN COUNTY
 SECTION 03-00126-00-BR
 MONTGOMERY COUNTY

FILE NAME: MACOUPIN I&A (REV. 8/2/00)

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 28	*	**	24	15

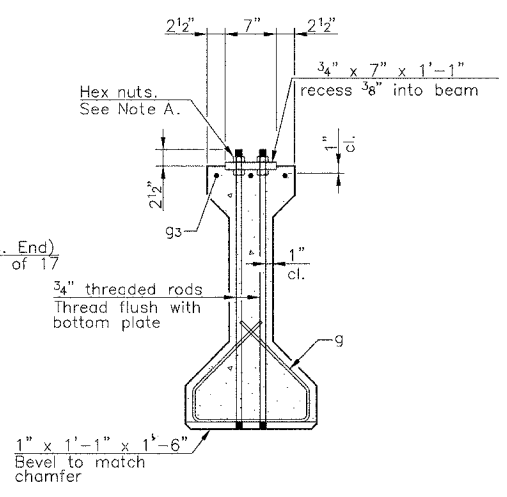
PROJECT BRS-1741(103)
 * 03-00085-00-BR & 03-00126-00-BR
 ** MACOUPIN COUNTY & MONTGOMERY COUNTY
 Sheet 11 of 17



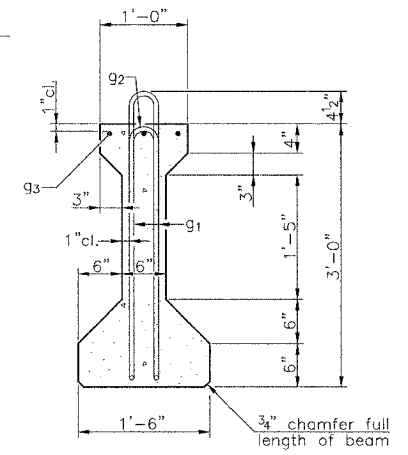
ELEVATION OF BEAM
(Showing Reinforcement & Dimensions)

* 3 Spc. at 3" = 9"
 ** 4-3/4" Threaded Dowel Rods at 3" cts. (Ea. Face)

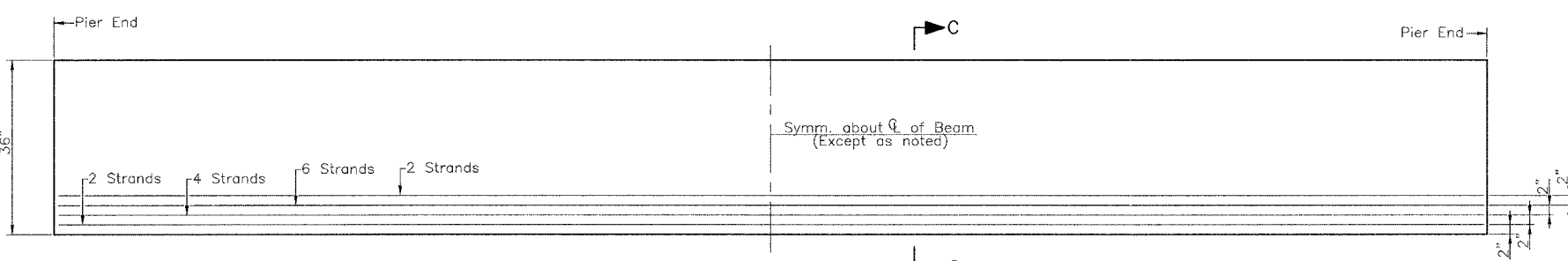
Note A:
 Hex nuts (Top and Bottom) with lock washers top only. Tighten sufficiently to compress lock washers.



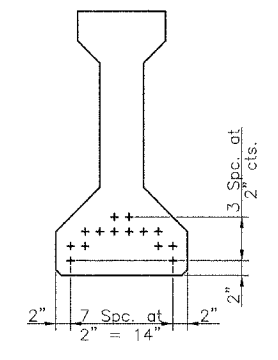
SECTION A-A



SECTION B-B



ELEVATION OF BEAM
(Showing Prestressing Steel)



SECTION C-C

EXTERIOR BEAM MOMENT TABLE

	0.4 Sp. #1	Pier 1 or 2	0.5 Sp. #2
I	(in ⁴) 48647		48647
I'	(in ⁴) 158721		158721
S _b	(in ³) 3165		3165
S _b '	(in ³) 5705		5705
S _t	(in ³) 2358		2358
S _t '	(in ³) 10123		10123
Q	(k/')		1.111
M _D	(k)		325.16
s _D	(k/')	0.303	0.303
M _D	(k)	52	38
M _L	(k)	163	206
M (Imp)	(k)	49	62

INTERIOR BEAM MOMENT TABLE

	0.4 Sp. #1	Pier 1 or 2	0.5 Sp. #2
I	(in ⁴) 48647		48647
I'	(in ⁴) 162780		162780
S _b	(in ³) 3165		3165
S _b '	(in ³) 5758		5758
S _t	(in ³) 2358		2358
S _t '	(in ³) 10688		10688
Q	(k/')		0.937
M _D	(k)		275
s _D	(k/')	0.303	0.303
M _D	(k)	52	38
M _L	(k)	152	192
M (Imp)	(k)	46	57

NOTES

I and I' are the moment of inertia and composite moment of inertia of the beam section.
 S_b and S_b' are the non-composite and composite section modulus for the bottom fiber of the prestressed beam.
 S_t and S_t' are the non-composite and composite section modulus for the top fiber of the prestressed beam.
 M_D is the moment due to dead loads on the non-composite prestressed beam. It is conservatively calculated at 0.5 of the span.
 M_L is the moment due to dead loads on the composite section.
 M_L is the moment due to live load on the composite section.
 M (Imp) is the moment due to live load impact on the composite section.

EXTERIOR BEAM REACTION TABLE

	Abut.	Pier 1 Span 1 Pier 2 Span 3	Pier 1 Span 1 Pier 2 Span 3
R _D	(k) 18.3	18.3	26.8
R _{sD}	(k) 3.9	7.2	7.2
R _L	(k) 28.1	19	19
Imp.	(k) 8.4	5.7	5.7
R (Total)	(k) 58.7	50.2	58.7

INTERIOR BEAM REACTION TABLE

	Abut.	Pier 1 Span 1 Pier 2 Span 3	Pier 1 Span 1 Pier 2 Span 3
R _D	(k) 15.3	15.3	22.7
R _{sD}	(k) 3.9	7.2	7.2
R _L	(k) 26.1	17.7	17.7
Imp.	(k) 7.8	5.3	5.3
R (Total)	(k) 53.1	45.5	52.9

* The total R_{sD}, R_L, and Impact Reactions are assumed to be distributed evenly to each bearing line at a pier regardless of the span ratios. The bearing design at a pier shall be based on the maximum reactions of either span.

* The total R_{sD}, R_L, and Impact Reactions are assumed to be distributed evenly to each bearing line at a pier regardless of the span ratios. The bearing design at a pier shall be based on the maximum reactions of either span.

**BAR LIST
ONE BEAM ONLY**

BAR	NO.	SIZE	LENGTH	SHAPE
g1	50	#4	7'-5"	∩ L
g2	8	#4	3'-10"	∩
g3	6	#5	25'-8"	—
g4	34	#3	4'-1"	∩
g6	4	#8	3'-9"	∩

Notes:
 See sheet 12 of 17 for additional details and Bill of Material.
 Required release strength, f'ci, shall be 5000 psi.

BEAM DETAILS (SPAN 2)
 C.H. 28 OVER MACOUPIN CREEK
 SECTION 03-00085-00-BR
 MACOUPIN COUNTY
 SECTION 03-00126-00-BR
 MONTGOMERY COUNTY

FILE NAME: MAC03B01 2 (REV. 8/4/08)

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 28	*	**	24	16

PROJECT BRS-1741(103)
 * 03-00085-00-BR & 03-00126-00-BR
 ** MACOUPIN COUNTY & MONTGOMERY COUNTY
 Sheet 12 of 17

NOTES

Inserts for 3/4" threaded dowel rods when specified are to be two strut coil type for interior beams and single coil flared loop type for exterior beams.

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.

Non-prestressing steel shall conform to AASHTO designation M-31 Or M 322, Grade 60.

A minimum 2 1/2" lifting pin shall be used to engage the lifting loops during handling.

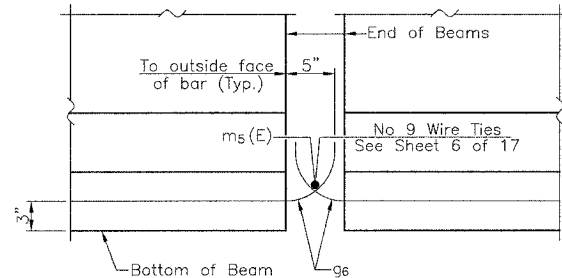
Reinforcement bars designated (E) shall be epoxy coated.

Cut #6 bars when necessary to maintain 1 1/2" clearance.

