

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

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 209A	04-02119-00-BR	JACKSON	20	1
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT	BROS-077(41)	

CONTRACT NO. 99261

- INDEX OF SHEETS**
1. COVER SHEET
  2. SUMMARY OF QUANTITIES AND TYPICAL CROSS SECTIONS
  3. PLAN AND PROFILE
  - 4.-10. STATION CROSS SECTIONS
  - 11.-18. BRIDGE PLANS
  - 19.-20. BORINGS

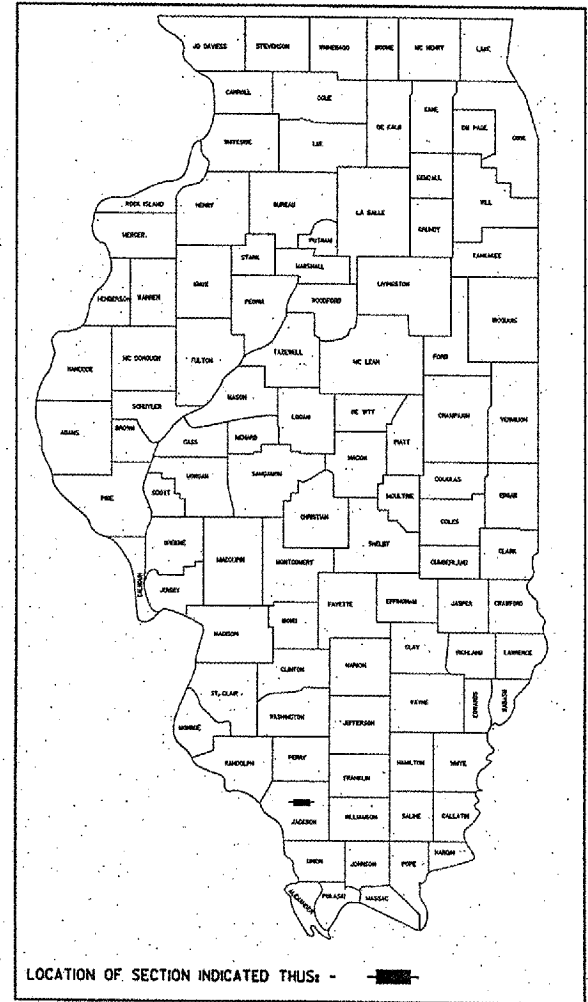
**HIGHWAY STANDARDS:**

- 280001-02 TEMPORARY EROSION CONTROL SYSTEMS
- 515001-02 NAME PLATE FOR BRIDGES
- 630001-06 STEEL PLATE BEAM GUARDRAIL
- 630301-03 SHOULDER WIDENING FOR TYPE 1 (SPECIAL) GUARDRAIL TERMINALS
- 631026-02 TRAFFIC BARRIER TERMINAL, TYPE 5 AND 5A
- 702001-06 TRAFFIC CONTROL DEVICES
- BLR 21-6 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

**SCALES**

PLAN	0" = 50'
PROFILE HORIZ.	0" = 50'
PROFILE VERT.	0" = 5'
CROSS SECTIONS	0" = 5'

**SECTION 04-02119-00-BR**  
**T.R. 209A / GLENN ROAD**  
**CARBONDALE ROAD DISTRICT**  
**JACKSON COUNTY**  
**PROJECT BROS-077(41)**  
**JOB C-99-543-05**



**UTILITIES**

AMEREN CIPS  
 1403 SOUTH MAIN STREET  
 BENTON, ILLINOIS 62906  
 618-993-4626  
 ATTN: STAN TREAT

CITY OF CARBONDALE  
 200 SOUTH ILLINOIS AVENUE  
 P.O. BOX 2047  
 CARBONDALE, ILLINOIS 62902  
 618-457-7003  
 ATTN: DANNY PIQUARD

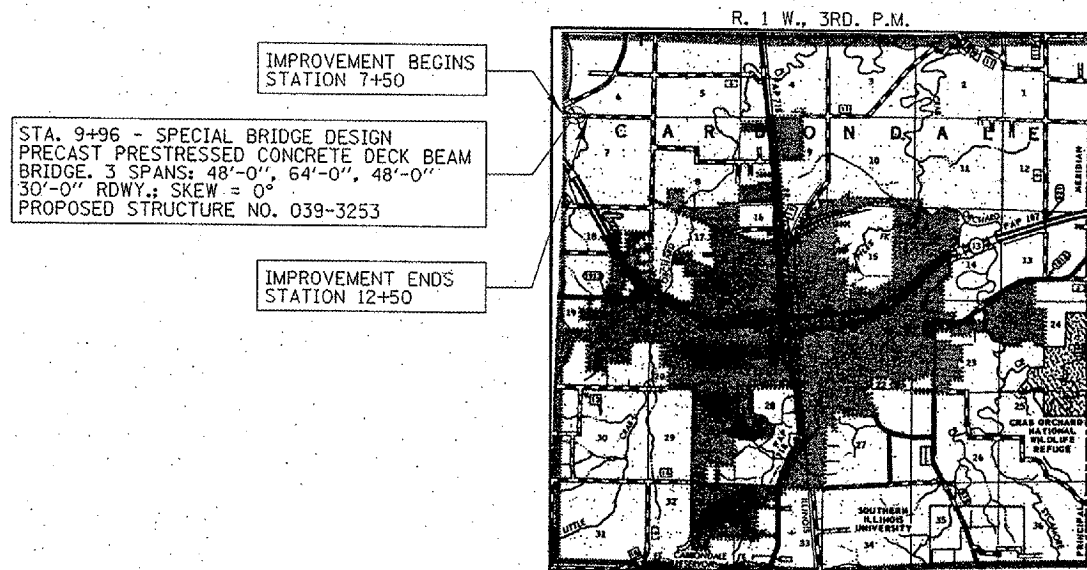
MEDIA COM  
 2250 NORTH ILLINOIS AVENUE  
 CARBONDALE, ILLINOIS 62901  
 270-205-3059  
 ATTN: RICHARD HANNING

MURDALE WATER DISTRICT  
 P.O. BOX 154  
 CARBONDALE, ILLINOIS 62903  
 618-684-8039  
 ATTN: CURTIS MEZO

VERIZON  
 208 WEST UNION  
 MARION, ILLINOIS 62959  
 618-997-0679  
 ATTN: TERRY PHILLIPS

DESIGN FUNCTIONAL CLASSIFICATION:  
 LOCAL ROAD > 400 ADT  
 DESIGN TRAFFIC: 900 ADT  
 DESIGN SPEED: 40 M.P.H.

CONTRACT NO. 99261



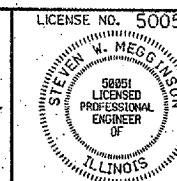
**LAYOUT**

APPROXIMATE SCALE: 0" = 1 MILE  
 NET LENGTH OF SECTION = 500 FEET = 0.095 MILES



APPROVED	<i>May 18, 2006</i>	20 06
ROAD DISTRICT COMMISSIONER		
STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION		
APPROVED	<i>May 18, 2006</i>	20 06
LOCAL AGENCY REPRESENTATIVE		
PASSED	<i>JUNE 7, 2006</i>	20 06
ENGINEER OF LOCAL ROADS & STREETS		
APPROVED	<i>June 7, 2006</i>	20 06
DEPUTY DIRECTOR OF HIGHWAYS REGION FIVE ENGINEER		

DATE: *May 15, 2006*  
 BY: *Steven Meggison*  
 LICENSE EXPIRES: NOVEMBER 30, 2007



**HAMPTON, LENZINI & RENWICK, INC.**  
 CIVIL & STRUCTURAL ENGINEERS  
 3085 STEVENSON DRIVE, SUITE 201  
 SPRINGFIELD, ILLINOIS 62703  
 (217) 546-3400  
 ELGIN • SPRINGFIELD

SUMMARY OF QUANTITIES			
CODE NO	ITEM	CONSTRUCTION CODE	
		UNIT	QUANTITY
20100500	TREE REMOVAL, ACRE	ACRE	0.1
20200100	EARTH EXCAVATION	CU YD	100
20300100	CHANNEL EXCAVATION	CU YD	410
20400800	FURNISHED EXCAVATION	CU YD	500
> 20700110	POROUS GRANULAR EMBANKMENT	TON	90
> 25001000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.6
25100630	EROSION CONTROL BLANKET	SQ YD	2,900
> 28000400	PERIMETER EROSION BARRIER	FOOT	800
28101700	RIPRAP, SPECIAL	TON	850
> 40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	380
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50300225	CONCRETE STRUCTURES	CU YD	40.8
50400405	PRECAST PRESTRESSED CONCRETE DECK BEAMS (21" DEPTH)	SQ FT	2,880
50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ FT	1,920
50500505	STUD SHEAR CONNECTORS	EACH	60
50800105	REINFORCEMENT BARS	POUND	5,400
50900205	STEEL RAILING, TYPE S1	FOOT	327
51201400	FURNISHING STEEL PILES HP10X42	FOOT	630
51201800	FURNISHING STEEL PILES HP14X73	FOOT	630
51202700	DRIVING STEEL PILES	FOOT	1,260
51203400	TEST PILE STEEL HP10X42	EACH	1
51203800	TEST PILE STEEL HP14X73	EACH	1
51204315	CONCRETE ENCASEMENT	CU YD	31.4
51500100	NAME PLATES	EACH	1
63000000	STEEL PLATE BEAM GUARDRAIL, TYPE A	FOOT	50
> 63100075	TRAFFIC BARRIER TERMINAL, TYPE 5A	EACH	4
> 63100167	TRAFFIC BARRIER TERMINAL, TYPE 1, SPECIAL (TANGENT)	EACH	4
> 67100100	MOBILIZATION	L SUM	1
78200400	GUARDRAIL REFLECTORS	EACH	4
> 78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4

> SEE SPECIAL PROVISIONS

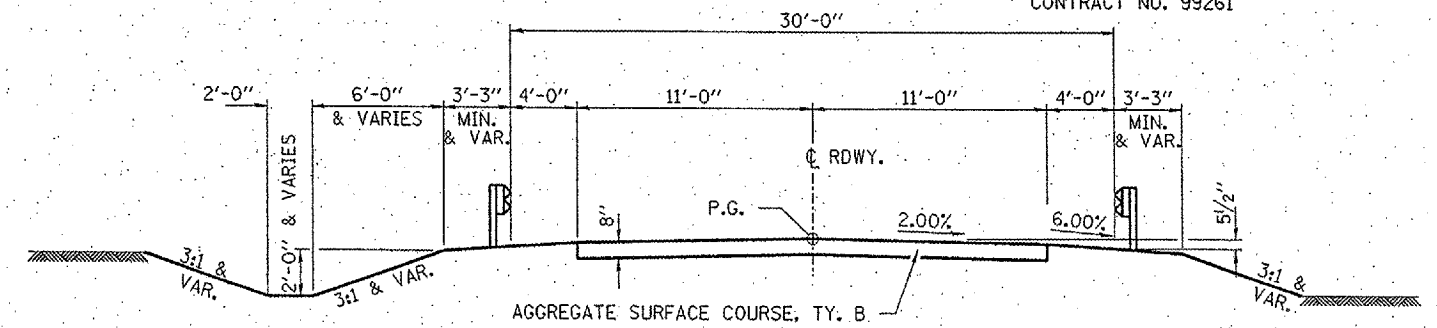
**GENERAL NOTES**

- ALL CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE STATE OF ILLINOIS "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, ADOPTED JANUARY 1, 2002," THESE PLANS AND THE SPECIAL PROVISIONS INCLUDED IN THE CONTRACT DOCUMENTS.
- ALL CLEARING AND GRUBBING AND REMOVAL OF EXISTING DRAINAGE STRUCTURES SHALL BE CONSIDERED INCLUDED IN COST FOR EARTH EXCAVATION IN THE CONTRACT. ALL BITUMINOUS MATERIAL SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR IN A METHOD APPROVED BY THE ENGINEER. PROPER DISPOSAL OF BITUMINOUS MATERIAL SHALL BE CONSIDERED INCIDENTAL TO EARTH EXCAVATION AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
- THE LOCATIONS OF EXISTING ELECTRIC POWER LINES, TELEPHONE LINES AND OTHER UTILITIES AS SHOWN ON THE PLANS ARE BASED ON CAREFUL FIELD INVESTIGATION AND THE BEST INFORMATION AVAILABLE, BUT THE LOCATIONS ARE NOT GUARANTEED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ASCERTAIN THEIR EXACT LOCATION FROM THE INDIVIDUAL UTILITY COMPANIES AND BY FIELD INSPECTION.
- THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL SECTION OR SUBSECTION MONUMENTS UNTIL THE OWNER, HIS AGENT, OR PROFESSIONAL LAND SURVEYOR HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION.
- THE REVISION NUMBER INDICATED FOR THE STANDARDS LISTED IN THE INDEX OF SHEETS SHALL BE USED IN THE CONSTRUCTION OF THIS SECTION.
- THE FOLLOWING RATES OF APPLICATION HAVE BEEN USED IN CALCULATING PLAN QUANTITIES  
 RIPRAP, SPECIAL 1.75 TON/CU YD  
 POROUS GRANULAR EMBANKMENT 2.00 TON/CU YD  
 AGGREGATE SURFACE COURSE 2.05 TON/CU YD
- THE AREA TO BE SEEDDED SHALL CONSIST OF ALL EARTH SURFACES DISTURBED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. ESTIMATED QUANTITY = 0.5 ACRES.
- TREES WITHIN THE RIGHT OF WAY AND EASEMENTS, WHICH INTERFERE WITH CONSTRUCTION SHALL BE REMOVED ONLY AT THE DIRECTION OF THE ENGINEER.
- THE CONTRACTOR SHALL COORDINATE WITH AMEREN CIPS FOR WORK AROUND THE HIGH POWER LINES. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR ANY COSTS OR DELAYS CAUSED BY THE UTILITY.

EARTHWORK SCHEDULE						
LOCATION	EARTH EXCAVATION (CU YD)	SHRINKAGE FACTOR	PERCENT USED	AVAILABLE EXCAVATION (CU YD)	EMBANKMENT REQUIRED (CU YD)	EARTHWORK BALANCE (CU YD)
STA. 7+50 TO STA. 9+15.25	51	25%	100%	39	191	-153
STA. 9+15.25 TO STA. 10+76.75	-	25%	100%	-	-	-
STA. 10+76.75 TO STA. 12+50	47	25%	100%	35	593	-558
CHANNEL EXCAVATION	410	25%	70%	215	-	215
ENTRANCES	-	-	-	-	-	-
TOTAL	98	-	-	289	785	-496
USE:	100	-	-	-	-	500

\* AVAILABLE EXCAVATION = EXC. x (1-SHRINKAGE FACTOR) x % USED (FURN EXC.)

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 209A	04-02119 -00-BR	JACKSON	20	2
PROJECT NO.		CONTRACT NO. 99261		
PROJECT NAME		PROJECT: BR05-077(41)		



SUGGESTED CUT SECTION CONSTRUCT AS SHOWN IN STATION CROSS SECTIONS

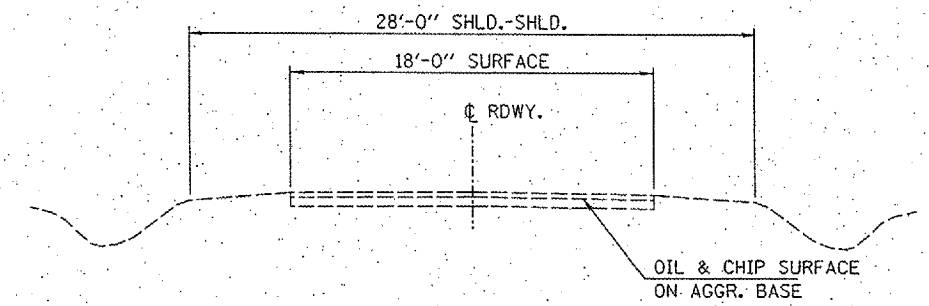
SUGGESTED FILL SECTION CONSTRUCT AS SHOWN IN STATION CROSS SECTIONS

ROAD CLASSIFICATION - LOCAL ROAD >400 ADT  
 DESIGN ADT 900  
 DESIGN SPEED: 40 M.P.H.

**TYPICAL CROSS SECTION**

STA. 7+50 TO 9+15.25  
 STA. 10+76.75 TO 12+50.

TRANSITION FROM THE PROPOSED ROADWAY TO THE EXISTING ROADWAY IS TO BE CONSTRUCTED FROM STA. 7+50 TO 8+00 AND STA. 12+00 TO 12+50. SEE SHEET 11 FOR TRANSITION AT BRIDGE.



**EXISTING CROSS SECTION**

TRAFFIC BARRIER TERMINAL, TYPE 5A	
LOCATION	EACH
RT. STA. 9+01.0 TO STA. 9+14.3	1
LT. STA. 9+01.0 TO STA. 9+14.3	1
RT. STA. 10+77.7 TO STA. 10+91.0	1
LT. STA. 10+77.7 TO STA. 10+91.0	1
TOTAL	4

STEEL PLATE BEAM GUARD RAIL, TYPE A	
LOCATION	FOOT
RT. STA. 8+76.0 TO STA. 9+01.0	25
LT. STA. 10+91.0 TO STA. 11+16.0	25
TOTAL	50

TRAFFIC BARRIER TERMINAL, TY 1, SPL (TANG)	
LOCATION	EACH
RT. STA. 8+26.0 TO STA. 8+76.0	1
LT. STA. 8+51.0 TO STA. 9+01.0	1
RT. STA. 10+91.0 TO STA. 11+41.0	1
LT. STA. 11+16.0 TO STA. 11+66.0	1
TOTAL	4

**HAMPTON, LENZINI & RENWICK, INC.**  
 CIVIL & STRUCTURAL ENGINEERS

**HLR**

3085 STEVENSON DRIVE, SUITE 201  
 SPRINGFIELD, ILLINOIS 62703  
 (217) 546-3400

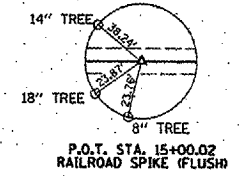
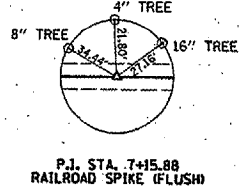
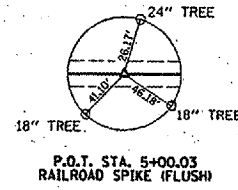
ELGIN • SPRINGFIELD

PROJECT NUMBER: 12-47-0017-1 DATE: 05/15/06  
 DESIGNED: S.M.S. CHECKED: S.W.M. DRAWN: D.T.M.

