01-19-2018 LETTING ITEM 070

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D9 BRIDGE PAINT 2018-2	VARIOUS	16	1
		ILLINOIS	CONTRACT NO. 78621	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FOR INDEX OF SHEETS, SEE SHEET NO. 2

FOR SUMMARY OF QUANTITIES, SEE SHEET NO. 3

PROPOSED HIGHWAY PLANS

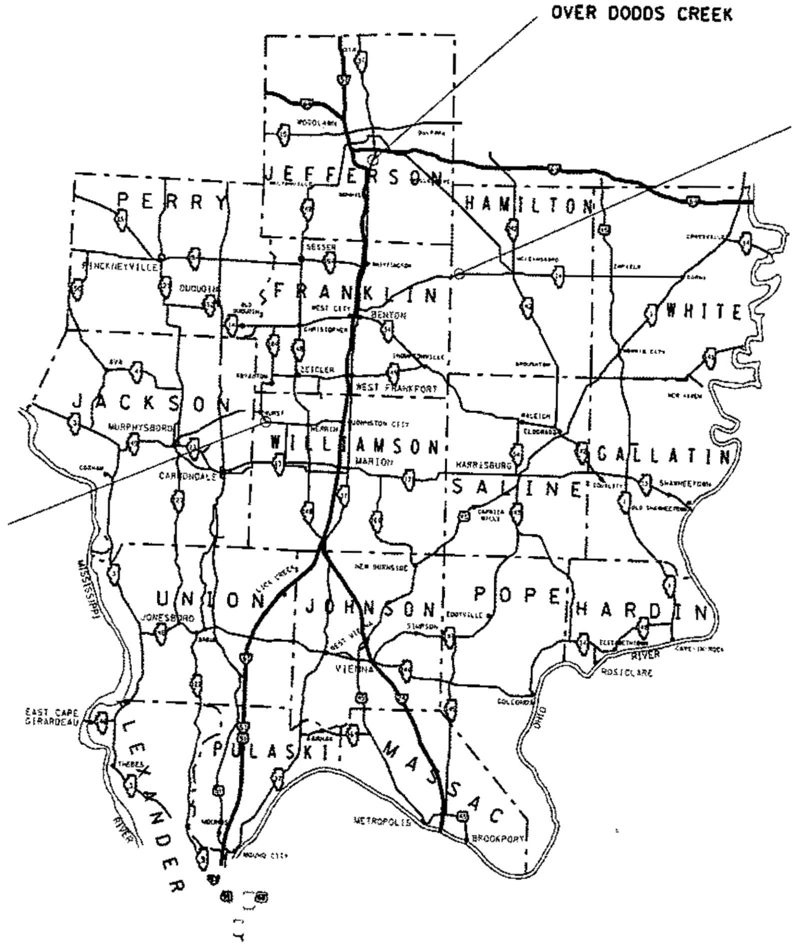
VARIOUS ROUTES
SECTION D9 BRIDGE PAINT 2018-2
PROJECT STPR-GBLX(643)
VARIOUS COUNTIES

BRIDGE NO. 1
SN. 100-0062
CAMBRIA ROAD ADT=5600, 5% TRUCKS
POSTED SPEED: 55 MPH

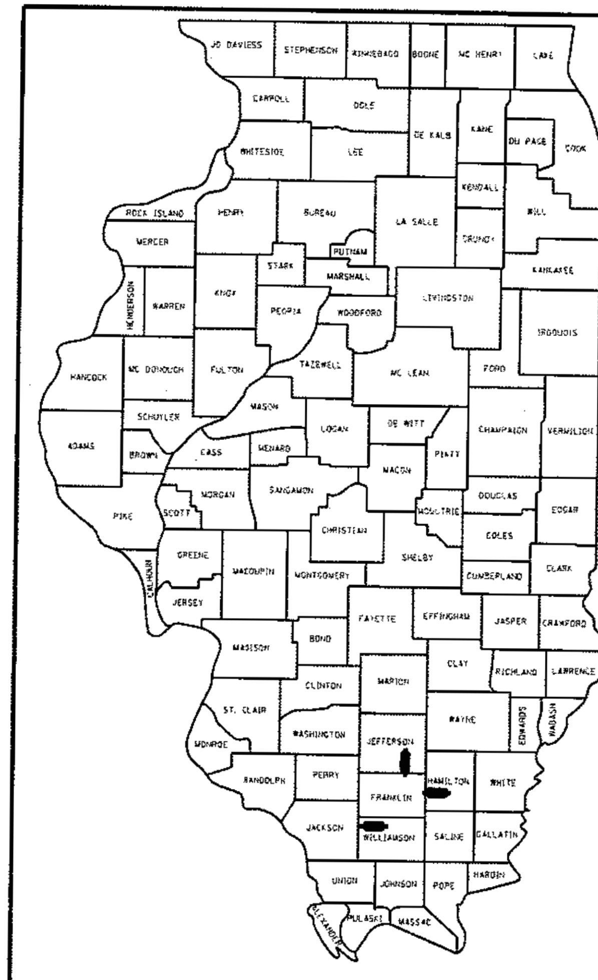
BRIDGE NO. 2
041-0097
IL 37 2015 ADT=3850, 11% TRUCKS
TOWNSHIP-DODDS
POSTED SPEED: 55 MPH

BRIDGE NO. 3
SN. 033-0038
IL 14 2015 ADT=2350, 11% TRUCKS
TOWNSHIP-KNIGHTS PRAIRIE
POSTED SPEED: 55 MPH

C-99-015-18



D-99-008-18



LOCATION OF SECTION INDICATED THUS:-

DESIGN DESIGNATION : N/A

COORDINATE SYSTEM : N/A

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

PROJECT ENGINEER: DAVID PICHE
PROJECT DESIGNER: DAVID HOLLMANN

CONTRACT NO. 78621

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUBMITTED Oct 4 2017.

Jeffrey L Keirn
REGION FIVE ENGINEER

Nov 30 2017

Maureen M. Addis, P.E.
ENGINEER OF DESIGN AND ENVIRONMENT

Nov 30 2017
DIRECTOR OF PROGRAM DEVELOPMENT

PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS

GENERAL NOTES

AOOITIONAL TRAFFIC CONTROL DEVICES MAY BE REQUIRED TO CHANNEL TRAFFIC AT COMMERCIAL ANO/OR PRIVATE ENTRANCE AS DIRECTED BY THE ENGINEER. ALL TRAFFIC CONTROL DEVICES ARE INCLUDED IN THE COST OF THE TRAFFIC CONTROL ANO PROTECTION STANDARD USED AT THE SITE, ANO WILL NOT BE PAID FOR SEPARATELY.

THE EXISTING STEEL COATINGS CONTAIN LEAD. THE CONTRACTOR SHOULD TAKE APPROPRIATE PRECAUTIONS TO DEAL WITH THE PRESENCE OF LEAD ON THIS PROJECT.

THE CONTRACTOR IS REQUIRED TO BE SSPC OP1 ANO SSPC OP2 CERTIFIED.

PLAN DIMENSIONS ANO DETAILS RELATIVE TO EXISTING PLANS ARE SUBJECT TO ROUTINE VARIATIONS. THE CONTRACTOR SHALL FIELD VERIFY EXISTING DIMENSIONS ANO DETAILS AFFECTING NEW CONSTRUCTION ANO 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 AT THE UNIT PRICE BID FOR THE WORK.

FOR STRUCTURE 100-0062, CLEANING ANO PAINTING OF EXISTING STRUCTURAL STEEL SHALL BE AS SPECIFIED IN THE SPECIAL PROVISIONS FOR "CLEANING AND PAINTING EXISTING STEEL STRUCTURES" AND "CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES." ALL STRUCTURAL STEEL WITHIN 5 FT. (MEASURED ALONG THE BEAM) OF EITHER SIDE OF SPECIFIED DECK JOINTS SHALL BE CLEANED PER NEAR WHITE BLAST CLEANING -SSPC- SP10. ALL STEEL 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 GRAY, MUNSELL NO. 5B 7/1. THE COLOR OF THE FINAL FINISH COAT FOR THE EXTERIOR SURFACES AND BOTTOM OF THE FLANGE OF THE FASCIA BEAMS SHALL BE REDISH BROWN, MUNSELL NO. 2. 5Y 3/4.

FOR STRUCTURE 041-0097 AND 033-0038, CLEANING AND PAINTING OF EXISTING STRUCTURAL STEEL SHALL BE AS SPECIFIED IN THE SPECIAL PROVISIONS FOR "CLEANING AND PAINTING EXISTING STEEL STRUCTURES" AND "CONTAINMENT AND DISPOSAL OF NON LEAD PAINT CLEANING RESIDUES." ALL STRUCTURAL STEEL WITHIN 5 FT. (MEASURED ALONG THE BEAM) OF EITHER SIDE OF SPECIFIED DECK JOINTS AT ABUTMENTS AND PIER JOINTS SHALL BE CLEANED PER NEAR WHITE BLAST CLEANING -SSPC- SP10. ALL STEEL 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 GRAY, MUNSELL NO. 5B 7/1. THE COLOR OF THE FINAL FINISH COAT FOR THE EXTERIOR SURFACES AND BOTTOM OF THE FLANGE OF THE FASCIA BEAMS SHALL BE REDISH BROWN, MUNSELL NO. 2. 5Y 3/4.

A TOTAL OF TWO AIR MONITORS ARE REQUIRED TO MONITOR ABRASIVE BLASTING OPERATIONS AT BRIDGE NO. 1 (SN 100-0062), ACCORDING TO SPECIAL PROVISION "CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES."

THERE IS A HAMILTON COUNTY TELEPHONE LINE ATTACHED TO THE INSIDE OF FASCIA BEAM ON S.N. 033-0038. THE LINE MAY NEED TO BE REMOVED AND TEMPARARILY SUPPORTED AS REQUIRED.

INDEX OF SHEETS

AREAS OF CLEANING & PAINTING

SN	5' AT BEAM ENDS AT ABUTMENTS	5' AT BEAM ENDS AT PIERS (10' TOTAL) (PIERS 1 & 2 WITH NON CONTINUOUS BEAMS)
100-0062	X	
041-0097	X	X (2 LOCATIONS)
033-0038	X	X (2 LOCATIONS)

STANDARDS

701006-05 OFF-ROAD OPERATIONS, 2L, 2W, 15' TO 24" FROM PAVEMENT EDGE.

701201-04 LANE CLOSURE, 2L, 2W, DAY ONLY, FOR SPEEDS > TO 45 MPH

701901-07 TRAFFIC CONTROL DEVICES

Prepared By: DISTRICT STUDIES & PLANS ENGINEER

Examined By: DISTRICT LAND ACQUISITION ENGINEER

Examined By: DISTRICT PROGRAM DEVELOPMENT ENGINEER

Examined By: DISTRICT OPERATIONS ENGINEER

Examined By: DISTRICT PROJECT IMPLEMENTATION ENGINEER

Examined By: DISTRICT CONSTRUCTION ENGINEER

Examined By: DISTRICT MATERIALS ENGINEER

USER NAME = hollmandb	DESIGNED -	REVISED - MJS 11-2-17
	DRAWN -	REVISED -
PLOT SCALE = 100.0000 ' / in.	CHECKED -	REVISED -
PLOT DATE = 10/3/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

INDEX OF SHEET, STANDARDS, GENERAL NOTES, AND AREAS OF CLEANING AND PAINTING

SCALE: SHEET OF SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D9 BRIDGE PAINT 2018-2	VARIOUS	16	2

CONTRACT NO. 78621

ILLINOIS FED. AID PROJECT

MODEL: Default
FILE NAME: pw:\\IDOTPWINTEG.illinois.gov:PWIDOT\Documents\IDOT Offices\District 9\Projects\78621\CADData\CADSheets\78621-Sheets.dgn

SUMMARY OF QUANTITIES

CODE NUMBER	ITEM DESCRIPTION	UNIT		0047	0047	0047
		COUNTY:	COUNTY:	WILLIAMSON	JEFFERSON	HAMILTON
		ROUTE:	ROUTE:	CAMBRIA ROAD	IL 37	IL 14
		FUNDING:	FUNDING:	100% STATE	100% STATE	100% STATE
		LOCATION:	LOCATION:	RURAL	RURAL	RURAL
			TOTAL QUANTITY	BRIDGE NO. 1 100-0062	BRIDGE NO. 2 041-0097	BRIDGE NO. 3 033-0038
67100100	MOBILIZATION	LSUM	1	0.33	0.34	0.33
70100450	TRAFFIC CONTROL AND PROTECTION, STANDARD 701201	LSUM	1	0.33	0.34	0.33
X5060602	CONTAINMENT AND DISPOSAL OF NON-LEAD PAINT CLEANING RESIDUES NO. 2	LSUM	1		1	
X5060603	CONTAINMENT AND DISPOSAL OF NON-LEAD PAINT CLEANING RESIDUES NO. 3	LSUM	1			1
X7015005	CHANGEABLE MESSAGE SIGN	CAL DA	84	28	28	28
Z0007101	CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES NO. 1	LSUM	1	1		
Z0010501	CLEANING AND PAINTING STEEL BRIDGE NO. 1	LSUM	1	1		
Z0010502	CLEANING AND PAINTING STEEL BRIDGE NO. 2	LSUM	1		1	
Z0010503	CLEANING AND PAINTING STEEL BRIDGE NO. 3	LSUM	1			1

9

USER NAME = hollmandb	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
	DRAWN -	REVISED -	
PLOT SCALE = 100.0000 ' / in.	CHECKED -	REVISED -	
PLOT DATE = 10/4/2017	DATE -	REVISED -	

SUMMARY OF QUANTITIES

SCALE: SHEET OF SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D9 BRIDGE PAINT 2018-2	VARIOUS	16	3

CONTRACT NO. 78621

ILLINOIS FED. AID PROJECT

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FILE NAME: pw:\\IL084EBIDINTEG.illinois.gov:PWIDOT\Documents\IDOT Offices\District 9\Projects\78621\CADData\CADSheets\78621-Sheets.dgn

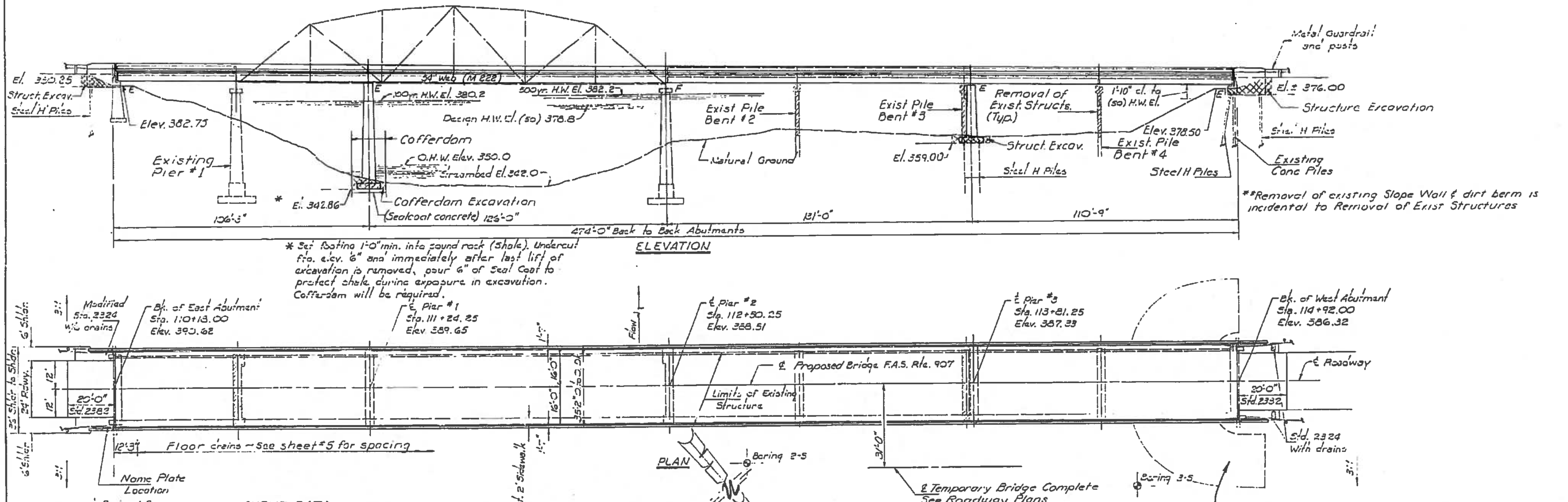
B.M. "□" Cut in N.E. Corner of concrete base of monument 45' Lt. of Sta. 106+68.00 Elev. 395.04
Existing Structure: #100-0041 Built in 1937 as SA Rte. 9, Sec. 20-B-FD at Sta. 111+30.00. 180'-6" Truss with 1 East, 4 West I-Bm. approach spans. Total length = 474'-0" Bk. to Bk. of abutments and 24'-0" wide roadway with 2'-0" sidewalk. Open spill through east abutment on footing, 2 column concrete piers for truss on footings, 3 pile bent piers and pile bent for west abutment. Traffic shall be detoured utilizing a temporary structure.
Exist. Abuts. & Pier #2 to be widened as necessary. Existing pile bents #2, #3, #4 and existing Pier #1 shall be removed.

