

FAP RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
614	148(BR-2)F	MORGAN	14	1

INDEX OF SHEETS

- 1 COVER SHEET
- 2 SUMMARY OF QUANTITIES
- 3-14 STRUCTURE PLANS

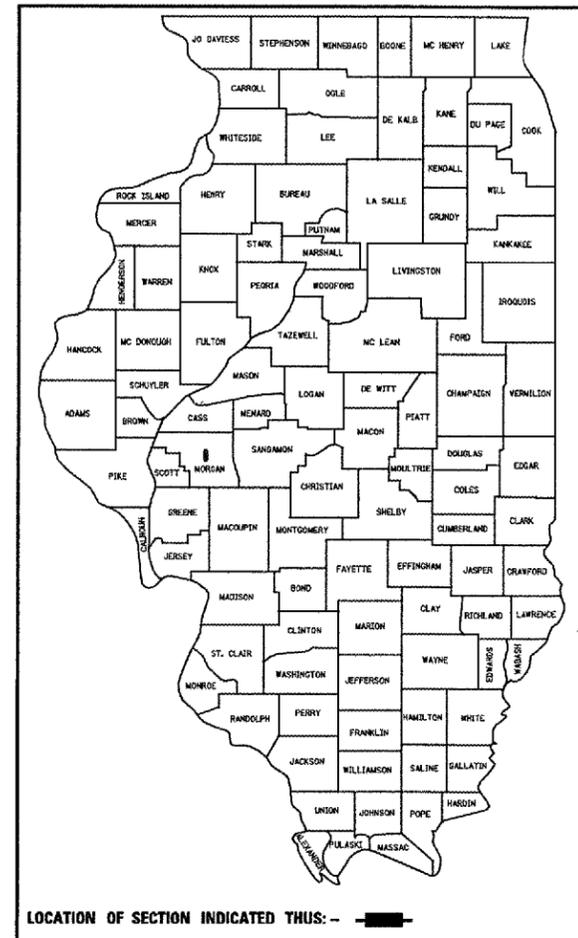
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROPOSED BRIDGE DECK FABRICATION PLANS

FAP ROUTE 614 (IL 78) OVER MAUVAISE TERRE CREEK
SECTION (148(BR-2)F
MORGAN COUNTY
C-96-105-08

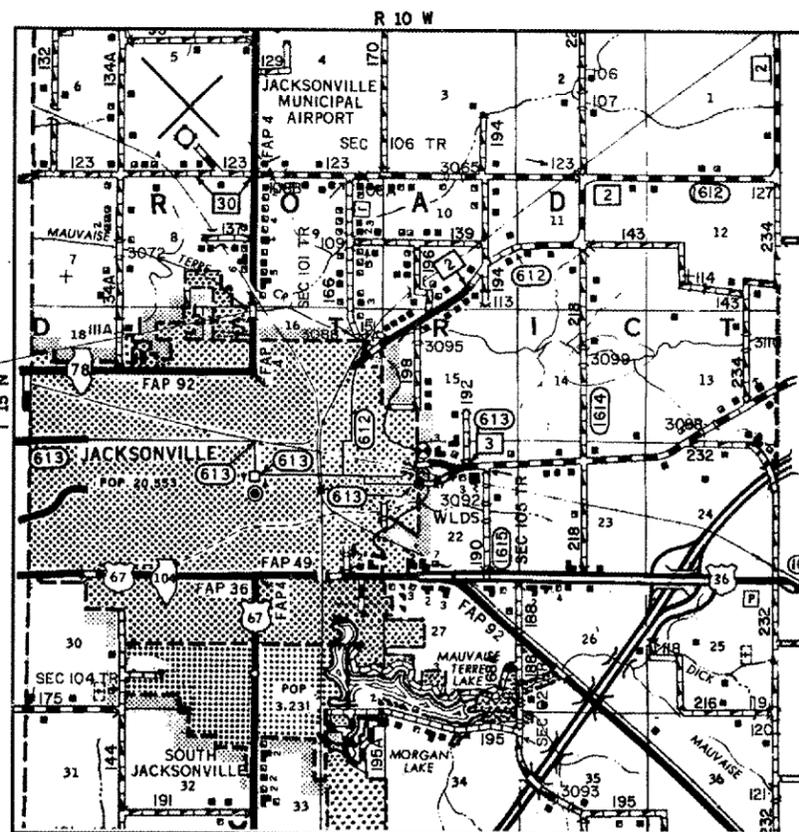
PROJECT NO. ACBHF-0614(024)

D-96-005-08

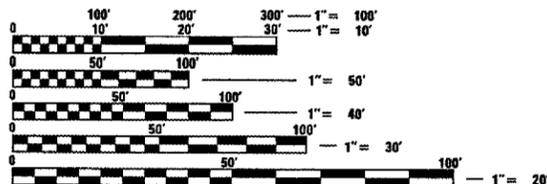


LOCATION OF SECTION INDICATED THUS: - [black rectangle] -

PROPOSED STRUCTURE NO. 069-0005
PPC DECK BEAM REPLACEMENT
2 SPANS @ 50'-0" & 2 SPANS @ 51'-3"
@ STA 16+34.85, 0° SKEW



0 1 2 MILES
APPROXIMATE SCALE 1" = 0.67 MILES

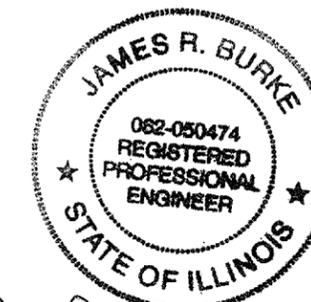


FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

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

DESIGN DESIGNATION
ILLINOIS ROUTE 78
MINOR ARTERIAL (NON-URBAN)
ADT = 5,400 (2027)
% SU = 6
% MU = 3

TOTAL LENGTH OF PROJECT = 202.50 FEET = 0.038 MILES
NET LENGTH OF PROJECT = 202.50 FEET = 0.038 MILES



STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED August 15, 2007
[Signature]
DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER

October 12, 2007
[Signature]
ENGINEER OF DESIGN AND ENVIRONMENT

October 12, 2007
[Signature]
DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

Hutchison Engineering, Inc.
JACKSONVILLE
SHOREWOOD
SINCE 1945

PRINTED BY THE AUTHORITY
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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
614	148(BR-2)F	MORGAN	14	2
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

SUMMARY OF QUANTITIES

URBAN
80% FED./20% STATE

CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONSTRUCTION CODE
				X080-2A
X0325869	FURNISHING PRECAST PRESTRESSED CONCRETE DECK BEAMS (21" DEPTH)	SQ FT	6,627	6,627

DISTRICT SIX	
EXAMINED <u>8/6</u> 20 <u>07</u>	<i>David J. Harris</i>
OPERATIONS ENGINEER	
EXAMINED <u>July 27</u> 20 <u>07</u>	<i>W.R. J.</i>
PROGRAM IMPLEMENTATION ENGINEER	
EXAMINED <u>July 31</u> 20 <u>07</u>	<i>W.R. J.</i>
PROGRAM DEVELOPMENT ENGINEER	

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

DATE: 07/18/07

DRAWN BY JCW
CHECKED BY JRB

B.M.:
Chiseled "□" in NW Wingwall of Str. No. 069-0005
at Station 15+34, 17.7' Rl.
NAVD 88 = 562.14 Ft.

EXISTING STRUCTURE:
SN 069-0005 Built in 1927 and reconstructed in 1978. A
four span 21" deep prestressed concrete deck beam superstructure,
202'-6" back to back abutments and 33'-0" O. to O. deck width
with steel rails and concrete curbs supported on pile bent piers and
abutments. The existing bridge superstructure shall be removed and
replaced. Traffic to be detoured.

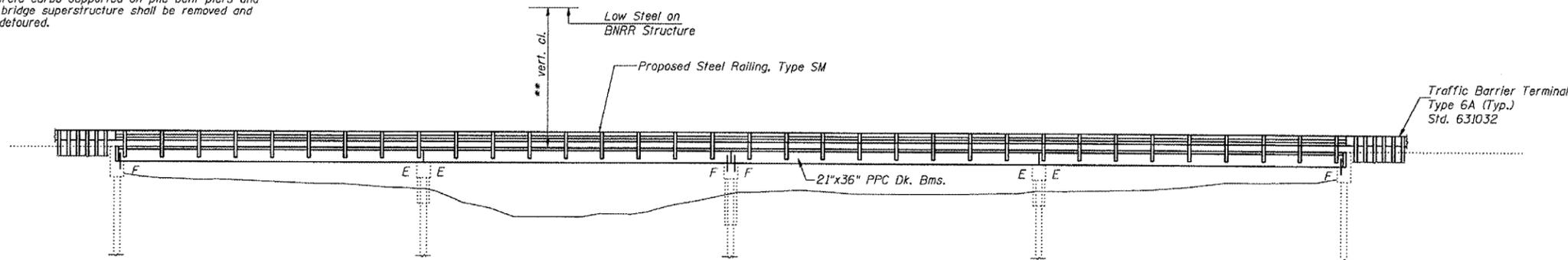
No Salvage

ROUTE NO.	SEC.	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 614	*	MORGAN	14	3

