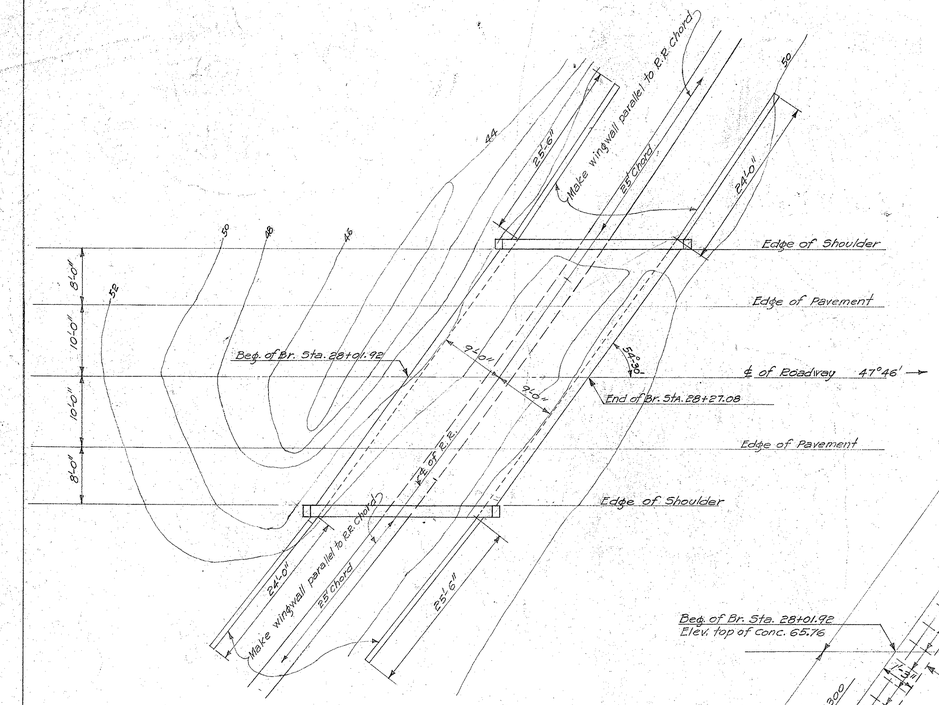
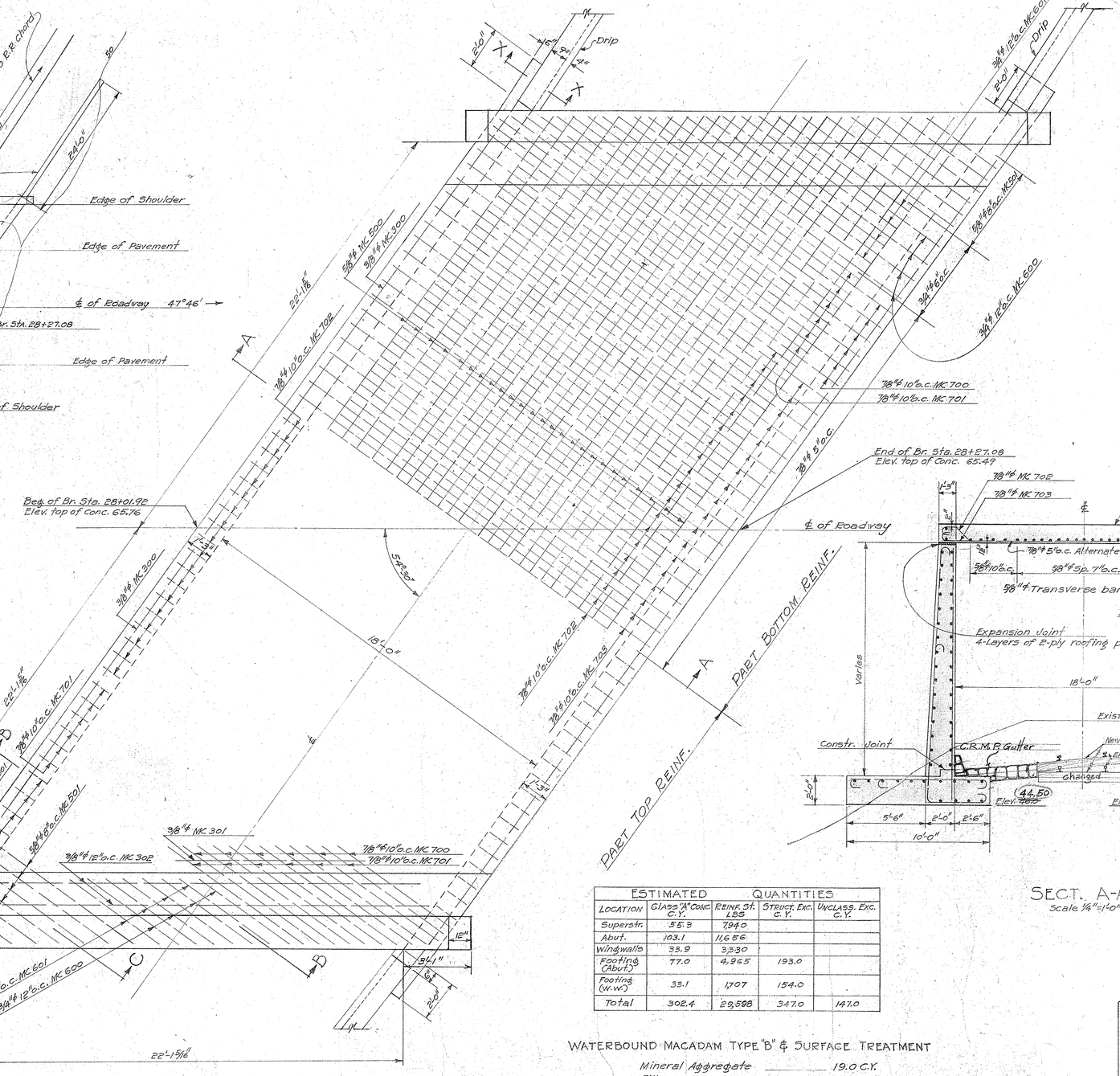
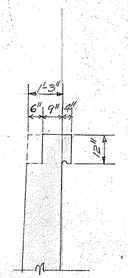
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	F.A.G.H. 4c	1938	17	40



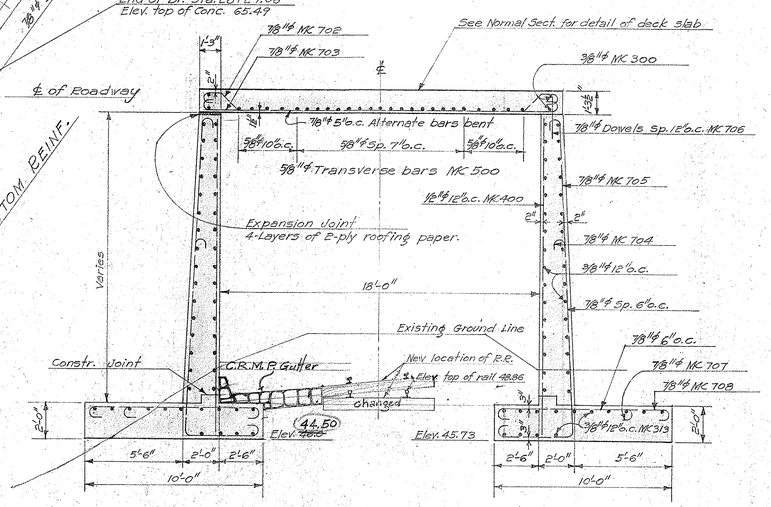
LAYOUT PLAN
Scale 1"=10'



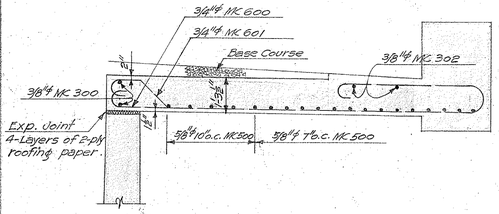
DECK REINF.
Scale 3/8"=1'-0"



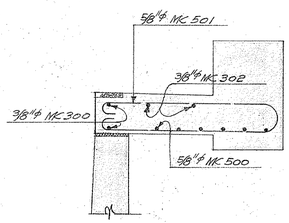
SECT. X-X



SECT. A-A
Scale 1/4"=1'-0"



SECT. B-B
Scale 3/8"=1'-0"



SECT. C-C
Scale 3/8"=1'-0"

ESTIMATED QUANTITIES				
LOCATION	GLASS "A" CONC. C.Y.	REINF. ST. LBS	STRUCT. EXC. C.Y.	UNCLASS. EXC. C.Y.
Superstr.	55.9	7940		
Abut.	103.1	11656		
Wingwalls	33.9	3330		
Footing (Abut.)	77.0	4,965	193.0	
Footing (W.W.)	33.1	1,707	154.0	
Total	302.4	29,598	347.0	147.0

WATERBOUND MACADAM TYPE "B" & SURFACE TREATMENT

Mineral Aggregate	19.0 C.Y.
Filler	5.0 C.Y.
Sprinkling	1000 Gal.
Liquid Asphalt Primer	310 Gal.
Bituminous Binder	600 Gal.
Screenings	2.0 C.Y.
Chips	1.0 C.Y.

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

HIGHWAY OVERPASS
STA. 28+01.92 TO 28+27.08
WAIANAE ROAD F.A.G.H. 4-C

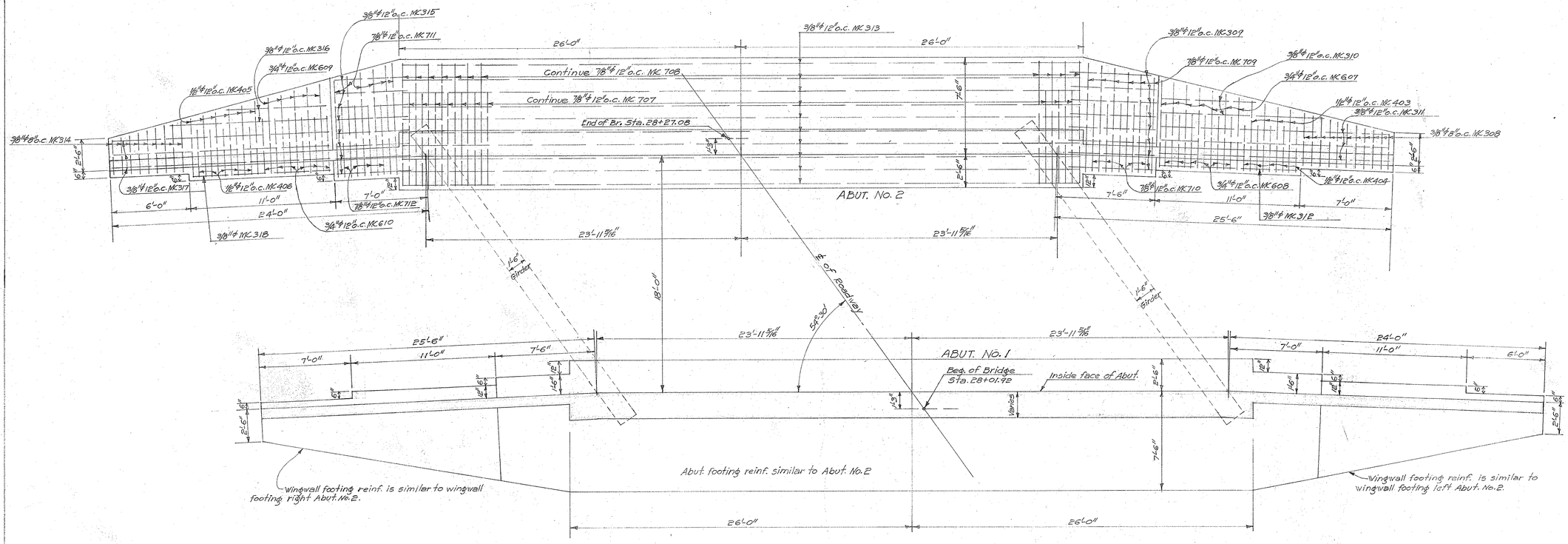
SHEET NO. 1 OF 3 SHEETS.

ORIGINAL PLAN		
	SURVEY PLOTTED BY	DATE May 1938
	DESIGNED BY W. S. Lang	" " "
	DRAWN BY	" " "
NOTE BOOK	TRACED BY R.K. & J.C.	" " "
No.	QUANTITIES BY R.K. & J.C.	" " "
	CHECKED BY M. K. Schmidt	" " "

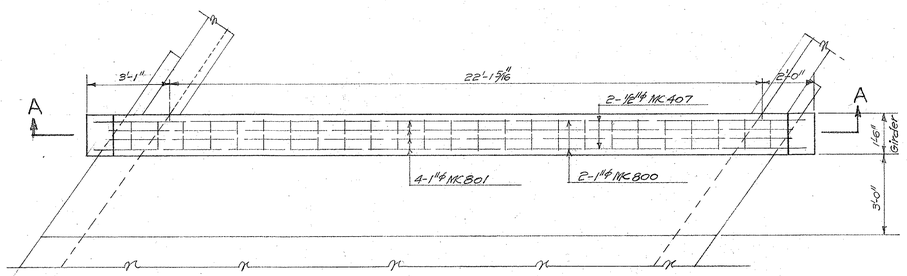
4450.17

4450.17

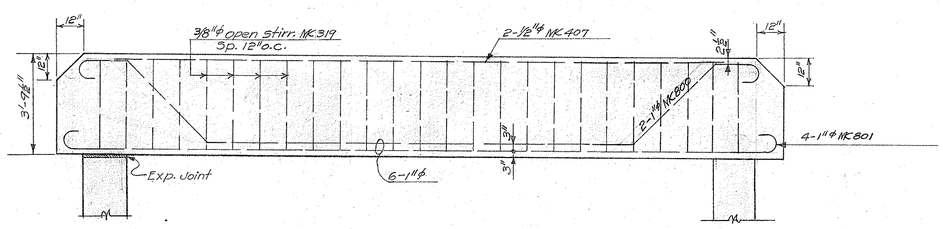
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	F.A.G.H. 4-C	1938	18	40



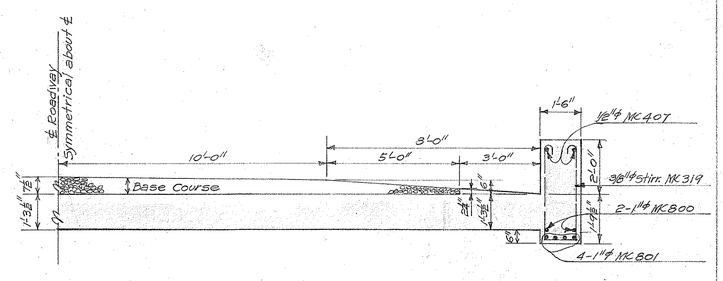
ABUTMENT & WINGWALL FOOTINGS
Scale 1/4"=1'-0"