No Salvage.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.S. 907	20B-BR	Williamson	35	14

SHEET NO. 1 OF 16 SHEETS

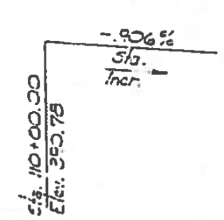


**Removal of existing Slope Wall & dirt berm is incidental to Removal of Exist. Structures

* Set footing 1'-0" min. into sound rock (Shale). Undercut fdn. elev. 6" and immediately after last lift of excavation is removed, pour 6" of Seal Coat to protect shale during exposure in excavation. Cofferdam will be required.

**Any portion of existing slope wall that interferes with driving piles for temporary structure shall be considered incidental to "Temporary Bridge Complete"

CURVE DATA
Δ = 19°14'
D = 2°0'
R = 2864.93'
T = 485.4'
L = 961.7'
E = 40.9
S.E. = .038'/'
S.E. Attained (Sta. 113+73.9 to Sta. 115+23.9)



PROFILE GRADE
(@ ℄ Roadway)

FOR INFORMATION ONLY

100-0062

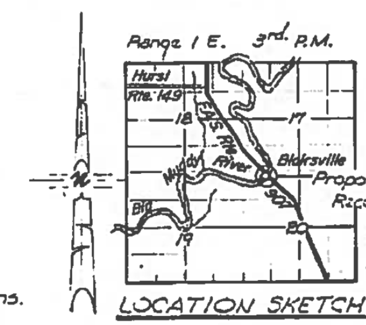
WATERWAY INFORMATION

Drainage Area 957 sq. mi. Low Grade Elev. 383.8 @ Sta. 123+00									
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head ~ Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	50	26159	8740	8740	378.8	0.09	0.09	378.89	378.89
Base	100	29164	9357	9357	380.2	0.13	0.13	380.33	380.33
Max. Calc.	500	35900	10252	10252	382.2	0.19	0.19	382.39	382.39

DESIGN STRESSES
f'c = 3,500 psi
fy = 60,000 psi (Reinforcement)
fy = 50,000 psi (Structural)
AASHTO-M 222

LOADING HS 20-44
Allow 25#/sq. ft. for future wearing surface.

Design Specifications: 1977 AASHTO; 1978, 1979, 1980 & 1981 Interim Specifications.



LOCATION SKETCH

AS REVISED 8-19-83

GENERAL PLAN
F.A.S. Rte. 907 Over BIG MUDDY RIVER
F.A.S. Rte. 907 Section 20B-BR
WILLIAMSON COUNTY
Sta. 112+50.25

DESIGNED	(signature)
CHECKED	(signature)
DRAWN	F.M.
CHECKED	M.H.C.

April 26, 1983
EXAMINED — ENGINEER OF BRIDGE DESIGN
PASSED — ENGINEER OF BRIDGES AND STRUCTURES
APPROVED — DIRECTOR OF HIGHWAYS

DAB

GENERAL NOTES

See Proposal for Boring Data.

Fasteners shall be high strength bolts AASHTO M 164, Type 3. Bolts 7/8"ϕ, open holes 15/16"ϕ, unless otherwise noted.

Calculated weight of Structural Steel = 404750 lb.

All structural steel shall be AASHTO M 222.

AASHTO M222 structural steel shall not be painted except, that for a distance of three times the depth of the girders (but not exceeding 10 feet) each way from deck joints, the AASHTO M222 structural steel shall be cleaned and given one coat of the basic lead silico chromate, primer and maroon field coat both coats to be applied in the shop with spot painting only in the field.

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 cross frames over supports.

The contractor shall drive 2 steel test piles in permanent locations 1 HP10×42 @ the West Abut. 1 HP8×36 @ Pier #3 as directed by the Engineer before ordering the remainder of piles.

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.

Expansion bolts shall consist of approved expansion anchors, providing minimum certified proof load = 4,060 Lbs., and 3/4"ϕx12" hooked bolts.

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 1/8" 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.

Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-53 Grade 60.

All contact surfaces of joints for the cross frames shall be free of paint or lacquer.

TOTAL BILL OF MATERIAL

Item	Unit	Super	Sub	Total
** Removal of existing structures	Each			1
Concrete Removal	Cu. Yds		64	64
Exp. Bolts 3/4"ϕ	Each		20	20
Structure Excavation	Cu. Yds		306	306
Cofferdams	Each		1	1
Cofferdam Excavation	Cu. Yds		38	38
Floor Drains	Each	42		42
Protective Coat	Sq. Yds	2080		2080
Class A Concrete	Cu. Yds		230.8	230.8
Class X Concrete	Cu. Yds	524.4	(132.6)	(657.0)
Seal Coat Concrete	Cu. Yds		9	9
Neoprene Expansion Joint (4")	Lin. Ft.	68		68
Reinforcement Bars	Pounds	55390	(30830)	(86220)
Reinforcement Bars (Epoxy Ctd)	Pounds	84640		84640
Name Plates	Each			1
Steel Piles (HP10×42)	Lin. Ft.		280	280
Test Pile Steel (HP10×42)	Each		1	1
Steel Piles (HP8×36)	Lin. Ft.		406	406
Test Pile Steel (HP8×36)	Each		1	1
Structural Steel	L. Sum	1		1
Stud Shear Connectors	Each	4152		4152

** Includes Superstructure Removal and Removal of Existing Pile Bents #2, #3, & #4 and Removal of Existing Pier #1. Removal of existing Metal Railing is included with Removal of existing structures.

FOR INFORMATION ONLY

100-0062

STATION 112+50.25
BIG MUDDY RIVER
BUILT 198
FAS. RT. 907 SEC. 208-BR
LOADING HS20
* STR. NO.

PROJECT MABR-S-907(104)

NAME PLATE
(Std. 2113)

* Structure Number to be supplied by District

AS REVISED
8-19-83

PLAN DETAILS

FAS RTE 907 OVER BIG MUDDY RIVER
FAS RTE 907 SEC. 208-BR
WILLIAMSON COUNTY
STATION 112+50.25

DESIGNED	[signature]
CHECKED	M.W.C.
DRAWN	V.H. F.M.
CHECKED	AB M.W.C.

April 26, 1983
EXAMINED James T. Rayburn, ENGINEER OF BRIDGE DESIGN
PASSED [signature] ENGINEER OF BRIDGES AND STRUCTURES
APPROVED
DIRECTOR OF HIGHWAYS

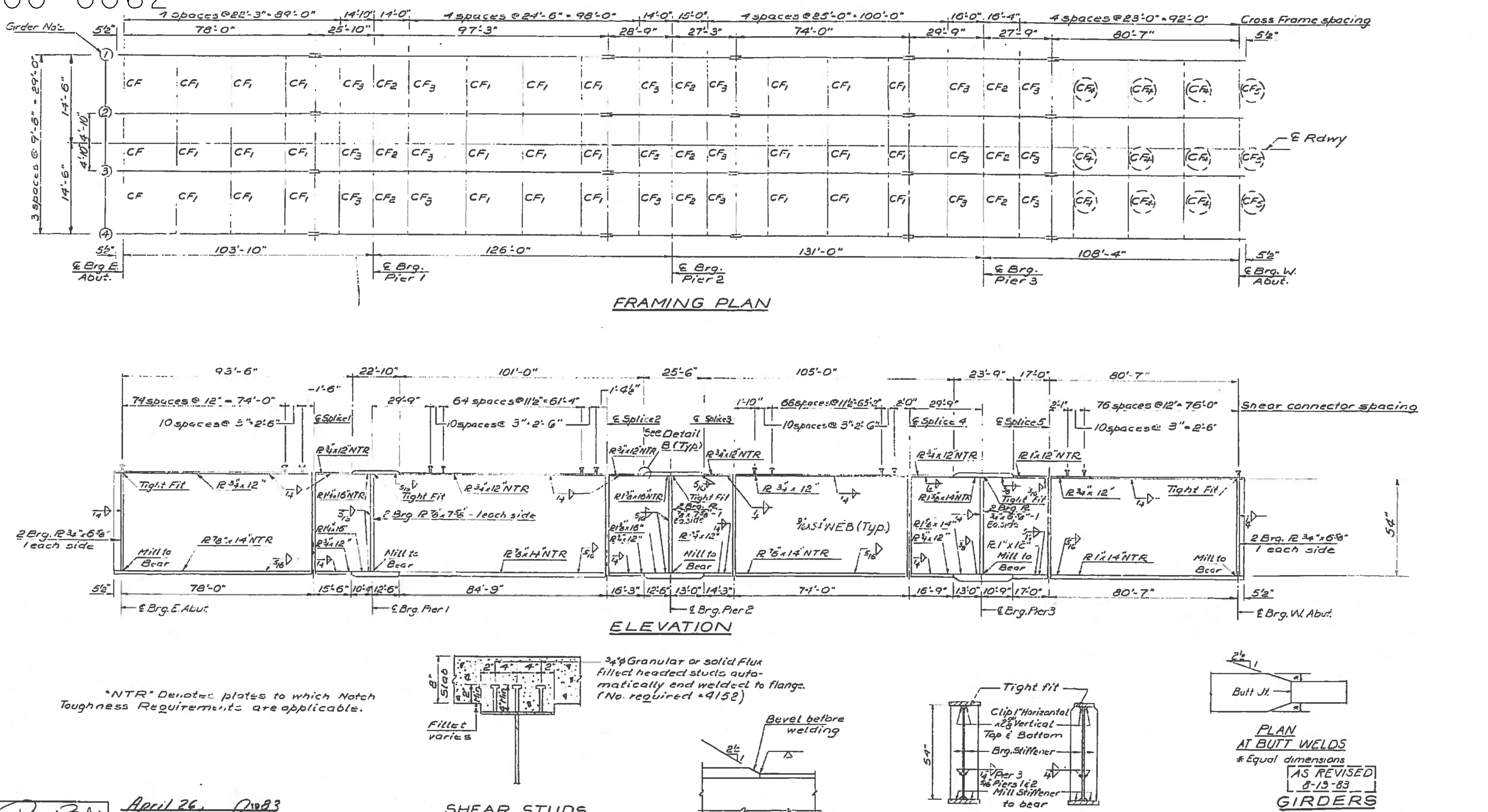
FOR INFORMATION ONLY

100-0062

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET NO. 8a
16 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
907	20B-BR	WILLIAMSON	35	21



AS REVISED 8-19-83

GIRDERS

FAS RTE 907 OVER BIG MUDDY RIVER

FAS RTE 907 SEC. 20B-BR

WILLIAMSON COUNTY

STATION 112 + 50.25

DESIGNED
CHECKED M. H. C.
DRAWN V.H. F.M.
CHECKED DB M. H. C.

April 26, 1983

EXAMINED
PASSED
APPROVED

USER NAME = hollmandb	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	100-0062
	DRAWN -	REVISED -		
PLOT SCALE = 100.0000 ' / in.	CHECKED -	REVISED -		
PLOT DATE = 10/4/2017	DATE -	REVISED -		SCALE: SHEET OF SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D9 BRIDGE PAINT 2018-2	VARIOUS	16	6

CONTRACT NO. 78621

ILLINOIS FED. AID PROJECT

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FOR INFORMATION ONLY

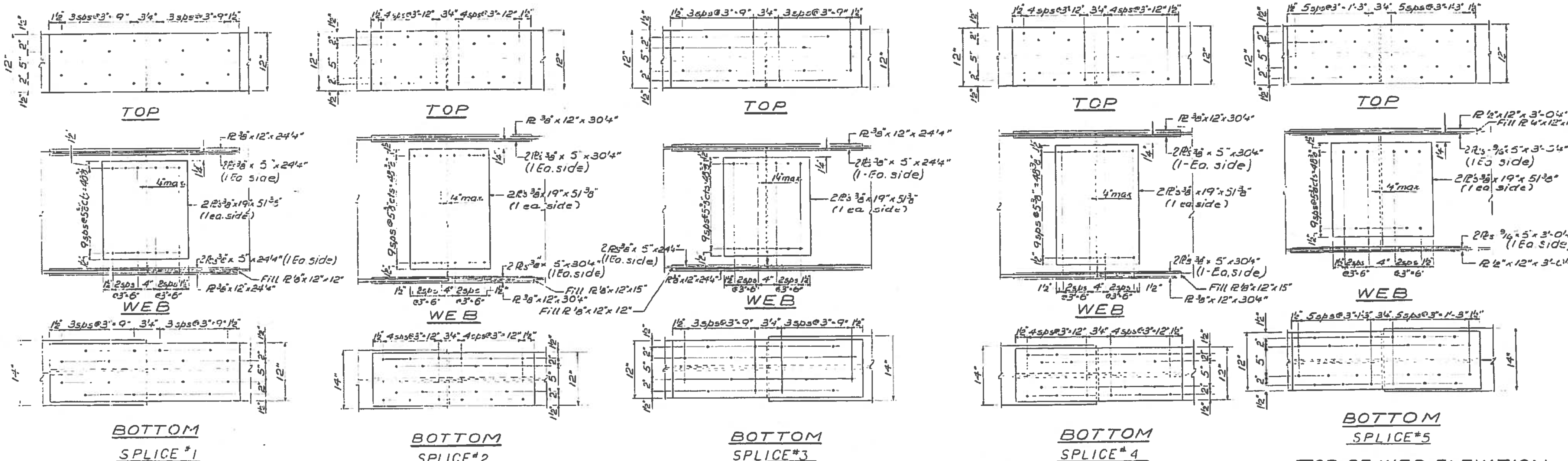
100-0062

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.S. 907	20B-BR	WILLIAMSON	35	22

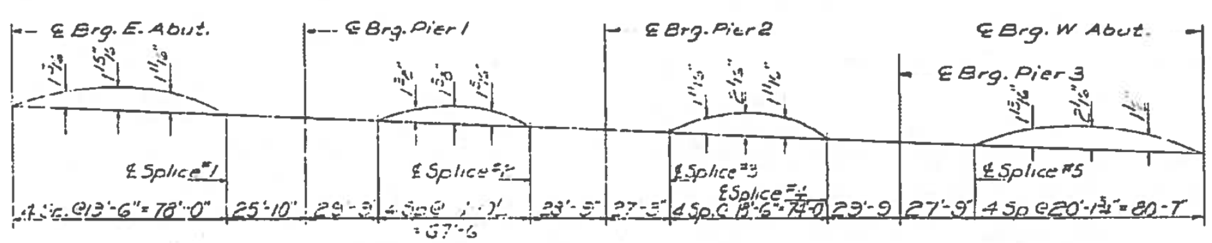
SHEET NO. 9b
16 SHEETS

Note: Use ⅞" H.S bolts throughout splices



TOP OF WEB ELEVATION
(For fabrication purposes only)