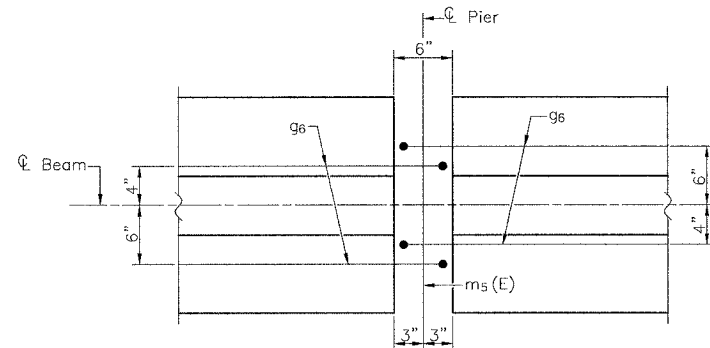
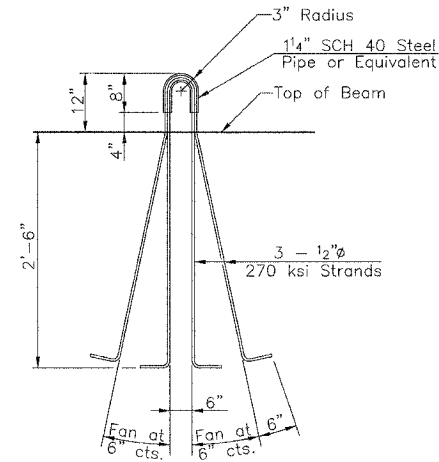
The bottom plates and studs shall be galvanized according to AASHTO M111 and ASTM A385.

Threaded rods shall be ASTM F 1554 Grade 55.

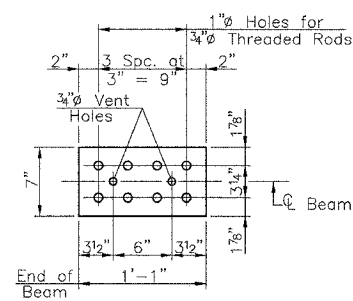
The cut strands at each beam shall be given two coats of zinc dust. Spray or paint meeting the requirements of ASTM A 780. The zinc dust spray or paint shall be applied before corrosion appears and allowed to dry according to the manufacturers specifications prior to another coat of zinc. A concrete sealer meeting the requirements of Section 587 of the Standard Specifications shall be applied to all portions of the I-Beam or Bulb-T Beam. Except the top surface of the top flange and the bottom surface of the bottom flange starting at each beam end and extending out a distance of 36 inches. The sealer shall be applied after visible crack growth has subsided. This work shall be performed by the producer and is included with the cost of the beam.



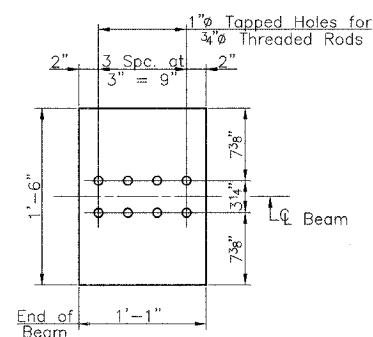
ELEVATION OF BEAM AT PIER



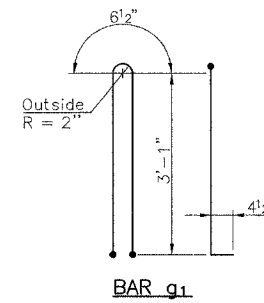
PLAN OF BEAM AT PIER



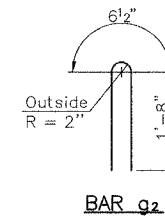
TOP PLATE



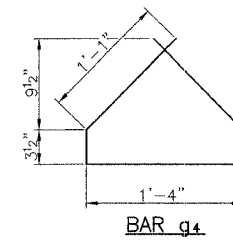
BOTTOM PLATE



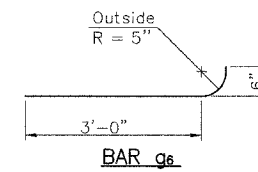
BAR g1



BAR g2



BAR g4



BAR g6

BILL OF MATERIAL

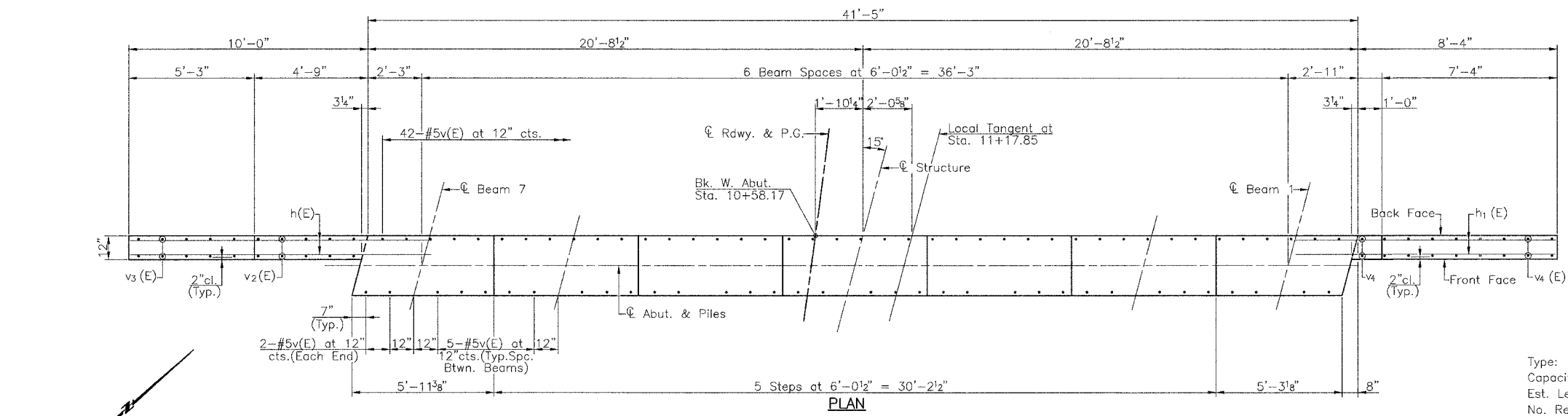
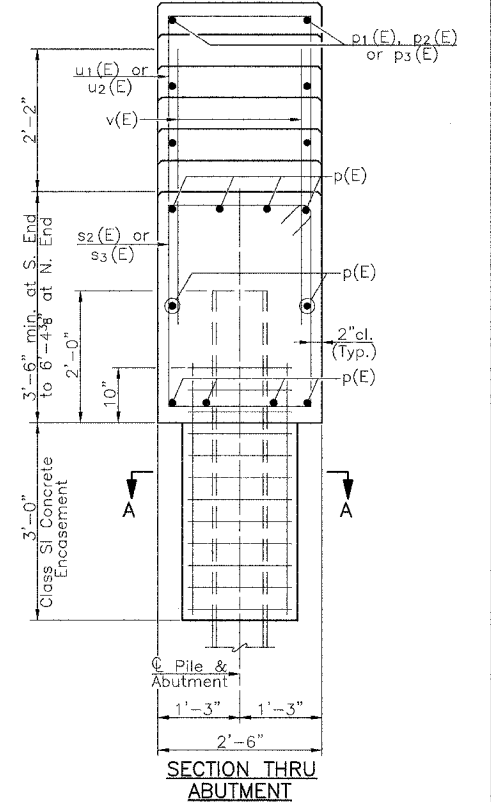
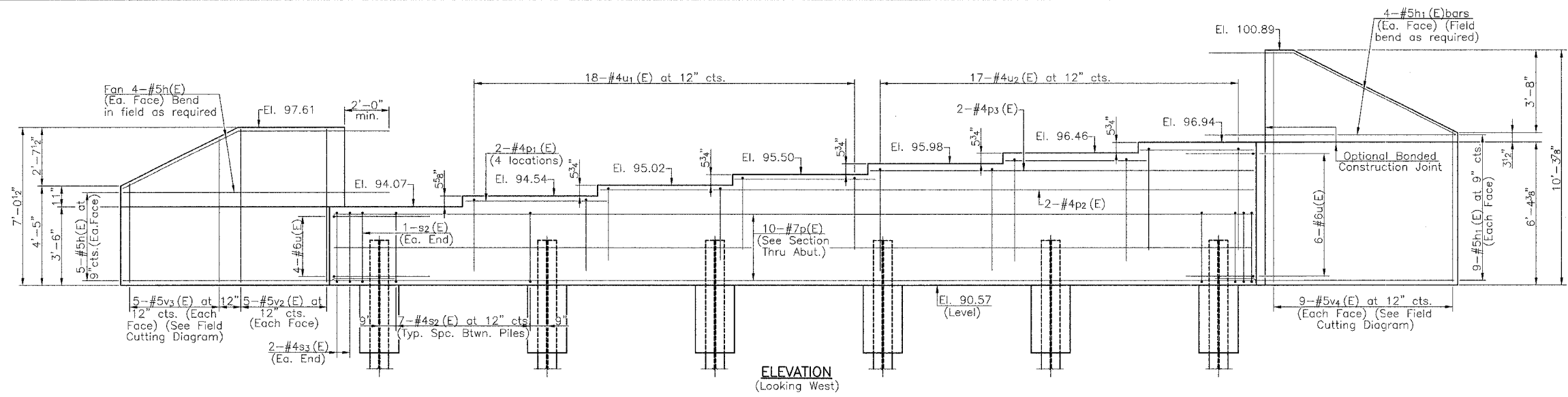
Item	Unit	Total
Furnishing and Erecting Precast Prestressed Concrete I-Beams, 36"	Foot	346.5

