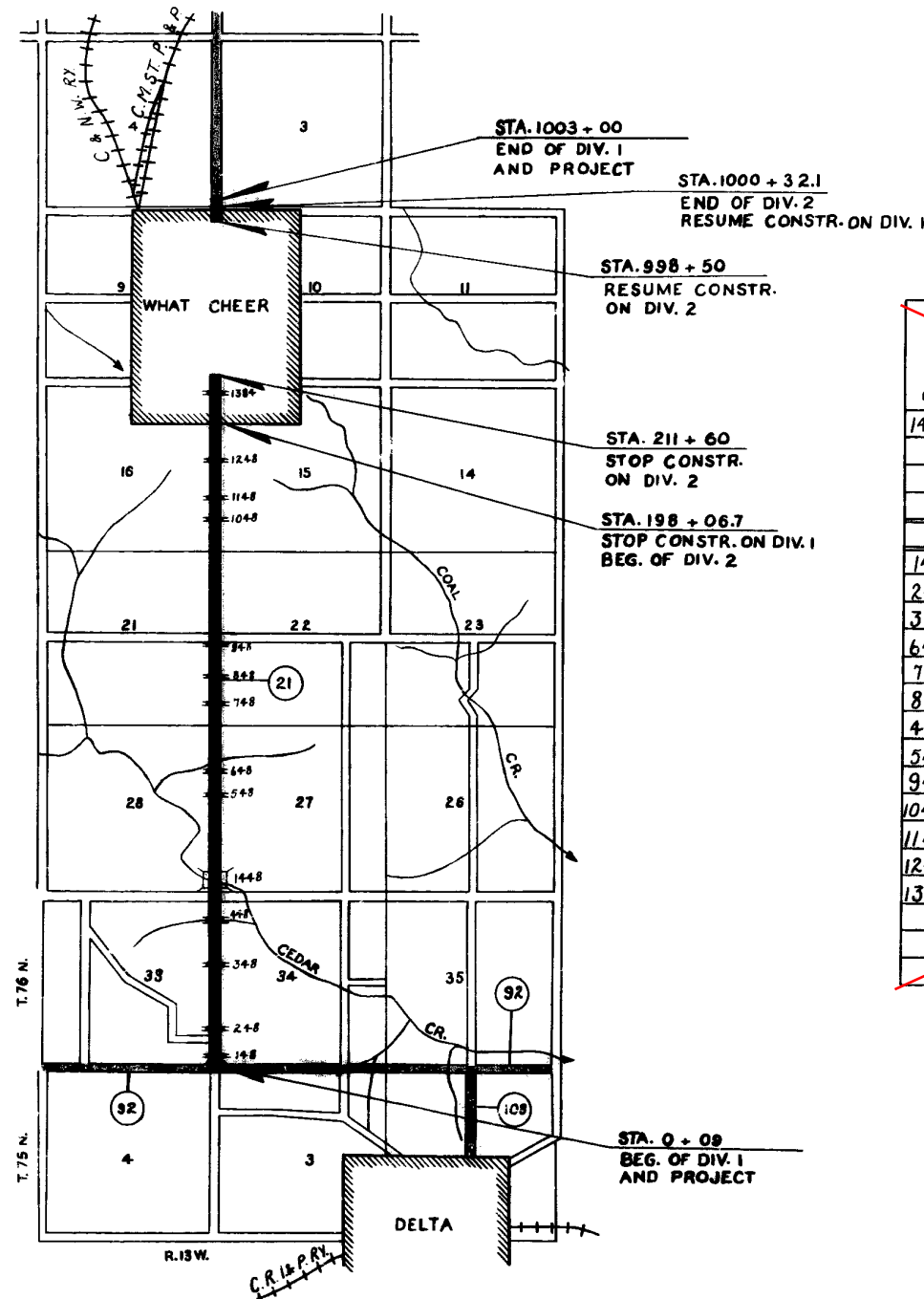


STATE OF IOWA  
STATE HIGHWAY COMMISSION  
DESIGNS FOR  
**BRIDGES AND CULVERTS**

PRIMARY ROAD SYSTEM PROJECT NO. F. 897(2)

**KEOKUK COUNTY**

NOVEMBER 1948



**LAYOUT**  
SCALE: 2 INCHES=1 MILE

DESIGN	LOCATION			DESCRIPTION	ESTIMATE OF QUANTITIES										REMOVAL	FI-PIPE L.F.
	SEC.	TOWNSHIP	STATION		SIZE AND TYPE	CONCRETE CU. YDS.	REINFORCING STEEL - LBS.	STRUCTURE STEEL - LBS.	PILING - LIN. FT.		EXCAVATION - CU. YDS.					
								TREATED	UNTREATED	CL. 10	CL. 20	CL. 21	CL. 23	CL. 24		
1448	27-28	WASHINGTON	57+50	80'x30' STEEL DECK GIRDER BR.	295.1	24260	95025	510	990	1216	60	110			LUMP SUM	30 x 20 FOOT TRUSS
148	33-34	WASHINGTON	2+76	3'x2' R.C.B. EXT.	25.2	1570							37			
248	33-34	"	18+60	3'x4'x67' R.C.B.	32.1	1841							125		REMOVE TOP SLAB OF 4'x3'x50.3' R.C.B.	
348	33-34	"	31+51	2'x2' R.C.B. EXT.	15.4	817							16			
648	27-28	"	90+05	36" x 18" PIPE AND R.C. FLUME	15.0	820							135	55	2'x2'x35.4' R.C.B. AS NOTED ON DESIGN	78
748	21-22	"	111+50	4'x4'x78' R.C.B. BOX	41.2	3635							111		SEAL INLET CULVERT OF 4'x3'x44' R.C.B.	
848	21-22	"	117+32	2'x2' R.C.B. EXT.	10.4	553							9			
448	33-34	"	42+00	10'x10' CON. CULV. EXT.	115.5	12922							167.0			
548	27-28	"	82+01	10'x10' CON. CULV. EXT.	133.5	13627							215			
948	21-22	"	131+52	2'x2' R.C.B. EXT.	14.3	757							23			
1048	15-16	"	164+67	2'x2' R.C.B. EXT.	9.0	474							8			
1148	15-16	"	171+19	2'x2' R.C.B. EXT.	12.0	641							12			
1248	15-16	"	187+80	3'x2' R.C.B. EXT.	21.6	1275							34			
1348	15-16	"	205+43.5	12'x8' CON. CULV.	173.8	18998							195		12'x8'x26' R.C.B.	
TOTAL OF CULVERTS					619.0	57930							114.7	55		78

SPECIFICATIONS:  
DESIGN - AASHO 1944 FOR H-20 LOADING  
CONSTRUCTION - IOWA HIGHWAY COMMISSION  
SERIES OF 1948  
PAINT - SEE DESIGN.

