

ROUTE NO.	DISTRICT	COUNTY	TOTAL SHEETS	SHEET NO.
TR 318A	*	Vermilion	12	1
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

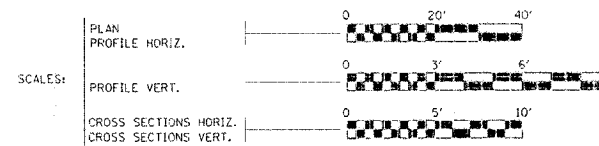
*00-06121-00-BR

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED
BRIDGE REPLACEMENT

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	COVER SHEET
2	SUMMARY OF QUANTITIES, TYPICAL CROSS SECTIONS, AND SCHEDULE OF QUANTITIES
3	PLAN AND PROFILE
4 - 9	BRIDGE PLANS
10	TRAFFIC CONTROL
11	EROSION CONTROL PLAN
12	CROSS SECTIONS

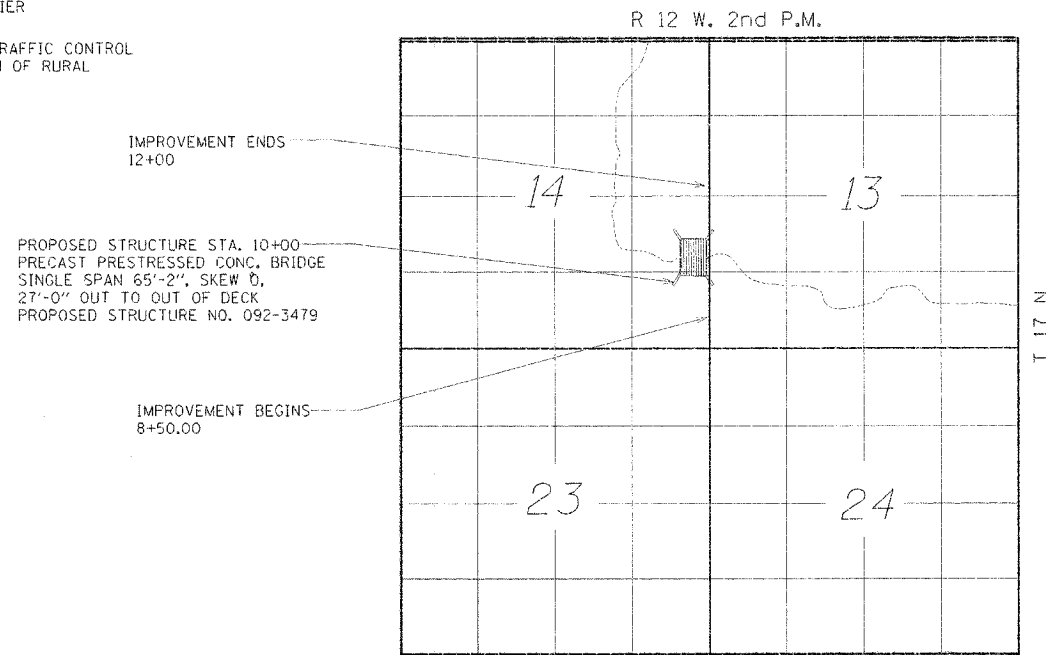
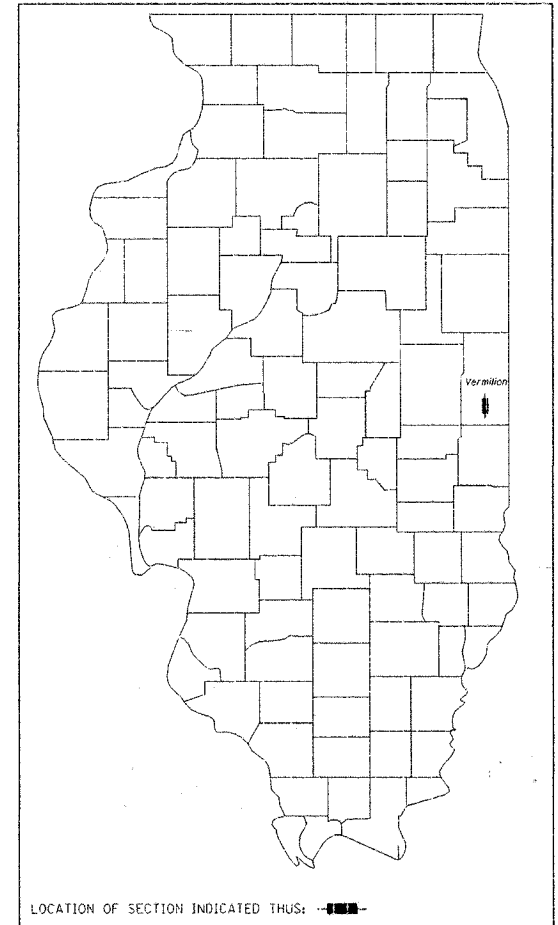


VERMILION COUNTY
ELWOOD ROAD DISTRICT
SECTION 00-06121-00-BR
OLD STRUCTURE NO. 092-3185
NEW STRUCTURE NO. 092-3479
TR 318A

BRIDGE REPLACEMENT AND REHABILITATION
PROJECT NO. BROS-183(88)
JOB NO. C-95-309-05

ILLINOIS DEPT. OF TRANSPORTATION STANDARD DRAWINGS

STANDARD NO.	DESCRIPTION
515001-02	NAME PLATE FOR BRIDGES
630001-07	STEEL PLATE BEAM GUARDRAIL
631006-04	TRAFFIC BARRIER TERMINAL TYPE 1B
631026-03	TRAFFIC BARRIER TERMINAL TYPE 5A
701006-02	OFF ROAD OPERATIONS, 2L, 2W, 15' TO 24' FROM PAVEMENT EDGE
702001-06	TRAFFIC CONTROL DEVICES
704001-03	TEMPORARY CONCRETE BARRIER
BLR 21-6	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION OF RURAL LOCAL HIGHWAYS



IMPROVEMENT ENDS
12+00

PROPOSED STRUCTURE STA. 10+00
PRECAST PRESTRESSED CONC. BRIDGE
SINGLE SPAN 65'-2", SKEW 0,
27'-0" OUT TO OUT OF DECK
PROPOSED STRUCTURE NO. 092-3479

IMPROVEMENT BEGINS
8+50.00

LOCATION MAP



John A. Frauenhoffer
JOHN ANTON FRAUENHOFER
Illinois Licensed Professional Engineer Number 36768
License Expires November 30, 2007

APPROVED Nov 1, 2006 2006
Robert B. Andrews
ROBERT ANDREWS, PE COUNTY ENGINEER

APPROVED Nov 1, 2006 2006
Garrett W. Todd
ROAD COMMISSIONER

PASSED 11/8/06 20
David H. Seiber
DISTRICT FIVE ENGINEER OF
LOCAL ROADS & STREETS

Releasing For Bid Based on Limited Review 11/07 2006
Joseph E. Cummings
DEPUTY DIRECTOR OF HIGHWAYS,
REGION FIVE ENGINEER

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FRAUENHOFER
Frauenhoffer and Associates, P.C. Consulting Engineers
3002 Crossing Court Champaign, IL 61822 217-351-6268

CONTRACT NO. 91330

FOR JOINT UTILITY INFORMATION
CALL TOLL FREE 1-800-892-0123

FUNCTIONAL CLASS - LOCAL ROAD (0-250 ADT), CURRENT ADT = 150
NET LENGTH OF SECTION = 350 FEET = 0.066 MILES

SUMMARY OF QUANTITIES

ROUTE NO.	SECTION	COUNTY	SHEET NO.	TOTAL SHEETS
TR 318A		Vermilion	12	2
FED. ROAD DIST. NO. 7		DISTRICT		FED. AID PROJECT

*00-06121-00-BR

CODE NO.	ITEM	UNIT	X081-2A QUANTITY
20100500	TREE REMOVAL, ACRES	ACRE	0.10
•20200100	EARTH EXCAVATION	CU. YD.	105
•20400800	FURNISHED EXCAVATION	CU. YD.	137
•25000200	SEEDING, CLASS 2	ACRE	0.15
25100115	MULCH, METHOD 2	ACRE	0.15
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	100
28000300	TEMPORARY DITCH CHECKS	EACH	4
28000400	PERIMETER EROSION BARRIER	FOOT	568
•35102000	AGGREGATE SURFACE COURSE, TYPE B	SO. YD.	637
•50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50200100	STRUCTURE EXCAVATION	CU. YD.	104
50300225	CONCRETE STRUCTURES	CU. YD.	23.6
50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEEP)	SO. FT.	1760
•50800105	REINFORCEMENT BARS	POUND	2670
50900205	STEEL RAILING, TYPE S-1	FOOT	132
51201400	FURNISHING STEEL PILES, HP10 X 42	FOOT	318
51202305	DRIVING PILES	FOOT	318
51203400	TEST PILE, STEEL HP 10 X 42	EACH	2
51204650	PILE SHOES	EACH	14
•51205200	TEMPORARY SHEET PILING	SO. FT.	1591
51500100	NAME PLATES	EACH	1
Δ•63000000	STEEL PLATE BEAM GUARD RAIL, TYPE A	FOOT	150
Δ63100041	TRAFFIC BARRIER TERMINAL TYPE 1B	EACH	4
Δ63100075	TRAFFIC BARRIER TERMINAL TYPE 5A	EACH	4
•70101805	TRAFFIC CONTROL AND PROTECTION, SPECIAL	EACH	1
•70400100	TEMPORARY CONCRETE BARRIER	FOOT	430
70400200	RELOCATE TEMPORARY CONCRETE BARRIER	FOOT	430
•XX004565	GROUTED RIP RAP	SO. YD.	132
•XX004566	CONCRETE CUT-OFF WALL	CU. YD.	6.0
•50800515	BAR SPLICERS	EACH	14
•20013798	CONSTRUCTION LAYOUT	L. SUM	1.0
•67100100	MOBILIZATION	L. SUM	1.0

• SEE SPECIAL PROVISIONS
 Δ SPECIALTY ITEMS

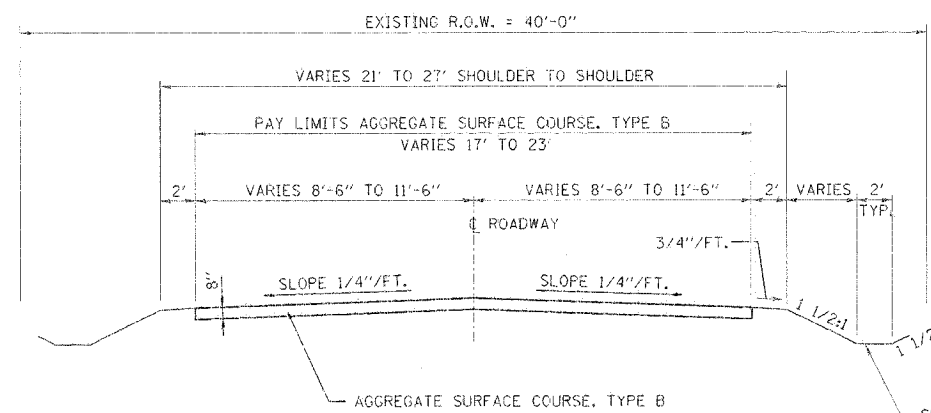
STEEL PLATE BEAM GUARDRAIL, TYPE A	
LOCATION	FOOT
LT STA 9+48.25 TO STA 11+21.25	75.0
RT STA 10+46.25 TO STA 11+21.25	75.0
TOTAL	150.0