BEAM DETAILS (SPAN 2)
 C.H. 28 OVER MACOUPIN CREEK
 SECTION 03-00085-00-BR
 MACOUPIN COUNTY
 SECTION 03-00126-00-BR
 MONTGOMERY COUNTY

FILE NAME: MACOUPIN 2 (REV. 8/4/08)

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 28	*	**	24	17
PROJECT BRS-1741(103)				
* 03-00085-00-BR & 03-00126-00-BR				
** MACOUPIN COUNTY & MONTGOMERY COUNTY				

Sheet 13 of 17



PILE DATA

W. Abut.

Type: Steel HP10x42

Capacity: Refusal

Est. Length: 27'

No. Req'd.: 6

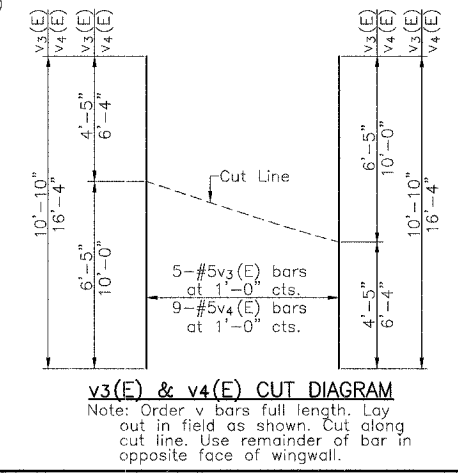
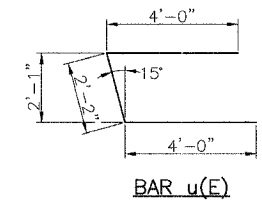
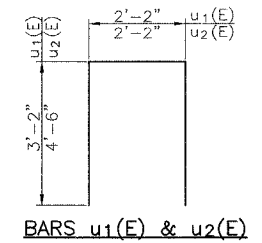
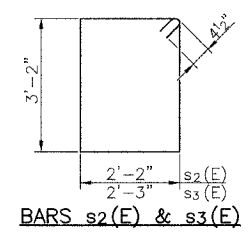
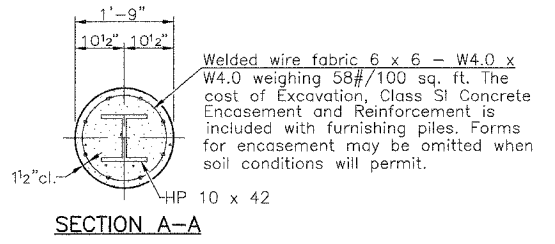
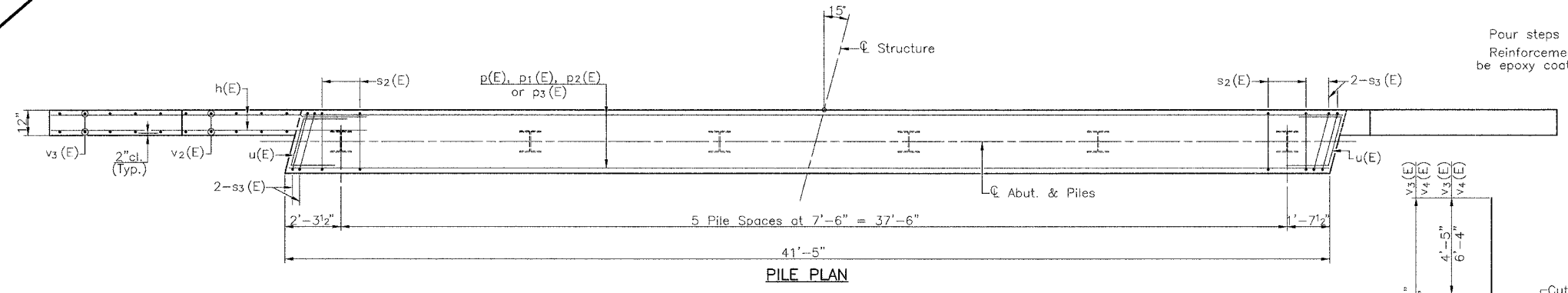
NOTES

Pour steps monolithically with caps.

Reinforcement bars designated (E) shall be epoxy coated.

WEST ABUTMENT BILL OF MATERIAL

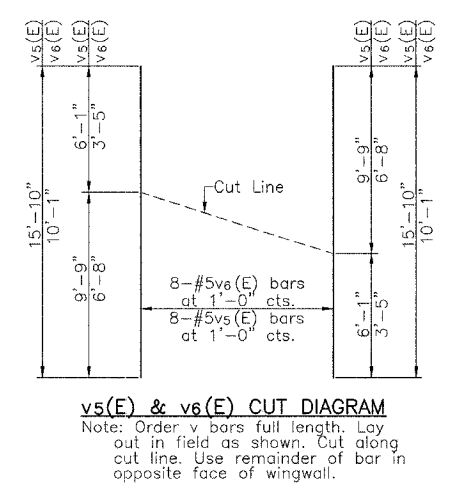
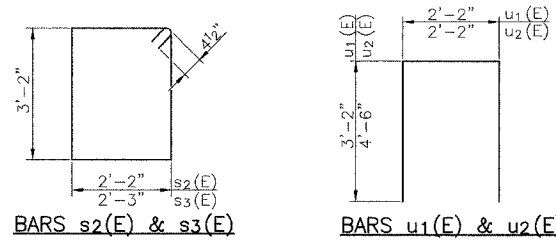
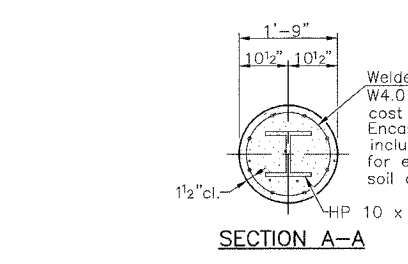
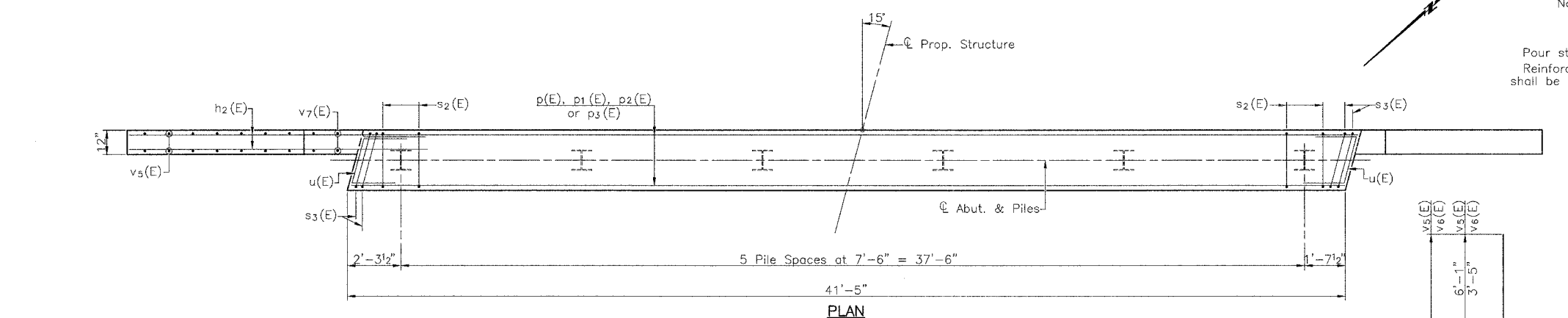
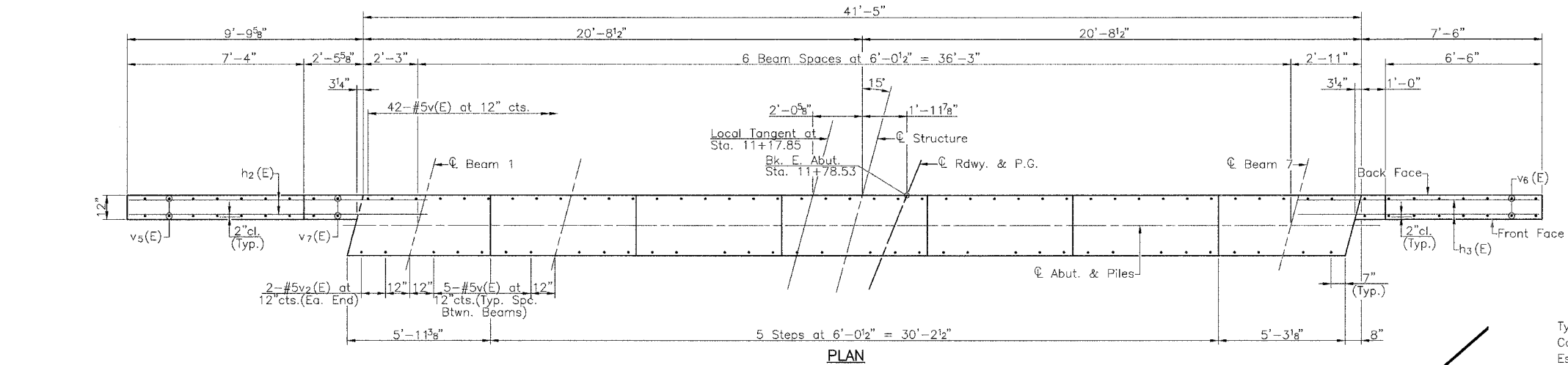
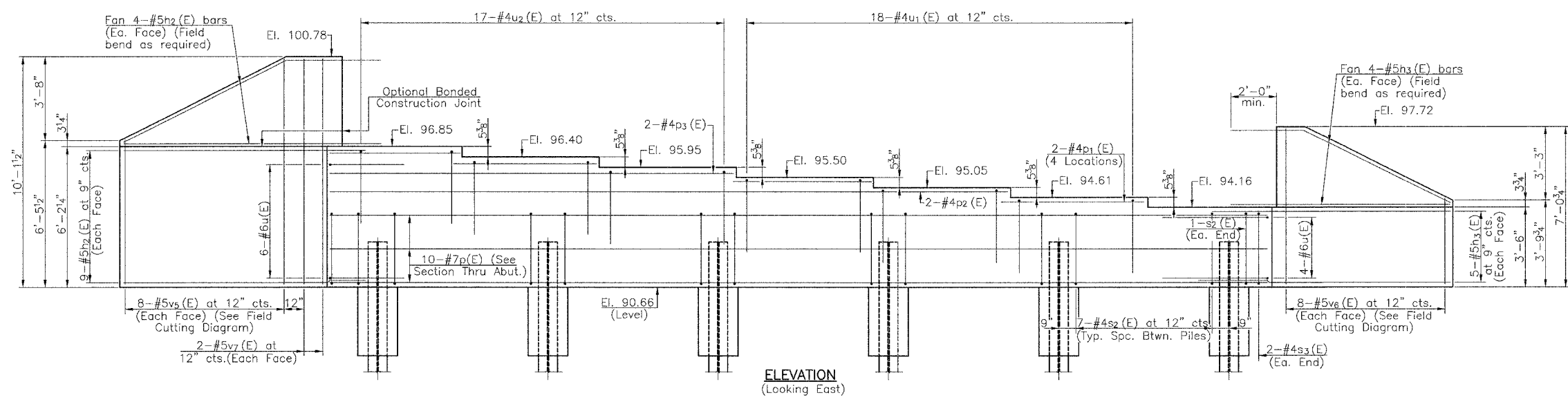
Bar	No.	Size	Length	Shape
h(E)	18	#5	11'-10"	—
h1(E)	26	#5	10'-3"	—
p(E)	10	#7	41'-1"	—
p1(E)	8	#4	6'-0"	—
p2(E)	2	#4	29'-0"	—
p3(E)	2	#4	17'-0"	—
s2(E)	37	#4	11'-5"	□
s3(E)	4	#4	11'-7"	□
u(E)	10	#6	10'-2"	□
u1(E)	18	#4	8'-6"	□
u2(E)	17	#4	11'-2"	□
v(E)	76	#5	4'-8"	—
v2(E)	10	#5	6'-8"	—
v3(E)	5	#5	10'-10"	—
v4(E)	9	#5	16'-4"	—
Structure Excavation			Cu. Yd.	46
Concrete Structures			Cu. Yd.	24.0
Reinforcement Bars, Epoxy Coated			Pound	2780
Furnishing Steel Piles HP 10 x 42			Foot	162
Driving Steel Piles			Foot	162



