1-19-07 Letting, Item 116

68696

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
645	(105BR)I-1	MARSHALL	9	1

DESIGNER: BRYON STRUNK
PHONE NO: (309) 671-3467

INDEX OF SHEETS:

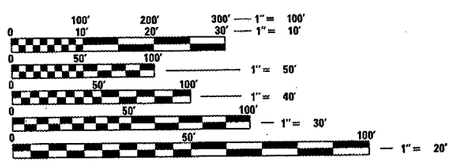
BRIDGE PLANS INDEX SHEETS

DESIGN DESIGNATION
SECTION (105BR) I–1
MAJOR COLLECT (RUARL)
ADT =1000 (2005)
PV =82%
SU =11%
MU =7%

STANDARDS REQUIRED:

701101-01 701321-08
701106-01 702001-06
701201-02 701301-02
704001-03

QC/QA BITUMINOUS SUPERPAVE PROJECT



FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
1–800–892–0123

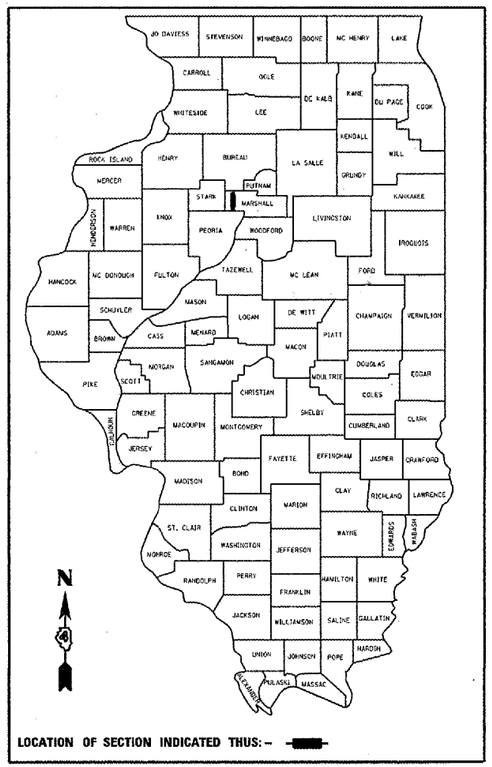
CONTRACT NO. 68696 CATALOG NO. 033471–00D

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

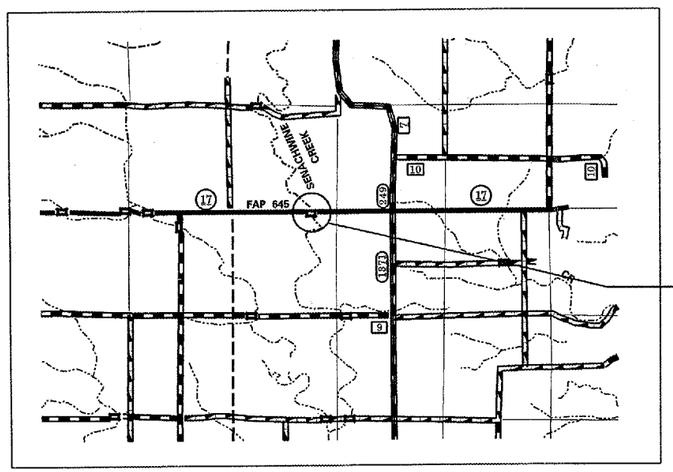
PROPOSED
HIGHWAY PLANS

FAP ROUTE 645 (IL 17)
SECTION (105BR)I–1
MARSHALL COUNTY
C–94–028–07

D-94-025-07



LOCATION OF SECTION INDICATED THUS: –



EMERGENCY BEAM REPLACEMENT
OF STRUCTURE CARRYING IL 17
OVER SENACHWINE CREEK (SN 062–0016)
3.5 MILES WEST OF SPARLAND

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED OCT 30 20 06
DISTRICT ENGINEER

December 8 20 06
Eric Hamlin PE
Interim ENGINEER OF DESIGN AND ENVIRONMENT

December 8 20 06
Milton R. Sees P.E.
DIRECTOR, DIVISION OF HIGHWAYS

PRINTED BY THE AUTHORITY
OF THE STATE OF ILLINOIS

PROJECT ENGINEER: JIM MILLER
PHONE NO: (309) 671-3451

CONTRACT NO. 68479

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
645	(105BR) BR	MARSHALL	9	2
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

COMMITMENTS

Commitments are not to be altered without the written approval of all parties to which the commitment was made.

ENVIRONMENTAL REVIEWS

Prior to the use of any proposed borrow areas, use areas (temporary access roads, detours, run–arounds, etc.) and/or waste areas, the Contractor shall file the required environmental resource request surveys according to Section 107.22 of the Standard Specifications. These surveys are required in order for the Department to conduct cultural and biological resource surveys for the proposed site.

Prior to any waste materials being removed from the construction site the required environmental resource surveys will need to be obtained and filed by the Contractor. Excess waste products removed from the construction site shall be disposed of as required in Section 202.03 of the Standard Specifications.

Any protruding metal bars shall be removed prior to the disposal of broken concrete at approved disposal sites.

The required environmental resource documentation shall include the following:

* BDE Form 2289 (Environmental Survey Request)
* A location map showing the size limits and location of the use area
* Signed property owner agreement form
* Color photographs depicting the use area

Please note that a minimum of two weeks shall be allowed for the District to obtain the required environmental clearances.

ENGINEERS FIELD OFFICE

Add the following sentence to the end of paragraph 670.02 (i) and 670.04 (e):
All of the telephone lines provided shall have unpublished numbers.

BITUMINOUS CONCRETE MIXTURE REQUIREMENTS

Mixture Use(s):	Bituminous Surface Course
RAP % (Max)**:	15%
AC/PC:	PG64–22
Design Air Voids:	4.2% @ N=50
Mixture Composition:	IL 9.5 or 12.5
(Gradation Mixture)	
Friction Aggregate	Mix D

** If the RAP option is selected, the asphalt cement grade may need to be adjusted; this will be determined by the Engineer.

