

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
69	*	SHELBY	12	1
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT	

* 01-19113-00-BR

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

**TOWNSHIP ROAD 69
SEC. 01-19113-00-BR
RURAL ROAD DISTRICT
SHELBY COUNTY
STRUCTURE NO. 087-3530
PROJECT NO. BROS-173 (135)
JOB NO. C-97-134-06**

INDEX OF DRAWINGS

- 1 COVER SHEET
- 2 SUMMARY OF QUANTITIES, GENERAL NOTES, TYPICAL SECTIONS, AND ENTRANCE DETAILS
- 3 PLAN & PROFILE
- 4-6 CROSS SECTIONS
- 7-12 BRIDGE PLANS

REQUIRED HIGHWAY STANDARDS

- 000001-05 STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
- 280001-04 TEMPORARY EROSION CONTROL SYSTEMS
- 515001-02 NAME PLATE FOR BRIDGES
- 635006-02 REFLECTOR & TERMINAL MARKER PLACEMENT
- 701901 TRAFFIC CONTROL DEVICES
- B.L.R. 21-7 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

UTILITY COMPANIES

ILLINOIS CONSOLIDATED TELEPHONE CO.
121 SOUTH 17th. STREET
MATTOON, ILLINOIS 61938
1-(217) 234-9997

SHELBY ELECTRIC COOPERATIVE
MR. JIM MATLOCK
P.O. BOX 560
SHELBYVILLE, ILLINOIS 62565
(217) 774-3986

EXISTING STRUCTURE NO. 087-3080

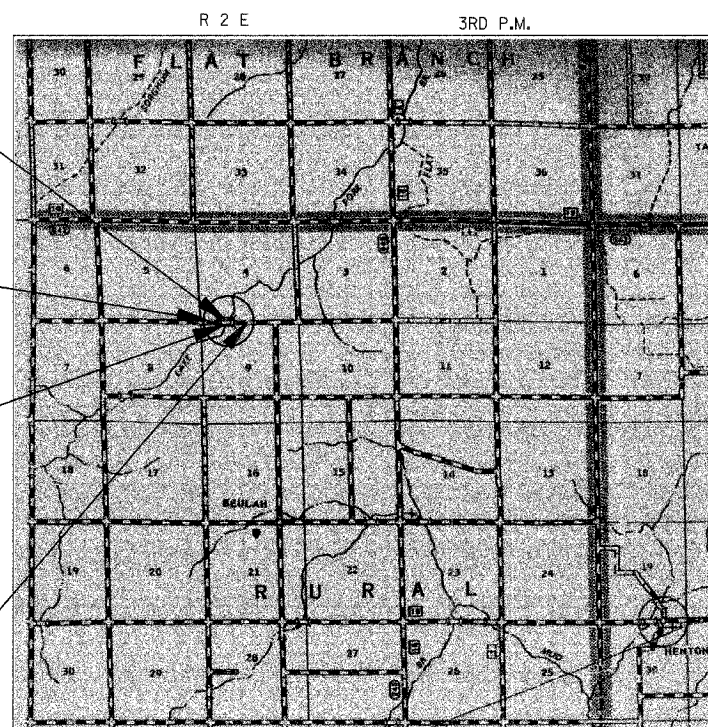
2-SPAN GIRDER BRIDGE WITH WOOD PLANK DECK ON STEEL I-BEAMS ON TIMBER ABUTMENTS, PIER, WINGWALLS AND PILES, STEEL RAILING AND 1" CONDUIT ON BOTTOM OF NORTH I-BEAM. LENGTH = 80'-0" WIDTH = 16'-9"

**PROJECT BEGINS
STA. 12+45.00**

STA. 15+12.13 SPECIAL BRIDGE DESIGN

2- SPAN 27" P.C.C. DECK BEAM BRIDGE
2-SPANS AT 62'-10 1/2". PILE BENT ABUTMENTS AND PIER. 128'-0" BK. TO BK. ABUTMENTS
24" CLEAR WIDTH, 20° SKEW LT.
STRUCTURE NO. 087-3530

**PROJECT ENDS
STA. 18+00.00**



SCALES

PLAN	1" = 50'	
PROFILE HORIZ.	1" = 50'	
PROFILE VERT.	1" = 5'	
CROSS SECTIONS HORIZ.	1" = 10'	
CROSS SECTIONS VERT.	1" = 5'	

LOCATION MAP

0 1 2 MILES
APPROXIMATE SCALE: 1 INCH = 1 MILE
NET LENGTH OF SECTION = 555.00 FEET = 0.1051 MILES
FUNCTIONAL CLASSIFICATION : LOCAL ROAD
CURRENT ADT 100
DESIGN SPEED = 30 MPH



David Boomer 3-20-08
Date
David Boomer, Illinois P.E. 062-043769
Expires 11-30-2009

APPROVED 3-24-2008
Eldon Weeks
HIGHWAY COMM., RURAL ROAD DISTRICT

APPROVED 25 March 2008
S. A. [Signature]
COUNTY ENGINEER, SHELBY COUNTY

PASSED 4/4-2008
Marcus [Signature]
DISTRICT SEVEN ENGINEER OF
LOCAL ROADS & STREETS

Releasing For Bid Based on Limited Review
4/4-2008
Christina [Signature]
DEPUTY DIRECTOR OF HIGHWAYS,
REGION FOUR ENGINEER

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLANS PREPARED BY:

ie
consultants

International Engineering Consultants, Inc.
6420 South Sixth Street Road
Springfield, Illinois 62707
Tel. (217) 529-8027
Fax (217) 529-4543
e-mail: iespringfield@ie-consultants.com

188 W. Randolph St. Suite 1826
Chicago, Illinois 60601
Tel. (312) 920-9528
Fax. (312) 920-9570
e-Mail: icchicago@ie-consultants.com

CONTRACT NO. 95482

CALL **J.U.L.I.E.** (JOINT UTILITY LOCATION INFORMATION FOR EXCAVATORS)
18 Hours (2 working days) Before You Dig.
TOLL FREE: 1 (800) 892-0123

TR	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
69	*	SHELBY	12	2
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		
* 01-19113-00-BR				

SUMMARY OF QUANTITIES

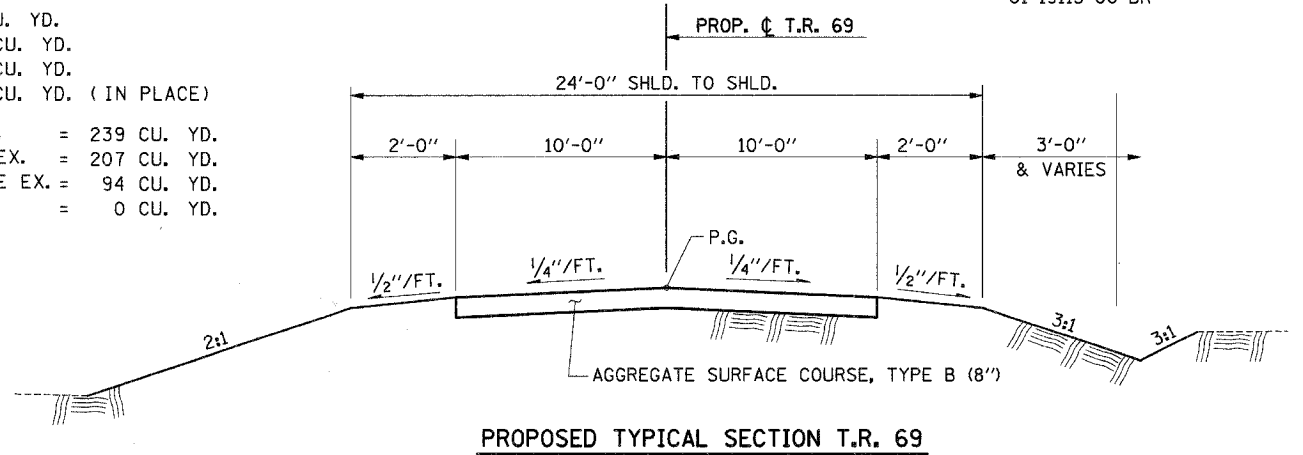
CODE NO.	ITEM	UNIT	QUANTITY
20100110	TREE REMOVAL (6 TO 15 UNITS DIAMETER)	UNIT	60
20100210	TREE REMOVAL (OVER 15 UNITS DIAMETER)	UNIT	30
*20200100	EARTH EXCAVATION	CU YD	319
20300100	CHANNEL EXCAVATION	CU YD	415
*25000200	SEEDING, CLASS 2	ACRE	0.6
25000400	NITROGEN FERTILIZER NUTRIENT	POUND	54
25000500	PHOSPHORUS FERTILIZER NUTRIENT	POUND	54
25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	54
*25100115	MULCH, METHOD 2	ACRE	0.6
*28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	200
28000300	TEMPORARY DITCH CHECKS	EACH	4
28000400	PERIMETER EROSION BARRIER	FOOT	1,000
28000500	INLET AND PIPE PROTECTION	EACH	3
*28100807	STONE DUMPED RIPRAP, CLASS A4	TON	610
*28102600	STONE RIPRAP DITCH	TON	32
28200200	FILTER FABRIC	SQ YD	911
*40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	510
*50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50200100	STRUCTURE EXCAVATION	CU YD	117
50300225	CONCRETE STRUCTURES	CU YD	53.6
50300280	CONCRETE ENCASEMENT	CU YD	2.2
*50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27"DEPTH)	SQ FT	3,018
50800105	REINFORCEMENT BARS	POUND	4,740
50900205	STEEL RAILING, TYPE S1	FOOT	256
51201400	FURNISHING STEEL PILES HP10X42	FOOT	390
51202305	DRIVING PILES	FOOT	390
51203400	TEST PILE STEEL HP10X42	EACH	3
51500100	NAME PLATES	EACH	1
*54200643	PIPE CULVERTS, TYPE I, CORRUGATED STEEL OR ALUMINUM CULVERT PIPE 18"	FOOT	88
*54200649	PIPE CULVERTS, TYPE I, CORRUGATED STEEL OR ALUMINUM CULVERT PIPE 24"	FOOT	40
67100100	MOBILIZATION	L SUM	1
78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
*X5020501	UNDERWATER STRUCTURE EXCAVATION PROTECTION - LOCATION I	EACH	1

EARTHWORK SUMMARY

EARTH EXCAVATION = 319 CU. YD.
 CHANNEL EXCAVATION = 415 CU. YD.
 STRUCTURE EXCAVATION = 126 CU. YD.
 TOTAL FILL REQ'D. = 491 CU. YD. (IN PLACE)

** ESTIMATE OF FILL FROM EARTH EX. = 239 CU. YD.
 *** ESTIMATE OF FILL FROM CHANNEL EX. = 207 CU. YD.
 ** ESTIMATE OF FILL FROM STRUCTURE EX. = 94 CU. YD.
 FURNISHED EXCAVATION REQUIRED = 0 CU. YD.