APPROVED

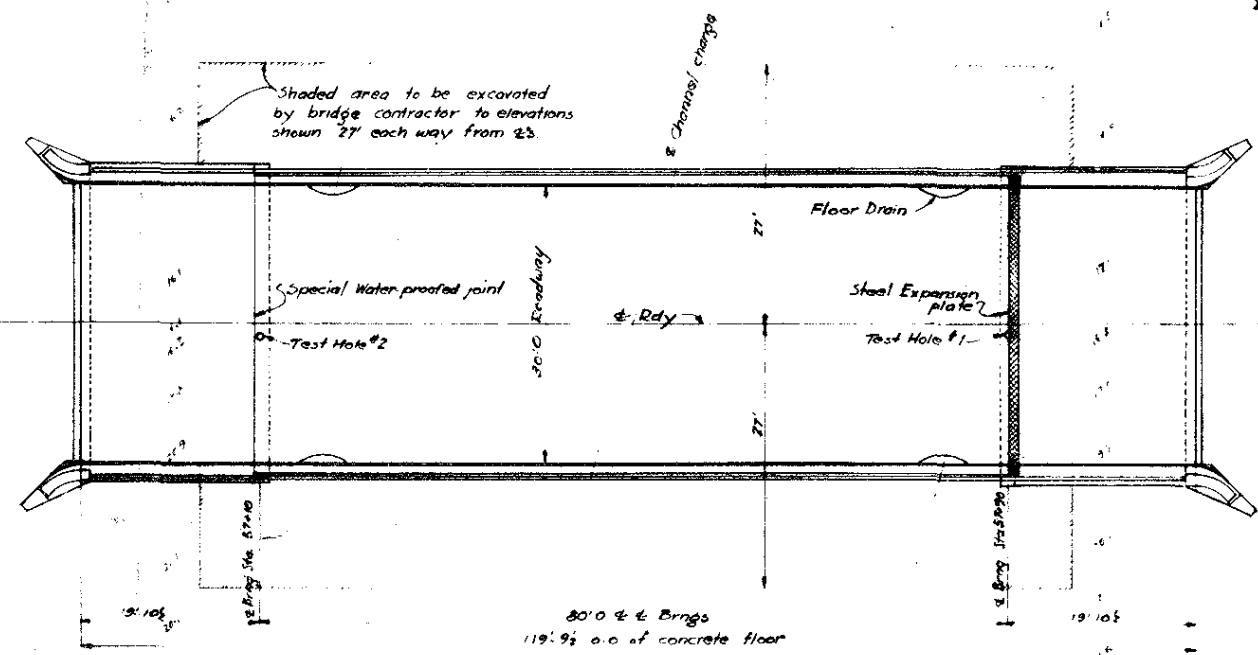
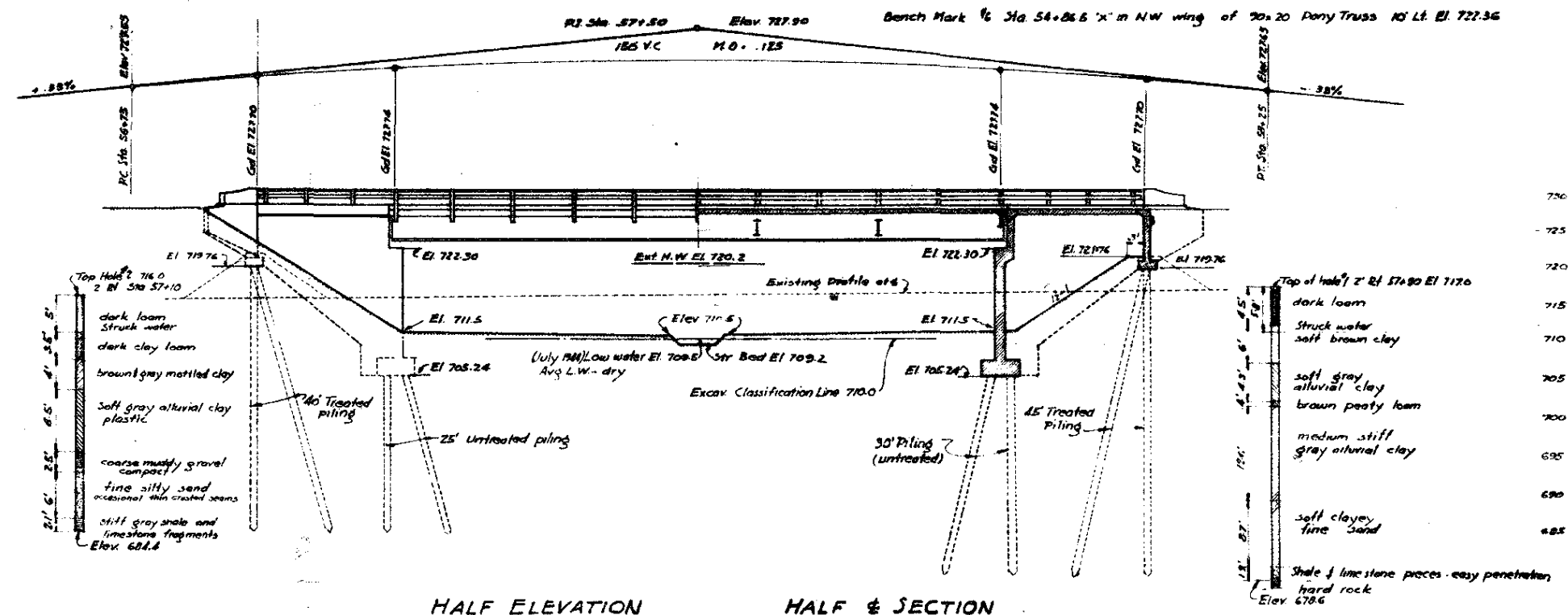
