

CURVE DATA

$\Delta = 90^{\circ}00'00''$
 $\Delta/2 = 45^{\circ}00'00''$
 $R = 1516'$
 $T = 1516'$
 $L_c = 2381.327'$

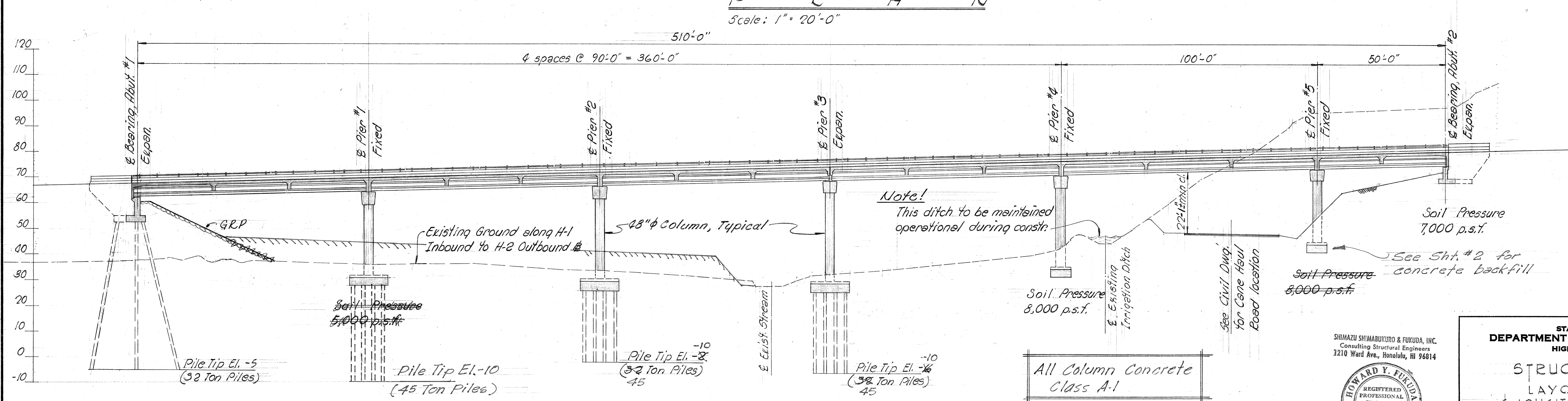
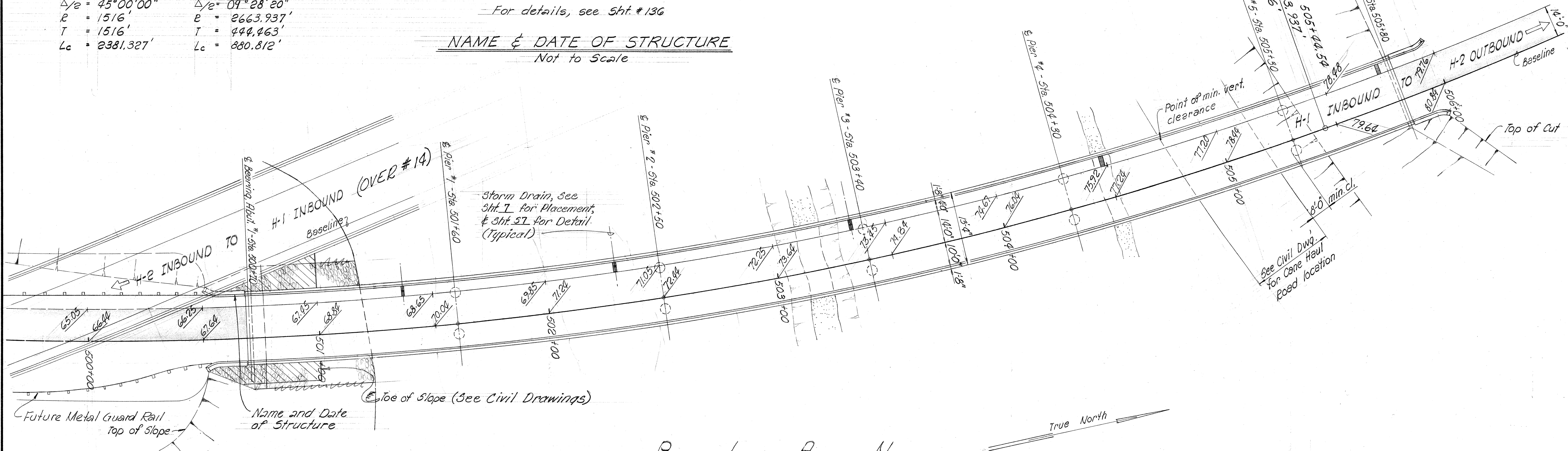
$\Delta = 18^{\circ}56'40''$
 $\Delta/2 = 09^{\circ}28'20''$
 $R = 2663.937'$
 $T = 444.463'$
 $L_c = 880.812'$

WAIAWA INTERCHANGE STRUCTURE 14 10

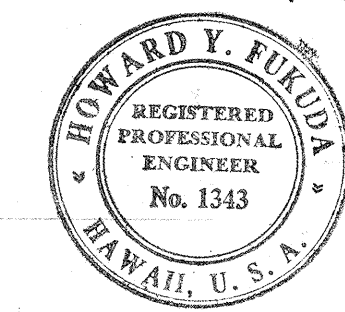
For details, see Sht. #136

NAME & DATE OF STRUCTURE
Not to Scale

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(75):8	1969	80	121



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Consulting Structural Engineers
1210 Ward Ave., Honolulu, HI 96814



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRUCTURE No. 14
LAYOUT PLAN
& LONGITUDINAL SECTION

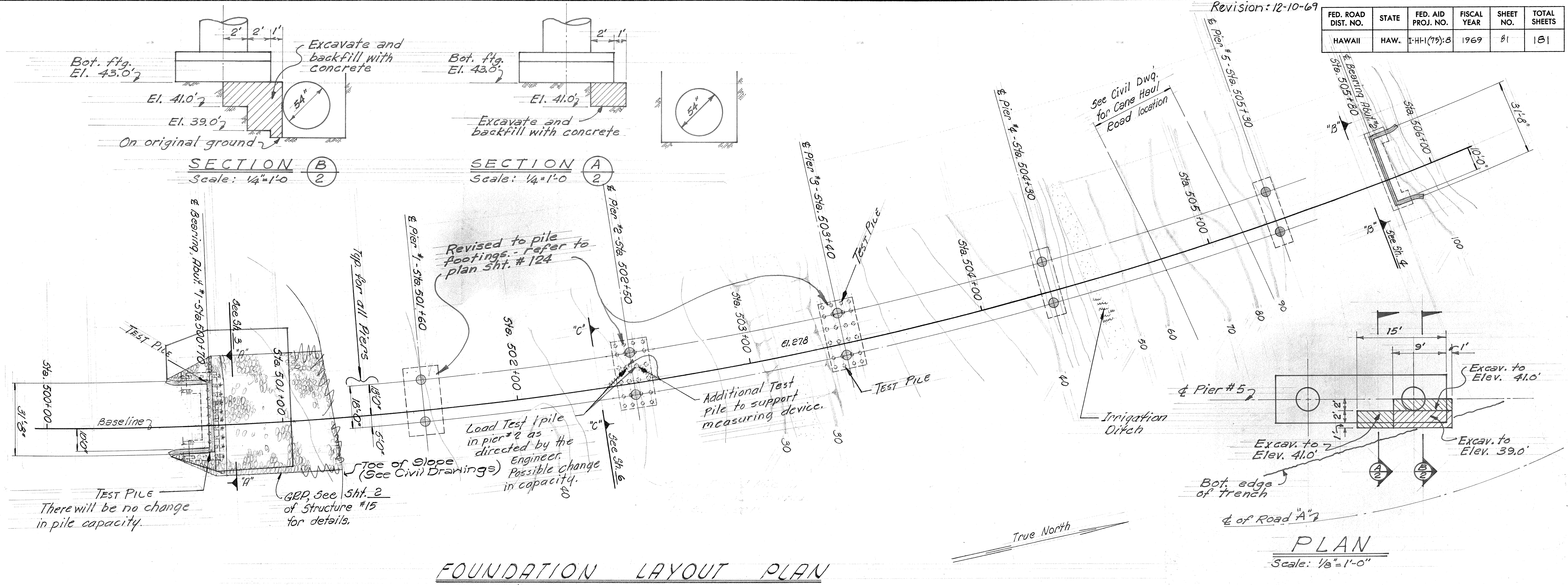
WAIAWA INTERCHANGE
F.A.I. Proj. No I-HI-1 (75):8

Scale: As shown Date: JUNE, 1969

SHEET No. 1 OF 10 SHEETS

Revision: 12-10-69

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(75):8	1969	81	181



FOUNDATION LAYOUT PLAN
Scale: 1" = 20'-0"

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

STRUCTURE #14 QUANTITY ESTIMATES

ITEM #	ITEM	UNIT	QUANTITY
14.60	Structure Excavation for Bridges	C.Y.	867
46.063	Concrete in Structure # 14 (Except in Footings)	L.S.	773 c.y.
46.064	Concrete in Footings for Structure #14	L.S.	284 c.y.
46.116	Type II Prestressed Concrete Girders for Structure #14	L.S.	2535 L.F.
48.62	Reinforcing Steel in Structure #14	L.S.	244,800 LBS
51.04	Pile Load Test for Structure #14	Ea.	one (1)
51.94	Furnishing Conc. Piles for Structure # 14	L.F.	2,865
51.95	Driving Conc. Piles for Structure #14	L.F.	2,372
52.10	Filter Material for Structures	C.Y.	56
55.10	Metal Bridge Rail	L.F.	1080
55.50	Concrete Bridge Parapet, Including End Post	L.F.	1090
65.04	Grouted Rubble Paving for Bridges	C.Y.	63
51.07	Driving Test Piles for Structure #14	L.F.	233

DESIGN CRITERIA

1. Loads - HS20-44 or Interstate Loading
2. Specifications - Standard Specifications for Highway Bridges, AASHTO, 9TH Edition.
3. Design Stresses.
 - a) $f_c' = 3,000$ p.s.i. Concrete unless otherwise noted
 - b) $f_s = 20,000$ p.s.i. Reinforcing Steel
4. Prestressed Girders, See Sh. 58.
5. Pile Capacity, See Longitudinal Section, Sh. 1.
6. Allowable Foundation Pressure - See Longitudinal Section, Sh. 1.

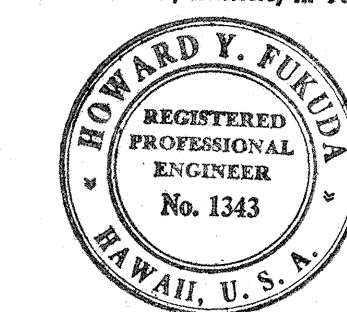
SPECIAL NOTES:

1. See civil drawings for extent of area to be surcharged.
2. No work shall be permitted over surcharged area for 12 months after placement of surcharge.
3. Work permitted on 3 continuous spans adjacent to surcharged area shall not include placing deck slab during period of surcharge application.
4. Work on all other 3 continuous spans shall be permitted.

REFERENCE DRAWINGS

1. Abutment #1 Foundation --- Sh. 3
2. Abutment #2 Foundation --- Sh. 4
3. Pier Foundations --- Sh. 52
4. Pier Columns --- Sh. 51
5. General Notes --- Sh. 59

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Consulting Structural Engineers
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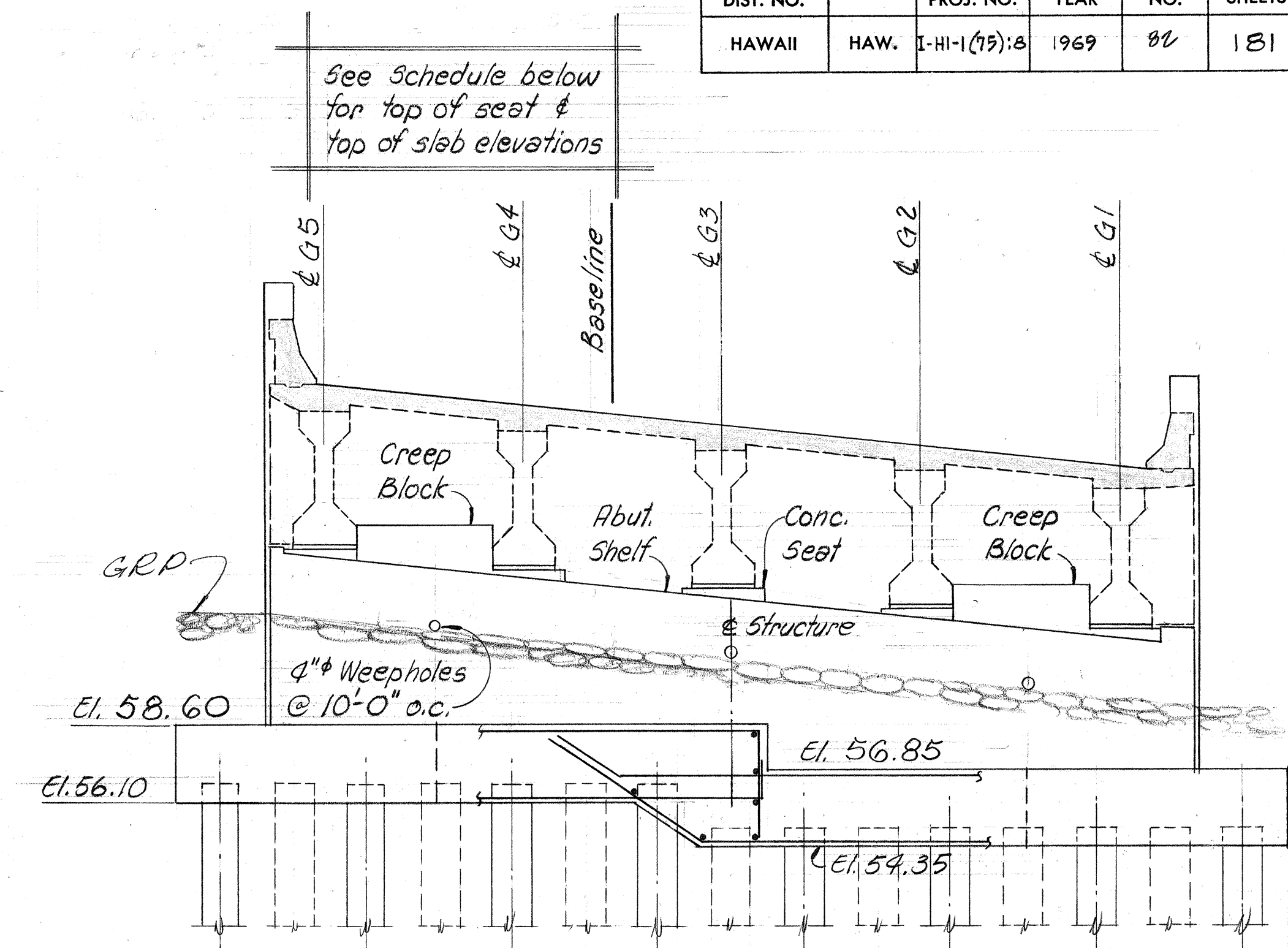
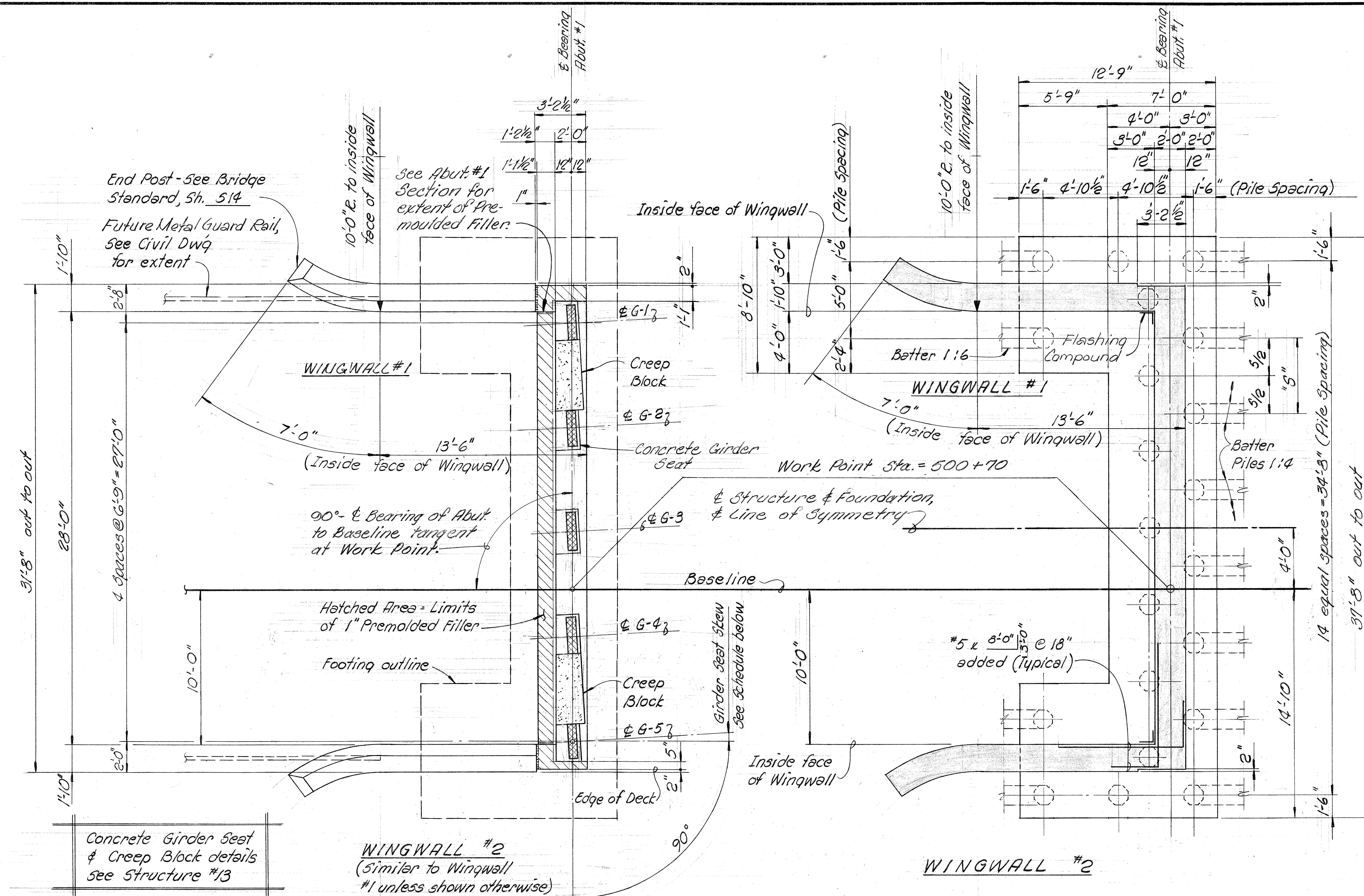
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRUCTURE No. 14
FOUNDATION LAYOUT PLAN