** 25% SHRINKAGE FACTOR APPLIED
 *** 50% SHRINKAGE FACTOR APPLIED



INLET & PIPE PROTECTION

STA.	OFFSET	QUANTITY
12+76	18' RT	1
13+60	23' LT	1
16+43	34' LT	1
TOTAL		3

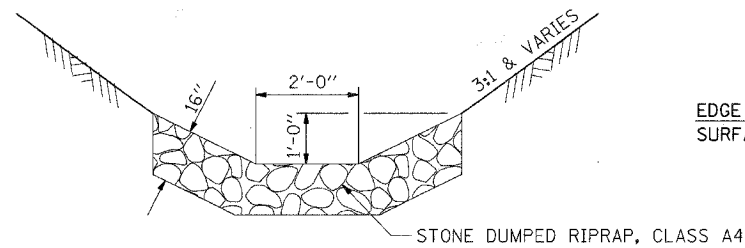
TEMPORARY DITCH CHECKS

STA.	OFFSET	QUANTITY
14+00	24' RT	1
15+36	32.5' RT	1
14+58	39' LT	1
15+67	38' LT	1
TOTAL		4

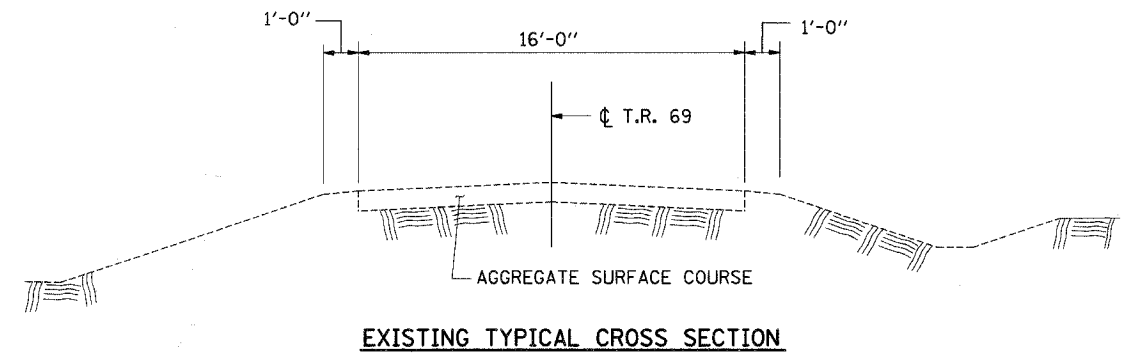
PERIMETER EROSION CONTROL BARRIER *

STA. TO	STA.	OFFSET	PERIMETER EROSION BARRIER (FEET)
12+45	14+80	RT	235
15+40	18+00	RT	260
12+45	14+50	LT	205
15+00	18+00	LT	300
TOTAL			1000

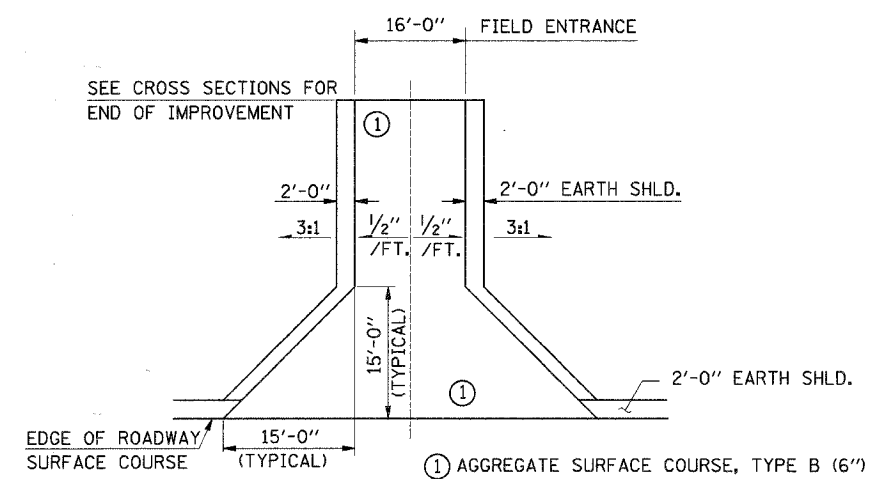
* SEE SPECIAL PROVISIONS



PROPOSED TYPICAL SECTION T.R. 69



EXISTING TYPICAL CROSS SECTION



FIELD ENTRANCE DETAIL

* - INDICATES SPECIAL PROVISIONS

GENERAL NOTES

WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED BEFORE SUCH MONUMENTS ARE REMOVED. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL PROPERTY MARKS AND MONUMENTS UNTIL THE OWNER, AN AUTHORIZED SURVEYOR OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION.

THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER IN REGARD TO THE EXACT LENGTHS OF PIPE CULVERTS PRIOR TO ORDERING THESE ITEMS.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL DIMENSIONS AND CONDITIONS EXISTING IN THE FIELD PRIOR TO CONSTRUCTION AND ORDERING MATERIALS.

ALL DISTURBED EARTH SURFACES WITHIN THE LIMITS OF THE RIGHT-OF-WAY AND EASEMENTS SHALL BE SEEDDED AS DIRECTED BY THE ENGINEER.

ESTIMATED QUANTITIES

ITEM	RATE OF APPLICATION	QUANTITIES
SEEDING CLASS 2	=	= 0.6 ACRES
NITROGEN FERTILIZER NUTRIENTS	= 90 LBS./ACRE	= 54 POUNDS
PHOSPHORUS FERTILIZER NUTRIENTS	= 90 LBS./ACRE	= 54 POUNDS
POTASSIUM FERTILIZER NUTRIENTS	= 90 LBS./ACRE	= 54 POUNDS
MULCH METHOD 2	=	= 0.6 ACRES

THE SEEDING MIXTURE SHALL CONFORM TO ROADSIDE MIXTURE TYPE 2, DURING THE PERIOD BETWEEN NOVEMBER 1, AND DECEMBER 31. THE CONTRACTOR SHALL SUBSTITUTE 10 POUNDS OF PERENNIAL RYE FOR 48 POUNDS OF OATS, SPRING.

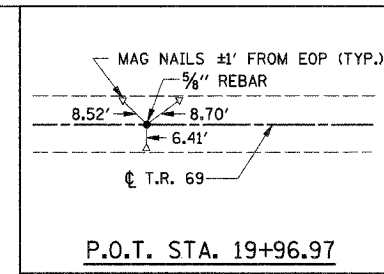
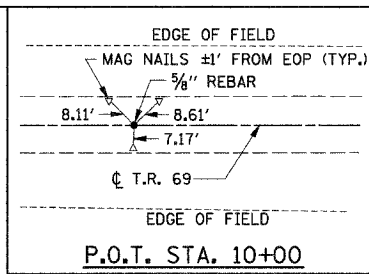
CHANNEL EXCAVATION

THE CHANNEL SHALL BE EXCAVATED WITH 2:1 SIDE SLOPES AS SHOWN. ESTIMATED QUANTITY = 415 CU. YDS. SUITABLE EXCAVATED MATERIAL SHALL BE USED FOR EMBANKMENT AS DIRECTED BY THE ENGINEER. ESTIMATED QUANTITY USED FOR EMBANKMENT = 207 CU. YDS.

RIP-RAP DITCH

(NO BEDDING OR FILTER FABRIC)
 RT STA. 14+00 TO RT STA. 14+52

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 69	01-19113-00-BR	SHELBY	12	3
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



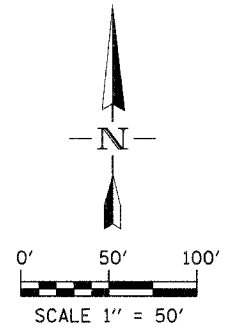
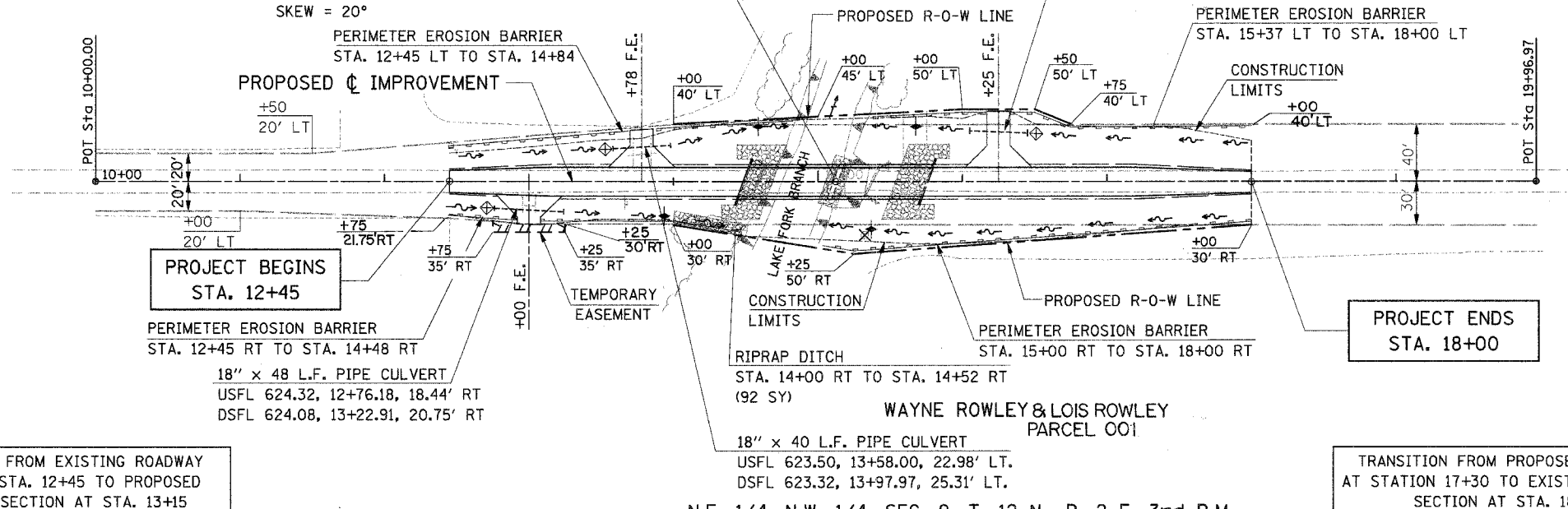
S.E. 1/4, S.W. 1/4, SEC. 4, T. 12 N., R. 2 E. 3rd P.M.

JOHN AND JULIE
HOLTHAUS
PARCEL 002

STA. 15+12.13 - SPECIAL BRIDGE DESIGN

2 - SPAN, 27" P.C.C. DECK BEAM BRIDGE,
2 - 62'-10 1/2" SPANS, 128'-0" BK TO BK
OF ABUTMENTS,
24'-0" CLEAR WIDTH, ON BENT PILE ABUTMENTS.
SKEW = 20°

24" x 40 L.F. PIPE CULVERT
USFL 619.68, 16+05.00, 35.40' LT.
DSFL 619.57, 16+44.98, 33.71' LT.



LEGEND

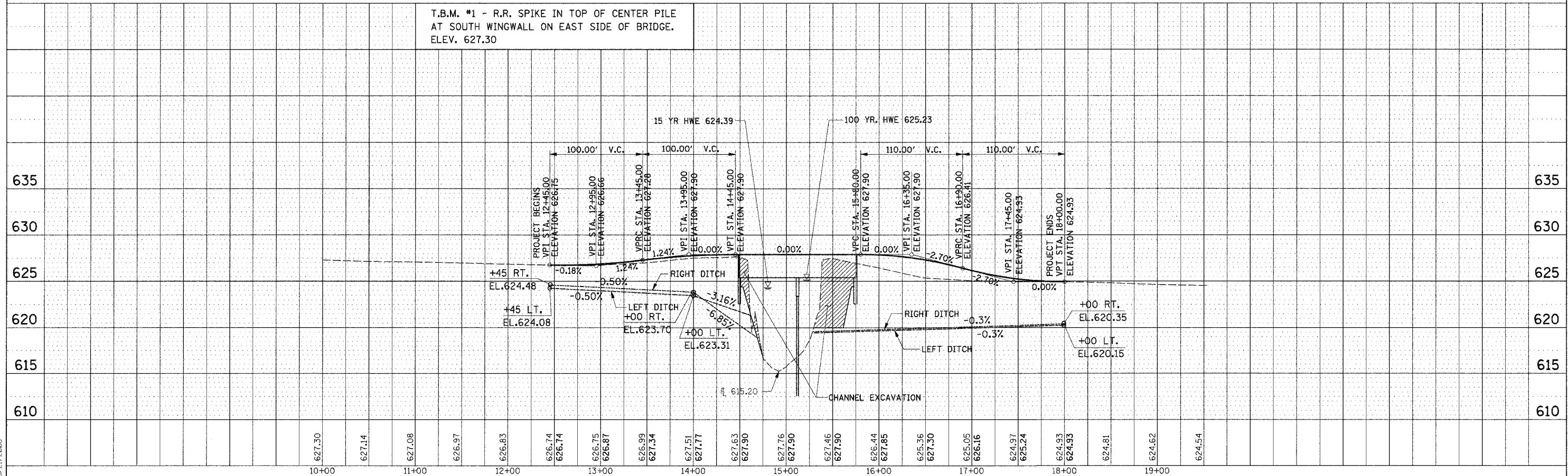
- DITCH CHECK
- FLOW ARROW
- RIPRAP

TRANSITION FROM EXISTING ROADWAY
SECTION AT STA. 12+45 TO PROPOSED
ROADWAY SECTION AT STA. 13+15

TRANSITION FROM PROPOSED ROADWAY
AT STATION 17+30 TO EXISTING ROADWAY
SECTION AT STA. 18+00

N.E. 1/4, N.W. 1/4, SEC. 9, T. 12 N., R. 2 E. 3rd P.M.

