FOR INDEX OF SHEETS, SEE SHEET NO. 2.
FOR SUMMARY OF QUANTITIES, SEE SHEET NO. 4.

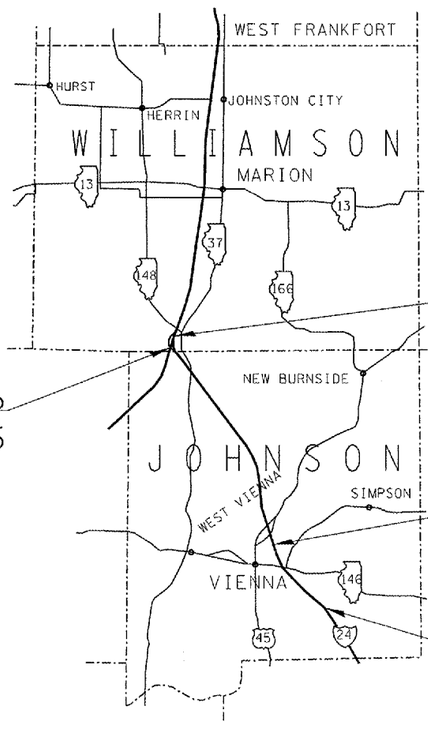
RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.I. 24	*	JOHNSON WILLIAMSON	35	1

*SECTION D9 BRIDGE PAINTING FY 08-1
CONTRACT NO. 78020

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROPOSED HIGHWAY PLANS

F.A.I. ROUTE 24 (I-24)
SECTION D9 BRIDGE PAINTING FY 08-1
JOHNSON AND WILLIAMSON COUNTIES
C-99-046-07



BRIDGE NO. 5: 100-0059 (EXIT RAMP)
PAINT ALL STRUCTURAL STEEL
I-24 MILEPOST 0.5

BRIDGE NO. 6: 100-0060
PAINT ALL STRUCTURAL STEEL
I-24 MILEPOST 1.0

BRIDGE NO. 1: 044-0041
BRIDGE NO. 2: 044-0042
PAINT STRUCTURAL STEEL
AT SPECIFIED LOCATIONS
I-24 MILEPOST 14.8

BRIDGE NO. 3: 044-0049
BRIDGE NO. 4: 044-0050
PAINT STRUCTURAL STEEL
AT SPECIFIED LOCATIONS
I-24 MILEPOST 19.9

LOCATION OF SECTION INDICATED THUS:-

PROJECT ENGINEER: CASEY TECKENBROCK PHONE: (618) 549-2171
SQUAD LEADER: RITA GAUTNEY

J.U.L.I.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
1-800-892-0123 or www.julie1call.com

CONTRACT NO. 78020

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED Aug. 16 20 07
Marry C. Lamie KEG
DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER
October 12, 2007
Eric E. Harm PE
Interim ENGINEER OF DESIGN AND ENVIRONMENT
October 12, 2007
Milton R. Seeo, P.E.
DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAI 24	•	JOHNSON WILLIAMSON	35	2

•SECTION 09 BRIDGE PAINTING FY 08-1
CONTRACT NO. 78020

INDEX OF SHEETS

STANDARDS

701201-02 LANE CLOSURE, 2L, 2W, DAY ONLY, FOR SPEEDS >= 45 MPH
701400-02 APPROACH TO LANE CLOSURE, FREEWAY/EXPRESSWAY
701401-03 LANE CLOSURE, FREEWAY/EXPRESSWAY
701411-03 LANE CLOSURE, AT ENTRANCE OR EXIT RAMP, FOR SPEEDS >= 45 MPH
702001-06 TRAFFIC CONTROL DEVICES

Approved: August 16 2007
DATE
Marry E Lamie KEG
DEPUTY DIRECTOR OF HIGHWAYS/REGION 5 ENGINEER

Prepared By: Kevin Hammer
DISTRICT OPERATIONS ENGINEER

Examined By:
ASSISTANT REGIONAL ENGINEER

Examined By:
DISTRICT LAND ACQUISITION ENGINEER

Examined By: Carrie Nelson
DISTRICT PROGRAM DEVELOPMENT ENGINEER

Examined By:
DISTRICT STUDIES & PLANS ENGINEER

Examined By: Joseph Lewis
DISTRICT CONSTRUCTION ENGINEER

Examined By:
DISTRICT MATERIALS ENGINEER

Examined By:
DISTRICT PROJECT IMPLEMENTATION ENGINEER

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAI 24	•	JOHNSON WILLIAMSON	35	3

•SECTION 09 BRIDGE PAINTING FY 08-1
CONTRACT NO. 78020

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

The term "Beam End" is used in this document to indicate all structural steel within 5 feet (measured along the beam) of either side of a deck joint, unless otherwise noted. Beam End locations are shown on the general elevation view of each structure.

Cleaning and painting shall conform to the requirements of special provision "Cleaning And Painting Existing Steel Structures". Near White Metal Blast Cleaning - SSPC - SP10 and Paint System 1 - OZ / E / U shall be used unless otherwise noted.

SSPC - QP1 and SSPC - QP2 Painting Contractor Certifications are required.

The color of the final finish coat shall be Gray, Munsell No. 5B 7/1, except the color of the final finish coat for outside surfaces of fascia beams shall be Interstate Green, Munsell No. 7.5G 4 / 8.

044-0041 & 044-0042

Beam Ends and exterior surfaces of fascia beams, including the bottom of the bottom flange, shall be painted on each structure. See Beam End locations on Sheets 6 and 11 of 35.
Painting of existing new bearings is not required.
Seismic shock absorbers are present at the Beam Ends on Structure 044-0042. The Contractor shall use care to avoid damage or disturbance of these devices.
A minimum of 3 air monitors are required when work is performed at only one bridge.
A minimum of 4 air monitors are required when work is performed at both bridges simultaneously.

044-0049 & 044-0050

Beam Ends and exterior surfaces of fascia beams, including the bottom of the bottom flange, shall be painted on each structure. See Beam End locations on Sheets 16 and 20 of 35.
Painting of existing new bearings is not required.
A minimum of 3 air monitors are required when work is performed at only one bridge.
A minimum of 4 air monitors are required when work is performed at both bridges simultaneously.

100-0059

All structural steel shall be painted.
A minimum of 1 air monitor is required when work is performed at this site.

100-0060

All structural steel shall be painted.

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAI 24	-	JOHNSON WILLIAMSON	35	4

-SECTION 09 BRIDGE PAINTING FY 08-1
CONTRACT NO. 78020

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

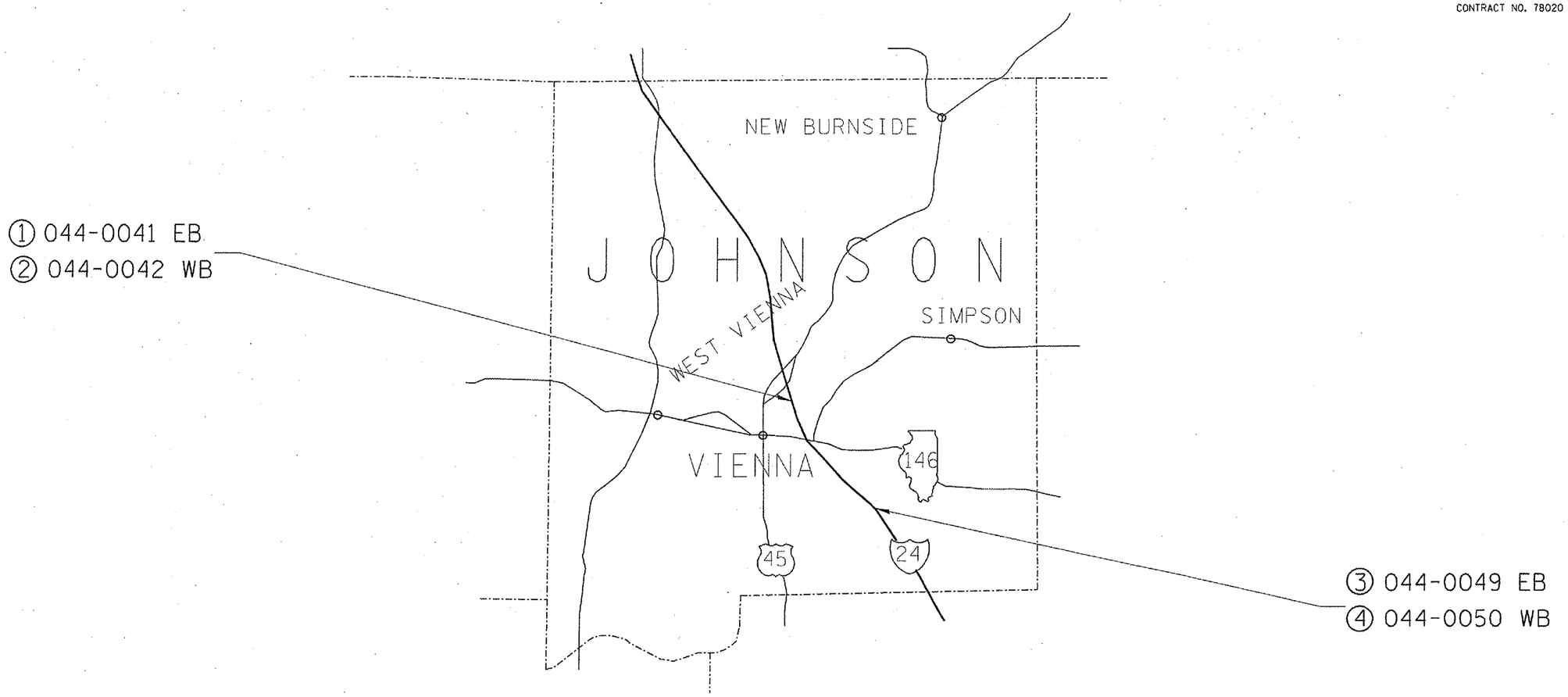
SUMMARY OF QUANTITIES

CONSTRUCTION TYPE CODE SFTY-2A			RURAL		
			100% STATE		
			QUANTITY		
CODE NUMBER	ITEM DESCRIPTION	UNIT	JOHNSON	WILLIAMSON	TOTAL QUANTITY
50600600	CLEANING & PAINTING STEEL BRIDGE NO. 1	L SUM	1		1
50600700	CLEANING & PAINTING STEEL BRIDGE NO. 2	L SUM	1		1
50600800	CLEANING & PAINTING STEEL BRIDGE NO. 3	L SUM	1		1
50600900	CLEANING & PAINTING STEEL BRIDGE NO. 4	L SUM	1		1
50601100	CLEANING & PAINTING STEEL BRIDGE NO. 5	L SUM		1	1
50601000	CLEANING & PAINTING STEEL BRIDGE NO. 6	L SUM		1	1
50606401	CONTAINMENT & DISPOSAL OF LEAD PAINT CLEANING RESIDUES NO. 1	L SUM	1		1
50606402	CONTAINMENT & DISPOSAL OF LEAD PAINT CLEANING RESIDUES NO. 2	L SUM	1		1
50606403	CONTAINMENT & DISPOSAL OF LEAD PAINT CLEANING RESIDUES NO. 3	L SUM	1		1
50606404	CONTAINMENT & DISPOSAL OF LEAD PAINT CLEANING RESIDUES NO. 4	L SUM	1		1
50606405	CONTAINMENT & DISPOSAL OF LEAD PAINT CLEANING RESIDUES NO. 5	L SUM		1	1
50606406	CONTAINMENT & DISPOSAL OF LEAD PAINT CLEANING RESIDUES NO. 6	L SUM		1	1
67100100	MOBILIZATION	L SUM	0.5	0.5	1
70100450	TRAFFIC CONTROL AND PROTECTION, STANDARD 701201	L SUM	0.5	0.5	1
70100800	TRAFFIC CONTROL AND PROTECTION, STANDARD 701401	L SUM	0.5	0.5	1
70106800	CHANGEABLE MESSAGE SIGN	CAL MO	2	2	4
X7011420	TRAFFIC CONTROL AND PROTECTION, STANDARD 701411	L SUM	0.5	0.5	1

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAI 24	*	JOHNSON WILLIAMSON	35	5

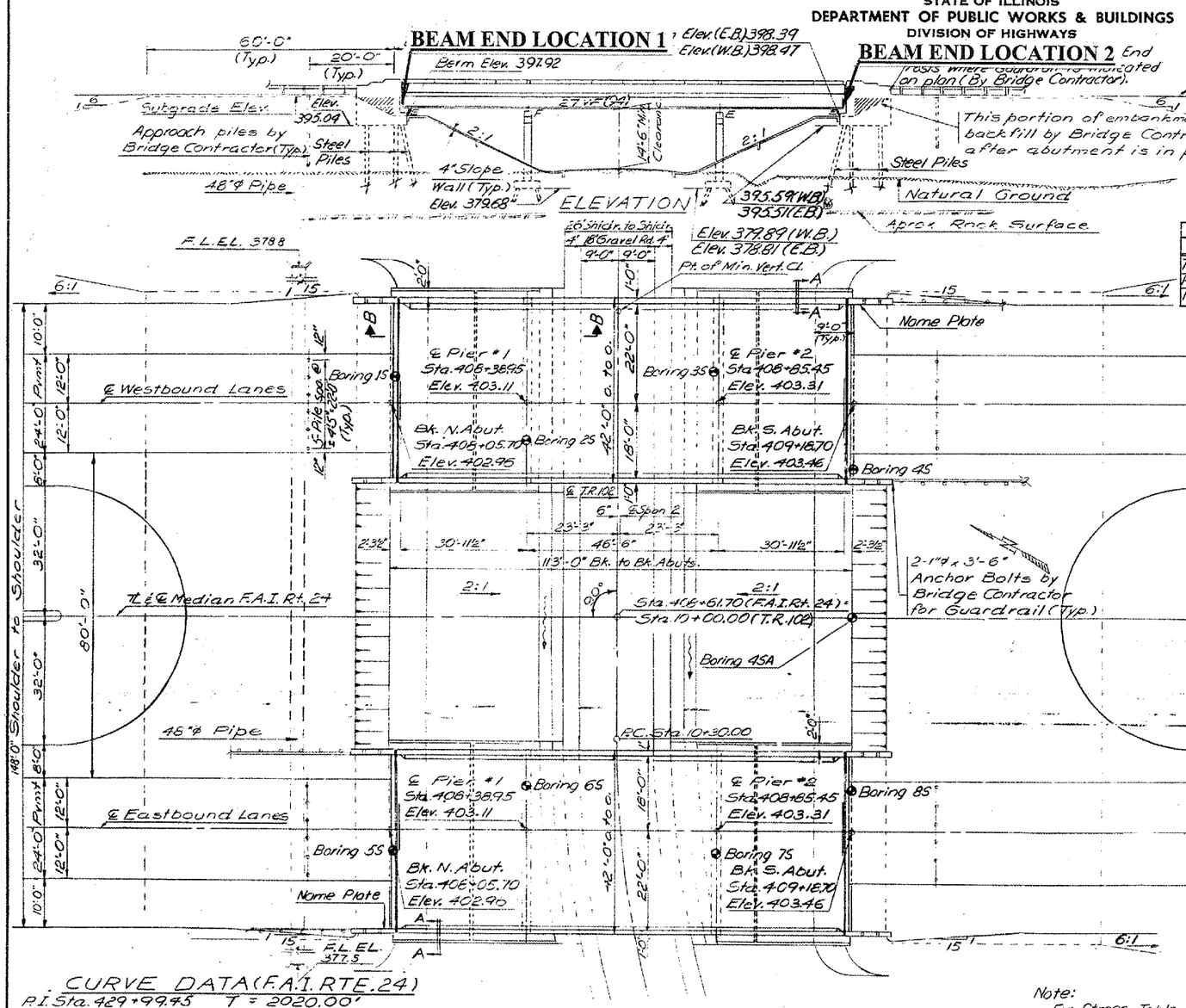
*SECTION D9 BRIDGE PAINTING FY 08-1
CONTRACT NO. 78020

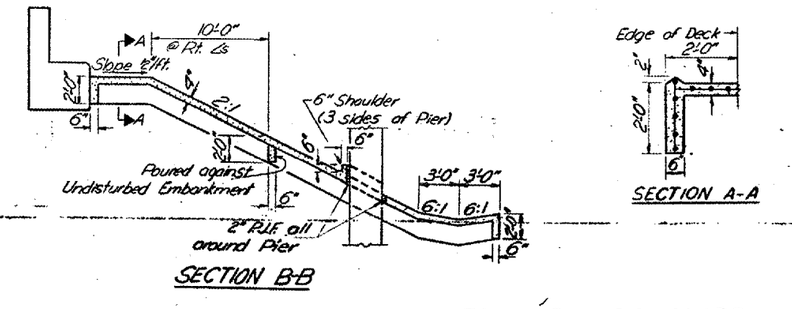
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

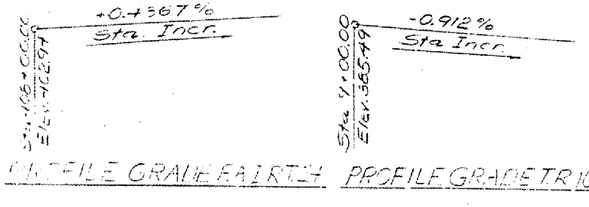


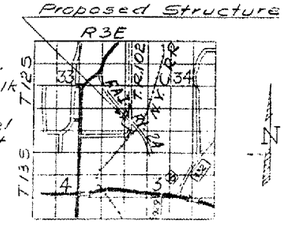
① 044-0041 ② 044-0042	1.2 MILES NORTH OF ILL 146 INTERSTATE 24 OVER TR 102 (OLD BLOOMFIELD RD) LENGTH: 113.0 FT. WIDTH: 41.8 FT. ADT = 7750, 35% TRUCKS POSTED SPEED = 65 M.P.H. INVENTORY RATING HS 20.0 OPERATING RATING HS 33.2

③ 044-0049 ④ 044-0050	7 MILES SOUTH OF VIENNA INTERSTATE 24 OVER TR 173 (BETHLEHEM CHURCH RD) LENGTH: 107.2 FT. & 115.5 WIDTH: 43.6 FT. ADT = 7800, 39% TRUCKS POSTED SPEED = 65 M.P.H.	
	044-0049 INVENTORY RATING HS 21.4 OPERATING RATING HS 35.7	044-0050 INVENTORY RATING HS 21.2 OPERATING RATING HS 35.3









B.M.: Spike in 30" Oak 249' Rt. Sta. 406+00
℄ Med. F.A.I.-24 Elev. 361.12

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

FAI 24
D9 BRIDGE PAINTING FY 08-1
JOHNSON & WILLIAMSON COUNTIES
CONTRACT 78020
SHEET 6 OF 35

BEAM END LOCATION 1

BEAM END LOCATION 2

ELEVATION

PLAN

APPROACH PILE DATA

	West Bd. Lanes		East Bd. Lanes	
	N. Abut.	S. Abut.	N. Abut	S. Abut.
Type	Creosoted	Creosoted	Creosoted	Creosoted
Req'd Length	11 Feet	18 Feet	22 Feet	19 Feet
No. Req'd	6	6	6	6

CURVE DATA (TR-102)

Δ = 90°-00'-00"
D = 22°-55'-06"
R = 250.00
L = 392.70
T = 250.00
E = 103.55
S.E. 0.06'/ft.
S.E. ATTAINED: STA. 9+58.00 TO STA. 10+66.00
STA. 13+86.70 TO STA. 14+94.70

All reinforceme shown.

Fasteners shall be high strength bolts. Bolts ¾"; open holes 13/16", unless otherwise noted.

Calculated weight of Structural Steel. = 161,170 Lbs

The Basic Lead Silica 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 beams or 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 diaphragms over supports.

Slope wall shall be reinforced with welded wire fabric 6" x 6" mesh, weighing 58# per 100 sq.ft.

The embankment configuration shown shall be the minimum embankment that must be constructed prior to construction of the abutments.

The concrete rail section above the mandatory construction joint at the top of the slab shall be constructed of Class X Concrete, except the aggregates shall conform to the requirements of Handrail Concrete.

The Contractor shall drive 1 steel test pile (8 BP 36) at North Abutment Westbound lanes and Pier #2 Eastbound lanes respectively as directed by the Engineer before ordering the remainder of piles.

SECTION B-B

SECTION A-A

TOTAL BILL OF MATERIALS

Item		Super	Sub.	Total
Protective Coat	Sq. Yds.	1152		1152
Structure Excavation	Cu. Yds.		153	153
Class X Concrete	Cu. Yds.	281.8	399.0	680.8
Structural Steel	Lump Sum.	L.S.		L.S.
Aluminum Railing	Lin. Ft.	439		439
Reinforcement Bars	Lbs.	66,600	32,860	99460
Creosoted Piles (Up to 20')	Lin. Ft.		288	288
Creosoted Piles (20.1' to 38')	Lin. Ft.		132	132
Test Piles Steel (8 BP 36)	Ea.		2	2
Steel Piles (8 BP 36)	Lin. Ft.		1912	1912
Slope Wall 4"	Sq. Yd.		1030	1030
Name Plates	Ea.	2		2
Prefo [illegible]	[illegible]	168		168

CURVE DATA (F.A.I. RTE. 24)

P.I. Sta. 429+99.45
Δ = 19°-59'-40"
D = 0°-30'-00"
R = 11459.16'
T = 2020.00'
L = 3998.92'
E = 176.68'
S.E. = 0.015 Ft/Ft

S.E. Attained
Sta. 408+46.12 To Sta. 410+46.12
Sta. 451+11.70 To Sta. 449+11.70

DESIGNED	J. M. Patel
CHECKED	Mathew K Chandnathil
DRAWN	R. Doty
CHECKED	Mathew K Chandnathil

August 21 1970
EXAMINED
ENGINEER OF BRIDGES AND TRAFFIC STRUCTURES
PASSED W. E. Baumann
ENGINEER OF DESIGN
APPROVED Richard H Golterman
CHIEF HIGHWAY ENGINEER

PROFILE GRADE F.A.I. RT. 24

PROFILE GRADE T.R. 102

STATION 408+61.70
BUILT 19 BY
STATE OF ILLINOIS
F.A.I. RT. 24 SEC. 44-5HB-2
F.A. PROJ. I-IG-24-1(18)
LOADING HS 20 ALT.

See Std. 2113-1

NAME PLATE
(2 Required)

Note:
For Stress Table see sheet #3.

DESIGN STRESSES

f'c = 1,200 psi Slab
f'c = 1,400 psi Parapet, Sidewalk & Substructure
fs = 20,000 psi Structural Steel
fs = 20,000 psi Reinforcement
n = 10

Loading HS 20 Alt

Note: Allow 25 #/□' for fut. Wearing Surf.

Proposed Structure

LOCATION SKETCH

BRIDGE NO. 1
S.N. 044-0041
FOR INFORMATION ONLY

ION

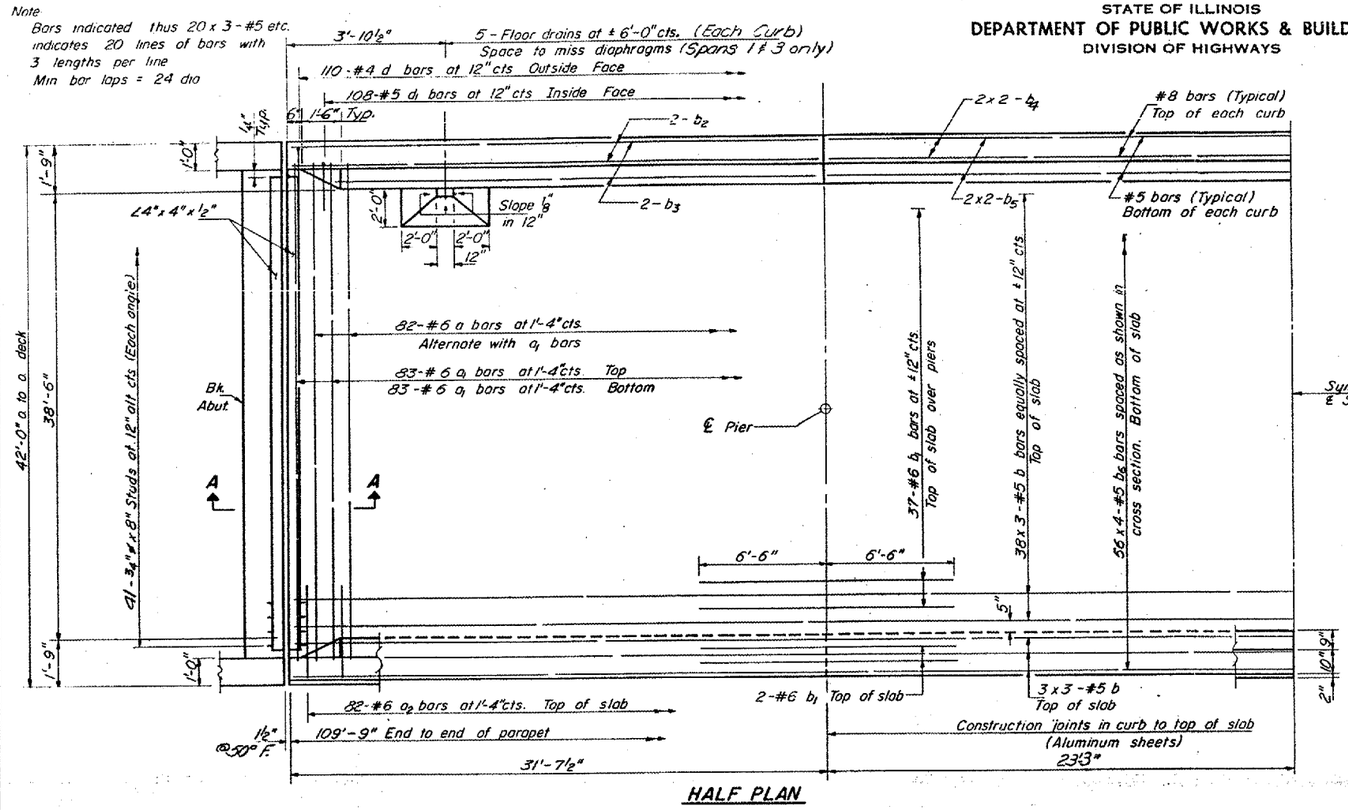
HB-2

STA. 408+61.70 (F.A.I. RT. 24)
STA. 10+00.00 (T.R. 102)

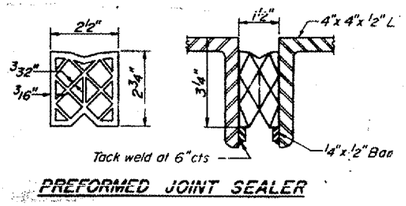
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

FAI 24
D9 BRIDGE PAINTING FY 08-1
JOHNSON & WILLIAMSON COUNTIES
* CONTRACT 78020
SHEET 7 OF 35

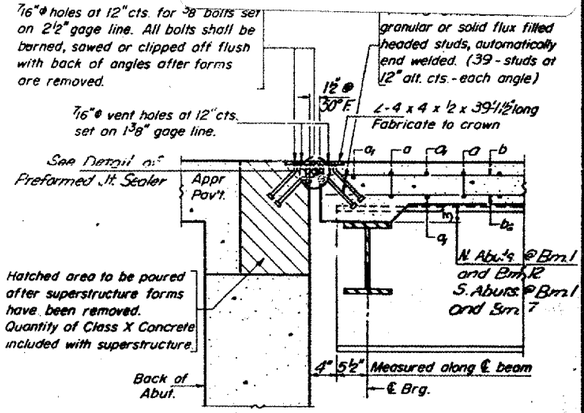
Note
Bars indicated thus 20 x 3 - #5 etc. indicates 20 lines of bars with 3 lengths per line
Min bar laps = 24 dia



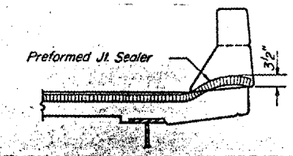
HALF PLAN



PREFORMED JOINT SEALER



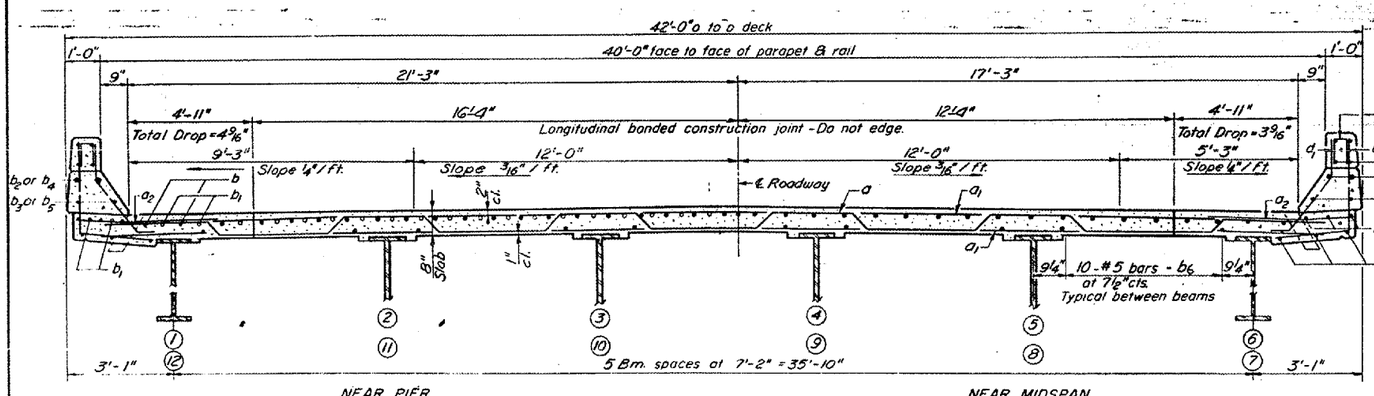
SECTION A-A



TYPICAL END OF SEALER TREATMENT

TWO SUPERSTRUCTURES. BILL OF MATERIAL

Bar	No	Size	Length	Shape
a	164	#6	41'-9"	
a1	332	#6	40'-0"	
a2	328	#6	4'-0"	
b	264	#5	37'-6"	
b1	164	#6	13'-0"	
b2	16	#8	31'-3"	
b3	16	#5	31'-3"	
b4	16	#8	24'-3"	
b5	16	#5	24'-0"	
b6	448	#5	28'-6"	
d	440	#4	4'-10"	
d1	432	#5	3'-5"	
Reinforcement Bars			Lbs	65300
Structural Steel			Lbs	L.S.
Class X Concrete			Cu Yds	267.6

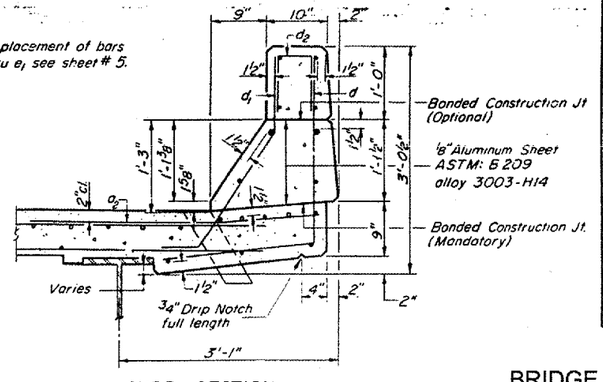


NEAR PIER NEAR MIDSPAN

CROSS SECTION
(E. Bd. LANES LOOKING NORTH - Brns. 1 thru 6)
(W. Bd. LANES LOOKING SOUTH - Brns. 7 thru 12)

Note: For placement of bars d2 & e thru e1 see sheet # 5.

2 - #4 d2 at ea. rail post

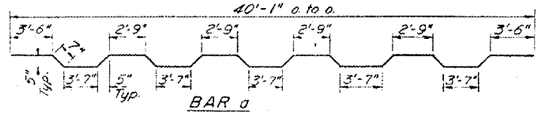


CURB SECTION

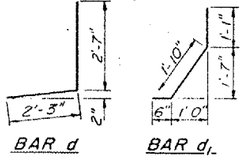
Cost of Aluminum Drains and Sheets shall be incidental to Class X Concrete

BRIDGE NO. 1
S.N. 044-0041
FOR INFORMATION ONLY

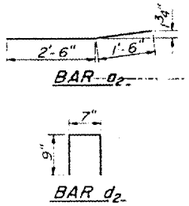
(Cross section typical from Sta. 408 + 07.33 to Sta. 408 + 46.12)
(Superelevation transition as shown on Curve Data sheet #1.



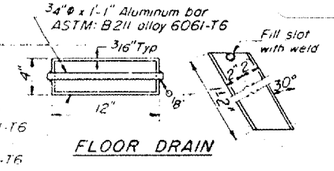
BAR a



BAR d BAR d1



BAR a2 BAR d2



FLOOR DRAIN

Aluminum Sheets Welded ASTM: B209 alloy 6061-T6 or Aluminum Extrusions ASTM: B221 alloy 6061-T6

quantities See sheet #6.