PART PLAN SHOWING GIRDER REINF.
Scale 3/8"=1'-0"



SECT. A-A
Scale 3/8"=1'-0"



PART NORMAL SECTION
Scale 3/8"=1'-0"

ORIGINAL PLAN	
SURVEY PLOTTED BY	DATE
DESIGNED BY W. E. Bartels	" " 1938
TRACED BY	" "
NOTE BOOK	QUANTITIES BY R.K.E. & E.A.Y. Ting
No.	CHECKED BY W.E. Bartels

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

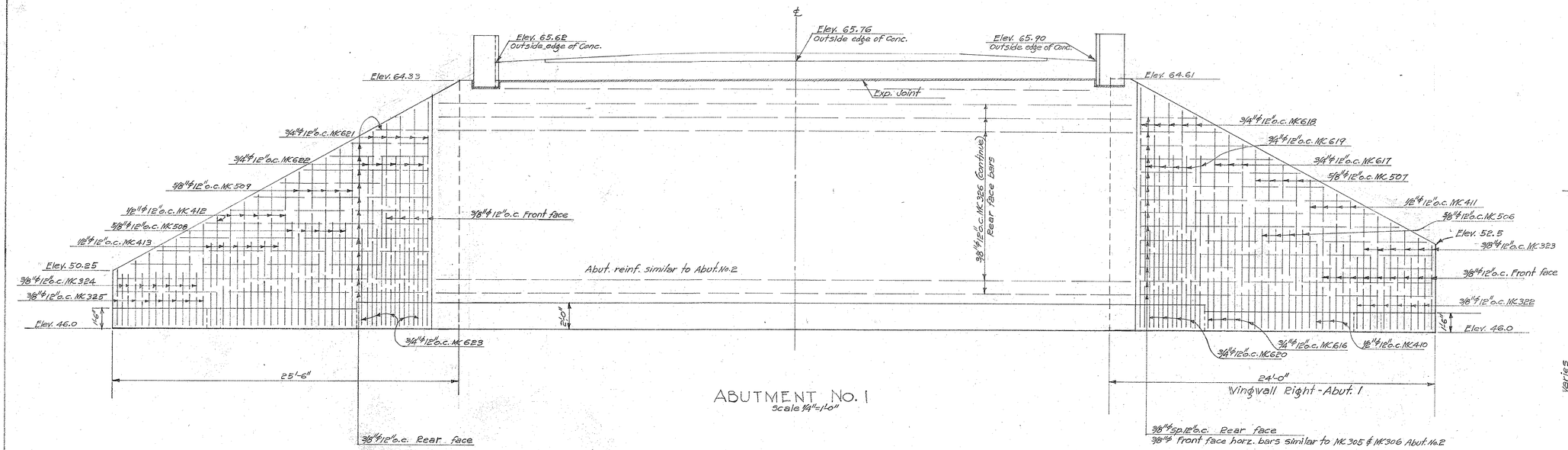
HIGHWAY OVERPASS
STA. 28+01.92 TO 28+27.08
WAIANAE ROAD F.A.G.H. 4-C

SHEET NO. 2 OF 3 SHEETS.

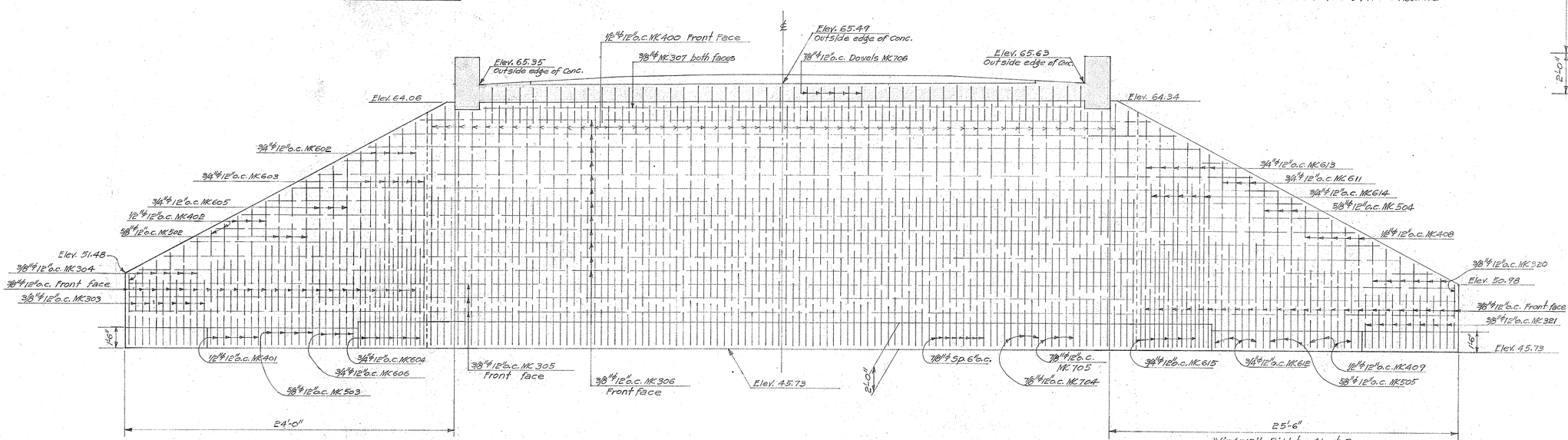
4450.18

4450.18

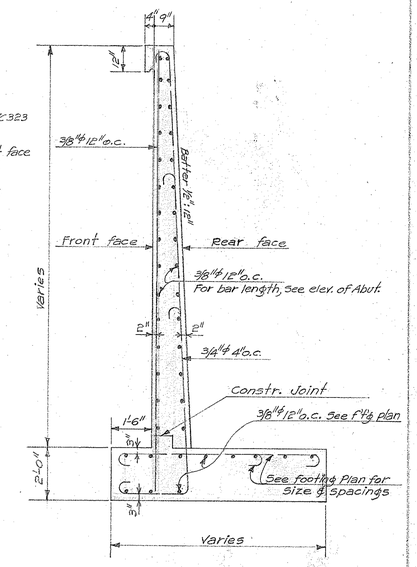
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	F-AIGH 4C	1938	19	40



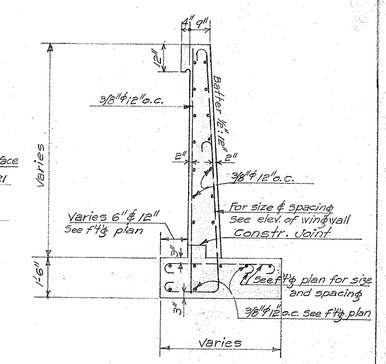
ABUTMENT No. 1
Scale 1/4"=1'-0"



ABUTMENT No. 2
Scale 1/4"=1'-0"



WINGWALL TYPE A
Scale 3/8"=1'-0"



WINGWALL TYPE B
Scale 3/8"=1'-0"

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

HIGHWAY OVERPASS
STA. 28+01.92 TO 28+27.08
VAIANAE ROAD F.A.G.H. 4-C

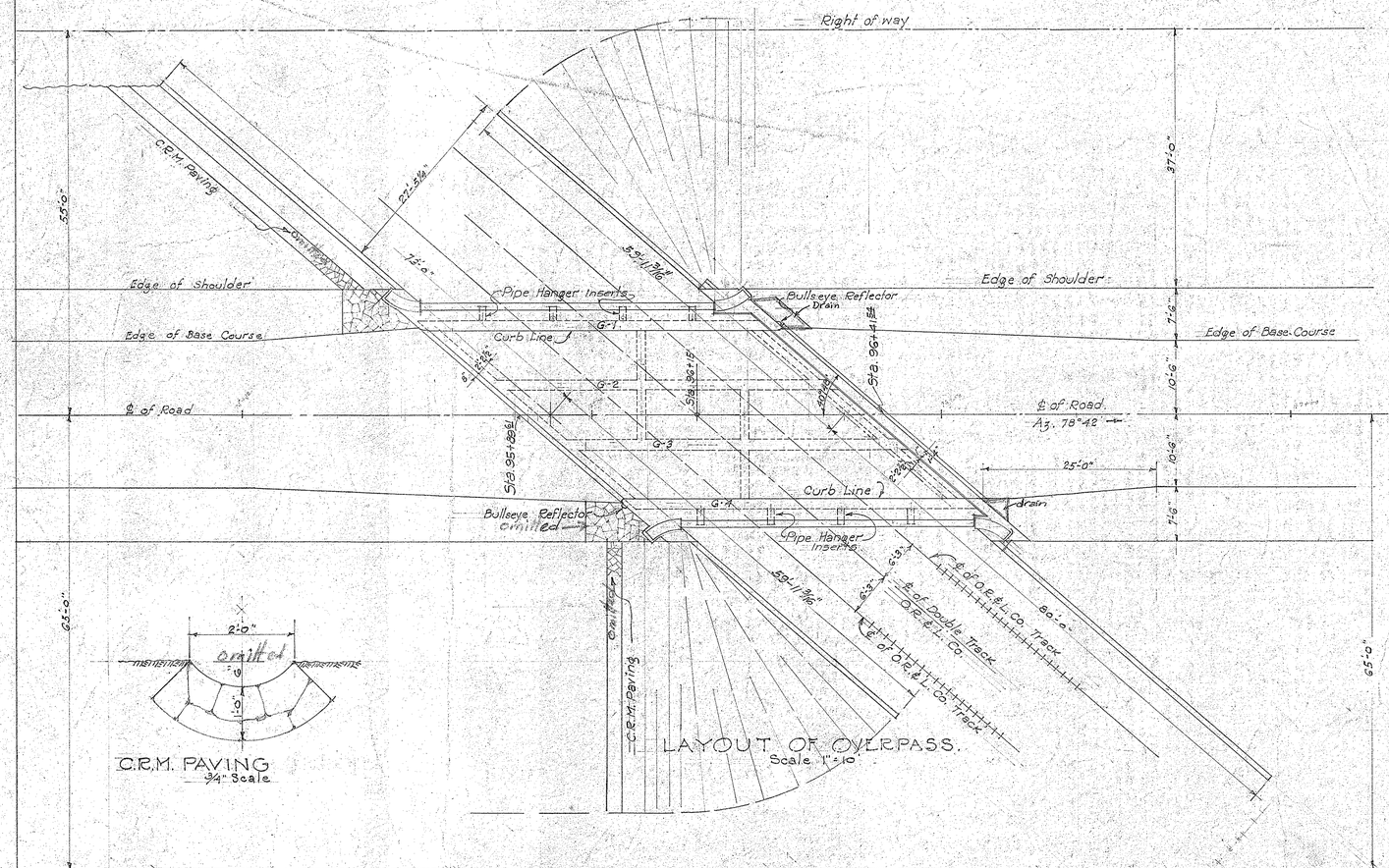
SHEET NO. 3 OF 3 SHEETS.

ORIGINAL PLAN
SURVEY PLOTTED BY
DESIGNED BY W. E. Bartle
PLAN BY W. E. Kang
TRACED BY
NOTE BOOK
QUANTITIES BY E. C. Ch. Ty. Ting
CHECKED BY W. E. Bartle
DATE

4450.19

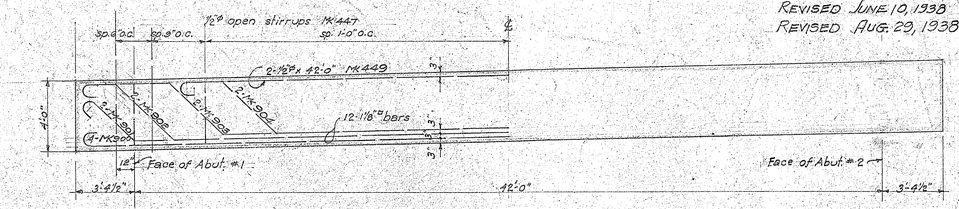
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	F.A.G.H. 4-C	1938	20	40

REVISED JUNE 10, 1938
REVISED AUG. 29, 1938

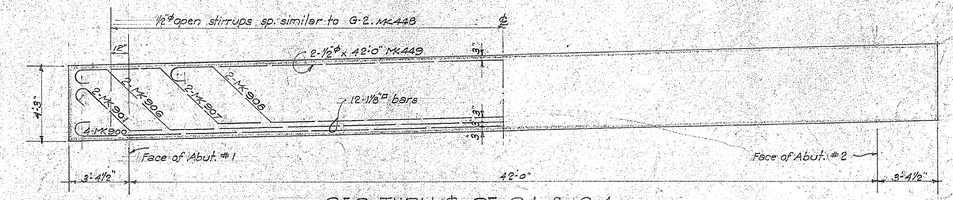


LAYOUT OF OVERPASS.
Scale 1" = 10'

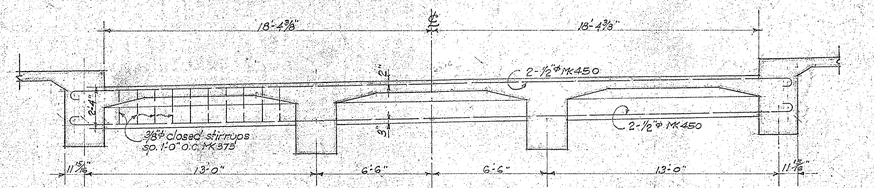
C.R.M. PAVING
3/4" Scale



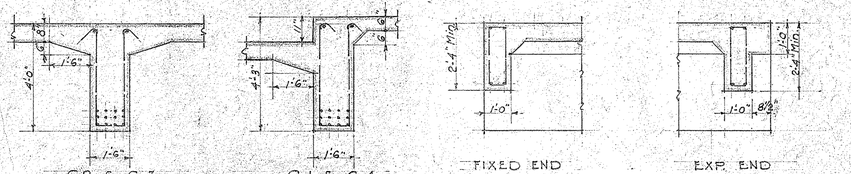
SEC. THRU ℄ OF G-2 & G-3.
1/4" Scale.



SEC. THRU ℄ OF G-1 & G-4.
1/4" Scale.

