

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1033	1981	123	159

1. GENERAL SPECIFICATIONS: HAWAII DEPARTMENT OF TRANSPORTATION, STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 1976, TOGETHER WITH SPECIAL PROVISIONS PREPARED FOR THIS CONTRACT.
2. DESIGN SPECIFICATIONS: A.A.S.H.T.O. 1977 STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES AND ITS SUBSEQUENT INTERIM SPECIFICATIONS.
3. LOADS:
- (A) DEAD LOAD: AN ALLOWANCE OF 18 P.S.F. FOR FUTURE WEARING SURFACE OF ASPHALT CONCRETE HAS BEEN PROVIDED FOR IN THE DESIGN.
- (B) LIVE LOAD: HS20-44 OR INTERSTATE LOADING.
4. MATERIALS:
- (A) ALL CONCRETE SHALL BE CLASS A UNLESS OTHERWISE NOTED.
- (B) ALL REINFORCING STEEL SHALL BE A.S.T.M. A615, GRADE 40 UNLESS OTHERWISE NOTED.
- (C) ALL STRUCTURAL STEEL SHALL BE A.S.T.M. A-36, HOT DIP GALVANIZED, UNLESS OTHERWISE NOTED.
- (D) ALL ANCHOR BOLTS, WASHERS AND NUTS SHALL BE A.S.T.M. A-307, HOT DIP GALVANIZED, UNLESS OTHERWISE SPECIFIED.
- (E) FOR MATERIALS OF PRESTRESSED CONCRETE BEAM SEE PRESTRESSED CONCRETE NOTES.
5. DESIGN STRESSES: SHALL FOLLOW A.A.S.H.T.O. STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES IN ADDITION TO THOSE LISTED BELOW.

CONCRETE	CLASS A OR B D	ALL OTHERS (EXCEPT PRESTRESSED CONCRETE BEAMS AND UNLESS OTHERWISE NOTED ON THE PLANS)
F'C	3000 P.S.I.	5000 P.S.I.
FC	1200 P.S.I.	2000 P.S.I.
N	9	7

FOR PRESTRESSED CONCRETE BEAMS, SEE PRESTRESSED CONCRETE NOTES.

6. REINFORCEMENT:
- (A) THE MINIMUM COVERING MEASURED FROM THE SURFACE OF THE CONCRETE TO THE FACE OF ANY REINFORCING BARS SHALL BE AS FOLLOWS:
- A.1. DECK SLABS (FOR BOX GIRDERS, T-BEAMS, PRESTRESSED BEAMS)
- A. TOP BARS = 1 1/2"
- B. BOTTOM BARS = 1 1/4"
- A.2. BOX GIRDERS
- A. 1 1/4" TO STIRRUP FROM OUTSIDE FACES
- B. 1" TO STIRRUP FROM INSIDE FACES.
- A.3. FOR PRESTRESSED CONCRETE BEAMS SEE PRESTRESSED CONCRETE BEAM DETAILS.
- A.4. ABUTMENTS, PIERS AND RETAINING WALLS = 2"
- A.5. COLUMNS = 2" TO TIES
- A.6. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH = 3".
- A.7. CONCRETE EXPOSED TO SEA WATER = 4". (COLUMN PEDESTALS & FOOTINGS OF TYPE III PIERS).
- (B) REINFORCING BARS SHALL BE DETAILED IN ACCORDANCE WITH A.C.I. MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE HIGHWAY STRUCTURES UNLESS OTHERWISE NOTED.
- (C) MINIMUM CLEAR SPACING BETWEEN PARALLEL BARS SHALL BE 1 1/2 TIMES THE DIAMETER OF BARS (FOR NON BUNDLED 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.
- (D) ALL DIMENSIONS RELATING TO REINFORCING BARS (EG. SPACING OF BARS, ETC.,) ARE TO CENTERS OF BARS UNLESS OTHERWISE NOTED.
- (E) REINFORCING BARS SHALL BE SECURELY TIED AT ALL INTERSECTIONS AND LAP SPLICES EXCEPT WHERE THE SPACING OF INTERSECTIONS IS LESS THAN ONE FOOT IN EACH DIRECTION, IN WHICH CASE ALTERNATE INTERSECTIONS SHALL BE TIED.
- (F) VERTICAL COLUMN BARS SHALL BE ARRANGED IN SUCH A MANNER AS TO AVOID INTERFERENCE WITH PIER CAP BARS ABOVE AS DIRECTED BY THE ENGINEER.
7. ELASTOMERIC PADS: ~~BOTTOM OF BRIDGE BEARING PADS SHALL BE SECURED TO THE CONCRETE SEATS, TO PREVENT DISPLACEMENT, WITH ADHESIVES APPROVED BY THE ENGINEER.~~ (See Addendum)

8. CONSTRUCTION METHODS.
- (A) SEE STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.
- (B) IN GENERAL TOP OF CONCRETE DECK SLAB SHALL BE CONSTRUCTED TO FOLLOW THE ROADWAY VERTICAL AND HORIZONTAL CURVES.
- (C) FALSEWORK FOR PIER CAPS SHALL BE SUPPORTED BY THE PIER COLUMNS AND/OR PILE CAPS. IN NO INSTANCE SHALL FORM SUPPORTS BE CARRIED TO MUDSILLS, ETC. ON GRADE.
- (D) GIRDER CONCRETE SEATS RECEIVING ELASTOMERIC PADS SHALL BE POURED MONOLITHICALLY WITH SUPPORTING STRUCTURE. TOP OF CONCRETE SEATS SHALL BE FINISHED WITH A STEEL TROWEL TO A SMOOTH LEVEL SURFACE TO THE ELEVATION SHOWN ON THE PLANS.
- (E) SPREAD 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.
- (F) IN THE INSTALLATION OF ANCHOR BOLTS FOR BRIDGE BEARINGS, LIGHTING STANDARDS AND EXPRESSWAY BRIDGE SIGN STRUCTURES, THE CONTRACTOR SHALL PROVIDE RIGID TEMPLATES TO MAINTAIN THE PROPER LOCATIONS AND SHALL PROTECT SUCH ANCHOR BOLTS AT ALL TIMES DURING THE PERIOD OF CONSTRUCTION. METHODS SHALL BE APPROVED BY THE ENGINEER.
- (G) EXCEPT AS OTHERWISE NOTED, ALL VERTICAL DIMENSIONS ARE MEASURED PLUMB.

9. GENERAL
- (A) ALL ITEMS NOTED INCIDENTAL WILL NOT BE PAID FOR SEPARATELY.
- (B) THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITY LINES AND NOTIFY THE RESPECTIVE OWNERS BEFORE COMMENCING THE WORK OF EXCAVATION OR THE DRIVING OF PILES, INCLUDING ANY TEMPORARY PILING OR SHEETING.
- (C) FOR CONCRETE FINISH SEE STANDARD SPECIFICATIONS AND FOR ARCHITECTURAL TREATMENT OF COLUMNS, SEE DETAILS.
- (D) CONSTRUCTION JOINTS MAY BE RELOCATED OR ADDITIONAL ONES ADDED SUBJECT TO THE APPROVAL OF THE ENGINEER.
- (E) UNLESS OTHERWISE NOTED, ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED 3/4" x 3/4".
- (F) 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.
- (G) FOR ELECTRICAL CONDUIT LOCATION DETAILS SEE ELECTRICAL DRAWINGS.

10. FOUNDATION:
- (A) DESIGN LOAD FOR PILE TYPE A=115 TONS. FOR PILE TYPE B=85 TONS.
- (B) FOR BORING LOGS AND THEIR LOCATION SEE SHEET NOS. B-1, B-2, ETC.
- (C) THE PILE TIP ELEVATIONS SHOWN ON THE PLANS ARE BASED ON BORING DATA.
- (D) IN DRIVING EACH GROUP OF PILES, THE CONTRACTOR SHALL START FROM CENTER OF THE GROUP AND PROCEED OUTWARDS, EXCEPT FOR TEST PILES AND LOAD TEST PILES.
- (E) THE CONTRACTOR SHALL VERIFY THE TYPE OF SURFACE SOIL BEFORE STARTING TO DRIVE ANY PILE. WHERE THERE IS A SURFACE CRUST, A TEMPORARY STEEL SLEEVE SHALL BE USED TO PROTECT THE BITUMEN COATING ON PILES. THE SLEEVE SHALL EXTEND THROUGH THE DEPTH OF THE CRUST. THE SLEEVE SHALL BE REMOVED AFTER THE PILE IS DRIVEN AND THE ANNULAR SPACE AROUND THE PILE SHALL BE BACKFILLED AS SPECIFIED IN THE SPECIAL PROVISIONS. (FOR DETAILS SEE SHEET NO. SD-11)
- (F) SQUARE PILES ARE TO BE SO ALIGNED THAT FRONT AND REAR FACES OF PILES ARE PARALLEL TO CENTERLINE OF PIER.
- (G) LOAD TEST PILES INDICATED IN FOUNDATION PLAN SHALL BE FURNISHED 13' LONGER THAN REGULAR PILES.
- (H) TEST PILES INDICATED IN FOUNDATION PLAN SHALL BE FURNISHED 5' LONGER THAN REGULAR PILES.

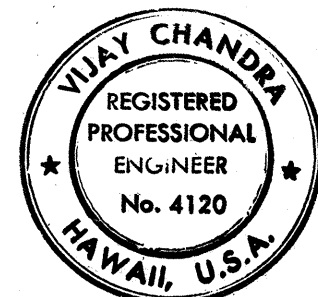
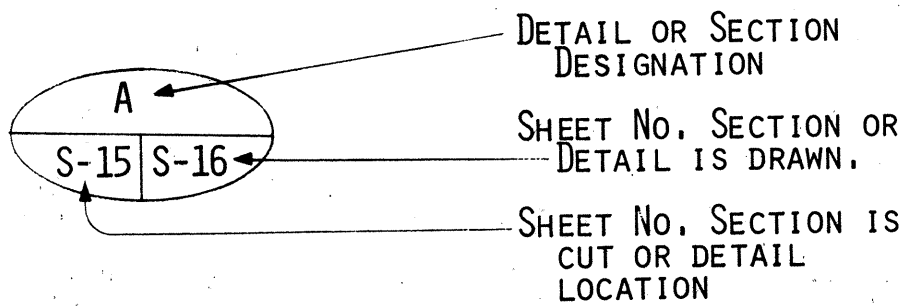
* DESIGN LOAD FOR PILES EXCLUDES PILE WEIGHT AND ESTIMATED DOWNDRAG.

11. REFERENCES:
- (A) FOR PRESTRESSED CONCRETE NOTES, SEE DRAWINGS FOR PRESTRESSED BEAM DETAILS.
- (B) FOR SIGN STRUCTURE NOTES, SEE DRAWING NO. ES-1.
- (C) FOR ADDITIONAL PILE NOTES SEE DRAWING NO. SD-10.

12. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND DIMENSIONS OF SUBSTRUCTURES BUILT BY OTHERS PRIOR TO FABRICATION OF THE GIRDERS WHICH WILL BE SUPPORTED BY THESE STRUCTURES.

13. SYMBOLS AND ABBREVIATIONS

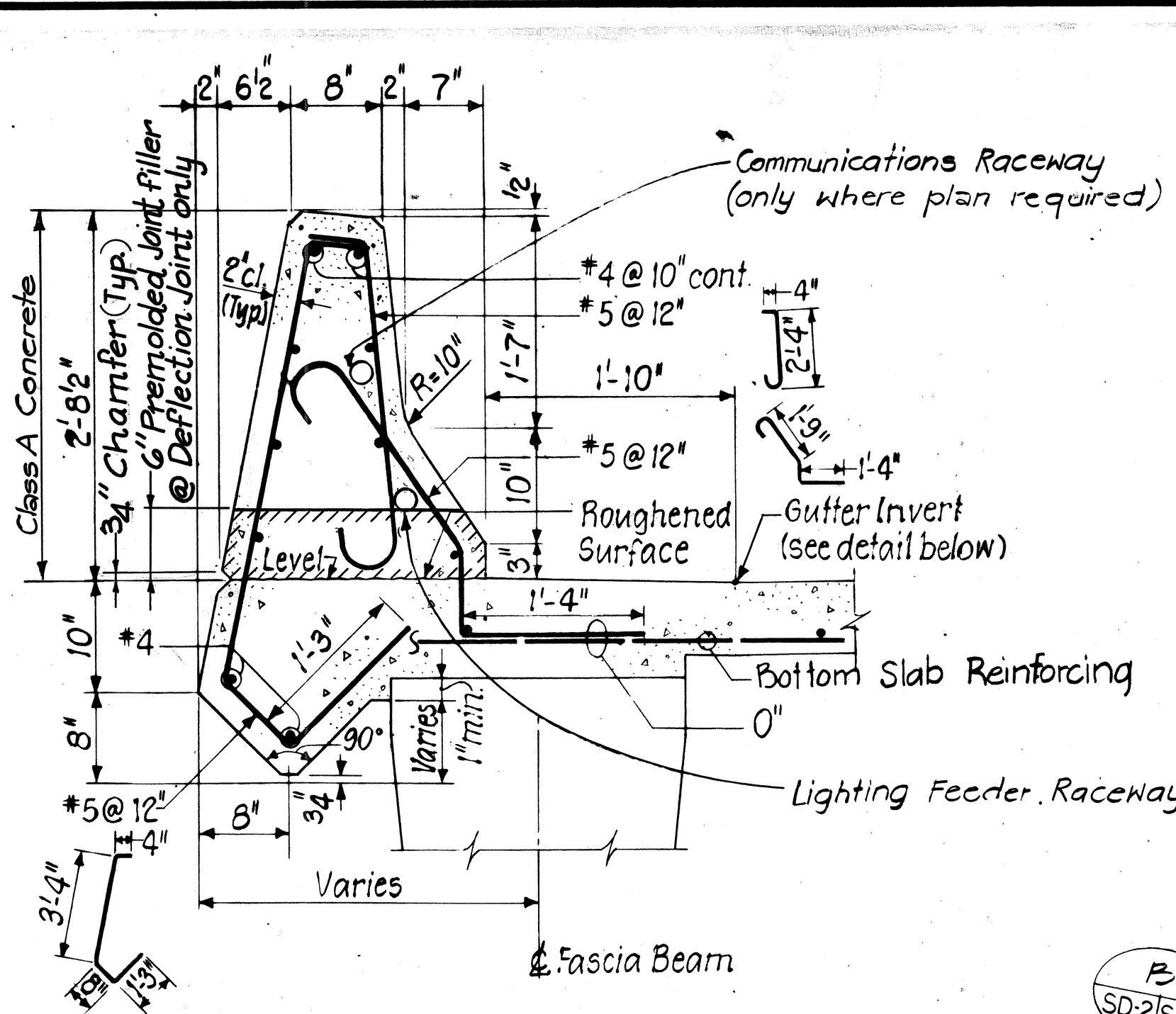
(E) OR (EXP.)	- EXPANSION	O.C.	- ON CENTERS
(H)	- HINGE	O/S	- OFFSET
ALT.	- ALTERNATE	STR.	- STRAIGHT OR STRINGER
AZ.	- AZIMUTH	STIRR.	- STIRRUP
$\overline{C}$	- CENTERLINE	TYP.	- TYPICAL
$\overline{B}$	- BASELINE	(T) OR T.	- TOP
E.F.	- EACH FACE	(B) OR B.	- BOTTOM
B.F.	- BOTH FACES	BRG.	- BEARING
F.F.	- FAR FACE	T.O.D.	- TOP OF DECK
N.F.	- NEAR FACE	W.P.	- WORKING POINT
C.J.	- CONSTRUCTION JOINT	a	- AT
CL.	- CLEAR	$\emptyset$ OR DIA.	- DIAMETER
EL., ELEV.	- ELEVATION	$\overline{P}$	- PLATE
E.P.	- EDGE OF PAVEMENT		DETAIL OR SECTION DESIGNATION
EB	- EAST BOUND		
FIN. GR.	- FINISHED GRADE		
WB	- WEST BOUND		
INV.	- INVERT		
JT.	- JOINT		
N.T.S.	- NOT TO SCALE		



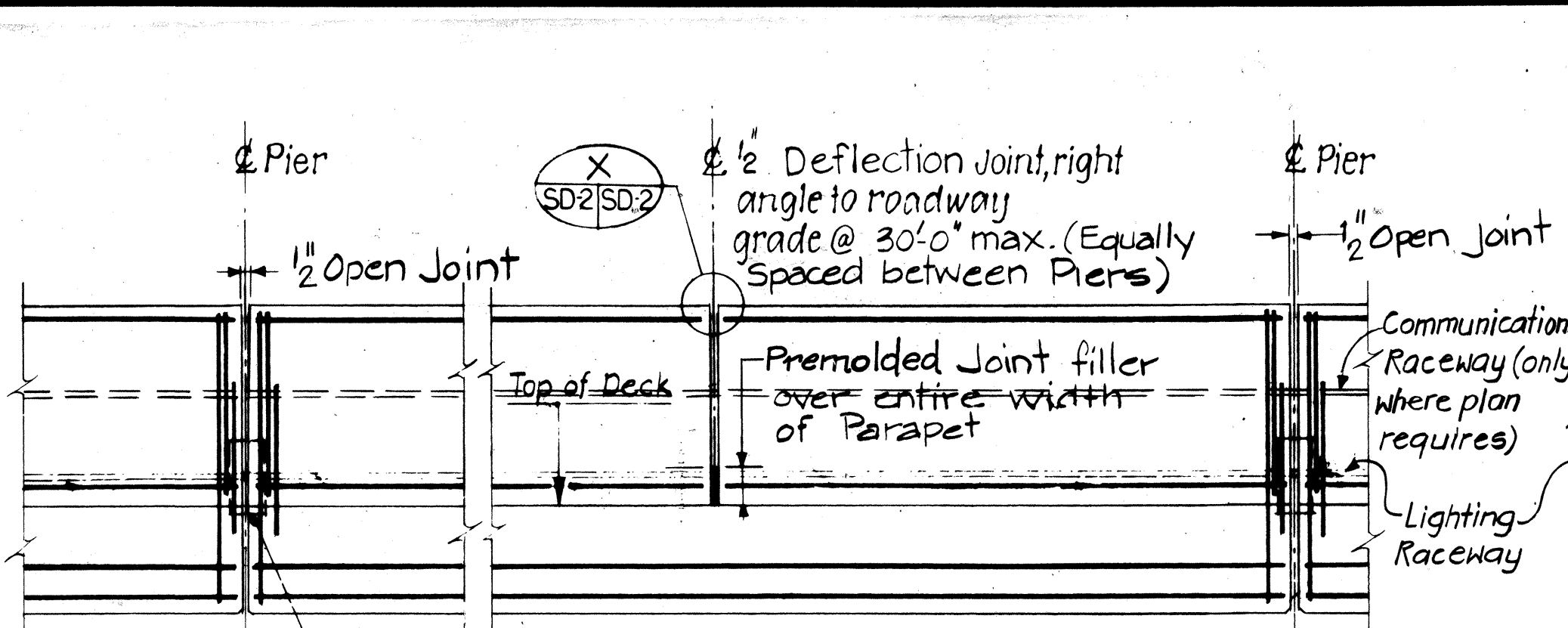
THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION.
Vijay chandra
Signature

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
GENERAL NOTES	
KEEHI INTERCHANGE F.A.I. PROJECT NO. I-HI-1 (133):17	
SCALE:	DATE: 4/30/81
SHEET No. SD-1 OF SD-13 SHEETS SD-1	

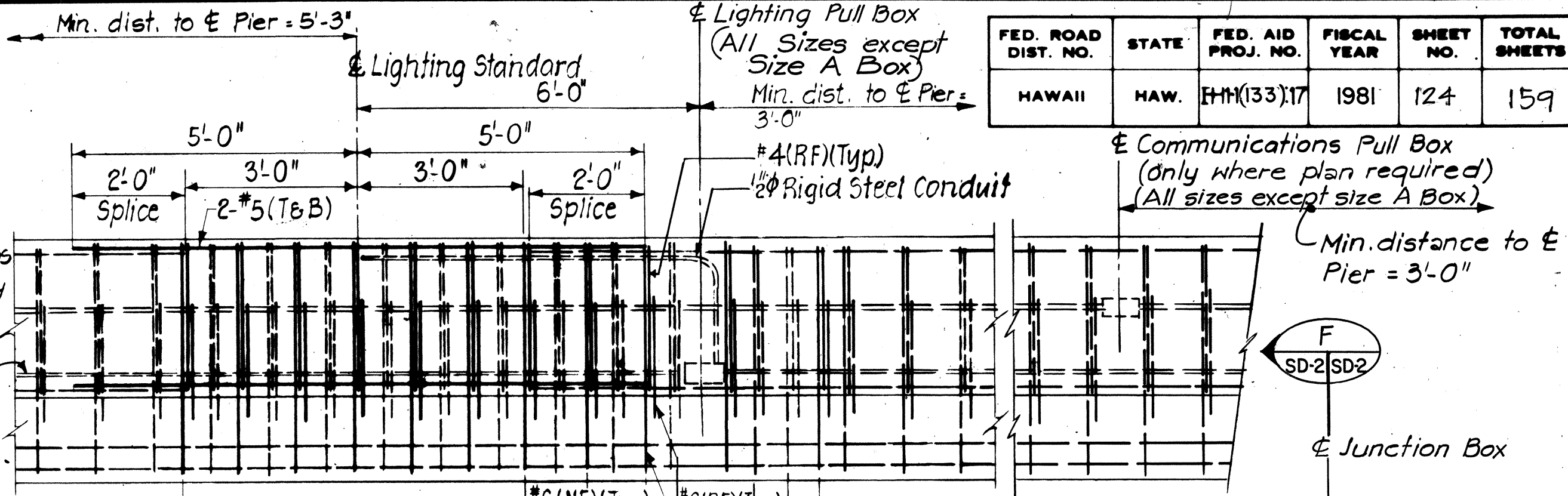
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	FHM(133)17	1981	124	159



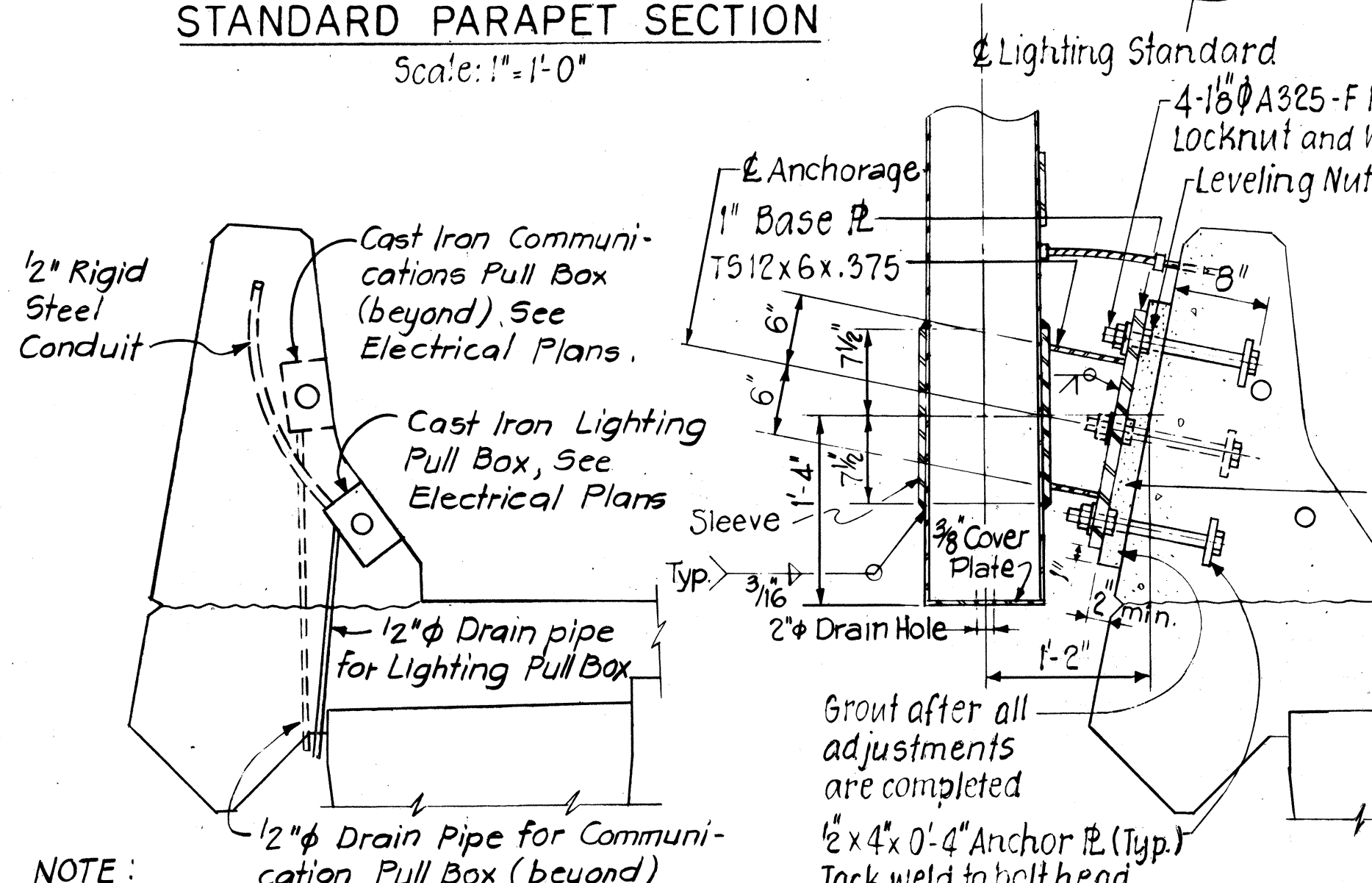
STANDARD PARAPET SECTION
Scale: 1" = 1'-0"



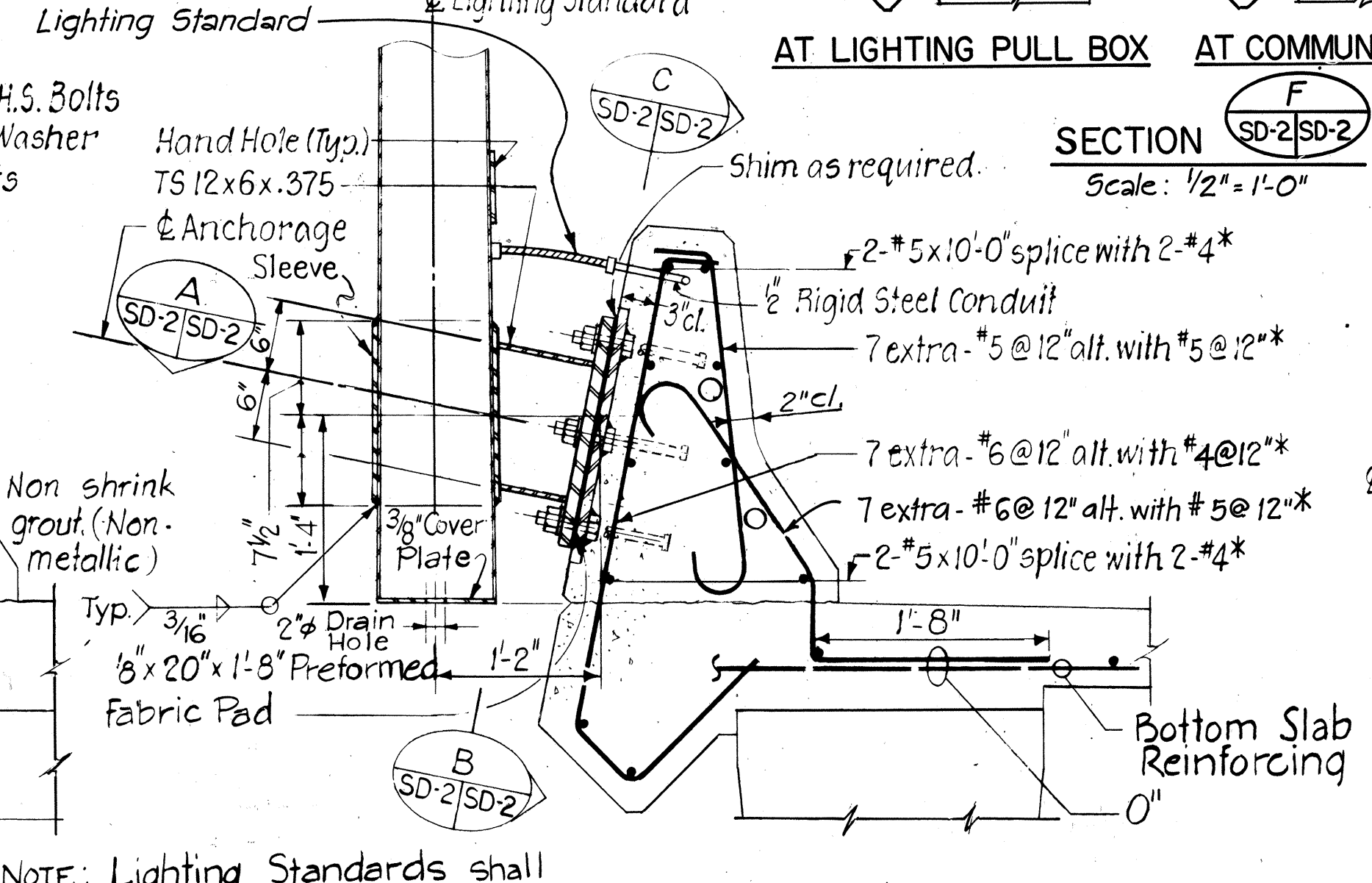
STANDARD PARAPET TYPICAL LONGITUDINAL SECTION
Scale: 1/2" = 1'-0"



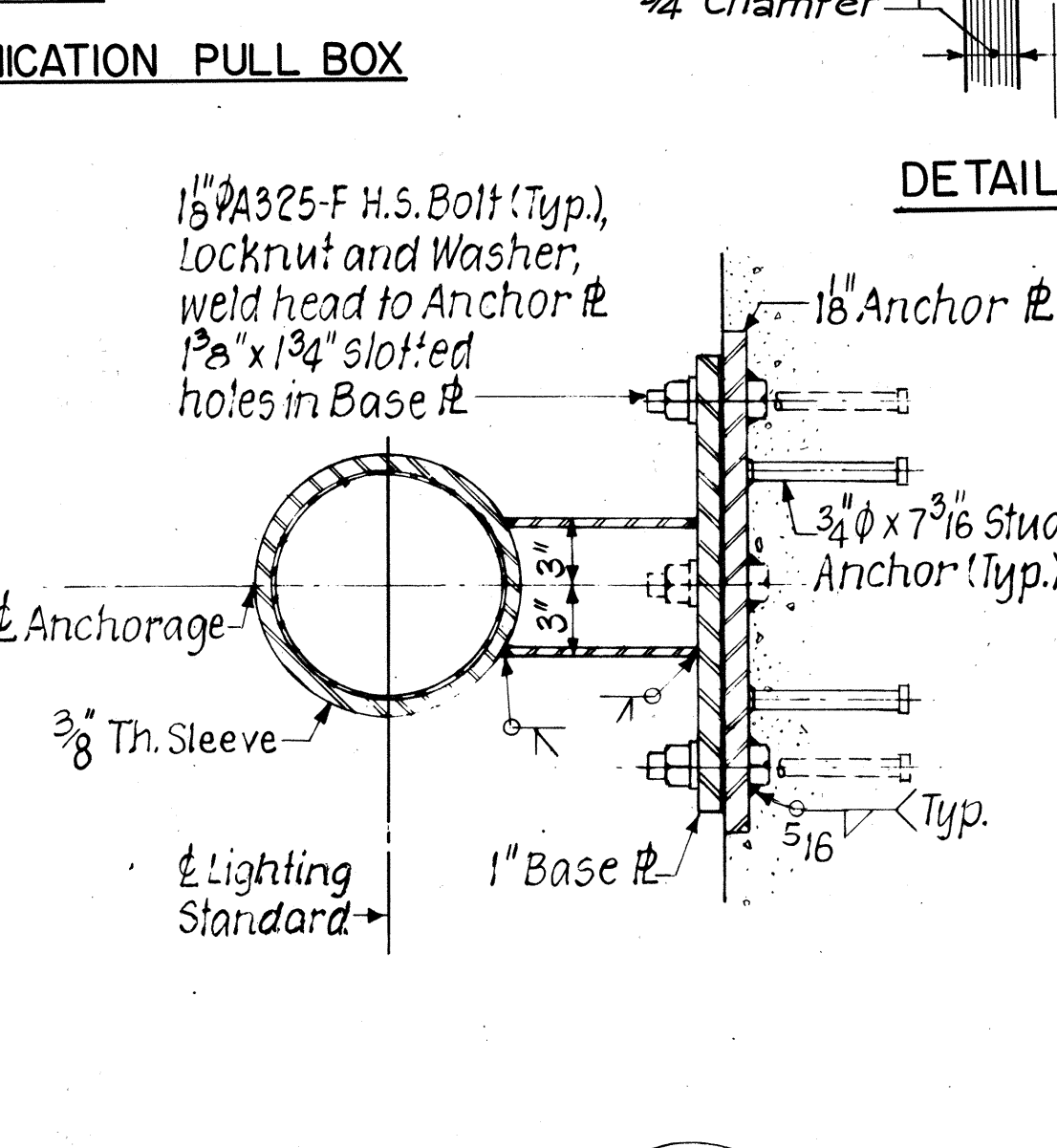
PARAPET REIN. AT LIGHTING STANDARD & JUNCTION BOX TYPICAL LONGITUDINAL SECTION
Scale: 1/2" = 1'-0"



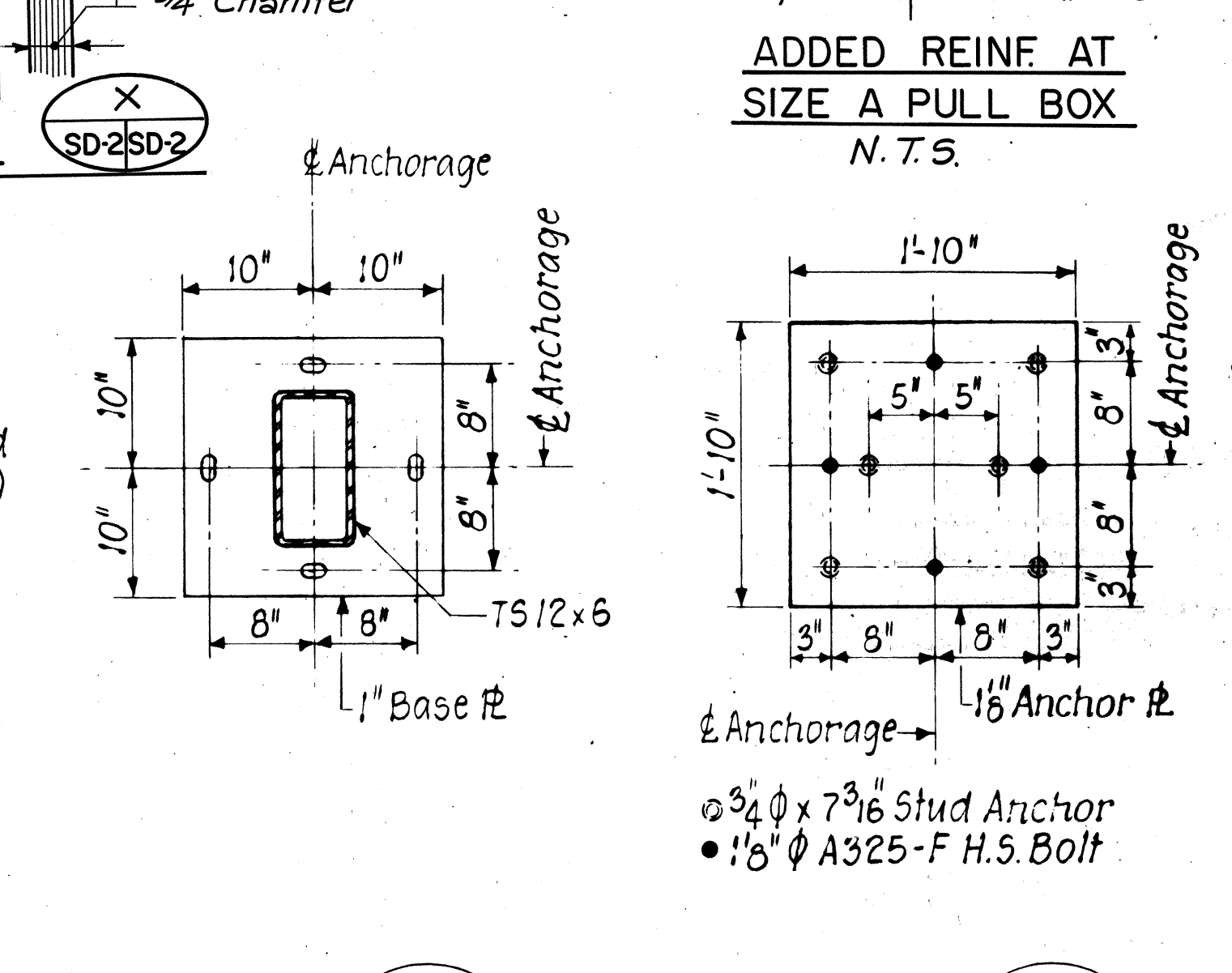
PARAPET DETAIL AT JUNCTION BOXES
Scale: 1" = 1'-0"



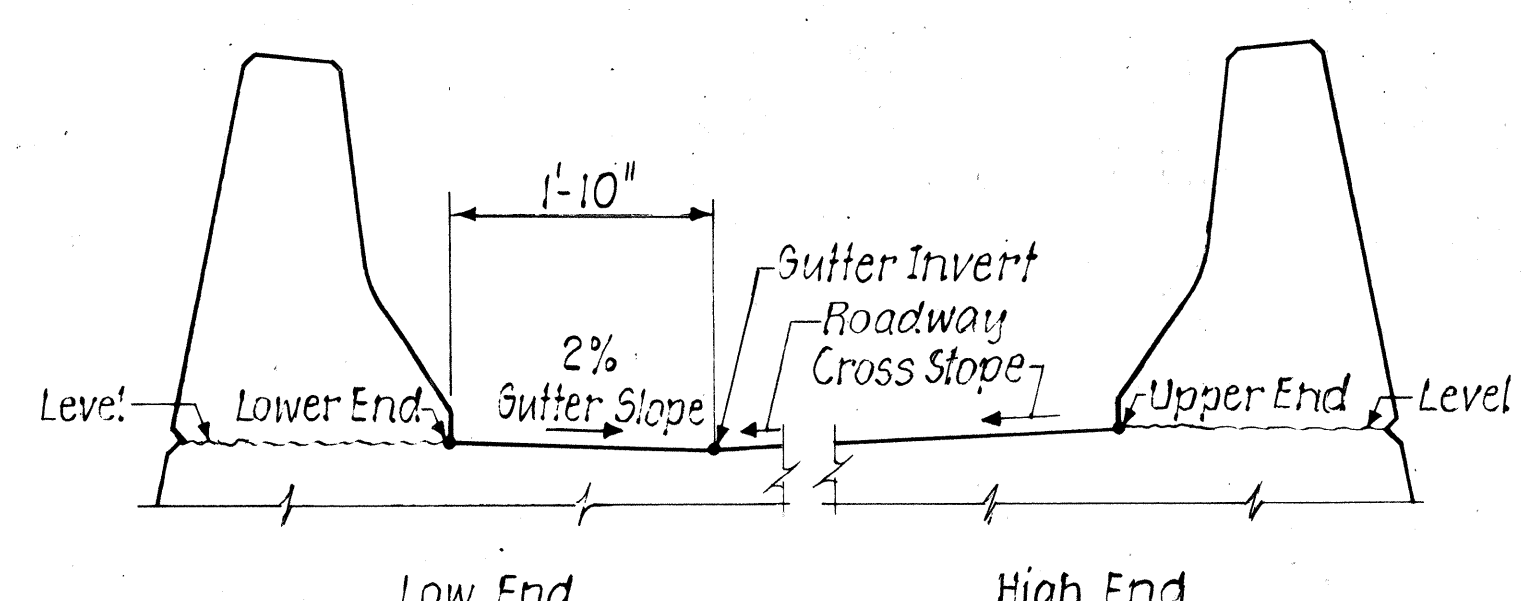
PARAPET DETAIL AT LIGHTING STANDARD
Scale: 1" = 1'-0"



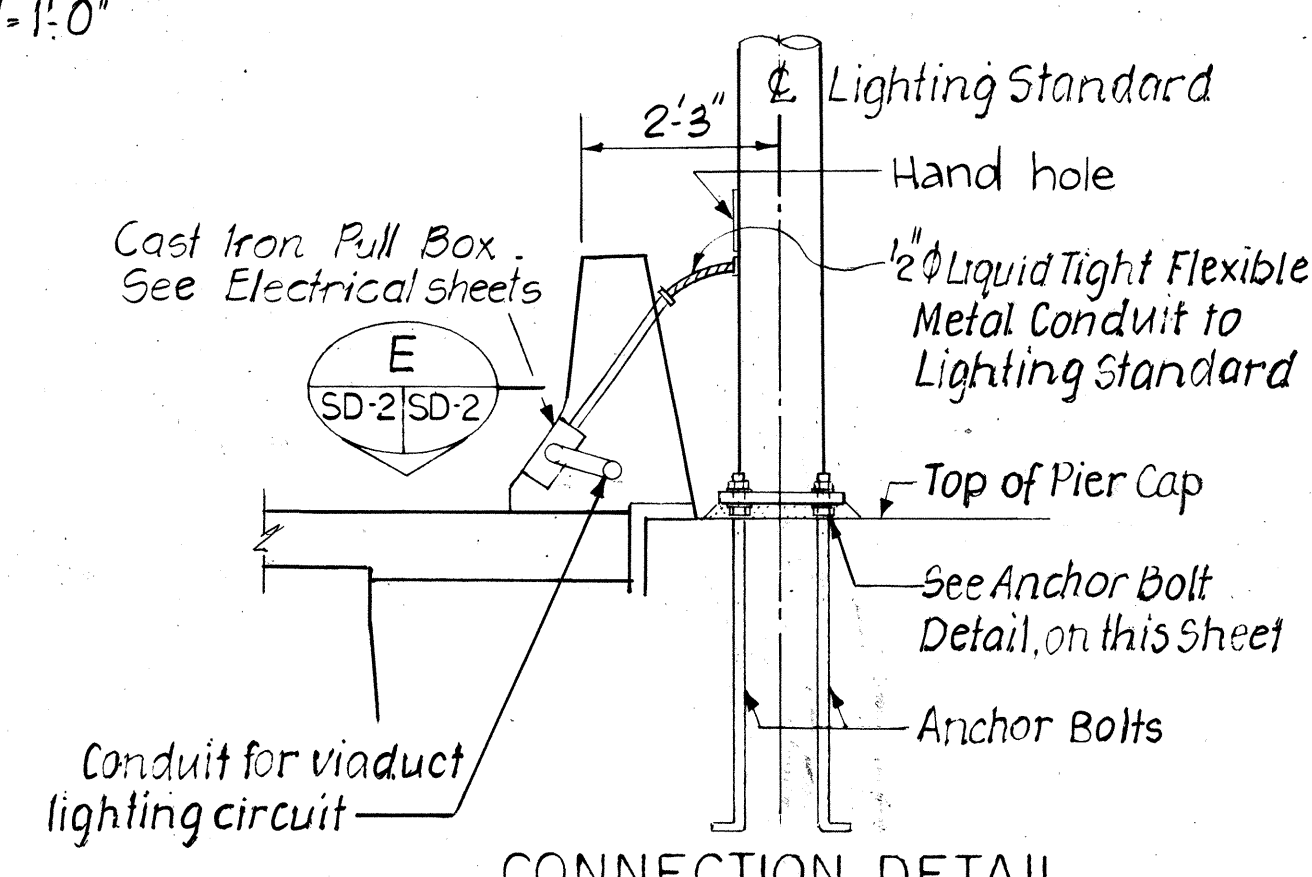
ANCHOR BOLT DETAIL
Scale: 3/4" = 1'-0"



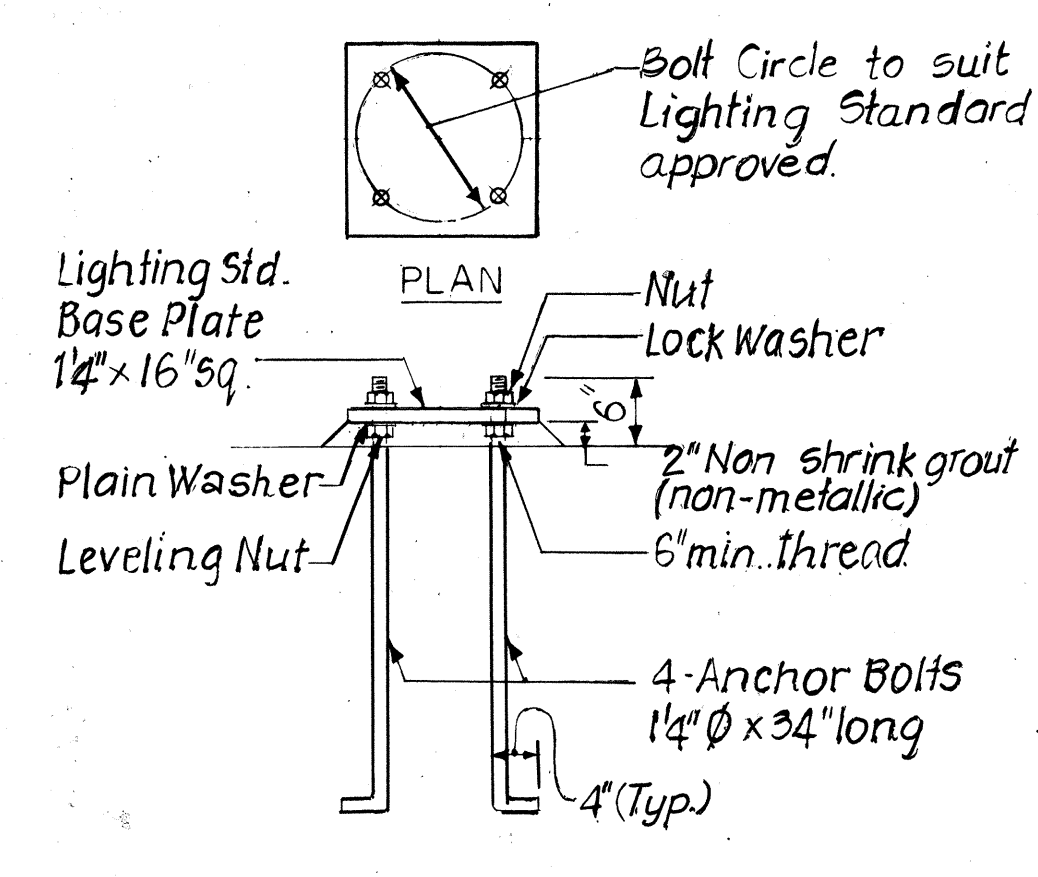
DETAIL
Scale: 1/2" = 1'-0"



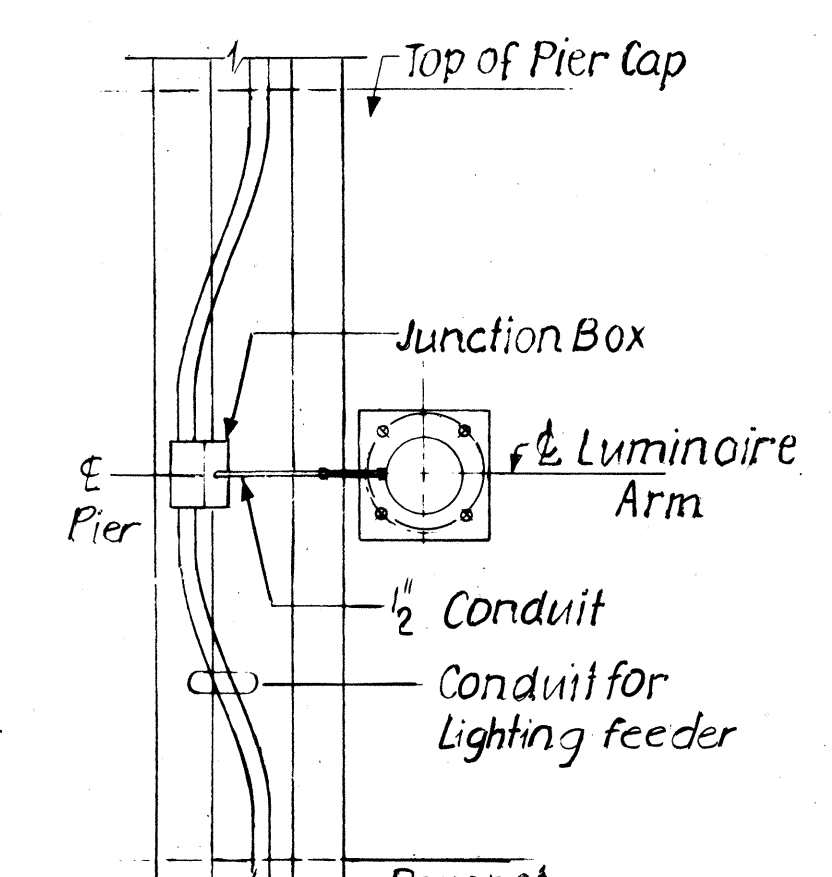
TYPICAL CROSS SLOPE DETAIL FOR DRAINAGE
Scale: 3/4" = 1'-0"



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

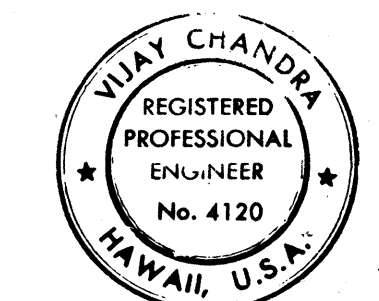


PIER MOUNTED LIGHTING STANDARD
Scale: 1/2" = 1'-0"



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

NOTE:
Anchorage system for Lighting Standard shall be hot-dip galvanized.



