

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

**PROPOSED
HIGHWAY PLANS**

FAP ROUTE 314 (IL-4)
SECTION 111HVB-BP
PROJECT NHPP-H38M(989)
BRIDGE PAINTING – SN 060-0210
MADISON COUNTY

C-98-155-22

FOR INDEX OF SHEETS, SEE SHEET NO. 2

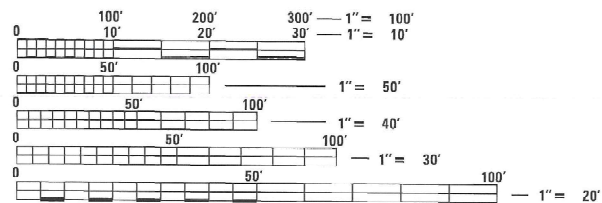
TRAFFIC DATA

2021 ADT = 6750 (ACTUAL)
2023 ADT = 6850 (ESTIMATED)
2043 ADT = 7900 (ESTIMATED)
SU = 7.0% MU = 8.7%

FUNCTIONAL CLASSIFICATION

IL-4: OTHER PRINCIPAL ARTERIAL

PROJECT LOCATION
SN 060-0210
LATITUDE: 38.716094
LONGITUDE: -89.802167

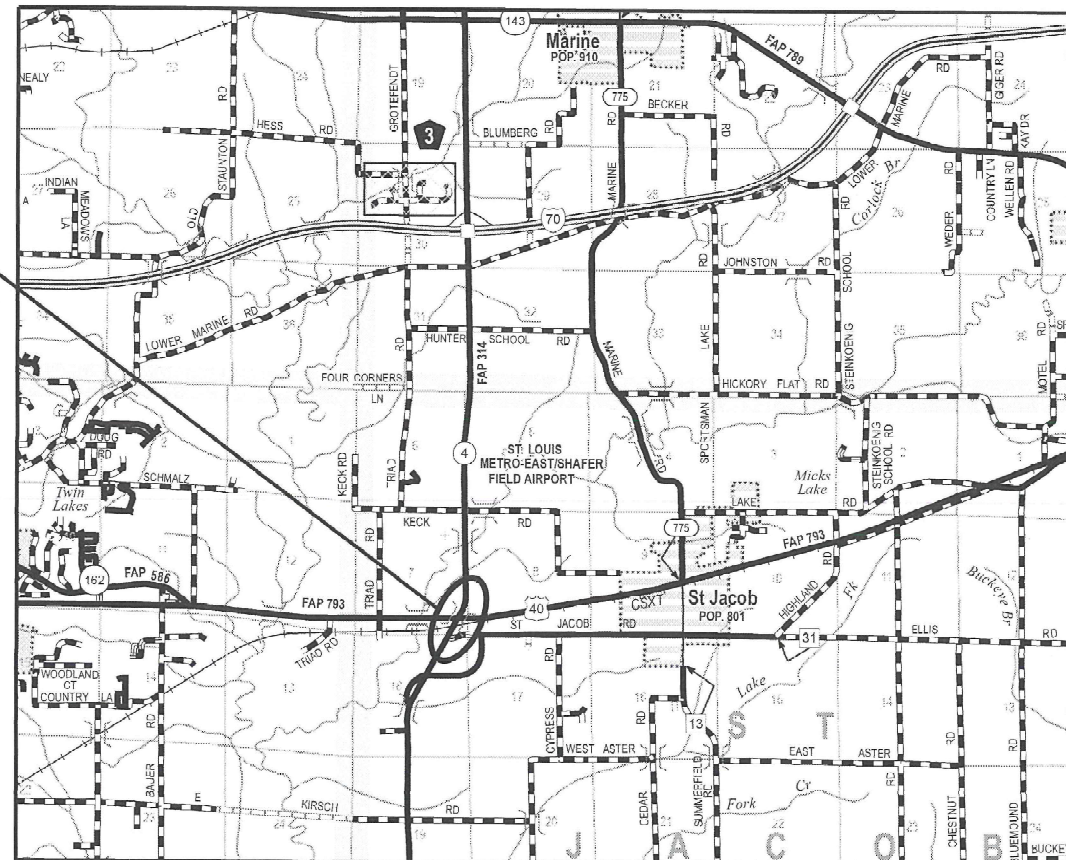


FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

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

PROJECT ENGINEER: BILLIE OWEN
PROJECT MANAGER: MEIWU AN

CONTRACT NO. 76R81



GROSS LENGTH = 555.79 FT. = 0.105 MILE

NET LENGTH = 555.79 FT. = 0.105 MILE

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
314	111HVB-BP	MADISON	9	1
		ILLINOIS	CONTRACT NO. 76R81	

D-98-123-22



LOCATION OF SECTION INDICATED THIS: - [Black rectangle symbol]

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUBMITTED Day 9 20 2022
Kirk Brown DM
REGIONAL ENGINEER

February 3, 2023
John A. Etk
ENGINEER OF DESIGN AND ENVIRONMENT

February 3, 2023
Stephen M. Lewis
DIRECTOR OF HIGHWAYS PROJECT IMPLEMENTATION

PRINTED BY THE AUTHORITY
OF THE STATE OF ILLINOIS

INDEX OF SHEETS

- 1 COVER SHEET
- 2 INDEX OF SHEETS, HIGHWAY STANDARDS, GENERAL NOTES, & COMMITMENTS
- 3 SUMMARY OF QUANTITIES
- 4-9 STRUCTURE DETAILS

COMMITMENTS

NONE

HIGHWAY STANDARDS

- 000001-08 STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
- 001006 DECIMAL OF AN INCH AND OF A FOOT
- 701101-05 OFF-ROAD OPERATIONS, MULTILANE, 15' TO 24" FROM PAVEMENT EDGE
- 701106-02 OFF-ROAD OPERATIONS, MULTILANE, MORE THAN 15' AWAY
- 701321-18 LANE CLOSURE, 2L, 2W, BRIDGE REPAIR WITH BARRIER
- 701901-08 TRAFFIC CONTROL DEVICES
- 704001-08 TEMPORARY CONCRETE BARRIER
- 782006-01 GUARDRAIL AND BARRIER WALL REFLECTOR MOUNTING DETAILS

