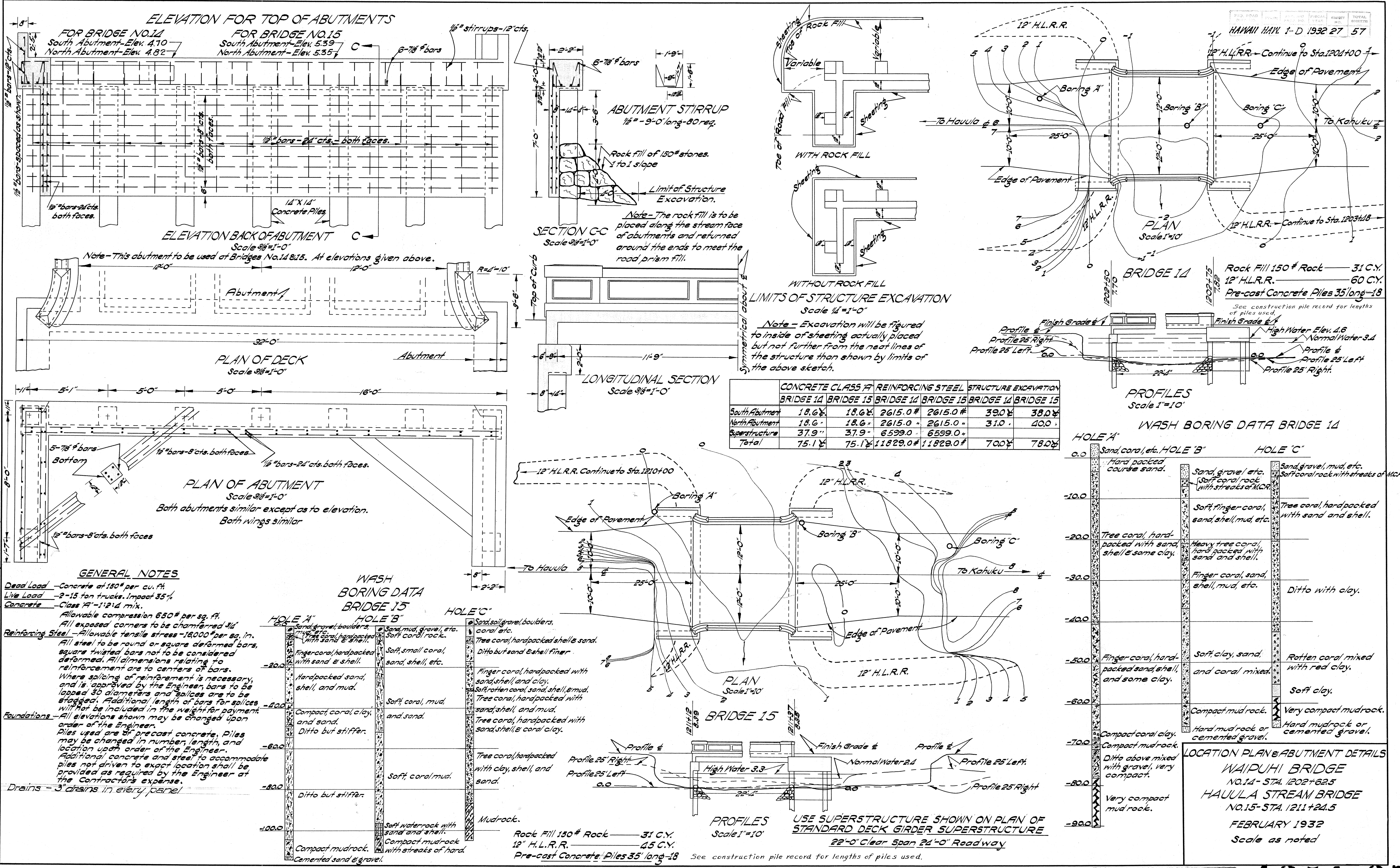
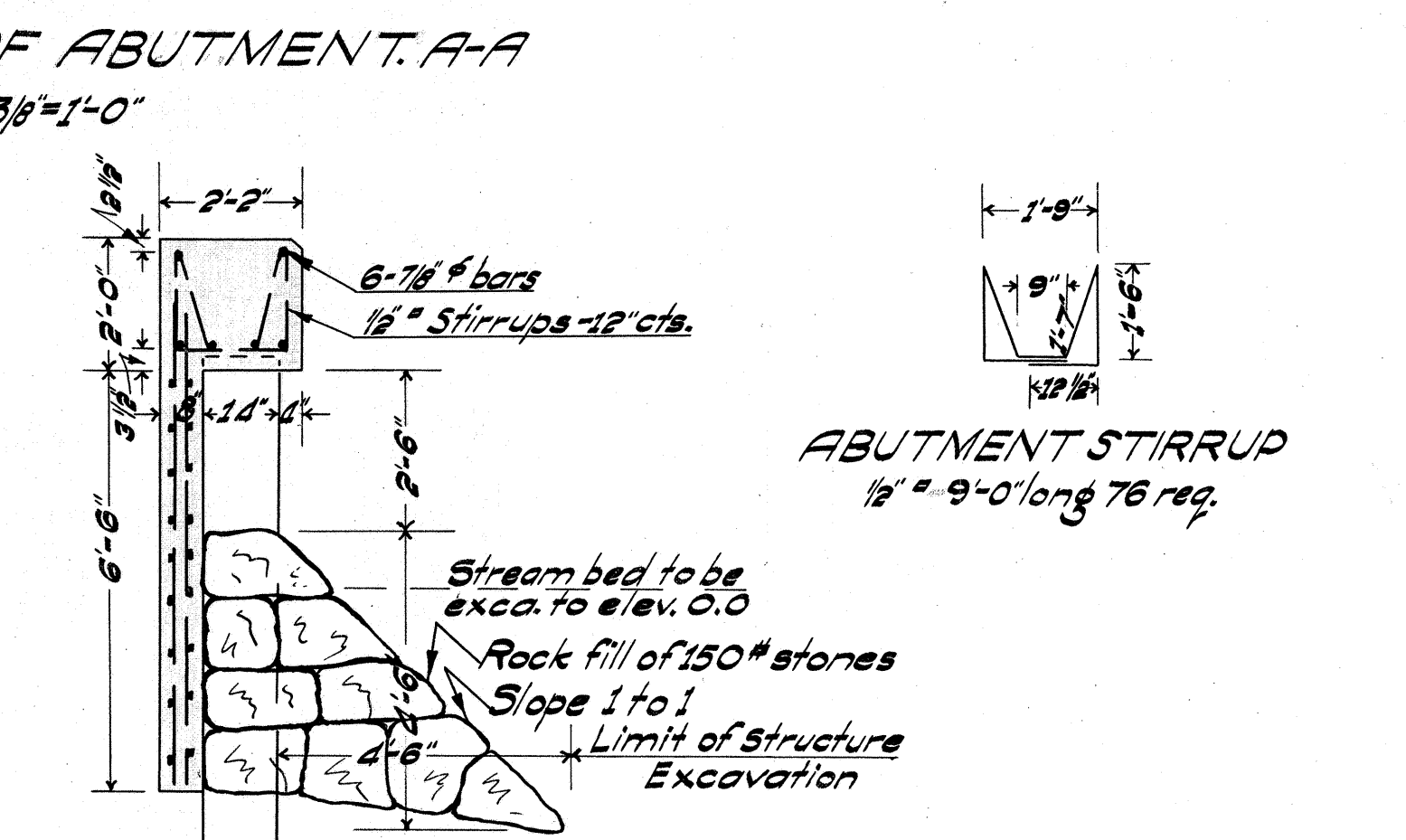
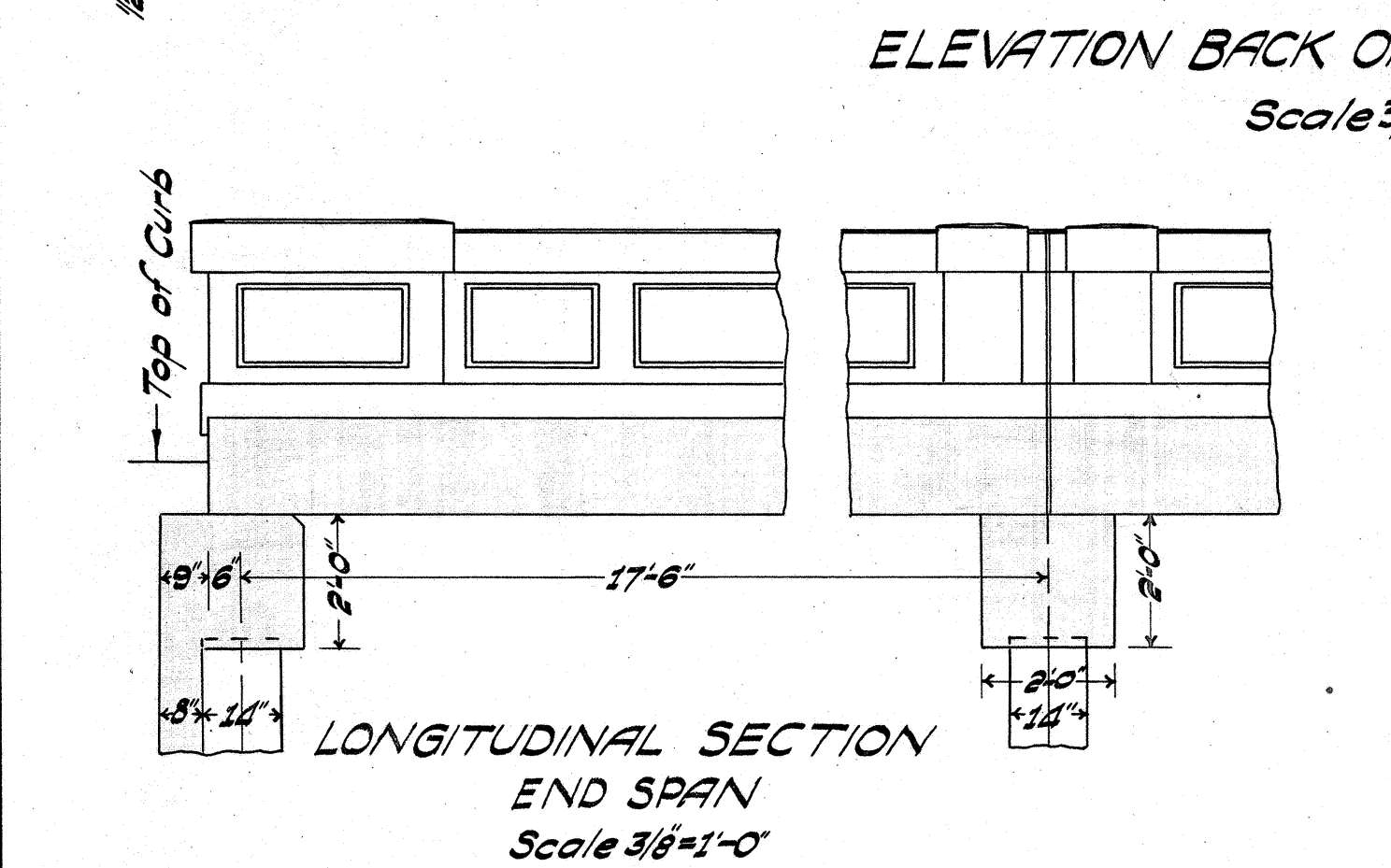
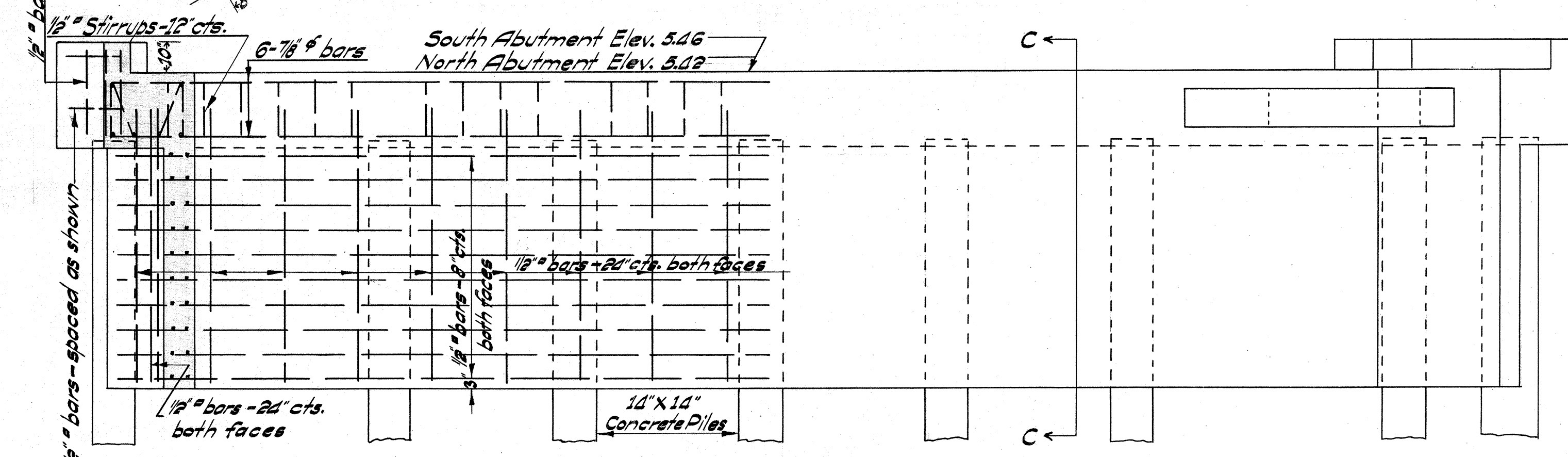
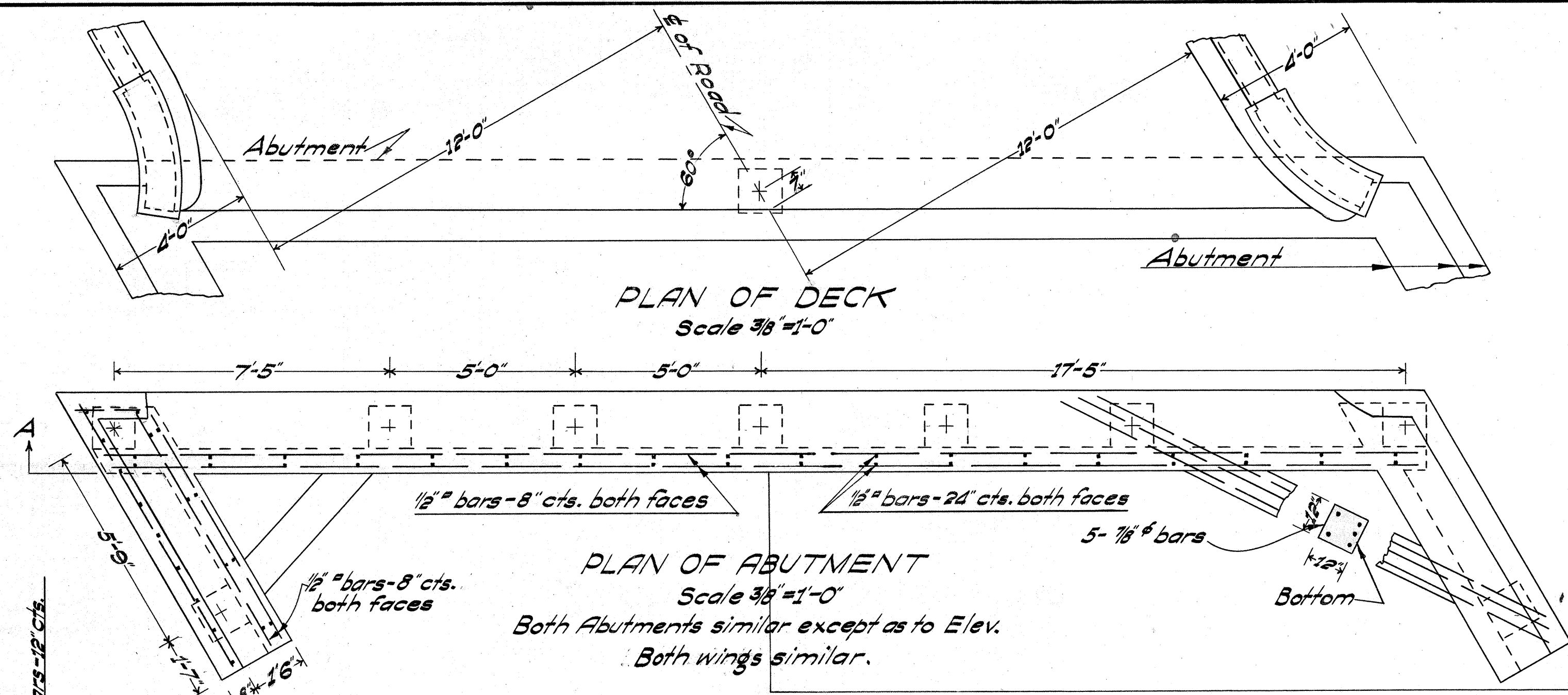


REVISED JULY 22 1932 AS PER
BUREAU PUBLIC ROADS MEMO
OF JUNE 23 1932.

