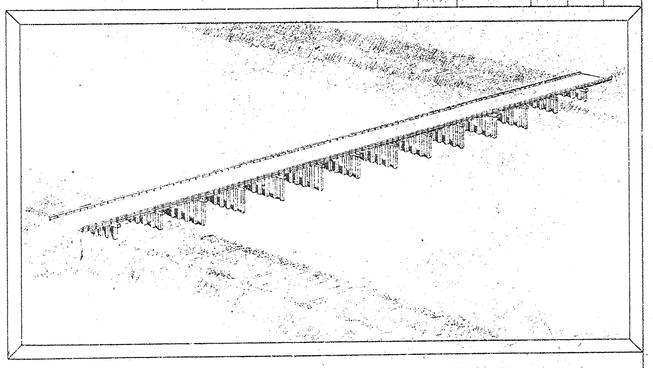
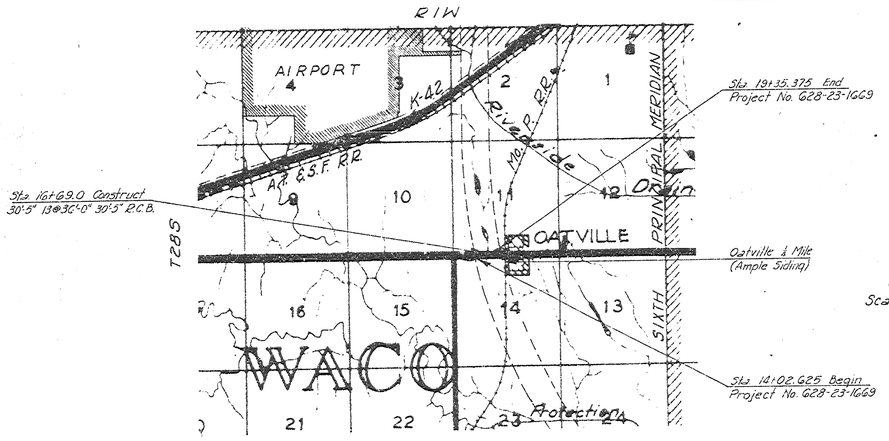
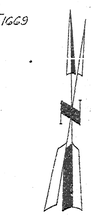
STATE OF KANSAS
STATE HIGHWAY COMMISSION
SEDGWICK COUNTY

PLAN AND PROFILE



INDEX OF SHEETS





BRIDGE ONLY

Scale 2"=1 Mile

PLANS PREPARED BY.

Rufus Kirk
COUNTY ENGINEER
DATE April 20 1933

APPROVED.

COUNTY COMMISSIONER
DATE.

CONVENTIONAL SIGNS

COUNTY LINE
SECTION LINE
WIRE FENCE
HEDGE ROW
RAILROAD
SURVEY LINE
RIGHT OF WAY
TELEPHONE
POWER POLE
TRAVELED WAY
CITY LIMITS
TOWNSHIP BOUNDRY

GROSS LENGTH OF PROJECT	532.75 FT.	0.100 9	MILES
EXCEPTIONS			
ADDITIONS			
NET LENGTH OF PROJECT	532.75 FT.	0.100 9	MILES
NET LENGTH OF BRIDGES	532.75 FT.	0.100 9	MILES
NET LENGTH OF ROAD	FT.		MILES