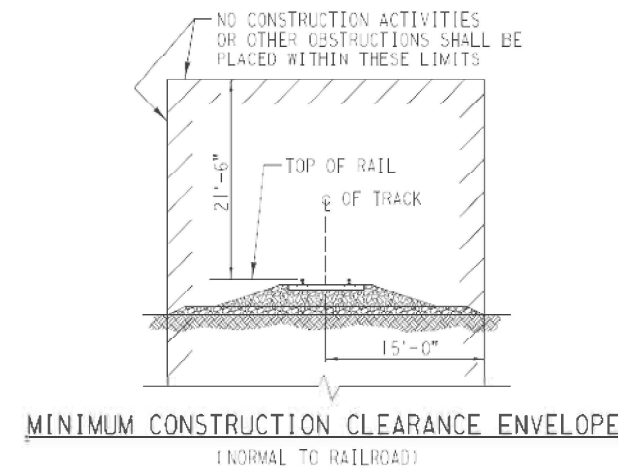
GENERAL NOTES

- 1. UTILITIES KNOWN TO HAVE FACILITIES WITHIN THE PROJECT AREA ARE AS FOLLOWS:

AMEREN ILLINOIS (ELECTRIC)
 AT&T ILLINOIS (COMMUNICATIONS)
 CHARTER COMMUNICATIONS, INC. (CABLE TV)
 CLEARWAVE COMMUNICATIONS (COMMUNICATIONS)
 DEPARTMENT OF CENTRAL MANAGEMENT SERVICES (COMMUNICATIONS)
 CITY OF HIGHLAND (COMMUNICATIONS)
 CITY OF HIGHLAND (WATER & SANITARY SEWER)
 CITY OF HIGHLAND (ELECTRIC)
 HOME TELEPHONE COMPANY (COMMUNICATIONS)
 LEVEL 3 COMMUNICATIONS, LLC (COMMUNICATIONS)
 SOUTHWESTERN ELECTRIC COOPERATIVE, INC (ELECTRIC)
 ZAYO GROUP LLC (COMMUNICATIONS)

- 2. THE RESIDENT ENGINEER SHALL VERIFY THE EXISTENCE OF HIGHWAY LIGHTING AND/OR INTELLIGENT TRANSPORTATION SYSTEMS (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.
- 3. TWO CHANGEABLE MESSAGE SIGNS SHALL BE REQUIRED FOR THIS PROJECT. THEY SHALL BE PLACED TWO WEEKS PRIOR TO LANE CLOSURE AND SHALL REMAIN UP FOR THE DURATION OF THE PROJECT. THE CHANGEABLE MESSAGE SIGNS SHALL BE PLACED AT THE DIRECTION OF THE ENGINEER.
- 4. THE DEPARTMENT STRONGLY ENCOURAGES THE PRIME CONTRACTOR AND THEIR APPROVED SUB-CONTRACTORS TO HIRE MINORITY, WOMEN AND DISADVANTAGED INDIVIDUALS FROM ITS FEDERALLY FUNDED HIGHWAY CONSTRUCTION CAREERS TRAINING PROGRAM (HCCTP) TO HELP MEET WORKFORCE AND TRAINEE GOALS. THIS PROGRAM IS TRAINING MINORITIES, WOMEN, AND DISADVANTAGED INDIVIDUALS IN HIGHWAY CONSTRUCTION RELATED SKILLS, E.G., MATH FOR THE TRADES, JOB READINESS, TECHNICAL SKILLS COURSEWORK (CARPENTRY, CONCRETE FLATWORK, BLUEPRINT READING, SITE PLANS, SITE WORK, TOOLS USE, ETC.) AND OSHA 10 HOUR CERTIFICATION, TO PREPARE THEM FOR A CAREER IN THE HIGHWAY CONSTRUCTION TRADES. GRADUATES ARE WELL-TRAINED AND READY TO BECOME PRODUCTIVE ENTRY-LEVEL CONSTRUCTION WORKERS. CONTACT THE DISTRICT 8 EEO OFFICE AT 618-346-3360 AND/OR THE HCCTP COORDINATOR AT 618-874-6528 TO LEARN MORE ABOUT THE PROGRAM AND FOR ASSISTANCE IN MEETING WORKFORCE AND TRAINING GOALS.