Maintenance costs for
temporary bridge traffic signal
installation shall be paid for separately
in accordance with Article 109.04

Traffic Control Standard 701316 is currently in place
and shall be modified in accordance to
Traffic Control Standard 701321.
(See Traffic Control Standard 701316
for informational use only)

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

SCALE: VERT. HORIZ.
DATE 10-11-2006
DRAWN BY BTS
CHECKED BY

PLOT DATE = #DATE#
FILE NAME = #FILE$
PLOT SCALE = #SCALE#
REFERENCE = #REF#

CONTRACT NO. 68696

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
645	(105BR)1-1	MARSHALL	9	3
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

SUMMARY OF QUANTITIES

	CODE NO.	ITEM	100% STATE SAFETY-2A MARSHALL COUNTY UNIT	TOTAL
	40603335	Hot - Mix Asphalt Surface Course, Mix " D ", N50	TON	25.2
	44001005	Hot - Mix Asphalt Surface Removal	SQ YD	45
	50400305	Precast Prestressed Concrete Deck Beams (17" Depth)	SQ FT	1091
	50900905	Removing and Re- erecting Existing Railing	FOOT	79
	58100200	Waterproofing Membrane System	SQ YD	168
	58300100	PORTLAND CEMENT MORTAR FAIRING COURSE	FOOT	406
	67000400	Engineer's Field Office, Type A	CAL MO	5
	67100100	Mobilization	L SUM	1
	70100405	Traffic Control and Protection Standard 701321	EACH	1
	70100450	Traffic Control and Protection, Standard 701201	L SUM	1
	70300220	Temporary Pavement Marking - Line 4"	FOOT	196
	70301000	Work Zone Pavement Marking Removal	SQ FT	536
	70400100	Temporary Concrete Barrier	FOOT	348
*	78001110	Paint Pavement Marking - Line 4"	FOOT	1,396
	78300100	Pavement Marking Removal	SQ FT	67
	89502500	Remove Temporary Traffic Signal Installation	EACH	1
	X0301424	Silicone Joint Sealer	FOOT	40
	X0320047	Removal of Existing Precast Prestressed Concrete Deck Beams	SQ FT	1095
	X0320887	Polymer Concrete	CU FT	5
*	X7200200	Wide Load Signing	L SUM	1
	Z0001900	Asbestos Bearing Pad Removal	EACH	9
⊙	Z0030250	Impact Attenuators Temporary (Non-Redirective) Test Level 3	EACH	2

⊙ SFTY-3N

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

DATE 10-11-2006

DRAWN BY BTS

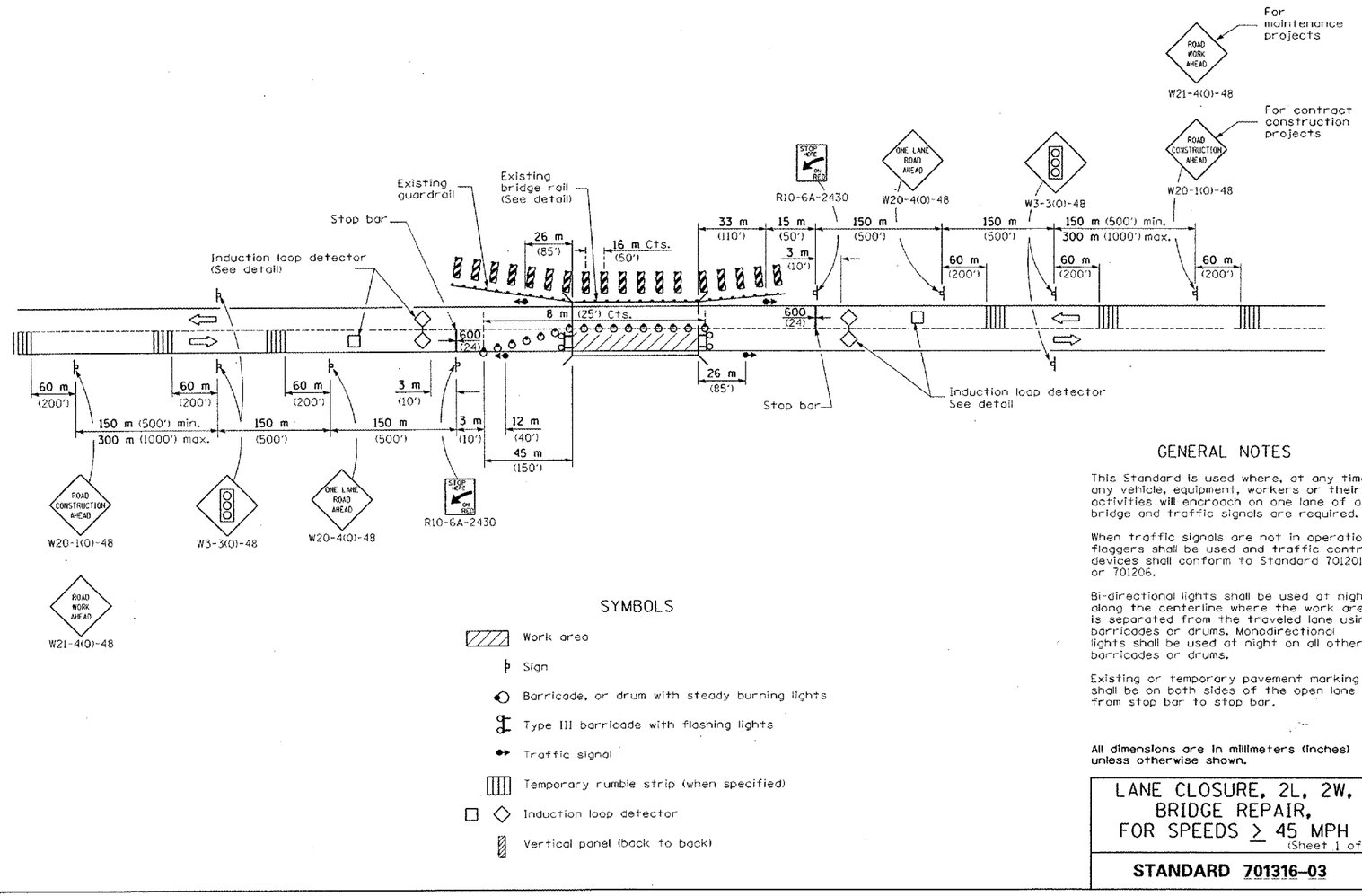
CHECKED BY

PLOT DATE = #DATE#
FILE NAME = #FILE#
PLOT SCALE = #SCALE#
REFERENCE = #REF#

CONTRACT NO. 68696

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
645	(105BR) BR	MARSHALL	9	4
STA.	TO STA.			
FED. ROAD DIST. NO. 4	ILLINOIS	FED. AID PROJECT		