RECOMMENDED FOR APPROVAL DATE

ENGINEER OF SECONDARY ROADS
STATE HIGHWAY COMMISSION OF KANSAS

APPROVED DATE

STATE HIGHWAY ENGINEER
STATE HIGHWAY COMMISSION OF KANSAS

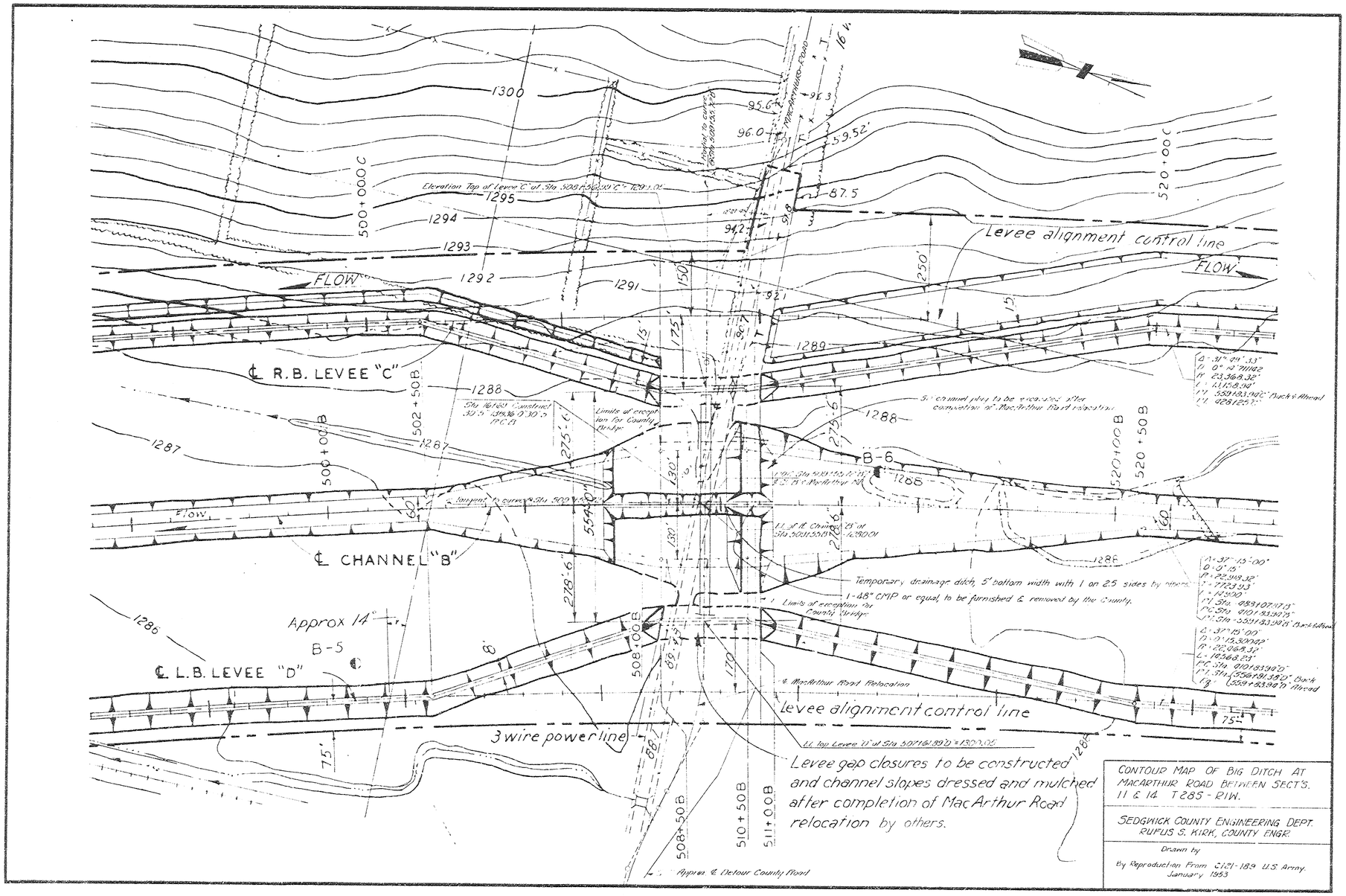
RECOMMENDED FOR APPROVAL DATE

DISTRICT ENGINEER
PUBLIC ROADS ADMINISTRATION
FEDERAL WORKS AGENCY

APPROVED DATE

DIVISION ENGINEER
PUBLIC ROADS ADMINISTRATION
FEDERAL WORKS AGENCY

112

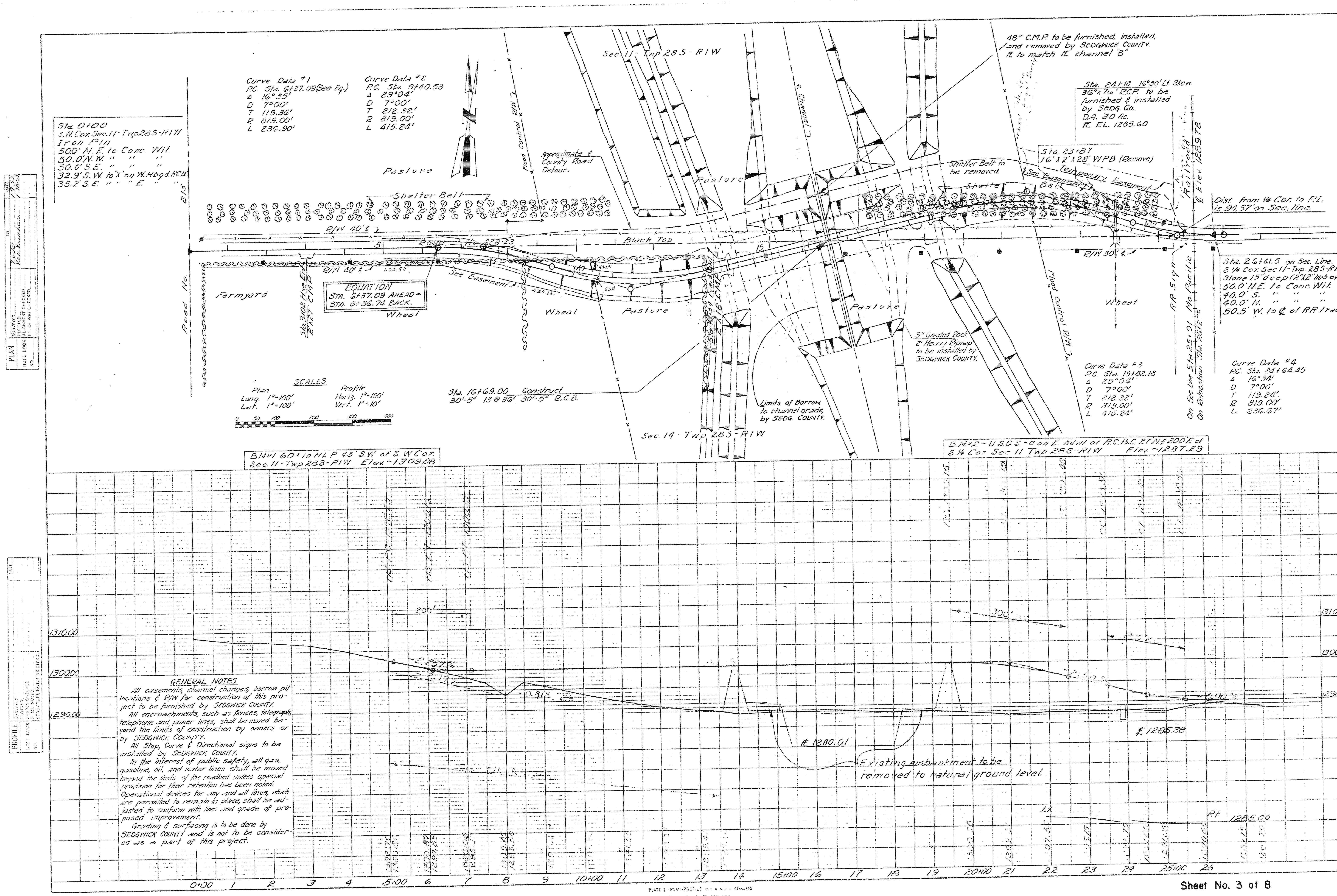


CONTOUR MAP OF BIG DITCH AT MACARTHUR ROAD BETWEEN SECT'S. 11 & 14 T28S - R1W.

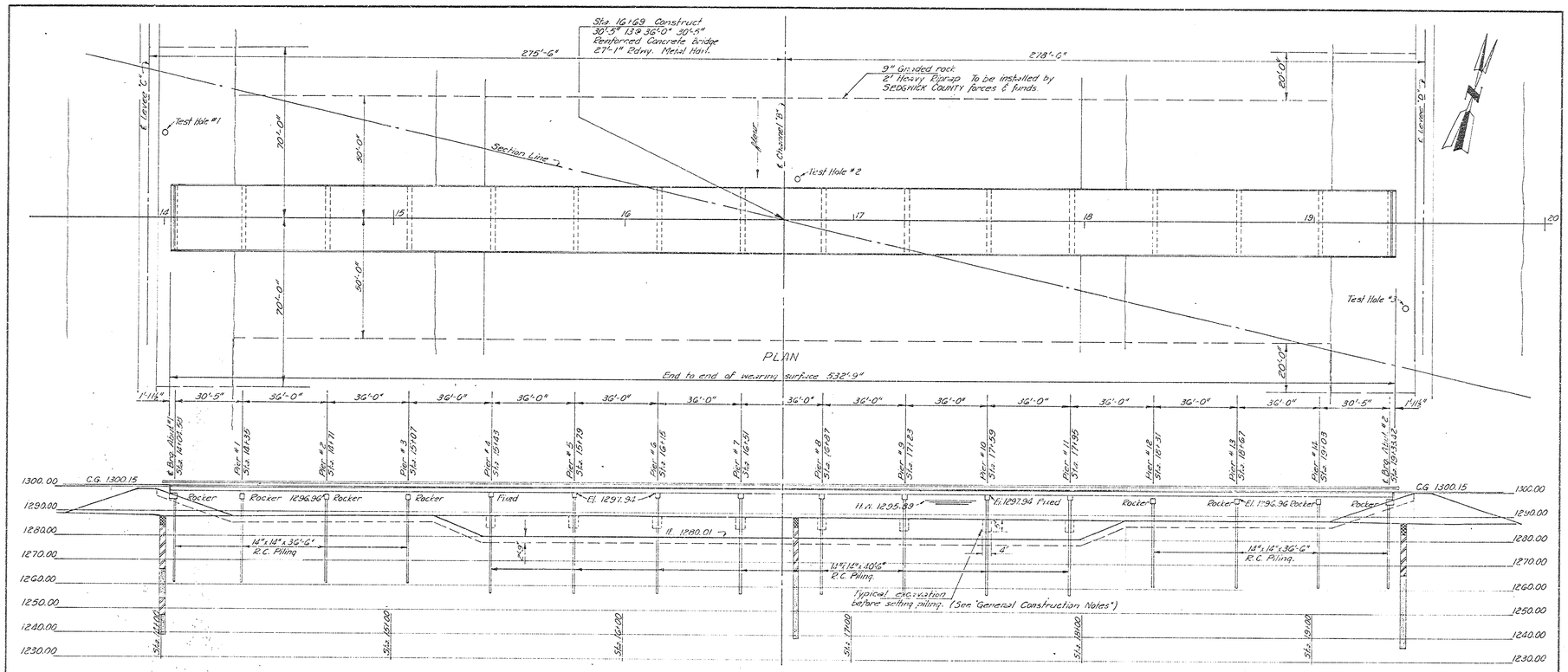
SEDGWICK COUNTY ENGINEERING DEPT.
RUFUS S. KIRK, COUNTY ENGR.