- 5. SSPC QP1 AND QP2 CERTIFICATION IS REQUIRED FOR THIS CONTRACT.
- 6. CLEANING AND PAINTING OF THE EXISTING STEEL, EXCLUSIVE OF THE AREAS DESIGNATED TO BE FIELD METALLIZED, SHALL BE AS SPECIFIED IN THE SPECIAL PROVISION FOR "CLEANING AND PAINTING EXISTING STEEL STRUCTURES". ALL BEAMS, BEARINGS, AND OTHER STRUCTURAL STEEL SHALL BE CLEANED PER NEAR WHITE BLAST CLEANING - SSPC-SP10.
- 7. THE AREAS CLEANED PER NEAR WHITE BLAST CLEANING, EXCLUSIVE OF THE AREAS DESIGNATED TO BE FIELD METALLIZED, SHALL BE PAINTED ACCORDING TO THE REQUIREMENTS OF PAINT SYSTEM 1-OZ/E/U. THE COLOR OF THE FINAL FINISH COAT FOR ALL INTERIOR STEEL SURFACES SHALL BE GREY (MUNSELL NO. 5B 7/1). THE COLOR OF THE FINAL FINISH COAT FOR THE EXTERIOR AND BOTTOM OF THE BOTTOM FLANGE OF THE FASCIA BEAMS SHALL BE REDDISH BROWN , MUNSELL (NO. 2.5YR 3/4).
- 8. METALLIZING OF THE EXISTING STRUCTURAL STEEL SHALL BE AS SPECIFIED IN THE SPECIAL PROVISION FOR "FIELD THERMAL SPRAY METALLIZING OF EXISTING STRUCTURAL STEEL". ALL BEAMS, BEARINGS, AND OTHER STRUCTURAL STEEL WITHIN 5 FT OF THE DECK JOINTS, MEASURED ALONG THE BEAM, SHALL BE CLEANED PER NEAR WHITE BLAST CLEANING - SSPC-SP10.
- 9. FIELD METALLIZED AREAS SHALL BE PAINTED AS FOLLOWS: INTERIOR STEEL SURFACES SHALL BE COATED ACCORDING TO SYSTEM 1, A SINGLE COAT SYSTEM CONSISTING OF A FULL CLEAR ALPHATIC URETHANE COAT. THE FIELD METALLIZED EXTERIOR AND BOTTOM OF THE BOTTOM FLANGES OF THE FASCIA BEAMS AREAS SHALL BE COATED ACCORDING TO SYSTEM 3, A THREE COAT SYSTEM CONSISTING OF A FULL EPOXY PENETRATING SEALER COAT, A FULL EPOXY INTERMEDIATE COAT, AND A FULL URETHANE FINISH COAT. THE COLOR OF THE FINAL FINISH COAT SHALL BE REDDISH BROWN (MUNSELL NO. 2.5YR 3/4).
- 10. A MINIMUM OF THREE AIR MONITORS WILL BE REQUIRED TO MONITOR THE ABRASIVE BLASTING OPERATIONS AT THIS SITE. SEE SPECIAL PROVISION FOR "CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES".
- 11. NO SURVEY WAS PERFORMED FOR THIS PROJECT AND THE PLANS WERE CREATED USING MICROFILM AND FIELD MEASUREMENTS.
- 12. THE CONTRACTOR WILL BE REQUIRED TO SUBMIT A WORK PLAN TO THE RAILROAD FOR REVIEW WHICH SHOWS THE CONTAINMENT METHOD UTILIZED DOES NOT ALLOW PAINT AND OTHER DEBRIS TO FALL ONTO THE CSXT PROPERTY BELOW. ADDITIONALLY, ALL FALSEWORK AND/OR CONTAINMENT MEANS ARE LOCATED OUTSIDE THE "MINIMUM CONSTRUCTION CLEARANCE ENVELOPE" AT ALL TIMES.



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REV. - MS

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	CHECKED - _____ DATE - _____	REVISED - _____ REVISED - _____			SCALE: NA	SHEET 1 OF 1 SHEETS	STA. TO STA.	CONTRACT NO. 76R81	

80% FED
20% STATE

CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONSTR. CODE
				RURAL BRIDGE 0047 SN 060-0210
67100100	MOBILIZATION	L SUM	1	1
70100405	TRAFFIC CONTROL AND PROTECTION, STANDARD 701321	EACH	2	2
70106500	TEMPORARY BRIDGE TRAFFIC SIGNALS	EACH	2	2
70106700	TEMPORARY RUMBLE STRIPS	EACH	12	12
70107005	PAVEMENT MARKING BLACKOUT TAPE, 5"	FOOT	2672	2672
70107025	CHANGEABLE MESSAGE SIGN	CAL DA	154	154
70300150	SHORT TERM PAVEMENT MARKING REMOVAL	SQ FT	1113	1113
70400100	TEMPORARY CONCRETE BARRIER	FOOT	440	440
70400200	RELOCATE TEMPORARY CONCRETE BARRIER	FOOT	220	220
70600235	IMPACT ATTENUATORS, TEMPORARY (FULLY REDIRECTIVE), TEST LEVEL 2	EACH	4	4
70600320	IMPACT ATTENUATORS, RELOCATE (FULLY REDIRECTIVE), TEST LEVEL	EACH	2	2
X0325381	FIELD THERMAL SPRAYING (METALLIZING) STRUCTURAL STEEL BR. NO. 1	L SUM	1	1
Z0007101	CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES NO. 1	L SUM	1	1
Z0010501	CLEANING AND PAINTING STEEL BRIDGE NO. 1	L SUM	1	1
Z0048665	RAILROAD PROTECTIVE LIABILITY INSURANCE	L SUM	1	1

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REV. - MS

USER NAME =	DESIGNED - _____	REVISED - _____	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SUMMARY OF QUANTITIES				F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.		
DRAWN - _____	REVISION - _____	REVISION - _____		SCALE: N/A	SHEET 1	OF 1	SHEETS	STA.	TO STA.	314	111HVB-BP	MADISON	9	3
PLOT SCALE = 0.16666633' / in.	CHECKED - _____	REVISION - _____		CONTRACT NO. 76R81										
PLOT DATE = 12/8/2022	DATE - _____	REVISION - _____		ILLINOIS FED. AID PROJECT										

FOR INFORMATION ONLY

GENERAL NOTES

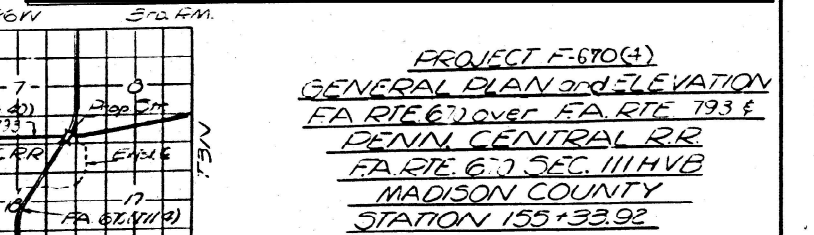
Structure No. 1 (#060-0110) 4 Span AF on two columned piers and pile bent abuts. 16'6" x 30'4".
Structure No. 2 (#060-0111) 3 Span RC Slab, thru girders on two columned piers and closed abuts. 104'3" x 63'6".

