

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**PROPOSED
HIGHWAY PLANS**

FAP ROUTE 682 (IL RTE. 4)
SECTION 21B-HDF

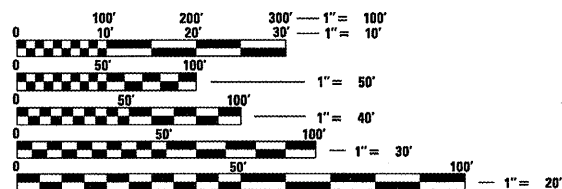
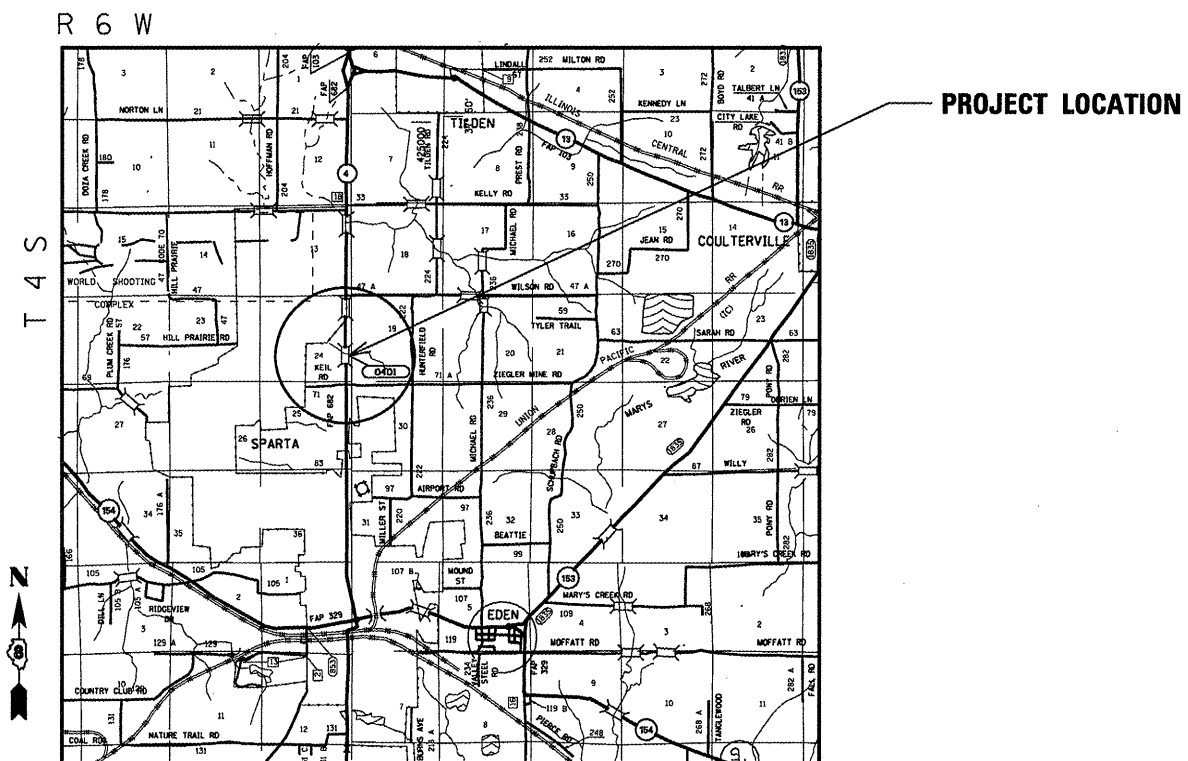
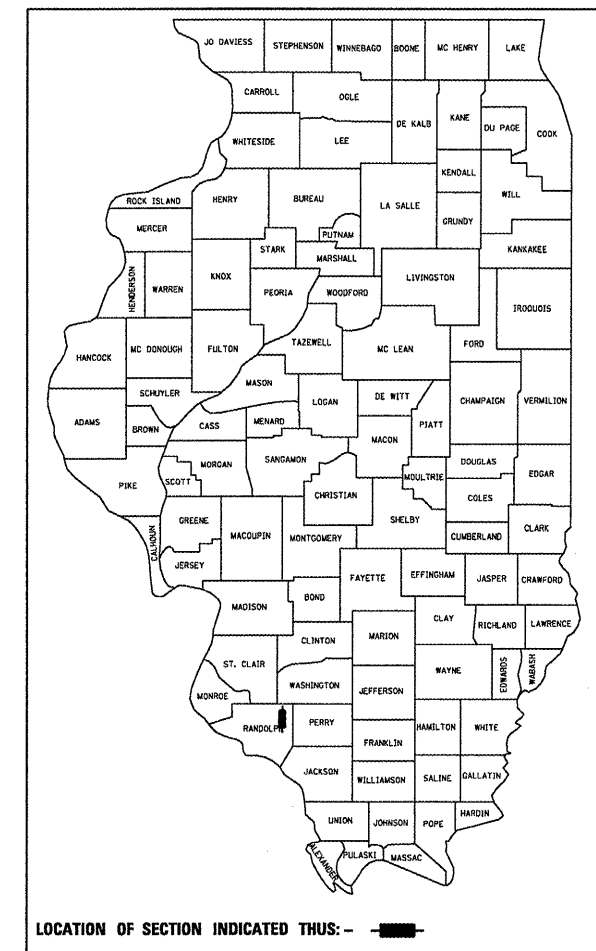
BRIDGE RAIL & BEAM REPAIR – MCHDF
RANDOLPH COUNTY

C-98-020-11

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
682	21B-HDF	RANDOLPH	7	1
		ILLINOIS	CONTRACT NO. 76E61	

FOR INDEX OF SHEETS, SEE SHEET NO. 2

D-98-021-11

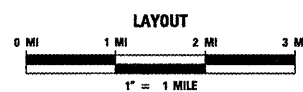


FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

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

PROJECT ENGINEER: PATTI LEBEAU (618)346-3179
PROJECT MANAGER: ART MUEHLFELD (618)-346-3209

CONTRACT NO. 76E61



LATITUDE = 38.166794
LONGITUDE = 89.703417

ADT-
2010 = 6,4000 (ESTIMATED)
2015 = 10,300 (ESTIMATED)
SU = 3.0% MU = 2.6%
GROSS LENGTH = 16 FT.
NET LENGTH = 16 FT.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED December 15 20 10
Mary C Jamel
DEPUTY DIRECTOR OF HIGHWAYS, REGION 5 ENGINEER
Feb 4 20 11
Scott E. Stett, P.E. ISE
Acting ENGINEER OF DESIGN AND ENVIRONMENT
Feb 4 20 11
Christine M. Reed ISE
DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

**PRINTED BY THE AUTHORITY
OF THE STATE OF ILLINOIS**

INDEX OF SHEETS

- 1 COVER PAGE
- 2 INDEX OF SHEETS/HIGHWAY STAND./GEN. NOTES/SOO
- 3-5 BRIDGE PLANS
- 6-7 EXISTING BRIDGE PLANS

GENERAL NOTES

1. THE STANDARDS AND REVISION NUMBERS STATED IN THE PLANS SHALL APPLY TO THIS CONTRACT.
2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO CONSTRUCTION AND ORDERING MATERIALS.
3. ILLINOIS STATE LAW REQUIRES A 48-HOUR NOTICE BE GIVEN TO ALL UTILITIES BEFORE DIGGING. FIELD MARKING OF FACILITIES MAY BE OBTAINED BY CONTACTING J.U.L.I.E. OR FOR NON-MEMBERS, THE UTILITY COMPANY DIRECTLY. AGENCIES KNOWN TO HAVE FACILITIES WITHIN THE PROJECT AREA ARE AS FOLLOWS:
 - AMEREN ILLINOIS •EGYPTIAN ELECTRIC COOPERATIVE ASSOCIATION
 - FRONTIER NORTH, INC. •CITY OF SPARTA •WASHINGTON COUNTY WATER CO.