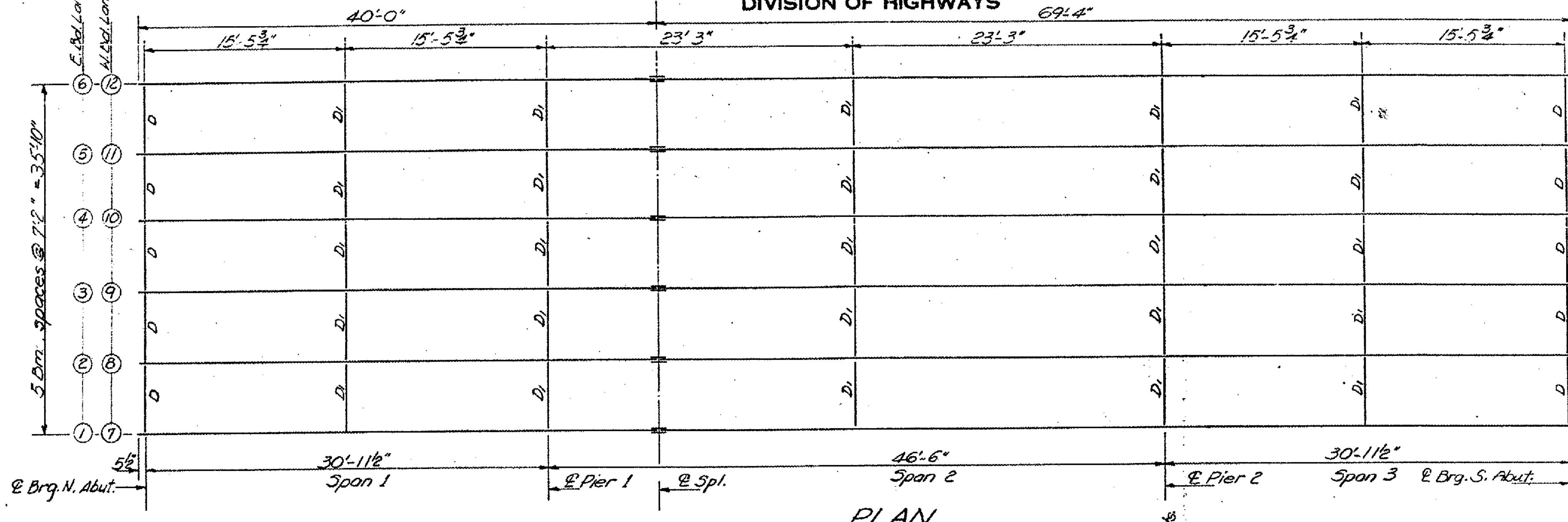
DESIGNED	J.M. Patel
CHECKED	Mathew K Chandrachi
DRAWN	R Doty g m r
CHECKED	M.K.C

EXAMINED Aug 21 1970
PASSED W.C. Baumann ENGINEER OF DESIGN
APPROVED Richard A. Walterman CHIEF HIGHWAY ENGINEER

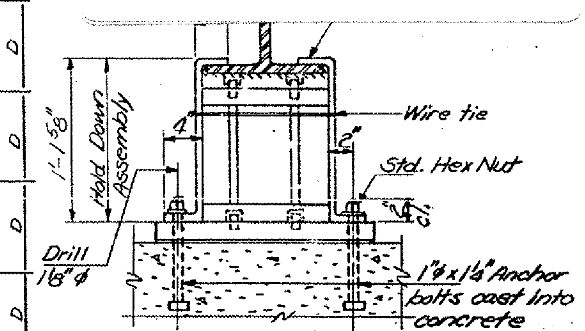
I-4106-0 3-1-68

SUPERSTRUCTURE
F.A.I. RT. 24 — SEC. 44-5HB-2
JOHNSON COUNTY
STA. 408 + 61.70

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

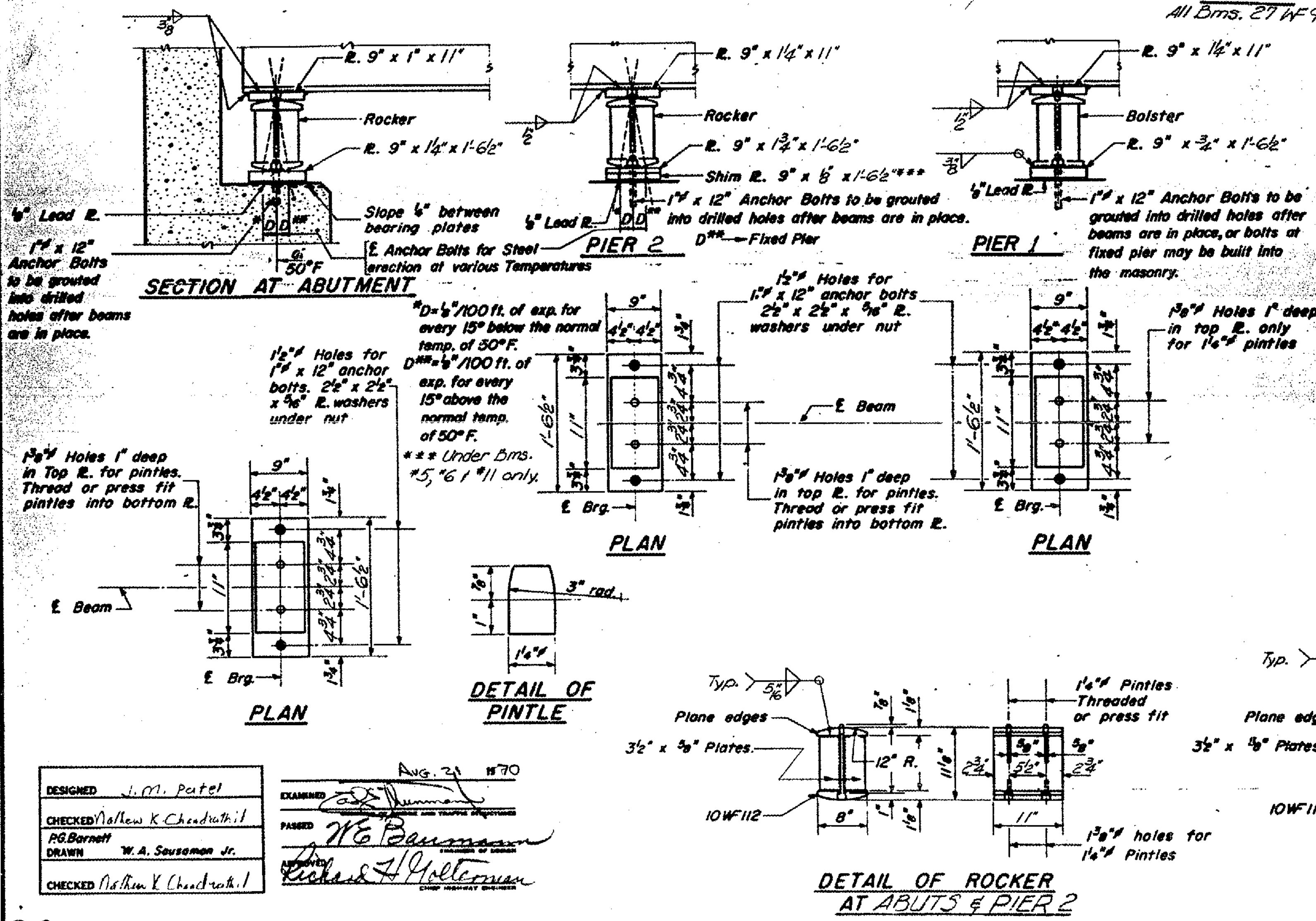


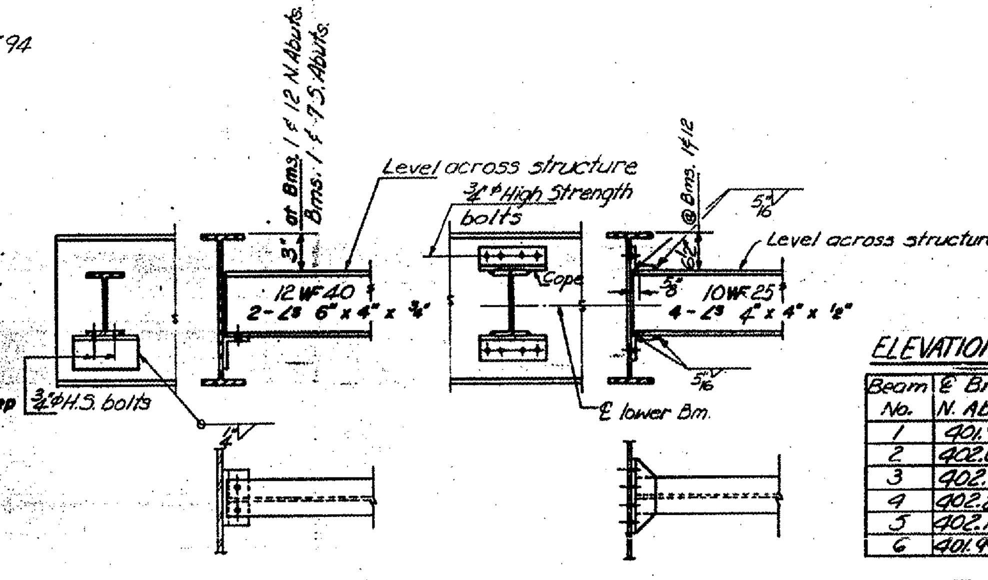
PLAN
All Bms. 27 WF 94



BEAM HOLD DOWN DETAIL

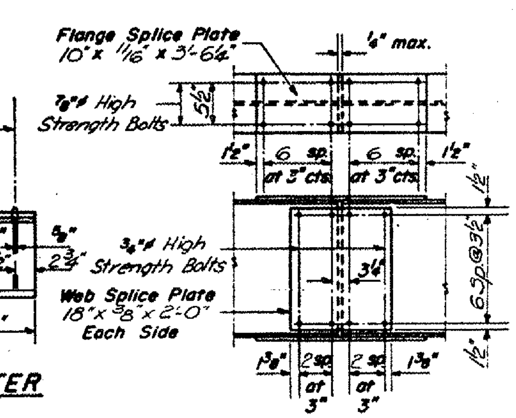
Note:
Beams shall be held down at the Abutment on the opposite end of Bridge from which the deck pour is commenced. After pouring is complete the Hold Down Assembly shall be removed and Nuts placed on Anchor Bolts. Cost of Hold Down Assembly, incidental to Class X Concrete.





DIAPHRAGM D
20 Req'd.

DIAPHRAGM D1
50 Req'd.



DETAIL OF SPLICE

ELEVATION TOP OF 27WF94 (E.BL.)

Beam No.	℄ Brg. N. Abut	℄ Brg. Pier 1	℄ Splice	℄ Brg. Pier 2	℄ Brg. S. Abut.
1	401.91	402.04	402.08	402.24	402.38
2	402.06	402.19	402.23	402.39	402.53
3	402.17	402.30	402.34	402.50	402.64
4	402.23	402.36	402.40	402.56	402.70
5	402.12	402.25	402.29	402.51	402.70
6	401.99	402.12	402.16	402.45	402.70

ELEVATION TOP OF 27WF94 (W.B.L.)

Beam No.	℄ Brg. N. Abut.	℄ Brg. Pier 1	℄ Splice	℄ Brg. Pier 2	℄ Brg. S. Abut.
7	401.99	402.12	402.16	402.32	402.46
8	402.12	402.25	402.29	402.45	402.59
9	402.23	402.36	402.40	402.56	402.70
10	402.17	402.30	402.34	402.50	402.64
11	402.06	402.19	402.23	402.45	402.64
12	401.91	402.04	402.08	402.38	402.64

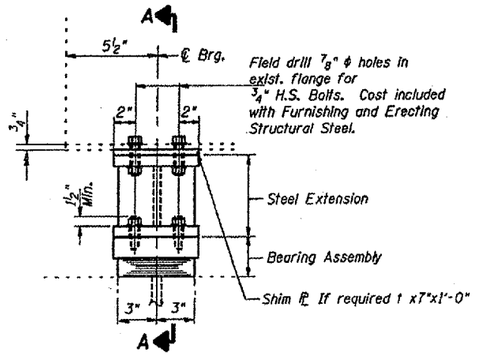
BRIDGE NO. 1
S.N. 044-0041
FOR INFORMATION ONLY

FRAMING PLAN
F.A.I. RT. 24 SEC. 44-5HB-2
JOHNSON COUNTY
STA. 408+61.70

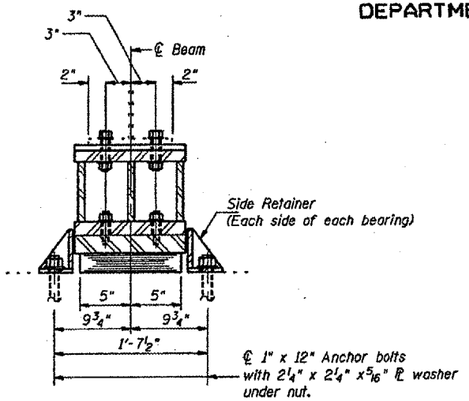
DESIGNED J. M. Patel
CHECKED Nathan K. Chaudhuri
P.G. Barnett
DRAWN W. A. Sausaman Jr.
CHECKED Nathan K. Chaudhuri
EXAMINED Aug. 21 1970
PASSED W. E. Baumann
APPROVED Richard H. Golterman, Chief Highway Engineer

I-2 7-2-62 Rev. 11-9-62 Rev. 8-16-63 Rev. 12-10-63

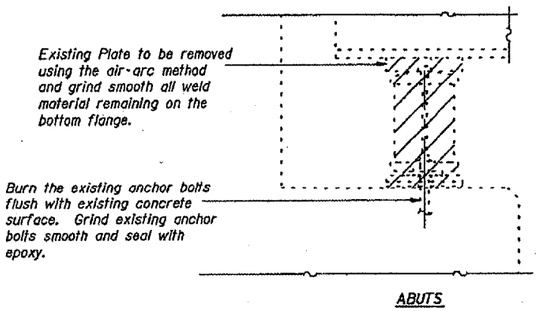
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



ELEVATION AT N. ABUT.

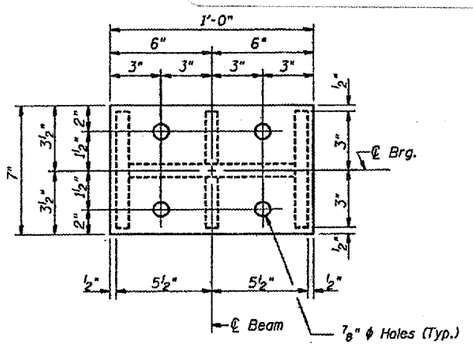


SECTION A-A



EXISTING BEARING REMOVAL DETAILS

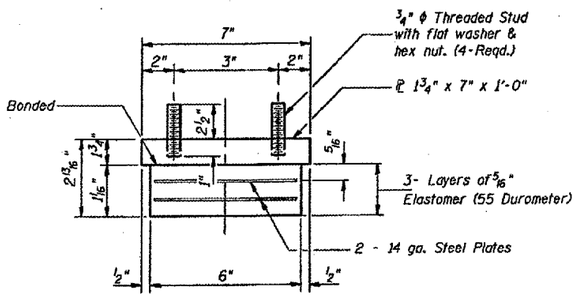
Cost is included with Jack and Remove Existing Bearings



PLAN-TOP & BOTTOM PLATE

TYPE I ELASTOMERIC EXP. BRG.

Notes: See sheet 132 for Anchor Bolt Installation.

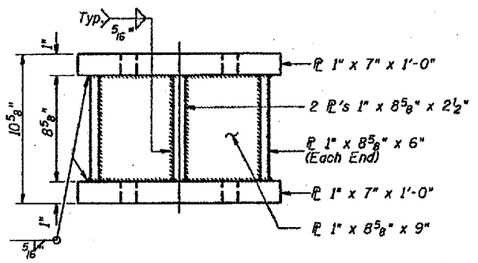


BEARING ASSEMBLY

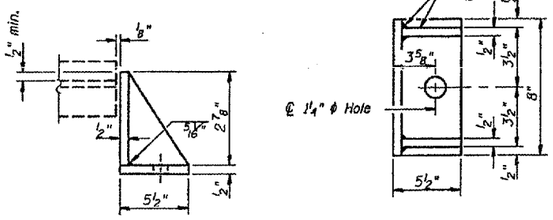
Note: Shim plates shall not be placed under Bearing Assembly.

GIRDER REACTIONS

R℄	(K)	11.8
R₺	(K)	31.0
Imp.	(K)	9.3
R (Total)	(K)	52.1



STEEL EXTENSION AT NORTH ABUT.



SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates. Weight included with Furnishing and Erecting Structural Steel.

Notes: Prior to ordering any material, the Contractor shall verify in the field all bearing height and shim thickness dimensions.
The minimum jack capacity required is 30 Tons.
New steel extensions, side retainers, connection bolts, anchor bolts, and shim plates are included in "Furnishing and Erecting Structural Steel".
Hatched areas indicate Jack and Remove Existing Bearings.
Existing diaphragm removal may be required to provide clearance for the drill during drilling holes in the bottom flange for new bearing attachment. Cost shall be included in the cost of "Furnishing and Erecting Structural Steel".

BILL OF MATERIAL

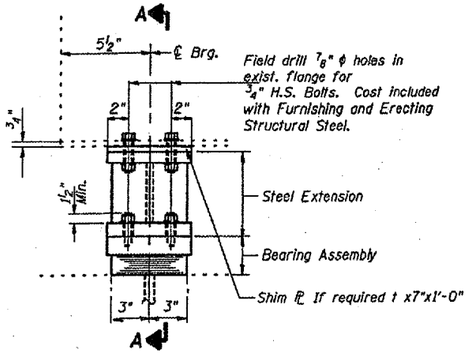
Item	Unit	Total
Elastomeric Bearing Assembly Type I	Each	6
Jack and Remove Existing Bearings	Each	6

DESIGNED:	MAS
CHECKED:	MAS
DRAWN:	JB
CHECKED:	MAS

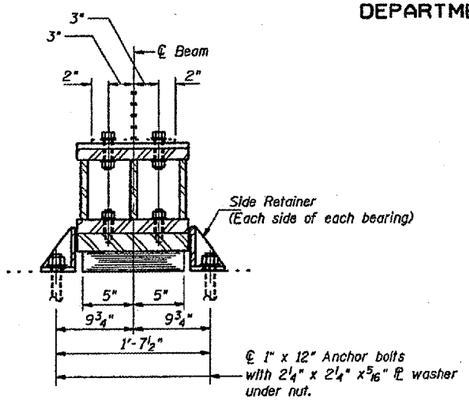
BRIDGE NO. 1
S.N. 044-0041
FOR INFORMATION ONLY

NORTH ABUTMENT
TYPE I ELASTOMERIC BEARING
JOHNSON COUNTY
S.N. 044-0041 (E.B.)

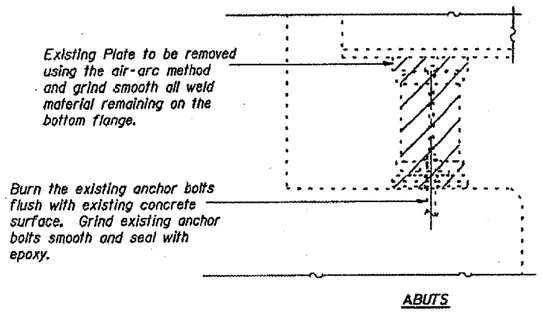
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



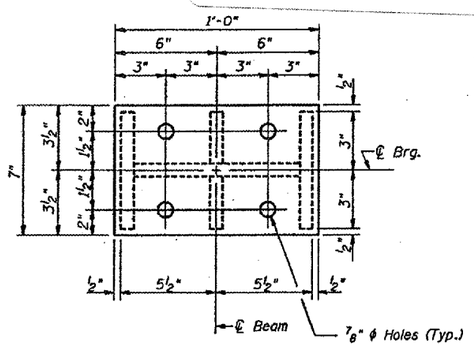
ELEVATION AT S. ABUT.



SECTION A-A



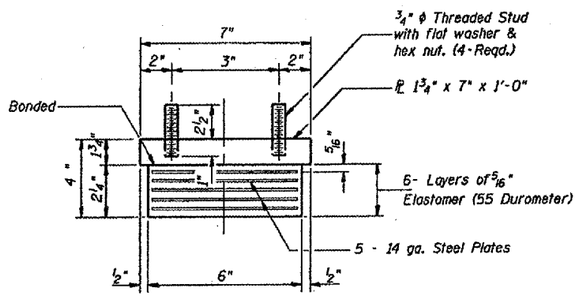
EXISTING BEARING REMOVAL DETAILS
Cost is Included with Jack and Remove Existing Bearings



PLAN-TOP & BOTTOM PLATE

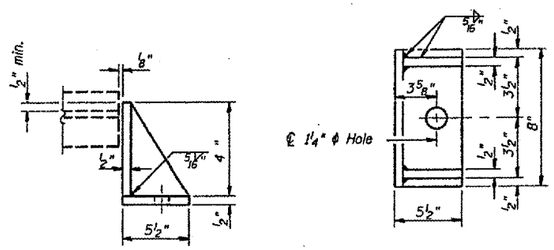
TYPE I ELASTOMERIC EXP. BRG.

Notes: See sheet 132 for Anchor Bolt Installation.



BEARING ASSEMBLY

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



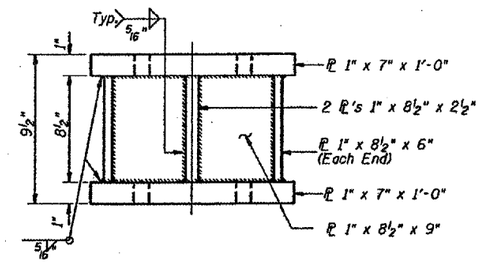
SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates. Weight included with Furnishing and Erecting Structural Steel.

GIRDER REACTIONS

Rℙ	(K)	11.8
Rℓ	(K)	31.0
Imp.	(K)	9.3
R (Total)	(K)	52.1

Notes: Prior to ordering any material, the Contractor shall verify in the field all bearing height and shim thickness dimensions.
The minimum jack capacity required is 30 Tons.
New steel extensions, side retainers, connection bolts, anchor bolts, and shim plates are included in "Furnishing and Erecting Structural Steel".
Hatched areas indicate Jack and Remove Existing Bearings.
Existing diaphragm removal may be required to provide clearance for the drill during drilling holes in the bottom flange for new bearing attachment. Cost shall be included in the cost of "Furnishing and Erecting Structural Steel".



STEEL EXTENSION AT SOUTH ABUT.

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type 1	Each	6
Jack and Remove Existing Bearings	Each	6

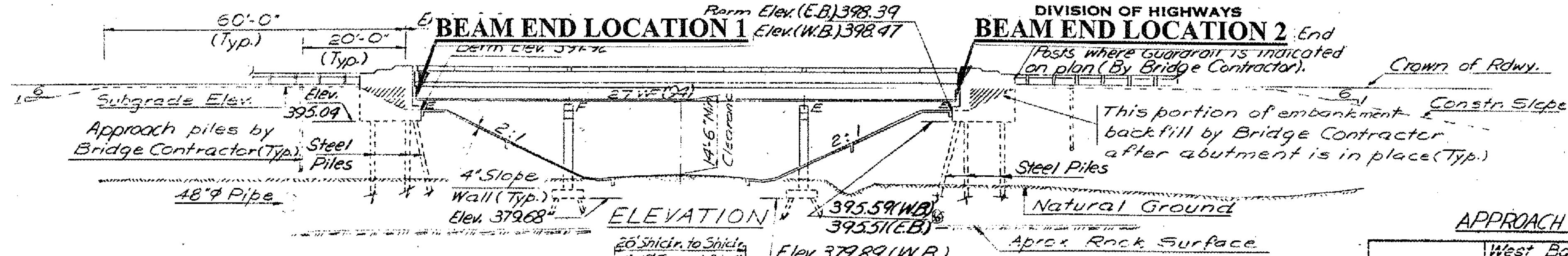
BRIDGE NO. 1
S.N. 044-0041
FOR INFORMATION ONLY

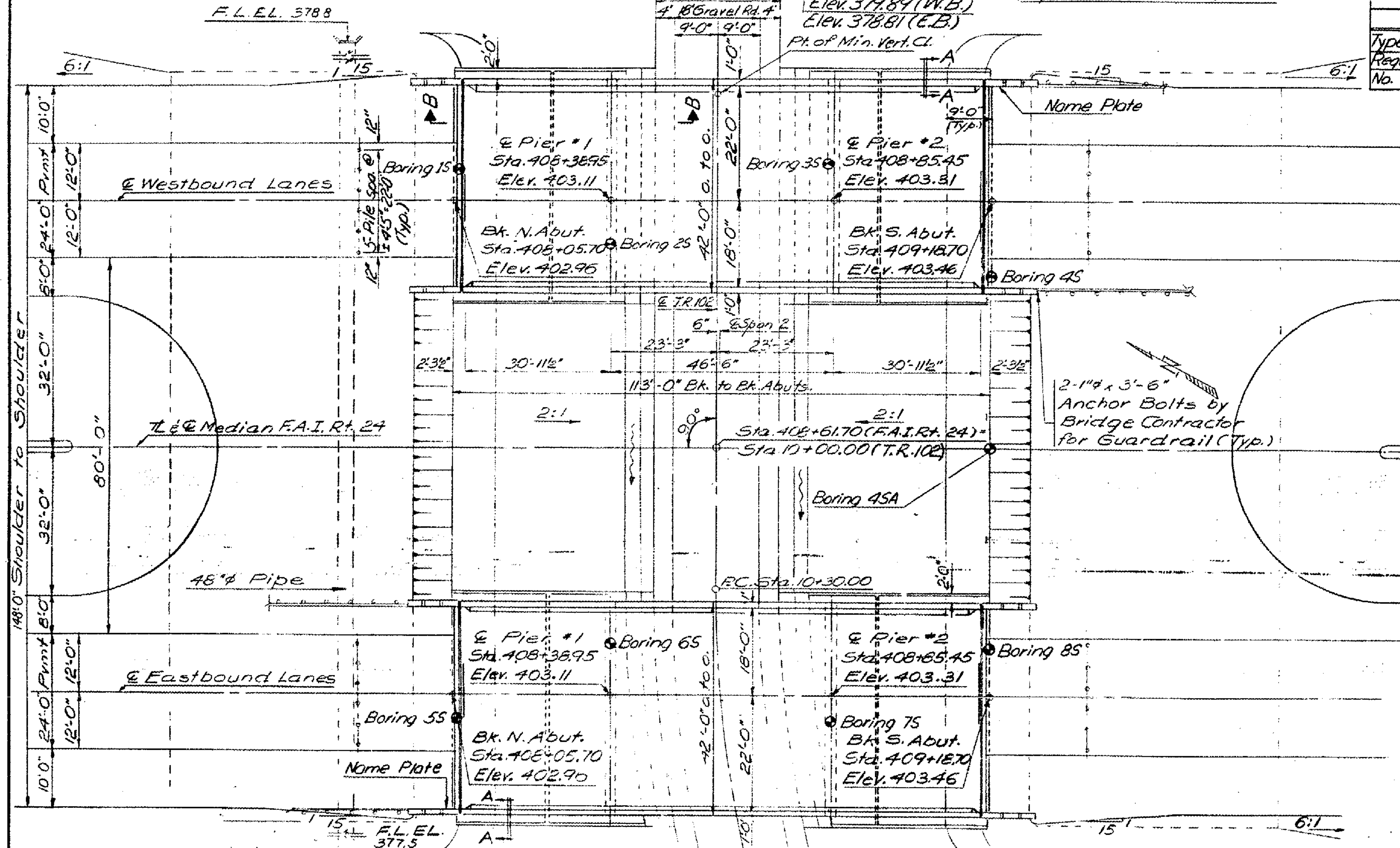
SOUTH ABUTMENT
TYPE I ELASTOMERIC BEARING
JOHNSON COUNTY
S.N. 044-0041 (E.B.)

DESIGNED:	MAS
CHECKED:	MAS
DRAWN:	JB
CHECKED:	MAS

B.M.: Spike in 30" Oak 249' Rt. Sta. 406+00
℄ Med. F.A.I.-24 Elev. 381.12

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





PLAN

CURVE DATA (F.A.I. RTE. 24)

P.I. Sta. 429+99.45 T = 2020.00'
Δ = 19°-59'-40" L = 3998.92'
D = 0°-30'-00" E = 176.68'
R = 11459.16' S.E. = 0.015 Ft/Ft

S.E. Attained
Sta 408+46.12 To Sta. 410+46.12
Sta. 451+11.70 To Sta. 449+11.70

DESIGNED	J. M. Patel
CHECKED	[signature]
DRAWN	R. Doty
CHECKED	[signature]

August 21 1970
EXAMINED [signature]
PASSED [signature]
APPROVED [signature]

APPROACH PILE DATA

	West Bd. Lanes		East Bd. Lanes	
	N. Abut.	S. Abut.	N. Abut.	S. Abut.
Type	Creosoted	Creosoted	Creosoted	Creosoted
Reqd. Length	11 Feet	18 Feet	22 Feet	19 Feet
No. Reqd.	6	6	6	6

All reinforcement shown.

Fasteners shall be high strength bolts. Bolts ¾" ⌀; open holes 13/16" ⌀, unless otherwise noted.

Calculated weight of Structural Steel = 161,170 Lbs

The Basic Lead Silica 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 beams or 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 diaphragms over supports.

Slope wall shall be reinforced with welded wire fabric 6" x 6" mesh, weighing 58# per 100 sq. ft.

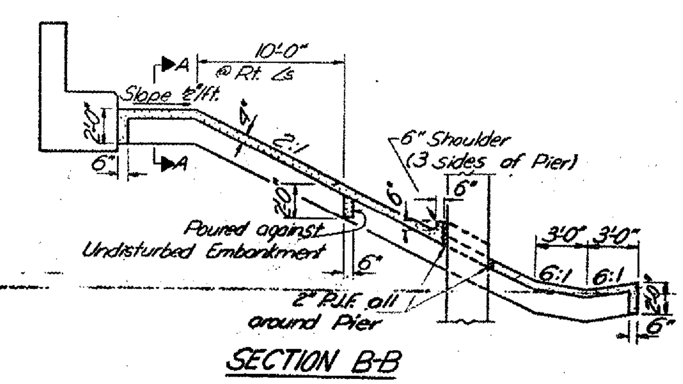
The embankment configuration shown shall be the minimum embankment that must be constructed prior to construction of the abutments.

The concrete rail section above the mandatory construction joint at the top of the slab shall be constructed of Class X Concrete, except the aggregates shall conform to the requirements of Handrail Concrete.

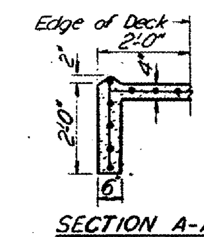
CURVE DATA (TR-102)

Δ = 90°-00'-00"
D = 22°-55'-06"
R = 250.00
L = 392.70
T = 250.00
E = 103.55
S.E. 0.06 ¹/Ft.
S.E. ATTAINED: STA. 9+58.00 TO STA. 10+66.00
STA. 13+86.70 TO STA. 14+94.70

The Contractor shall drive 1 steel test pile (8 BP 36) of North Abutment Westbound lanes and Pier #2 Eastbound lanes respectively as directed by the Engineer before ordering the remainder of piles.



SECTION B-B



SECTION A-A

STATION 408+61.70
BUILT 19 BY
STATE OF ILLINOIS
F.A.I. RT. 24 SEC. 44-5HB-2
F.A. PROJ. I-IG-24-1(18)
LOADING HS 20 ALT.

See Std. 2113-1
NAME PLATE
(2 Required)

TOTAL BILL OF MATERIALS

Item		Super	Sub.	Total
Protective Coat	Sq. Yds.	1152		1152
Structure Excavation	Cu. Yds.		153	153
Class X Concrete	Cu. Yds.	281.8	399.0	680.8
Structural Steel	Lump Sum.	L.S.		L.S.
Aluminum Railing	Lin. Ft.	439		439
Reinforcement Bars	Lbs.	66,600	32,860	99460
Creosoted Piles (Up to 20')	Lin. Ft.		288	288
Creosoted Piles (20.1' to 38')	Lin. Ft.		132	132
Test Piles Steel (8 BP 36)	Ea.		2	2
Steel Piles (8 BP 36)	Lin. Ft.		1912	1912
Slope Wall 4"	Sq. Yd.		1030	1030
Name Plates	Ea.	2		2
Preformed Joint Sealer	Lin. Ft.	168		168

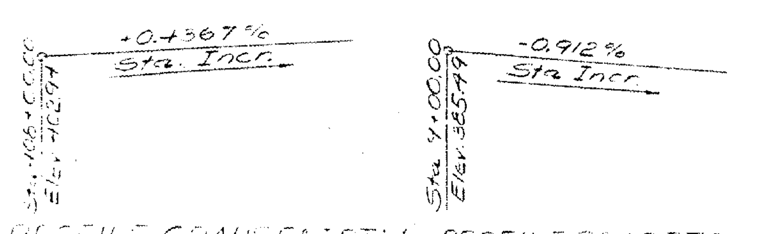
Note:
For Stress Table see sheet #3.

