

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANS FOR PROPOSED
FEDERAL AID HIGHWAY

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
820	22BR	DOUGLAS	22	1
P.M.A. REG.		ILLINOIS PROJECT		

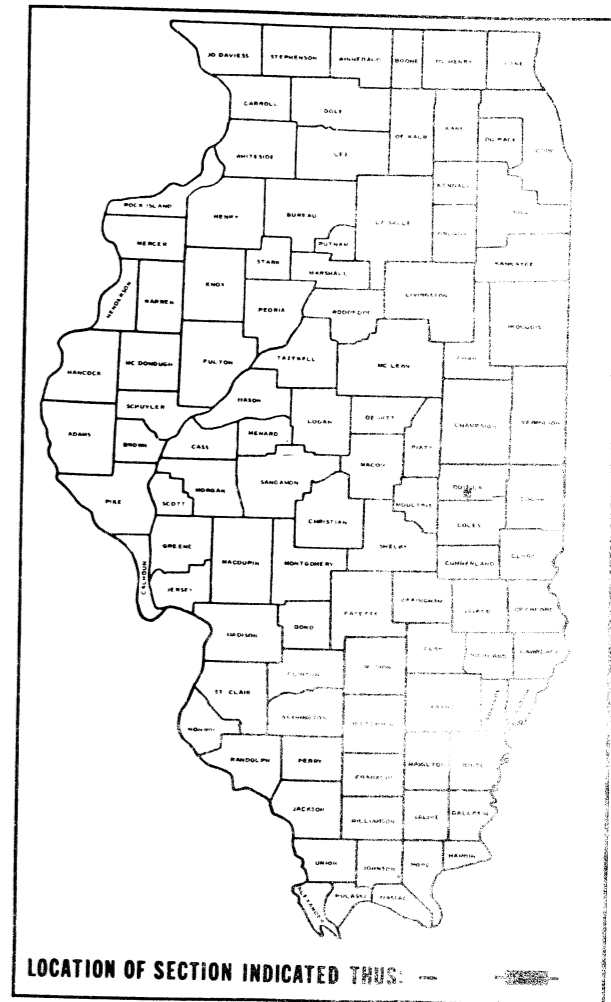
P-95-077-79

FOR INDEX OF SHEETS, SEE SHEET NO.5
 FOR SUMMARY OF QUANTITIES, SEE SHEET NO.6

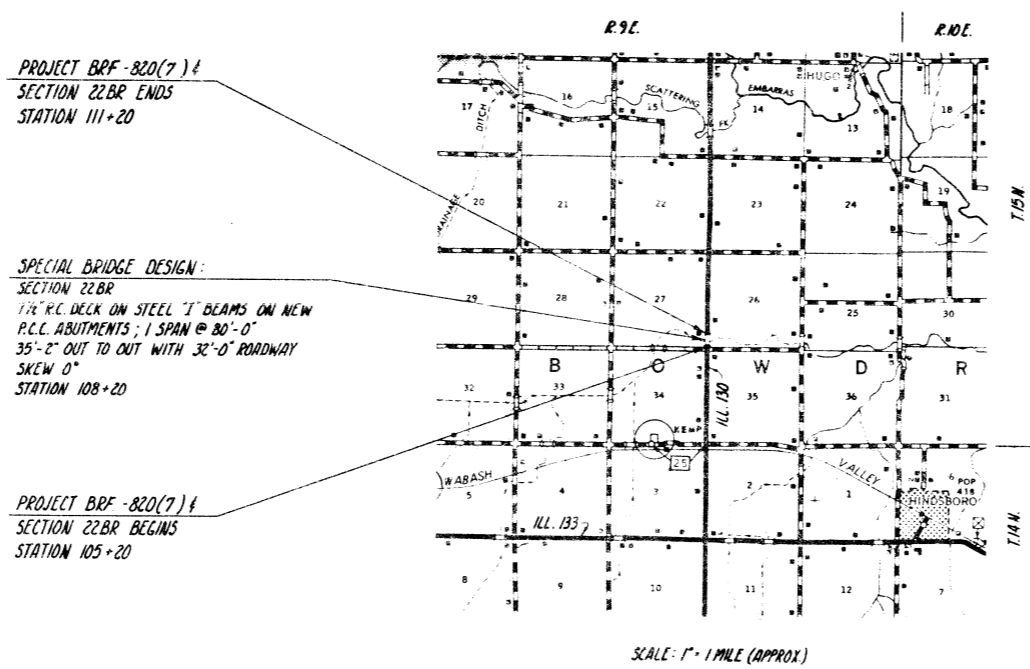
SCALES
 PLAN 1" = 20'
 PROFILE HORIZ. 1" = 20'
 PROFILE VERT. 1" = 5'
 CROSS SECTIONS 1" = 10' (HORIZ.)
 1" = 5' (VERT.)

F.A. ROUTE 820, SECTION 22BR
DOUGLAS COUNTY
PROJECT BRF - 820(7)

BRIDGE REPLACEMENT
 C-95-026-84



LOCATION OF SECTION INDICATED THUS:



PROJECT BRF - 820(7) 4
 SECTION 22BR ENDS
 STATION 111+20

SPECIAL BRIDGE DESIGN:
 SECTION 22BR
 17" R.C. DECK ON STEEL "I" BEAMS ON NEW
 P.C.C. ABUTMENTS; 1 SPAN @ 80'-0"
 35'-2" OUT TO OUT WITH 32'-0" ROADWAY
 SKEW 0°
 STATION 108+20

PROJECT BRF - 820(7) 4
 SECTION 22BR BEGINS
 STATION 105+20

SCALE: 1" = 1 MILE (APPROX.)

DESIGN DESIGNATION
 200 (0.5) AREA SERVICE 0.92 (COMP. 20)

C.N. 09821 021-0049
 CONTRACT NO. 36726

TOTAL NET LENGTH OF SECTION 22BR - 600.00 FEET - 0.114 MILES
 TOTAL NET LENGTH OF PROJECT BRF - 820 - 600.00 FEET - 0.114 MILES

TOLL FREE J.U.L.I.E. TELEPHONE NO.
 1-800-892-0123
 (BONDRE TOWNSHIP)

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED September 21 19 83

EXAMINER J. J. Benson 11-1 19 83 DISTRICT ENGINEER

PASSED W. W. Wilson 11-1 19 83 ENGINEER IN CHARGE OF PLANS AND CONTRACTS

APPROVED John A. Childs 11-1 19 83 ENGINEER OF DESIGN

John W. Morrison DIRECTOR DIVISION OF HIGHWAYS

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

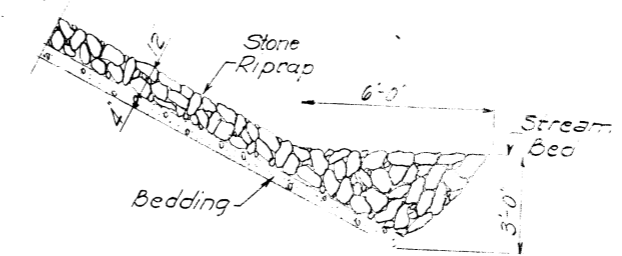
APPROVED _____ DATE _____

DIVISION ADMINISTRATOR

5-121

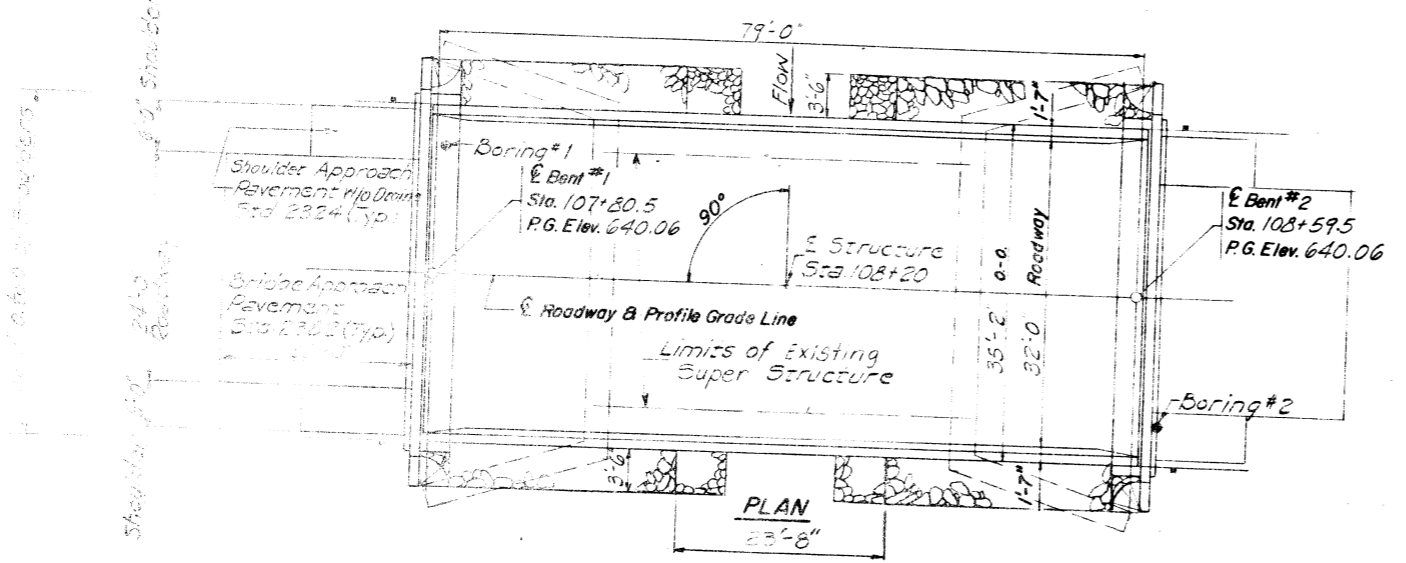
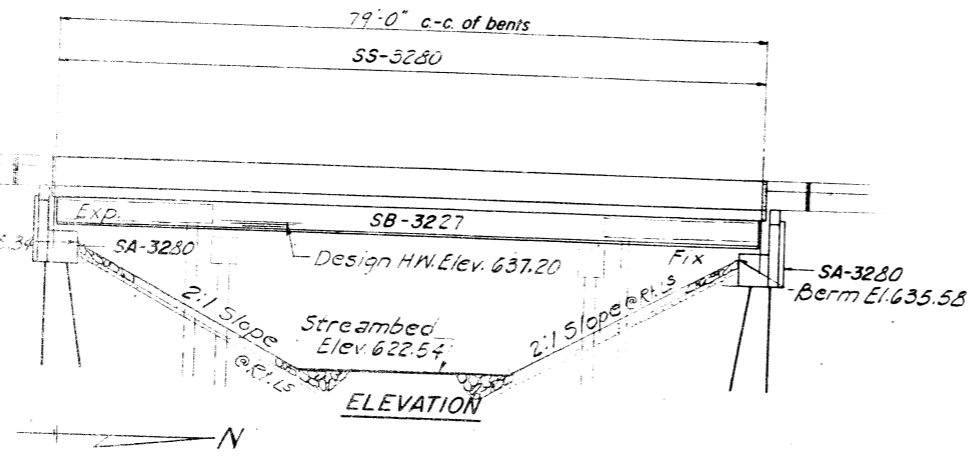
GENERAL NOTES