T.B.M. #1 - R.R. SPIKE IN TOP OF CENTER PILE
AT SOUTH WINGWALL ON EAST SIDE OF BRIDGE.
ELEV. 627.30



PLAN
 REVISIONS
 NO. DATE
 CHECKED
 DATE
 DRAWN
 DATE

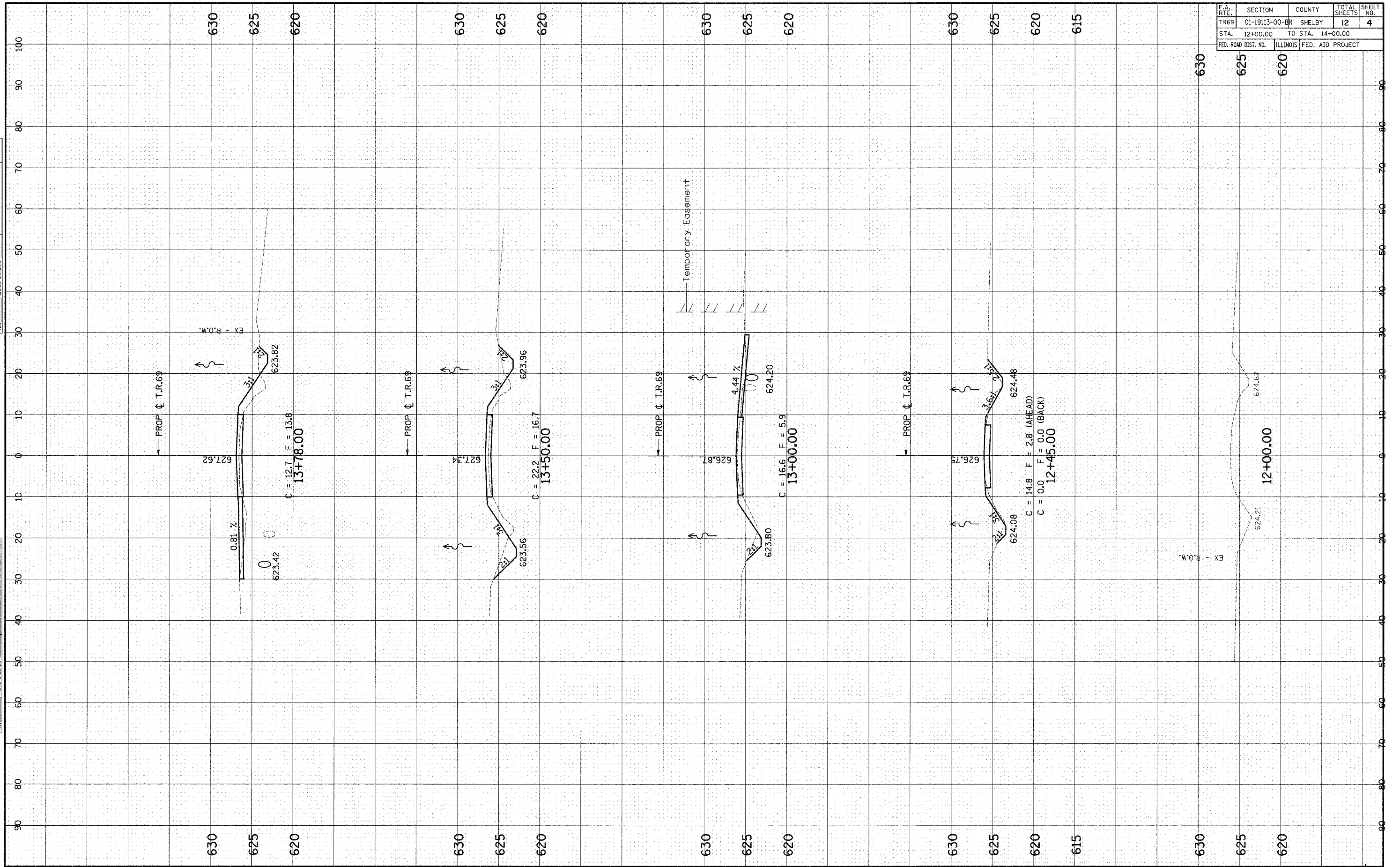
PROFILE
 REVISIONS
 NO. DATE
 CHECKED
 DATE
 DRAWN
 DATE

3/21/2008

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR69	01-19113-00-BR	SHELBY	12	4
STA. 12+00.00		TO STA. 14+00.00		
FED. ROAD DIST. NO.	ILLINOIS		FED. AID PROJECT	

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

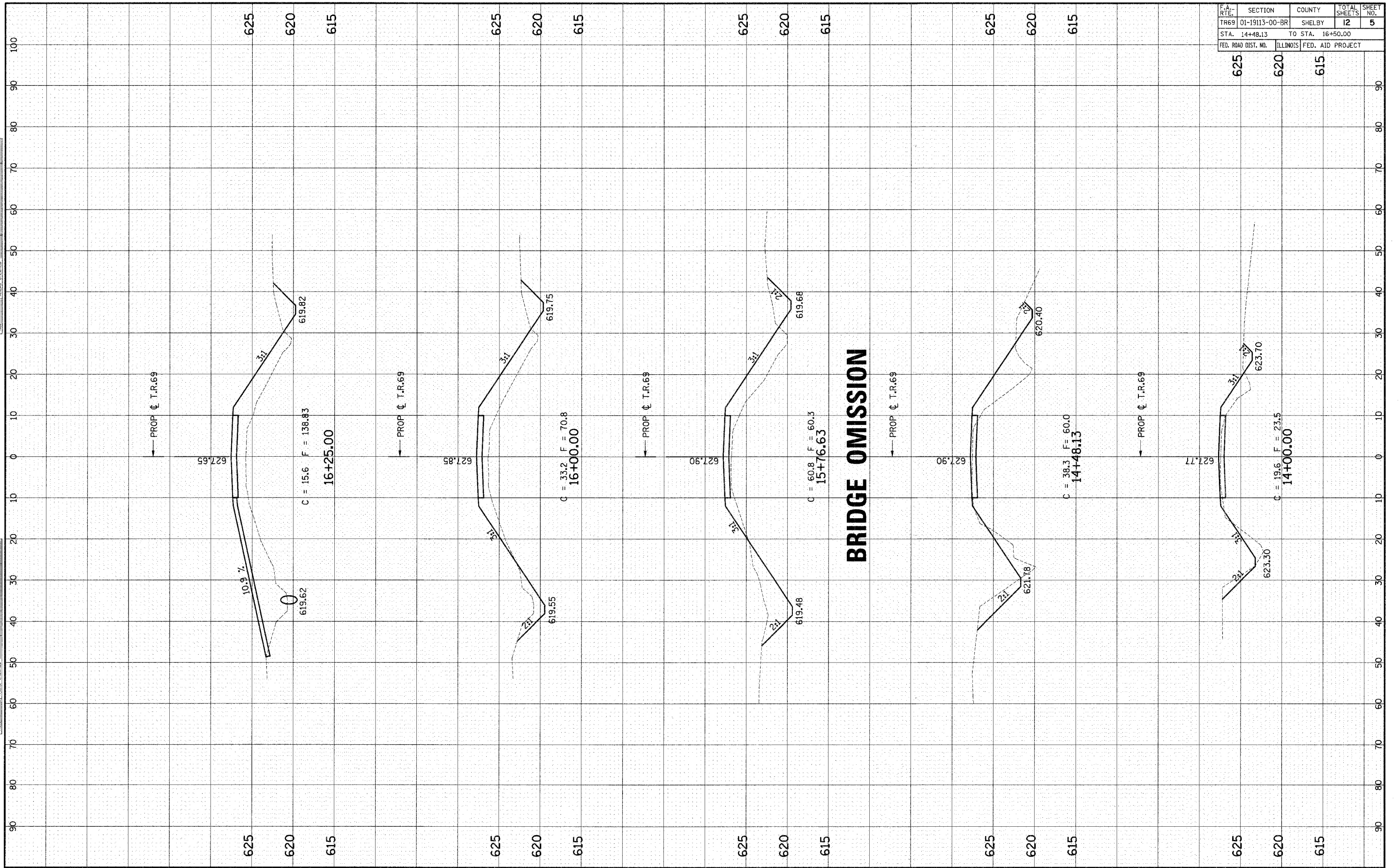
ORIGINAL SURVEY NOTE BOOK NO.	SURVEY PLOTTED TEMPLATE AREAS CHECKED	BY	DATE



F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR69	01-19113-00-BR	SHELBY	12	5
STA. 14+48.13		TO STA. 16+50.00		
FED. ROAD DIST. NO.	ILLINOIS		FED. AID PROJECT	

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

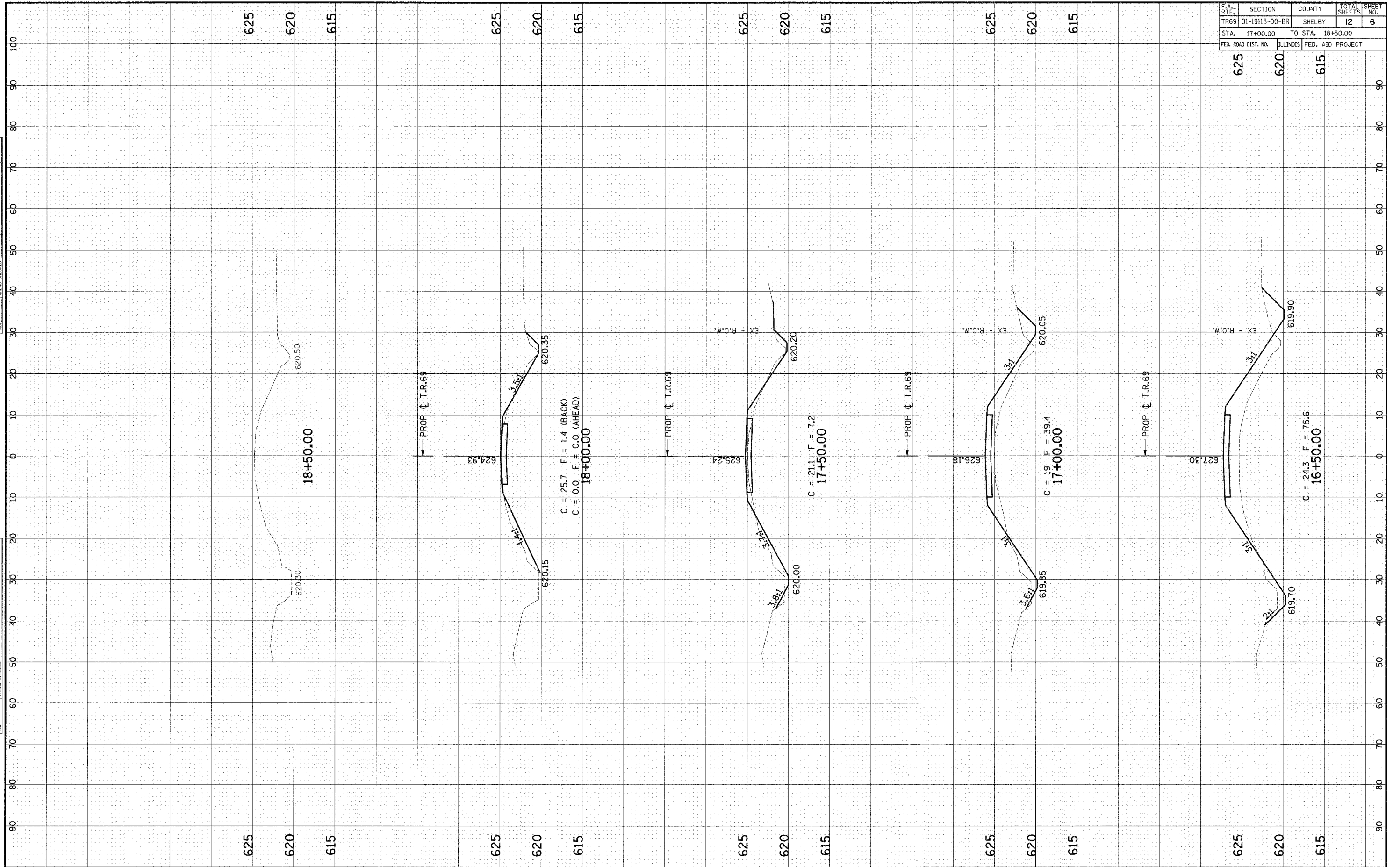
ORIGINAL SURVEY NOTE BOOK NO.	SURVEY PLOTTED TEMPLATE AREAS CHECKED	BY	DATE



F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR69	01-19113-00-BR	SHELBY	12	6
STA. 17+00.00		TO STA. 18+50.00		
FED. ROAD DIST. NO.		ILLINOIS		FED. AID PROJECT