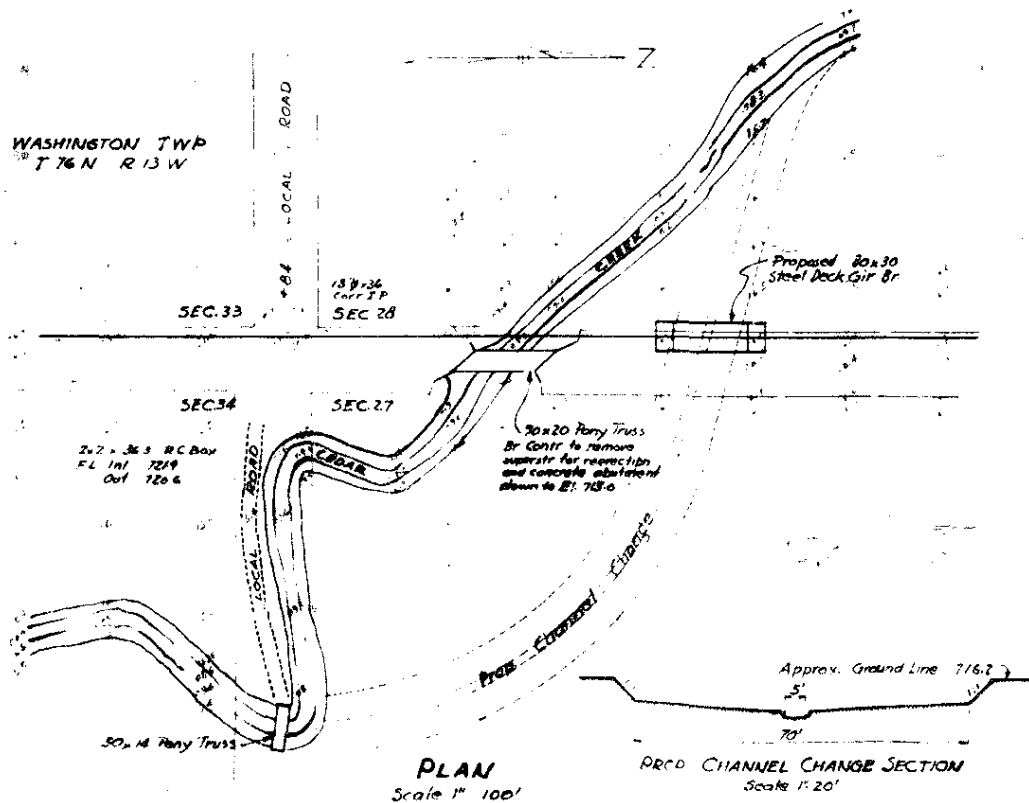
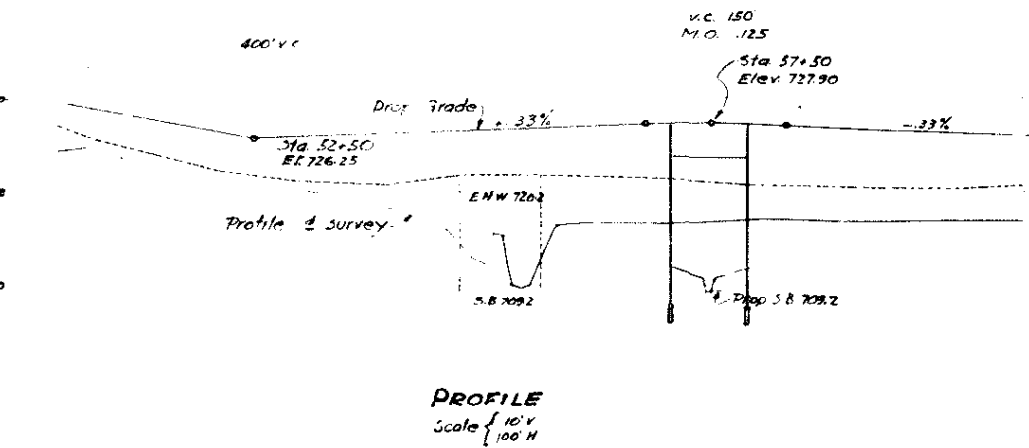
CHIEF ENGINEER  
IOWA HIGHWAY COMMISSION

