

INDEX TO DRAWINGS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(130)117	1976	98	174

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5-3	FOUNDATION PLAN & DECK FINISH GRADE PLAN
5-4	TYPICAL SECTIONS & DETAIL AT EXISTING PIER
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1	NOTES & MISCELLANEOUS DETAILS
2	CONCRETE BOX GIRDER
3	RETAINING WALL TYPE T-1

VIADUCT ESTIMATED QUANTITIES

ITEM NO.	ITEM	UNIT	QUANTITIES
206.60	Structure Excavation for Bridges	C.Y.	{3538}
503.0710	Concrete in Bridge Footings (Includes Pedestals)	L.S.	{1421}
503.070	Concrete in Bridges (Except Footings)	L.S.	{2837}
504.23	Keehi Type IV Prestressed Concrete Girders	L.F.	2436.37
504.24	Keehi Type IVF Prestressed Concrete Girders	L.F.	623.54
504.25	Keehi Type III Prestressed Concrete Girders	L.F.	1328.96
511.01	Deck Expansion Joint	L.F.	778
512.01	Column Hinge	L.S.	10 ea.
602.010	Reinforcing Steel in Bridges	L.S.	{1450,300}
507.71	Standard Parapet	L.F.	954
604.50	Furnishing & Installing Ductile Iron Frame & Cover for Deck Drain Cleanout	EA.	5
604.239	Furnishing & Installing Type A-12 Frame & Grate for Deck Drainage	EA.	9

RAMPS I & II ESTIMATED QUANTITIES

ITEM NO.	ITEM	UNIT	RAMP I QUANTITIES	RAMP II QUANTITIES
206.60	Structure Excavation for Bridges	C.Y.	{357}	357
206.61	Structure Excavation for Bridge Abutment & Retaining Walls	C.Y.	332	542
206.66	Structure Backfill for Bridge Abutment & Retaining Walls	C.Y.	834	1107
501.100 RAMP I 501.101 RAMP II	Structural Steel	L.S.	{324,800}	324800#
503.0711 RAMP I 503.0712 RAMP II	Concrete in Bridge Footings (Includes Pedestals)	L.S.	{118 c.y.}	118 c.y.
503.0730 RAMP I 503.0731 RAMP II	Concrete in Abutments and Retaining Walls	L.S.	299 c.y.	356 c.y.
513.010 RAMP I 513.011 RAMP II	Precast Concrete Deck Slab	L.S.	260 c.y.	260 c.y.
514.01	Precast Concrete Parapet	L.F.	810	810
602.011 RAMP I 602.012 RAMP II	Reinforcing Steel in Bridges	L.S.	{19778}	19778#
602.013 RAMP I 602.014 RAMP II	Reinforcing Steel in Abutments & Retaining Walls	L.S.	49771#	57000#
206.80	Filter Material	C.Y.	64	68

ALL CHANGE ORDER OF PLANS DATED 5/5/77 WERE PREPARED BY LT-DB

{ Denotes changes to ADD. 98 - 10/15/76 CO ADD. 98 - 5/5/77

5/5/77	Revise Viaduct Estimated Quantities.
10/15/76	Revise Col. Hinge & Ramp Col.
DATE	REVISION

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

H-1 VIADUCT (WB)

INDEX TO DRAWINGS
ESTIMATED QUANTITIES

KEEHI INTERCHANGE
F.A.I. PROJ. NO. I-HI-1 (130): 17

No. scale Date: Aug. 16, 1976

SHEET No. 5-1 OF 22 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1(130):17	1976	99	174

Deck Drain	Location (H-1 (WB) Sta.)
D1	210+13.00
D2	210+55.00
D3	211+14.00
D4	212+25.00
D5	212+51.00
D6	213+03.00
D7	213+43.00
D8	213+92.00
D9	214+32.00

DECK DRAIN NOTES

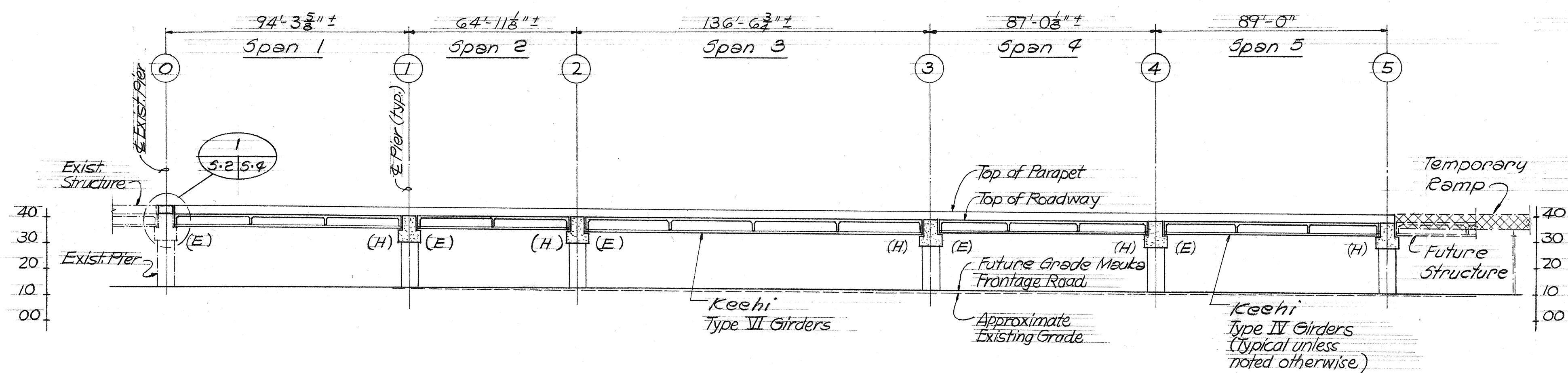
1. Stations are to & of Deck Drain.
2. See Sh. T-16, T-17 & C.O.113-51 for deck drain details.
3. Provide temporary plugs at deck drain & outlet for D4 & D5. Plug at outlet shall have a 1" hole for drainage purpose.

Pour 5'-6" of mauka & makai parapet over existing Pier O. Reinf. is existing.

Match finish lines of existing gutter & mauka & makai parapets at existing pier. Transition of finish lines shall be accomplished over 5 foot length.

VIADUCT LAYOUT PLAN

Scale: 1" = 30'-0"



LONGITUDINAL SECTION ALONG BASELINE H-1 (WB)

Scale: 1" = 30'-0"

Denotes changes to ADD 99 10/15/76 C.O. ADD. 99 5/5/77

LEGEND

- (H) = Hinge end of girders
- (E) = Expansion end of girders
- D2 = Deck Drain #2

REFERENCE DRAWINGS

1. Typical Viaduct & Frontage Rd. Sections - Sh. S-4
2. Pier Elevations - Sh. S-10
3. Girder Length Schedule - Sh. S-19

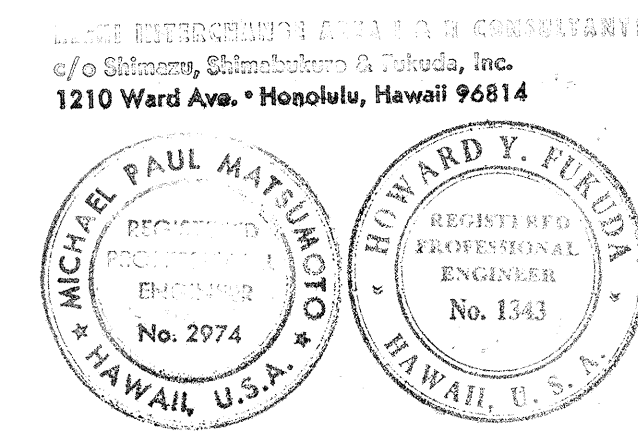
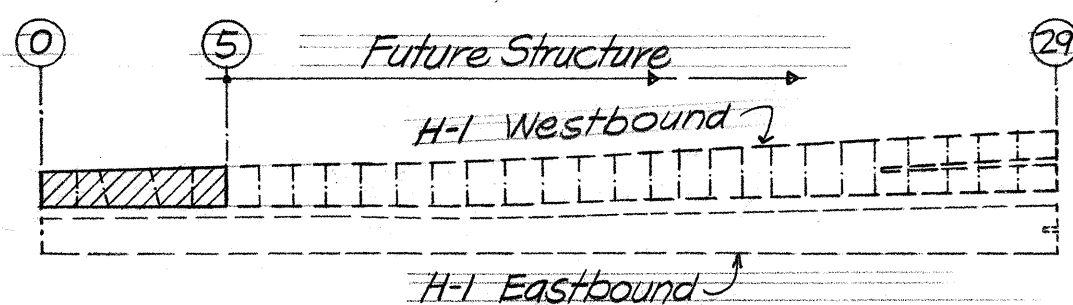
DATE	REVISION
5/5/77	Revise Pier No. ① frame in parts.
10/15/76	Added Note 3 - Deck Drain Notes
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
H-1 VIADUCT (WB)	
LAYOUT PLAN AND LONGITUDINAL SECTION AT STA. 209+70.67 TO 214+42.47	
KEEHI INTERCHANGE F.A.I. PROJ. NO. 1-HI-1(130):17	
Scale: As shown	Date: Aug. 16, 1976

SHEET No. 5-2 OF 22 SHEETS

C.O. ADD 99

SURVEY PLOTTED BY	DATE
DESIGNED BY	
TRACED BY	
NOTED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
NO.	

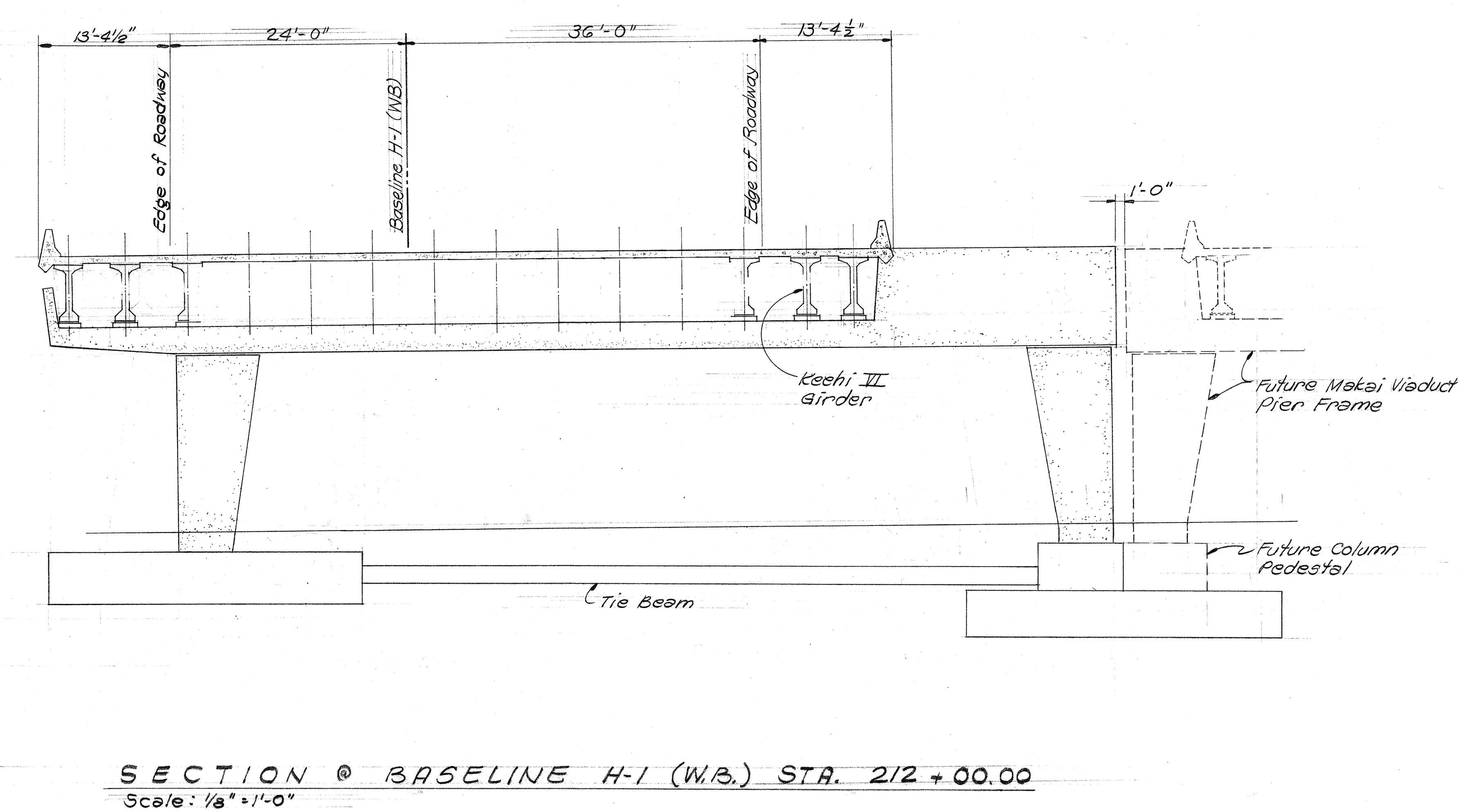
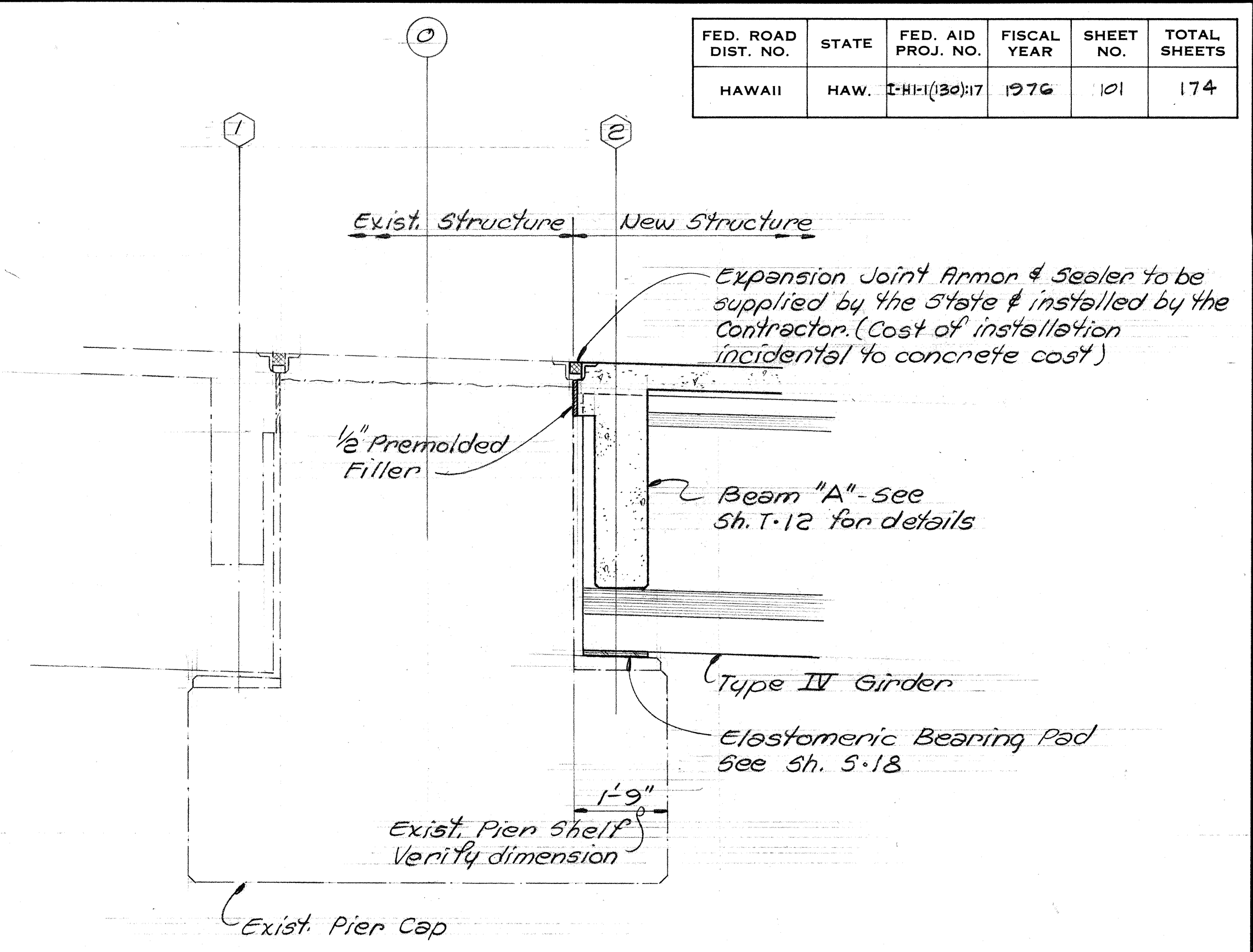
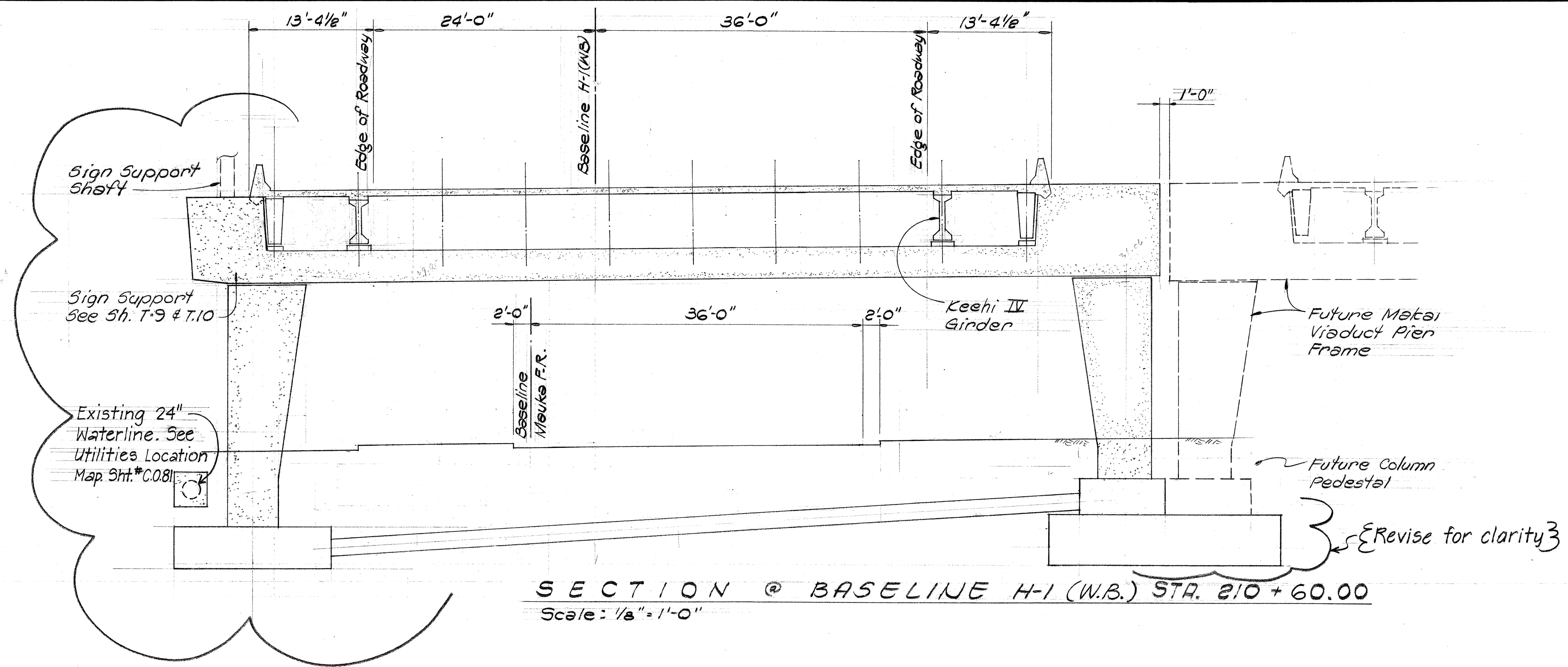
KEY PLAN



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Signature: [Signature]

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1(130):17	1976	101	174



{ } Denotes changes to C.O. 101 - 5/5/77.

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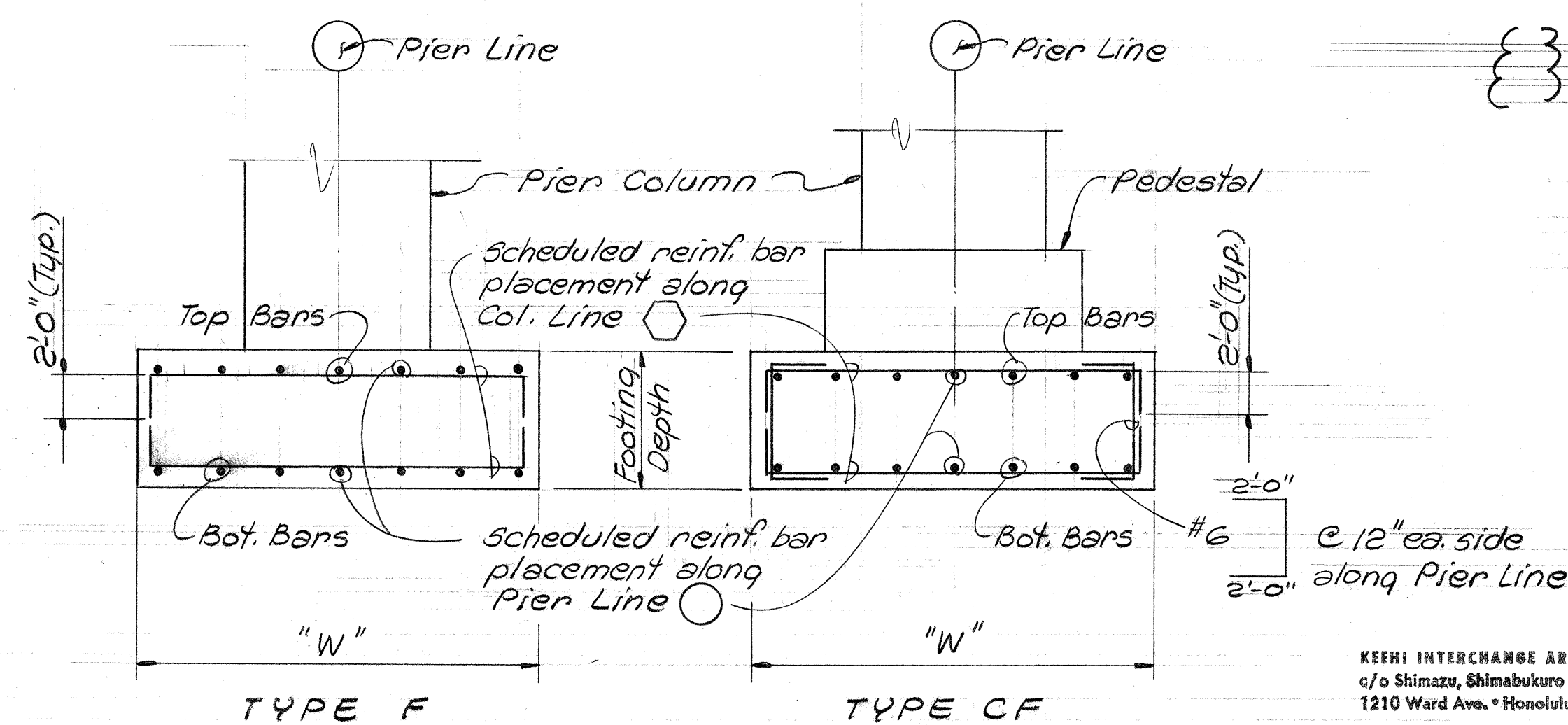
5/5/77	Revise section Sta. 210+60.00 Pier No. 1 elevation in parts and revised foundation for clarity.
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
H-1 VIADUCT (WB)	
TYPICAL SECTIONS & DETAIL AT EXISTING PIER	
KEEHI INTERCHANGE F.A.I. PROJ. NO. I-H-1(130):17	
Scale: As Shown	Date: Aug. 16, 1976
SHEET NO. 3-4 OF 22 SHEETS	

C.O. 101

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

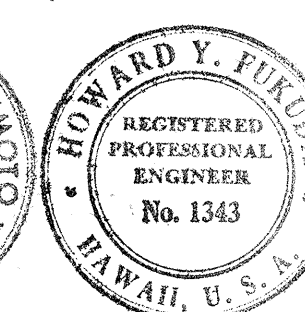
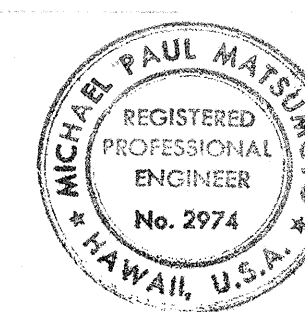
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1(130)	1976	102	174

The diagram illustrates the reinforcement layout for a pier and pedestal. The pier is shown at the top, with a width dimension W and a height dimension L . The pedestal is shown below the pier, with a width dimension b and a height dimension s . The total height dimension is $L + s$. The diagram includes labels for the Pier Line, Column Line, and Future Col. & Pedestal. It also shows the placement of scheduled reinforcement bars along the Column Line and Pier Line, with dimensions of $2'-0"$ (Typ.) for the bar spacing. The diagram is labeled "TYPE F".



SECTION DIAGRAM ~ FOOTING DIMENSIONS &
REINFORCING LOCATIONS
Not To Scale

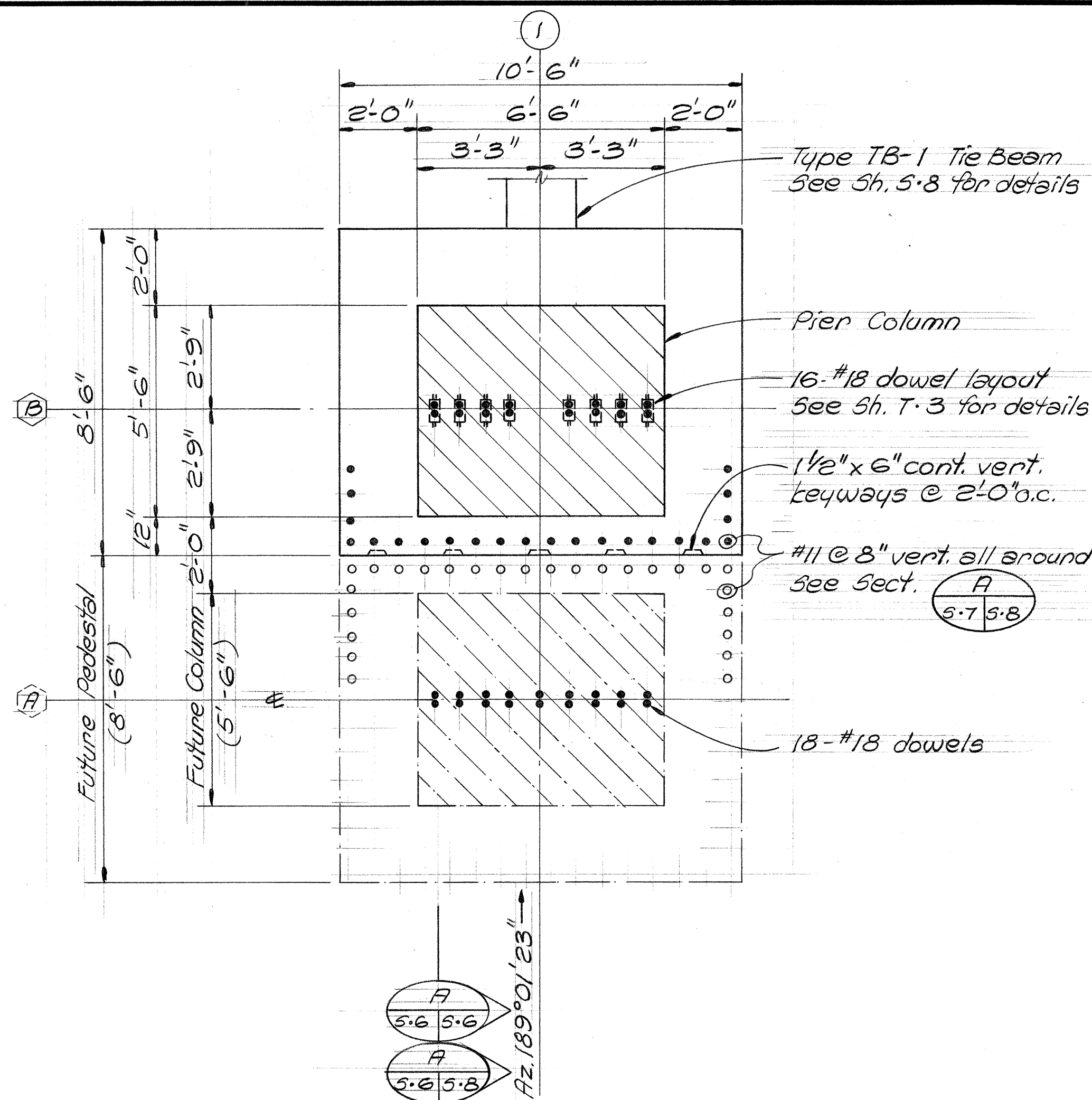
- KEEHI INTERCHANGE AREA I & II CONSULTANTS
c/o Shimazu, Shimabukuro & Fukuda, Inc.
1210 Ward Ave. * Honolulu, Hawaii 96814



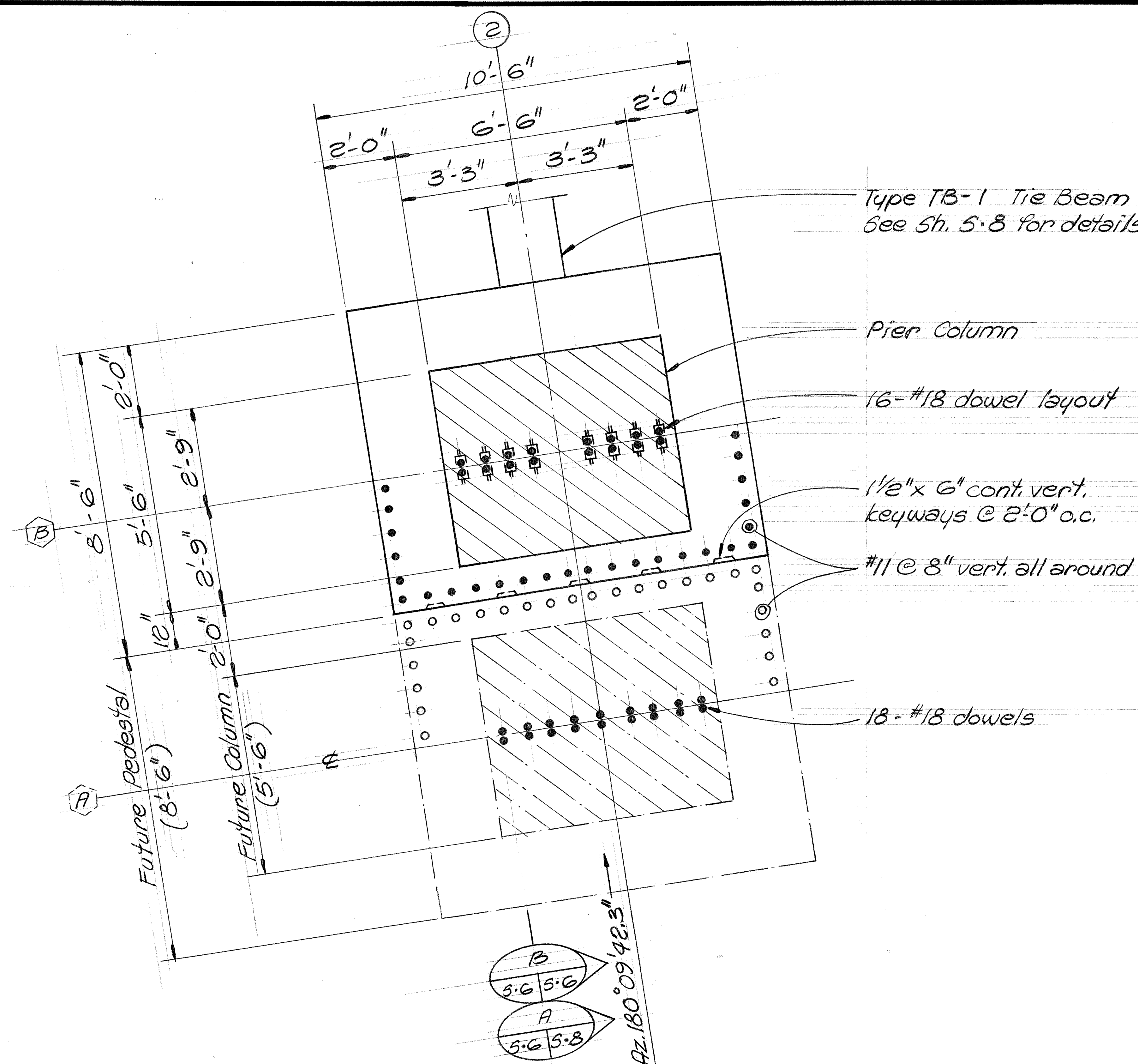
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me or under my supervision.
Nicholas Philsum

5/5/77	Revised Schedule Ftg. F-1 in parts.
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION H-1 VIADUCT (WB) PIER FRAME COLUMN FOOTING SCHEDULE & DETAILS KEEHI INTERCHANGE F.A.I. PROJ. NO. 1-HI-1(130):17 Scale: As Shown Date: Aug. 16, 1976 SHEET NO. 3 OF 22 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(130):17	1976	103	174



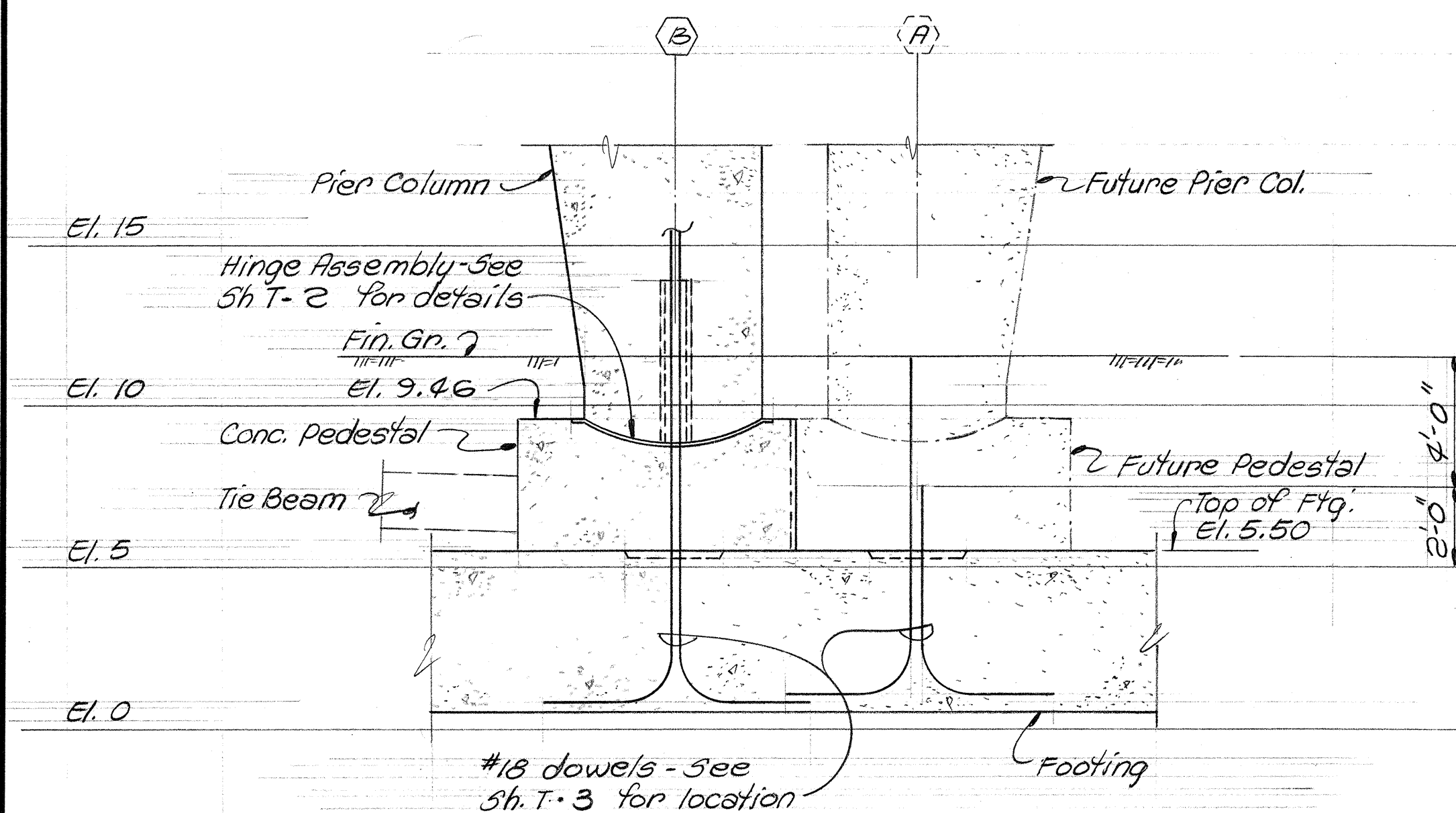
PLAN - PIER ①, COL. LINE (B)
Scale: 3/8" = 1'-0"



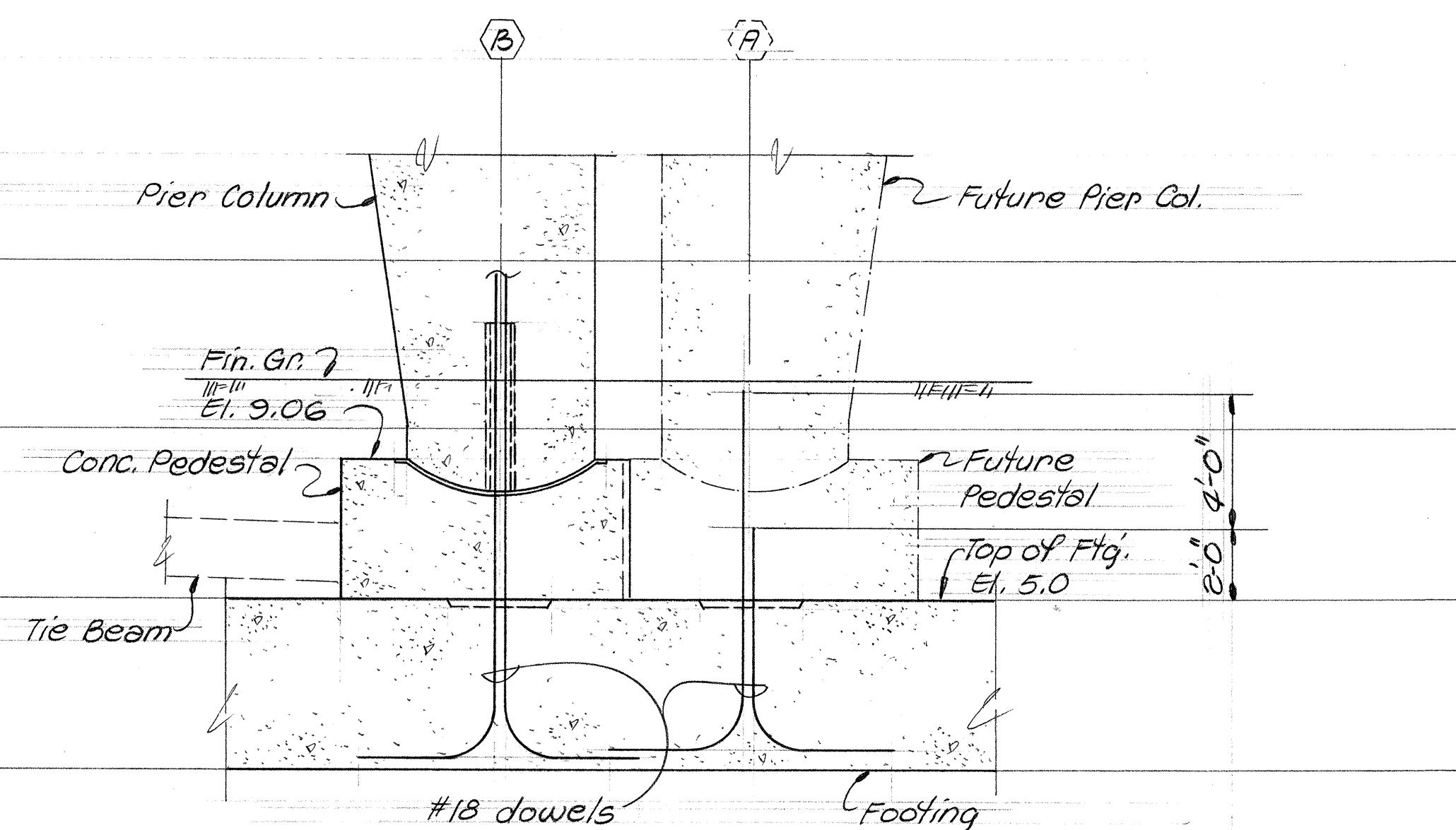
PLAN - PIER ② COL. LINE (B)
Scale: 3/8" = 1'-0"

SPECIAL NOTES

1. Place 18 - #18 dowels for future Makai Viaduct column similar to details on Sh. T-3
2. Contractor shall verify the location of the HTO. duct lines before proceeding with the foundation work.
3. The full deformation length of all #18 dowels shall be unbonded & protected.
4. See Sh. 5-8 for protection of all dowels for future column pedestal.

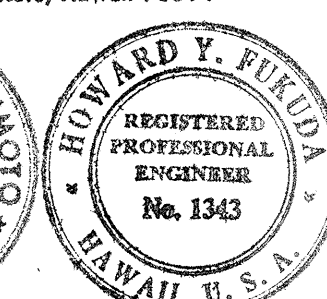
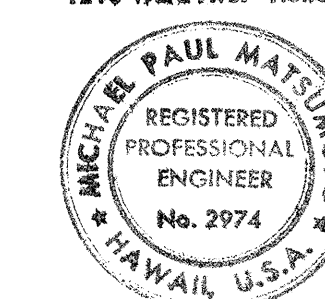


SECTION A
Scale: 1/4" = 1'-0"



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

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STATE OF HAWAII
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HIGHWAYS DIVISION

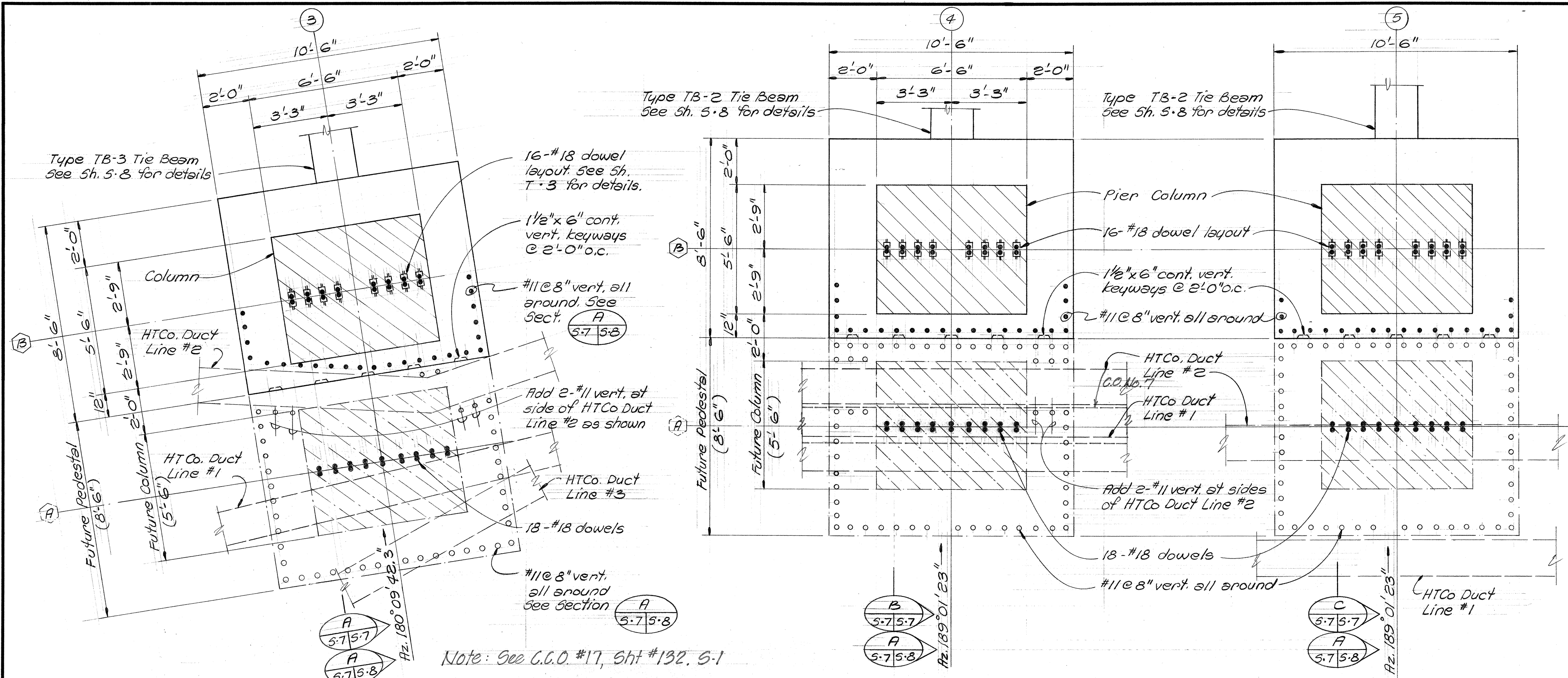
H-I VIADUCT (WB)
COLUMN PEDESTAL DETAILS
COLUMN LINE (B), PIERS ① & ②

KEEHI INTERCHANGE
F.A.I. PROJ. NO. I-HI-1(130):17

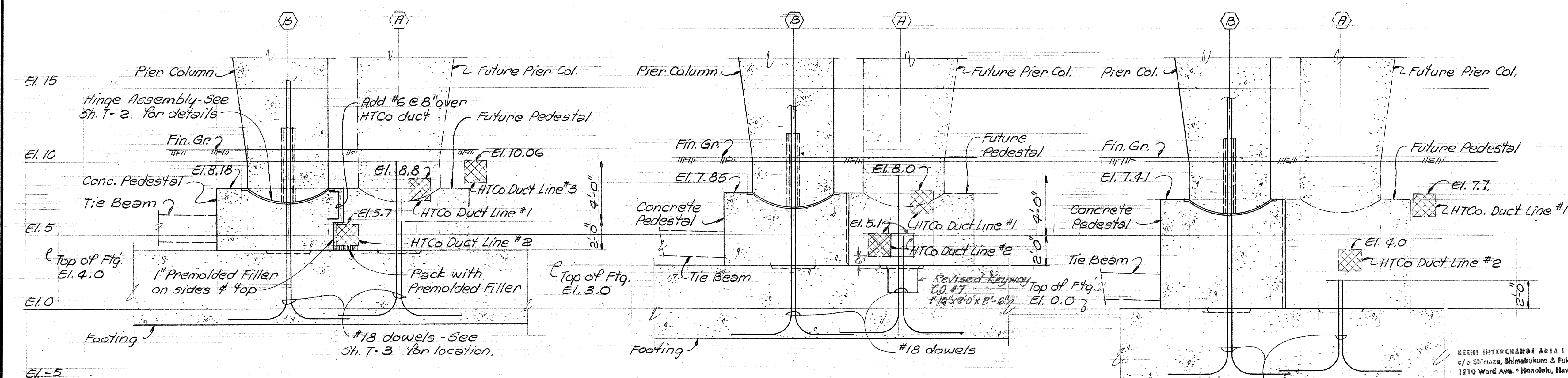
Scale: As Shown Date: Aug. 16, 1976
SHEET NO. 5-6 OF 22 SHEETS

CONCRETE PEDESTAL DETAILS @ COLUMN LINE (B), PIERS ① & ②

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-H-1(130):17	1976	104	174



N O T E
See Sh. 5-6 for Special Notes.



NOTE: For pedestal reinf. not shown, see Section A 5-7 5-8

CONCRETE PEDESTAL DETAILS @ COLUMN LINE ③, PIERS ③ ④ & ⑤

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

H-1 VIADUCT (WB)

COLUMN PEDESTAL DETAILS
COLUMN LINE ③, PIERS ③ ④ & ⑤

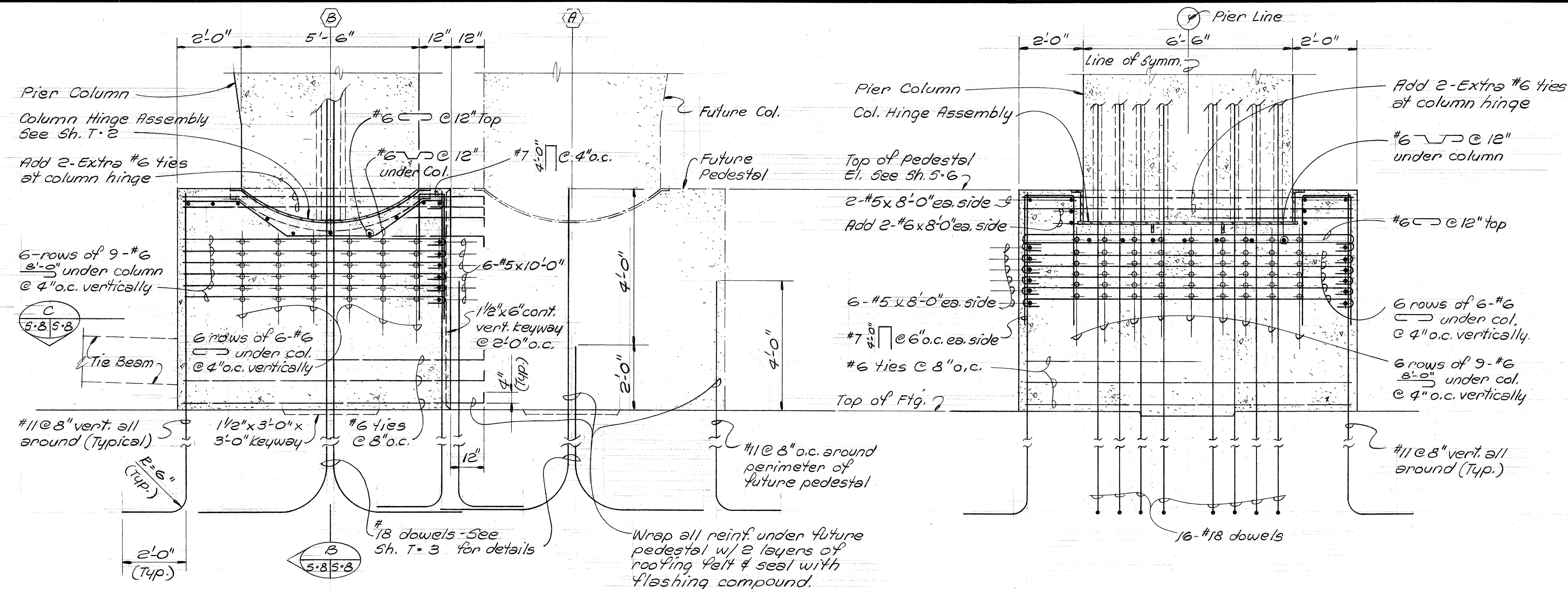
KEEHI INTERCHANGE
F.A.I. PROJ. NO. 1-H-1(130):17

Scale: As Shown Date: Aug. 16, 1976

SHEET NO. 5-7 OF 22 SHEETS

DATE: _____
SURVEY PLOTTED BY: _____
DRAWN BY: _____
DESIGNED BY: _____
CHECKED BY: _____
ORIGINAL PLAN: _____
NOTE BOOK: _____
NO. _____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1(30):17	1976	105	174

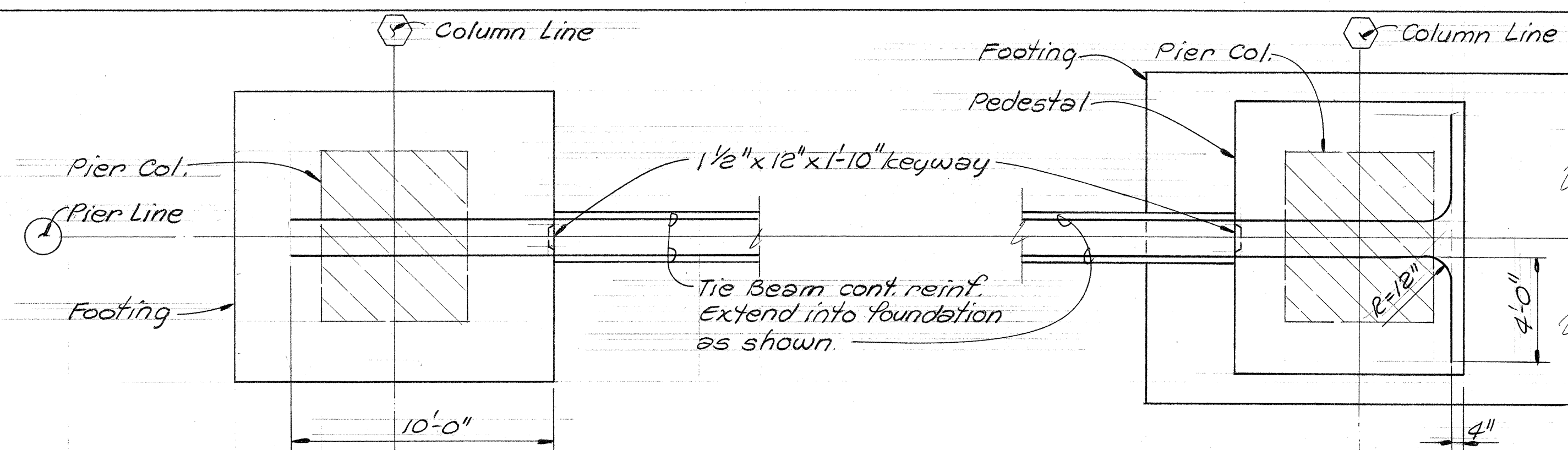


SECTION A
Scale: 1/2" = 1'-0"
5-6 & 5-7

SECTION B
Scale: 1/2" = 1'-0"
5-8 & 5-8

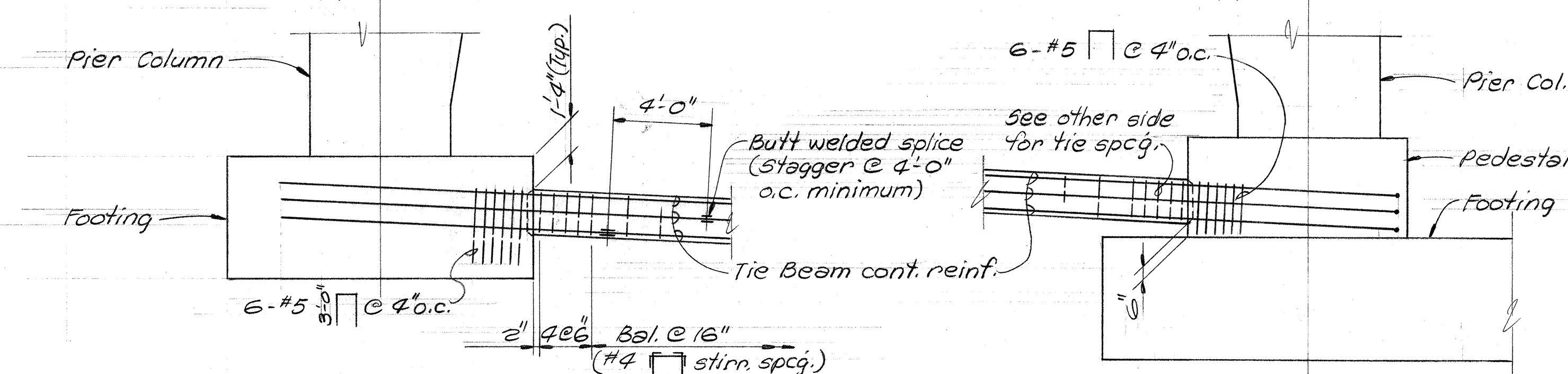
SECTION C
Scale: 1/2" = 1'-0"
5-8 & 5-8

CONCRETE PEDESTAL REINF. FOR COLUMN ON LINE (B), FOR PIERS (1) THRU (5)



PLAN @ FOOTING
Scale: 1/4" = 1'-0"

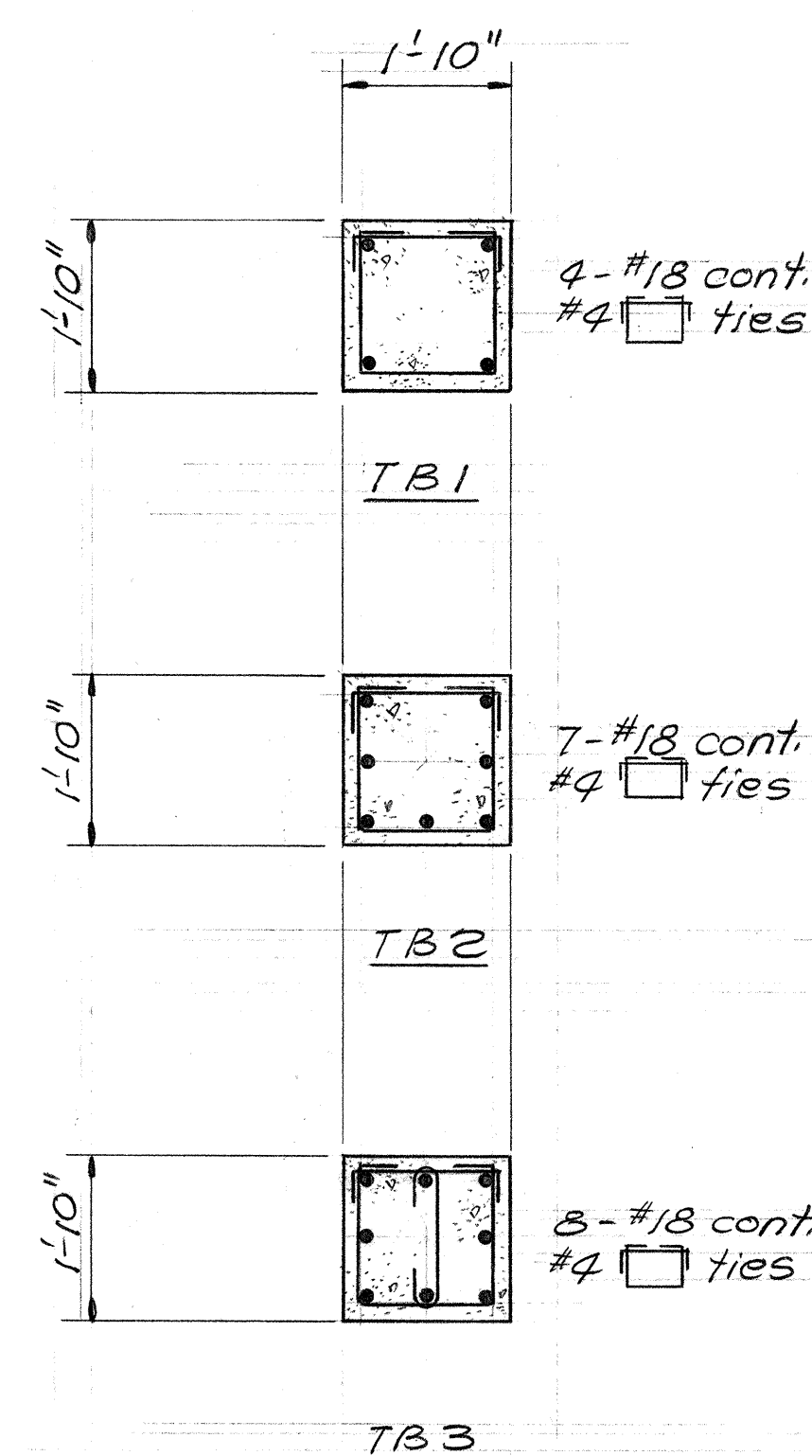
PLAN @ PEDESTAL
Scale: 1/4" = 1'-0"



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

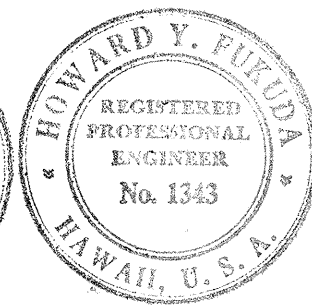
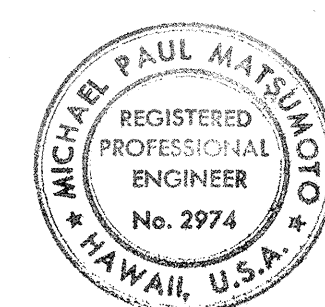
ELEVATION
Scale: 1/4" = 1'-0"

TIE BEAM DETAILS



TIE BEAM SECTIONS
Scale: 1/2" = 1'-0"

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STATE OF HAWAII
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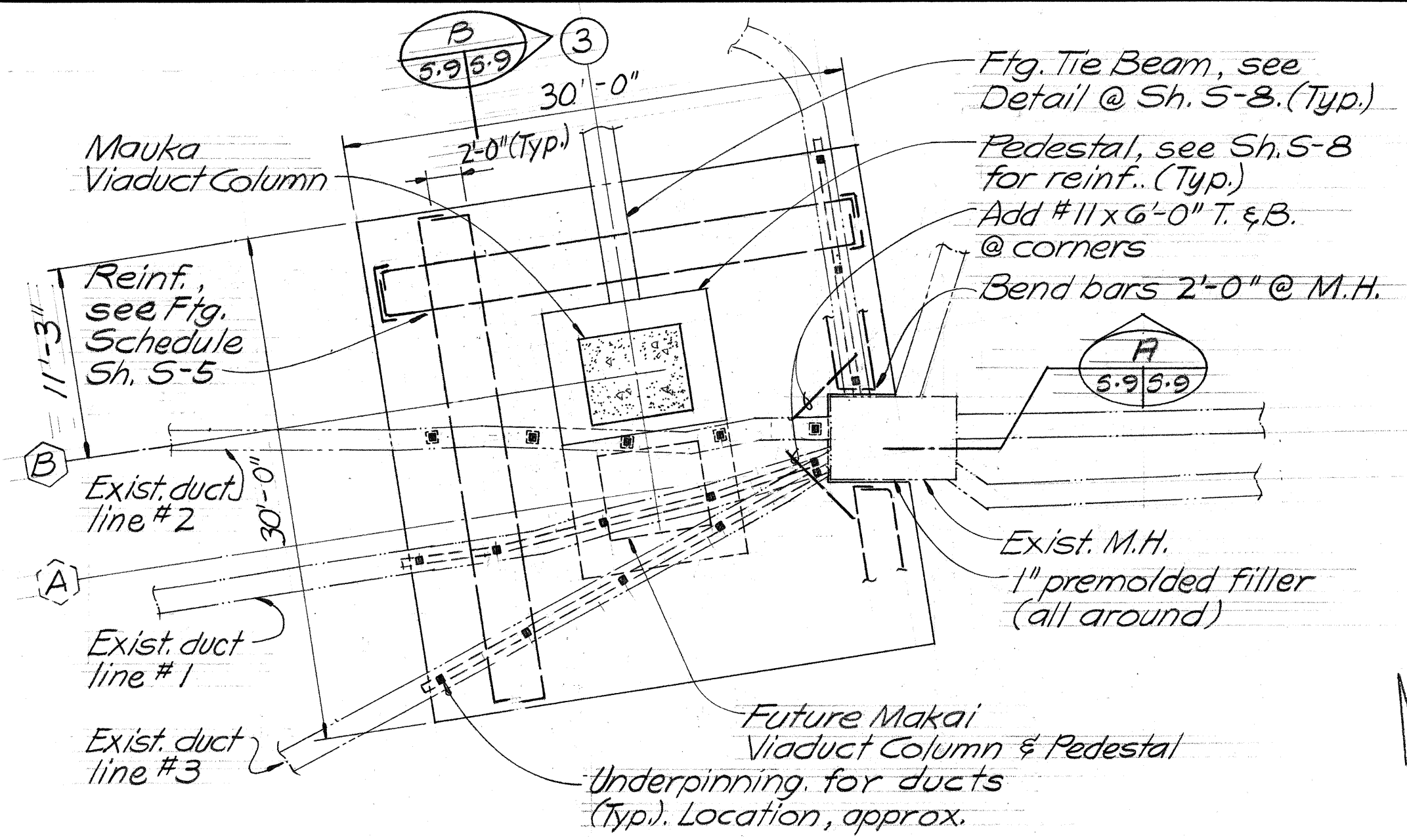
H-1 VIADUCT (WB)
CONCRETE PEDESTAL DETAILS
& TIE BEAM DETAILS

KEEHI INTERCHANGE
F.A.I. PROJ. NO. I-H-1(30):17

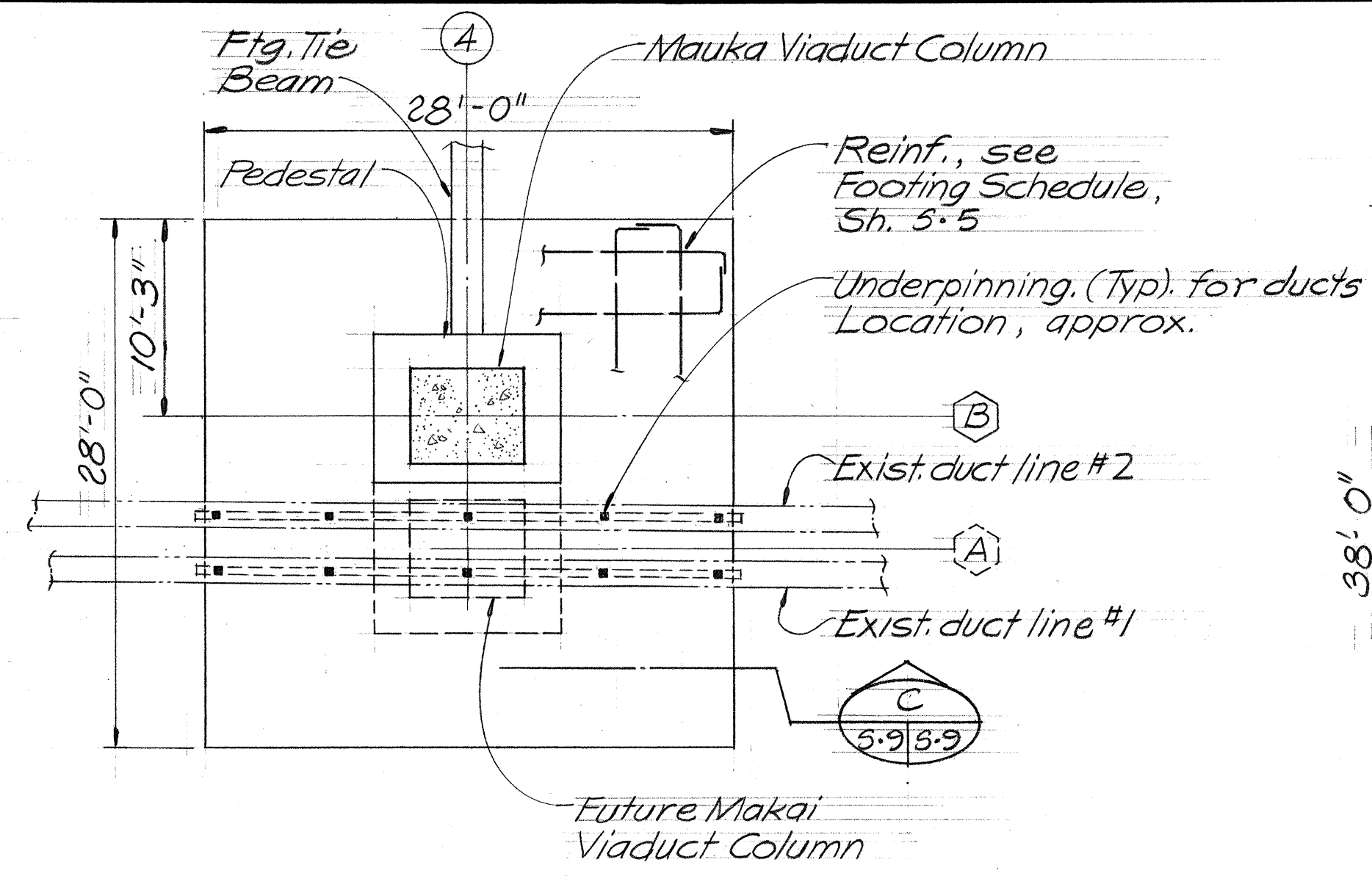
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SHEET NO. 5-8 OF 22 SHEETS

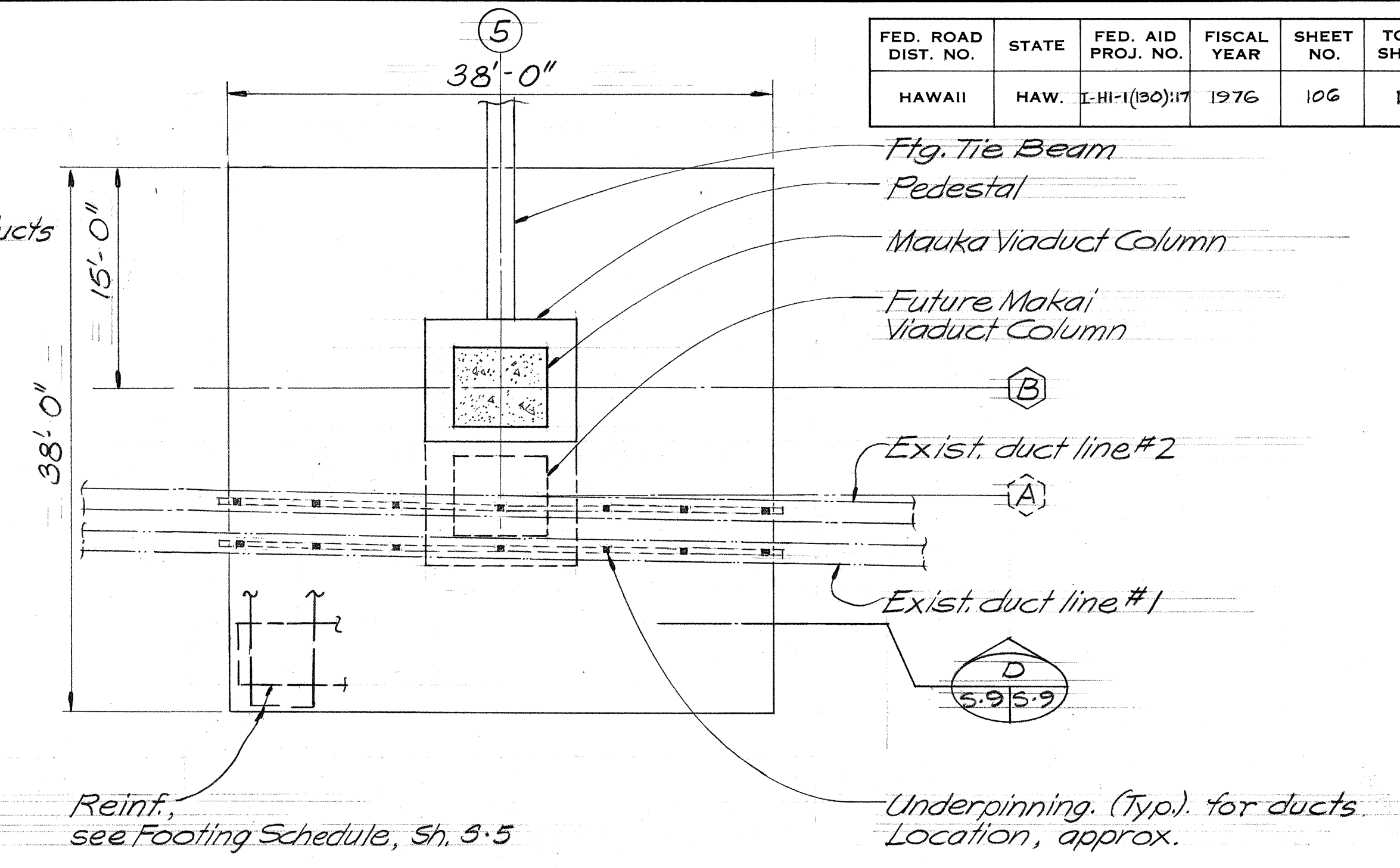
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(130):17	1976	106	174



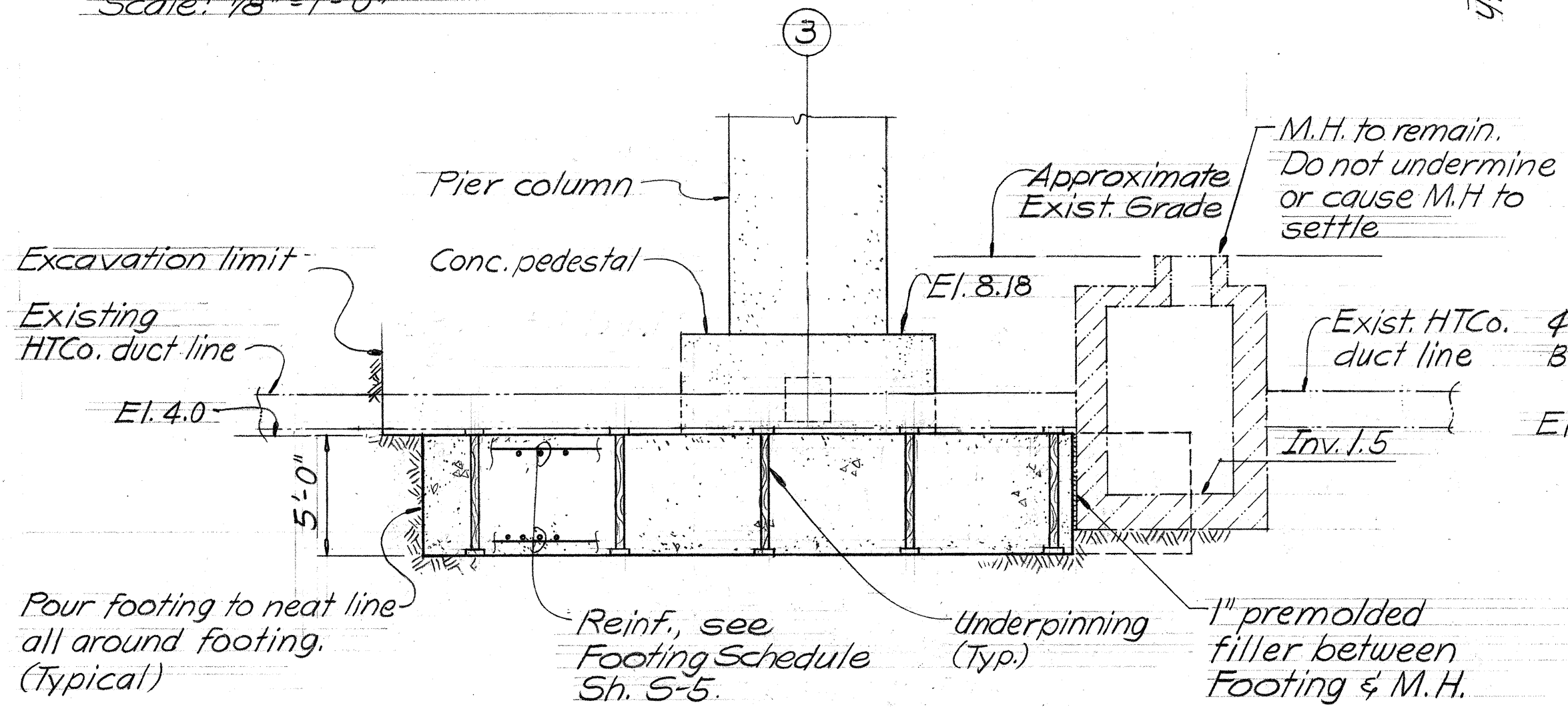
PLAN-UTILITIES: ... @ PIER NO. 3
Scale: 1/8" = 1'-0"



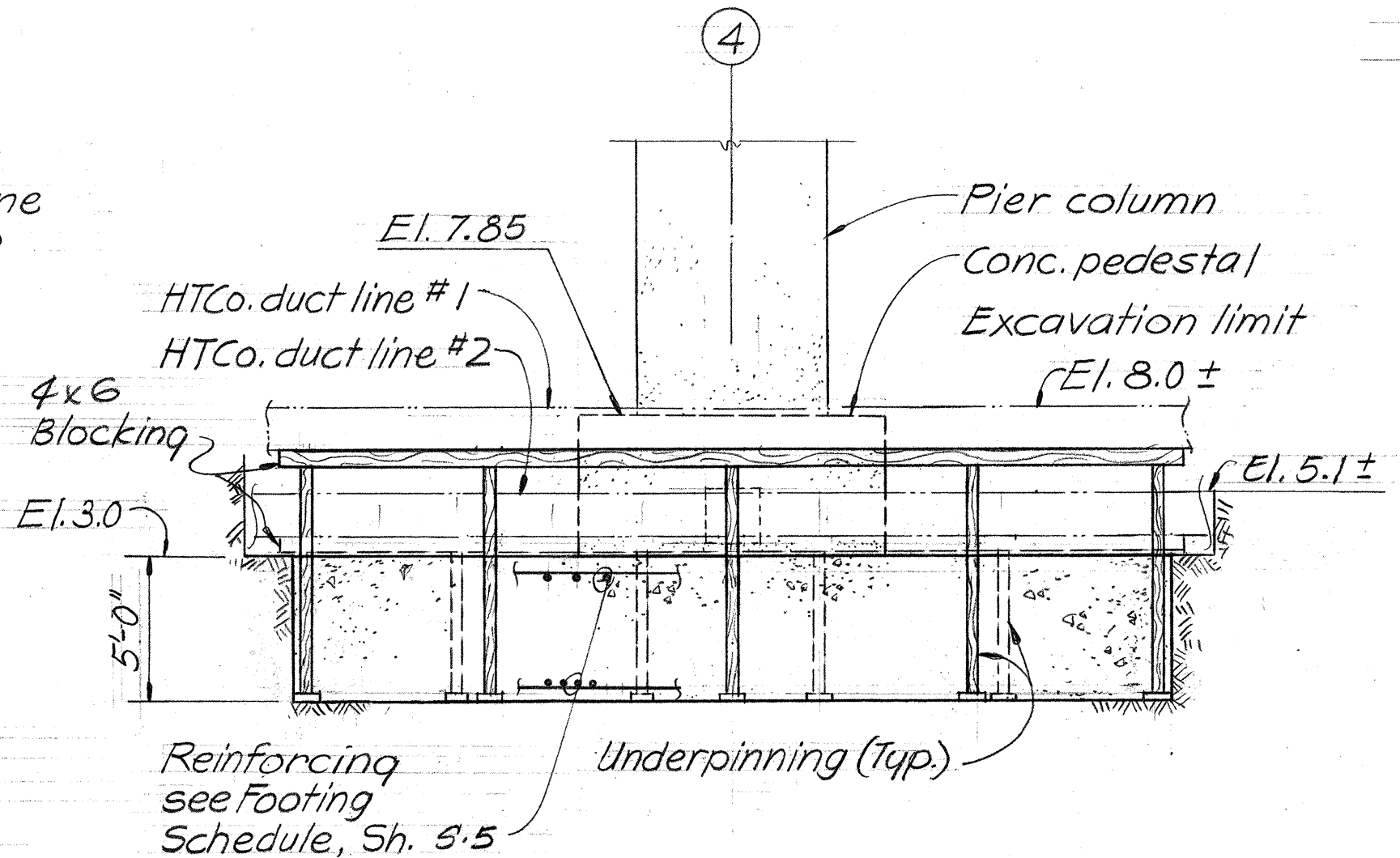
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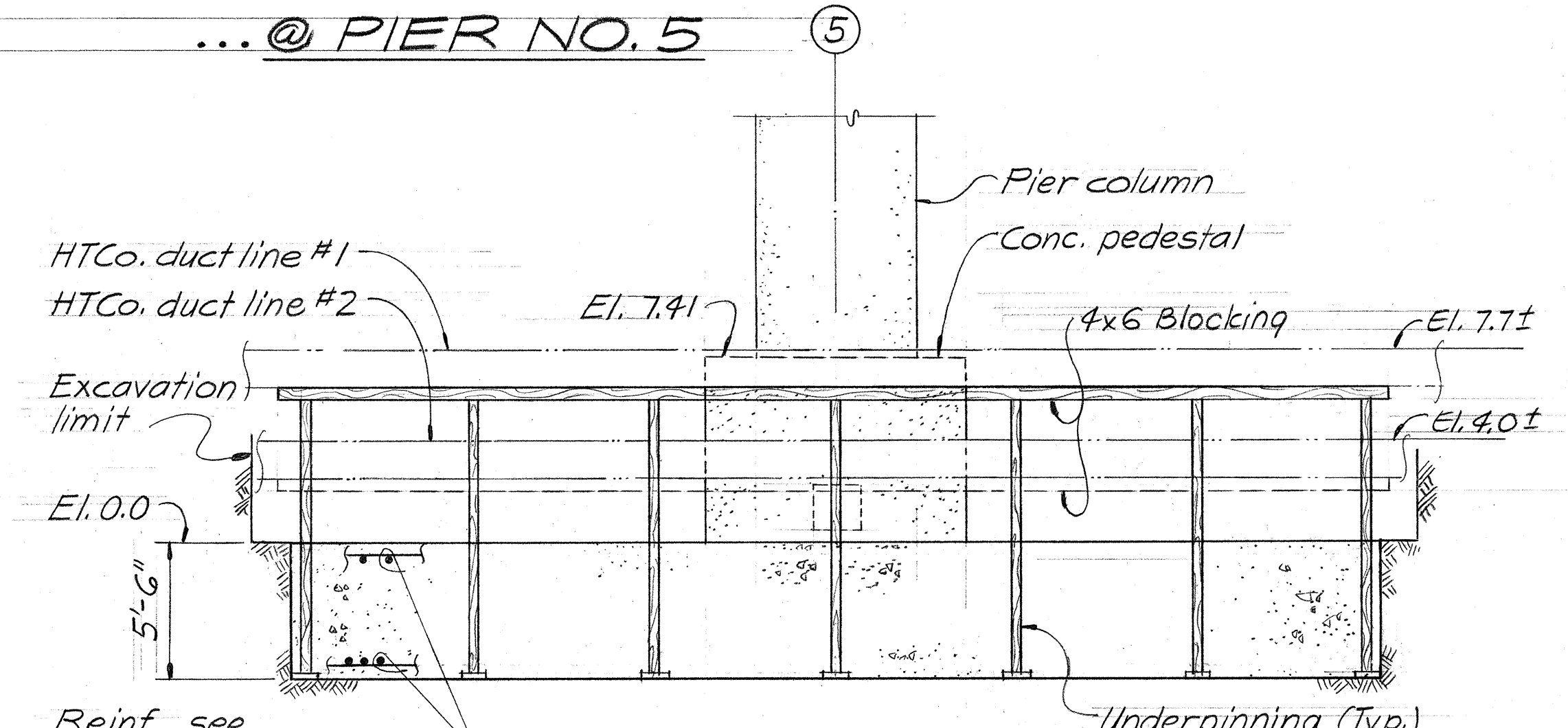
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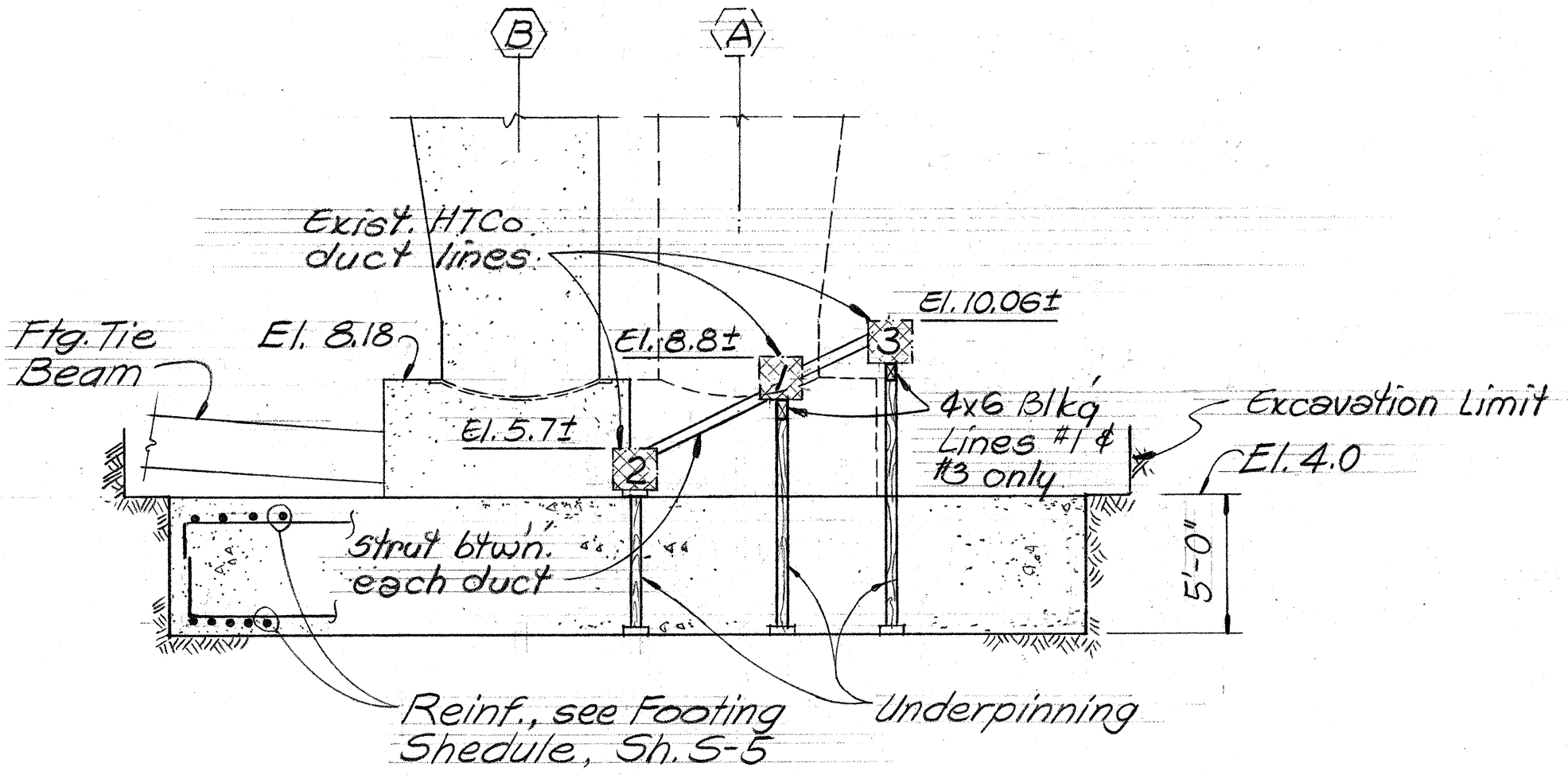
SECTION A
Scale: 3/16" = 1'-0"



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



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



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

SPECIAL NOTES:

- Contractor shall review his construction techniques and sequence with the Engineer and HTCo before beginning any work.
- See Utility Plans for HTCo duct and manhole locations.
- Cost of underpinning of utilities shall be incidental to "Structural Excavation for Bridges." See "Underpinning of existing utilities."

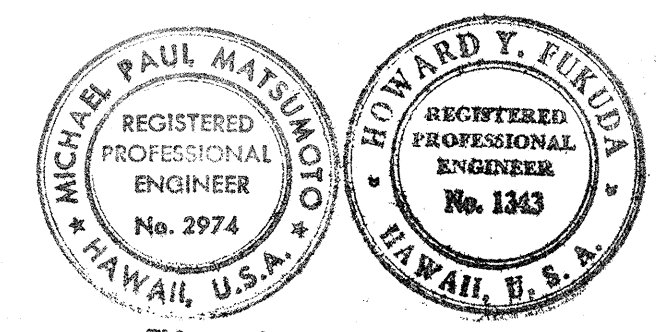
UNDERPINNING OF EXISTING UTILITIES

- Contractor shall verify all locations of existing items in the field & take necessary precautions to prevent damage to existing lines & manholes which may cause disruption of vital services. (Contractor is liable for all damages.)
- Excavate carefully to expose ducts and underpin same by sections while excavating for new pier footings. Pads under shorings shall be cement blocks of adequate size to prevent foundation failure. Soil bearing pressure shall not exceed 2,000 pounds per sq.ft. for blocks. Shores shall be steel or 4"x4" creosoted wood posts spaced 8'-0" o.c. max. (6'-0" o.c. at duct line 2 at Pier 4).
- Brace ducts laterally as required.
- Place reinforcement & pour concrete footing leaving shores in place. Bars shall clear shorings by at least 2 inches.
- Backfill & compact all around ducts to minimize settlements.

APPROVED:

B. Upahara 9/17/76
HAWAIIAN TELEPHONE CO. LTD. DATE

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c/o Shimazu, Shimabukuro & Fukuda, Inc.
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

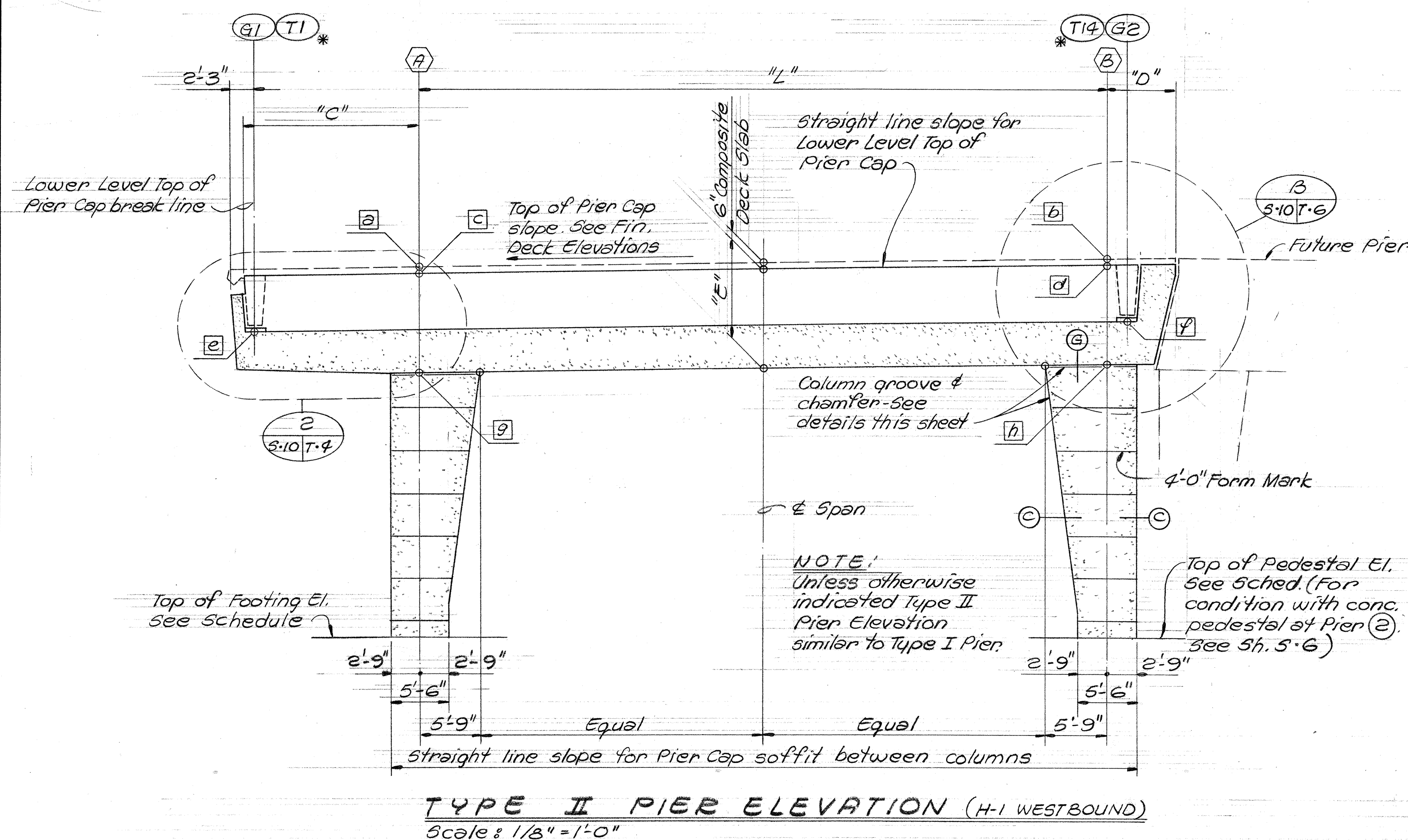
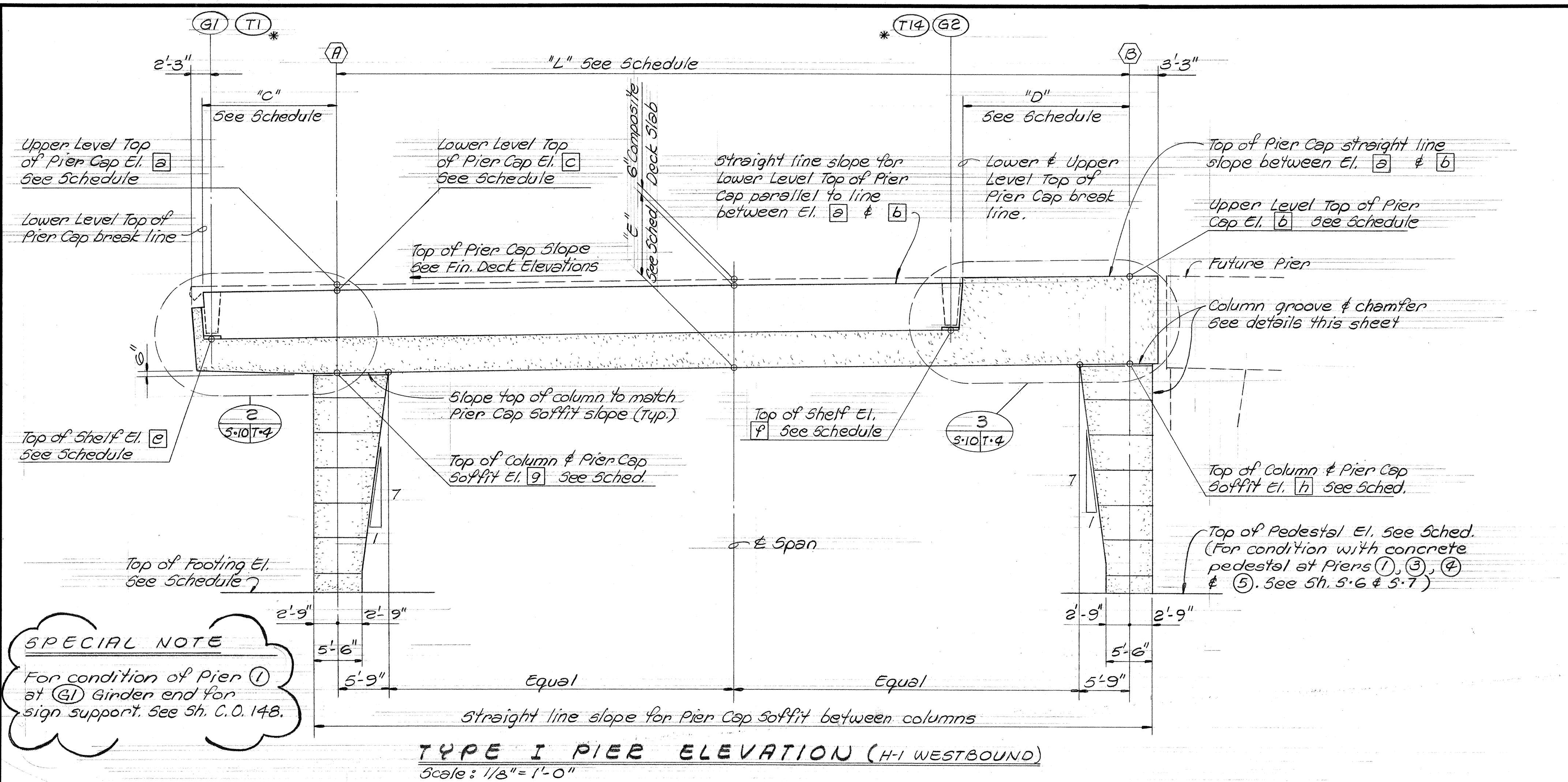
H-1 VIADUCT (WB)

FOUNDATION DETAILS AT PIERS 3, 4 & 5, COLUMN LINE 5

KEEHI INTERCHANGE
F.A.I. PROJ. NO. I-HI-1(130):17

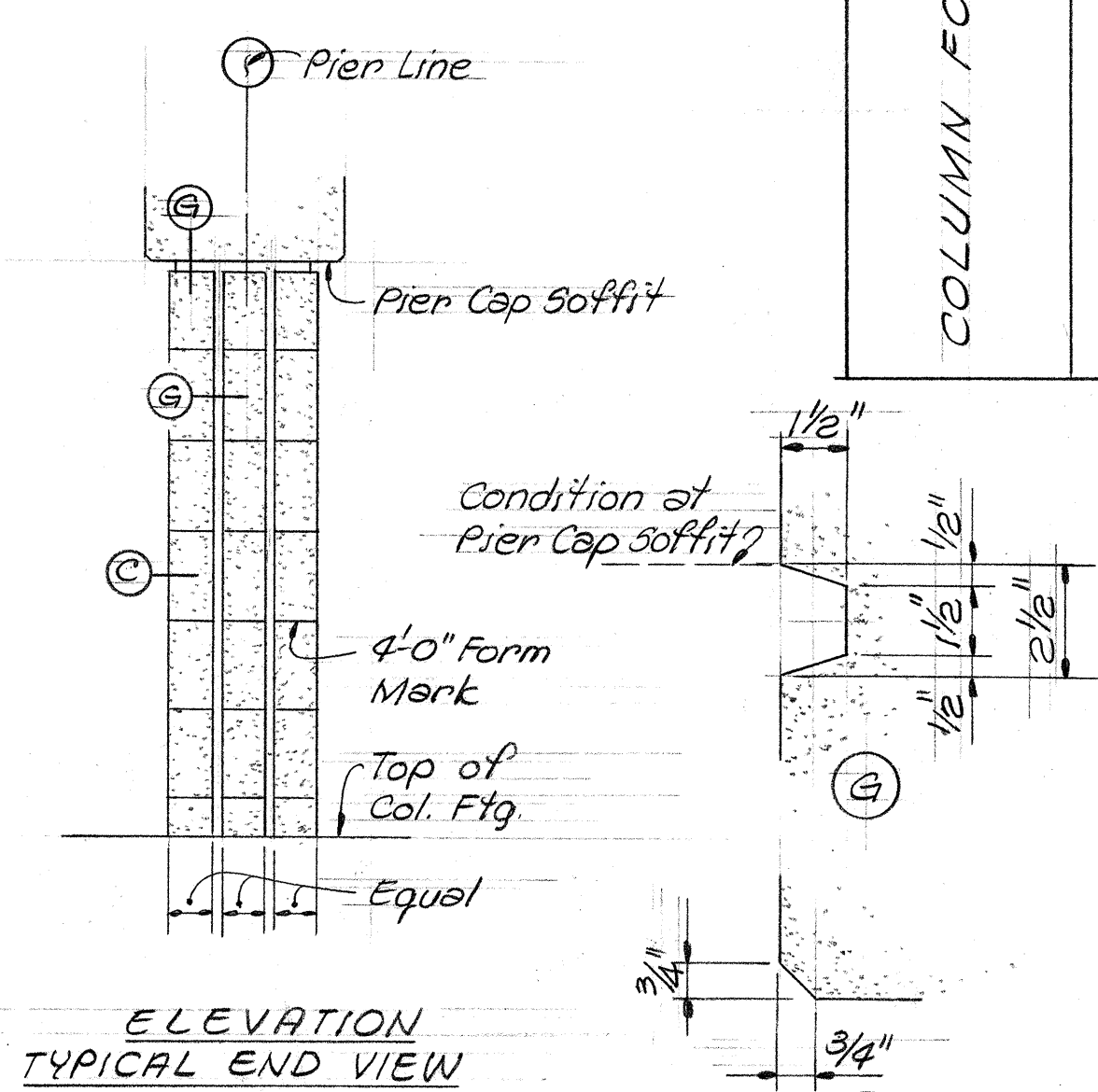
Scale: As shown Date: Aug. 16, 1976

SHEET NO. 5-9 OF 22 SHEETS



* For Keeki Type II Girders between Piers ② & ③ only.

** Soil Pressures used are based on the special report entitled Keeki Interchange, I-HI-1(85), Foundation Report, Puuloa Road to Ahua Street dated 5/20/76



PIER FRAME SCHEDULE										
PIER LINE		(1)	(2)	(3)	(4)	(5)				
TYPE		I	II	I	I	I				
"L" (Length between Column Lines $\text{A} \neq \text{B}$)		22.01'	64.76'	90.07'	97.95'	97.50'				
"C"			16.23	14.82	3.73	5.07				
"D"		6.88	6.33	19.45	15.52	14.64				
"E" (Depth of Pier Cap)		9'-6"	9'-6"	9'-6"	10'-0"	10'-0"				
ELEVATIONS	TOP OF CAP (Along Pier Lines at intersections of Column Lines)	Upper Level	A	a	39.68'	39.63'	38.93'	38.28'	37.83'	
			B	b	41.06'	40.53'	40.18'	39.74'	39.29'	
		Lower Level	A	c	39.18'	39.13'	38.43'	37.78'	37.33'	
			B	d		40.03'				
		TOP OF SHELF (Along Girder Seat Lines at intersections of Girder Lines)	G1	I	e	33.70	33.50	31.48	32.26	31.79
				T1 *	2	33.76	32.12	32.71	32.22	31.75
	G2		I	f	34.91	34.64	32.61	33.51	33.06	
			T1A *	2	34.96	33.25	33.87	33.47	33.03	
	SOFFIT OF CAP (Along Pier Lines at Col. Line intersections)	A	g	29.68'	29.63'	28.93'	27.78'	27.33'		
		B	h	31.06'	30.53'	30.18'	29.24'	28.79'		
	COLUMN FOOTINGS	A	GROUP LOADING (AASHTO)		VII	I	I	I	I	
			TOP OF FOOTING ELEVATION		4.00	8.13	7.43	6.28	5.95	
** NET SOIL PRESSURE (ksf)			9.12	11.00	4.84	4.45	4.70			
B		GROUP LOADING (AASHTO)		VII	VII	VII	VII	I		
		TOP OF PEDESTAL ELEVATION		9.46	9.06	8.18	7.85	7.41		
		** NET SOIL PRESSURE (ksf)		7.90	6.30	4.85	4.70	2.70		

Denotes changes to C.O. 107-5/5/77.

5/5/77 Revised Line ① pier frame schedule in parts.

DATE REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

H-1 VIADUCT (WB)

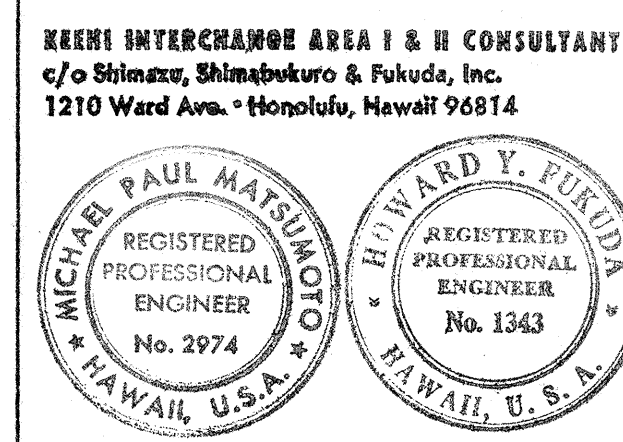
PIER FRAME ELEVATIONS & SCHEDULE

KEEHI INTERCHANGE
F.A.I. PROJ. NO. I-HI-1(130)17

Scale: As Shown Date: Aug. 16, 1976

SHEET No. 5-10 OF 22 SHEETS

C.O. 107



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Michael Paul Matsumoto

ORIGINAL PLAN
NOTED BY
QUANTITIES BY
CHECKED BY

DATE
DESIGNED BY
CHECKED BY

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(130):17	1976	108	174

PIER FRAME COLUMN REINFORCING SCHEDULE									
PIER	①		②		③		④		⑤
COLUMN	A	B	A	B	A	B	A	B	
Reference Top of Pier Cap									
Reference Top of Column									
COLUMN VERT. REINF. & TIE SPACING	30-#18 (11 "a" bars & 19 "c" bars) 18'-6" 30-#18 (5 "b" bars & 25 "d" bars) Bal. @ 6" (#5 tie spacing) 2", 25 @ 4"	30-#18 (11 "a" bars & 19 "c" bars) 18'-6" 30-#18 (5 "b" bars & 25 "d" bars) Bal. @ 6" (#5 tie spacing) 2", 13 @ 4"	20-#18 (8 "a" bars & 12 "c" bars) 18'-6" 10-#18 (2 "b" bars & 8 "d" bars) Bal. @ 8", 6 @ 6", 6 @ 6", 2" (#5 tie spacing) 2", 6 @ 4", 6 @ 6", 6 @ 6", 2" (#5 tie spacing)	20-#18 (8 "a" bars & 12 "c" bars) 18'-6" 10-#18 (2 "b" bars & 8 "d" bars) Bal. @ 8", 6 @ 6", 6 @ 6", 2" (#5 tie spacing)	43-#18 (13 "a" bars & 25 "c" bars) 18'-6" 37-#18 (1 "d" bars) Bal. @ 6", 6 @ 6", 6 @ 6", 2" (#5 tie spacing) 2", 44 @ 4"	36-#18 (13 "a" bars & 23 "c" bars) 18'-6" 34-#18 (5 "b" bars & 29 "d" bars) Bal. @ 6", 6 @ 6", 6 @ 6", 2" (#5 tie spacing) 2", 44 @ 4"	30-#18 (11 "a" bars & 19 "c" bars) 18'-6" 30-#18 (5 "b" bars & 25 "d" bars) Bal. @ 6", 6 @ 6", 6 @ 6", 2" (#5 tie spacing) 2", 44 @ 4"		
Reference Top of Footing or Pedestal									
TOTAL NO. OF #18 VERT. REINF.	60A	60A	30	30	80	70	60	60	70
NO. OF #18 DOWELS @ COLUMN BASE	16	16	12	16	16	16	12	16	16

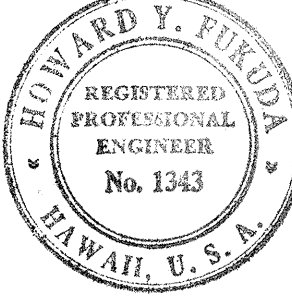
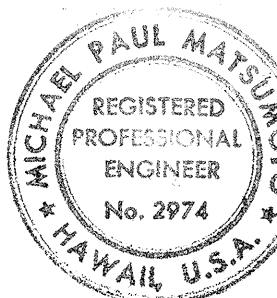
SPECIAL NOTE

Column ties at Column Line (B) at all Piers & at Column Line (A) at Pier 4 to continue into Pier cap. See Schedule.