See Proposal for Boring Data.
Class X Concrete shall be used throughout.
Fasteners shall be high strength bolts, (AASHTO M. 54, Type 3). Bolts 3/4" diam. holes 1/2" unless otherwise noted.
 All structural steel shall be AASHTO M 222 direct tension and anchor bolts attached bars shall be AASHTO M 135.
 Expansion joint angles and attached bars shall be shop painted with two coats of basic lead silico chromate primer.
 Field welding of construction accessories will be permitted on the top flange of beams only.
 Anchor bolts shall be set before bolting diaphragms over supports.
 The Contractor shall drive one Metal Pile Shells 14" test pile in a permanent location at Bent #2 as directed by the Engineer before ordering the remaining piles.
 The main beams shall conform to the Supplemental Requirements for Notch Toughness Zone 2.
 Reinforcement bars shall conform to the requirements of A.A.S.H.T.O. M-31 or M-53 Grade 60.
 The structural steel bearing plates of the Elastomeric Bearing Assembly shall conform to the requirements of AASHTO M 222.
 Layout of stone riprap may be varied in the field to suit ground conditions as directed by the Engineer.
 Final coat of paint for Floor Drains shall be maroon.
 All contact surfaces of joints for the diaphragms shall be free of paint or lacquer.
 AASHTO M 222 structural steel shall not be painted except that for a distance of three times the depth of the beams (but not exceeding 10 feet) each way from deck joints the AASHTO M 222 structural steel shall be cleaned and given one coat of the basic lead silico chromate primer and maroon field coat. Both coats to be applied in the shop with spot painting only in the field.



STONE RIPRAP ANCHOR DETAIL

Existing structure No. 221-0032 built as SA Route 8 Section 22 BR 4FT at Station 108+20 in 1944 43'-8" back to back of abutts RC girders Contractor shall remove existing structure and replace with Standard Steel Beam Bridge, spill thru abutts. The road will be closed during construction.



BLANKING OF ELEVATION DATA

Bent	ICE	Bm #1	Bm #2	Bm #3	Bm #4	Bm #5
107+80.5						
108+59.5						

WATERWAY INFORMATION

Drainage Area = 2100 Sq. Miles Low Grade Elev. = 639.2 ± At Sta.

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Natural H.W.E.	Head-Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	50	2707	455	710	637.2	0.86	0.35	638.06	637.55
Base	100	3092	455	710	637.6	1.12	0.46	638.72	638.06
Overtopping									
Max. Calc	500	3973		710	638.2		0.76		638.96

PILE DATA

Bent	#1	#2
Type Metal Pile Shells	Class B	Class B
Capacity-Ton	50	50
Estimated Length-Feet	32	35
Number Required	9	5
Test Piles	0	1

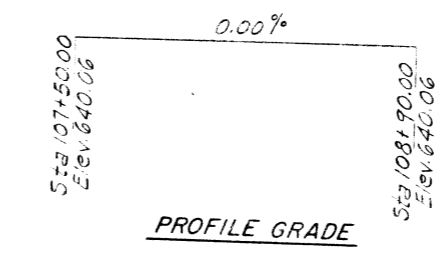
Do not overdrive piles

DESIGN SPECIFICATIONS

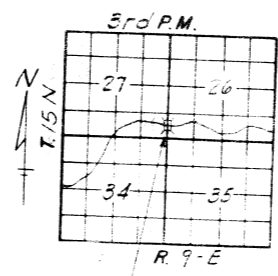
1977 AASHTO & 1973 T-1, 1951 Interims
 HS 20-44 Loading. Load Factor Design.

CALCULATED WEIGHT OF STRUCTURAL STEEL

Standard SB 3227	74674	lbs.
Standard SD 3201	1166	lbs.
Standard SD 3202	1170	lbs.
Total	77010	lbs



PROFILE GRADE



PROPOSED BRIDGE LOCATION SKETCH

INDEX OF SHEETS

- 8-1 General Plan & Elevation
- 9-2 Topog. slab Elevations
- 10-3 Standard SS-3230
- 11-4 Standard SB-3227
- 12-5 Standard SD-3201
- 13-6 Standard SD-3202
- 14-7 Standard SA-3230
- 15-8 Standard SX-1

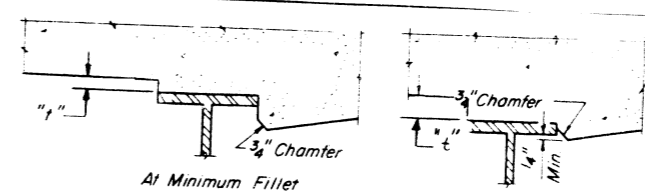
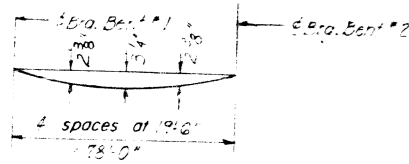
STANDARD BRIDGE
STEEL BEAMS 32' ROADWAY
GENERAL PLAN & ELEVATION
 ILL. ROUTE 130
 OVER DEER CREEK
 RT. F.A. 820 SEC. 22 BR.
 DOUGLAS COUNTY
 STATION 108+20

Illinois Department of Transportation
 Approved: [Signature]
 Engineer of Bridges and Structures
 D.M.P. [Signature]

STATION 108+20
 BLANKING OF ELEVATION DATA
 STATE OF ILLINOIS
 FA PROJECT DR-820(1)
 LOADING HS20
 S.D. NO. 021-0040
LETTERING FOR NAME PLATE
 Locate Name Plate at Southwest
 Corner of Bridge (See Standard 2113)

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1-810	27B	Douglas	22	9
SHEET NO. 9 8 SHEETS				



To determine "h": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown below. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown below, minus slab thickness, equals the fillet heights "h" above top flange of beams.

FILLET HEIGHTS

DEAD LOAD DEFLECTION DIAGRAM

(Includes weight of concrete only)
Note: The above deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown below.

BEAM #1

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
BACK CF BENT #1	10778.250	-14.583	639.832	639.832
CL. BRG. BENT #1	10781.000	-14.583	639.832	639.832
A	10791.000	-14.583	639.832	639.935
B	10801.000	-14.583	639.832	640.030
C	10811.000	-14.583	639.832	640.070
D	10821.000	-14.583	639.832	640.102
E	10831.000	-14.583	639.832	640.062
F	10841.000	-14.583	639.832	640.013
G	10851.000	-14.583	639.832	639.913
CL. BRG. BENT #2	10855.000	-14.583	639.832	639.832
BACK CF BENT #2	10861.750	-14.583	639.832	639.832

BEAM #2

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
BACK CF BENT #1	10778.250	-7.292	639.946	639.946
CL. BRG. BENT #1	10781.000	-7.292	639.946	639.946
A	10791.000	-7.292	639.946	640.047
B	10801.000	-7.292	639.946	640.144
C	10811.000	-7.292	639.946	640.184
D	10821.000	-7.292	639.946	640.216
E	10831.000	-7.292	639.946	640.176
F	10841.000	-7.292	639.946	640.127
G	10851.000	-7.292	639.946	640.026
CL. BRG. BENT #2	10855.000	-7.292	639.946	639.946
BACK CF BENT #2	10861.750	-7.292	639.946	639.946

BEAM #3 & 4 ROADWAY

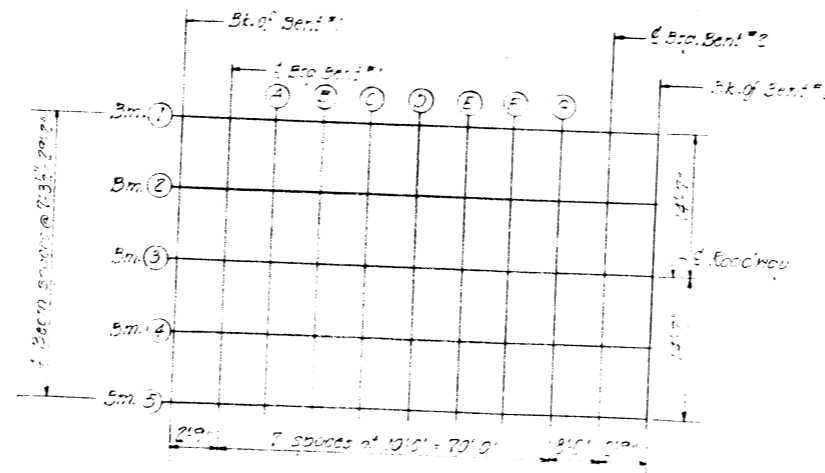
Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
BACK CF BENT #1	10778.250	0.000	640.060	640.060
CL. BRG. BENT #1	10781.000	0.000	640.060	640.060
A	10791.000	0.000	640.060	640.161
B	10801.000	0.000	640.060	640.258
C	10811.000	0.000	640.060	640.298
D	10821.000	0.000	640.060	640.330
E	10831.000	0.000	640.060	640.290
F	10841.000	0.000	640.060	640.241
G	10851.000	0.000	640.060	640.140
CL. BRG. BENT #2	10855.000	0.000	640.060	640.060
BACK CF BENT #2	10861.750	0.000	640.060	640.060

BEAM #4

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
BACK CF BENT #1	10778.250	7.292	639.946	639.946
CL. BRG. BENT #1	10781.000	7.292	639.946	639.946
A	10791.000	7.292	639.946	640.047
B	10801.000	7.292	639.946	640.144
C	10811.000	7.292	639.946	640.184
D	10821.000	7.292	639.946	640.216
E	10831.000	7.292	639.946	640.176
F	10841.000	7.292	639.946	640.127
G	10851.000	7.292	639.946	640.026
CL. BRG. BENT #2	10855.000	7.292	639.946	639.946
BACK CF BENT #2	10861.750	7.292	639.946	639.946

BEAM #5

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
BACK CF BENT #1	10778.250	14.583	639.832	639.832
CL. BRG. BENT #1	10781.000	14.583	639.832	639.832
A	10791.000	14.583	639.832	639.935
B	10801.000	14.583	639.832	640.030
C	10811.000	14.583	639.832	640.070
D	10821.000	14.583	639.832	640.102
E	10831.000	14.583	639.832	640.062
F	10841.000	14.583	639.832	640.013
G	10851.000	14.583	639.832	639.913
CL. BRG. BENT #2	10855.000	14.583	639.832	639.832
BACK CF BENT #2	10861.750	14.583	639.832	639.832