RECOMMENDED FOR APPROVAL

DISTRICT ENGINEER  
PUBLIC WORKS ADMINISTRATION  
FEDERAL BUREAU OF ROADWORK

APPROVED

DIVISION ENGINEER  
PUBLIC WORKS ADMINISTRATION  
FEDERAL BUREAU OF ROADWORK



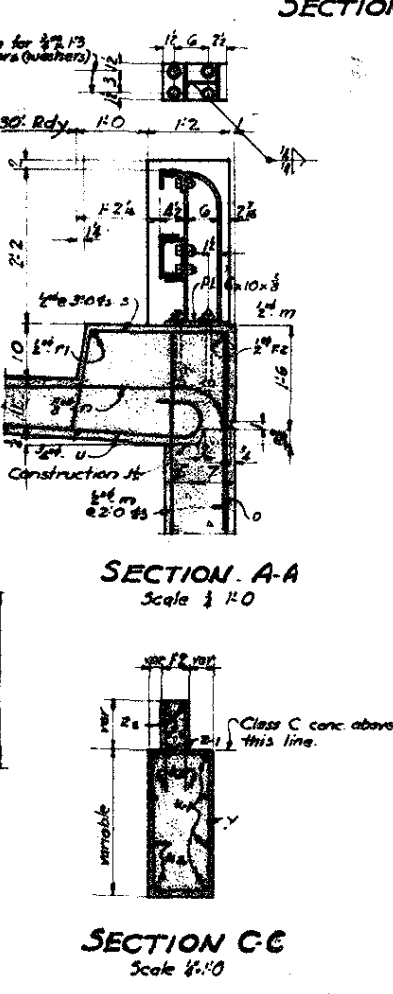
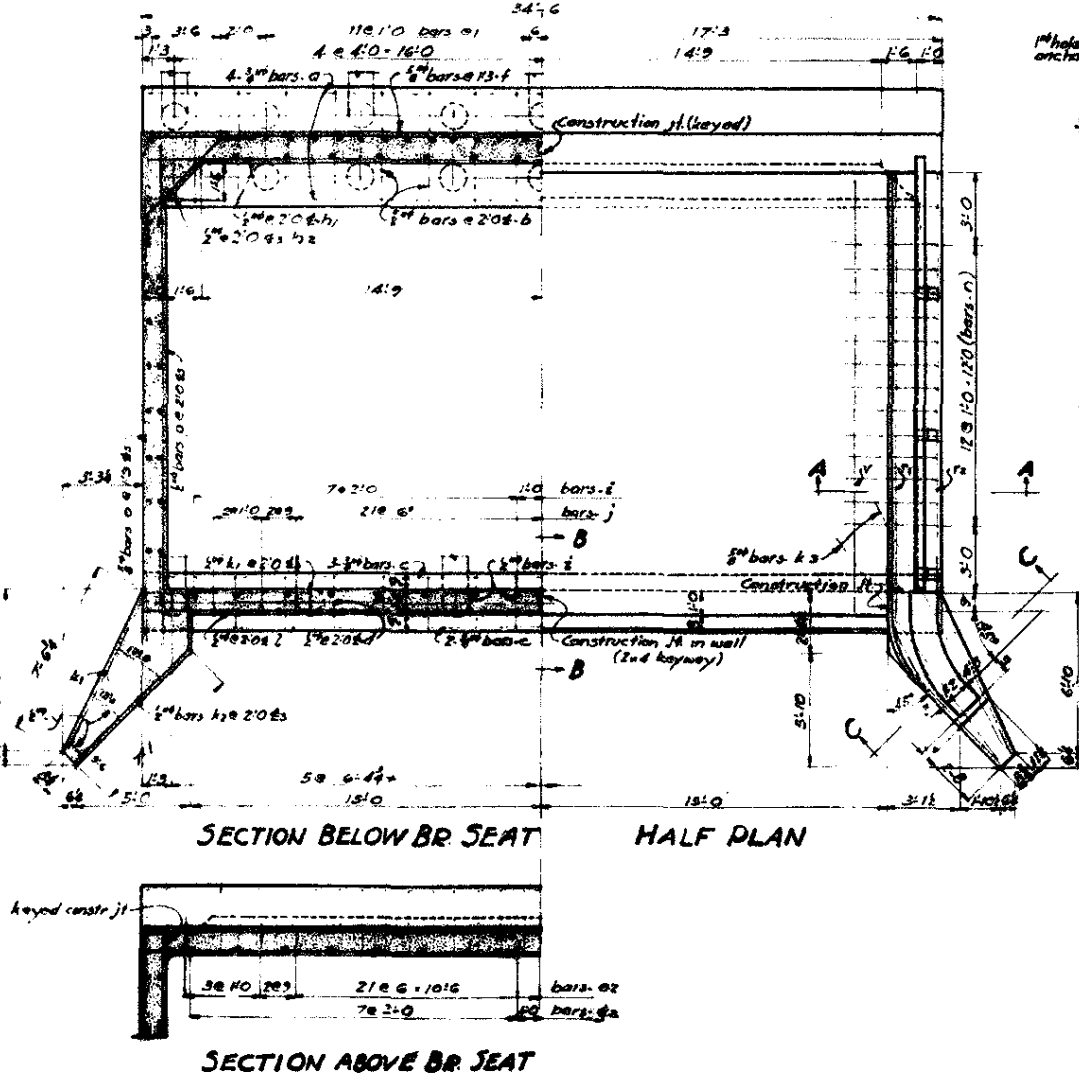
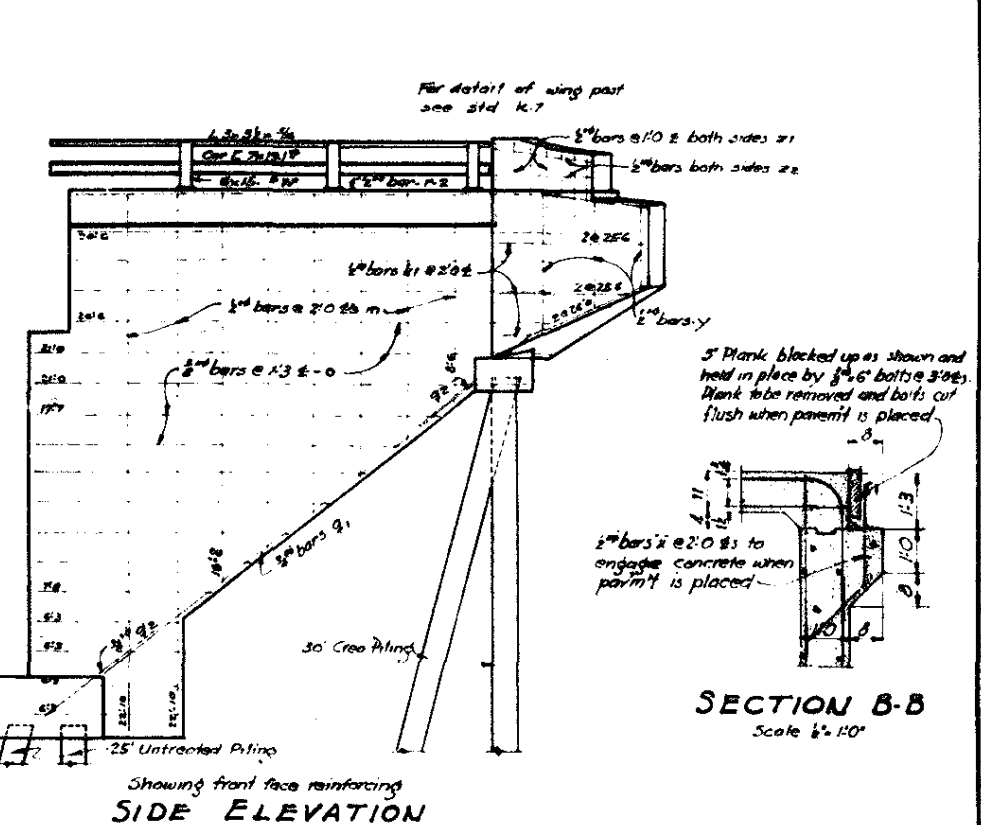
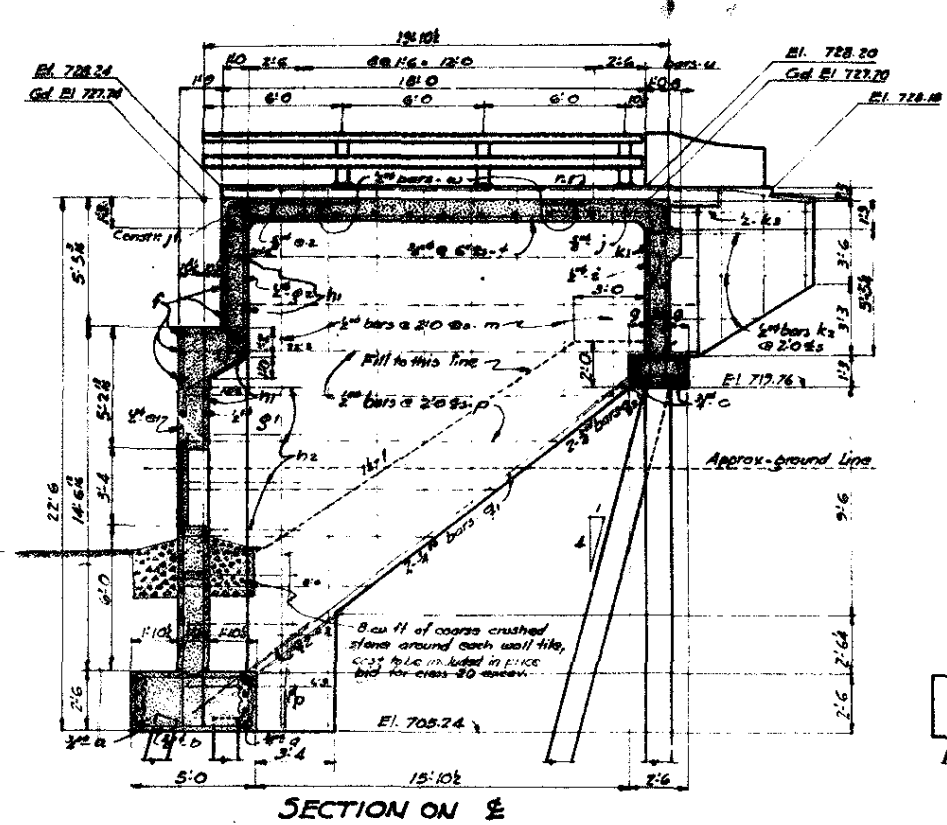
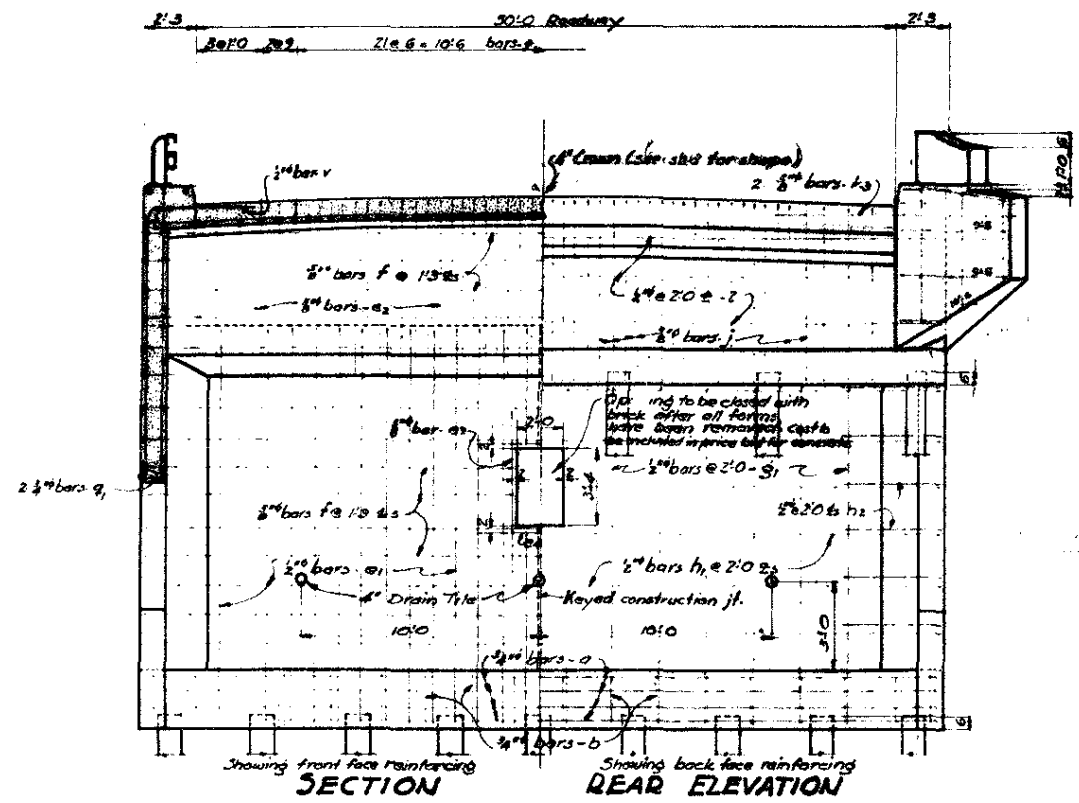
**General Notes:**  
 Design Specifications: A.A.S.H.O. 1944 for H 20 Loading except that the overload provisions is applied to all lanes.  
 Construction Specifications: Iowa Highway Commission 1948 except that the two field coats of paint on all rail surfaces visible from the roadway are to be white as per par. 4135.04.  
 Old 90x20' Pony Truss bridge at Sta 55+16 is to be removed by bridge contractor. Superstructure is to be marked for resection. Old concrete abutments are to be demolished down to El. 715.0.  
 Bridge contractor is to excavate channel change under bridge and for a distance of 27' each way from 1/4 of roadway.  
 Berms for rear walls of abutments are to be built and compacted by bridge contractor before driving piling. They are to be built of class 10 channel excavation and cost is to be included in price bid for class 10 channel excavation.

