

ROUTE	SECTION	COUNTY	TOWNSHIP	TOTAL SHEETS	SHEET NUMBER
T.R. 319	05-13136-00-BR	JACKSON	SEC 3, T10S, R2W	16	1
JOB NO. C-99-550-05			PROJECT NO. BROS-077(43)		
ETHERTON ROAD			CONTRACT NO. 99249		

INDEX OF SHEETS

SHEET NO	DESCRIPTION
1	TITLE AND COVER SHEET INDEX OF SHEETS LIST OF HIGHWAY STANDARDS SUMMARY OF QUANTITIES
2	TRAFFIC CONTROL PLAN AND TYPICAL SECTIONS
3	PLAN AND PROFILE
4 - 6	CROSS SECTIONS
7	GENERAL PLAN AND ELEVATION
8	P.P.C. DECK BEAM SUPERSTRUCTURE 24' ROADWAY - 27" X 36" BEAMS - 60' SPAN 0° SKEW
9	P.P.C. DECK BEAM DETAILS 24' ROADWAY - 27" X 36" BEAMS
10	P.P.C. DECK BEAM DETAILS 24' ROADWAY - 27" X 48" BEAMS
11	P.P.C. DECK BEAMS - PILE BENT ABUTMENT 24' ROADWAY - 27" BEAMS - 0° SKEW
12	STEEL RAILING, TYPE S1
13	NAME PLATE
14	PILE DETAILS
15	SOIL BORING LOGS

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANS FOR PROPOSED
HIGHWAY BRIDGE PROGRAM
SECTION 05-13136-00-BR JACKSON COUNTY
TOWNSHIP ROAD 319 - ETHERTON ROAD
JOB NO. C-99-550-05
PROJECT NO. BROS-077 (43)
CONTRACT NO. 99249
SUGAR CREEK

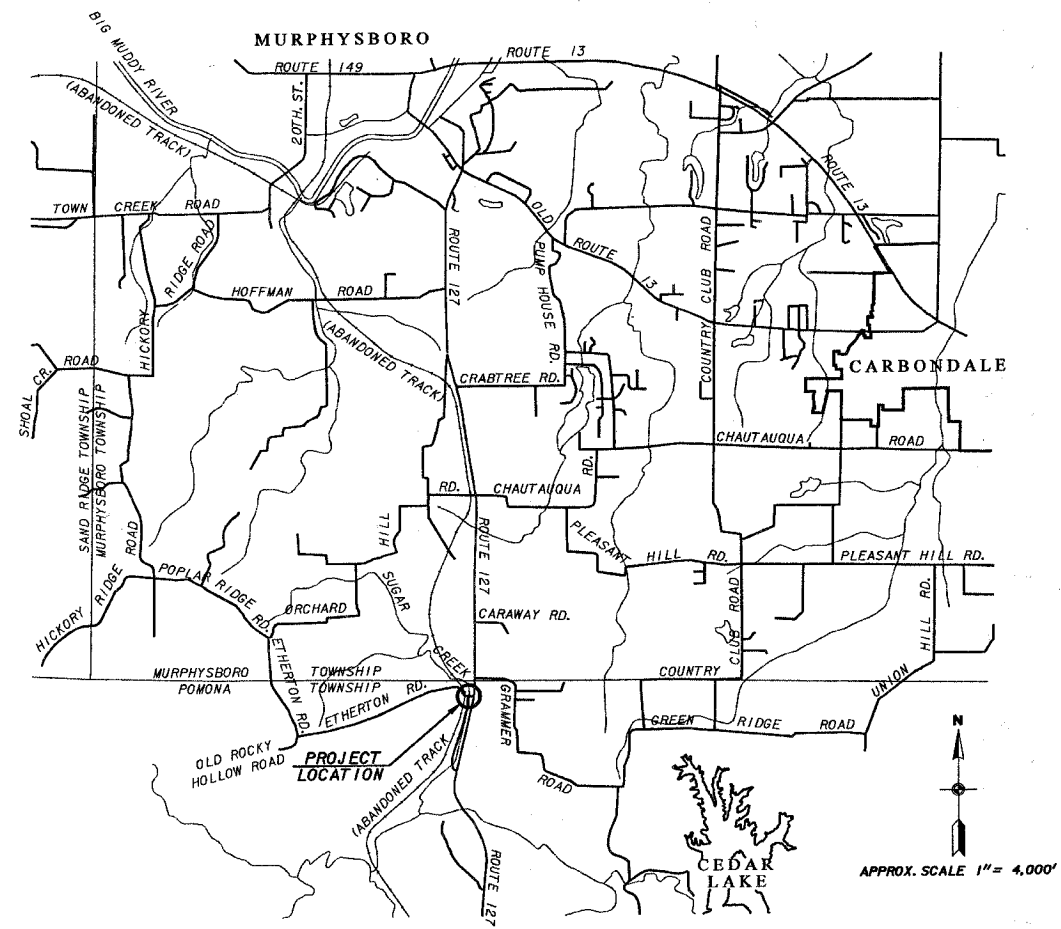
LIST OF HIGHWAY STANDARDS

STD. NO.	DESCRIPTION
542401	METAL END SECTION FOR PIPE CULVERTS
542546	FLUSH INLET BOX FOR MEDIAN
630301-04	SHOULDER WIDENING FOR TYPE 1 (SPECIAL) GUARDRAIL TERMINALS
635006-02	REFLECTOR AND TERMINAL MARKER PLACEMENT
701001-01	OFF-RD OPERATIONS, 2L, 2W, MORE THAN 4.5M (15') AWAY
701006-02	OFF-RD OPERATIONS, 2L, 2W, 4.5 m (15') TO 600 mm (24") FROM PAVEMENT EDGE
701001-02	LANE CLOSURE, 2L, 2W, SHORT TIME OPERATION
701901	TRAFFIC CONTROL DEVICES
729001	APPLICATIONS OF TYPES A & B METAL POSTS (FOR SIGNS & MARKERS)
B.L.R. 21-7	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS
B.L.R. 23-2	TRAFFIC BARRIER TERMINAL TYPE 1
B.L.R. 24-1	MAILBOX TURNOUT FOR LOCAL ROADS
B.L.R. 26	STEEL PLATE BEAM GUARDRAIL 27 1/2" HEIGHT
B.L.R. 27	TRAFFIC BARRIER TERMINAL TYPE 5A

SUMMARY OF QUANTITIES

CODE NO.	ITEM	UNIT	X081-2A AWARDED QUANTITY	AS-BUILT QUANTITY
20100500	TREE REMOVAL, ACRES	ACRE	0.05	
20200410	EARTH EXCAVATION (SPECIAL)	CU YD	950	
20400800	FURNISHED EXCAVATION	CU YD	850	
25001000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.5	
28100809	STONE DUMPED RIPRAP, CLASS A5	TON	750	
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	750	
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1	
50105200	REMOVAL OF EXISTING CULVERTS	EACH	1	
50300225	CONCRETE STRUCTURES	CU YD	18.2	
50300280	CONCRETE ENCASEMENT	CU YD	2.1	
50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ FT	1,440	
50800105	REINFORCEMENT BARS	POUND	2,300	
50900205	STEEL RAILING, TYPE S1	FOOT	120	
51201400	FURNISHING STEEL PILES HP10X42	FOOT	450	
51202305	DRIVING PILES	FOOT	450	
51203400	TEST PIPE STEEL HP10X42	EACH	2	
51500100	NAME PLATES	EACH	1	
54200640	PIPE CULVERTS, TYPE 1, CORRUGATED STEEL OR ALUMINUM CULVERT PIPE 15"	FOOT	159	
54215550	METAL END SECTIONS 15"	EACH	2	
54244405	FLUSH INLET BOX FOR MEDIAN, STANDARD 542546	EACH	2	
* 63100075	TRAFFIC BARRIER TERMINAL, TYPE 5A	EACH	1	
* 63100167	TRAFFIC BARRIER TERMINAL, TYPE 1, SPECIAL (TANGENT)	EACH	2	
* 63100205	TRAFFIC BARRIER TERMINAL, TYPE 5A (SPECIAL)	EACH	2	
* 63300725	STEEL PLATE BEAM GUARDRAIL (SHORT RADIUS)	FOOT	92	
67100100	MOBILIZATION	L SUM	1	
70101700	TRAFFIC CONTROL AND PROTECTION	L SUM	1	
* 78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4	
* LR631020	TRAFFIC BARRIER TERMINAL, TYPE 1	EACH	1	

SCALE AS SHOWN	PLANS PREPARED BY J. T. BLANKINSHIP AND ASSOCIATES CONSULTING ENGINEERS	MURPHYSBORO, ILLINOIS
DATE MAR. 2007	FILE NO. E-8784	SHEET NO. 1 OF 16



LAYOUT
APPROXIMATE SCALE: 1 INCH = 0.758 MILE
NET LENGTH OF PROJECT = 526.5 FT. • 0.100 MI.

SCALES

PLAN	1 INCH = 20 FEET
PROFILE	1 INCH = 20 FEET HORIZ.
PROFILE	1 INCH = 5 FEET VERT.
CROSS SECTIONS	1 INCH = 5 FEET HORIZ.
CROSS SECTIONS	1 INCH = 5 FEET VERT.



J.U.L.I.E - 1-800-892-0123
CLASSIFICATION - LOCAL ROAD
A.D.T. - 225
DESIGN SPEED - 30MPH

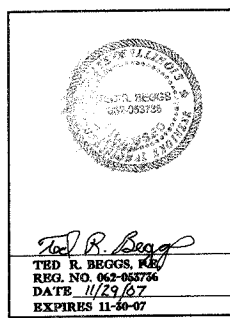
JACKSON COUNTY

APPROVED December 6 2007
Ray Evans
HIGHWAY COMMISSIONER - POMONA TOWNSHIP

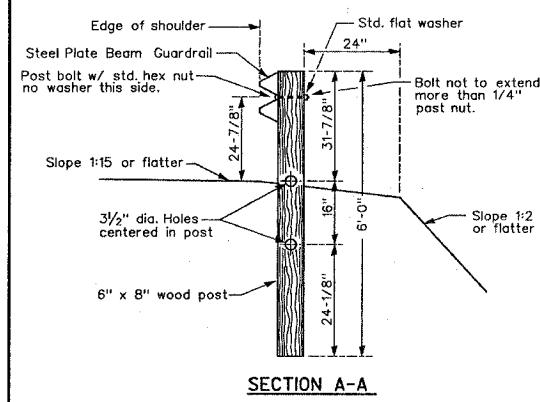
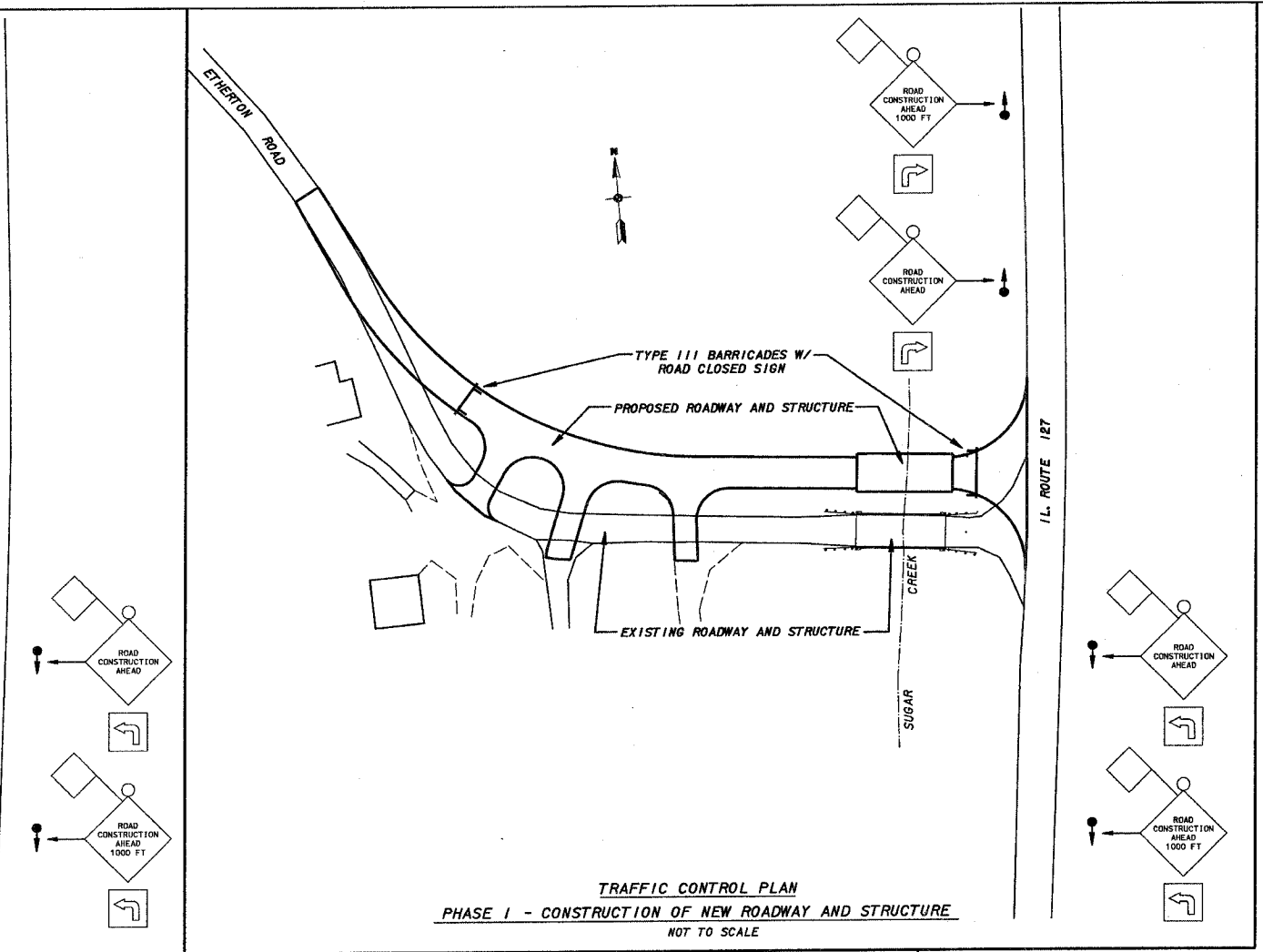
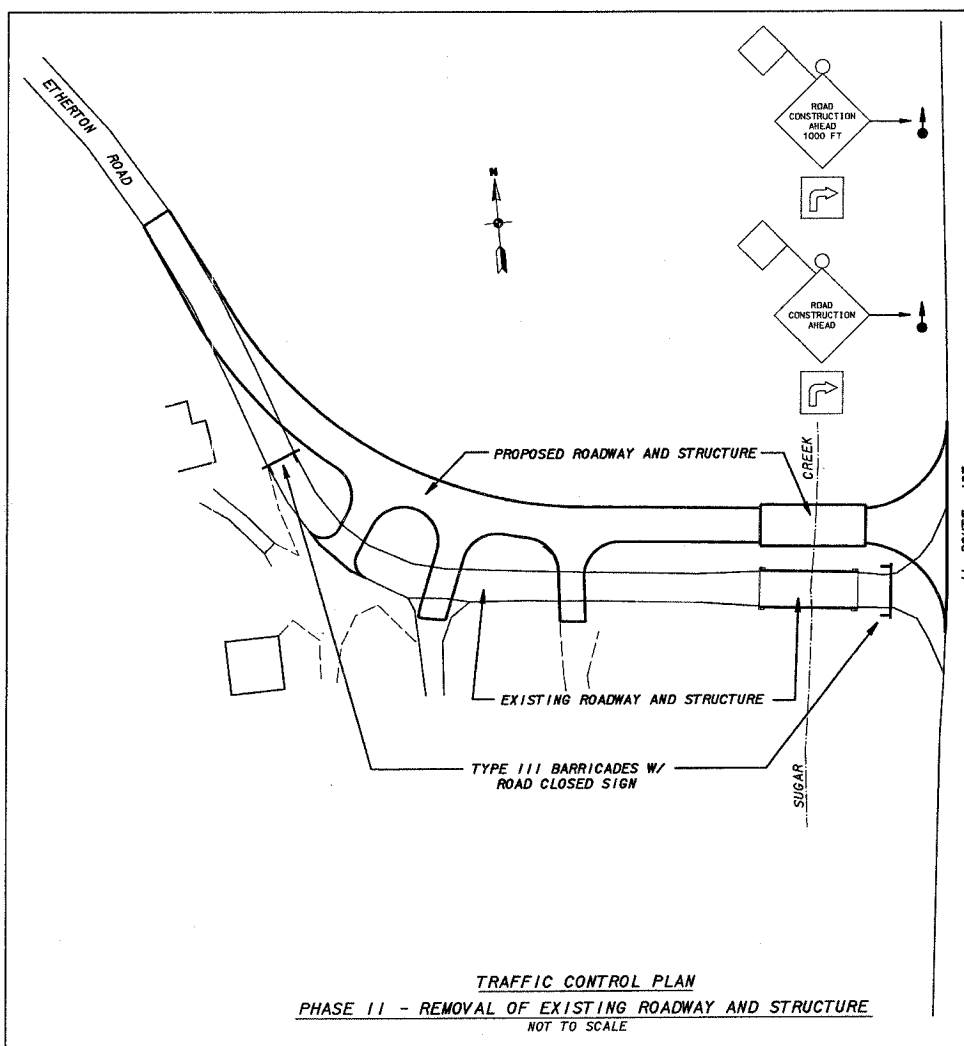
APPROVED NOVEMBER 30 2007
Grant C. Guthman
GRANT C. GUTHMAN - JACKSON COUNTY ENGINEER