Changes: - Height of wing wall raised, abutment elevs.
lowered, quantities changed.
Revised & altered by C.F.W. 7/25/32.





GENERAL NOTES

GENERAL NOTES FOR BRIDGE NO. 14
APPLY TO THIS STRUCTURE

USE SUPERSTRUCTURE SHOWN ON PLAN OF
STANDARD FLAT SLAB TRESTLE

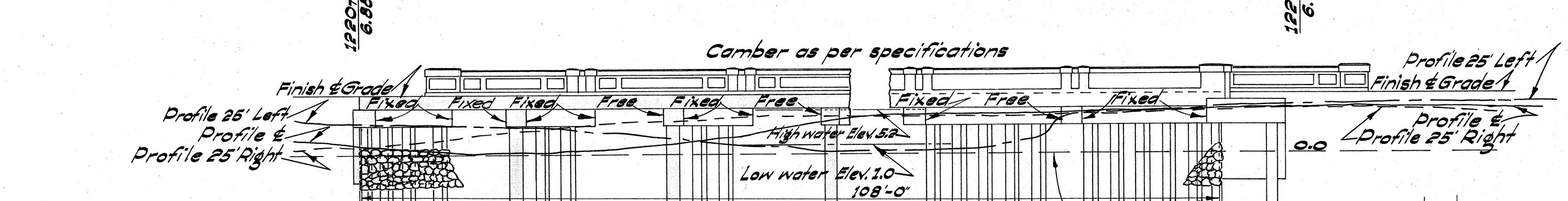
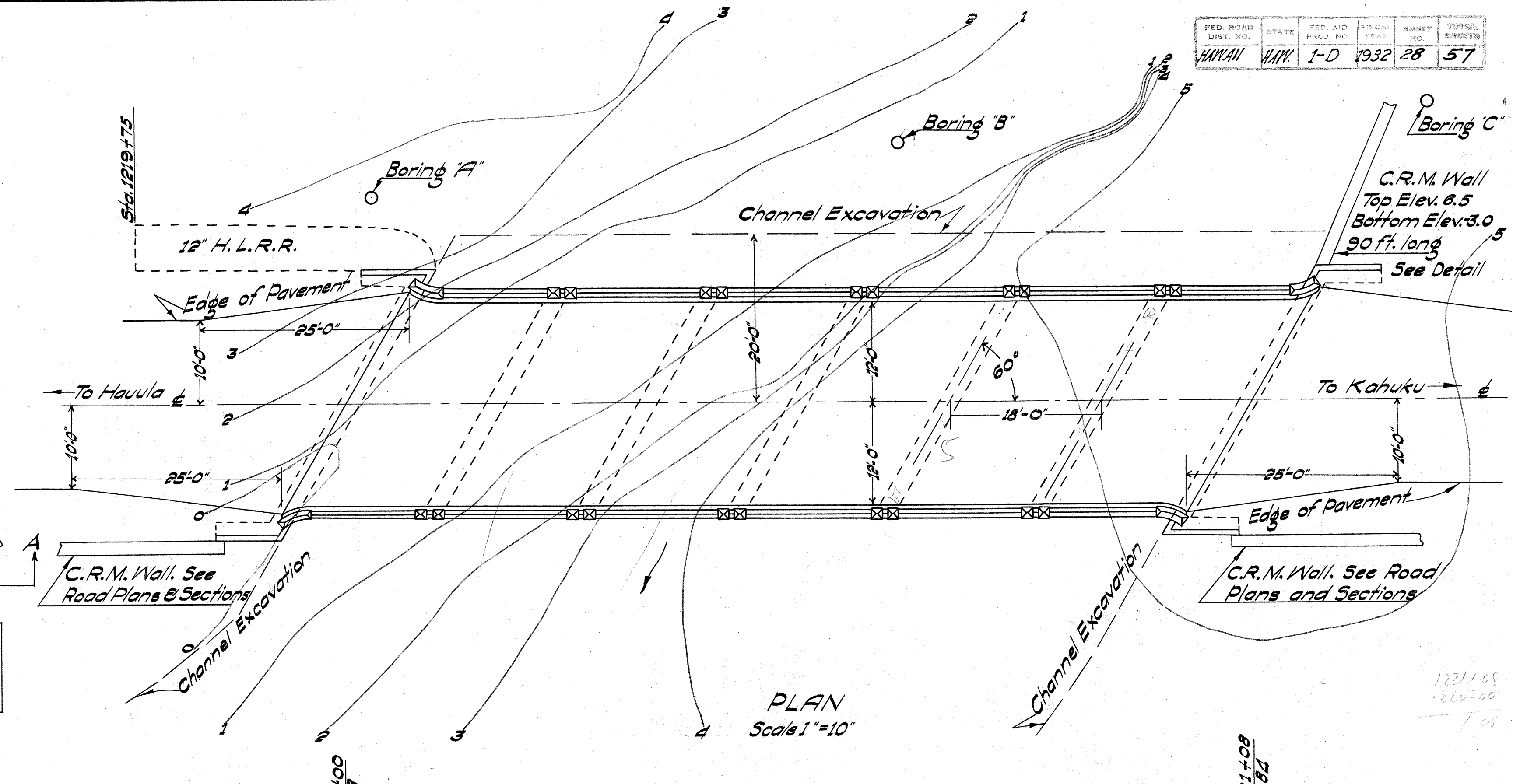
Bents 18'-0" cts. 24'-0" Roadway

See construction record for lengths of piles used.

ABUTMENT STIRRUP
1/2" x 9'-0" long 76 req.

	CONCRETE CLASS 1A	REINFORCING STEEL	STRUCTURE EXCAVATION
S. Abutment	16.8 CY	244.57 #	62.0 CY
N. Abutment	16.8	244.57	118.0
Superstructure	186.9	2864.26	
Total	220.5 CY	3353.40 #	180.0 CY

Rock Fill 150# Stones 40 CY.
12" H.L.R.R. 7 CY.
Pre-cast Concrete Piles 30 feet long 43



WASH BORING DATA

HOLE 'A'	HOLE 'B'	HOLE 'C'
0.0 Boulders, sand, gravel etc.	0.0 Boulders, sand, gravel etc.	0.0 Boulders, sand, gravel etc.
10.0 Tree coral hardpacked with sand & shell.	10.0 Small coral, sand, shell etc.	10.0 Finger and tree coral hardpacked with sand and shell.
20.0 Finger coral, sand & mud - soft.	20.0 Hardpacked fine sand.	20.0 Small coral, sand shell and mud.
30.0 Coral, mud, and fine sand.	30.0 Coral, mud, sand, and shell.	30.0 Compact clay and sand
40.0 Coral, mud, sand and gravel.	40.0 Compact clay.	40.0 Compact mudrock
50.0 Compact clay with streaks of mudrock.	50.0 Ditto with streaks of mudrock.	50.0 Cement gravel

CHANNEL EXCAVATION
Scale 1"=50'
Excavate channel to elev. 0.0
Side Slopes 1 to 1
Estimate Excavation - 2880 C.Y.

C.R.M. WALL STA. 1221+16 LEFT
Scale 1/4"=1'-0"
Provide 4" weepholes at 10' cts. at elev. 1.0
C.R.M. - 98.2 C.Y.
Excavation - 195.0 C.Y.