ESTIMATED QUANTITIES			
	Abutments	Superstr.	Total
Concrete	222.6	72.5	295.1 cy
Rein. Steel	78.68	16.292	24860 lb.
Str. Steel	2805	92220	15028 lb.
Untreated Piling	1625	1625	3250 LF
Treated Piling	680	680	1360 LF
Excav. Cl 20	80		80 cy
Excav. Cl 21	110		110 cy
Excav. (to) Channel			1216 cy
Removal of old bridge			Lump Sum

Design For  
**80'x30' STEEL DECK GIRDER BR**  
 Concrete Floor — Steel Rail  
**GENERAL DRAWINGS**  
 Station 57+50 Federal Aid Project 877(2)  
**KEOKUK COUNTY**  
 Iowa Highway Commission  
 July 1948 Sheet 1st 3 Scales as noted

5414.15021

Bench Mark %: Sta 54+86.5 "X" in N.W. wing of 90x20 Pony Truss 10' Lt. El. 722.36



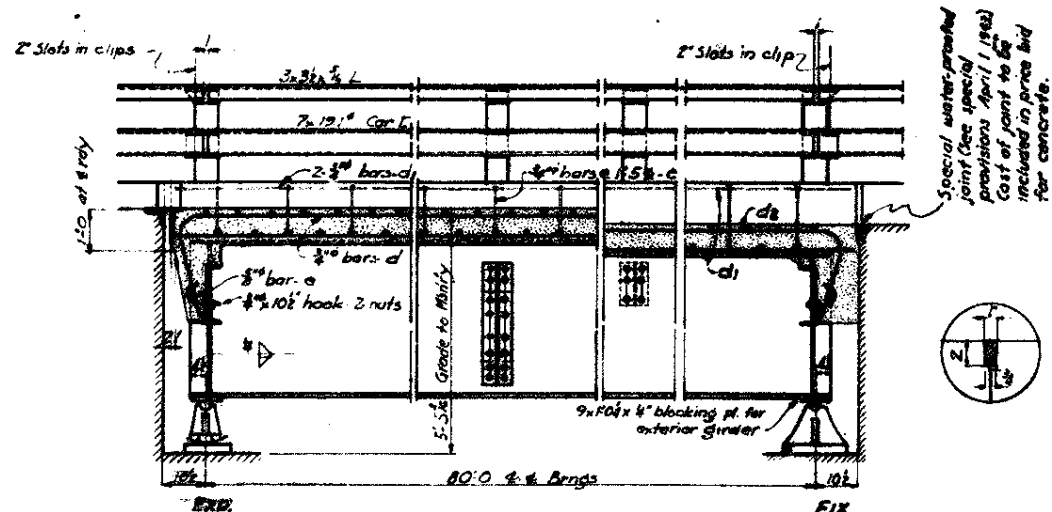
BILL OF REINFORCING STEEL ONE ABUT.					
Mark	Location	Size	Nbr	Length	Weight
a	Front Flg Ingtl	3/4"	8	34.3	412
b	" " hoops	3/4"	18	14.0	168
c	Rear Flg Ingtl	3/4"	5	34.3	258
d	" " hoops	3/4"	18	61.6	78
e	Breast wall vert (lower) FF	3/4"	28	19.6	365
e2	" " upper FF	3/4"	33	18.0	718
e3	" " opening FF vert	3/4"	2	7.6	16
e4	" " hor	3/4"	2	61.2	8
f	" " horiz FF	3/4"	16	38.0	635
g1	" " vert (lower) BF	3/4"	14	16.8	196
g2	" " (upper) BF	3/4"	16	10.6	115
h1	" " horiz BF	3/4"	9	34.3	205
h2	" " Pillets horiz BF	3/4"	12	6.9	54
i	Rear wall vertical RF	3/4"	16	7.0	75
j	" " RF	3/4"	51	18.9	732
k1	" " sawtooth FF	3/4"	6	var	206
k2	Wing horiz BF	3/4"	6	var	40
l	Rear wall horiz BF	3/4"	3	38.0	68
m	Side wall vert RFs BF	3/4"	22	var	320
n	Side walls to slab	3/4"	26	36.0	244
o	" " horiz RF	3/4"	34	var	318
p	" " BF	3/4"	20	var	195
q1	Sidewalls on slope BF RF	3/4"	4	20.6	123
q2	" " dowels	3/4"	8	6.0	72
r1	Curb Ingtl inside	3/4"	2	26.6	95
r2	" " outside	3/4"	2	25.0	35
s	" " transv	3/4"	12	6.8	54
t	Slab Ingtl bottom	3/4"	53	18.9	1493
u	" " transv	3/4"	9	35.0	473
v	" " Ingtl top	3/4"	2	18.9	25
w	" " transv	3/4"	2	33.9	45
x	Reinforcement anchors	3/4"	16	3.2	33
y	Wing hoops	3/4"	6	var	52
z1	Wing post	3/4"	28	2.6	86
z2	" " hor	3/4"	4	2.5	27
z3	Top of wing	3/4"	4	12.0	80
					7948

General Notes:-  
Bridge contractor, before driving piling, is to build and compact berms for rear wall footings as shown.  
All reinforcing is to be securely wired in place before placing concrete. Slab reinforcing is to be supported on continuous transverse metal bar chain at 3' esp.  
All exposed corners 20° or sharper to be filleted with 1/2" dressed beveled strip.