REFERENCE DRAWINGS

- Pier Schedule ----- Sh. 5-10 (Col. & Ftg. El.)
- Column Sections ----- Sh. 5-13
- #18 dowels @ Col. Base ----- Sh. T-2
- Reinforcing Designation Sh. 5-12

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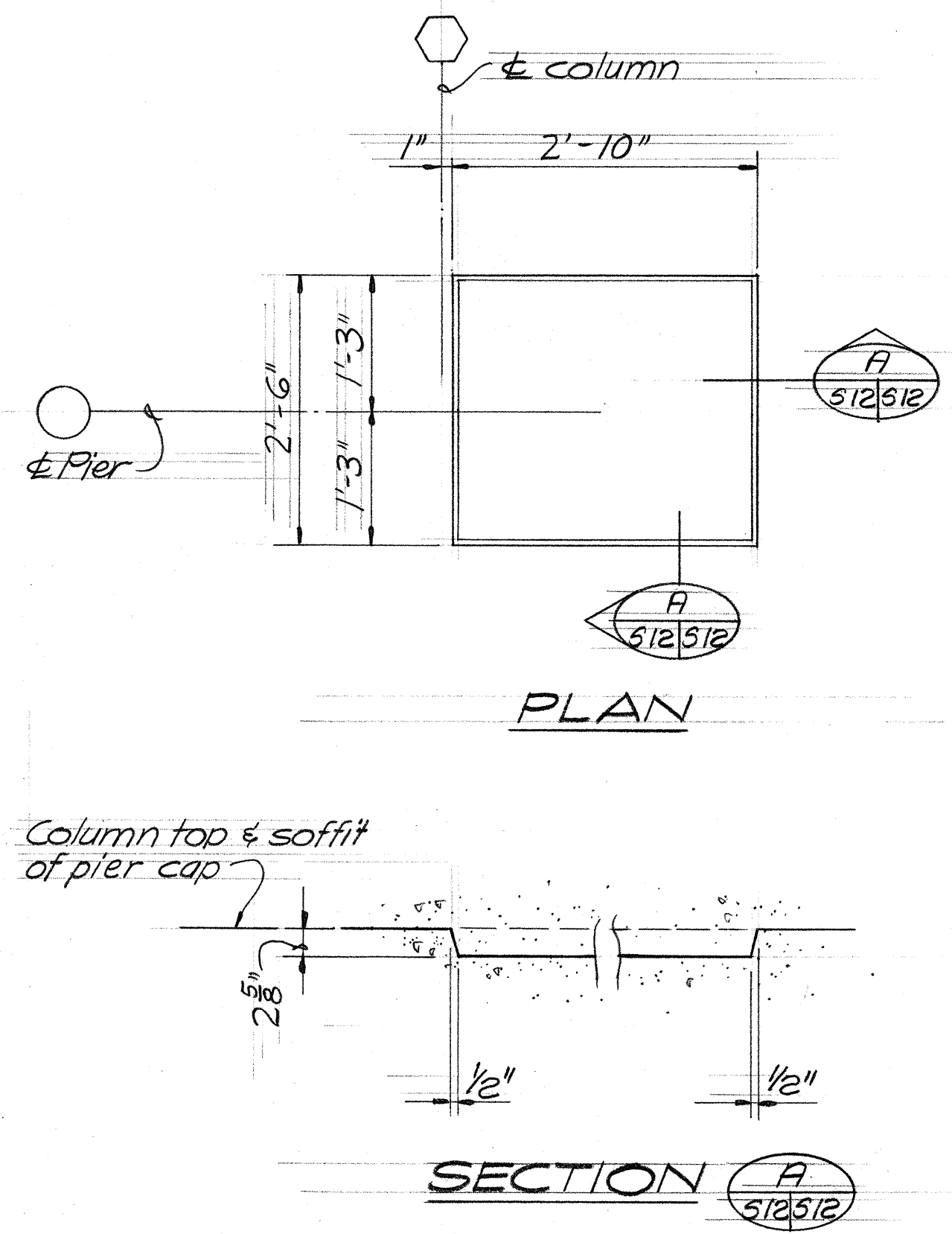
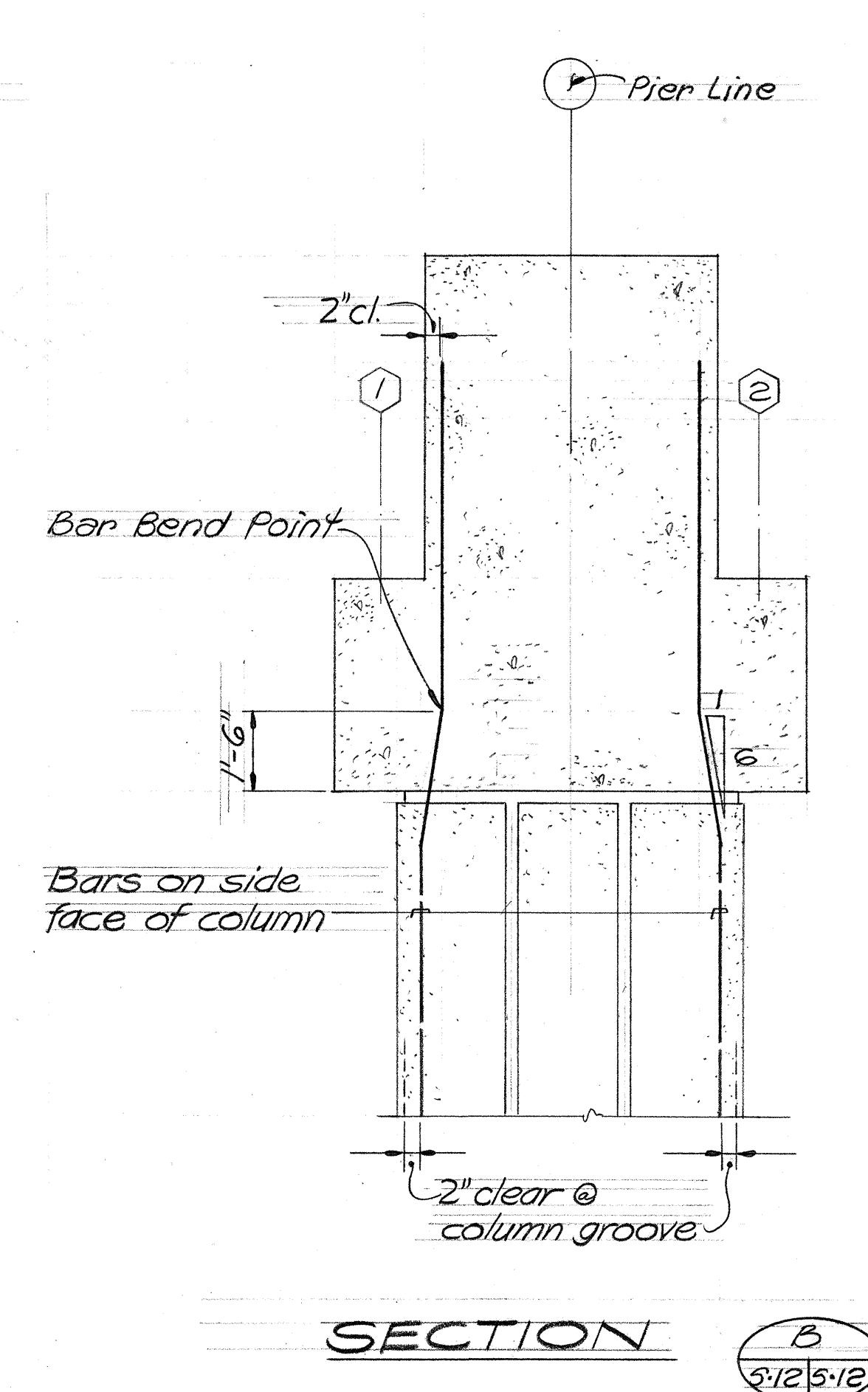
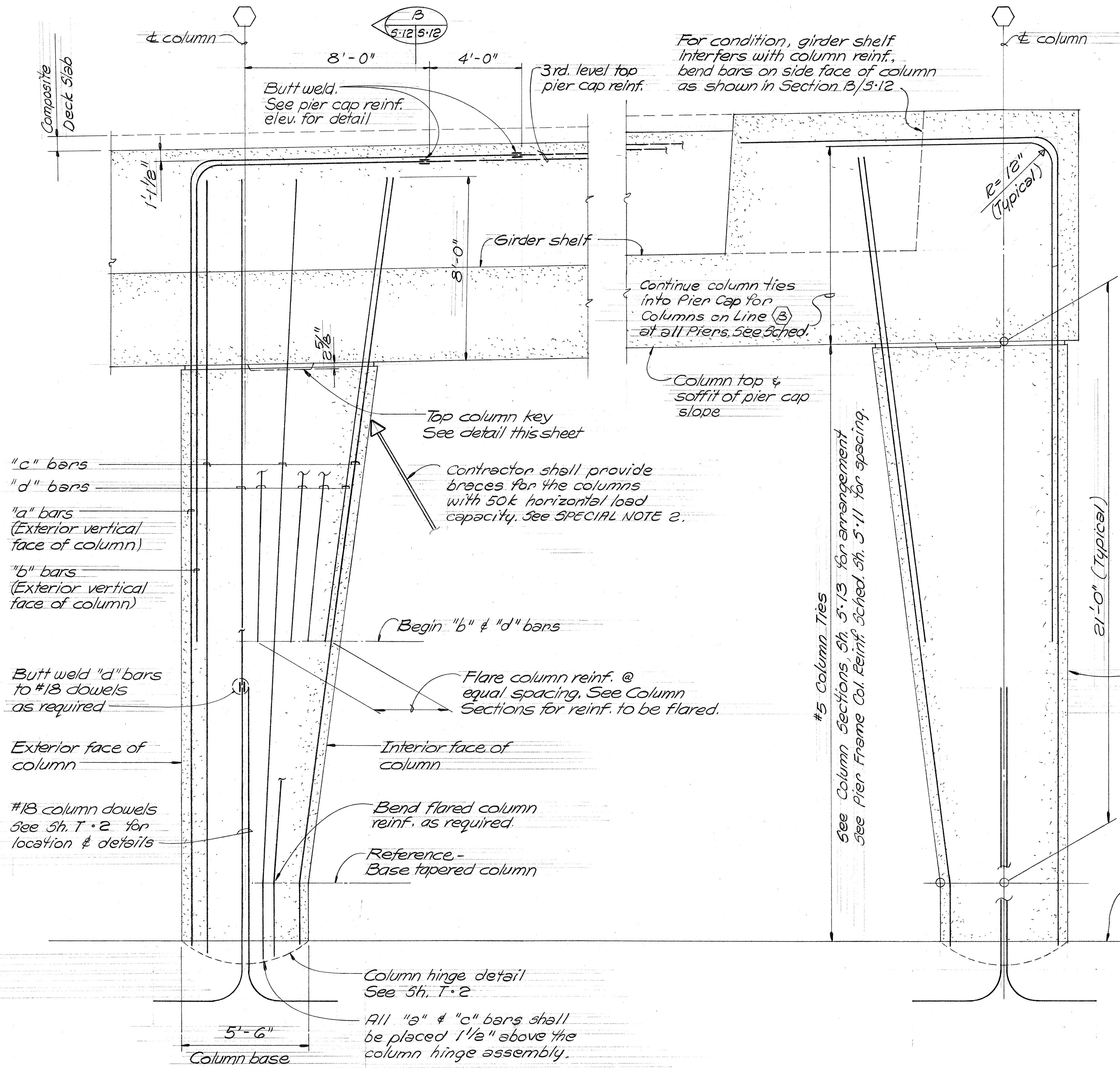
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STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
H-1 VIADUCT (WB) PIER FRAME COLUMN REINFORCING SCHEDULE	
KEEHI INTERCHANGE F.A.I. PROJ. NO. I-HI-1(130):17	
No Scale:	Date: Aug. 16, 1976
SHEET NO. 5-11 OF 22 SHEETS	

{ Denotes changes to C.O. 108 5/5/77

5/5/77	Revised cols. ① - (A) & (B) in parts. Modified cols. ② - (A) & (B) for clarity
DATE	REVISION

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(130):17	1976	109	174



TOP COLUMN KEY DETAIL

Scale: 3/4" = 1'-0"

SPECIAL NOTES

- All column reinforcing shall be supported by the column forms and/or dowels. No column reinforcing shall be bearing on the column hinge assembly thru blocks or shims.
- Columns are hinged & unstable until the pier caps are completed. Contractor shall brace columns as required until pier caps are poured & cured.
- Shorings under pier caps shall be removed before prestressed girders can be placed on them.
- Column Nos. (1-A), (1-B) reinforcing details below soffit of pier cap similar as detailed on this drawing. See Column Schedule & Sht. #C.O. 110. Details & arrangement of reinforcement in pier cap similar except as otherwise shown on sht. nos. C.O. 110, C.O. 111, C.O. 149 and C.O. 113 3-1

{ } Denotes changes to C.O. 109 - 5/5/77.

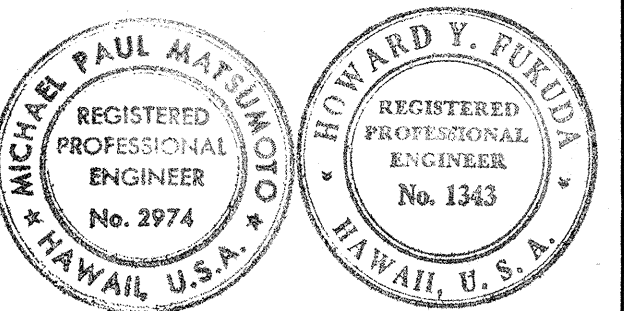
GIRDER SHELF OVER COLUMN

GIRDER SHELF AWAY FROM COLUMN

COLUMN REINFORCEMENT DETAILS

N. T. S.

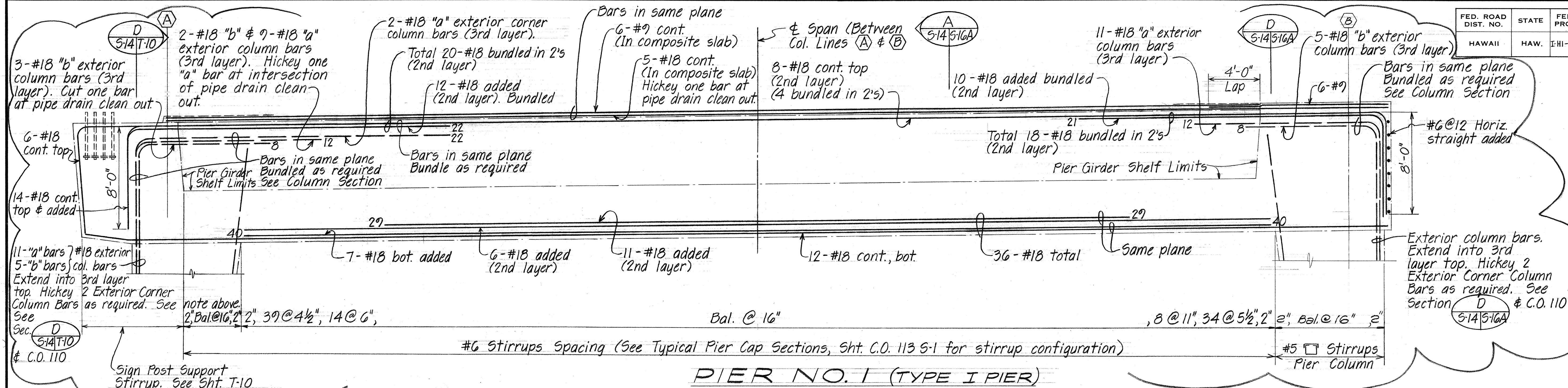
KEEHI INTERCHANGE AREA I & II CONSULTANTS
c/o Shimizu, Shimabukuro & Fukuda, Inc.
1210 Ward Ave., Honolulu, Hawaii 96814



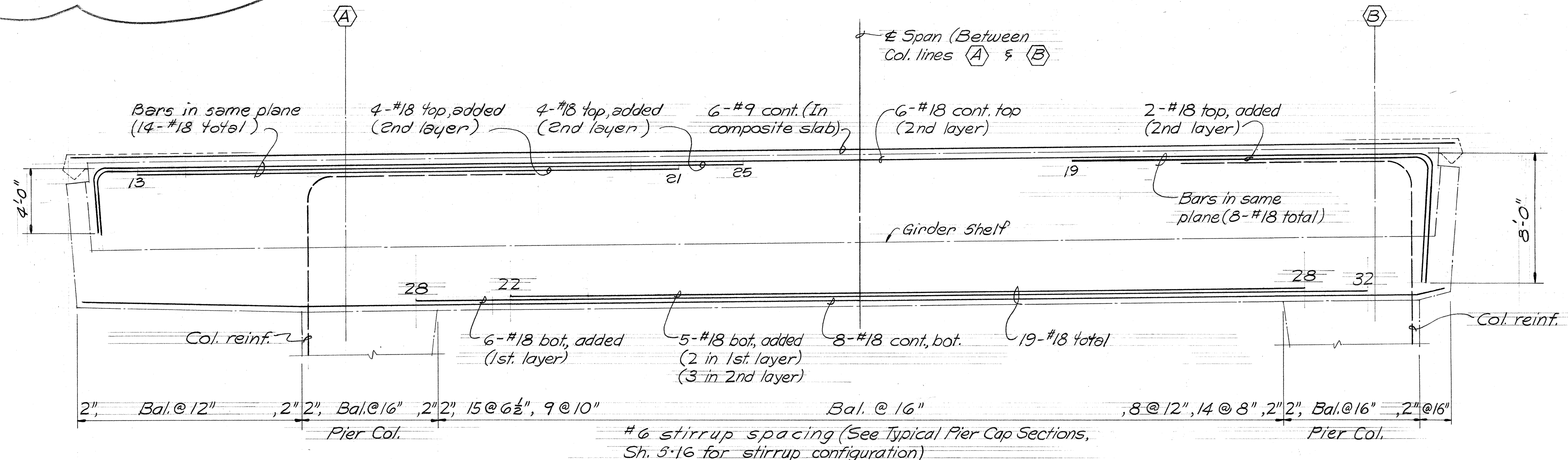
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5/5/77	Modified column reinforcing placement & arrangement at Column Nos. (1-A), (1-B)
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION H-1 VIADUCT (WB) COLUMN REINFORCING DETAILS	
KEEHI INTERCHANGE F.A.I. PROJ. NO. I-HI-1(130):17	
Scale: As Shown	Date: Aug. 16, 1976
SHEET NO. 5:12 OF 22 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(30)17	1976	111	174



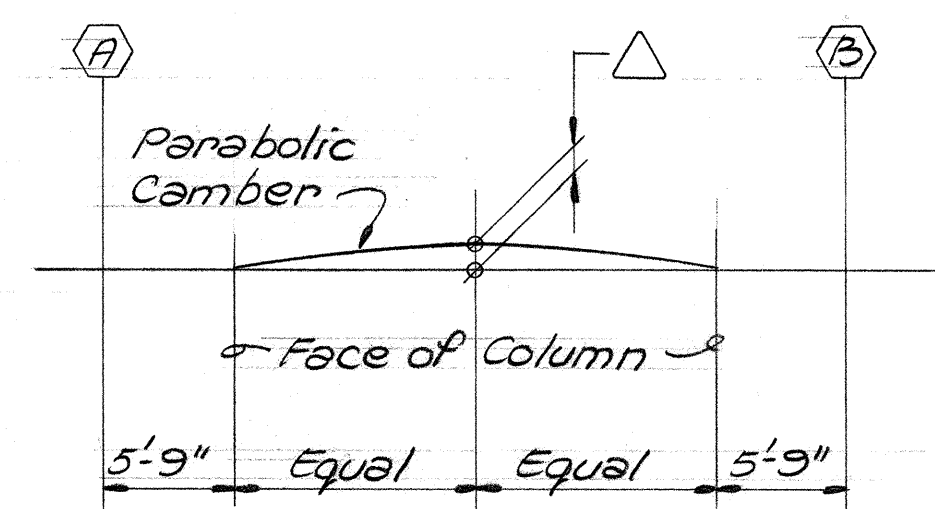
PIER NO. 1 (TYPE I PIER)



PIER NO. 2 (TYPE II PIER)

NOTES

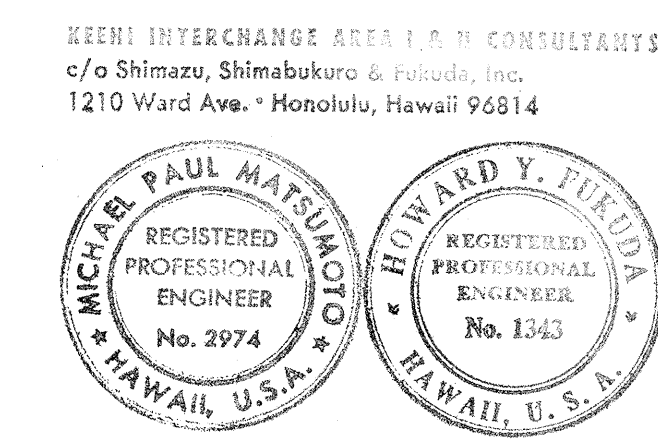
- Numbers at ends of bars indicate distance in feet. Top bars measured from column line alphabet & bottom bars from $\pm$ span.
- For additional pier cap reinforcement location & details, see Sh. S-16, T-8, C.O. 147, & C.O. 113 S-1.
- Bend #18 bars with 12" radius (minimum).
- Refer to Sh. C.O. 107, S-16 & C.O. 148 for pier cap dimensions & elevation schedule.
- Allowable splices:
#9 bars = 4'-0" lap (stagger 4'-0" o.c.)
#18 bars = Full butt weld (Not more than 25% shall be spliced at any one point. Stagger splices 4'-0" o.c.)



PIER CAP CAMBER

Pier	Δ
1	1 1/4"
2	1 1/4"
3	1"
4	1 1/4"
5	1 1/4"

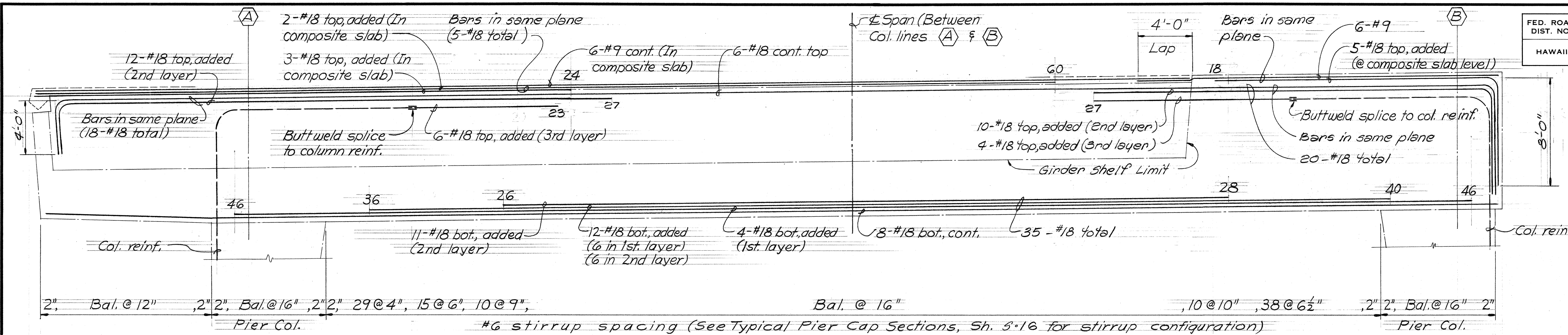
{ 3 Denotes changes to C.O. 111 - 5/5/77.



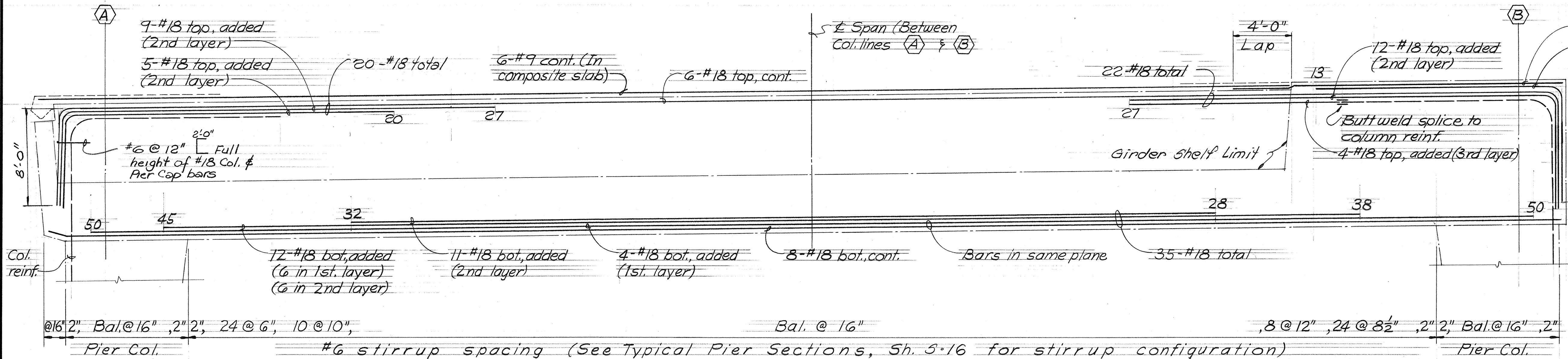
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5/5/77	Revised Pier No. ① details and reinforcements.
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION H-1 VIADUCT (WB) PIER CAP REINFORCING KEEHI INTERCHANGE F.A.I. PROJ. NO. I-HI-1(30):17 Scale: 1/4" = 1'-0" Date: Aug. 16, 1976 SHEET NO. 5-14 OF 22 SHEETS	

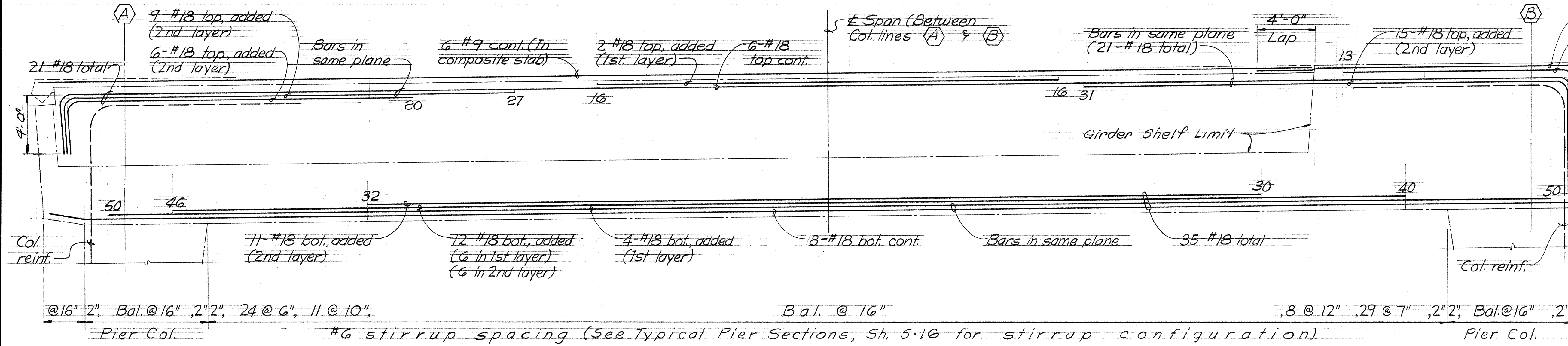
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(130):17	1976	112	174



PIER NO. 3 (TYPE I PIER)



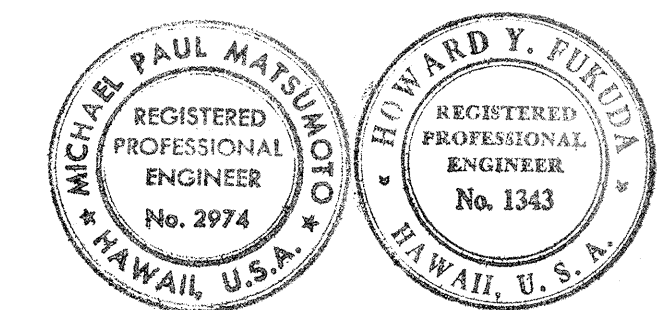
PIER NO. 4 (TYPE I PIER)



PIER NO. 5 (TYPE I PIER)

NOTE
See Sh. 5-14 for notes

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STATE OF HAWAII
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HIGHWAYS DIVISION

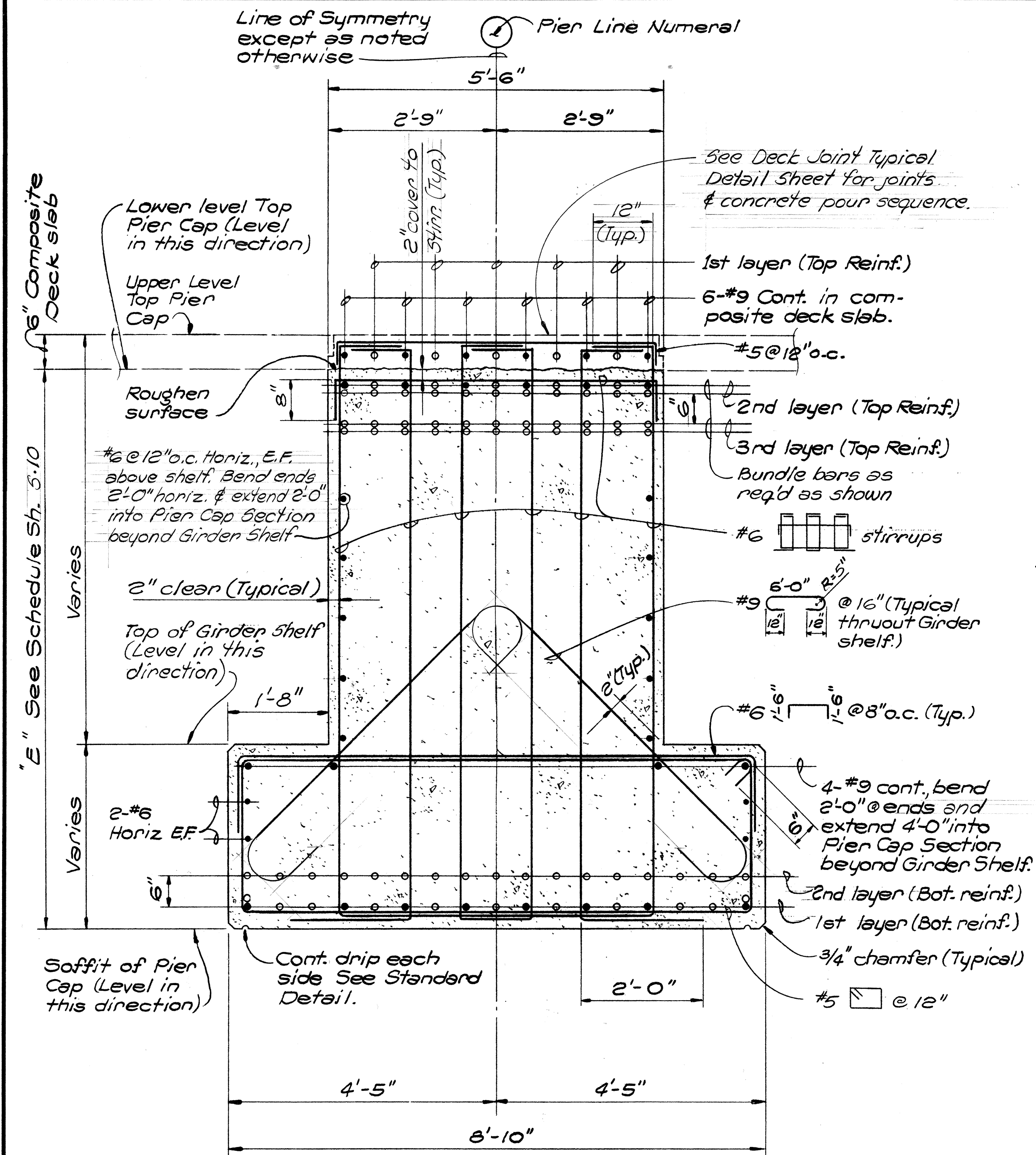
H-1 VIADUCT (WB)
PIER CAP REINFORCEMENT

KEEHI INTERCHANGE
F.A.I. PROJ. NO. I-HI-1(130):17

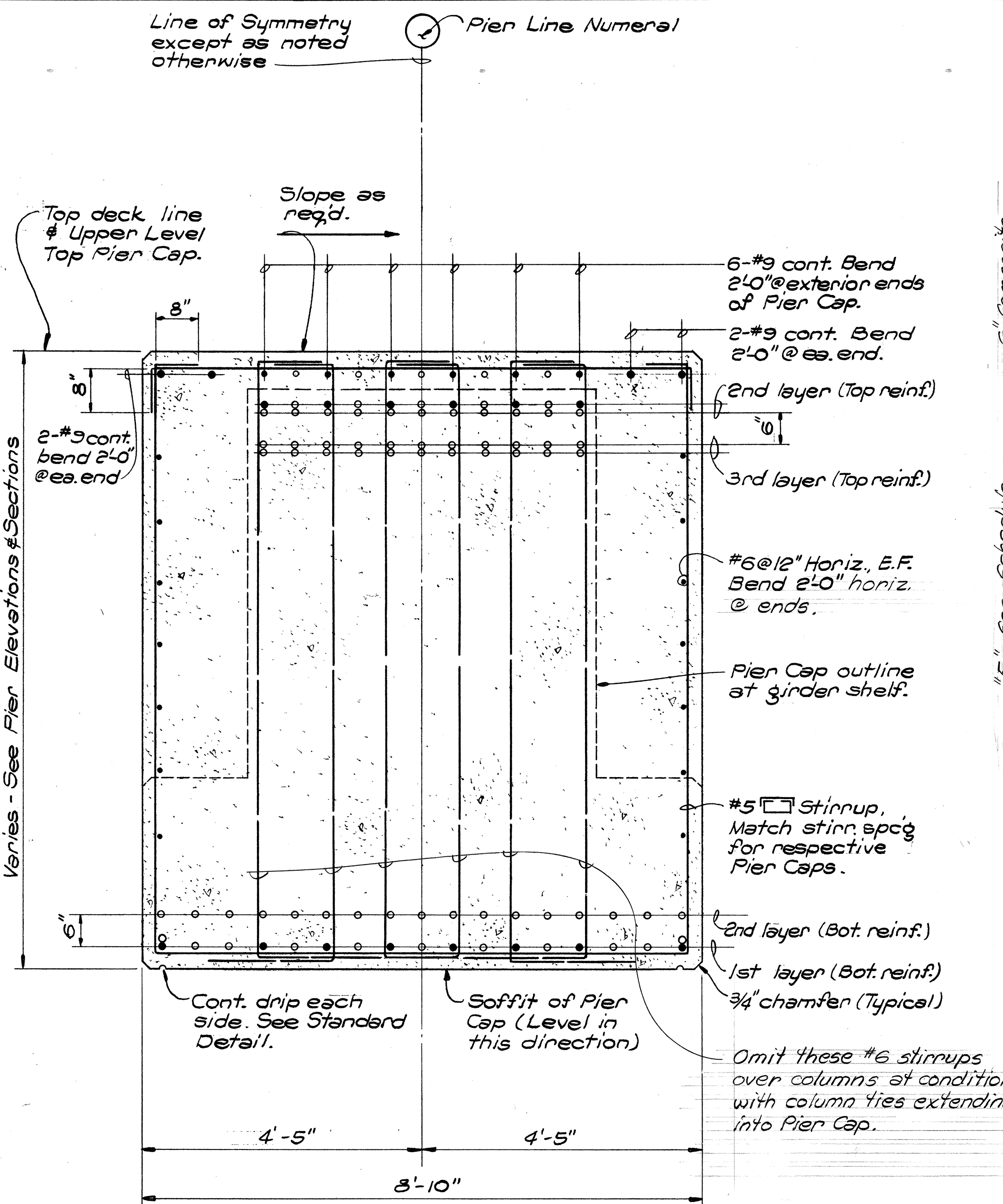
Scale: 1/4"=1'-0" Date: Aug. 16, 1976

SHEET NO. 5-15 OF 22 SHEETS

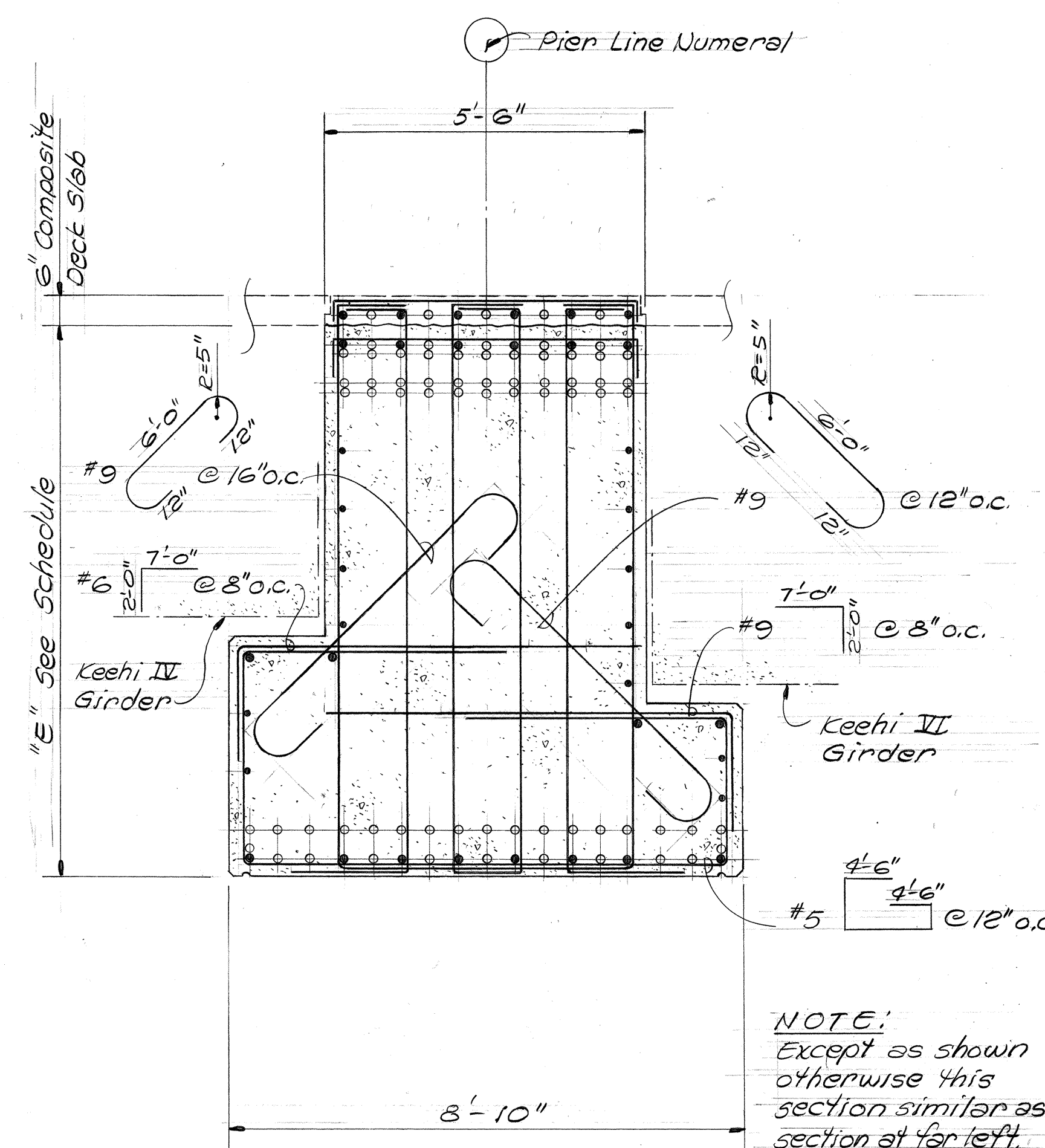
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CHH(130)117	1976	113	174



SECTION @ GIRDER SHELF



SECTION BEYOND GIRDER SHELF



SECTION @ GIRDER SHELF
PIER CAP SECTION @ PIER (2)
N.T.S. (Section @ Pier (3) opposite hand.)

TYPICAL PIER CAP SECTIONS

N.T.S.

SYMBOLS

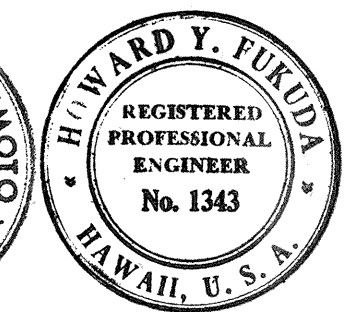
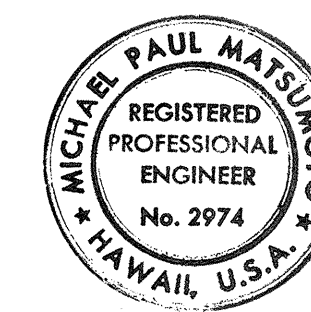
- = Continuous bar location
- o = Added bar location.

REINFORCING NOTES

- For Pier Cap reinforcing at ends, girder seats & creep block, see Sh. T-8.
- See Pier Cap Reinforcing Elevation sheet for longitudinal top & bottom reinforcing & stirrup spacing.

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

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STATE OF HAWAII
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HIGHWAYS DIVISION

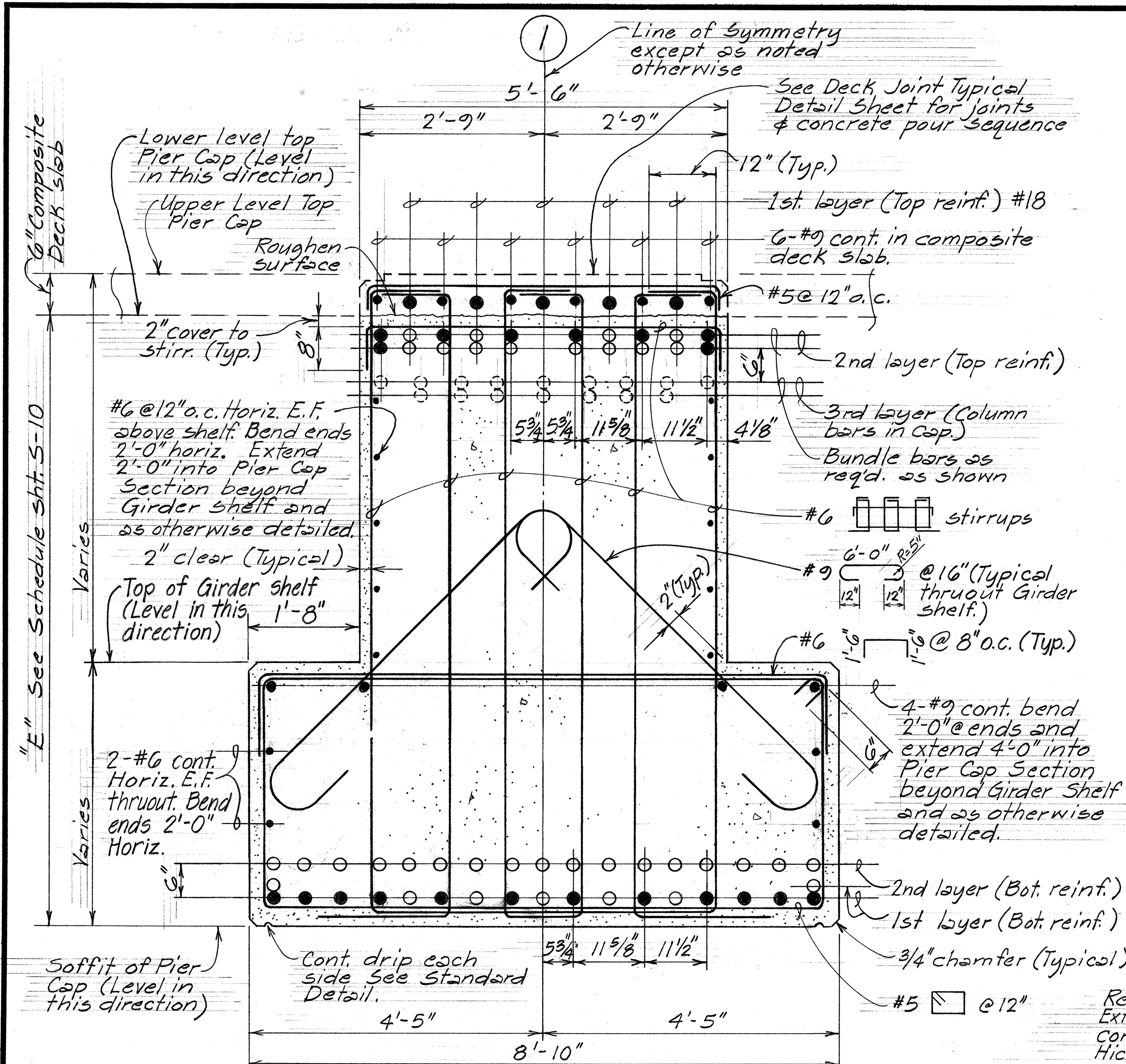
H-1 VIADUCT (WB)
TYPICAL PIER CAP SECTIONS

KEEHI INTERCHANGE
F.A.I. PROJ. No. 1-H1-1(130)117

Scale: As Shown Date: Aug. 16, 1976

SHEET NO. 516 OF 22 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEET
HAWAII	HAW.				



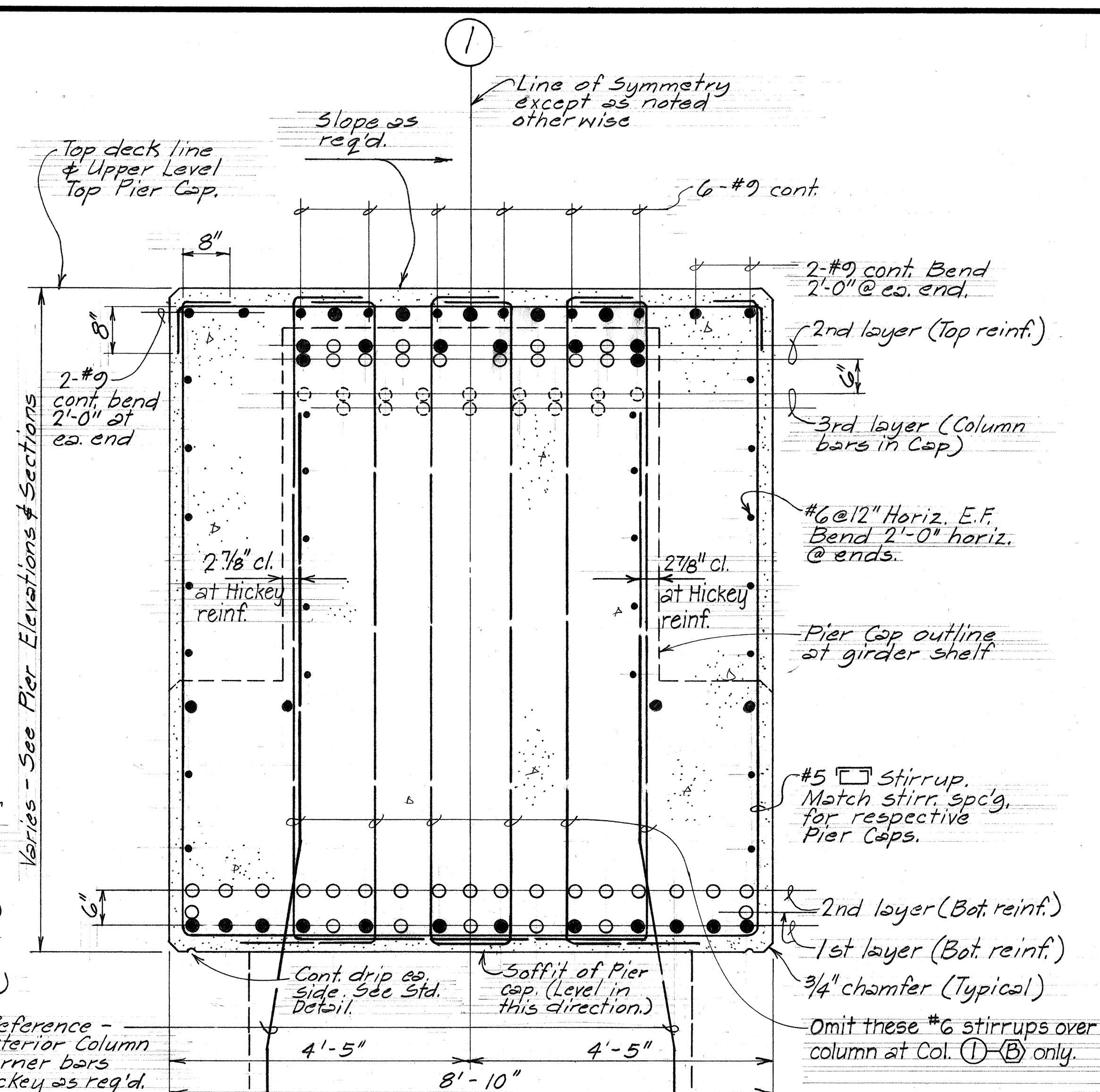
SECTION  AT GIRDER SHELF
NTS

SYMBOLS

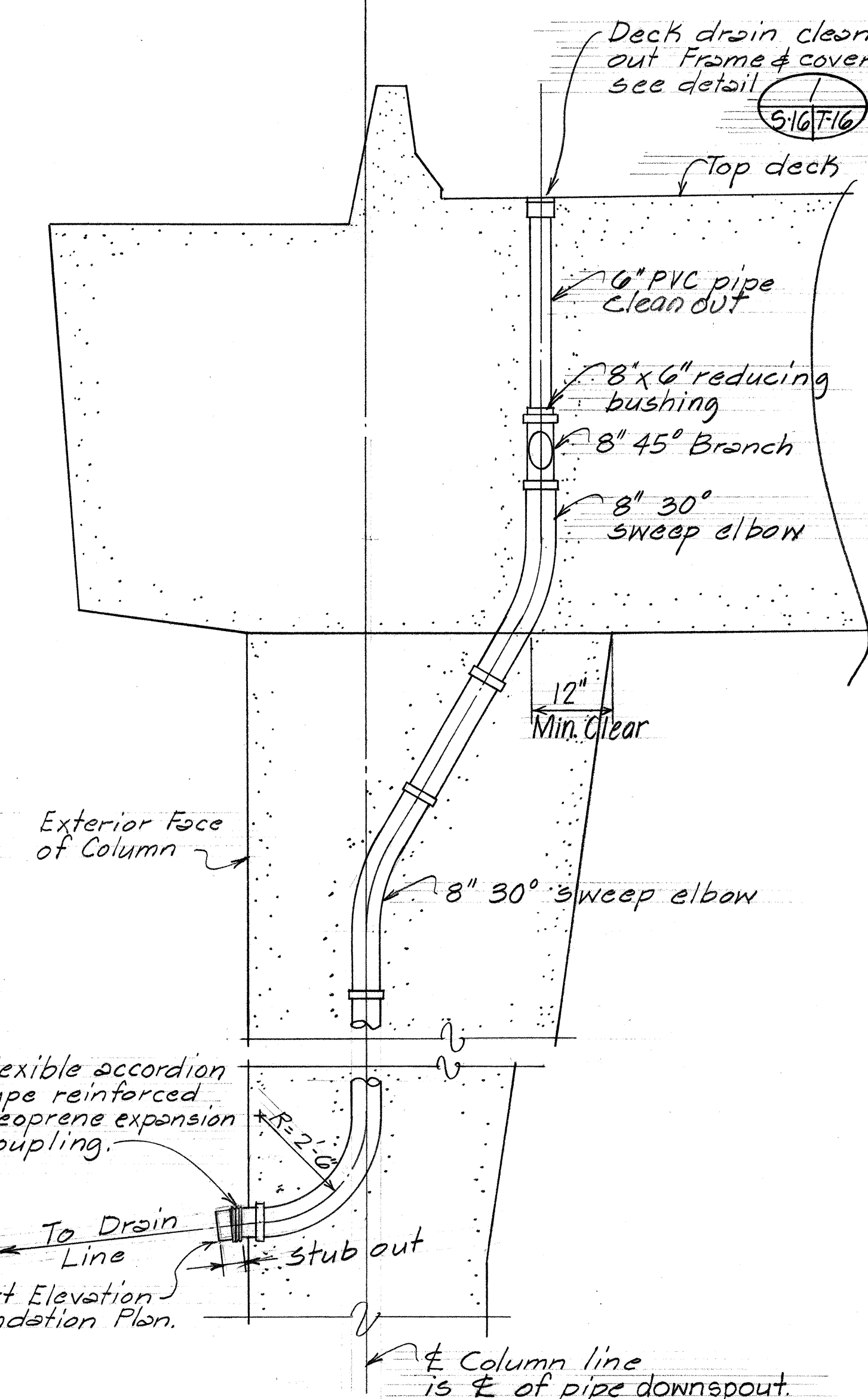
- = Continuous bar location
- = Added bar location

REINFORCING NOTES

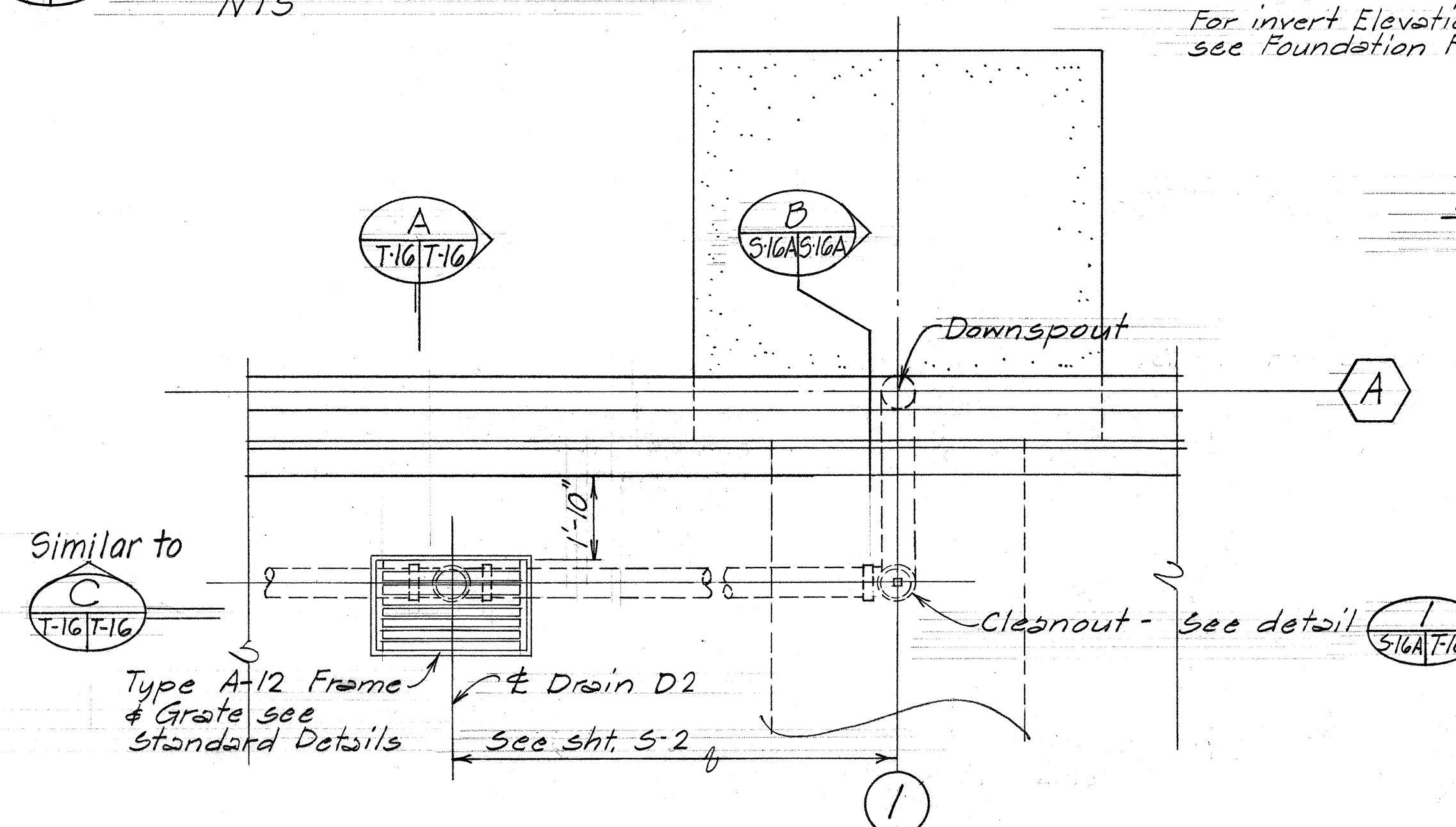
1. For Pier Cap reinforcing at ends, girder seats & creep block, see sht. T-8.
2. See Pier Cap Reinforcing Elevation sheet for longitudinal top & bottom reinforcing & stirrup spacing.



SECTION D BEYOND GIRDER SHELF
5/4 | 5/6A
NTS



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



PLAN-DECK DRAIN AND DOWNSPOUT
CONNECTION DETAIL COLUMN 1 A
Scale: $3/8" = 1'-0"$

5/5/77	Revised Pier No.1 sections & details. Revised deck drain downspout. Sheet added to contract plan set for additional details required on Sht. # C.O. 113
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

H-1 VIADUCT (WB)

PIER CAP SECTION & DETAILS
 PIER No. ①

KEEHI INTERCHANGE
 F.A.1: PROD. No. I-HI-1 (130): 17

Scale: As Shown Date: Apr. 1977

SHEET NO. 5164 OF 22 SHEETS

C.O. 113 S-

PIER CAP CONCRETE SEAT (FOR GIRDERS) LOCATIONS, ELEVATIONS, SKEWS, BEVELS, SCHEDULE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(30):17	1976	114	174

Pier line	①										②										③									
Bearing	①					②					①					②					①					②				
Girder	"D"	TR	TS	Skew	Bevel	"D"	TR	TS	Skew	Bevel	"D"	TR	TS	Skew	Bevel	"D"	TR	TS	Skew	Bevel	"D"	TR	TS	Skew	Bevel	"D"	TR	TS	Skew	Bevel
G1	-34.913	39.74	33.78	+1/8:12	+1/16:12	-34.840	39.70	33.84	+1/8:12	+1/16:12	-35.968	39.44	33.58	+2:12	+1/16:12															
T1	-25.830	39.87	33.91			-24.746	39.85	33.99			-25.736	39.58	33.72			-34.230	39.40	32.20	+2:12	+1/16:12	-35.461	38.76	31.56	+2:12	+1/16:12	-28.908	38.79	32.87	+2:12	
T2	-16.745	40.00	34.04			-14.652	40.00	34.14			-15.505	39.72	33.86			-28.401	39.49	32.29			-29.633	38.84	31.64	+2:12		-19.278	38.94	33.02		
T3	-7.662	40.14	34.18			-4.558	40.15	34.29			-5.273	39.86	34.00			-22.023	39.58	32.38			-23.255	38.94	31.74			-9.648	39.07	33.15		
T4	1.421	40.27	34.31			5.537	40.30	34.44			4.96	40.00	34.14			-15.646	39.67	32.47			-16.877	39.02	31.82			-0.018	39.20	33.28		
T5	10.506	40.41	34.45			15.631	40.45	34.59			15.192	40.15	34.29			-9.268	39.75	32.55			-10.499	39.10	31.90			9.612	39.33	33.41		
T6	19.589	40.54	34.58			25.726	40.60	34.74			25.424	40.30	34.44			-2.890	39.84	32.64			-4.121	39.20	32.00			19.242	39.47	33.55		
T7	28.673	40.68	34.72			35.819	40.75	34.89	▽	▽	36.655	40.44	34.58	▽	▽	3.488	39.93	32.73			2.256	39.28	32.08			28.872	39.61	33.69		
T8	37.757	40.82	34.86	▽	▽											9.866	40.02	32.82			8.634	39.38	32.18			38.502	39.74	33.82	▽	▽
T9																16.244	40.11	32.91			15.012	39.46	32.26							
T10																22.621	40.20	33.00			21.390	39.56	32.36							
T11																28.999	40.29	33.09			27.768	39.64	32.44							
T12																35.377	40.38	33.18			34.146	39.73	32.53							
T13																41.754	40.47	33.27			40.523	39.82	32.62							
T14																46.612	40.53	33.33	▽	▽	45.381	39.89	32.69	▽	▽					
G2	46.841	40.95	34.99	+1/8:12	+1/16:12	45.914	40.90	35.04	+1/8:12	+1/16:12	45.887	40.58	34.72	+2:12	+1/16:12											48.133	39.87	33.95	+2:12	+1/16:12

Pier line	④										⑤									
Bearing	①					②					①					②				
Girder	"D"	TR	TS	Skew	Bevel	"D"	TR	TS	Skew	Bevel	"D"	TR	TS	Skew	Bevel	"D"	TR	TS	Skew	Bevel
G1	-36.901	38.26	32.34	-1/8:12	+1/16:12	-36.976	38.22	32.30	-1/8:12	+1/16:12	-38.681	37.79	31.87	-1/8:12	+1/16:12	-38.756	37.75	31.83	-1/8:12	+1/16:12
T1	-29.163	38.37	32.45	+1/8:12		-29.090	38.34	32.42	+1/8:12		-29.163	37.93	32.01	+1/8:12		-35.090	37.80	31.88	+1/8:12	
T2	-19.663	38.52	32.60			-19.589	38.49	32.57			-19.663	38.08	32.16 32.25			-29.090	37.89	31.97		
T3	-10.162	38.66	32.74			-10.089	38.62	32.70			-10.162	38.22	32.30 32.37			-19.589	38.04	32.12 32.16		
T4	-0.662	38.80	32.88			-0.588	38.76	32.84			-0.662	38.36	32.44 32.53			-10.089	38.18	32.26 32.33		
T5	8.839	38.94	33.02			8.912	38.90	32.98			8.839	38.50	32.58 32.68			-0.588	38.32	32.40 32.48		
T6	18.339	39.09	33.17			18.413	39.05	33.13			18.339	38.65	32.72 32.83			8.912	38.46	32.54 32.64		
T7	27.840	39.24	33.32			27.913	39.19	33.27			27.840	38.78	32.86 32.95			18.413	38.61	32.69 32.79		
T8	37.340	39.37	33.45	▽	▽	37.414	39.33	33.41	▽	▽	37.340	38.92	32.99 33.09	▽	▽	27.913	38.75	32.83 32.92		
T9																37.414	38.89	32.97 33.07	▽	▽
T10																				
T11																				
T12																				
T13																				
G2	46.841	39.51	33.59	+1/8:12	+1/16:12	46.914	39.47	33.55	+1/8:12	+1/16:12	46.841	39.06	33.14 33.16	+1/8:12	+1/16:12	46.914	39.03	33.11 33.12	+1/8:12	+1/16:12

Pier Line ①	②					*
Bearing	"D"	TR	TS	Skew	Bevel	
G1	-34.842	40.17	34.21	+1/8:12	+1/16:12	34.21
T1	-25.758	40.30	34.34			34.35
T2	-16.674	40.44	34.48			34.51
T3	-7.590	40.58	34.62			34.63
T4	1.493	40.71	34.75			34.79
T5	10.578	40.85	34.89			34.93
T6	19.661	40.98	35.02			35.05
T7	28.744	41.12	35.16			35.19
T8	37.829	41.26	35.30	▽	▽	35.31
G2	46.912	41.39	35.43	+1/8:12	+1/16:12	34.43

* = ? Location unknown.

SPECIAL NOTE:

Pier ① is an existing pier; seat locations, elevations, skews & bevels are to be verified from existing conditions.

LEGEND

"D" = Distance of $\frac{1}{2}$ girder intersection with bearing line. (Measured along $\frac{1}{2}$ Pier from Baseline)

TR = Top of Roadway Elevation
TS = Top of Seat Elevation } at intersection $\frac{1}{2}$ girder & Pier bearing line.

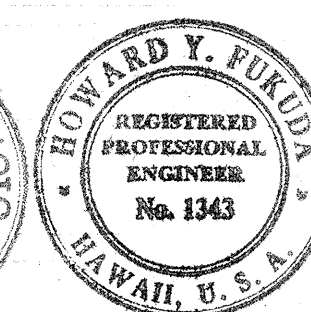
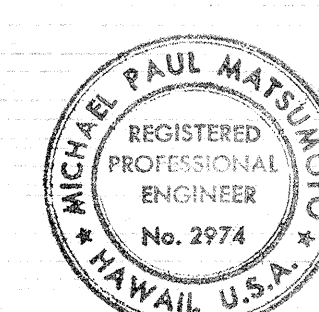
Skew = Seat Skew

Bevel = Seat Bevel

NOTES

- See sheet 5-18 for schematic representation of all information shown on this sheet
- Dimension "D" & Elevations TR & TS are given in feet. (See Sh. 5-18 for "D" dimension.)

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Paul Matsuyama

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

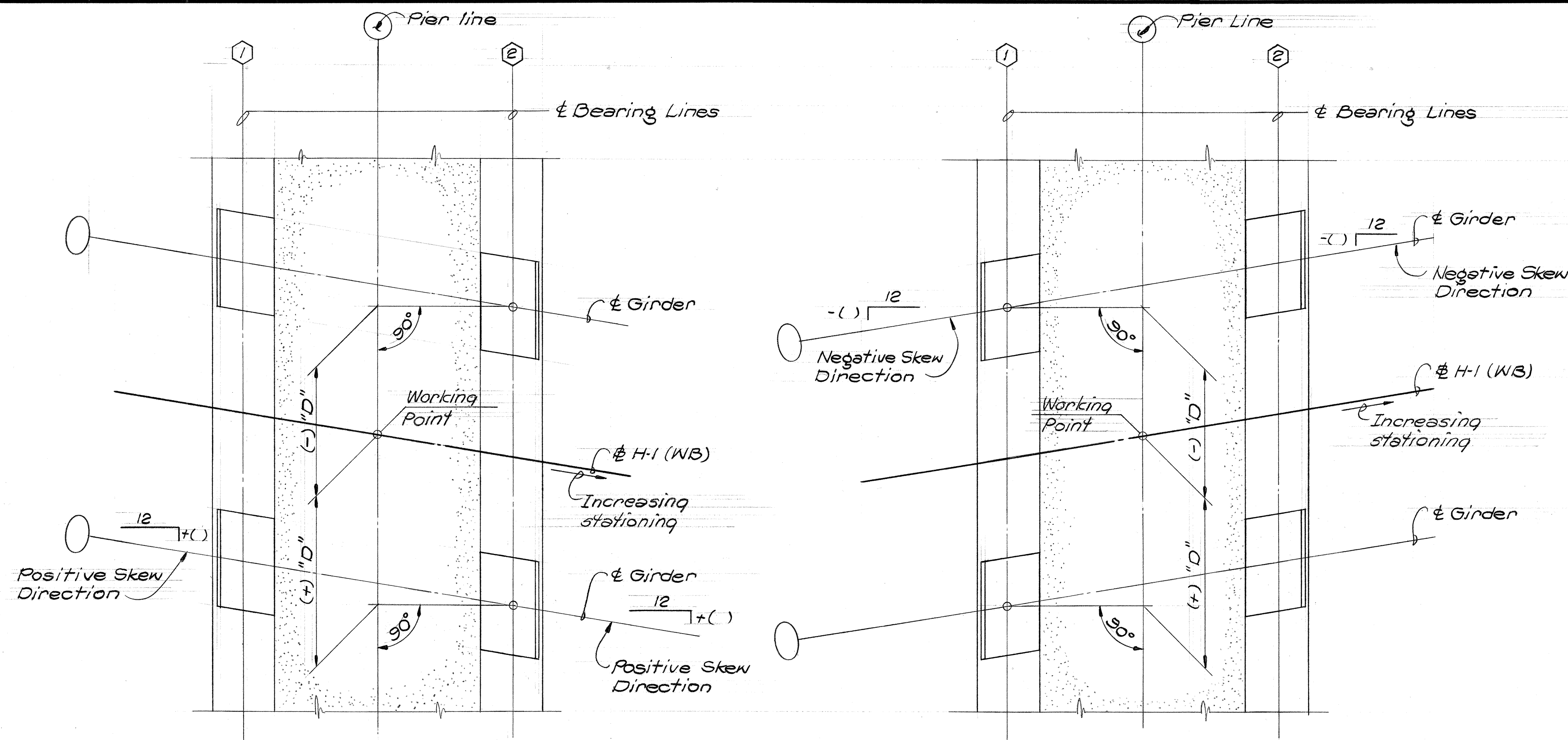
H-1 VIADUCT (WB)
GIRDER SEAT GEOMETRICS

KEEHI INTERCHANGE
F.A.I. PROJ. NO. I-HI-1(30):17

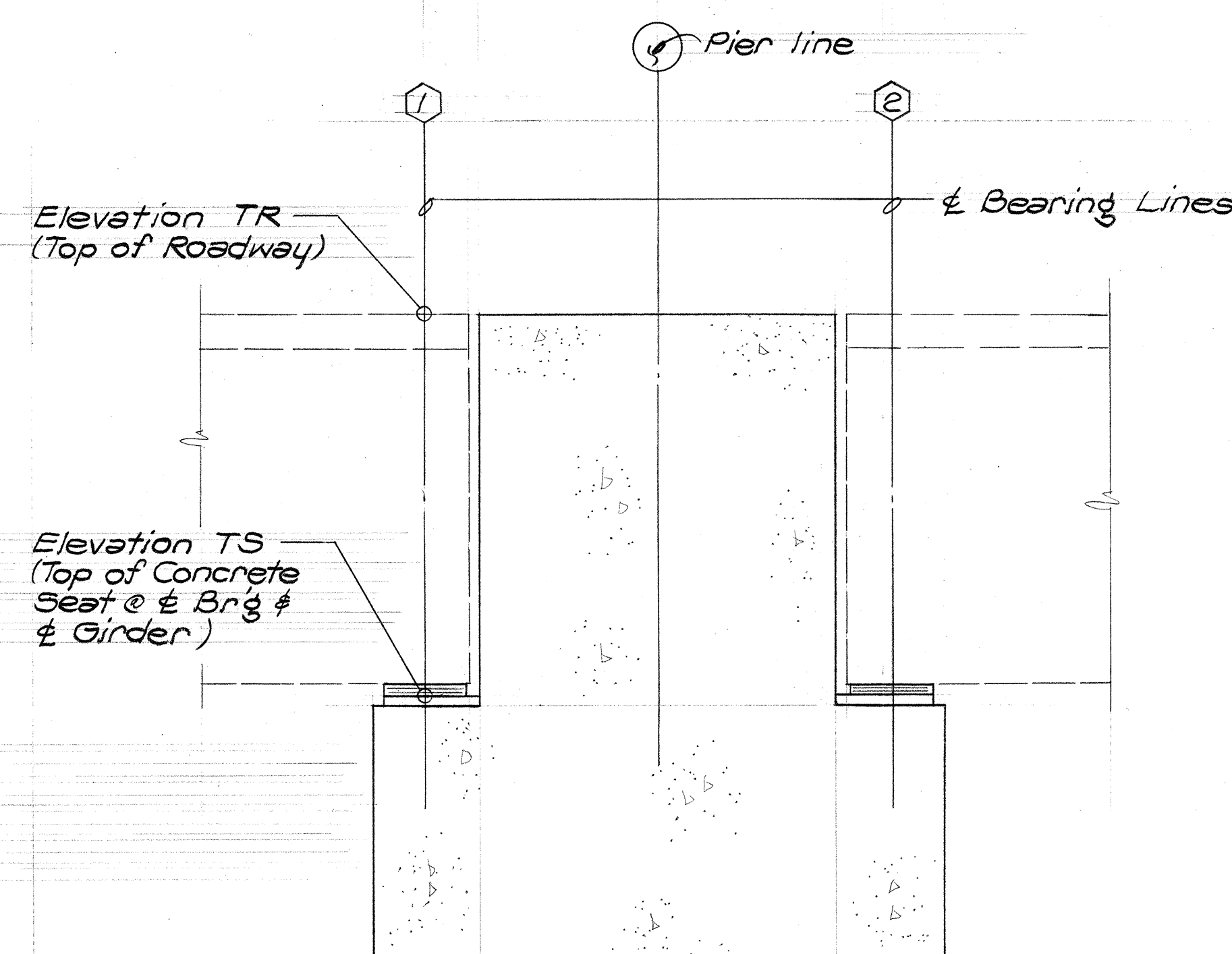
Scale: As Shown Date: Aug. 16, 1976

SHEET NO. 5-17 OF 22 SHEETS

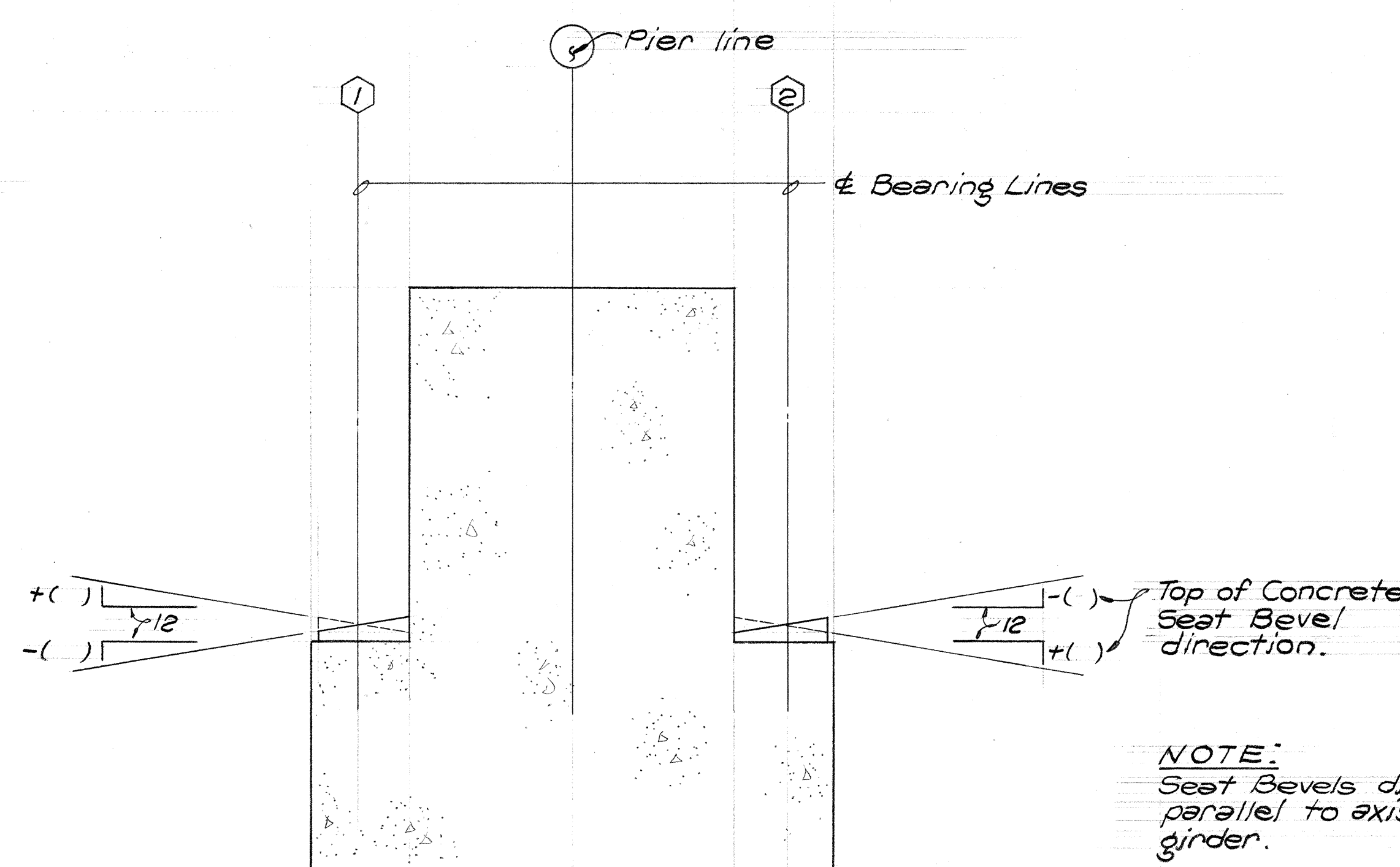
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HI-1(30):17	1976	115	174



GIRDER SEAT LOCATION & SKEW
Scale: 1/2" = 1'-0"

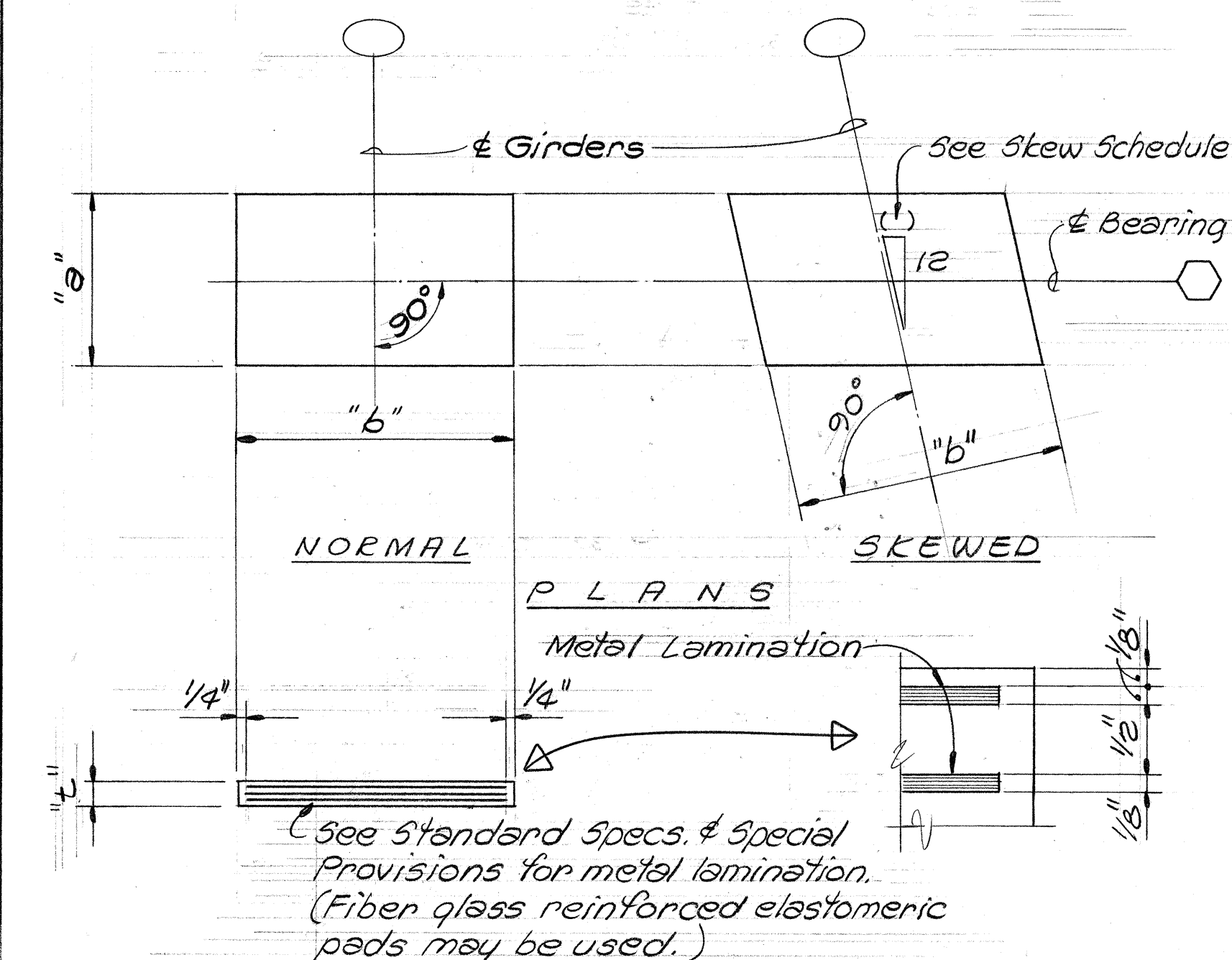


GIRDER SEAT ELEVATIONS
Scale: 1/2" = 1'-0"



GIRDER CONCRETE SEAT BEVEL DIRECTION
Scale: 1/2" = 1'-0"

NOTE:
Seat Bevels direction parallel to axis of girder.

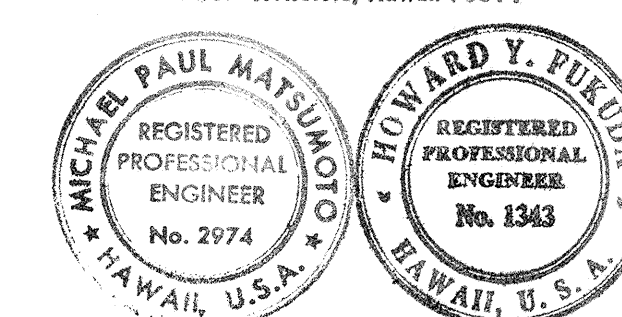


ELEVATION

Spans btwn. Piers	G1 & G2 Girder Brg Pads			T1 to T14 Girder Brg Pads		
	Dimensions			Dimensions		
	"a"	"b"	"t"	"a"	"b"	"t"
① - ①	13"	15 1/2"	2 1/4"	8 1/2"	24 1/2"	2 1/4"
① - ②	12 1/2"	15 1/2"	2 1/4"	8"	24 1/2"	2 1/4"
② - ③				11 1/2"	24 1/2"	2 1/8"
③ - ④	13"	15 1/2"	2 1/4"	8 1/2"	24 1/2"	2 1/4"
④ - ⑤	13"	15 1/2"	2 1/4"	8 1/2"	24 1/2"	2 1/4"

ELASTOMERIC BEARING PAD DETAILS

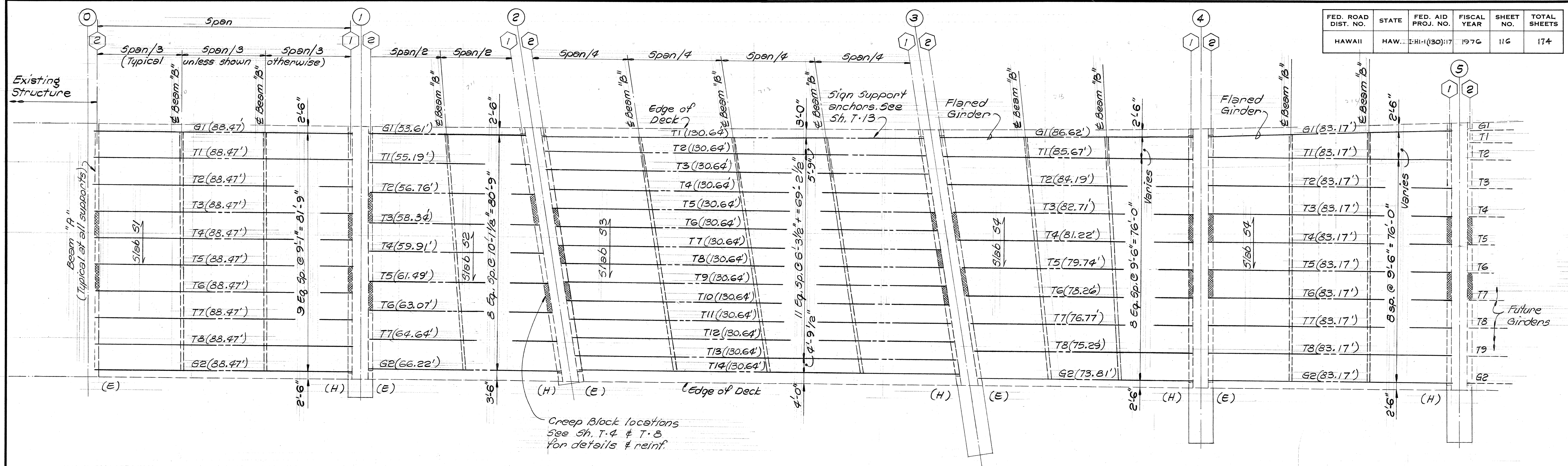
KEEHI INTERCHANGE AREA 1 & 2 CONSULTANTS
c/o Shimizu, Shimabukuro & Fukuda, Inc.
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Michael Paul Matsumoto

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
H-1 VIADUCT (WB)
GIRDER SEAT GEOMETRIC DETAILS
ELASTOMERIC BEARING PAD SCHEDULE & DETAILS
KEEHI INTERCHANGE
F.A.I. PROJ. NO. 1-HI-1(30):17
Scale: As Shown Date: Aug. 16, 1976
SHEET NO. 5-18 OF 22 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1(130):17	1976	116	174



DECK FRAMING PLAN
Scale: 1/16" = 1'-0"

LEGEND

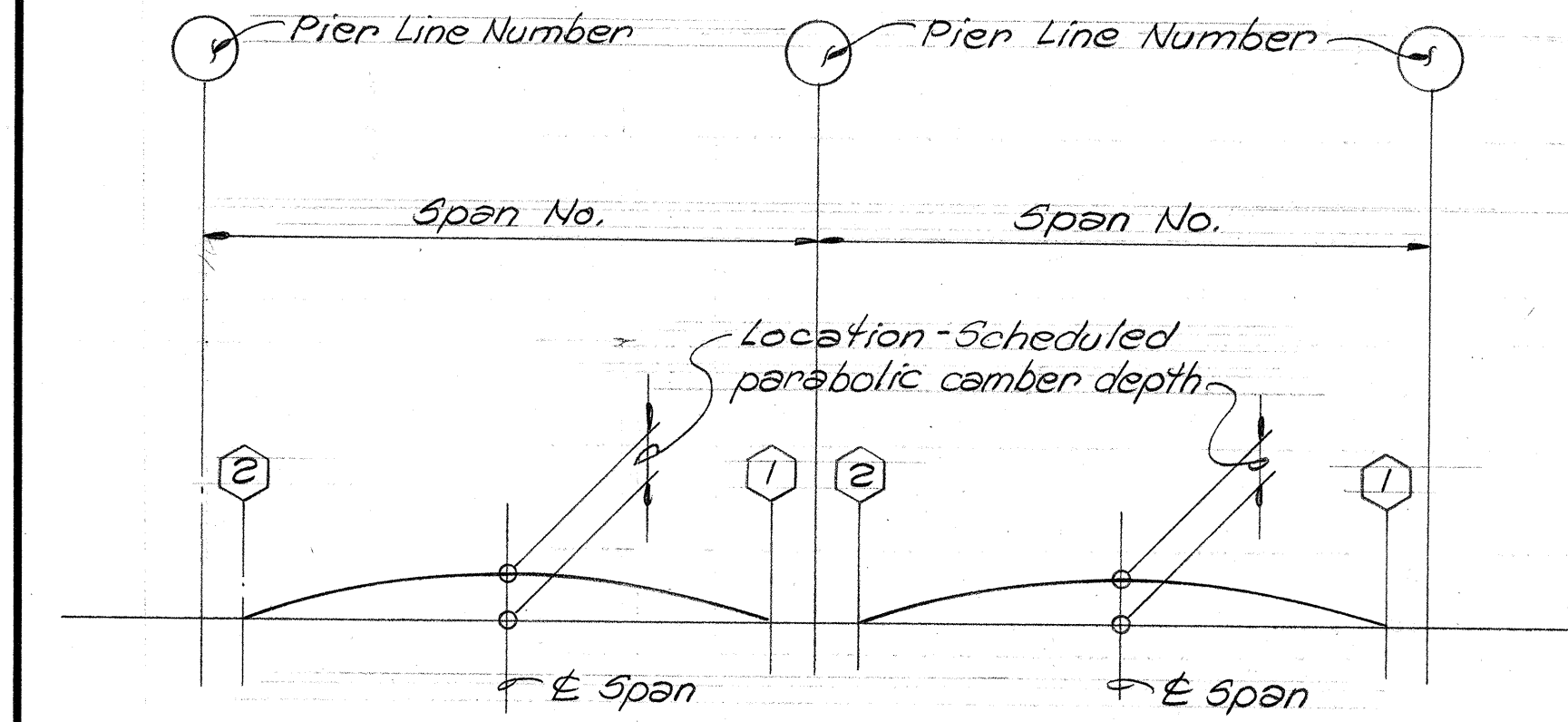
(E) = Expansion end of girder
(H) = Hinge end of girder

NOTES

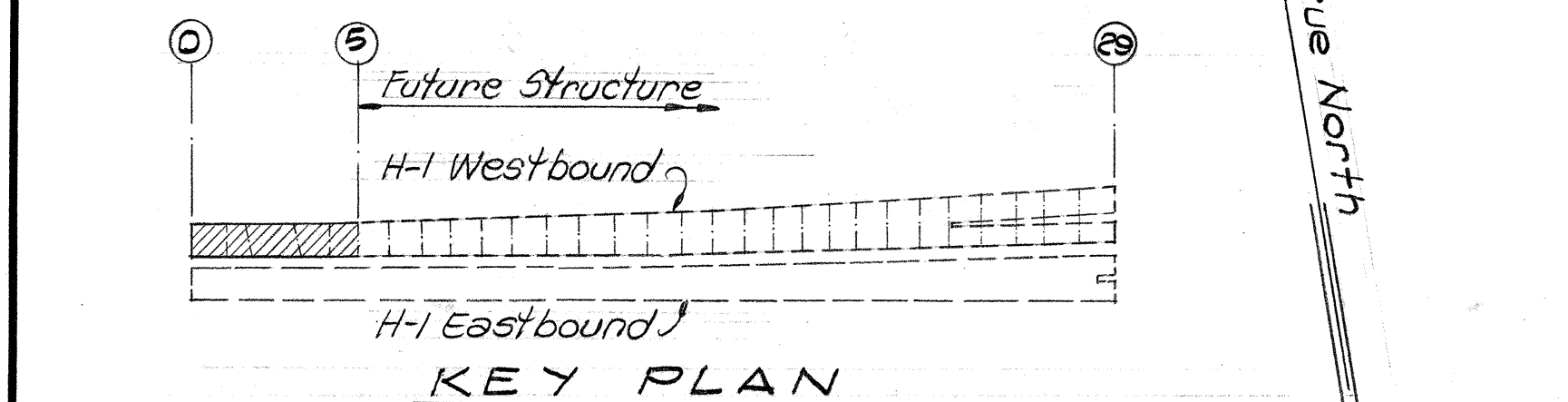
- Girder lengths are measured along E of girders out to out in plan. Lengths shown in ()
- All girders are parallel unless designated as flared.

REFERENCE DRAWINGS

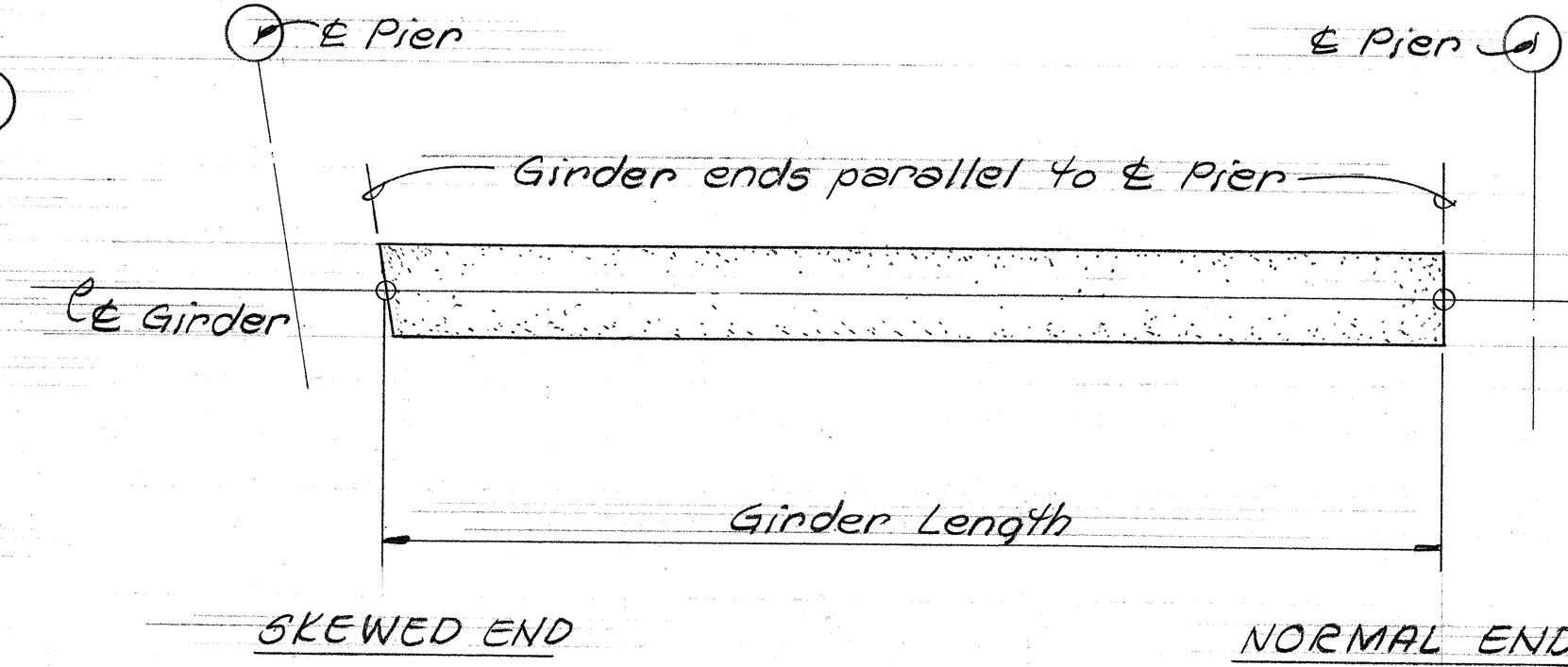
- Prestressed Girder Details --- Sh. T. 11, 12 & 13
- Slab Reinforcing Schedule --- Sh. 5-21
- Beams "A" & "B" --- Sh. T. 12
- Hinge Restainers --- Sh. T. 8
- Deck Drain Locations --- Sh. 5-2
- Deck Drain Details --- Sh. T. 16 & 17



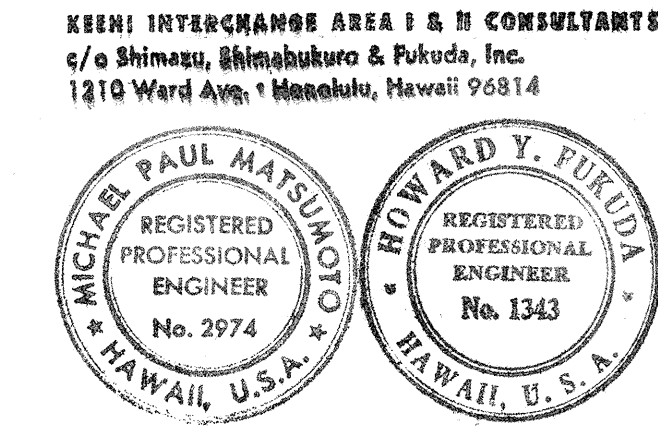
TYPICAL DECK SLAB CAMBER DIAGRAM
(Compensation for deflection of girder due to wet weight of slab concrete.)



DECK SLAB CAMBER SCHEDULE					
Location	Span No. 1	Span No. 2	Span No. 3	Span No. 4	Span No. 5
G1	7/8"	1/8"		5/8"	3/4"
T1	1 1/8"	1/8"	1 3/4"	7/8"	7/8"
T2		1/8"	1 1/2"	7/8"	
T3		1/4"		7/8"	
T4	Do	1/4"		3/4"	Do
T5		3/8"		3/4"	
T6		3/8"		5/8"	
T7		3/8"	Do	5/8"	
T8	1 1/8"			5/8"	7/8"
T9					
T10					
T11					
T12			1 1/2"		
T13			1 3/4"		
T14					
G2	7/8"	3/8"		1/2"	3/4"



GIRDER LENGTH & END CONDITION PLAN
Not to scale



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STATE OF HAWAII
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HIGHWAYS DIVISION

H-1 VIADUCT (WB)

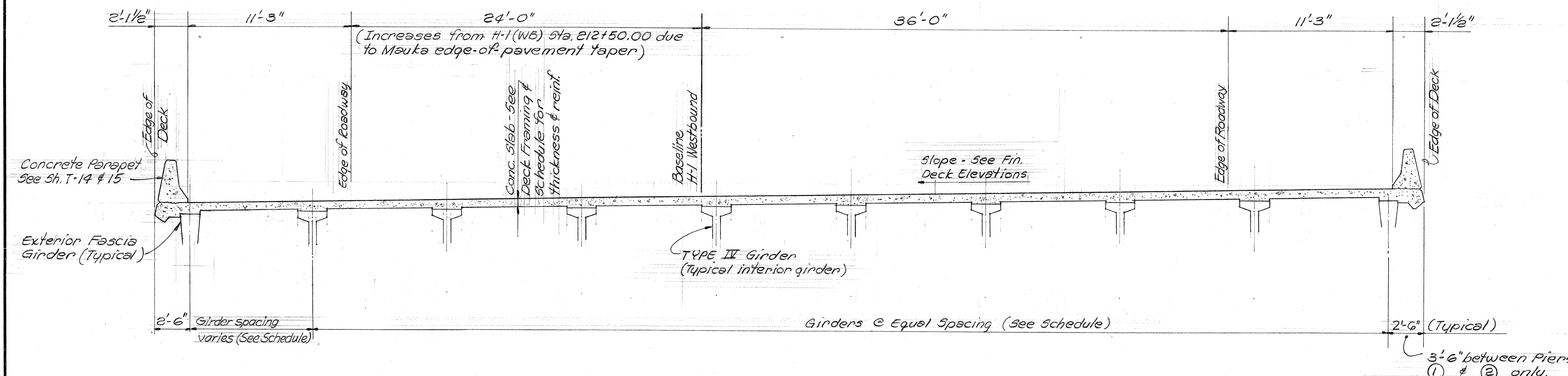
DECK FRAMING PLAN
& SLAB CAMBER SCHEDULE

KESHI INTERCHANGE
F.A.I. PROJ. No. 1-HI-1(130):17

Scale: 1/16" = 1'-0" Date: Aug. 16, 1976

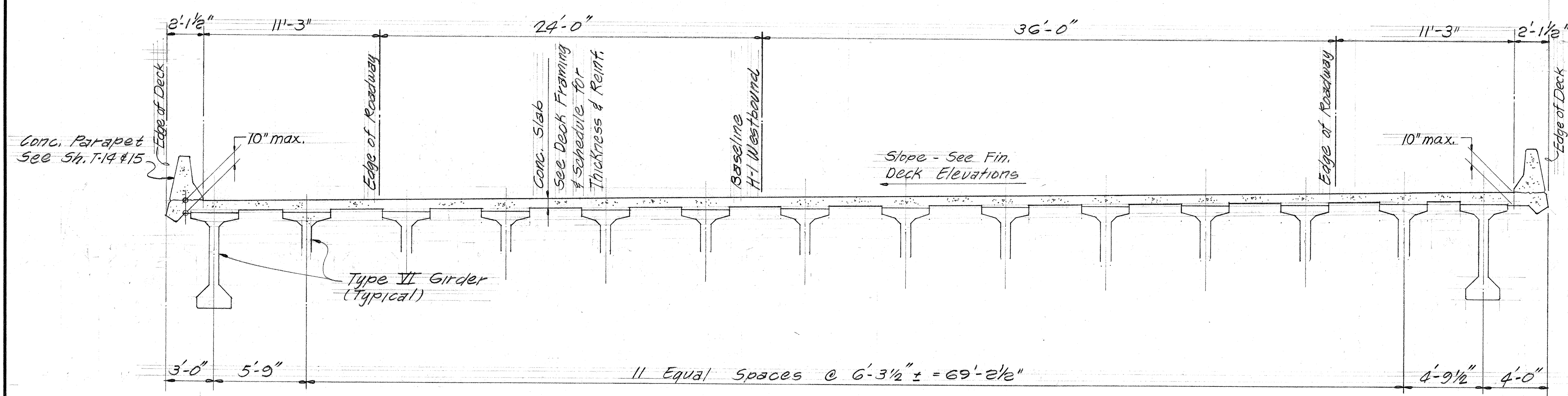
SHEET No. 5-19 OF 22 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HI-1(130):17	1976	117	174



TYPICAL H-1 VIADUCT DECK SECTION (A) (UNLESS SHOWN OTHERWISE)
Scale: 1/4" = 1'-0"

NOTE:
All dimensions shown are perpendicular to H-1 (WB).

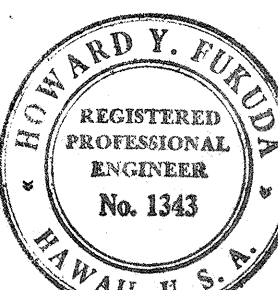
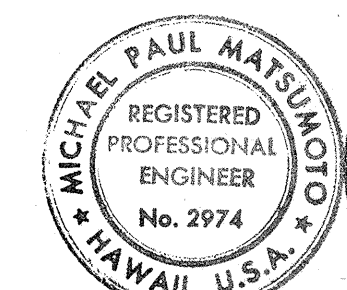


H-1 VIADUCT DECK SECTION (B) (BETWEEN PIERS ② & ③)
Scale: 1/4" = 1'-0"

- REFERENCE DRAWINGS**
- 1. Slab Reinf. Schedule ----- Sh. 5-21
 - 2. Slab Reinf. Arrangement ----- Sh. 5-22
 - 3. Beam "A" ----- Sh. T-12
 - 4. Beam "B" ----- Sh. T-12

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

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HIGHWAYS DIVISION

KEEHI H-1 VIADUCT (WB)

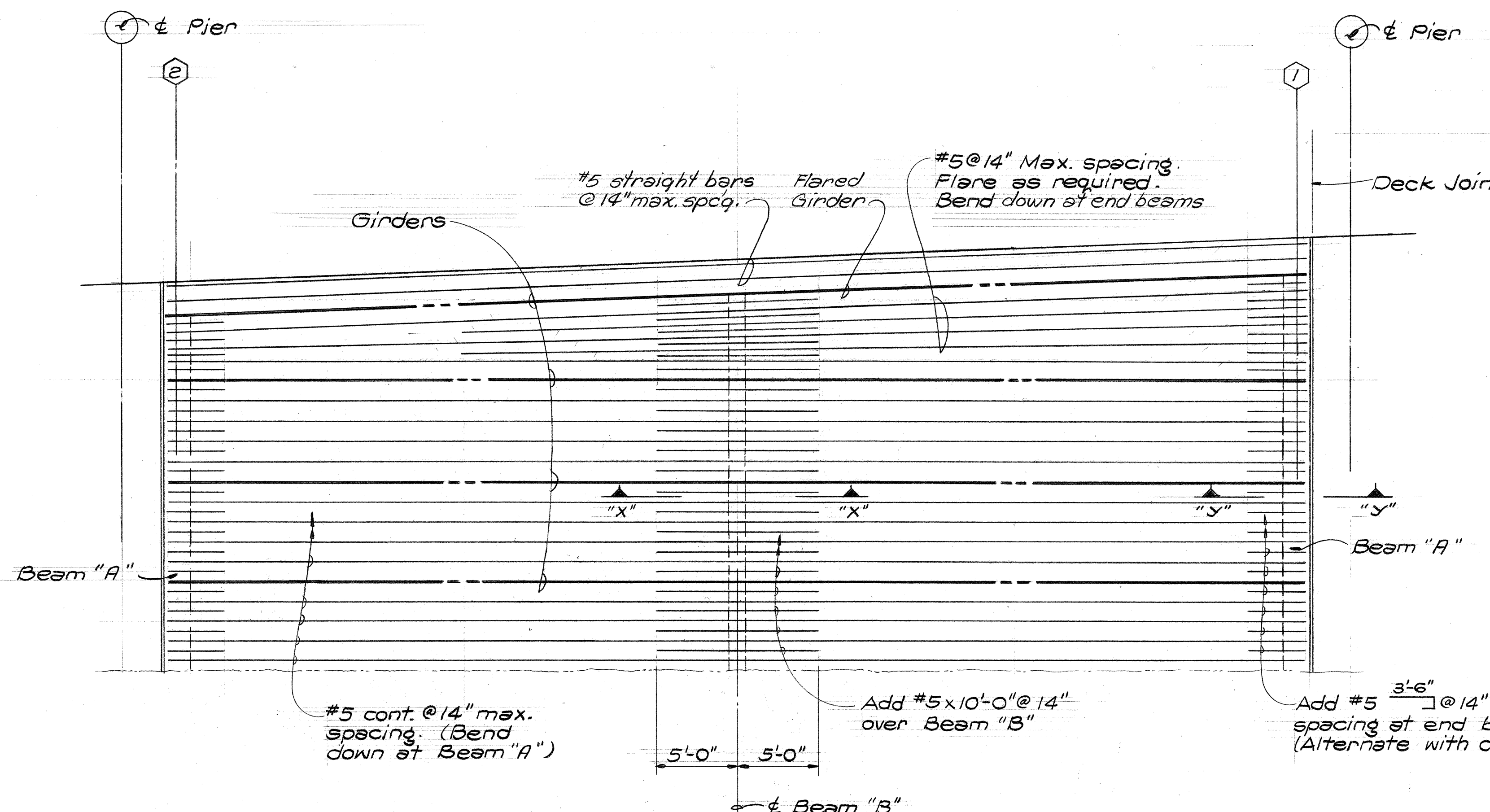
TYPICAL DECK CROSS SECTIONS

KEEHI INTERCHANGE
F.A.I. PROJ. NO. 1-HI-1(130):17

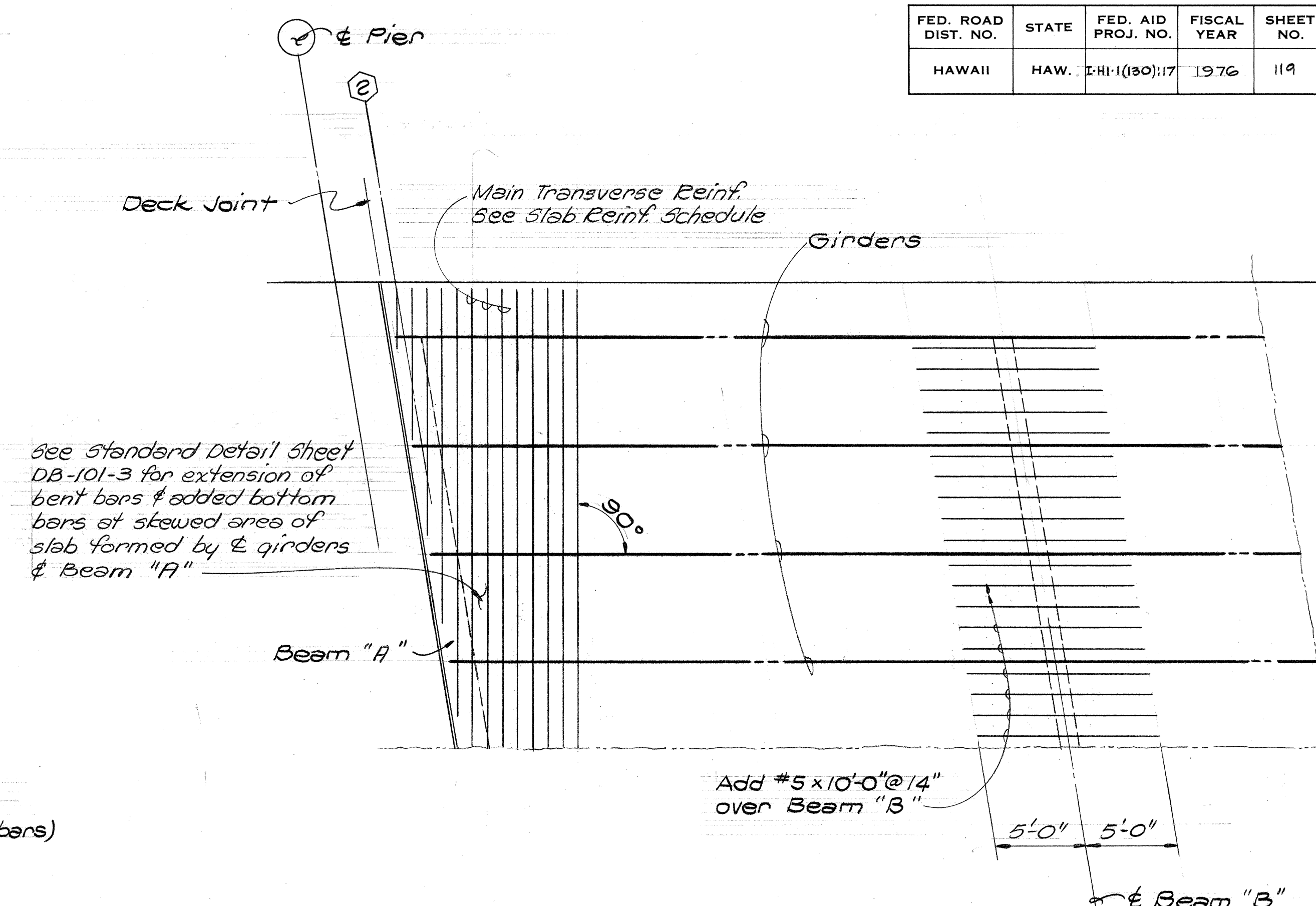
Scale: As Shown Date: Aug. 16, 1976

SHEET NO. 6 OF 22 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HI-1(180)17	1976	119	174

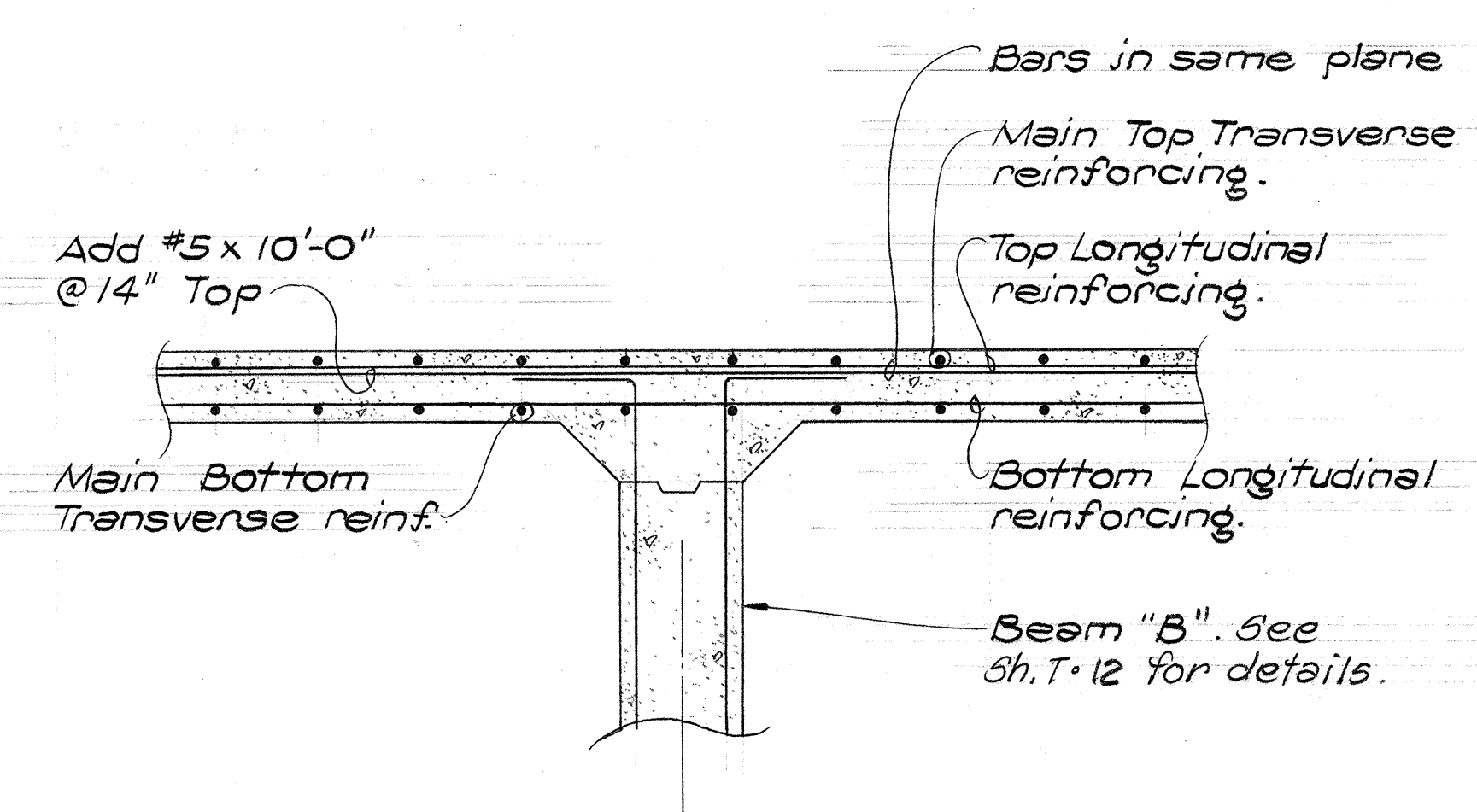


PLAN ~ GIRDERS PERPENDICULAR TO PIERS
(Showing Top Longitudinal reinf. only.)

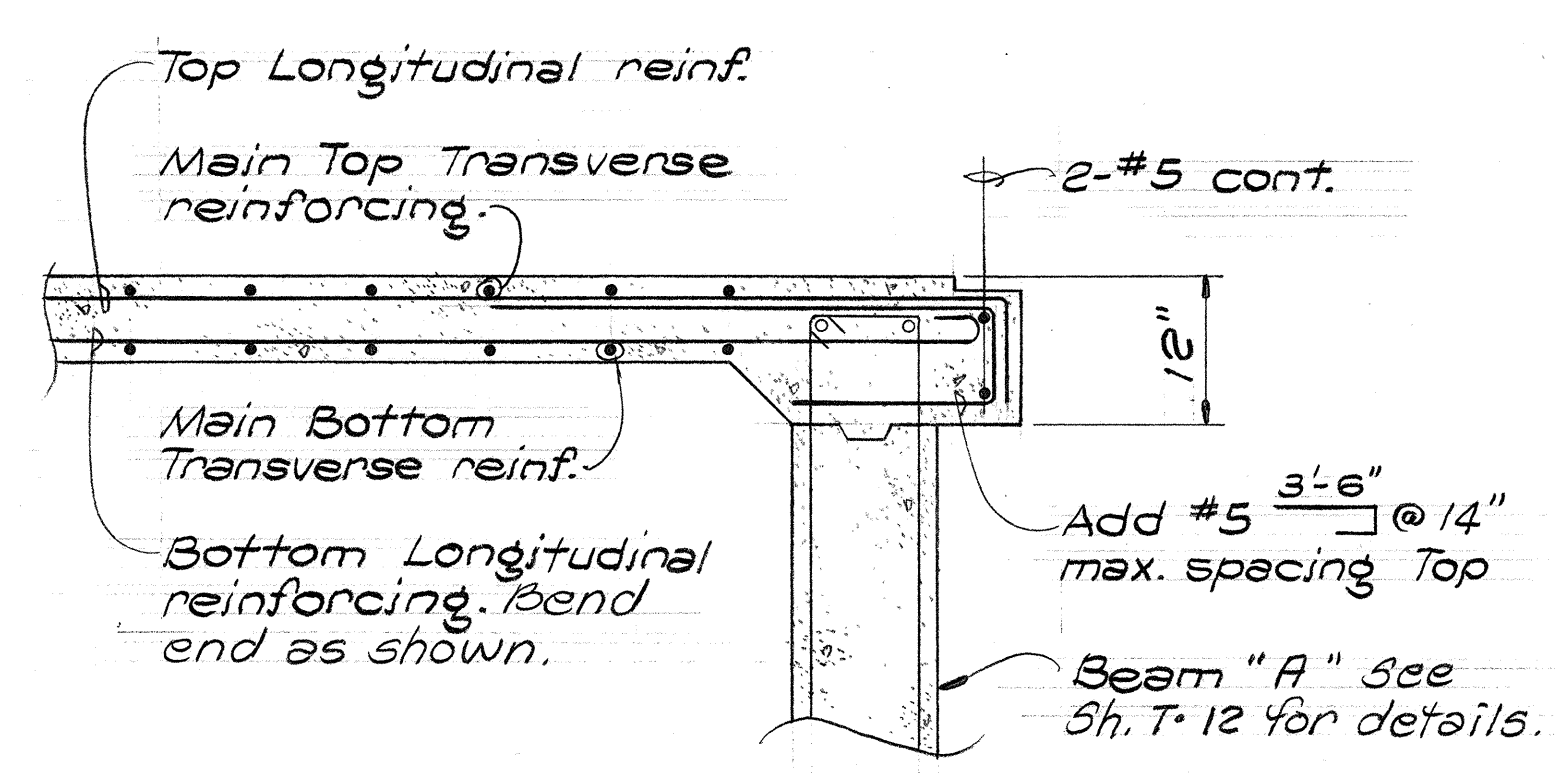


PLAN ~ GIRDERS SKEWED TO PIERS
(Showing Main Transverse reinf. only. See plan at left for Top Longitudinal reinf.)