Drawn by

By Reproduction From C1121-184 U.S. Army. January 1953



PLAN
PROFILE
Sec. 11 · Twp 28S · R1W
Sec. 14 · Twp 28S · R1W
Curve Data #1
P.C. Sta. 6+37.09 (See Eq.)
Δ 16°35'
D 7°00'
T 119.36'
R 819.00'
L 236.90'
Curve Data #2
P.C. Sta. 9+40.58
Δ 29°04'
D 7°00'
T 212.32'
R 819.00'
L 415.24'
Curve Data #3
P.C. Sta. 19+82.18
Δ 29°04'
D 7°00'
T 212.32'
R 819.00'
L 415.24'
Curve Data #4
P.C. Sta. 24+64.45
Δ 16°34'
D 7°00'
T 119.24'
R 819.00'
L 236.67'
Sta. 0+00
S.W. Cor. Sec. 11 · Twp 28S · R1W
Iron Pin
500' N.E. to Conc. Wit.
50.0' N.W. " " "
50.0' S.E. " " "
32.9' S.W. to X on W. Hdgd. RCB
35.2' S.E. " " E " "
Pasture
Shelter Belt
Farmyard
Wheat
Black Top
R/W 40' ℄
R/W 30' ℄
See Easement
EQUATION
STA. 6+37.09 AHEAD
STA. 6+36.74 BACK.
Flood Control R/W
Approximate ℄ County Road Detour.
Road No. 813
℄ Channel
48" C.M.P. to be furnished, installed, and removed by SEDGWICK COUNTY. FL to match FL channel "B"
Sta. 24+10 16°30' Lt. Skew
30"x 76' RCP to be furnished & installed by SEDG. Co.
D.A. 30 Ac.
FL EL. 1285.60
Sta 23+87
16'x 2'x 28' W.P.B. (Remove)
Shelter Belt to be removed
Temporary Easement
Railroad ℄ Elev 1289.78
Dist. from ¼ Cor. to P.I. is 94.57 on Sec. line.
Sta. 26+41.5 on Sec. Line
S ¼ Cor. Sec. 11 · Twp. 28S · R1W
Stone 15" deep (12"x12" top area)
50.0' N.E. to Conc. Wit.
40.0' S. " " "
40.0' N. " " "
50.5' W. to ℄ of RR Track
R.R. Sign
Mo. Pacific
9" Graded Rock
2' Heavy Riprap to be installed by SEDGWICK COUNTY.
Limits of Borrow to channel grade, by SEDG. COUNTY.
Sta. 16+69.00 Construct
30'-5" 13 @ 36' 30'-5" C.C.B.
SCALES
Plan Long. 1"=100' Lat. 1"=100'
Profile Horiz. 1"=100' Vert. 1"=10'
BM#1 60d in HLP 45' SW of S.W. Cor. Sec. 11 · Twp. 28S · R1W Elev-1309.08
BM#2 · USGS · ... on E hdwl of R.C.B.C. 27 N ... S ¼ Cor. Sec. 11 Twp. 28S · R1W Elev-1287.29
1310.00
1300.00
1290.00
FL 1280.01
FL 1285.38
Existing embankment to be removed to natural ground level.
Lt.
Rt. 1285.00
GENERAL NOTES
All easements, channel changes, borrow pit locations & R/W for construction of this project to be furnished by SEDGWICK COUNTY.
All encroachments, such as fences, telegraph, telephone and power lines, shall be moved beyond the limits of construction by owners or by SEDGWICK COUNTY.
All Stop, Curve & Directional signs to be installed by SEDGWICK COUNTY.
In the interest of public safety, all gas, gasoline, oil, and water lines shall be moved beyond the limits of the roadbed unless special provision for their retention has been noted. Operational devices for any and all lines, which are permitted to remain in place, shall be adjusted to conform with lines and grade of proposed improvement.
Grading & surfacing is to be done by SEDGWICK COUNTY and is not to be considered as a part of this project.
0+00 1 2 3 4 5+00 6 7 8 9 10+00 11 12 13 14 15+00 16 17 18 19 20+00 21 22 23 24 25+00 26



ELEVATION
Scale 1"=20'

FLOODWAY DATA

Top of Levee "C" elevation 1299.05
Top of Levee "D" elevation 1300.05
Bottom of channel elevation 1280.01
Highwater elevation 1289.09
Width of channel at bottom 260'
Side slopes of channel 1 on 2.5
Side slopes of Levees 1 on 3
Width of Roadway ctr. to ctr. of Levee 554'
Estimated Flow 45,000 c.f.s.
Estimated velocity 7.30 ft. per sec.

GENERAL NOTES

Design: According to A.A.S.H.O. Specifications, Edition of 1949 "H 20-44 Loading; f_c = 20,000 psi.; E_c = 1,000 psi.

Soundings: Taken by SEDGWICK COUNTY with ¾" jet.

Piling: Concrete piling to be driven to a computed resistance of 28 tons per pile.

Concrete: Use Class A(AE) concrete thruout. Bevel all exposed edges with a ¾" triangular molding.

Forms: Contractor shall use preformed metal forms owned by SEDGWICK COUNTY.

Embankment: To be constructed by SEDGWICK COUNTY or others. No earthwork is to be considered a part of this project except at pier locations in channelway.

GENERAL CONSTRUCTION NOTES

Timber cribbing at centerline of each span on this project will be required.

One set of short forms and four sets of long forms are available for this project. Since the concrete in a full span ahead of any forms to be removed must have attained its design strength before removal of these forms, it is suggested that high-early strength cement be used.

Forms for this project shall be picked up by Contractor at the SEDGWICK COUNTY Yards, 1015 Stillwell, Wichita, and returned to this location unless otherwise instructed by the Engineer. (See "Special Provisions" in Specifications & Proposal Booklet.)

Since the speed and simplicity of this project will be greatly increased if construction is well underway before the waterway and levees are constructed, work on forming of piling must start within two weeks and pile driving must start within three weeks after the contract is let.

A trench 5'x4'x28' to be excavated before setting piling and backfilled before any form work for caps proceeds at each pier location in channelway. Excavation and backfilling not to be paid for directly, but shall be included in the unit price bid for concrete piling.

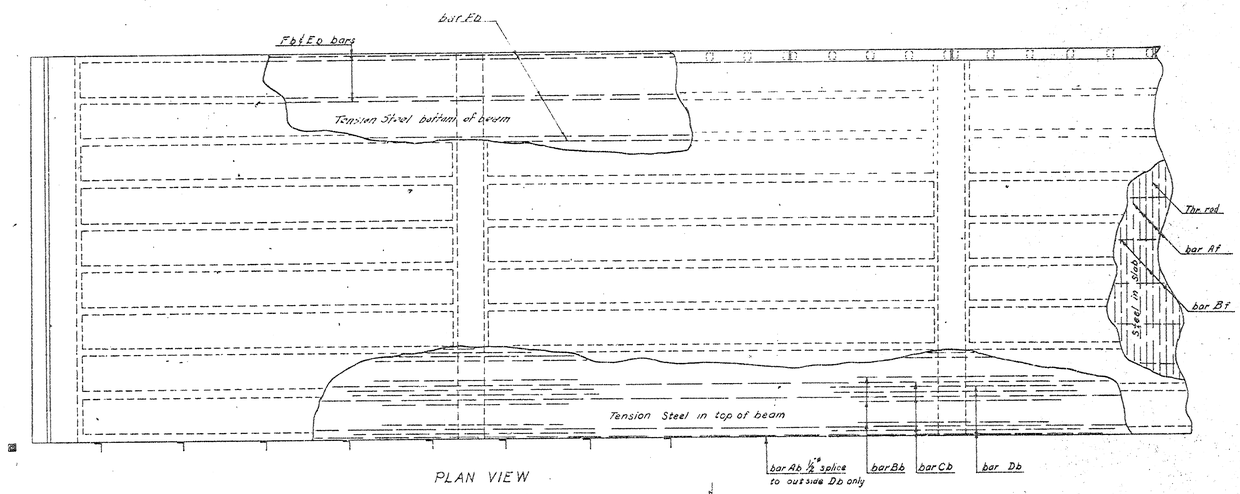
CONSTRUCTION LAYOUT
BRIDGE NO. 628-23-1669

