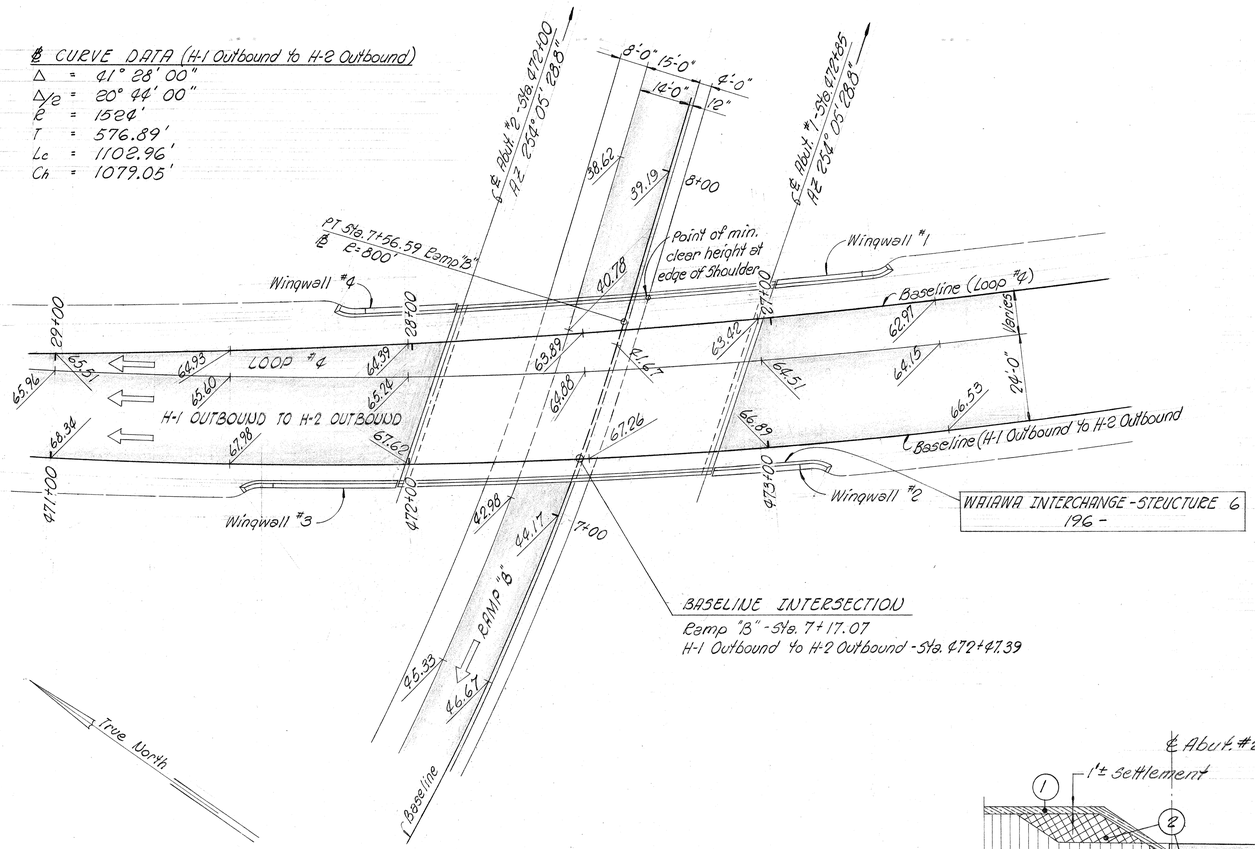
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(69)8	1968	90	144

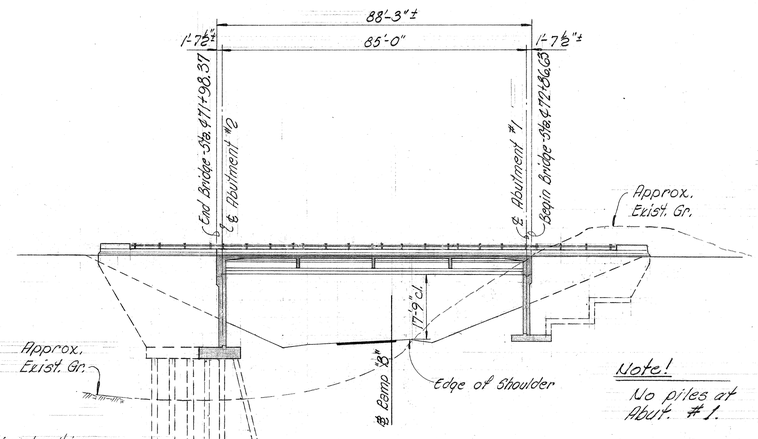
℄ CURVE DATA (H-1 Outbound to H-2 Outbound)

Δ = 41° 28' 00"
Δ/2 = 20° 44' 00"
R = 1524'
T = 576.89'
Lc = 1102.96'
Ch = 1079.05'



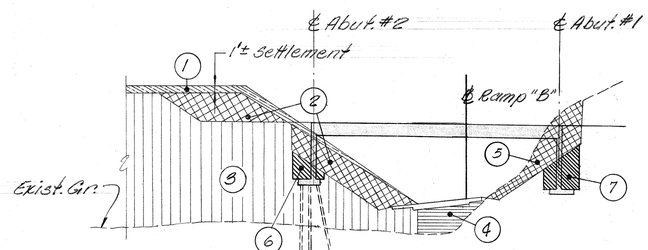
BASELINE INTERSECTION
Ramp "B" - Sta. 7+17.07
H-1 Outbound to H-2 Outbound - Sta. 472+47.39

P L A N
Scale = 1" = 20'-0"



LONGITUDINAL SECTION ALONG ℄ OF H-1 OUTBOUND TO H-2 OUTBOUND
Scale: 1" = 20'-0"

Note!
No piles at Abut. #1.



PRECLOADING & STRUCTURAL EXCAVATION DIAGRAM

(1), (2) & (3) Emb. for H-1 Outb. to H-2 Outb. (By Roadway Contractor)
(2) & (5) Exc. for Ramp "B" (By Roadway Contractor)
(4) Emb. for Ramp "B" (By Roadway Contractor)
(6) & (7) Structural Exc. for Abut. Ftgs.

DESIGN CRITERIA

Loads = HS20-44 or Interstate Loading.
Specifications = Standard Specifications for Highway Bridges, AASHO, 9th Edition.
Design Stresses:
1. R.C. Beams & slabs - See, also, AASHO Specifications & Special Provisions.
f'c = 3,000 p.s.i. concrete
fs = 20,000 p.s.i. reinf. steel
2. Prestressed Girders = See Sh. 8
3. Pile Capacity = 45 tons for Abut. #2,
4. Allowable Foundation Pressure = 12,000 p.s.f. for Abut. #1.

REFERENCE DRAWINGS

1. For grading & drainage requirements not shown, See Civil Drawings.
2. See, also, Electrical Drawings for items not shown.

NOTES:

1. For General Notes, See Sh. 99.
2. In general, bridge superstructure shall be constructed to follow the finished roadway.
3. Construction Methods;
   a. Sides of footing shall be excavated to neat lines when called for on Plans. Over excavation below excavations indicated on Plans for bottom of footings shall be backfilled with a minimum of Class D concrete as directed by the Engineer at the Contractor's expense.
   b. Backfill behind abutments and behind wingwalls shall be filled up to bottom of girder before construction of the superstructure.
   c. Backfill against abutments and wingwalls shall be carried out in such a manner that the differential of soil on each side of the wall shall not exceed 2'-0" whenever applicable.
   d. Portion of the wingwalls above the roadway surface may be constructed along with the bridge concrete railing.

SEQUENCE OF CONSTRUCTION FOR PILE DRIVING

1. Pre-load soil as indicated in diagram at left to attain settlement as specified in "SUGGESTED CONSTRUCTION PHASING PLAN" on Civil Sheet 9.
2. After completion of Step (1), pre-drill through embankment down to existing grade. (Holes shall be 6" larger than pile diameter)
3. Drive piles to minimum depths indicated on plans.
4. Fill void around piles with loose dry sand meeting the grading requirements of 47.2 (D) FINE AGGREGATE.