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Signature: Vijay Chandra

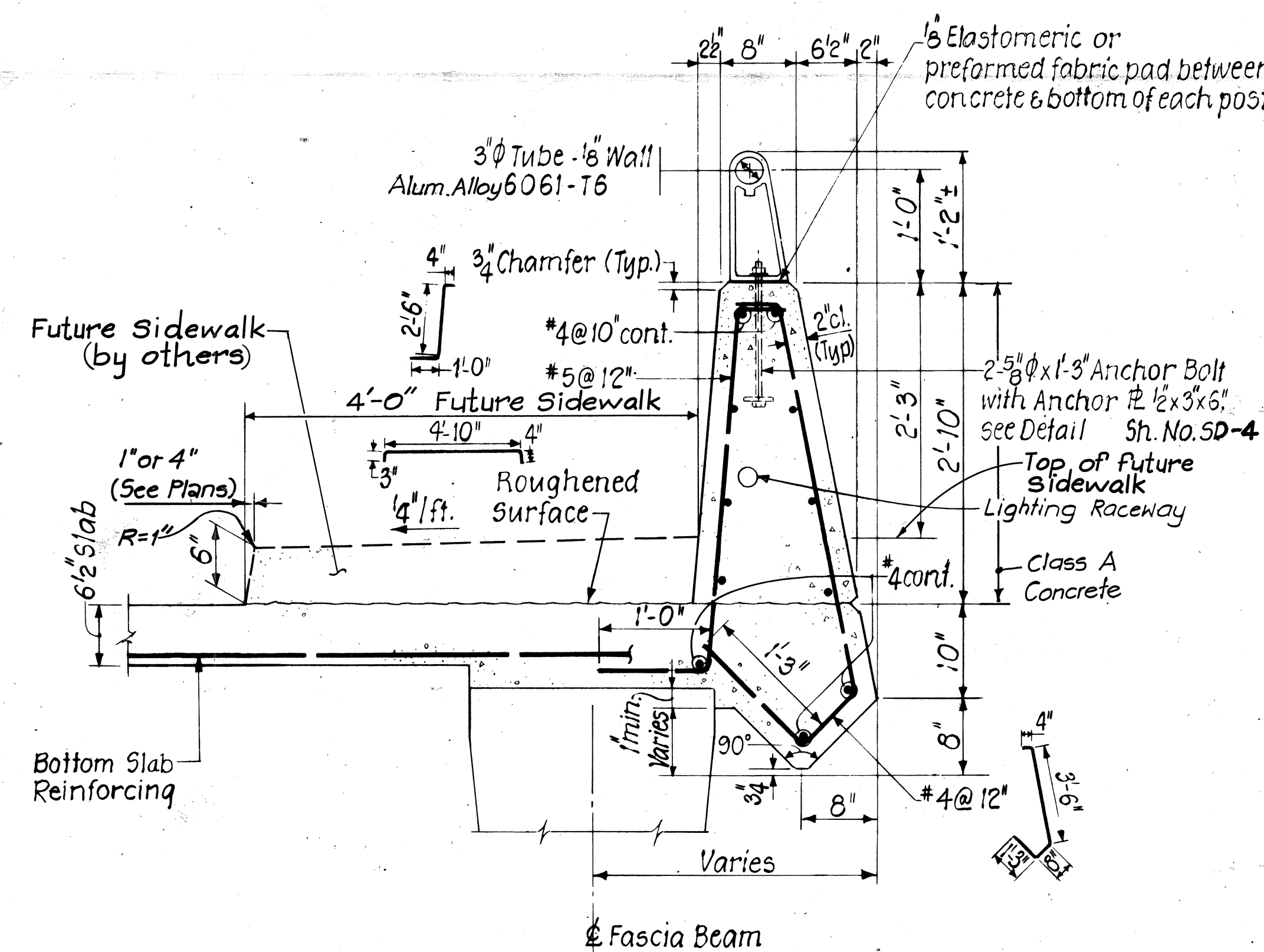
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD PARAPET DETAILS

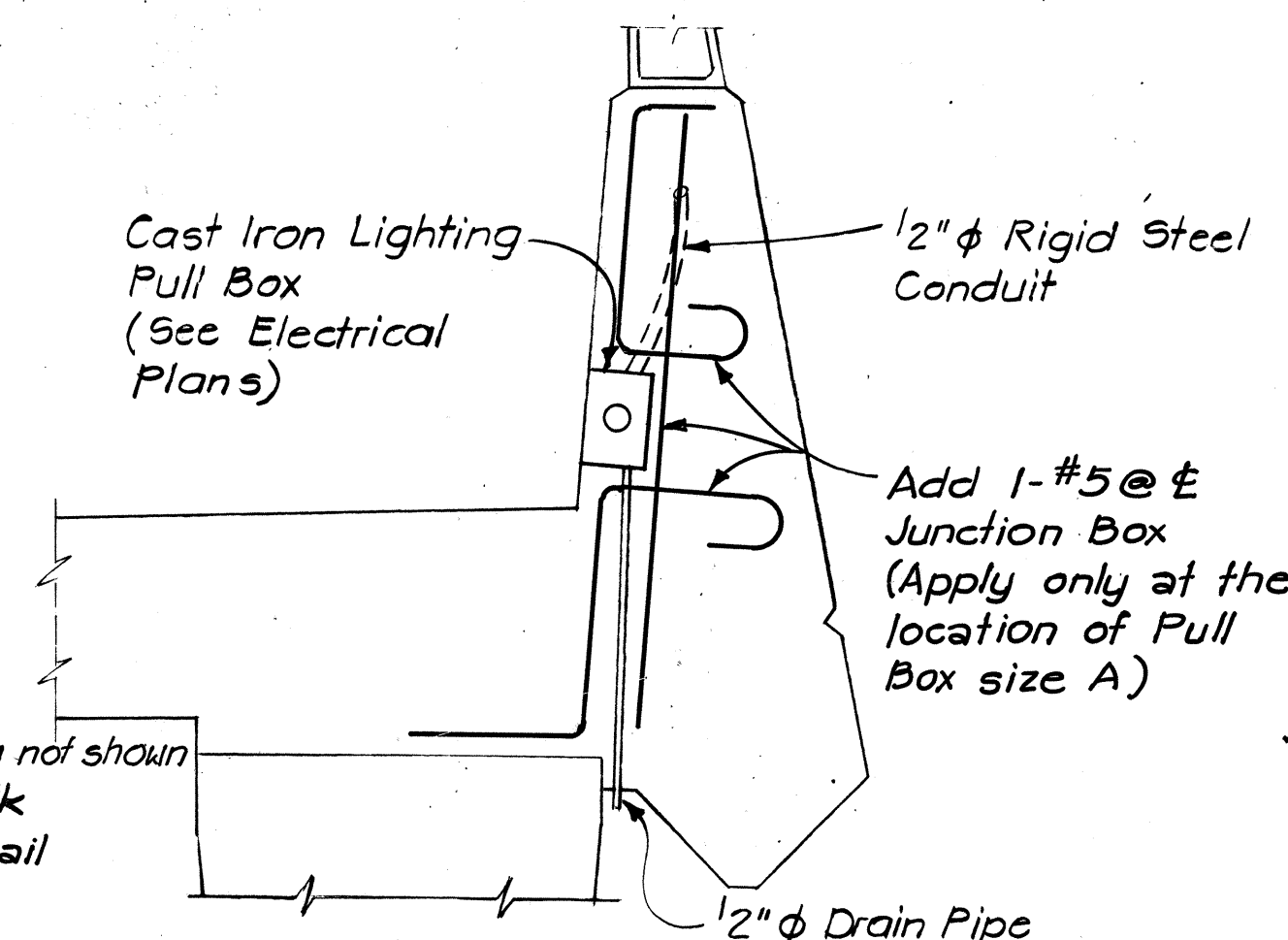
KEEHI INTERCHANGE
F.A.I. PROJECT NO. 1-HI-1(133)17
SCALE: AS SHOWN
DATE: 4/30/81

SHEET NO. SD-2 OF SD-13 SHEETS SD-2

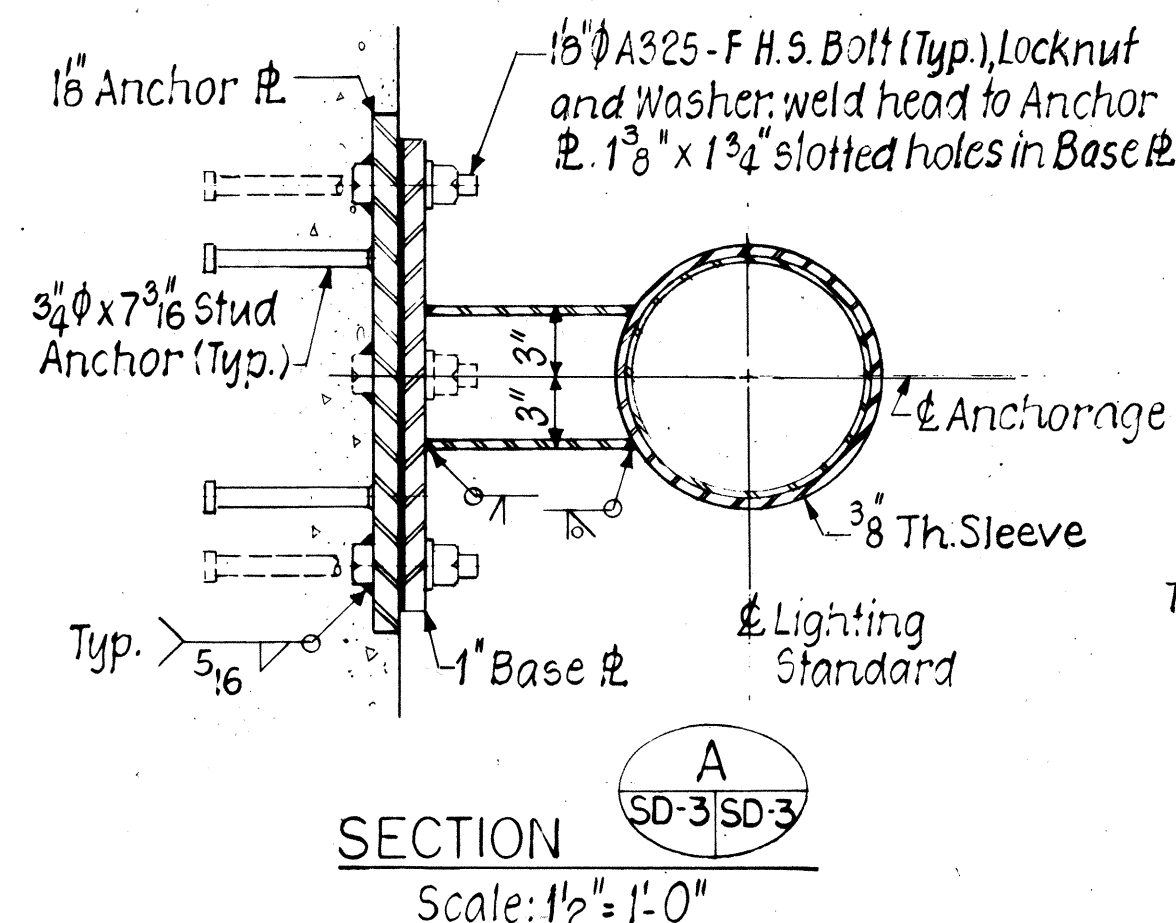
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1H1(133):17	1981	125	159



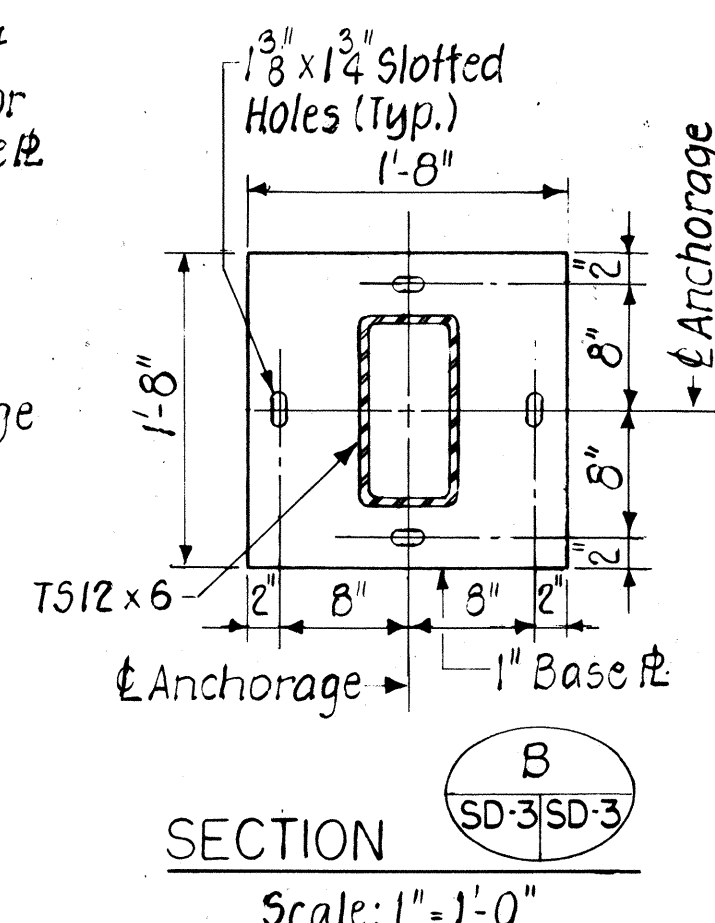
STANDARD SIDEWALK PARAPET SECTION
Scale: 1" = 1'-0"



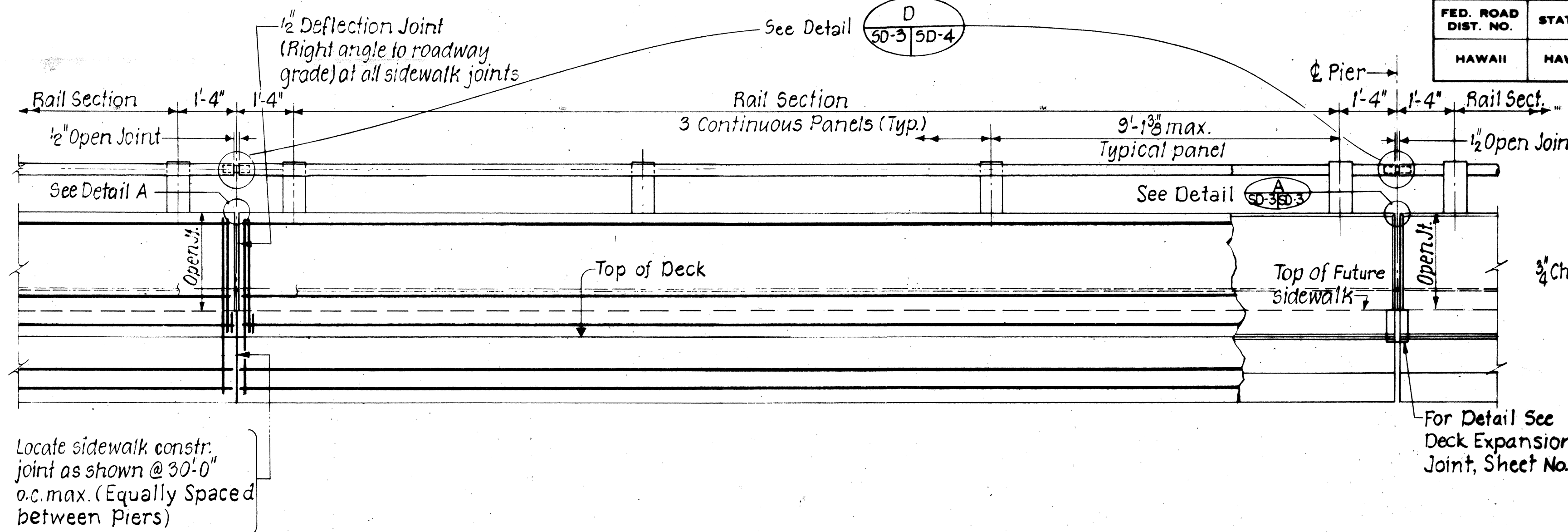
SIDEWALK PARAPET DETAIL AT JUNCTION BOXES
Scale: 1" = 1'-0"



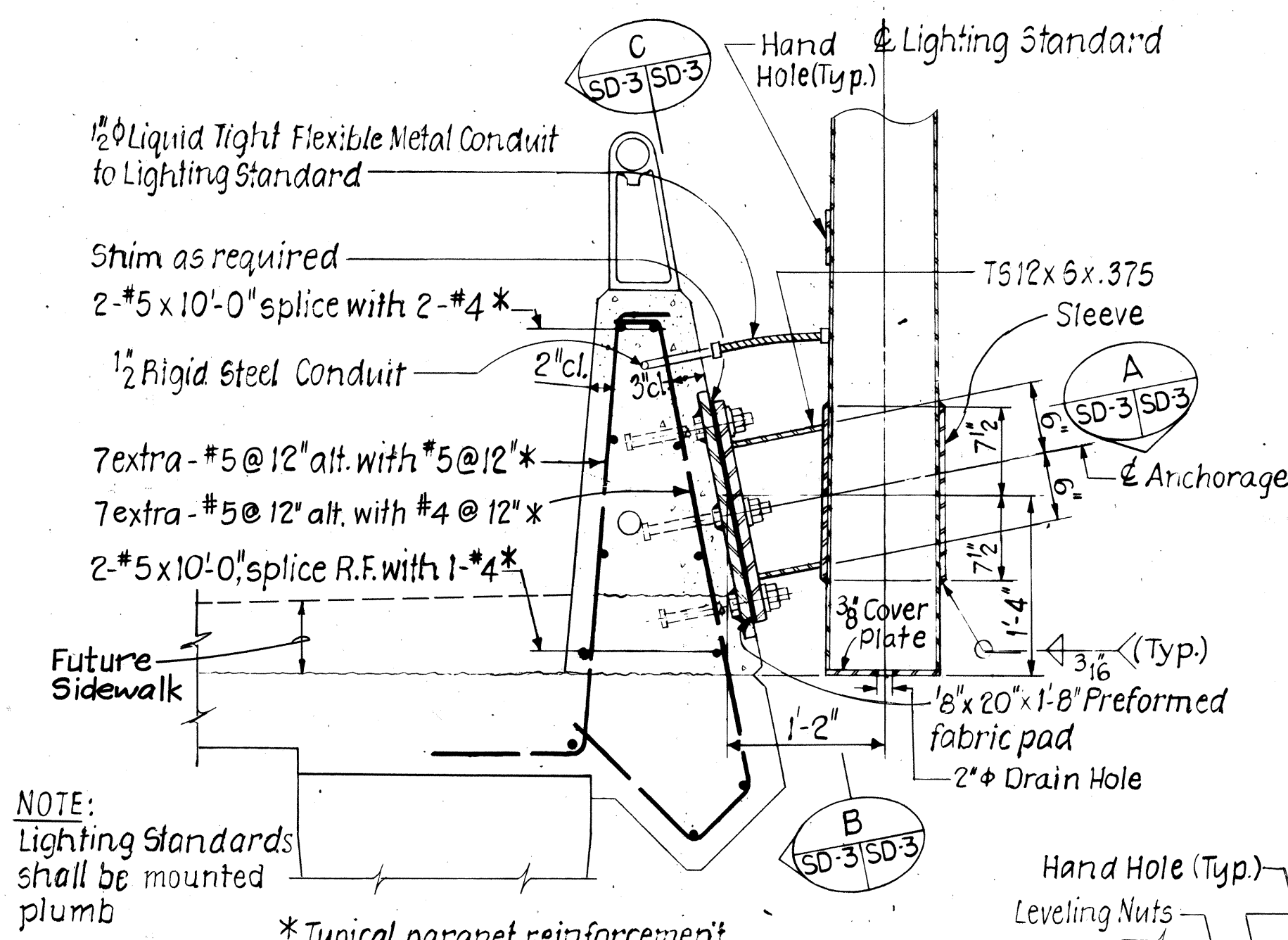
SECTION A
Scale: 1/2" = 1'-0"



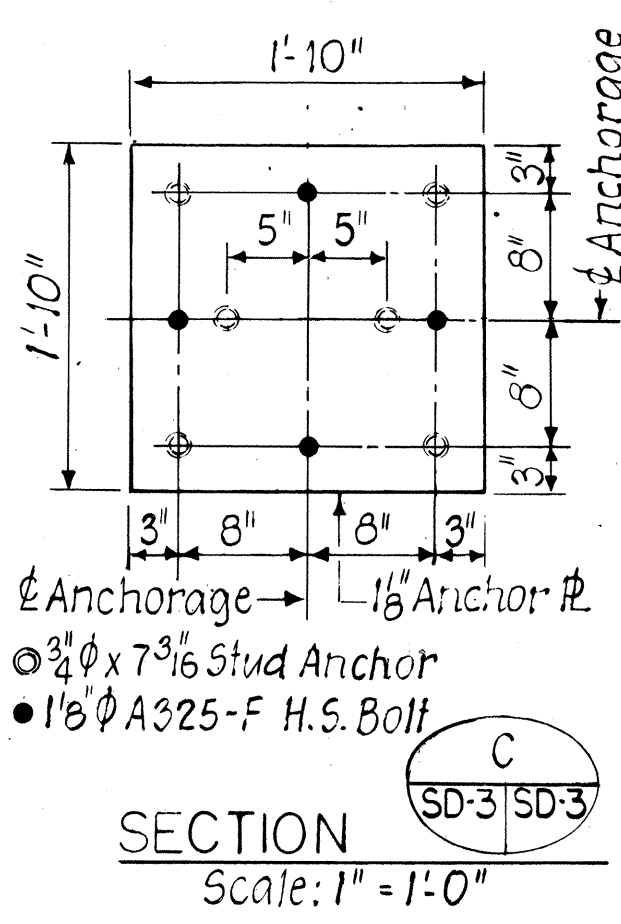
SECTION B
Scale: 1" = 1'-0"



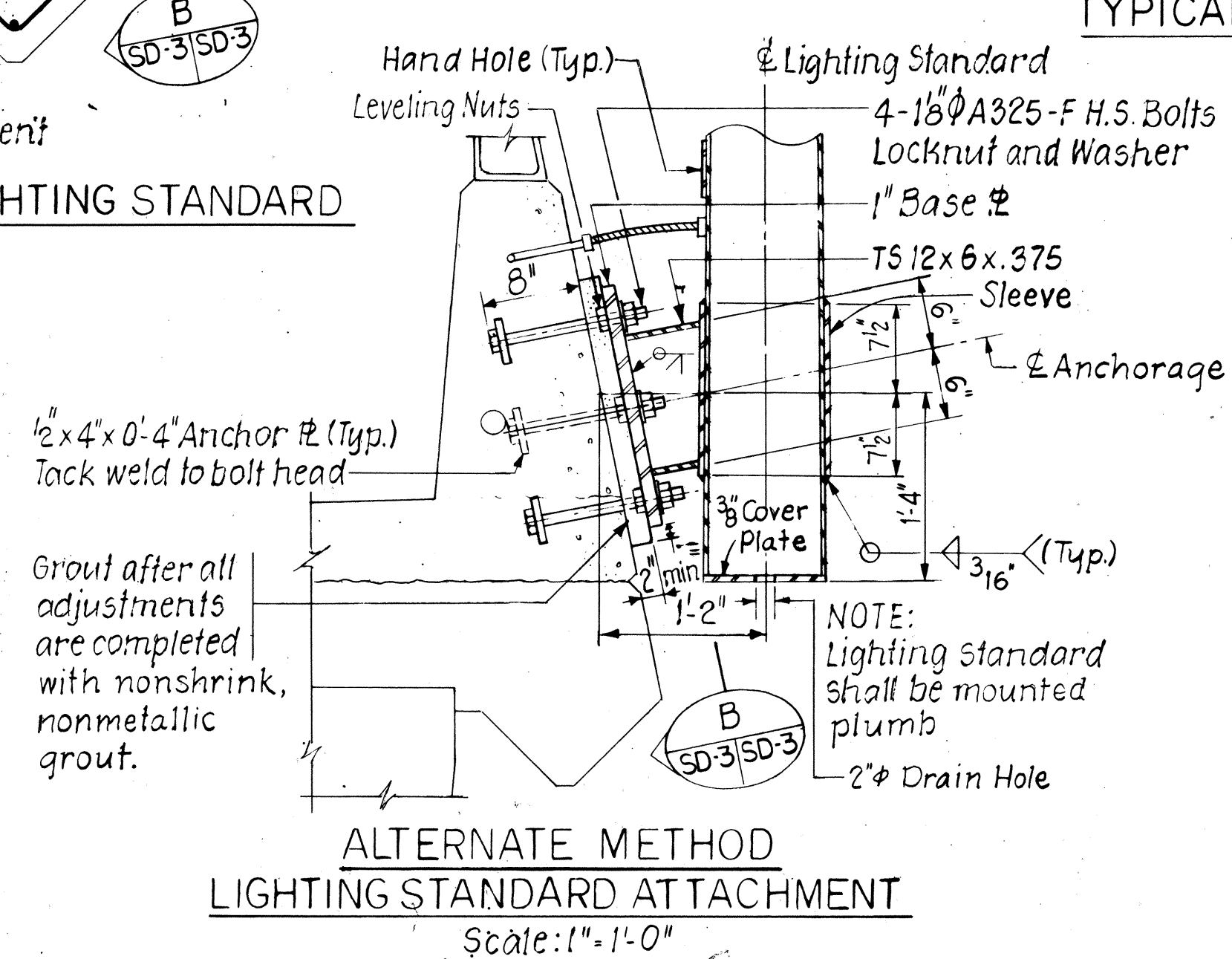
STANDARD SIDEWALK PARAPET RAILING ELEVATION AND TYPICAL LONGITUDINAL SECTION
Scale: 1/2" = 1'-0"



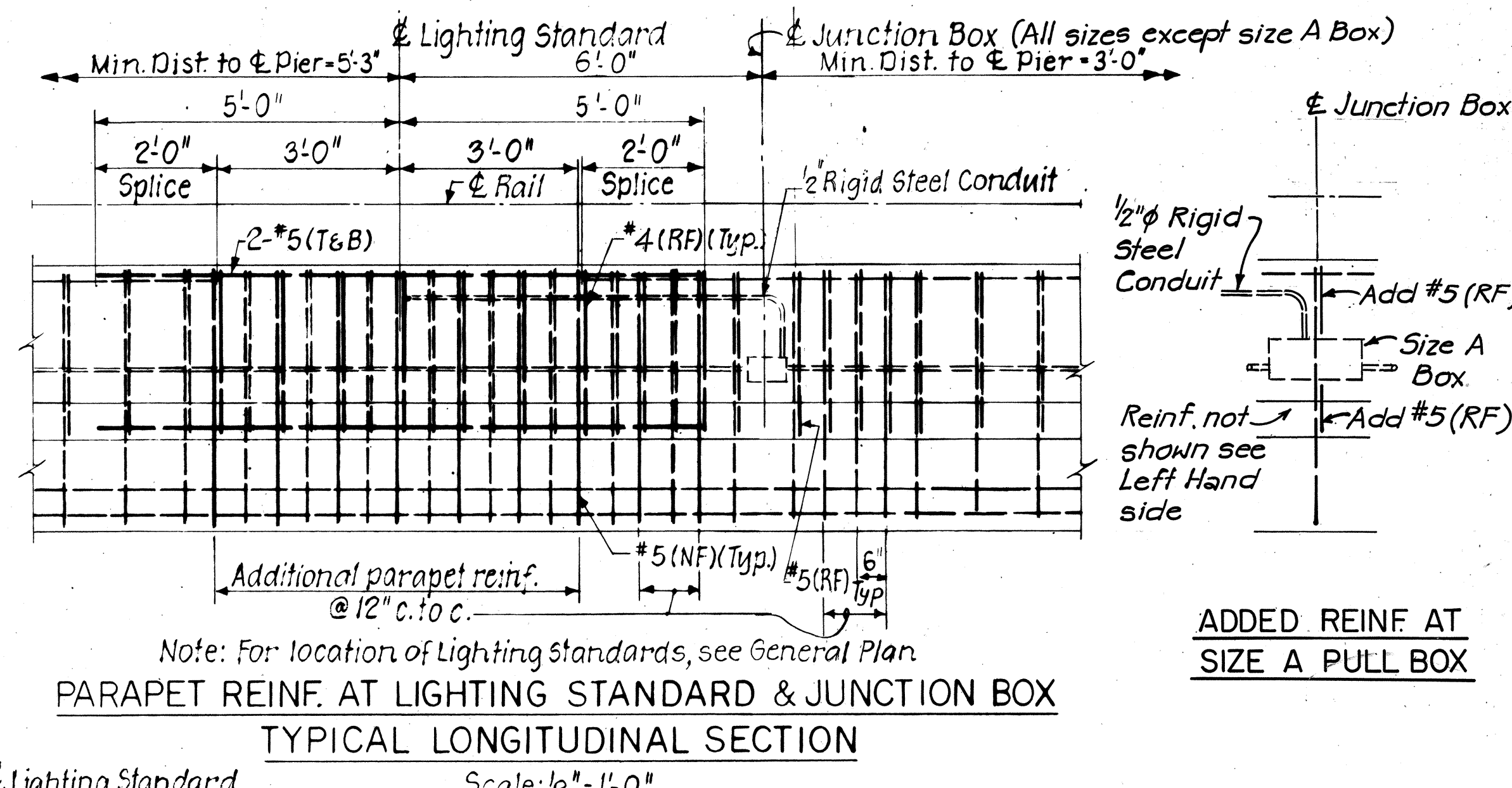
SIDEWALK PARAPET DETAIL AT LIGHTING STANDARD
Scale: 1" = 1'-0"



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

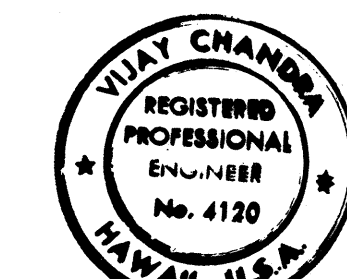


ALTERNATE METHOD LIGHTING STANDARD ATTACHMENT
Scale: 1" = 1'-0"



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

NOTE: Anchorage system for Lighting Standard shall be hot-dip galvanized.



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Signature: Tully Chanana

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD SIDEWALK PARAPET DETAILS

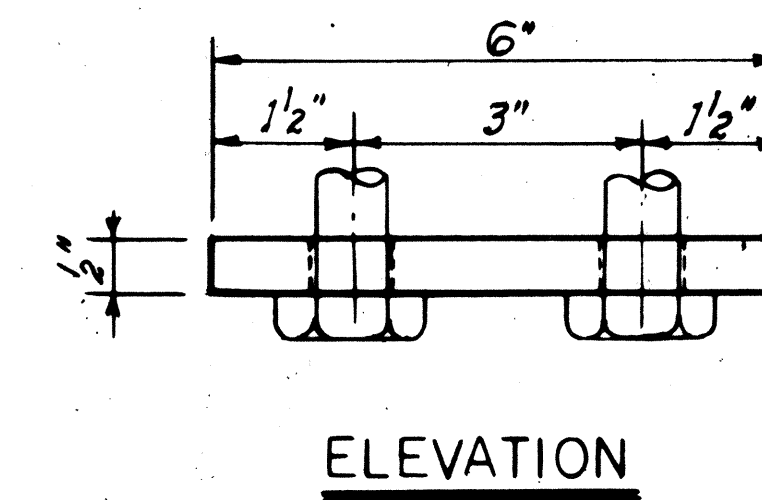
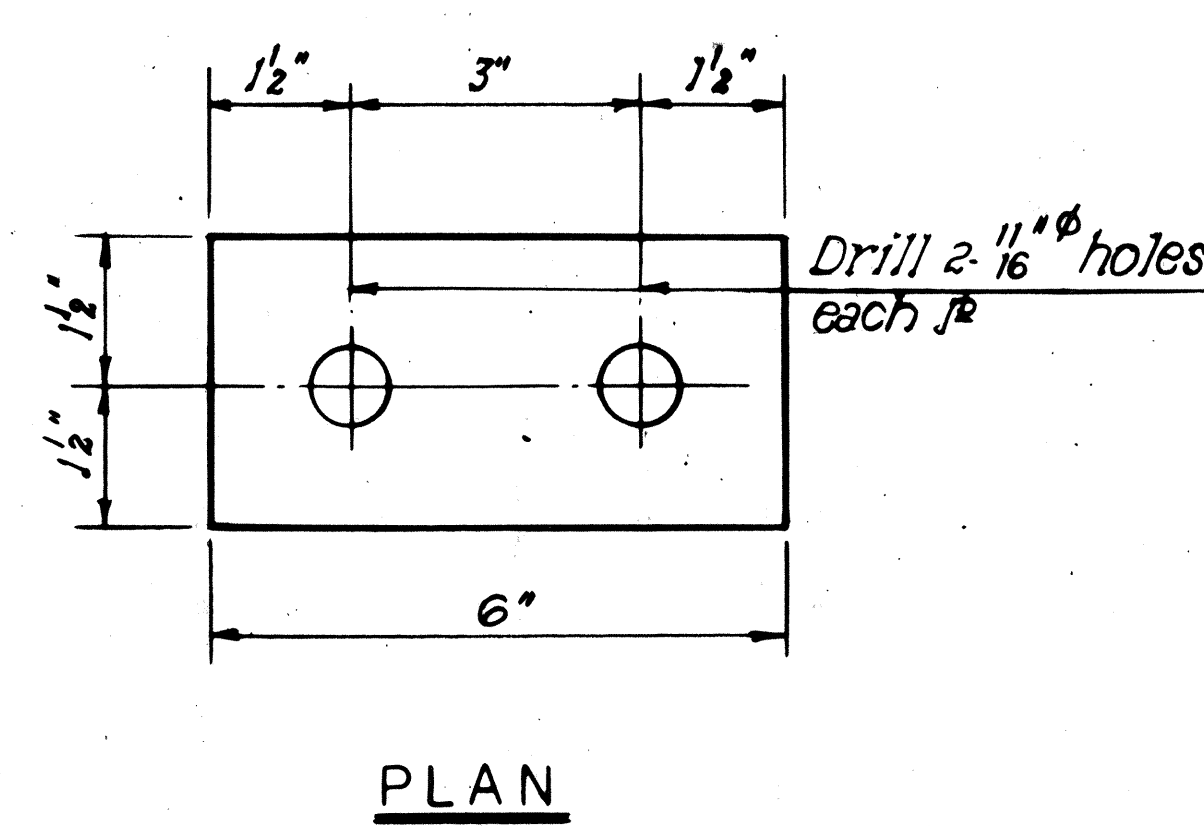
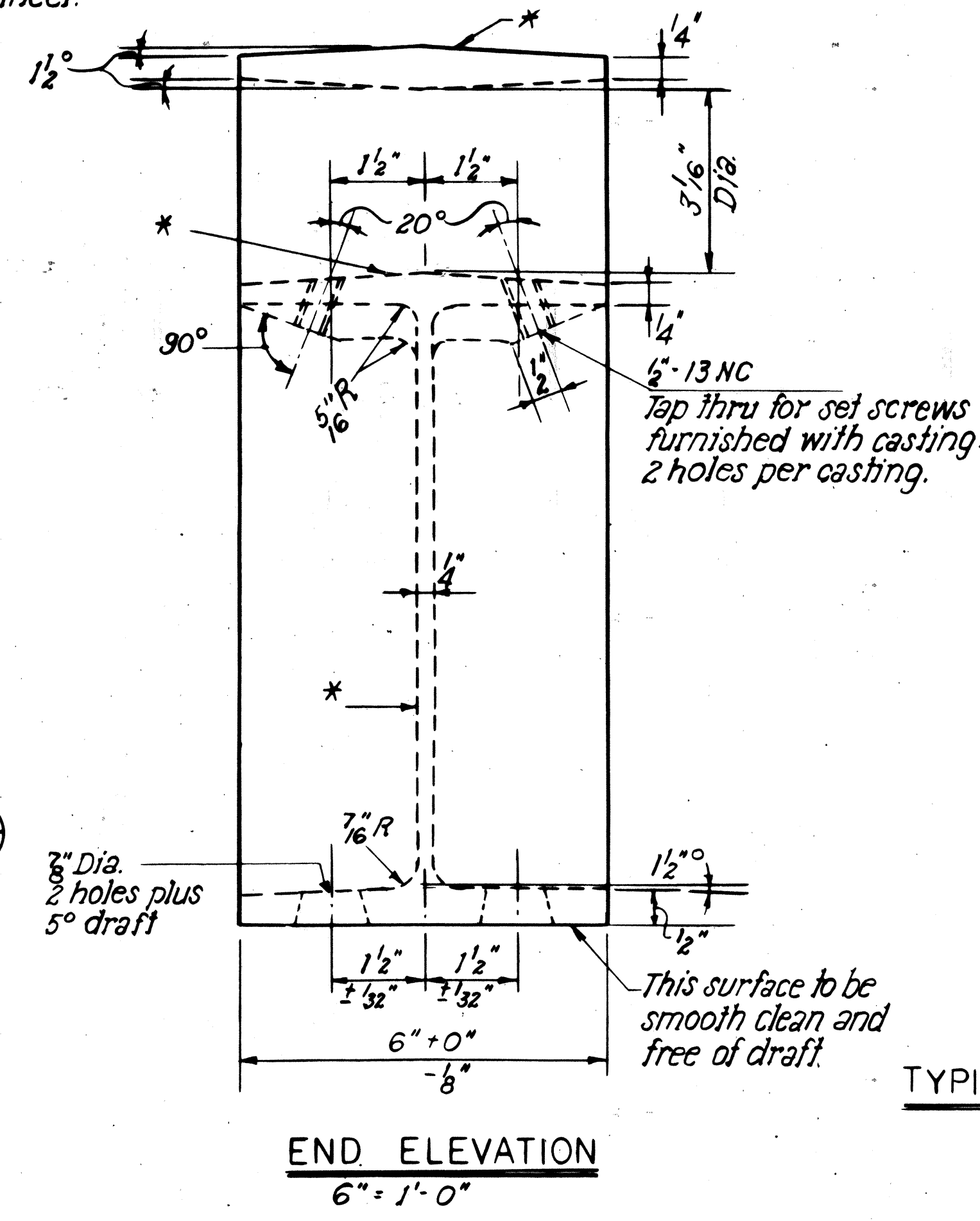
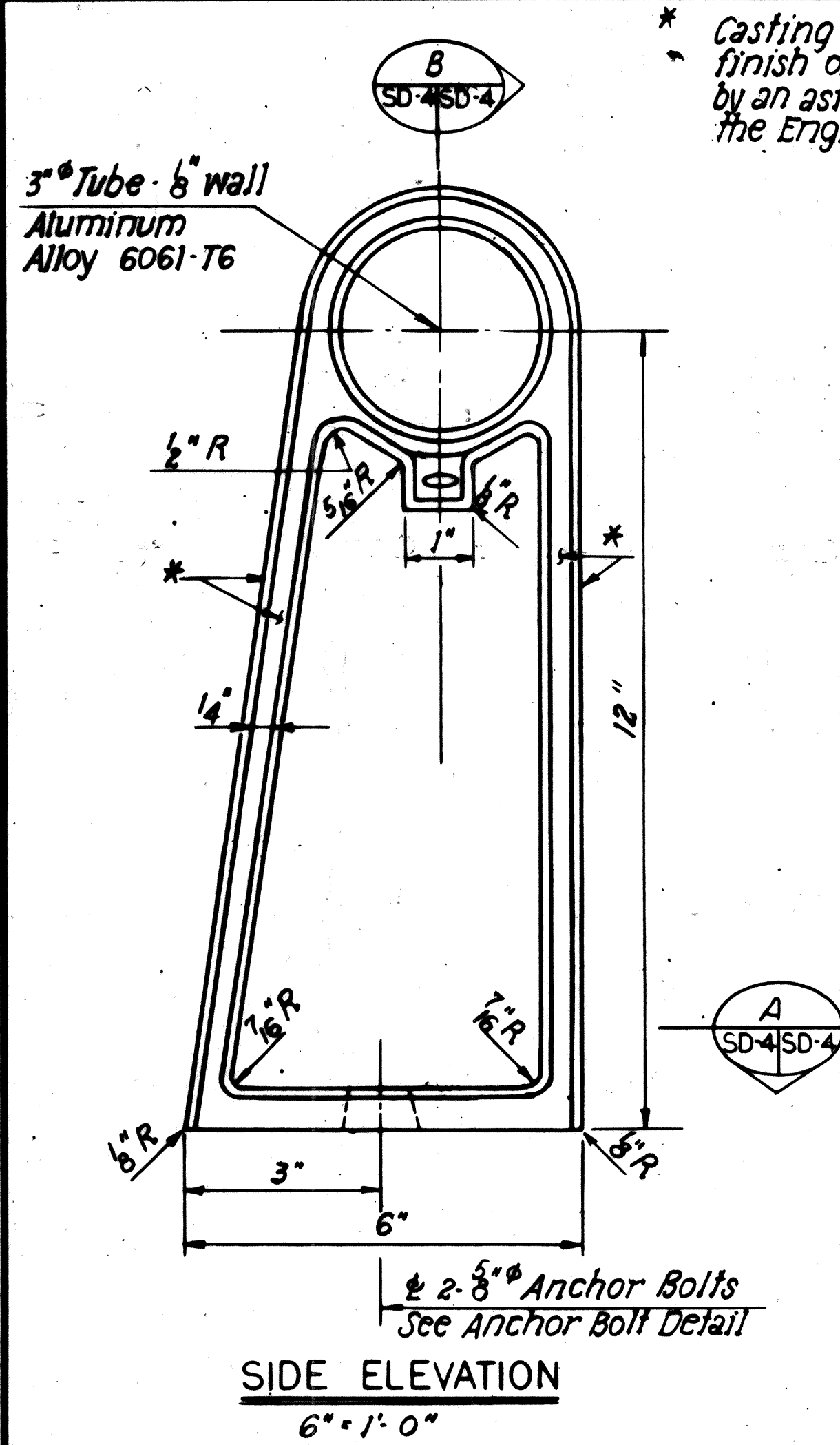
KEEHI INTERCHANGE
F.A.I. PROJECT NO. 1-HI-1(133):17
SCALE: AS SHOWN
DATE: 4/30/81

SHEET No. SD-3 OF SD-13 SHEETS SD-3

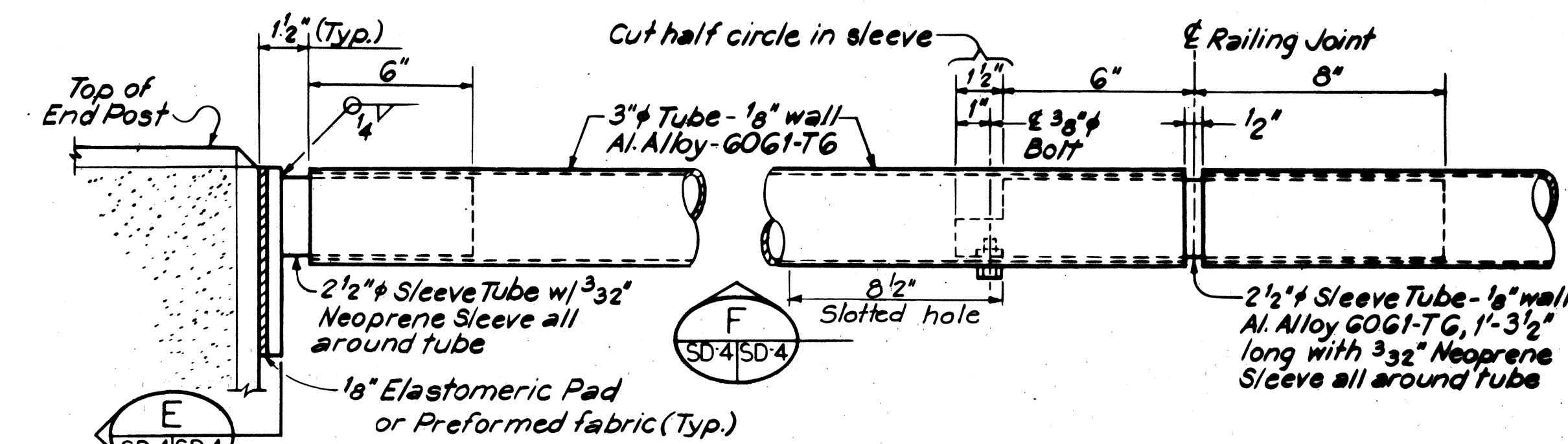
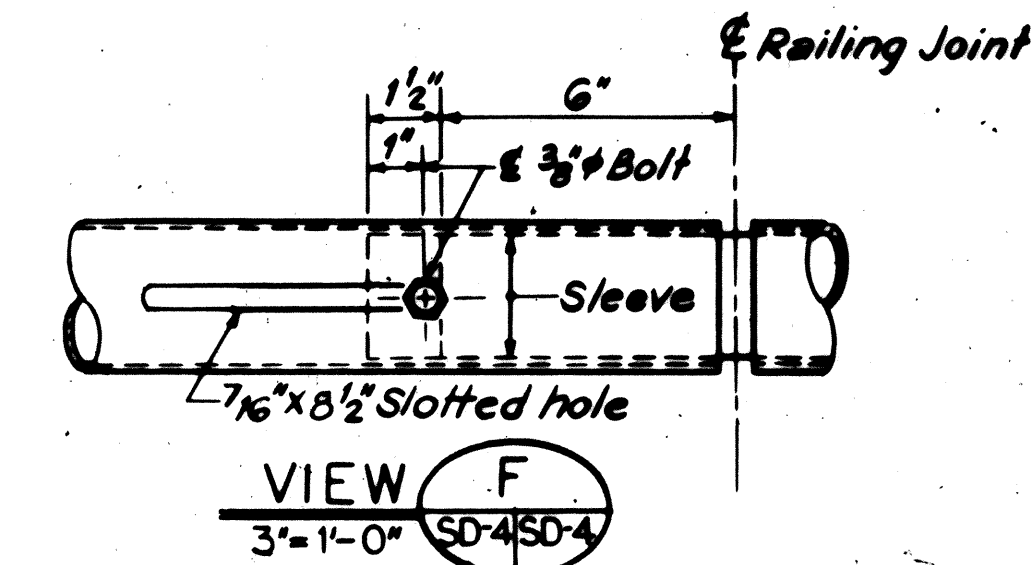
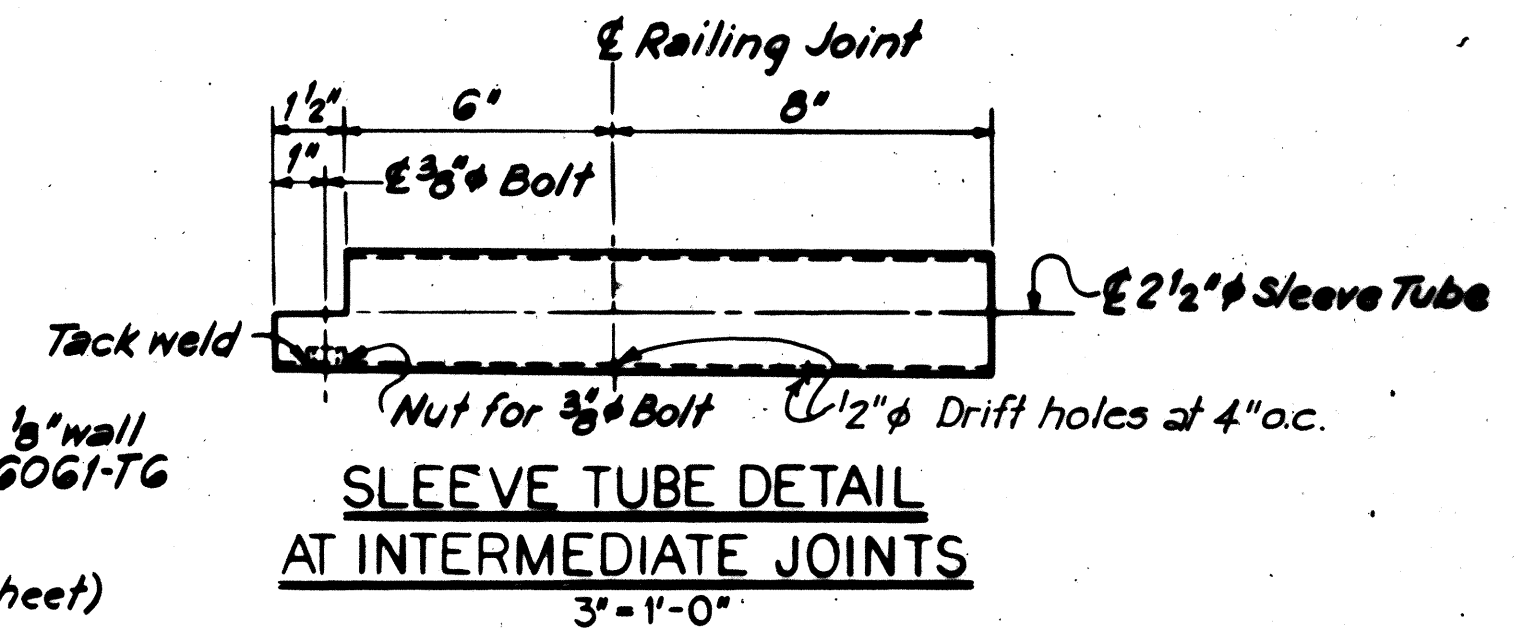
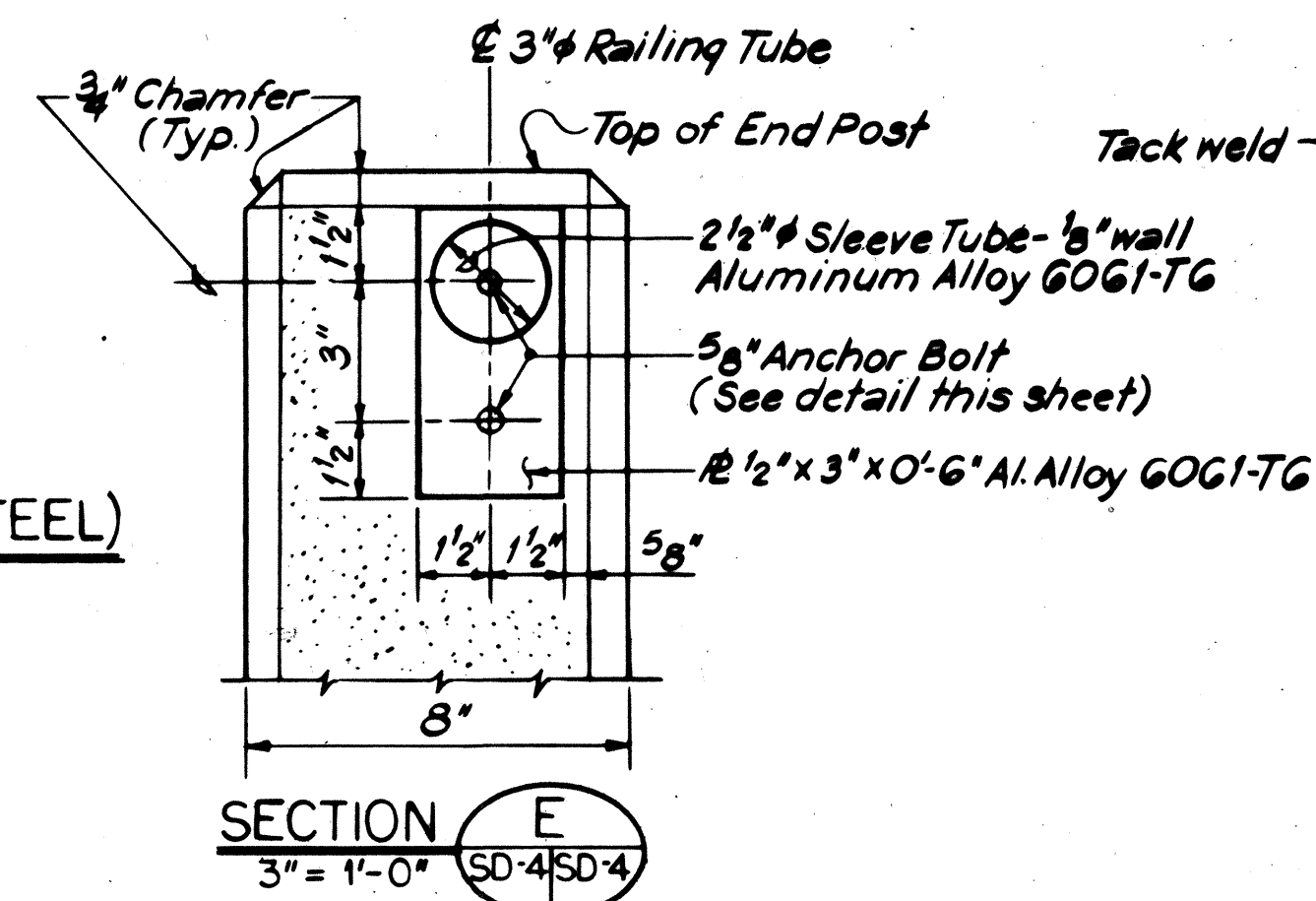
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	111(133)17	1981	126	159

NOTES:

- For cast post and rail see specifications.
- Unless otherwise specified:
Draft angle = 3° Casting tolerance = $\pm 1/16$ "
Corner radii = $1/8$ " R Wall thickness = $\pm 1/32$ "
Fillet radii = $3/8$ " R
- Cast post shall be of Aluminum Alloy A344-T4.
- Elastomeric or fabric pad between concrete parapet & bottom of each post shall be incidental to Metal Bridge Railing.
- Material shown on **DETAIL D** shall be incidental to the Metal Bridge Railing.



