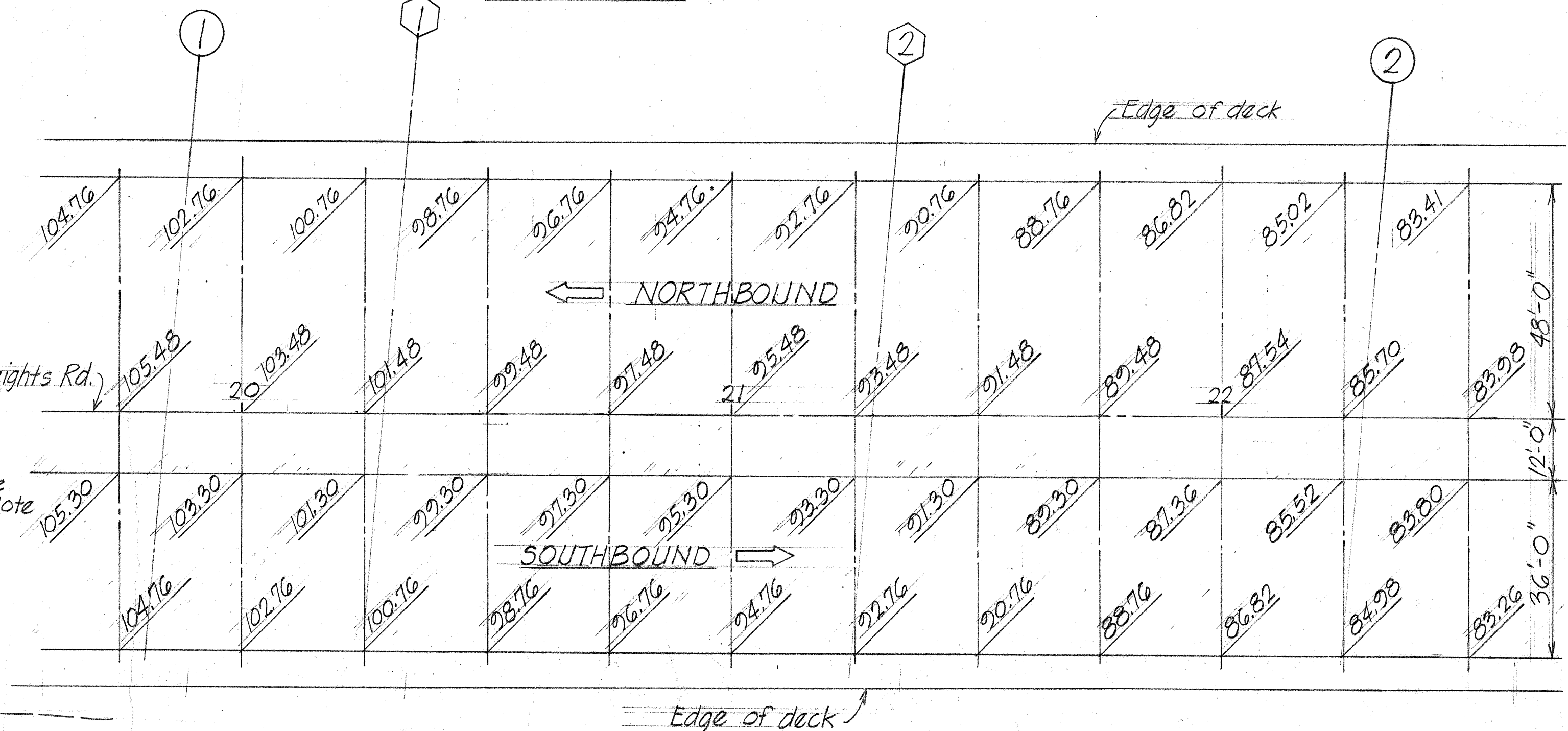
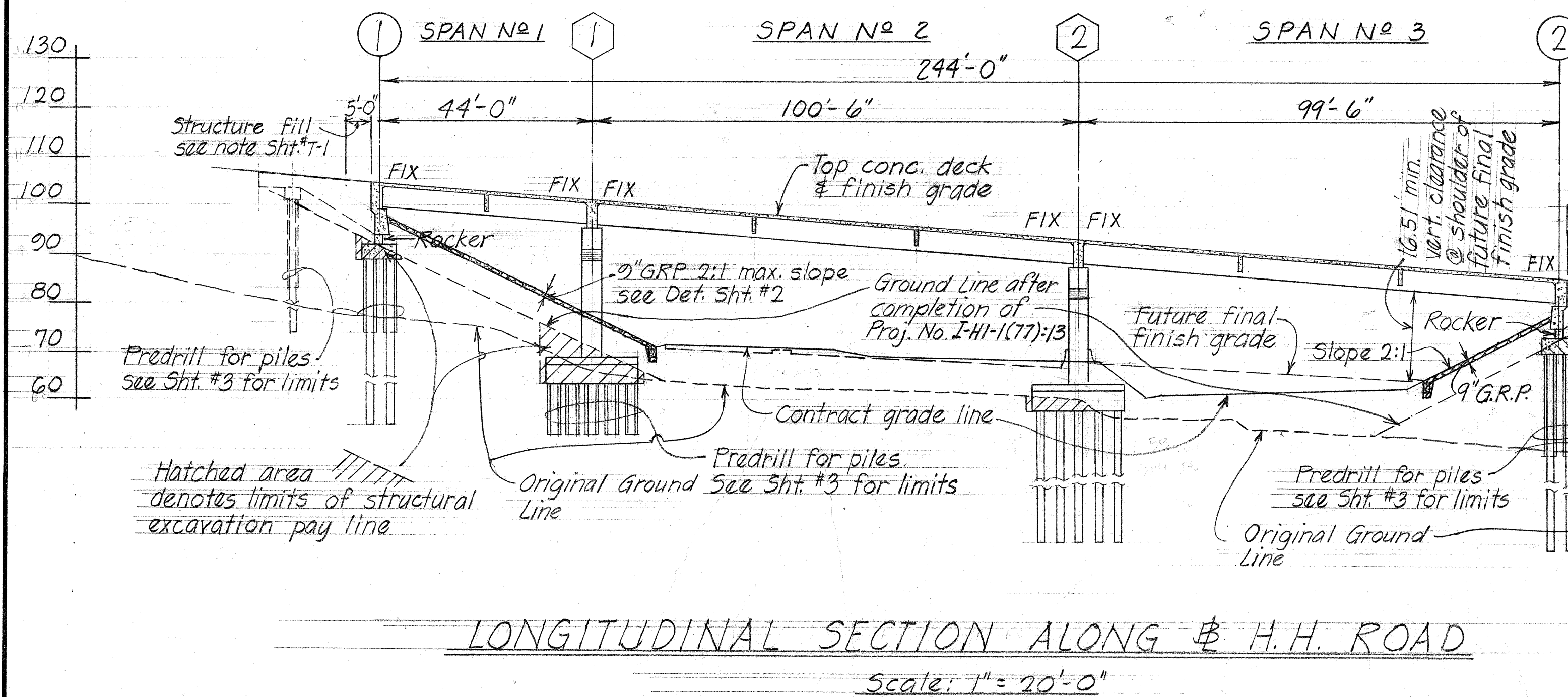
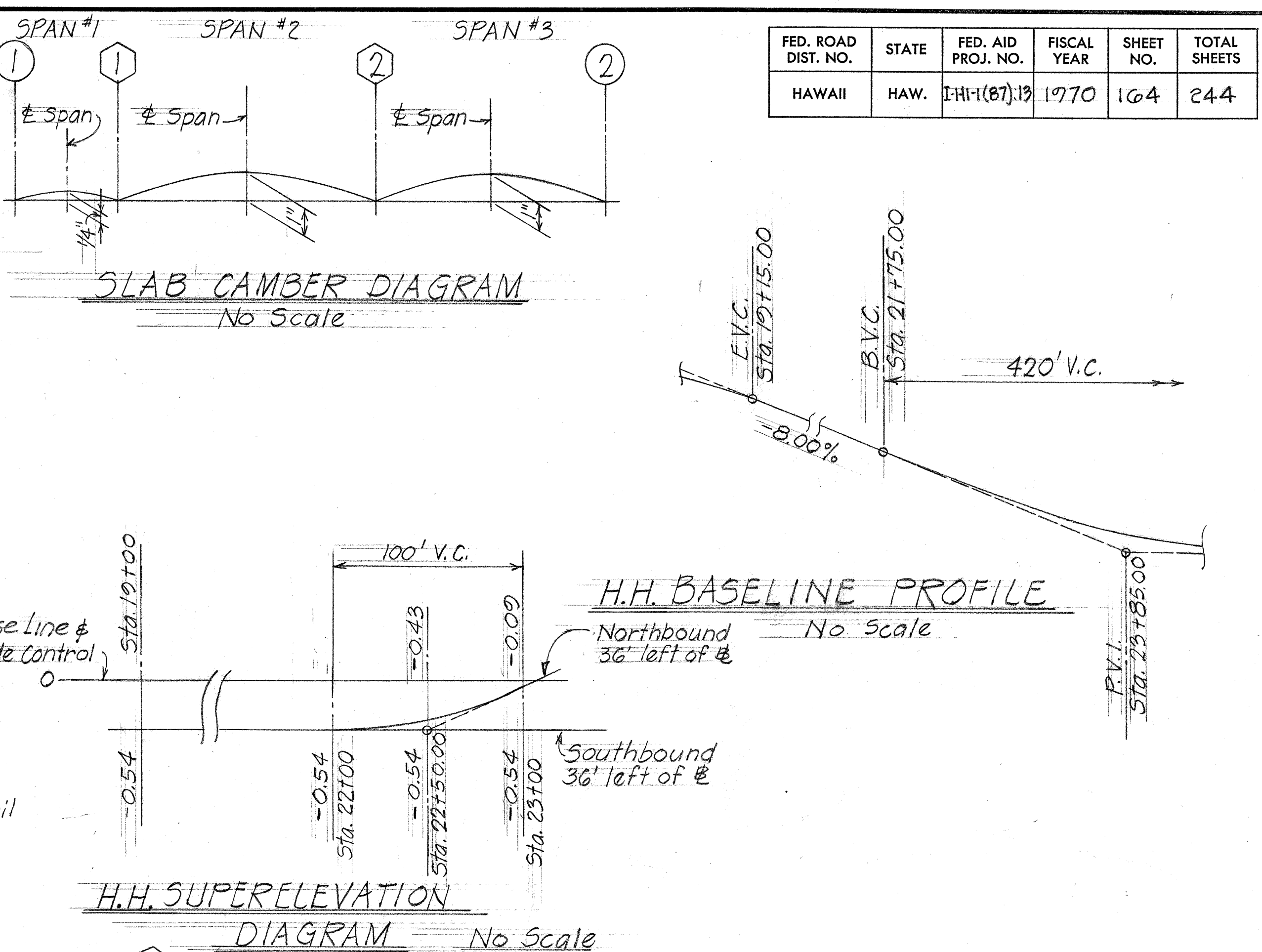
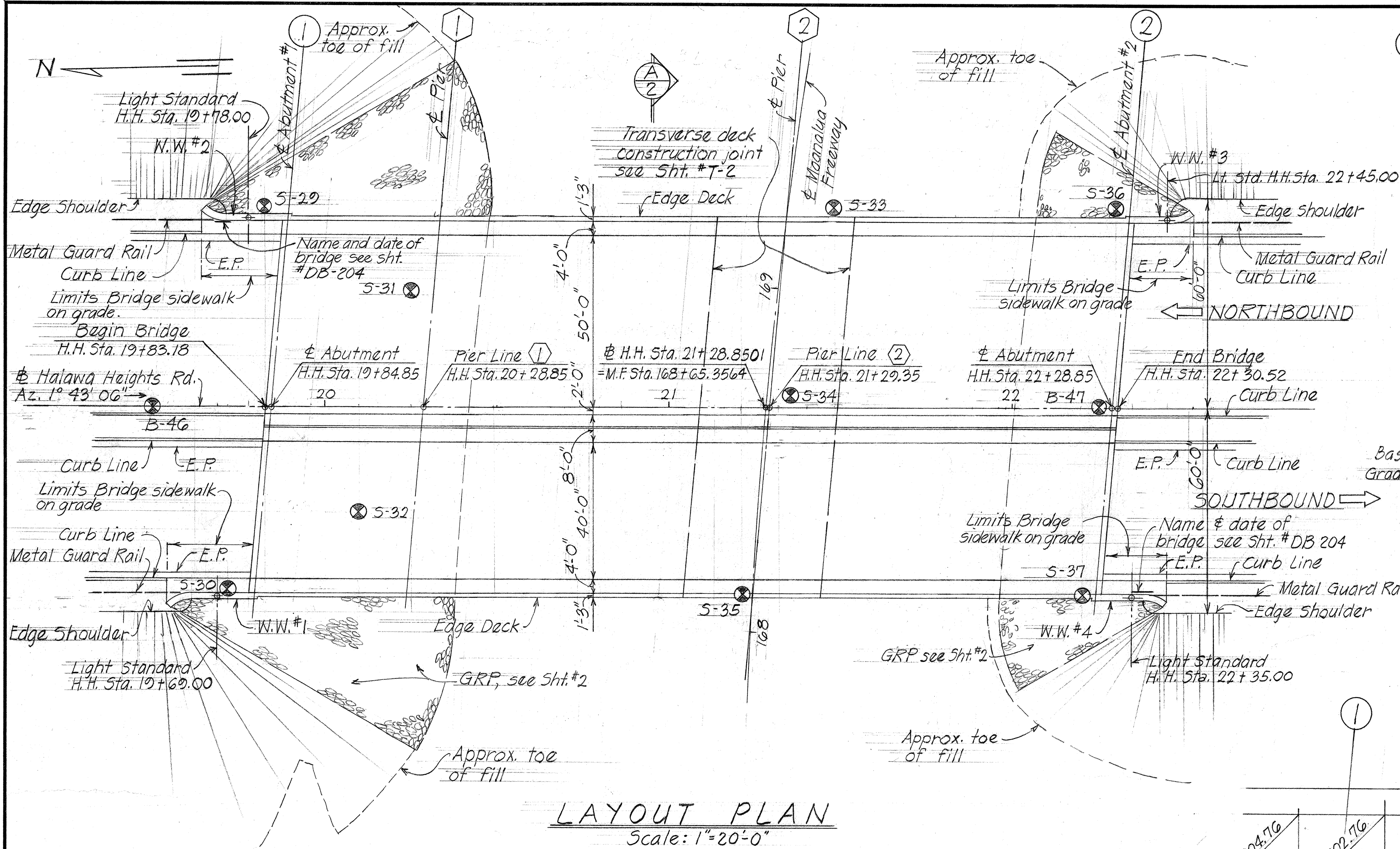


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1(87)-13	1970	164	244



Reference Notes:

- For design notes, general notes, symbols and abbreviations refer to Sht. #1.
- Pile capacity - see Sht. #3
- Refer to Sht. #2 for estimated quantities.

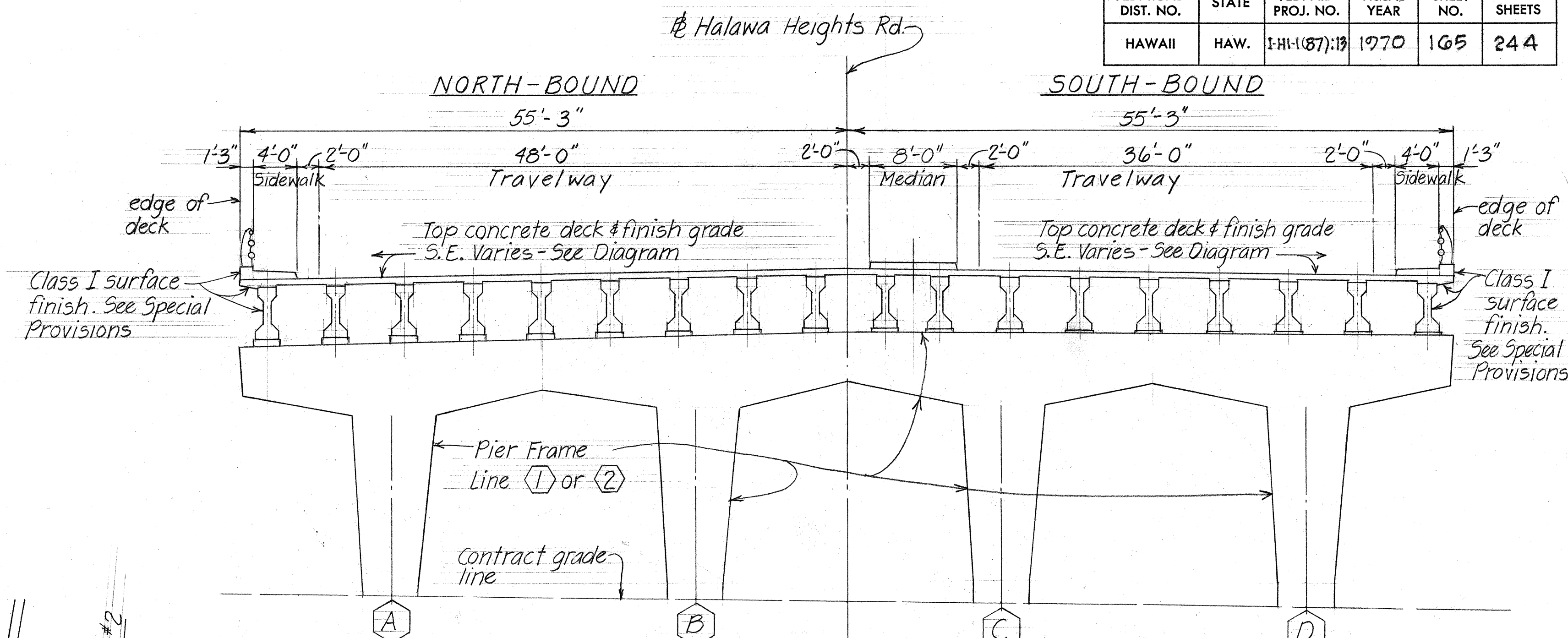
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HALAWA INTERCHANGE
STRUCTURE NO. 10
STA. 19+83.18 to STA. 22+30.52
LAYOUT PLAN AND DETAILS

Proj. No. _____ May 1970
SHEET No. 1 OF 12 SHEETS

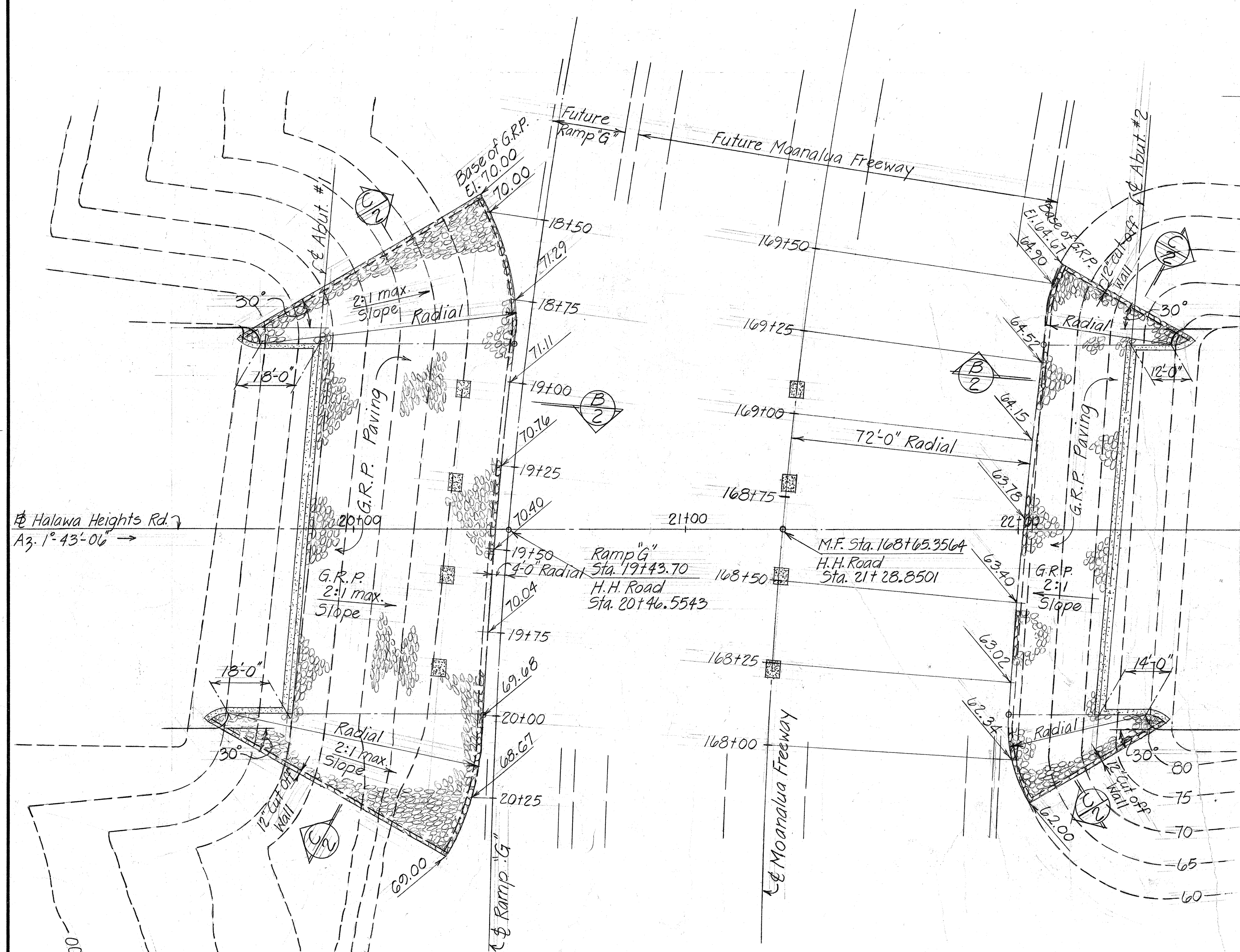
DATE	BY
1970	EG
1970	HK
1970	JO
1970	RY
1970	NO

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-H1-1(87):19	1970	165	244

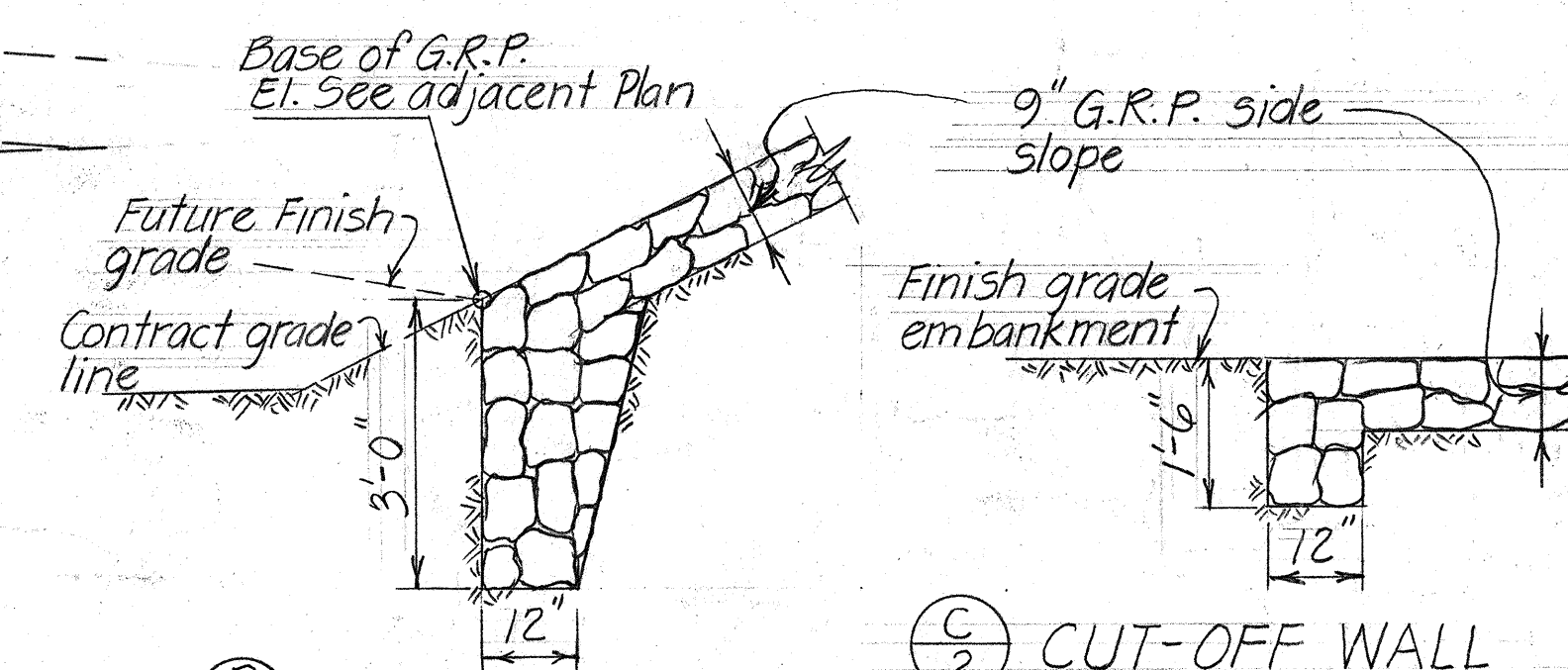


NORMAL SECTION A-2

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



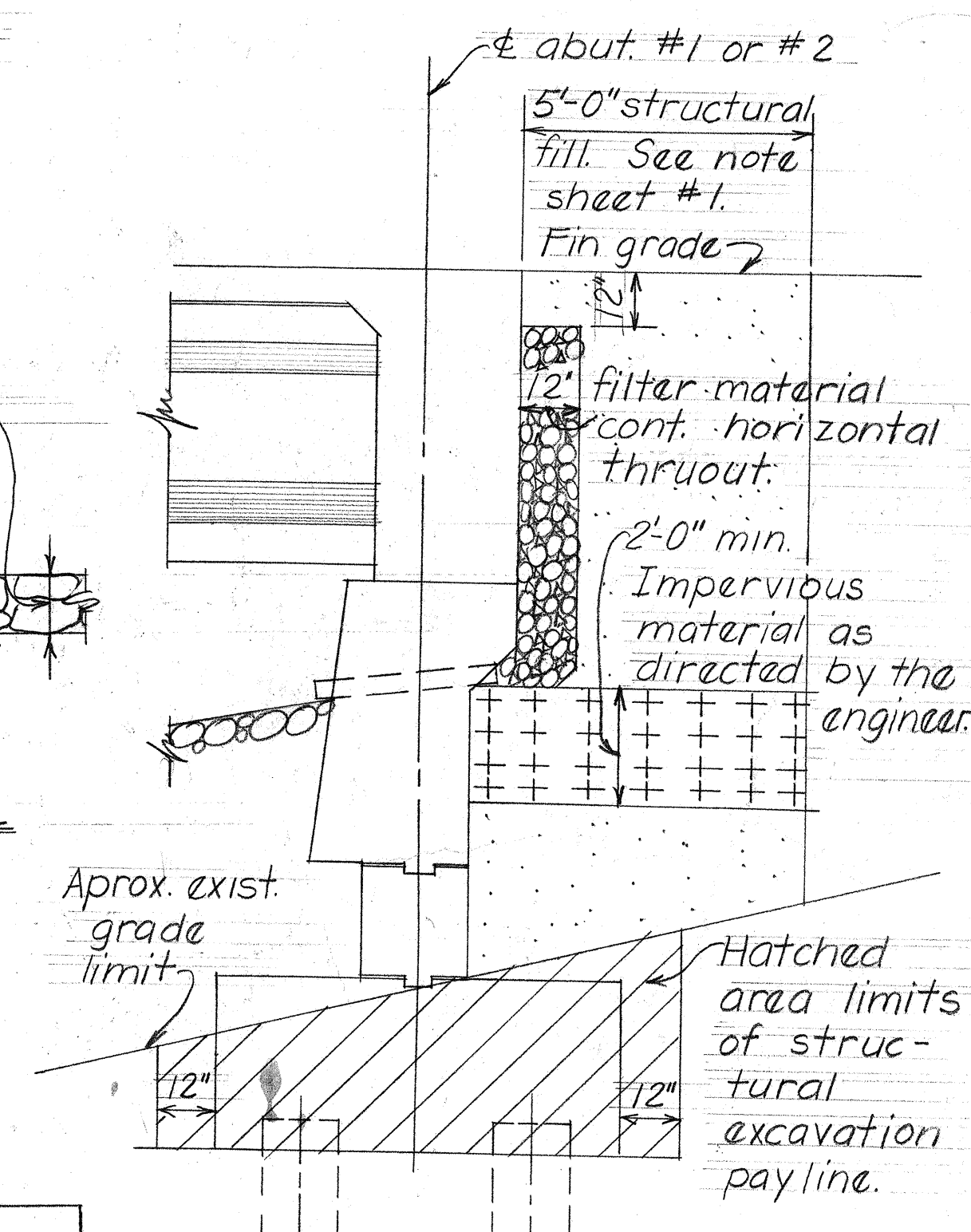
PLAN-BRIDGE ABUTMENT SLOPE PROTECTION Scale: 1" = 20'-0"



BASE OF PAVING

TYPICAL G.R.P. DETAILS

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



TYPICAL ABUTMENT EXCAVATION & BACKFILL

6/27/70

ESTIMATED QUANTITIES			
Concrete - Footing & Pedestal	(812 c.y.)	Lump Sum	
Concrete - All Others	(1,355 c.y.)	Lump Sum	
Reinforcing Steel	(540,000 lb.)	Lump Sum	
Filter Material	59	c.y.	
Prestressed Girder Type IV	(4,392 Lin. Ft.)	Lump Sum	
Furnishing - Type I Prestressed Concrete Piles	8,811 Lin. Ft.		
Driving Piles	5,044 Lin. Ft.		
Drilled Holes for Piles	2,403 Lin. Ft.		
Driving Concrete test Piles	320 Lin. Ft.		
Structural Excavation	828	c.y.	
Grouted Rubble Paving	496	c.y.	
Metal Bridge Railing (3 Rail Combination Type)	487 Lin. Ft.		
Load Test	1	Only	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HALAWA INTERCHANGE
STRUCTURE NO. 10

SECTIONS AND DETAILS

Proj. No. May 1970

SHEET No. 2 OF 12 SHEETS

165

DESIGNED BY	DATE
NOTED BY	11/1/70
CHECKED BY	
APPROVED BY	
ORIGINAL PLAN	
NOTE BOOK	
NO.	

ORIGINAL PLAN	SURVEY PLOTTED BY _____	DATE _____
	DRAWN BY <u>RS</u>	<u>May 1970</u>
	TRACED BY _____	" "
NOTE BOOK	DESIGNED BY <u>HK</u>	" "
	QUANTITIES BY _____	" "
	CHECKED BY <u>LD</u>	<u>AT</u>
No. _____		" "



Scale: $1" = 10'-0"$

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

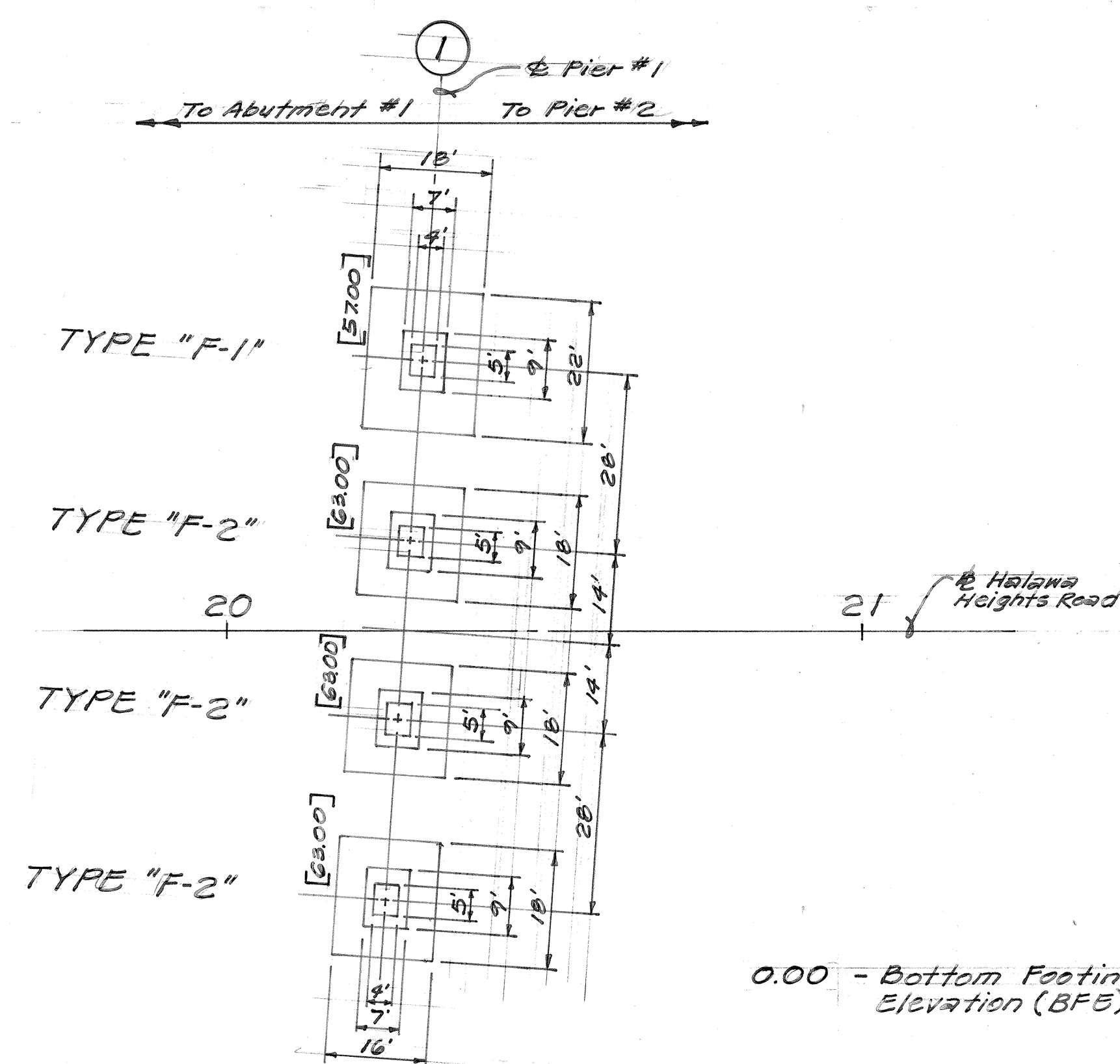
HALAWA INTERCHANGE
STRUCTURE NO 10
FOUNDATION PLAN

Proj. No. May 1970

SHEET No. 3 OF 12 SHEETS

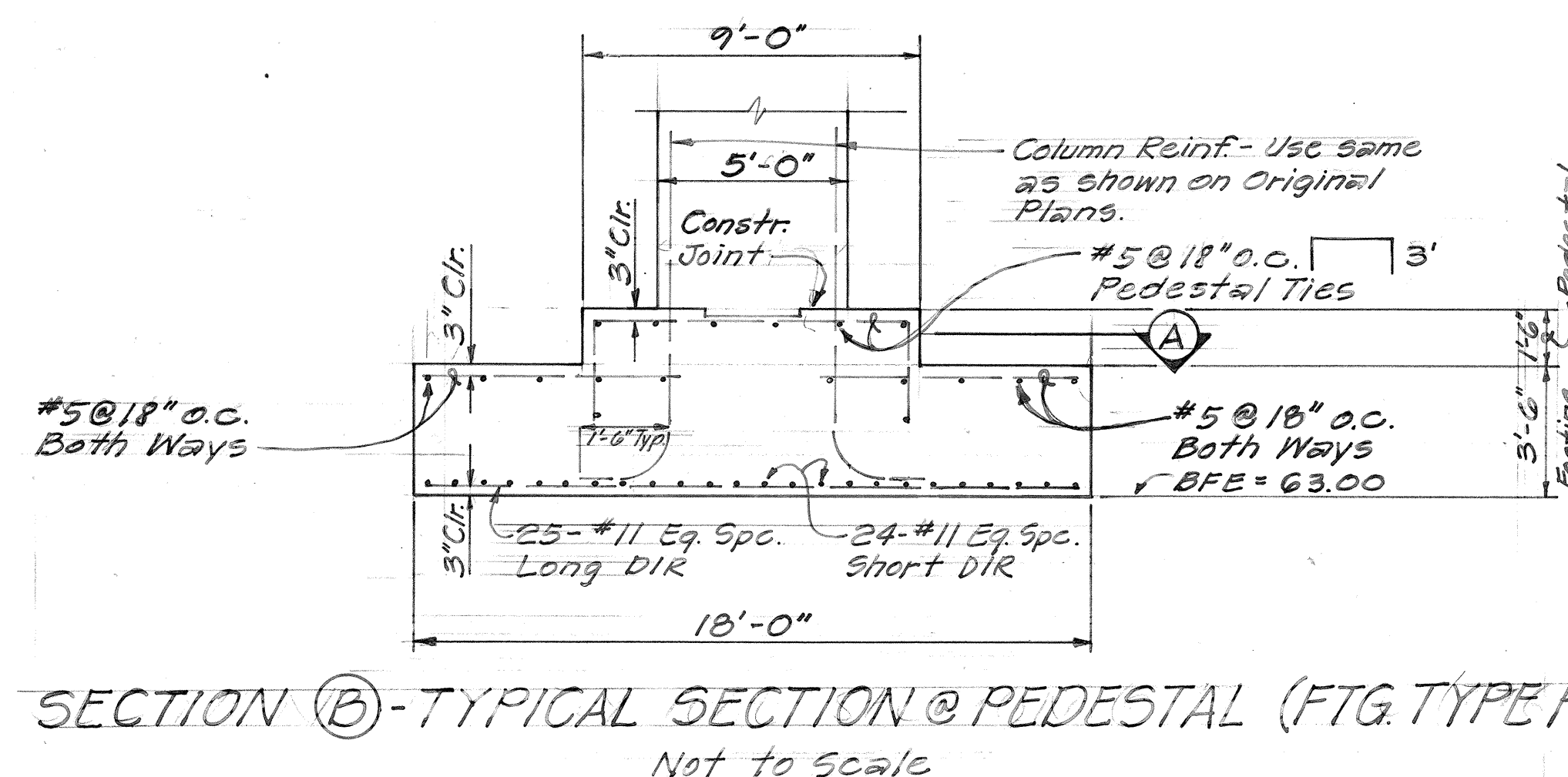
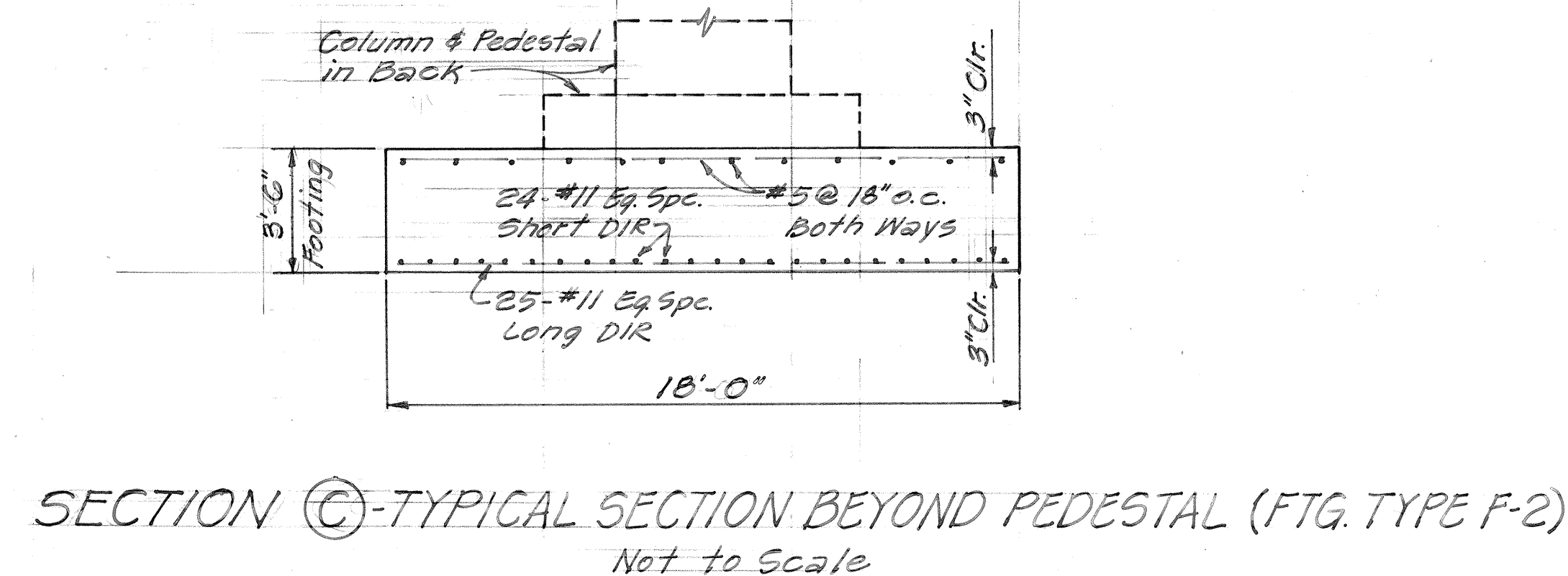
166