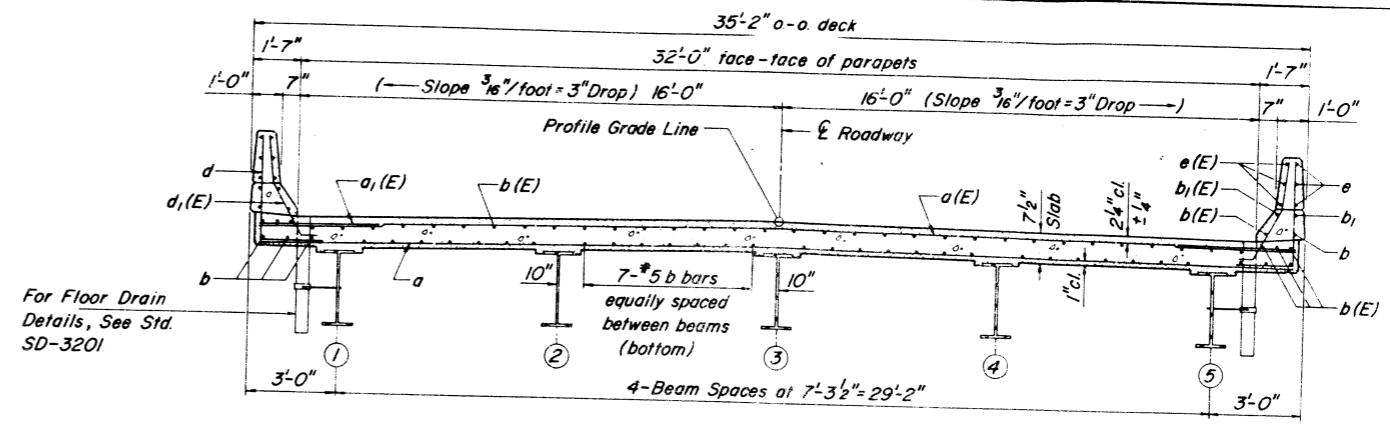
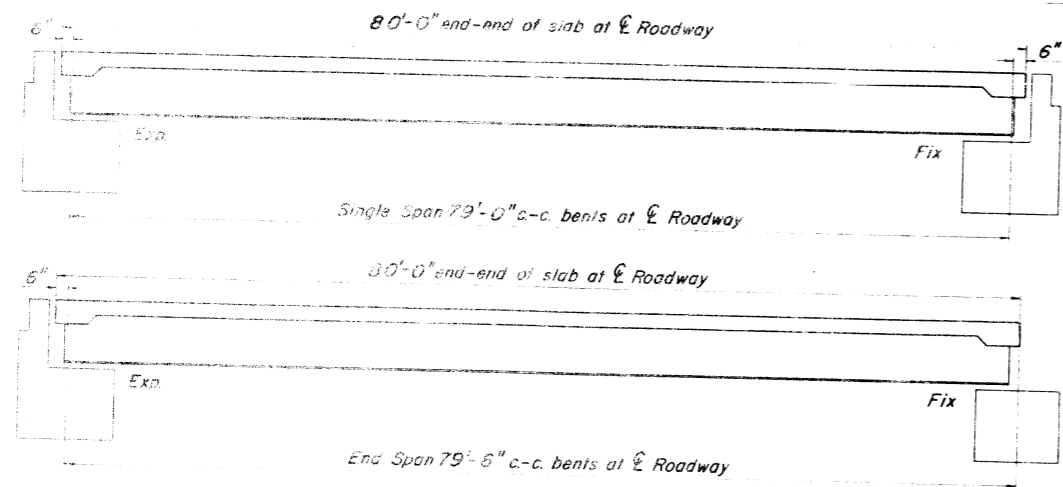


ELEVATION LOCATION DIAGRAM

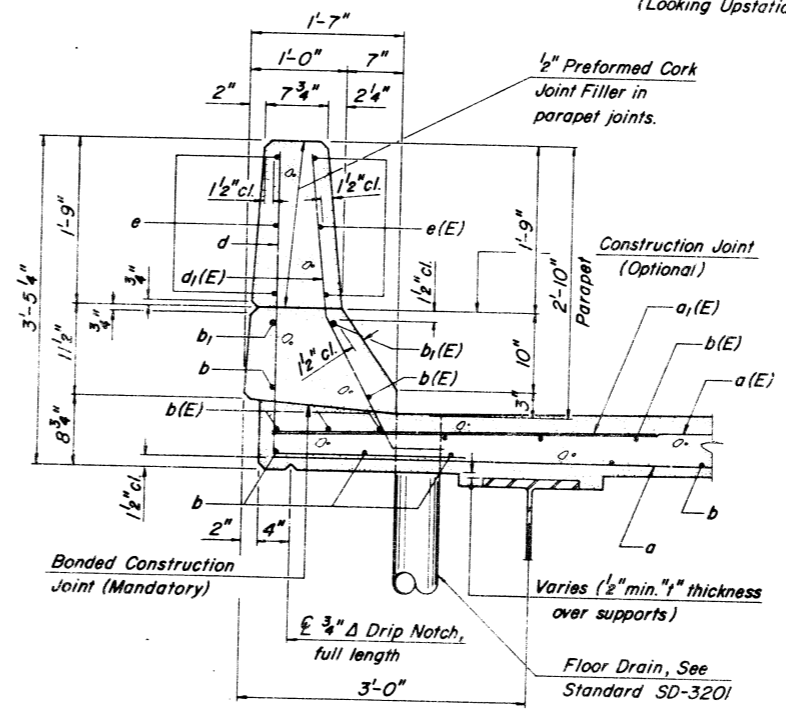
TOP OF SLAB ELEVATIONS
F.A.R.T. 520 SEC. 20.54
DOUGLAS COUNTY
STA. 108+30.00

DESIGNED	Patrick M. Brown
CHECKED	A. J. Brown
DRAWN	
CHECKED	A. J. B.

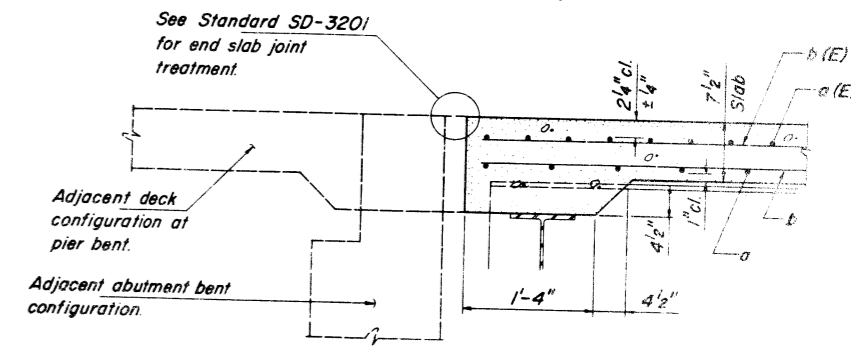
EXAMINED	August 24 1983
PASSED	James J. [Signature]
APPROVED	[Signature]



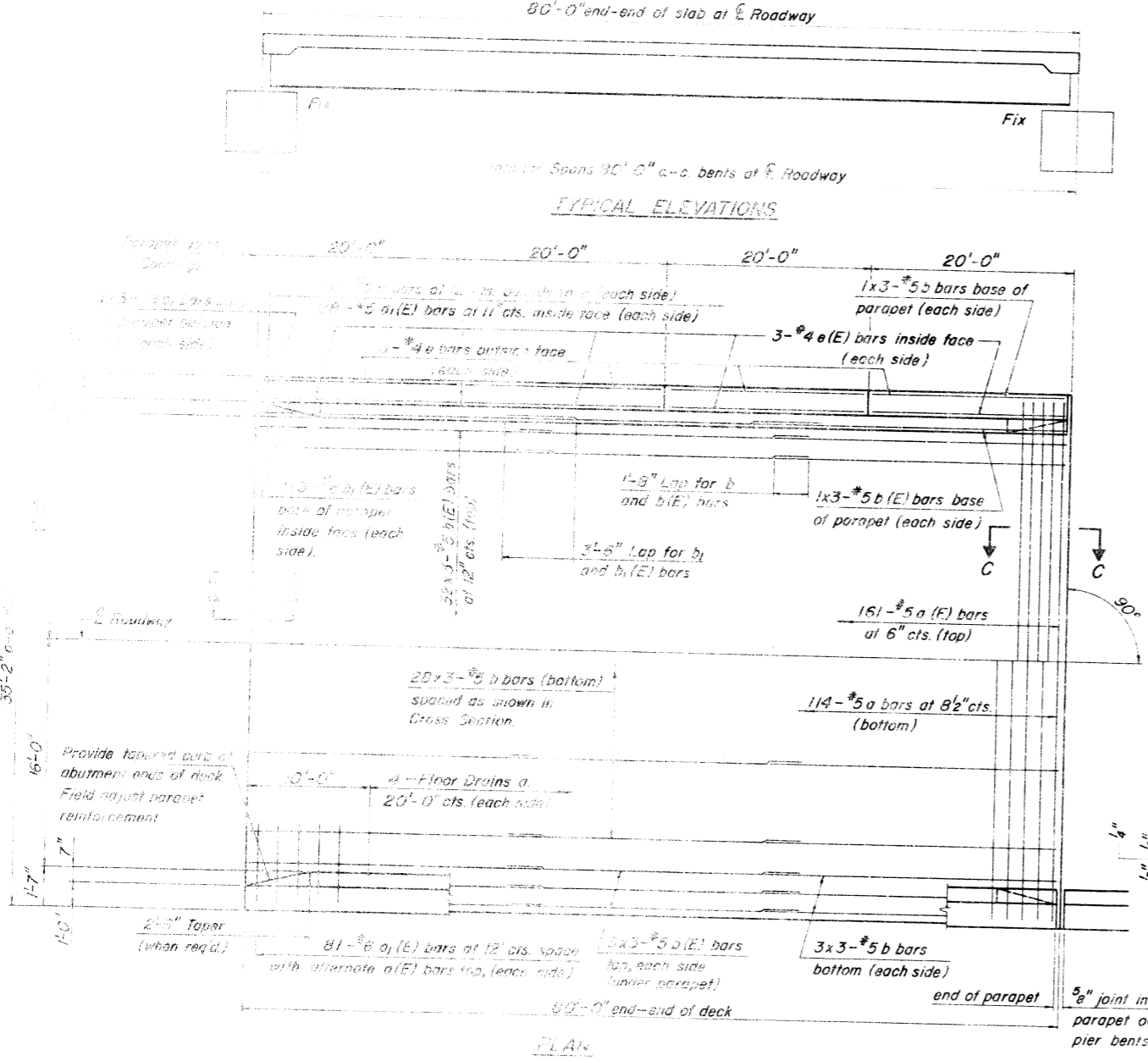
CROSS SECTION
(Looking Upstation)



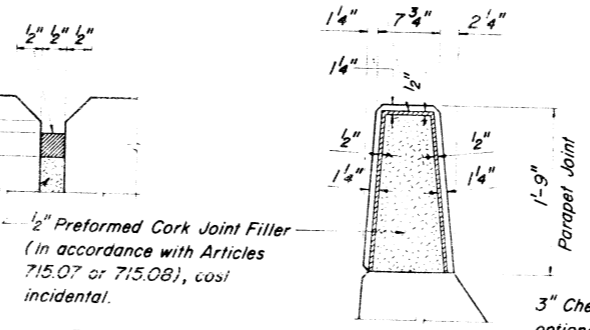
PARAPET SECTION



SECTION C-C



Two component non-staining gray sealing compound with polysulfide liquid polymers - gun grade with primer.