WEST ABUTMENT
 C.H. 28 OVER MACOUPIN CREEK
 SECTION 03-00085-00-BR
 MACOUPIN COUNTY
 SECTION 03-00126-00-BR
 MONTGOMERY COUNTY

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 28	*	**	24	18

PROJECT BRS-1741(103)
 * 03-00085-00-BR & 03-00126-00-BR
 ** MACOUPIN COUNTY & MONTGOMERY COUNTY
 Sheet 14 of 17



PILE DATA

E. Abut.
 Type: Steel HP10x42
 Capacity: Refusal
 Est. Length: 26'
 No. Req'd.: 5 + 1 Test Pile

NOTES

Pour steps monolithically with caps.
 Reinforcement bars designated (E) shall be epoxy coated.

EAST ABUTMENT BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h2(E)	26	#5	11'-6"	—
h3(E)	18	#5	9'-6"	—
p(E)	10	#7	41'-1"	—
p1(E)	8	#4	6'-0"	—
p2(E)	2	#4	29'-0"	—
p3(E)	2	#4	17'-0"	—
s2(E)	37	#4	11'-5"	□
s3(E)	4	#4	11'-7"	□
u(E)	10	#6	10'-2"	▤
u1(E)	18	#4	8'-6"	▤
u2(E)	17	#4	11'-2"	▤
v(E)	76	#5	4'-8"	—
v5(E)	8	#5	15'-10"	—
v6(E)	8	#5	10'-1"	—
v7(E)	4	#5	9'-9"	—
Structure Excavation	Cu. Yd.	30		
Concrete Structures	Cu. Yd.	23.3		
Reinforcement Bars, Epoxy Coated	Pound	2750		
Furnishing Steel Piles HP 10 x 42	Foot	130		
Driving Steel Piles	Foot	130		
Test Pile, Steel HP 10x42 Each		1		

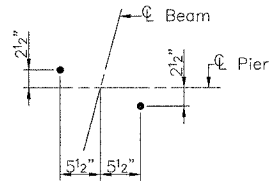
EAST ABUTMENT
 C.H. 28 OVER MACOUPIN CREEK
 SECTION 03-00085-00-BR
 MACOUPIN COUNTY
 SECTION 03-00126-00-BR
 MONTGOMERY COUNTY

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 28	*	**	24	19

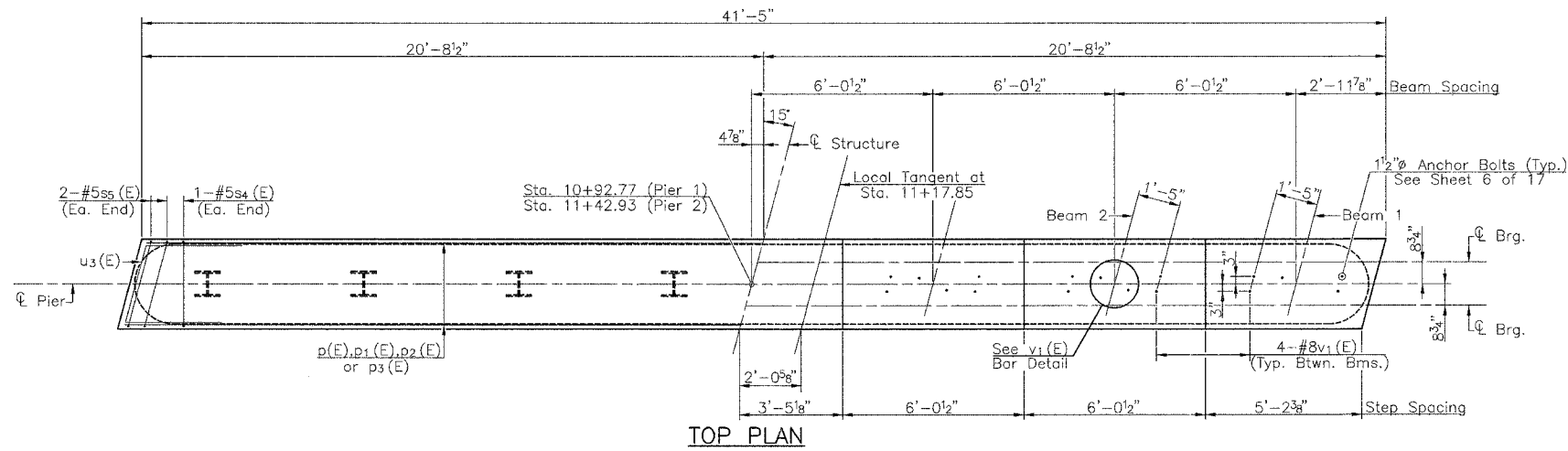
PROJECT BRS-1741(103)
 * 03-00085-00-BR & 03-00126-00-BR
 ** MACOUPIN COUNTY & MONTGOMERY COUNTY
 Sheet 15 of 17

PILE DATA

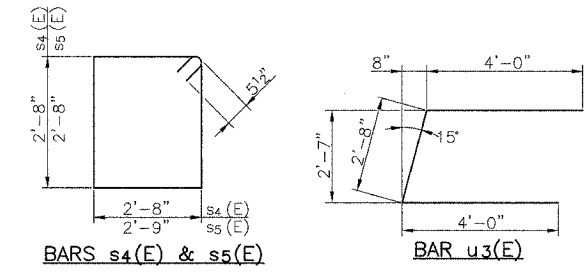
	Pier 1	Pier 2
Type:	Steel HP10x42	Steel HP10x42
Capacity:	Refusal	Refusal
Est. Length:	26'	26'
No. Req'd.:	7 + 1 Test Pile	8



v1(E) BAR DETAIL
 (Omit outside bar at exterior beam locations)