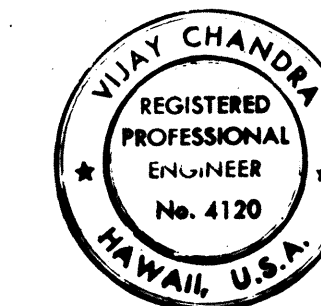
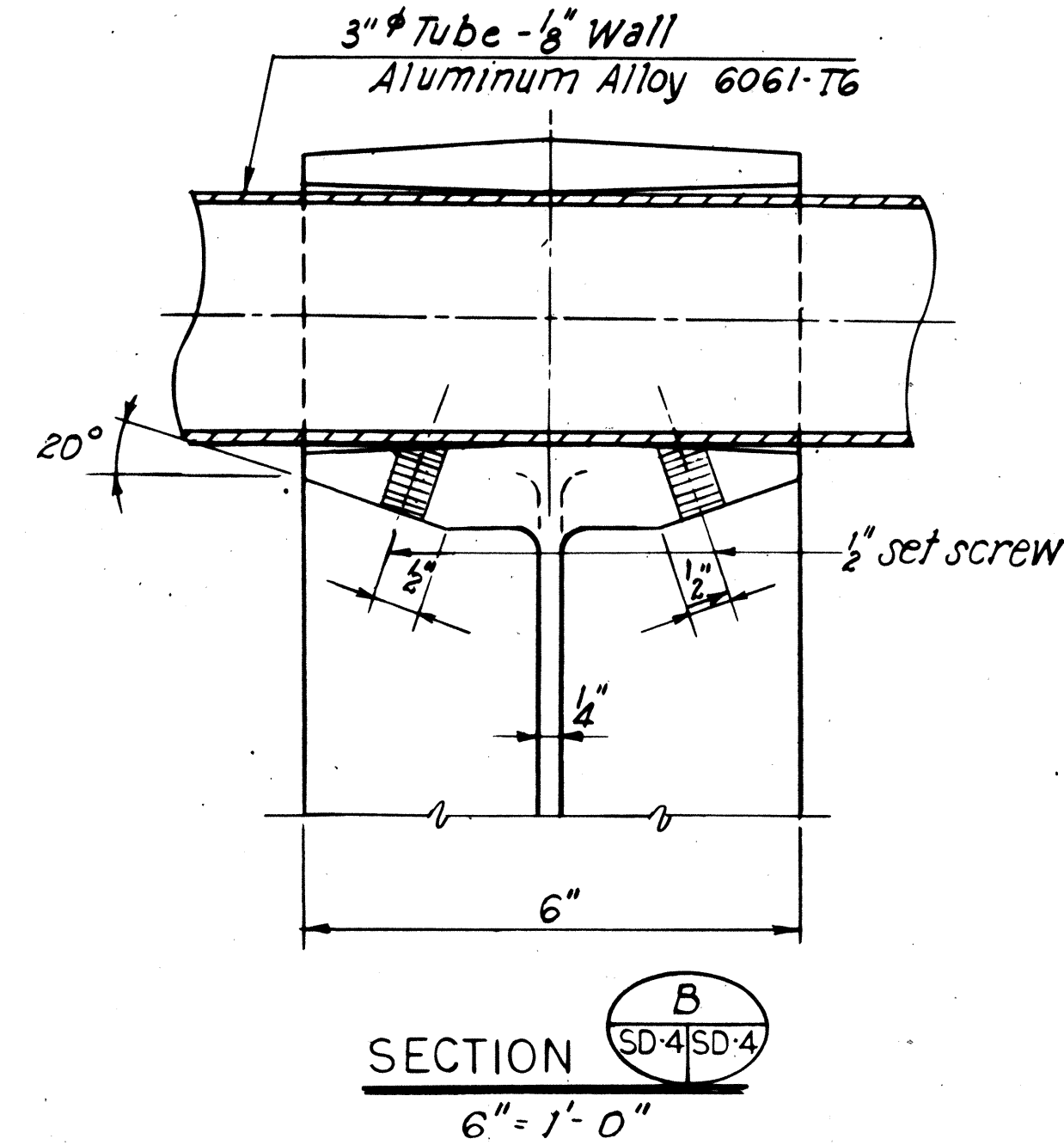
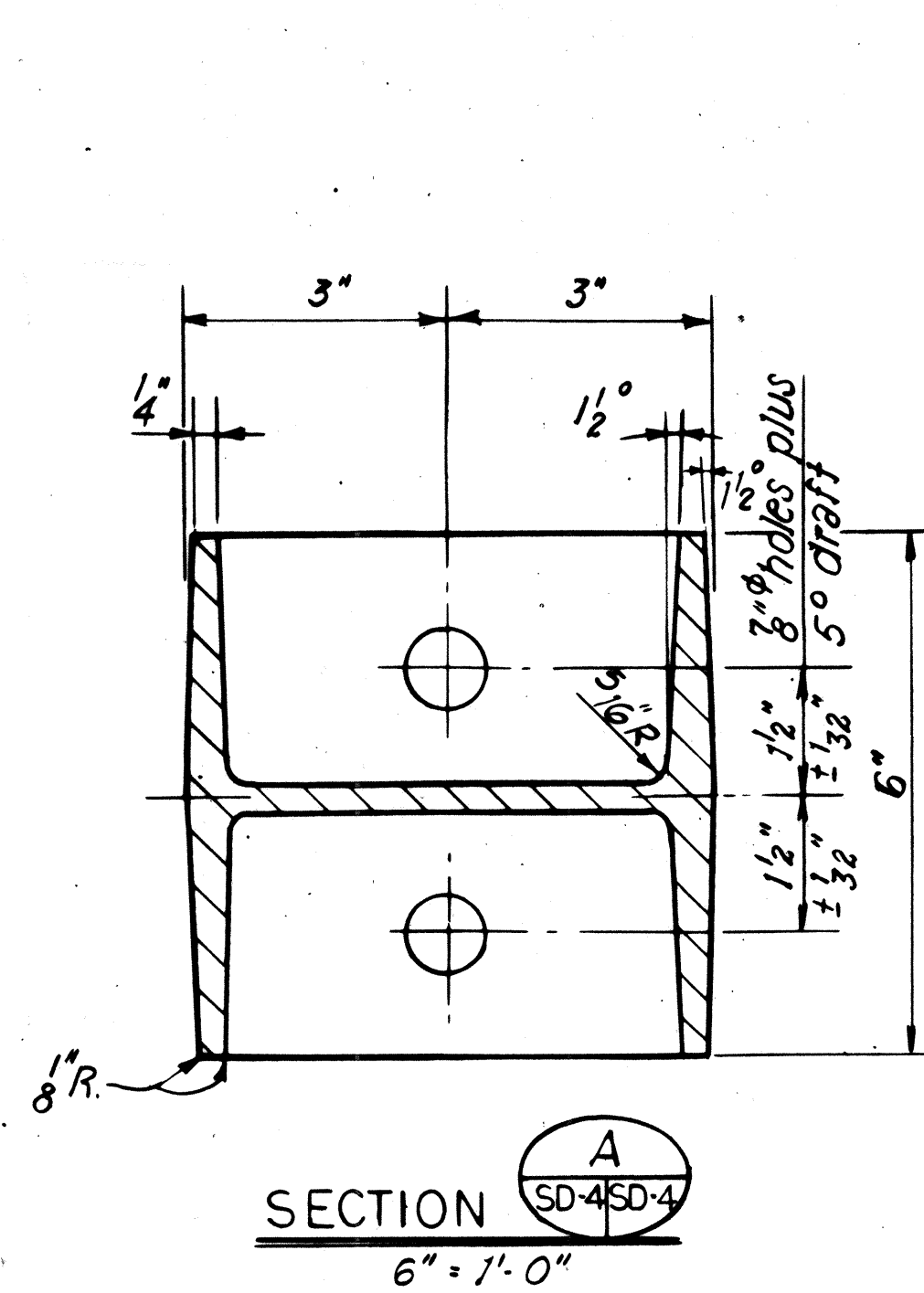
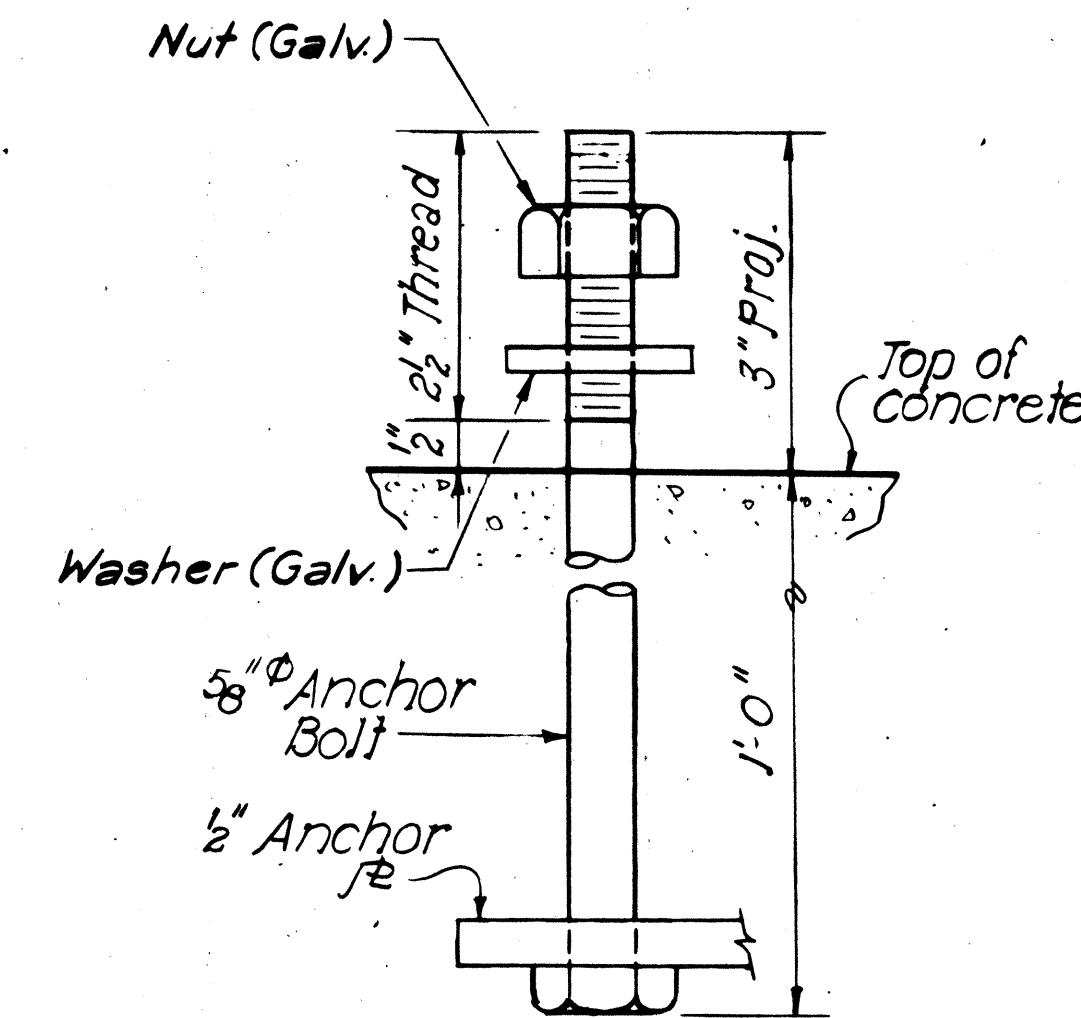
TYPICAL ANCHOR PLATE DETAILS (A36 STEEL)
Scale: 6" = 1'-0"



AT CONCRETE END POST

AT INTERMEDIATE JOINTS

ANCHOR BOLT (Galv. Steel ASTM A325)
(Incidental to Railing)
6" = 1'-0"



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD RAILING DETAILS

KEEHI INTERCHANGE
F.A.I. PROJECT NO. 1-HI-1(133)17
SCALE: AS SHOWN DATE: 4/30/81

SHEET No. SD-4 OF SD-13 SHEETS SD-4

Technical drawing of a standard end post for a guard rail, showing dimensions and construction details.

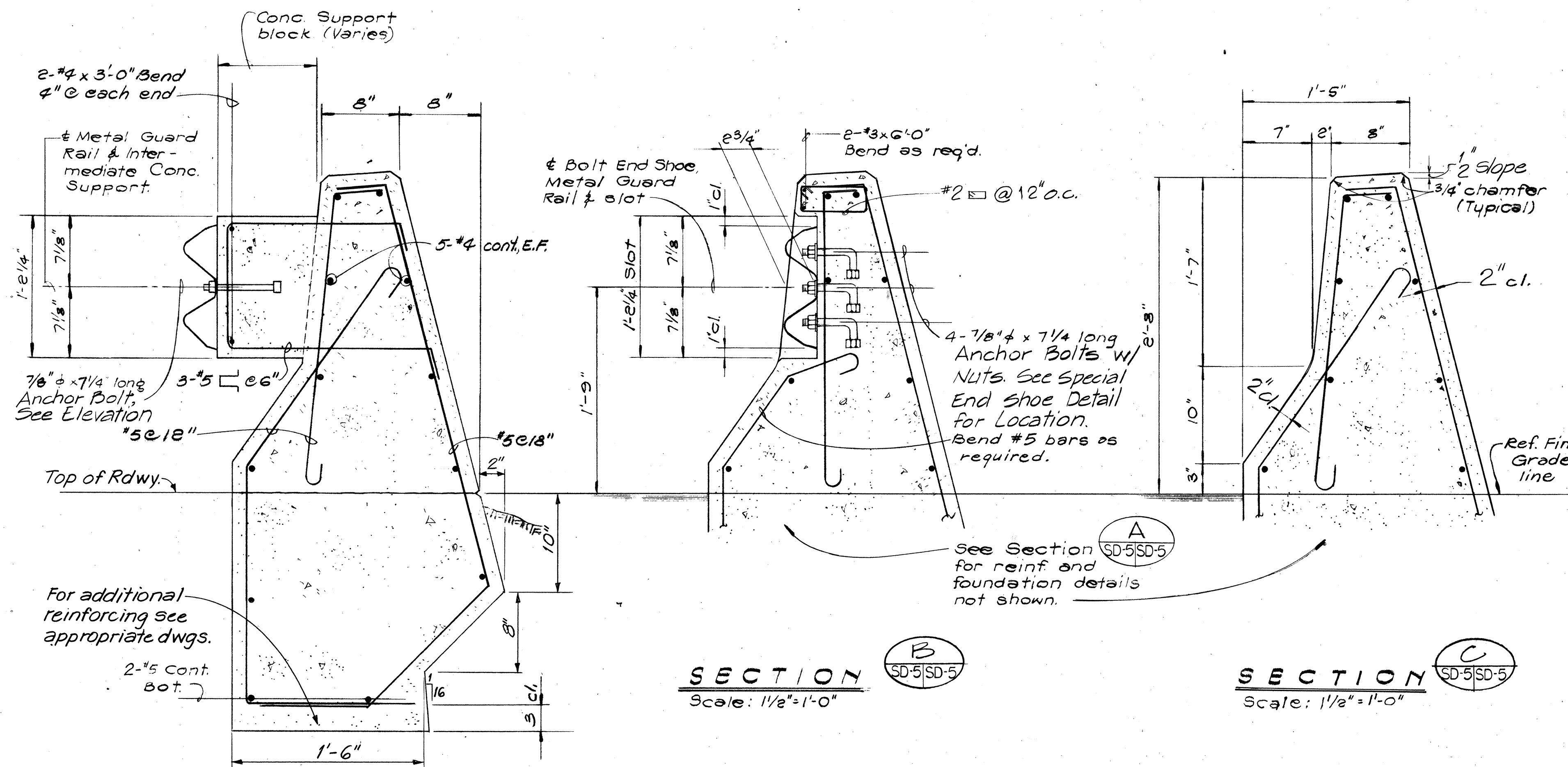
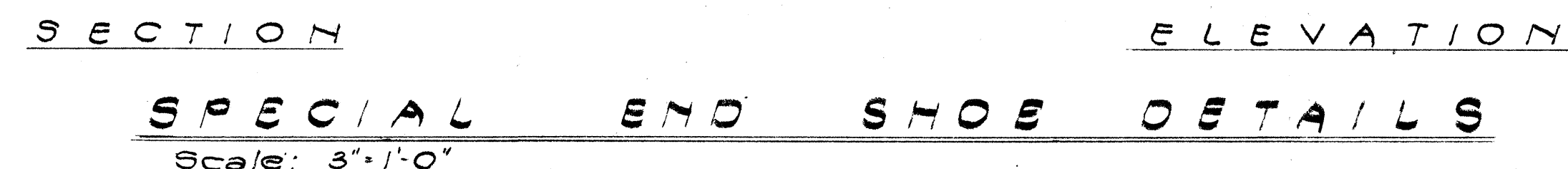
Dimensions and Labels:

- End of End Post:** Indicated by a dashed line and a circle labeled 'A' containing 'SD-5/SD-5'.
- Conc. support block:** Four monolithic w/conc. parapet. Dimensions: $2'-1\frac{3}{4}"$ slot, $1'-10\frac{3}{8}"$, $3\frac{3}{8}"$.
- End Post:** Dimensions: $1'-5"$, $7"$, $2"$, $8"$, 25° , $8\frac{1}{2}"$, $4\frac{1}{2}"$.
- Guard Rail Post & spacer block:** Indicated by a dashed line and a circle labeled 'B' containing 'SD-5/SD-5'.
- Battered face of conc. rail:** Indicated by a dashed line and a circle labeled 'C' containing 'SD-5/SD-5'.
- Special End Shoe:** Dimensions: $3'-1\frac{1}{2}"$, $7"$, $1"$ Clear.
- Ref. line & $\frac{5}{8}" \phi \times 7\frac{1}{4}"$ long anchor Bolt:** Indicated by a dashed line.
- 25'-0" (2-Standard Guard Rail Panels) Supports @ $3'-1\frac{1}{2}"$ oc:** Indicated by a dashed line.
- 6'-6" (Inside face of End Post):** Indicated by a dashed line.
- 10'-0" Radius P.C.:** Indicated by a dashed line.
- 2'-4" x 3'-0" 4" C each:** Indicated by a dashed line.
- 2'-4" x 3'-0" 4" C each:** Indicated by a dashed line.
- 2'-4" x 3'-0" 4" C each:** Indicated by a dashed line.

Scale: 1" = 1'-0"



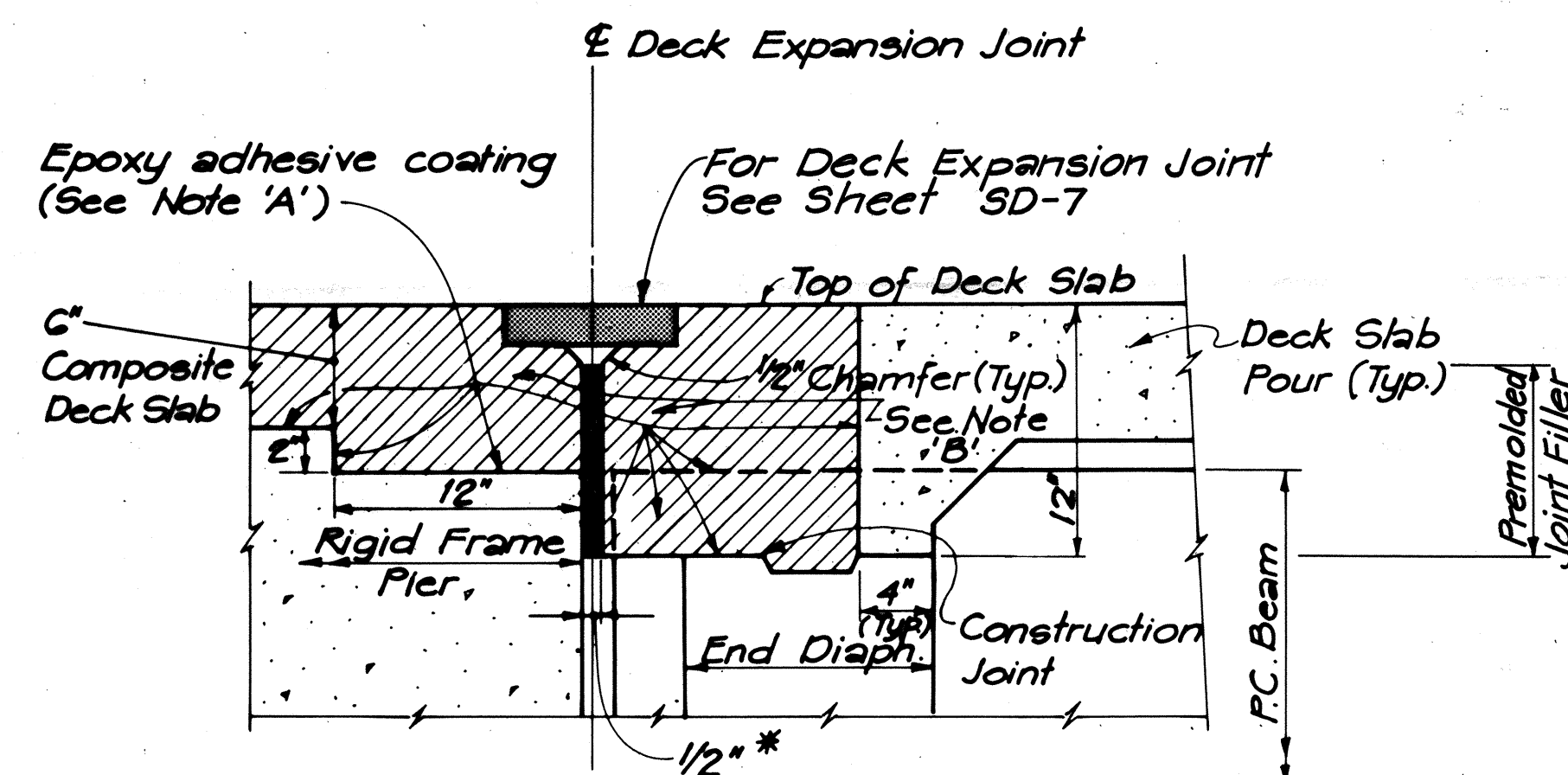
1. All Anchor Bolts shall be High Strength bolts conforming to the requirements of ASTM A325
2. All Shoe assembly, including anchor bolts, nuts and washers shall be galvanized.
3. Special End Shoe shall be fabricated from 10 gage steel conforming to the requirements of AASHTO 180.
4. First 25'-0" of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



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

SHEET NoSD-5 OFSD-13SHEETS SD-5

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1(133)17	1981	128	159

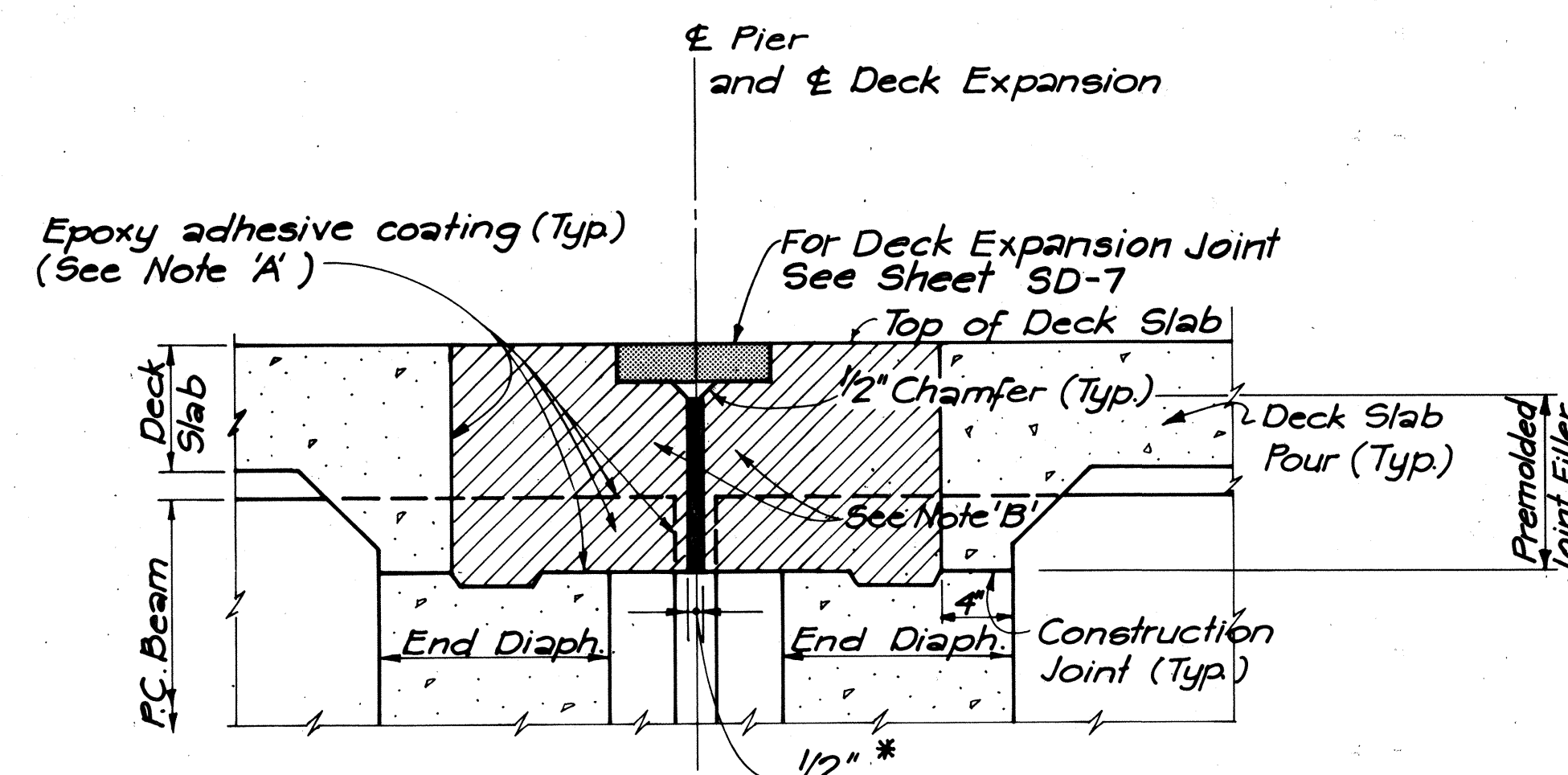


TYPICAL DECK SECTION AT RIGID FRAME
N.T.S.

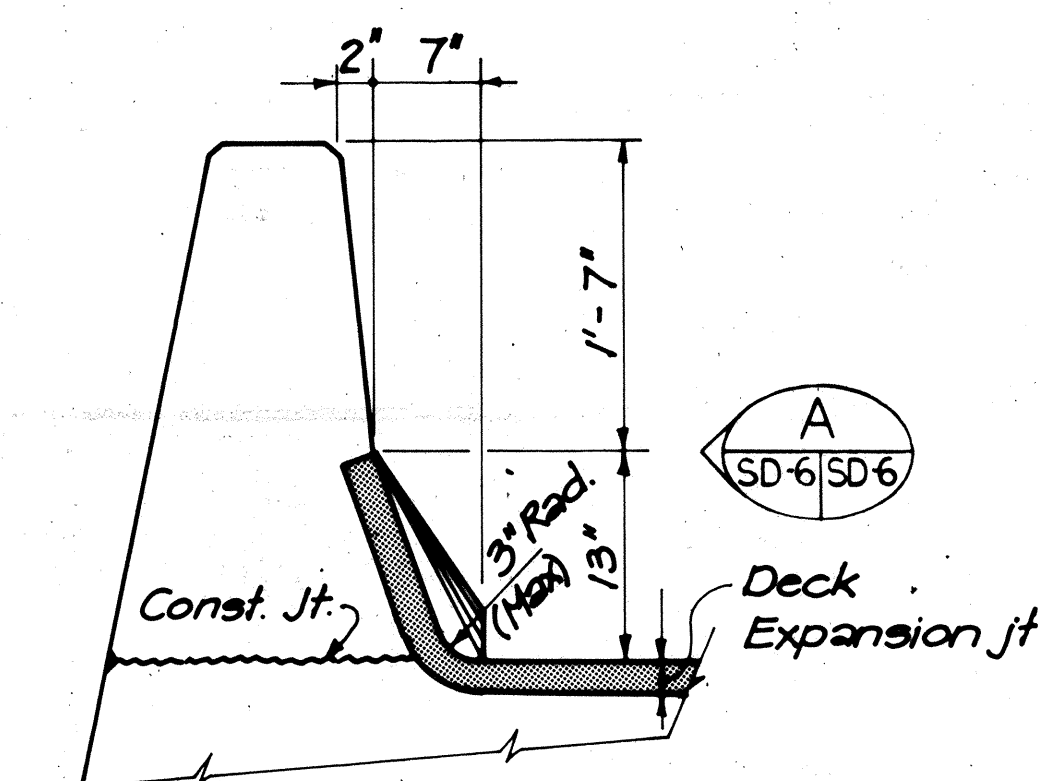
NOTE 'A': Just prior to concreting of the hatched areas, coat the indicated surfaces with an epoxy adhesive. (See Special provision Sec.705.13)

NOTE 'B': Hatched Areas shall be concreted after 14 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.

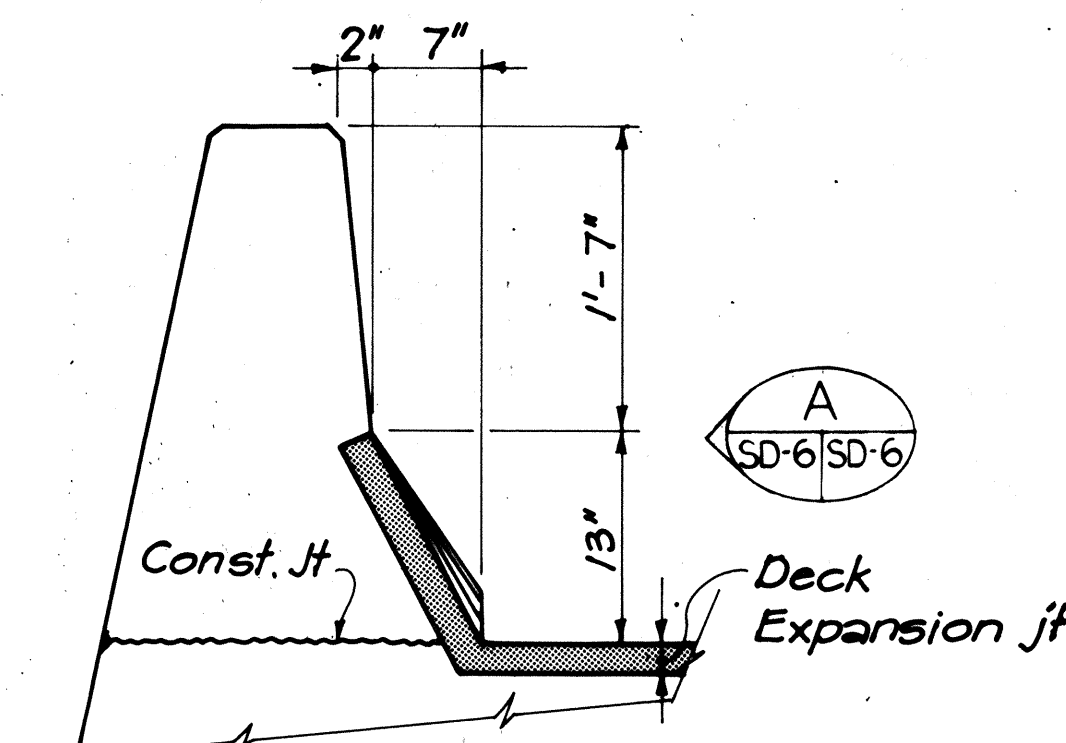
* Joint opening at time of installation of joint. Joint to be formed by Premolded filler.



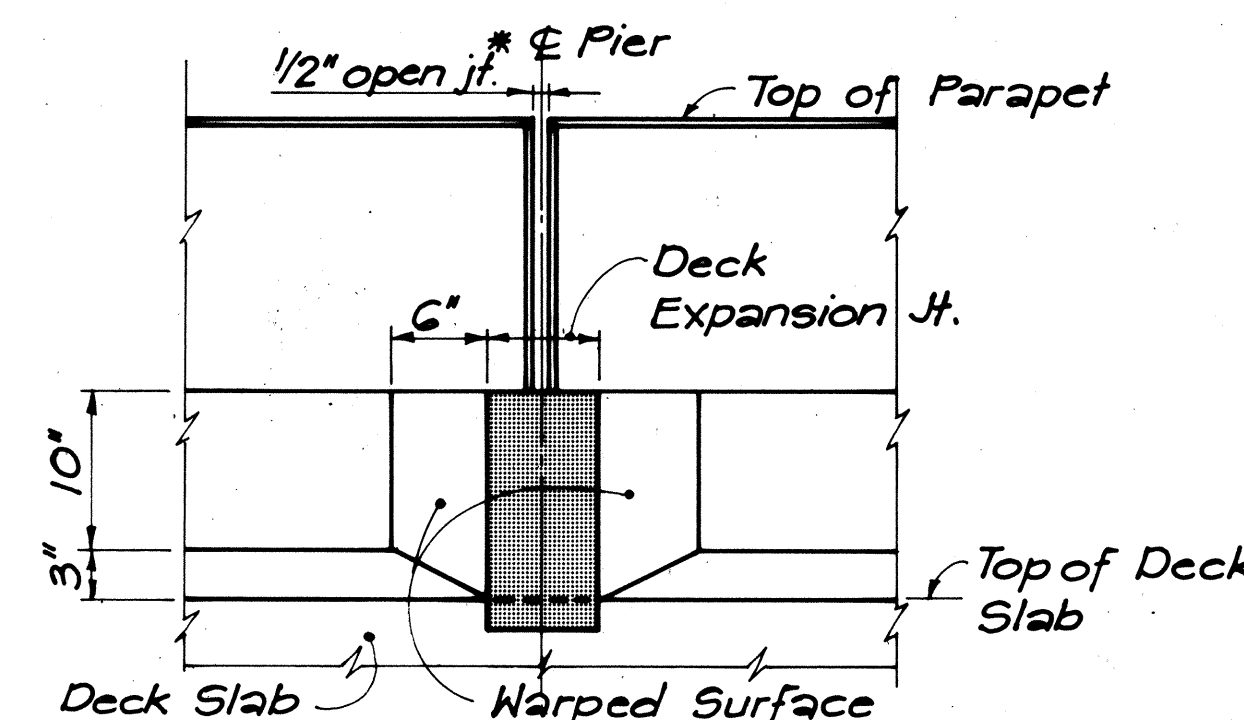
**TYPICAL DECK SECTION
(AT ALL PIERS EXCEPT RIGID FRAMES)**
N.T.S.



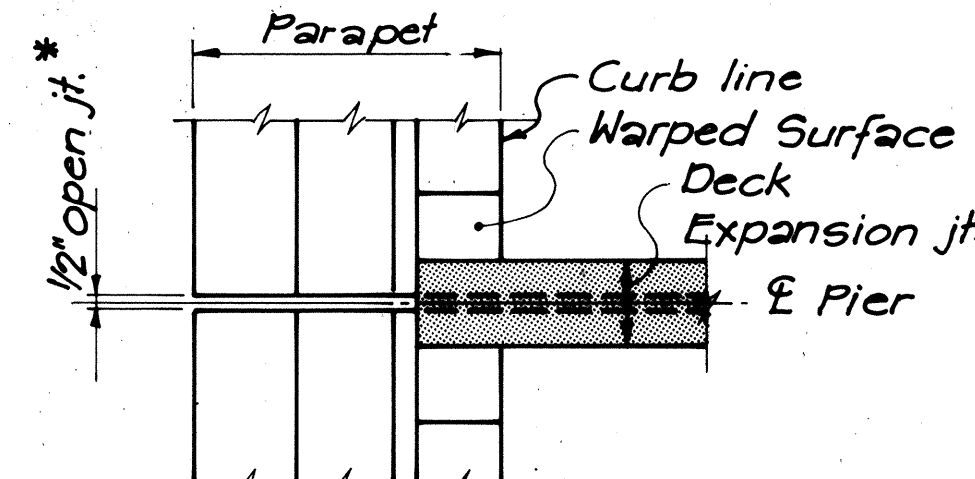
TYPICAL SECTION AT STANDARD PARAPET



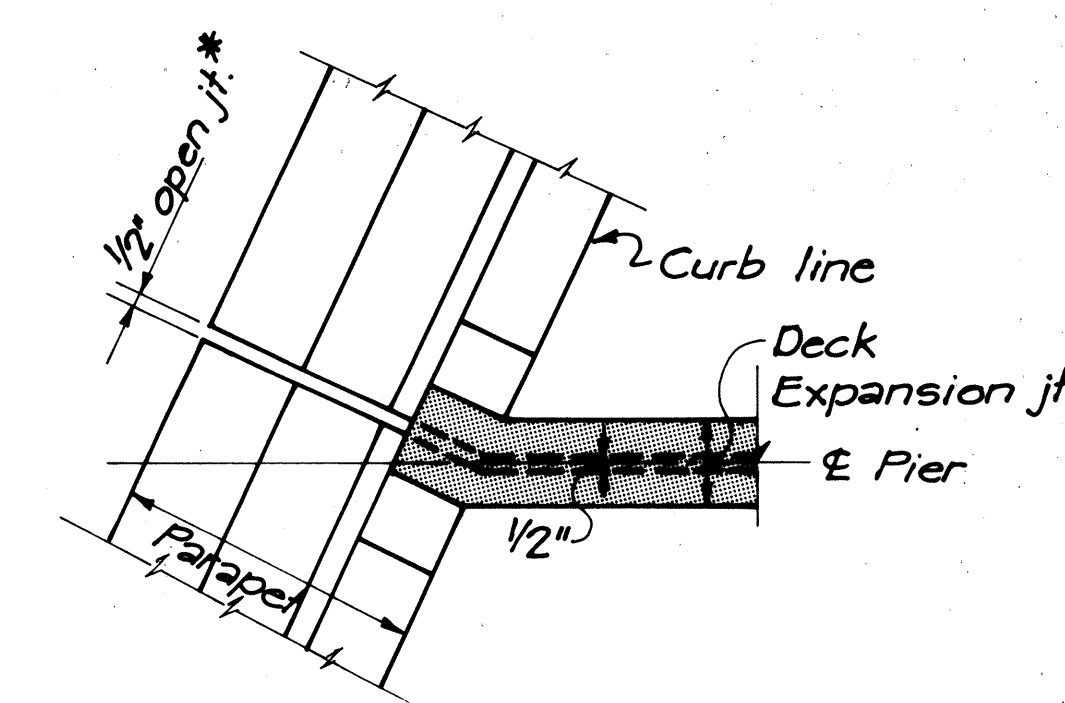
ALTERNATE DETAIL AT PARAPET
N.T.S.



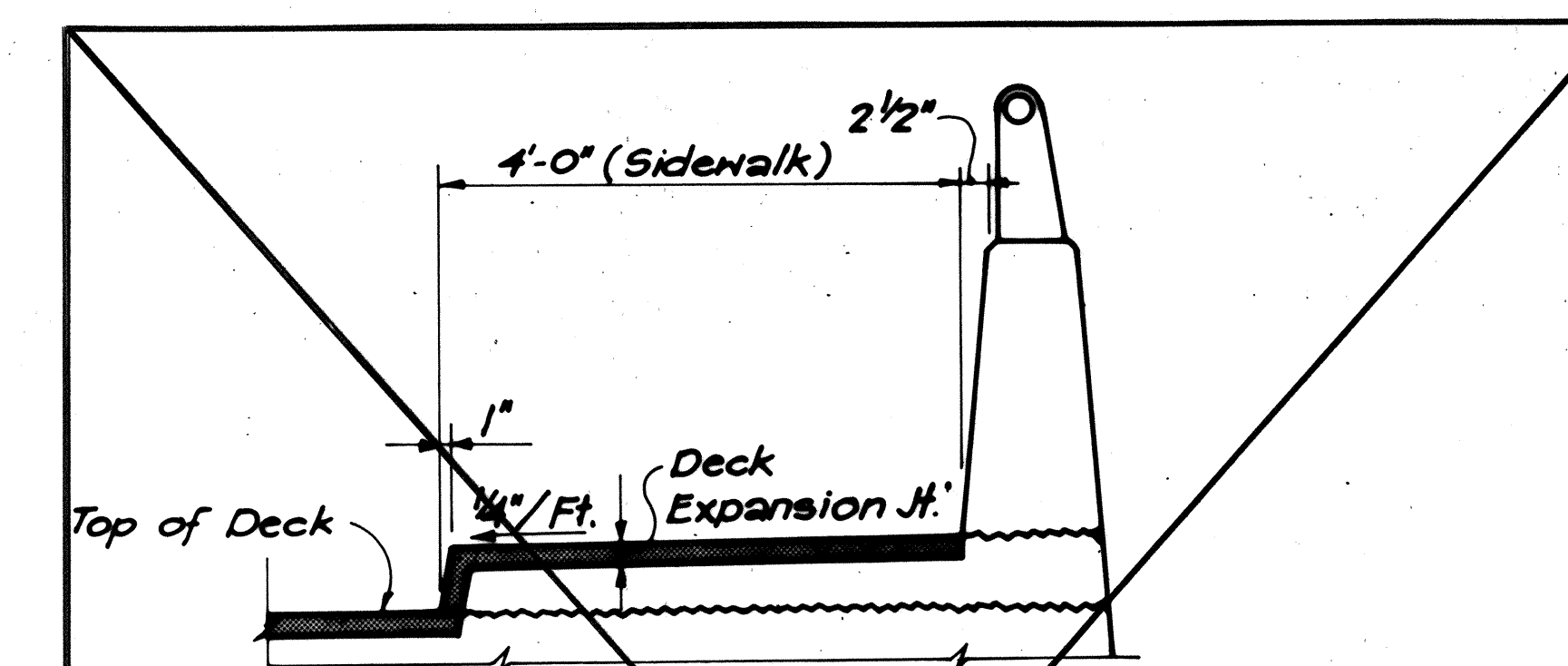
VIEW A
N.T.S. SD-6/SD-6



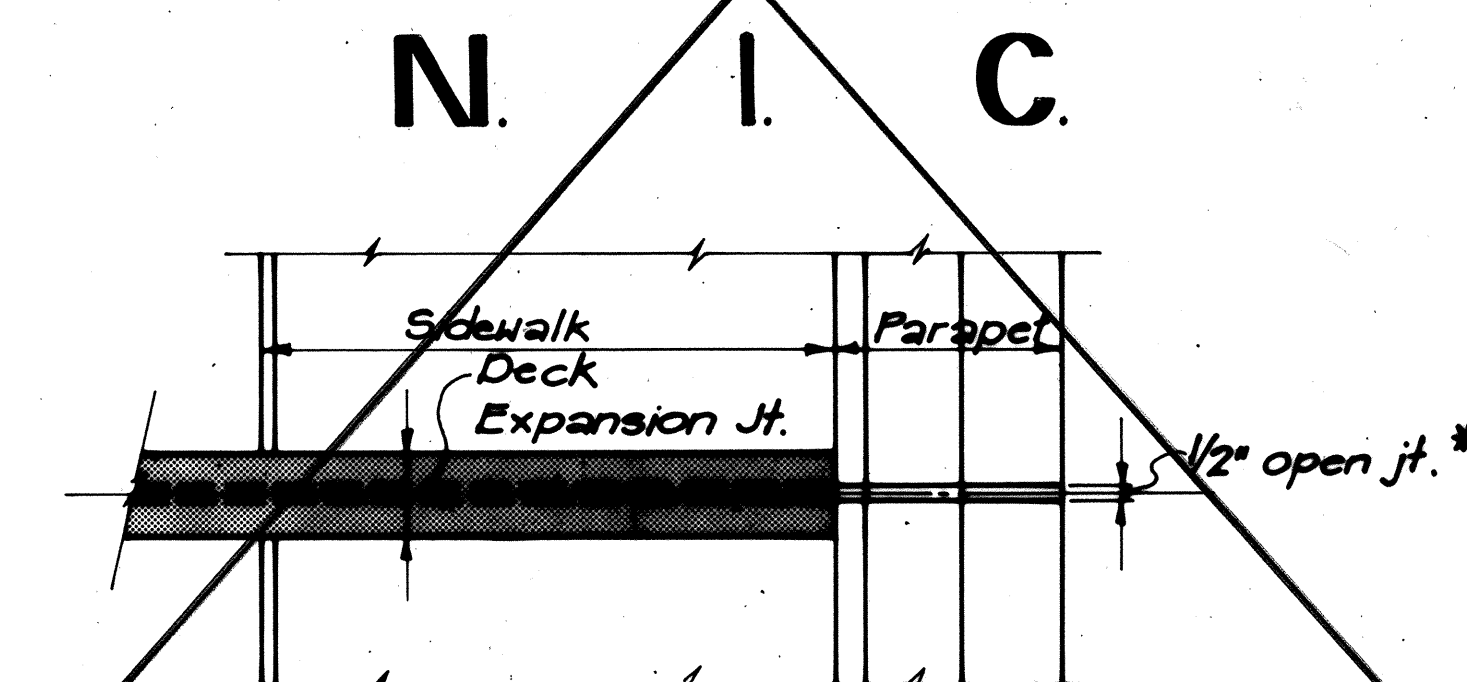
TYPICAL PLAN - SKEW ANGLE = 0°-15°
N.T.S.