MEMBERS OF J.U.L.I.E. (800) 892-0123 ARE INDICATED BY AN •. NON-J.U.L.I.E. MEMBERS MUST BE NOTIFIED INDIVIDUALLY.
4. ANY AREAS DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE SEEDED ACCORDING TO IDOT POLICY AS SOON AS POSSIBLE. THIS WORK WILL NOT BE MEASURED FOR PAYMENT BUT SHALL BE CONSIDERED AS INCLUDED IN THE COST OF THE CONTRACT.
5. "ROAD CONSTRUCTION AHEAD" SIGNS SHALL BE PLACED AT EACH END OF THE PROJECT AND ALL INTERSECTING SIDE ROADS AND WILL BE INCLUDED IN THE TRAFFIC CONTROL PAY ITEMS. ALL CONSTRUCTION SIGNS SHALL BE FLORESCENT ORANGE IN COLOR, SKID MOUNTED, AND 48". NO ADDITIONAL COMPENSATION FOR THIS WILL BE ALLOWED.
6. THE RESIDENT ENGINEER SHALL VERIFY THE EXISTENCE OF HIGHWAY LIGHTING AND/OR I.T.S. UTILITIES WITHIN THE PROJECT LIMITS. IF HIGHWAY LIGHTING AND/OR I.T.S. EXISTS WITHIN THE PROJECT LIMITS, AND IF THESE ITEMS REQUIRE LOCATING, THE CONTRACTOR SHALL BE DIRECTED TO DO SO ACCORDING TO SECTION 803 OF THE STANDARD SPECIFICATIONS. THIS WORK SHALL BE PAID FOR ACCORDING TO ARTICLE 109.04 OF THE STANDARD SPECIFICATIONS.
7. THE BOTTOM 6" OF THE TEMPORARY CONCRETE BARRIER SHALL BE PAINTED WITH TEMPORARY PAVEMENT MARKING- WHITE. THIS WILL NOT BE MEASURED FOR PAYMENT BUT SHALL BE CONSIDERED AS INCLUDED IN THE COST OF TEMPORARY CONCRETE BARRIER AND NO OTHER COMPENSATION SHALL BE ALLOWED.
8. FOR STABILIZATION PURPOSES, ALL TYPE III BARRICADES SHALL REQUIRE A MINIMUM OF 6 SANDBAGS PER BARRICADE.
9. HOT-MIX ASPHALT SHOULDERS HAVE BEEN INCLUDED IN THE PLANS TO PAY FOR ANY SHOULDER DAMAGE THAT MAY OCCUR DUE TO CONSTRUCTION ACTIVITIES.

HIGHWAY STANDARDS

- 000001-06
- 001001-02
- 001006
- 635011-02
- 701321-11
- 701901-01
- 704001-06
- 780001-02

NO COMMITMENTS

MIXTURE REQUIREMENT CHART		
MIXTURE USE	SHOULDERS ≥ 2 1/4"	SHOULDERS < 2 1/4"
AC/PG	PG 64-22	PG 64-22
RAP % (MAX)	SEE CONTRACT RAP SPECIAL PROVISION	SEE CONTRACT RAP SPECIAL PROVISION
DESIGN AIR VOIDS	SEE CONTRACT RAP SPECIAL PROVISION	SEE CONTRACT RAP SPECIAL PROVISION
MIX COMPOSITION	**2% @ Ndes = 30	**2% @ Ndes = 30
(GRADATION MIXTURE)	NMAS 3/4"	NMAS 1/2"
FRICITION AGG		

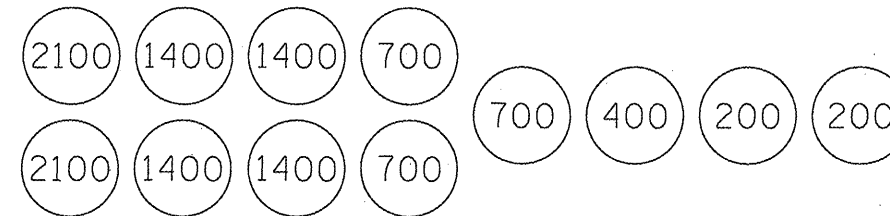
•• TOP LIFT SHOULDERS - DESIGN THIS MIX AT 2% VOIDS AND ADD ASPHALT TO REDUCE VOIDS TO 1.5%.

SUMMARY OF QUANTITIES

SUMMARY OF QUANTITIES			0014 CONSTRUCTION TYPE CODE		
CODE NO	ITEM	UNIT	TOTAL QUANTITIES	100% STATE	
				MCHD	
48203100	HOT-MIX ASPHALT SHOULDERS	TON	14	14	
50400105	PRECAST CONCRETE BRIDGE SLAB	SQ FT	57.5	57.5	
67100100	MOBILIZATION	L SUM	1	1	
70100405	TRAFFIC CONTROL AND PROTECTION, STANDARD 701321	EACH	1	1	
70106500	TEMPORARY BRIDGE TRAFFIC SIGNALS	EACH	1	1	
70106700	TEMPORARY RUMBLE STRIPS	EACH	6	6	
70400100	TEMPORARY CONCRETE BARRIER	FOOT	225	225	
X0324744	REMOVAL OF EXISTING PRECAST CONCRETE UNITS	SQ FT	57.5	57.5	
Z0007122	REMOVING AND RE-ERECTING EXISTING RAILING	FOOT	24	24	
Z0030250	IMPACT ATTENUATORS, TEMPORARY (NON-REDIRECTIVE), TEST LEVEL 3	EACH	2	2	