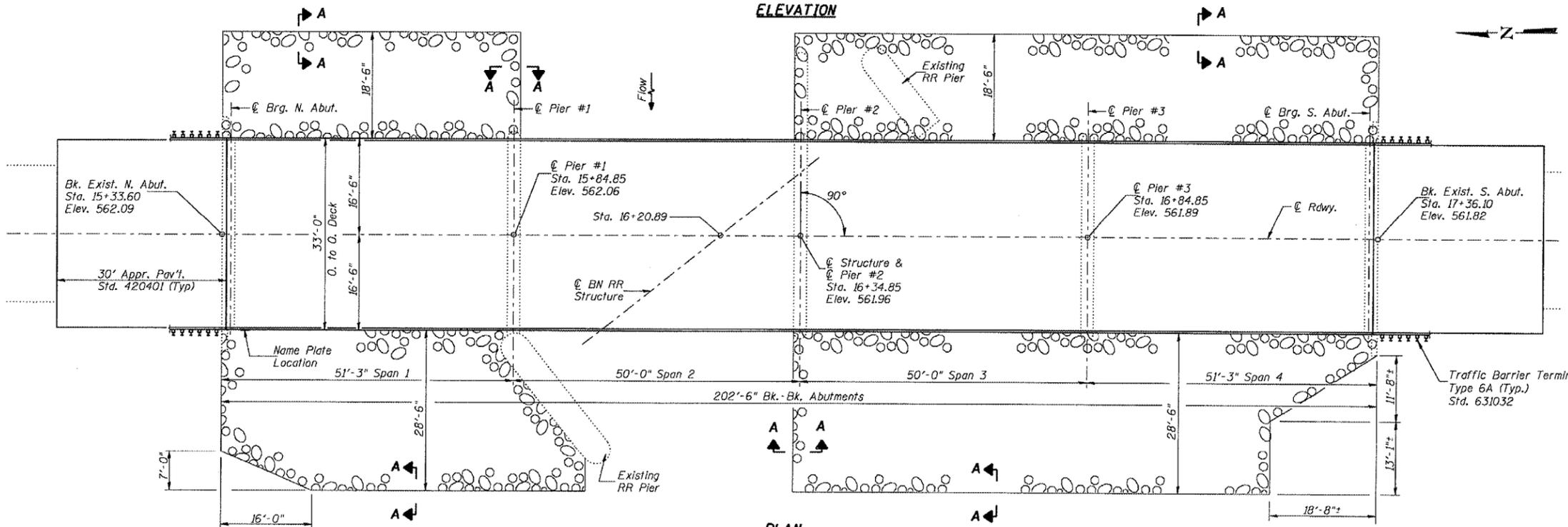
SHEET NO. 1
12 SHEETS

PROJECT NO. 148(BR-2)F CONTRACT NO. 72349

** ±13'-8" clearance
to be checked in the
field by the Engineer.



ELEVATION



PLAN

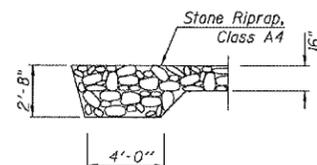
INDEX OF SHEETS

1. General Plan
2. General Notes & Bill of Material
3. Superstructure Details
4. Steel Railing, Type SM With HMA Wearing Surface
5. Rail Post Spacing, HMA WS Profile & Substructure Sections
6. Abutments
7. Pier 1 Repairs
8. Pier 2 Repairs
9. Pier 3 Repairs
10. Piers 1 & 3
11. Pier 2
12. Preformed Joint Detail

APPROVED
For Structural Adequacy Only

Ralph E. Anderson (T&E)
Engineer of Bridges & Structures

NOTE:
See Roadway plans for profile
grade information.



SECTION A-A

LOADING HS20-44
No Allowance for future wearing surface.

DESIGN SPECIFICATIONS
2002 AASHTO

DESIGN STRESSES
FIELD UNITS

$f'_c = 3,500$ p.s.i.
 $f_y = 60,000$ p.s.i. (Reinforcement)

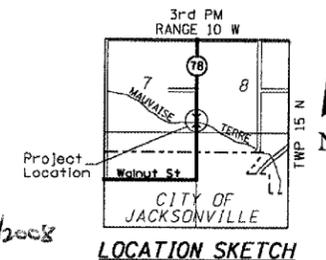
PRECAST PRESTRESSED UNITS

$f'_c = 5,000$ p.s.i.
 $f'_{ci} = 4,000$ p.s.i.
 $f'_s = 270,000$ p.s.i. ($\frac{1}{2}$ " ϕ low relaxation strands)
 $f'_{si} = 201,960$ p.s.i. ($\frac{1}{2}$ " ϕ low relaxation strands)

DESIGNED	BAN
CHECKED	JOH
DRAWN	TC/TD
CHECKED	BAN



James O. Hamilton
8/8/2007
License Expires 11/30/2008



LOCATION SKETCH

GENERAL PLAN
ILLINOIS ROUTE 78 OVER
MAUVAISE TERRE CREEK
F.A.P. 614 SEC. 148(BR-2)F
MORGAN COUNTY
STATION 16+34.85
STR. NO. 069-0005

HUTCHISON ENGINEERING, INC.
JACKSONVILLE, ILLINOIS
Rev: _____ Date: _____

ROUTE NO.	SEC	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 614	*	MORGAN	14	4
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT		

SHEET NO. 2
12 SHEETS

*148(BR-2)F

CONTRACT NO. 72B49

GENERAL NOTES

Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60 (IL Modified). See Special Provisions.

Reinforcement bars designated (E) shall be epoxy coated.

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.

No in-stream work will be allowed on this project.

The Contractor is advised that the existing PPC Deck Beams are in a deteriorated condition with reduced load carrying capacity. It is the Contractor's responsibility to account for the condition of the beams when developing construction procedures for removal and replacement of the superstructure.

Repair of the substructure shall be completed prior to placement of the new deck beams.

If the Contractor's procedure for existing beam removal or placement of new beams involves placement of heavy equipment on the new or existing deck beams, a detailed procedure shall be submitted to the Engineer for approval. The procedure shall include calculations, sealed by an Illinois Licensed Structural Engineer, verifying the structural adequacy of the beams for the proposed loads. Cost included with Removal of Existing Superstructures.

Protective Coat shall not be applied to surfaces to which a Waterproofing Membrane System is applied.

The top surface of the beams shall be finished in accordance with Article 504.06 of the Standard Specifications except that the surface shall not be roughened by brooming. The finished surface shall be free of depressions or high spots with sharp corners, and the top edge of keys shall be rounded or chamfered a minimum of 1/4".

TOTAL BILL OF MATERIAL

Item	Unit	Total
Furnishing Precast Prestressed Concrete Deck Beams (21" Depth)	Sq. Ft.	6,627

STATION 16+34.85
REBUILT 200 BY
STATE OF ILLINOIS
F.A.P. 614 SEC. 148BR-2
LOADING HS20
STRUCTURE NO. 069-0005

NAME PLATE
See Std. 515001

Attach new name plate to back side of 8" rail element. Clean and re-locate existing name plate adjacent to new name plate. Cost included in the cost of "Name Plates".