TYPICAL ARRANGEMENT FOR DECK SLAB REINFORCEMENT
Not to Scale



AT BEAM "B"
(Interior Diaphragms)
SECTION "X"-"X"



AT BEAM "A"
(End Beam)
SECTION "Y"-"Y"

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
H-I VIADUCT (WB)
TYPICAL DECK SLAB REINF. ARRANGEMENT
KEEHI INTERCHANGE
F.A.I. PROJ. NO. I-HI-1 (180)17
Scale: As Shown Date: Aug. 16, 1976
SHEET NO. 3-22 OF 22 SHEETS

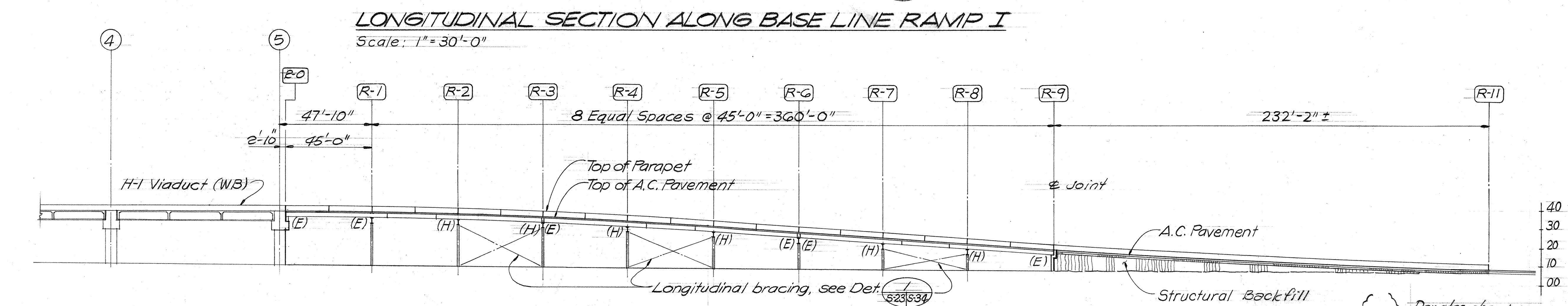
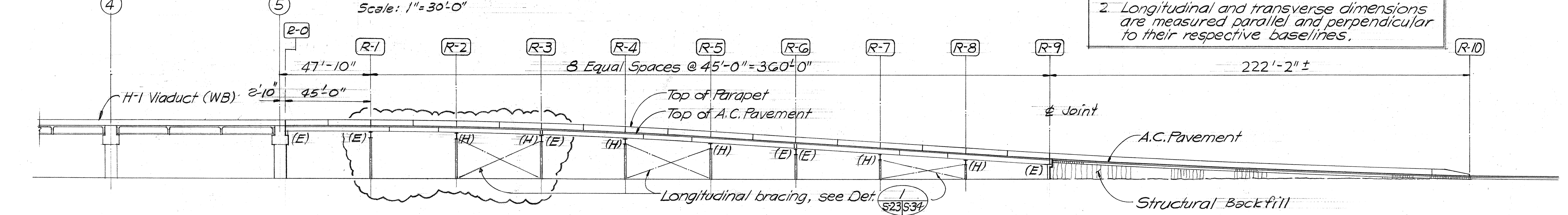
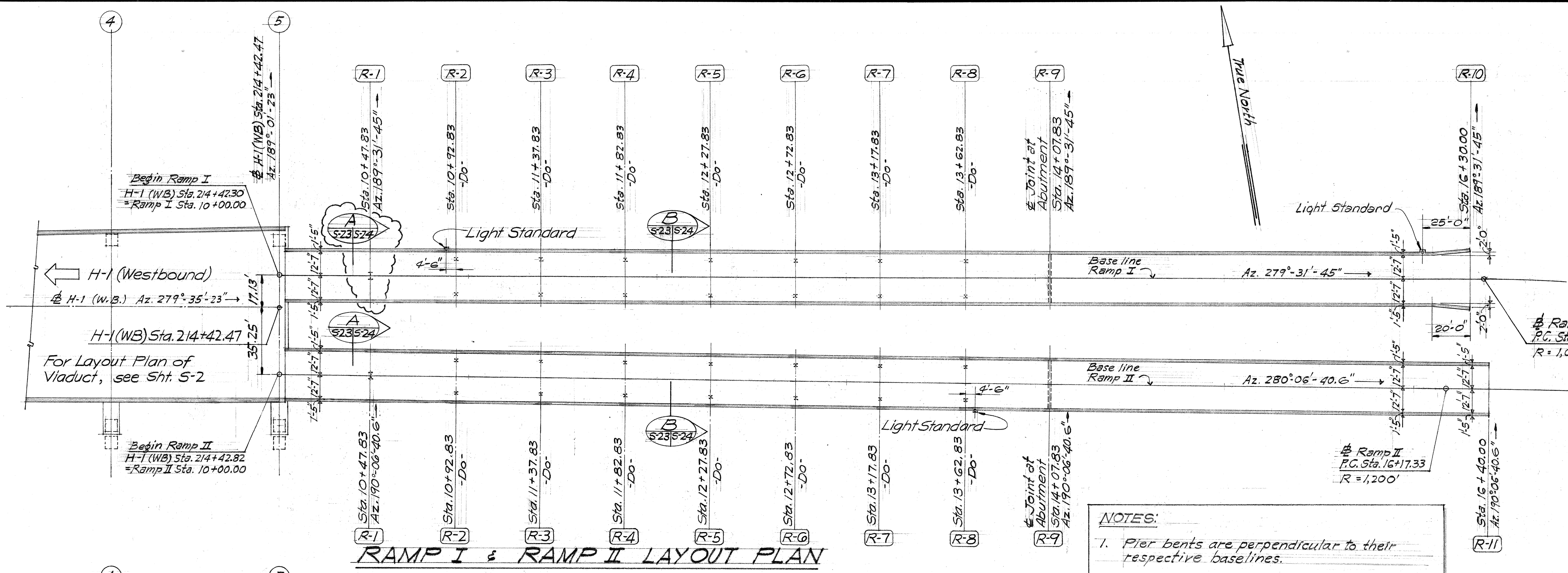
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HI-1(130)17	1976	120	174

- NOTES ON QUANTITIES**
- Concrete for tie beams are included in "Concrete in Bridge Footings."
 - Concrete for cast-in-place parapet at retaining walls are included in "Concrete in Abutments & Retaining Walls."
 - Concrete for cast-in-place portion of deck slab are included in "Precast Concrete Deck Slab."
 - Reinforcing steel for cast-in-place parapet at retaining walls are included in "Reinforcing Steel in Abutments & Retaining Walls."

RAMP II CURVE DATA:

P.C. Sta. 16+17.33
P.T. Sta. 18+97.88
 $\Delta = 13^{\circ}-23'-42.9''$
R = 1,200'
L = 280.55'
T = 140.92'

- NOTES:**
- Pier bents are perpendicular to their respective baselines.
 - Longitudinal and transverse dimensions are measured parallel and perpendicular to their respective baselines.



- LEGEND:**
- (H) = Hinge Bearing
(E) = Expansion Bearing

NOTE: See sh. T-1 for General Notes.

DATE	REVISION
10/15/76	Revised to single col. pier bent at Ramp I (R-1) & moved Longitudinal Bracing.

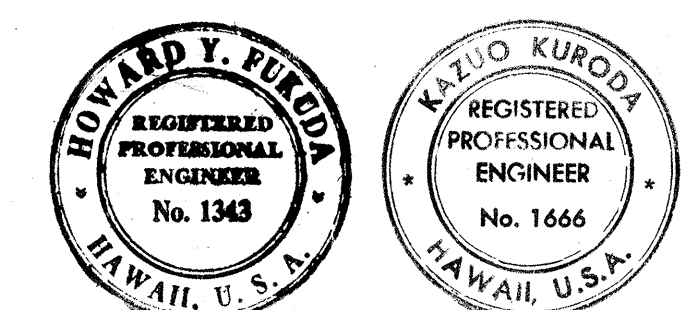
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**TEMPORARY RAMPS
LAYOUT PLAN AND
LONGITUDINAL SECTION**

KEEHI INTERCHANGE
F.A.I. PROJ. NO. HI-1(130)17

Scale: 1"=30'-0" Date: Aug. 16, 1976
SHEET NO. 23 OF 42 SHEETS

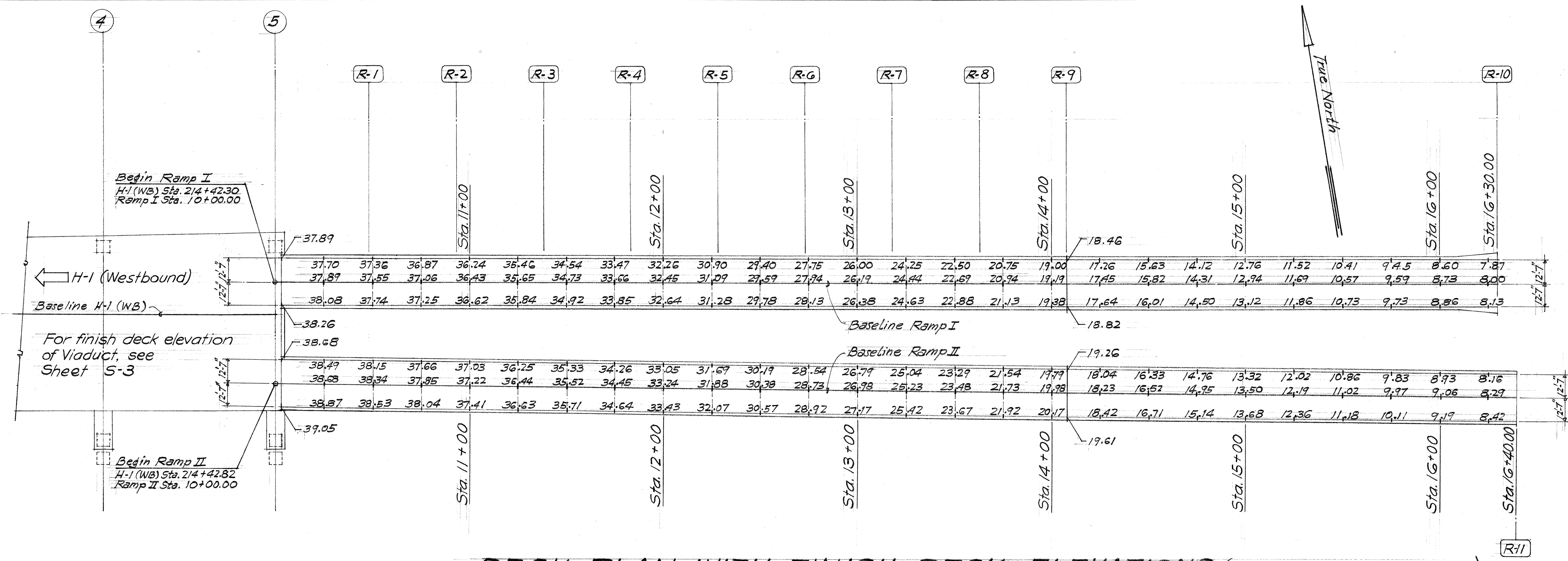
KEEHI INTERCHANGE AREA I & II CONSULTANTS
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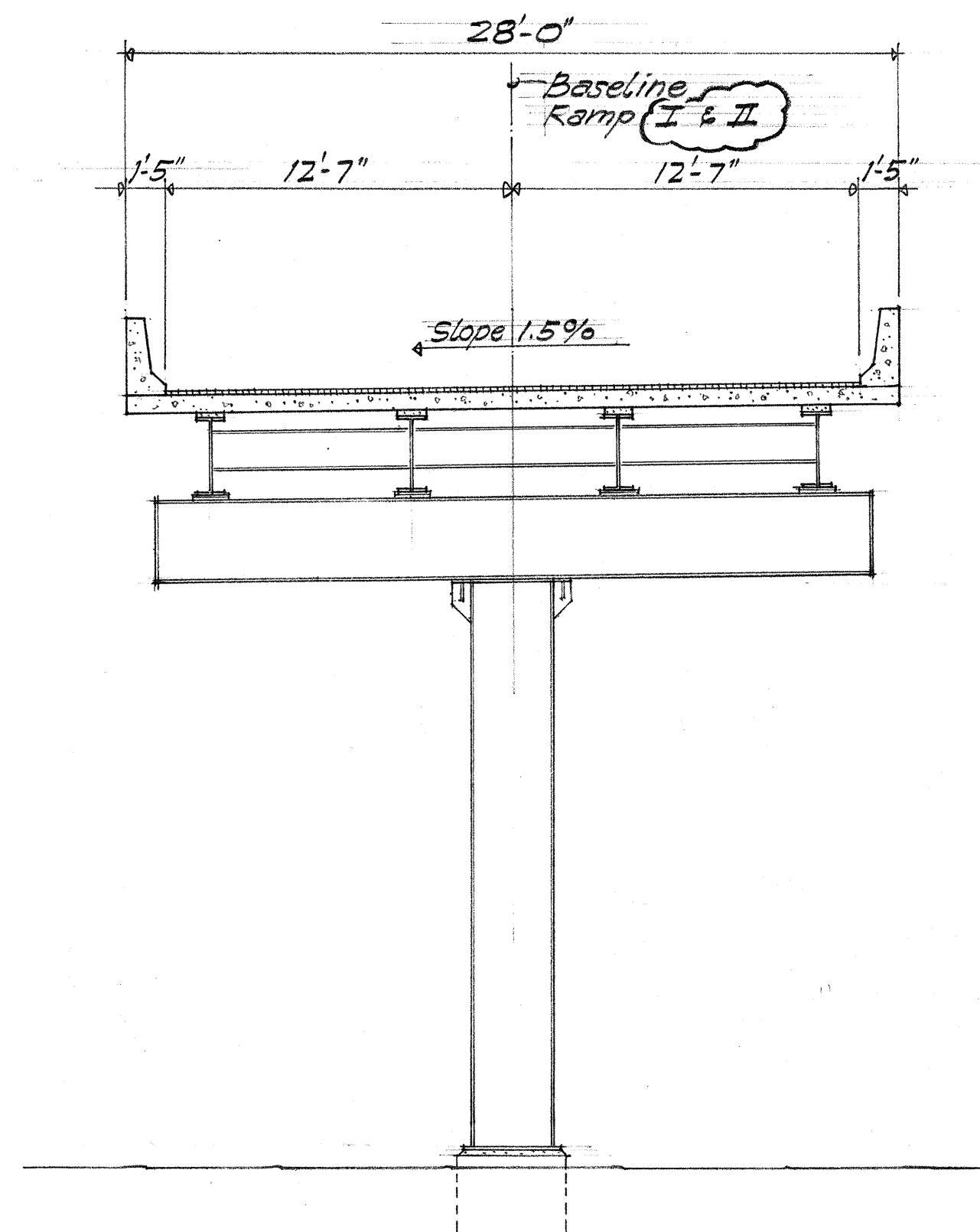
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Kazuo Kuroda

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

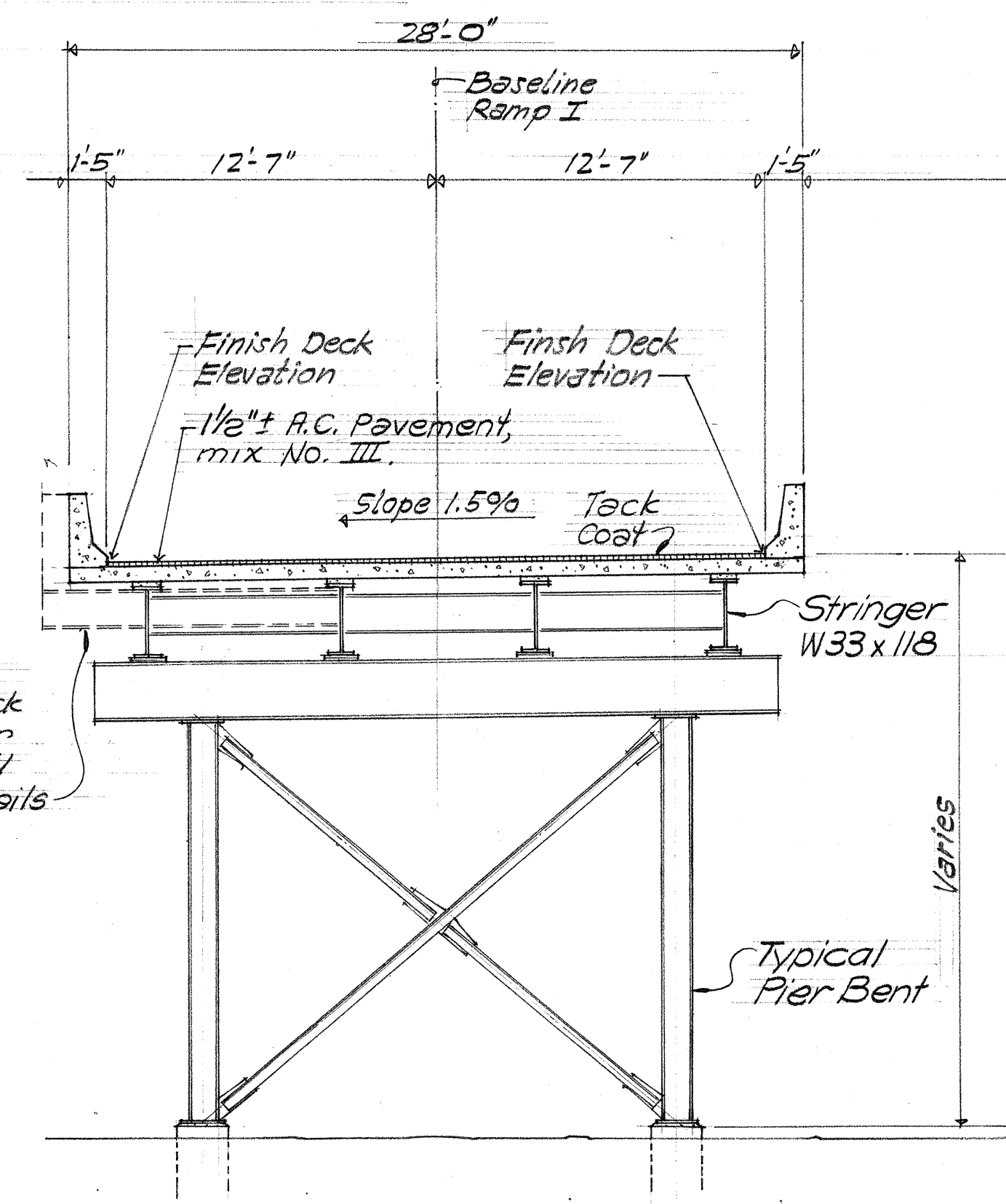
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-(130)-17	1976	121	174



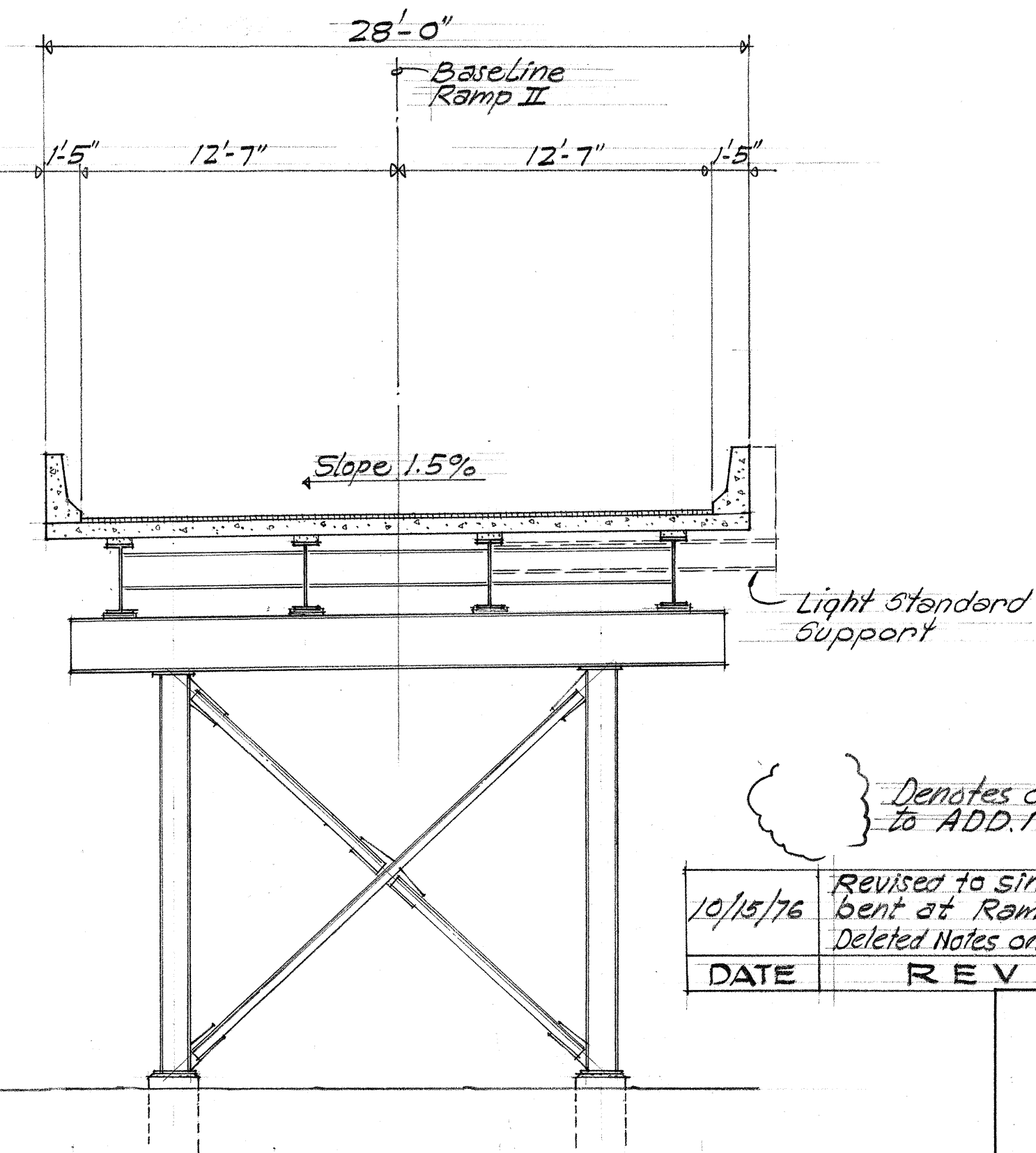
DECK PLAN WITH FINISH DECK ELEVATIONS (TOP OF A.C. PAVEMENT)
Scale: 1" = 30'-0"



PARTIAL CROSS SECTION A 523/524 RAMP I & II, STA. 10+47.83
Scale: 3/16" = 1'-0"



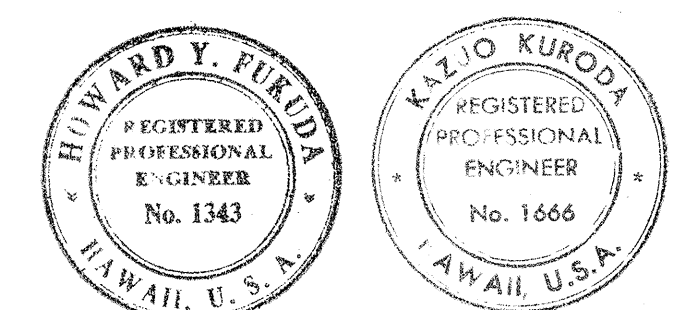
TYPICAL CROSS SECTION B 523/524 RAMP I & II, STA. 10+92.83 to STA. 13+62.83
Scale: 3/16" = 1'-0"



Denotes changes to ADD. 121

DATE	REVISION
10/15/76	Revised to single column pier bent at Ramp I, R.I. Deleted Notes on Quantities.

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1210 Ward Ave., Honolulu, Hawaii 96814



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Kazuo Kuroda

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TEMPORARY RAMPS
FINISH DECK ELEVATIONS AND
CROSS SECTIONS

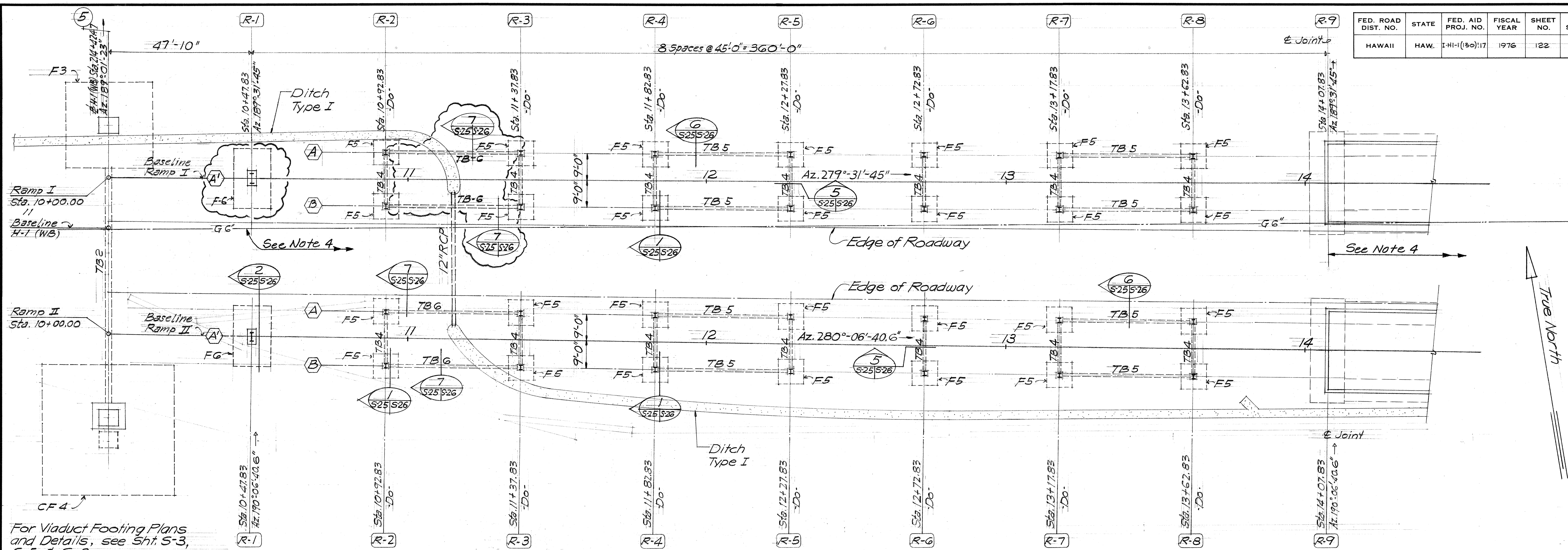
KEEHI INTERCHANGE
F.A.I. PROJ. NO. 1-HI-(130)-17

Scale: As shown Date: Aug. 16, 1976
SHEET NO. 5-24 OF 42 SHEETS

ADD. 121

SURVEY PLOTTED BY	DATE
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
NO.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(130)17	1976	122	174



For Viaduct Footing Plans and Details, see Sht. S-3, S-5 & S-8.

FOUNDATION PLAN

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

NOTES:

- Pier bents are perpendicular to their respective baselines.
- Longitudinal and transverse dimensions are measured parallel and perpendicular to their respective baselines.
- Contractor to call Gasco at 548-2126 for field locations of gas lines a minimum of 48 hours before starting project excavation.
- CAUTION - GAS LINE: Contractor to expose existing 6" gas line by hand digging prior to operating excavating machinery at each pier footing and along South Wall footing.

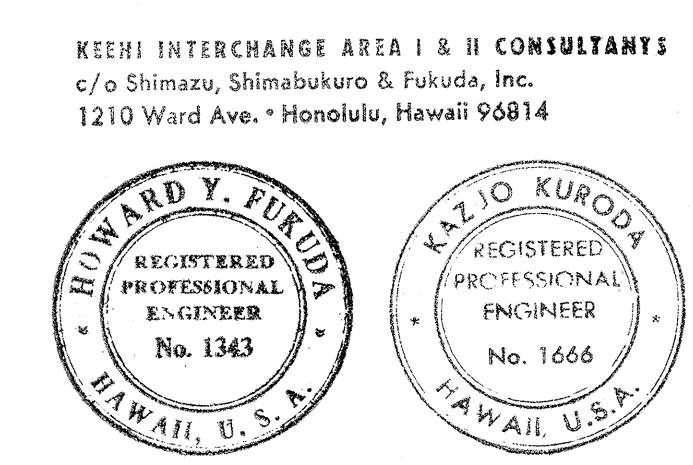
LEGEND:

F5 = Footing #5
TB4 = Tie Beam #4

Denotes changes to ADD. 122

10/15/76	Revised footing and tie beams at Ramp I between R-1 & R-3.
DATE	REVISION

APPROVED: *[Signature]* 9/3/76
GASCO, INC. DATE



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

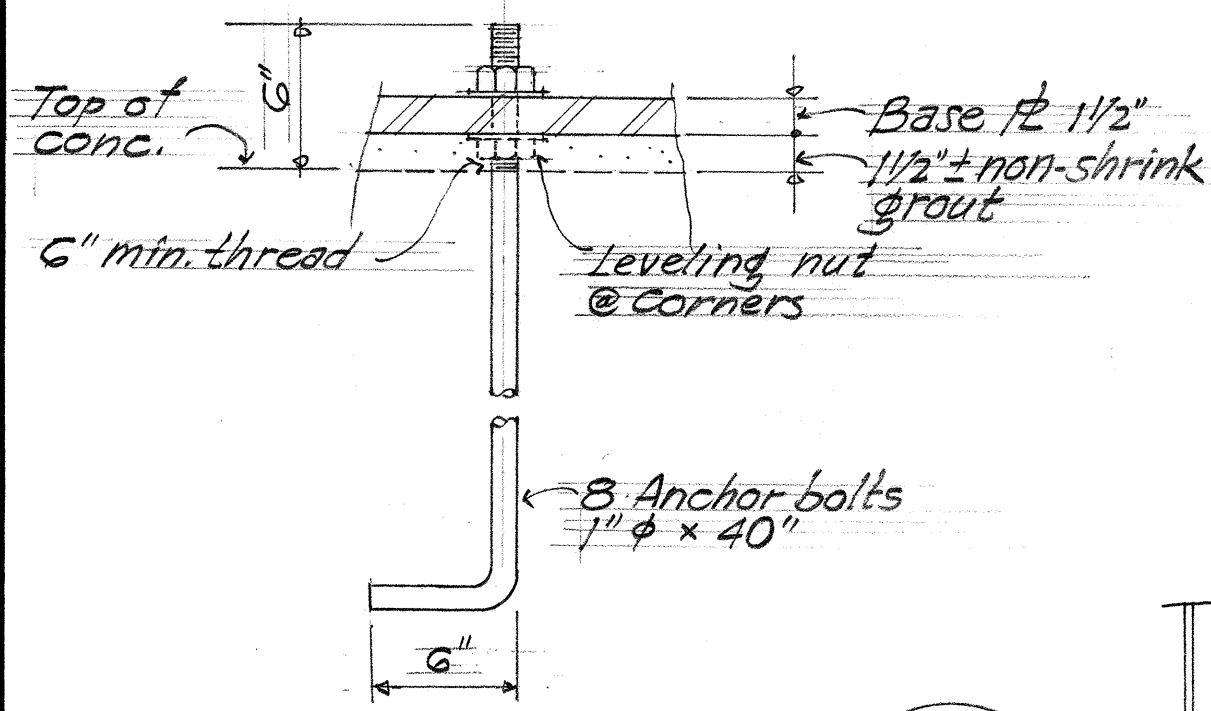
TEMPORARY RAMPS
FOUNDATION PLAN

KEEHI INTERCHANGE
F.A.I. PROJ. NO. I-HI-1(130)17

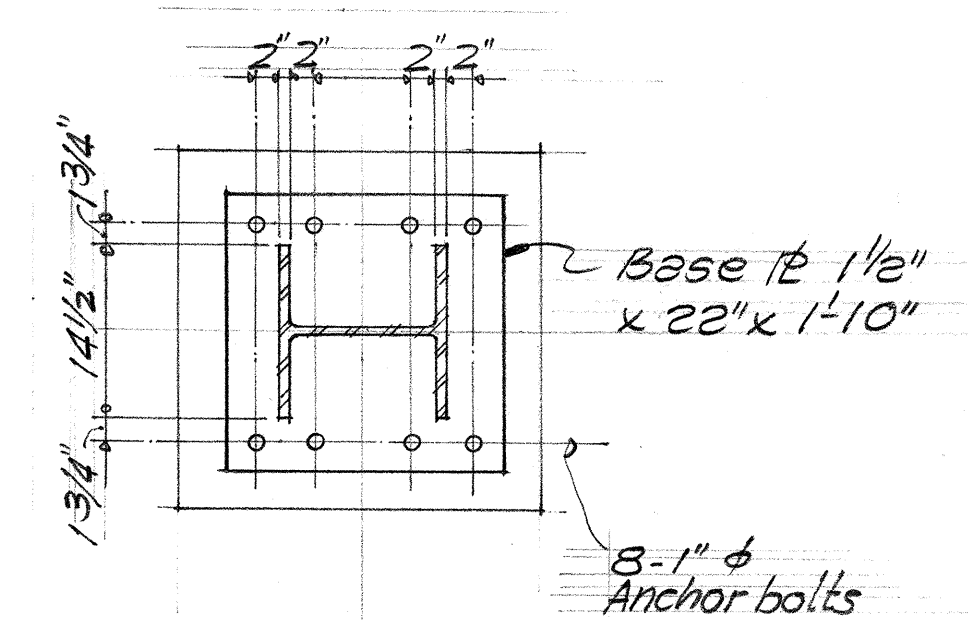
Scale: As shown Date: Aug. 16, 1976
SHEET NO. 5-25 OF 42 SHEETS

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

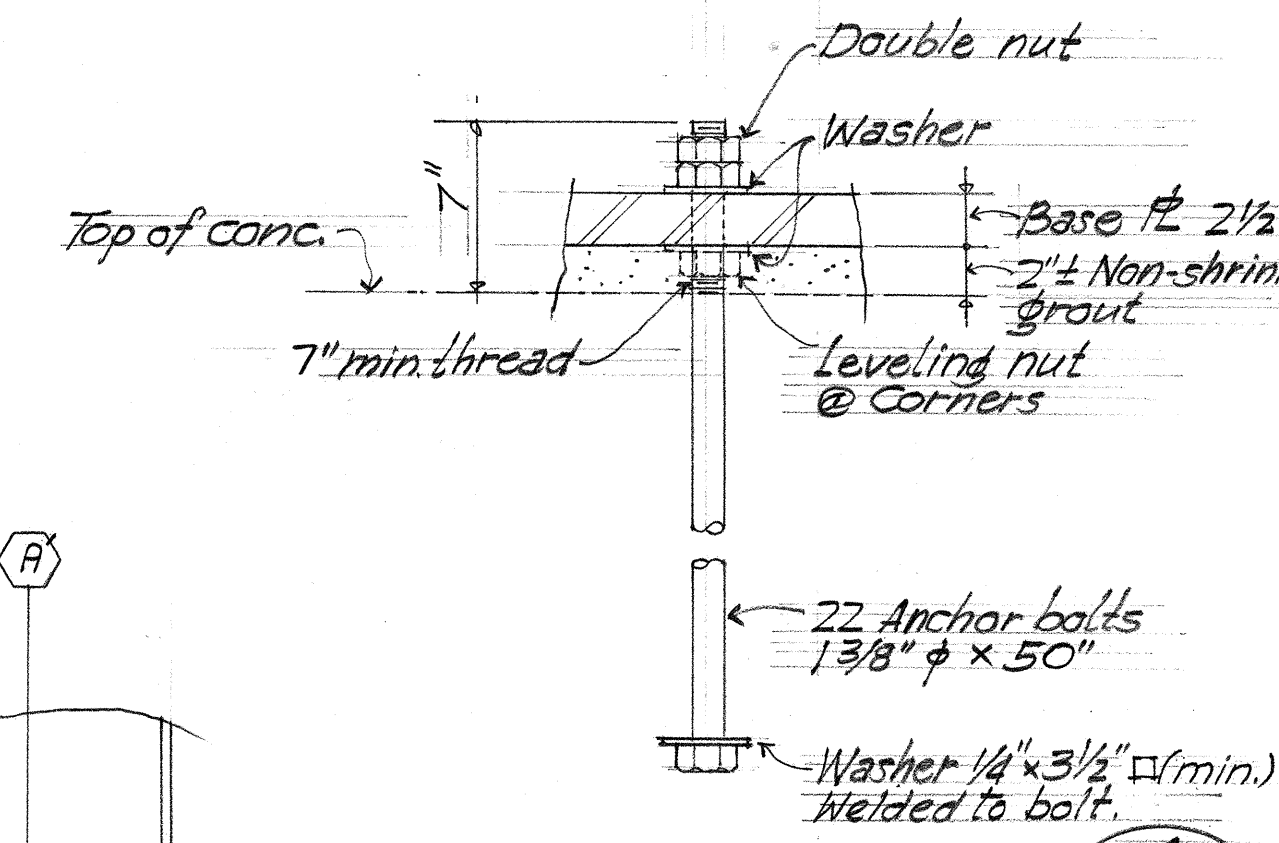
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-H-1(130);17	1976	123	174



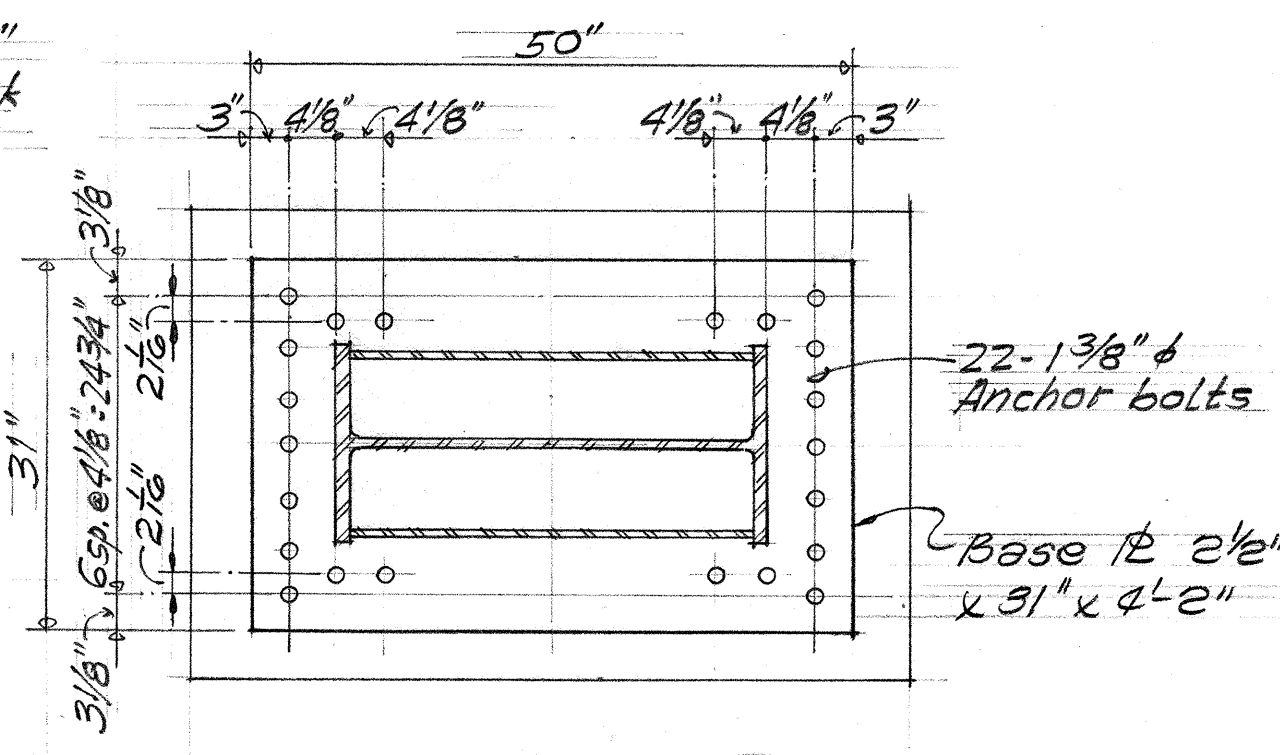
ANCHOR BOLT DETAIL 3
Scale: 1 1/2" = 1'-0"



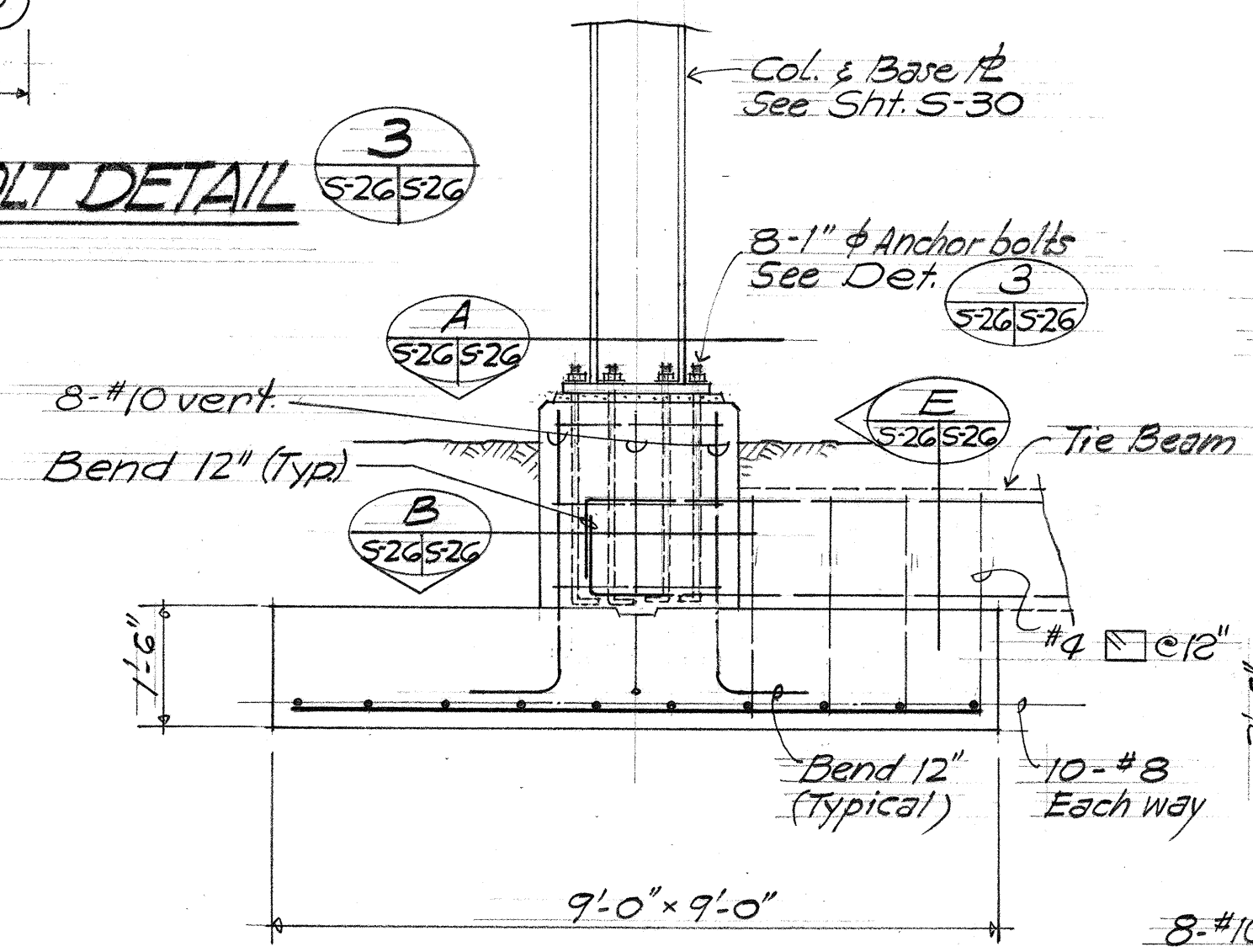
SECTION A
Scale: 3/4" = 1'-0"



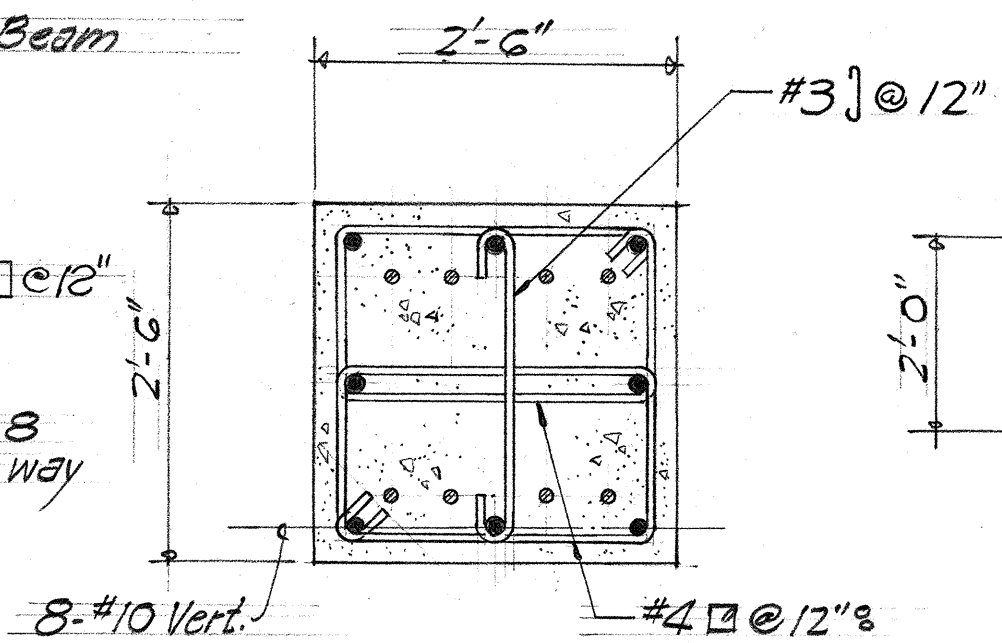
ANCHOR BOLT DETAIL 4
Scale: 1 1/2" = 1'-0"



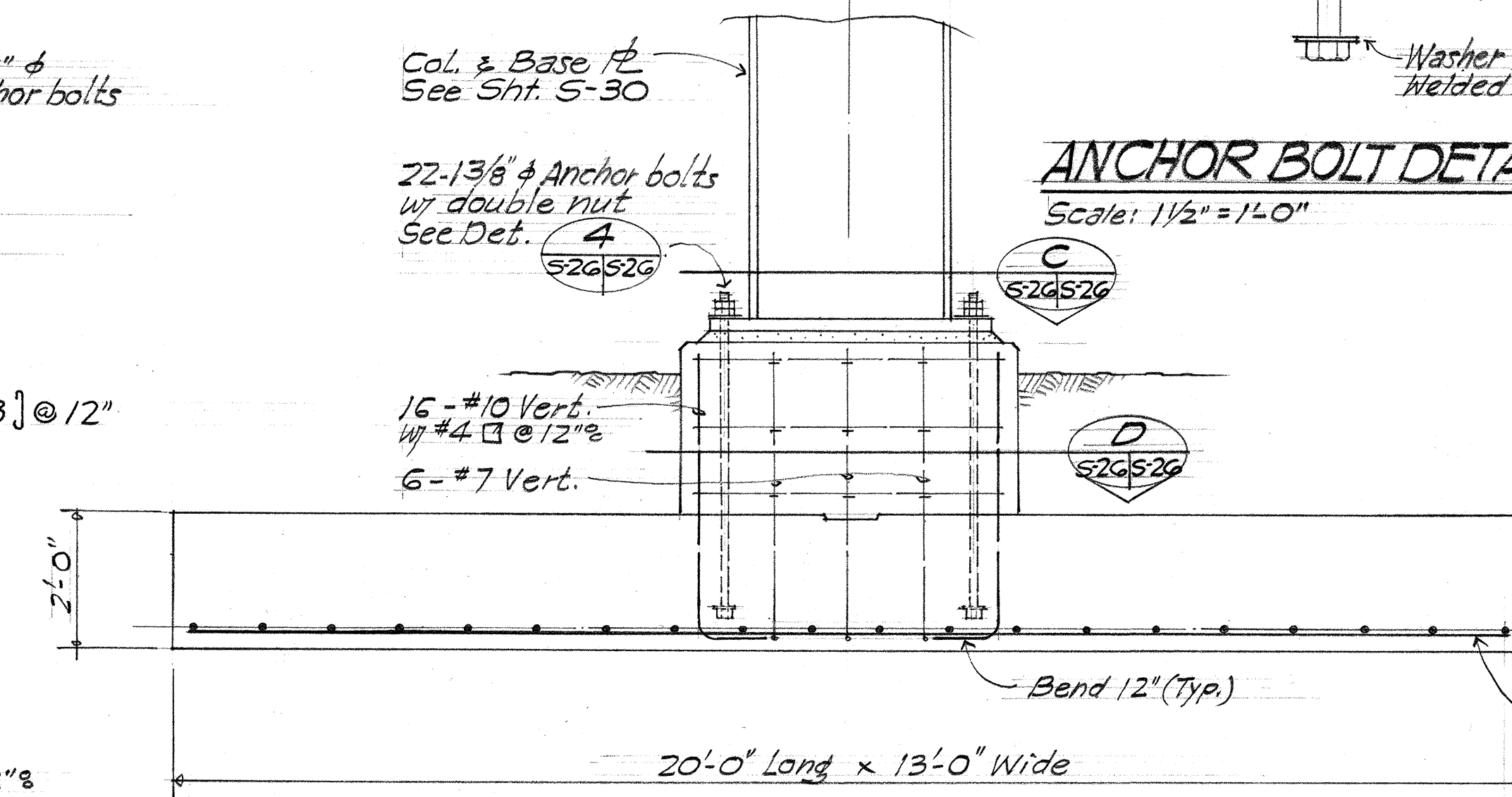
SECTION C
Scale: 3/4" = 1'-0"



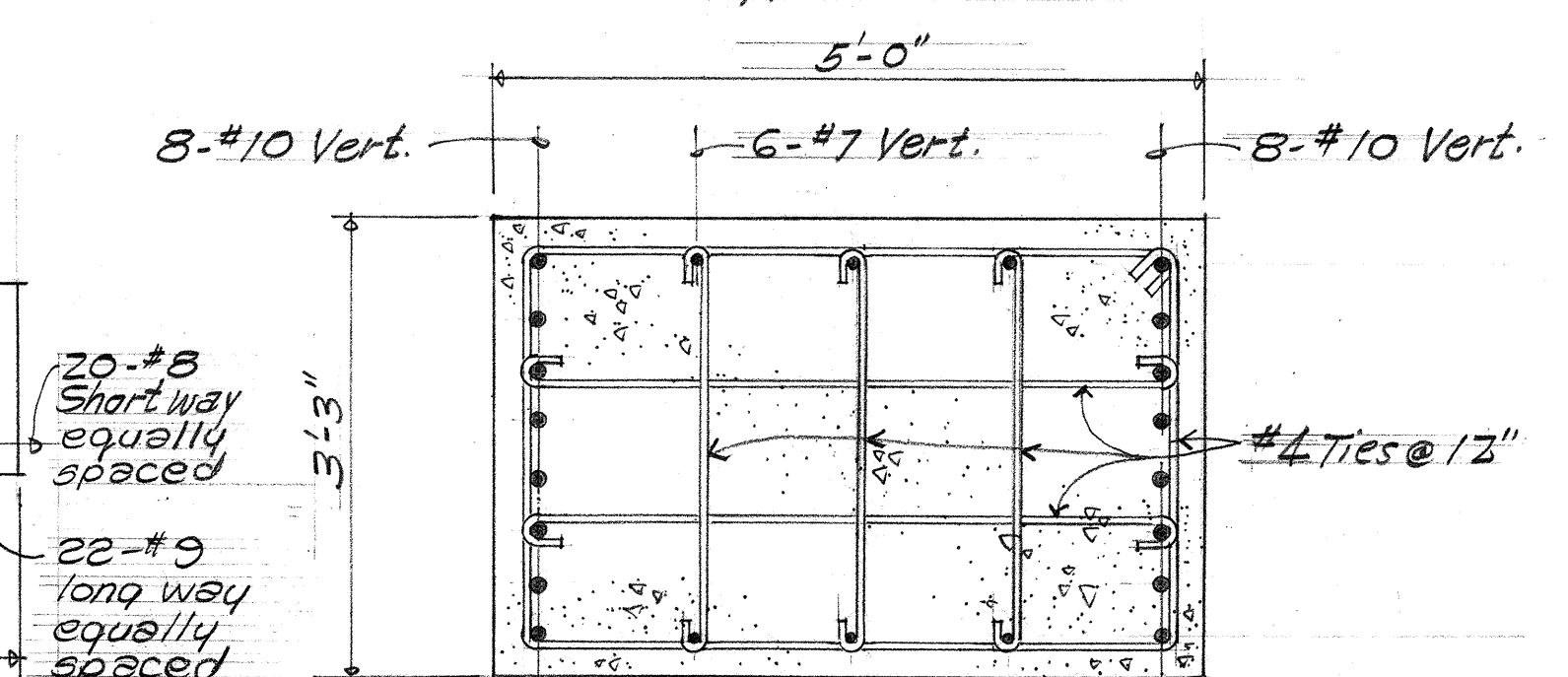
FTG. F-5 DETAIL 1
Scale: 1/2" = 1'-0"



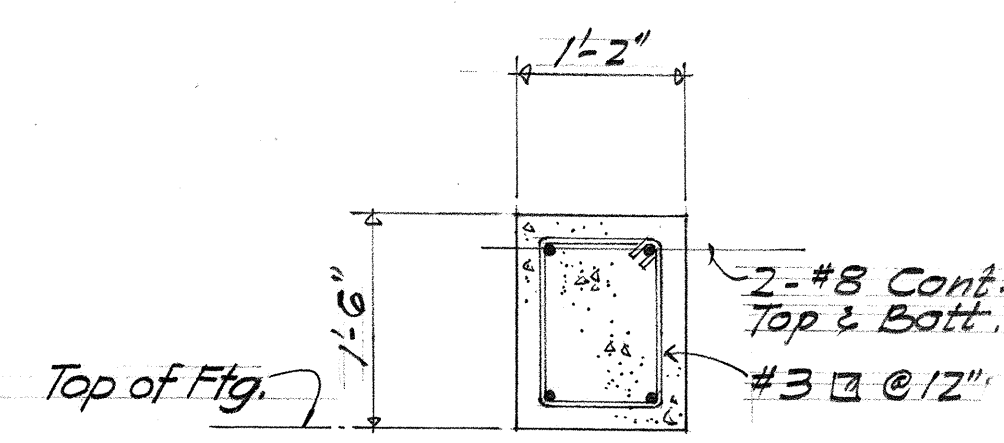
SECTION B
Scale: 3/4" = 1'-0"



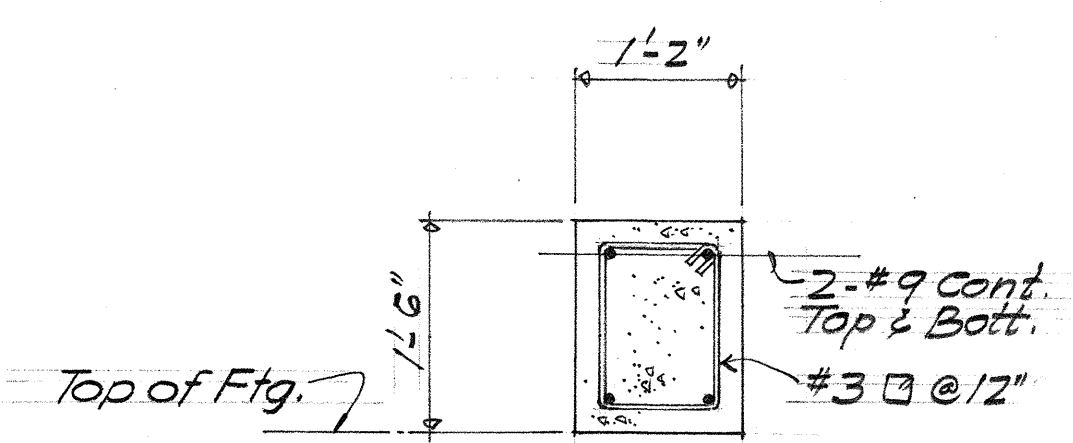
FTG. F-6 DETAIL 2
Scale: 1/2" = 1'-0"



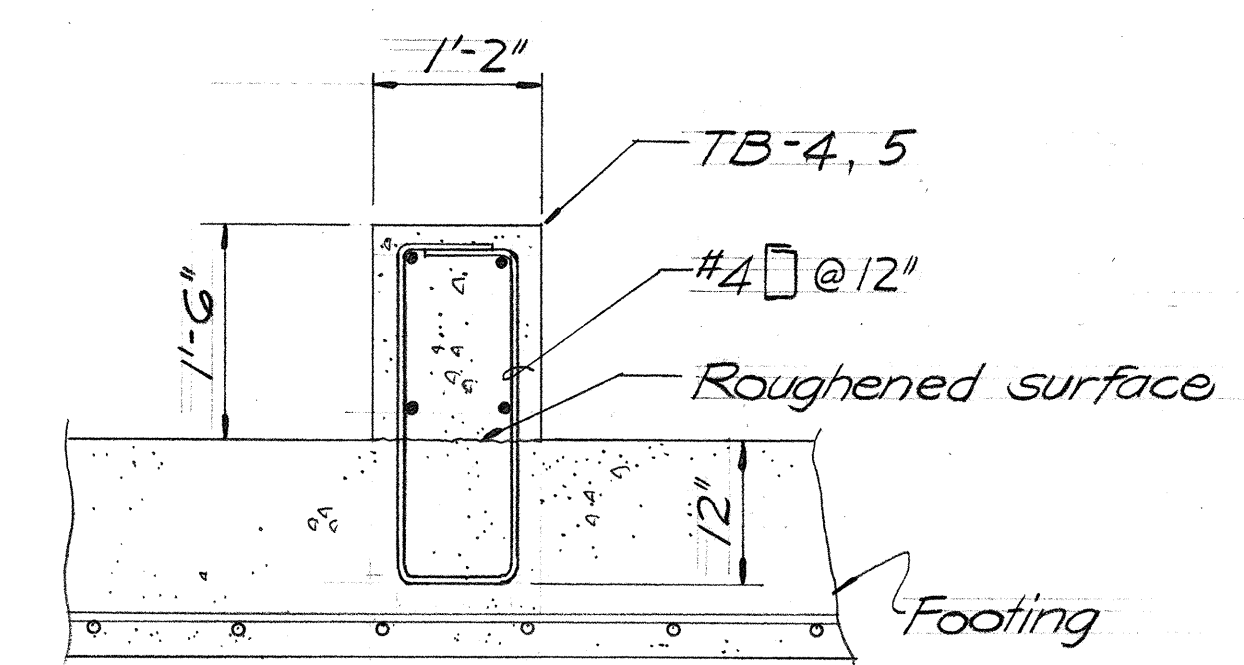
SECTION D
Scale: 3/4" = 1'-0"



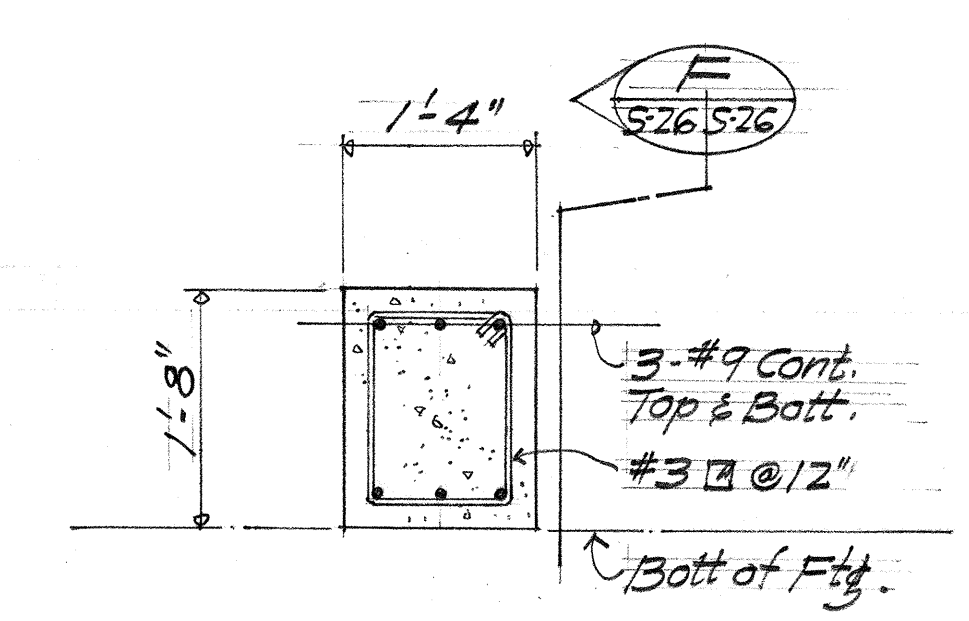
TIE BM. TB4 DETAIL 5
Scale: 3/4" = 1'-0"



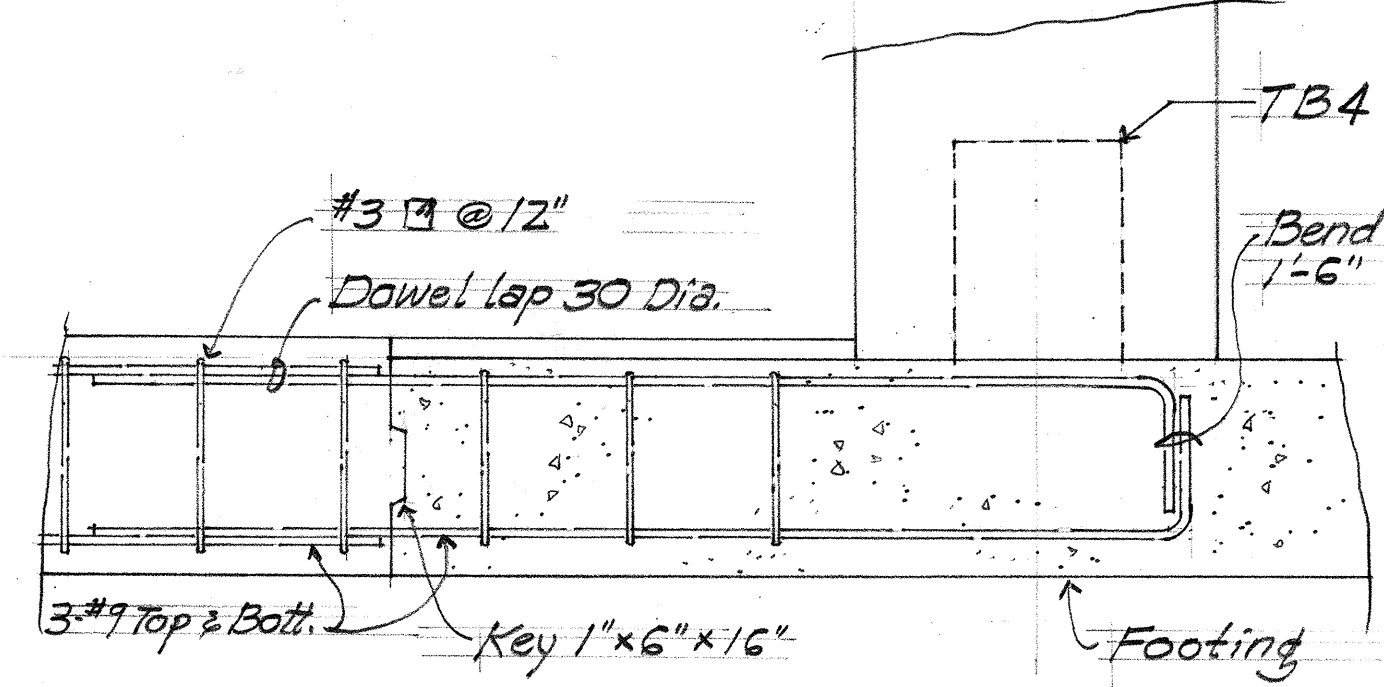
TIE BM. TB5 DETAIL 6
Scale: 3/4" = 1'-0"



SECTION E
Scale: 3/4" = 1'-0"



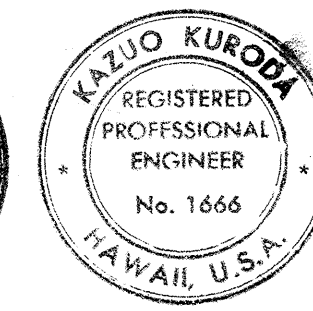
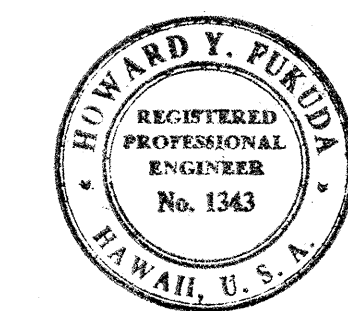
TIE BM. TB6 DETAIL 7
Scale: 3/4" = 1'-0"



SECTION F
Scale: 3/4" = 1'-0"

NOTE
Cost for anchor bolts, non-shrink grout under base plates to be incidental to concrete.

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c/o Shimazu, Shimabukuro & Fukuda, Inc.
1210 Ward Ave., Honolulu, Hawaii 96814



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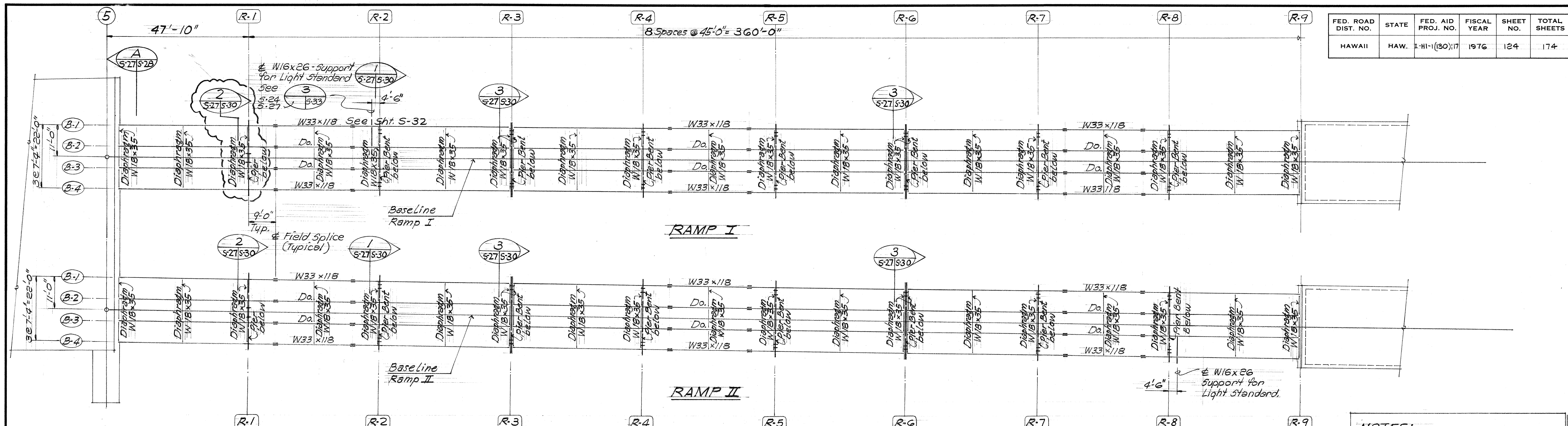
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TEMPORARY RAMPS
FOUNDATION DETAILS

KEEHI INTERCHANGE
F.A.I. PROJ. NO. 1-H-1(130);17

Scale: As shown Date: Aug. 16, 1976
SHEET No. S-26 OF 42 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1(130)	1976	124	174

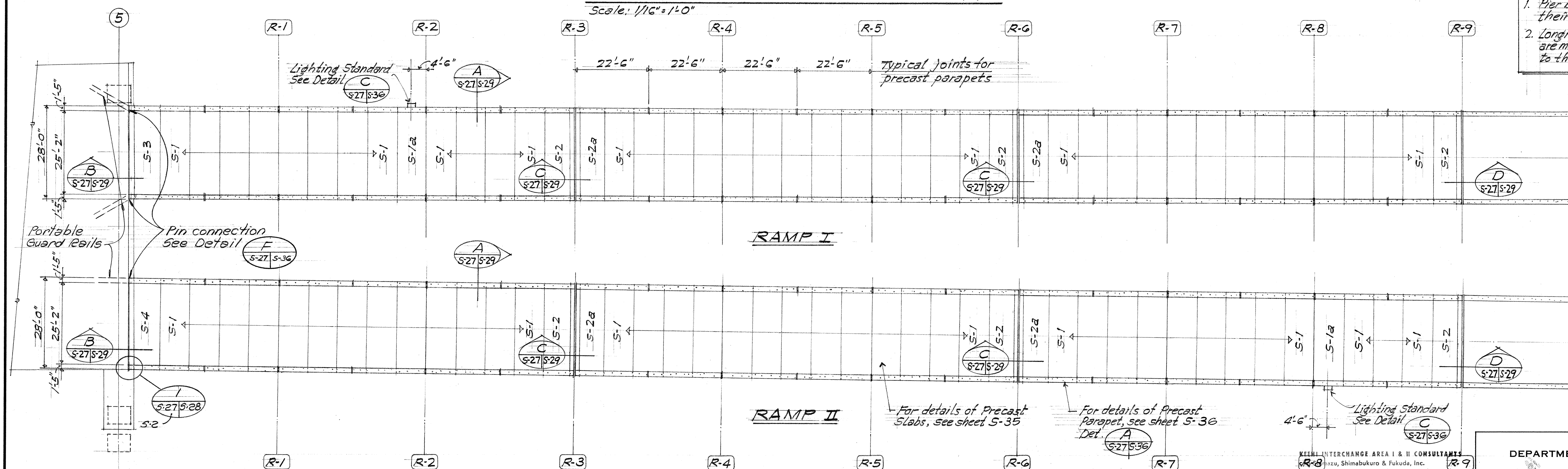


RAMP I & II FRAMING PLAN

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

NOTES:

1. Pier bents are perpendicular to their respective baselines.
2. Longitudinal and transverse dimensions are measured parallel & perpendicular to their respective baselines.



RAMP I & II PRECAST SLAB & PARAPET PLAN

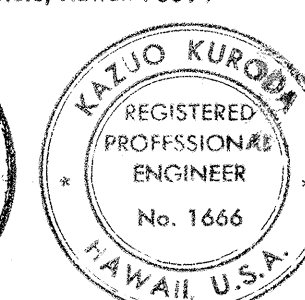
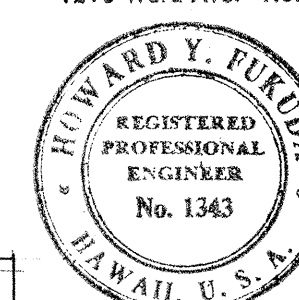
Scale: 1/16" = 1'-0"

For details of Precast Slabs, see sheet S-35

For details of Precast Parapet, see sheet S-36

Lighting Standard See Detail C

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TEMPORARY RAMPS
DECK FRAMING PLANS AND
PRECAST SLAB & PARAPET PLANS

KEEHI INTERCHANGE
F.A.I. PROJ. NO. 1-HI(130)

Scale: 1/16" = 1'-0" Date: Aug. 16, 1976

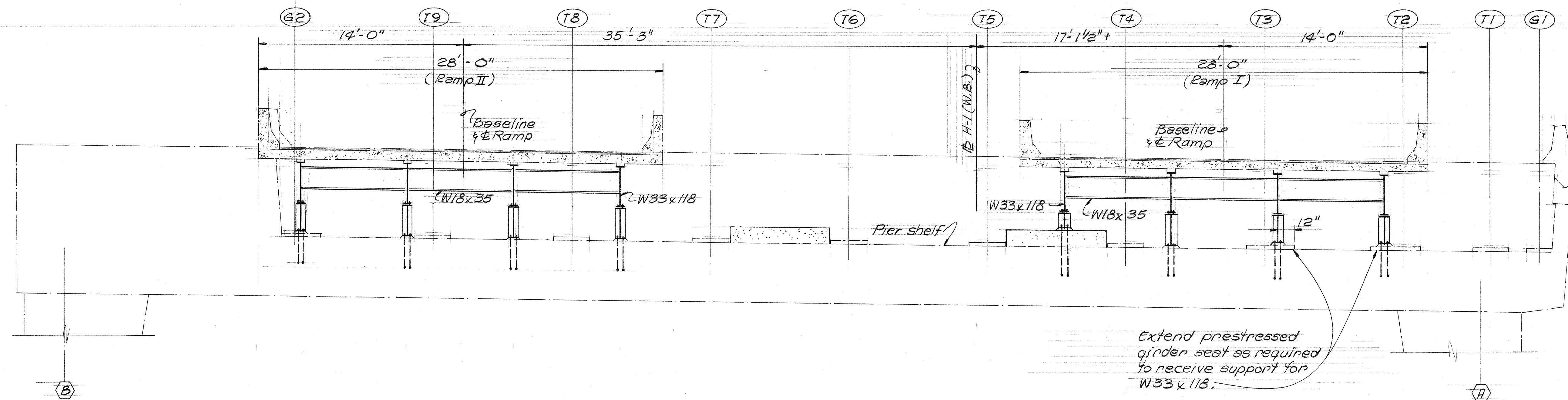
SHEET NO. 27 OF 42 SHEETS

ADD. 124

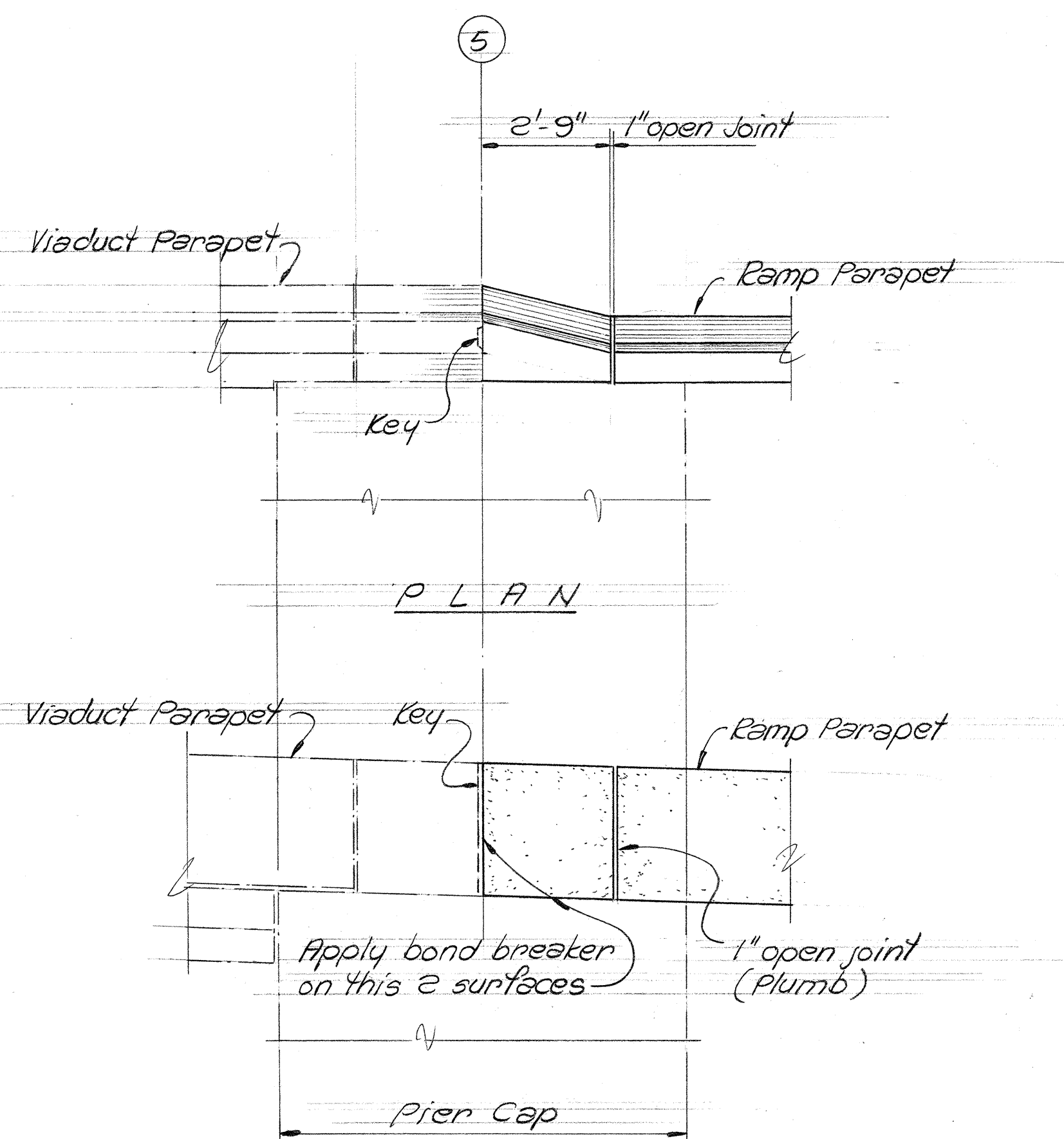
SURVEY PLOTTED BY	DATE
DESIGNED BY	
TRACED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	

10/15/76	Revised to single column pier bent at Ramp I, (R-1)
DATE	REVISION

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(130)17	1976	125	174

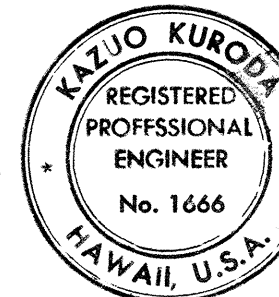
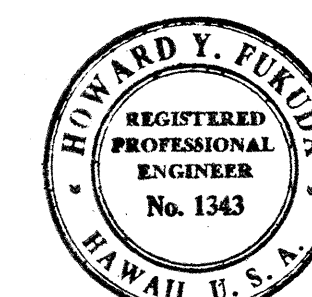


SECTION A-A
Scale: 3/4" = 1'-0"



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

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

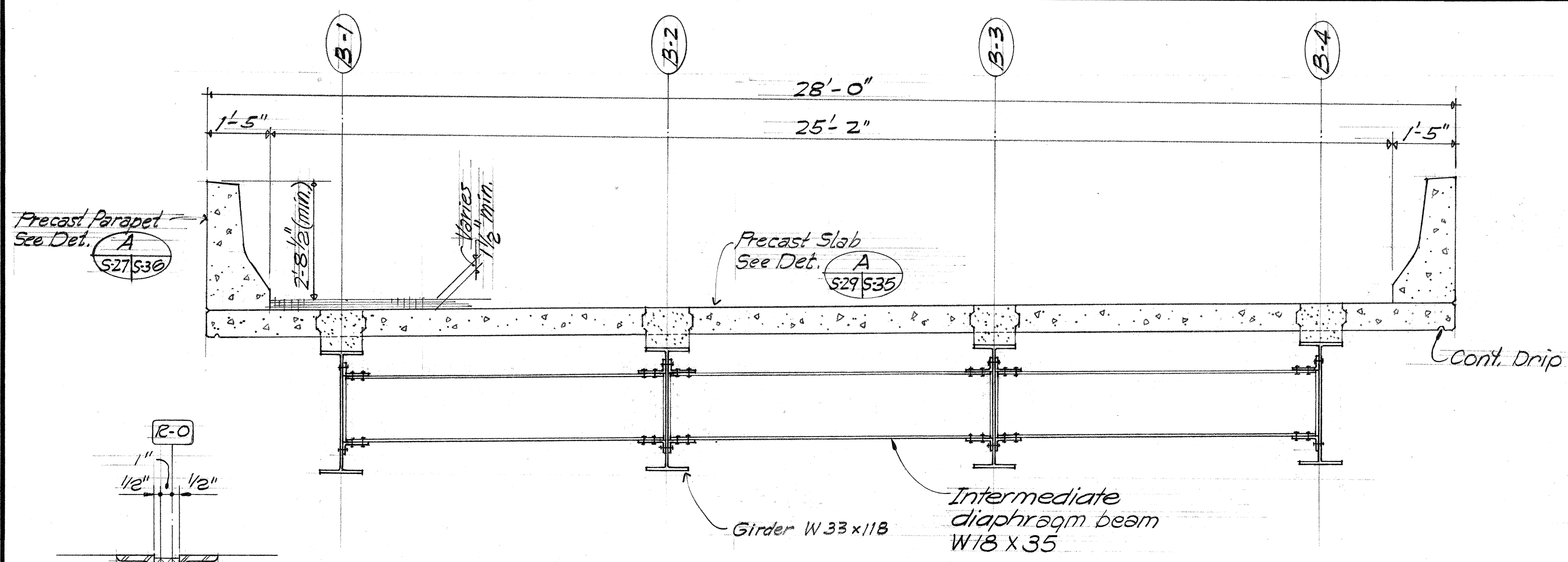
TEMPORARY RAMP
SECTION @ H-1 (WB) PIER # 5

KEEHI INTERCHANGE
F.A.I. PROJ. NO. I-HI-1 (130) 17

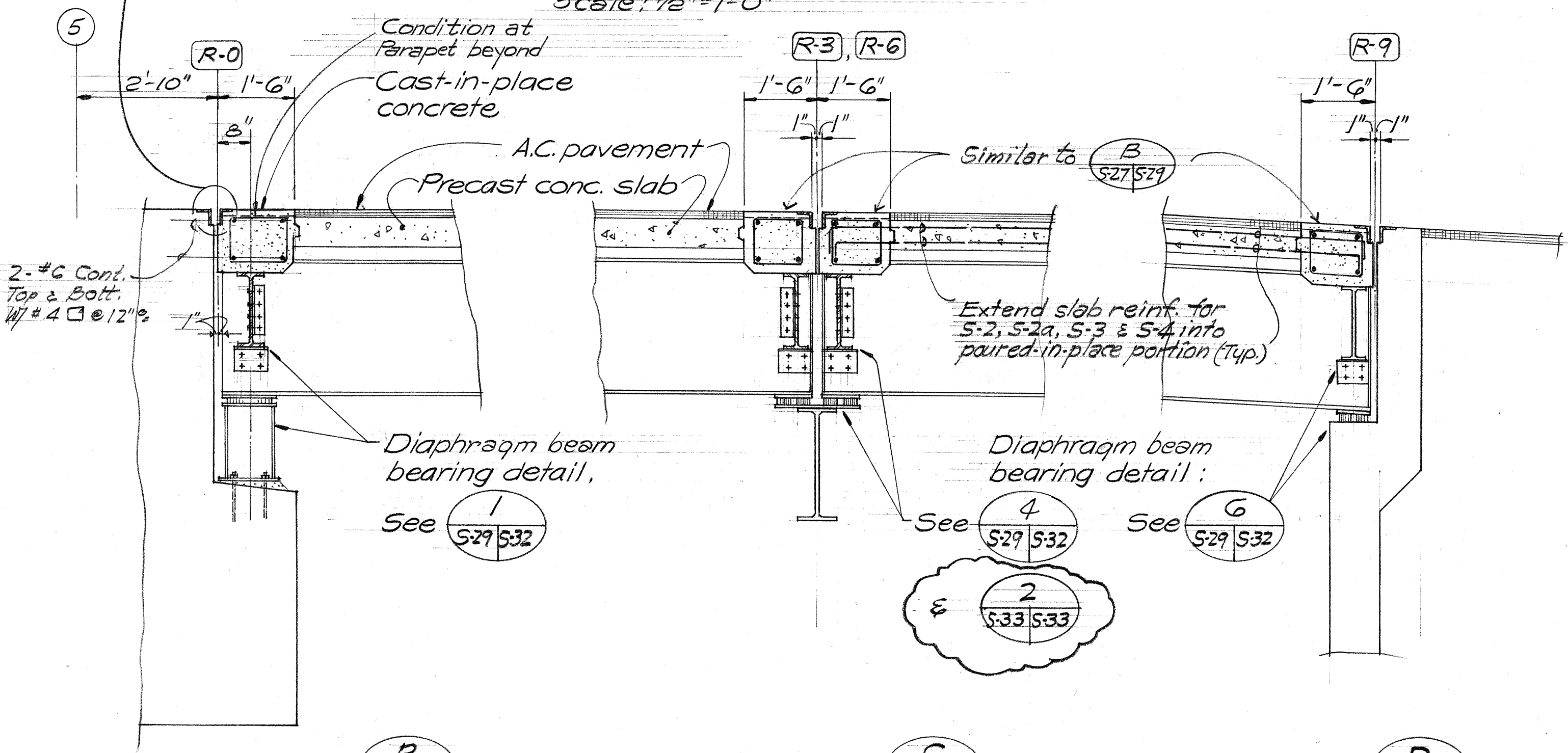
Scale: As Shown Date: Aug. 16, 1976

SHEET NO. 5-28 OF 42 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1(130):17	1976	126	174



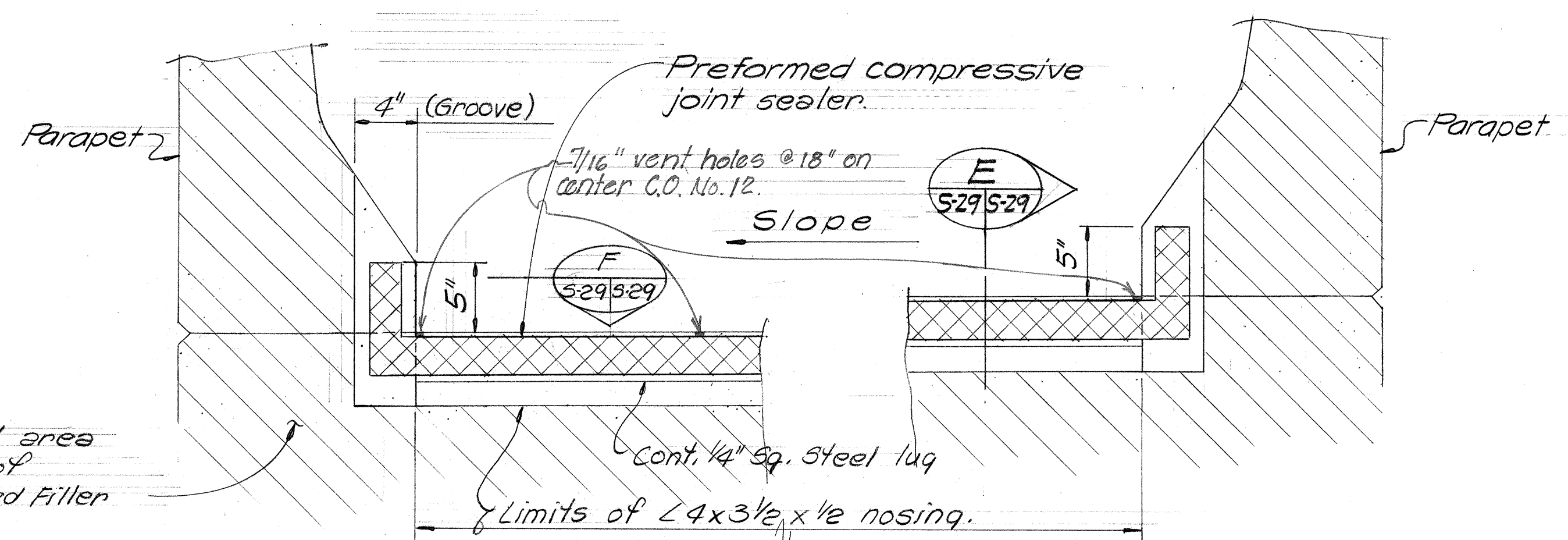
TYPICAL DECK SECTION THRU SLAB ANCHOR SLOTS
 Scale: 1/2" = 1'-0"



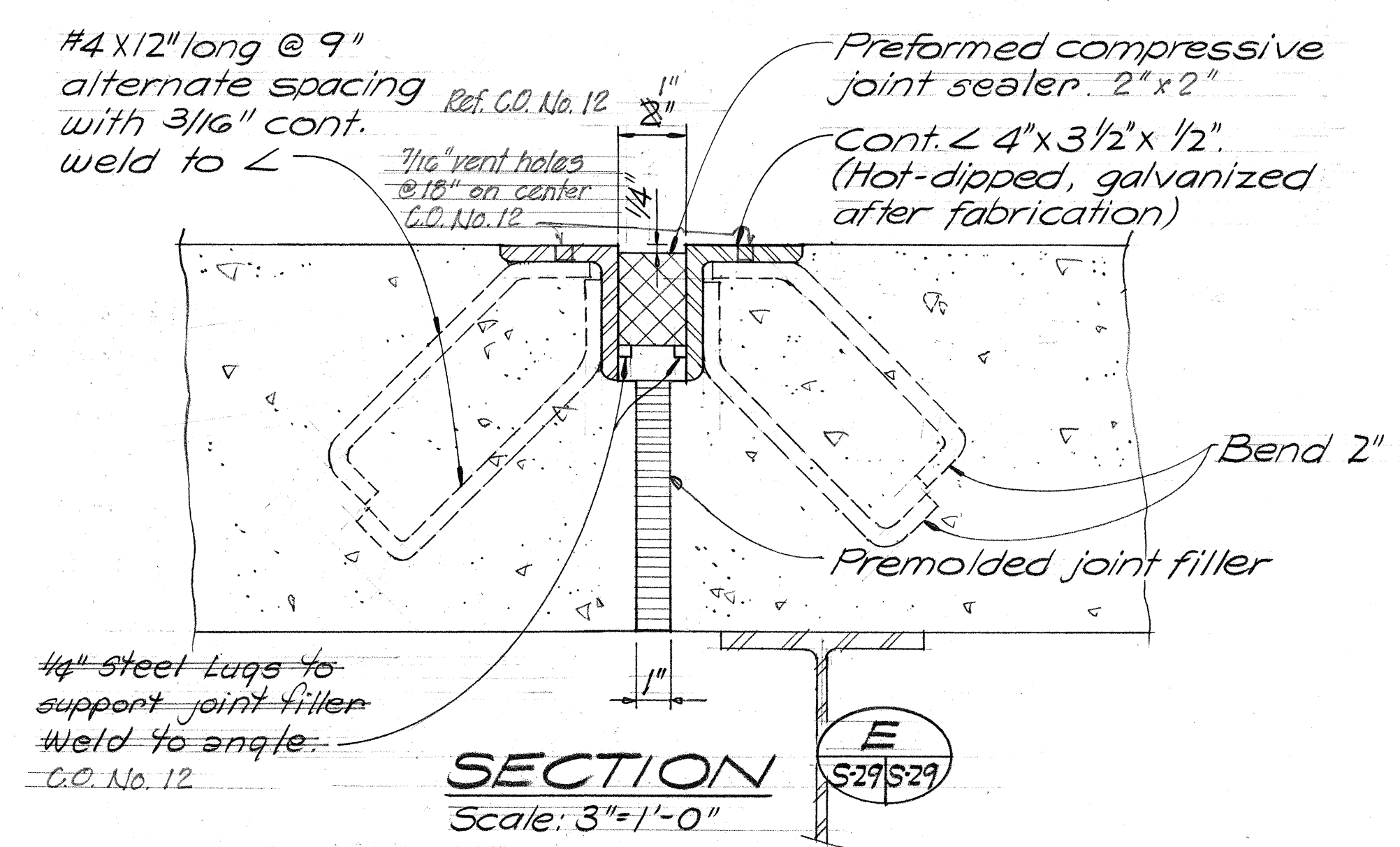
SECTION A
 Scale: 1/2" = 1'-0"

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

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

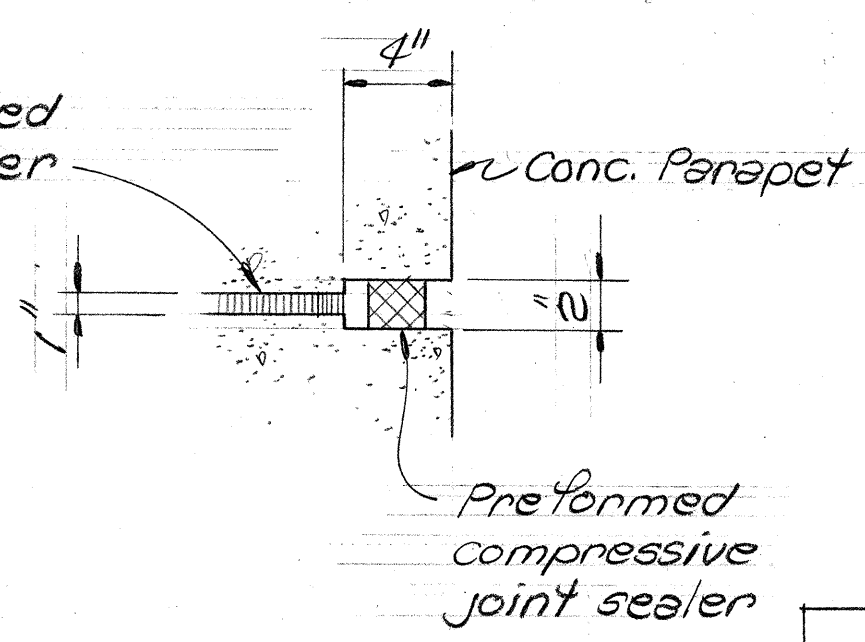


ELEVATION OF TRANSVERSE EXPANSION JOINT
 Scale: 1/2" = 1'-0"



DECK EXPANSION JOINT AND JOINT SEALER DETAIL
 Scale: 3" = 1'-0"

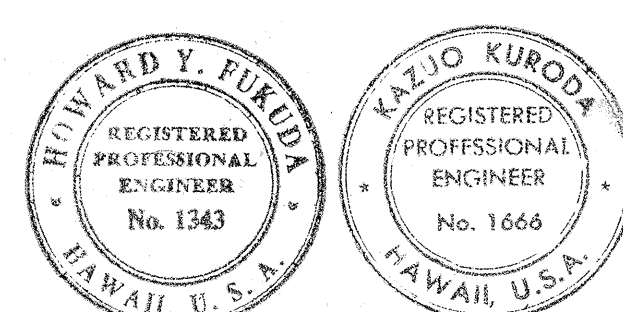
NOTE:
 1. Cont. steel angle protective nosing assembly & preformed compressive joint sealer incidental to precast concrete slab & will not be paid for separately.



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

DATE	REVISION
10/15/76	Added note to C

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 1210 Ward Ave., Honolulu, Hawaii 96814



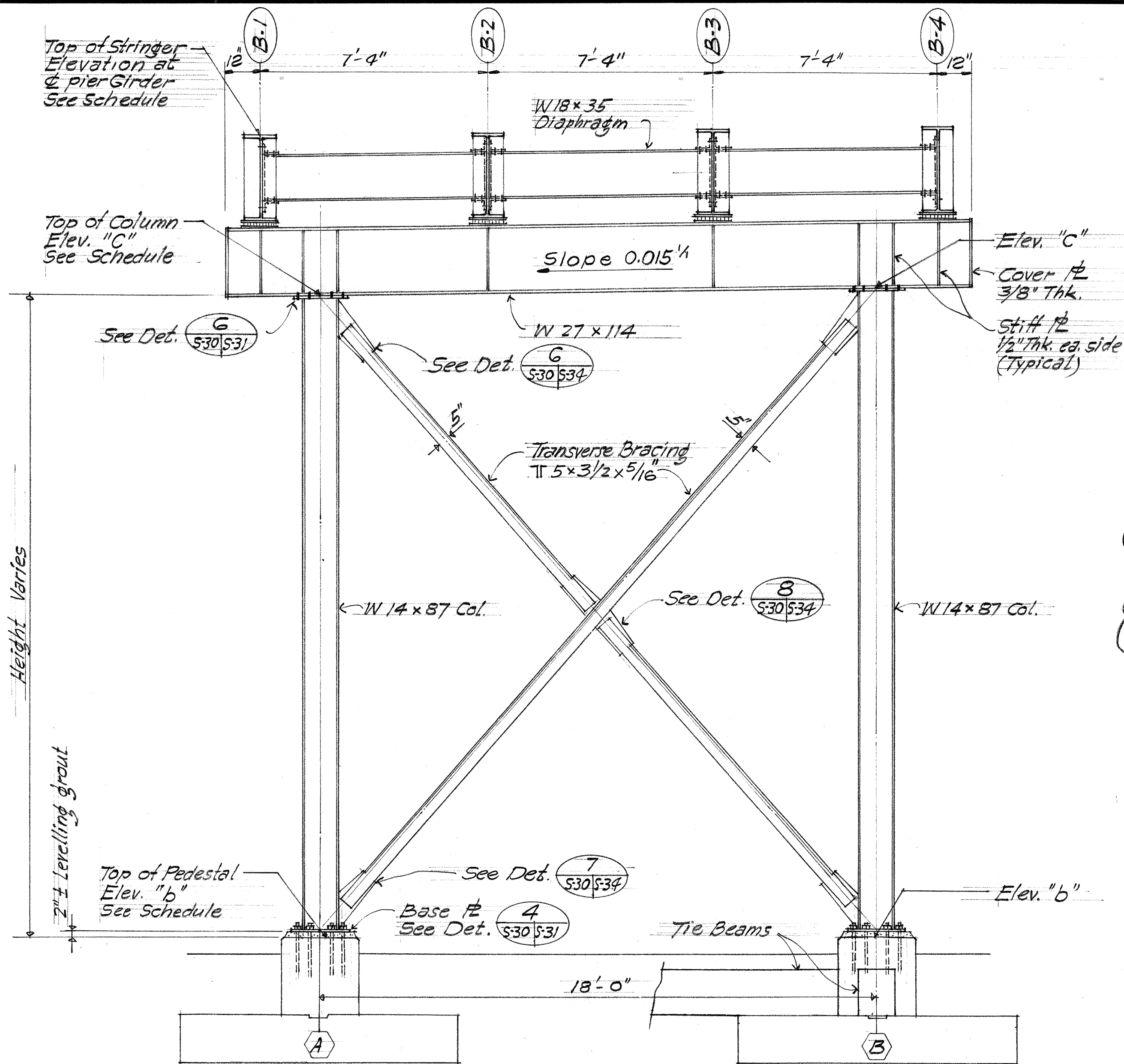
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 Kazuo Kuroda

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TEMPORARY RAMPS
TYPICAL DECK SECTION & DETAILS

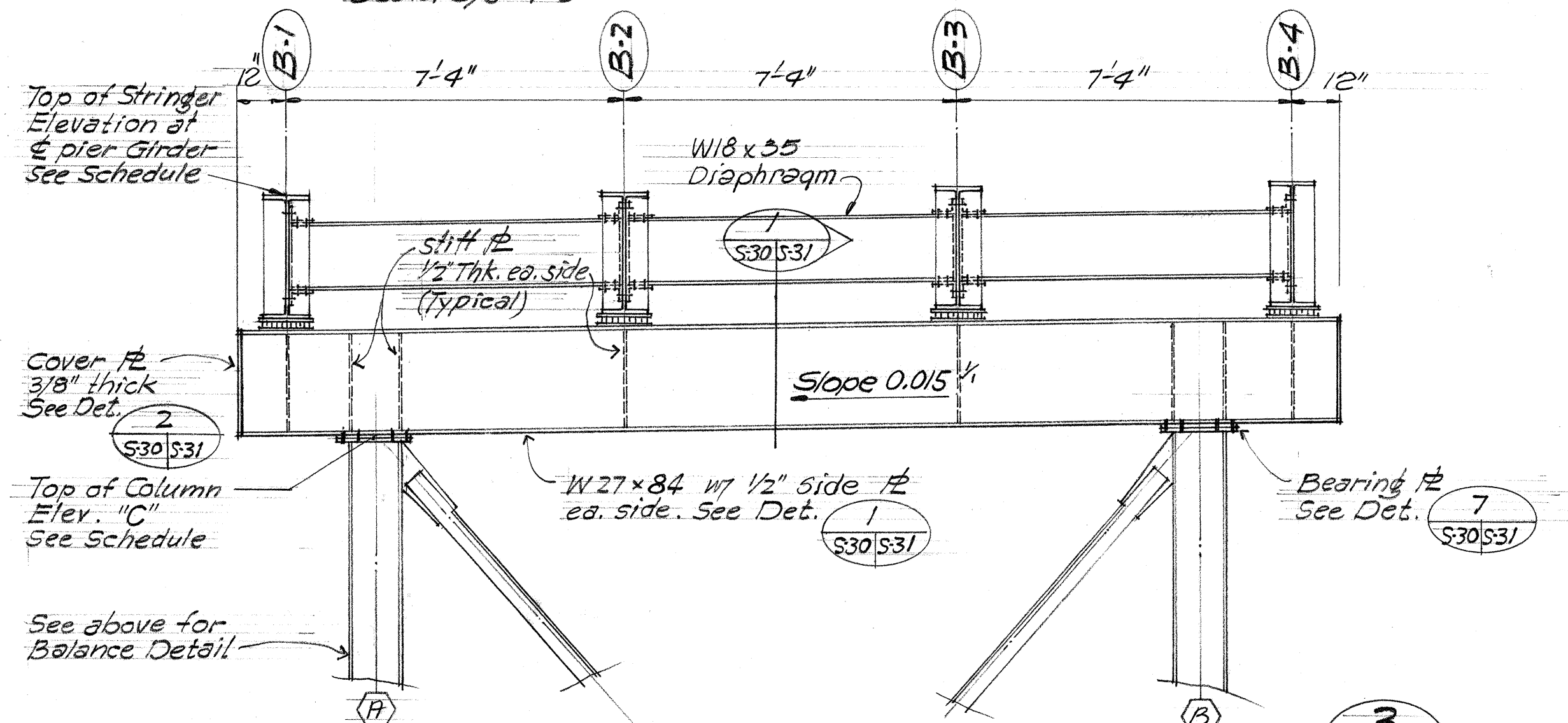
KEEHI INTERCHANGE
F.A.I. PROJ. NO. I-H-1(130):17
Scale: As shown Date: Aug. 16, 1976
SHEET NO. 529 OF 42 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(130)117	1976	127	174



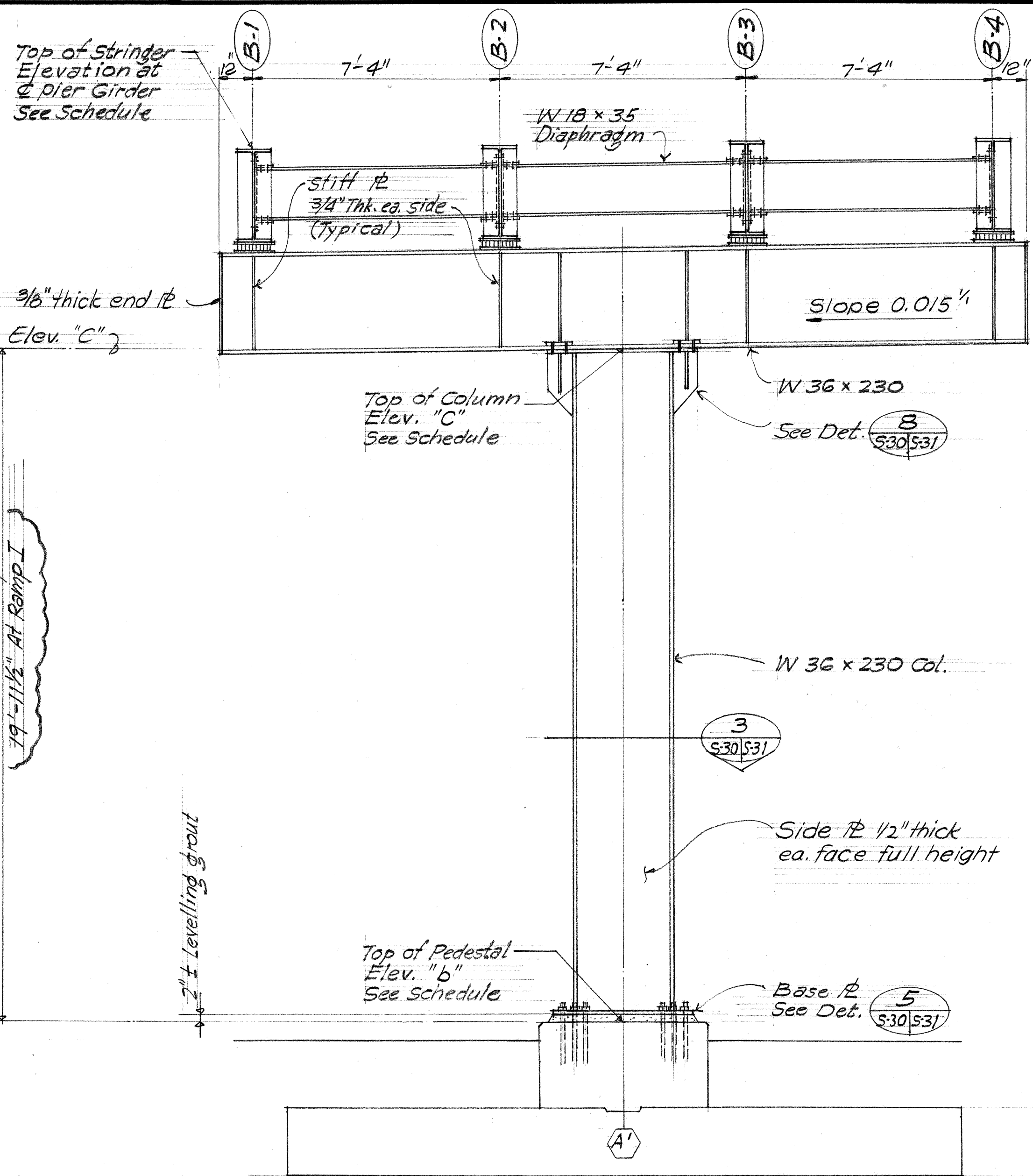
TYPICAL PIER BENT DETAIL

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



PIER BENT AT LINE R-3 & R-6

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



PIER BENT AT RAMP I & II LINE R-1

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

BENT SCHEDULE

RAMP I

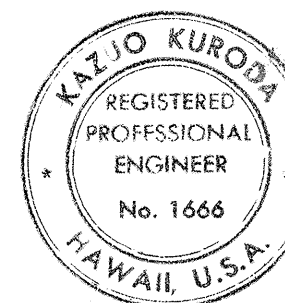
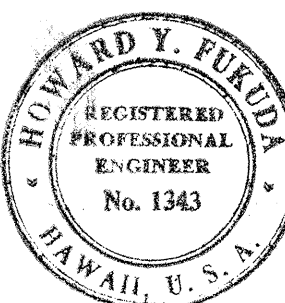
BENT No	ELEV. "b"		ELEV. "C"		TOP OF STRINGER ELEV.			
	A	B	A	B	B-1	B-2	B-3	B-4
R-0					37.01	37.12	37.23	37.34
R-1	10.60*		30.56*		36.48	36.59	36.70	36.81
R-2	10.60	10.60	30.17	30.44	35.52	35.63	35.74	35.85
R-3	10.33	10.33	28.74	29.01	34.13	34.24	34.35	34.46
R-4	10.10	10.10	26.83	27.10	32.19	32.30	32.41	32.52
R-5	10.10	10.10	24.44	24.71	29.81	29.92	30.03	30.14
R-6	9.75	9.75	21.60	21.87	27.02	27.13	27.24	27.35
R-7	9.50	9.50	18.50	18.77	23.88	23.99	24.10	24.21
R-8	9.50	9.50	15.35	15.62	20.73	20.84	20.95	21.06
R-9					17.58	17.69	17.80	17.91

RAMP II

BENT No	ELEV. "b"		ELEV. "C"		TOP OF STRINGER ELEV.			
	A	B	A	B	B-1	B-2	B-3	B-4
R-0					37.80	37.91	38.02	38.13
R-1	10.50*		31.31*		37.27	37.38	37.49	37.60
R-2	10.30	10.30	30.96	31.23	36.31	36.42	36.53	36.64
R-3	10.30	10.30	29.53	29.80	34.92	35.03	35.14	35.25
R-4	10.00	10.00	27.62	27.89	32.98	33.09	33.20	33.31
R-5	10.00	10.00	25.23	25.50	30.60	30.71	30.82	30.93
R-6	9.50	9.50	22.39	22.66	27.81	27.92	28.03	28.14
R-7	9.30	9.30	19.29	19.56	24.67	24.78	24.89	25.00
R-8	9.30	9.30	16.14	16.41	21.52	21.63	21.74	21.85
R-9					18.37	18.48	18.59	18.70

* Elevation along line (A)

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DATE	REVISION
10/15/76	Revised S30/S31 to apply to Ramp I & II. Corrected Ramp I, (R) Elevations.