FOR INFORMATION ONLY



SYMBOLS

- Work area
- Sign
- Barricade, or drum with steady burning lights
- Type III barricade with flashing lights
- Traffic signal
- Temporary rumble strip (when specified)
- Induction loop detector
- Vertical panel (back to back)

GENERAL NOTES

This Standard is used where, at any time any vehicle, equipment, workers or their activities will encroach on one lane of a bridge and traffic signals are required.

When traffic signals are not in operation, flaggers shall be used and traffic control devices shall conform to Standard 701201 or 701206.

Bi-directional lights shall be used at night along the centerline where the work area is separated from the traveled lane using barricades or drums. Monodirectional lights shall be used at night on all other barricades or drums.

Existing or temporary pavement marking shall be on both sides of the open lane from stop bar to stop bar.

All dimensions are in millimeters (inches) unless otherwise shown.

LANE CLOSURE, 2L, 2W, BRIDGE REPAIR, FOR SPEEDS ≥ 45 MPH
(Sheet 1 of 2)

STANDARD 701316-03

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

Traffic Control Standard
FOR INFORMATION ONLY

SCALE: VERT.
HORIZ.
DATE 10-11-2006

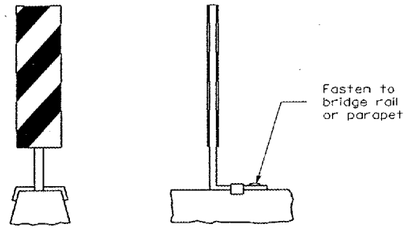
DRAWN BY BTS
CHECKED BY

PLOT DATE = $DATE$
FILE NAME = $FILE$
PLOT SCALE = $SCALE$
REFERENCE = REF

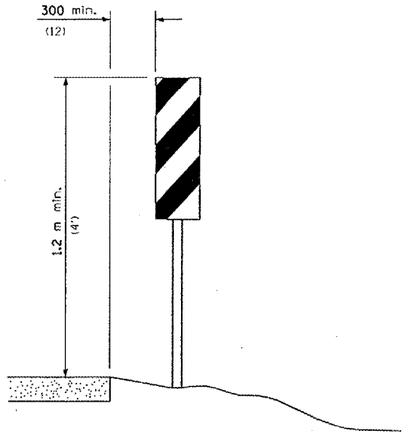
CONTRACT NO. 68696

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
645	(105BR) BR	MARSHALL	9	5
STA.	TO STA.			
FED. ROAD DIST. NO. 4	ILLINOIS	FED. AID PROJECT		

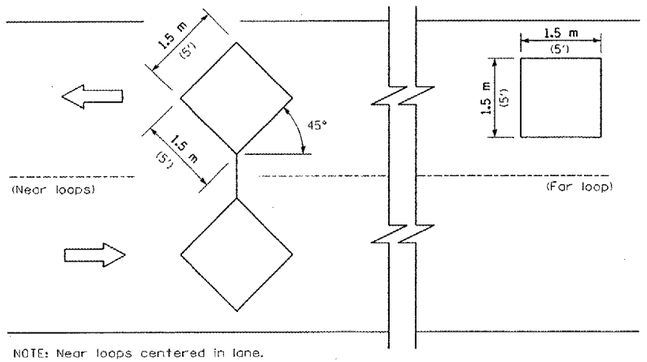
FOR INFORMATION ONLY



(Suggested mounting detail)



VERTICAL PANELS



NOTE: Near loops centered in lane.

INDUCTION LOOP DETECTOR (TYPICAL)

(See traffic control plan for placement)

SEQUENCE OF OPERATIONS						
PHASE	A			B		
INTERVAL	1	2	3	4	5	6
NORTHBOUND OR EASTBOUND	G	Y	R	R	R	R
SOUTHBOUND OR WESTBOUND	R	R	R	G	Y	R

All dimensions are in millimeters (inches) unless otherwise shown.

LANE CLOSURE, 2L, 2W,
BRIDGE REPAIR,
FOR SPEEDS ≥ 45 MPH
(Sheet 2 of 2)