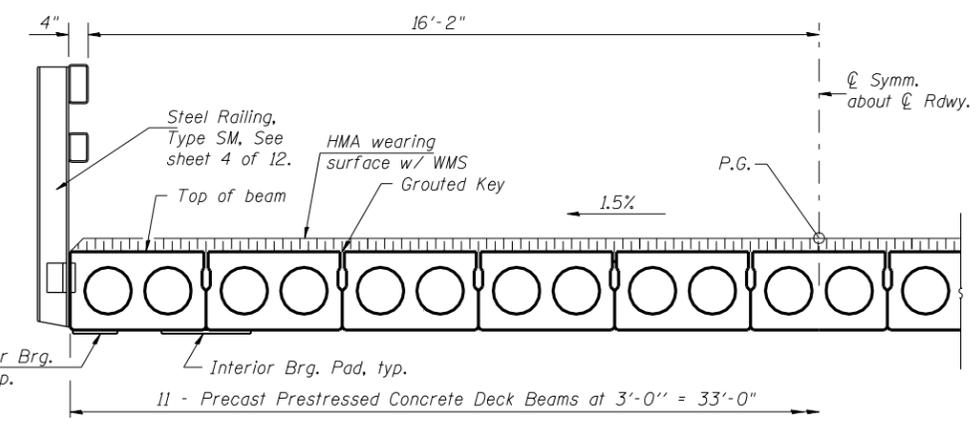
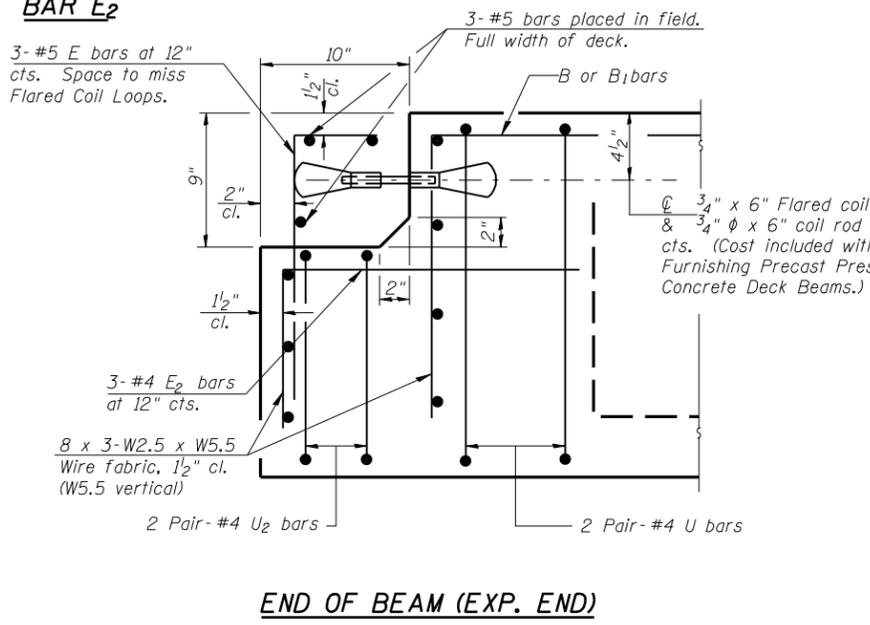
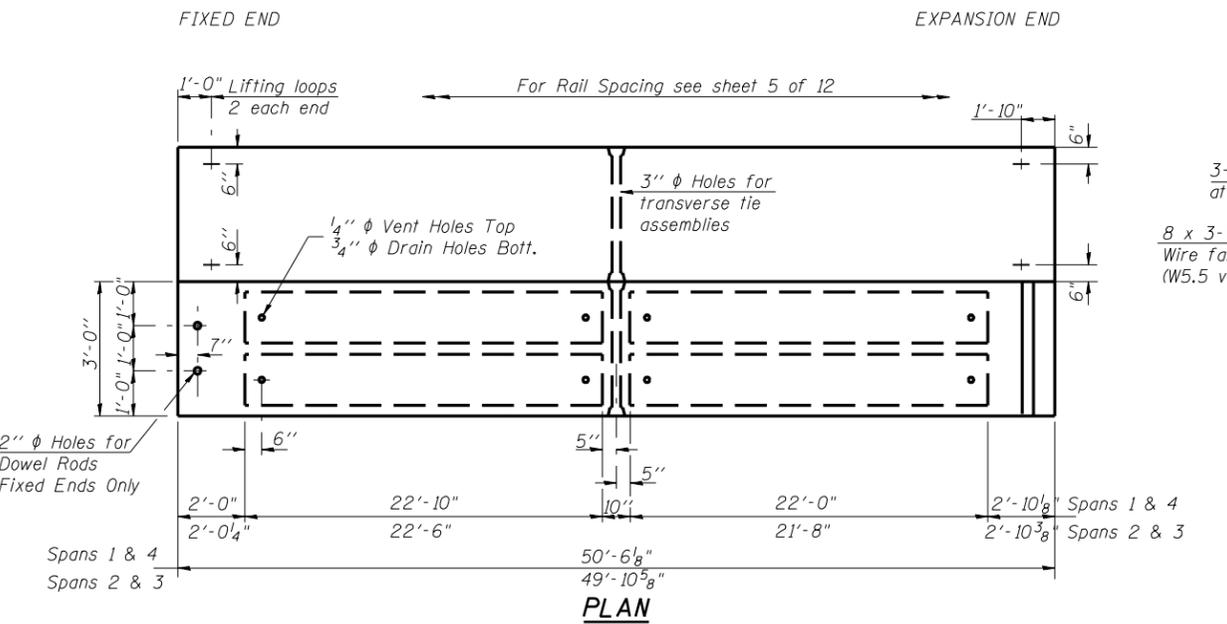
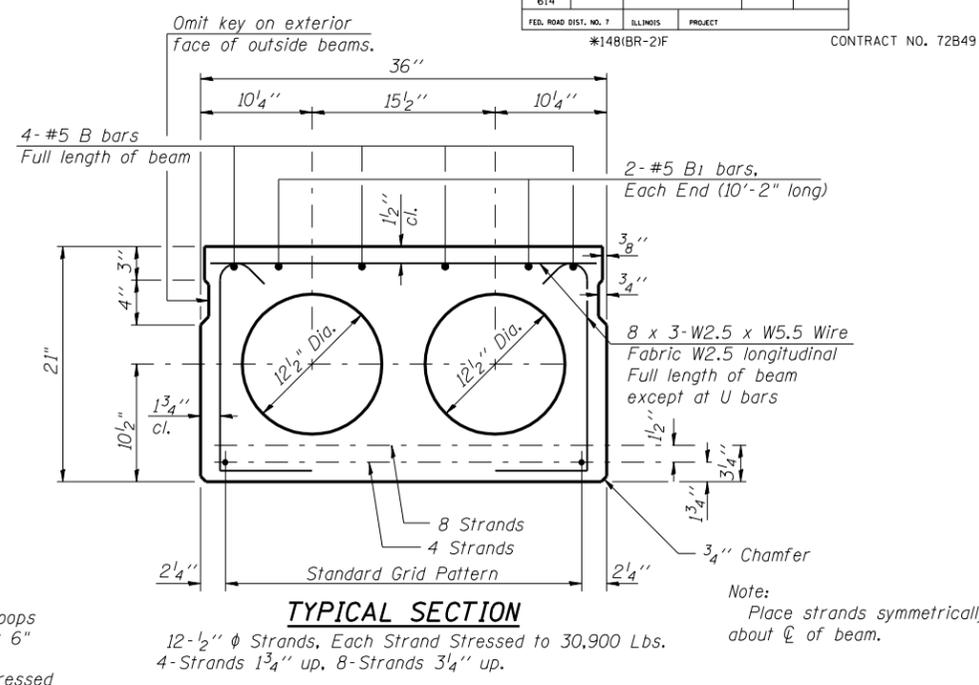
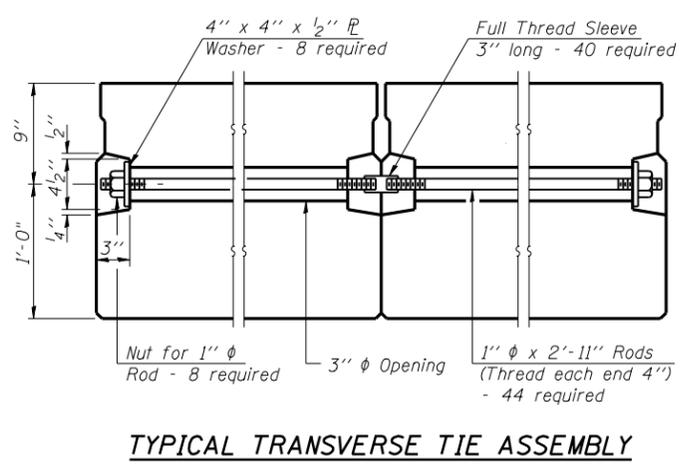
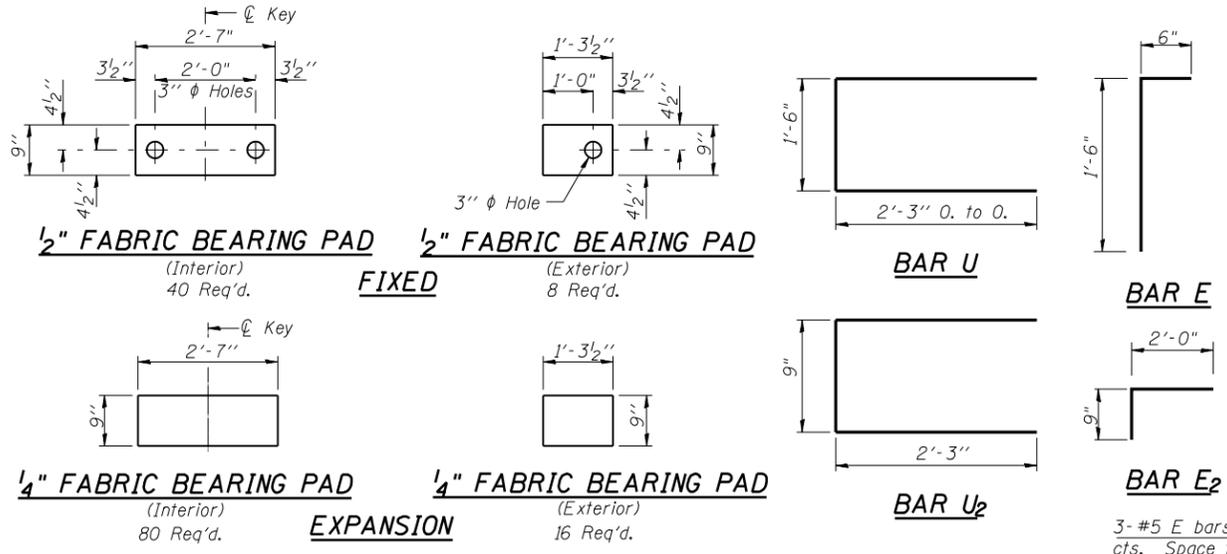
DESIGNED	BAN
CHECKED	JOH
DRAWN	TC/TD
CHECKED	BAN

**GENERAL NOTES &
BILL OF MATERIAL
ILLINOIS ROUTE 78 OVER
MAUVAISE TERRE CREEK
F.A.P. 614 SEC. 148(BR-2)F
MORGAN COUNTY
STATION 16+34.85
STR. NO. 069-0005**

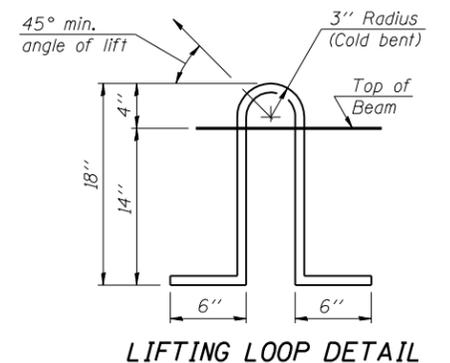
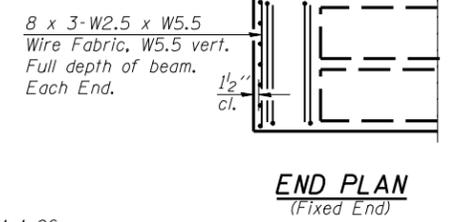
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JACKSONVILLE, ILLINOIS

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Date:



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NOTES

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. Lifting loops shall be 2 - 1/2" 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.

Non prestressing steel shall conform to ASTM A 706 (IL MOD), 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, per Article 1020.05(b)(12) of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.

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

Rail post anchor devices shall be cast into outside face of exterior beams as specified elsewhere.

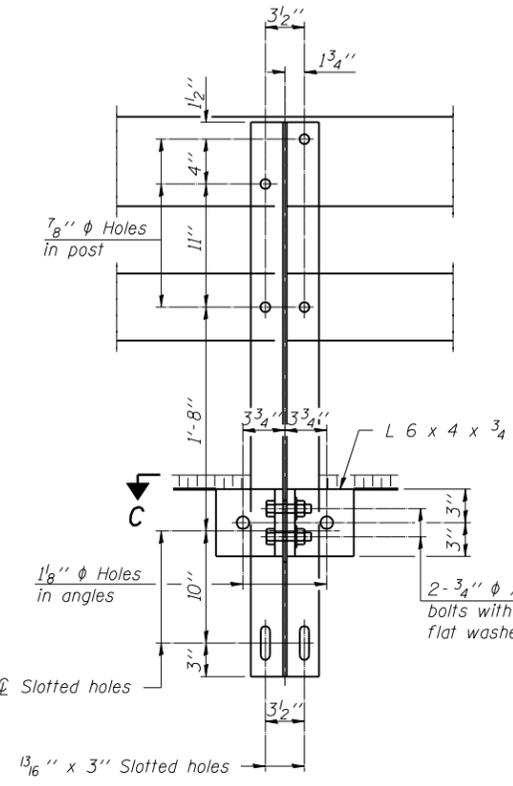
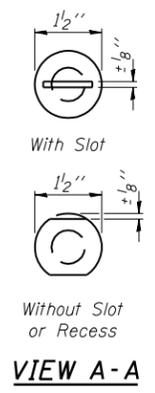
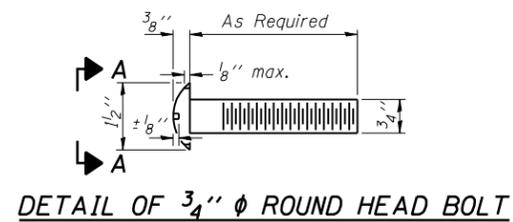
BILL OF MATERIAL

Item	Unit	Quantity
Furnishing Precast Prestressed Conc. Deck Bms. (21" Depth)	Sq. Ft.	6,627