BRIDGE QUANTITY ESTIMATE

ITEM NO.	ITEM	UNIT	QUANTITY
14.60	Structural Excavation for Bridge	C.Y.	1,242
46.060	Concrete in Bridge	L.S.	441 C.Y.
46.061	Concrete in Bridge Footings	L.S.	195 C.Y.
46P.14	Prestressed Concrete Girders Type III	L.F.	680 L.F.
48.60	Reinforcing Steel in Bridge	L.S.	84,700 lbs
51.62	Furnishing Type I Prestressed Concrete Piles	L.F.	2,240
51.63	Driving Type I Prestressed Concrete Piles	L.F.	2130
52.01	Filter Material for Structure	C.Y.	112
55.10	Metal Bridge Rail	L.F.	319
55.50	Concrete Bridge Parapet, including End Posts	L.F.	319

ORIGINAL PLAN	SURVEY PLOTTED BY:	DATE
	DRAWN BY:	"
NOTE BOOK	TRACED BY:	"
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STATE OF HAWAII
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STRUCTURE No. 6

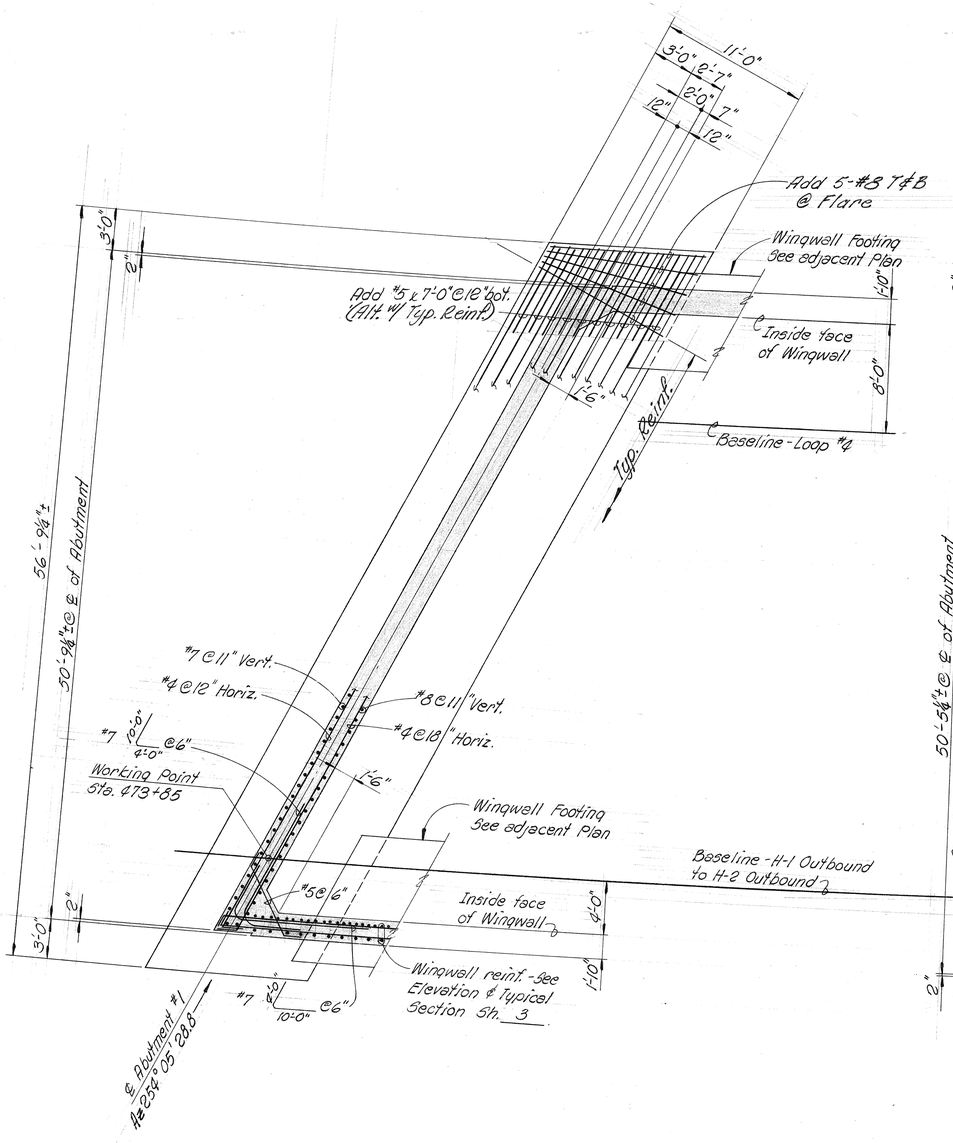
LAYOUT PLAN

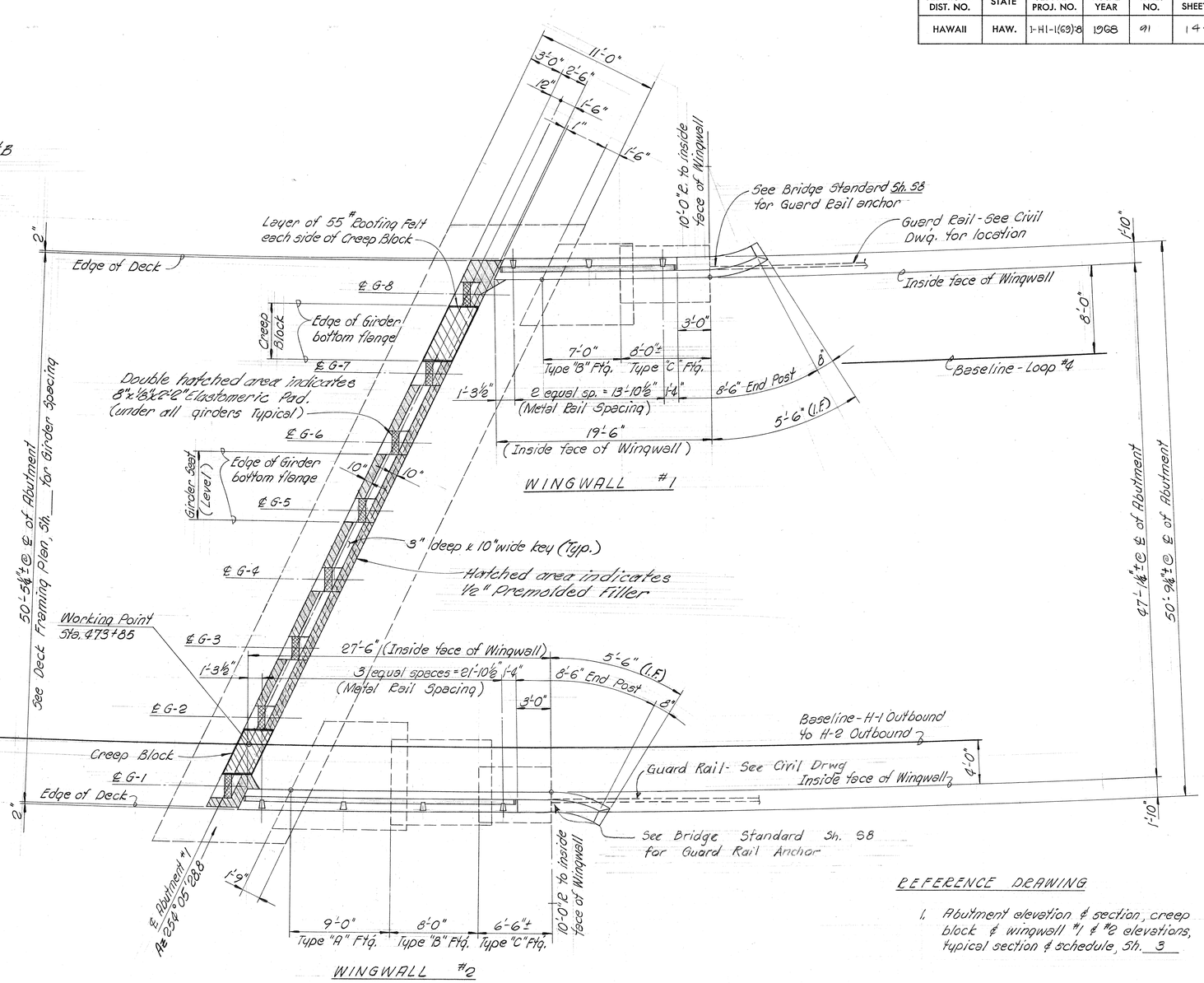
WAIAWA INTERCHANGE
F.A.I. Proj. No. I-HI-1(69):8