Fasteners shall be high strength bolts. Bolts #7; even holes #8, unless otherwise noted.
Calculated weight of Structural Steel 1165.601,690 lbs. $W_{CSF} = 50 \times 156,450 \text{ lbs.}$
The basic lead silico chromate paint system shall be used for shop and field painting of Structural Steel.
Field welding of construction accessories will not be permitted to the bottom flange of girders nor to the top flange for a distance equal to one-fourth the span length each way from the pier supports. Field welding in other areas will be permitted only when approved by the Engineer.
Anchor bolts shall be set before bolting timbers over supports.
Slope wall shall be reinforced with welded wire fabric 6"x6" mesh, weighing 58 # per 100 sq. ft.
The Contractor shall drive one concrete test pile each in a permanent location at South Abutment and Pier 2 as directed by the Engineer before ordering the remainder of piles.
Concrete piles at approach bents shall be driven in holes precast through the embankment in accordance with Article 513.00(c) of the Standard Specifications.
The embankment configuration shown shall be the minimum embankment that must be constructed prior to construction of the abutments.

Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of 1/8 inch. Adjustment shall be made either by grinding the surface or by shimming the bearing. Two 8" adjusting shims, of the dimensions of the bottom bearing plate, shall be provided for each bearing in addition to all other plates or shims.
The main load carrying member components subject to tensile stress shall conform to the Supplemental Requirements for Notch Toughness Zone 2. These components are the tension flanges, webs and all splice plate material of the steel girders.
For Boring Data see Proposal.

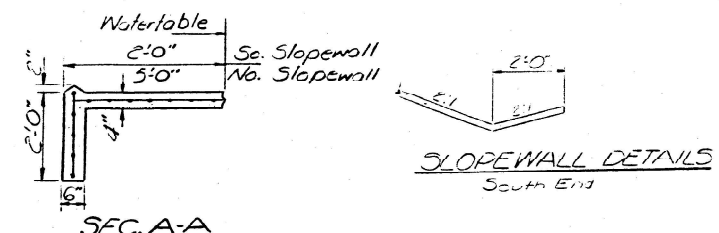
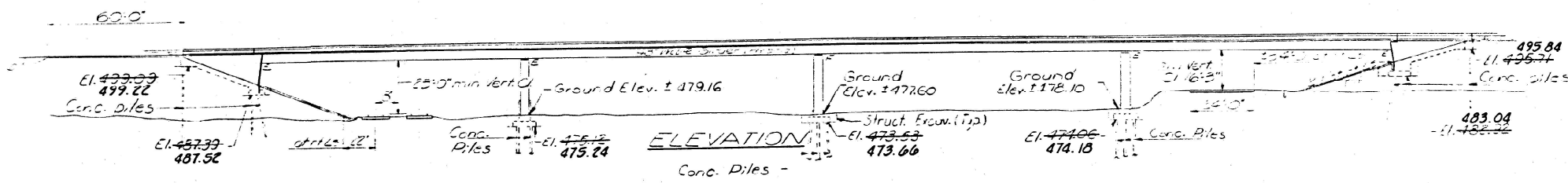
TOTAL BILL OF MATERIAL

Item	Unit	Super	Sub	Total
Reinforcement Bars (Epoxy Coated)	Pound	116,400		116,400
Protective Coat	Sq Yd	3,095		3,095
Structural Steel	1000 lb	1		1
Class X Concrete	Cu Yd	823.4	566.1	1389.5
Reinforcement Bars	Pound	184,640	673.20	191,960
Stud Shear Connectors	Each	4023		4023
Concrete Piles	Lin. Ft.		6574	6574
Test Piles Concrete	Each		2	2
Norie Plates	Each	1		1
Neoprene Expansion Joint (4")	Lin. Ft.	103		103
Slope Wall (4")	Sq Yd		475	475
Sand Backfill	Cu Yd		392	392
Drainage Scupper	Each	16		16
Structure Excavation	Cu Yd		760	760



PROJECT F-670(4)
GENERAL PLAN and ELEVATION
FA RTE 670 over FA RTE 793 &
PENN CENTRAL RR
FA RTE 670 SEC. 111 HVB
MADISON COUNTY
STATION 155+33.92

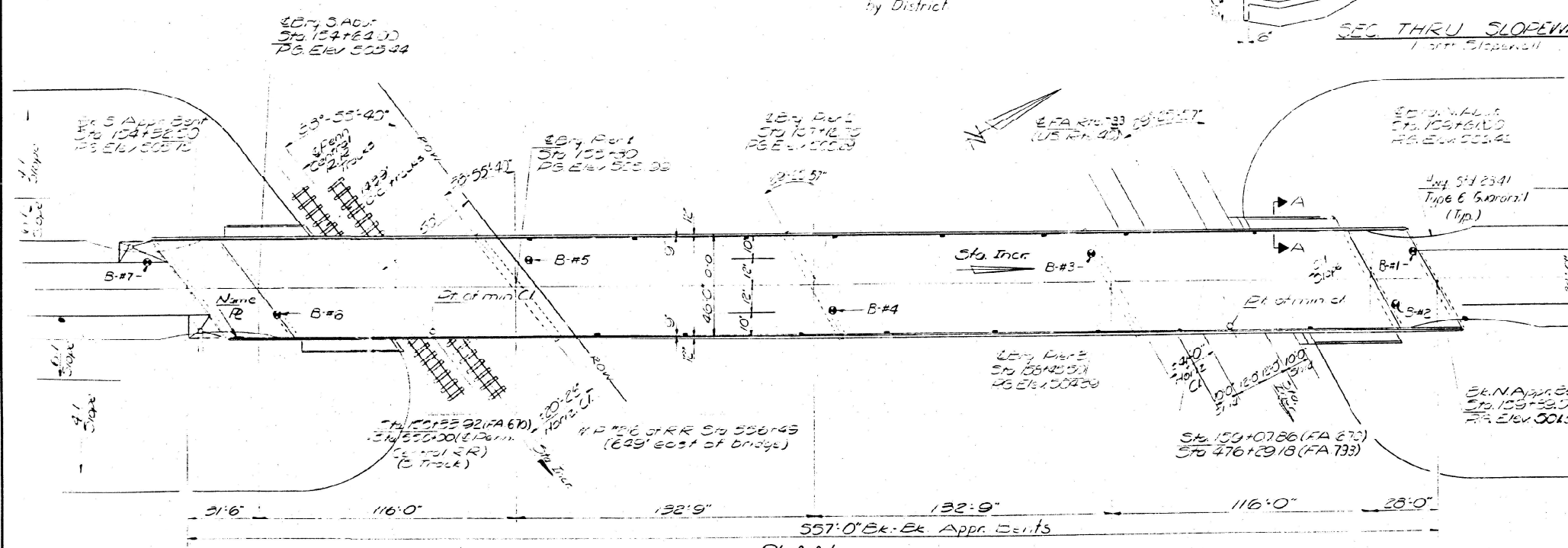
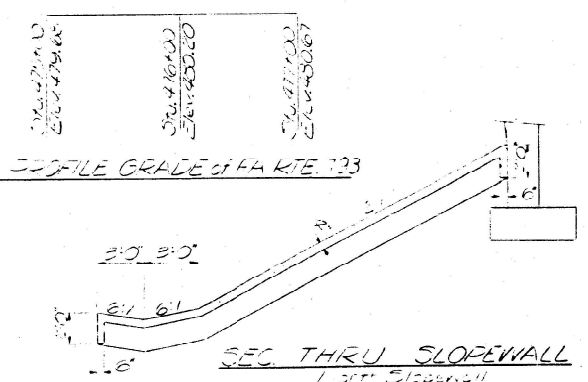
Scale: 1/2" = 1'-0" RD Rev. 3-14-80 Elev. & Quantities C/R