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEET
HAWAII	HAW.	I-H-1 (BT): 13	1970	1665-1	244

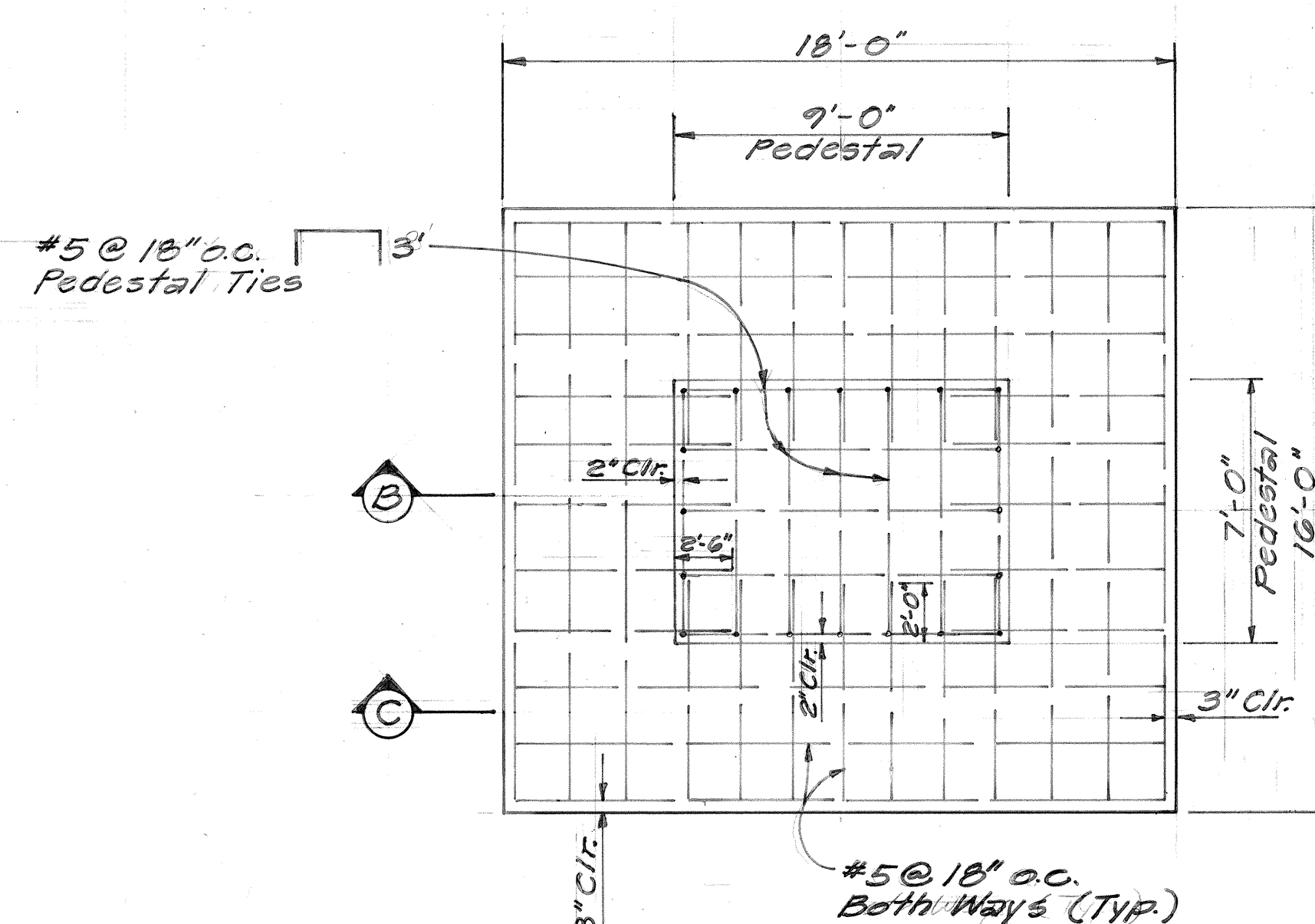


FOUNDATION PLAN
Not to Scale

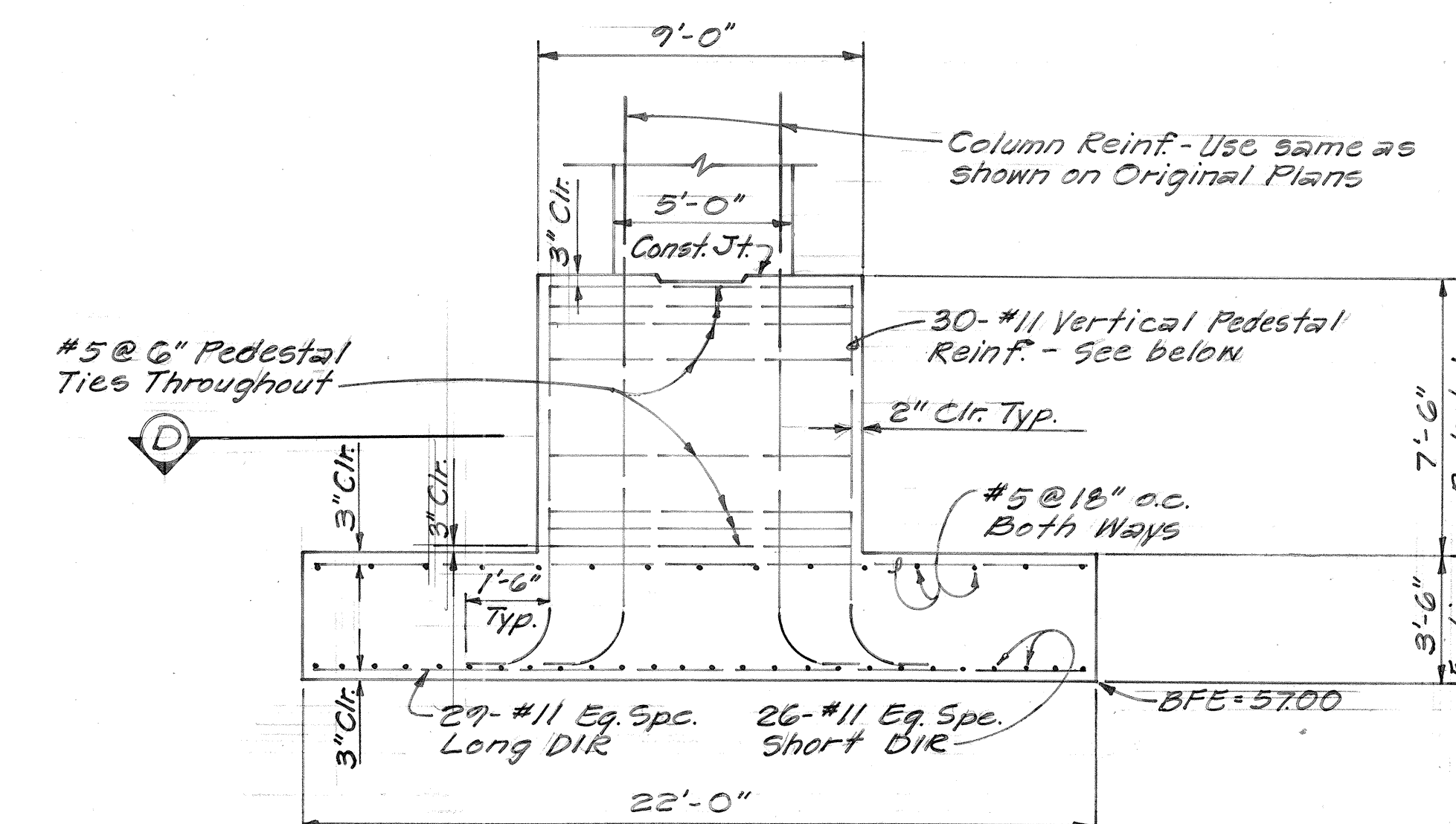
- NOTES:**
1. Footing concrete to be Class A.
 2. Footing and Pedestal Reinforcement to be ASTM A615 - Grade 40.
 3. Column Reinforcement to be same as shown on Original Plans.
 4. Excavate and pour footing to neat lines where possible.
 5. For Details not shown, see Original Plans.



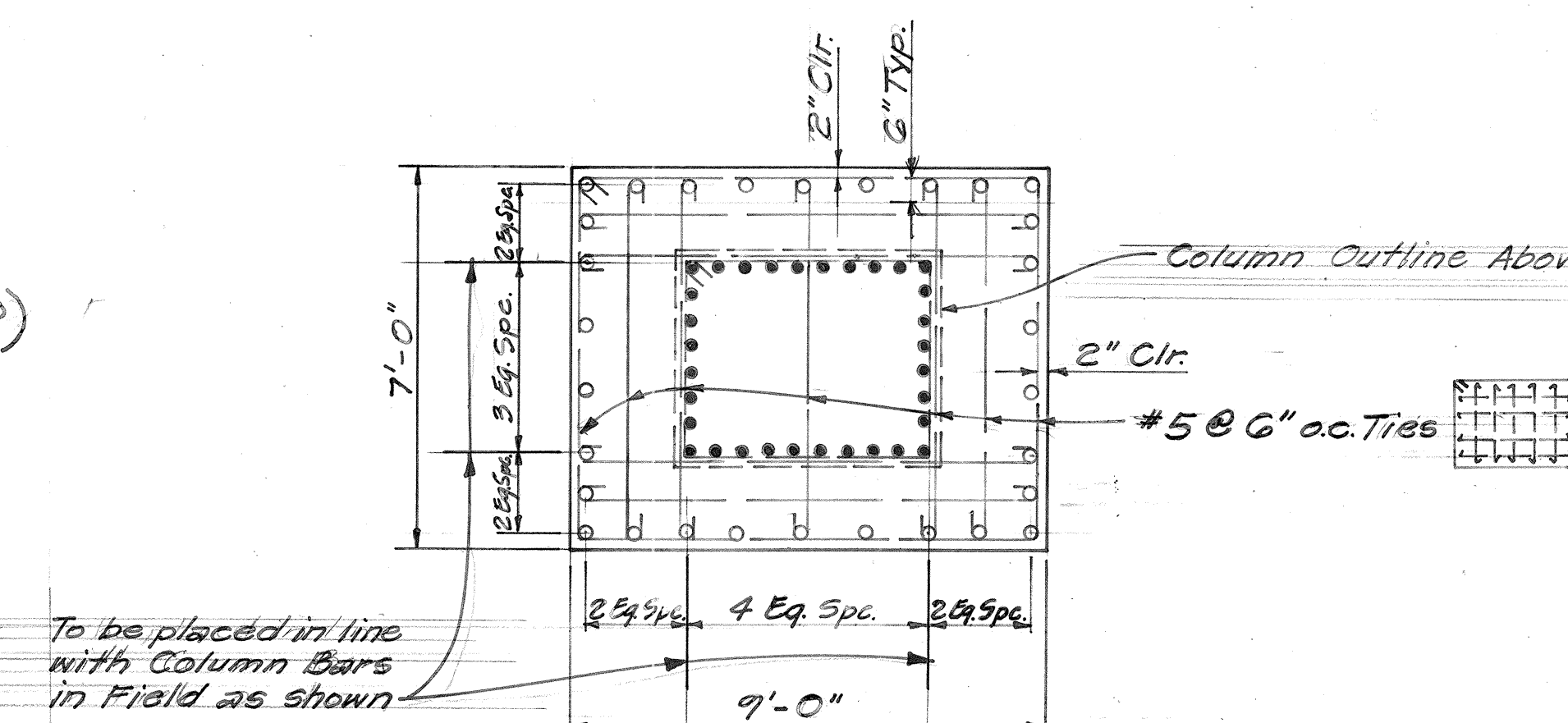
SECTION (B) - TYPICAL SECTION @ PEDESTAL (FTG. TYPE F-2)
Not to scale



PLAN SECTION (A) - TOP FTG. REINF. (FTG. TYPE F-2)
Not to Scale



TYPICAL SECTION (TYPE F-1)
Not to Scale



SECTION ①
COLUMN & PEDESTAL REINF. DETAIL
Not to Scale

- = Column Reinf. - same as shown on Original Plans.
- = 30 - #11 Pedestal Reinf.

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

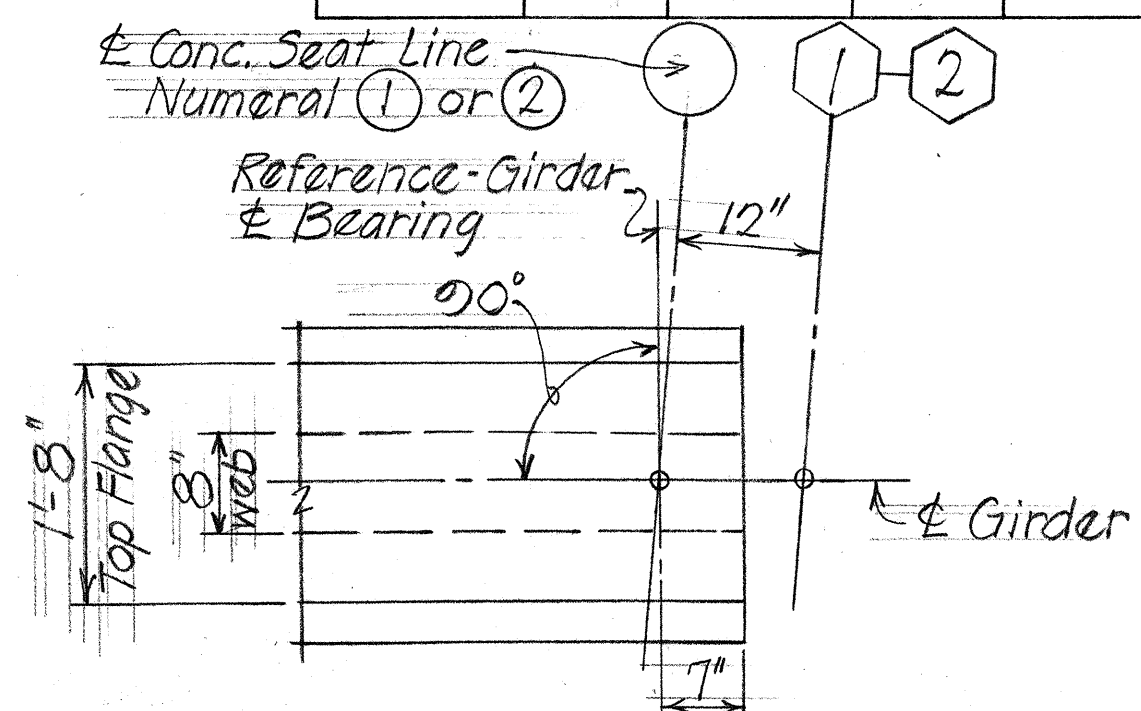
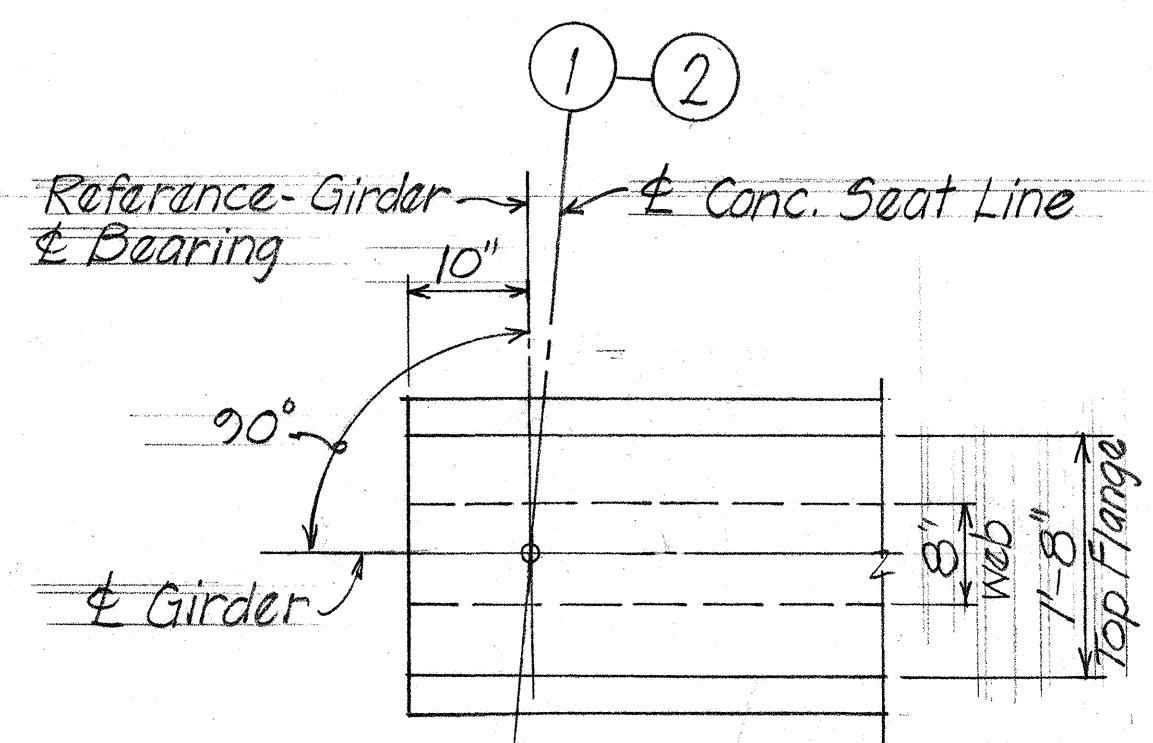
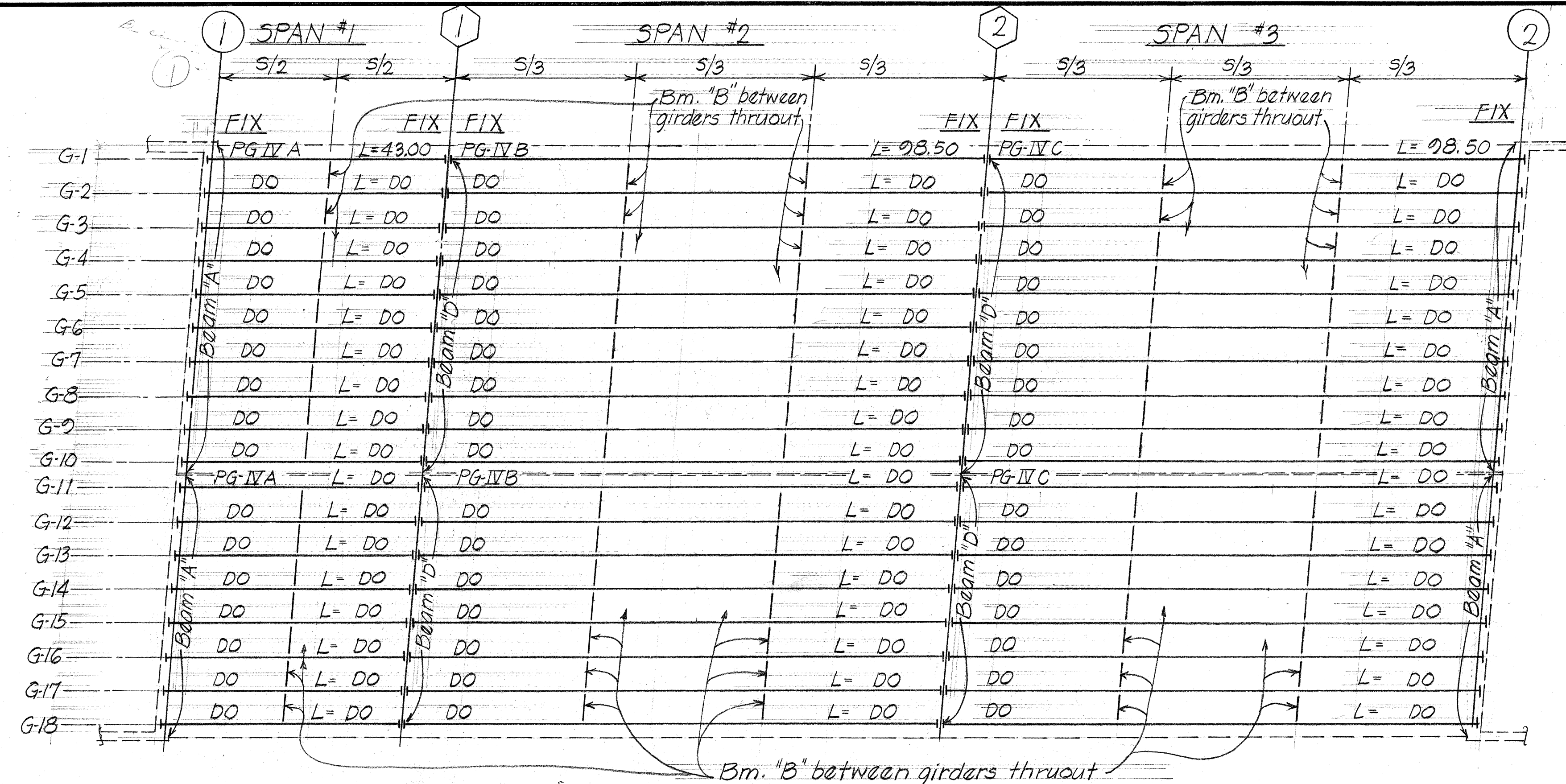
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HALAWA INTERCHANGE
STRUCTURE No 10
PIER #1 FOUNDATION REDESIGN
G.C.O. No. 34
Scale: Not to Scale Date: Oct., 1971

SHEET NO. OF SHEETS

C. O. 1665-1

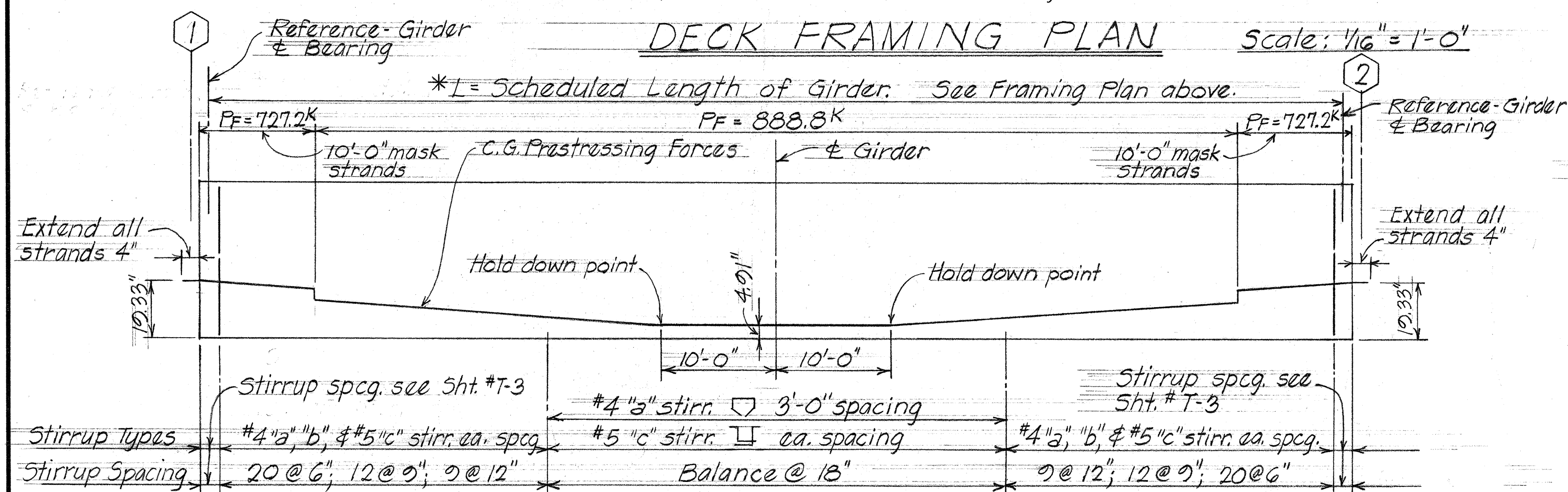
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1(87)13	1970	108	244



PLAN - AT ABUTMENTS

PLAN - AT PIERS

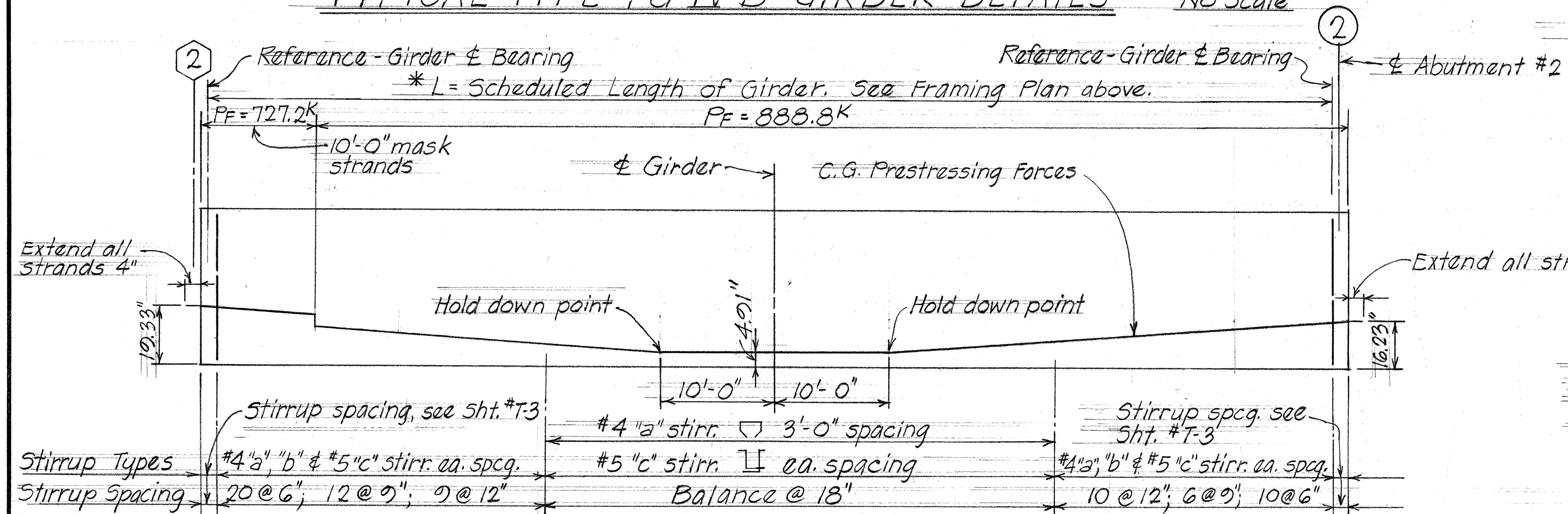
TYPICAL FIXED END OF GIRDERS Scale: 3/4" = 1'-0"



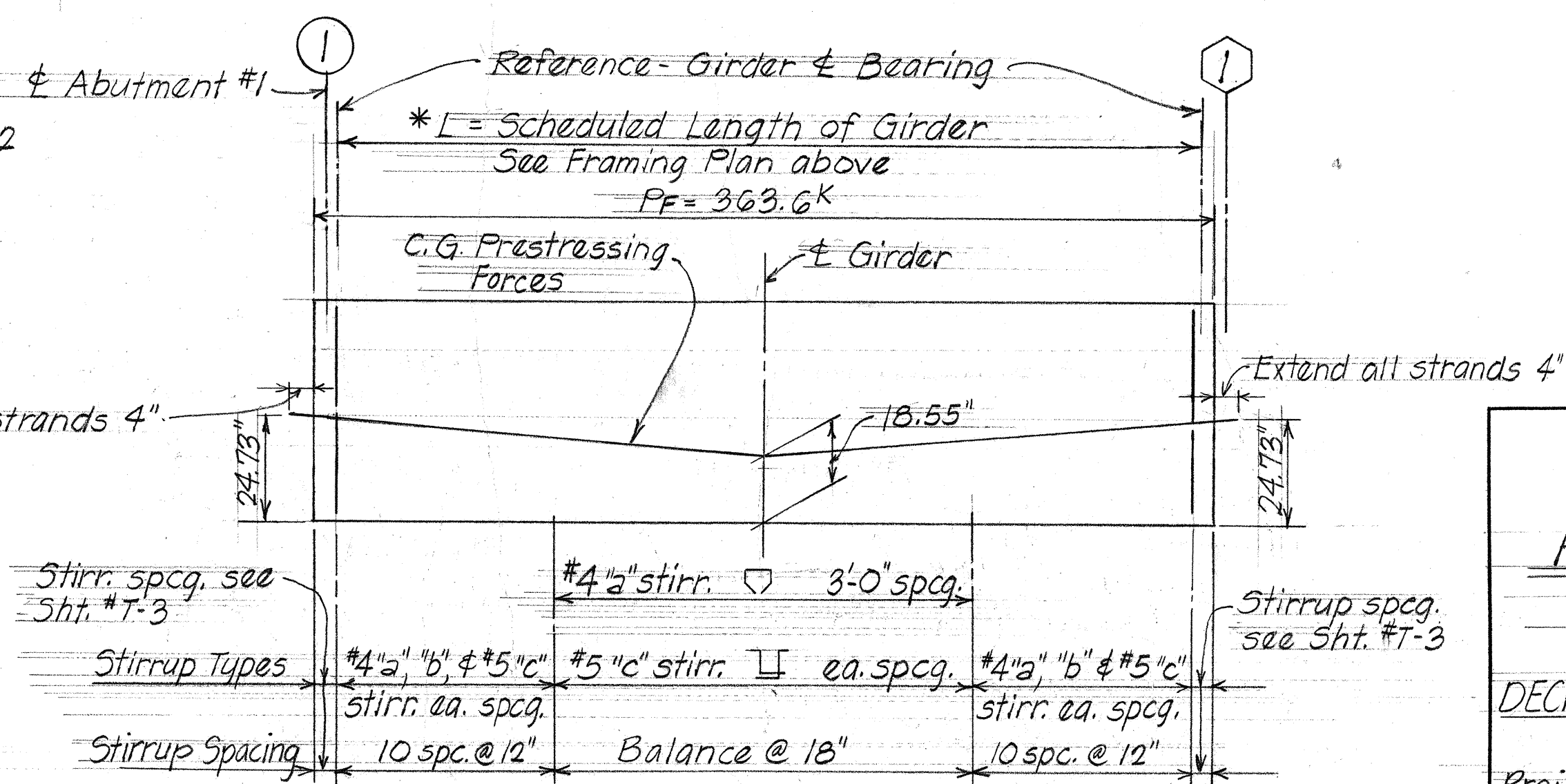
NOTE:

* Girder dimension L = Horizontal measurement between girder & bearings.
The Contractor shall determine total length of girder.
For additional end anchorage connection in prestressed girders at Beams "A" and Beams "B" refer to corresponding drawings.
For additional prestressed girder details not covered by these drawings refer to Sht. #T-3

TYPICAL TYPE PG-IV B GIRDER DETAILS No Scale



TYPICAL TYPE PG-IV C GIRDER DETAILS No Scale



TYPICAL TYPE PG-IV A GIRDER DETAILS No Scale

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HALAWA INTERCHANGE
STRUCTURE No 10

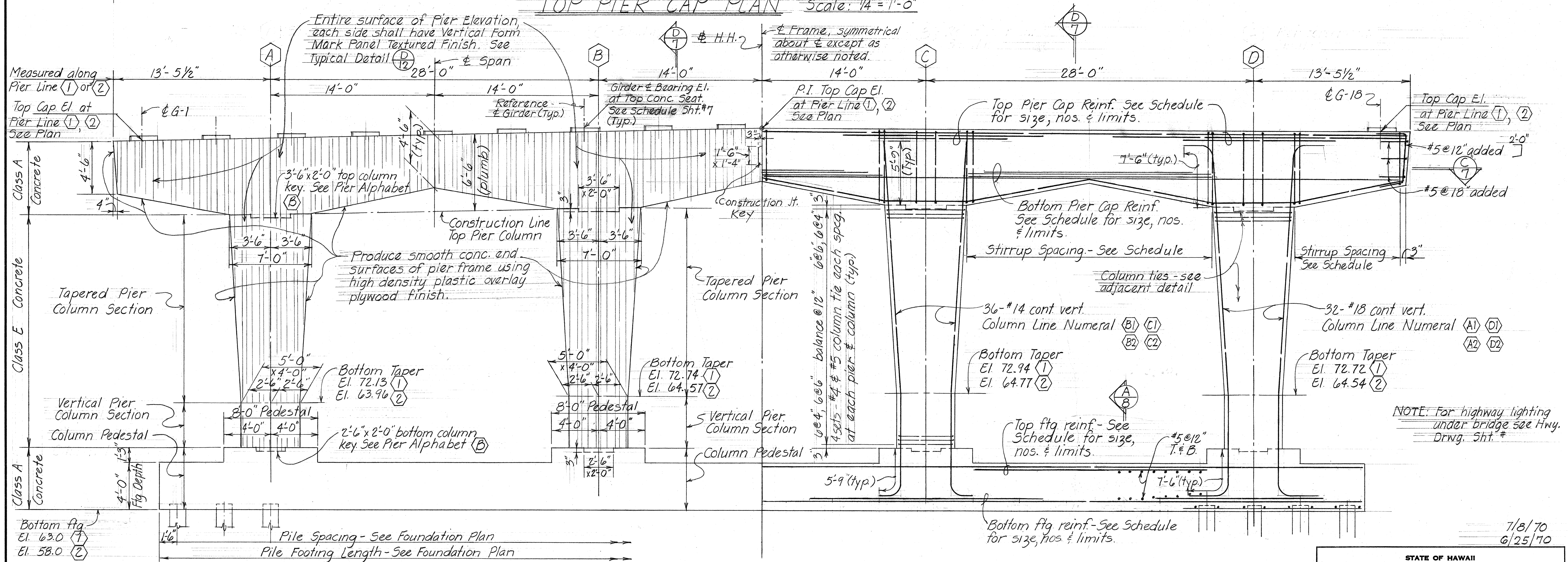
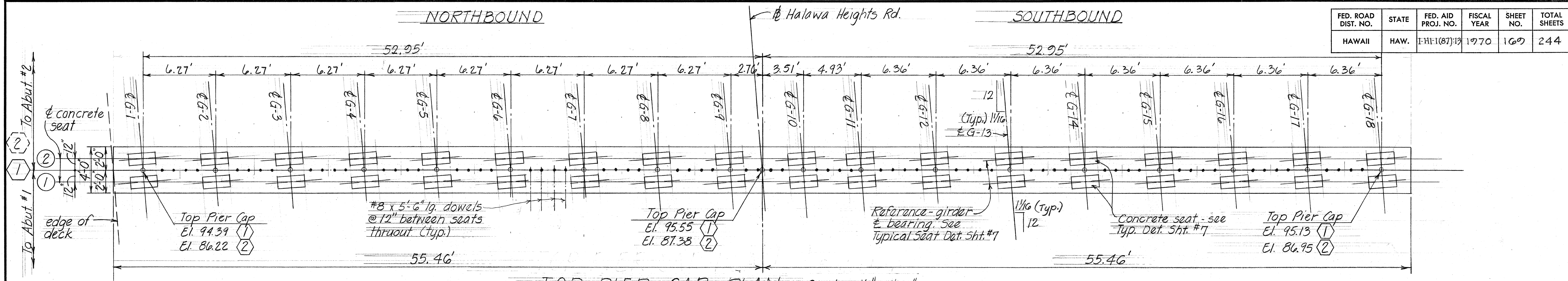
DECK FRAMING PLAN AND DETAILS

Proj. No. May 1970

SHEET No. 5 OF 12 SHEETS

168

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-H-1(87)12	1970	169	244



HALF DETAIL AND DIMENSIONS

HALF PIER FRAME REINFORCEMENT

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

TYPICAL PIER LINE NUMERALS (1) OR (2)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HALAWA INTERCHANGE
STRUCTURE No 10
PIER DETAILS

Proj. No. _____ May 1970

SHEET No. 6 OF 12 SHEETS

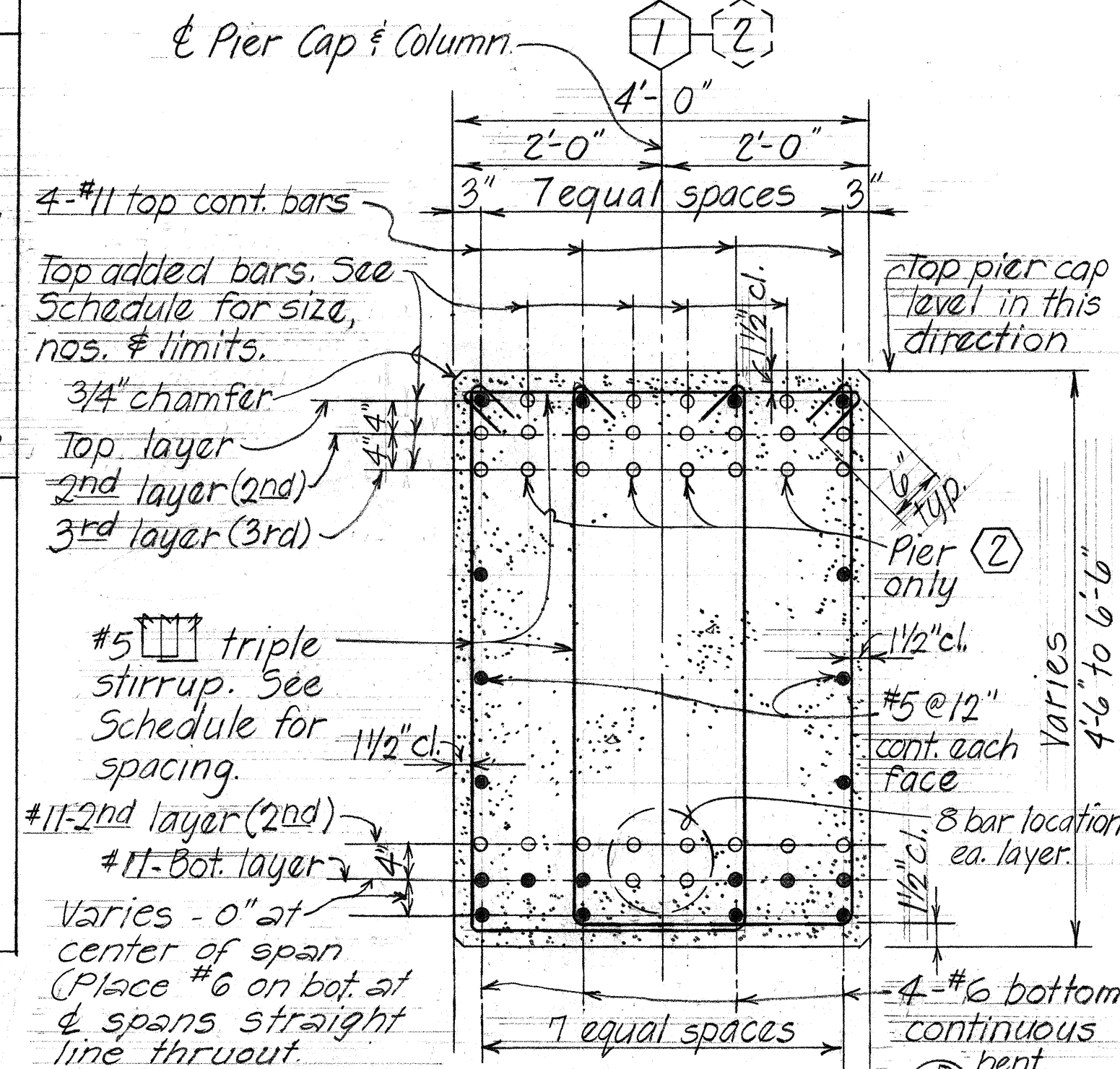
ORIGINAL PLAN	DATE	1/14/70
DRAWN BY	DESIGNED BY	CHECKED BY
NOTE BOOK	QUANTITIES BY	BY
No.		