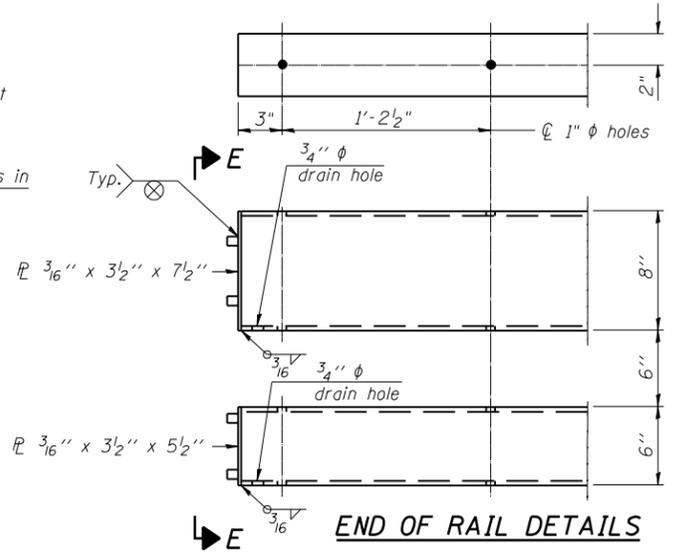
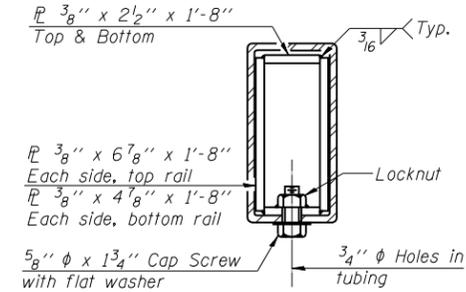
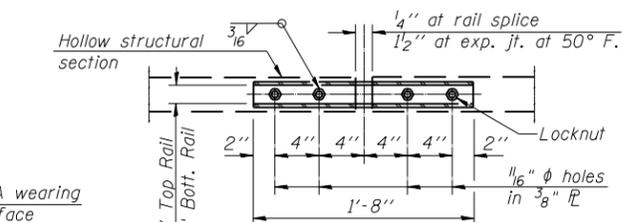
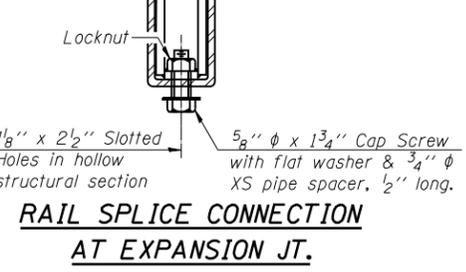
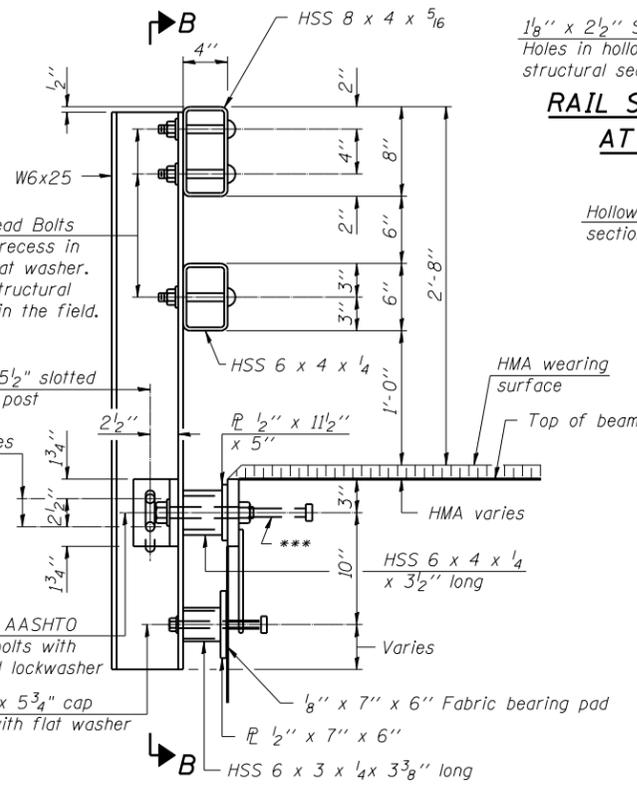
SUPERSTRUCTURE DETAILS
ILLINOIS ROUTE 78 OVER MAUVAISE TERRE CREEK
F.A.P. 614 SEC. 148(BR-2)F
MORGAN COUNTY
STATION 16+34.85
STR. NO. 069-0005

HUTCHISON ENGINEERING, INC.
JACKSONVILLE, ILLINOIS
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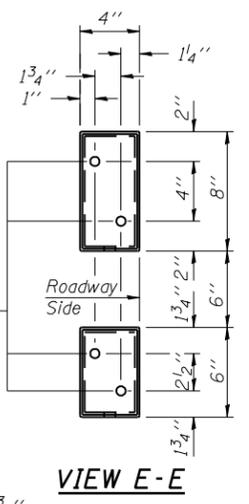
FOR RAIL POST SPACING SEE SH.#5 OF 12



4-3/4" ϕ x 6" Round Head Bolts (With slot or approved recess in head) with locknut & flat washer. 7/8" ϕ holes in hollow structural section may be drilled in the field.



SECTION AT RAIL SPLICE



THIS SHEET IS FOR INFORMATION ONLY

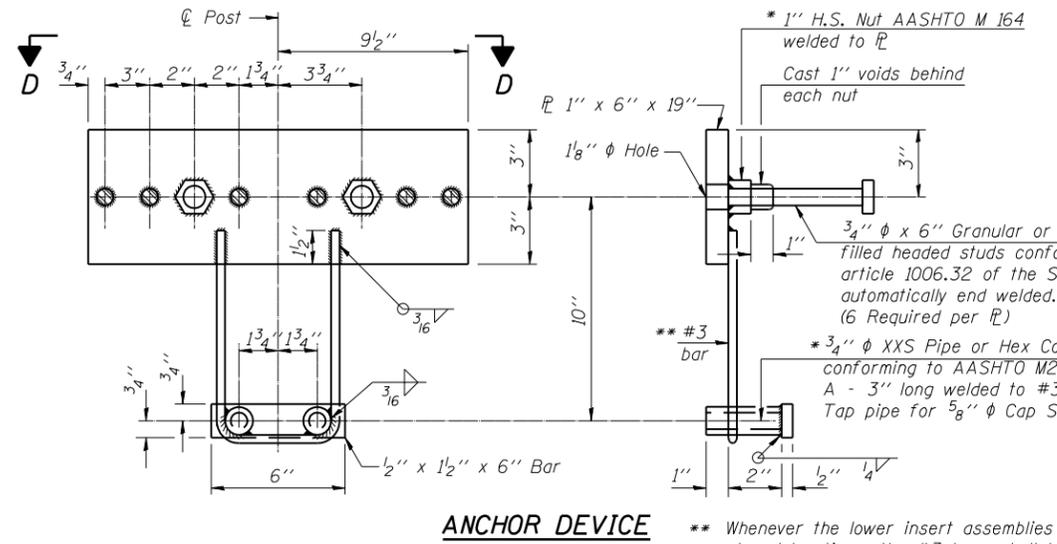
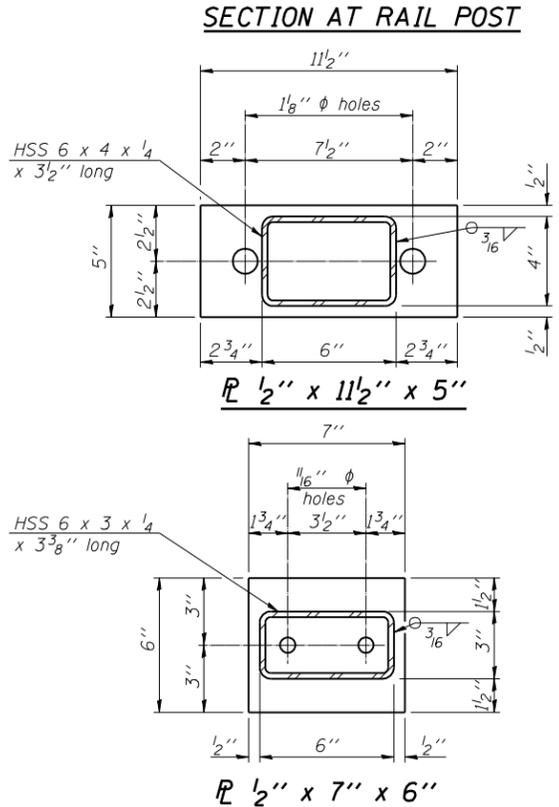
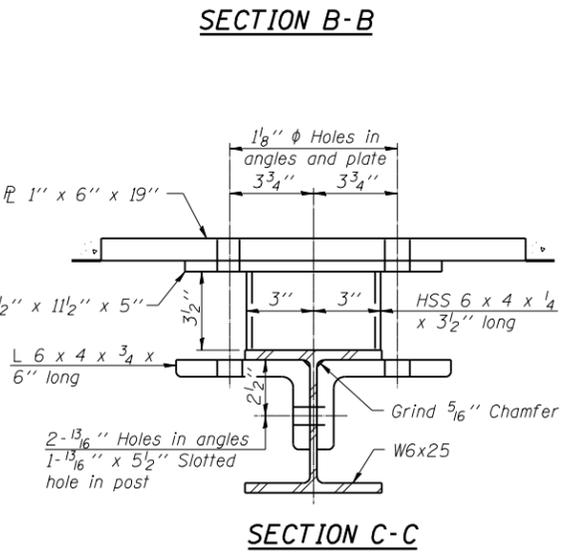
Notes:

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

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 Bridge Rail, Type SM.

All steel rail members shall be galvanized according to Article 509.05 of the Standard Specifications.