TRAFFIC BARRIER TERMINAL, TYPE 5A	
LOCATION	EACH
LT STA 9+53.75 TO STA 9+67.00	1.0
RT STA 9+53.75 TO STA 9+67.00	1.0
LT STA 10+33.00 TO STA 10+46.25	1.0
RT STA 10+33.00 TO STA 10+46.25	1.0
TOTAL	4.0

MULCH, METHOD 2	
LOCATION	ACRE
STA 8+50 TO STA 9+67	0.06
STA 10+33 TO STA 12+00	0.09
TOTAL	0.15

CONSTRUCTION LAYOUT	
LOCATION	L. SUM
SEC. 00-06121-00-BR	1
TOTAL	1

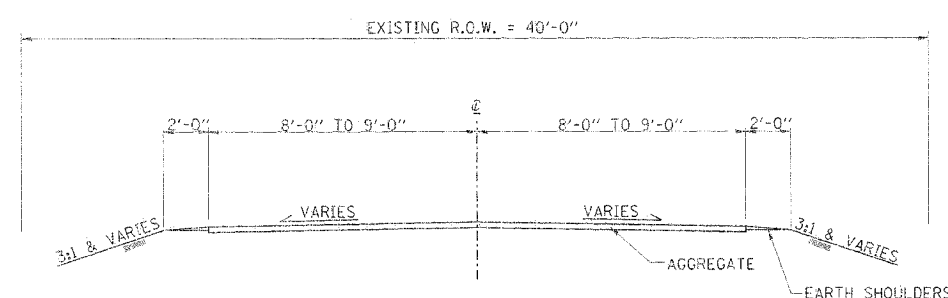
AGGREGATE SURFACE COURSE, TYPE B	
LOCATION	SO. YD.
STA 8+50 TO STA 9+67	265
STA 10+33 TO STA 12+00	372
TOTAL	637



TYPICAL CROSS SECTION

STA. 8 + 50 TO STA. 9 + 67.42
 STA. 10 + 32.58 TO STA. 12 + 00

NOTES:
 FUNCTIONAL CLASS - LOCAL ROAD (0-250 ADT)
 CURRENT ADT = 150
 SEE PLAN AND PROFILE SHEET 3 FOR PAVEMENT AND SHOULDER TAPERS.



EXISTING TYPICAL CROSS SECTION

STA 8+50 TO STA. 12+00

RELOCATE TEMPORARY CONCRETE BARRIER	
LOCATION	FOOT
STAGE II	
STA 8+00 TO STA 12+30	430
TOTAL	430

TEMPORARY CONCRETE BARRIER	
LOCATION	FOOT
STAGE I	
STA 8+00 TO STA 12+30	430
TOTAL	430

SEEDING, CLASS 2	
LOCATION	ACRE
STA 8+50 TO STA 9+67	0.06
STA 10+33 TO STA 12+00	0.09
TOTAL	0.15

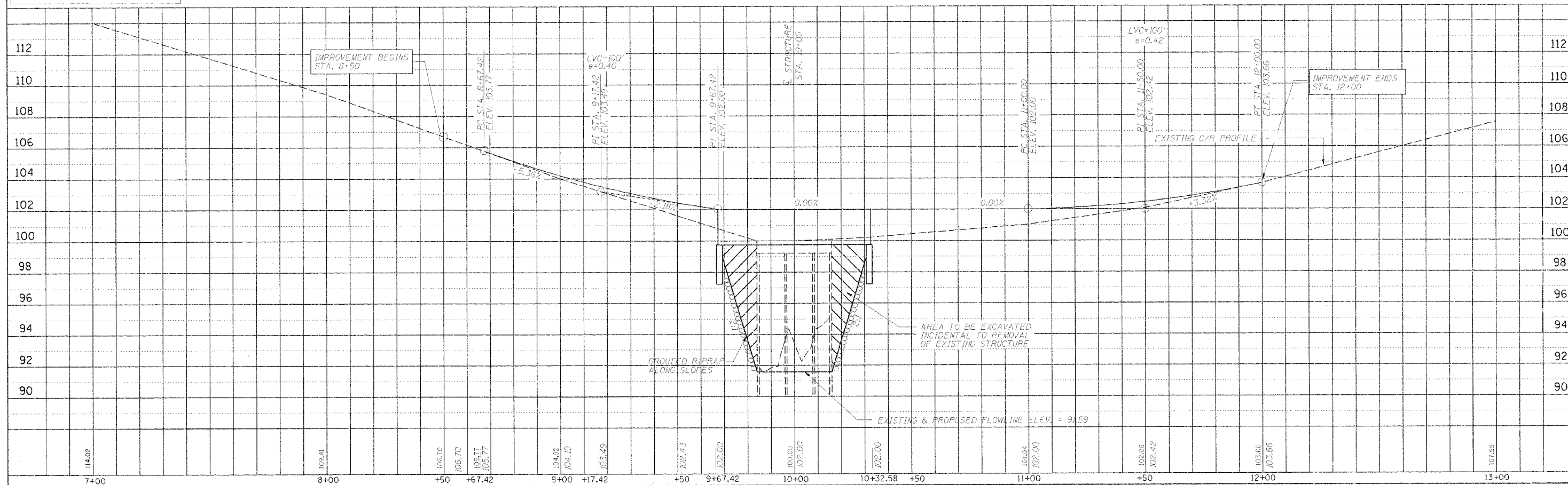
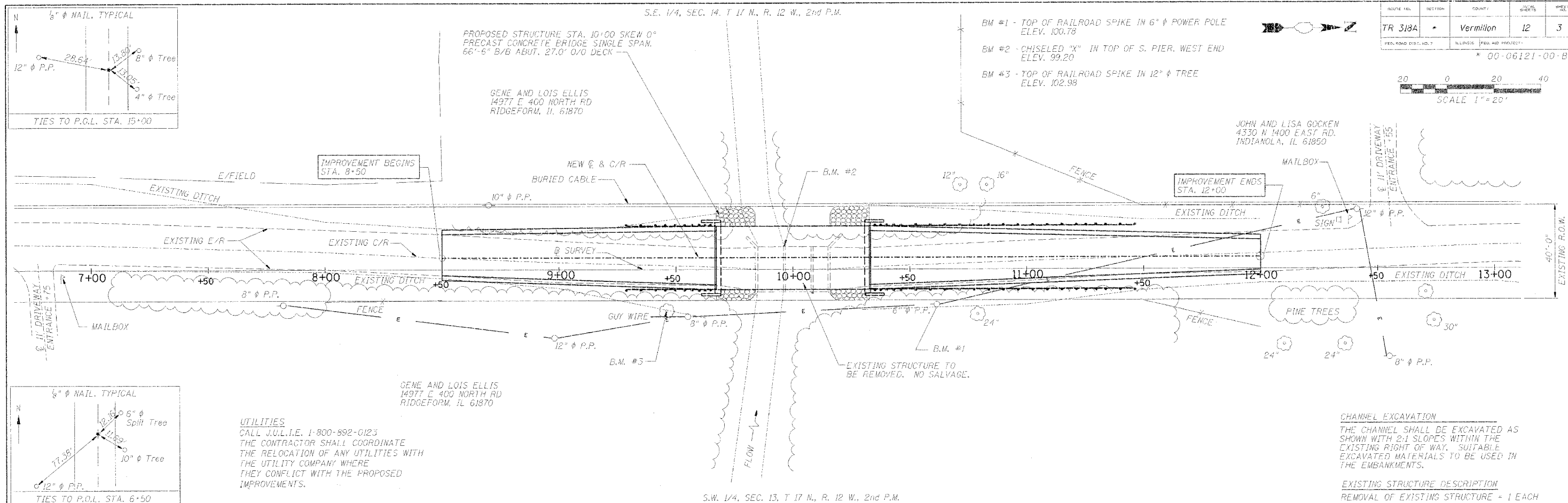
TRAFFIC BARRIER TERMINAL, TYPE 1B	
LOCATION	EACH
LT STA 9+28.75 TO STA 9+53.75	1.0
RT STA 9+28.75 TO STA 9+53.75	1.0
LT STA 11+21.25 TO STA 11+46.25	1.0
RT STA 11+21.25 TO STA 11+46.25	1.0
TOTAL	4.0

TREE REMOVAL, ACRES	
LOCATION	ACRE
LT STA 8+50 TO STA 10+65	0.04
RT STA 8+50 TO STA 11+63	0.06
TOTAL	0.10

GENERAL NOTES

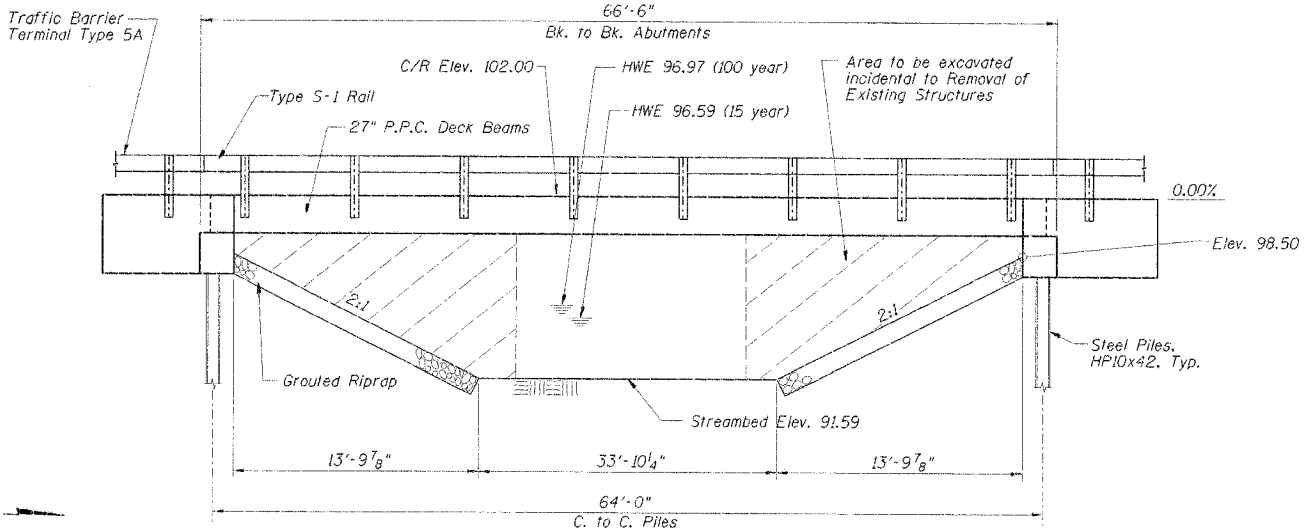
1. The locations of Existing utilities as shown on the plan are for information only, and are not guaranteed. It shall be the Contractor's responsibility to ascertain their exact location from the utility companies and by field inspection.