Scale: As shown Date: OCT. 1968

SHEET No. 1 OF 9 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(69):8	1968	91	144





FOUNDATION PLAN

PLAN AT GIRDER SEAT

ABUTMENT #1

Scale: 3/16" = 1'-0"

REFERENCE DRAWING

1. Abutment elevation & section, creep block & wingwall #1 & #2 elevations, typical section & schedule, Sh. 3

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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HIGHWAYS DIVISION

STRUCTURE No. 6

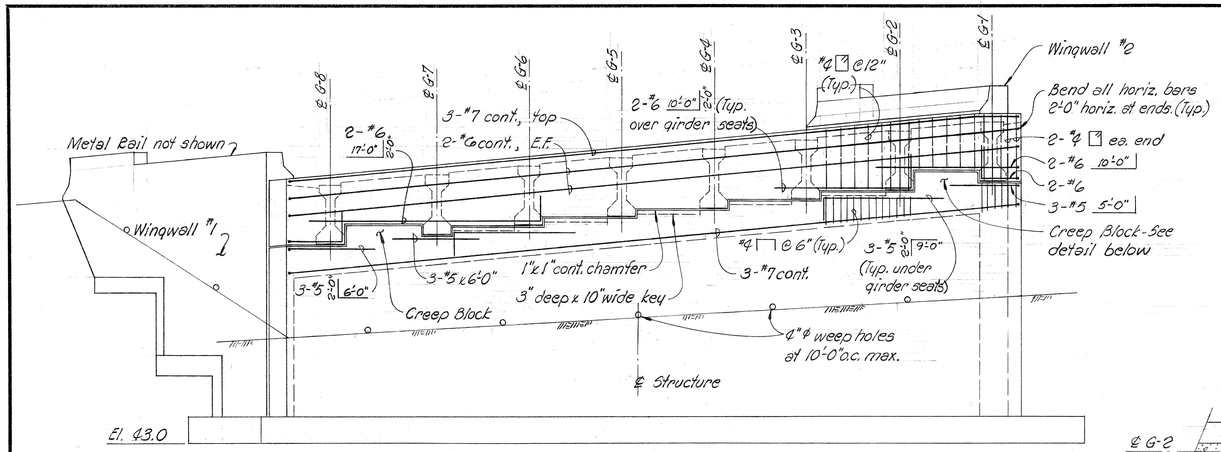
ABUTMENT #1 PLANS

WAIAWA INTERCHANGE
F.A.I. Proj. No. I-HI-1(60):8

Scale: As shown Date: OCT. 1968

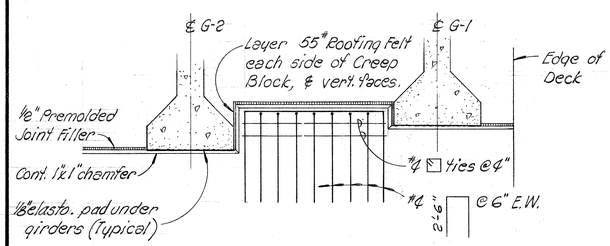
SHEET No. 8 OF 9 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(69):8	1968	92	144



ABUTMENT #1 ELEVATION

Scale: 3/16"=1'-0"

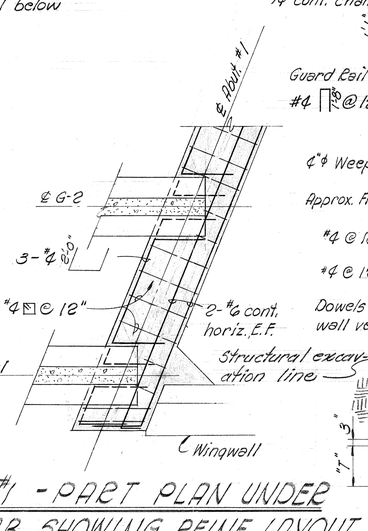


CREEP BLOCK DETAIL

Scale: 1/2"=1'-0"

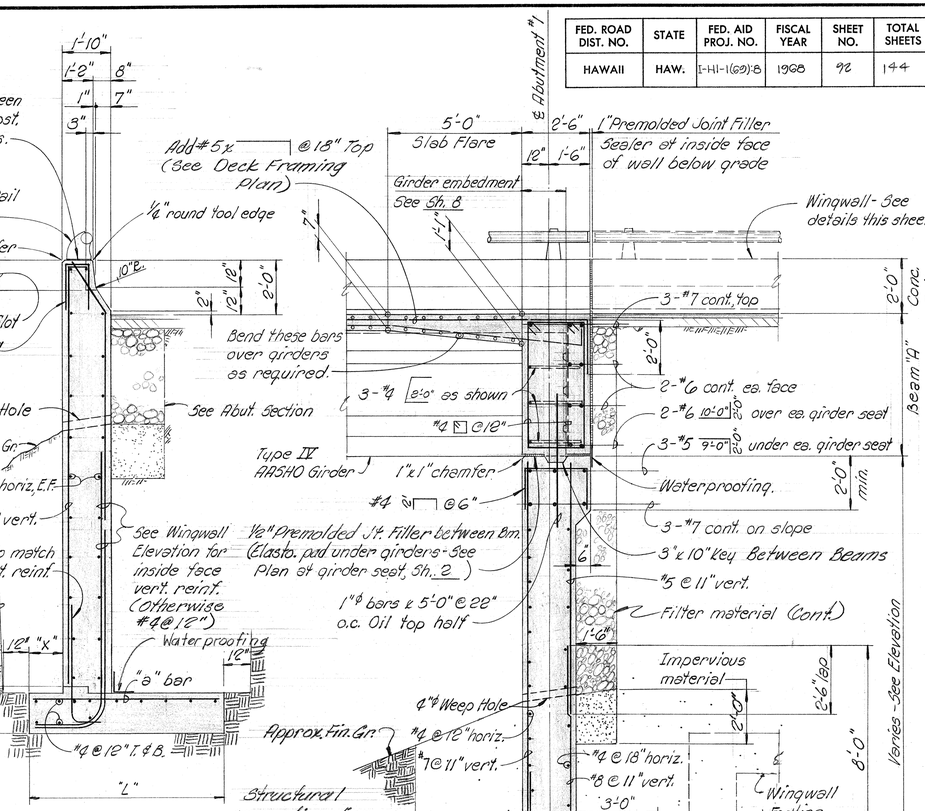
ABUTMENT #1 ELEVATIONS		
℄ Girder	Top of Deck	Bot of Girders
1	67.38	62.10
2	66.73	61.45
3	66.08	60.81
4	65.44	60.16
5	64.79	59.52
6	64.15	58.87
7	63.50	58.22
8	62.75	57.48

NOTE: Elevations given are along ℄ of Abut.



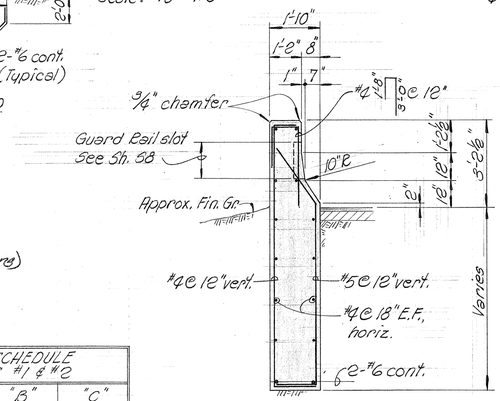
ABUT #1 - PART PLAN UNDER DECK SLAB SHOWING REINF. LAYOUT

Scale: 3/8"=1'-0"