STATION 155+33.92
BUILT BY
STATE OF ILLINOIS
FA RTE 670 SEC. 111 HVB
PROJECT F-670(4)
STR. NO.
LOADING HS20

NAME PLATE
(See Std. E115)

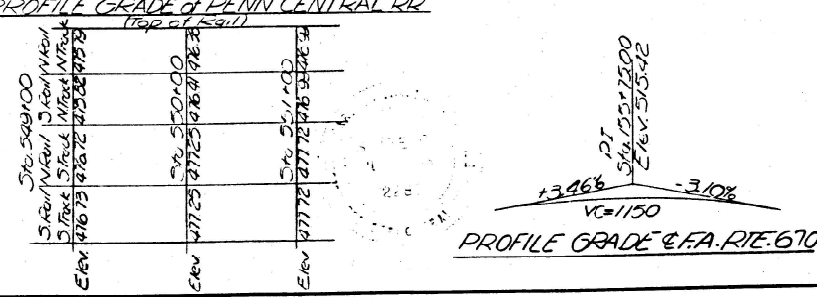
*Structure Number to be supplied by District



PLAN PROFILE GRADE of PENN CENTRAL RR (Top of Rail)

DESIGN STRESSES

$f_c = 1400 \text{ psi (Sub)}$ (Piers)
 $f_c = 1200 \text{ psi (Super)}$ $F_y = 66,000 \text{ psi}$
 $f_s = 20,000 \text{ psi (Reinf.) (Struct.)}$ $F_c = 3500 \text{ psi}$
 $f_s = 27,000 \text{ psi (Struct.)}$
(M223, Gr. 50)
 $n = 10$
Design Specifications 1977 ASD-40, 1378
§ 1373 Interim Splice, as applicable.
Allow 25 #/100 FT for F17 W5
LOADING HS20-44

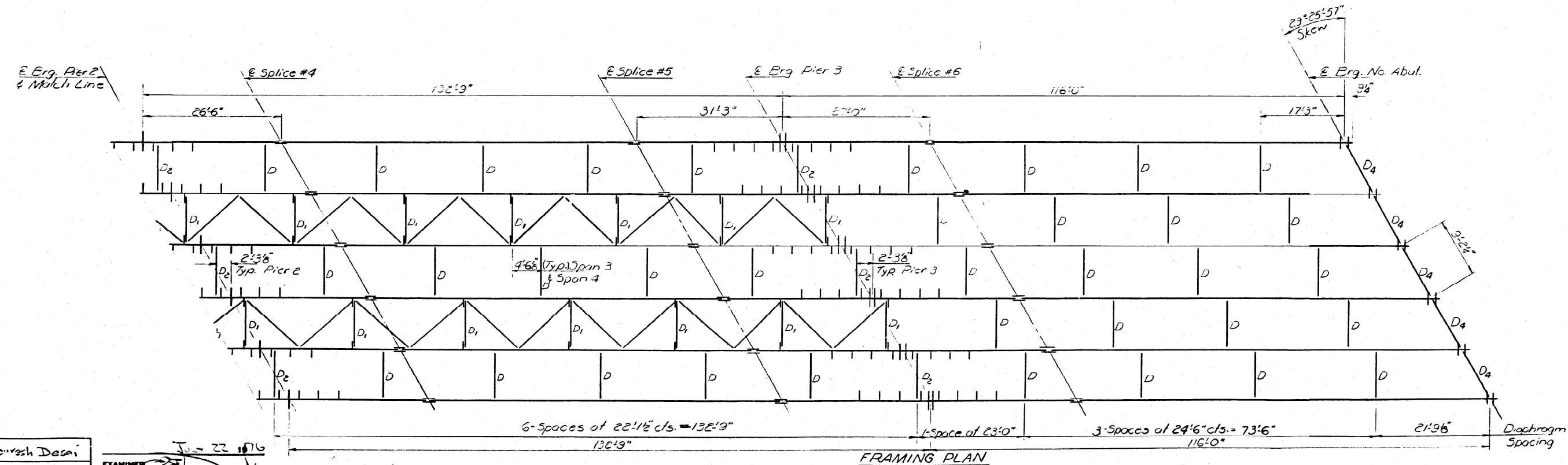
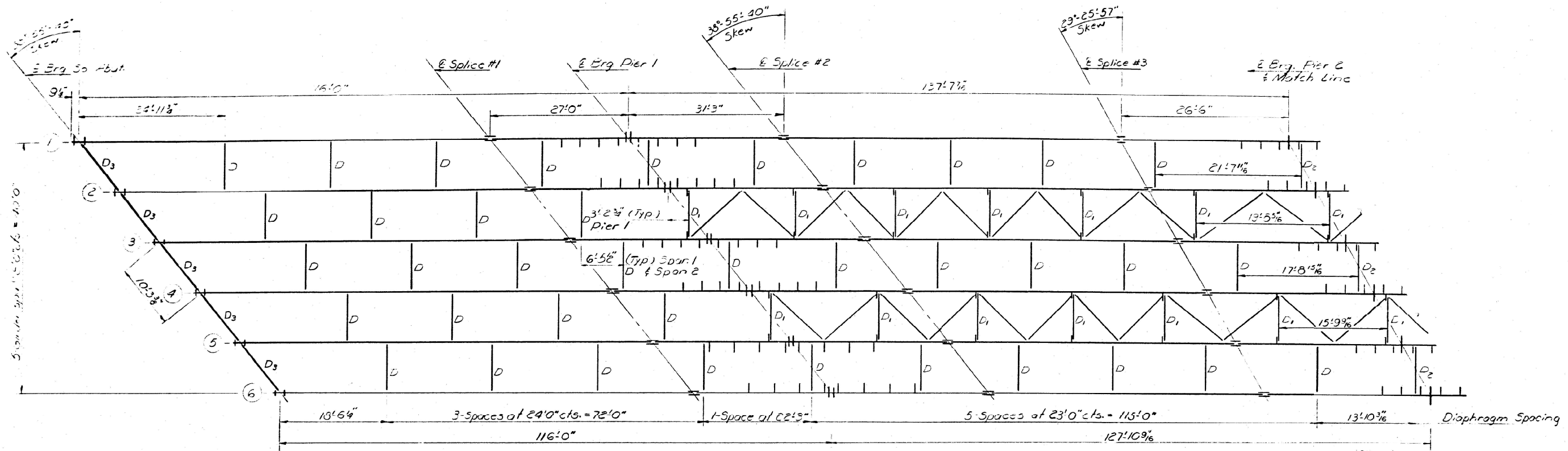