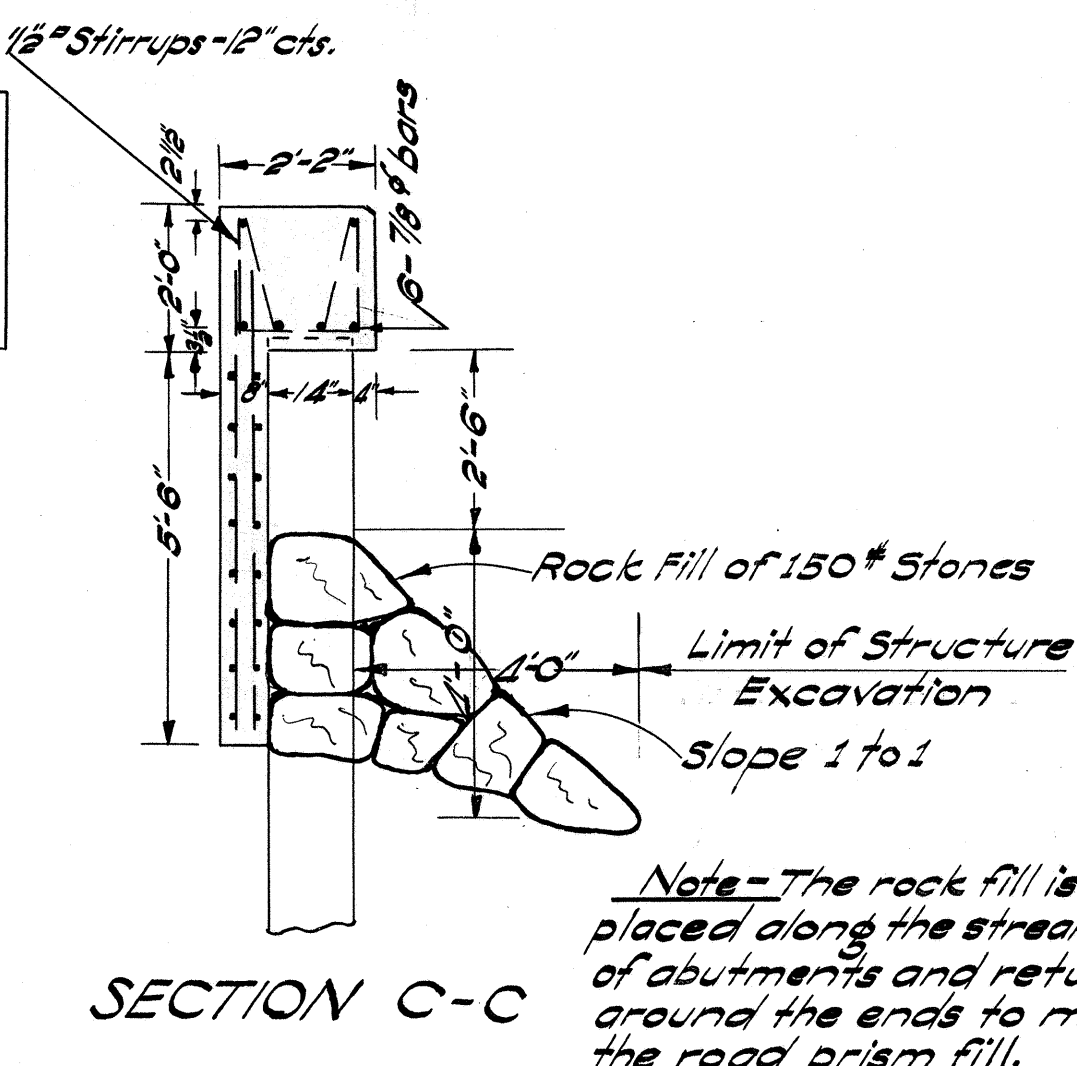
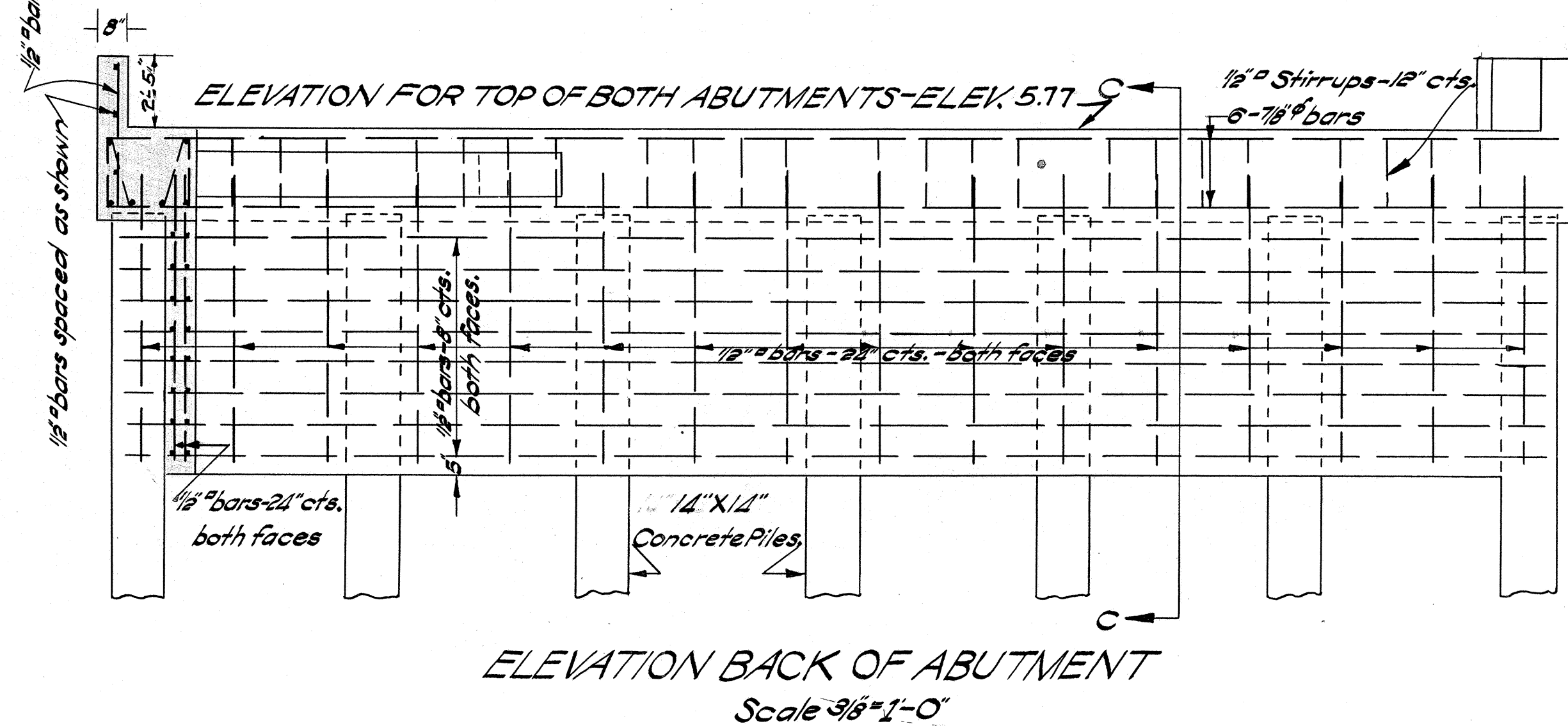
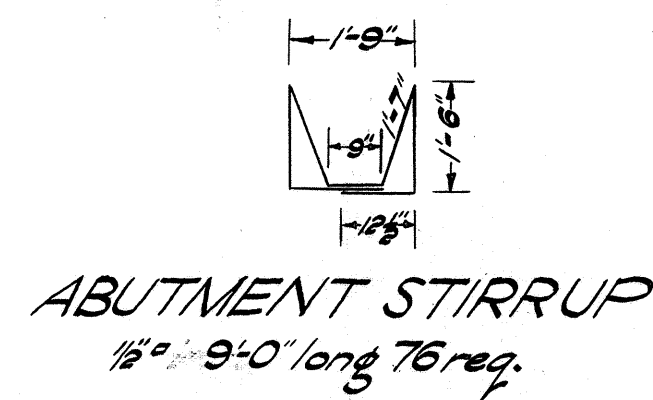
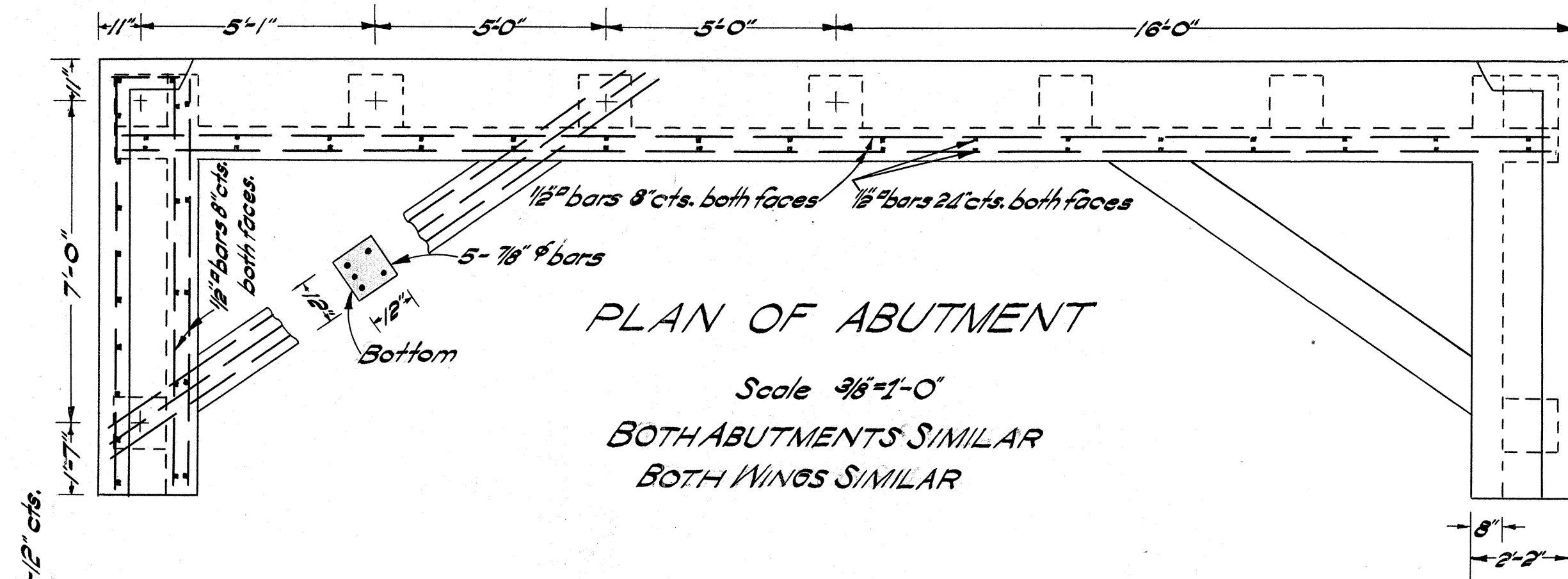
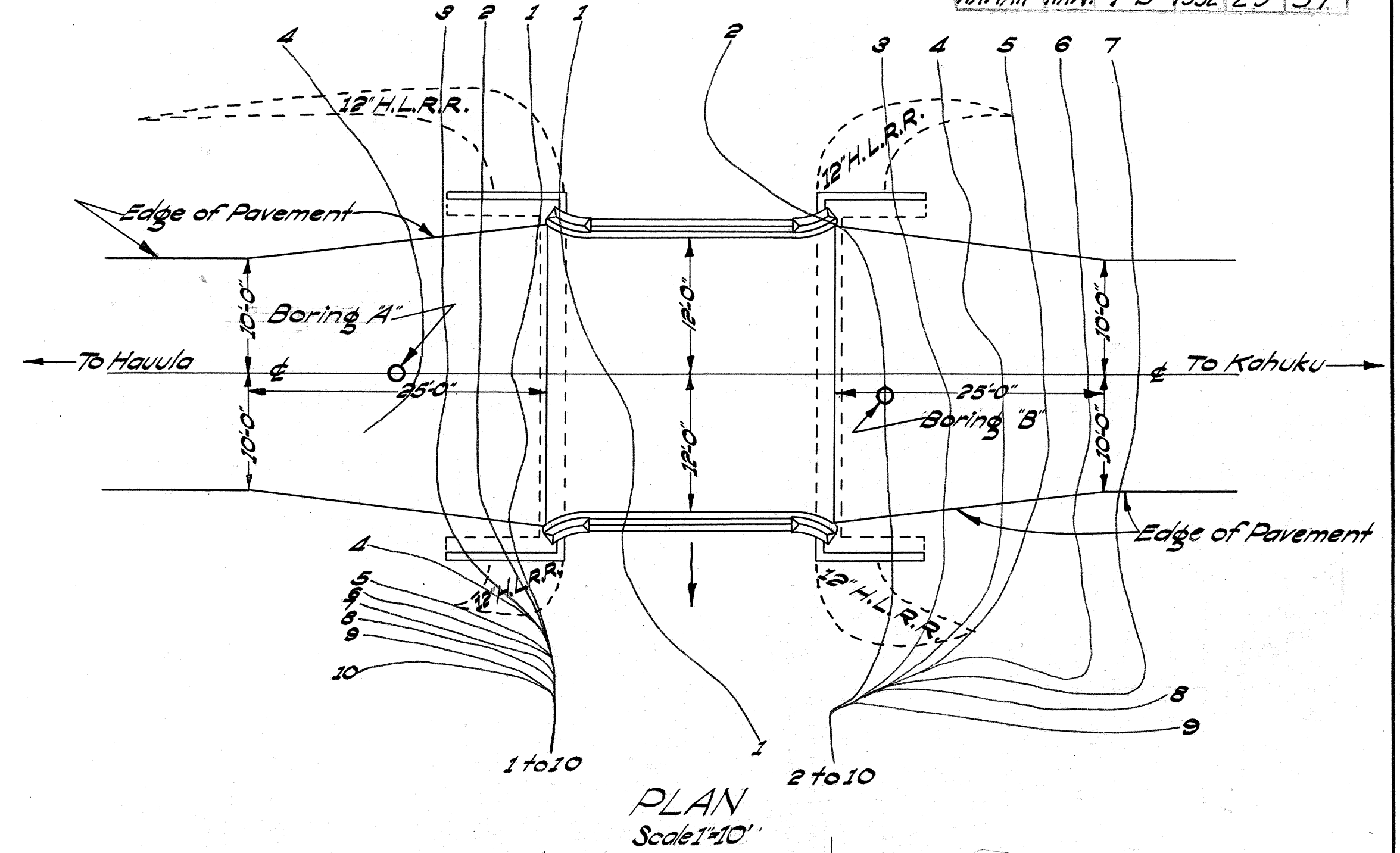
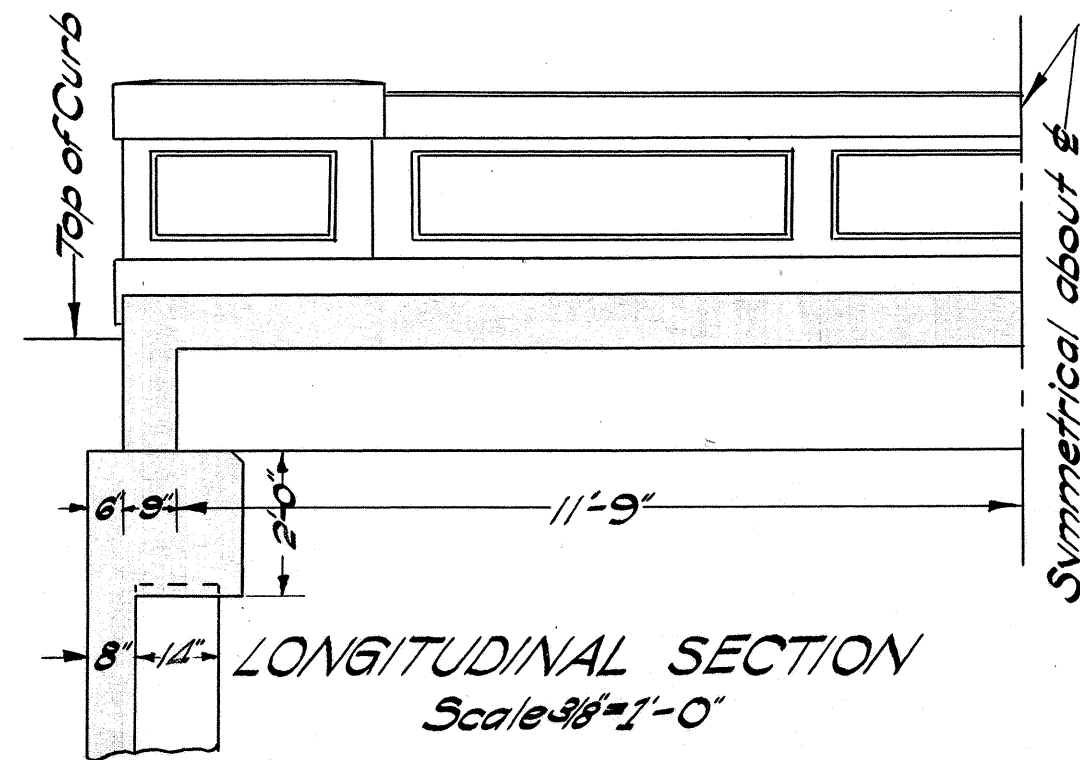
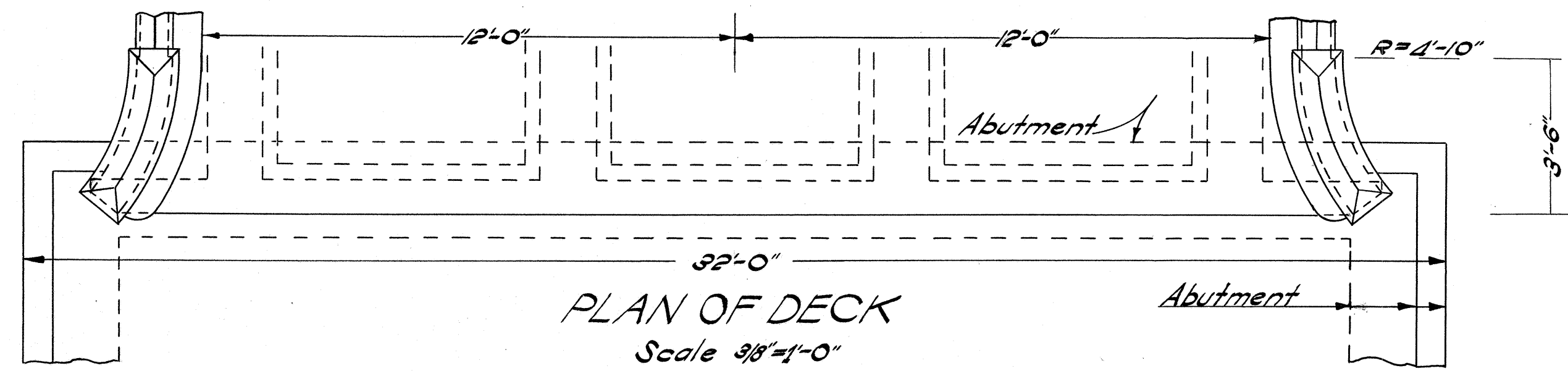
LOCATION PLAN & ABUTMENT DETAILS