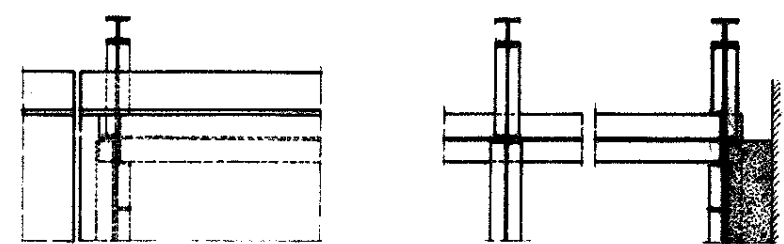
CONCRETE SCHEDULE	
Front Footing	15.7 cy
Rear Footing	3.9
Walls & wings (2 pours)	60.4
Back wall	4.95
Slabs & Curb	25.4
Wing Posts (Class C)	.97
	111.30 cy

ESTIMATED QUANTITIES (2-ABUTS)	
Concrete	222.6 cy
Reinforcing Steel	7968 lb
Structural Steel	2805 lb
Treated Piling 60' 40' 45'	510 LF
Untreated Piling 100' 25' 100' 30'	990 LF
Excavation Cl. 20	60 cy
Excavation Cl. 21	110 cy

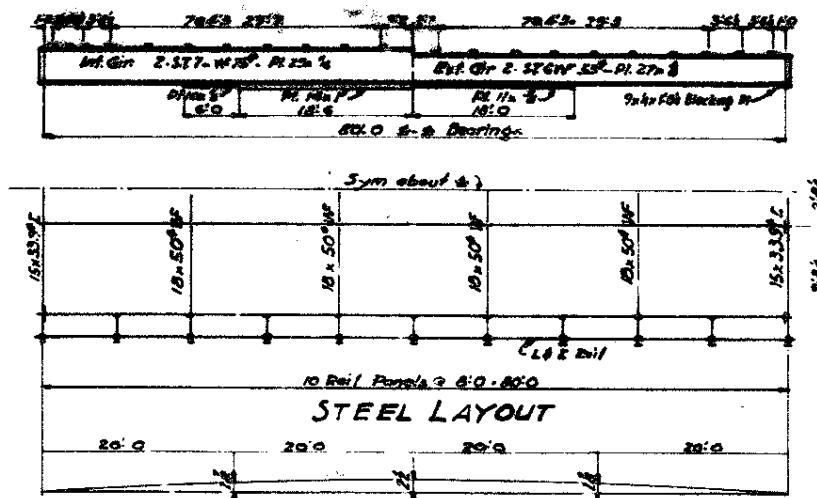
Design for  
**80'x30' STEEL DECK GIRDER BR.**  
Concrete Floor Steel Rail  
**ABUTMENT - DETAILS**  
Station 57+50 Federal Aid Project 18970  
**KEOKUK COUNTY**  
Iowa Highway Commission  
July 1948 Sheet 2 of 3  
Location  
Section 278.28  
Washington Twp  
Keokuk Co.  
Over Cedar Creek  
Scale 1/2" = 1'-0"



LONGITUDINAL SECTION



PART PLAN

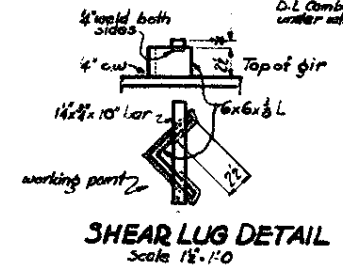


CAMBER DIAGRAM

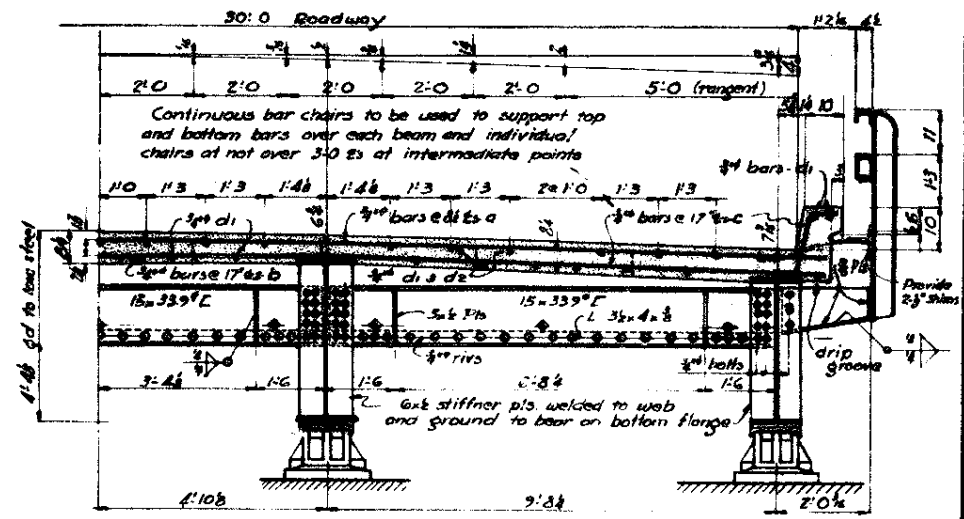
**GIRDER MOMENTS & REACTIONS**

	INTERIOR GIR		EXTERIOR GIR	
	Moments	Reactions	Moments	Reactions
Dead Load #1	1071.2	54.7	712.0	36.4
Dead Load #2	162.0	8.2	66.5	3.4
Live Load	861.0	59.0	461.5	23.9
Impact	205.8	12.2	112.5	6.8
Totals	2279.7	125.1	1352.5	74.5

DL #1 Steel, slab, curb and rail. DL #2 Future wearing surface



SHEAR LUG DETAIL  
Scale 1 1/2\"/>



SECTION NEAR EXPANSION END

Note: Sale p's and pins at both ends and rockers and masonry p's at expansion end are same as for Std. V-T 210' Span.