PASSED DECEMBER 19 2007
Dennis W. Hillebrenner
DENNIS W. HILLEBRENNER - DISTRICT 9 ENGINEER OF LOCAL ROADS & STREETS

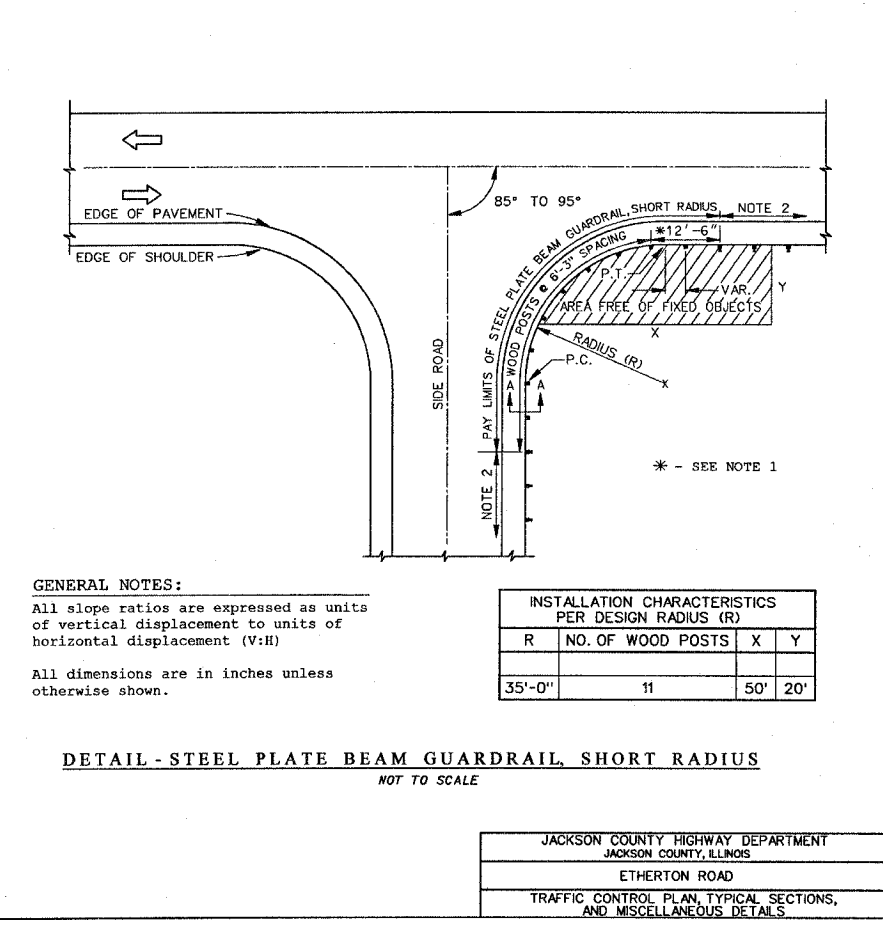
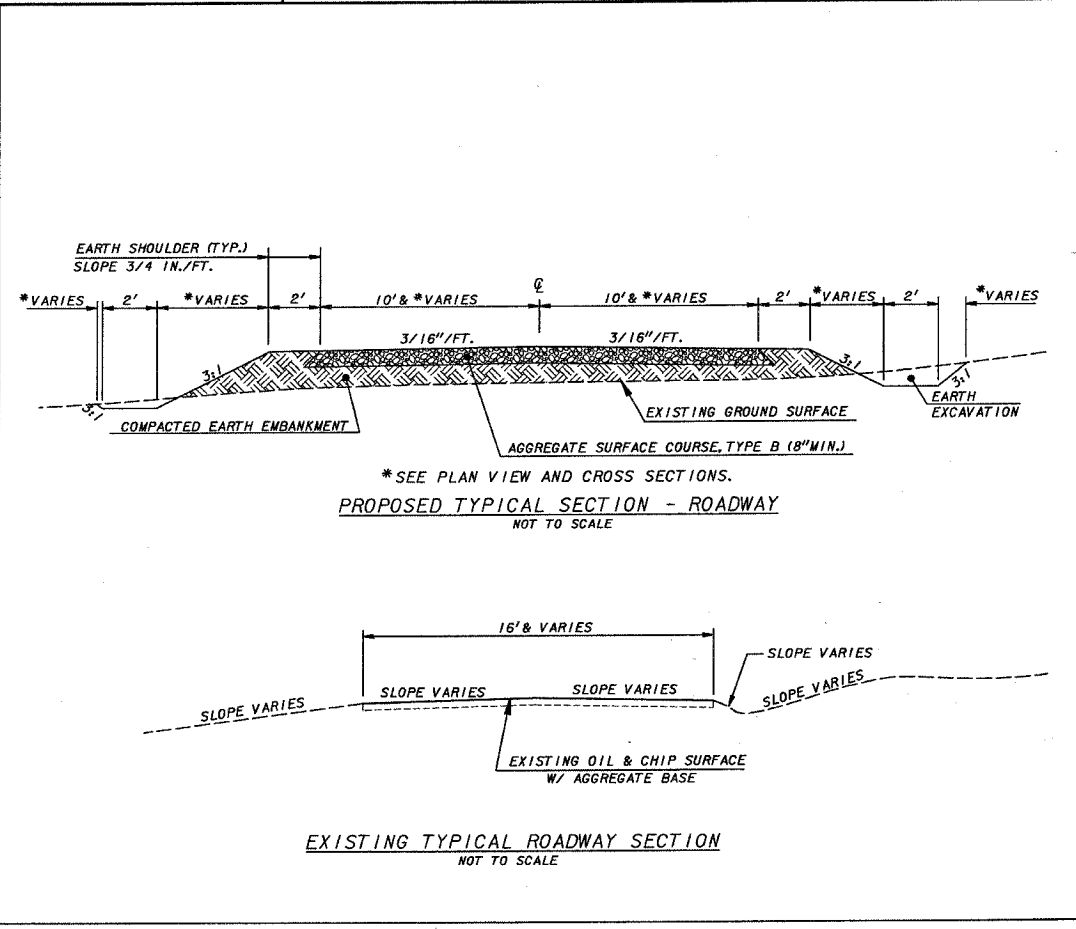
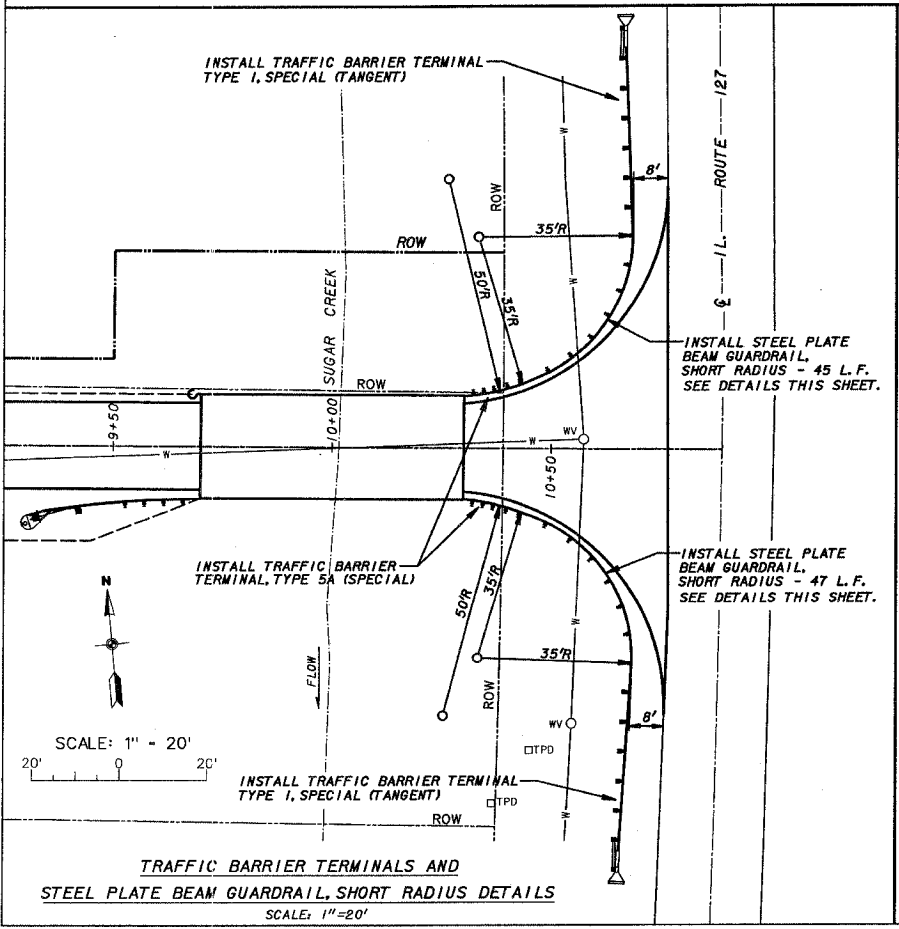
RELEASING FOR BID BASED ON LIMITED REVIEW Dec 19 2007
Mary C. Lame
MARY C. LAME, P.E. - DEPUTY DIRECTOR OF HIGHWAYS REGION FIVE ENGINEER



ROUTE	SECTION	COUNTY	TOWNSHIP	TOTAL SHEETS	SHEET NUMBER
T.R. 319	05-13138-00-8R	JACKSON	SEC 3, T10S, R2W	15	2
JOB NO. C-99-550-05			PROJECT NO. BROS-077(43)		
ETHERTON ROAD			CONTRACT NO. 99249		



- NOTES:**
1. Construct according to Standard 631011 for Traffic Barrier Terminal Type 2, except delete end section and splice into radius guardrail.
 2. Steel Plate Beam Guardrail Type A or Traffic Barrier Terminal as specified.



GENERAL NOTES:
 All slope ratios are expressed as units of vertical displacement to units of horizontal displacement (V:H)
 All dimensions are in inches unless otherwise shown.

INSTALLATION CHARACTERISTICS PER DESIGN RADIUS (R)			
R	NO. OF WOOD POSTS	X	Y
35'-0"	11	50'	20'

ROUTE	SECTION	COUNTY	TOWNSHIP	TOTAL SHEETS	SHEET NUMBER
T.R. 319	05-1316-00-BR	JACKSON	SEC 3, T10S, R2W	15	3
JOB NO. C-99-550-05			PROJECT NO. BROS-077(43)		
ETHERTON ROAD			CONTRACT NO. 99249		

NOTES

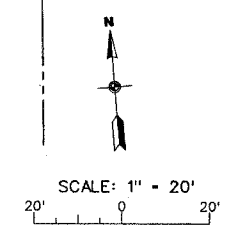
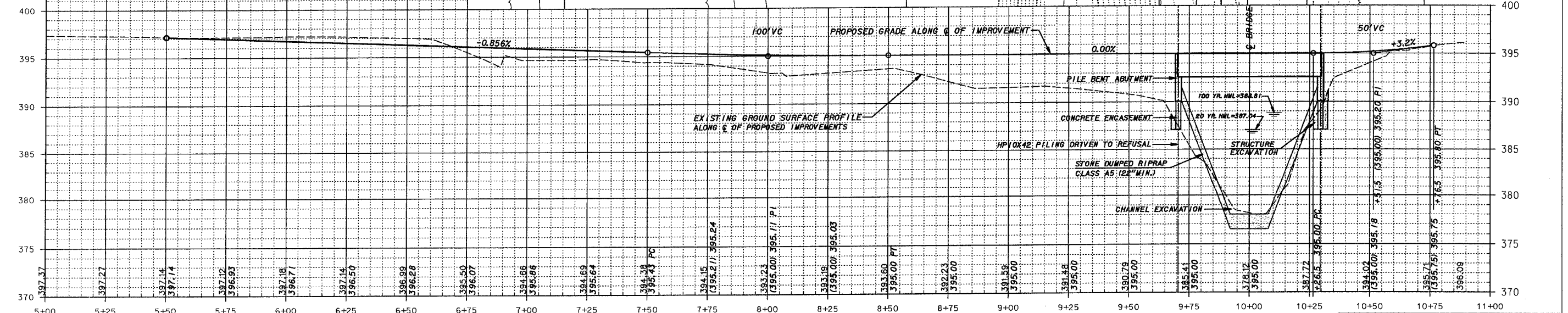
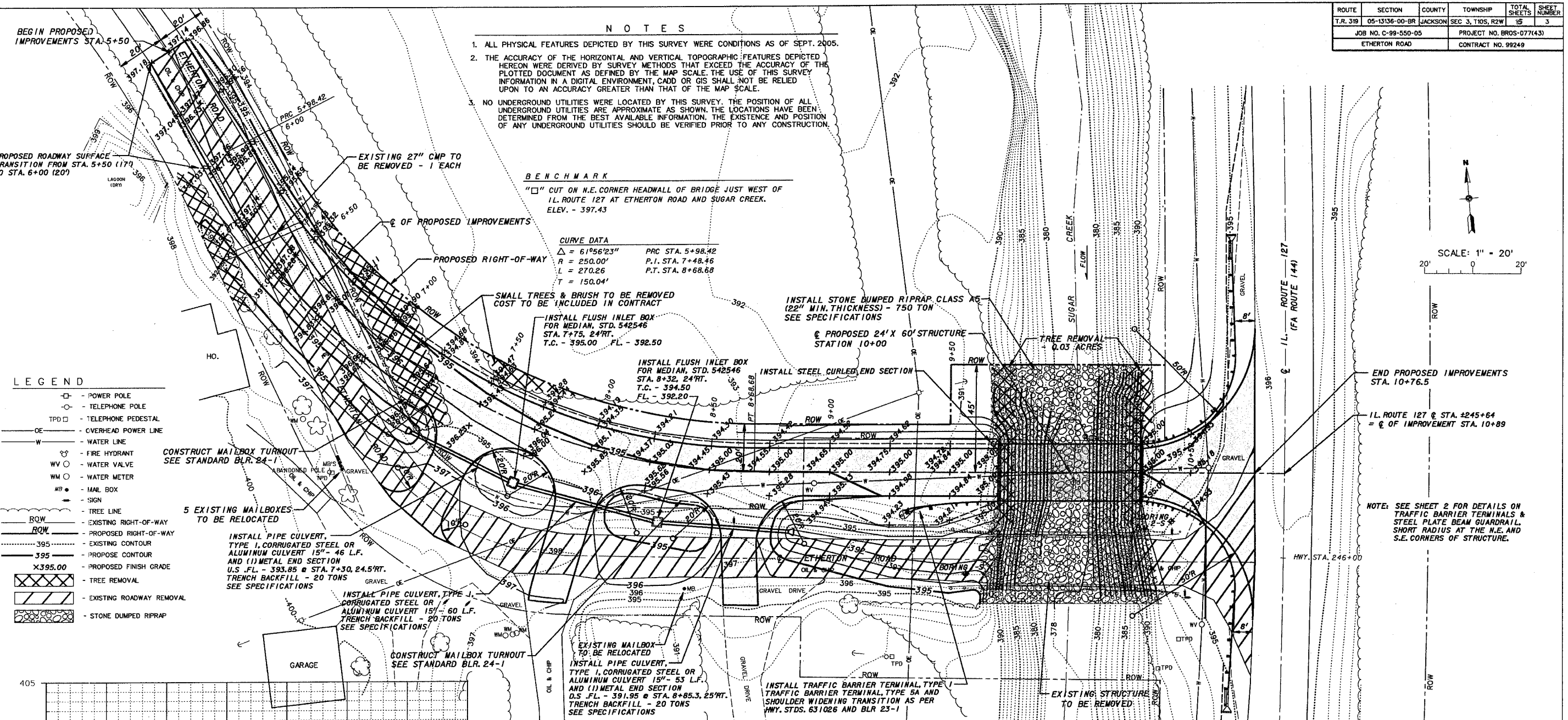
1. ALL PHYSICAL FEATURES DEPICTED BY THIS SURVEY WERE CONDITIONS AS OF SEPT. 2005.
2. THE ACCURACY OF THE HORIZONTAL AND VERTICAL TOPOGRAPHIC FEATURES DEPICTED HEREON WERE DERIVED BY SURVEY METHODS THAT EXCEED THE ACCURACY OF THE PLOTTED DOCUMENT AS DEFINED BY THE MAP SCALE. THE USE OF THIS SURVEY INFORMATION IN A DIGITAL ENVIRONMENT, CAD OR GIS SHALL NOT BE RELIED UPON TO AN ACCURACY GREATER THAN THAT OF THE MAP SCALE.
3. NO UNDERGROUND UTILITIES WERE LOCATED BY THIS SURVEY. THE POSITION OF ALL UNDERGROUND UTILITIES ARE APPROXIMATE AS SHOWN. THE LOCATIONS HAVE BEEN DETERMINED FROM THE BEST AVAILABLE INFORMATION. THE EXISTENCE AND POSITION OF ANY UNDERGROUND UTILITIES SHOULD BE VERIFIED PRIOR TO ANY CONSTRUCTION.

BENCHMARK
 "□" CUT ON N.E. CORNER HEADWALL OF BRIDGE JUST WEST OF I.L. ROUTE 127 AT ETHERTON ROAD AND SUGAR CREEK.
 ELEV. - 397.43

CURVE DATA
 $\Delta = 61^{\circ}56'23''$ PRC STA. 5+98.42
 $R = 250.00'$ P.I. STA. 7+48.46
 $L = 270.26$ P.T. STA. 8+68.68
 $T = 150.04'$

LEGEND

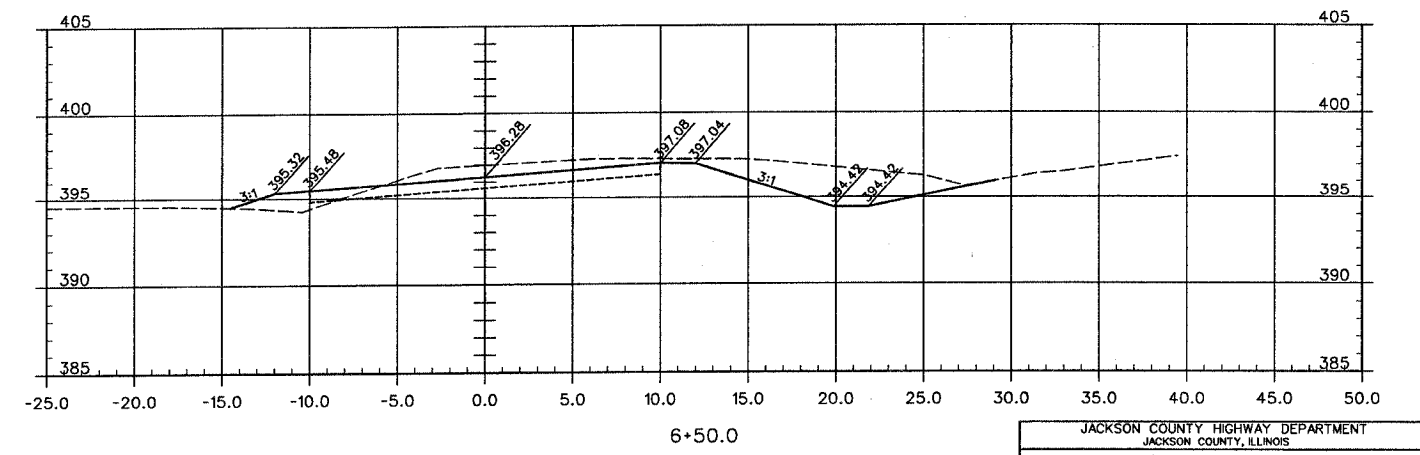
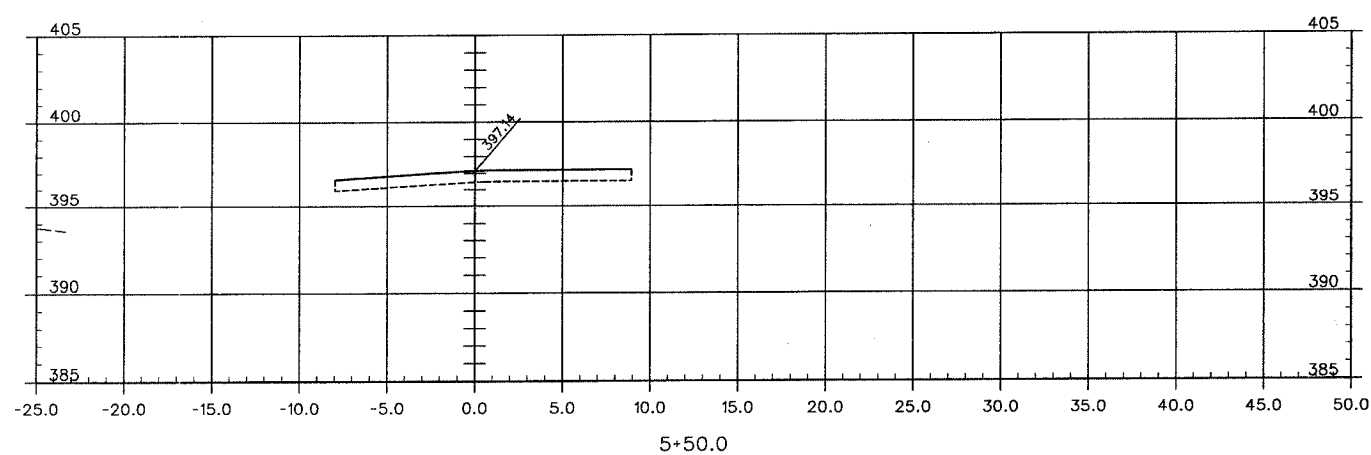
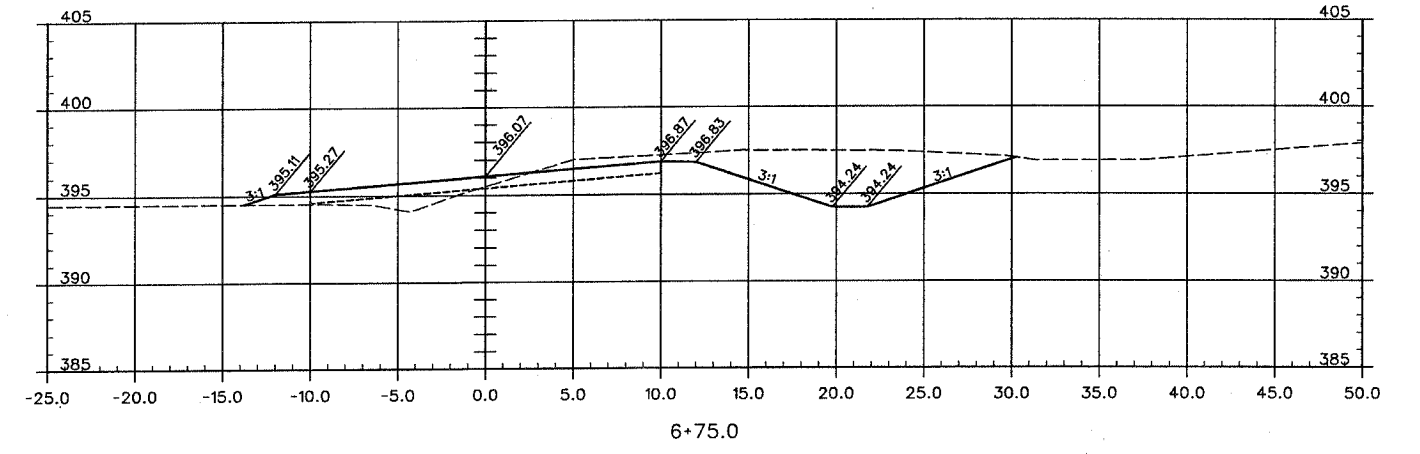
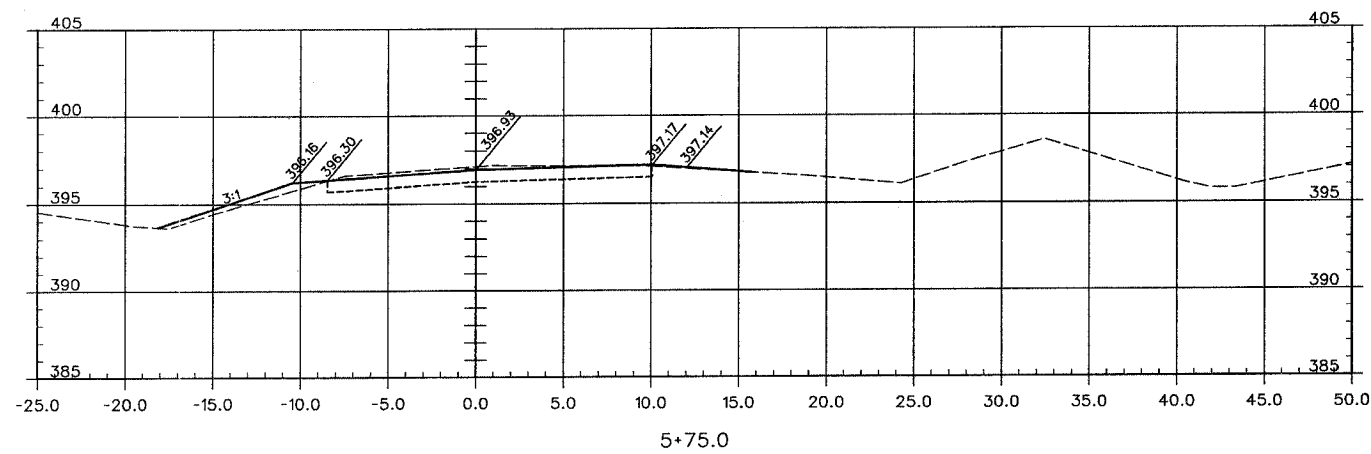
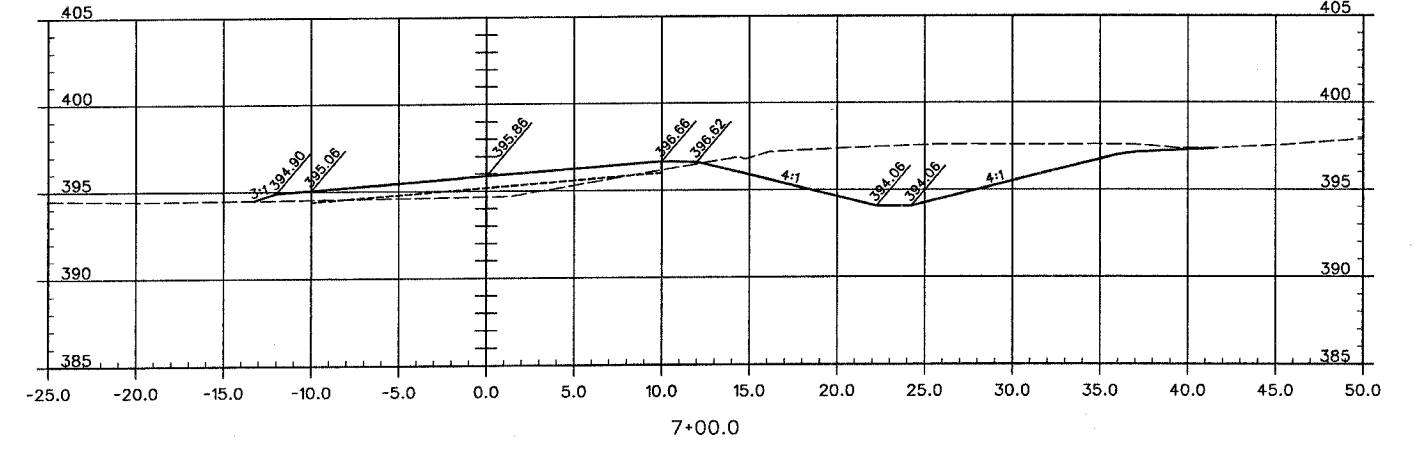
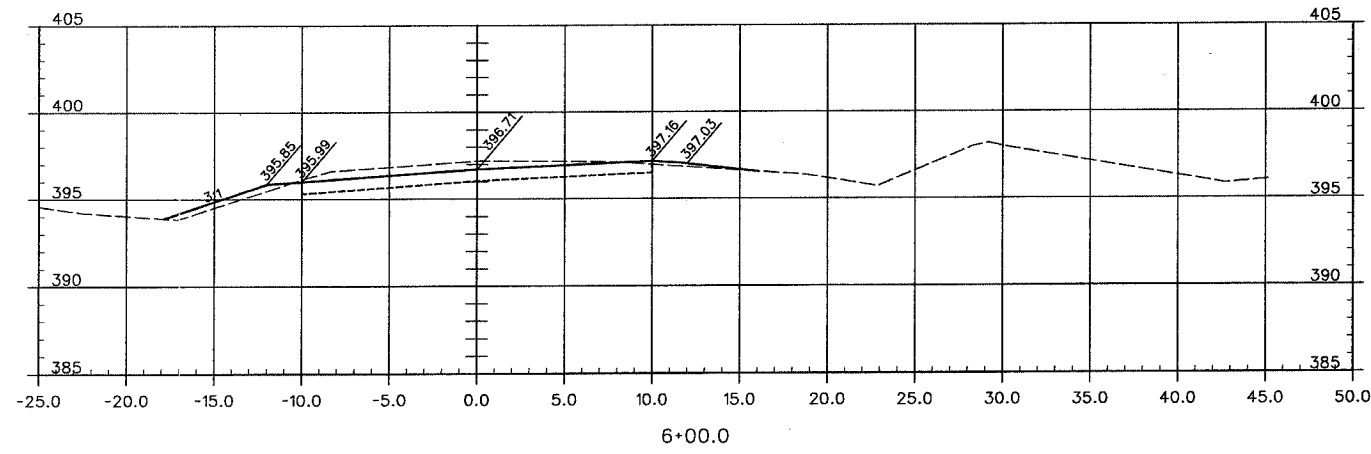
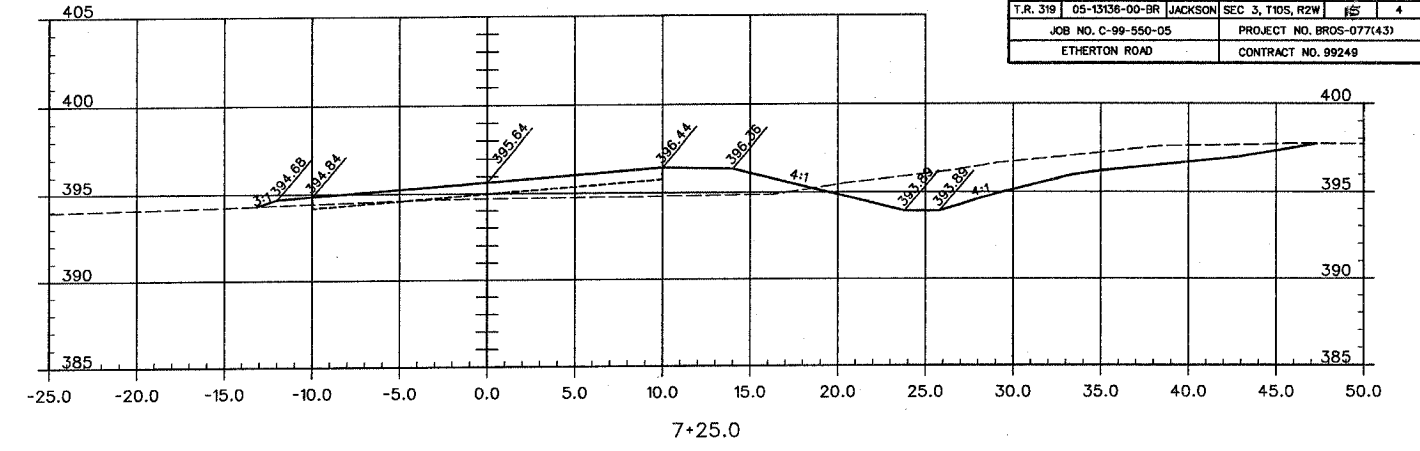
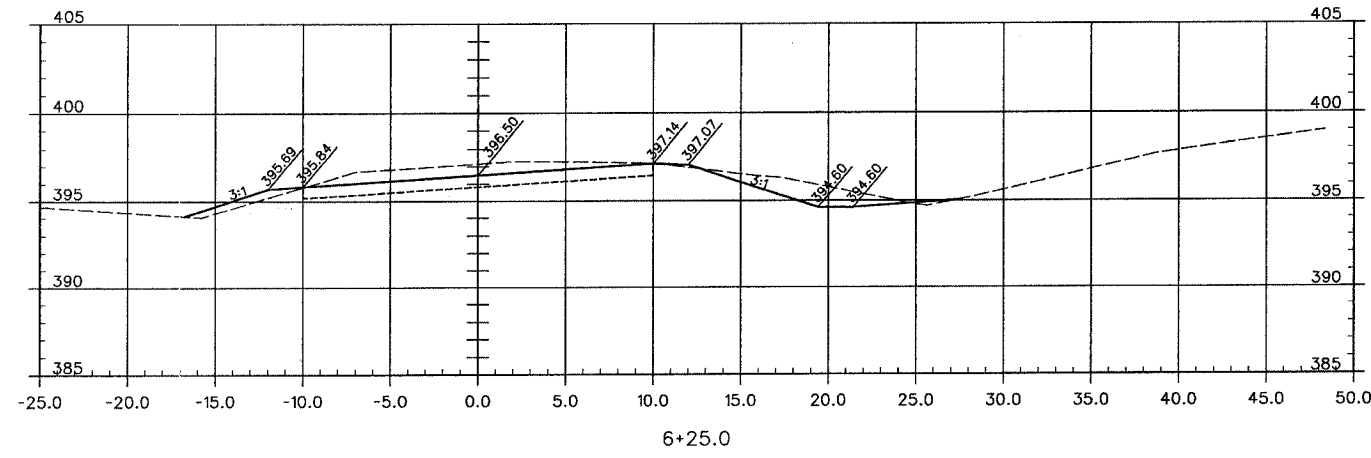
- - POWER POLE
- - TELEPHONE POLE
- TPD □ - TELEPHONE PEDESTAL
- OE - OVERHEAD POWER LINE
- W - WATER LINE
- ⊕ - FIRE HYDRANT
- WV ○ - WATER VALVE
- WM ○ - WATER METER
- MB ● - MAIL BOX
- - SIGN
- - TREE LINE
- - EXISTING RIGHT-OF-WAY
- - PROPOSED RIGHT-OF-WAY
- - EXISTING CONTOUR
- - PROPOSED CONTOUR
- - PROPOSED FINISH GRADE
- - TREE REMOVAL
- - EXISTING ROADWAY REMOVAL
- - STONE DUMPED RIPRAP