ROUTE NO.	SECTION	COUNTY	SHEET NO.	TOTAL SHEETS
TR 318A		Vermilion	12	3

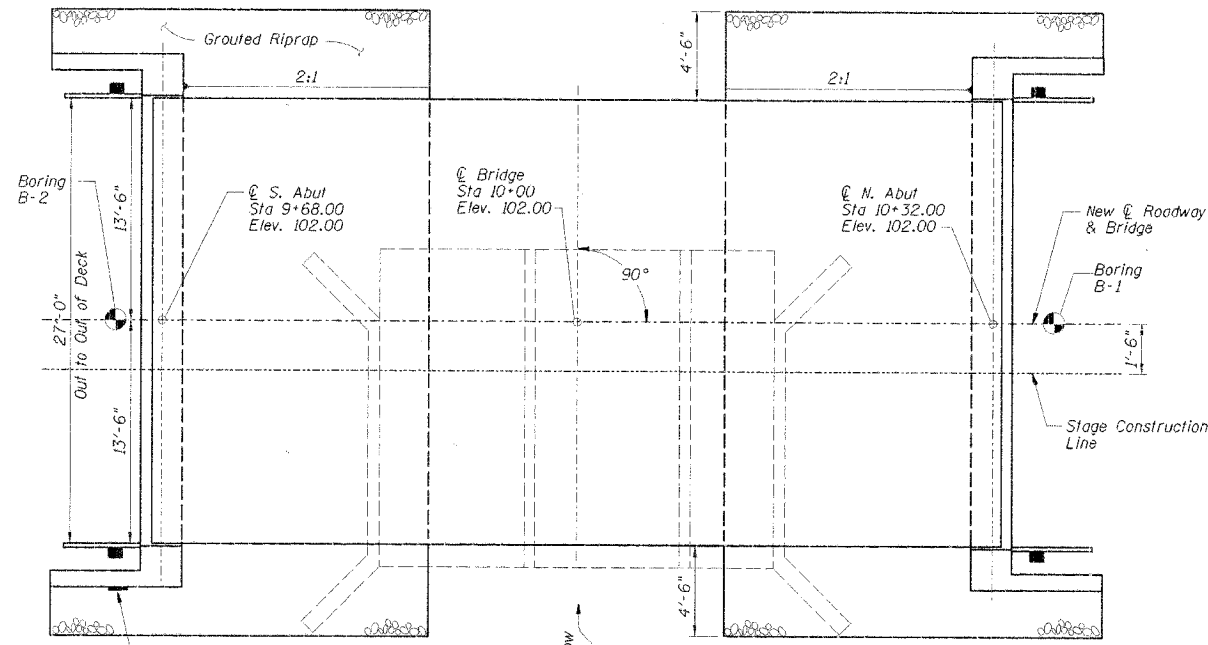


PLAN & PROFILE STA. 7+00 TO STA. 13+00

EXISTING STRUCTURE Description: Three span 7'-12'-12' conc. slab on conc. piers & closed conc. abutments with conc. wing, 30' F/F Abut, 19'-3" 0-0 deck.



ELEVATION

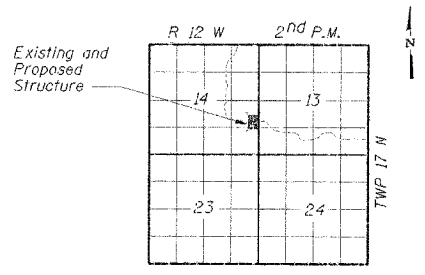


PLAN

GENERAL NOTES

- The Contractor shall drive 1 steel test pile in a permanent location at each abutment as directed by the Engineer before ordering the remainder of piles. Test piles shall be driven to 110 percent of the Nominal Required Bearing indicated in the pile data information.
- Boring Data is shown only as a guide to bidders in estimating soil conditions which may be encountered during construction.
- Class SI or MS Concrete shall be used in the abutments.
- Reinforcement bars shall conform to the requirements of AASHTO M31, M42 or M53 Grade 60.
- Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.

DSGN	R.J. Wagner				
DR	C.B. Beaudoin				
CHK	K.E. Brandau				
APVD	K.E. Brandau	NO.	DATE	REVISION	BY

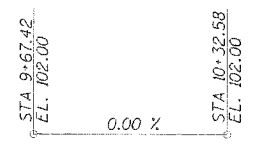


LOCATION SKETCH

STRUCTURE NO. 092-3479
SEC. 00-06121-00-BR BUILT 200
ELWOOD ROAD DISTRICT
VERMILION COUNTY
LOADING HS-20

NAME PLATE

See Standard 515001-01



PROFILE GRADE

DESIGN SPECIFICATIONS

AASHTO (2002) and applicable Interims

DESIGN LOADING

HS 20-44
25 P.S.F. Future Wearing Surface

DESIGN STRESSES

- $f'_c = 3,500$ psi (Cast in Place Concrete)
- $f'_c = 5,000$ psi (P.P.C. Units)
- $f_{ci} = 4,000$ psi (P.P.C. Units)
- $f_y = 60,000$ psi (Reinforcement)
- $f'_s = 270,000$ psi ($\frac{1}{2}$ " ϕ Strands)
- $f'_{si} = 201,960$ psi ($\frac{1}{2}$ " ϕ Strands)

WATERWAY DATA

Drainage Area	4.99 Sq. Mi.
Existing Opening (15 Yr.)	98.5 Sq. Ft.
Required Opening (15 Yr.)	212.6 Sq. Ft.
Proposed Opening (15 Yr.)	219.3 Sq. Ft.
Design Discharge (15 Yr.)	637 C.F.S.
Computed Discharge (100 Yr.)	985 C.F.S.
15 Yr. Head	0.03 Ft.
100 Yr. Head	0.10 Ft.

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 the requirements of the current "AASHTO Standard Specifications for Highway Bridges."



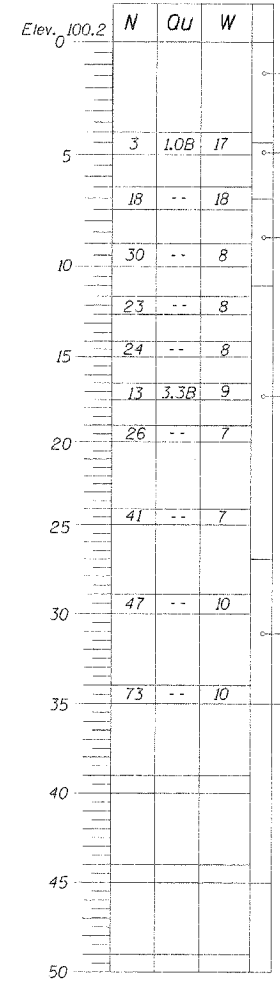
JOHN A. FRAUENHOFFER
Illinois Licensed Structural Engineer Number 4192
License Expires 11/30/06

BORING DATA

N - Standard Penetration Test - Blows per foot to drive 2" O.D. split spoon sampler 12" with 140 lb. hammer falling 30".
Qu - Unconfined Compressive Strength - Tons/Sq. Ft.
W - Water Content - Percentage of oven dry weight - %
B - Bulge Failure, S - Shear Failure, E - Estimated Value

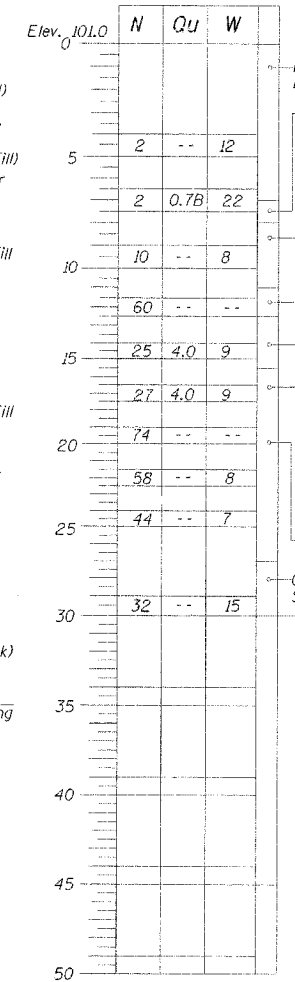
ROUTE NO.	SECTION	COUNTY	TOWNSHIP	SHEET NO.
TR 318A	*	Vermilion	12	4

*00-06121-00-BR



BORING B-1

STA 10+36.5, Along ϕ of Roadway



BORING B-2

STA 9+64.4, Along ϕ of Roadway

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Removal of Existing Structures	Each	1		1
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq. Ft.	1760		1760
Steel Railing, Type S-1	Foot	132		132
Concrete Structures	Cu. Yds.		23.6	23.6
Furnishing Steel Piles, HP10x42	Foot		318	318
Driving Piles	Foot		318	318
Test Piles, Steel HP10x42	Each		2	2
Pile Shoes	Each		14	14
Conc. Cut-off Wall	Cu. Yds.		6.0	6.0
Grouted Riprap	Sq. Yds.		132	132
Name Plate	Each		1	1
Reinforcement Bars	Pound		2670	2670
Bar Splicers	Each		14	14
Structure Excavation	Cu. Yds.		104	104
Temporary Sheet Piling	Sq. Ft.		1591	1591