METHOD FOR DETERMINING FILLET HEIGHT "f"

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

Bars indicated thus, 28x3-#5 etc. indicates 28 lines of bars with 3 lengths per line

BAR LIST FOR ONE SPAN

Bar	No.	Size	Length	Shape
a	114	#5	34'-7"	
a(E)	161	#5	34'-7"	
a1(E)	162	#6	4'-0"	
b	108	#5	27'-8"	
b(E)	120	#5	27'-8"	
b1	6	#8	28'-11"	
b1(E)	6	#8	28'-11"	
d	162	#4	5'-2"	
d1(E)	176	#5	3'-11"	
e	24	#4	19'-8"	
e(E)	24	#4	19'-8"	

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

QUANTITIES FOR ONE SPAN

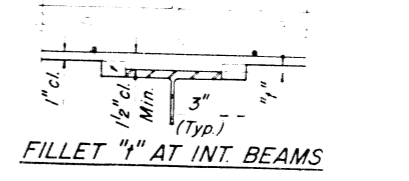
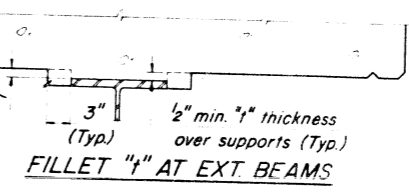
Class 'X' Concrete	887	Cu. Yds.
Reinforcement Bars	8570	Lbs.
Rein. Bars (Epoxy Coated)	11740	Lbs.
Floor Drains	6	Each
Protective Coat	351	Sq Yds

DESIGN STRESSES

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

STEEL BEAM BRIDGES
SUPERSTRUCTURE

32' RDWY.	80' SPAN	0° SKEW
STANDARD SS-3280		



Illinois Department of Transportation

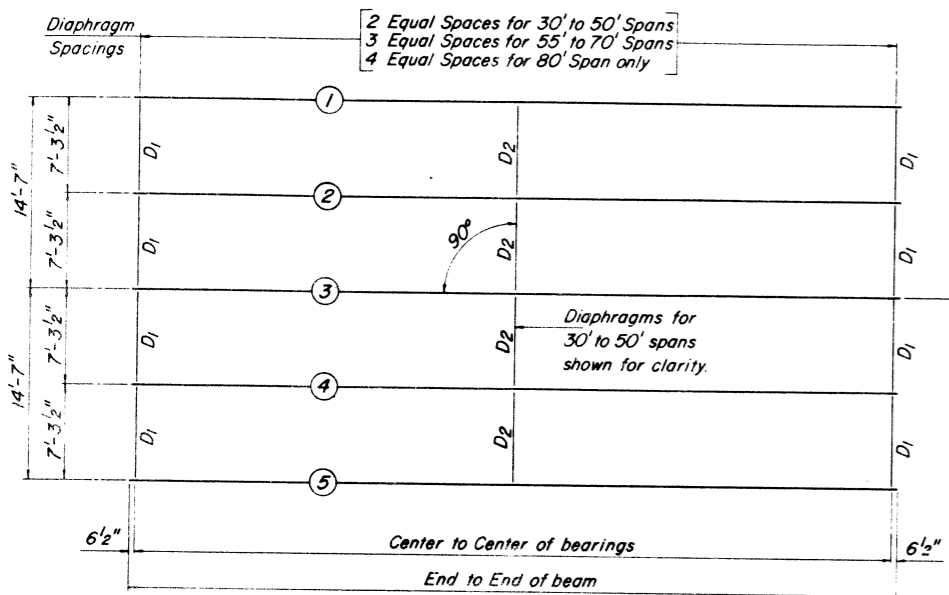
APPROVED _____

Equipment of Bridges and Structures

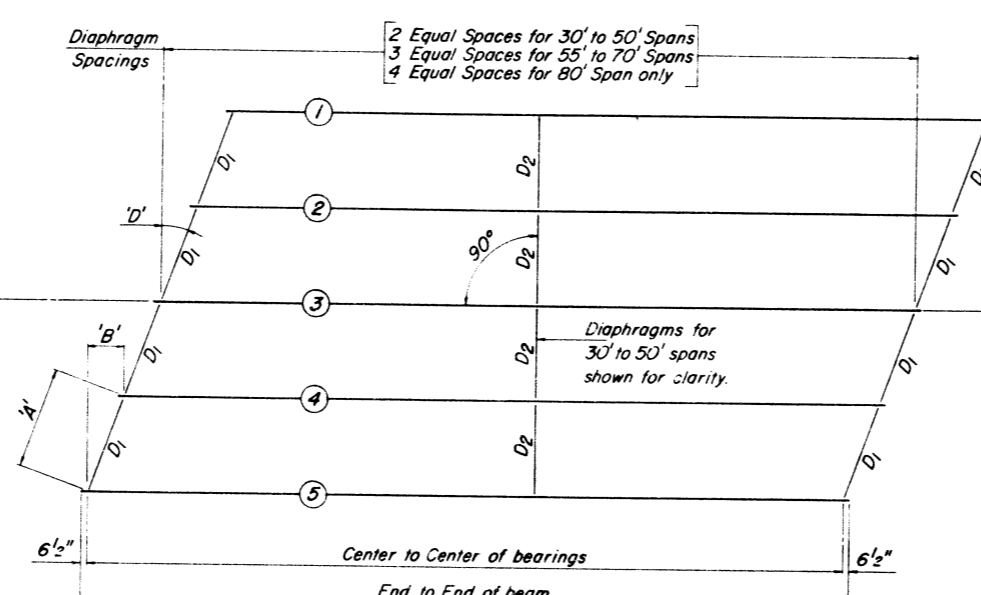
APPROVED _____

Engineer of Design

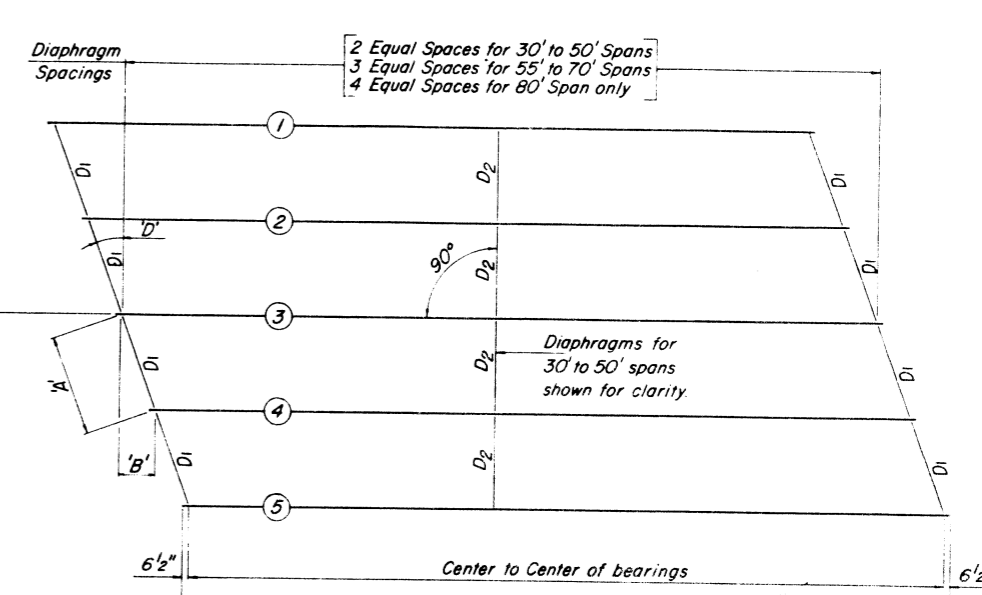
Span	Beam Size	Values for 'SD'		Ctr. - Ctr. Bearings	End - End Beam	No. of Diaphragms		Stud Shear Connector Spacings					Studs Per Line	Total Studs	Deflections			Calculated Weight by 'D'						Bearing Type		
		Exp	Fixed			a	b	c	d	e	1/4 Pt.	1/2 Pt.			3/4 Pt.	0°	5°	10°	15°	20°	25°	30°	Exp.	Fixed		
30'	W27x84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



FRAMING PLAN (0° SKEW)



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



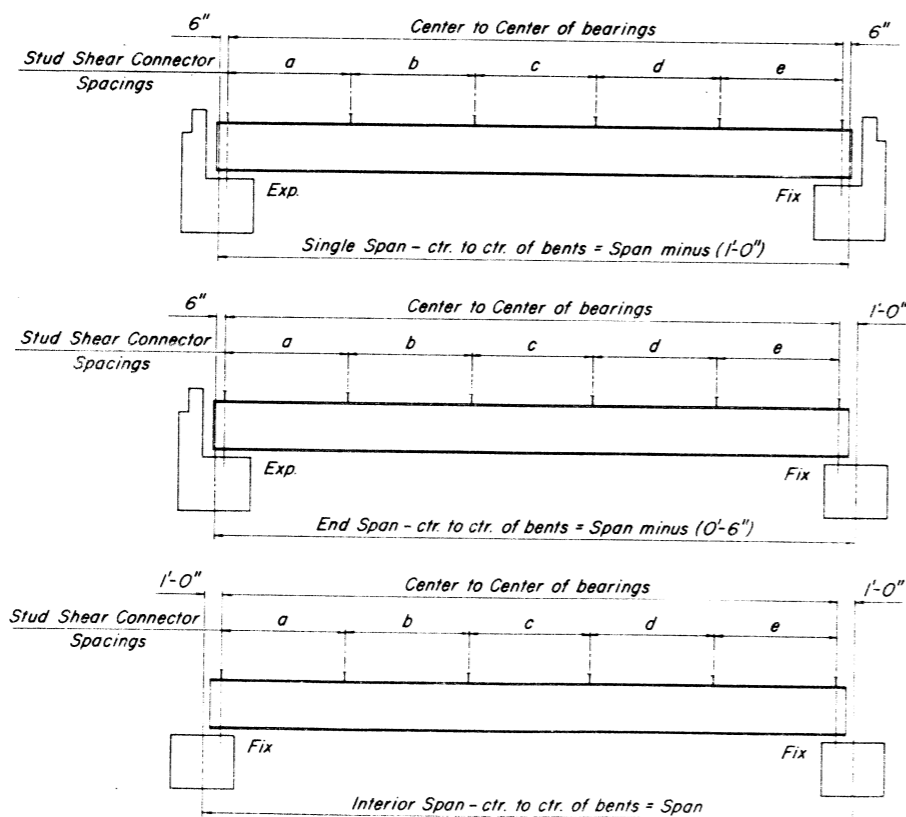
FRAMING PLAN (Rt. Fwd. Skew)
 ('D' = Designated Skew Angle)