DESIGN STRESSES

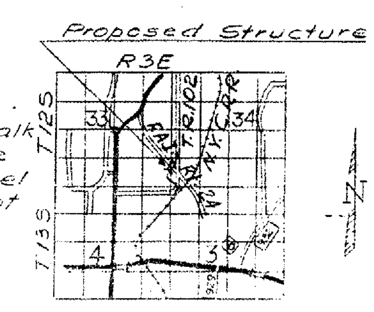
f'c = 1,200 psi Slab
f'c = 1,400 psi Parapet, Sidewalk & Substructure
fs = 20,000 psi Structural Steel
fs = 20,000 psi Reinforcement
n = 10

Loading HS 20 Alt

Note: Allow 25 #/□' for Fut. Wearing Surf.



PROFILE GRADE F.A.I. RT. 24 PROFILE GRADE T.R. 102



LOCATION SKETCH

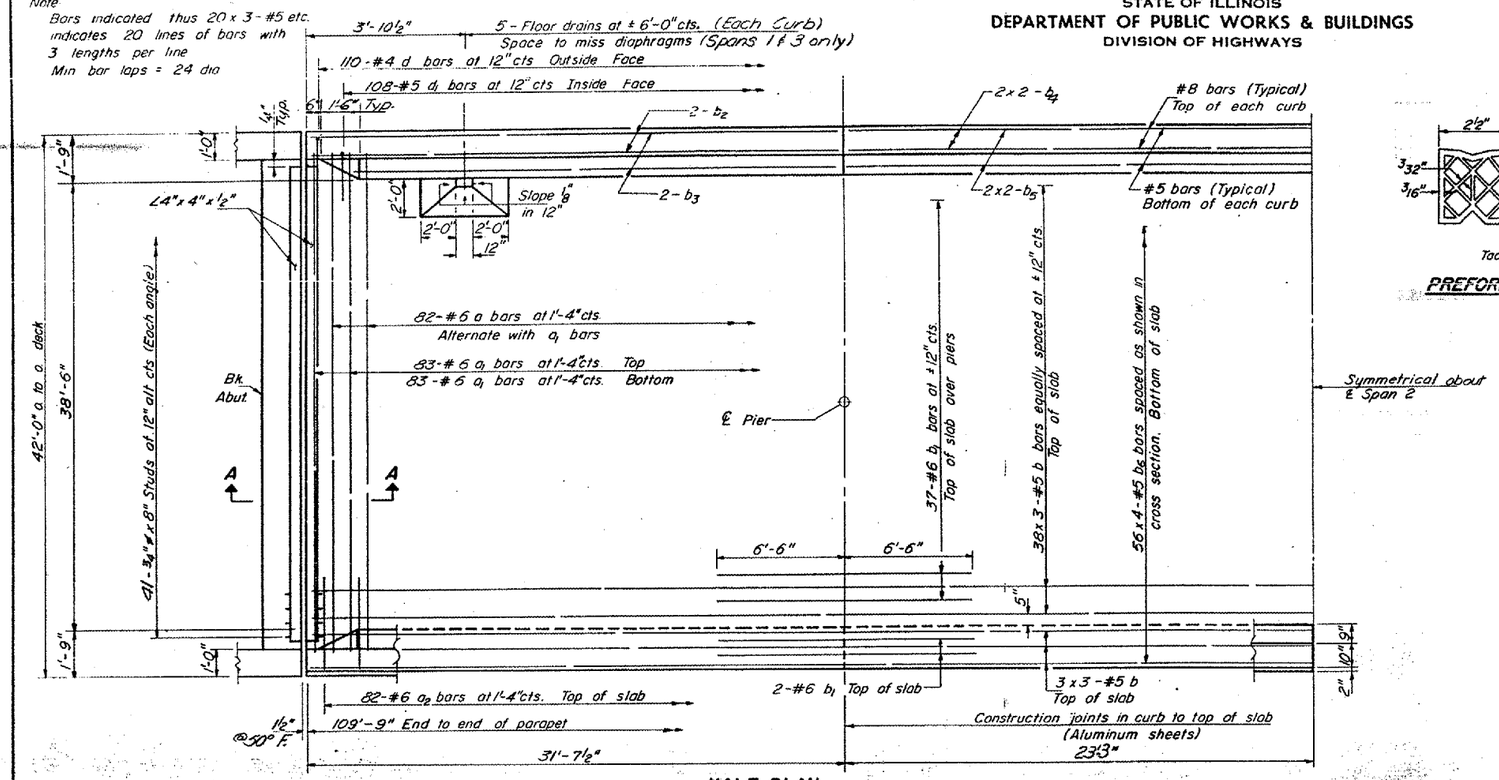
BRIDGE NO. 2
S.N. 044-0042
FOR INFORMATION ONLY

STA. 408+61.70 (F.A.I. RT. 24)
STA 10+00.00 (T.R. 102)

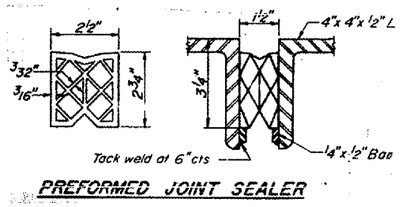
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

FAI 24
D9 BRIDGE PAINTING FY 08-1
JOHNSON & WILLIAMSON COUNTIES
CONTRACT 78020
SHEET 12 OF 35

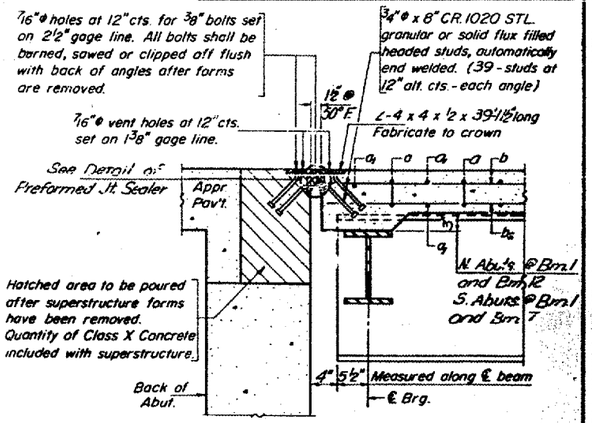
Note
Bars indicated thus 20 x 3 - #5 etc. indicates 20 lines of bars with 3 lengths per line
Min bar laps = 24 dia



HALF PLAN



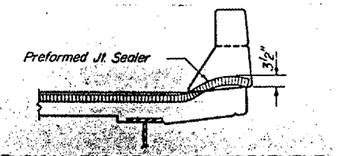
PREFORMED JOINT SEALER



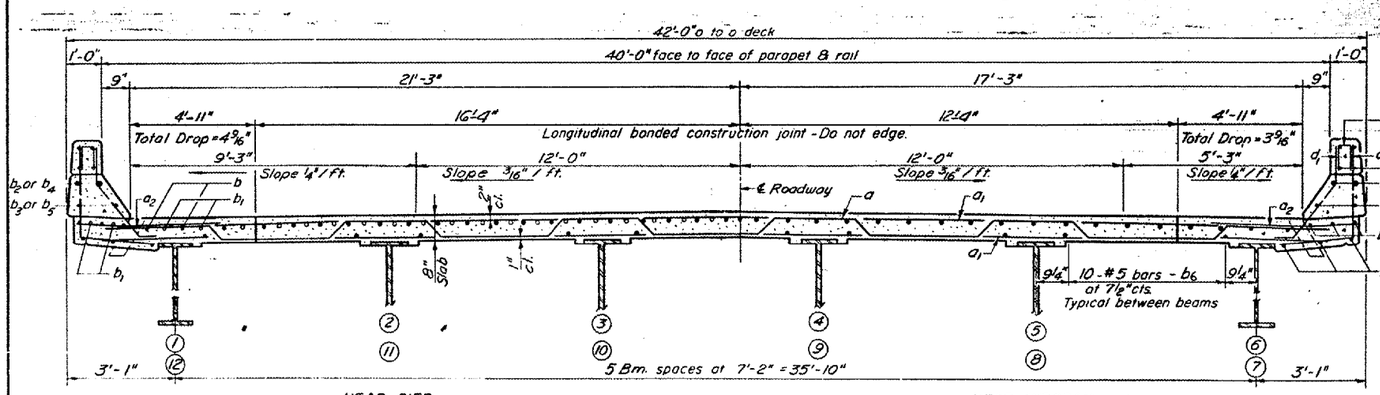
SECTION A-A

TWO SUPERSTRUCTURES
BILL OF MATERIAL

Bar	No	Size	Length	Shape
a	164	#6	41'-9"	
a1	332	#6	40'-0"	
a2	328	#6	4'-0"	
b	264	#5	37'-6"	
b1	164	#6	13'-0"	
b2	16	#8	31'-3"	
b3	16	#5	31'-3"	
b4	16	#8	24'-3"	
b5	16	#5	24'-0"	
b6	448	#5	28'-6"	
d	440	#4	4'-10"	
d1	432	#5	3'-5"	
Reinforcement Bars			Lbs	65300
Structural Steel			Lbs	L.S.
Class X Concrete			Cu Yds	267.6



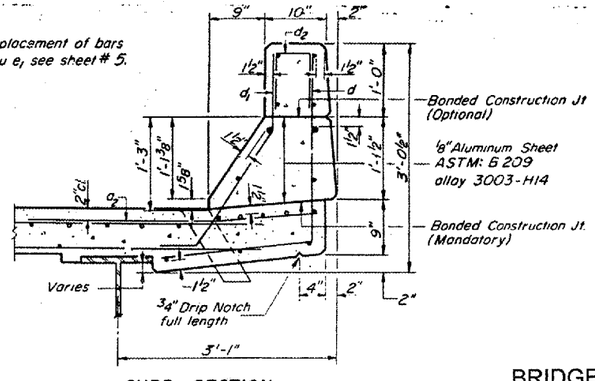
TYPICAL END OF SEALER TREATMENT



NEAR PIER NEAR MIDSPAN

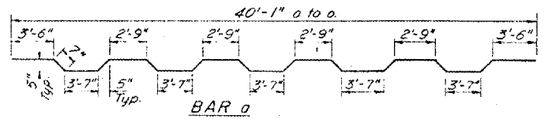
CROSS SECTION
(E. Bd. LANES LOOKING NORTH - Brns. 1 thru 6)
(W. Bd. LANES LOOKING SOUTH - Brns. 7 thru 12)

Note: For placement of bars d2 & e thru e1 see sheet # 5.

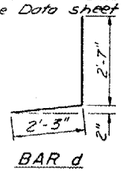


CURB SECTION
Cost of Aluminum Drains and Sheets shall be incidental to Class X Concrete

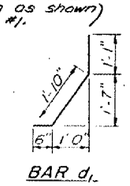
(Cross section typical from Sta. 408 + 07.33 to Sta. 408 + 46.12)
(Superelevation transition as shown on Curve Data sheet #).



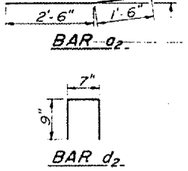
BAR a



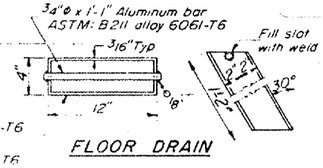
BAR d



BAR d1



BAR d2



FLOOR DRAIN

Aluminum Sheets Welded ASTM: B209 alloy 6061-T6 or Aluminum Extrusions ASTM: B221 alloy 6061-T6

quantities See sheet #6.

BRIDGE NO.2
S.N. 044-0042
FOR INFORMATION ONLY

DESIGNED	J.M. Patel
CHECKED	Nathan K Chandrick
DRAWN	R. Doty g m r
CHECKED	N.K.C

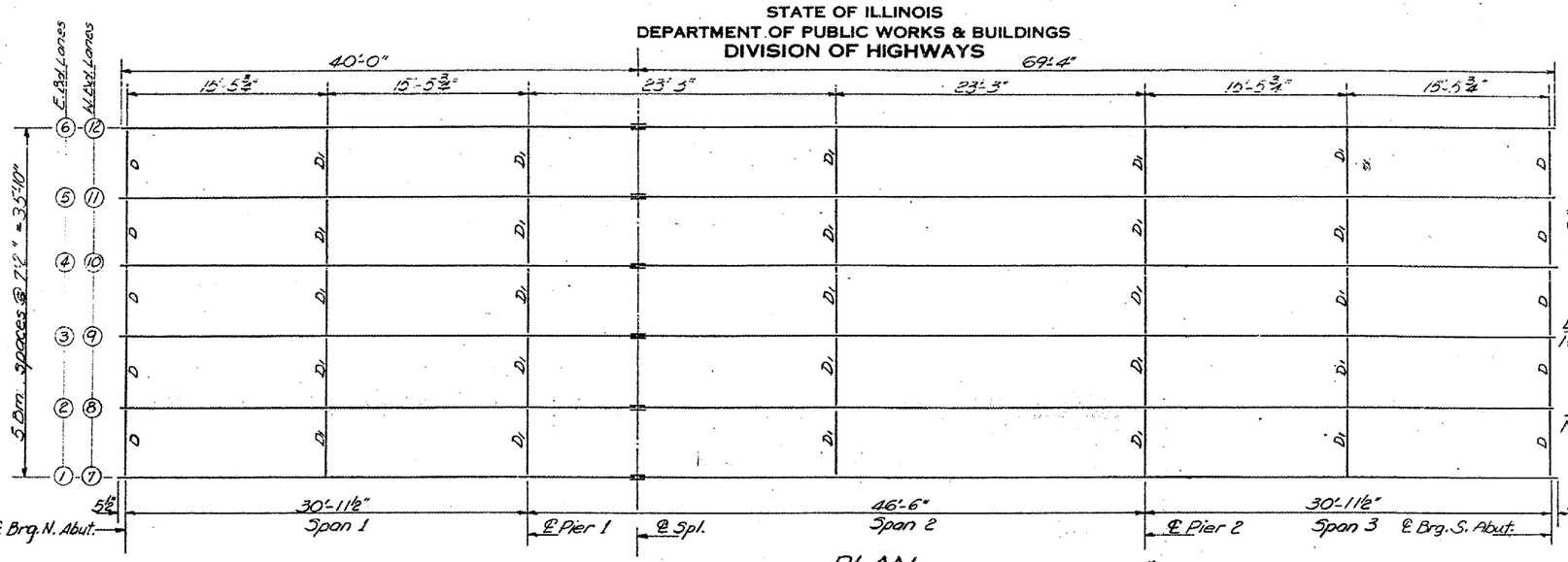
EXAMINED Aug. 21 1970
PASSED W.E. Baumann
APPROVED Richard A. Holtzman

SUPERSTRUCTURE
F.A.I. RT. 24 — SEC. 44-5HB-2
JOHNSON COUNTY
STA. 408 + 61.70

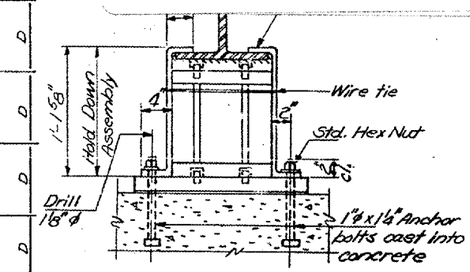
I-4 to 6-0 3-1-68

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

FAI 24
D9 BRIDGE PAINTING FY 08-1
JOHNSON & WILLIAMSON COUNTIES
CONTRACT 78020
SHEET 13 OF 35

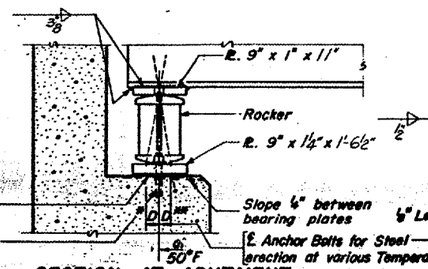


PLAN
All Bms. 27 WF 94

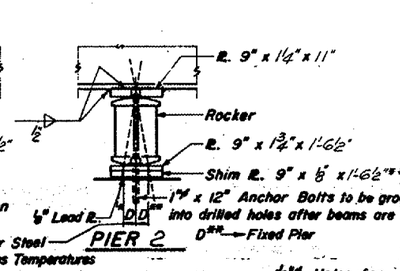


BEAM HOLD DOWN DETAIL

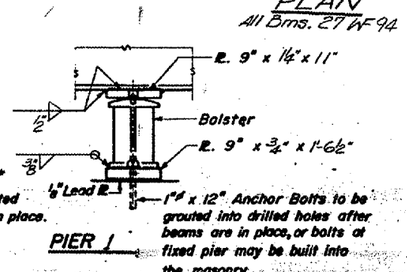
Note:
Beams shall be held down at the Abutment on the opposite end of Bridge from which the deck pour is commenced. After pouring is complete the Hold Down Assembly shall be removed and Nuts placed on Anchor Bolts. Cost of Hold Down Assembly, incidental to Class X Concrete.



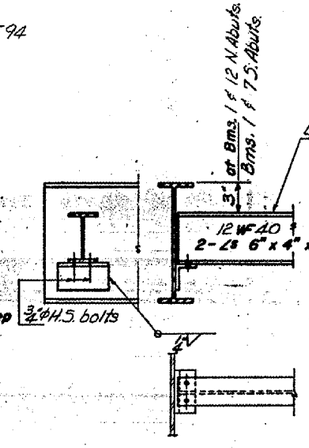
SECTION AT ABUTMENT



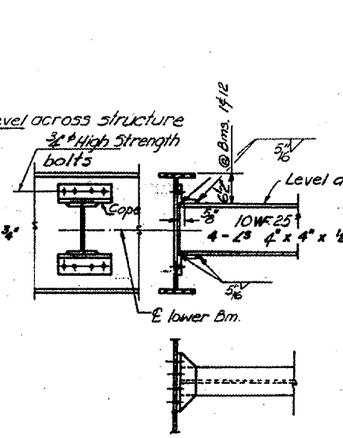
PIER 2



PIER 1



DIAPHRAGM D
20 Req'd.



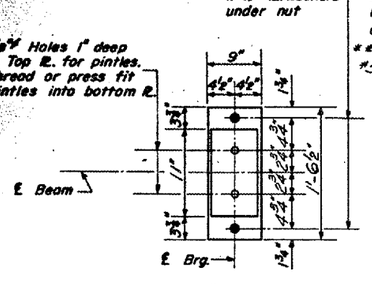
DIAPHRAGM D1
50 Req'd.

ELEVATION TOP OF 27 WF 94 (E.BL.)

Beam No.	℄ Brg. N. Abut	℄ Brg. Pier 1	℄ Splice	℄ Brg. Pier 2	℄ Brg. S. Abut.
1	401.91	402.04	402.08	402.29	402.38
2	402.06	402.19	402.23	402.39	402.53
3	402.17	402.30	402.34	402.50	402.69
4	402.23	402.36	402.40	402.56	402.70
5	402.12	402.25	402.29	402.51	402.70
6	401.99	402.12	402.16	402.45	402.70

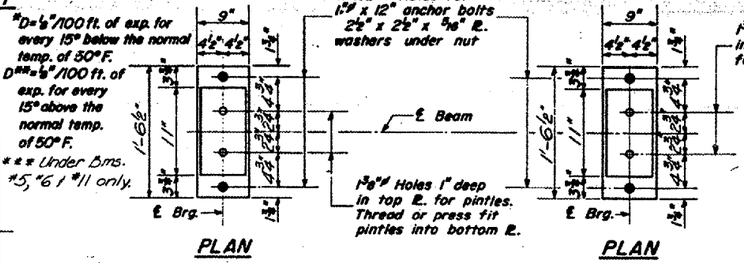
ELEVATION TOP OF 27 WF 94 (W.BL.)

Beam No.	℄ Brg. N. Abut	℄ Brg. Pier 1	℄ Splice	℄ Brg. Pier 2	℄ Brg. S. Abut
7	401.99	402.12	402.16	402.32	402.46
8	402.12	402.25	402.29	402.45	402.59
9	402.23	402.36	402.40	402.56	402.70
10	402.17	402.30	402.34	402.50	402.64
11	402.06	402.19	402.23	402.45	402.64
12	401.91	402.04	402.08	402.38	402.64



PLAN

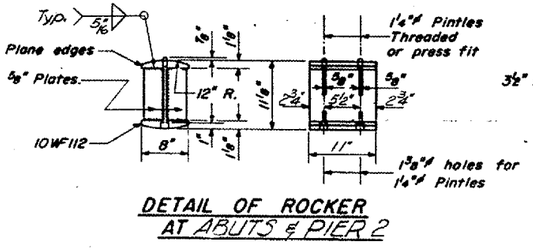
DETAIL OF PINTLE



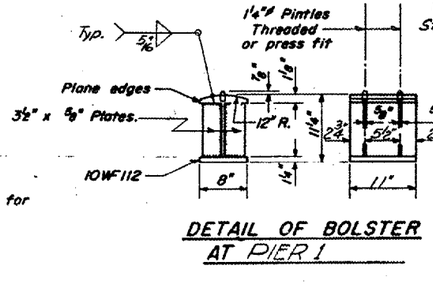
PLAN

PLAN

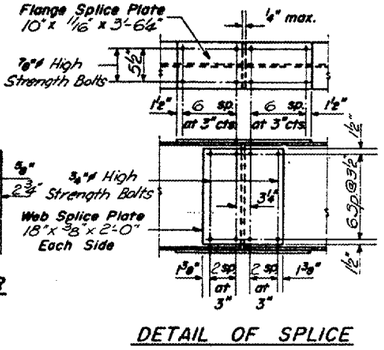
1 3/8"ø Holes 1" deep in top ℄ only for 1 1/4"ø pintles



DETAIL OF ROCKER AT ABUTS & PIER 2



DETAIL OF BOLSTER AT PIER 1



DETAIL OF SPLICE

DESIGNED	J. M. Patel
CHECKED	Mathew K. Chandrathil
P.G. Barnett	
DRAWN	W. A. Sausaman Jr.
CHECKED	Mathew K. Chandrathil

EXAMINED Aug. 21 1970
PASSED W E Bausman
APPROVED Richard T. Holleman

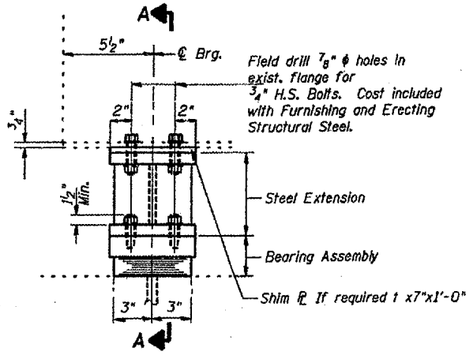
I-2 7-2-62 Rev. 11-9-62 Rev. 8-16-63 Rev. 12-10-63

BRIDGE NO. 2
S.N. 044-0042
FOR INFORMATION ONLY

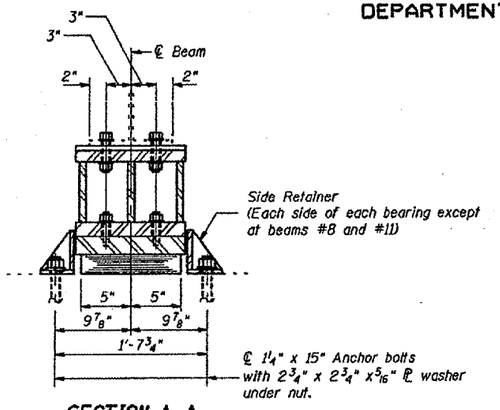
FRAMING PLAN
F.A.I. RT 24 SEC. 44-5HB-2
JOHNSON COUNTY
STA. 408+61.70

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

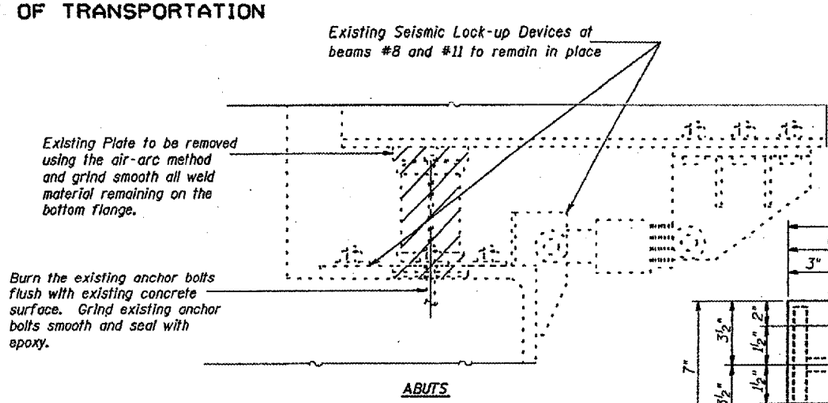
FAI 24
D9 BRIDGE PAINTING FY 08-1
JOHNSON & WILLIAMSON COUNTIES
CONTRACT 78020
SHEET 14 OF 35



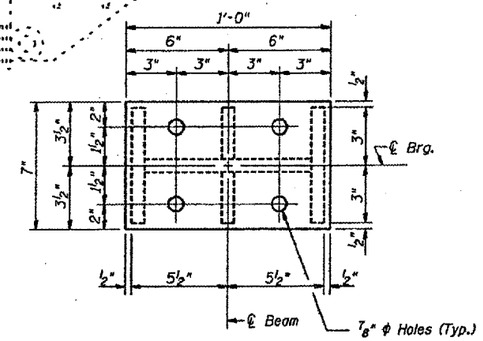
ELEVATION AT N. ABUT.



SECTION A-A



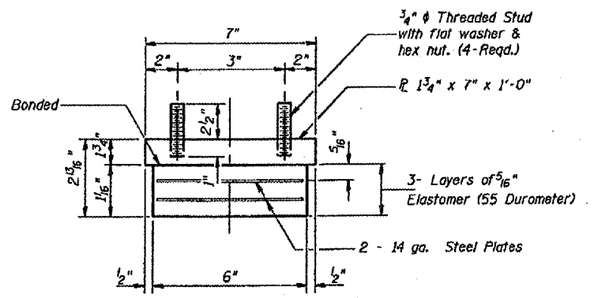
EXISTING BEARING REMOVAL DETAILS
Cost is included with Jack and Remove Existing Bearings



PLAN-TOP & BOTTOM PLATE

TYPE I ELASTOMERIC EXP. BRG.

Notes: See sheet 132 for Anchor Bolt installation.

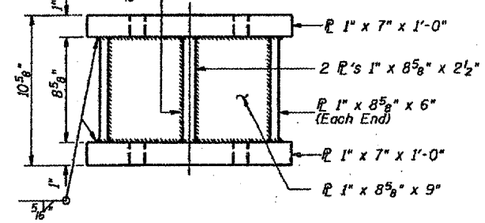


BEARING ASSEMBLY

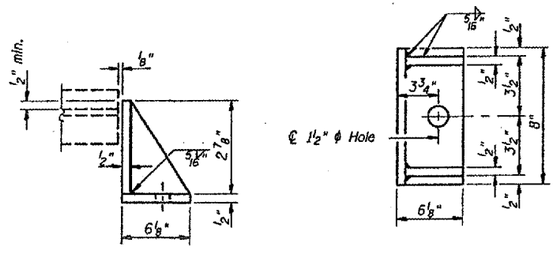
Note: Shim plates shall not be placed under Bearing Assembly.

GIRDER REACTIONS

R℄	(K)	11.8
R℄	(K)	31.0
Imp.	(K)	9.3
R (Total)	(K)	52.1



STEEL EXTENSION AT NORTH ABUT.



SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates. Weight included with Furnishing and Erecting Structural Steel.

Notes: Side retainers shall not be used with the new bearings at beams #8 and #11.

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

The minimum jack capacity required is 30 Tons.

New steel extensions, side retainers, connection bolts, anchor bolts, and shim plates are included in "Furnishing and Erecting Structural Steel".

Hatched areas indicate Jack and Remove Existing Bearings.

Existing diaphragm removal may be required to provide clearance for the drill during drilling holes in the bottom flange for new bearing attachment. Cost shall be included in the cost of "Furnishing and Erecting Structural Steel".

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type 1	Each	6
Jack and Remove Existing Bearings	Each	6

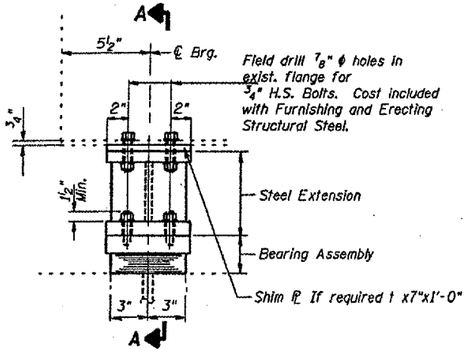
BRIDGE NO.2
S.N. 044-0042
FOR INFORMATION ONLY

DESIGNED:	MAS
CHECKED:	MAS
DRAWN:	JB
CHECKED:	MAS

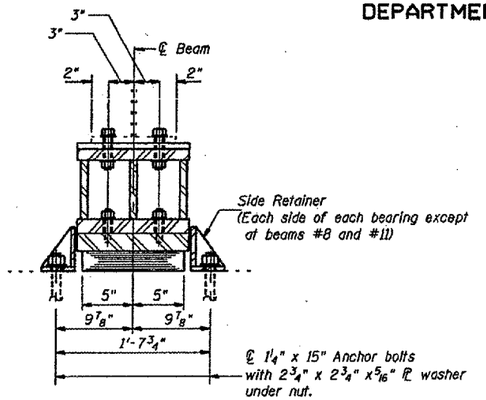
NORTH ABUTMENT
TYPE I ELASTOMERIC BEARING
JOHNSON COUNTY
S.N. 044-0042 (W.B.)

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

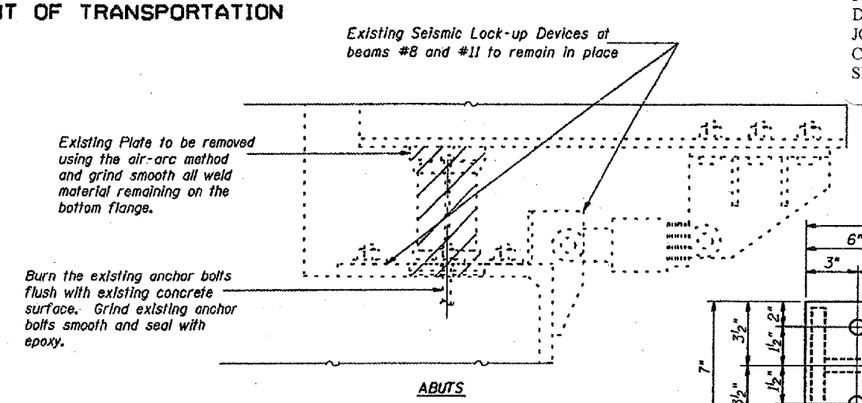
FAI 24
D9 BRIDGE PAINTING FY 08-1
JOHNSON & WILLIAMSON COUNTIES
CONTRACT 78020
SHEET 15 OF 35



ELEVATION AT S. ABUT.

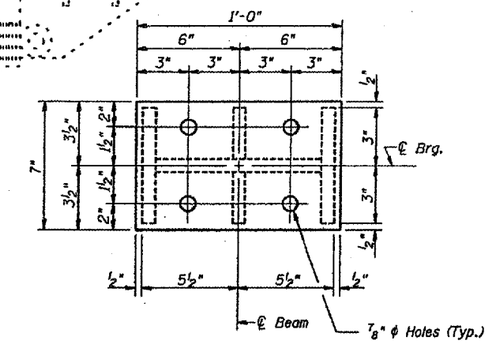


SECTION A-A



EXISTING BEARING REMOVAL DETAILS

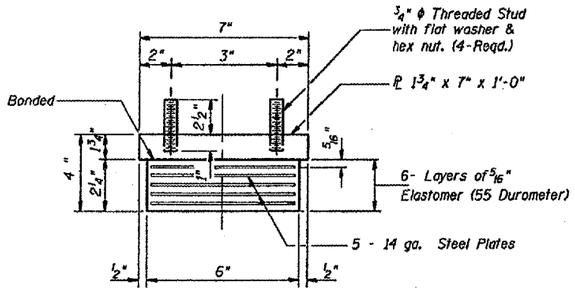
Cost is included with Jack and Remove Existing Bearings



PLAN-TOP & BOTTOM PLATE

TYPE I ELASTOMERIC EXP. BRG.

Notes: See sheet 132 for Anchor Bolt installation.

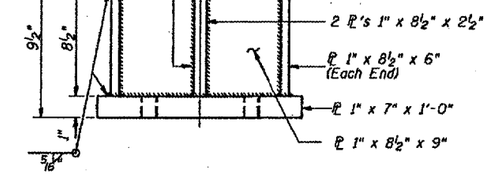


BEARING ASSEMBLY

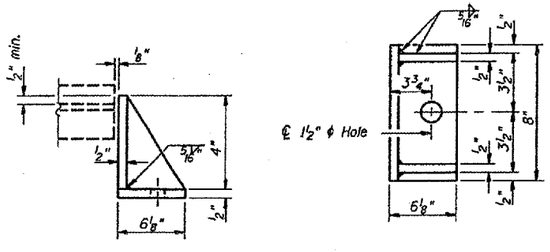
Note: Shim plates shall not be placed under Bearing Assembly.

GIRDER REACTIONS

Rℓ	(K)	11.8
Rt	(K)	31.0
Imp.	(K)	9.3
R (Total)	(K)	52.1



STEEL EXTENSION AT SOUTH ABUT.



SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates. Weight included with Furnishing and Erecting Structural Steel.

Notes: Side retainers shall not be used with the new bearings at beams #8 and #11.

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

The minimum jack capacity required is 30 Tons.

New steel extensions, side retainers, connection bolts, anchor bolts, and shim plates are included in "Furnishing and Erecting Structural Steel".

Hatched areas indicate Jack and Remove Existing Bearings.

Existing diaphragm removal may be required to provide clearance for the drill during drilling holes in the bottom flange for new bearing attachment. Cost shall be included in the cost of "Furnishing and Erecting Structural Steel".

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type I	Each	6
Jack and Remove Existing Bearings	Each	6

BRIDGE NO. 2
S.N. 044-0042
FOR INFORMATION ONLY

SOUTH ABUTMENT
TYPE I ELASTOMERIC BEARING
JOHNSON COUNTY
S.N. 044-0042 (W.B.)

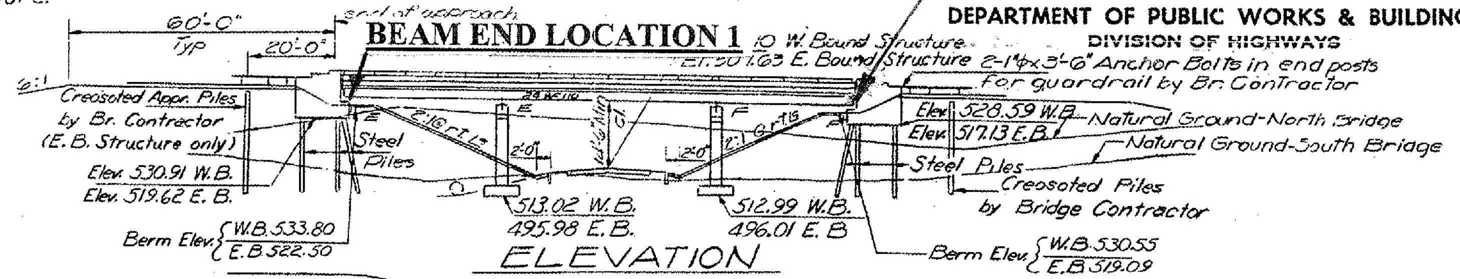
DESIGNED:	MAS
CHECKED:	MAS
DRAWN:	JB
CHECKED:	MAS

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

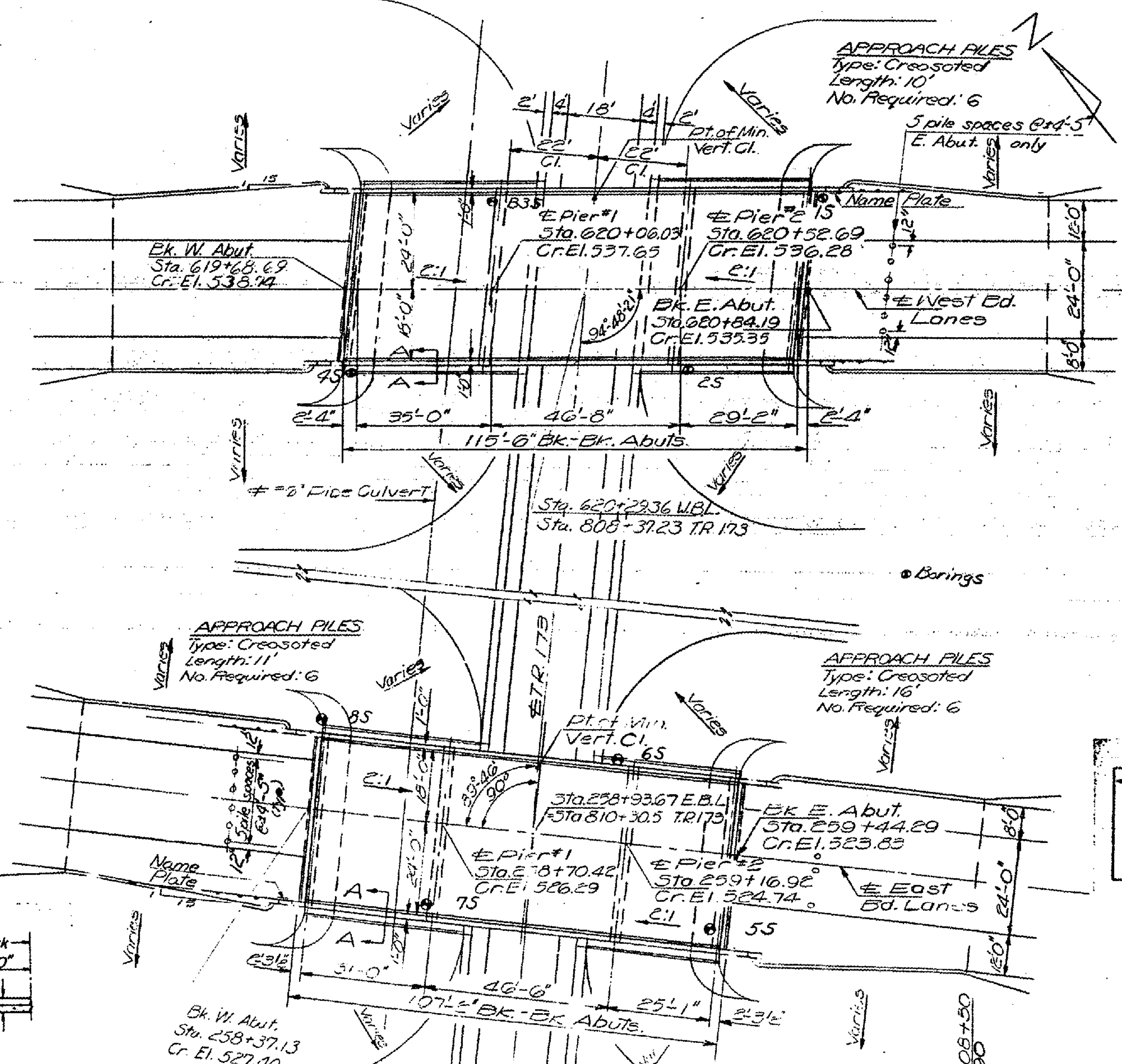
BEAM END LOCATION 2

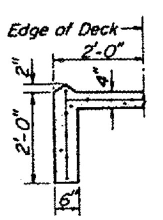
BEAM END LOCATION 1

B.M. #20 R.R. Spike in 15" Oak
140' Lt. Eastbound Lane
Sta. 259+57 El. 518.63
No existing structure.



Note:
Deck shall be poured commencing at the West Abutments and shall continue to the East Abutments.





STATION 620+29.36
BUILT BY
STATE OF ILLINOIS
F.A.I. RT. 24 SEC. 44-6HB-1
F.A. PROJ. I-24-1(30)
LOADING HS20-44 & ALT.

STATION 258+93.67
BUILT BY
STATE OF ILLINOIS
F.A.I. RT. 24 SEC. 44-6HB-1
F.A. PROJ. I-24-1(30)
LOADING HS20-44 & ALT.

NAME PLATES

See Std. 2113-1

STRESS TABLE - W. BOUND STRUCTURE

Table of Moments and Reactions - Interior Beam

	Moments (Ft. Kips)					Reactions (Kips)			
	.4 Sp1	Pier 1	.5 Sp.2	Pier 2	.4 Sp.3	W. Abut.	Pier 1	Pier 2	E. Abut.
D.L.	93.9	-218.8	131.7	-190.0	50.0	15.36	57.30	52.72	11.49
L.L.	215.2	-175.8	228.5	-173.8	178.1	34.66	45.41	45.92	32.31
Imp.	64.5	-52.8	68.5	-52.1	53.4	10.39	13.62	13.78	9.69
Total	373.6	-447.4	428.7	-415.9	281.5	60.41	116.33	112.42	53.49

STRESS TABLE - E. BOUND STRUCTURE

Table of Moments and Reactions - Interior Beam

	Moments (Ft. Kips)					Reactions (Kips)			
	.4 Sp.1	Pier 1	.5 Sp.2	Pier 2	.4 Sp.3	W. Abut.	Pier 1	Pier 2	E. Abut.
D.L.	60.7	-204.2	139.4	-184.5	19.4	12.55	54.87	51.13	8.13
L.L.	189.3	-164.3	220.8	-180.4	151.2	33.15	44.84	46.15	32.31
Imp.	56.8	-49.3	66.3	-54.1	45.4	9.95	13.45	13.85	9.34
Total	306.8	-417.8	426.5	-419.0	216.0	55.65	113.16	111.13	48.60

All reinf. ... diameters u...

Rivets ¾" φ, open holes 15/16 φ, unless otherwise noted.

Diaphragm connections may be adapted to shop welding subject to approval by the Engineer.

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 beams or 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 riveting diaphragms over supports.

Slope wall shall be reinforced with welded wire fabric 6"x6" mesh, weighing 58# per 100 sq. ft.

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

The Contractor shall drive 1 steel test pile each in permanent locations at west abutment carrying west bound lanes and at the east abutment carrying east bound lanes as directed by the Engineer before ordering the remainder of piles.

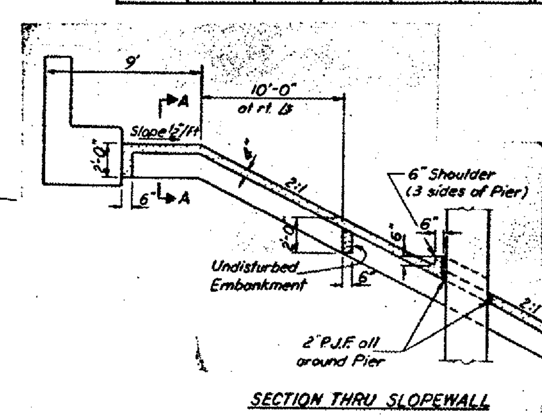
Class A Excavation for structures includes excavation for slope wall.

The embankment configuration shown shall be the minimum embankment that must be constructed prior to construction of the abutments.

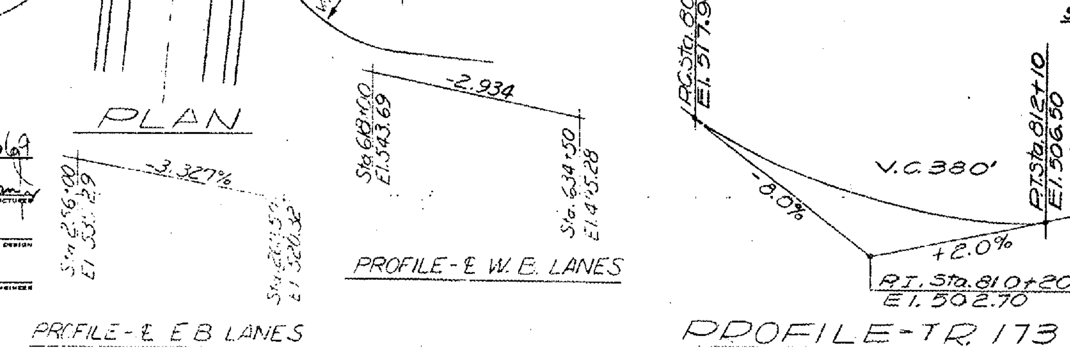
The concrete rail section above the mandatory construction joint at the top of the slab shall be constructed of Class X Conc. except the aggregates shall conform to the requirements of Handrail Conc.

BILL OF MATERIAL

	Item	Unit	Sub.	Super	Total
	Class "A" Excavation for Structures	Cu. Yds.	830		830
	Rock Excavation for Structures	Cu. Yds.	80		80
	Protective Coat	Sq. Yds.		1,160	1,160
	Class X Concrete	Cu. Yds.	446.7	309.2	755.9
	Aluminum Railing	Lin. Ft.		435	435
	Reinforcement Bars	Pounds	32,230	76,990	109,220
	Steel Piles (8 BP36)	Lin. Ft.	1,062		1,062
	Test Piles Steel (8BP36)	Each	2		2
	Name Plates	Each	2		2
	Creosoted Piles (up to 20')	Lin. Ft.	222		222
	Slope Wall 4"	Sq. Yds.	1,000		1,000
*	Structural Steel	L. Sum		1	1
	Preformed Joint Sealer	Lin. Ft.		84	84

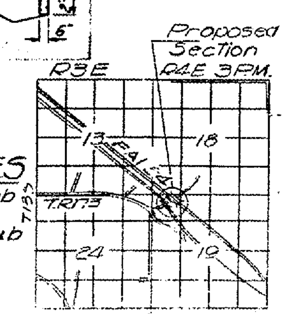


BRIDGE NO. 3
S.N. 044-0049
FOR INFORMATION ONLY



DESIGN STRESSES

fc = 1200 psi. Deck Slab
fc = 1400 psi. Curb Parapet, Sub
fs = 20,000 psi. Reinf.
fs = 20,000 psi. Struct.
Vc = 75 psi. Ftgs.
n = 10
Allowable Fut. W.S. 25#/□'
Allowable ... Non-Comp.
LOADING HS20-44 & ALT.



DESIGNED	Kuriam C. Other S.P.E.
CHECKED	J. J. Patel
DRAWN	J. Sutherland
CHECKED	

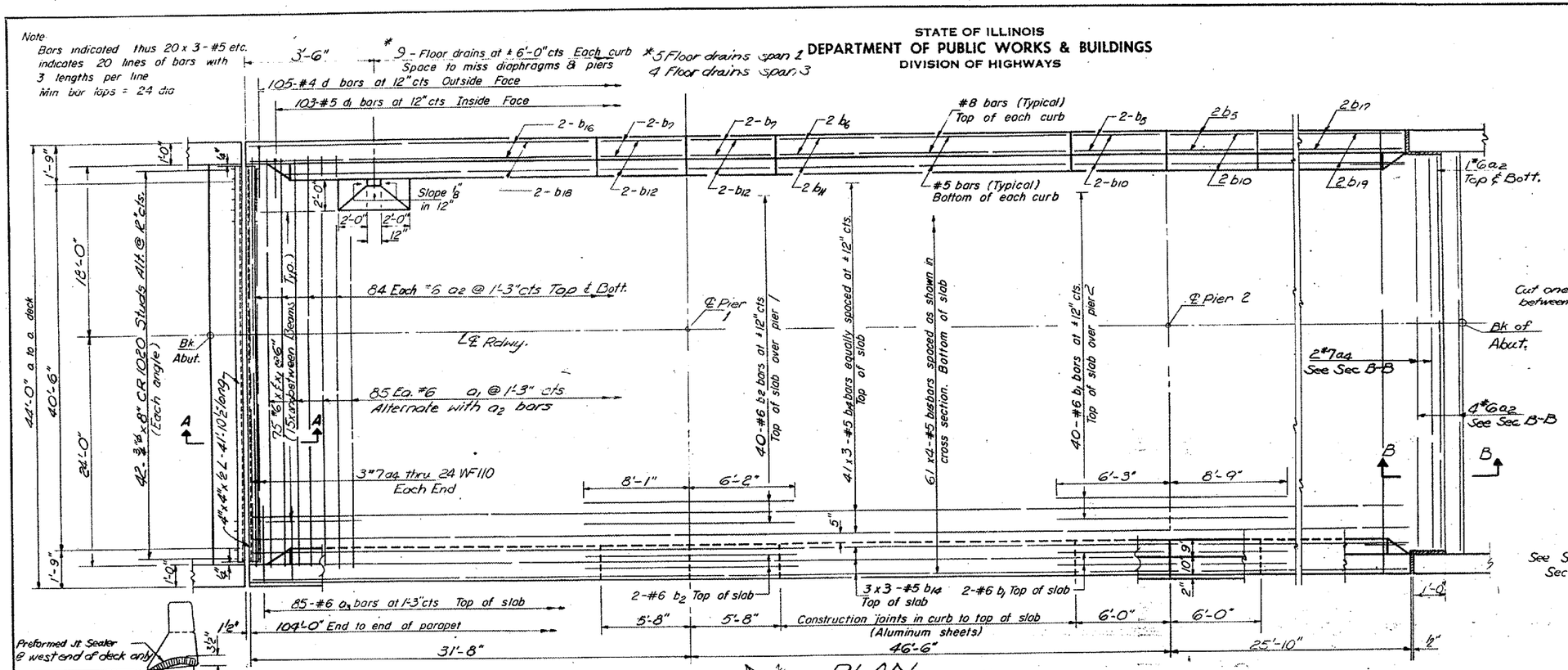
EXAMINED Aug 26 1969 Carl E. ...
ENGINEER OF BRIDGE AND TRAFFIC STRUCTURES
PASSED
ENGINEER OF DESIGN
APPROVED
CHIEF HIGHWAY ENGINEER

GENERAL PLAN & ELEVATION
F.A.I. RT. 24 OVER T.R. 173
F.A.I. ROUTE 24
SECTION 44-6HB-1
JOHNSON COUNTY
STATION 620+29.36 W.B.L.
STATION 258+93.67 E.B.L.

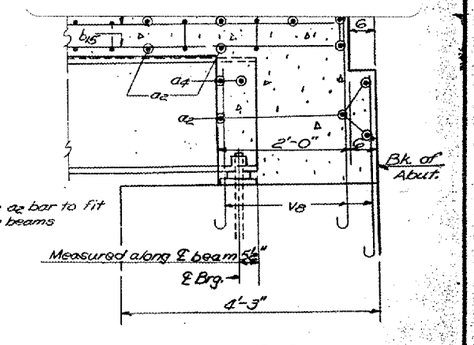
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

FAI 24
D9 BRIDGE PAINTING FY 08-1
JOHNSON & WILLIAMSON COUNTIES
CONTRACT 78020
SHEET 17 OF 35

Note
Bars indicated thus 20 x 3 - #5 etc. indicates 20 lines of bars with 3 lengths per line
Min bar laps = 24 dia



PLAN



SECTION B-B

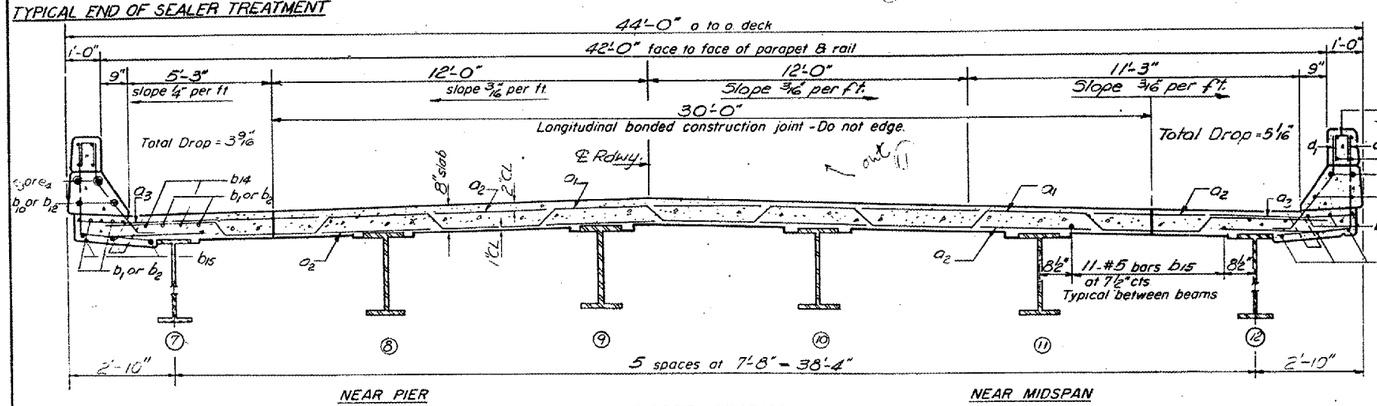
See Sheet # 3 for Section A - A

Note:
V8 Bar detailed and billed on Sheet #12

BILL OF MATERIAL

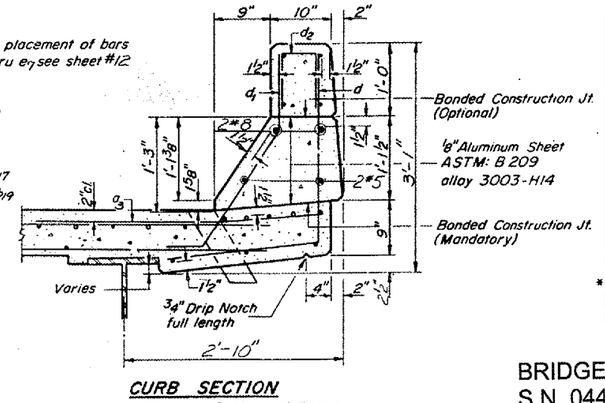
Bar	No	Size	Length	Shape
a_1	85	#6	43'-8"	
a_2	174	#6	42'-0"	
a_3	170	#6	4'-0"	
a_4	5	#7	38'-3"	
b_1	44	#6	15'-0"	
b_2	44	#6	14'-3"	
b_3	8	#8	5'-9"	
b_4	4	#8	34'-6"	
b_7	8	#8	5'-6"	
b_{10}	8	#5	5'-9"	
b_{11}	4	#5	34'-6"	
b_{12}	8	#5	5'-6"	
b_{14}	141	#5	36'-0"	
b_{15}	244	#5	27'-3"	
b_{16}	4	#8	25'-9"	
b_{17}	4	#8	20'-6"	
b_{18}	4	#5	25'-9"	
b_{19}	4	#5	20'-6"	
d	210	#4	4'-6"	
d_1	206	#5	3'-5"	
x	75	#6	5'-4"	
x_1	75	#6	4'-2"	
Reinforcement Bars			Lbs.	36,100.
* Structural Steel			Lbs.	Lump Sum
Class X Concrete			Cu. Yds.	142.9

TYPICAL END OF SEALER TREATMENT



NEAR PIER NEAR MIDSPAN

Note For placement of bars d_2 & e_3 thru e_7 see sheet #12

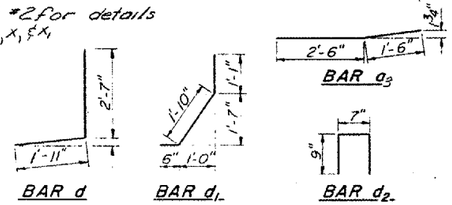


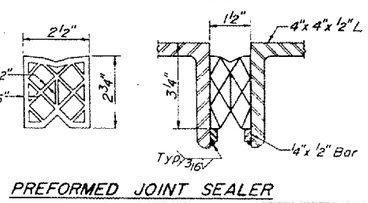
CURB SECTION

Cost of Aluminum Drains and Sheets shall be incidental to Class X Concrete

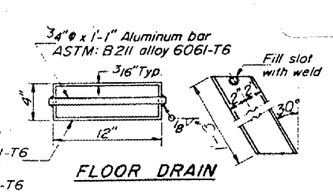
CROSS SECTION
LOOKING EAST

See Sheet #2 for details of bars a_1, x, x_1





PREFORMED JOINT SEALER



Aluminum Sheets Welded ASTM: B209 alloy 6061-T6 or Aluminum Extrusions ASTM: B221 alloy 6061-T6

FLOOR DRAIN

BRIDGE NO. 3
S.N. 044-0049
FOR INFORMATION ONLY

quantities. See sheet 12.

SUPERSTRUCTURE
EAST BD. LANES
F.A.I. RT. 24 SEC. 44-6HB-1
JOHNSON COUNTY
STA. 258+93.67 (E.B.L.)

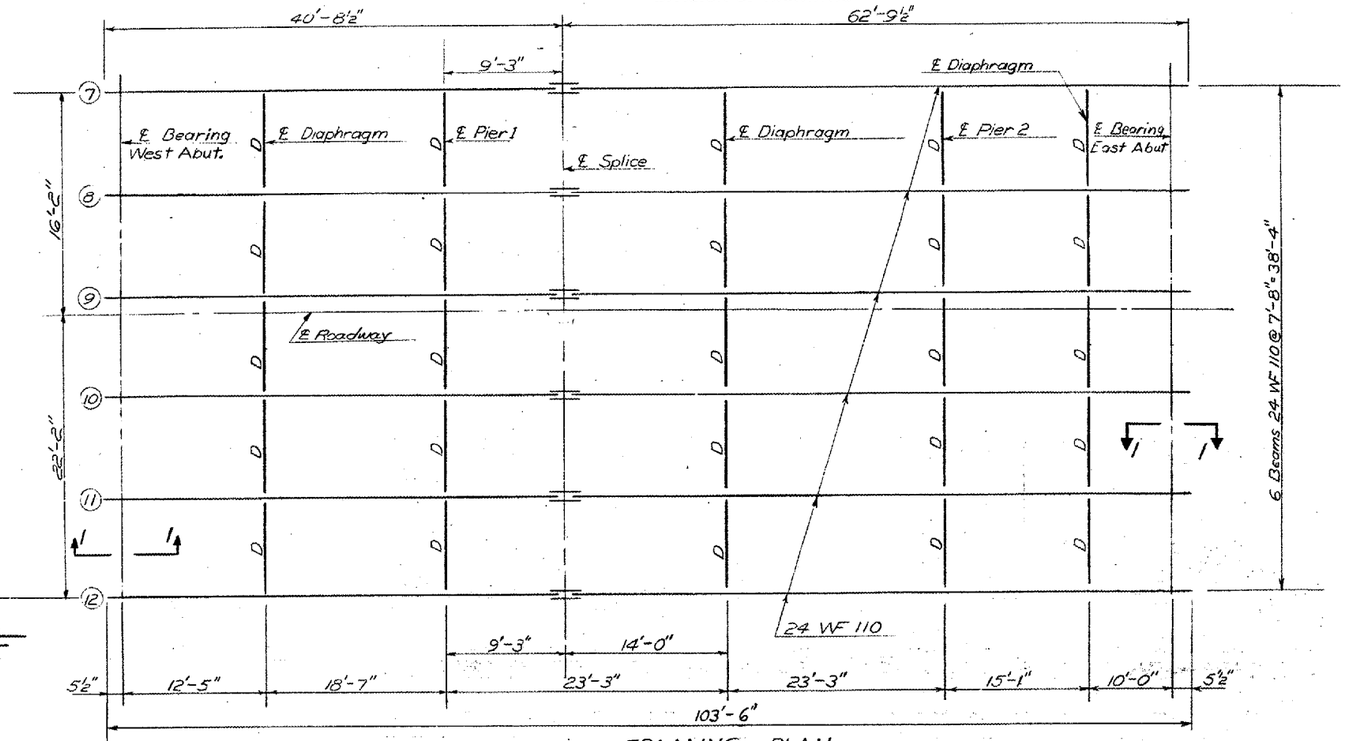
DESIGNED	Design Consultant
CHECKED	J. M. Patel
DRAWN	A. Barraza
CHECKED	J. M. P.

EXAMINED _____ 19__
ENGINEER OF BRIDGES AND TRAFFIC STRUCTURES
PASSED
ENGINEER OF DESIGN
APPROVED
CHIEF HIGHWAY ENGINEER

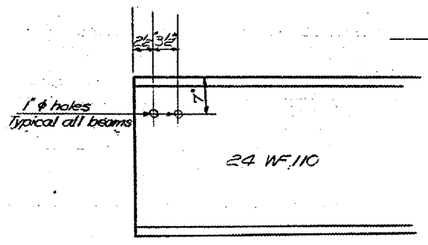
I-4 to 6-0 3-1-68

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

FAI 24
D9 BRIDGE PAINTING FY 08-1
JOHNSON & WILLIAMSON COUNTIES
CONTRACT 78020
SHEET 18 OF 35



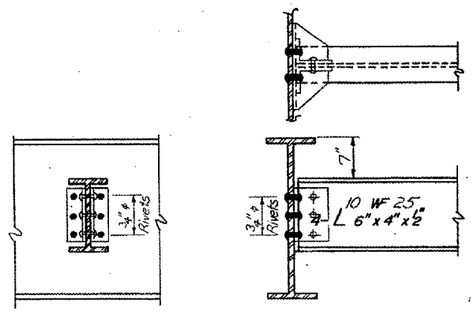
FRAMING PLAN
East Bound Lanes



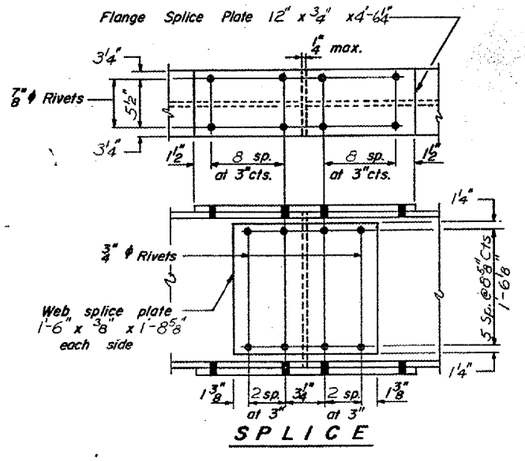
SECTION 1-1

TOP OF BEAM ELEVATIONS

	7	8	9	10	11	12
W. Abut.	526.39	526.53	526.65	526.55	526.42	526.26
Pier 1	525.31	525.45	525.57	525.47	525.34	525.18
Splice	524.98	525.13	525.24	525.15	525.02	524.85
Pier 2	523.78	523.92	524.04	523.95	523.81	523.65
E. Abut.	522.97	523.11	523.23	523.14	523.00	522.84



DIAPHRAGM D
25 Required



SPLICE

BRIDGE NO. 3
S.N. 044-0049
FOR INFORMATION ONLY

DESIGNED	
CHECKED	J. M. Patel
DRAWN	J. Sutherland / J. Schneller
CHECKED	J. M. P

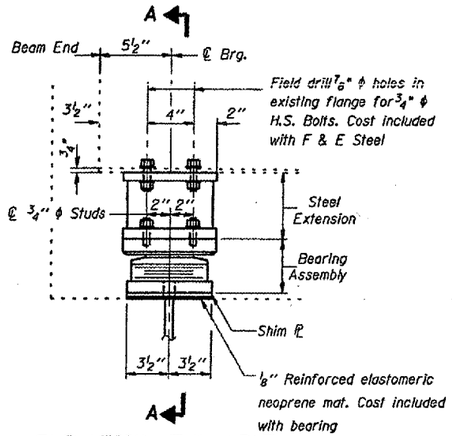
EXAMINED Aug 26 1969
ENGINEER OF BRIDGE AND TRAFFIC STRUCTURES
PASSED
ENGINEER OF DESIGN
APPROVED
CHIEF HIGHWAY ENGINEER

STRUCTURAL STEEL LAYOUT
EAST BOUND LANES
F.A.I. RT. 24 SEC. - 44-6HB-1
JOHNSON COUNTY
STATION 258+93.67 (E.B.)

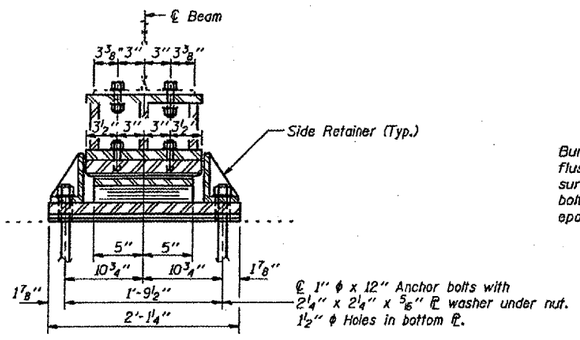
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI 24
D9 BRIDGE PAINTING FY 08-1
JOHNSON & WILLIAMSON COUNTIES
CONTRACT 78020
SHEET 19 OF 35

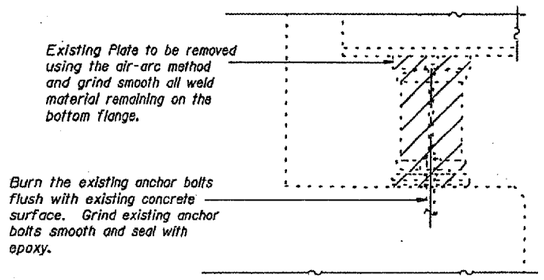
TYPE II TFE ELASTOMERIC EXP. BRG.



ELEVATION AT W. ABUT.



SECTION A-A



EXISTING BEARING REMOVAL DETAILS

Cost is included with Jack and Remove Existing Bearings

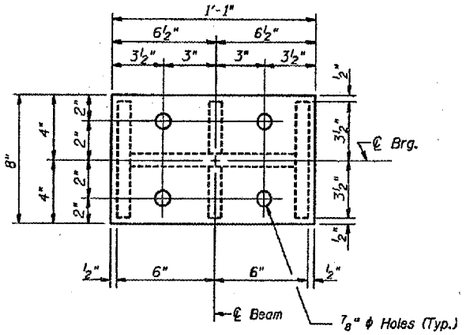
Notes: Diaphram removal and replacement may be required to facilitate drilling holes. Cost shall be included in the cost of Furnishing and Erecting Sturctural Steel.

New steel extensions, side retainers, shim ℄'s, connection bolts and anchor bolts are included in Furnishing and Erecting Structural Steel.

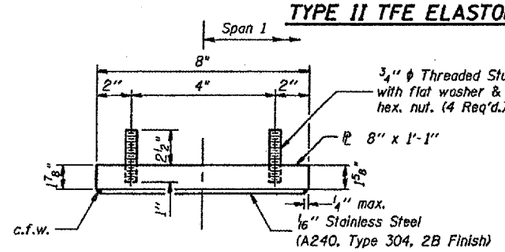
See Sheet 150 for Anchor Bolt Installation.