FRAUENHOFFER

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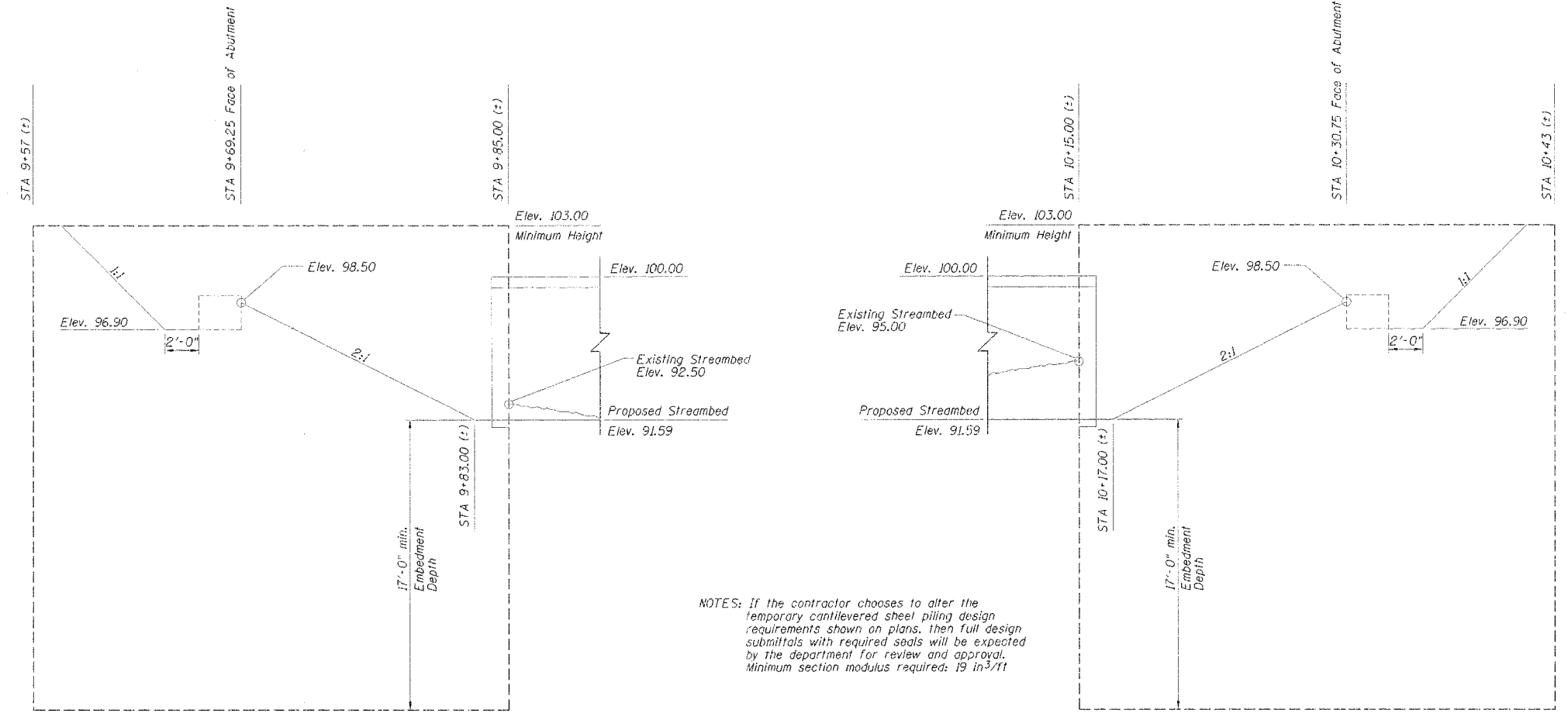
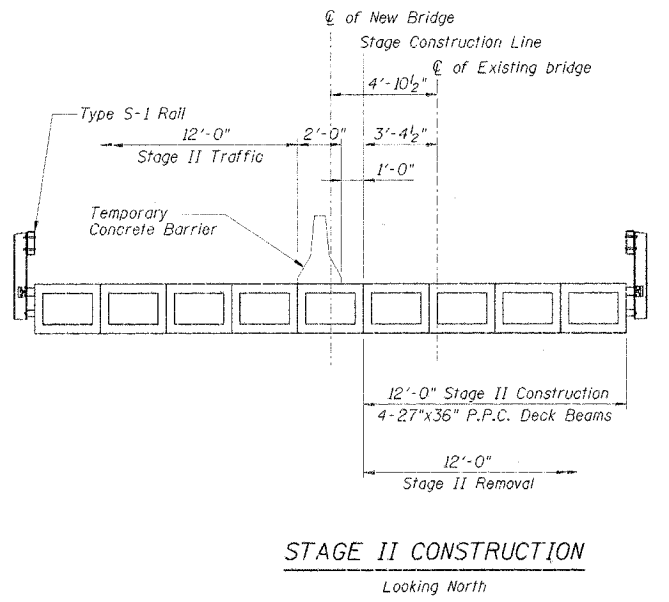
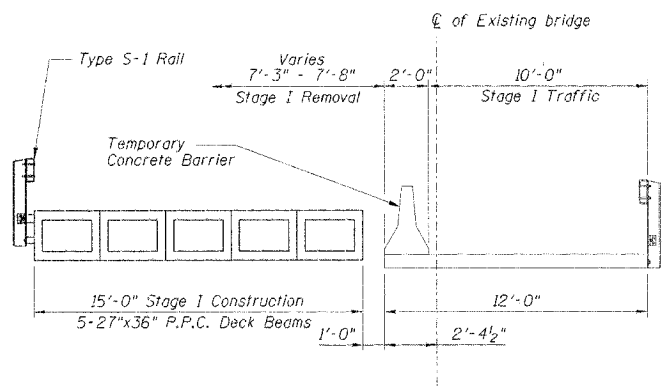
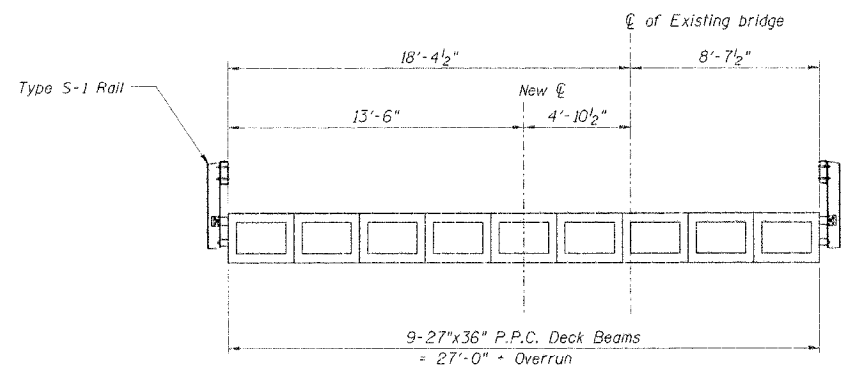
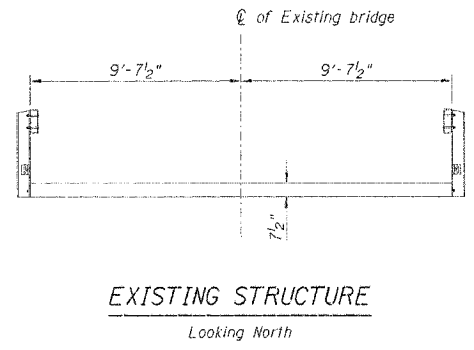
GENERAL PLAN AND ELEVATION

ELWOOD ROAD DISTRICT
SECTION 00-06121-00-BR
VERMILION COUNTY

SHEET	4
DWG NO.	elwd-gpe.dgn
DATE	JAN 2005
PROJ NO.	20053

ROUTE NO.	SECTION	COUNTY	DISTRICT	SHEET
TR 318A	*	Vermillion	12	5
PROJECT NO.	PROJECT TITLE			
	*00-06121-00-BR			

Note:
The existing bridge is not square. Establish control points at stations 8+50 and 11+50 and establish the new centerline from those points. The stage construction dimensions shall be established from the new centerline.



NOTES: If the contractor chooses to alter the temporary cantilevered sheet piling design requirements shown on plans, then full design submittals with required seals will be expected by the department for review and approval. Minimum section modulus required: 19 in³/ft

ELEVATION OF TEMPORARY SHEET PILING

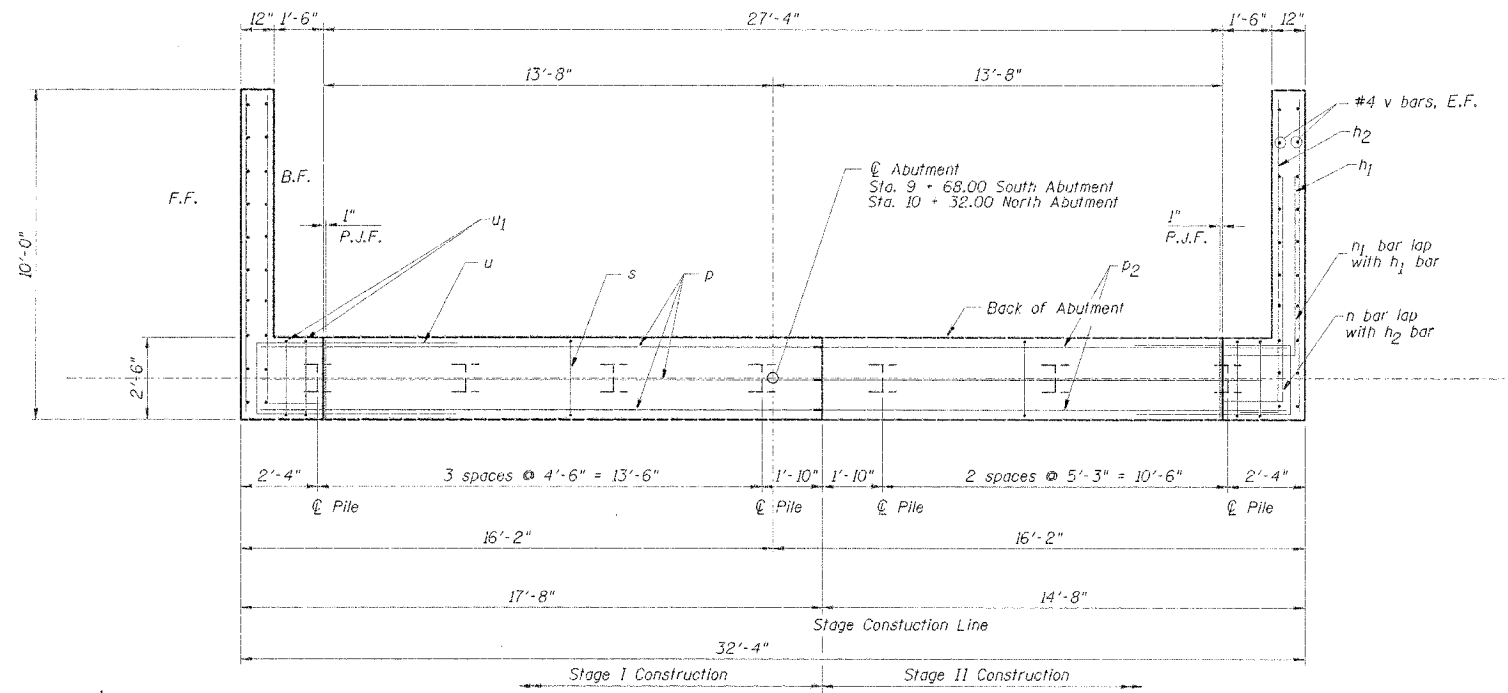
DSGN	R.J. Wagner				
DR	A.M. Meier				
CHK	K.E. Brandau				
APVD	K.E. Brandau	NO.	DATE	REVISION	BY

FRAUENHÖFFER
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STAGE CONSTRUCTION	SHEET
ELWOOD ROAD DISTRICT	6
SECTION 00-06121-00-BR	DWG NO. elwd-stg.dgn
VERMILION COUNTY	DATE JAN 2005
	PROJ NO. 20053

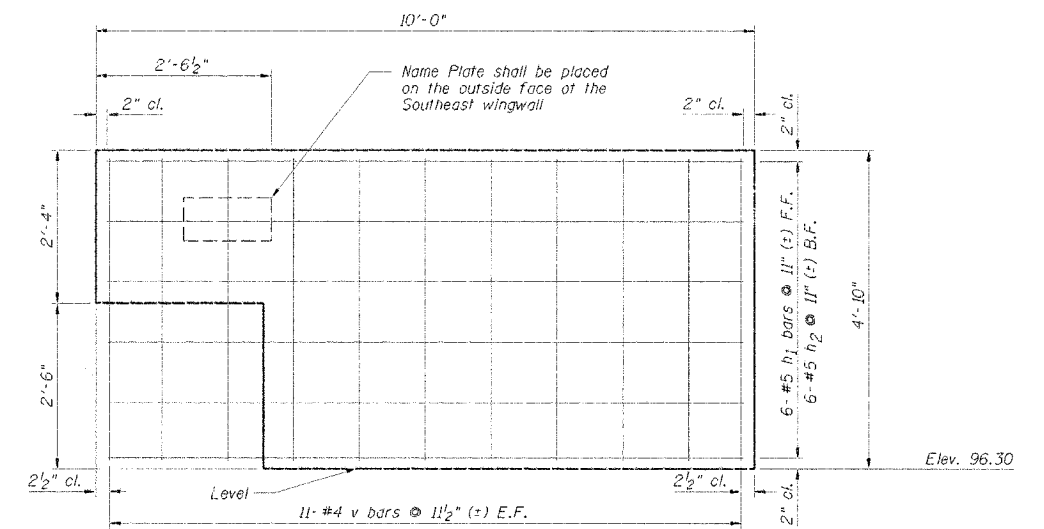
PROJECT NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET
TR 318A	*	Vermilion	12	6
FED. ROAD DIST. NO. 7	ALLOTTED	FED. AID PROJECT		