DIMENSION 'A' & 'B'

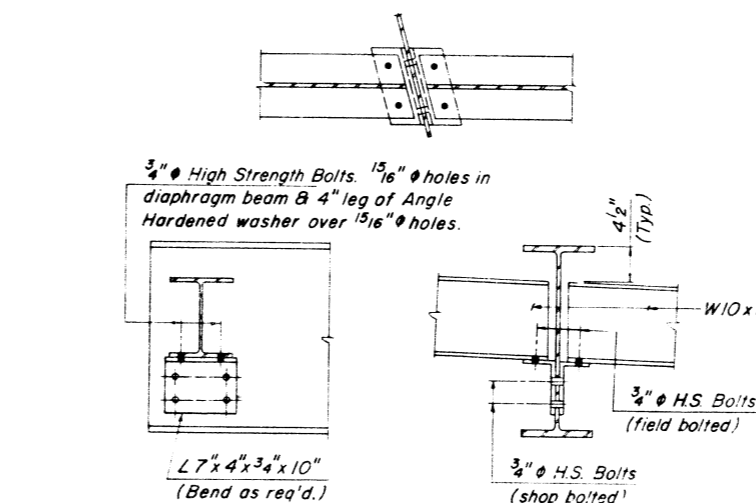
'D'	'A'	'B'
5°	7'-3 13/16"	7'-5 9/16"
10°	7'-4 7/8"	7'-6 1/8"
15°	7'-6 9/16"	7'-8 1/8"
20°	7'-9 1/8"	8'-1 1/8"
25°	8'-0 9/16"	8'-4 13/16"
30°	8'-5 1/8"	9'-0 1/8"

DESIGN STRESSES

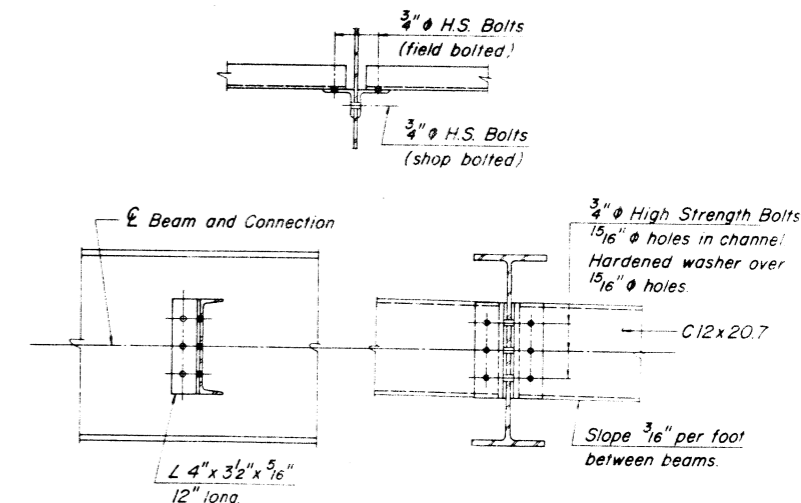
$f_y = 50,000$ psi
 $n = 9$ (Composite)



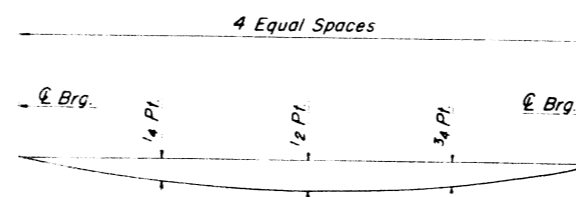
TYPICAL ELEVATIONS



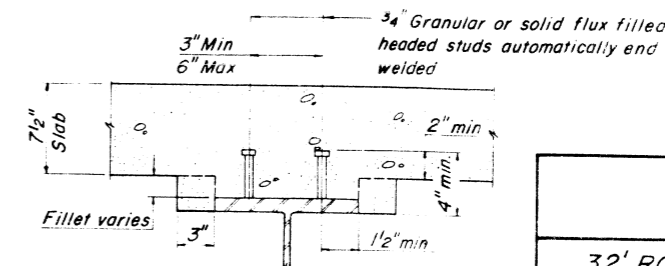
END DIAPHRAGM D1



INTERIOR DIAPHRAGM D2



DEAD LOAD DEFLECTION DIAGRAM



STUD SHEAR CONNECTOR DETAIL

STEEL BEAM BRIDGES STEEL BEAM DETAILS	
32' ROADWAY	W27 BEAMS
STANDARD SB-3227	

Illinois Department of Transportation

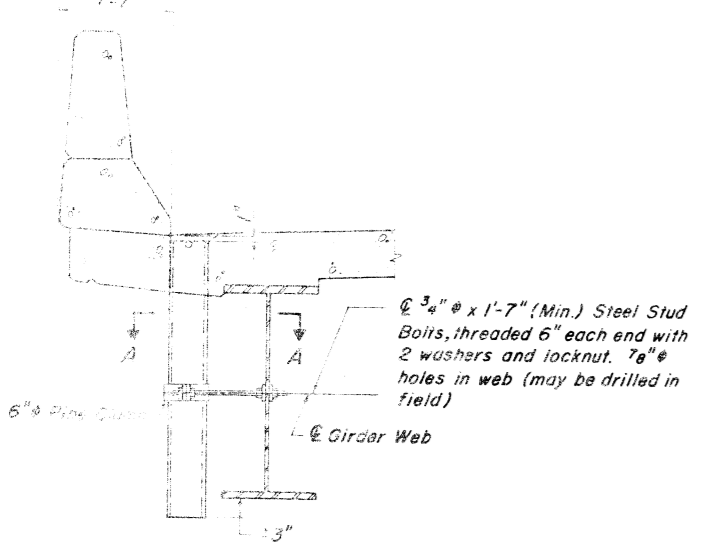
APPROVED JULY 1, 1981

Engineer of Bridges and Structures

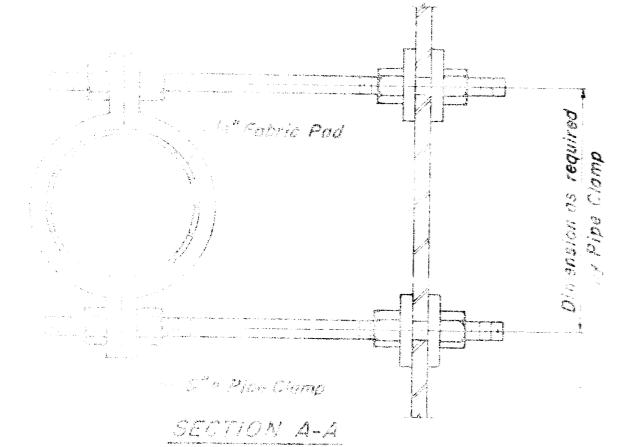
APPROVED JULY 1, 1981

Engineer of Design

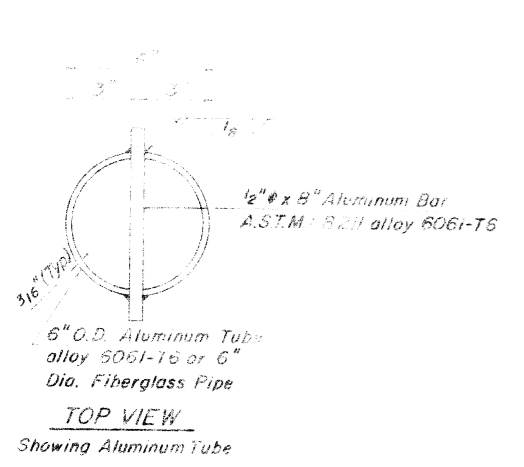
ISSUED 7-1-81



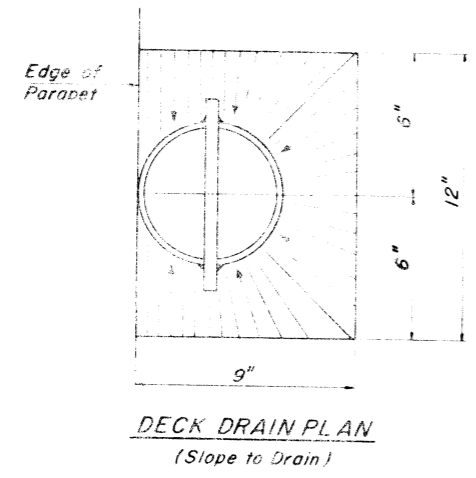
SECTION AT PARAPET



SECTION A-A



TOP VIEW
Showing Aluminum Tube



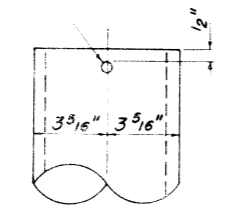
DECK DRAIN PLAN
(Slope to Drain)

NOTE

Fiberglass pipe shall conform to ASTM D2996, Designation Code RTRP-11AE-5112. Pipes with Class C or F liner are acceptable. The exterior surfaces of all Floor Drains, including Clamp Brackets, shall be painted with the Basic Lead Silico Chromate painting specified for Structural Steel. The exterior surfaces of the Aluminum pipe shall be cleaned and given a washcoat pretreatment in accordance with Steel Structural Painting Council's Spec. SSPC-SP1 & SSPC-PT3 prior to painting.