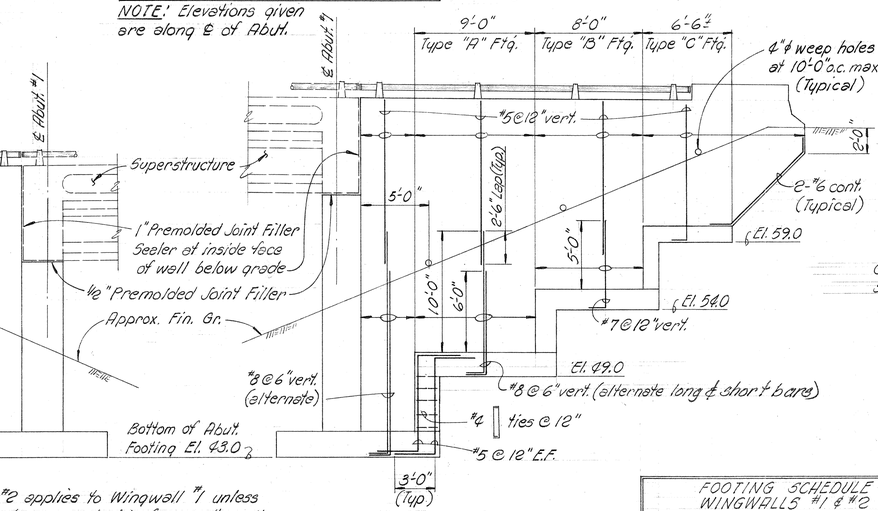
WINGWALLS #1 & #2 TYPICAL SECTION

Scale: 3/8"=1'-0"



TYPICAL END POST SECTION

Scale: 3/8"=1'-0"



NOTE: Details shown for Wingwall #2 applies to Wingwall #1 unless otherwise shown. Wall reinf. shown are inside face vert. wall reinf. See Typical Section for balance. For footing details, see schedule & Typical wall section.

TYP. REINF. FOR STEP FTG.

FOOTING SCHEDULE WINGWALLS #1 & #2			
Type	"A"	"B"	"C"
"x"	2'-0"	1'-0"	1'-0"
"T"	1'-9"	1'-6"	1'-2"
"L"	9'-3"	6'-9"	4'-6"
"a" bar	#7@6"	#6@9½"	#4@11"

WINGWALL #1 WINGWALL #2 WINGWALL ELEVATIONS

Scale: 3/16"=1'-0"

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	TRACED BY	
NOTE BOOK	DESIGNED BY	
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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRUCTURE No. 6

ABUTMENT #1 & WINGWALLS #1 & #2 SECTIONS & DETAILS

WAIAWA INTERCHANGE
F.A.I. Proj. No. I-HI-1(69):8

Scale: As shown Date: OCT. 1968

SHEET No. 3 OF 9 SHEETS

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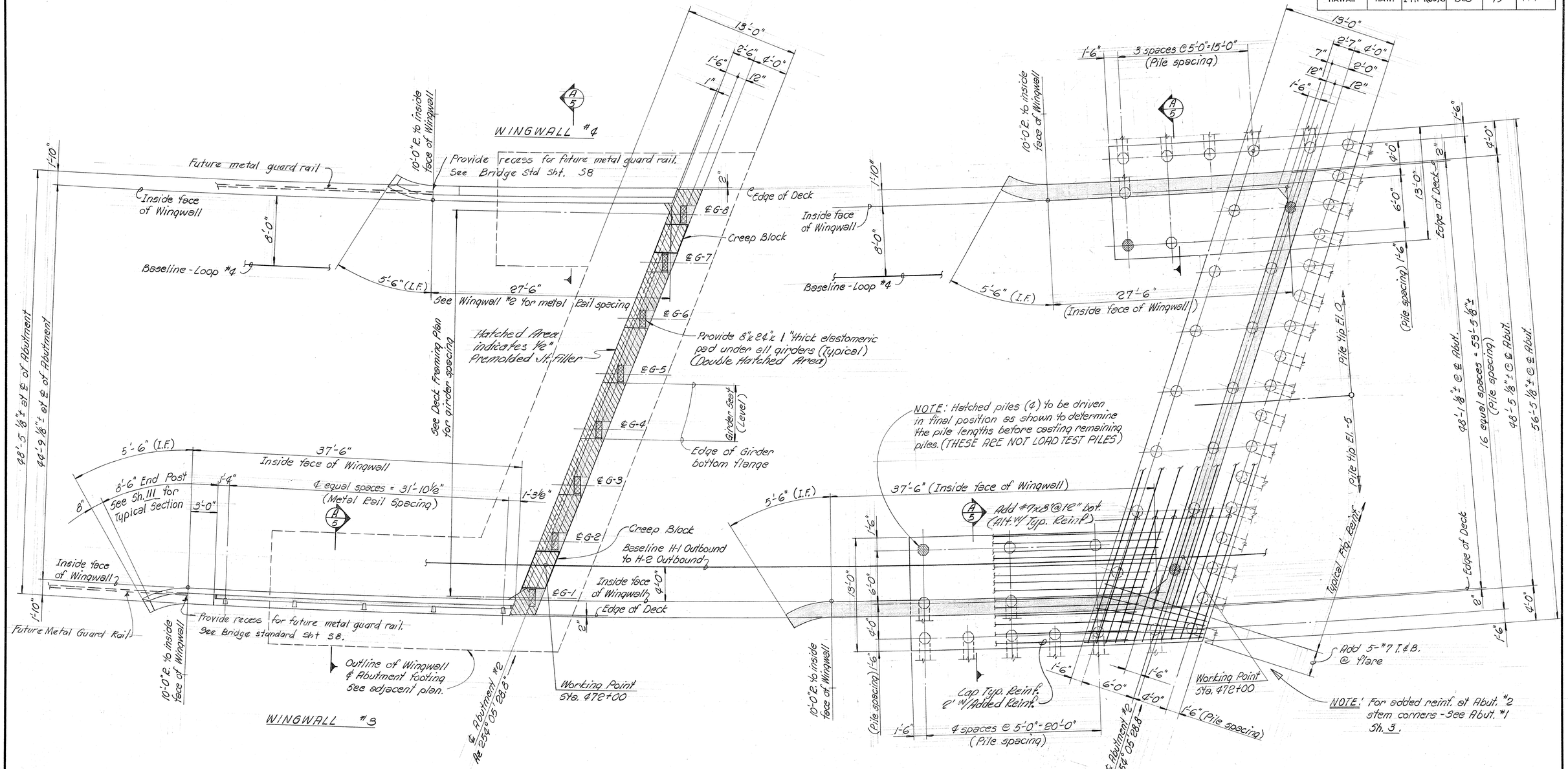
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(69)8	1968	93	144



PLAN AT GIRDER SEAT

FOUNDATION PLAN

ABUTMENT #2

Scale: 3/16" = 1'-0"

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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STRUCTURE No. 6

ABUTMENT #2 PLANS

WAIAWA INTERCHANGE
F.A.I. Proj. No. I-HI-1(69):8

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93

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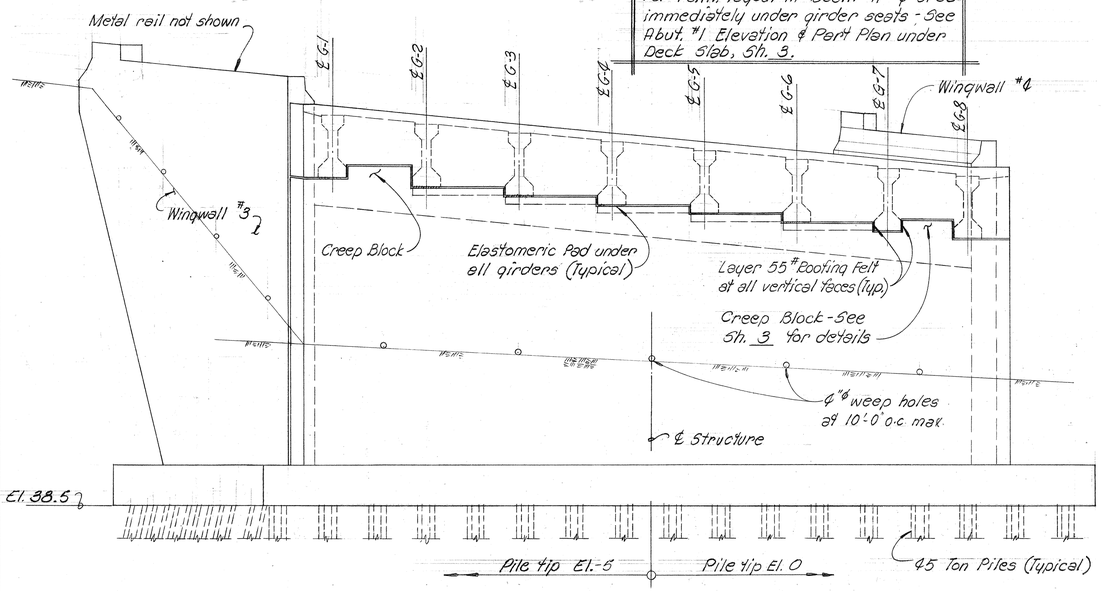
HAWAII	HAW.	I-HI-1(69):8	1968	94	144