**SUMMARY OF QUANTITIES AND TYPICAL SECTIONS**  
 SECTION 04-02119-00-BR  
 CARBONDALE ROAD DISTRICT  
 JACKSON COUNTY

**RALPH & DOROTHY GLENN**  
 SW/4, SW/4, SEC 6, T. 9 S., R. 1 W., 3RD P.M.

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
209A	04-02119-00-BR	JACKSON	20	3
STA. 5+00.00		TO STA. 15+00.00		
FED. ROAD DIST. NO.		ILLINOIS CONTRACT NO. 99261		
CARBONDALE ROAD DISTRICT				



**CURVE DATA**

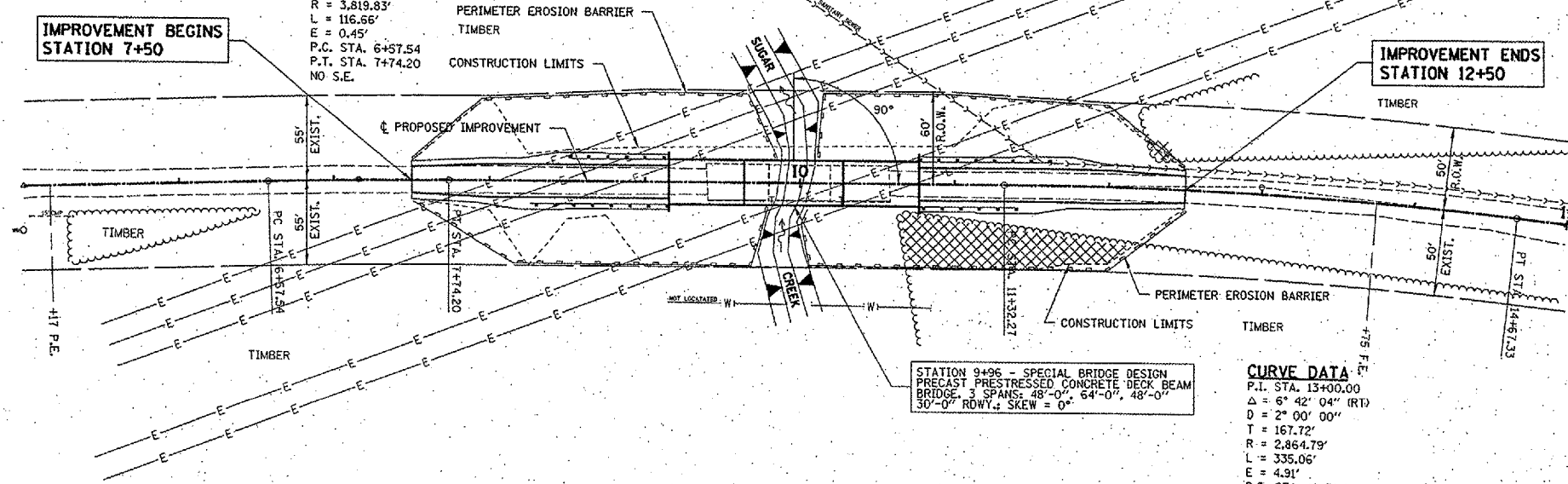
P.I. STA. 7+15.88  
 $\Delta = 1^\circ 45' 00''$  (RT)  
 $D = 1^\circ 30' 00''$   
 $T = 58.34'$   
 $R = 3,819.83'$   
 $L = 116.66'$   
 $E = 0.45'$   
 P.C. STA. 6+57.54  
 P.T. STA. 7+74.20  
 NO S.E.

**CURVE DATA**

P.I. STA. 13+00.00  
 $\Delta = 6^\circ 42' 04''$  (RT)  
 $D = 2^\circ 00' 00''$   
 $T = 167.72'$   
 $R = 2,864.79'$   
 $L = 335.06'$   
 $E = 4.91'$   
 P.C. STA. 11+32.27  
 P.T. STA. 14+67.33  
 NO S.E.

IMPROVEMENT BEGINS  
STATION 7+50

IMPROVEMENT ENDS  
STATION 12+50



STATION 9+96 - SPECIAL BRIDGE DESIGN  
 PRECAST PRESTRESSED CONCRETE DECK BEAM  
 BRIDGE 3 SPANS: 48'-0", 64'-0", 48'-0"  
 30'-0" ROWW, SKEW = 0°

**PERIMETER EROSION BARRIER**  
 RT. & LT. STA. 7+50 TO 9+90 = 400 FT  
 RT. & LT. STA. 10+10 TO 12+50 = 400 FT  
 TOTAL = 800 FT

TREE REMOVAL ACRES

**CHANNEL EXCAVATION**  
 THE CHANNEL SHALL BE EXCAVATED AS SHOWN IN THE PLANS WITH 2:1 SIDE SLOPES WITHIN THE LIMITS OF THE PROPOSED STRUCTURE, THEN TAPER TO THE EXISTING CHANNEL AT THE R.O.W. LINES. ONLY SUITABLE EXCAVATED MATERIAL SHALL BE USED IN THE EMBANKMENT.

**EXISTING STRUCTURE NO. 039-3087**  
 STATION 10+00 - THREE SPAN PRECAST CONCRETE SLAB BRIDGE ON TIMBER PILE BENT PIERS AND ABUTMENTS. 118.00' FC-FC, ABUTS: 22.58' o-o. DECK REMOVAL OF EXISTING STRUCTURES = 1 EACH

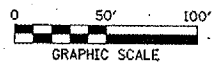
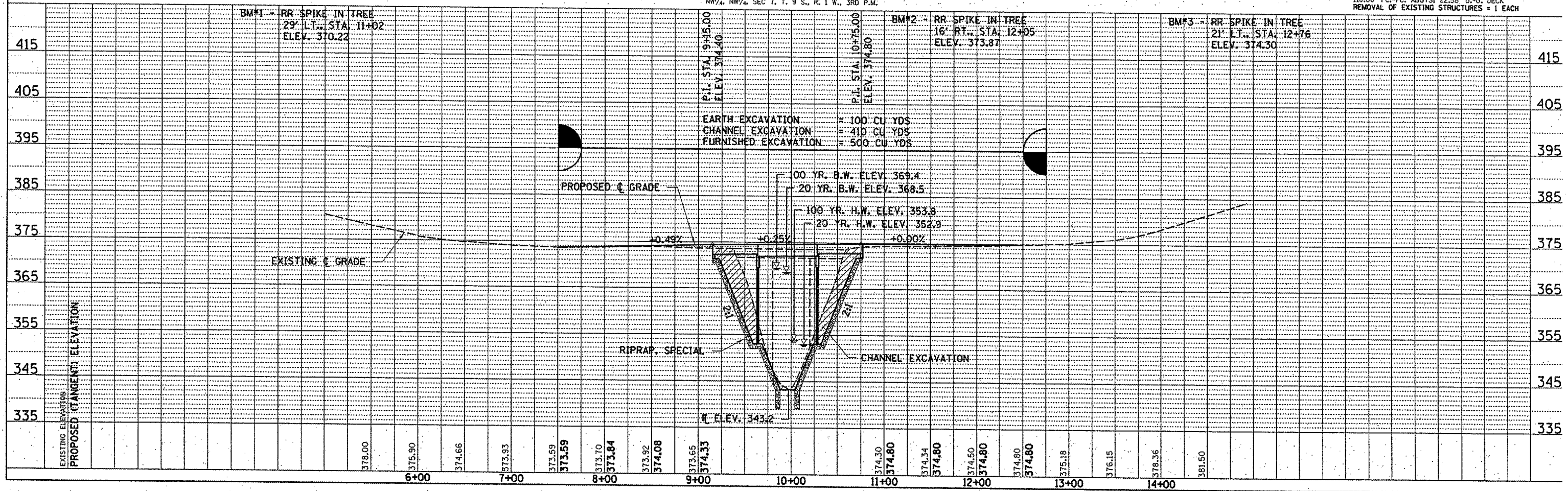
**CHARLES & OPAL RICH**  
 NW/4, NW/4, SEC 7, T. 9 S., R. 1 W., 3RD P.M.

PLAN

DATE	BY
REVISED	BY
PLOTTED	BY
GRADES CHECKED	BY
STRUCTURE NOTATION CHECKED	BY
NOTE BOOK NO.	
FILE NO.	

PROFILE

DATE	BY
REVISED	BY
PLOTTED	BY
GRADES CHECKED	BY
STRUCTURE NOTATION CHECKED	BY
NOTE BOOK NO.	
FILE NO.	

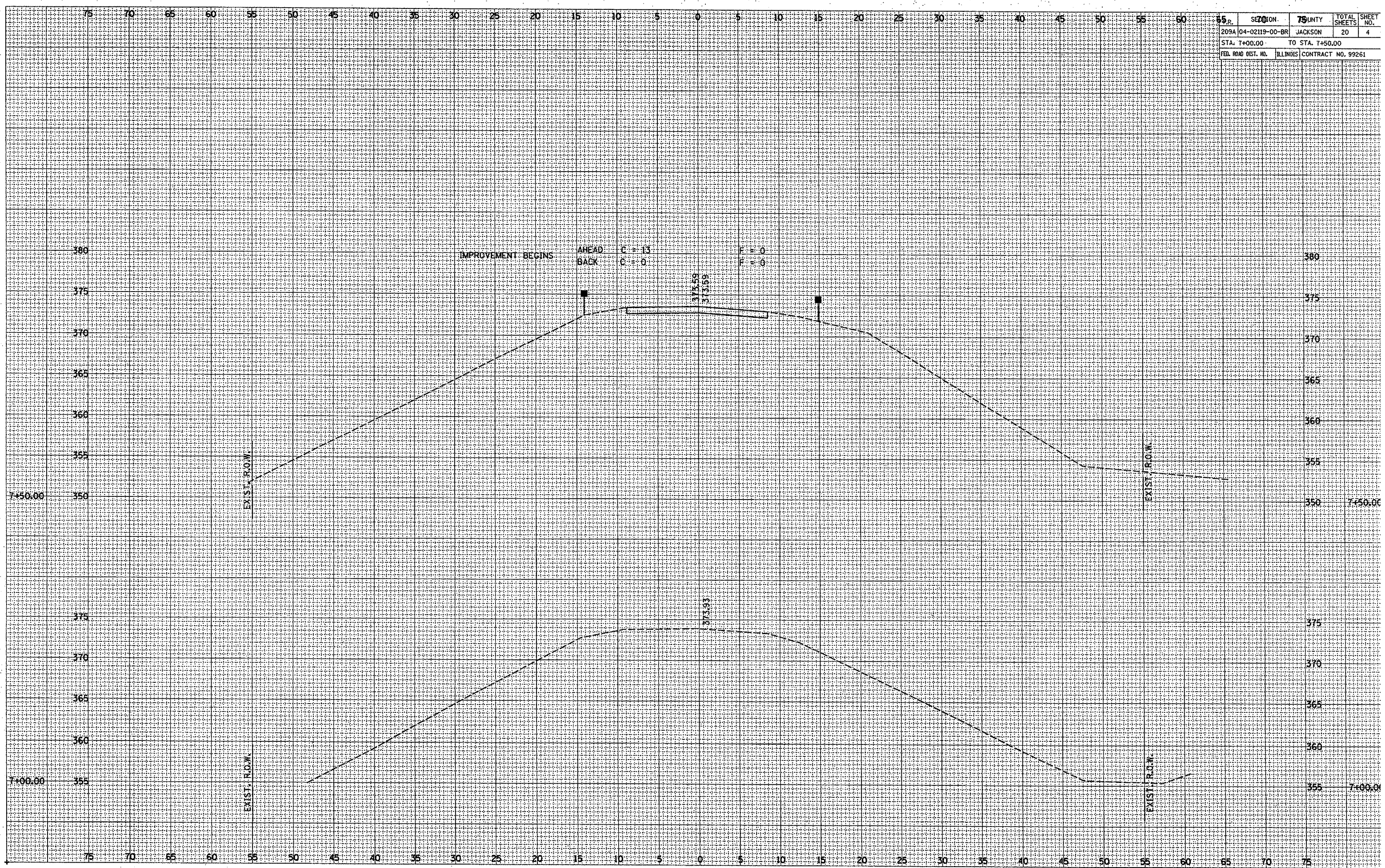




SECTION	75	TOTAL SHEETS	20	SHEET NO.	4	
PROJECT	209A 04-02119-00-BR JACKSON					
STA.	7+00.00				TO STA.	7+50.00
FED. ROAD DIST. NO.	ILLINOIS	CONTRACT NO.	99261			

FINAL SURVEY	DATE
BY	
REVISIONS	
PLOTTED	
NOTE BOOK	
AREAS CHECKED	

ORIGINAL SURVEY	DATE
BY	
REVISIONS	
PLOTTED	
NOTE BOOK	
AREAS CHECKED	

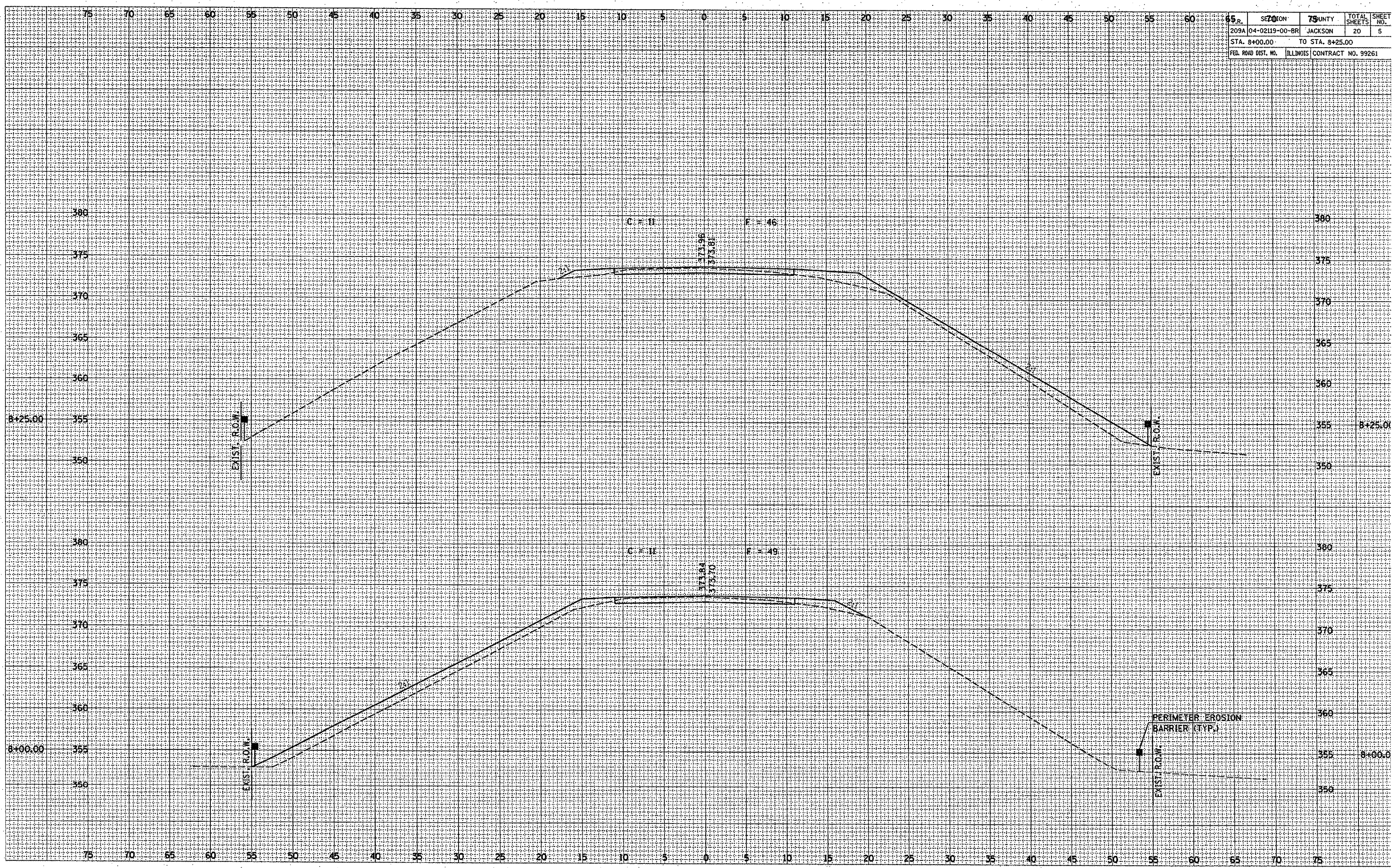




65.R.	SECTION	75	TOTAL SHEETS	20	SHEET NO.	5
209A 04-02119-00-BR		JACKSON				
STA. 8+00.00		TO STA. 8+25.00				
FED. ROAD DIST. NO.		ILLINOIS	CONTRACT NO. 99261			

FINAL SURVEY	SURVEYED	DATE
NOTE BOOK	PLOTTED	
NO.	TEMPLATE	
	MEAS. CHECKED	
	FIGS. CHECKED	

ORIGINAL SURVEY	SURVEYED	DATE
NOTE BOOK	PLOTTED	
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	MEAS. CHECKED	
	FIGS. CHECKED	