MULIWAH BRIDGE

NO. 15 A - 1220+54

February 1932

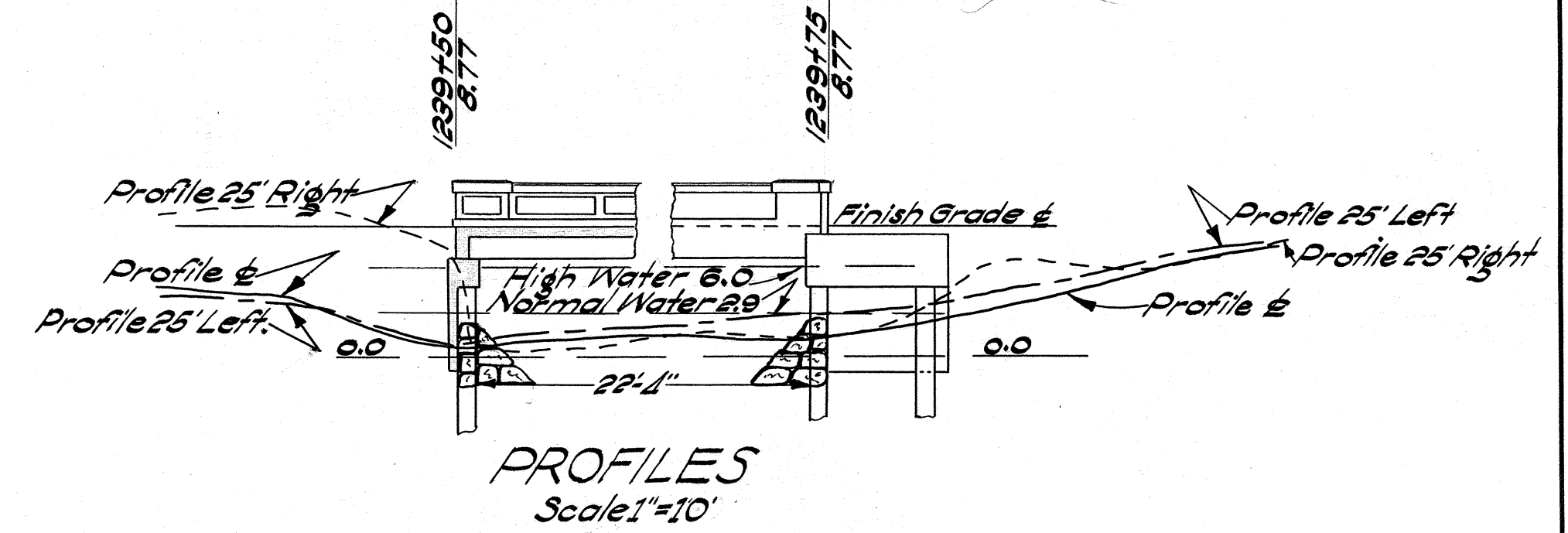
Scale as noted



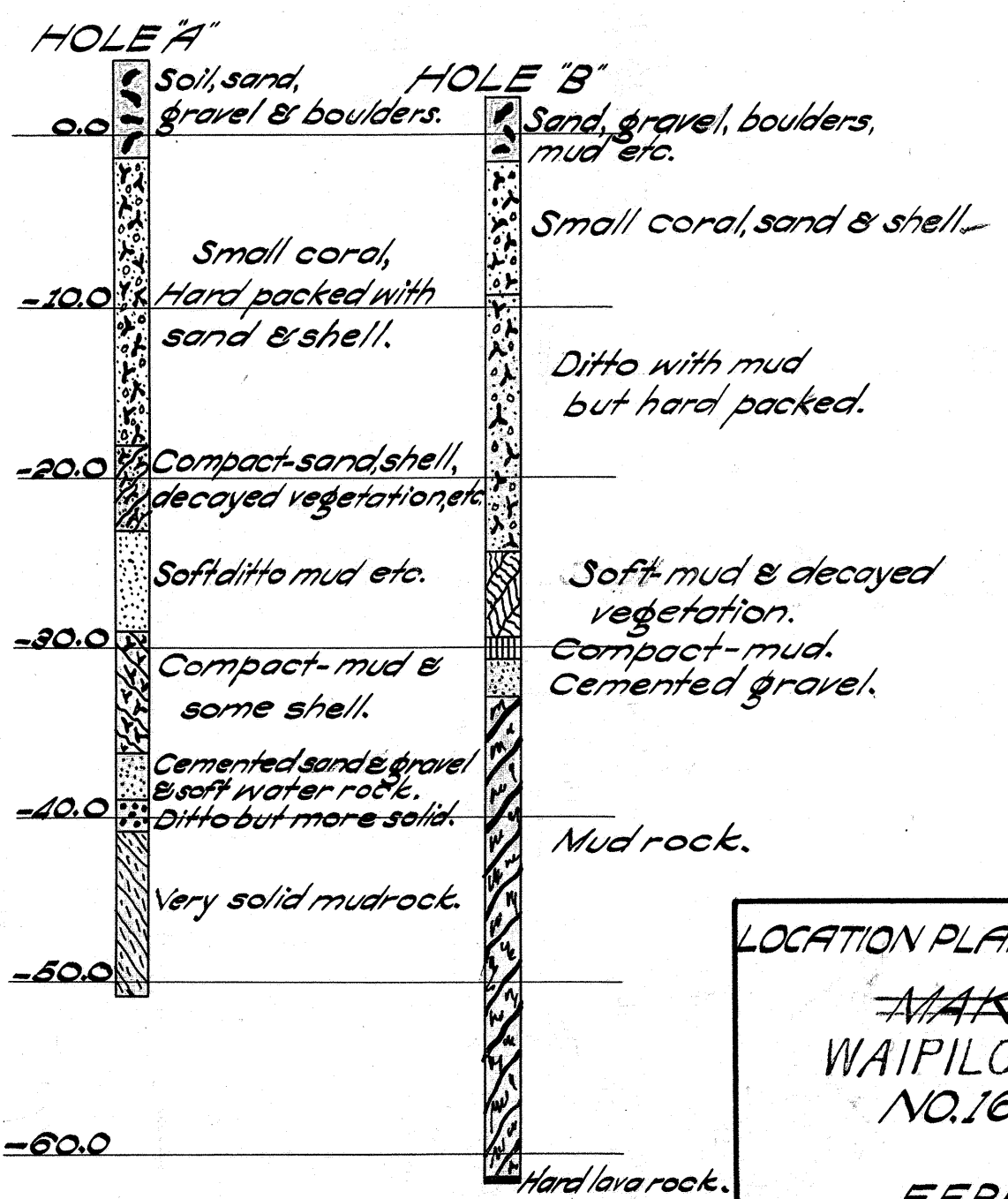
Rock Fill 150 # Stones ——— 24 C.Y.
12' H.L.R.R. ——— 12 C.Y.
Pre-cast Concrete Piles 30' long — 18 See construction pile record for lengths of piles used.

	CONCRETE CLASS 'A'	REINFORCING STEEL	STRUCTURE EXCAVATION
S. Abutment	16.0 CY	2290.0 #	310 CY
N. Abutment	16.0 "	2290.0 "	360 "
Superstructure	37.9 "	6599.0 "	
Total	69.9 CY	11179.0 #	670 CY

GENERAL NOTES
GENERAL NOTES FOR BRIDGE NO. 14
APPLY TO THIS STRUCTURE
USE SUPERSTRUCTURE SHOWN ON PLAN OF
STANDARD DECK GIRDER
22'-0" Clear Span - 24'-0" Roadway



WASH BORING DATA



LOCATION PLAN & ABUTMENT DETAILS
MAKUA BRIDGE
WAIPILOPILO BRIDGE
NO. 16 - STA. 1239+62.5
FEBRUARY 1932
Scale as noted

CHANGES: Height of wing wall raised, abutment elevation lowered, quantities changed.
Revised and altered by C.F.N. 7/2/32.

REVISED JULY 22 1932 AS PER
BUREAU PUBLIC ROADS MEMO
OF JUNE 23 1932.



GENERAL NOTES

Live Load — 2-15 ton trucks with 30% allowance for impact.

Reinforcing Steel — Allowable tensile stress 16,000 # per sq. in. All steel to be round or square deformed bars, square twisted bars not to be considered deformed. All dimensions relating to reinforcement are to centers of bars unless otherwise noted. Where splicing of reinforcement is necessary, bars to be lapped 40 diameters and splices are to be staggered. Main longitudinal bars in girders cannot be spliced. No allowance has been made in quantities for extra weight of steel required for splices. Unless otherwise noted the minimum covering measured from the surface of concrete to the face of any steel shall be not less than 2" in beams, girders, and handrails, and 1 1/4" in slabs. Steel to be held rigidly and accurately in place before and during placing of concrete.

USE SUPERSTRUCTURE SHOWN ON PLAN OF
STANDARD DECK GIRDER SUPERSTRUCTURE
40' Span 24' Roadway

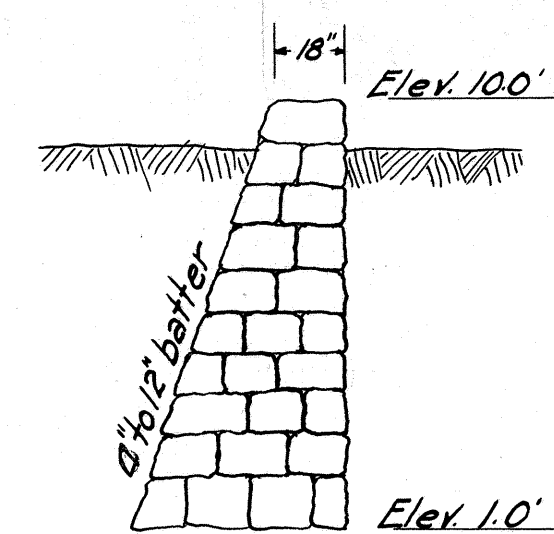


	CONCRETE CLASS "A"	REINFORCING STEEL	STRUCTURE EXCAVATION
N.Abutment	68.1CY.	7044.8 #	260.0CY.
S.Abutment	74.5 "	7334.3 "	294.0 "
Center Pier	42.2 "	3910.0 "	126.0 "
Superstructure	155.8 "	29083.6 "	
Total	340.6CY.	47372.7 #	680.0CY.

See revised plan



Scale: 1" = 10'-0"



C.R.M. WALL

Sta. 1247+50 - left

Scale: $\frac{1}{4}'' = 1'-0''$

Provide 4" Weep Holes at 10' ctrs. at Elev. 4.0'