PIER CAP REINFORCEMENT SCHEDULE

PIER LINE ALPHABET REINFORCEMENT	A	B	C	D	REMARKS
TOP REINF.	4-#11 (top add) 4-#11 (2nd) 4-#11 (2nd)	4-#11 top cont. 4-#11 (3rd) 2-#11 (2nd) 4-#11 (2nd)	4-#11 (top add) 4-#11 (2nd) 4-#11 (2nd) 4-#11 (2nd)	4-#11 (top add) 4-#11 (2nd) 4-#11 (2nd) 4-#11 (2nd)	Numbers at ends of bars indicate distance in feet. Top bars measured from pier line alphabet and bottom bars measured from span, except as otherwise noted.
BOTTOM REINF.	4-#11 (top add) 4-#11 (2nd) 4-#11 (2nd)	4-#11 top cont. 4-#11 (3rd) 2-#11 (2nd) 4-#11 (2nd)	4-#11 (top add) 4-#11 (2nd) 4-#11 (2nd) 4-#11 (2nd)	4-#11 (top add) 4-#11 (2nd) 4-#11 (2nd) 4-#11 (2nd)	
Stirrups	Bal. @ 18" 2#12 8#9 5 eq. spcs. Stirr. Type Each Spcg. #5 triple 4-#5	Bal. @ 12" 12#9 15#6 5 eq. spcs. Stirr. Type Each Spcg. #5 triple 4-#5	Bal. @ 12" 12#9 15#6 5 eq. spcs. Stirr. Type Each Spcg. #5 triple 4-#5	Bal. @ 12" 12#9 15#6 5 eq. spcs. Stirr. Type Each Spcg. #5 triple 4-#5	

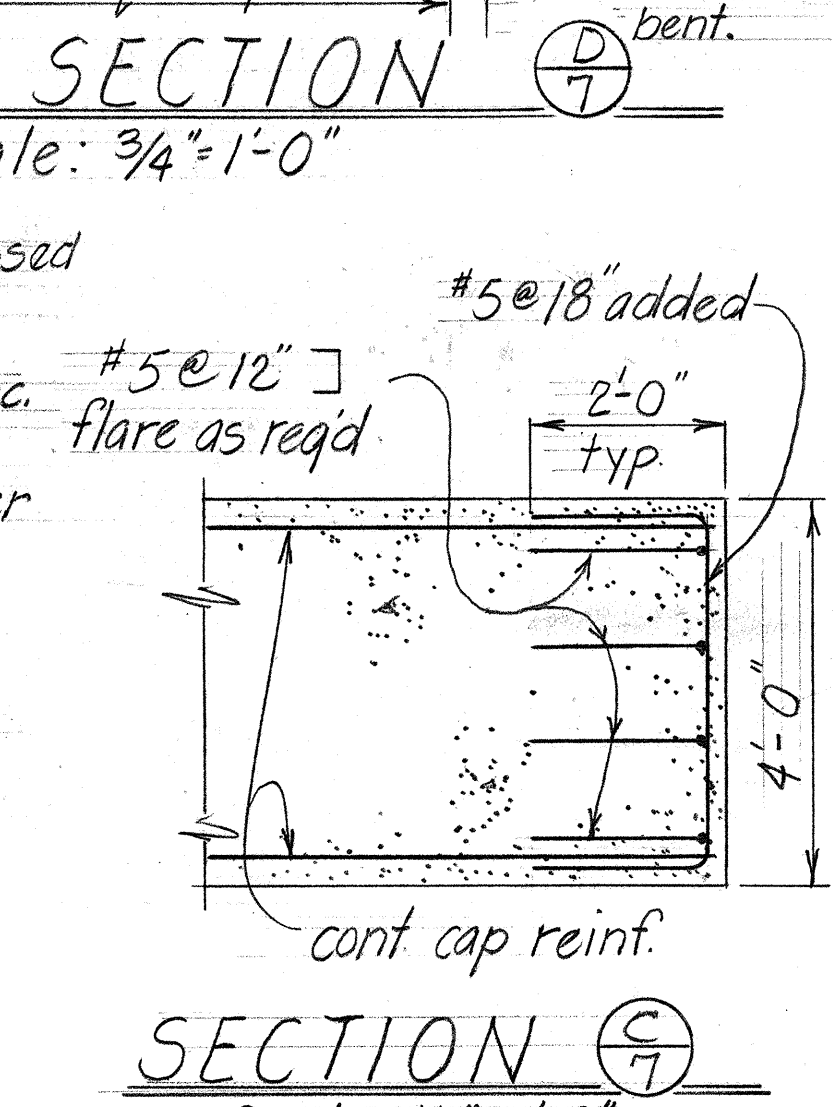
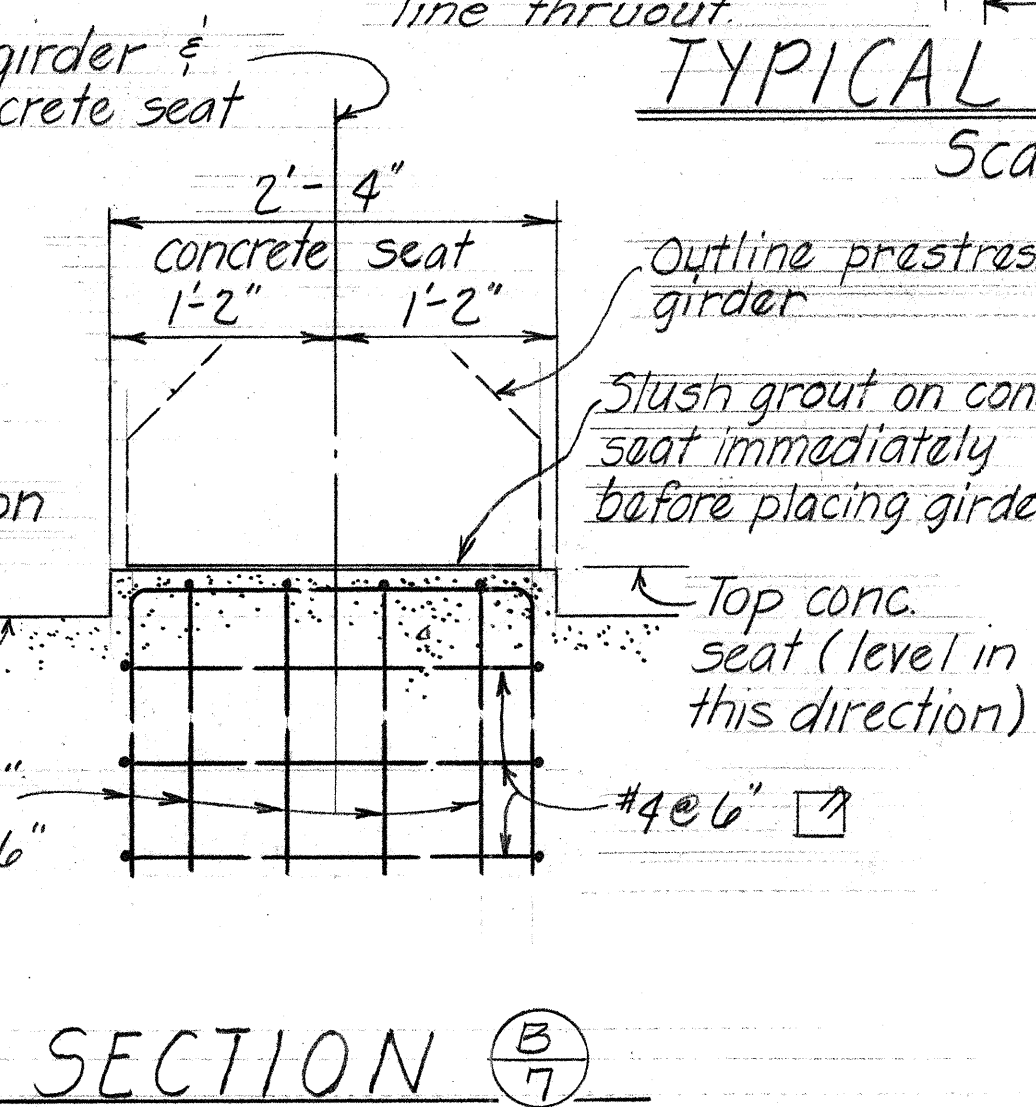
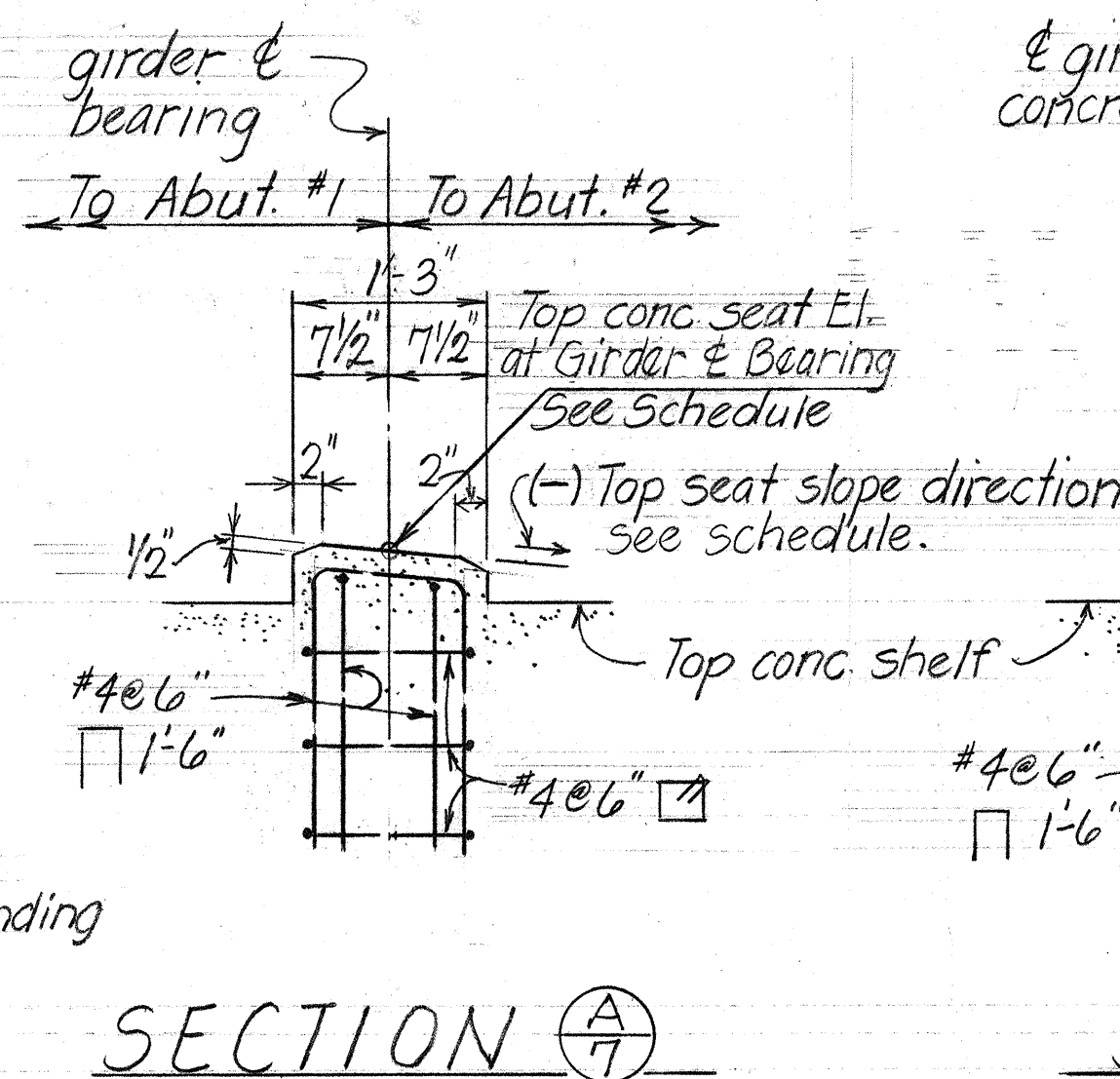
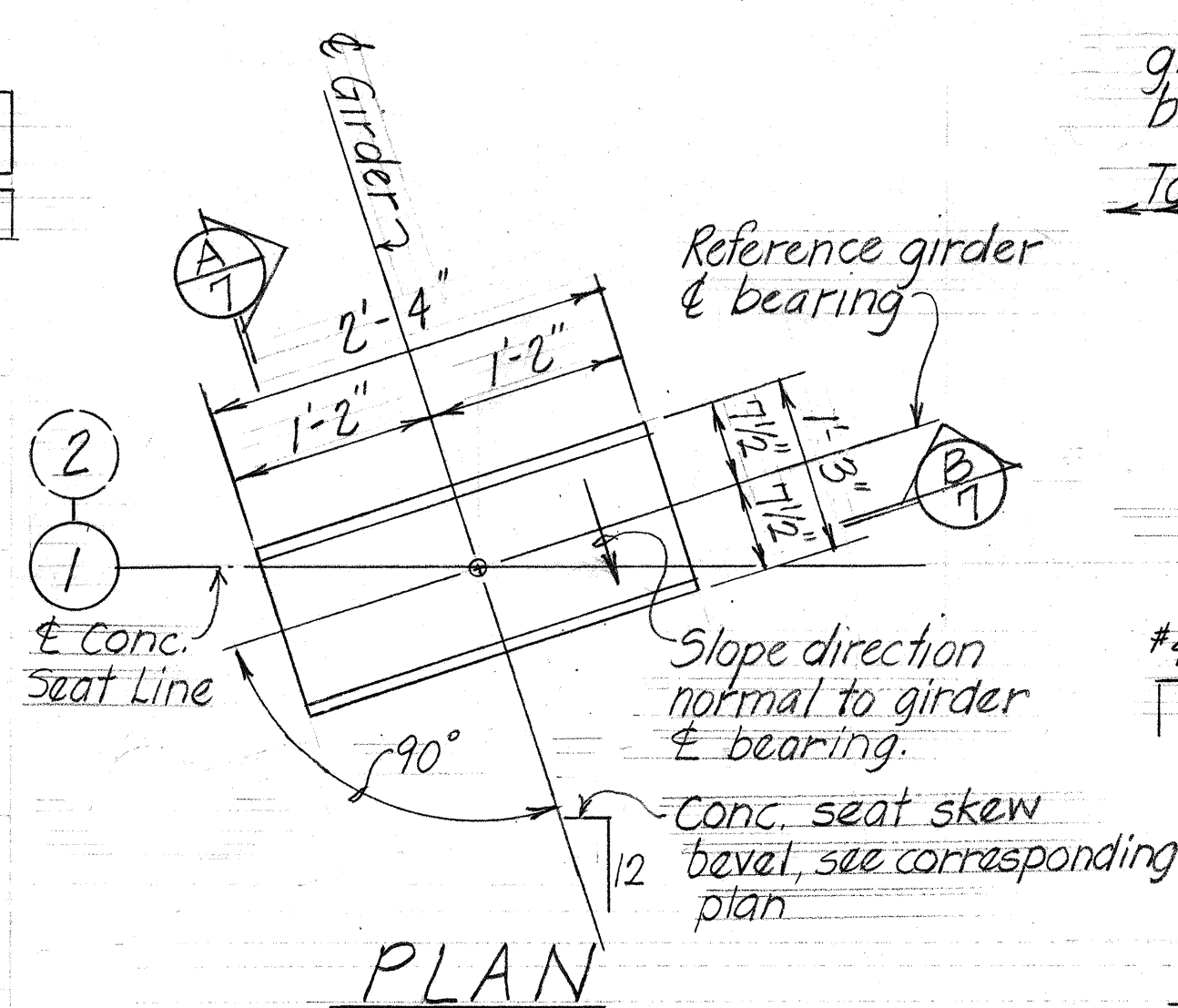
• - Continuous Bars
○ - Added Short Bars

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-H11(87)-13	1970	170	244



TOP CONCRETE SEAT ELEVATION SCHEDULE (AT GIRDER & BEARING)

	ABUT. #1				1				2				ABUT. #2			
	AT GIRDER & BEARING	DIRECTION			AT GIRDER & BEARING	DIRECTION			AT GIRDER & BEARING	DIRECTION			AT GIRDER & BEARING			
		TOP SEAT SLOPE		(1)	(2)	TOP SEAT SLOPE		(1)	(2)	TOP SEAT SLOPE						
G-1	98.38	(-)	1:12	(-)	94.94	94.56	(-)	1:12	(-)	86.69	86.39	(-)	15/16:12	(-)	78.89	
G-2	98.51	↑	↑	↑	95.07	94.70	↑	↑	↑	86.82	86.52	↑	↑	↑	79.01	
G-3	98.65				95.21	94.84				86.96	86.66				79.13	
G-4	98.79				95.35	94.98				87.10	86.80				79.25	
G-5	98.93				95.49	95.11				87.23	86.94				79.37	
G-6	99.06				95.62	95.25				87.37	87.07				79.50	
G-7	99.20				95.76	95.39				87.51	87.21				79.62	
G-8	99.34				95.90	95.53				87.65	87.35				79.74	
G-9	99.47				96.03	95.66				87.78	87.49				79.87	
G-10	99.51				96.07	95.70				87.82	87.52				79.89	
G-11	99.47				96.03	95.66				87.78	87.48				79.85	
G-12	99.42				95.98	95.61				87.73	87.43				79.79	
G-13	99.37				95.93	95.55				87.68	87.38				79.74	
G-14	99.31				95.88	95.50				87.62	87.33				79.68	
G-15	99.26				95.82	95.45				87.57	87.27				79.63	
G-16	99.21				95.77	95.40				87.52	87.22				79.57	
G-17	99.16	↓	↓	↓	95.72	95.35	↓	↓	↓	87.47	87.17	↓	↓	↓	79.51	
G-18	99.11	(-)	1:12	(-)	95.67	95.30	(-)	1:12	(-)	87.42	87.12	(-)	15/16:12	(-)	79.46	



TYPICAL CONCRETE SEAT DETAILS

7/8/70
6/25/70

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

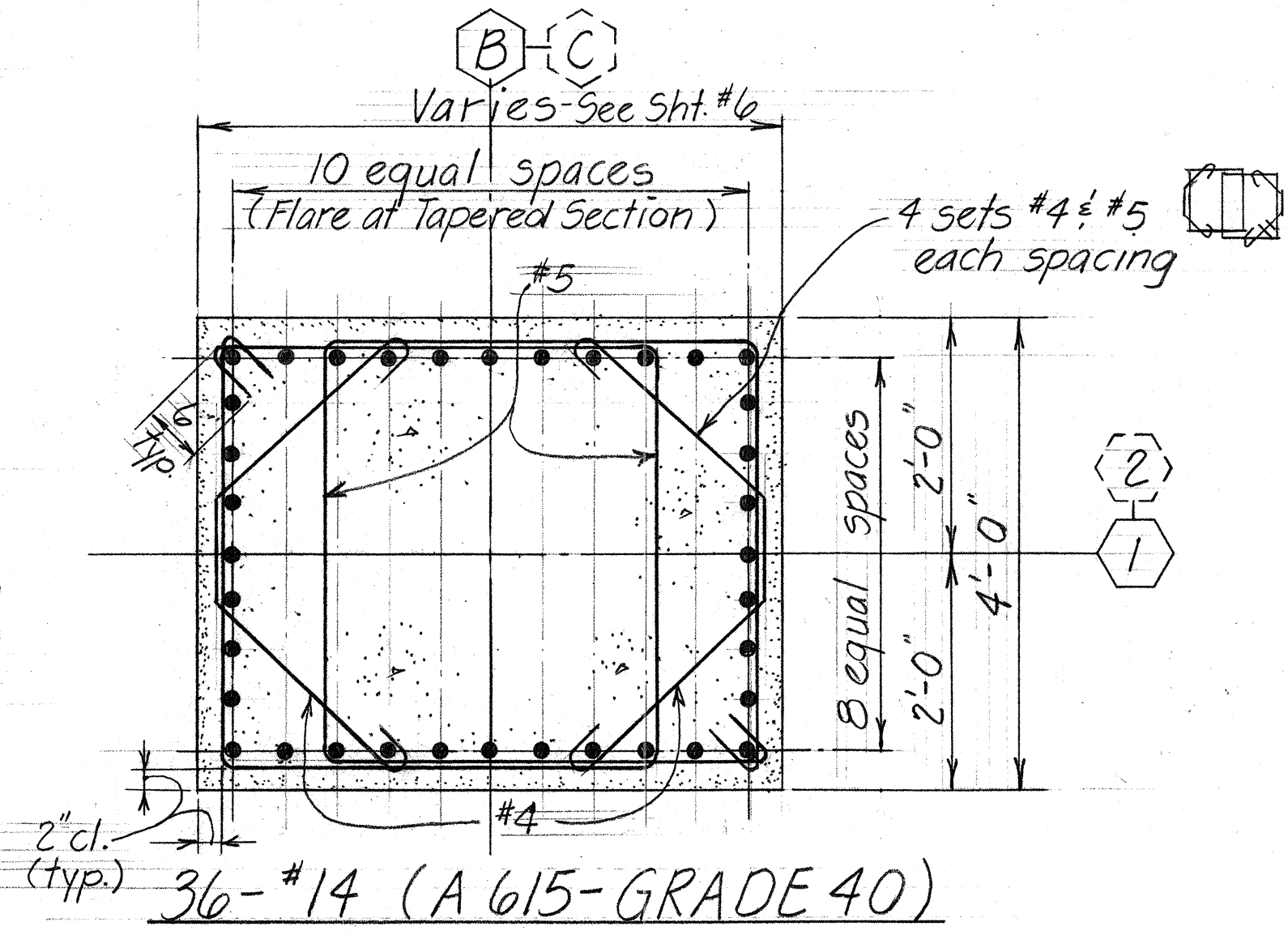
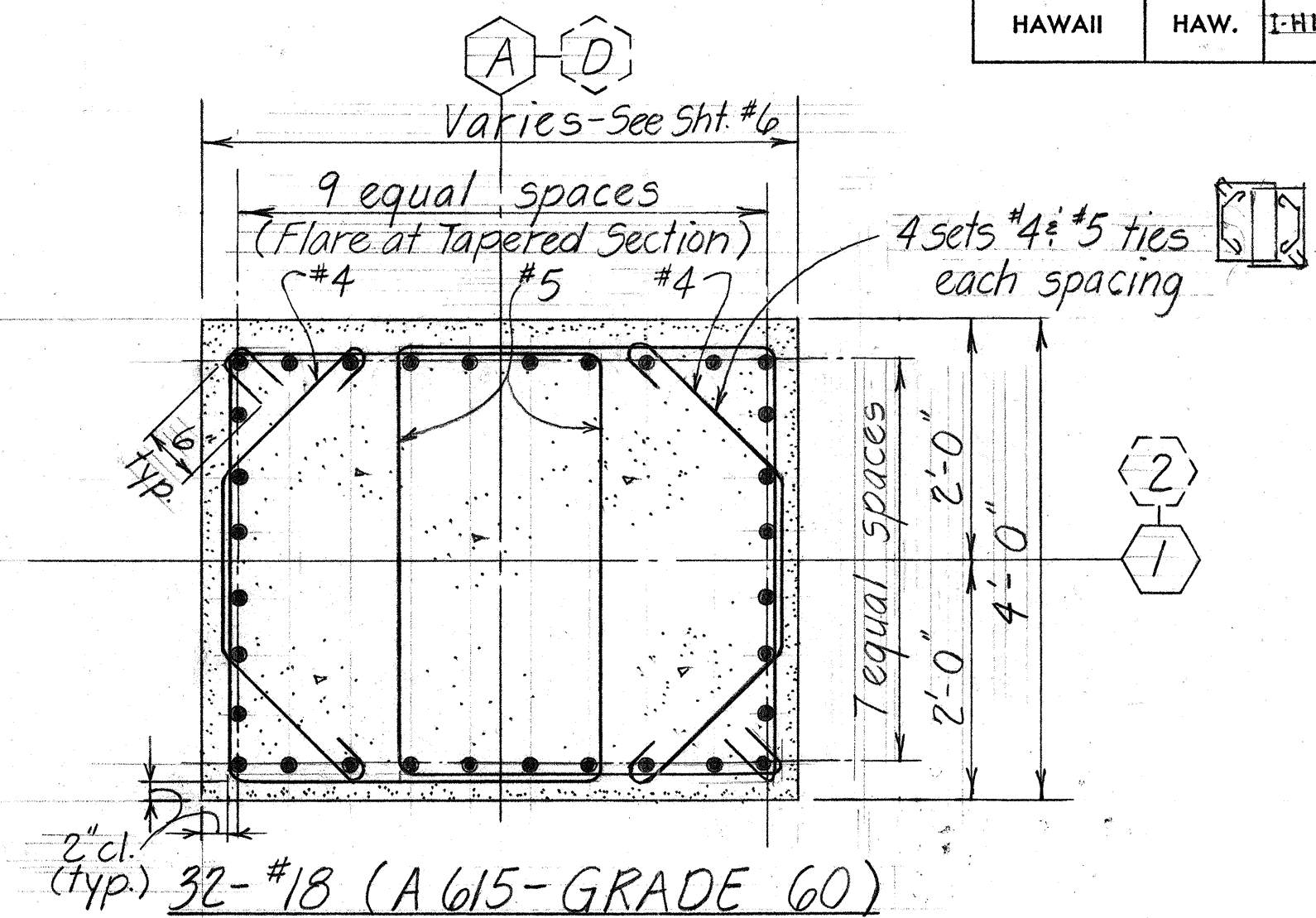
HALAWA INTERCHANGE
STRUCTURE NO. 10
PIER DETAILS AND SCHEDULE

Proj. No. May 1970
SHEET No. 7 OF 12 SHEETS

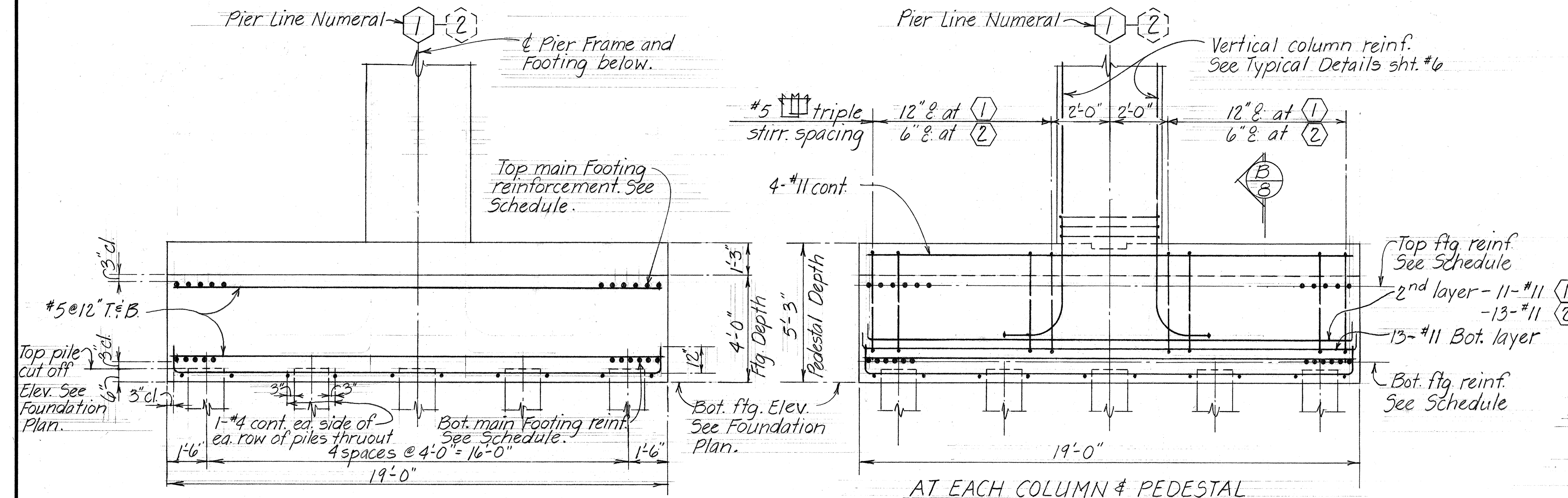
CONTINUOUS PIER FOOTING REINFORCEMENT SCHEDULE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-H11(87)13	1970	171	244

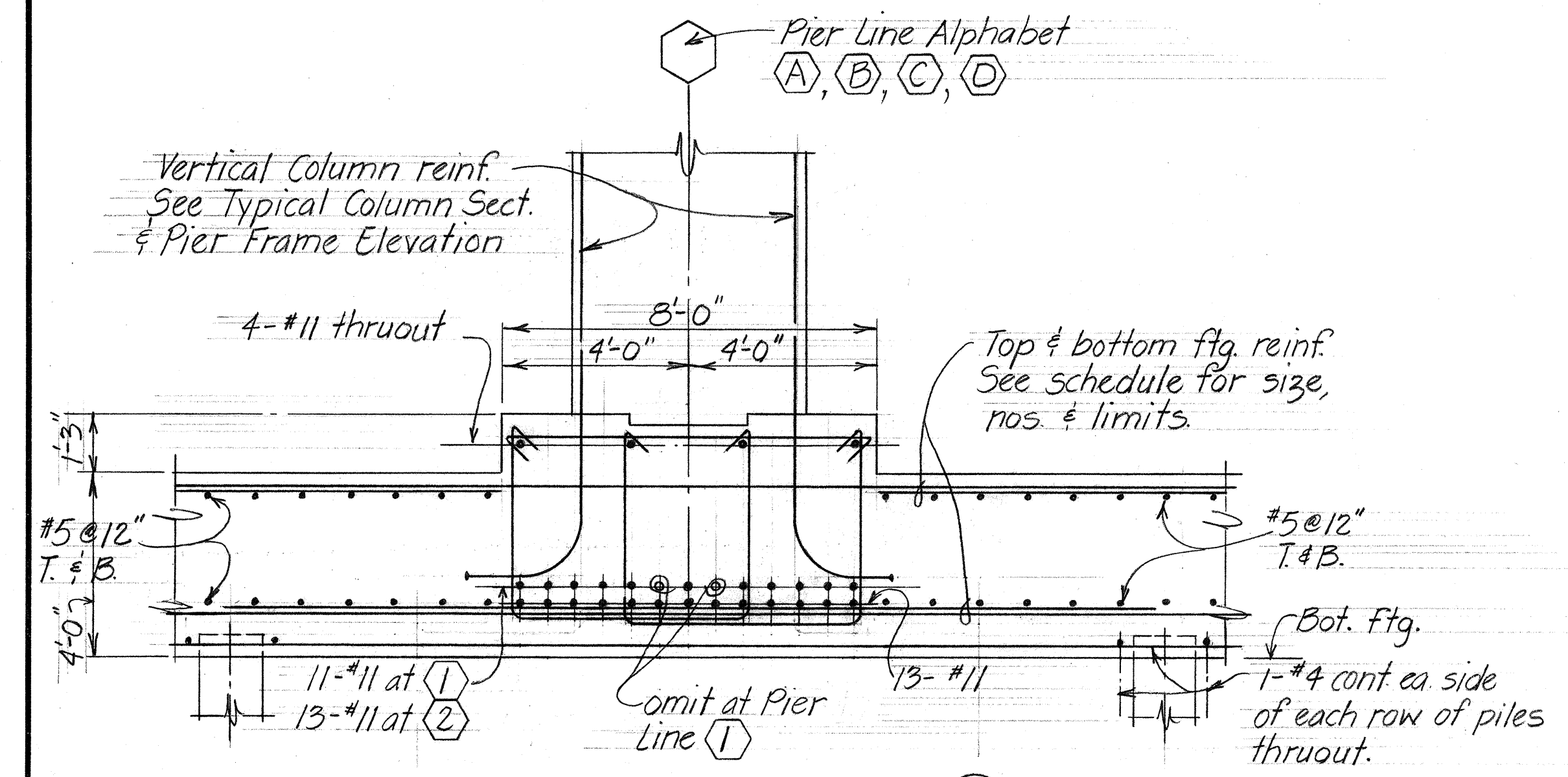
PIER LINE ALPHABET REINFORCEMENT	A	B	C	D
TOP REINF.	37-#11	19-#11 cont. thruout	18-#11 (add)	18-#11 (add)
CPF-1	4'-0"	4'-0"	4'-0"	4'-0"
BOTTOM REINF.	20-#11 (add)	20-#11 (add)	20-#11 (add)	20-#11 (add)
TOP REINF.	43-#11	22-#11 cont. thruout	21-#11 (add)	21-#11 (add)
CPF-2	4'-0"	4'-0"	4'-0"	4'-0"
BOTTOM REINF.	25-#11 (add)	25-#11 (add)	25-#11 (add)	25-#11 (add)



TYPICAL PIER COLUMN SECTIONS
Scale: 3/4"=1'-0"



TYPICAL SECTION A-B Scale: 3/8"=1'-0"



TYPICAL SECTION B-C Scale: 3/8"=1'-0"

DATE	10/1/70
DESIGNED BY	JK
CHECKED BY	JK
NOTED BY	JK
ORIGINAL PLAN	NO.