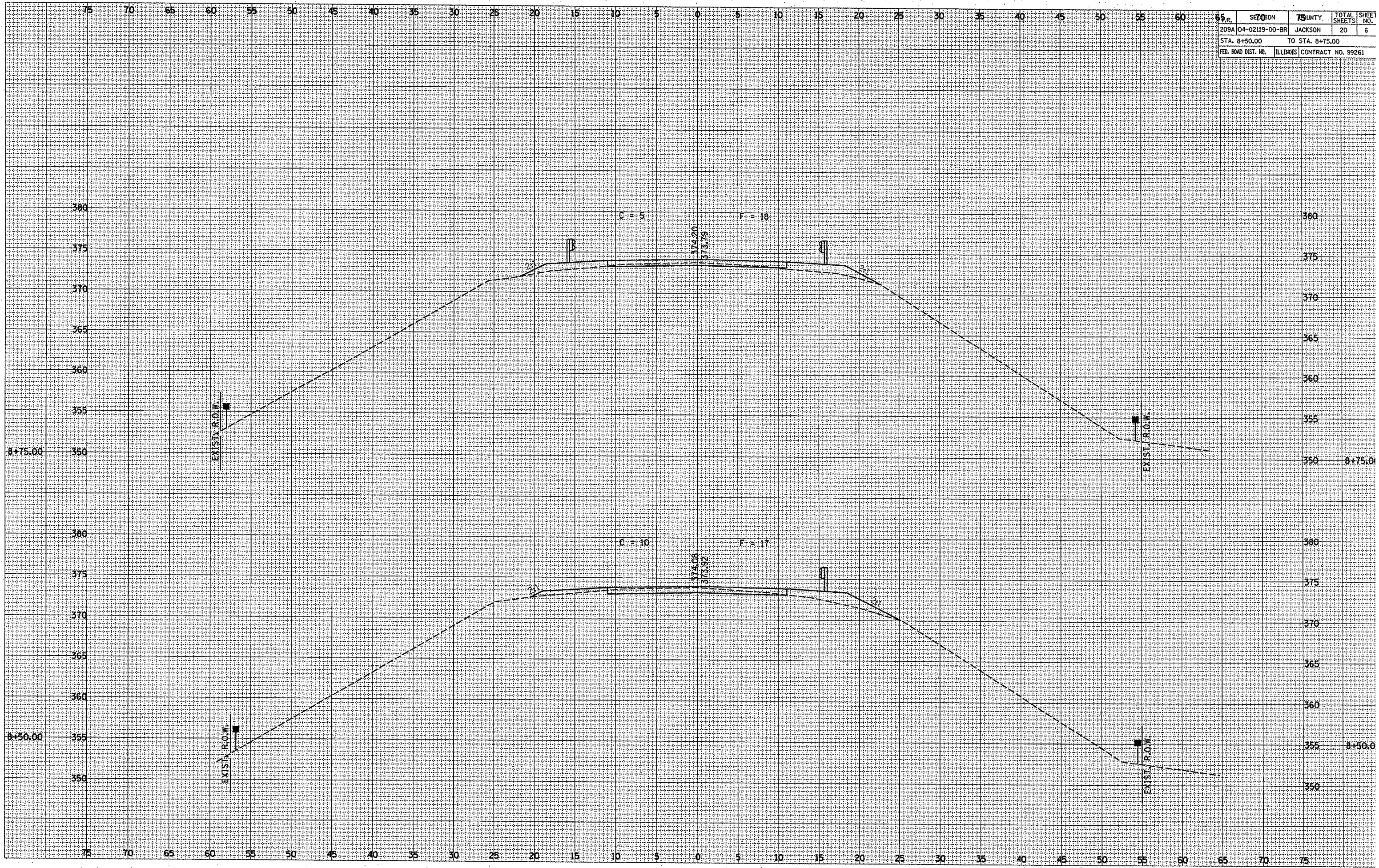




SECTION	75	TOTAL SHEETS	20	SHEET NO.	6
PROJECT	209A 04-02119-00-BR JACKSON				
STA. 8+50.00	TO STA. 8+75.00				
FED. ROAD DIST. NO.	ILLINOIS	CONTRACT NO. 99261			

DATE	
BY	
FINAL SURVEY	
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TEMPLATE	
NOTE BOOK	
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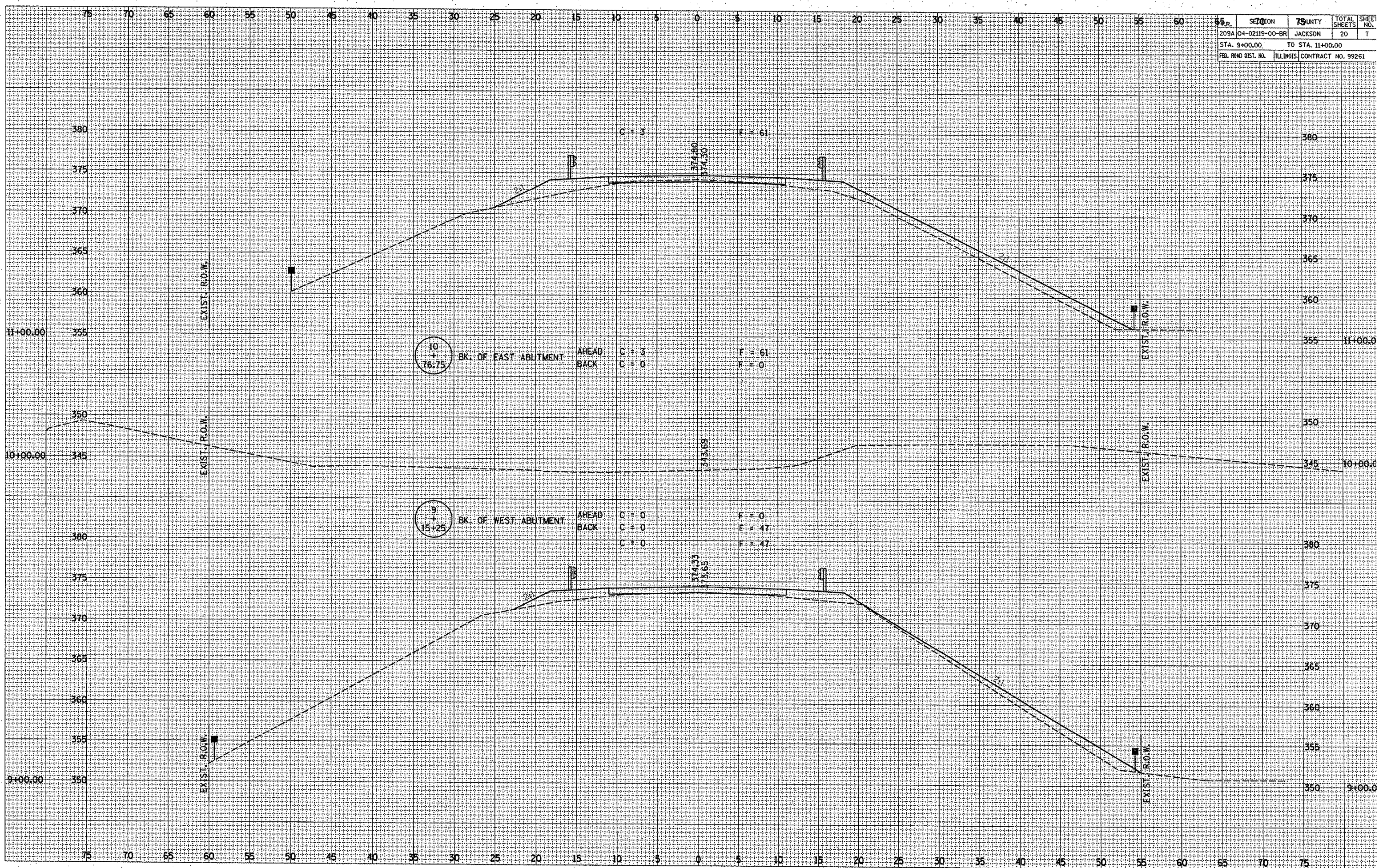
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TEMPLATE	
NOTE BOOK	
NO.	
AREAS CHECKED	





FINAL SURVEY	SURVEYED	BY	DATE
NOTE BOOK NO.	PLOTTED		
	TEMPLATE		
	AREAS CHECKED		

ORIGINAL SURVEY	SURVEYED	BY	DATE
NOTE BOOK NO.	PLOTTED		
	TEMPLATE		
	AREAS CHECKED		

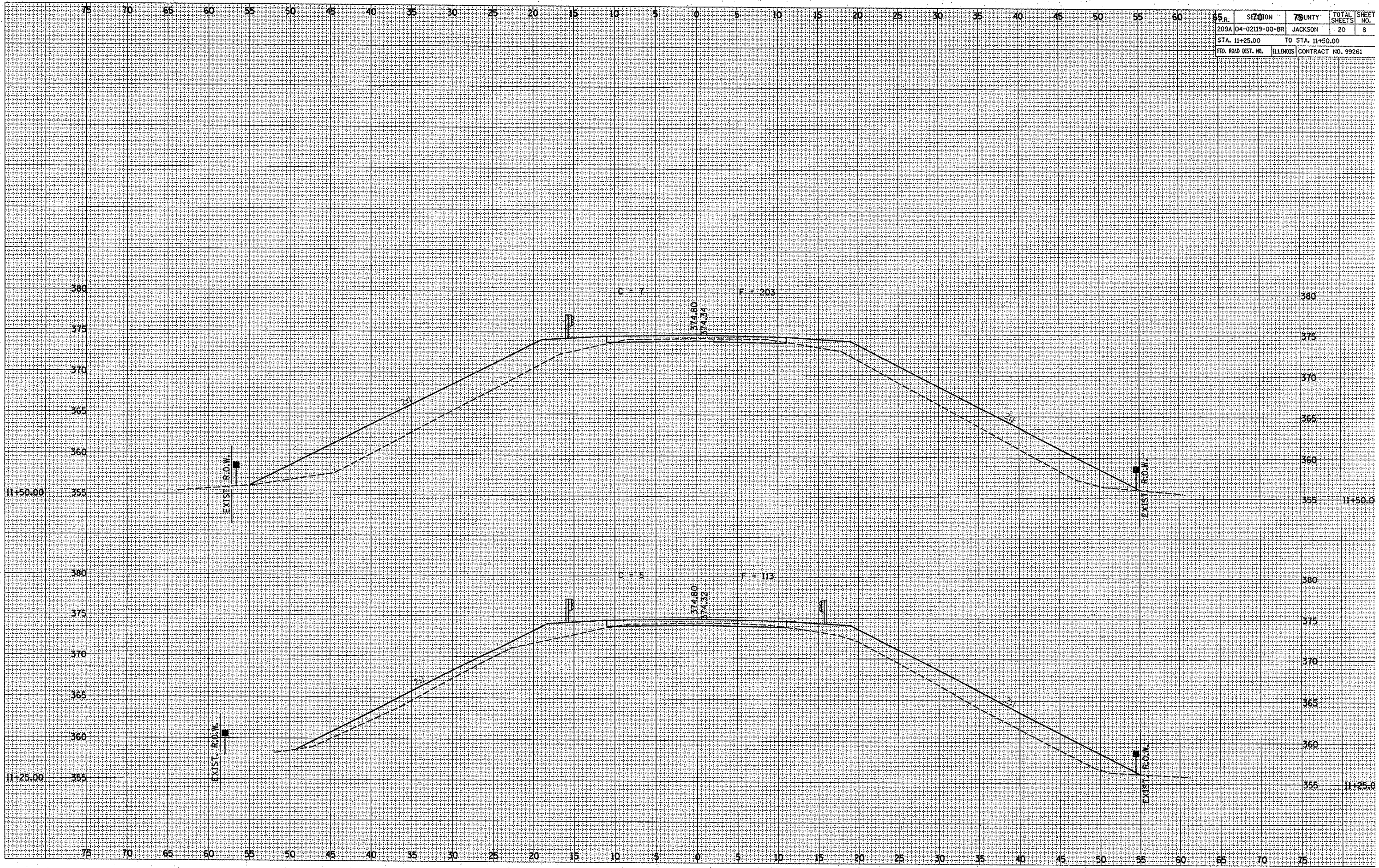




SECTION	75	TOTAL SHEETS	20	SHEET NO.	8
PROJECT	209A 04-02119-00-BR JACKSON				
STA. 11+25.00	TO STA. 11+50.00				
FED. ROAD DIST. NO.	ILLINOIS	CONTRACT NO.	99261		

DATE	
BY	
ORIGINAL SURVEY	
FLATTENED	
NOTED	
NO.	

DATE	
BY	
ORIGINAL SURVEY	
FLATTENED	
NOTED	
NO.	





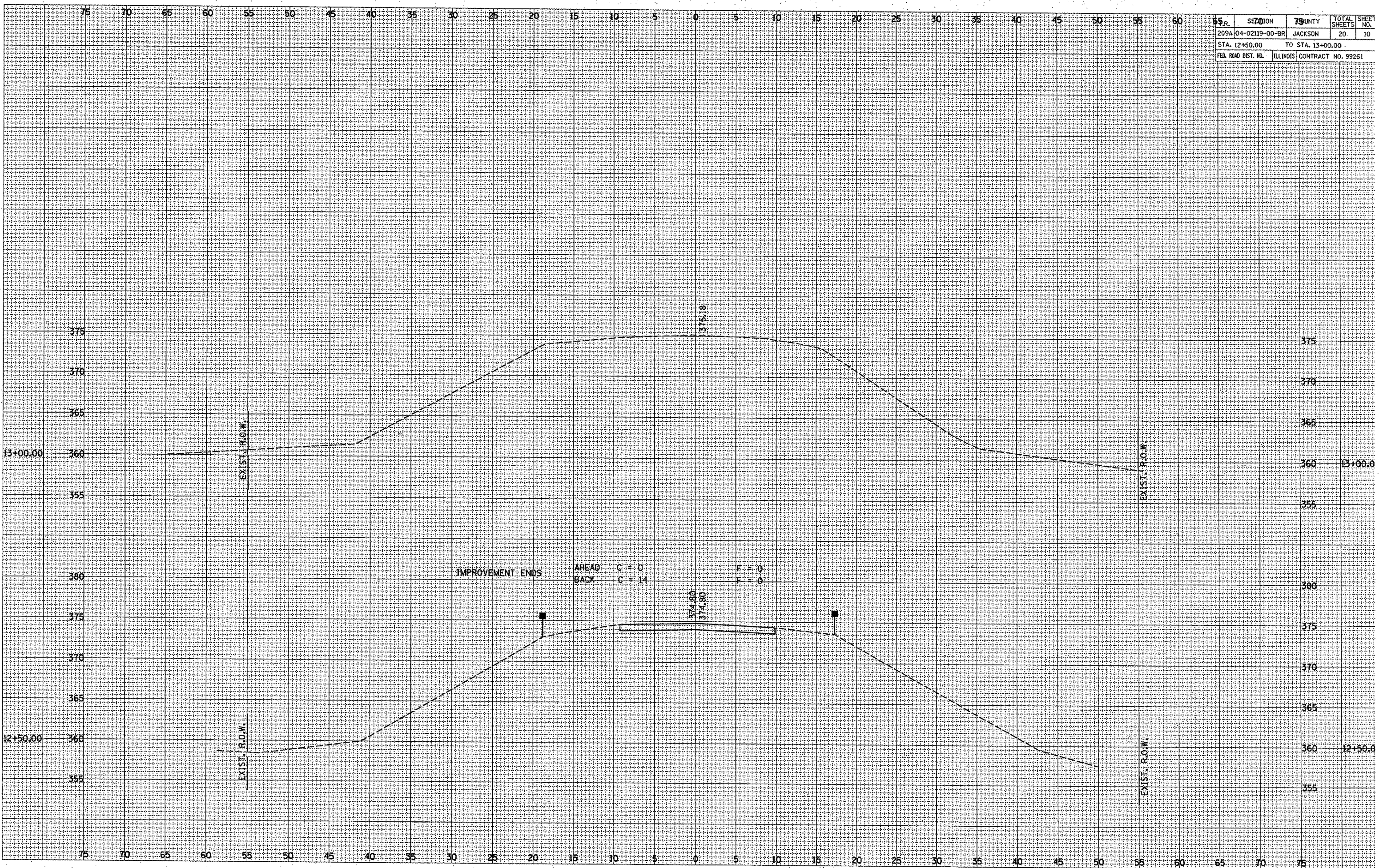




DATE	
BY	
FINAL SURVEY	
SURVEY PLOTTED	
NOTE BOOK	
AREAS CHECKED	
NO.	

DATE	
BY	
ORIGINAL SURVEY	
SURVEY PLOTTED	
NOTE BOOK	
AREAS CHECKED	
NO.	

SECTION	75	TOTAL SHEETS	20	SHEET NO.	10
STATION	209A 04-02119-00-BR	COUNTY	JACKSON		
STA. 12+50.00	TO STA. 13+00.00				
FED. ROAD DIST. NO.	ILLINOIS	CONTRACT NO.	99261		





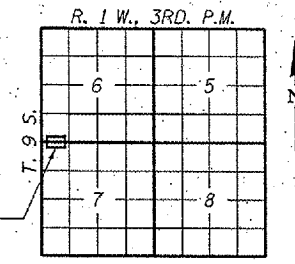
ROUTE NO.	SECTION	COUNTY	SHEET	TOTAL SHEETS
T.R. 209A	04-02119-00-BR	JACKSON	20	11
FED. ROAD DIST. NO.		ILLINOIS	PROJECT: BROS-077(4)	
CONTRACT NO. 99261				

**GENERAL NOTES**

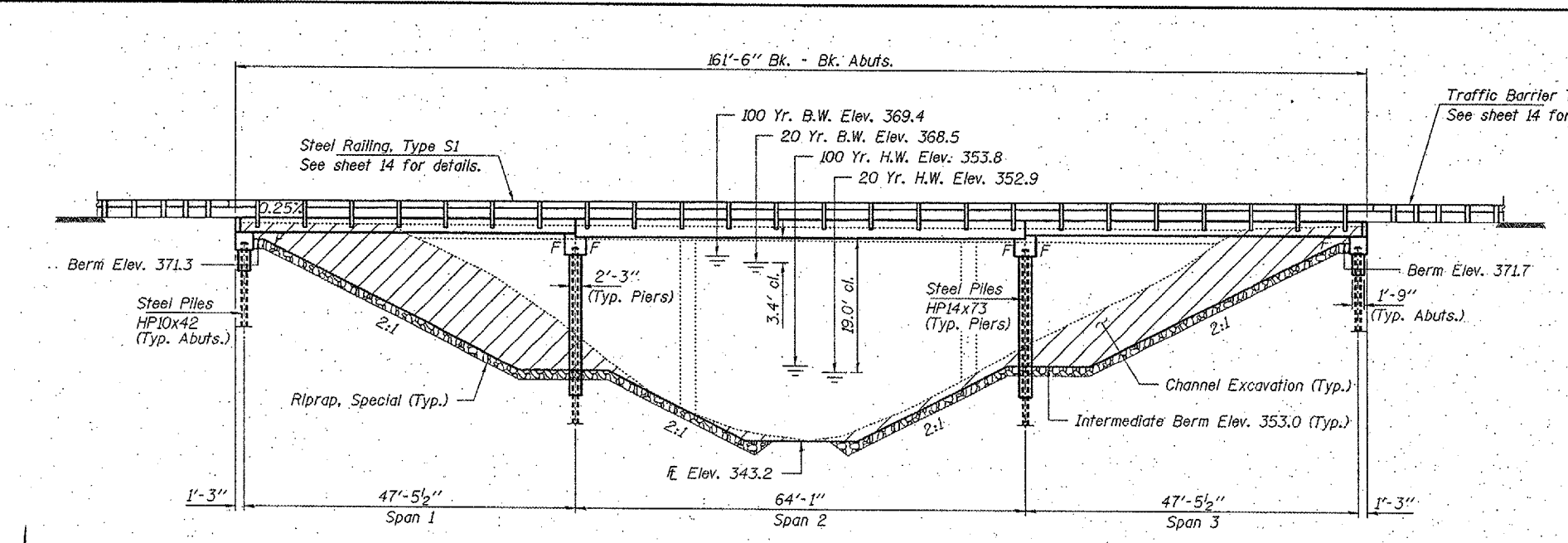
Layout of riprap may be varied in the field to suit ground conditions as directed by the Engineer. The Contractor shall drive two steel test piles in a permanent location at the West Abutment & Pier 2, as directed by the Engineer before ordering the remainder of the piles. Excavation required to construct the Abutments shall be considered incidental to Concrete Structures. No additional compensation will be allowed for Structure Excavation. All proposed construction activity shall be in accordance with Nationwide Permit number 14 of the Department of the Army authorized under Section 404 of the Clean Water Act. The IEPA has issued Section 401 Water Quality Certification for this activity. See Special Provisions for conditions. In addition to all other requirements of section 512 of the standard specifications, splices for Steel HP10x42 and HP14x73 Piles shall develop the full capacity of the steel's cross sectional area of the pile for tension, shear and bending forces. One approved method of achieving this requirement is full penetration butt welding of the entire cross section. Other types of splices meeting the full capacity requirement may be allowed subject to the approval of the Engineer. Any proposal by the contractor to use alternate splice method must include adequate documentation demonstrating that the full tension, shear and bending capacities will be met. Appropriate welder qualifications will be required for the positions and processes used in splicing all piles. Nondestructive testing of completed welds will be limited to visual inspection. See sheets 19 & 20 for Borings.