*** The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.



BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type SM	Foot	405

STEEL RAILING, TYPE SM WITH HOT-MIX ASPHALT SURFACE

ILLINOIS ROUTE 78 OVER MAUVAISE TERRE CREEK

F.A.P. 614 SEC. 148(BR-2)F

MORGAN COUNTY

STATION 16+34.85

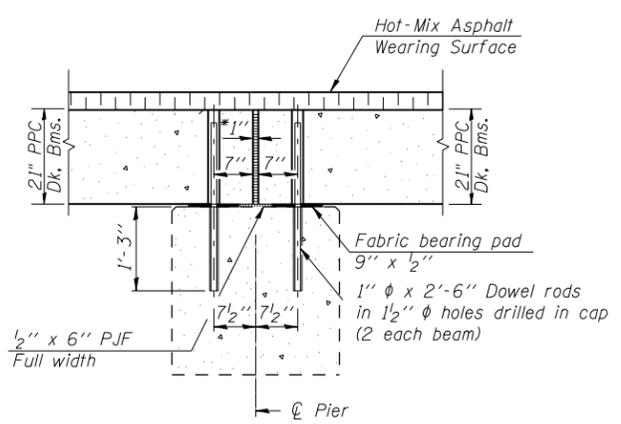
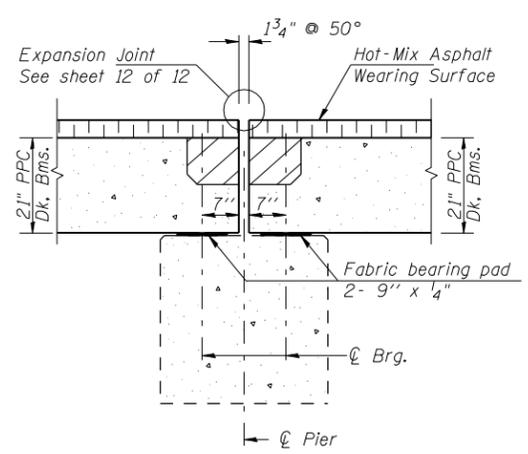
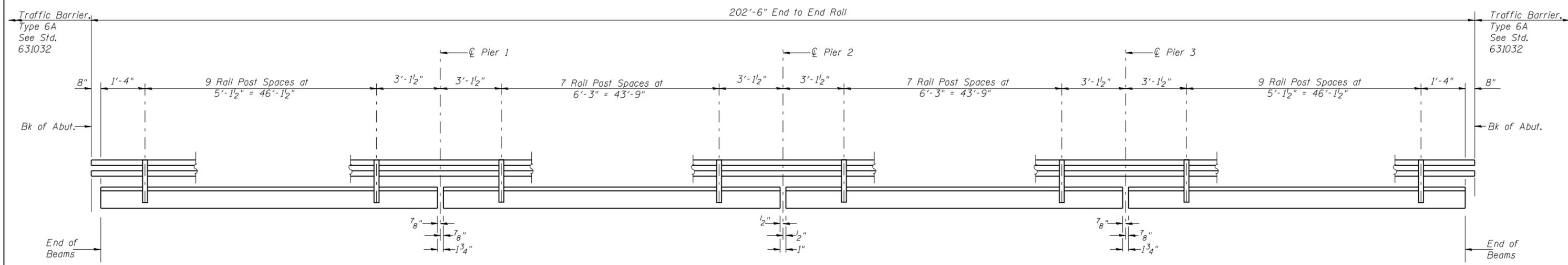
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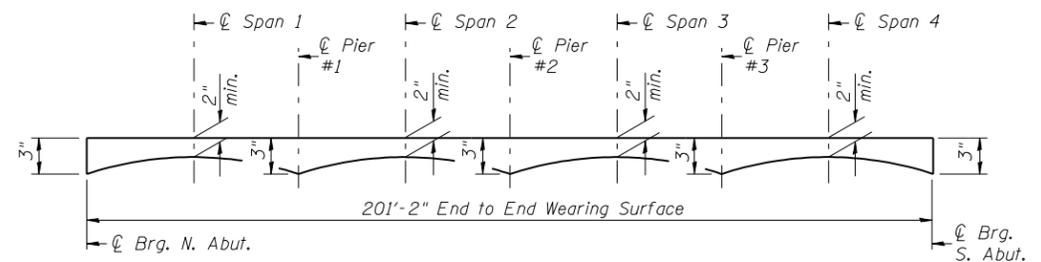
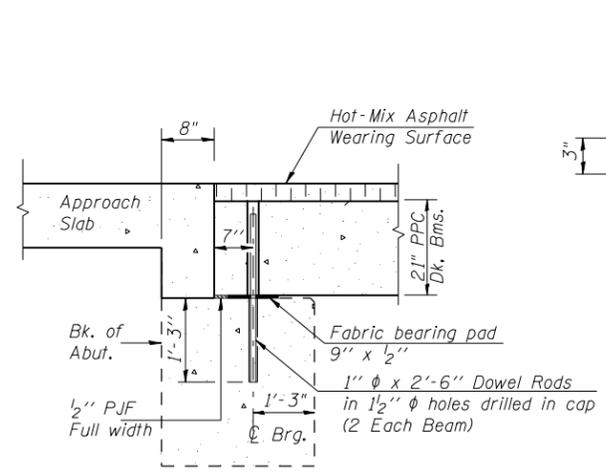
JACKSONVILLE, ILLINOIS

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DRAWN	TC/TD
CHECKED	BAN



*1" Jt. shall be filled with non-shrink grout. 1" dimension may vary to accommodate tolerance in beam lengths.



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Notes :

Existing dowel rods shall be burned off flush with top of existing concrete, ground smooth and sealed with epoxy. Cost included in cost of removal of existing superstructures. After beams have been erected, holes shall be drilled into substructure and anchor dowels placed. Dowel holes shall be filled with non-shrink grout to top of beam and allowed to cure min. 24 hrs. prior to grouting the shear keys.

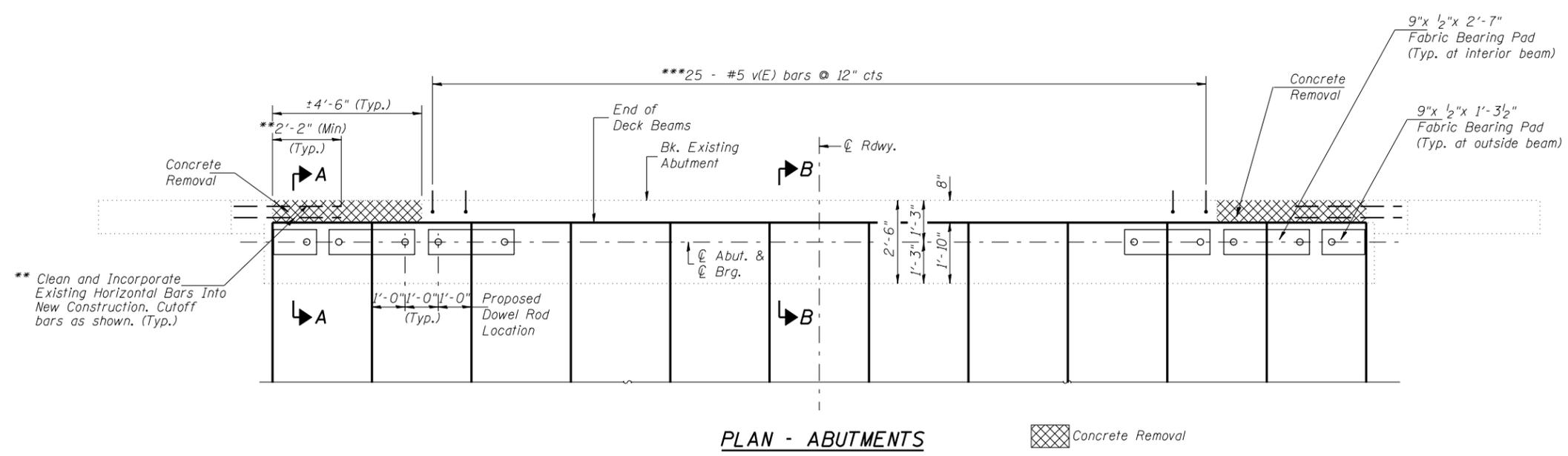
All horizontal dimensions are at right angles to beam ends. See sheet 3 of 12 for bearing pad details.

Hatched areas to be poured after beams have been erected and joints grouted. Ends of beams shall be aligned at the expansion joints. Any lineal variation in beam lengths shall be placed at the fixed joint.

**RAIL POST SPACING,
HMA WS PROFILE &
SUBSTRUCTURE SECTIONS
ILLINOIS ROUTE 78 OVER
MAUVAISE TERRE CREEK
F.A.P. 614 SEC. 148(BR-2)F
MORGAN COUNTY
STATION 16+34.85
STR. NO. 069-0005**

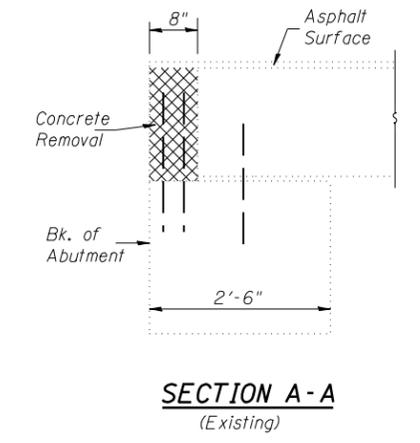
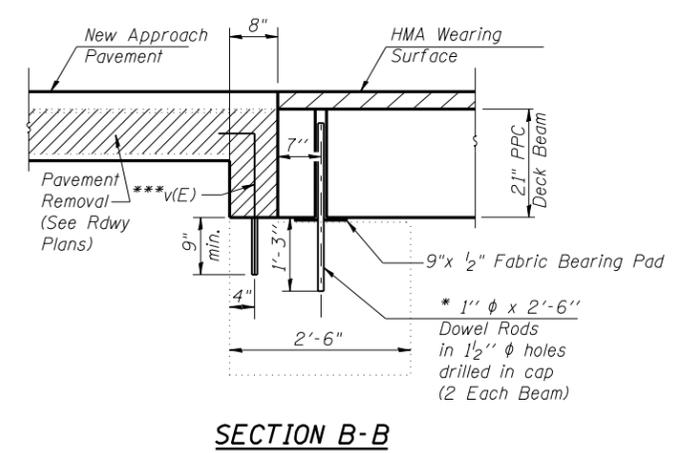
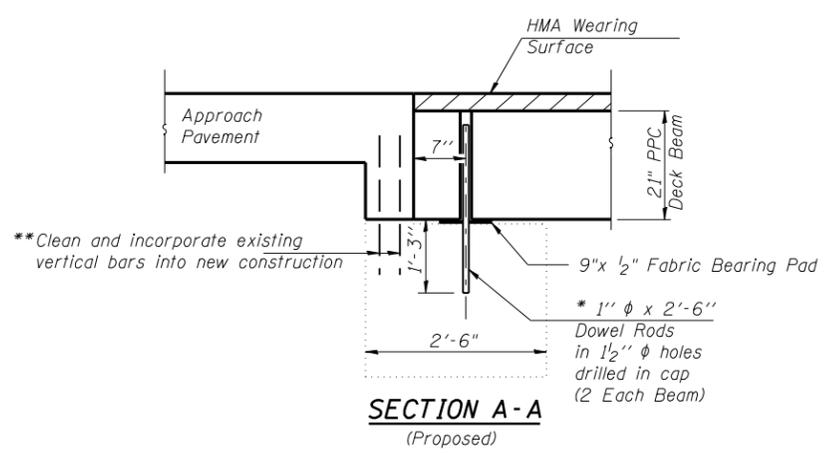
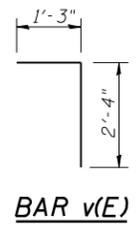
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JACKSONVILLE, ILLINOIS**

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PLAN - ABUTMENTS

Concrete Removal



***Epoxy grout bars v(E) in 9" min. drilled holes according to Section 584 of the Standard Specifications.

BILL OF MATERIAL TWO ABUTMENTS

Bar	No.	Size	Length	Shape
v(E)	50	#5	3'-7"	∟
Concrete Removal			Cu. Yd.	0.8
Reinforcement Bars, Epoxy Coated			Lbs.	190

* Existing Dowel Rods shall be burned off flush with the top of existing concrete, ground smooth, and sealed with epoxy. Cost to be included in the cost of Removal of Existing Superstructures. After beams have been erected, holes shall be drilled into substructure and anchor dowels placed. Dowel holes shall be filled with non-shrink grout to top of beam and allowed to cure min. 24 hrs. prior to grouting the shear keys.

**Existing reinforcement bars extending into new construction shall be cleaned, straightened and incorporated into the new construction. Cost to be included with Concrete Removal.