PREPARED BY
SEDGWICK COUNTY ENGINEERING DEPT.
RUFUS S. KIRK — COUNTY ENGINEER

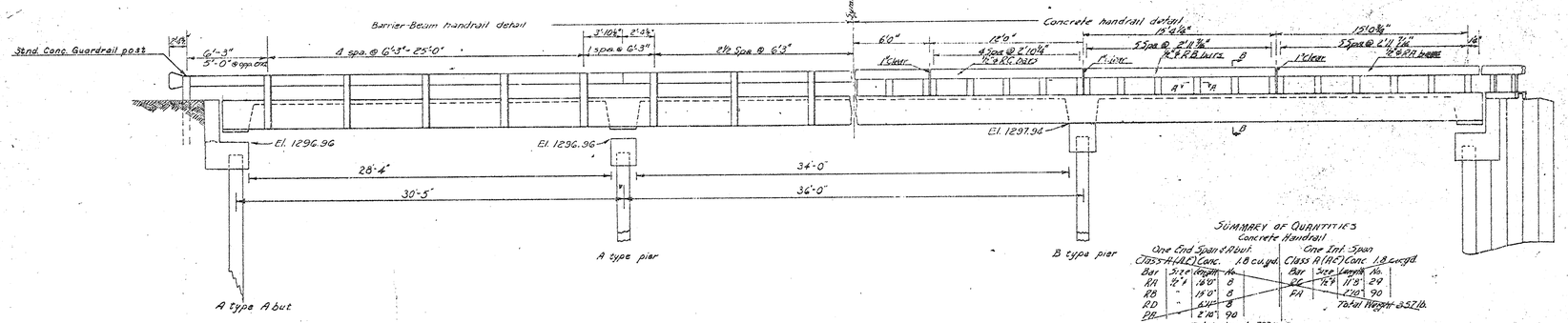
REVISED	SCALE	DESIGNED	TRACED	CHECKED	SHEET NO.
	1"=20'	FREUND	FREUND		4
	DATE		4-53		
	PLANFILE		TOTAL SHEETS 8		

GENERAL NOTES

Design: Designed for H-20-44 loading AASHO specifications. f_s = 20,000 psi, f'_c = 4,000 psi.
Soundings: To be taken by Sedgwick County.
Piling: Concrete piling to be driven to a Calculated resistance of 28 ton.
Old Struct: To be removed by Sedgwick County.
Concrete: Class A(AE) concrete used throughout. Bevel all exposed edges with a $\frac{3}{4}$" Δ molding unless otherwise noted. Forms shall be preformed steel "pans" used as directed by the Engineer in charge.
Guardrail: To be of standard Barrier beam or concrete as shown on Construction Layout. Concrete rail to be constructed after the removal of deck forms



PLAN VIEW



SUMMARY OF QUANTITIES
Concrete Handrail

One End Span & Abut. — Class A(AE) Conc. 1.8 cu.yd.

Bar	Size	Length	No.
RA	16' 1	60'0"	8
RB	-	19'0"	8
RD	-	6'4"	8
DB	-	2'-8"	90

Total Weight 573 lb.

One Int Span — Class A(AE) Conc 1.8 cu.yd.

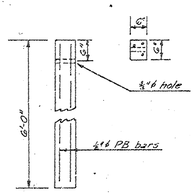
Bar	Size	Length	No.
CC	16' 4	11'8"	29
FA	16' 1	21'0"	90

Total Weight 852 lb.

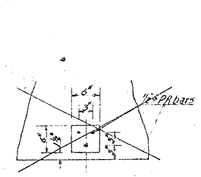
SUMMARY OF QUANTITIES
(ONE GUARDRAIL POST)

Class A(AE) Conc. 0.056 CY.

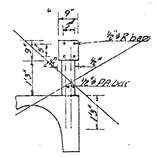
Bar	No.	Size	Length	Total Wt.
PB	3	4	5'-8"	114 lb.



STANDARD G'DRL. POST DETAIL
as Required



SECTION AA



SECTION BB

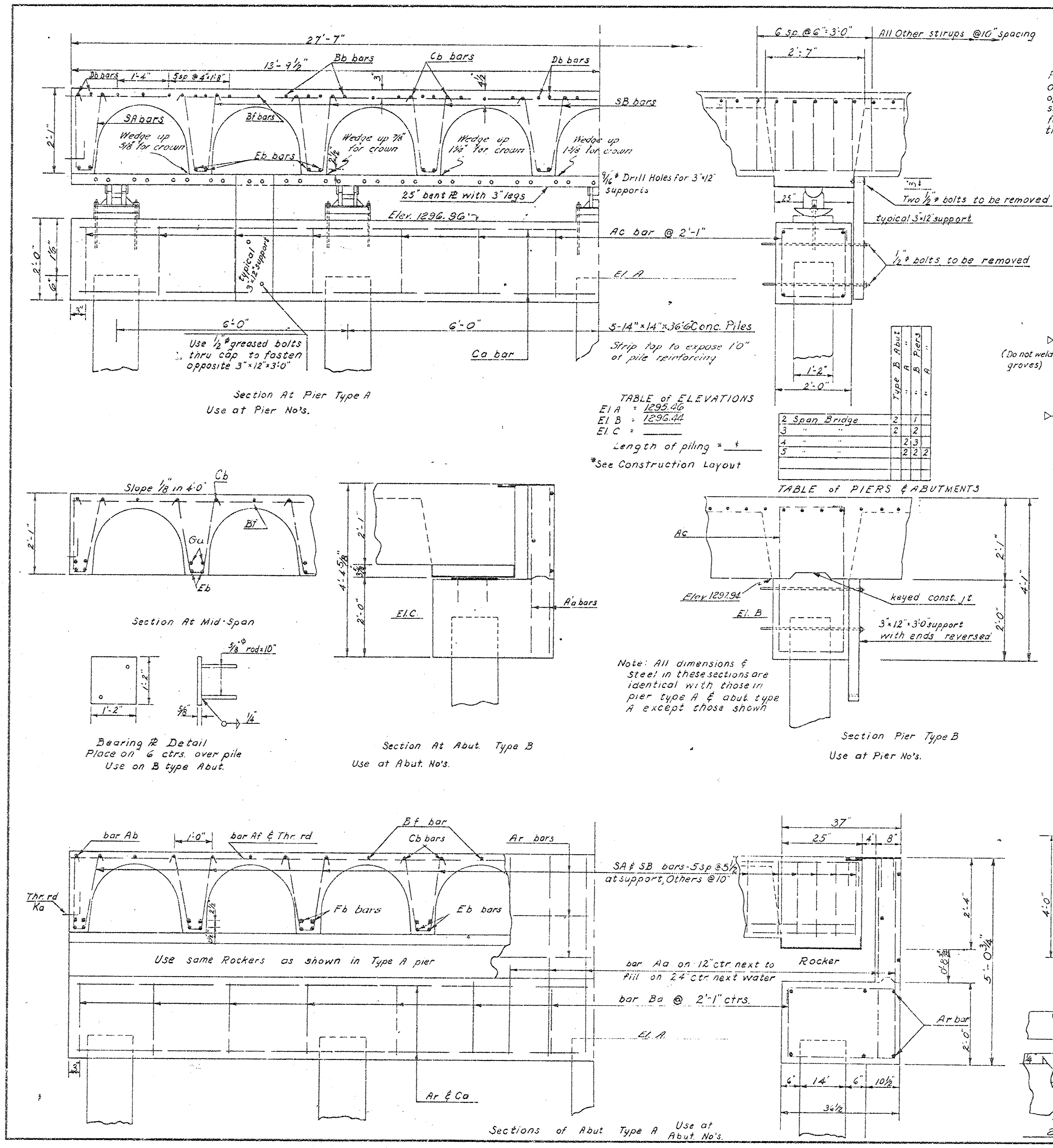
Note: PA bars to be placed immediately after slab screeding