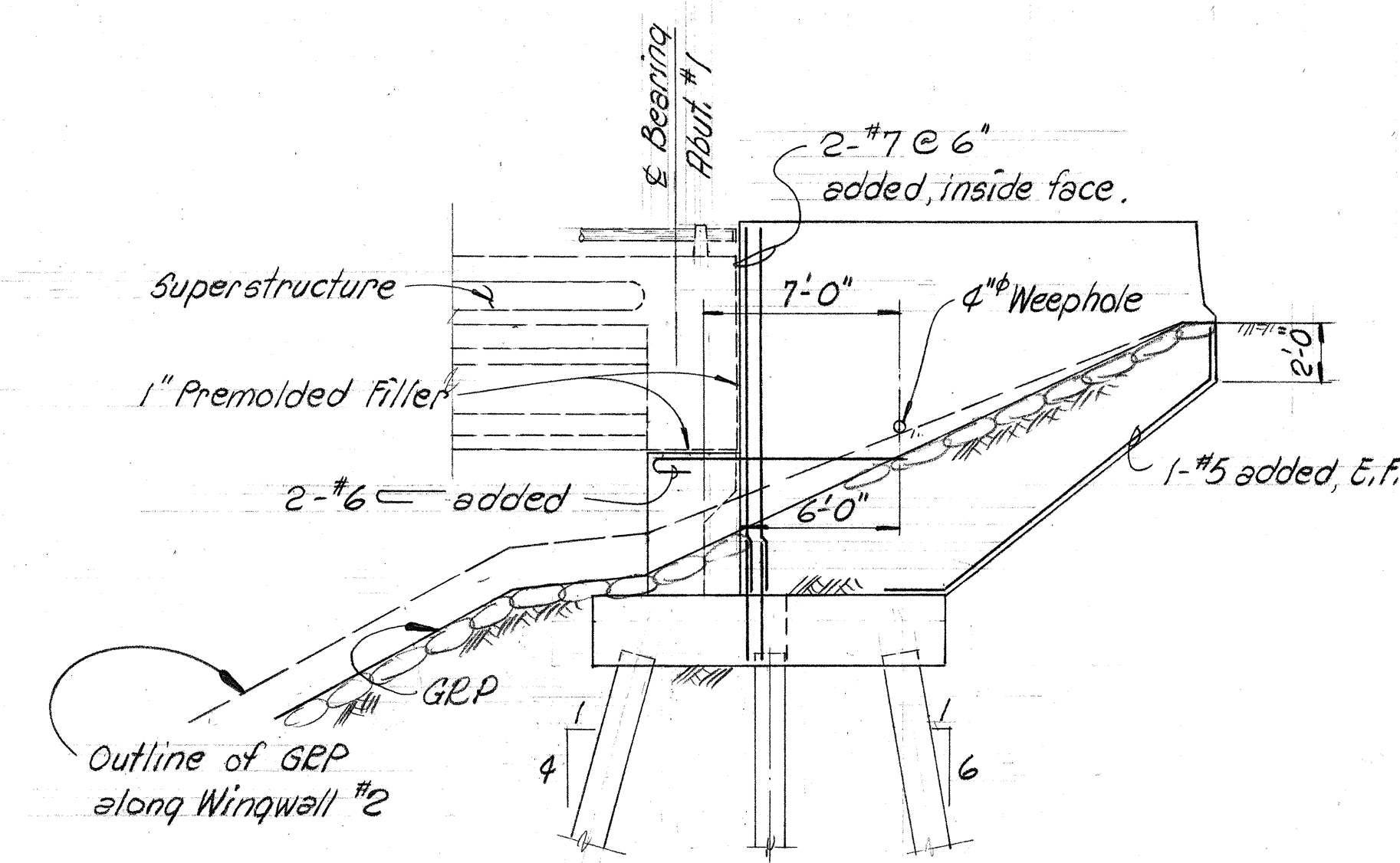
WAIKAWA INTERCHANGE
F.A.I. Proj. No. I-HI-1(75):8

Scale: As shown Date: JUNE, 1969
SHEET No. 2 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(75):8	1969	81	181



ABUTMENT #1 ELEVATION "A-A"
Scale: 1/4" = 1'-0"

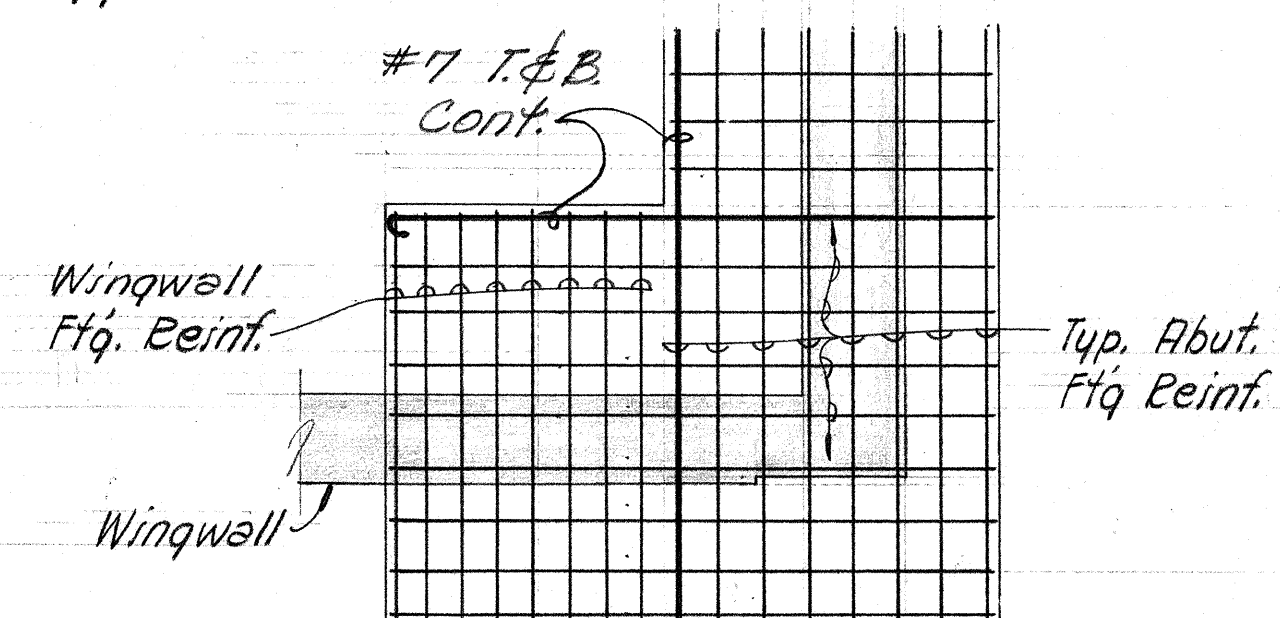


WINGWALL #1 ELEVATION
Scale: 3/16" = 1'-0" (Wingwall #2 similar)

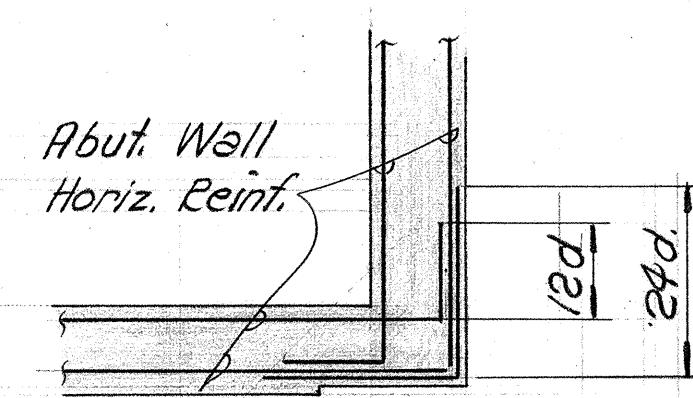
ABUTMENT #1 SCHEDULE OF ELEVATIONS, GIRDER SEAT SKEWS & BEVELS					
Girders	Top of Slab Elevations	Bot of Girder Elevations	Top of Seat Elevations	Seat Skew	Seat Bevel
G-1	66.42	61.02	60.90	3/8":12	5/16":12
G-2	67.09	61.69	61.57	3/8":12	5/16":12
G-3	67.76	62.36	62.24	3/8":12	5/16":12
G-4	68.43	63.03	62.91	3/8":12	5/16":12
G-5	69.10	63.70	63.58	3/8":12	5/16":12

Elevations given are at E intersections.
Girder Seat bevels - See diagram Sh. 5

PLANS ~ ABUTMENT #1
Scale: 1/4" = 1'-0"



**ABUTMENT FTG. CORNER
TYPICAL REINF. LAYOUT**
N.T.S.



**ABUTMENT WALL CORNER
TYPICAL REINF. LAYOUT**
N.T.S.



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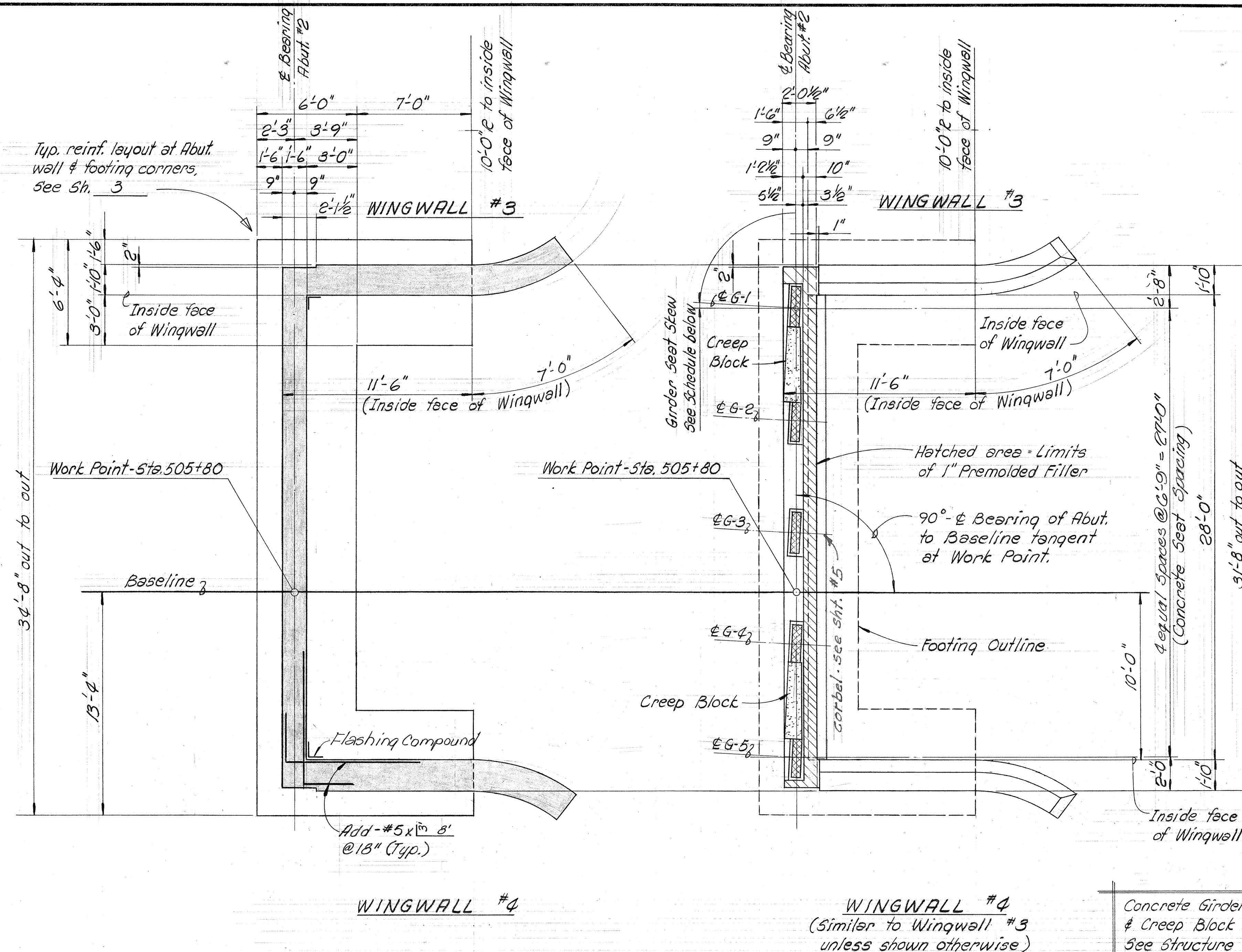
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRUCTURE No. 14
ABUTMENT #1, WINGWALLS #1 & #2
PLANS & ELEVATIONS

WAIKAWA INTERCHANGE
F.A.I. Proj. No. I-HI-1(75):8

Scale: As shown Date: JUNE, 1969
SHEET No. 3 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(75):3	1969	83	181



FOUNDATION

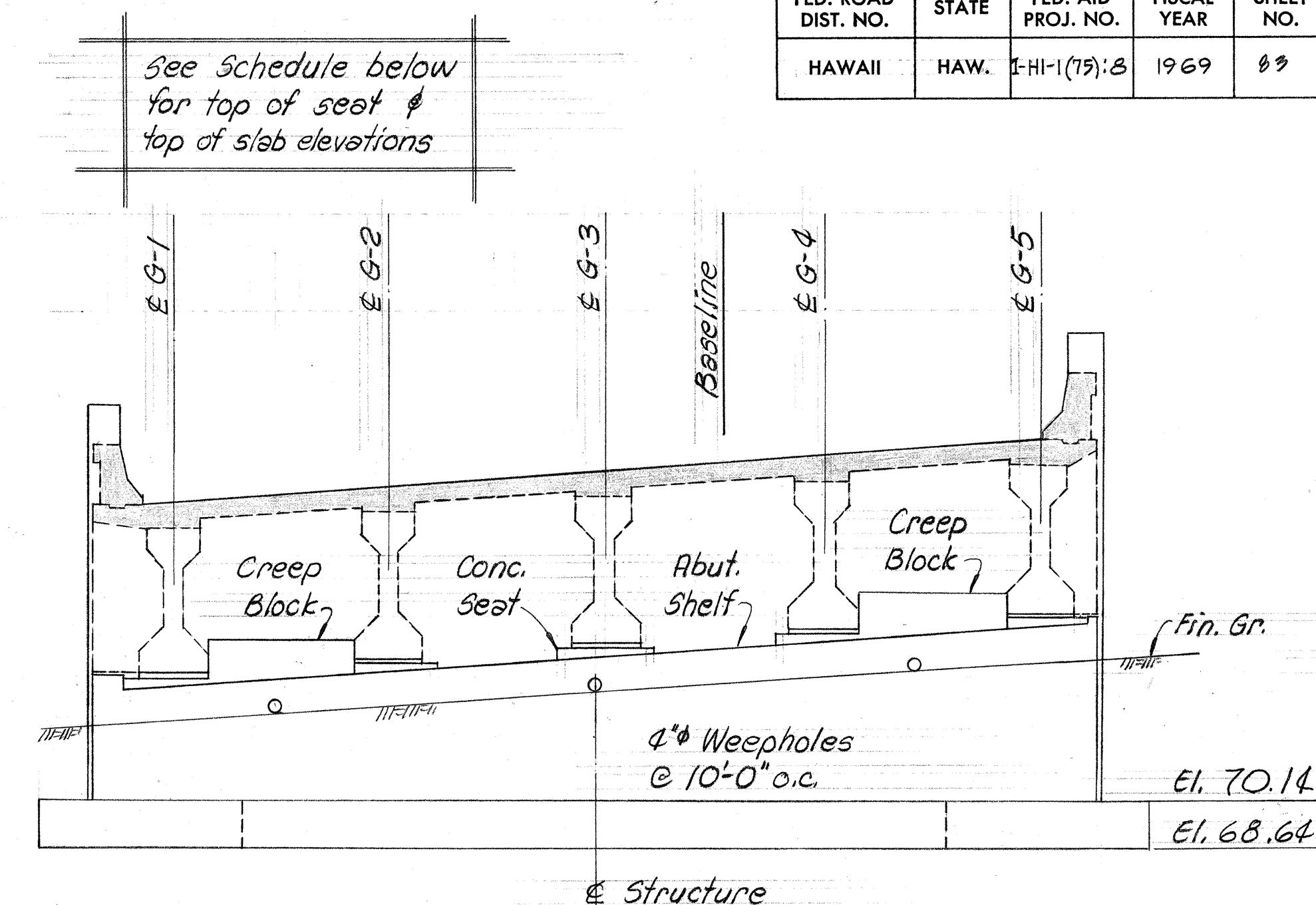
SHELF

PLANS ~ ABUTMENT #2

Scale: 1/4" = 1'-0"