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

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

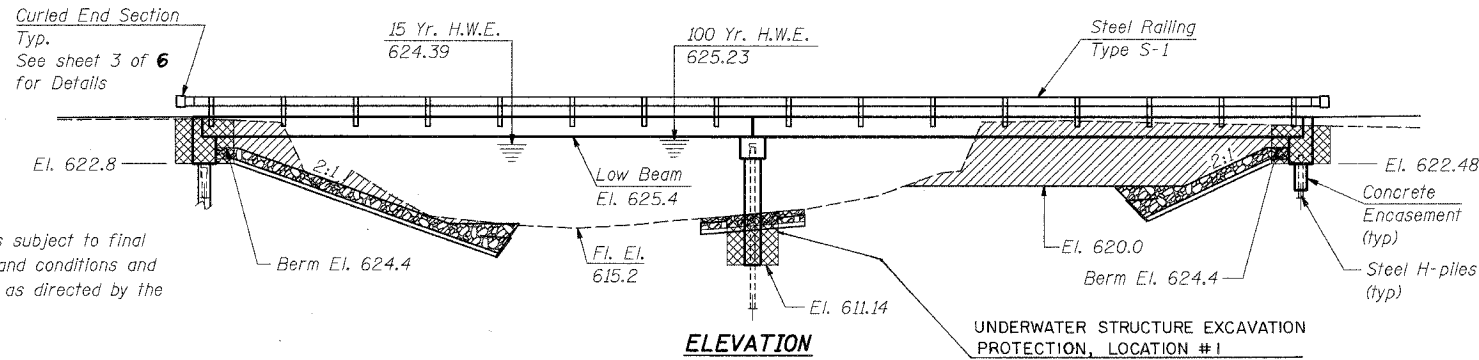


T.B.M.#1 - R.R. Spike in Top of Center Pile at South Wingwall on East Side of Bridge. Elev. 627.30

EXISTING STRUCTURE: S.N. 087-3080, 2 Span Bridge with Wood Plank Deck on Steel I-Beams on Timber Abutments, Pier, Wingwalls and Piles. Steel Railing and 1" Conduit on Bottom of North I-Beam. 80'-0" Length, 16'-9" Width.

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 69	*	SHELBY	12	7
FED. ROAD DIST. NO. 7		ILLINOIS PROJECT		
* 01-19113-00-BR		SHEET 1 OF 6		

(CURLD END SECTIONS INCLUDED IN THE COST OF TYPE S-1 RAILING)

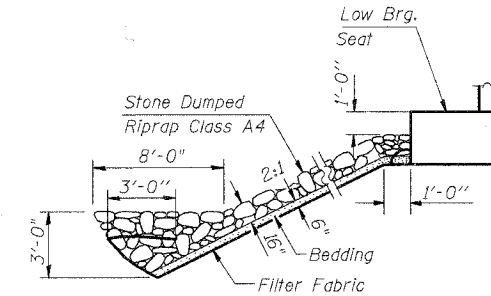


NOTE 1:
Riprap layout is subject to final terrain details and conditions and shall be placed as directed by the Engineer.

- Channel Excavation
- Structure Excavation
- Stone Dumped Riprap Class A4

GENERAL NOTES

See Proposal for Boring Data
The Contractor shall drive one steel test pile at each abutment and at the pier as directed by the Engineer before ordering the remainder of the piles.
Reinforcement bars shall conform to the requirements of AASHTO M-31, M-42 or M-53 Grade 60.



STONE RIPRAP ANCHOR DETAIL

LAKE FORK BRANCH
BUILT 200 BY
SHELBY COUNTY
RURAL ROAD DISTRICT
SEC. 01-19113-00-BR
TR 69 STA. 15+12.13
STR. NO. 087-3530 LOADING HS 20

NAME PLATE
(See Std. 515001)

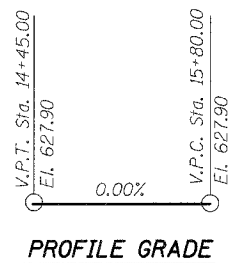
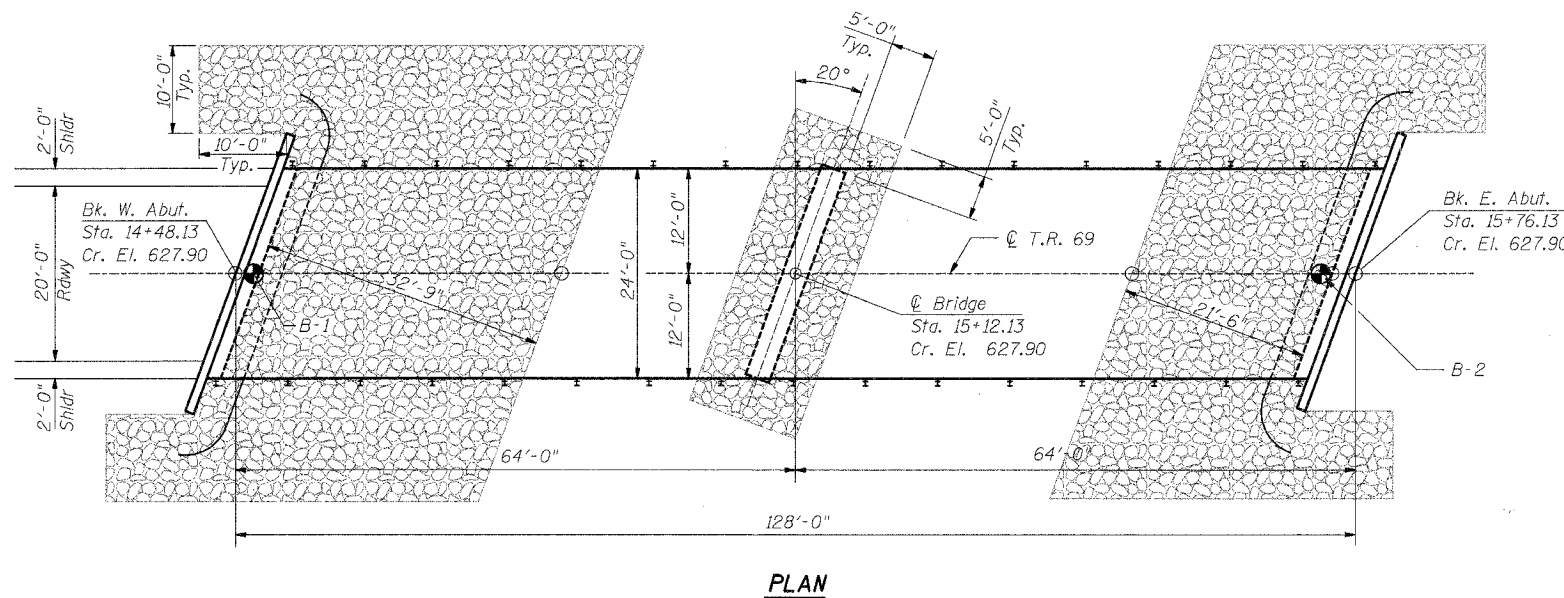
BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Structure Excavation	Cu. Yd.		117	117
Concrete Structures	Cu. Yd.		53.6	53.6
Reinforcement Bars	Pound		4740	4740
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq. Ft.	3018		3018
Steel Railing, Type S-1	Foot	256		256
Furnishing Steel Piles HP 10 x 42	Foot		390	390
Driving Steel Piles	Foot		390	390
Test Pile Steel HP 10 x 42	Each		3	3
Concrete Encasement	Cu. Yd.		2.2	2.2
Name Plates	Each	1		1
Removal of Existing Structures	Each		1	1
Channel Excavation	Cu. Yd.		415	415
Stone Dumped Riprap	Ton		610	610
Filter Fabric	Sq. Yd.		911	911
Underwater Structure Excavation Protection - Location 1	L.S.		1	1

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.



David Booher
David Booher, Illinois S.E. 081-004775 Date 3-20-08
Expires 11-30-2008



WATERWAY INFORMATION

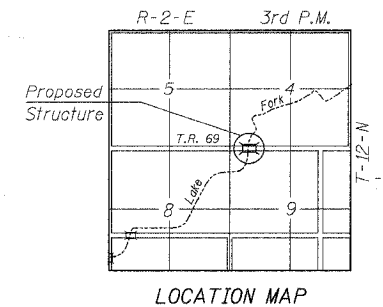
Drainage Area	34.05	Sq.Mi.
Required Opening (15yr.)	666	Sq.Ft.
Provided Opening	666	Sq.Ft.
Present Opening	530	Sq.Ft.
15yr. Discharge	1986	cfs
100yr. Discharge	3146	cfs
Created Head at Bridge (100yr.)	<1.0	Ft.
Created Head 1000' upstream (100yr.)	<0.5	Ft.
Design (15yr.) HWE	624.39	
(100yr) HWE	625.23	

DESIGN STRESSES

Precast Unit
f'c = 5,000 psi
f'cl = 4,000 psi
f's = 270,000 psi
f'sl = 189,000 psi

Cast-in-Place Unit
f'c = 3,500 psi
f's = 60,000 psi
n = 9

LOADING HS 20
DESIGN SPECIFICATION:
AASHTO 2002 Standard Specifications for Highway Bridges.
FUTURE WEARING SURFACE: 50 lb/Sq. Ft.