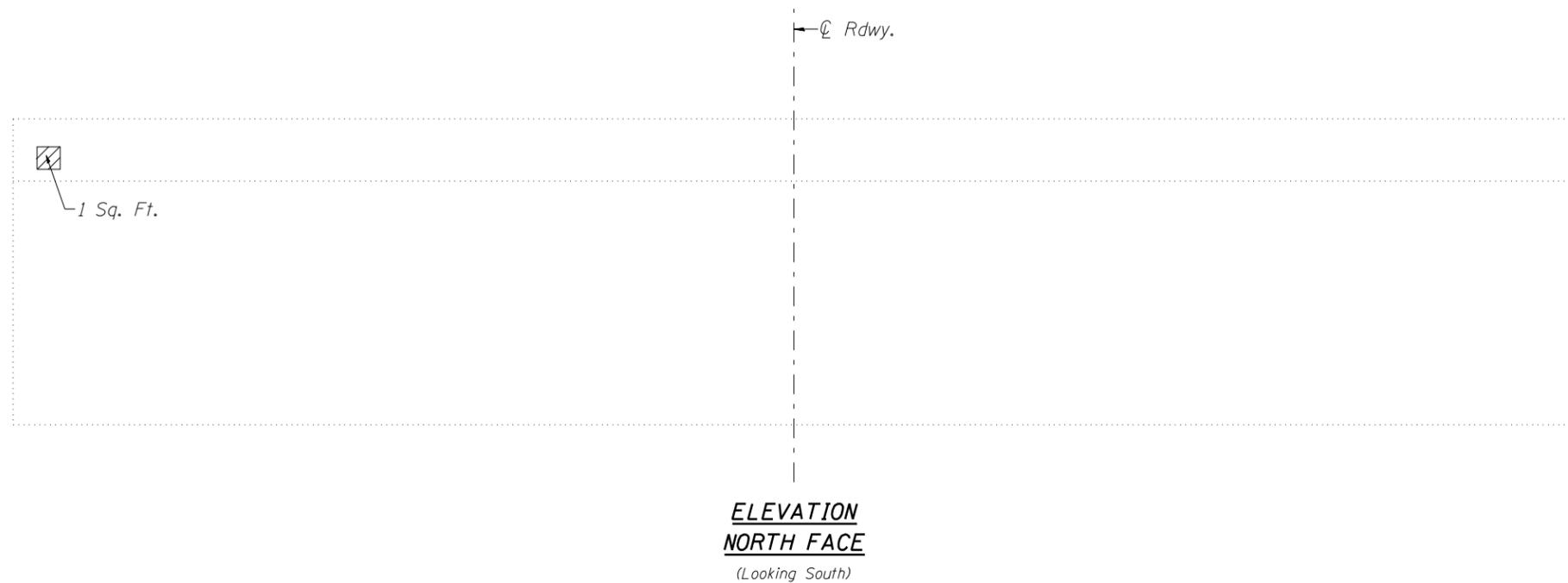
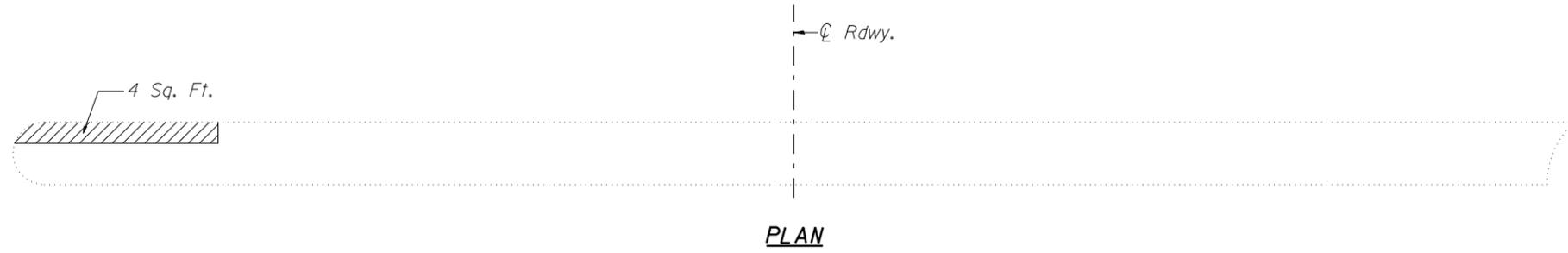
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ABUTMENTS
ILLINOIS ROUTE 78 OVER MAUVAISE TERRE CREEK
F.A.P. 614 SEC. 148(BR-2)F
MORGAN COUNTY
STATION 16+34.85
STR. NO. 069-0005

HUTCHISON ENGINEERING, INC.
 JACKSONVILLE, ILLINOIS

Rev: _____ Date: _____



BILL OF MATERIAL

Item	Unit	Quantity
Structure Repair of Concrete (Depth equal to or less than 5")	Sq. Ft.	9

LEGEND

Structure Repair of Concrete (Depth equal to or less than 5")

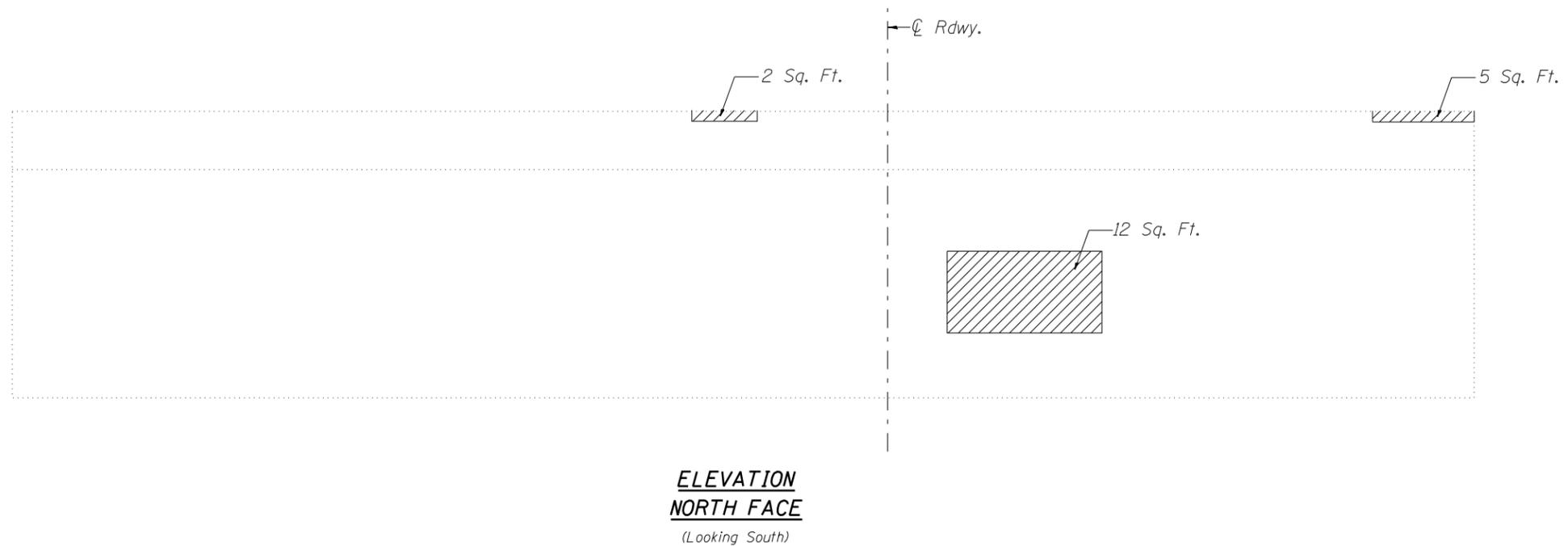
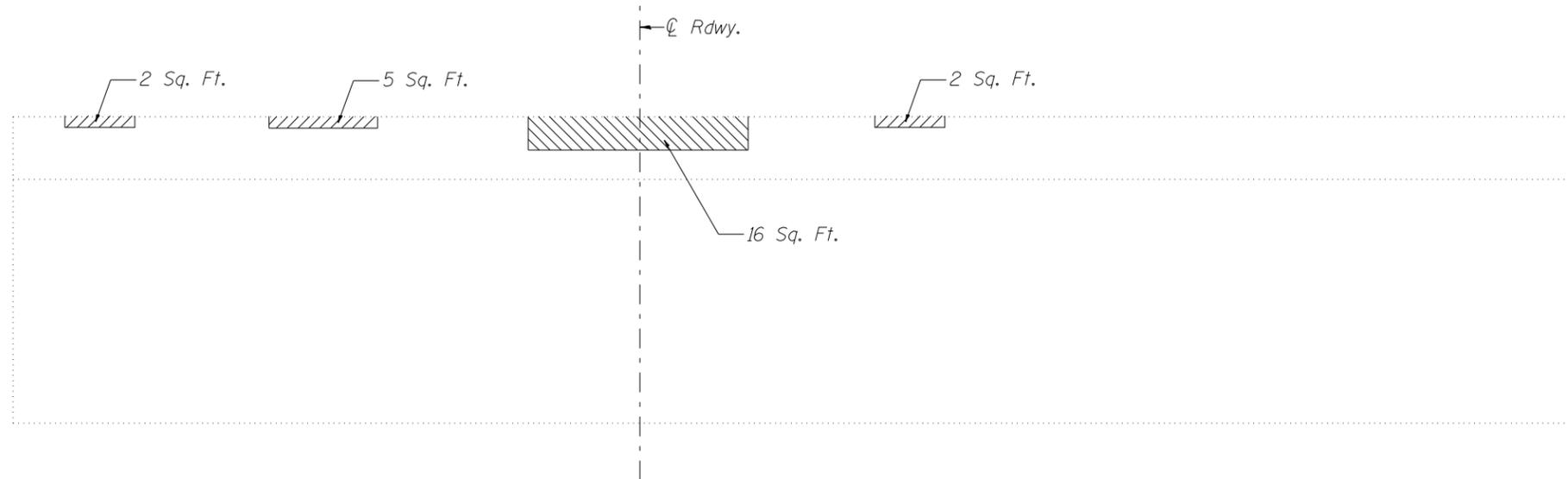
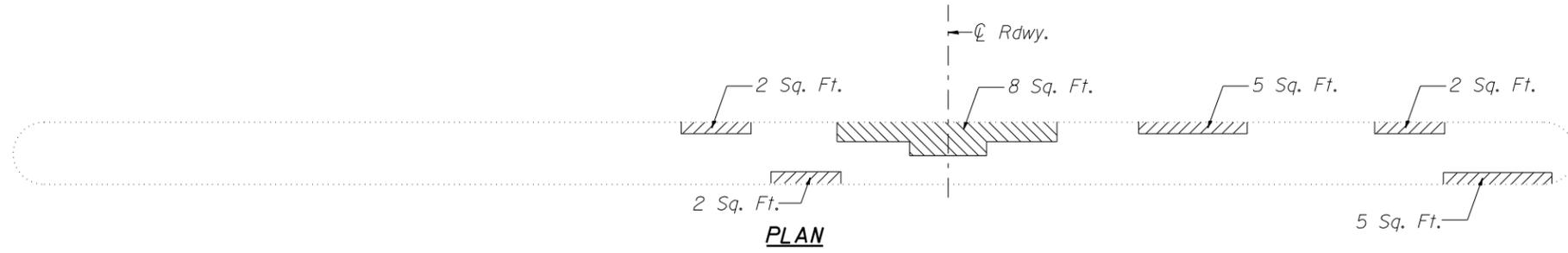
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CHECKED	BAN