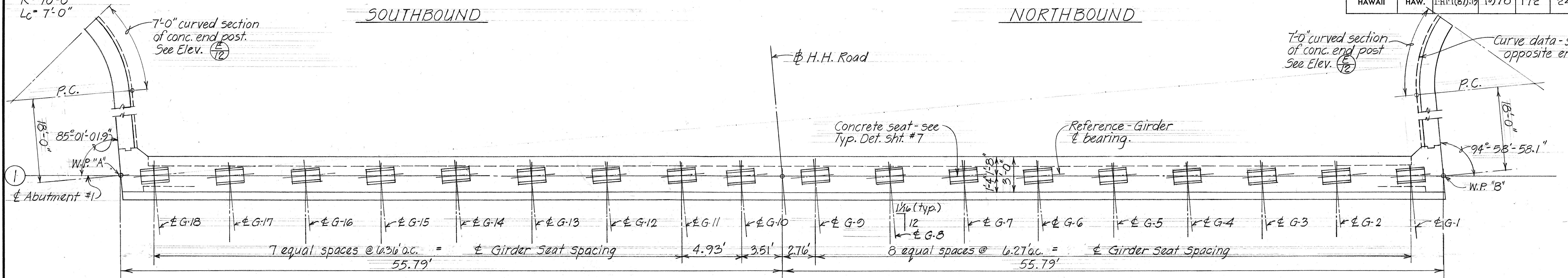
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HALAWA INTERCHANGE
STRUCTURE NO 10
PIER DETAILS AND SCHEDULE

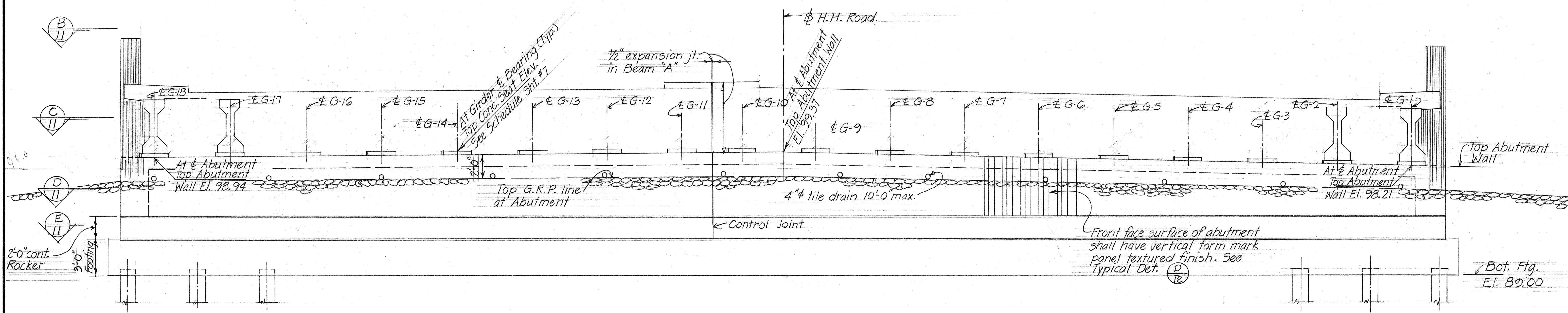
Proj. No. May 1970

SHEET No. 8 OF 12 SHEETS

Curve Data
 $\Delta = 40^\circ 06' 25''$
 $R = 10^\circ 0'$
 $L_c = 7^\circ 0'$



PLAN-TOP OF ABUTMENT WALL-ABUTMENT #1 Scale: 1/4" = 1'-0"



ELEVATION - ABUTMENT No 1 Scale: 1/4" = 1'-0"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IHI-1(87)-1	1970	172	244

DATE	_____
DESIGNED BY	_____
DRAWN BY	_____
CHECKED BY	_____
NOTED BY	_____
NO.	_____

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

HALAWA INTERCHANGE
STRUCTURE No 10
ABUTMENT No.1 DETAILS

Proj. No. _____ May 1970

SHEET No. 9 OF 12 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	[H-11(87)13]	1970	173	244

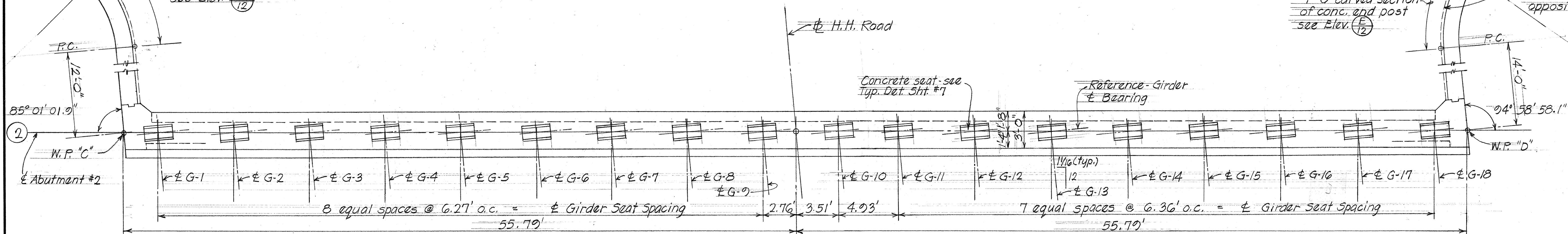
Curve Data

$\Delta = 40^{\circ}06'25''$
 $R = 10.0'$
 $LC = 7.0'$

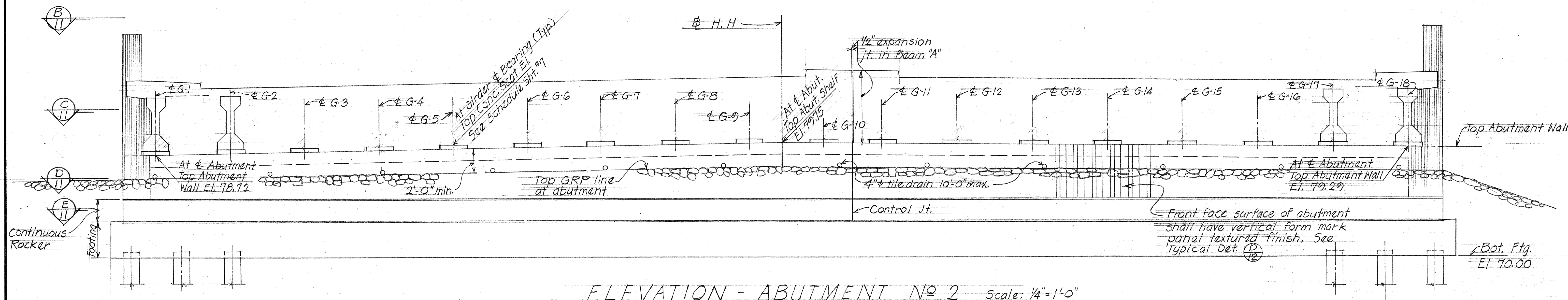
7'-0" curved section of concrete and post see Elev. (E) 12

NORTHBOUND

SOUTHBOUND



PLAN-TOP OF ABUTMENT WALL-ABUTMENT #2 Scale: 1/4" = 1'-0"

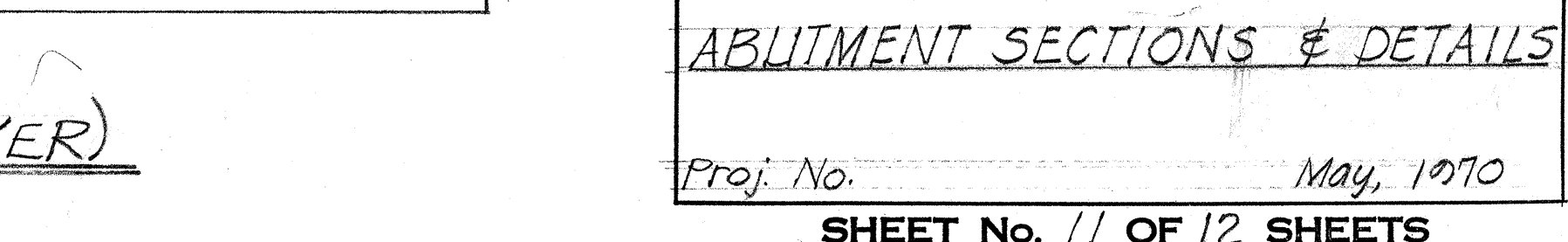
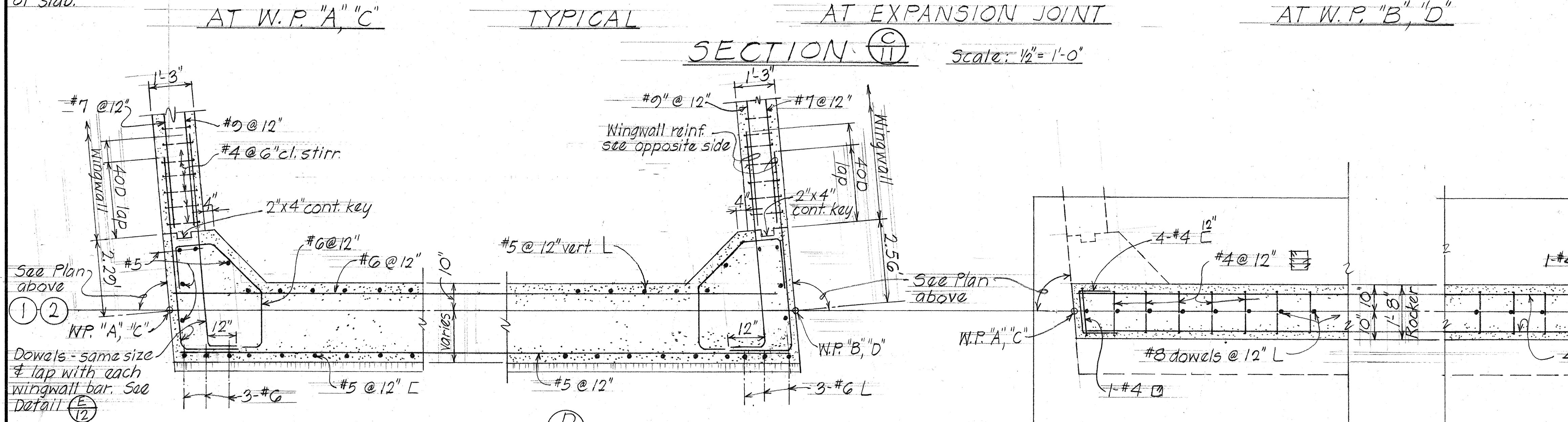
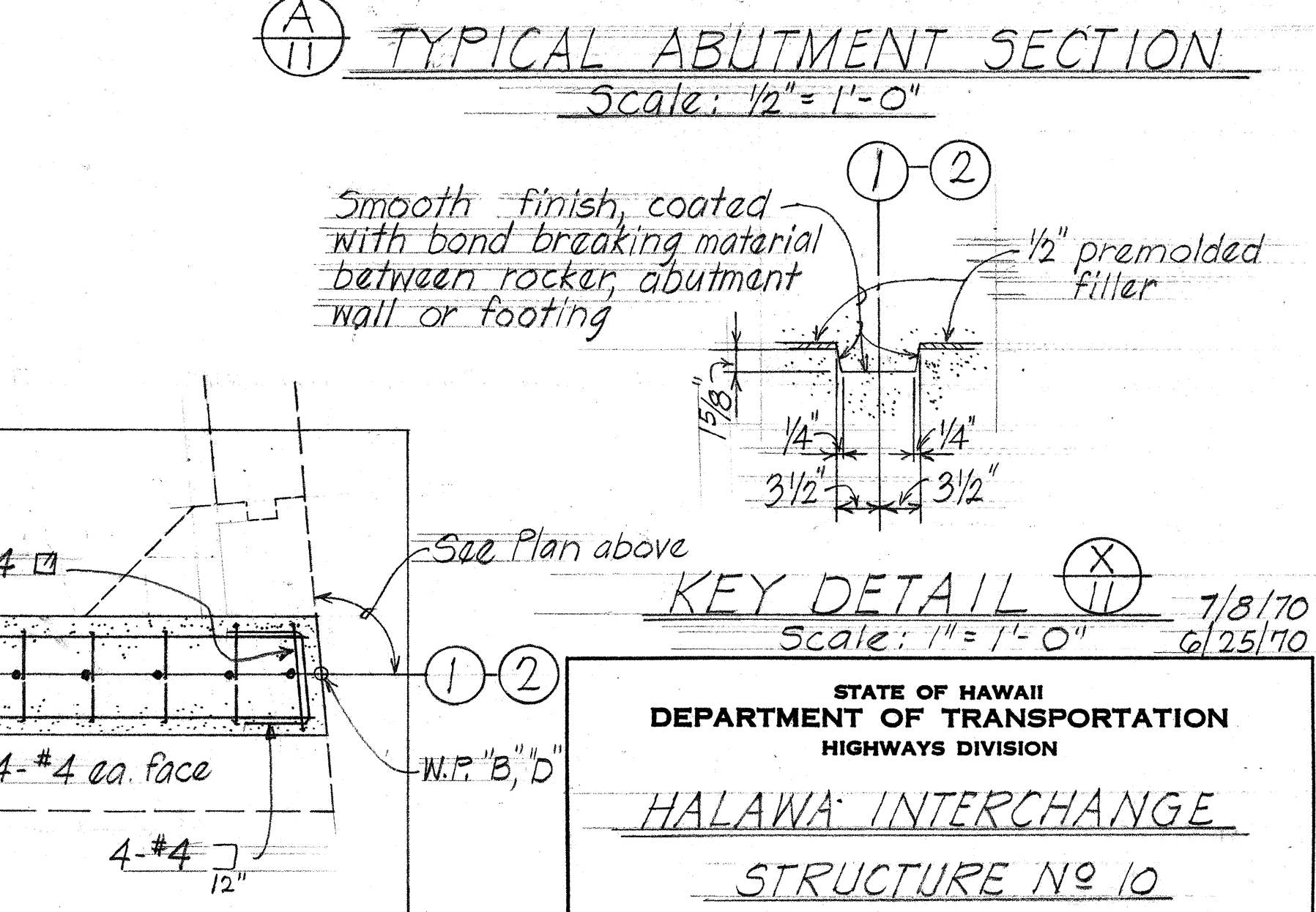
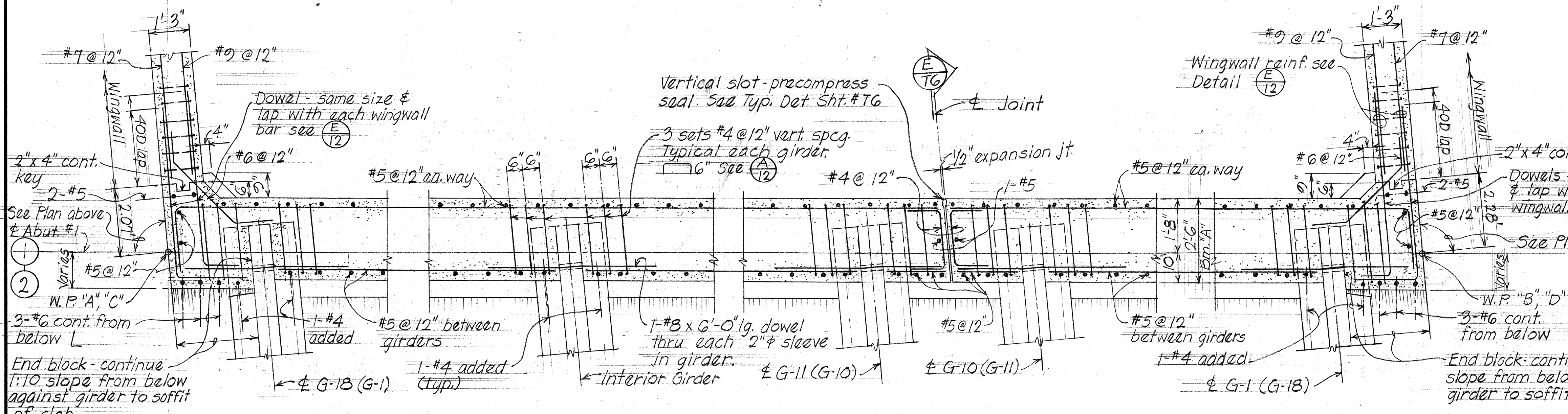
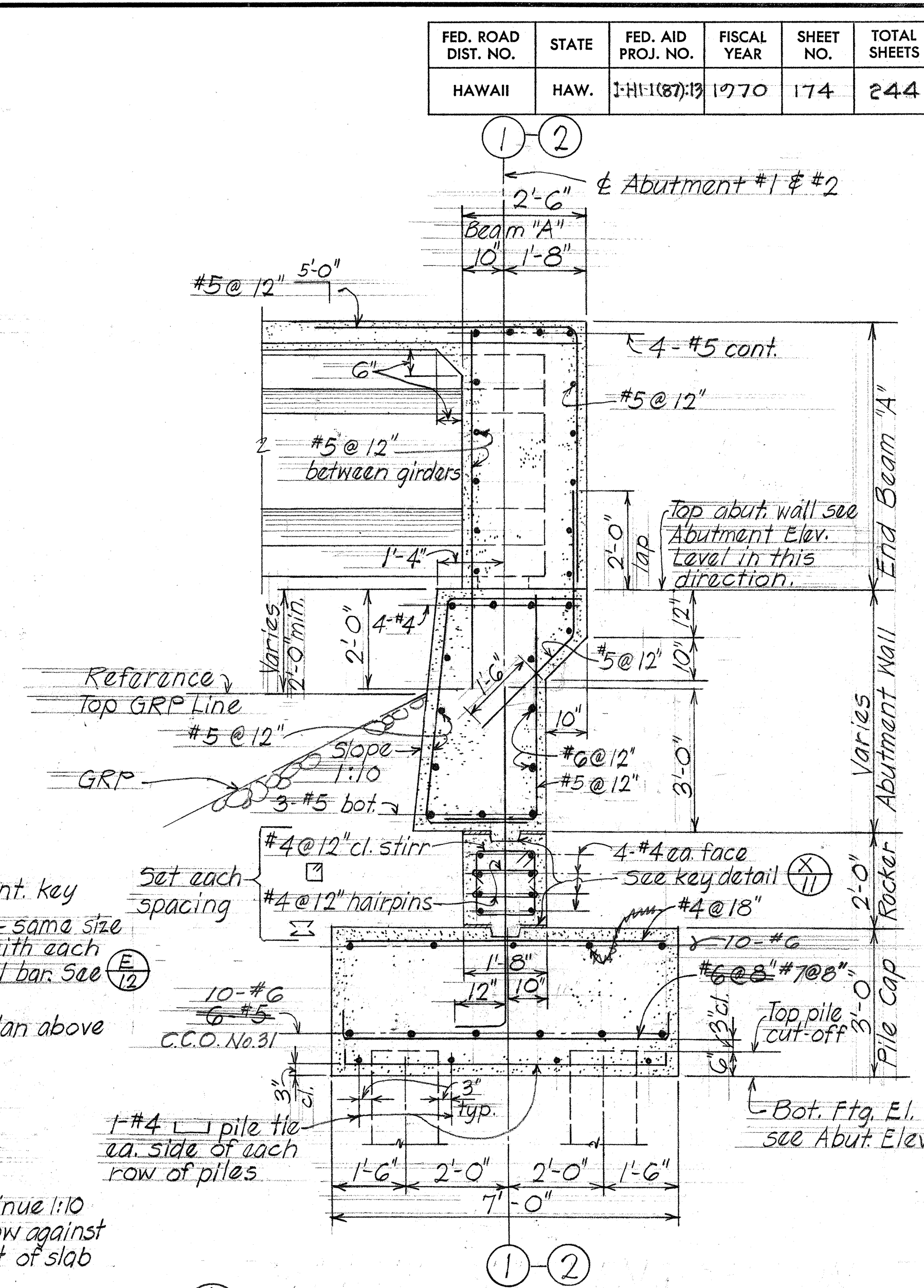
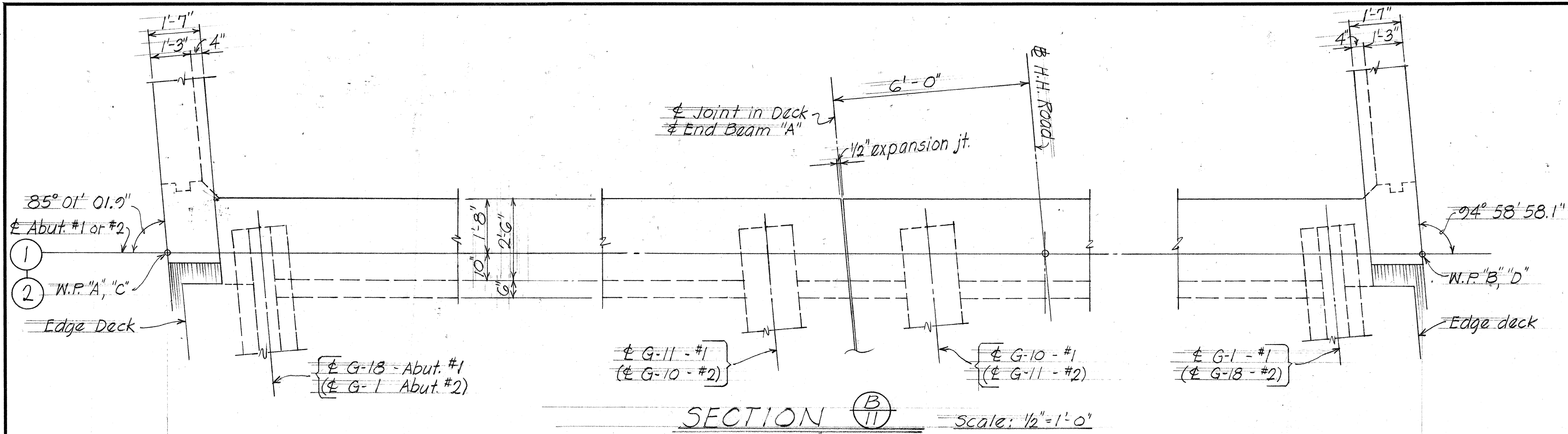


ELEVATION - ABUTMENT No. 2 Scale: 1/4" = 1'-0"

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	May 1970
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
HALAWA INTERCHANGE
STRUCTURE No. 10
ABUTMENT No. 2 DETAILS
Proj. No. May 1970
SHEET No. 10 OF 12 SHEETS

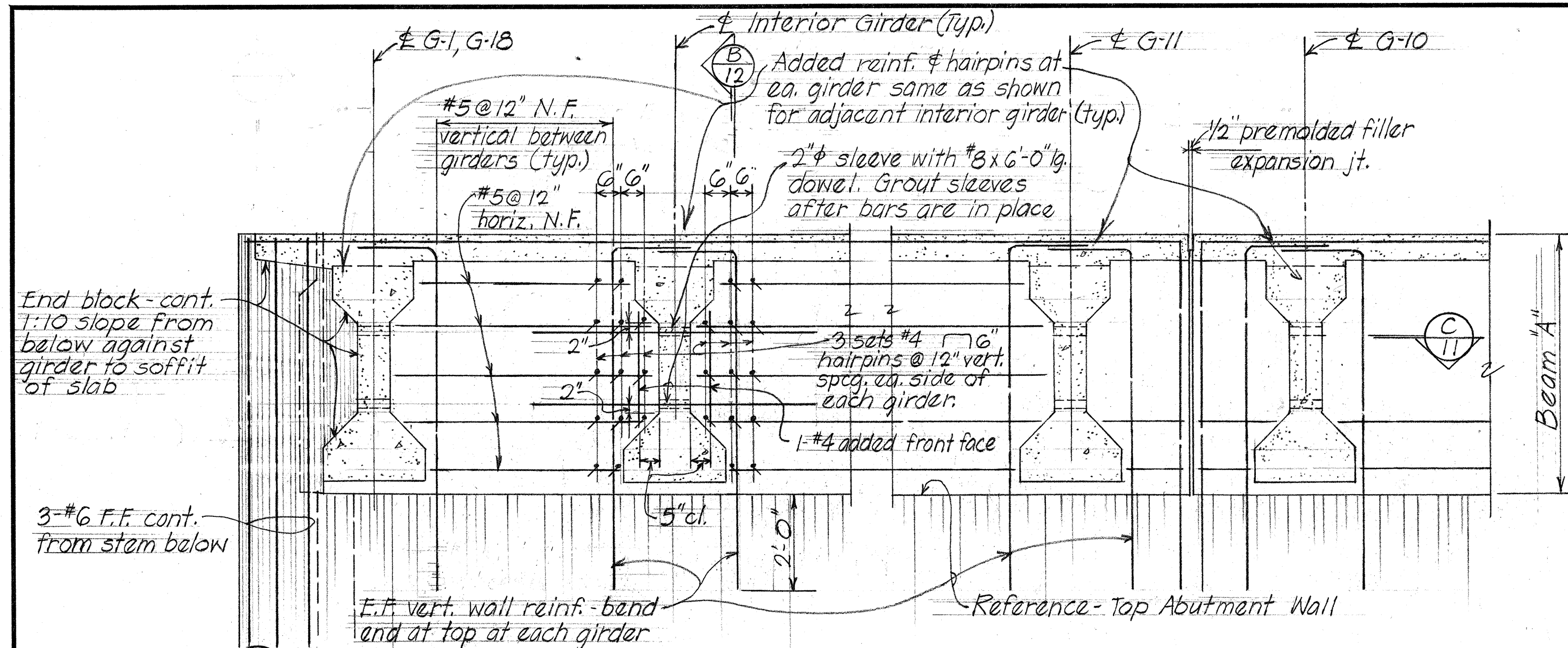
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-H1-1(87)13	1970	174	244



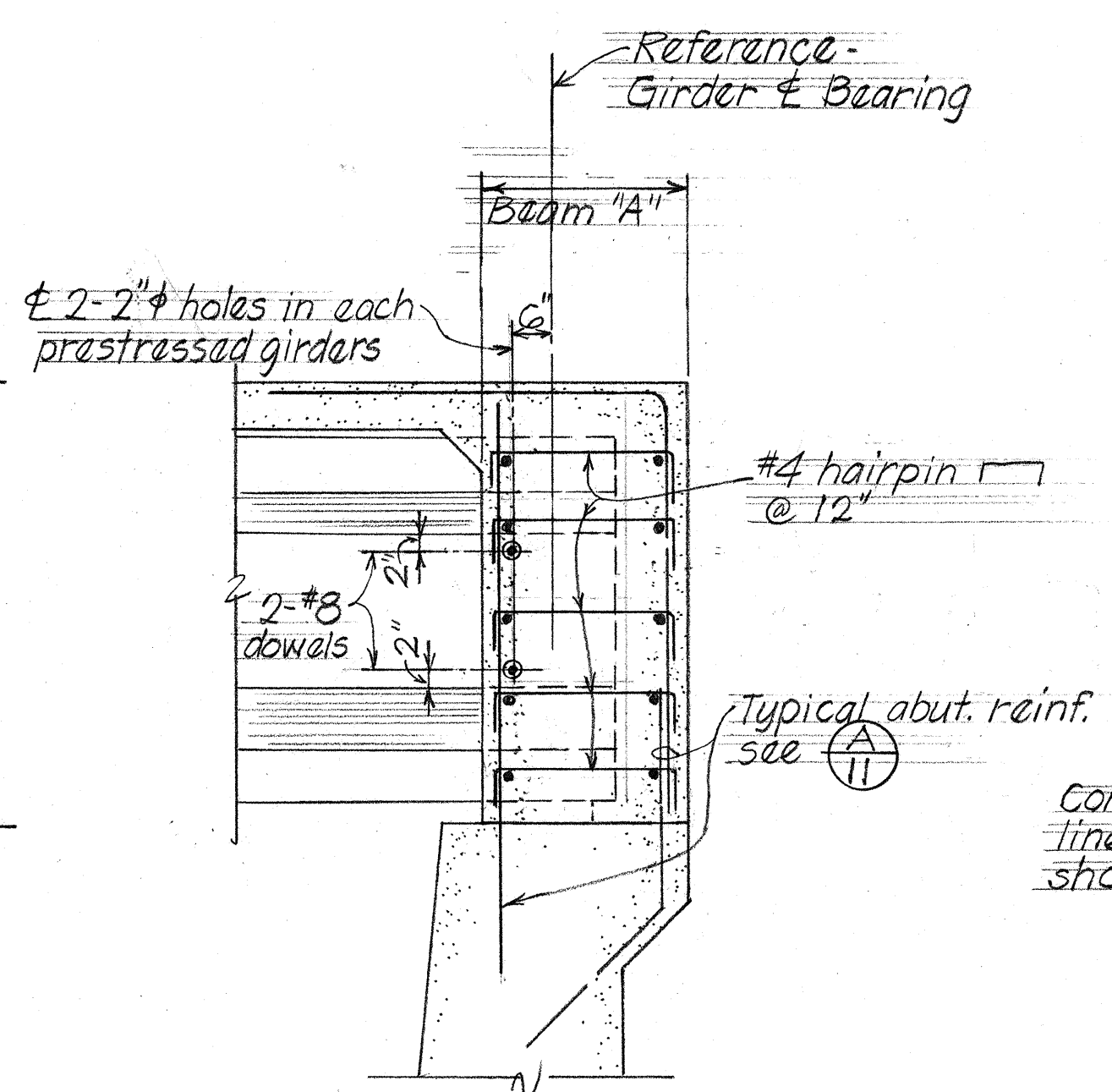
DATE	1/13/70
DESIGNED BY	W. H. H. H.
CHECKED BY	W. H. H. H.
NOTED BY	W. H. H. H.
ORIGINAL PLAN	W. H. H. H.
NOTE BOOK	W. H. H. H.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HALAWA INTERCHANGE
STRUCTURE NO. 10
ABUTMENT SECTIONS & DETAILS
Proj. No. May, 1970
SHEET NO. 11 OF 12 SHEETS

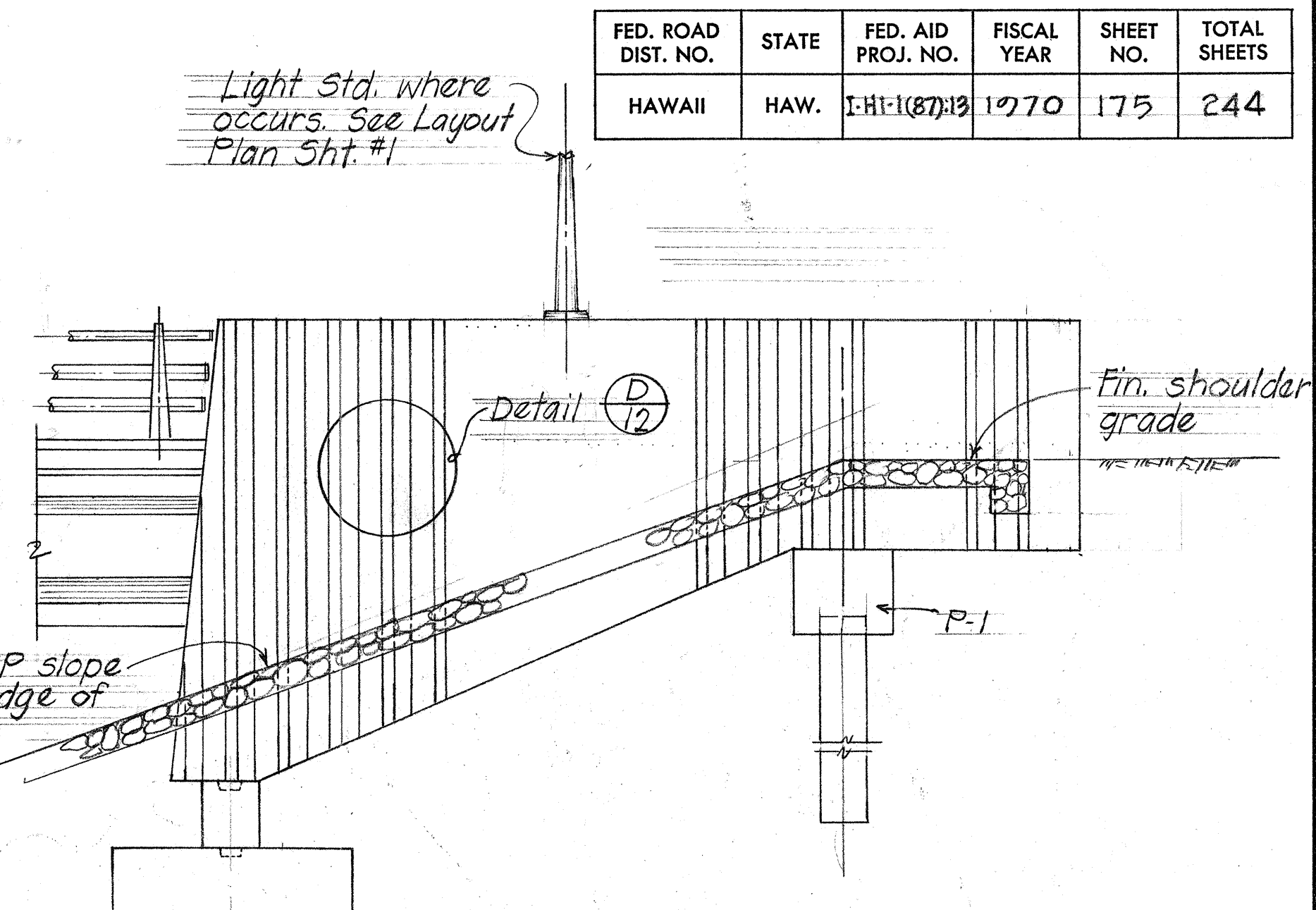
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1H1(87)13	1970	175	244



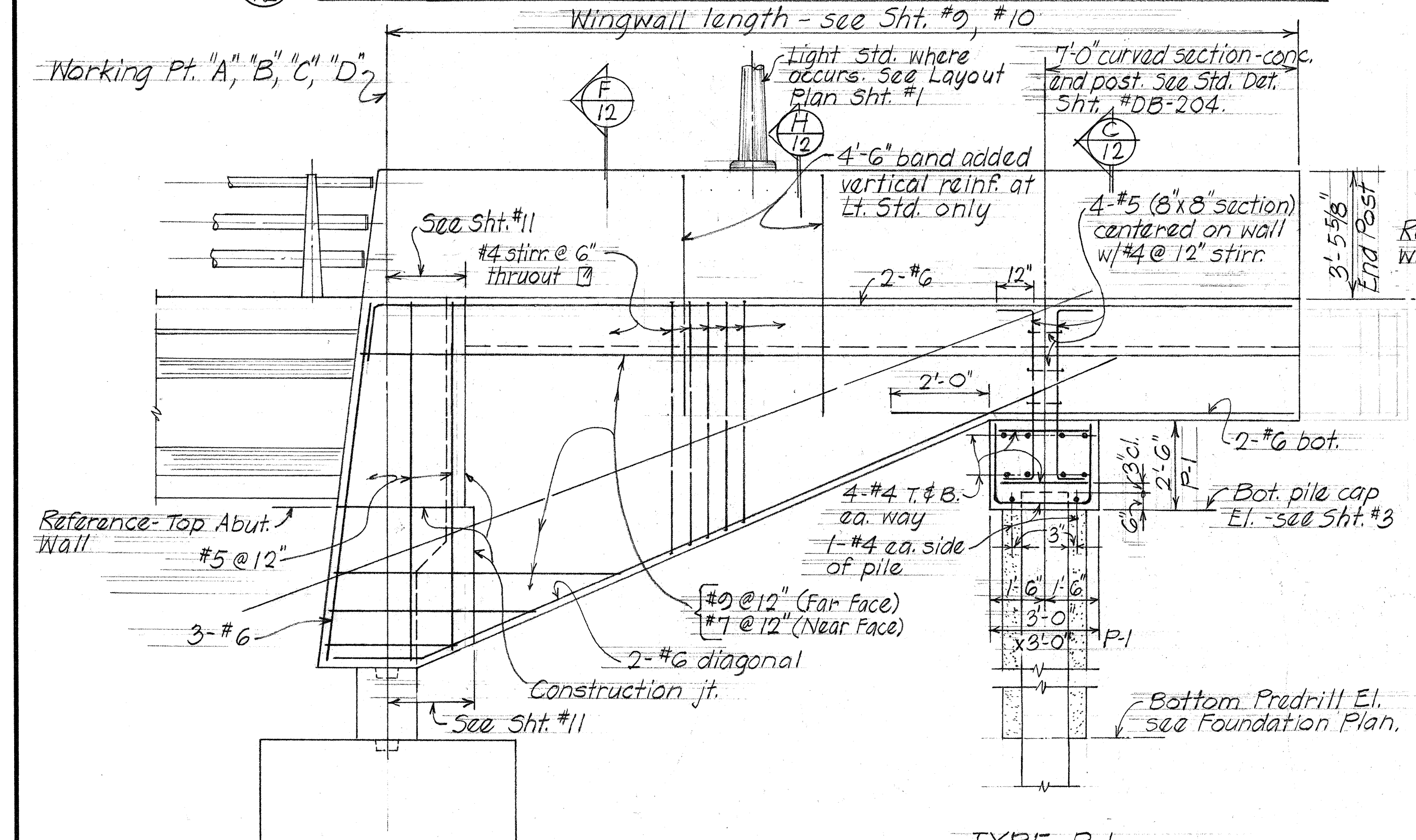
PART ELEVATION - TYPICAL BEAM "A" DETAIL Scale: 1/2" = 1'-0"