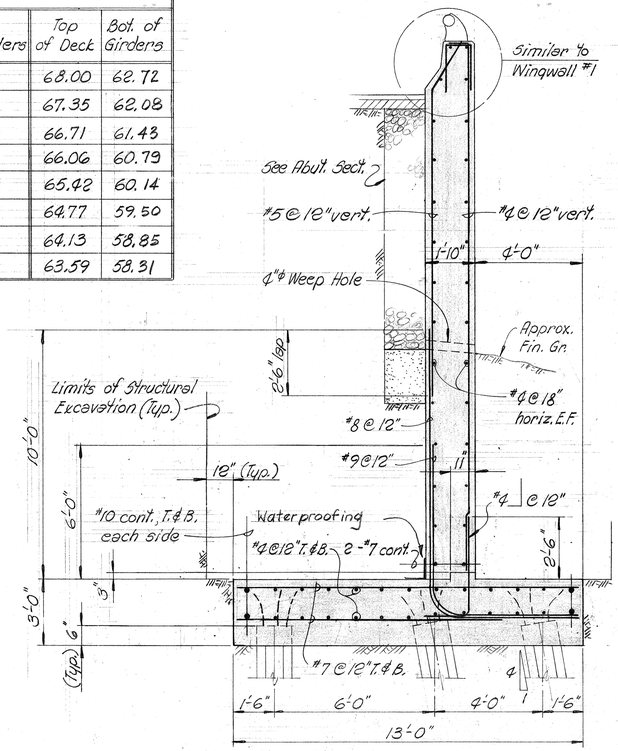
NOTE:
For reinf. layout in Beam "A" & area immediately under girder seats - See Abut. #1 Elevation & Part Plan under Deck Slab, Sh. 3.



ABUTMENT #2 - ELEVATION

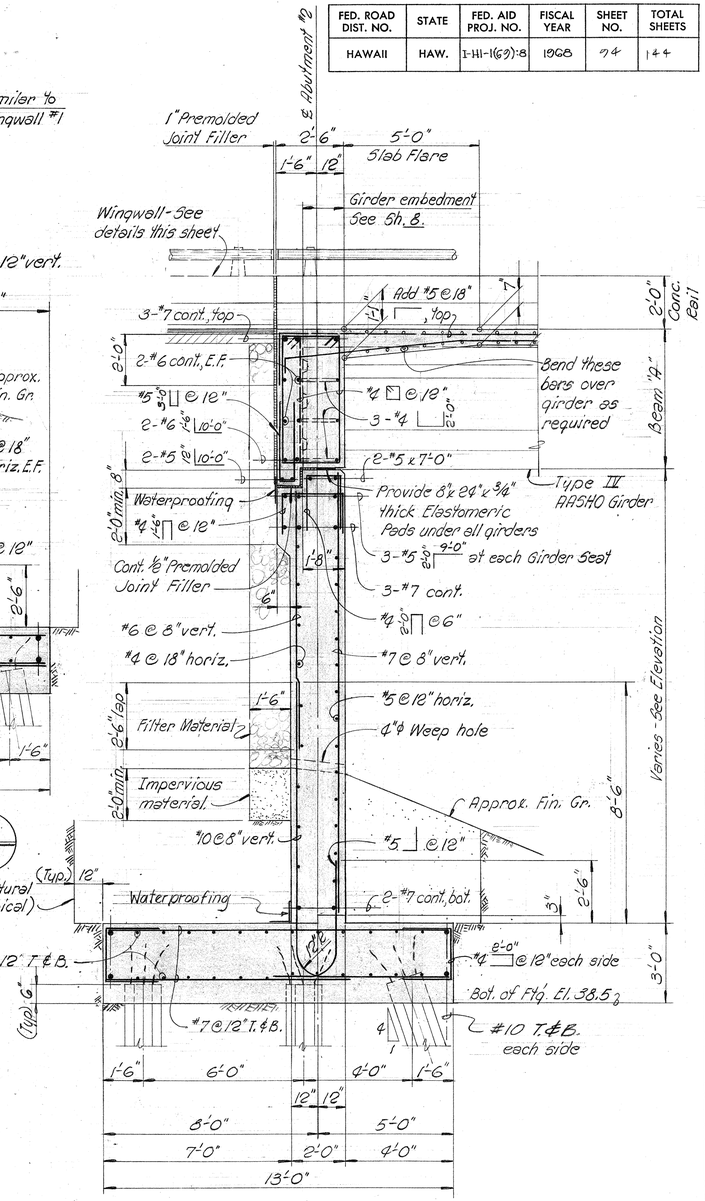
Scale: 3/16" = 1'-0"

ABUT. #2 ℄ ELEVATIONS		
℄ Girders	Top of Deck	Bot. of Girders
1	68.00	62.72
2	67.35	62.08
3	66.71	61.43
4	66.06	60.79
5	65.42	60.14
6	64.77	59.50
7	64.13	58.85
8	63.59	58.31



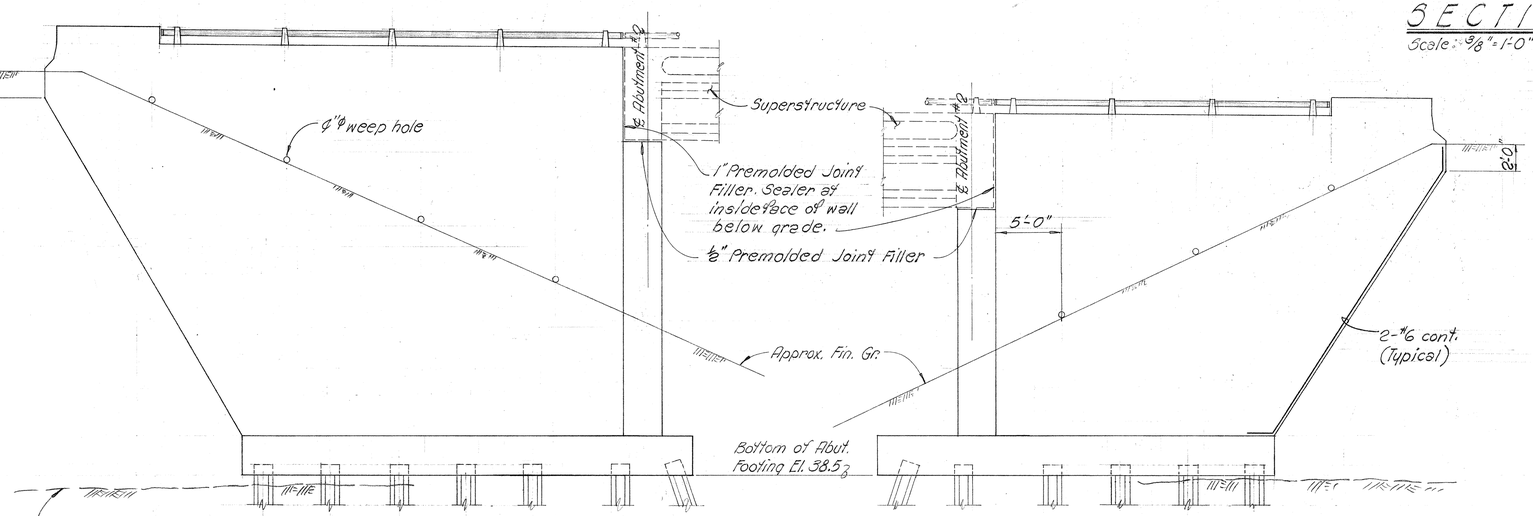
SECTION (A/5)

Scale: 3/8" = 1'-0"



TYPICAL ABUTMENT #2 SECTION

Scale: 3/8" = 1'-0"



WINGWALL #3

WINGWALL #4

WINGWALL ELEVATIONS

Scale: 3/16" = 1'-0"