*00-06121-00-BR



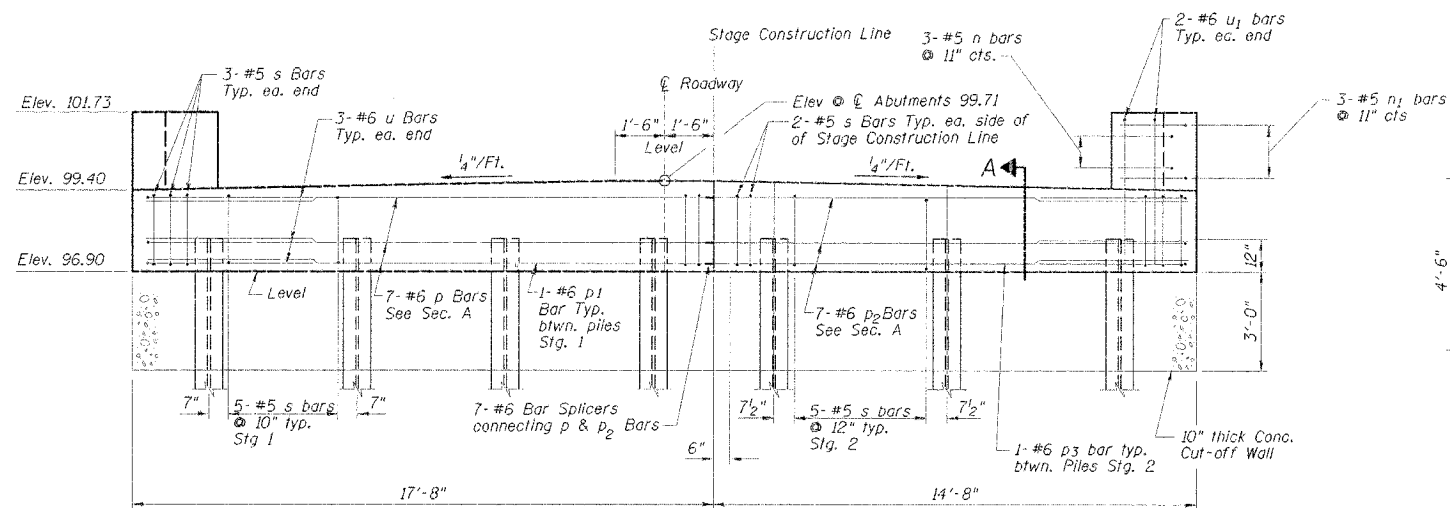
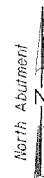
TOP PLAN

North Abutment Shown, South Abutment is a Mirror Image.



WINGWALL ELEVATION

Wingwalls shall be poured after beams are in place



ELEVATION

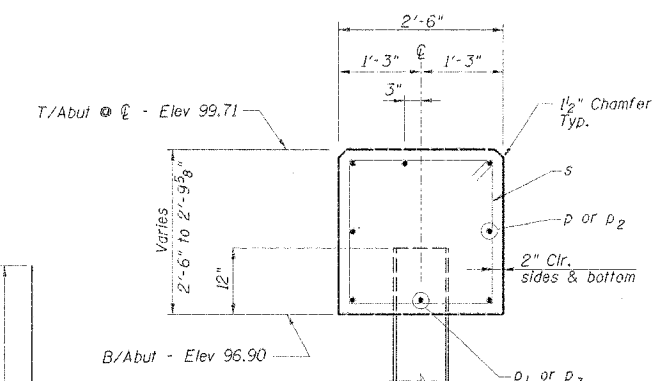
PILE DATA

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

Type: Steel HP 10 x 42
 Nominal Required Bearing: 108 kips
 Allowable Resistance Available: 54 kips
 Estimated Length: 30 ft. N. Abutment
 23 ft. S. Abutment

No. Required: 6 @ North Abutment
 6 @ South Abutment
 Test Piles: 1 @ North Abutment
 1 @ South Abutment

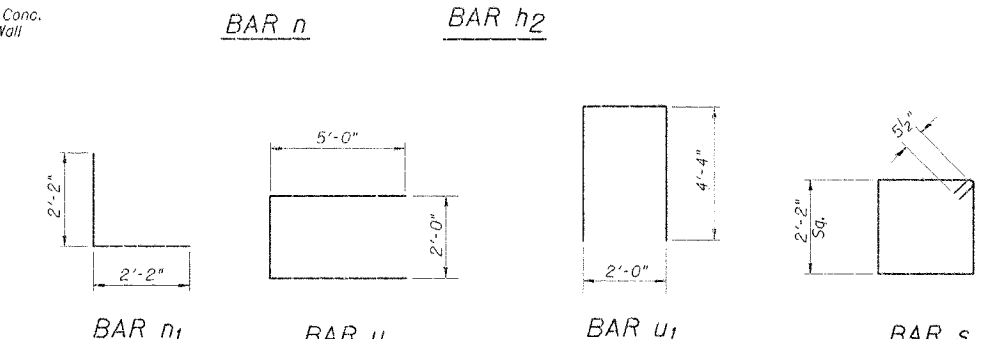
DSGN	R.J. Wagner				
DR	C.B. Beaudoin				
CHK	K.E. Brandau				
APVD	K.E. Brandau	NO.	DATE	REVISION	BY



SECTION A

BILL OF MATERIAL - 2 ABUTS.

Bar	No.	Size	Length	Shape	
h1	24	#5	9'-7"	—	
h2	24	#5	10'-4"	—	
n	12	#5	6'-0"	L	
n1	12	#5	4'-4"	L	
p	14	#6	17'-4"	—	
p1	6	#6	4'-0"	—	
p2	14	#6	14'-4"	—	
p3	4	#6	4'-9"	—	
s	70	#5	9'-7"	□	
u	12	#6	12'-0"	—	
u1	8	#6	10'-8"	—	
v	88	#4	4'-6"	—	
Concrete Structures				Cu. Yds.	23.6
Reinforcement Bars				Lbs.	2670
Test Pile, Steel HP10x42				Each	2
Furnishing Steel Piles, HP10x42				Foot	318
Driving Piles				Foot	318
Pile Shoes				Each	14
Name Plate				Each	1
Concrete Cut-off Wall				Cu. Yds.	6.0
Structure Excavation				Cu. Yds.	104
Bar Splicers				Each	14



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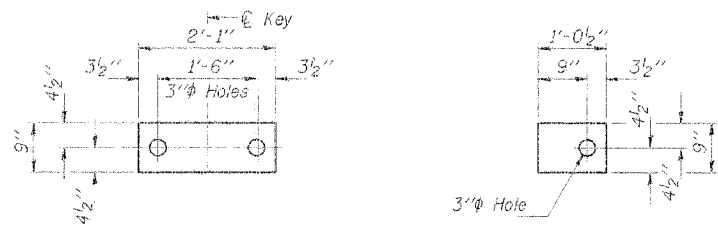
ABUTMENTS

ELWOOD ROAD DISTRICT
 SECTION 00-06121-00-BR
 VERMILION COUNTY

SHEET	6
DWG NO.	elwd-abt.dgn
DATE	JAN 2005
PROJ NO.	20053

ROUTE NO.	SECTION	COUNTY	SHEETS	NO.
TR318A	*	Vermilion	12	7
FILED DATE	FILED BY	FILED PROJECT		

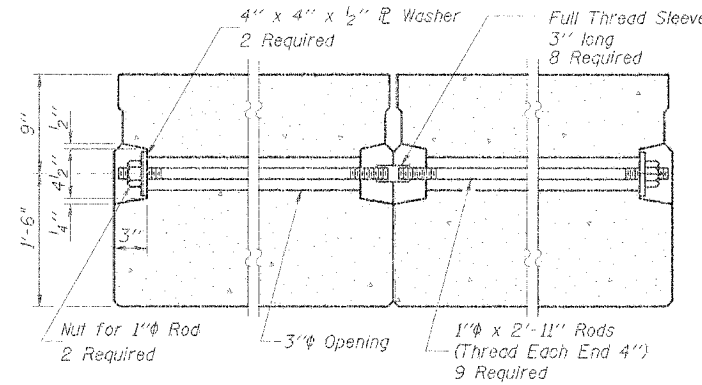
*00-06121-00-BR



FABRIC BEARING PAD (Interior)

FABRIC BEARING PAD (Exterior)

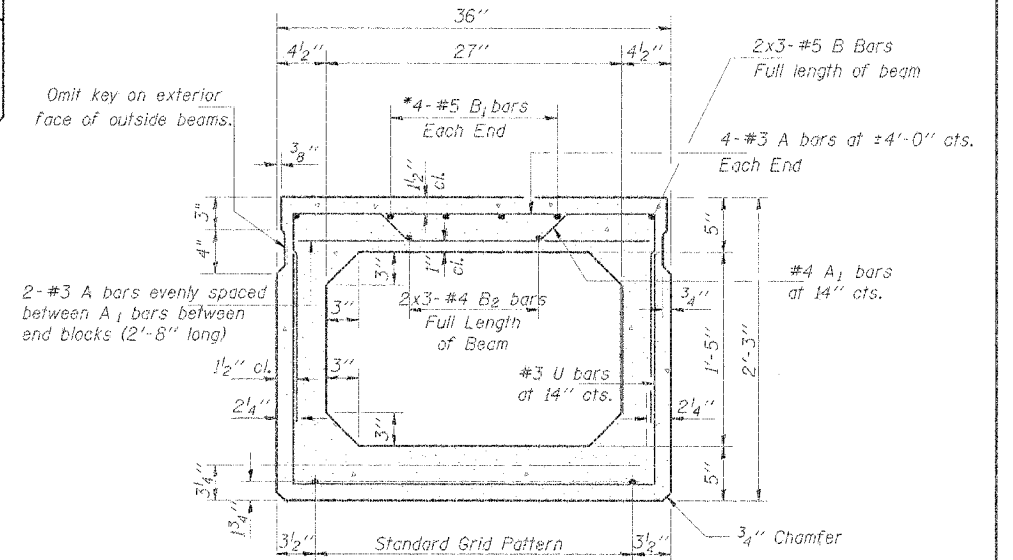
FIXED



TYPICAL TRANSVERSE TIE ASSEMBLY

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

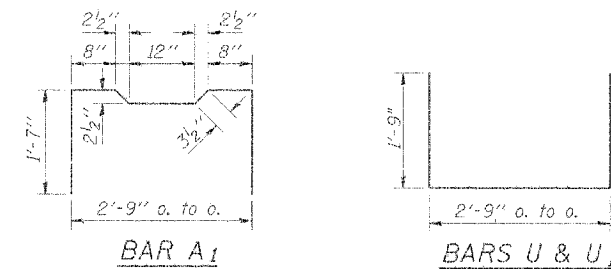
*0.2 x Length of beam



TYPICAL SECTION

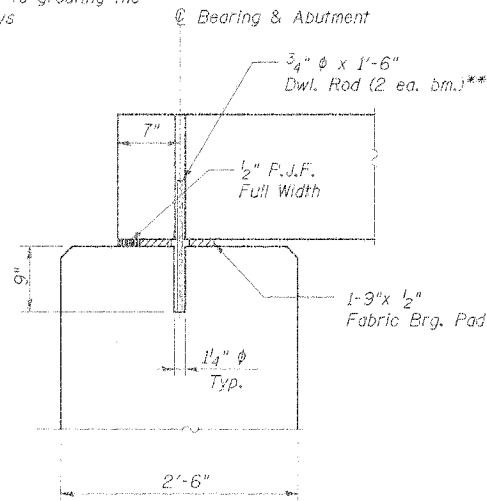
16-1/2 inch Strands Each Strand Stressed to 28,900 Lbs.
8-Strands 1 3/4 inch up, 6-Strands 3/4 inch up,
2-Strands 7/2 inch up

Note: Place strands symmetrically about center of beam.