Span / Girder	1	2	3	4
℄ Brg. E. Abut.	389.49	389.66	389.66	389.49
℄ Splice #1	388.78	388.95	388.95	388.78
℄ Brg. Pier #1	388.55	388.71	388.71	388.55
℄ Splice #2	387.67	387.83	387.83	387.67
℄ Brg. Pier #2	387.41	387.57	387.57	387.41
℄ Splice #3	387.16	387.33	387.33	387.16
℄ Splice #4	386.49	386.66	386.66	386.49
℄ Brg. Pier #3	386.22	386.41	386.38	386.19
℄ Splice #5	385.97	386.18	386.11	385.91
℄ Brg. W. Abut.	385.82	385.59	385.33	395.01



CAMBER DIAGRAM

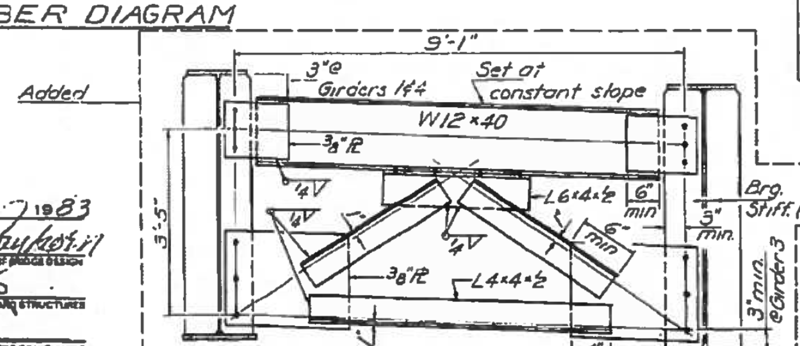
INTERIOR GIRDER MOMENT TABLE

	0.4 Sp. 1	Pier #1	0.5 Sp. 2	Pier #2	0.5 Sp. 3	Pier #3	0.6 Sp. 4
Is (in.⁴)	23199.5	37918.5	23199.5	41124.9	23199.5	42549.5	24361.4
Ic (in.⁴)	58248.2	—	58248.2	—	58248.2	—	61966.1
Ss (in.³)	887.3	1342.2	887.3	1449.3	887.3	1488.0	959.0
Sc (in.³)	1257.1	—	1257.1	—	1257.1	—	1351.5
ℚ (K/')	1.184	1.635	1.192	1.64	1.194	1.642	1.195
Mℚ ('K)	1121.5	2838.3	870.6	2967.0	975.0	3229.0	1197.5
fs non-comp (ksi)	15.2	25.4	11.8	24.6	13.2	26.0	15.0
sℚ (K/')	.447	—	.447	—	.447	—	.447
Msℚ ('K)	486.7	—	455.3	—	504.6	—	518.1
M℄ ('K)	2574.6	2205.5	2669.6	2492.9	2758.8	2427.9	2711.2
Mimp ('K)	562.8	459.6	531.8	491.6	538.8	496.3	581.3
Total ('K)	3624.1	2665.1	3656.7	2984.5	3802.2	2924.2	3810.6
fs comp (k.s.i)	34.6	23.8	34.9	24.7	36.3	23.6	33.8
fs Total (k.s.i)	49.8	49.2	46.7	49.3	49.5	49.6	48.8
VR (K)	76.6	—	68.6	—	68.2	—	77.4

INTERIOR GIRDER REACTION TABLE

	E. Abut.	Pier #1	Pier #2	Pier #3	W. Abut.
Rℚ (K)	63.7	208.2	210.0	221.0	66.0
R℄ (K)	56.6	98.5	103.0	101.8	56.9
Imp. (K)	12.4	20.5	20.3	20.8	12.2
R Total (K)	132.7	327.2	333.3	343.6	135.1

Is and Ss are the moment of inertia and section modulus of the steel section used in computing fs Total.
Ic and Sc are the moment of inertia and section modulus of the composite section used in computing fs Total.
VR is the maximum ℄ + Impact shear range in span.
The load factor (1.3)[ℚ + ⁵⁄₃(℄ + Imp.)] is used in computing moments and stresses.



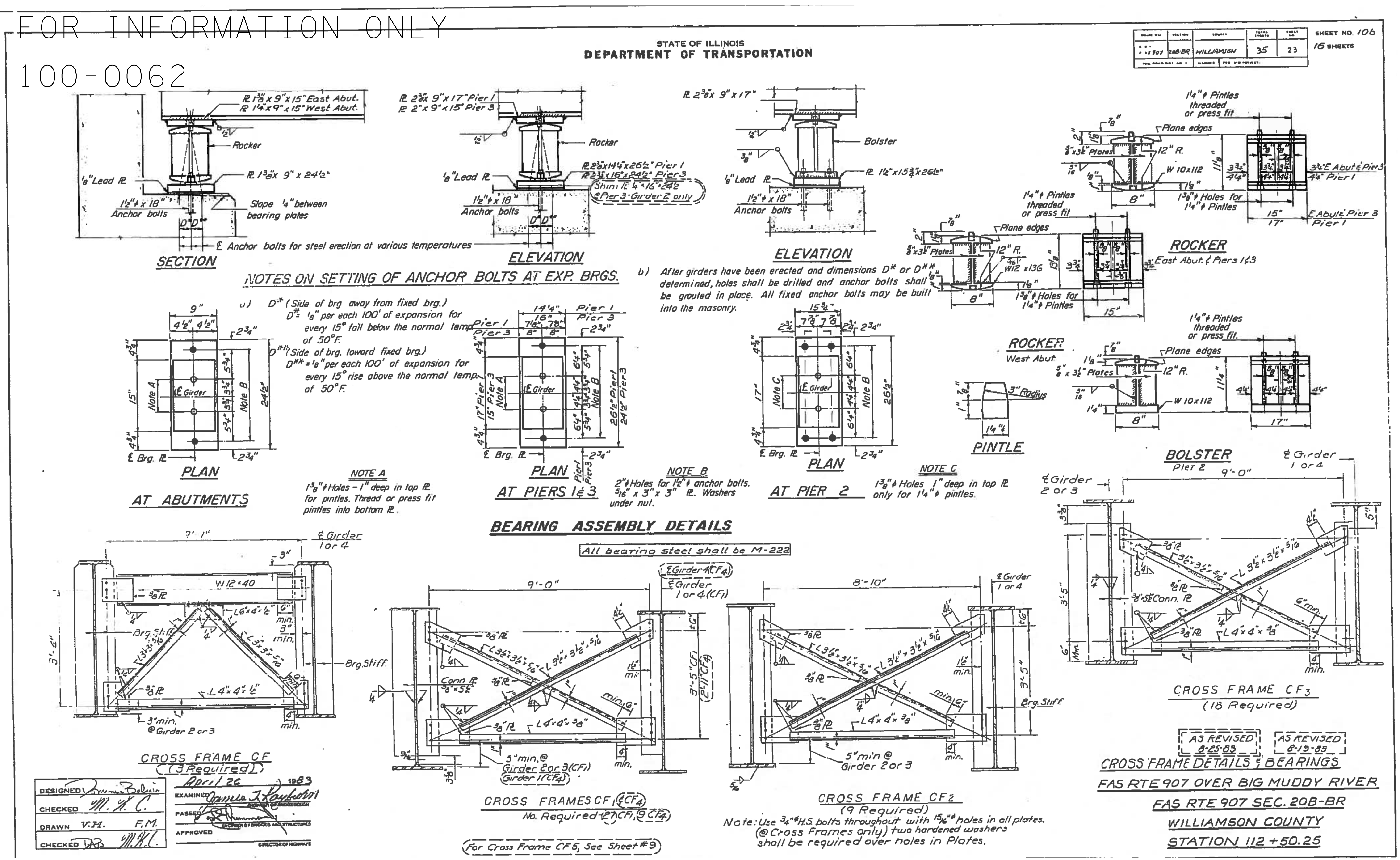
CROSS FRAME CFS

DESIGNED
CHECKED
DRAWN V.H. F.M.
CHECKED
April 26 1983
EXAMINED
PASSED
APPROVED

AS REVISED 8-25-83

AS REVISED 8-19-83

GIRDER DETAILS
FAS RTE 907 OVER BIG MUDDY RIVER
FAS RTE 907 SEC. 20B-BR
WILLIAMSON COUNTY
STATION 112+50.25



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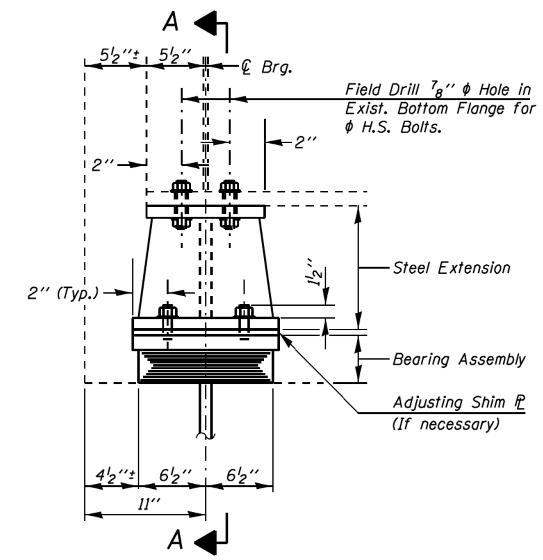
USER NAME = hollmandb	DESIGNED -	REVISED -	
	DRAWN -	REVISED -	
PLOT SCALE = 100.0000 ' / in.	CHECKED -	REVISED -	
PLOT DATE = 10/4/2017	DATE -	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

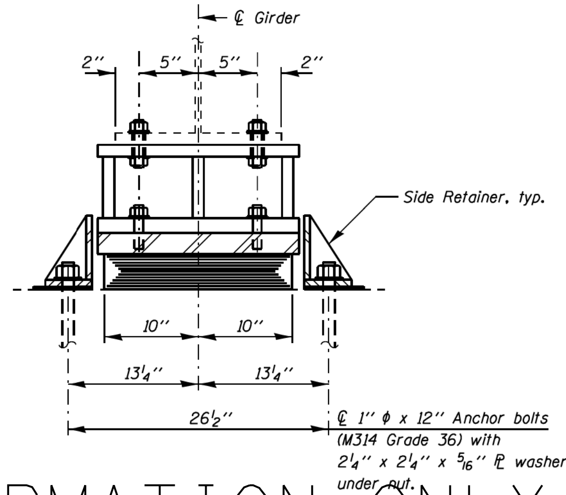
100-0062

SCALE: SHEET OF SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D9 BRIDGE PAINT 2018-2	VARIOUS	16	8
		CONTRACT NO. 78621		
		ILLINOIS	FED. AID PROJECT	



ELEVATION AT ABUT.

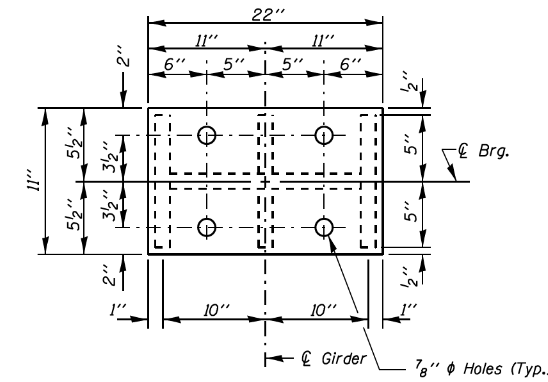


SECTION A-A

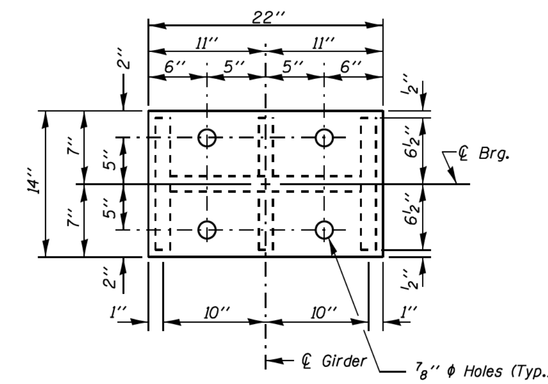
FOR INFORMATION ONLY

100-0062

TYPE I ELASTOMERIC EXP. BRG.



PLAN -TOP PLATE



PLAN -BOTTOM PLATE

Notes:

Prior to ordering any material, the Contractor shall verify in the field all bearing height and shim thickness dimensions.

Min. jack capacity = 75 tons.

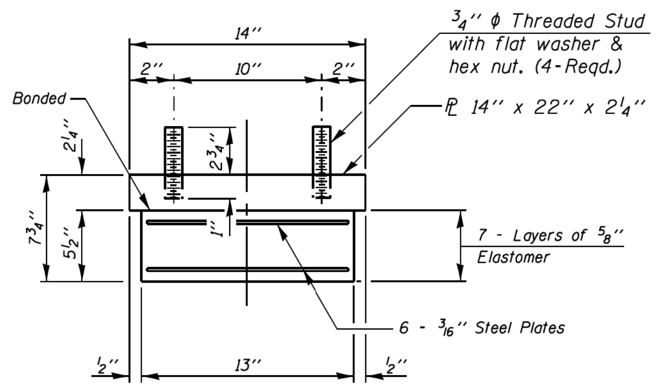
Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.

Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.

Side retainers and other steel members required for the elastomeric bearing assembly shall be included in the cost of "Elastomeric Bearing Assembly, Type I".

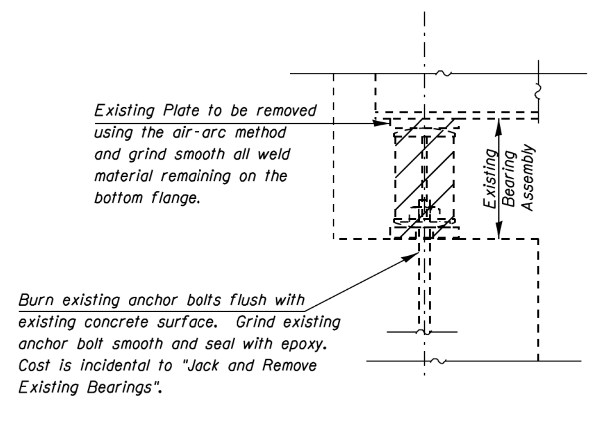
New steel extensions, connection bolts, and shim ℙ's are included in the cost of "Furnishing and Erecting Structural Steel".

Two ⅛" adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details. Cost included in the cost of "Furnishing and Erecting Structural Steel".



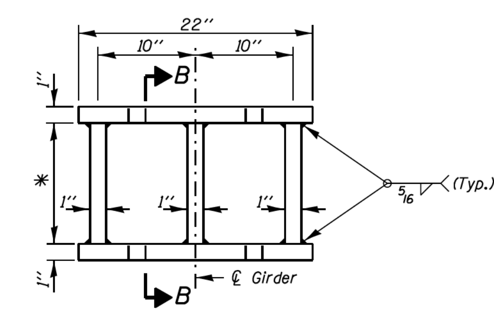
BEARING ASSEMBLY

Note:
Shim plates shall not be placed under Bearing Assembly.