SUGAR CREEK  
BUILT 200\_ BY  
CARBONDALE ROAD DISTRICT  
JACKSON COUNTY  
SEC. 04-02119-00-BR  
F.A. PROJ. BROS-077(4)  
LOADING HS 20 / STR. NO. 039-3255

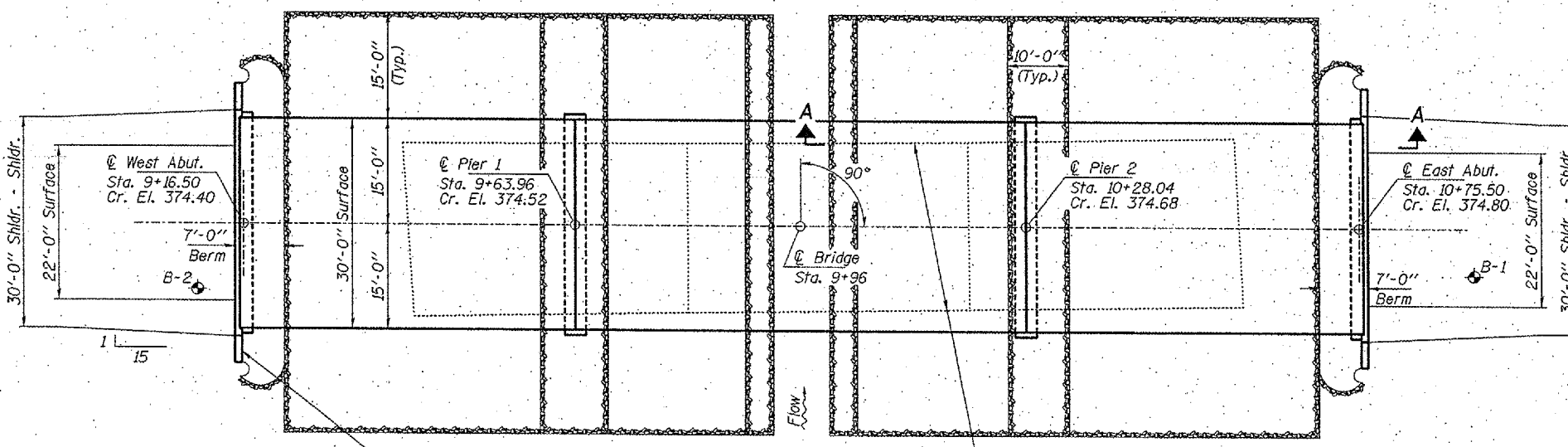
**NAME PLATE**  
See Std. 515001



**LOCATION SKETCH**



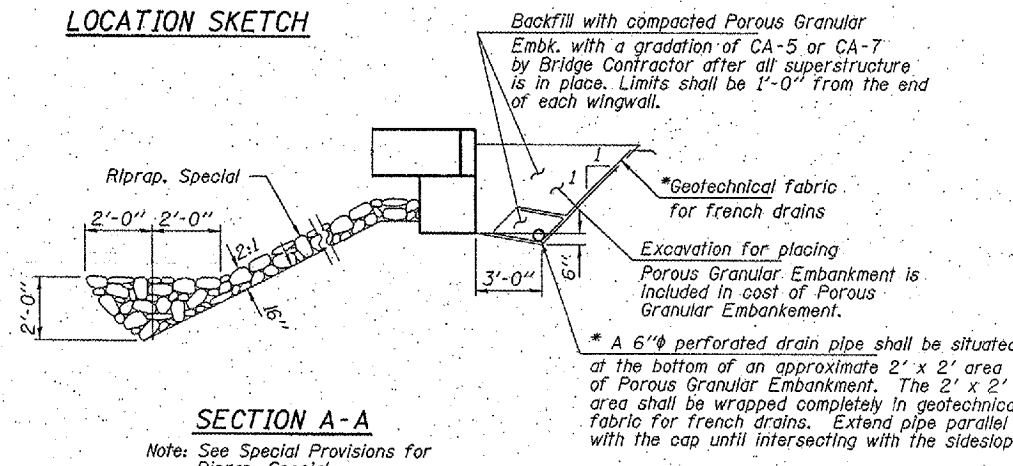
**ELEVATION**



**PLAN**

Name Plate  
See sheet 15 for location.

Limits of Existing Structure



**SECTION A-A**

Note: See Special Provisions for Riprap, Special.

\* Cost included with unit price for Porous Granular Embankment.

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	SUPER	SUB	TOTAL
Concrete Structures	Cu. Yd.		40.8	40.8
Precast Prestressed Concrete Deck Beams (21" Depth)	Sq. Ft.	2,880		2,880
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq. Ft.	1,920		1,920
Stud Shear Connectors	Each		60	60
Reinforcement Bars	Pound		5,400	5,400
Steel Railing, Type S1	Foot	327		327
Steel Piles HP10x42	Foot		630	630
Steel Piles HP14x73	Foot		630	630
Test Pile Steel HP10x42	Each		1	1
Test Pile Steel HP14x73	Each		1	1
Concrete Encasement	Cu. Yd.		31.4	31.4
Name Plates	Each		1	1
Porous Granular Embankment	Ton			90
Riprap, Special	Ton			850

**DESIGN STRESSES**

**FIELD UNITS**

$f'_c = 3,500$  psi  
 $f_y = 60,000$  psi (Reinf.)

**PRECAST PRESTRESSED UNITS**

$f'_c = 5,000$  psi  
 $f'_ci = 4,000$  psi  
 $f'_s = 270,000$  psi ( $1/2$ " low lax. strands)  
 $f'_si = 201,960$  psi ( $1/2$ " low lax. strands)  
 $f_y = 60,000$  psi (Reinf.)

Loading HS 20-44  
Design Specifications: 2002 AASHTO & all applicable Interims.  
25#/Sq. Ft. included in dead load for future wearing surface.

**SEISMIC DATA**

Seismic Performance Category (SPC) = B  
Bedrock Acceleration Coefficient (A) = 0.13g  
Site Coefficient (S) = 1.5

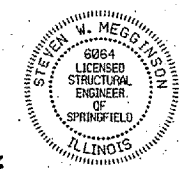
**WATERWAY INFORMATION**

Drainage Area = 4.6 Sq. Mi. Low Grade Elev. 372.0 @ Sta. 9+96

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Prop.	Natural H.W.E. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Prop.
Design	20	1,350	300	340	352.9	0.2	0.0	353.1
Base	100	1,930	350	410	353.8	0.5	0.2	354.3
Overtopping								
Max. Calc.	500	2,480	390	460	354.5	0.7	0.3	355.2

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

Steven Megginis 5/1/06  
ILLINOIS STRUCTURAL NO. 6064



Expires 11-30-06

**HAMPTON, LENZINI & RENWICK, INC.**  
CIVIL & STRUCTURAL ENGINEERS

3085 STEVENSON DRIVE, SUITE 201  
SPRINGFIELD, ILLINOIS 62703  
(217) 546-3400

ELGIN • SPRINGFIELD

PROJECT NUMBER: 12-47-0017-1 DATE: 05/15/06  
DESIGNED: S.M.S. CHECKED: S.W.M. DRAWN: D.T.M.

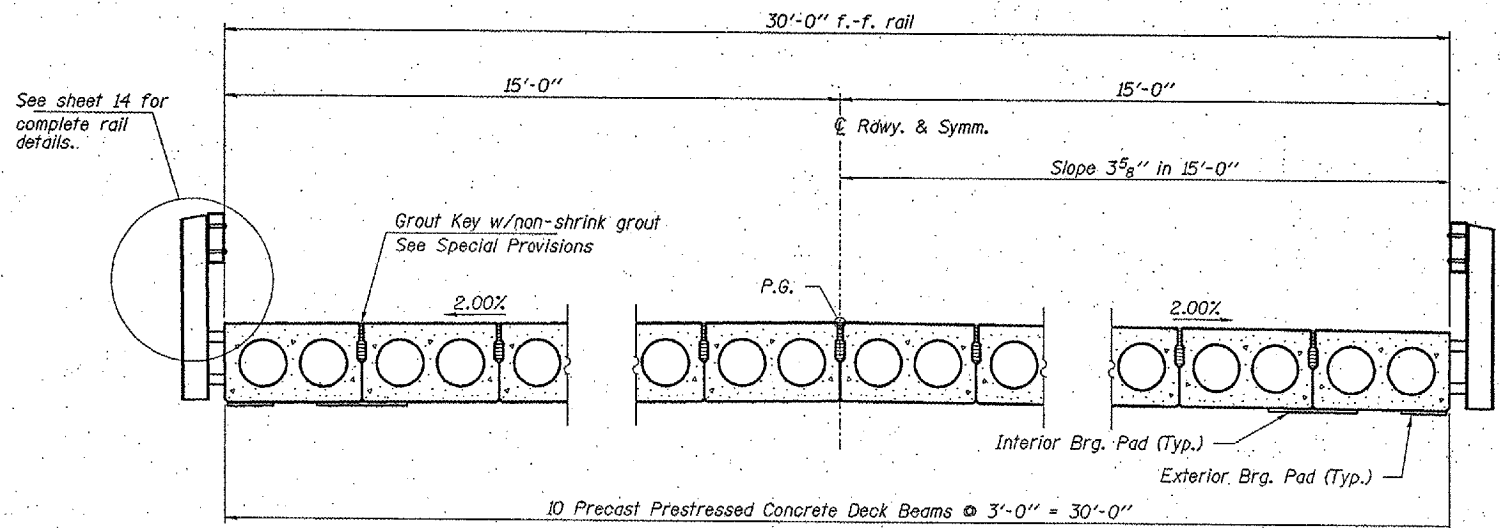
**GENERAL PLAN AND ELEVATION**

SECTION 04-02119-00-BR  
CARBONDALE ROAD DISTRICT  
JACKSON COUNTY  
STATION 9+96 / STRUCTURE NO. 039-3255

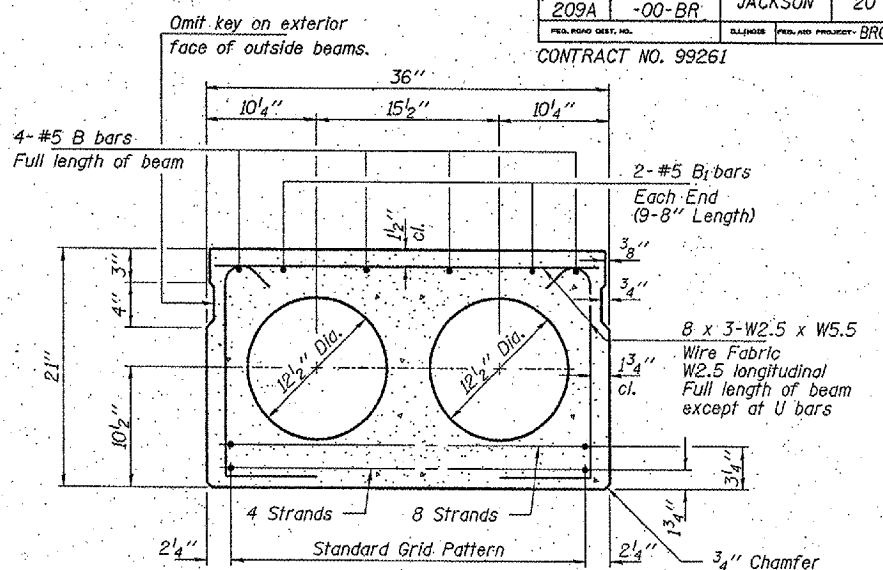


ROUTE NO.	SECTION	COUNTY	SHEETS	SHEET NO.
T.R. 209A	04-02119-00-BR	JACKSON	20	12
FED. ROAD DIST. NO.	ILLINOIS (FED. AID PROJECT) BR05-077(41)			

CONTRACT NO. 99261

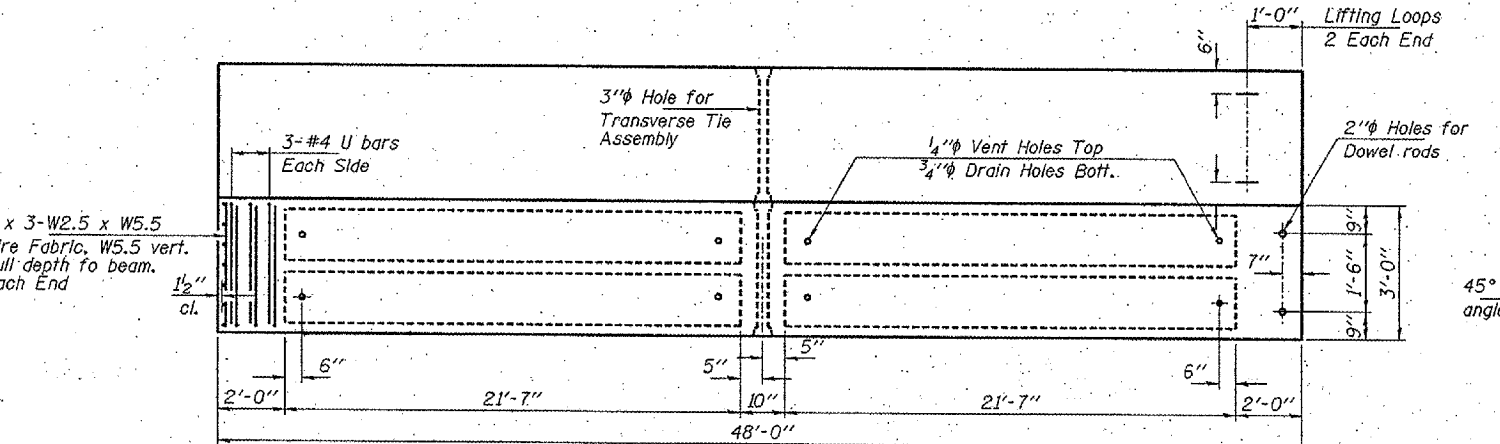


**CROSS SECTION**

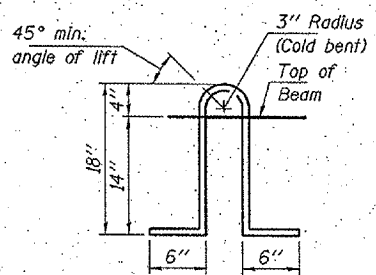


**TYPICAL SECTION**

12-1/2"  $\phi$  Strands, Each Strand Stressed to 30,900 Lbs.  
4-Strands 1 3/4" up, 8-Strands 3/4" up  
Note: Place strands symmetrically about  $\phi$  of beam.



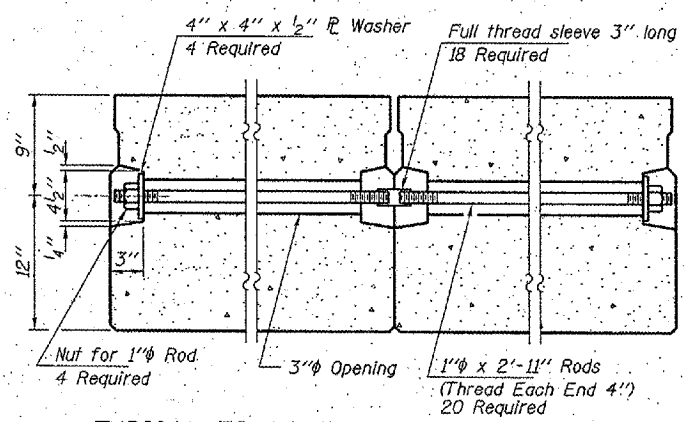
**PLAN**



**LIFTING LOOP DETAIL**

Approved alternate may be substituted for the above.

Note: The loop shall be formed in a manner such that all strands are engaged during lifting. Loops shall be cut off after beams have been erected.