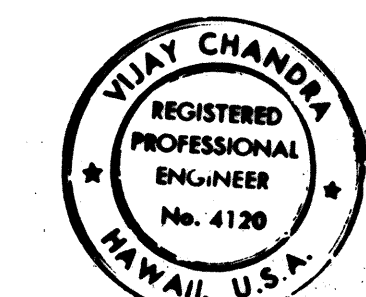
TYPICAL PLAN - SKEW ANGLE = OVER 15°
N.T.S.



TYPICAL SECTION AT SIDEWALK PARAPET
N.T.S.



TYPICAL PLAN
N.T.S.



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Vijay Chandra
Signature

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

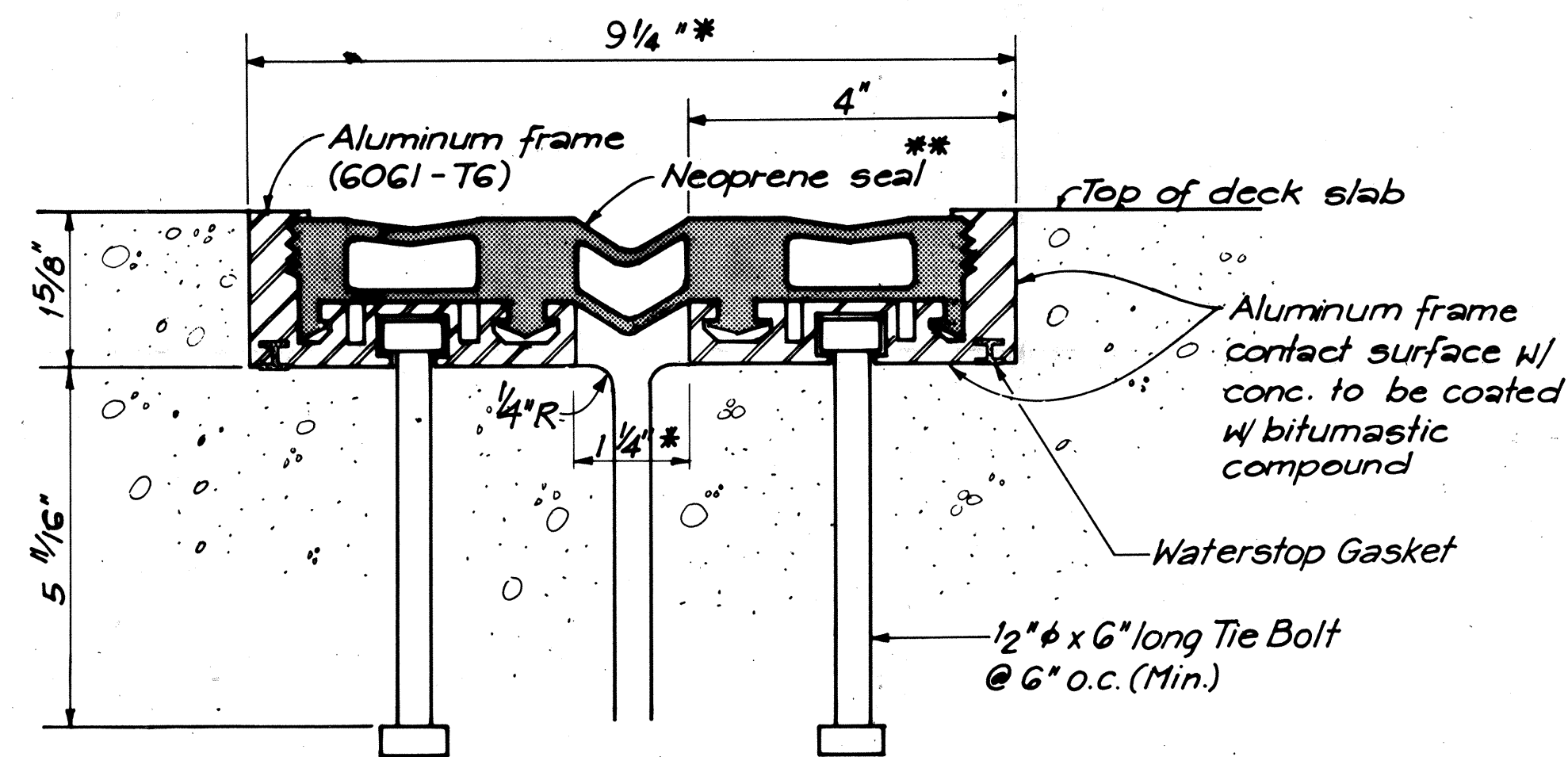
STANDARD DETAILS

DECK EXPANSION JOINT
SHEET 1 OF 2

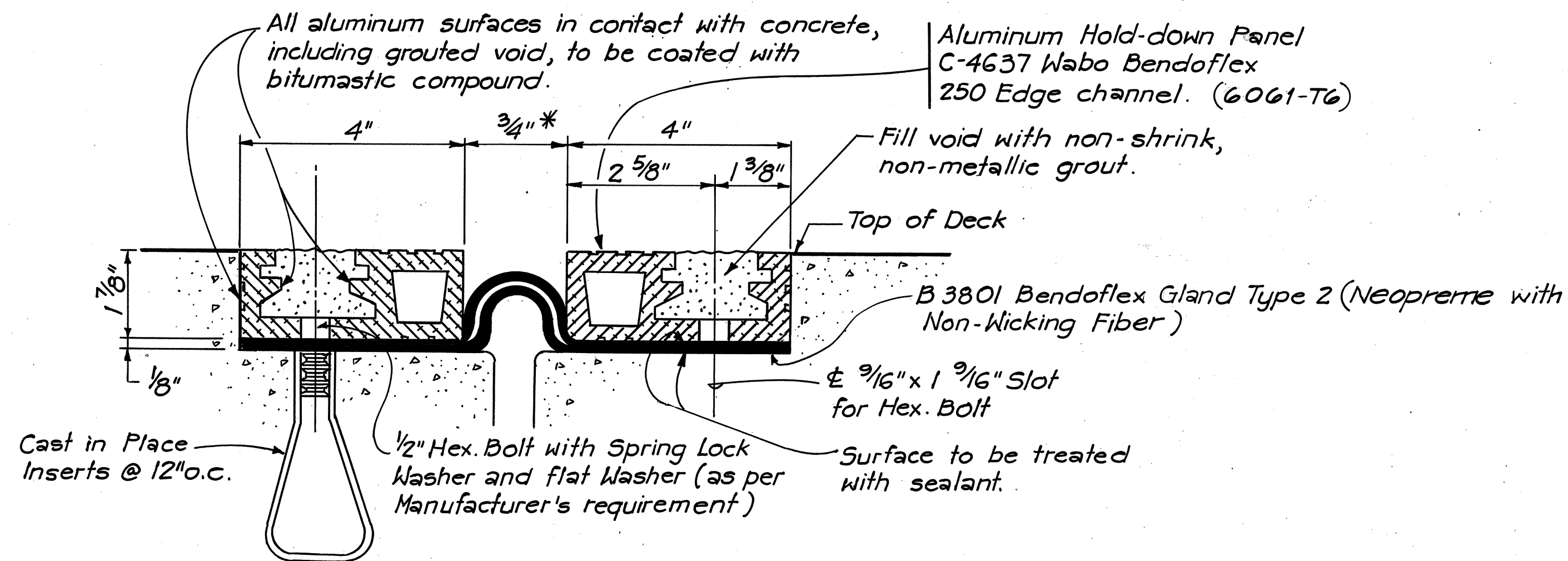
KEEHI INTERCHANGE
F.A.I. PROJECT NO. 1-HI-1(133)17
SCALE: DATE: 4/30/81

SHEET No. SD-6 OF SD-13 SHEETS SD-6

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HH(133)17	1981	129	159

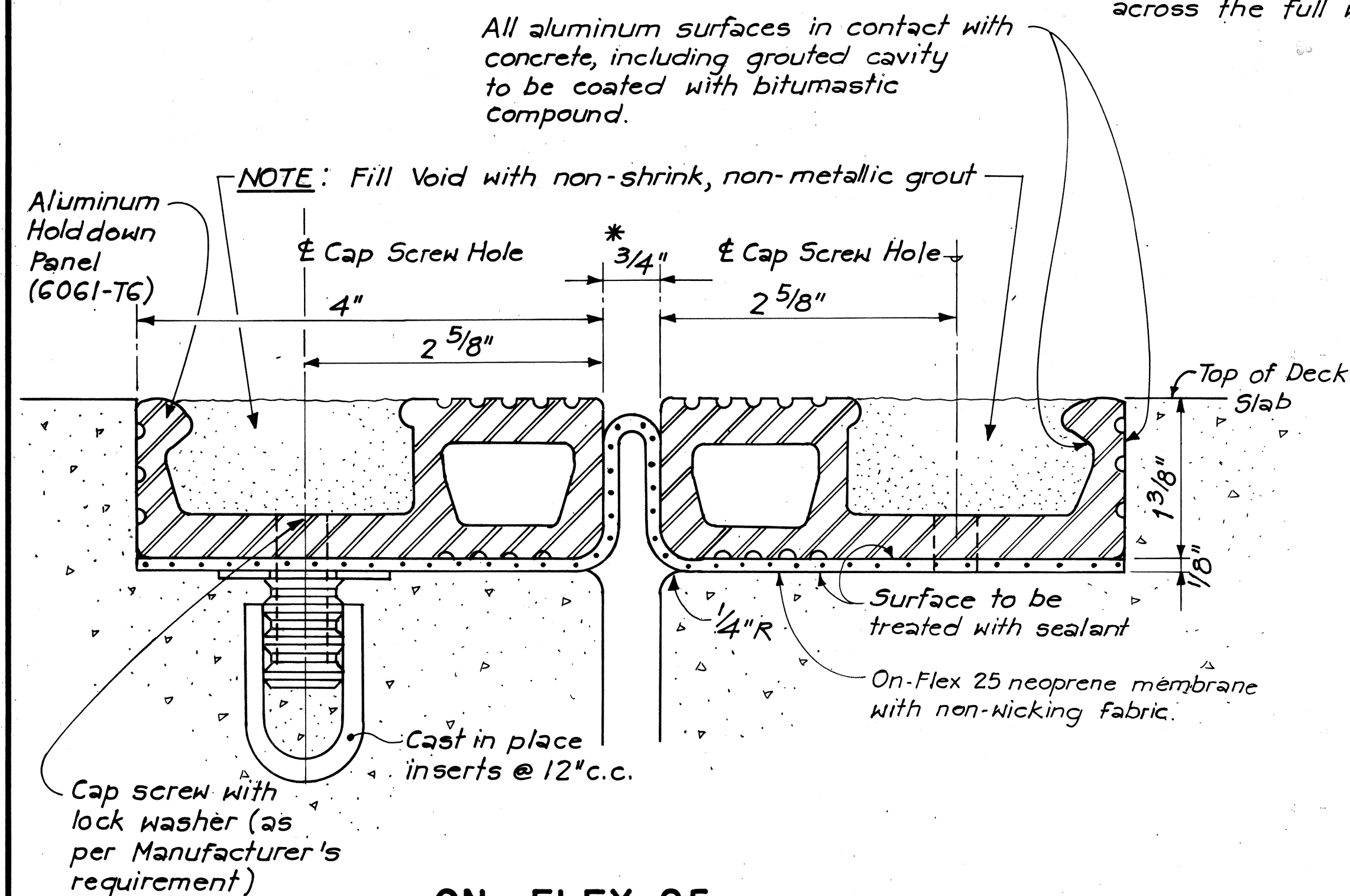


DELASTIFLEX TYPE SM200
(Manufacturer: D.S. Brown & Co.)



WABO BENDOFLEX 250
(Manufacturer: Watson Bowman Ass. Inc.)

- * = Installation width @ 75°F
** = Seal Gland or membrane shall be continuous across the full width of the Structure.

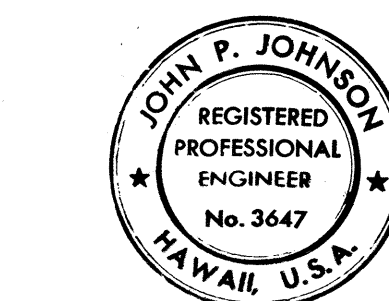


ON - FLEX 25
(Manufacturer: Structural Accessories Inc.)

NOTES:

- Three 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.
- The Contractor also has the option of using an alternative Deck Expansion Joint System provided it complies with the requirements of the plans and specifications.

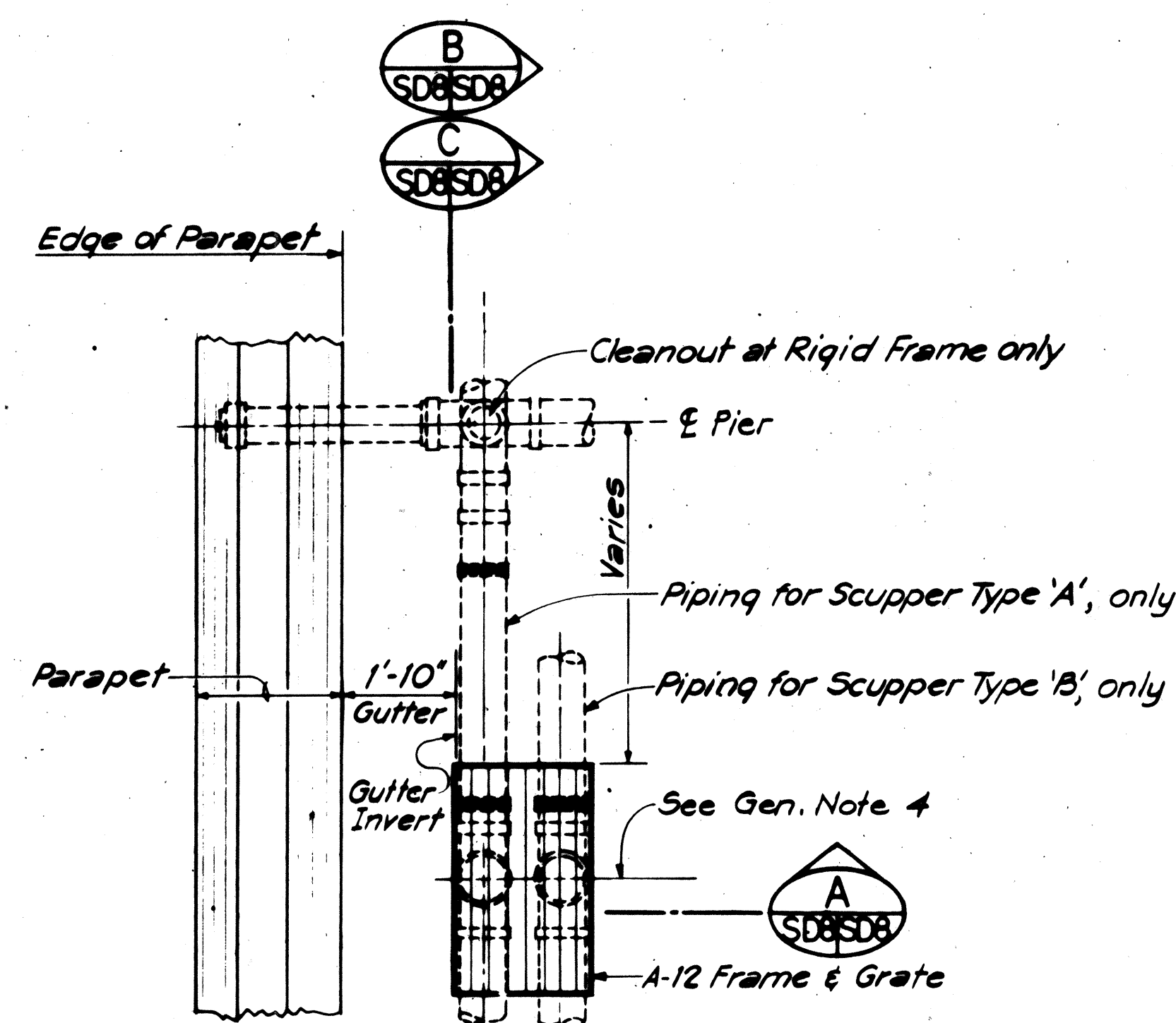
SURVEY PLOTTED BY	DATE
DRAWN BY	
CHECKED BY	
NOTE BOOK	
NO.	



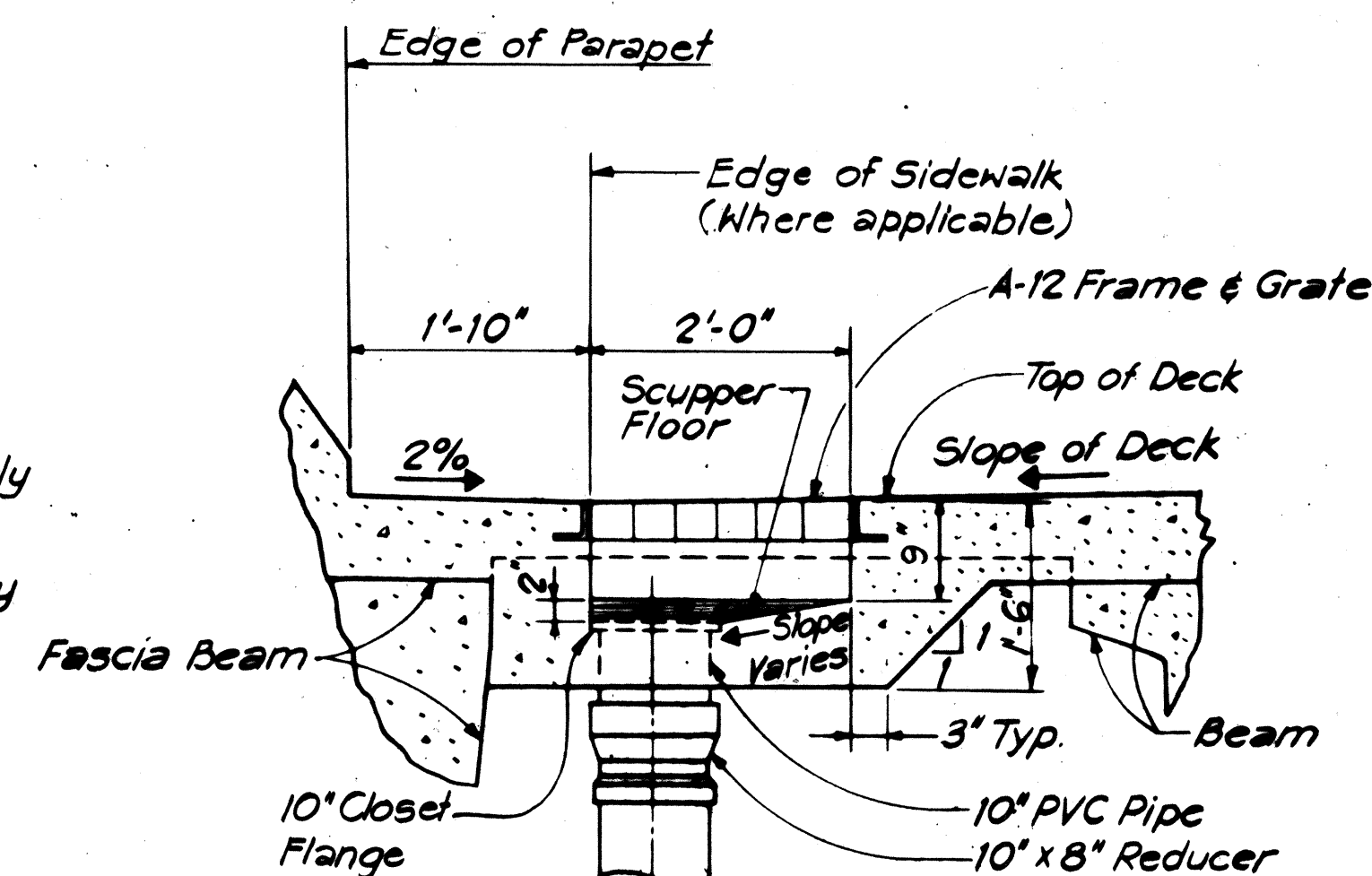
THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.
John P. Johnson

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
STANDARD DETAILS
DECK EXPANSION JOINT
SHEET 2 OF 2
KEEHI INTERCHANGE F.A.I. PROJECT NO. 1-HI-1(153)17
SCALE: NONE DATE: 4/30/81
SHEET No. SD-7 OF SD-13 SHEETS SD-7

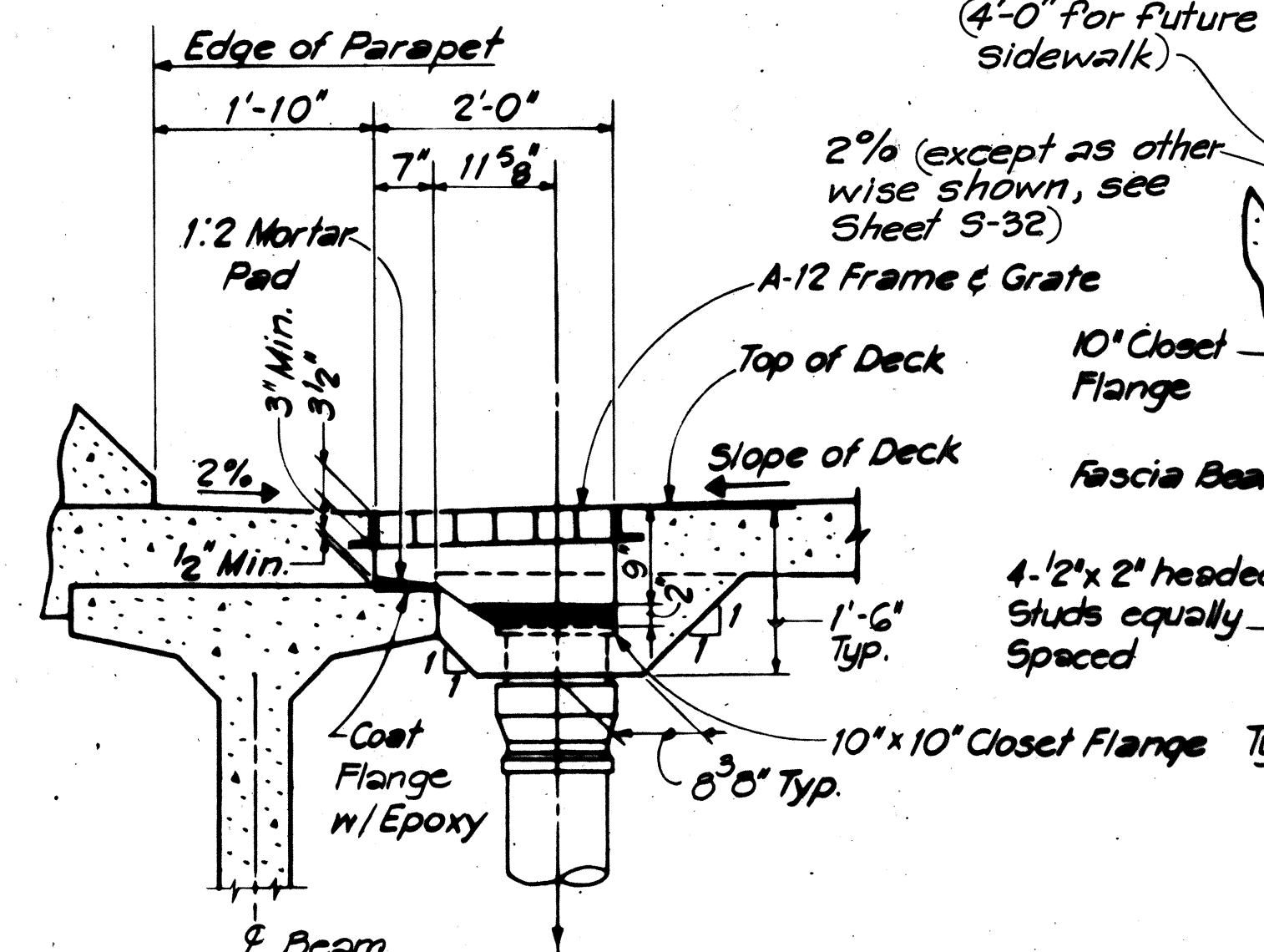
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HM-13317	1981	130	159



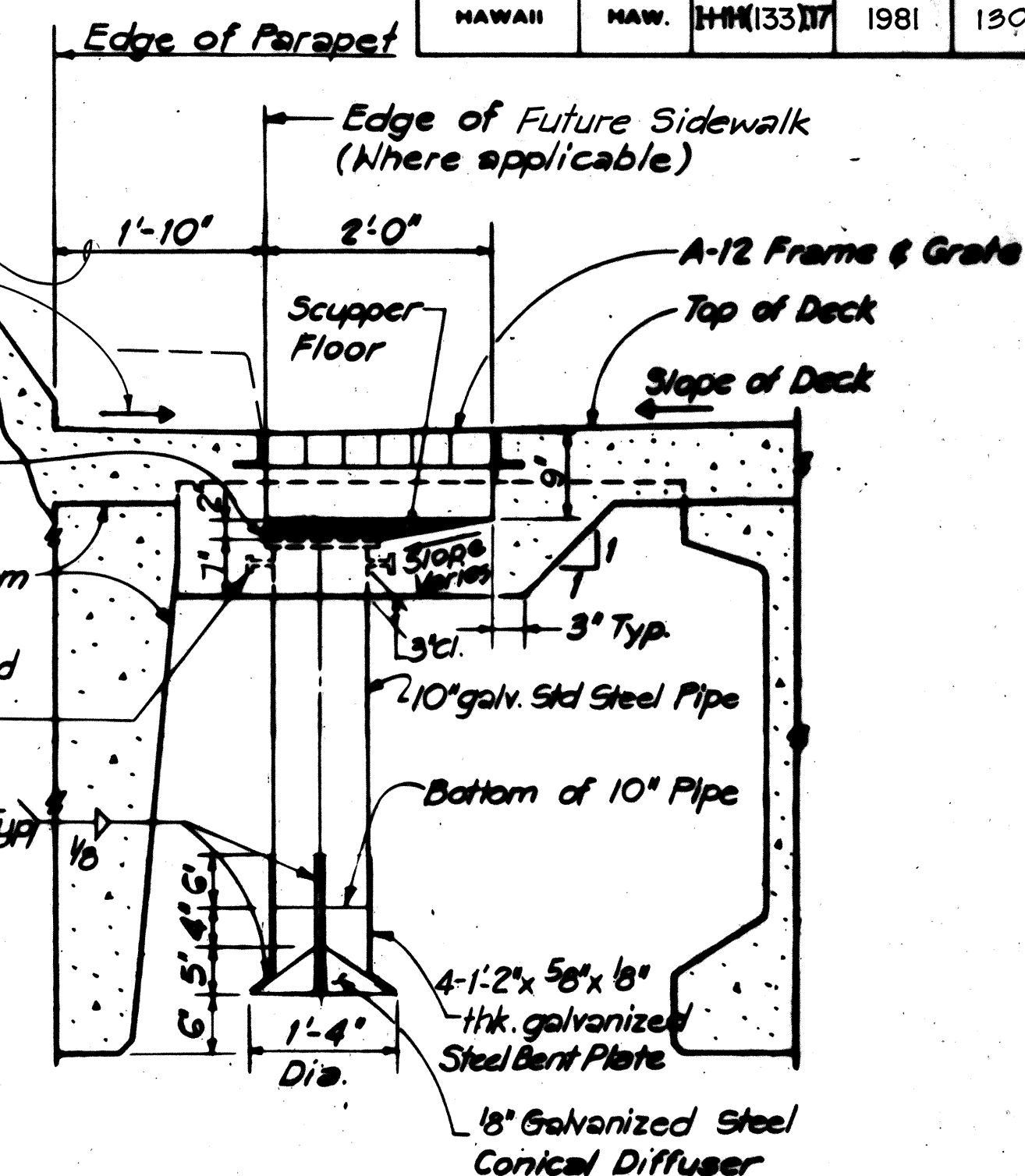
PLAN - SCUPPER
SCALE: 1/2"=1'-0"



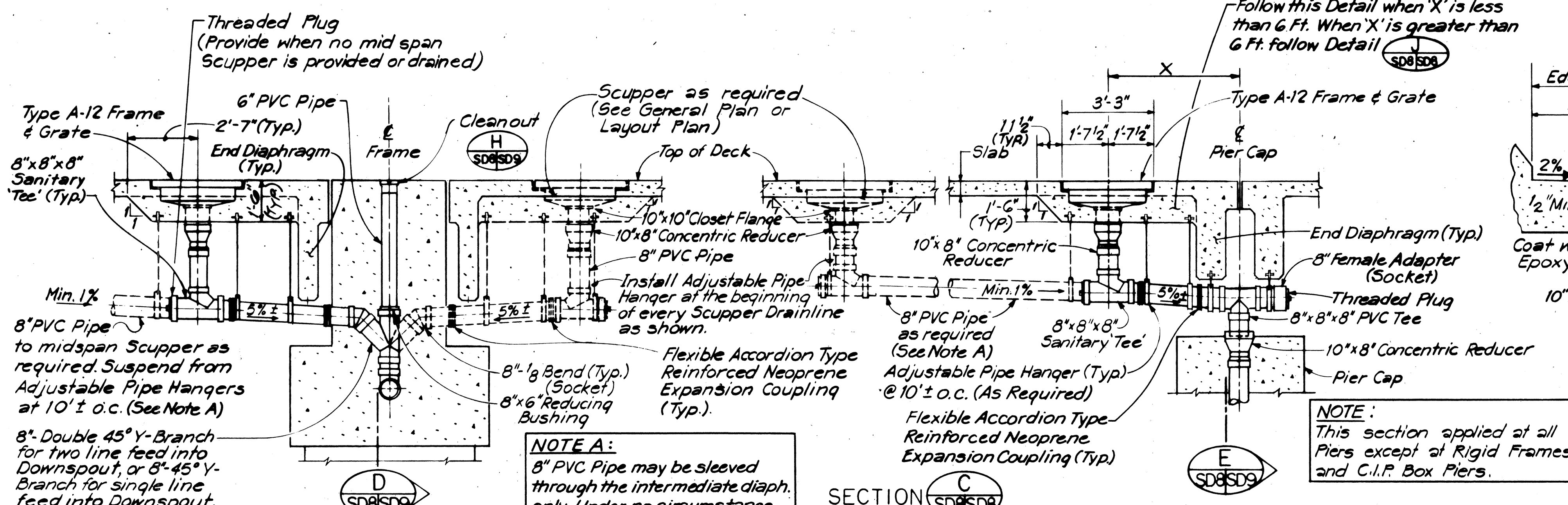
SECTION 
SCUPPER TYPE 'A'
SCALE: 3/4"=1'-0"



SECTION A
SCUPPER TYPE 'B'
SCALE: 3/4"=1'-0"



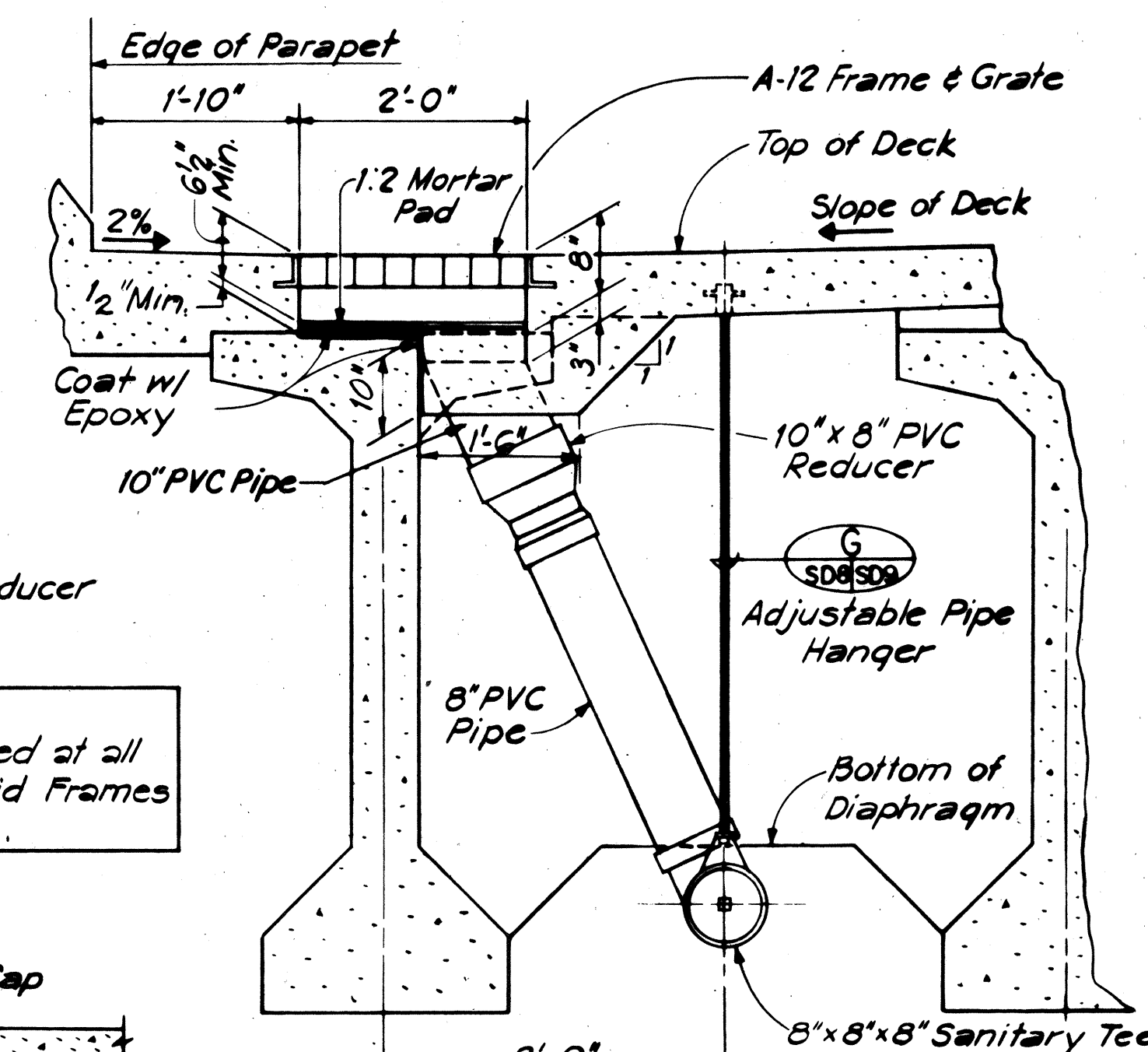
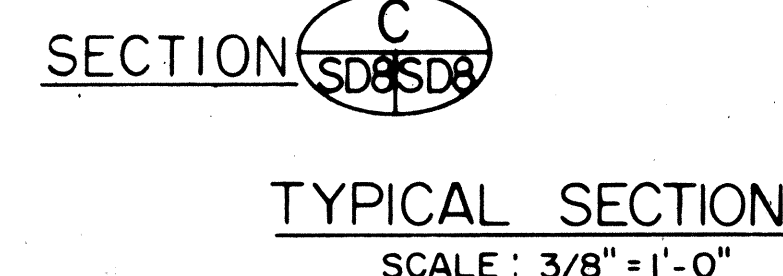
SCUPPER TYPE 'C'



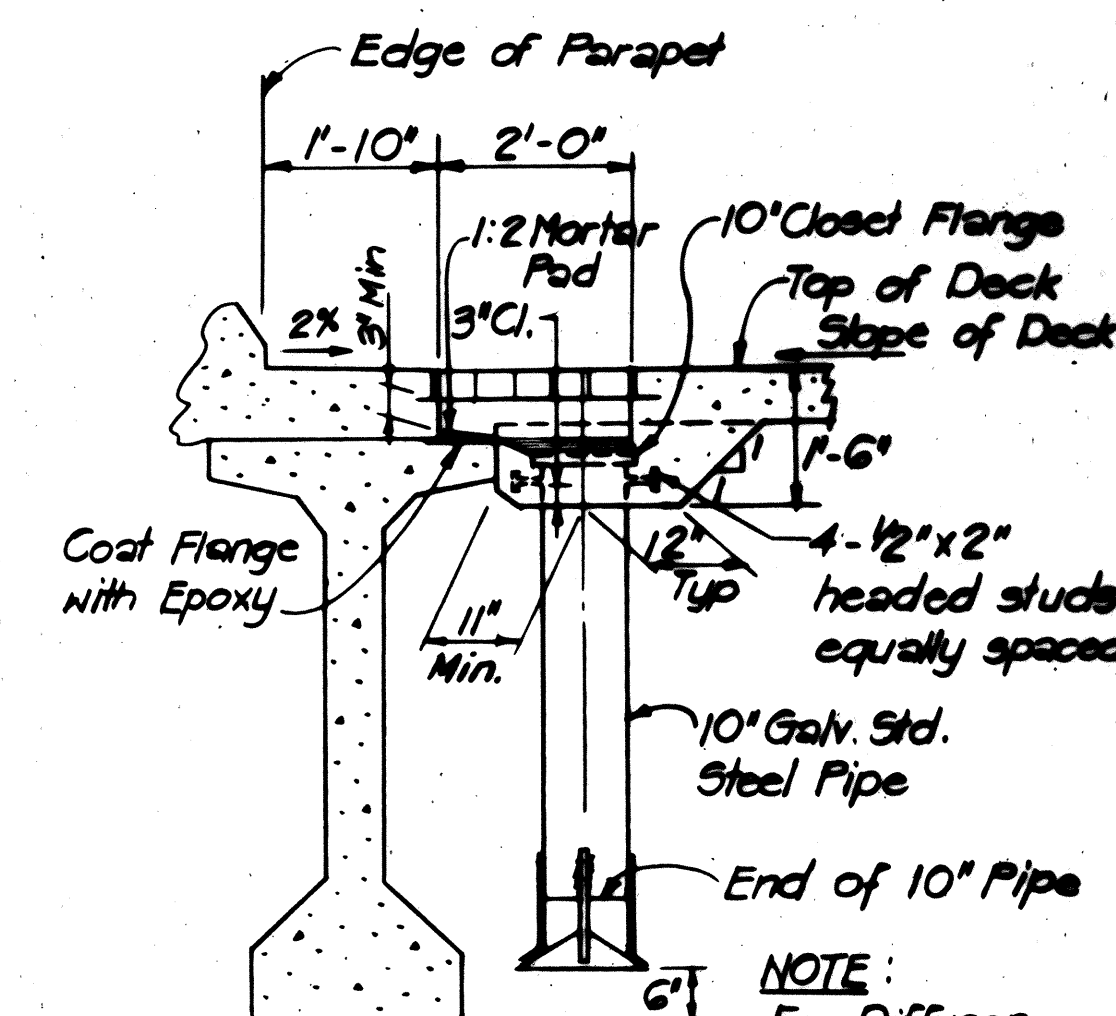
SECTION B shall the 8' through the
508 SDO
502 SDO

TYPICAL SECTION (AT RIGID FRAME PIERS)

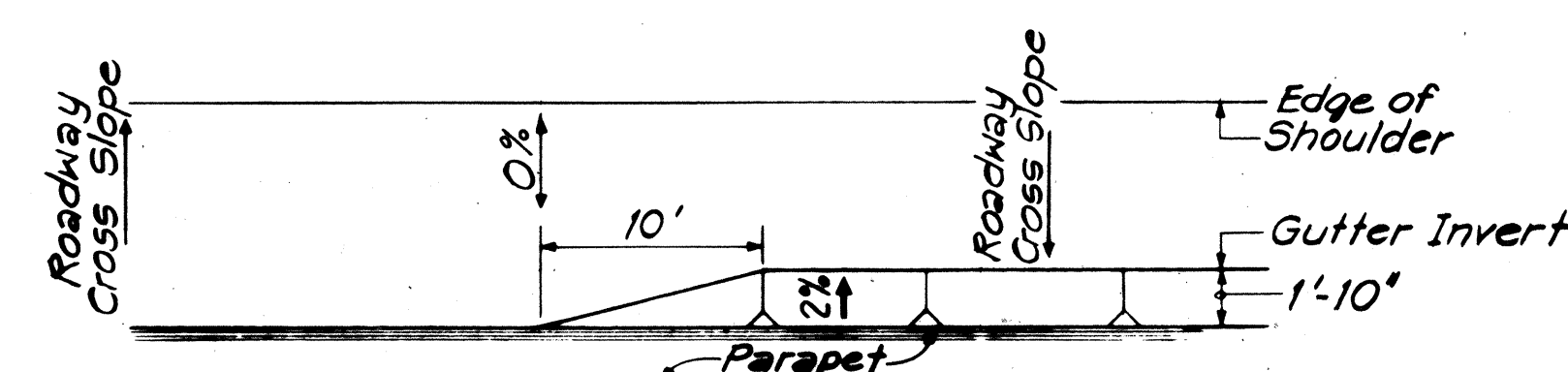
SCALE : 3/8" = 1'-0"



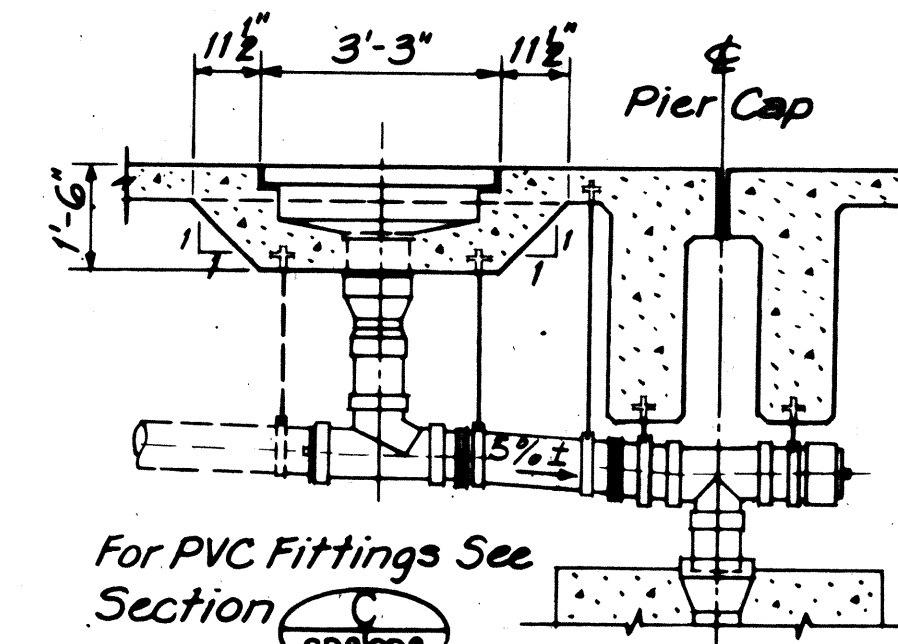
SCUPPER TYPE 'D'
SCALE: 3/4"=1'-0"



SCUPPER TYPE 'E' *Scupper Type 'C'*
SCALE: 1/2" = 1'-0"



TYPICAL GUTTER TRANSITION AT ROLLOVER
N.T.S.



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



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Vijay chandee
Signature

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

STRUCTURE DRAINAGE DETAILS

SHEET 1 OF 2

KEEHI INTERCHANGE
FA.1 PROJECT NO.1-HI-1 (133) :17

SCALE: AS SHOWN DATE: 4/30/80

SHEET NO.SD-8 OF SD-13 SHEETS SD-1

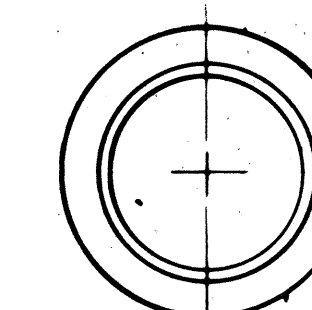
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI(133)17	1981	131	159

GENERAL NOTES:

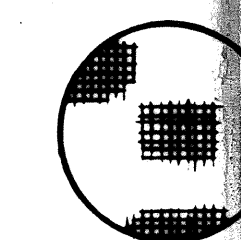
1. All Pipe Slopes shall be maximized to the greatest extent possible without extending below the bottom of the Beams.
2. All PVC Pipes shall be Type I Schedule 40.
3. Deck Drain Cleanout Metal Frame and Cover Casting shall be Ductile Iron. Designed for Highway Traffic Wheel Loads of 16,000Lbs And shall conform with ASTM Designation A 536.
4. For Location of Scuppers and Outfall Type, See General Plan (or Layout Plan) of Structure.