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRUCTURE No. 6

ABUTMENT #2 & WINGWALLS #3 & #4
SECTIONS & DETAILS

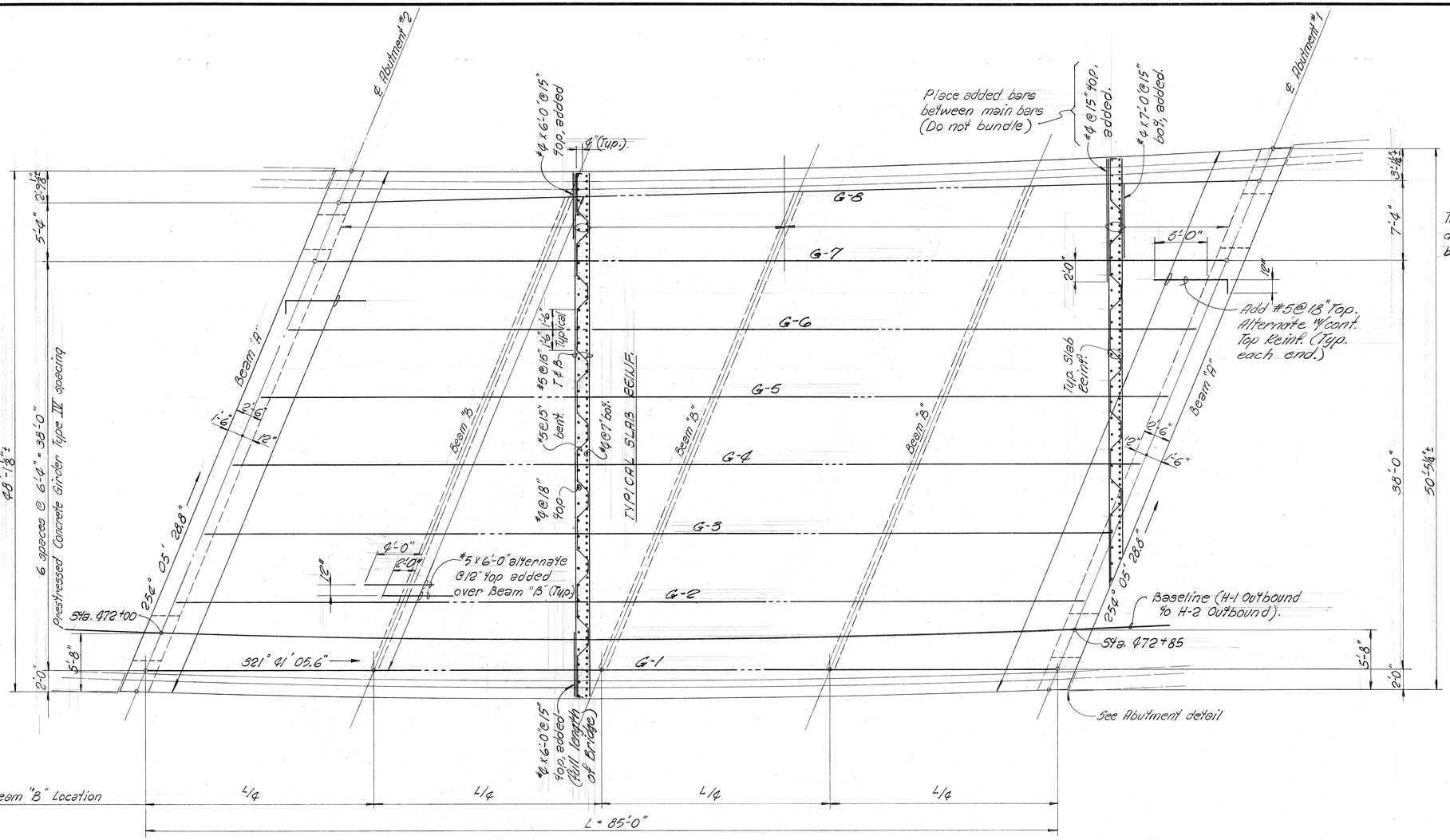
WAIAWA INTERCHANGE
F.A.I. Proj. No. I-HI-1(69):8

Scale: As shown Date: OCT. 1968

SHEET No. 5 OF 9 SHEETS

94

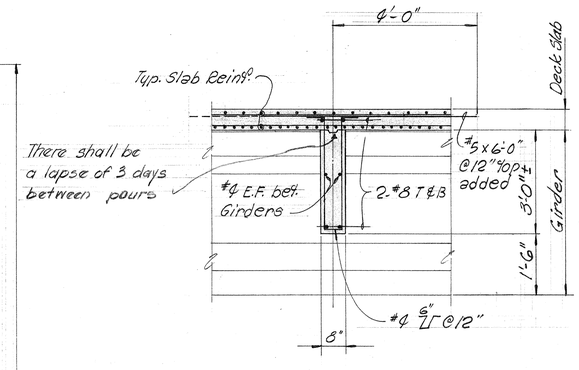
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(69)8	1968	95	144



DECK FRAMING PLAN

Scale: 3/16" = 1'-0"

Note! Pour Deck & Beam "A" as one pour.



BEAM "B" TYPICAL SECTION

Scale: ½"=1'-0"

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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRUCTURE No. 6

DECK FRAMING PLAN & TYPICAL BEAM "B" SECTION

WAIAWA INTERCHANGE
F.A.I. Proj. No. I-HI-1(69):8

Scale: As shown Date: OCT. 1968

SHEET No. 6 OF 9 SHEETS

95

ORIGINAL PLAN
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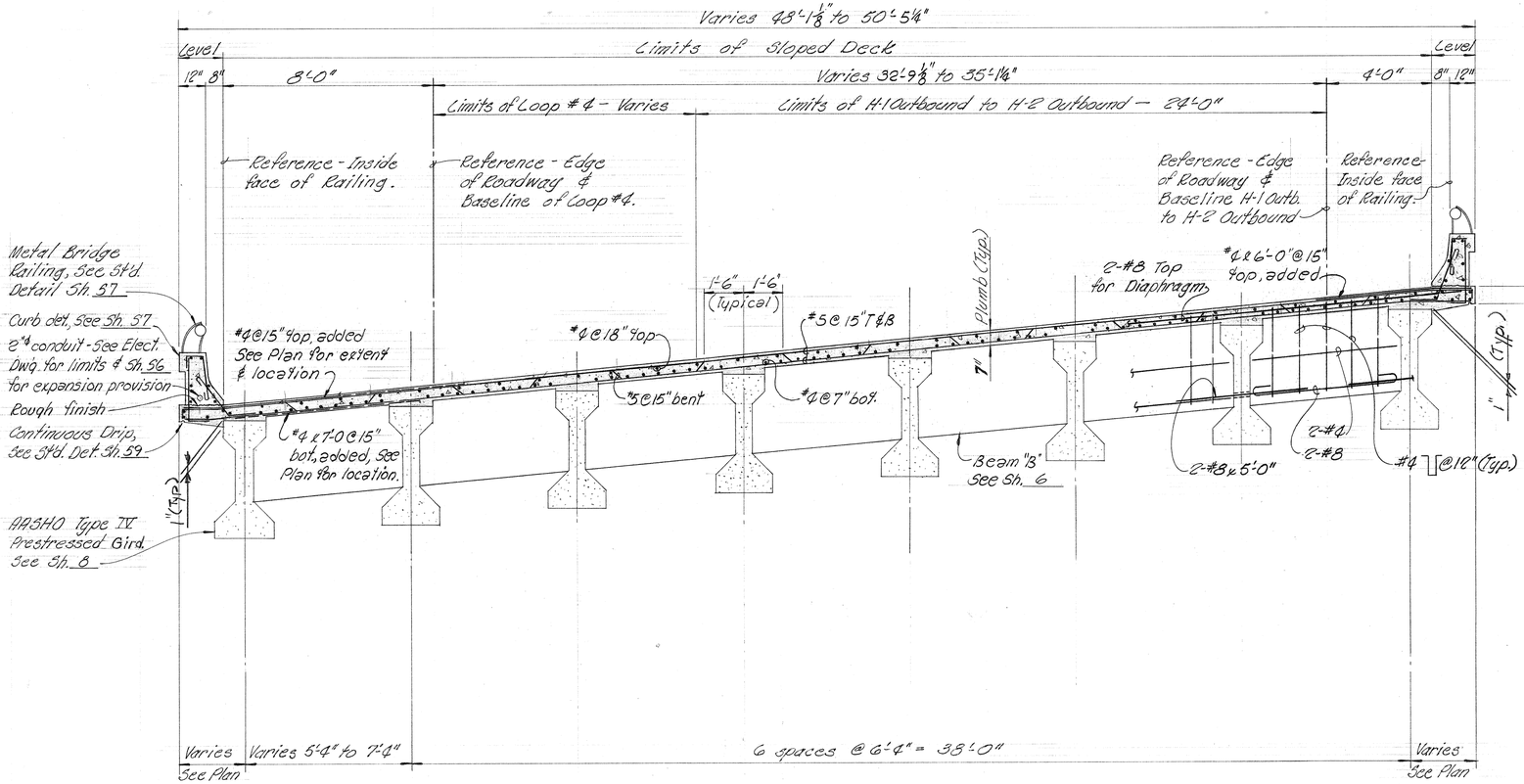
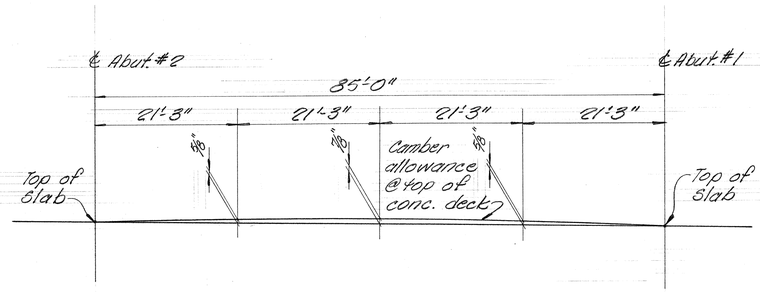
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(69):8	1968	96	144