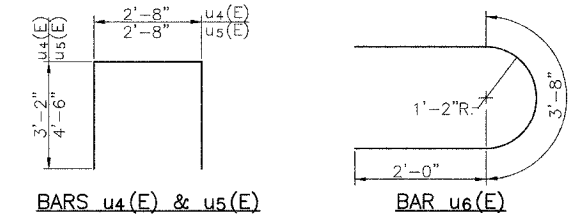


TOP PLAN



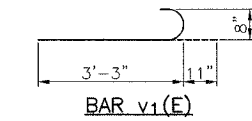
BARS s4(E) & s5(E)

BAR u3(E)

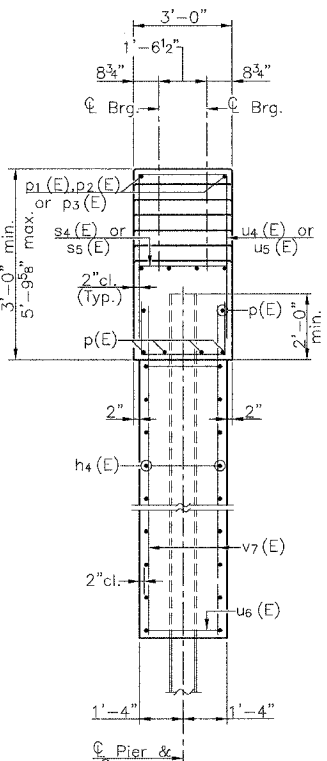


BARS u4(E) & u5(E)

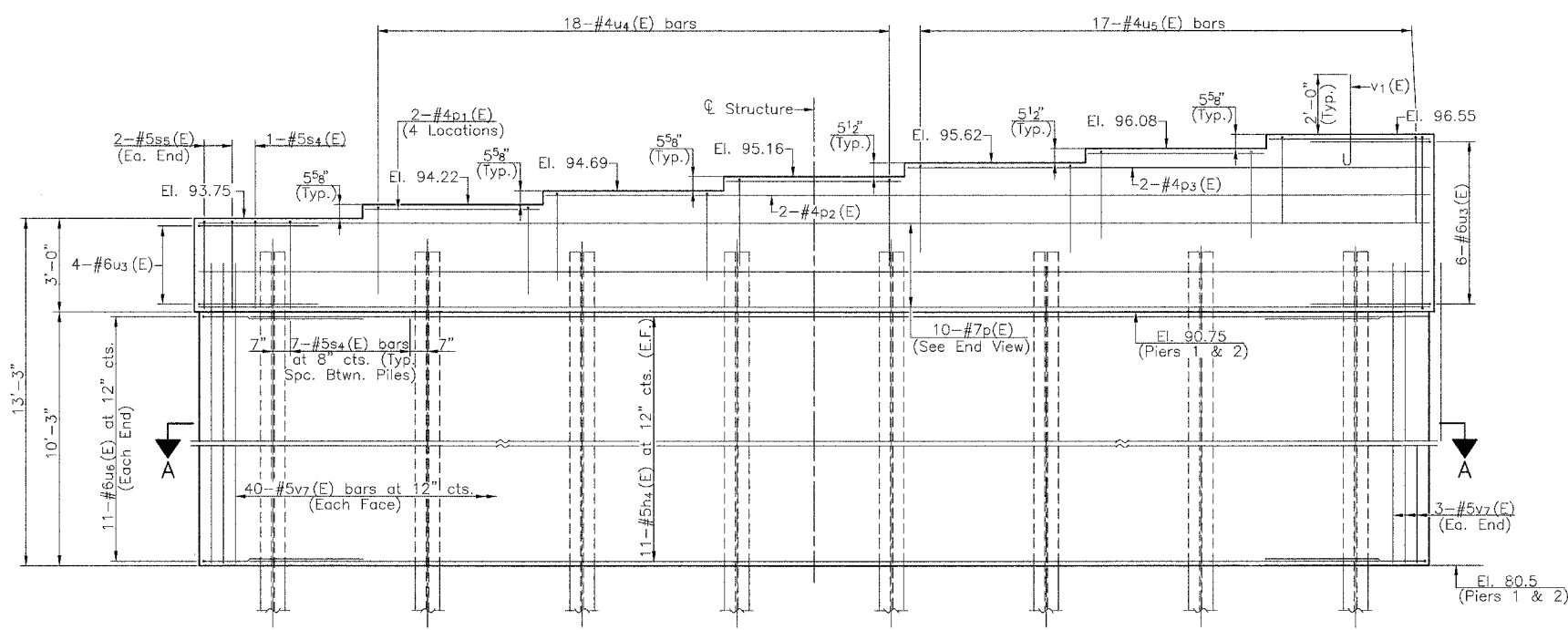
BAR u6(E)



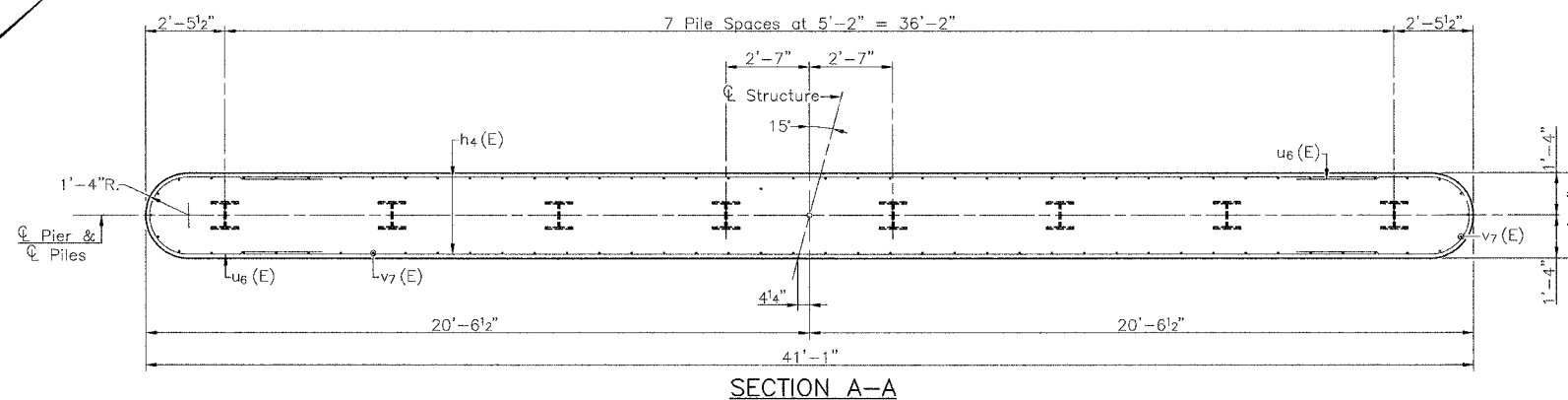
BAR v1(E)



END VIEW



ELEVATION
 (Looking West)



SECTION A-A

BILL OF MATERIAL - 2 PIERS

Bar	No.	Size	Length	Shape
h4(E)	44	#5	38'-5"	—
p(E)	20	#7	41'-1"	—
p1(E)	16	#4	6'-0"	—
p2(E)	4	#4	29'-0"	—
p3(E)	4	#4	17'-0"	—
s4(E)	102	#5	11'-7"	□
s5(E)	8	#5	11'-9"	□
u3(E)	20	#6	10'-8"	⌢
u4(E)	36	#4	9'-0"	⌢
u5(E)	34	#4	11'-8"	⌢
u6(E)	44	#6	7'-8"	⌢
v1(E)	72	#8	4'-2"	⌢
v7(E)	172	#5	12'-3"	—
Reinforcement Bars, Epoxy Coated	Pound	9270		
Furnishing Steel Piles HP 10x42	Foot	390		
Driving Steel Piles	Foot	390		
Test Pile Steel HP 10x42	Each	1		
Concrete Structures	Cu. Yd.	122.6		
Structure Excavation Protection for Pile Bent No. 1	Each	1		
Structure Excavation Protection for Pile Bent No. 2	Each	1		
Structure Excavation	Cu. Yd.	67		

Notes: All exposed edges shall have 3/4" chamfer.
 Pour steps monolithically with cap.