SECTION E SD9SD9

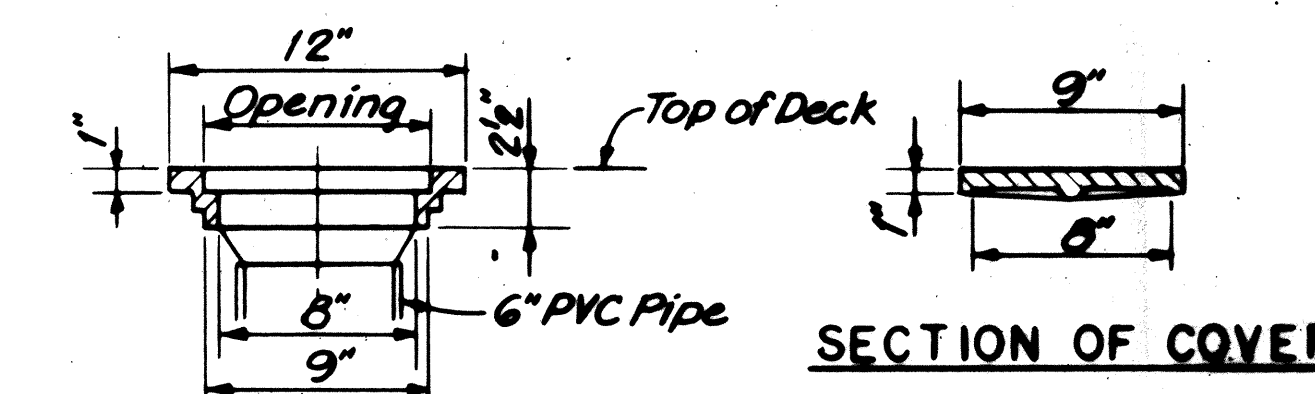
TYPICAL HAMMERHEAD PIER DOWNSPOUT (Applies to all Piers except Rigid Frames and C.I.P. Box Piers)



PLAN OF FRAME



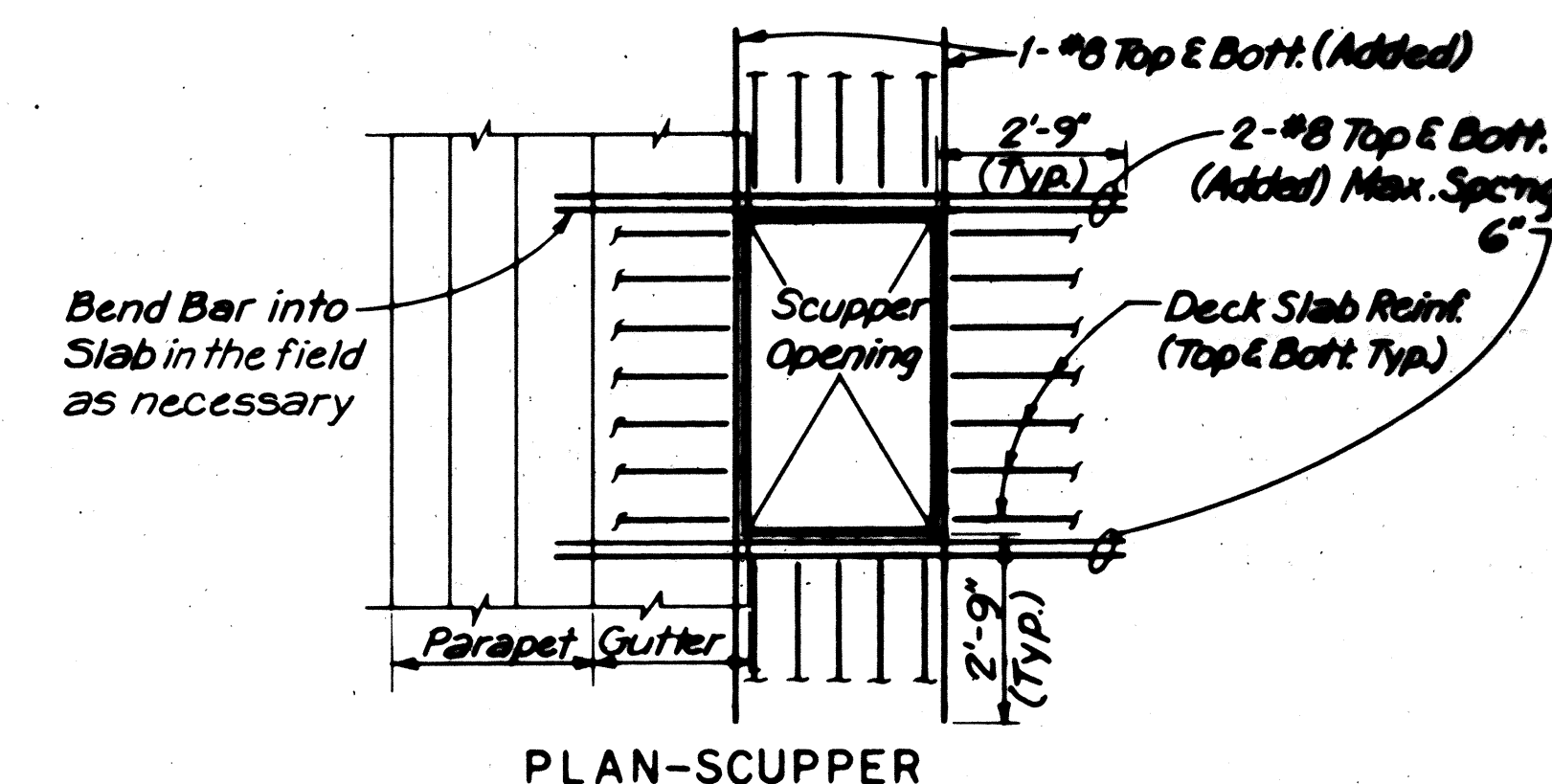
TOP VIEW OF COVER



SECTION OF COVER

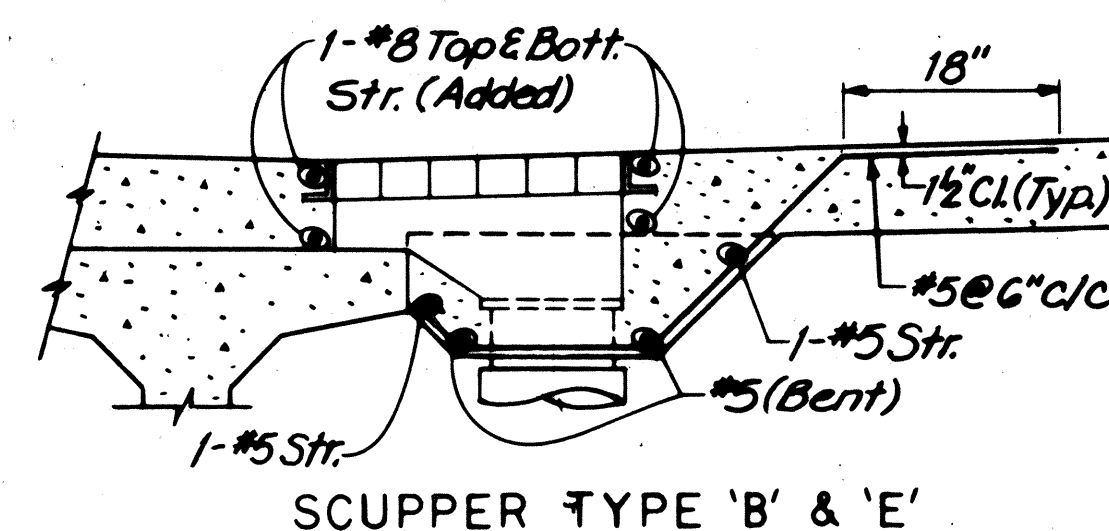
SECTION OF FRAME

TYPICAL DECK DRAIN CLEANOUT FRAME AND COVER

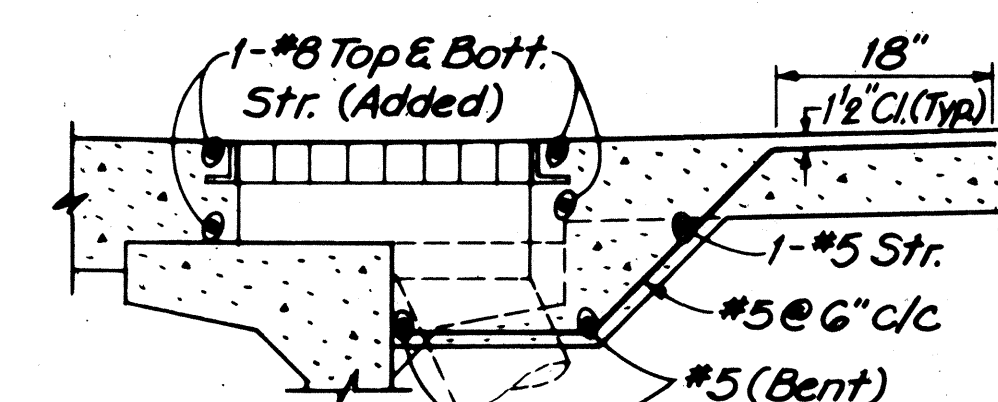


PLAN-SCUPPER

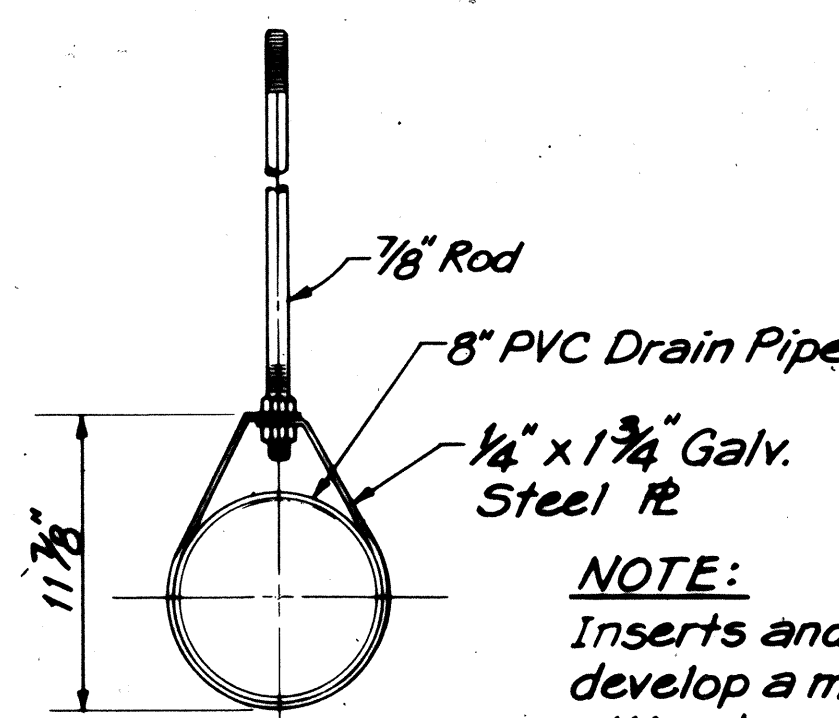
SECTION G SD9SD9



SCUPPER TYPE 'B' & 'E'



SCUPPER TYPE 'D'

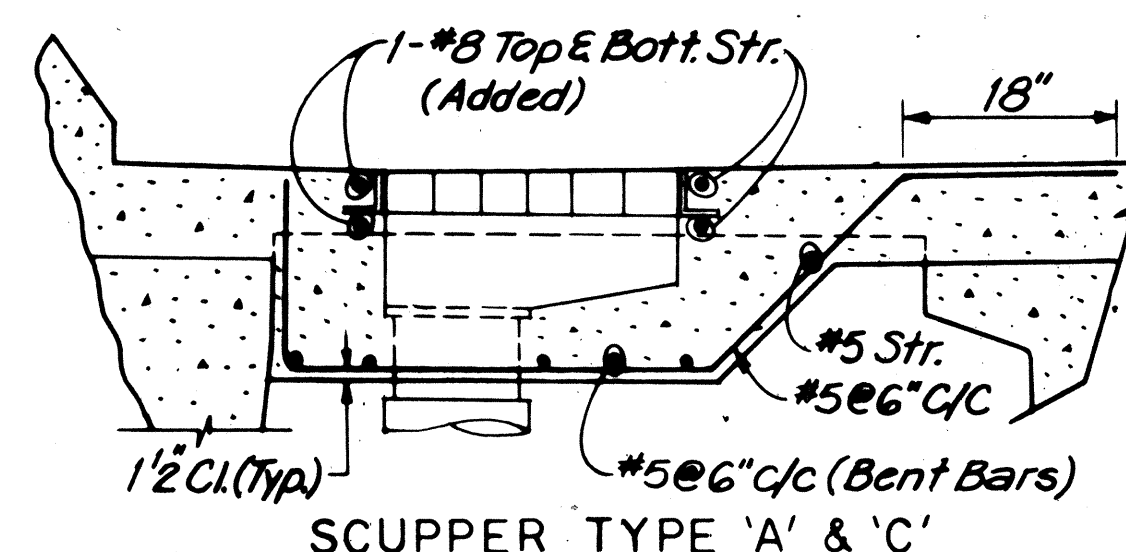


HANGER DETAIL

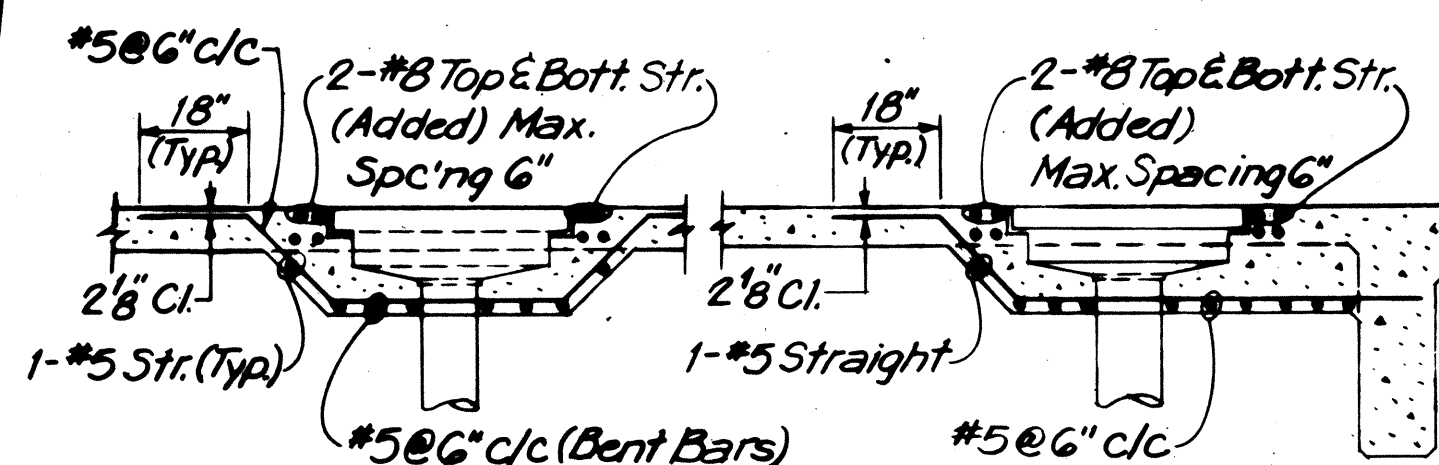
NOTE:
Inserts and Hangers to develop a minimum ultimate pulling strength of 13 kips.

INSERT DETAIL

DETAIL OF PIPE HANGERS AND INSERTS

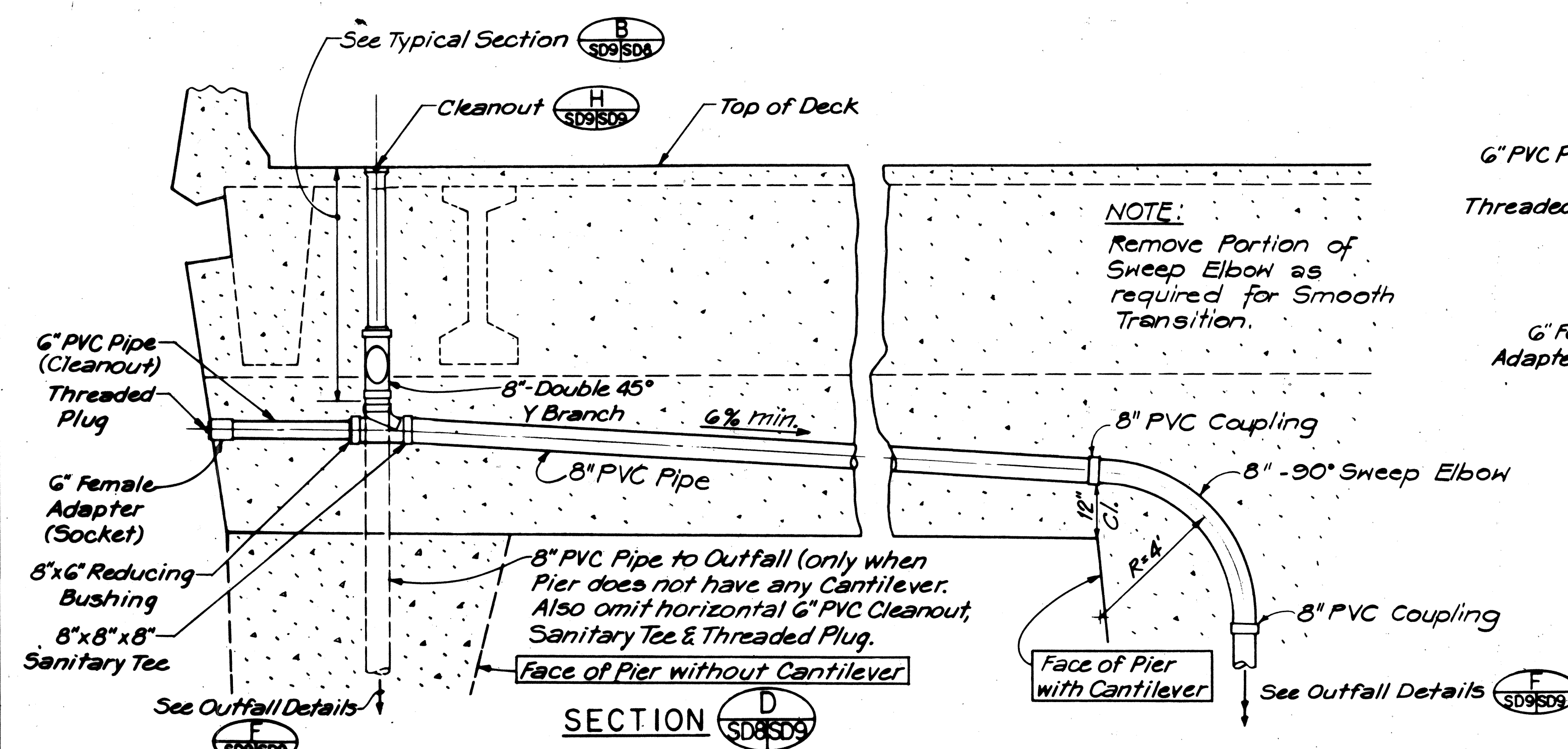


SCUPPER TYPE 'A' & 'C'



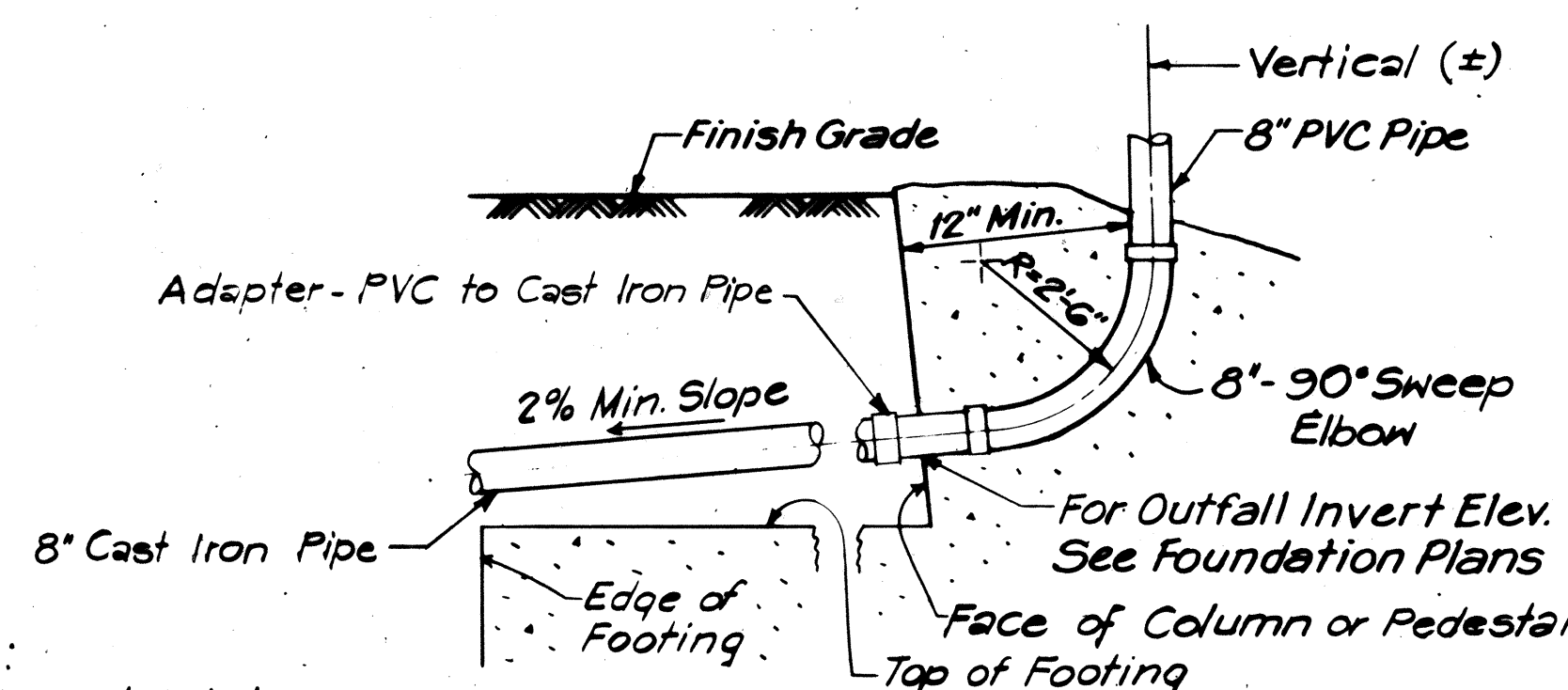
TYPICAL LONGITUDINAL SECTIONS

REINFORCEMENT DETAILS AT SCUPPERS



SECTION D SD9SD9

TYPICAL RIGID FRAME PIER DOWNSPOUT

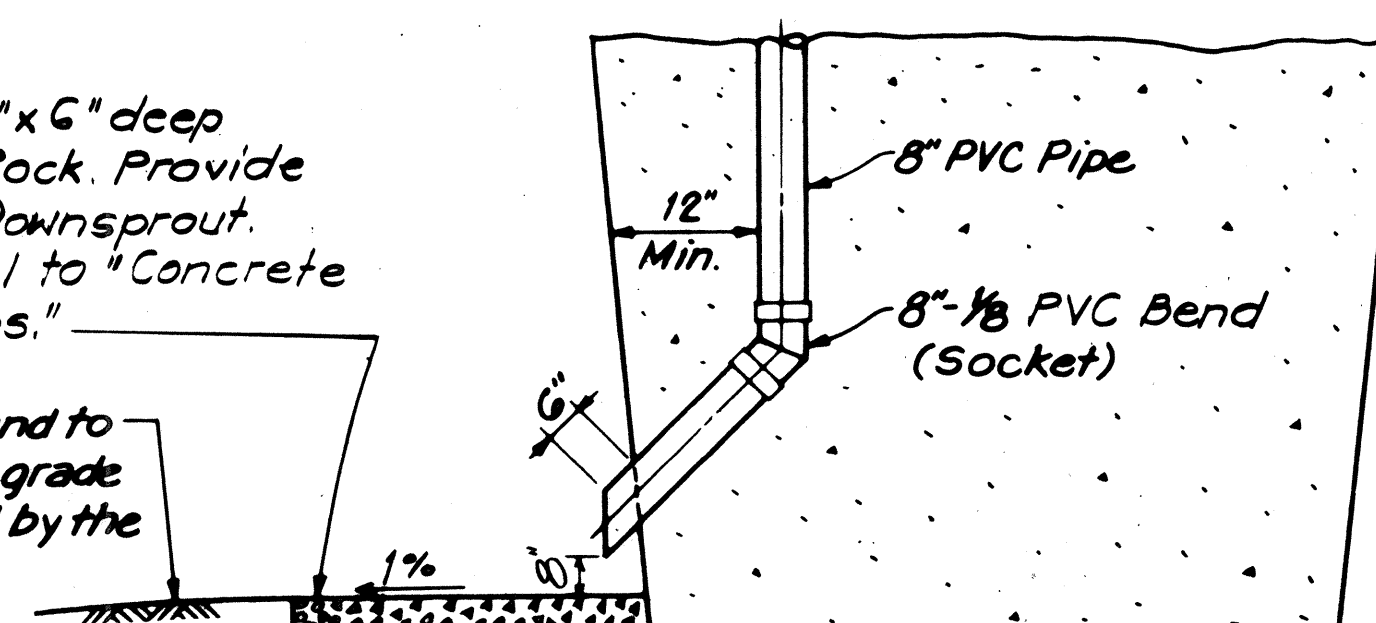


OUTFALL TYPE 1

NOTE:
For Cleanout Details See Civil plans (Drainage)

5'-0" x 5'-0" x 6" deep crushed Rock. Provide at each Downspout. (Incidental to "Concrete in Bridges.")

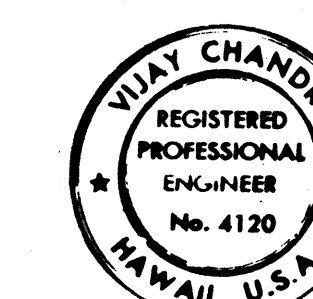
Earth mound to meet final grade as directed by the Engineer.



OUTFALL TYPE 2

OUTFALL DETAILS F SD9SD9

DATE	DESIGNED BY	QUANTITIES BY
ORIGINAL PLAN	NOTE BOOK	NO.



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Signature

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
STRUCTURE DRAINAGE DETAILS
SHEET 2 OF 2

KEEHI INTERCHANGE
F.A.I. PROJECT NO. 1-HI-1 (133) 17
SCALE: N.T.S. DATE: 4/30/81

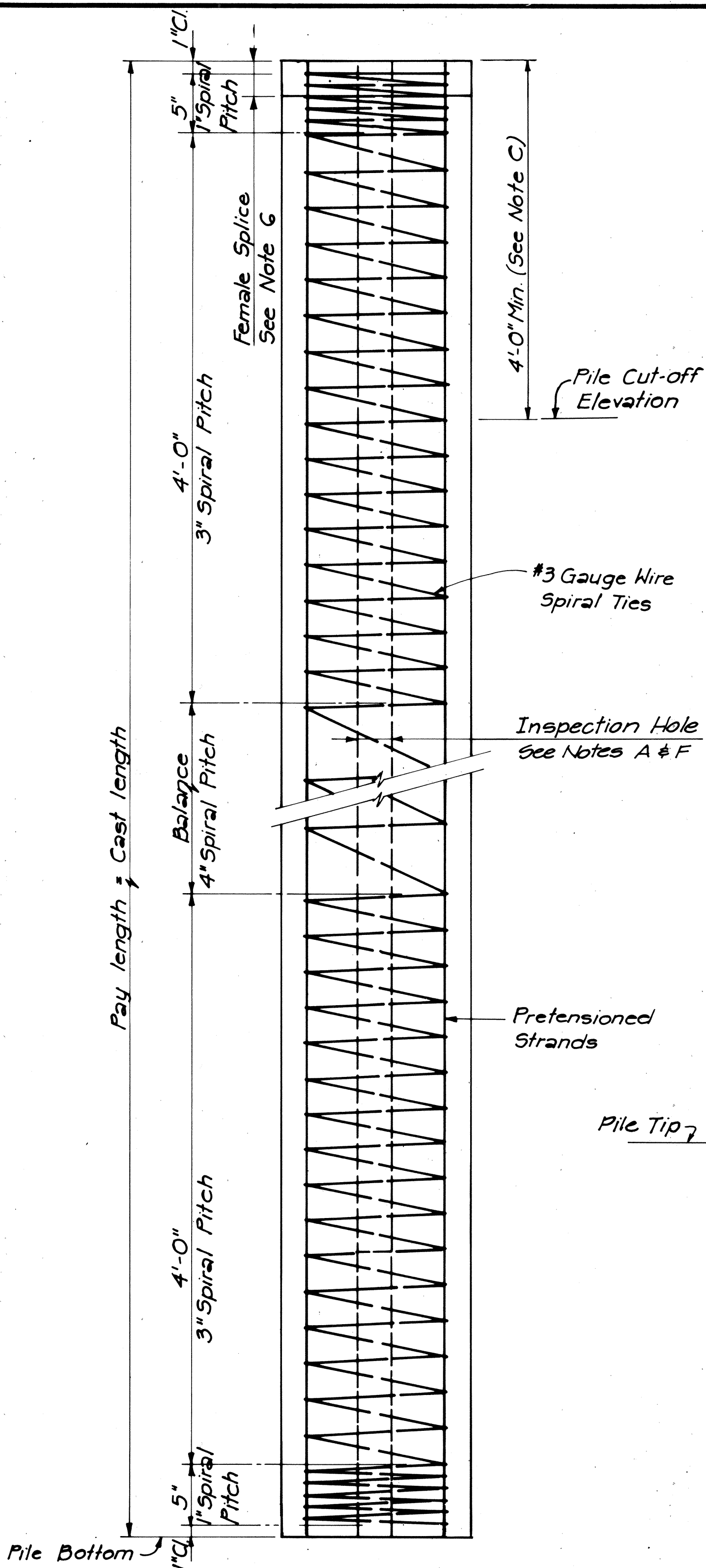
SHEET No. SD-9 OF SD-13 SHEETS SD-9

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1(133)17	1981	132	159

NOTES FOR
PILE TYPE A & PILE TYPE B

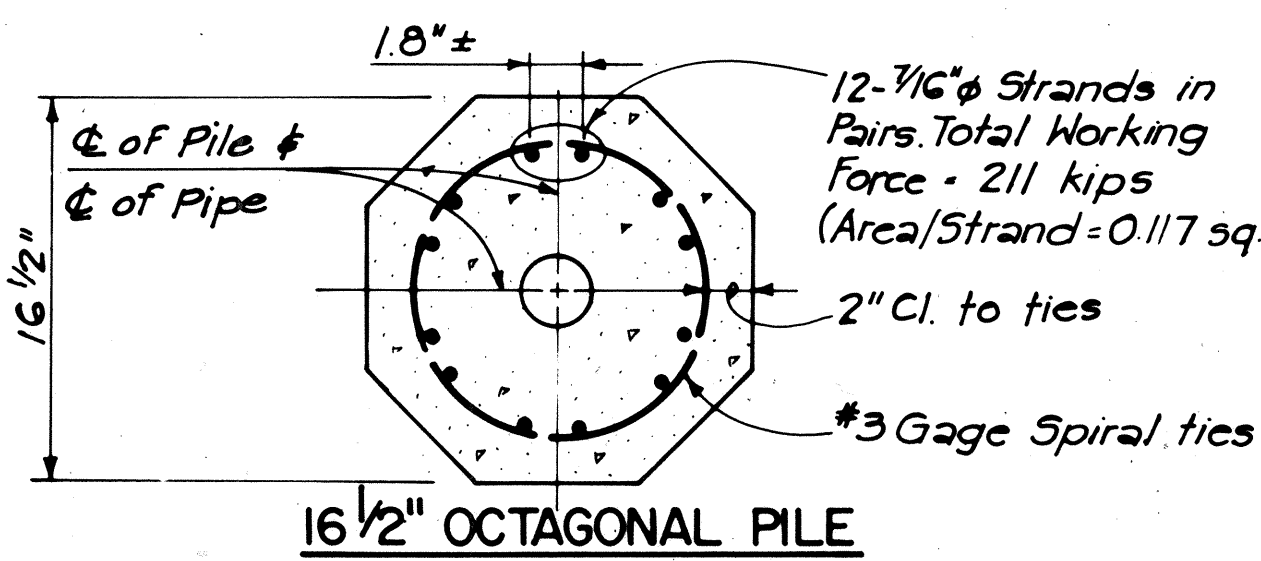
- Concrete shall have a minimum 28-day compressive strength of 6500 psf. Required minimum concrete compressive strength before release of strands = 4000 psi.
- Pretensioned strands shall be 7 wire stress-relieved strands with an ultimate strength of 270 ksi. Diameter of strands shall be as shown on the Typical Pile Sections. Total loss due to creep, shrinkage, elastic shortening and relaxation of steel = 37,000 psi. Total working force shown on the Typical Pile Sections is the net force after all losses.
- Non-prestressed reinforcing steel for pile build up shall be A.S.T.M. A615 Grade 60. Spiral ties shall be cold drawn A.S.T.M. A02
- For details of pile splices see sheet Nos. SD-12, SD-12A thru SD-12D.
- All piles shall have driving shoes.
- At the top of the top segment of the pile, a female splice as shown on Sheets SD-12A thru SD-12D shall be cast with the pile. No pile shall be driven without a female part of the splice at the top of the pile. Cost of all splices in a pile shall be incidental to furnishing of Pile and will not be paid for separately.
- The splice shall be designed for an ultimate moment of 120 ft. Kips.
- Portion of pile embedded into footing (or pile cap) shall be of sound concrete. Damaged portions shall be removed and pile shall be built-up to the cut-off elevation shown on the Plan.
- The plumb of pile shall be checked for conformance to the allowable tolerances, as specified in the Special Provisions, before constructing the build-ups.
- Work of cutting off Prestressed Concrete 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 own expense as directed by the Engineer.
- Piles are to be manufactured & installed in accordance with the tolerances referred to in the Special Provisions. Piles not conforming to the tolerance shall be rejected and will not be paid for. The Contractor shall furnish necessary labor and/or equipment to aid the Engineer in passing the plumb bob through the central inspection hole of each pile. This shall be done in the fabrication yard. Such assistance shall be incidental to furnishing piles and will not be paid for separately.
- Defective piles (See Subsection 505.03 (G) of Special Provisions) shall be cut off 1'-0" below bottom of footing or finish grade whichever is lower.
- The Contractor shall furnish necessary labor and/or equipment to aid the Engineer in lowering and raising the plumb bob in the central inspection hole immediately after driving each pile. He shall also clean out any debris and/or soil in the central hole that interferes with the inspection. Such assistance shall be incidental to pile driving and will not be paid for separately.

i.e. Driving on pile build-ups shall not be permitted.



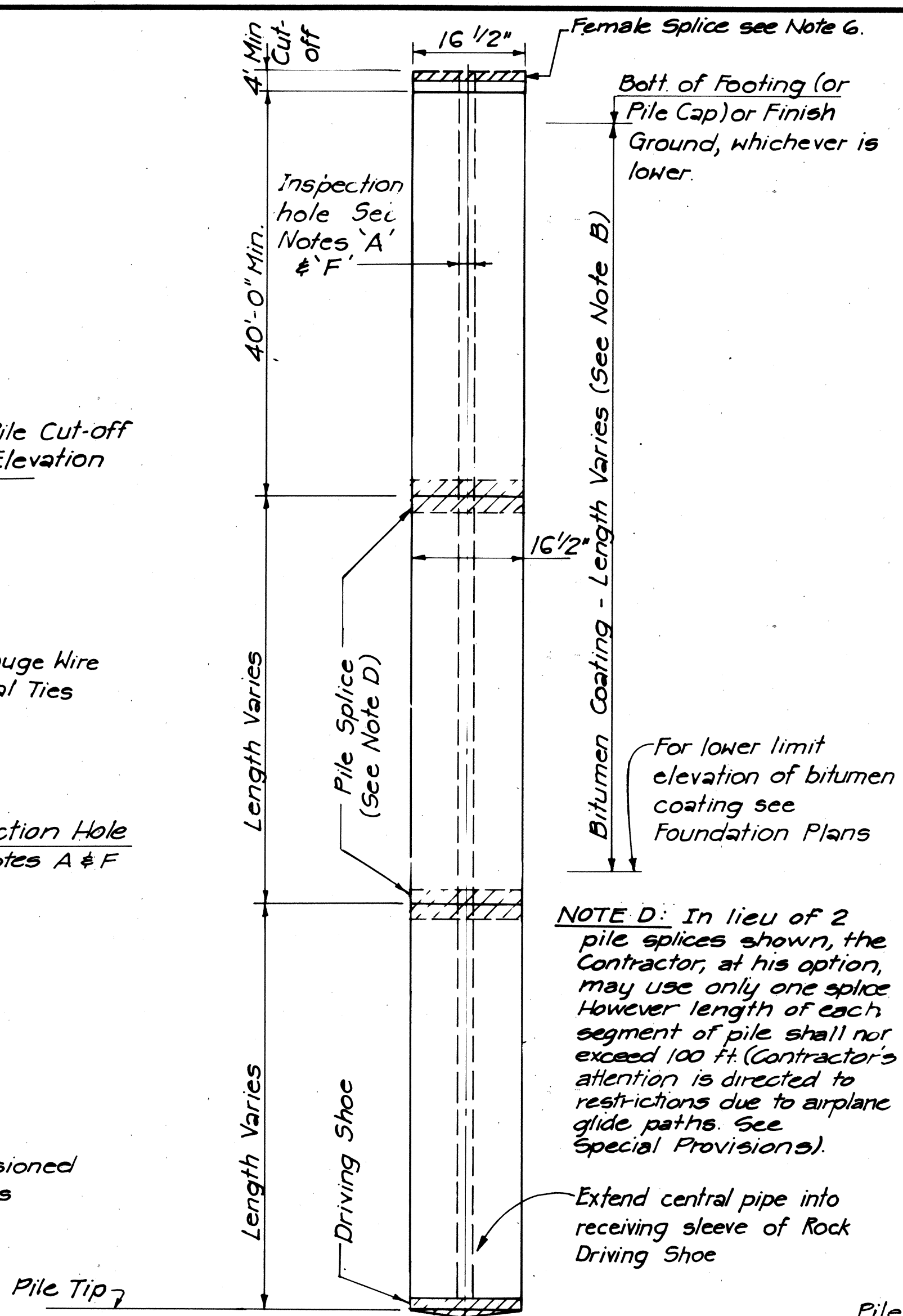
TYPICAL PILE DETAIL

N.T.S.



TYPICAL PILE SECTION

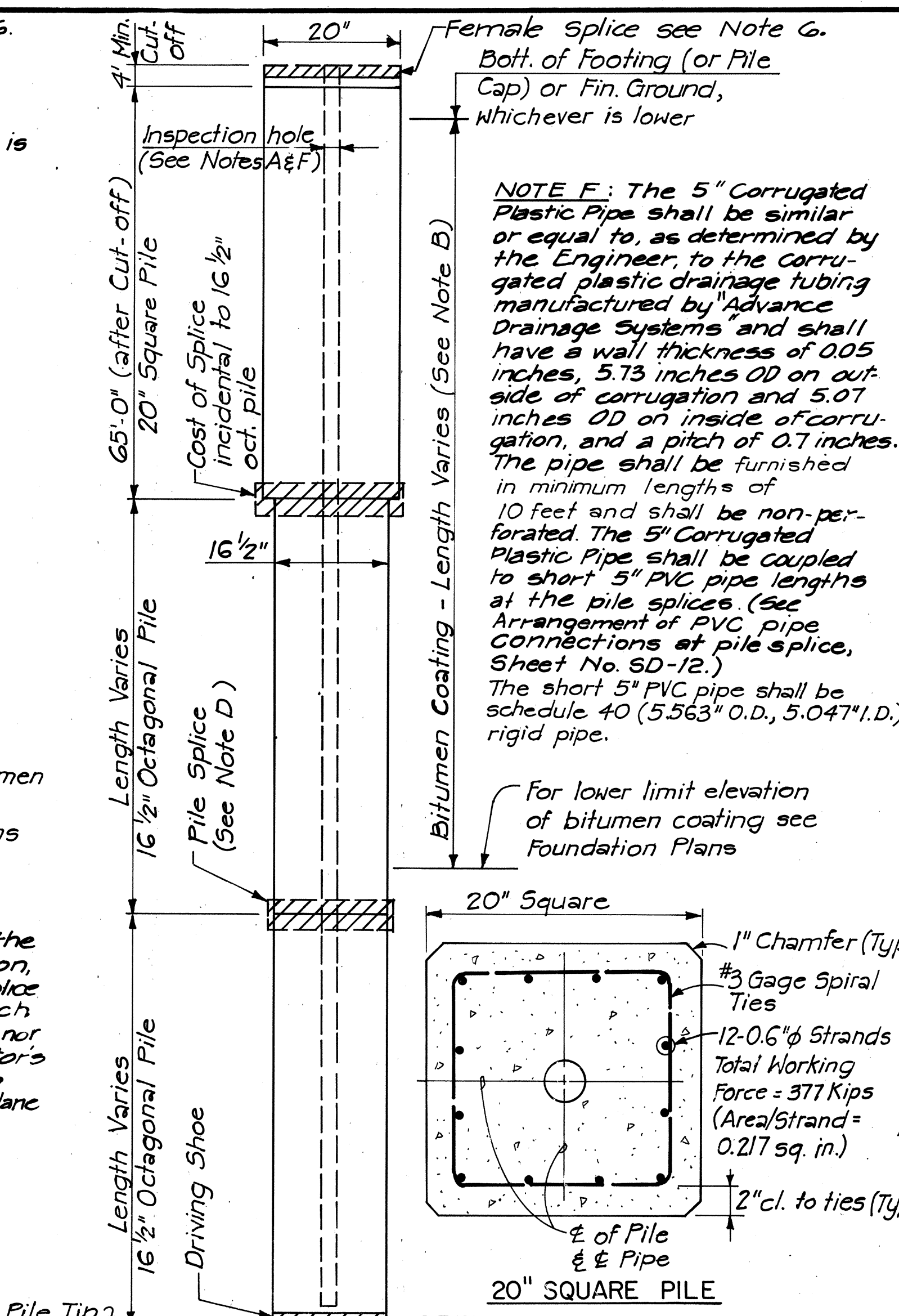
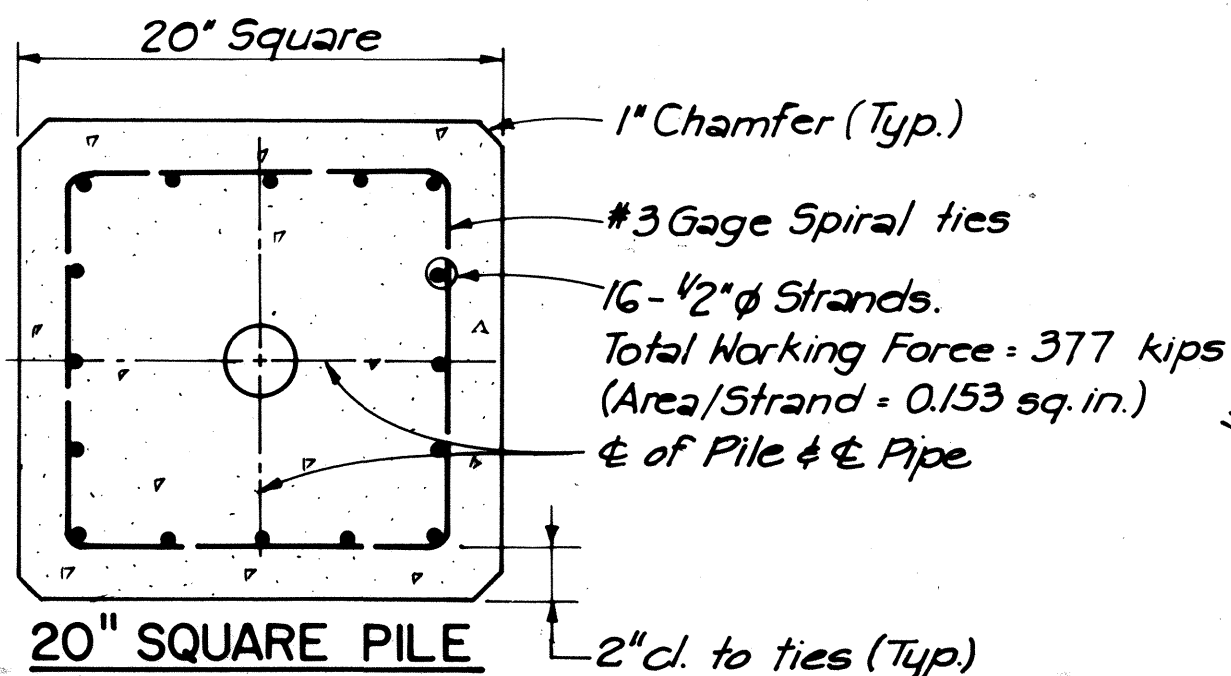
Scale: 1 1/2" = 1'-0"



PILE TYPE A

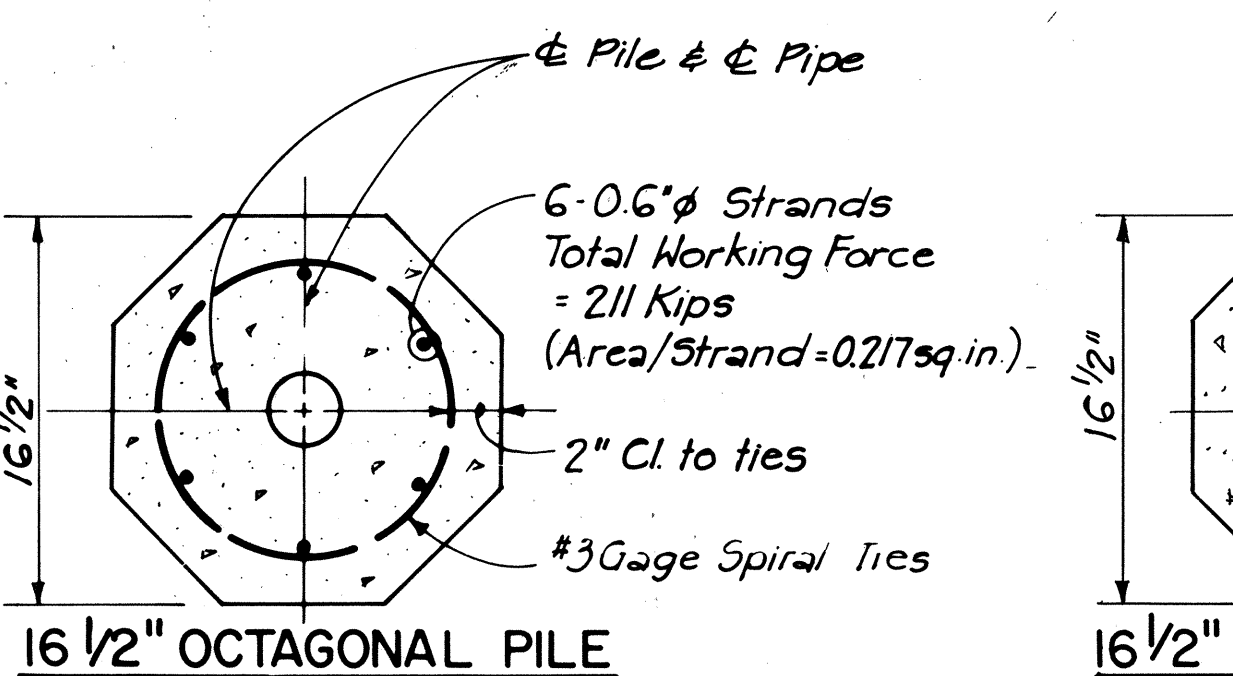
N.T.S.

- NOTE A: Provide inspection holes in all piles as follows:
- All piles, except Load Test Piles shall have a 3" PVC Pipe cast in the center of the pile. The pipe shall have a radial tolerance of 1/8" off-set from center of pile except that within 3 feet of the ends of pile segments the radial tolerance shall be 1/6" off-set from the center of the pile. The 3" PVC Pipe shall be Schedule 40 (3,500 O.D., 3.068 I.D.) rigid plain end pipe with separate socket couplings. The allowable deviation from straight for the pipe is 1/8" in any 10 feet of length.
 - Load Test Piles shall have a 5" Corrugated Plastic Pipe Cast in the center of the pile instead of the 3" PVC pipe. The pipe shall be placed to the same tolerances specified from the 3" PVC pipe. For additional details see Note F.
- NOTE B: The Bitumen Coating shall not protrude into footing or Pile Cap. When a pile is exposed above ground, as in the case of certain pile bents, the bitumen coating shall be up to the finished grade (or stream bed) only. If the Pile Tip ends higher than the estimated Pile Tip Elevation, the Contractor shall remove the bitumen coating from the pile head that is to be embedded into the footing (or Pile Cap), or the portion above the finished grade, as applicable. Payment for removal is incidental to various conf. items.
- NOTE C: Remove concrete over this length from top of top segment of pile. Leave Strands exposed, for embedment into footing (or pile cap). Cut-off of concrete shall be normal to the axis of pile. For pile cut-off elevations see Foundation Plans.



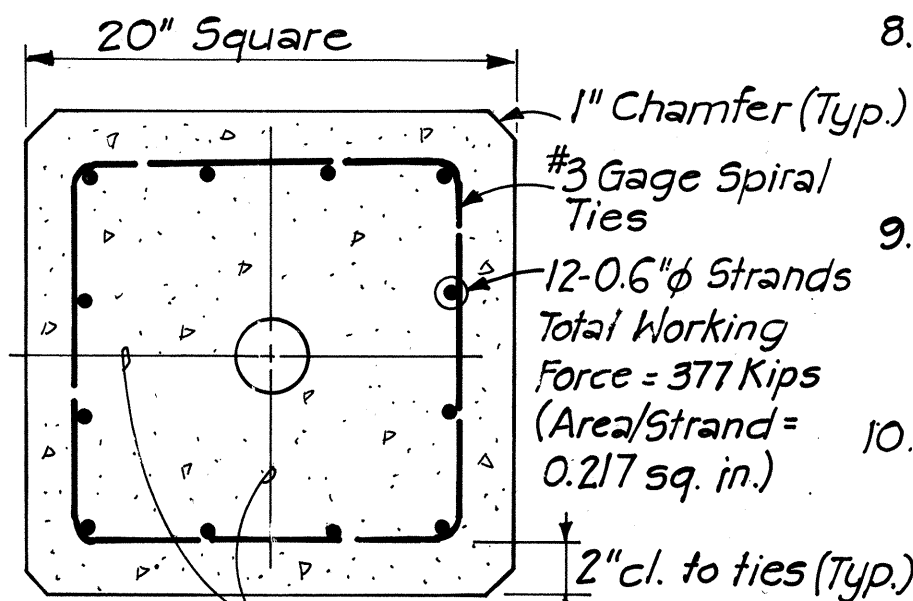
PILE TYPE B

N.T.S.