EXISTING BEARING @ ABUTMENTS REMOVAL DETAIL

Cost included in Jack and Remove Existing Bearings

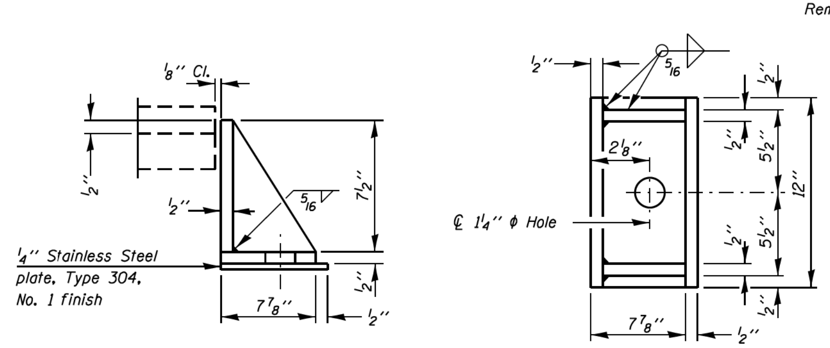


* 4¼" E. Abut.
* 6⅛" W. Abut.

STEEL EXTENSION DETAIL

GIRDER REACTIONS

	E. Abut.	W. Abut.
R DL	63.7 Kips	66 Kips
R LL	56.6 Kips	56.9 Kips
R Imp.	12.4 Kips	12.2 Kips
R (Total)	132.7 Kips	135.1 Kips

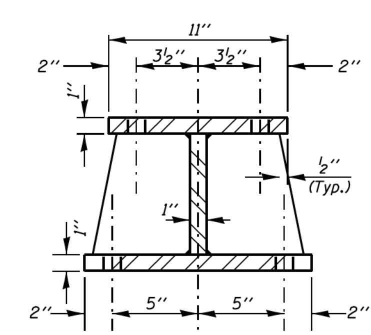


SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.

BILL OF MATERIAL

Item	Unit	Total
Furnishing and Erecting Structural Steel	Pound	2220
Elastomeric Bearing Assembly Type I	Each	8
Anchor Bolts, 1"	Each	16
Jack and Remove Existing Bearings	Each	8



SECTION B-B

BEARING DETAILS
CH 9 OVER BIG MUDDY RIVER
F.A.S. RTE 907 - DAY LABOR FY '16
WILLIAMSON COUNTY
STATION 112+50.25
STRUCTURE NO. 100-0062

FILE NAME = pw:\\IL084EBIDINTEG.illinois.gov:PWIDOT\Documents\IDOT Offices\District 9\Projects\DaLabor\16H910\CADData\CADsheets\sht.dgn	USER NAME = hollmandb	DESIGNED -	REVISED -
		DRAWN -	REVISED -
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Default	PLOT DATE = 9/8/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BEARING DETAILS

SCALE: SHEET 2 OF 2 SHEETS STA. TO STA.

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
907		WILLIAMSON	5	5

CONTRACT NO. 16H910
ILLINOIS FED. AID PROJECT

USER NAME = hollmandb	DESIGNED -	REVISED -
	DRAWN -	REVISED -
PLOT SCALE = 100.0000 ' / in.	CHECKED -	REVISED -
PLOT DATE = 10/4/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

100-0062

SCALE: SHEET OF SHEETS STA. TO STA.

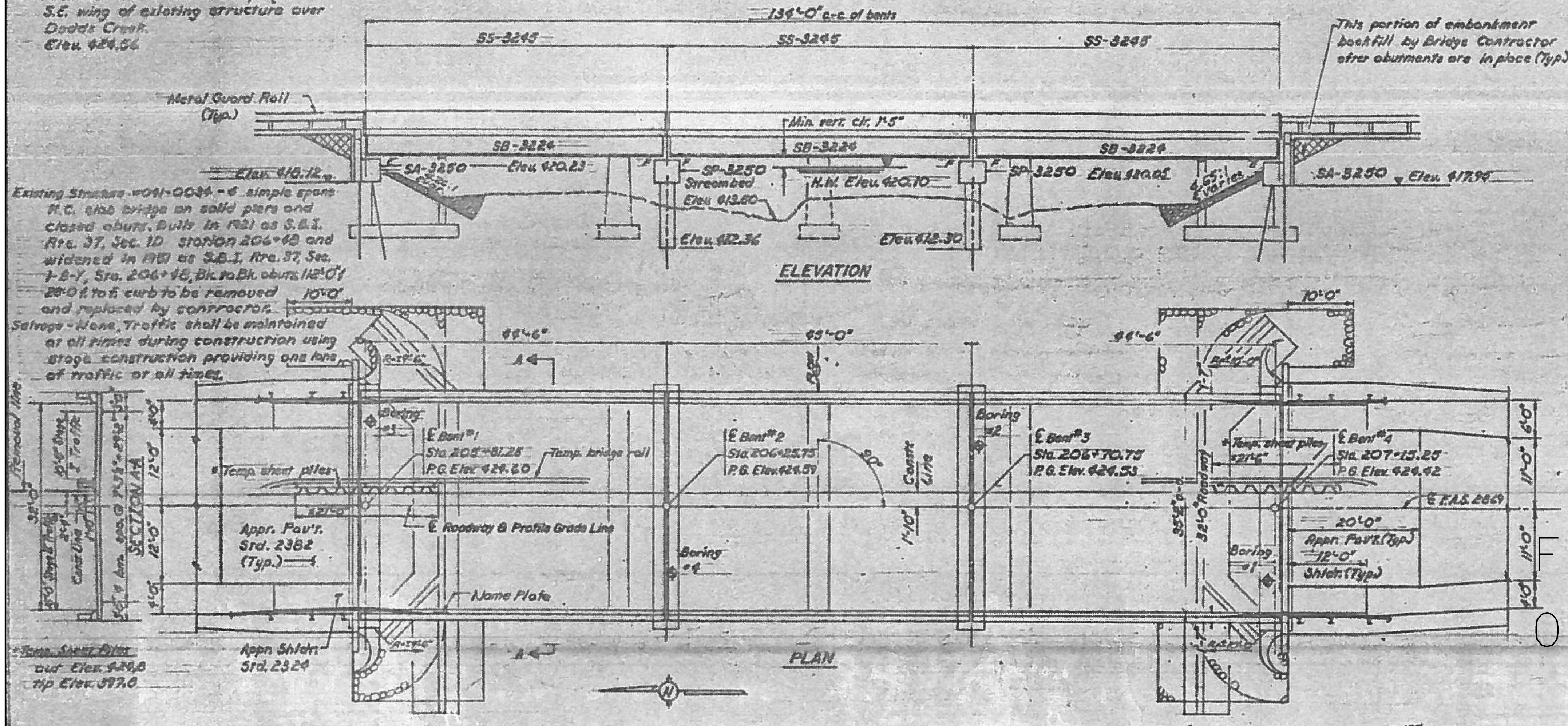
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D9 BRIDGE PAINT 2018-2	VARIOUS	16	9

CONTRACT NO. 78621
ILLINOIS FED. AID PROJECT

MODEL: Default
FILE NAME: pw:\\IL084EBIDINTEG.illinois.gov:PWIDOT\Documents\IDOT Offices\District 9\Projects\78621\CADData\CADsheets\78621-Sheets.dgn

B.M. - U.S.G.S. B.M. G-216 Brass plaque in S.E. wing of existing structure over Dodds Creek. Elev. 424.56

Existing Structure 041-0034 - 4 simple spans R.C. slab bridge on solid piers and closed abuts. Built in 1921 as S.B.I. Rte. 37, Sec. 1D station 206+48 and widened in 1951 as S.B.I. Rte. 37, Sec. 1-B-Y, Sta. 206+48, Bk. to Bk. abuts. 112'-0", 20'-0" t.o.t. curb to be removed and replaced by contractor.
Salvage - None. Traffic shall be maintained at all times during construction using stage construction providing one lane of traffic at all times.



GENERAL NOTES

See Special Provisions for boring logs and top of Slab Elevations.
Class 'X' Concrete shall be used throughout.
Fasteners shall be high strength bolts (AASHTO M164, Type 3). Bolts ⅞" φ, open holes 15/16" φ, unless otherwise noted.
All structural steel shall be AASHTO M222 except expansion joint angles and attached bars which shall be AASHTO M183 and shall be shop painted with zinc-silicate primer.
AASHTO M222 structural steel shall not be painted except, that for a distance of three times the depth of the beams (but not exceeding 10 ft) each way from deck joints, the AASHTO M 222 structural steel shall be cleaned, and given one coat of the zinc-silicate primer and a dark maroon vinyl finish coat. Both coats to be applied in the shop with spot painting only in the field.
Field welding of construction accessories will be permitted on the top flange of beams only.
The structural steel bearing plates of the Elastomeric Bearing Assembly shall conform to the requirements of AASHTO M 222.
The main beams shall conform to the supplemental requirements for Notch Toughness Zone 2.
Anchor bolts shall be set before bolting diaphragms over supports.
Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-53 Grade 60.
Layout of riprap may be varied in the field to suit ground conditions as directed by the Engineer.

FOR INFORMATION ONLY

041-0097

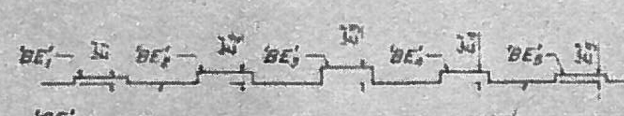
TOTAL BILL OF MATERIAL

Item	Unit	Super	Sub. Piers	Sub. Abuts	Total
Removal of Existing Structures	Each				1
Structure Excavation	Cu. Yd.		65.0	50.0	115.0
Floor Drains	Each	12			12
Protective Coat	Sq. Yd.	594.0			594.0
Class X Concrete	Cu. Yd.	144.9	27.6	50.8	223.3
Preformed Joint Seal 4"	Lin. Ft.	70			70
F.&E. Struct. Steel	L. Sum	1			1
Stud Shear Connectors	Each	2010			2010
Elast. Bearing Assy. T1	Each	10			10
Reinforcement Bars	Lbs.		3,880	4,620	8500
Reinf. Bars (Epoxy Ctd.)	Lbs.	34,230			34230
Steel Piles (HP 10x42)	Lin. Ft.		518	476	994
Stone Riprap	Sq. Yd.			355	355
Temp. Sheet Piling	Sq. Ft.			1148	1148
Class 'X' Concrete Encasement	Cu. Yd.		23.8		23.8
Name Plates	Each	1			1
Temp. Bridge Rail	Lin. Ft.	155		-	155

Note: Temp. Conc. Barrier shall be included in the Roadway Plan.
***** All Rebars in the deck Std. SS-3250 are epoxy coated.

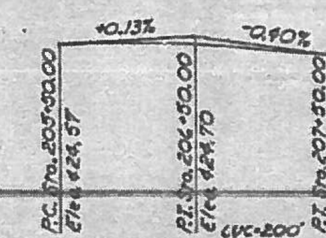
BEARING CAP ELEVATION DATA

Bent	'CE'	Bm. #1 'BE'1	Bm. #1 'E'1	Bm. #2 'BE'2	Bm. #2 'E'2	Bm. #3 'BE'3	Bm. #3 'E'3	Bm. #4 'BE'4	Bm. #4 'E'4	Bm. #5 'BE'5	Bm. #5 'E'5
#1	421.12	421.25	1½"	421.36	2⅞"	421.47	4⅛"	421.36	2⅞"	421.25	1½"
#2	421.36	421.48	1½"	421.60	2⅞"	421.71	4⅛"	421.60	2⅞"	421.48	1½"
#3	421.30	421.42	1½"	421.54	2⅞"	421.65	4⅛"	421.54	2⅞"	421.42	1½"
#4	420.95	421.07	1½"	421.19	2⅞"	421.30	4⅛"	421.19	2⅞"	421.07	1½"



WATERWAY INFORMATION

Drainage Area = 11.19 sq. mi.	Low Grade Elev. = 423.1	At Sta. -							
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Natural H.W.E.	Head-Ft. Exist	Head-Ft. Prop	Headwater El. Exist	Headwater El. Prop.
Design	30	1356	328	347	420.1	0.75	0.69	420.85	420.79
Base	100	1720	357	386	420.4	1.01	0.89	421.41	421.29
Overtopping									
Max. Calc.	500	2193	388	424	420.7	1.35	1.20	422.05	421.9



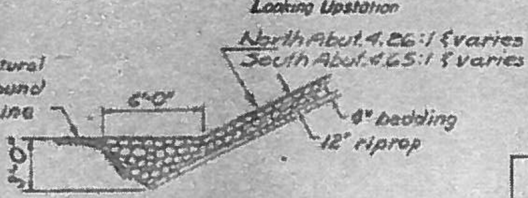
PROFILE GRADE

*** Note: Fiberglass pipe shall conform to ASTM D2996, with short-time rupture strength hoop tensile stress of 30,000 psi minimum.
The exterior surfaces of the Floor drain shall be painted with the vinyl enamel coat painting specified for Structural Steel. The exterior surfaces of the Aluminum tube shall be cleaned and given a washcoat pretreatment in accordance with Steel Structures Painting Council's Spec. SSPC-SP1 & SSPC-Paint 27 prior to painting.
The preceeding note supercedes the similar note on Standard SD 3201.

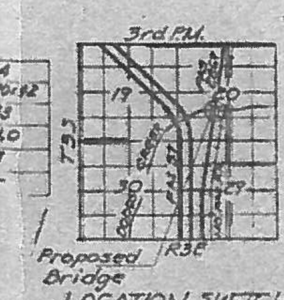
PILE DATA **

Bent	#1	#2	#3	#4
Type	HP10x42	HP10x42	HP10x42	HP10x42
Capacity - Ton	43	37	37	43
Estimated Length - Feet	22.0	36.0	40.0	41.0
Number Required	7	7	7	7
Test Piles	—	—	—	—

** Steel H-piles driven to refusal



RIPRAP ANCHOR DETAIL



LOCATION SKETCH

CALCULATED WEIGHT of STRUCTURAL STEEL

Standard	SB 3224	59,103	lbs.
Standard	SD 3201	2,331	lbs.
Standard	SD 3202	2,820	lbs.
Total		64,254	lbs.