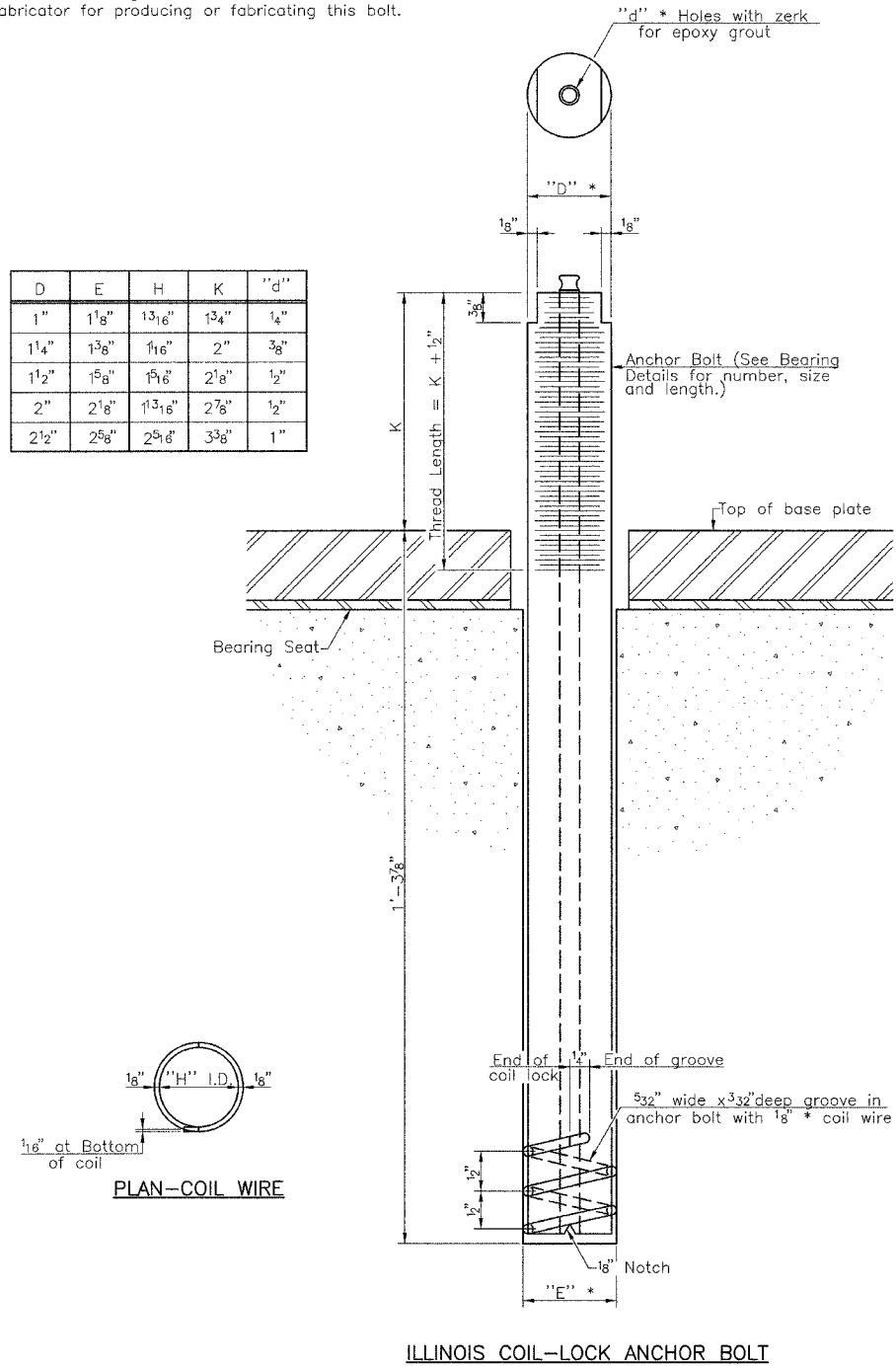
PIERS
 C.H. 28 OVER MACOUPIN CREEK
 SECTION 03-00085-00-BR
 MACOUPIN COUNTY
 SECTION 03-00126-00-BR
 MONTGOMERY COUNTY

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 28	*	**	24	20
PROJECT BRS-1741(103)				
* 03-00085-00-BR & 03-00126-00-BR				
** MACOUPIN COUNTY & MONTGOMERY COUNTY				

Sheet 16 of 17

The Illinois Coil-Lock Anchor Bolt is a proprietary item which is the property of the Illinois Department of Transportation. Use, reproduction or disclosure without express written permission is prohibited and protected under Federal copyright laws. The production and the fabrication of this bolt for use on highway projects in the State of Illinois shall be permitted and there shall be no incurred charges or fees to the manufacturer or the fabricator for producing or fabricating this bolt.

D	E	H	K	"d"
1"	1 1/8"	1 3/16"	1 3/4"	1/4"
1 1/4"	1 3/8"	1 1/16"	2"	3/8"
1 1/2"	1 5/8"	1 5/8"	2 1/8"	1/2"
2"	2 1/8"	1 13/16"	2 7/8"	1/2"
2 1/2"	2 5/8"	2 5/8"	3 3/8"	1"



MATERIALS FOR ILLINOIS COIL-LOCK ANCHOR BOLT

The anchor bolt shall be fabricated from cold drawn or hot finished seamless carbon steel mechanical tubing conforming to ASTM A 519, Grade 1026, CW and supplied with hexagonal nuts and cut washers.

The coil wire shall be made of any suitable soft steel wire. The finished anchor bolt shall be cleaned of rust and other foreign materials and wrapped or packaged to prevent contamination until they are installed. The epoxy grout shall be a two-component, epoxy resin bonding system conforming to ASTM C 881, Type I, Grade 1 and of a Class suitable for the temperature at installation.

INSTALLATION PROCEDURE for the ILLINOIS COIL-LOCK ANCHOR BOLT

1. With the coil wire in place, the bolt shall be inserted into the hole and turned clockwise to a snug fit in the hole. Nut and washer shall be placed on the bolt. The nut shall be tensioned until the steel base plates are held securely to the concrete bearing seat.
2. Epoxy grout shall be pumped through the zerk fitting with a pressure gun. Pumping shall continue until the epoxy overflows the hole around the bolt shank. After pumping is discontinued, excess epoxy shall be immediately wiped off.

ALTERNATE ANCHOR BOLTS

The Contractor may use, at his option, the capsule or the adhesive cartridge type anchor rods that have been previously tested and given a prior approval by the Department. The Contractor shall install these anchor rods in pre-drilled holes according to the manufacturer's recommendations and procedures.

The capsule or the adhesive cartridge type anchor rods shall be a two part system composed of:

1. A threaded rod stud with nut and washer of the type specified.
2. A sealed glass capsule or a sealed glass adhesive cartridge containing premeasured amounts of the adhesive chemical.

Location	Type
Piers	A307

ASTM F 1554 Grade 105, ASTM A 449 and AASHTO M314 Grade 105 anchor bolts may be substituted for the anchor bolts shown above.

GENERAL NOTES

Holes in the masonry for anchor bolts shall be drilled through the base plates to the diameter and depth shown or according to the manufacturer's recommendation after beams or girders have been erected and adjusted.