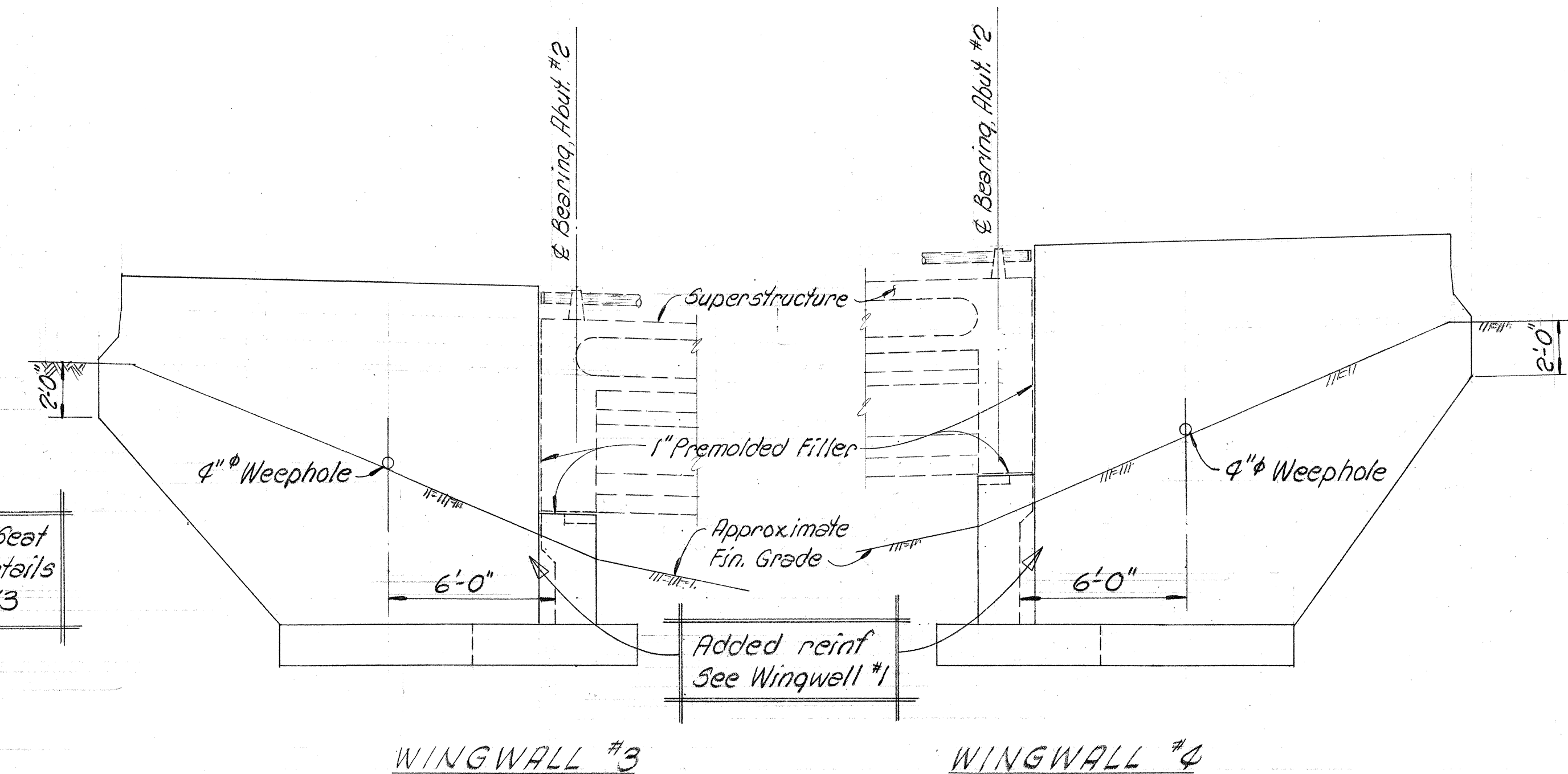
ABUTMENT #2 SCHEDULE OF ELEVATIONS, GIRDER SEAT SKEWS & BEVELS					
Girders	Top of Slab Elevations	Bot. of Girder Elevations	Top of Seat Elevations	Seat Skew	Seat Bevel
G-1	79.00	73.60	73.48	1/8" : 12	3/32" : 12
G-2	79.53	74.14	74.02	1/8" : 10	3/32" : 12
G-3	80.07	74.68	74.55	1/8" : 12	1/4" : 12
G-4	80.60	75.21	75.09	1/8" : 12	1/4" : 12
G-5	81.14	75.75	75.62	1/8" : 12	1/4" : 12

Elevations given are at E intersections
Girder Seat bevel - See diagram Sh. 5



ABUTMENT #2 ELEVATION "B"~"B"

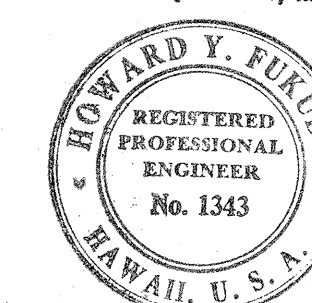
Scale: 1/4" = 1'-0"



WINGWALL ELEVATIONS

Scale: 1/4" = 1'-0"

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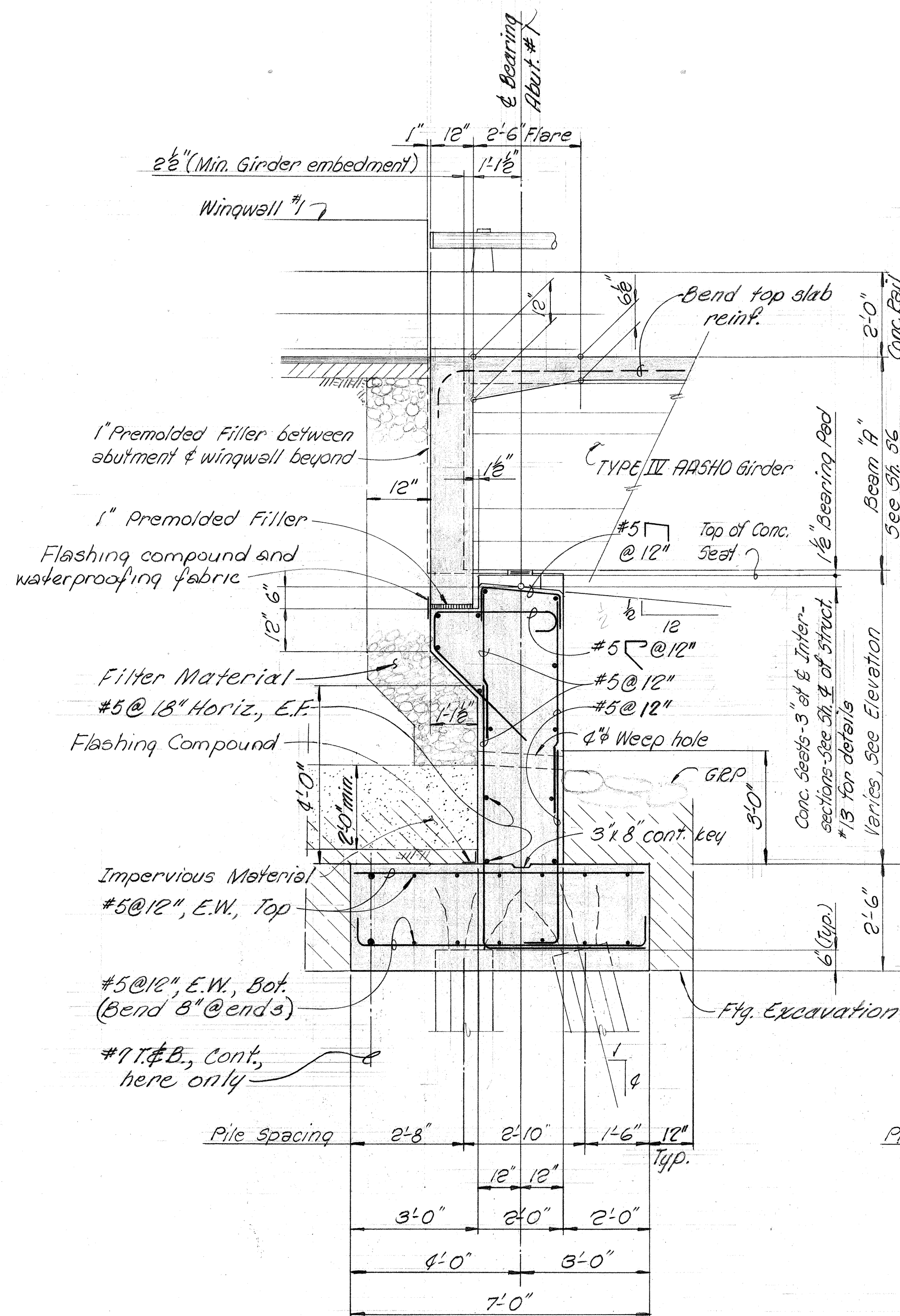
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRUCTURE No. 14
ABUTMENT #2, WINGWALLS #3 & #4
PLANS & ELEVATIONS

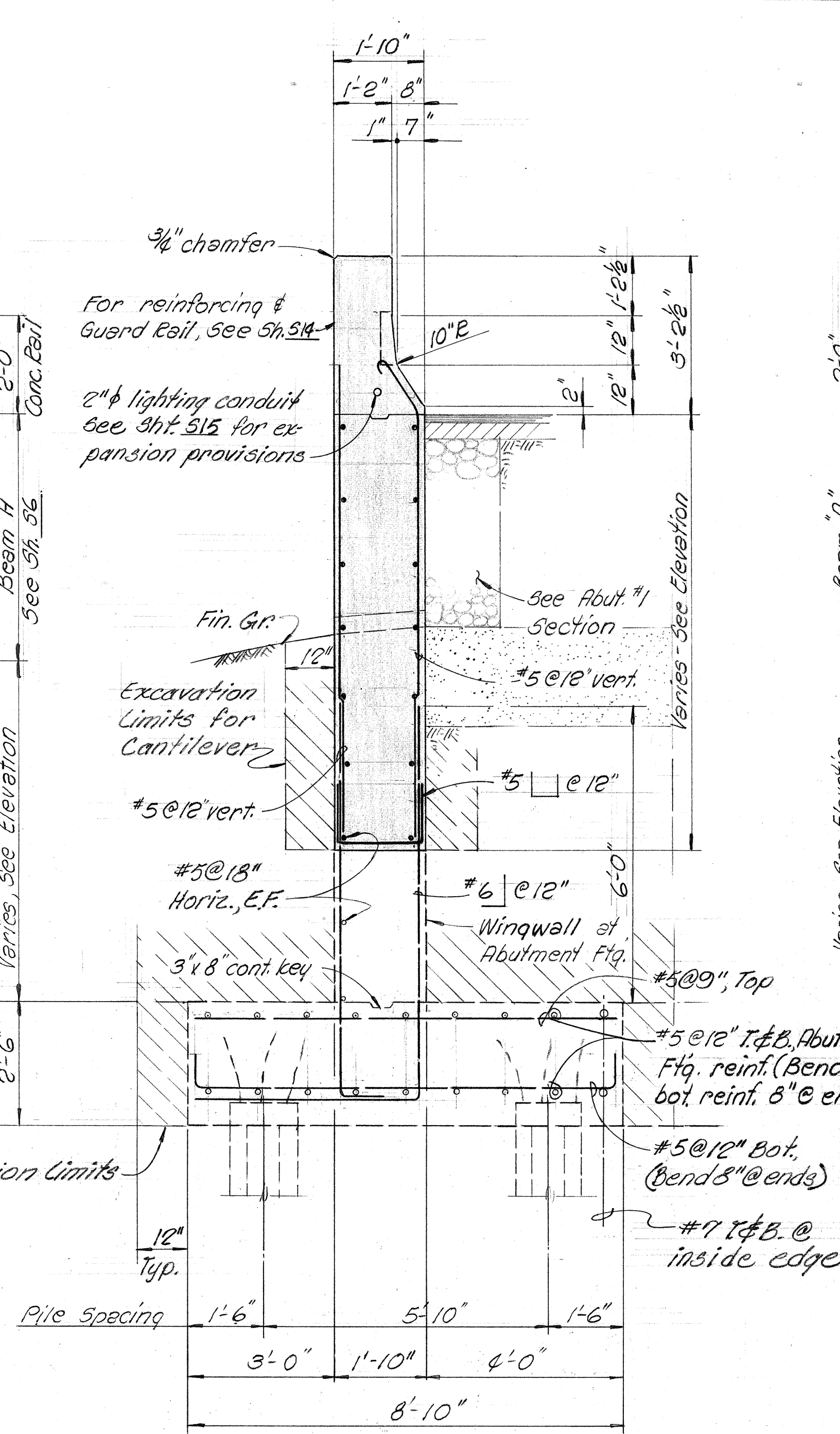
WAIKAWA INTERCHANGE
F.A.I. Proj. No. I-HI-1(75):3

Scale: As shown Date: JUNE, 1969
SHEET No. 4 OF 10 SHEETS

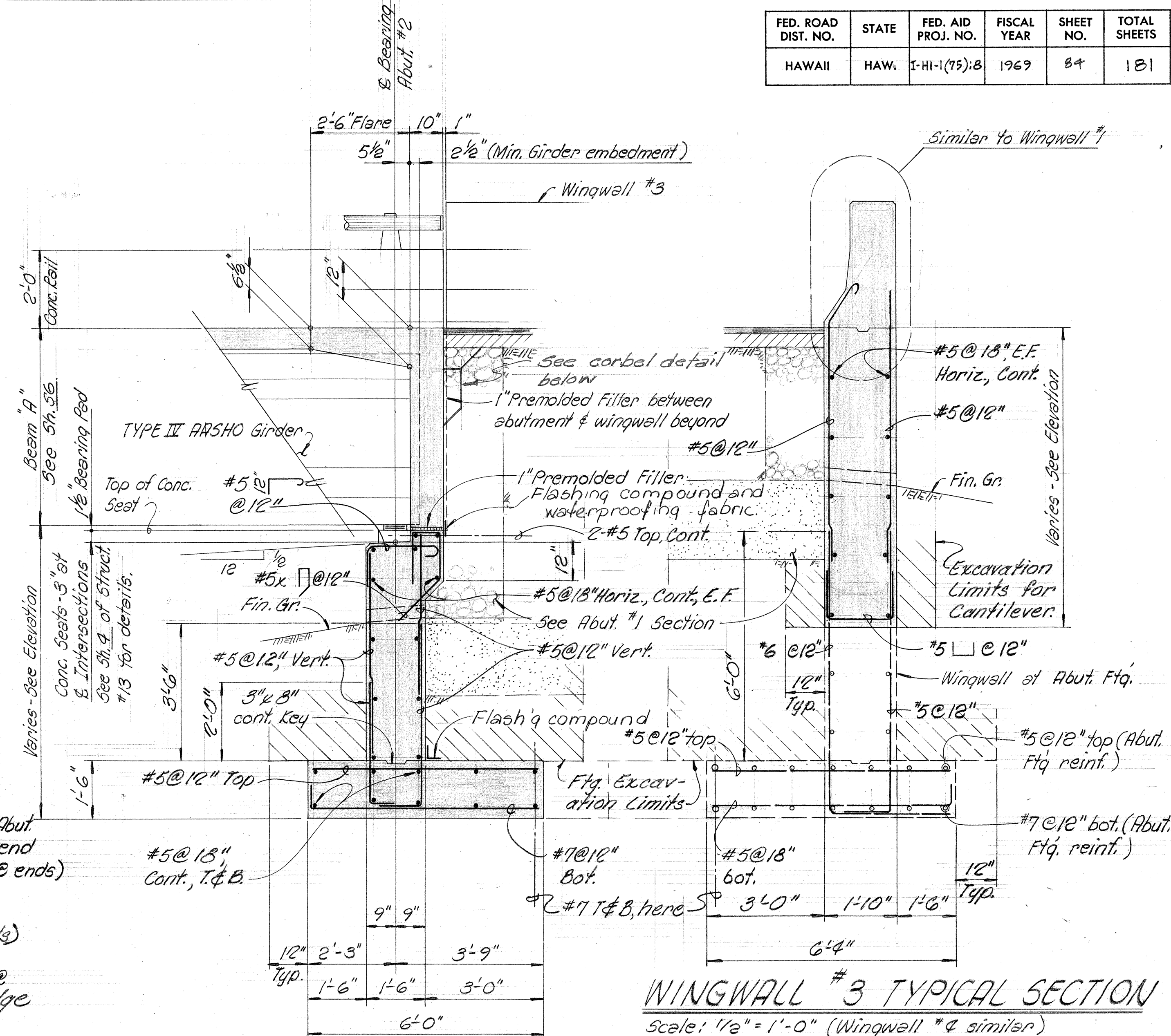
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(75):8	1969	84	181