STANDARD 701316-03

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

Traffic Control Standard
FOR INFORMATION ONLY

SCALE: VERT.
HORIZ.
DATE

DRAWN BY BTS
CHECKED BY

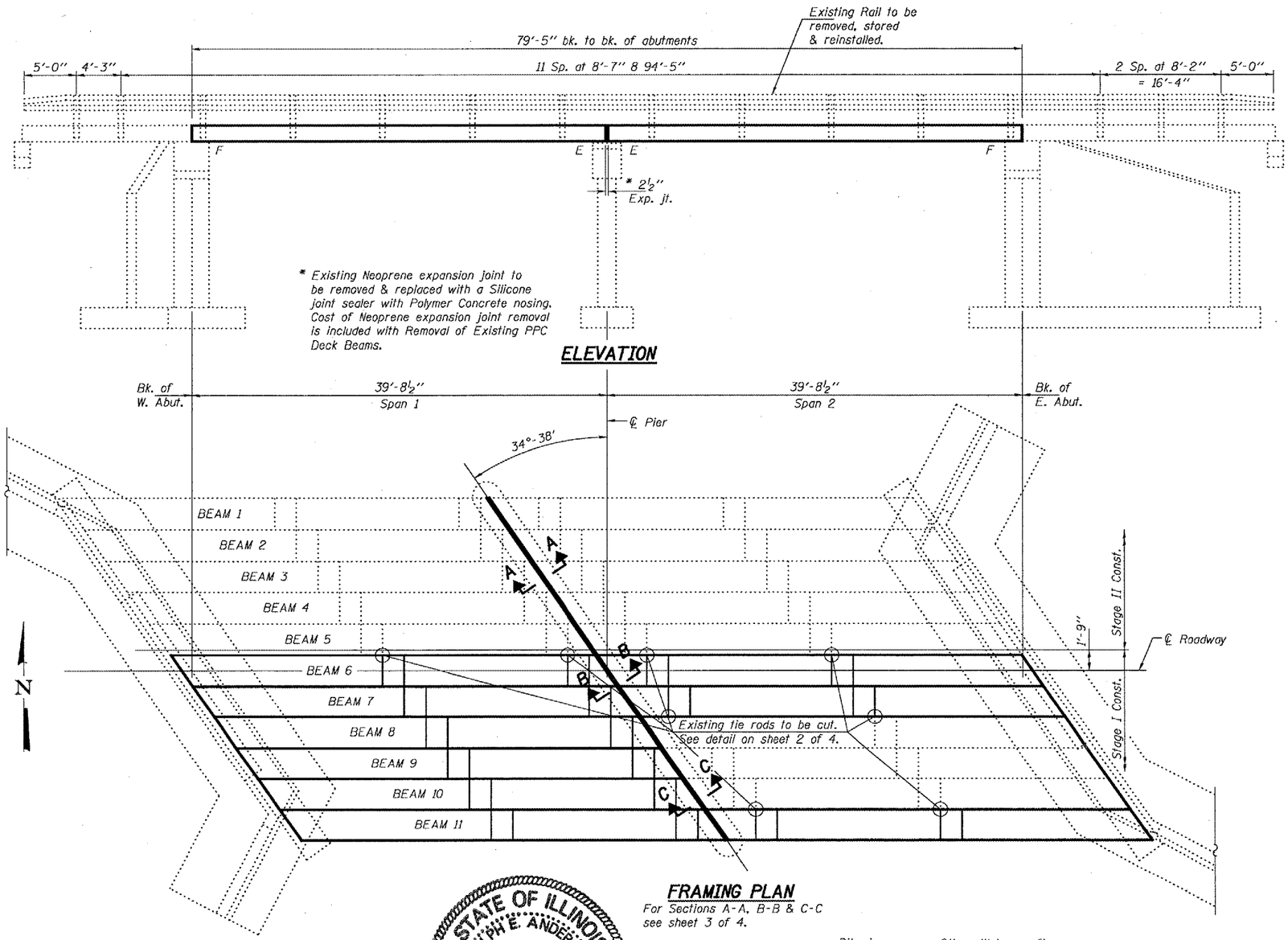
PLOT DATE = #DATE#
FILE NAME = #FILE#
PLOT SCALE = #SCALE#
REFERENCE = #REF#

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA 645		MARSHALL	9	6
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. 1
4 SHEETS

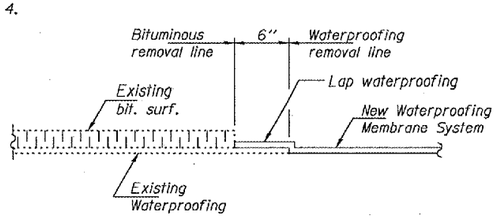
Contract Number: 68696

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

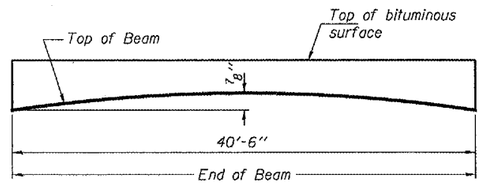


FRAMING PLAN

For Sections A-A, B-B & C-C see sheet 3 of 4.



WATERPROOFING TREATMENT



ANTICIPATED INITIAL CAMBER DIAGRAM

TOTAL BILL OF MATERIAL

	ITEM	UNIT	QUANTITY
*	HMA Surface Course, Mix "D" N50	Tons	25.2
*	HMA Surface Removal	Sq. Yd.	45
	Removal of Existing PPC Deck Beams	Sq. Ft.	1095
	Precast Prestressed Concrete Deck Beams (17" Depth)	Sq. Ft.	1091
*	Waterproofing Membrane System	Sq. Yd.	168
	PC Mortar Fairing Course	Foot	406
	Silicone Joint Sealer	Foot	40
	Polymer Concrete	Cu. Ft.	4.9
	Removing and Re-erecting Existing Railing	Foot	79
	Asbestos Bearing Pad Removal	Each	9

* Includes quantity for work over Beams 8, 9 & 10 in Span 2.

GENERAL NOTES

Plan dimensions and details relative to existing plans are subject to routine variations. The Contractor shall field verify existing dimensions and details affecting new construction and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in scope of the work, however, the Contractor will be paid for the quantity actually furnished based upon the unit price bid for the work.

Any damage done to the bridge during beam removal shall be repaired by the Contractor. Cost to be included in the cost of "Removal of Existing PPC Deck Beams".

The top surface of the beams shall be finished according to the IDOT Manual for Fabrication of Precast Prestressed Concrete Products.

The cut strands at each beam end shall be given two coats of zinc dust spray or paint meeting the requirements of ASTM A780. The zinc dust spray or paint shall be applied before corrosion appears and allowed to dry according to manufacturer's specifications prior to another coat of zinc. This work shall be performed by the producer and included with the cost of the beam.

A concrete sealer meeting the requirements of Section 587 of the Standard Specifications shall be applied to the exterior face & 9" on the underside of the fascia beams. The sealer shall be applied after visible crack growth has subsided. Cost included with PPC Deck Beams.

Temporary concrete barrier shall only be anchored into the overlay and not the PPC Deck Beams.