Denotes changes to ADD.127

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TEMPORARY RAMPS
PIER BENT SECTIONS & SCHEDULE

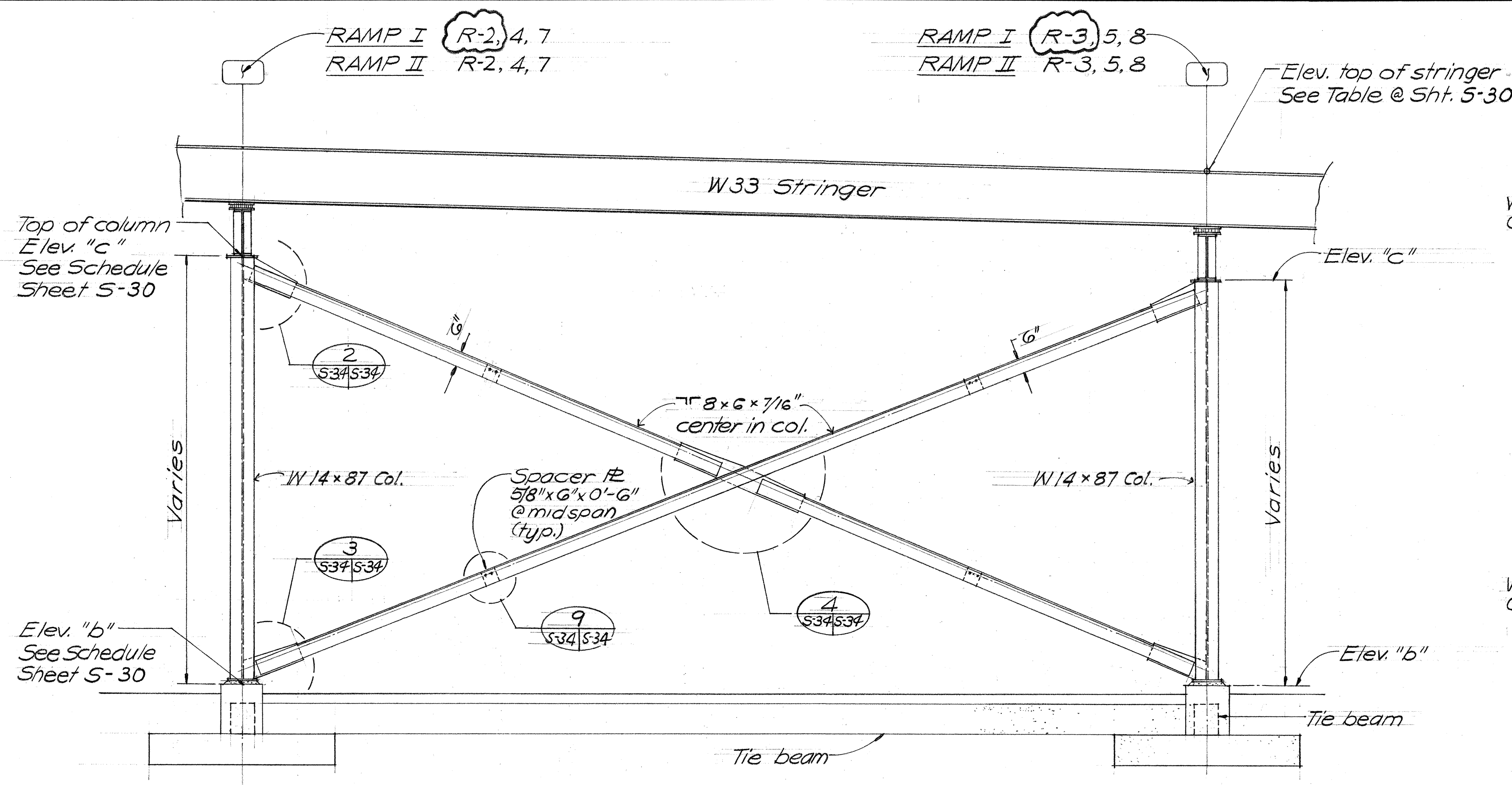
KEEHI INTERCHANGE
F.A.I. PROJ. NO. I-HI-1(130)117

Scale: 3/8" = 1'-0" Date: Aug. 16, 1976

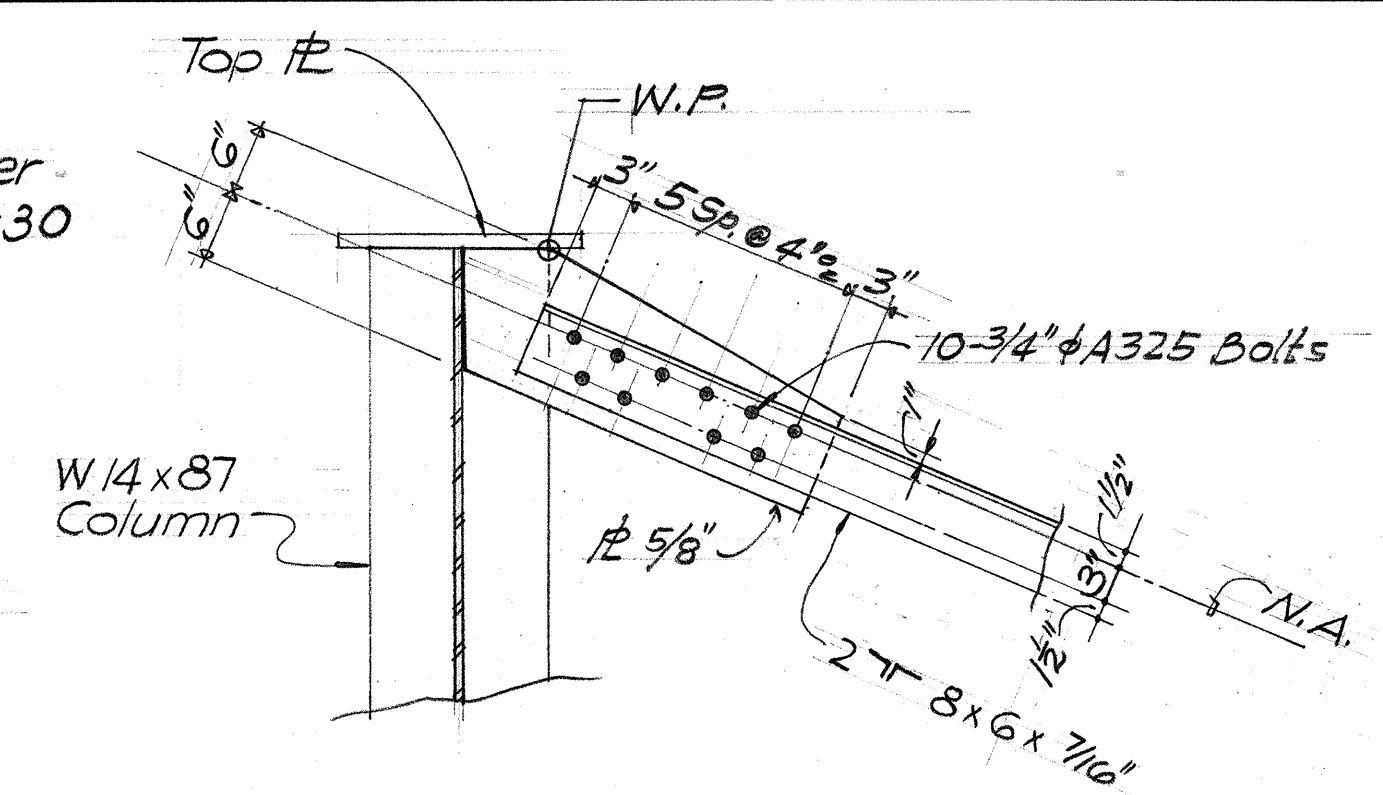
SHEET NO. 30 OF 42 SHEETS

ADD.127

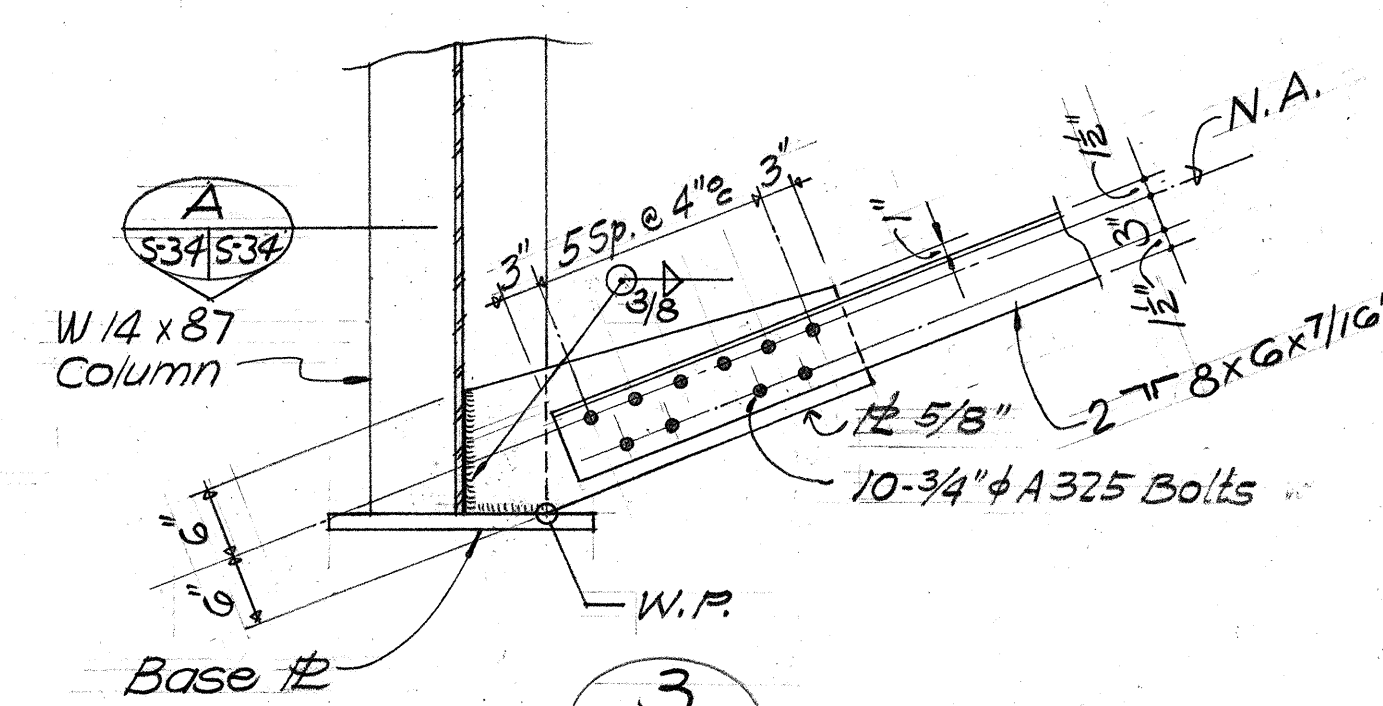
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(130)117	1976	131	174



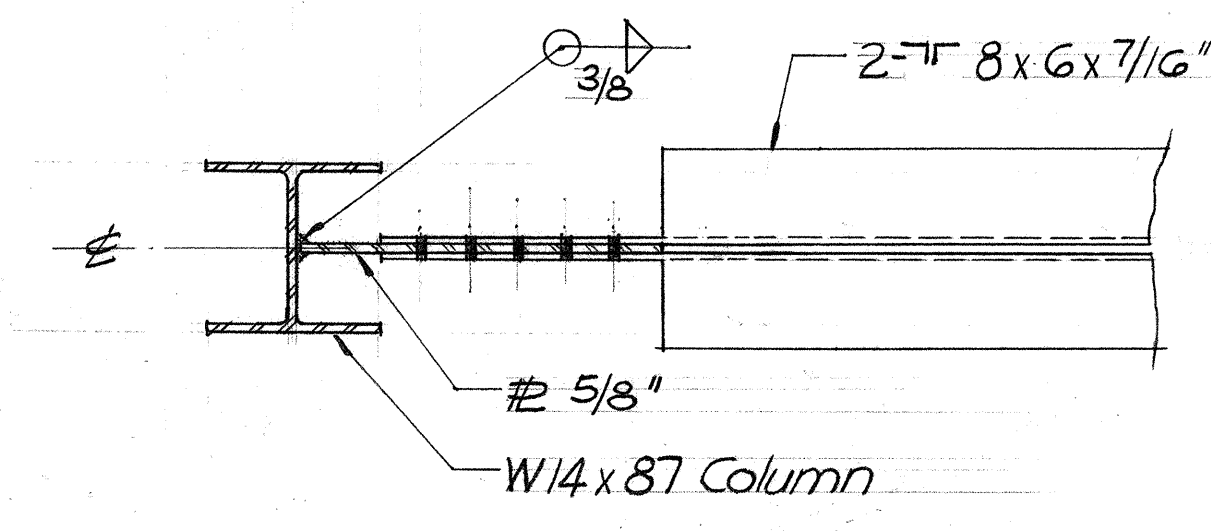
LONGITUDINAL BRACING DETAIL
Scale: 1/4" = 1'-0"



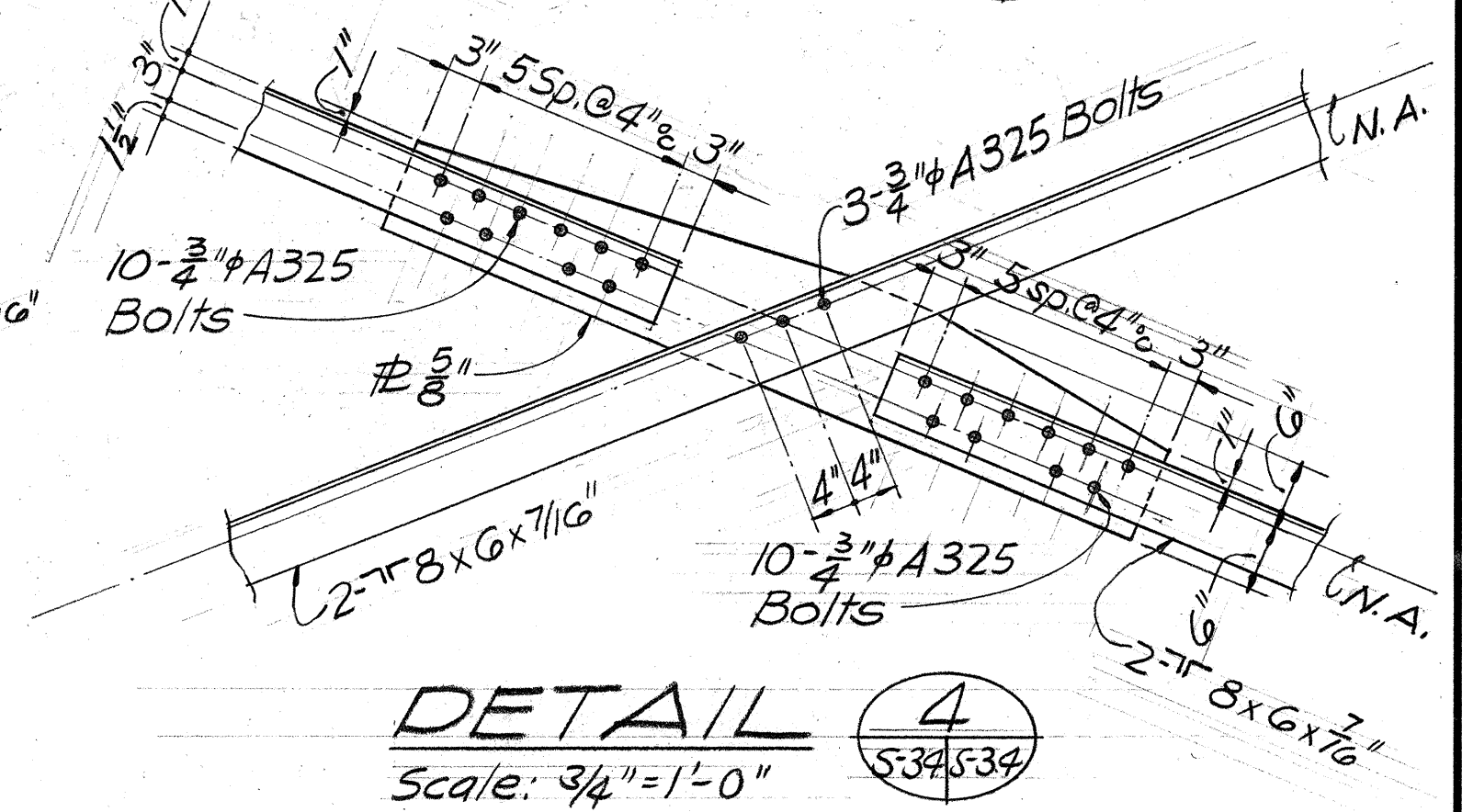
DETAIL 2
Scale: 3/4" = 1'-0"



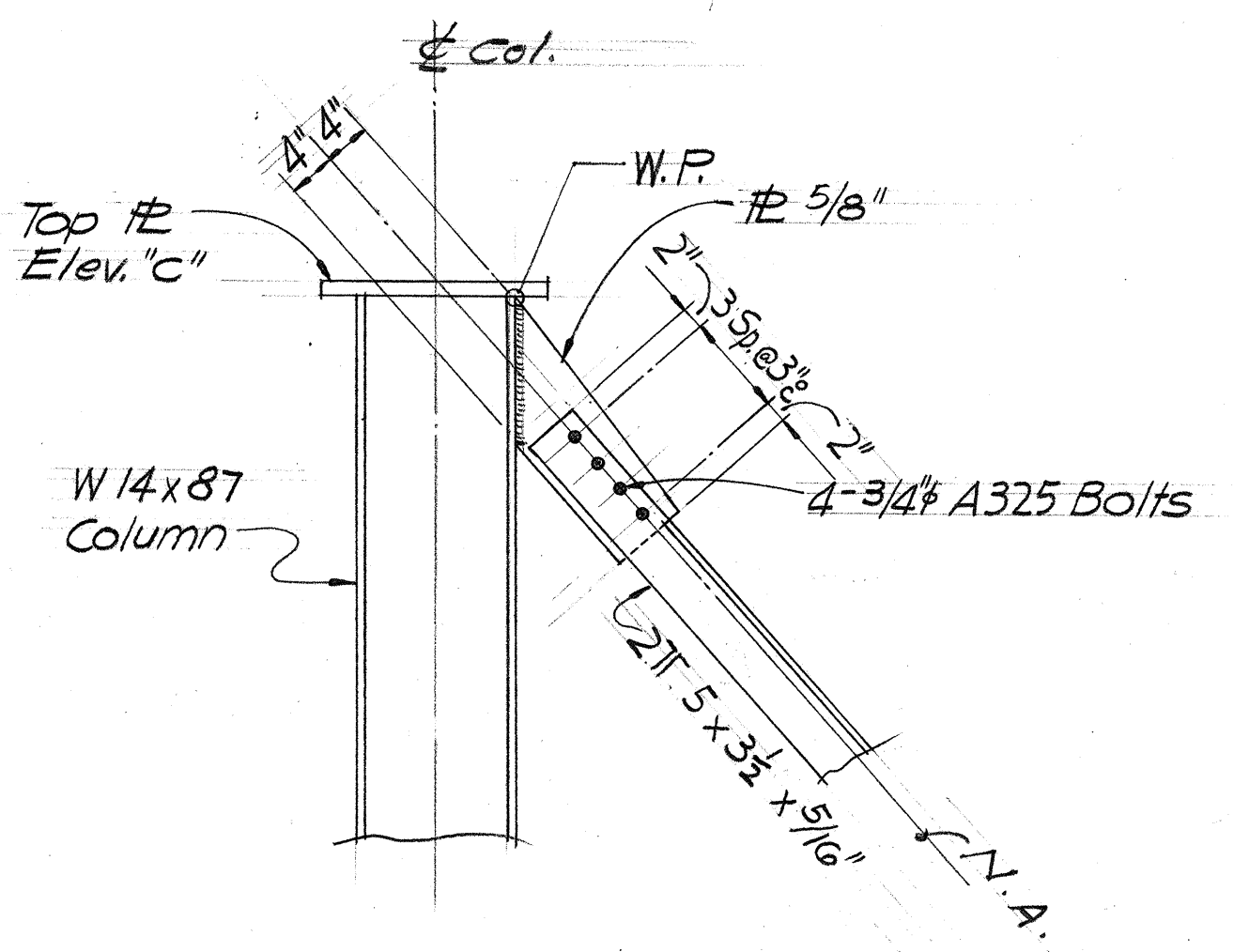
DETAIL 3
Scale: 3/4" = 1'-0"



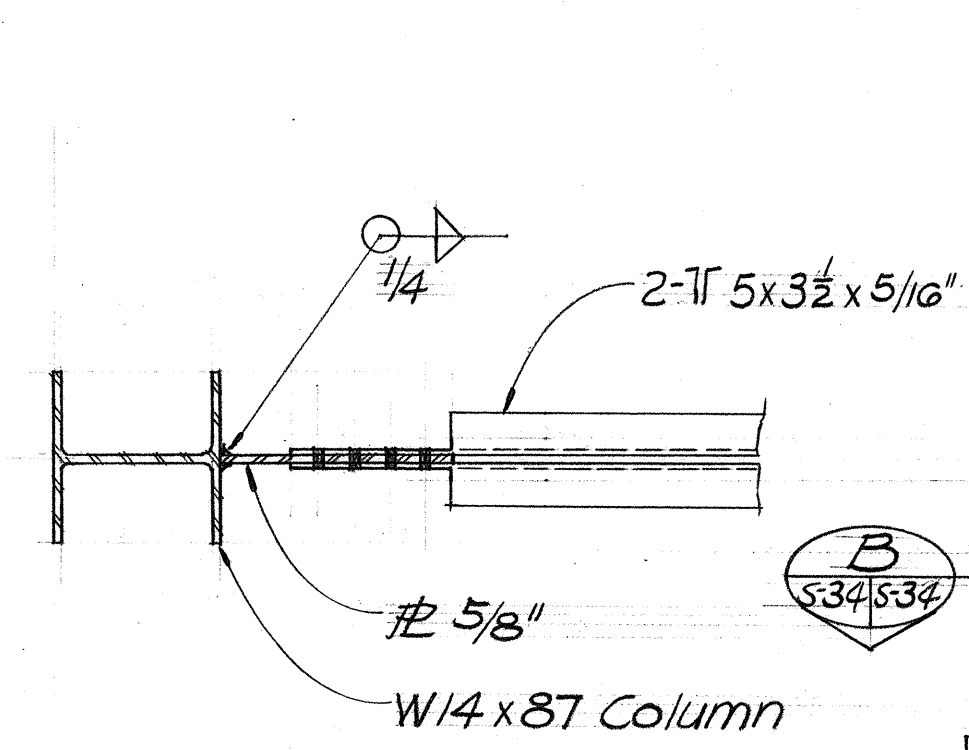
SECTION A
Scale: 3/4" = 1'-0"



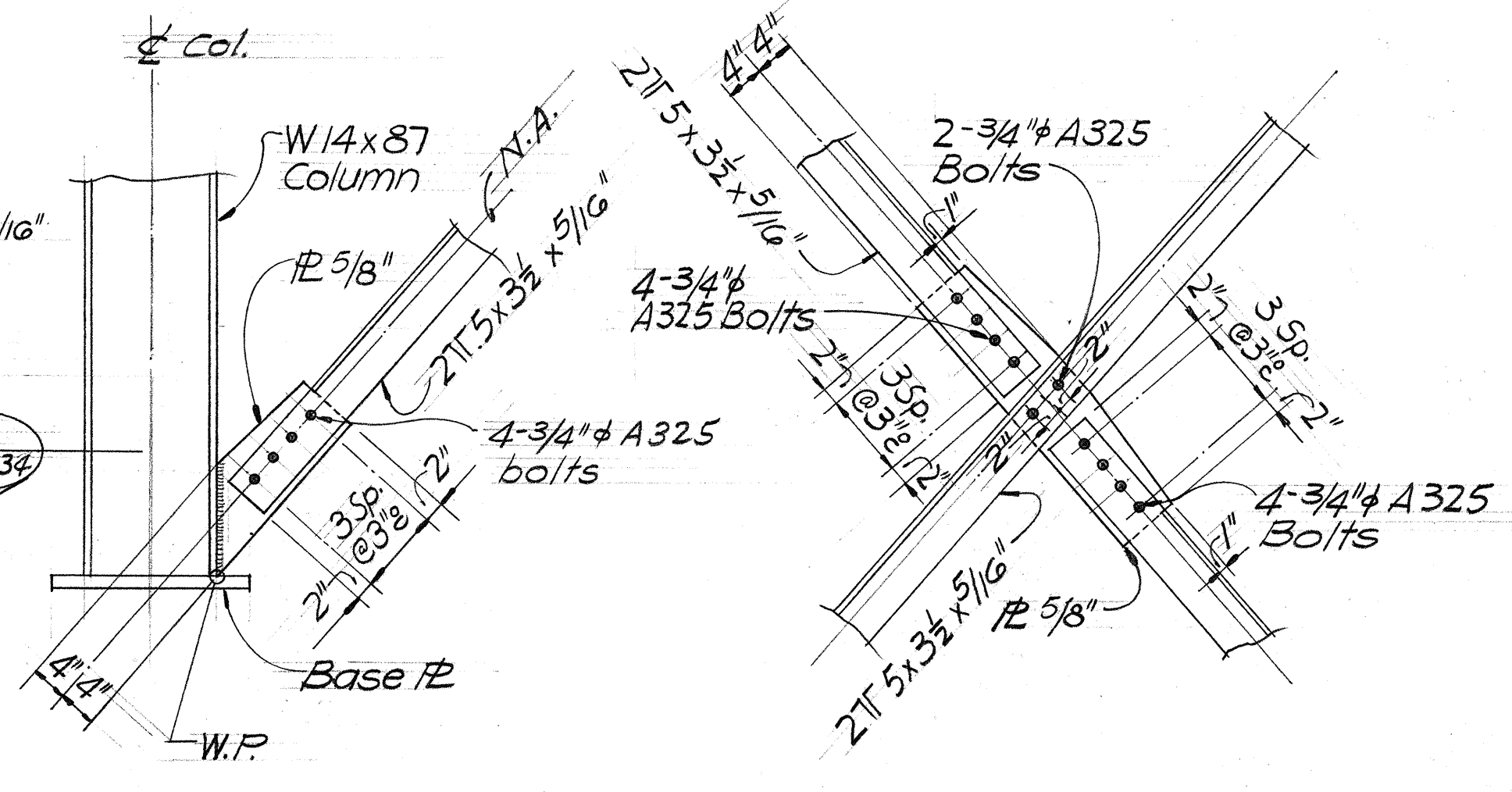
DETAIL 4
Scale: 3/4" = 1'-0"



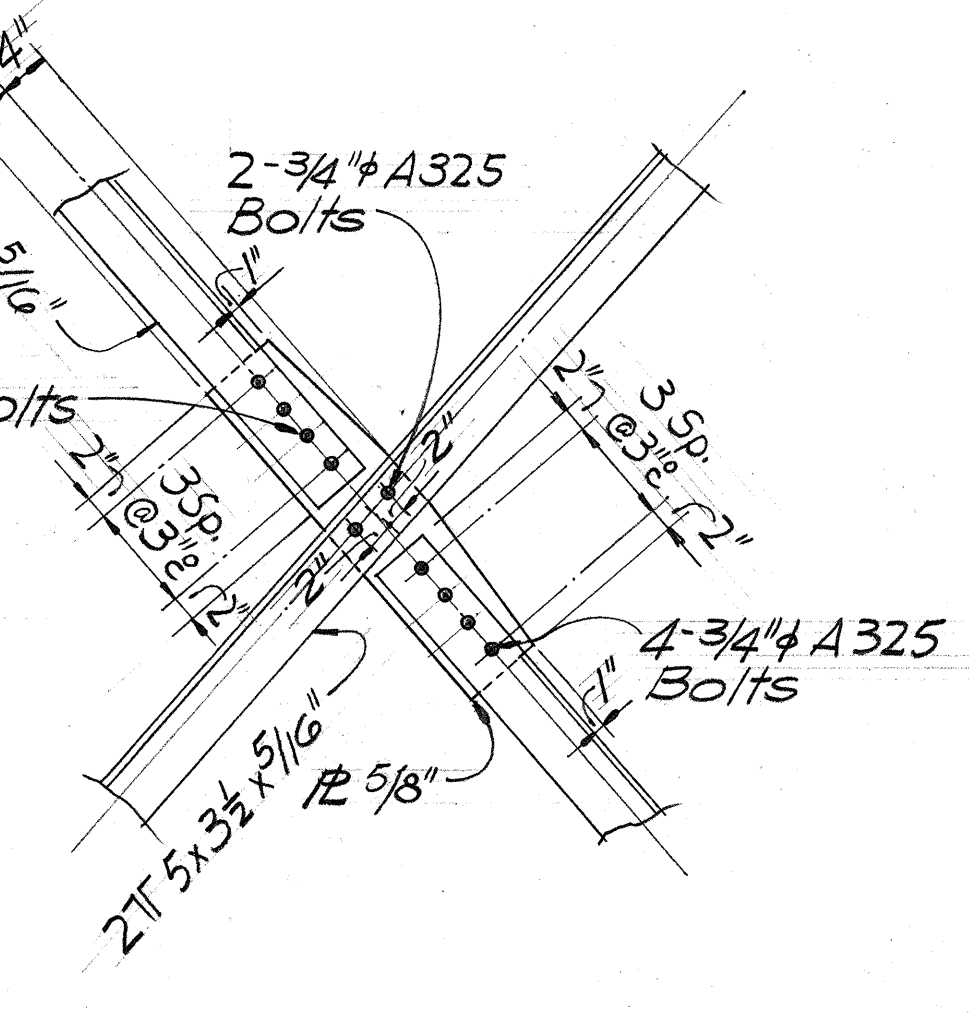
DETAIL 6
Scale: 3/4" = 1'-0"



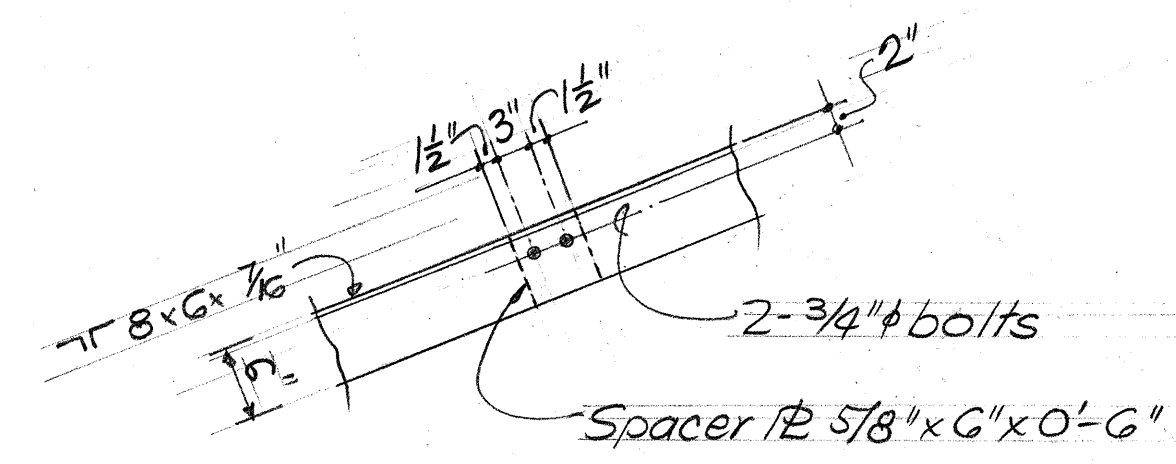
SECTION B
Scale: 3/4" = 1'-0"



DETAIL 7
Scale: 3/4" = 1'-0"



DETAIL 8
Scale: 3/4" = 1'-0"

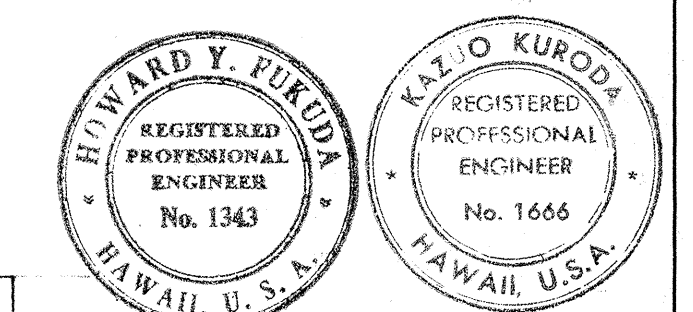


DETAIL 9
Scale: 3/4" = 1'-0"

TRANSVERSE BRACING DETAIL
Scale as noted

10/15/76	Revised longitudinal bracing to correct bay.
DATE	REVISION

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c/o Shimizu, Shimabukuro & Fukuda, Inc.
1210 Ward Ave., Honolulu, Hawaii 96814



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**TEMPORARY RAMPS
BRACING DETAILS**

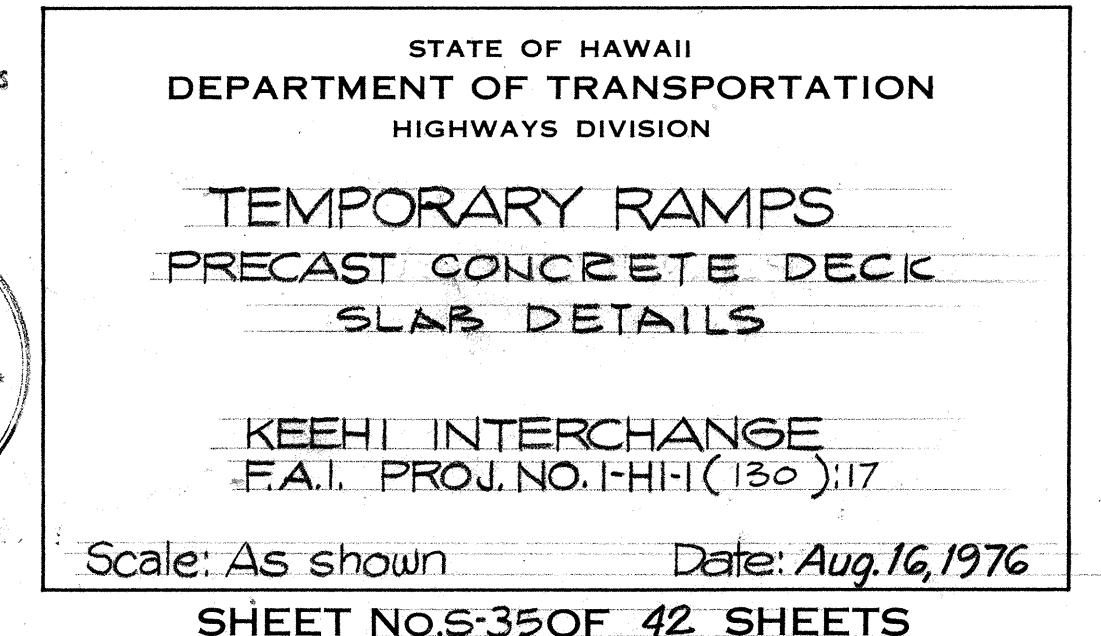
KEEHI INTERCHANGE
F.A.I. PROJ. NO. I-HI-1(130)117

Scale: As shown Date: Aug. 16, 1976
SHEET NO. S-34 OF 42 SHEETS

ADD. 131

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

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



Class B concrete

Finish road grade

#4 ties @ 15" o.c.

7'-3"

4"

3"

6"

3 - #4 cont. @ 9 1/4" o.c.

Exist. H.T.Co. Duct line #3

PIER (3)

50'

27"

31"

28"

Exist. H.T.Co. manhole Sta. 13+00

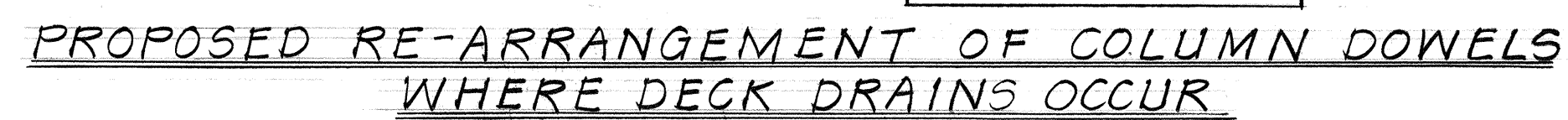
Detour Rd #1 Sta. 12+50 ±

Reinforced conc. slab

O.B. DETOUR #1

E/P of Detour #1

NOTE: Ref. C.C.O #17 &
see sht. #104.



NOTE: In lieu of galv. threaded insert, provide 4 - 1/2" x 5 1/2" slotted thru-holes with 2" x 6" x 1/2" recess, provision for future slab pick-up device

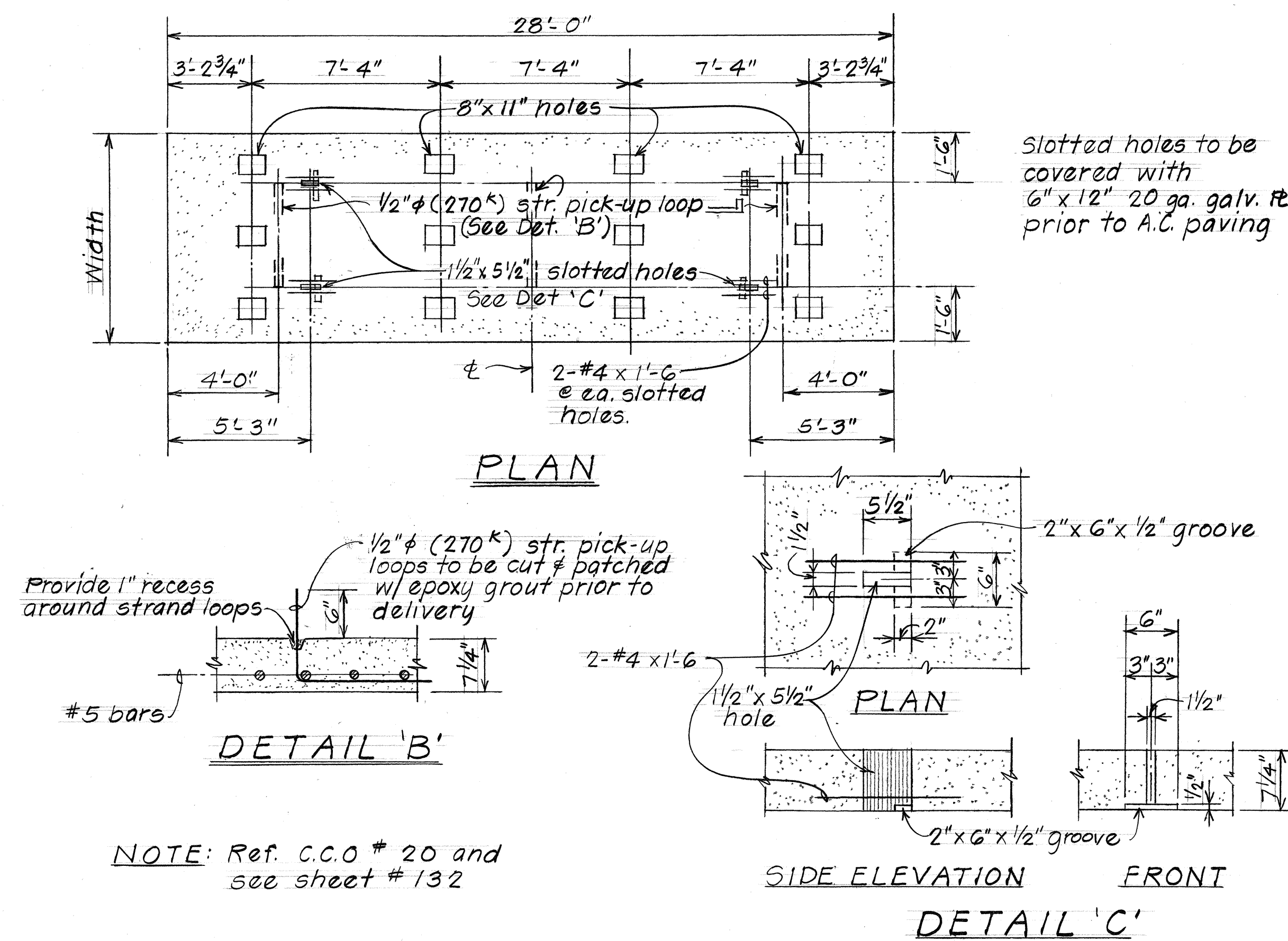
PLAN

ELEVATION

DETAIL A

SUGGESTED FUTURE PICK-UP DEVICE

PLAN PROFILE SECTION



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

"AS BUILT" DETAILS

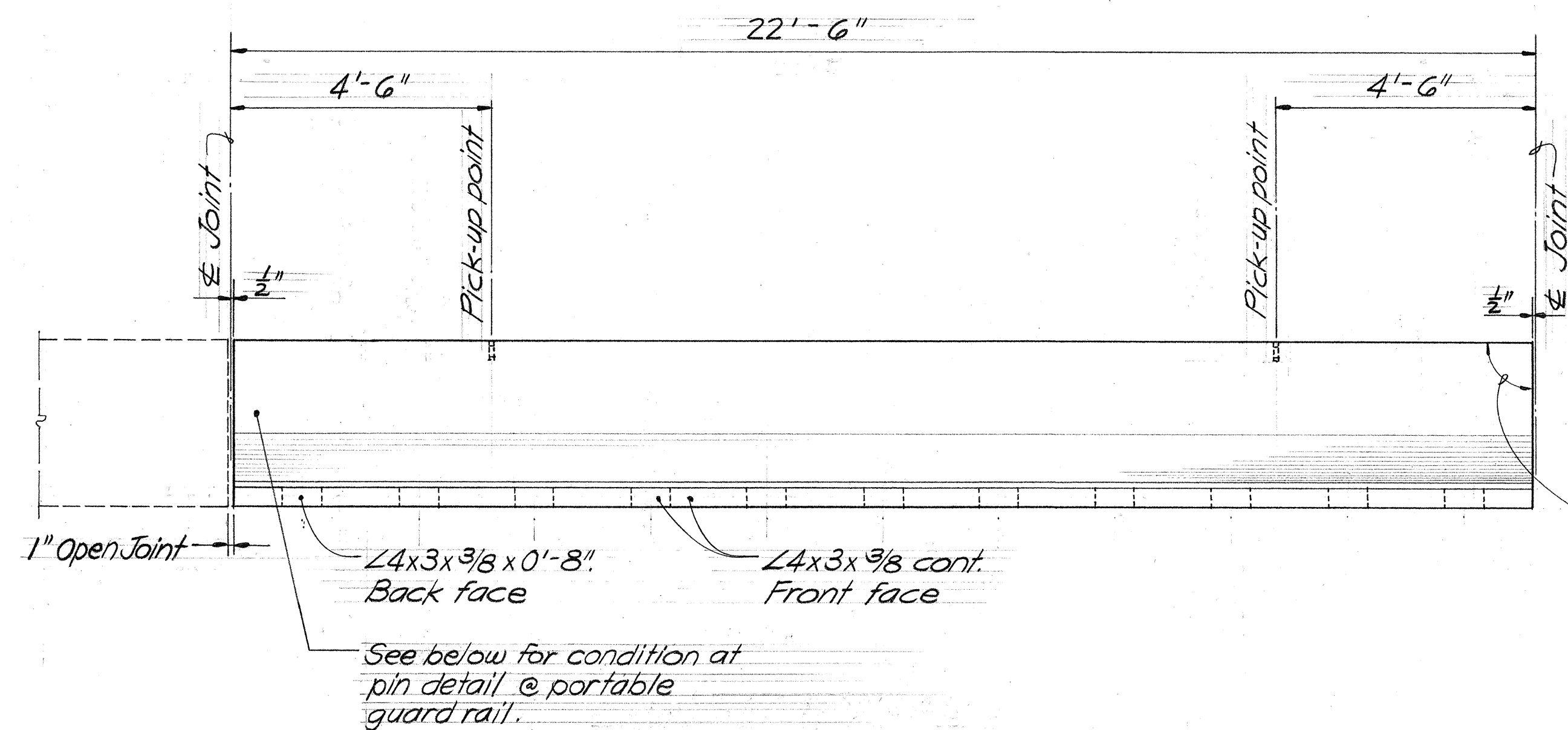
KEEHI INTERCHANGE
F.A.T. PROJ. No. I - HI - I (130) - 17

Scale: As Shown Date: Oct. 1983

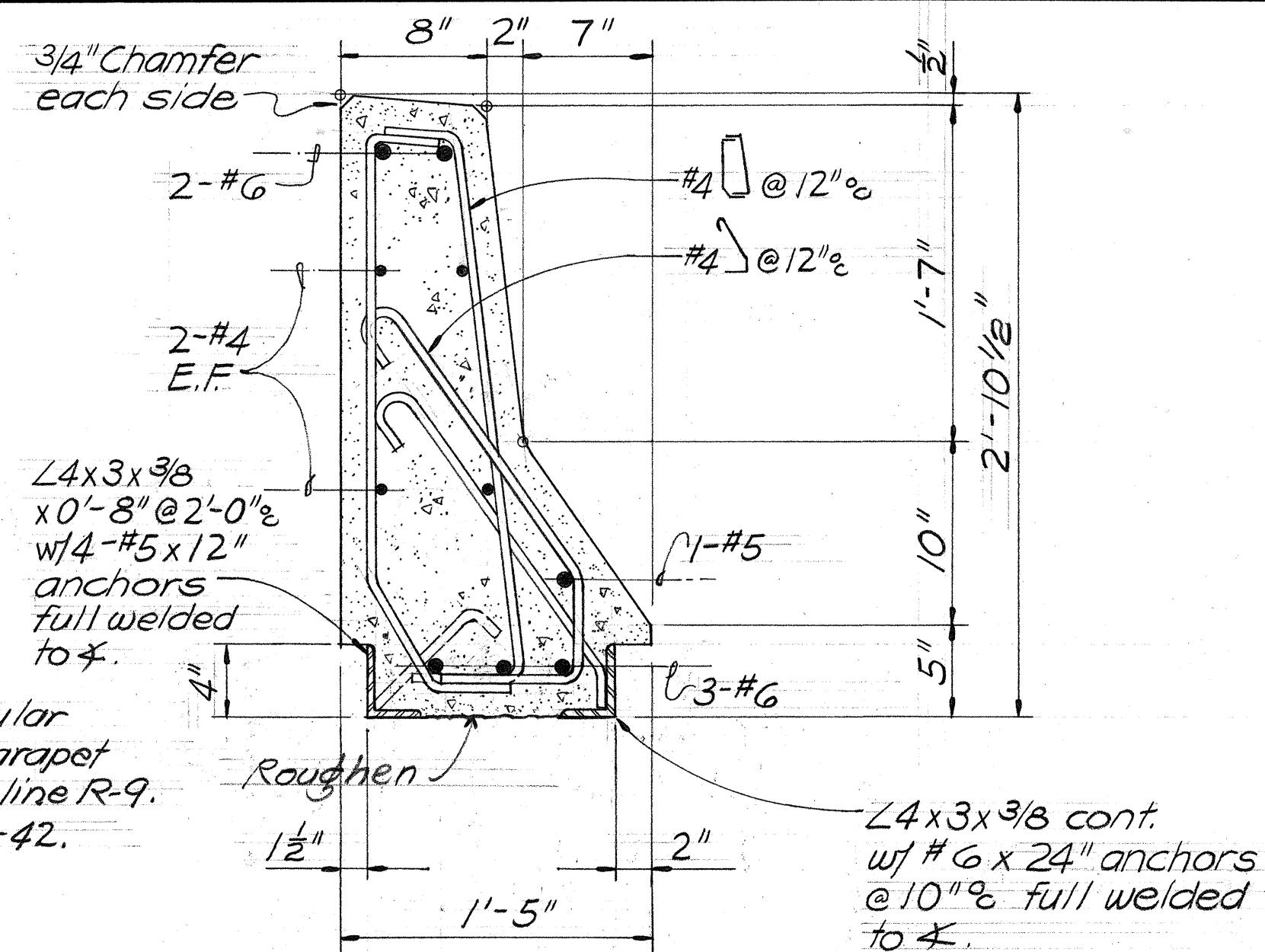
SHEET No. 535A OF 22 SHEETS

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

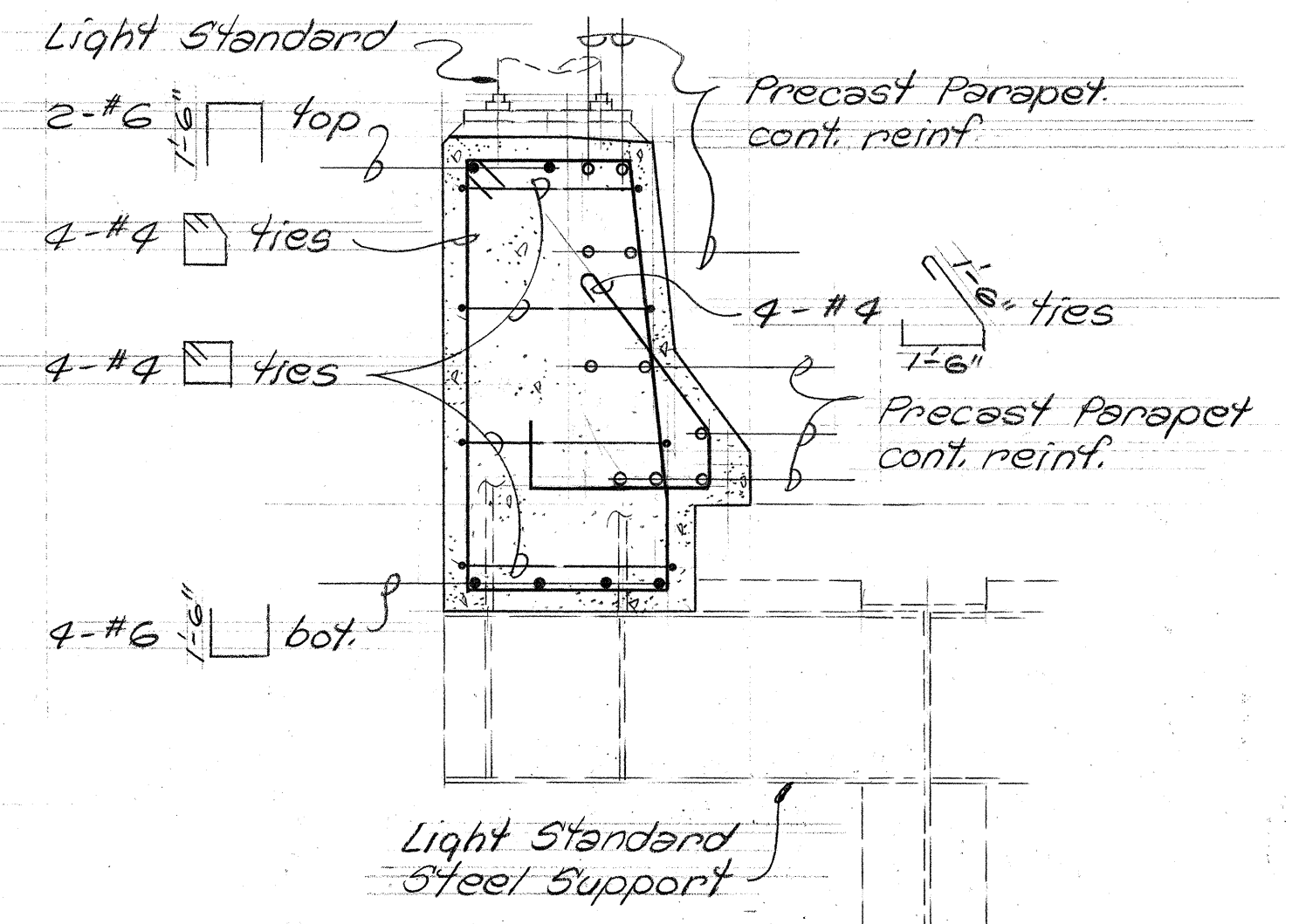
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(30):17	1976	133	174



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

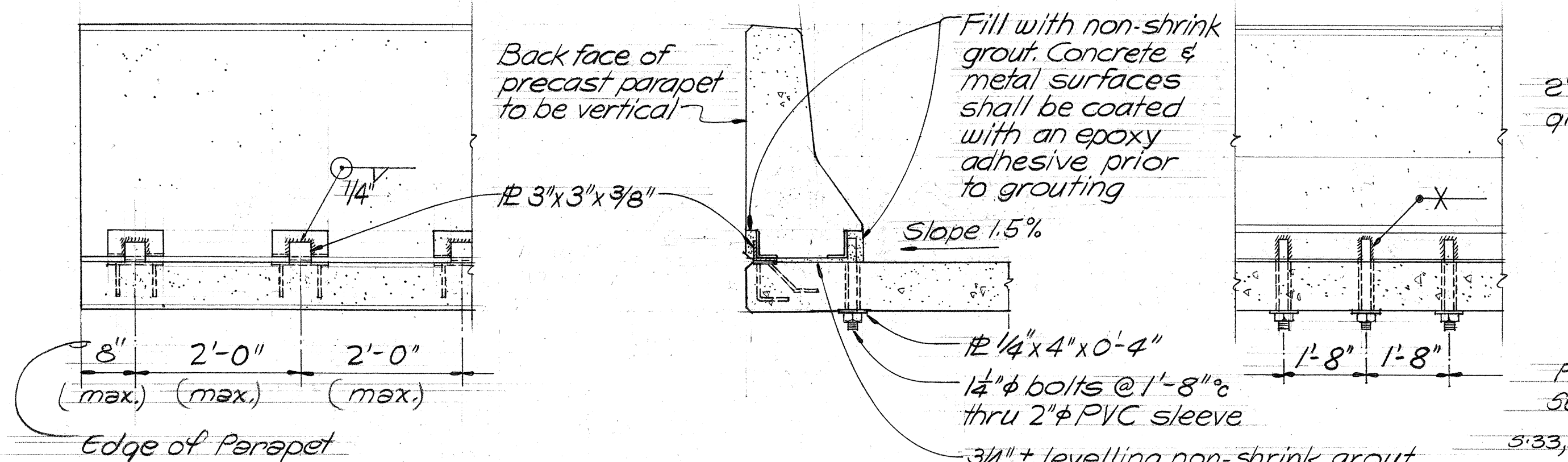


SECTION
Scale: 1/2" = 1'-0"

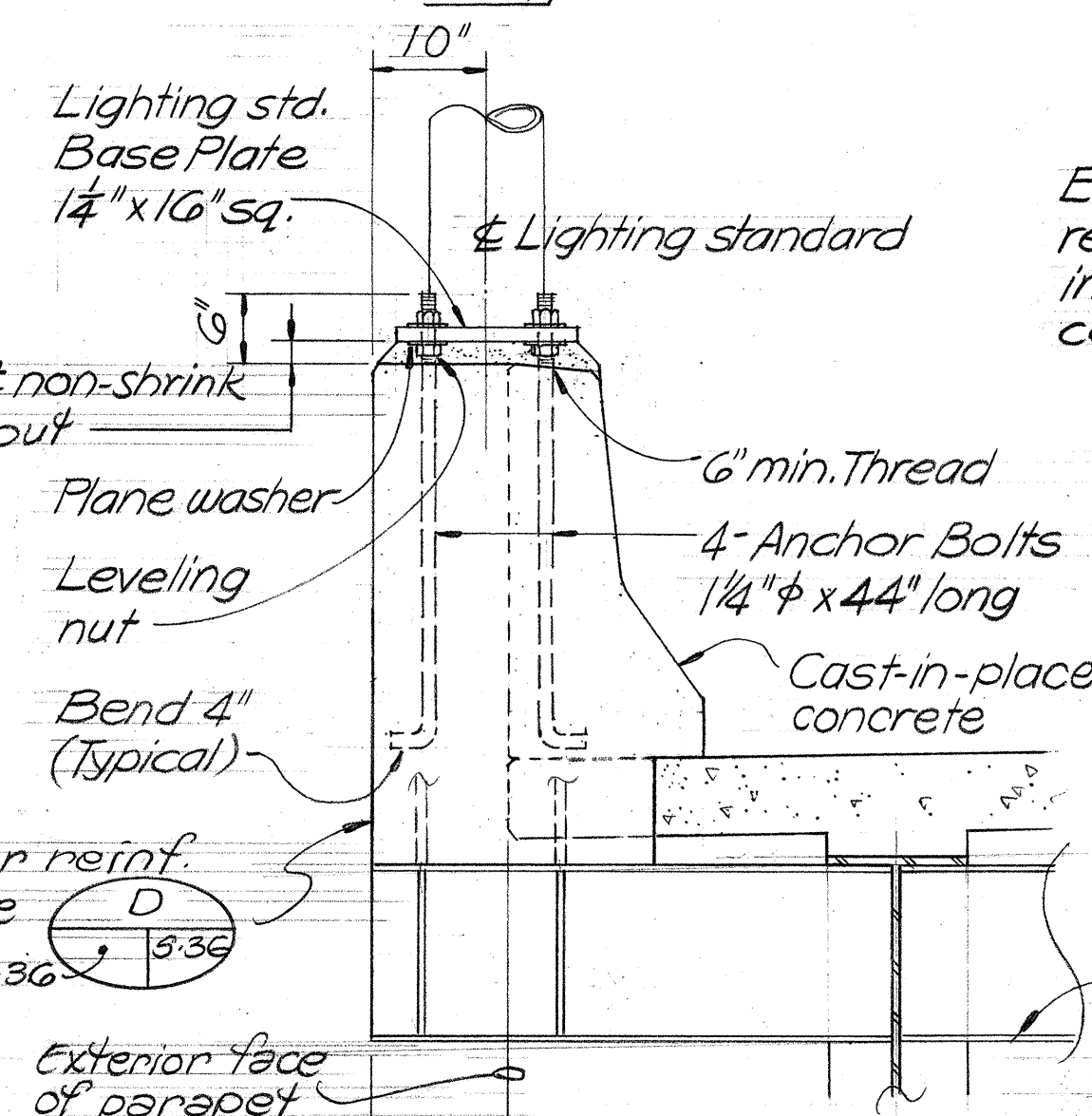


PARAPET LIGHTING STANDARD REINF.

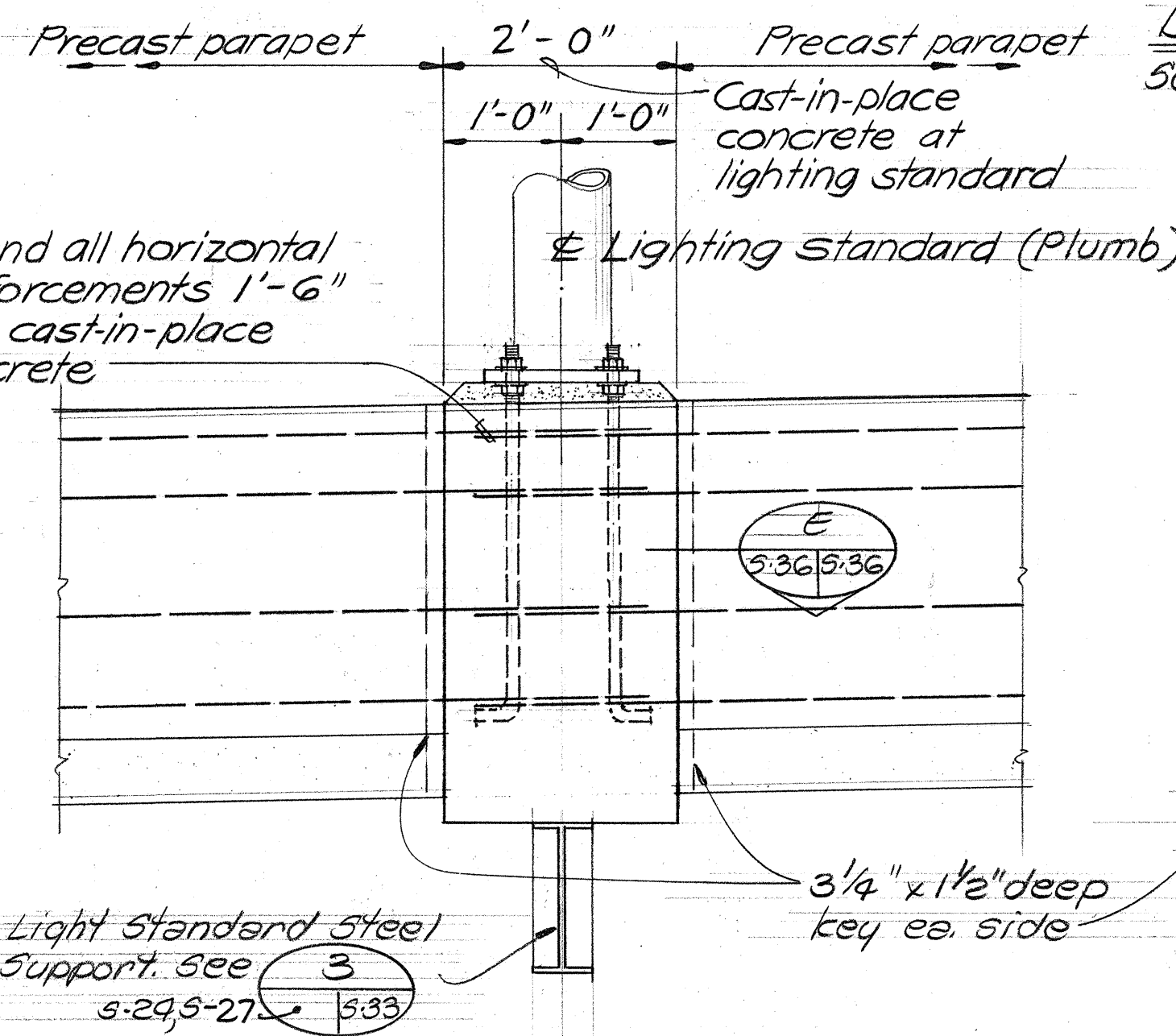
PRECAST CONCRETE PARAPET DETAIL
Scale: As Noted



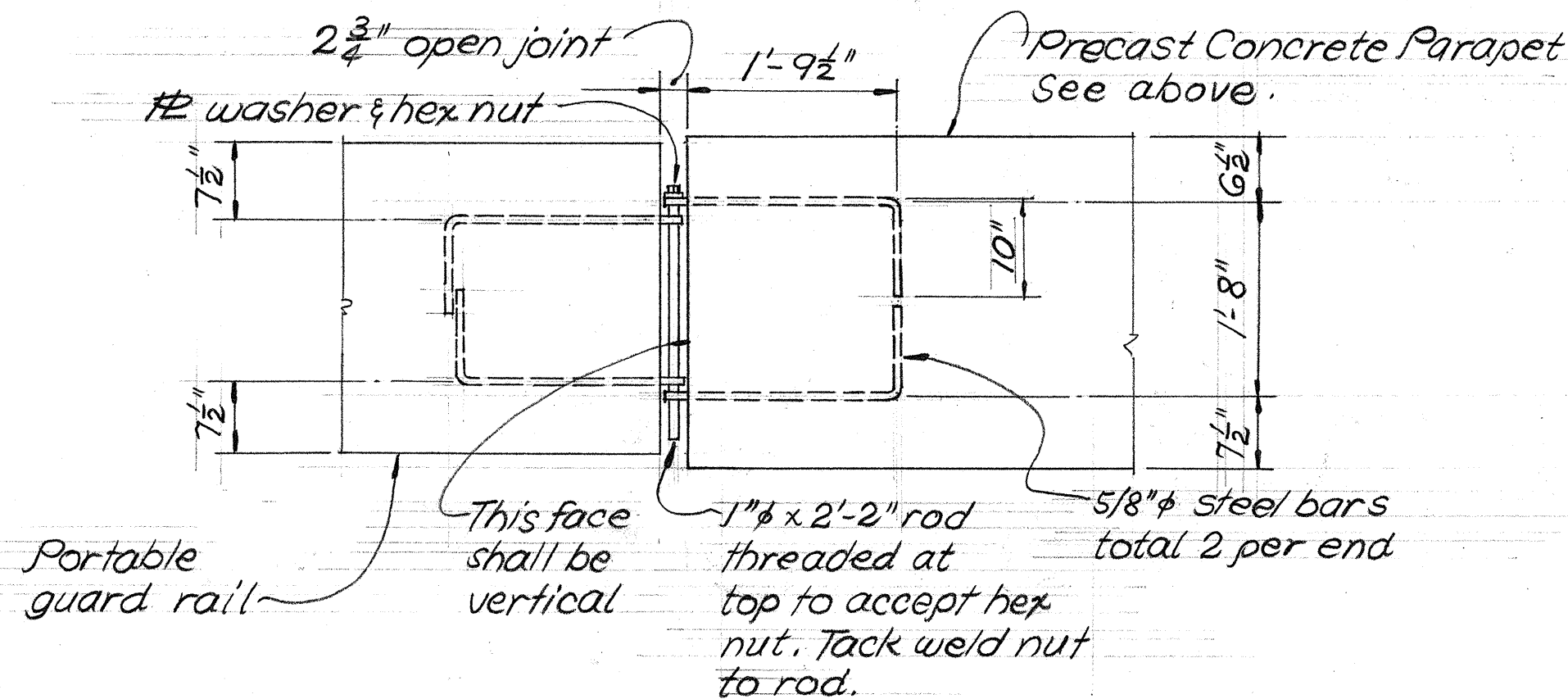
PARAPET ANCHORAGE DETAIL
Scale: 3/4" = 1'-0"



PARAPET LIGHTING STANDARD DETAIL
Scale: 3/4" = 1'-0"

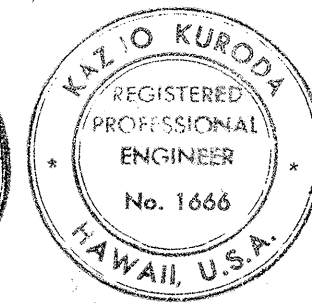
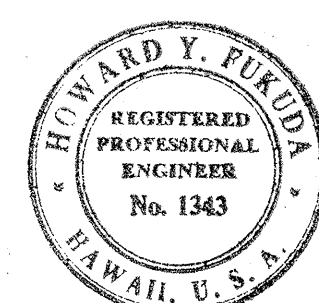


NOTE:
Cast of parapet anchors, non-shrink grout & welding of attachments to be incidental to precast concrete parapet.



DETAIL
Scale: 3/4" = 1'-0"

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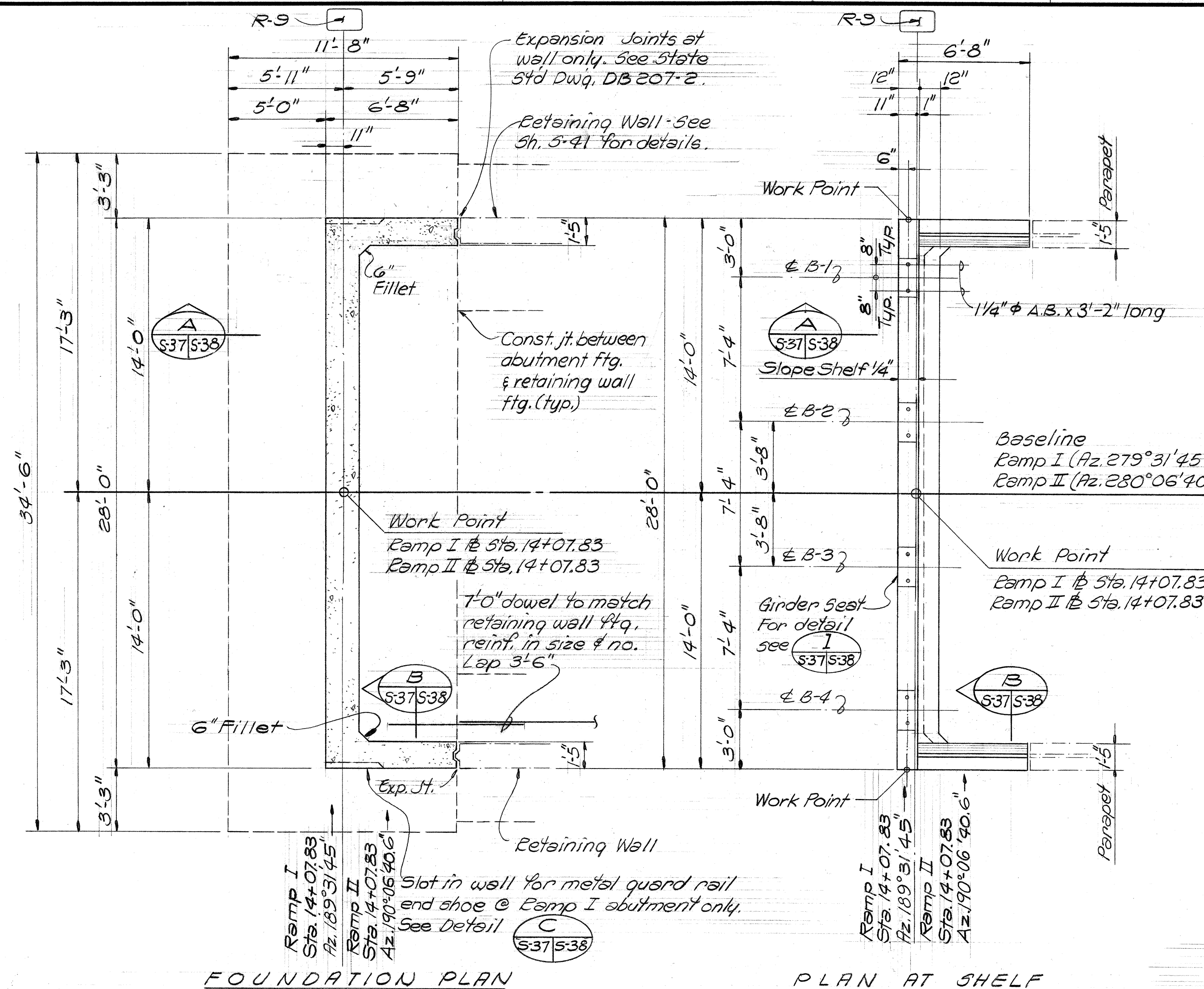
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**TEMPORARY RAMPS
PRECAST PARAPET DETAILS**

KEEHI INTERCHANGE
F.A.I. PROJ. NO. I-HI-1 (130):17

Scale: As shown Date: Aug. 16, 1976
SHEET NO. S-36 OF 42 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-H-1 (130) 117	1976	134	174

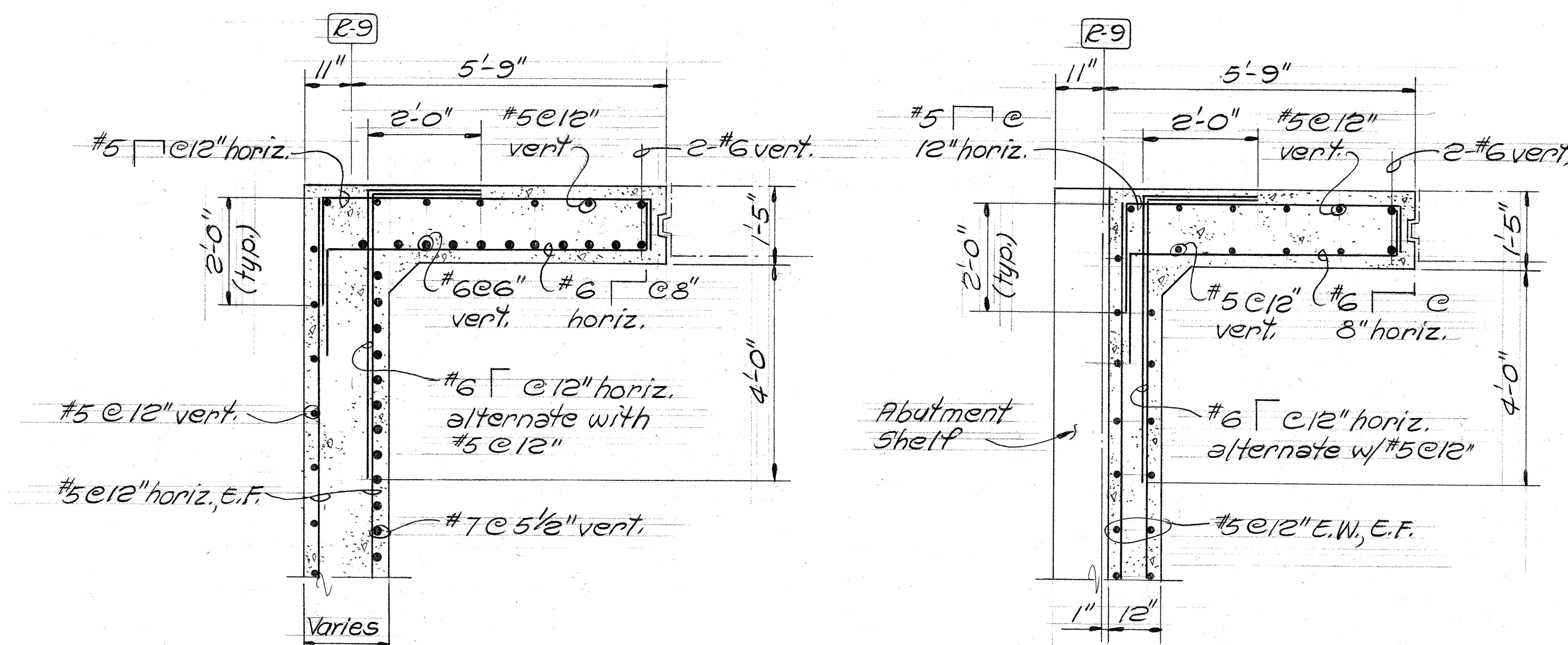


FOUNDATION PLAN

PLAN AT SHELF

ABUTMENT PLANS

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



SECTION A

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

SECTION B

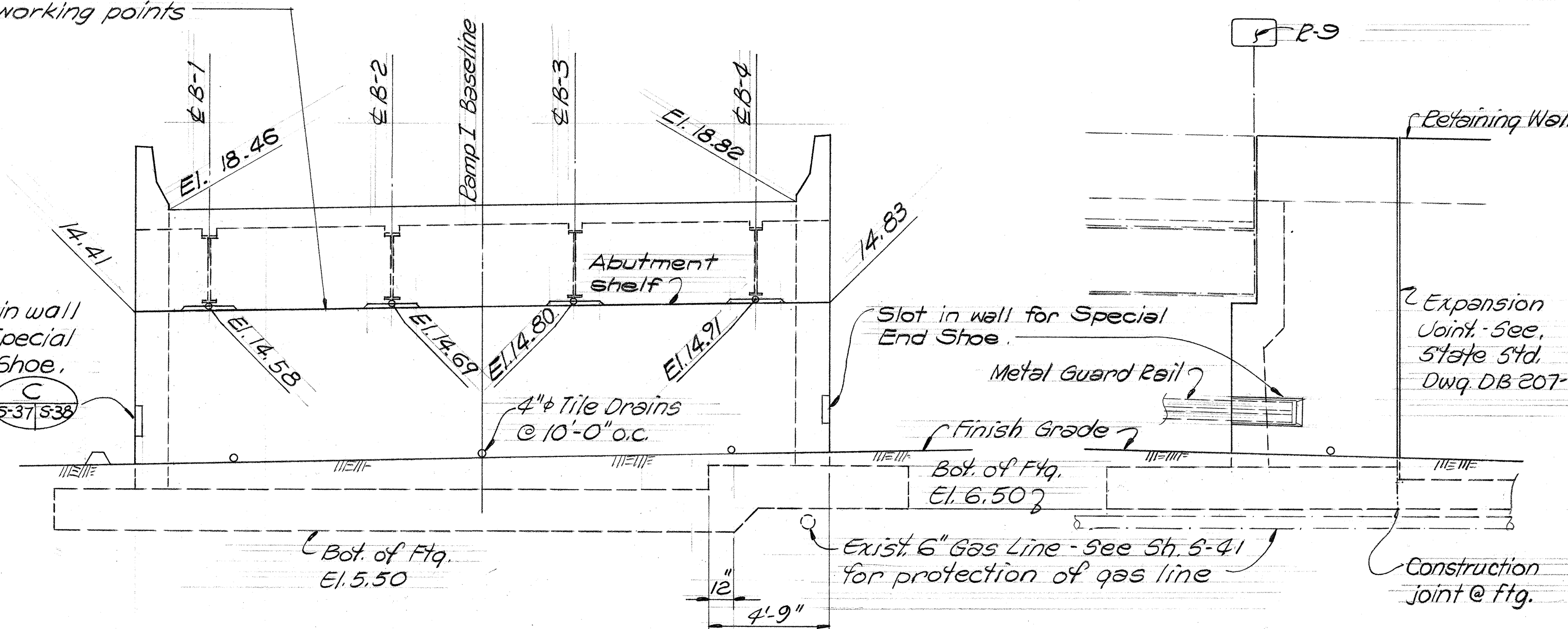
Scale: 1/2" = 1'-0"

Straight line slope for top of abutment shelf between working points

Slot in wall for Special End Shoe. See C

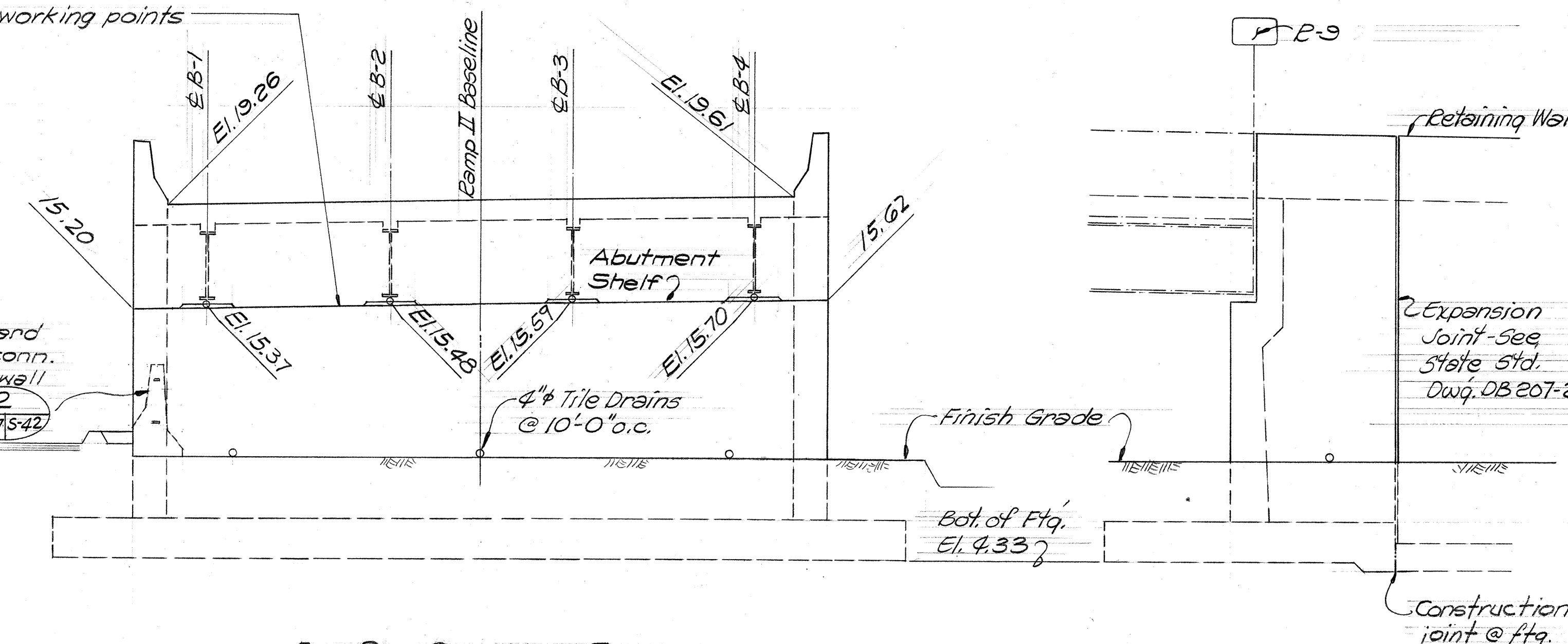
Straight line slope for top of abutment shelf between working points

Relocated Guard Rail Barrier conn. to Abutment wall. See Detail 2



FRONT SIDE RAMP I ABUTMENT ELEVATIONS

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

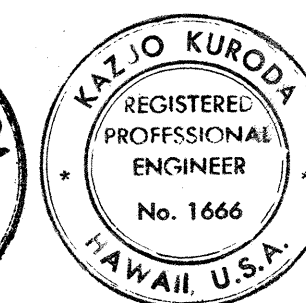
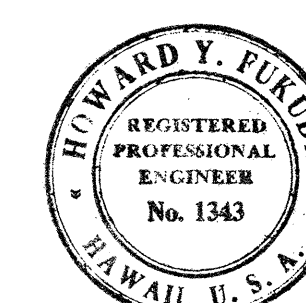


FRONT SIDE RAMP II ABUTMENT ELEVATIONS

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

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GASCO, INC. DATE

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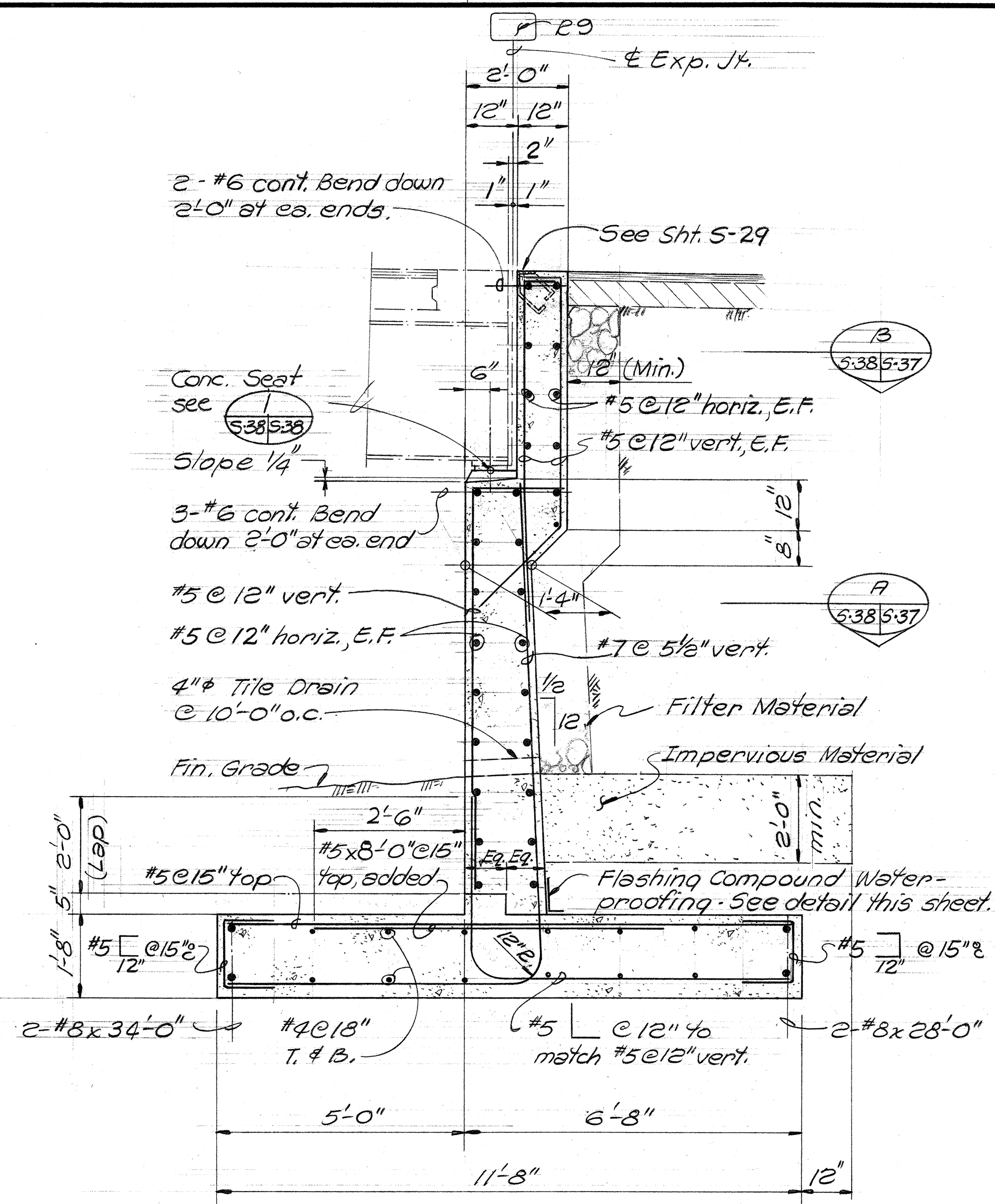
TEMPORARY RAMPS
ABUTMENT DETAILS

KEEHI INTERCHANGE
FA-1, PROJ. No. 1-H-1 (130) 117

Scale: As Shown Date: Aug. 16, 1976

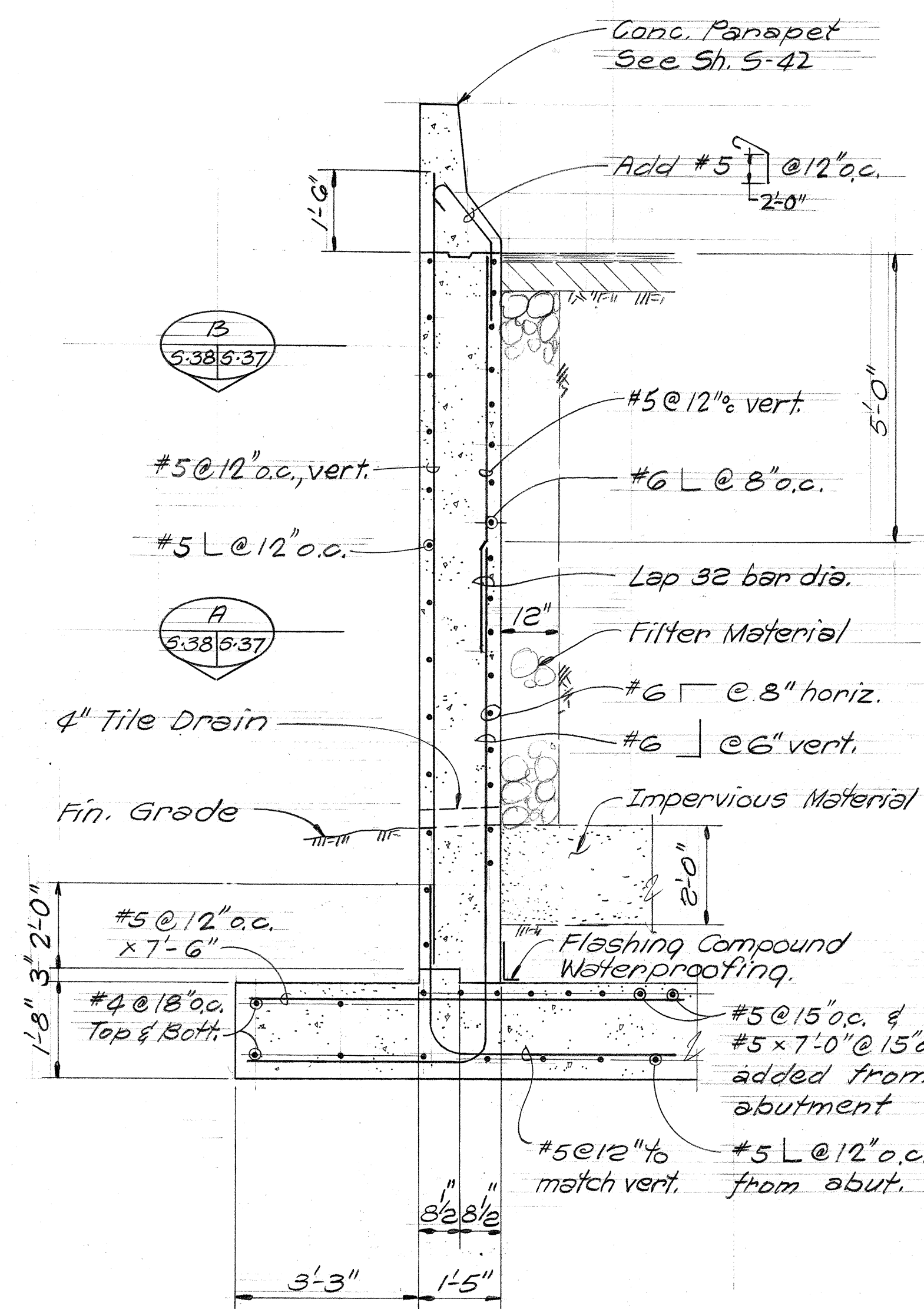
SHEET NO. 537 OF 42 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(30)17	1976	135	174



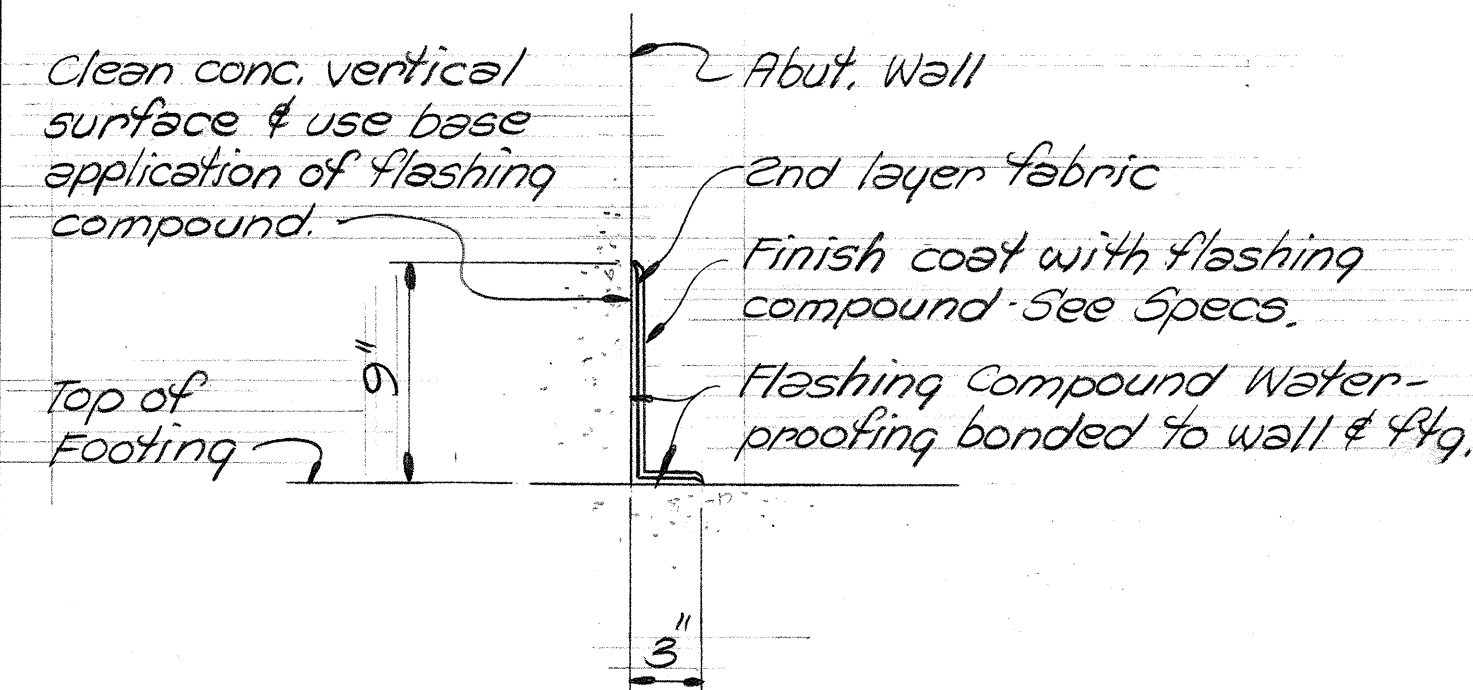
TYPICAL ABUTMENT SECTION

Scale: $\frac{1}{2}" = 1'-0"$



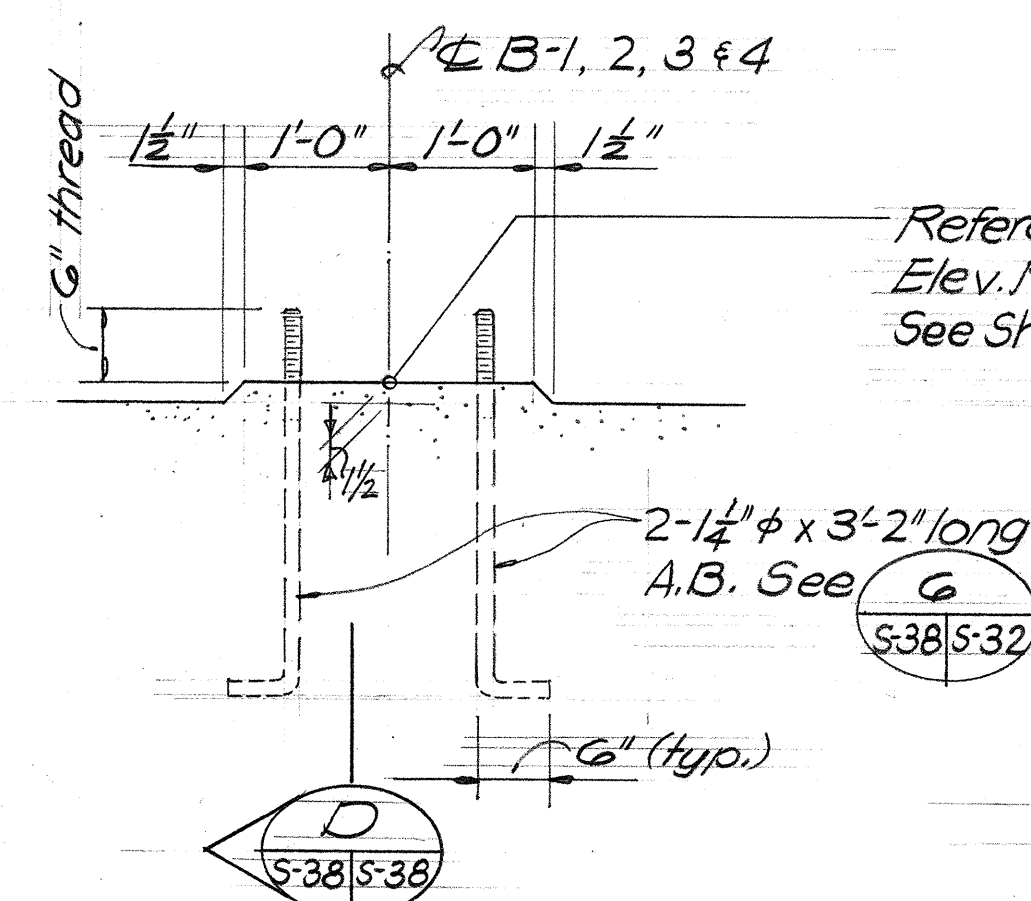
SECTION

Scale: $\frac{1}{2}" = 1'-0"$



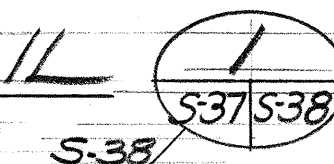
FLASHING COMPOUND
WATERPROOFING DETAIL

Scale: $1\frac{1}{2}" = 1'-0"$



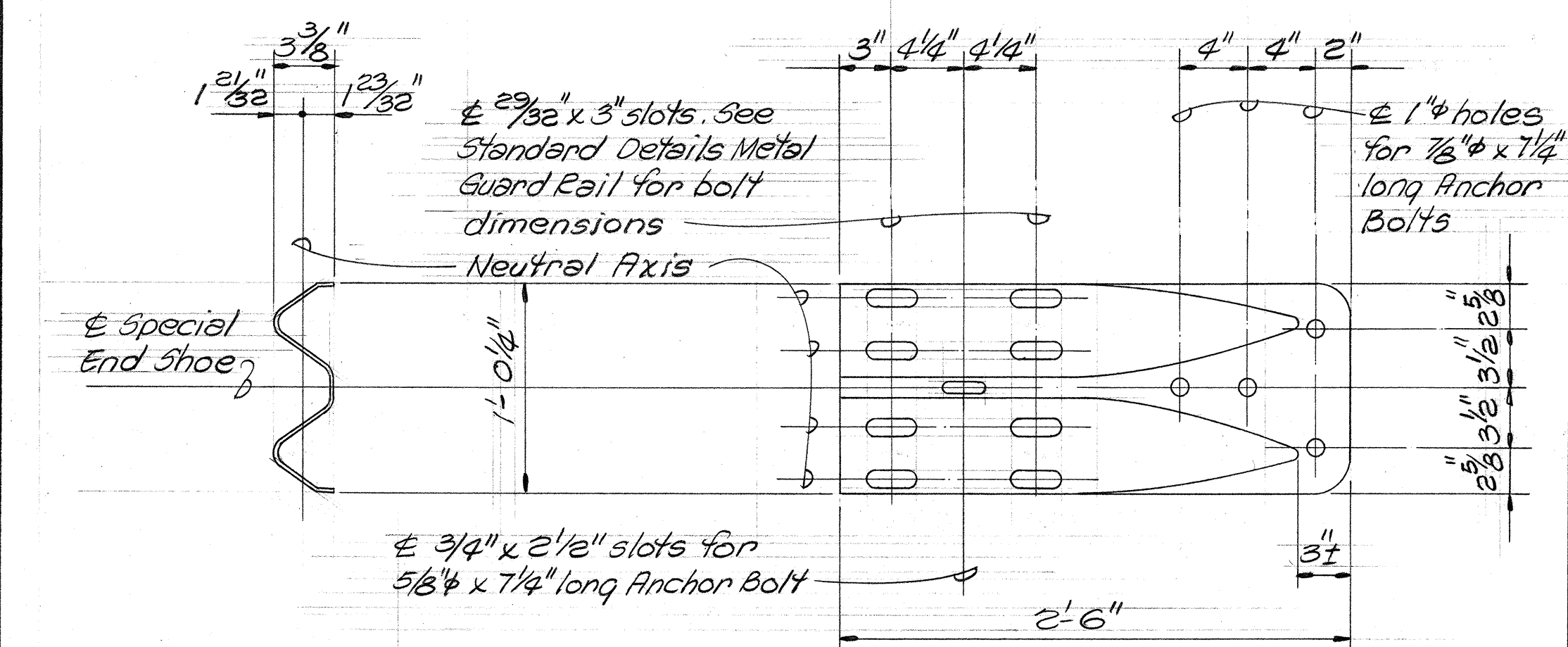
SECTION D

S-38 S-38



SEAT DETAIL

Scale: $3/4" = 1'-0"$



SECTION

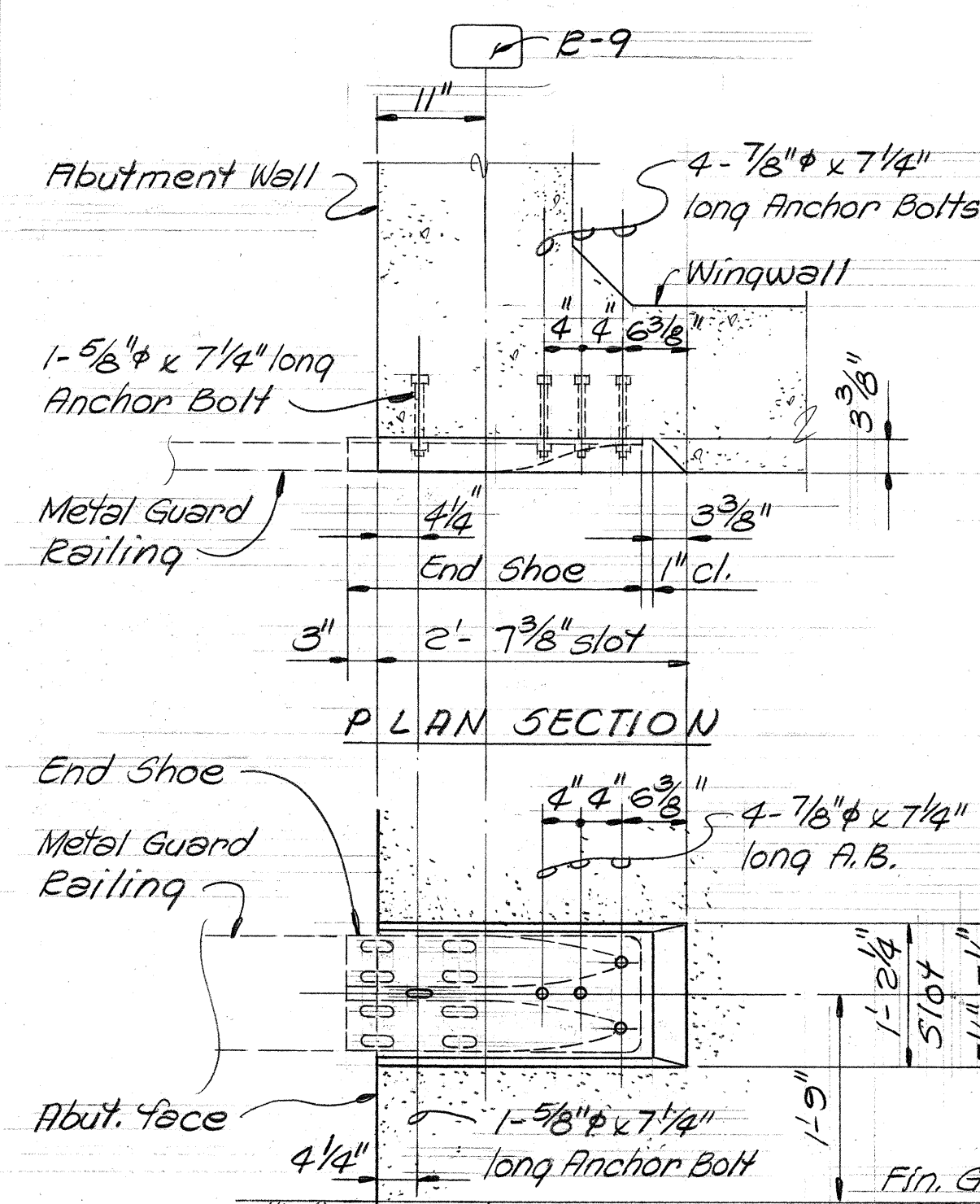
ELEVATION

SPECIAL END SHOE DETAILS

Scale: $1\frac{1}{2}" = 1'-0"$

NOTES

1. All anchor bolts shall be high strength bolts conforming to the requirements of ASTM A325.
2. All shoe assembly including anchor bolts, nuts & washers shall be galvanized.
3. Special End Shoe shall be fabricated from 10 ga. steel conforming to the requirements of AASHTO 180.
4. First 25'-0" of guard rail adjoining Special End Shoe shall be galvanized steel.
5. Anchor bolt length given from under bolt head.