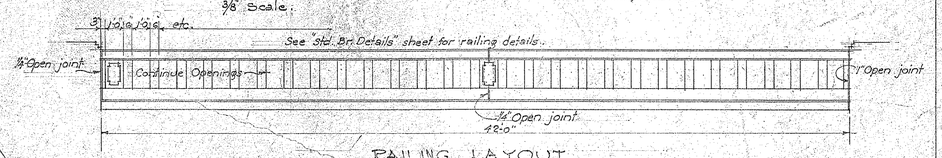


END BEAM - EXPANSION END.
1/4" Scale.
(FIXED END BEAM REINF. IS SIMILAR.)



SECTION THRU GIRDERS
3/8" Scale.

SECTION THRU END BEAMS.
3/8" Scale.

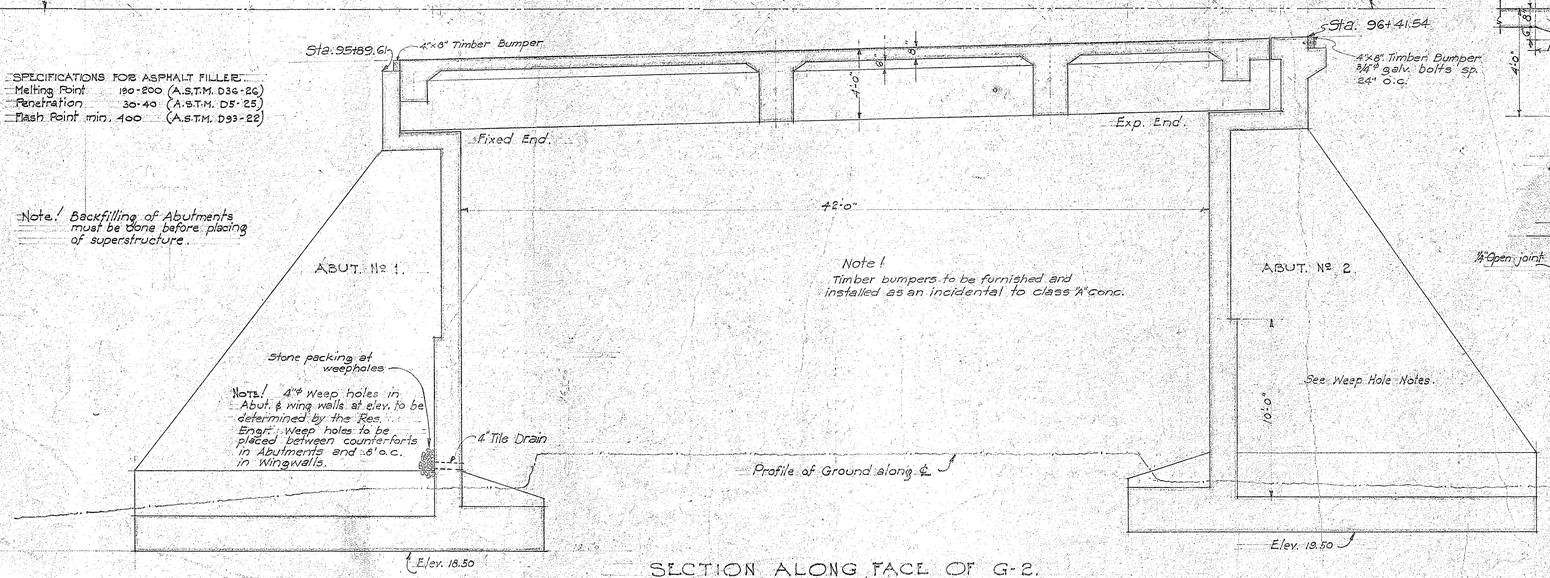


RAILING LAYOUT.
1/4" Scale.

SPECIFICATIONS FOR ASPHALT FILLER.

Melting Point	190-200	(A.S.T.M. D36-26)
Penetration	30-40	(A.S.T.M. D5-25)
Flash Point min.	400	(A.S.T.M. D93-22)

Note! Backfilling of Abutments must be done before placing of superstructure.



SECTION ALONG FACE OF G-2.
1/4" Scale.

ITEMIZED QUANTITIES

		STR. EXC.	CONCRETE	STEEL
BRIDGE	FOOTING	367 C.Y.	195.1 C.Y.	17679 LBS.
	ABUTMENT		283.3	49921
	SUPERSTR.		886	19634
	RAILING		9.0	646
WING WALL	FOOTING	89	35.1	1717
	WALLS		37.5	2391
	TOTALS	456 C.Y.	646.6 C.Y.	93,988 LBS.

TERRITORIAL HIGHWAY DEPARTMENT.
TERRITORY OF HAWAII.

HIGHWAY OVERPASS.

WAIANAE ROAD — F.A.G.H. 4-C.
DATE FEB. 1938. — SCALES AS NOTED.
SHEET № 1 OF 7 SHEETS.

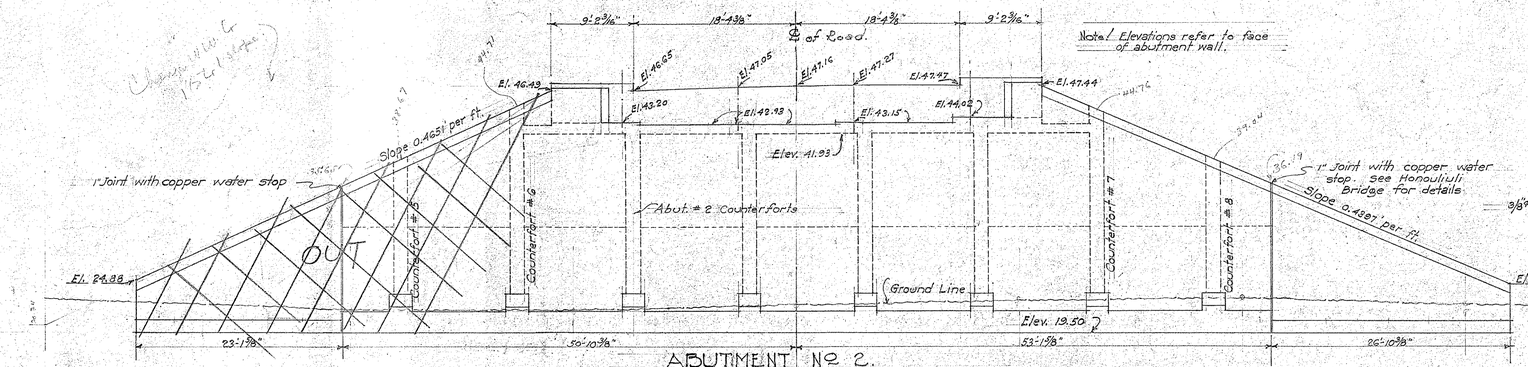
REVISION: Wingwalls & Abut. changed
REVISION: Wingwall lengths corrected 8/29/38

ORIGINAL PLAN	SURVEYS PLOTTED BY		DATE
	DESIGNED BY	R. Bartels	Nov. 1938
	DRAWN BY	C.E. Wagner	Feb. "
	NOTE BOOK	C.E.W.	" "
	TRACED BY	" "	" "
	DESIGNED BY	J. Ling	" "
	CHECKED BY		" "
No.			

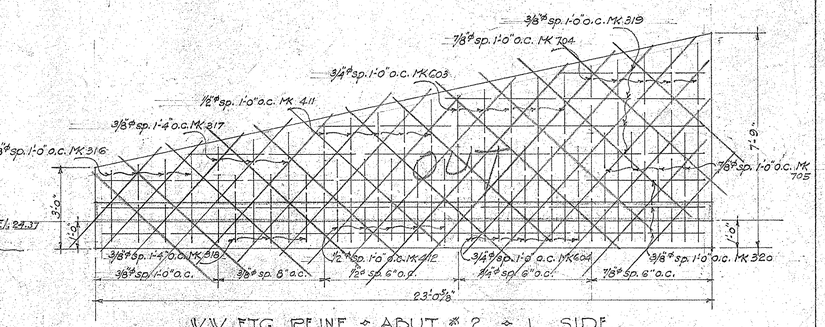
4450.20

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	F.A.G.H. 4C	1938	21	40

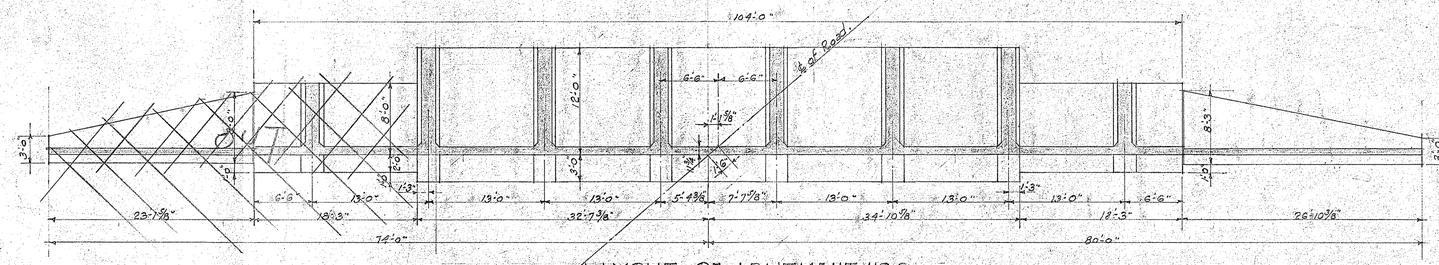
REVISED JUNE 10, 1938



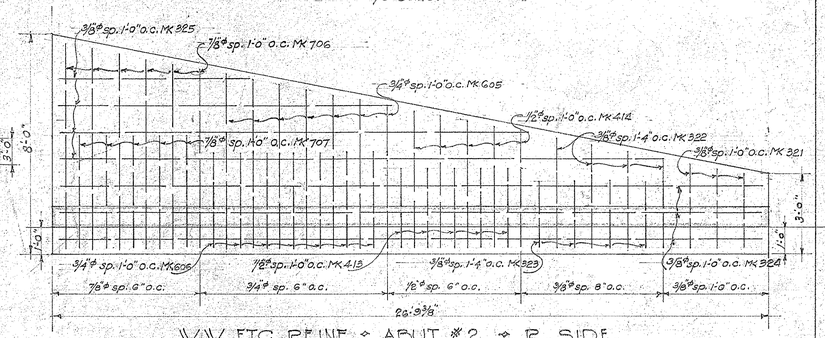
ABUTMENT Nº 2.
1/8" Scale.



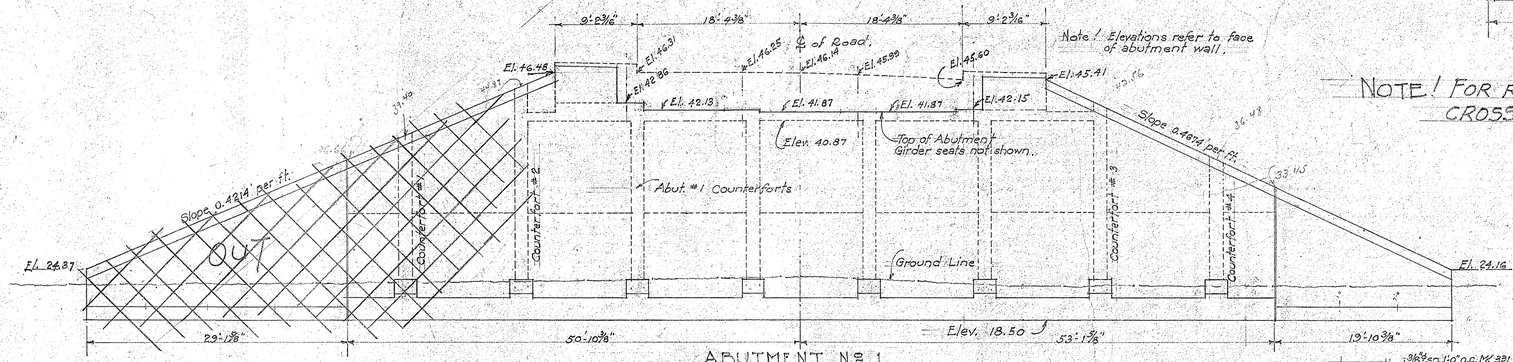
W.W. FTG. REINF. ÷ ABUT. # 2 ÷ L. SIDE.
3/8" Scale.



LAYOUT OF ABUTMENT Nº 2
1/8" Scale.

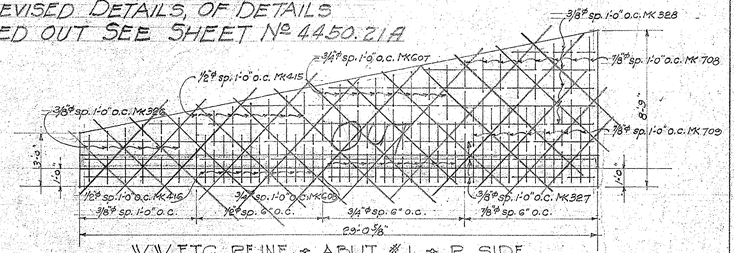


W.W. FTG. REINF. ÷ ABUT. # 2 ÷ R. SIDE.
3/8" Scale.

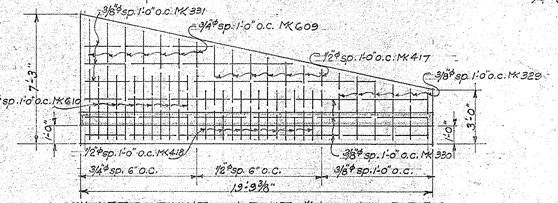


ABUTMENT Nº 1.
1/8" Scale.
(LOOKING AGAINST STATIONING)

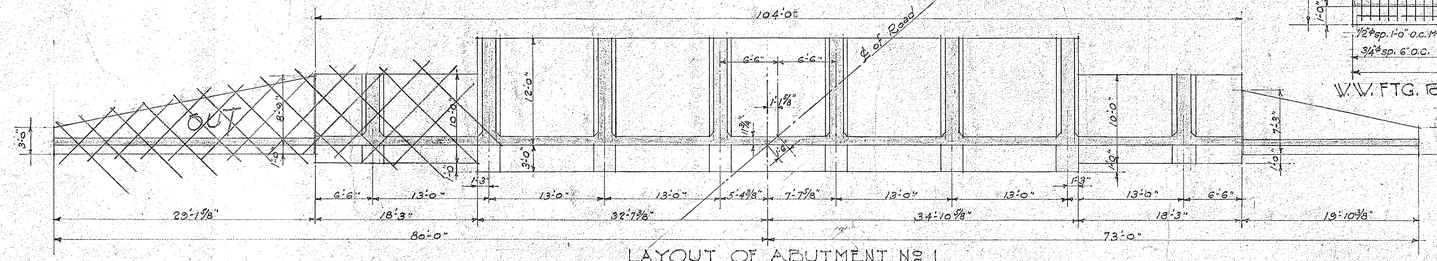
NOTE! FOR REVISED DETAILS, OF DETAILS CROSSED OUT SEE SHEET Nº 4450.21A



W.W. FTG. REINF. ÷ ABUT. # 1 ÷ R. SIDE.
1/4" Scale.