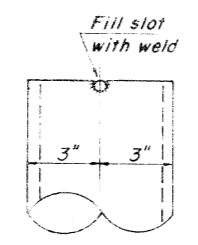
Illinois Department of Transportation
APPROVED: JULY 1988
Engineer of Design

1/2" x 8" Alum. Bar
A.S.T.M.: B211 alloy
6061-T6

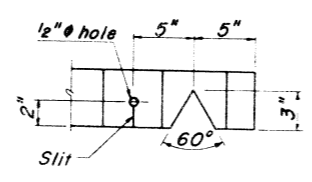


FIBERGLASS PIPE

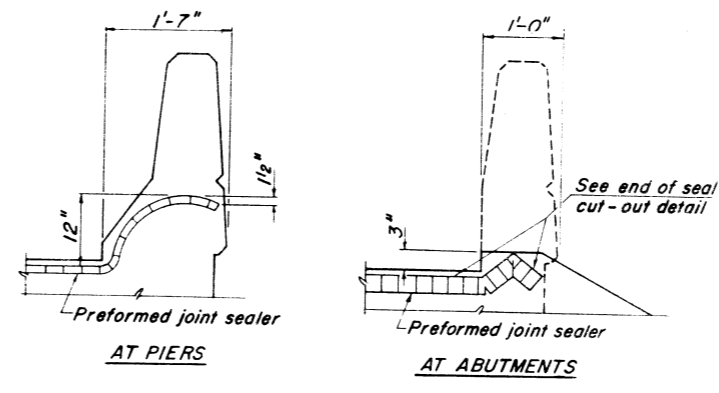
Note: The surface of the Fiberglass pipe shall be free of bond inhibiting agents.



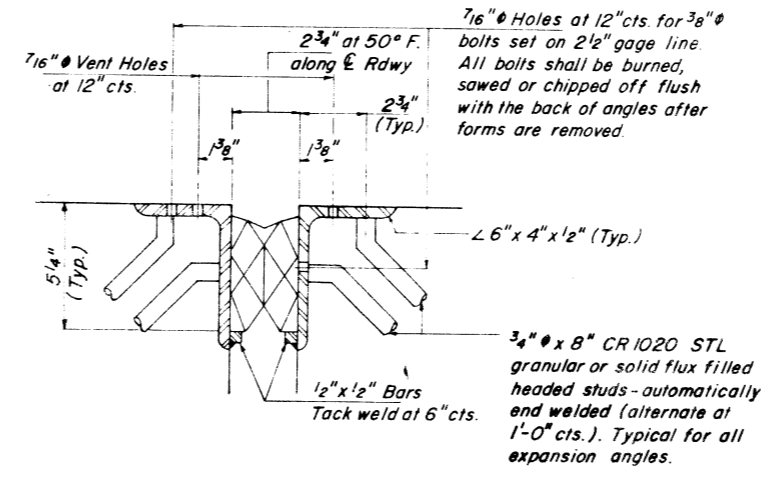
ALUMINUM TUBE



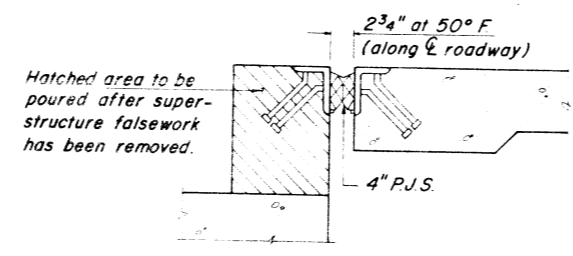
SEAL CUT - OUT



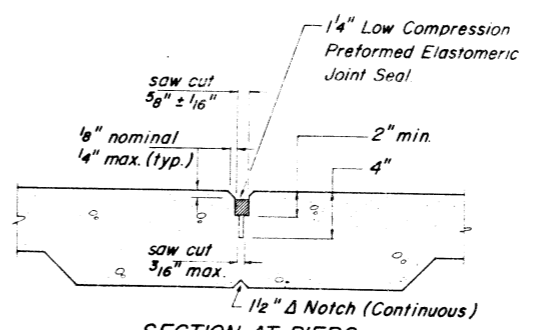
TYPICAL END TREATMENTS



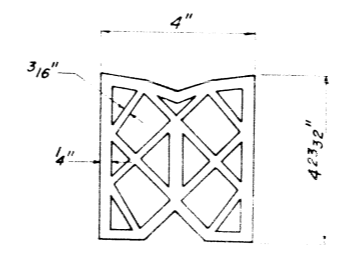
TYPICAL EXPANSION JOINT DETAIL



SECTION AT ABUTMENTS
(Fixed or Expansion Bearing)



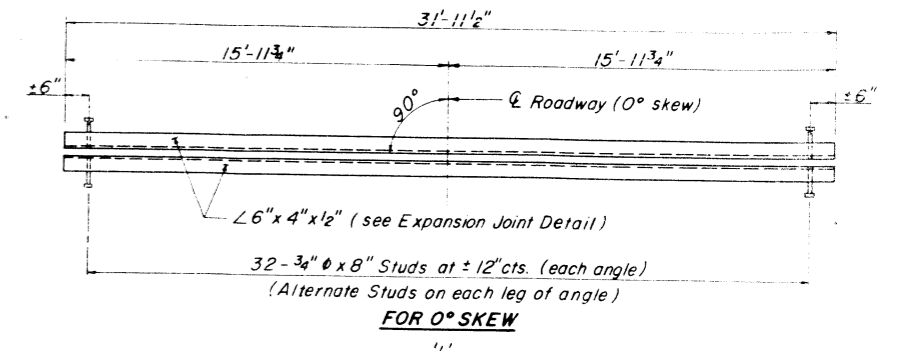
SECTION AT PIERS
(Bearing Fixed Both Sides of Joint)



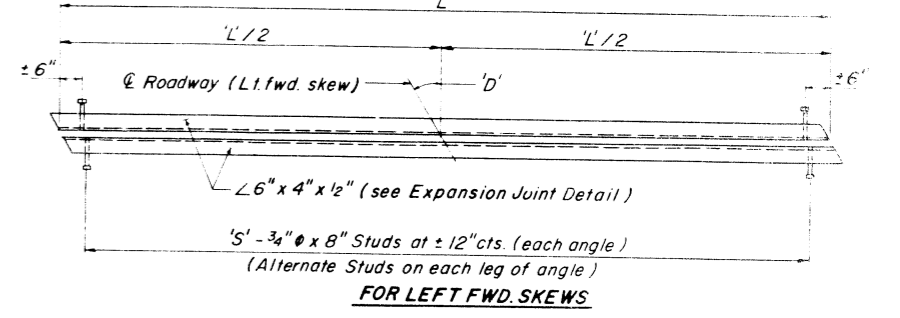
PREFORMED JOINT SEALER 4"
(AT ABUTMENTS)

NOTES

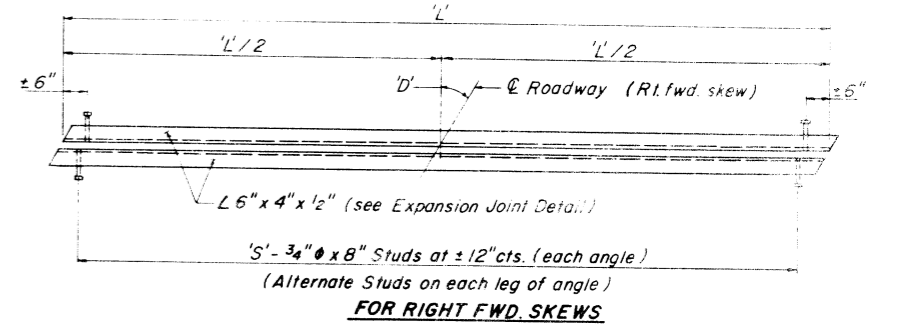
The L 6"x4"x1/2" shall be fabricated to fit crown of roadway. The Preformed Joint Sealer shall be paid for by the Unit Price per Lin. Ft. Cost of 1/4" Low Compression Preformed Elastomeric Joint Seal is incidental to cost of Class 'X' Concrete.



FOR 0° SKEW



FOR LEFT FWD. SKEWS



TYPICAL PLANS - EXPANSION ANGLES

CALCULATED WEIGHT

D'	Lbs.
0°	2331
5°	2340
10°	2369
15°	2412
20°	2480
25°	2570
30°	2692

(Two abutments - 4 angles)
(including studs)

STUD NUMBER 'S'

D'	S'
0°	32
5°	32
10°	33
15°	33
20°	34
25°	35
30°	37

(One angle only)

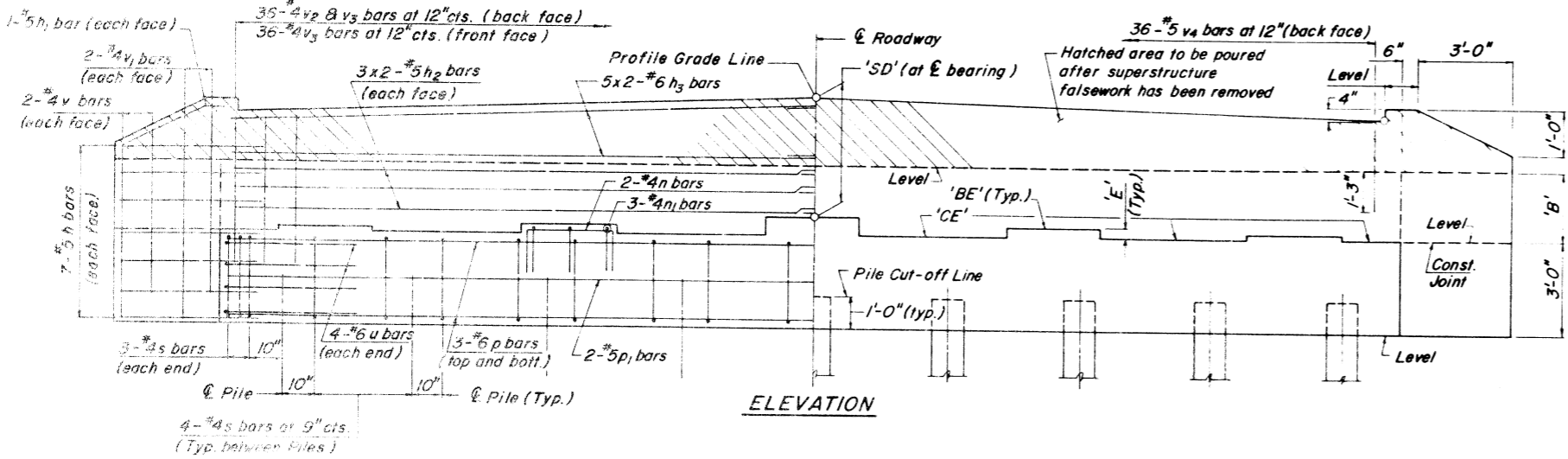
DIMENSION 'L'

D'	L'
0°	32'-1"
5°	32'-5 3/8"
10°	32'-1"
15°	33'-1"
20°	34'-0 1/8"
25°	35'-3 1/8"
30°	36'-10 7/8"