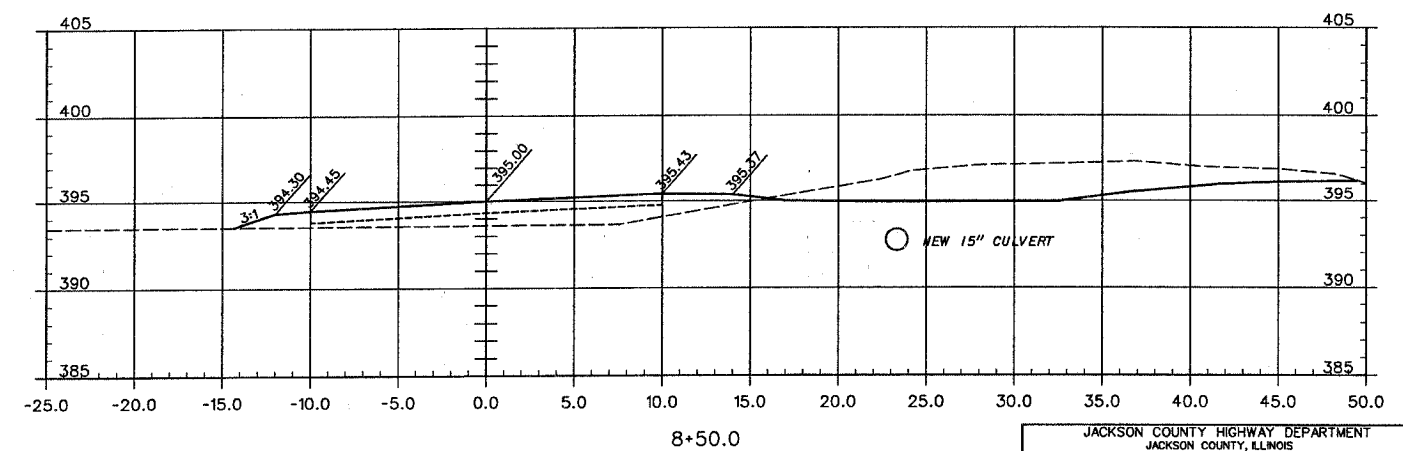
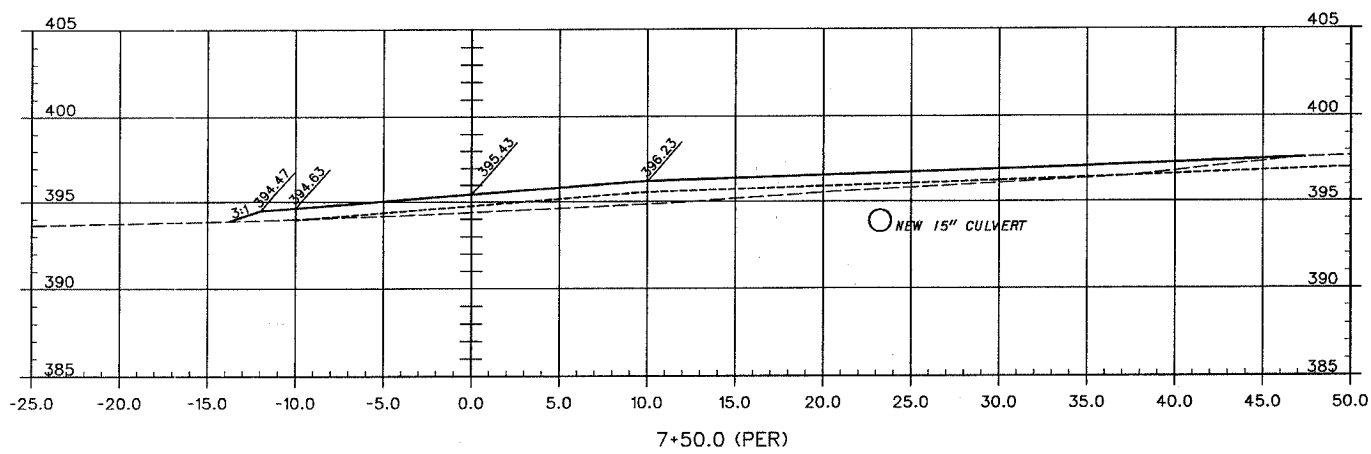
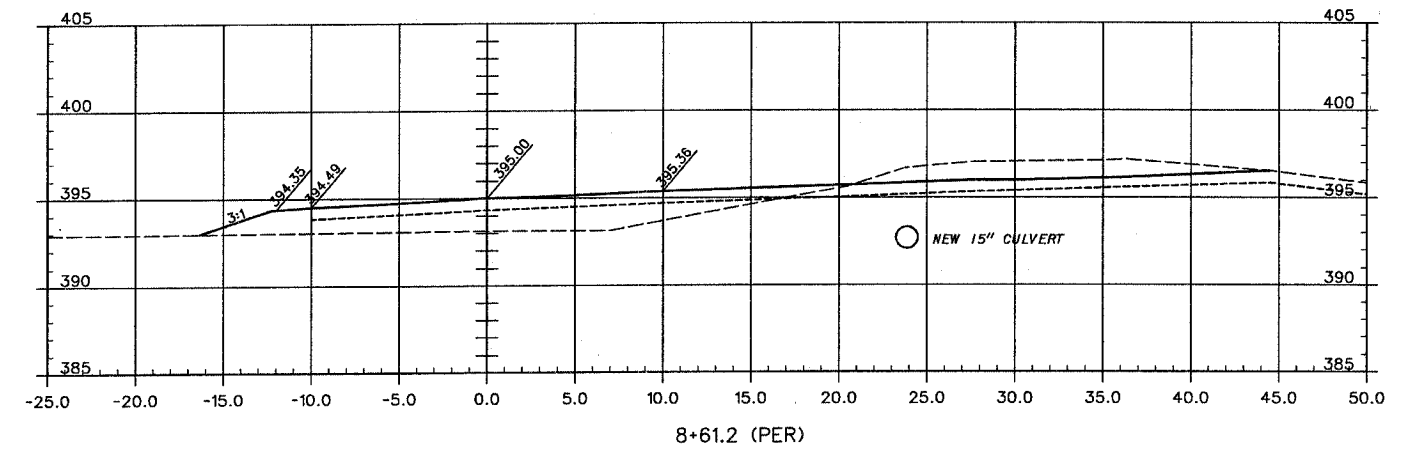
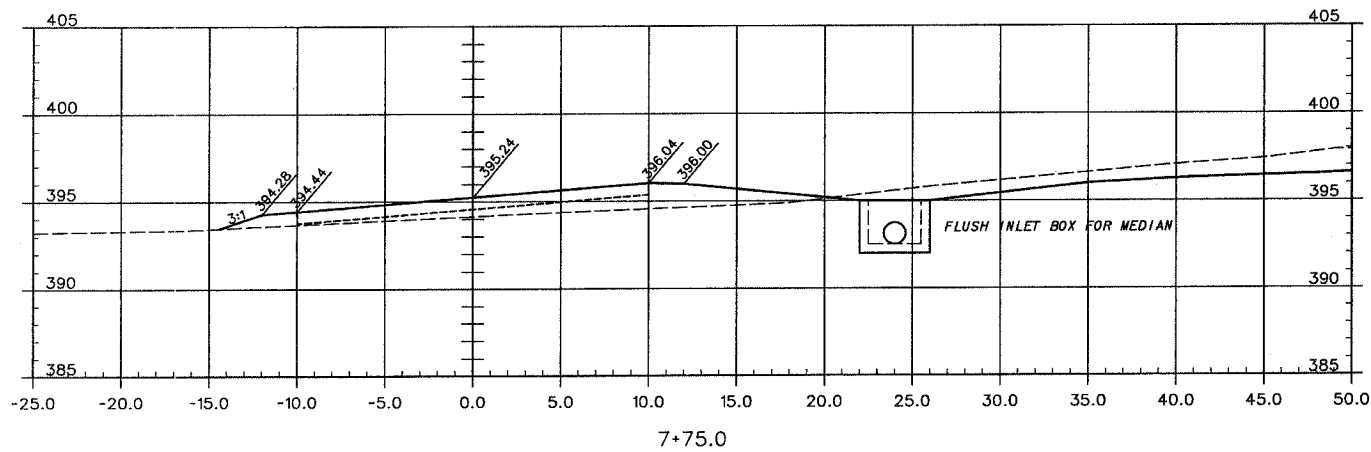
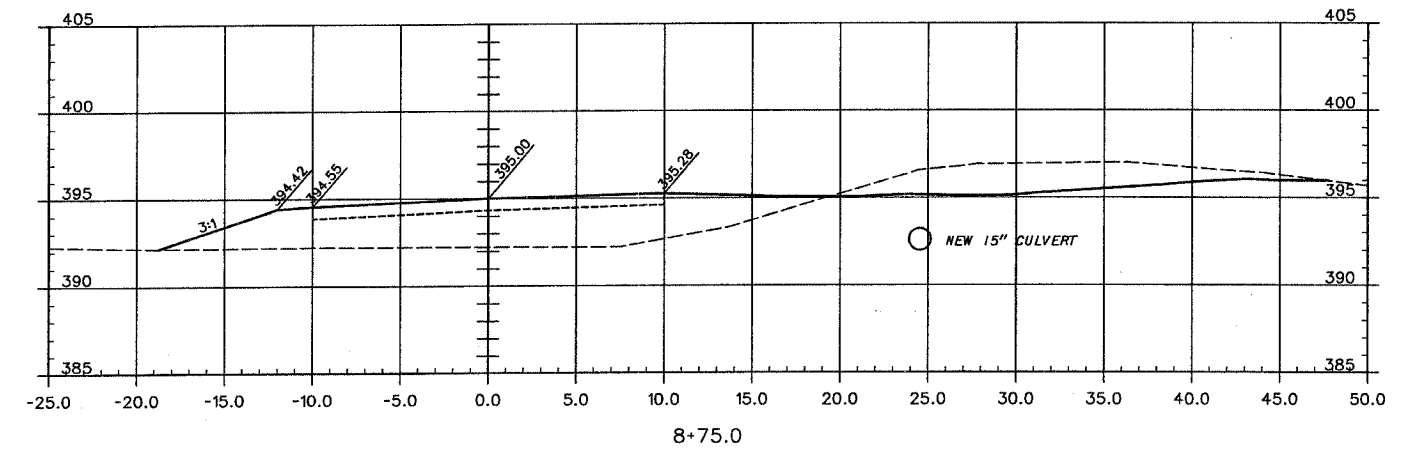
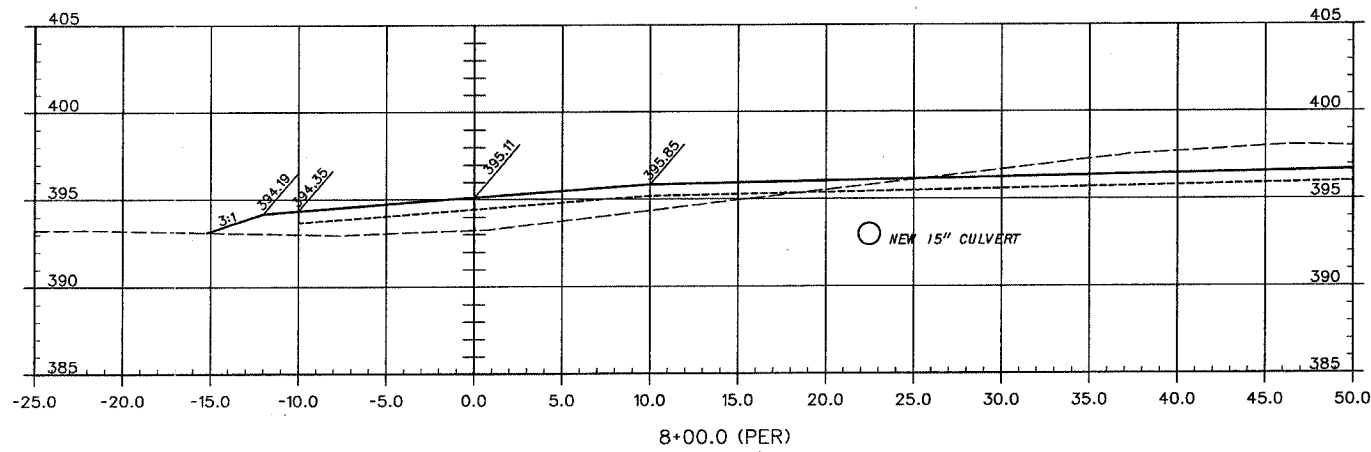
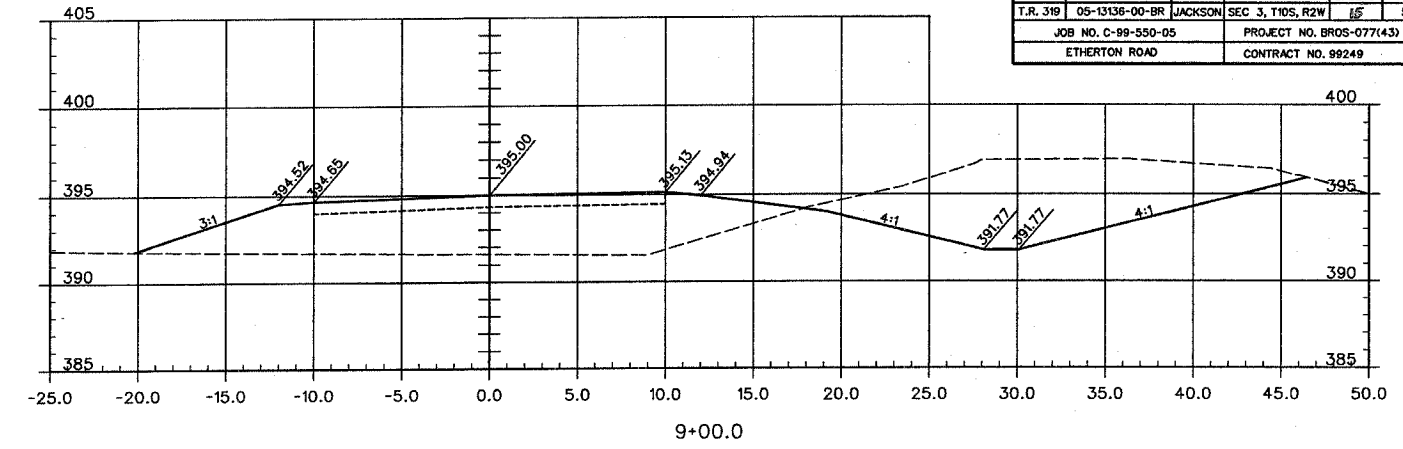
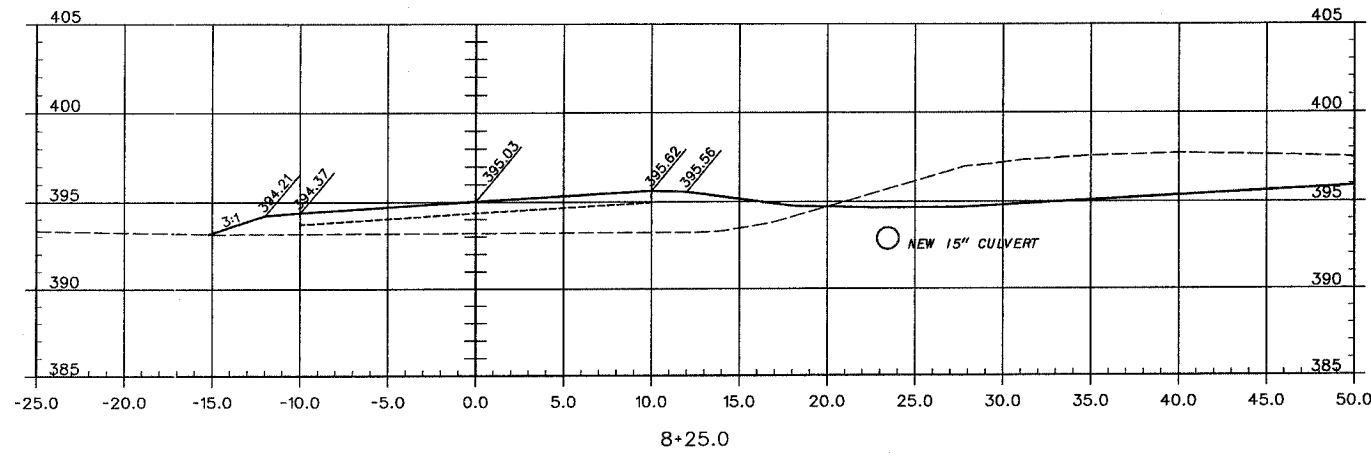
END PROPOSED IMPROVEMENTS STA. 10+76.5
 I.L. ROUTE 127 @ STA. 10+89 = C.O. OF IMPROVEMENT STA. 10+89

NOTE: SEE SHEET 2 FOR DETAILS ON TRAFFIC BARRIER TERMINALS & STEEL PLATE BEAM GUARDRAIL. SHORT RADIUS AT THE N.E. AND S.E. CORNERS OF STRUCTURE.