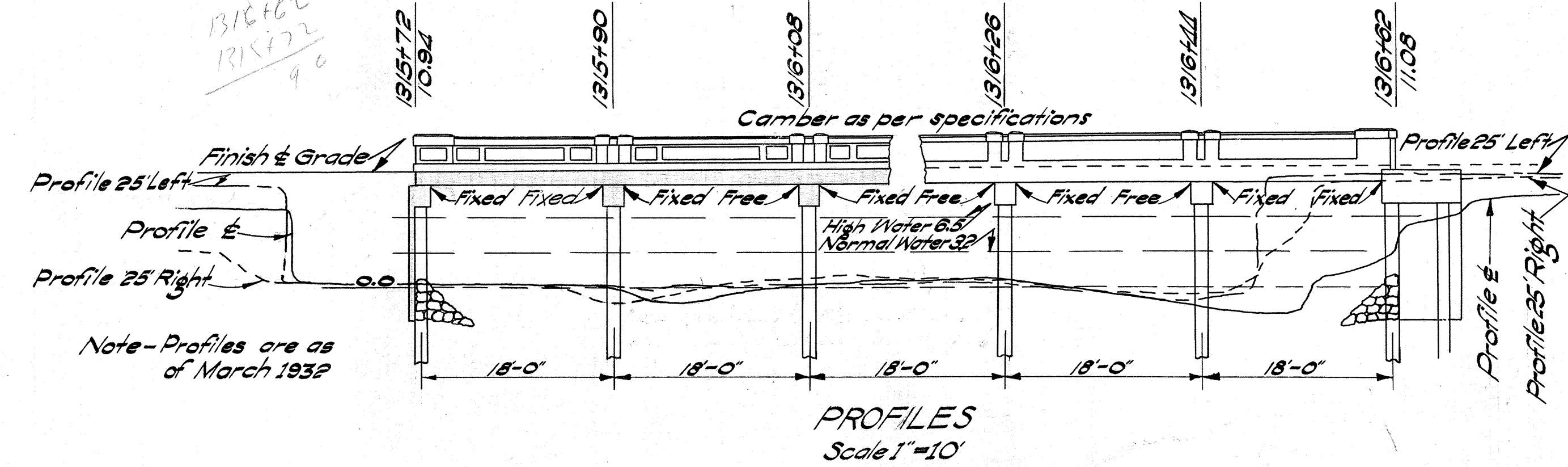
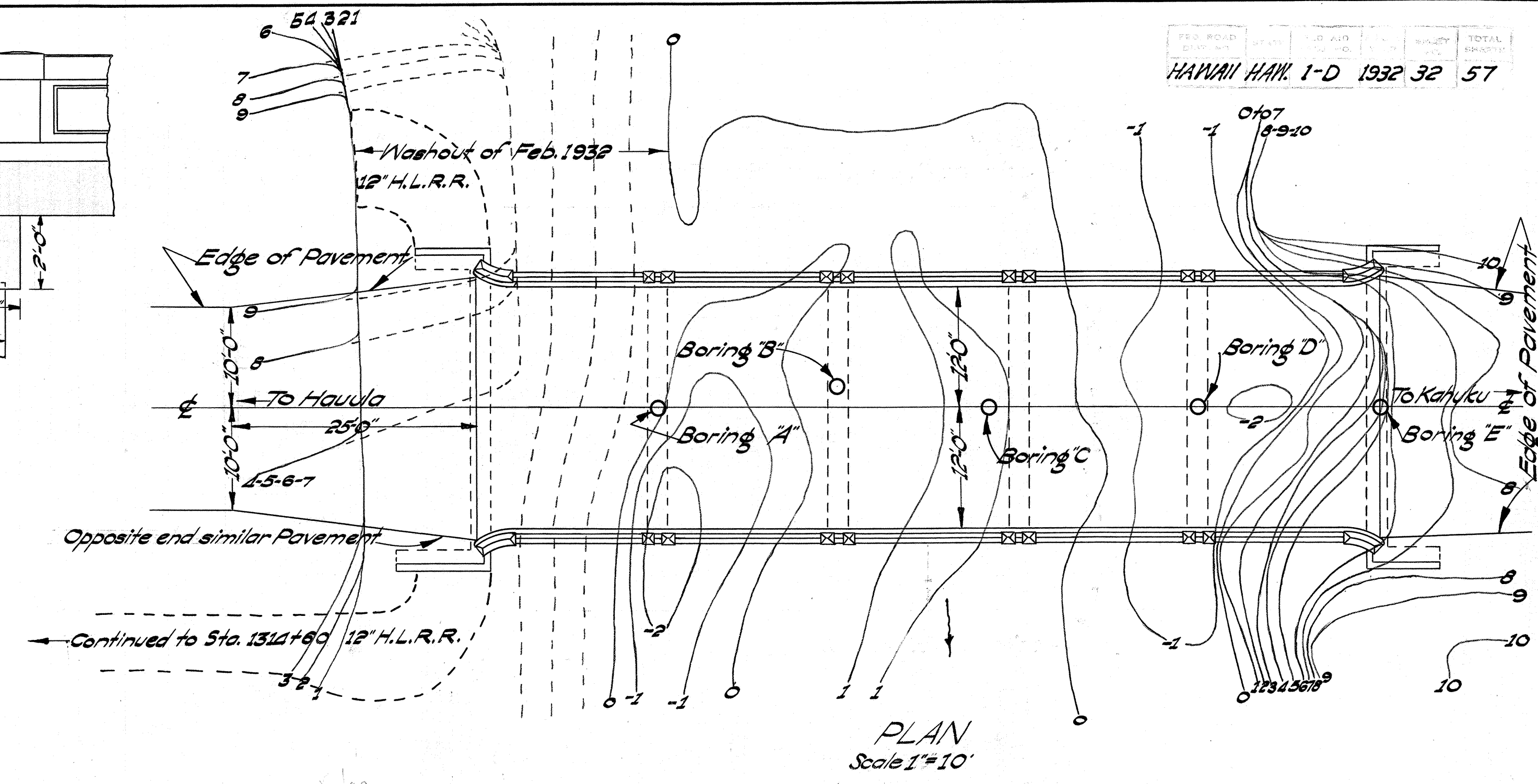
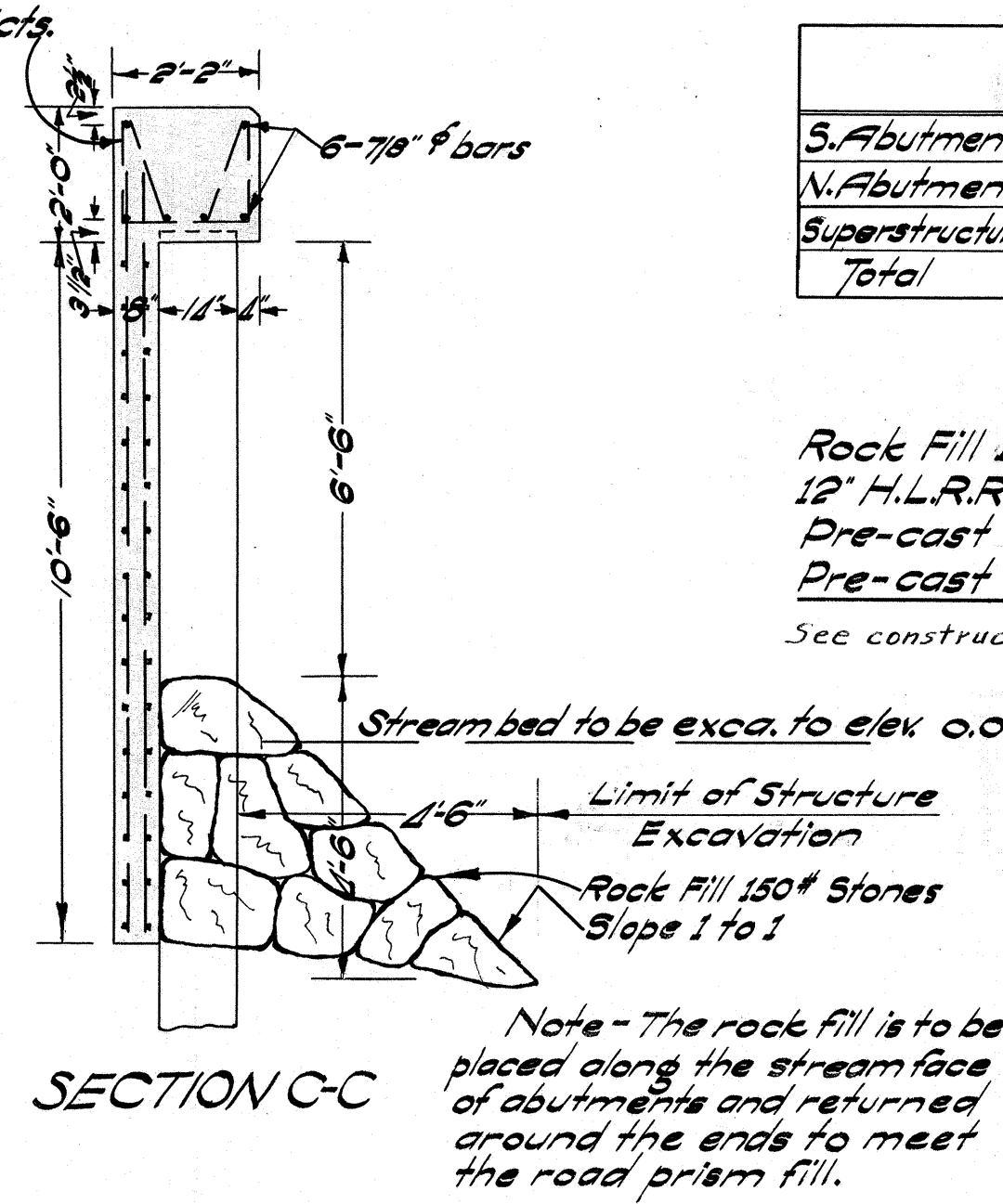
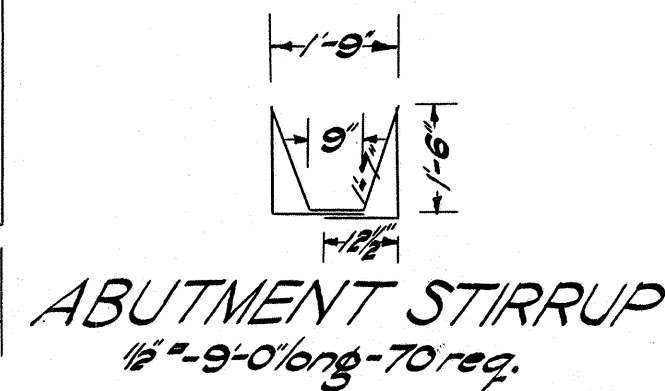
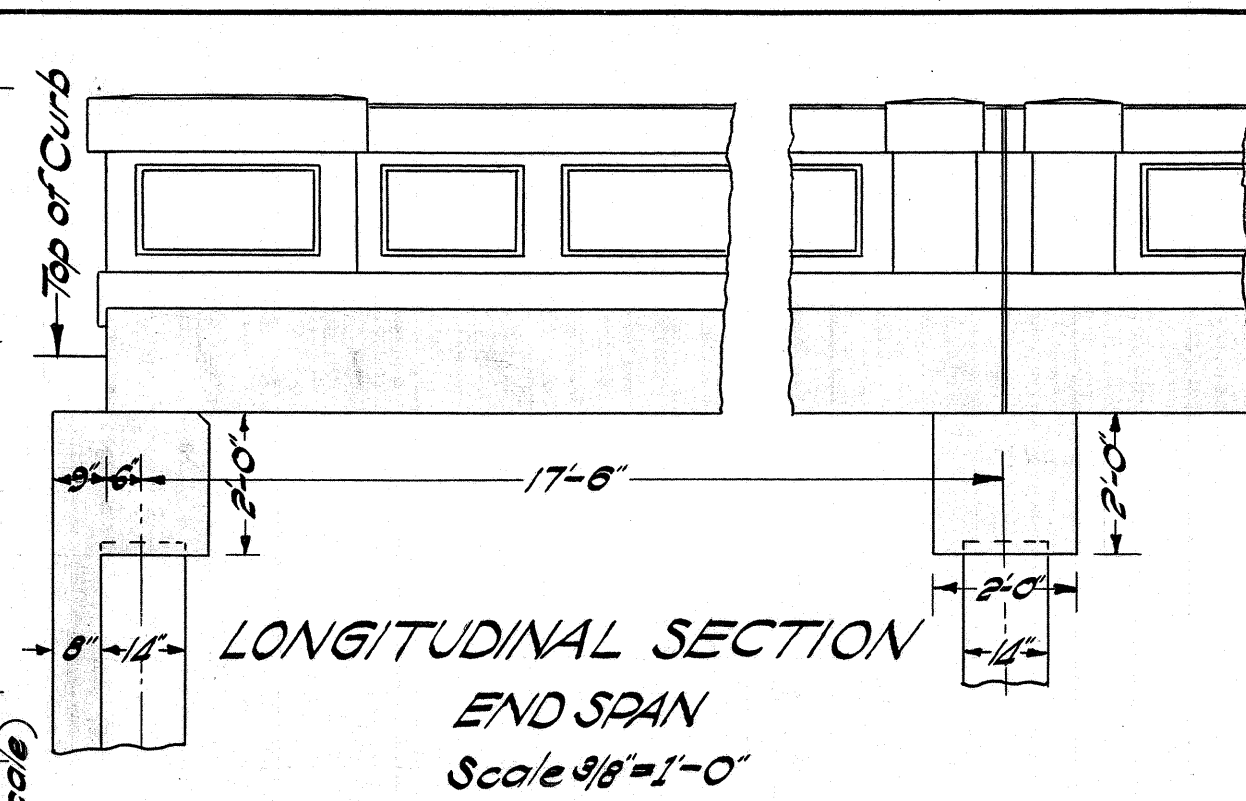
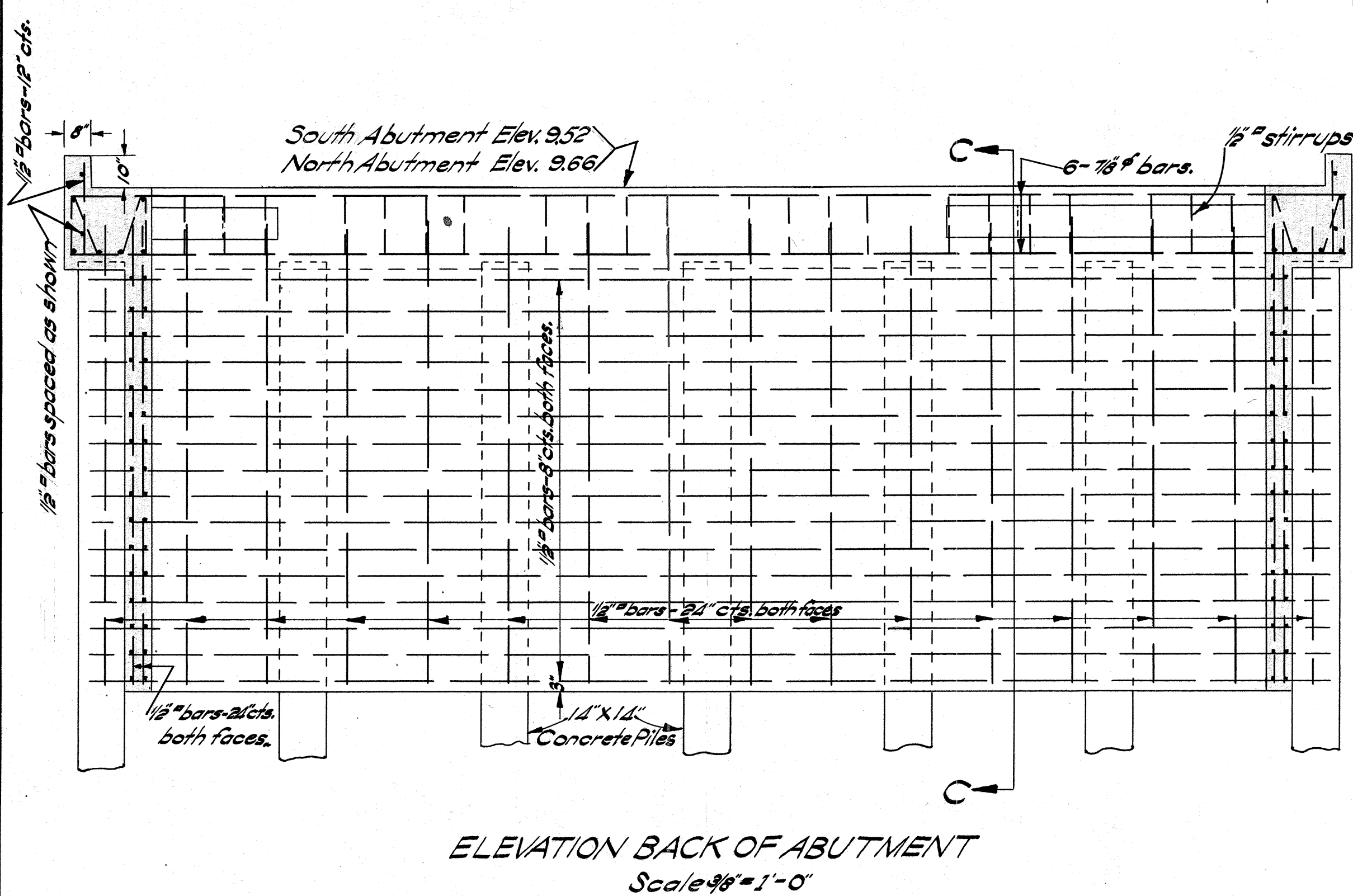
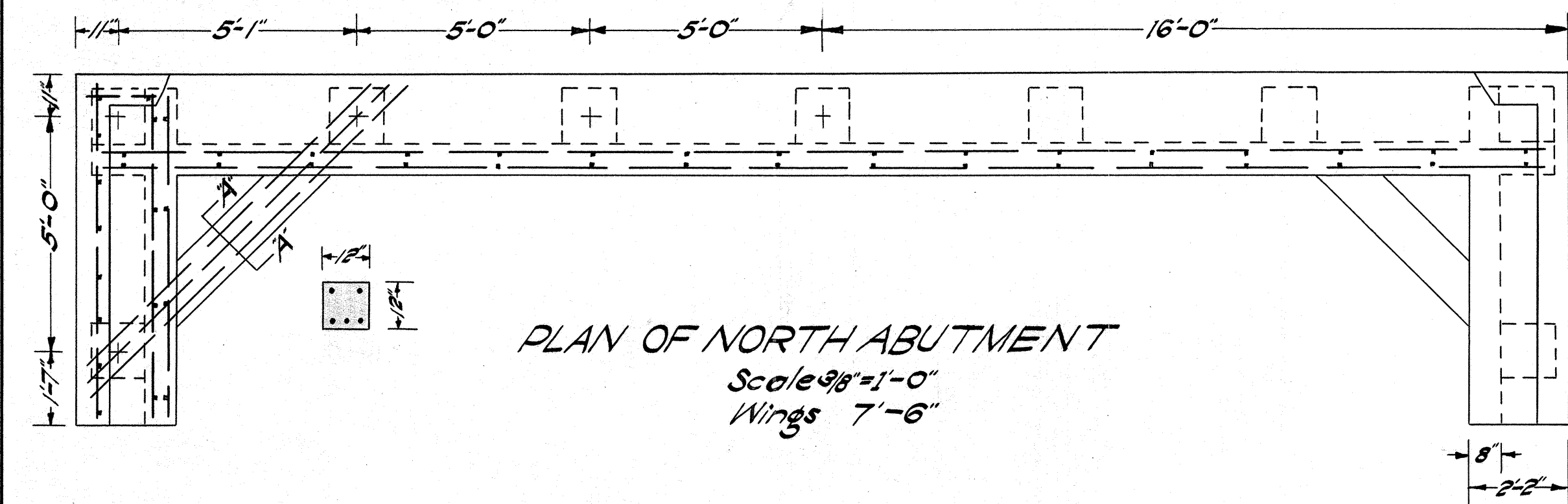
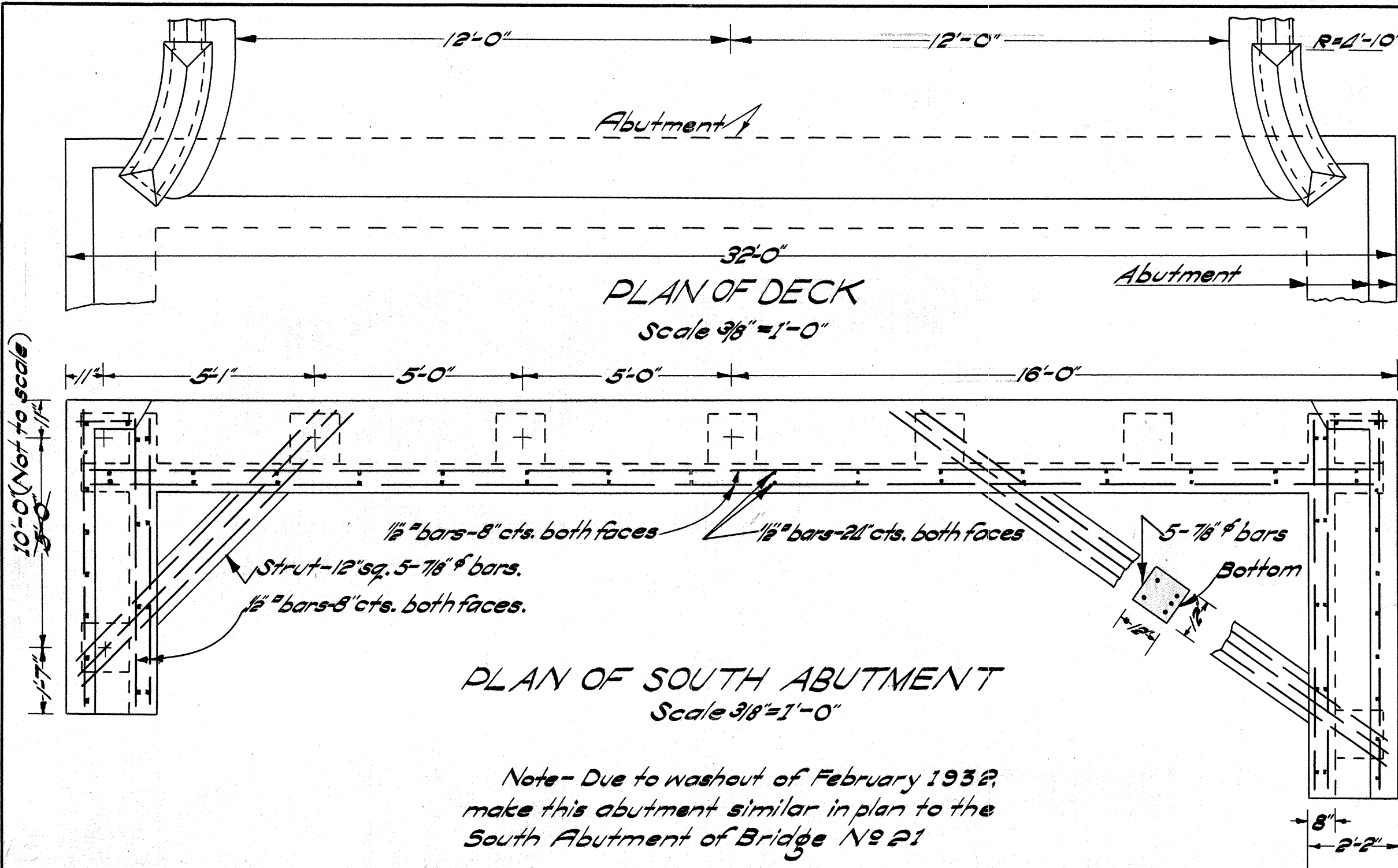
LOCATION PLAN AND PIER
KAIPAPAU BRIDGE

NO. 17 STA. 1247+92

FEBRUARY 1932

Scale as noted

SHEET 1



	CONCRETE	REINFORCING	STEEL	STRUCTURE	EXCAVATION
CLASS 1A					
S. Abutment	20.1 CM	2954.3 #		57.0 CM	
N. Abutment	19.0	2780.2		111.0	
Superstructure	152.4	23223.6			
Total	191.5 CM	28958.1 #		168.0 CM	