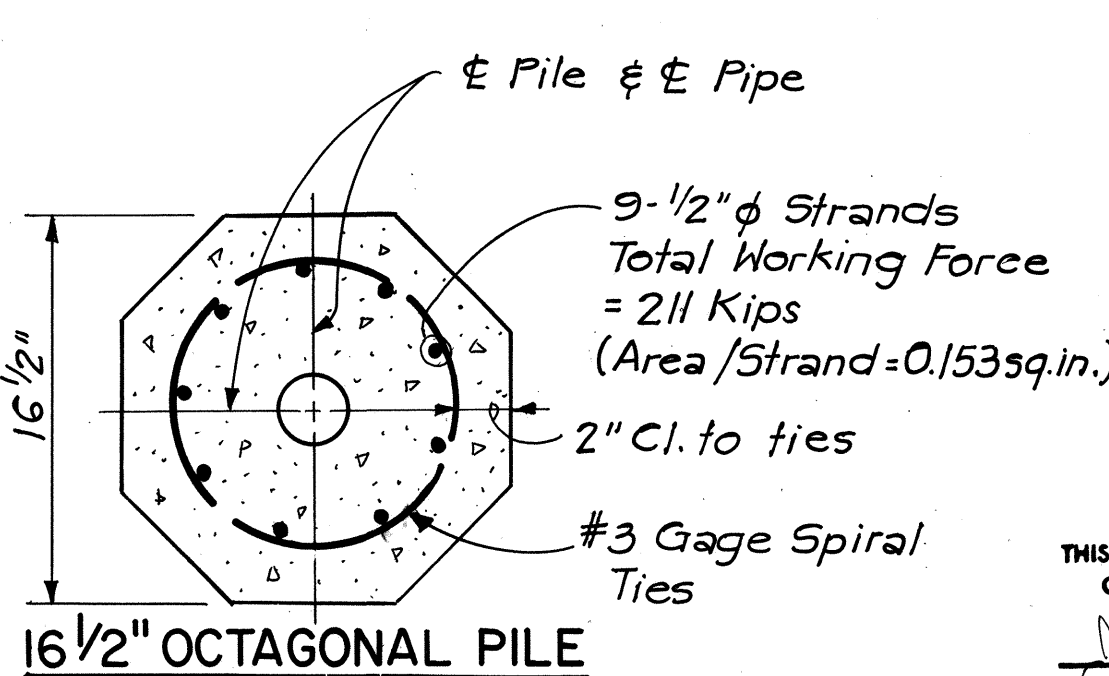
OPTIONAL STRAND PATTERN

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

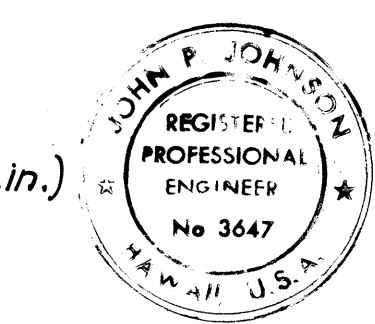


20" SQUARE PILE
OPTIONAL STRAND PATTERN

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



16 1/2" OCTAGONAL PILE



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John P. Johnson

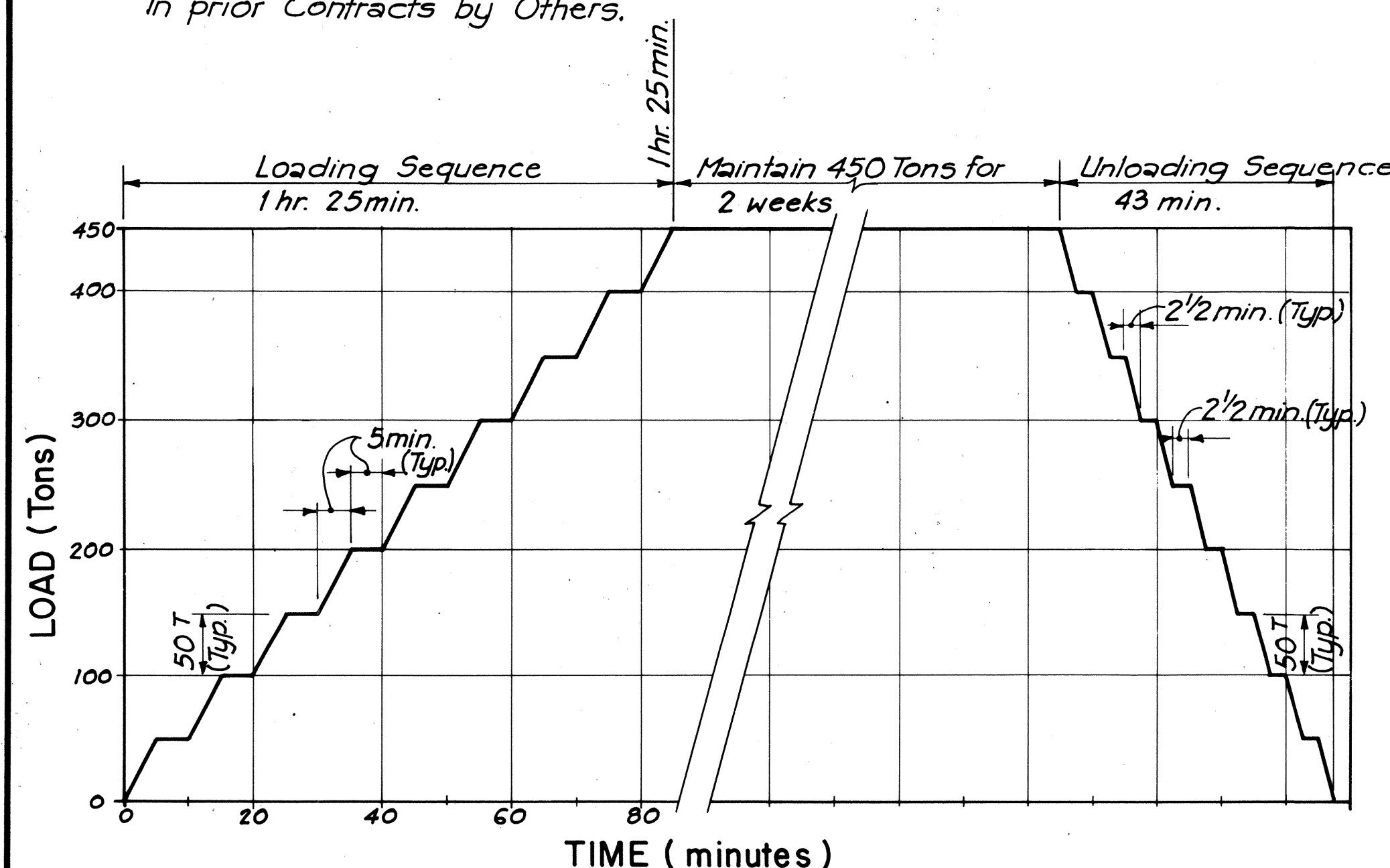
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
PRESTRESSED CONCRETE PILES

SHEET 1 OF 3
KEEHI INTERCHANGE
F.A.I. PROJECT NO. 1-HI-1 (133) 17
SCALE: AS SHOWN
DATE: 4/30/81
SHEET NO. SD-10 OF SD-13 SHEETS SD-10

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(133)17	1981	133	159

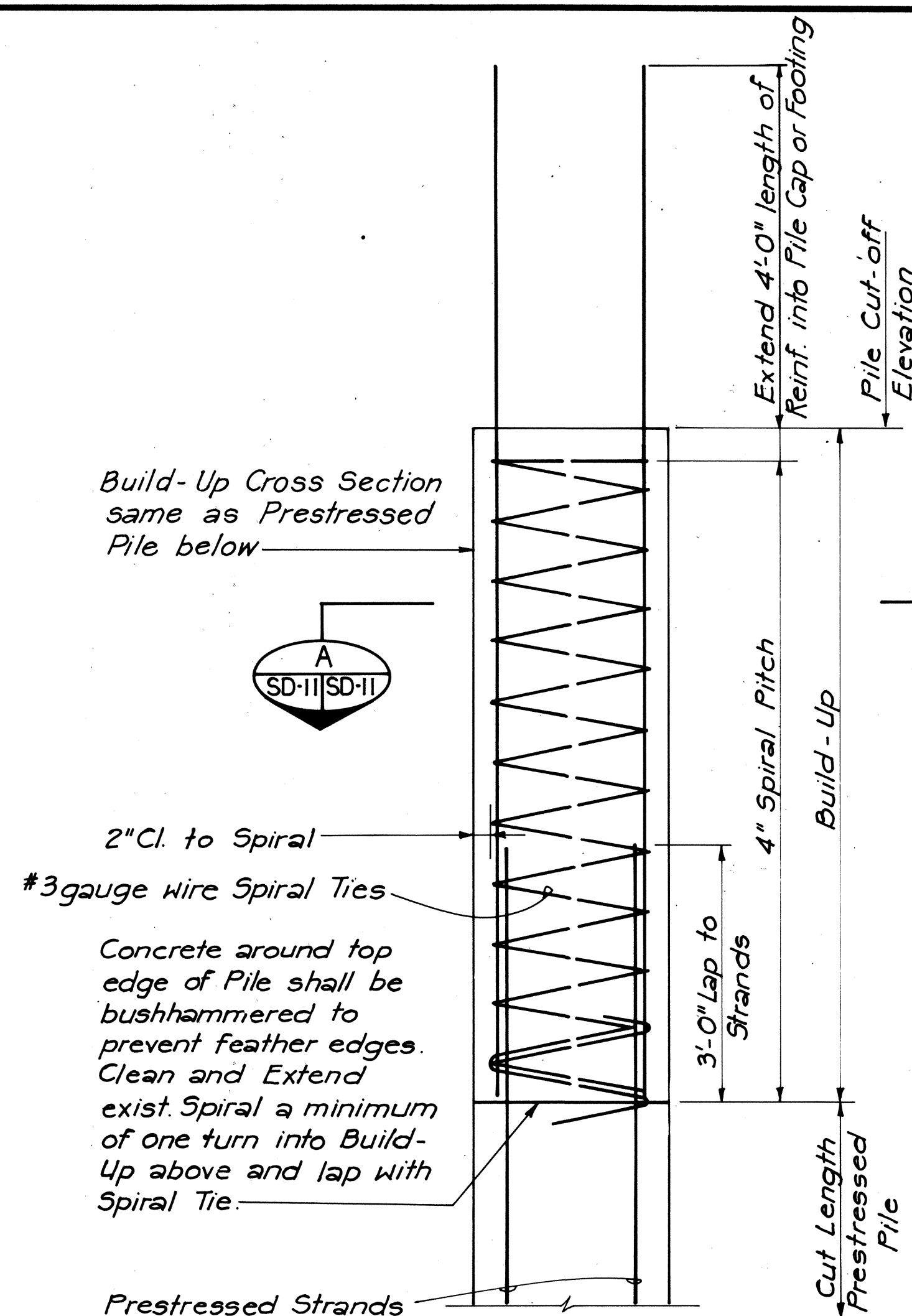
TABLE OF PILE LOAD TESTS & APPLICABLE FOOTINGS	
Pier Load Test at Pier Number	Applicable to Pier Footings
Pier 2B *	NW1, NW2
Pier HG *	NW3 thru NW6
Pier NW8	NW7 & NW8
Pier MG	MFR W. Abut. and M1 thru M9
Pier M13	M10 thru M14 and MFR E. Abut.
Applicability of Load Test Results Subject to Results of Test Driving Piles.	

* Denotes Load Test Performed in prior Contracts by Others.

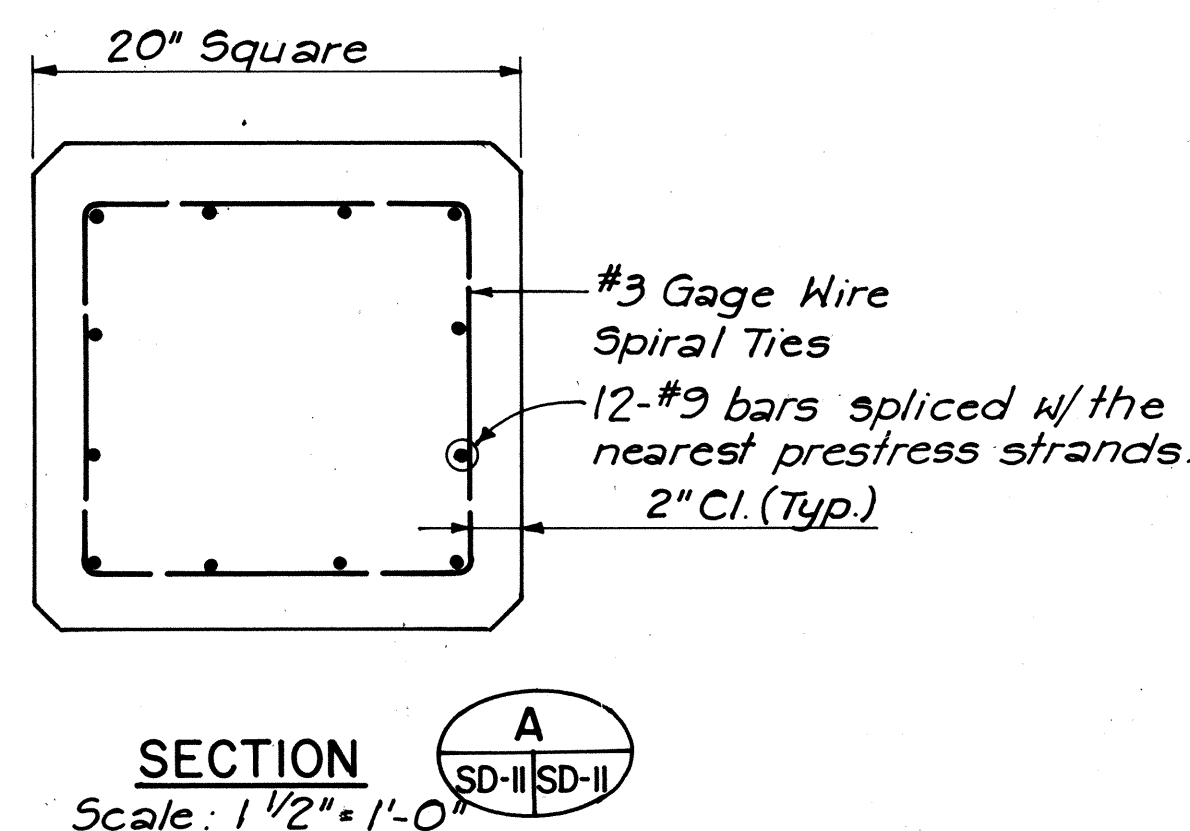
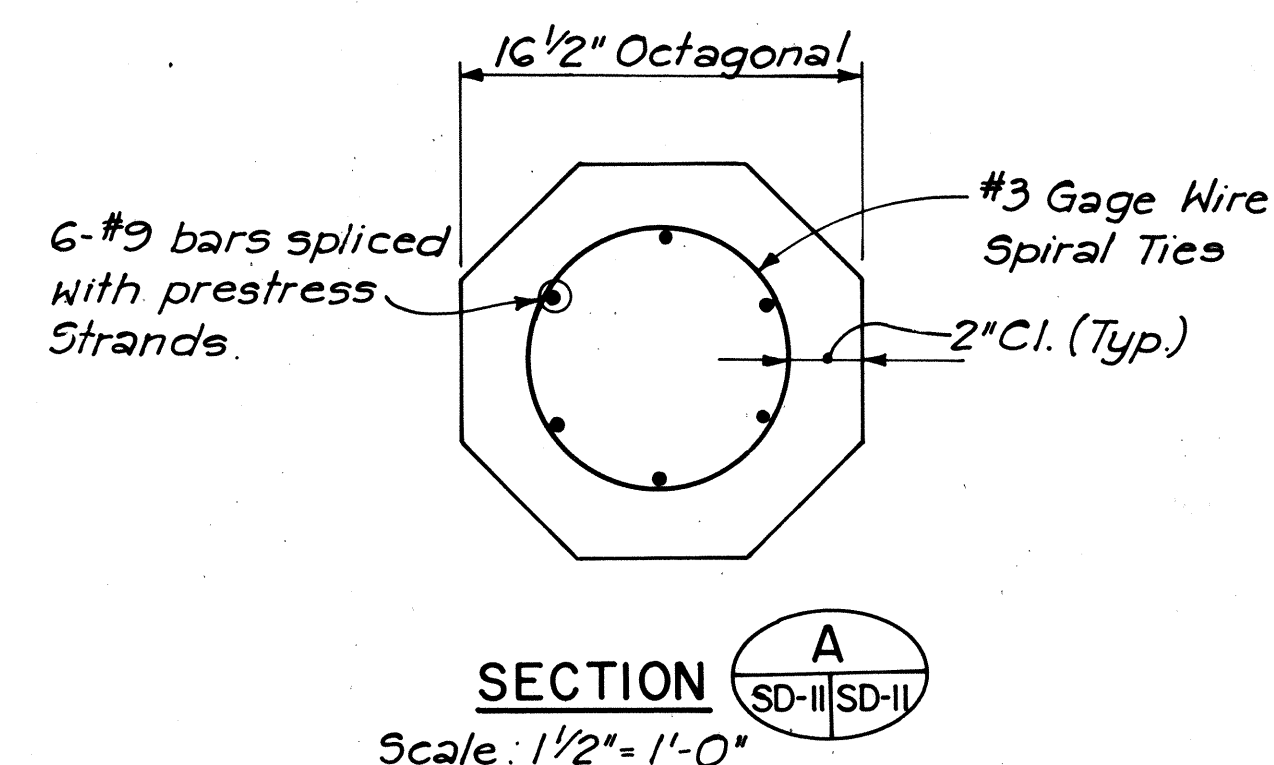


PILE LOAD TEST SEQUENCE DIAGRAM (FOR PILE TYPES A & B)

Scale: Horizontal - 1" = 20 Minutes
Vertical - 1" = 100 Tons

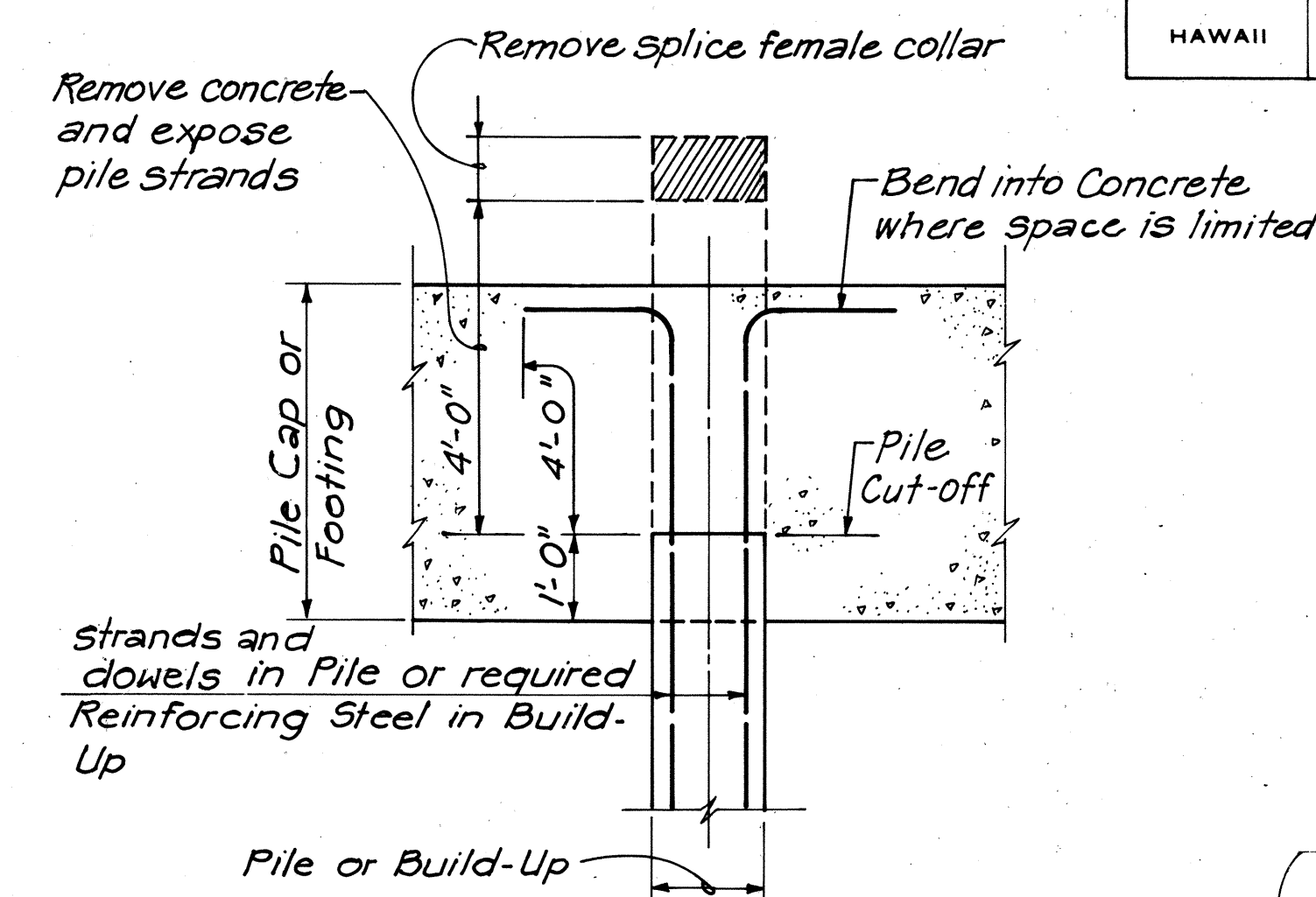


TYPICAL PILE BUILD-UP DETAILS
N.T.S.

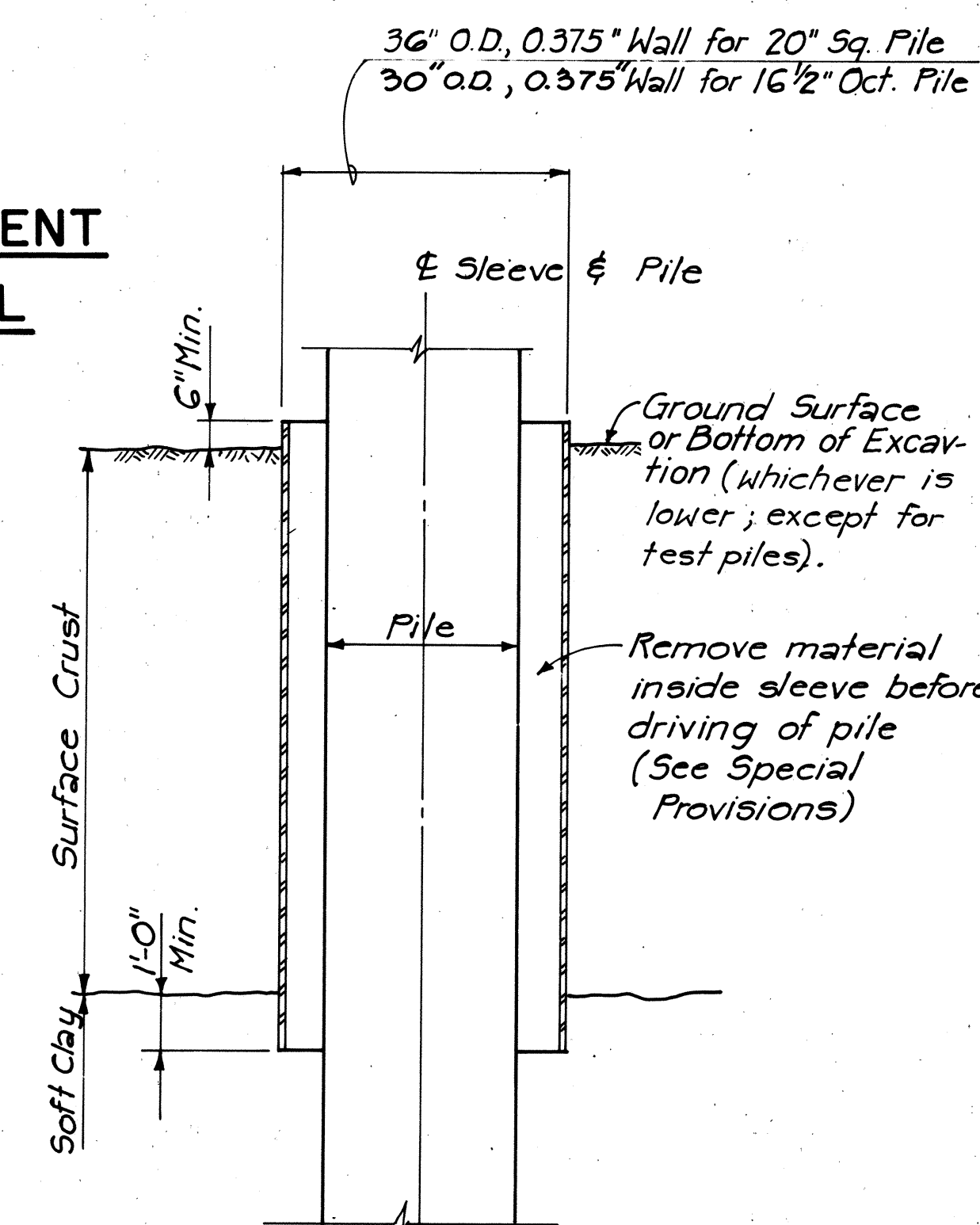


NOTE:

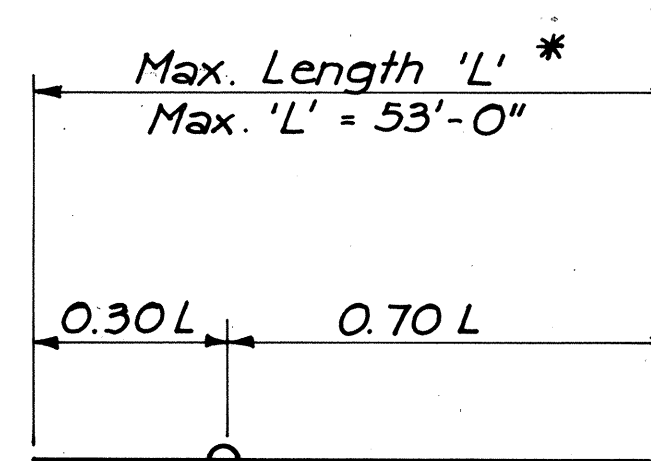
Concrete in pile build-ups shall have a minimum comp. cyl. strength f_c' of 5,000 psi at 28 days.



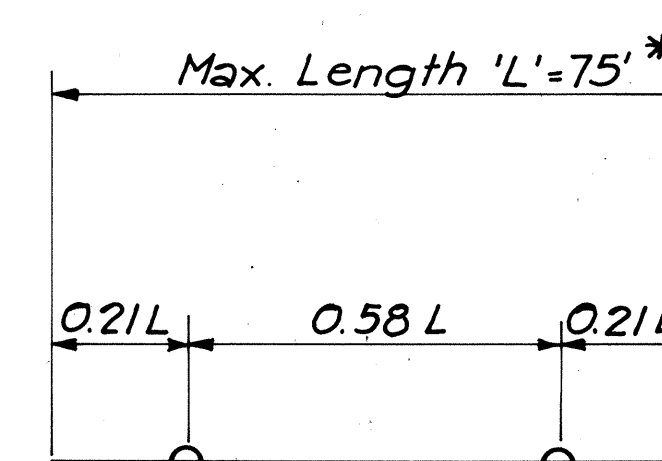
PILE REINFORCEMENT EXTENSION DETAIL
Scale: 1/2" = 1'-0"



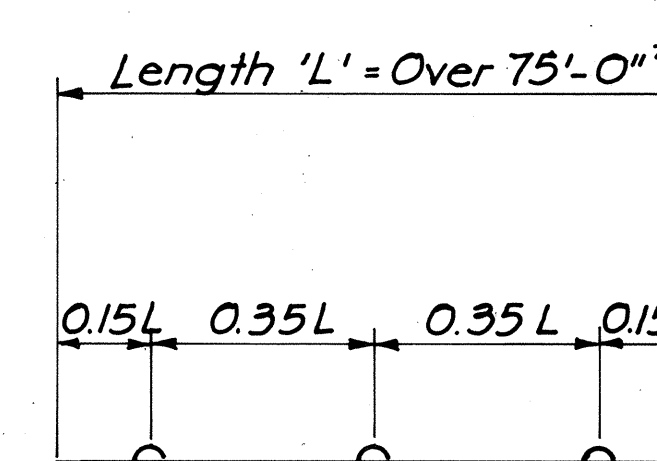
STEEL SLEEVE DETAIL
Not to Scale



1-POINT PICK-UP



2-POINT PICK-UP



3-POINT PICK-UP

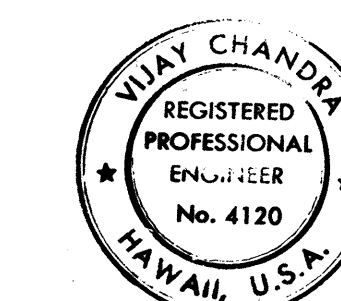
* The Length 'L' is the Distance, End-to-End of Pile before Cut-off

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 pick-up points, or any other method of pick-up shall be subject to approval by Engineer.

NOTES:

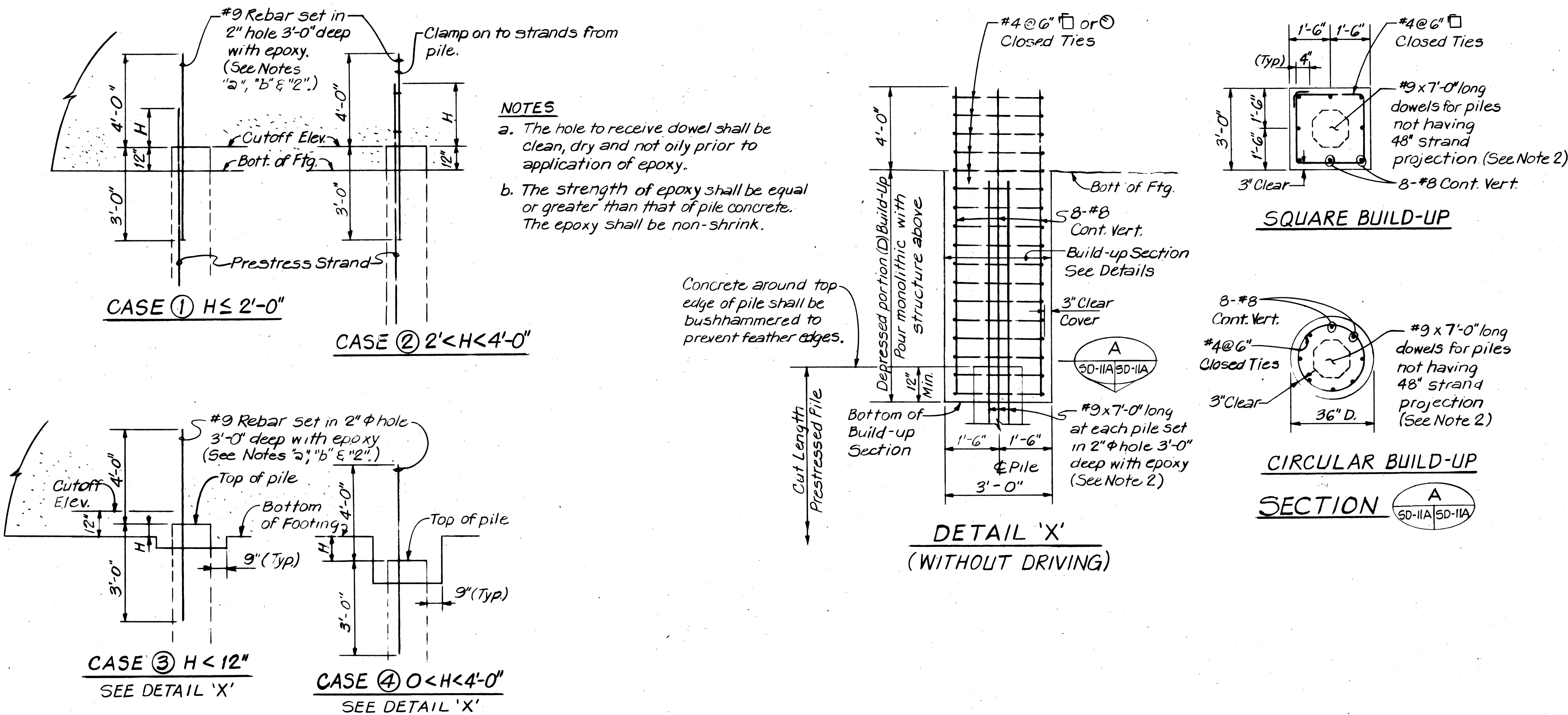
1. Surface crust is defined as the material between the ground line, or bottom of excavation, and the uniform soft clays (without the presence of granular materials).
2. Sleeves shall be installed plumb. Allowable deviation from vertical for the sleeve is '8" in 10 feet.
3. Splices, if required, shall be made so that inside face of sleeve is flush.



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Vijay Chandra
Signature

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
PRESTRESSED CONCRETE PILES
DETAILS
SHEET 2 OF 3
KEEHI INTERCHANGE
F.A.I. PROJECT NO. I-HI-1(133)17
SCALE: AS SHOWN
DATE: 4/30/81
SHEET No. SD-II OF SD-13 SHEETS SD-II

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1(133)17	1981	134	159

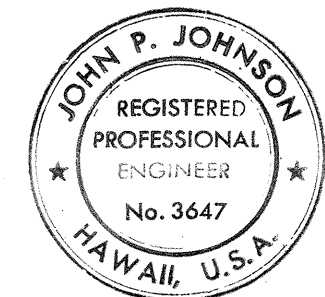


ALTERNATIVE PILE BUILD-UP DETAILS

NOT TO SCALE

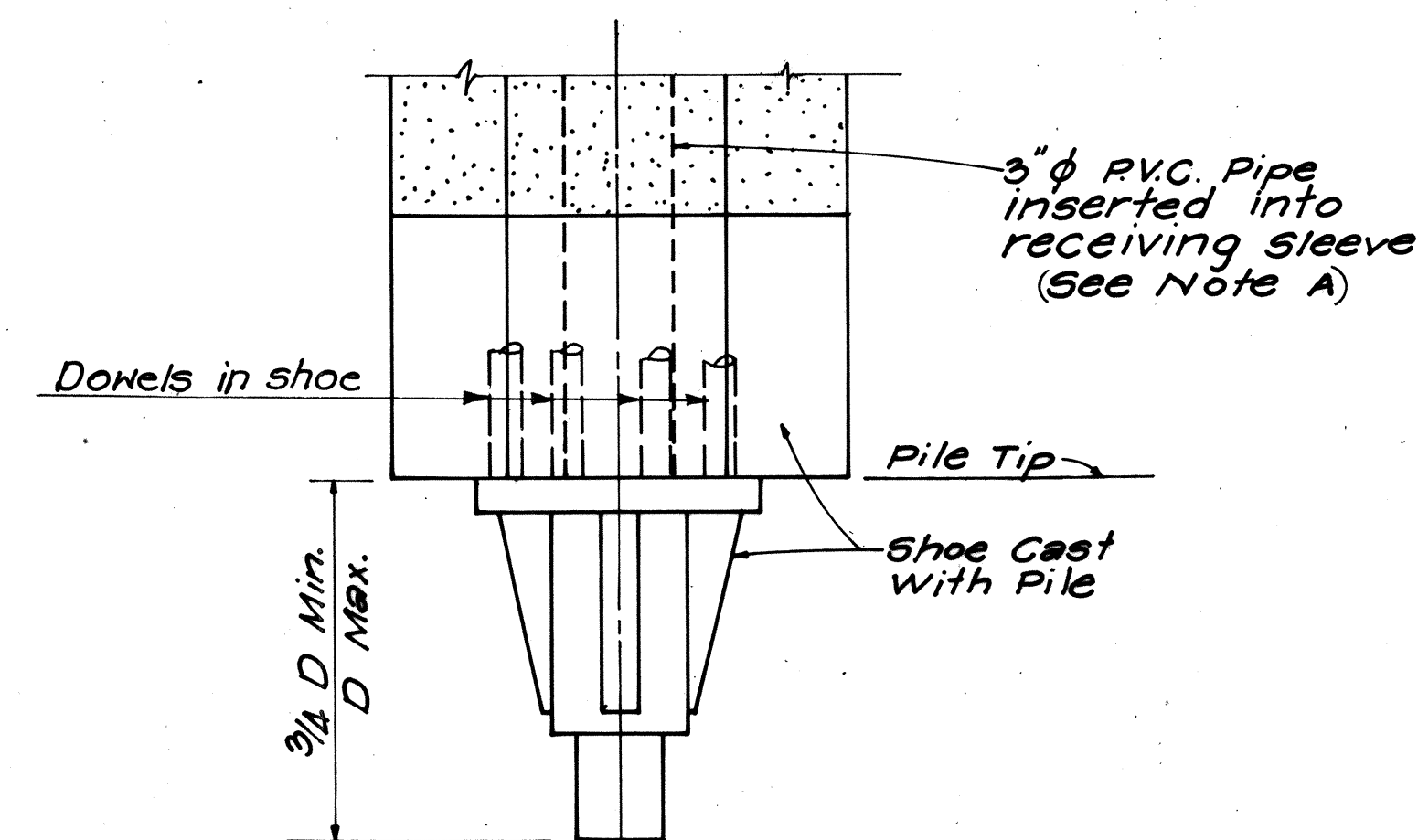
(NOTE: This Alternative Pile Build-Up shall not apply to Trestle Type Structures which have pile exposed above finished grade).

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	DESIGNED BY	
	CHECKED BY	

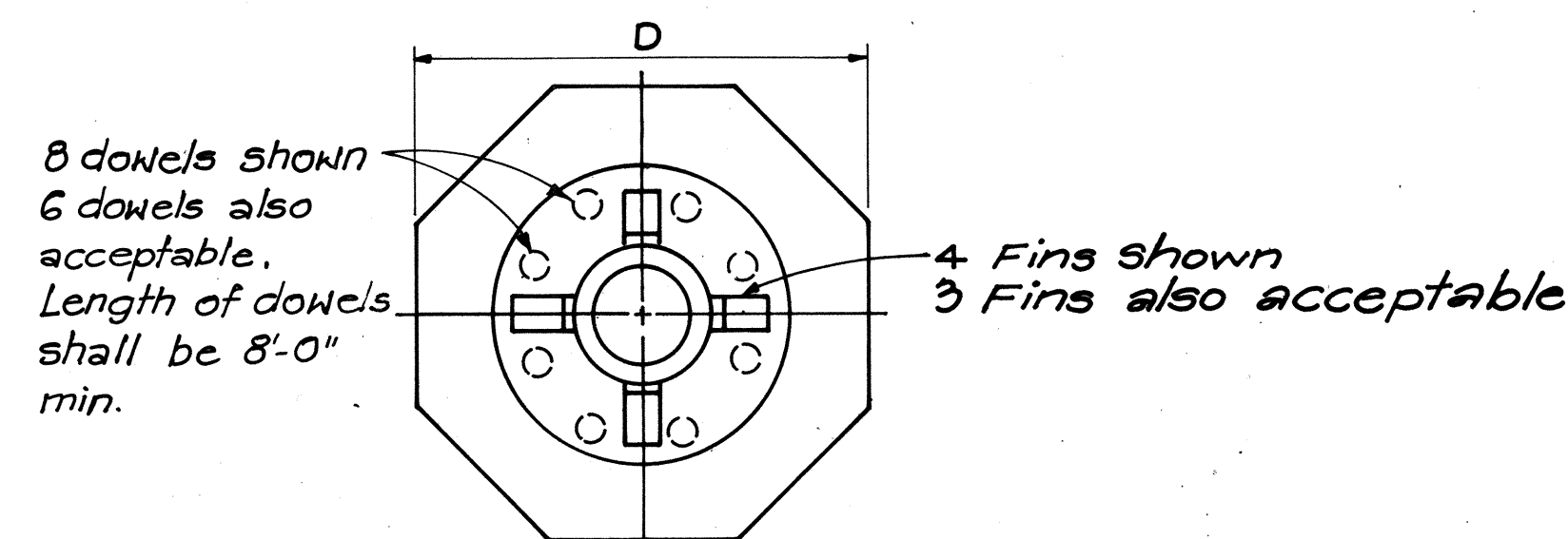


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John P. Johnson

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
STANDARD DETAILS PRESTRESSED CONCRETE PILES DETAILS
SHEET 2A OF 3
KEEHI INTERCHANGE F.A.I. PROJECT NO. 1-HI-1(133):17
SCALE: AS SHOWN DATE: 4/30/81
SHEET NO. SD-11A OF 50-13 SHEETS SD-11A



ELEVATION



PLAN

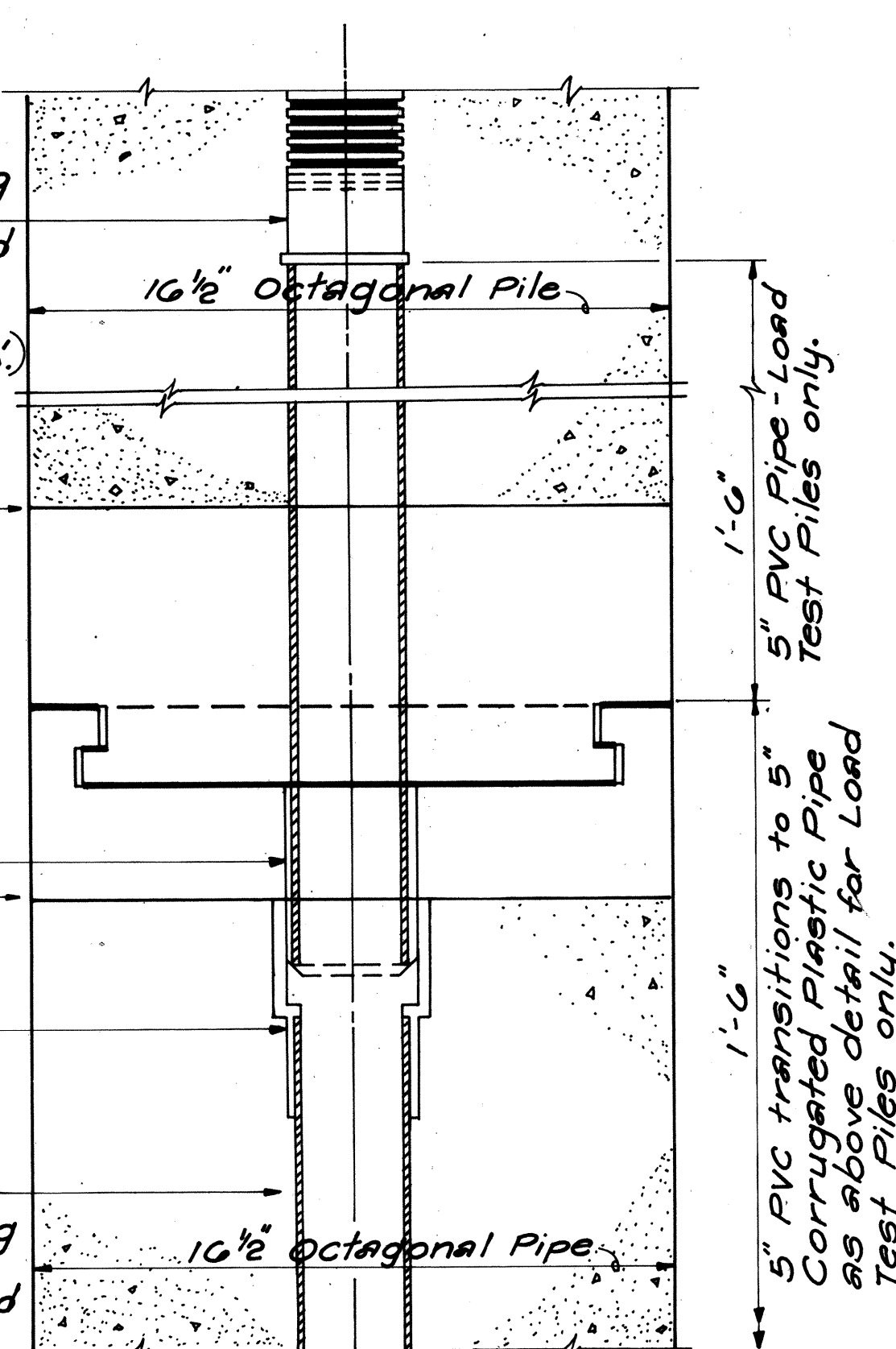
ROCK DRIVING SHOE
NOT TO SCALE

3" ϕ PVC Pipe or Adapter coupling between 5" PVC and 5" Corrugated Plastic Pipe in Load Test Piles only. (See Note 'A')

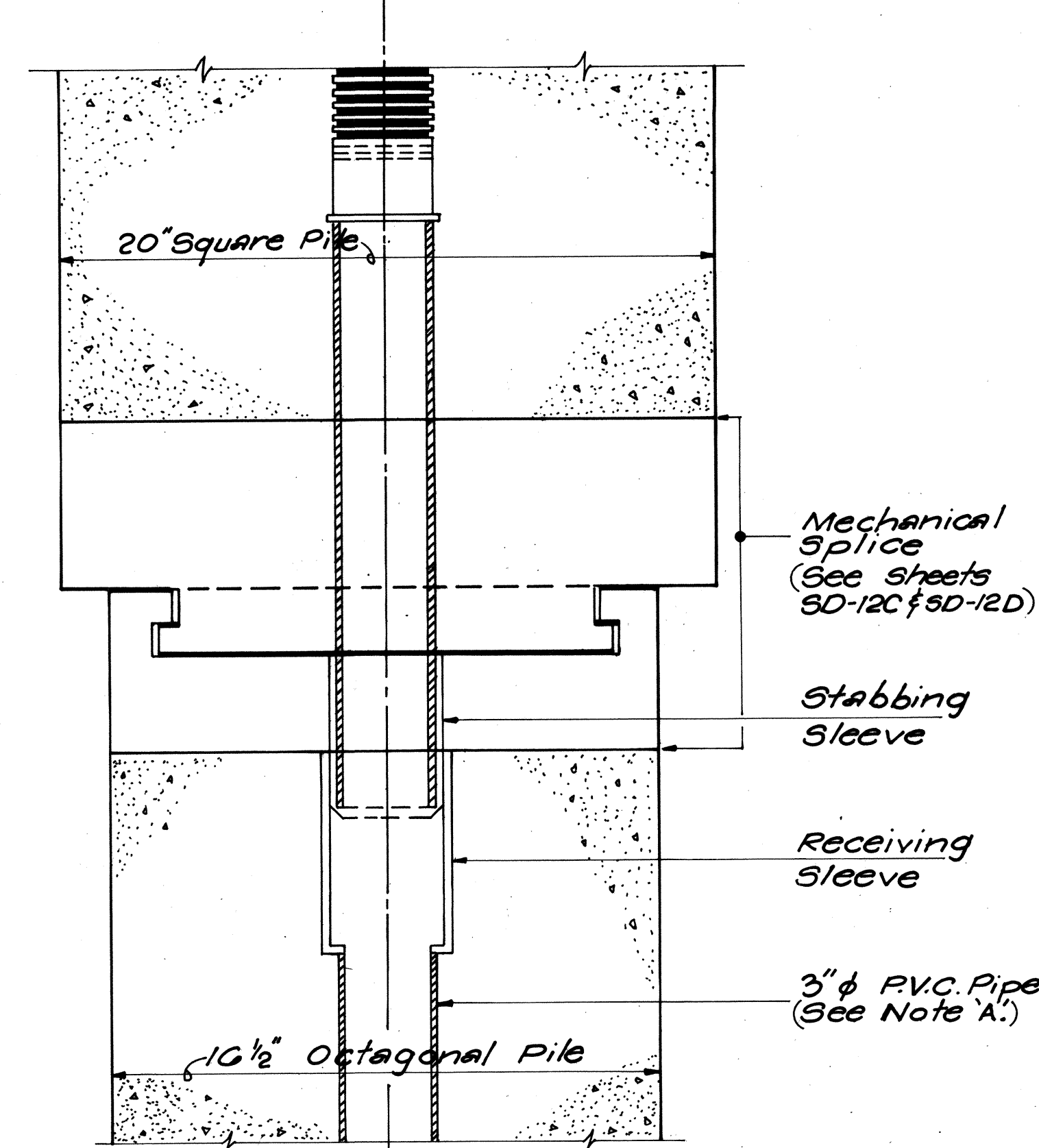
Mechanical Splice (See Sheets SD-12A & SD-12B)
Stabbing Sleeve

Receiving Sleeve

3" ϕ PVC Pipe or Adapter Coupling between 5" PVC and 5" Corrugated Plastic Pipe in Load Test Piles only. (See Note 'A')



BETWEEN 16 1/2" OCT. PILES



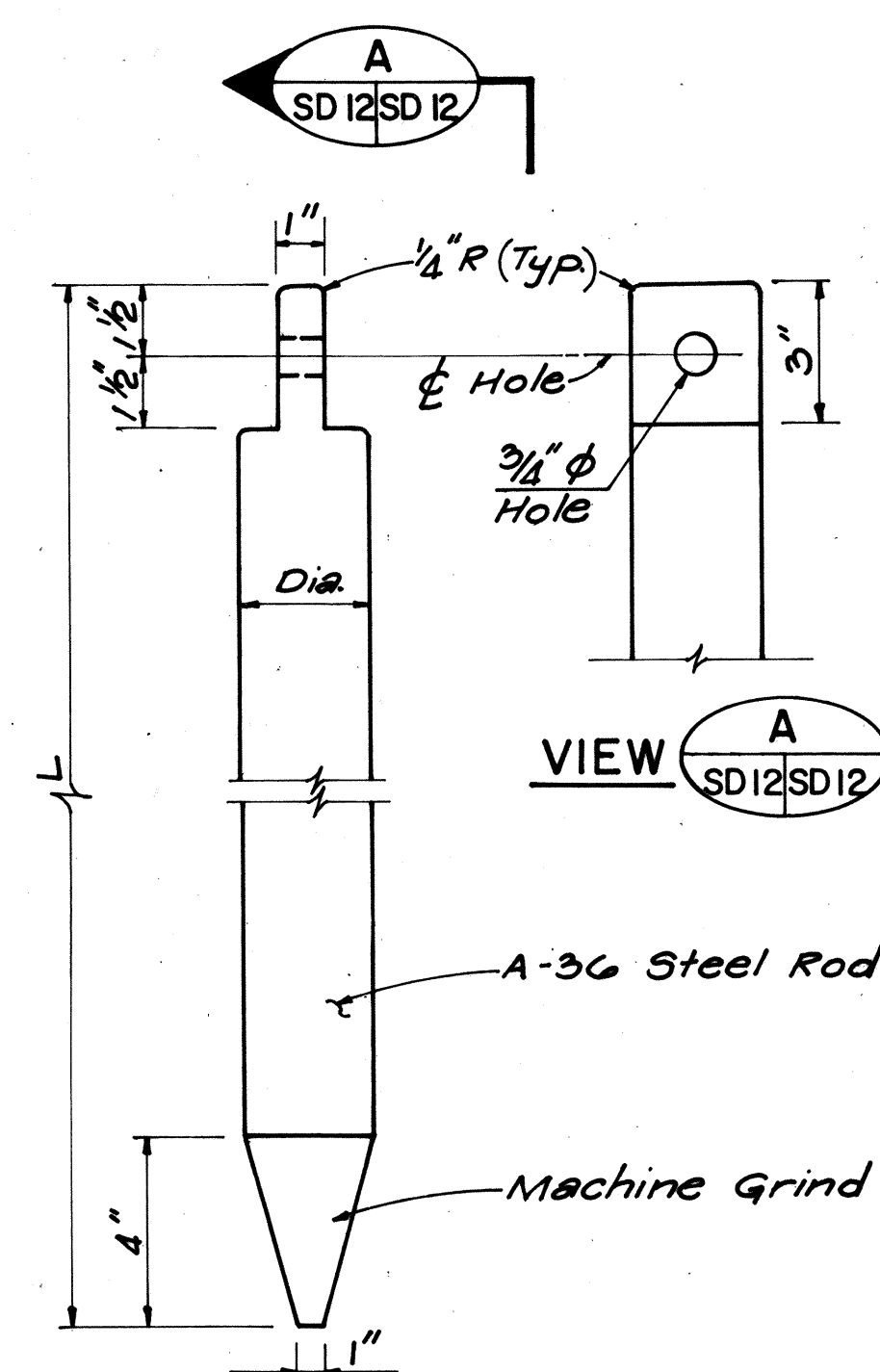
BETWEEN 20" SQ. PILE & 16 1/2" OCT. PILE

NOTE: 5" PVC Pipe & 5" Corrugated Plastic Pipe similar to Details shown on 16 1/2" Oct. Piles.