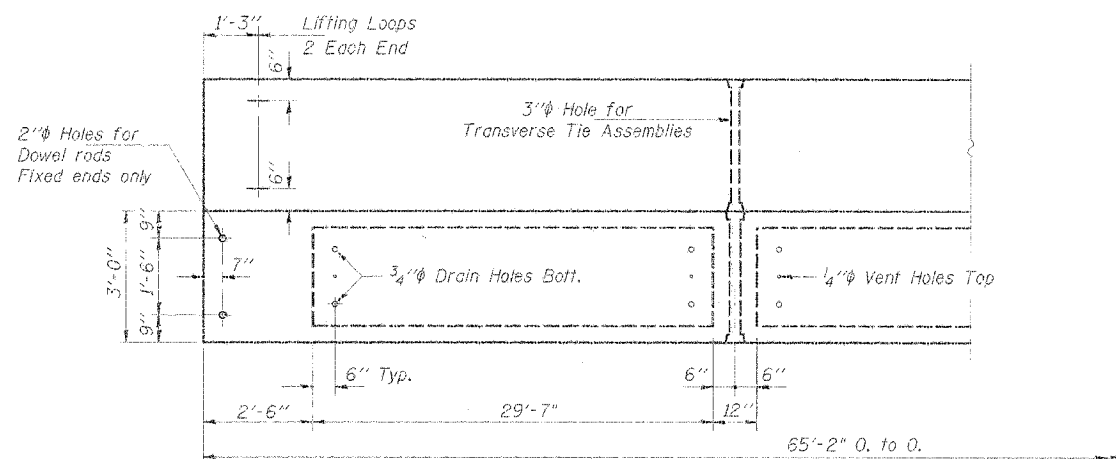


BAR A1

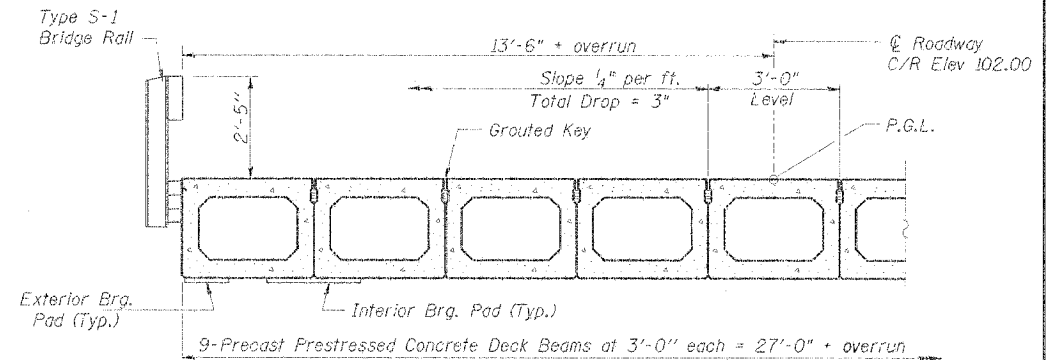
BARS U & U1



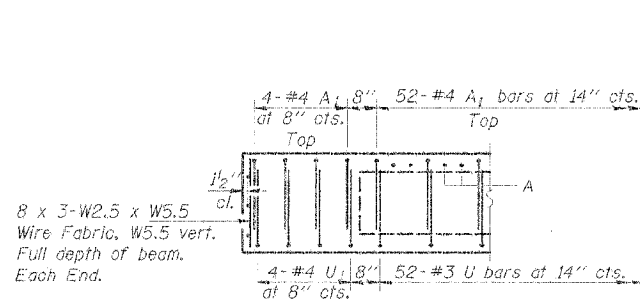
SECTION AT ABUTMENTS



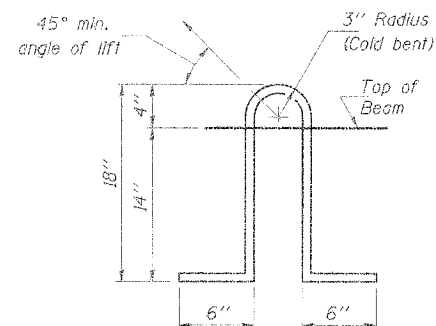
PLAN



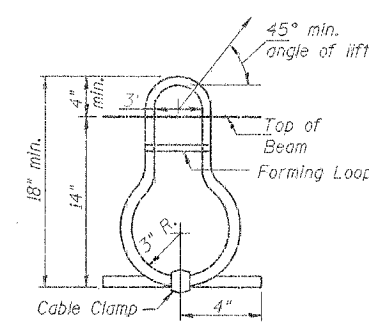
HALF CROSS SECTION



END ELEVATION



LIFTING LOOP DETAIL



LIFTING LOOP ALTERNATE

NOTES

Prestressing steel shall be uncoated high strength, low relaxation Y-wire strand, Grade 270. The nominal diameter shall be 1/2 inch and the nominal cross-sectional area shall be 0.153 sq. in. Lifting loops shall be 3/4 inch diameter, 5 x 25 cross wire rope with fiber core and shall have a minimum ultimate tensile strength of 46,000 lbs. or 3-1/2 inch-270 ksi strands, as shown.
The 1 inch rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Packets 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, M-42 or M-53 Grade 60. The bearing seat surfaces shall be adjusted by shimming to ensure firm and even bearing. Two 1/2 inch fabric adjusting stims 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.
A Corrosion Inhibitor, as covered in the Special Provisions, shall be used in the concrete for precast prestressed concrete deck beams.
Required Release Strength, f'ol, shall be 4000 p.s.i.

BILL OF MATERIAL (One Beam)

Bar	No.	Size	Length	Shape
A	110	#3	2'-8"	—
A1	60	#4	6'-1"	—
B	6	#5	23'-6"	—
B1	8	#5	13'-2"	—
B2	6	#4	23'-2"	—
U	52	#3	6'-3"	—
U1	8	#4	6'-3"	—
Precast Prestressed Conc. Deck Bms.		Sq. Ft.	1760*	

*Total Quantity of Beams

DSGN R.J. Wagner					
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CHK K.E. Brandau					
APVD K.E. Brandau	NO.	DATE	REVISION	BY	APVD

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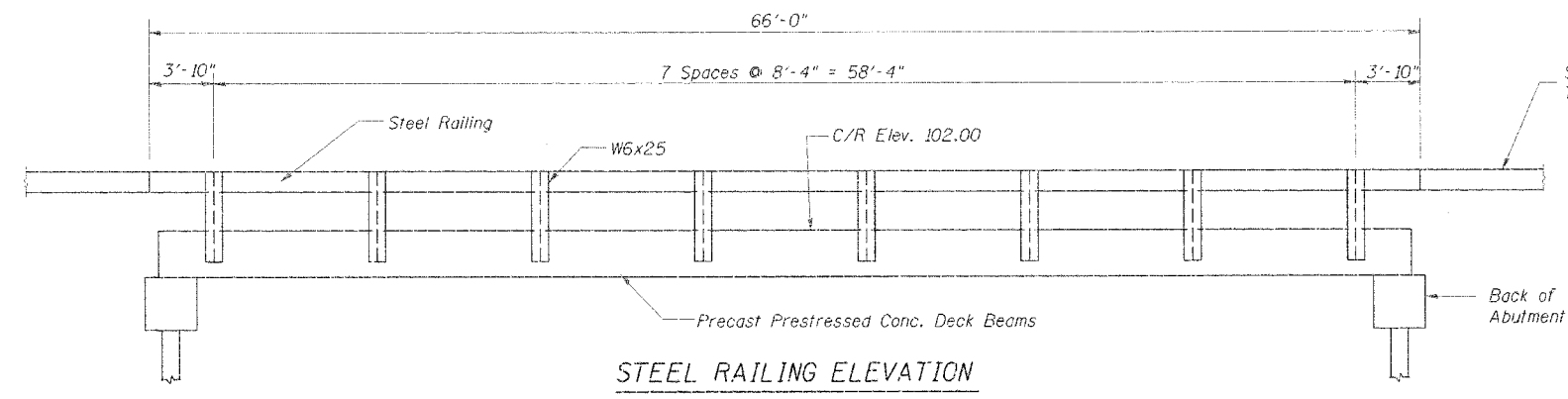
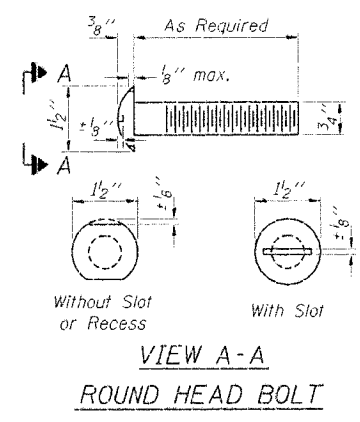
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SUPERSTRUCTURE