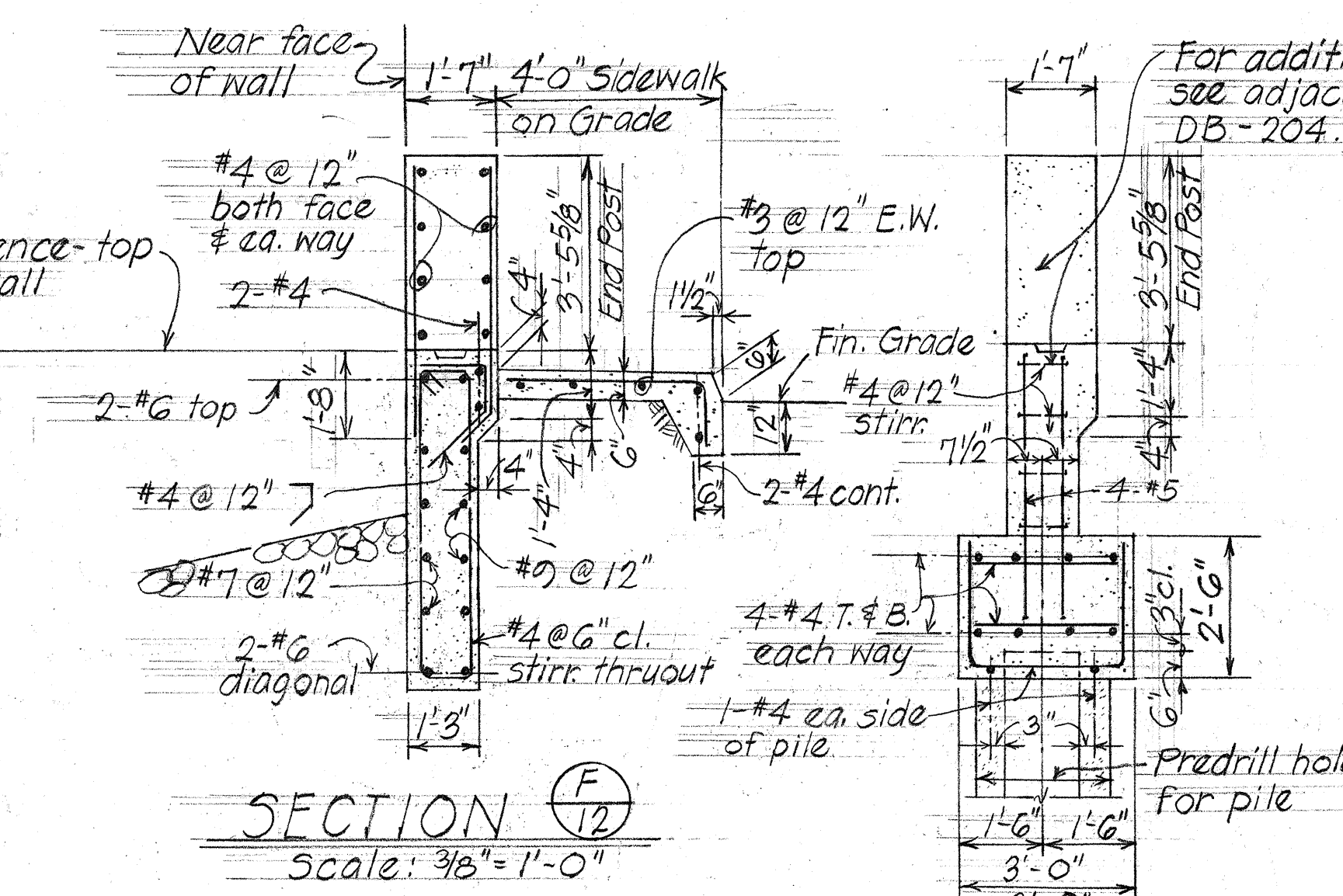
SECTION B-12 Scale: 1/2" = 1'-0"



TYPICAL EXTERIOR TREATMENT OF ABUTMENT WINGWALLS Scale: 1/4" = 1'-0"

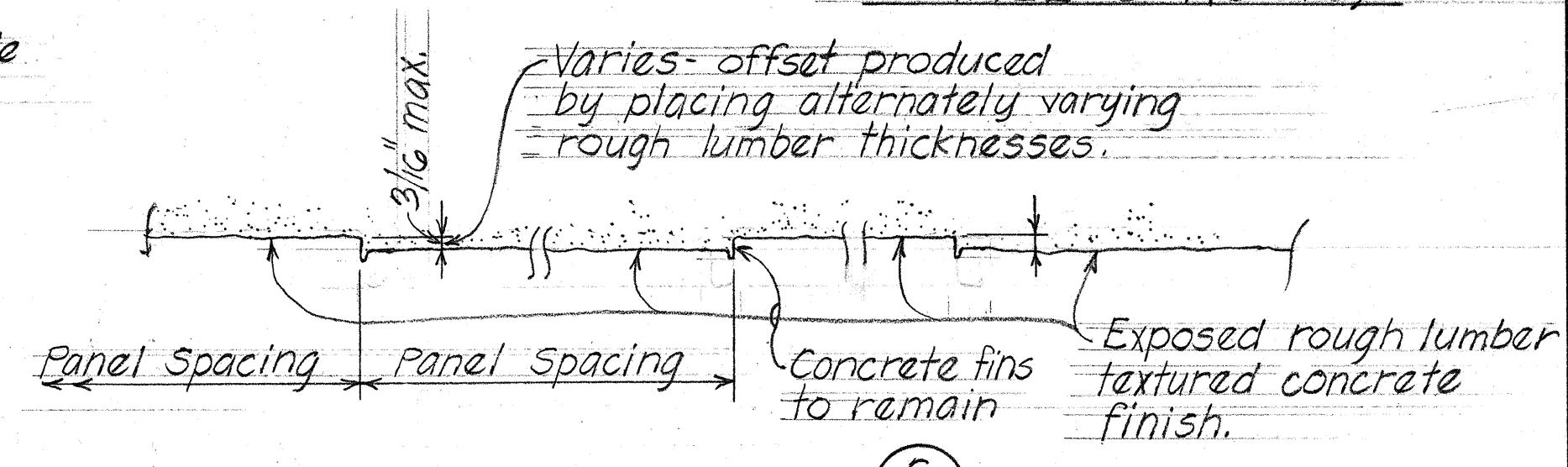


ELEVATION - TYPICAL ABUTMENT WINGWALL Scale: 3/8" = 1'-0"

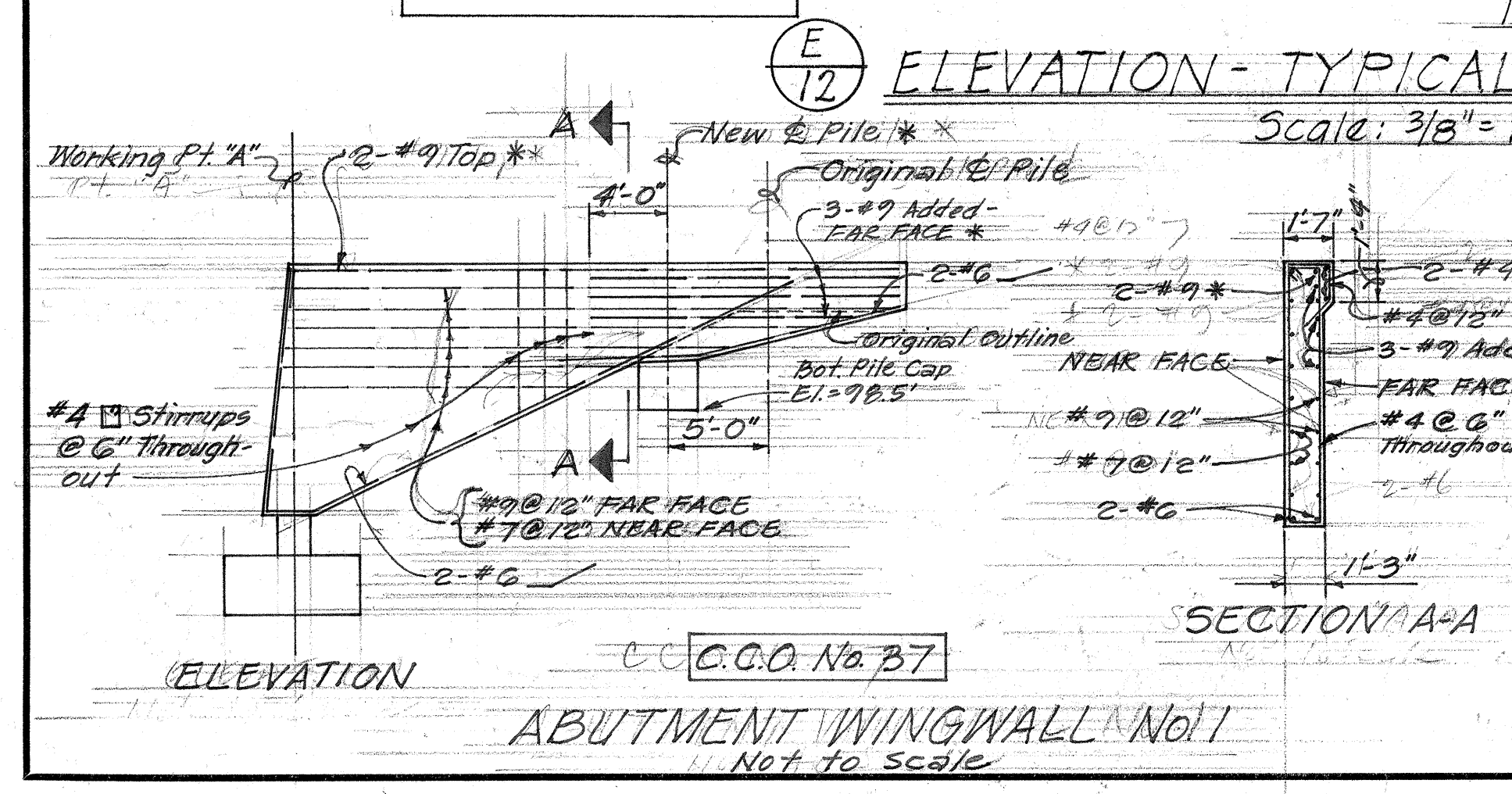


SECTION F-12 Scale: 3/8" = 1'-0"

SECTION C-12 Scale: 3/8" = 1'-0"

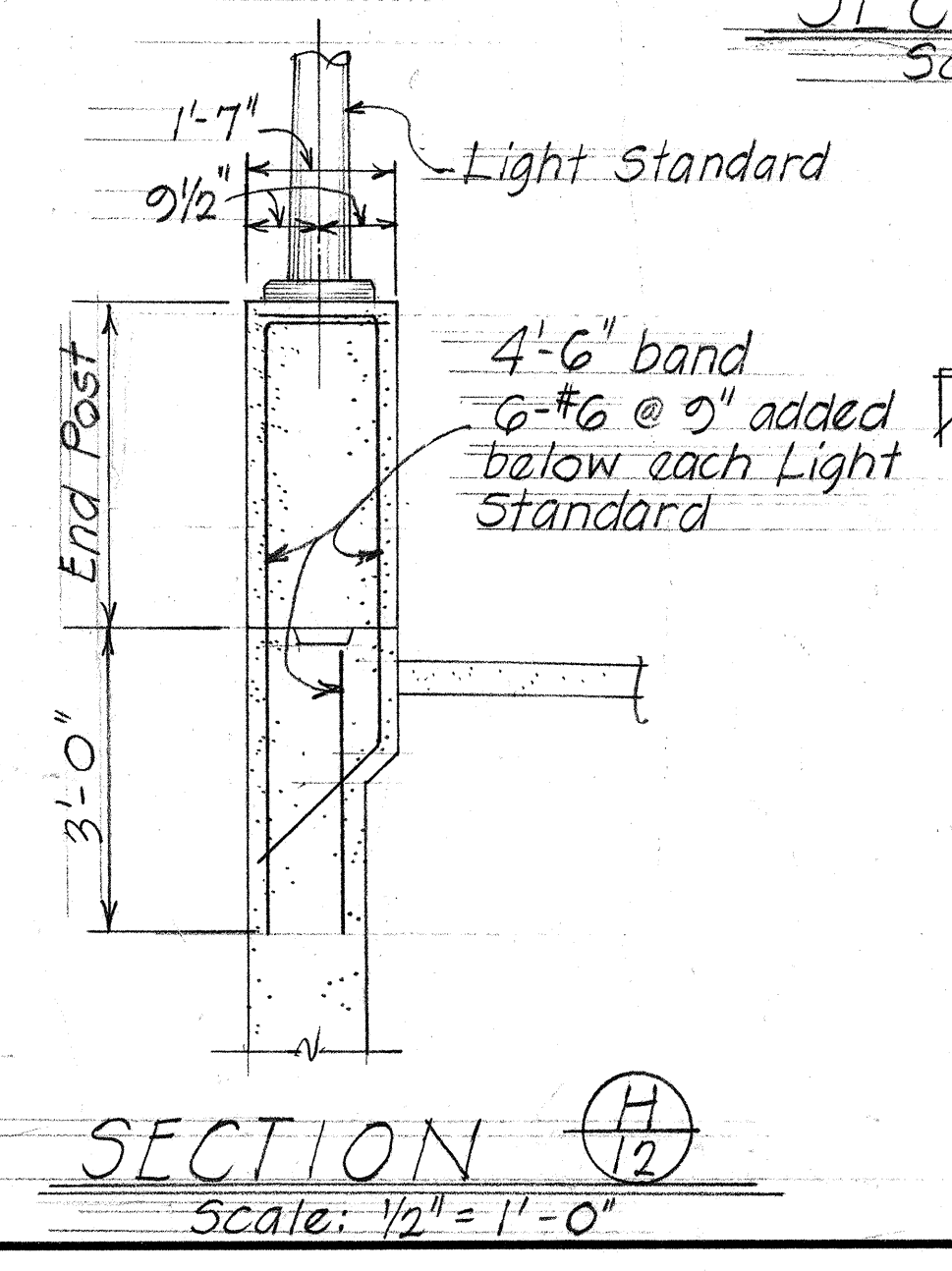


SECTION G-12 No Scale



ABUTMENT WINGWALL No. 1 Not to Scale

NOTE: (1) Refer to Original Plans for Details not shown.
(2) * denotes changes or additions from Original Plans.



SECTION H-12 Scale: 1/2" = 1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HALAWA INTERCHANGE
STRUCTURE No. 10
ABUTMENT NOS 1 & 2 DETAILS

Proj. No. _____ May, 1970
SHEET No. 12 OF 12 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	FHH(87)13	1970	176	244

DESIGN NOTES

DESIGN SPECIFICATIONS AASHO

Standard Specifications for Highway Bridges (10th Edition) with subsequent Interim Specifications.

DESIGN LOADS: HS-20-44 or Interstate loading

DESIGN STRESSES:

1. R.C. beams & slabs - See AASHO Specifications and Special Provisions except as otherwise noted.

Class A	Class E
$f'_c = 3,000 \text{ psi}$	4,500 psi
$f_c = 1,200 \text{ psi}$	1,800 psi
$n = 10$	8
$f_s = \text{ASTM A615, see Special Provisions.}$	

2. Prestressed Girders

$f'_c = 5,500 \text{ psi}$ | $\frac{1}{2}$ " dia. 7 wire strands
 $f'_{ci} = 4,000 \text{ psi}$ | Tensioning load = 25,200 lbs. per strand
Design load = 20,160 lbs. per strand.
Forms must be removed and the beams inspected before the strands are cut.

3. Pile Capacity - See Foundation Plan.

GENERAL NOTES

MATERIALS:

1. All concrete shall be class A except as otherwise noted on plans.
Concrete for prestressed concrete girders see Standard Specifications and as noted under Design Stresses
2. Preformed fabric bridge bearing pads are incidental to concrete and will not be paid for separately.
3. See Special Provisions for admixture in concrete.
4. All piles to be prestressed concrete piles Type I - see Standard Detail Sht. Nos. DB-300-1, DB-300-2.
5. The limits of the structure fill or backfill material requiring a sand equivalent value of not less than 20 shall extend up to the bottom of the roadway subgrade lines.

CONSTRUCTION METHODS:

1. See Standard Specifications and Special Provisions
2. For concrete finish see Special Provisions. Concrete seats and creep blocks to be poured monolithically with Pier or Abutments. Top surfaces of conc. seats to have a hard trowel finish.
3. See details for additional surface finish.
4. In general, top & edge of concrete deck of superstructure shall be constructed to follow the finish roadway vertical & horizontal curves and grades.
5. Backfill to be placed simultaneously at each abutment after superstructure deck is cured.

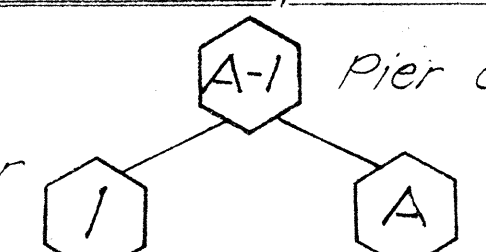
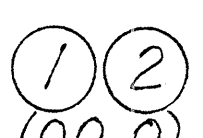
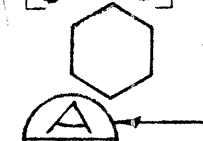
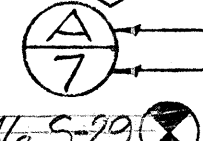
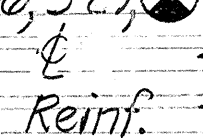
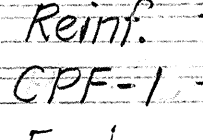
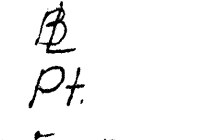
REFERENCE:

1. Refer to Standard Details Drawings for additional details not covered by detailed plans.
2. Typical Details drawing sheet Nos. T-1 thru T-6 inclusive refers to the bridge structure except for modification as may be required by special conditions. For such modifications see corresponding detailed plans.

GENERAL:

1. Additional structure fill where indicated on detailed drawings shall be incidental to structural excavation, roadway excavation, or imported borrow.
2. All items noted incidental will not be paid for separately.

SYMBOLS & ABBREVIATION

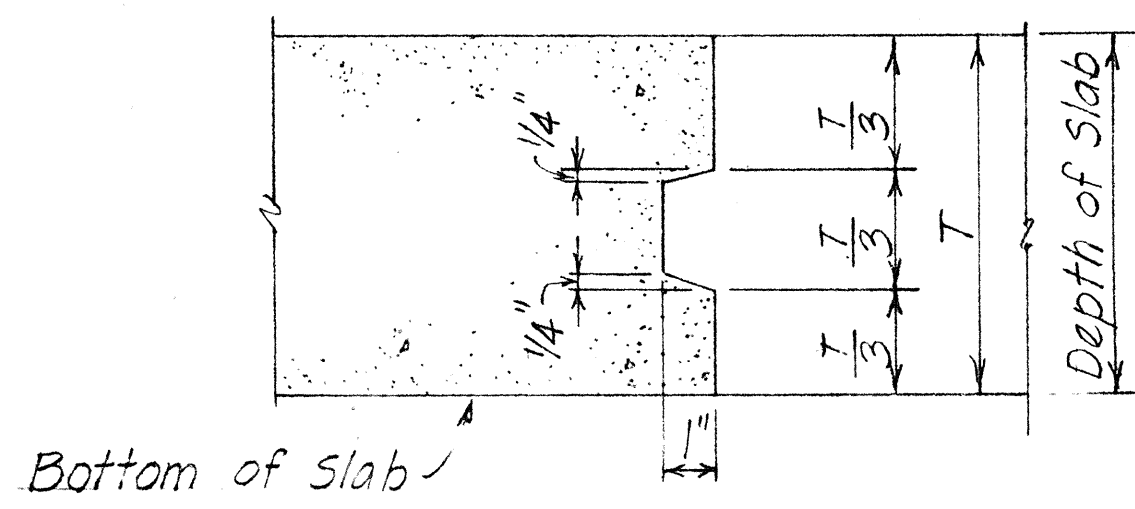
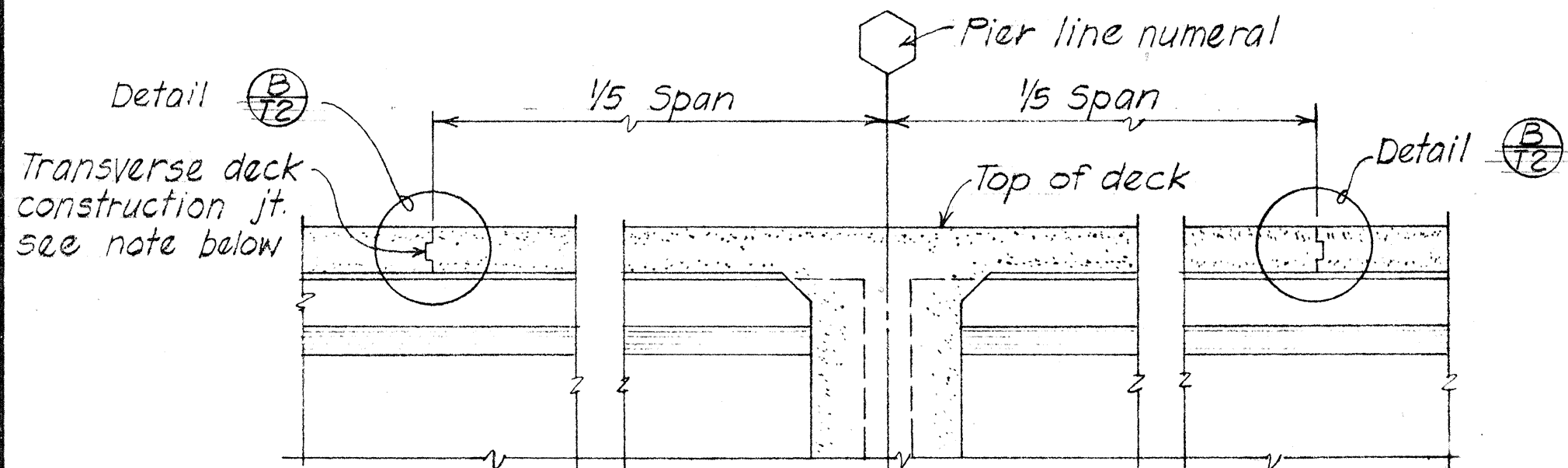
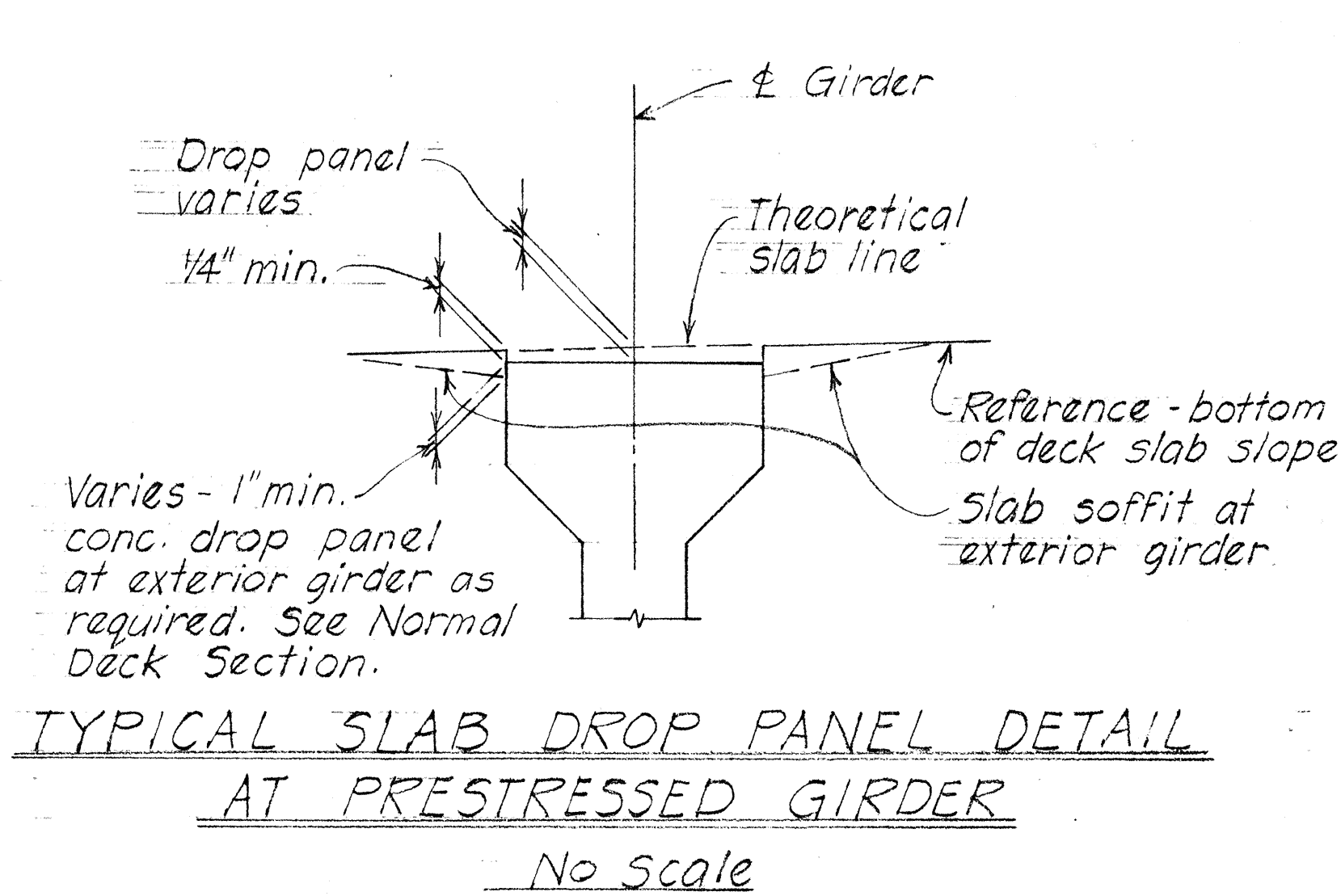
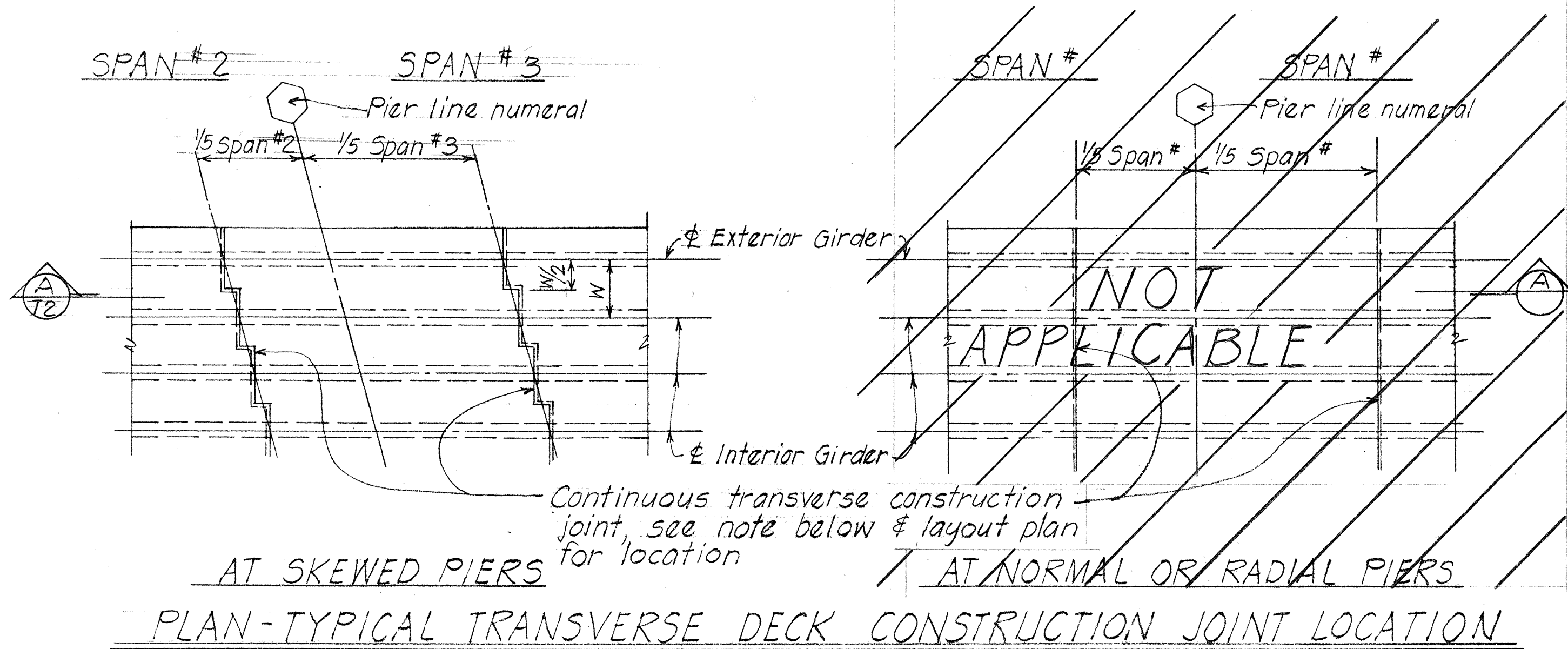
- Location pier line number  Pier column number
 -Location concrete seat line number
(00.0) -Bottom footing elevation
[00.0] -Pile cut-off elevation
{00.0} -Pile tip elevation
 -Type I pile
 -Section Designation
Sht. number detail is drawn on
B-46, S-29  -Boring number and designation
 -Centerline
Reinf. -Reinforcement
CPF-1 -Continuous Pile Footing Type
F-1 -Spread Footing type
S.E. -Superelevation
G-1, G-2 -Girder numbers.
I.B. -Inbound
O.B. -Outbound
 -Baseline
Pt. -Point
Exp. -Expansion
No. -Number
Cont. -Continuous
E.F. -Each Face
B.F. -Both Face
N.F. -Near Face
F.F. -Far Face
W.P. -Working Point
ea. -each
Bal. -Balance
Bot, Bott -Bottom
T. -Top
Ext. -Exterior
Int. -Interior
oc. -on center
Typ. -Typical
G.R.P. -Grouted Rubble Paving
C.R.M. -Cement Rubble Masonry
W.W.F. -Welded Wire Fabric
Str. -Straight
Stirr. -Stirrup
W.W. -Wingwall
H.H. -Halawa Heights
M.F. -Moanalua Freeway

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TYPICAL DETAILS
NOTES AND ABBREVIATIONS
HALAWA INTERCHANGE
STRUCTURE No 10

Project No. May 1970
SHEET No. T-1 OF 6 SHEETS

1176

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	111(87)13	1970	177	244



A DETAIL OF CONTINUOUS SLAB OVER PIER

B TYPICAL SLAB CONSTRUCTION JOINT DETAIL

NOTE:

Transverse deck construction joint shall be used at these locations. The portion of the pour indicated between construction joints over the pier shall not be poured until the pours for the adjacent positive moment areas have been completed.

Transverse deck construction joints may be eliminated if permitted by the Engineer in writing. If the construction joints are eliminated, water reducing and retarding admixture conforming to AASHTO Designation: M194, Type D, shall be added to the deck concrete over the pier within the indicated lines. The type of the admixture shall be such that the amount of dosage used will produce the retardation required. The type and dosage of the admixture, and the method of pour shall be approved by the Engineer.

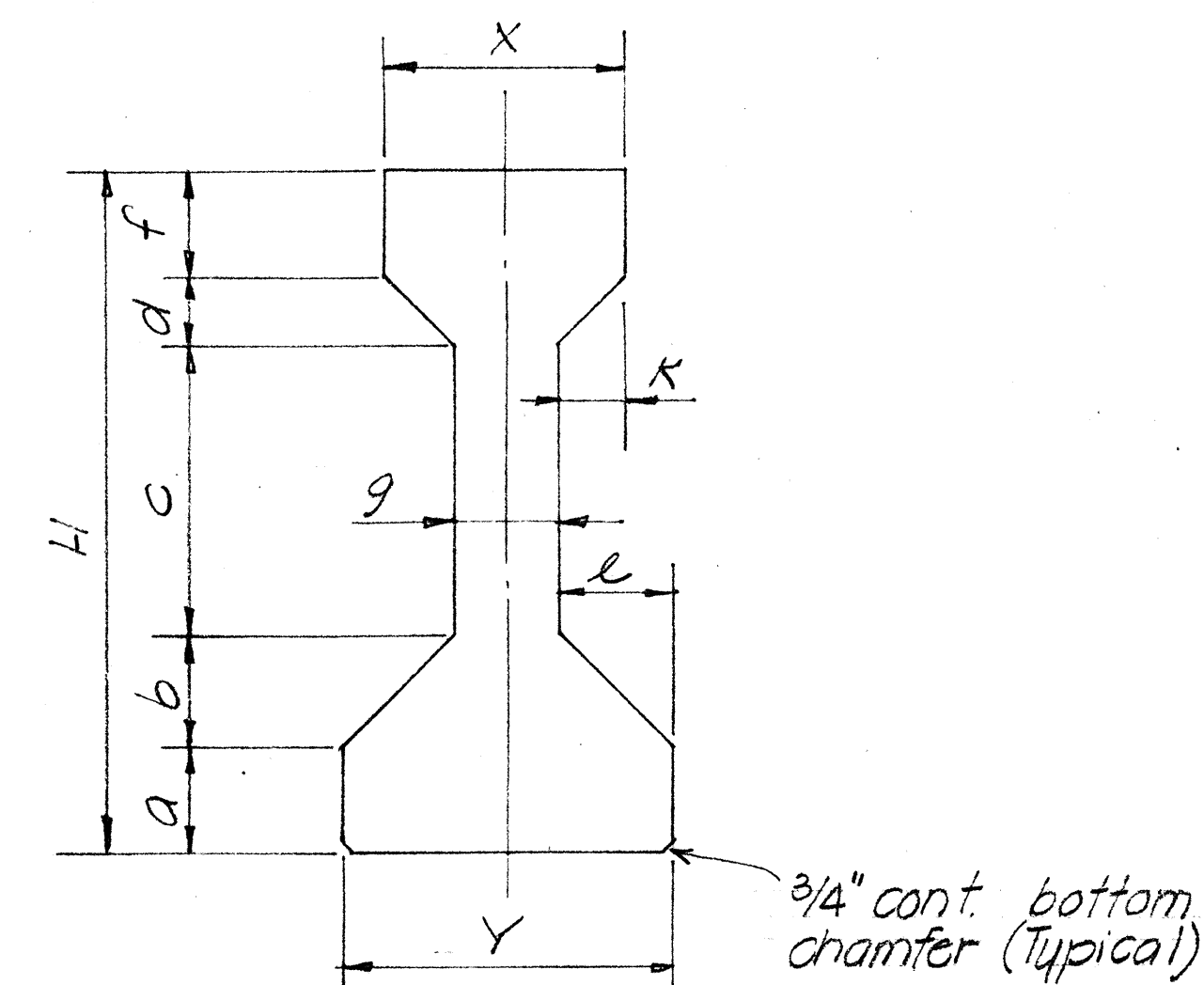
ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
NO.	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

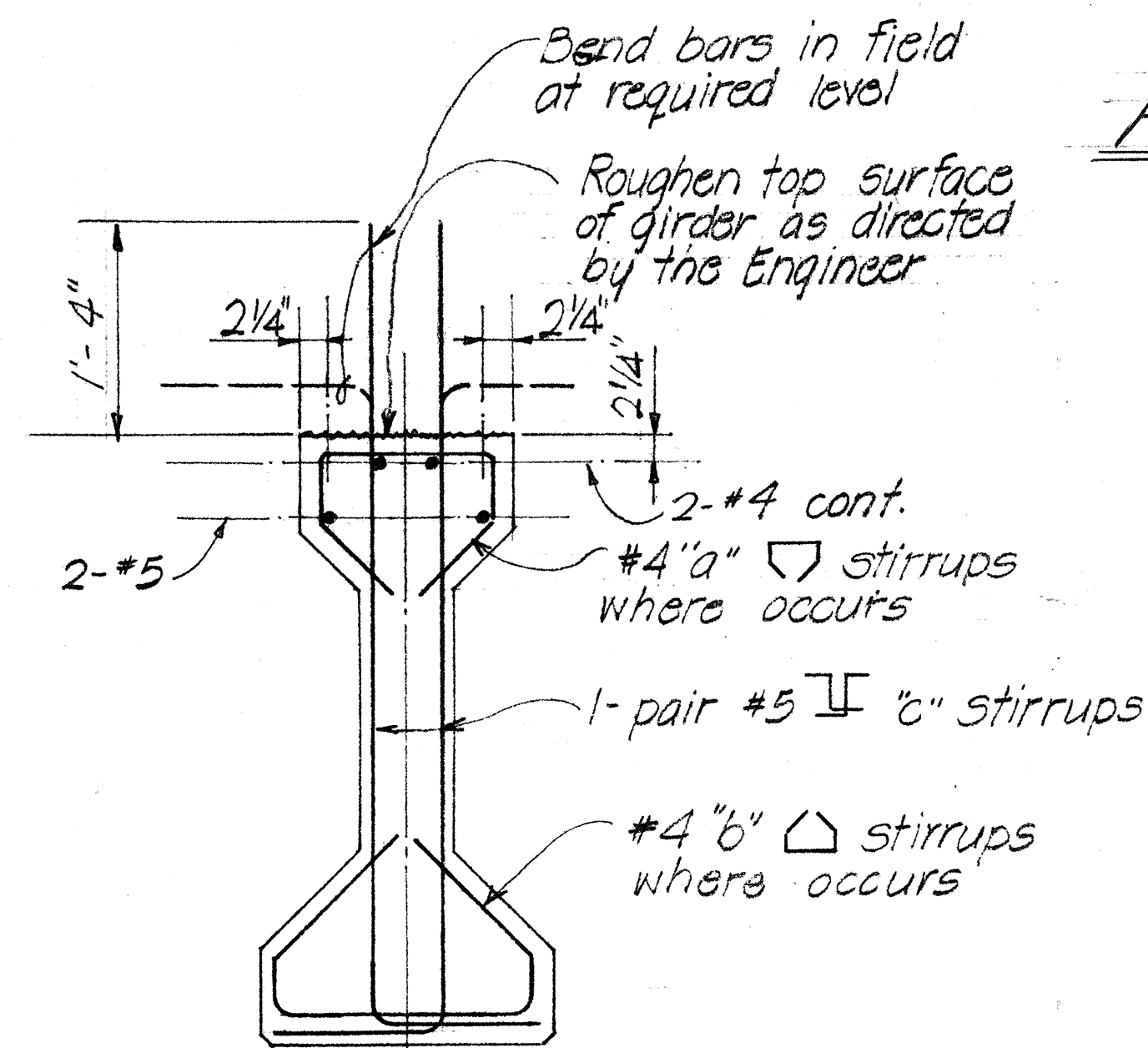
TYPICAL DETAILS
PRESTRESSED GIRDER SUPERSTRUCTURE
HALAWA INTERCHANGE
STRUCTURE #10

Project No. _____ May 1970
SHEET No. T-2 OF 6 SHEETS

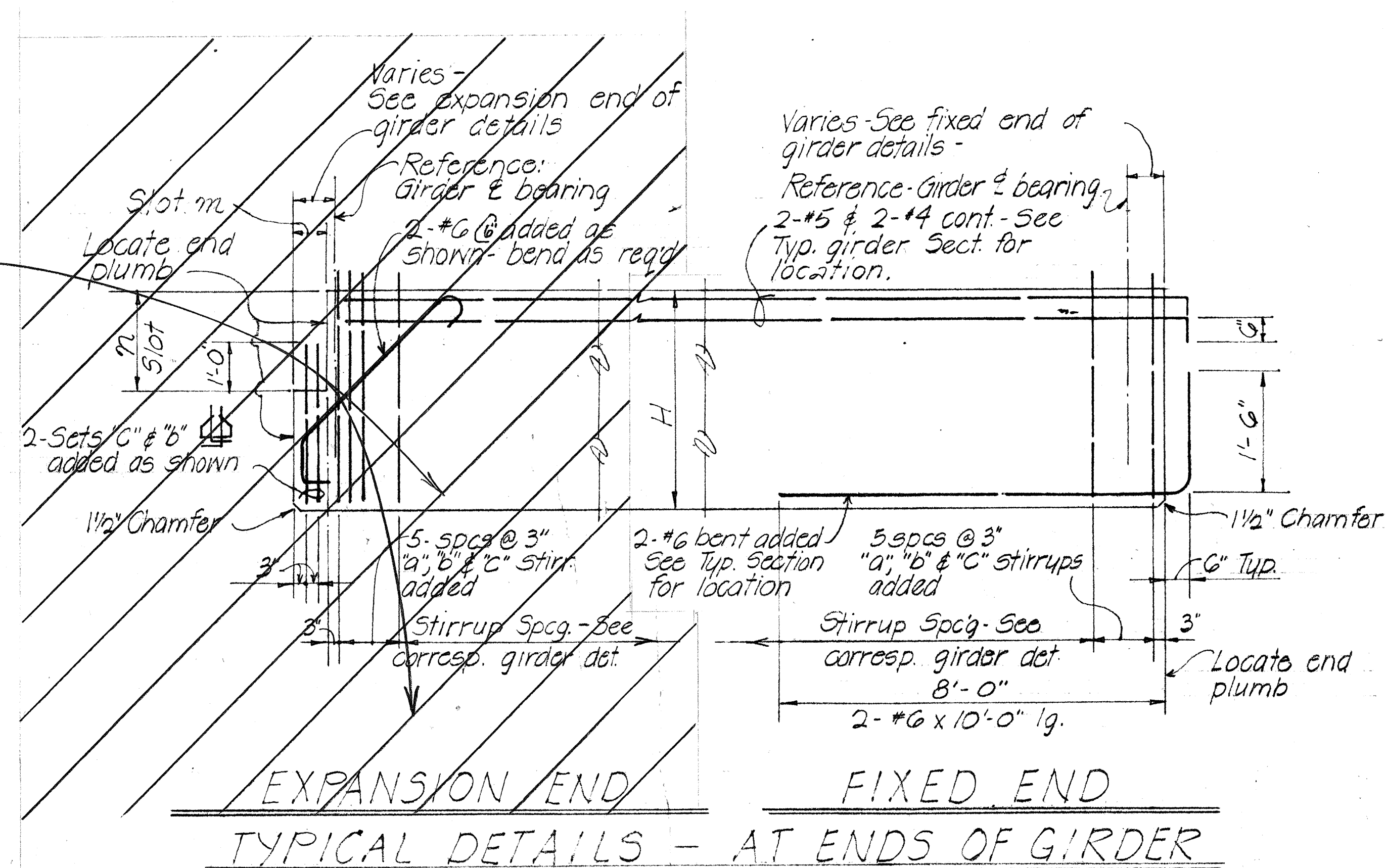
AASHTO-PCI STANDARD BRIDGE GIRDER DIMENSION														
GIRDER TYPE	H	X	Y	a	b	c	d	e	f	g	J	K	L	
I	2'-4"	1'-0"	1'-4"	5"	5"	11"	3"		4"	6"		3"	5"	
II	3'-0"	1'-0"	1'-6"	6"	6"	1'-3"	3"		6"	6"		3"	6"	
III	3'-9"	1'-4"	1'-10"	7"	7 1/2"	1'-7"	4 1/2"		7"	7"		4 1/2"	7 1/2"	
IV	4'-6"	1'-8"	2'-2"	8"	9"	1'-11"	6"		8"	8"		6"	9"	



TYPE I THRU TYPE IV



NOT APPLICABLE



TYPE I THRU TYPE IV
TYPICAL SECTION PRESTRESSED CONC. GIRDERS

GENERAL NOTES

DESIGN LOADS: HS-20-44 or Interstate Loading
1- Prestressed Girders -

$f'_c = 5,500$ psi / $f'_c = 4,000$ psi
Tensioning Load = 25,200 lbs. per. strands.
Design Load = 20,160 lbs. per. strands
Forms must be removed and the beams inspected before the strands are cut.