DESIGN STRESSES
PRESTRESS UNITS

f'c = 5,000 psi
f'ci = 4,000 psi
f's = 270,000 psi (½"ϕ low lax strands)
f'si = 201,960 psi (½"ϕ low lax strands)

DESIGNED	Victor H. Velez	December 4, 2006
CHECKED	Peter Z. Klatte	
DRAWN	baliva	
CHECKED	SJB	VHV

EXAMINED John A. Morris, ENGINEER OF STRUCTURAL SERVICES
PASSED Ralph E. Anderson, ENGINEER OF BRIDGES AND STRUCTURES

STATE OF ILLINOIS
RALPH E. ANDERSON
081-004625
SPRINGFIELD
LICENSED STRUCTURAL ENGINEER

EXPIRES 11-30-2008

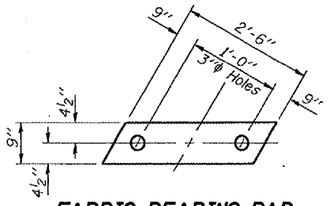
PLAN AND ELEVATION
FA 645 OVER SENACHWINE CREEK
MARSHALL COUNTY
SN 062-0016

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA 645		MARSHALL	9	7
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

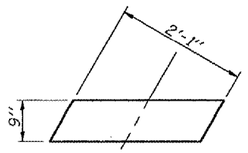
SHEET NO. 2
4 SHEETS

Contract Number: 68696



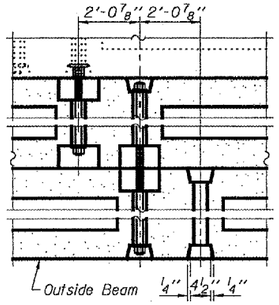
FABRIC BEARING PAD

FIXED

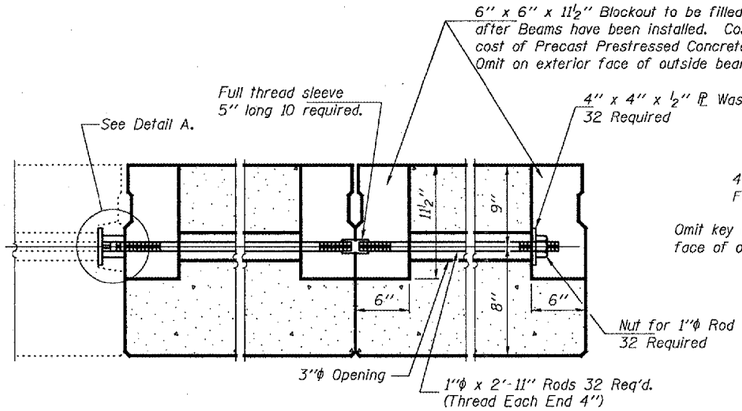


FABRIC BEARING PAD

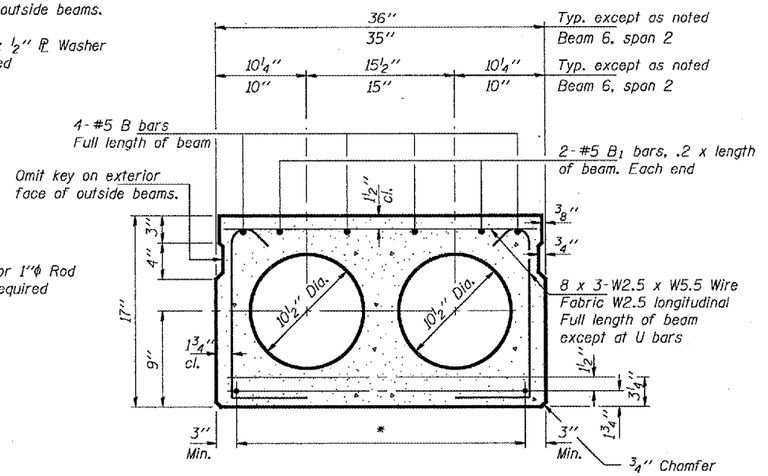
EXPANSION



PARTIAL PLAN AT TIE

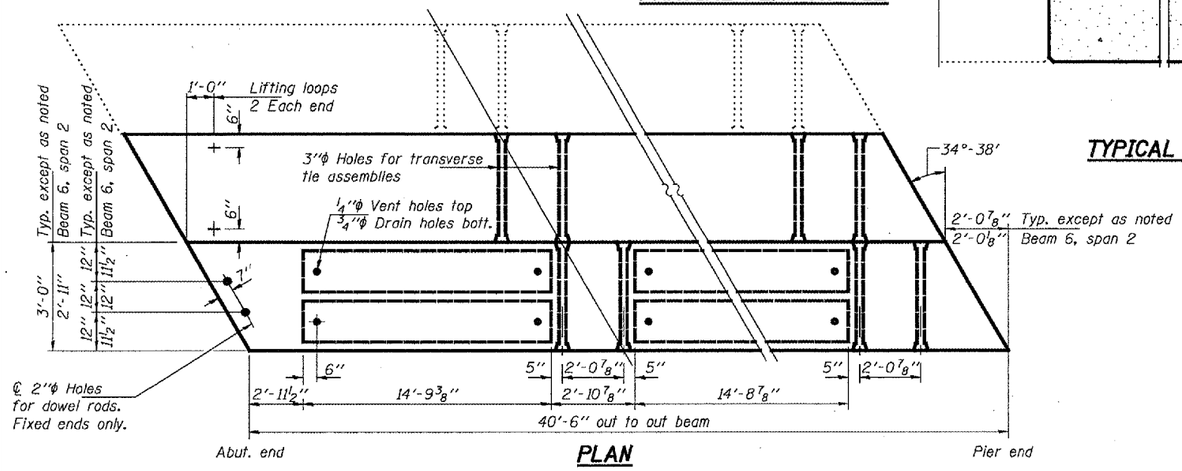


TYPICAL TRANSVERSE TIE ASSEMBLY



TYPICAL SECTION

½"ϕ Strands. Each Strand Stressed to 30,900 Lbs.
10-Strands 1¾" up & 2-Strands 12" up



PLAN

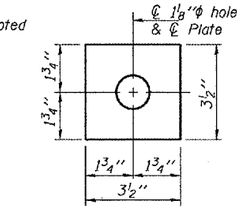
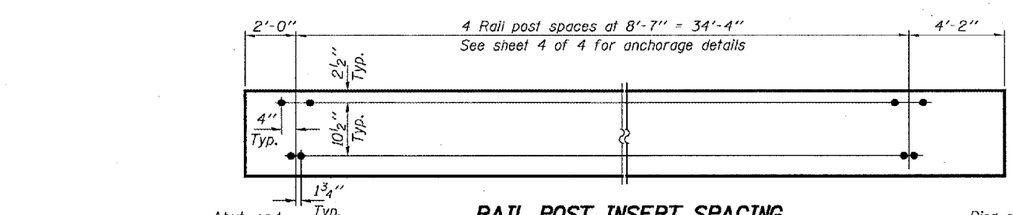