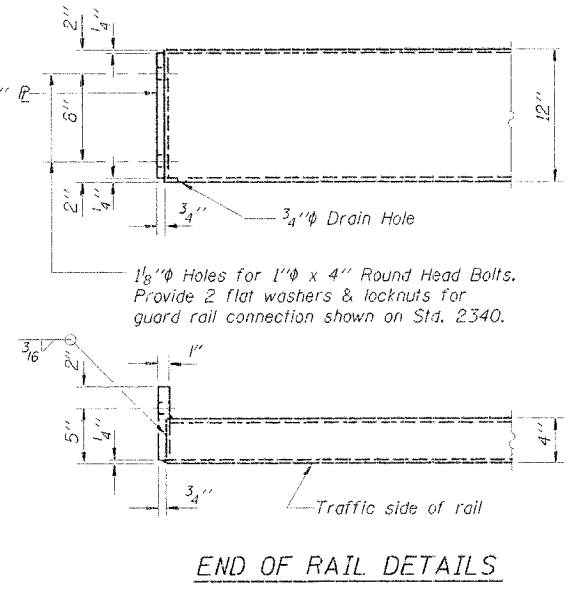
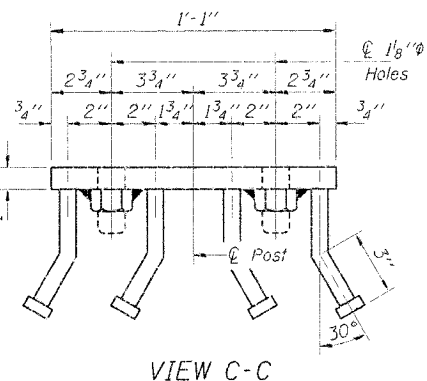
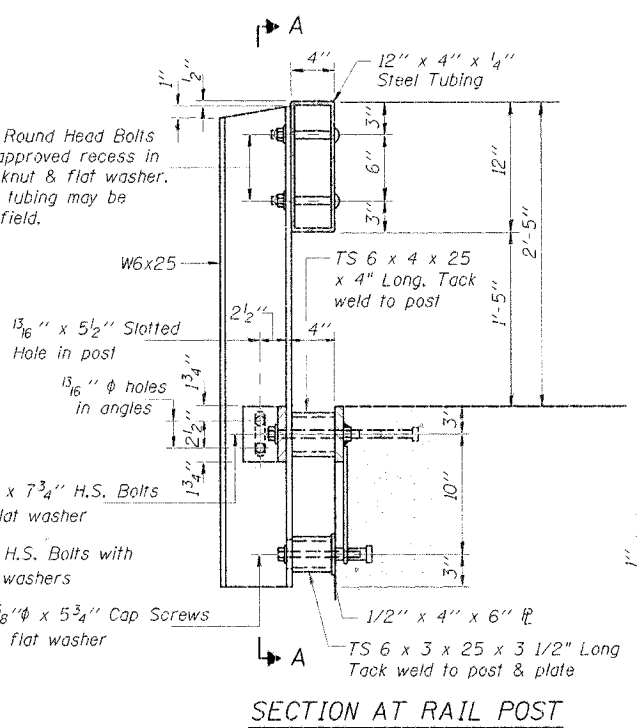
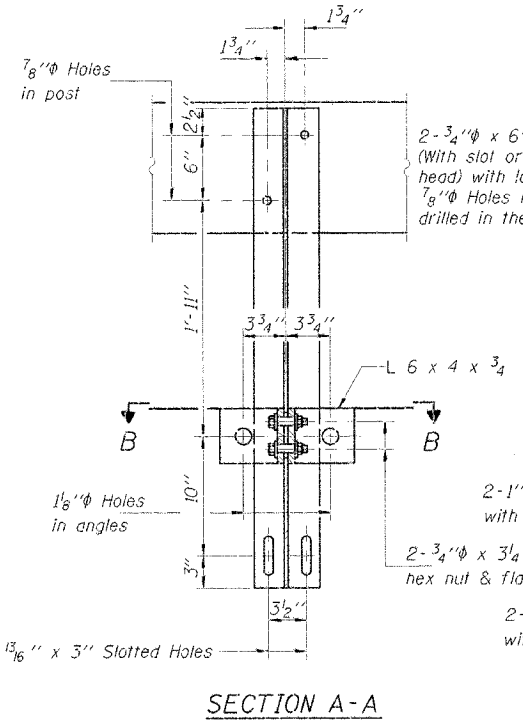
ELWOOD ROAD DISTRICT
SECTION 00-06121-00-BR
VERMILION COUNTY

SHEET 7

DWG NO. elwd-sup.dgn
DATE JAN 2005
PROJ NO. 20053



See Plan and Profile for Traffic Barrier Terminals



NOTES

Hollow structural steel tubing 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 requirement 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 in accordance with AASHTO M-232.

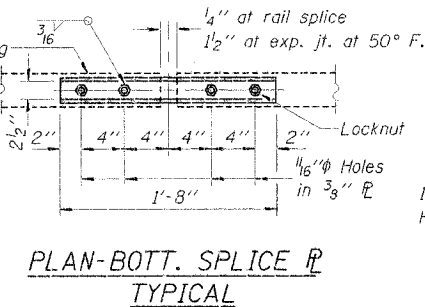
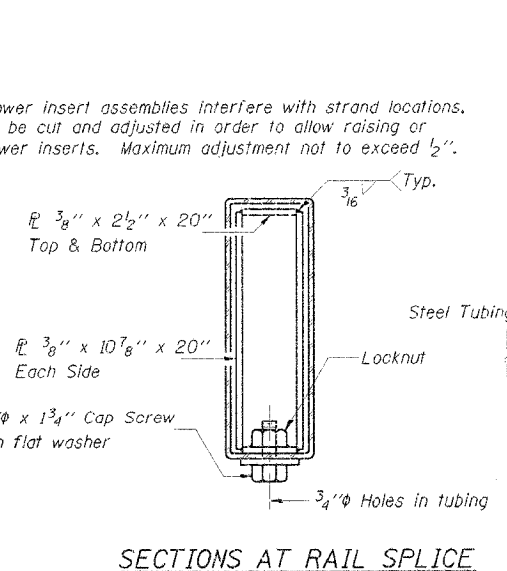
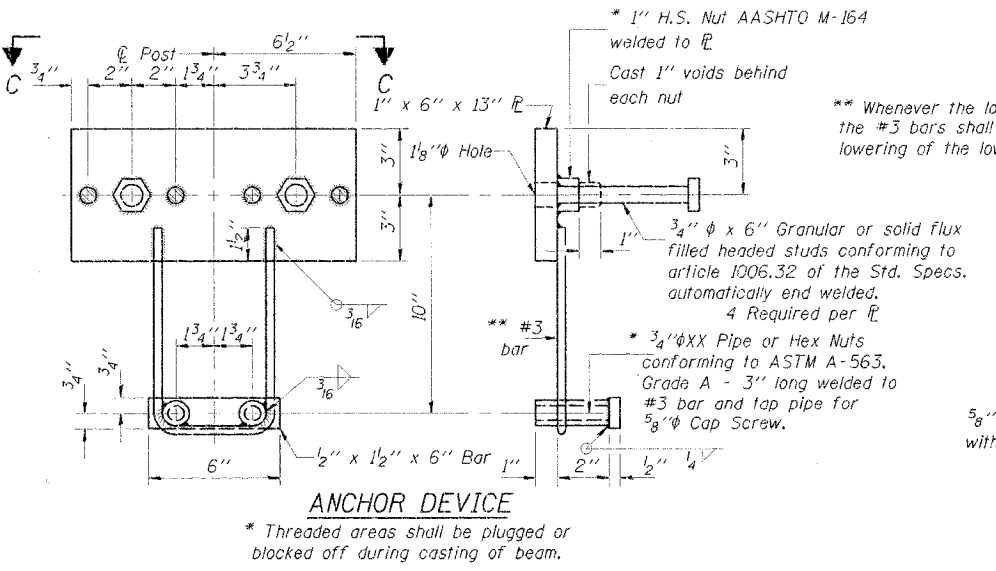
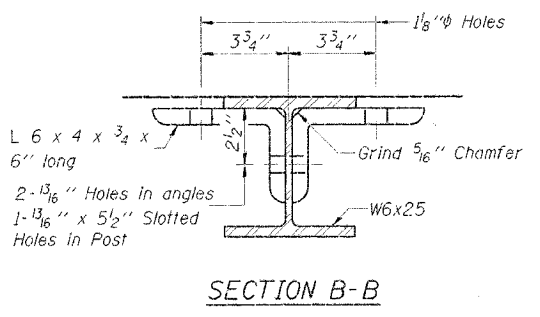
All posts, railing, rail splices, anchor devices and angles shall be galvanized after shop fabrication in accordance with AASHTO M-111 and ASTM A-385. Galvanized rail shall not be painted.

Railing shall be in accordance with 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 3/4 inch fabric bearing pad between the post and concrete.

The 3/4 inch high strength bolts used to connect the 6 x 4 x 3/4 angles to the post shall be tightened in accordance with Article 505.04(FX3) of the Standard Specifications. The 1 inch 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 inch cap screws in bottom of posts shall be tightened to a snug fit only.



BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing Type S-1	Foot	132

RAIL SPLICE CONNECTION AT EXPANSION JT.

DSGN R.J. Wagner					
DR L.A. Rolf					
CHK K.E. Brandau					
APVD K.E. Brandau	NO.	DATE	REVISION	BY	APVD

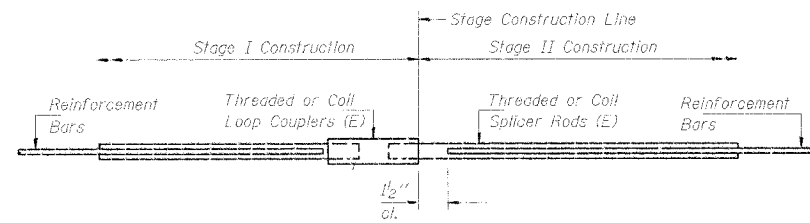
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3002 Crossing Court Champaign, IL 61822 217-351-6268

STEEL RAILING TYPE S-1

ELWOOD ROAD DISTRICT
SECTION 00-06121-00-BR
VERMILION COUNTY

SHEET 8
DWG NO. elwd-s1.dgn
DATE JAN 2005
PROJ NO. 20053



SPLICER DETAIL

Bar Size	No. Assemblies Required	Location
#6	7	East Abutment
#6	7	West Abutment

The diameter of this part is the same as the diameter of the bar spliced.

ROLLED THREAD DOWEL BAR



**** ONE PIECE**



WELDED SECTIONS

BAR SPLICER ASSEMBLY ALTERNATIVES

** Heavy Hex Nuts conforming to ASTM A 563, Grade C, D or DH may be used.

NOTES

Bar splicer assemblies shall be of an approved type and shall develop in tension at least 125 percent of the yield strength of the lapped reinforcement bars. Splicer rods shall be of minimum 60 ksi yield strength, threaded or coiled full length. All reinforcement bars shall be lapped and tied to the splicer rods or dowel bars. Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars. Other systems of similar design may be submitted to the Engineer for approval. Approval shall be based on certified test results from an approved testing laboratory that the proposed bar splicer assembly satisfies the following requirements:

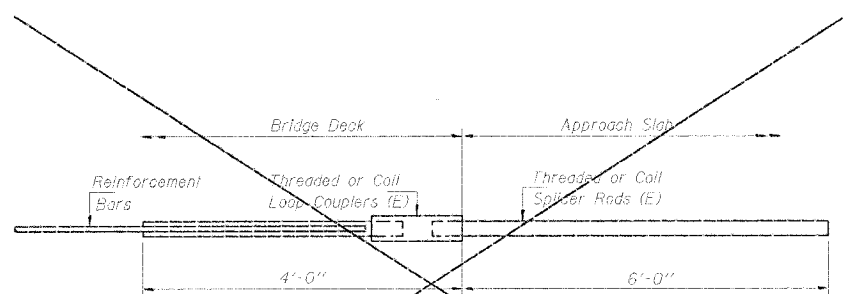
- ① Minimum Capacity = $1.25 \times f_y \times A_s$
(Tension in kips)
- ② Minimum Pull-out Strength = $1.25 \times f_{s,allow} \times A_s$
(Tension in kips)

Where f_y = Yield strength of lapped reinforcement bars in ksi.
 $f_{s,allow}$ = Allowable tensile stress in lapped reinforcement bars in ksi (Service Load)
 A_s = Tensile stress area of lapped reinforcement bars.
 * = 28 day concrete

BAR SPLICER ASSEMBLIES

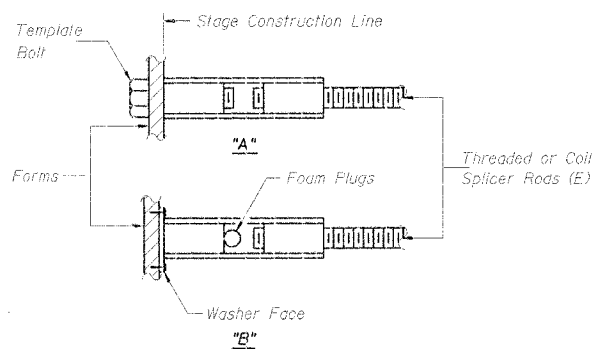
Bar Size to be Spliced	Splicer Rod or Dowel Bar Length	Strength Requirements	
		Min. Capacity kips - tension	Min. Pull-Out Strength kips - tension
#5	2'-0"	23.0	9.2
#6	2'-7"	33.1	13.3
#7	3'-5"	45.1	18.0
#8	4'-6"	58.9	23.6

Bar splicer assemblies shall be according to Section 508 of the Standard Specifications, except as noted. The furnishing and installation of bar splicer assemblies will be measured and paid for at the contract unit price each for "BAR SPLICERS."