ABUTMENT #1 TYPICAL SECTION
Scale: 1/2" = 1'-0"



WINGWALL #1 TYPICAL SECTION
Scale: 1/2" = 1'-0" (Wingwall #2 similar)



WINGWALL #3 TYPICAL SECTION
Scale: 1/2" = 1'-0" (Wingwall #4 similar)

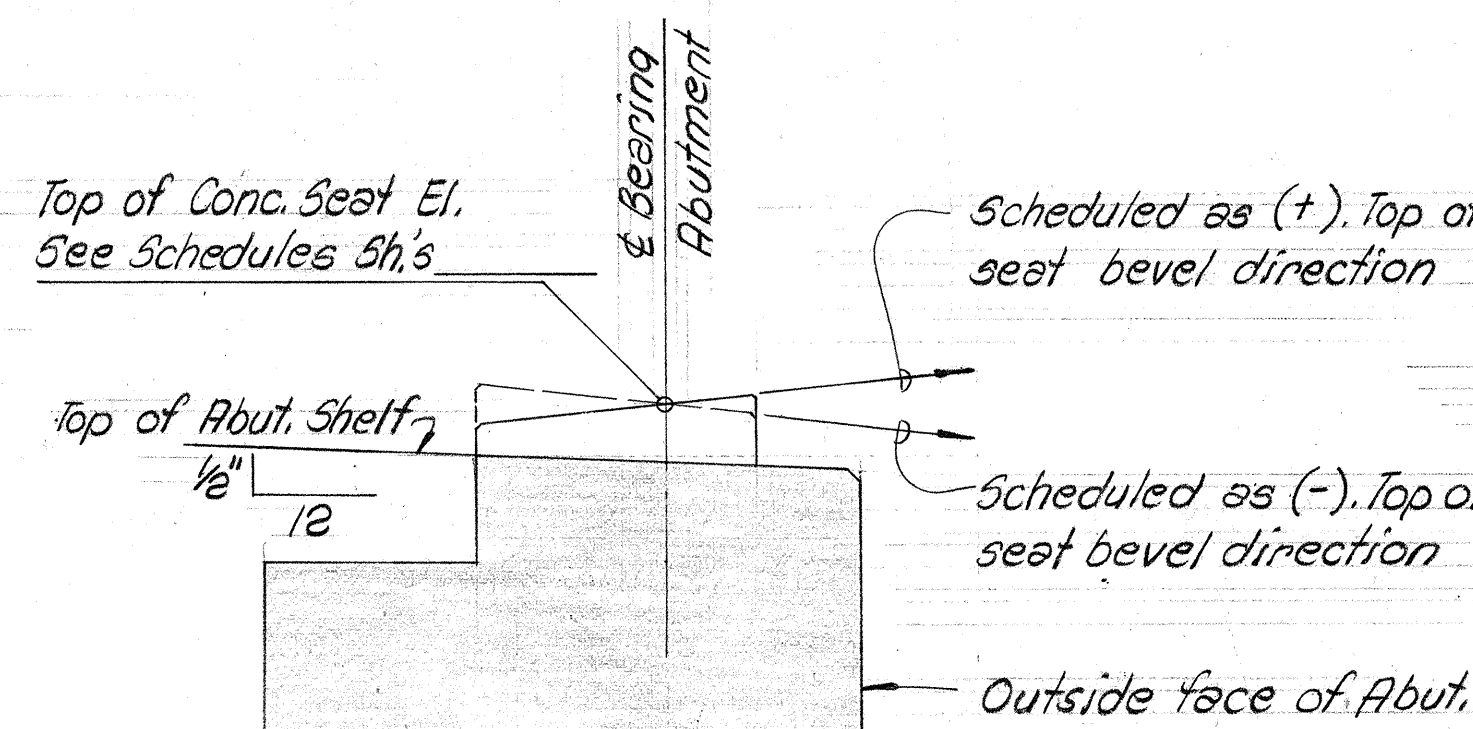
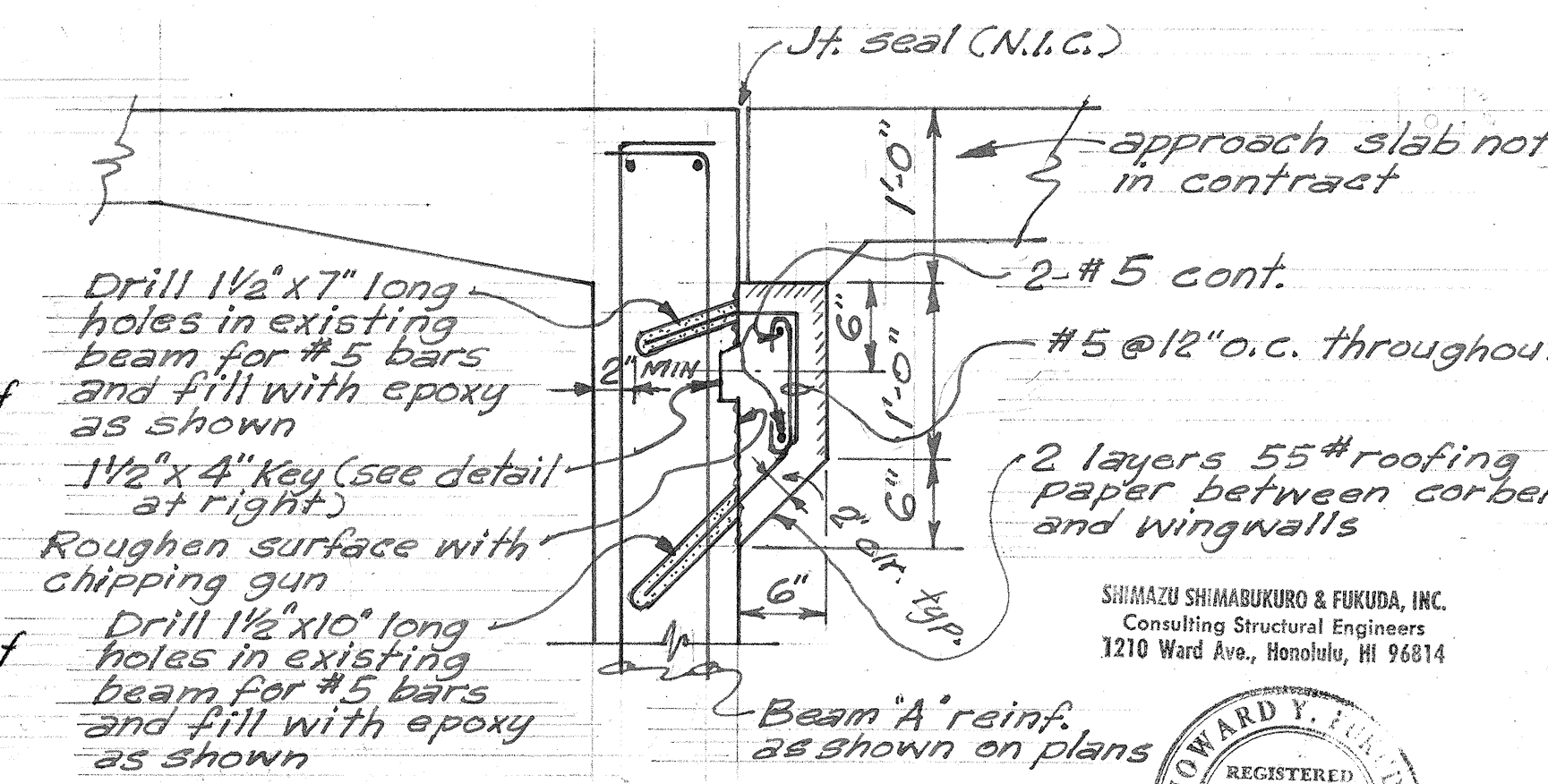


DIAGRAM SHOWING CONC. SEAT BEVEL DIRECTION
N.T.S.

NOTE: Top of seat bevel direction parallel to axis of girder.



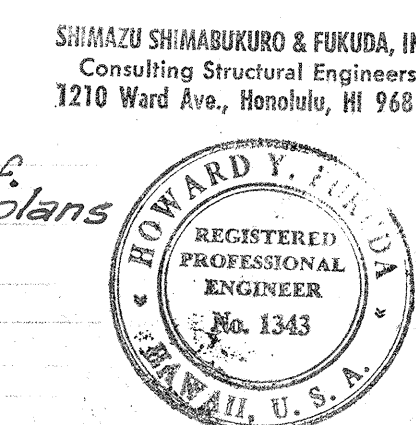
KEY DETAIL

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

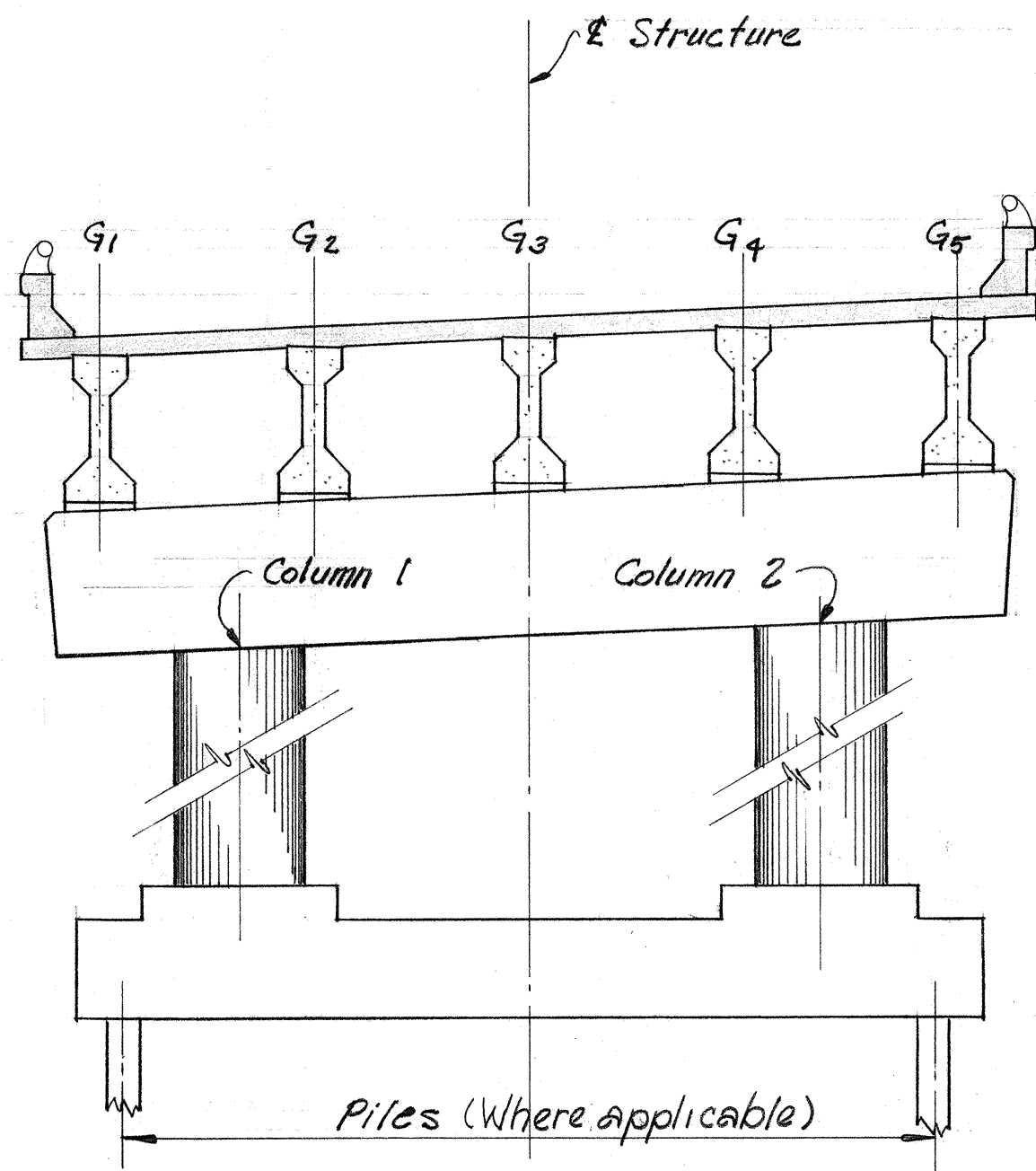
STRUCTURE No. 14
ABUTMENTS #1 & #2
& WINGWALL SECTIONS

WAIKAWA INTERCHANGE
F.A.I. Proj. No. I-HI-1(75):8

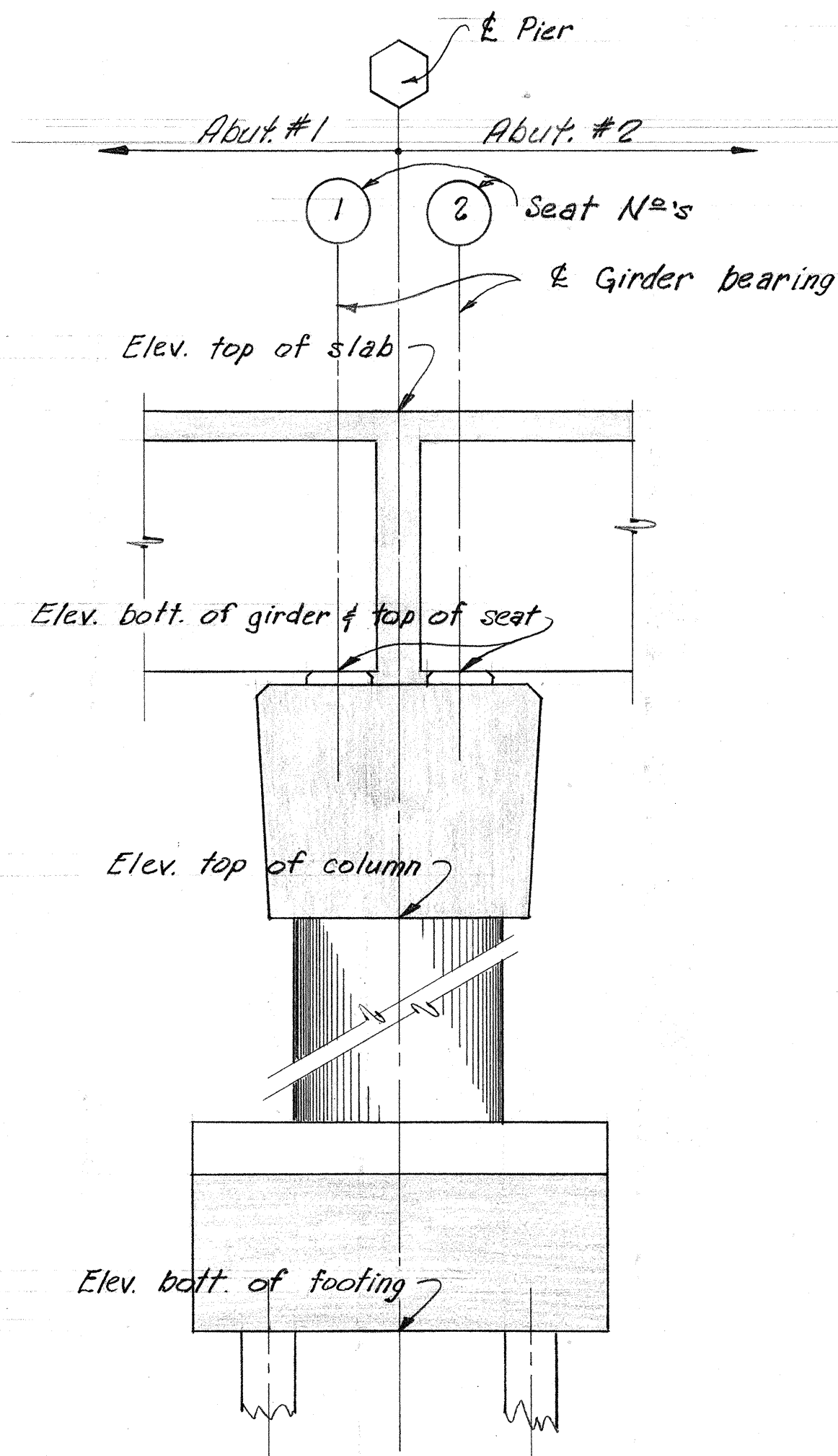
Scale: As shown Date: JUNE, 1969
SHEET No. 5 OF 10 SHEETS