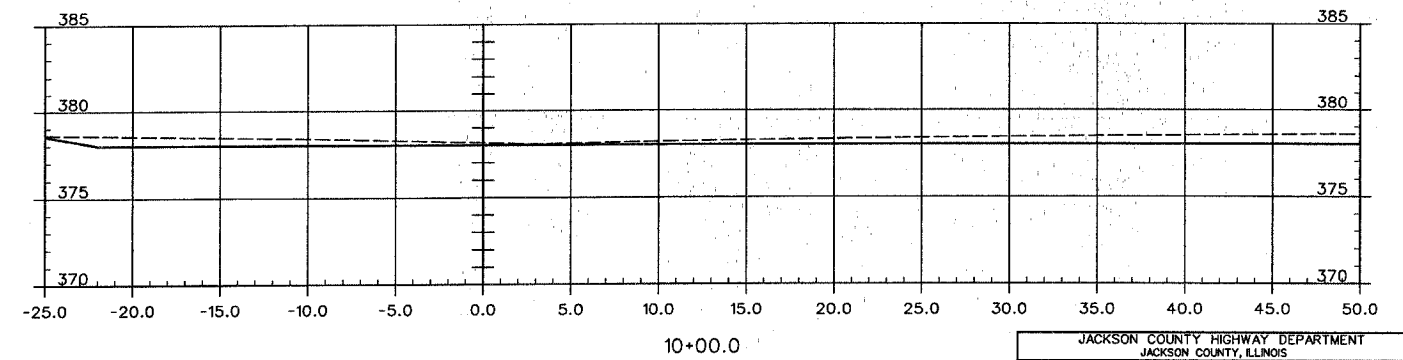
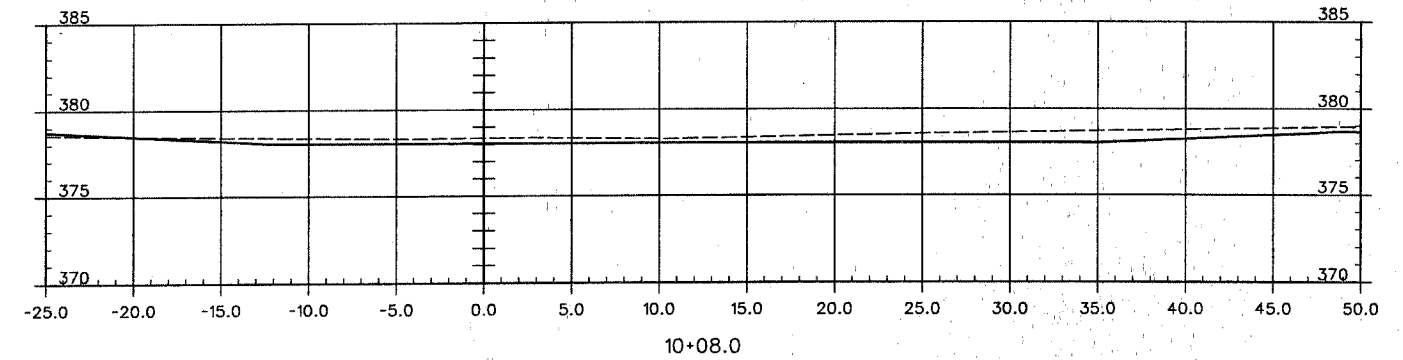
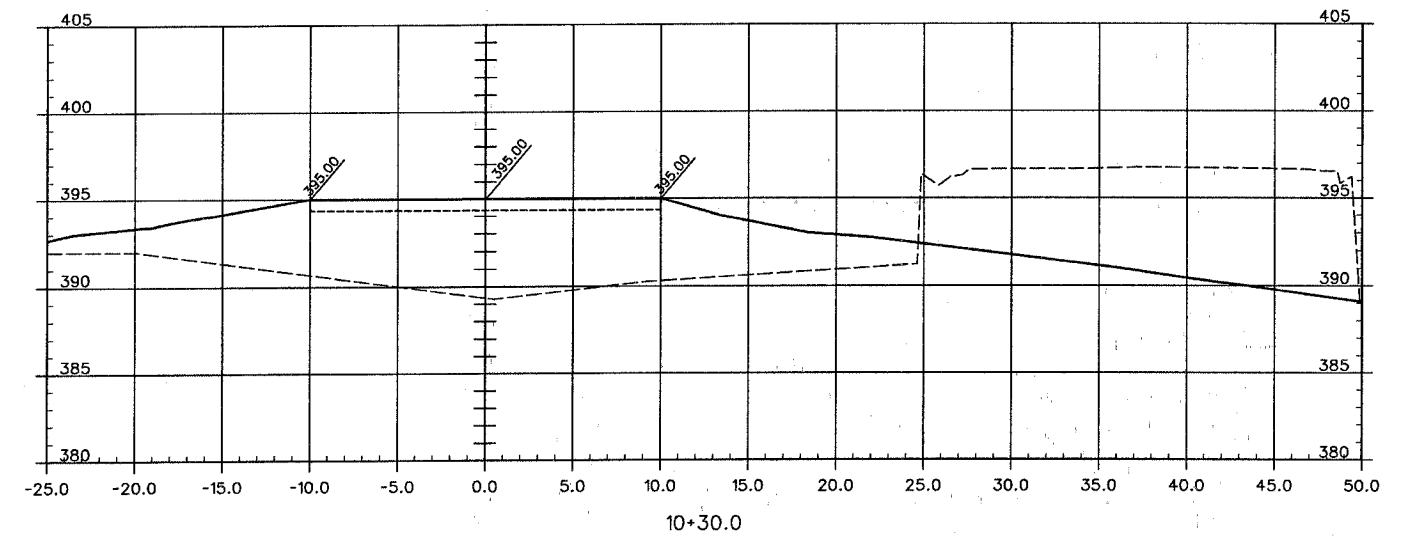
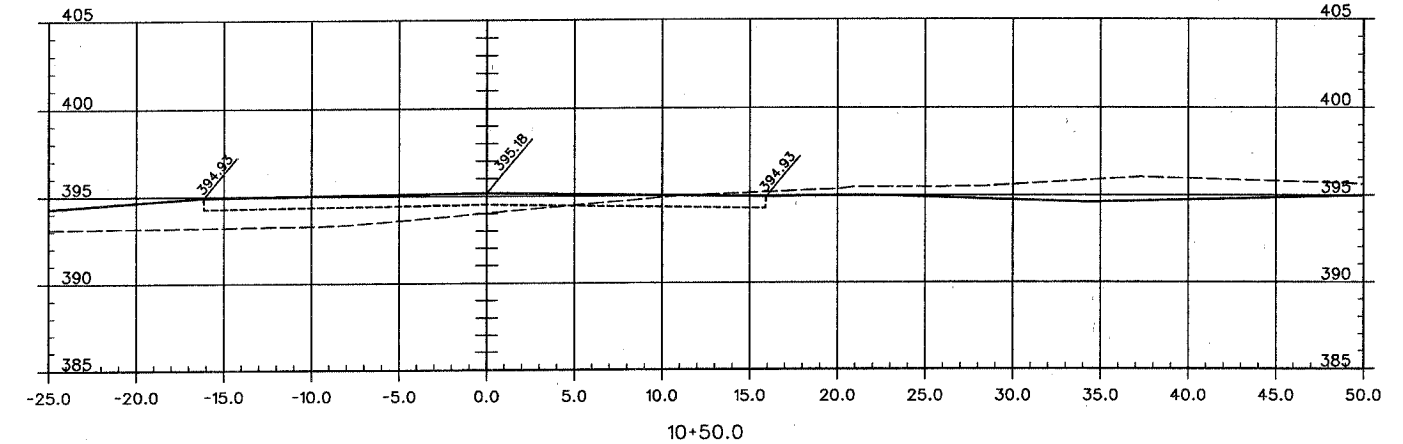
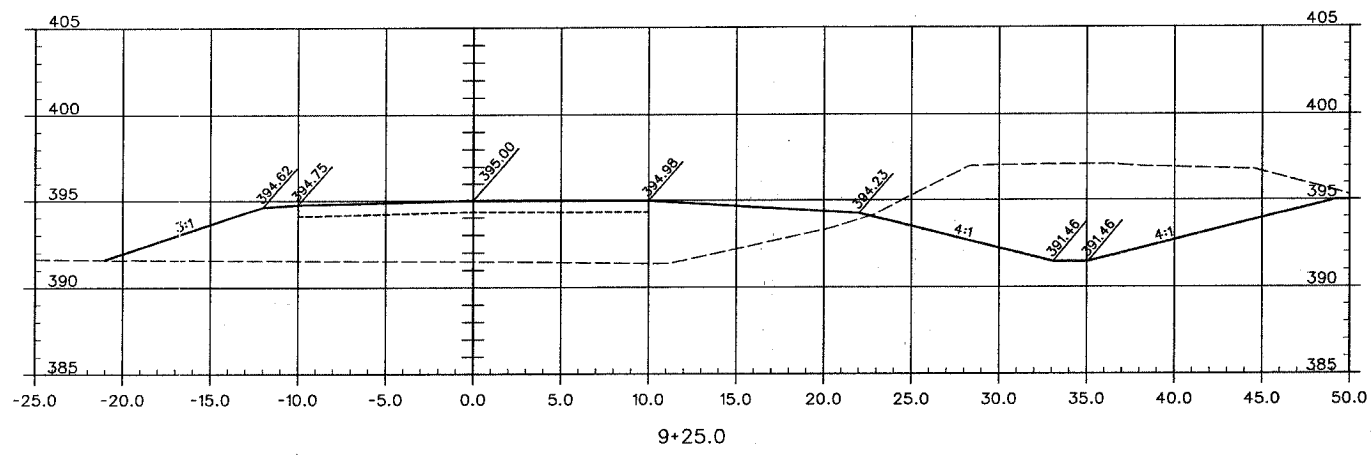
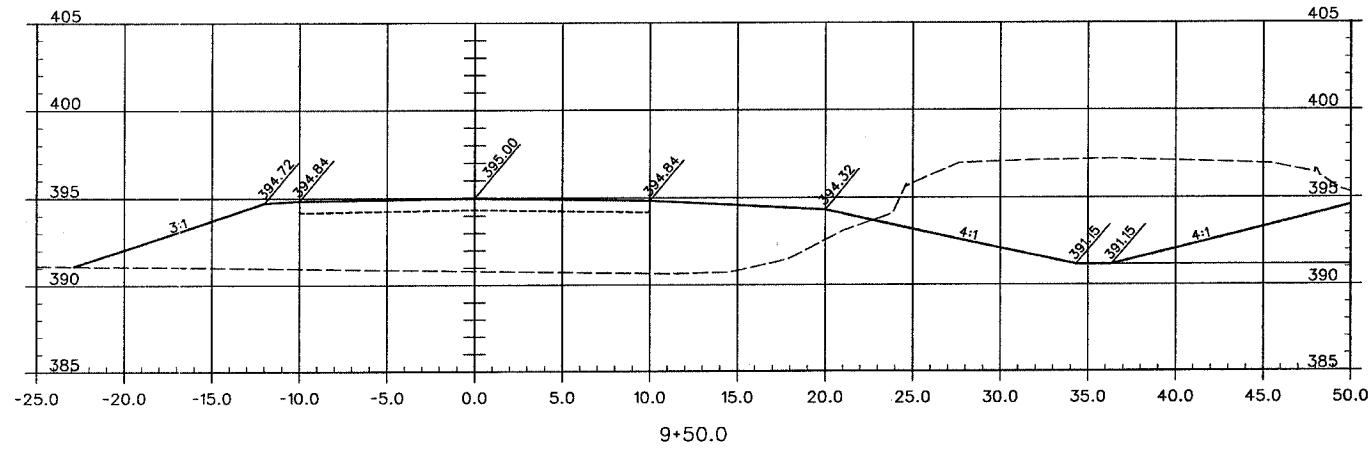
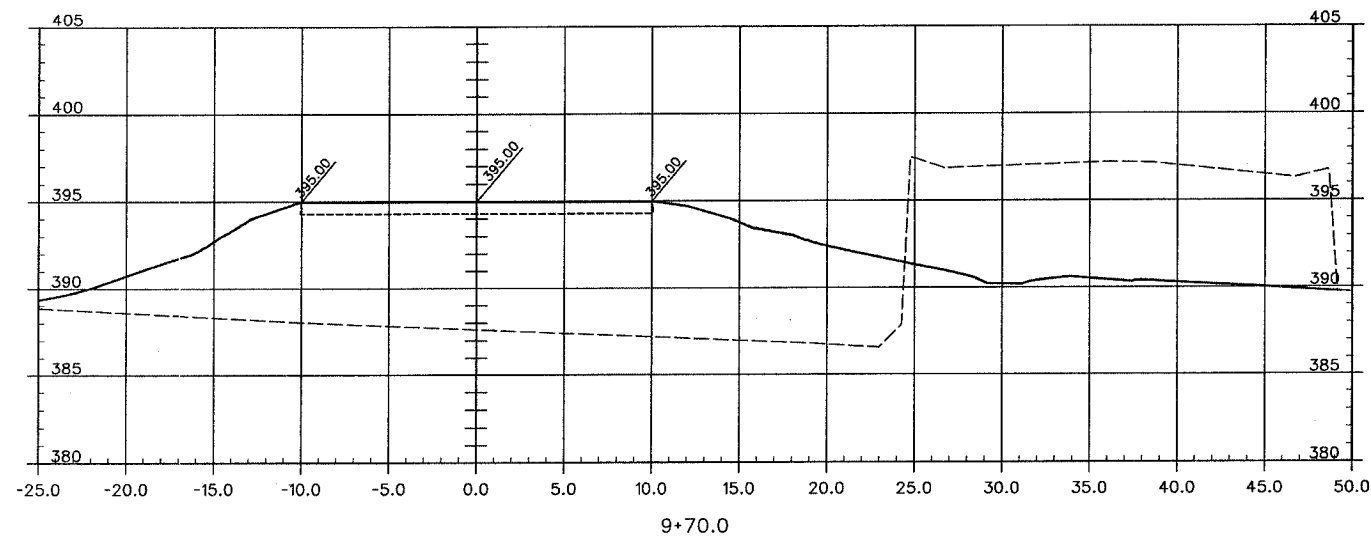
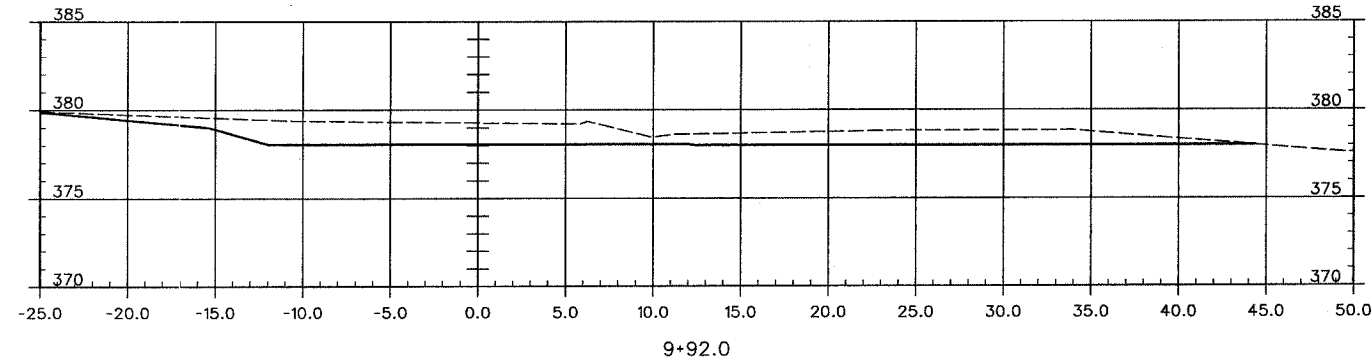
ROUTE	SECTION	COUNTY	TOWNSHIP	TOTAL SHEETS	SHEET NUMBER
T.R. 319	05-1336-00-BR	JACKSON	SEC 3, T10S, R2W	4	4
JOB NO. C-99-550-05			PROJECT NO. BROS-077(43)		
ETHERTON ROAD			CONTRACT NO. 99249		



ROUTE	SECTION	COUNTY	TOWNSHIP	TOTAL SHEETS	SHEET NUMBER
T.R. 319	05-13136-00-BR	JACKSON	SEC 3, T10S, R2W	65	5
JOB NO. C-89-550-05			PROJECT NO. BROS-077(43)		
ETHERTON ROAD			CONTRACT NO. 89249		



ROUTE	SECTION	COUNTY	TOWNSHIP	TOTAL SHEETS	SHEET NUMBER
T.R. 319	05-13136-00-BR	JACKSON	SEC 3, T10S, R2W	15	6
JOB NO. C-99-550-05			PROJECT NO. BROS-077(43)		
ETHERTON ROAD			CONTRACT NO. 99249		

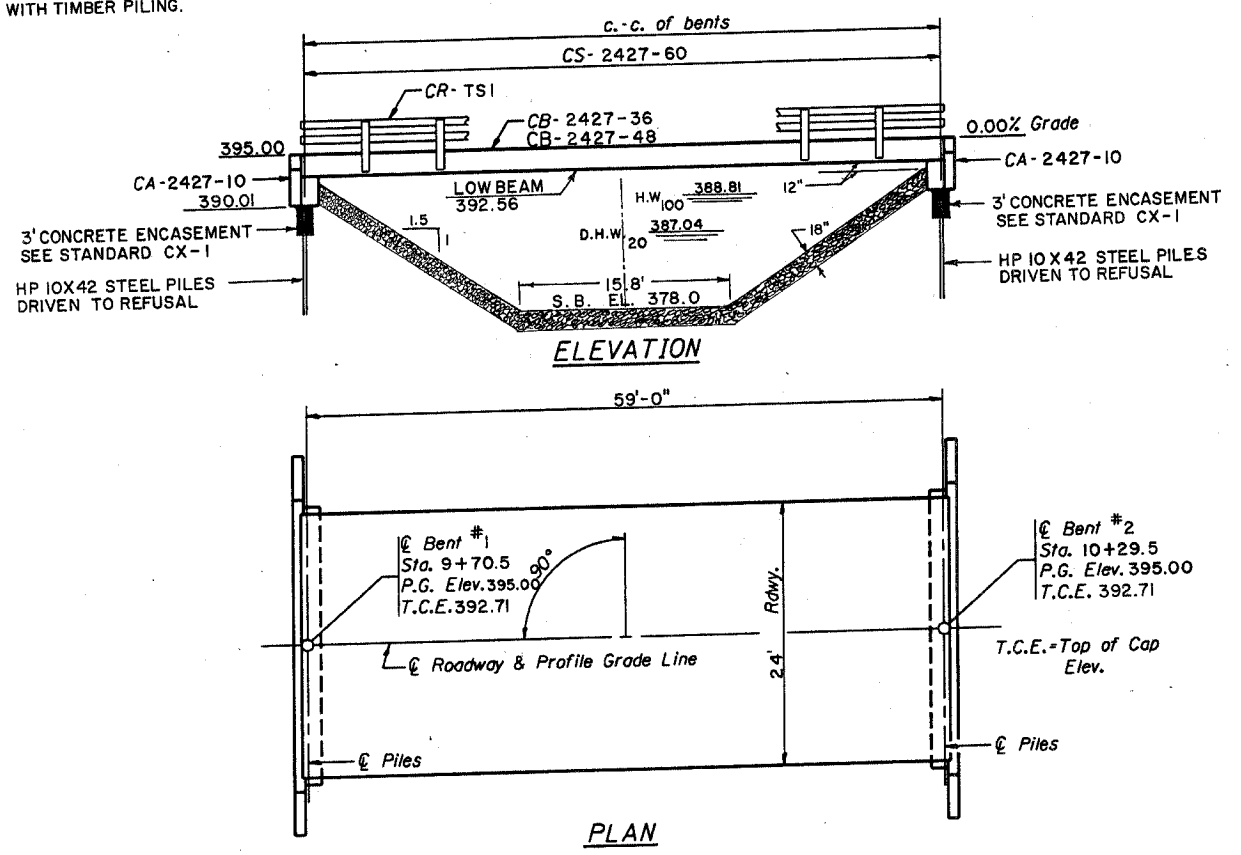


ROUTE	SECTION	COUNTY	TOWNSHIP	TOTAL SHEETS	SHEET NUMBER
T.R. 319	05-13136-00-BR	JACKSON	SEC. 3, T10S, R2W	16	7
JOB NO. C-99-550-05			PROJECT NO. BROS-077(43)		
ETHERTON ROAD			CONTRACT NO. 99249		

B.M. "□" CUT ON THE NORTHEAST CORNER HEADWALL OF BRIDGE JUST WEST OF IL. ROUTE 127 AT ETHERTON ROAD AND SUGAR CREEK. ELEV. - 397.43

Existing Structure- CONCRETE DECK, STEEL RAILING, STEEL BEAMS ON CONCRETE ABUTMENTS WITH TIMBER PILING.