W.W. FTG. REINF. ÷ ABUT. # 1 ÷ L. SIDE.
1/4" Scale.



LAYOUT OF ABUTMENT Nº 1.
1/8" Scale.
(LOOKING AGAINST STATIONING)

TERRITORIAL HIGHWAY DEPARTMENT.
TERRITORY OF HAWAII.

HIGHWAY OVERPASS

WAIANAE ROAD — F.A.G.H. 4-C.
DATE FEB. 1938. — SCALES AS NOTED

SHEET Nº 2 OF 7 SHEETS.

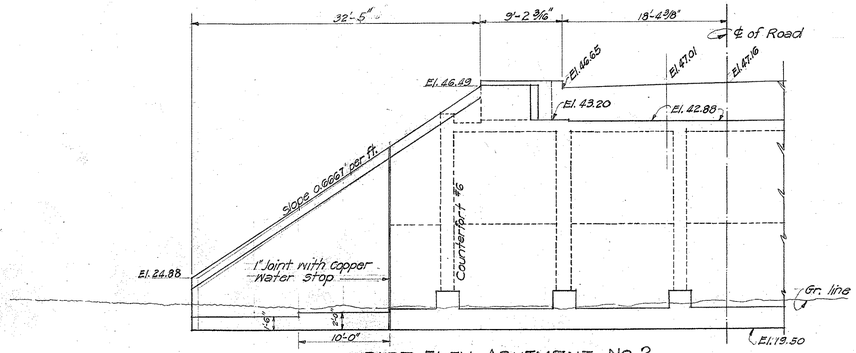
4450.21

REVISION Wingwalls & Abut. changed

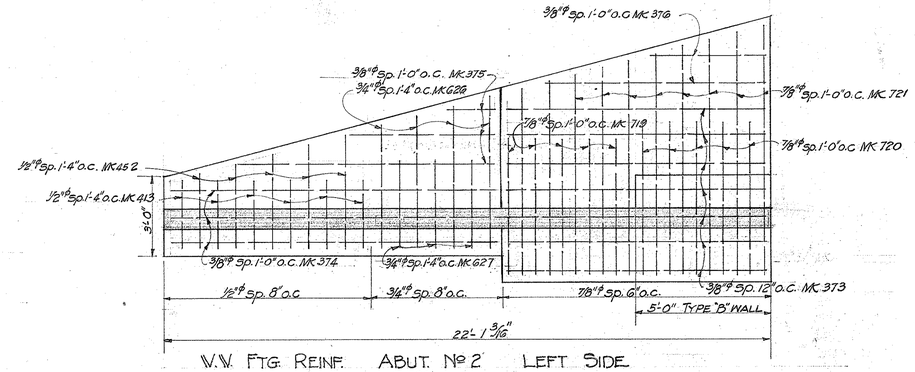
ORIGINAL PLAN		DATE
	SURVEY PLOTTED BY W.E. Bartels	" Jan., 1938.
	DESIGNED BY " "	" Feb. "
	CHECKED BY C.E. Magnuson	" "
NOTE BOOK	TRACED BY " "	" "
	QUANTITIES BY " Ling	" "
No.	CHECKED BY " "	" "

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	F.A.G.H. 4-C	1938		40

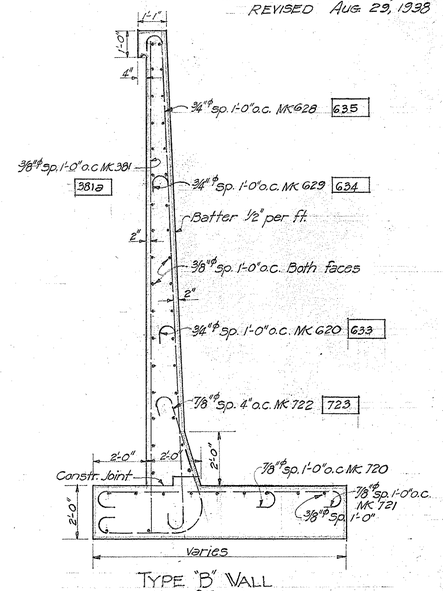
REVISED JUNE 10, 1938
REVISED AUG. 29, 1938



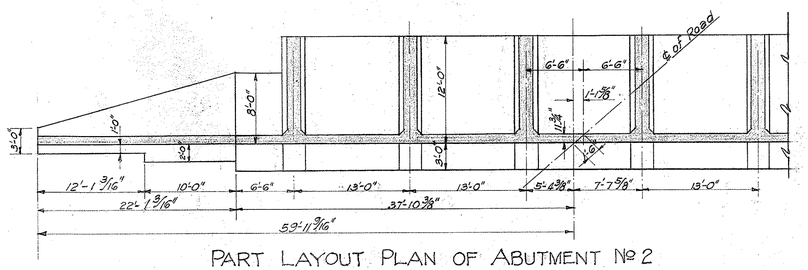
PART ELEV. ABUTMENT № 2
Scale 1/8"=1'-0"



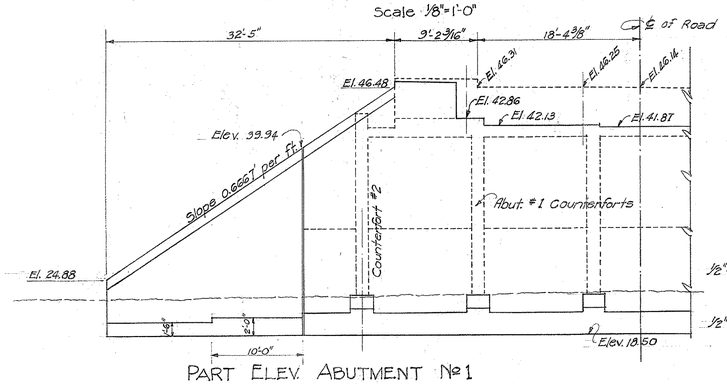
V.W. FTG. REINF. ABUT. № 2 LEFT SIDE
Scale 3/8"=1'-0"
NOTE! Reinf. for Wingwall Abut. No. 1 Right is similar



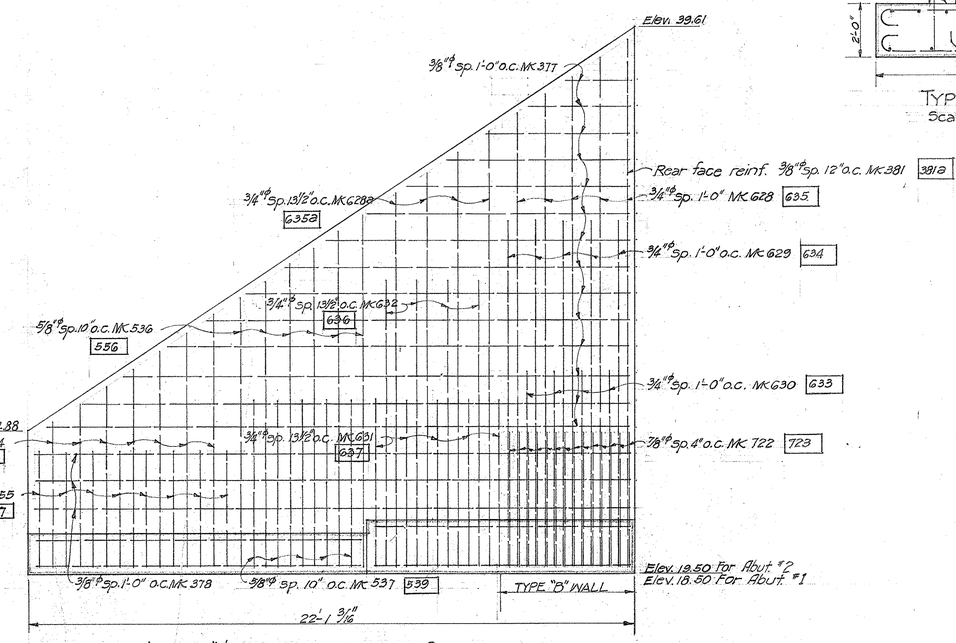
TYPE "B" WALL
Scale 3/8"=1'-0"



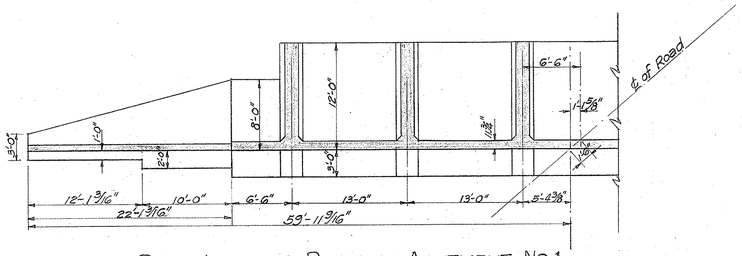
PART LAYOUT PLAN OF ABUTMENT № 2
Scale 1/8"=1'-0"



PART ELEV. ABUTMENT № 1



LEFT WINGWALL ABUT. № 2
Scale 3/8"=1'-0"
NOTE! Reinf. for Wingwall Abut. No. 1 Right is similar
Bar MK's are shown



PART LAYOUT PLAN OF ABUTMENT № 1
Scale 1/8"=1'-0"
(LOOKING AGAINST STATIONING)

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

HIGHWAY OVERPASS

WAIANAE ROAD F.A.G.H. 4-C
DATE JUNE 1938 SCALES AS NOTED

SHEET № 2A OF 7 SHEETS

ORIGINAL PLAN		
	SURVEY PLOTTED BY	DATE
	DESIGNED BY	" 6/38
	DRAWN BY Fred Yamatta	" "
NOTE BOOK	TRACED BY	" "
	QUANTITIES BY Fred Yamatta	" "
	QUANTITIES CHECKED BY	" "
No.	CHECKED BY	" "

REVISION Wingwalls & Abut. changed
REVISION 8/29/38 Wingwall length change from 22'-1 13/16" to 22'-1 9/16"

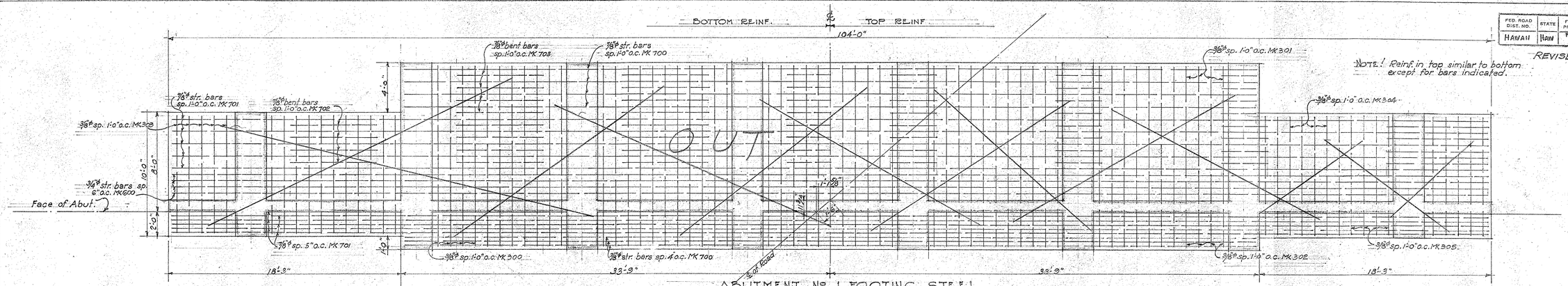
4450.21A

4450.21A

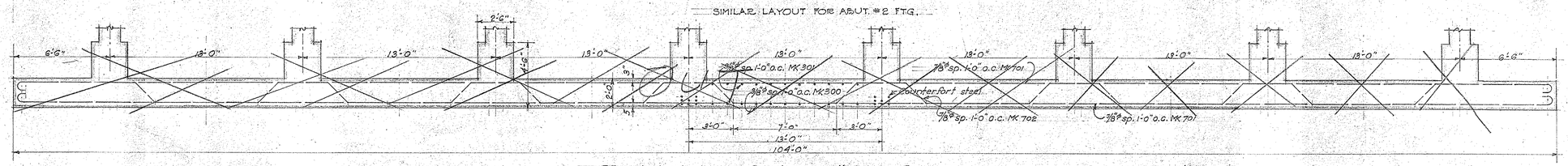
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	F.A.G.H. 4C	1938	22	40

REVISED JUNE 10, 1938

NOTE! Reinf. in top similar to bottom except for bars indicated.

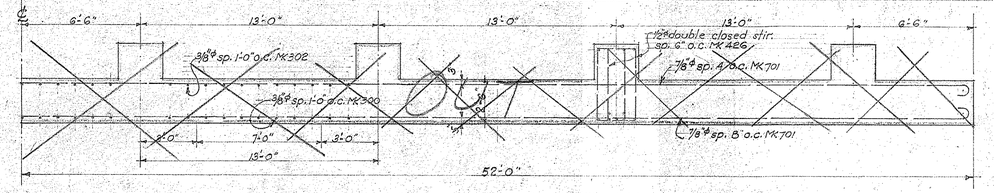


ABUTMENT Nº 1 FOOTING STEEL.
1/4" Scale.
SIMILAR LAYOUT FOR ABUT. #2 FTG.