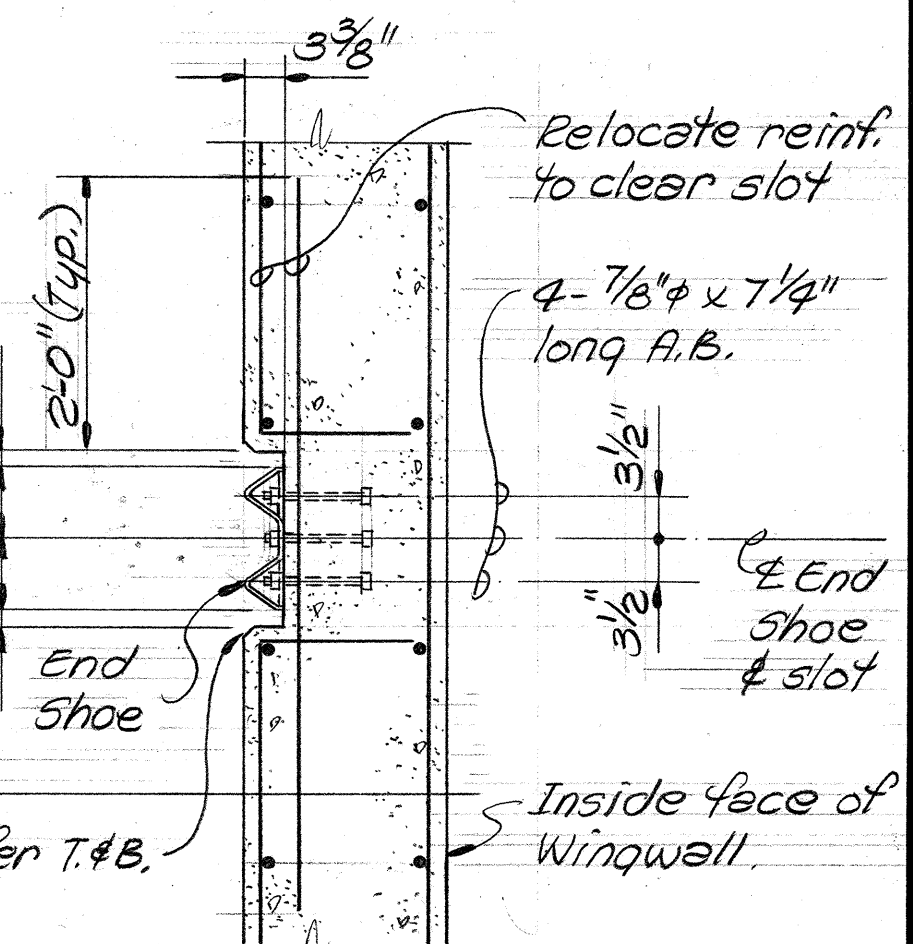


PLAN SECTION

ELEVATION

SLOT IN ABUTMENT WALL FOR SPECIAL END SHOE

Scale: $3/4" = 1'-0"$



SECTION

S-39

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TEMPORARY RAMPS
ABUTMENT DETAILS

KEEHI INTERCHANGE

REC'D INTERCHANGE
F.A.I. PROJ. NO. 1-HI-1 (130)117

Scale: As Shown Date: Aug. 16, 1976

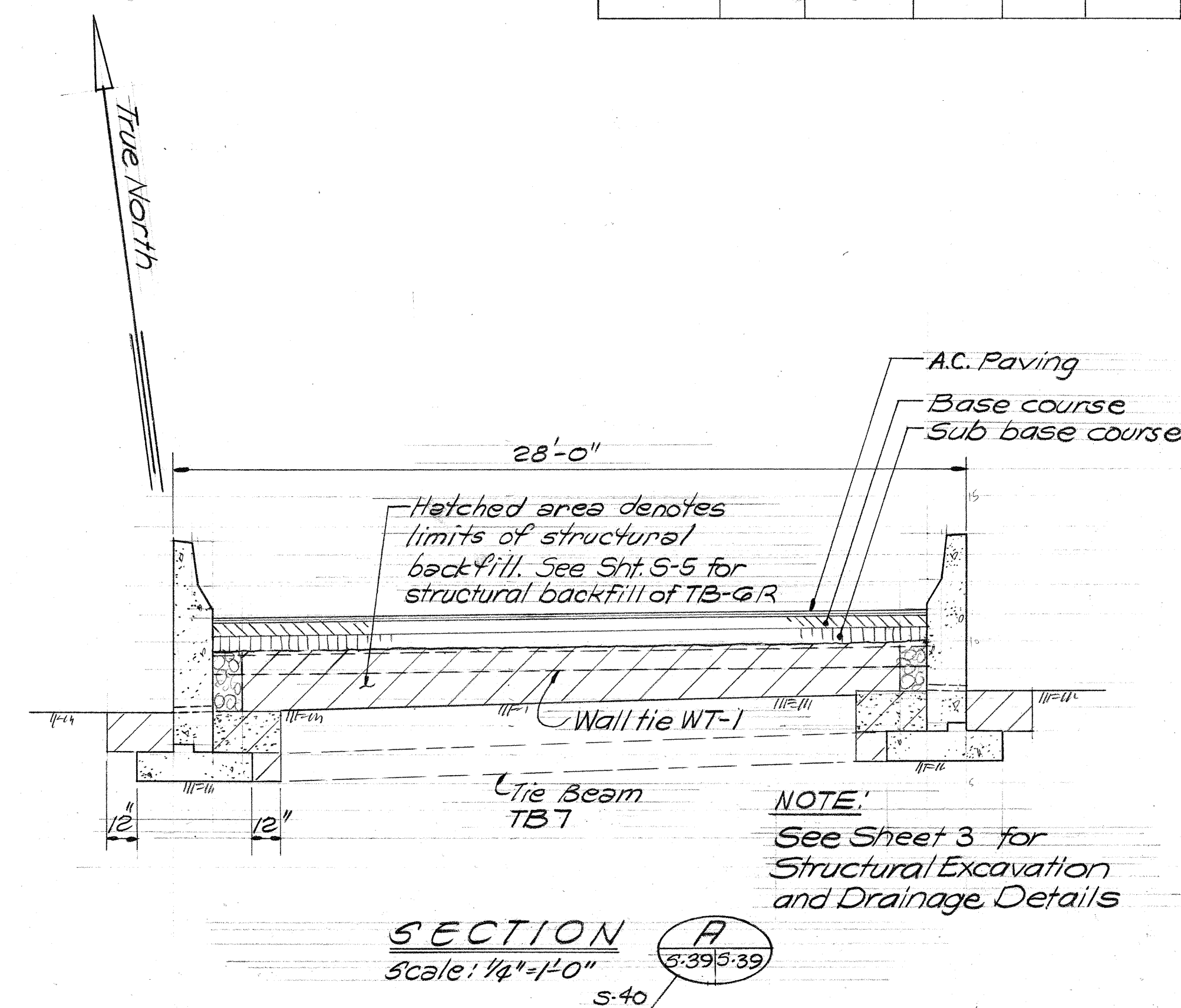
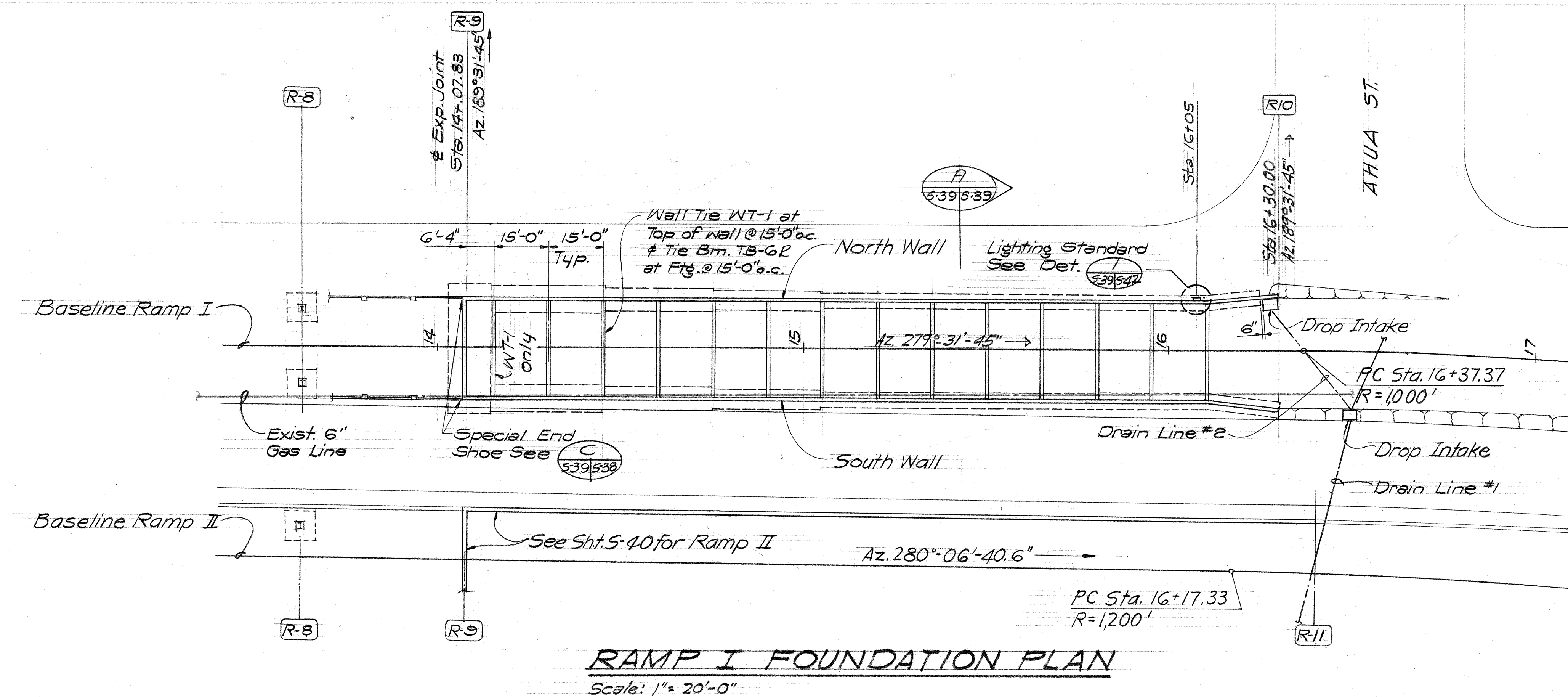
SHEET No. S-38 OF 42 SHEETS



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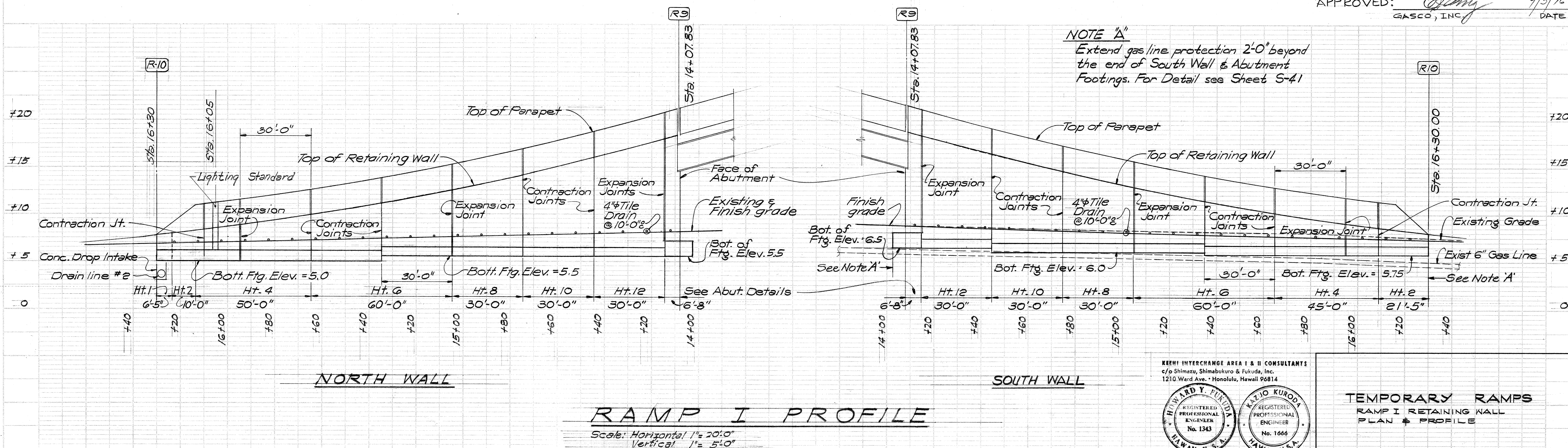


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	111-1(130)17	1976	136	174

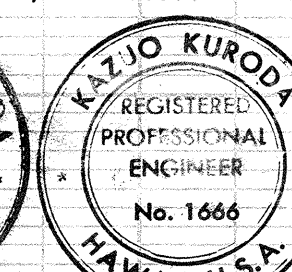
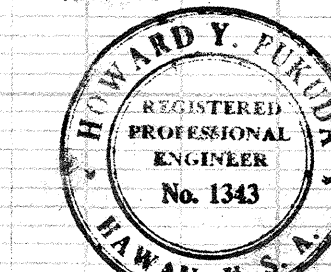


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GASCO, INC. DATE

NOTE 'A'
Extend gas line protection 2'-0" beyond the end of South Wall & Abutment Footings. For Detail see Sheet S-41



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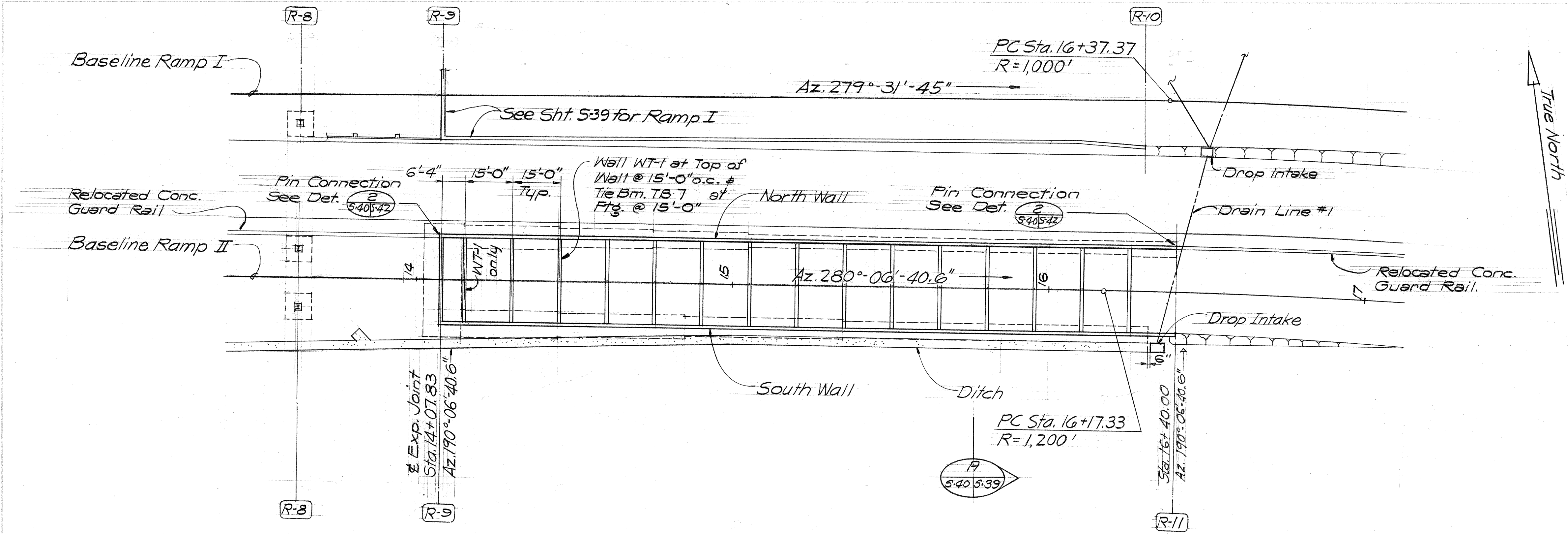
TEMPORARY RAMPS
RAMP I RETAINING WALL
PLAN & PROFILE

KESHI INTERCHANGE
F.A.I. PROJ. No. I. H-1 (130)17

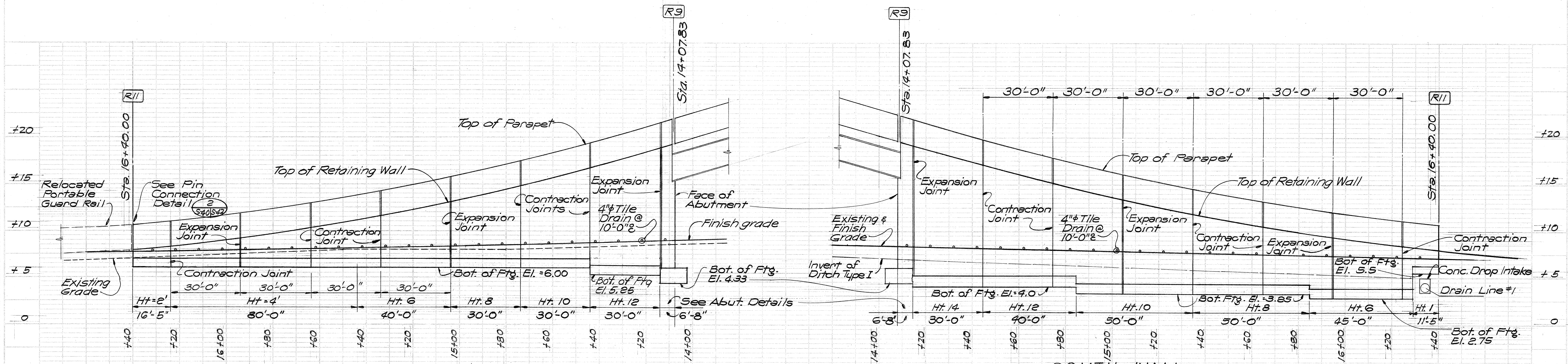
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SHEET NO. 39 OF 42 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HI-1(130)17	1976	137	174

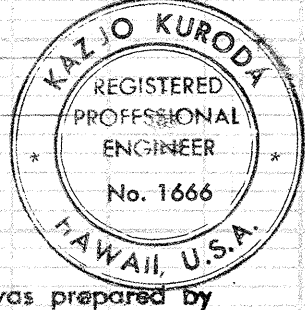
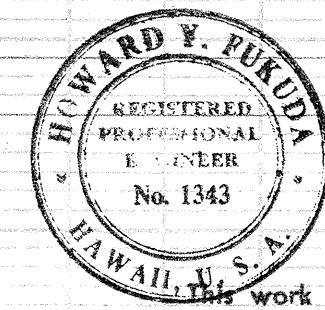


RAMP II FOUNDATION PLAN
Scale: 1" = 20'-0"



RAMP II PROFILE
Scale: Horizontal 1" = 20'-0"
Vertical 1" = 5'-0"

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TEMPORARY RAMPS
RAMP II RETAINING WALL
PLAN & PROFILE

KEEHI INTERCHANGE
F.A.I. PROJ. NO. 1. HI-1 (130) 17

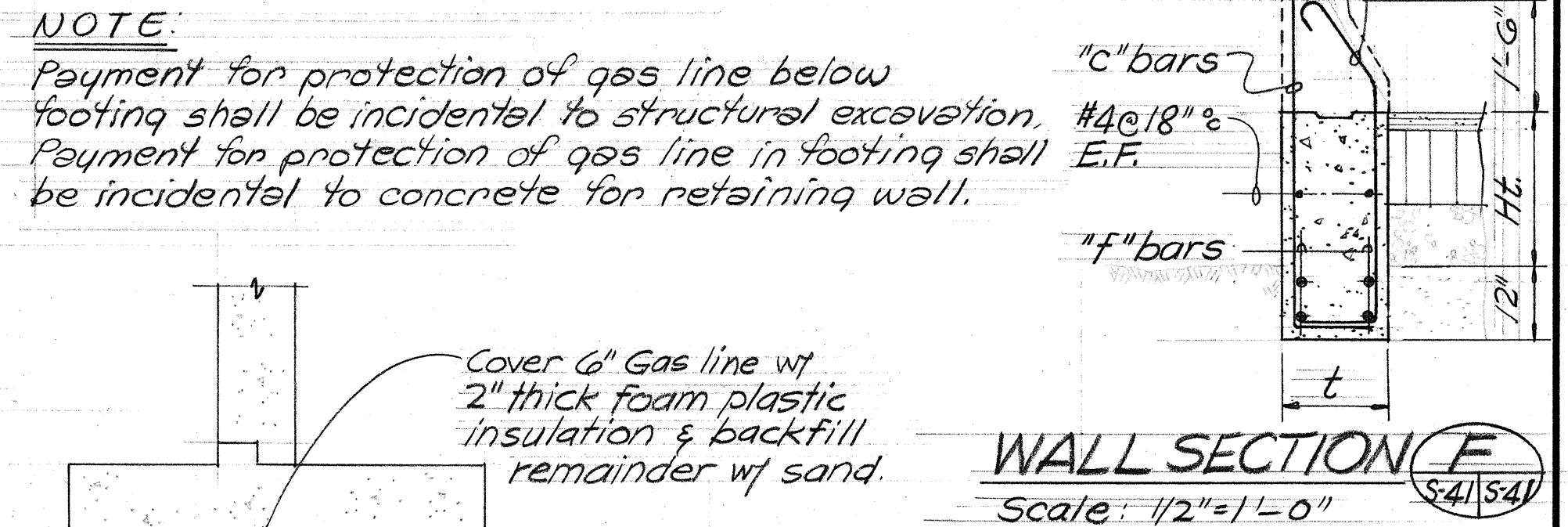
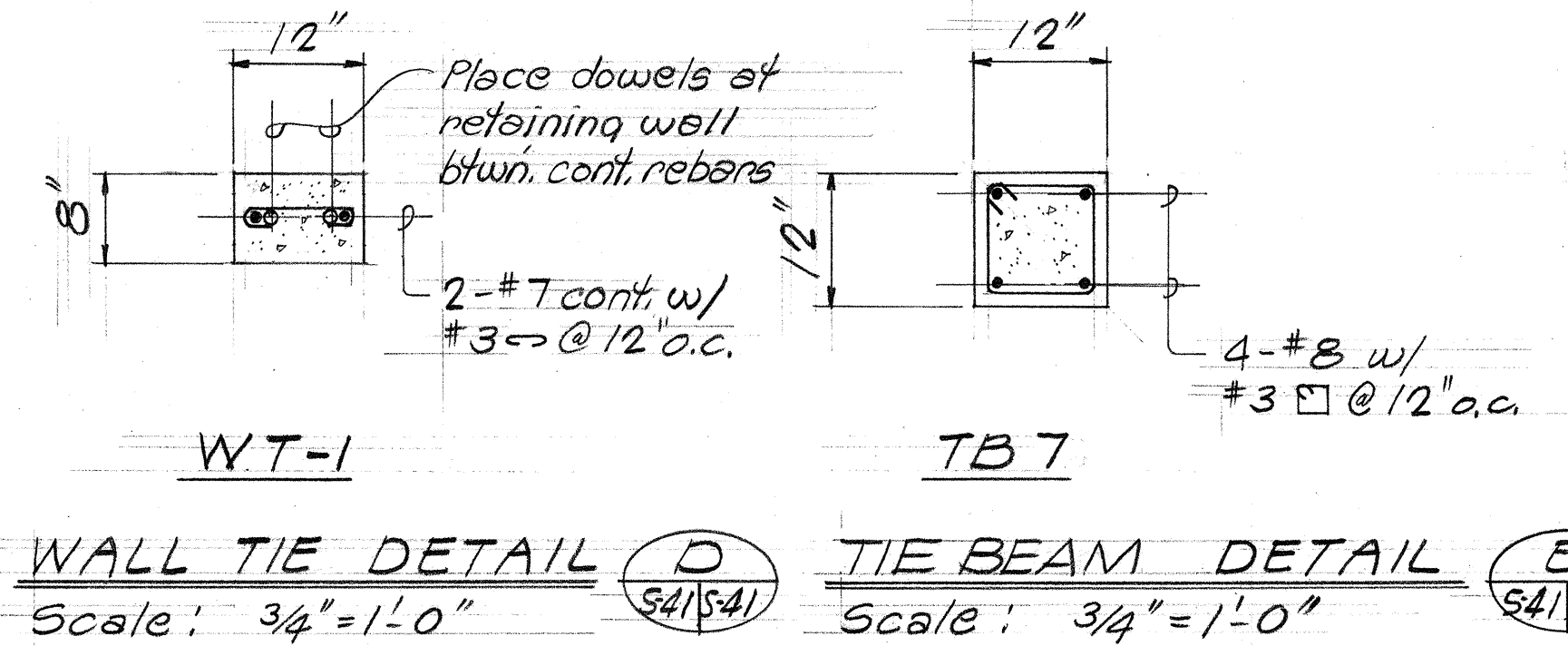
Scale: As Shown Date: Aug. 16, 1976

SHEET NO. 640 OF 42 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1(130)17	1976	138	174

SCHEDULE OF DIMENSIONS & REINFORCING

Maximum Ht.	14'	12'	10'	8'	6'	4'	2'	1'
t	17"	14"	12"	12"	1'-5"	1'-5"	1'-5"	1'-5"
L	8'-6"	7'-6"	6'-3"	5'-6"	4'-0"	4'-0"	4'-0"	1'-5"
a	3'-3"	2'-9"	2'-6"	2'-0"	1'-3"	12"	12"	—
b	3'-10"	3'-7"	2'-9"	2'-6"	1'-4"	1'-7"	1'-7"	—
c	17"	14"	12"	12"	12"	12"	12"	—
"a" bars	#5@12"	#5@12"	#5@12"	#5@12"	—	—	—	—
"b" bars	#7@6"	#6@6"	#5@6"	#5@12"	#5@12"	#5@12"	#5@12"	#5@12"
"c" bars	#4@10"	#4@12"	#4@12"	#4@12"	#4@12"	#4@12"	#4@12"	#4@12"
"d" bars	#5@16"	#5@17"	#4@16"	#4@12"	#4@14"	#4@14"	#4@14"	—
"e" bars	#5@16"	#5@17"	#4@16"	—	—	—	—	—
"f" bars	2-#6 cont.	2-#6 cont.	2-#6 cont.	2-#5 cont.	2-#5 cont.	2-#5 cont.	2-#5 cont.	2-#5 cont.
Wall Sect.	A/S-41	A/S-41	A/S-41	A/S-41	B/S-41	B/S-41	C/S-41	F/S-41



- NOTE:
- Payment for protection of gas line below footing shall be incidental to structural excavation.
 - Payment for protection of gas line in footing shall be incidental to concrete for retaining wall.

- NOTES
- Concrete for footings & walls to be Class "A".
 - Reinforcing to be ASTM A615 Grade 40.

CONSTRUCTION SEQUENCE FOR RETAINING WALLS

- Pour wall footings & Tie Bm. TB.7.
- Pour stem to bottom of parapet.
- Fill with structural backfill to bottom of wall tie WT-1.
- Pour Wall Tie WT-1.
- Complete balance of backfilling.

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GASCO, INC. DATE

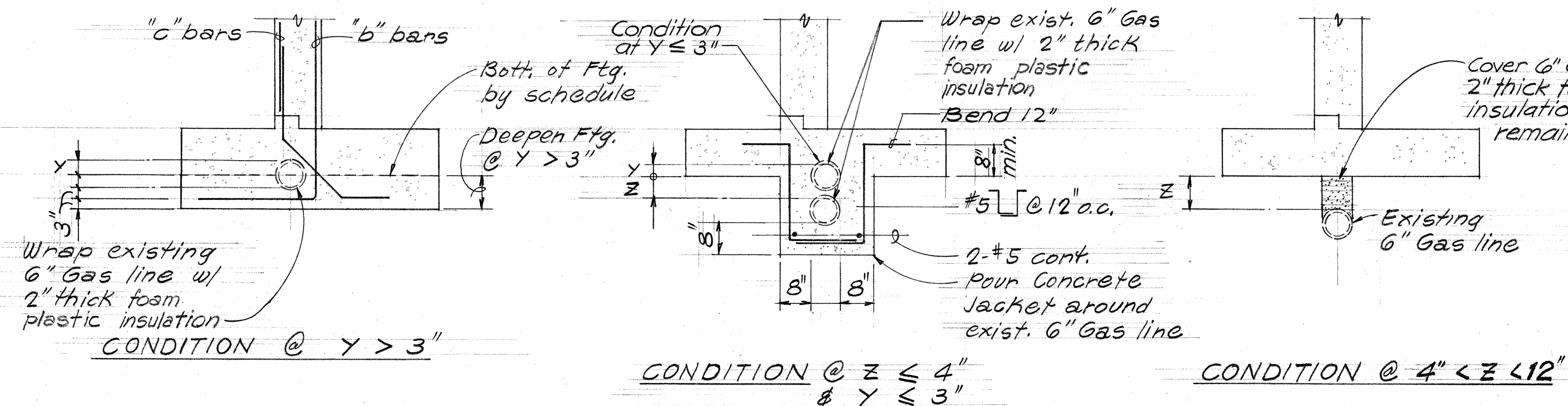
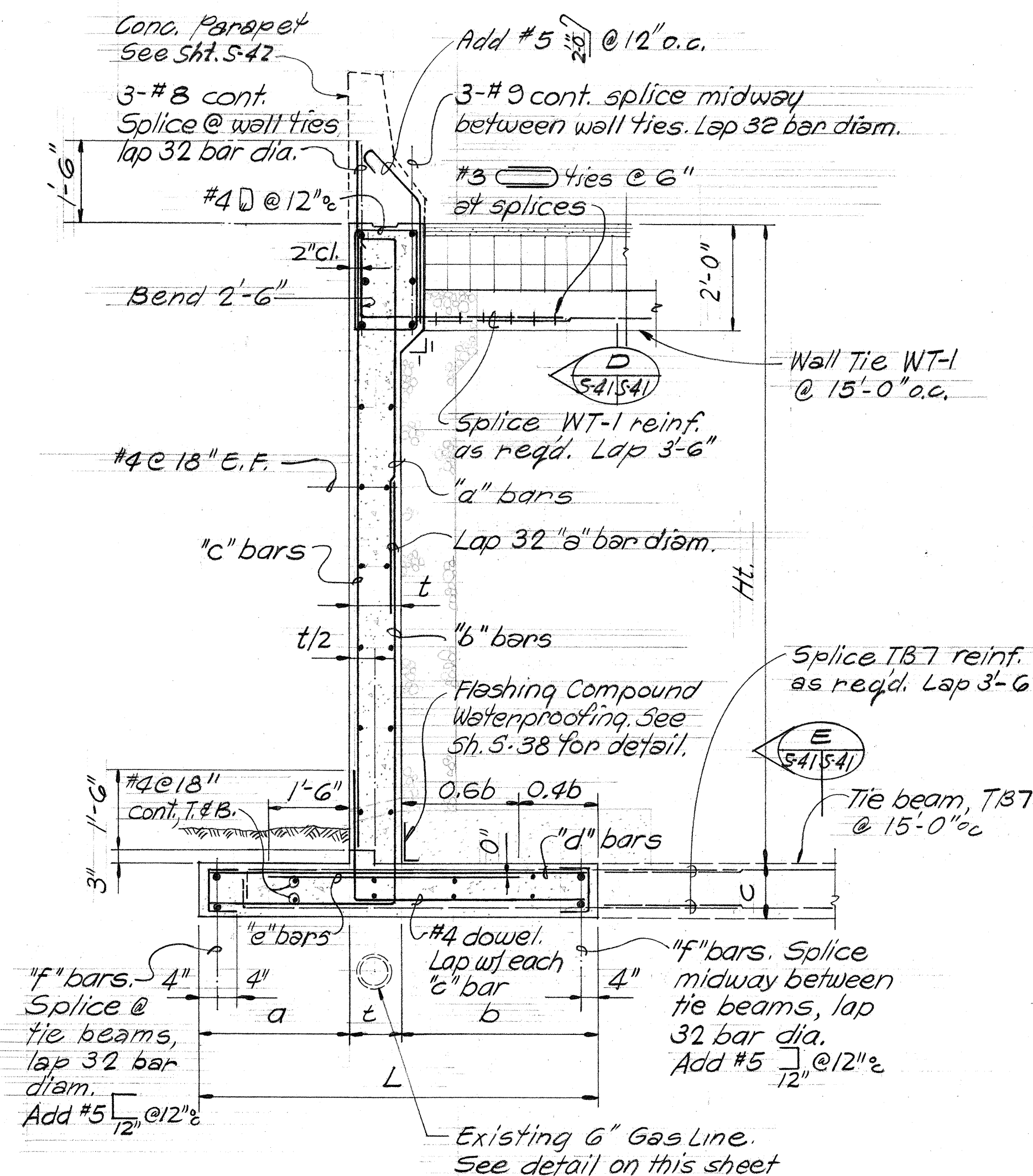
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TEMPORARY RAMPS
RETAINING WALL DETAILS

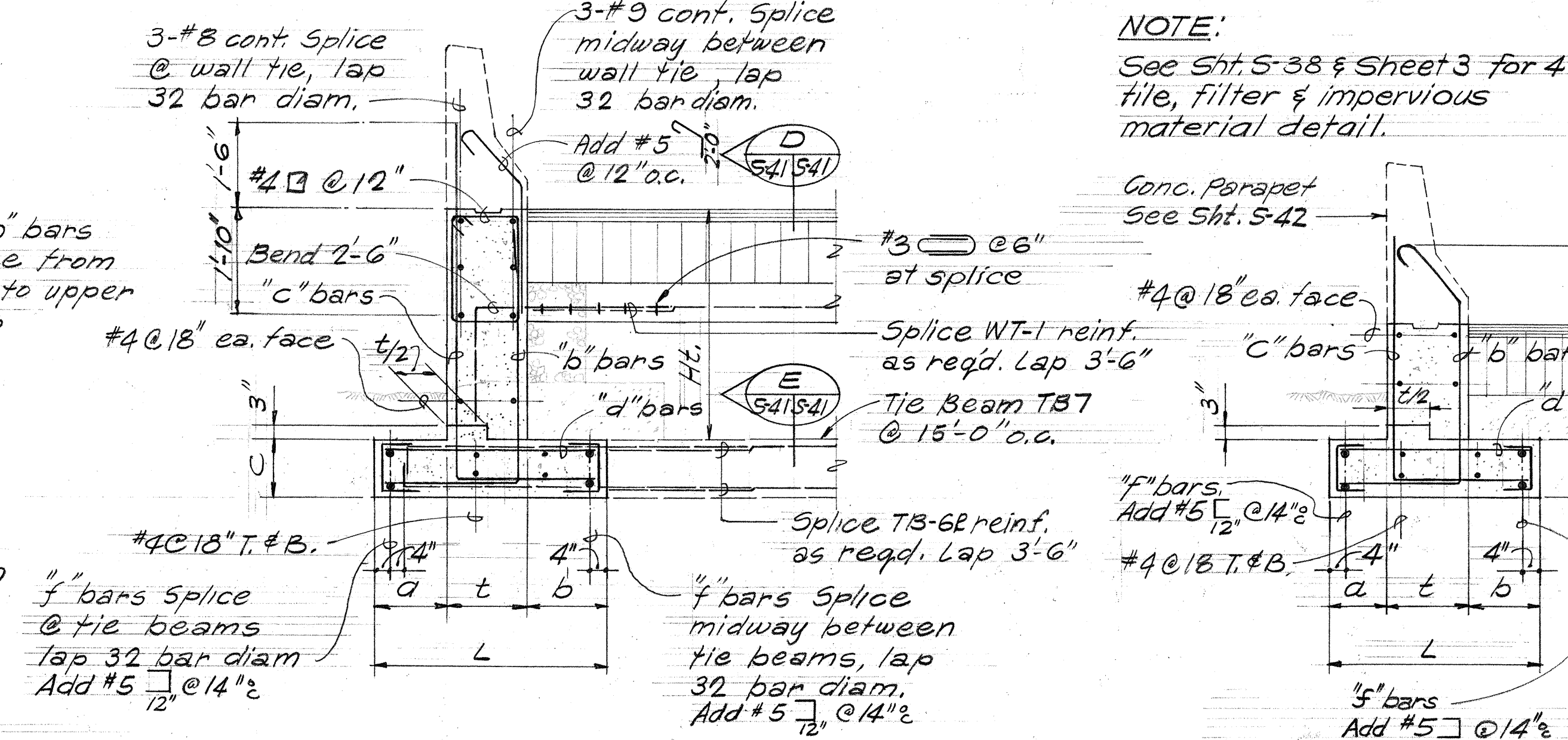
KEEHI INTERCHANGE
F.A.I. PROJ. NO. 1-HI-1(130)17

Scale: As shown Date: Aug. 16, 1976

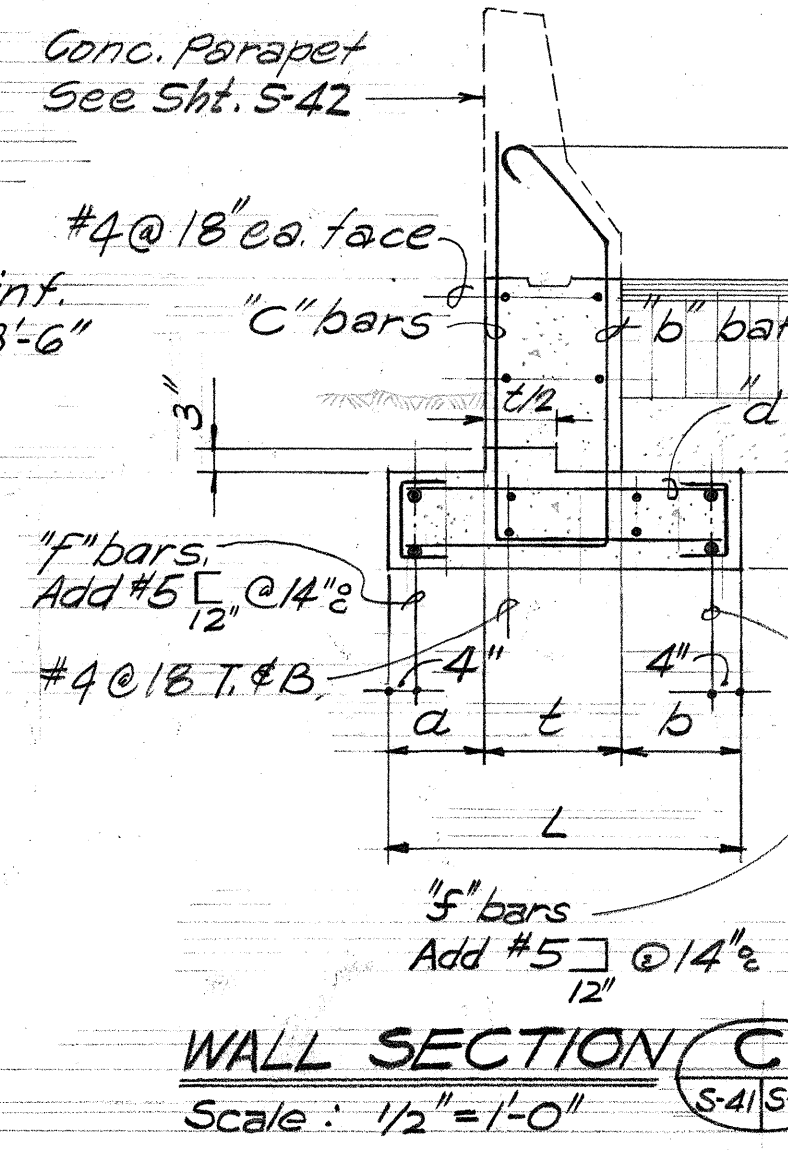
SHEET NO. 541 OF 42 SHEETS



FOOTING DETAIL AT EXISTING GAS LINE



- NOTE:
- See Sht. S-38 & Sheet 3 for 4" drain tile, filter & impervious material detail.

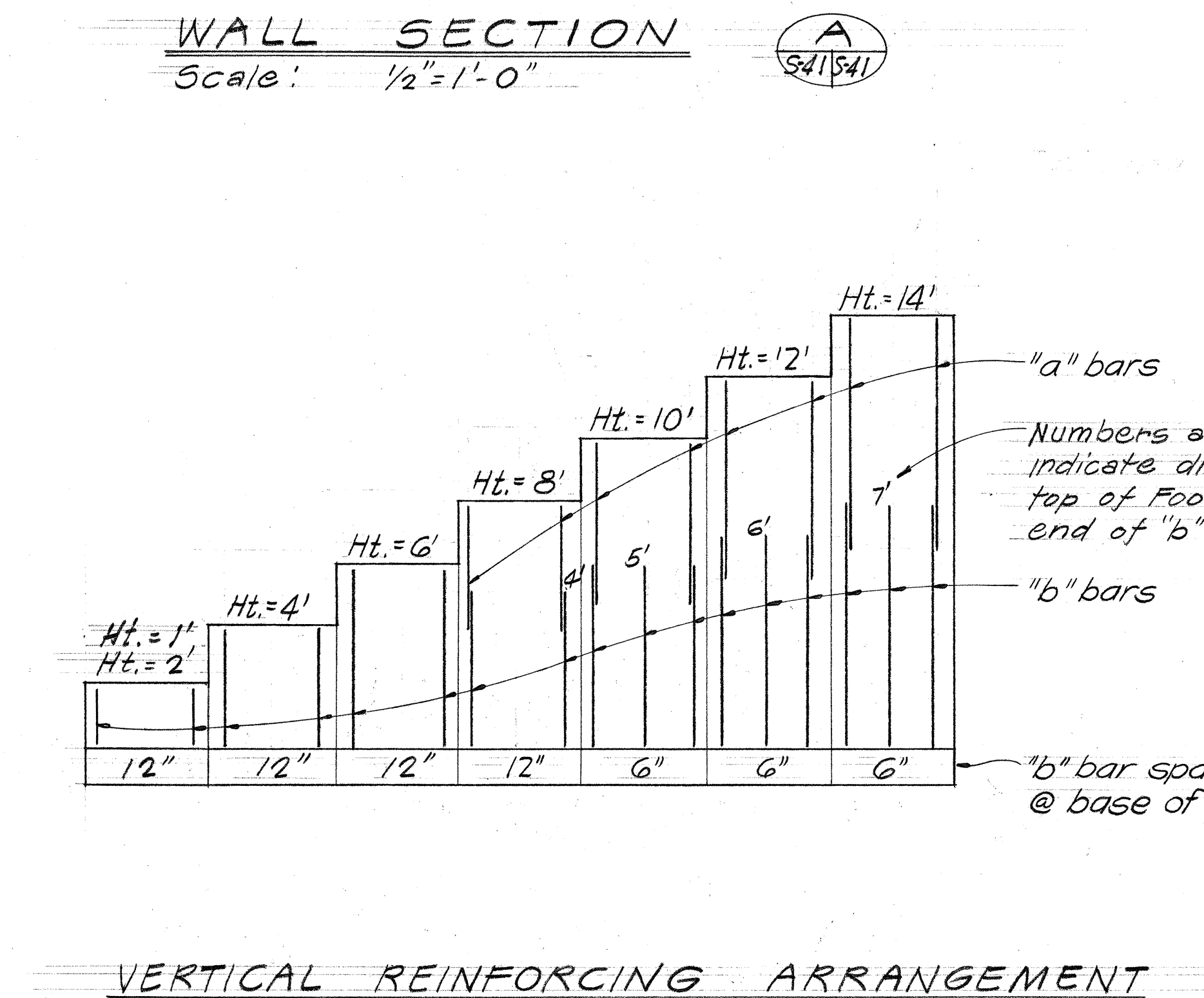


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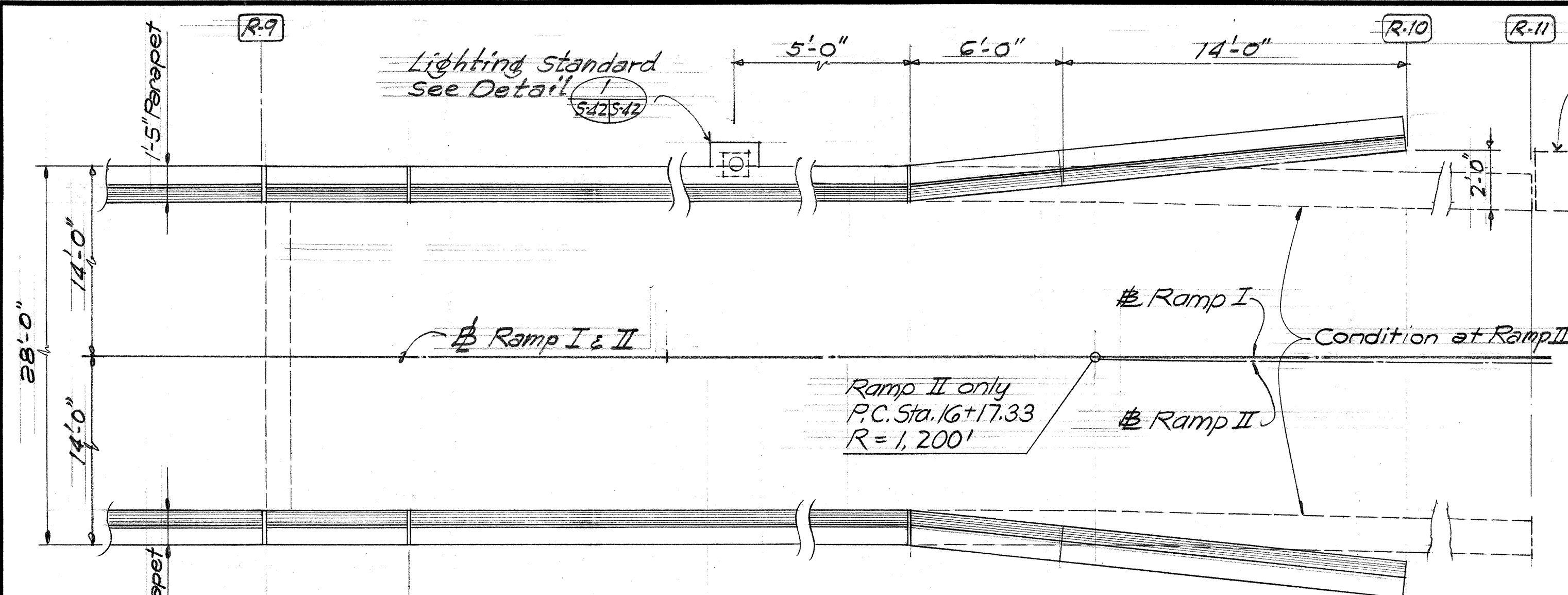
KEEHI INTERCHANGE
F.A.I. PROJ. NO. 1-HI-1(130)17

Scale: As shown Date: Aug. 16, 1976

SHEET NO. 541 OF 42 SHEETS

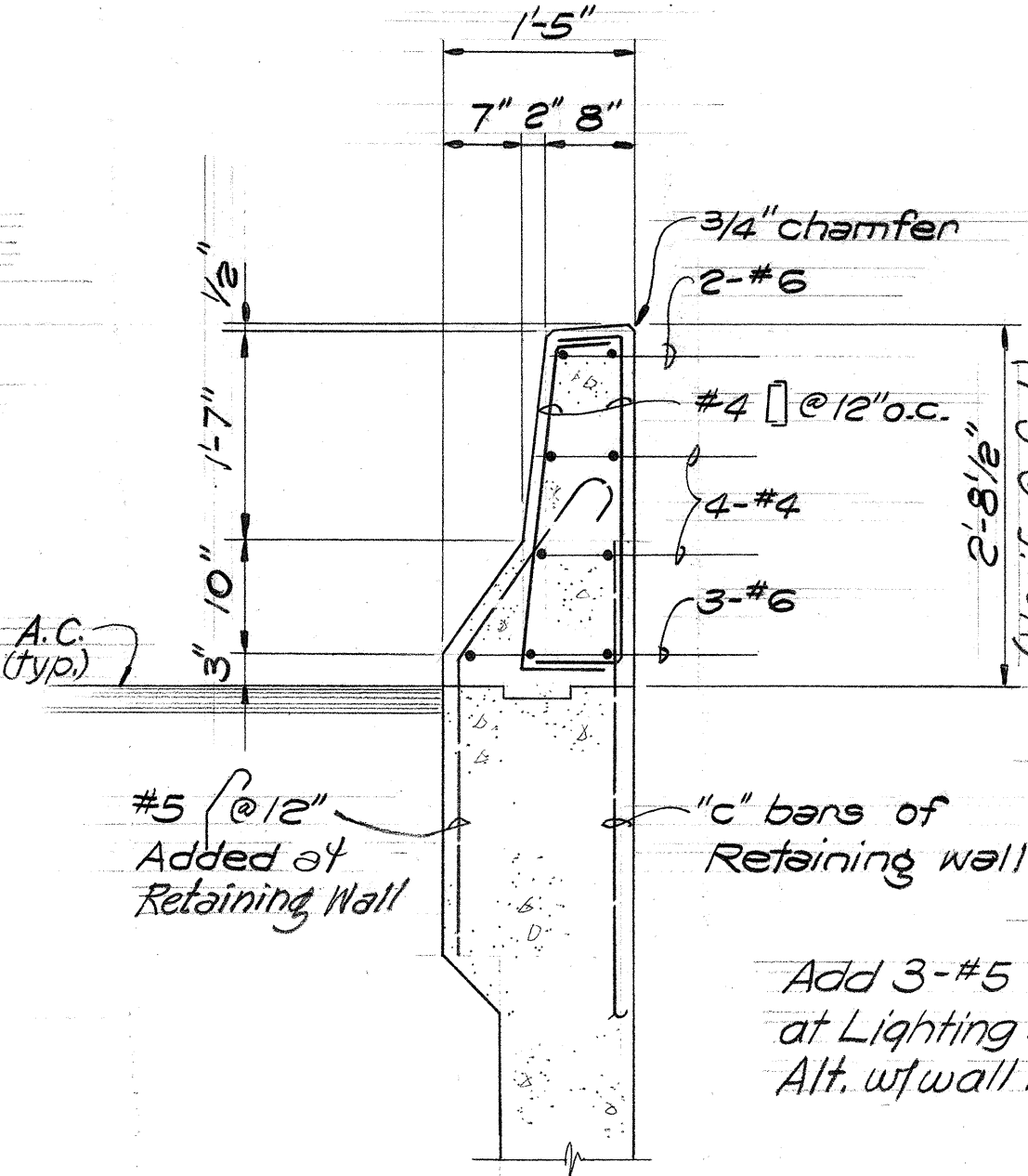


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1(30)17	1976	139	174



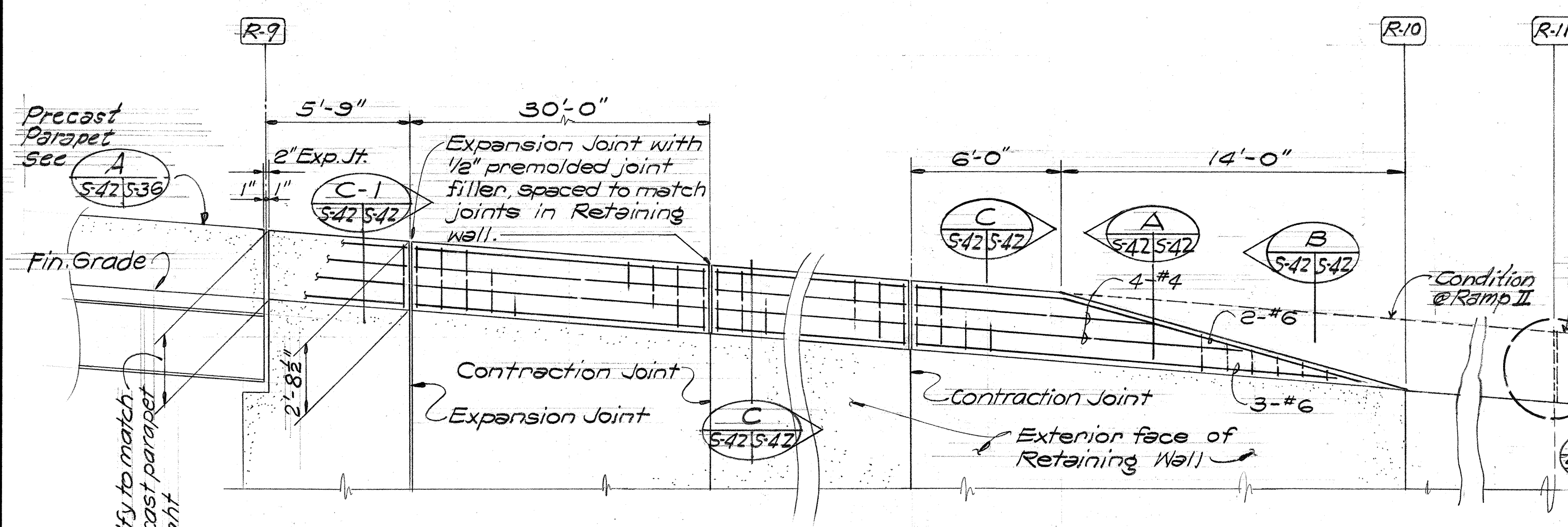
PARTIAL CONCRETE PARAPET PLAN
Scale: 1/4" = 1'-0"

DETAIL 1
Scale: 3/4" = 1'-0"
S-42 S-42

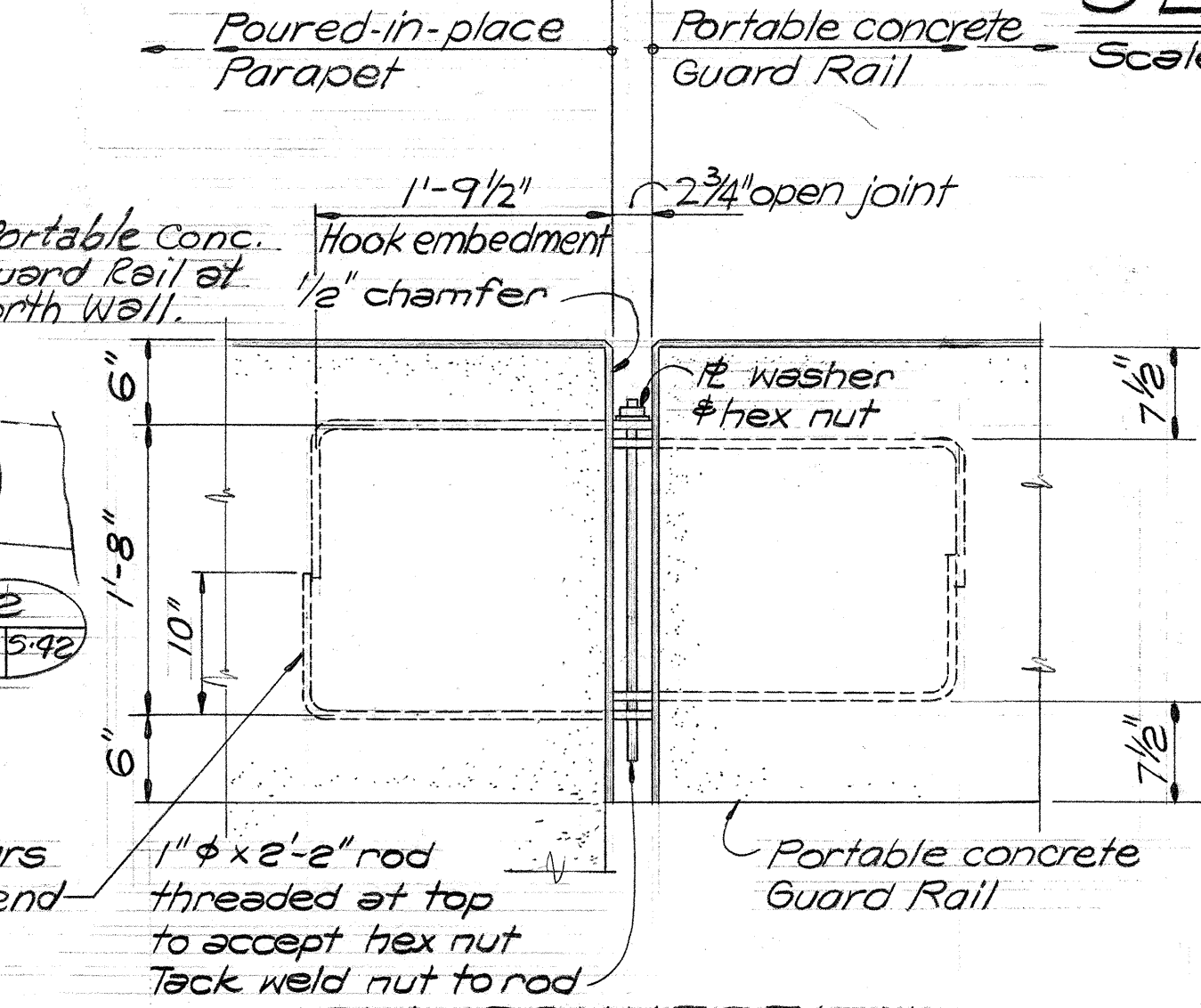


SECTION C
Scale: 3/4" = 1'-0"
S-42 S-42

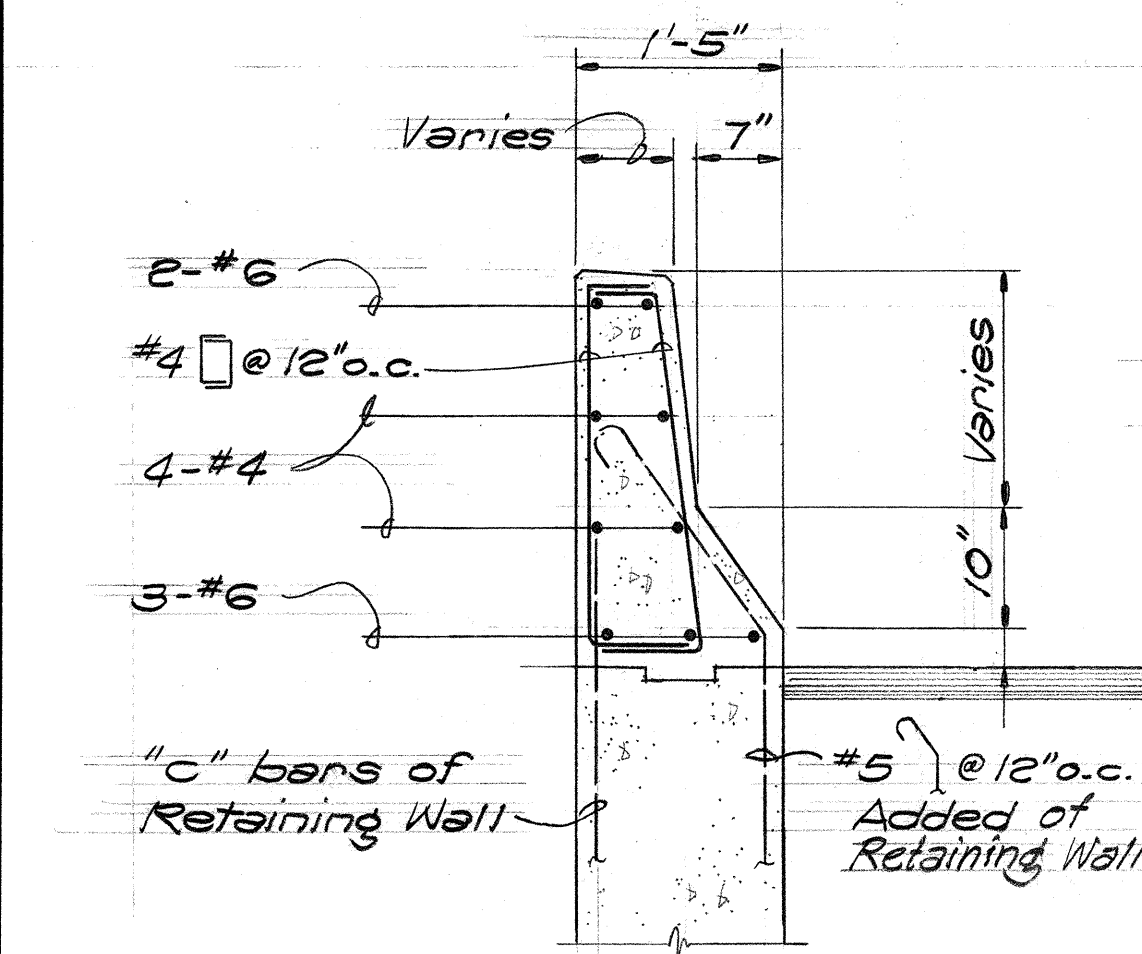
SECTION D
Scale: 3/4" = 1'-0"
S-42 S-42



PARTIAL CONCRETE PARAPET ELEVATION
Scale: 1/4" = 1'-0"



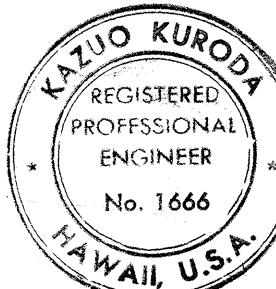
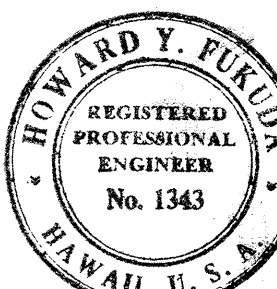
SECTION B
Scale: 3/4" = 1'-0"
S-42 S-42



SECTION A
Scale: 3/4" = 1'-0"
S-42 S-42

- NOTES**
1. Poured-in-place parapet concrete, and concrete at light standard shall be included in "Concrete in Abutment & Retaining Walls."
 2. For expansion & construction joint details, see State Standard Dwg. DB 207-2

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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**TEMPORARY RAMPS
PARAPET DETAILS**

KEEHI INTERCHANGE
P.A.I. PROJ. NO. 1-HI-1 (130) 17
Scale: As Shown Date: Aug. 16, 1976

SHEET NO. S-42 OF 42 SHEETS

DATE	_____
SURVEY PLOTTED BY	_____
ORIGINAL PLAN	_____
DRAWN BY	_____
DESIGNED BY	_____
CHECKED BY	_____
NOTE BOOK	_____
NO.	_____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1(180):17	1976	140	174

GENERAL NOTES

DESIGN SPECIFICATIONS AASHTO

Standard Specifications for Highway Bridges (11th Edition) with subsequent interim Specifications.

DESIGN LOADS: HS-20-44 or Interstate loading.

DESIGN STRESSES:

- Reinforced concrete beams & slabs-See AASHTO Specifications and special provisions except as otherwise noted.

Class A	All others
f'c = 3,000 p.s.i.	5,000 p.s.i.
fc = 1,200 p.s.i.	2,000 p.s.i.
n = 10	6.6
fs = A.S.T.M. A 615, See Special Provisions.	

- Prestressed Girders & Tees

f'c = 6,000 p.s.i. | 1/2" dia. 7 wire strands, 270 ksi.

Forms must be removed and the beams inspected before the strands are cut.

- All structural steel R's & miscellaneous members shall conform to ASTM A36 & shall be hot dipped galvanized after fabrication.
- All anchor bolts & nuts for base of future lighting standard and expressway sign posts shall conform to ASTM A307 & shall be hot dipped galvanized.

MATERIALS:

- Except as otherwise noted on plans:
 - Cast-in-place concrete for the various parts of the viaduct structure are:

Class A - Concrete slabs, beams, footing, tie beams & parapets. 5,000 p.s.i. -All others (Columns, Pier Caps, Column Pedestal.)

- Reinforcing steel for cast-in-place concrete are as follows:

Grade 40 - Concrete, deck slabs, beams and parapet.
Grade 60 - Pier Cap, Column, Footing, Pedestal reinf. & others not specified.

- Concrete for precast prestressed concrete girders- See Standard Specifications and as noted under Design Stress.

All preformed elastomeric bearing pads, premolded joint fillers are incidental to concrete & will not be paid for separately.

CONSTRUCTION METHODS:

- See Standard Specifications and Special Provisions.
- In general top of concrete deck of superstructure shall be constructed to follow the finish roadway vertical and horizontal curves and grades.
- For concrete finish see Special Provisions. Girder concrete seats to be poured monolithically with the pier cap. Top surfaces of concrete seats to have hard trowel finish.
- See details for additional surface finish.
- Except as otherwise noted, all vertical dimensions are measured plumb.
- Pier frame column footings shall be excavated and poured neat against undisturbed ground. In case of over excavation, space between footing and ground shall be filled with concrete at the Contractor's expense and as directed by the Engineer. The minimum quality of the fill concrete shall be Class D.
- In the installation of anchor bolts for Highway Lighting Standards and Expressway Bridge Signs, the Contractor shall provide rigid templates to maintain the proper locations and protection of such anchor bolts at all times during the period of construction. Exact methods shall be approved by the Engineer.

REFERENCE:

- Refer to Standard Detailed Drawings for additional details not covered by Detail and Typical Drawings.
- Typical Details drawing sheet Nos. T-1 thru T-20 inclusive refer to the viaduct structure in general except for modification as may be required by special conditions. For such modifications see corresponding detail plans.

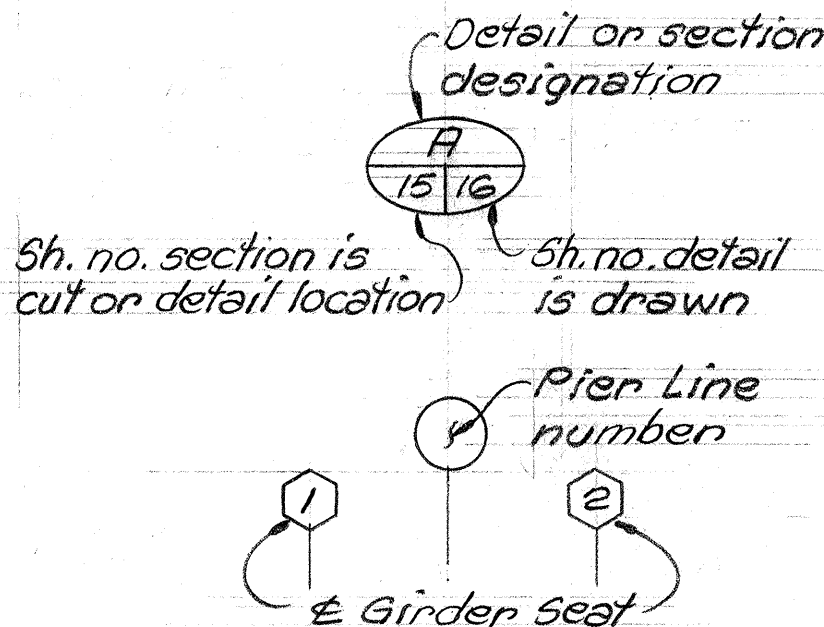
GENERAL:

- All items noted incidental will not be paid for separately.
- The Contractor shall verify the locations of all existing utility lines and notify their respective owners before commencing with work.
- Exact location of bars shall be so arranged so that no interference will occur between vertical column reinforcement and bottom pier cap horizontal reinforcement.
- Refer to electrical plans for various additional conduits in deck & pier cap.
- The Contractor shall furnish shop placement and detailed drawings for all structural steel work including frame and grating assemblage of each drain.
- Secure elastomeric pads to concrete girder seat.
- Modify standard details as required to apply to details not shown.

ADDITIONAL NOTES FOR TEMPORARY RAMP

- Unless otherwise noted, all concrete footings, pedestals, tie beams, abutments & retaining walls to be Class A.
- Unless otherwise noted, all reinforcing steel to conform to ASTM A615 Grade 40.
- Unless otherwise noted, all structural steel shall conform to ASTM A36.
- All anchor bolts (hot dipped galvanized) embedded in concrete shall conform to ASTM 307.
- For all other bolted connection use ASTM A325 bolts.
- Unless otherwise noted, all welded connection shall develop the full capacity of the member.
- Allowable foundation pressure = 3,000 p.s.f. (gross)

SYMBOLS AND ABBREVIATIONS



(A) (B) Pier Column

(G1) - Exterior Prestressed girder number

(T-11) - Interior Prestressed girder number

F-6 - Footing Type (individual column)

CF-4 - Combined Footing Type (column)

(E) - Expansion

(F) - Fixed

(H) - Hinged

A.

Adj. - Adjacent

Alt. - Alternate

Az. - Azimuth

B.

Bal. - Balance

B.F. - Both Faces

Bot, Bott. - Bottom

BL - Baseline

C.

Cl. - Clear

Col. - Column

Cont. - Continuous

C.J. - Construction Joint

CL - Center Line

CG - Center of Gravity

D.

D.S., (S) - Down Spout (Drain)

E.

Ea. - Each

Eg. - Equal

(E), Exp. - Expansion

E.F. - Each Face

El., Elev. - Elevation

E.P. - Edge of Pavement

E.W. - Each Way

Exist. - Existing

EB - Eastbound

F.

Ftg. - Footing

F.F. - Far Face

F-2 - Column Footing Type

H.

(H) - Hinged

Hwy. - Highway

I.

Inv. - Invert

Int. - Interior

IB - Inbound

J.

Jt. - Joint

L.

Lg. - Long

Longit. - Longitudinal

Lt. - Left

M.

Max. - Maximum

Min. - Minimum

N.

N.T.S. - Not To Scale

No., # - Number

N.F. - Near Face

O.

Op'ng. - Opening

OB - Outbound

O.C. - On Centers

Ofs - Offset

P.

Pt. - Point

P.I. - Point of Intersection

R.

R - Radius

Ref. - Reference

Reinf. - Reinforcement

Reqd. - Required

Rt. - Right

S.

S-2 Slab reinforcement type

Sh. Sheet

Sta. Station

Stirr. Stirrup

Str. Straight

Symm. Symmetrical

T.

Typ. Typical

T., (T) Top

T.P. Turning Point

V.

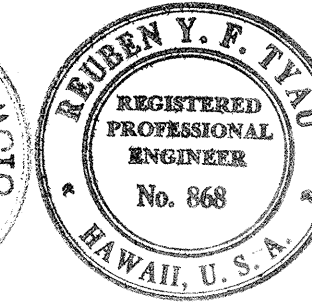
Vert. Vertical

W.

W.P. Working Point

WB Westbound

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Michael Matsui

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

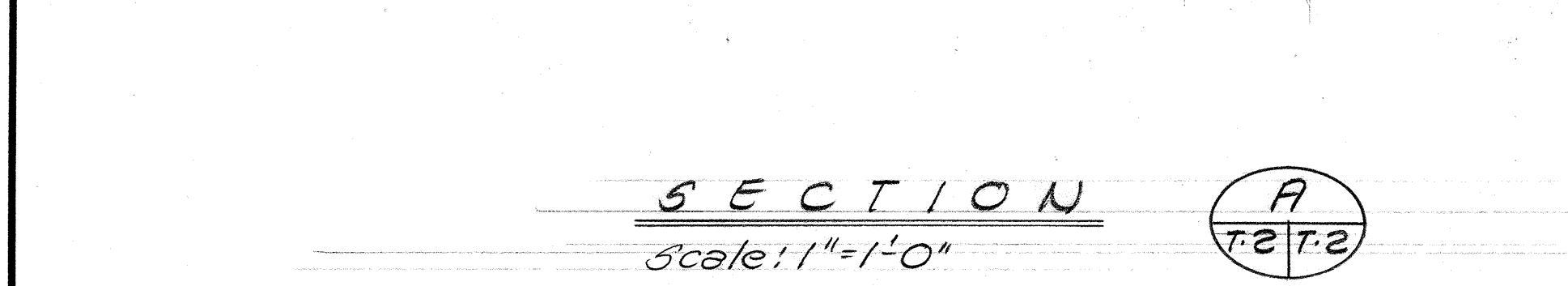
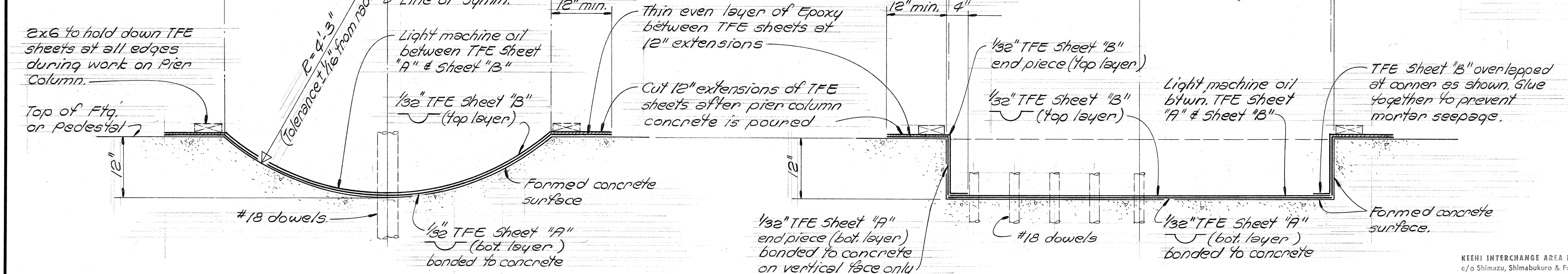
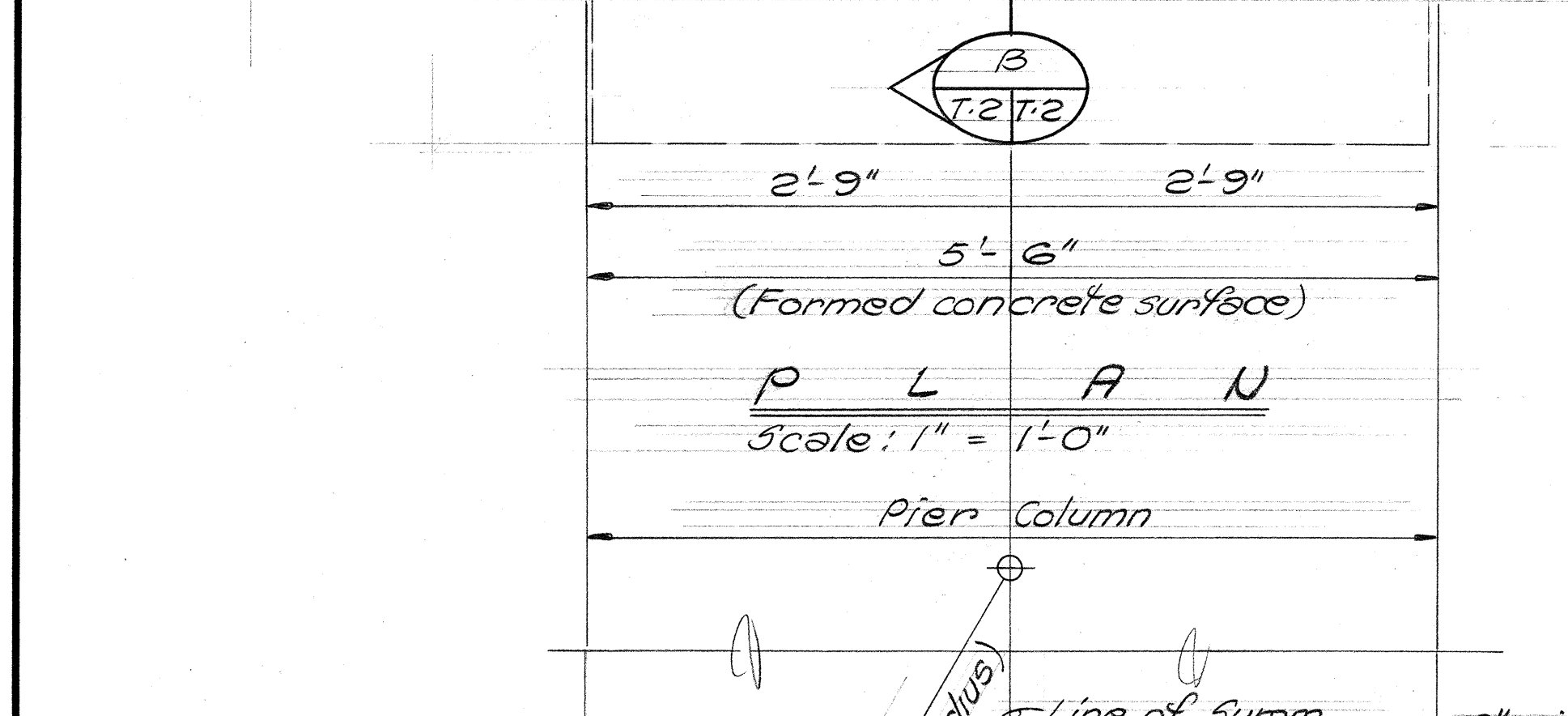
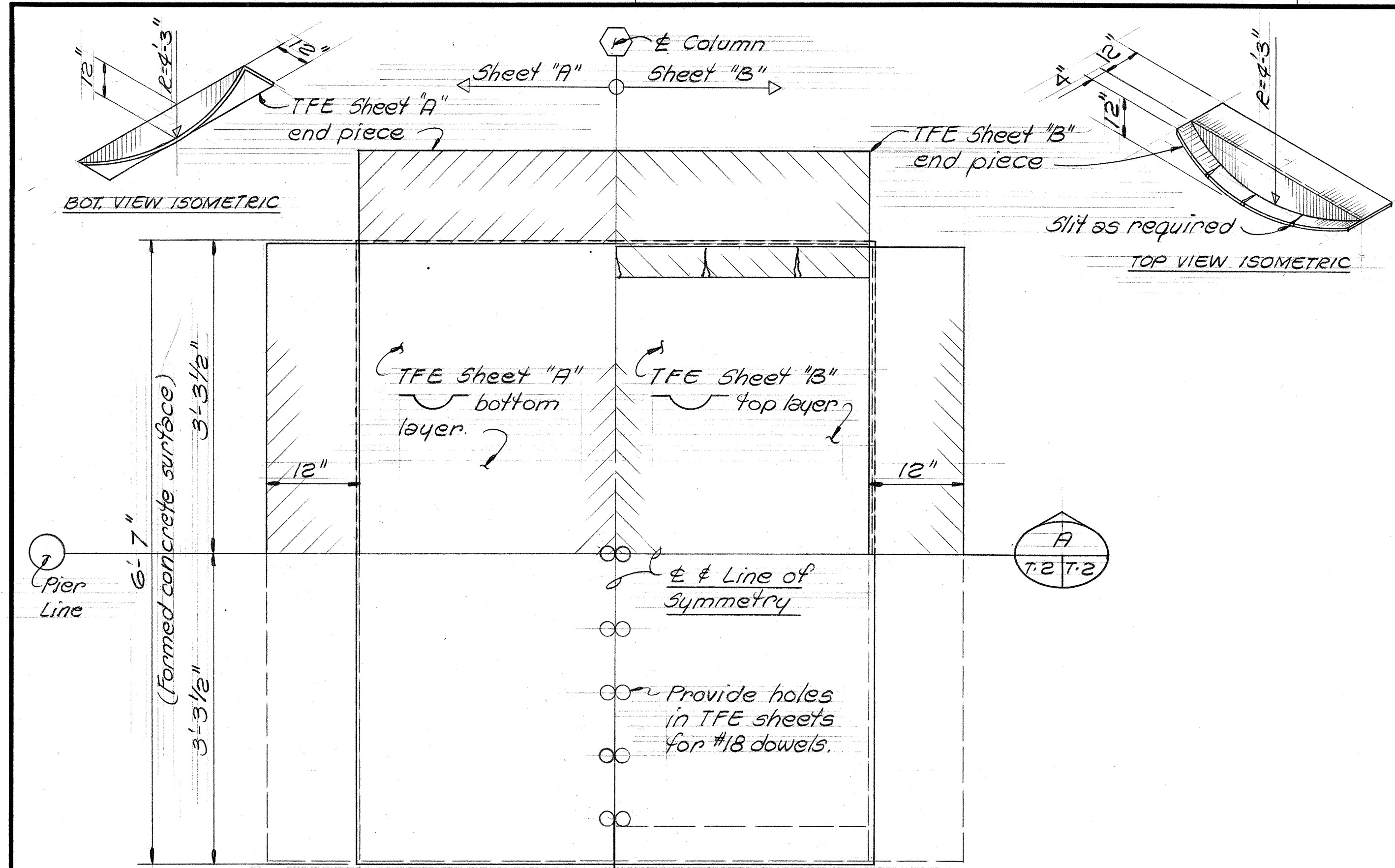
TYPICAL DETAILS
GENERAL NOTES, SYMBOLS
AND ABBREVIATIONS

KEEHI INTERCHANGE
F.A.I. PROJ. NO. 1-HI-1 (180):17

Scale: As Shown Date: Aug. 16, 1976

SHEET NO. 11 OF 20 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IHI-1(130)117	1976	141	174

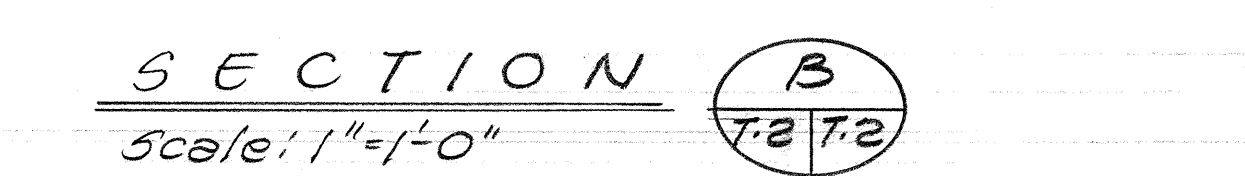


CONSTRUCTION TOLERANCES
Construction tolerances for concrete curved surface shall be 1/16" ± from any plane, & from plumb & level lines.

SPECIAL NOTE
At Contractor's option Reinforced TFE may be substituted in lieu of the virgin TFE specified.

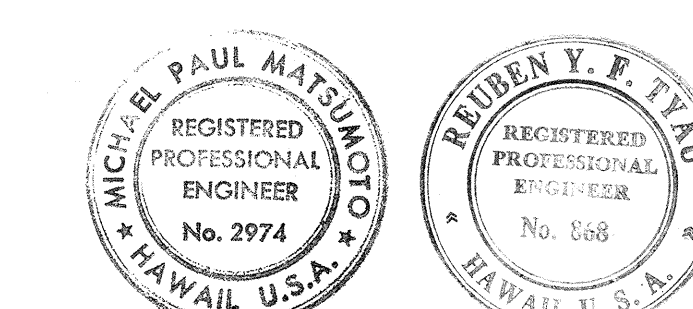
COLUMN HINGE CONSTRUCTION SEQUENCE & NOTES

1. Install footing or pedestal reinforcing.
2. Install forms for curved formed surface & ends (Column Hinge).
3. Place concrete for foundation (Footing or Pedestal).
4. Remove forms for column hinge.
5. Fill all cavities with epoxy & grind curved surface to construction tolerances noted on this sheet.
6. Notify the Engineer for inspection of column hinge curved surface to tolerances noted.
7. Epoxy 1/32" TFE Sheet "A" to the formed concrete surface (Column Hinge area). All trapped air bubbles between TFE Sheet A & formed concrete surface shall be removed.
8. Apply a thin even layer of light machine oil over TFE Sheet "A".
9. Apply a thin even layer of epoxy over the 12" extension of TFE Sheet "A" (Beyond the limits of the column).
10. Place 1/32" TFE Sheet "B" over TFE Sheet "A".
11. Place continuous 2x6 around 12" horizontal edges of TFE Sheets "A" & "B" to hold down the TFE sheets & to keep any foreign matter (dust, debris, etc.) from being introduced between the TFE sheets.
12. Place metal tubes over wrapped #18 dowels as detailed (Sh. T.3) & install column reinforcing.
13. Place concrete for column.
14. Cut - off 12" extensions of TFE sheets beyond limits of pier column.



COLUMN HINGE DETAILS

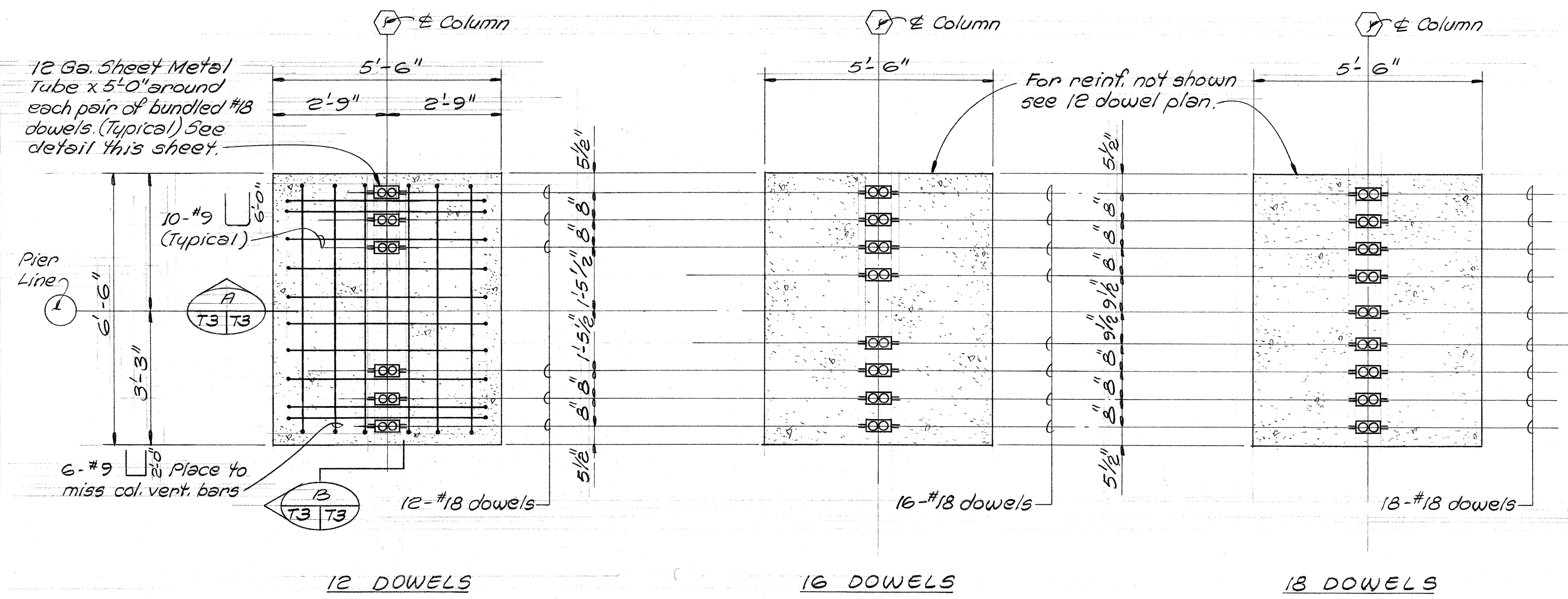
KEEHI INTERCHANGE AREA I & H CONSULTANTS
c/o Shimazu, Shimabukuro & Futaba, Inc.
1210 Ward Ave. • Honolulu, Hawaii 96814



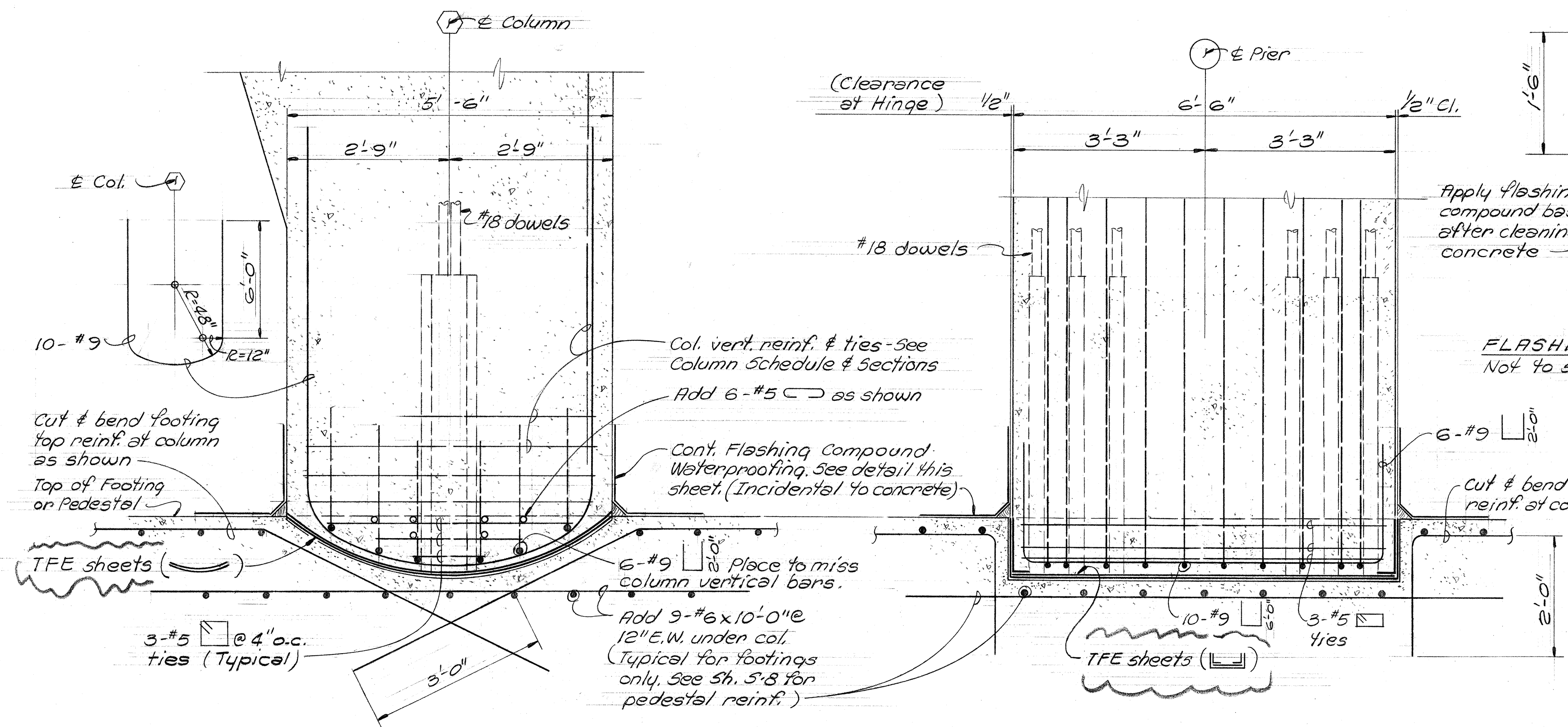
This work was prepared by me and under my supervision.
Reuben Y. F. Tiu

DATE	REVISION
10/15/76	Revised Column Hinge & Notes
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
TYPICAL DETAIL	
COLUMN HINGE DETAILS	
KEEHI INTERCHANGE F.A.I. PROJ. No. IHI-1(130)117	
Scale: As Shown	Date: Aug. 16, 1976
SHEET NO. T.2 OF 20 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(80):17	1976	142	174



PLANS ~ COLUMN HINGE DOWEL ARRANGEMENTS
Scale: 1/2" = 1'-0"

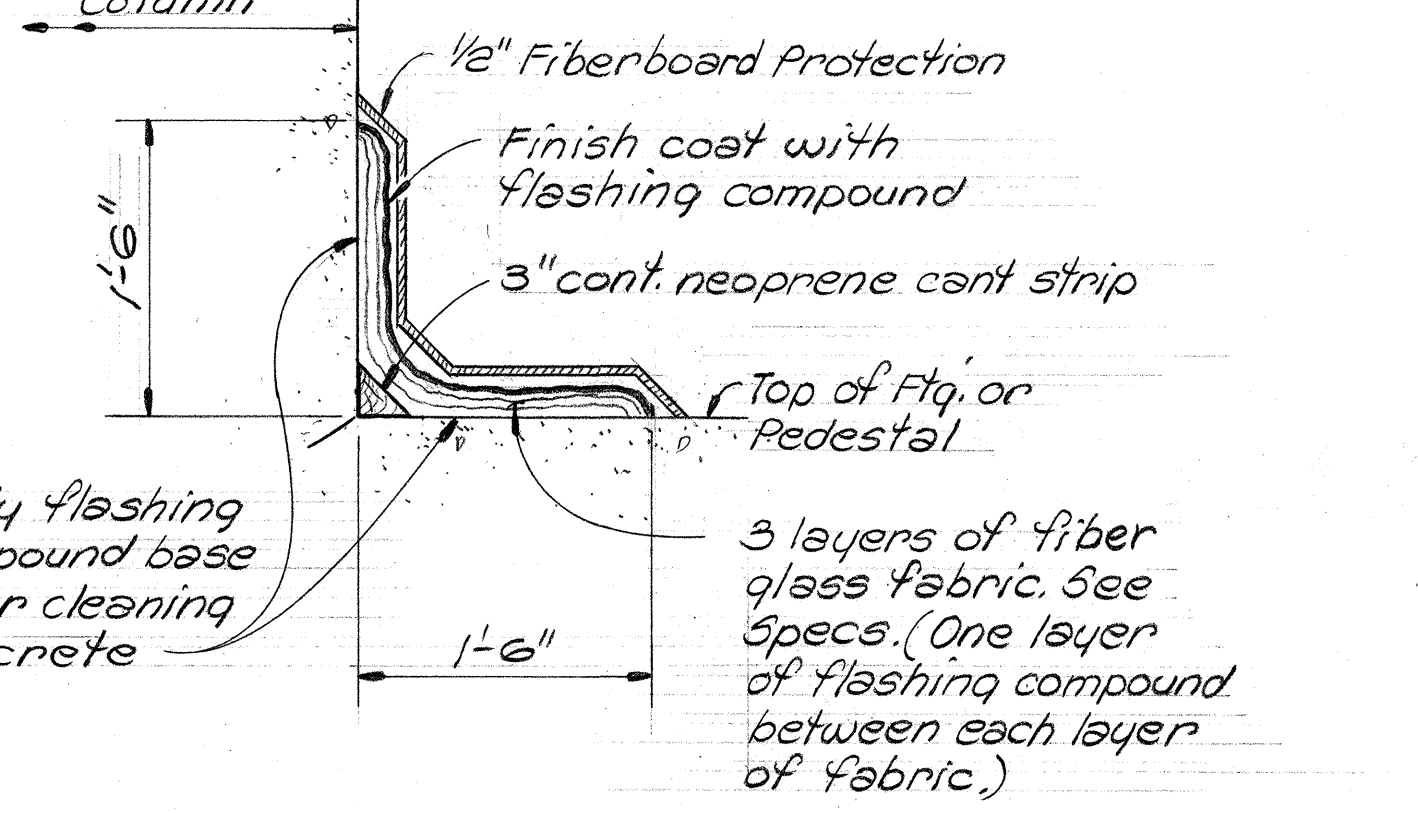


SECTION A
Scale: 3/4" = 1'-0"

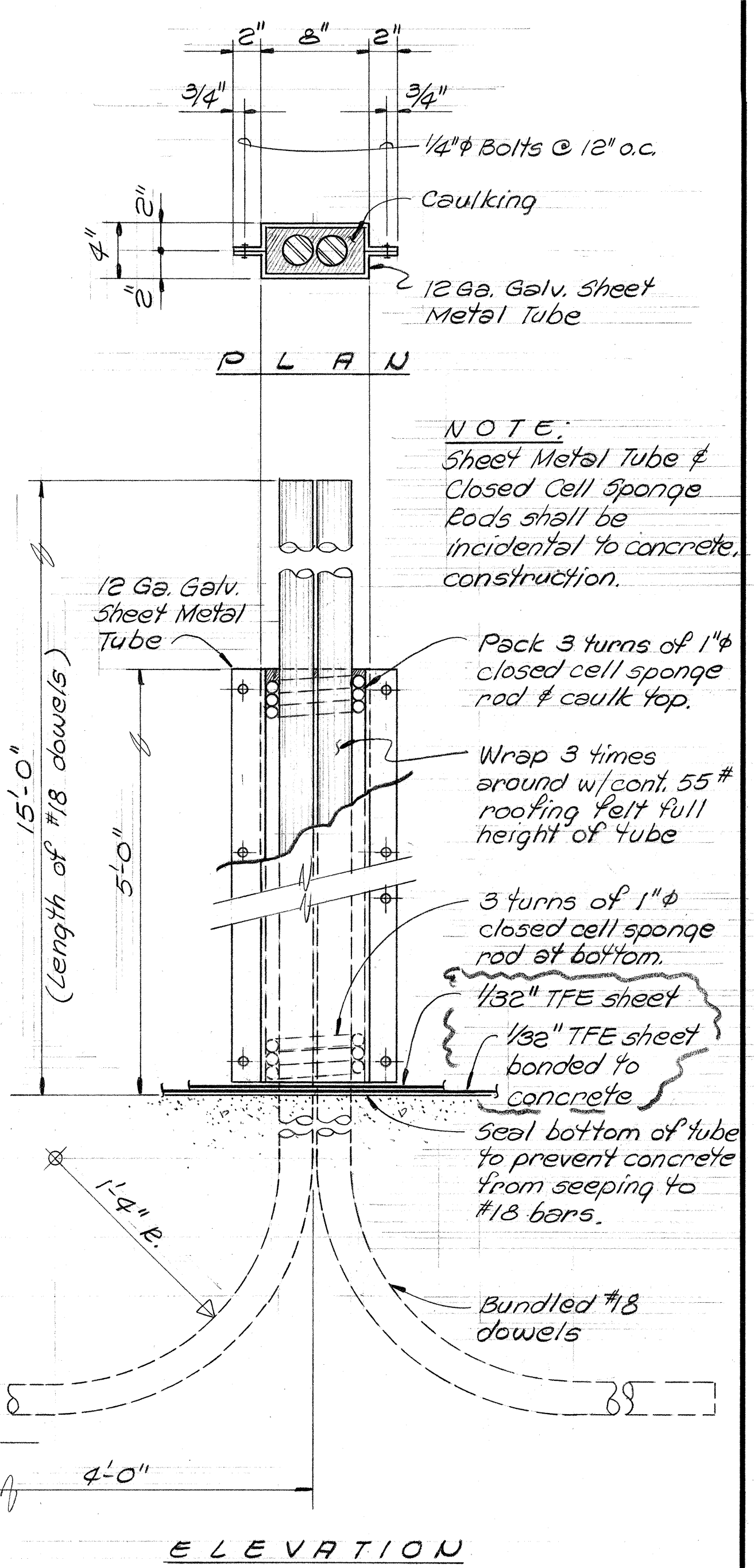
SECTION B
Scale: 3/4" = 1'-0"

COLUMN HINGE REINFORCING DETAILS

- SPECIAL NOTES**
1. All column reinforcing shall not bear on TFE sheets. (See Sh. 5:12)
 2. Paint #18 dowels thoroughly with flashing compound for 5'-0" above 1/32" TFE sheets.
 3. All #18 dowels are to be secured during erection and footing (all pedestals) concrete placement operations to assure spacing and alignment requirements are maintained for the entire height of the dowels.



FLASHING COMPOUND WATERPROOFING DETAIL
Not to scale.



12 GA. GALV. SHEET METAL TUBE DETAIL
Scale: 1/2" = 1'-0"

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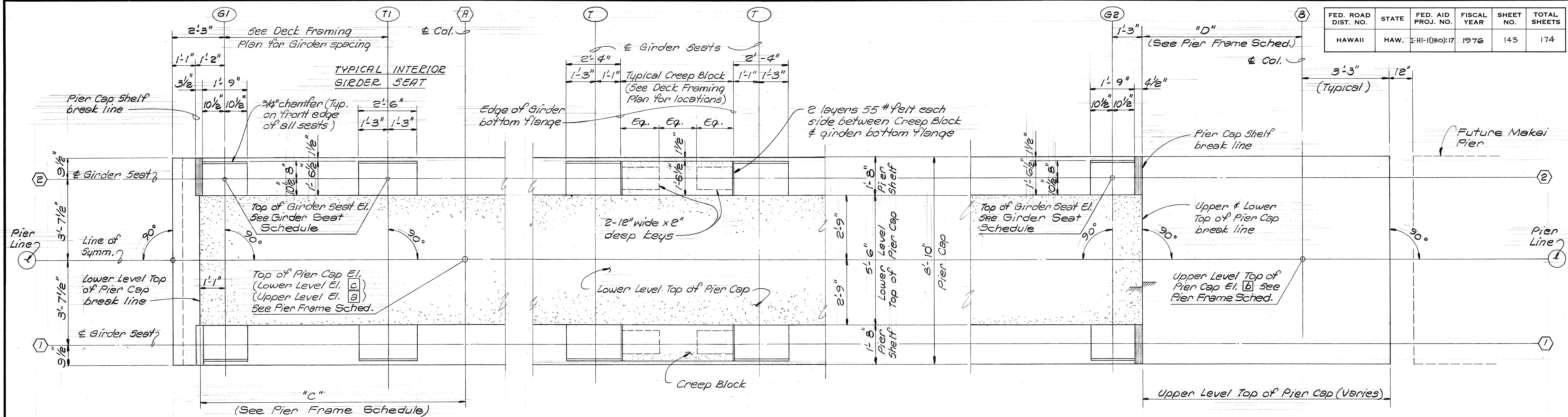
MECHAB PAUL MATSUMOTO
REGISTERED PROFESSIONAL ENGINEER
No. 2974
HAWAII, U.S.A.

REUBEN Y. F. TYAN
REGISTERED PROFESSIONAL ENGINEER
No. 868
HAWAII, U.S.A.

This work was prepared by me or under my supervision.
Paul Matsumoto

10/15/76	Revise Hinge Assembly details
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
TYPICAL DETAILS COLUMN HINGE REINFORCING DETAILS	
KEEHI INTERCHANGE F.A.I. PROJ. No. I-HI-1 (130):17	
Scale: As Shown	Date: Aug. 16, 1976
SHEET No. T3 OF 20 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1(130):17	1976	143	174

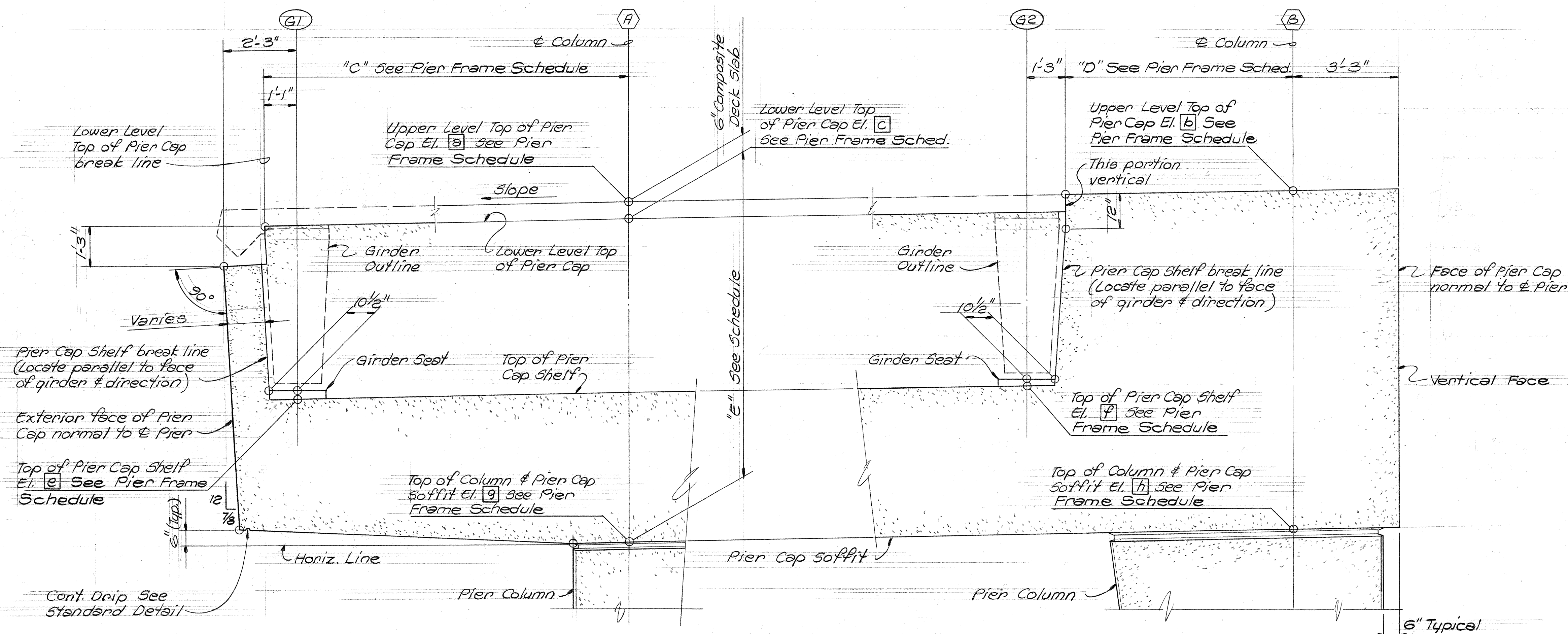


PARTIAL PLAN ~ TYPICAL PIER CAP NORMAL TO GIRDER
Scale: 1/2" = 1'-0"

1
T4/T4

NOTES:

1. (G1) & (G2) Exterior girder seat dimensions shown are for Keehi IV F girders.
2. (T) Interior girder seat dimensions shown are for Keehi VII & VII girders.
3. For condition at Pier (2) & (3) at Keehi VII exterior girders See Sh. T-6 & T-7.



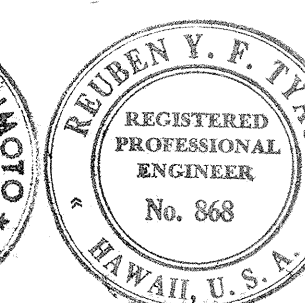
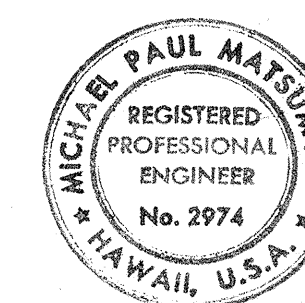
PARTIAL ELEVATION
Scale: 1/2" = 1'-0"

2
3/10/74

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

3
6/10/74

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Michael Matsumoto

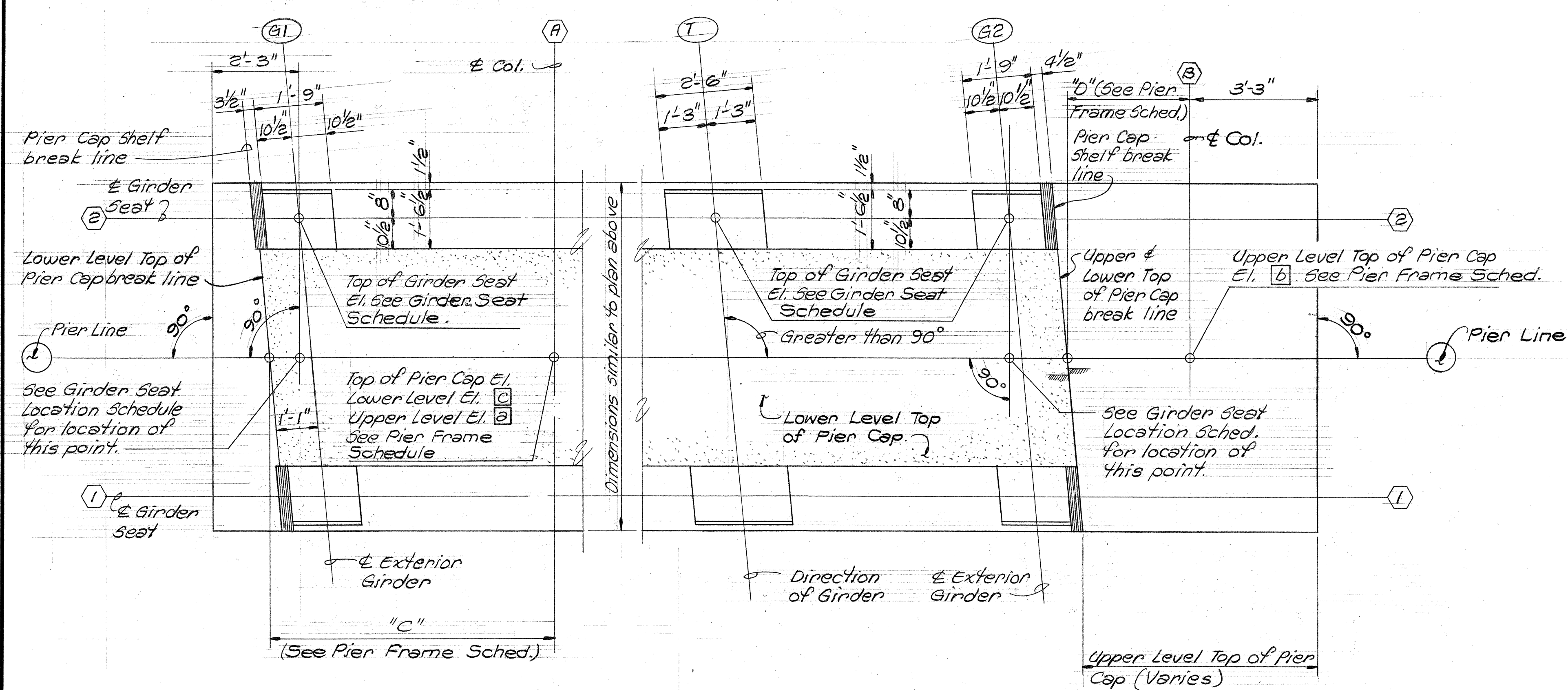
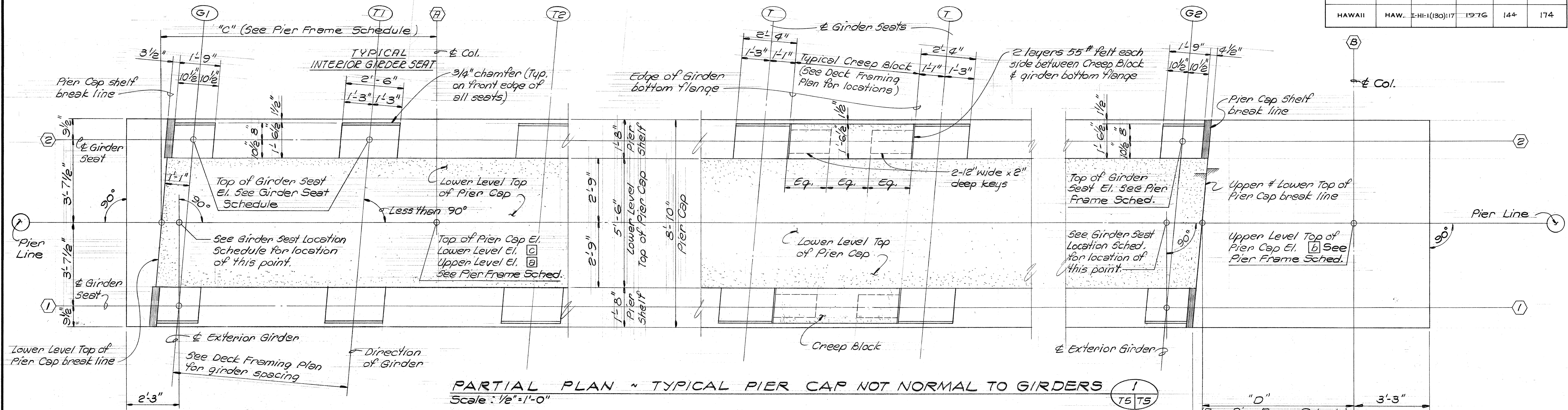
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**TYPICAL DETAILS
TYPICAL PIER CAP PLAN &
ELEVATION**

KEEHI INTERCHANGE
F.A.I. PROJ. NO. 1-HI-1(130):17

Scale: As Shown Date: Aug. 16, 1976
SHEET NO. T4 OF 20 SHEETS

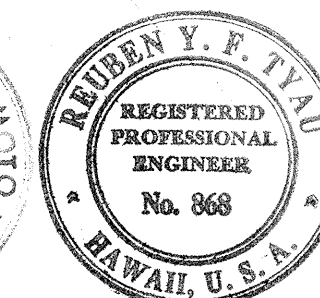
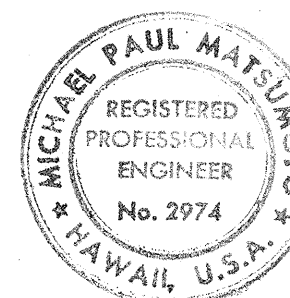
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(130):17	1976	144	174



NOTE
See notes on Sh. T-4

PARTIAL PLAN - TYPICAL PIER CAP NOT NORMAL TO GIRDERS
Scale: 1/2" = 1'-0"

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Michael Paul Matsuoka

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

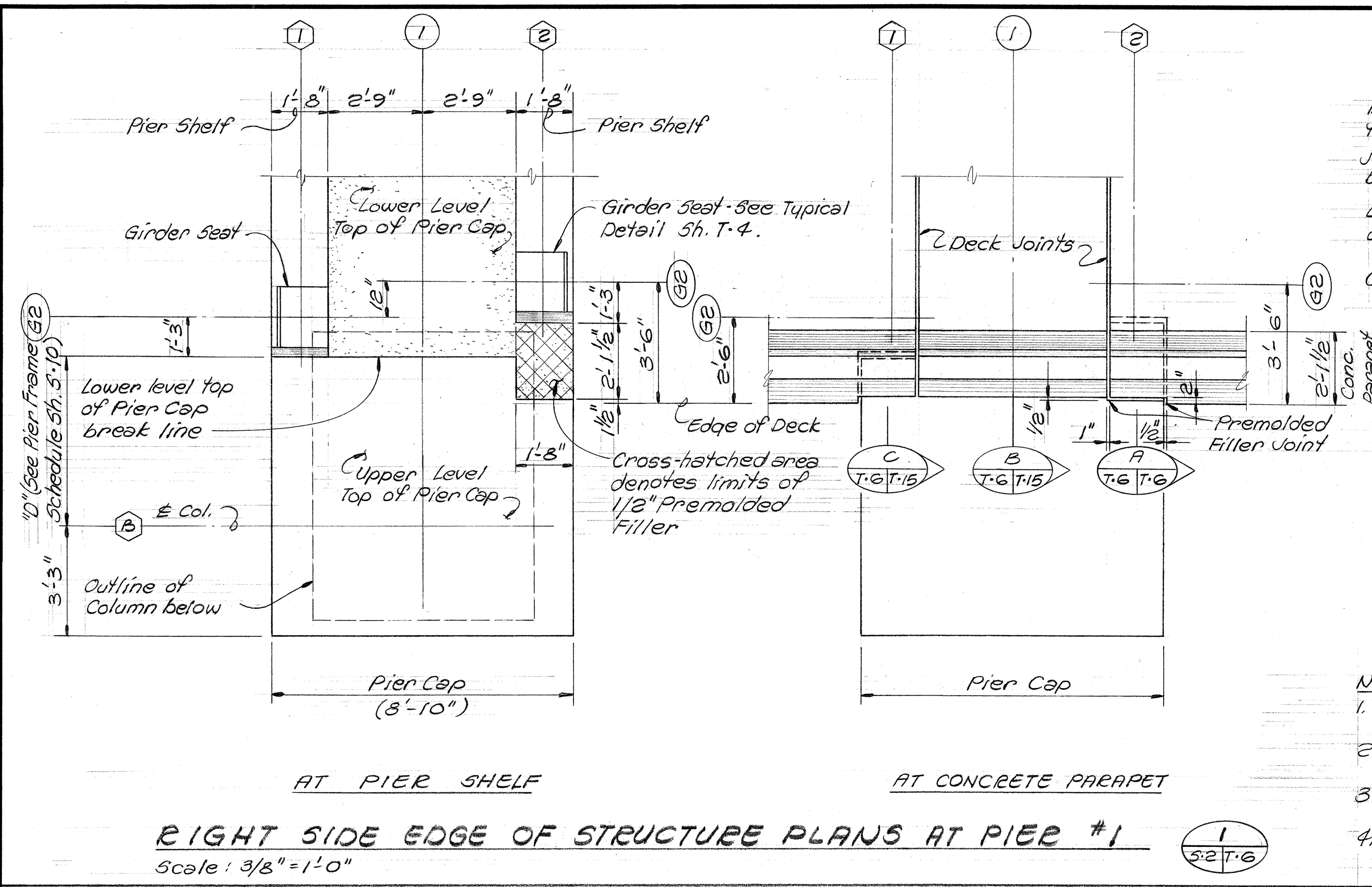
TYPICAL DETAILS
PLANS - PIER CAP NOT NORMAL TO GIRDERS

KEEHI INTERCHANGE
F.A.I. PROJ. NO. I-HI-1(130):17

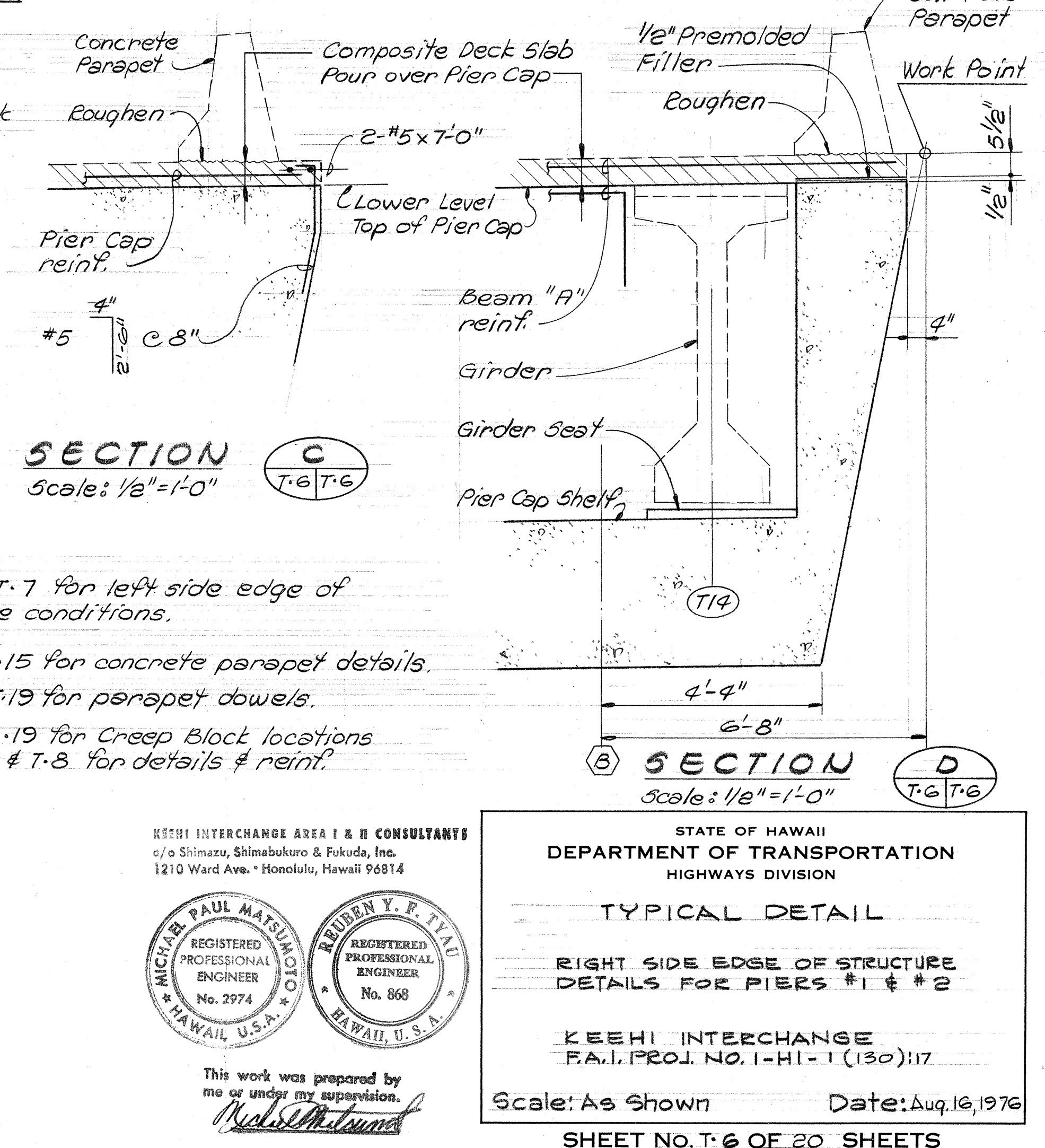
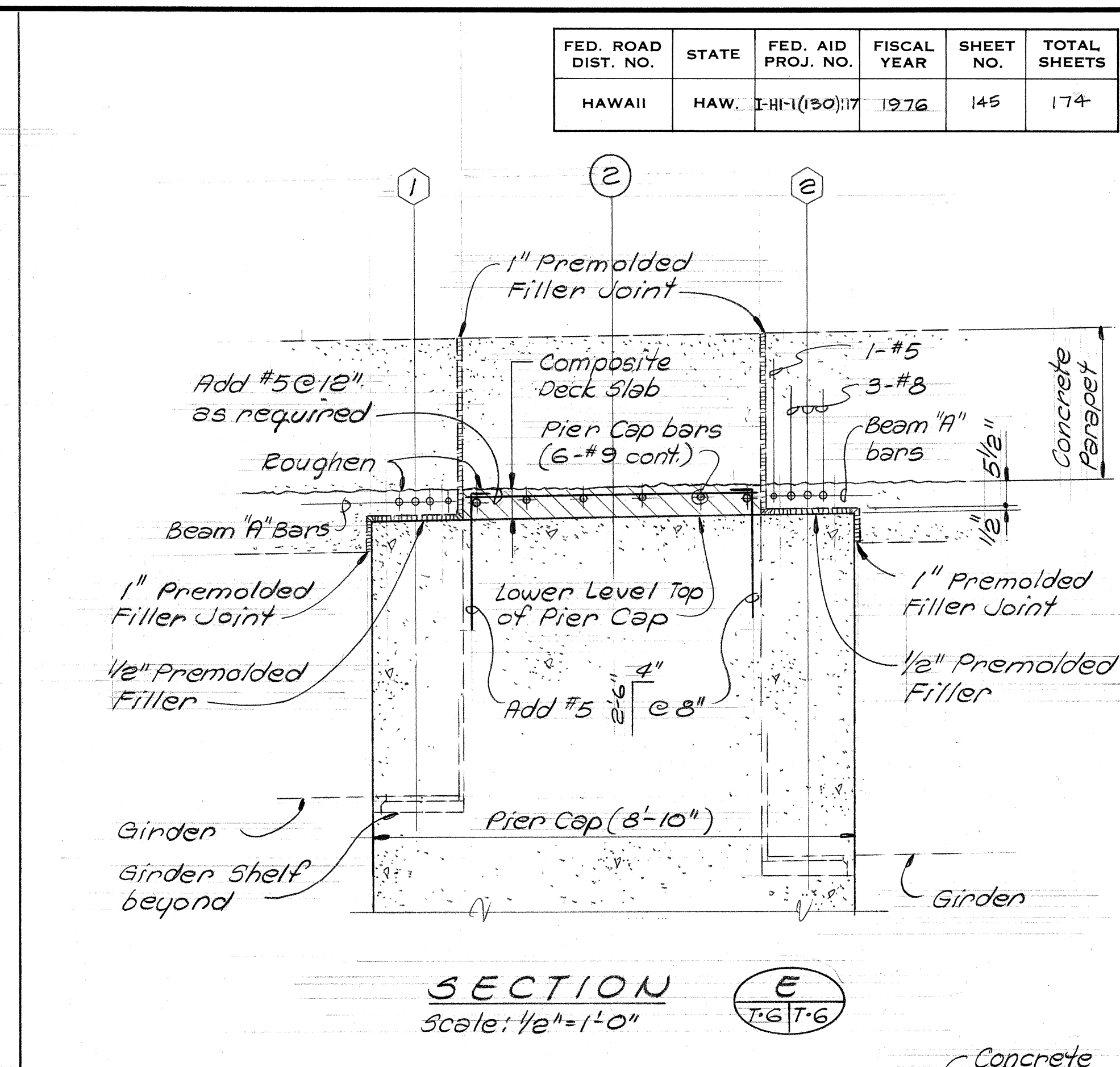
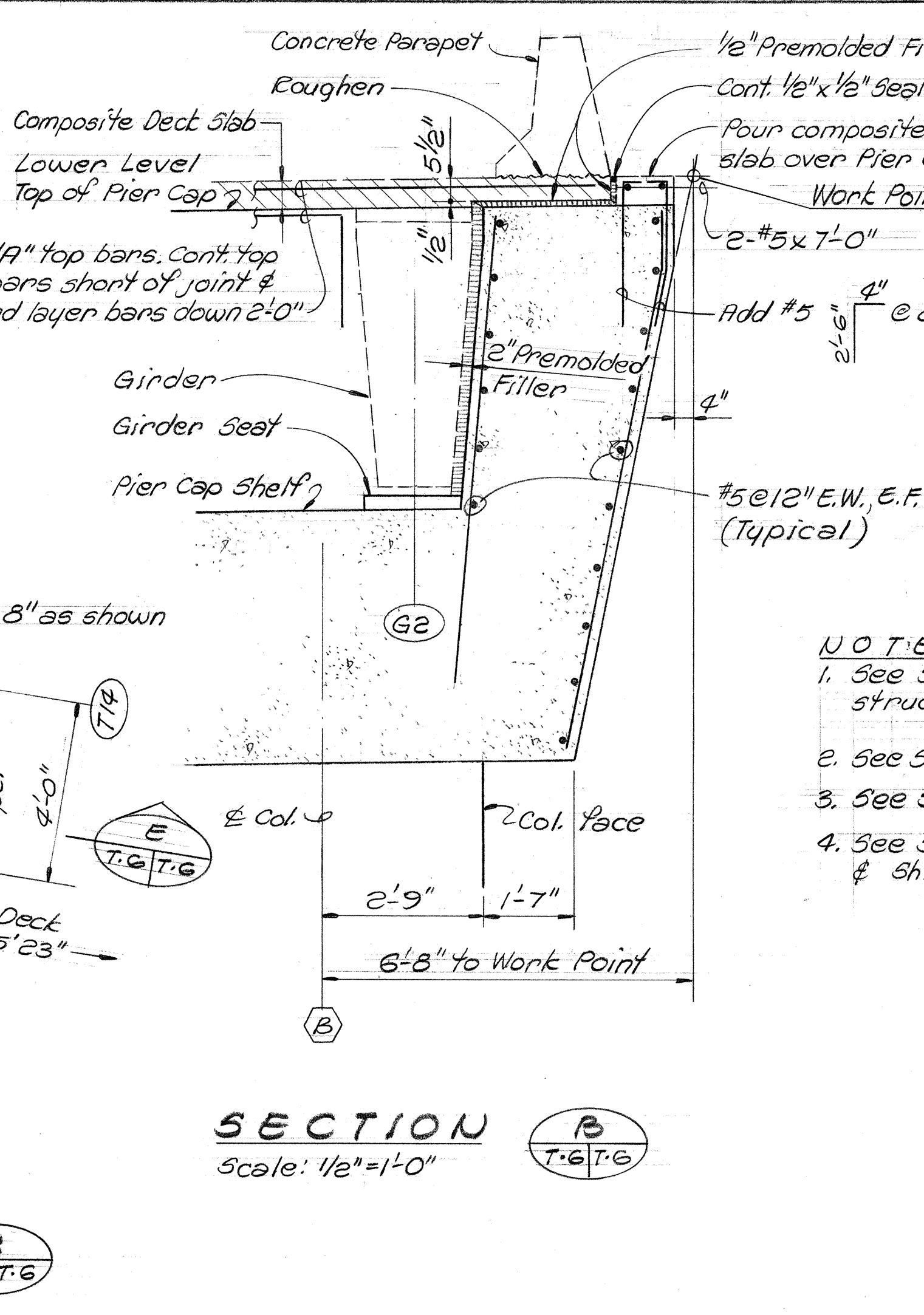
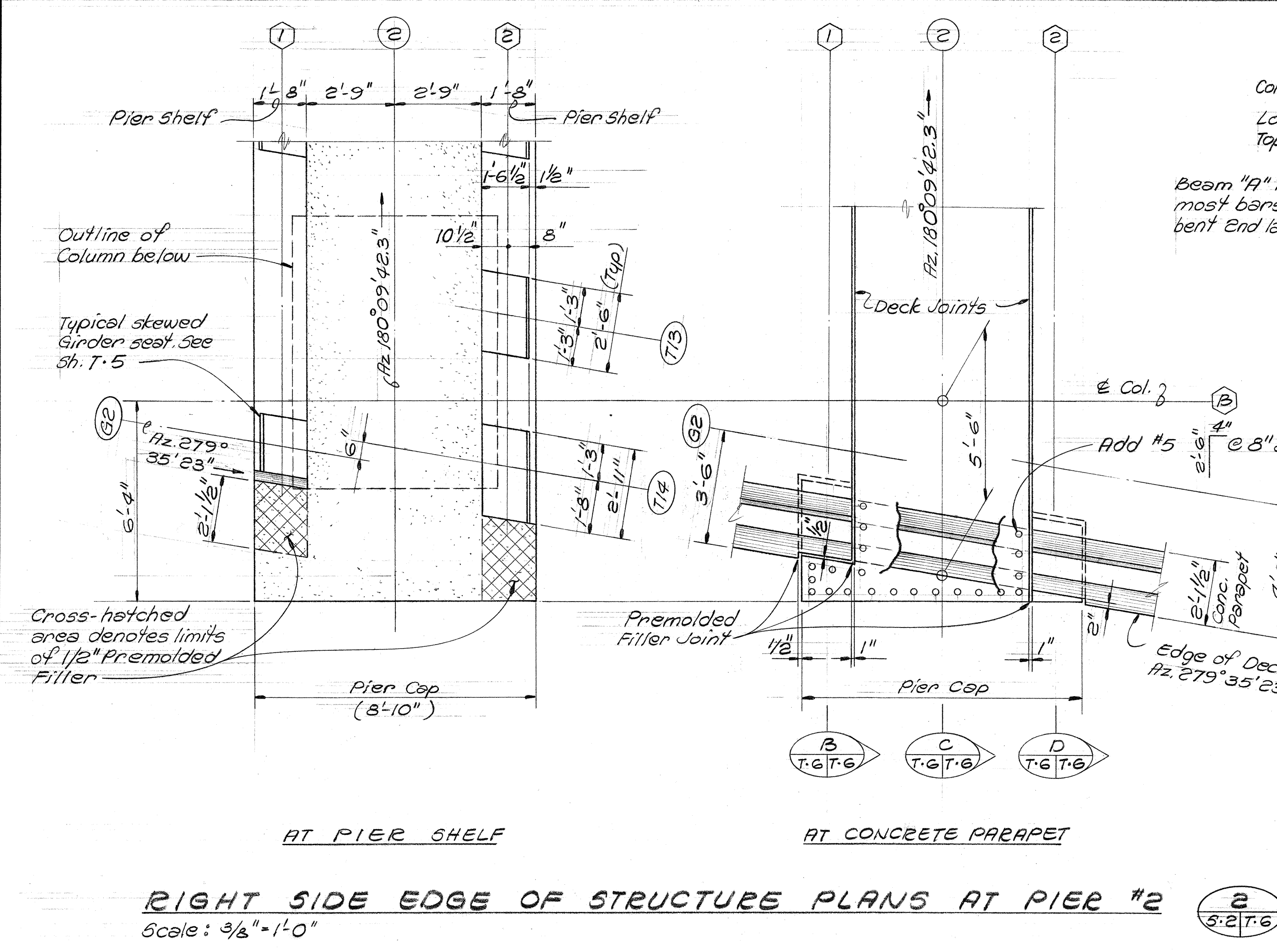
Scale: As Shown Date: Aug. 16, 1976

SHEET NO. 15 OF 20 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1(130)17	1976	145	174



- NOTES**
- See Sh. T-9 for left side edge of structure conditions.
 - See Sh. T-15 for concrete parapet details.
 - See Sh. T-12 for Beam "A" reinf.
 - See Sh. 5-19 for Creep Block locations & Sh. T-4 & T-8 for details & reinf.