PLATE A
(8 Required)

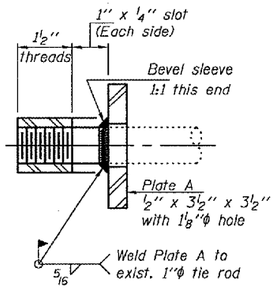
* TRANSVERSE PLACEMENT GUIDELINES

1. Place strands symmetrically about centerline of beam.
2. The minimum distance from center to center of strands in all directions shall be 2".
3. The minimum clearance from strand to dowel hole shall be ½".
4. The minimum clearance from strand to void shall be 1½".

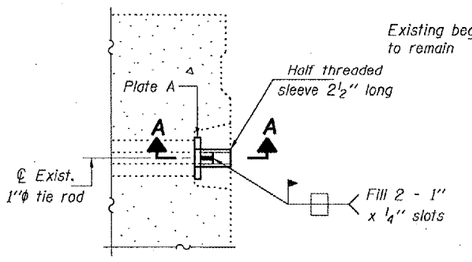
Vertical placement of strands shall not be adjusted to satisfy the above guidelines.



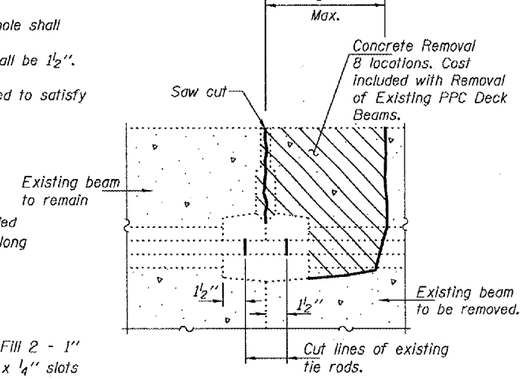
RAIL POST INSERT SPACING
(Beam 11 only)



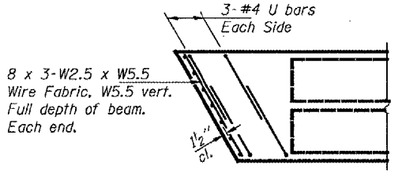
SECTION A-A
(8 Required)



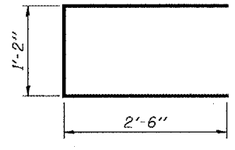
DETAIL A



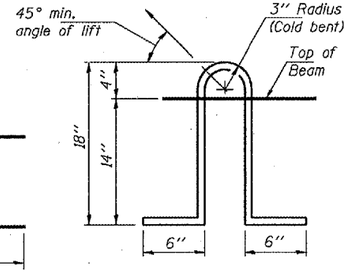
BEAM REMOVAL DETAIL AT TRANSVERSE TIES



END PLAN



BAR U



LIFTING LOOP DETAIL

NOTES

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be ½" and the nominal cross-sectional area shall be 0.153 sq. in. Lifting loops shall be 2-½"ϕ-270 ksi strands, as shown.

The 1"ϕ 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.

The bearing seat surfaces shall be adjusted by shimming to assure firm and even bearing. Two ⅛" fabric adjusting shims of the dimensions shown 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, according to Articles 1020.15(b)(12) and 1021.06 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.

Required Release Strength, f'ci, shall be 4000 p.s.i.

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (17" Depth)	Sq. Ft.	1091

DESIGNED	VHV
CHECKED	SJB
DRAWN	baliva
CHECKED	VHV SJB

December 4, 2006
EXAMINED John A. Morris
ENGINEER OF STRUCTURAL SERVICES
PASSED Ralph E. Anderson
ENGINEER OF BRIDGES AND STRUCTURES

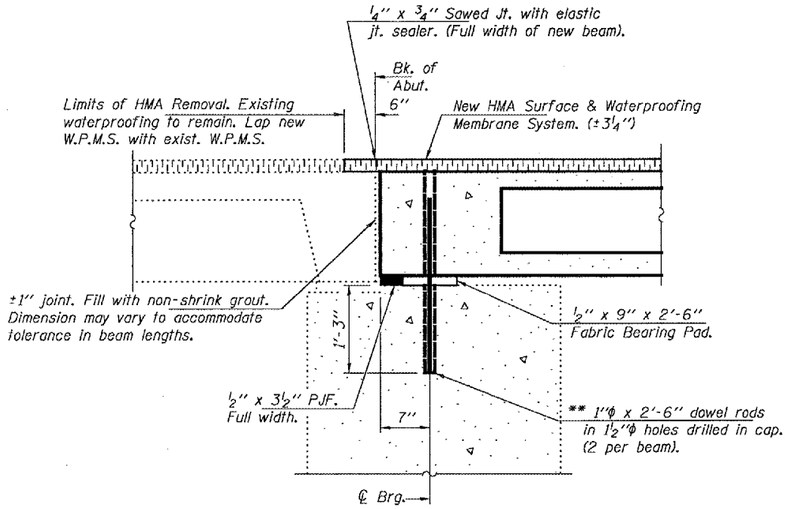
BRIDGE REPAIRS
FA 645 OVER SENACHWINE CREEK
MARSHALL COUNTY
SN 062-0016

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA 645		MARSHALL	9	8
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