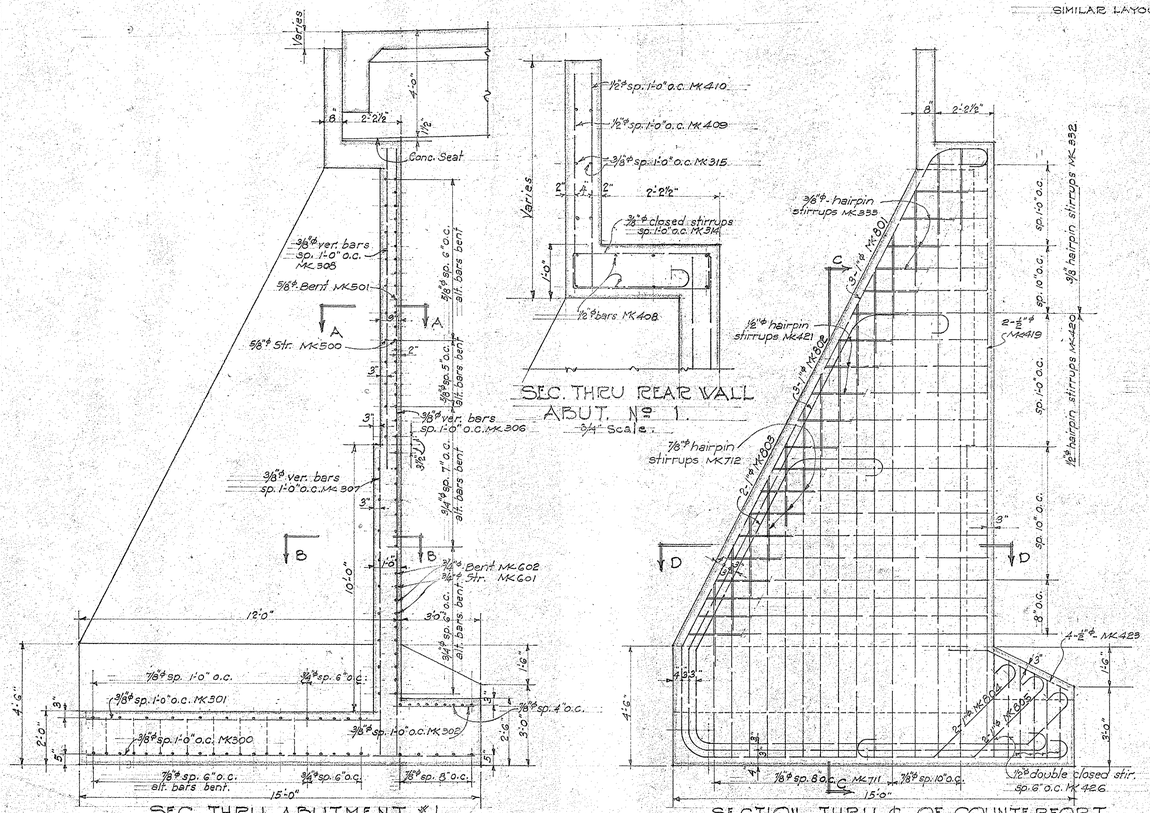


SEC. THRU HEEL OF ABUT. # 1 FOOTING
1/4" Scale.
SIMILAR LAYOUT FOR ABUT. Nº 2.

NOTE! FOR REVISED DETAILS, OF DETAILS CROSSED OUT SEE SHEET Nº 4450.22A

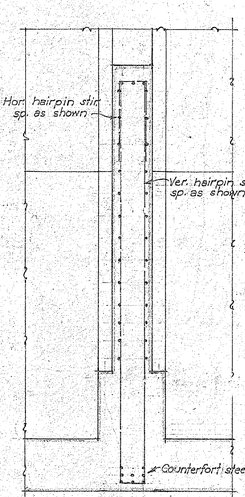


HALF SEC. THRU TOE OF ABUT. # 1 FOOTING.
1/4" Scale.
SIMILAR LAYOUT FOR ABUT. Nº 2.

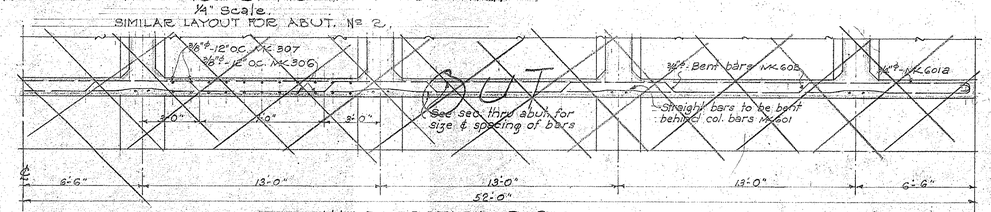


SEC. THRU ABUTMENT. # 1
3/8" Scale.

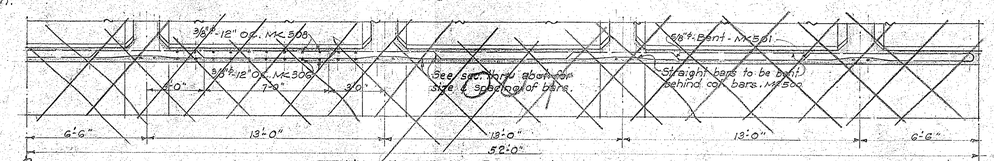
SECTION THRU ℄ OF COUNTERFORT.
3/8" Scale.



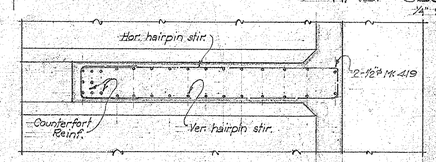
SECTION C-C.
3/8" Scale.



HALF SECTION B-B.
1/4" Scale.



HALF SECTION A-A.
1/4" Scale.



SECTION D-D.
3/8" Scale.

TERRITORIAL HIGHWAY DEPARTMENT.
TERRITORY OF HAWAII.

HIGHWAY OVERPASS.

WAIANAE ROAD — F.A.G.H. 4-C.
DATE FEB. 1938 — SCALES AS NOTED

SHEET Nº 3 OF 7 SHEETS

4450.22

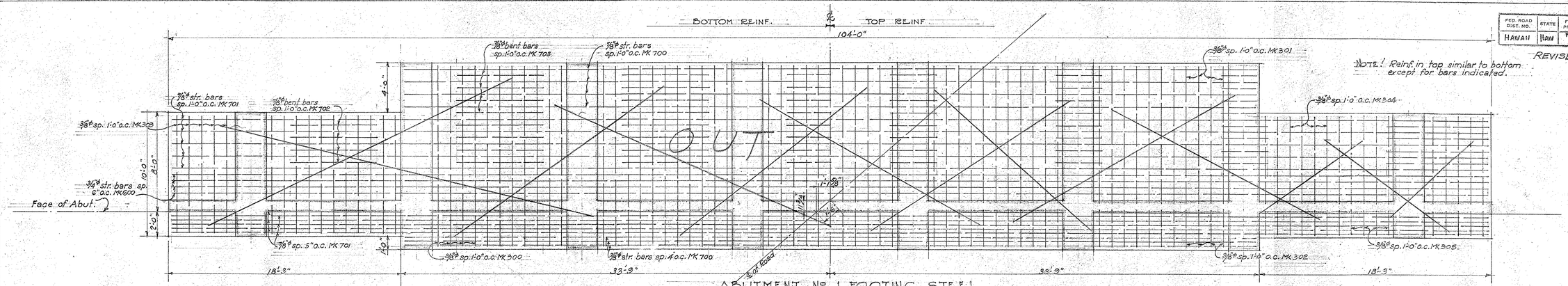
REVISION: Wingwalls of Abut. changed.

ORIGINAL	SURVEY PLOTTED BY		DATE Jan. 1938
TRACE	TRACED BY	V.R. Bartels	" Feb. "
	DESIGNED BY	C.E. Wagner	" " "
	DETAILED BY	J.K.	" " "
	QUANTITIES BY	C. King	
	CHECKED BY		
NOTE BOOK			
No.			

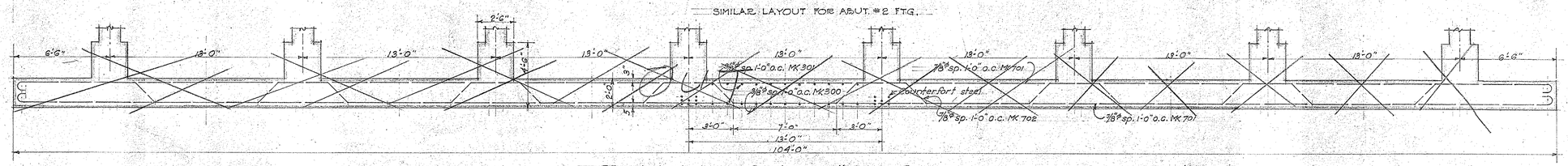
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	F.A.G.H. 4C	1938	22	40

REVISED JUNE 10, 1938

NOTE! Reinf. in top similar to bottom except for bars indicated.

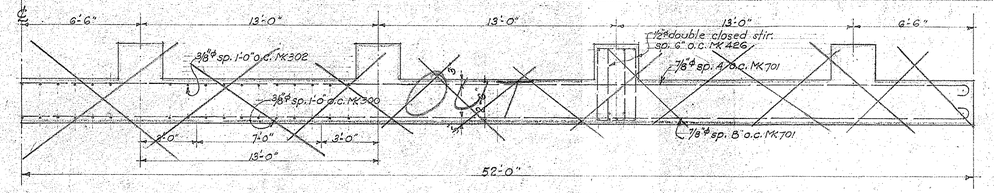


ABUTMENT Nº 1 FOOTING STEEL.
1/4" Scale.
SIMILAR LAYOUT FOR ABUT. #2 FTG.

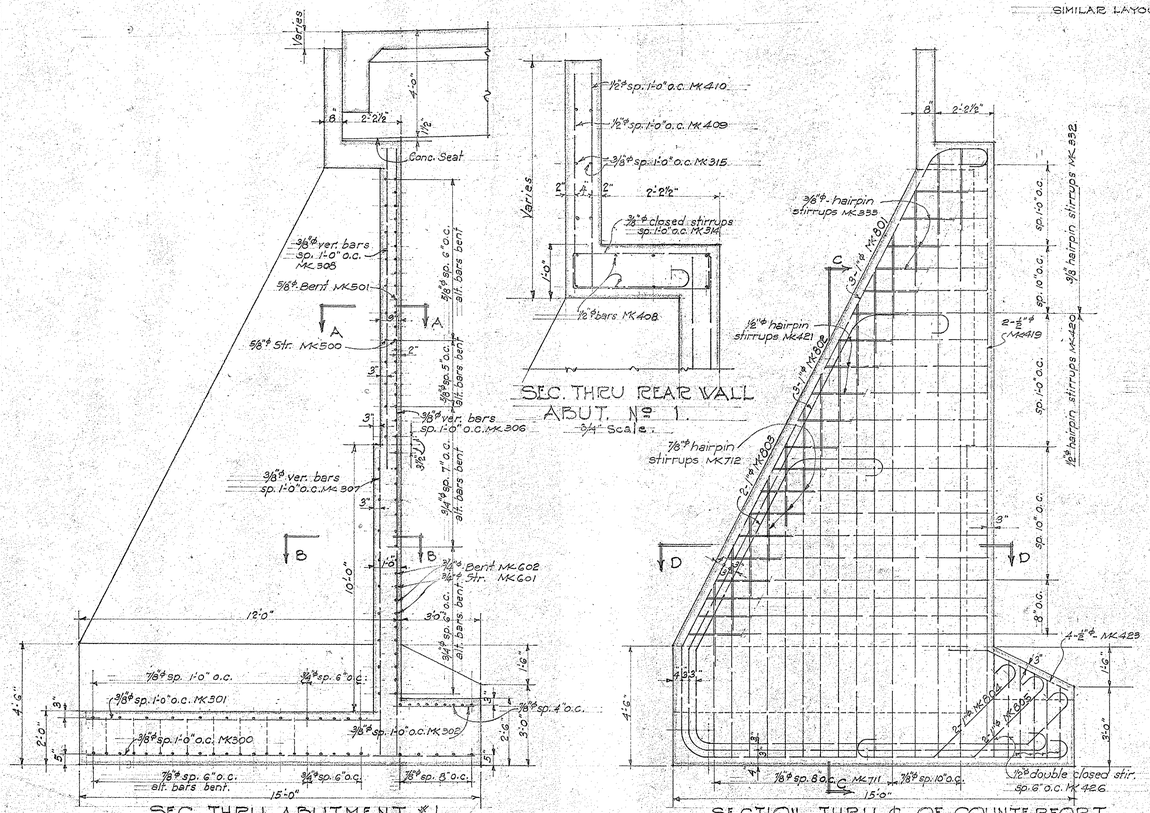


SEC. THRU HEEL OF ABUT. # 1 FOOTING
1/4" Scale.
SIMILAR LAYOUT FOR ABUT. Nº 2.

NOTE! FOR REVISED DETAILS, OF DETAILS CROSSED OUT SEE SHEET Nº 4450.22A

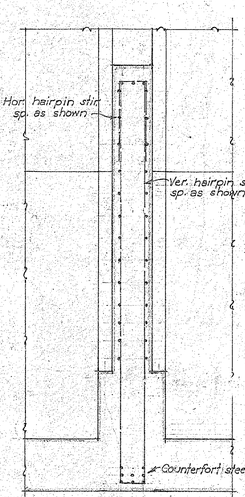


HALF SEC. THRU TOE OF ABUT. # 1 FOOTING.
1/4" Scale.
SIMILAR LAYOUT FOR ABUT. Nº 2.

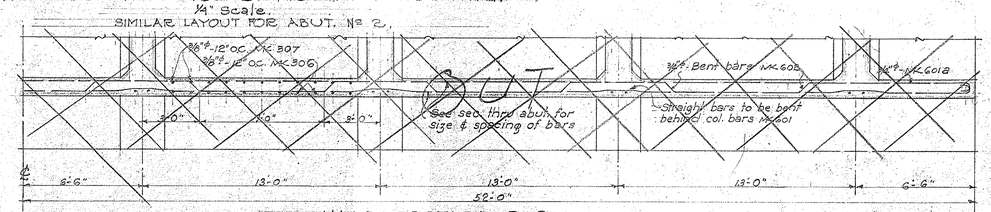


SEC. THRU ABUTMENT. # 1
3/8" Scale.

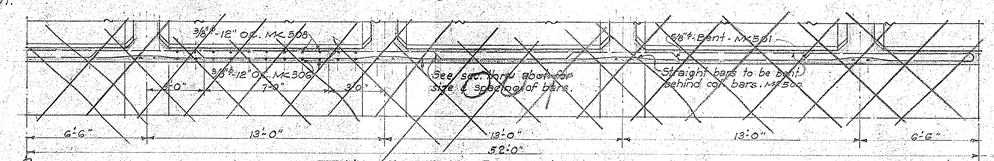
SECTION THRU ℄ OF COUNTERFORT.
3/8" Scale.



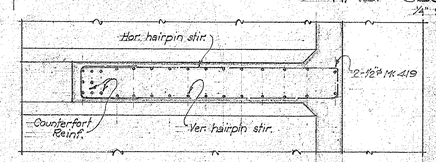
SECTION C-C.
3/8" Scale.



HALF SECTION B-B.
1/4" Scale.



HALF SECTION A-A.
1/4" Scale.



SECTION D-D.
3/8" Scale.

TERRITORIAL HIGHWAY DEPARTMENT.
TERRITORY OF HAWAII.

HIGHWAY OVERPASS.