RE. CONC. MODIFIED T-BEAM BRIDGE

BRIDGE NO. 628-23-1669

PREPARED BY
SEDGWICK COUNTY ENGINEERING DEPT.
RUFUS S. KIRK — COUNTY ENGINEER

REVISED 1-15 M.J. 4-53 N.L.F.	SCALE	DESIGNED	TRACED	CHECKED	SHEET NO.
	1/4" = 1'	R.R.J.	C.D.H.		5
	DATE	9-50	9-18-50		
	PLANFILE		TOTAL SHEETS	8	



GENERAL NOTES

Bevel all exposed edges with 3/4" molding

PAINT:- All parts of the Metal Handrail shall receive one shop coat of red lead paint. All exposed surfaces of Structural Steel, Bearing Devices and Metal Handrail shall receive one coat of tinted aluminum paint followed by one coat of aluminum paint after erection.

Reinforcing Steel

Note: Quantities shown on this sheet are for computation only. Actual structure quantities are shown on following sheet.

27'-7" Rdwy ABUTMENT QUANTITIES

A TYPE	B TYPE
back wall boards	back wall boards
Five bearing piling	Five bearing piling
~~Eight sheet piling~~	Eight sheet piling
8.3 cu yd concrete	7.8 cu yd concrete
599 lbs. reinforcing	579 lbs. reinforcing steel
Five bearing devices	Five bearing plates
One bent plate	One bent plate

Bar	No	Length	Size	Bar	No	Length	Size
Aa	41	4'-8"	1/2"φ	A'a	41	4'-0"	1/2"φ
Ar	5	27'-0"	"	Ar	5	27'-0"	"
Ba	14	9'-8"	"	Ba	14	9'-8"	
Ca	4	27'-0"	1"φ	Ca	4	27'-0"	1"φ

27'-7" Rdwy PIER QUANTITIES

A TYPE	B TYPE
Five bearing piling	Five bearing piling
4.1 cu yd concrete	4.1 cu yd concrete
360 lbs. reinforcing steel	397 lbs. reinforcing steel
5 bearing devices	
One bent plate	

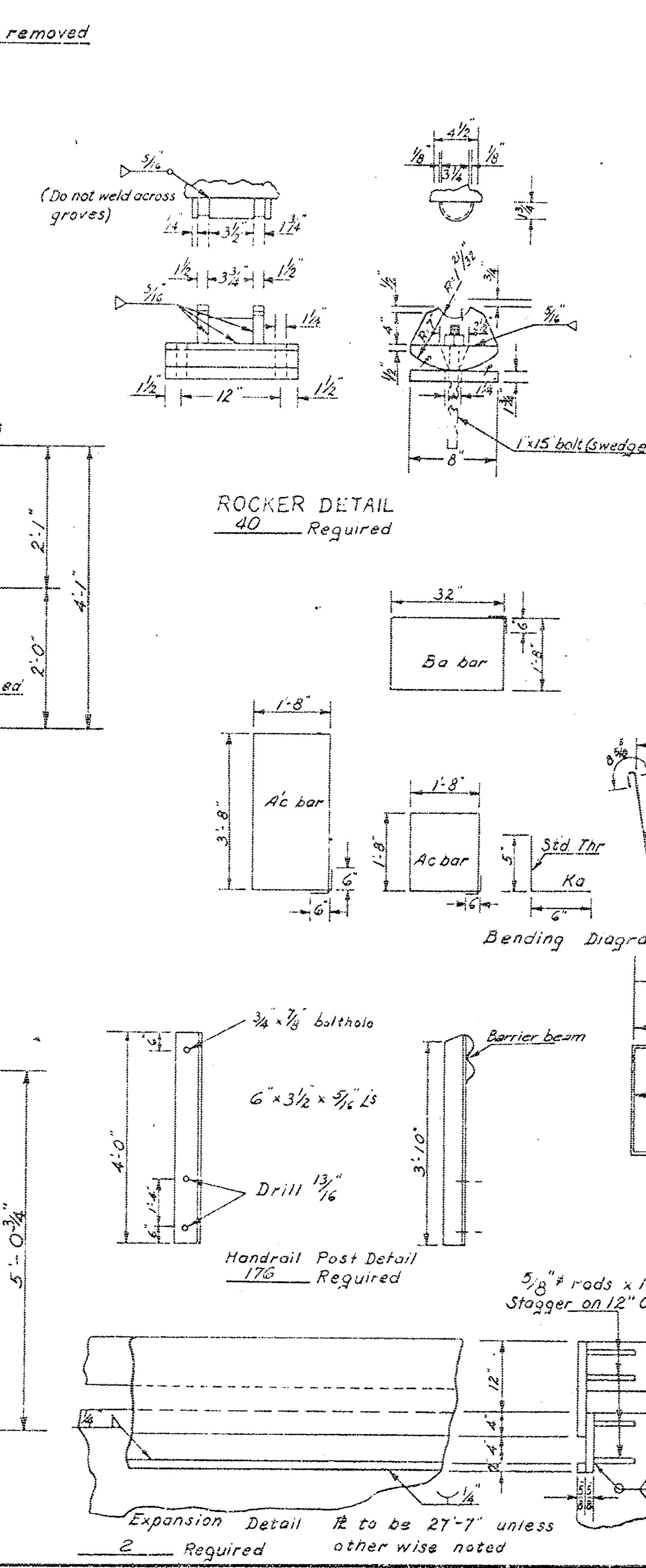
Bar	No.	Length	Size	Bar	No.	Length	Size
Ac	14	7'-8"	1/2"φ	A'c	14	11'-8"	1/2"φ
Ca	4	27'-0"	1"φ	Ca	4	27'-0"	1"φ