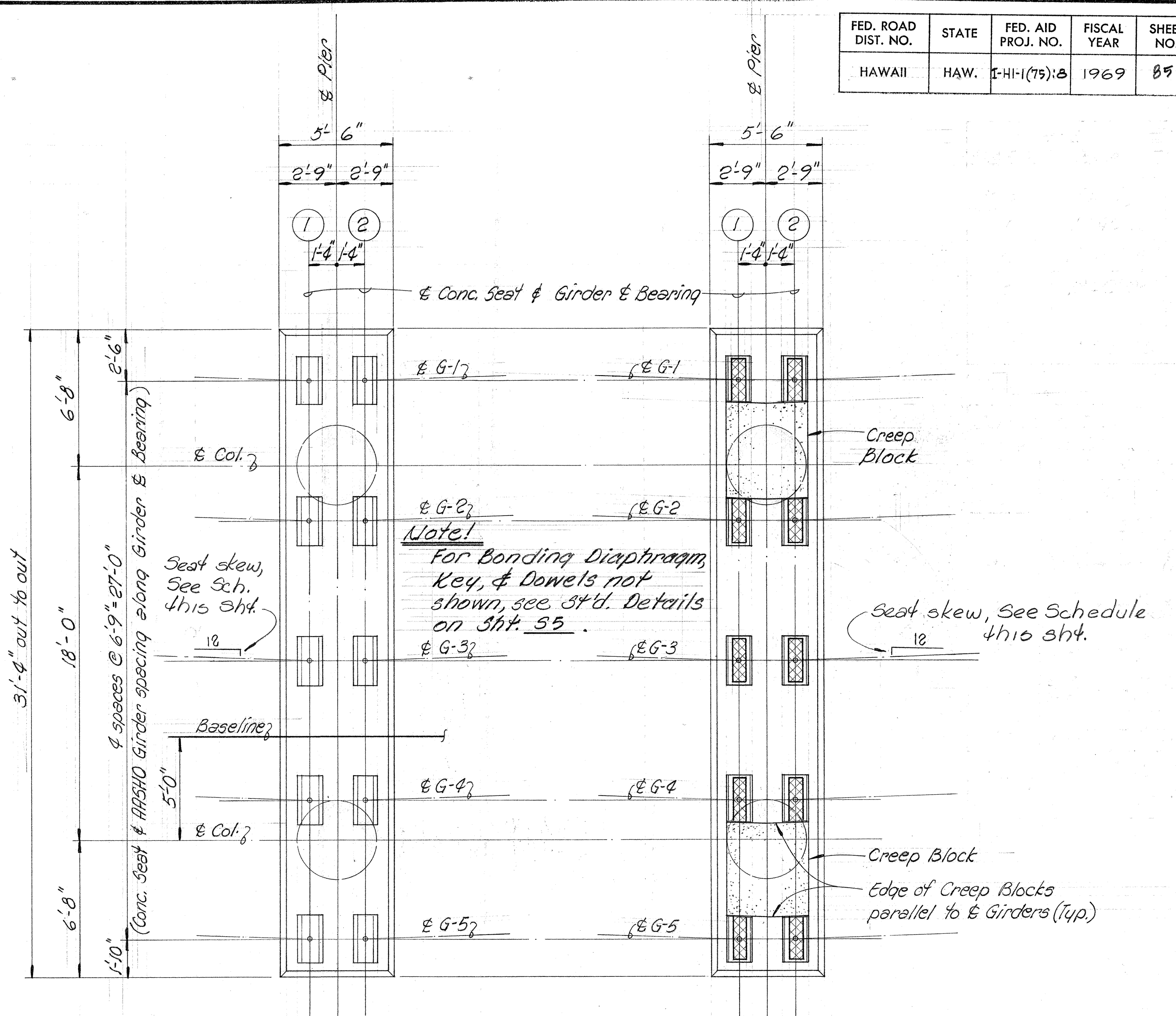
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SCHEMATIC
PIER ELEVATION "C"~"C"



SCHEMATIC PIER SECTION



PIERS #1, #2, #4 & #5
(FIXED)

PIER #3
(EXPAN.)

TOP OF PIER CAP PLANS
Scale: 1/4" = 1'-0"

SCHEDULE OF ELEVATIONS

SCHEDULE OF ELEVATIONS																																
Pier No	TOP OF SLAB					BOTTOM OF GIRDER										TOP OF SEAT										TOP OF COLUMN		BOTT. OF FOOTING				
	GIRDER					GIRDER & SEAT										GIRDER & SEAT										1	2					
G ₁	G ₂	G ₃	G ₄	G ₅	G ₁	G ₂	G ₃	G ₄	G ₅	G ₁	G ₂	G ₃	G ₄	G ₅	G ₁	G ₂	G ₃	G ₄	G ₅	G ₁	G ₂	G ₃	G ₄	G ₅	1	2						
1	68.57	69.25	69.92	70.59	71.26	63.15	63.82	64.50	65.17	65.85	See Note below										53.84	60.63	67.42	74.21	81.00	87.79	94.58	101.37	108.16	114.95	121.74	
2	70.74	71.40	72.07	72.74	73.42	65.31	65.98	66.65	67.32	67.99	68.66	See Note below										61.00	61.67	62.34	63.01	63.68	64.35	65.02	65.69	66.36	67.03	67.70
3	72.89	73.56	74.23	74.90	75.57	67.47	68.14	68.81	69.48	70.15	70.82	71.49	72.16	72.83	73.50	69.02	69.69	70.36	71.03	71.70	72.37	73.04	73.71	74.38	75.05	75.72	76.39	77.06				
4	75.11	75.76	76.41	77.05	77.70	69.69	70.34	70.99	71.63	72.28	72.94	See Note below										65.37	66.04	66.71	67.38	68.05	68.72	69.39	70.06	70.73	71.40	72.07
5	77.69	78.27	78.85	79.42	80.00	72.27	72.84	73.42	73.99	74.57	75.14	75.72	76.30	76.88	77.46	73.04	73.62	74.20	74.78	75.36	75.94	76.52	77.10	77.68	78.26	78.84	79.42	80.00				

Note:
Piers #1, #2, #4 & #5 are fixed supports, therefore bottom of girder is at same elevation as top of concrete seat. See Sh. 54 for Seat Details.

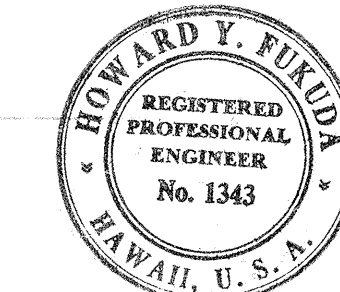
SCHEDULE

SEAT SKEW			SEAT BEVEL									
SEAT PIERS	1	2	PIER SEAT	1	2	3	4	5	6	7	8	9
1	3/8 : 12	3/8 : 12	GIRDER	1	2	3	4	5	6	7	8	9
2	3/8 : 12	3/8 : 12	G-1	1/16 : 12	1/32 : 12	1/32 : 12	1/32 : 12	1/32 : 12	1/32 : 12	1/32 : 12	1/32 : 12	1/32 : 12
3	3/8 : 12	3/8 : 12	G-2	1/16 : 12	1/32 : 12	1/32 : 12	1/32 : 12	1/32 : 12	1/32 : 12	1/32 : 12	1/32 : 12	1/32 : 12
4	3/8 : 12	1/16 : 12	G-3	1/16 : 12	1/32 : 12	1/32 : 12	1/32 : 12	1/32 : 12	1/32 : 12	1/32 : 12	1/32 : 12	1/32 : 12
5	1/16 : 12	1/8 : 12	G-4	1/16 : 12	1/32 : 12	1/32 : 12	1/32 : 12	1/32 : 12	1/32 : 12	1/32 : 12	1/32 : 12	1/32 : 12
			G-5	1/16 : 12	1/32 : 12	1/32 : 12	1/32 : 12	1/32 : 12	1/32 : 12	1/32 : 12	1/32 : 12	1/32 : 12

REFERENCE DRAWINGS

- Foundations ----- Sh. 52
- Pier Caps ----- Sh. 53
- Concrete Seats & Creep Blocks -- Sh. 54

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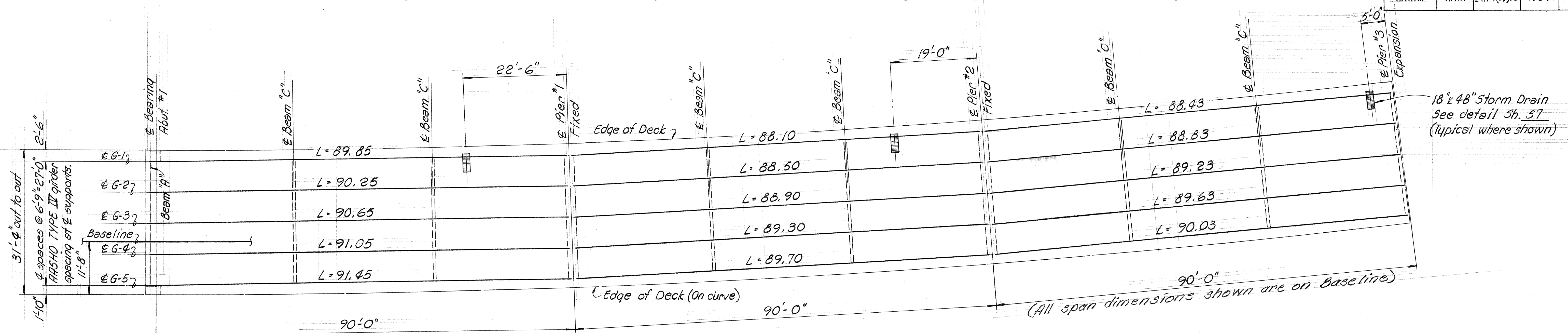


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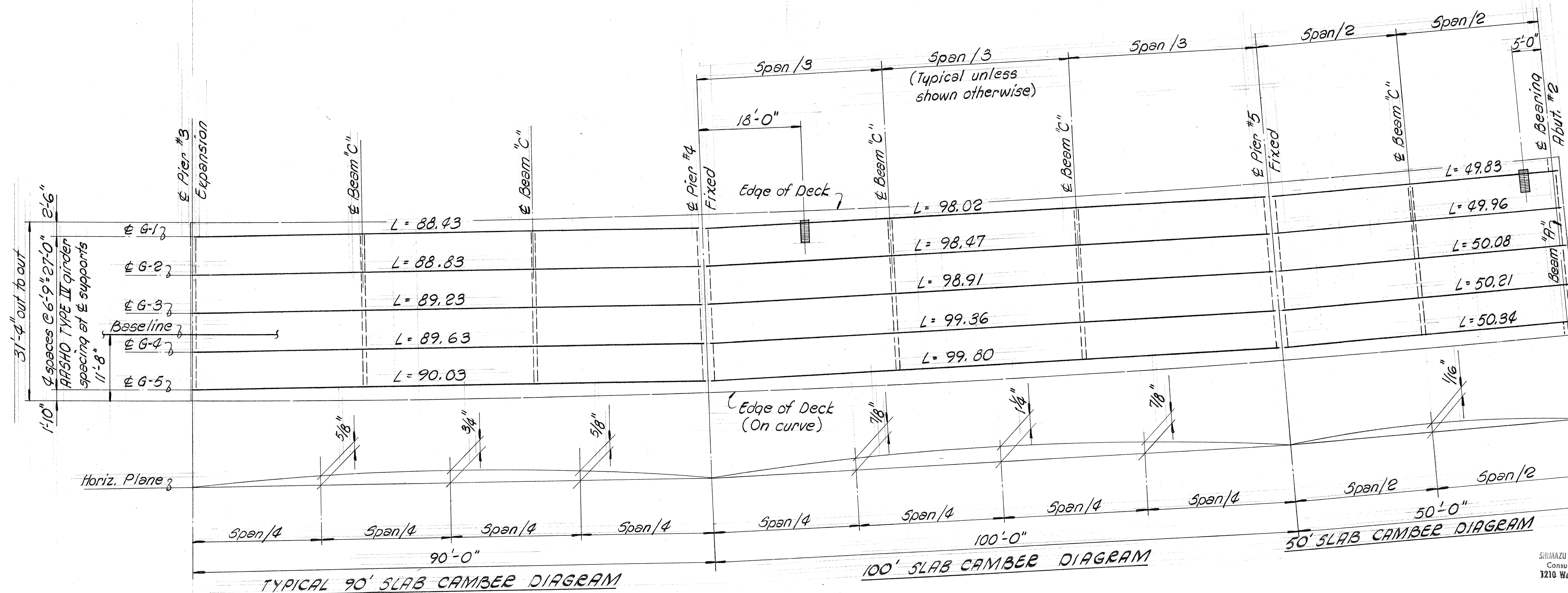
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRUCTURE NO. 14
PIER ELEVATION, SECTION, SCHEDULE OF ELEVATIONS & TOP OF PIER CAP PLANS
WAIKAWA INTERCHANGE
F.A.I. Proj. No. I-HI-1(75):B
Scale: As shown Date: JUNE, 1969
SHEET No. 6 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(75):8	1969	86	181



ABUTMENT #1 TO PIER #3



NOTE!

Girder casting lengths given on this sheet are measured at girder ϵ and horizontally out to out.

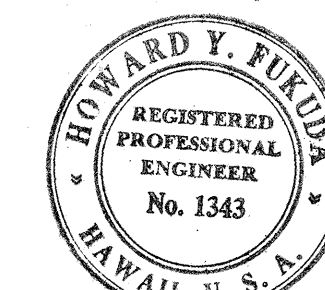
REFERENCE DRAWINGS

- | | |
|---|--------|
| 1. Beam "A" ————— | Sh. 56 |
| 2. Beam "C" ————— | Sh. 56 |
| 3. Beam over Fixed &
Expansion Pier Supports ——— | Sh. 55 |

DECK FRAMING PLANS
500/c, 3/8" = 1'-0"

Scale: $\frac{3}{32}'' = 1'-0''$

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**STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION**

STRUCTURE No. 14

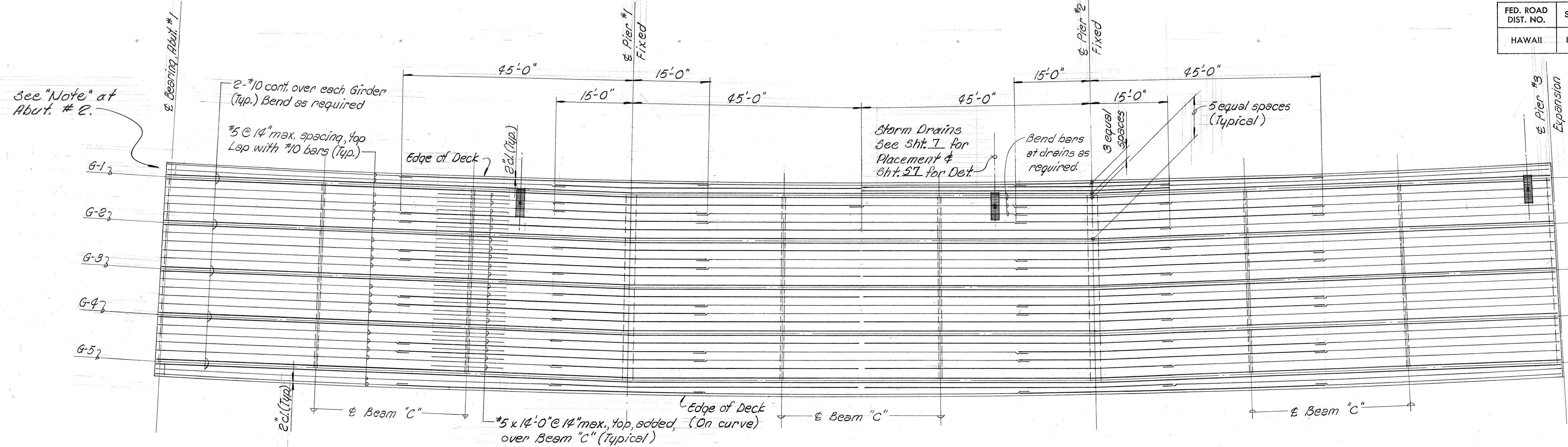
DECK FRAMING PLANS

WAIAWA INTERCHANGE
F.A.I. Proj. No. I - HI - 1 (75):8

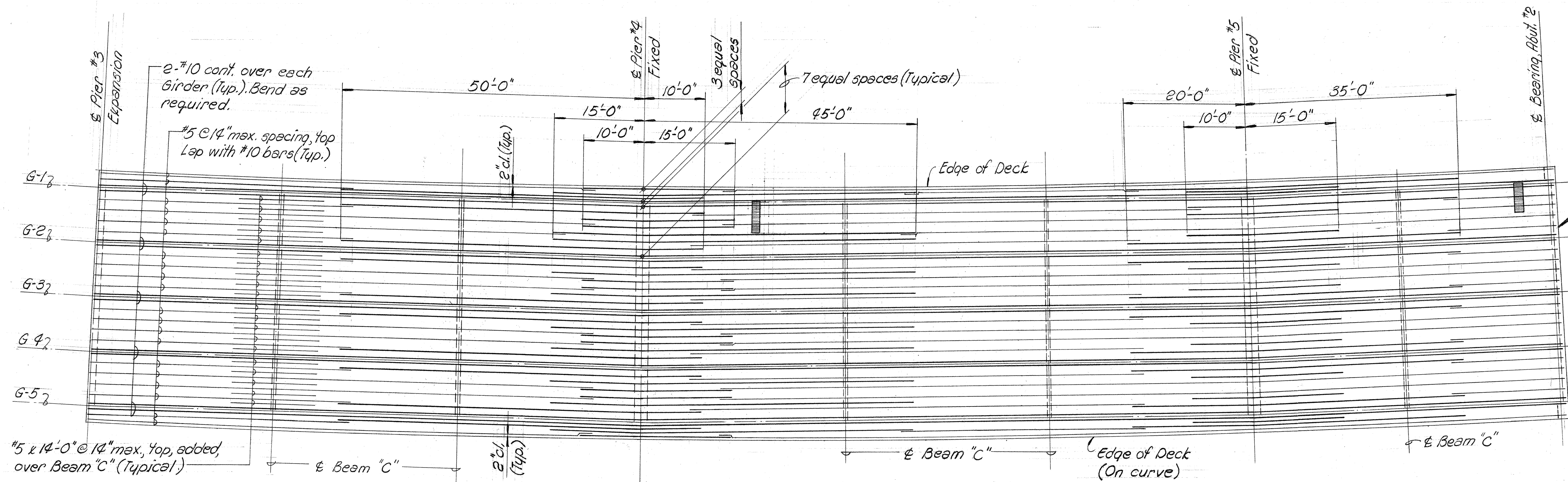
Scale: As shown Date: JUNE, 1969

SHEET No. 7 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(75):8	1969	87	181



PLAN BETWEEN ABUTMENT #1 & PIER #3



PLAN BETWEEN PIER #3 & ABUTMENT #2

DECK SLAB TOP LONGITUDINAL REINFORCING PLACEMENT PLAN

Scale: Horiz. - $\frac{3}{32}$ " = 1'-0" ; Vert. - $\frac{1}{8}$ " = 1'-0"

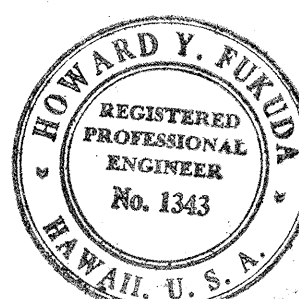
NOTE:

Bend Top Slab Reinforcing into Beam #1 as shown (Typ. at Abut #1 & Abut #2)

NOTES

1. Except as otherwise noted all slab bars to be #10 bars.
2. All #5 bars at 14" max. spacing shall be extended & lapped a min. of 2'-6" with adjacent #10 bars as shown.
3. Longitudinal deck reinforcing along edge of deck to follow curvature of deck edge.
4. Transverse bars not shown, See Typical Deck Section, Sht. 9
5. All vertical dimensions are measured plumb.