INDEX OF SHEETS

**** See sheet #11 for anchor bolt details.

STATION 206+48.25
DODDS CREEK
BUILT 198
F.A.S. RT. 2869 SEC. 1-BR
F.A. PROJ. BRS-2869(101)
LOADING HS20
STR. NO. 041-0097

LETTERING FOR NAME PLATE

Locate Name Plate at Corner of Bridge (See Standard 2113)

DESIGN SPECIFICATIONS

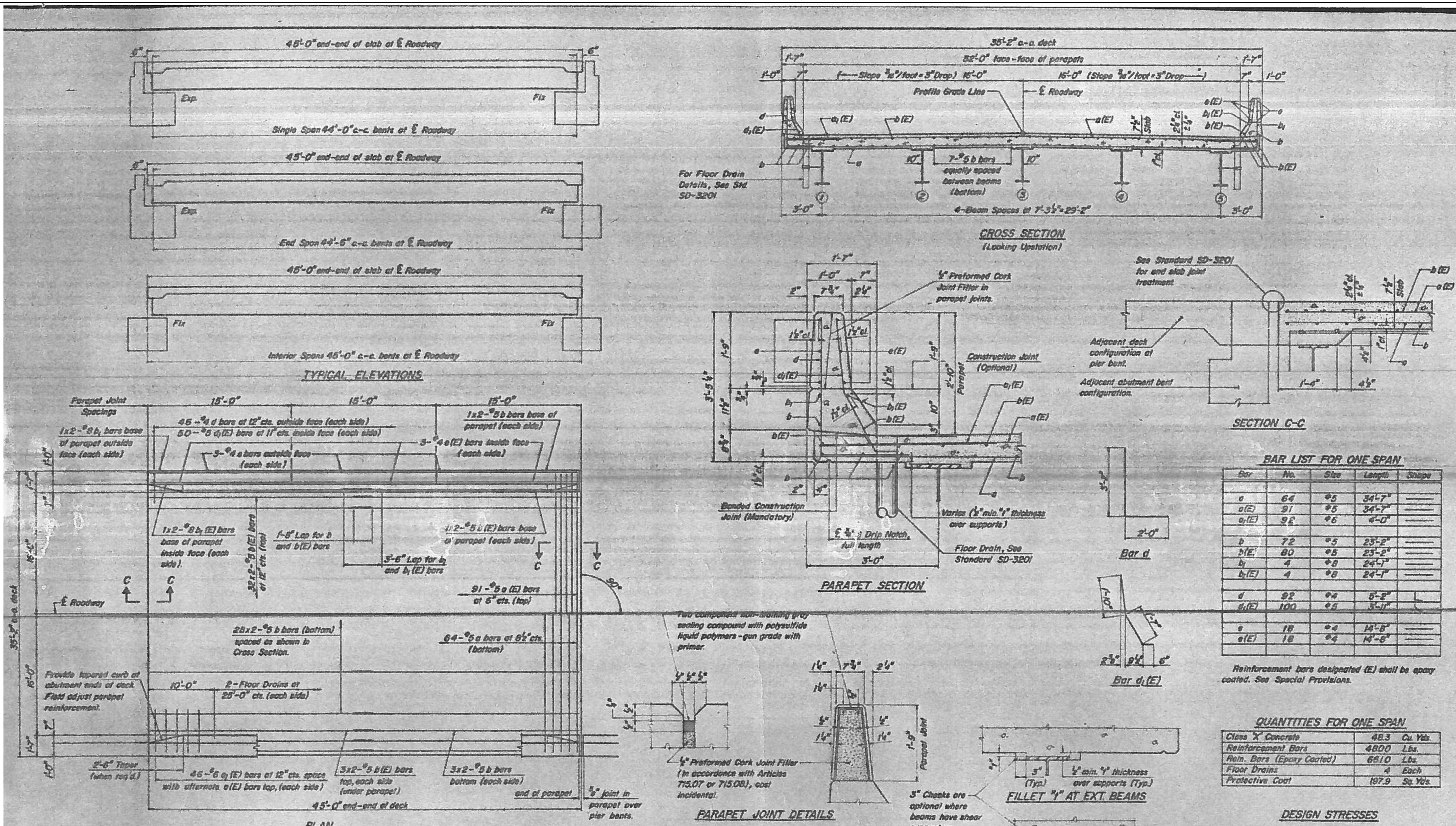
1977 AASHTO & 1978 thru 1980 Interims
HS 20-44 Loading. Load Factor Design

SGP-3 (7-1-81) ATS BG DIP
Illinois Department of Transportation
APPROVED February 11, 1984
Engineer of Bridges and Structures

STANDARD BRIDGE
STEEL BEAMS-32' ROADWAY
GENERAL PLAN & ELEVATION
ILLINOIS ROUTE 37
OVER DODDS CREEK
RT. F.A.S. 2869 SEC. 1-BR
JEFFERSON COUNTY
STATION 206+48.25

ROUTE NO.	SEC.	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.S. 2869	1BR	Jefferson	15	6

SHEET NO. 1
11 SHEETS



BAR LIST FOR ONE SPAN

Bar	No.	Size	Length	Shape
a	64	#5	34'-7"	———
a(E)	91	#5	34'-7"	———
a_1(E)	92	#6	4'-0"	———
b	72	#5	23'-2"	———
b(E)	80	#5	23'-2"	———
b_1	4	#8	24'-1"	———
b_1(E)	4	#8	24'-1"	———
d	92	#4	5'-2"	
d_1(E)	100	#5	3'-11"	
e	18	#4	14'-8"	———
e(E)	18	#4	14'-8"	———

Reinforcement bars designated (E) shall be epoxy coated. See Special Provisions.

QUANTITIES FOR ONE SPAN

Class "X" Concrete	48.3 Cu. Yds.
Reinforcement Bars	4800 Lbs.
Rein. Bars (Epoxy Coated)	6610 Lbs.
Floor Drains	4 Each
Protective Coat	197.9 Sq. Yds.

DESIGN STRESSES

$f'c$ = 3,500 psi
fy = 60,000 psi

METHOD FOR DETERMINING FILLET HEIGHT "t"

After all structural steel has been erected, elevations of the top flanges of each beam shall be taken at intervals not to exceed 10 feet. From these elevations, subtract the increment of deflection for these points determined from the "Dead Load Deflection Diagram". The elevation so attained subtracted from the theoretical top of slab elevations over each beam minus the slab thickness equals the fillet height "t" above the top of the beam.

Bars indicated thus: 28 x 2-#5 etc. indicates 28 lines of bars with 2 lengths per line.

FOR INFORMATION ONLY
041-0097

Illinois Department of Transportation
APPROVED JULY 1, 1981 Engineer of Bridges and Structures
APPROVED JULY 1, 1981 Engineer of Design

STEEL BEAM BRIDGES
SUPERSTRUCTURE

32' RDWY.	45' SPAN	0° SKEW

STANDARD SS-3245

USER NAME = hollmandb	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	041-0097	F.A. RTE. VAR	SECTION D9 BRIDGE PAINT 2018-2	COUNTY VARIOUS	TOTAL SHEETS 16	SHEET NO. 11
	DRAWN -	REVISED -			CONTRACT NO. 78621				
PLOT SCALE = 100.0000 ' / in.	CHECKED -	REVISED -		SCALE: SHEET OF SHEETS STA. TO STA.	ILLINOIS FED. AID PROJECT				
PLOT DATE = 10/4/2017	DATE -	REVISED -							

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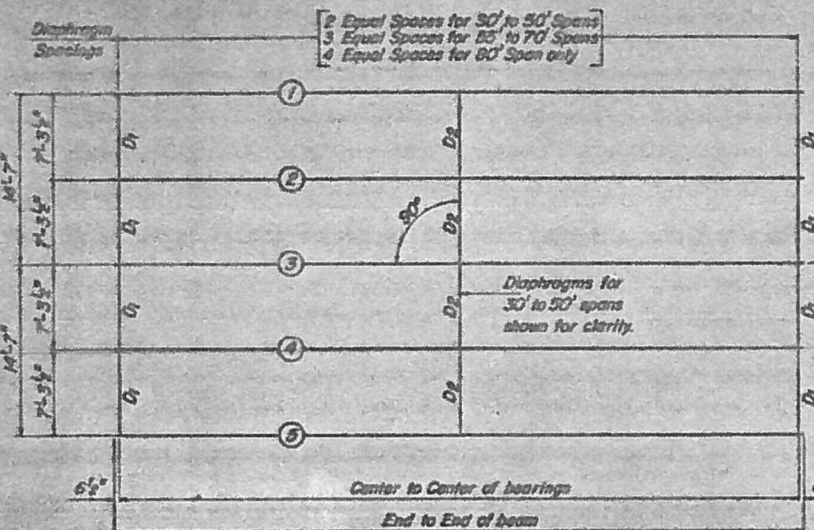
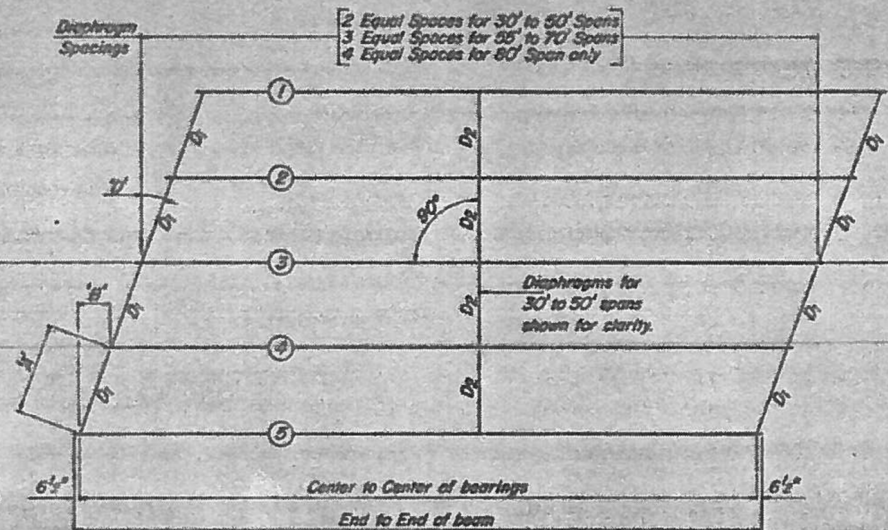
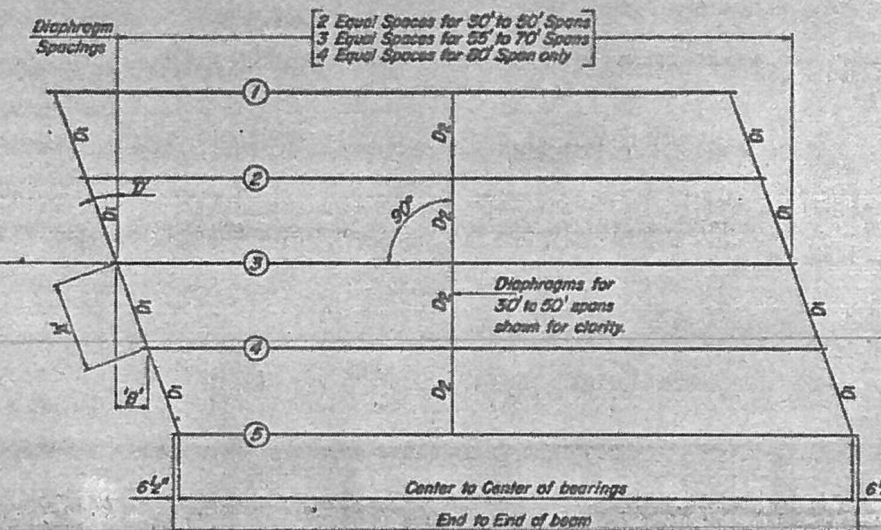
Span	Beam Size	Values for 'SD' Exp.	Values for 'SD' Fixed	Ctr.-Ctr. Bearings	End-End Beam	No. of Diaphragms D_1	No. of Diaphragms D_2	Stud Shear Connector Spacings a	b	c	d	e	Studs Per Line	Total Studs	℄ Deflections 1/4 Pt.	1/2 Pt.	3/4 Pt.	Calculated Weight by 'D' 0°	5°	10°	15°	20°	25°	30°	Bearing Type Exp.	Fixed
30'	W24x55	3.095'	2.850'	28'-0"	29'-1"	8	4	10-Spaces at 7"	6-Spaces at 9"	4-Spaces at 13"	6-Spaces at 9"	10-Spaces at 7"	2	410	.016'	.023'	.016'	10948	10955	10977	11014	11068	11142	11238	EX-I	FX-I
35'	W24x62	3.109'	2.864'	33'-0"	34'-1"	8	4	13-Spaces at 7"	7-Spaces at 9"	8-Spaces at 11"	7-Spaces at 9"	13-Spaces at 7"	2	490	.027'	.038'	.027'	13515	13522	13544	13581	13635	13709	13805	EX-I	FX-I
40'	W24x62	3.109'	2.864'	38'-0"	39'-1"	8	4	10-Spaces at 6"	12-Spaces at 8"	12-Spaces at 12"	12-Spaces at 8"	10-Spaces at 6"	2	570	.048'	.067'	.048'	15065	15072	15094	15131	15185	15259	15355	EX-II	FX-I
* 45'	W24x76	3.124'	2.879'	43'-0"	44'-1"	8	4	13-Spaces at 6"	15-Spaces at 8"	10-Spaces at 12"	15-Spaces at 8"	13-Spaces at 6"	2	670	.058'	.082'	.058'	19701	19708	19730	19767	19821	19894	19990	EX-II	FX-II
50'	W24x94	3.157'	2.912'	48'-0"	49'-1"	8	4	17-Spaces at 6"	7-Spaces at 8"	26-Spaces at 10"	7-Spaces at 8"	17-Spaces at 6"	2	750	.071'	.099'	.071'	26016	26023	26045	26082	26136	26210	26306	EX-III	FX-II
55'	W24x117	3.153'	2.908'	53'-0"	54'-1"	8	8	17-Spaces at 6"	18-Spaces at 8"	18-Spaces at 8"	18-Spaces at 8"	17-Spaces at 6"	2	890	.081'	.113'	.081'	35259	35267	35288	35325	35379	35453	35549	EX-IV	FX-V
60'	W24x131	3.171'	2.926'	58'-0"	59'-1"	8	8	18-Spaces at 6"	20-Spaces at 8"	20-Spaces at 8"	20-Spaces at 8"	18-Spaces at 6"	2	970	.102'	.143'	.102'	42320	42327	42348	42385	42439	42513	42608	EX-IV	FX-V
70'	W24x162	3.214'	2.969'	68'-0"	69'-1"	8	8	27-Spaces at 7"	13-Spaces at 9"	17-Spaces at 12"	13-Spaces at 9"	27-Spaces at 7"	2	980	.152'	.213'	.152'	59574	59581	59603	59640	59694	59767	59865	EX-IV	FX-V



FRAMING PLAN (0° SKEW)



FRAMING PLAN (Lt Fwd. Skew)
('D' = Designated Skew Angle)



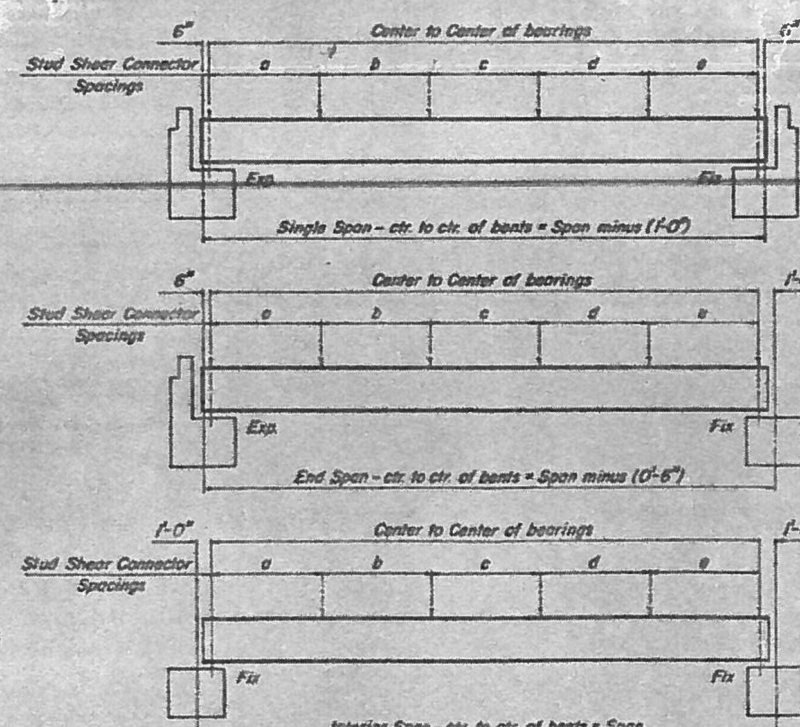
FRAMING PLAN (Rt Fwd. Skew)
('D' = Designated Skew Angle)

DIMENSION 'A' & 'B'

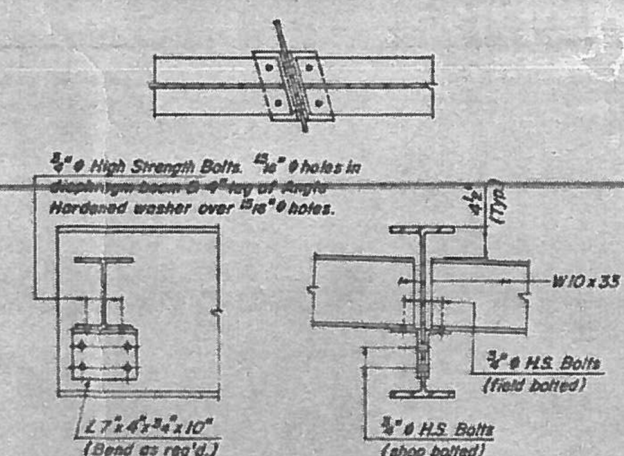
'D'	'A'	'B'
5°	7'-3 13/16"	7 5/8"
10°	7'-4 7/8"	1'-3 7/16"
15°	7'-6 3/16"	1'-11 7/16"
20°	7'-9 1/8"	2'-7 7/8"
25°	8'-0 5/16"	3'-4 13/16"
30°	8'-5 1/16"	4'-2 1/2"