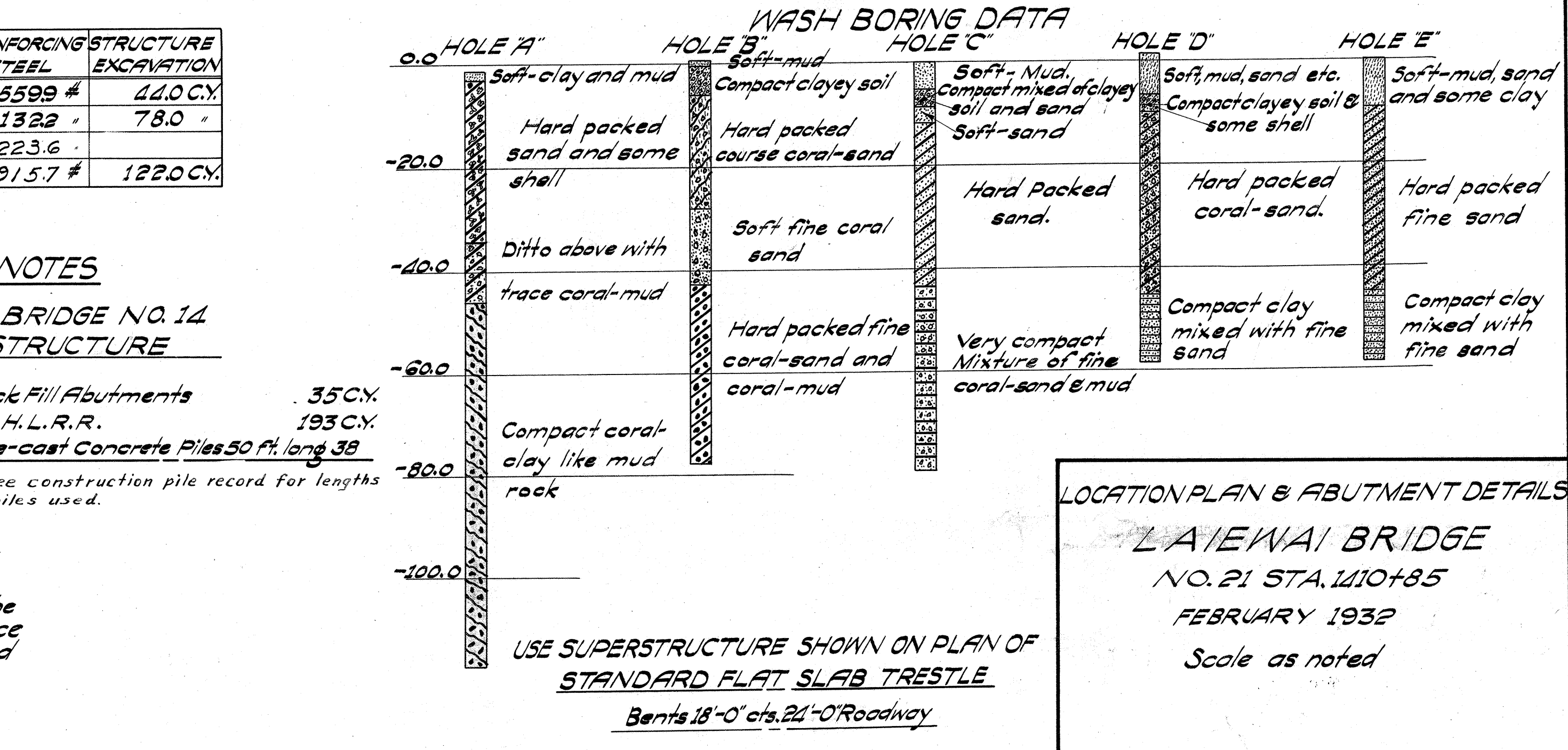
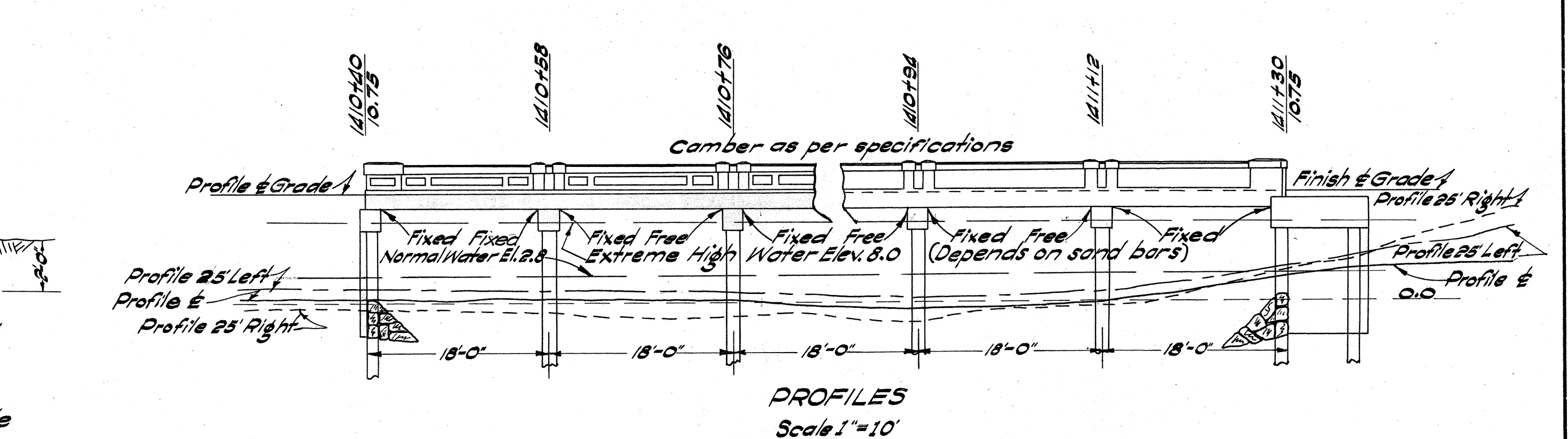
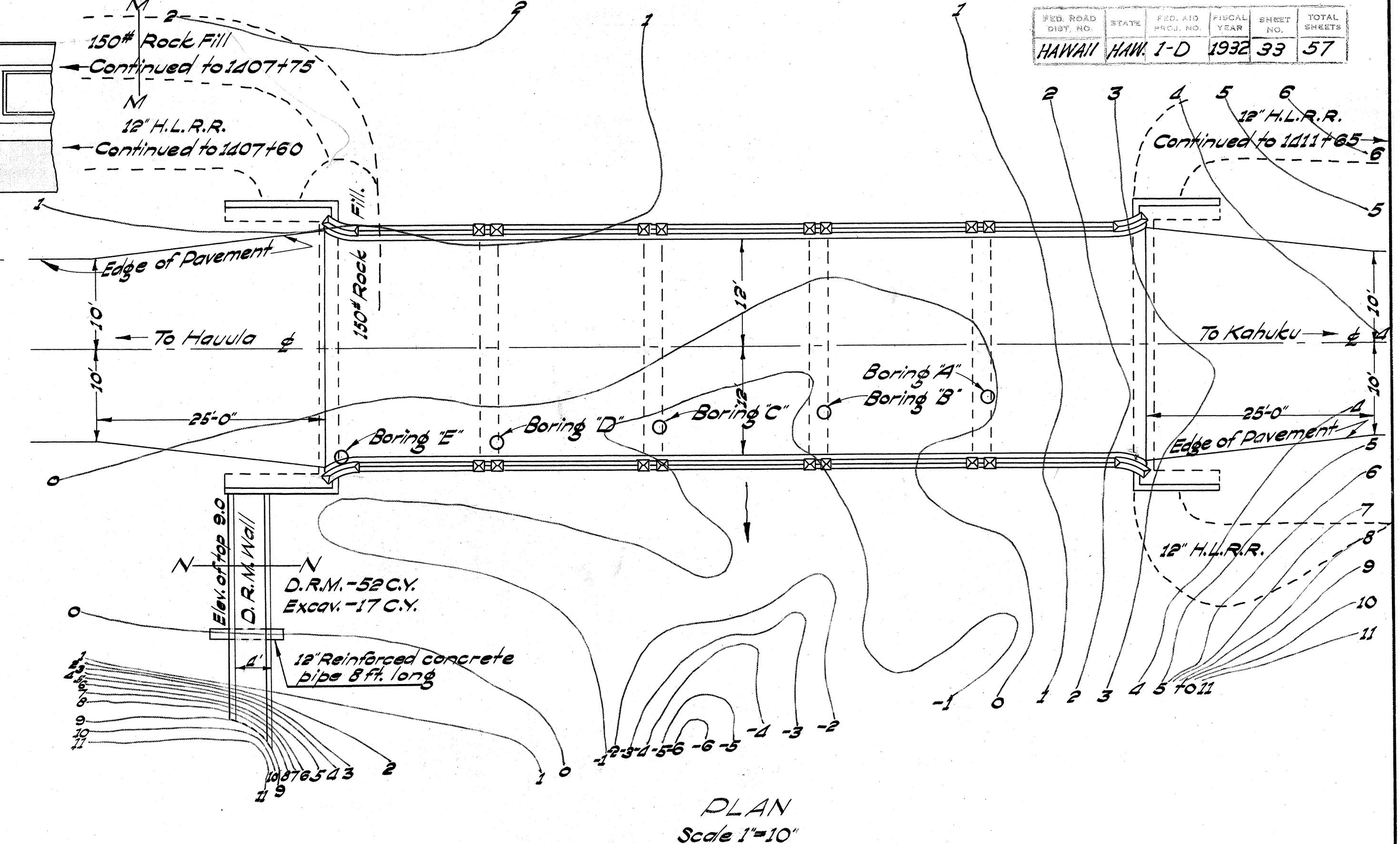
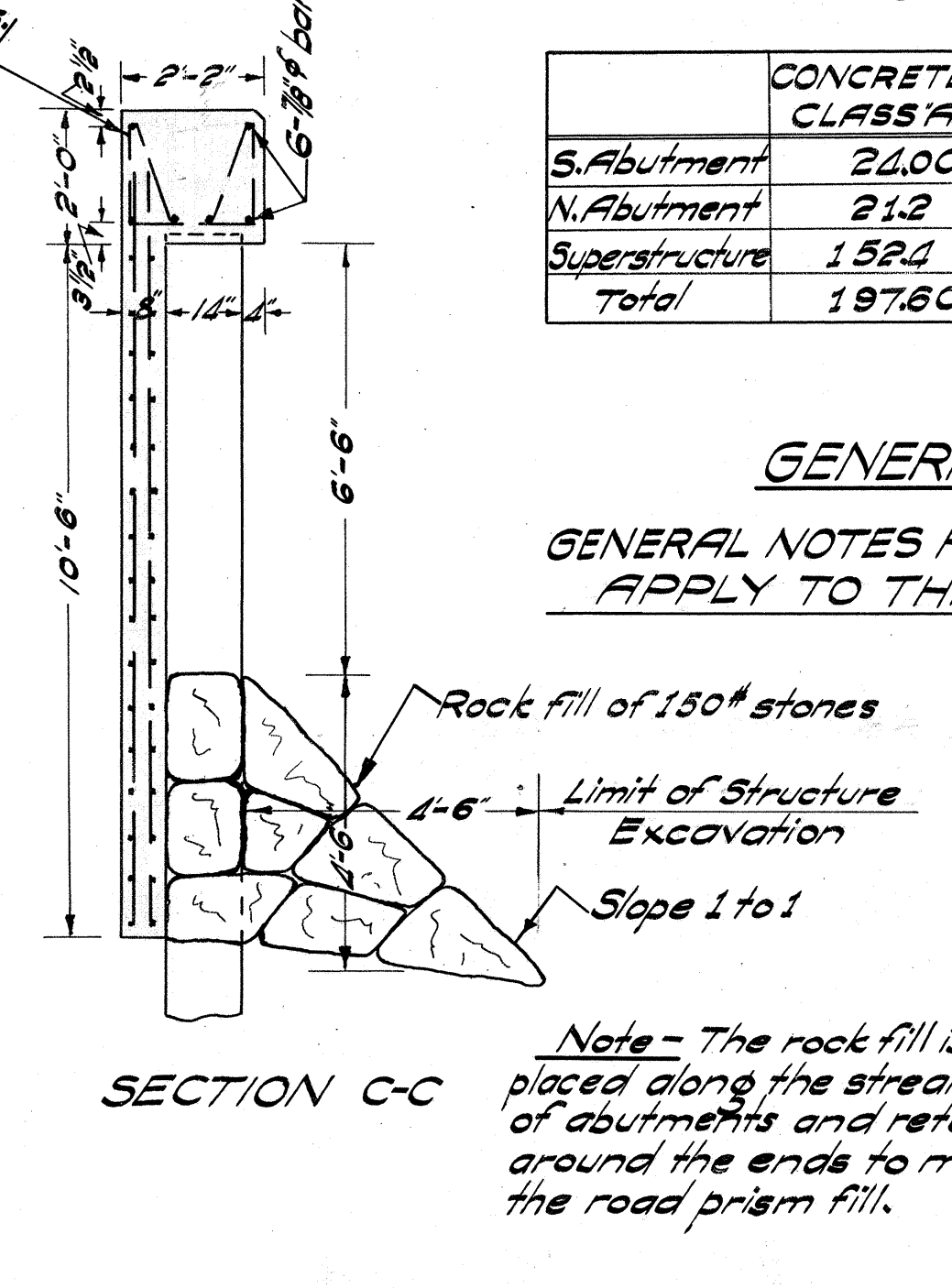
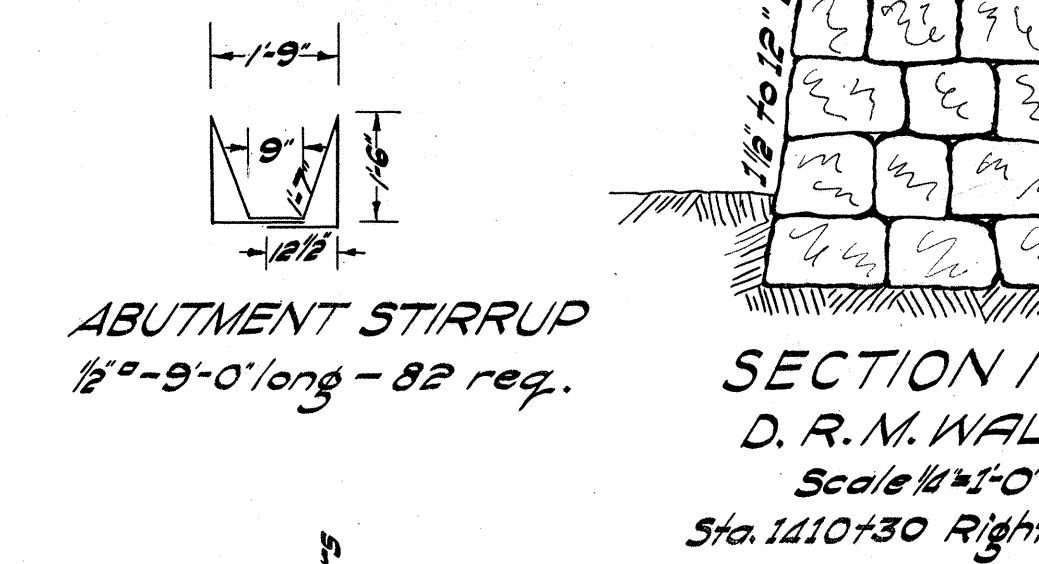
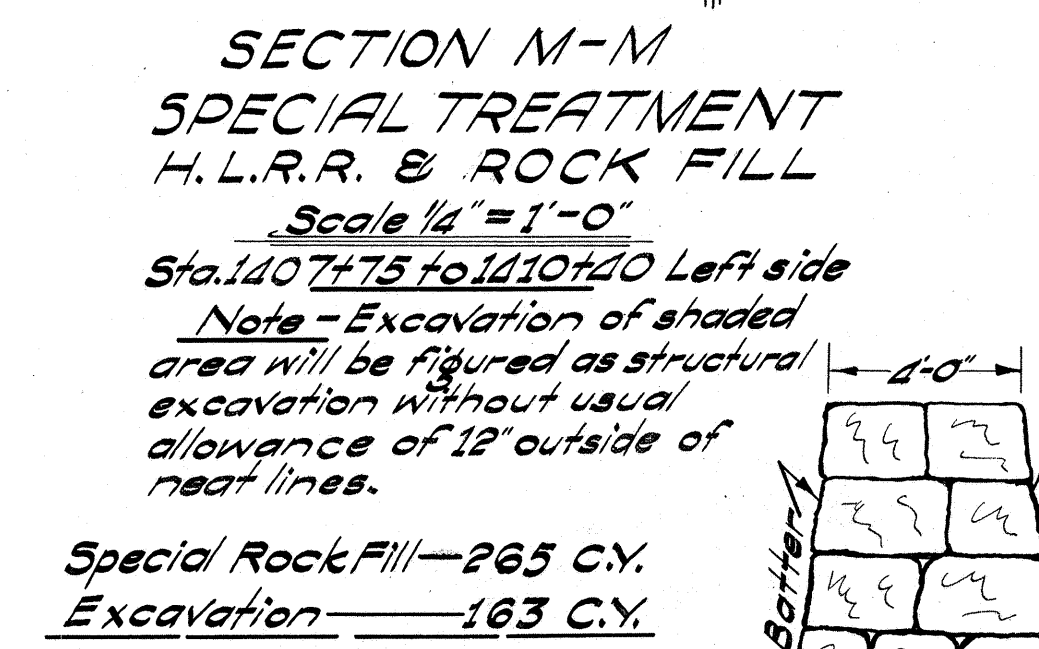
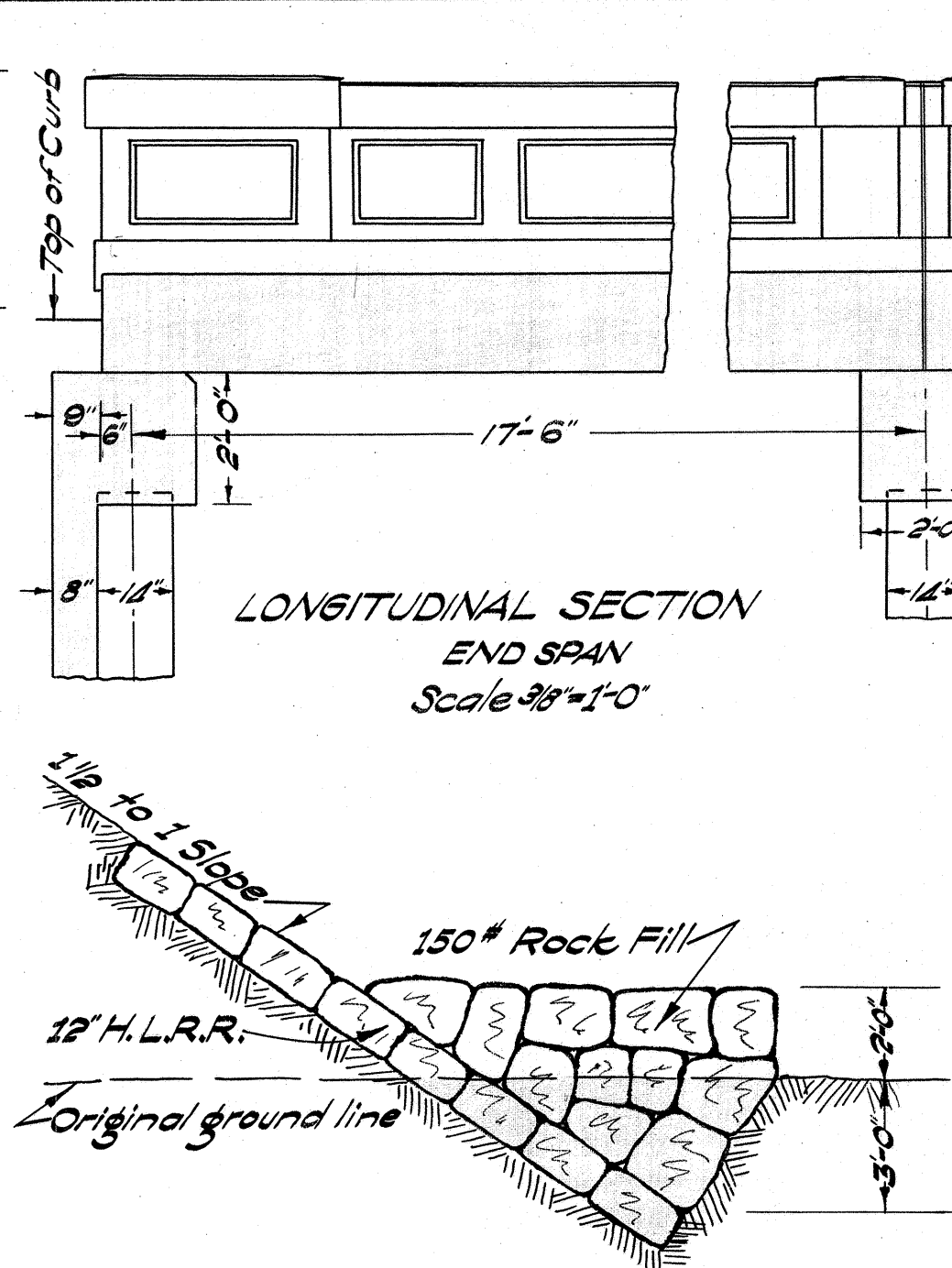