**INTEGRAL ABUTMENT
BAR SPLICER ASSEMBLY DETAIL
FOR #15 BAR**

Min. Capacity = 23.0 kips - tension
Min. Pull-out Strength = 9.2 kips - tension
No. Required =



INSTALLATION AND SETTING METHODS

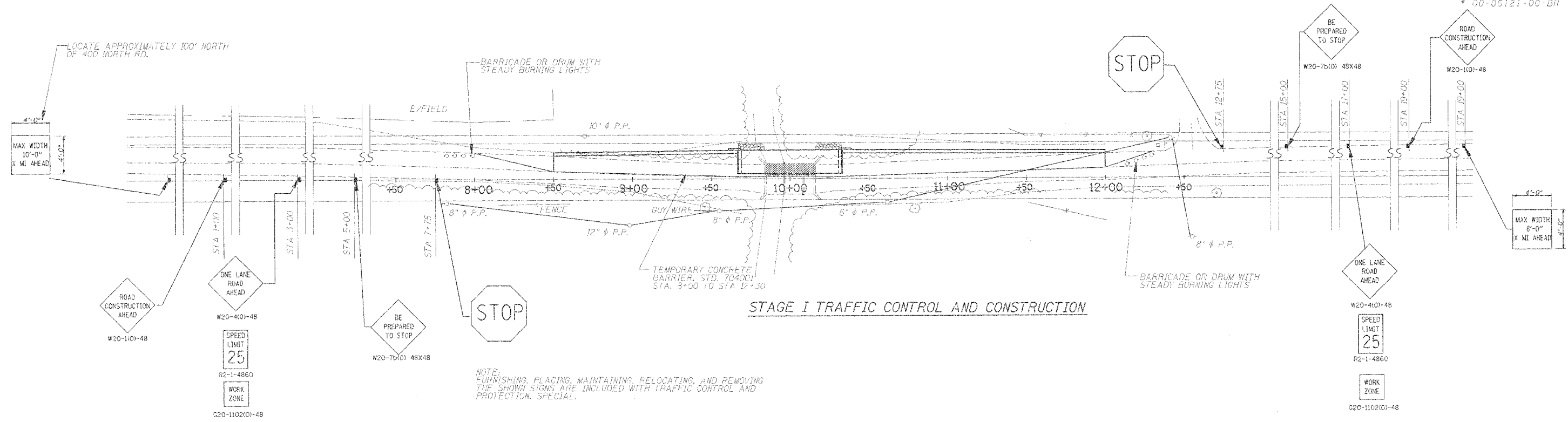
"A" : Set bar splicer assembly by means of a template bolt.
 "B" : Set bar splicer assembly by nailing to wood forms or cementing to steel forms.
 (E) : Indicates epoxy coating.

DSGN	R.J. Wagner					
DR	R.J. Wagner					
CHK	K.E. Brandau					
APVD	K.E. Brandau	NO.	DATE	REVISION	BY	APVD



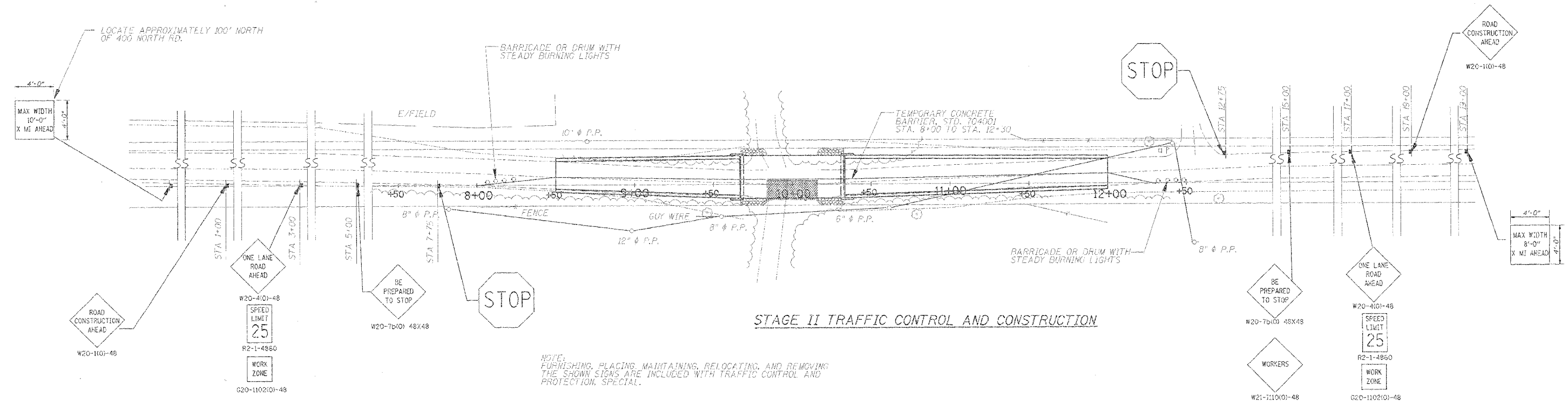
ROUTE NO.	SECTION	COUNTY	DATE	SHEET
TR 318A	*	Vermilion	12	10

* 00-06121-00-BR



STAGE I TRAFFIC CONTROL AND CONSTRUCTION

NOTE:
FURNISHING, PLACING, MAINTAINING, RELOCATING, AND REMOVING THE SHOWN SIGNS ARE INCLUDED WITH TRAFFIC CONTROL AND PROTECTION, SPECIAL.



STAGE II TRAFFIC CONTROL AND CONSTRUCTION

NOTE:
FURNISHING, PLACING, MAINTAINING, RELOCATING, AND REMOVING THE SHOWN SIGNS ARE INCLUDED WITH TRAFFIC CONTROL AND PROTECTION, SPECIAL.

DSGN	R.J. Wagner				
DR	A.M. Meier				
CHK	K.E. Brandau				
APVD	K.E. Brandau	NO.	DATE	REVISION	BY

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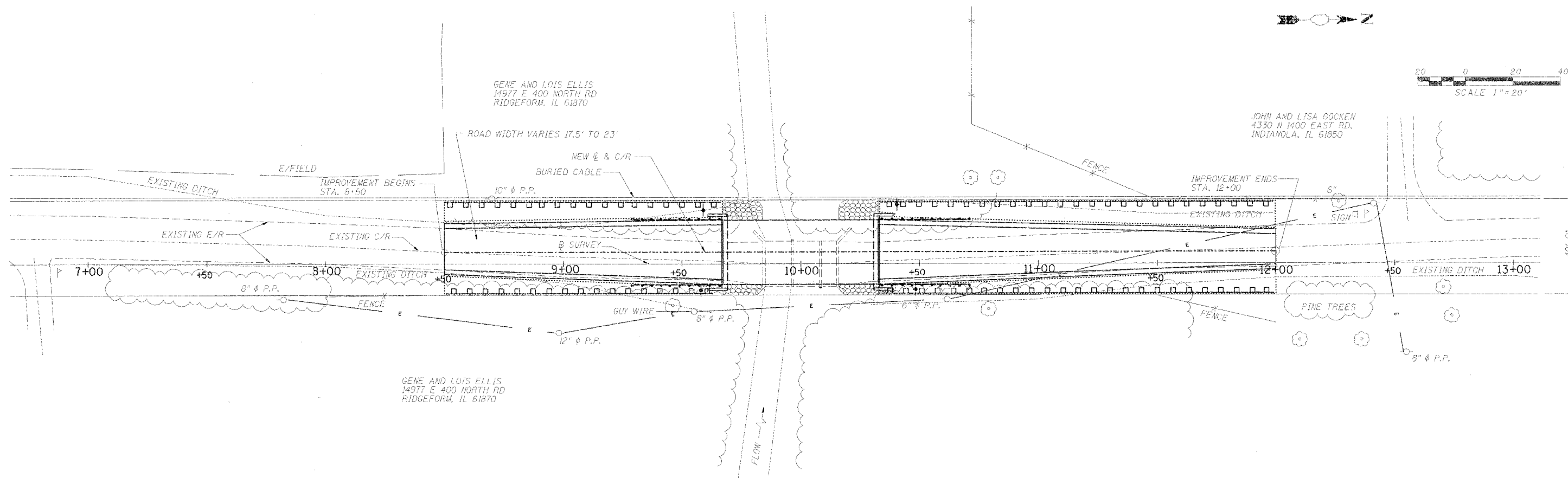
TRAFFIC CONTROL AND PROTECTION, SPECIAL		SHEET	10
ELWOOD ROAD DISTRICT		DWG NO.	stwd-tcp.dgn
SECTION 00-06121-00-BR		DATE	JAN 2005
VERMILION COUNTY		PROJ NO.	20053

ROUTE NO.	SECTION	COUNTY	SHEETS	PAGE
TR 318A	*	Vermilion	12	11
FED. ROAD DIST. NO. 7		ILL. ROAD DIST. PROJECT		

*00-06121-00-BR

INTENDED SEQUENCE

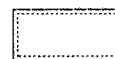
1. PLACEMENT OF PERIMETER EROSION CONTROL BARRIER PRIOR TO COMMENCEMENT OF ANY WORK. SEE STANDARD 280001.
2. CONSTRUCTION OF NEW SUBSTRUCTURE.
3. REMOVAL OF THE EXISTING STRUCTURE.
4. CONSTRUCTION OF THE NEW SUPERSTRUCTURE.
5. THE PLACEMENT AND MAINTENANCE OF TEMPORARY EROSION CONTROLS.
6. FINAL GRADING AND SHAPING INCLUDING PLACEMENT OF AGGREGATE BASE COURSE & BITUMINOUS SURFACE.
7. REMOVAL AND PROPER CLEAN UP OF TEMPORARY EROSION CONTROLS.
8. PLACEMENT OF PERMANENT EROSION CONTROLS.



PERMANENT EROSION CONTROL



Grouted RipRap



Seeding, Cl. 2 with Fertilizer and Mulch

TEMPORARY EROSION CONTROL



Temporary Ditch Check



Perimeter Erosion Barrier

PERIMETER EROSION BARRIER

STA	OFFSET	TO	STA	OFFSET	LENGTH
8+50	20' RT		9+67	20' RT	117 FT
8+50	20' LT		9+67	20' LT	117 FT
10+33	20' LT		12+00	20' LT	167 FT
10+33	20' RT		12+00	20' RT	167 FT
					TOTAL = 568 FT

TEMPORARY DITCH CHECKS

STA	OFFSET	QUANTITY
9+60	RT	1 EACH
9+60	LT	1 EACH
10+40	RT	1 EACH
10+40	LT	1 EACH
		TOTAL = 4

TEMPORARY EROSION CONTROL		
Bill of Materials		
Item	Unit	Quantity
Temporary Erosion Control Seeding	Pound	100
Temporary Ditch Checks	Each	4
Perimeter Erosion Barrier	Foot	568