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

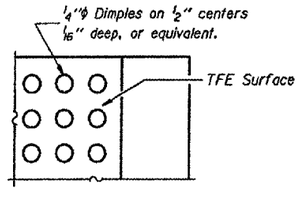
The minimum Jack capacity required is 30 Tons.



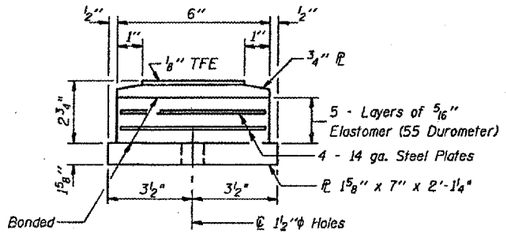
PLAN-TOP & BOTTOM PLATE



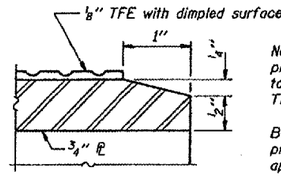
TOP BEARING ASSEMBLY



PLAN-TFE SURFACE



BOTTOM BEARING ASSEMBLY



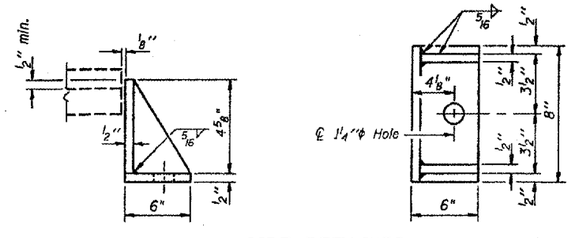
SECTION THRU TFE

Note: The ⅛" TFE sheet shall be bonded directly to the top steel plate with a two-component, medium viscosity epoxy resin, conforming to the requirements of the Federal Specification MMM-A-134, Type I. The bond agent shall be applied on the full area of the contact surfaces.

Bonding of ⅛" TFE sheet during vulcanizing process will be permitted provided the process and method of adjusting assembly height is approved by the Engineer.

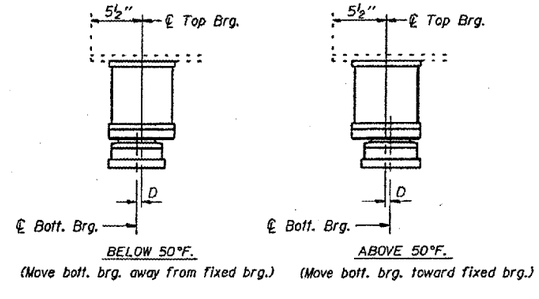
GIRDER REACTIONS

R℄	(K)	12.6
R℄	(K)	33.2
Imp.	(K)	10.0
R (Total)	(K)	55.8



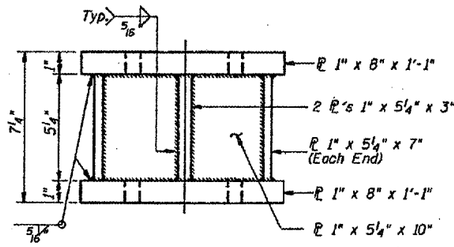
SIDE RETAINER

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



SETTING ANCHOR BOLTS AT EXP. BRG.

D=⅛" per each 100' of expansion for every 15° temp. change from the normal temp. of 50°F.



STEEL EXTENSION AT WEST ABUT.

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type II	Each	6
Jack and Remove Existing Bearings	Each	6

WEST ABUTMENT
TYPE II ELASTOMERIC BEARING
JOHNSON COUNTY
S.N. 044-0049 (E.B.)

DESIGNED:	MAS
CHECKED:	MAS
DRAWN:	JMB
CHECKED:	MAS

BRIDGE NO. 3
S.N. 044-0049
FOR INFORMATION ONLY

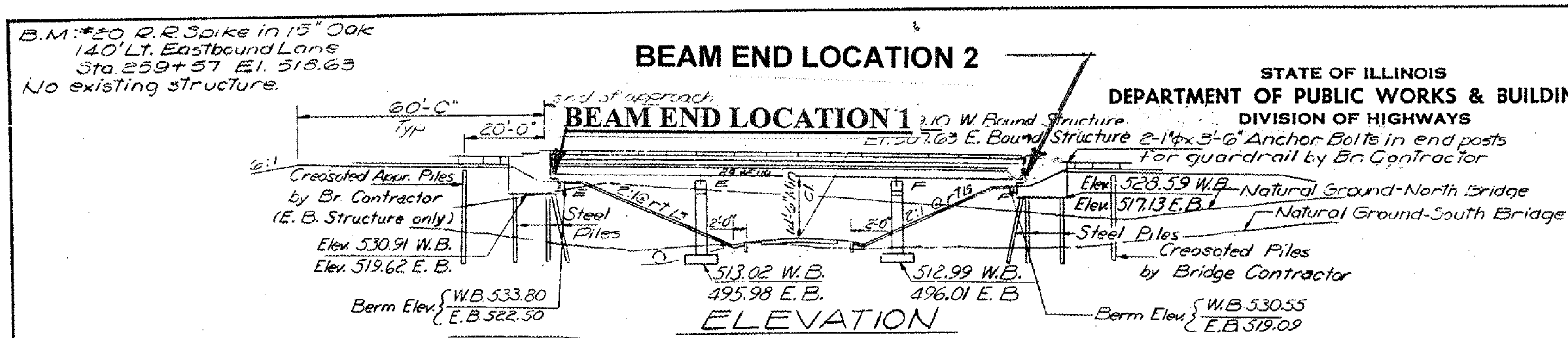
BRIDGE PL.

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

B.M. #20 R.R. Spike in 15" Oak 140' Lt. Eastbound Lane Sta. 259+57 El. 518.63
No existing structure.

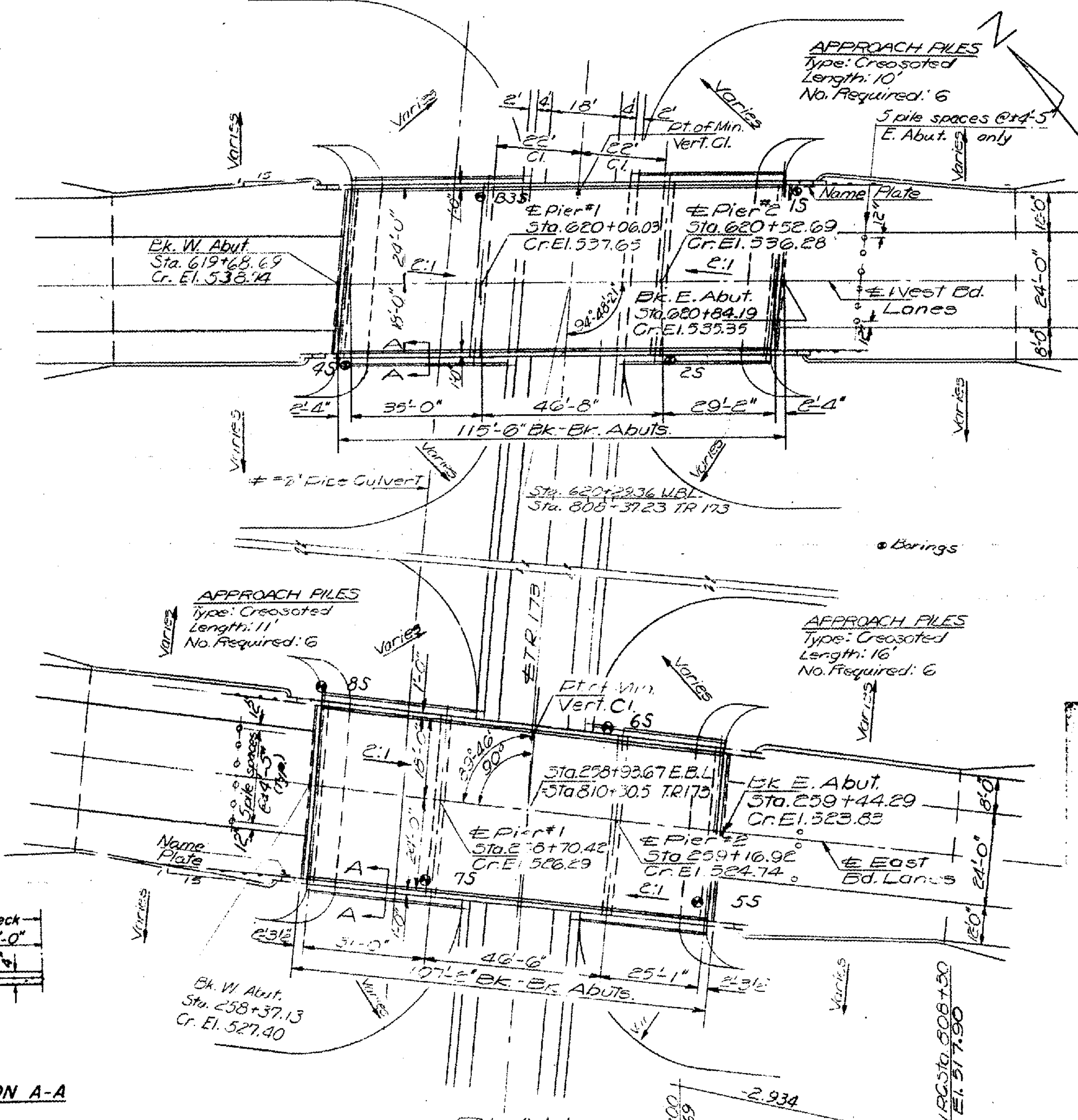
BEAM END LOCATION 2

BEAM END LOCATION 1

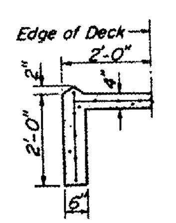


ELEVATION

Note: Deck shall be poured commencing at the West Abutments and shall continue to the East Abutments.



PLAN



SECTION A-A

STATION 620+29.36 BUILT BY STATE OF ILLINOIS F.A.I. RT. 24 SEC. 44-6HB-1 F.A. PROJ. I-24-1(30) LOADING HS20-44 & ALT.	STATION 258+93.67 BUILT BY STATE OF ILLINOIS F.A.I. RT. 24 SEC. 44-6HB-1 F.A. PROJ. I-24-1(30) LOADING HS20-44 & ALT.

NAME PLATES
See Std. 2113-1

STRESS TABLE - W. BOUND STRUCTURE

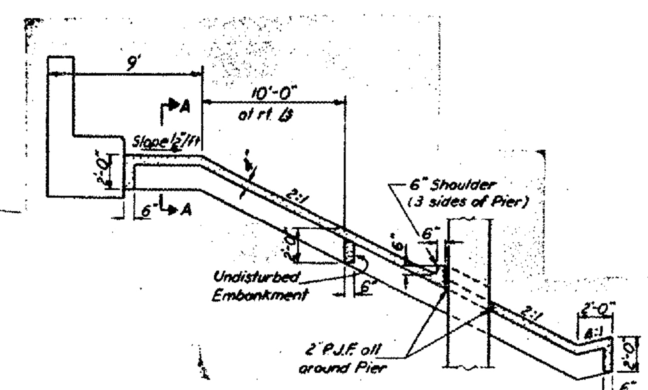
Table of Moments and Reactions - Interior Beam

	Moments (Ft. Kips)					Reactions (Kips)			
	.4 Sp.1	Pier 1	.5 Sp.2	Pier 2	.4 Sp.3	W. Abut.	Pier 1	Pier 2	E. Abut.
D.L.	93.9	-218.8	131.7	-190.0	50.0	15.36	57.30	52.72	11.49
L.L.	215.2	-175.8	228.5	-173.8	178.1	34.66	45.41	45.92	32.31
Imp.	64.5	-52.8	68.5	-52.1	53.4	10.39	13.62	13.78	9.69
Total	373.6	-447.4	428.7	-415.9	281.5	60.41	116.33	112.42	53.49

STRESS TABLE - E. BOUND STRUCTURE

Table of Moments and Reactions - Interior Beam

	Moments (Ft. Kips)					Reactions (Kips)			
	.4 Sp.1	Pier 1	.5 Sp.2	Pier 2	.4 Sp.3	W. Abut.	Pier 1	Pier 2	E. Abut.
D.L.	60.7	-204.2	139.4	-184.5	19.4	12.55	54.87	51.13	8.13
L.L.	189.3	-164.3	220.8	-180.4	151.2	33.15	44.84	46.15	32.31
Imp.	56.8	-49.3	66.3	-54.1	.454	9.95	13.45	13.85	9.34
Total	306.8	-417.8	426.5	-419.0	216.0	55.65	113.16	111.13	48.60



SECTION THRU SLOPEWALL

All reinfor[...] diameters w[...]

Rivets ¾" φ, open holes 13/16" φ, unless otherwise noted.

Diaphragm connections may be adapted to shop welding subject to approval by the Engineer.

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 beams or 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 riveting diaphragms over supports.

Slope wall shall be reinforced with welded wire fabric 6"x6" mesh, weighing 58# per 100 sq. ft.

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

The Contractor shall drive 1 steel test pile each in permanent locations at west abutment carrying west bound lanes and at the east abutment carrying east bound lanes as directed by the Engineer before ordering the remainder of piles.

Class A Excavation for structures includes excavation for slope wall.

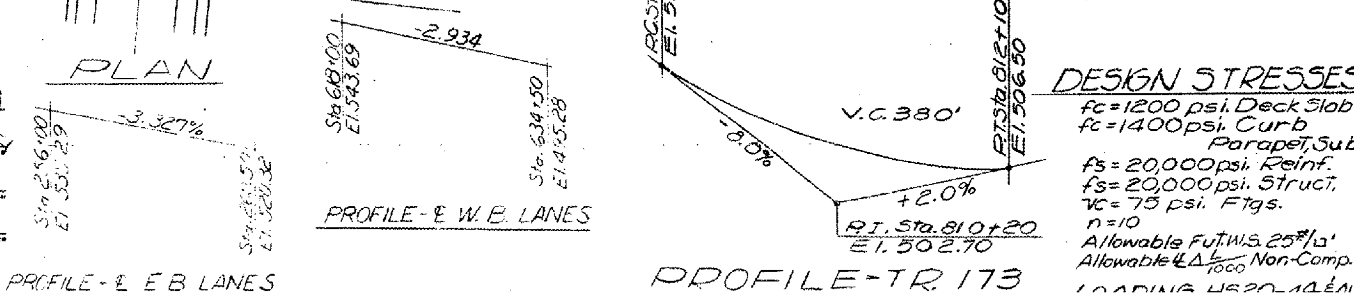
The embankment configuration shown shall be the minimum embankment that must be constructed prior to construction of the abutments.

The concrete rail section above the mandatory construction joint at the top of the slab shall be constructed of Class X Conc. except the aggregates shall conform to the requirements of Handrail Conc.

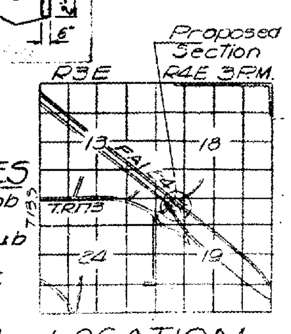
BILL OF MATERIAL

Item	Unit	Sub.	Super	Total
Class "A" Excavation for Structures	Cu. Yds.	830		830
Rock Excavation for Structures	Cu. Yds.	80		80
Protective Coat	Sq. Yds.		1,160	1,160
Class X Concrete	Cu. Yds.	446.7	309.2	755.9
Aluminum Railing	Lin. Ft.		435	435
Reinforcement Bars	Pounds	32,230	76,990	109,220
Steel Piles (8 BP36)	Lin. Ft.	1,062		1,062
Test Piles Steel (8BP36)	Each	2		2
Name Plates	Each	2		2
Creosoted Piles (up to 20')	Lin. Ft.	222		222
Slope Wall 4"	Sq. Yds.	1,000		1,000
* Structural Steel	L. Sum		1	1
Preformed Joint Sealer	Lin. Ft.		84	84

BRIDGE NO. 4
S.N. 044-0050
FOR INFORMATION ONLY



DESIGN STRESSES
f'c = 1200 psi. Deck Slab
f'c = 1400 psi. Curb Parapet, Sub
fs = 20,000 psi. Reinf.
fs = 20,000 psi. Struct.
Vc = 75 psi. Ftgs.
n = 10
Allowable Fut. W.S. 25#/□'
Allowable ℄ A L/1000 Non-Comp.
LOADING HS20-44 & ALT.



LOCATION SKETCH

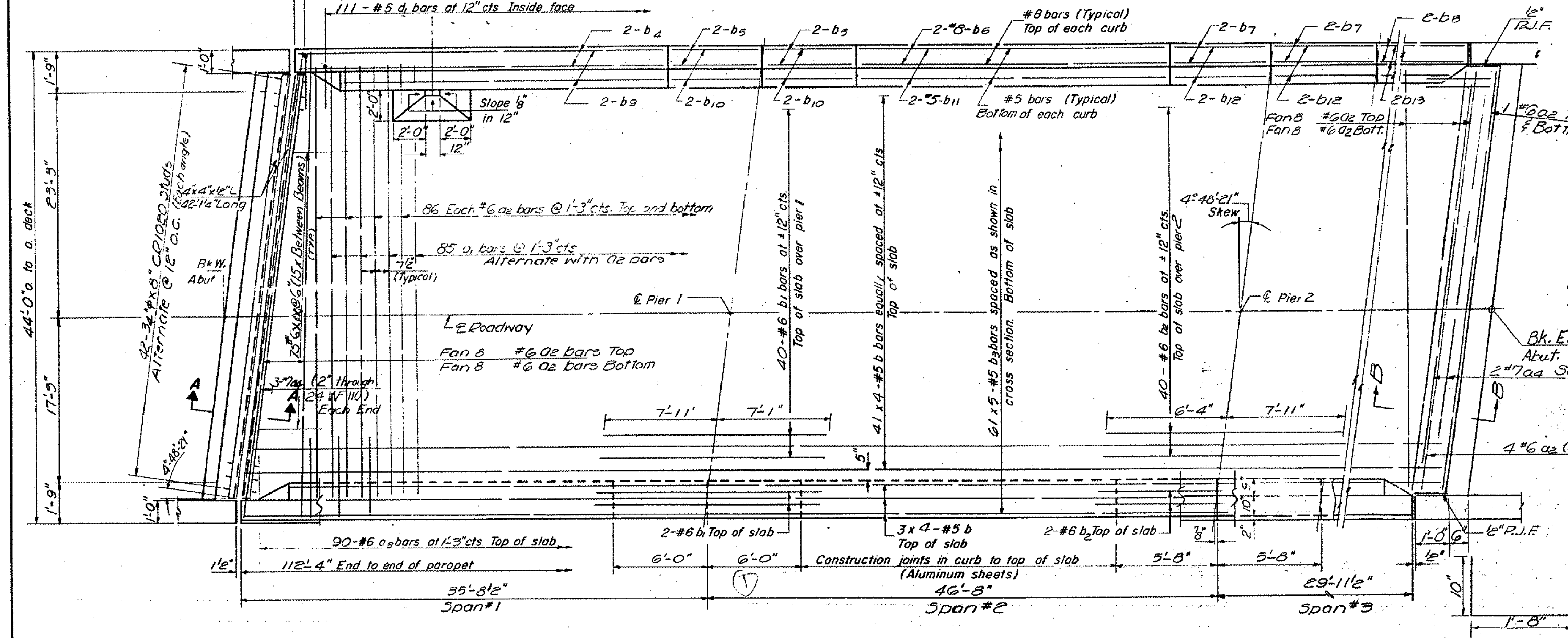
GENERAL PLAN & ELEVATION
F.A.I. RT. 24 OVER T.R. 173
F.A.I. ROUTE 24
SECTION 44-6HB-1
JOHNSON COUNTY
STATION 620+29.36 W.B.L.
STATION 258+93.67 E.B.L.

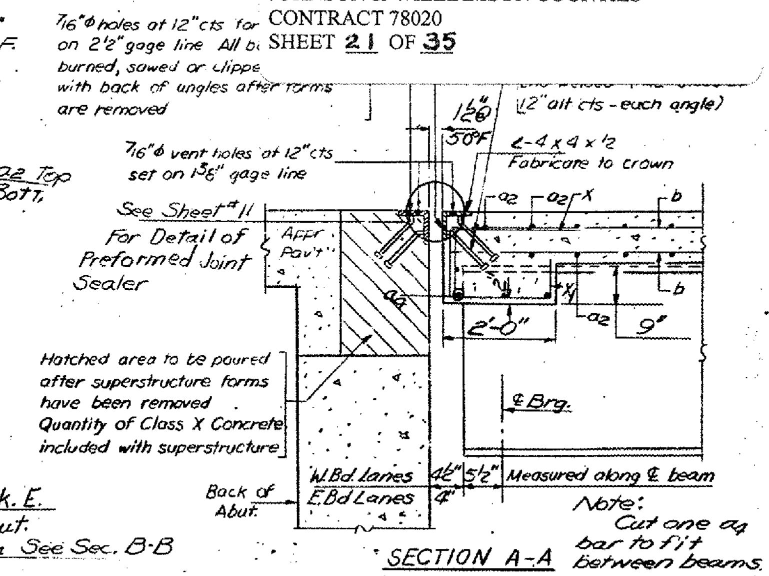
DESIGNED	Kuriam C. Dalbe S.E.
CHECKED	J. J. Patel
DRAWN	J. Sutherland
CHECKED	

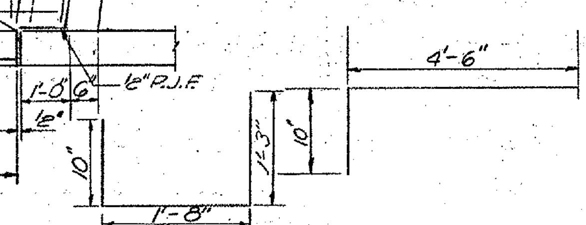
EXAMINED Aug 26 1969
PASSED
APPROVED
ENGINEER OF BRIDGE AND TRAFFIC STRUCTURES
ENGINEER OF DESIGN
CHIEF HIGHWAY ENGINEER

Note
Bars indicated thus 20 x 3 - #5 etc. indicates 20 lines of bars with 3 lengths per line.
Min bar laps = 24 dia

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

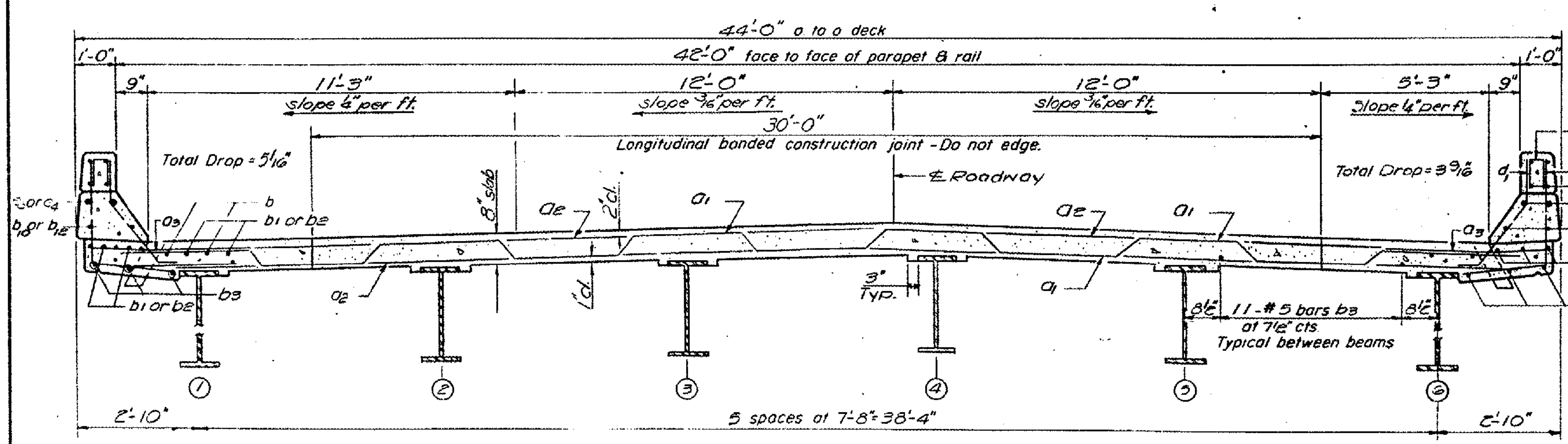






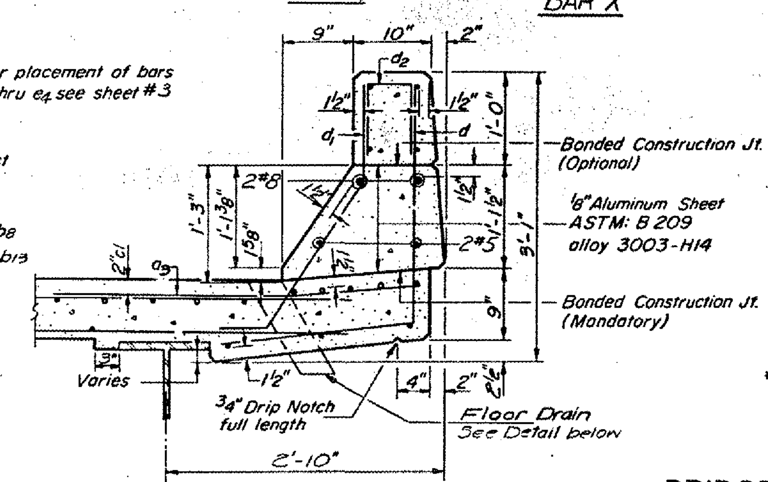
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a_1	85	#6	43'-8"	
a_2	210	#6	42'-0"	
a_3	180	#6	4'-0"	
a_4	5	#7	38'-3"	
b	188	#5	29'-0"	
b_1	44	#6	15'-0"	
b_2	44	#6	14'-3"	
b_3	305	#5	23'-6"	
b_4	4	#8	29'-6"	
b_5	8	#8	5'-9"	
b_6	4	#8	34'-6"	
b_7	8	#8	5'-6"	
b_8	4	#8	24'-0"	
b_9	4	#5	29'-6"	
b_{10}	8	#5	5'-9"	
b_{11}	4	#5	34'-6"	
b_{12}	8	#5	5'-6"	
b_{13}	4	#5	24'-0"	
d	226	#4	4'-6"	
d_1	222	#5	3'-5"	
x	75	#6	5'-4"	
x_1	75	#6	4'-2"	
Reinforcement Bars			Lbs.	39580
* Structural Steel			Lbs.	Lump Sum
Class X Concrete			Cu. Yds.	152.2



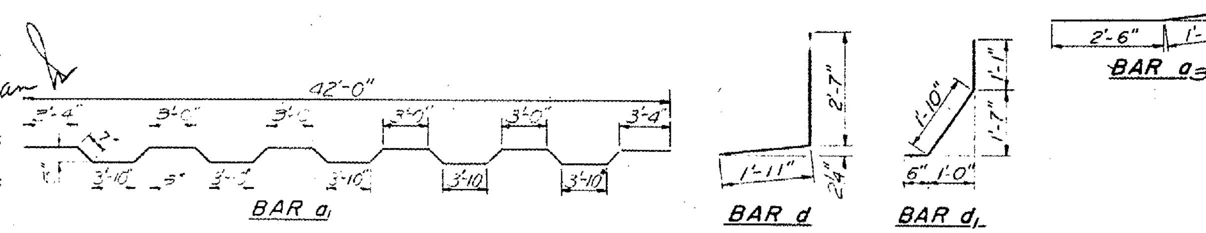
Note For placement of bars d_2 & e thru e_4 see sheet #3

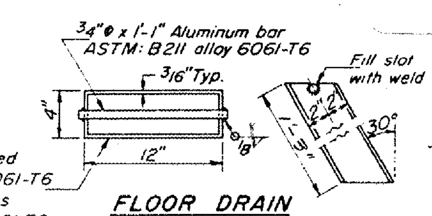
CROSS SECTION
LOOKING EAST



CURB SECTION
Cost of Aluminum Drains and Sheets shall be incidental to Class X Concrete

BRIDGE NO. 4
S.N. 044-0050
FOR INFORMATION ONLY





DESIGNED	[illegible]
CHECKED	J. M. Patel
DRAWN	J. Sutherland
CHECKED	J.M.P.

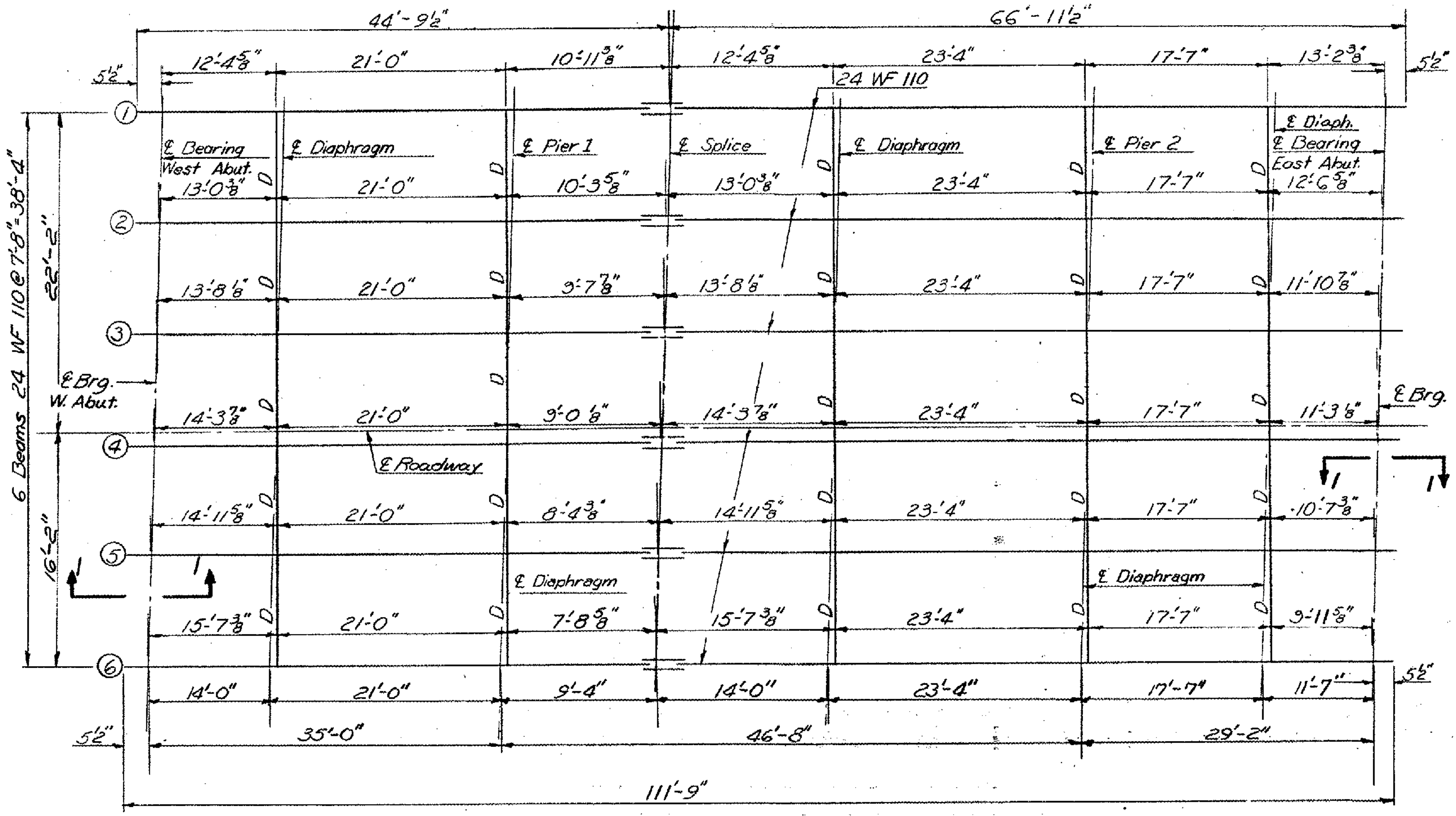
EXAMINED Aug 26 1969 Carl E. Thuman
ENGINEER OF BRIDGE AND TRAFFIC STRUCTURES
PASSED
ENGINEER OF DESIGN
APPROVED
CHIEF HIGHWAY ENGINEER

* quantities. See sheet 3

SUPERSTRUCTURE
WEST BOUND LANES
F.A.I. RT. 24 SEC. 44-6HB-1
JOHNSON COUNTY
STA. 620+29.36 (W.B.L.)