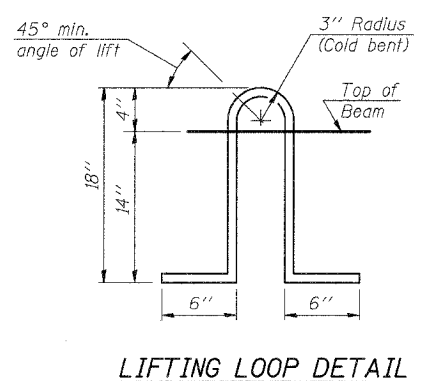
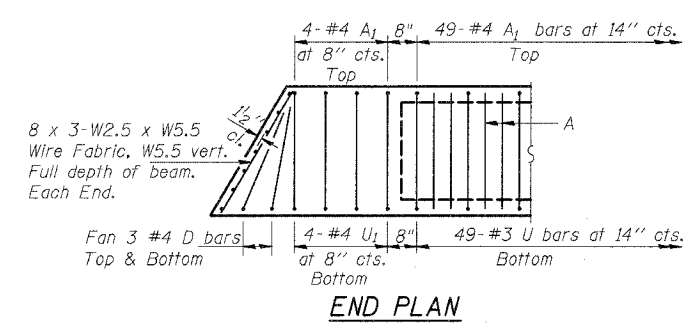
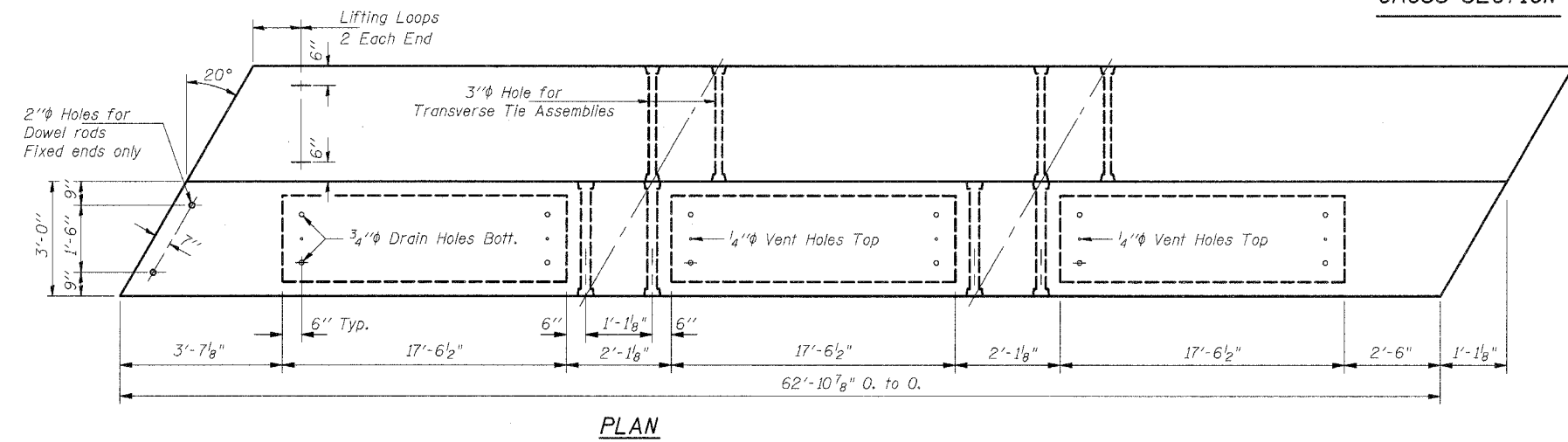
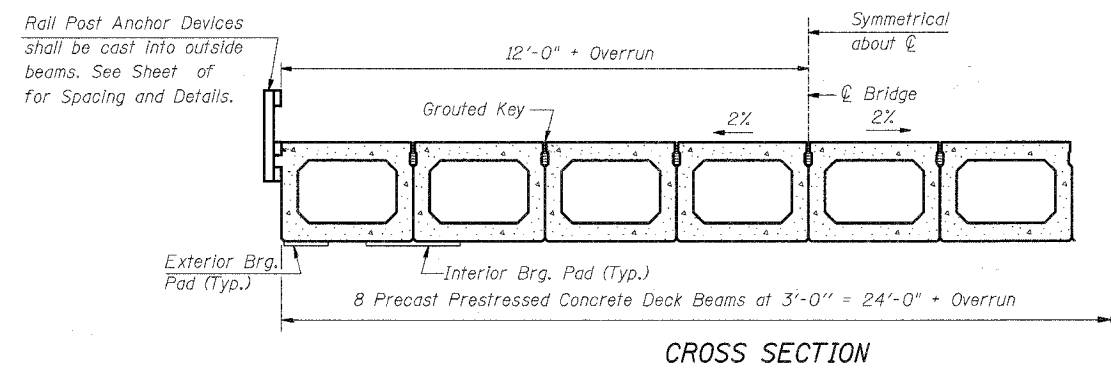
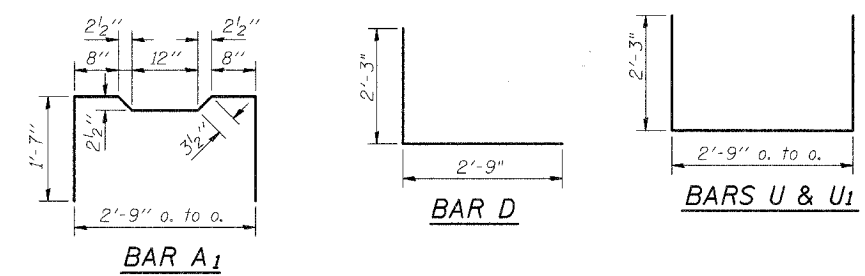
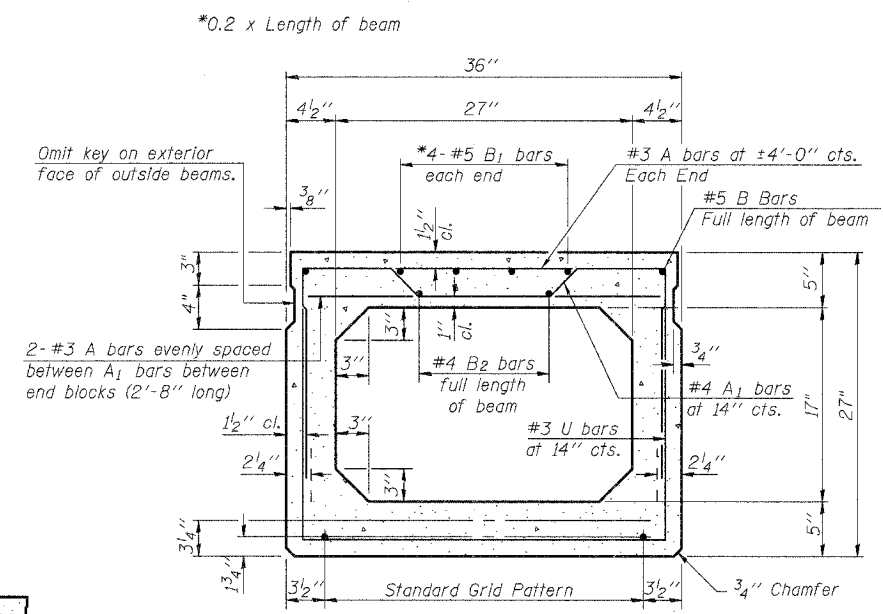
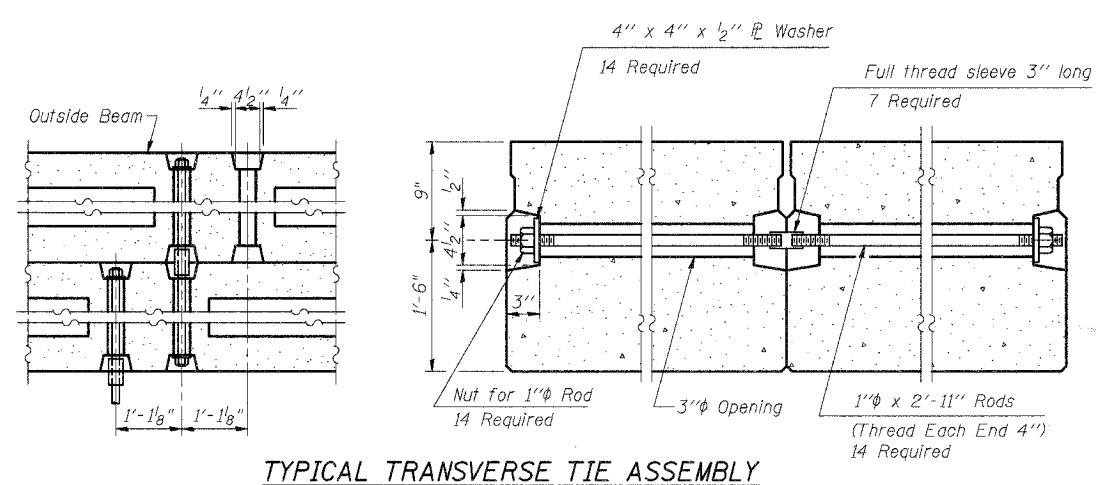
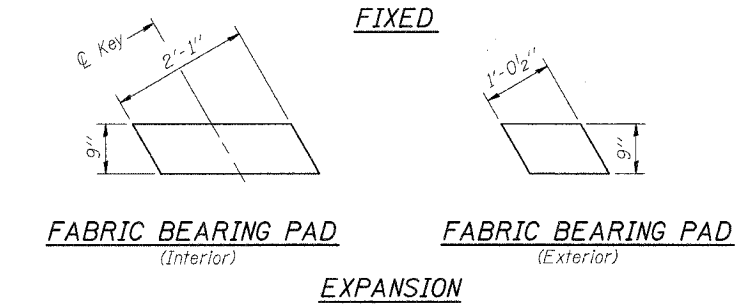
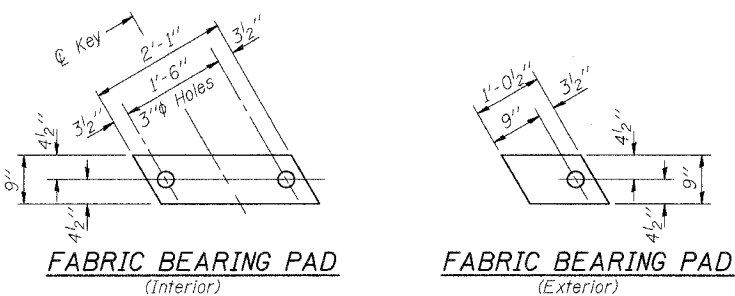
LOCATION MAP

GENERAL PLAN AND ELEVATION
T.R. 69 OVER LAKE FORK BRANCH
SEC. 01-19113-00-BR
SHELBY COUNTY
S.N. 087-3530
STA. 15+12.13

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ieSpringfield@ie-consultants.com
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DESIGNED BY:	CHECKED BY:	DRAWN BY:	DATE:
G.B.M.	D.R.B.	J.P.H.	March 2008

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 69	*	SHELBY	12	8
FED. ROAD DIST. NO. 7		ILLINOIS PROJECT		
*01-19113-00-BR		SHEET 2 OF 6		



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 3-1/2" 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.

Non prestressing steel shall conform to AASHTO M-31, M-42 or M-53 Grade 60.

The bearing seat surfaces shall be adjusted by shimming to assure firm and even bearing. Two 1/8" 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.

Corrosion Inhibitor, as covered in the Special Provisions, shall be used in the concrete for precast prestressed concrete deck beams.

Required Release Strength, f'ci, shall be 4,000 p.s.i.

18 - 1/2" φ Strands, Each Strand Stressed to 30,900 Lbs.
 8-Strands 1 3/4" up, 6-Strands 3/4" up, 2 - Strands 7/2" up
 2 - Strands 10 1/2" up

Note:
 Place strands symmetrically about C of beam.

BILL OF MATERIAL
 (Bar List for One Beam Only)

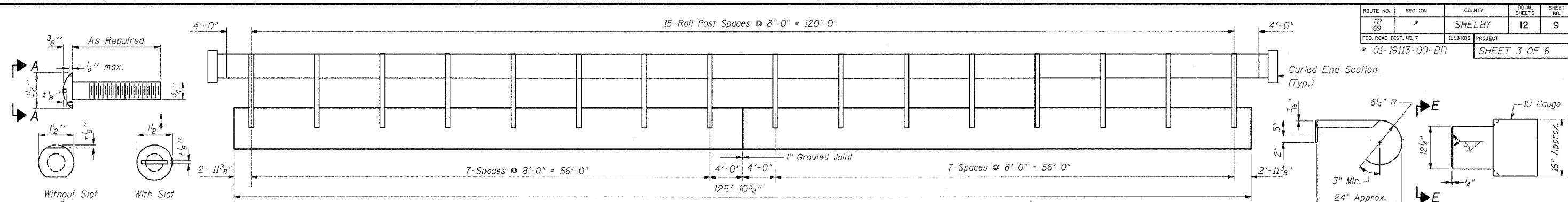
Bar	No.	Size	Length	Shape	
A	96	#3	2'-8"	—	
A1	57	#4	7'-1"	□	
B	6	#5	22'-3"	—	
B1	8	#5	12'-6"	—	
B2	6	#4	22'-0"	—	
U	49	#3	7'-3"	□	
U1	8	#4	7'-3"	□	
Precast Prestressed Conc. Deck Bms. (27")				Sq. Ft.	3018

BEAM DETAILS
T.R. 69 OVER LAKE FORK BRANCH
SEC. 01-19113-00-BR
SHELBY COUNTY
S.N. 087-3530
STA. 15+12.13

ie consultants		6420 South Sixth Street Springfield, Illinois 62707 Tel. (217) 529-8027 Fax (217) 529-4543 ieSpringfield@ie-consultants.com www.ie-consultants.com	
DESIGNED BY:	CHECKED BY:	DRAWN BY:	DATE:
G.B.M.	D.R.B.	J.P.H.	March 2008