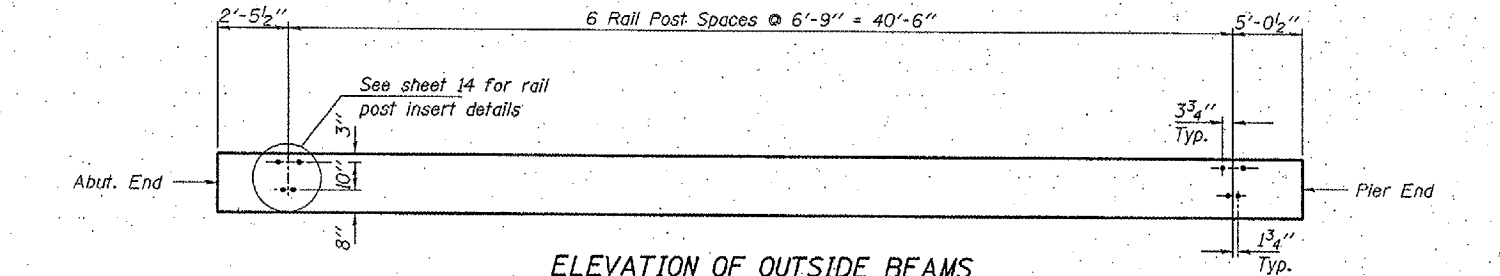
**TYPICAL TRANSVERSE TIE ASSEMBLY**

**NOTES**

Prestressing steel shall be uncoated high strength, low-relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. Lifting loops shall be 2'-2"  $\phi$  270 ksi strands, as shown. The 1"  $\phi$  rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets that receive transverse tie bar on outside shall be filled with grout after transverse tie assembly is in place. Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-322 Grade 60. The bearing seat surfaces shall be adjusted by shimming to assure firm and even bearing. Two 3/8" fabric adjusting shims of the dimensions of the Exterior Bearing Pad shall be provided for each bearing. 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 top of the beam and the bottom edge of the key. Required Release Strength, f'ci, shall be 4,000 p.s.i. A Calcium Nitrite Corrosion Inhibitor, as covered in the Special Provisions, shall be used in the concrete for precast prestressed concrete deck beams.

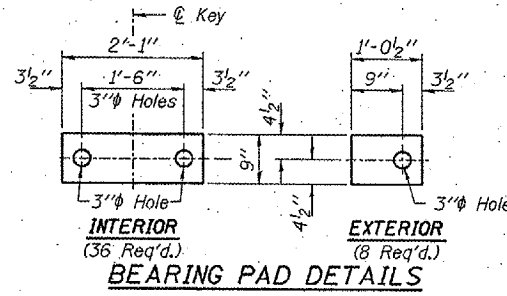
**BILL OF MATERIAL**

ITEM	UNIT	QUANTITY
Precast Prestressed Concrete Deck Beams (21" Depth)	Sq. Ft.	2,880

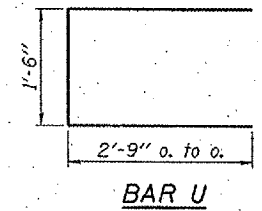


**ELEVATION OF OUTSIDE BEAMS**

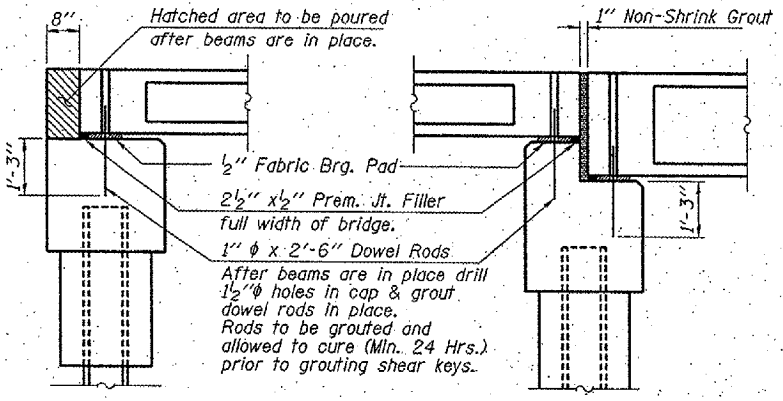
Showing Rail Post Spacing



**BEARING PAD DETAILS**



**BAR U**



**SECTION AT ABUTMENTS**

**SECTION AT PIERS**

**HAMPTON, LENZINI & RENWICK, INC.**  
CIVIL & STRUCTURAL ENGINEERS

3085 STEVENSON DRIVE, SUITE 201  
SPRINGFIELD, ILLINOIS 62703  
(217) 546-3400

ELGIN • SPRINGFIELD

PROJECT NUMBER: 12-47-0017-1 DATE: 06/15/06  
DESIGNED: S.M.S. CHECKED: S.W.M. DRAWN: D.T.M.

**SUPERSTRUCTURE SPAN 1 & 3**

SECTION 04-02119-00-BR

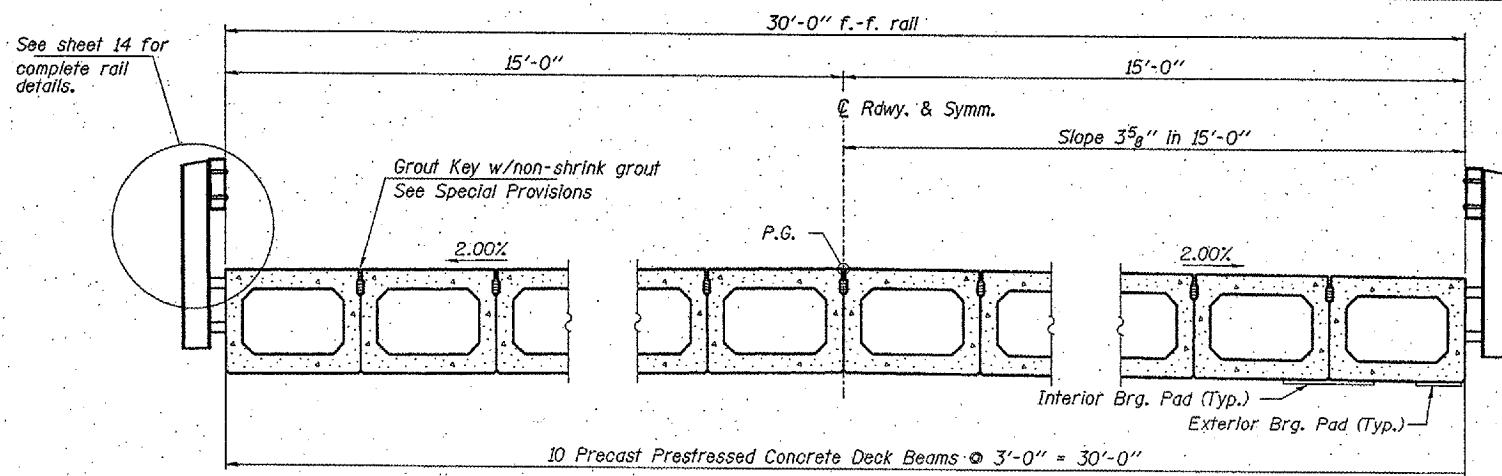
CARBONDALE ROAD DISTRICT

JACKSON COUNTY

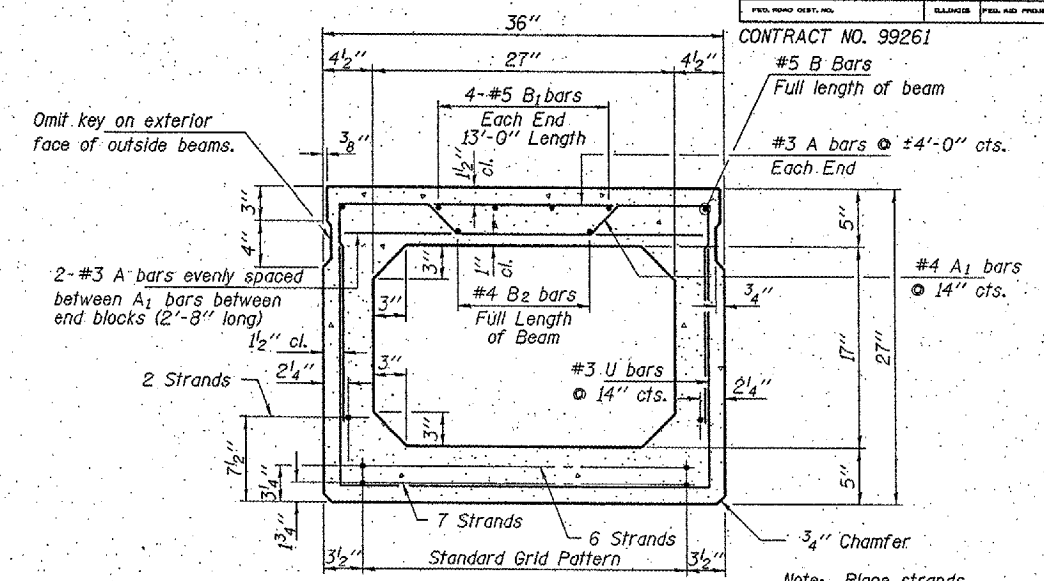
STATION 9+96 / STRUCTURE NO. 039-3255



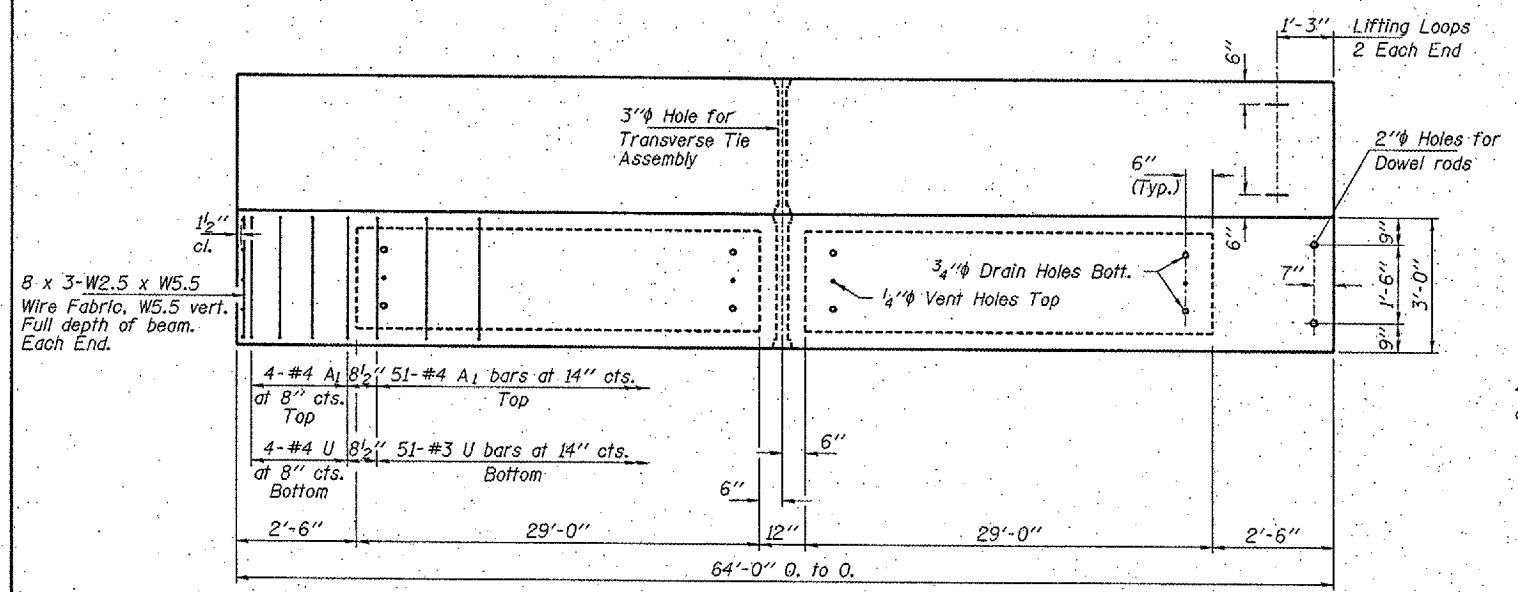
ROUTE NO.	SECTION	COUNTY	DATE	SHEET
T.R. 209A	04-02119-00-BR	JACKSON	20	13
PROJECT NO.	CONTRACT NO. 99261			
DESIGNED BY	PREPARED BY BR05-077(4)			



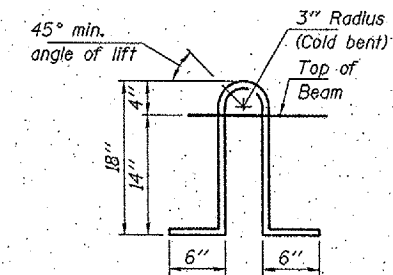
**CROSS SECTION**



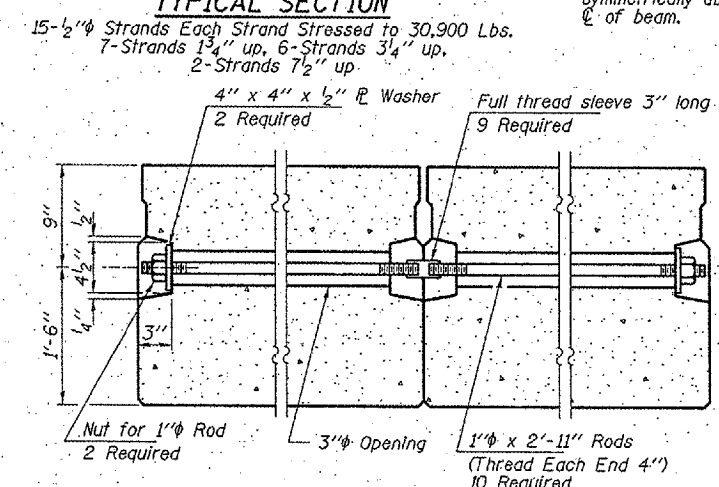
**TYPICAL SECTION**



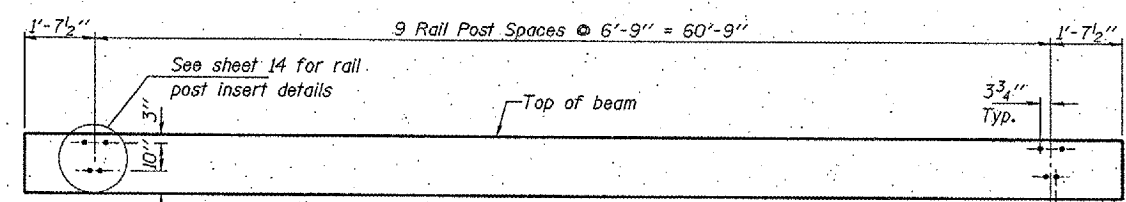
**PLAN**



**LIFTING LOOP DETAIL**

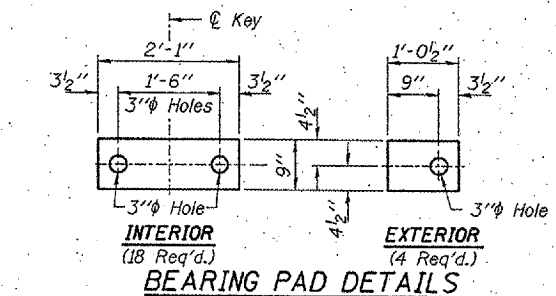


**TYPICAL TRANSVERSE TIE ASSEMBLY**

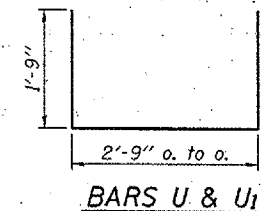


**ELEVATION OF OUTSIDE BEAMS**

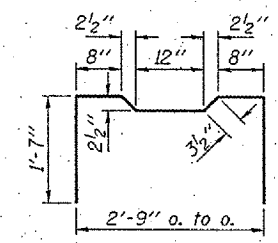
Showing Rail Post Spacing



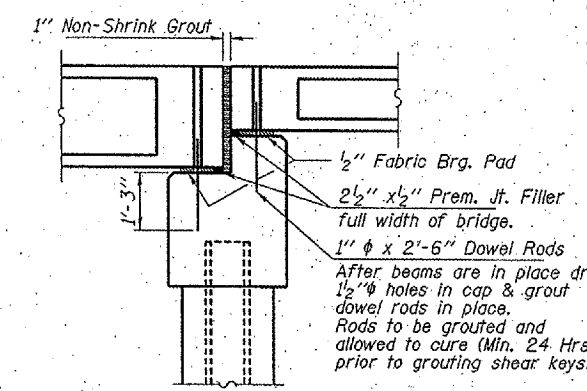
**BEARING PAD DETAILS**



**BARS U & U1**



**BAR A1**



**SECTION AT PIERS**

© Rt. L's

**NOTES**

Prestressing steel shall be uncoated high strength, low-relaxation 7-wire strand, Grade 270. The nominal diameter shall be 5/8" and the nominal cross-sectional area shall be 0.153 sq. in. Lifting loops shall be 2-1/2" φ-270 ksi strands, as shown. 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 on outside shall be filled with grout after transverse tie assembly is in place. Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-322 Grade 60. The bearing seat surfaces shall be adjusted by shimming to assure firm and even bearing. Two 1/2" fabric adjusting shims of the dimensions of the Exterior Bearing Pad shall be provided for each bearing. 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 top of the beam and the bottom edge of the key. Required Release Strength, f'cl, shall be 4,000 p.s.i. A Calcium-Nitrite Corrosion Inhibitor, as covered in the Special Provisions, shall be used in the concrete for precast prestressed concrete deck beams.