I-4 to 6-L (≤15°) 3.1.68

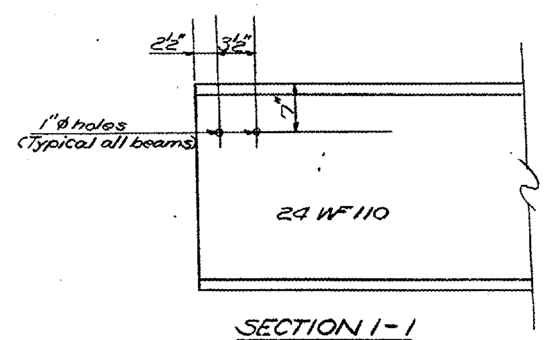
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS



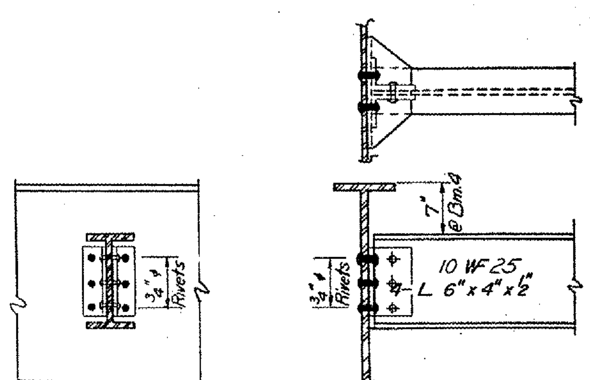
FRAMING PLAN
West Bound Lanes

TOP OF BEAM ELEVATION

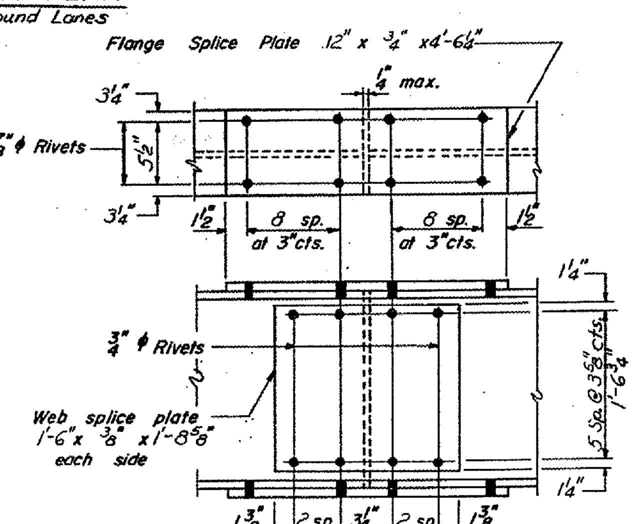
	1	2	3	4	5	6
W. Abut.	537.55	537.73	537.88	537.99	537.89	537.77
Pier #1	536.48	536.65	536.81	536.92	536.82	536.70
Splice	536.19	536.37	536.52	536.63	536.53	536.41
Pier #2	535.13	535.31	535.46	535.57	535.47	535.35
E. Abut.	534.30	534.48	534.63	534.74	534.64	534.52



SECTION 1-1



DIAPHRAGM D
25 Required



SPLICE

BRIDGE NO. 4
S.N. 044-0050
FOR INFORMATION ONLY

DESIGNED	[illegible]
CHECKED	J. M. Patel
DRAWN	J.R. Sutherland J. Schneller
CHECKED	J. M. P.

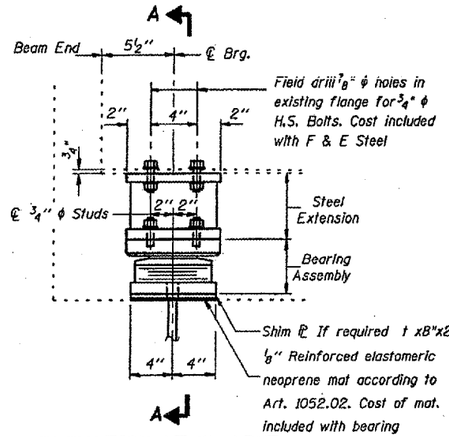
EXAMINED Aug. 26, 1969 Carl E. Thunman Jr.
ENGINEER OF BRIDGE AND TRAFFIC STRUCTURES
PASSED
ENGINEER OF DESIGN
APPROVED
CHIEF HIGHWAY ENGINEER

STRUCTURAL STEEL LAYOUT
WEST BOUND LANES
F.A.I. RT. 24 SEC. - 44-6HB-1
JOHNSON COUNTY
STATION 620+29.36 (W.B.)

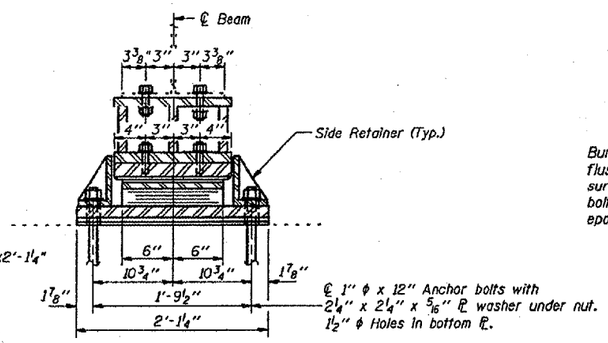
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI 24
D9 BRIDGE PAINTING FY 08-1
JOHNSON & WILLIAMSON COUNTIES
CONTRACT 78020
SHEET 23 OF 35

TYPE II TFE ELASTOMERIC EXP. BRG.

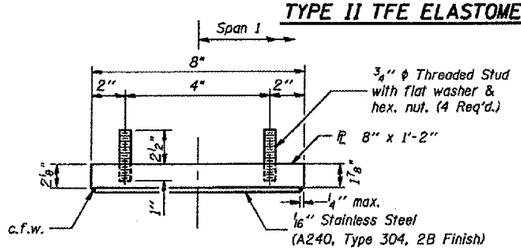


ELEVATION AT W. ABUT.

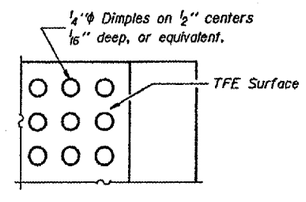


SECTION A-A

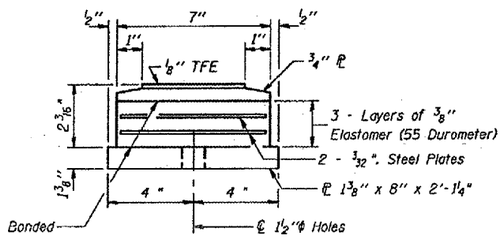
Notes: See sheet 150 for Anchor Bolt installation.



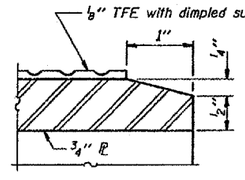
TOP BEARING ASSEMBLY



PLAN-TFE SURFACE



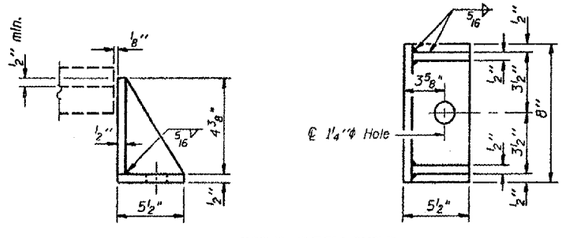
BOTTOM BEARING ASSEMBLY



Note: The ⅛" TFE sheet shall be bonded directly to the top steel plate with a two-component, medium viscosity epoxy resin, conforming to the requirements of the Federal Specification MMM-A-134, Type I. The bond agent shall be applied on the full area of the contact surfaces.

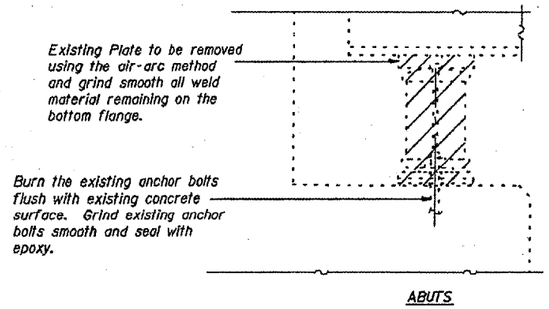
Bonding of ⅛" TFE sheet during vulconizing process will be permitted provided the process and method of adjusting assembly height is approved by the Engineer.

SECTION THRU TFE



SIDE RETAINER

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



ABUTS

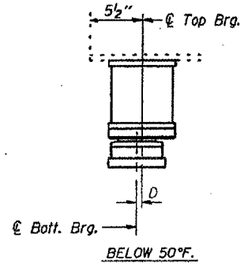
EXISTING BEARING REMOVAL DETAILS

Cost is included with Jack and Remove Existing Bearings

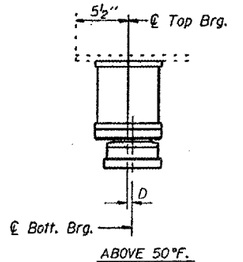
Notes: Prior to ordering any material, the Contractor shall verify in the field all bearing height and shim thickness dimensions.
The minimum jack capacity required is 30 Tons.
New steel extensions, side retainers, connection bolts, anchor bolts, and shim plates are included in "Furnishing and Erecting Structural Steel".
Hatched areas indicate Jack and Remove Existing Bearings.
Existing diaphragm removal may be required to provide clearance for the drill during drilling holes in the bottom flange for new bearing attachment. Cost shall be included in the cost of "Furnishing and Erecting Structural Steel".

GIRDER REACTIONS

R℄	(K)	15.4
R¢	(K)	34.7
Imp.	(K)	10.4
R (Total)	(K)	60.5



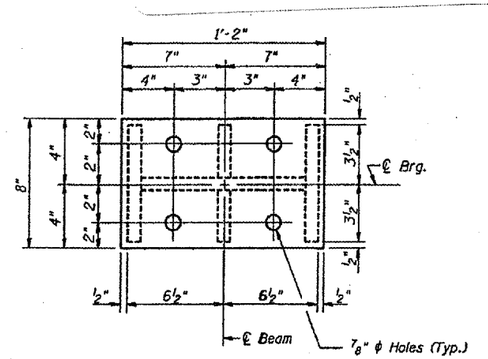
BELOW 50°F.
(Move bott. brg. away from fixed brg.)



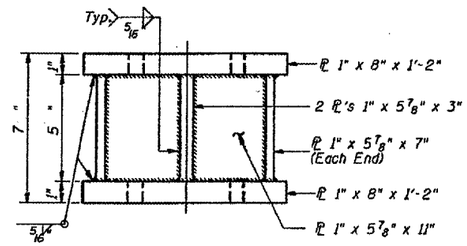
ABOVE 50°F.
(Move bott. brg. toward fixed brg.)

SETTING ANCHOR BOLTS AT EXP. BRG.

D=⅛" per each 100' of expansion for every 15° temp. change from the normal temp. of 50°F.



PLAN-TOP & BOTTOM PLATE



STEEL EXTENSION AT WEST ABUT.

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type II	Each	6
Jack and Remove Existing Bearings	Each	6

WEST ABUTMENT
TYPE II ELASTOMERIC BEARING
JOHNSON COUNTY
S.N. 044-0050 (W.B.)

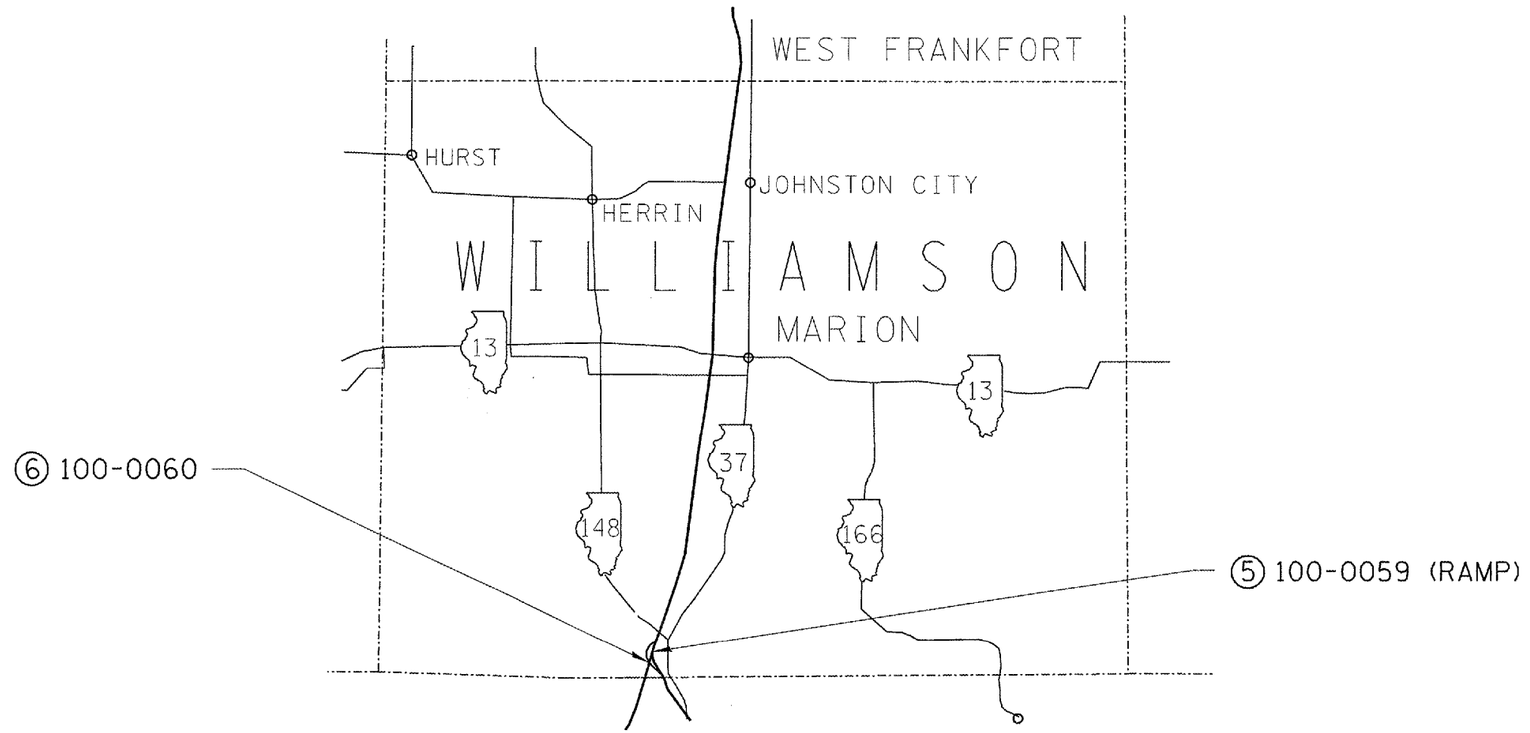
DESIGNED:	MAS
CHECKED:	MAS
DRAWN:	JMB
CHECKED:	MAS

BRIDGE NO. 4
S.N. 044-0050
FOR INFORMATION ONLY

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAI 24	•	JOHNSON WILLIAMSON	35	24

•SECTION D9 BRIDGE PAINTING FY 08-1
CONTRACT NO. 78020

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

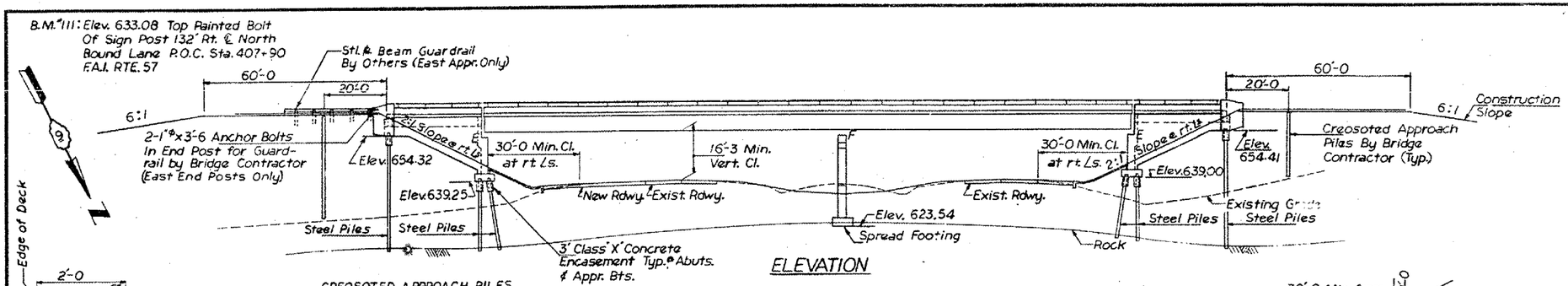


⑤ 100-0059	0.94 MILES SOUTH OF ILL 148 INTERSTATE 24 EXIT RAMP OVER INTERSTATE 57 LENGTH: 279.3 FT. WIDTH: 27.8 FT. ADT = 250, 24% TRUCKS POSTED SPEED = 55 M.P.H. INVENTORY RATING HS 27.8 OPERATING RATING HS 42.8

⑥ 100-0060	1.4 MILES SOUTH OF ILL 148 INTERSTATE 24 OVER INTERSTATE 57 LENGTH: 394.3 FT. WIDTH: 43.8 FT. ADT = 7950, 36% TRUCKS POSTED SPEED = 65 M.P.H. INVENTORY RATING HS 28.6 OPERATING RATING HS 50.9

FAI 24
D9 BRIDGE PAINTING FY 08-1
JOHNSON & WILLIAMSON COUNTIES
CONTRACT 78020
SHEET 25 OF 35

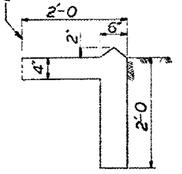
B.M. "111": Elev. 633.08 Top Painted Bolt Of Sign Post 132' Rt. ℄ North Bound Lane P.O.C. Sta. 407+90 F.A.I. RTE. 57



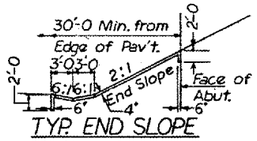
ELEVATION

CREOSOTED APPROACH PILES

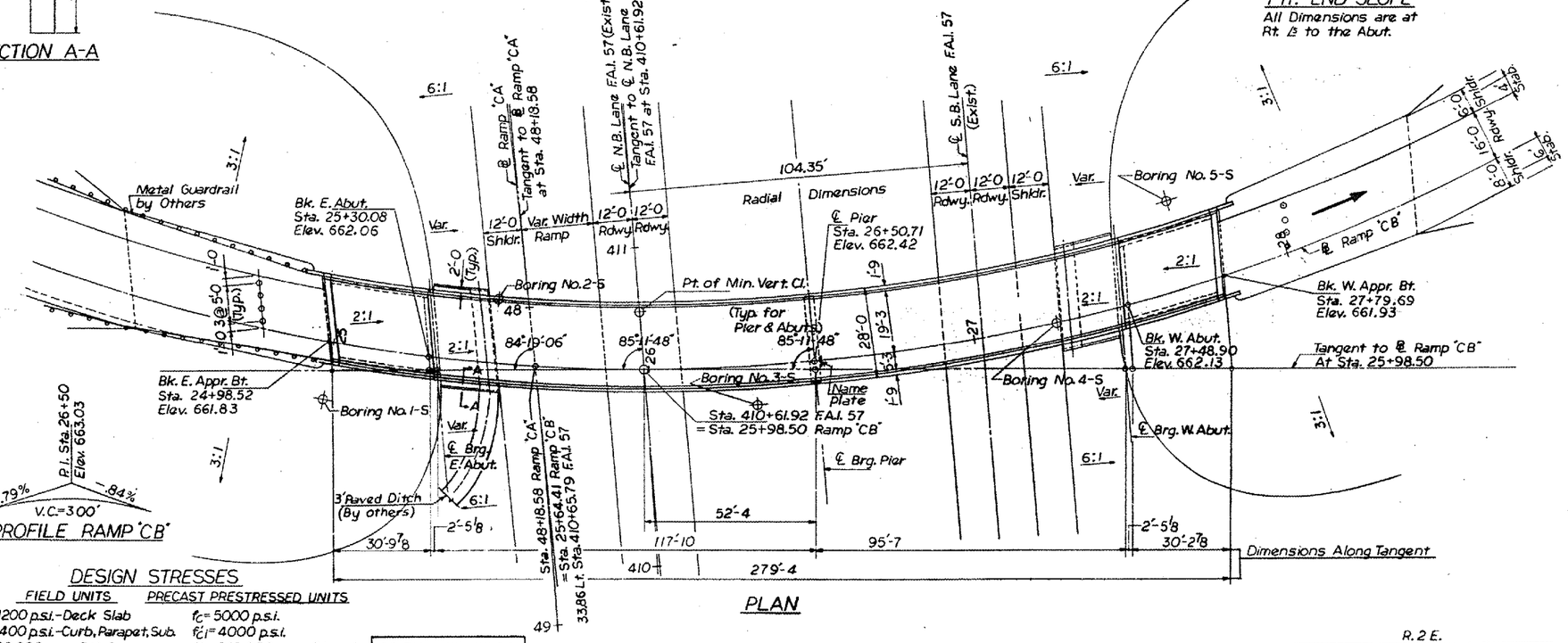
	W. Appr.	E. Appr.
No. Reqd.	4	4
Length	17	34



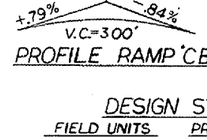
SECTION A-A



TYP. END SLOPE
All Dimensions are at Rt. ℄ to the Abut.



PLAN



PROFILE RAMP 'CB'

DESIGN STRESSES

FIELD UNITS	PRECAST PRESTRESSED UNITS
f_c = 1200 p.s.i.-Deck Slab	f_c = 5000 p.s.i.
f_c = 1400 p.s.i.-Curb, Parapet, Sub.	f'_{ci} = 4000 p.s.i.
f_s = 20,000 p.s.i.-Reinf.	f_s = 248,000 p.s.i.-Strands
f_s = 20,000 p.s.i.-Struct.	f'_{si} = 173,600 p.s.i.-Strands
v_c = 75 p.s.i. Ftgs.	
n = 10	

Allowable ℄ Defl. = $\frac{L}{1000}$ Non-Comp.
Allowable Fut. Wearing Surf. = 25#/a'
Loading = HS20-44 & Alternate

STATION 25+98.50
BUILT 19 BY
STATE OF ILLINOIS
F.A.I. RT 24 SEC. XI-2HB-2
F.A. PROJ. 1-24-1(32)O
LOADING HS20

NAME PLATE
STANDARD 2113

CURVE DATA

Curve	P.I.	Curve No.	△	D	R	T	L
℄ N.B. Lane F.A.I. 57	419+75.42	—	19°-16'-30"	0°-28'-00"	12,277.70	2084.88	4130.36
Ramp CA	52+01.42	2	7°-23'-50"	0°-28'-05"	12,238.72	791.14	1580.07
Ramp CB	30+61.92	4	112°-33'-47"	9°-57'-52"	575.00	861.58	1129.54

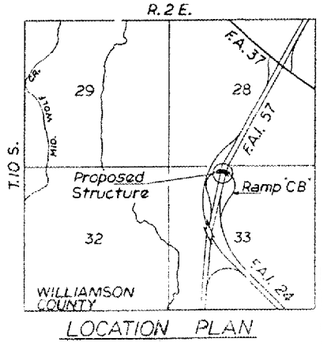
EXISTING F.A.I. 57 PAVEMENT ELEVATIONS

℄ N.B. Lane — Edge of Pav't. — ℄ S.B. Lane

Edge of Paved Shoulder | 10'-0 | 12'-0 | 12'-0 | 80.35' | 12'-0 | 12'-0 | 10'-0 | Edge of Paved Shoulder

STATION								
408	633.41	633.86	634.01	633.81	633.81	633.96	633.81	633.49
409	635.49	635.76	635.86	635.74	635.62	635.79	635.61	635.33
410	637.17	637.55	637.69	637.55	637.45	637.59	637.42	637.09
411	638.77	639.16	639.31	639.17	639.15	639.26	639.10	638.75
412	640.06	640.53	640.68	640.59	640.54	640.67	640.53	640.20
413	641.35	642.01	642.08	641.91	641.95	642.09	641.94	641.58

STATE OF ILLINOIS HAROLD M. MAXWELL 2364 REGISTERED STRUCTURAL ENGINEER



LOCATION PLAN

1. ALL REINFORCEMENT BARS SHALL BE LAPPED 24 DIAMETERS UNLESS OTHERWISE SHOWN.
2. FASTENERS SHALL BE HIGH STRENGTH BOLTS. BOLTS 3/4" Ø, OPEN HOLES 13/16" Ø, UNLESS OTHERWISE NOTED.
3. CALCULATED WEIGHT OF STRUCTURAL STEEL 304,820 LBS.
4. THE BASIC LEAD SILICO CHROMATE PAINT SYSTEM SHALL BE USED FOR SHOP AND FIELD PAINTING OF STRUCTURAL STEEL.
5. 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.
6. ANCHOR BOLTS SHALL BE SET BEFORE BOLTING CROSS FRAMES OVER SUPPORTS.
7. SLOPE WALL SHALL BE REINFORCED WITH WELDED WIRE FABRIC 6" X 6" MESH, WEIGHING 58# PER 100 SQ. FT.
8. THE CONTRACTOR SHALL DRIVE ONE STEEL TEST PILE IN A PERMANENT LOCATION AT EACH ABUTMENT AS DIRECTED BY THE ENGINEER BEFORE ORDERING THE REMAINDER OF PILES.
9. AN ALTERNATE STRAND PATTERN USING EXTRA HIGH STRENGTH PRESTRESSING STRAND (270K.S.I.) IS PERMITTED.
10. THE EMBANKMENT CONFIGURATION SHOWN SHALL BE THE MINIMUM EMBANKMENT THAT MUST BE CONSTRUCTED PRIOR TO CONSTRUCTION OF THE ABUTMENTS.
11. THE CONCRETE RAIL SECTION ABOVE THE MANDATORY CONSTRUCTION JOINT AT THE TOP OF THE SLAB SHALL BE CONSTRUCTED OF CLASS X CONCRETE, EXCEPT THE AGGREGATES SHALL CONFORM TO THE REQUIREMENTS OF HANDRAIL CONCRETE.

BILL OF MATERIAL

ITEM	UNIT	SUB-STRUCT.	SUPER-STRUCT.	TOTAL
Rock Excavation for Structures	Cu. Yds.	7.4		7.4
Structure Excavation	Cu. Yds.	169	-	169
Furnishing & Erecting Structural Steel	L. S.		.5	.5
Aluminum Railing	Lin. Ft.		552	552
Class X Concrete	Cu. Yds.	237.7	281.3	519.0
Reinforcement Bars	Lbs.	25,030	66,800	91,830
Protective Coat	Sq. Yds.		981	981
Steel Piles (8BP36)	Lin. Ft.	1,008		1,008
Creosoted Piles, up to 20'	Lin. Ft.	68		68
Creosoted Piles, 20.1 to 38'	Lin. Ft.	136		136
Test Piles, Steel (8BP36)	Each	2		2
Name Plates	Each	1		1
Slope Wall, 4"	Sq. Yds.	164		164
Bridge Seat Sealer	L.S.	.5		.5
Furnishing and Erecting P.P.C.I.-Beams, 36"	Lin. Ft.		126	126

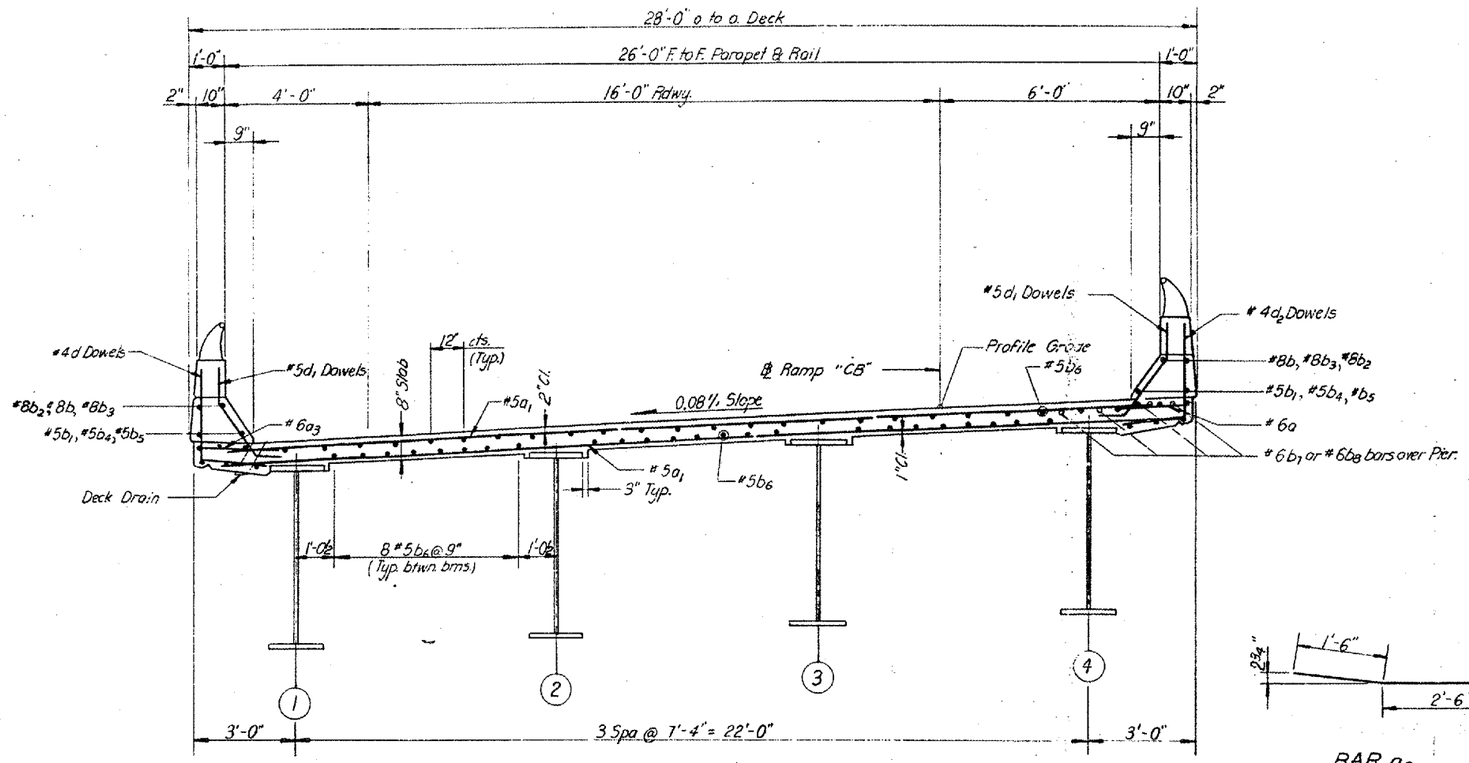
BRIDGE NO. 5
S.N. 100-0059
FOR INFORMATION ONLY

TORNROSE, CAMPBELL & ASSOCIATES
CHICAGO, ILLINOIS

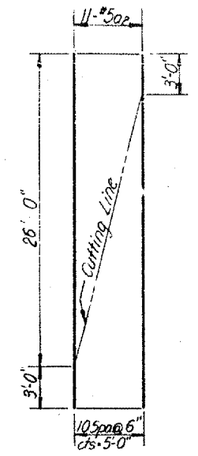
F.A.I. ROUTE 24
PROJECT _____ SECTION XI-2HB-2
WILLIAMSON COUNTY

GENERAL PLAN & ELEVATION
RAMP 'CB' STATION 25+98.50

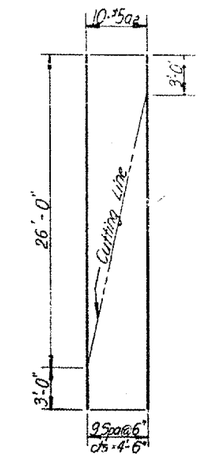
Designed By: L.P.	Drawn By: W.C.	Quantities By: H.M.
Checked By: H.M.	Checked By: H.M.	Checked By: L.P.



CROSS SECTION - SPAN 2 & 3



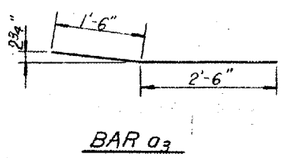
CUTTING DIAGRAM "A"



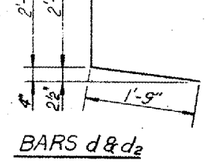
CUTTING DIAGRAM "B"

a	216	#6	4'-0"
a_1	864	#5	26'-0"
a_2	21	#5	29'-0"
a_3	216	#6	4'-0"
b	8	#8	17'-2"
b_1	8	#5	17'-2"
b_2	12	#8	35'-0"
b_3	8	#8	40'-6"
b_4	16	#5	26'-4"
b_5	12	#5	27'-2"
b_6	480	#5	28'-3"
b_7	29	#6	12'-0"
b_8	29	#6	34'-0"
d	216	#4	4'-4"
d_1	432	#5	3'-5"
d_2	216	#4	4'-5"
Reinforcement Bars		Lbs.	48890
Class X Concrete		Cu. Yds	190.6
* Structural Steel		Lbs.	304620

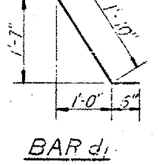
* Weight of bearing assemblies with lead plates and anchor bolts are included as structural steel.
Est. Weight = 4,740 Lbs.