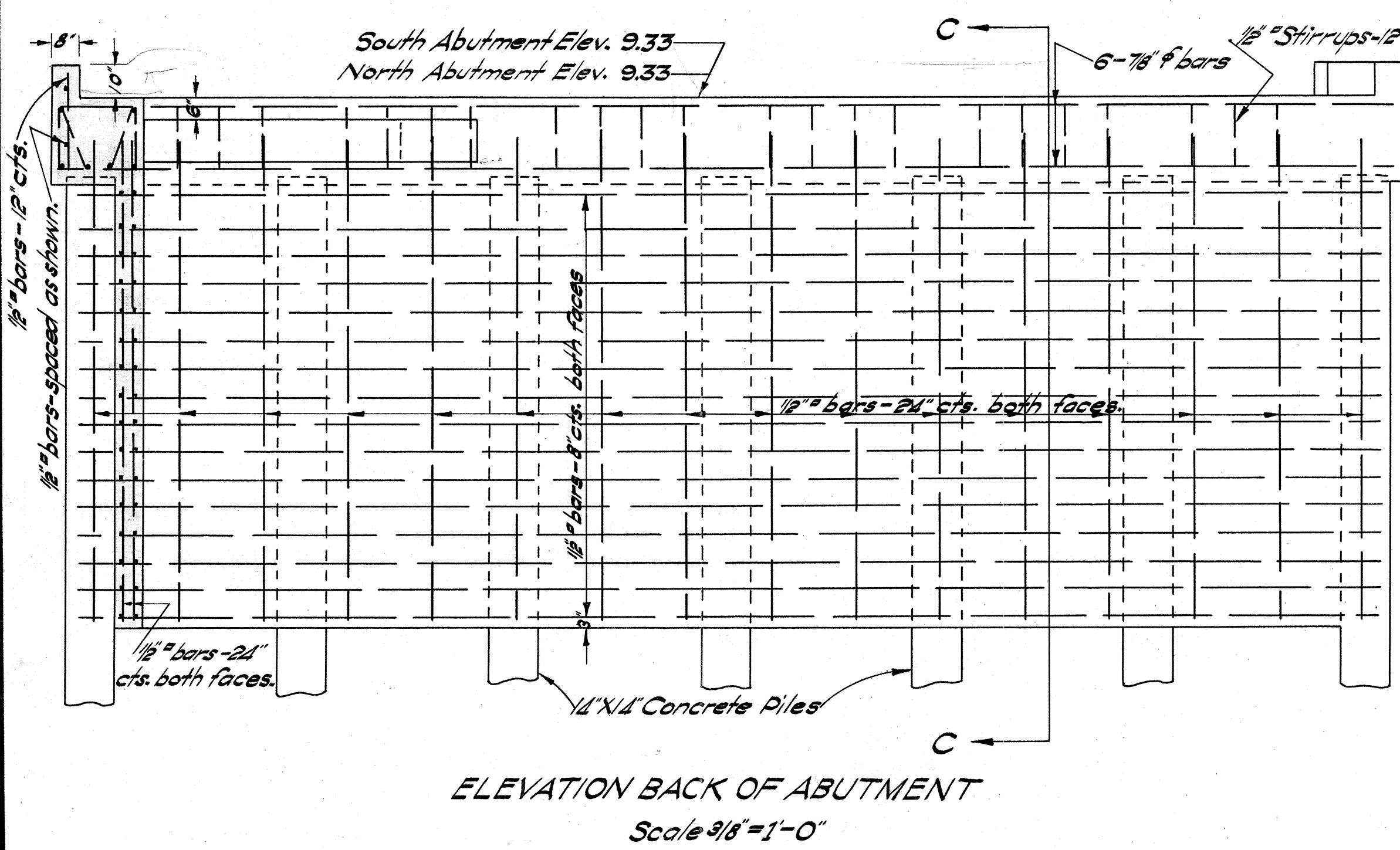
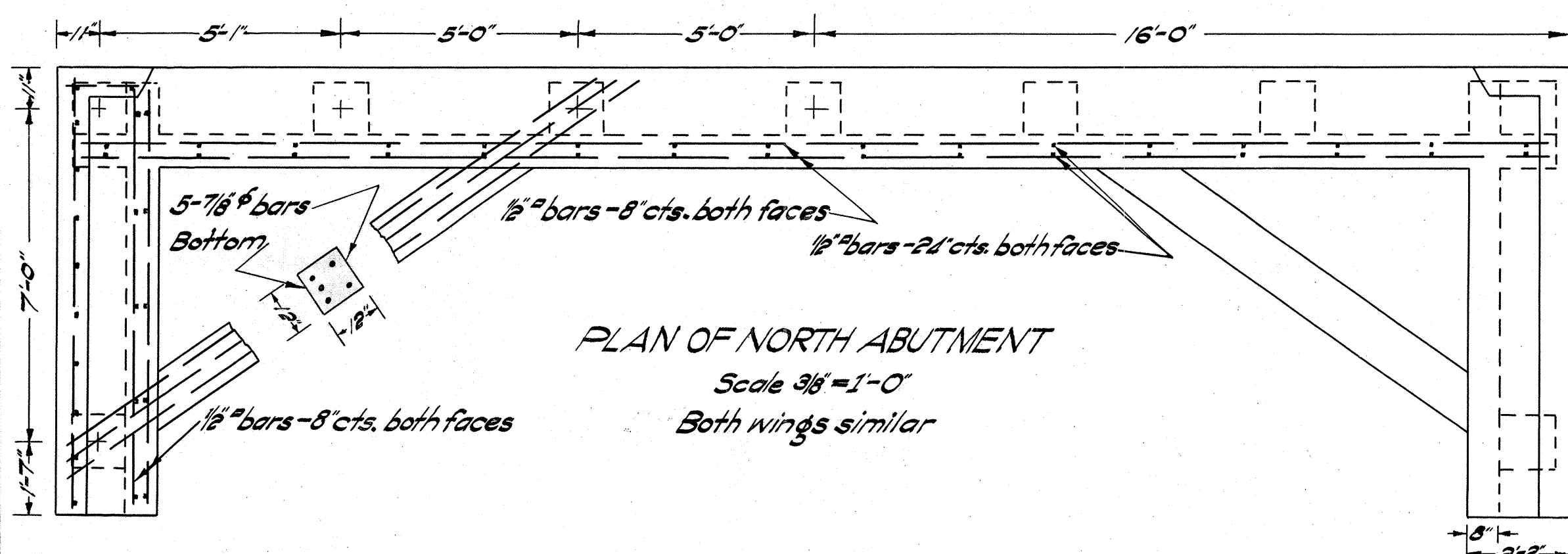
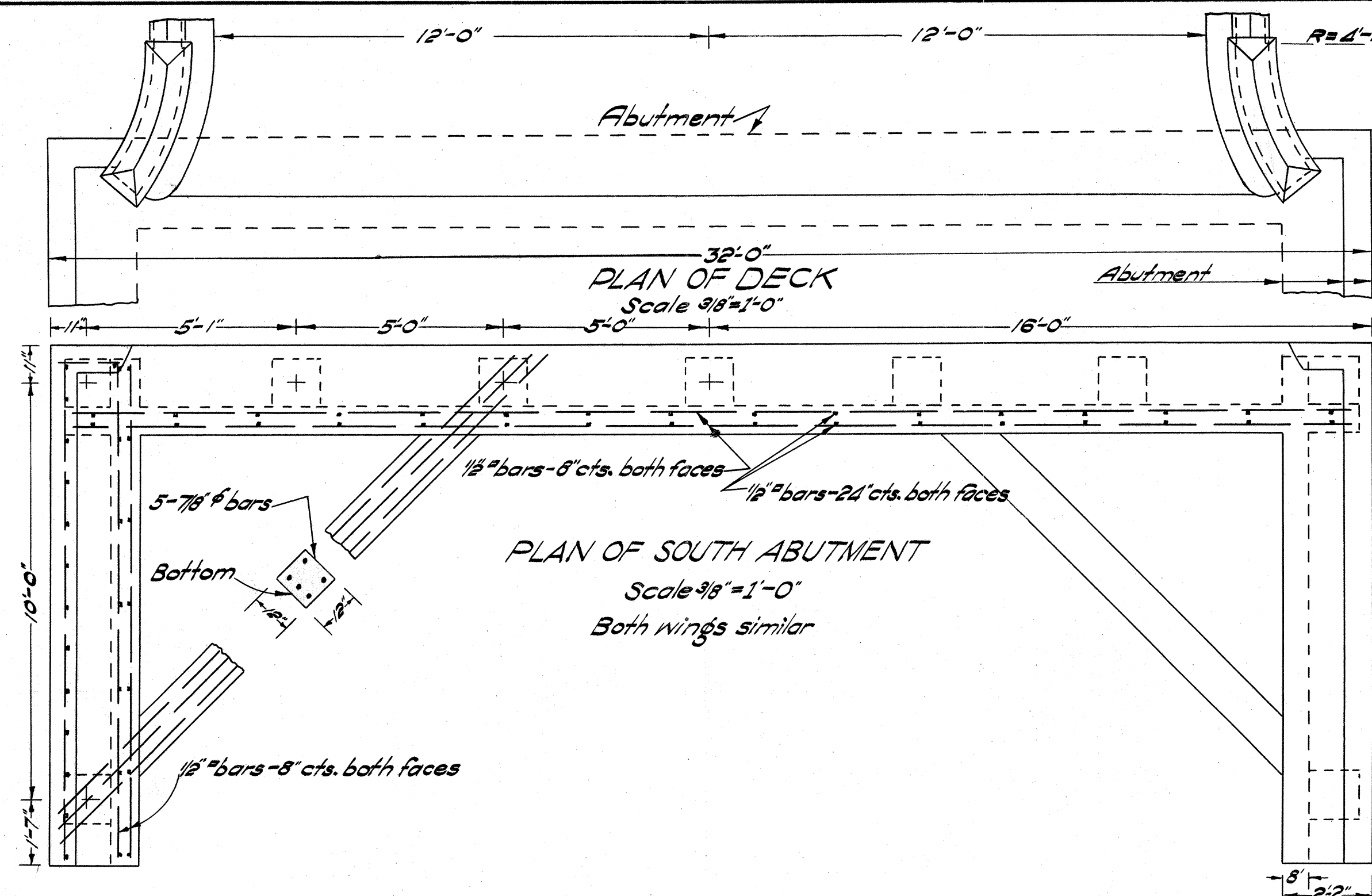
Rock Fill 150# Stones - 35 C.Y.
12" H.L.R.R. - 37 C.Y.
Pre-cast Concrete Piles - 25 ft. long - 14
Pre-cast Concrete Piles - 30 ft. long - 24
See construction pile record for lengths of piles used.