Salvage- NONE



GENERAL NOTES

- The Contractor shall drive 2 test piles, as specified, in a permanent location as directed by the Engineer before ordering the remaining piles.
- See Special Provisions for boring logs.
- A Corrosion inhibitor, as covered in the Special Provisions, shall be used in the concrete for precast prestressed concrete deck beams.
- AFTER DECK BEAMS HAVE BEEN SET, THE DECK SURFACE SHALL BE INSPECTED. A WATERPROOFING MEMBRANE SYSTEM AND A BITUMINOUS CONCRETE WEARING SURFACE MAY BE REQUIRED TO PROVIDE A SMOOTH UNIFORM RIDING SURFACE. PAYMENT FOR THIS WORK, IF REQUIRED, WILL BE MADE BY A CHANGE ORDER TO THE CONTRACT.

TOTAL BILL OF MATERIAL

Item	Unit	Super	Sub.		Total
			Piers	Abuts.	
Removal of Existing Structures	Each				1
STONE DUMPED RIP-RAP, CLASS A-5	TON				750
Concrete Structures	Cu. Yd.			18.2	18.2
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq. Ft.	1440			1440
Steel Railing, Type S-1	Foot	120			120
Reinforcement Bars	Pound			2300	2300
Furnishing STEEL PILES HP 10X42	Foot			450	450
Driving PILES	Foot			450	450
Test Pile STEEL HP 10X42	Each			2	2
Name Plate	Each	1			1
Concrete Encasement	Cu. Yd.			2.1	2.1

PILING NOTES

- THE STEEL H-PILES SHALL BE ACCORDING TO AASHTO M270 GRADE 50.
- THE TEST PILES SHALL BE DRIVEN TO 110 PERCENT OF THE NOMINAL REQUIRED BEARING INDICATED IN THE PILE DATA INFORMATION.

DESIGN SPECIFICATIONS

2002 AASHTO Standard Specifications - 17th ed.

LOADING HS20-44

Allow 25#/sq. ft. for future wearing surface.

SEISMIC DATA

Seismic Performance Category (SPC) = B
Bedrock Acceleration Coefficient (A) = 0.14
Site Coefficient (S) = 1.0

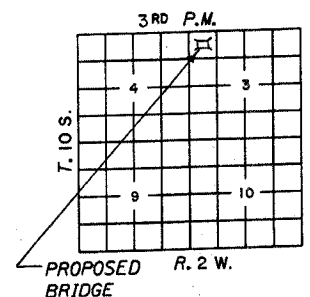
PILE DATA (2-ABUTS.)

Type: HP 10X42 STEEL PILES - NOMINAL REQUIRED BEARING: 334 KIPS, ALLOWABLE RESISTANCE AVAILABLE: 111 KIPS.
Estimated Length: 78' EACH PILE IN WEST ABUTMENT
72' EACH PILE IN EAST ABUTMENT
NO. REQUIRED: 8 (INCLUDES 2 TEST PILES, 1 LOCATED IN EACH BENT)

STATION 10+00
SUGAR CREEK
SEC. 05-13136-00-BR BUILT 2008
POMONA TOWNSHIP
JACKSON, COUNTY.
LOADING HS20
STR. NO. 039-3262

LETTERING FOR NAME PLATE

Locate Name Plate at NORTHEAST Corner of Bridge (See Std. CN)



LOCATION SKETCH

WATERWAY INFORMATION

Drainage Area = 3.12 SQ. MI.		Low Grade Elev. = 395.0		Sta. 8+50 TO 10+26.5					
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	20	1892	290	265	386.93	0.82	0.87	387.75	387.80
Base	100	2817	380	346	388.68	0.03	0.21	388.71	388.89
Overtopping									
Max. Calc.	500	3710							

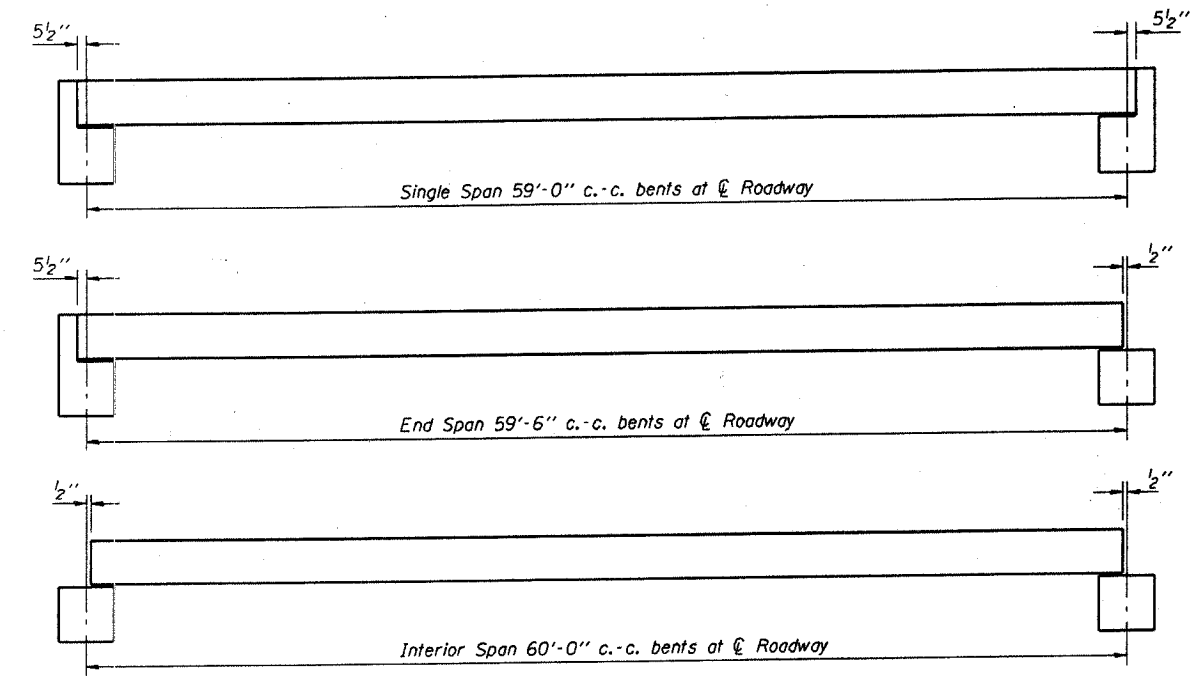
INDEX OF SHEETS

- STANDARD CS-2427-60
- STANDARD CB-2427-36
- STANDARD CB-2427-48
- STANDARD CA-2427-10
- STANDARD CR-TS1
- STANDARD CN
- STANDARD CX-1

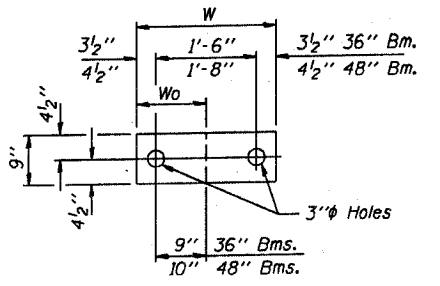
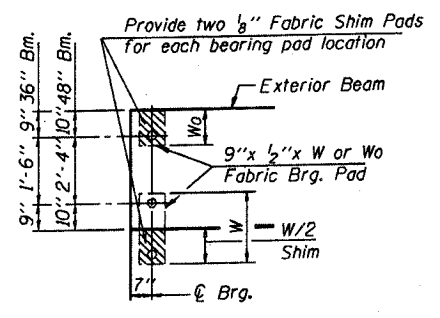
GENERAL PLAN & ELEVATION

TR 319 - ETHERTON ROAD
OVER SUGAR CREEK
SECTION 05-13136-00-BR
JACKSON COUNTY
STATION 10+00

ROUTE	SECTION	COUNTY	TOWNSHIP	TOTAL SHEETS	SHEET NUMBER
T.R. 319	05-13136-00-BR	JACKSON	SEC. 3, T10S, R2W	15	6
JOB NO. C-99-550-05			PROJECT NO. BR05-0771431		
ETHERTON ROAD			CONTRACT NO. 99249		

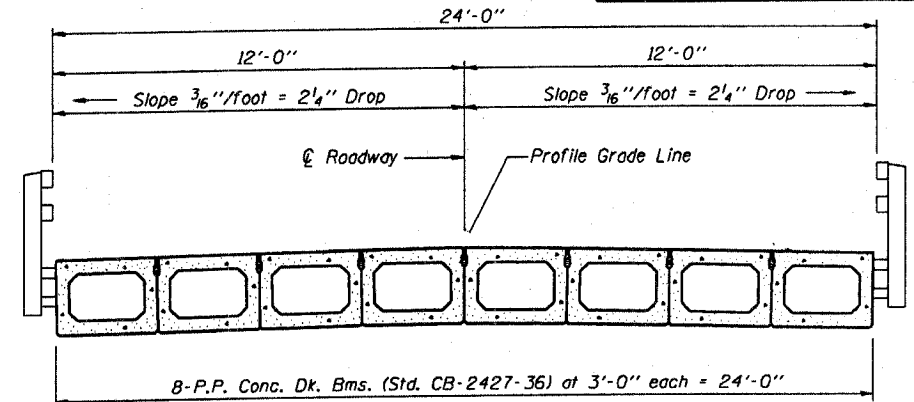


TYPICAL ELEVATIONS

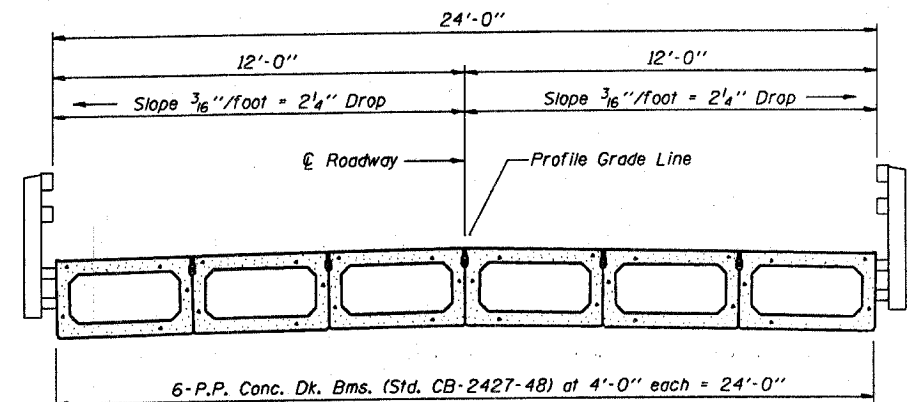


Beam	W	Wo
36"	2'-1"	1'-0 1/2"
48"	2'-5"	1'-2 1/2"

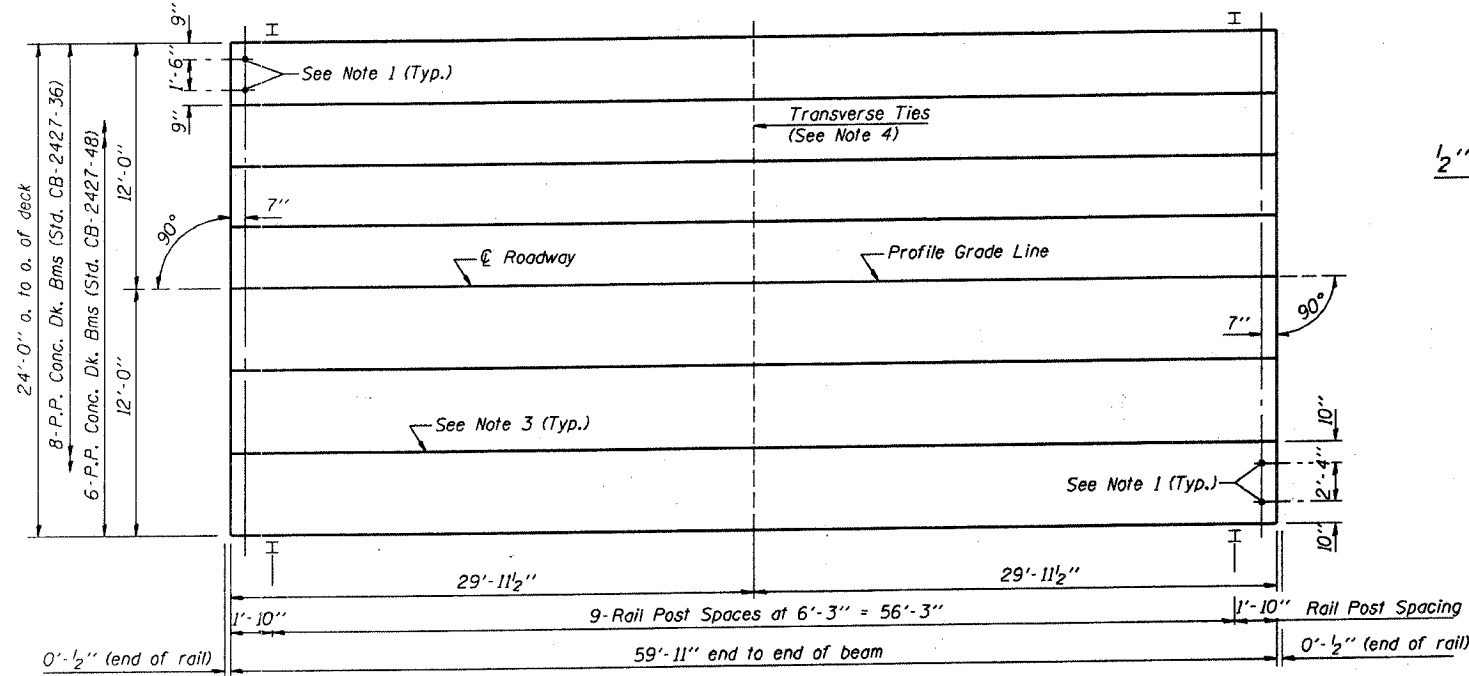
1/2" FABRIC BRG. PAD DETAILS



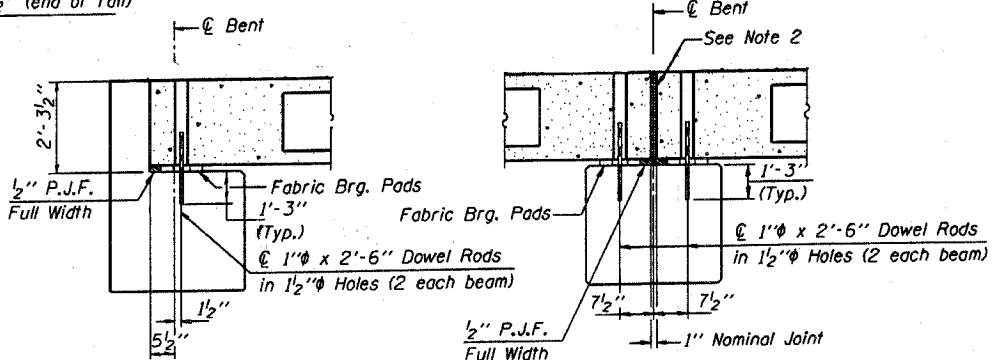
CROSS SECTION



CROSS SECTION



PLAN



SECTION AT ABUTS.
(Along C Beams)

SECTION AT PIERS
(Along C Beams)

NOTES

1. After beams have been erected, holes shall be drilled into substructure and anchor dowels placed. Dowel holes shall be filled with non-shrink grout to top of beam and allowed to cure min. 24 hrs. prior to grouting the shear keys.
2. Nominal 1" joint at C Pier shall be filled with non-shrink grout.
3. Longitudinal keys shall be grouted.
4. The 1" rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets that receive transverse tie bar outside shall be filled with grout after transverse tie assembly is in place.

QUANTITIES FOR ONE SPAN

P.P. Conc. Dk. Bm. 27" Dp.	1440 Sq. Ft.
Steel Rolling	120 Ft.

P.P.C. DECK BEAM SUPERSTRUCTURE			
24' RDWY.	27" BMS.	60' SPAN	0° SKEW
STANDARD CS-2427-60			

Illinois Department of Transportation

PASSED APRIL 4, 2005

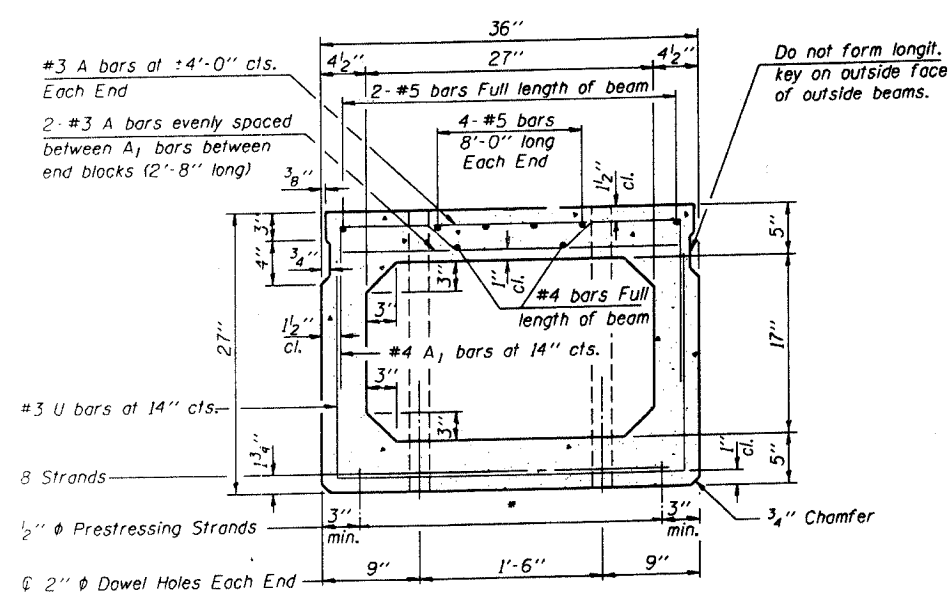
Thomson Namagataki
Engineer of Bridge Design

APPROVED APRIL 4, 2005

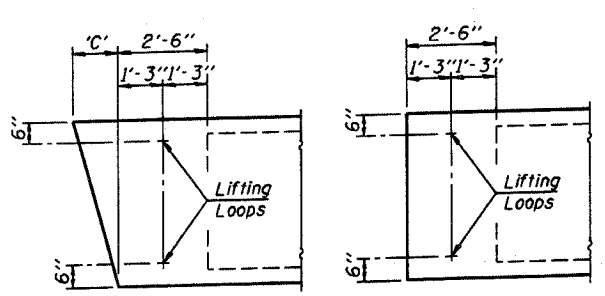
Ralph E. Anderson
Engineer of Bridges and Structures

1067-1-1 03/05/01

ROUTE	SECTION	COUNTY	TOWNSHIP	TOTAL SHEETS	SHEET NUMBER
T.R. 319	05-13136-00-BR	JACKSON	SEC. 3, T10S, R2W	16	13
JOB NO. C-99-550-05				PROJECT NO. BR05-077(43)	
ETHERTON ROAD				CONTRACT NO. 99249	

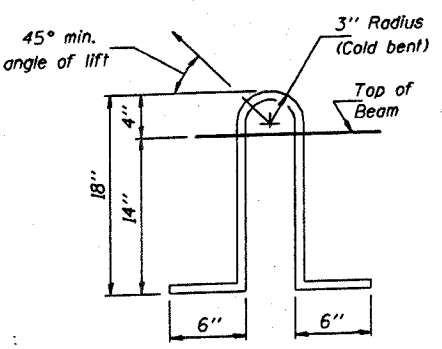


CROSS SECTION
(40' SPAN)



END BLOCK DETAILS

Each beam shall have four Lifting Loops, two at each end of beam cast in locations shown above. Loops shall be burned off after beams have been erected.



LIFTING LOOP DETAIL

Lifting loops shall be 2. 1/2" diameter 270 ksi strands, as shown. Alternate approved lifting devices are also acceptable.