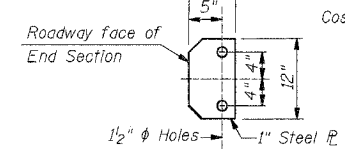
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ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 69	*	SHELBY	12	9
FED. ROAD DIST. NO. 7	ILLINOIS PROJECT			
* 01-19113-00-BR			SHEET 3 OF 6	



VIEW A-A
ROUND HEAD BOLT

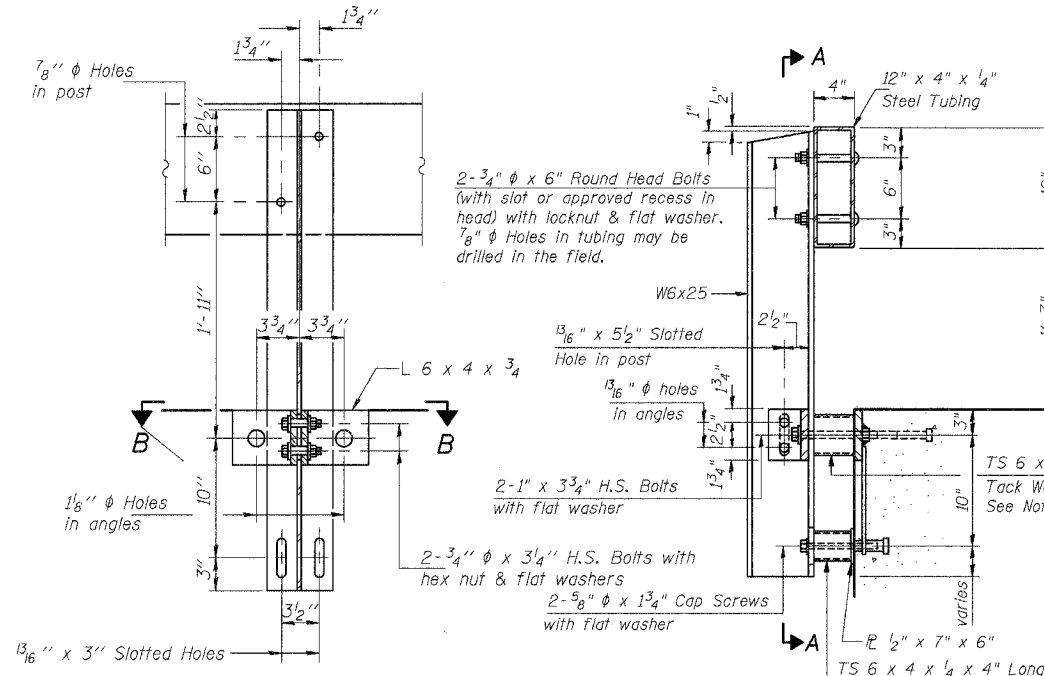
CURLED END SECTION DETAILS



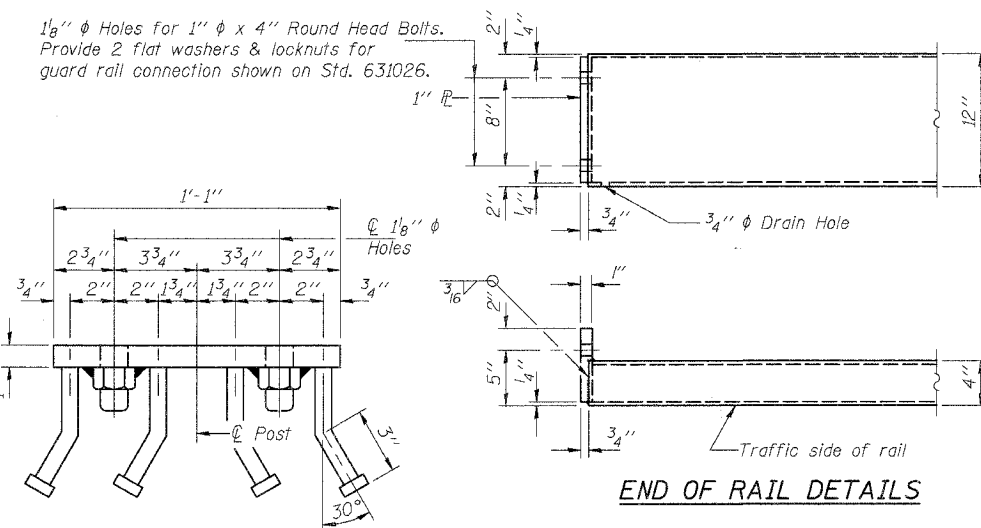
SECTION E-E

Cost to be included with STEEL RAILING, TYPE S-1

NOTE A:
All Tack Welds shall be coated with an approved Zinc Rich Paint or Galvanized.



SECTION A-A



END OF RAIL DETAILS

NOTES

Hollow structural sections shall conform to the requirements of ASTM designation A 500 Grade B Structural Steel Tubing and shall meet the longitudinal CVN requirements of 15 ft-lbs at 0° F.

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

Bolts, cap screws, and nuts shall conform to the requirements of ASTM designation A 307 except for high strength bolts, nuts and washers noted which shall conform to AASHTO M 164.

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

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

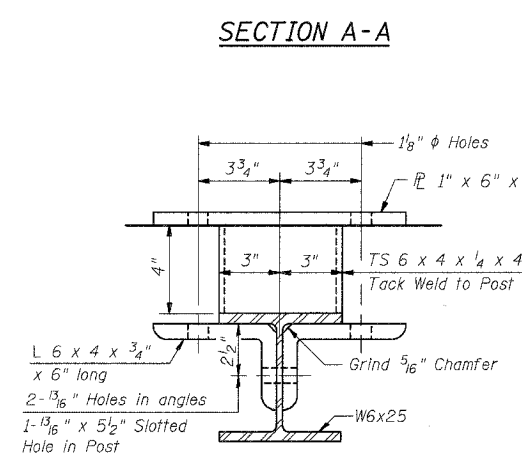
Railing shall be according to Section 509 of the Standard Specifications, except as noted, and will be paid for at the contract unit price per foot for STEEL RAILING, TYPE S-1.

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

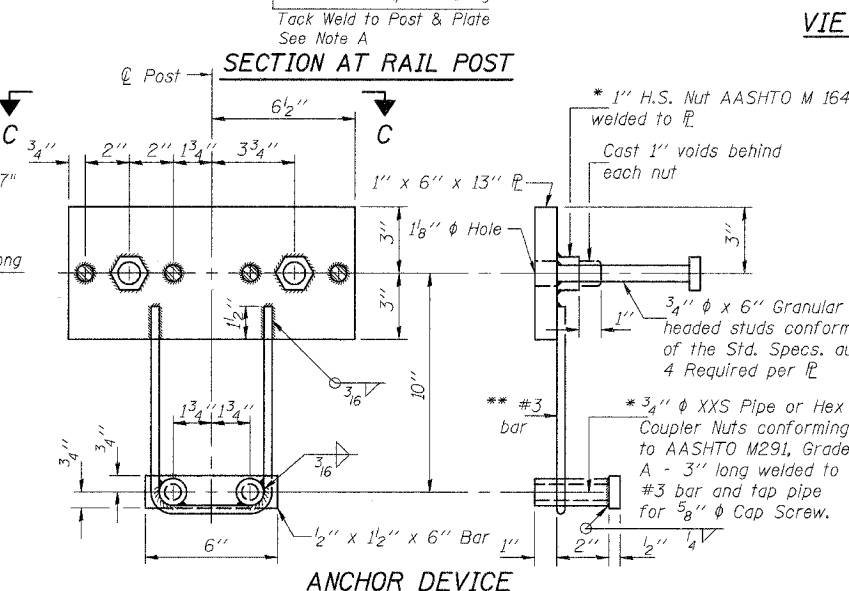
The lower portion of the post flange in contact with concrete shall receive two coats of asphalt paint conforming to Section 1060.07 Type II or place 1/8" fabric bearing pad between the post and concrete.

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

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.



SECTION B-B

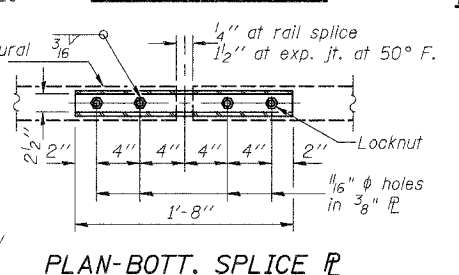


ANCHOR DEVICE

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

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

RAIL SPLICE CONNECTION AT EXPANSION JT.



PLAN-BOTT. SPLICE AT TYPICAL

SECTIONS AT RAIL SPLICE

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing Type S-1	Foot	256

STEEL RAILING TYPE S-1 DETAILS
T.R. 69 OVER LAKE FORK BRANCH
SEC. 01-19113-00-BR
SHELBY COUNTY
S.N. 087-3530
STA. 15+12.13

ie consultants	6420 South Sixth Street Springfield, Illinois 62707 Tel. (217) 529-8027 Fax (217) 529-4543 ieSpringfield@ie-consultants.com www.ie-consultants.com			
	DESIGNED BY: G.B.M.	CHECKED BY: D.R.B.	DRAWN BY: J.P.H.	DATE: March 2008

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 69	*	SHELBY	12	10
FED. ROAD DIST. NO. 7		ILLINOIS PROJECT		
*01-19113-00-BR		SHEET 4 OF 6		

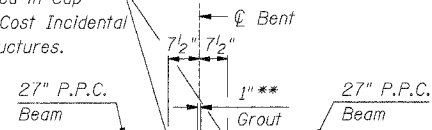
NOTE:
All Edges shall have Standard 3/4" Chamfer except as Noted.

** 1" Joint shall be packed with a very dry mix of 2:1 sand and P.C. mortar. 1" Dimension may Vary plus or Minus to accommodate Tolerance in Beam Lengths.

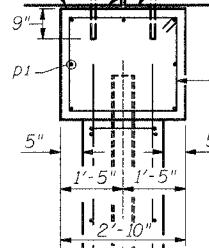
*** Dowel Rods to be grouted after beams are in place and allowed to cure (Min. 24 hours) prior to grouting Shear Keys.

*** 3/4" ϕ x 1'-6" Dowel Rods in 1/4" ϕ holes drilled in Cap (2 Each Beam) Cost Incidental to Concrete Structures.

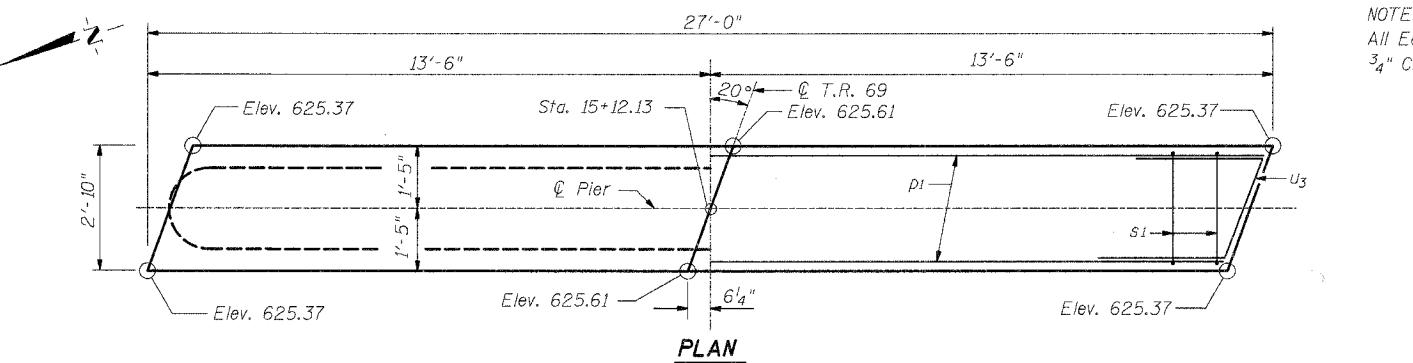
1 - 9" x 1/2" x 2'-1" (Interior Fabric Brg. Pad) or 1 - 9" x 1/2" x 1'-0 1/2" (Exterior Fabric Brg. Pad)