DESIGN STRESSES

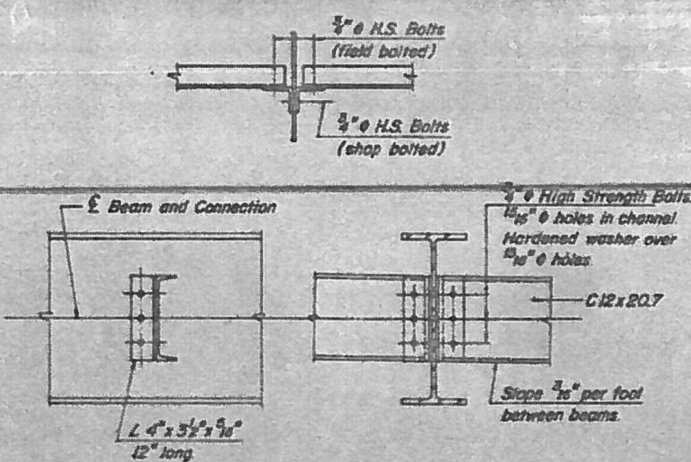
fy = 50,000 psi
n = 9 (Composite)



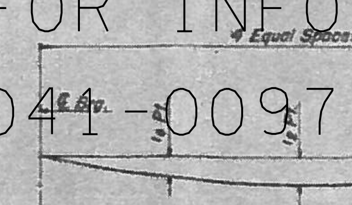
TYPICAL ELEVATIONS



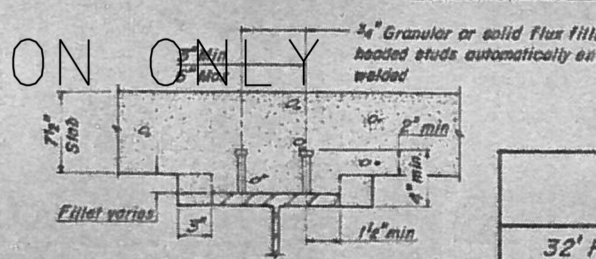
END DIAPHRAGM D_1



INTERIOR DIAPHRAGM D_2



DEAD LOAD DEFLECTION DIAGRAM



STUD SHEAR CONNECTOR DETAIL

FOR INFORMATION ONLY
041-0097

Illinois Department of Transportation
APPROVED JULY 1, 1981
Engineer of Bridges and Structures
APPROVED JULY 1, 1981
Engineer of Design
ISSUED 7-1-81

STEEL BEAM BRIDGES
STEEL BEAM DETAILS
32' ROADWAY | W24 BEAMS
STANDARD SB-3224

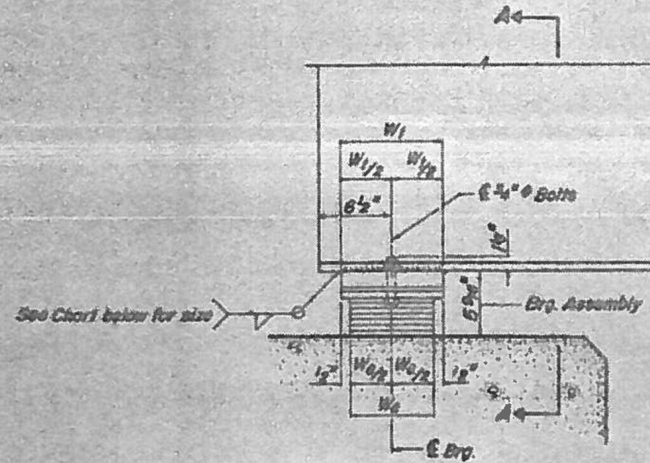
USER NAME = hollmandb	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
	DRAWN -	REVISED -	
PLOT SCALE = 100.0000 ' / in.	CHECKED -	REVISED -	
PLOT DATE = 10/4/2017	DATE -	REVISED -	

041-0097

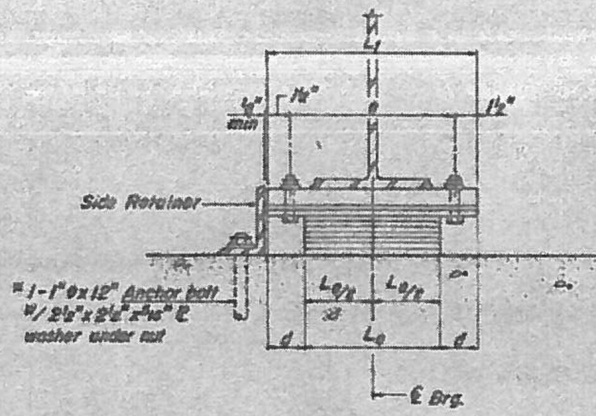
SCALE: SHEET OF SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D9 BRIDGE PAINT 2018-2	VARIOUS	16	12

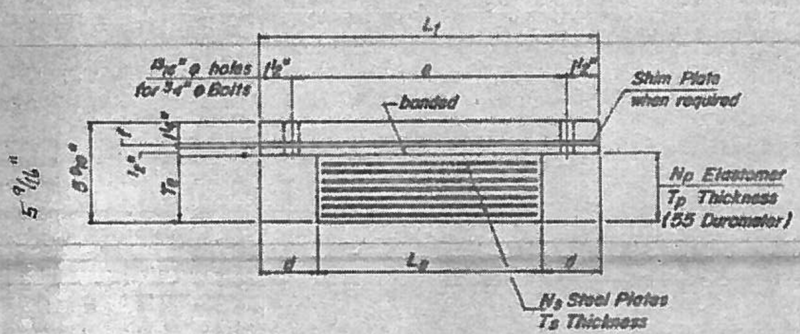
CONTRACT NO. 78621
ILLINOIS FED. AID PROJECT



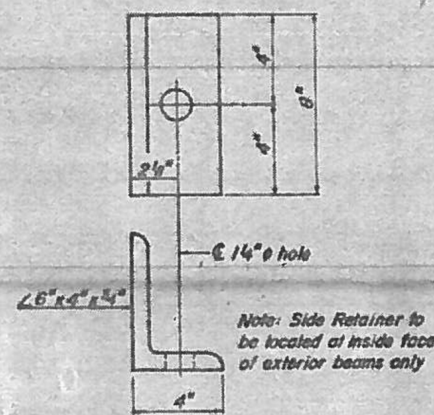
ELEVATION



SECTION A-A



BEARING ASSEMBLY

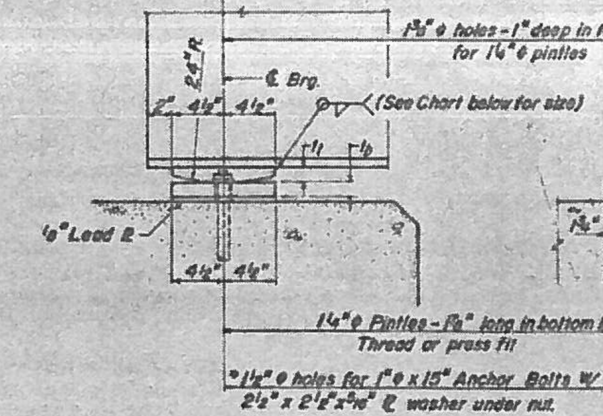


SIDE RETAINER

Brg. Type	L_e	W_e	L_1	W_1	▽	T_p	N_p	T_s	N_s	T_e	d	e	f	Stl. Wt.	Tapered Top ℄
EX-I	10"	7"	18"	8"	5/16"	3/8"	8	14ga.	7	3½"	4"	15"	5/16"	66 lbs.	Grades > 4.0%
EX-II	12"	7"	18"	8"	5/16"	3/8"	8	14ga.	7	3½"	3"	15"	5/16"	66 lbs.	Grades > 4.0%
EX-III	12"	9"	18"	10"	5/16"	3/8"	8	3/32"	7	3⅝"	3"	15"	5/16"	76 lbs.	Grades > 2.5%
EX-IV	12"	9"	19"	10"	5/16"	3/8"	8	3/32"	7	3⅝"	3½"	16"	5/16"	80 lbs.	Grades > 2.5%
EX-V	12"	9"	21"	10"	3/8"	3/8"	8	3/32"	7	3⅝"	4½"	18"	5/16	89 lbs.	Grades > 2.5%
EX-VI	14"	10"	21"	11"	3/8"	7/16"	7	1/8"	6	3 13/16"	3½"	18"	—	85 lbs.	Grades > 2.0%

* Note: After beams have been erected, holes for Side Retainers shall be drilled and Anchor Bolts grouted in place.

TYPE EX EXPANSION BEARINGS



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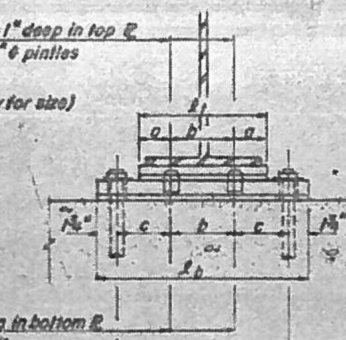
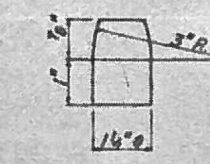


SECTION



PINTLE

Brg. Type	ℓ_t	ℓ_b	▽	t_t	t_b	a	b	c	Tot. Weight**
FX-I	8"	15½"	5/16"	1¼"	1¼"	2"	4"	4"	94 Lbs.
FX-II	10"	17½"	5/16"	1¼"	1¼"	2½"	5"	4½"	108 Lbs.
FX-III	11½"	19"	5/16"	1¼"	1¼"	3"	5½"	5"	118 Lbs.
FX-IV	13"	20½"	3/8"	1¼"	1¼"	3¼"	6½"	5¼"	129 Lbs.
FX-V	16"	23½"	3/8"	1¼"	1¼"	4"	8"	6"	149 Lbs.

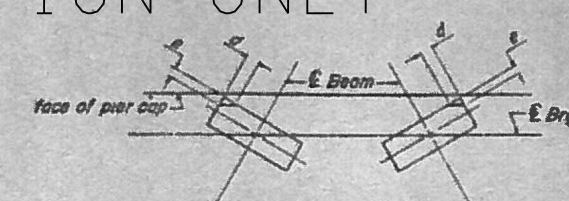
** Total weight of one assembly includes Top Plate, Bottom Plate, Anchor Bolts, Plate Washers, and Lead Plate.

NOTE: Anchor Bolts at fixed Brgs. may be built into the masonry or drilled and grouted into place after beams are set.

TYPE FX FIXED BEARINGS

FOR INFORMATION ONLY

041-0097



BEARING CLIP DIM.
(Bottom Plate)

Bearing	d	e
FX-IV	½"	½"
FX-V	2⅜"	1⅜"

Clip plates for 'D's ≥ 20°

NOTES

The calculated Stl. Wt., for the 1¼" plate and Shim ℄ (when req'd.), is to be included with the calculated weight of Structural Steel.

Provide Side Retainers, Plate washers, and Anchor Bolts at Expansion Abutments only. Cost is incidental.

For grades greater than shown in table; the top plate of the brg. shall be tapered to match grade. Maintain 1¼" thickness at ℄ of brg.

Illinois Department of Transportation
APPROVED JULY 1, 1981
Engineer of Bridges and Structures
APPROVED JULY 1, 1981
Engineer of Design
ISSUED 7-1-81

STEEL BEAM BRIDGES

EXPANSION AND FIXED BEARINGS

STANDARD SD-3202

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USER NAME = hollmandb	DESIGNED -	REVISED -
	DRAWN -	REVISED -
PLOT SCALE = 100.0000 ' / in.	CHECKED -	REVISED -
PLOT DATE = 10/4/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

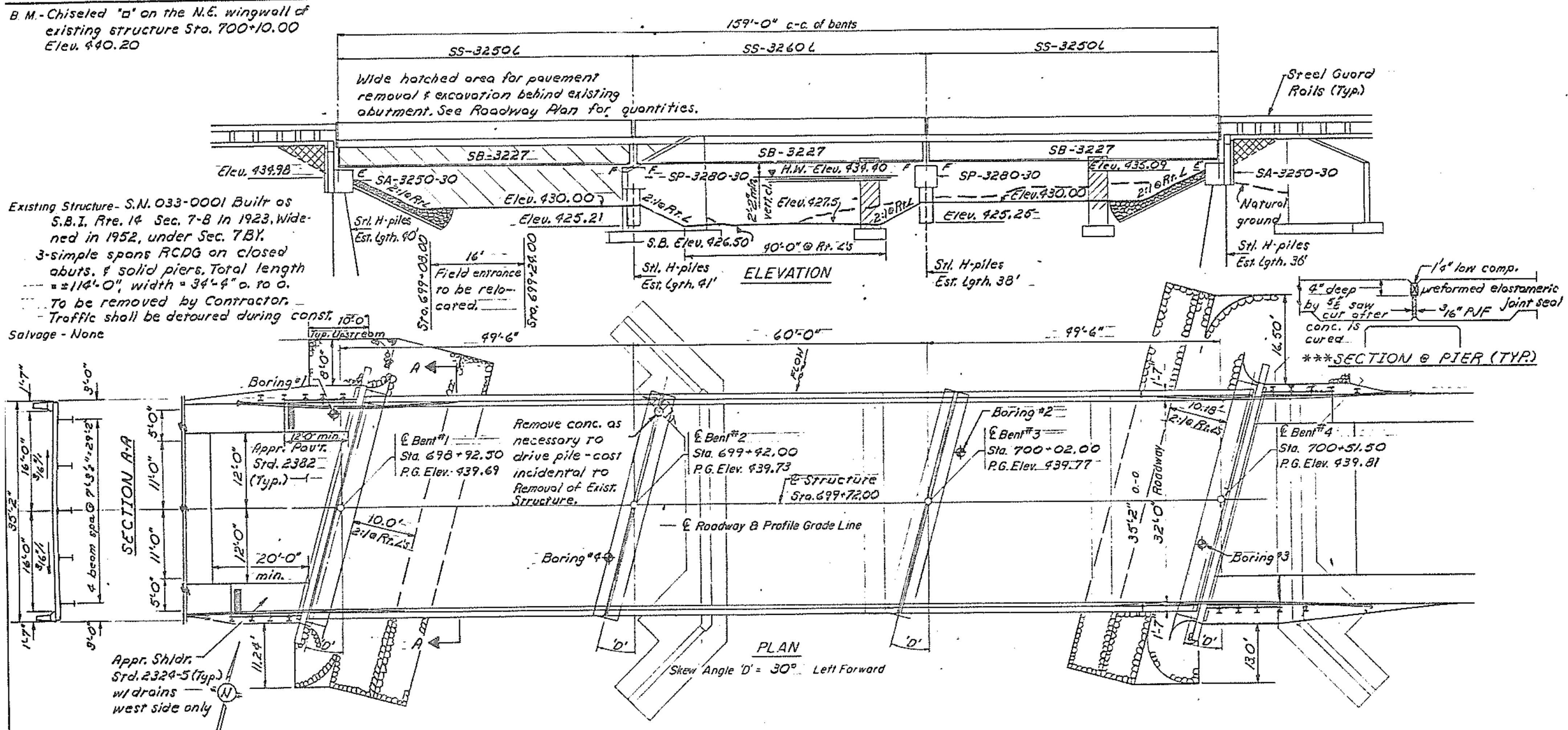
041-0097

SCALE: SHEET OF SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D9 BRIDGE PAINT 2018-2	VARIOUS	16	13