WAIANAE ROAD — F.A.G.H. 4-C.
DATE FEB. 1938 — SCALES AS NOTED

SHEET Nº 3 OF 7 SHEETS

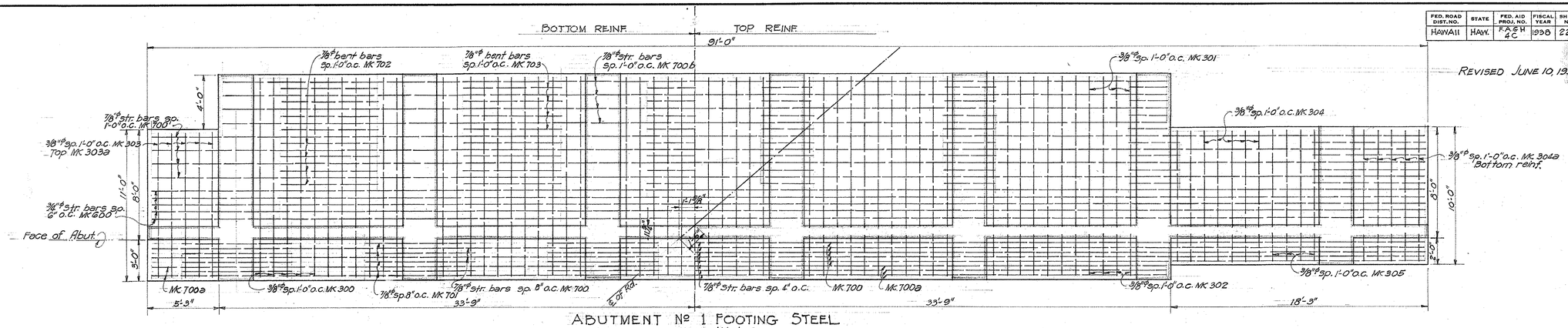
4450.22

REVISION: Wingwalls of Abut. changed.

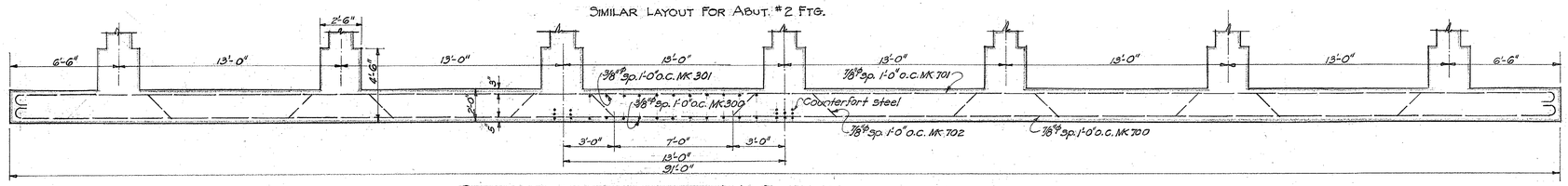
ORIGINAL	SURVEY PLOTTED BY		DATE Jan. 1938
TRACE	TRACED BY	V.R. Bartels	" Feb. "
	DESIGNED BY	C.E. Wagner	" " "
	DETAILED BY	J.K.	" " "
	QUANTITIES BY	C. King	
	CHECKED BY		
NOTE BOOK			
No.			

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F.A.G.H 4C	1938	22A	40

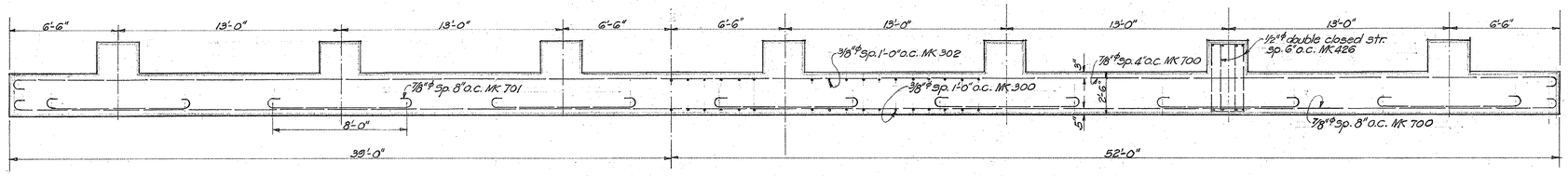
REVISED JUNE 10, 1938



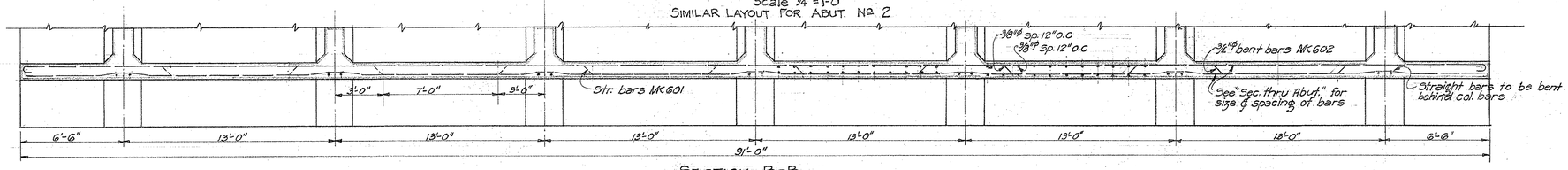
ABUTMENT № 1 FOOTING STEEL
Scale 1/4"=1'-0"
SIMILAR LAYOUT FOR ABUT. #2 FTG.



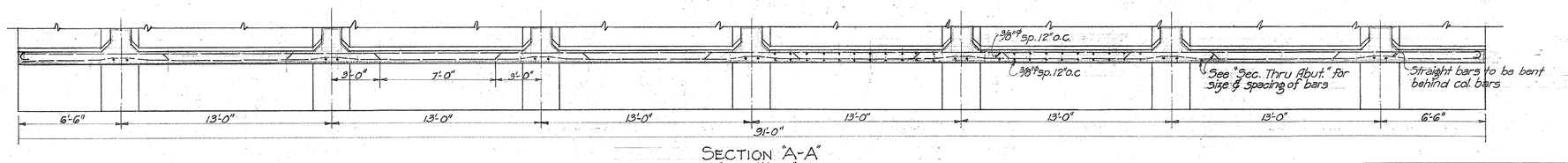
SEC. THRU HEEL OF ABUT. № 1 FOOTING
Scale 1/4"=1'-0"
SIMILAR LAYOUT FOR ABUT. № 2



SECT. THRU TOE OF ABUT. № 1 FOOTING
Scale 1/4"=1'-0"
SIMILAR LAYOUT FOR ABUT. № 2



SECTION B-B
Scale 1/4"=1'-0"



SECTION "A-A"
Scale 1/4"=1'-0"

NOTE! THIS SHEET IS SUPPLEMENTARY TO SHEET № 4450.22

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

HIGHWAY OVERPASS
VAIANAE ROAD F.A.G.H 4-C
JUNE 1938

SHEET № OF SHEETS

4450.22A

REVISION Abut. changed

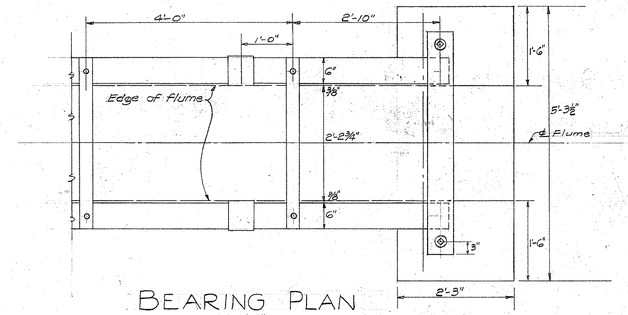
ORIGINAL PLAN		
	SURVEY PLOTTED BY	DATE
	DESIGNED BY	" "
	DRAWN BY Joe Yamada	" 6/38
	TRACED BY	" "
NOTE BOOK	QUANTITIES BY	" "
No.	QUANTITIES CHECKED BY	" "
	CHECKED BY	" "

4450.22A

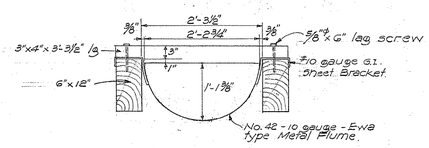
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	AC	1938	22B	75

QUANTITIES	
CONCRETE - Class B	13.3 C.Y.
TIMBER UNTREATED	1.7 M.B.M.
METAL FLUME	82 Lin. Ft.
STR. EXC.	15 C.Y.
STR. STEEL	210 LBS.

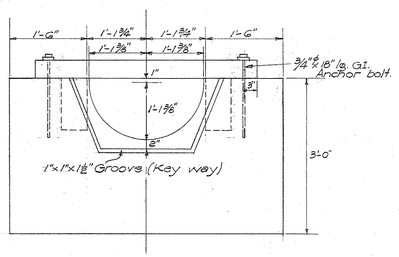
Note:- All concrete to be Class "B"
All bolts to be ¾"ϕ with Ogee C.I. washers where bearing is against wood.
All timber to be untreated Douglas Fir-Coast Region - of select structural grade.
All hardware and structural metal to be galvanized.
Sheet Brackets, Anchor bolts, Anchor straps are included in "Structural Metal"



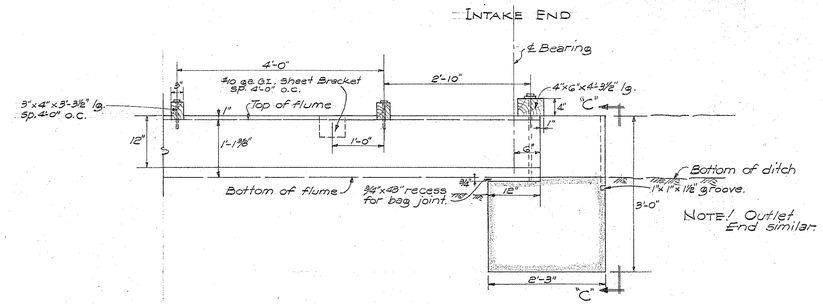
BEARING PLAN
Scale ¾"



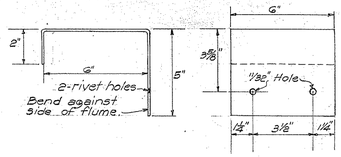
SECT. "B-B"
Scale ¾"



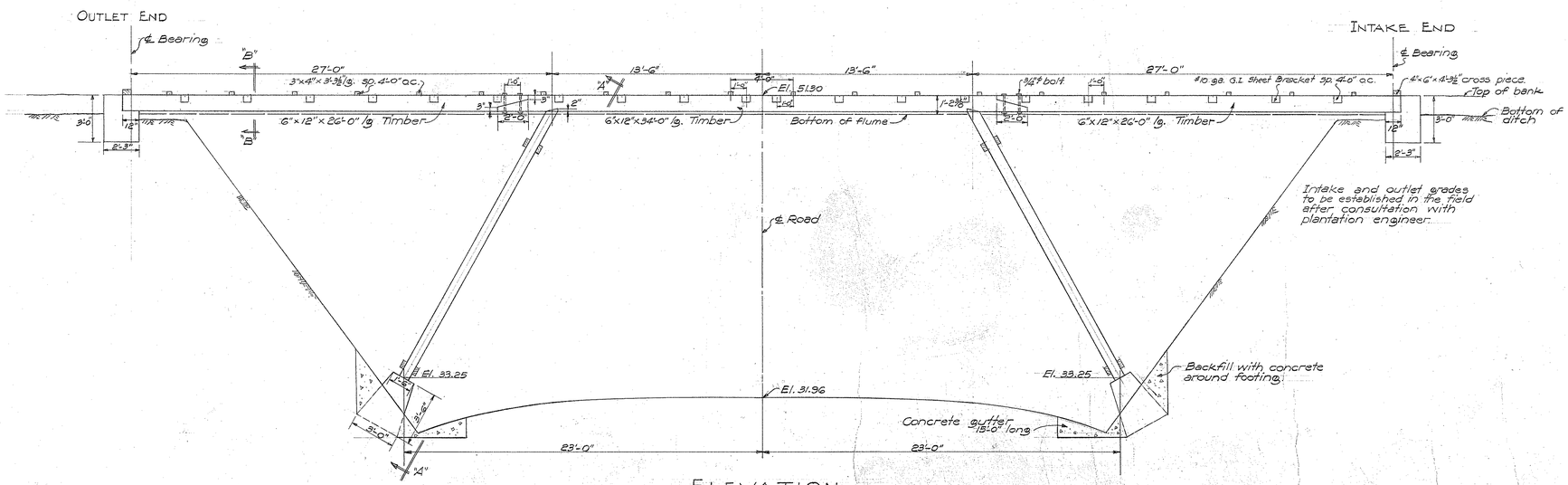
SECT. "C-C"
Scale ¾"



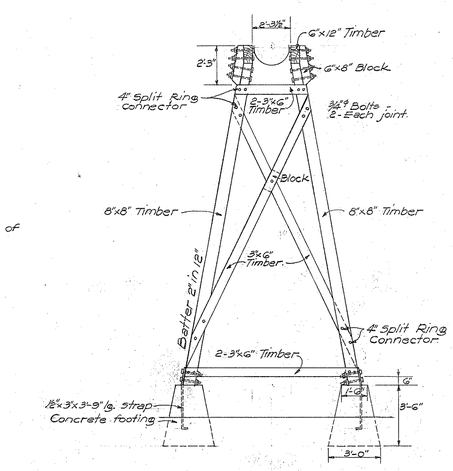
SECTION ALONG ℄ BEARING
Scale ¾"



DETAIL OF NO. 10 GAUGE G.I. SHEET BRACKET.
Scale 3"



ELEVATION
Scale ¼"



SECT. "A-A"
Scale ¼"

ORIGINAL PLAN		
	SURVEY PLOTTED BY	DATE
	DESIGNED BY W.P. BARTELS	" Oct. 38
	DRAWN BY " "	" "
	TRACED BY " "	" "
NOTE BOOK	QUANTITIES BY J.T. King	" "
	QUANTITIES CHECKED BY " "	" "
No.	CHECKED BY W.P. BARTELS	" "