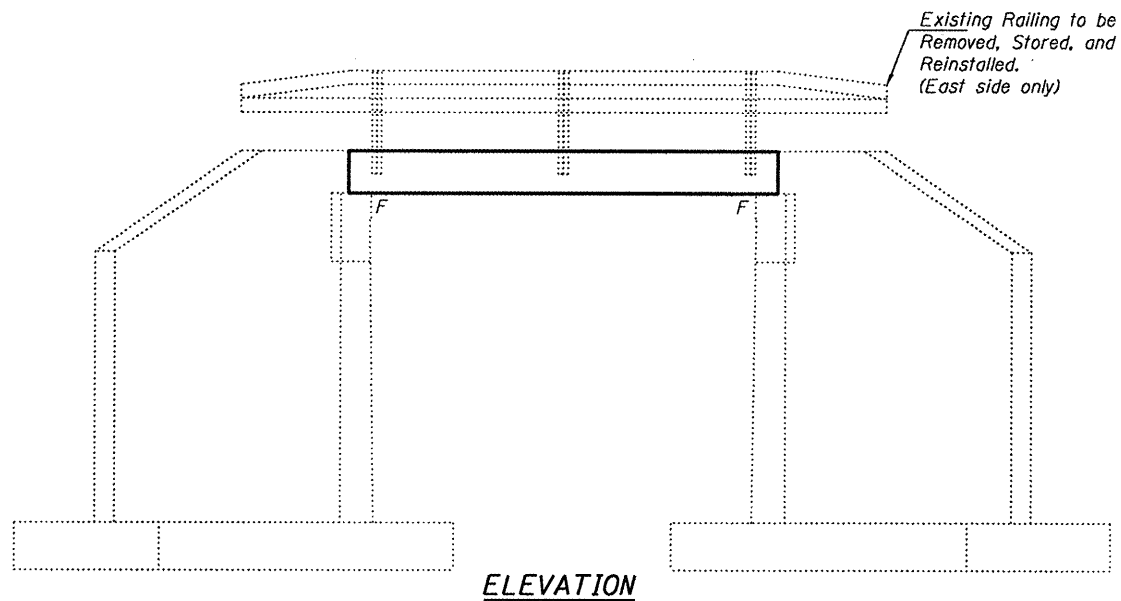
TRAFFIC CONTROL PLAN NOTES

1. IF THE CONTRACTOR CHOOSES THE OPTION OF SAND MODULE IMPACT ATTENUATORS, THEN THE LAYOUT AS SHOWN BELOW WILL BE USED.
2. TRAFFIC CONTROL AND PROTECTION, STANDARD 701321 REQUIRES TEMPORARY PAVEMENT MARKING. SEE THE SPECIAL PROVISION TITLED "TEMPORARY PAVEMENT MARKING" REGARDING THIS.
3. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PLACE TRAFFIC CONTROL DEVICES IN SUCH A MANNER AS TO MAINTAIN 16' OF OPEN ROADWAY TO ALLOW FOR WIDE LOADS AT ALL TIMES. NO EXCEPTIONS WILL BE ALLOWED.
4. TEMPORARY RUMBLE STRIPS WILL BE REQUIRED FOR THIS PROJECT.

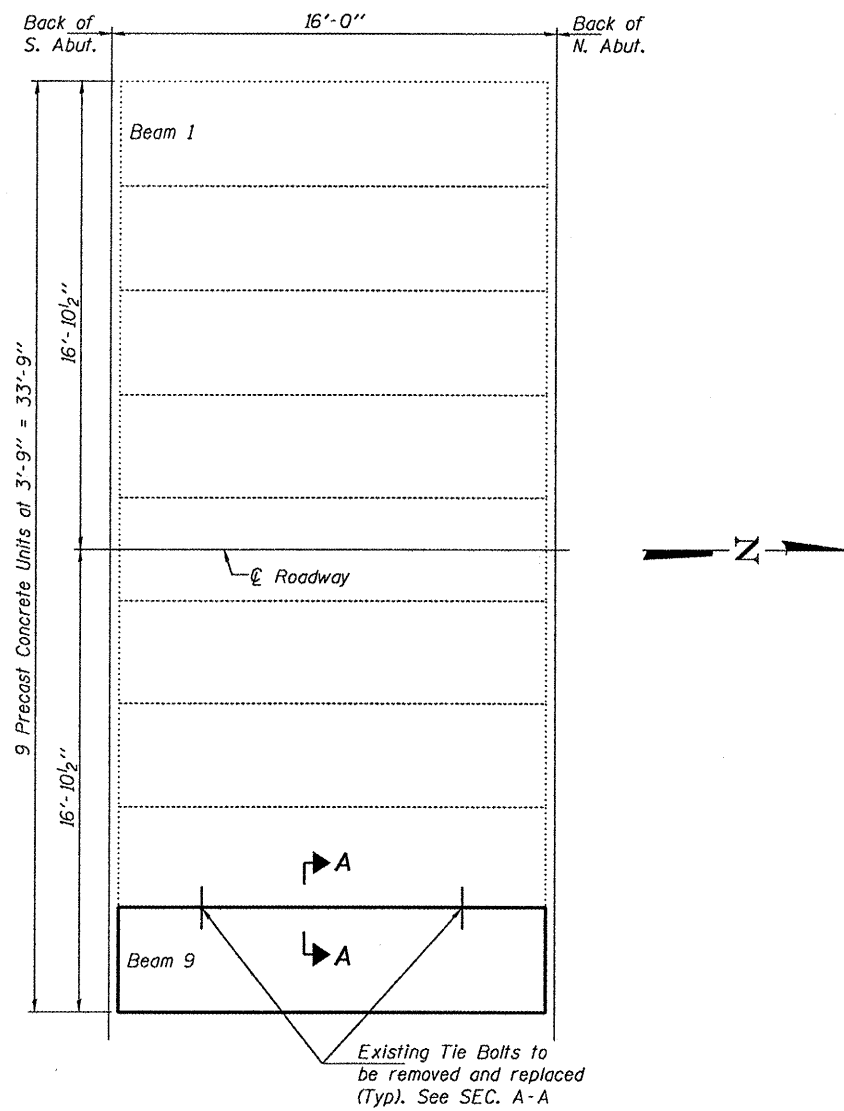


SAND MODULE IMPACT ATTENUATOR

FILE NAME #	USER NAME = #USER#	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	INDEX/STANDARDS/SOO/GEN. NOTES	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
#FILE#		DRAWN -	REVISED -			682	21B-HDF	RANDOLPH	7	2
		CHECKED -	REVISED -			CONTRACT NO. 76E61				
		PLOT SCALE = #SCALE#								
		PLOT DATE = #DATE#								
		DATE -	REVISED -	SCALE:	SHEET NO.	OF 1 SHEETS	STA.	TO STA.	FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT



ELEVATION



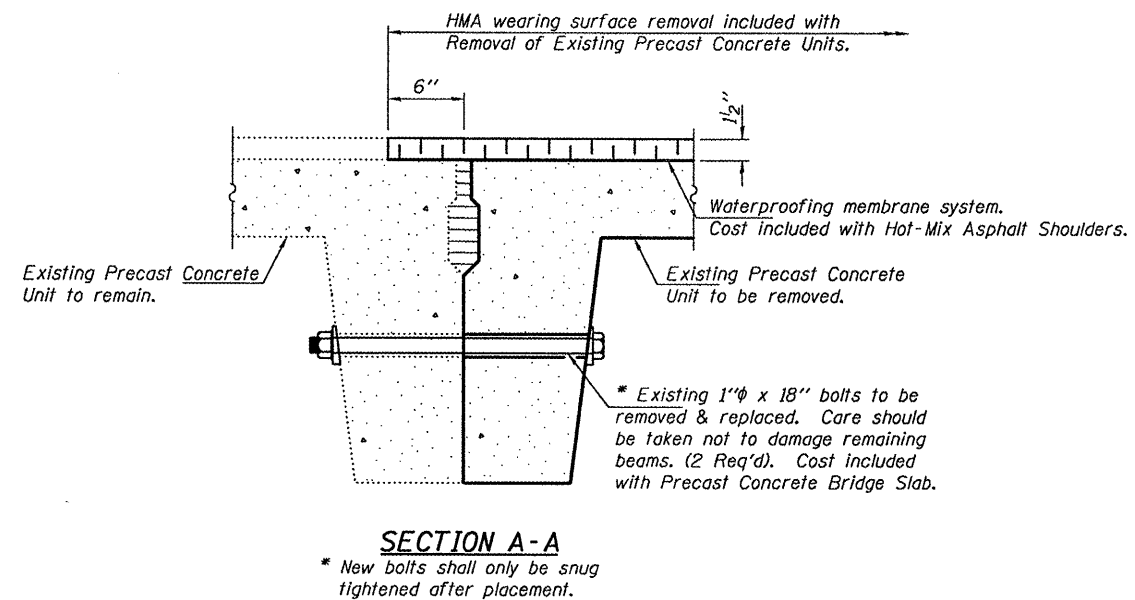
PLAN

GENERAL NOTES

Plan dimensions and details relative to existing structure have been taken from existing plans and are subject to nominal construction variations. It shall be the Contractor's responsibility to verify such dimensions and details in the field 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 the scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.

Any damage done to the bridge during Precast Unit removal shall be repaired by the Contractor. Cost to be included in the cost of Removal of Existing Precast Concrete Units.

Temporary concrete barrier shall only be anchored into the overlay and not the Precast Concrete Units.



SECTION A-A

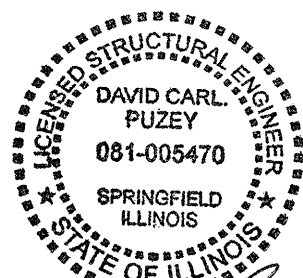
DESIGN STRESSES

PC UNITS
 $f_c = 1,800$ psi
 $f'_c = 4,500$ psi
 $f_s = 20,000$ psi (Reinforcement)
 $n = 8$

DESIGN SPECIFICATIONS
 2002 AASHTO Bridge Design Specifications

TOTAL BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Precast Concrete Bridge Slab	Sq. Ft.	57.5
Removal of Existing Precast Concrete Units	Sq. Ft.	57.5
Hot-Mix Asphalt Shoulders	Tons	0.6
Removing and re-erecting existing railing	Foot	24



DESIGNED: *Mano*
 CHECKED: *Ivica Lopez (UHV)*
 DRAWN: *baliva*
 CHECKED: *MKC*

EXAMINED: *John J. Jull*
 PASSED: *John J. Jull*
 ACTING ENGINEER OF BRIDGES AND STRUCTURES

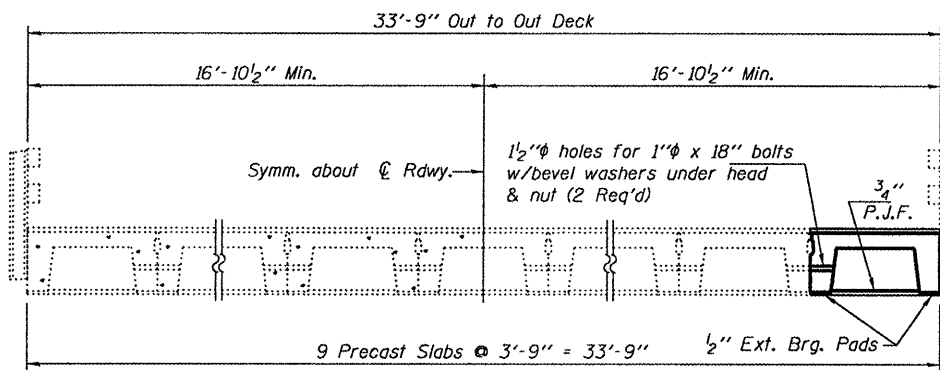
DATE - JANUARY 28, 2011

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

PLAN AND ELEVATION
 SN 079-0401

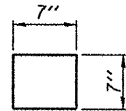
SHEET NO. 1 OF 3 SHEETS

IL RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	218-HOF	RANDOLPH	7	3
CONTRACT NO. 76E61			ILLINOIS FED. AID PROJECT	



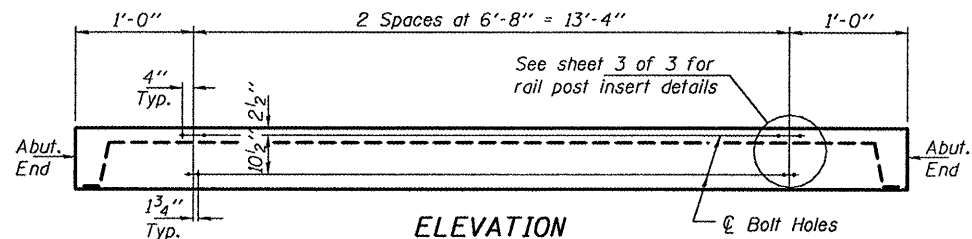
HALF CROSS SECTION HALF END ELEVATION

Remove, Store and Reinstall Existing Railing



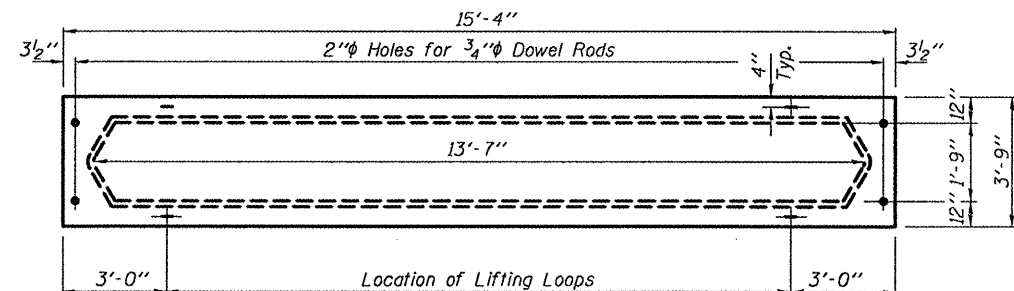
BEARING PADS

Exterior Corners
4-1/2" Fabric Pads Req'd.
Cost included with Precast Concrete Bridge Slab.