BAR a_3

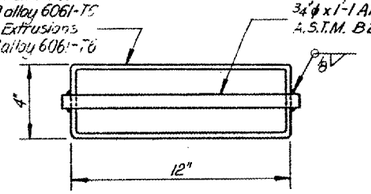


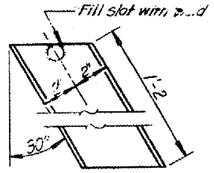
BARS d & d_2



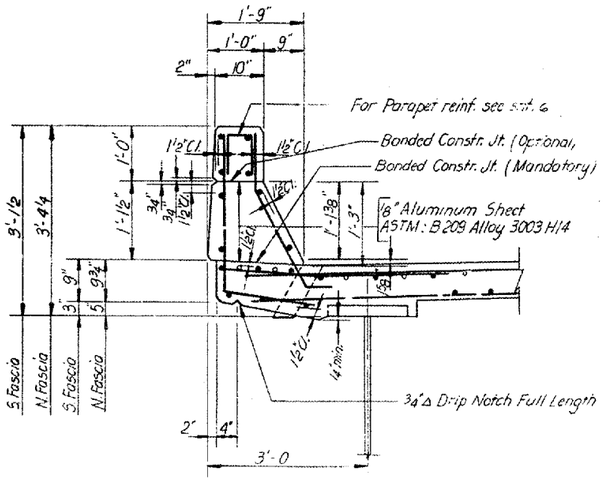
BAR d_1

3/16" Aluminum Sheets Welded A.S.T.M. B 209 alloy 6061-T6 or Aluminum Extrusions A.S.T.M. B 221 alloy 6061-T6



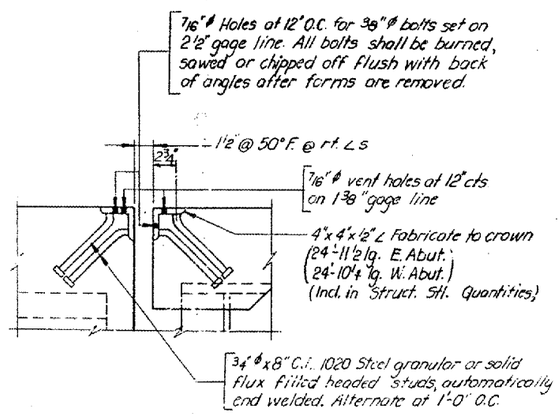


The Lengths & Quantities of Reinforcement and Class x Concrete in Parapets are not included in above Quantities.
Work this sheet with sheet 2.

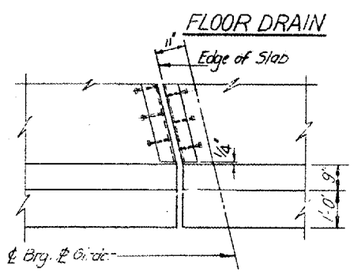


CURB SECTION

Cost of Aluminum [illegible] S. Fascia
[illegible] Incidental to Class X Concrete



SECTION A-A
THRU DECK JOINT AT ABUTMENT



CORNER DETAIL

BRIDGE NO. 5
S.N. 100-0059
FOR INFORMATION ONLY

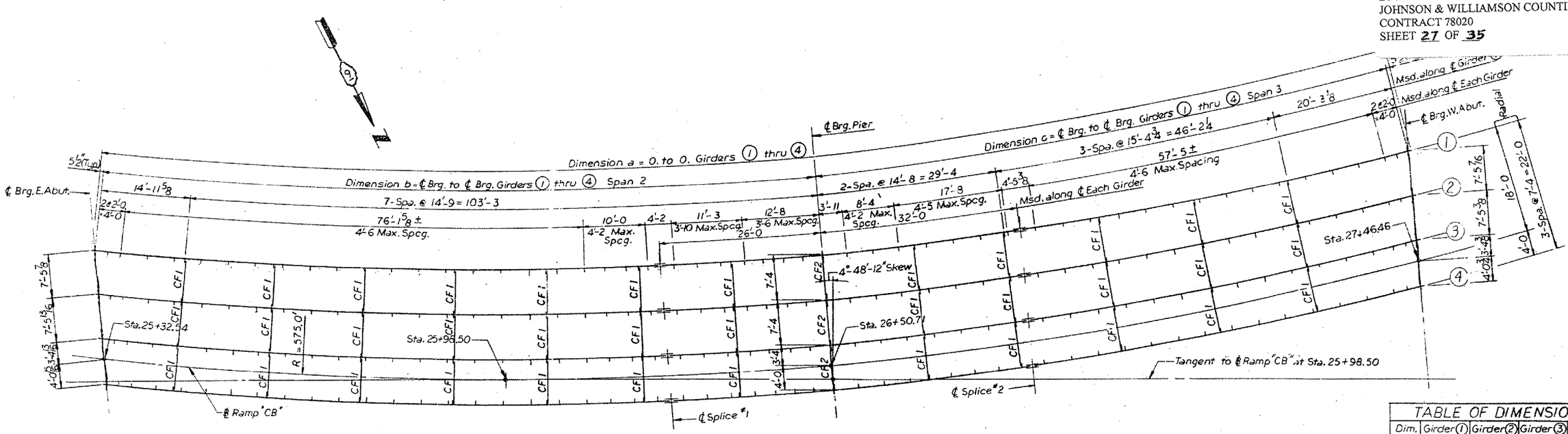
ILLINOIS DIVISION OF HIGHWAYS

F.A.I. ROUTE 24
PROJECT _____ SECTION XI-2 HB-2
WILLIAMSON COUNTY

DECK DETAILS

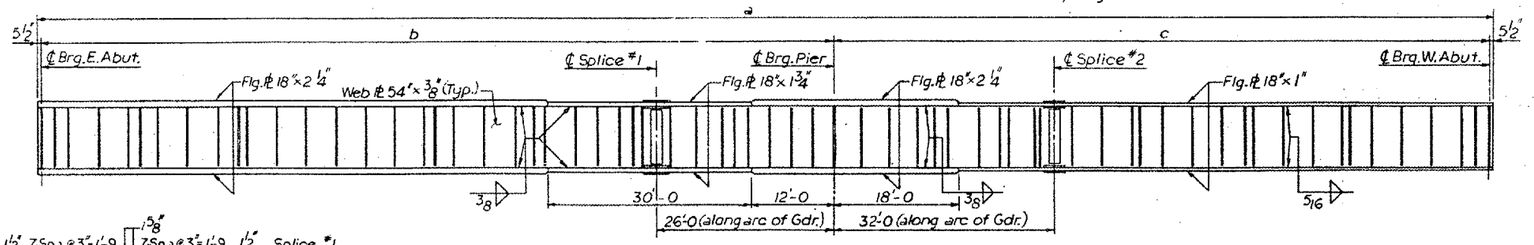
Designed By: HM	Drawn By: EK	Quantities By: EM
Checked By: WF	Checked By: LP	Checked By: LP

FAI 24
D9 BRIDGE PAINTING FY 08-1
JOHNSON & WILLIAMSON COUNTIES
CONTRACT 78020
SHEET 27 OF 35

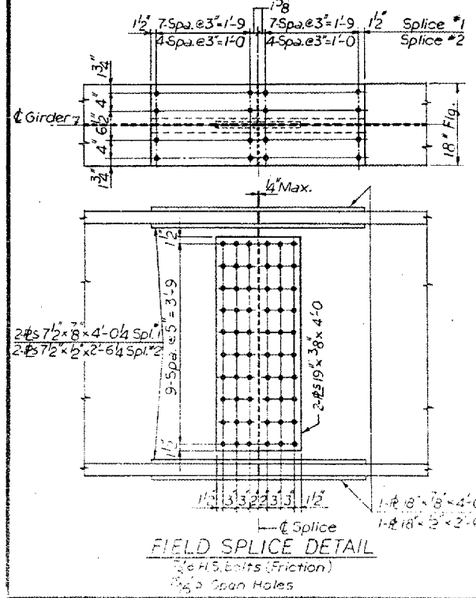


FRAMING PLAN

All CF1 Diaphragms are radial.

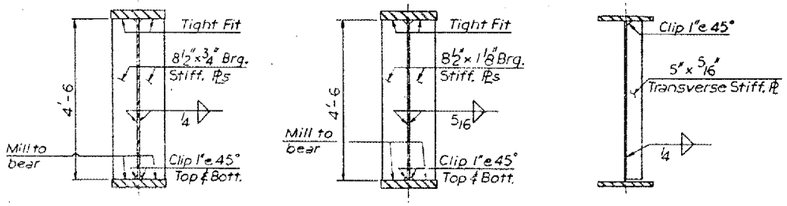


GIRDER ELEVATION



FIELD SPLICE DETAIL

(See HS Bolts (Friction) for Span Holes)



SECTION AT ABUTMENTS | SECTION AT PIER | TYPICAL SECTION NEAR ABUTMENT

NOTE:

Transverse Stiffeners between splices shall be welded to bottom flange with ¼" fillet weld and shall have ⅝" undercut at top. Remainder of Stiffeners shall be welded to top flange with ¼" fillet weld and shall have ⅝" undercut at bott.

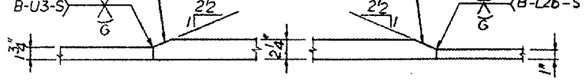
Transverse Stiff.'s @ Girders ① & ④ shall be placed on inside face of web.

For Dim. a, b & c see "Table of Dimensions" and for Stiffener spacing & location see Framing Plan.

TABLE OF DIMENSIONS				
Dim.	Girder ①	Girder ②	Girder ③	Girder ④
a	214'-11	214'-10 9/16	214'-10 3/16	214'-9 3/4
b	118'-2 5/8	118'-2 3/8	118'-2 1/8	118'-1 7/8
c	95'-9 3/8	95'-9 3/16	95'-9 1/16	95'-8 7/8
Rad.	557'-0	564'-4	571'-8	579'-0

INTERIOR GIRDER MOMENT TABLE			
	0.4 Span 2	Pier	0.4 Span 3
I (in.⁴)	68,990	68,990	32,150
Φ (K/i)	1.42	1.42	1.42
MΦ (i.K)	1,901	- 2,369	673
M½ (i.K)	973	- 757	632
Imp. (i.K)	201	- 163	143
M TOTAL (i.K)	3,075	- 3,289	1,448

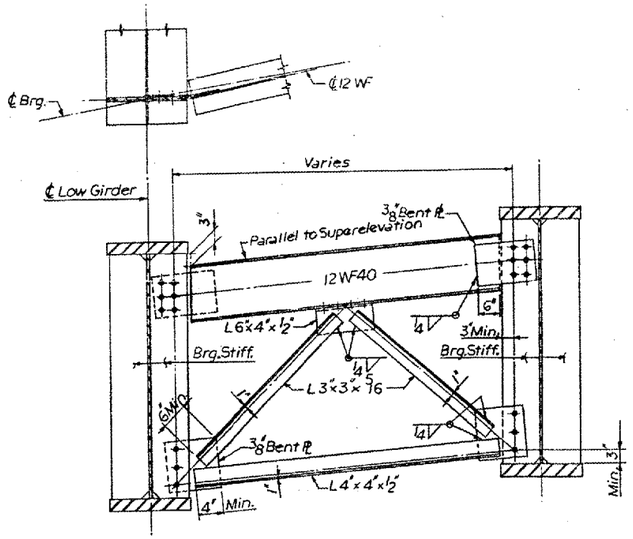
INTERIOR GIRDER REACTION TABLE			
	E. Abut.	Pier	W. Abut.
R Φ (K)	78.4	207.3	46.7
R ½ (K)	56.4	95.8	51.3
Imp. (K)	11.6	14.2	11.6
R TOTAL (K)	146.4	317.3	109.6



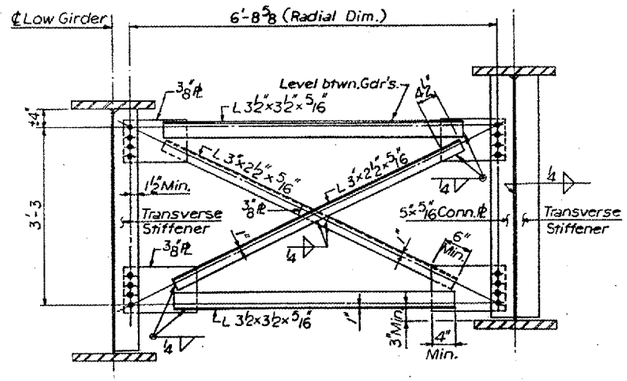
FLANGE SHOP SPLICES

BRIDGE NO. 5
S.N. 100-0059
FOR INFORMATION ONLY

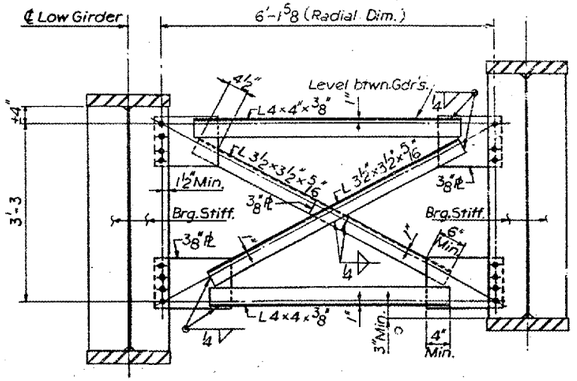
ILLINOIS DIVISION OF HIGHWAYS
F.A.I. ROUTE 24
PROJECT _____ SECTION XI-2HB-2
WILLIAMSON COUNTY
STEEL GIRDER AND FRAMING DETAILS
Designed By: K.M. | Drawn By: E.M. | Quantities By: K.R.S.
Checked By: L.P. | Checked By: K.T.E. | Checked By: W.J.



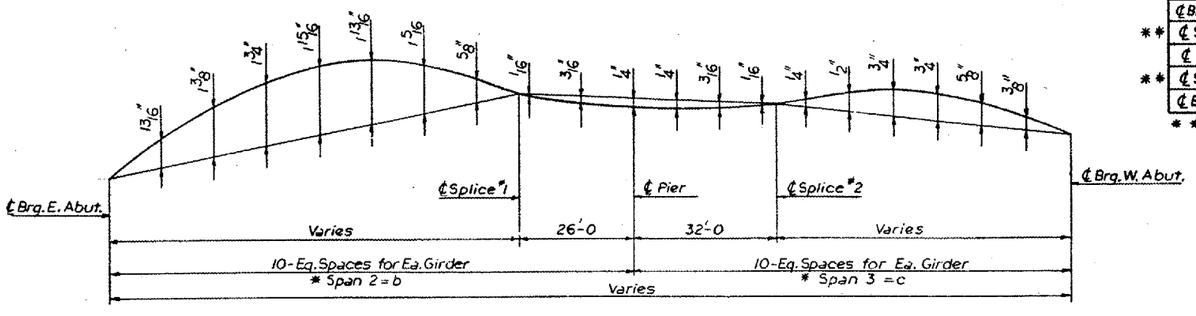
END CROSS FRAME



TYPICAL INTERIOR CROSS FRAME CF1



CROSS FRAME CF2 AT PIER



CAMBER DIAGRAM

ELEVATION TOP OF STEEL GIRDER WEBS					
	Girder No.	1	2	3	4
	℄ Brg. E. Abut.	659.657	660.233	660.828	661.424
**	℄ Splice #1	660.045	660.654	661.240	661.828
	℄ Pier	660.022	660.588	661.174	661.761
**	℄ Splice #2	659.992	660.602	661.188	661.776
	℄ Brg. W. Abut.	659.851	660.424	661.018	661.612

** Adjusted for camber (Vertical curve & Dead Load Deflection due to weight of concrete & Steel.)

* Note:
For Dim. b & c see Table of Dimensions sht.

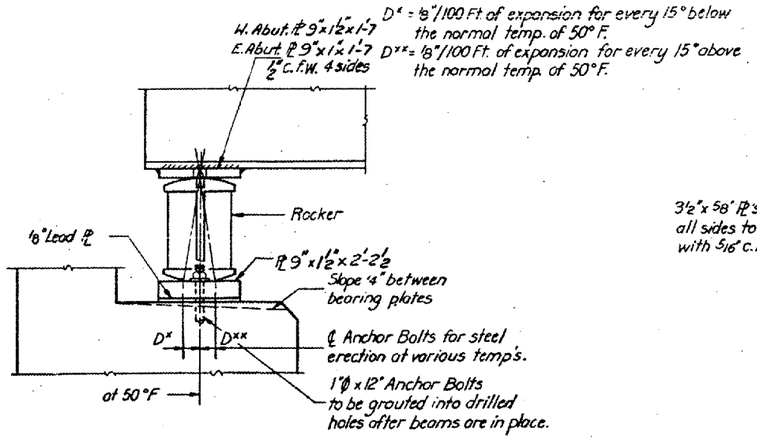
BRIDGE NO. 5
S.N. 100-0059
FOR INFORMATION ONLY

ILLINOIS DIVISION OF HIGHWAYS

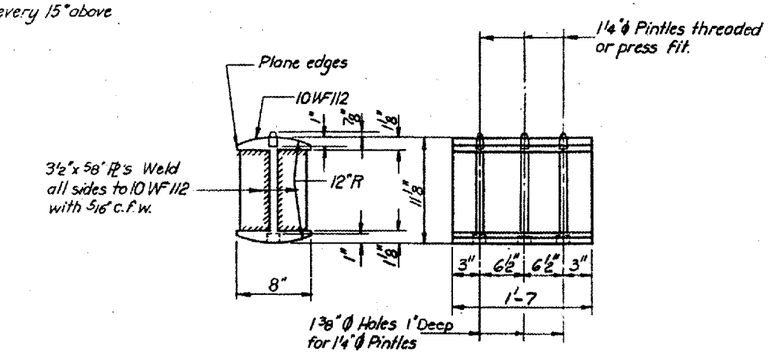
F.A.I. ROUTE 24
PROJECT _____ SECTION XI-2HB-2
WILLIAMSON COUNTY

STEEL GIRDER AND FRAMING DETAILS

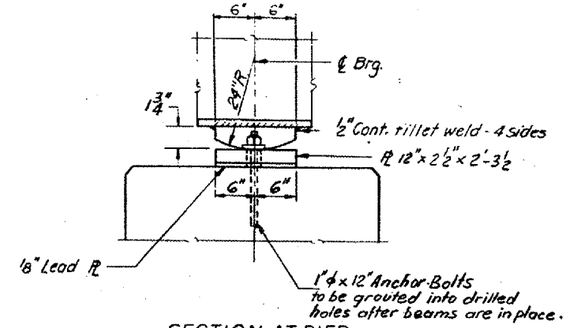
Designed By:	Drawn By: E.M.	Quantities By: K.R.S.
Checked By:	Checked By: W.J.F.	Checked By: W.J.F.



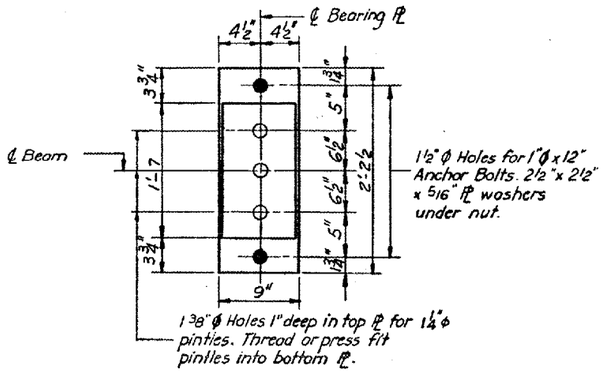
SECTION AT ABUTMENT



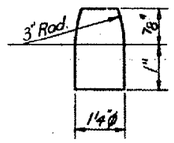
DETAIL OF ROCKER AT ABUTMENT



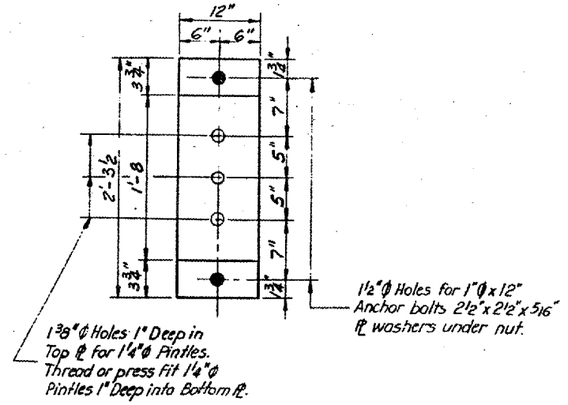
SECTION AT PIER



PLAN



DETAIL OF PINTLE



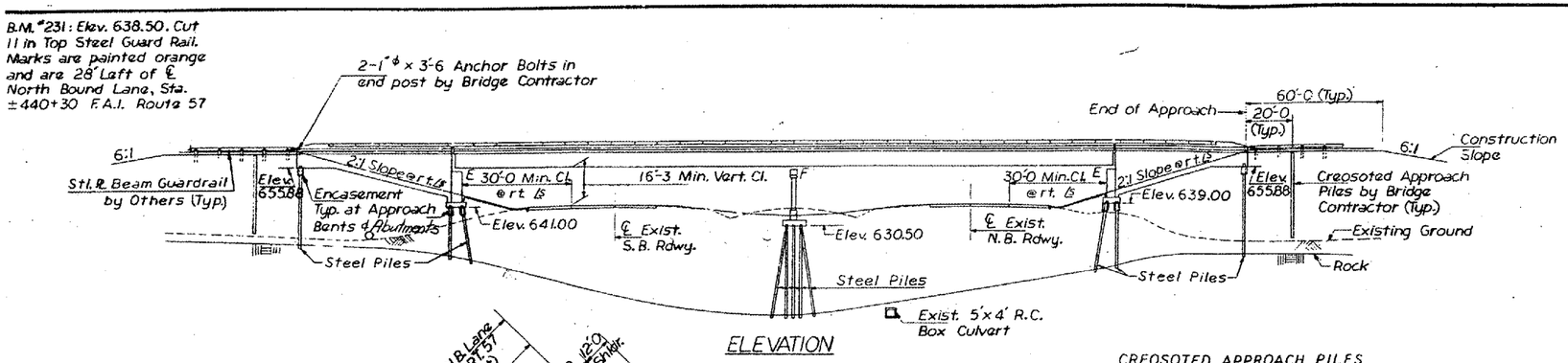
PLAN

BRIDGE NO. 5
S.N. 100-0059

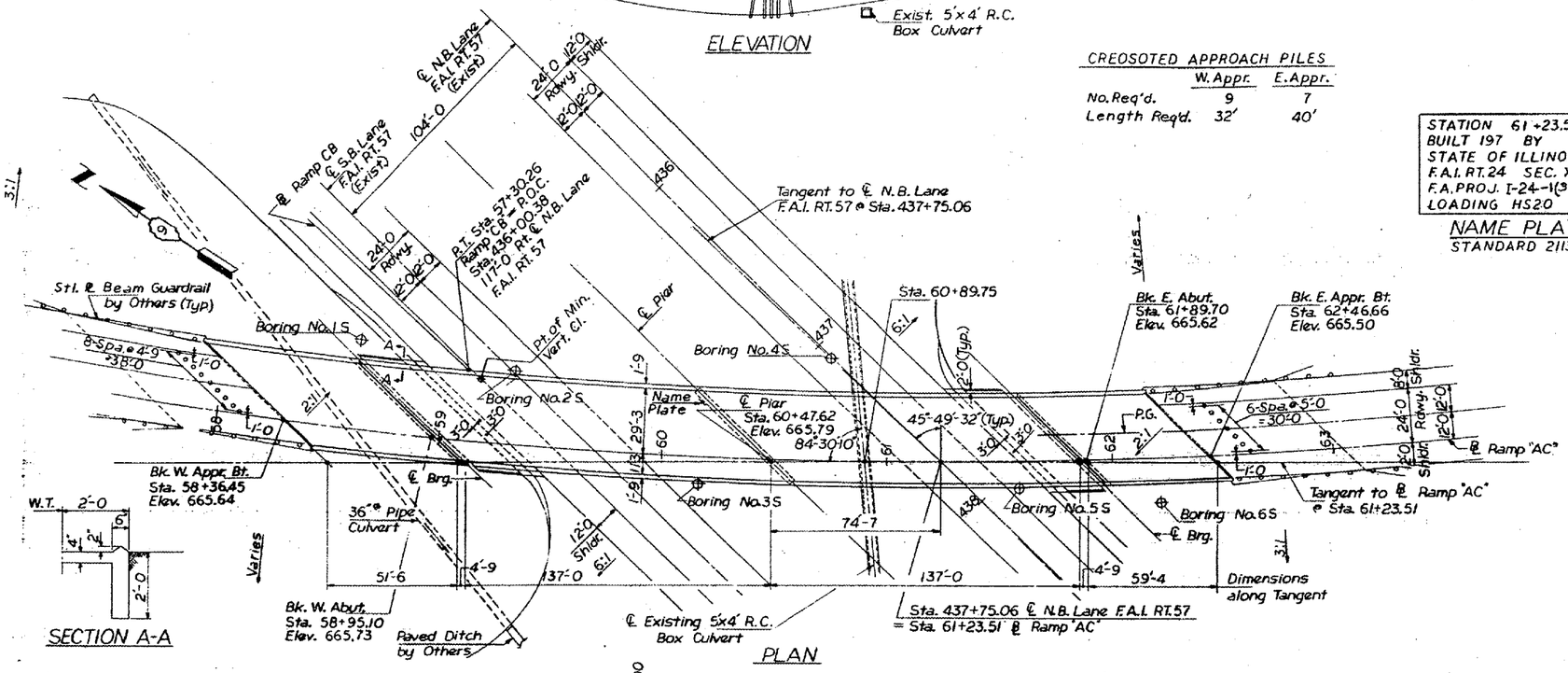
ILLINOIS DIVISION OF HIGHWAYS		
F.A.I. ROUTE 24		
PROJECT _____ SECTION XI-2HB-2		
WILLIAMSON COUNTY		
STEEL GIRDER AND FRAMING DETAILS		
Designed By:	Drawn By: E.M.	Quantities By: K.R.S.
Checked By:	Checked By: W.J.F.	Checked By: W.J.F.

FAI 24
D9 BRIDGE PAINTING FY 08-1
JOHNSON & WILLIAMSON COUNTIES
CONTRACT 78020
SHEET 30 OF 35

B.M. "231: Elev. 638.50. Cut 11 in Top Steel Guard Rail. Marks are painted orange and are 28' Left of ℄ North Bound Lane, Sta. ±440+30 F.A.I. Route 57



ELEVATION



PLAN

SECTION A-A

CREOSOTED APPROACH PILES

	W. Appr.	E. Appr.
No. Req'd.	9	7
Length Req'd.	32'	40'

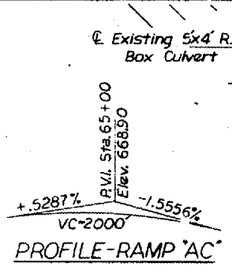
STATION 61+23.51
BUILT 197 BY
STATE OF ILLINOIS
F.A.I. RT. 24 SEC. XI-2HB
F.A. PROJ. I-24-1(32)0
LOADING HS20

NAME PLATE
STANDARD 2113

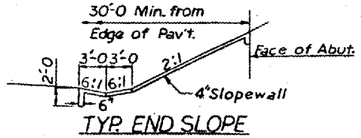
DESIGN STRESSES

FIELD UNITS	PRECAST PRESTRESSED UNITS
f_c = 1200 p.s.i. - Deck Slab	f'_c = 5000 p.s.i.
f_c = 1400 p.s.i. - Curb, Parapet & Sub.	f'_{ci} = 4000 p.s.i.
f_s = 20,000 p.s.i. - Reinf.	f'_s = 248,000 p.s.i. - Strands
f_s = 20,000 p.s.i. - Struct. (A-36)	f'_{si} = 173,600 p.s.i. - Strands
v_c = 75 p.s.i. - Ftgs.	
n = 10	

Allowable ℄ Defl. = 1/1000 Non-Comp.
Allowable Fut. Wearing Surf. = 25"/□'
Loading = HS20-44 & Alternate

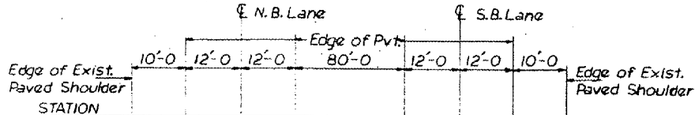


PROFILE-RAMP "AC"



TYP. END SLOPE
All Dimensions are at Rt. ⊥ to the Abut.

EXISTING F.A.I. 57
PAVEMENT ELEVATIONS



STATION								
434	640.80	641.36	641.48	641.34	641.34	641.44	641.29	640.86
435	640.10	640.57	640.70	640.57	640.52	640.65	640.50	640.11
436	639.28	639.79	639.94	639.83	639.73	639.86	639.75	639.48
437	638.55	639.06	639.17	639.02	638.99	639.16	639.06	638.61
438	637.99	638.38	638.46	638.33	638.32	638.42	638.27	637.86
439	637.51	637.75	637.82	637.54	637.50	637.60	637.49	637.08

CURVE DATA

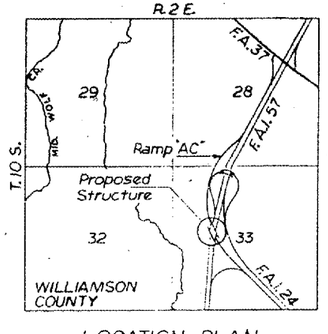
Curve	P. I.	Curve No.	Δ	D	R	T	L
℄ N.B. Lane F.A.I. 57	419+75.42	——	19°-16'-30"	0°-28'-00"	12,277.70	2,084.88	4,130.36
Ramp "AC"	53+23.58	3	95°-04'-54"	2°-30'-00"	2,291.83'	2,504.67'	3,803.26
Ramp "CB"	52+54.92	7	4°-23'-31"	0°-27'-43"	12,408.06'	476.84'	951.45

GENERAL NOTES

1. ALL REINFORCEMENT BARS SHALL BE LAPPED 24 DIAMETERS UNLESS OTHERWISE SHOWN.
2. FASTENERS SHALL BE HIGH STRENGTH BOLTS. BOLTS 3/4" ϕ, OPEN HOLES 13/16" ϕ, UNLESS OTHERWISE NOTED.
3. CALCULATED WEIGHT OF STRUCTURAL STEEL = 682,040 LBS.
4. THE BASIC LEAD SILICO CHROMATE PAINT SYSTEM SHALL BE USED FOR SHOP AND FIELD PAINTING OF STRUCTURAL STEEL.
5. 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.
6. ANCHOR BOLTS SHALL BE SET BEFORE BOLTING CROSS FRAMES OVER SUPPORTS.
7. SLOPE WALL SHALL BE REINFORCED WITH WELDED WIRE FABRIC 6" X 6" MESH, WEIGHING 56# PER 100 SQ. FT.
8. THE CONTRACTOR SHALL DRIVE ONE SKEL TEST PILE IN A PERMANENT LOCATION AT THE PIER AND AT EACH ABUTMENT AS DIRECTED BY THE ENGINEER BEFORE ORDERING THE REMAINDER OF PILES.
9. AN ALTERNATE STRAND PATTERN USING EXTRA HIGH STRENGTH PRESTRESSING STRAND (270 K.S.I.) IS PERMITTED.

BILL OF MATERIAL

ITEM	UNIT	SUB-STRUCT.	SUPER-STRUCT.	TOTAL
Structure Excavation	Cu.Yds.	150		150
Furnishing & Erecting Structural Steel	L.S.		.1	.1
Aluminum Railing	Lin.Ft.		785	785
Class X Concrete	Cu.Yds.	598.0	648.8	1246.8
Reinforcement Bars	Lbs.	52970	152,010	204,980
Furnishing & Erecting P.P.C. I-Beams, 48"	Lin.Ft.		695	695
Steel Piles (8 BP 36)	Lin.Ft.	4087		4087
Test Piles, Steel (8 BP 36)	Each	3		3
Creosoted Piles (20.1' to 38')	Lin.Ft.	288		288
Creosoted Piles (over 38')	Lin.Ft.	280		280
Bridge Seat Sealer	L.S.	.3		.3
Name Plates	Each	1		1
Slope Wall (4")	Sq.Yds.	440		440
Protective Coat	Sq.Yds.		2170	2170



LOCATION PLAN

BRIDGE NO. 6
S.N. 100-0060
FOR INFORMATION ONLY

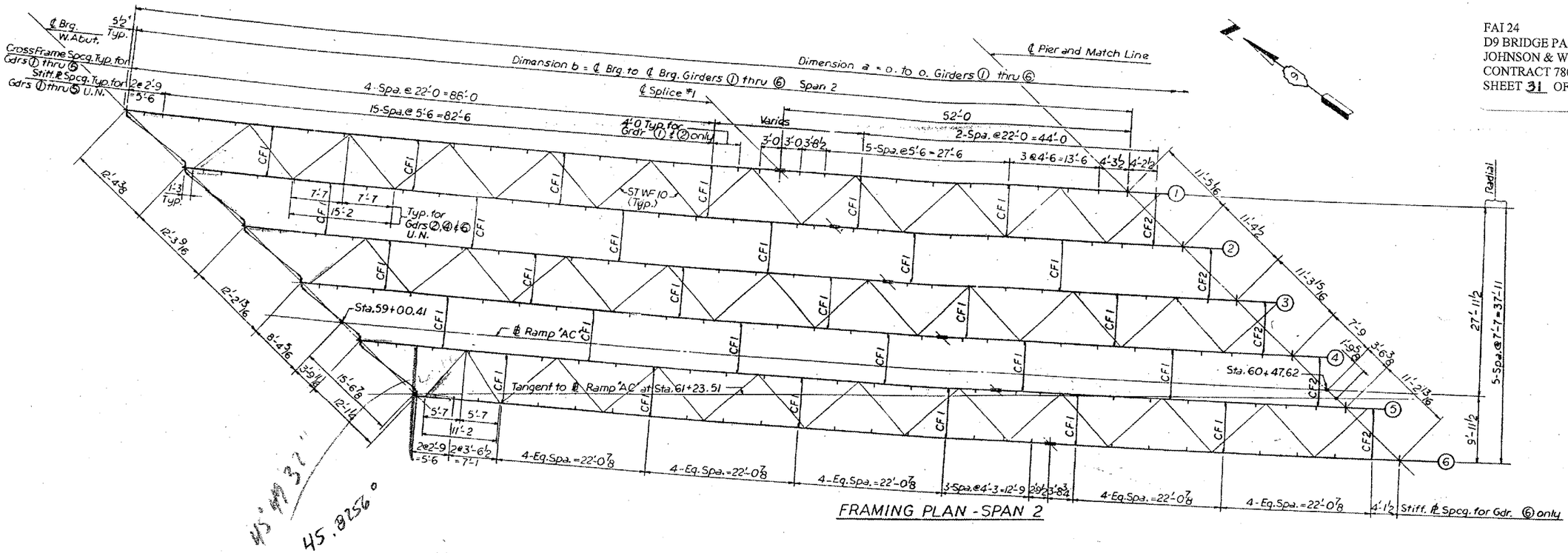
STATE OF ILLINOIS
HAROLD M. BROCKWELL
REGISTERED STRUCTURAL ENGINEER
2364

ILLINOIS DIVISION OF HIGHWAYS

F.A.I. ROUTE 24
PROJECT _____ SECTION XI-2HB
WILLIAMSON COUNTY
GENERAL PLAN & ELEVATION
RAMP "AC" STATION 61+23.51

Designed By: H.M.	Drawn By: W.C.	Quantities By: L.R.