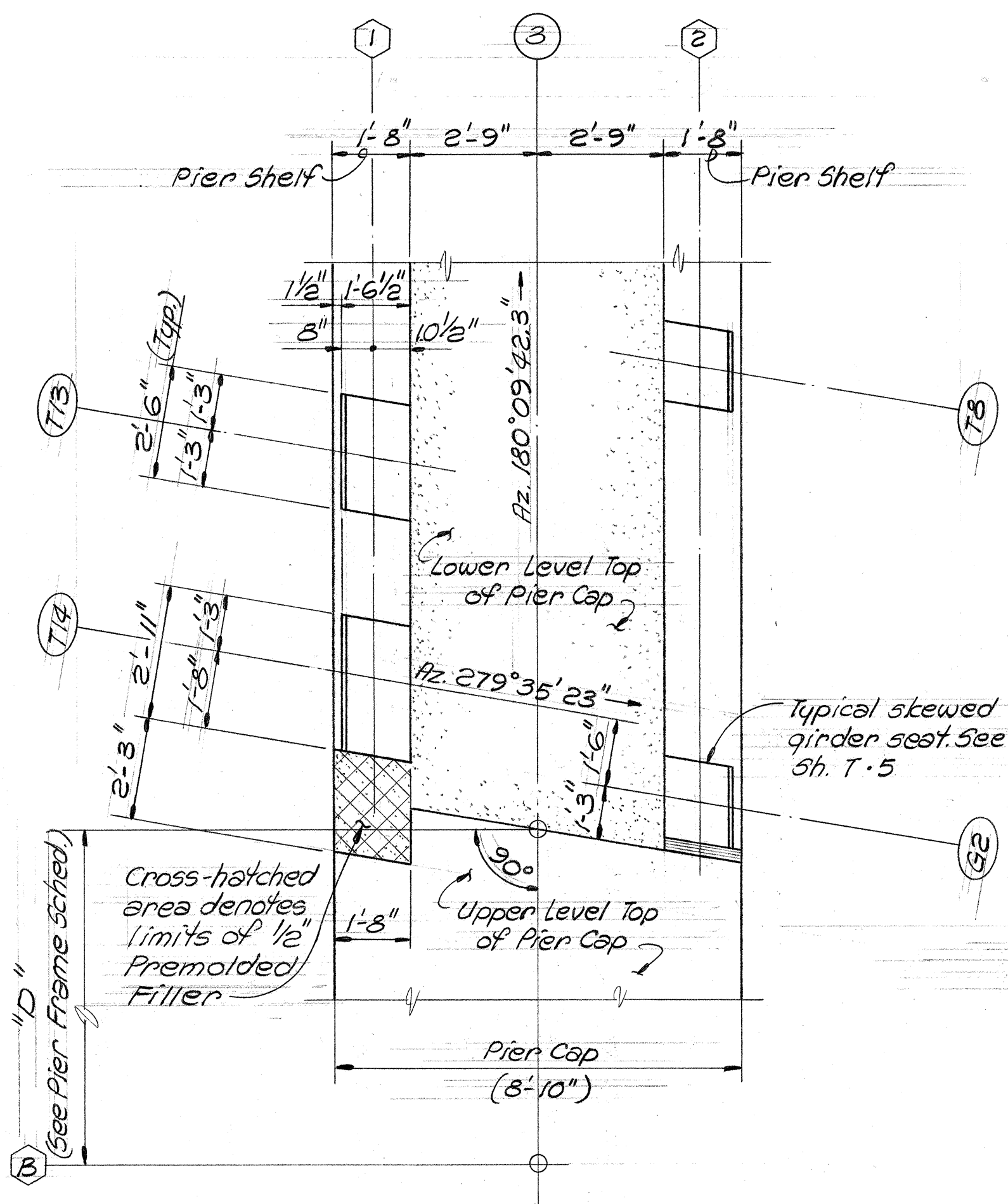
KEEHI INTERCHANGE AREA I & II CONSULTANTS
c/o Shimizu, Shimabukuro & Fukuda, Inc.
1210 Ward Ave., Honolulu, Hawaii 96814

REGISTERED PROFESSIONAL ENGINEER
No. 2974
HAWAII, U.S.A.

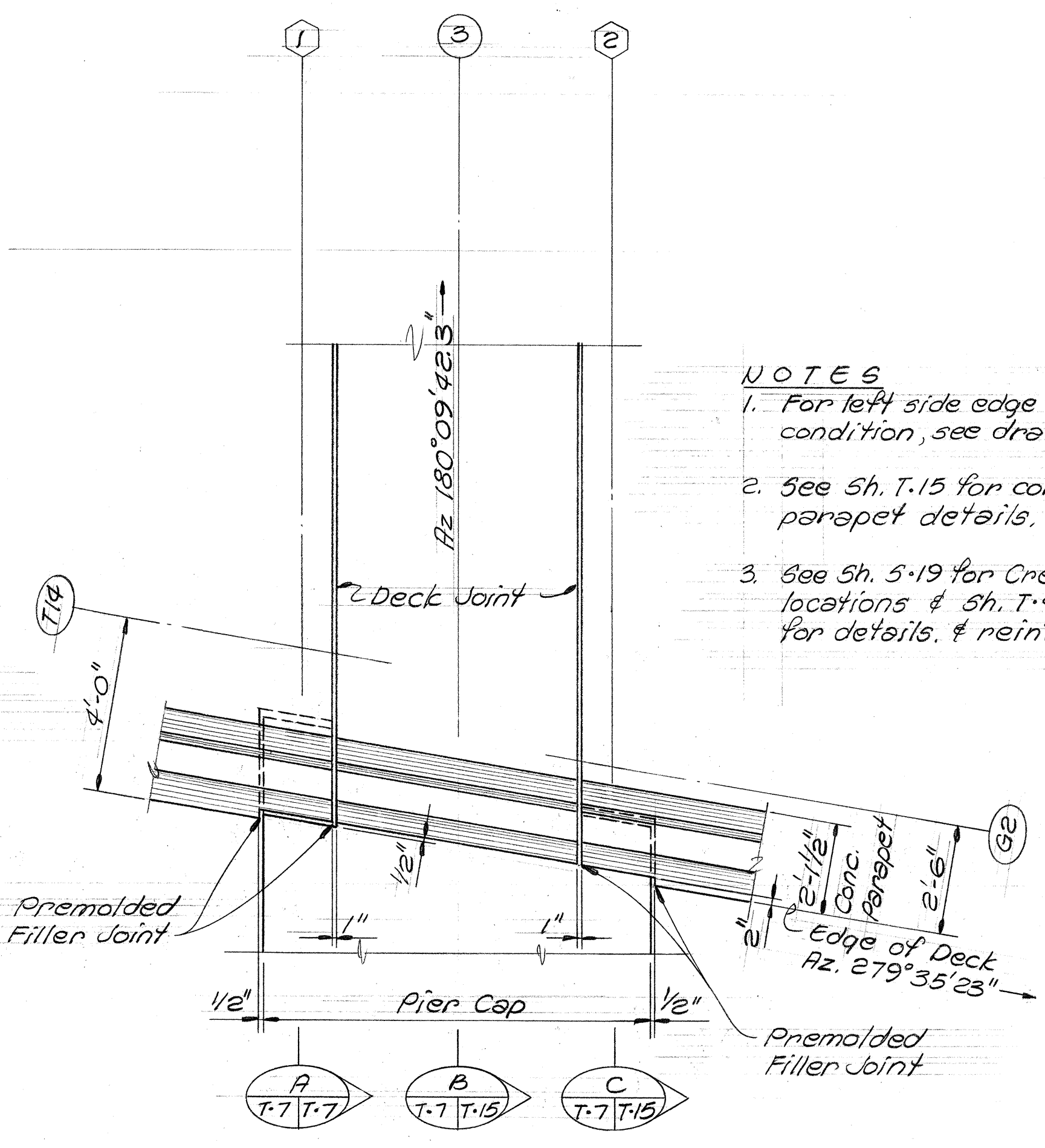
REGISTERED PROFESSIONAL ENGINEER
No. 868
HAWAII, U.S.A.

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Paul Matsunaga

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(130):17	1976	146	174

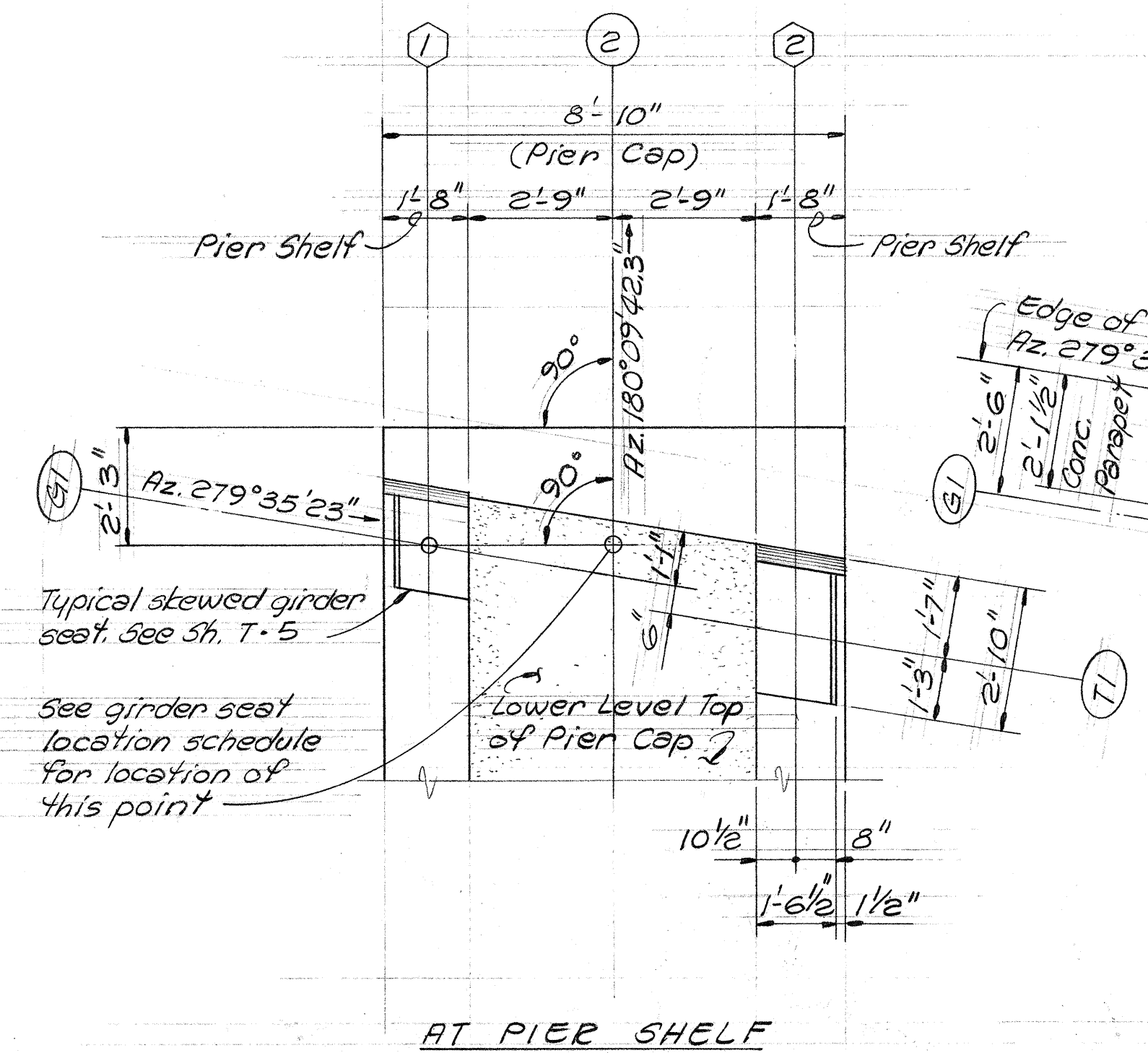


AT PIER SHELF

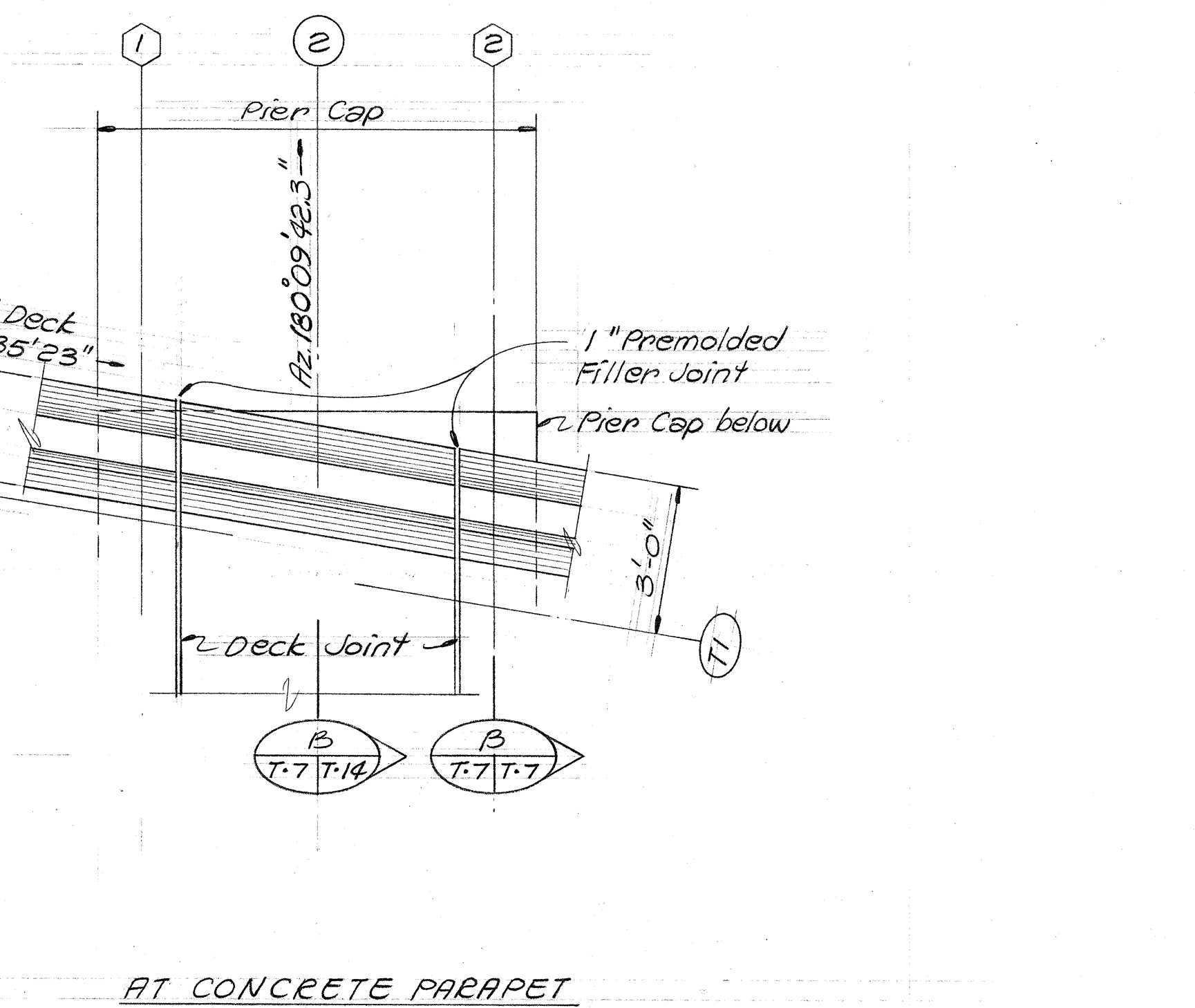


AT CONCRETE PARAPET

RIGHT SIDE EDGE OF STRUCTURE PLANS AT PIER #3
Scale: 3/8" = 1'-0"



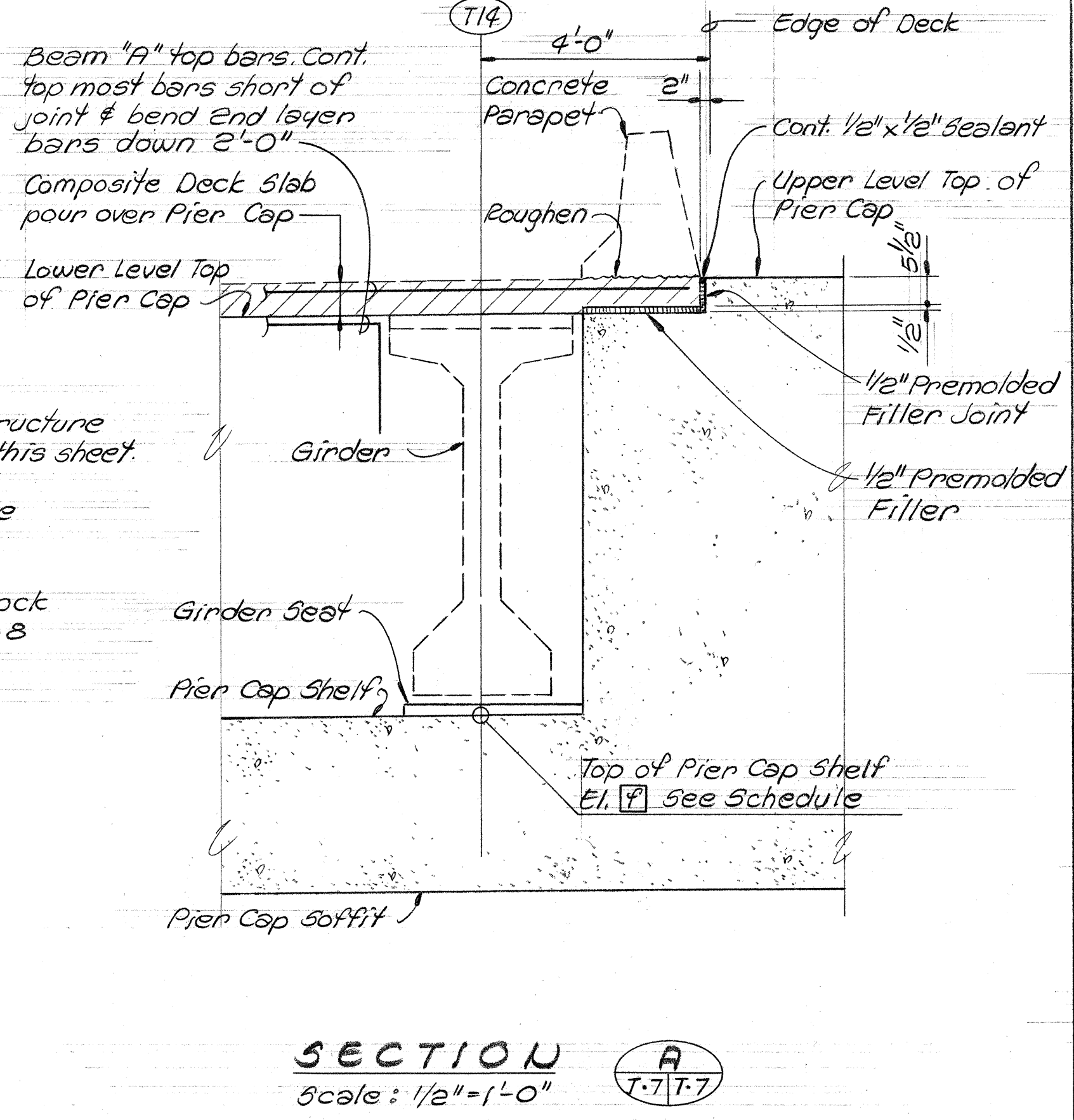
AT PIER SHELF



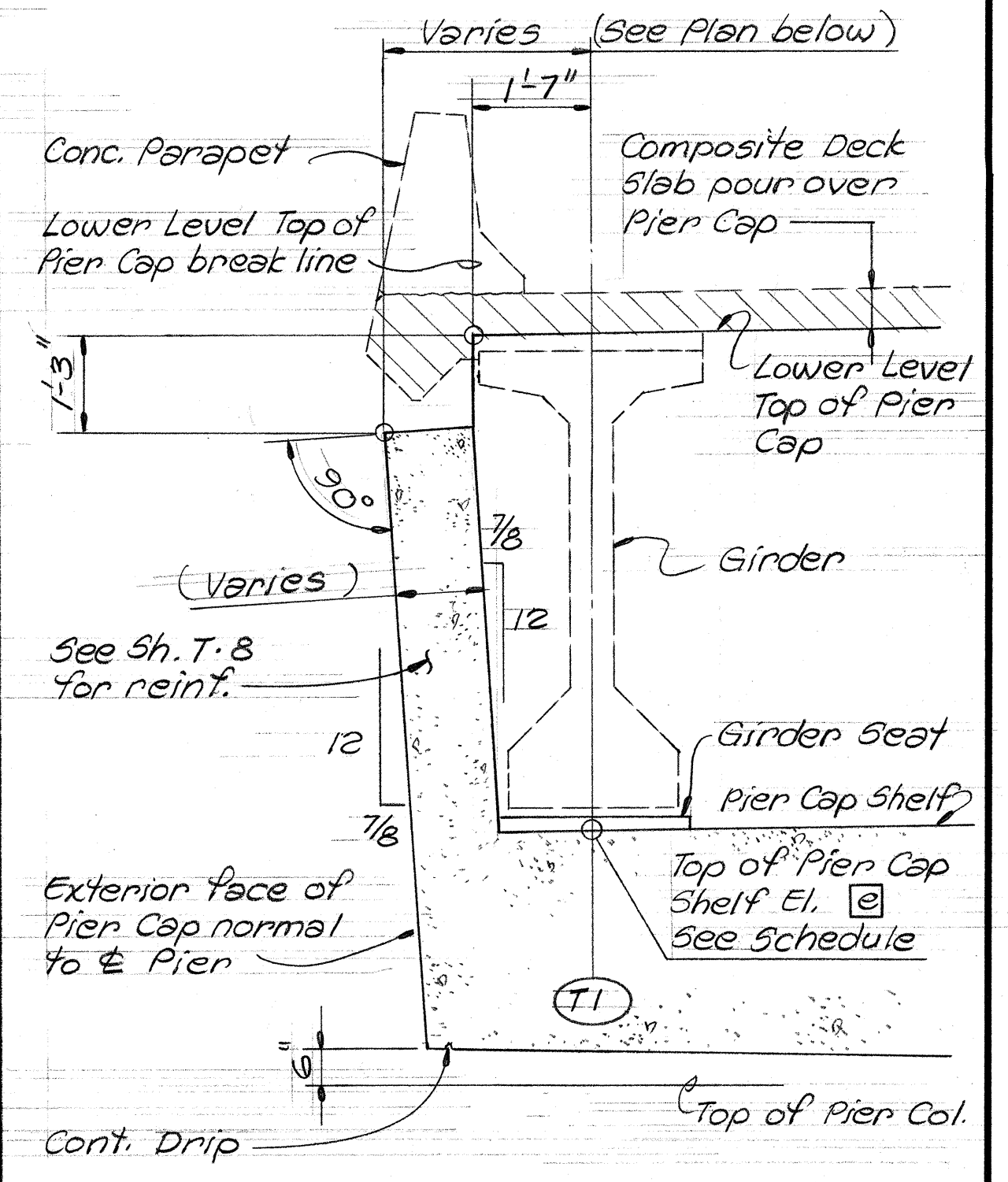
AT CONCRETE PARAPET

LEFT SIDE EDGE OF STRUCTURE PLANS AT PIER #2
Scale: 3/8" = 1'-0"

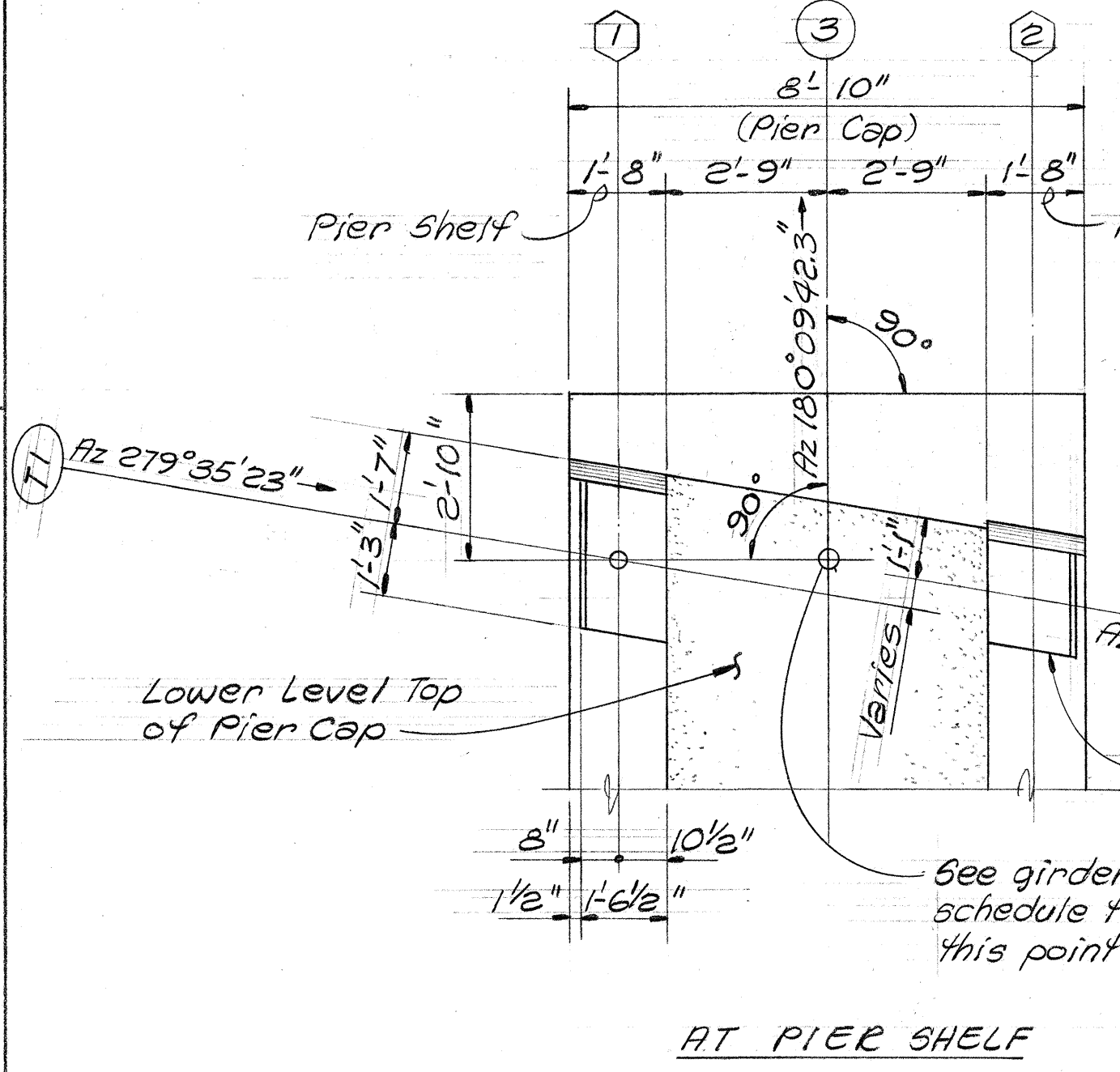
- NOTES
1. For left side edge of structure condition, see drawing this sheet.
 2. See Sh. T.15 for concrete parapet details.
 3. See Sh. 5.19 for Creep Block locations & Sh. T.4 & T.8 for details, & reinf.



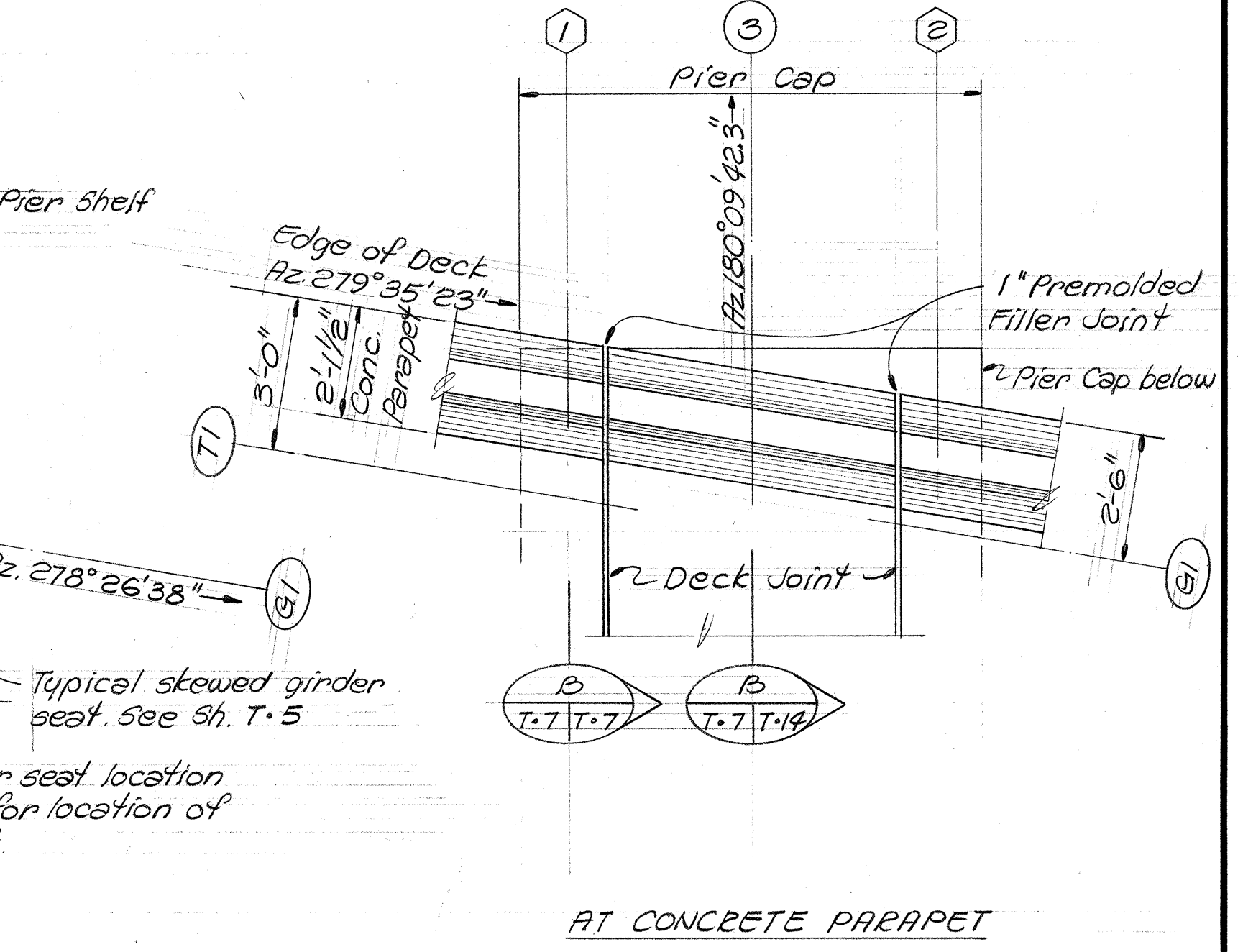
SECTION A
Scale: 1/2" = 1'-0"



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



AT PIER SHELF



AT CONCRETE PARAPET

LEFT SIDE EDGE OF STRUCTURE PLANS AT PIER #3
Scale: 3/8" = 1'-0"

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No. 868
HAWAII, U.S.A.

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Michael Matsumoto

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL DETAIL

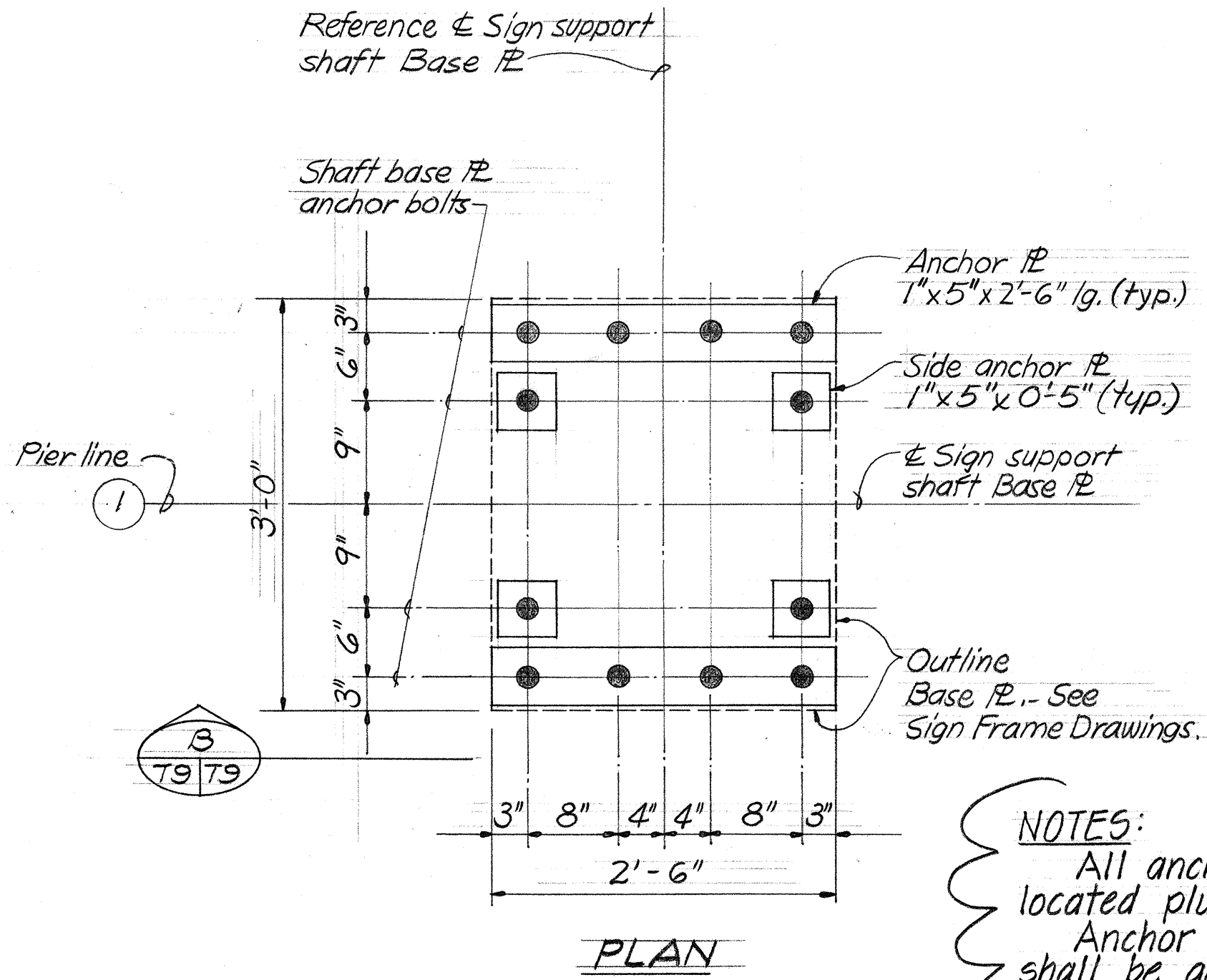
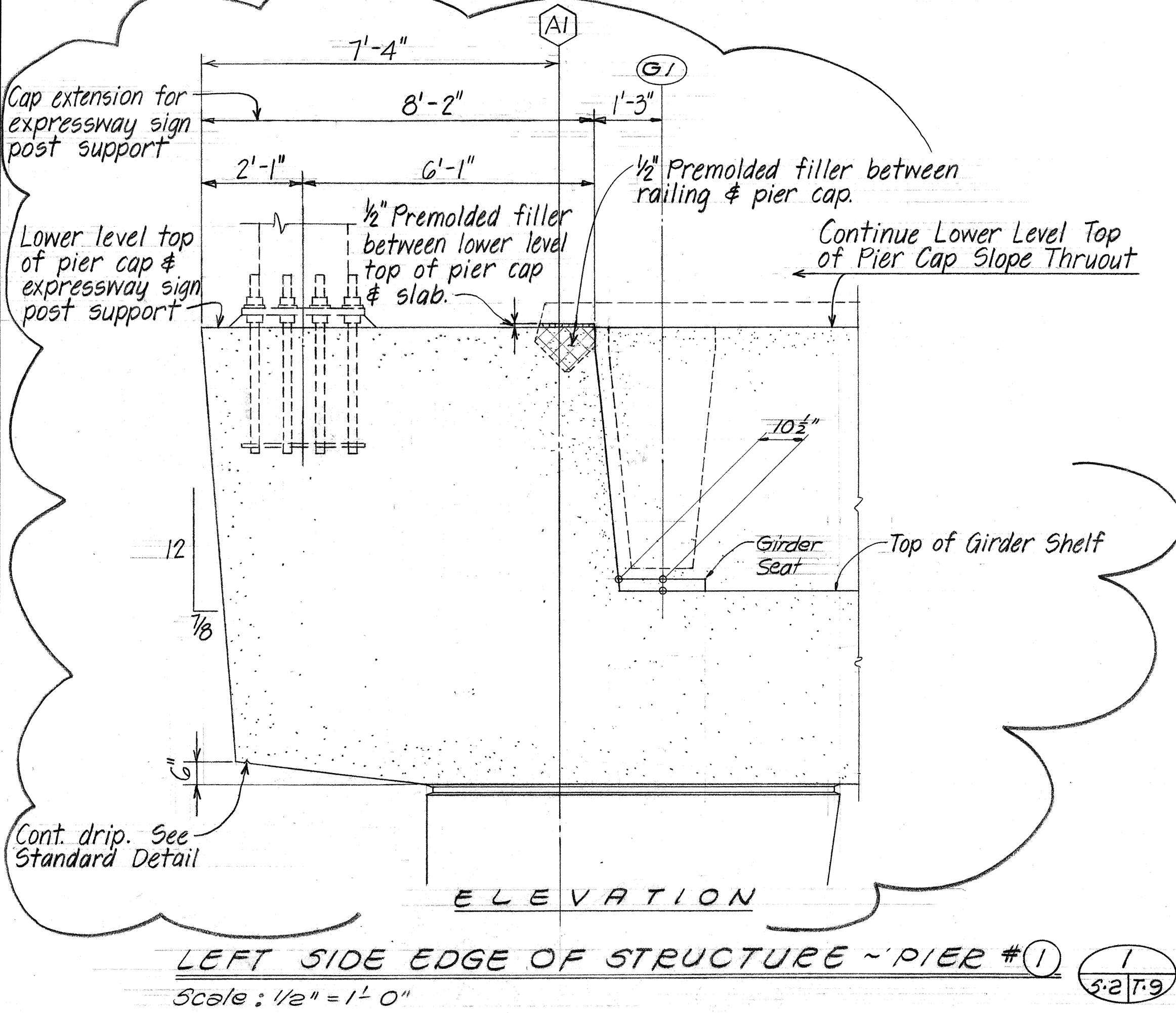
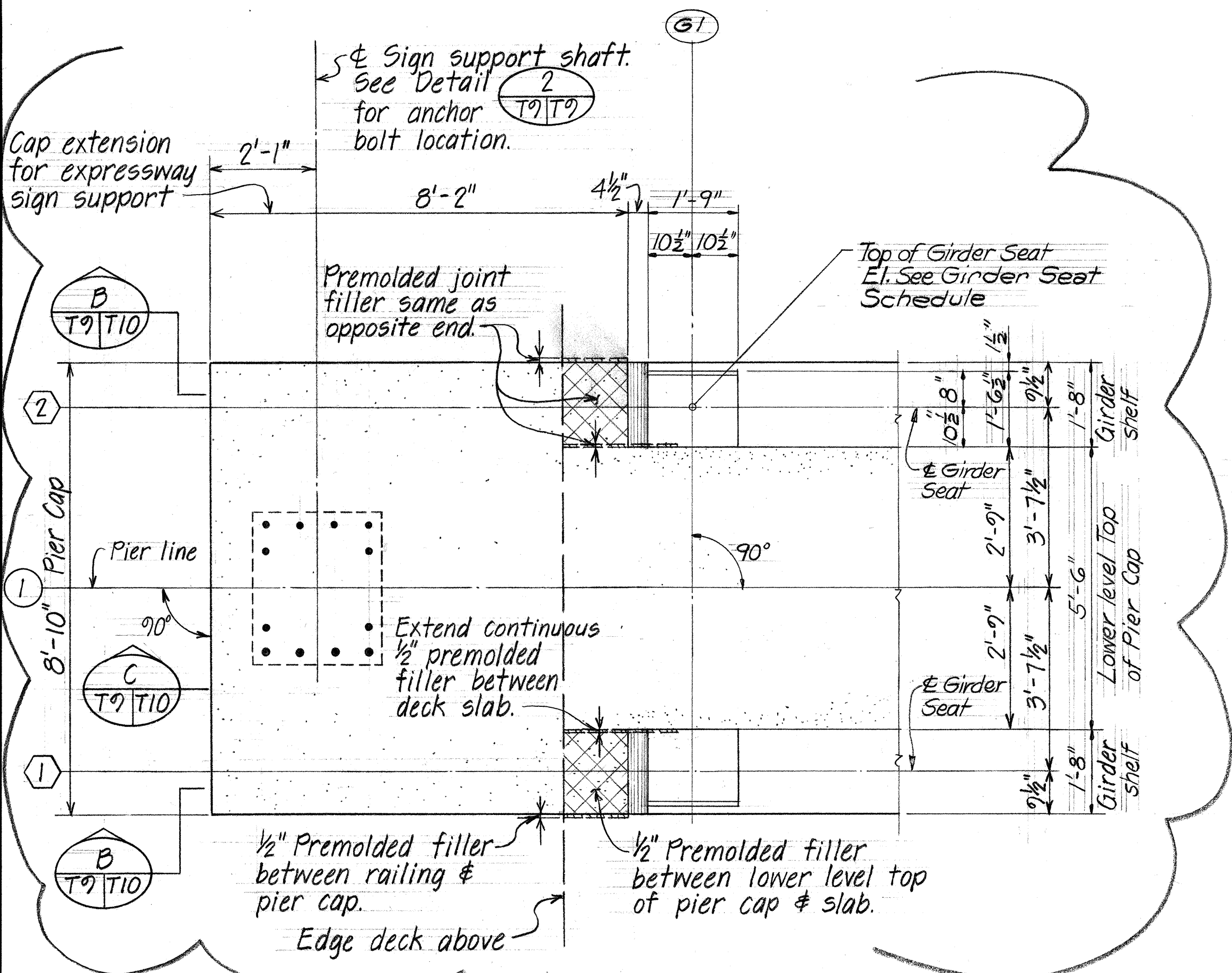
EDGE OF STRUCTURE DETAILS
LEFT SIDE, PIER #2 - LEFT & RIGHT SIDE, PIER #3

KEEHI INTERCHANGE
F.A.I. PROJ. NO. I-HI-1 (130):17

Scale: As Shown Date: Aug. 16, 1976

SHEET NO. T.7 OF 20 SHEETS

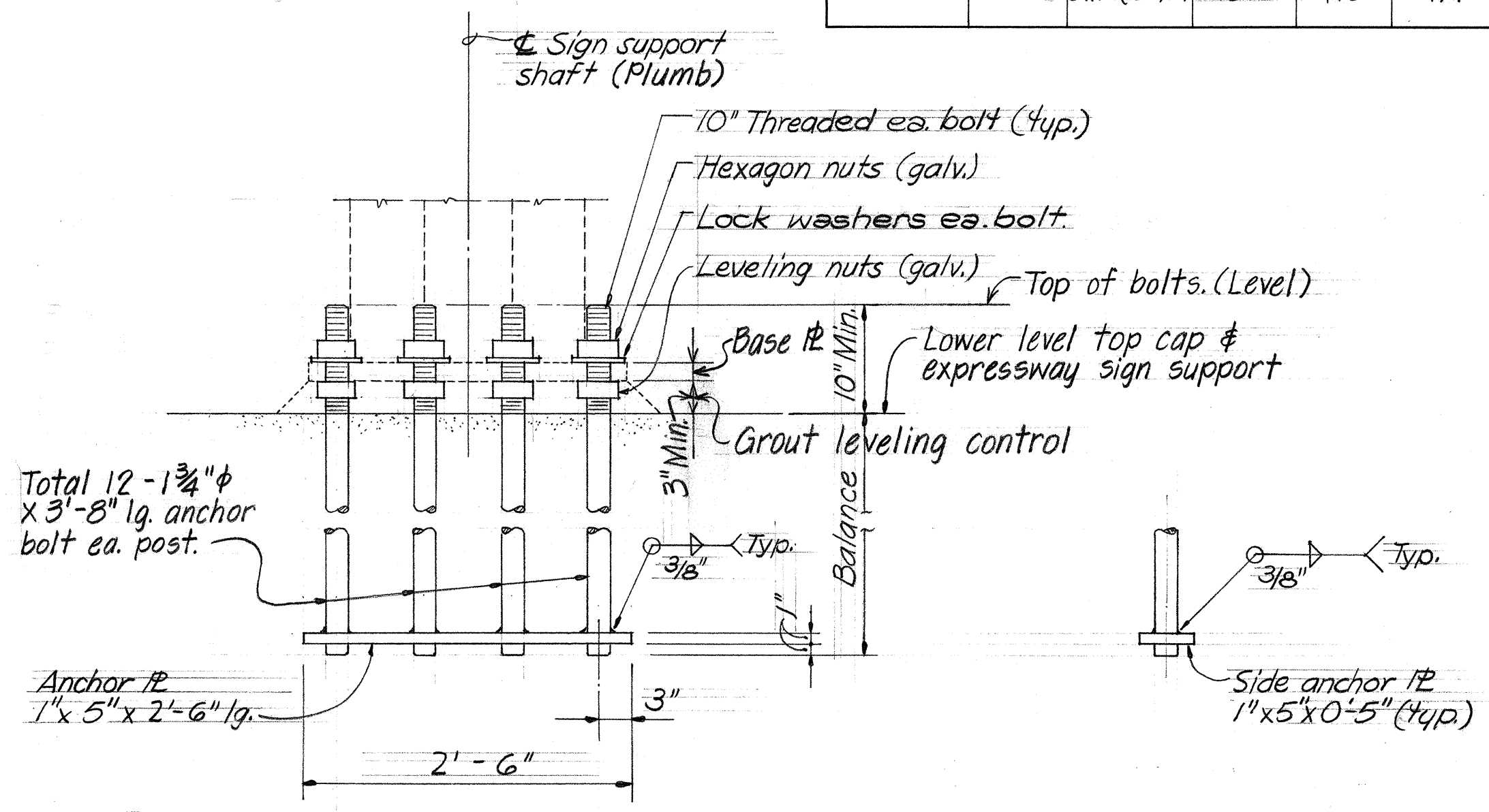
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1(130):17	1976	148	174



NOTES:

All anchor bolts to be located plumb.

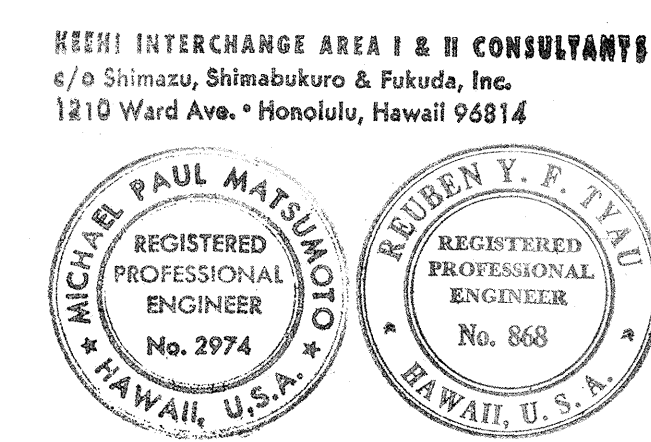
Anchor bolts & assemblage shall be galvanized after fabrication.



SIGN POST SHAFT - ANCHOR BOLT DETAIL

Scale: 1" = 1'-0"

{ 3 Denotes changes to C.O. 148 - 5/5/77

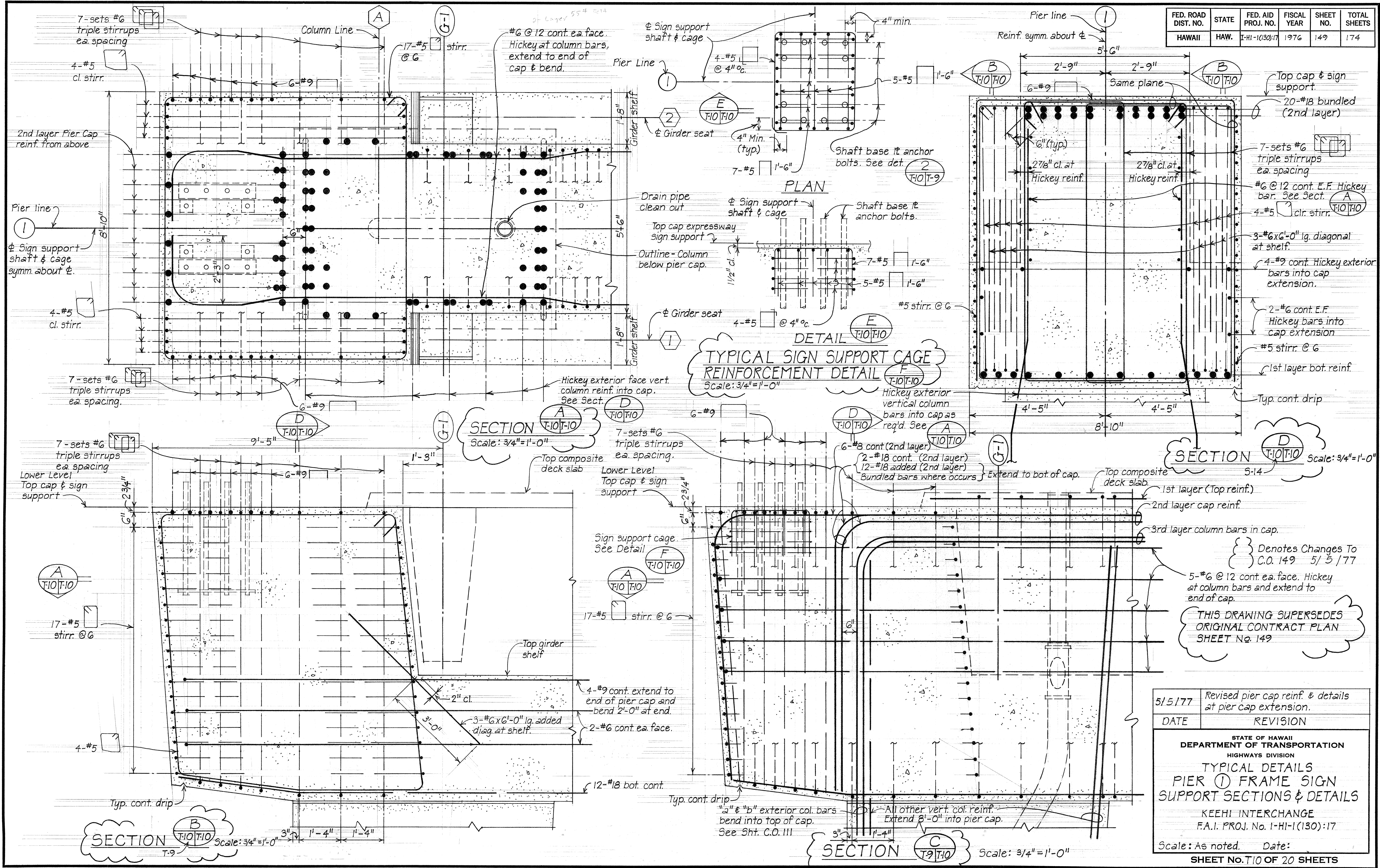


This work was prepared by me or under my supervision.

Michael Matsuno

5/5/77	Revised Pier No. 1 cap extension and sign post shaft location.
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION TYPICAL DETAILS PIER 1 FRAME SIGN SUPPORT DETAILS	
KEEHI INTERCHANGE F.A.I. PROJ. NO. 1-HI-1(130):17	
Scale: As shown.	Date: Aug. 16, 1976
SHEET NO. T9 OF 20 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(130):17	1976	149	174



ORIGINAL PLAN	DATE
DRAWN BY	
TRACED BY	
DESIGNED BY	
CHECKED BY	
NO.	

KEEHI VI

Side View Dimensions: Overall height 6'-0", top flange width 3'-0", top flange thickness 4'-2", top flange width 10 1/2", top flange width 4", top flange width 7", top flange width 1", top flange width 0", top flange width 9 1/2", top flange width 2'-2", top flange width 3/4" Chamfer (Typ.), top flange width 0" (Typ.), top flange width 3/4" Rad. (Typ.), top flange width 5", top flange width 1'-1", top flange width 9 1/2", top flange width 6 1/2", top flange width 2'-0", top flange width 1'-1/2", top flange width 1'-2 1/2", top flange width 7'-6", top flange width 3", top flange width 1'-2", top flange width 5 3/4", top flange width 2'-10", top flange width 3'-7 1/2", top flange width 8", top flange width 9 1/2", top flange width 0" (Typ.), top flange width 1" (Typ.) Cover, top flange width 4'-4 (Cont).

Material Specifications: #4 Type A, #5 Type B (in pairs), #5 Type C.

KEEHI IV

Side View Dimensions: Overall height 4'-10", top flange width 2'-0", top flange thickness 3'-4", top flange width 8 3/4", top flange width 6 1/2", top flange width 1", top flange width 0", top flange width 9 3/4", top flange width 2'-2", top flange width 3/4" Chamfer (Typ.), top flange width 0" (Typ.), top flange width 3/4" Rad. (Typ.), top flange width 5", top flange width 1'-1", top flange width 9 1/2", top flange width 6 1/2", top flange width 2'-0", top flange width 1'-1/2", top flange width 1'-2 1/2", top flange width 6'-3", top flange width 3", top flange width 1'-2", top flange width 5 3/4", top flange width 2'-10", top flange width 3'-1", top flange width 8", top flange width 9 1/2", top flange width 0" (Typ.), top flange width 1" (Typ.) Cover, top flange width 4'-4 (Cont).

Material Specifications: #4 Type A, #5 Type B (in pairs), #5 Type C.

NOTES:

Note "A": Reinforcement bars shall be furnished in accordance with the specifications of the American Institute of Steel Construction, Inc., and shall be furnished in accordance with the specifications of the American Institute of Steel Construction, Inc.

4-#4 (Cont.)

Note "A"

#4 Type A

#5 Type B (in pairs)

1" Typ. Cover

0" (Typ.)

3/4" Rad. (Typ.)

#5 Type C

3/4" Chamfer (Typ.)

NOT TO SCALE

Technical drawing of AASHTO Type II bridge pier and abutment reinforcement details. The drawing shows a cross-section of a pier with reinforcement bars (2-#4, #5 Type B, #5 Type C) and a cover. Dimensions include overall height (3'-0"), width (1'-0"), and various offsets (1'-3", 3'-6", 6", 1'-6"). A note "Note A" points to a specific reinforcement detail. The drawing is marked with a large "X" and the text "AASHTO TYPE II" is at the bottom.

1. Concrete shall have a minimum ultimate 28 day cylinder strength of 6,000 psi.
2. Prestensioned strands shall be 7 wire $\frac{1}{2}$ " Φ stress-relieved steel strands (area = 0.153 in²) with an ultimate strength of 270 ksi. For properties see State Standard Specifications.
Initial strand stress (before any losses): 199 ksi.; Initial loss = 20,000 psi.
Total loss due to creep, shrinkage, elastic shortening and relaxation of steel = 45,000 psi.
3. Non-prestressed reinforcing steel shall be Grade 40 unless otherwise noted. For properties see State Standard Specifications.
4. The calculated camber includes the effect of the initial prestress force and the weight of the beam after removal from bed. Negative values shown for calculated camber indicate a net upward deflection. Calculated camber values shown do not account for any camber growth of the beam. The actual camber shall not exceed the calculated camber shown on the plans by more than 100%.
5. The dead load deflection includes the combined effects of the weight of slab, haunch and diaphragm. (See Slab Camber Schedule).
6. Strand pattern shall be symmetrical about the longitudinal $\pm$ of the beam.
7. Strand release sequence shall not induce any lateral deflection of the beam.
8. Contractor shall submit his proposed strand pattern and releasing sequence to the Engineer for approval.
9. During curing care shall be taken to avoid any lateral deflection of the beam due to improper orientation.
10. Lifting devices shall be placed as close as possible to the center line of bearings of the beam. Details and locations of lifting devices shall be submitted to the Engineer for approval. Such approval does not relieve the Contractor of his responsibilities if beam is damaged due to failure of the lifting device.
11. See Framing Plans for locations of diaphragms, type, mark number and length of individual girders. Lengths shown do not include effect of elastic shortening.
12. See Prestressed Beam Schedule, 5th, T-13.

Stirrup Types A, B & C

KEEH VI: 6 Sets @ 3"
KEEH IV: 5 Sets @ 3"

1 1/2" Preformed holes or Inserts for end diaphragm as req'd

End of beam to be 16" vertical

1 - #8
16" @ $\perp$ Beam

Chamfer 1" (Typ)

$\perp$ Bearing

Types A, B & C @ D1

Types A & B @ D2

Types A & B @ D3

Stirrup Spacing

$\perp$ Span (Symmetrical except for end cuts. See Plan)

Roughen with rake full length after initial setting. Scores to be transverse to beam.

1 1/2" Preformed holes or Inserts for intermediate diaphragm. For location of intermediate diaphragms see Framing Plans.

Center of gravity of prestress force

Point of Drape

LONGITUDINAL SECTION

No Scale.

The diagram illustrates a beam with a parabolic profile. The top curve represents the 'Calculated Camber (See Note 4)', and the bottom curve represents the 'Dead Load deflection (See Note 5)'. The beam is supported at two points, labeled 'Brg.' (Bridges). The horizontal axis is marked with '0' at the left end and '100' at the right end. The vertical axis is marked with '0' at the top and '100' at the bottom. The camber curve is labeled 'Camber' and the deflection curve is labeled 'Deflection'.

The drawing consists of two views of a beam:

- ELEVATION:** Shows the front view of the beam. It has a total length of 4'-0" and a width of 1'-8". The top edge features a 1" chamfer. The beam is divided into two sections by a vertical line.
- SECTION:** Shows the cross-section of the beam. The total width is 3'-6". The total height is 6'-0". The bottom edge has a 3/4" chamfer. The section is divided into two parts: a left part with a width of 2'-2" and a right part with a width of 4'-11". The right part has a height of 5' and a bottom width of 8".

(This detail applies to Keehi type ☒ beams if post-tensioned)

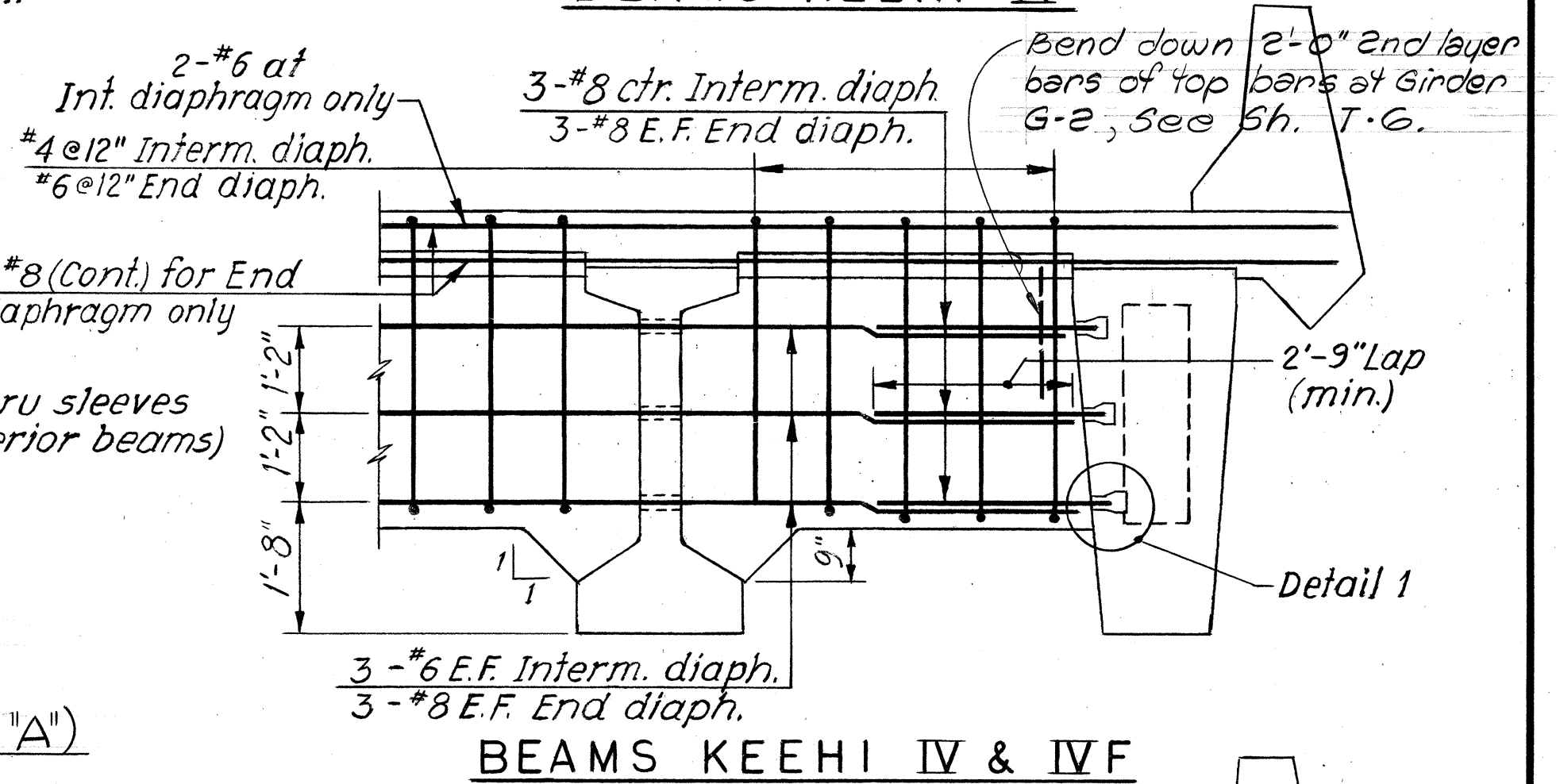
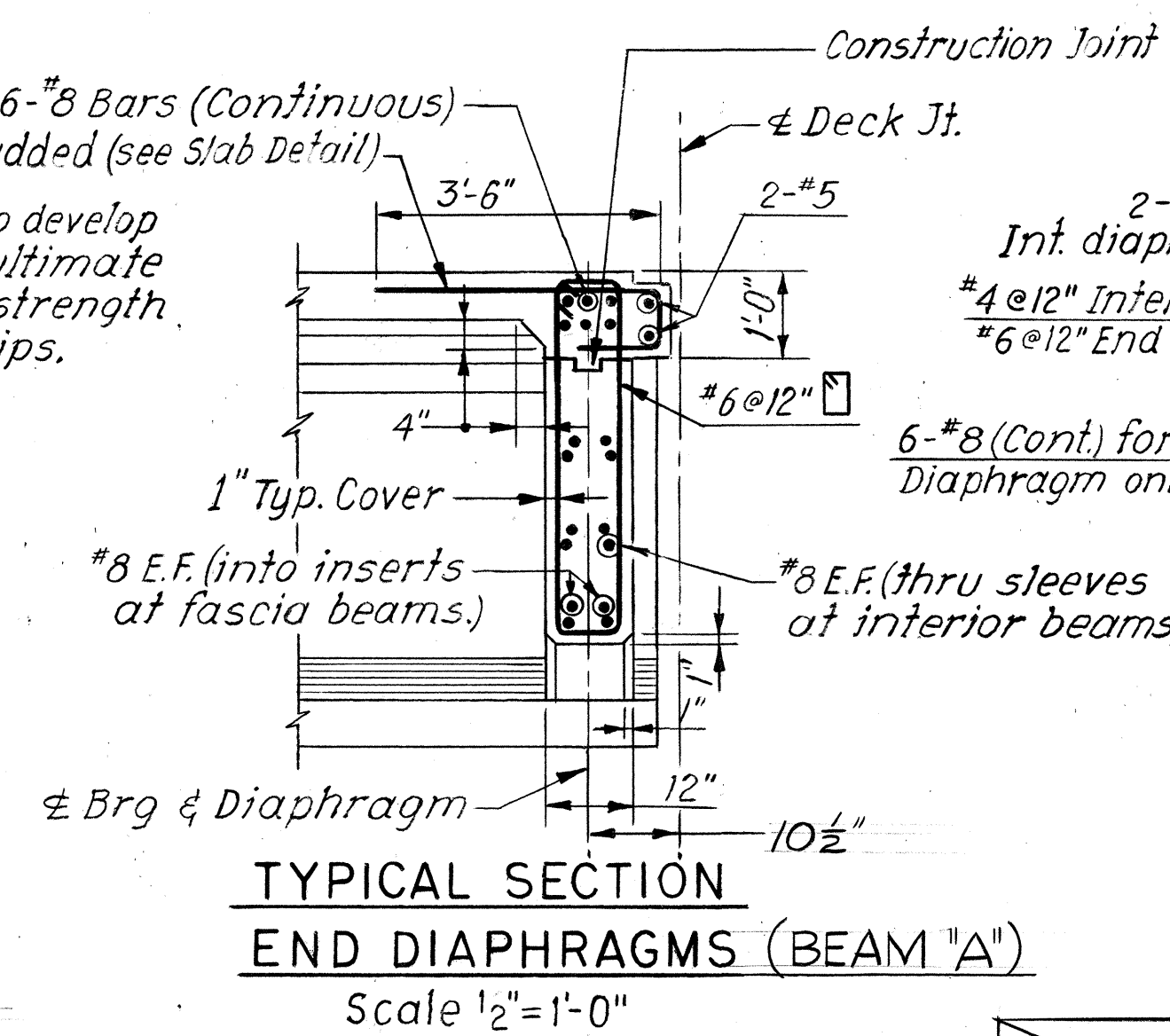
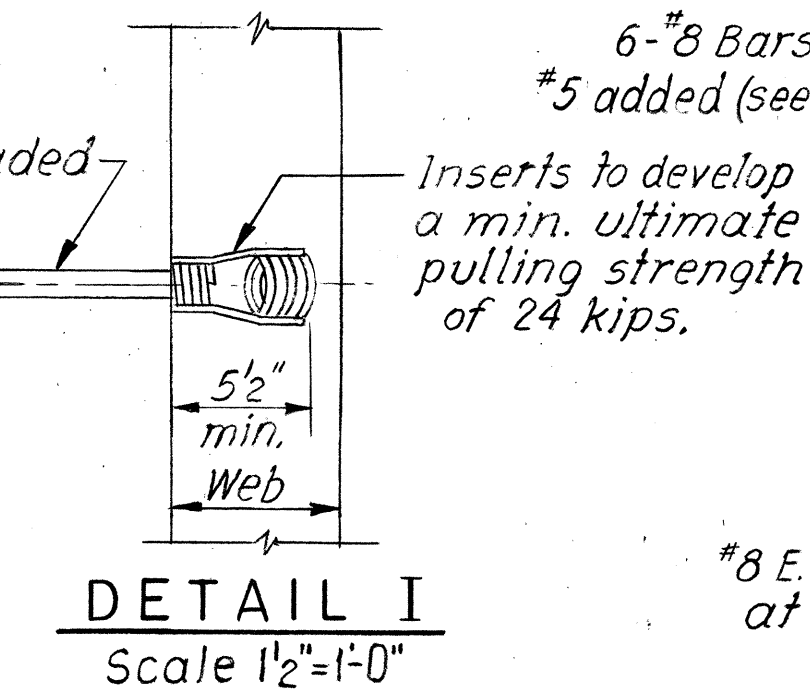
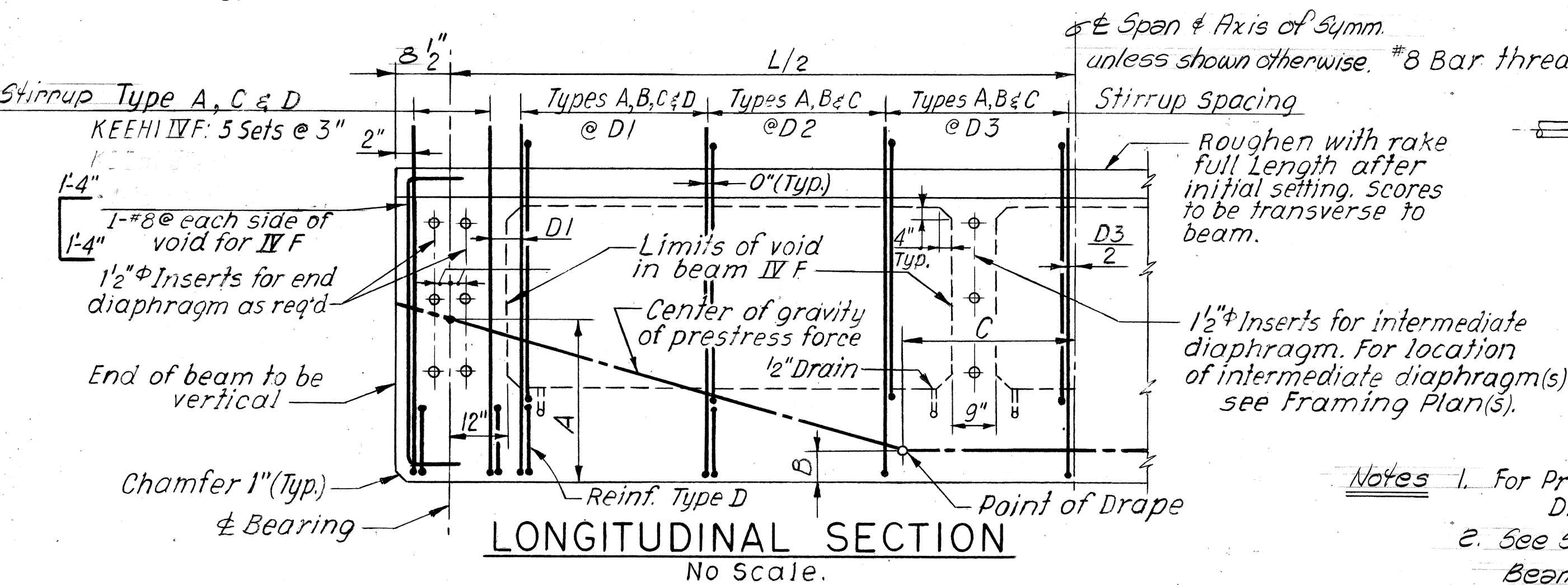
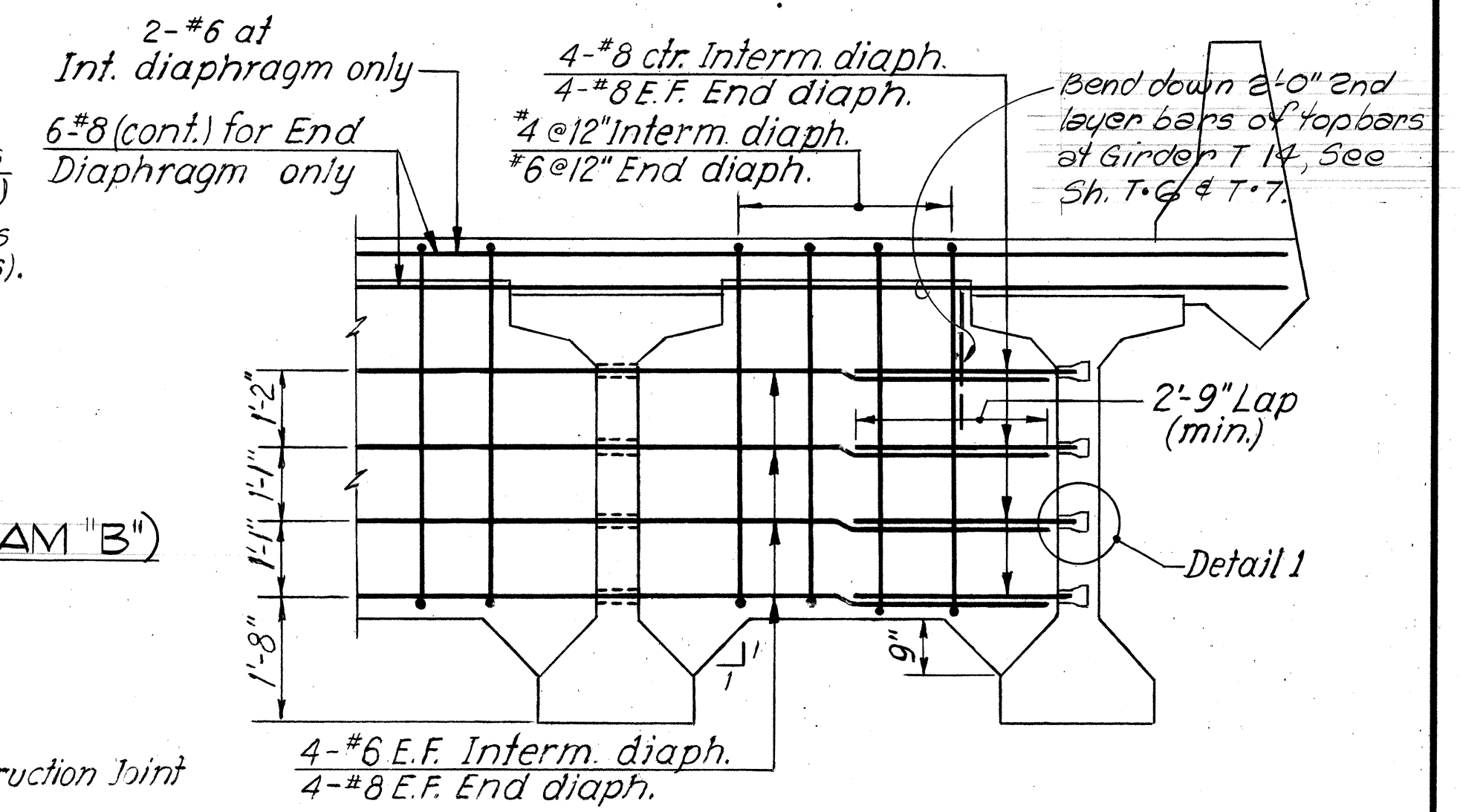
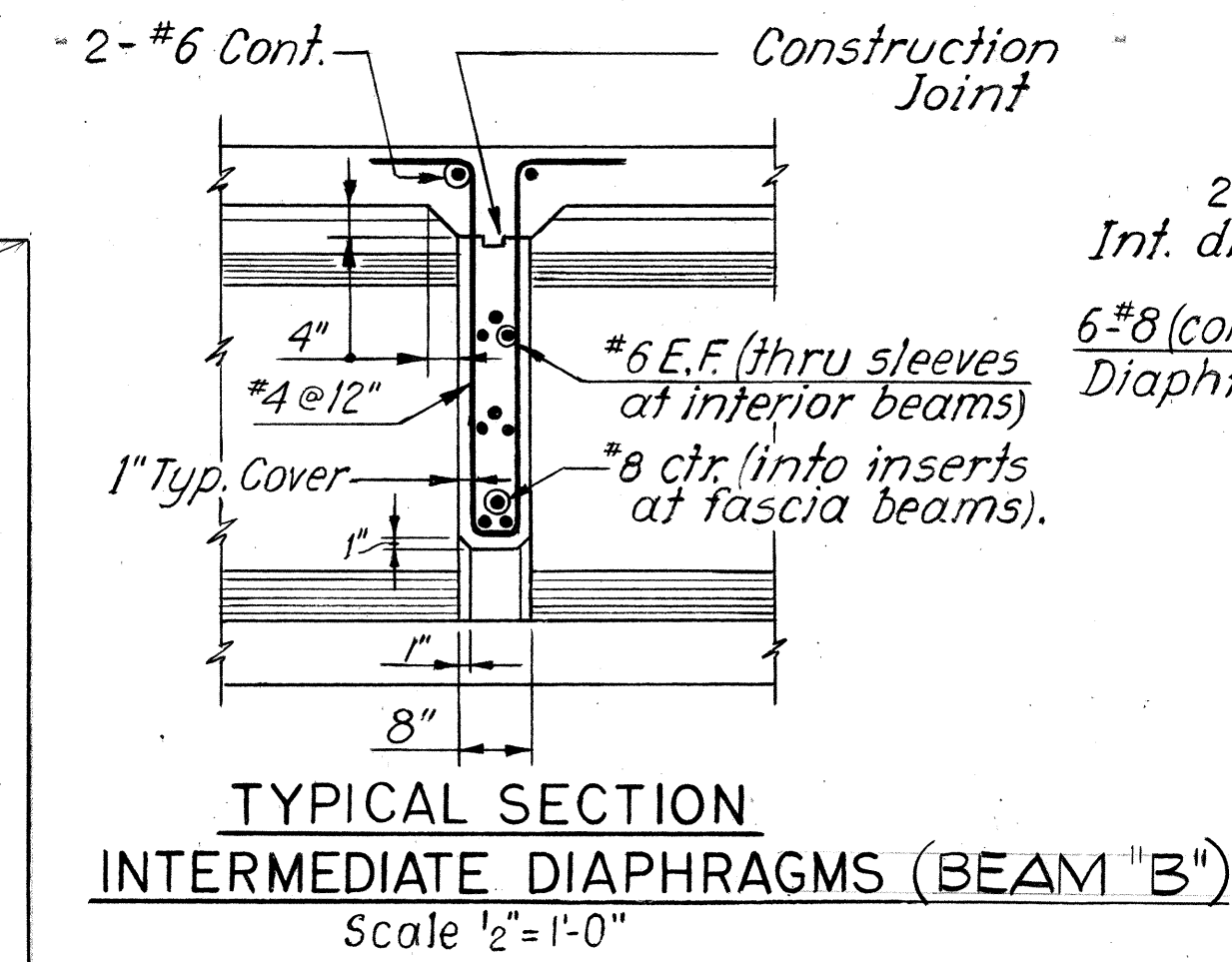
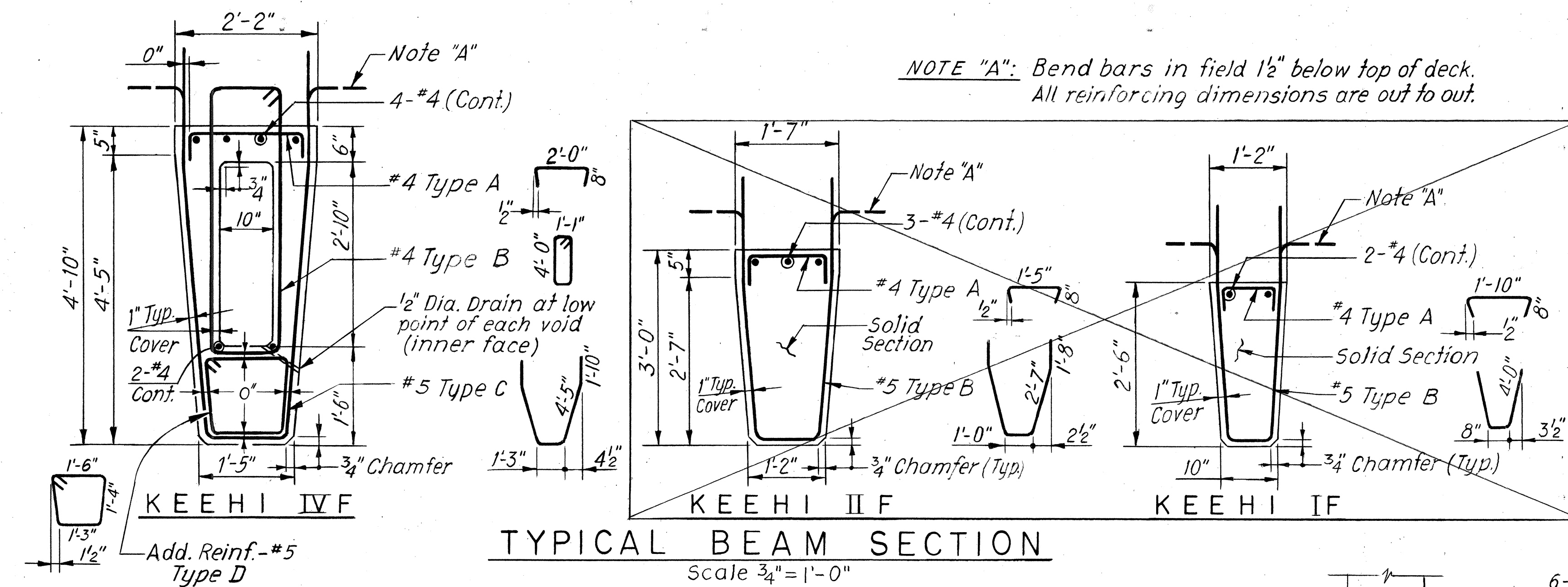
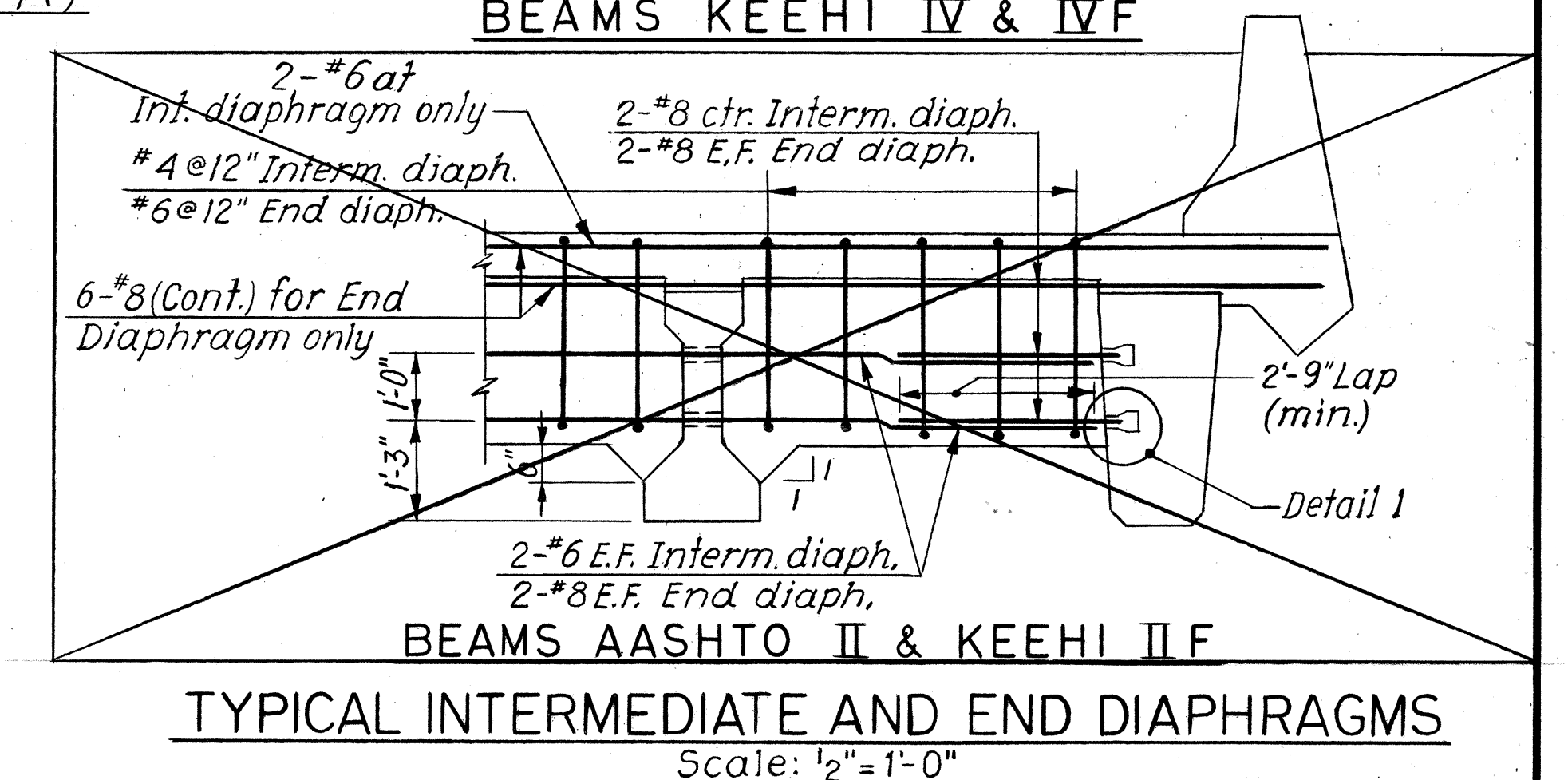
CENTER OF GRAVITY OF PRESTRESSED FORCE AT MASKED STRANDS

[illegible]

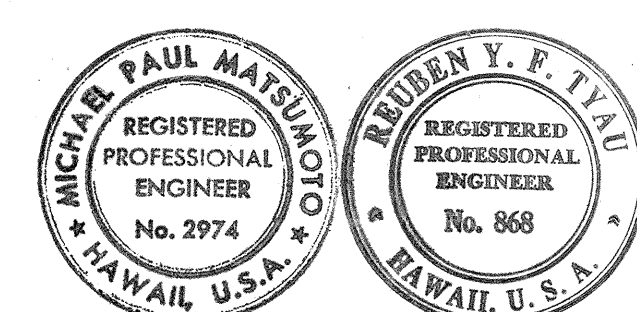
PRESTRESS BEAM DETAILS
SHEET 1 OF 2

KEEHI INTERCHANGE
F.A.I. PROJECT NO. 1-HI-1(130)17
SCALE: AS SHOWN DATE: AUG. 16 '76
SHEET No. 7-// OF 20 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HH-1(130):17	1976	151	174

[illegible]

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TYPICAL DETAILS

PRESTRESS BEAM DETAILS

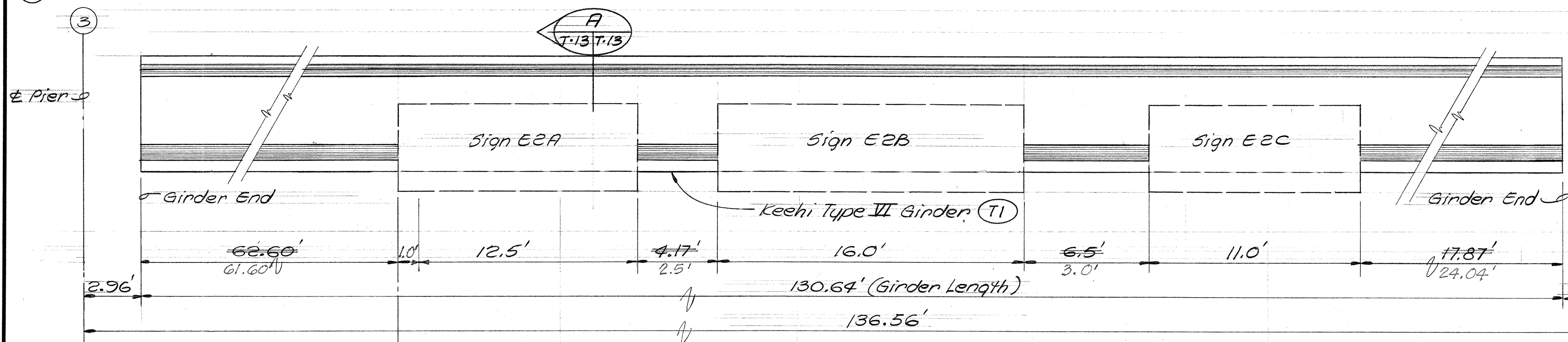
SHEET 2 OF 2

KEEHI INTERCHANGE
F.A.I. PROJECT NO. 1-HI-1(130)117
SCALE: AS SHOWN DATE: AUG. 16 '76
SHEET No. 7/2 OF 20 SHEETS

PRESTRESSED BEAM SCHEDULE

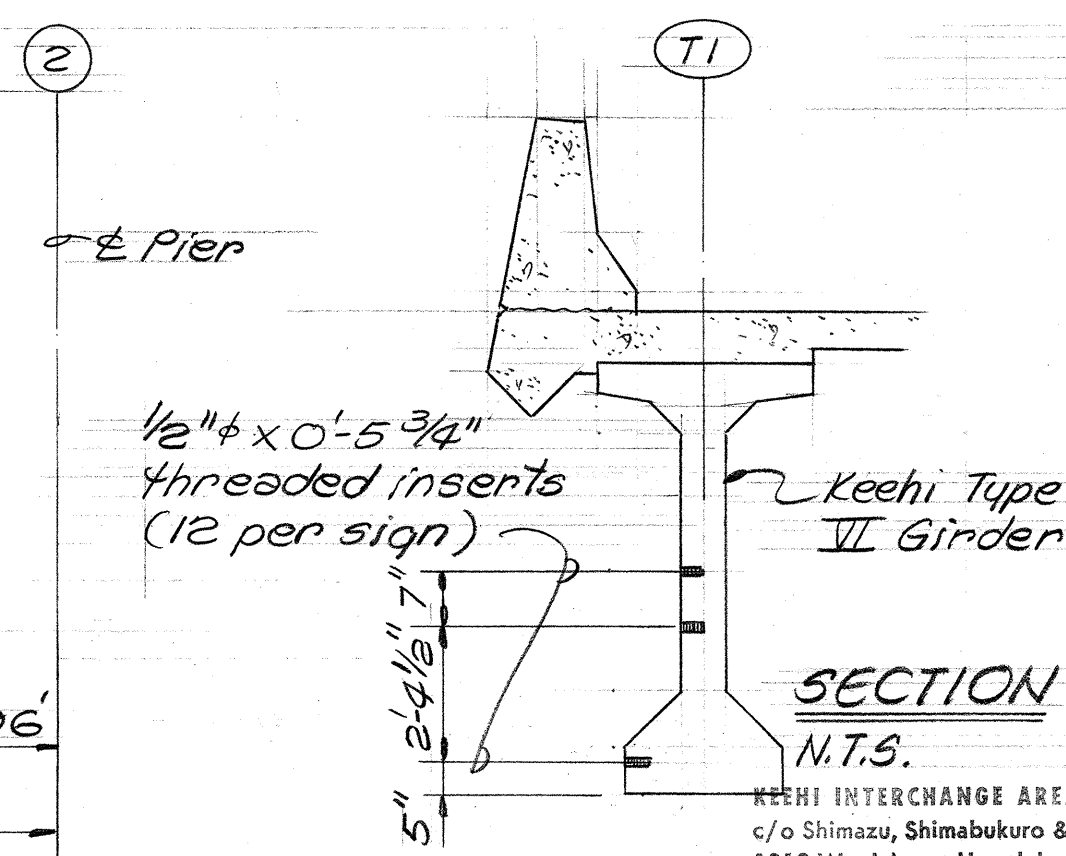
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1(130)17	1976	152	174

SPAN NO.	BEAM SECTION	BEAM MARK NO.	BEAM TYPE	INITIAL PRE-STRESS FORCE (KIPS)	FINAL PRESTRESS FORCE (KIPS)	CALCULATED CAMBER SEE NOTE 4	LOCATION OF CG OF PRESTRESSED FORCE			STIRRUP SPACING			CONCRETE STRENGTH @ TRANSFER (PSI)	MASK STRANDS @ EA. END FOR NET INITIAL PRE-STRESS FORCE TRANSFERRED TO CONCRETE (KIPS)	DISTANCE OF MASKED STRANDS FROM EA. END	DISTANCE P_m TO CG OF STRANDS (EXCLUSIVE OF MASKED STRANDS)	REMARKS	
							A	B	C	D1	D2	D3						
①	1	Keehi IV	T1-T8	P1	1275	987	-1.42"	15.38"	7.00"	L/10	18 @ 8"	9 @ 12"	16"	4500	—	—	—	Calculated cambers for P2 beams are average values
		Keehi IV	T1-T2	P2A	911	705	- .77"	13.38"	9.01"		9 @ 9"	8 @ 12"		4200	—	—	—	
2		Keehi IV	T3-T4	P2B			- .68"								—	—	—	
		Keehi IV	T5-T7	P2C			- .59"								—	—	—	
②	3	Keehi VI	T2-T13	P3A	1700	1316	-1.94"	18.27"	7.49"		15 @ 11"	11 @ 15"	22"	4500	1457	L/10	19.44"	For sign support inserts in Girder T1, see elevation this sheet.
			Keehi VI	T1 & T14	P3B	1761	1363	-2.16"	17.70"	7.29"		15 @ 11"	11 @ 15"				L/6.67	
③	4	Keehi IV	T1-T5	P4A	1215	940	-1.27"	14.38"	7.28"		12 @ 9"	12 @ 11"	16"		—	—	—	
			Keehi IV	T6-T8	P4B			- .84"		11.38"		10 @ 9"	8 @ 12"			—	—	
④	5	Keehi IV	T1-T8	P5			-1.16"		8.25"		12 @ 9"	12 @ 11"			—	—	—	
⑤																		
①	1	Keehi IV F	G1 & G2	EP1	1518	1175	-1.49"	18.96"	10.85"	L/10	12 @ 9"	10 @ 11"	16"	4500	1336	L/10	19.60"	
		Keehi IV F	G1	EP2A	1093	846	- .33"	17.71"	17.71"	—	6 @ 11"	5 @ 14"		4200	972	L/10	19.64"	
2		Keehi IV F	G2	EP2B			- .56"		14.16"	L/10	8 @ 10"	7 @ 13"			972	L/10		
	③		Keehi IV F	G1	EP4A	1336	1034	-1.28"	18.71"	9.77"		12 @ 9"	9 @ 12"		—	—	—	
4			Keehi IV F	G2	EP4B	1093	846	- .94"	17.71"	8.30"		9 @ 10"	7 @ 14"			1032	L/10	18.03"
	④	5	Keehi IV F	G1 & G2	EP5	1336	1034	-1.24"	18.71"	9.93"		12 @ 9"	9 @ 12"		4500	—	—	—
⑤																		

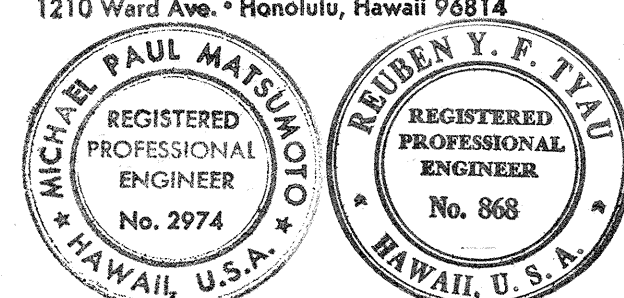


Notes 1. For location of inserts for sign supports, see sign E-2 detail Sh. E5-6.
2. All lengths measured along Σ girder

ELEVATION - MAUKA SIDE FASCIA SIGN PANEL H-1 WB VIADUCT
N.T.S.



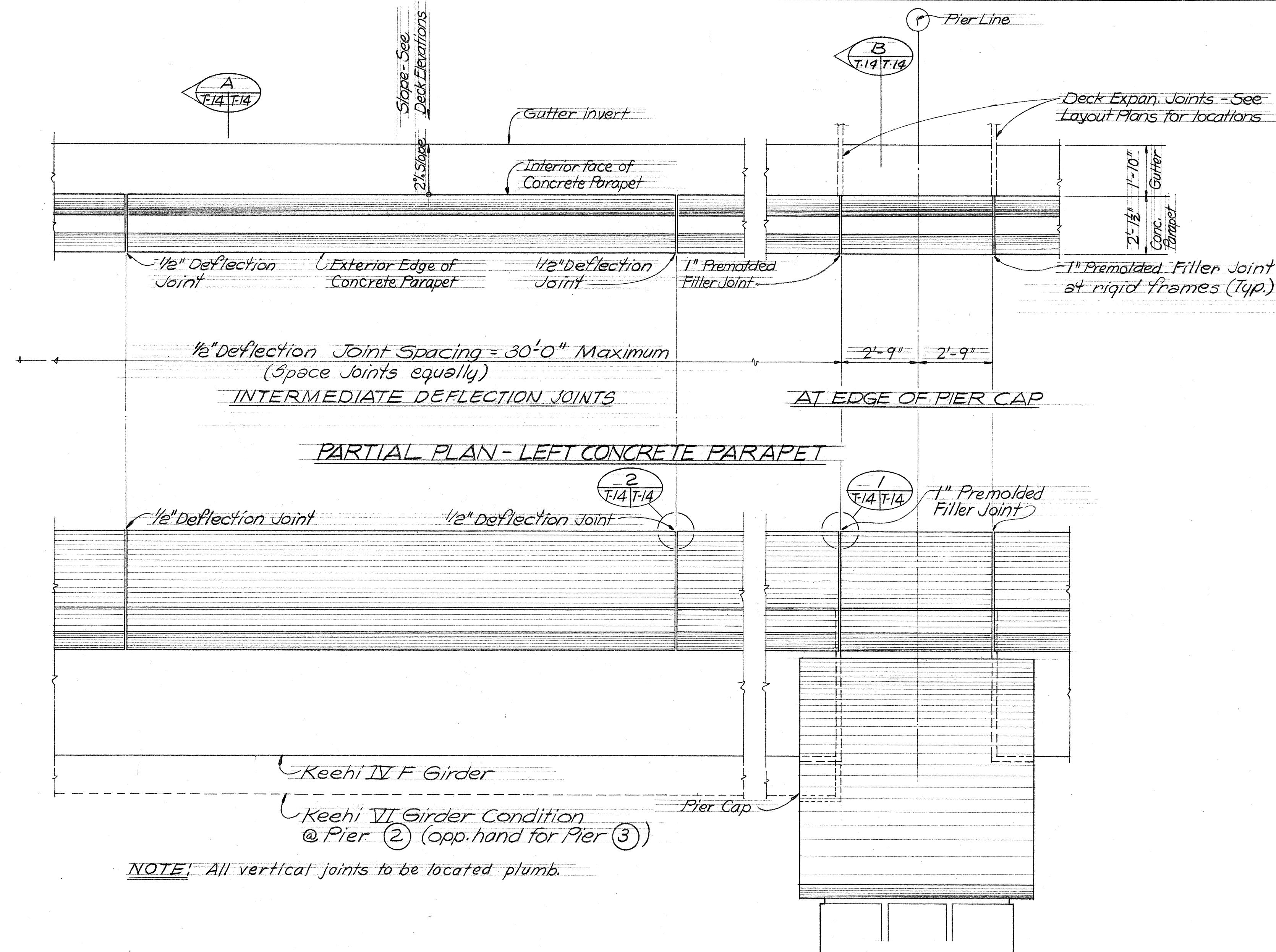
NOTE: See Sh. T-11 & T-12 for Beam Details.