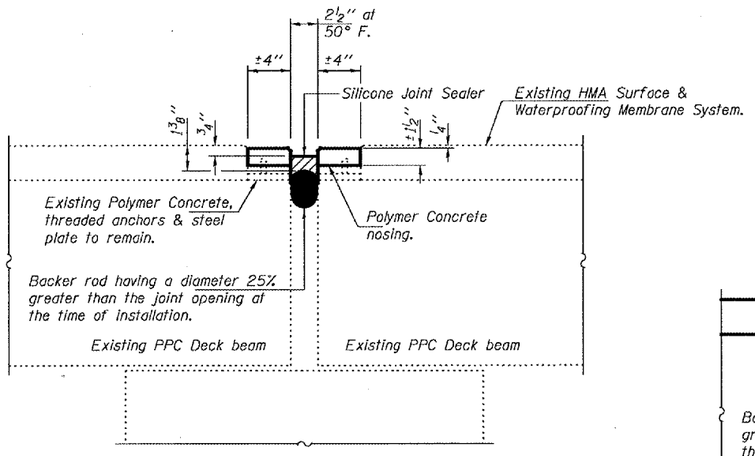
SHEET NO. 3
4 SHEETS

Contract Number: 68696

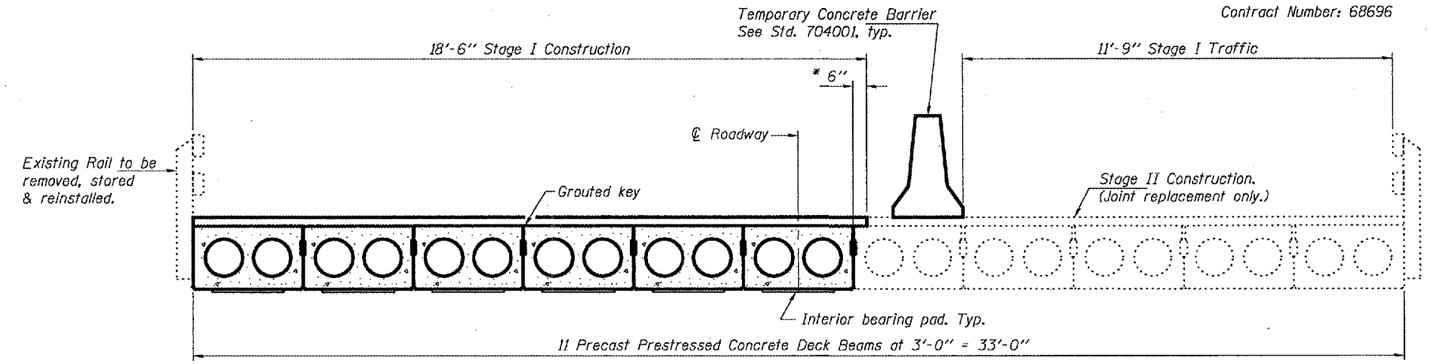


SECTION THRU ABUTMENTS

** Existing dowel rods are to be burned off, ground flush, and sealed with epoxy prior to placement of new beams. Cost included in Removal of Existing PPC Deck Beams. After beams have been erected, holes shall be drilled into cap and dowel rods placed. Dowel holes shall be filled with non-shrink grout to top of beam and allowed to cure a minimum of 24 hours prior to grouting the shear keys.



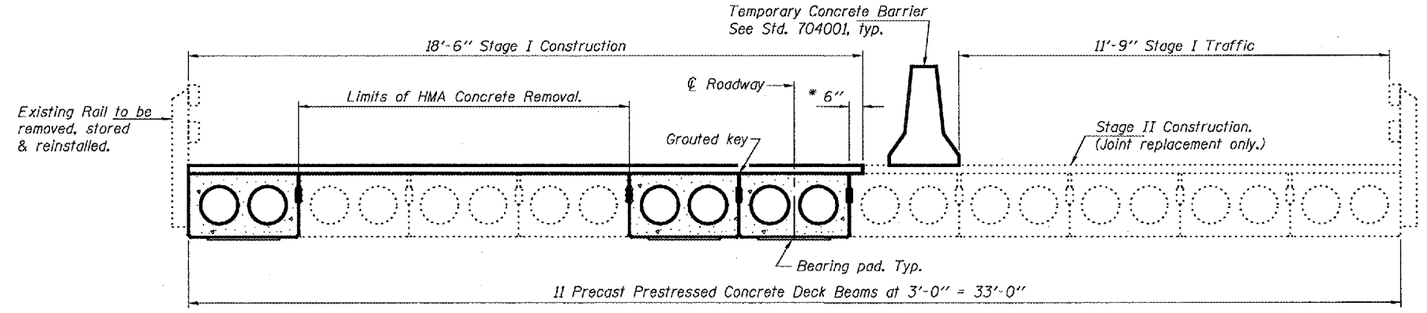
SECTION A-A



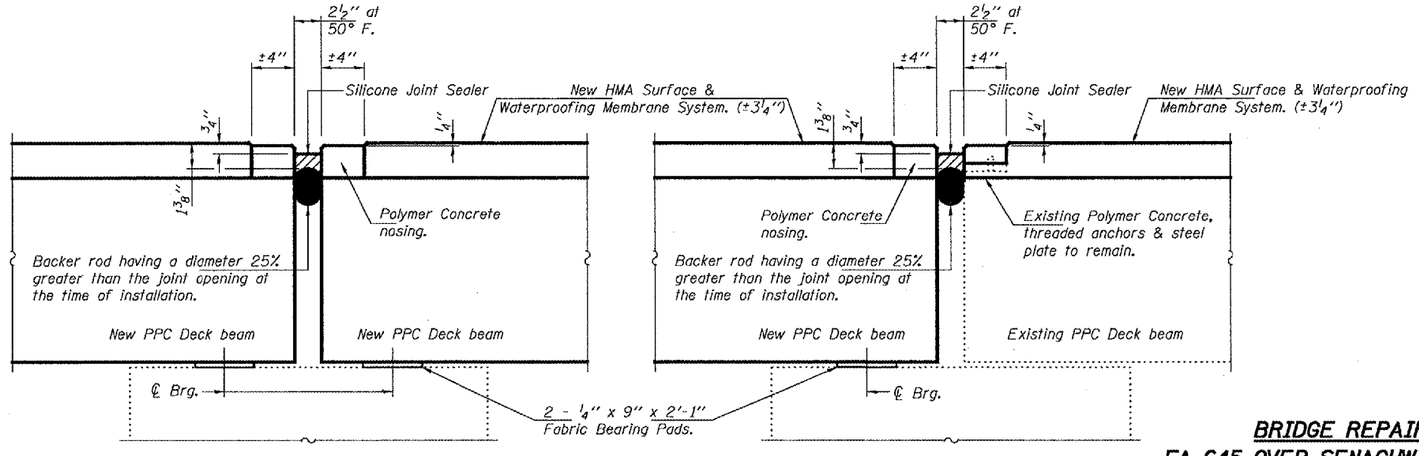
CROSS SECTION - SPAN 1
(Looking West)

HMA removal over removed beam is included in cost of Removal of Existing PPC Deck Beams.