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

SEMICIRCULAR METAL FLUME
STA. 153+00

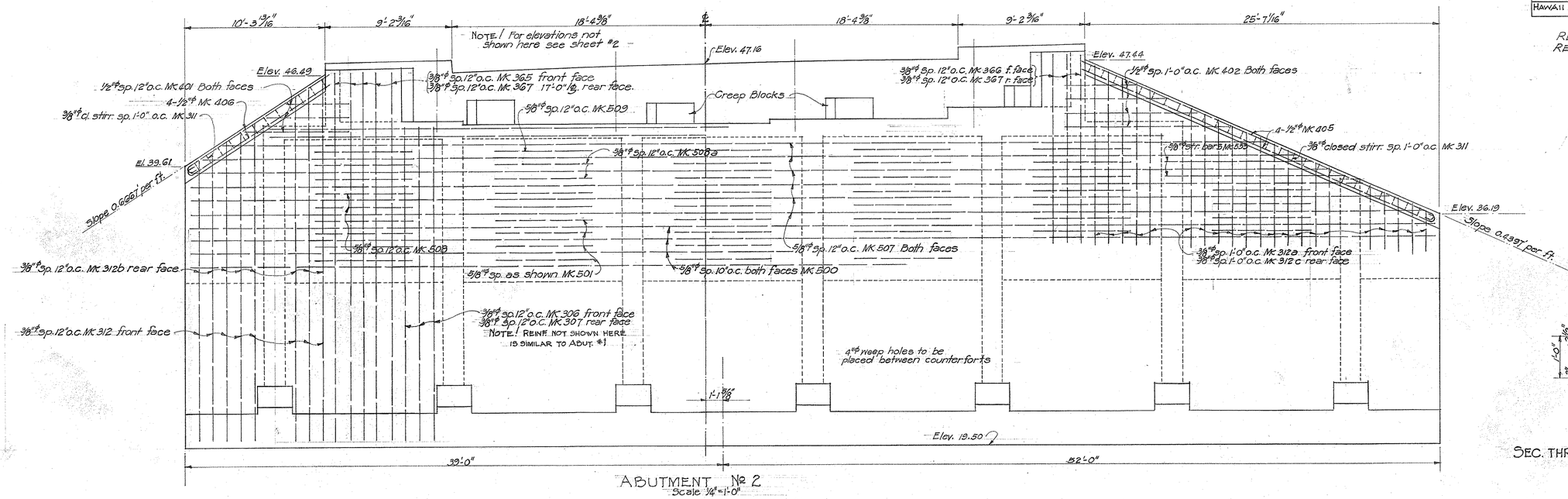
WAIANAE ROAD — FAP 4C
JUNE - 1938 — SCALES AS NOTED

SHEET № OF SHEETS
4449.22B

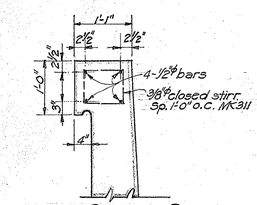
4449.22B

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F.A.G.H 4-C	1938	23	40

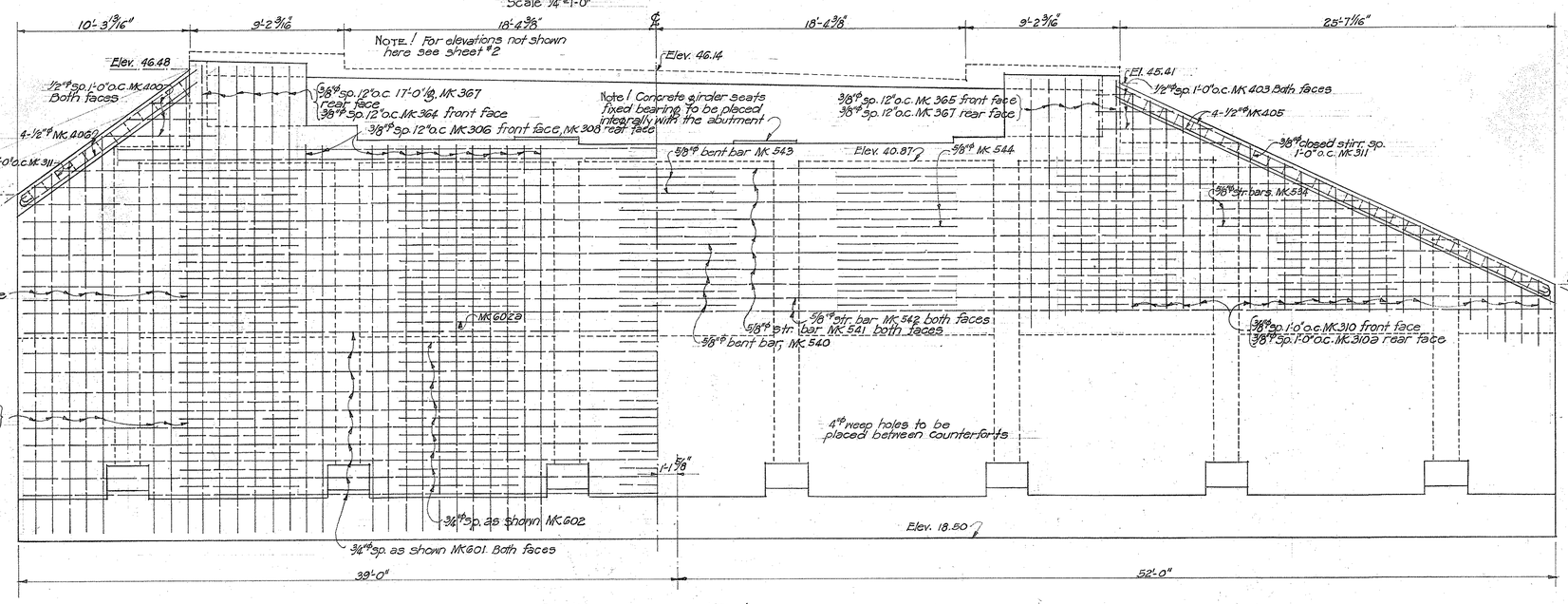
REVISED JUNE 10, 1938
REVISED AUG. 29, 1938



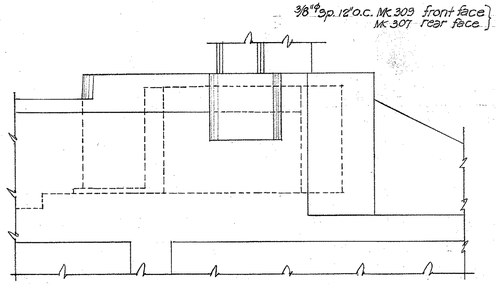
ABUTMENT № 2
Scale 1/4"=1'-0"



SEC. THRU COPING BEAM
Scale 3/4"=1'-0"



ABUTMENT № 1
Scale 1/4"=1'-0"
(LOOKING AGAINST STATIONING)



REAR ELEV. ∘ ABUT № 1 ∘ RIGHT SIDE
Scale 3/8"=1'-0"

REVISION Wingwalls & Abut. changed
REVISION 8/29/38 Abut. elev. changed

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DESIGNED BY	" 6/38
	DRAWN BY Wm. Yamashita	" "
	TRACED BY Wm. Yamashita	" "
NOTE BOOK	QUANTITIES BY Wm. Yamashita	" "
	QUANTITIES CHECKED BY J. Ling	" "
No.	CHECKED BY	" "

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

HIGHWAY OVERPASS

WAIANAE ROAD — F.A.G.H 4-C
DATE JUNE 1938 — SCALES AS NOTED

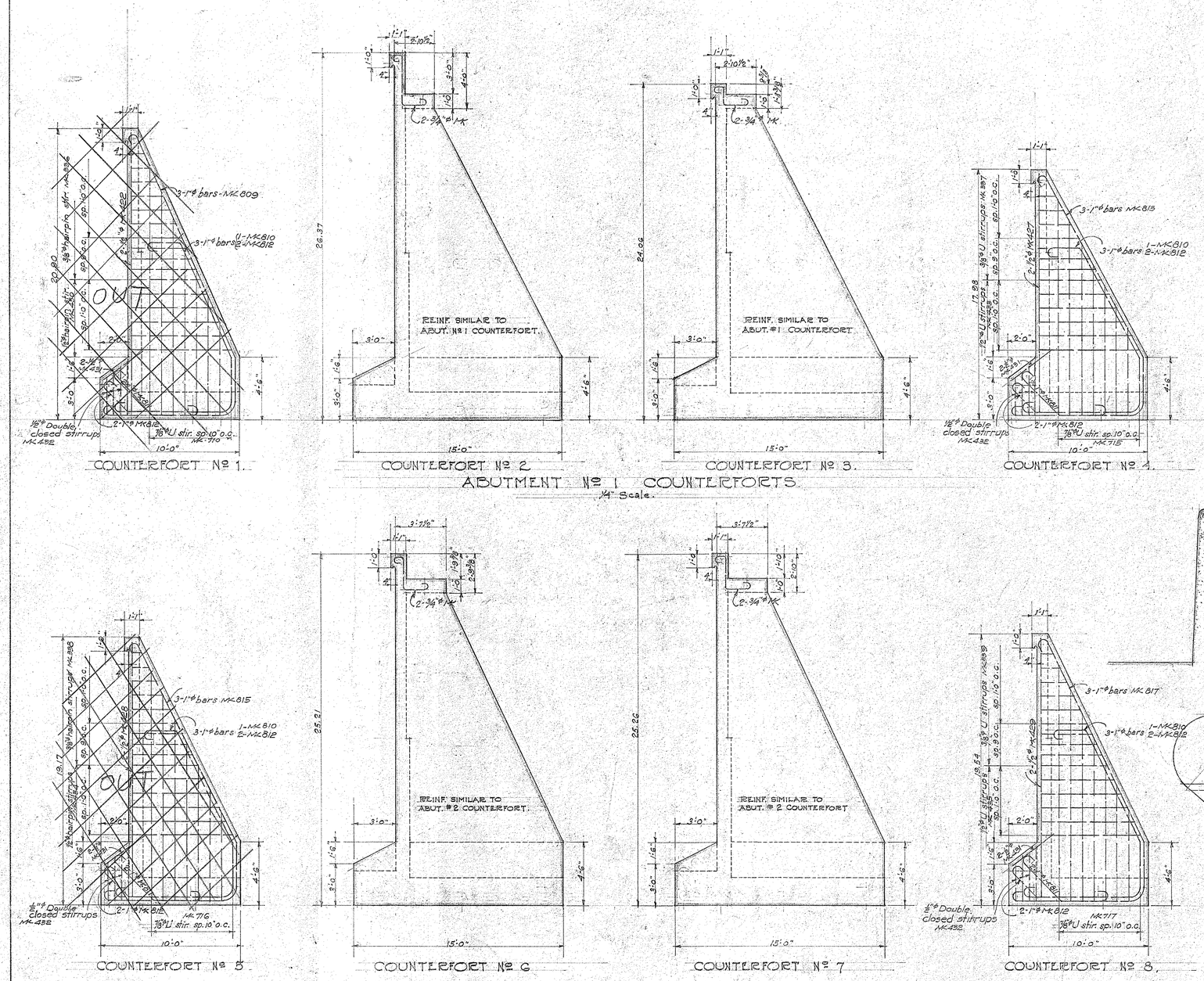
SHEET № OF SHEETS

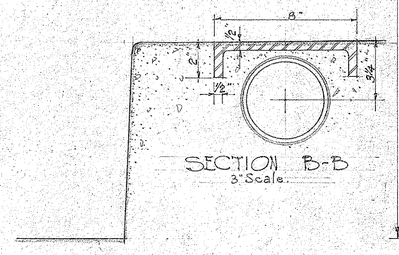
4450.23

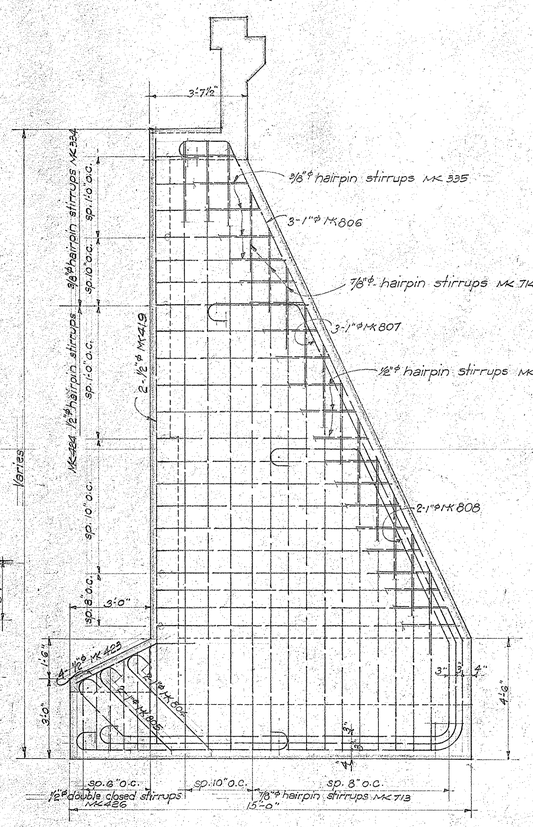
4450.23

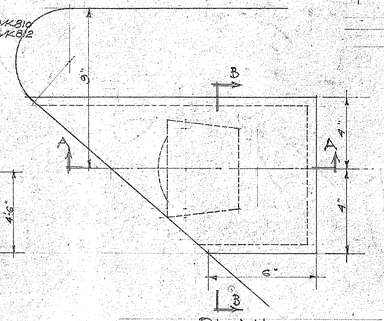
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	F.A.G.H. 4-C	1938	24	40

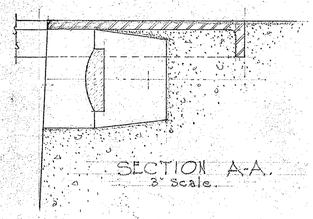
REVISED JUNE 10, 1938











BULLS EYE REFLECTOR

3" Scale.

Note: Bullseye Reflector to be furnished by Ter. Hy. Dept. and installed by the Contractor. Bronze plates to be furnished by the Contractor.
Material for top plate of Bullseye reflector to be of Phosphor Bronze, same as bearing plate material.

TERRITORIAL HIGHWAY DEPARTMENT.
TERRITORY OF HAWAII.

HIGHWAY OVERPASS.

WAIANAE ROAD — F.A.G.H. 4-C.
DATE FEB. 1938 — SCALES AS NOTED.

SHEET Nº 5 OF 7 SHEETS.