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Michael Paul Marumoto

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TYPICAL DETAILS
PRESTRESSED BEAM SCHEDULE
KEEHI INTERCHANGE
F.A.I. PROJ. NO. 1-HI-1 (130) 17
No Scale Date: Aug. 16, 1976
SHEET NO. T-13 OF 20 SHEETS

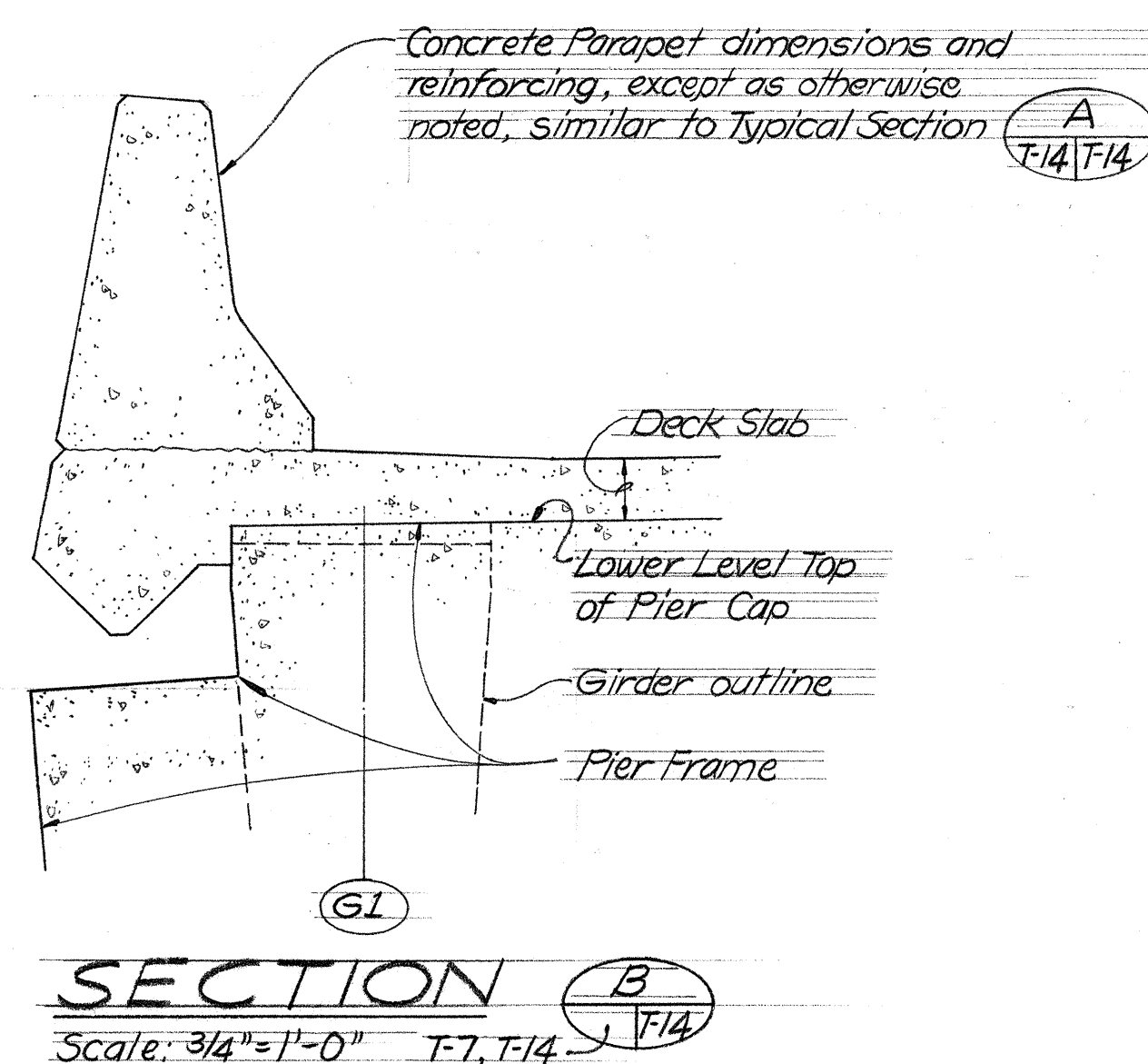
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(130):17	1976	153	174



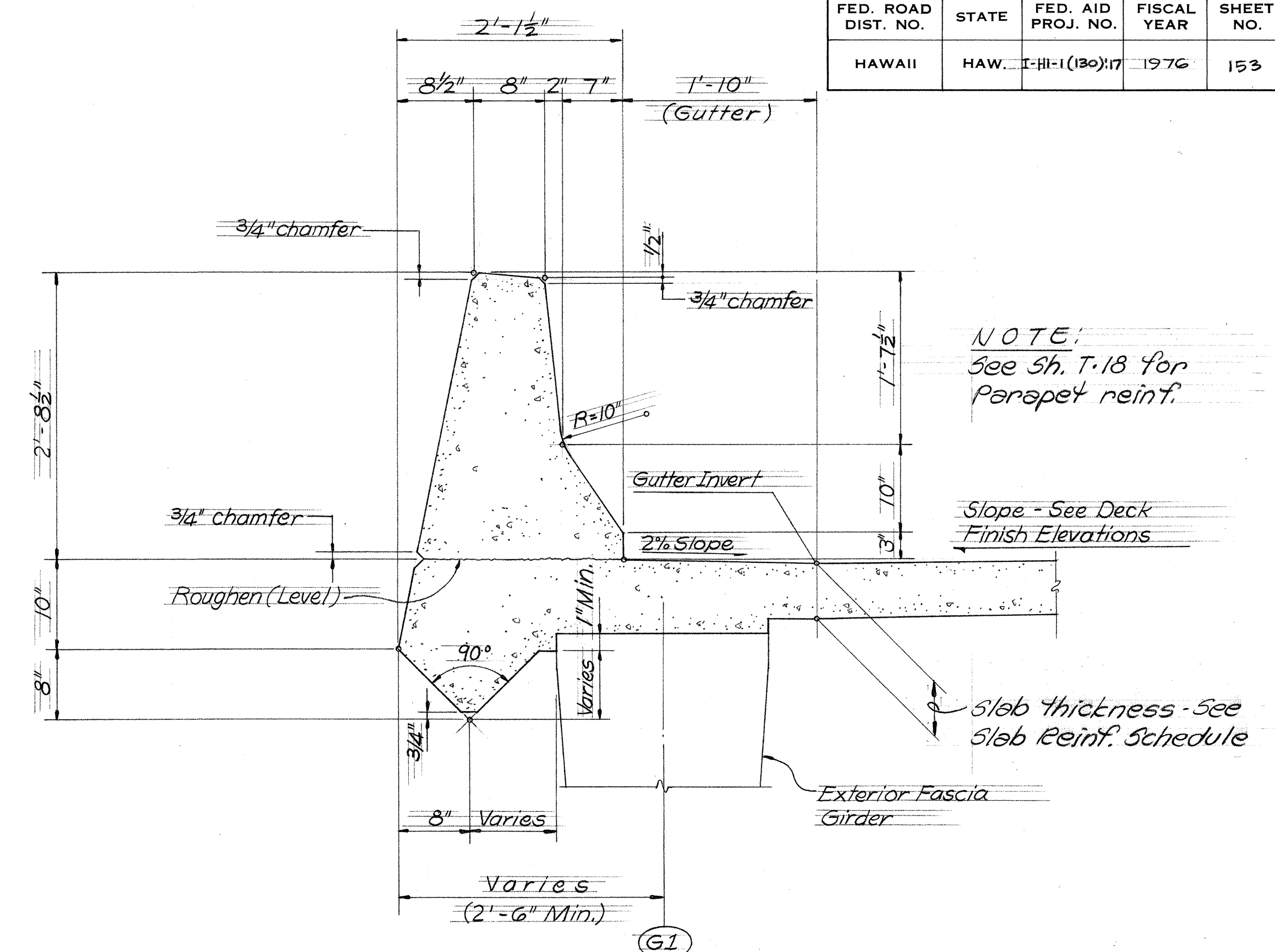
NOTE: All vertical joints to be located plumb.

PARTIAL EXTERIOR ELEVATION-LEFT CONCRETE PARAPET

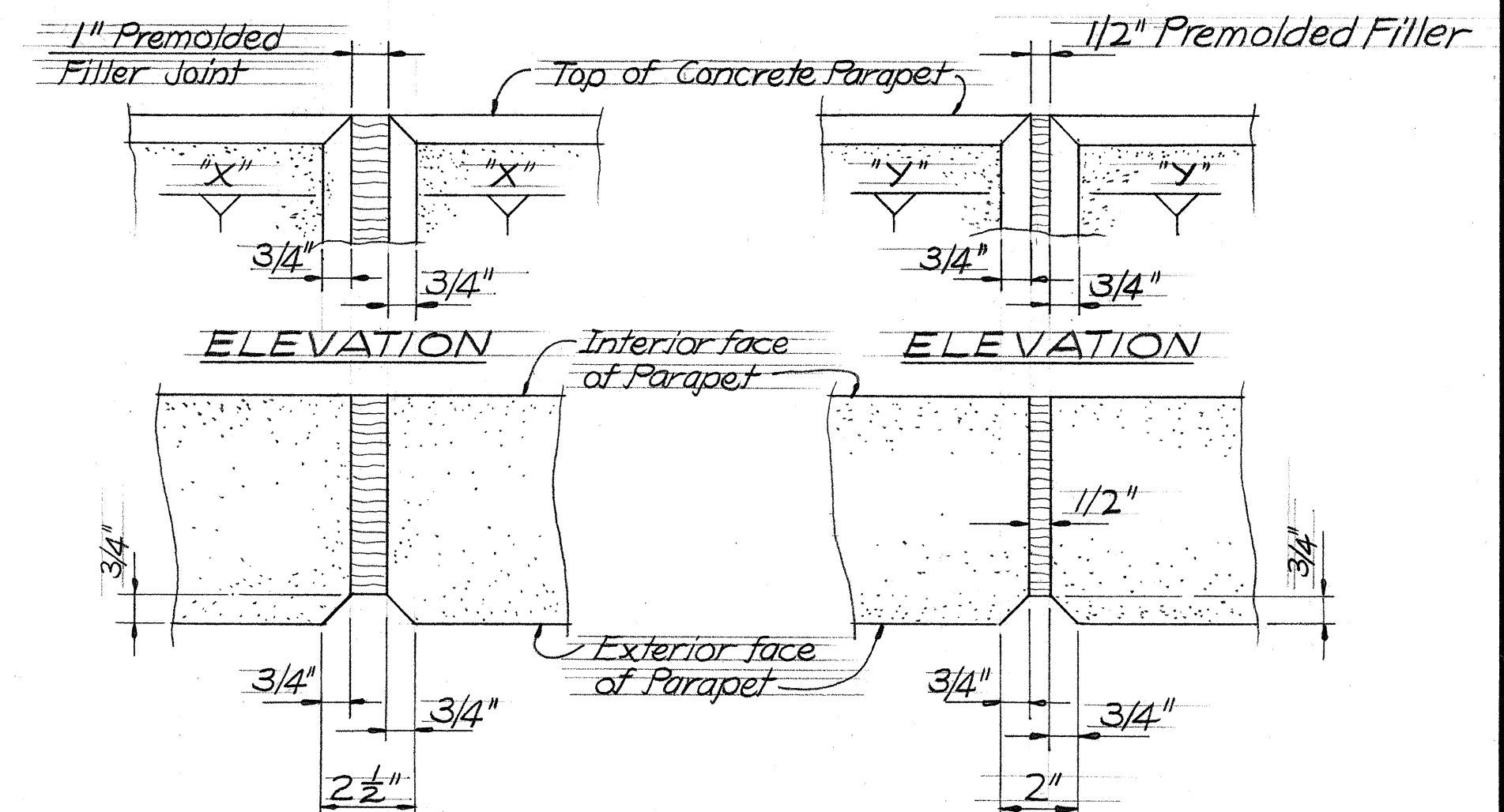
DETAIL 1
Scale: 3/8" = 1'-0"



SECTION B
Scale: 3/4" = 1'-0" T-7, T-14



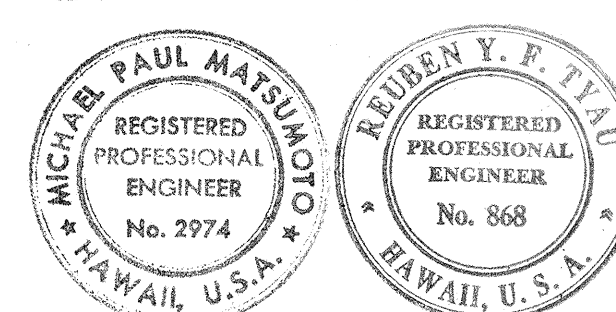
TYPICAL SECTION A
Scale: 1" = 1'-0"



SECTION 'X-X' TYP. 1" PREMOLDED FILLER JOINT
DETAIL 1 Scale: 3" = 1'-0" T-14, T-15

SECTION 'Y-Y' TYP. 1/2" DEFLECTION JOINT
DETAIL 2 Scale: 3" = 1'-0" T-14, T-15

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL DETAIL

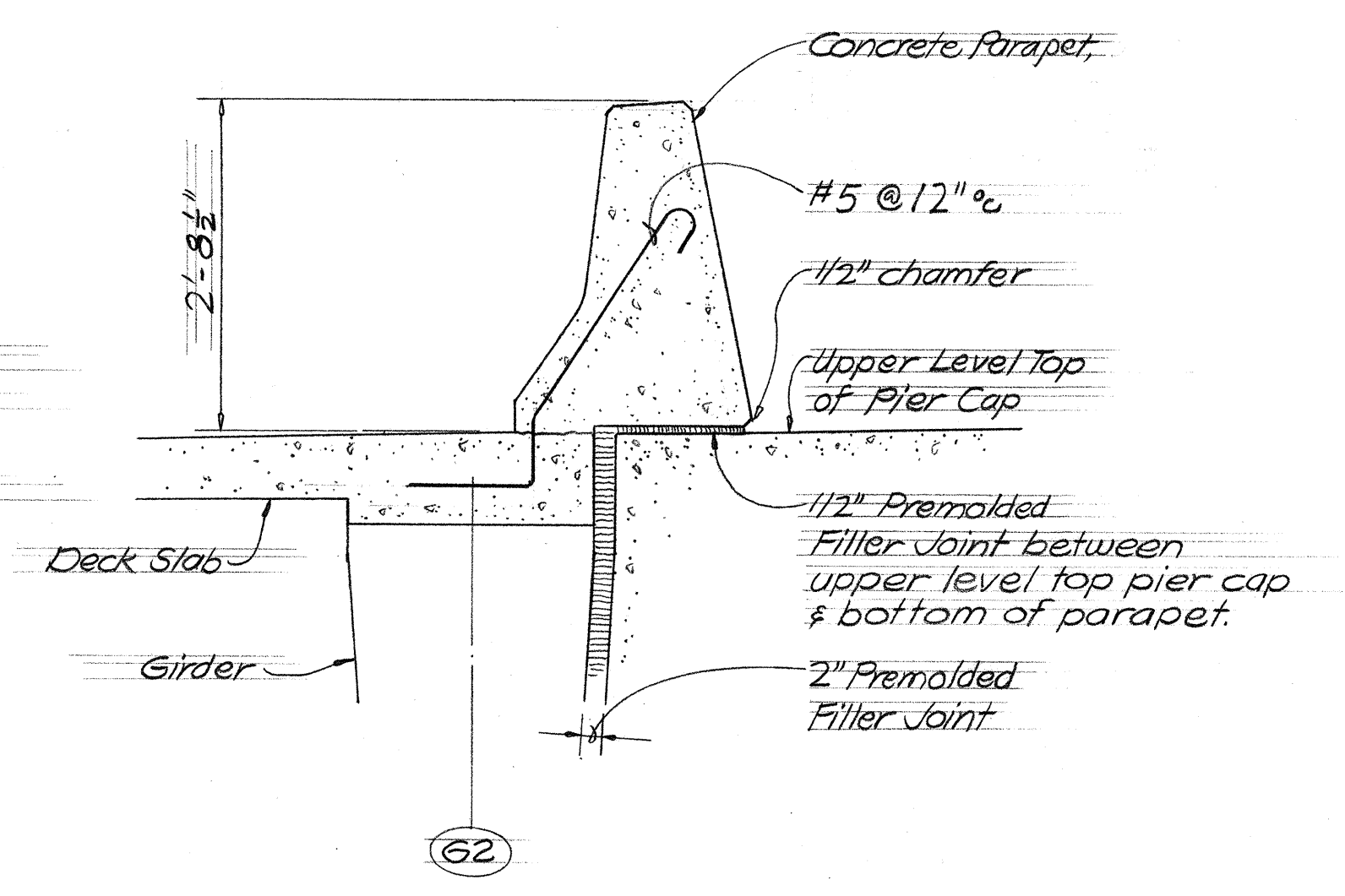
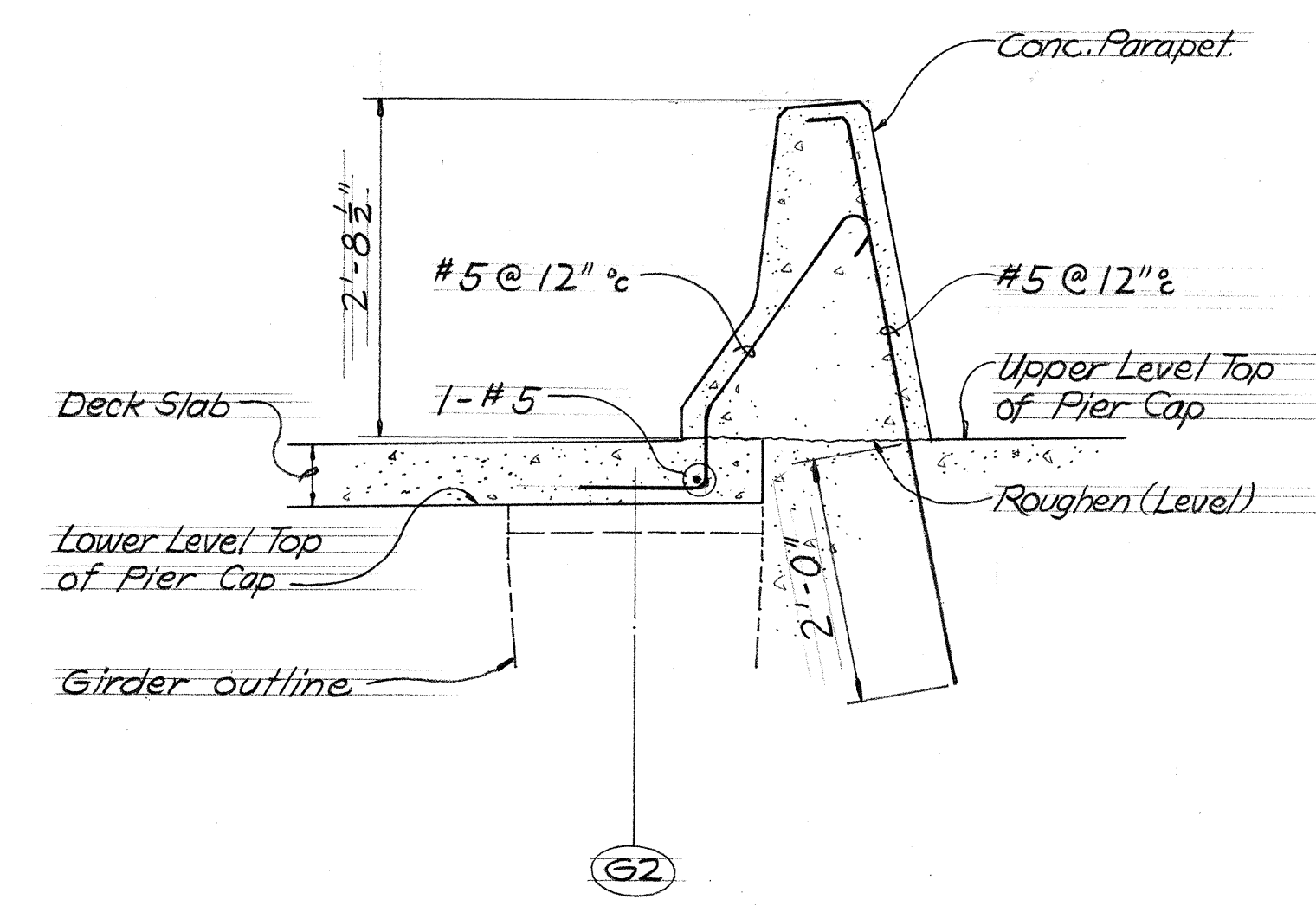
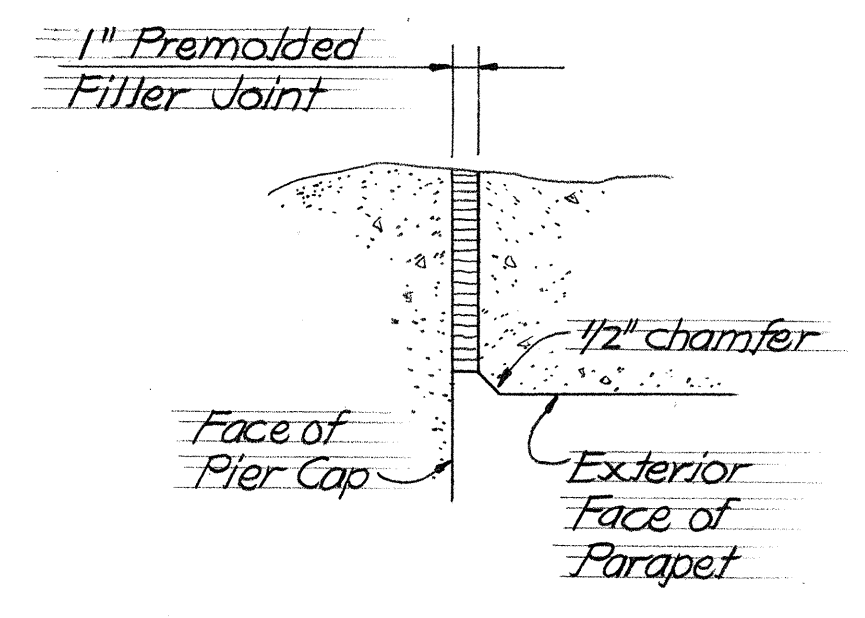
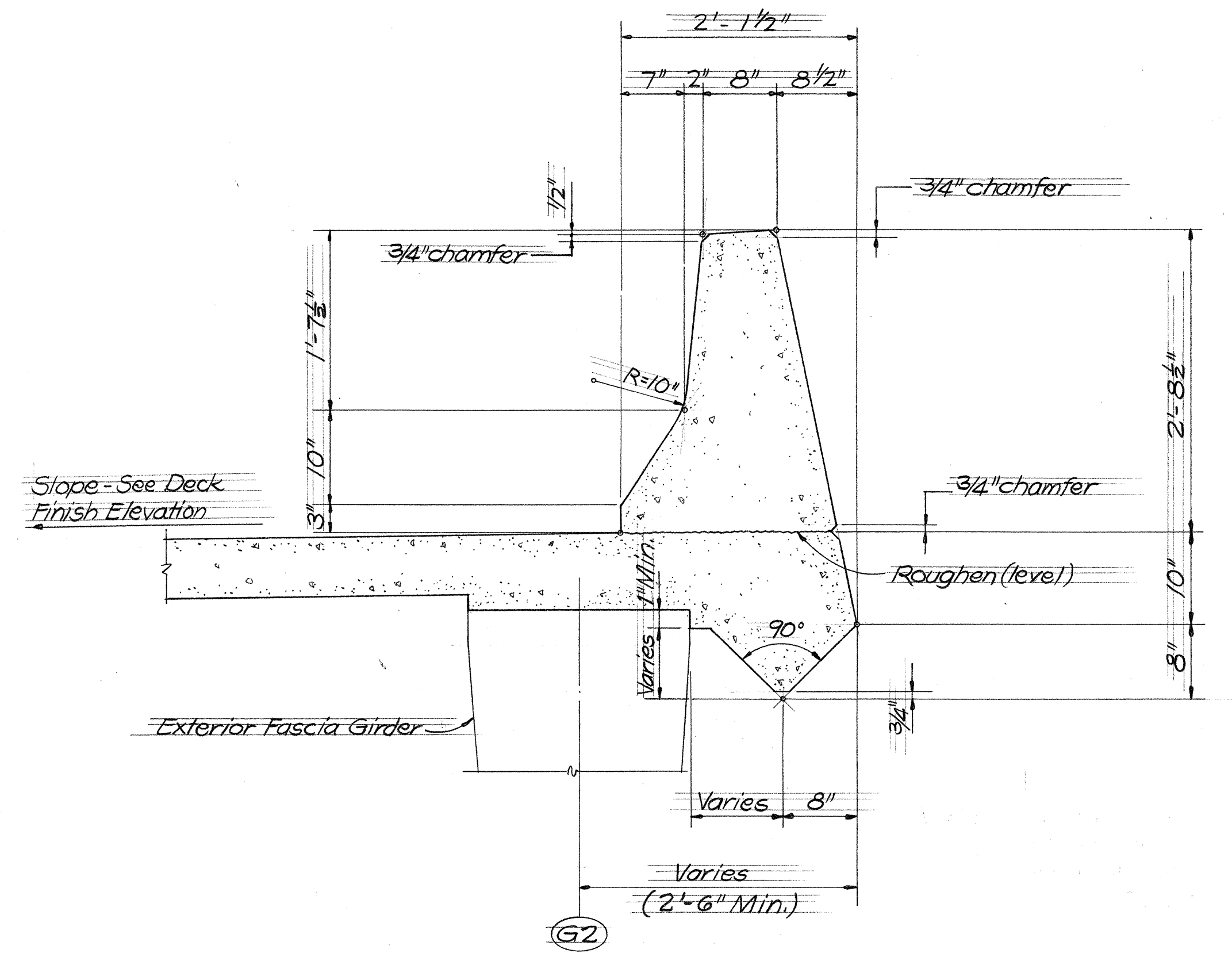
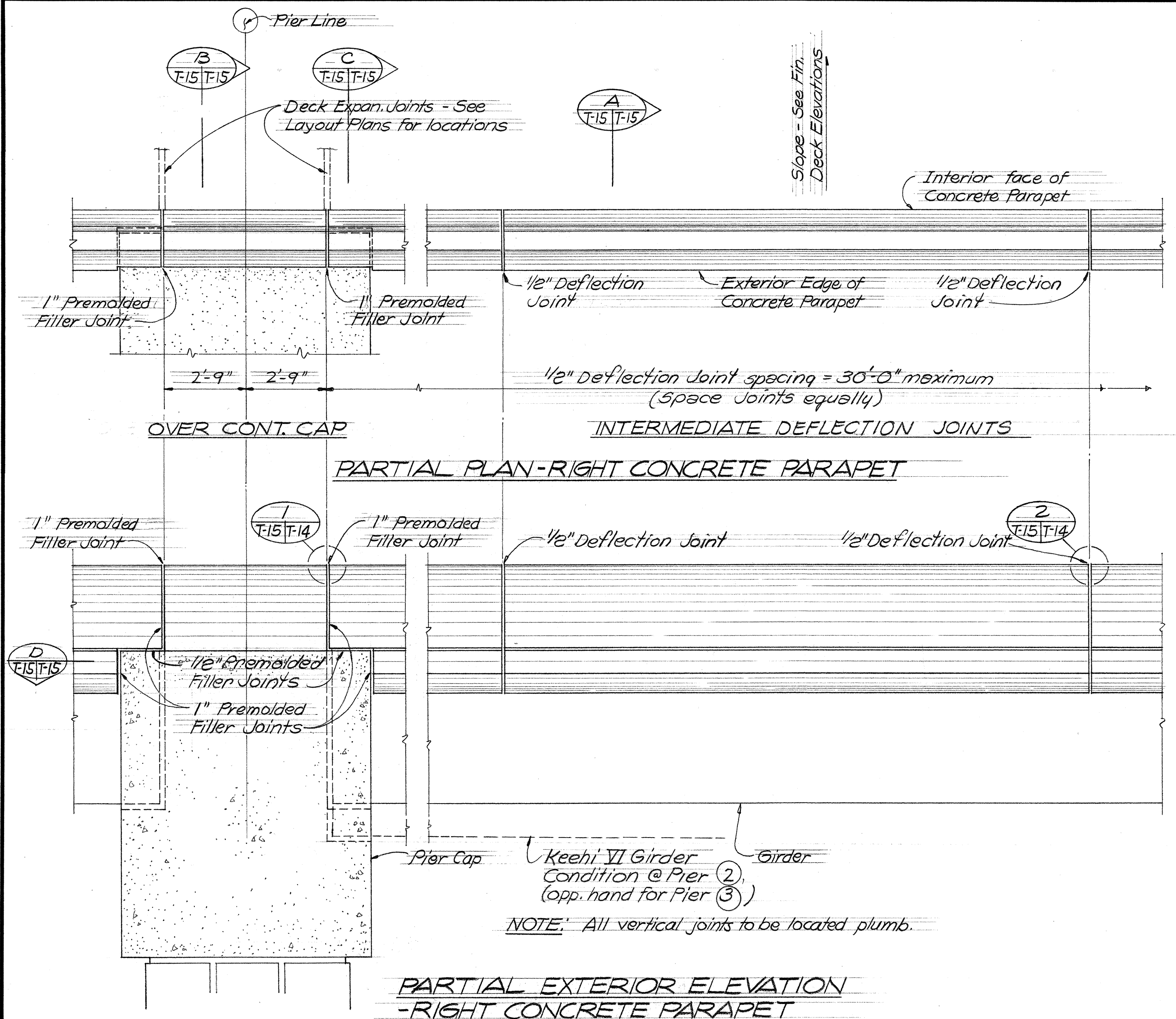
LEFT CONCRETE PARAPET
SECTIONS & DETAILS

KEEHI INTERCHANGE
F.A.I. PROJ. NO. I-HI-1(130):17

Scale: As Shown Date: Aug. 16, 1976

SHEET NO. T-14 OF 20 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-H-1(130):17	1976	154	174



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL DETAIL
RIGHT CONCRETE PARAPET
SECTION & DETAILS

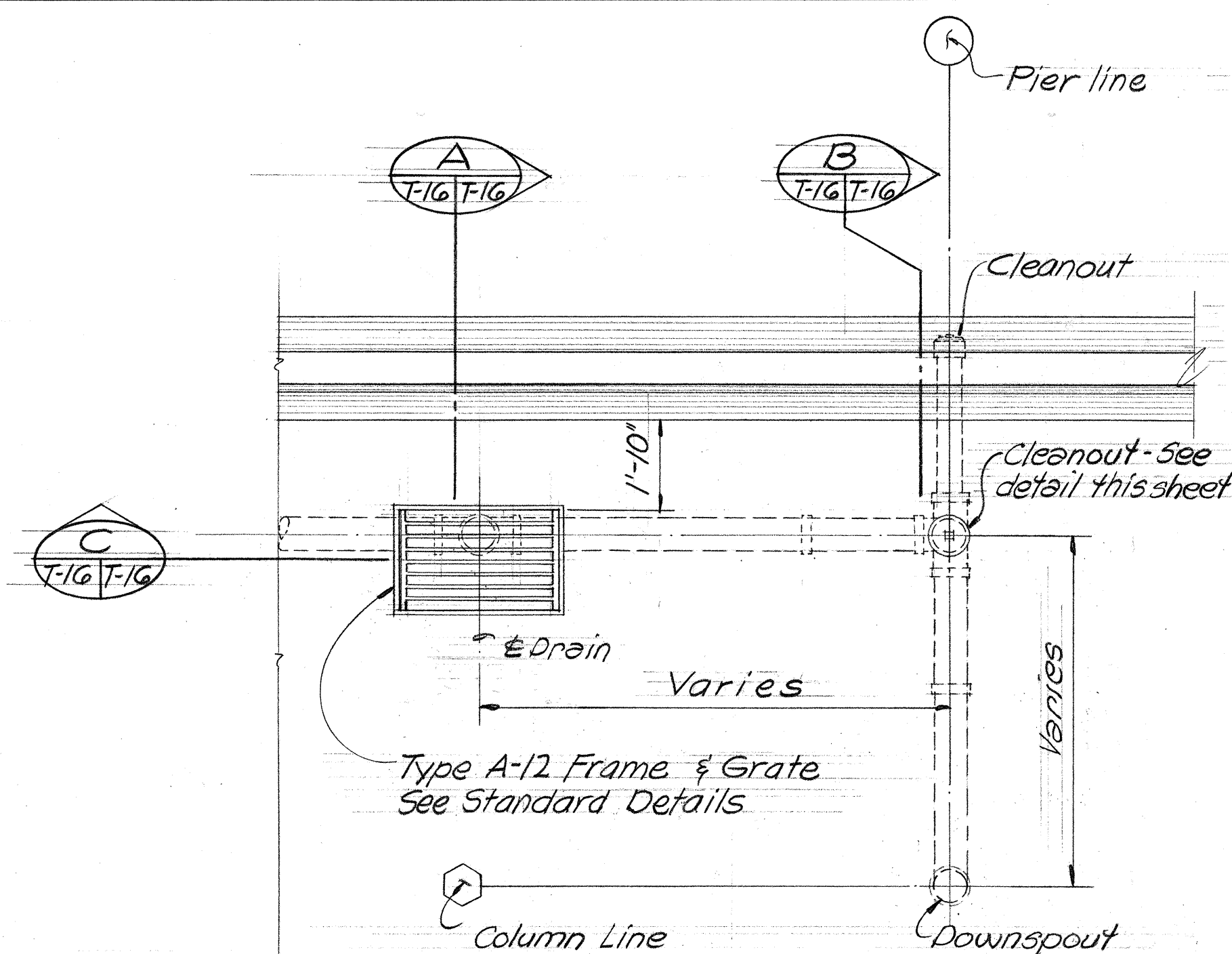
KEEHI INTERCHANGE
F.A.I. PROJ. NO. 1-H-1(130):17

Scale: As shown Date: Aug. 16, 1976

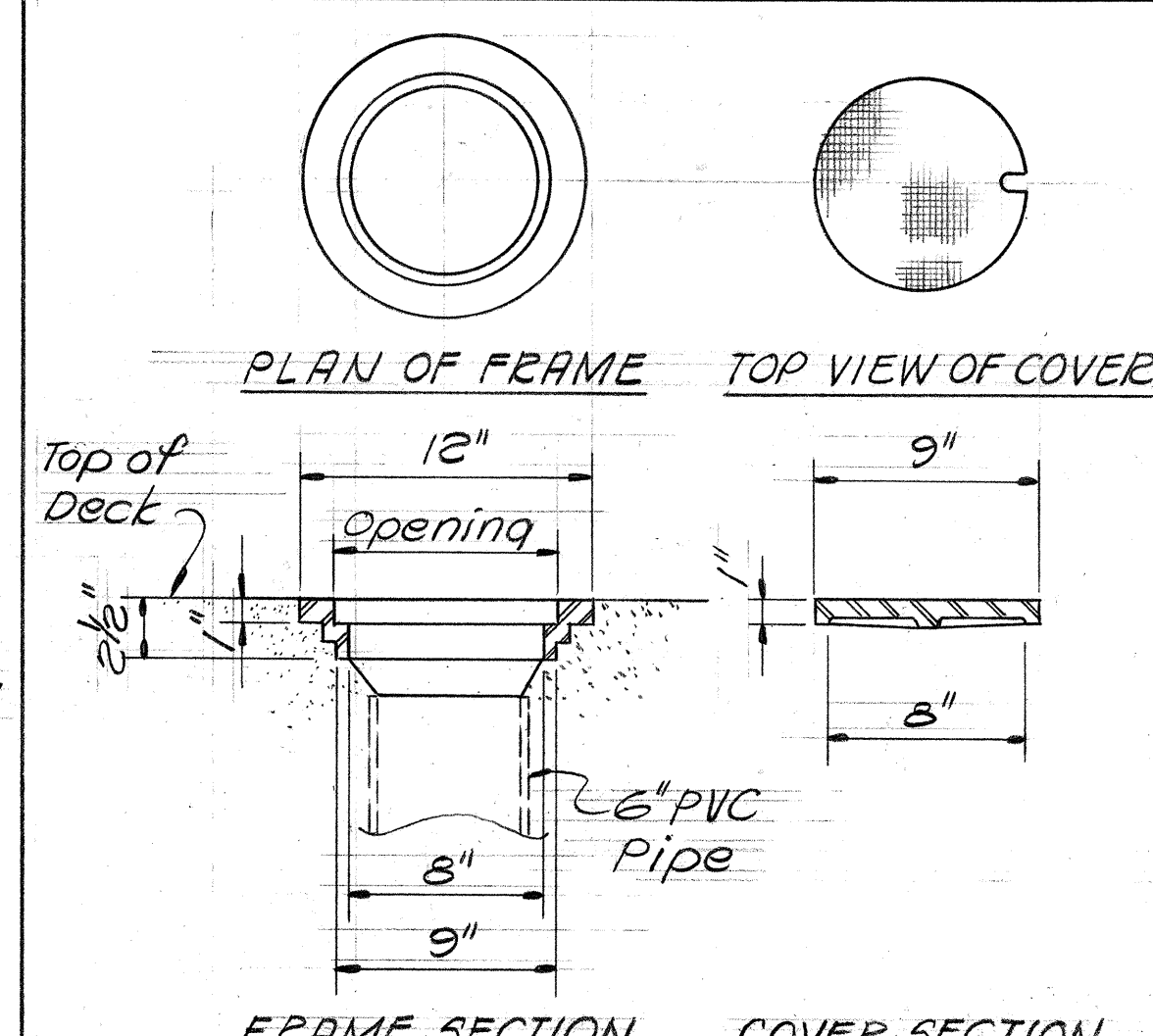
SHEET NO. 7-15 OF 20 SHEETS

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(130):17	1976	155	174

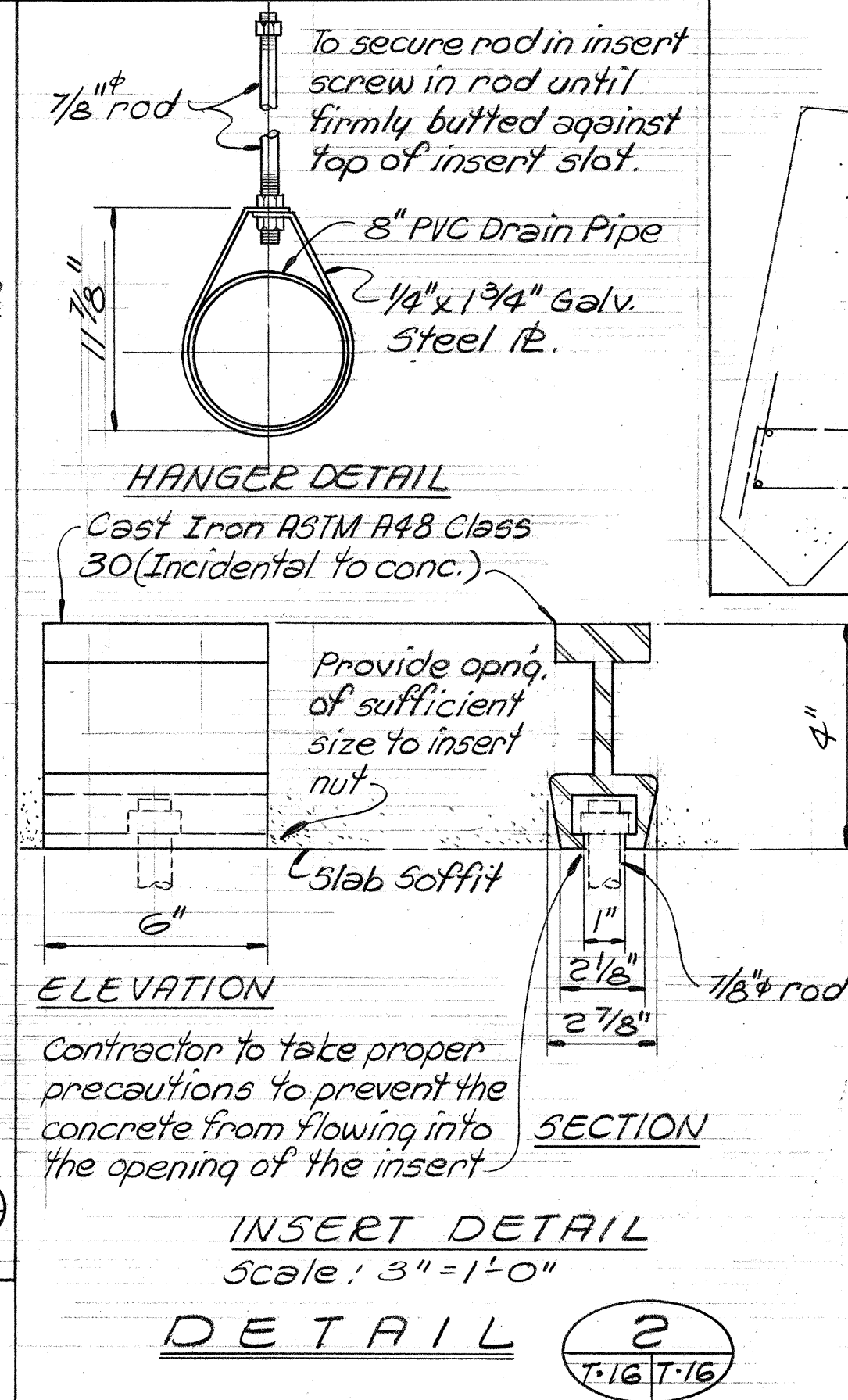


PLAN-DECK DRAIN @ KEEHI IV GIRDER
Scale: $\frac{3}{8}'' = 1'-0''$



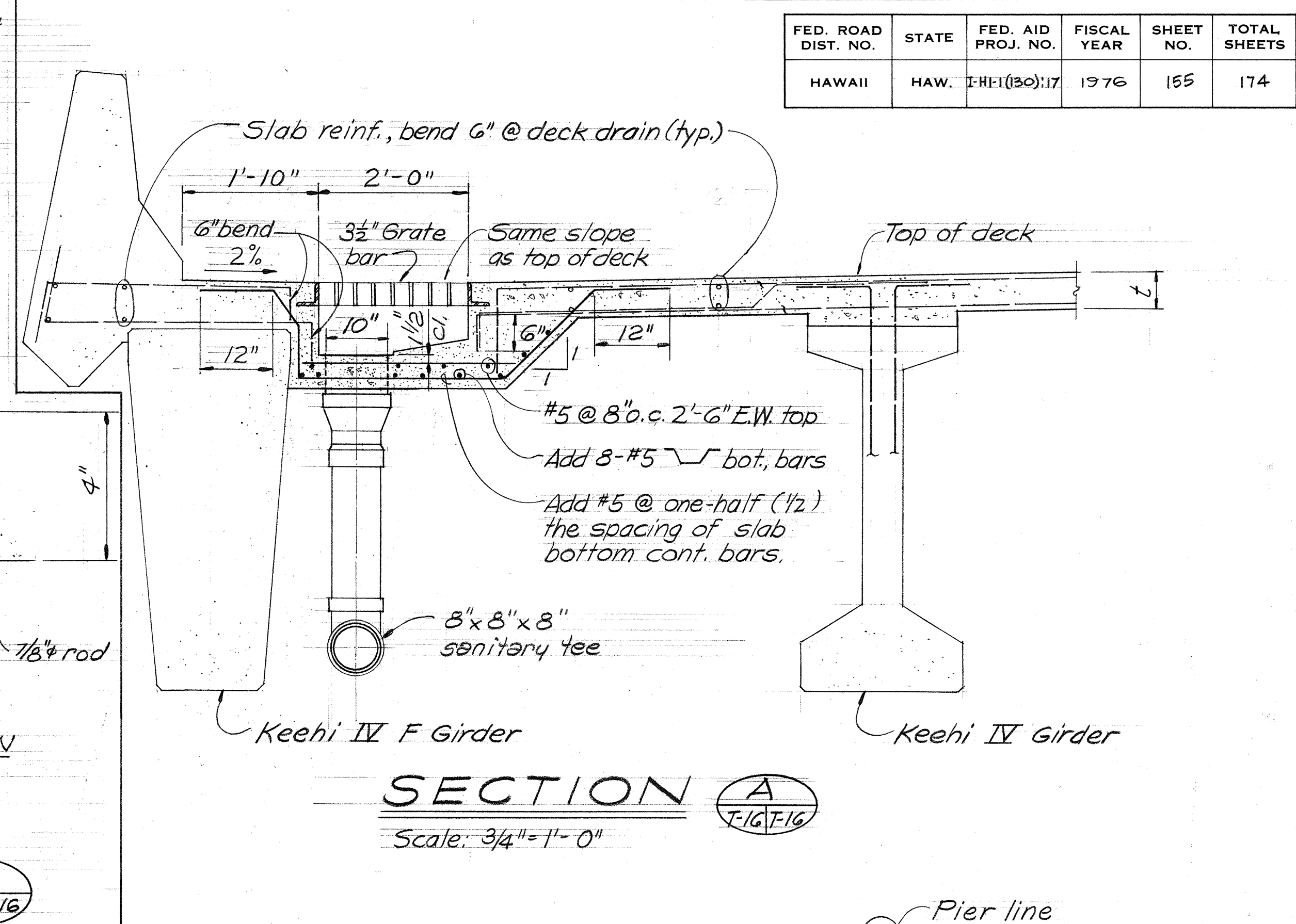
NOTE: Metal frame & cover casting to be ductile iron designed for highway traffic wheel loads of 16,000 lbs & ASTM designation A536.

TYPICAL DECK DRAIN CLEANOUT FRAME & COVER
Scale: $1\frac{1}{2}'' = 1'-0''$

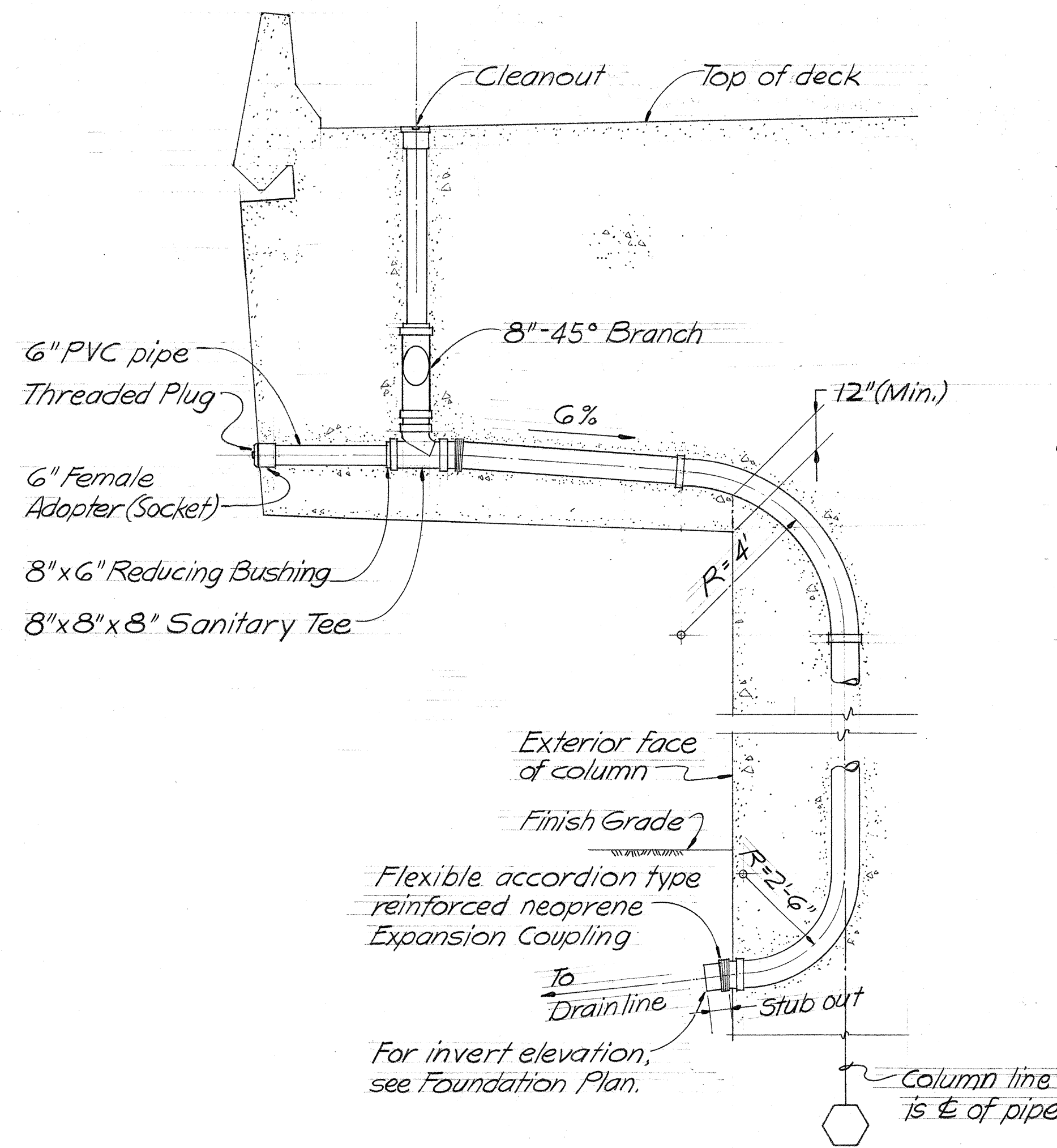


Contractor to take proper precautions to prevent the concrete from flowing into the opening of the insert

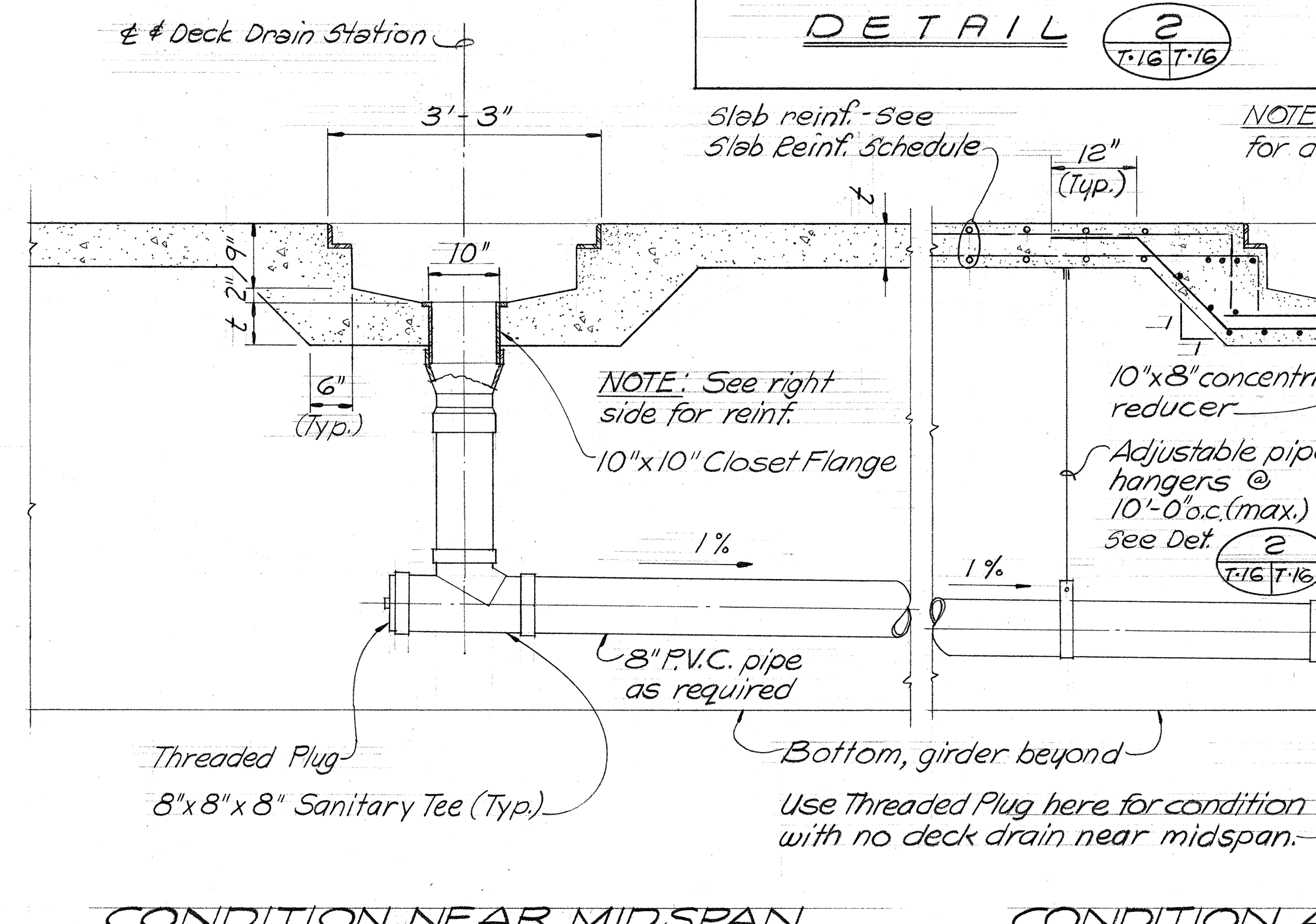
INSERT DETAIL
Scale: $\frac{3}{4}'' = 1'-0''$



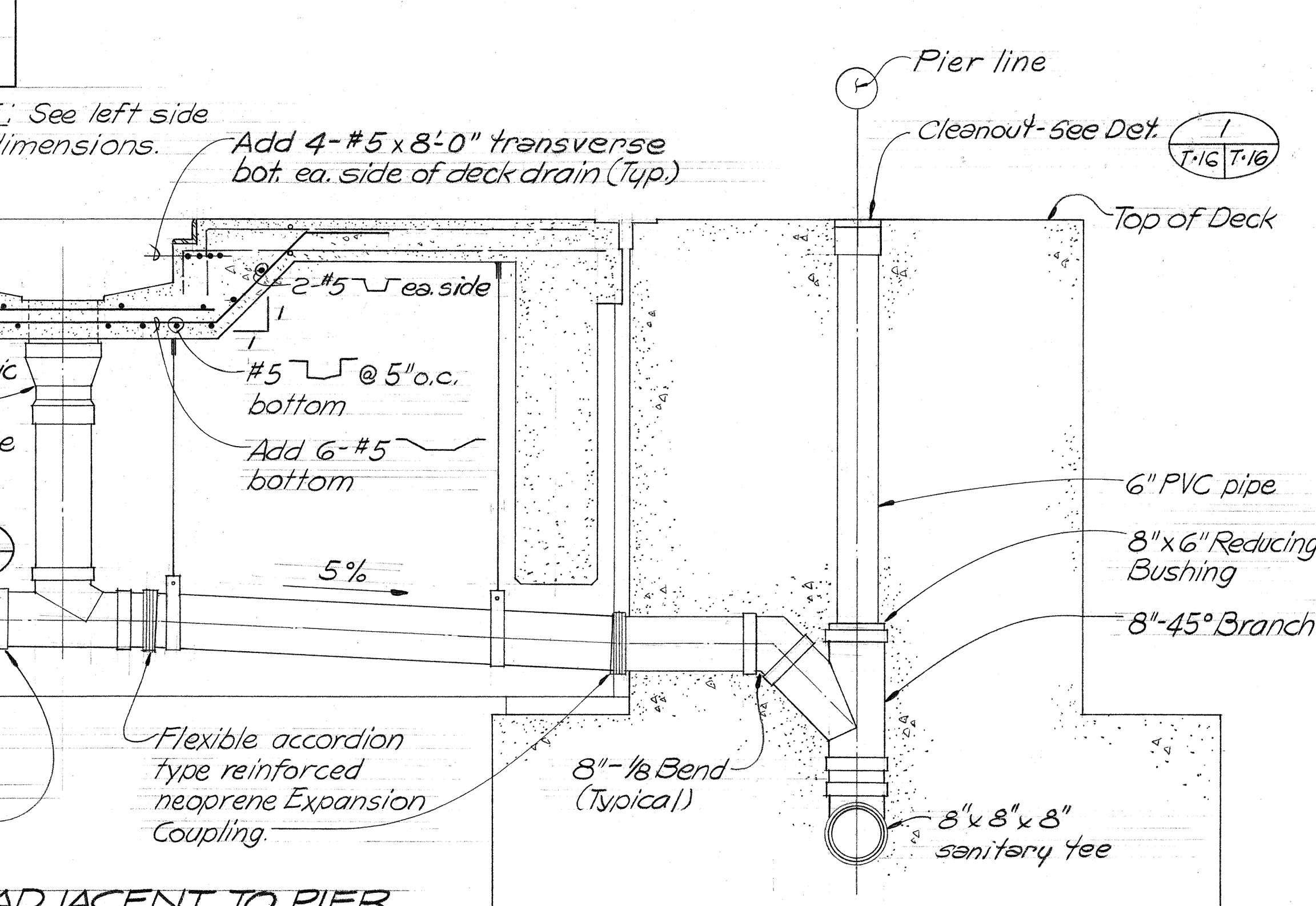
SECTION A
Scale: $\frac{3}{4}'' = 1'-0''$



SECTION B
Scale: $\frac{3}{8}'' = 1'-0''$ T16, T17



SECTION C
Scale: $\frac{3}{4}'' = 1'-0''$



CONDITION ADJACENT TO PIER

SPECIAL NOTE
Drain pipe assembly may be offset from & of pier in order to avoid interference with column reinforcing. Under no circumstances shall the column reinforcing be cut at the top of the column.

- NOTES:**
1. See Plan & Longitudinal Section sheet for Deck Drain location.
 2. All pipe slopes shall be maximized to the greatest extent possible.
 3. All PVC pipes shall be Schedule 40.

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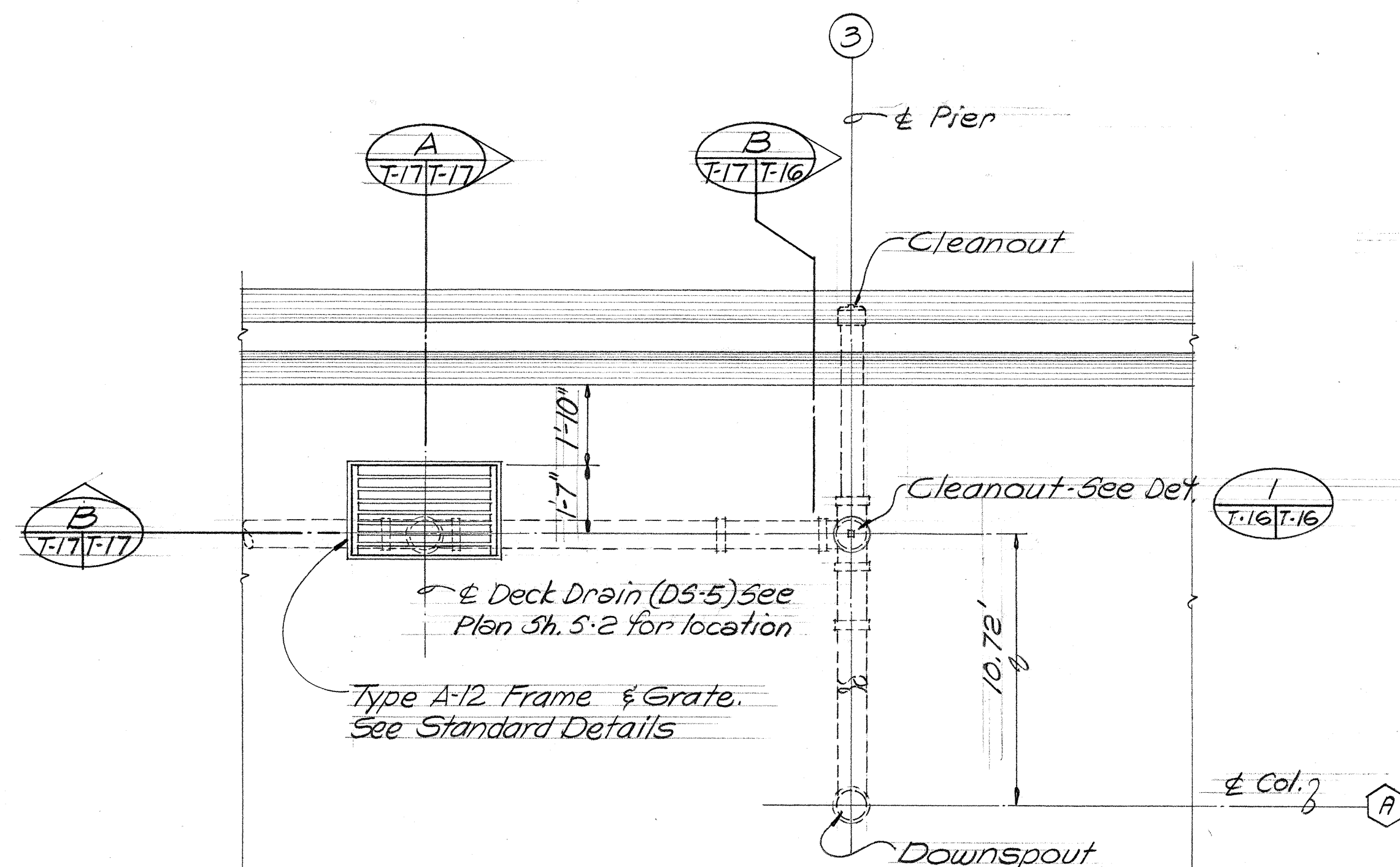
TYPICAL DETAIL
DECK DRAIN

KEEHI INTERCHANGE
F.A.I. PROJ. NO. I-HI-1 (130) 117

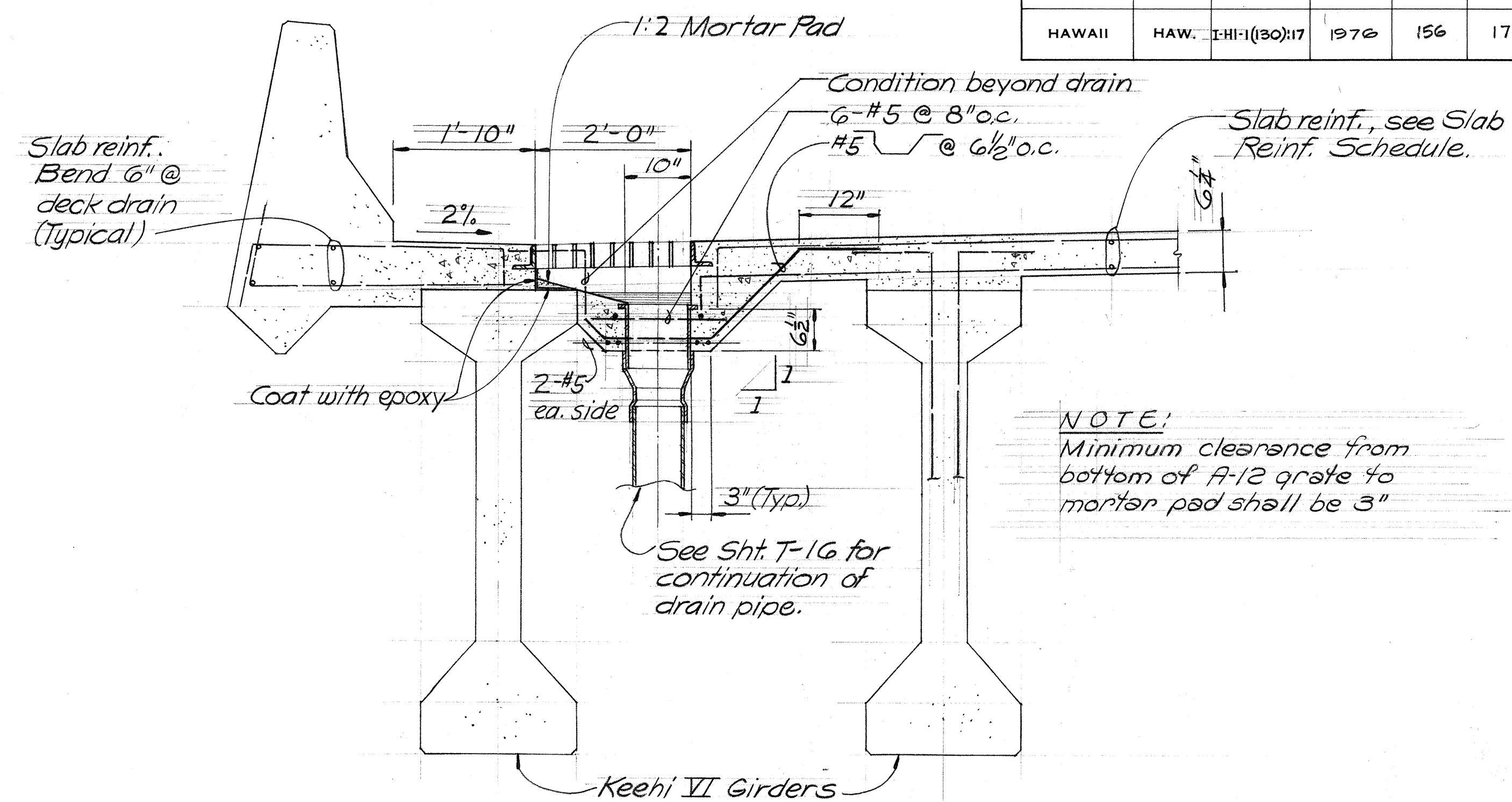
Scale: As shown Date: Aug. 16, 1976

SHEET NO. T-16 OF 20 SHEETS

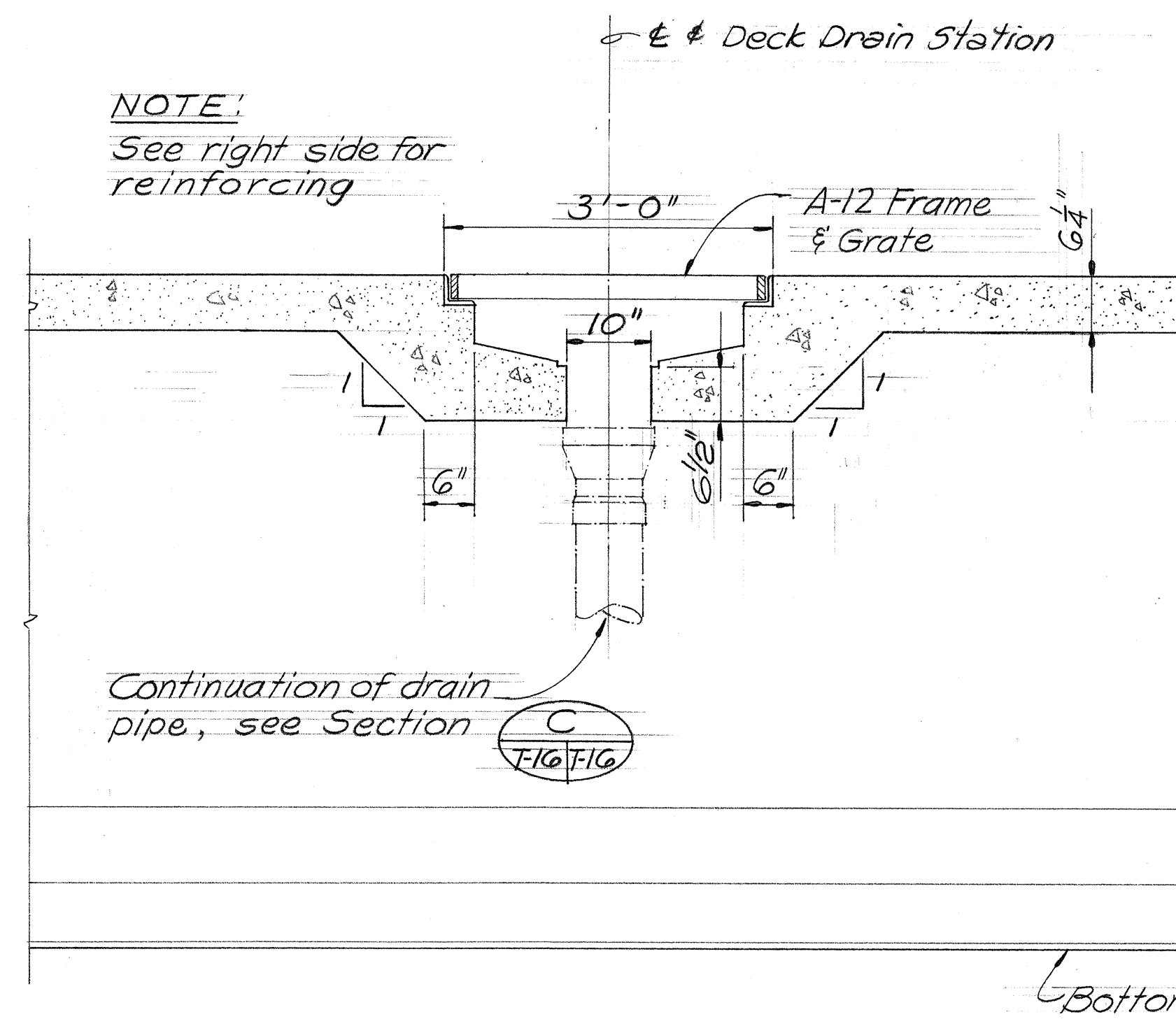
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(130)117	1976	156	174



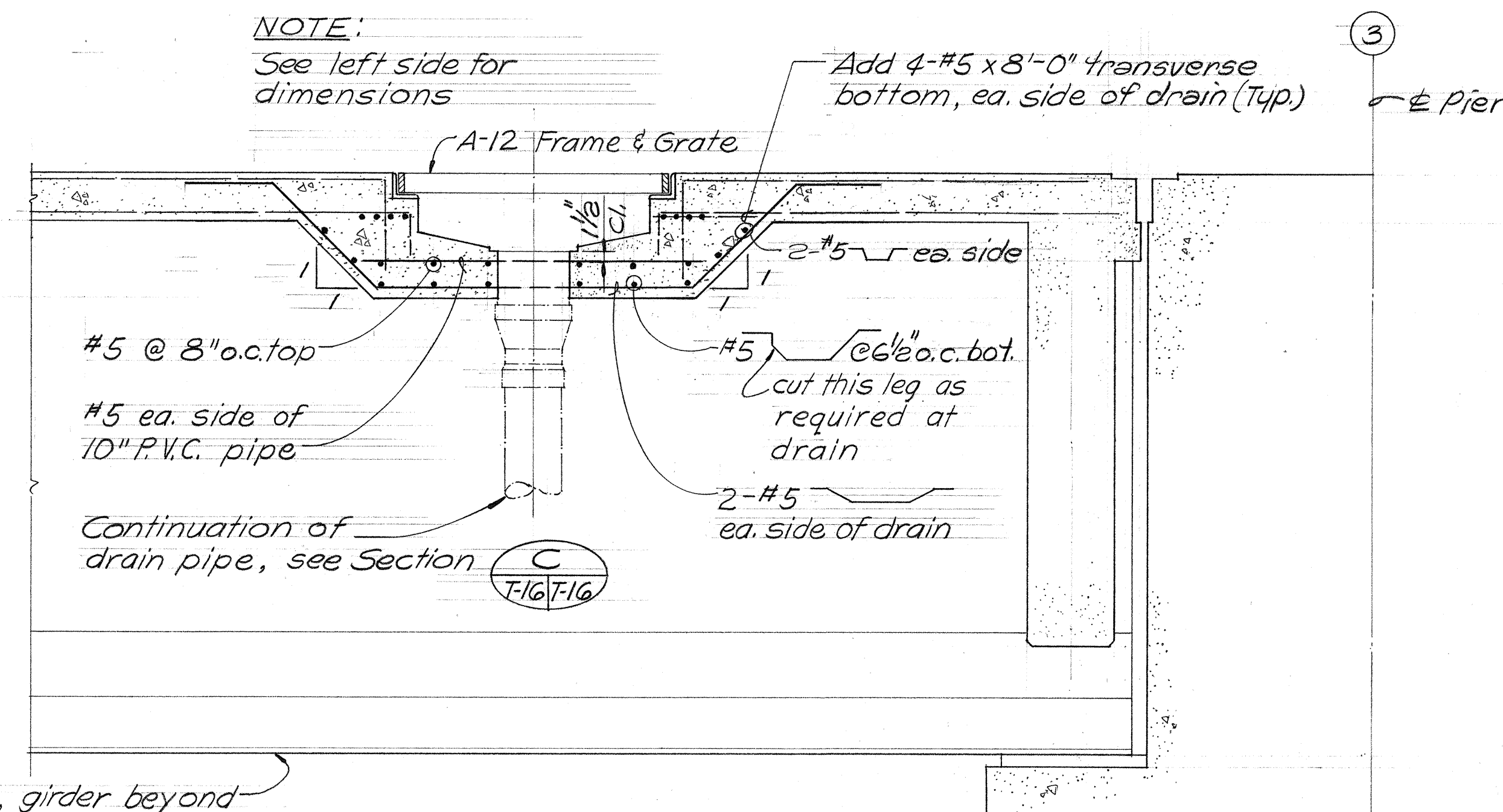
PLAN-DECK DRAIN @ KEEHI VII GIRDERS
Scale: 3/8" = 1'-0"



SECTION A
Scale: 3/4" = 1'-0"



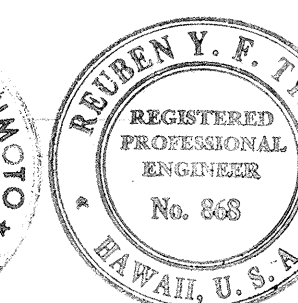
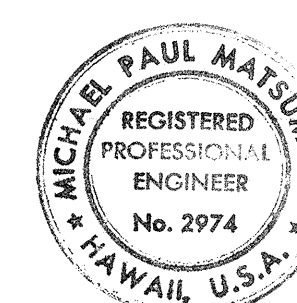
CONDITION NEAR MIDSPAN



CONDITION ADJACENT TO PIER

SECTION B
Scale: 3/4" = 1'-0"

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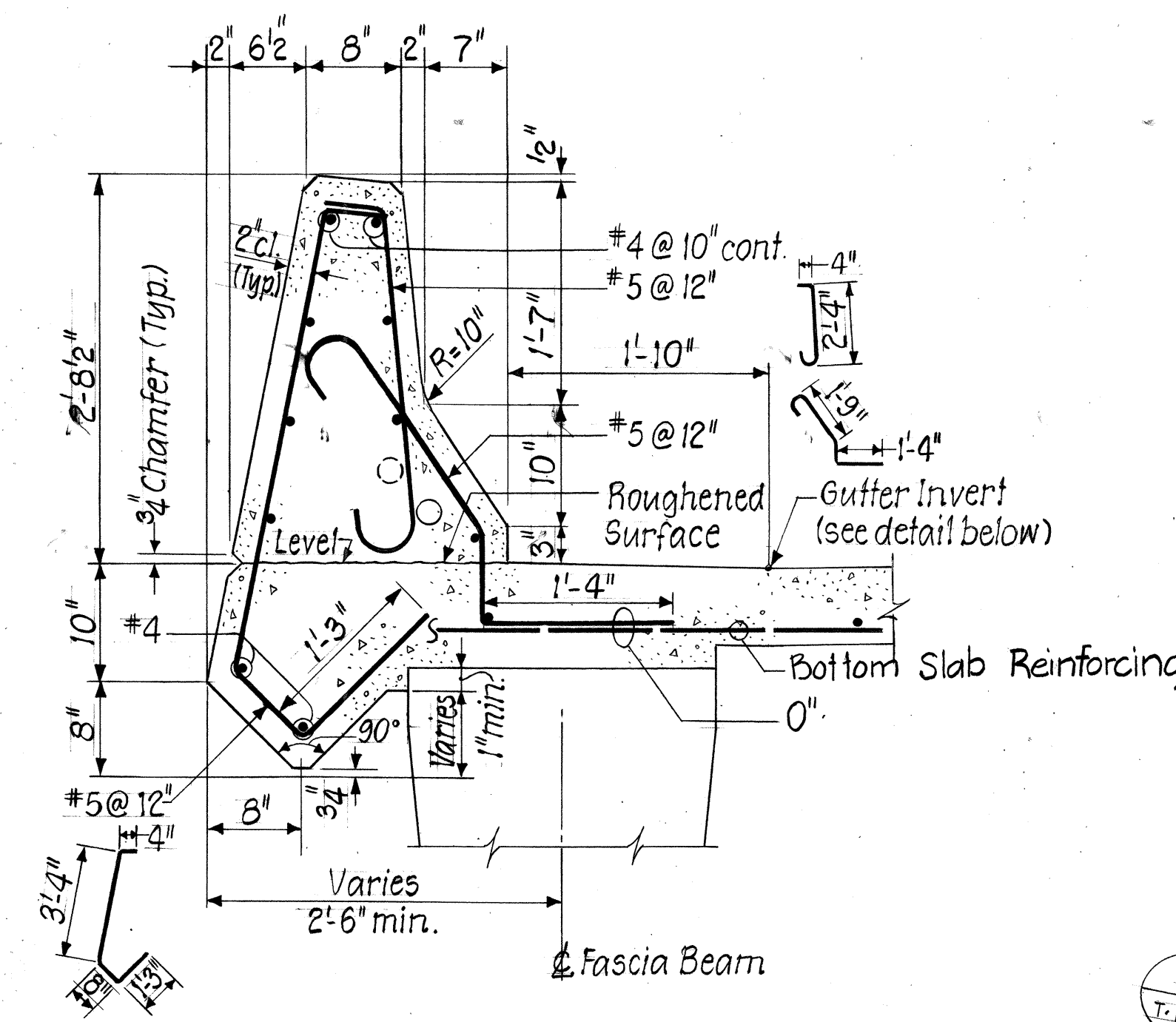
TYPICAL DETAIL
DECK DRAIN

KEEHI INTERCHANGE
F.A.I. PROJ. NO. I-HI-1 (130) 117

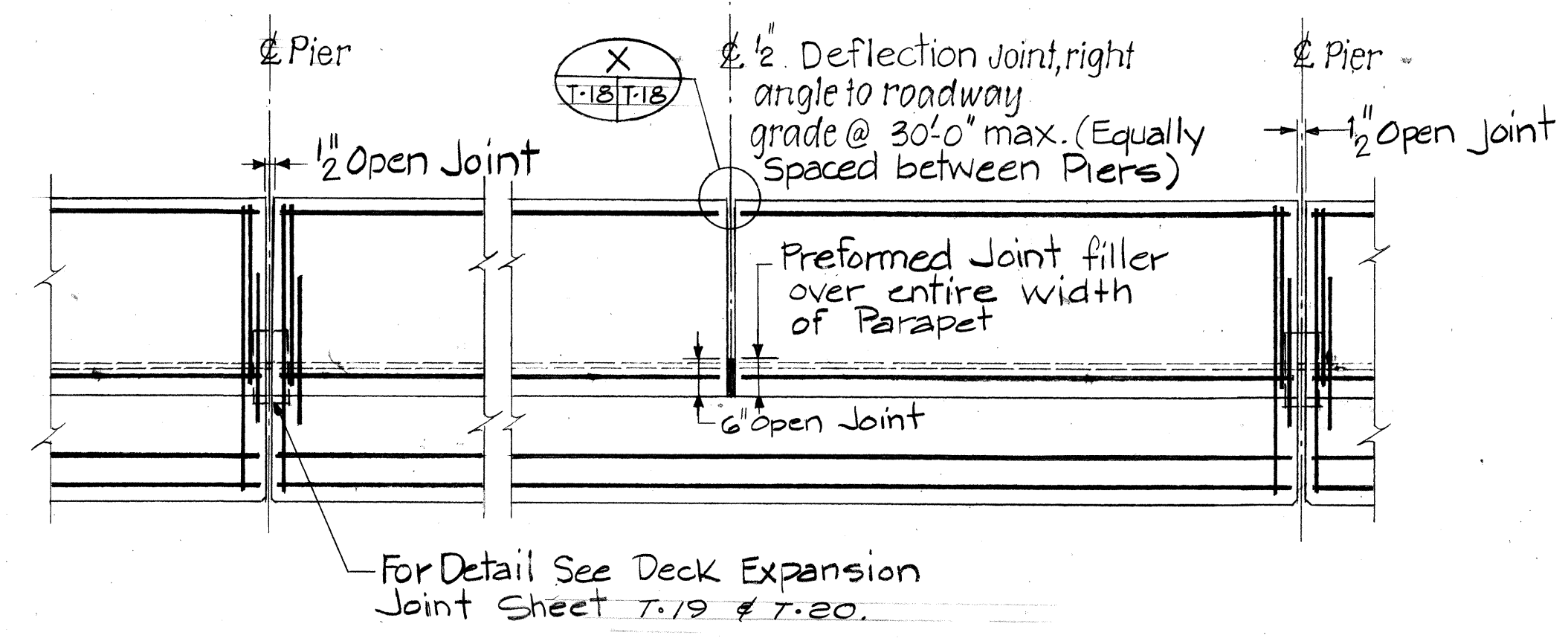
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SHEET No. 7-17 OF 20 SHEETS

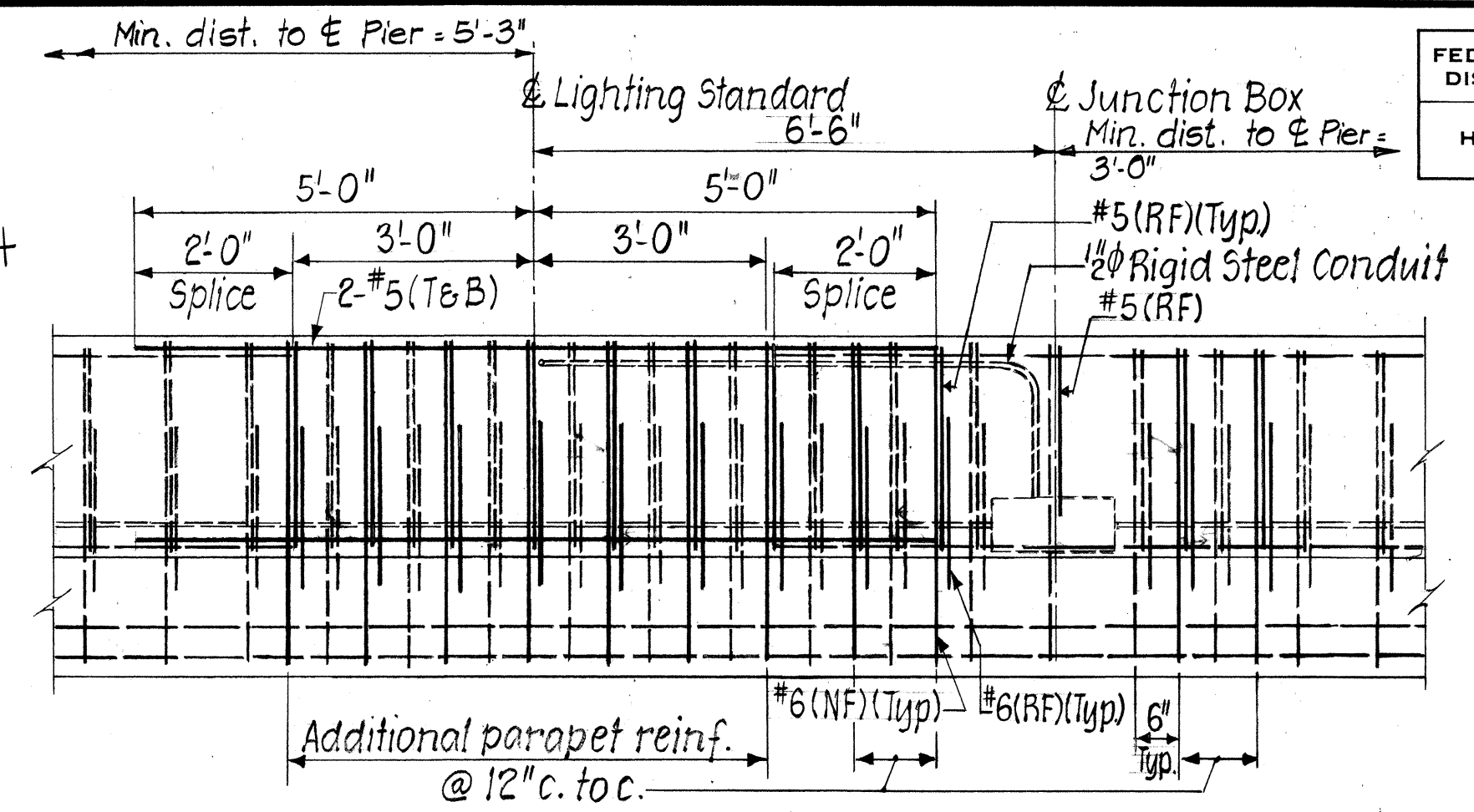
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1(130)17	1976	157	174



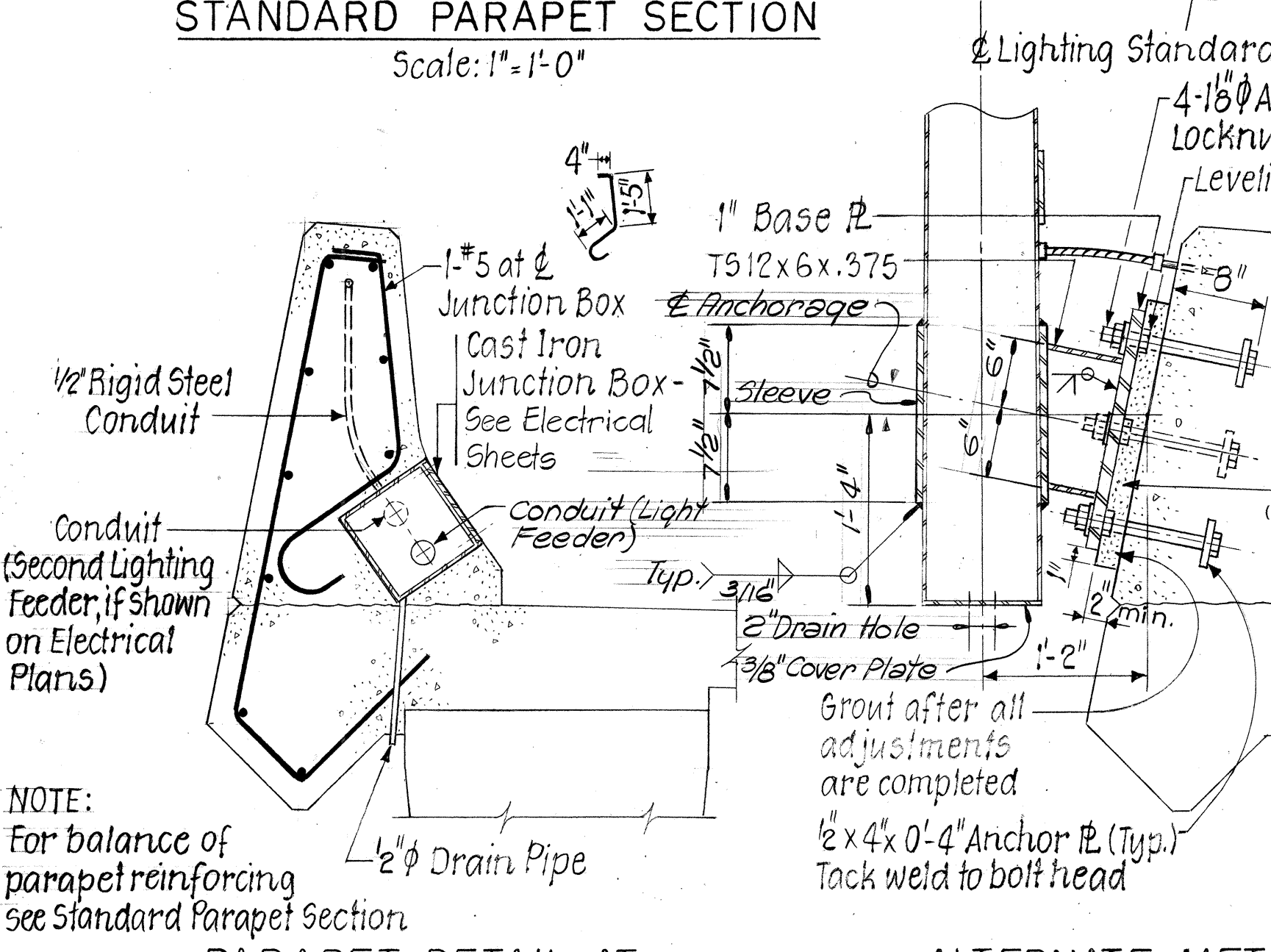
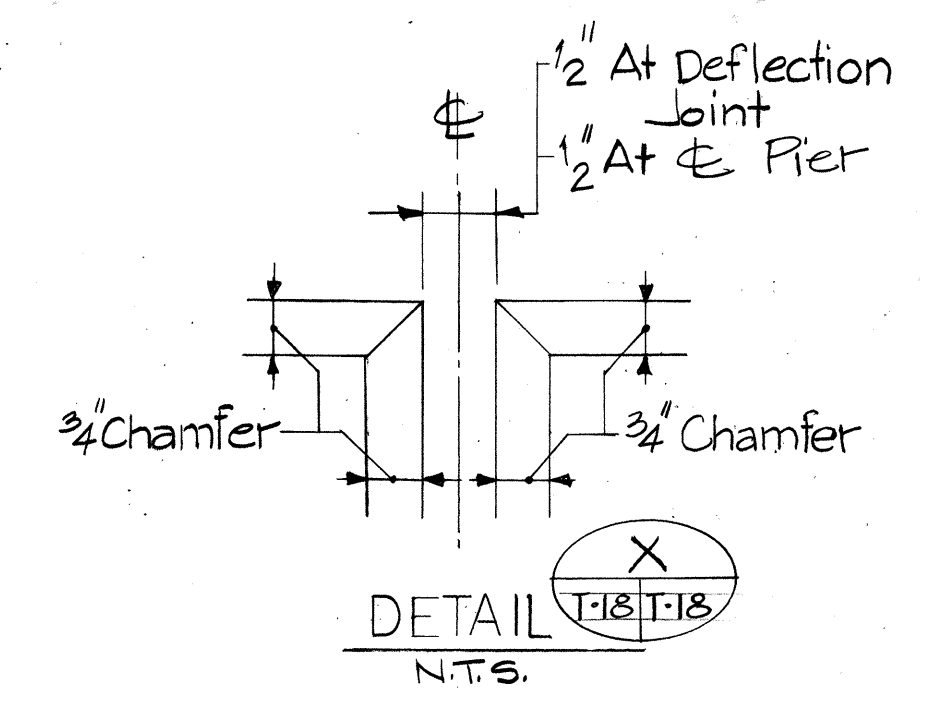
STANDARD PARAPET SECTION
Scale: 1" = 1'-0"



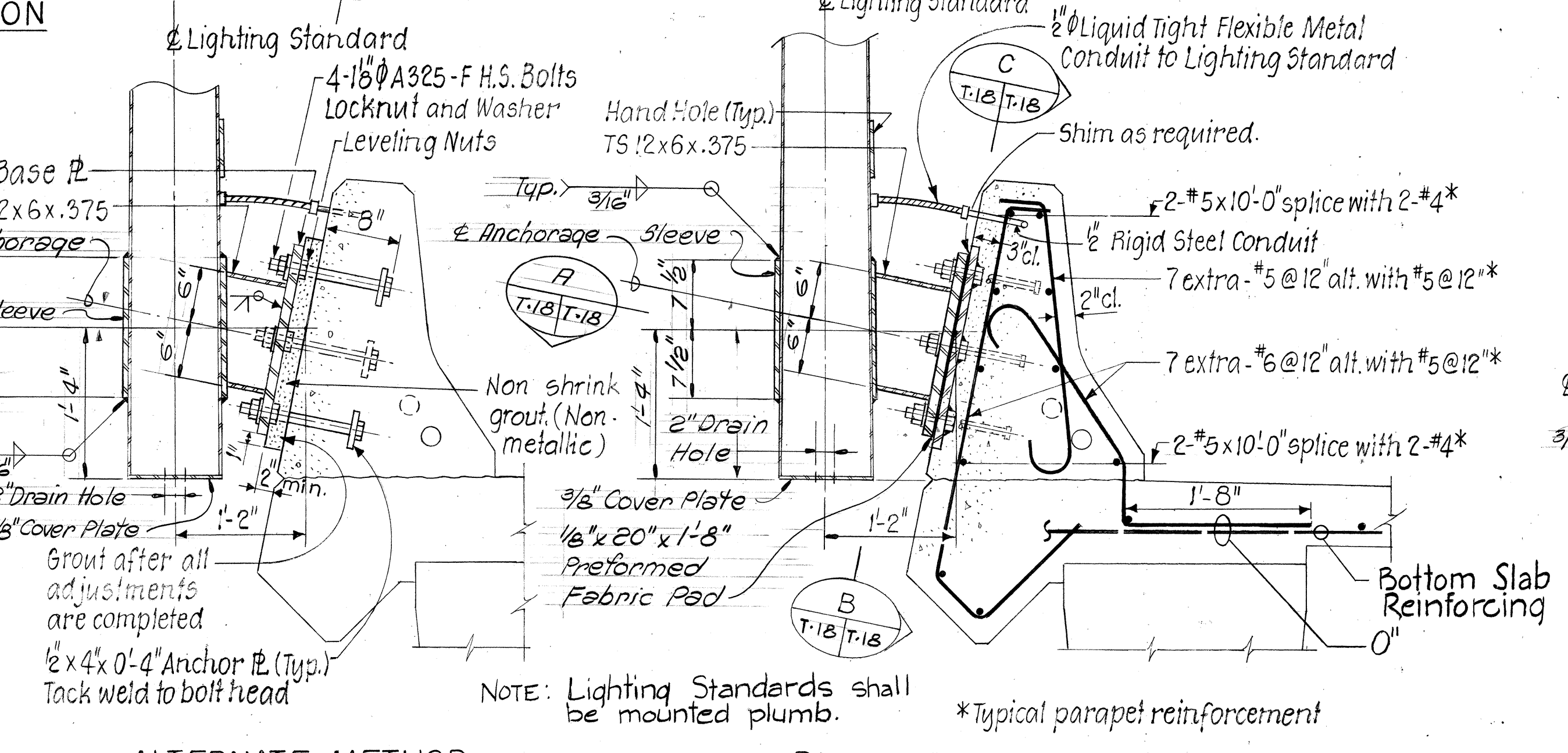
STANDARD PARAPET TYPICAL LONGITUDINAL SECTION
Scale: 1/2" = 1'-0"



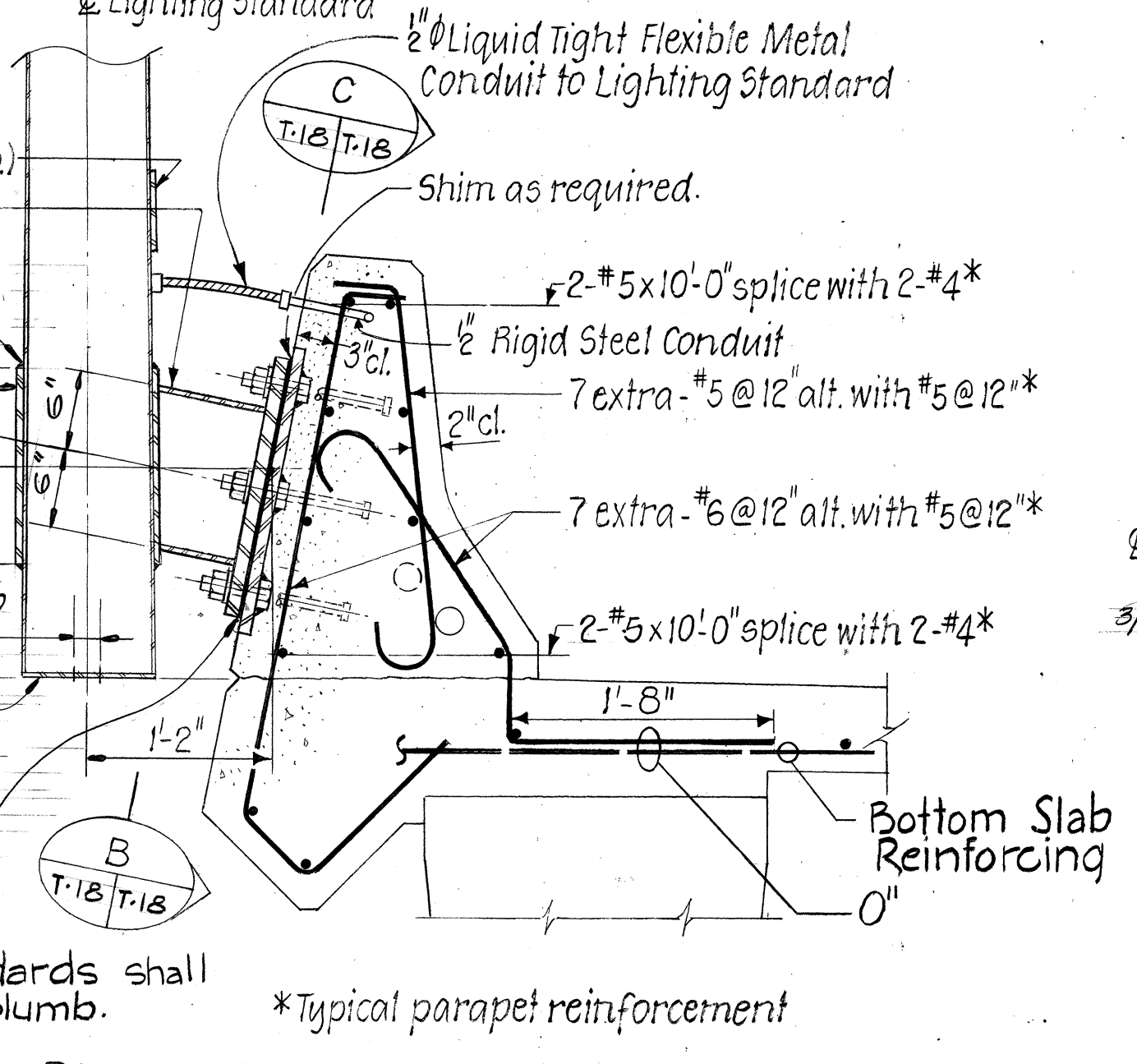
PARAPET REINF. AT LIGHTING STANDARD & JUNCTION BOX TYPICAL LONGITUDINAL SECTION
Scale: 1/2" = 1'-0"



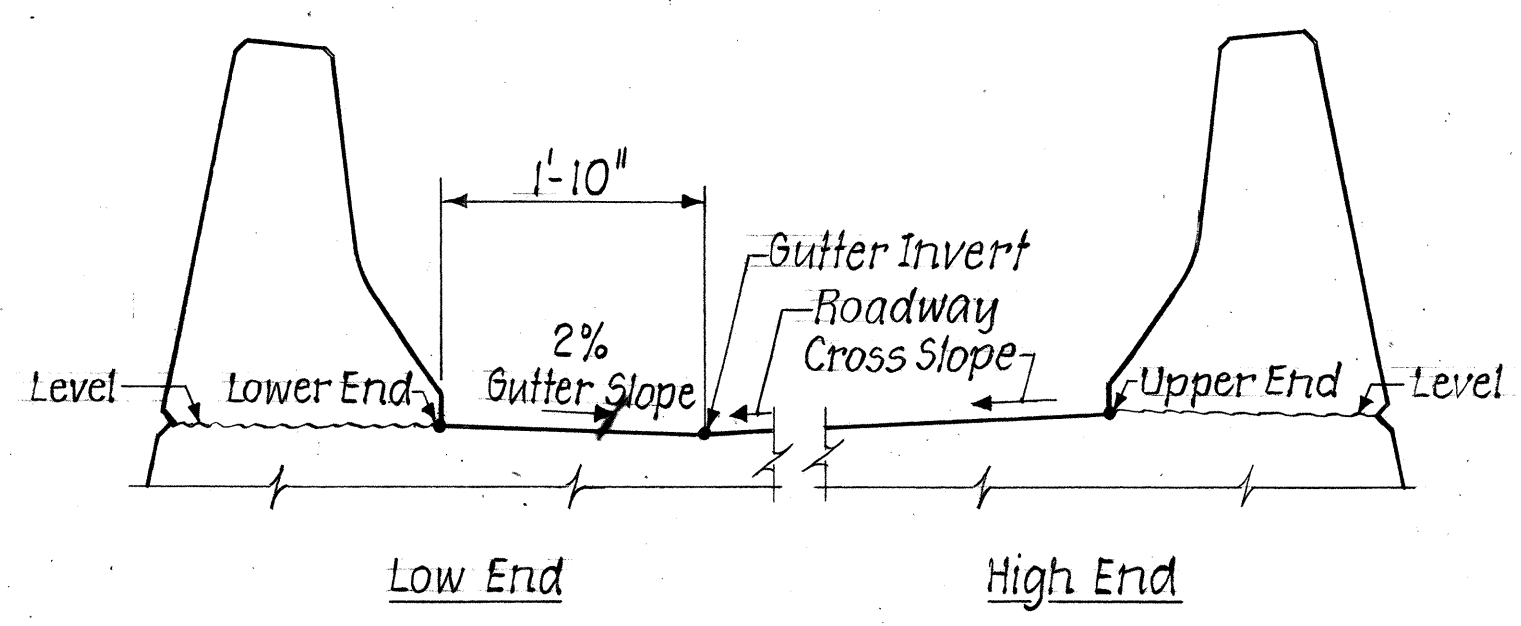
PARAPET DETAIL AT JUNCTION BOXES
Scale: 1" = 1'-0"



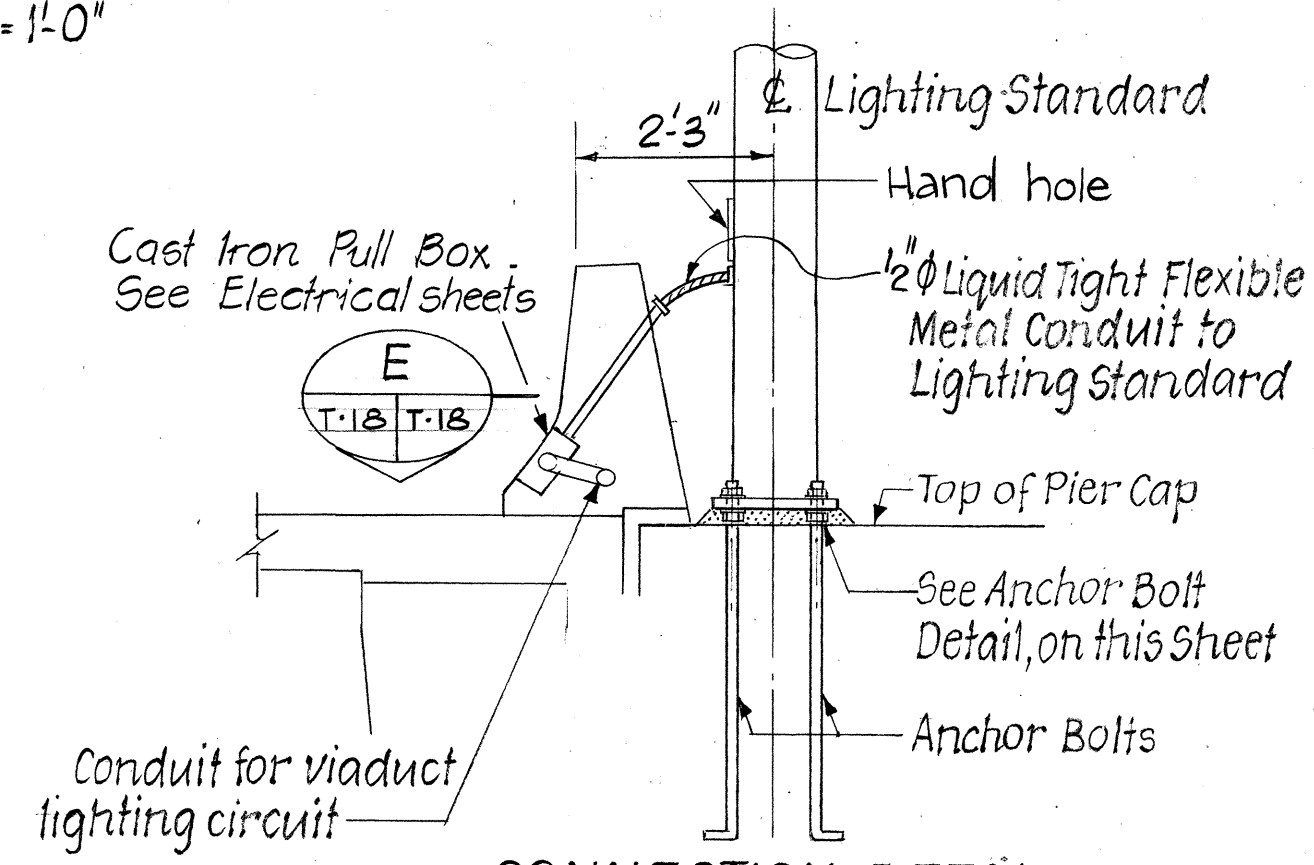
ALTERNATE METHOD LIGHTING STANDARD ATTACHMENT
Scale: 1" = 1'-0"



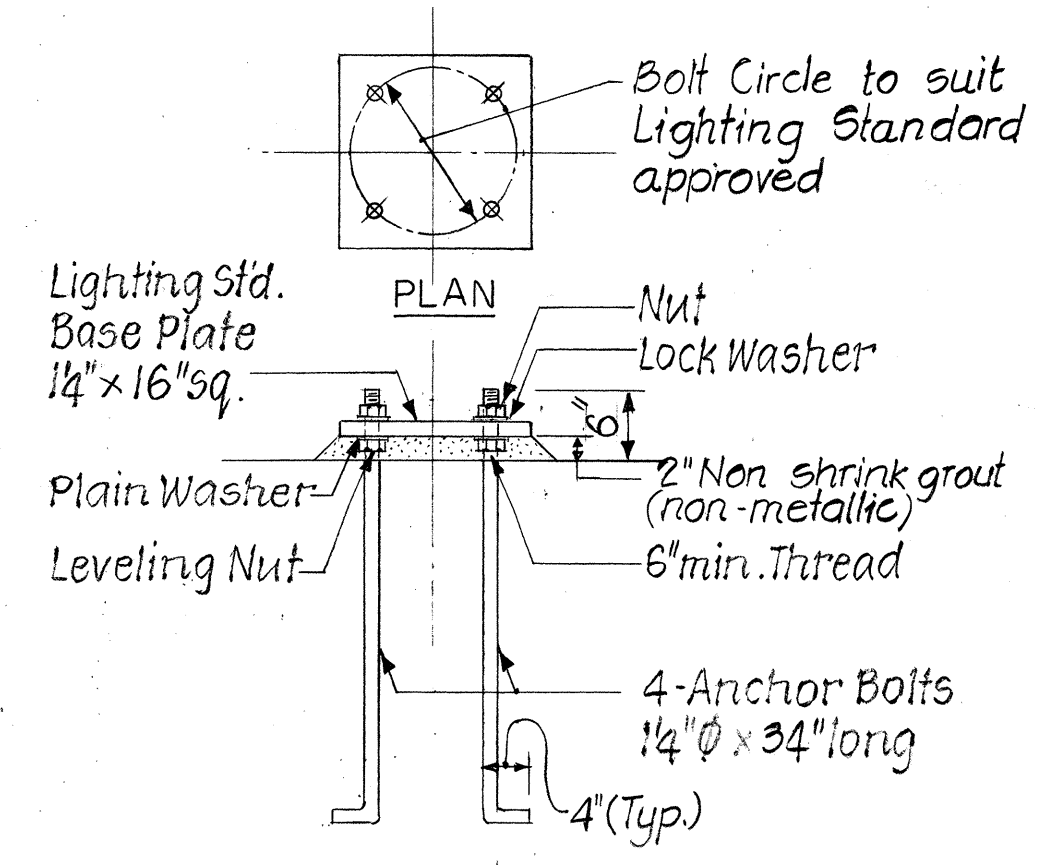
PARAPET DETAIL AT LIGHTING STANDARD
Scale: 1" = 1'-0"



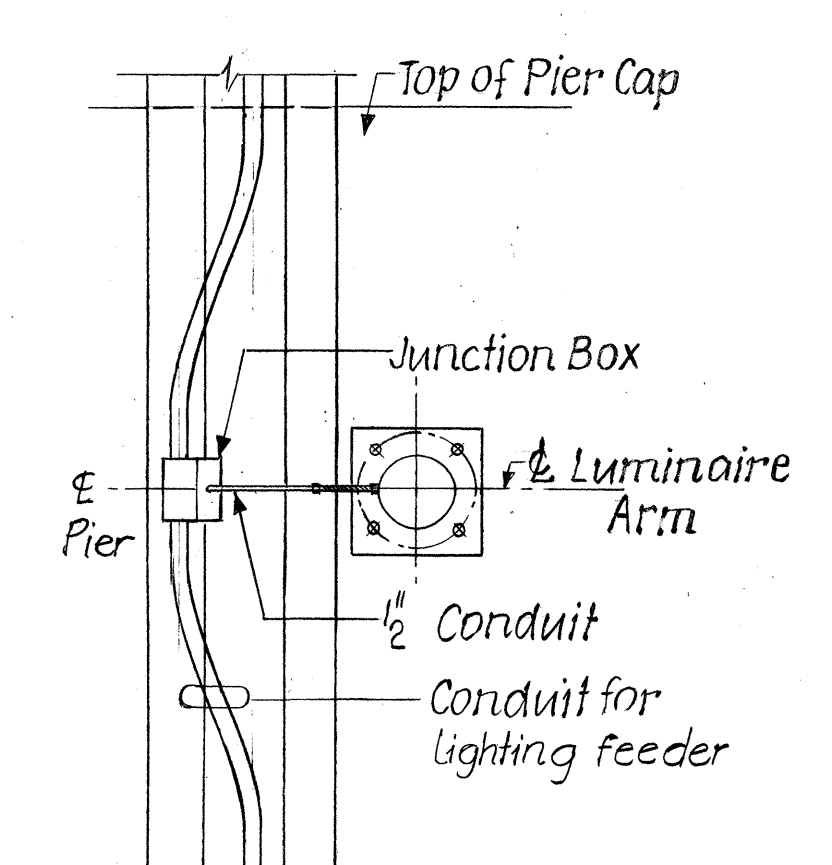
TYPICAL CROSS SLOPE DETAIL FOR DRAINAGE
Scale: 3/4" = 1'-0"



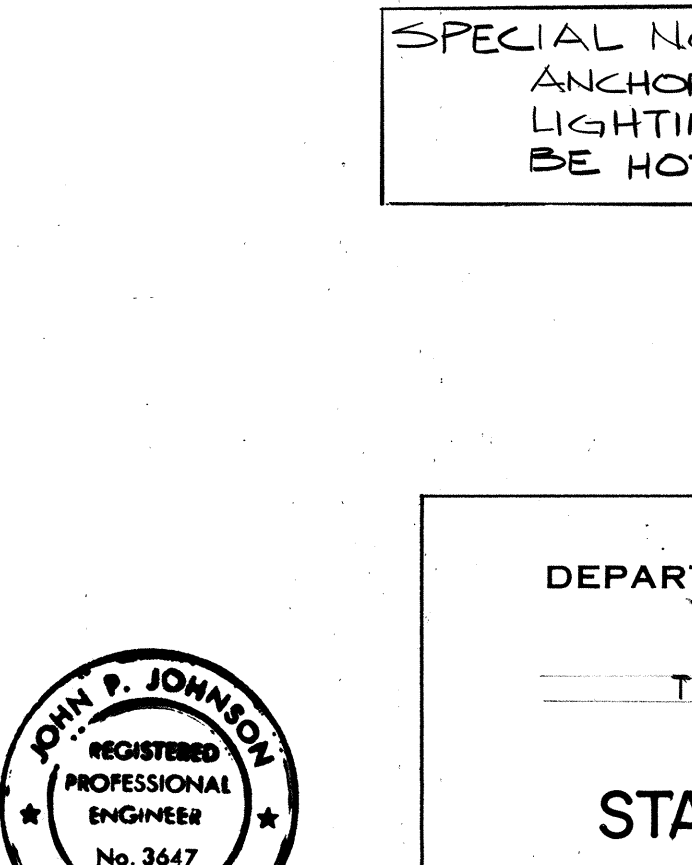
CONNECTION DETAIL
Scale: 1/2" = 1'-0"



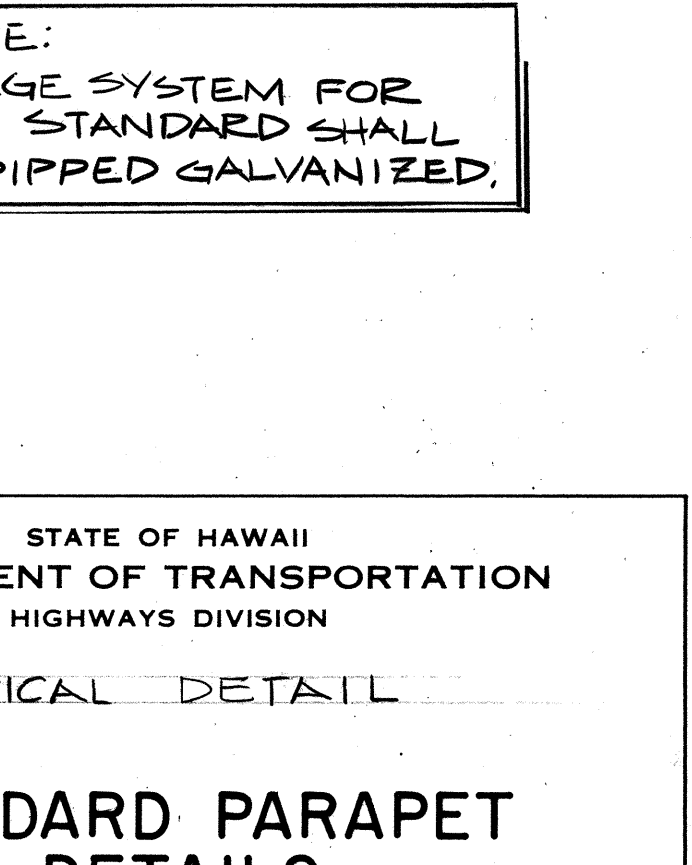
ANCHOR BOLT DETAIL
Scale: 3/4" = 1'-0"



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



SECTION
Scale: 1" = 1'-0"



SECTION
Scale: 1" = 1'-0"

SPECIAL NOTE:
ANCHORAGE SYSTEM FOR LIGHTING STANDARD SHALL BE HOT-DIPPED GALVANIZED.