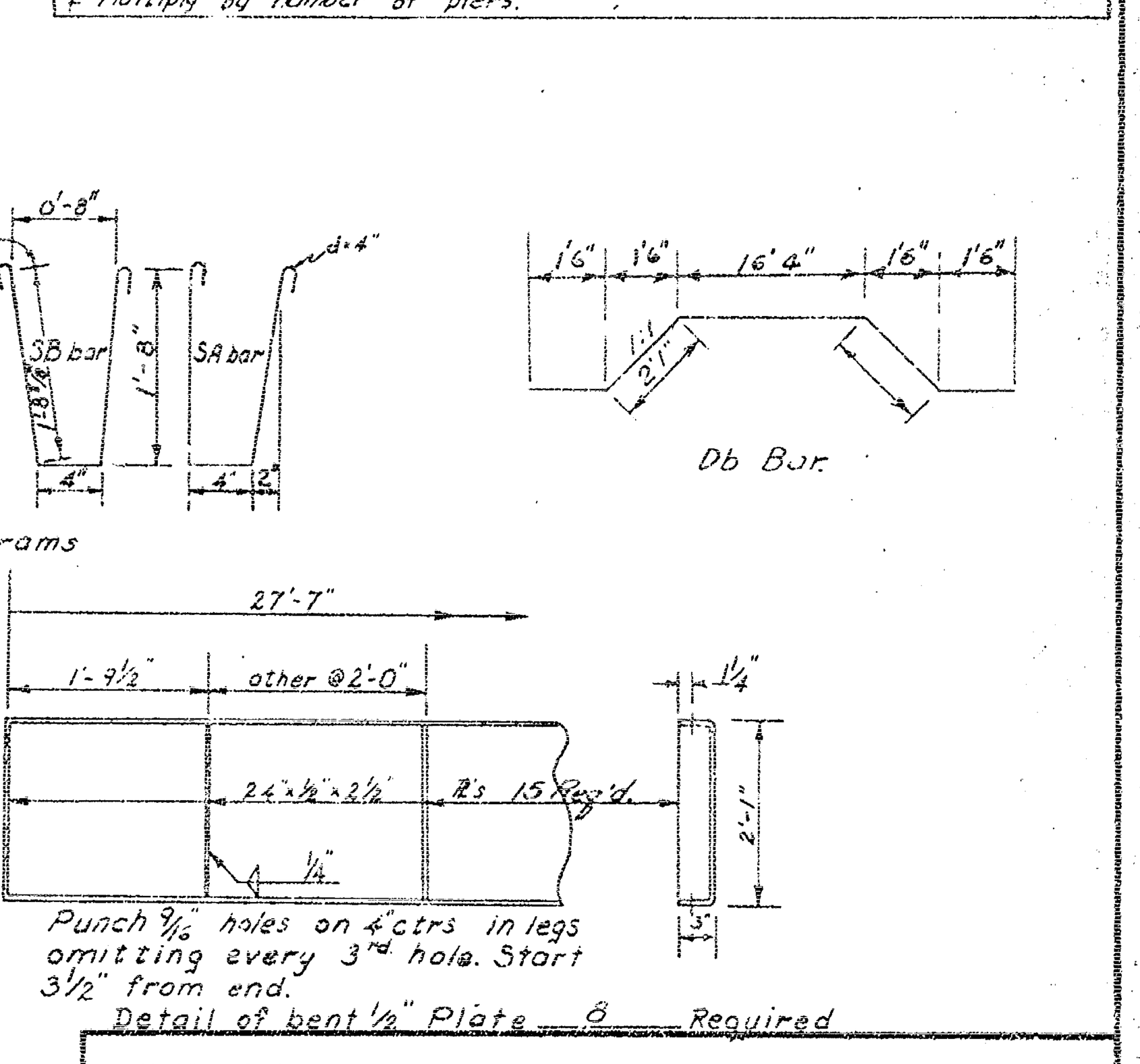
27'-7" Rdwy. SPAN QUANITITIES*

ONE END SPAN	ONE INT. SPAN
36.4 cu yd. conc.	39.6 cu yd. conc.
8590 lbs. reinforcing steel	8868 lbs. reinforcing steel
10 h'ndr'l posts (steel)	12 hndr'l posts
72' Barrier beam	72' Barrier beam
1-expansion device	
2 Concrete Posts	

Bar	No	Length	Size	Bar	No	Length	Size
SA	83	5'-2"	1/2"φ	SA	92	5'-2"	1/2"φ
SB	332	5'-2"	"	SB	368	5'-2"	
Fb	20	23'-6"	1"φ	‡Db	20	23'-6"	7/8"φ
				E'b	20	38'-4"	1"φ
Eb	20	33'-4"	1"φ	A'b	2	22'-0"	1/2"φ
Ab	2	25'-0"	1/2"φ	Ka	12	0'-11"	3/4"φ
Af	59	27'-0"	"	Af	66	27'-0"	1/2"φ
Bf	9	33'-0"	"	B'f	9	38'-0"	"
Ka	10	0'-11"	3/4"φ	C'b	18	38'-0"	7/8"φ
Cb	18	33'-0"	7/8"φ	Bb	18	14'-0"	"
Bb	9	14'-0"	"	thr.rd.	6	28'-0"	3/4"φ
thr.rd.	5	28'-0"	3/4"φ	Ga	20	18'-0"	7/8 φ

* Due to overlapping & duplication quantities shown are not necessarily actual bar numbers, but are factors to be multiplied by the number of each span involved to give total Structure quantities.
‡ Multiply by number of piers.