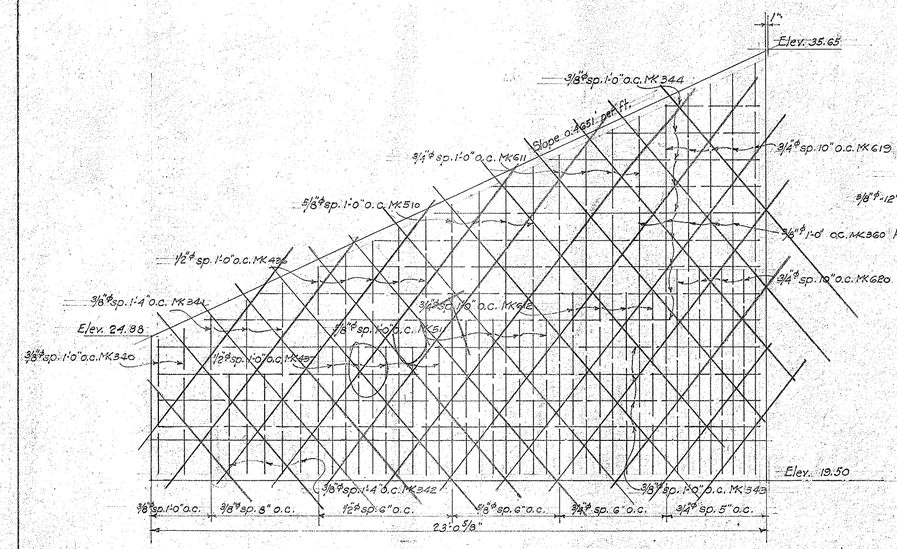
ORIGINAL PLAN	SURVEY PLOTTED BY	W.S. Bartels	DATE	Dec. 1932
	DRAWN BY	C.K. Vaupel	"	Feb. "
	TRACED BY	C.F.M.	"	"
NOTE BOOK	CHECKED BY	L. Ling	"	"
No.				

REVISION Counterfort #1 & 5 omitted

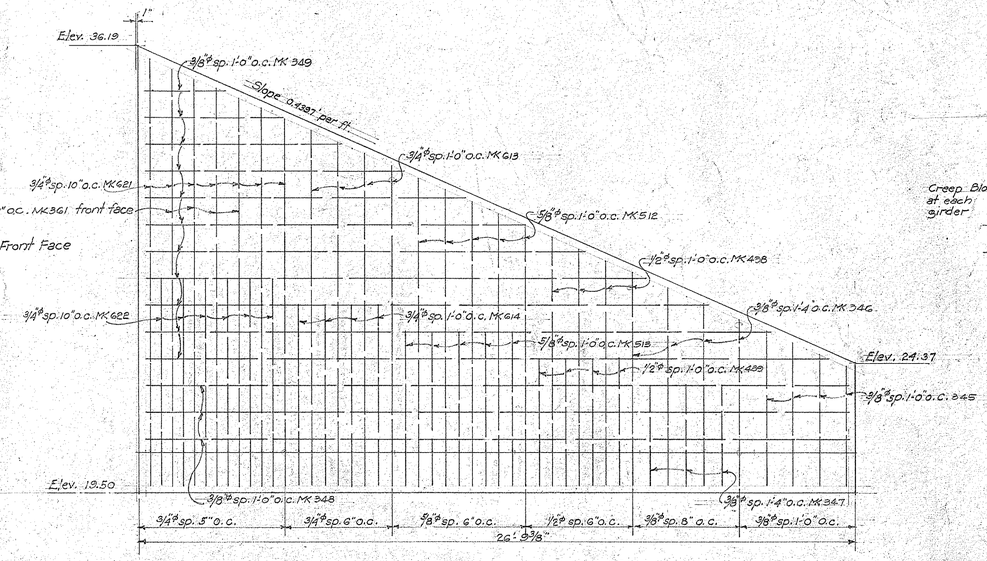
4450.24

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	F.A.G.H. 4-C	1938	25	40

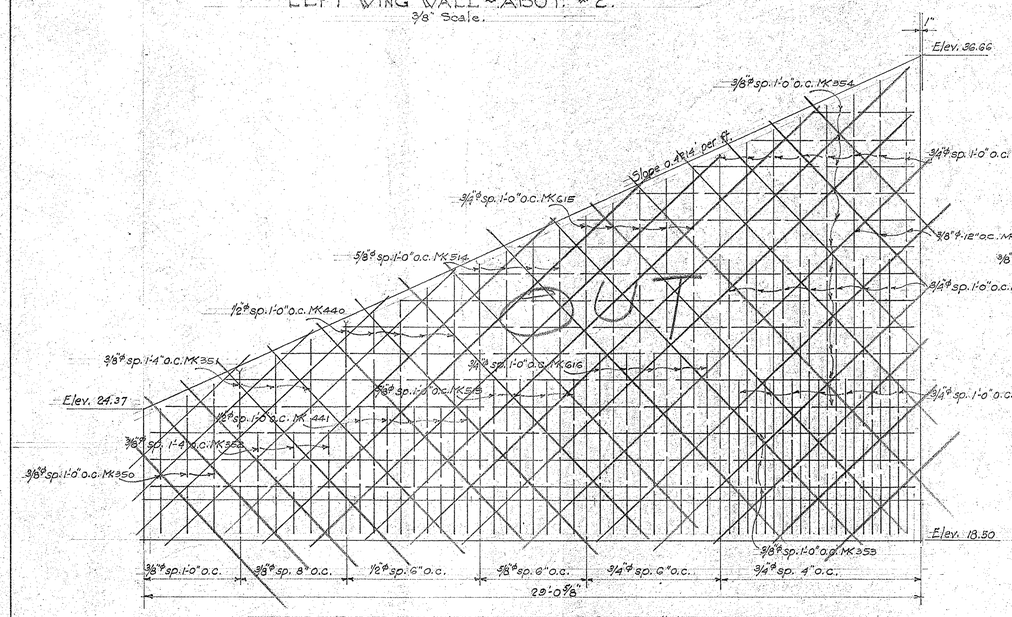
REVISED JUNE 10, 1938



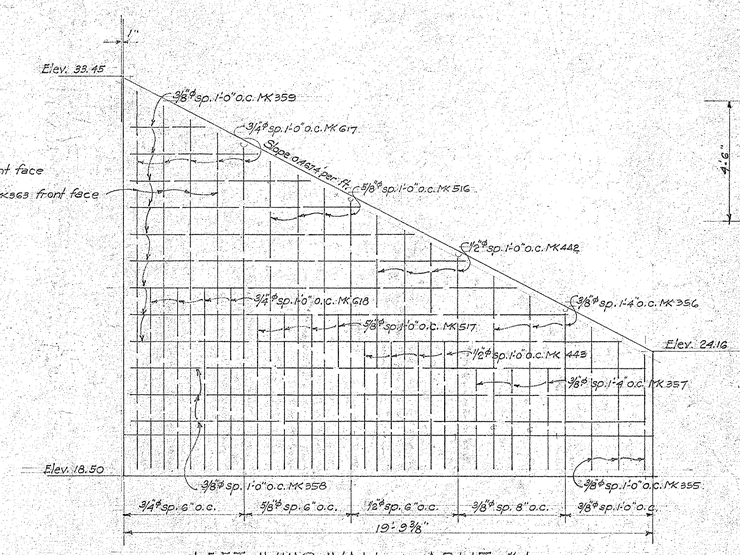
LEFT WING WALL ~ ABUT. № 2.
3/8" Scale.



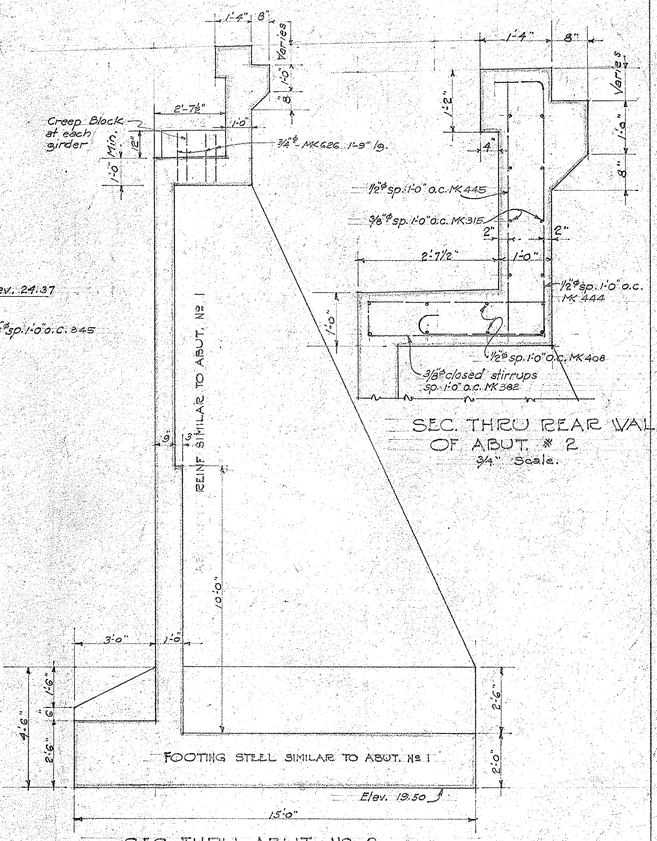
RIGHT WING WALL ~ ABUT. № 2.
3/8" Scale.



RIGHT WING WALL ~ ABUT. № 1
3/8" Scale.

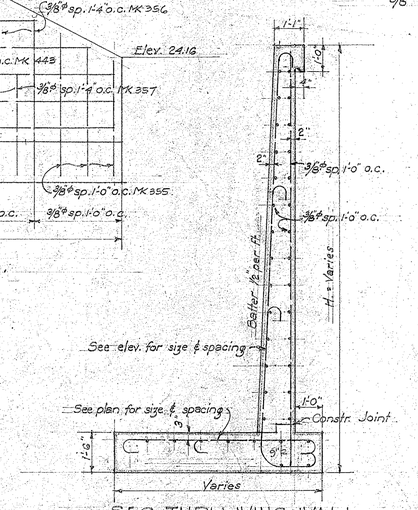


LEFT WING WALL ~ ABUT. № 1.
3/8" Scale.



SEC. THRU REAR WALL OF ABUT. № 2
3/4" Scale.

SEC. THRU ABUT. № 2.
3/8" Scale.



SEC. THRU WING WALL.
3/8" Scale.

NOTE! FOR REVISED DETAILS, OF DETAILS CROSSED OUT SEE SHEET № 4450.21A

TERRITORIAL HIGHWAY DEPARTMENT.
TERRITORY OF HAWAII.

HIGHWAY OVERPASS.

WAIANAE ROAD — F.A.G.H. 4-C.
DATE FEB. 1938 — SCALES AS NOTED

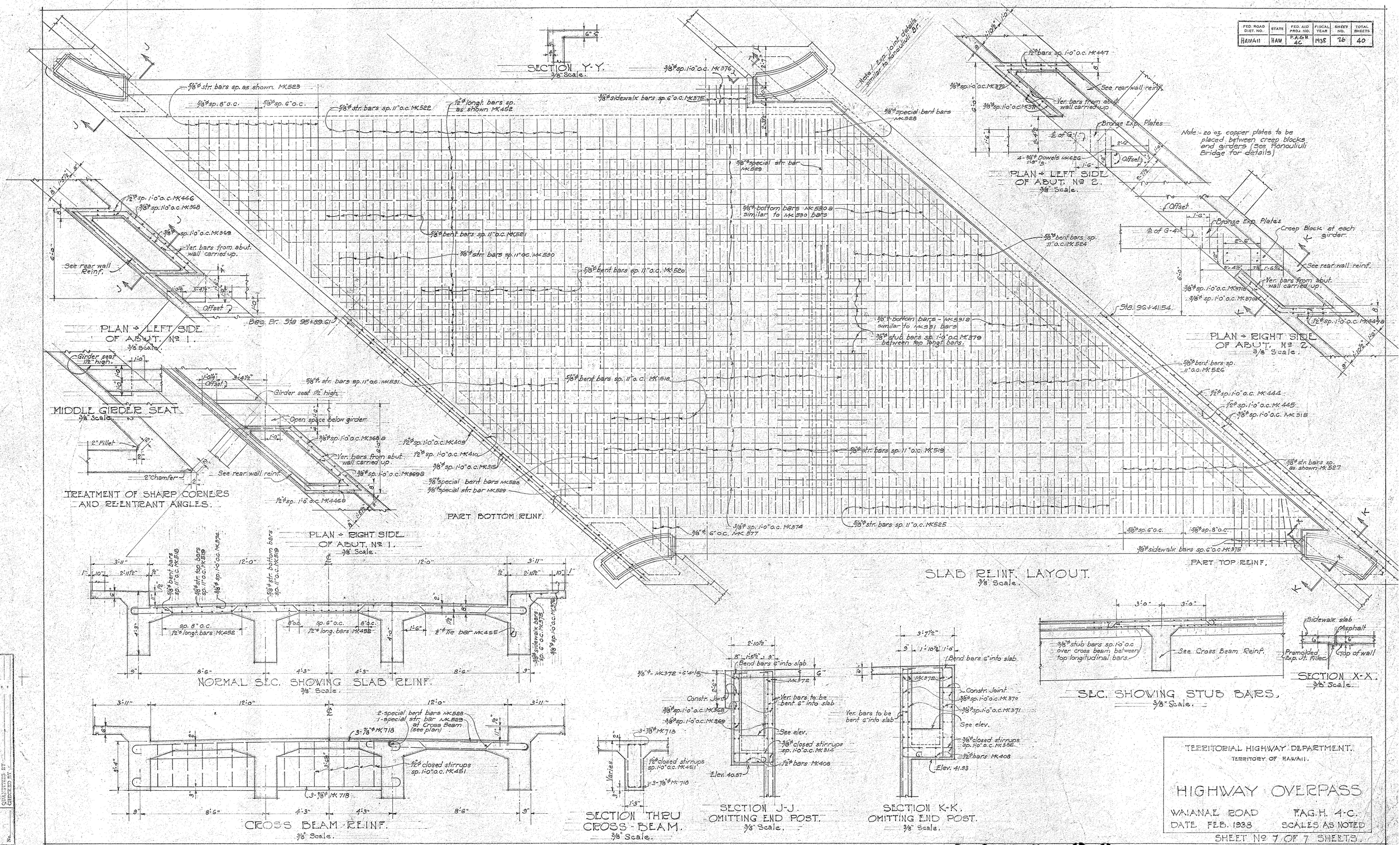
SHEET № 6 OF 7 SHEETS.

4450.25

REVISION Wingwalls changed

ORIGINAL PLAN	SURVEY PLOTTED BY	W.E. Bartels	DATE Jan. 1938
	TRACED BY	"	" Feb. 1938
	DESIGN BY	C.E.V. Wagner	" "
	NOTE BOOK	C.E.V.	" "
	TRACED BY	"	" "
	CHECKED BY	J. Ing	" "
No.			

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	P.A.G.H. 4C	1938	26	40



ORIGINAL PLAN		DATE
	SURVEY PLOTTED BY	Dec. 1938
	DESIGNED BY	Feb. "
	CHECKED BY	" "
	NOTE BOOK	" "
	PLACED IN	" "
	QUANTITIES BY	" "
No.	CHECKED BY	" "

4450.26