DESIGNED Suresh Desai
CHECKED J. J. J. J.
DRAWN R. Dofy
CHECKED J. J. J. J.

EXAMINED
PASSED
APPROVED
DIRECTOR OF HIGHWAYS

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 13
67CHVB	111-	MADISON	41	22	24 SHEETS
FED. ROAD DIST. NO. 7	PLANNO	FED. AID PROJECT			



FRAMING PLAN

DESIGNED	Suresh Desai	EXAMINED	[Signature]
CHECKED	[Signature]	PASSED	[Signature]
DRAWN	R. Dady	APPROVED	[Signature]
CHECKED	[Signature]		

DATE: JUN 22 2016

FOR INFORMATION ONLY

STRUCTURAL STEEL DETAILS
F.A. RT. 670.5EG. 111 HVB
MADISON COUNTY
STA. 155+33.92

MODEL: Structural Steel Details (Sheet)
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PLOT SCALE	= 0.16666633 1/16"	DRAWN	-	REVISED	-
PLOT DATE	= 12/7/2022	CHECKED	-	REVISED	-
		DATE	-	REVISED	-

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

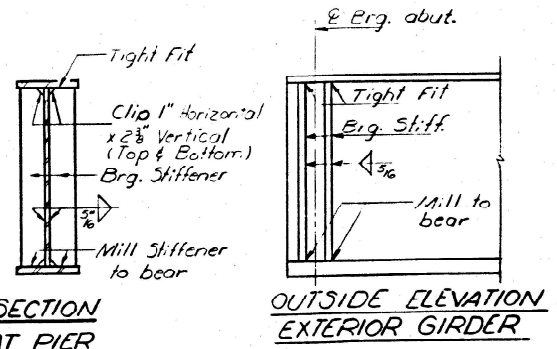
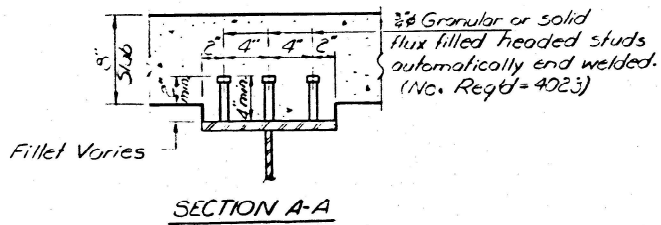
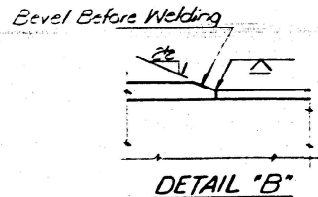
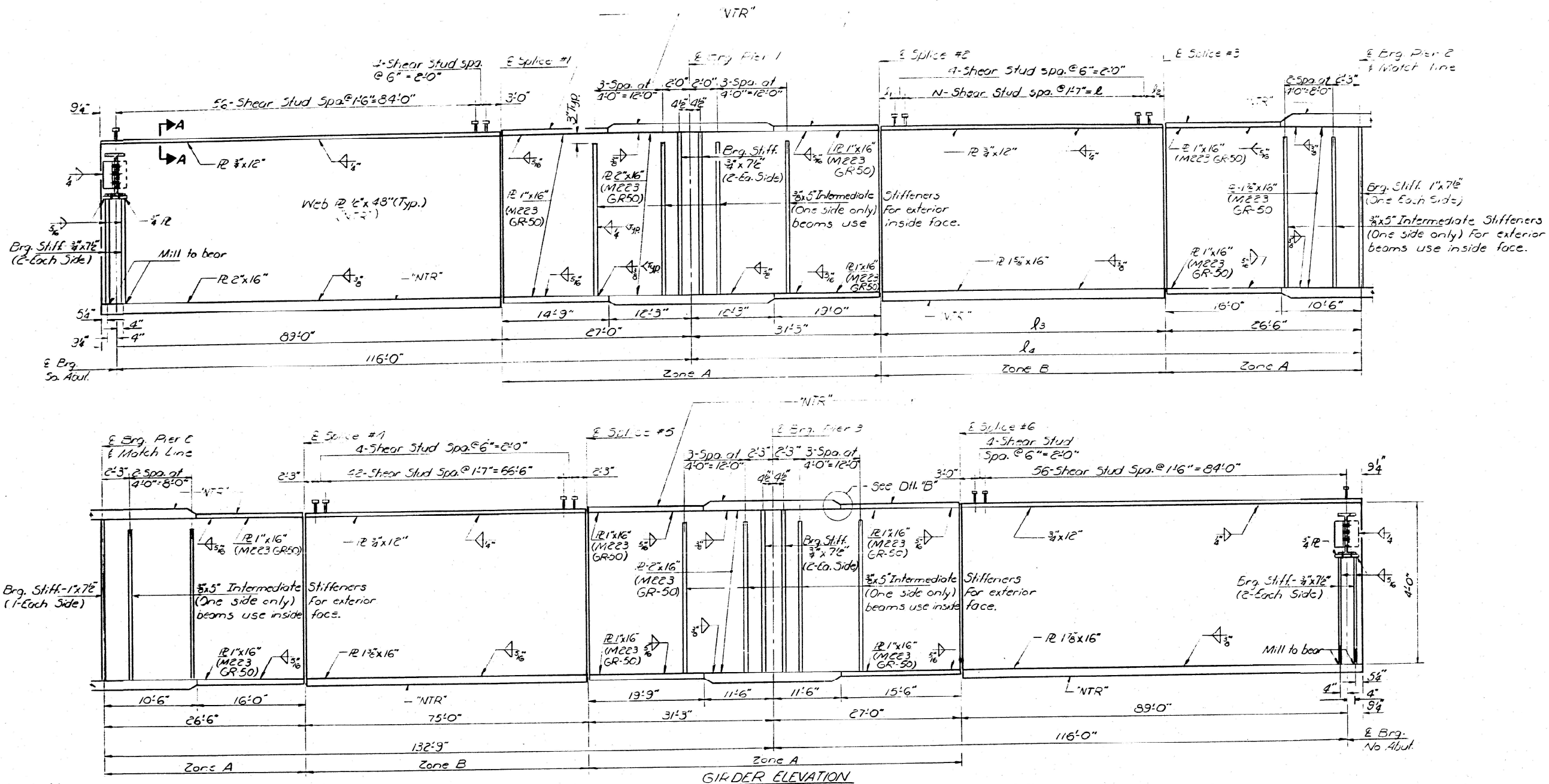
STRUCTURE 060-0210

SCALE: N/A SHEET 3 OF 6 SHEETS STA. + TO STA. +