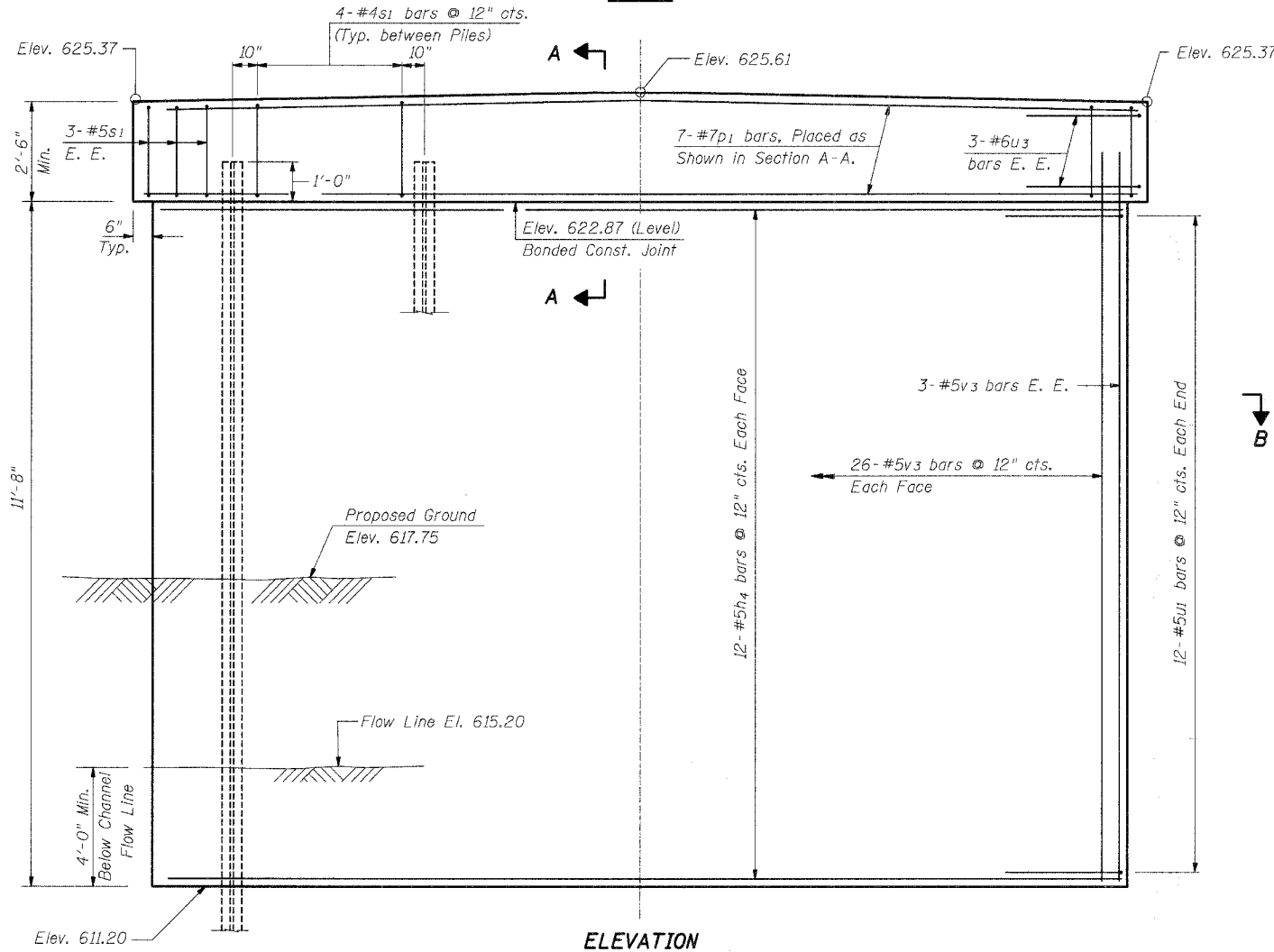
27" P.P.C. Beam
Grout
Bent
1" ***
27" P.P.C. Beam



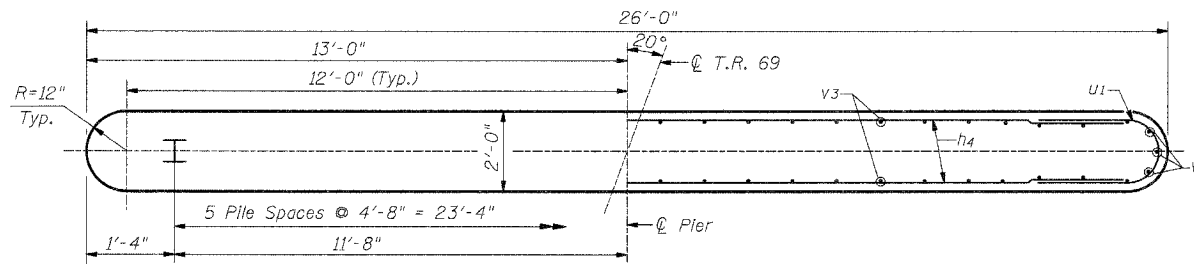
END VIEW



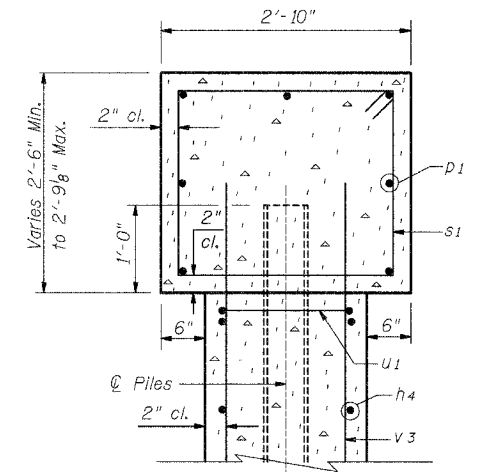
PLAN



ELEVATION



SECTION B-B

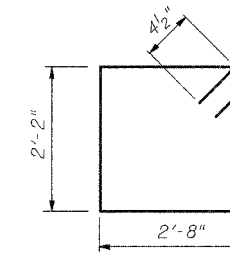


SECTION A-A

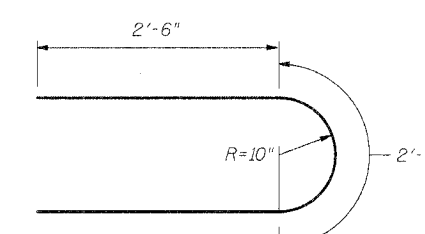
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h4	24	#5	24'-0"	—
p1	7	#7	26'-6"	—
s1	26	#4	10'-1"	□
u1	24	#5	7'-8"	U
u3	6	#6	7'-9"	U
v3	58	#5	13'-6"	—

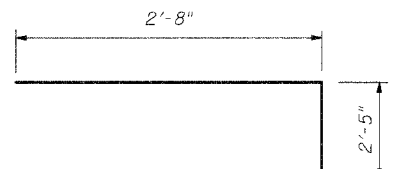
ITEM	UNIT	QUANTITY
Reinforcement Bars	Pound	2240
Concrete Structures	Cu. Yd.	29.6
Furnishing Steel Piles, HP 10 x 42	Foot	180
Driving Piles	Foot	180
Test Piles	Each	1
Structure Excavation	Cu. Yd.	43



BAR s1



BAR u1



BAR u3

PILE DATA

Type & Size	=	HP 10 x 42
Nominal Required Bearing	=	335 kips
Allowable Resistance Available	=	112 kips
Estimated Length	=	36'
Number Req'd.	=	6 (Including 1 Test Pile)

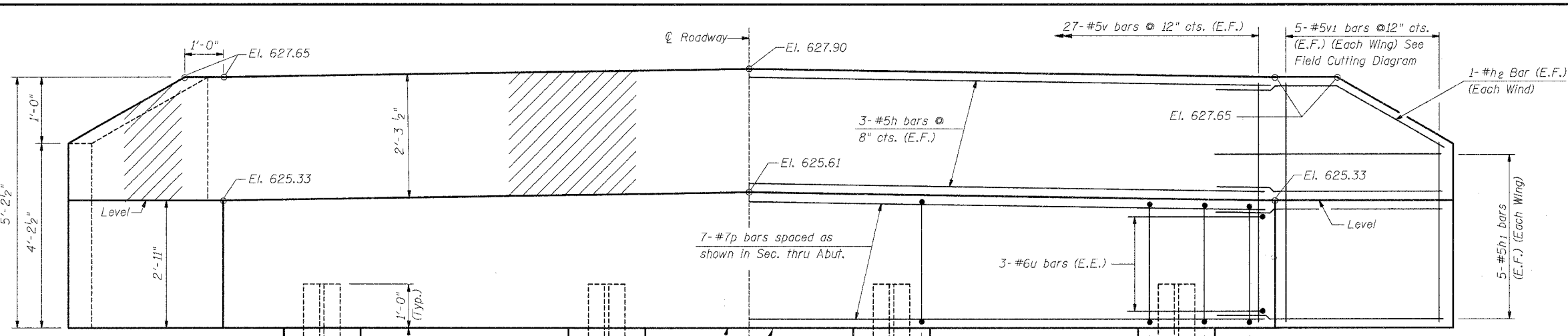
PIER DETAILS
T.R. 69 OVER LAKE FORK CREEK
SEC. 01-19113-00-BR
SHELBY COUNTY
S.N. 087-3530
STA. 15+12.13

INTERNATIONAL ENGINEERING CONSULTANTS, INC.
6420 SOUTH SIXTH STREET
SPRINGFIELD, ILLINOIS 62707
TEL (217) 528-8027
FAX (217) 528-4543
IESPRINGFIELD@IE-CONSULTANTS.COM
WWW.IE-CONSULTANTS.COM

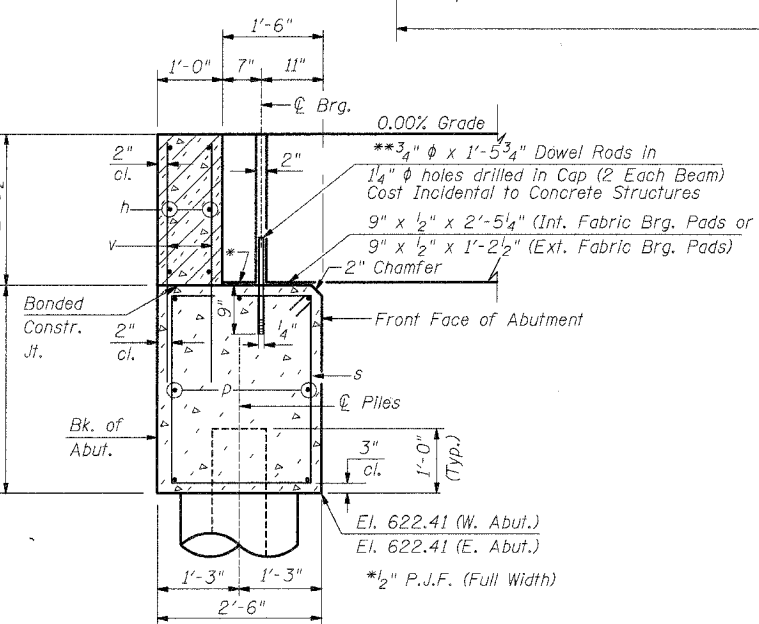
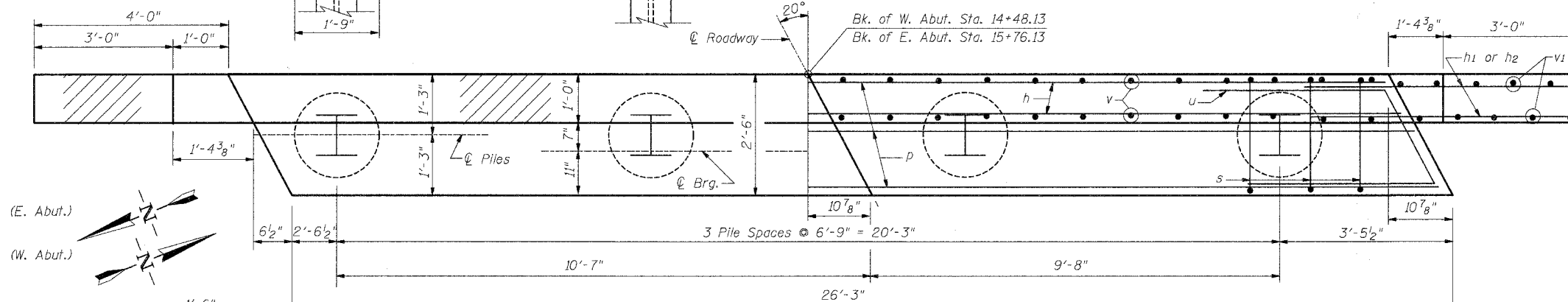
DESIGNED BY: G.B.M.	CHECKED BY: D.R.B.	DRAWN BY: J.P.H.	DATE: March 2008
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ROUTE NO. TR 69	SECTION *	COUNTY SHELBY	TOTAL SHEETS 12	SHEET NO. 11
FED. ROAD DIST. NO. 7		ILLINOIS PROJECT *01-19113-00-BR	SHEET 5 OF 6	