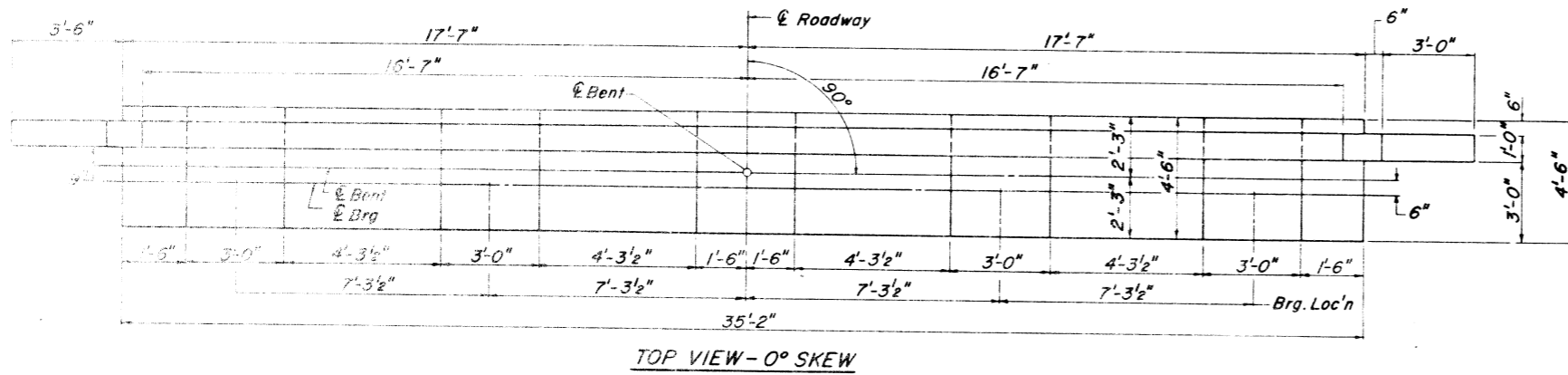
QUANTITIES FOR ONE EXP. JOINT (BY SKEW)

Angle	Preformed Joint Seal 4"	Lin. Ft.
0°	Preformed Joint Seal 4"	35 Lin. Ft.
5°	Preformed Joint Seal 4"	35 Lin. Ft.
10°	Preformed Joint Seal 4"	36 Lin. Ft.
15°	Preformed Joint Seal 4"	36 Lin. Ft.
20°	Preformed Joint Seal 4"	37 Lin. Ft.
25°	Preformed Joint Seal 4"	39 Lin. Ft.
30°	Preformed Joint Seal 4"	40 Lin. Ft.

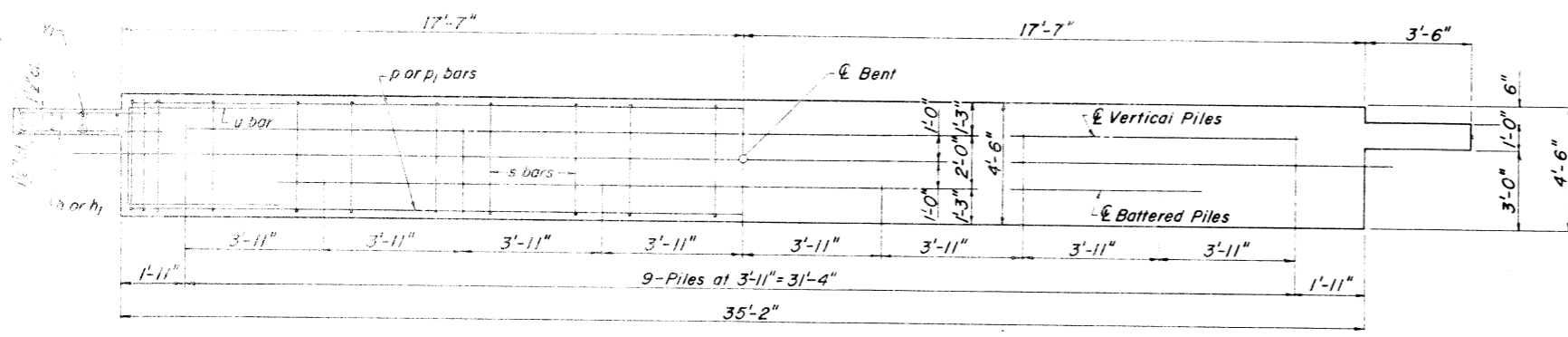
STEEL BEAM BRIDGES
DRAIN & JOINT DETAILS
STANDARD SD-320I



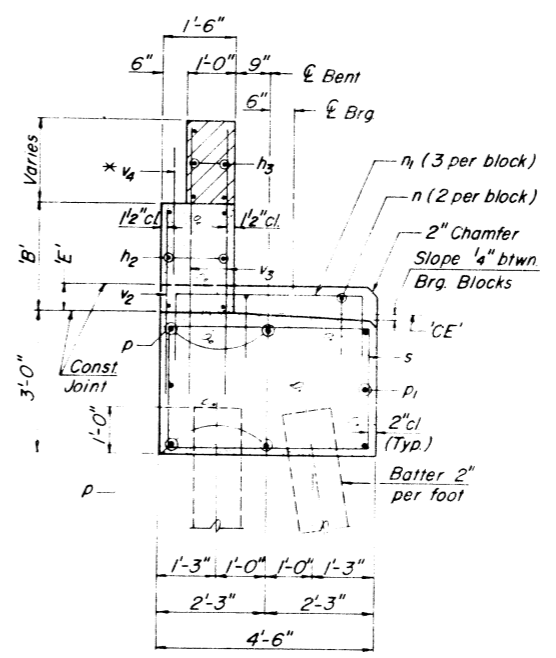
ELEVATION



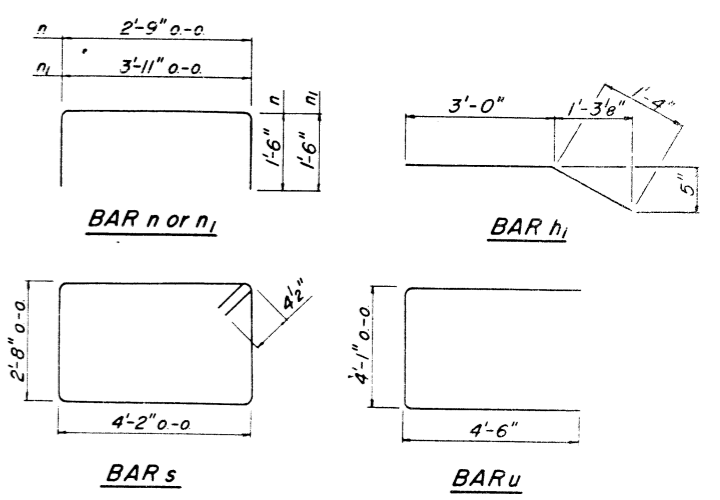
TOP VIEW-0° SKEW



PLAN - PILE CAP



SECTION THRU ABUT. (At Right Angles)

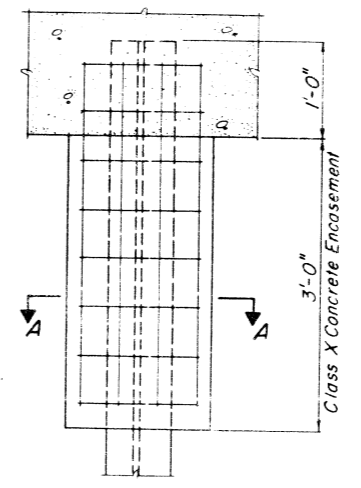


DIMENSION 'B'

Beam Size	'B'
W24	1'-8"
W27	1'-10"
W30	2'-1"
W33	2'-4"

MAXIMUM PILE LOADS

Span	Tons
55'	36
60'	37
70'	40
80'	43



SECTION A-A

Welded wire fabric 6x6-W40xW40 weighing 58 /100 sq ft. The cost of Class X Concrete Encasement and W.W. Fabric is incidental to the cost of furnishing piles. Forms for encasement may be omitted when soil conditions will permit.

ANCHOR BOLT LOCATIONS

Bearing Type	'a'
FX-I	6"
FX-II	7"
FX-III	7 3/4"
FX-IV	8 1/2"
FX-V	10"

BAR LIST FOR ONE ABUTMENT

Bar	No.	Size	Length	Shape
h	28	#5	5'-3"	
h1	4	#5	4'-4"	
h2	12	#5	18'-4"	
h3	10	#6	18'-8"	
n	10	#4	5'-9"	
n1	15	#4	6'-11"	
p	6	#6	34'-10"	
p1	2	#5	34'-10"	
s	38	#4	14'-5"	
u	8	#6	13'-1"	
v	8	#4	6'-2"	
v1	8	#4	6'-10"	
v2	36	#4	4'-0"	
v3	72	#4	5'-11"	
*v4	36	#5	3'-2"	

*v4 bars shall be omitted when Non-Rigid approach is used.

DETAIL OF 'H' PILE ENCASUREMENT

PILE	'F'
HP 8	1'-6"
HP10	1'-9"
HP12	2'-0"

NOTES

1. Reinforcement bars shall conform to A.A.S.H.T.O. M-31 or M-53 Grade 60.
2. Space reinforcement in cap to miss anchor bolts.
3. The designation "4x2-#5...etc." indicates 4 lines of bars with 2 lengths per line.
4. Pour Brg. Seat Blocks monolithically with cap.
5. For Elevations 'BE' and 'CE', and dimension 'E' See General Plan and Elevation sheet. For dimension 'SD' see Steel Beam Details Standards.

DESIGN STRESSES

f'c = 3,500 p.s.i.
fy = 60,000 p.s.i.