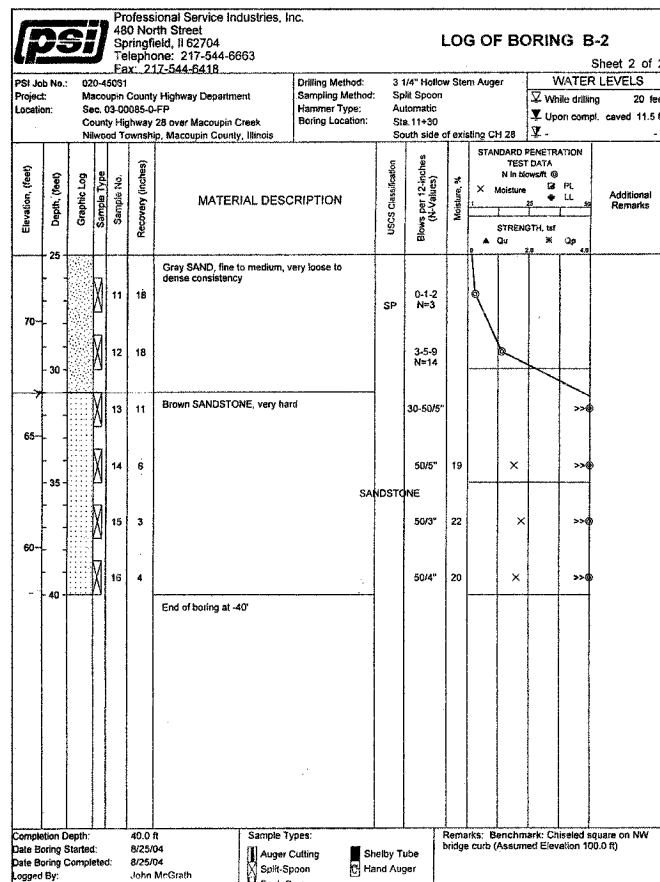
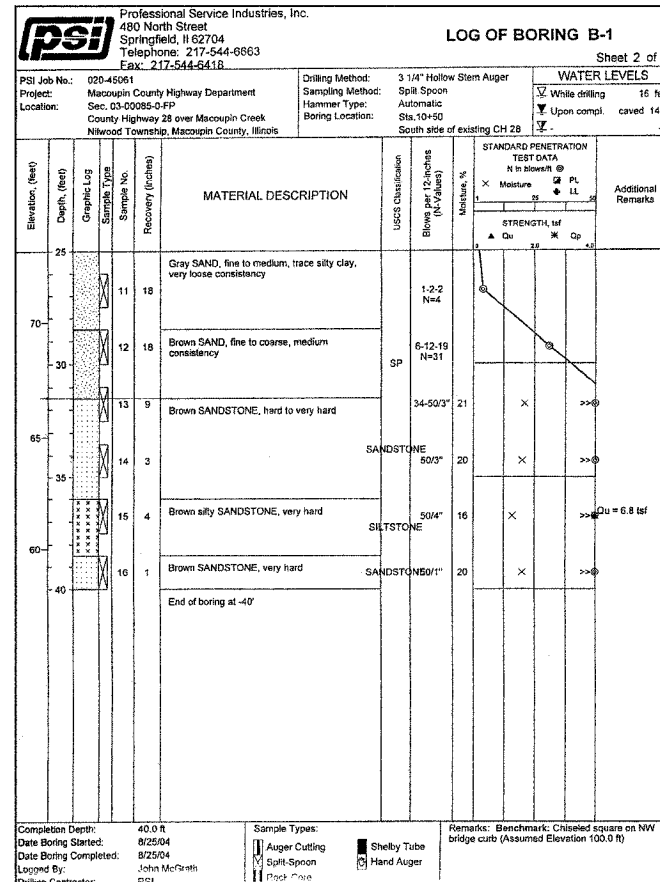
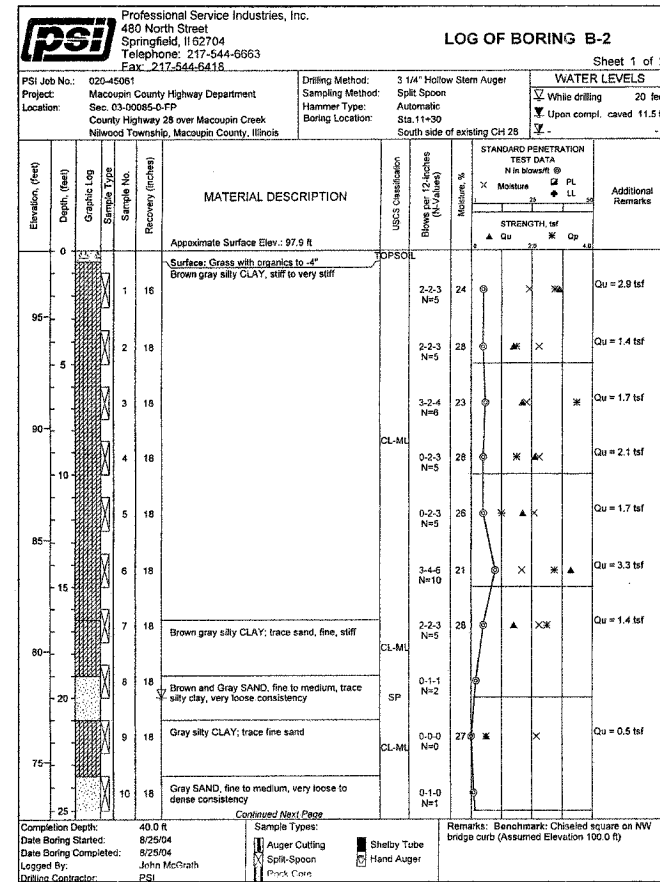
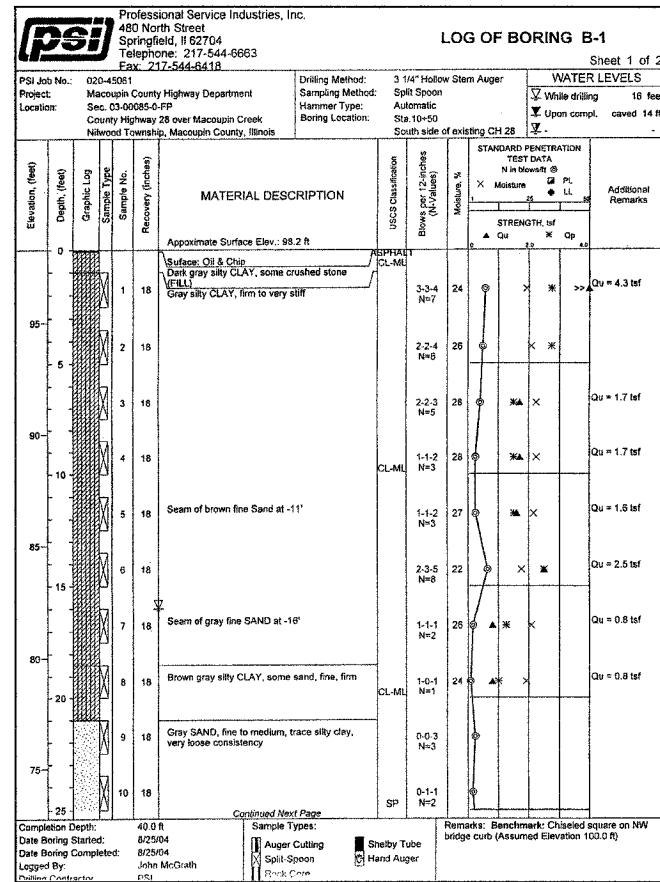
Prior to setting the bolts, the holes shall be dry and all dust and loose particles shall be removed by the use of compressed air or vacuuming.

The anchor bolts, furnished and installed and including the epoxy grout or capsules shall not be paid for separately but shall be included in the unit bid price for "Concrete Superstructure".

ANCHOR BOLT DETAILS
 C.H. 28 OVER MACOUPIN CREEK
 SECTION 03-00085-00-BR
 MACOUPIN COUNTY
 SECTION 03-00126-00-BR
 MONTGOMERY COUNTY

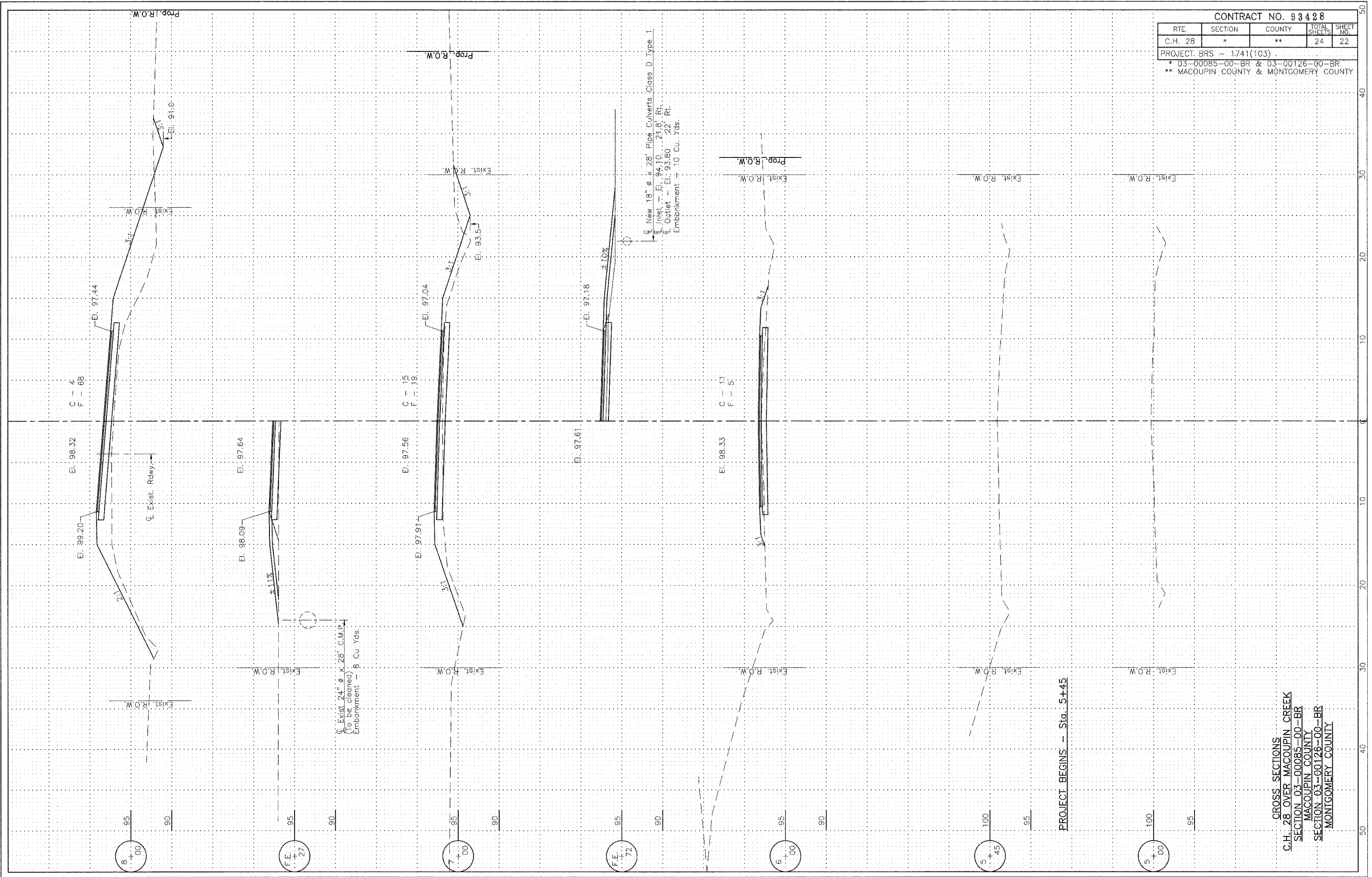
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RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 28	*	**	24	21
PROJECT BRS-1741(103)				
* 03-00085-00-BR & 03-00126-00-BR				
** MACOUPIN COUNTY & MONTGOMERY COUNTY				
Sheet 17 of 17				