TYPICAL NORMAL DECK SECTION

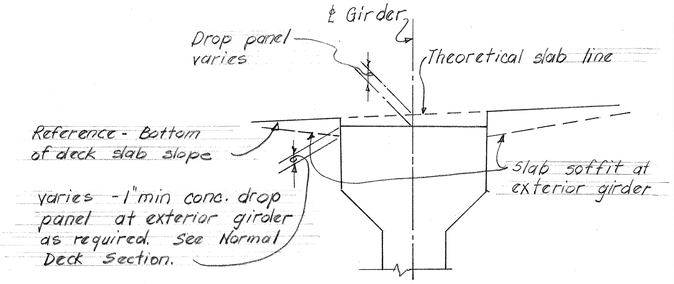
3/8" = 1'-0"



CAMBER DIAGRAM FOR TOP OF SLAB ALONG AASHO GIRDERS

Note!

Top of concrete deck directly above girder shall be cambered according to the diagram shown above to allow for girder deflection due to wet concrete & formwork. Note that the girder shall be supported at the abutments only and no shoring is permitted anywhere else.



PRESTRESSED GIRDER DROP PANEL DETAIL

(NOT TO SCALE)

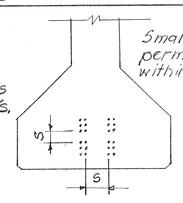
BUNDLING OF PRESTRESSING REINFORCEMENT

ARRANGEMENT AND CLEARANCE FOR POST TENSIONED UNITS

1. Horizontal clearance between units equals 2" min.
2. Units may be bundled vertically in groups of 3 max.
3. Vertical clearance between bundled units equal 3" min.
4. Approval of the Engineer is required for deviation.

ARRANGEMENT AND CLEARANCE FOR PRETENSIONED STRANDS

1. Strands may be bundled in groups as shown or in groups consisting of a maximum of 6 strands, and separated at the ends.
2. The minimum distance "S" between groups or individual strands is 2" for ½" strands.
3. "S" is measured between centers of adjacent strands.
4. Approval of the Engineer is required for deviation.



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRUCTURE No. 6

TYPICAL DECK SECTION

WAIAWA INTERCHANGE
F.A.I. Proj. No. I-HI-1(69):8

Scale: As shown Date: OCT. 1968

SHEET No. 7 OF 9 SHEETS

96

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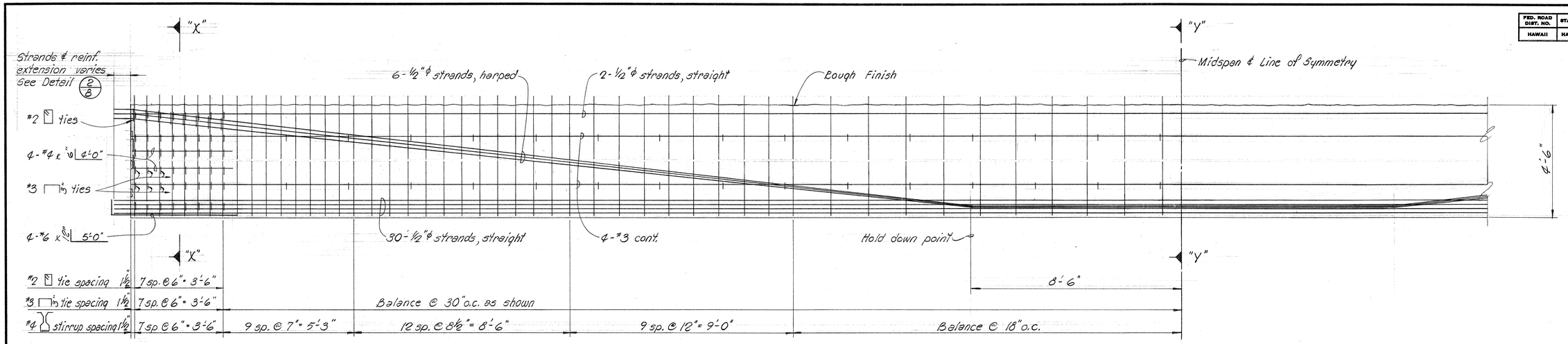
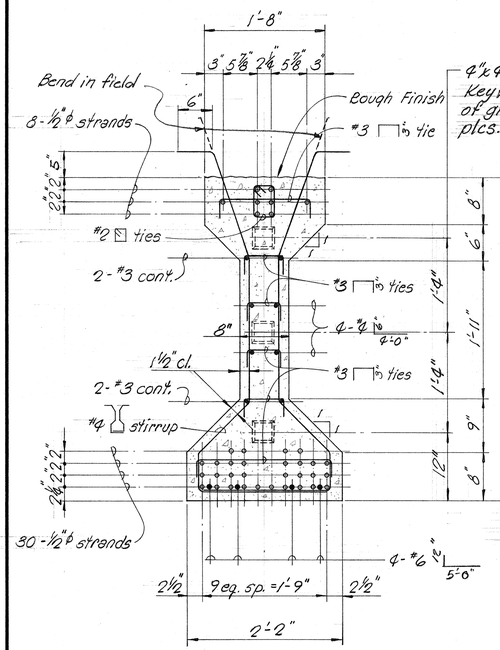


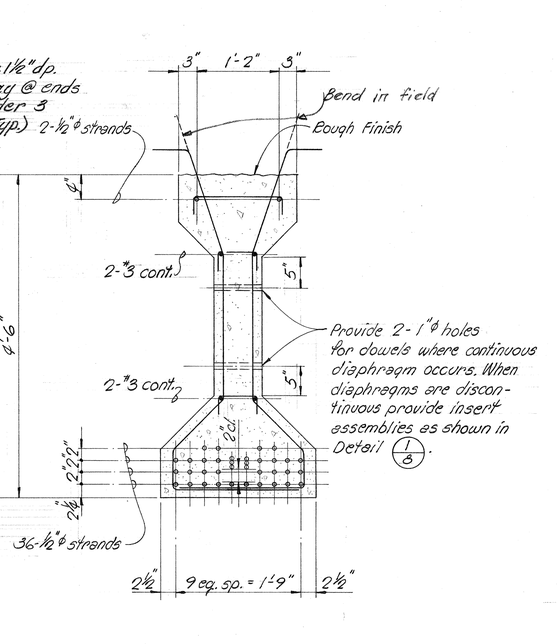
PART ELEVATION

Scale: ½" = 1'-0"