JOHN P. JOHNSON
REGISTERED PROFESSIONAL ENGINEER
No. 3647
HAWAII, U.S.A.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

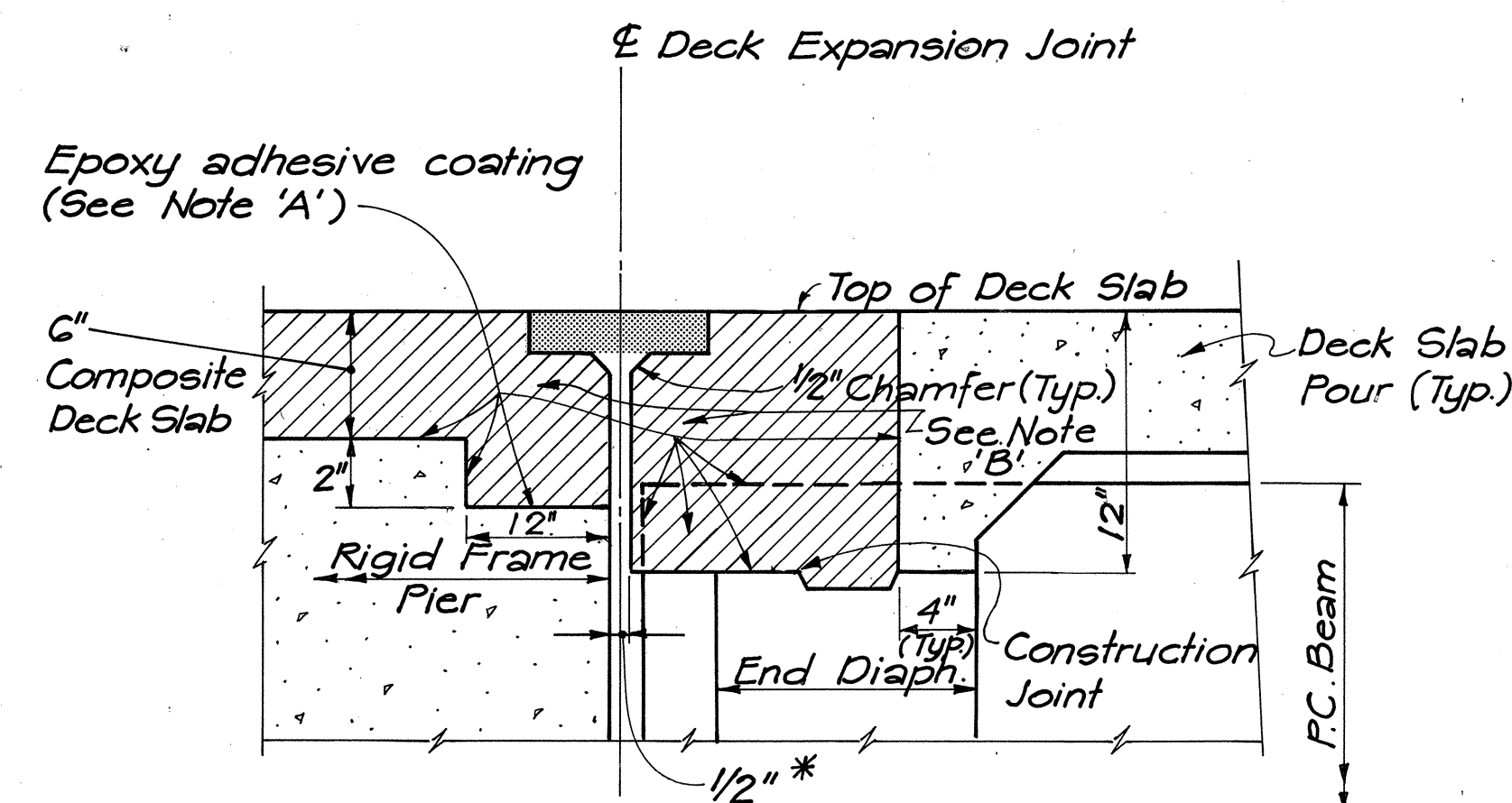
TYPICAL DETAIL

STANDARD PARAPET DETAILS

KEEHI INTERCHANGE
F.A.I. PROJECT NO. 1-HI-1(130)17
SCALE: AS SHOWN
DATE: AUG. 16, 76

SHEET NO. 157 OF 20 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IHI-1(130):17	1976	158	174

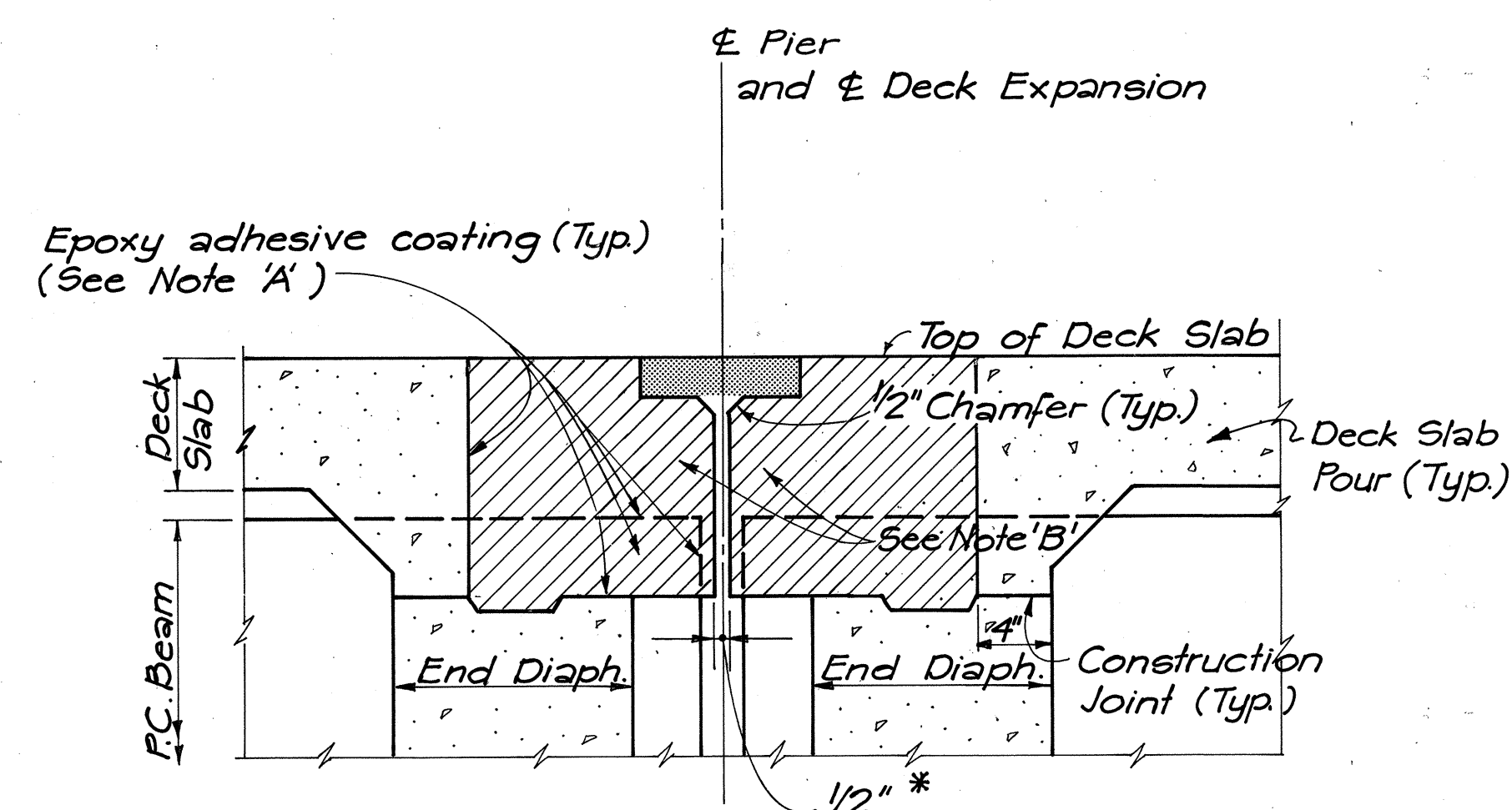


TYPICAL DECK SECTION AT RIGID FRAME
N.T.S.

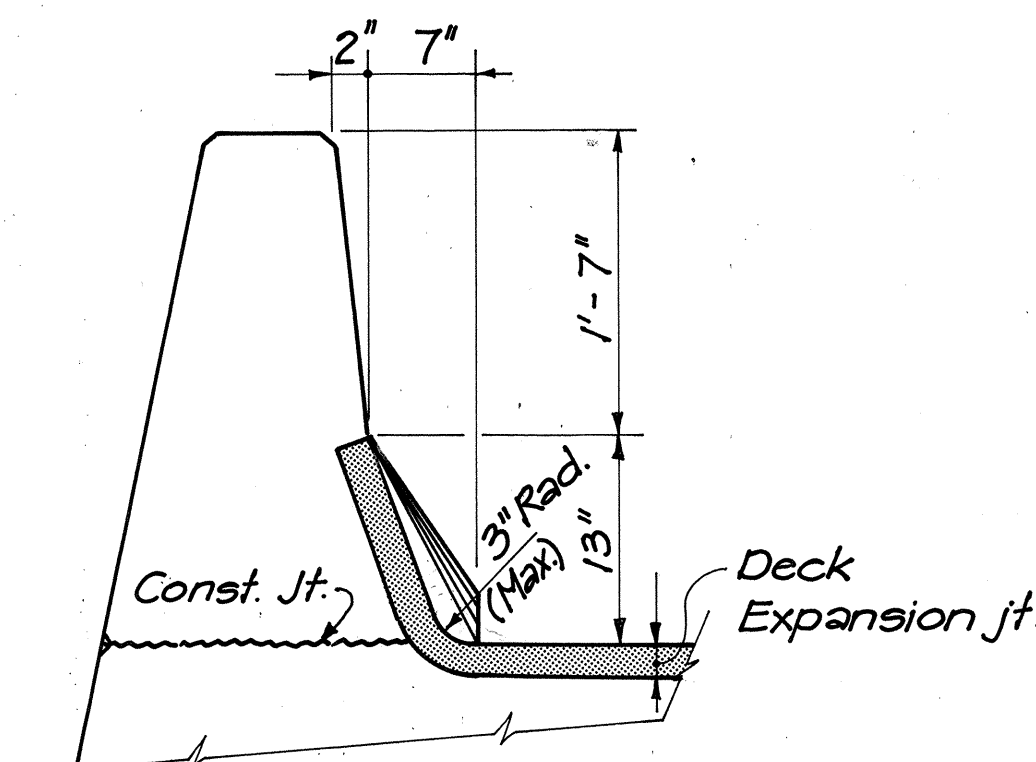
NOTE 'A': Just prior to concreting of the hatched areas, coat the indicated surfaces with an epoxy adhesive.

NOTE 'B': Hatched Areas shall be concreted after 15 days of deck slab pour. Anchor devices shall be located and held in their final position, as per Manufacturer's requirement, during the concreting of the hatched areas.

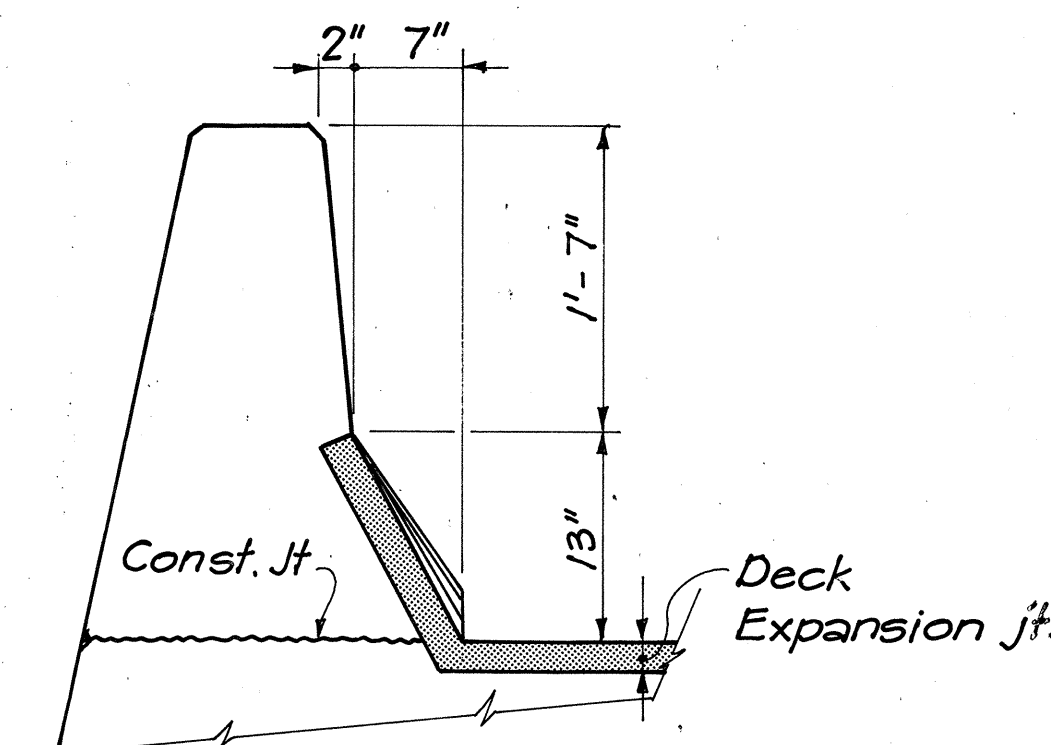
* Joint opening at time of installation of joint



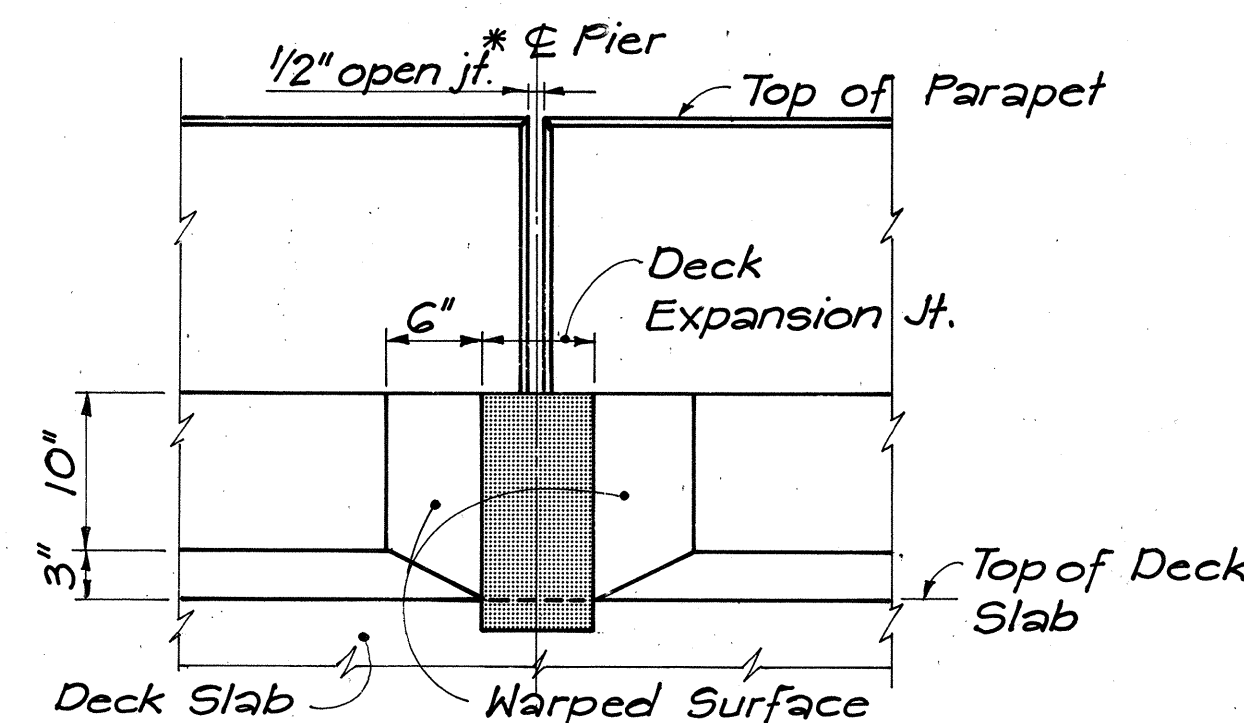
**TYPICAL DECK SECTION
(AT ALL PIERS EXCEPT RIGID FRAMES)**
N.T.S.



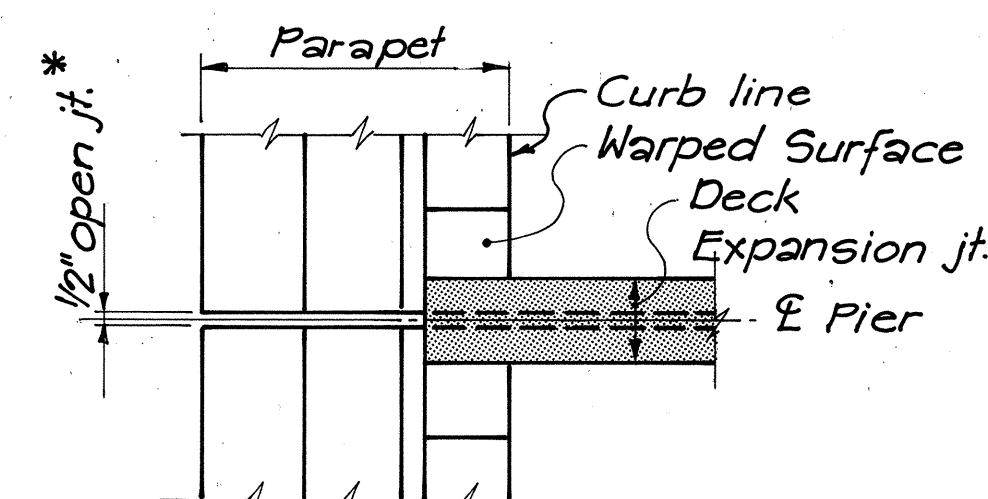
TYPICAL SECTION AT STANDARD PARAPET



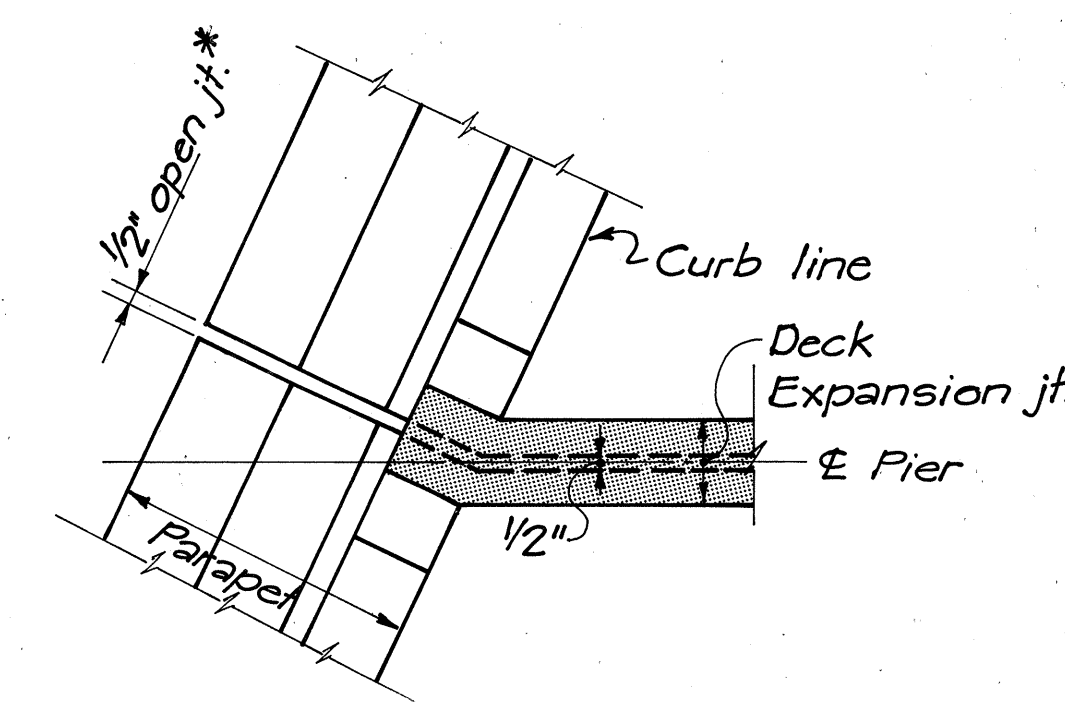
ALTERNATE DETAIL AT PARAPET
N.T.S.



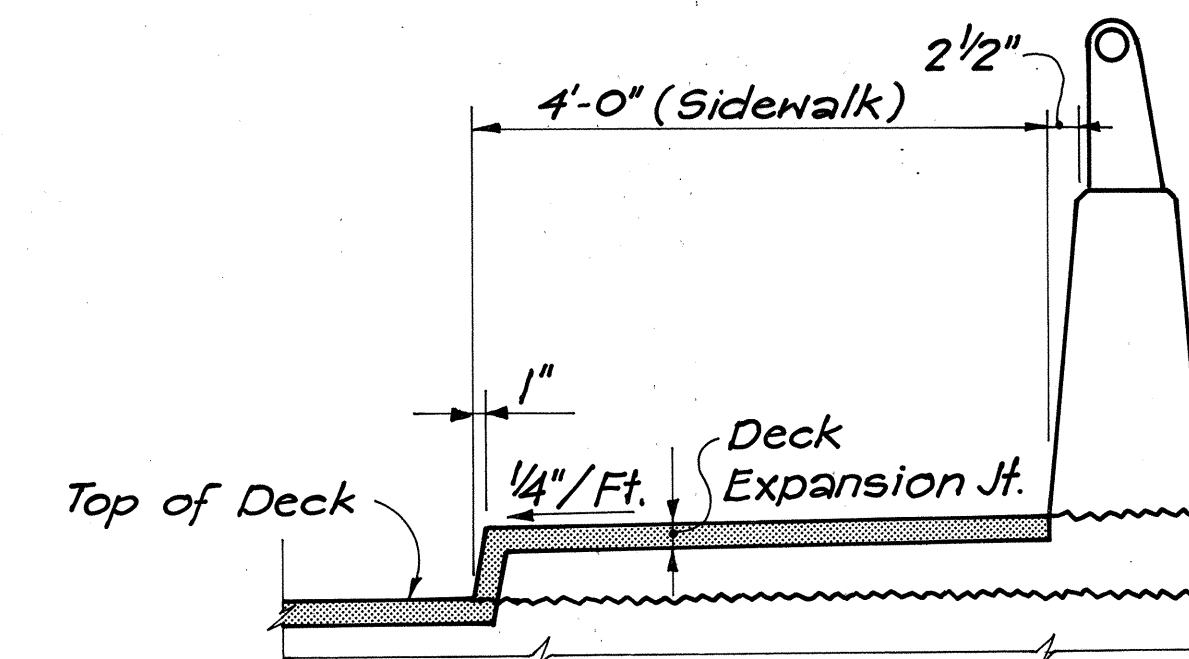
VIEW 'A'
N.T.S.



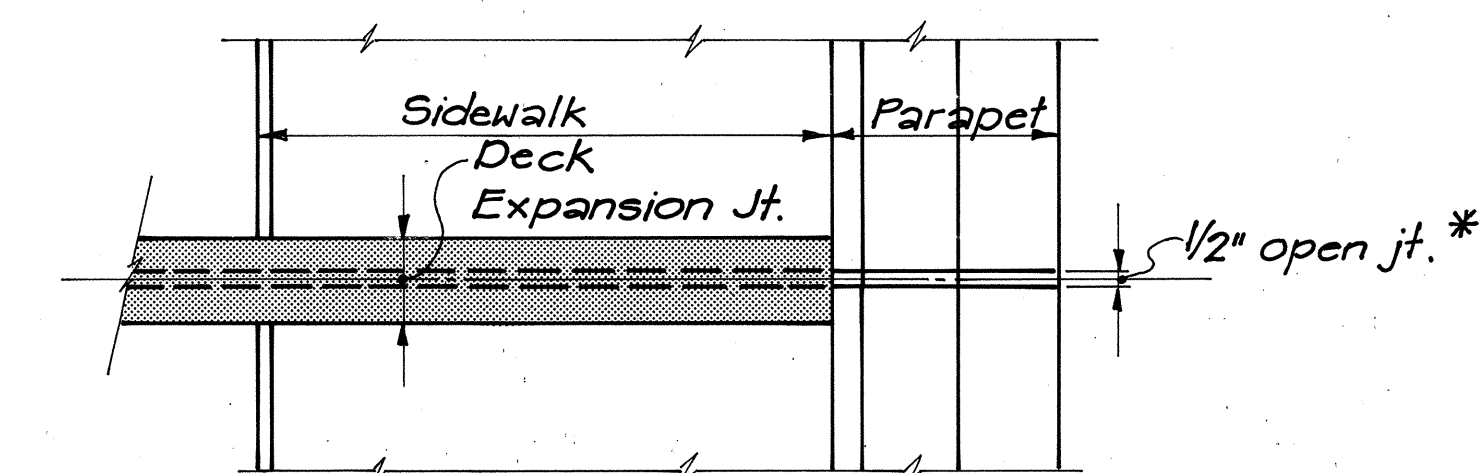
TYPICAL PLAN - SKEW ANGLE = 0°-15°
N.T.S.



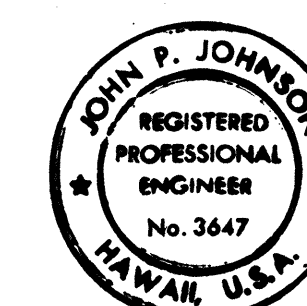
TYPICAL PLAN - SKEW ANGLE = OVER 15°
N.T.S.



TYPICAL SECTION AT SIDEWALK PARAPET
N.T.S.



TYPICAL PLAN
N.T.S.



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OR UNDER MY SUPERVISION.

John P. Johnson

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

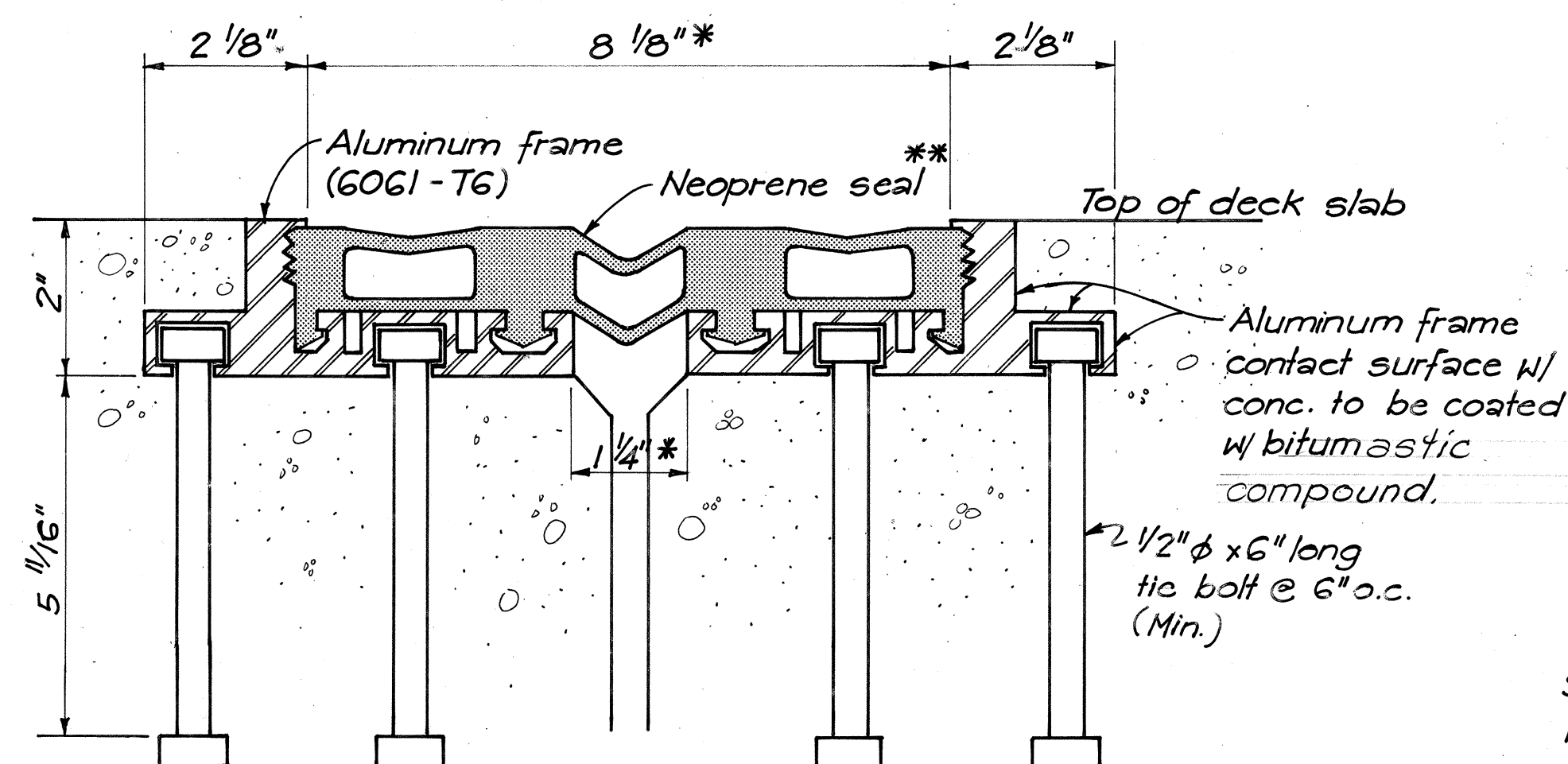
TYPICAL DETAIL

DECK EXPANSION JOINT
SHEET 1 OF 2

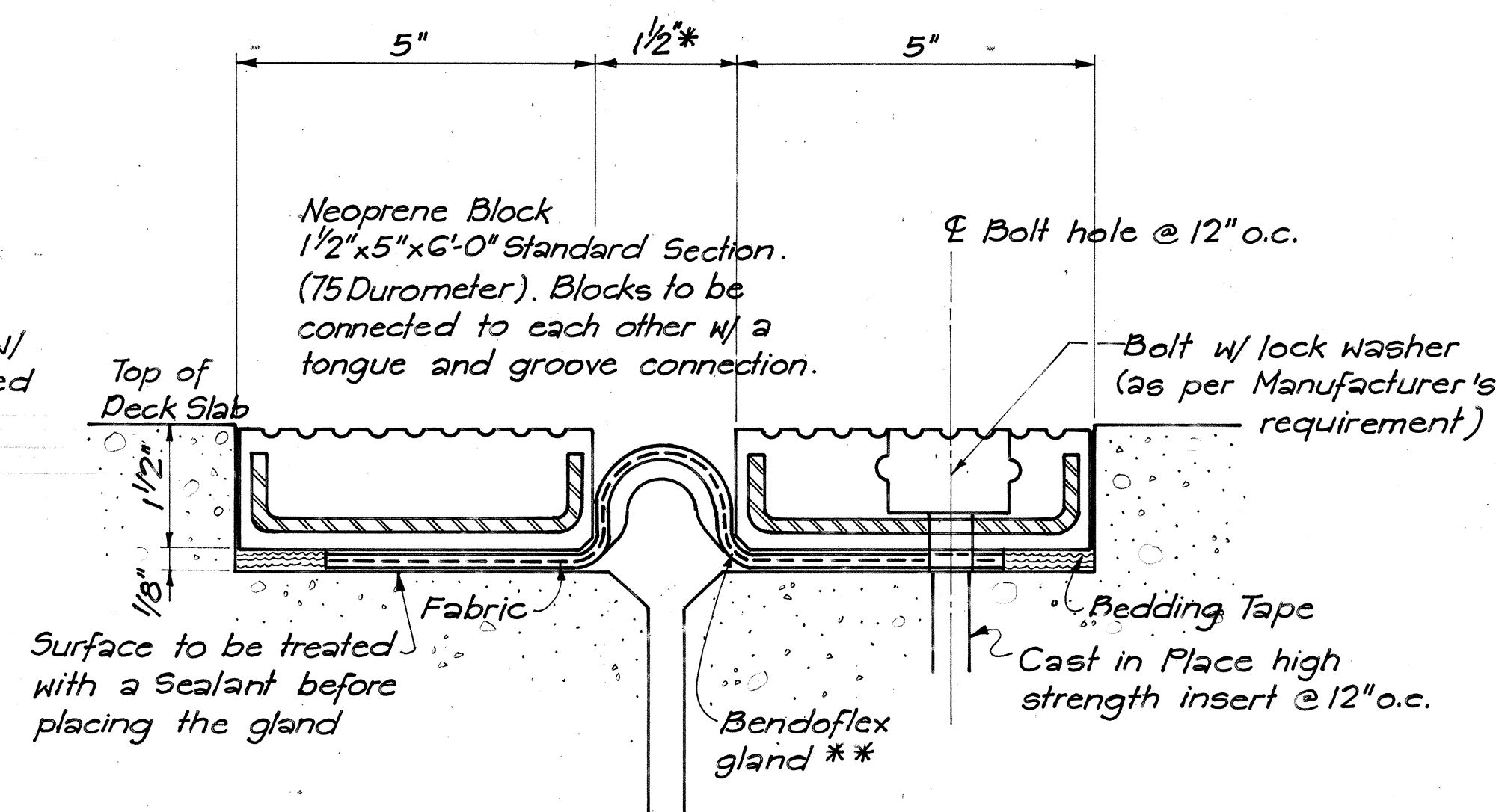
KEEHI INTERCHANGE
F.A.I. PROJECT NO. I-HI-1 (130):17
SCALE: AS SHOWN DATE: AUG. 16, 76

SHEET NO. 13 OF 20 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(130)17	1976	159	174

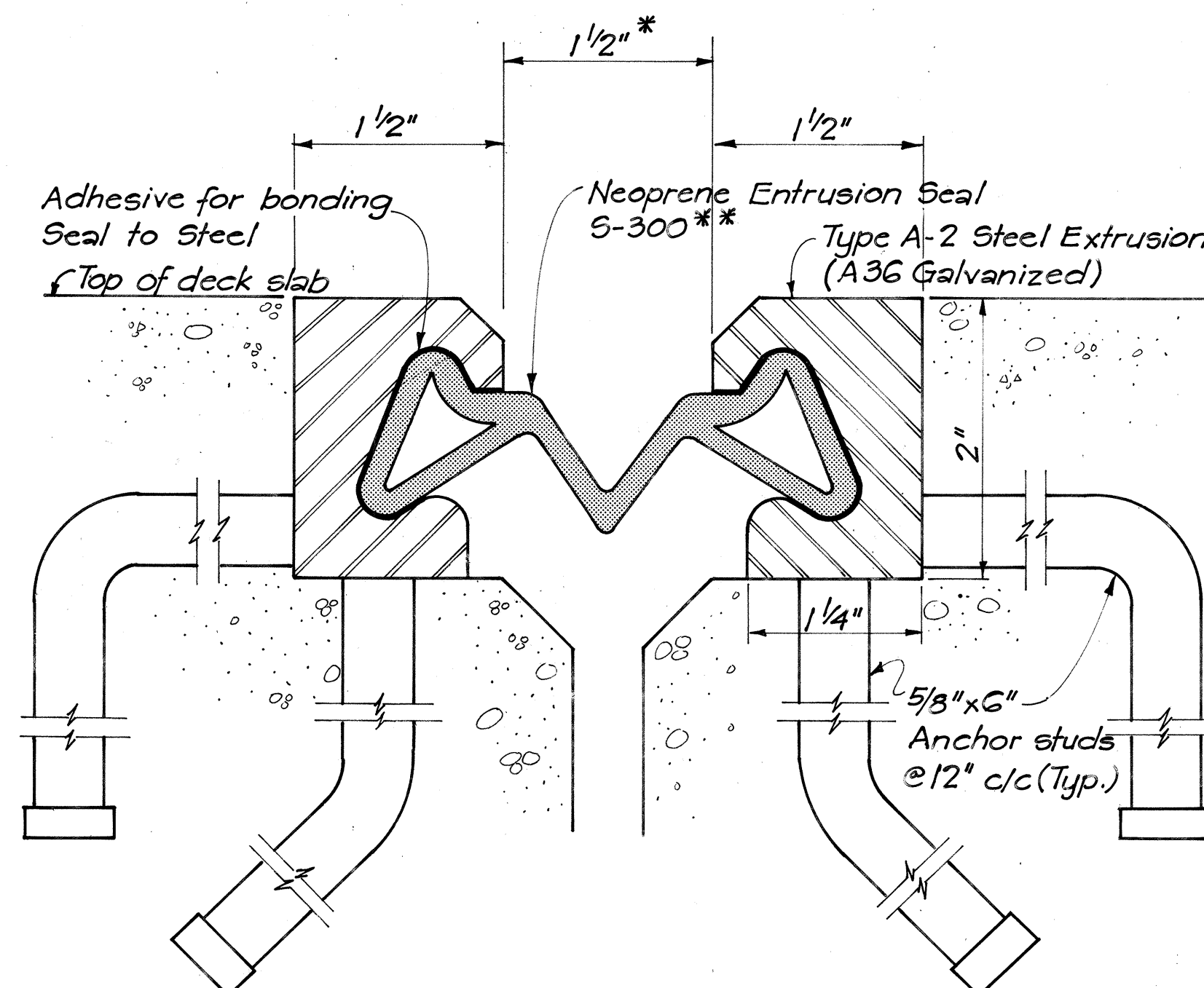


DELASTIFLEX TYPE CP200
(Manufacturer: D.S. Brown & Co.)

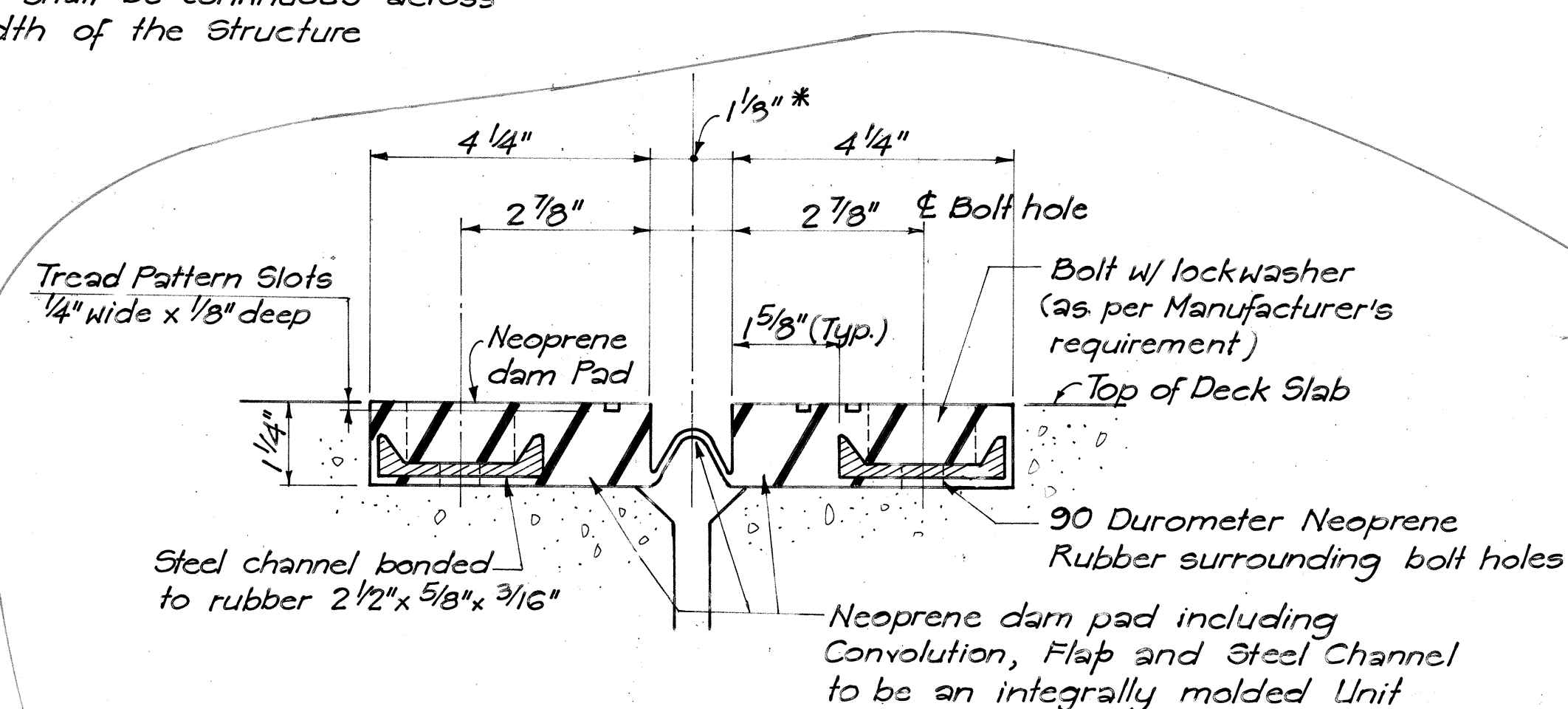


WABO BENDOFLEX SYSTEM
(Manufacturer: Watson Bowman Ass. Inc.)

* = Installation width @ 75°F
** = Seal/Gland shall be continuous across the full width of the structure



WABO-MAURER STRIP SEAL
(Manufacturer: Watson - Bowman Ass. Inc.)



FEL-SPAN TYPE T-20
(Manufacturer: FEL-PRO Incorporated)

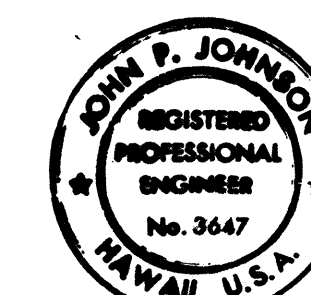
NOTE: The entire assembly to be factory vulcanized into 8'-0" (Min.) long units before shipping. The convolution flap between units to be lapped and field vulcanized.

NOTE:

Four alternative Deck Expansion Joint Systems are shown. Contractor has the option of selecting any one of the systems. The Contractor shall submit detailed shop drawings of the selected joint to the Engineer for approval.

Use This.

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



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OR UNDER MY SUPERVISION.
John P. Johnson

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL DETAIL

DECK EXPANSION JOINT
SHEET 2 OF 2

KEEHI INTERCHANGE
F.A.I. PROJECT NO. I-HI-1(130)17
SCALE: AS SHOWN DATE: AUG. 16, 76
SHEET NO. 120 OF 20 SHEETS

GENERAL NOTES

- All concrete shall be Class A unless otherwise noted.
- Reinforcing shall be detailed in accordance with A.C.I. Manual of Standard Practice for Detailing Reinforced Concrete Highway Structures unless otherwise noted.
- Clearance for reinforcing bars shall be as follows, unless otherwise noted:
 - 1/2" For stirrups of beams & pier caps.
 - 2" For ties of columns.
 - 2" For formed walls.
 - 3" For footings.
- Minimum spacing between parallel bars shall be 2 1/2 times the diameter of bars, but in no case shall the clear distance between the bars be less than 1 1/2 times the maximum size of the coarse aggregate.
- All dimensions relating to reinforcing are to centers of bars unless otherwise noted.
- Reinforcing bars shall be securely tied at all intersections & lap splices & shall be held in place during pouring to maintain their proper locations as shown on plans.
- Vertical column bars shall be arranged in such a manner as to miss pier cap bars above as directed by the Engineer.
- Except as otherwise noted on drawings, all exterior corners & re-entrant angles in concrete work shall be chamfered 3/4" x 3/4".
- Concrete seats receiving steel plates, lead plates or neoprene pads shall be poured monolithically with supporting structures & top of concrete seats shall be finished with a steel trowel to a smooth level surface at the elevation shown on the plans.
- Elastomeric Pads: Bottom of bridge bearing pads shall be secured against displacement with adhesives approved by the Engineer. Pads shall be incidental to concrete and will not be paid for separately.
- Forms for all exposed surfaces of separation structures and surfaces of retaining walls visible from a traveled way or from a populated area shall be plywood except that metal forms may be permitted provided a surface finish satisfactory to the Engineer can be obtained and the use of such forms is approved in writing by the Engineer. Forms for round columns shall be made of materials that will give a smooth finish and true dimensions as given in the plans. Forms for prestressed concrete members shall be either metal or plywood.
- Gothic letters and figures approximating dimensions shown will be acceptable if approved by the Engineer.
- The contractor shall verify the location of all existing utility lines and notify the respective owners before commencing work of excavation or driving of piles.
- Standard Detail Drawings refer to all structures in general, except for modifications as may be required for special conditions. For such modifications refer to the corresponding detailed drawings.

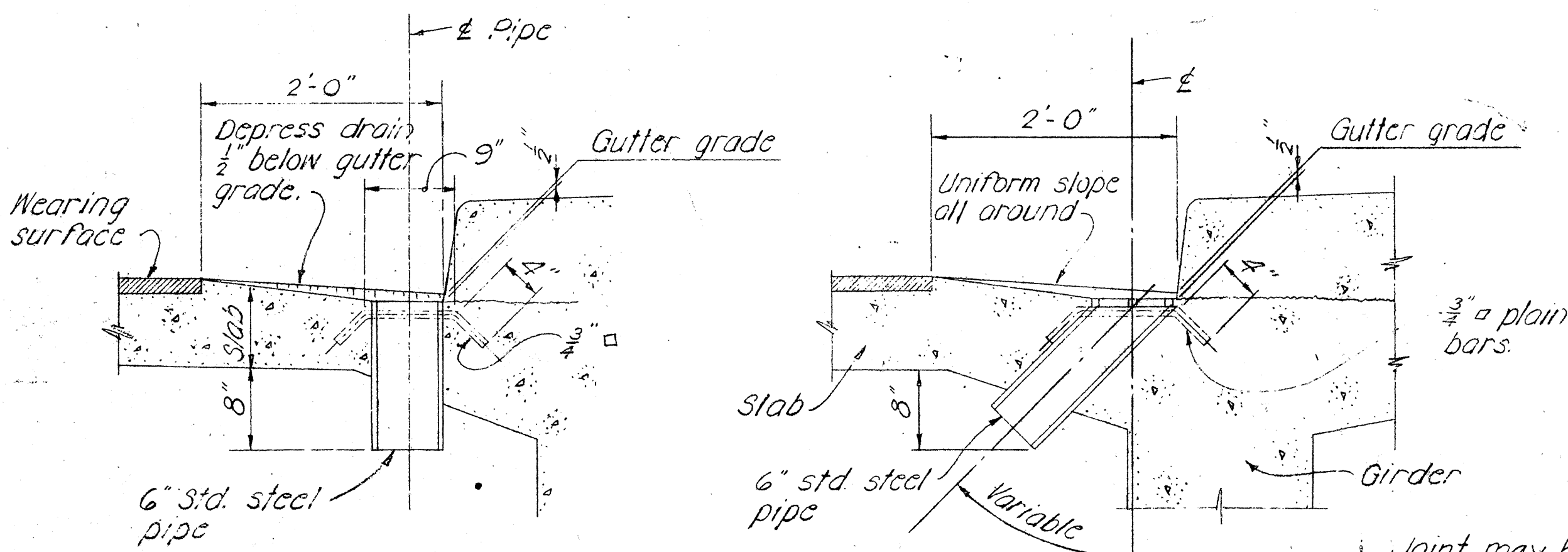
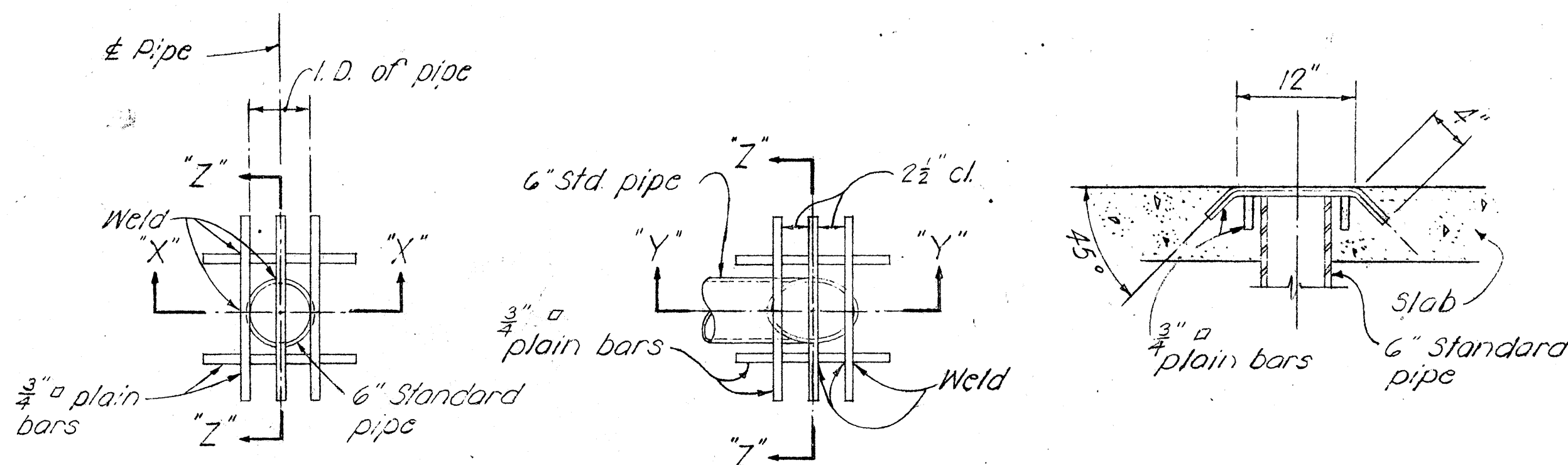
TYPICAL CONCRETE GROOVE DETAIL

DRIP DETAIL

SECTION "Z-Z"

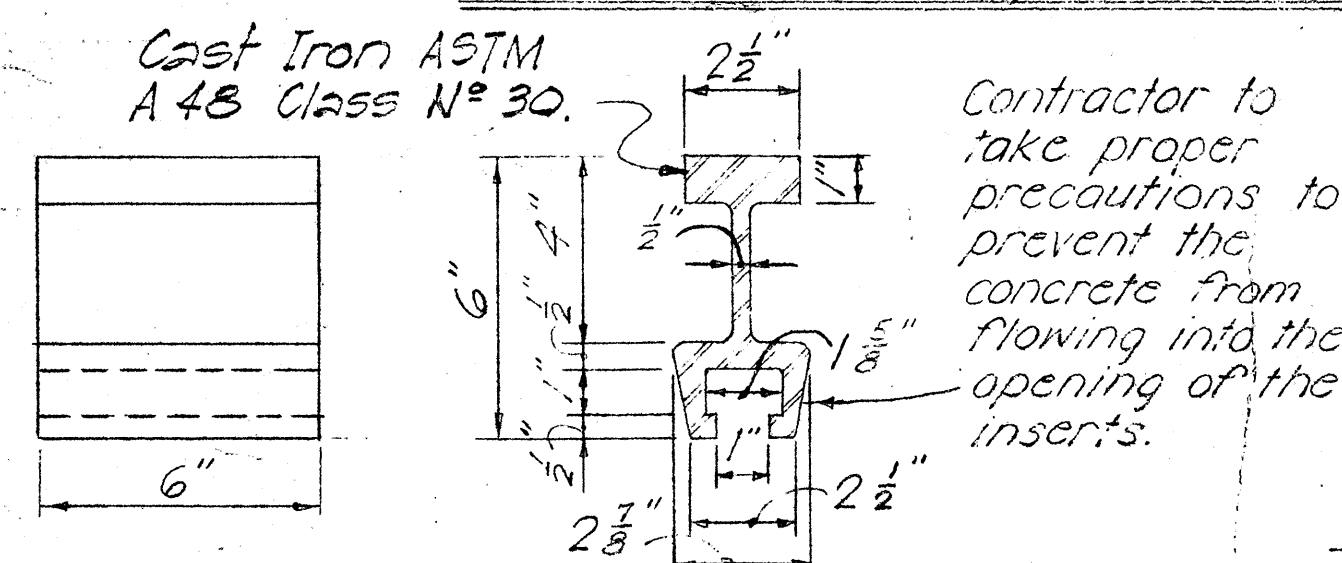
SECTION "Y-Y"

SECTION "X-X"



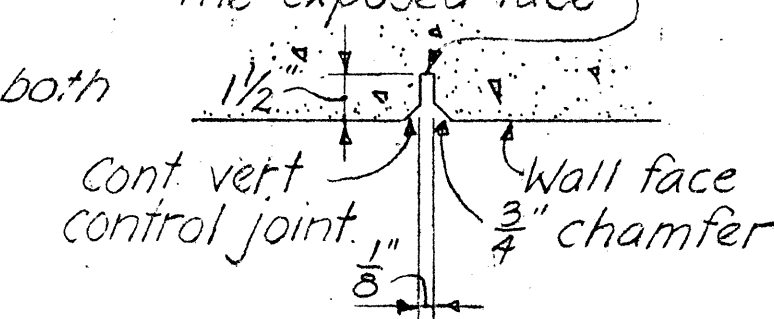
NOTE: Metal drains shall be considered incidental to Class A Concrete in both concrete and steel bridges and will not be paid for separately. Assembly of grillage and pipe shall be hot-dip galvanized after all welding is completed.

TYPICAL DRAINAGE DETAILS



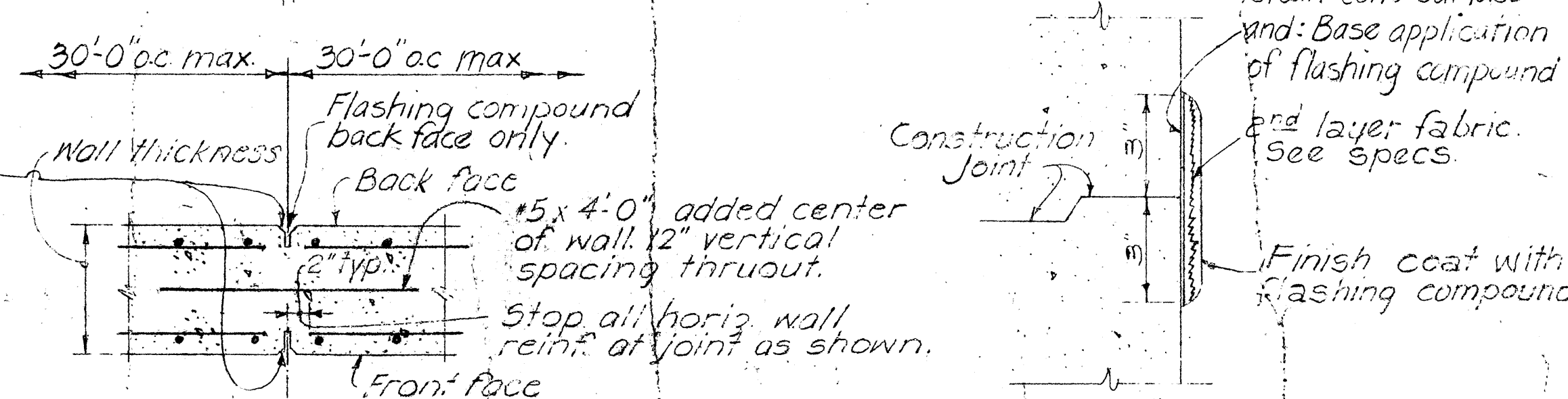
Contractor to take proper precautions to prevent the concrete from flowing into the opening of the inserts.

Vert. control joint on each face of wall to top of footing. See above detail and as directed by the Engineer.

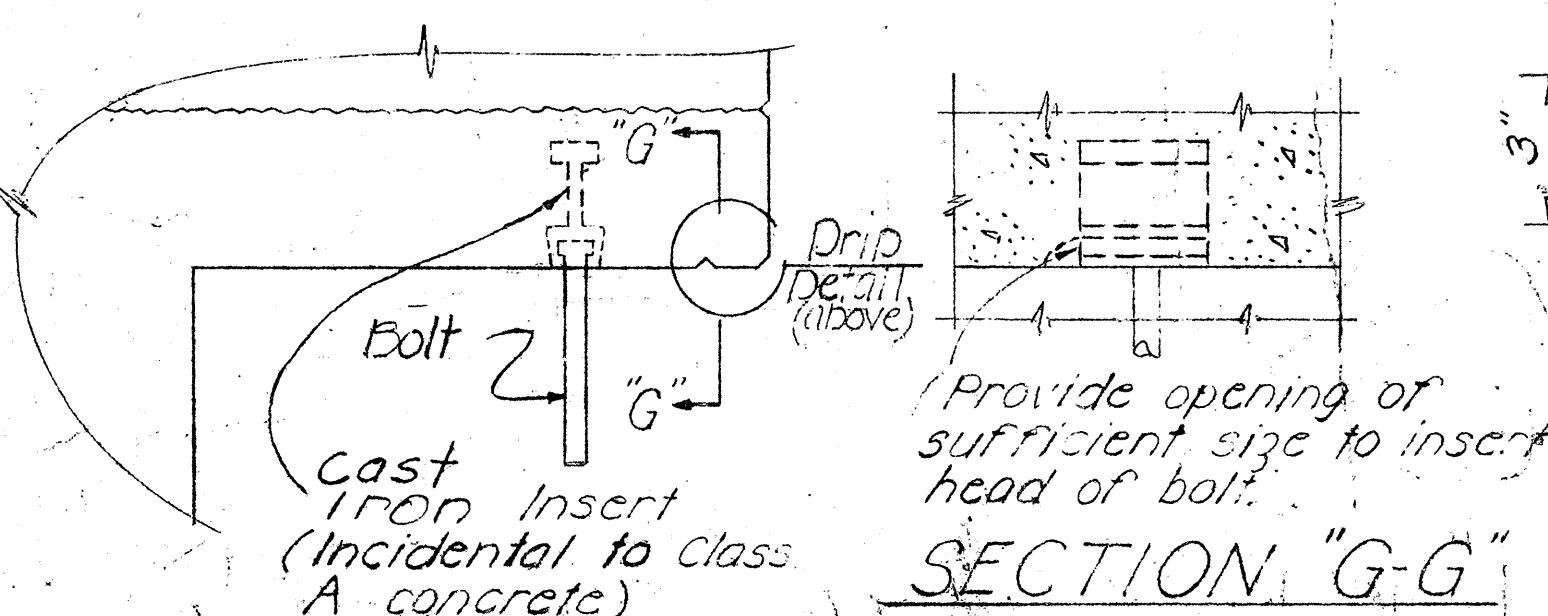


CONTROL JOINT DETAILS

TYP. FLASHING COMPOUND WATERPROOFING DETAIL



INSERT DETAIL



Provide opening of sufficient size to insert head of bolt.

SECTION "G-G"

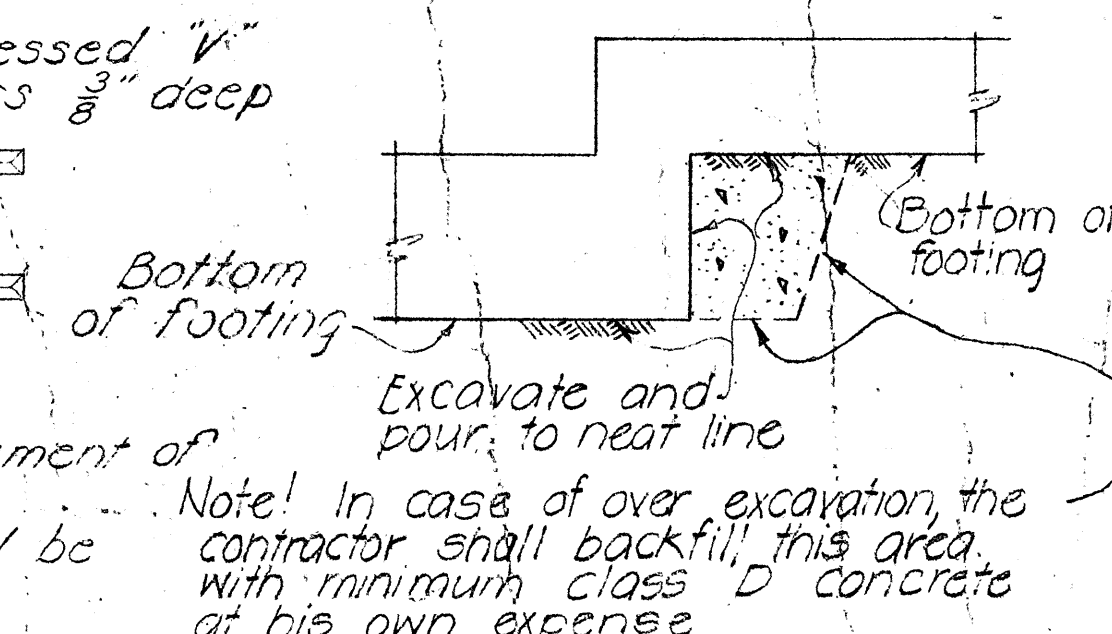
DETAIL of PIPE HANGERS & INSERTS

NAME DATE

Use correct name of bridge Date of Year built

NOTE: Refer to corresponding detail drawings for placement of such names & dates at end post. Excav. details & spacing of letters & figures shall be as directed by the Engineer. See Note #12

TYPICAL DETAIL OF LETTERS & FIGURES AT CONCRETE END POST



TYPICAL EXCAVATION FOR CONTINUOUS FOOTING STEP-UP

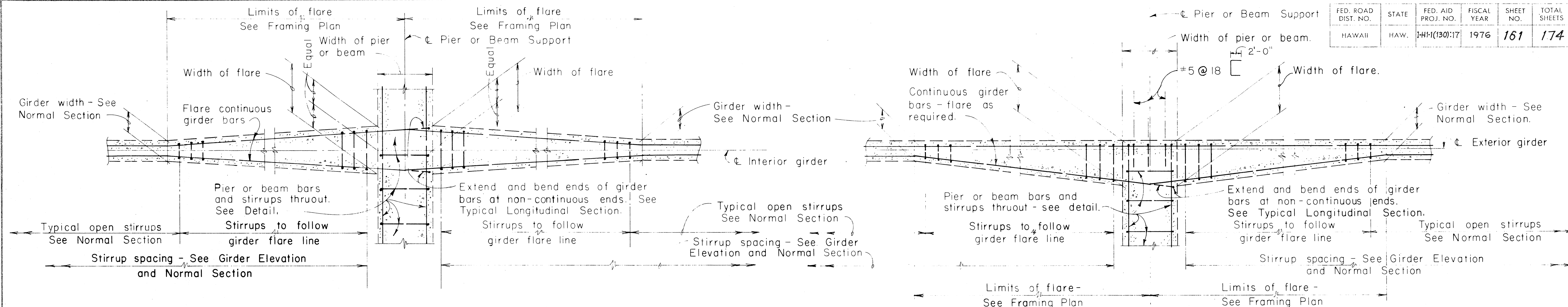
APPROVAL RECOMMENDED:
Paul T. Yamashita
BRIDGE DESIGN ENGINEER 1-23-70
DATE

APPROVED
Paul T. Yamashita
1-28-70
DATE

For ASSISTANT CHIEF, ENGINEERING

NO.	REVISION	APPROVED BY	DATE

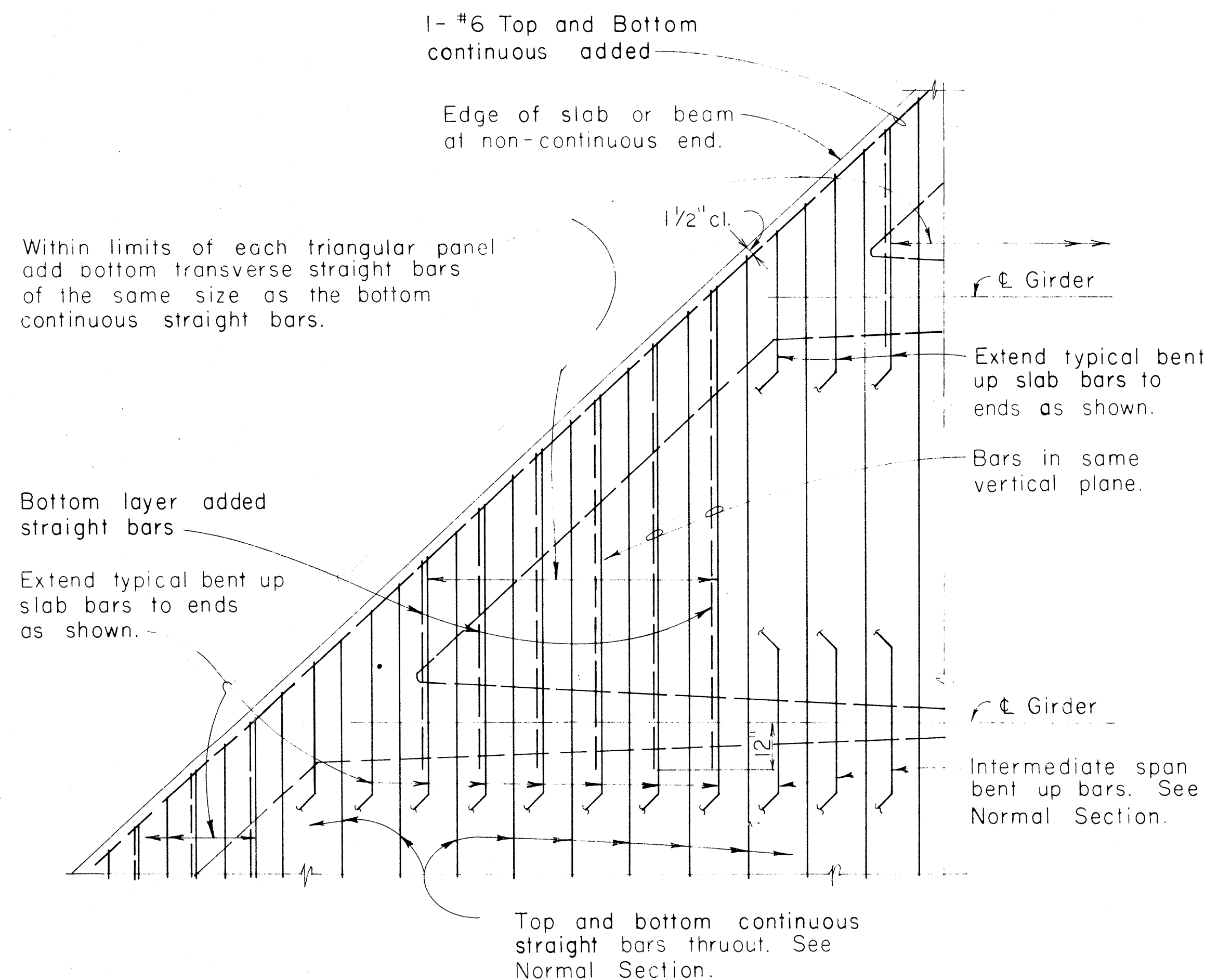
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
STANDARD DETAILS NOTES AND MISCELLANEOUS DETAILS
Date: October 1969
SHEET No. 1 OF 2 SHEETS DB-100



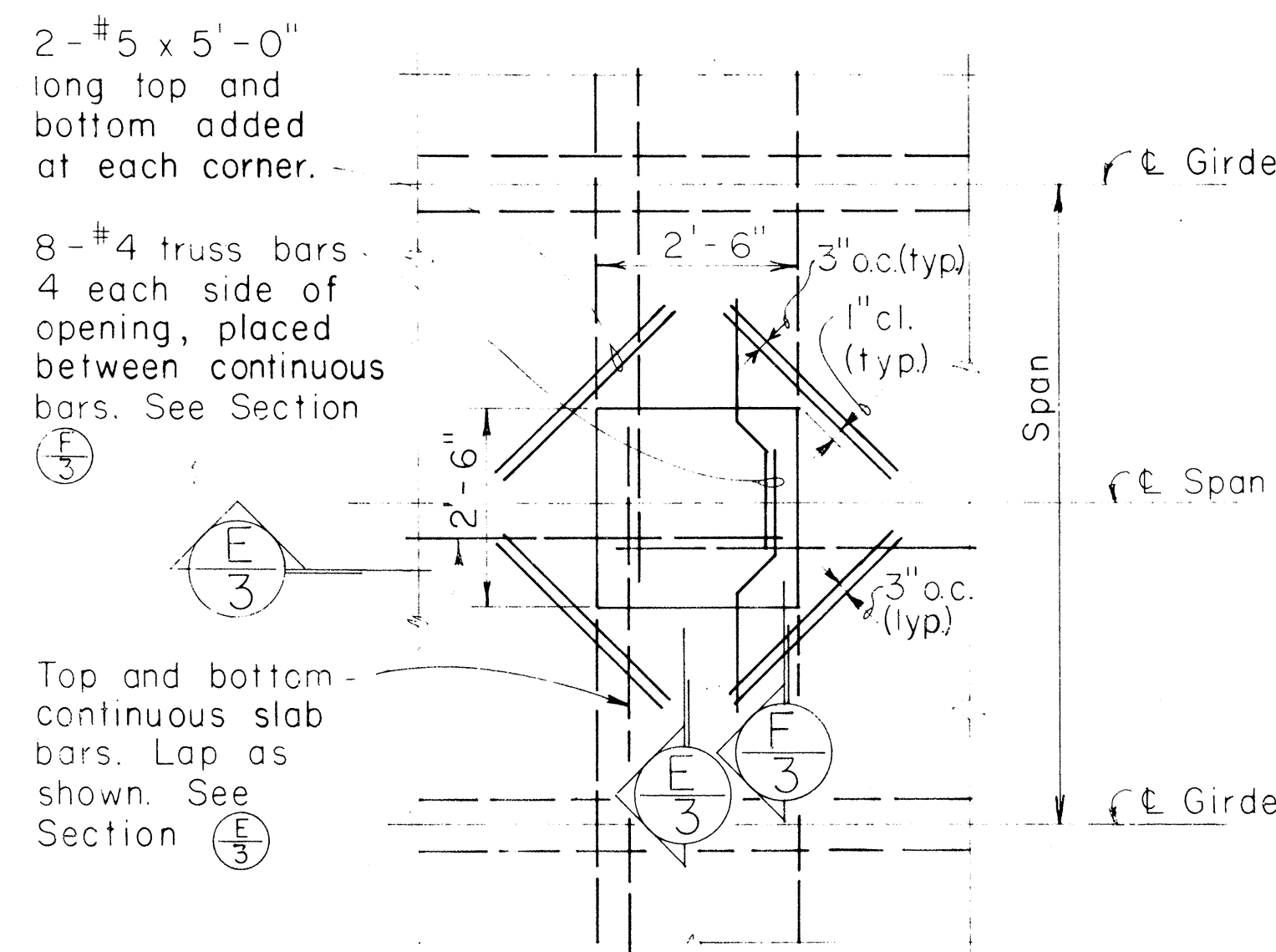
INTERIOR GIRDER

EXTERIOR GIRDER

TYPICAL DETAILS OF GIRDER FLARE AT NORMAL OR RADIAL SUPPORTS - CONTINUOUS ENDS AS SHOWN
(NON-CONTINUOUS ENDS SIMILAR EXCEPT AS OTHERWISE NOTED)



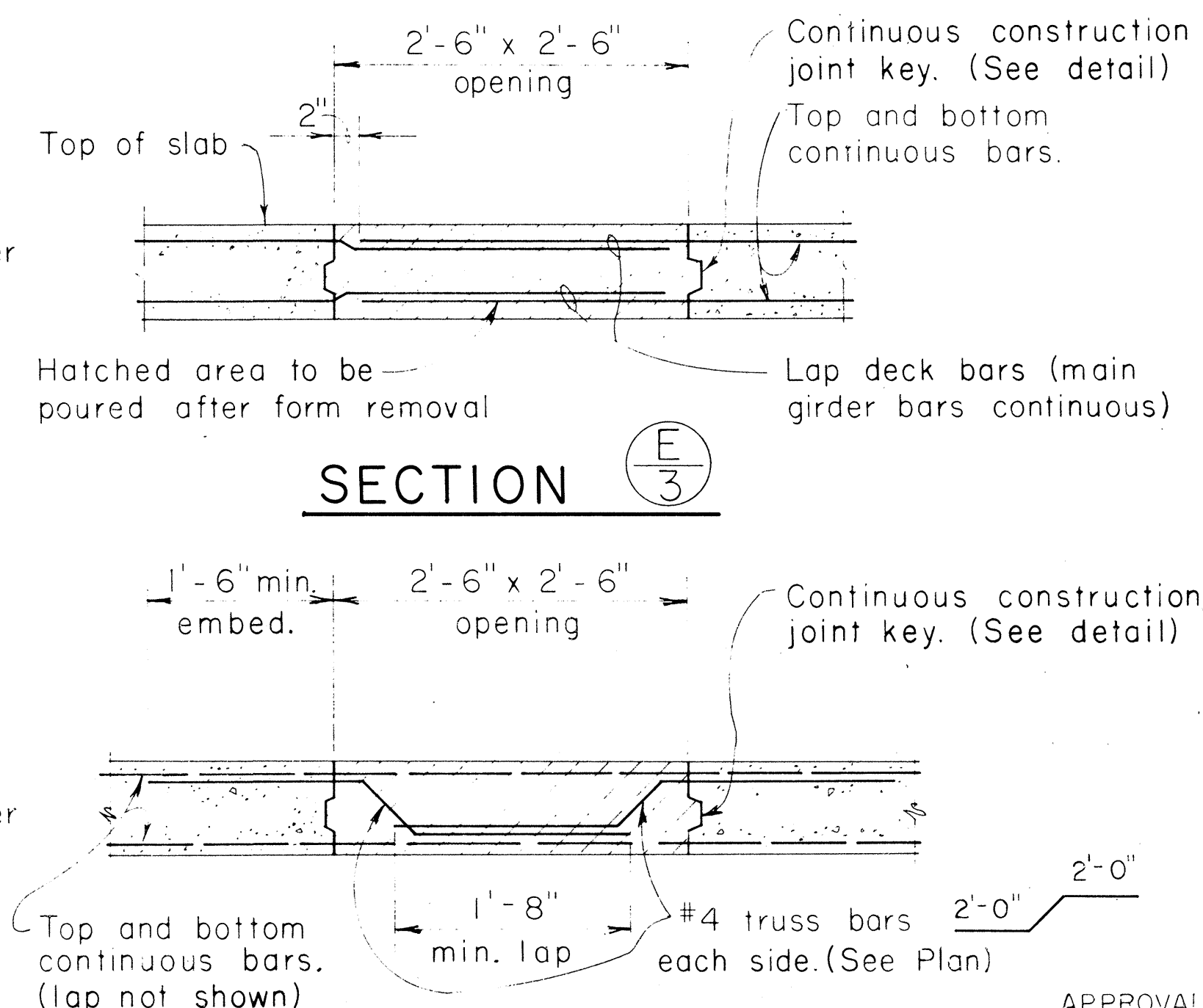
PART PLAN - TYPICAL ARRANGEMENT OF TOP SLAB REINFORCEMENT AT SKEWED ENDS



NOTES

1. Final location of opening shall be determined by the Engineer.
2. Form removal opening at top slab shall not be located where main girder bars occur.
3. Form removal opening may extend from edge of deck.

PART PLAN - DECK SHOWING FORM REMOVAL OPENING



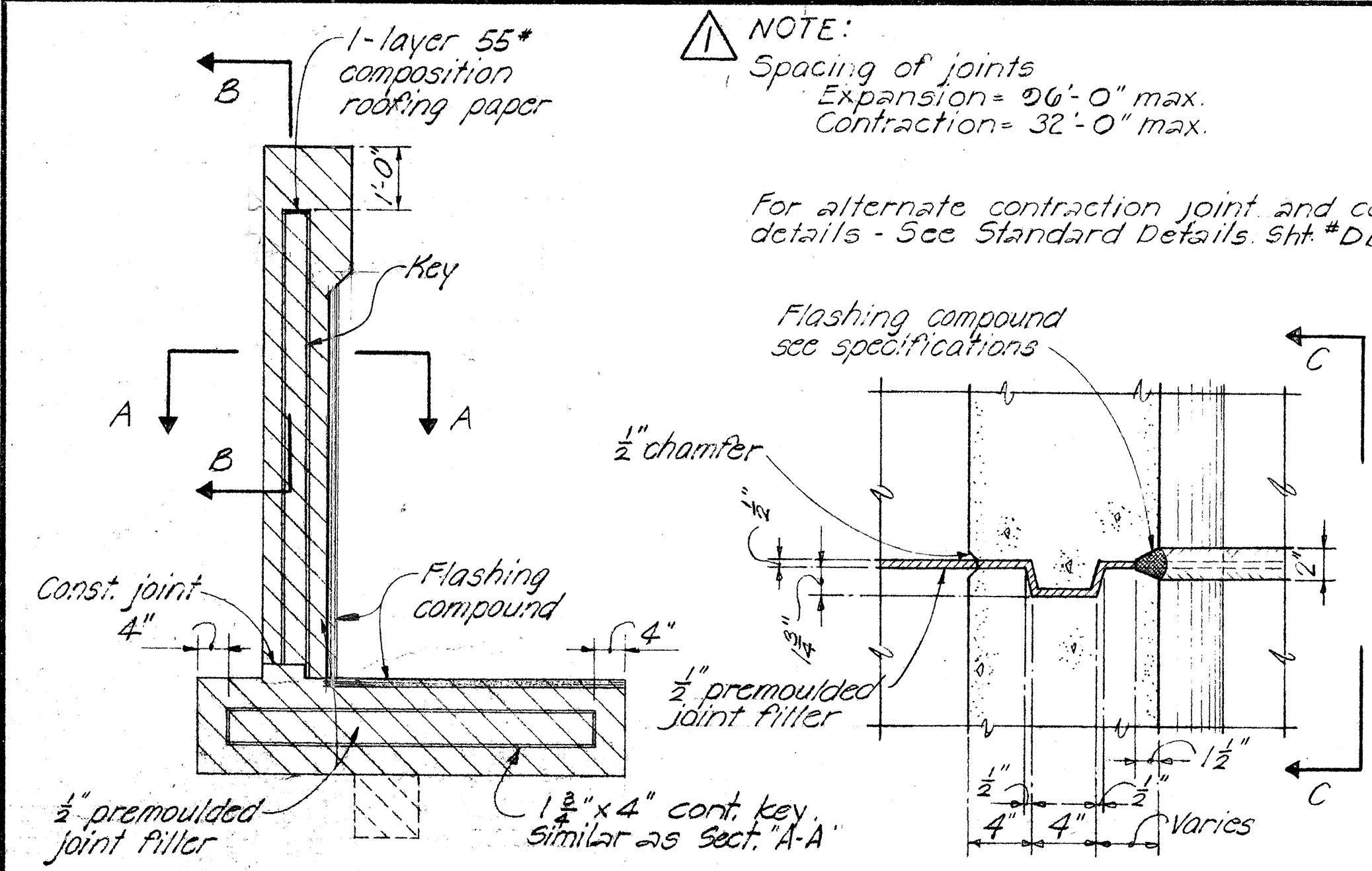
APPROVAL RECOMMENDED
Charles R. Yamamoto C-1-76
 BRIDGE DESIGN ENGINEER DATE

APPROVED
Robert J. K. K. C-2-76
 ASSISTANT CHIEF, ENGINEERING DATE

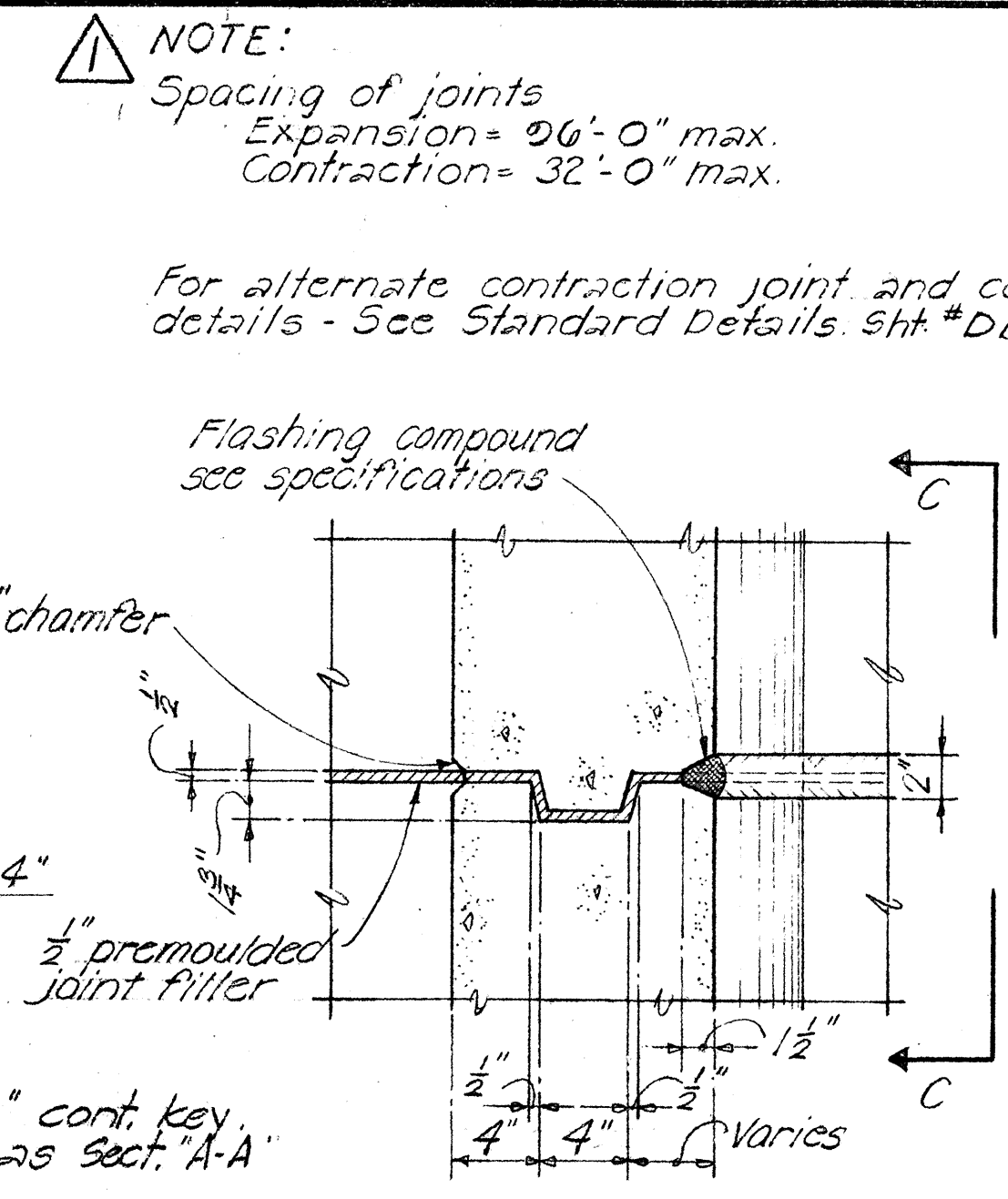
NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
STANDARD DETAILS
CONCRETE BOX GIRDER

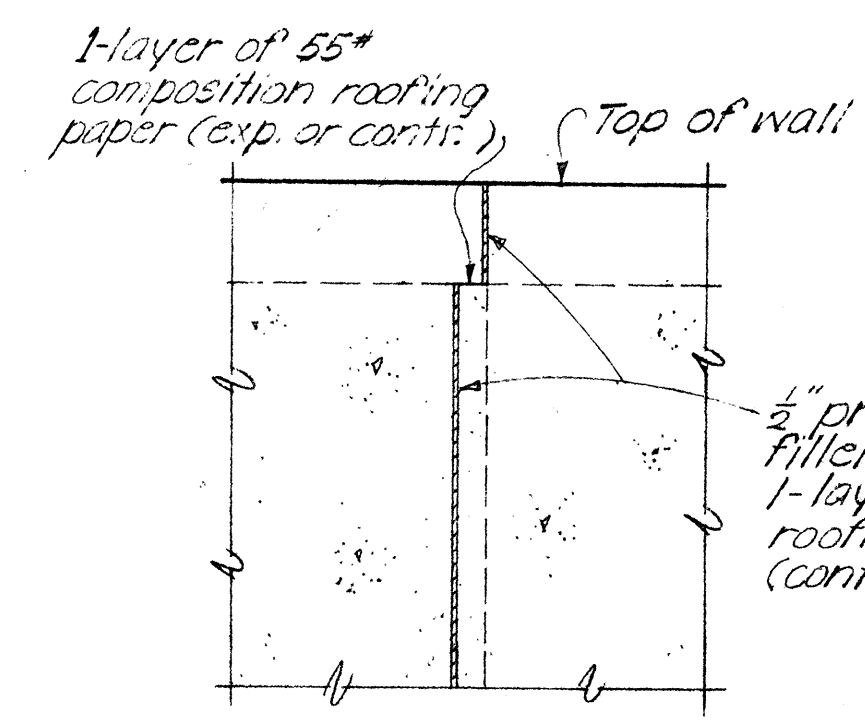
Not To Scale: Date: May 1976



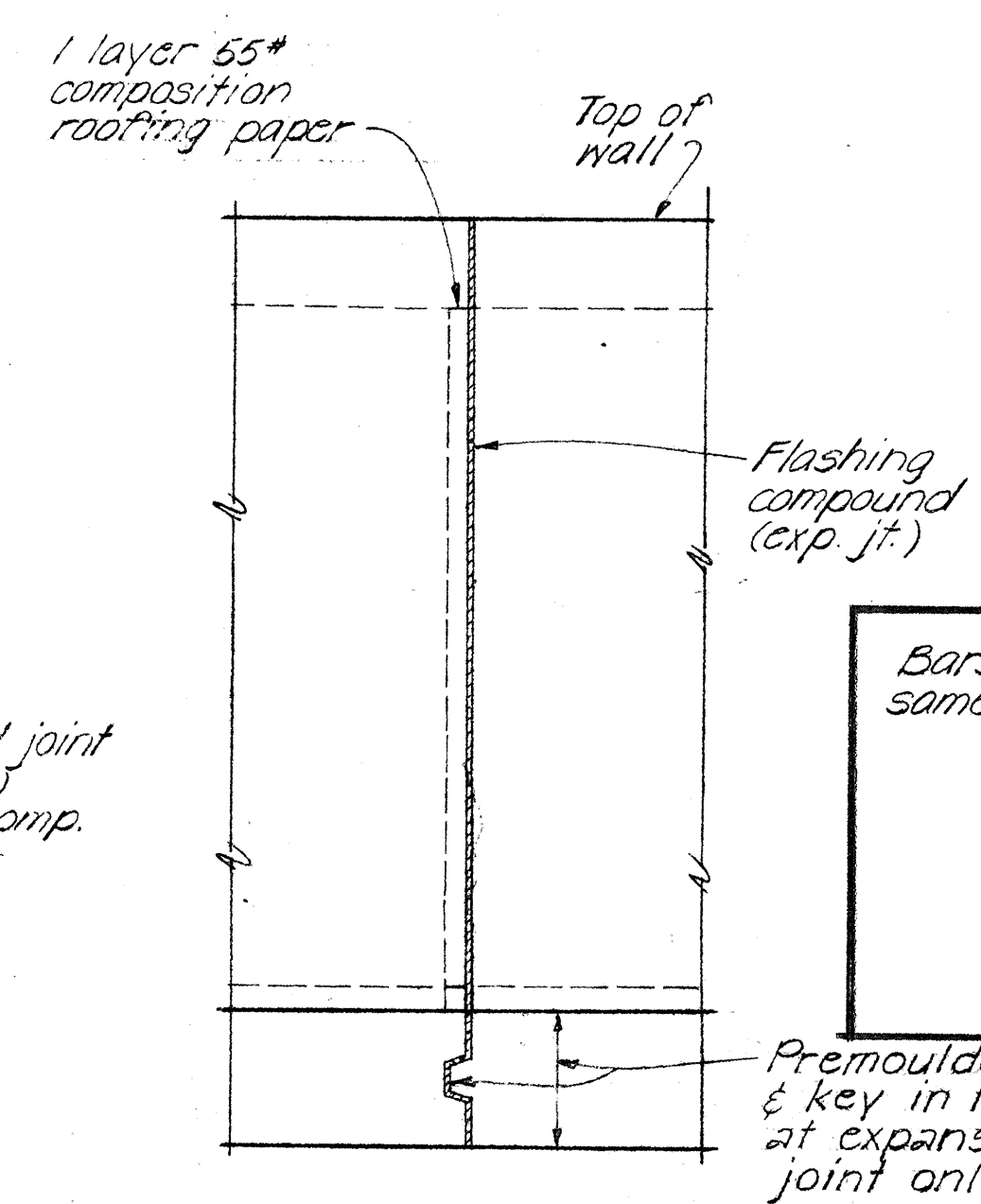
JOINT ELEVATION



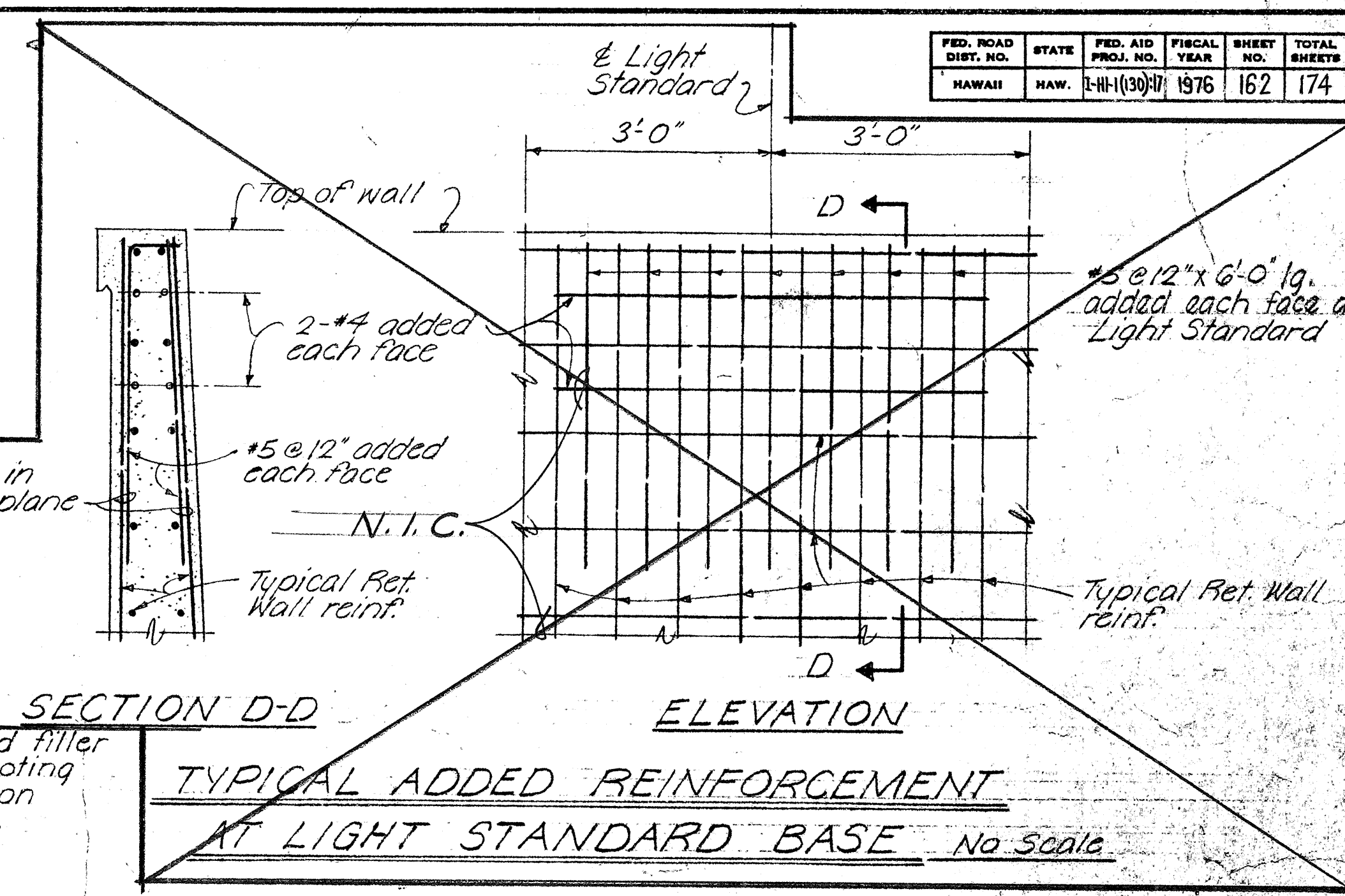
SECTION A-A



SECTION B-B



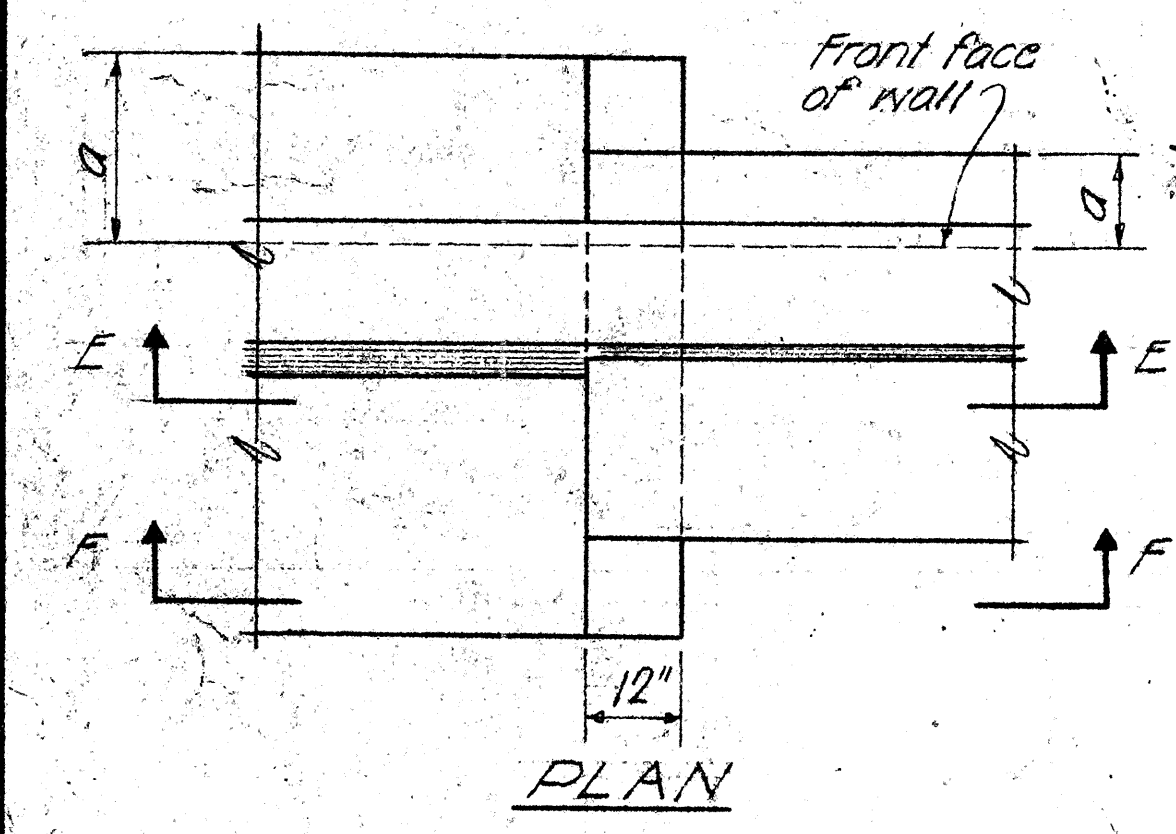
SECTION C-C



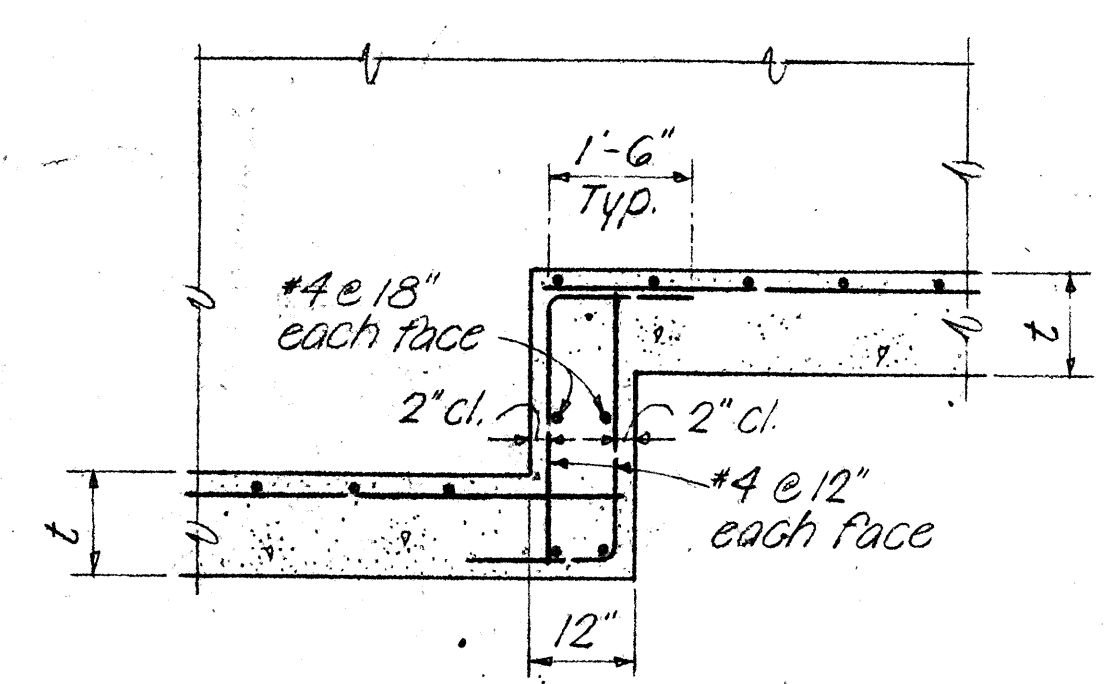
SECTION D-D

ELEVATION

TYPICAL ADDED REINFORCEMENT AT LIGHT STANDARD BASE No Scale

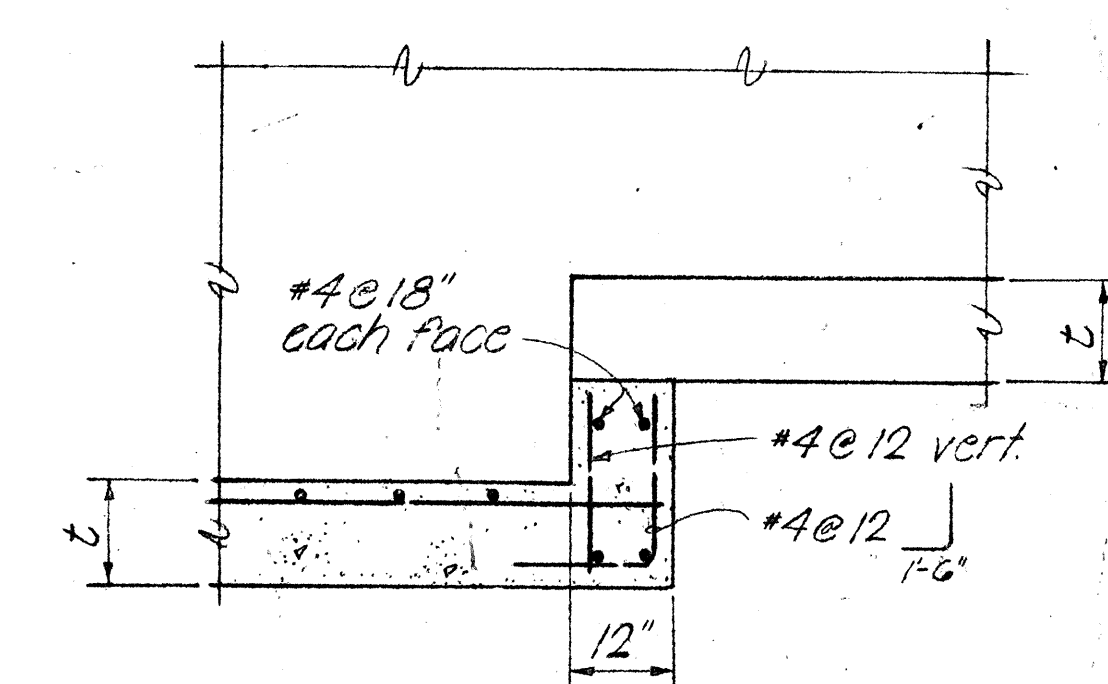


PLAN



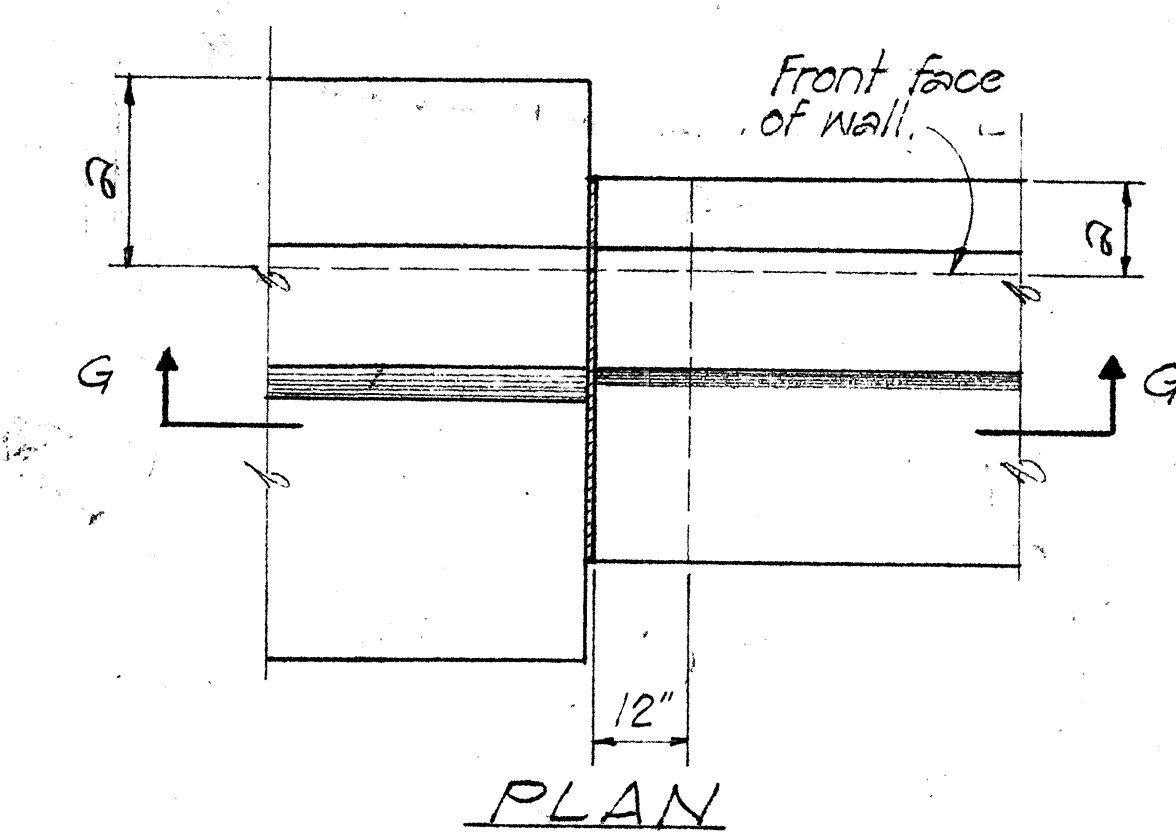
SECTION E-E

AT CONTINUOUS FOOTING

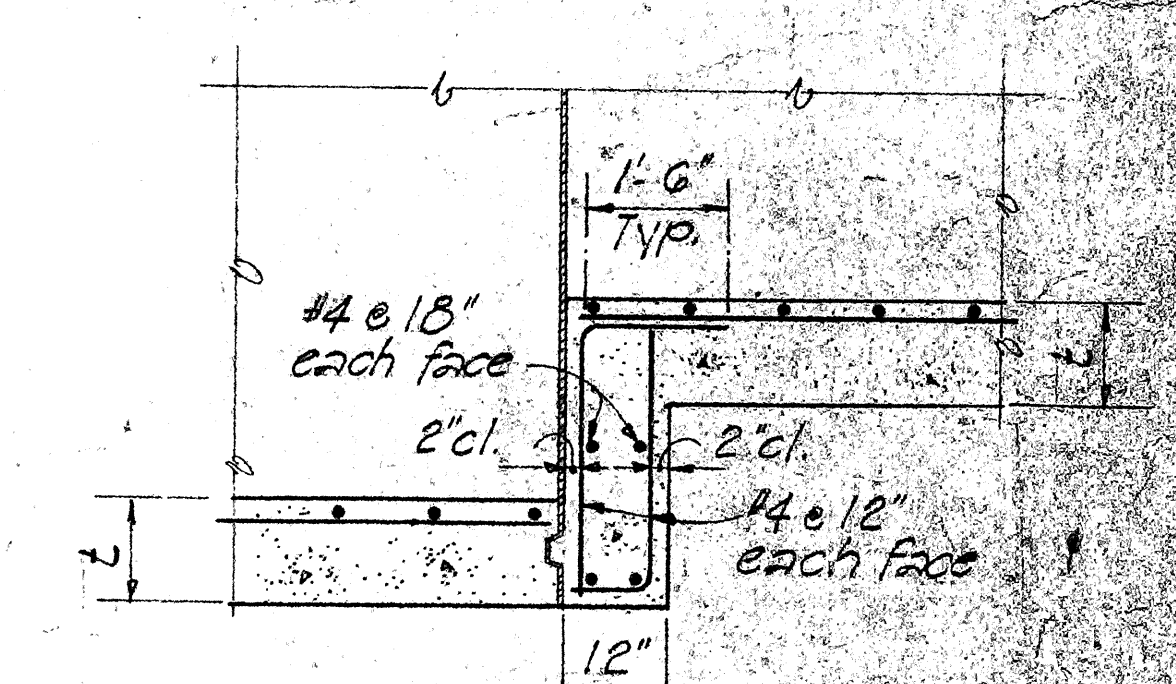


SECTION F-F

TYPICAL FOOTING STEP-UP DETAILS No Scale

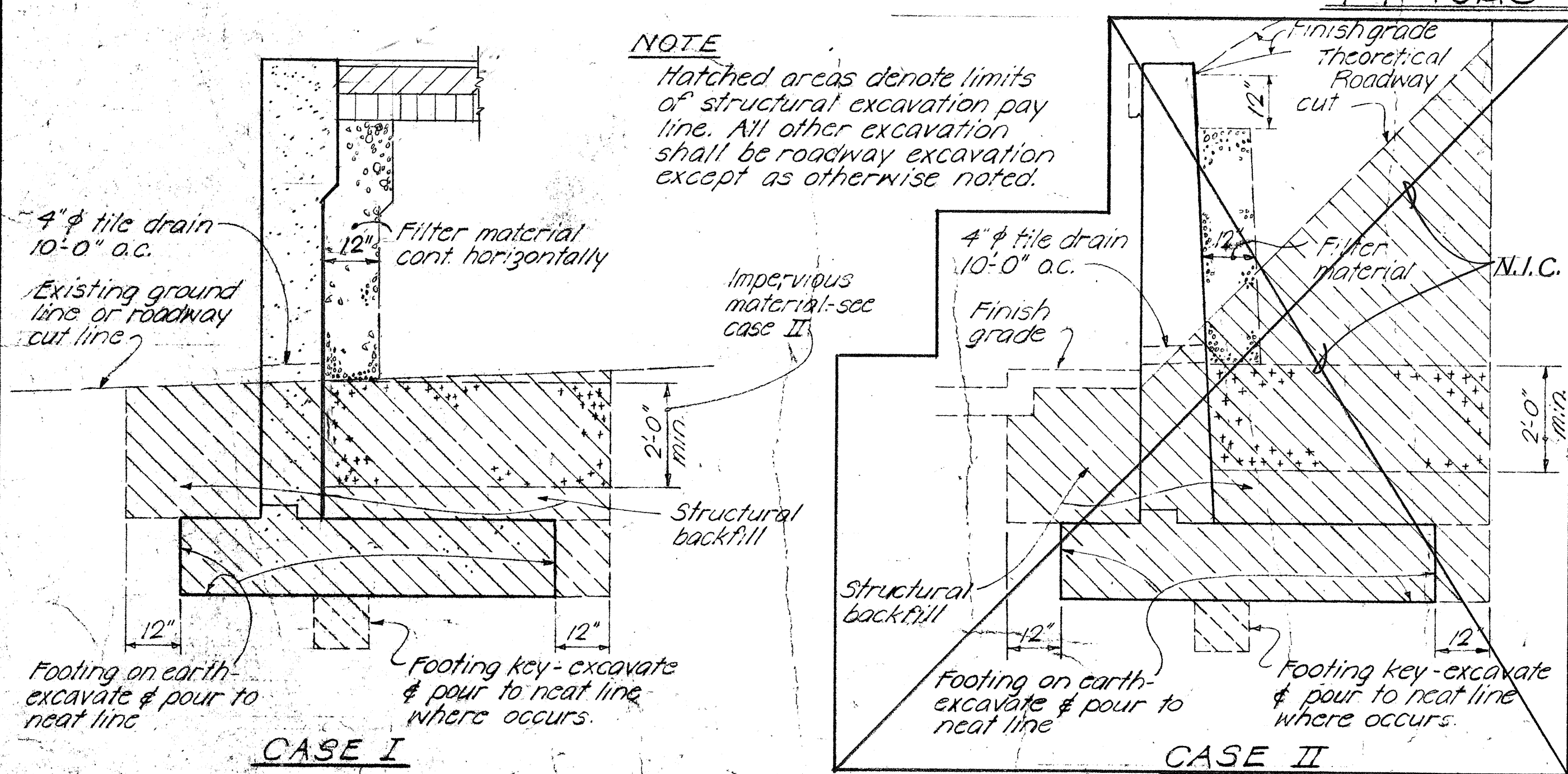


PLAN



SECTION G-G

AT EXPANSION JOINT



CASE I

CASE II

STRUCTURAL EXCAVATION & DRAINAGE DETAILS No Scale

NOTE:
Impervious material as selected by the Engineer incidental to structural excavation. The subgrade upon which filter material is to be placed shall be made as impervious as possible by pneumatic tamping or other approved methods.
Impervious material shall be incidental to roadway excavation or imported borrow when used in embankment area.

APPROVAL RECOMMENDED:
Paul T. Yamashita 1-23-76
BRIDGE DESIGN ENGINEER DATE

APPROVED
Paul T. Yamashita 1-24-76
Asst. ASSISTANT CHIEF, ENGINEERING DATE

NO	REVISION	APPROVED BY	DATE
1	Change note spacing of joints.	H.T.	2.4.72

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
RETAINING WALL

KEEHI INTERCHANGE
F.A.I. PROJ. NO. 1-H-1(130)17

SCALE As NOTED DATE Aug. 16, 1976
SHEET No. 3 OF 3 SHEETS DB-207