* Limits of HMA Concrete Removal at beam 6. Existing waterproofing to remain. Lap new waterproofing membrane system with existing waterproofing.



CROSS SECTION - SPAN 2
(Looking West)



SECTION B-B

Remove the existing neoprene joint as required & replace with Silicone Joint Sealer & Polymer Concrete nosing.

SECTION C-C

DESIGNED	VHV
CHECKED	SJB
DRAWN	baliva
CHECKED	VHV SJB

December 4, 2006

EXAMINED John A. Morris
ENGINEER OF STRUCTURAL SERVICES

PASSED Ralph E. Anderson
ENGINEER OF BRIDGES AND STRUCTURES

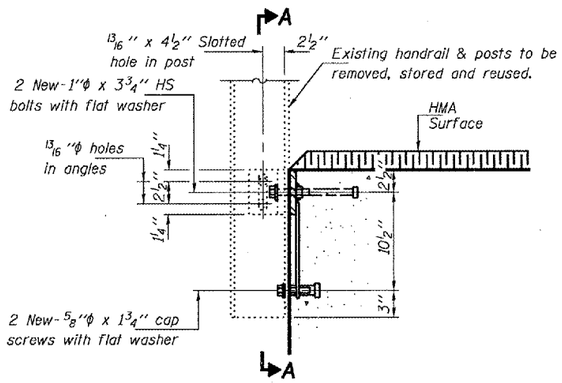
BRIDGE REPAIRS
FA 645 OVER SENACHWINE CREEK
MARSHALL COUNTY
SN 062-0016

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

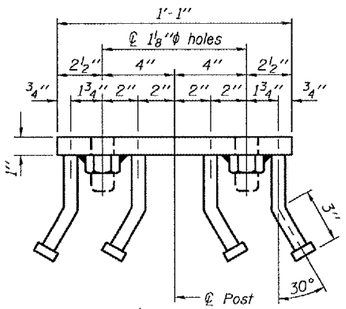
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA 645		MARSHALL	9	9
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. 4
4 SHEETS

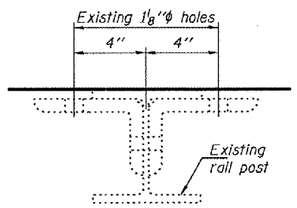
Contract Number: 68696



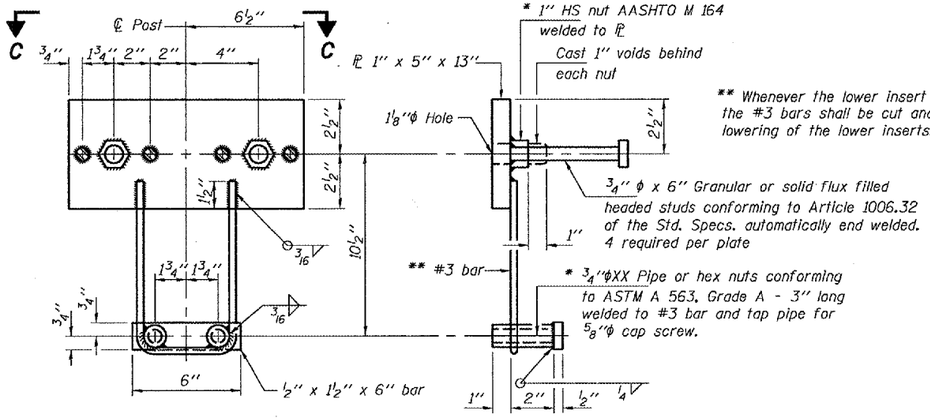
SECTION AT RAIL POST



VIEW C-C



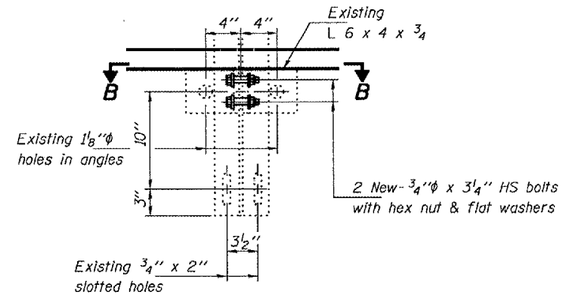
SECTION B-B



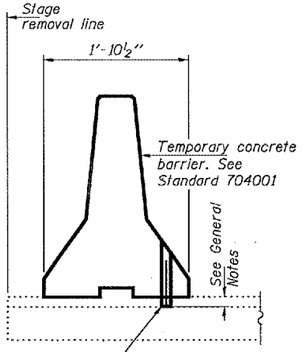
ANCHOR DEVICE

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

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



SECTION A-A



SECTION THRU SLAB

NOTES

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.

Anchor devices shall be galvanized after shop fabrication according to AASHTO M 111 and ASTM A 385. Cost of anchorage devices is included with the cost of Precast Prestressed Concrete Deck Beams of the depth specified in these contract plans.

For multi-span bridges, sufficient 1/4" galvanized steel shims of the dimensions shown shall be provided to align rail between adjacent spans.

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 new 1/8" fabric bearing pad between the post and concrete. Fabric bearing pads shall meet the requirements of Article 1082.01 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 snug fit only.

Removal and re-erection of the existing railing shall be accomplished in a manner that will avoid scratching, denting or other damage that may affect the durability or appearance of the railing.

The length paid for will be overall length along the rail from end to end, in place, at the location of re-erection.

This work will be paid for at the contract unit price per foot for Removing and Re-erecting Existing Railing, which price shall include removal, temporary storage, re-erection, asphalt paint or new bearing pads, shims and all new hardware required to satisfactorily complete the work.

DESIGNED	VHV
CHECKED	SJB
DRAWN	baliva
CHECKED	VHV SJB

December 4, 2006

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