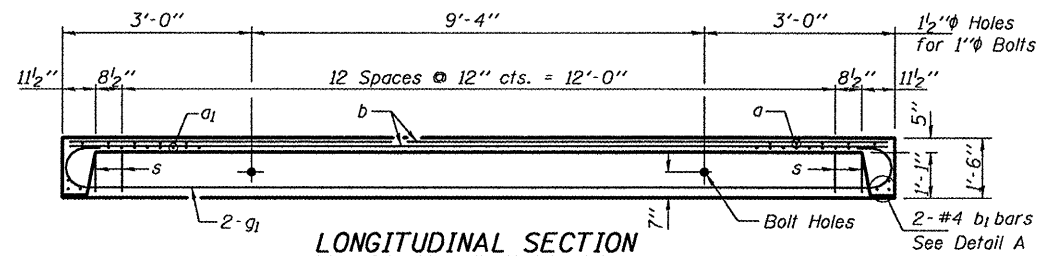


ELEVATION

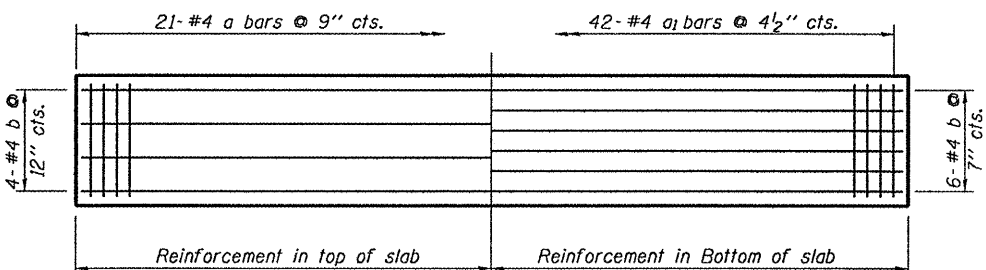
Showing rail post spacing



TYPICAL PLAN OF BEAM

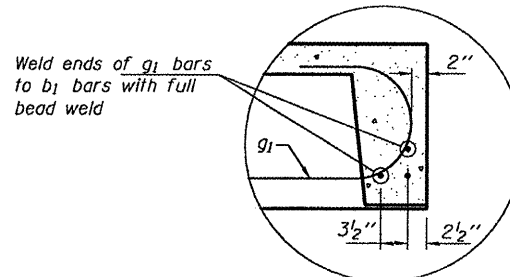


LONGITUDINAL SECTION



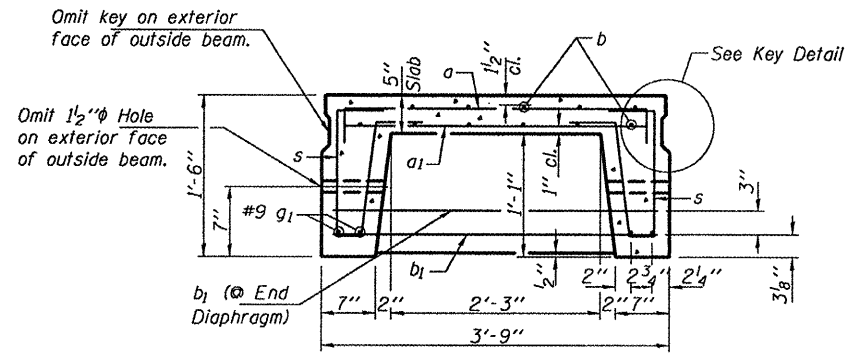
PLAN

Showing Slab Reinforcement

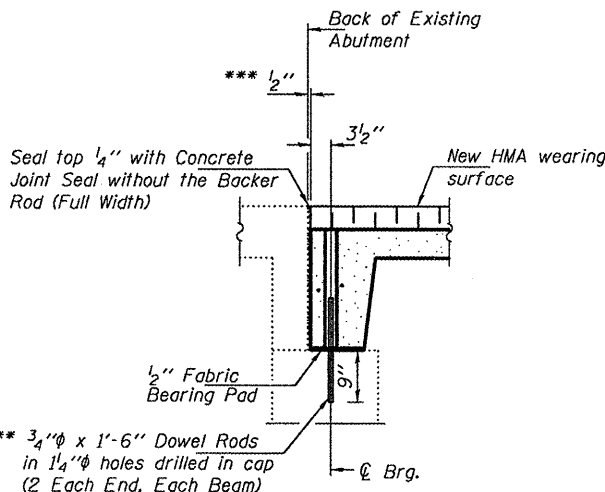


DETAIL A

Note:
The surface of the member shall not deviate more than 1/1200 of the full length of the member from a straight line connecting the two end points on the member's surface. (See Special Provision Precast Concrete Structures)



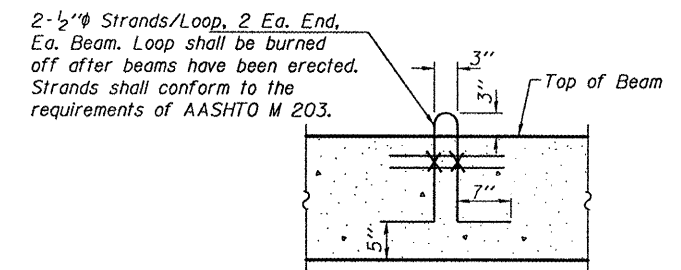
TYPICAL SECTION THRU BEAM



TYPICAL SECTION THROUGH ABUTMENTS

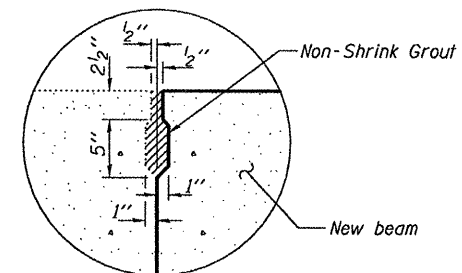
** Existing dowel rods are to be burned off, ground flush, and sealed with epoxy prior to placement of new beams. Cost included in Removal of Existing Precast Concrete Units. After beams have been erected, holes shall be drilled into cap and dowel rods placed. Dowel holes shall be filled with non-shrink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

*** 1/2" joint shall be packed with a very dry mix of 2:1 sand and P.C. Mortar. 1/2" dimension may vary plus or minus to accommodate tolerance in beam lengths.

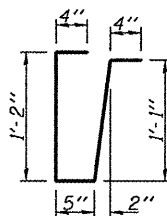


LIFTING LOOP

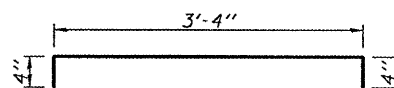
Approved alternate may be substituted for the above.



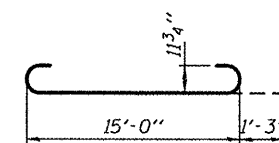
KEY DETAIL



BAR s



BAR a



BAR g1

Note:
Tack welding of stirrups to bottom longitudinal reinforcement bars will not be permitted except as otherwise authorized in writing by the Engineer.

* BILL OF REINFORCEMENT BARS FOR ONE BEAM

ONE UNIT				
BAR	SIZE	NO.	LENGTH	SHAPE
a	#4	21	4'-0"	┌
a1	#4	42	3'-3"	┌
b	#4	10	15'-0"	┌
b1	#4	4	3'-6"	┌
g1	#9	4	17'-6"	┌
s	#3	34	3'-4"	┌

* ESTIMATED QUANTITIES FOR ONE BEAM

	CONCRETE CU. YDS.	RE-BARS POUNDS
One Unit	2.1	530

* For information of suppliers of Precast Slab Units only.