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
314	111HVB-BP	MADISON	9	6
CONTRACT NO. 76R81				
ILLINOIS FED. AID PROJECT				

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. / 7
670	HYB	MADISON	41	23	23 SHEETS
FED. ROAD DIST. NO. 7 ILLINOIS FED. AID PROJECT					



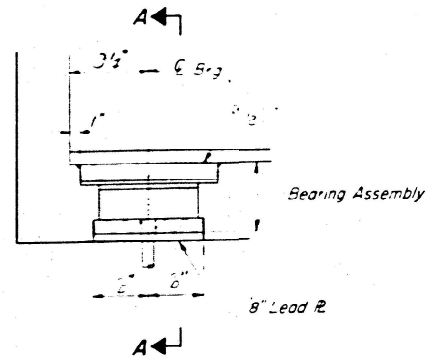
Notes:
For table of L dimensions see sheet #7.
"NTR" designates Notch Toughness Requirements.

DESIGNED	Suresh Desai	EXAMINED	Jun 22 1976
CHECKED	J. F. J.	PASSED	
DRAWN	R. Doty	APPROVED	
CHECKED	J. F. J.		

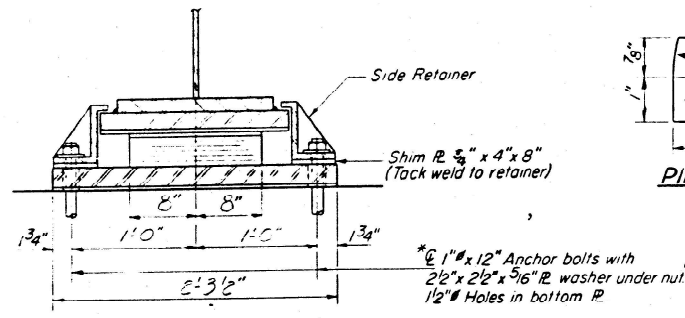
FOR INFORMATION ONLY

STRUCTURAL STEEL
F.A. RT. 670 SEC. 1114 NB
MADISON COUNTY
STA. 155+33.92

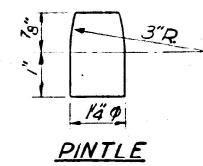
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PLOT SCALE = 0.16666633 1/16"	DRAWN -	REVISED -	STRUCTURE 060-0210				
PLOT DATE = 12/7/2022	CHECKED -	REVISED -	SCALE: N/A	SHEET 4 OF 6 SHEETS	STA. + TO STA. +	CONTRACT NO. 76R81	
	DATE -	REVISED -	ILLINOIS FED. AID PROJECT				