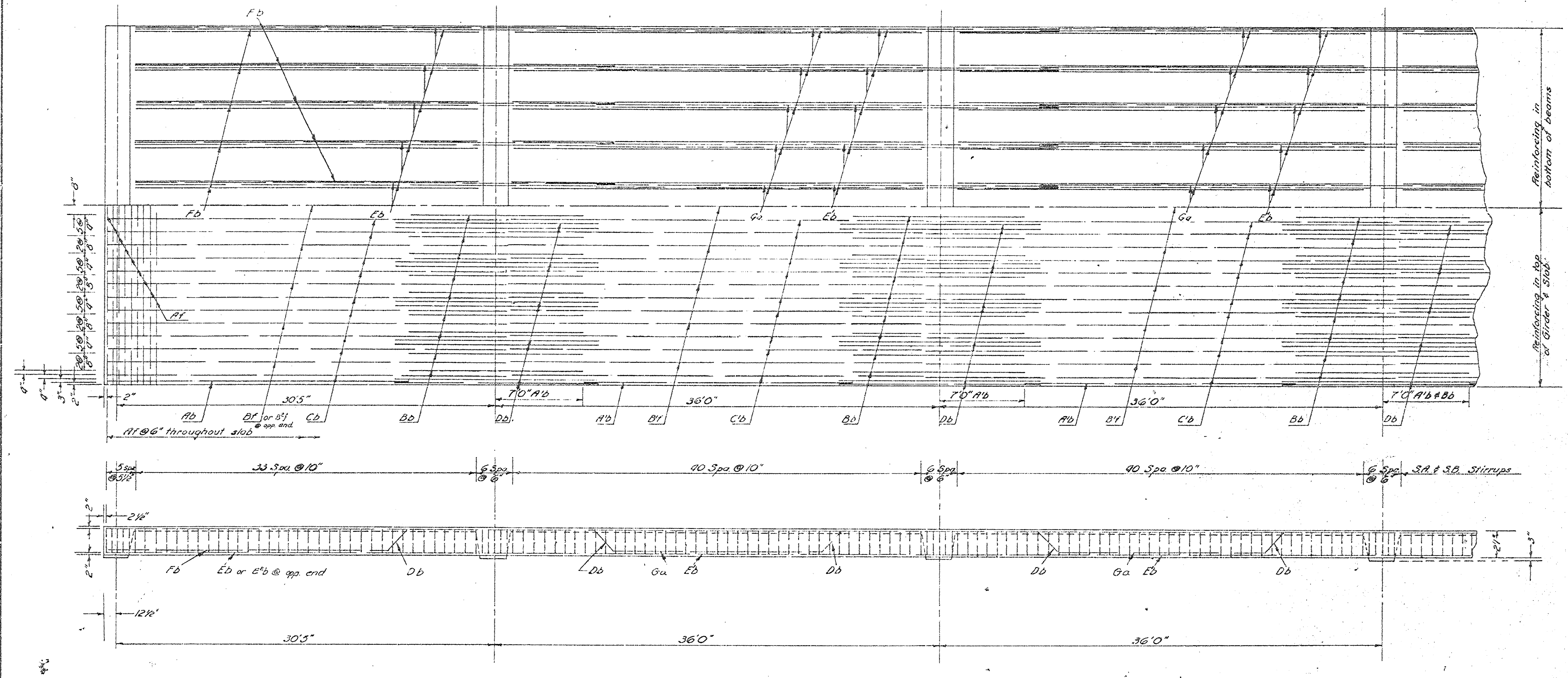


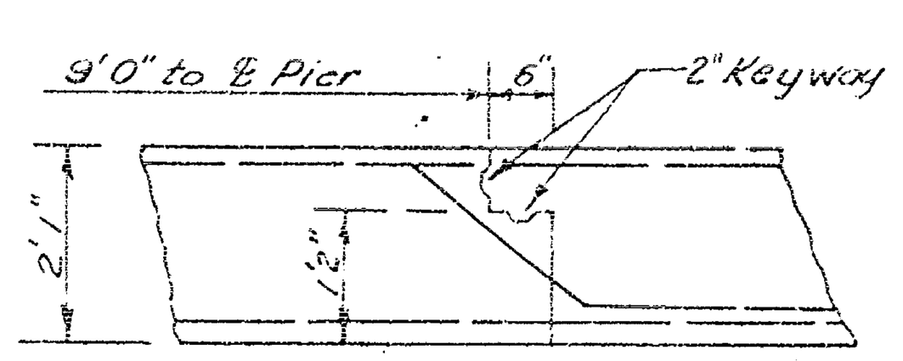


RE CONC. MODIFIED T-BEAM BRIDGE
AUXILIARY DETAILS
BRIDGE NO. 628-23-1669

PREPARED BY
SEDGWICK COUNTY ENGINEERING DEPT.
RUFUS S. KIRK — COUNTY ENGINEER

REVISED	SCALE	DESIGNED	TRACED	CHECKED	SHEET NO.
12-51 H.S. 4-53 W.J.F.	1/2" = 1'	R. R. J.	C. D. H.		6
	DATE	9-50	9-23-50		
	PLANFILE		TOTAL SHEETS 8		





TYPICAL CONSTRUCTION JOINT

SUMMARY OF QUANTITIES

30'-5" – 13 @ 36' – 30'-5" Continuous Spans; 27'-1" Roadway; Metal Handrail

Bar	Aa	A'a	Ar	Ba	Ca	Ac	A'c	Ab	A'b	Af	Bb	Bf	B'f	Cb	C'b	Db	Eb	E'b	Fb	Ga	SA	SB	Ka	Thr. Rod	RA	RB	RC	RD	PA	Ca'	E²b	B²f
No.	82		10	28	64	84	112	4	26	1,063	252	9	117	18	234	280	20	260	40	260	1362	5446	176	88	16	16		16			20	9
Size	#4	#4	#4	#4	#8	#4	#4	#4	#4	#4	#7	#4	#4	#7	#7	#7	#8	#8	#9	#7	#4	#4	¾"φ	¾"φ	#4	#4	#4	#4	#4	#8	8	4
Length	4'8"		27'0"	9'8"	27'0"	7'8"	11'8"	25'0"	23'0"	27'0"	17'0"	32'6"	38'0"	42'6"	38'0"	23'6"	42'6"	38'0"	21'7"	16'6"	5'2"	5'2"	0'11"	28'0"	16'0"	15'0"	11'6"	6'11"	2'10"		21'7"	21'7"

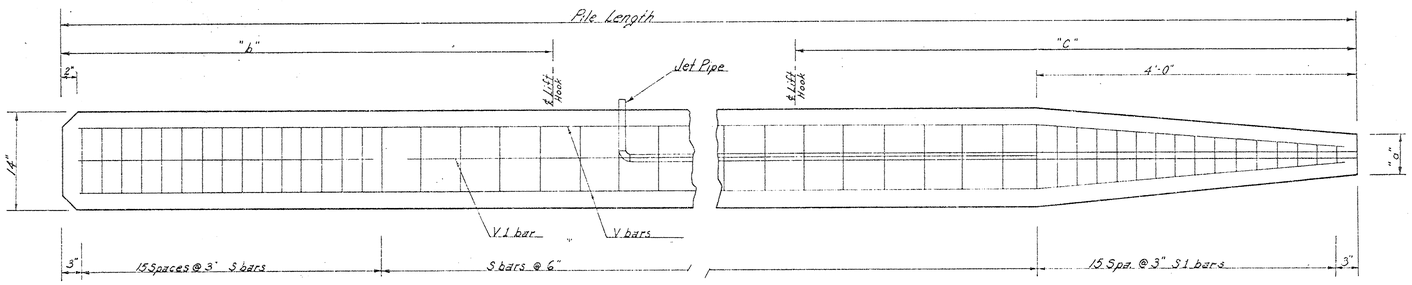
Concrete Class A(AE)	653.3	Cu. Yd.	Metal Handrail	1,082	Lin. Ft.
Reinforcing Steel	140,452	Lb.	Structural Steel	16,458	Lb.
14"x14" Conc. Piles	3,080	Lin. Ft.			Lin. Ft.
Bearing Devices	7,200	Lb.			Lin. Ft.

REINFORCING DETAIL
BRIDGE NO. 628-23-1669

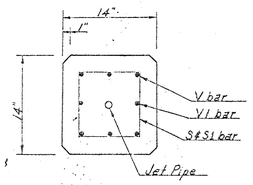
PREPARED BY
SEDGWICK COUNTY ENGINEERING DEPT.
RUFUS S. KIRK — COUNTY ENGINEER

REVISED	SCALE	DESIGNED	TRACED	CHECKED	SHEET NO.
6-53 W.S.F.	¼" = 1'0"	M.E.S.			7
		DATE			
	PLANFILE		TOTAL SHEETS 8		

Pub. Rd. Div No.	State	Project No.	Fiscal Year	Sheet No.	Total Sheets
5	Kansas		1951		



ELEVATION

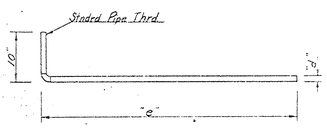


END VIEW

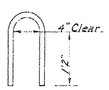
V bar

Pile Length	20'6"		24'-6"		28'6"		32'-6"		36'6"		40'6"	
									40 req'd.		40 req'd.	
Bar	Size	Length No.	Size	Length No.	Size	Length No.	Size	Length No.	Size	Length No.	Size	Length No.
V	#7	20'6" 4	#7	24'-2" 4	#7	28'-2" 4	#7	32'-2" 4	#6	36'-2" 4	#6	40'-2" 4
V1									#6	32'-6" 4	#6	36'-0" 4
S	#2	3'-4" 41	#2	3'-4" 49	#2	3'-4" 57	#2	3'-4" 65	#2	3'-4" 73	#2	3'-4" 81
S1	#2	Var 15	#2	Var 15	#2	Var 15	#2	Var 15	#2	Var 15	#2	Var 15
Lift Hook	#8	3'-0" 2	#8	3'-0" 2	#8	3'-0" 2	#8	3'-0" 2	#8	3'-0" 2	#8	3'-0" 2
Jet Pipe												
"a"		6"		6"		6"		6"		6"		6"
"b"		6'-0"		7'-2"		8'-4"		9'-6"		10'-8"		11'-10"
"c"		8'-0"		9'-2"		10'-4"		11'-6"		12'-8"		13'-10"
"d"										1½"		1½"
"e"										28'		32'
x' y' z	⅜ to ⅞ by ⅛		⅜ to ⅞ by ⅛		⅜ to ⅞ by ⅛		⅜ to ⅞ by ⅛		⅜ to ⅞ by ⅛		⅜ to ⅞ by ⅛	
Concrete	.94 Cu. Yds.		1.14 Cu. Yds.		1.34 Cu. Yds.		1.55 Cu. Yds.		1.75 Cu. Yds.		1.95 Cu. Yds.	
Rebar	209 Lbs.		247 Lbs.		284 Lbs.		321 Lbs.		472 Lbs.		524 Lbs.	