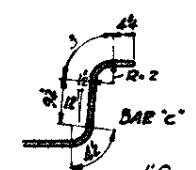


Diagram showing the connection between the girder and the deck.

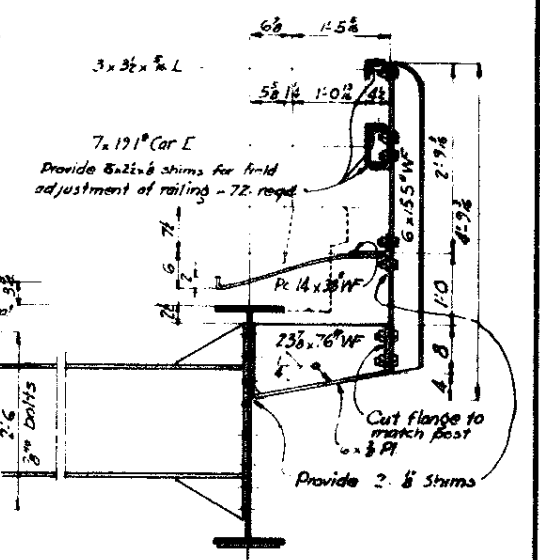
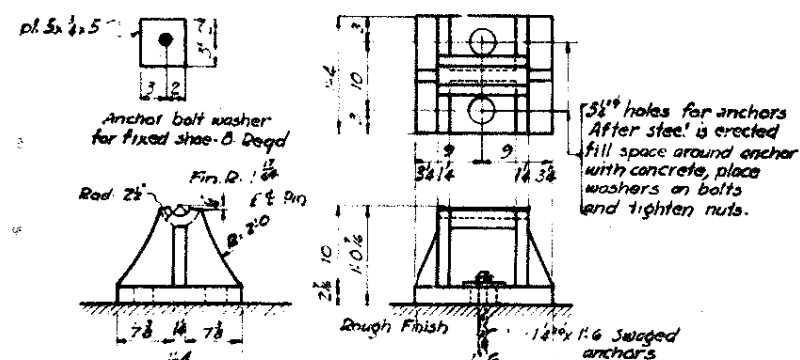
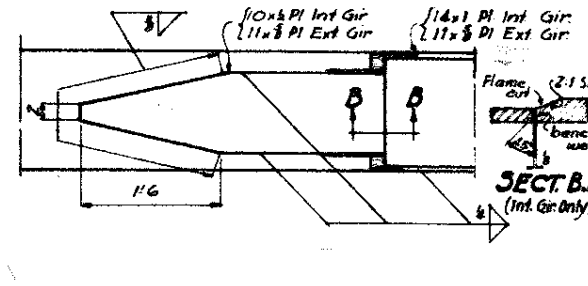


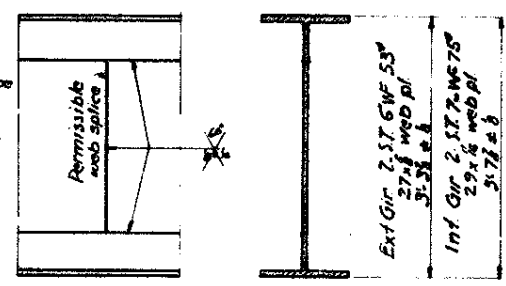
Diagram showing the connection between the girder and the deck.



DETAILS OF C.I. FIXED SHOE  
Scale 1\"/>



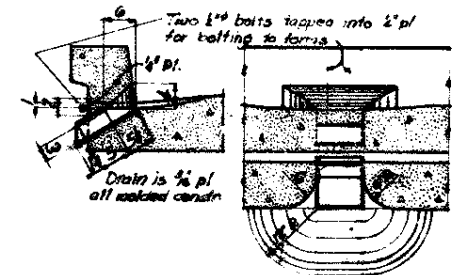
COVER PLATE DETAILS  
Scale 1\"/>



GIRDER DETAILS  
Scale 1\"/>



INTERMEDIATE SECTION  
Scale 1\"/>



FLOOR DRAIN DETAILS  
Scale 1\"/>

**General Notes:**  
This bridge is designed for H 20 Loading plus 19' per 34 ft. of roadway for future wearing surface. It is designed under the 1944 Specifications of the A.A.S.H.O except that the beams are designed for 100% overbad in all lanes with not to exceed 80% increase in the normal unit stresses.  
In the design of the beams the beam action is presumed for stresses due to live and impact loads and future wearing surface. It is also presumed that forms for slab and curb will be supported entirely on the beams. The floor as detailed includes 5' of wearing surface.  
All field connections are to be bolted. All bolts in rail to be 1/2" all other bolts to be 3/4" except as shown.  
Girder bearings are to be truly perpendicular to the webs. All bearings to be set on red lead and canvas.  
Shop coat of paint to be omitted on tops of top flanges of girders and other steel surfaces in contact with concrete. All surfaces inaccessible after erection are to be given three coats of paint in shop.  
Construction to be in accordance with the 1948 specifications of the Iowa Highway Commission and special provisions listed on sheet 1.

**ESTIMATED QUANTITIES**

Location	Quantity
Concrete	77
Reinforcing Steel	16
Structural Steel	77

Location: Sacts 27-28, Washington Top, Keokuk Co, Over Cedar Creek.

**SUPERSTRUCTURE REINFORCING**

Mark	Location	Ambr	Size	Length	Shape	Weight
a	Slab trans. top	114	3/4"	31.1	—	5321
b	" " bottom	56	3/4"	31.1	—	2621
c	" " " "	57	3/4"	33.5	—	2858
d	Slab curb in fill	85	3/4"	28.10	—	3674
de	Slab in fill top ends	38	3/4"	30.10	—	1758
e	Slab depth encasement	8	3/4"	35.4	—	58
f	" " " "					
						16293

Design For  
**80'x30' STEEL DECK GIRDER BR.**  
Concrete Floor Steel Rail  
**SUPERSTRUCTURE DETAILS**  
Station 57+50 Federal Aid Proj 897(2)  
**KEOKUK COUNTY**  
Iowa Highway Commission  
Nov - 1948 Sheet 3 of 3 Scale as noted