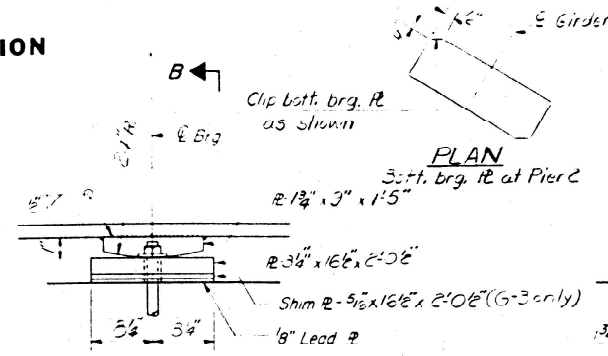
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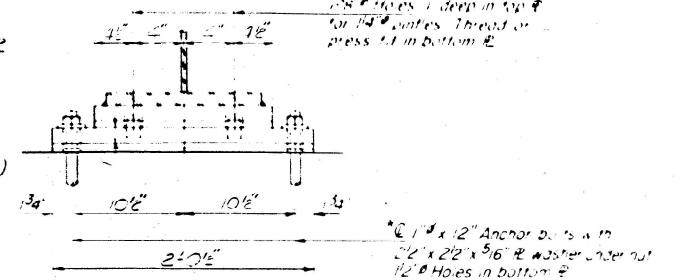
SECTION A-A



PINTLE

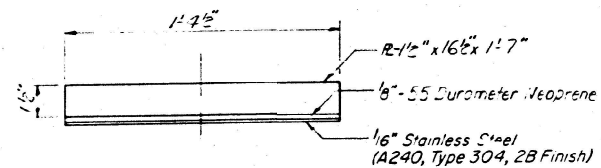


ELEVATION AT PIER 2

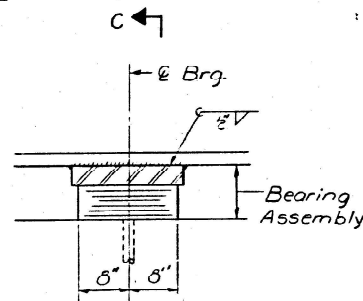


SECTION B-B

TYPE II TFE ELASTOMERIC EXP. BRG.
(@ Abutments)

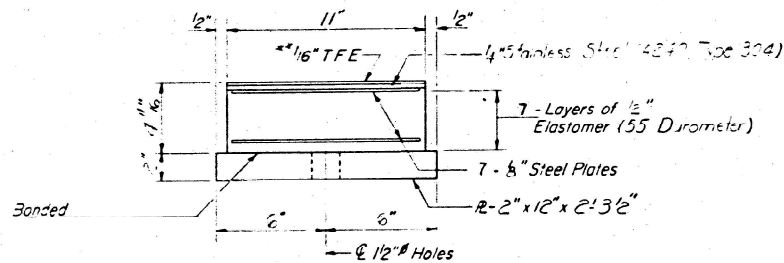


TOP BEARING ASSEMBLY

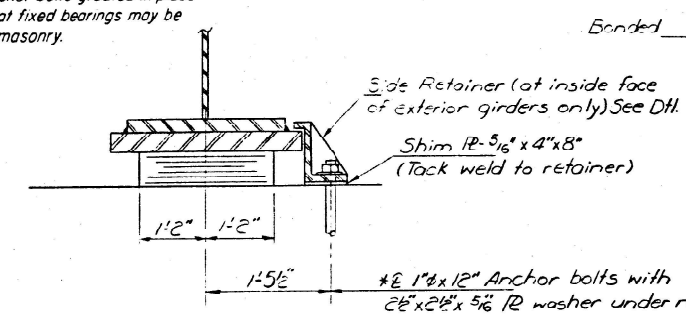


ELEVATION AT PIERS 1 & 3

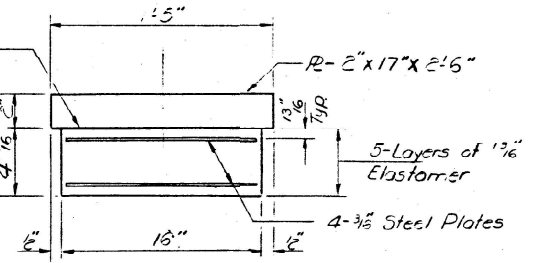
TYPE I ELASTOMERIC EXP. BRG.
(@ Piers 1 & 3)



BOTTOM BEARING ASSEMBLY



SECTION C-C



BEARING ASSEMBLY
AT PIERS 1 & 3

NOTE

All elevations shown on this sheet shall be adjusted upward by 0.125".

TOP OF WEB ELEVATIONS
(Before any deflection)

	4 Span 1 Pier 1	5 Span 2 Pier 2	5 Span 3 Pier 3	6 Span 4
I_s (in ⁴)	24780	44629	22896	41938
I_c (in ⁴)	76620	67756	61502	73730
S_s (in ³)	1451.9	1716.5	1243.8	1620.8
S_c (in ³)	2026.8	1733.7	1537.2	1716.5
Q (in)	1.078	1.071	1.065	1.060
M_P (k)	1022	1952	726	1634
M_{sP} (k)	8.95	13.65	700	12.10
S_P (in ³)	0.497	0.497	0.497	0.497
M_{sP} (k)	546	699	494	665
M_{tP} (k)	1127	988	1139	1005
M_{imp} (k)	237	198	216	193
T_{total} (k)	1910	1885	1849	1863
$F_s S_P t_k$ (ksi)	11.31	13.18	12.80	13.79
V_s Total (ksi)	19.76	26.83	19.80	25.89
VR (k)	63.9	57.7	56.4	63.8

	S. Abut.	Pier 1	Pier 2	Pier 3	N. Abut.
R_P (k)	70.3	224.2	206.3	219.8	69.3
R_L (k)	47.5	87.9	88.1	86.6	47.4
$Imp.$ (k)	10.0	17.6	16.7	17.3	10.0
R_{TOTAL} (k)	127.8	329.7	311.1	323.7	126.7

I_s and S_s are the moment of inertia and section modulus of the steel section.
 I_c and S_c are the moment of inertia and section modulus of the composite section used in computing I_s .
 VR is the maximum \pm Impact shear range in span.

FOR INFORMATION ONLY

BEARING DETAILS
FA. RT. 670 SEC. III HVB
MADISON COUNTY
STA. 155+33.92

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