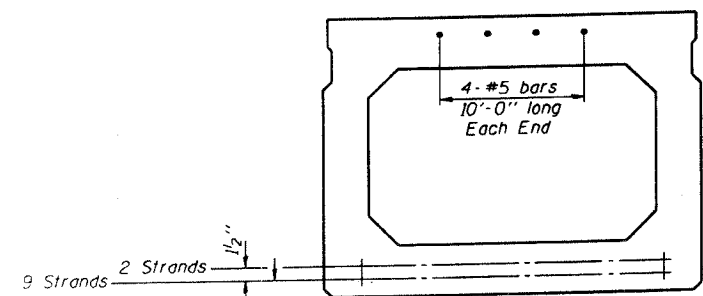
DIMENSION 'C'

Skew Angle 'D'	0°	5°	10°	15°	20°	25°	30°
Dimension 'C' (Inches)	0	3/8	6 3/8	9 5/8	13 3/8	16 3/4	20 3/4

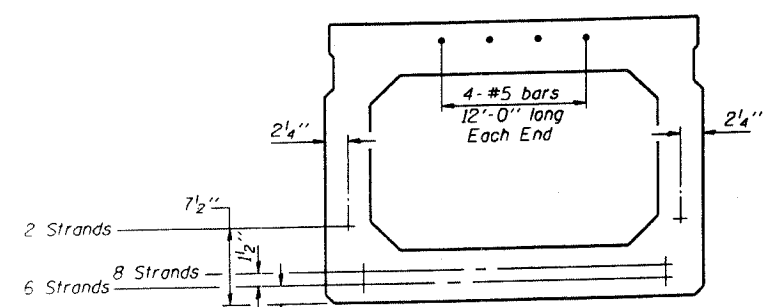
*** TRANSVERSE STRAND PLACEMENT GUIDELINES**

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

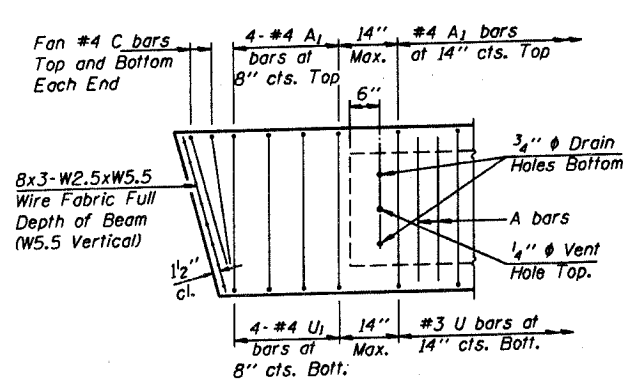
Vertical placement of strands shall not be adjusted to satisfy the above guidelines.



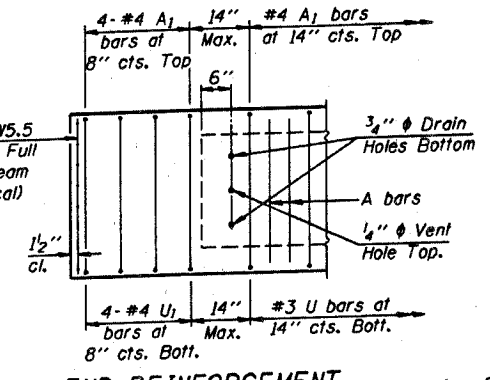
CROSS SECTION
(50' SPAN)



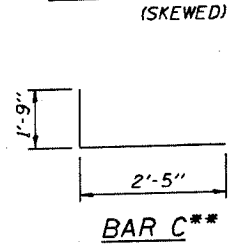
CROSS SECTION
(60' SPAN)



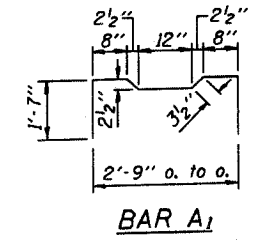
END REINFORCEMENT
(SKEWED)



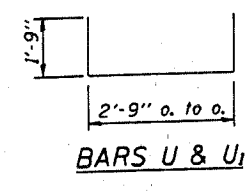
END REINFORCEMENT
(RIGHT ANGLE)



BAR C**



BAR A1



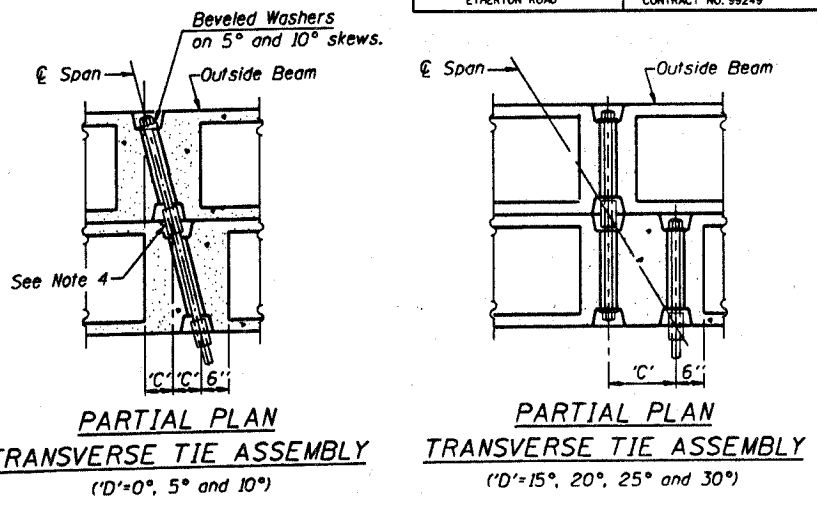
BARS U & U1

DESIGN STRESSES

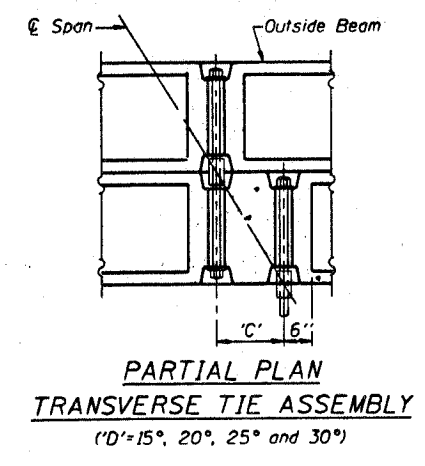
- $f_c = 5,000$ p.s.i.
- $f_{ci} = 4,000$ p.s.i.
- $f_s = 270,000$ p.s.i. (1/2" diameter Strand)
- $f_{sl} = 201,960$ p.s.i. (1/2" diameter Strand)
- $f_y = 60,000$ p.s.i.

MIN. BAR LAP

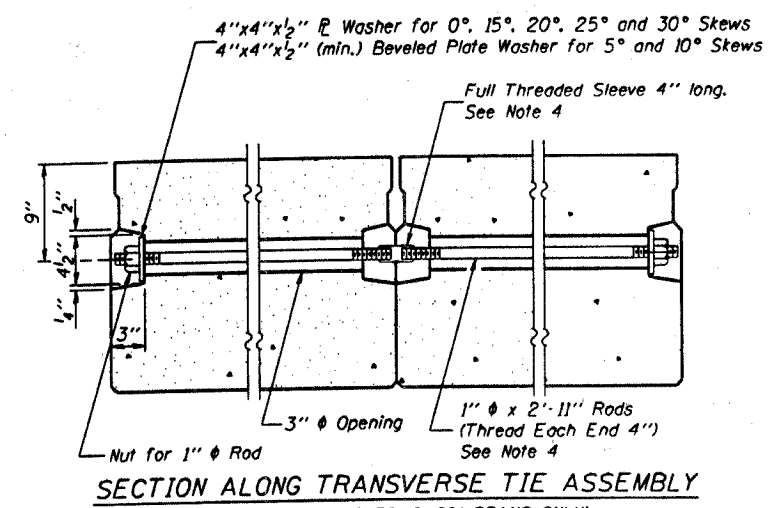
- #4 bars = 1'-4"
- #5 bars = 1'-8"



PARTIAL PLAN TRANSVERSE TIE ASSEMBLY
(D'=0°, 5° and 10°)



PARTIAL PLAN TRANSVERSE TIE ASSEMBLY
(D'=15°, 20°, 25° and 30°)



SECTION ALONG TRANSVERSE TIE ASSEMBLY
(REQUIRED FOR 50' & 60' SPANS ONLY)

NOTES

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

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

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

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

Illinois Department of Transportation

PASSED APRIL 4, 2005

Thomas S. Romagosa
Engineer of Bridge Design

APPROVED APRIL 4, 2005

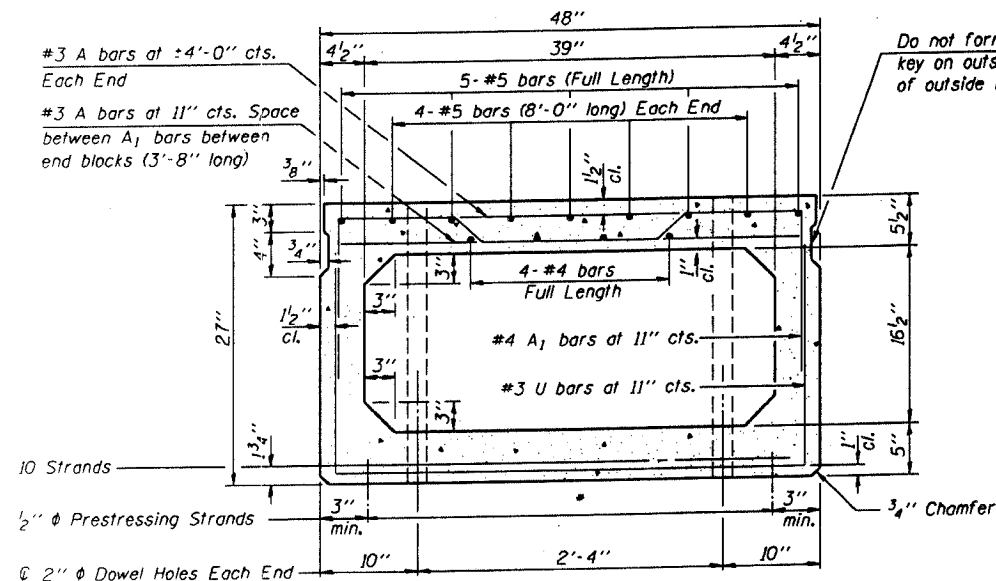
Ralph E. Anderson
Engineer of Bridges and Structures

P.P.C. DECK BEAM DETAILS

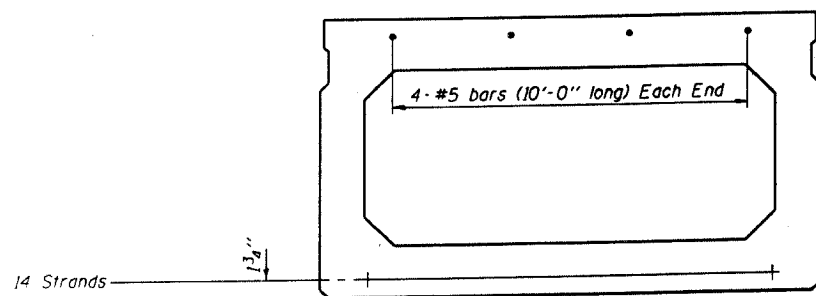
24' ROADWAY | 27" x 36" BEAMS

STANDARD CB-2427-36

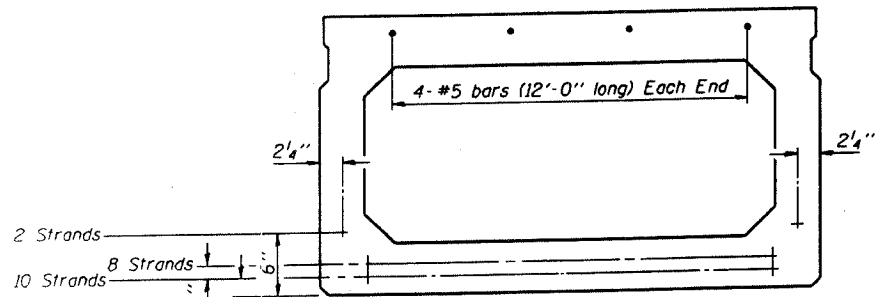
ROUTE	SECTION	COUNTY	TOWNSHIP	TOTAL SHEETS	SHEET NUMBER
T.R. 319	05-13136-00-BR	JACKSON	SEC. 3, T10S, R2W	16	10
JOB NO. C-99-550-05		PROJECT NO. BR05-077143F			
ETHERTON ROAD		CONTRACT NO. 99249			



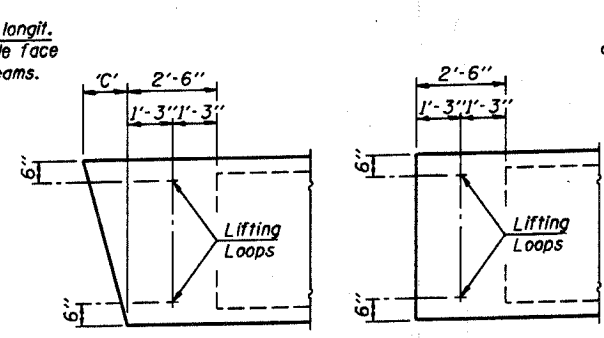
CROSS SECTION
(40' SPAN)



CROSS SECTION
(50' SPAN)

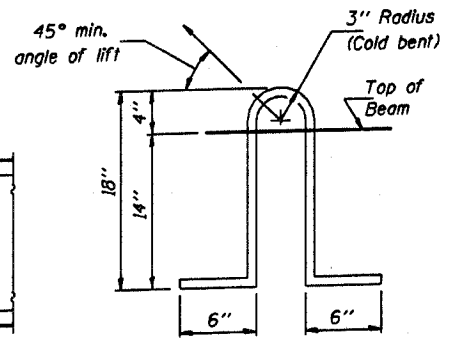


CROSS SECTION
(60' SPAN)



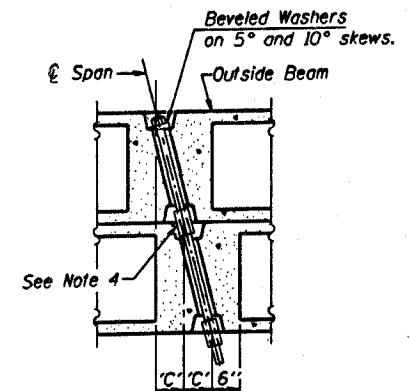
END BLOCK DETAILS

Each beam shall have four Lifting Loops, two at each end of beam cast in locations shown above. Loops shall be burned off after beams have been erected.

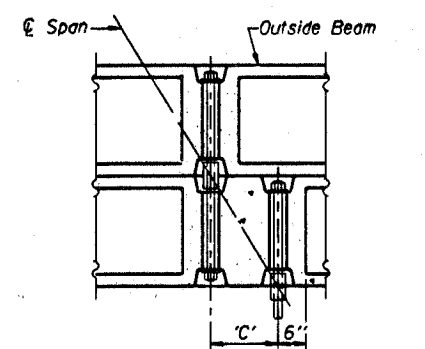


LIFTING LOOP DETAIL

Lifting loops shall be 3. 1/2" #270 ksi strands, as shown. Alternate approved lifting devices are also acceptable.



PARTIAL PLAN TRANSVERSE TIE ASSEMBLY
(D=0°, 5° and 10°)



PARTIAL PLAN TRANSVERSE TIE ASSEMBLY
(D=15°, 20°, 25° and 30°)

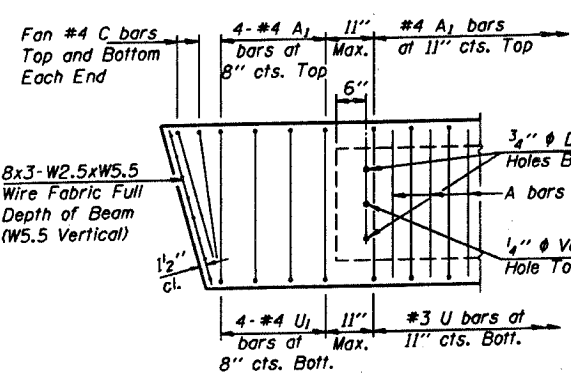
DIMENSION 'C'

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

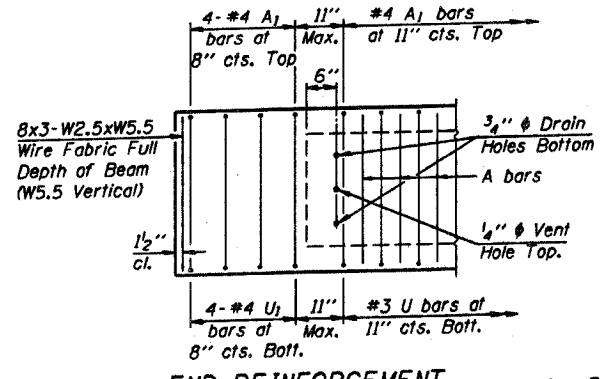
*** TRANSVERSE STRAND PLACEMENT GUIDELINES**

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

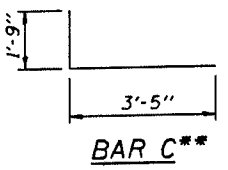
Vertical placement of strands shall not be adjusted to satisfy the above guidelines.



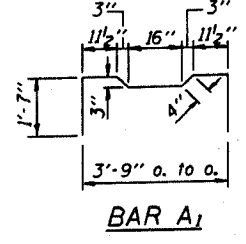
END REINFORCEMENT
(SKEWED)



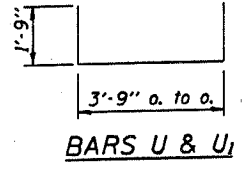
END REINFORCEMENT
(RIGHT ANGLE)



BAR C**



BAR A1



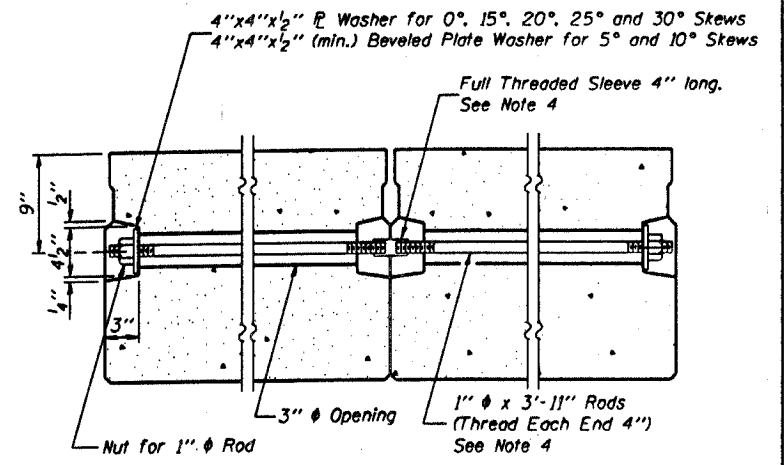
BARS U & U1

DESIGN STRESSES

- $f'_c = 5,000$ p.s.i.
- $f'_{ci} = 4,000$ p.s.i.
- $f'_s = 270,000$ p.s.i. (1/2" # Strand)
- $f_{si} = 201,960$ p.s.i. (1/2" # Strand)
- $f_y = 60,000$ p.s.i.