FAI 24
D9 BRIDGE PAINTING FY 08-1
JOHNSON & WILLIAMSON COUNTIES
CONTRACT 78020
SHEET 31 OF 35



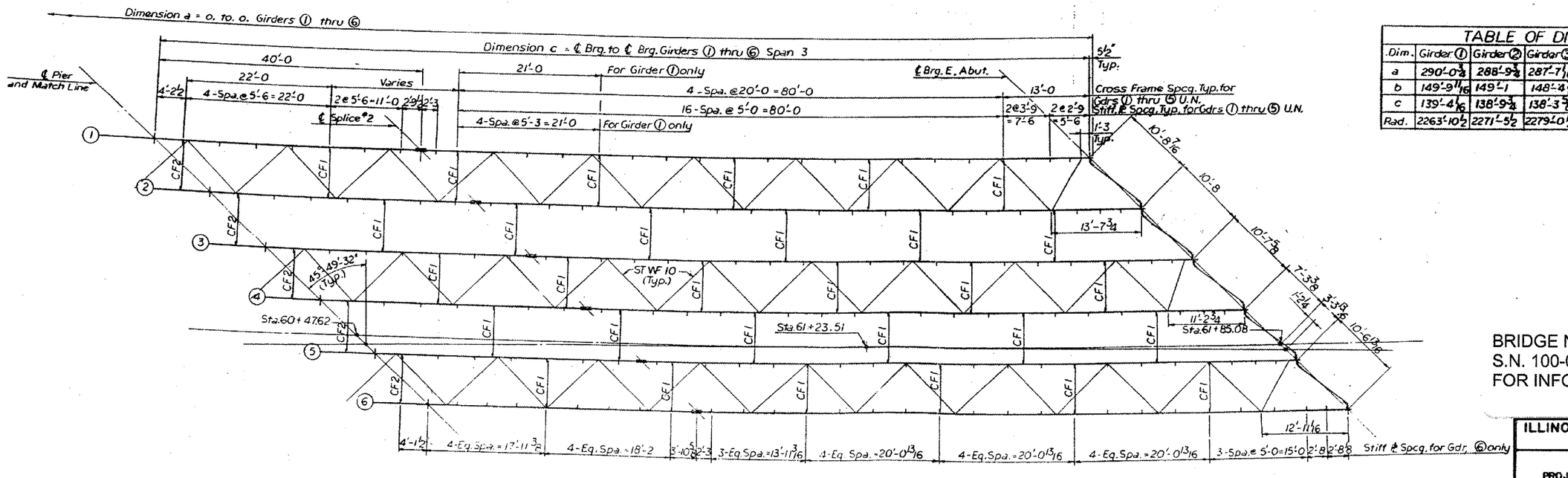


TABLE OF DIMENSIONS

Dim.	Girder ①	Girder ②	Girder ③	Girder ④	Girder ⑤	Girder ⑥
a	290'-0 3/4	288'-9 3/8	287'-7 1/16	286'-4 3/4	285'-2 3/8	284'-1 1/16
b	149'-9 11/16	149'-1	148'-4 7/16	147'-8 1/8	147'-0	146'-4 1/8
c	139'-4 1/16	138'-9 3/4	138'-3 7/8	137'-9 5/8	137'-3 3/4	136'-9 15/16
Rad.	2263'-10½	2271'-5½	2279'-0½	2286'-7½	2294'-2½	2301'-9½

BRIDGE NO. 6
S.N. 100-0060
FOR INFORMATION ONLY

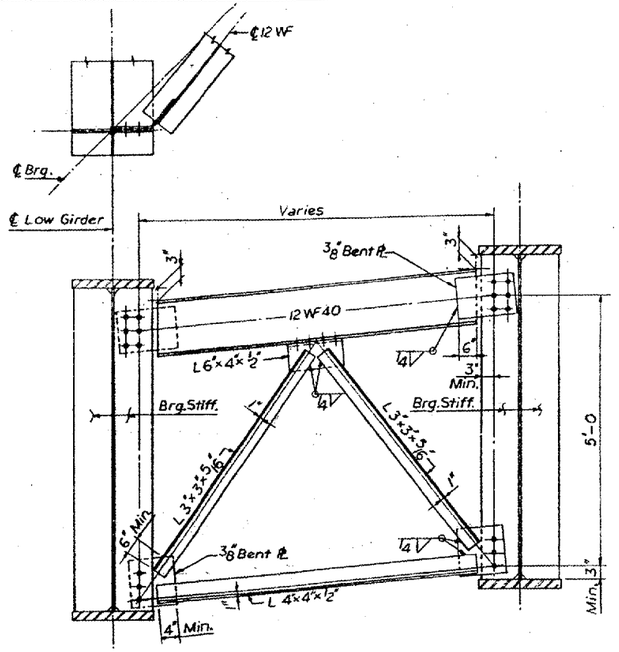
ILLINOIS DIVISION OF HIGHWAYS

F.A.I. ROUTE 24
PROJECT _____ SECTION XI-2HB
WILLIAMSON COUNTY

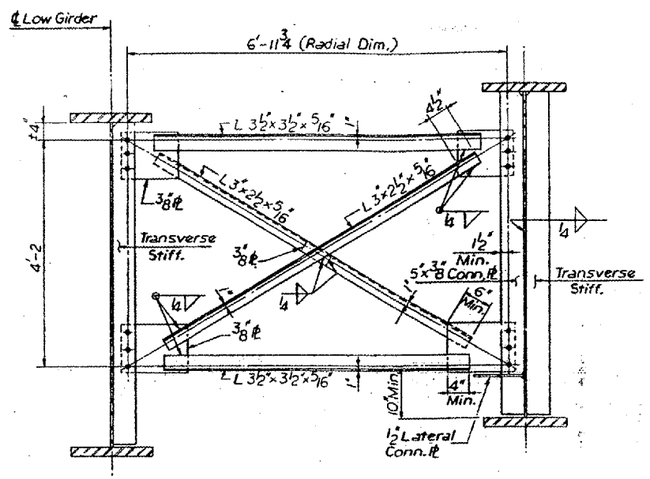
FRAMING

Designed By: H. M.	Drawn By: E. M.	Quantities By:

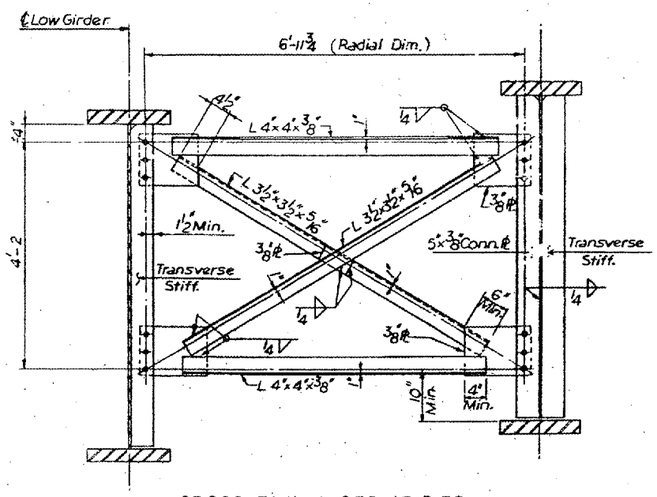
FAI 24
D9 BRIDGE PAINTING FY 08-1
JOHNSON & WILLIAMSON COUNTIES
CONTRACT 78020
SHEET 32 OF 35



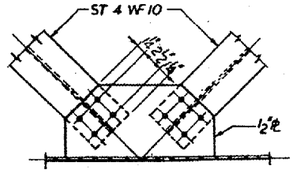
END CROSS FRAME



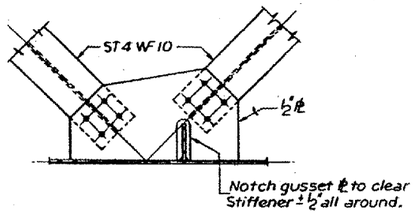
TYP. INTERIOR CROSS FRAME CF1



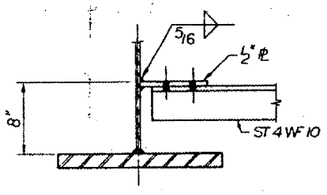
CROSS FRAME CF2 AT PIER



TYPICAL LATERAL BRACING



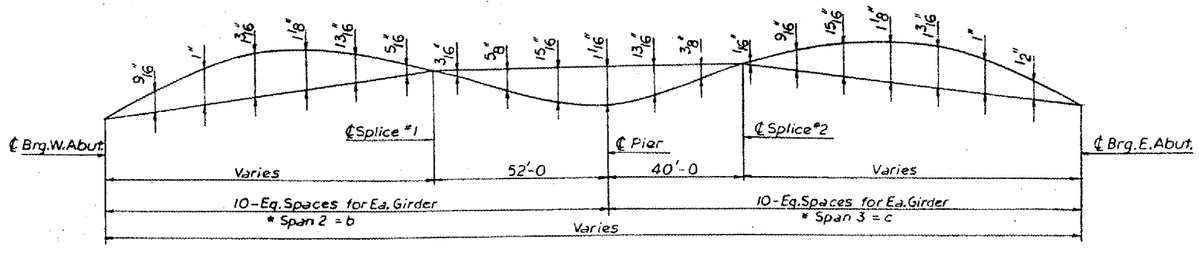
LATERAL BRACING NEAR TRANSVERSE STIFFENER



LATERAL BRACING

ELEVATION TOP OF STEEL GIRDER WEBS							
	Girder No.	1	2	3	4	5	6
	℄ Brg. W. Abut.	662.811	663.356	663.900	664.442	664.984	665.625
**	℄ Splice #1	662.921	663.456	663.989	664.522	665.054	665.585
	℄ Pier	662.833	663.363	663.892	664.419	664.947	665.474
**	℄ Splice #2	662.932	663.458	663.983	664.507	665.032	665.555
	℄ Brg. E. Abut.	662.841	663.360	663.878	664.395	664.912	665.429

** Adjusted for camber (Vertical curve & Dead Load Deflection due to weight of concrete ± Steel.)

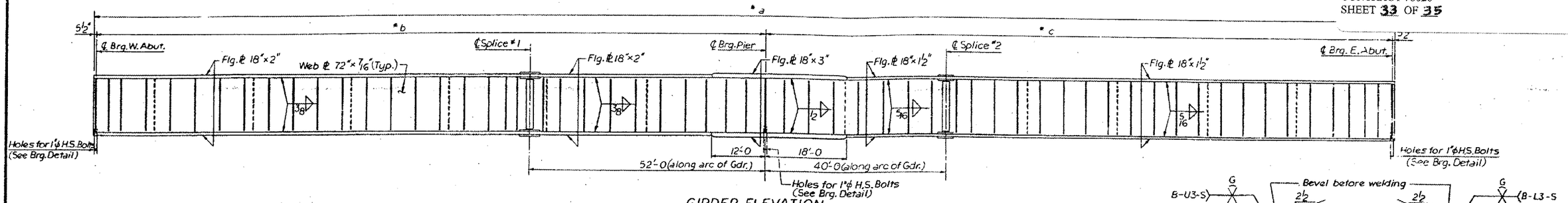


CAMBER DIAGRAM

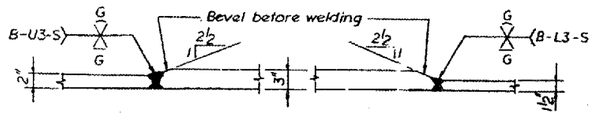
* Note:
For Dim. b & c see Table of Dimensions sht. 8

BRIDGE NO. 6
S.N. 100-0060
FOR INFORMATION ONLY

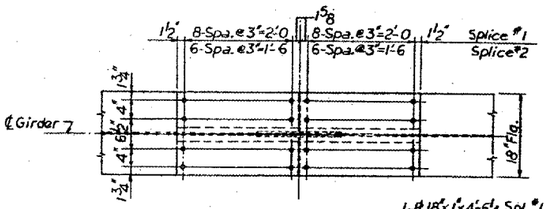
ILLINOIS DIVISION OF HIGHWAYS		
F.A.I. ROUTE 24 PROJECT _____ SECTION XI-2HB WILLIAMSON COUNTY		
STEEL DETAILS		
Designed By: N.M.	Drawn By: E.M.	Quantities By:
Checked By: B.A.	Checked By: L.F.	Checked By:

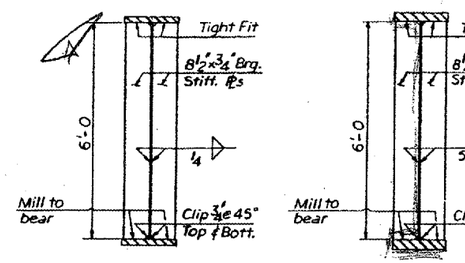


GIRDER ELEVATION

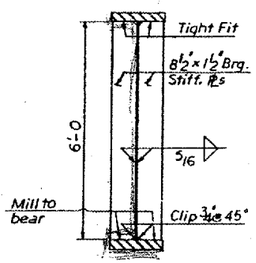


FLANGE SHOP SPLICES

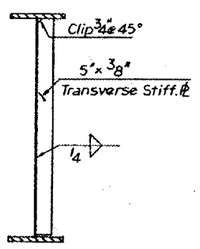




SECTION AT ABUTMENT



SECTION AT PIER

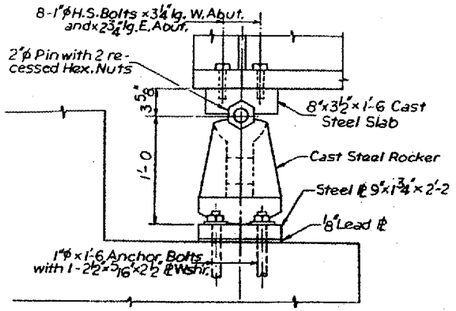


TYPICAL SECTION NEAR ABUTMENT

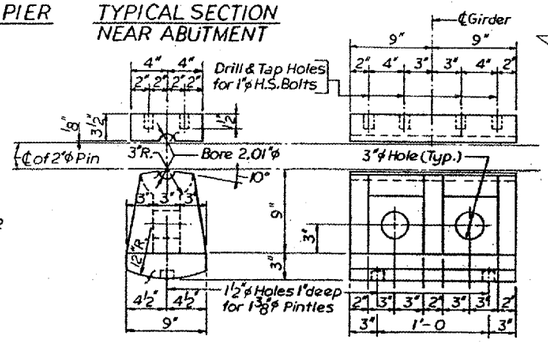
NOTE:
Transverse Stiffeners between splices shall be welded to bottom flange with ¼" fillet weld and shall have ⅝" undercut at top. Remainder of Stiffeners shall be welded to top flg. with ¼" fillet weld and shall have ⅜" undercut at bott.
Transverse Stiff's @ Gdr's 1 & 6 shall be placed on inside face of web.
* For Dim. a, b & c see "Table of Dimensions" and for Stiffener spacing & location see Framing Plan-Span 2 and 3 sht. 8

INTERIOR GIRDER MOMENT TABLE				
		0.4 Span 2	Pier	0.4 Span 3
I	(in⁴)	112200	165.564	86,549
℄	(K/i)	1.55	1.55	1.55
M℄	(iK)	2478	− 4415	1843
M¼	(iK)	1415	− 1658	1240
Imp.	(iK)	258	− 308	234
M TOTAL	(iK)	4151	− 6381	3317

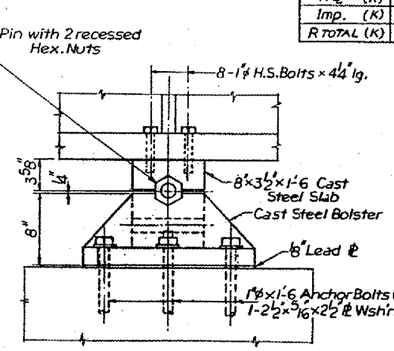
INTERIOR GIRDER REACTION TABLE				
		W. Abut.	Pier	E. Abut.
R℄	(K)	89.5	285.4	77.0
R¼	(K)	47.9	100.0	46.3
Imp.	(K)	8.7	12.1	8.8
R TOTAL	(K)	146.1	397.5	132.1



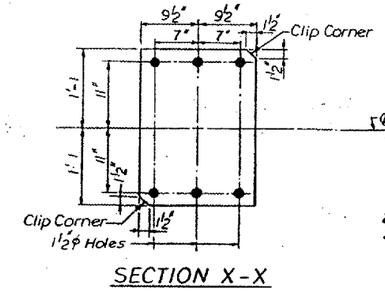
ABUTMENTS



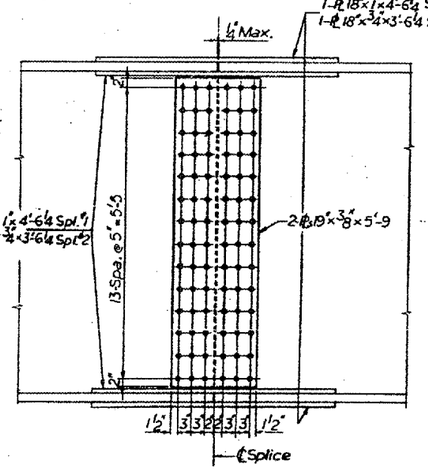
CAST STEEL ROCKER



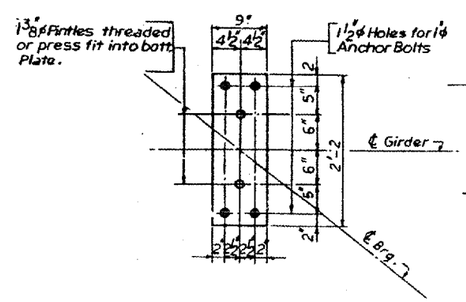
PIER



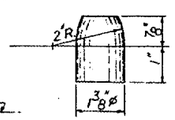
SECTION X-X



FIELD SPLICE DETAIL
⅞"ϕ H.S. Bolts (Friction)



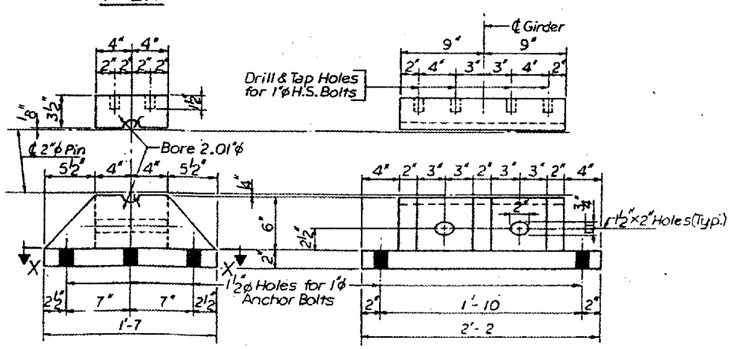
PLAN OF BOTTOM PLATE



PINTLE DETAIL

BILL OF MATERIAL-BRG'S		
Item	Unit	Quantity
Carbon Steel	Lbs.	2740
Cast Steel	Lbs.	9780
Total	Lbs.	12,520

No's:
Pins, Steel ℞s, Bolts, Anchor Bolts and Lead ℞s are included in Carbon Steel.
The above quantities are included in Structural Steel on Sht. 3
Cast Steel shall be Class 70. Structural steel weldments of equal sections and meeting ASTM A 36 may be substituted for castings at the option of the Contractor, subject to approval by the Engineer prior to fabrication. No additional compensation will be allowed the Contractor for this substitution.



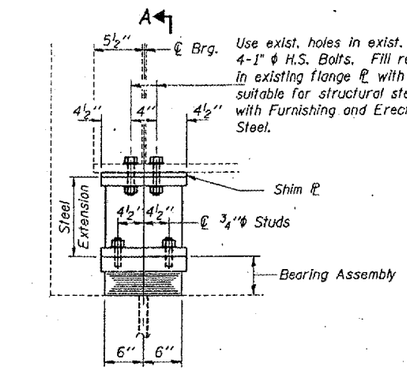
CAST STEEL BOLSTER

BRIDGE NO. 6
S.N. 100-0060
FOR INFORMATION ONLY

ILLINOIS DIVISION OF HIGHWAYS
F.A.I. ROUTE 24
PROJECT _____ SECTION XI-2HB
WILLIAMSON COUNTY
STEEL DETAILS
Designed By: H.M. | Drawn By: E.M. | Quantities By: L.P.

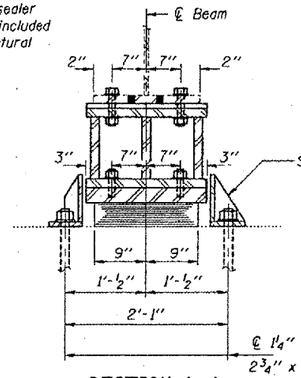
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI 24
D9 BRIDGE PAINTING FY 08-1
JOHNSON & WILLIAMSON COUNTIES
CONTRACT 78020
SHEET 34 OF 35



Use exist. holes in exist. flange for 4-1" ϕ H.S. Bolts. Fill remaining holes in existing flange ℄ with silicone sealer suitable for structural steel. Cost included with Furnishing and Erecting Structural Steel.

ELEVATION AT ABUTMENTS



℄ 1¼" ϕ x 15" Anchor bolts with 2¾" x 2¾" x 5/16" ℄ washer under nut.

SECTION A-G

Notes:

New steel extensions, side retainers, shim ℄'s, connection bolts, and anchor bolts are included with Furnishing and Erecting Structural Steel.

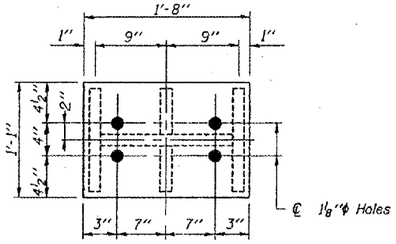
See Sheet 6 of 6 for Anchor Bolt installation.

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

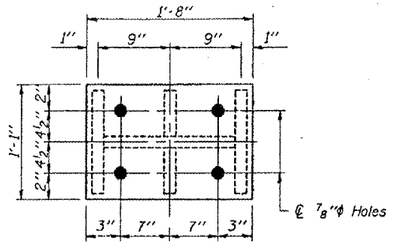
Min. jack capacity = 95 Tons.

GIRDER REACTIONS

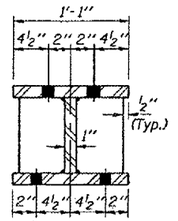
R℄	(K)	101.7
R℄	(K)	48.0
Imp.	(K)	8.7
R (Total)	(K)	158.4



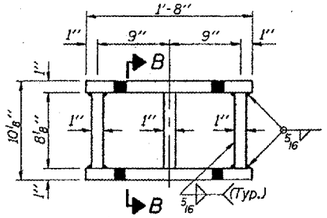
PLAN TOP PLATE



PLAN BOTTOM PLATE

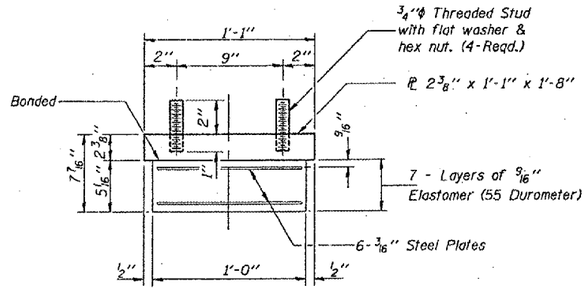


SECTION B-B



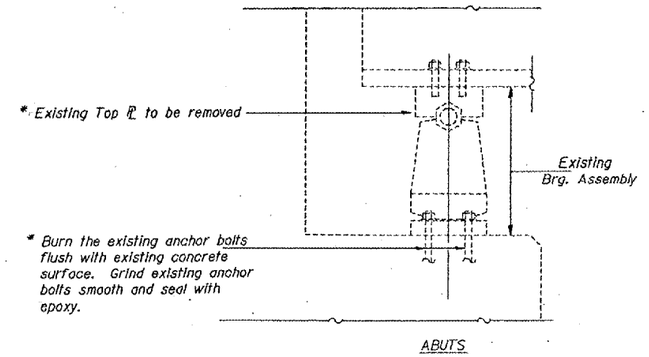
STEEL EXTENSION DETAIL

TYPE I ELASTOMERIC EXP. BRG.



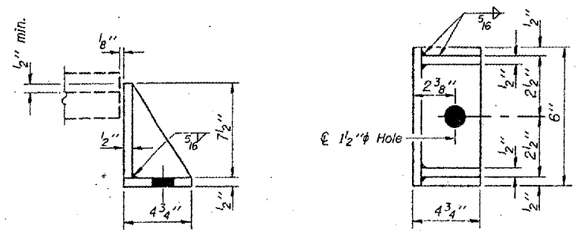
BEARING ASSEMBLY

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



EXISTING BEARING REMOVAL DETAIL

* Cost is included with Jack and Remove Existing Bearings



SIDE RETAINER (NEAR FRONT FACE)

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates. (24 Required)

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type I	Each	12

DESIGNED	T. Wayne Halstead
CHECKED	MAS
DRAWN	T. Wayne Halstead
CHECKED	TWH MAS

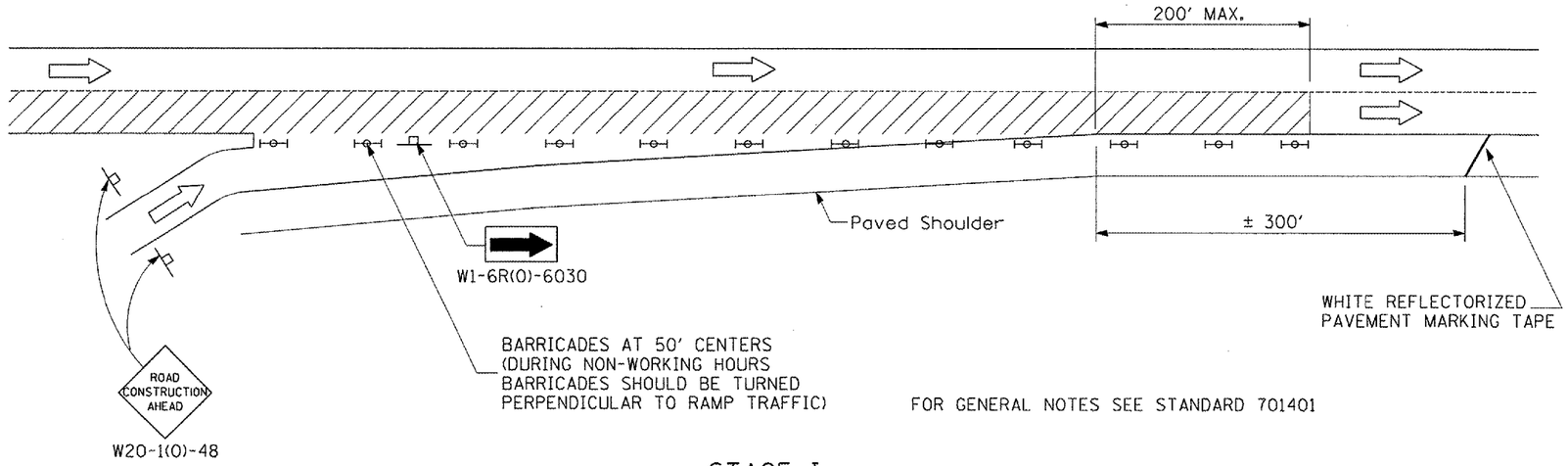
BRIDGE NO. 6
S.N. 100-0060
FOR INFORMATION ONLY

TYPE I BEARING REPLACEMENT
ABUTMENTS
WILLIAMSON COUNTY
SN 100-0060

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAI 24	•	JOHNSON WILLIAMSON	35	35

•SECTION D9 BRIDGE PAINTING FY 08-1
CONTRACT NO. 78020

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



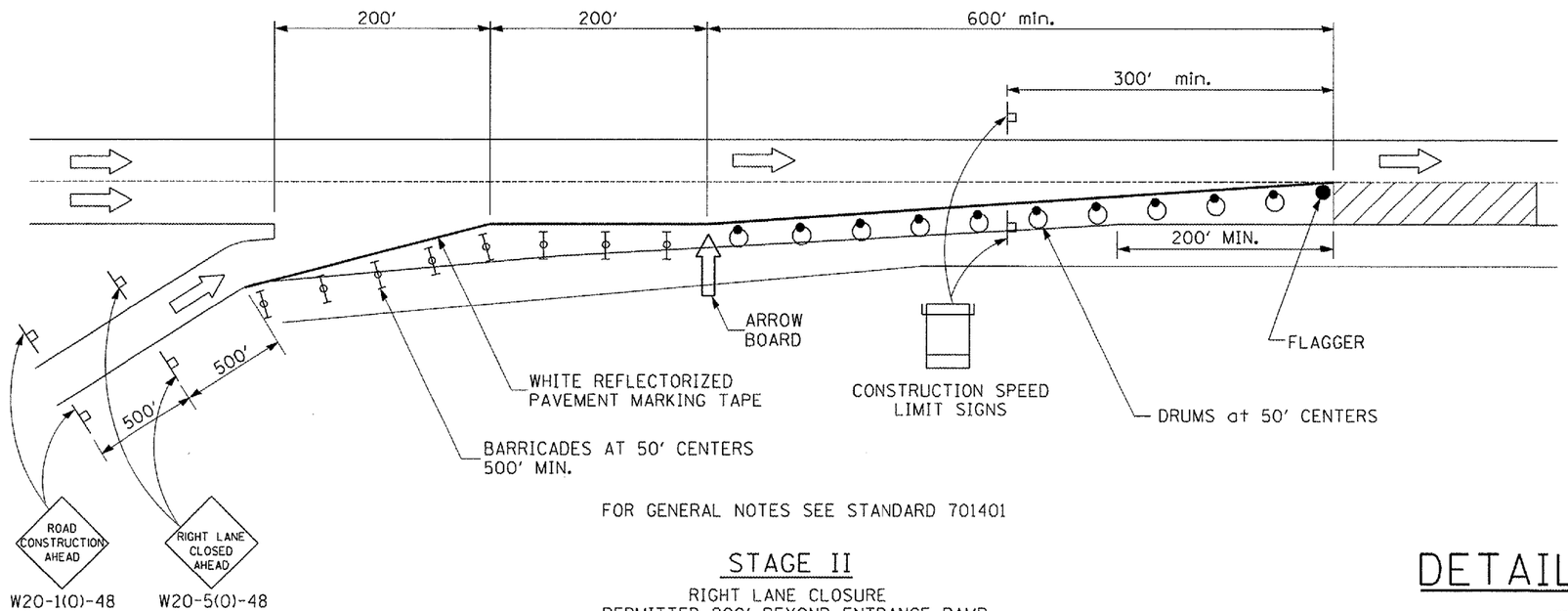
FOR GENERAL NOTES SEE STANDARD 701401

STAGE I

RIGHT LANE CLOSURE
PERMITTED AT ENTRANCE RAMP

SYMBOLS

- Work area
- Sign
- Type II barricades with steady burning monodirectional light
- Drums with steady burning monodirectional light
- Flagger



FOR GENERAL NOTES SEE STANDARD 701401

STAGE II

RIGHT LANE CLOSURE
PERMITTED 200' BEYOND ENTRANCE RAMP

DETAIL OF TRAFFIC CONTROL AT ENTRANCE RAMPS