**BILL OF MATERIAL**

ITEM	UNIT	QUANTITY
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq. Ft.	1,920

**HAMPTON, LENZINI & RENWICK, INC.**  
 CIVIL & STRUCTURAL ENGINEERS  
 3085 STEVENSON DRIVE, SUITE 201  
 SPRINGFIELD, ILLINOIS 62703  
 (217) 546-3400

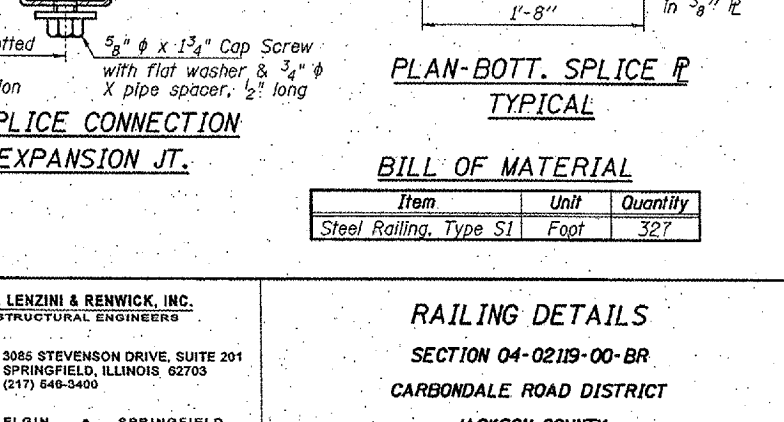
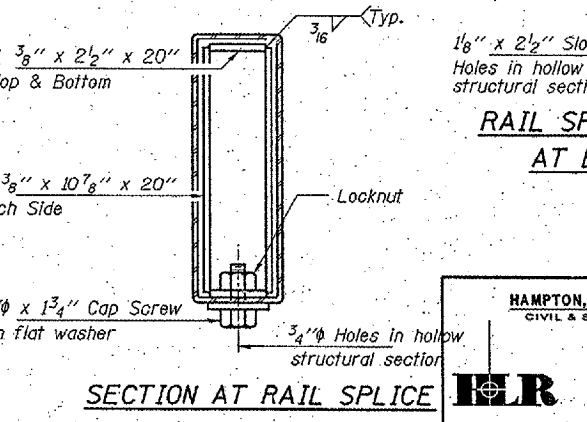
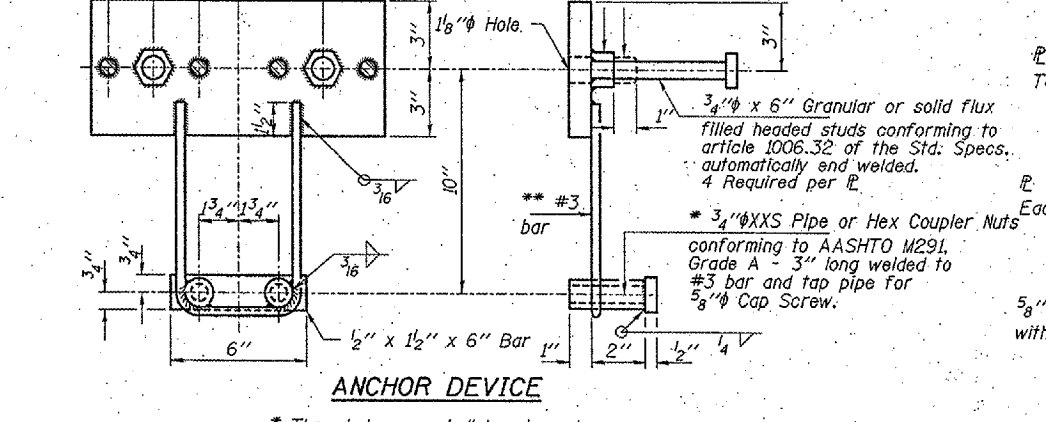
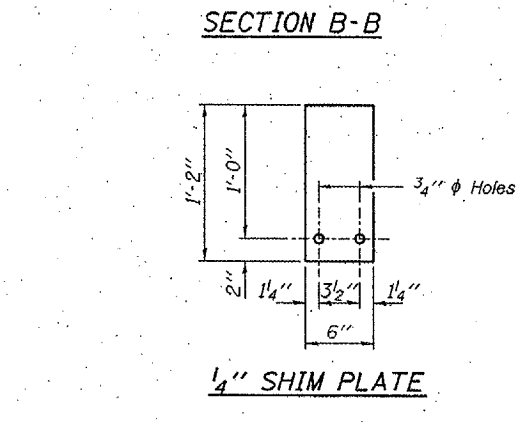
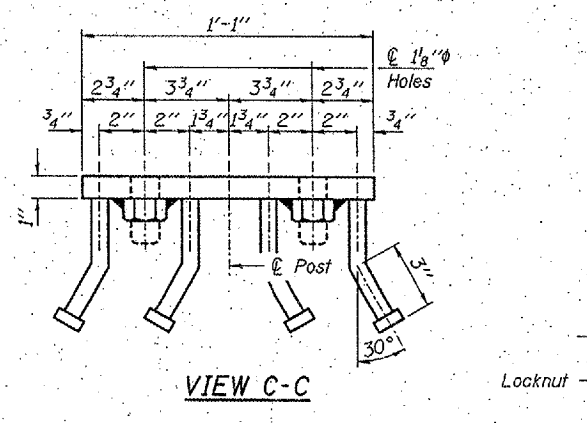
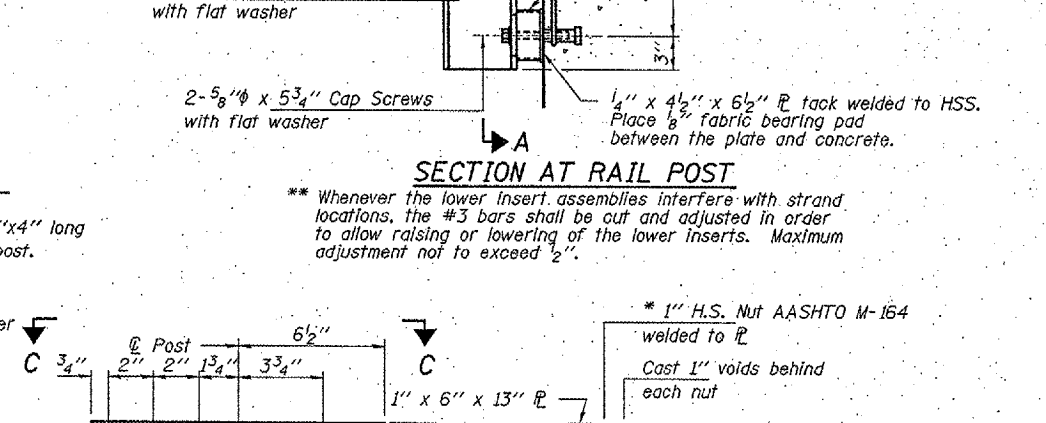
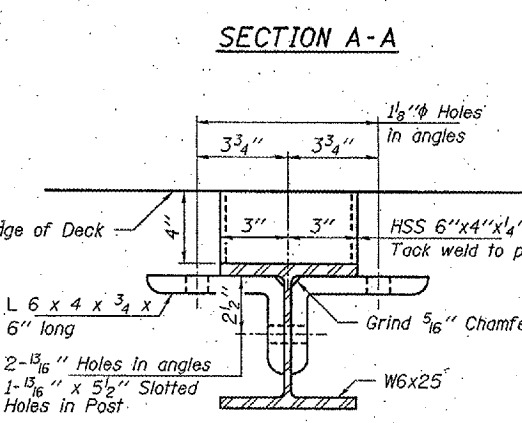
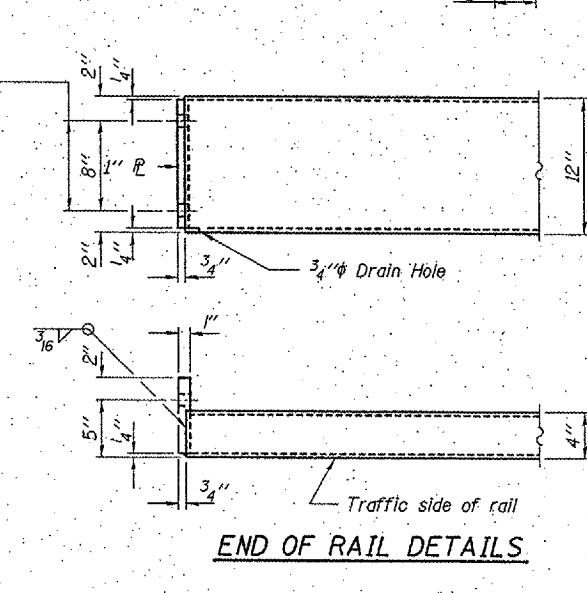
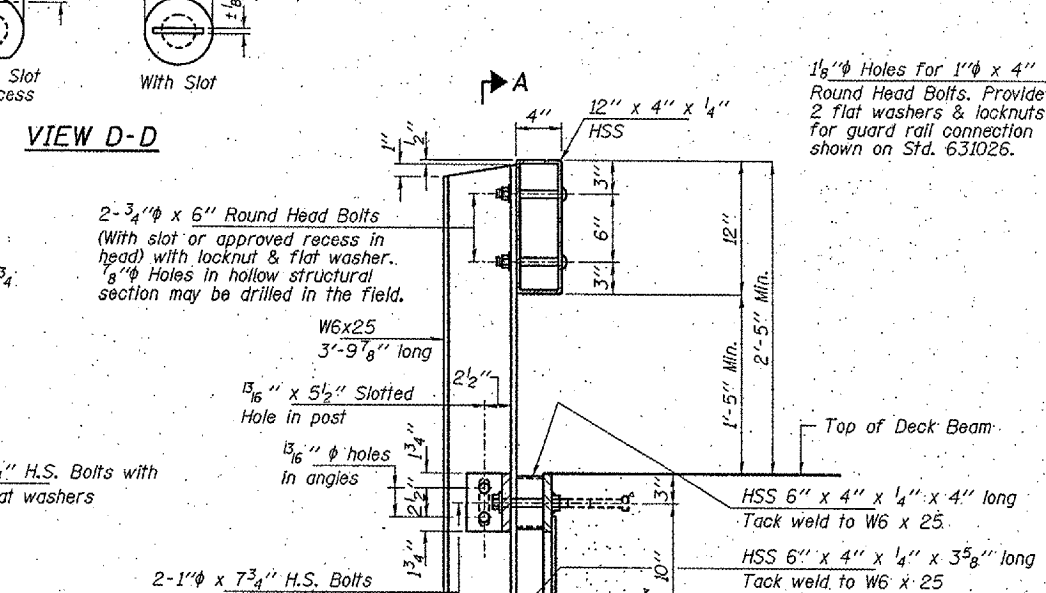
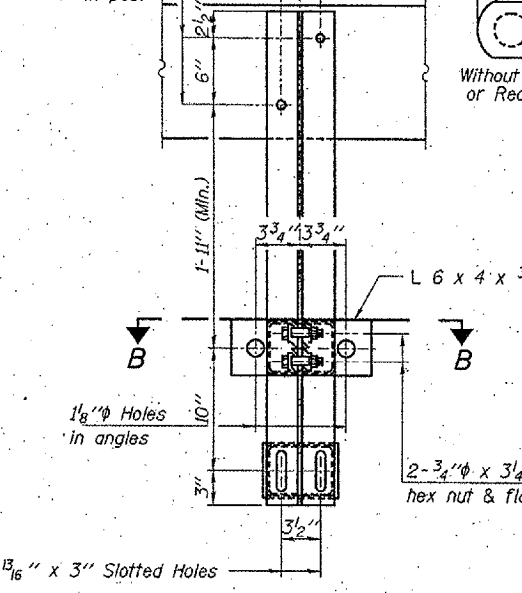
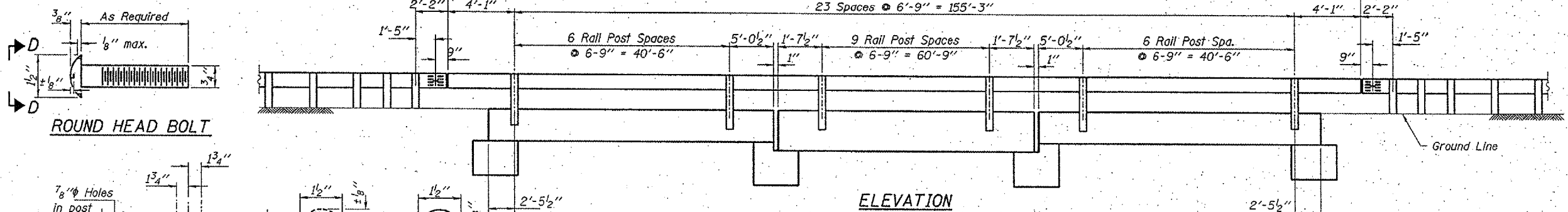
**ELGIN • SPRINGFIELD**

PROJECT NUMBER: 12-47-0017-1 DATE: 05/15/06  
 DESIGNED: S.M.S. CHECKED: S.W.M. DRAWN: D.T.M.

**SUPERSTRUCTURE SPAN 2**  
 SECTION 04-02119-00-BR  
 CARBONDALE ROAD DISTRICT  
 JACKSON COUNTY  
 STATION 9+96 / STRUCTURE NO. 039-3255



ROUTE NO.	SECTION	COUNTY	SHEET	TOTAL SHEETS
T.R. 209A	04-02119-00-BR	JACKSON	20	14
FED. ROAD DIST. NO.		BLANKED	FED. ROAD PROJECT - BR05-077(4D)	
CONTRACT NO. 99261				



**NOTES**

Hollow structural sections shall conform to the requirements of A.S.T.M. 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 A.A.S.H.T.O. designation M-270 Grade 36 except posts and angles shall conform to A.A.S.H.T.O. M-270 Grade 50.

Bolts, cap screws, and nuts shall conform to the requirements of A.S.T.M. designation A-307 except for high strength bolts, nuts and washers noted which shall conform to A.A.S.H.T.O. designation M-164.

All bolts, nuts, cap screws, washers and lockwashers shall be galvanized in accordance with A.A.S.H.T.O. designation M-232.

All posts, railing, rail splices, anchor devices and angles shall be galvanized after shop fabrication in accordance with A.S.T.M. A-385 and A.A.S.H.T.O. M-111. Galvanized rail shall not be painted.

Railing shall be in accordance with Section 509 of the Standard Specifications, except as noted, and shall be paid for at the contract unit price per foot for STEEL RAILING, TYPE SL.

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

The 3/4" φ high strength bolts used to connect the 6 x 4 x 3/4 angles to the post shall be tightened in accordance with Art. 505.04(F)(2) of the Standard Specifications. The 1" φ high strength bolts connecting the angles to the concrete shall be tightened to a snug fit and given an additional 1/2 turn. The 5/8" φ cap screws in bottom of posts shall be tightened to a snug fit only.

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 SL.

**BILL OF MATERIAL**

Item	Unit	Quantity
Steel Railing, Type SL	Foot	327

**RAILING DETAILS**

SECTION 04-02119-00-BR

CARBONDALE ROAD DISTRICT

JACKSON COUNTY

STATION 9+96 / STRUCTURE NO. 039-3255

**HAMPTON, LENZINI & RENWICK, INC.**  
CIVIL & STRUCTURAL ENGINEERS

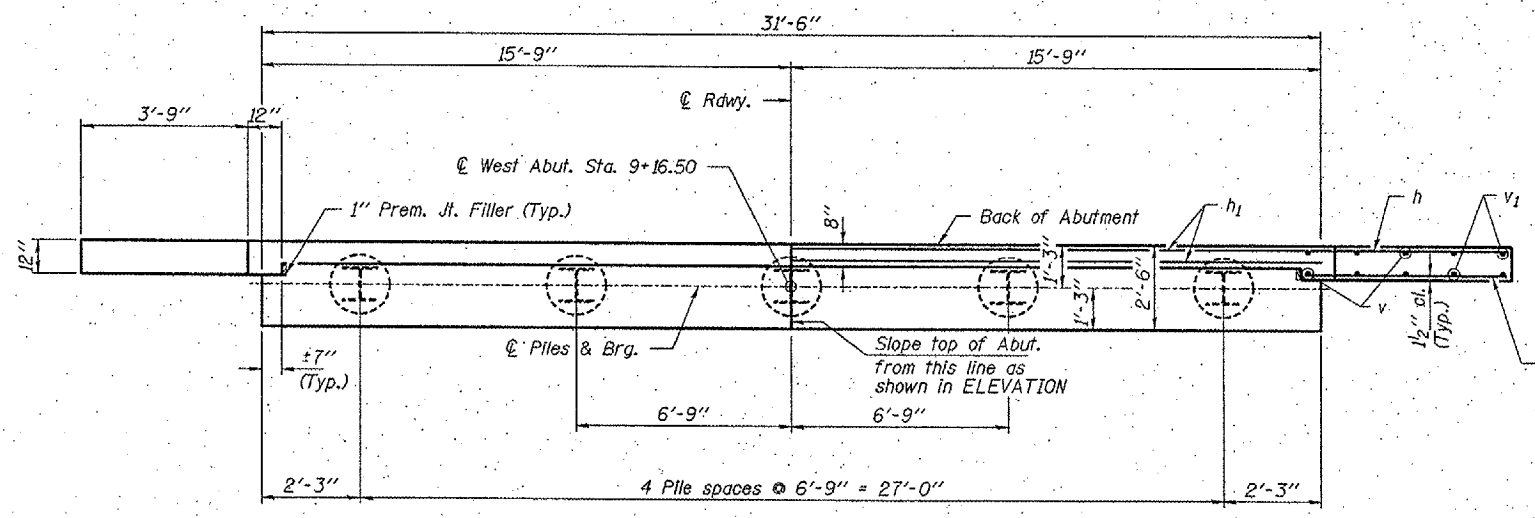
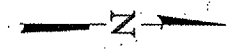
3085 STEVENSON DRIVE, SUITE 201  
SPRINGFIELD, ILLINOIS 62703  
(217) 646-3400

**ELGIN • SPRINGFIELD**

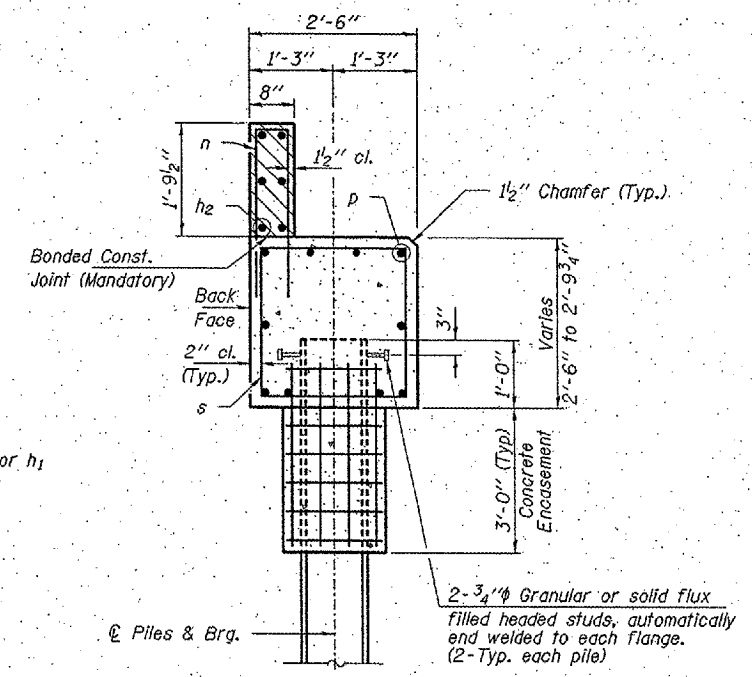
PROJECT NUMBER: 12-47-0017-1 DATE: 05/15/06  
DESIGNED: S.M.S. CHECKED: S.W.M. DRAWN: D.T.M.