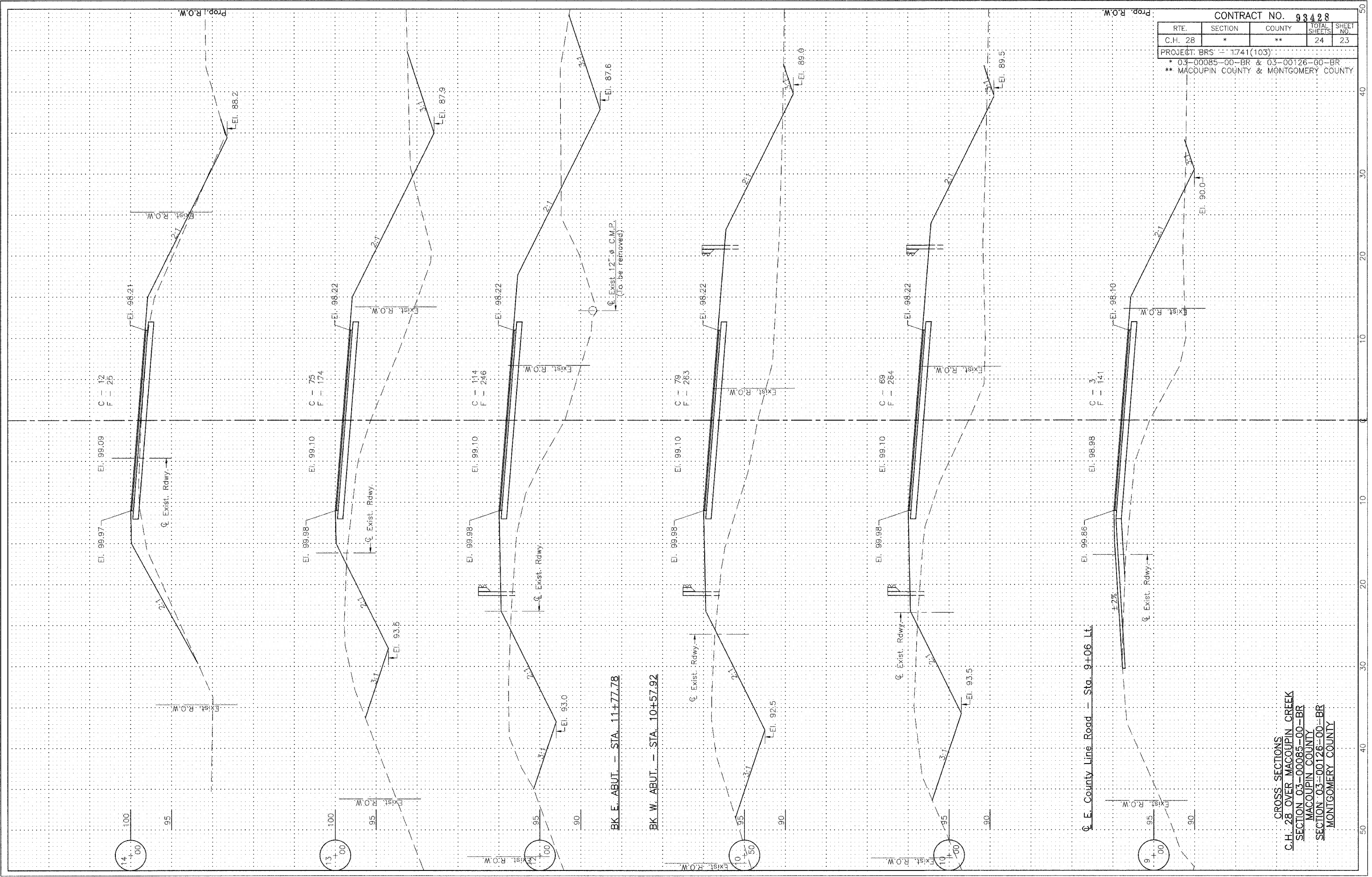


BORINGS
C.H. 28 OVER MACOUPIN CREEK
SECTION 03-00085-00-BR
MACOUPIN COUNTY
SECTION 03-00126-00-BR
MONTGOMERY COUNTY

CONTRACT NO. 93428				
RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 28	*	**	24	22
PROJECT. BRS -- 1.741(103)				
* 03-00085-00-BR & 03-00126-00-BR				
** MACOUPIN COUNTY & MONTGOMERY COUNTY				



CONTRACT NO. 93428				
RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 28	*	**	24	23
PROJECT: BRS' - 1741(103)				
* 03-00085-00-BR & 03-00126-00-BR				
** MACOUPIN COUNTY & MONTGOMERY COUNTY				

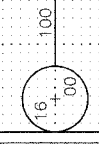


CROSS SECTIONS
 C.H. 28 OVER MACOUPIN CREEK
 SECTION 03-00085-00-BR
 MACOUPIN COUNTY
 SECTION 03-00126-00-BR
 MONTGOMERY COUNTY

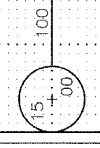
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RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 28	*	**	24	24
PROJECT BRS: = 1741(103)				
* 03-00085-00-BR & 03-00126-00-BR				
** MACOUPIN COUNTY & MONTGOMERY COUNTY				

Prop. R.O.W.

PROJECT ENDS - Sta. 16+00

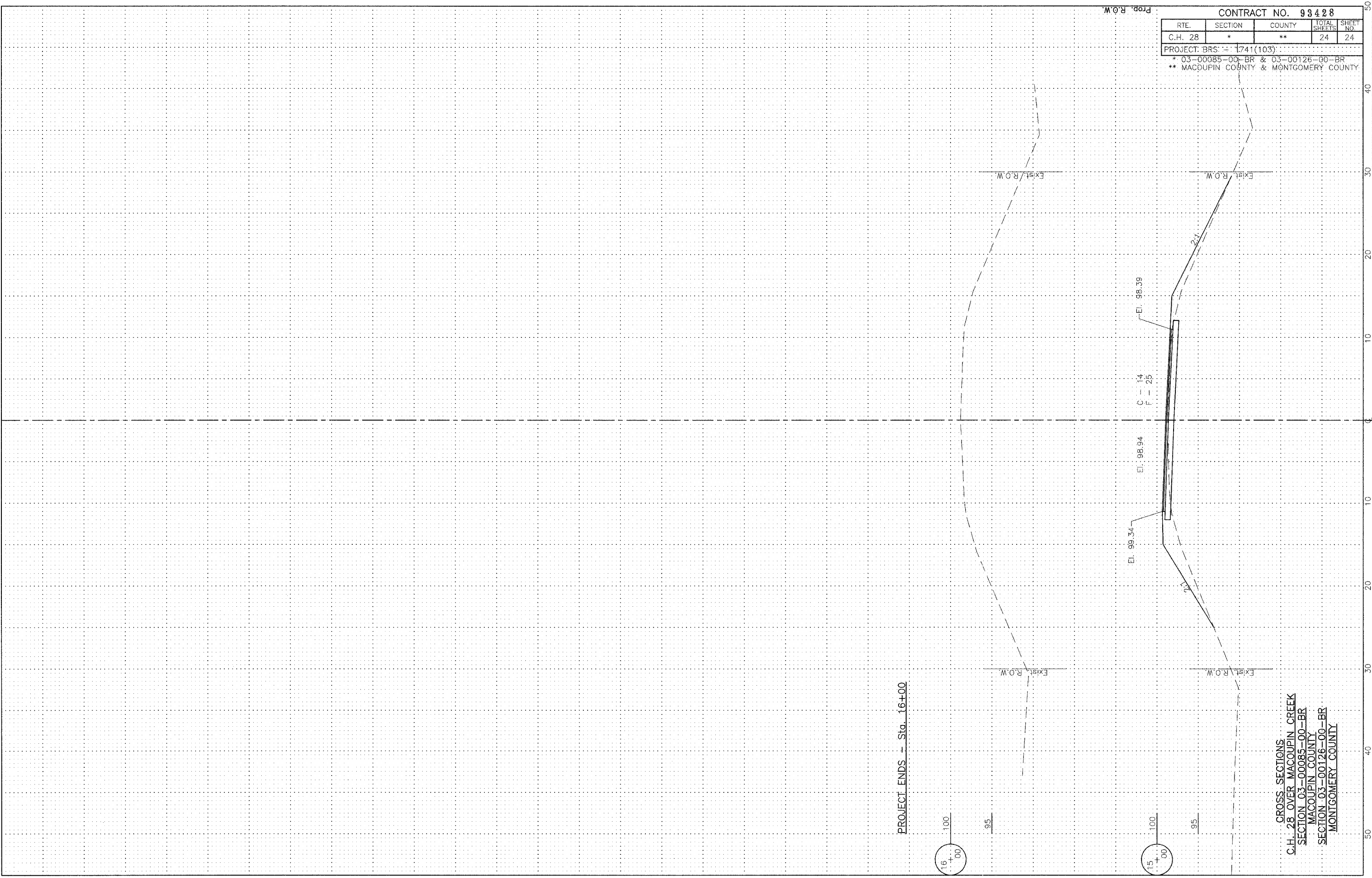


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CROSS SECTIONS
 C.H. 28 OVER MACOUPIN CREEK
 SECTION 03-00085-00-BR
 MACOUPIN COUNTY
 SECTION 03-00126-00-BR
 MONTGOMERY COUNTY



50
40
30
20
10
0
10
20
30
40
50