For additional holes and inserts in prestressed girders for beam connections, refer to corresponding beam details.

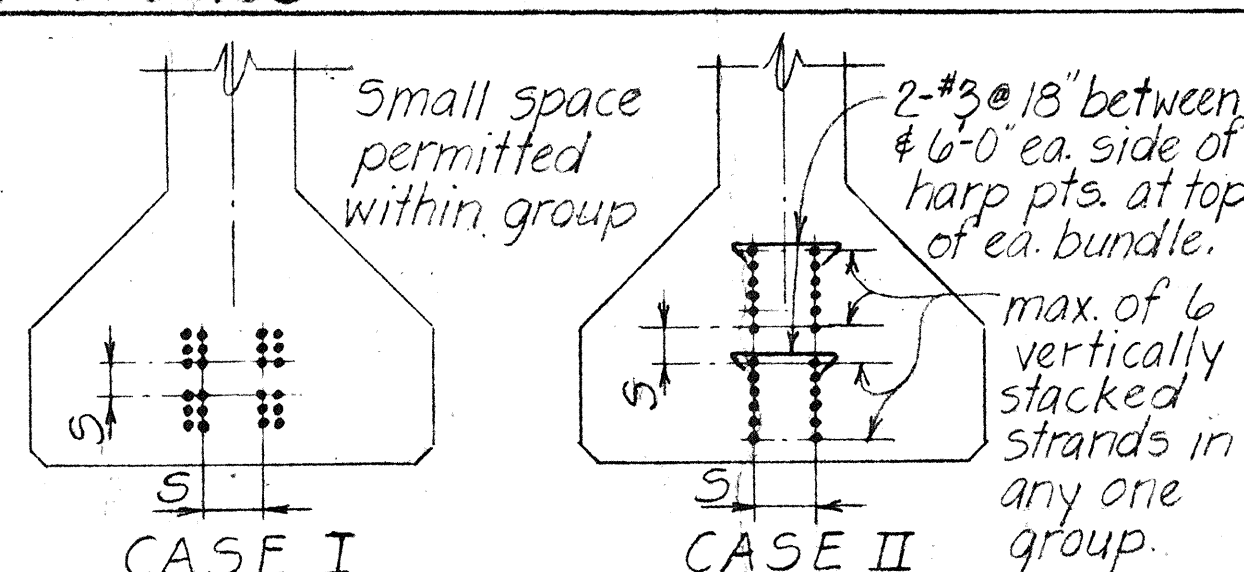
BUNDLING OF PRESTRESSING REINFORCEMENT

ARRANGEMENT AND CLEARANCE FOR POST TENSIONED UNITS

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

ARRANGEMENT AND CLEARANCE FOR PRETENSIONED STRANDS

- Strands may be bundled in groups as shown.
- The minimum distance "S" between groups or individual strands is 2" for 1/2 inch strands.
- "S" is measured between centers of adjacent strands.



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

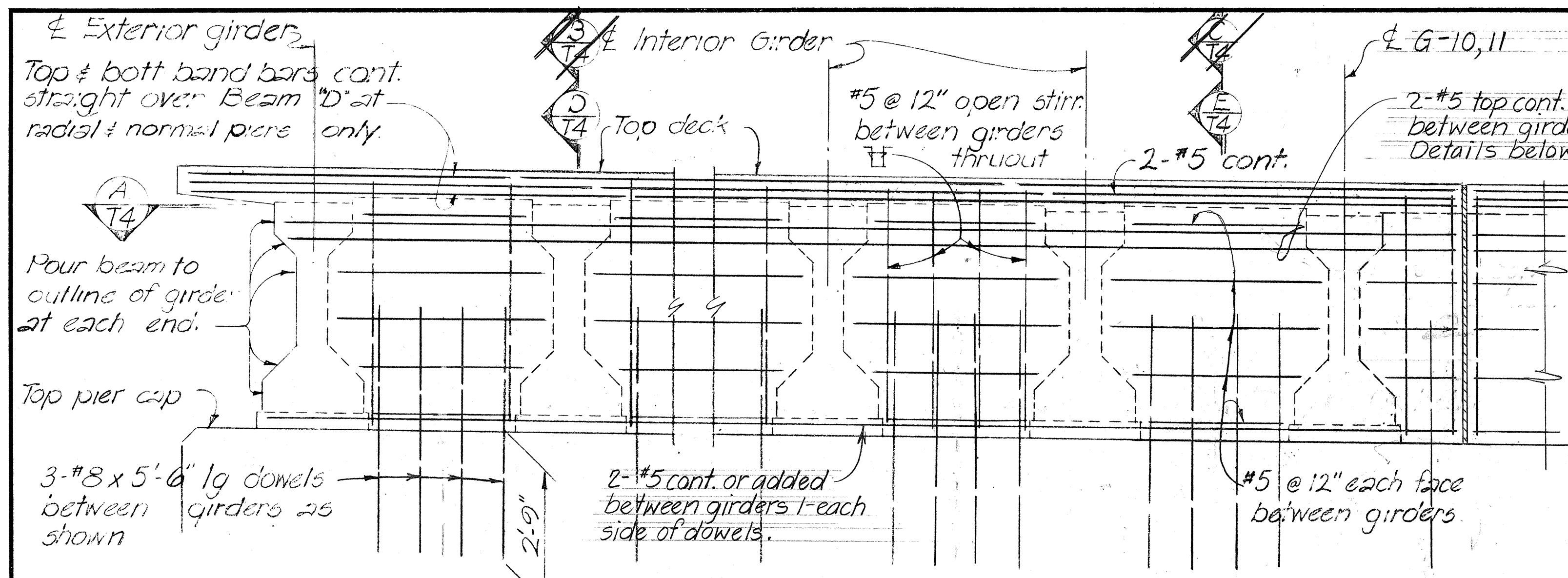
TYPICAL DETAILS
PRESTRESSED GIRDER
HALAWA INTERCHANGE
STRUCTURE No. 10

Project No. _____ May 1970

SHEET No. 73 OF 6 SHEETS

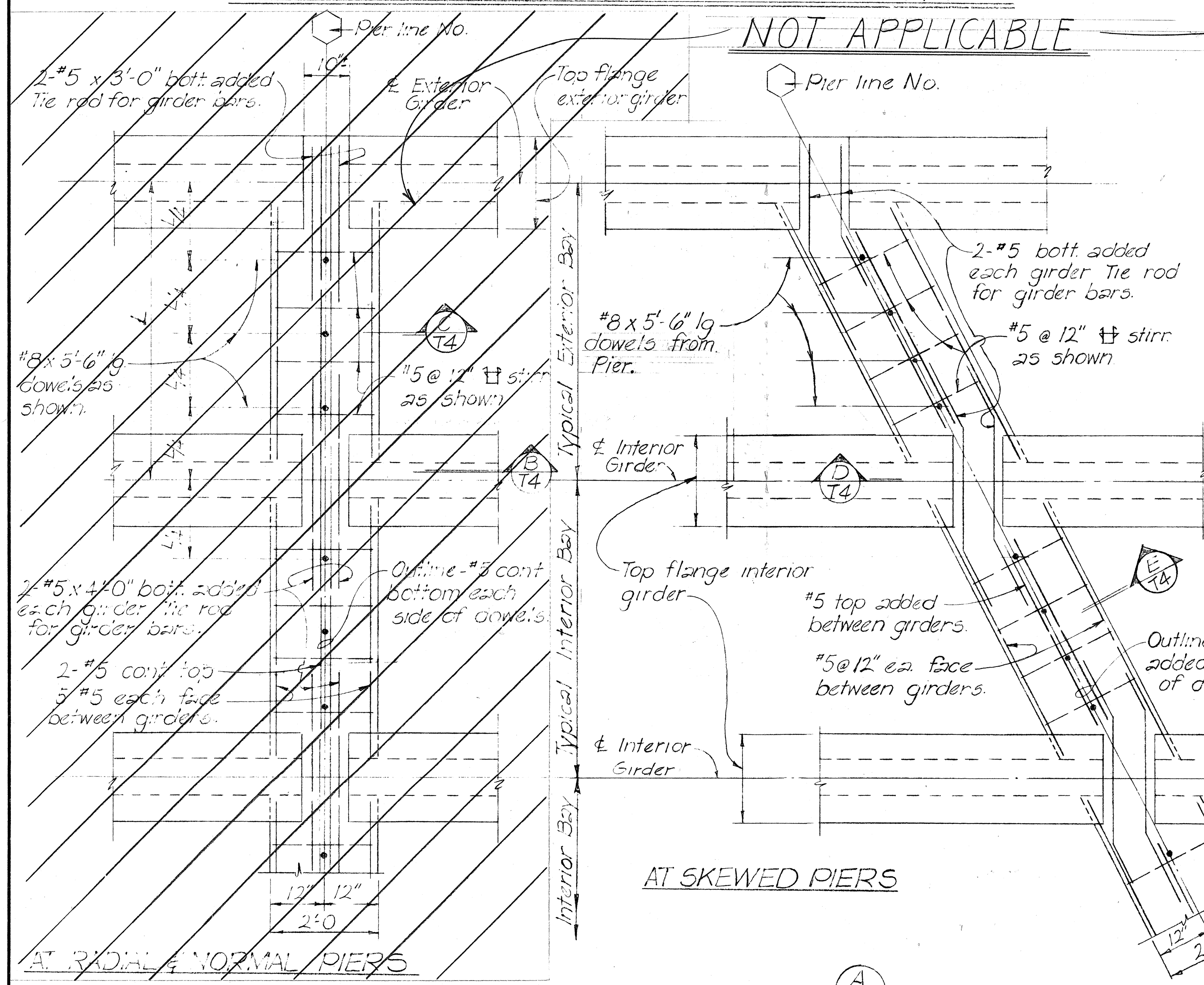
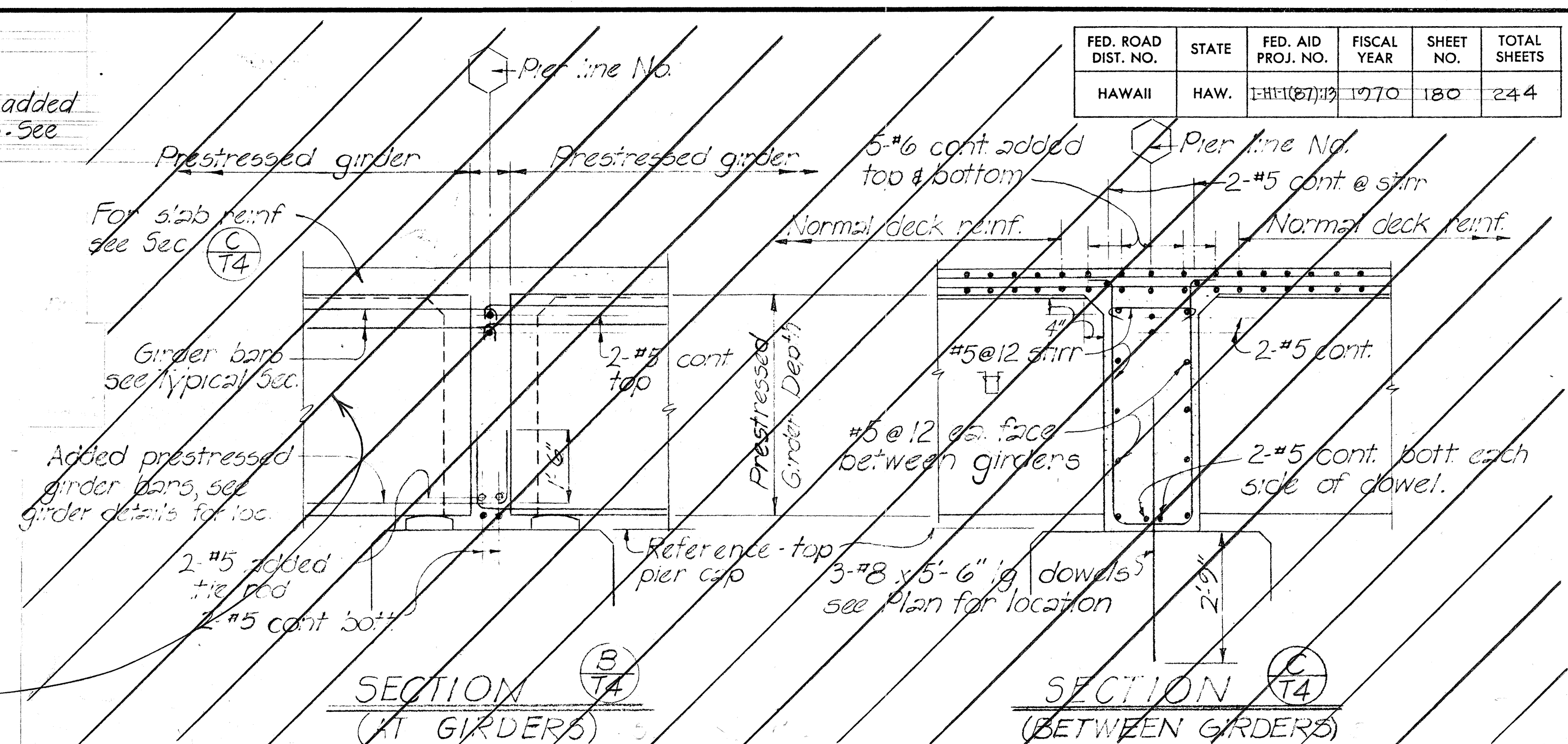
178

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-111(67)13	1970	180	244

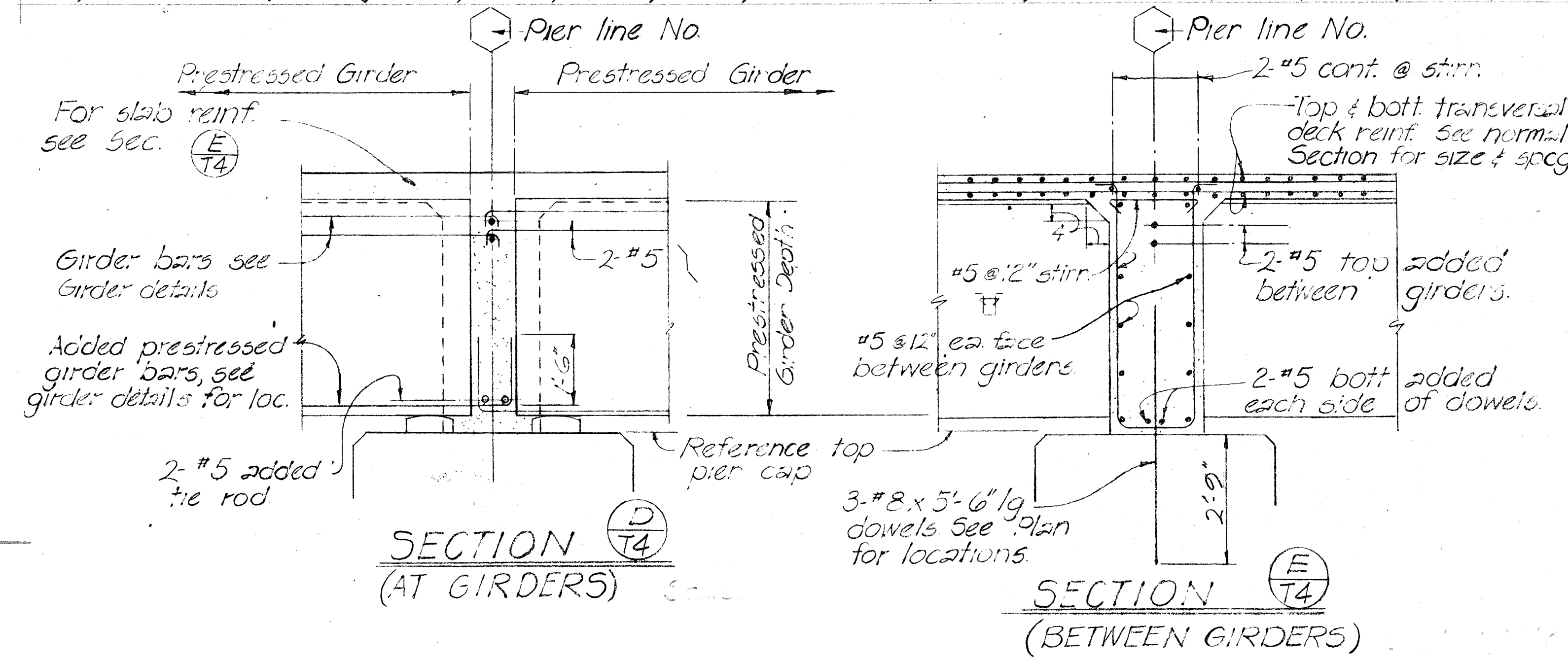


ELEVATION - TYPICAL TRANSVERSE BEAM "D"

NOT APPLICABLE



TYPICAL SECTION



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

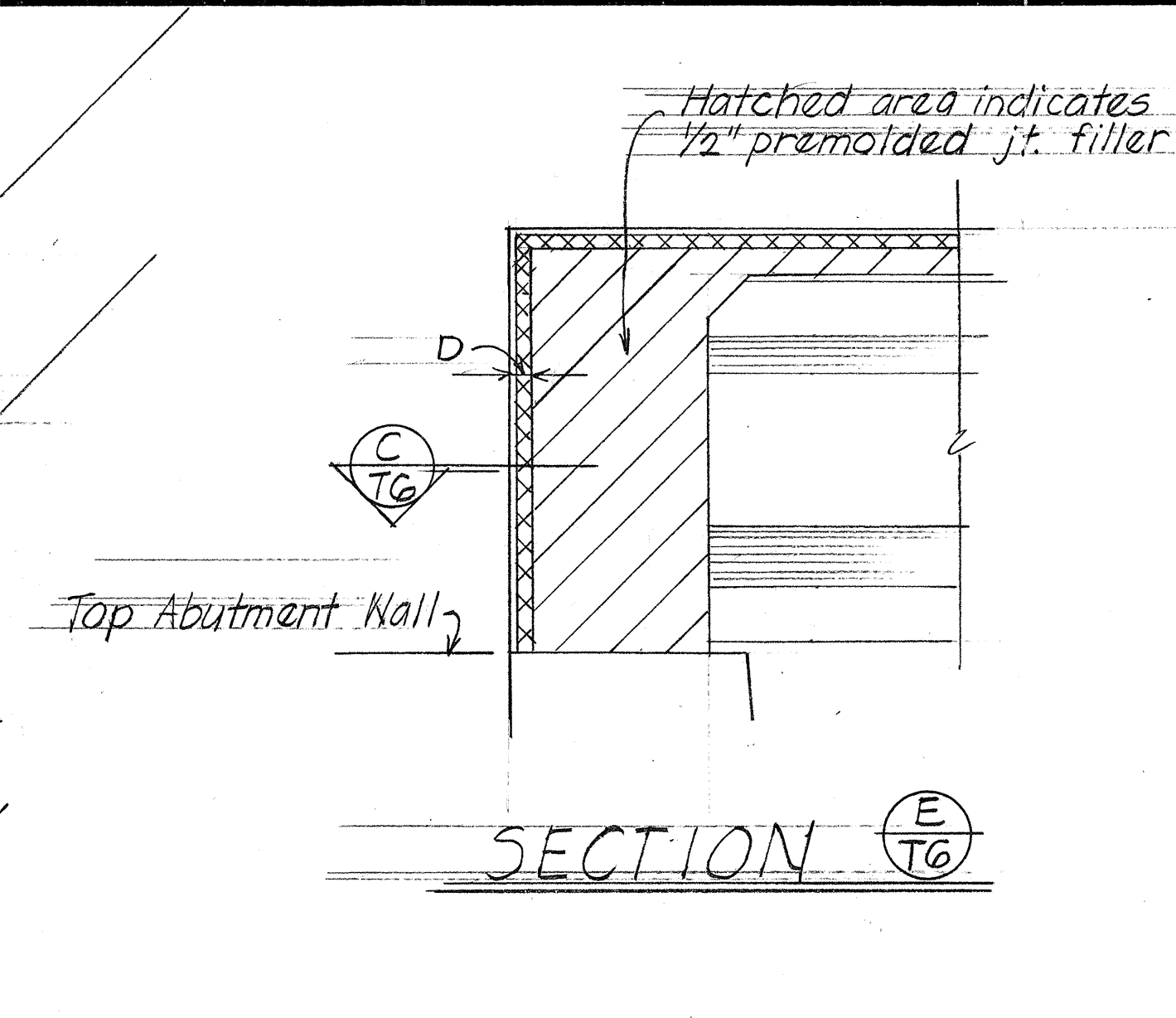
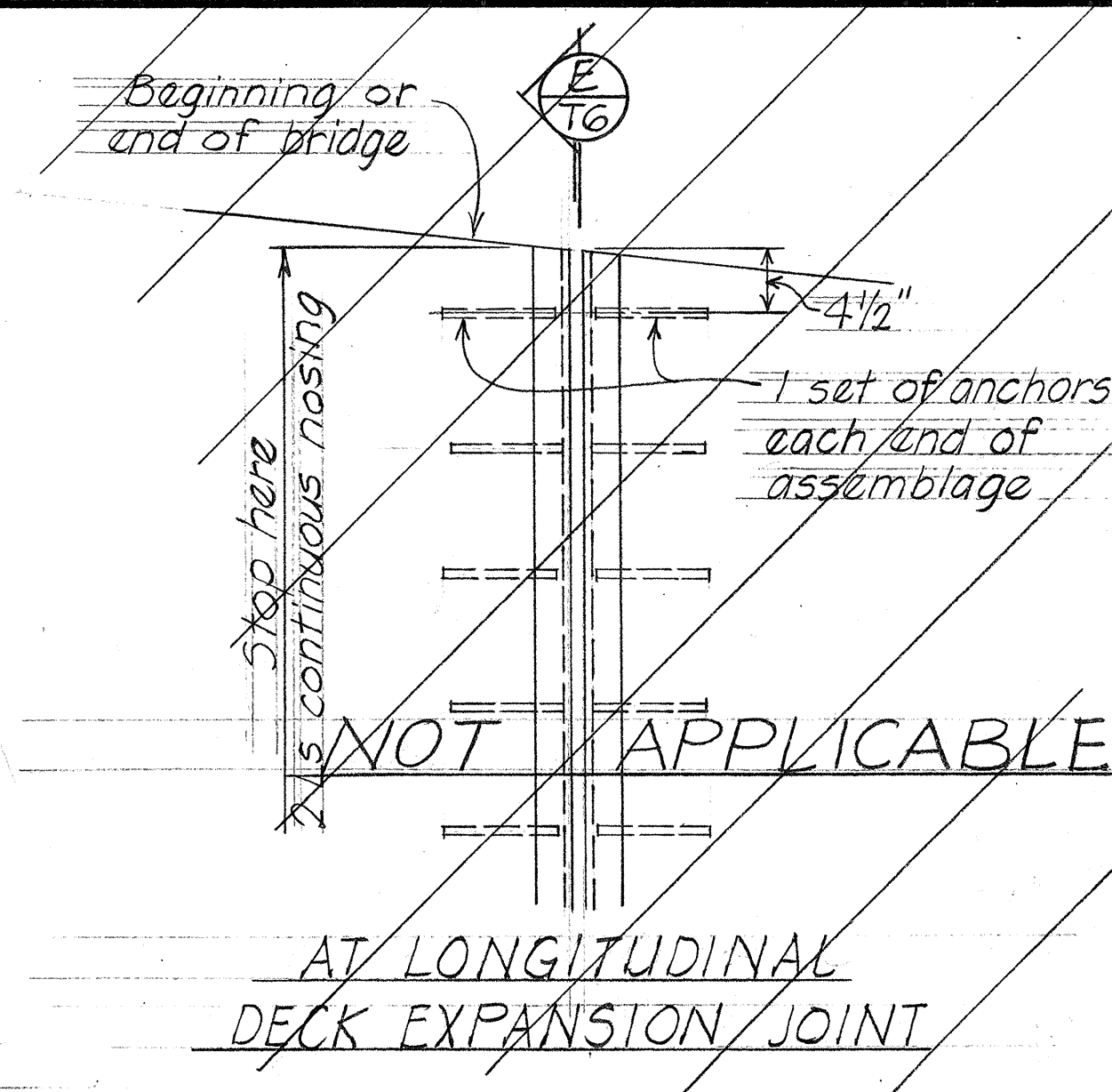
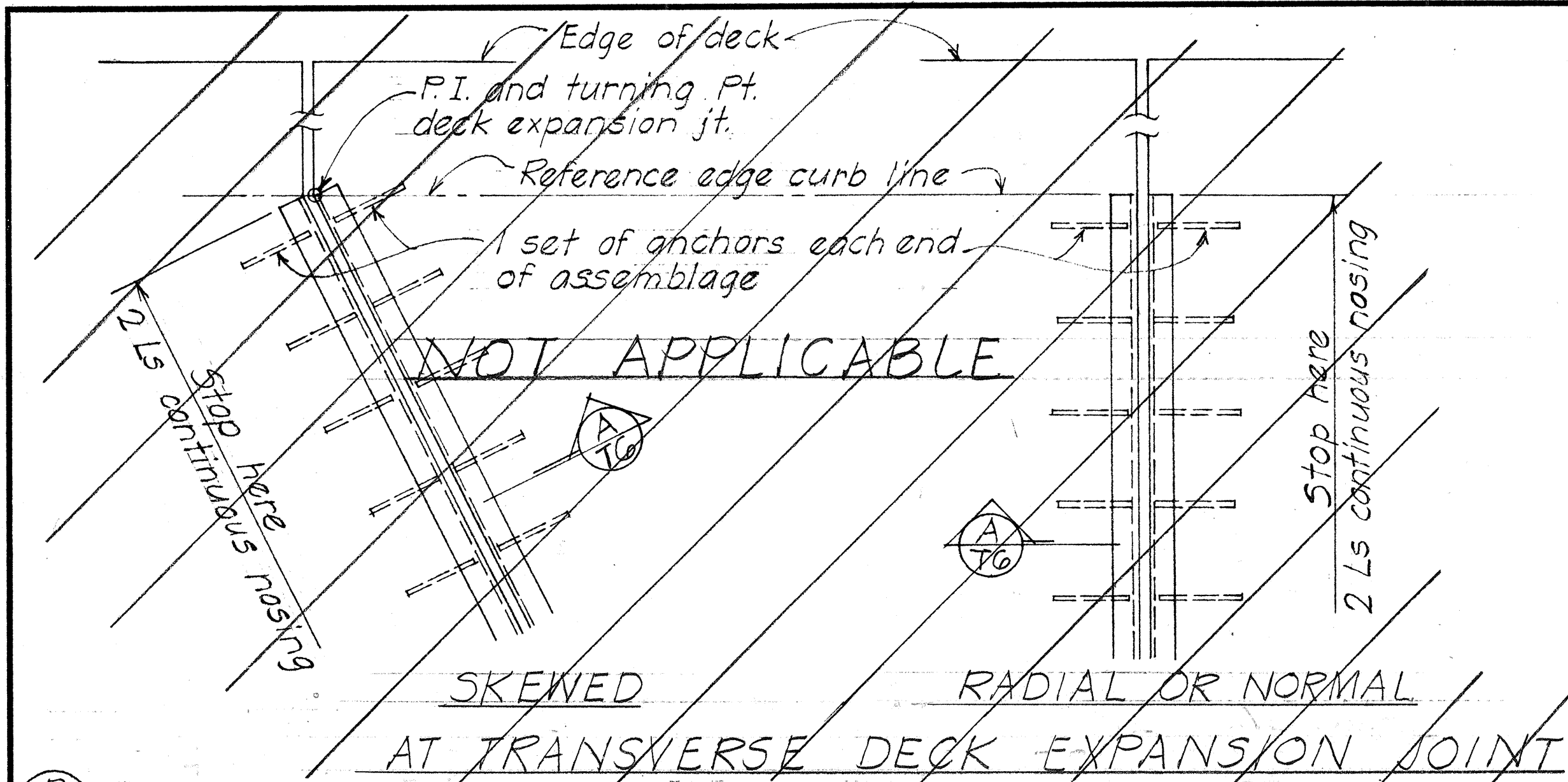
TYPICAL DETAILS
BEAM "D"
HALAWA INTERCHANGE
STRUCTURE NO. 10

Project No. _____ May 1970

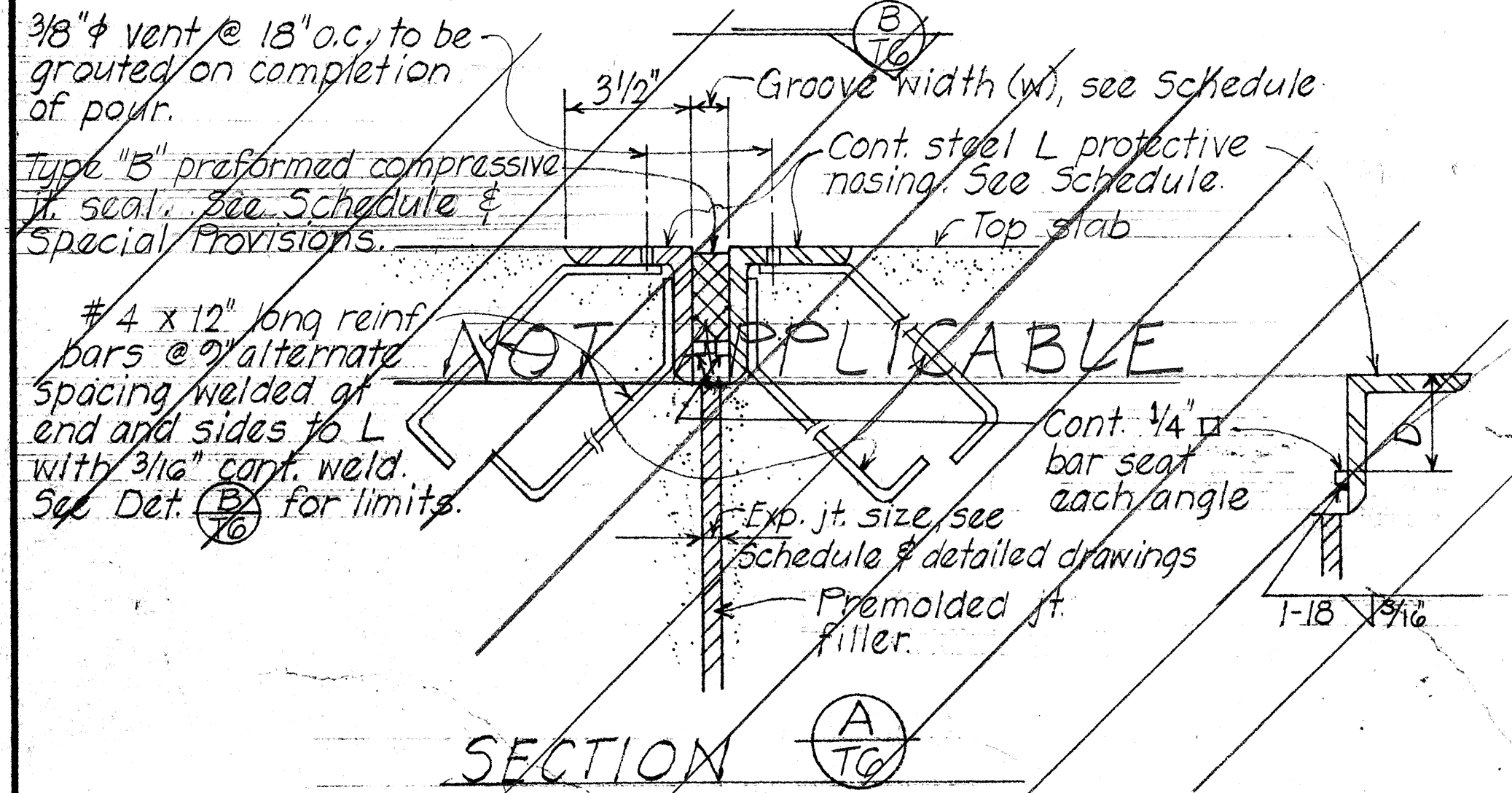
SHEET No. T-5 OF 6 SHEETS

DATE	_____
DESIGNED BY	_____
TRACED BY	_____
NOTED BY	_____
CHECKED BY	_____
ORIGINAL PLAN	_____
NOTE BOOK	_____
No.	_____