PIER 1 REPAIRS
ILLINOIS ROUTE 78 OVER
MAUVAISE TERRE CREEK
F.A.P. 614 SEC. 148(BR-2)F
MORGAN COUNTY
STATION 16+34.85
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HUTCHISON ENGINEERING, INC.
JACKSONVILLE, ILLINOIS

Rev: _____ Date: _____



THIS SHEET IS FOR INFORMATION ONLY

BILL OF MATERIAL

Item	Unit	Quantity
Structure Repair of Concrete (Depth equal to or less than 5")	Sq. Ft.	44
Structure Repair of Concrete (Depth greater than 5")	Sq. Ft.	24

LEGEND

- Structure Repair of Concrete (Depth equal to or less than 5")
- Structure Repair of Concrete (Depth greater than 5")

DESIGNED	BAN
CHECKED	JOH
DRAWN	TC/TD
CHECKED	BAN

PIER 2 REPAIRS
ILLINOIS ROUTE 78 OVER
MAUVAISE TERRE CREEK
F.A.P. 614 SEC. 148(BR-2)F
MORGAN COUNTY
STATION 16+34.85
STR. NO. 069-0005

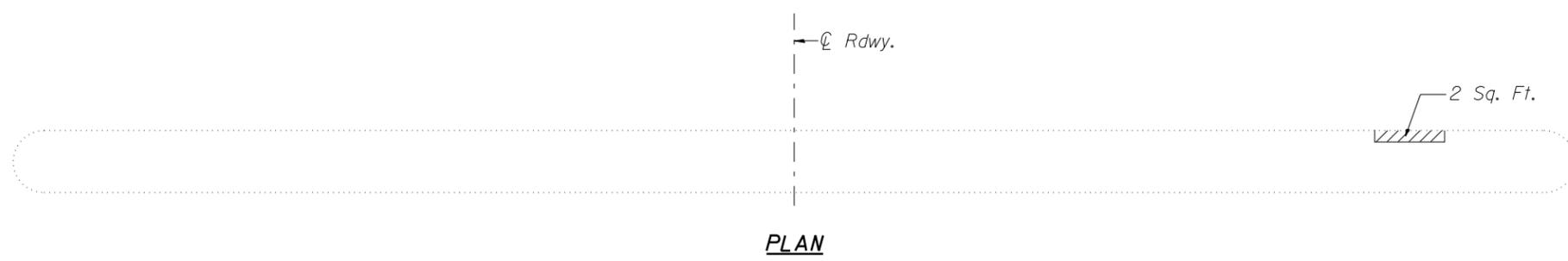
HUTCHISON ENGINEERING, INC.
 JACKSONVILLE, ILLINOIS

Rev: _____ Date: _____

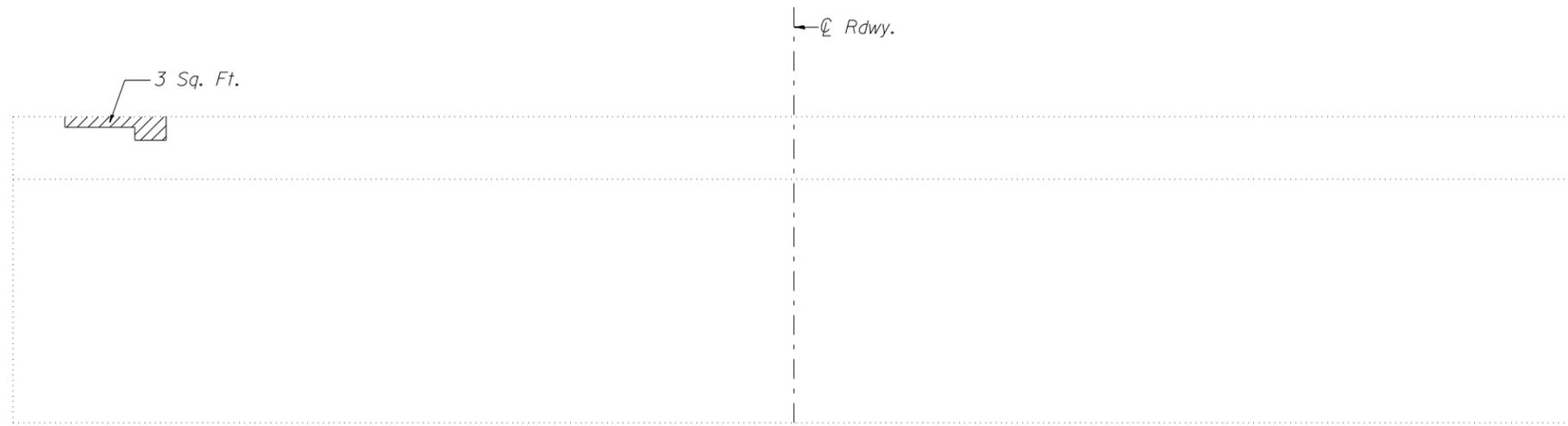
ROUTE NO.	SEC	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 614	*	MORGAN	14	11
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT		
		* 148(BR-2)F		

SHEET NO. 9
12 SHEETS

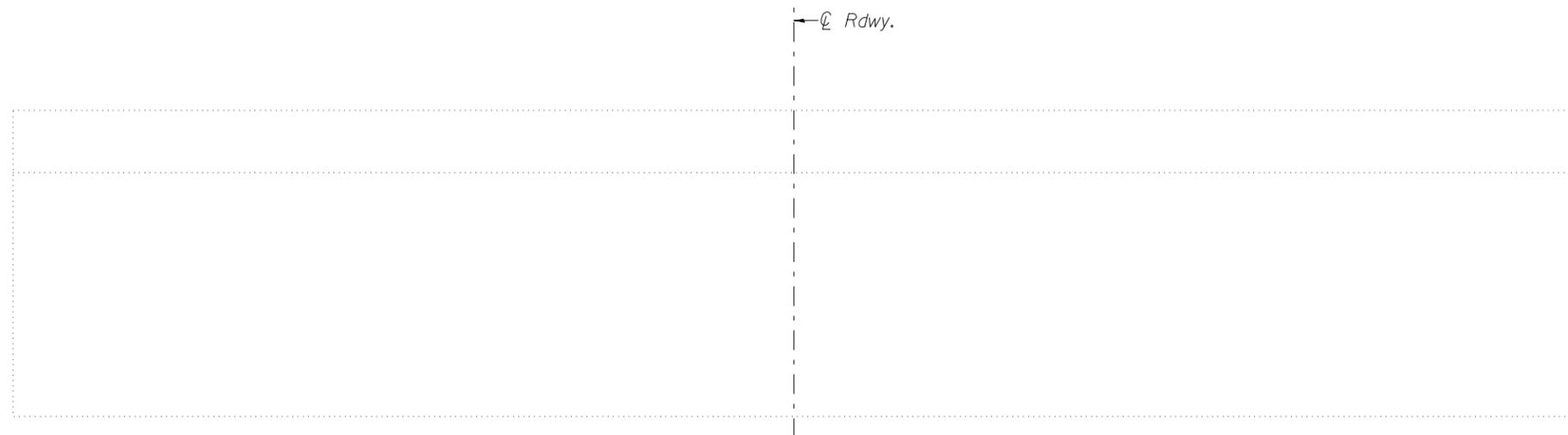
CONTRACT NO. 72B49



PLAN



ELEVATION
SOUTH FACE
(Looking North)



ELEVATION
NORTH FACE
(Looking South)

**THIS SHEET IS FOR
INFORMATION ONLY**

BILL OF MATERIAL

Item	Unit	Quantity
Structure Repair of Concrete (Depth equal to or less than 5")	Sq. Ft.	5

LEGEND

Structure Repair of Concrete
(Depth equal to or less than 5")

DESIGNED	BAN
CHECKED	JOH
DRAWN	TC/TD
CHECKED	BAN

**PIER 3 REPAIRS
ILLINOIS ROUTE 78 OVER
MAUVAISE TERRE CREEK
F.A.P. 614 SEC. 148(BR-2)F
MORGAN COUNTY
STATION 16+34.85
STR. NO. 069-0005**

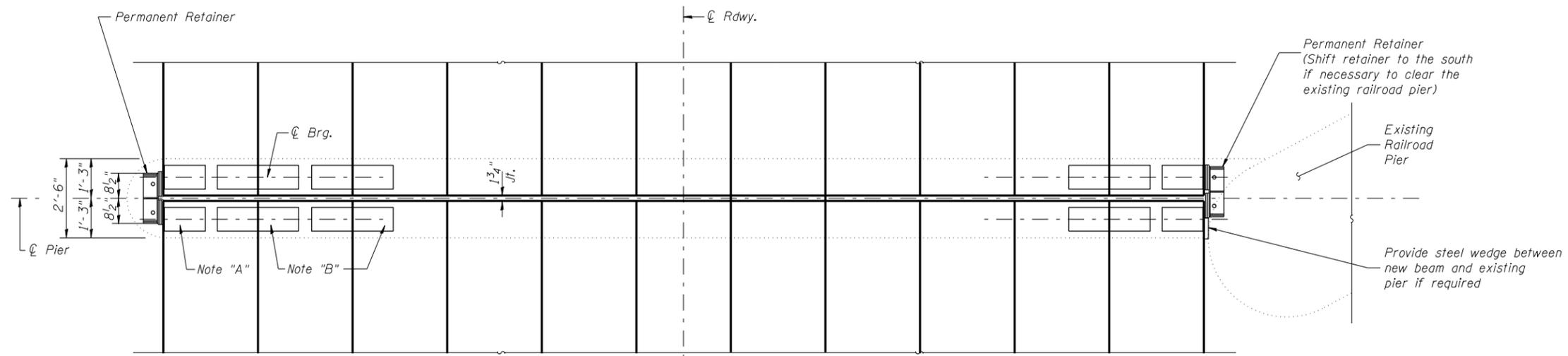
**HUTCHISON ENGINEERING, INC.
JACKSONVILLE, ILLINOIS**

Rev: _____ Date: _____

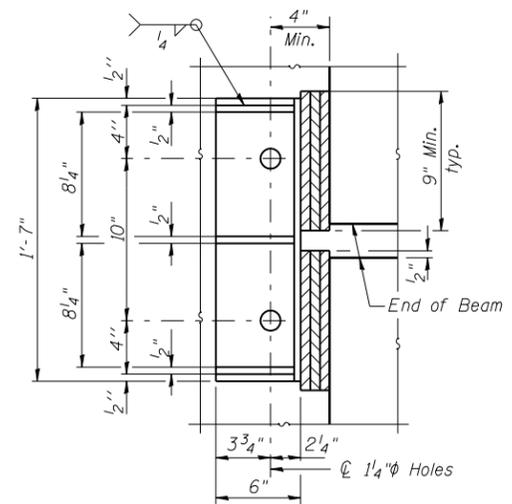
ROUTE NO.	SEC.	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 614	*	MORGAN	14	12
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT		
* 148(BR-2)F				