QUANTITIES FOR ONE ABUTMENT

Beam Size	Item	Quantity
W24	Class 'X' Concrete	25.4 Cu. Yds
W27	Class 'X' Concrete	25.9 Cu. Yds
W30	Class 'X' Concrete	26.4 Cu. Yds
W33	Class 'X' Concrete	27.0 Cu. Yds
ALL	Reinforcement Bars	2270 Lbs

**STEEL BEAM BRIDGES
ABUTMENT CAP**

32' RDWY.	SPANS 55'-80'	'D'=0°
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STANDARD SA-3280

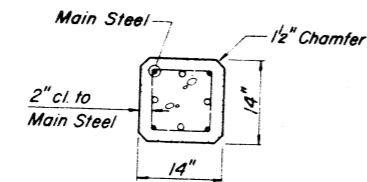
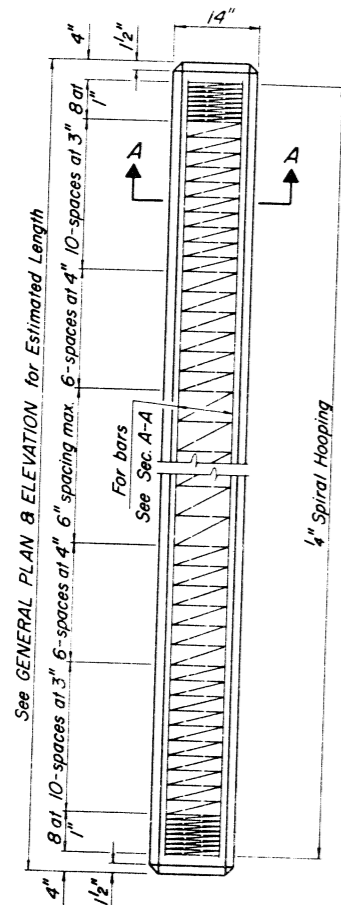
Illinois Department of Transportation

APPROVED _____

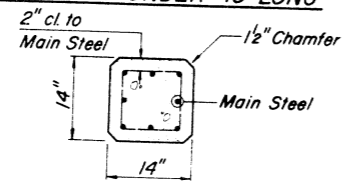
Engineer of Bridges and Structures

APPROVED _____

Engineer of Survey



SECTION A-A
FOR PILES UNDER 45' LONG



SECTION A-A
FOR PILES 45' OR MORE

**MAIN STEEL
FOR PILES UNDER 45'**

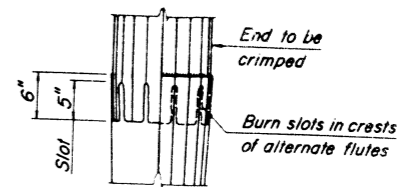
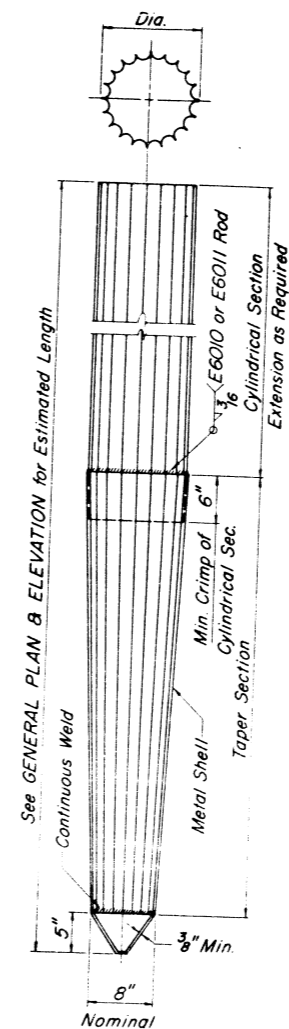
PILE CLASS	BAR NO. and SIZE
A	4-#9
B	4-#9
C	8-#8
D	8-#10

**MAIN STEEL
FOR PILES OVER 45'**

PILE CLASS	BAR NO. and SIZE
A	8-#8
B	8-#8
C	8-#8
D	8-#10

Handling: For pile lengths up to 45' use two slings placed at a distance of 0.21L from each end. For piles longer than 45', use three slings placed at a distance of 0.12L from each end and at mid point of pile.

**PRECAST
CONCRETE PILES**

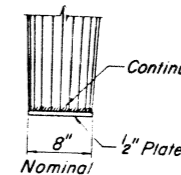


FIELD CRIMP DETAIL

Note: 6" Crimp shall either be supplied on the cylindrical section or made in the field as detailed.

PILE CLASS	DIA.	*SHELL TH'KNNESS
A	12"	.1495"
B	14"	.2092"

*With a tolerance of 5%.
Tapered shells can not be used for Class C or D



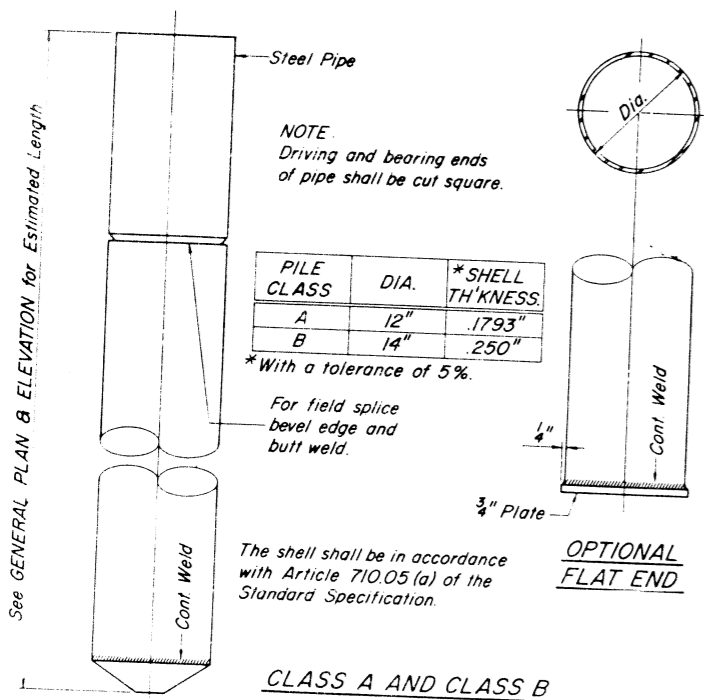
OPTIONAL FLAT END

ALLOWABLE TAPER SECTIONS

CLASS A	CLASS B
10' Length - Taper 1" in 2'-6"	15' Length - Taper 1" in 2'-6"
17' Length - Taper 1" in 4'-0"	25' Length - Taper 1" in 4'-0"
25' Length - Taper 1" in 7'-0"	40' Length - Taper 1" in 7'-0"
30' Length - Taper 1" in 7'-0"	

NOTE:
The shell shall be in accordance with Article 710.05 (a) of the Standard Specification except that minimum yield strength for steel after cold working shall be 50,000 psi.

**TAPERED METAL SHELLS
FOR CAST IN PLACE CONCRETE PILES**



NOTE:
Driving and bearing ends of pipe shall be cut square.

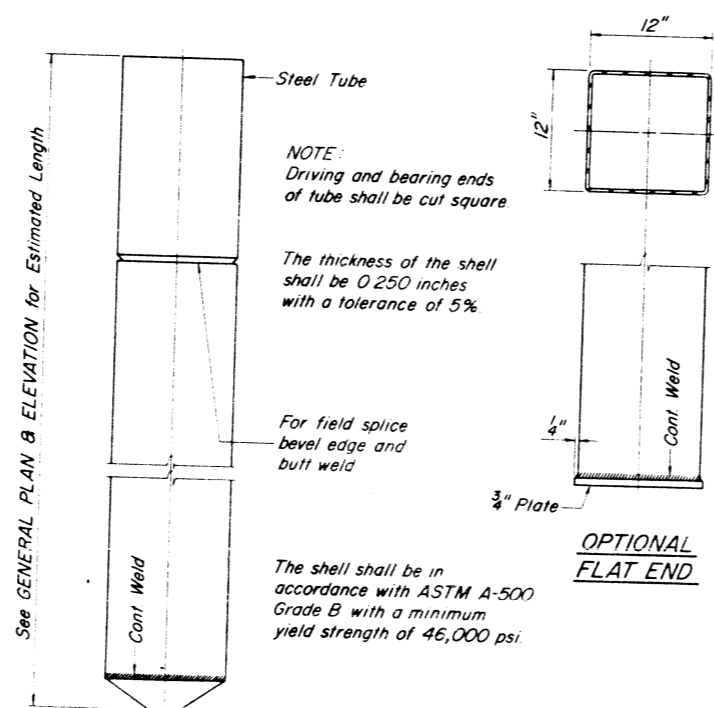
PILE CLASS	DIA.	*SHELL TH'KNNESS
A	12"	.1793"
B	14"	.250"

*With a tolerance of 5%.

For field splice bevel edge and butt weld.

The shell shall be in accordance with Article 710.05 (a) of the Standard Specification.

CLASS A AND CLASS B



NOTE:
Driving and bearing ends of tube shall be cut square.

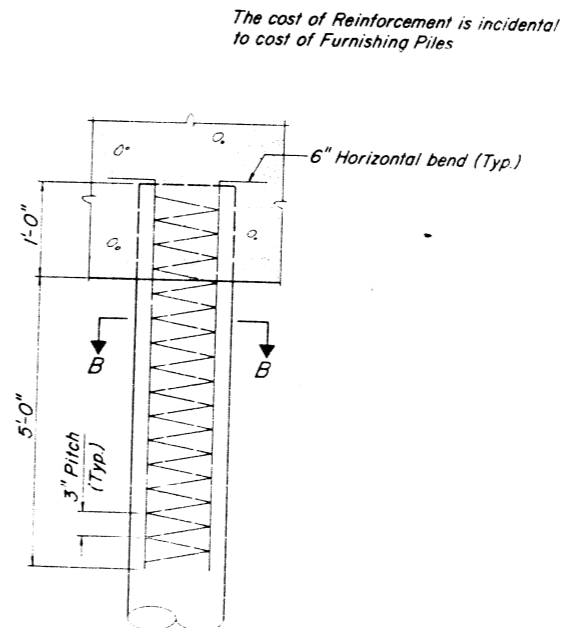
The thickness of the shell shall be 0.250 inches with a tolerance of 5%.

For field splice bevel edge and butt weld.

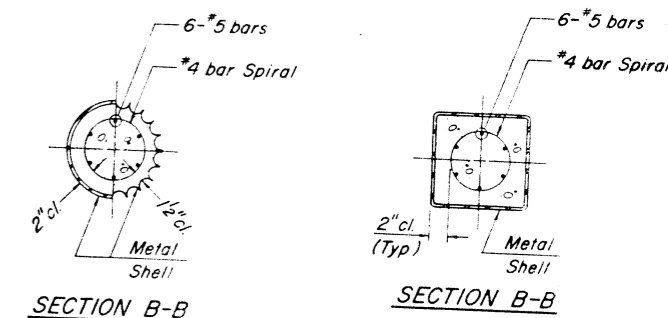
The shell shall be in accordance with ASTM A-500 Grade B with a minimum yield strength of 46,000 psi.

CLASS C AND CLASS D

**CYLINDRICAL OR SQUARE STEEL SHELLS
FOR CAST IN PLACE CONCRETE PILES**



The cost of Reinforcement is incidental to cost of Furnishing Piles



SECTION B-B

SECTION B-B

**USE OPTIONS
FOR PILE TYPES**

DESIGNATED PILE CLASS	OPTIONAL PILE CLASSES
A	A B C D
B	B C D
C	C D
D	-

PILE DETAILS

CONCRETE PILES

STANDARD SX-1

**REINFORCEMENT FOR CAST IN PLACE
CONCRETE PILES AT ABUTMENTS**

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

ISSUED 7-1-81