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STRUCTURE No. 14

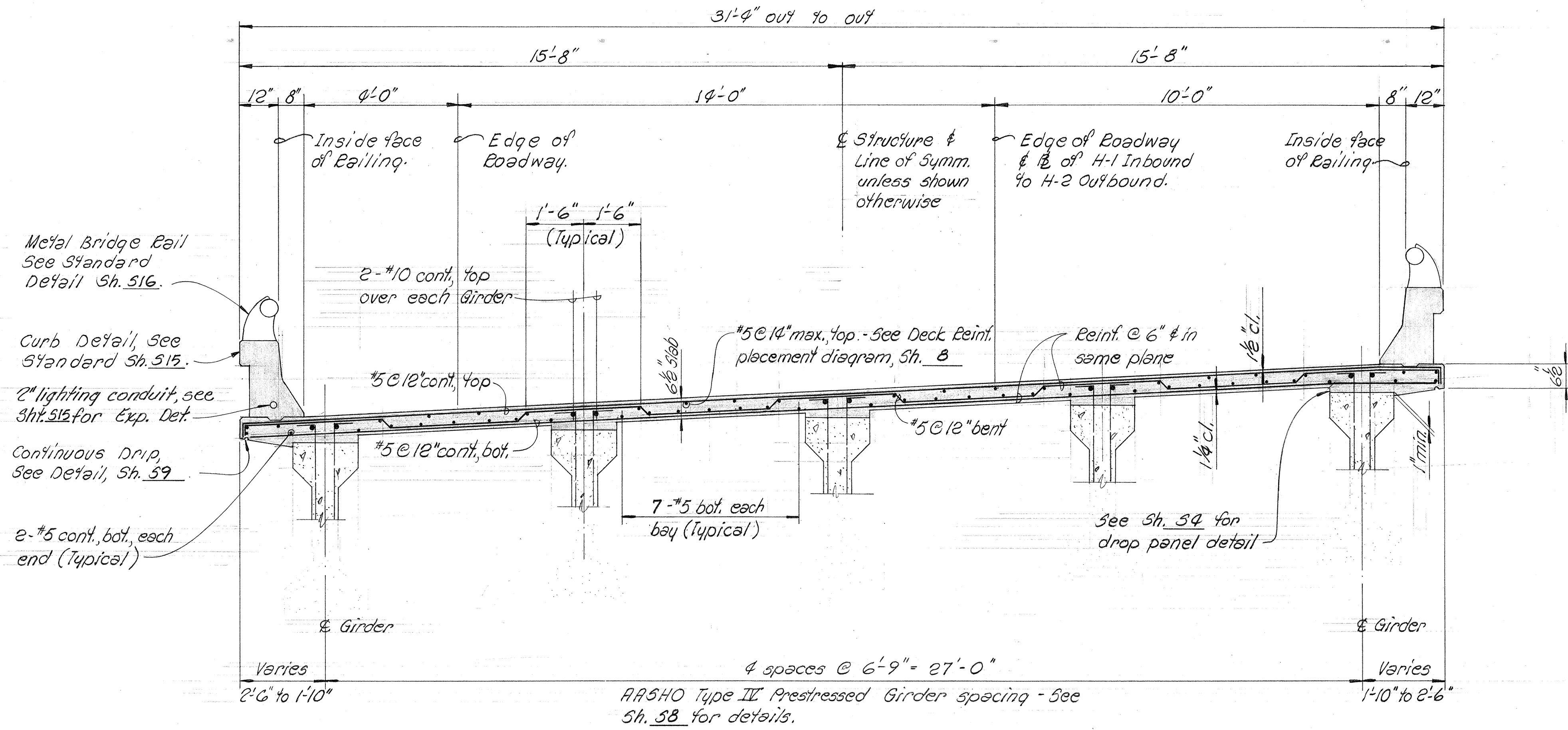
DECK SLAB TOP LONGITUDINAL REINFORCING

WAIKAWA INTERCHANGE
F.A.I. Proj. No. I-HI-1 (75):8

Scale: As shown Date: JUNE, 1969

SHEET No. 8 OF 10 SHEETS

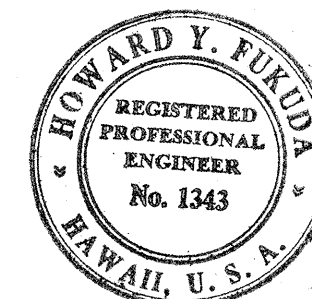
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(75):8	1969	28	101



TYPICAL DECK SECTION
Scale: 1/2" = 1'-0"

DATE	____
DESIGNED BY	____
TRACED BY	____
NOTE BOOK	____
QUANTITIES BY	____
CHECKED BY	____
NO.	____

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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