MIN. BAR LAP

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



SECTION ALONG TRANSVERSE TIE ASSEMBLY
(REQUIRED FOR 50' & 60' SPANS ONLY)

NOTES

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

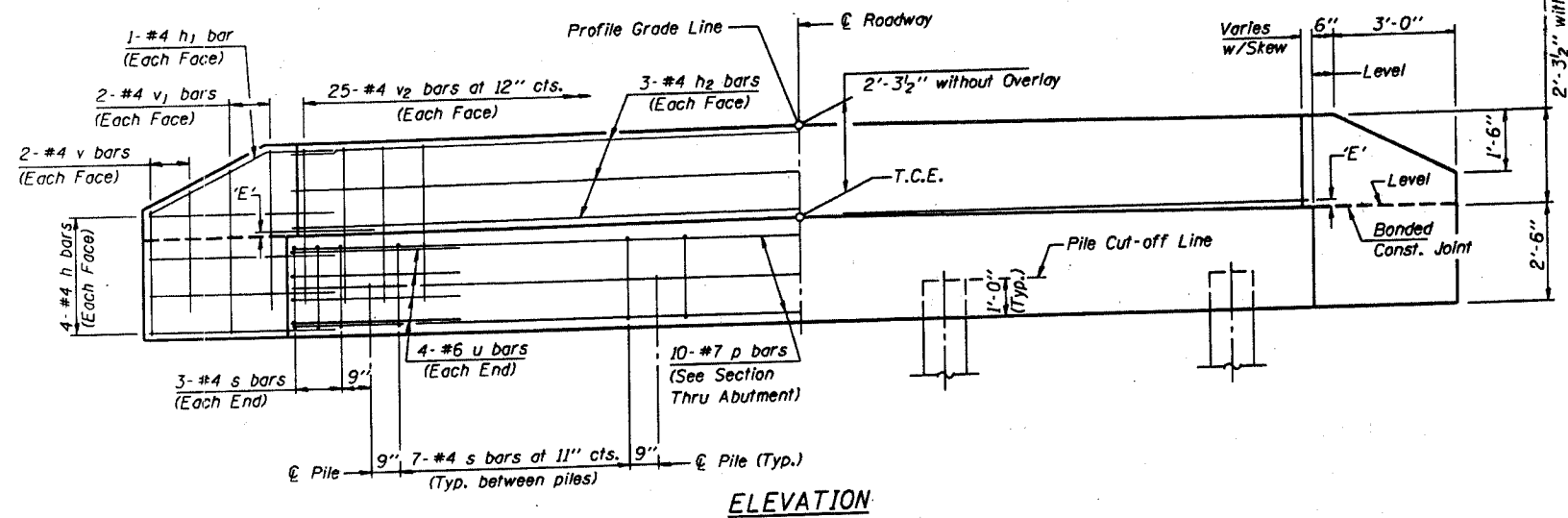
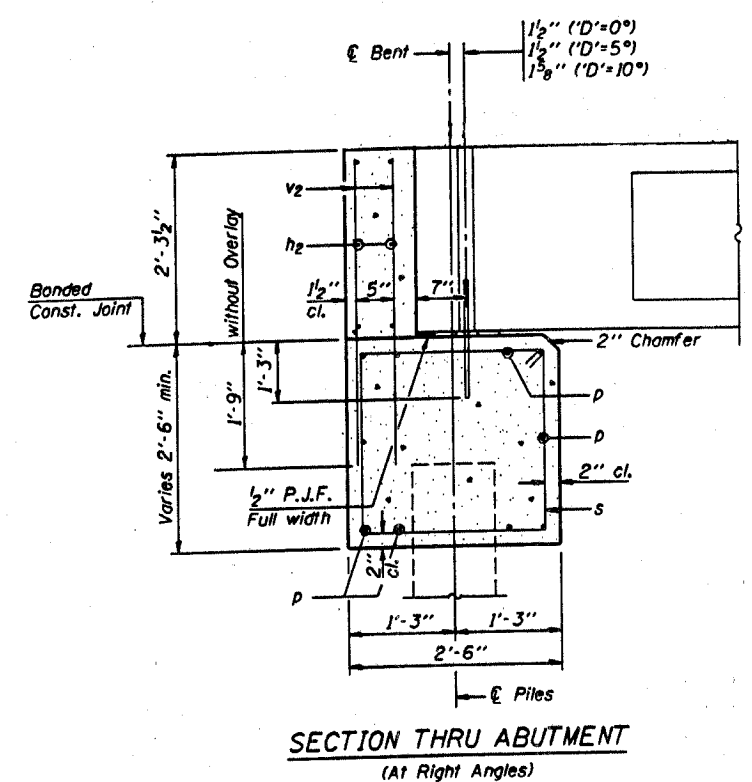
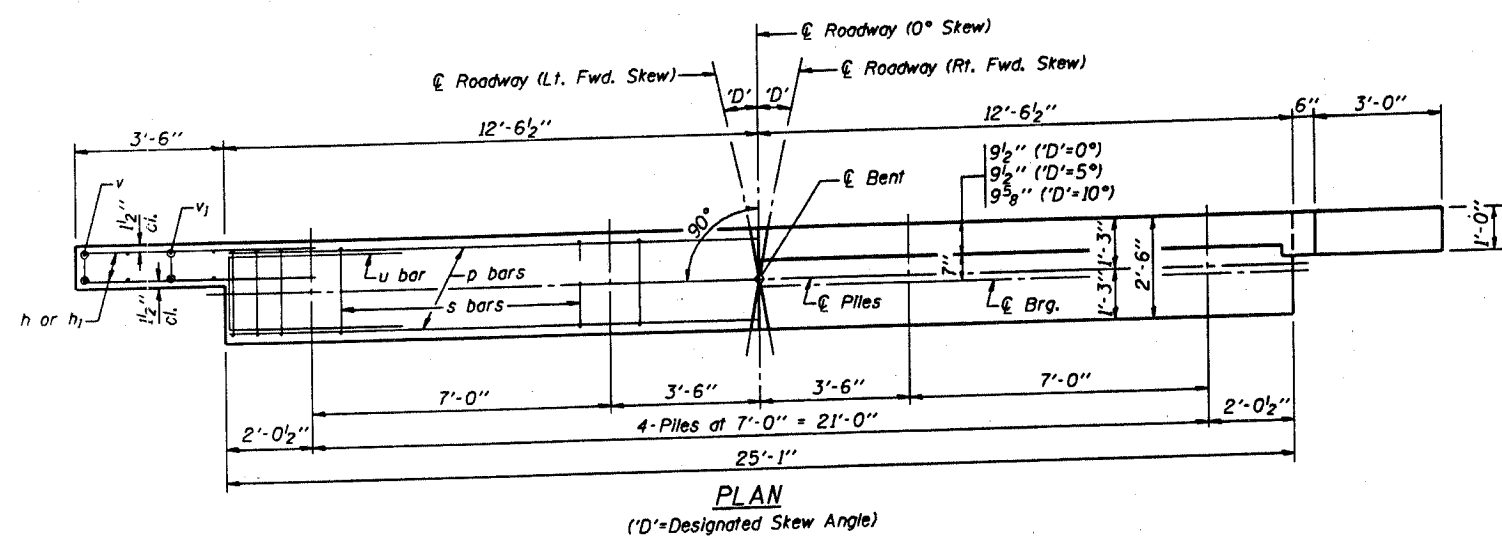
Illinois Department of Transportation
 PASSED APRIL 4, 2005
 Thomas S. Nemaiah
 Engineer of Bridge Design
 APPROVED APRIL 4, 2005
 Ralph E. Anderson
 Engineer of Bridges and Structures

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

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

P.P.C. DECK BEAM DETAILS	
24' ROADWAY	27" x 48" BEAMS
STANDARD CB-2427-48	

ROUTE	SECTION	COUNTY	TOWNSHIP	TOTAL SHEETS	SHEET NUMBER
T.R. 319	05-13136-00-BR	JACKSON	SEC. 3, T10S, R2W	15	11
JOB NO. C-99-550-05				PROJECT NO. BROS-077(43)	
ETHERTON ROAD				CONTRACT NO. 99249	



DIMENSION 'E'

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

MAXIMUM PILE LOADS

SPAN	TONS
40'	34
50'	38
60'	43

NOTES

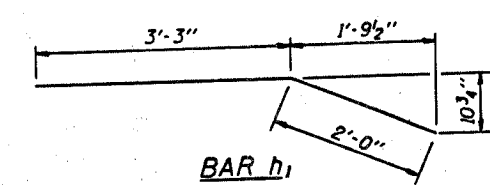
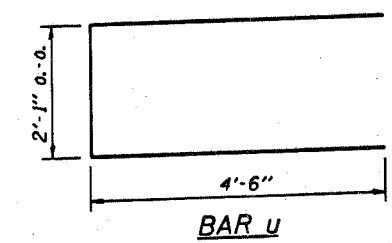
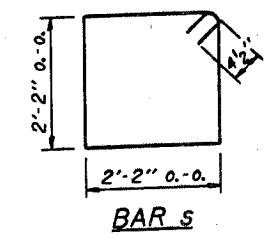
- The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.
- Reinforcement bars shall conform to the requirements of A.A.S.H.T.O. M-31 or M-322, Grade 60.
- Space reinforcement in cap to miss anchor bolts.

DESIGN STRESSES

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

BILL OF MATERIAL FOR ONE ABUTMENT

Bar	No.	Size	Length	Shape
h	16	#4	5'-0"	—
h1	4	#4	5'-3"	—
h2	6	#4	24'-9"	—
p	10	#7	24'-9"	—
s	27	#4	9'-5"	□
u	8	#6	11'-1"	—
v	8	#4	3'-2"	—
v1	8	#4	4'-2"	—
v2	50	#4	3'-11"	—
Concrete Structures			9.1 Cu. Yds.	
Reinforcement Bars			1150 Lb.	



P.P.C. DECK BEAMS	
PILE BENT ABUTMENT	
24' RDWY.	27" BMS. 'D'=0°, 5° OR 10°
STANDARD CA-2427-10	

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

ROUTE	SECTION	COUNTY	TOWNSHIP	TOTAL SHEETS	SHEET NUMBER
T.R. 319	05-1318-00-BR	JACKSON	SEC. 3, T10S, R2W	15	12
JOB NO. C-99-550-05				PROJECT NO. BROS-0771431	
ETHERTON ROAD				CONTRACT NO. 99249	

NOTES

Hollow structural steel tubing shall conform to the requirements of ASTM designation A500 Grade B Structural Steel Tubing and shall meet the longitudinal CVN requirements of 15 ft.-lbs. at 0° F.

All other steel shapes and plates shall conform to the requirements of AASHTO M 270 Grade 36 except posts and angles shall conform to AASHTO M 270 Grade 50.

Bolts, cap screws, and nuts shall conform to the requirement of ASTM designation A307 except for high strength bolts, nuts and washers noted which shall conform to AASHTO M 164.

All bolts, nuts, cap screws, washers and lock washers shall be galvanized according to AASHTO M 232.

All posts, railing, rail splices, anchor devices and angles shall be galvanized after shop fabrication according to AASHTO M-111 and ASTM A 385. Galvanized rail shall not be painted.

Railing shall be according to Section 509 of the Standard Specifications, except as noted, and will be paid for at the contract unit price per foot for STEEL RAILING, TYPE S-1.

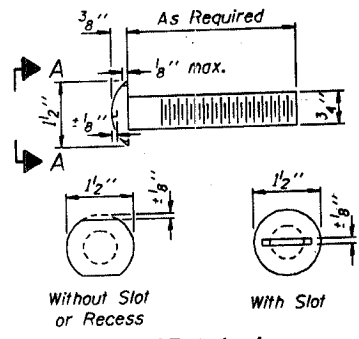
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with STEEL RAILING, TYPE S-1.

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

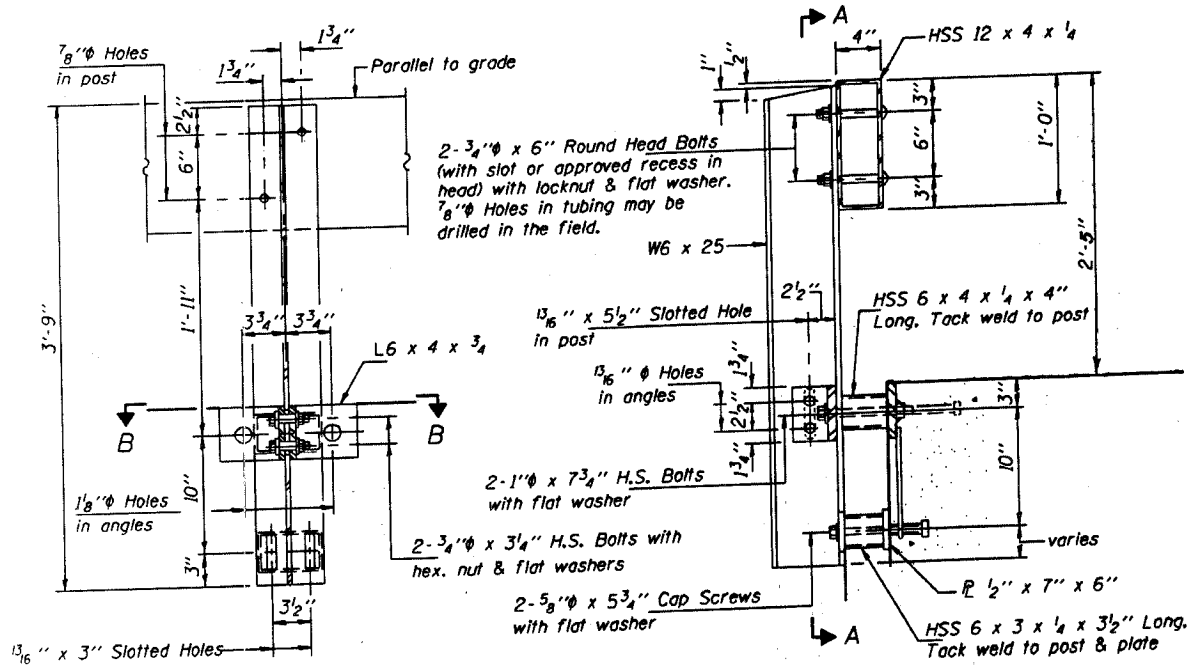
The 1/2" x 7" x 6" plates that come in contact with concrete shall either receive two coats of asphalt paint conforming to Section 1060.07 Type II, or 1/8" fabric bearing pads shall be placed between the plates and concrete.

The 3/4" high strength bolts used to connect the 6 x 4 x 3/4 angles to the post shall be tightened according to Article 505.04 (FX2) of the Standard Specifications. The 1" high strength bolts connecting the angles to the concrete shall be tightened to a snug fit and given an additional 1/8 turn. The 5/8" cap screws in bottom of posts shall be tightened to a snug fit only.

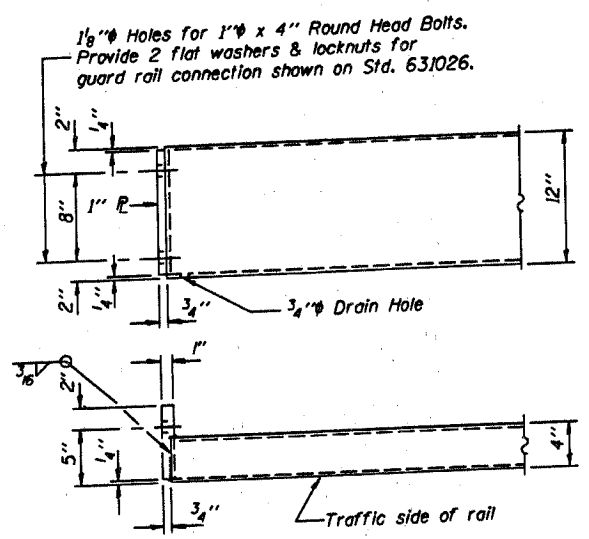
The maximum allowable rail post spacing shall be 10'-6". The rail post spacing shown elsewhere in the plans is based on the allowable spacing for another type of rail. When this type of rail is used, the number of posts may be decreased and the post spacing increased to provide equal post spaces of 10'-6" or less.



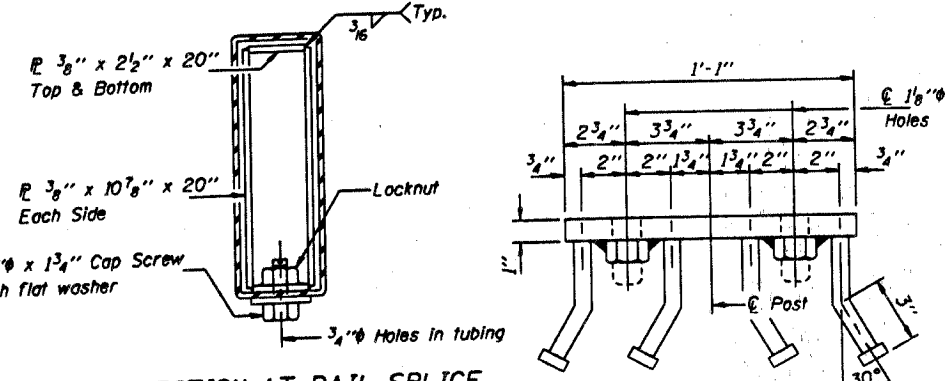
**VIEW A-A
ROUND HEAD BOLT**



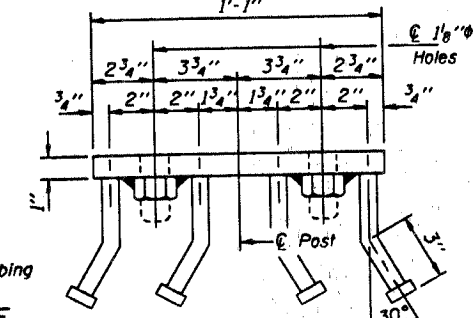
SECTION A-A



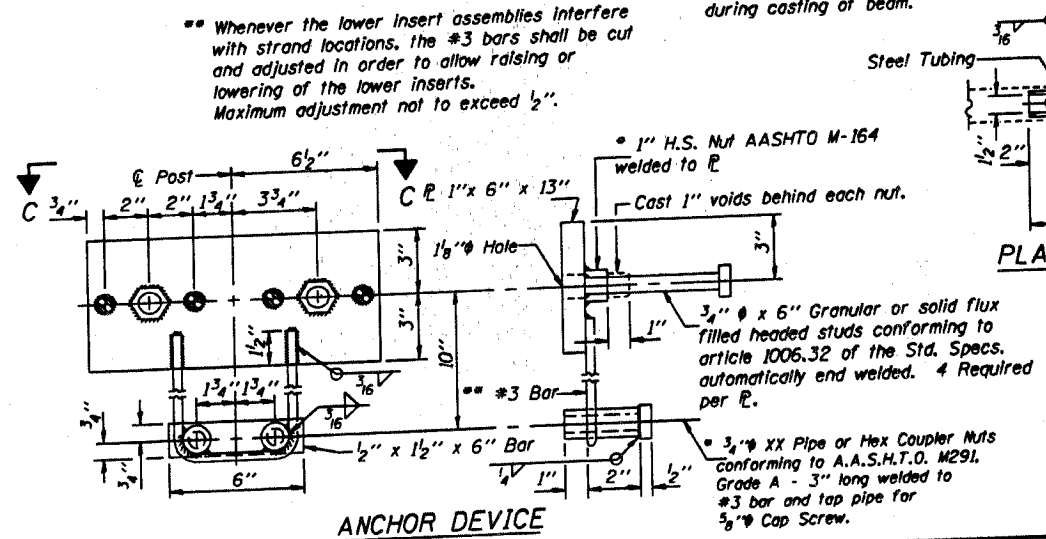
END OF RAIL DETAILS



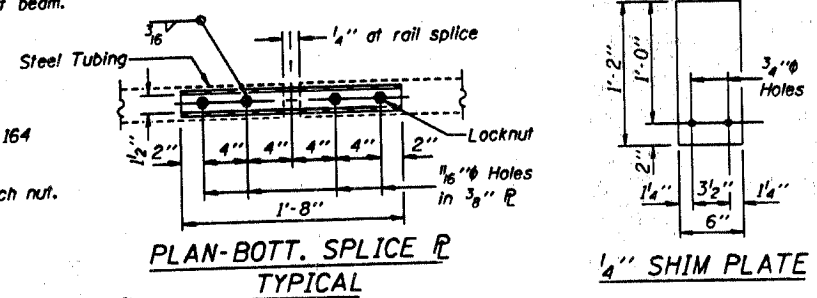
SECTION AT RAIL SPLICE



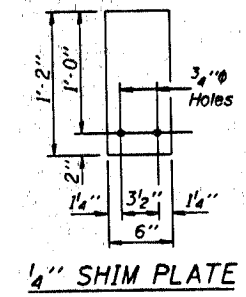
VIEW C-C



ANCHOR DEVICE



**PLAN-BOTT. SPLICE P
TYPICAL**



1/4\"/>

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

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

* 1" H.S. Nut AASHTO M-164 welded to R
Cast 1" voids behind each nut.

3/4" x 6" Granular or solid flux filled headed studs conforming to article 1006.32 of the Std. Specs. automatically end welded. 4 Required per R.

3/4" XX Pipe or Hex Coupler 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.

Illinois Department of Transportation

PASSED APRIL 4, 2005

Theresa J. Nemauskis
Engineer of Bridge Design

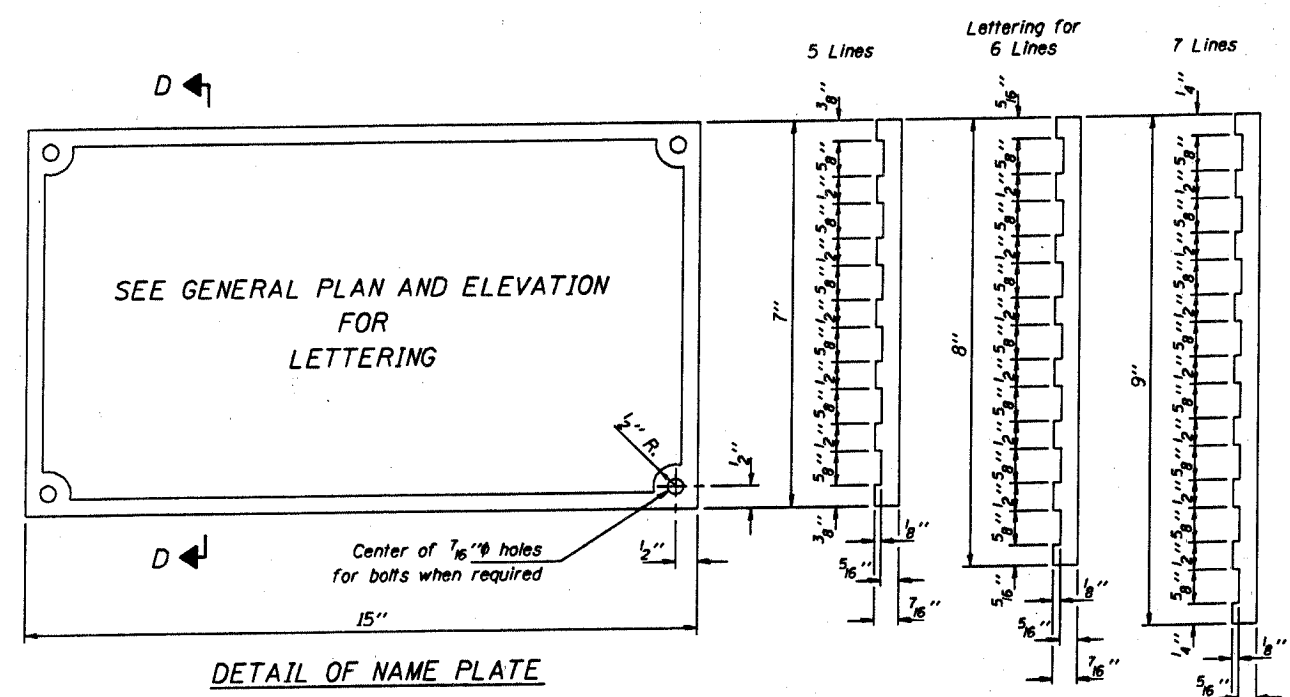
APPROVED APRIL 4, 2005

Ralph E. Anderson
Engineer of Bridges and Structures

1886-1-1 03/05/01

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

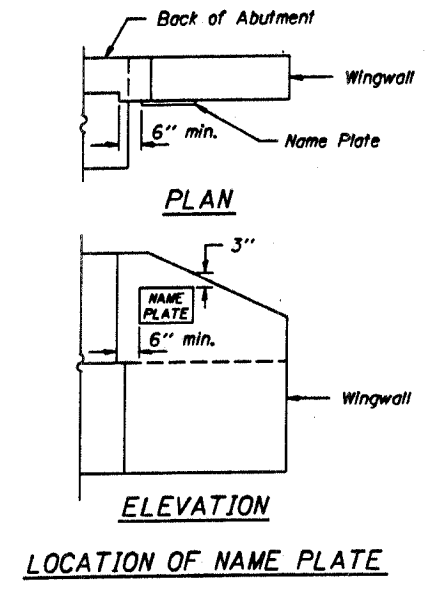
ROUTE	SECTION	COUNTY	TOWNSHIP	TOTAL SHEETS	SHEET NUMBER
T.R. 319	05-13136-00-BR	JACKSON	SEC 3, T10S, R2W	15	13
JOB NO. C-99-550-05			PROJECT NO. BR05-077(43)		
ETHERTON ROAD			CONTRACT NO. 99249		



DETAIL OF NAME PLATE

Material: Best quality brass or bronze.
 Border & Lettering: Raised 1/8 inch. Square cut and not tapered. Top surface polished.
 Fastenings: Four lugs at least three inches long, cast on back of plate.