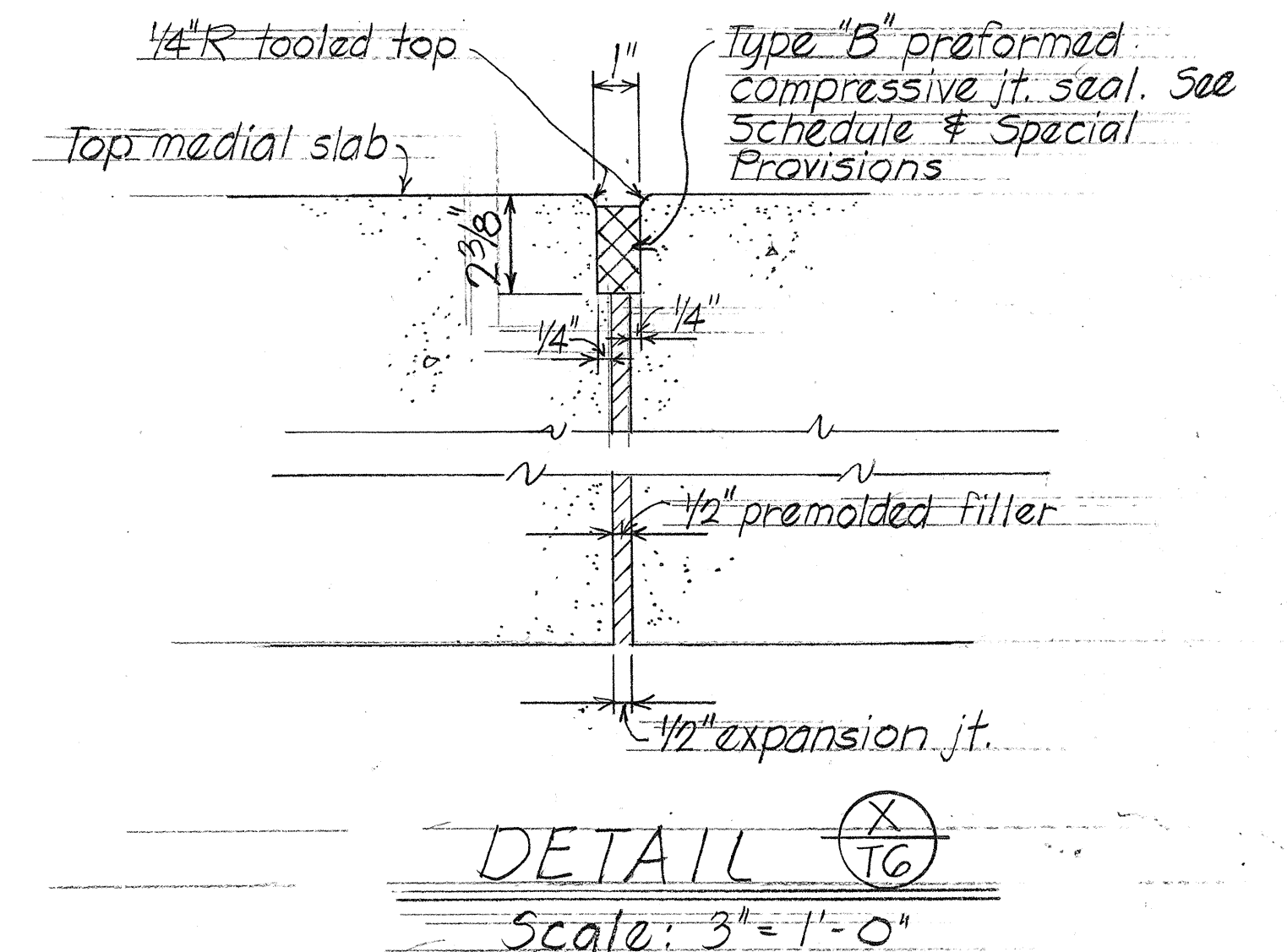
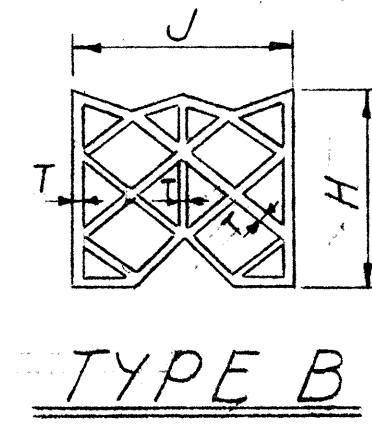
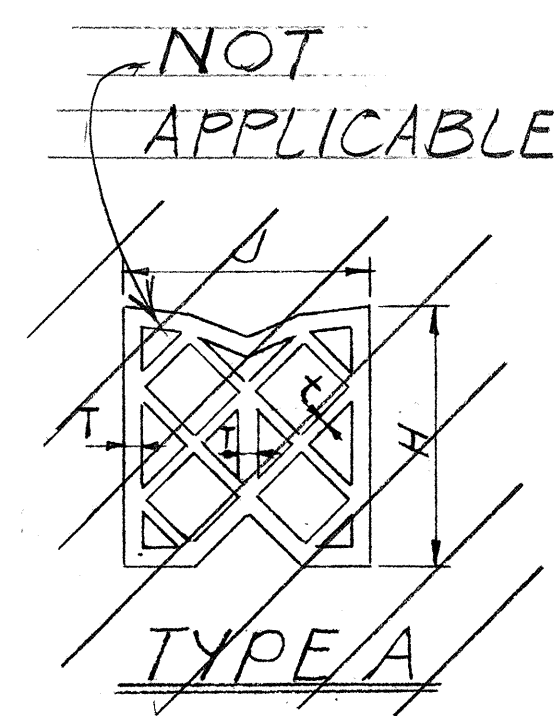
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HIT(87)13	1970	181	244



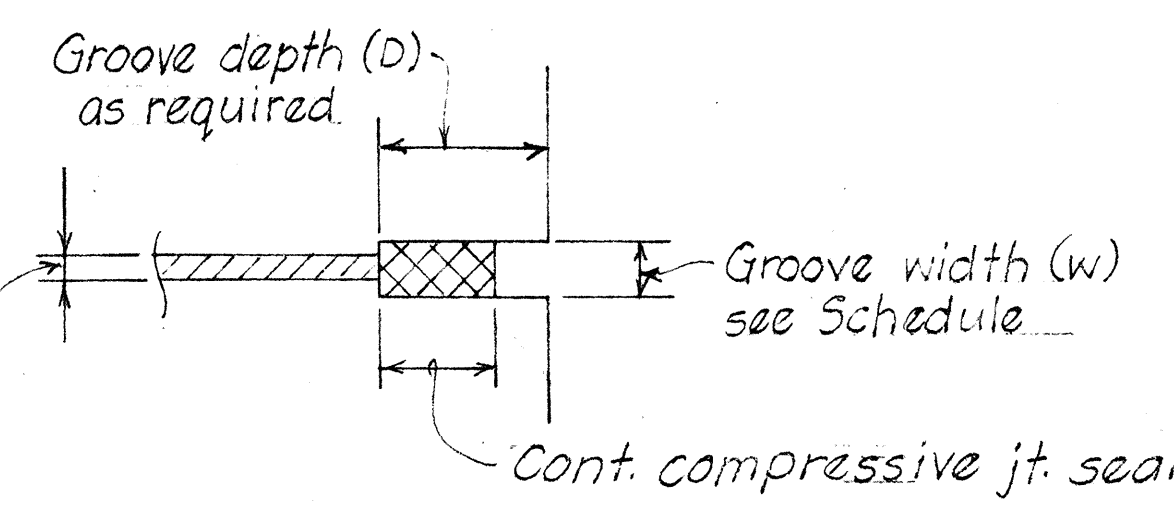
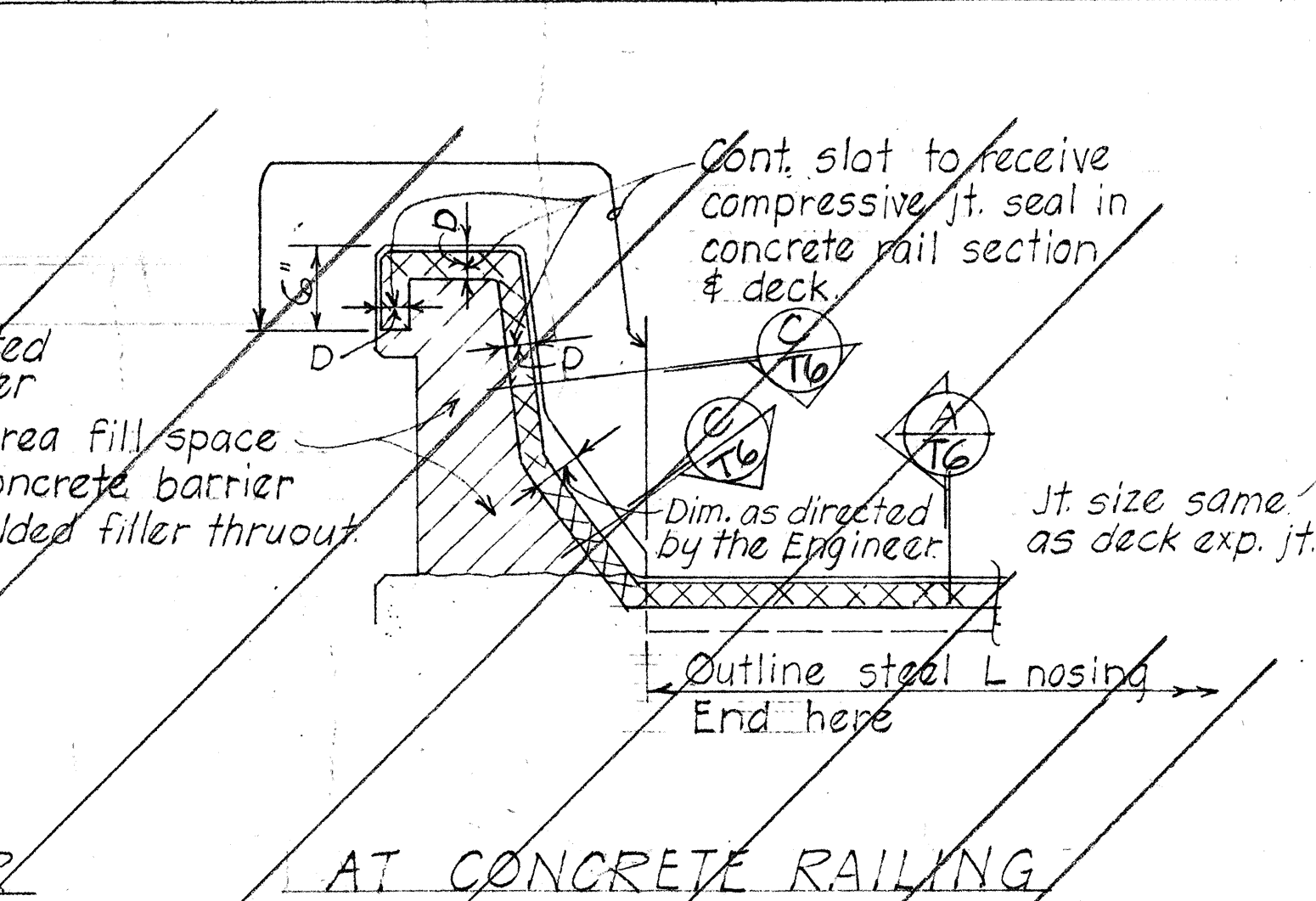
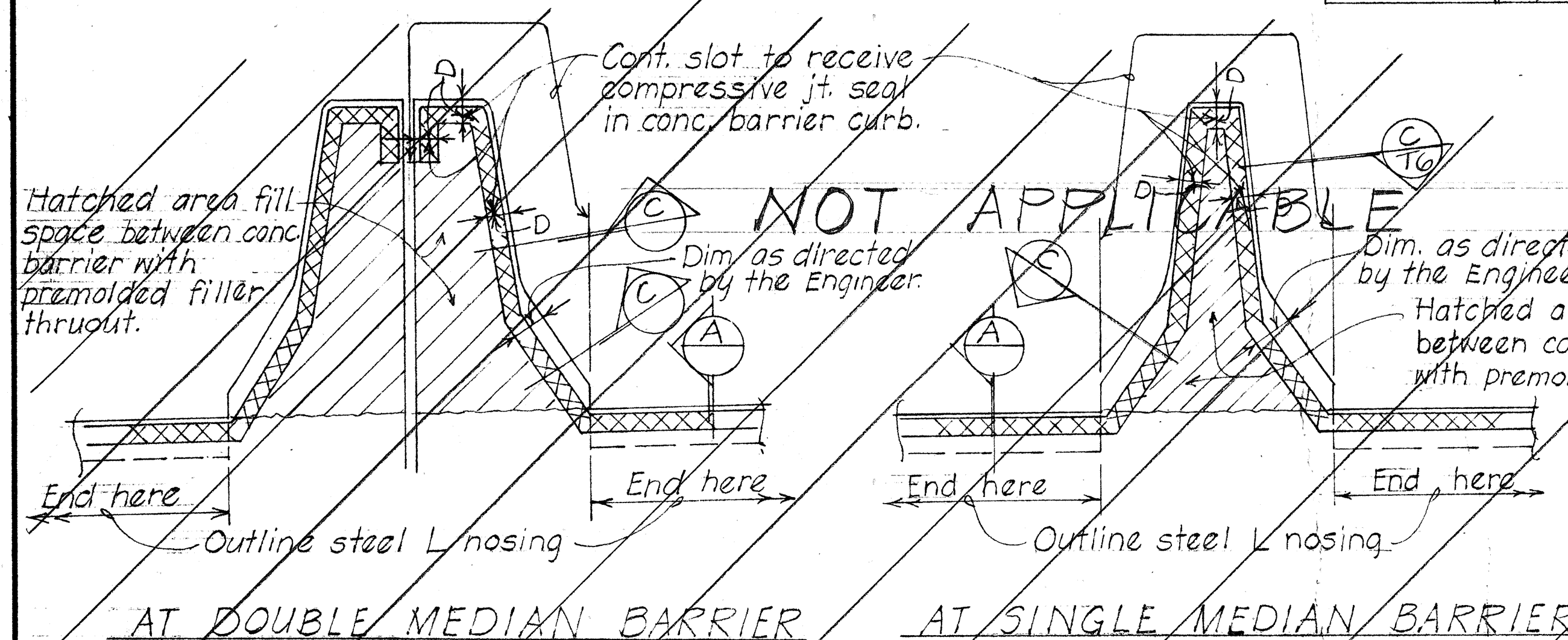
PLAN-LIMITS OF DECK STEEL ANGLE PROTECTIVE NOSING



Exp. Jt. Size	Steel Angle Protective Nosing	Groove Size		Size of Joint Seal
		W	D	
1/2"	3 1/2" x 3 1/2" x 1/2"	1"	2 3/8"	①
5/8"	3 1/2" x 3 1/2" x 1/2"	1"	2 3/8"	①
3/4"	4" x 3 1/2" x 1/2"	1 1/8"	2 3/4"	②



Size of Joint Seal	JOINT SEALER DIMENSIONS & TOLERANCES									
	Type	J	H	T	t	Type	J	H	T	t
①	A	1 3/4 ^{+3/16} ₋₀	2 ^{+1/8} ₋₀	1/8 ^{+1/32} _{-1/64}	3/32 ^{+1/64} _{-1/32}	B	1 3/4 ^{+3/16} ₋₀	1 3/4 ^{+3/16} ₋₀	5/64 ^{+1/32} _{-1/64}	—
②	A	2 ^{+3/16} ₋₀	2 1/8 ^{+1/8} ₋₀	1/8 ^{+1/32} _{-1/64}	3/32 ^{+1/32} _{-1/64}	B	2 ^{+3/32} ₋₀	2 ^{+1/8} ₋₀	7/64 ^{+1/32} ₋₀	—
	NOT APPLICABLE									



COMPRESSIVE SEAL WATERPROOFING DETAILS TYPICAL EXPANSION JOINT WATERPROOFING DETAILS

6/25/70

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

TYPICAL DETAILS

DECK EXPANSION JOINT

HALAWA INTERCHANGE

STRUCTURE #10

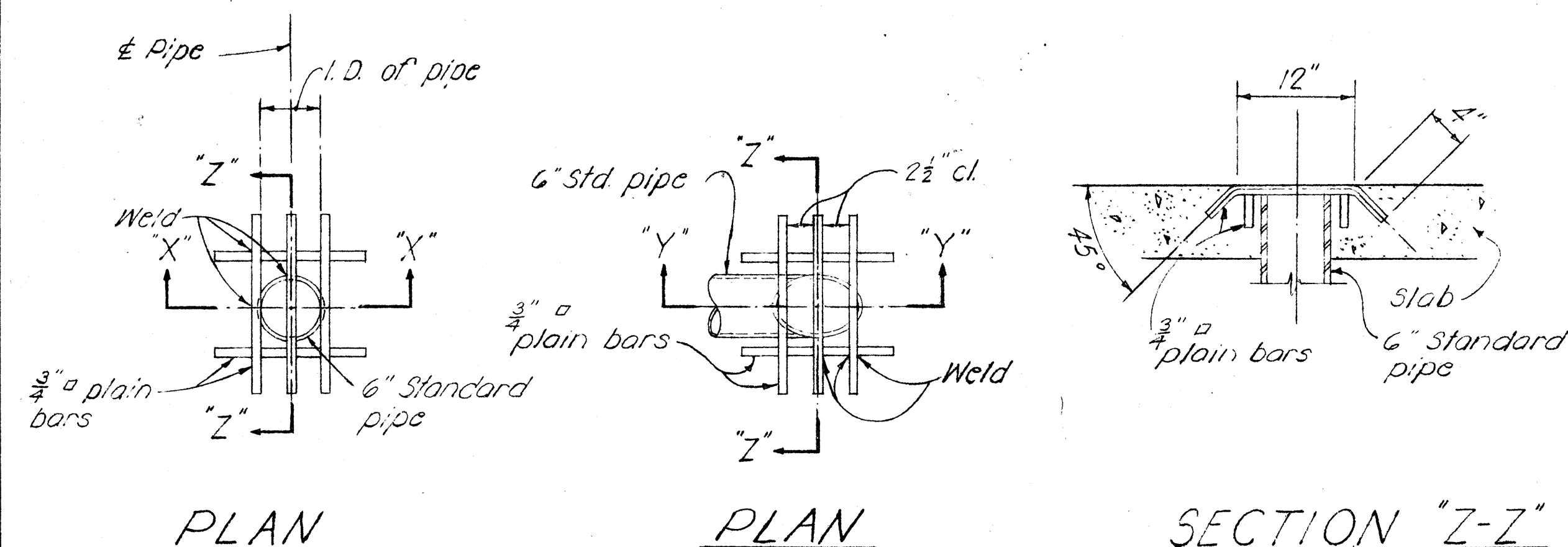
Proj. No

May 1970

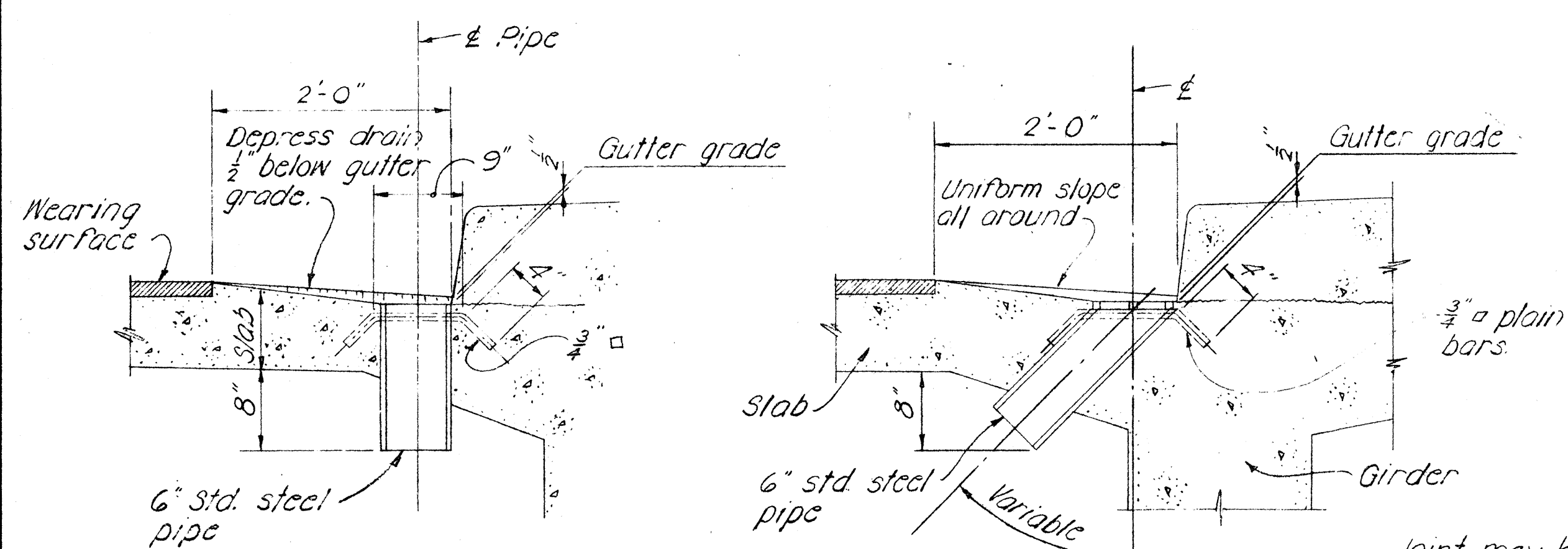
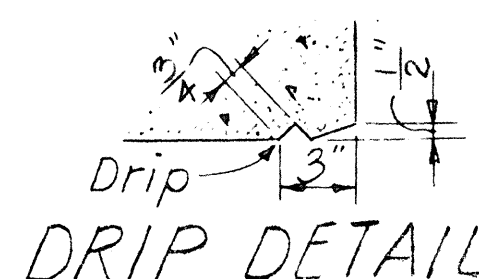
SHEET No. 7-6 OF 6 SHEETS

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 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 caps 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.

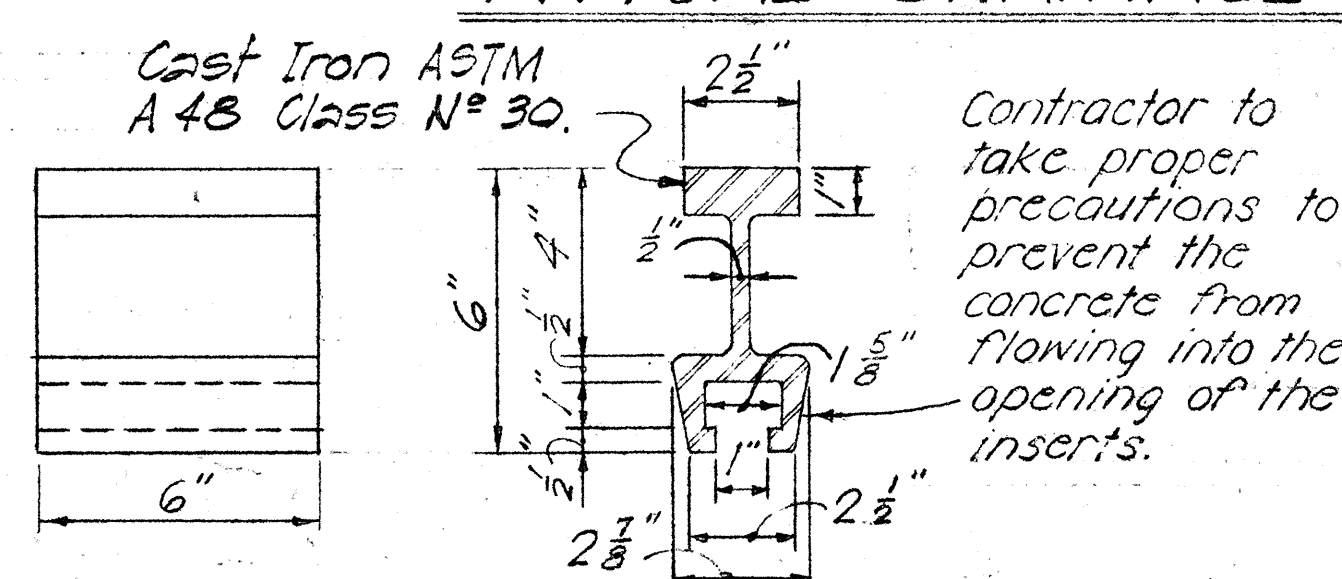


TYPICAL CONCRETE GROOVE DETAIL

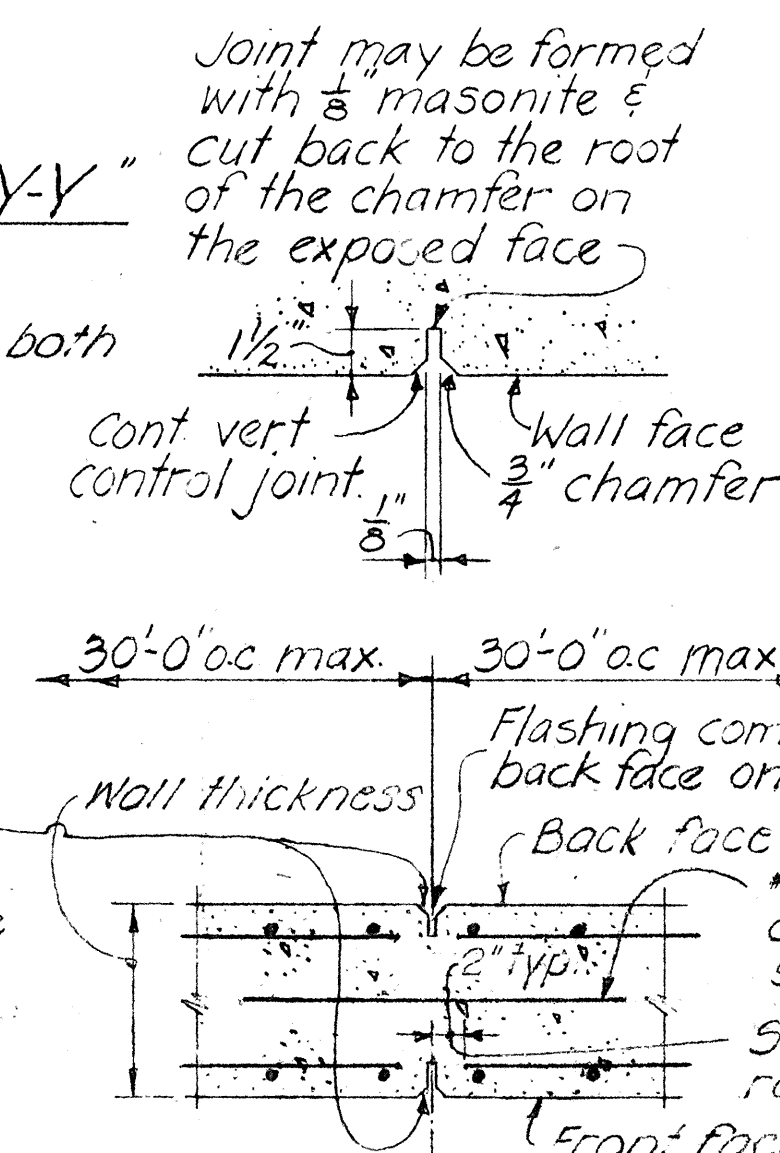


NOTE: Metal drains shall be considered incidental to Class A Concrete in both concrete and steel bridges and will not be paid for separately. Assemblage of grillage and pipe shall be hot-dip galvanized after all welding is completed.

TYPICAL DRAINAGE DETAILS

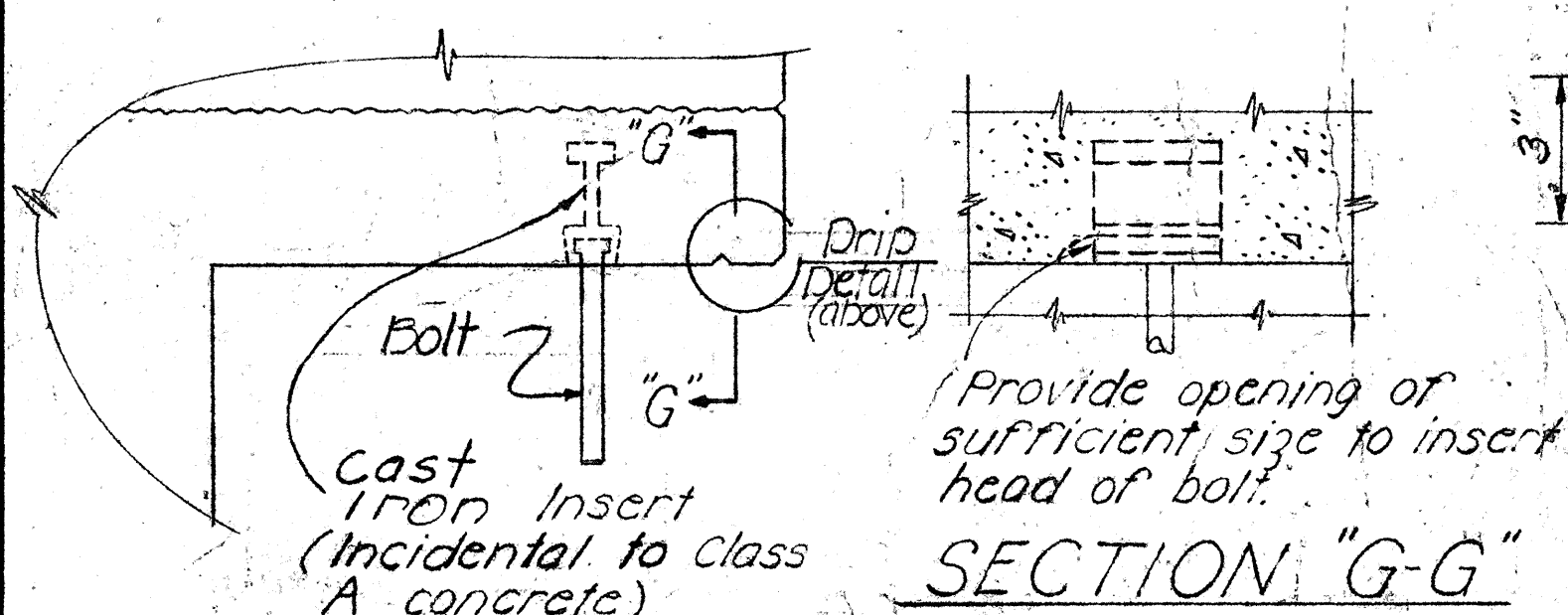
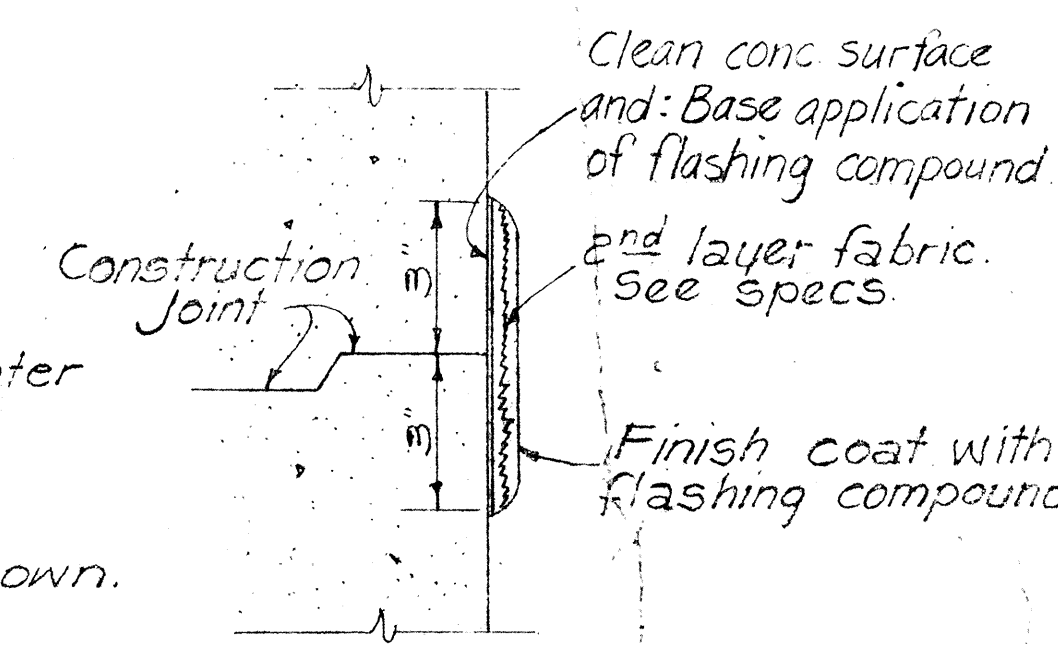


Vert. control joint on each face of wall to top of footing. See above detail and as directed by the Engineer.