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



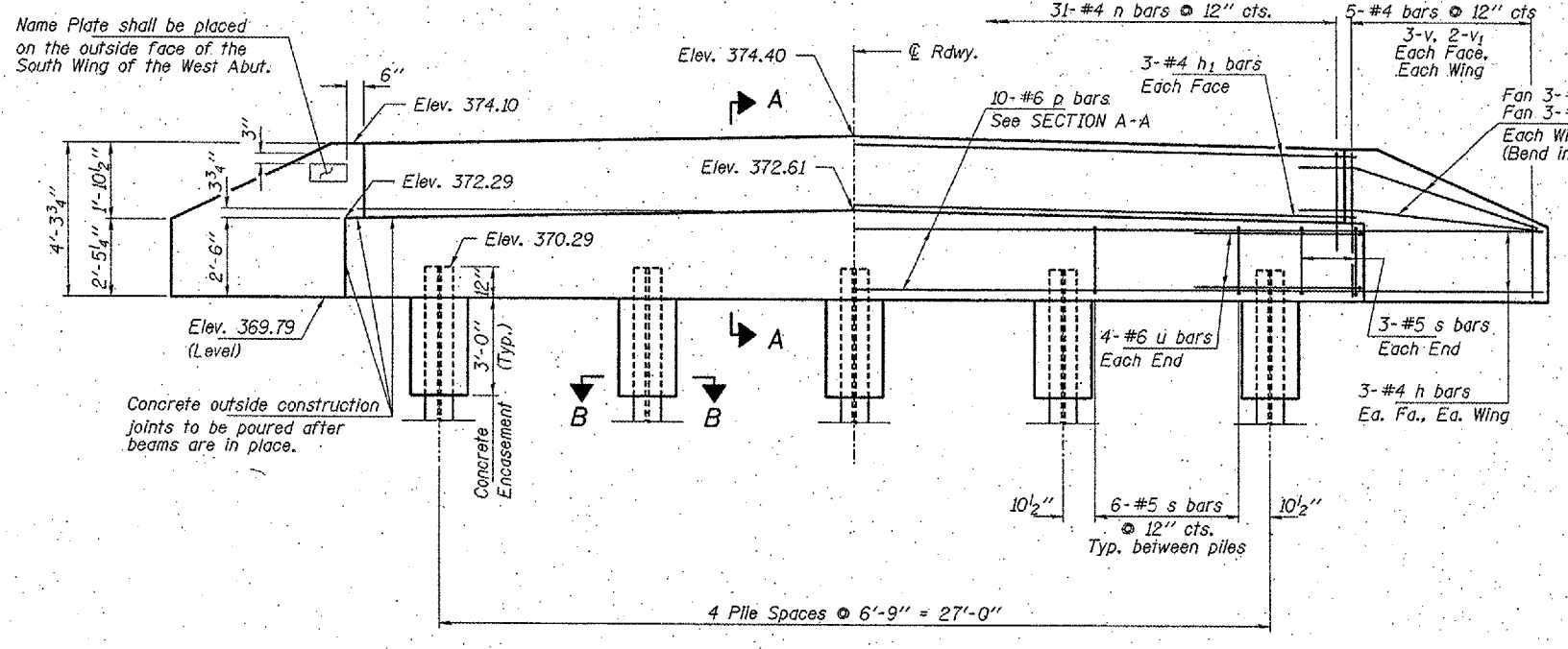
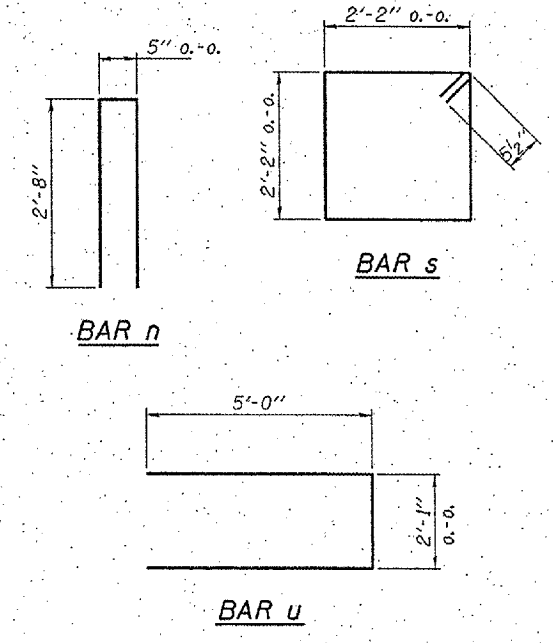


**PLAN**

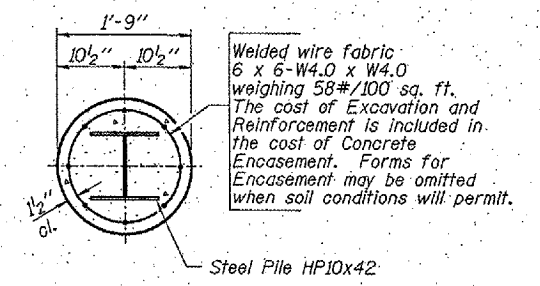


**SECTION A-A**

Hatched area to be poured after beams are in place.



**ELEVATION**  
(Looking West)



**SECTION B-B**

**BILL OF MATERIAL - W. ABUT.**

BAR	NO.	SIZE	LENGTH	SHAPE
h	18	#4	5'-6"	—
h1	6	#4	3'-2"	—
h2	6	#4	4'-6"	—
n	31	#4	5'-9"	□
p	10	#6	3'-2"	—
s	30	#5	9'-7"	□
u	8	#6	12'-1"	—
v	12	#4	3'-6"	—
v1	8	#4	2'-6"	—
Concrete Structures			Cu. Yd.	10.2
Stud Shear Connectors			Each	10
Reinforcement Bars			Pound	1,280
Name Plates			Each	1
Steel Piles HP10x42			Foot	280
Test Pile Steel HP10x42			Each	1
Concrete Encasement			Cu. Yd.	1.3

**PILE DATA**

Type.....Steel HP 10x42  
 No. Req'd.....5\*  
 Capacity.....Drive to Refusal  
 Est. Length.....70 Feet/Pile

\* Includes one Test Pile Steel HP10x42 to be driven in a permanent location at West Abutment.

**HAMPTON, LENZINI & RENWICK, INC.**  
 CIVIL & STRUCTURAL ENGINEERS

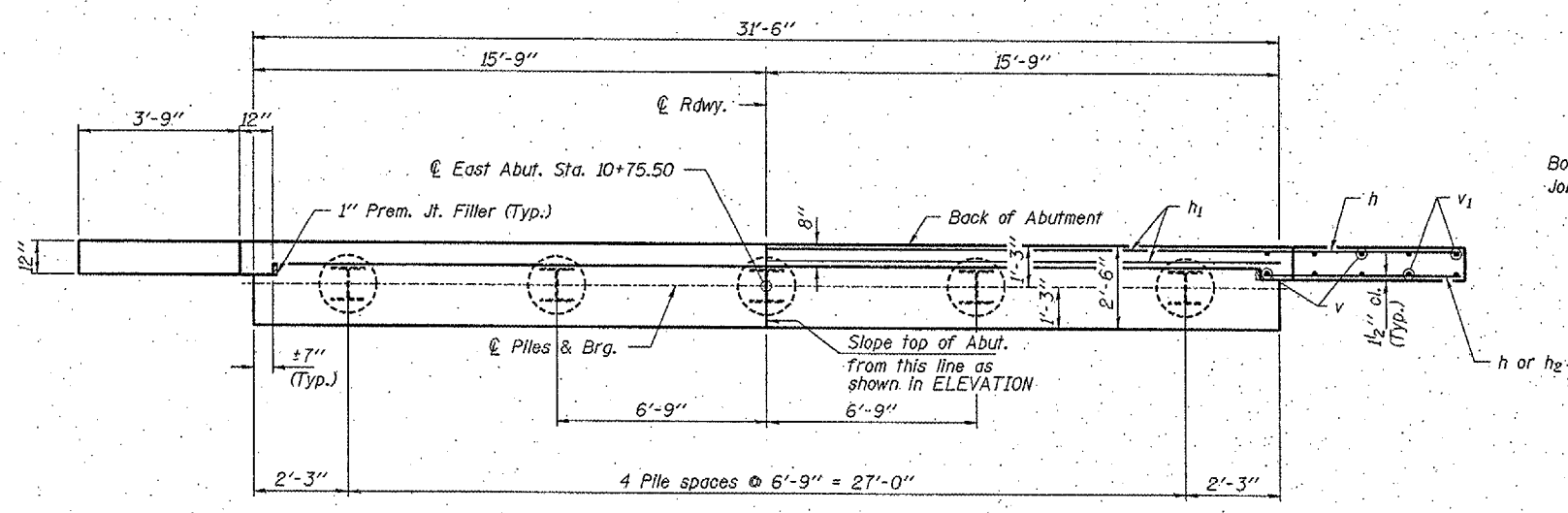
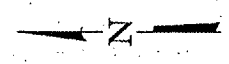
3085 STEVENSON DRIVE, SUITE 201  
 SPRINGFIELD, ILLINOIS 62703  
 (217) 548-3400

**ELGIN • SPRINGFIELD**

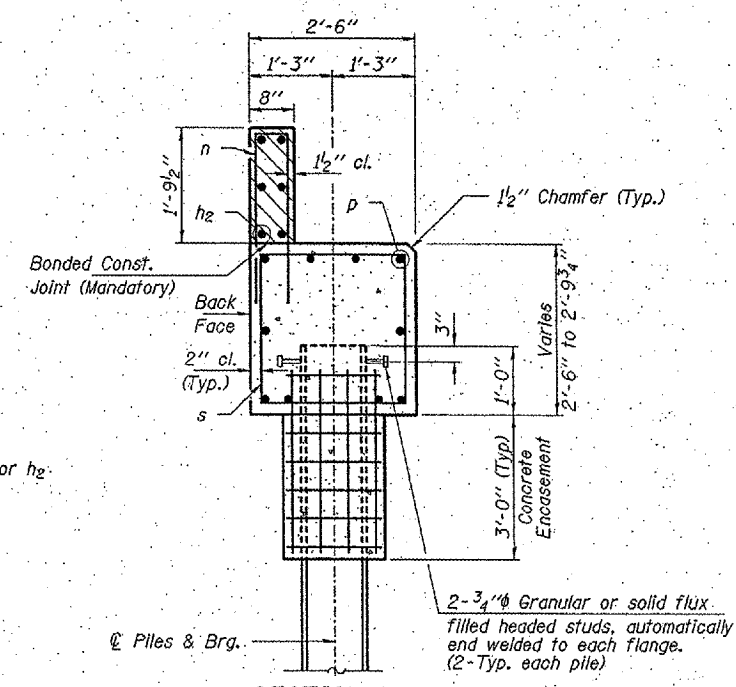
PROJECT NUMBER: 18-47-0017-1    DATE: 05/15/06  
 DESIGNED: S.M.S.    CHECKED: S.W.M.    DRAWN: D.T.M.

**WEST ABUTMENT**  
 SECTION 04-02119-00-BR  
 CARBONDALE ROAD DISTRICT  
 JACKSON COUNTY  
 STATION 9+96 / STRUCTURE NO. 039-3255



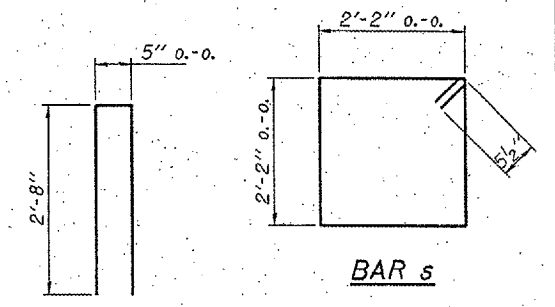


**PLAN**



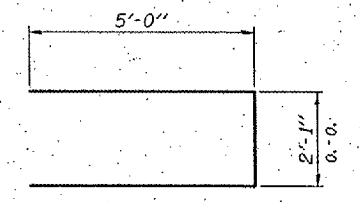
**SECTION A-A**

Hatched area to be poured after beams are in place.

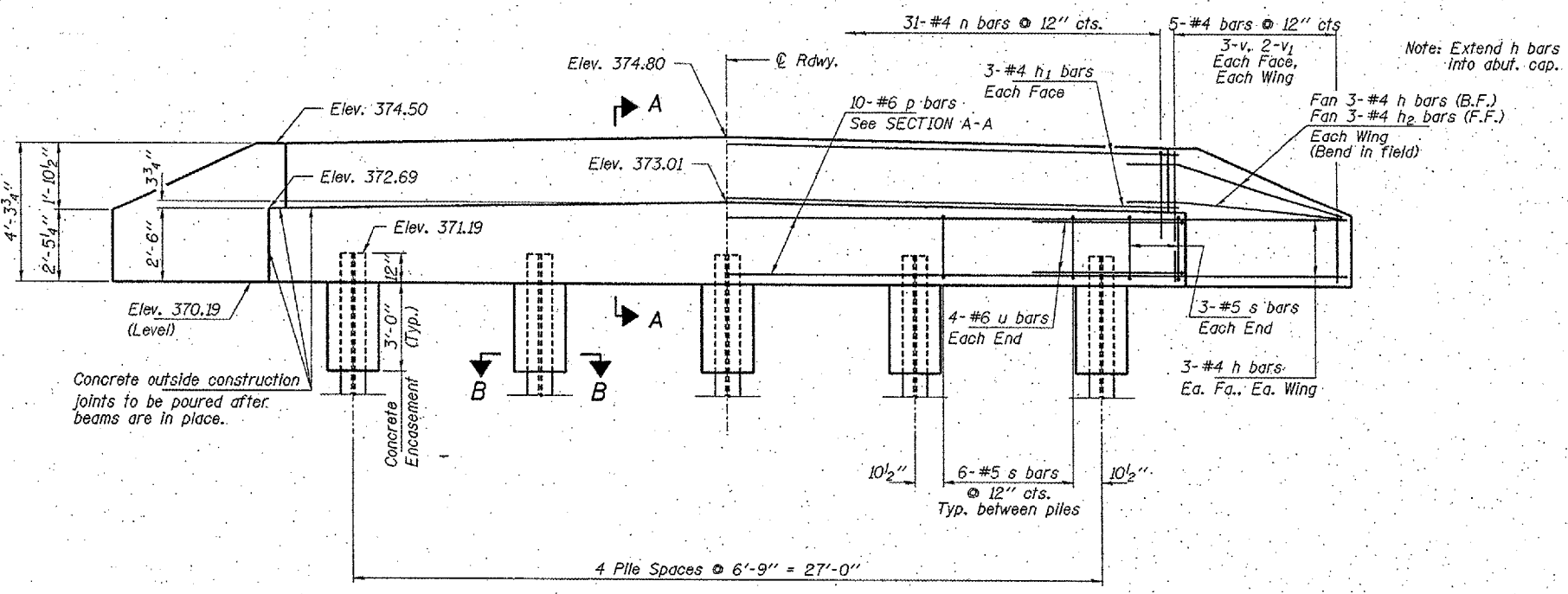


**BAR s**

**BAR n**



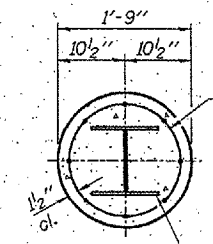
**BAR u**



**ELEVATION**  
(Looking East)

**PILE DATA**

Type.....Steel HP 10x42  
 No. Req'd.....5  
 Capacity.....Drive to Refusal  
 Est. Length.....70 Feet/Pile



**SECTION B-B**

Welded wire fabric 6 x 6-W4.0 x W4.0 weighing 58#/100 sq. ft. The cost of Excavation and Reinforcement is included in the cost of Concrete Encasement. Forms for Encasement may be omitted when soil conditions will permit.

Steel Pile HP10x42

**BILL OF MATERIAL - E. ABUT.**

BAR	NO.	SIZE	LENGTH	SHAPE
h	18	#4	5'-6"	—
h1	6	#4	31'-2"	—
h2	6	#4	4'-6"	—
n	31	#4	5'-9"	□
p	10	#6	31'-2"	—
s	30	#5	9'-7"	□
u	8	#6	12'-1"	—
v	12	#4	3'-6"	—
v1	8	#4	2'-6"	—
Concrete Structures			Cu. Yd.	10.2
Stud Shear Connectors			Each	10
Reinforcement Bars			Pound	1,280
Steel Piles HP 10x42			Foot	350
Concrete Encasement			Cu. Yd.	1.3