SECTIONS D-D



PLAN

ELEVATION

LOCATION OF NAME PLATE

Illinois Department of Transportation

PASSED APRIL 4, 2005
Thomas J. Romagosa
 Engineer of Bridge Design

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

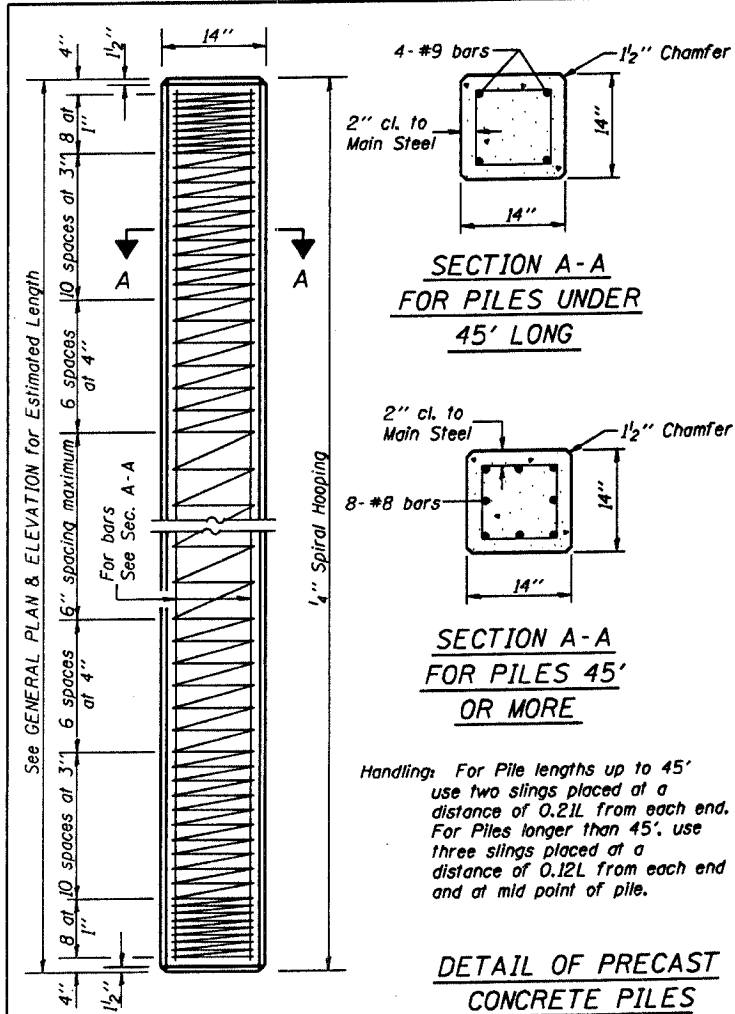
ISSUED 7-1-98

NAME PLATE
STANDARD CN

ROUTE	SECTION	COUNTY	TOWNSHIP	TOTAL SHEETS	SHEET NUMBER
T.R. 319	05-13136-00-BR	JACKSON	SEC. 3, T.10S, R.2W	15	14
JOB NO. C-99-550-05			PROJECT NO. BR05-077(43)		
ETHERTON ROAD			CONTRACT NO. 99249		

Reinforcement cage shall be omitted when Concrete Encasement is provided.

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

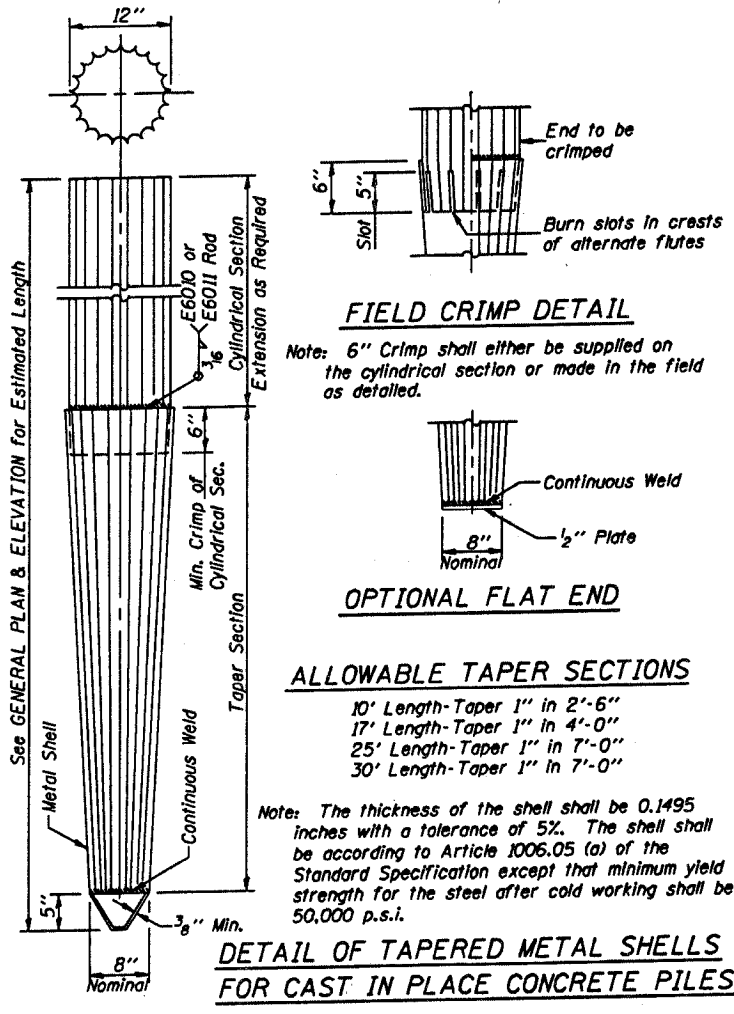


SECTION A-A FOR PILES UNDER 45' LONG

SECTION A-A FOR PILES 45' OR MORE

Handling: For Pile lengths up to 45' use two slings placed at a distance of 0.21L from each end. For Piles longer than 45' use three slings placed at a distance of 0.12L from each end and at mid point of pile.

DETAIL OF PRECAST CONCRETE PILES



FIELD CRIMP DETAIL

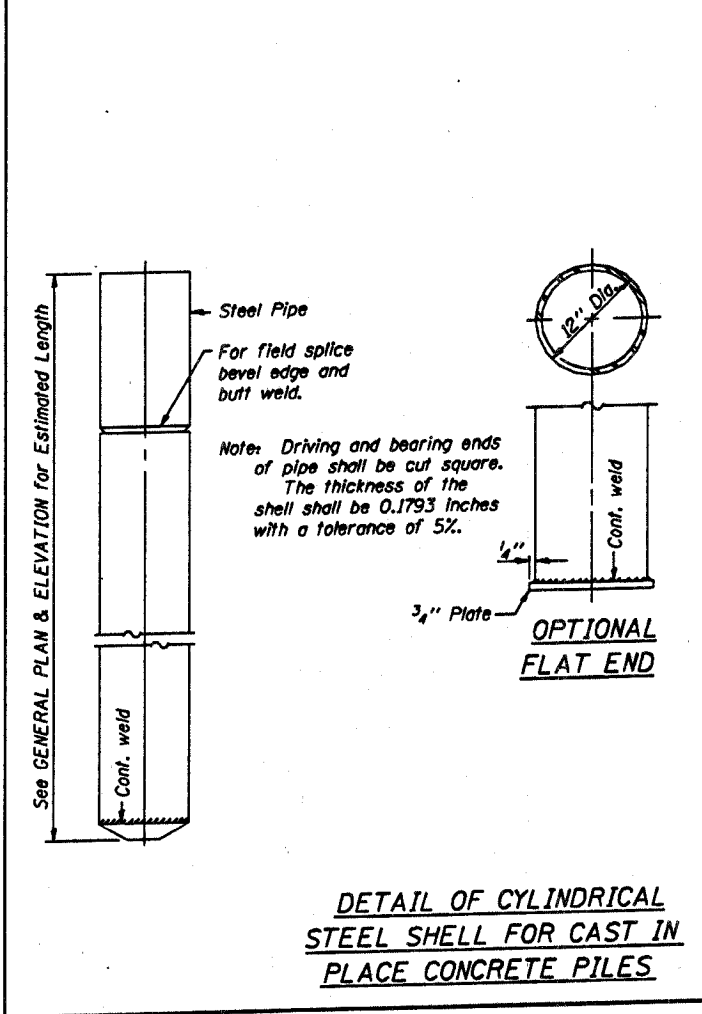
OPTIONAL FLAT END

ALLOWABLE TAPER SECTIONS

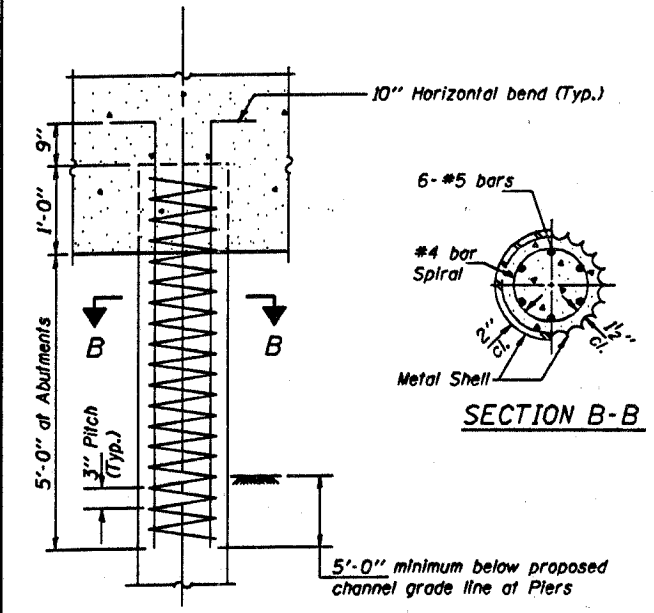
- 10' Length-Taper 1" in 2'-6"
- 17' Length-Taper 1" in 4'-0"
- 25' Length-Taper 1" in 7'-0"
- 30' Length-Taper 1" in 7'-0"

Note: The thickness of the shell shall be 0.1495 inches with a tolerance of 5%. The shell shall be according to Article 1006.05 (a) of the Standard Specification except that minimum yield strength for the steel after cold working shall be 50,000 p.s.i.

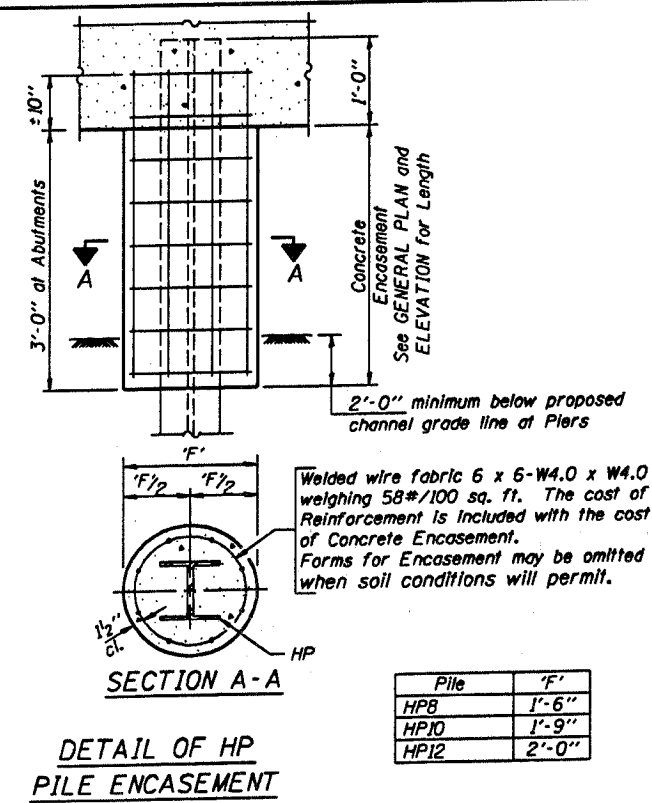
DETAIL OF TAPERED METAL SHELLS FOR CAST IN PLACE CONCRETE PILES



DETAIL OF CYLINDRICAL STEEL SHELL FOR CAST IN PLACE CONCRETE PILES

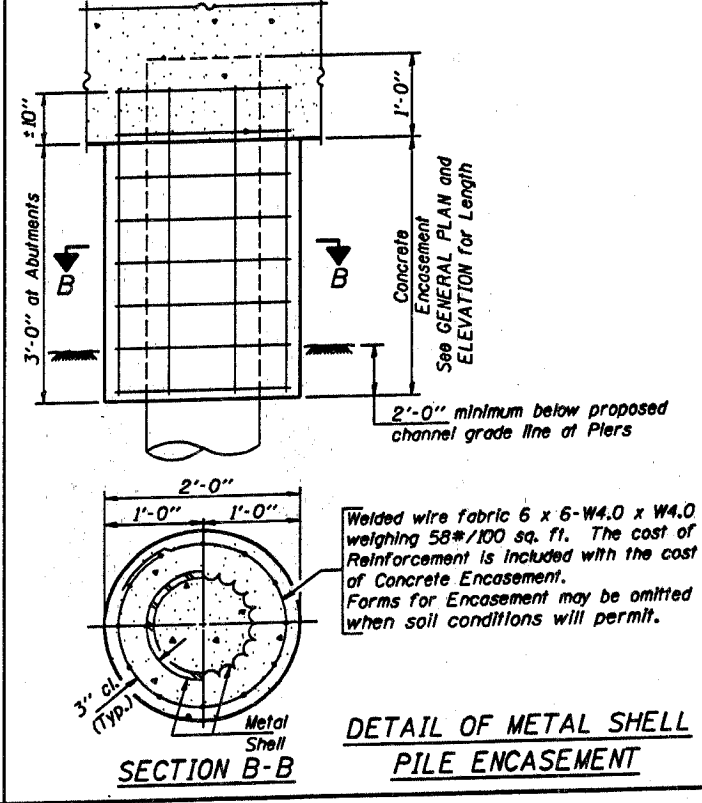


DETAIL OF REINFORCEMENT FOR METAL SHELLS



DETAIL OF HP PILE ENCASEMENT

Pile	'F'
HP8	1'-6"
HP10	1'-9"
HP12	2'-0"



DETAIL OF METAL SHELL PILE ENCASEMENT

QUANTITIES/FT. OF ENCASEMENT (STEEL PILES)

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

(METAL SHELL PILES)

Pile Size	Item	Quantity
12" Dia.	Concrete Encasement	0.087 C.Y.

PILE DETAILS

STANDARD CX-1

Illinois Department of Transportation
 PASSED FEBRUARY 1, 2000
 Approved by: *Thomas J. Nemecek*
 Engineer of Bridge Design
 APPROVED FEBRUARY 1, 2000
 Approved by: *Ralph E. Anderson*
 Engineer of Bridges and Structures

ROUTE	SECTION	COUNTY	TOWNSHIP	TOTAL SHEETS	SHEET NUMBER
TR 319	05-13136-00-BR	JACKSON	SEC 3, T10S, R2W	20	10
JOB NO. C-99-350-05			PROJECT NO. BR05-077(43)		
ETHERTON ROAD			CONTRACT NO. 09249		

ILLINOIS DEPARTMENT OF TRANSPORTATION
District Nine Materials

Bridge Foundation Boring Log
Sheet 1 of 2
Date: 8/23/99

Route: TR 319 Structure Number: 039-0044
Section: Boring No. 1-S
Station: 9+59
Offset: 6' RT of CL
Ground Surface: 396.1 Ft

Location: At Etherton
Checked By: J. Edankiewicz

D E P T H	B L O W S	Q u t s f	W %	Soils	S u r f W a t E l e v :	D E P T H	B L O W S	Q u t s f	W %		
										Ground Water Elevation when Drilling	At Completion
				Soft, very moist, grey, Silty Clay A-6	377.0			1	0.3B	29	
				Loose to very loose, very moist, grey, Fine to Coarse Sand with Organics and Silty Clay layers	373.1			1			
				Medium, very moist, grey, Silty Clay A-6	366.6			30.0	WH		
				Very soft, very moist, grey, Silty Clay A-6	364.1			WH	0.2B	38	
				Medium, moist, grey, Silty Clay to Silty Clay Loam A-6	361.6			35.0	WH		
				Medium, very moist, grey, Clay A7-6	359.1			1	0.7B	29	
				Medium, very moist, grey, Clay A7-6	356.6			1	0.7B	29	
				Medium, very moist, grey, Silty Clay to Silty Clay Loam A-6	354.1			1	0.6B	29	
				Soft, very moist, brown, Silt Loam to Loam A-4	351.6			1	0.3B	27	
				Medium, moist to very moist, grey, Loam to Silt Loam A-4	349.1			15.0	1	0.7S	27
				Very soft, very moist, grey, Silt Loam to Loam A-4	346.6			WH	0.2B	27	
				Medium, moist, grey mottled brown, Silty Clay A-6	344.1			20.0	WH	0.8B	23
				Medium to soft, very moist, grey, Silty Clay to Clay A-6	341.6			1	0.5B	31	
					346.6			25.0	WH		

N-Std Penetr Test: 2" OD Sampler, 140# Hammer, 30" Fall (Type Fall, B-Bulge S-Shear E-Estimated P-Penetrometer)

ILLINOIS DEPARTMENT OF TRANSPORTATION
District Nine Materials

Bridge Foundation Boring Log
Sheet 1 of 2
Date: 8/24/99

Route: TR 319 Structure Number: 039-0044
Section: Boring No. 2-S
Station: 10+44
Offset: 18' Lt CL
Ground Surface: 393.6 Ft

Location: At Etherton
Checked By: J. Edankiewicz

D E P T H	B L O W S	Q u t s f	W %	Soils	S u r f W a t E l e v :	D E P T H	B L O W S	Q u t s f	W %		
										Ground Water Elevation when Drilling	At Completion
				Medium to soft, very moist, grey, Clay A7-6	377.4			WH	0.5B	39	
				Stiff, moist to damp, brown, Silt Loam A-4	366.6			2	1.2S	12	
				Soft, very moist, grey, Clay to Silty Clay A7-6	364.1			2	0.9S	20	
				Medium to soft, moist to very moist, brown, Silt Loam to Loam A-4	361.6			5.0	1		
				Soft to medium, very moist, grey, Silty Clay A-6	359.1			1	0.5S	25	
				Medium to soft, very moist, grey, Silt A-4	356.6			10.0	1		
				Soft, very moist, grey, Silt Loam A-4	354.1			1	0.3B	34	
				Medium, moist, grey Clay to Clay Loam A-6 with broken Sandstone Gravel	351.6			15.0	WH	0.4B	30
				Medium, very moist, grey, Sand and Gravel	349.1			2	8	11	
				Stiff, moist, grey, Sandy Clay Loam to Clay Loam A-4	346.6			20.0	3		
				Soft, very moist, grey, Silt Loam to Silty Clay Loam A-4	344.1			1	0.4B	30	
					341.6			25.0	1		

N-Std Penetr Test: 2" OD Sampler, 140# Hammer, 30" Fall (Type Fall, B-Bulge S-Shear E-Estimated P-Penetrometer)

Sheet 2 of 2
Date: 8/23/99

Route: TR 319
Section:
County: Jackson

D E P T H	B L O W S	Q u t s f	W %	Soils	S u r f W a t E l e v :	D E P T H	B L O W S	Q u t s f	W %			
										Ground Water Elevation when Drilling	At Completion	
				Medium, very moist, grey, Clay to Silty Clay A-6	341.6			2	0.8B	20		
				Very stiff, moist, grey, Clay A7-6	316.6			55.0	2	2.7B	23	
				Very dense, dry, grey, Sandstone	315.6			80.0	100/0.5"			
				Hard, dry, grey, Clay Shale								
				Very stiff, moist, brown, Clay A7-6	336.6			60.0	3	3.1B	23	
					308.1			85.0	100/4"			
					306.1			90.0	100/4"			
				Bottom of hole = 89.8 feet								
				Free water observed at 23.0 feet	95.0							
				Very stiff, moist to damp, grey to olive, Clay A7-6 with Broken Sandstone Gravel	328.8			70.0	8	13	3.3B	14
								75.0	4			

N-Std Penetr Test: 2" OD Sampler, 140# Hammer, 30" Fall (Type Fall, B-Bulge S-Shear E-Estimated P-Penetrometer)

Sheet 2 of 2
Date: 8/24/99

Route: TR 319
Section:
County: Jackson

D E P T H	B L O W S	Q u t s f	W %	Soils	S u r f W a t E l e v :	D E P T H	B L O W S	Q u t s f	W %		
										Ground Water Elevation when Drilling	At Completion
				Very stiff, moist to damp, grey Clay A7-6	349.1			7	3.3B	22	
					80.0			55.0	3	2.7B	21
				Bottom of hole = 71.0 feet							
				Free water observed at 17.0 feet							
				Elevation referenced to BM on NE wingwall; Elevation = 396.6 feet							
				To convert "N" values to "N80" values multiply by 1.25							
				Very stiff, damp, grey, Clay A7-6 with Sandstone Gravel	334.1			60.0	5	3.0B	14
					90.0			65.0	3	2.5	15
					324.6						
				Hard, damp, grey, Weathered Clay Shale	323.6			70.0	10		
				Very Dense, dry, grey, Sandstone (Refused)	322.6				100/1"		
								75.0			

N-Std Penetr Test: 2" OD Sampler, 140# Hammer, 30" Fall (Type Fall, B-Bulge S-Shear E-Estimated P-Penetrometer)