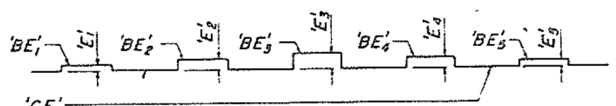
CONTRACT NO. 78621

ILLINOIS FED. AID PROJECT

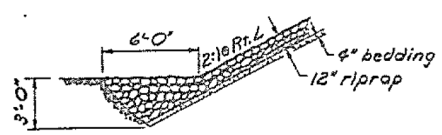


BEARING CAP ELEVATION DATA

Bent	'CE'	Bm #1 'BE'₁	Bm #1 'E'₁	Bm. #2 'BE'₂	Bm. #2 'E'₂	Bm. #3 'BE'₃	Bm. #3 'E'₃	Bm. #4 'BE'₄	Bm. #4 'E'₄	Bm. #5 'BE'₅	Bm. #5 'E'₅
#1	435.98	436.12	1⅝"	436.23	3"	436.34	4¼"	436.22	2⅞"	436.10	1½"
#2	436.21	436.35	1⅝"	436.46	3"	436.57	4¼"	436.45	2⅞"	436.34	1½"
#3	436.25	436.39	1⅝"	436.50	3"	436.61	4¼"	436.49	2⅞"	436.38	1½"
#4	436.09	436.23	1⅝"	436.34	3"	436.45	4¼"	436.33	2⅞"	436.21	1½"



Looking Upstation



RIPRAP ANCHOR DETAIL

WATERWAY INFORMATION

Drainage Area = 11.87 sq. mi. Low Grade Elev. = 437.81 At Sta. 693+00

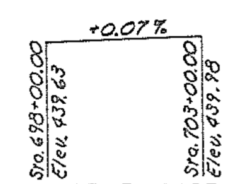
Flood	Freq. Yr.	Q C.F.S	Opening Sq Ft Exist	Opening Sq Ft Prop.	Natural H.W.E.	Head-Ft. Exist	Head-Ft. Prop	Headwater El. Exist.	Headwater El. Prop.
Design	50	3115	371	627	434.4	3.24	0.88	437.64	435.28
Base	100	3580	403	665	434.7	3.63	1.06	438.33	435.76
Overtopping									
Max. Calc.	500	4660		715	435.1		1.56		436.66

FOR INFORMATION ONLY

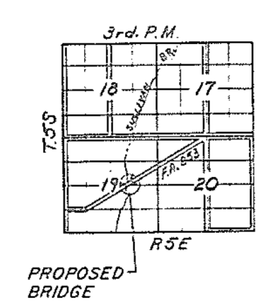
033-0038

PILE DATA

Bent	#1	#2	#3	#4
Type	HP10x42	HP10x42	HP10x42	HP10x42
Capacity - Ton	45	35	35	45
Estimated Length - Feet	40	41	38	36
Number Required	7	8	9	7
Test Piles		1		



PROFILE GRADE



LOCATION SKETCH

GENERAL NOTES

See Special Provisions for boring logs and top of Slab Elevations.

Class 'X' Concrete shall be used throughout.

Fasteners shall be high strength bolts (AASHTO M164, Type 3). Bolts ¾"ø, open holes 13/16"ø, unless otherwise noted.

All structural steel shall be AASHTO M222 except expansion joint angles and attached bars which shall be AASHTO M183 and shall be shop painted with zinc-silicate primer.

AASHTO M222 structural steel shall not be painted except, that for a distance of three times the depth of the beams (but not exceeding 10 ft.) each way from deck joints, the AASHTO M222 structural steel shall be cleaned, and given one coat of the zinc-silicate primer and a dark maroon vinyl finish coat. Both coats to be applied in the shop with spot painting only in the field.

Field welding of construction accessories will be permitted on the top flange of beams only.

The structural steel bearing plates of the Elastomeric Bearing Assembly shall conform to the requirements of AASHTO M222.

The main beams shall conform to the supplemental requirements for Notch Toughness Zone 2.

Anchor bolts shall be set before bolting diaphragms over supports.

Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-53 Grade 60.

Layout of riprap may be varied in the field to suit ground conditions as directed by the Engineer.

The contractor shall drive one HP10x42 test pile in a permanent location at Bent #2 as directed by the Engineer before ordering the remainder of the piles.

TOTAL BILL OF MATERIAL

Item	Unit	Super	Sub. Piers	Sub. Abuts.	Total
Removal of Existing Structures	Each				1
Structure Excavation	Cu. Yd.		68.1	53.0	121.1
Floor Drains	Each	18			18
Protective Coat	Sq. Yd.	703.1			703
Class X Concrete	Cu. Yd.	172.3	32.8	62.8	267.9
Preformed Joint Seal 4"	Lin. Ft.	80	-	—	80
F & E Struct. Steel	L. Sum	1			1
Stud Shear Connectors	Each	2250			2250
Elast. Bearing Assy. T1	Each			10	10
Reinforcement Bars	Lbs.		5,500	5,260	10,760
* Rein. Bars (Epoxy Ctd.)	Lbs.	40,950			40,950
Steel Piles HP 10x42	Lin. Ft.		670	532	1202
Channel Excavation	Cu. Yd.				970
Test Pile (Steel HP10x42)	Each		1		1
Class 'X' Concrete Encasement	Cu. Yd.		31.6		31.6
Name Plates	Each				1
Stone Riprap	Sq. Yd.				325

*All Rebars in the deck STD's: SS-3250L & SS-3260L are Epoxy coated.

INDEX OF SHEETS

** See sheet #10 for anchor bolt details.

DESIGN SPECIFICATIONS

1977 AASHTO & 1978, 1979 & 1980 Interims
HS 20-44 Loading. Load Factor Design.

CALCULATED WEIGHT of STRUCTURAL STEEL

Standard SB 3227	85,292.0	lbs.
Standard SD 3201	2,692.0	lbs.
Standard SD 3202	3,120.0	lbs.
Total	91,104.0	lbs.

STATION 699+72
BUILT 198_ BY
STATE OF ILLINOIS
F.A. RT. 853 SEC. 7BR
F.A. PROJ. BRF-853(5)
LOADING HS20
STR. NO. 033-0038

LETTERING FOR NAME PLATE

Locate Name Plate at Corner of Bridge (See Standard 2113)

SGP-3L (7-1-81) AFS K.H.O. W.C. DJR. 2-27-84 9-18-86

Illinois Department of Transportation

September 20 1984

APPROVED
Engineer of Bridges and Structures

ROUTE NO.	SEC.	COUNTY	TOTAL SHEETS	SHEET NO.
FA 853	7BR	HAMILTON	17	5
FED ROAD DIST NO 7	ILLINOIS	PROJECT		

SHEET NO. 1
10 SHEETS

STANDARD BRIDGE
STEEL BEAMS - 32' ROADWAY

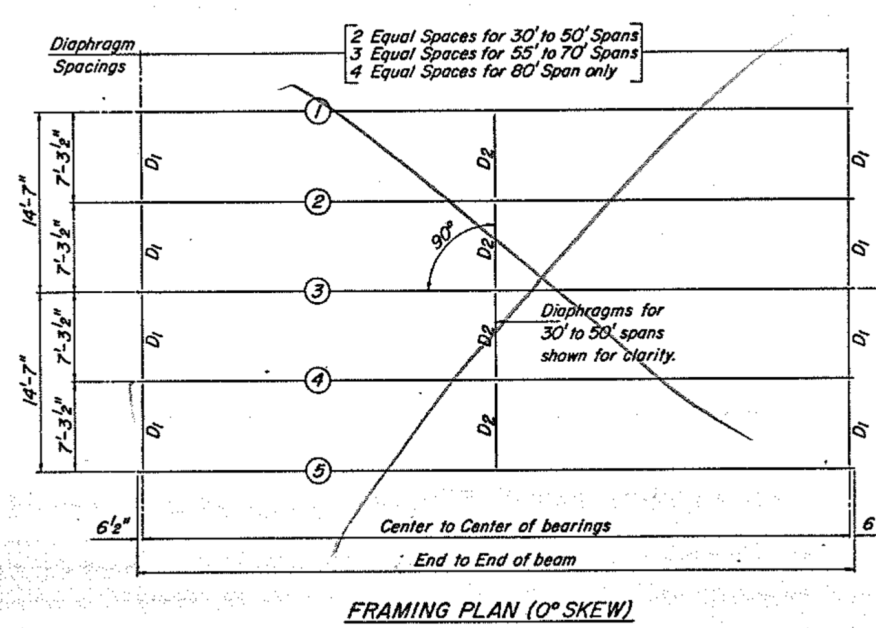
GENERAL PLAN & ELEVATION

ILLINOIS ROUTE 14
OVER SULLIVAN BRANCH

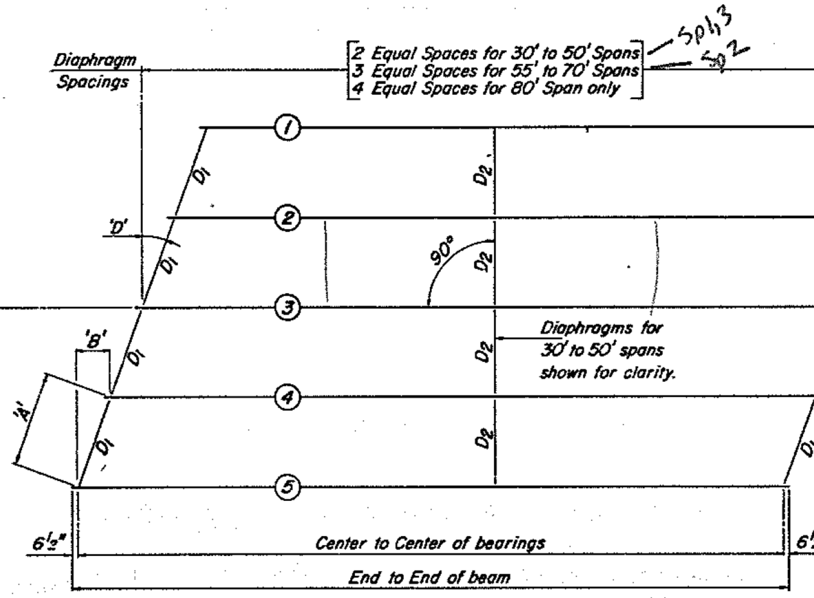
RT. F.A. 853 SEC. 7BR
HAMILTON COUNTY
STATION 699+72.00

I-5

Span	Beam Size	Values for 'SD' Exp.	Values for 'SD' Fixed	Ctr.-Ctr. Bearings	End-End Beam	No. of Diaphragms D_1	No. of Diaphragms D_2	Stud Shear Connector Spacings a	b	c	d	e	Studs Per Line	Total Studs	℄ Deflections ¼ Pt.	½ Pt.	¾ Pt.	Calculated Weight by 'D' 0°	5°	10°	15°	20°	25°	30°	Bearing Type Exp.	Fixed
~~30'~~	~~W27x84~~	~~3.357'~~	~~3.112'~~	~~28'-0"~~	~~29'-1"~~	~~8~~	~~4~~		NON-COMPOSITE						.008'	.013'	.008'	15163	15171	15192	15229	15284	15357	15453	EX-I	FX-III
~~35'~~	~~W27x84~~	~~3.357'~~	~~3.112'~~	~~33'-0"~~	~~34'-1"~~	~~8~~	~~4~~		NON-COMPOSITE						.017'	.023'	.017'	17263	17271	17292	17329	17384	17457	17553	EX-I	FX-III
~~40'~~	~~W27x84~~	~~3.357'~~	~~3.112'~~	~~38'-0"~~	~~39'-1"~~	~~8~~	~~4~~	12-Spaces at 7"	12-Spaces at 8"	12-Spaces at 8"	12-Spaces at 8"	12-Spaces at 7"	2	610	.027'	.037'	.027'	19363	19371	19392	19429	19484	19557	19653	EX-II	FX-III
~~45'~~	~~W27x84~~	~~3.357'~~	~~3.112'~~	~~43'-0"~~	~~44'-1"~~	~~8~~	~~4~~	9-Spaces at 6"	8-Spaces at 8"	28-Spaces at 10"	8-Spaces at 8"	9-Spaces at 6"	2	630	.043'	.060'	.043'	21463	21471	21492	21529	21584	21657	21753	EX-II	FX-III
Sp1,3 * 50'	W27x84	3.357'	3.112'	48'-0" x	49'-1"	8	4	12-Spaces at 6"	15-Spaces at 8"	16-Spaces at 12"	15-Spaces at 8"	12-Spaces at 6"	2	710	.067'	.094'	.067'	23563	23571	23592	23629	23684	23757	23853	EX-III	FX-III
~~55'~~	~~W27x102~~	~~3.389'~~	~~3.144'~~	~~53'-0"~~	~~54'-1"~~	~~8~~	~~8~~	12-Spaces at 6"	12-Spaces at 8"	30-Spaces at 10"	12-Spaces at 8"	12-Spaces at 6"	2	790	.079'	.110'	.079'	31204	31211	31233	31270	31324	31397	31493	EX-III	FX-III
Sp2 * 60'	W27x114	3.405'	3.160'	58'-0" x	59'-1"	8	8	18-Spaces at 7"	8-Spaces at 9"	30-Spaces at 10"	8-Spaces at 9"	18-Spaces at 7"	2	830	.101'	.140'	.101'	37297	37305	37326	37363	37417	37491	37586	EX-III	FX-III
~~70'~~	~~W27x146~~	~~3.413'~~	~~3.168'~~	~~68'-0"~~	~~69'-1"~~	~~8~~	~~8~~	21-Spaces at 7"	17-Spaces at 9"	18-Spaces at 12"	17-Spaces at 9"	21-Spaces at 7"	2	950	.139'	.195'	.139'	54051	54058	54080	54117	54171	54244	54340	EX-V	FX-V
~~80'~~	~~W27x178~~	~~3.449'~~	~~3.204'~~	~~78'-0"~~	~~79'-1"~~	~~8~~	~~12~~	21-Spaces at 7"	19-Spaces at 9"	25-Spaces at 12"	19-Spaces at 9"	21-Spaces at 7"	2	1060	.196'	.274'	.196'	74674	74681	74703	74740	74793	74867	74962	EX-VI	FX-V

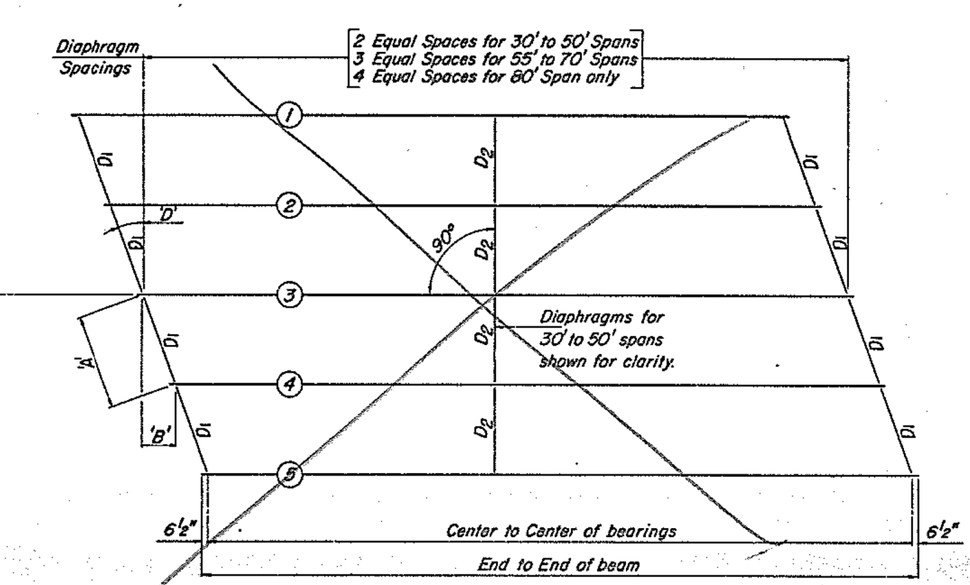


FRAMING PLAN (0° SKEW)