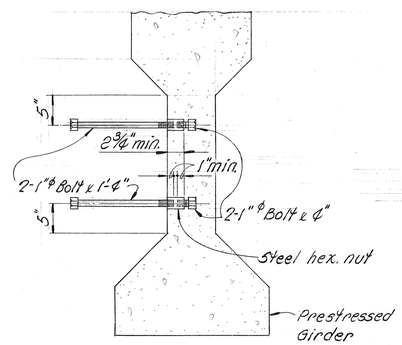
SECTION "X"-"X"

Scale: 1" = 1'-0"



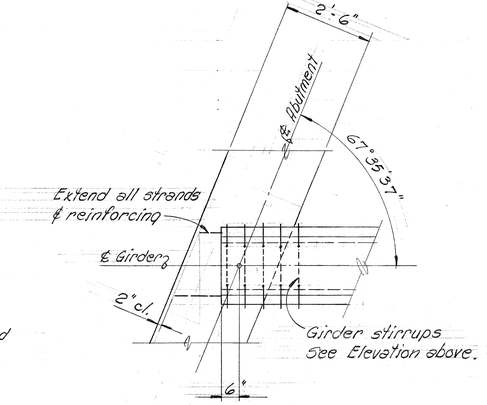
SECTION "Y"-"Y"

Scale: 1" = 1'-0"



DETAIL (1/8)

Scale: 1" = 1'-0"



PLAN - GIRDER END DETAIL (2/8)

Scale: ½" = 1'-0"

SPECIAL NOTES

1. Concrete compressive strength at 28 days: 5,500 psi
2. Concrete strength at stress transfer: 4,000 psi
3. Prestressing steel shall be 250 ksi ultimate strength, 7-wire stress relieved strands.
4. All girders shall be aged at least 7 days from stress transfer before deck slab can be poured.

SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE
ORIGINAL PLAN
NOTE BOOK
No.

SHIMAZU SHIMABUKURO & FUKUDA, INC.
Consulting Structural Engineers
1210 Ward Ave. Honolulu, Hawaii 96814

HOWARD Y. FUKUDA REGISTERED PROFESSIONAL ENGINEER No. 1343 HAWAII, U.S.A.
RYONICHI HIGASHIONNA REGISTERED PROFESSIONAL ENGINEER No. 1762 HAWAII, U.S.A.

This work was prepared by me or under my supervision.

Howard Y. Fukuda

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRUCTURE No. 6

GIRDER DETAILS

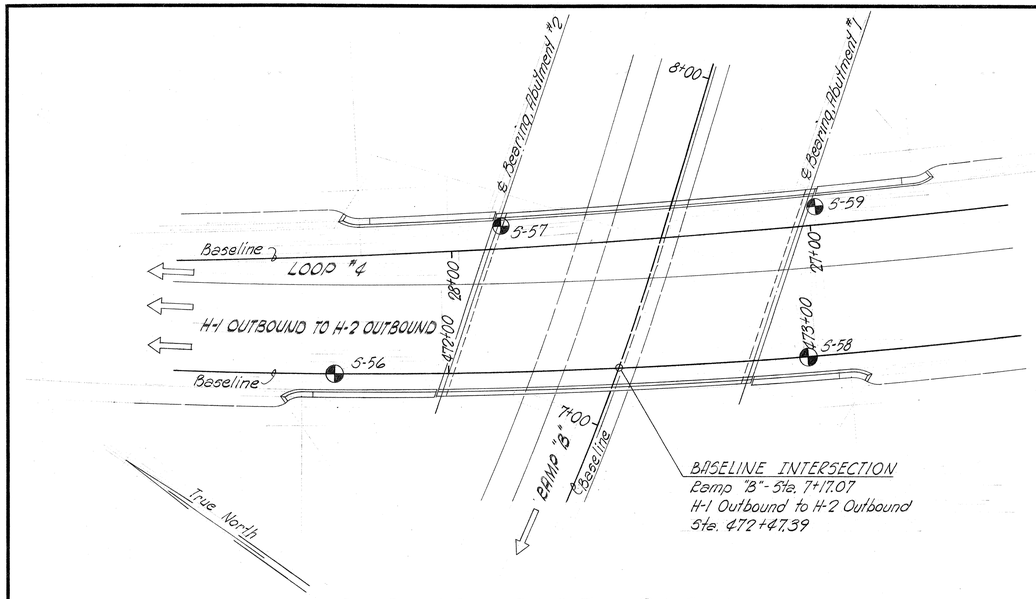
WAIAWA INTERCHANGE
F.A.I. Proj. No. I-HI-1(69):8

Scale: As shown Date: OCT. 1968

SHEET No. 8 OF 9 SHEETS

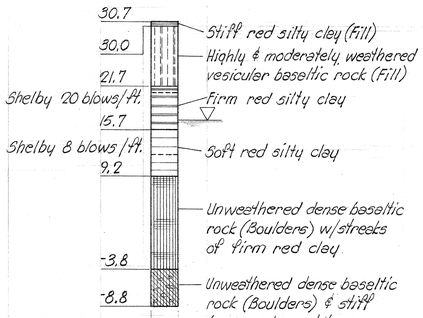
PRESTRESSED AASHO GIRDER No. IV DETAILS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(69)8	1968	78	144

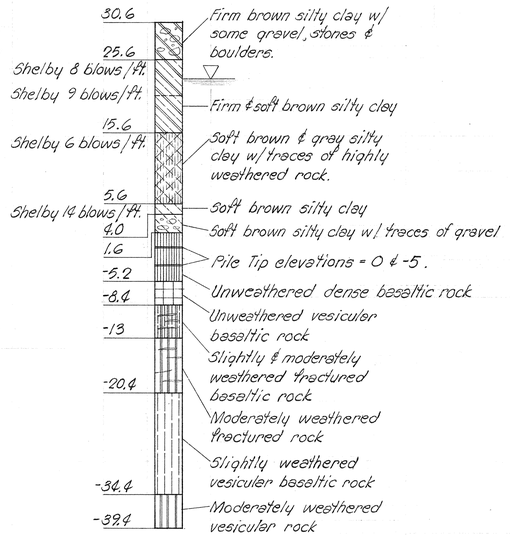


BORING PLOT PLAN

Scale: 1" = 20'-0"

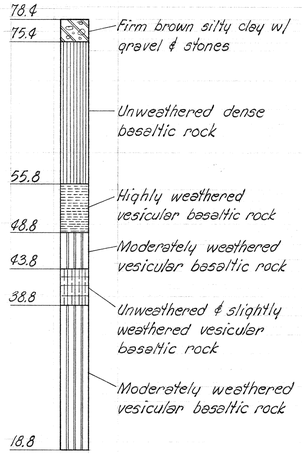


S-56

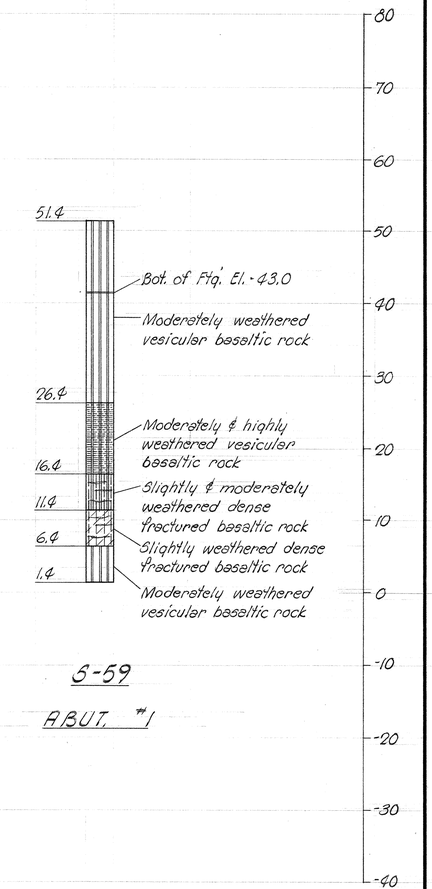


S-57

ABUT. #2



S-58



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ABUT. #1

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	"
	TRACED BY	"
NOTE BOOK	DESIGNED BY	"
	QUANTITIES BY	"
No.	CHECKED BY	"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRUCTURE No. 6

BORING LOGS

WAIAWA INTERCHANGE
F.A.I. Proj. No. I - HI - 1 (69):8

Scale: As shown Date: OCT. 1968

SHEET No. 9 OF 9 SHEETS

BORING LOGS FOR STRUCTURE 6