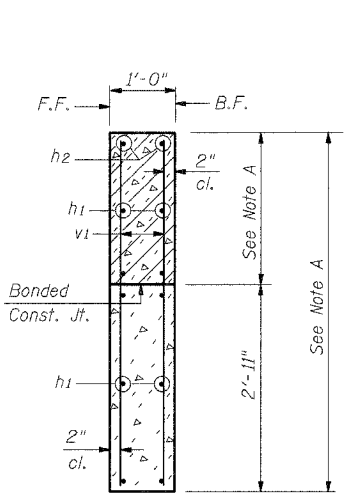


NOTE:
The hatched area of the wingwalls & backwall shall be poured after the beams are in place.



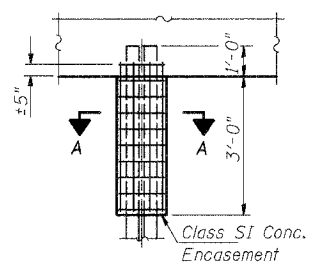
SECTION THRU ABUTMENT

**Dowel Rods to be grouted after beams are in place and prior to grouting the shear keys.

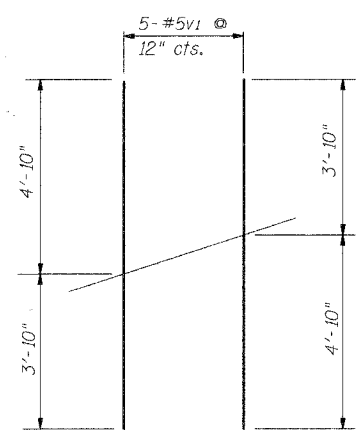


SECTION THRU WINGWALLS

NOTE A: See Elev. given on Elev. View



PILE ENCASEMENT DETAIL



FIELD CUTTING DIAGRAM

Order v1 bars full length, cut to fit in field

BILL OF MATERIAL

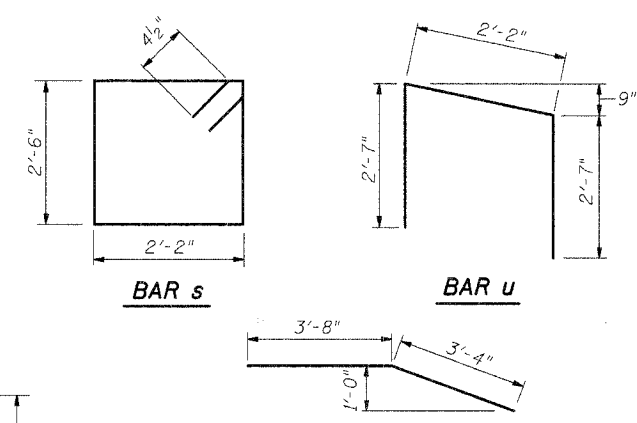
(2 Abutments)

Bar	No.	Size	Length	Shape
h	12	#5	25'-11"	—
h1	40	#5	6'-9"	—
h2	8	#5	7'-0"	—
p	14	#7	25'-11"	—
s	48	#4	10'-1"	□
u	12	#6	7'-4"	└
v	108	#5	4'-0"	—
v1	20	#5	8'-8"	—

ITEM	UNIT	QUANTITY
Reinforcement Bars	Pound	2500
Concrete Structures	Cu. Yd.	24.0
Furnishing Steel Piles, HP 10x42	Lin. Ft.	210
Driving Piles	Lin. Ft.	210
Test Piles	Each	2
Structure Excavation	Cu. Yd.	74
Concrete Encasement	Cu. Yd.	2.2

PILE DATA

- Type & Size = Steel HP 10 x 42
- Nominal Required Bearing = 335 kips
- Allowable Resistance Available = 112 kips
- Estimated Length = 35'
- Number Req'd. = 8 (Including 1 Test Pile @ Each Abut.)



BAR h2

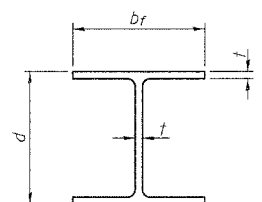
ABUTMENT DETAILS
T.R. 69 OVER LAKE FORK CREEK
SEC. 01-19113-00-BR
SHELBY COUNTY
S.N. 087-3530
STA. 15+12.13

ie consultants
6420 South Sixth Street
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ieSpringfield@ie-consultants.com
www.ie-consultants.com

DESIGNED BY: G.B.M.	CHECKED BY: D.R.B.	DRAWN BY: J.P.H.	DATE: March 2008
------------------------	-----------------------	---------------------	---------------------

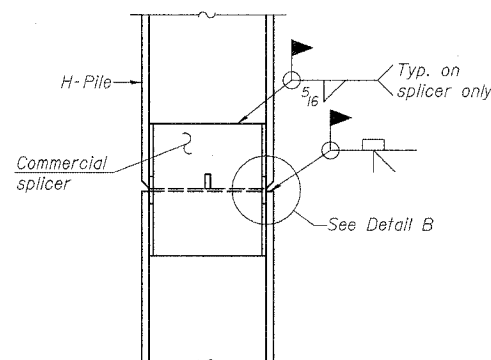
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ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 69	*	SHELBY	12	12
FED. ROAD DIST. NO. 7		ILLINOIS PROJECT		
*01-19113-00-BR		SHEET 6 OF 6		

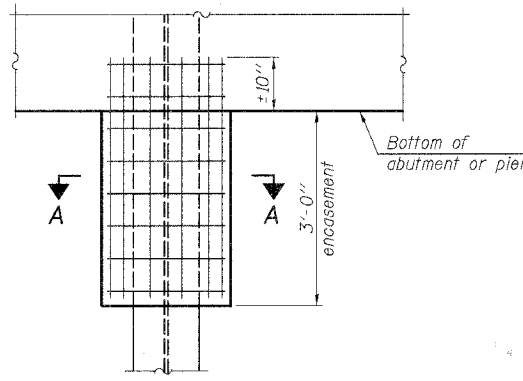


STEEL PILE TABLE

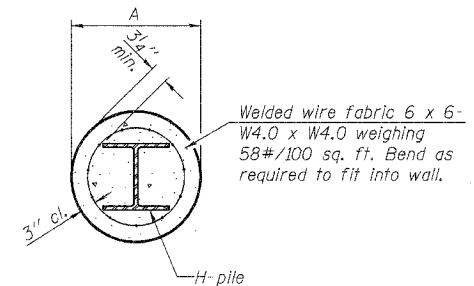
Designation	Depth d	Flange width br	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	13/16"	30"
x102	14"	14 3/4"	1/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	1/16"	24"
x74	12 9/8"	12 1/4"	5/8"	24"
x63	12"	12 9/8"	1/2"	24"
x53	11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



ELEVATION



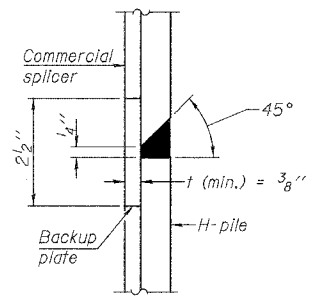
ELEVATION



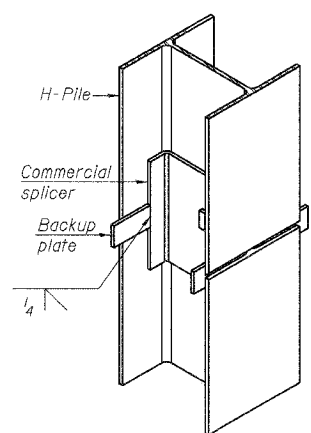
SECTION A-A

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

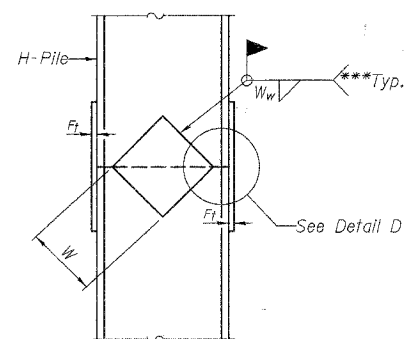
PILE ENCASEMENT



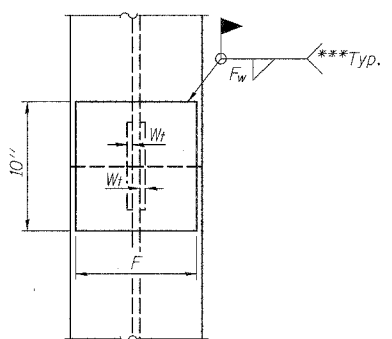
DETAIL "B"



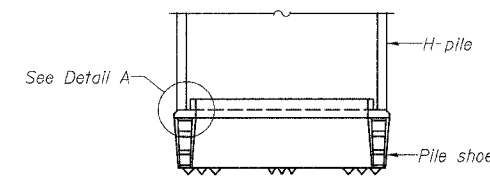
ISOMETRIC VIEW



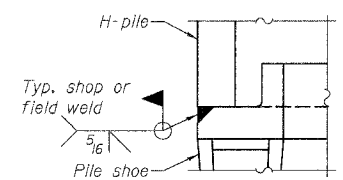
ELEVATION



END VIEW

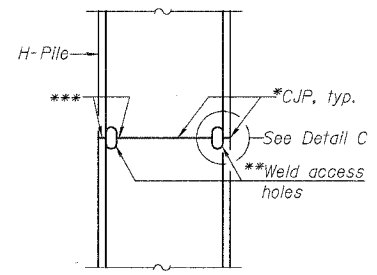


ELEVATION



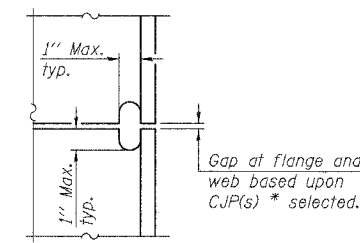
DETAIL A

H-PILE SHOE ATTACHMENT

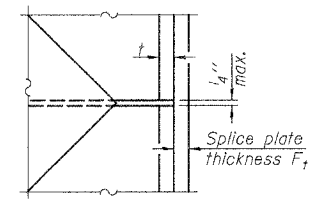


ELEVATION

COMPLETE PENETRATION WELD SPLICE



DETAIL C



DETAIL D

WELDED PLATE FIELD SPLICE

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

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

*Use joint conforming to Figure 3.4 in AWS D1.1, Structure Welding Code - Steel.
 **Preparation per Fig. 5.2 in AWS D1.1, Structure Welding Code - Steel.
 ***Interrupt welds 1/4" from end of each pile.

H-PILE DETAILS
 TR 69 OVER LAKE FORK CREEK
 SECTION 04-19113-00-BR
 SHELBY COUNTY
 S.N. 087-3530
 STA. 15+12.13

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 ieSpringfield@ie-consultants.com
 www.ie-consultants.com

DESIGNED BY:	CHECKED BY:	DRAWN BY:	DATE:
G.B.M.	D.R.B.	J.P.H.	March 2008

3/21/2008 9:19:09 AM
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