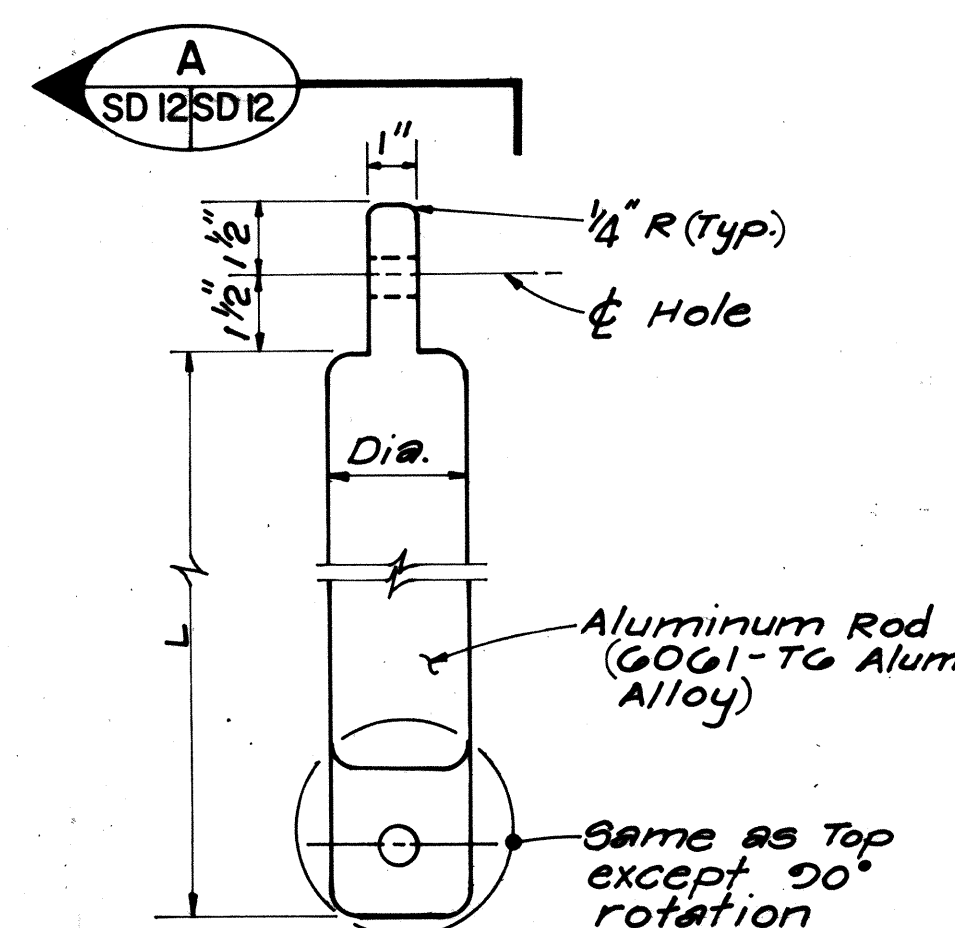
ARRANGEMENT OF PVC PIPE CONNECTIONS AT PILE SPLICE

SCALE: 3"=1'-0"

NOTE 'A' 3" PVC Pipe used throughout pile length except on Load Test Piles. Load Test Piles Types A & B shall have a 5" ϕ central hole made by 5" Corrugated Plastic Pipe & short 5" PVC segments near splices as shown above.



PLUMB BOB #1 #2 #3 & #4
SCALE: 3"=1'-0"

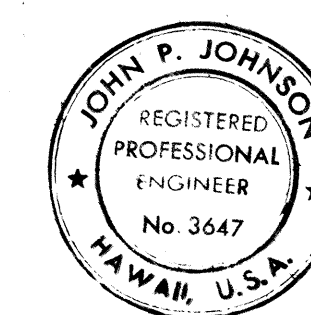


PLUMB BOB #5 & #6
SCALE: 3"=1'-0"

PLUMB BOB	L	DIA.
#1	11'-3"	2 3/4" $\pm$ 0.006"
#2	8'-0"	2 3/4" $\pm$ 0.006"
#3	9'-2"	4 3/8" $\pm$ 0.012"
#4	6'-9"	4 3/8" $\pm$ 0.012"
#5	12'-0"	2 3/4" $\pm$ 0.006"
#6	12'-9"	4 3/8" $\pm$ 0.012"

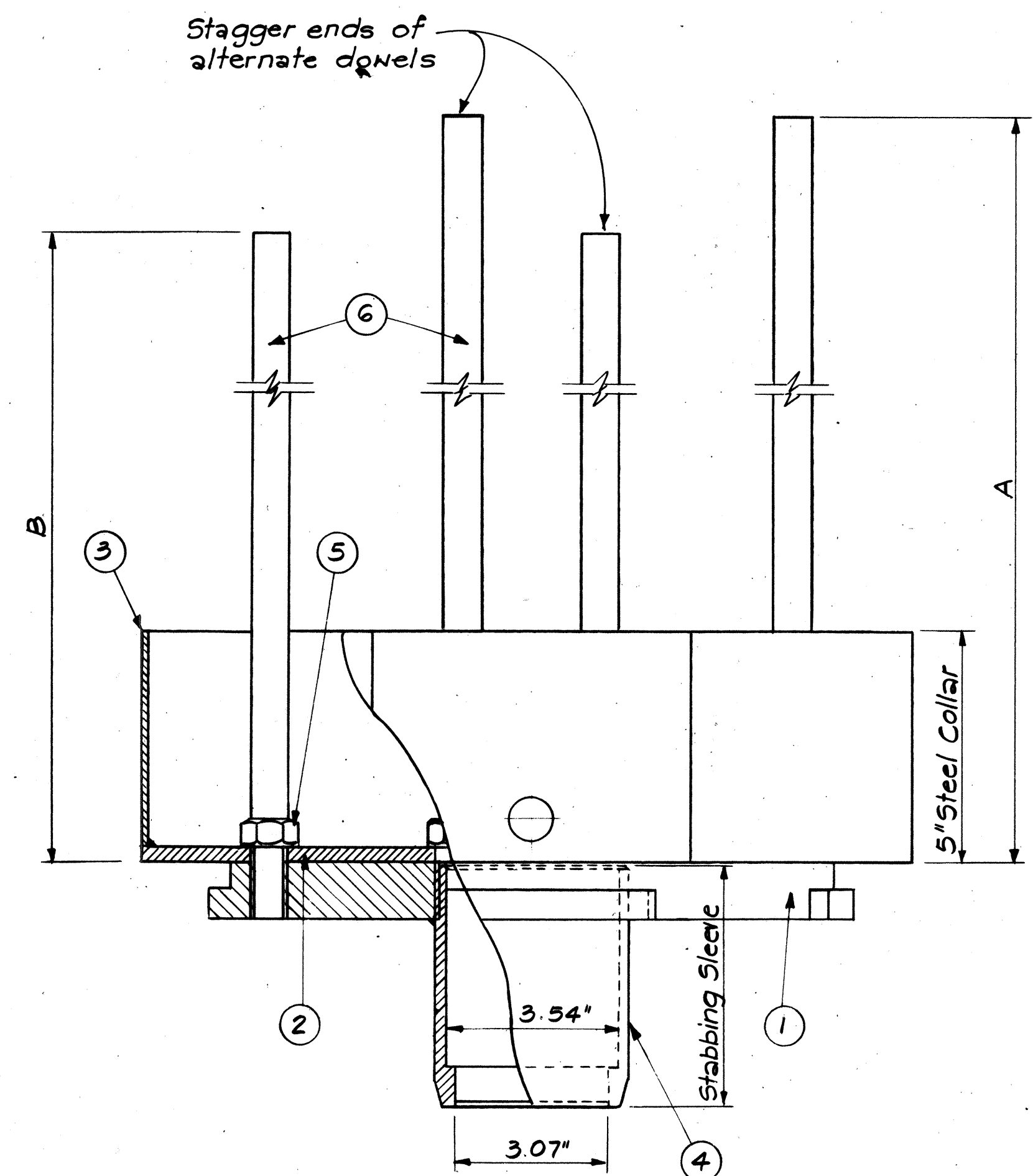
PLUMB BOB NOTES:

- All sharp edges shall be rounded.
- Allowable deviation from straight = 1/8"
- Plumb Bobs shall be attached to a measuring tape with "foot" and "inch" marked graduations.
- Plumb Bobs #1, #2, #3 & #4 shall be used at the driving site. Plumb Bobs #5 & #6 shall be used at the casting yard.

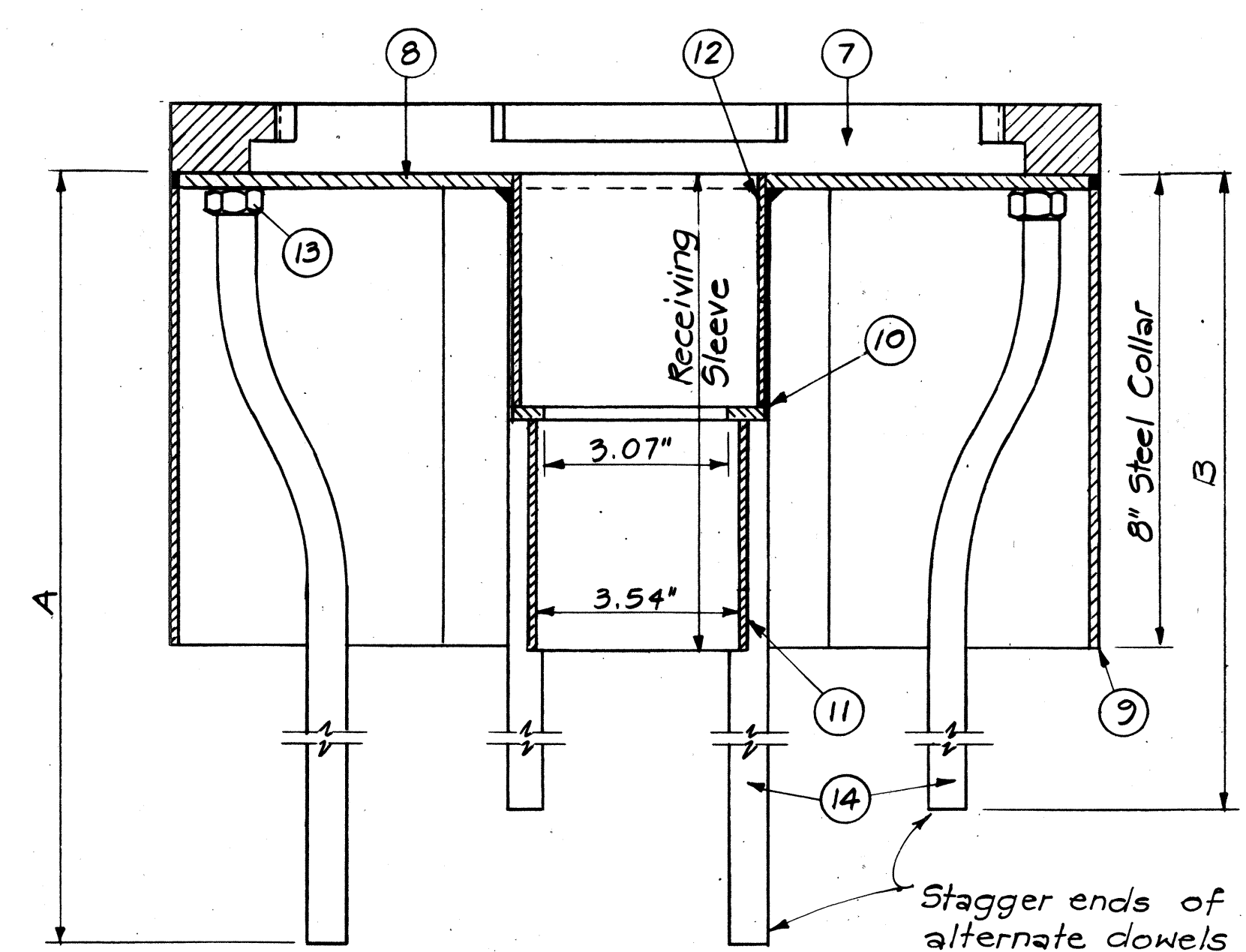


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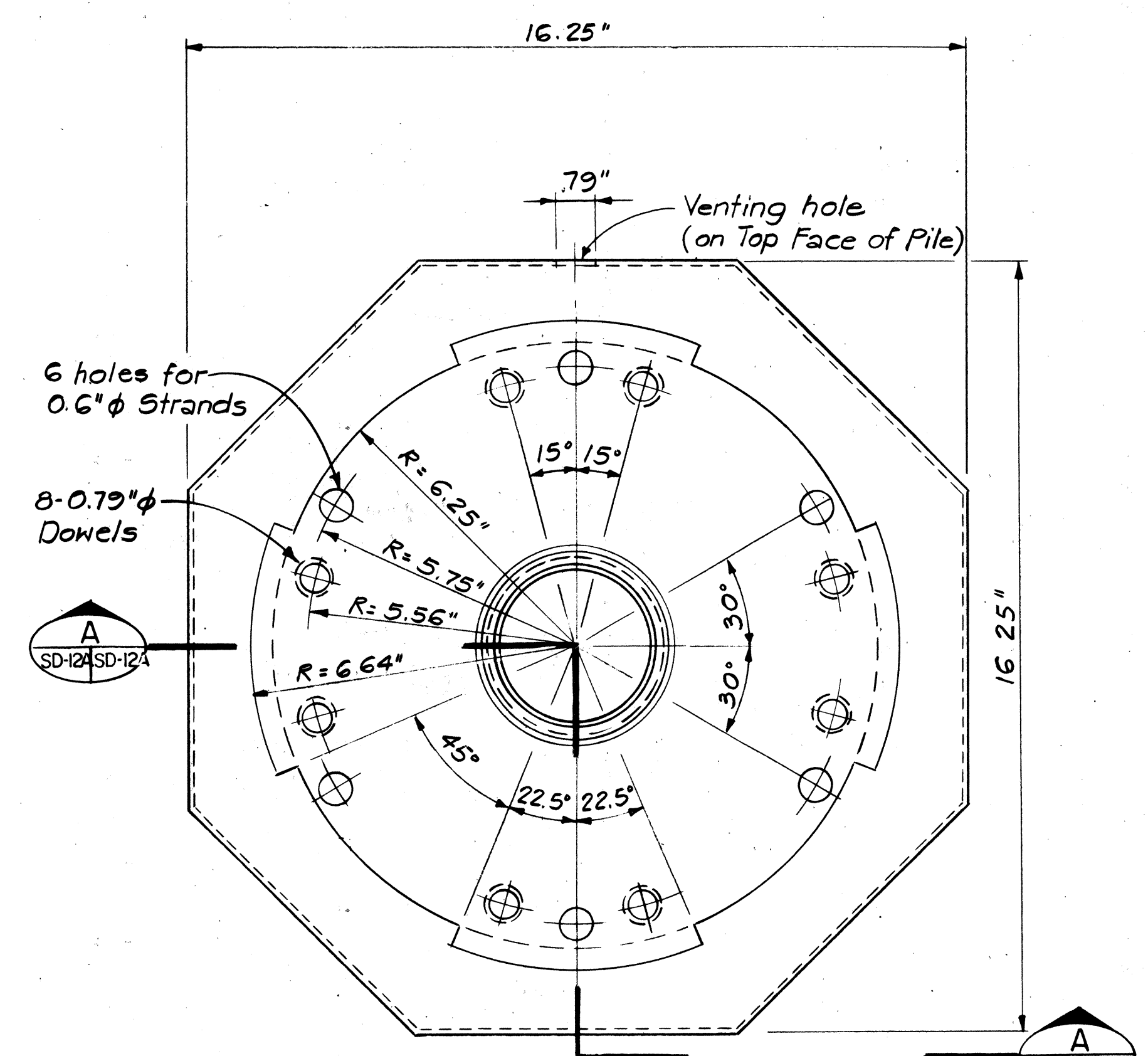
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
PRESTRESSED CONCRETE PILES
DETAILS
SHEET 3 OF 3
KEEHI INTERCHANGE
F.A.I. PROJECT NO. I-HI-1 (133) : 17
SCALE: AS SHOWN DATE: 4/30/81
SHEET No. SD-12 OF SD-13 SHEETS SD-12



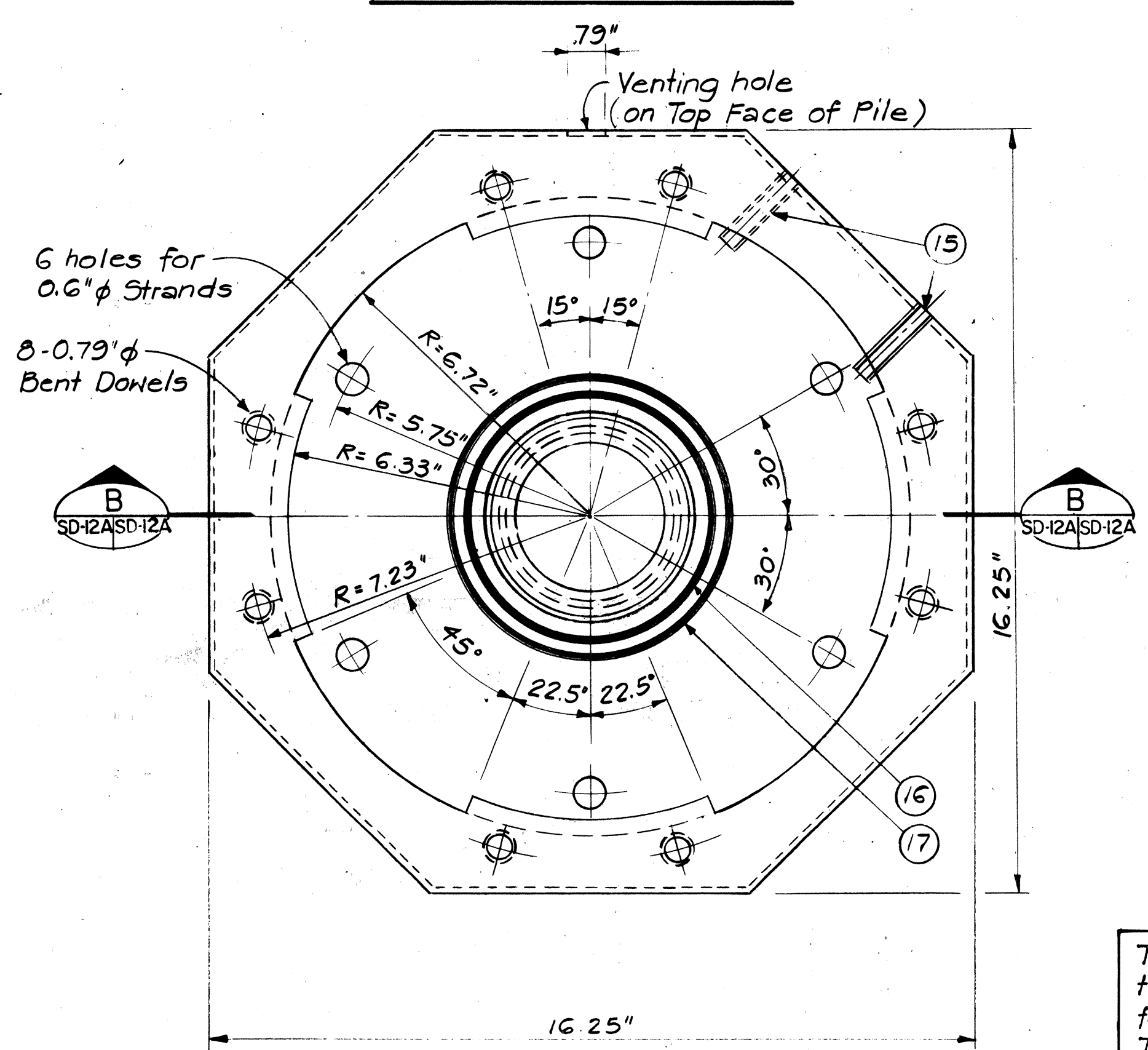
SECTION A
SD-12A/SD-12A



SECTION B
SD-12A/SD-12A



PLAN - MALE JOINT



PLAN - FEMALE JOINT

ITEM	DESCRIPTION
1	Male Coupling Plate
2	Collar Plate
3	Collar
4	Guide Pin (Stabbing Sleeve)
5	Nut
6	Straight Reinf. Bar threaded at one end - 0.79"φ, F _y = 96 Ksi
7	Female Coupling Plate
8	Collar Plate
9	Collar
10	Spacer
11	Tube Upper (Receiving Sleeve)
12	Tube Lower (Receiving Sleeve)
13	Nut
14	Bent Reinf. Bar threaded at one end - 0.79"φ, F _y = 96 Ksi
15	Locking Screw
16	O-Ring
17	O-Ring

TABLE OF DOWEL LENGTHS		
STRAND SIZE	A	B
0.6" φ	13'-0"	12'-0"
1/2" φ	12'-0"	11'-0"
7/16" φ	10'-6"	9'-6"

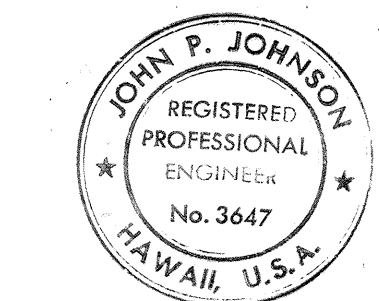
NOTES:

1. This Herkules splice is a proprietary item.
2. There are four locking lugs shown. Six or eight lugs are also acceptable.
3. The details shown on this sheet are for the AC6 prestressed strand pattern. The Contractor has the option to use 1/2"φ strands or 7/16"φ strands, see Sheet No. SD-10.
4. Shop drawings and calculations demonstrating the capacities of the joint couplings shall be submitted by the Contractor to the Engineer for approval, see Special Provisions.
5. Center of splice joint coupling to coincide with center of pile.
6. Details shown for 3"φ PVC pipe. Details similar for 5"φ pipe, see Sheet No. SD-12.

DATE	
DESIGNED BY	
CHECKED BY	
NOTED BY	
QUANTITIES BY	
NO.	

HERKULES SPLICE DETAILS
(Manufactured by Scanpile Ltd.)

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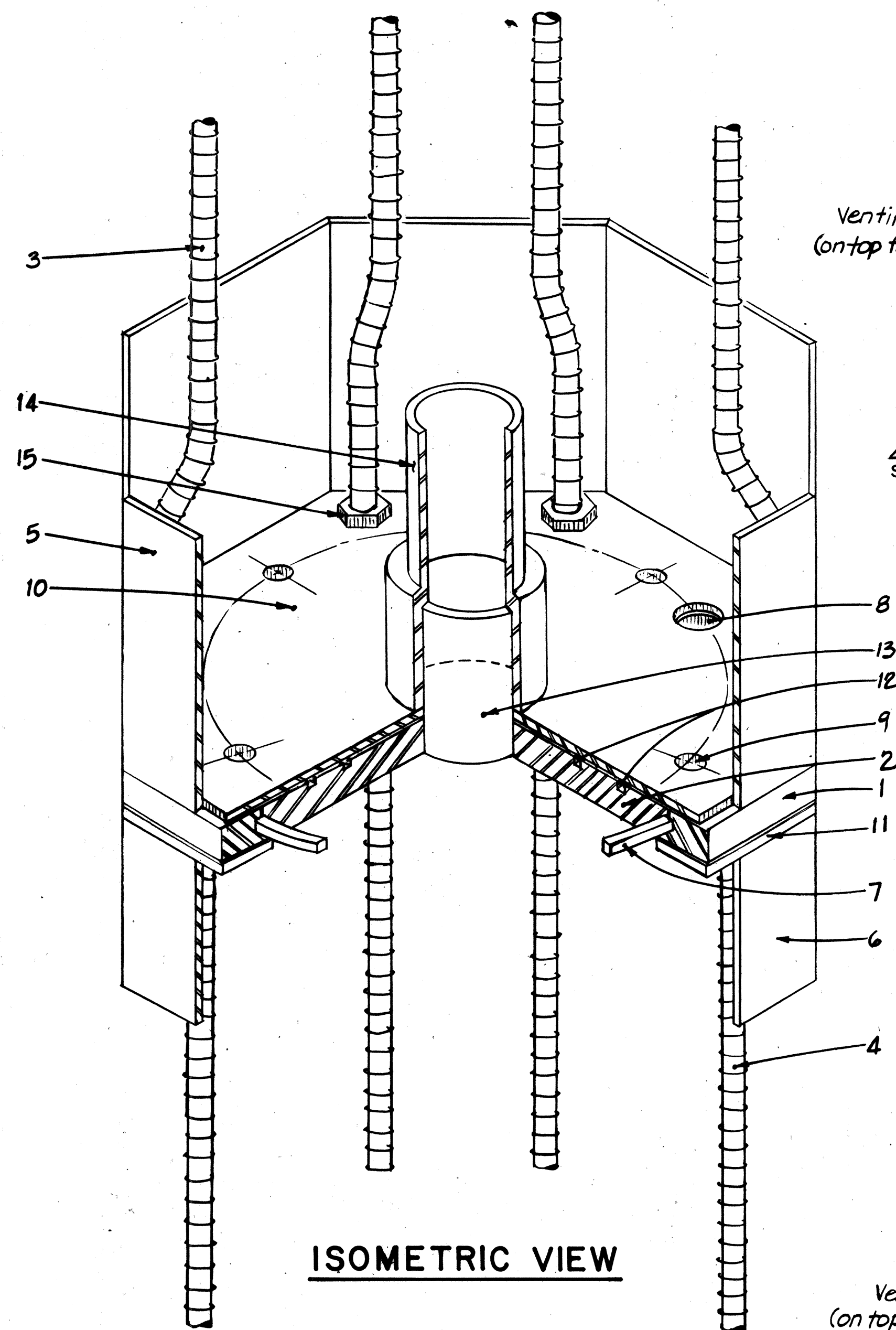


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DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION STANDARD DETAILS PRESTRESSED CONCRETE PILES DETAILS SHEET 3A OF 3 KEEHI INTERCHANGE F.A.I. PROJECT NO. 1-HI-1 (133)-17 NOT TO SCALE DATE: 4/30/81 SHEET NO. SD-12A OF 50-13 SHEETS SD-12A	

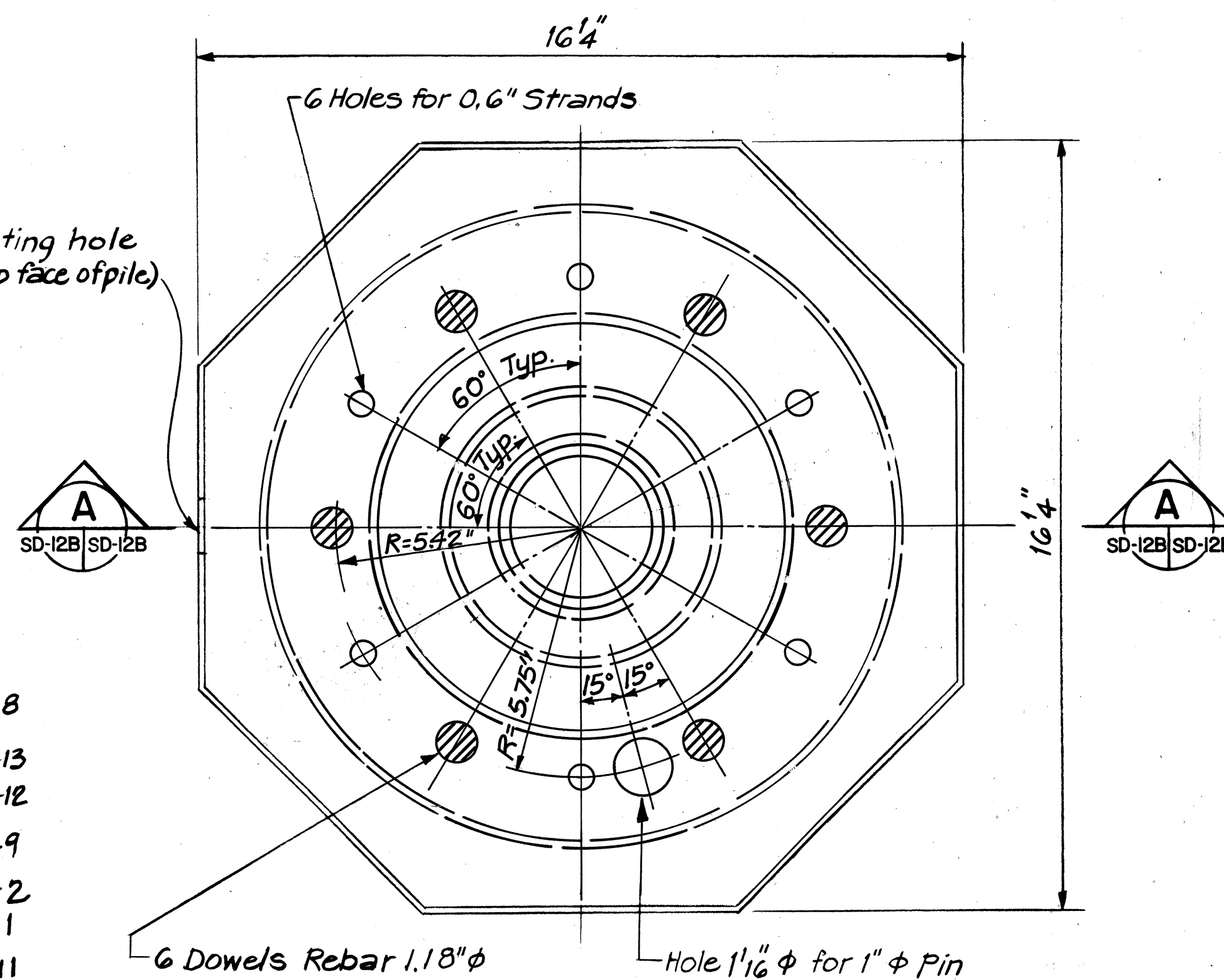
NOTE: ISOMETRIC VIEW SHOWN IS FOR CONNECTOR ASSEMBLY.
WHEN DRIVING PILES, SEE NOTE 6 ON SHEET SD-10.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HHH(133):17	1981	137	159

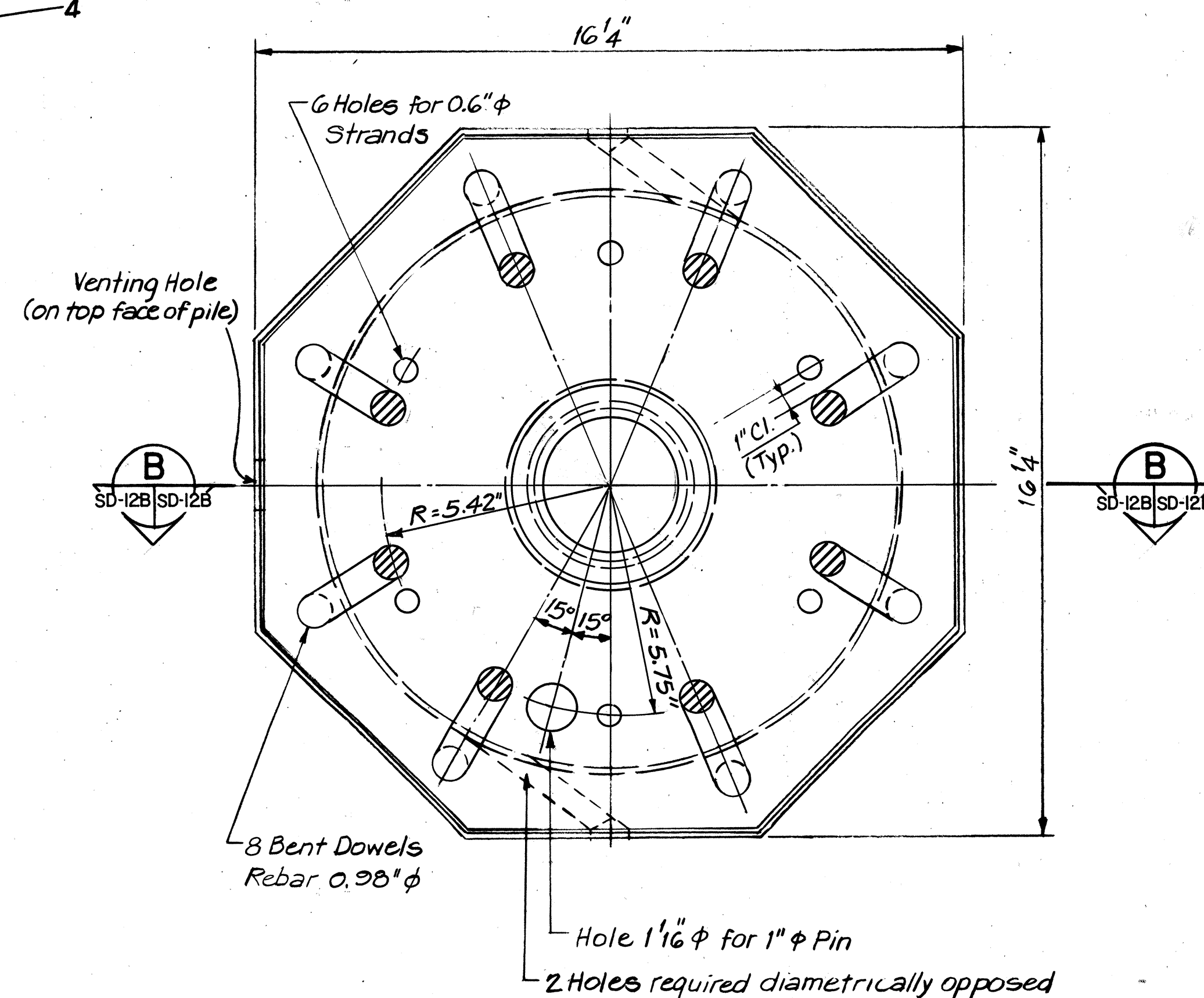


ISOMETRIC VIEW

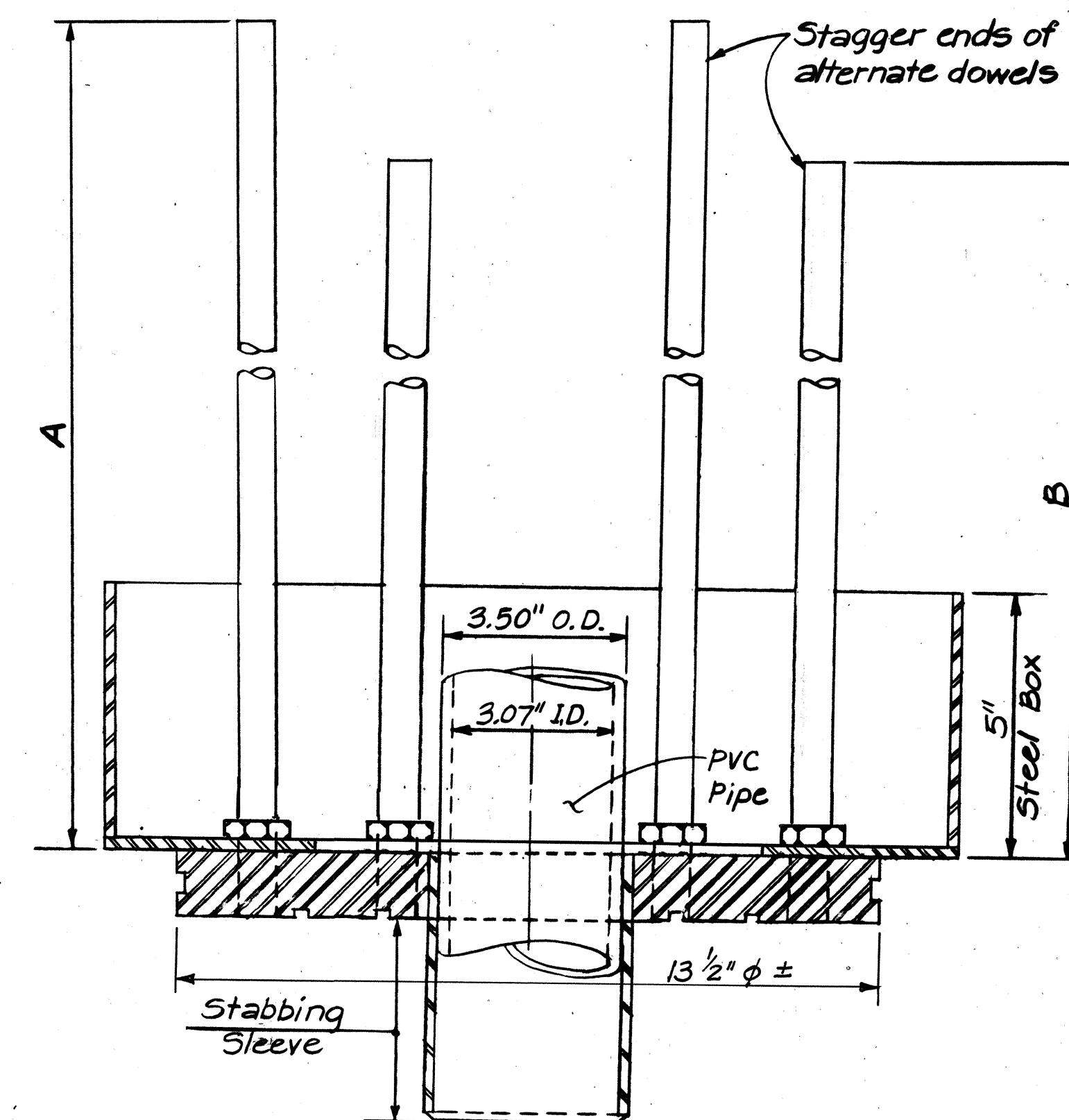
ITEM	DESCRIPTION
1	FEMALE PLATE
2	MALE PLATE
3	DOWELS (BENT) FEMALE - DEFORMED REINF. BARS (THREADED AT ONE END) ASTM A615 - GRADE 60
4	DOWELS (STRAIGHT) MALE - DEFORMED REINF. BARS (THREADED AT ONE END) ASTM A615 - GRADE 60
5	8" BOX (FEMALE)
6	5" BOX (MALE)
7	LOCKING ROD
8	LOCKING PIN 1" ϕ
9	HOLES FOR STRANDS
10	PLATE FEMALE
11	PLATE MALE
12	GROOVE FOR "O" RINGS
13	STABBING SLEEVE
14	RECEIVING SLEEVE
15	HEX NUT



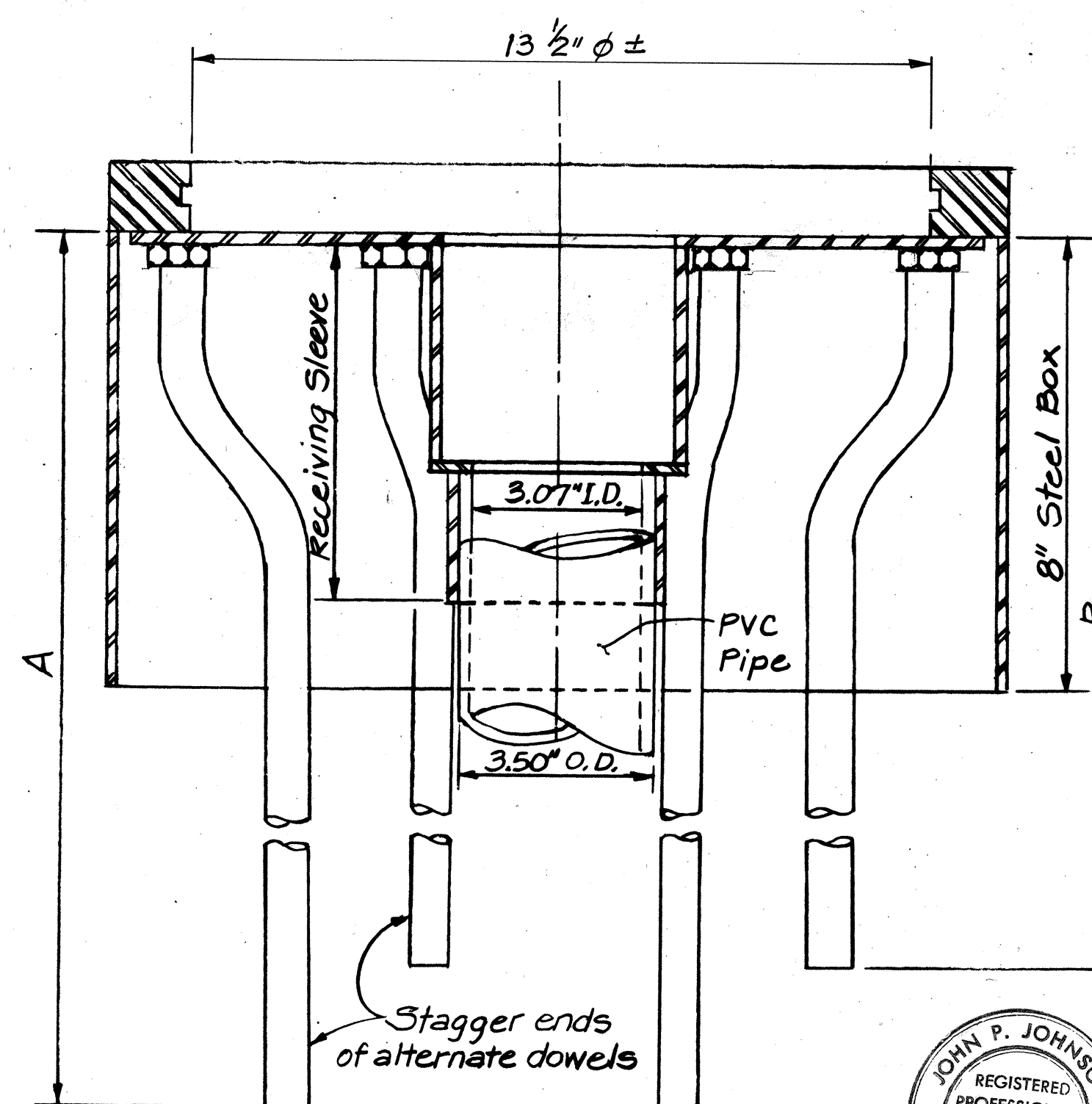
PLAN-MALE JOINT



PLAN-FEMALE JOINT



SECTION A



SECTION B

STRAND SIZE	A	B
0.6" ϕ	13'-0"	12'-0"
1/2" ϕ	12'-0"	11'-0"
7/16" ϕ	10'-6"	9'-6"

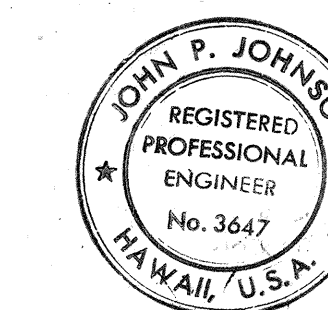
Notes:

1. This Sure-Lock Splice a proprietary item.
2. The details shown on this sheet are for the 0.6" ϕ prestressed strand pattern. The Contractor has the option to use 1/2" ϕ strands or 7/16" ϕ strands, see Sheet No. SD-10.
3. Shop drawings and calculations demonstrating the capacities of the joint couplings shall be submitted by the Contractor to the Engineer for approval, see Special Provisions.
4. Center of splice joint coupling to coincide with center of pile.
5. Details shown for 3" ϕ PVC Pipe. Details similar for 5" ϕ pipe. See Sheet No. SD-12.

THIS DRAWING CONTAINS INFORMATION PROPRIETARY TO SURE-LOCK PILE SPLICE LTD. AND IS BEING FURNISHED FOR THE USE OF HAWAII DEPT. OF TRANSPORTATION ONLY IN CONNECTION WITH THIS PROJECT, AND THE INFORMATION CONTAINED HEREIN IS NOT TO BE TRANSMITTED TO ANY OTHER ORGANIZATION UNLESS SPECIFICALLY AUTHORIZED IN WRITING BY SURE-LOCK PILE SPLICE LTD.

DATE	REVISION
	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION LAND TRANSPORTATION FACILITIES DIVISION STANDARD DETAILS PRESTRESSED CONCRETE PILE DETAILS SHEET NO. 3B OF 3 KEEHI INTERCHANGE F.A.I. PROJECT NO. 1-HI-1 (133):17 NOT TO SCALE DATE: 4/30/81 SHEET NO. SD-12B OF 50-13 SHEETS SD-12B

SURE-LOCK SPLICE DETAILS
(MANUFACTURED BY SURE-LOCK PILE SPLICE LTD.)