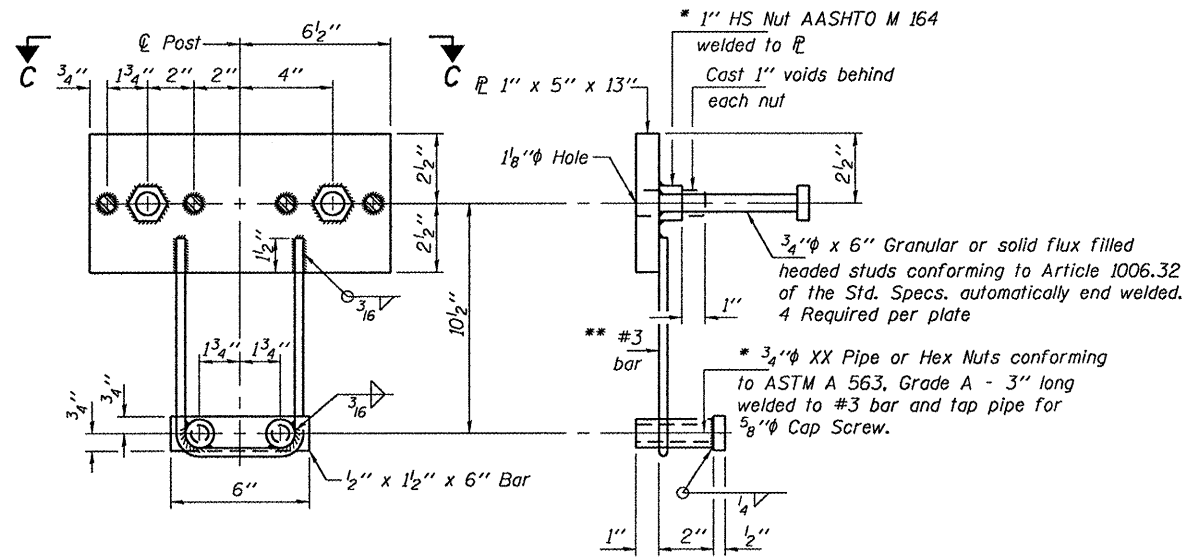
DESIGNED MKC	EXAMINED	DATE - JANUARY 28, 2011
CHECKED IJL	PASSED	
DRAWN ballva		
CHECKED MKC IJL		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BEAM DETAILS
SN 079-0401

SHEET NO. 2 OF 3 SHEETS

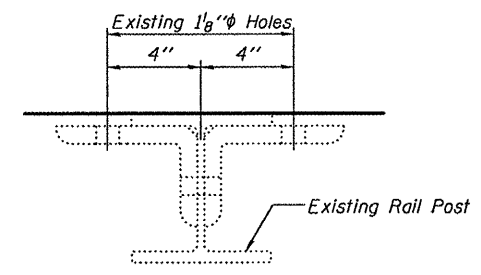
IL RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	21B-HDF	RANDOLPH	7	4
			CONTRACT NO. 76E61	
ILLINOIS FED. AID PROJECT				



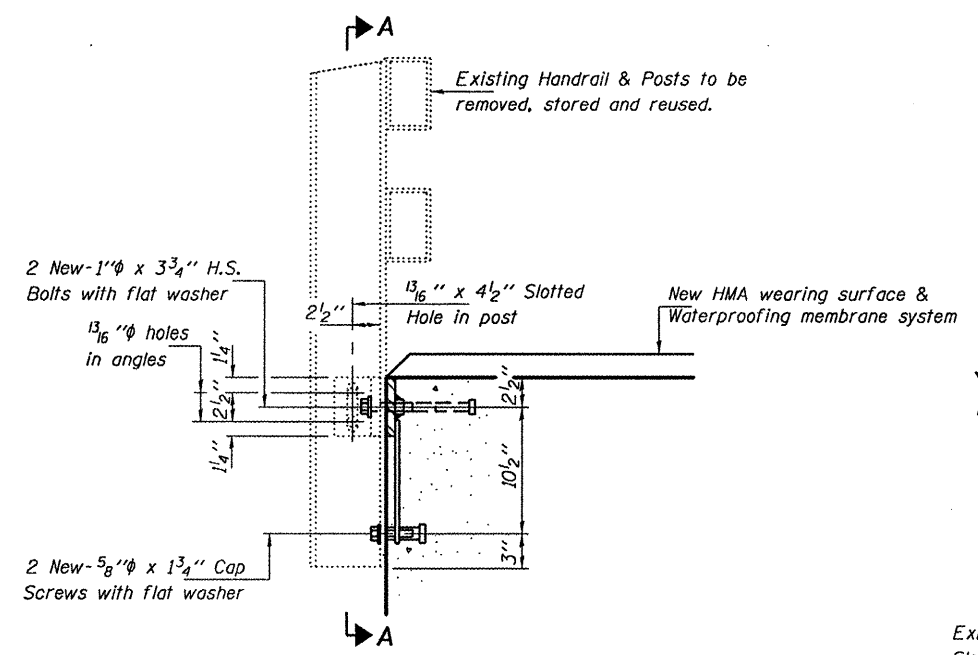
ANCHOR DEVICE

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

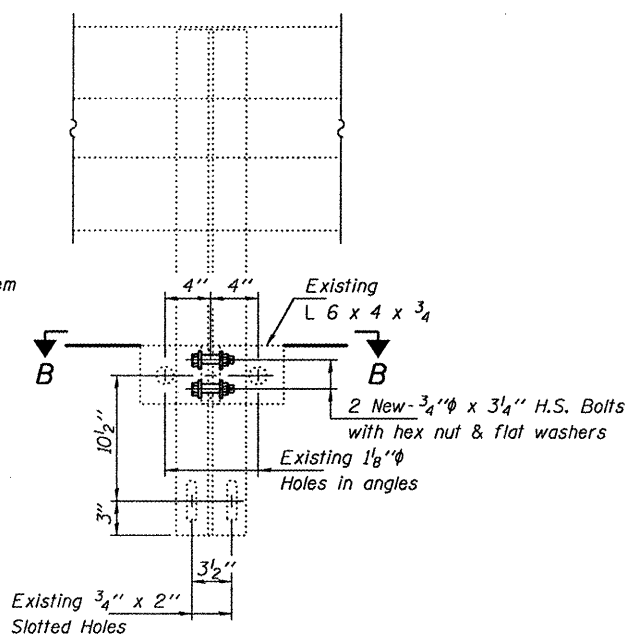
** Whenever the lower insert assemblies interfere with g₁ bars the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 1/2".



SECTION B-B



SECTION AT RAIL POST



SECTION A-A

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 Concrete Bridge Slab.

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

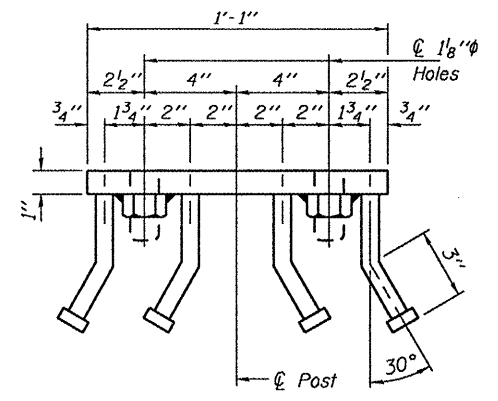
The lower portion of the post flange in contact with concrete shall receive two coats of asphalt paint conforming to Section 1060.07 Type II or place new 1/8" fabric bearing pad between the post and concrete. Fabric bearing pads shall meet the requirements of Article 1082.01 of the Standard Specifications.

The 1" 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 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-erection 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.