FRAMING PLAN (Lt. Fwd. Skew)

('D'=Designated Skew Angle)



FRAMING PLAN (Rt. Fwd. Skew)

('D'=Designated Skew Angle)

FOR INFORMATION ONLY

033-0038

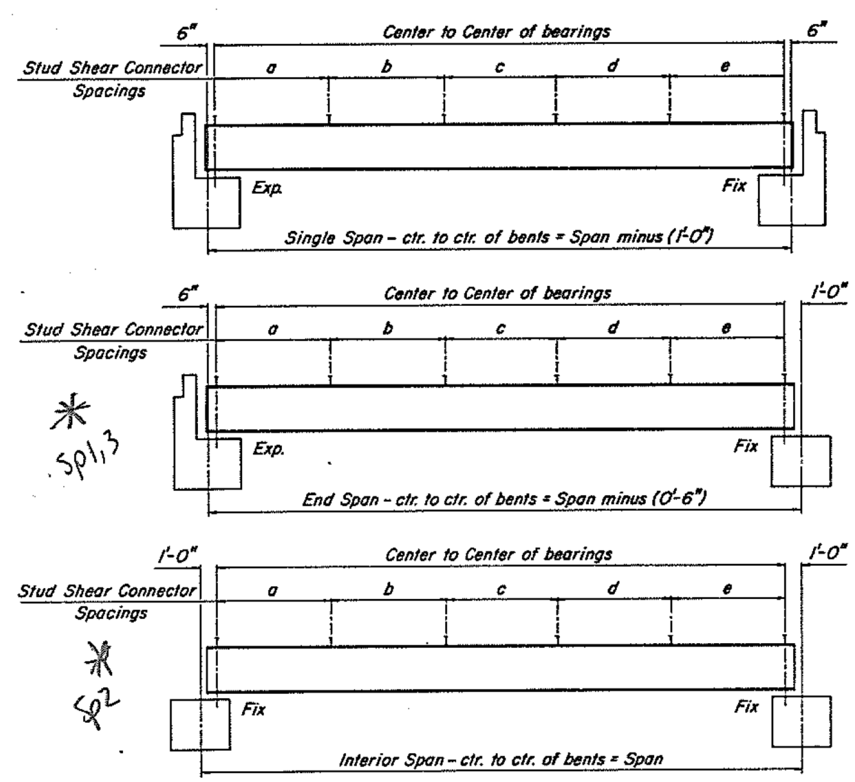
DIMENSION 'A' & 'B'

'D'	'A'	'B'
5°	7'-3 13/16"	7 5/8"
10°	7'-4 7/8"	1'-3 7/16"
15°	7'-6 9/16"	1'-11 7/16"
20°	7'-9 1/8"	2'-7 7/8"
25°	8'-0 9/16"	3'-4 13/16"
* 30°	8'-5 1/16"	4'-2 1/2"

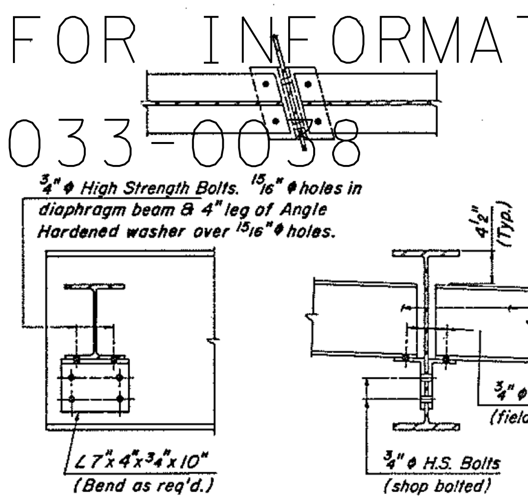
DESIGN STRESSES

fy = 50,000 psi

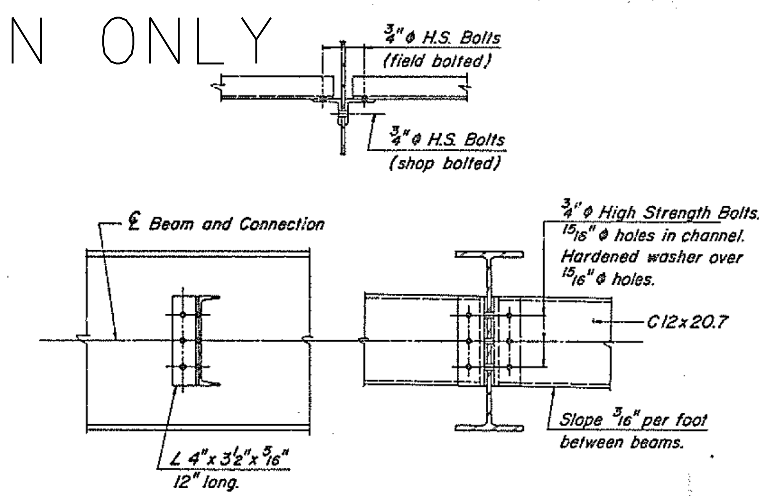
n = 9 (Composite)



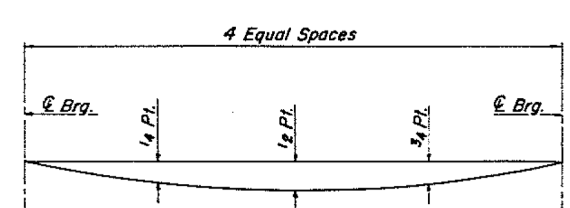
TYPICAL ELEVATIONS



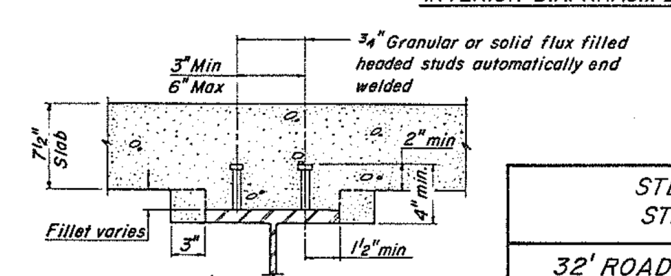
END DIAPHRAGM D_1



INTERIOR DIAPHRAGM D_2



DEAD LOAD DEFLECTION DIAGRAM



STUD SHEAR CONNECTOR DETAIL

STEEL BEAM BRIDGES
STEEL BEAM DETAILS

32' ROADWAY	W27 BEAMS

STANDARD SB-3227

Illinois Department of Transportation

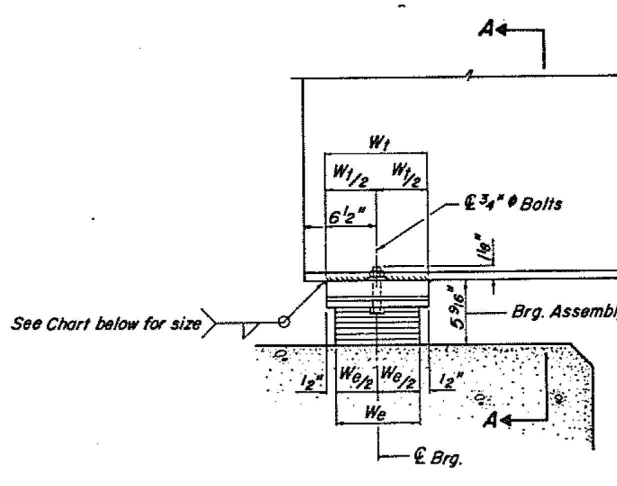
APPROVED JULY 1, 1981
Engineer of Bridges and Structures

APPROVED JULY 1, 1981
Engineer of Design

ISSUED 7-1-81

FOR INFORMATION ONLY

033-0038



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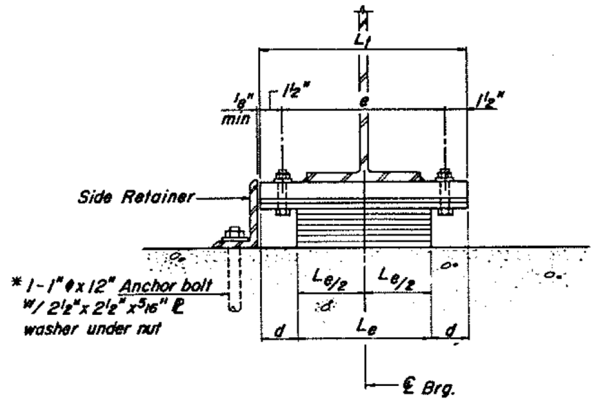
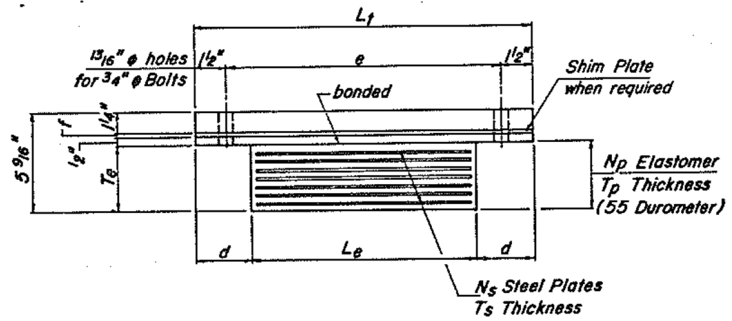
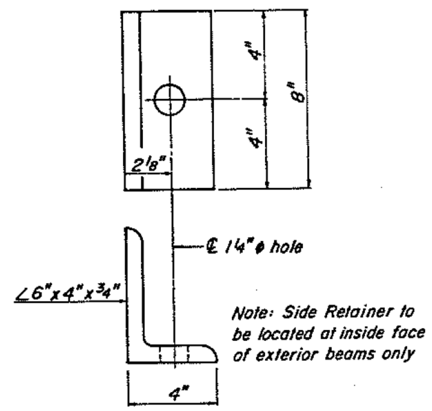


SECTION A-A



BEARING ASSEMBLY

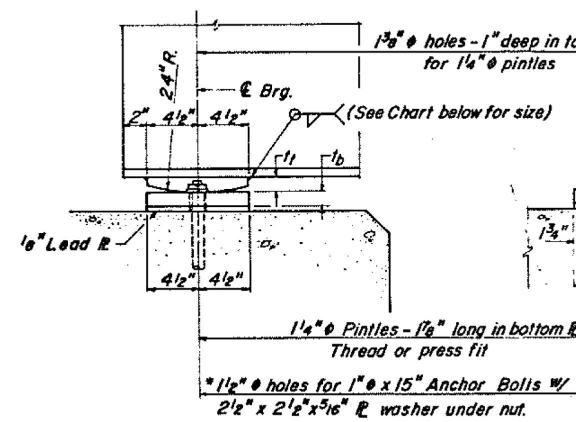


SIDE RETAINER

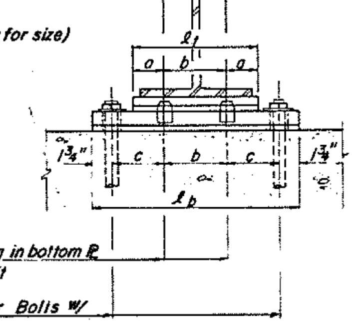
Brg. Type	L_e	W_e	L_t	W_t	⌀▽	T_p	N_p	T_s	N_s	T_e	d	e	f	Stl. Wt.	Tapered Top ℙ
EX-I	10"	7"	18"	8"	5/16"	3/8"	8	14ga.	7	3 1/2"	4"	15"	5/16"	66 lbs.	Grades > 4.0%
EX-II	12"	7"	18"	8"	5/16"	3/8"	8	14ga.	7	3 1/2"	3"	15"	5/16"	66 lbs.	Grades > 4.0%
EX-III	12"	9"	18"	10"	5/16"	3/8"	8	3/32"	7	3 5/8"	3"	15"	3/16"	76 lbs.	Grades > 2.5%
EX-IV	12"	9"	19"	10"	5/16"	3/8"	8	3/32"	7	3 5/8"	3 1/2"	16"	3/16"	80 lbs.	Grades > 2.5%
EX-V	12"	9"	21"	10"	3/8"	3/8"	8	3/32"	7	3 5/8"	4 1/2"	18"	3/16	89 lbs.	Grades > 2.5%
EX-VI	14"	10"	21"	11"	3/8"	7/16"	7	1/8"	6	3 13/16"	3 1/2"	18"	–	85 lbs.	Grades > 20%

* Note: After beams have been erected, holes for Side Retainers shall be drilled and Anchor Bolts grouted in place.

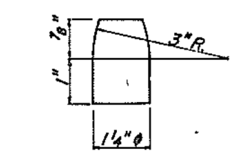
TYPE EX EXPANSION BEARINGS



ELEVATION



SECTION



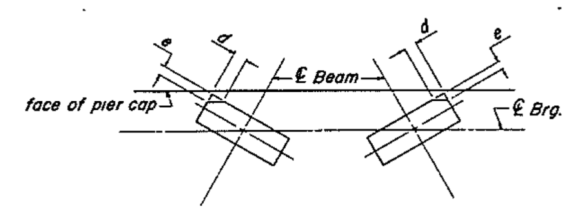
PINTLE

Brg. Type	ℓ_t	ℓ_b	⌀▽	t_t	t_b	a	b	c	Tot. Weight**
FX-I	8"	15 1/2"	5/16"	1 1/4"	1 1/4"	2"	4"	4"	94 Lbs.
FX-II	10"	17 1/2"	5/16"	1 1/4"	1 1/4"	2 1/2"	5"	4 1/2"	108 Lbs.
FX-III	11 1/2"	19"	5/16"	1 1/4"	1 1/4"	3"	5 1/2"	5"	118 Lbs.
FX-IV	13"	20 1/2"	3/8"	1 1/4"	1 1/4"	3 1/4"	6 1/2"	5 1/4"	129 Lbs.
FX-V	16"	23 1/2"	3/8"	1 1/4"	1 1/4"	4"	8"	6"	149 Lbs.

**Total weight of one assembly includes Top Plate, Bottom Plate, Anchor Bolts, Plate Washers, and Lead Plate.

NOTE: Anchor Bolts at fixed Brgs. may be built into the masonry or drilled and grouted into place after beams are set.

TYPE FX FIXED BEARINGS



BEARING CLIP DIM.
(Bottom Plate)

Bearing	d	e
FX-IV	7/8"	1/2"
FX-V	2 3/8"	1 3/8"

Clip plates for 'D's ≥ 20°

NOTES

The calculated Stl. Wt., for the 1 1/4" plate and Shim ℙ (when req'd.), is to be included with the calculated weight of Structural Steel.

Provide Side Retainers, Plate washers, and Anchor Bolts at Expansion Abutments only. Cost is incidental.

For grades greater than shown in table; the top plate of the brg. shall be tapered to match grade. Maintain 1 1/4" thickness at ℄ of brg.

Illinois Department of Transportation

APPROVED JULY 1, 1981

Engineer of Bridges and Structures

APPROVED JULY 1, 1981

Engineer of Design

ISSUED 7-1-81

STEEL BEAM BRIDGES

EXPANSION AND FIXED BEARINGS

STANDARD SD-3202

MODEL: Default
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	DRAWN -	REVISED -	
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PLOT DATE = 10/4/2017	DATE -	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

033-0038

SCALE: SHEET OF SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D9 BRIDGE PAINT 2018-2	VARIOUS	16	16

CONTRACT NO. 78621

ILLINOIS FED. AID PROJECT