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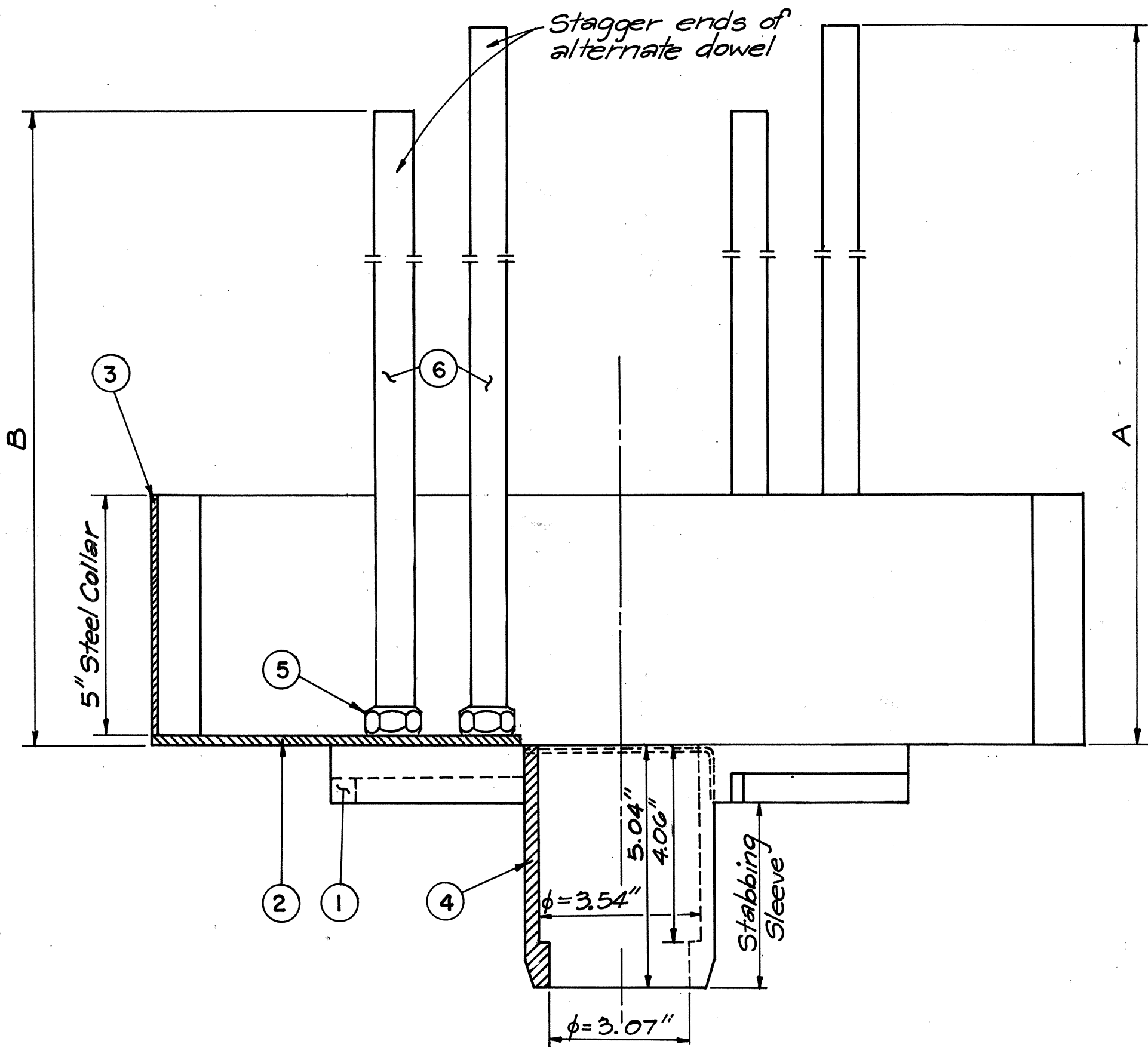
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HH(133)-17	1981	138	159

ITEM	DESCRIPTION
1.	Male Coupling Plate
2.	Collar Plate (Male)
3.	Collar (Male)
4.	Guide Pin (Stabbing Sleeve)
5.	Nut
6.	Straight Reinf. Bar threaded at one end 0.79"φ, F _y = 96 Ksi
7.	Female Coupling Plate
8.	Collar Plate (Female)
9.	Collar (Female)
10.	Spacer
11.	Tube Upper (Receiving Sleeve)
12.	Tube Lower (Receiving Sleeve)
13.	Nut
14.	Straight Reinf. Bar threaded at one end 0.79"φ, F _y = 96 Ksi
15.	Locking Screw
16.	O-Ring
17.	O-Ring

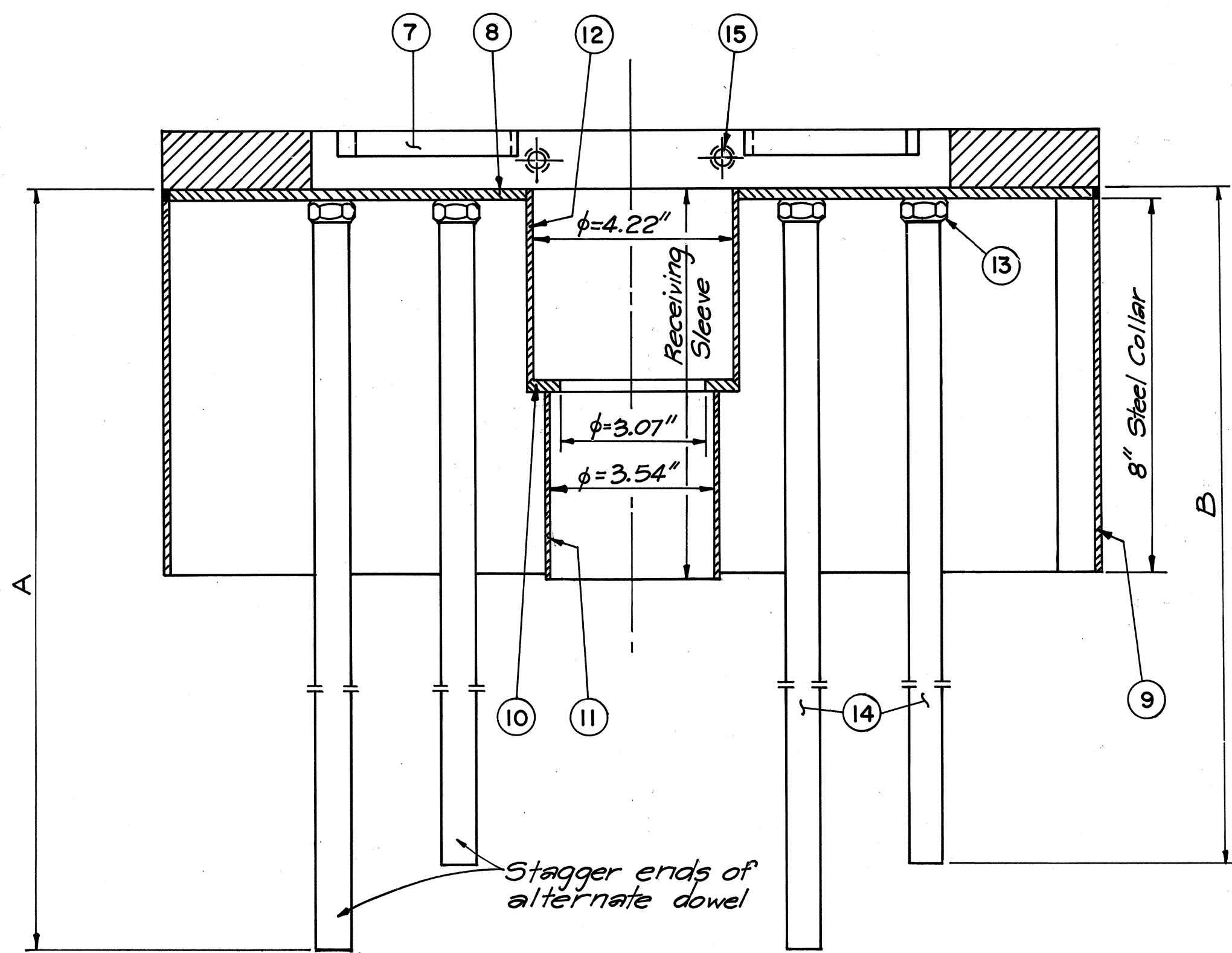
This drawing contains information proprietary to Scarpile Ltd, and is being furnished for the use of Hawaii Department of Transportation only in connection with this Project, and the information contained herein is not to be transmitted to any other organization unless specifically authorized in writing by Scarpile Ltd.

NOTES:

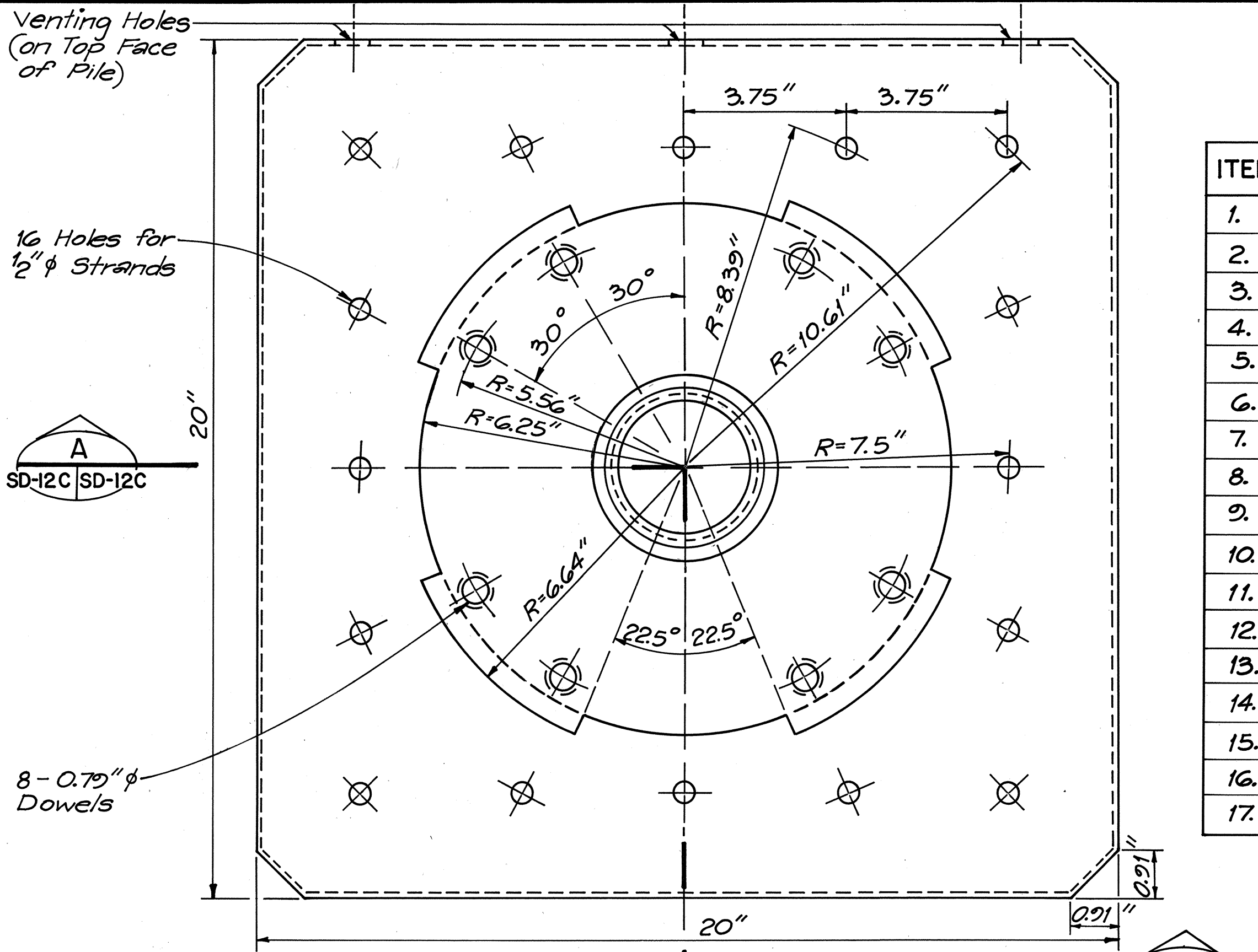
- Notes for Herkules Splice see Sheet No. SD-12A.
- Dimensions of Dowel Length A & B, See Table on Sheet No. SD-12A.



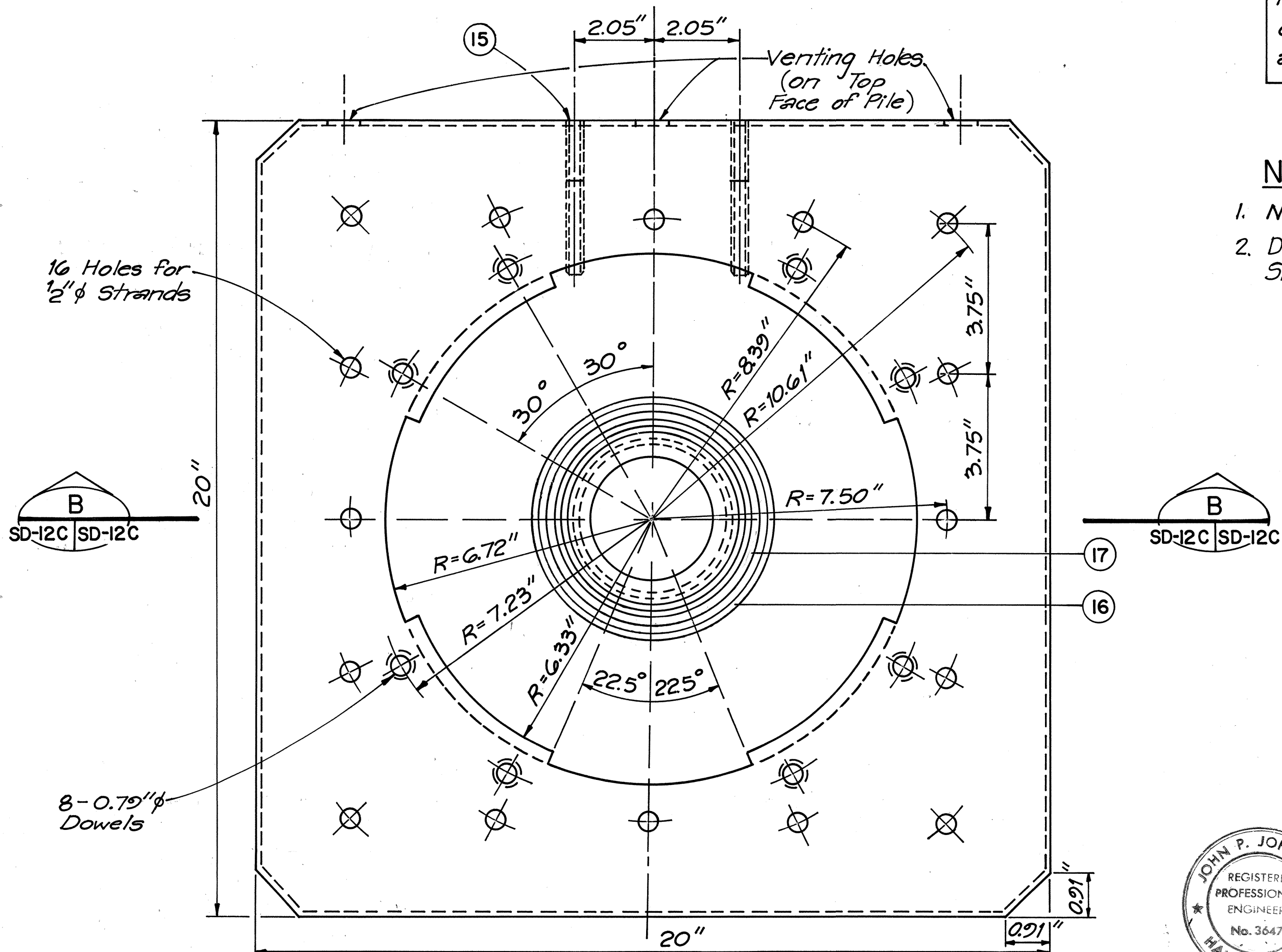
SECTION A
SD-12C SD-12C



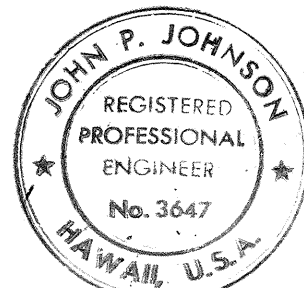
SECTION B
SD-12C SD-12C



PLAN - MALE JOINT



PLAN - FEMALE JOINT



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
PRESTRESSED CONCRETE PILES
DETAILS
SHEET 3C OF 3
KEEHI INTERCHANGE
F.A.I. PROJECT NO. 1-HI-1(133)-17
NOT TO SCALE
DATE: 4/30/81

SHEET NO. SD-12C OF SD-13S SHEETS SD-12C

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

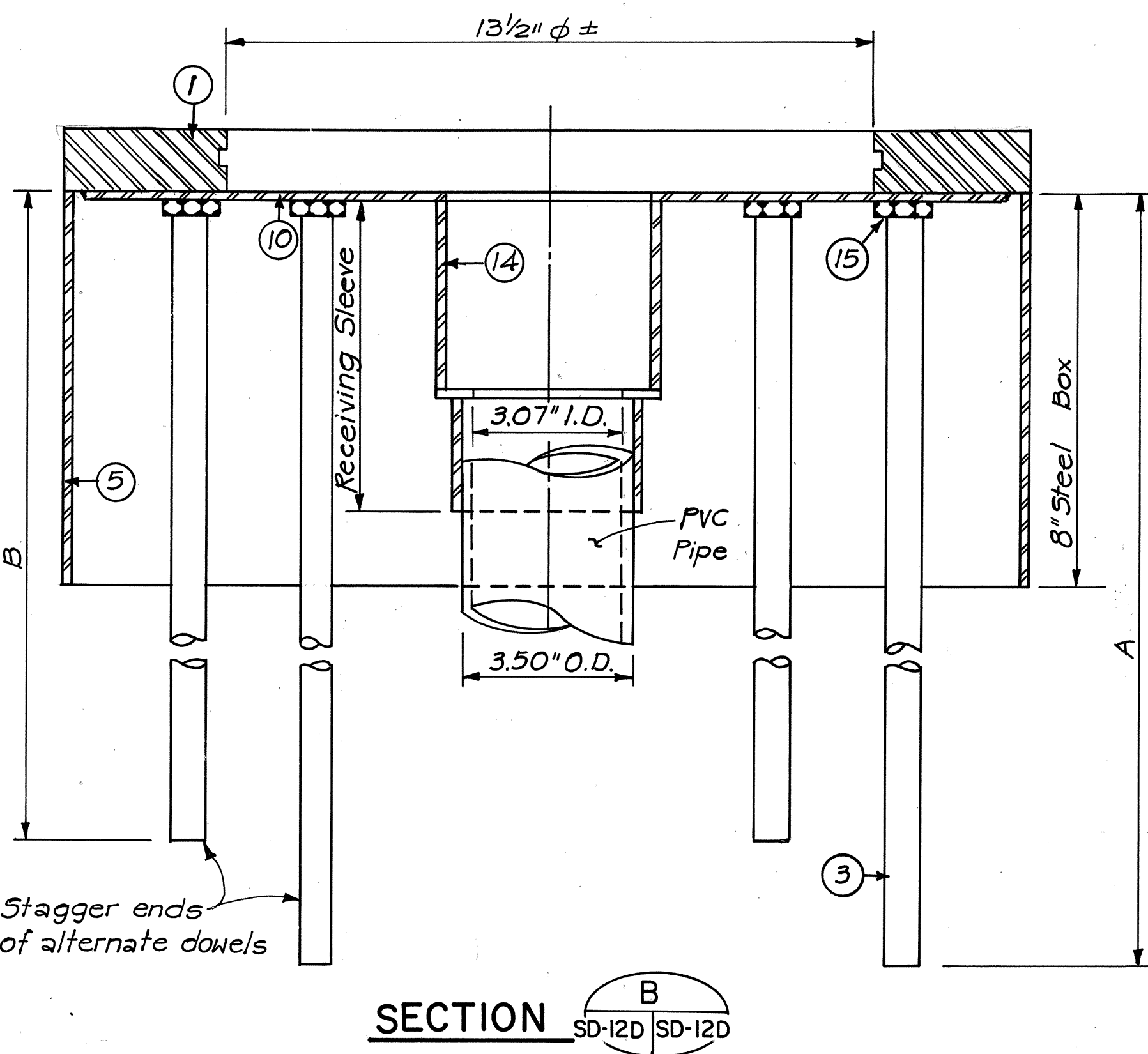
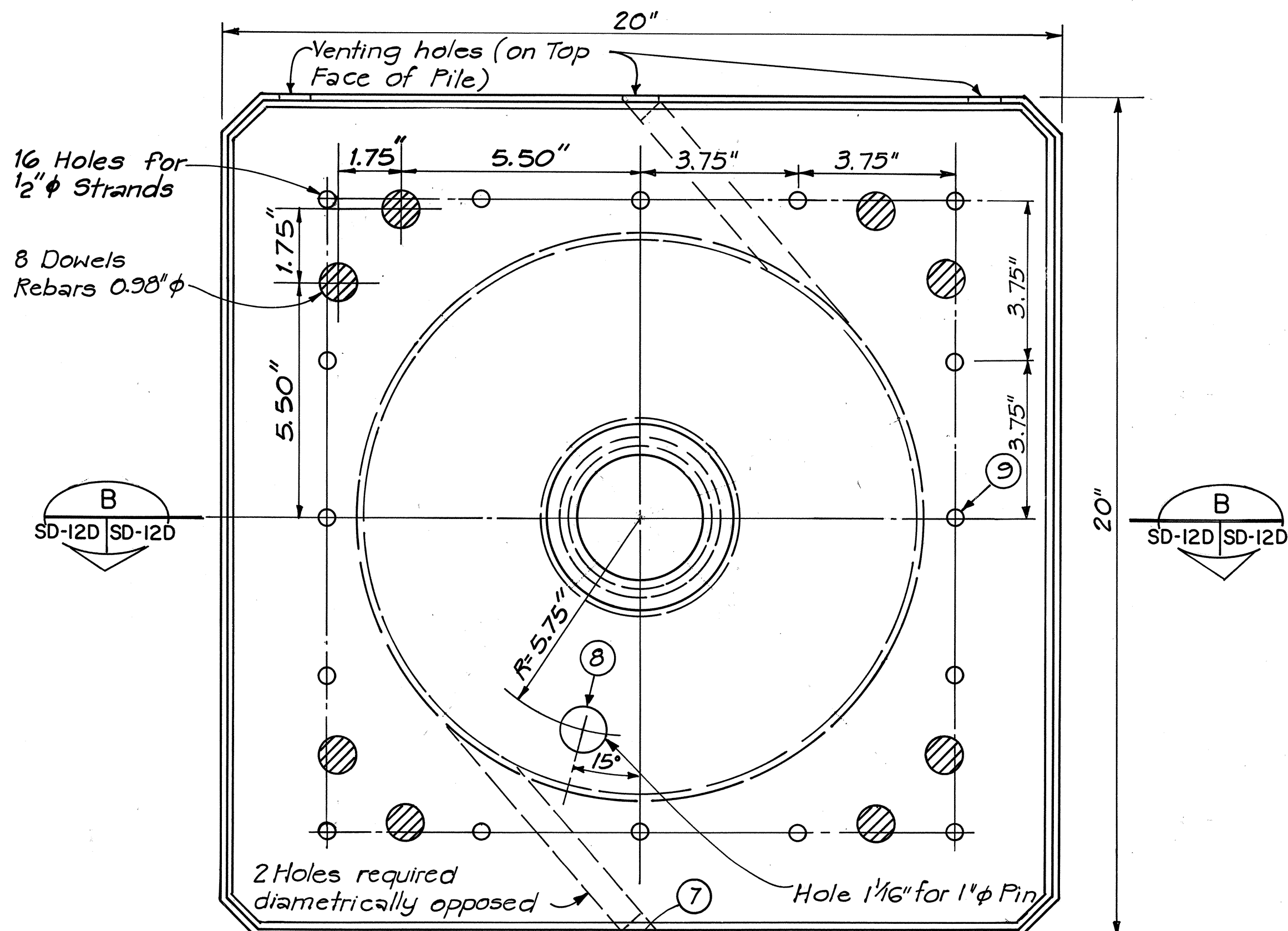
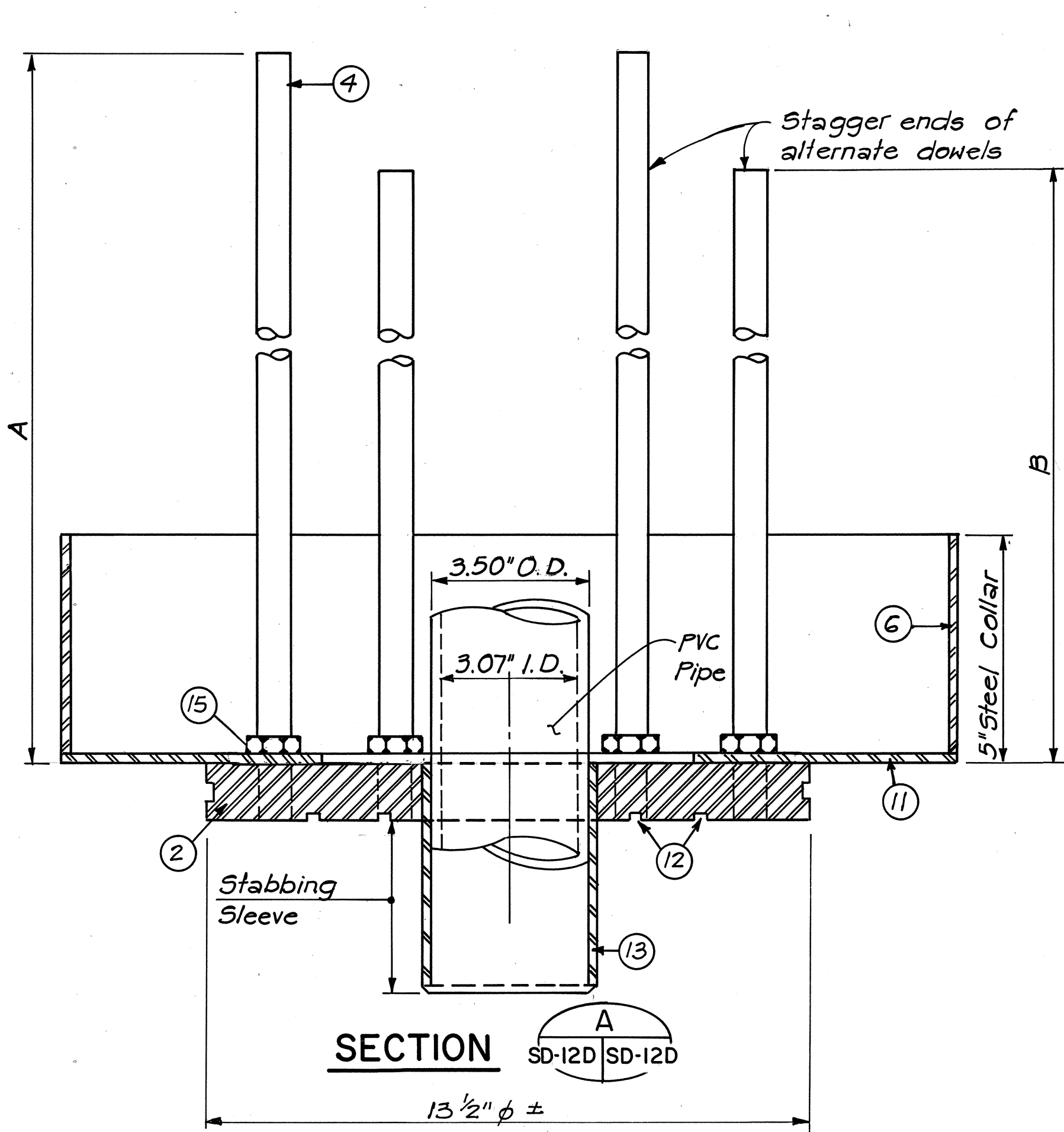
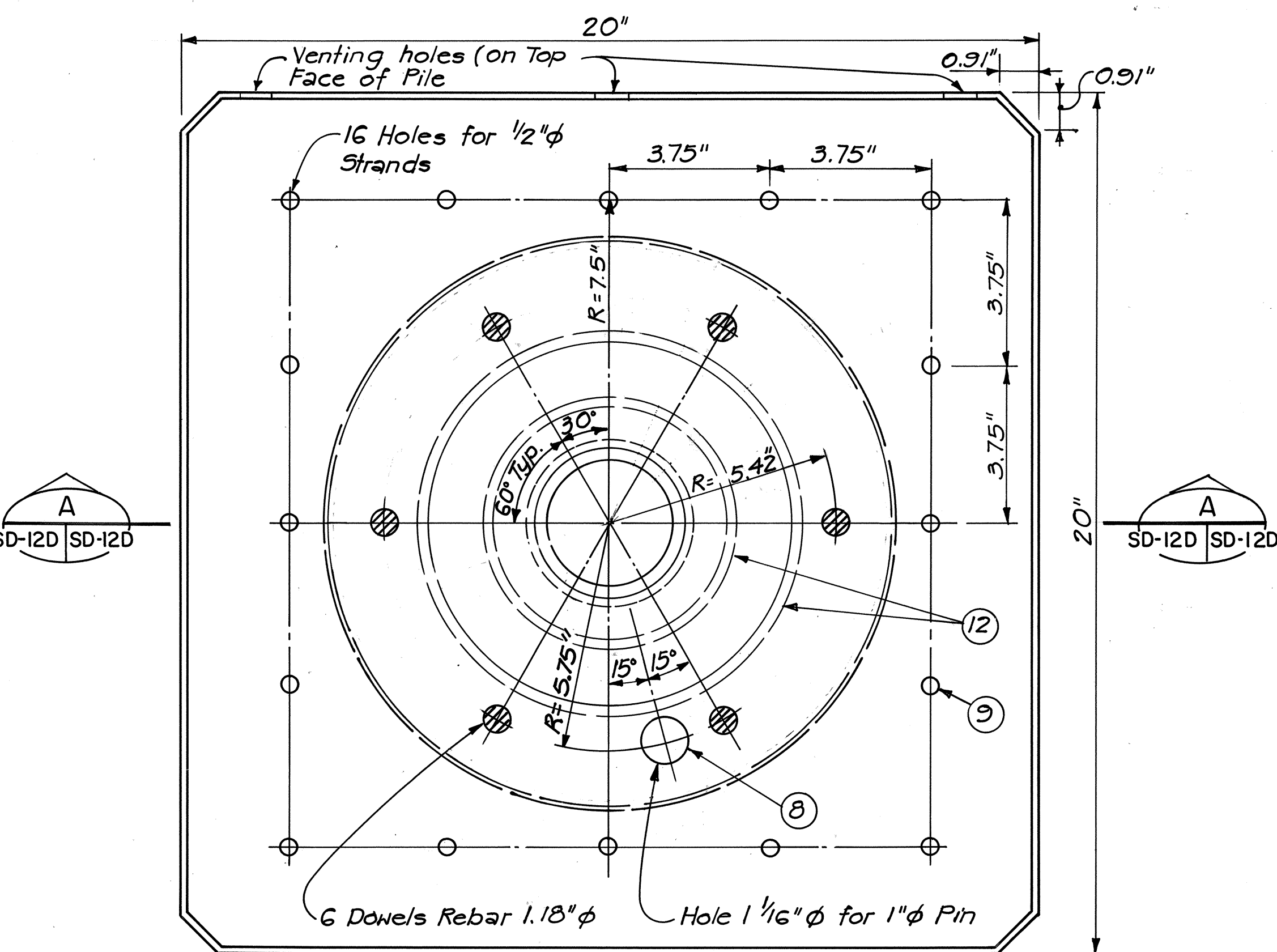
HERKULES SPLICE DETAILS
(Manufactured by Scarpile Ltd.)

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1(133):17	1981	139	159

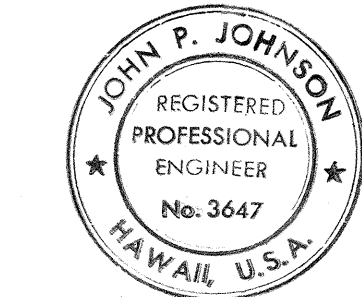
ITEM	DESCRIPTION
1	Female Plate
2	Male Plate
3	Dowels (Straight) Female- Deformed Reinf. Bars (threaded at one end) ASTM A615 - Grade 60
4	Dowels (Straight) Male - Deformed Reinf. Bars (threaded at one end) ASTM A615 - Grade 60
5	8" Box (Female)
6	5" Box (Male)
7	Locking Rod
8	Locking Pin 1" ϕ
9	Holes for Strands
10	Plate Female
11	Plate Male
12	Groove for "O" Rings
13	Stabbing Sleeve
14	Receiving Sleeve
15	Hex. Nut

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- NOTES:
- Notes for Sure-Lock Splice see sheet No. SD-12B.
 - Dimensions of Dowel Length A and B, see Table on sheet No. SD-12B.



SURE - LOCK SPLICE DETAILS (Manufactured by Sure-Lock Pile Splice Ltd.)



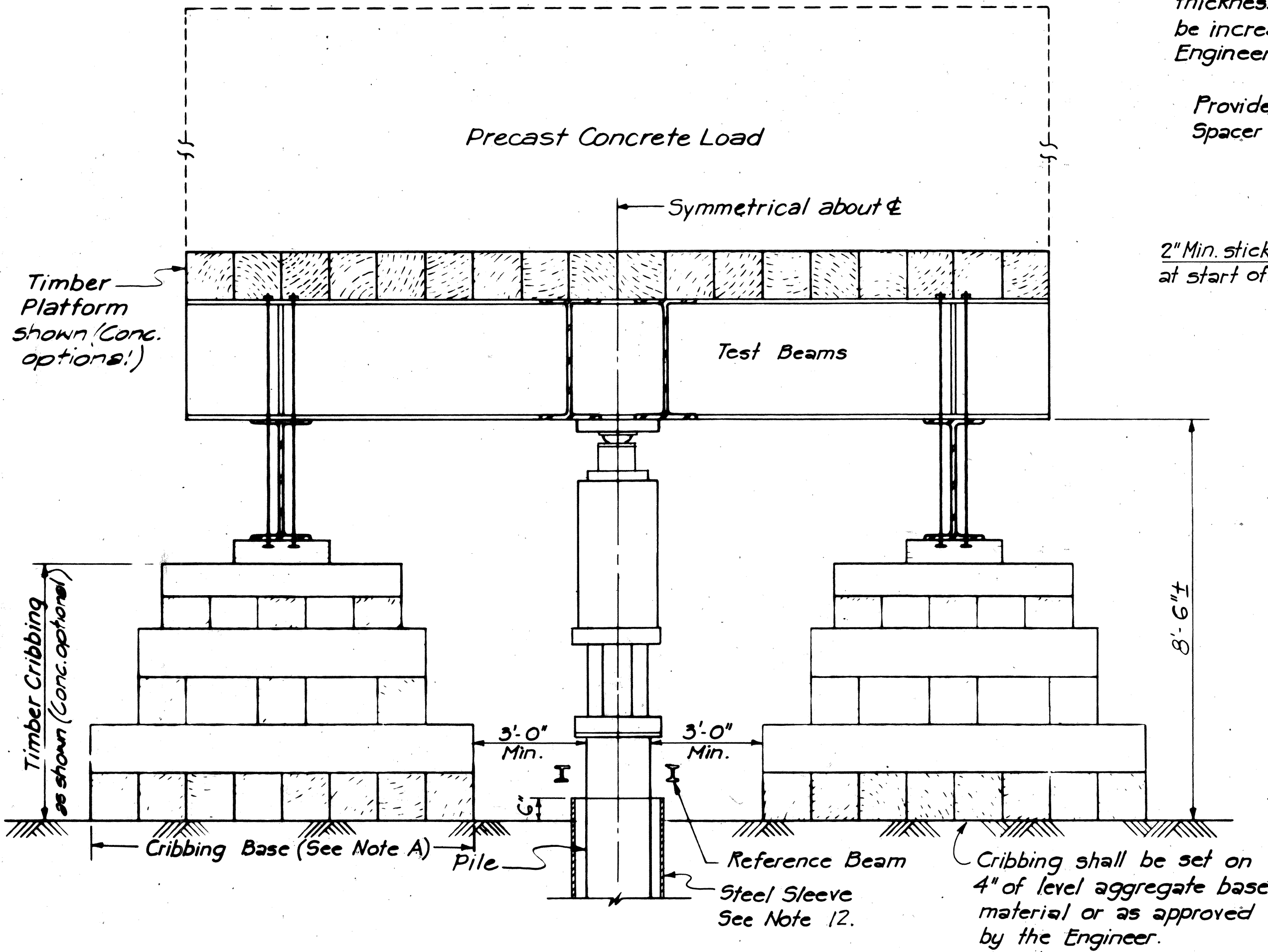
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ME OR UNDER MY SUPERVISION:
John P. Johnson

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
PRESTRESSED CONCRETE PILE
DETAILS
SHEET NO. 3D OF 3
KEEHI INTERCHANGE
F.A.I. PROJECT NO.1-HI-1(133):17
NOT TO SCALE
DATE: 4/30/81
SHEET NO. 5D-12D OF 5D-13 SHEETS SD-12D

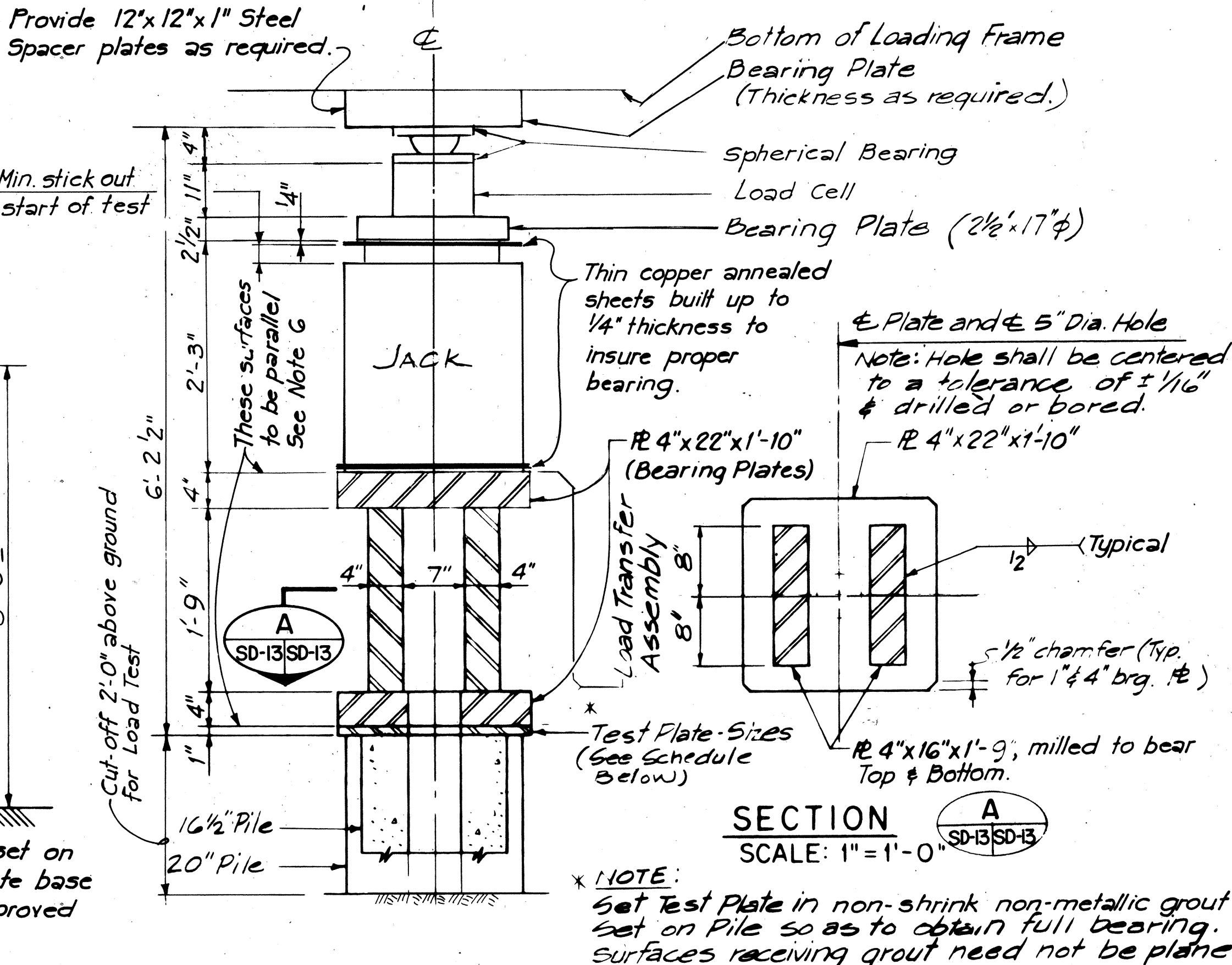
139

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	I-HH(133): 17	1981	140	159

NOTE 'A'
The Contractor shall determine the thickness of the crust at the locations of load tests before proceeding with the load tests. The cribbing base dimensions are 10'x24' for a crust of 6' thickness or more. In case the thickness of crust is found to be between 4' to 6', the cribbing base shall be increased to 10'x28'. If the thickness of crust is less than 4 feet, the Engineer shall designate a new location(s) for the load test(s).



SCHEMATIC SET-UP FOR APPLYING LOADS TO TEST PILE
SCALE: 1/2" = 1'-0"



DETAIL FOR JACKING SET-UP
SCALE: 1" = 1'-0"

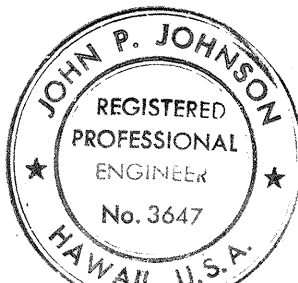
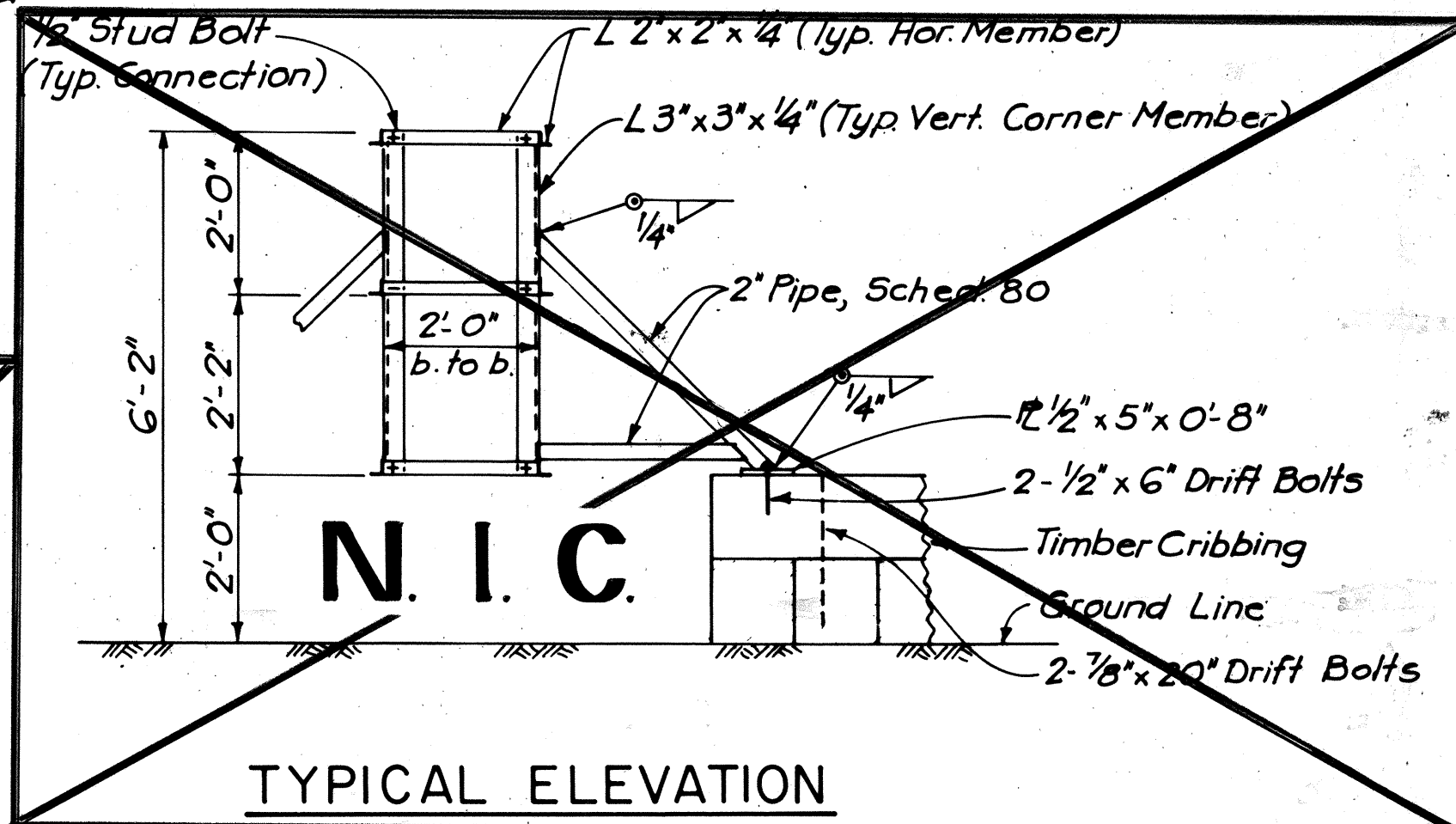
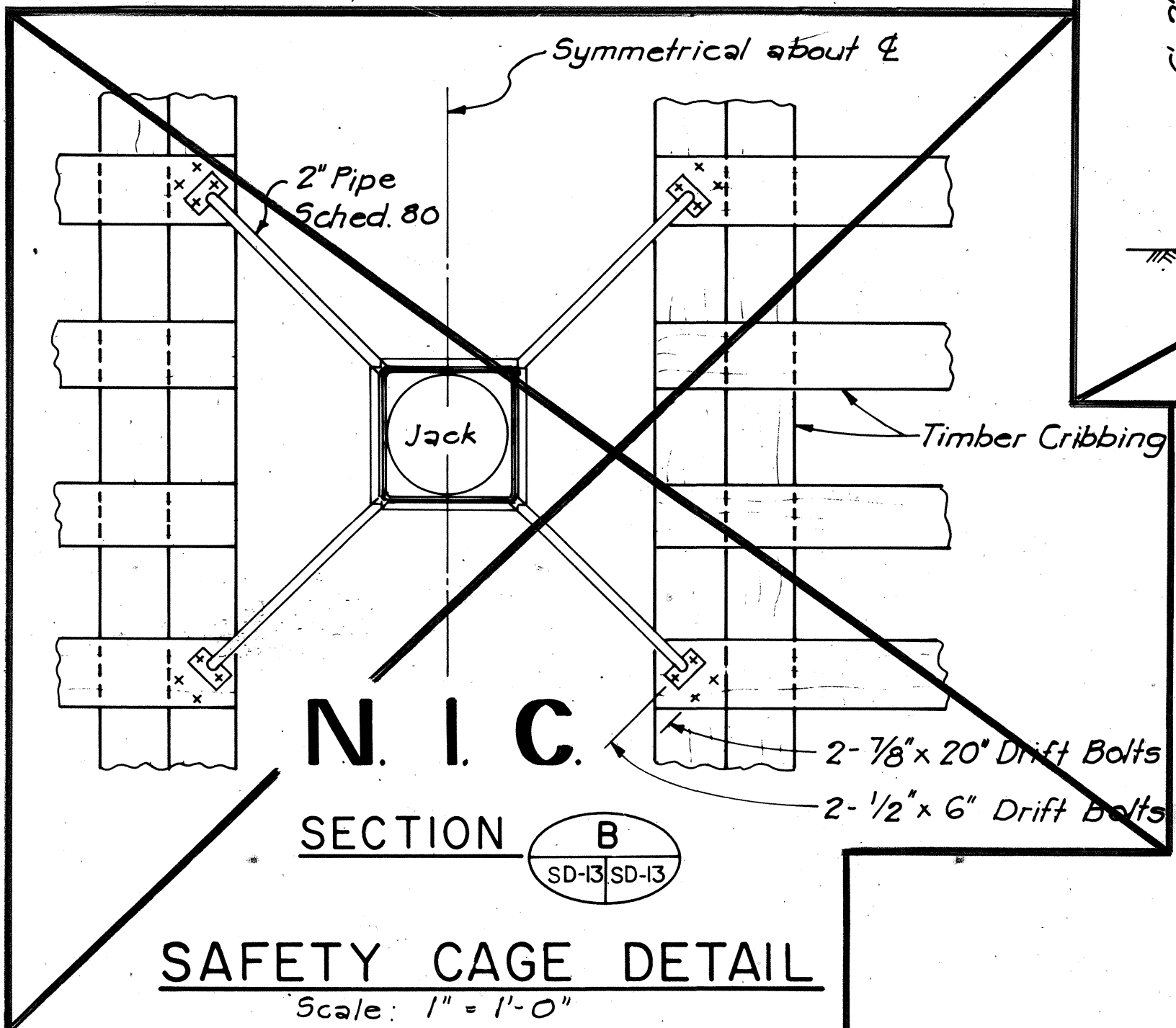
LOAD FRAME NOTES :

1. The Loading Frame shall be designed to support load required to permit the Test Pile to be axially loaded to 500Tons. Loading blocks to be provided by Contractor.
2. Design of Frame shall conform to the latest Edition of the Manual of Steel Construction by the American Institute of Steel Construction. Allowable stresses in this manual may be increased by 20% for main structural members. This increase in allowable stresses will not be allowed for Connections, Bolts and Welds.
3. At the option of the Contractor, the Loading Frame may be fabricated from new or used Structural Steel Shapes; or loading frames previously used in other projects may be used provided the design and construction of the frame to be furnished conforms to the requirements in Notes 1 and 2 above.
4. Load test site shall be enclosed with a 5 ft high temporary fence (wire mesh on wood poles). Payment shall be considered incidental to "Pile Load Test".
5. Timber Cribbing and Platform may be of new or used sound timber and shall be of adequate size and grade to safely carry the loads imposed upon them resulting from the Load Tests.
6. Surfaces of all bearing plates shall be planed or milled smooth to provide full surface contact, Top & Bottom of Load Transfer Assembly to be planed after welding.

NOTES :

1. The apparatus for applying known compressive loads to the pile shall be assembled so that the loads are applied axially to minimize eccentric loading.
2. Where necessary, the unsupported length of the pile shall be braced to prevent buckling.
3. The steel test plate shall be set in high-strength quick-setting grout. Full bearing must be achieved between the plate and grout, that is, no voids should exist between them.
4. Two reference beams, one on each side of the pile shall be oriented perpendicular to the direction of the test beams of the load frame. Two dial gages shall be mounted approximately equidistant from the center of and on opposite sides of the pile with stems parallel to the direction of the load application.
5. The reference beams shall be independently supported with supports firmly embedded in the ground at a clear distance of not less than 10 feet from the cribbing.
6. Reference beams shall be of sufficient stiffness to prevent excessive deflections and should be cross connected to provide additional rigidity.
7. One end of each reference beam shall be free to move as the lengths of beams change with temperature variations.
8. Smooth bearing surfaces perpendicular to the direction of measurement shall be provided for the gage stems. These surfaces shall be of glass or hard metal. No wood shall be allowed in these measurement systems.
9. Provisions, such as a protective canopy, shall be made to protect the instrumentation, measuring system, and reference system from adverse wind, rain, and temperature variations or other disturbances.
10. The lateral movements of the pile shall be measured using two dial gages mounted on the reference beams 90 degrees apart with their stems horizontal and bearing against smooth bearing plates or surfaces.
11. Load Test Pile Type A or Pile Type B shall be instrumented with rod extensometers to determine the distribution of load transfer to the soil. See Special Provisions.
12. Load Test Pile Type A or Pile Type B shall be backfilled and sleeve removed in accordance with Section 505.03(2) of the Special Provisions prior to conducting the test.

Schedule			
Test Plate - Sizes			
Pile Size	Plate Size	Hole Size	Size
20"	1'x22"x1'-10"	5"	5"
16 1/2"	1'x18"x1'-6"	5"	5"



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

John P. Johnson

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
LOAD TEST SET-UP

KEEHI INTERCHANGE
F.A.I. PROJECT NO. I-HI-1 (133) : 17

SCALE: AS SHOWN DATE: 4/30/81
SHEET NO. SD-13 OF SD-13 SHEETS SD-13