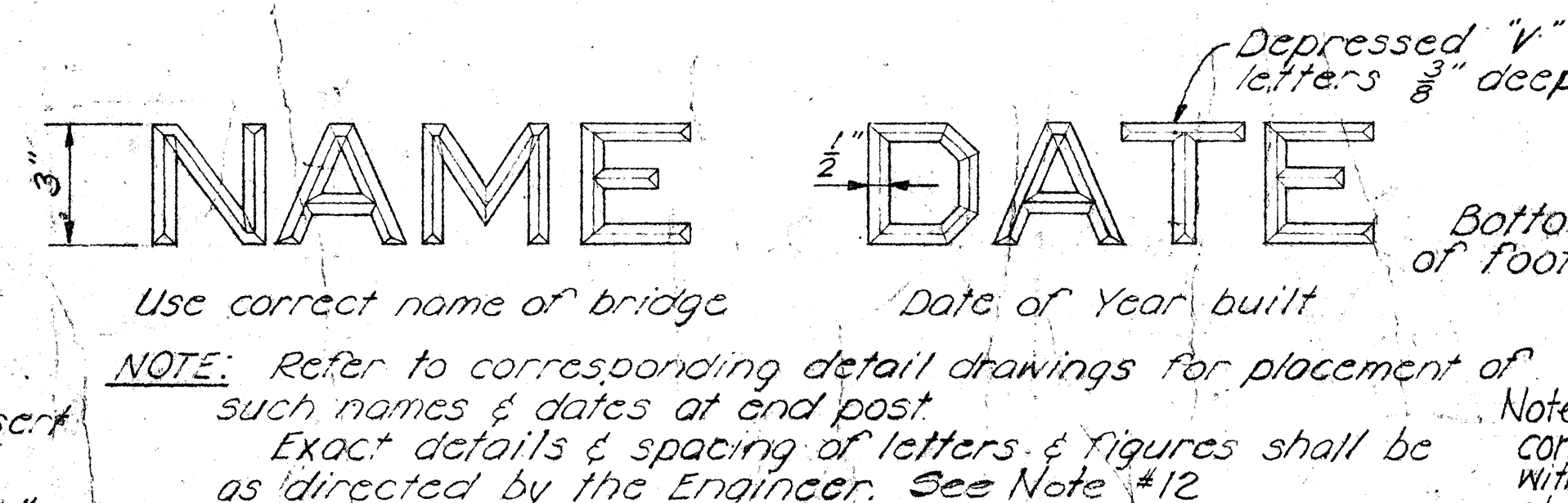


CONTROL JOINT DETAILS

TYP. FLASHING COMPOUND WATERPROOFING DETAIL



SECTION "G-G"



TYPICAL EXCAVATION FOR CONTINUOUS FOOTING STEP-UP

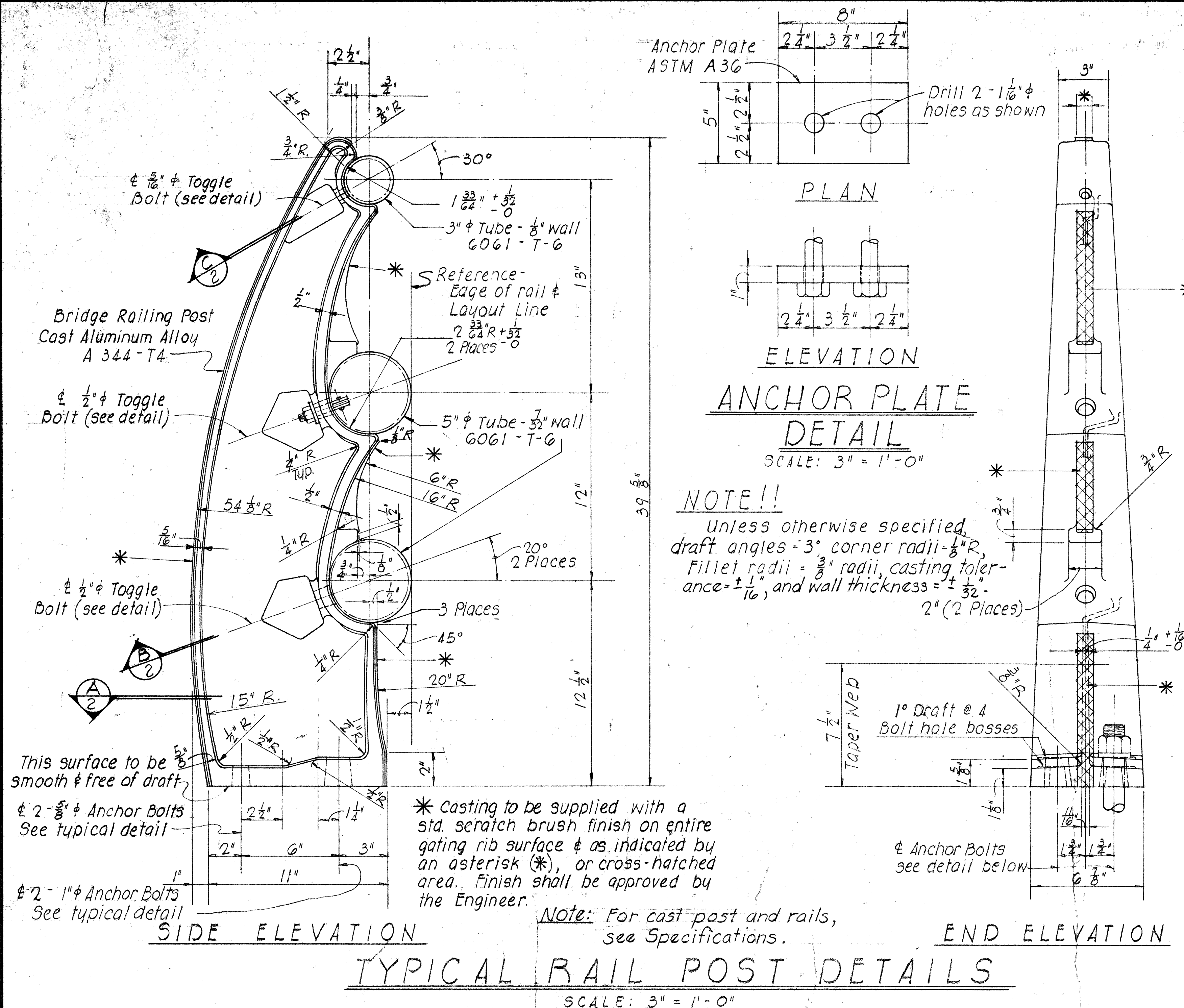
APPROVAL RECOMMENDED:
Paul T. Umaschita
BRIDGE DESIGN ENGINEER
1-23-70
DATE

APPROVED
Paul T. Umaschita
Fr ASSISTANT CHIEF, ENGINEERING
1-28-70
DATE

NO.	REVISION	APPROVED BY	DATE

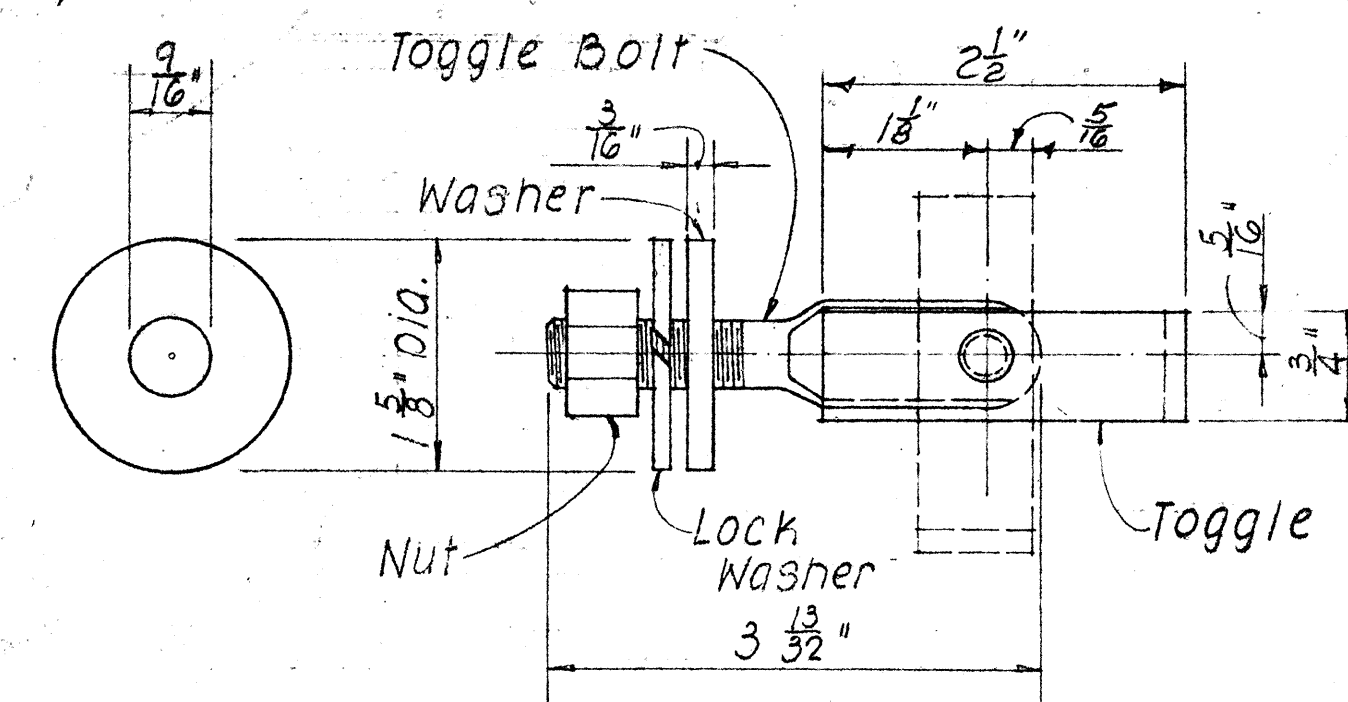
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
NOTES AND MISCELLANEOUS
DETAILS

Date: October 1969
SHEET No. 1 OF 1 SHEETS DB-100

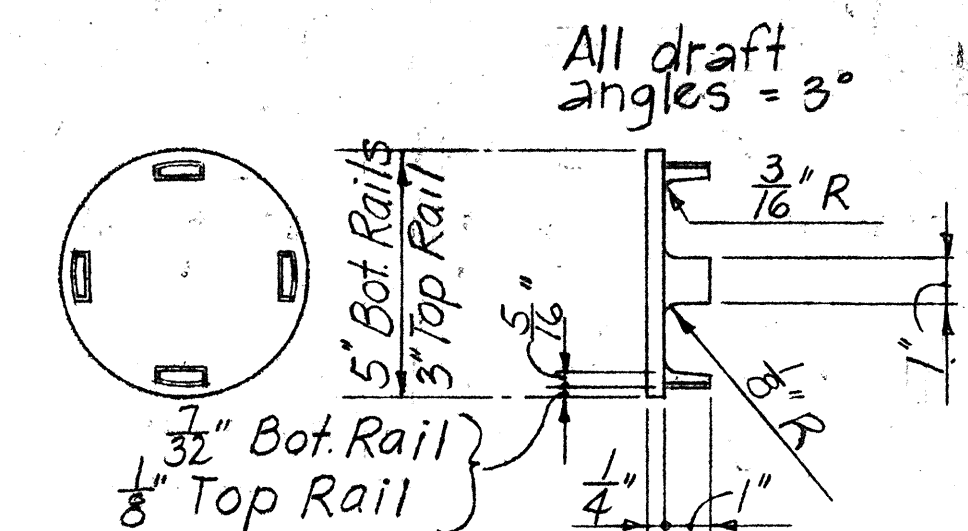


NOTE:

Toggle Bolt- Cadmium plating on steel- Type NS 0.0005" thick
ASTM- A165 (all parts).



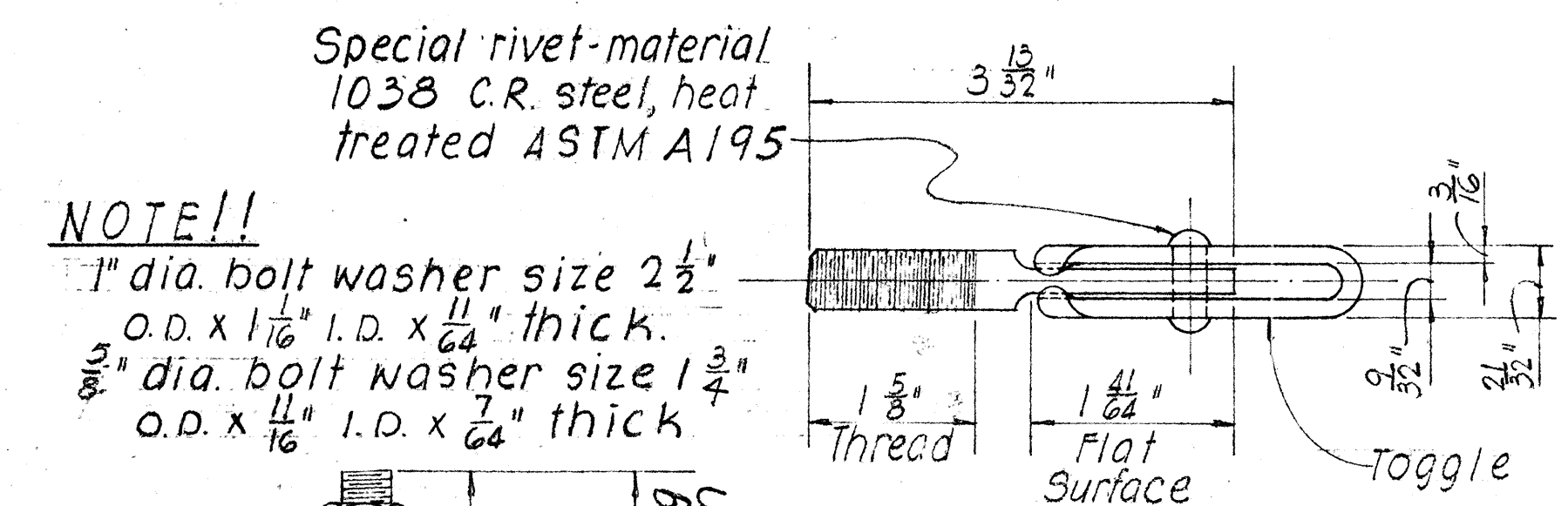
WASHER SIDE ELEVATION ASSEMBLAGE



RAIL CAP DETAIL

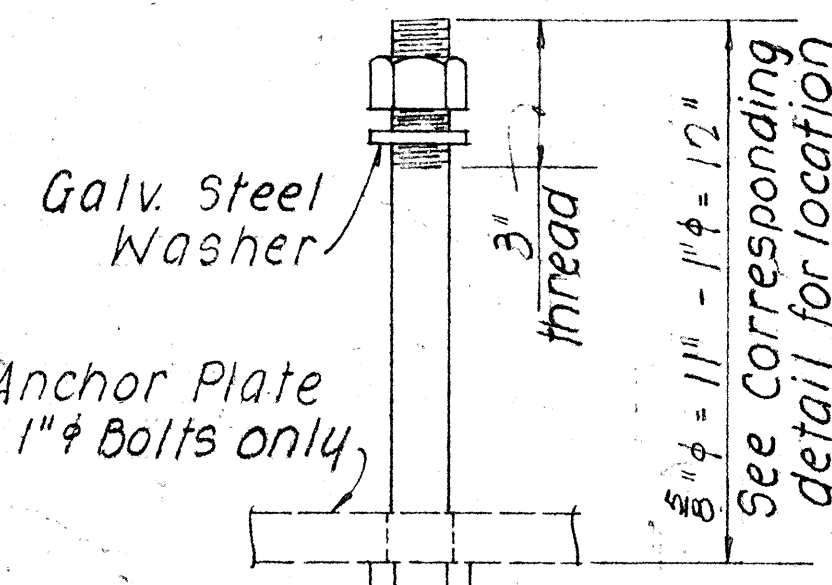
SCALE: 3" = 1'-0"

General Note: Metal bridge railing shown is for aluminum bridge railing. See Specifications for alternate railing in steel.



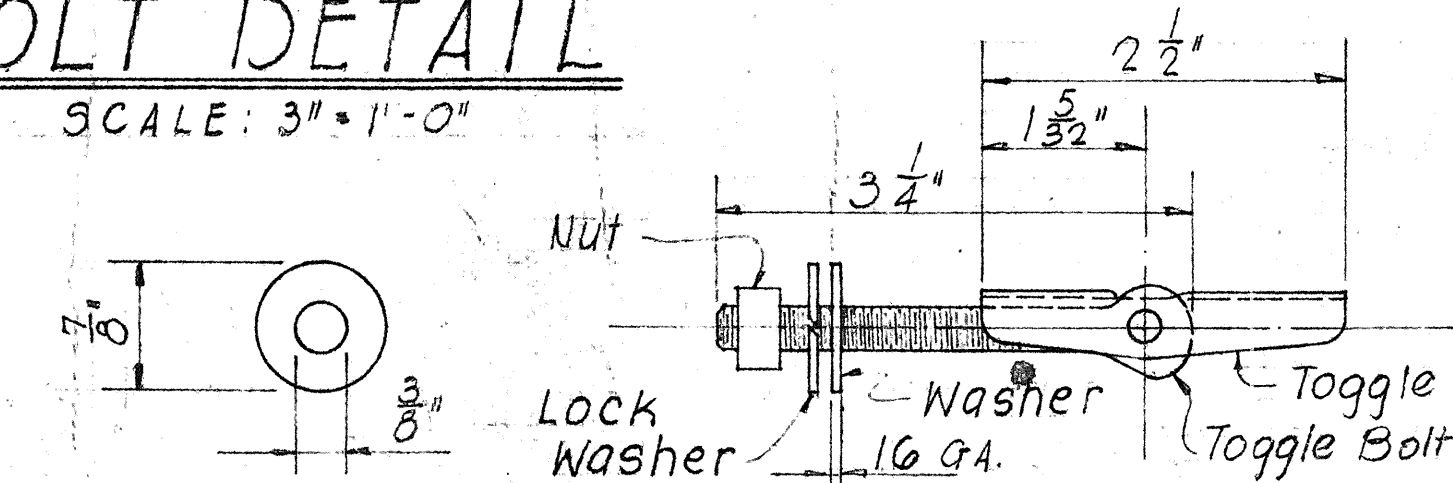
TOP PLAN

1/2" ϕ STEEL TOGGLE BOLT DETAIL



TYPICAL ANCHOR BOLT DETAIL

SCALE: 3" = 1'-0"



WASHER ELEVATION ASSEMBLAGE

$\frac{5}{16}$ " ϕ STEEL TOGGLE BOLT DETAIL

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

APPROVED Paul T. Yamashita 1-28-70
For ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

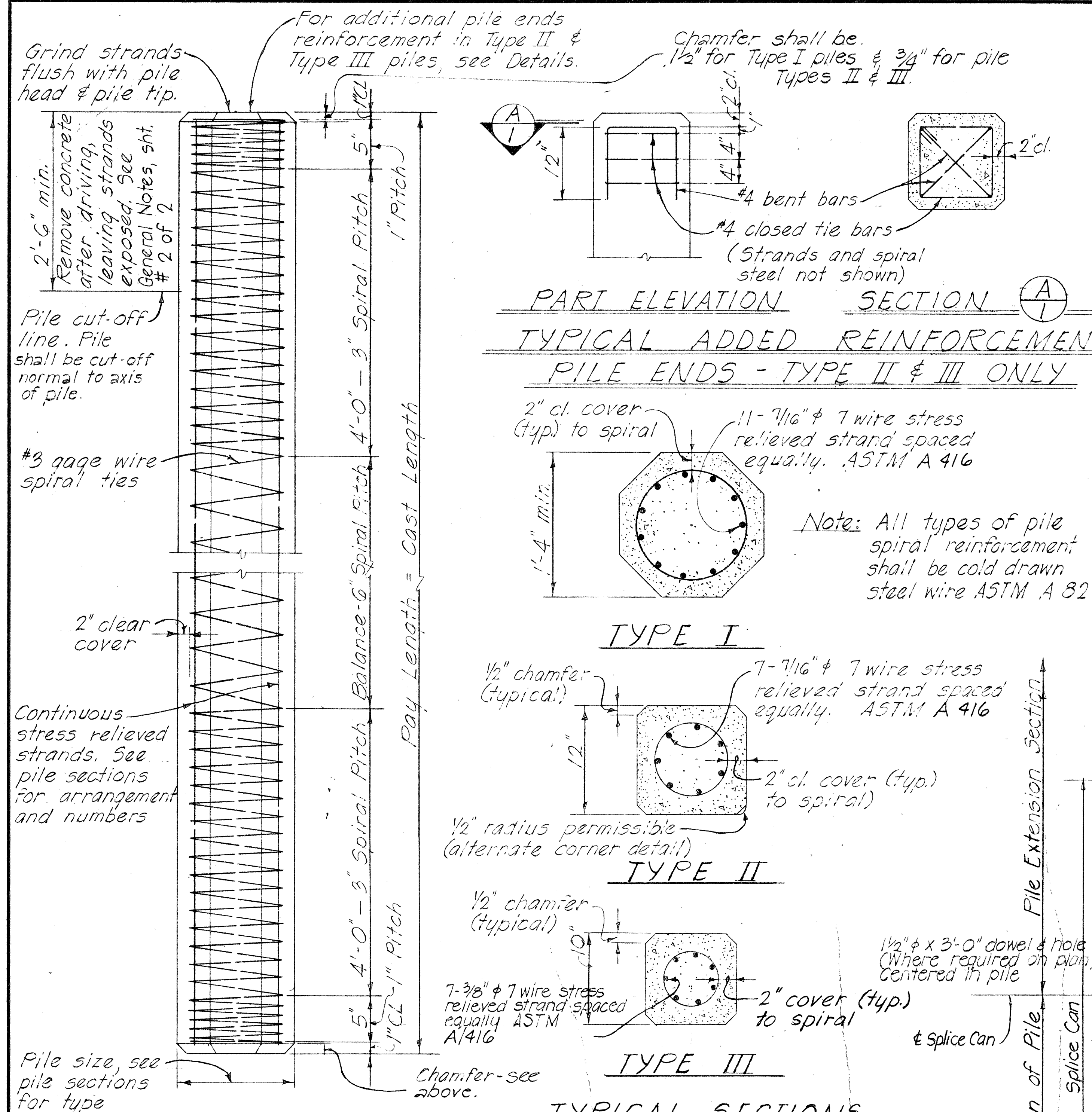
STANDARD DETAILS

METAL BRIDGE RAILING

THREE RAIL COMBINATION TYPE

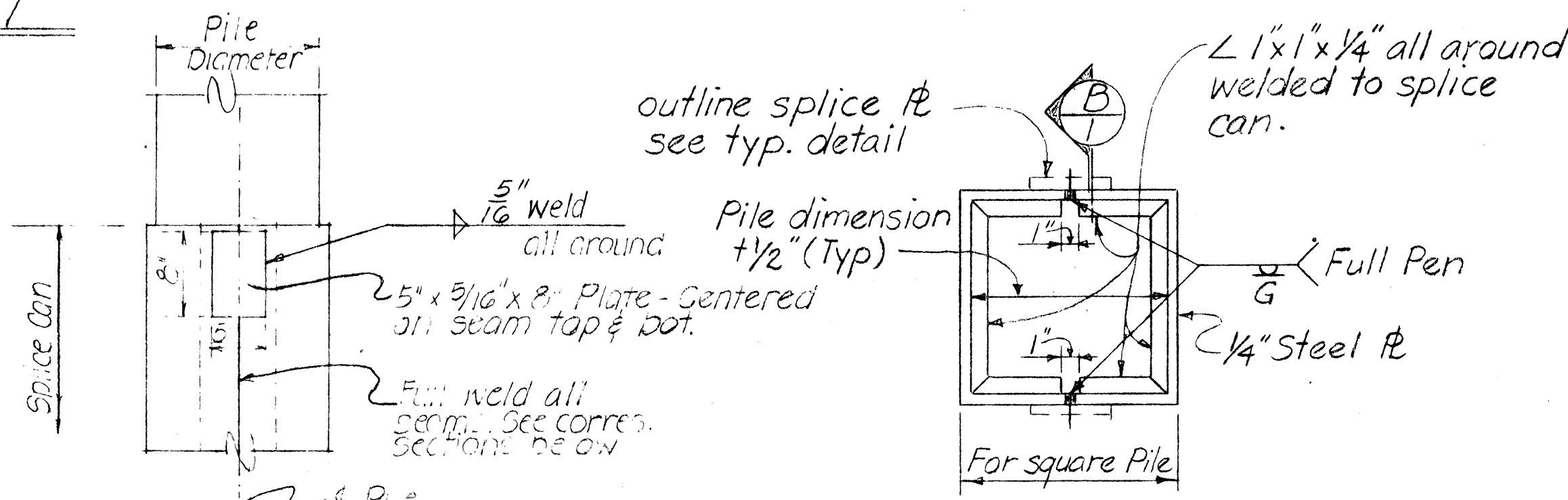
Date

SHEET No. 2 OF 2 SHEETS DB-203-2

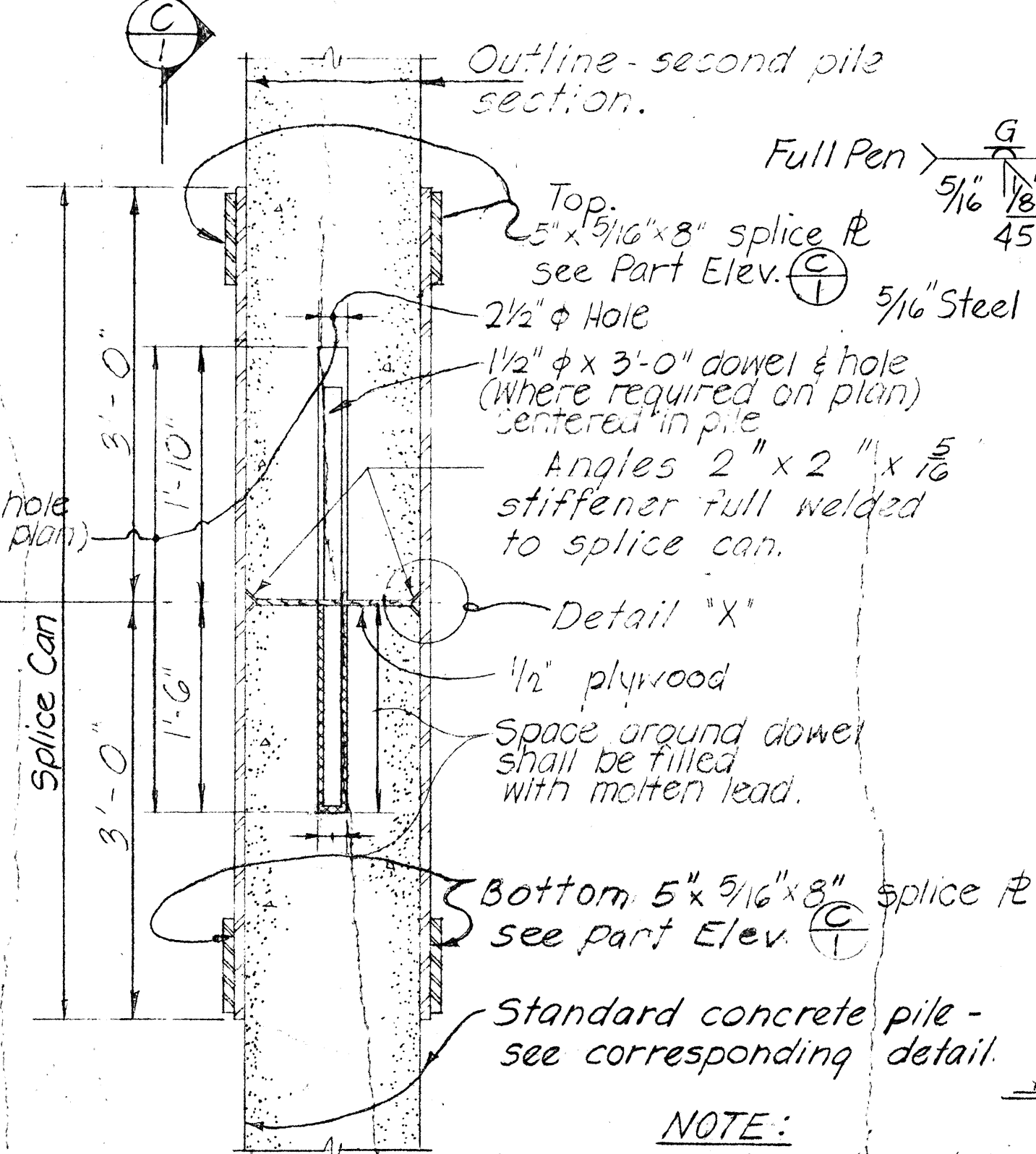


NOTE:

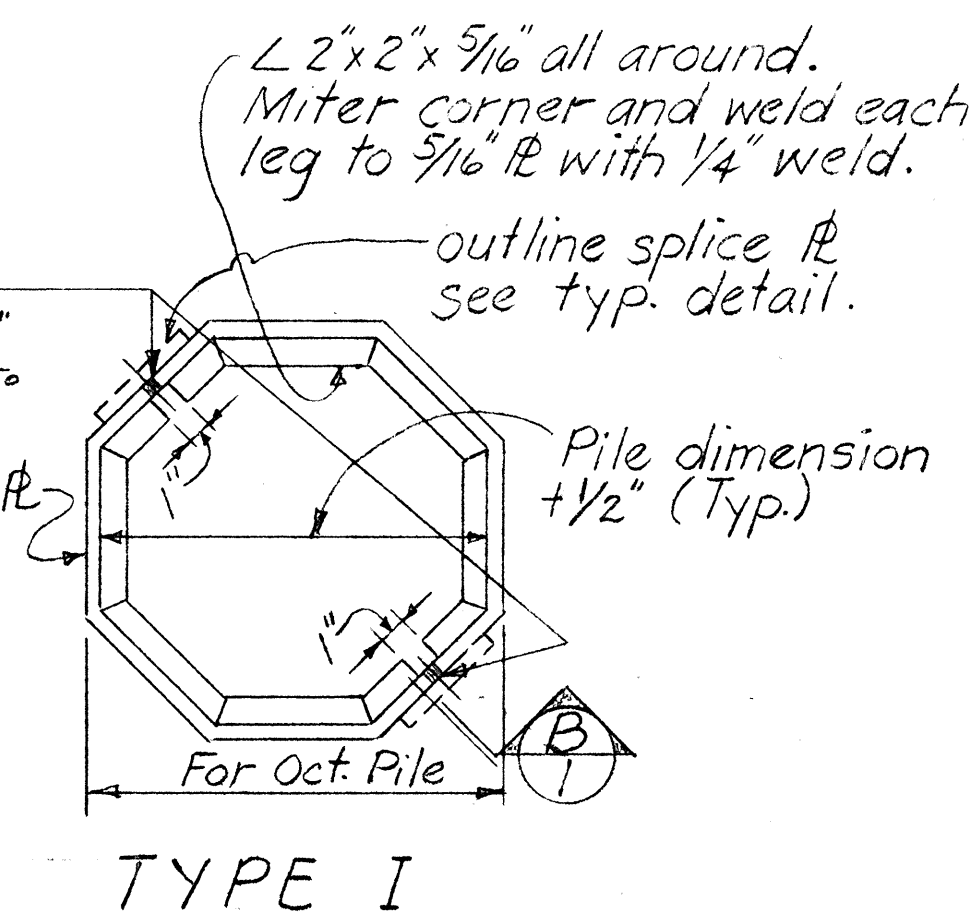
Concrete in pile build-ups without driving shall be Class A Concrete. Concrete in pile build-ups with driving shall have a minimum compressive cylinder strength f'_c of 5000 p.s.i. at 28 days. Build-ups may be driven if the specimen of concrete from which the piles were poured develops a strength of at least 3500 p.s.i. but not earlier than 7 days.



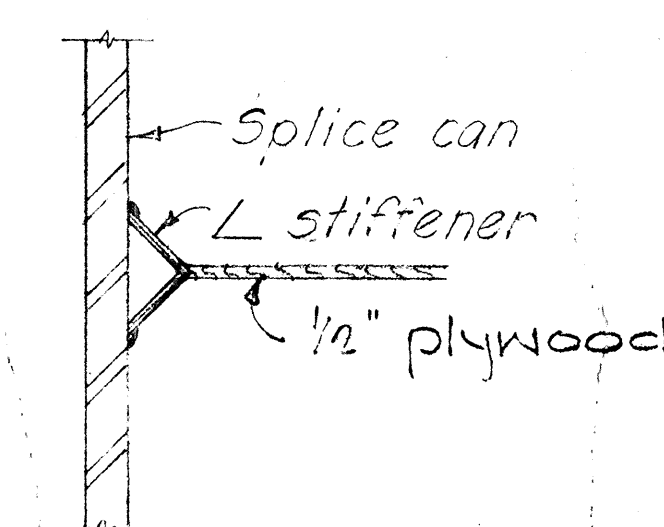
PART ELEV.
 (TYP. CAN SLICE ~~RE~~)



TYPE II & III



TYPE I



DETAIL X

NOTE:

1. Splice detail shown above shall not be used except for pile length in excess of 100'-0" long.
2. Structural steel for splice can shall be ASTM A36.

SECTION B
1

TYPICAL PILE SPLICE DETAILS
(FOR PRESTRESSED CONCRETE PILES,
WHEN CAST IN TWO OR MORE SECTIONS)

NOTE: All welding shall conform to the Specifications for "Welded Highway and Railway Bridges" of the American Welding Society.

NO.	REVISION	APPROVED BY	DATE

APPROVAL RECOMMENDED:

Paul T. Yamashita
BRIDGE DESIGN ENGINEER

APPROVED

APPROVED Paul T. Yamashita
ASSISTANT CHIEF, ENGINEERING

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

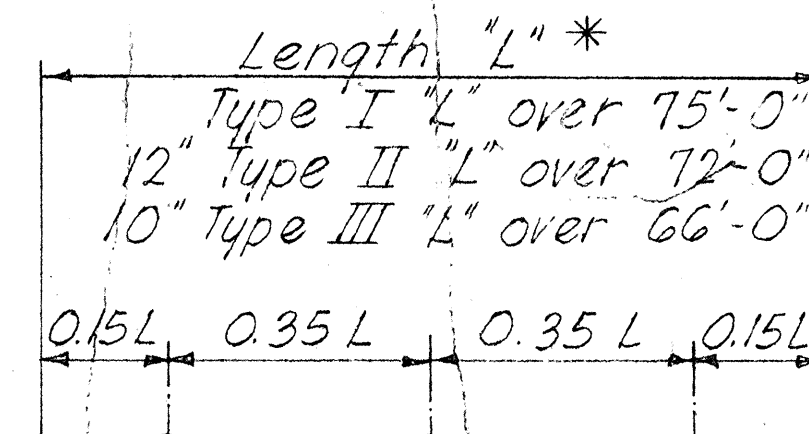
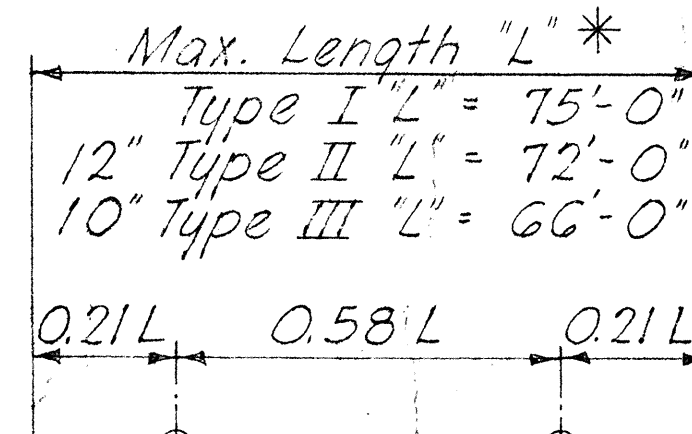
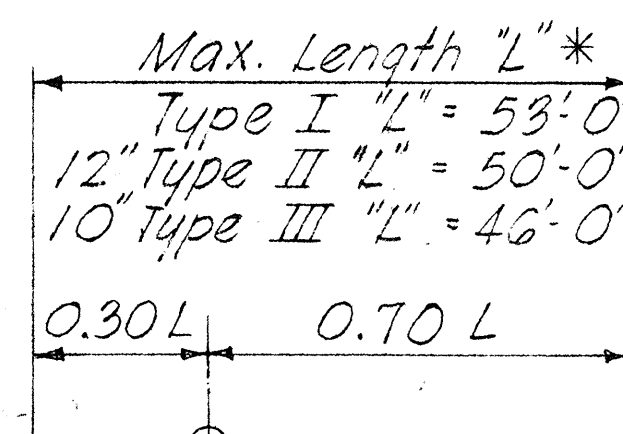
PRESTRESSED CONCRETE PILES

Date:

SHEET No. 1 OF 2 SHEETS DB-300-1

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TYPICAL PILE DETAIL



* The length "L" is the distance end to end of pile.

TYPICAL SECTIONS THRU PILES

1 POINT PICK-UP

2 POINT PICK-UP

B POINT PICK-UP

NOTE: Unless special lifting devices are attached for pick-up points, pick-up points shall be plainly marked on all piles after removal of the forms and all lifting shall be done at these points. The use of special embedded or attached lifting devices, the employment of other pick-up points or any other method of pick-up shall be subject to approval by the Engineer.

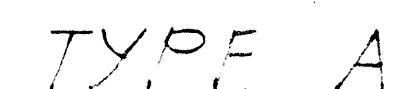
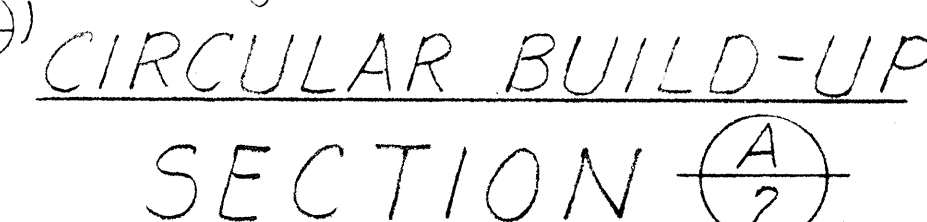
3" min. unless otherwise directed by the Engineer. Remove concrete after driving, leaving reinf. exposed

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Chamfer - See Typical Pile Detail.



Circular section may be used instead of square section if approved by the Engineer.



Selection of pile build-up type without driving to be determined by the Engineer.

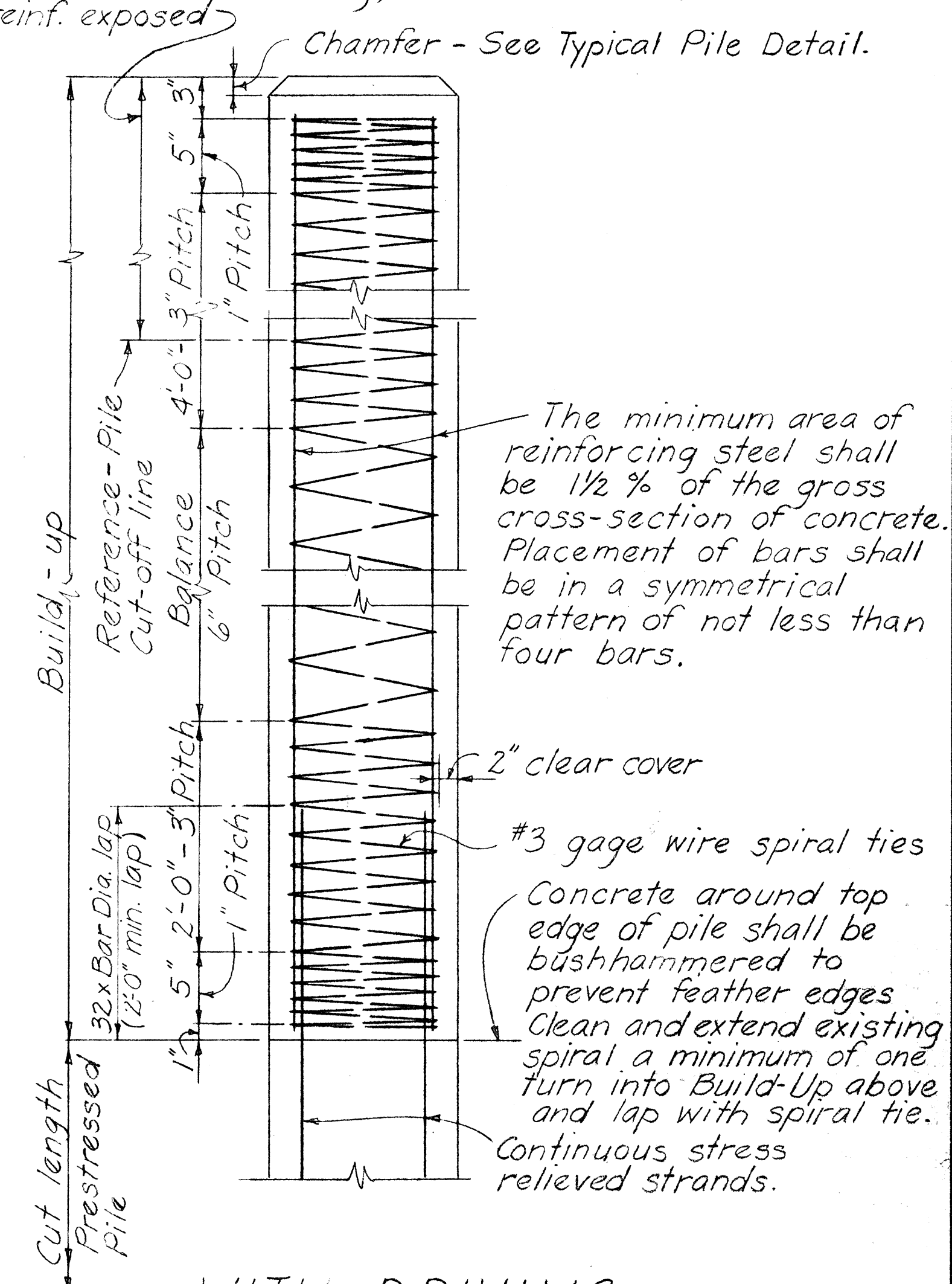
When height of depressed portion of footing (H) exceeds 4', the depressed section shall be poured separately from the main body of the footing.

Depressed portion of footing may be omitted for pile heads embedded at least 4" into footing provided at least 90% of the piles in each footing have the minimum embedment into footing as shown in contract plans.

WITHOUT DRIVING
TYPICAL PILE BUILD-UP DETAILS

GENERAL NOTES

1. Work of cutting off prestressed conc. piles or concrete build-ups shall be performed in such a manner as to avoid spalling or damaging the pile below cut-off. In case of such damage, the pile shall be replaced or repaired by the Contractor at his expense as directed by the Engineer.
2. Portion of pile embedded into footing shall be of sound concrete. Damaged portions shall be removed and pile cut-off elevation lowered as required by the Engineer.



WITH DRIVING
TYPICAL PILE BUILD-UP DETAIL

Paul T. Yamashita
BRIDGE DESIGN ENGINEER

1-23-70
DATE

For ASSISTANT CHIEF, ENGINEERING

1-28-
DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

PRESTRESSED CONCRETE PILES

Date: Oct. 1968

Date: Oct. 1968

SHEET No. 2 OF 2 SHEETS DB-300-2

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