VIEW C-C

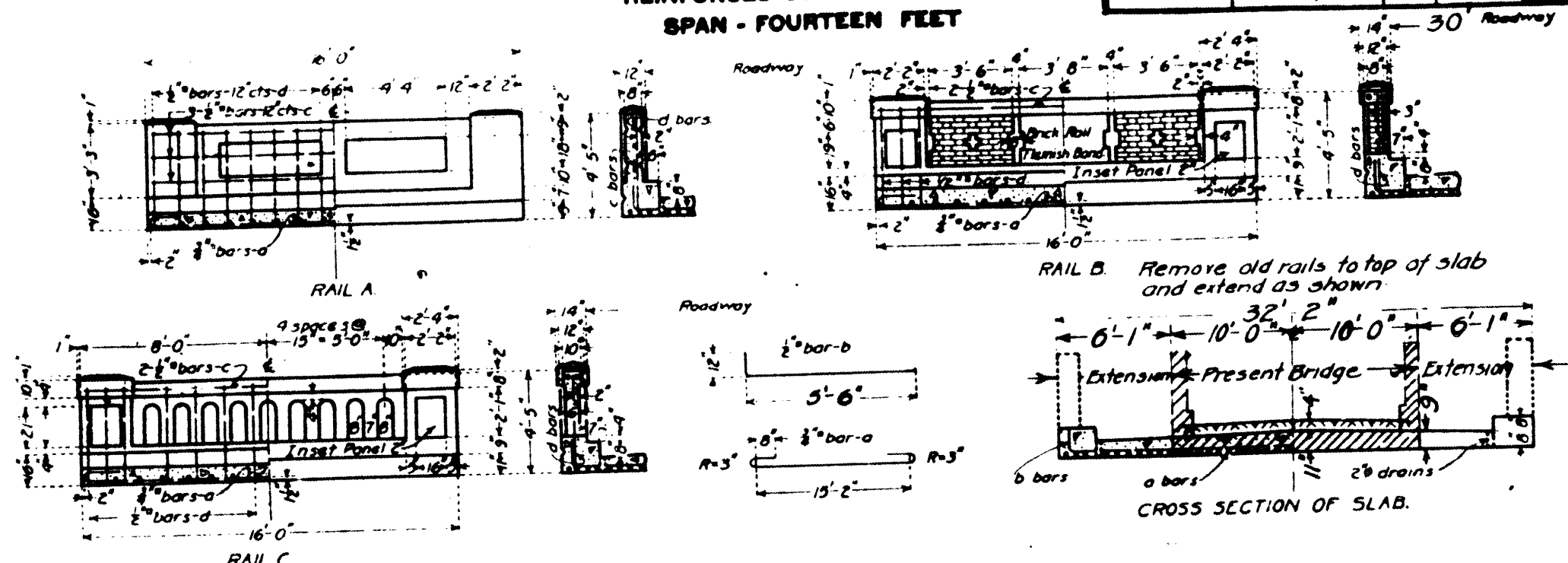
DESIGNED MKC	EXAMINED <i>James F. [Signature]</i>	DATE - JANUARY 28, 2011	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	RAIL DETAILS SN 079-0401	ILL. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
CHECKED IJL	ACTING ENGINEER OF STRUCTURAL SERVICES				4	218-HDF	RANDOLPH	7	5	
DRAWN baliva	PASSED <i>[Signature]</i>				CONTRACT NO. 76E61					
CHECKED MKC IJL	ACTING ENGINEER OF BRIDGES AND STRUCTURES				ILLINOIS FED. AID PROJECT					
					SHEET NO. 3 OF 3 SHEETS					

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

REINFORCED CONCRETE SLAB
SPAN - FOURTEEN FEET

Sheet No. 1
of 2 Sheets

ROAD ISSUE ROUTE NO.	COUNTY	SEC.	TOTAL SHEETS	SHEET NO.
13	Randolph	21B	34	31



BILL OF MATERIAL

	16 FT. ROADWAY	18 FT. ROADWAY	20 FT. ROADWAY	24 FT. ROADWAY	30 FT. ROADWAY
RAIL A	Bars No. Size Length a 50 3/4" 18'-0" b 14 1/2" 15'-0" c 4 1/2" 15'-6" d 32 1/2" 4'-0"	Bars No. Size Length a 56 3/4" 18'-0" b 14 1/2" 15'-0" c 4 1/2" 15'-6" d 32 1/2" 4'-0"	Bars No. Size Length a 62 3/4" 18'-0" b 14 1/2" 15'-0" c 4 1/2" 15'-6" d 32 1/2" 4'-0"	Bars No. Size Length a 79 3/4" 18'-0" b 28 1/2" 14'-6" c 4 1/2" 15'-6" d 32 1/2" 4'-0"	Bars No. Size Length a 90 3/4" 18'-0" b 28 1/2" 14'-6" c 4 1/2" 15'-6" d 32 1/2" 4'-0"
	Steel-Lbs 2140 Concrete-Cu Yds 12.1	Steel-Lbs 2370 Concrete-Cu Yds 13.0	Steel-Lbs 2600 Concrete-Cu Yds 13.3	Steel-Lbs 3030 Concrete-Cu Yds 13.7	Steel-Lbs 3700 Concrete-Cu Yds 14.3
RAIL B	Bars No. Size Length a 50 3/4" 18'-0" b 14 1/2" 15'-0" c 4 1/2" 15'-6" d 12 1/2" 4'-0"	Bars No. Size Length a 56 3/4" 18'-0" b 14 1/2" 15'-0" c 4 1/2" 15'-6" d 12 1/2" 4'-0"	Bars No. Size Length a 58 3/4" 18'-0" b 14 1/2" 15'-0" c 4 1/2" 15'-6" d 12 1/2" 4'-0"	Bars No. Size Length a 79 3/4" 18'-0" b 28 1/2" 14'-6" c 4 1/2" 15'-6" d 12 1/2" 4'-0"	Bars No. Size Length a 90 3/4" 18'-0" b 28 1/2" 14'-6" c 4 1/2" 15'-6" d 12 1/2" 4'-0"
	Steel-Lbs 2340 Concrete-Cu Yds 11.8 Brick Rail-Cu Yds 1.0	Steel-Lbs 2270 Concrete-Cu Yds 12.2 Brick Rail-Cu Yds 1.0	Steel-Lbs 2500 Concrete-Cu Yds 13.1 Brick Rail-Cu Yds 1.0	Steel-Lbs 2950 Concrete-Cu Yds 14.9 Brick Rail-Cu Yds 1.0	Steel-Lbs 3420 Concrete-Cu Yds 16.3
RAIL C	Bars No. Size Length a 50 3/4" 18'-0" b 14 1/2" 15'-0" c 4 1/2" 15'-6" d 28 1/2" 4'-0"	Bars No. Size Length a 56 3/4" 18'-0" b 14 1/2" 15'-0" c 4 1/2" 15'-6" d 28 1/2" 4'-0"	Bars No. Size Length a 62 3/4" 18'-0" b 14 1/2" 15'-0" c 4 1/2" 15'-6" d 28 1/2" 4'-0"	Bars No. Size Length a 79 3/4" 18'-0" b 28 1/2" 14'-6" c 4 1/2" 15'-6" d 28 1/2" 4'-0"	Bars No. Size Length a 90 3/4" 18'-0" b 28 1/2" 14'-6" c 4 1/2" 15'-6" d 28 1/2" 4'-0"
	Steel-Lbs 2100 Concrete-Cu Yds 11.7	Steel-Lbs 2330 Concrete-Cu Yds 12.6	Steel-Lbs 2560 Concrete-Cu Yds 13.5	Steel-Lbs 3010 Concrete-Cu Yds 13.9	Steel-Lbs 3660 Concrete-Cu Yds 14.0

Class A concrete to be used throughout
Proportions - 1 2 3/4.