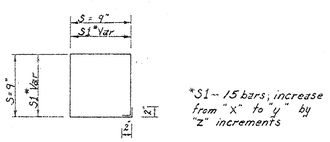
Pile Length 37'0"												
Bar	Size	Length No.	Size	Length No.	Size	Length No.	Size	Length No.	Size	Length No.	Size	Length No.
V	#6	36'8" 4										
V1	#6	33'0" 4										
S	#2	3'4" 74										
S1	#2	Var 15										
Lift Hook	#8	3'0" 2										
Jet Pipe		1										
"a"		10"										
"b"		10'-10"										
"c"		11'-11"										
"d"												
"e"												
x' y' z	⅜ to ⅞ by ¼											
Concrete	1.82 Cu. Yds.											
Rebar	482 Lbs.											



"d" Dia. Jet Pipe



#8 Lift Hook



*S1 - 15 bars, increase from "x" to "y" by "z" increments

S & S1 bar

General Notes

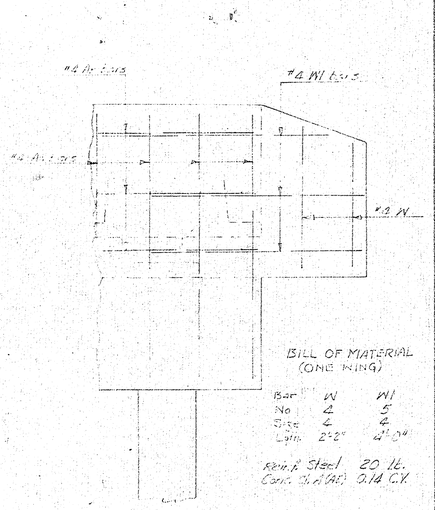
Design: According to AASHO Specifications 1949 Edition. Fs=12,000 psi Fc=1,000 psi.
Concrete: Use class A throughout if Piling are to be encased or otherwise protected. Use class A (AE) if piling are to form open bent, unless otherwise noted.
Reinforcing: All dimensions are to center of bars unless otherwise noted.
Jet Pipe: Standard pipe of Dimensions shown unless otherwise approved by Engineer.
Curing: Piling shall be left in forms or otherwise properly cured for at least 7 days. Piling shall not be moved until concrete has attained its design Strength or a minimum of 4 weeks after casting.
Payment: The cost of material and labor used for casting and driving of piles shall be included in the unit bid for concrete piles.
Handling: Piling shall only be lifted by handling hooks or by rigging within 18" of hook location.

14" x 14" Re. Conc. Piling
BRIDGE NO. 628-23-1669

PREPARED BY
SEDGWICK COUNTY ENGINEERING DEPT.
RUFUS S. KIRK — COUNTY ENGINEER

REVISED	SCALE	DESIGNED	TRACED	CHECKED	SHEET NO.
		Schwab	Houseman		8
	DATE	12-51	1-52		
	PLANFILE		TOTAL SHEETS	8	

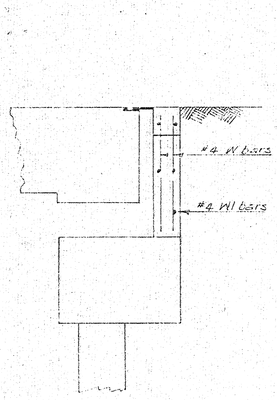
BY H. Freund DATE 9-8-53 SUBJECT Cantilever Wing SHEET NO. 1 OF 3
CHKD. BY DATE Bri. No. 628-23-1669 JOB NO.



ELEVATION & SECTION (LEVEE SIDE)

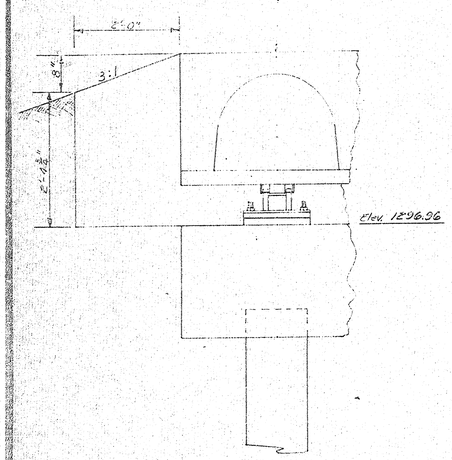
Enc. II

BY Freund DATE 10-8-53 SUBJECT Cantilever Wing SHEET NO. 3 OF 3
CHKD. BY DATE Bri. No. 628-23-1669 JOB NO.



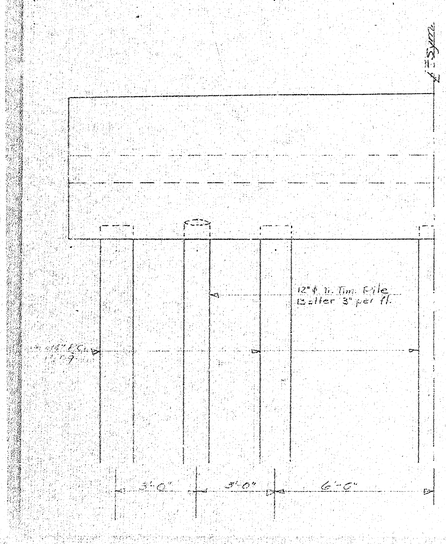
SIDE ELEVATION (SHOWING STEEL IN WING ONLY)
Scale $\frac{3}{4}$" = 1'-0"

BY Freund DATE 10-8-53 SUBJECT Cantilever Wing SHEET NO. 2 OF 3
CHKD. BY DATE Bri. No. 628-23-1669 JOB NO.

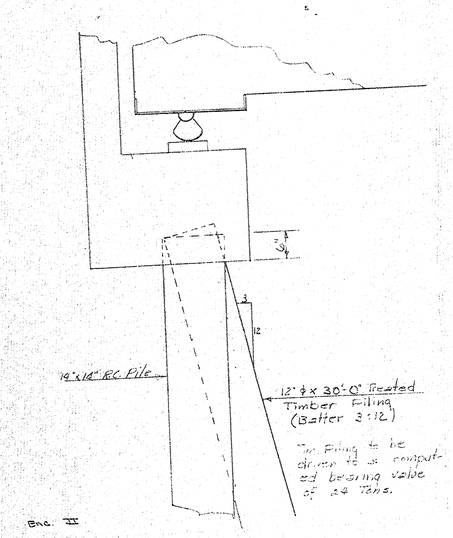


ELEVATION (WATER SIDE)
Scale 1" = 1'-0"

BY H. Freund DATE 7-1-52 SUBJECT Batter Piling in SHEET NO. 2 OF 2
CHKD. BY DATE Abutments 622-23-1669 JOB NO.
2 Sp. Alt.



BY H. Freund DATE 9-1-53 SUBJECT Batter Piling in SHEET No. 1 OF 2
CHKD. BY DATE Abutments 628-23-1669 JOB NO
2 Sp. Alt.



Enc. III