WASH BORING DATA				
HOLE A	HOLE B	HOLE C	HOLE D	HOLE E
0.0	Sand, gravel, boulders & some mud.	Sand, gravel, boulders & some mud.	Compact sand, gravel & boulders.	Soft sand & shell, & some small coral.
-100	Soft sand, gravel, & some shell.	Soft sand & shell, decayed vegetation, some gravel & small coral.	Soft sand & shell, some gravel & mud, compact clayey soil.	Heavy free coral, shells like M.C.R. but voids, soft sand & shell, some gravel & mud, compact clayey soil.
-200	Compact sand, gravel & boulders.	Compact clayey soil & mudrock.	Compact Mudrock.	Compact Mudrock.

Location changed to Sta. 1315+54 - 1316+4.4

GENERAL NOTES
GENERAL NOTES FOR BRIDGE NO. 14
APPLY TO THIS STRUCTURE
USE SUPERSTRUCTURE SHOWN ON PLAN OF
STANDARD FLAT SLAB TRESTLE
Bents 18'-0" cts. - 24'-0" Roadway

**LOCATION PLAN & ABUTMENT DETAILS
LAEMALOO BRIDGE**
NO. 18 - STA. 1316+17
FEBRUARY 1932
Scale as noted



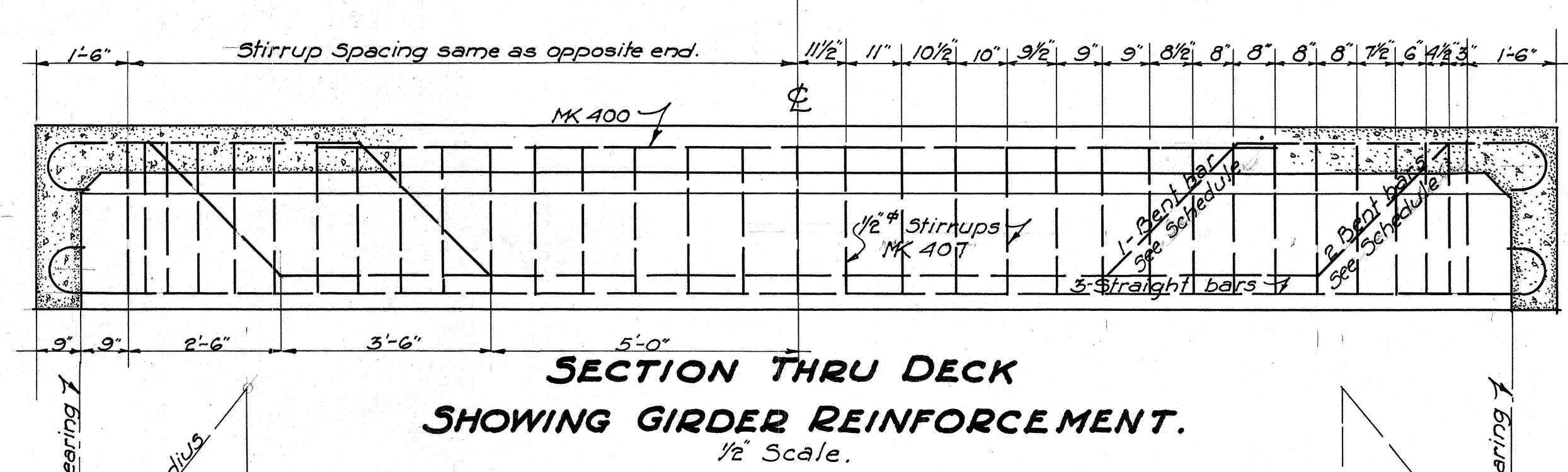
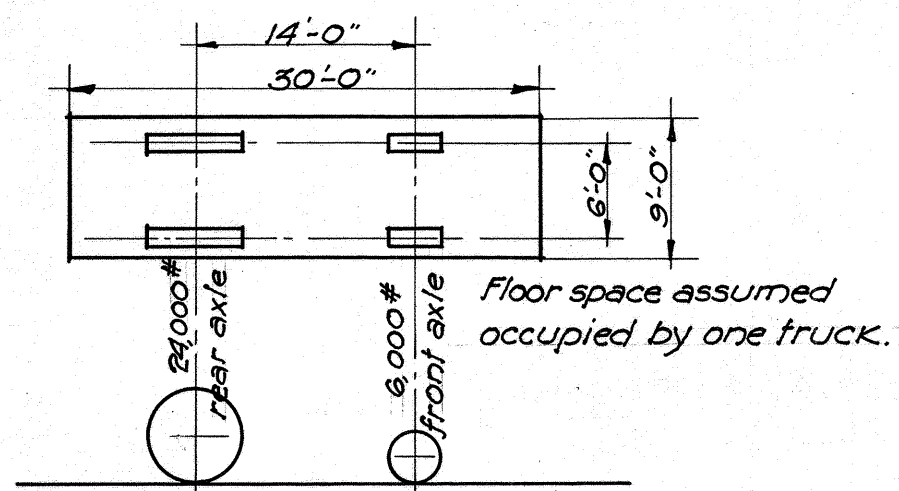
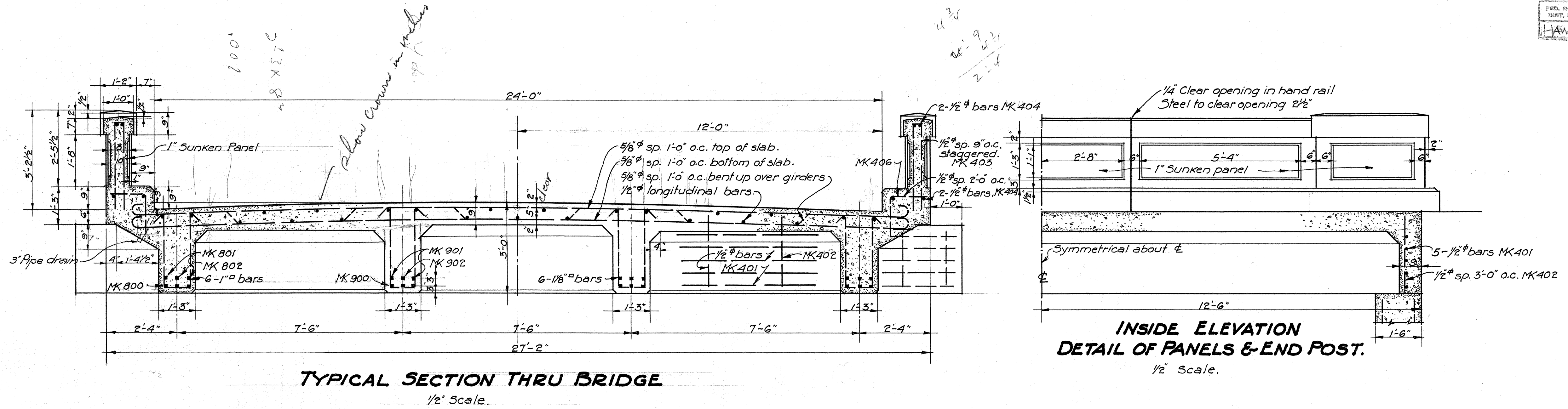
	CONCRETE CLASS A	REINFORCING STEEL	STRUCTURE EXCAVATION
S. Abutment	24.0 CY	35599 #	44.0 CY
N. Abutment	21.2	31322 #	78.0
Superstructure	152.4	23223.6 #	
Total	197.6 CY	29915.7 #	122.0 CY

GENERAL NOTES
GENERAL NOTES FOR BRIDGE NO. 14 APPLY TO THIS STRUCTURE

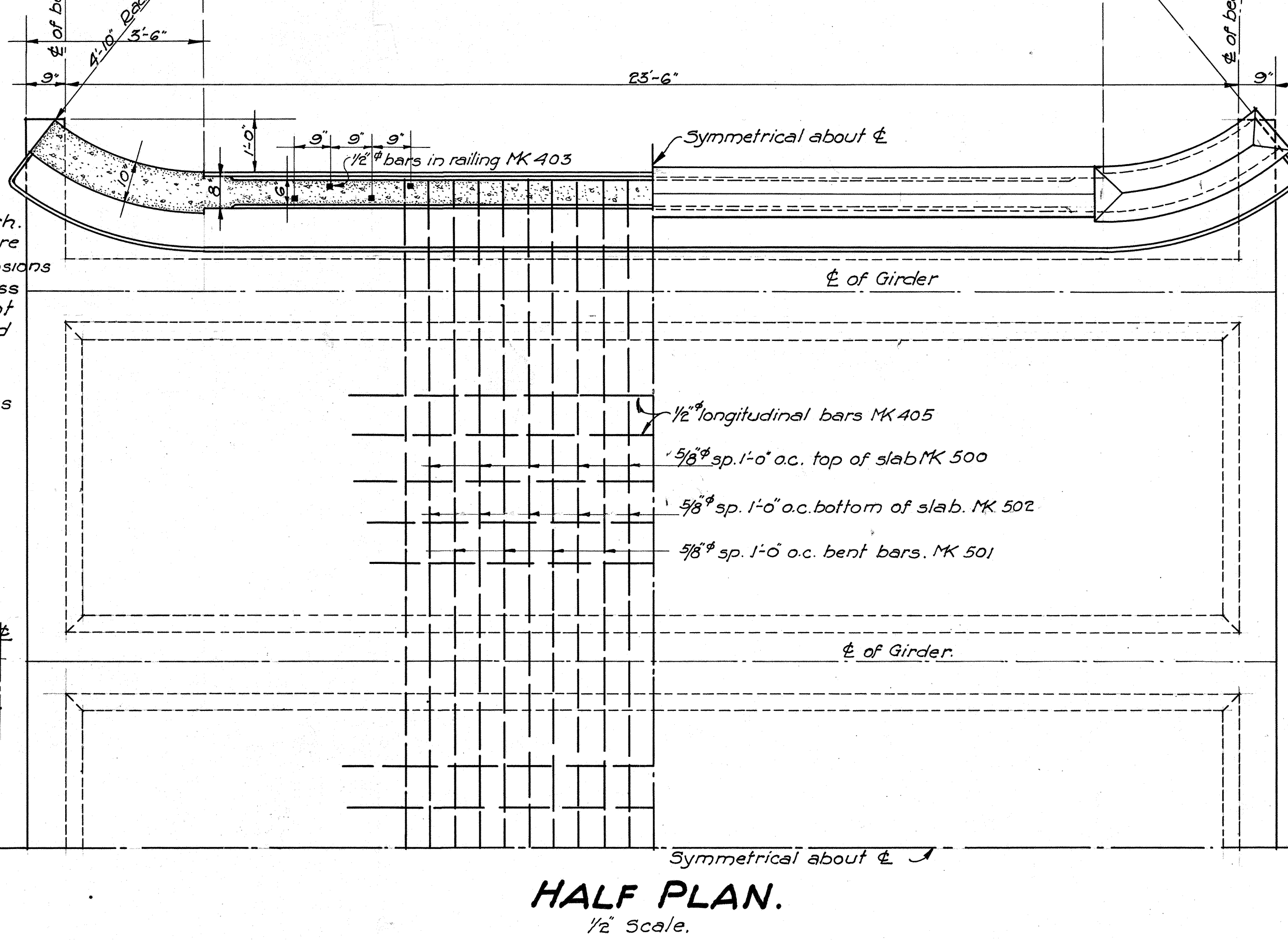
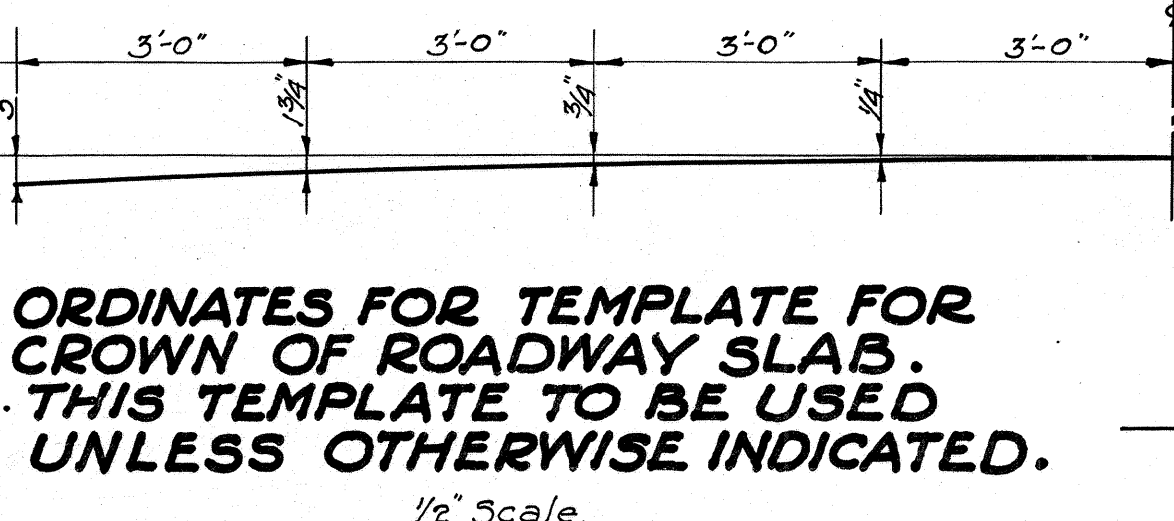
Rock fill of 150# stones
Limit of Structure Excavation
Slope 1 to 1

Note - The rock fill is to be placed along the stream face of abutments and returned around the ends to meet the road prism fill.

LOCATION PLAN & ABUTMENT DETAILS
LAIEWAI BRIDGE
NO. 21 STA. 1110+85
FEBRUARY 1932
Scale as noted



GENERAL NOTES.
Dead Load :- Concrete at 150# per cu. ft.
Paving allowance 15# per sq. ft. of roadway surface.
Live Load :- 2-15 ton trucks or 120# per sq. ft. of roadway surface, 30% impact.
Concrete :- Class A. - Allowable compression 650# per sq. ft.
All exposed corners to be chamfered 3/4".
Reinforcing Steel :- Allowable tensile stress 16,000# per sq. inch.
All steel to be square or round deformed bars, square twisted bars not to be considered deformed. All dimensions relating to reinforcement are to centers of bars unless otherwise indicated. Where splicing of reinforcement is necessary, bars shall be lapped 40 diameters, and splices to be staggered.
The minimum covering measured from the surface of concrete to the face of any steel shall be not less than 2" in beams and girders; 1 1/4" in slabs; 2 1/2" in Hand-rails, abutment walls and 3" in abutment footings. Steel to be held rigidly and accurately in place before and during the placing of concrete.



REINFORCING SCHEDULE.							
MK	SIZE	NO.	DESCRIPTION	LOCATION	LGTH.	TOTAL LENGTH	WT. PER FOOT.
400	1/2"	8	16'-0"	TIE GIRDER STIRRUPS	16'-0"	128.00	0.86
401	1/2"	10	28'-8"	CURTAIN WALLS	28'-8"	286.60	"
402	1/2"	20	2'-4"	"	2'-4"	46.60	"
403	1/2"	66	3'-0"	RAILING	3'-4"	219.78	"
404	1/2"	8	24'-10"	"	24'-10"	198.64	"
500	5/8"	26	28'-0"	DECK SLAB TOP STEEL	27'-0"	702.0	1.05
501	5/8"	25	28'-0"	DECK SLAB BENT STEEL	29'-5"	735.50	"
502	5/8"	26	28'-0"	DECK SLAB BOT. STEEL	27'-0"	702.0	"
405	1/2"	15	24'-6"	DECK SLAB SPACERS	24'-6"	367.50	0.88
406	1/2"	28	2'-6"	CURB	2'-6"	70.0	"
407	1/2"	66	2'-7"	GIRDER STIRRUPS	7'-0"	462.0	0.86
800	1"	6	23'-10"	OUTSIDE GIRDERS	26'-6"	159.0	3.43
801	1"	4	17'-0"	"	28'-5"	113.68	"
802	1"	2	10'-0"	"	28'-5"	56.84	"
900	1/8"	6	23'-10"	INSIDE GIRDERS	26'-11"	161.52	4.34
901	1/8"	4	17'-0"	"	29'-5"	117.66	"
902	1/8"	2	10'-0"	"	26'-11"	53.83	"
CONCRETE FOR ONE SPAN					37.88 C.Y.	TOTAL WEIGHT OF STEEL 6,642.12#	

Depressed V letters

NAME

Use correct name of stream.

Left Hand Side

3/8" deep

DATE

Date of year built.

Right Hand Side

DETAIL LETTERS & FIGURES.
2" Scale.

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII.
STANDARD DECK GIRDER SUPERSTRUCTURE
SPAN 22'-0"
ROADWAY 24'-0"

APPROVED *Wm. H. Bigelow*
TERRITORIAL HIGHWAY ENGINEER.

July 1932. 4251.34

Revised - Bars 107, 901, 902
Nov 7, 1932 H.C.V.
Changes :- Girders & curtain wall
deepened and all steel
changed.
Revised & altered by G.F.W.

REVISED JULY 22 1932 AS PER
BUREAU PUBLIC ROADS MEMO
OF JUNE 23 1932.