**HAMPTON, LENZINI & RENWICK, INC.**  
 CIVIL & STRUCTURAL ENGINEERS

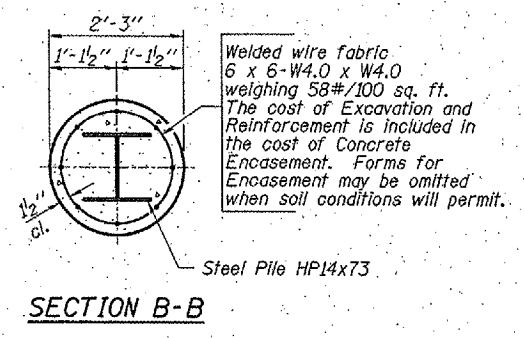
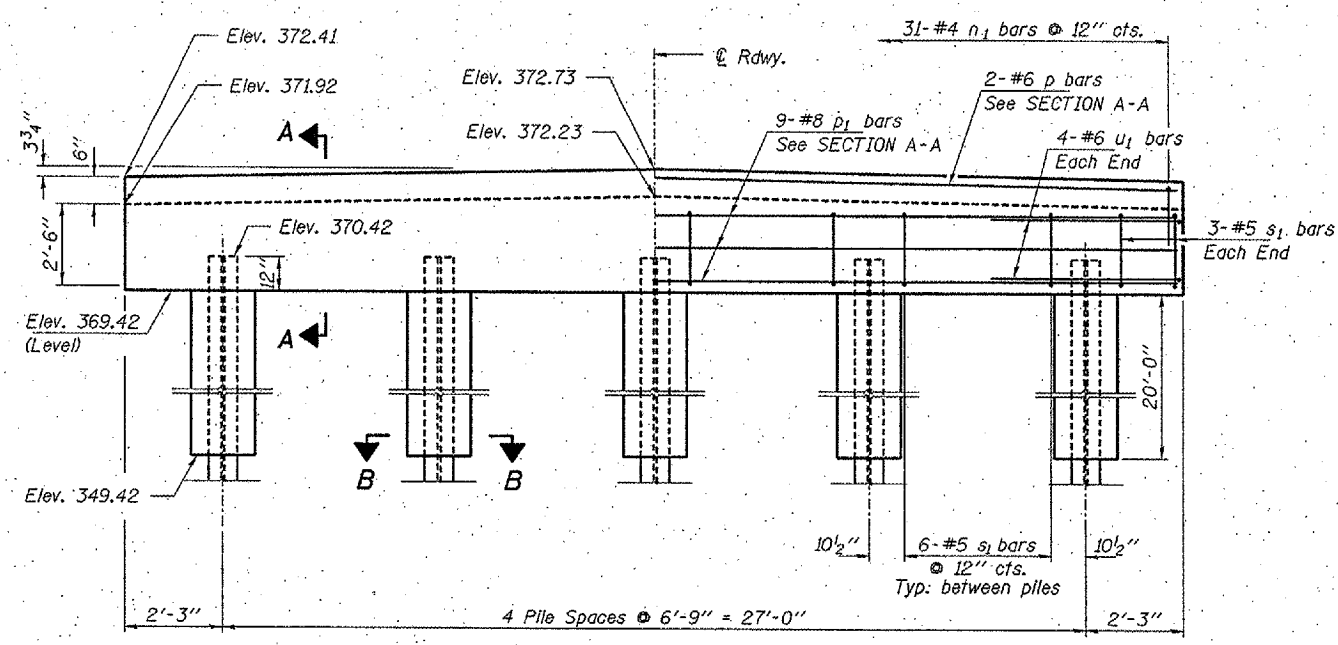
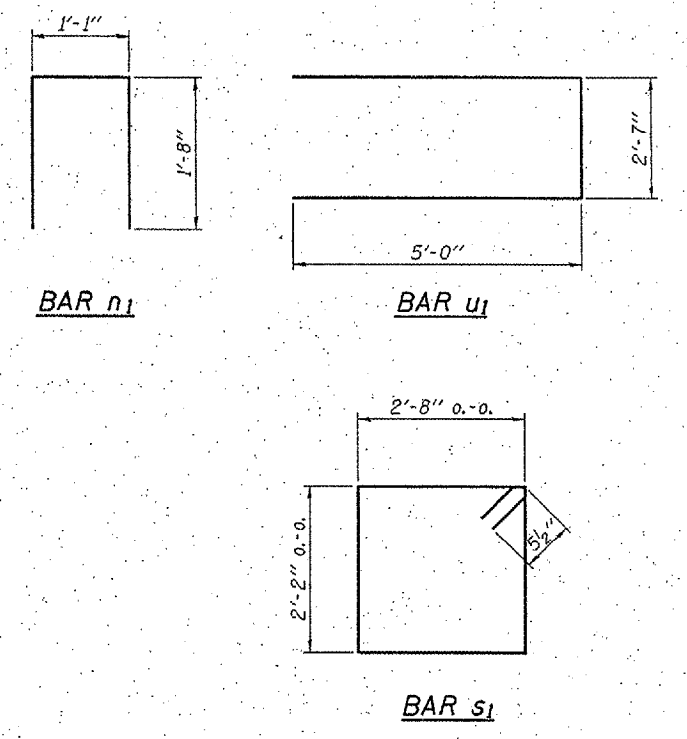
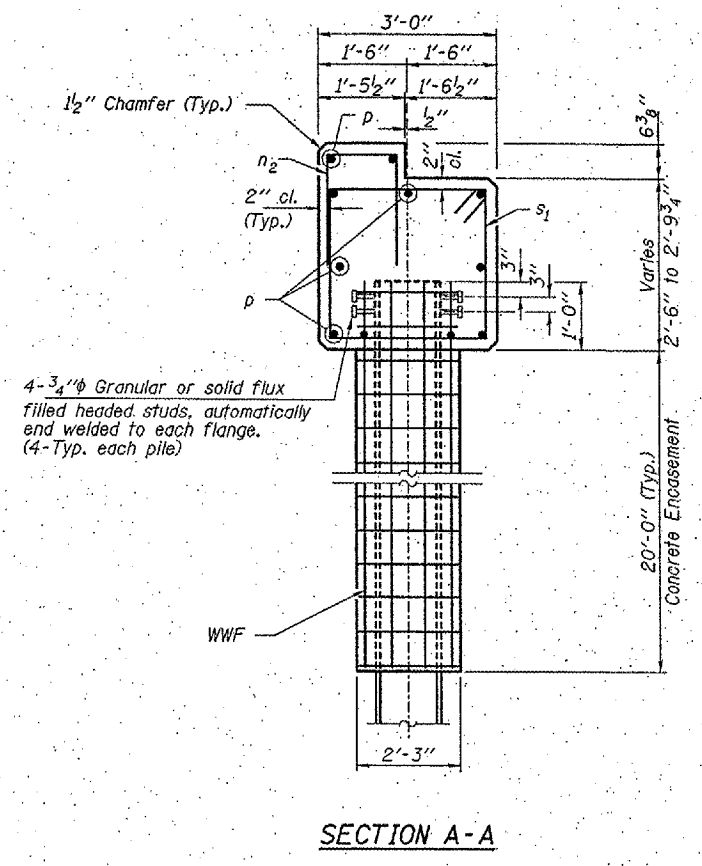
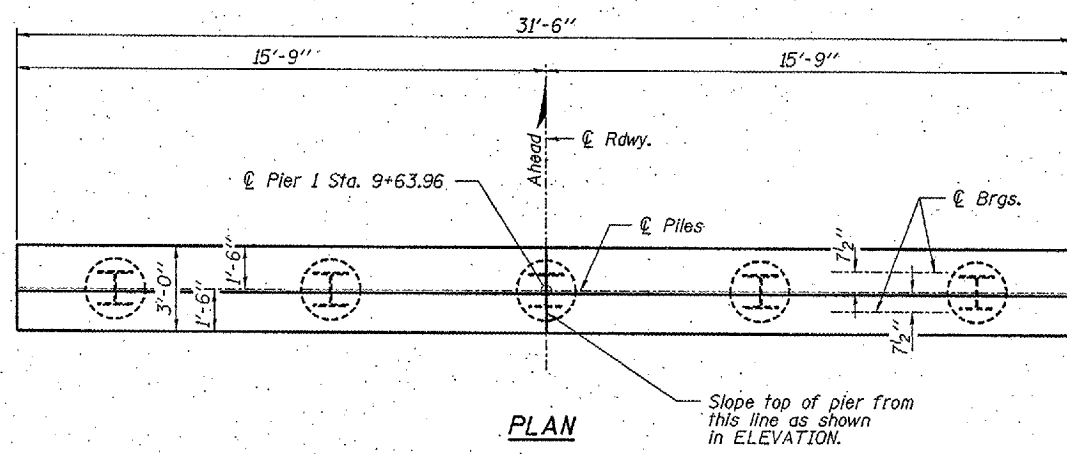
3085 STEVENSON DRIVE, SUITE 201  
 SPRINGFIELD, ILLINOIS 62703  
 (217) 546-3400

ELGIN • SPRINGFIELD

PROJECT NUMBER: 12-47-0017-1 DATE: 05/15/06  
 DESIGNED: S.M.S. CHECKED: S.W.M. DRAWN: D.T.M.

**EAST ABUTMENT**  
 SECTION 04-02119-00-BR  
 CARBONDALE ROAD DISTRICT  
 JACKSON COUNTY  
 STATION 9+96 / STRUCTURE NO. 039-3255





**BILL OF MATERIAL - PIER 1**

BAR	NO.	SIZE	LENGTH	SHAPE
n <sub>1</sub>	31	#4	4'-5"	□
p	2	#6	31'-2"	—
p <sub>1</sub>	9	#8	31'-2"	—
s <sub>1</sub>	30	#5	10'-7"	□
u <sub>1</sub>	8	#6	12'-7"	—
Concrete Structures			Cu. Yd.	10.2
Stud Shear Connectors			Each	20
Reinforcement Bars			Pound	1,420
Steel Piles HP14x73			Foot	350
Concrete Encasement			Cu. Yd.	14.4

**PILE DATA**

Type \_\_\_\_\_ Steel Pile HP14x73  
 No. Req'd \_\_\_\_\_ 5  
 Capacity \_\_\_\_\_ Drive to Refusal  
 Estimated Lengths \_\_\_\_\_ 70 Feet/Pile

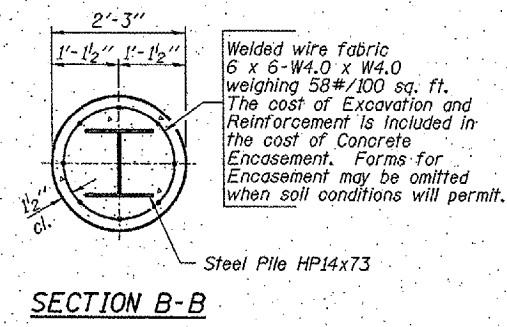
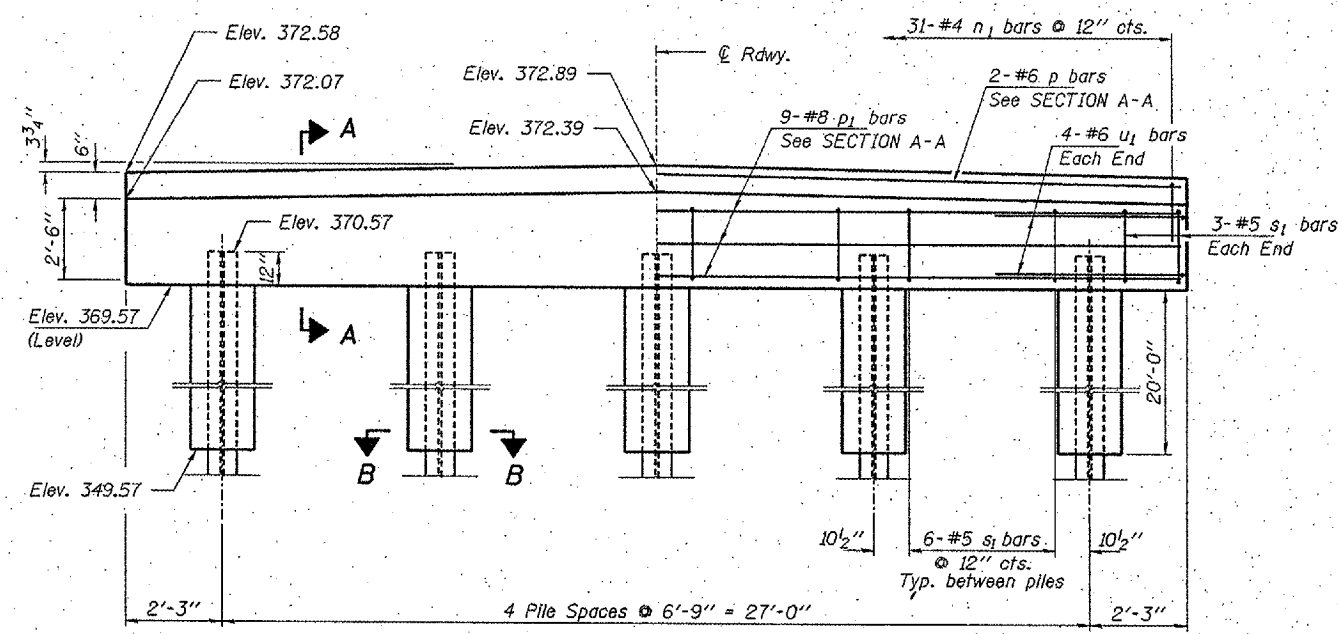
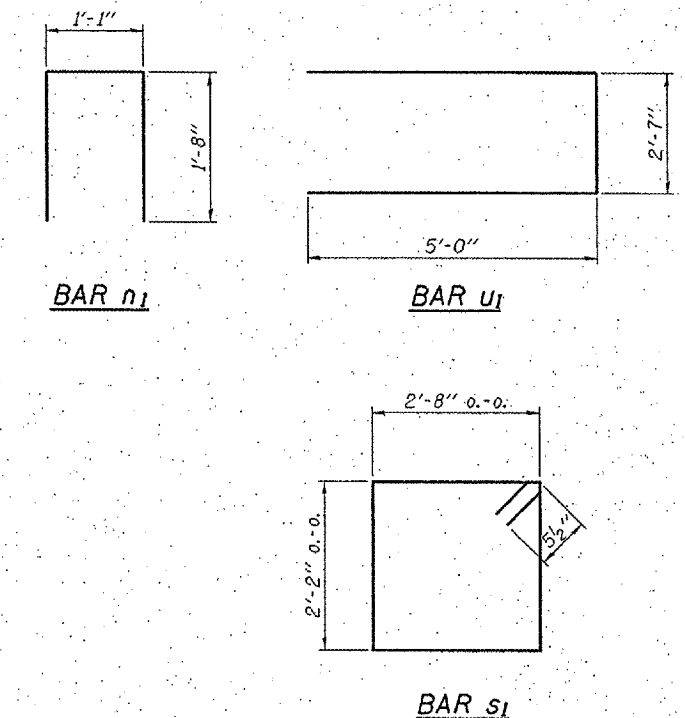
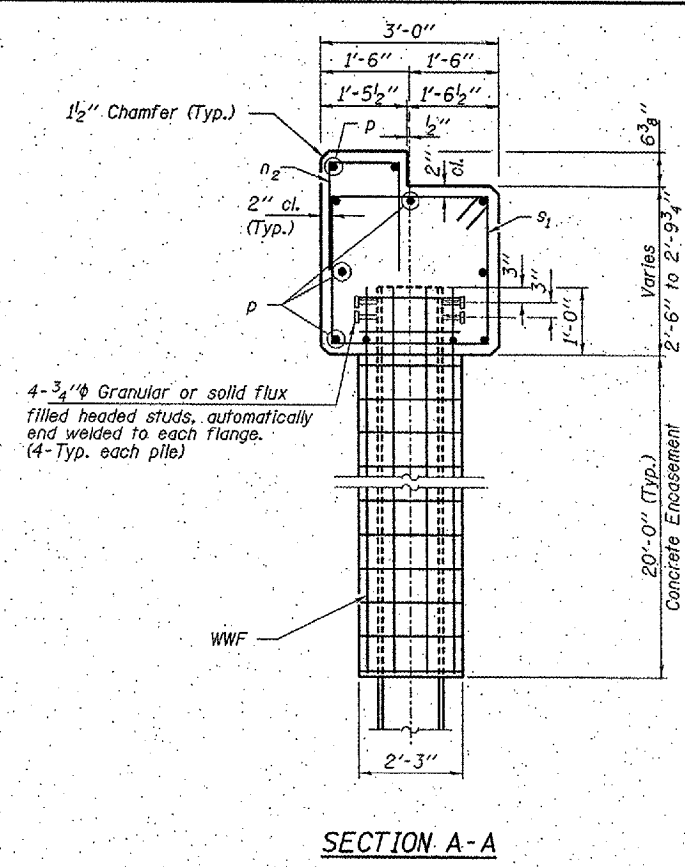
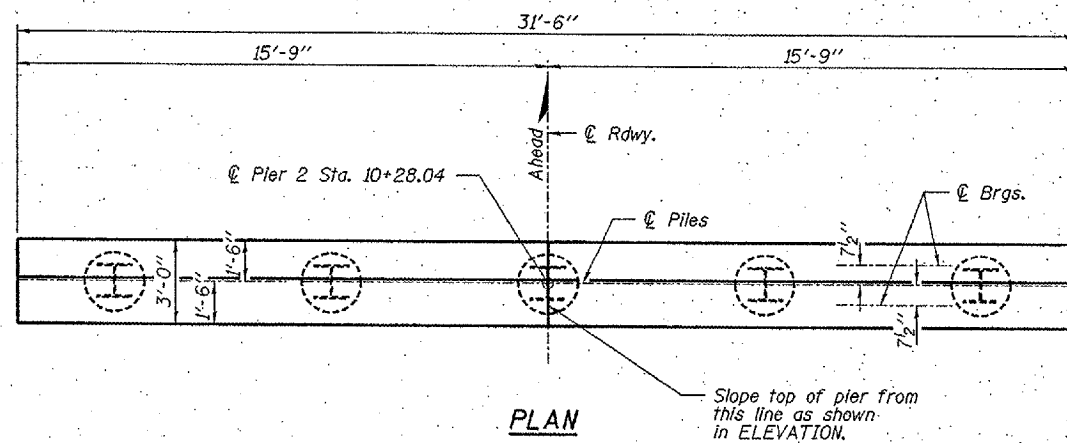
**HAMPTON, LENZINI & RENWICK, INC.**  
 CIVIL & STRUCTURAL ENGINEERS

3085 STEVENSON DRIVE, SUITE 201  
 SPRINGFIELD, ILLINOIS 62703  
 (217) 546-3400

ELGIN • SPRINGFIELD

PROJECT NUMBER: 18-47-0017-1 DATE: 05/15/06  
 DESIGNED: S.M.S. CHECKED: S.W.M. DRAWN: D.T.M.

**PIER 1**  
**SECTION 04-02119-00-BR**  
 CARBONDALE ROAD DISTRICT  
 JACKSON COUNTY  
 STATION 9+96 / STRUCTURE NO. 039-3255



**BILL OF MATERIAL - PIER 2**

BAR	NO.	SIZE	LENGTH	SHAPE
n <sub>1</sub>	31	#4	4'-5"	□
p	2	#6	31'-2"	—
p <sub>1</sub>	9	#8	31'-2"	—
s <sub>1</sub>	30	#5	10'-7"	□
u <sub>1</sub>	8	#6	12'-7"	—
Concrete Structures			Cu. Yd.	10.2
Stud Shear Connectors			Each	20
Reinforcement Bars			Pound	1,420
Steel Piles HP14x73			Foot	280
Test Pile Steel HP14x73			Each	1
Concrete Encasement			Cu. Yd.	14.4

**ELEVATION**  
(Looking East)

**PILE DATA**

Type \_\_\_\_\_ Steel Pile HP14x73  
 No. Req'd. \_\_\_\_\_ 5  
 Capacity \_\_\_\_\_ Drive to Refusal  
 Estimated Lengths \_\_\_\_\_ 70 Feet/Pile  
 \* Includes one Test Pile Steel HP14x73 to be driven in a permanent location at Pier 2.

<b>HAMPTON, LENZINI &amp; RENWICK, INC.</b> CIVIL & STRUCTURAL ENGINEERS		<b>PIER 2</b>	
3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 (217) 546-3400		SECTION 04-02119-00-BR CARBONDALE ROAD DISTRICT	
ELGIN • SPRINGFIELD		JACKSON COUNTY	
PROJECT NUMBER: 18-47-0017-1	DATE: 05/15/06	STATION 9+96 / STRUCTURE NO. 039-3255	
DESIGNED: S.M.S.	CHECKED: S.W.M.	DRAWN: D.T.M.	