USE RAIL B, 30 FT. ROADWAY

Note: The surface of old concrete, which comes in contact with new concrete, shall be chipped to expose the coarse aggregate swept free from dust and loose particles, and shall be given a coat of thin one to two mortar before new concrete is poured. Extend exposed steel into new work.

STA 100+19
STATE BOND ISSUE RT. 13
SECTION 21B RANDOLPH CO

DESIGNED	W. J. Zick
CHECKED	J. H. G. ...
DRAWN	M. ...
APPROVED	R. ...
DATE	12/8/2018

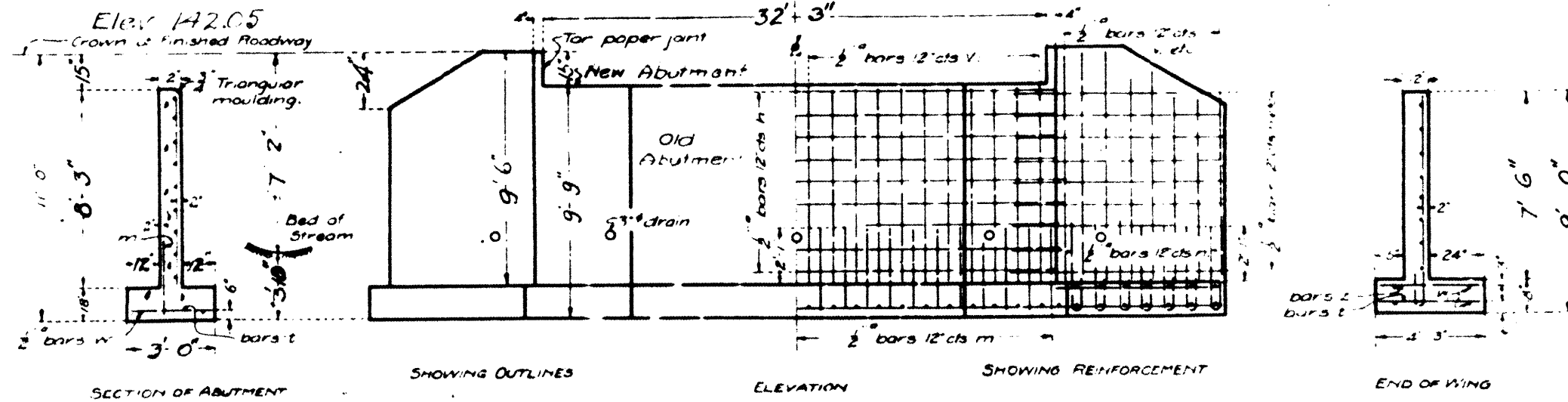
Get 5.23
G. F. ...
...
C. Oldis

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

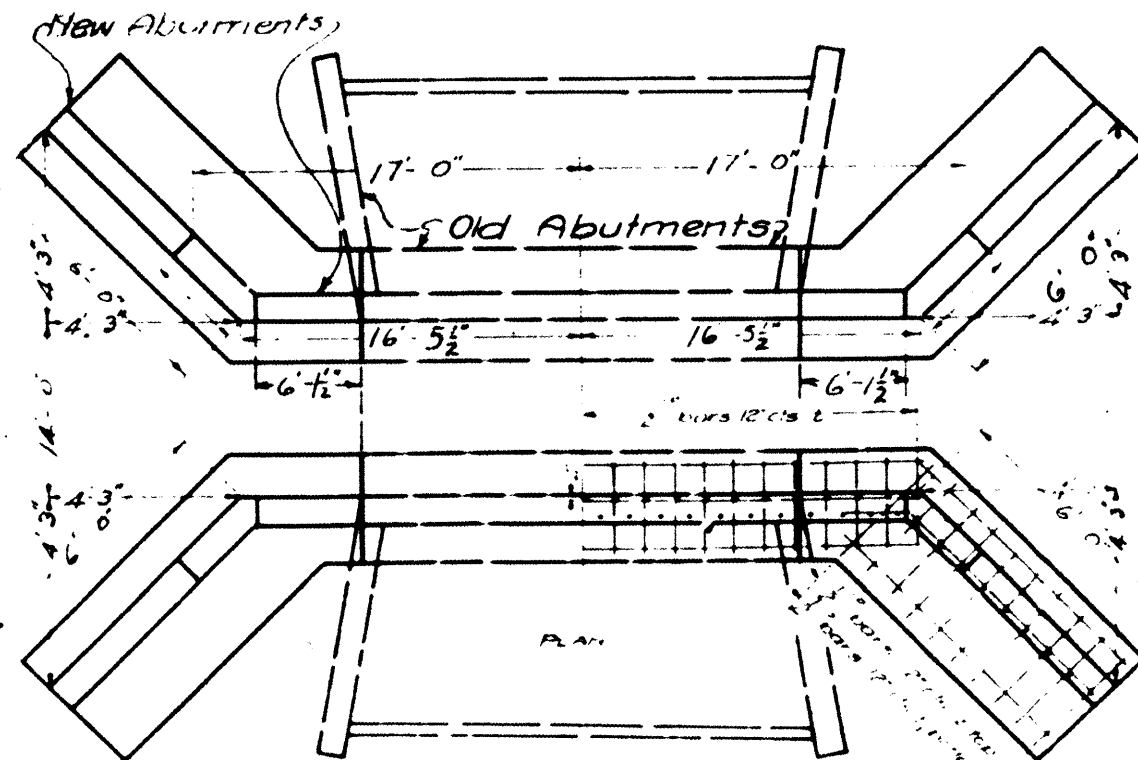
R.C. ABUTMENTS FOR SLAB BRIDGE
HEIGHT OVER ALL 11 FEET

Sheet No. 2
2 Sheets

BOND ISSUE ROUTE NO.	COUNTY	SEC.	TOTAL SHEETS	SHEET NO.
13	Randolph	218	34	31



Class A concrete shall be used throughout. Proportions 1 1/2 : 4. A reinforcing steel shall be securely wired in place before concrete is poured. Remove top of old wings to a line below new fill.



BILL OF MATERIAL

Bars	No	Size	Length
	24	2"	8'-0"
	8	2"	9'-1"
V ₂	8		8'-0"
V ₃	8		7'-6"
h	36	2"	6'-0"
h	36	2"	8'-0"
h	24	2"	4'-6"
h	20	2"	2'-9"
h	24	2"	4'-0"
h	24	2"	4'-0"
h	16	2"	6'-0"
h	16	2"	6'-0"
h	24	2"	3'-0"

Reinforcing Steel lbs 1310
Concrete cu yds 24.8

STA. 160 + 19
STATE BOND ISSUE RT 13
SECTION 218 RANDOLPH CO.

DESIGNED	G. F. Burd
DRAWN	G. F. Burd
CHECKED	
DATE	Oct 5 23