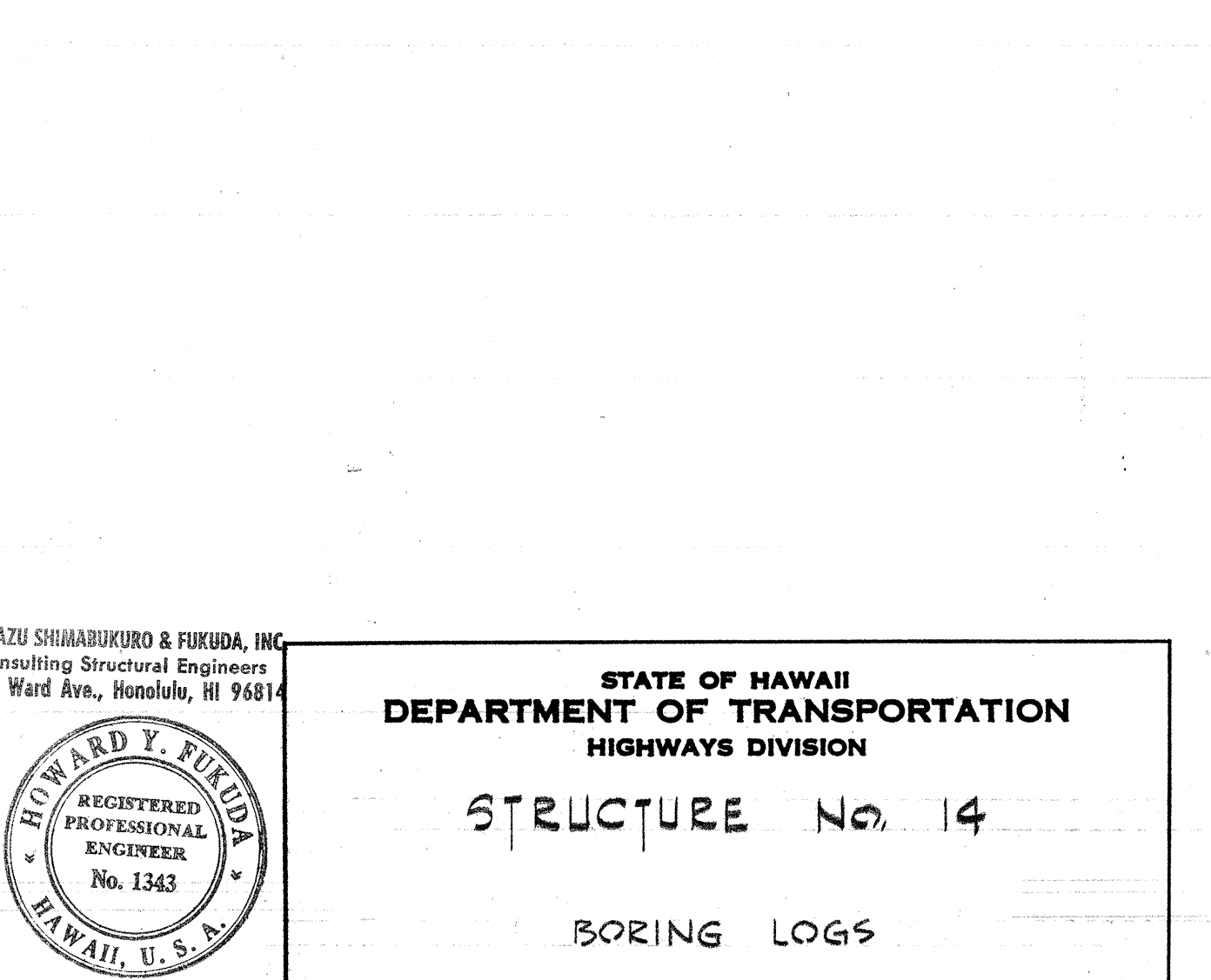
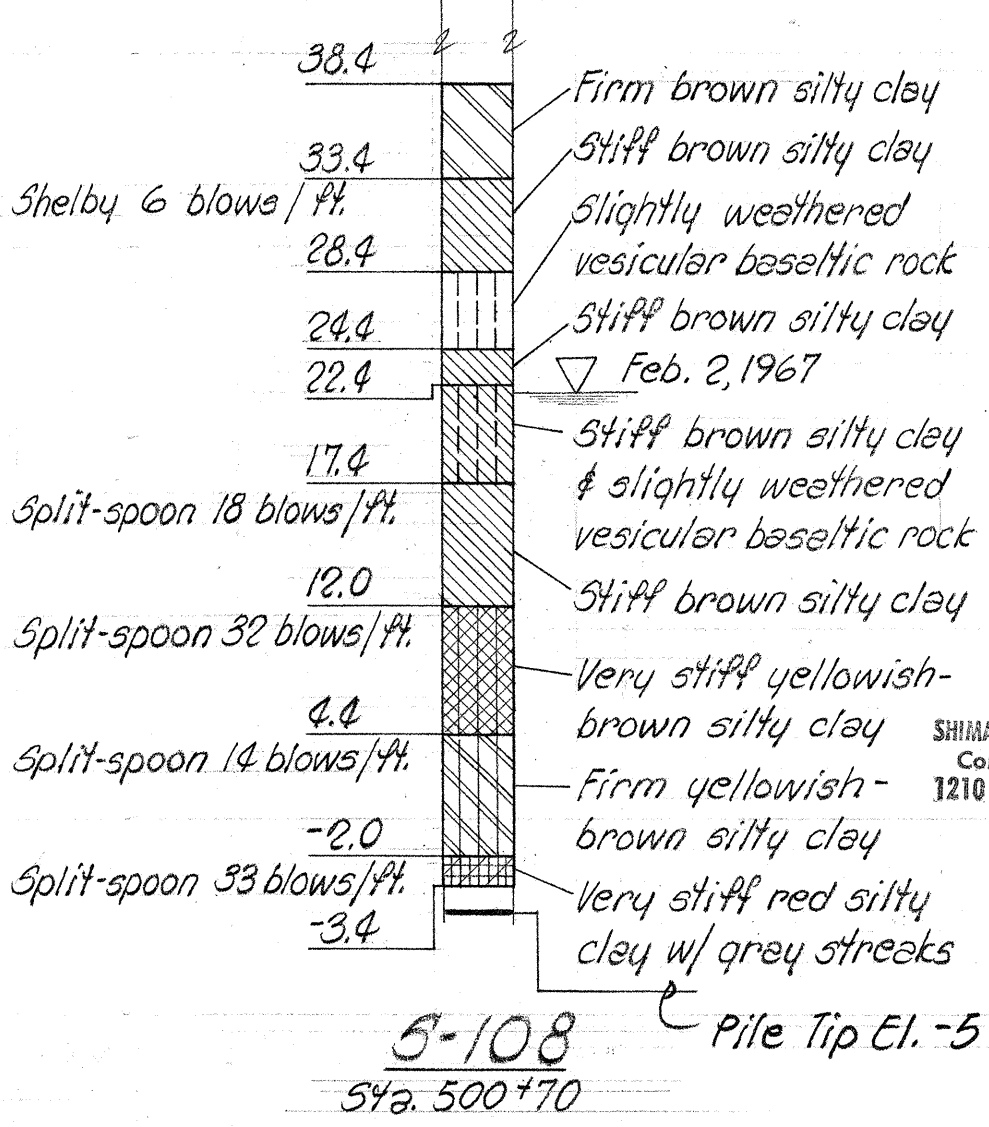
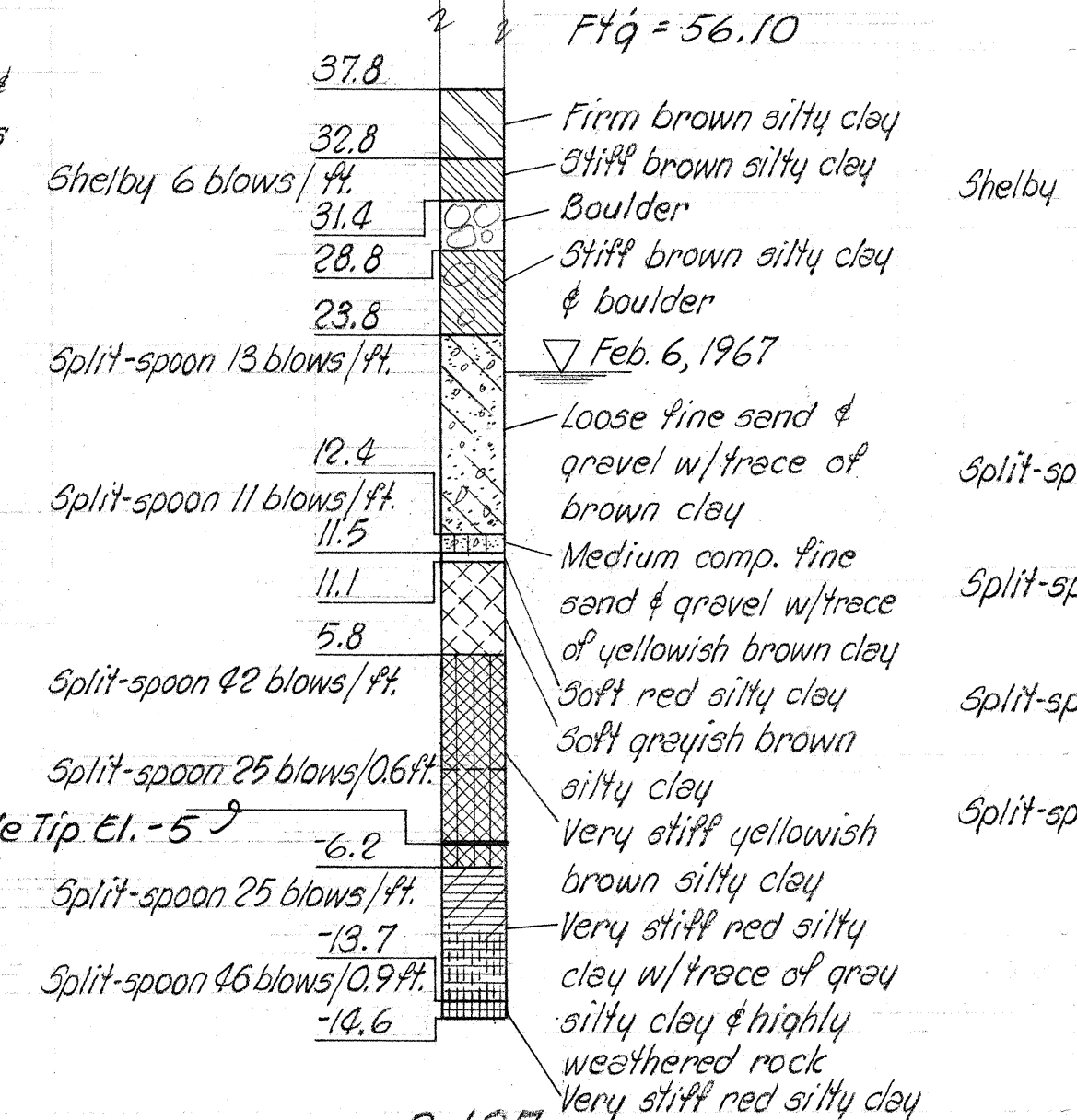
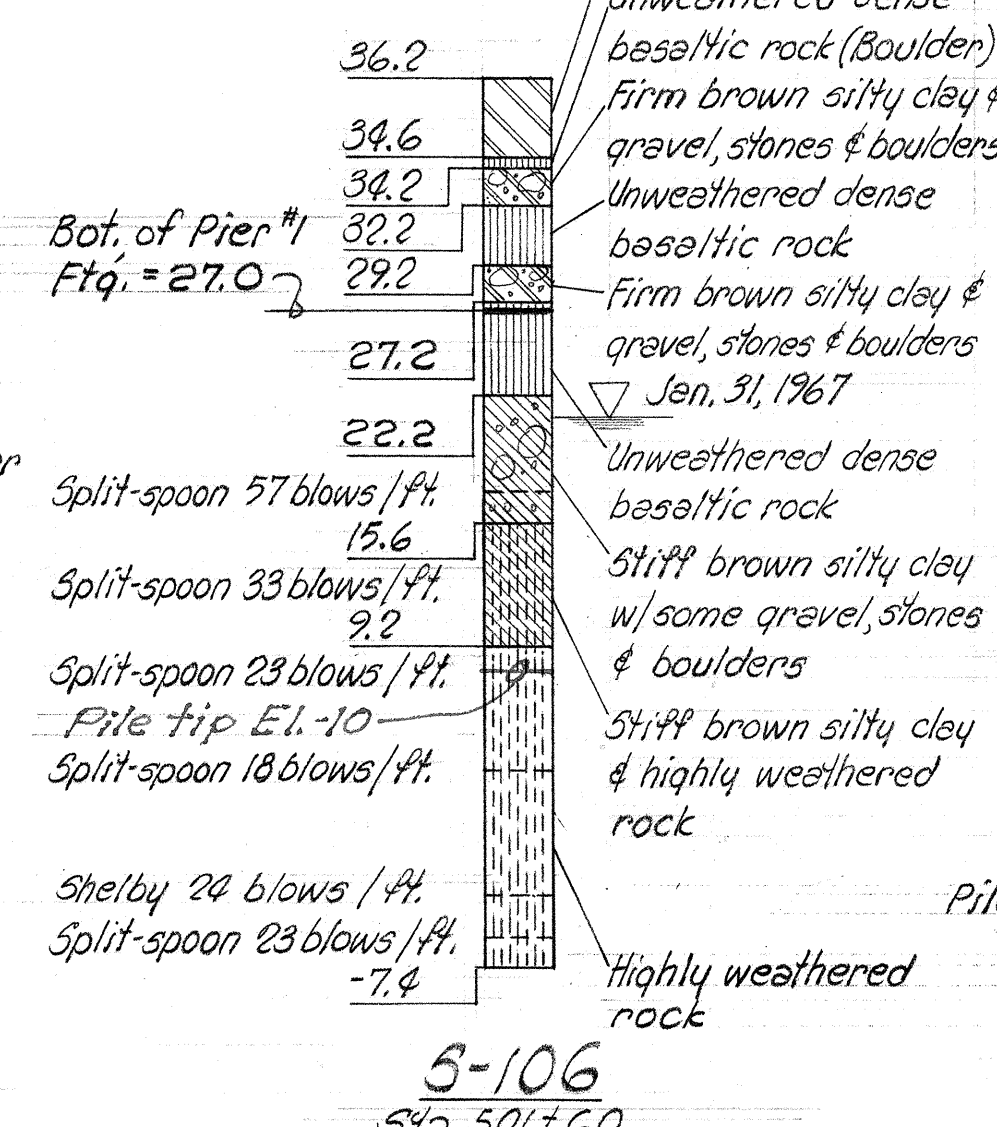
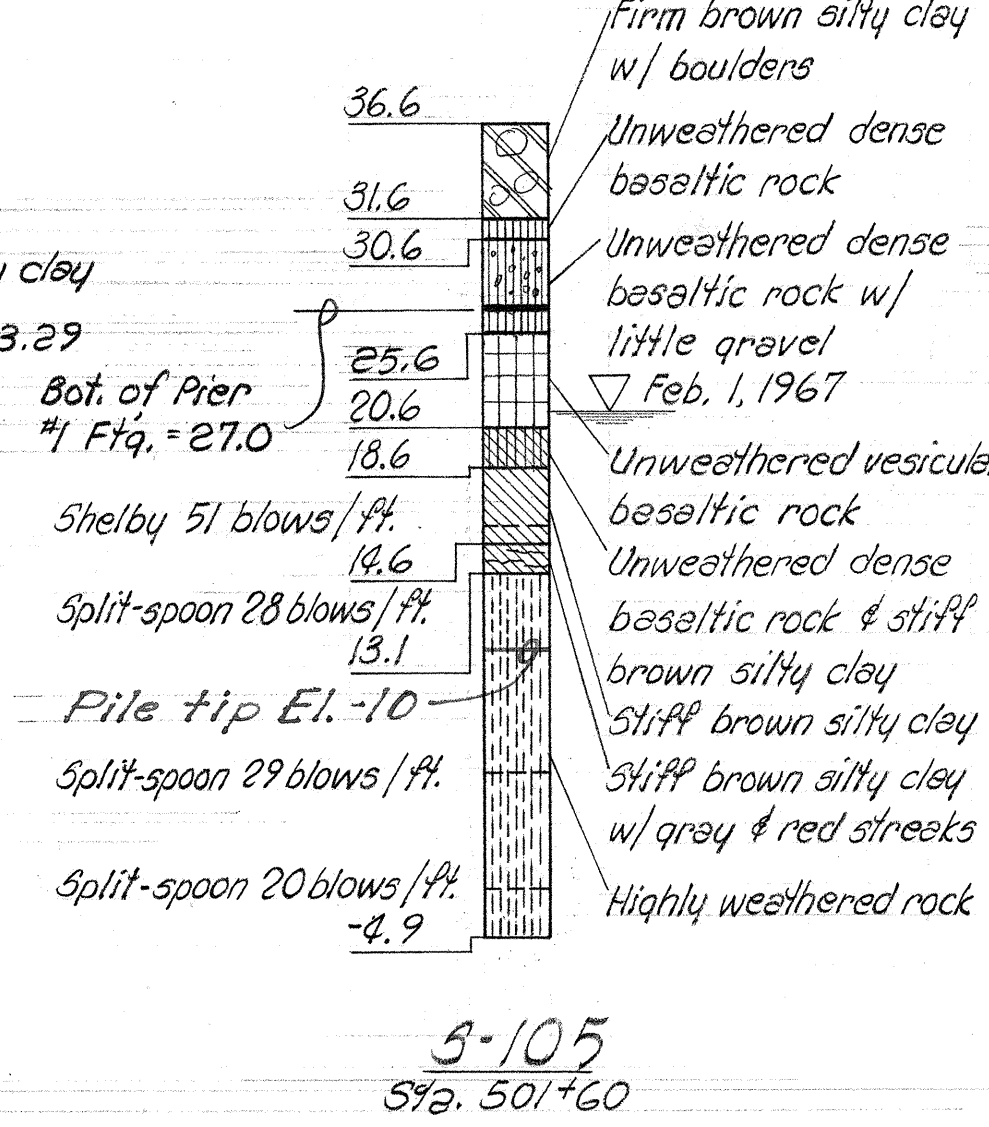
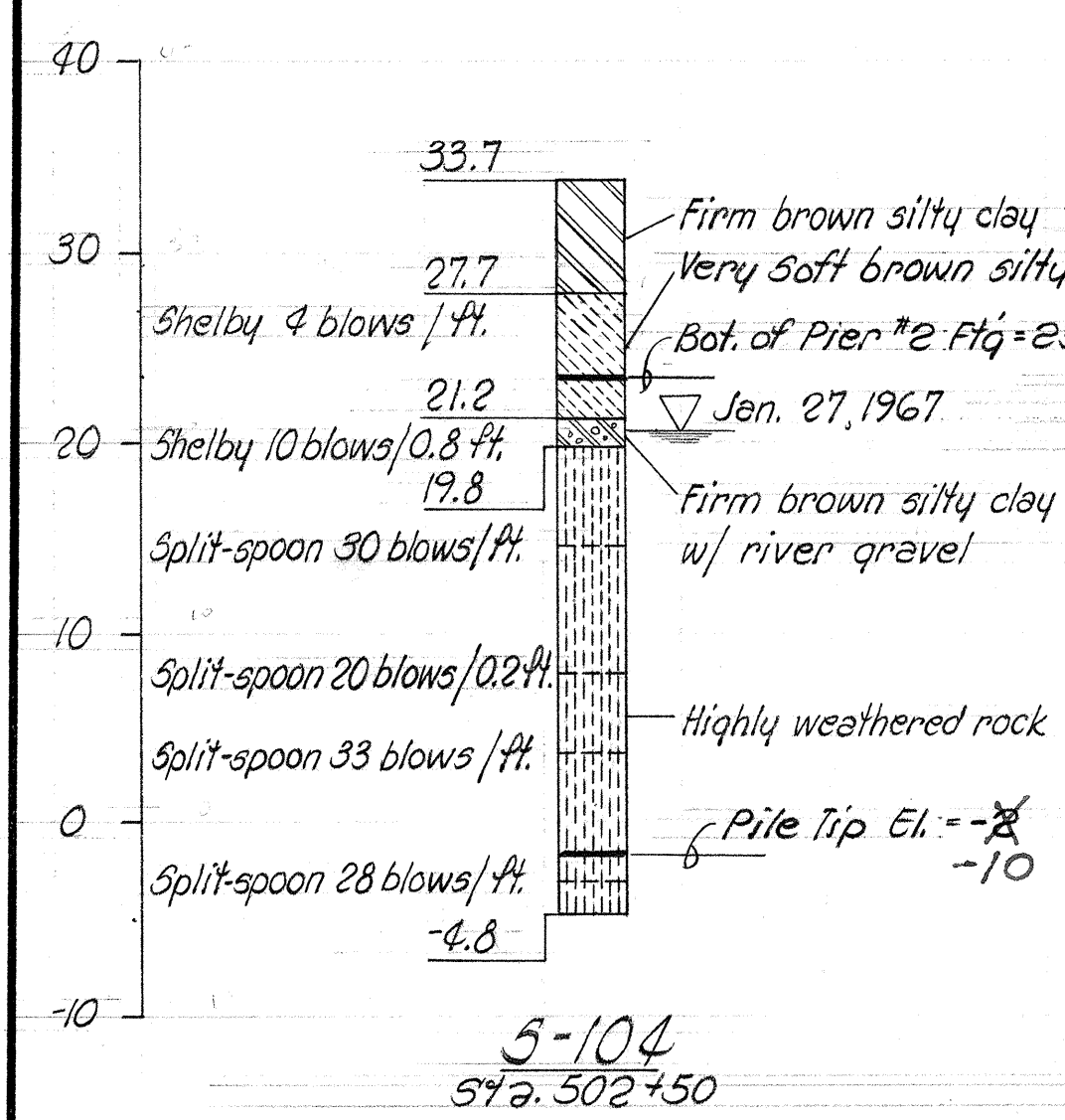
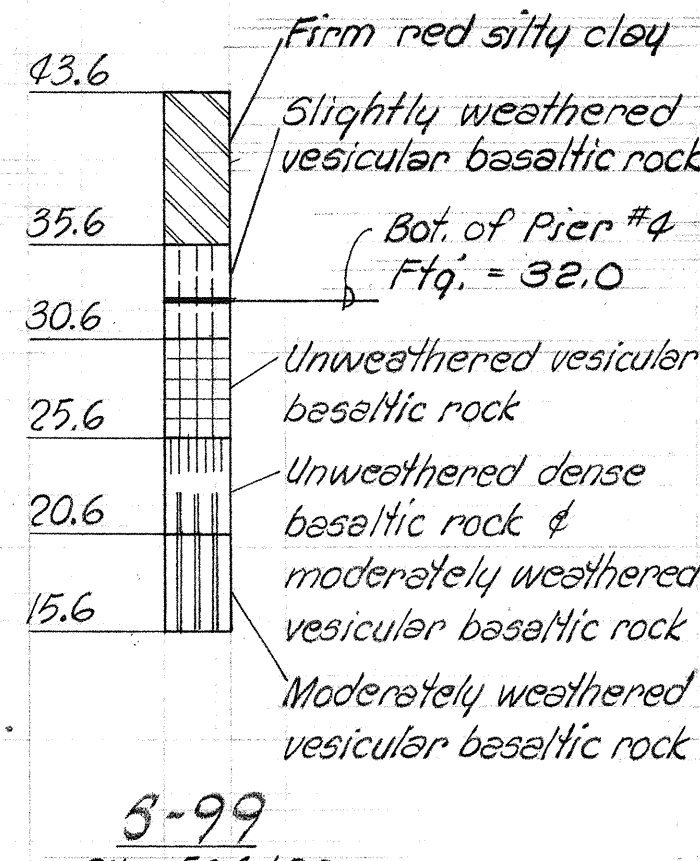
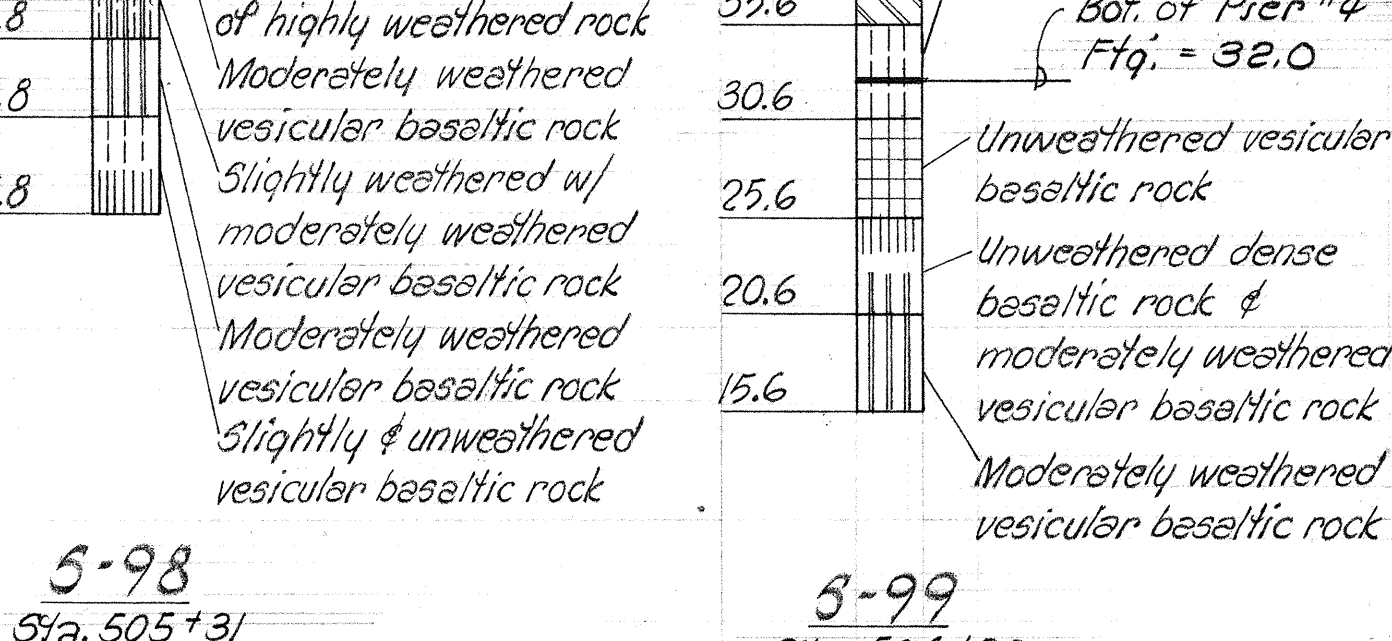
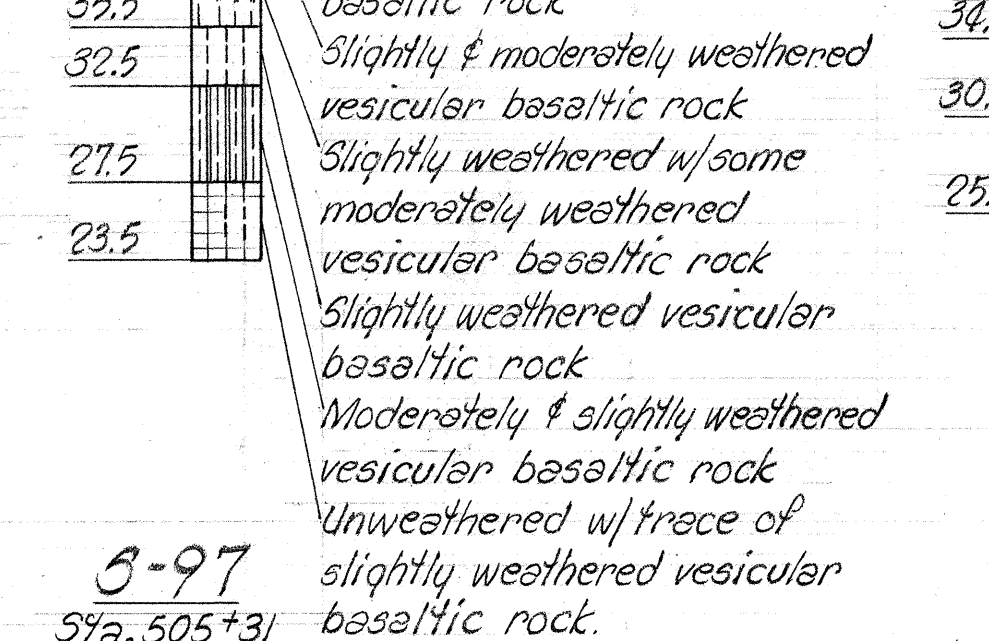
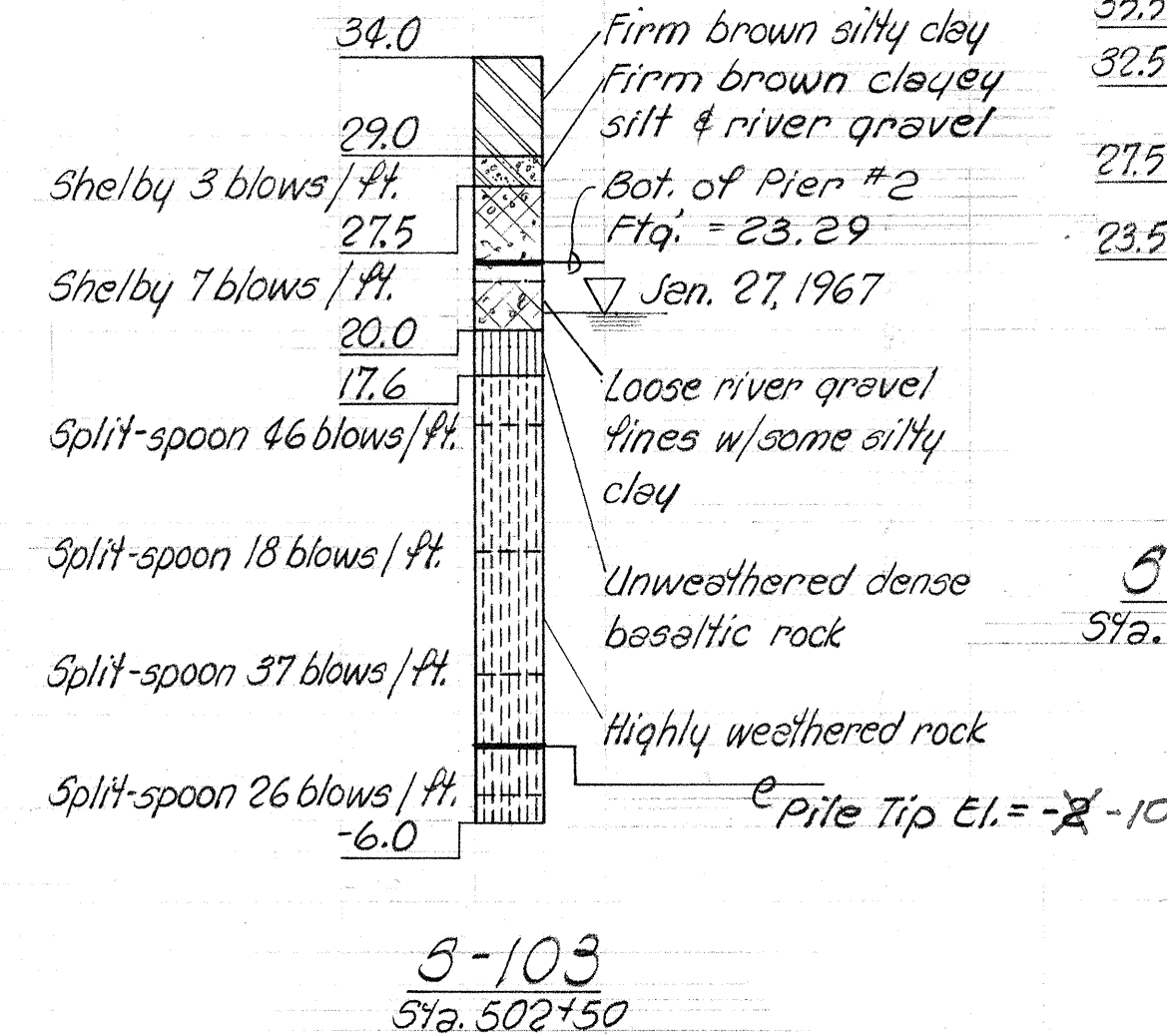
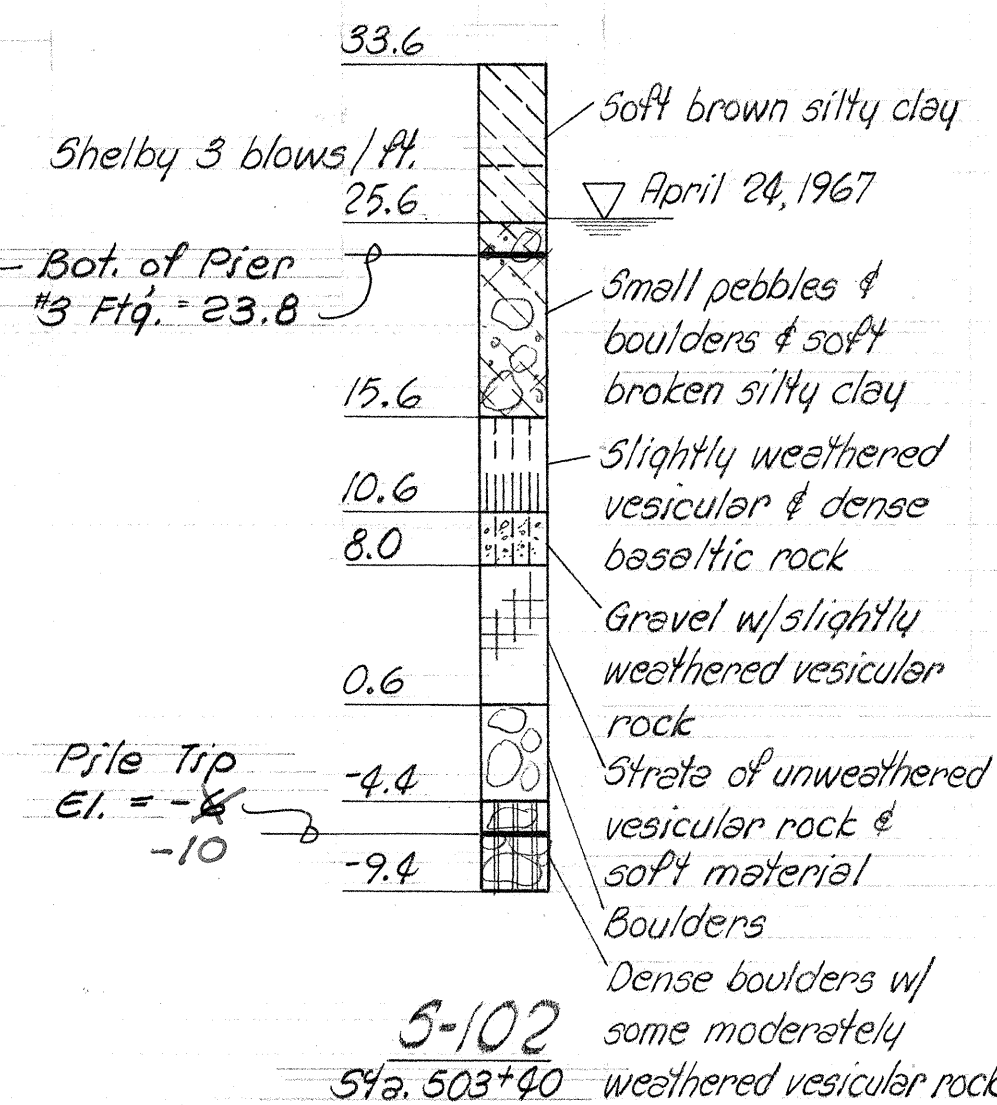
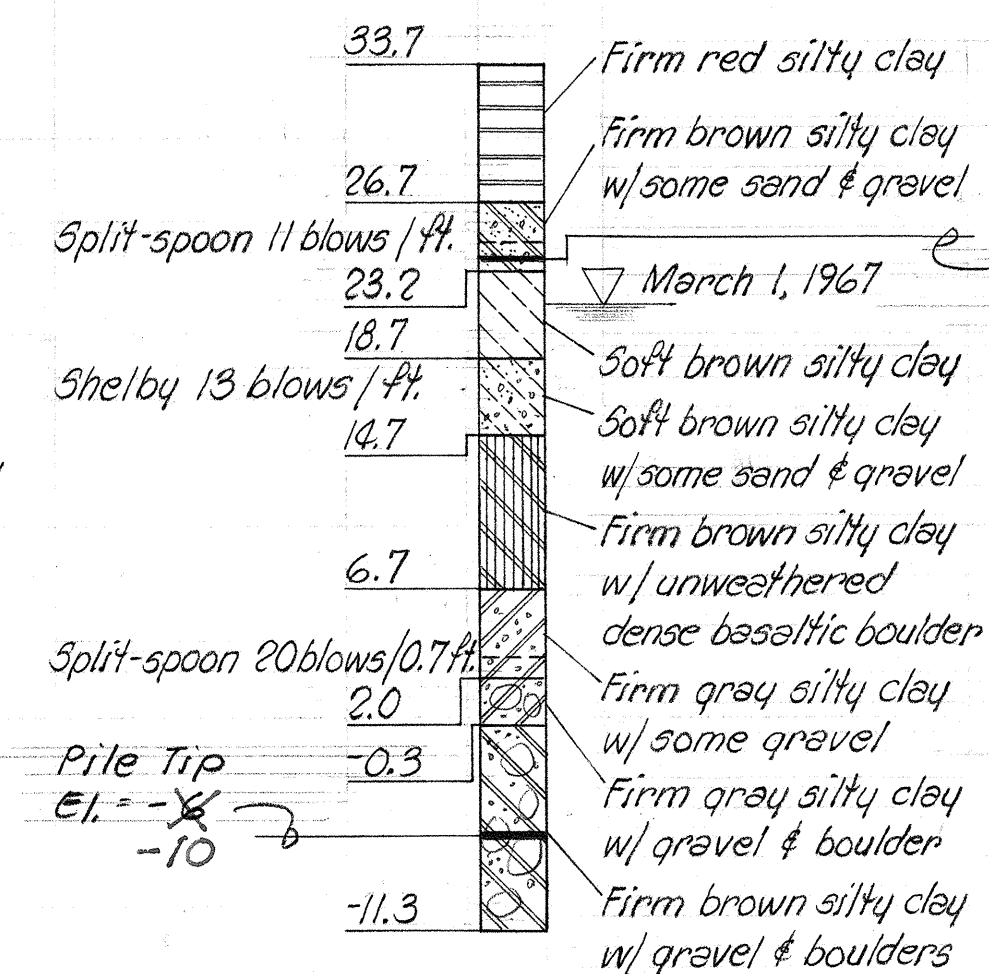
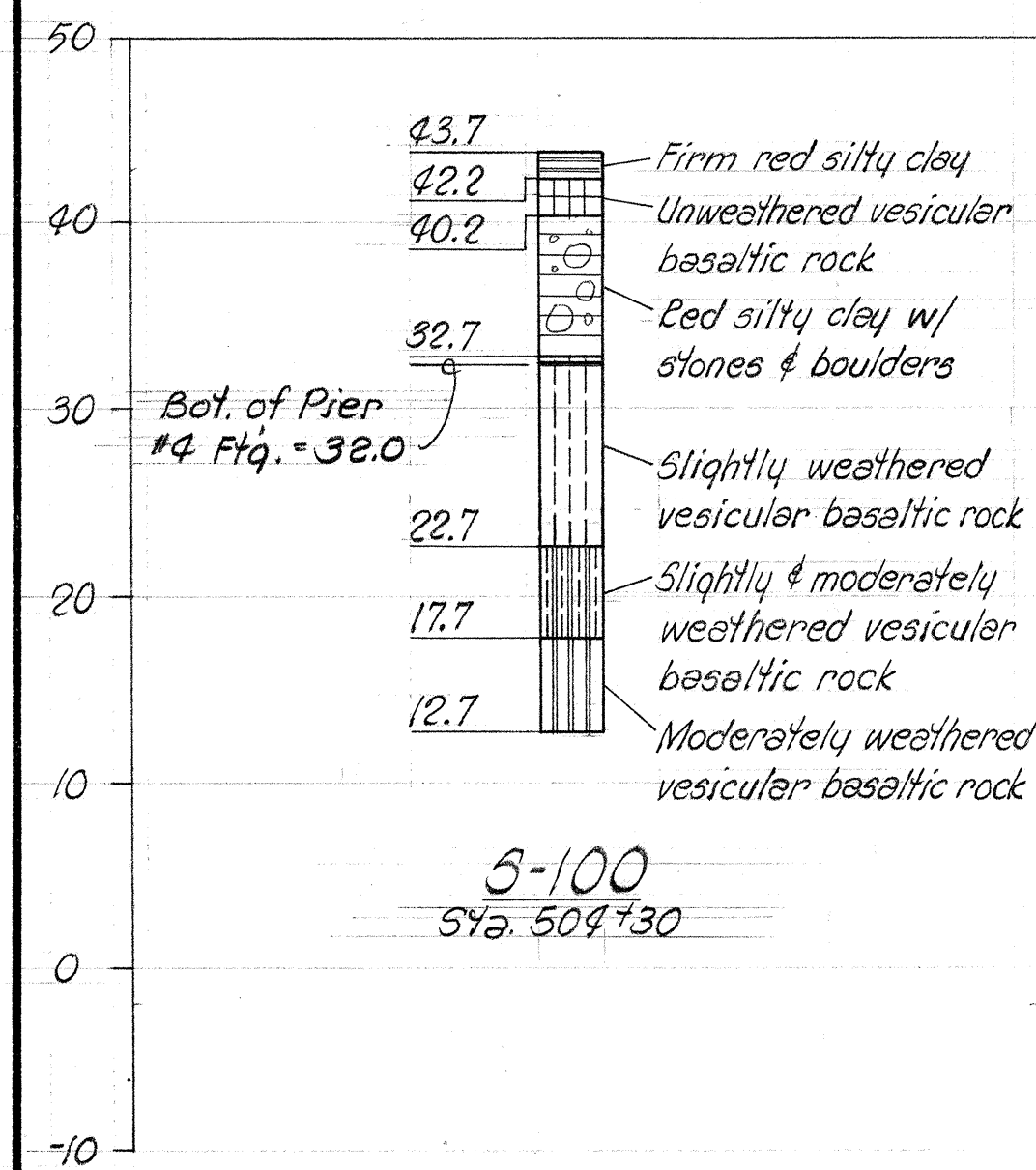
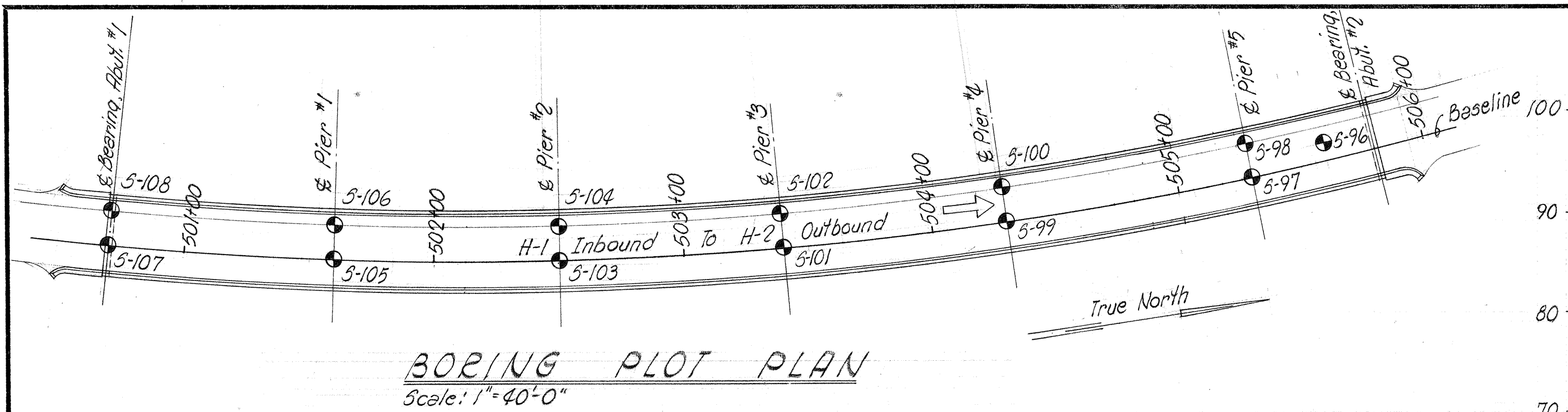
STRUCTURE No. 14
DECK SECTION

WAIKAWA INTERCHANGE
F.A.I. Proj. No. I-HI-1(75):8

Scale: As shown Date: JUNE, 1969

SHEET No. 9 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1(75)18	1969	09	181



BORING LOGS FOR STRUCTURE 14

SHIGAZU SHIMADUKURO & FUKUDA, INC.
Consulting Structural Engineers
1210 Ward Ave., Honolulu, HI 96814

HOWARD Y. FUKUDA
REGISTERED PROFESSIONAL ENGINEER
No. 1343
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. 14

BORING LOGS

WAI'ANA INTERCHANGE
F.A.I. Proj. No. I-H-1(75)18

Scale: As shown Date: JUNE, 1969

SHEET No. 10 OF 10 SHEETS