SHEET NO. 10
12 SHEETS

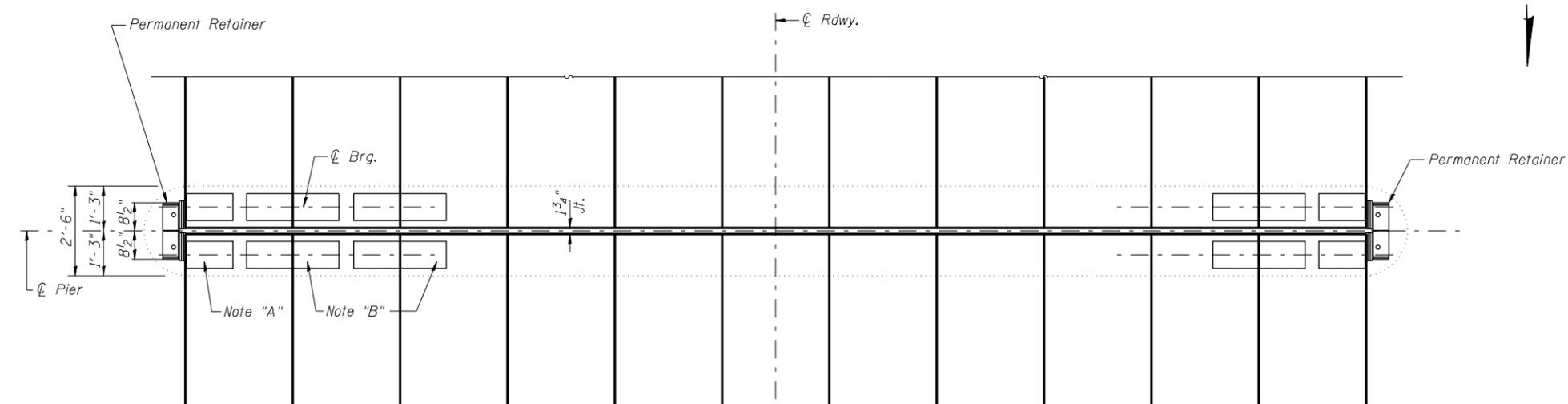
CONTRACT NO. 72B49



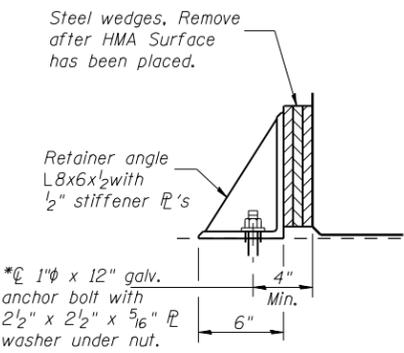
PLAN - PIER 1



PLAN



PLAN - PIER 3



ELEVATION

RETAINER ANGLE DETAIL

*Anchor bolts or approved threaded rod may be placed in drilled holes and grouted in place.

Note "A": Fabric Bearing Pad (2) 9"x 1/4" x 1'-3 1/2"
Typical at each outside beam.

Note "B": Fabric Bearing Pad (2) 9"x 1/4" x 2'-7".
Typical at each interior beam except as noted.

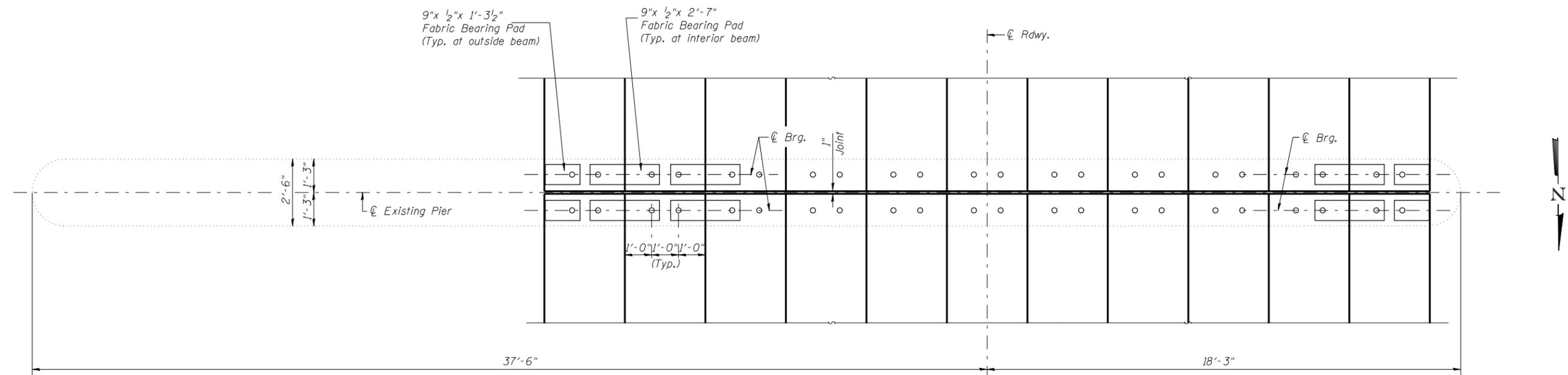
Notes:
The permanent retainers and hardware shall be galvanized after shop fabrication accordance to AASHTO M111 ASTM 385. Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. ASTM A307 Grade C anchor bolts may be used in lieu of ASTM F1554 Grade 36 (Fy=36ksi). The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554. Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications. Cost of retainers, accessories, and galvanizing are included with Furnishing Precast Prestressed Concrete Deck Beams.

THIS SHEET IS FOR INFORMATION ONLY

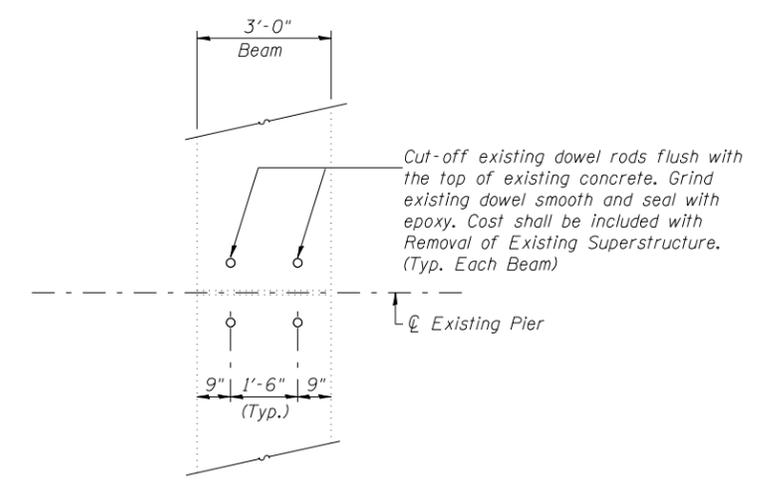
**PIERS 1 & 3
ILLINOIS ROUTE 78 OVER
MAUVAISE TERRE CREEK
F.A.P. 614 SEC. 148(BR-2)F
MORGAN COUNTY
STATION 16+34.85
STR. NO. 069-0005**

**HUTCHISON ENGINEERING, INC.
JACKSONVILLE, ILLINOIS**

DESIGNED	BAN
CHECKED	JOH
DRAWN	TC/TD
CHECKED	BAN



PLAN - PIER 2



**PLAN - EXISTING BEAMS
AT PIER 2**

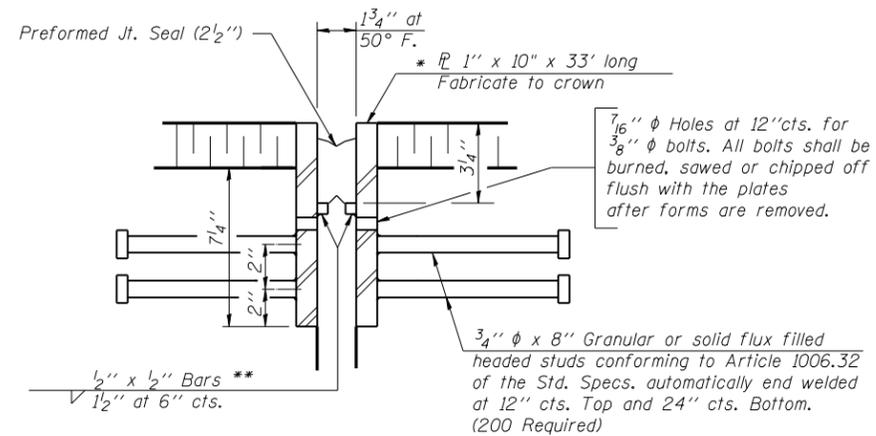
**THIS SHEET IS FOR
INFORMATION ONLY**

**PIER 2
ILLINOIS ROUTE 78 OVER
MAUVAISE TERRE CREEK
F.A.P. 614 SEC. 148(BR-2)F
MORGAN COUNTY
STATION 16+34.85
STR. NO. 069-0005**

DESIGNED	BAN
CHECKED	JOH
DRAWN	TC/TD
CHECKED	BAN

HUTCHISON ENGINEERING, INC.
JACKSONVILLE, ILLINOIS

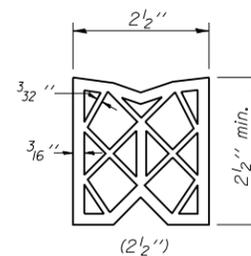
Rev: _____ Date: _____



SECTION THRU EXPANSION JOINT

* Furnish in segments of 20 ft. maximum length. Maximum space between installed segments shall be 3/16". Seal space with Silicone Sealant suitable for Structural Steel.

** Cut retainer bars in sidewalk or median 6" short of the sidewalk or median face.



PREFORMED JOINT SEAL

BILL OF MATERIAL

Item	Unit	Total
Preformed Joint Seal 2 1/2"	foot	66

THIS SHEET IS FOR INFORMATION ONLY

DESIGNED	BAN
CHECKED	JOH
DRAWN	TC/TD
CHECKED	BAN

**PREFORMED JOINT DETAIL
ILLINOIS ROUTE 78 OVER
MAUVAISE TERRE CREEK
F.A.P. 614 SEC. 148(BR-2)F
MORGAN COUNTY
STATION 16+34.85
STR. NO. 069-0005**

**HUTCHISON ENGINEERING, INC.
JACKSONVILLE, ILLINOIS**
Rev: _____ Date: _____