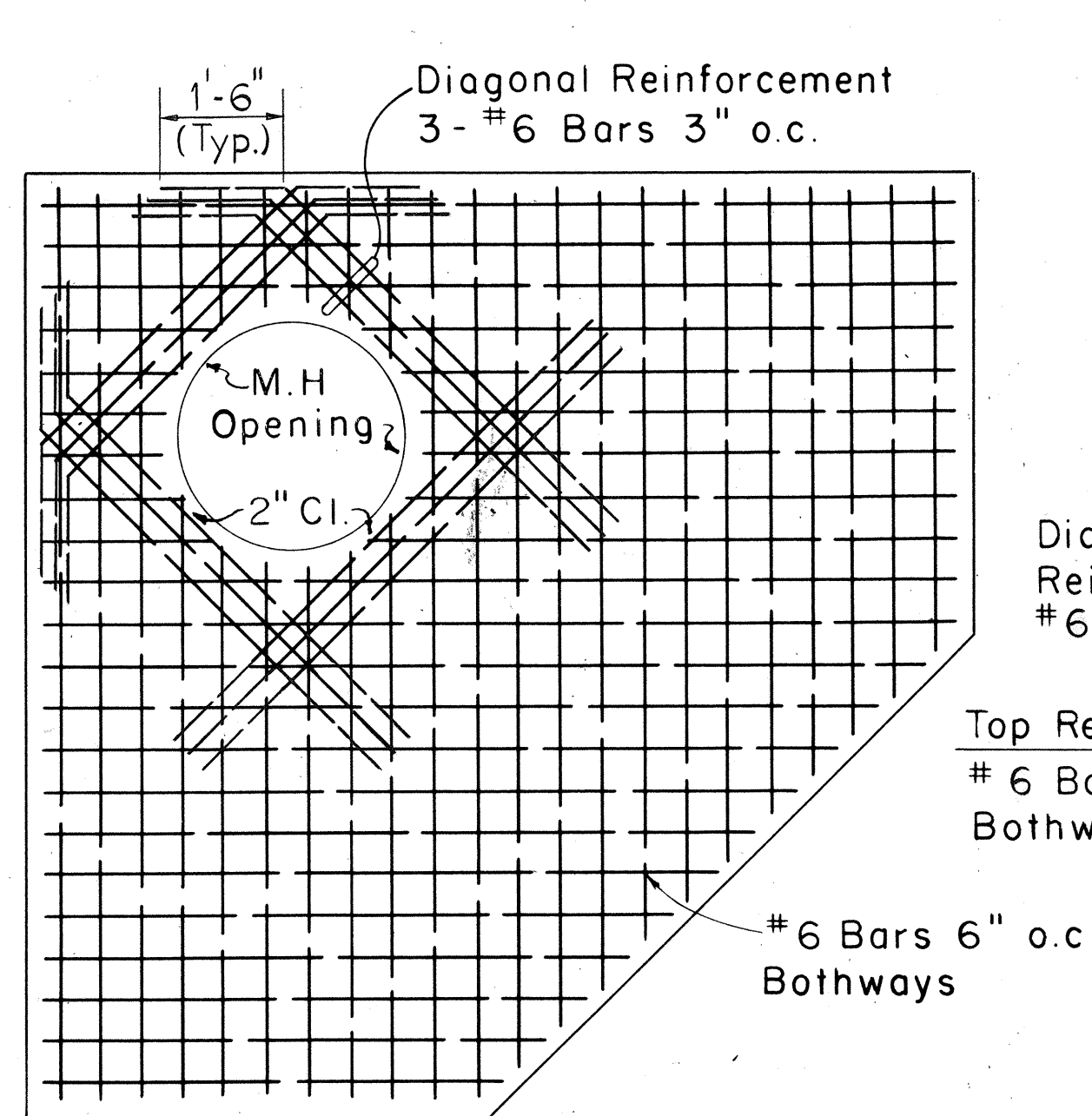


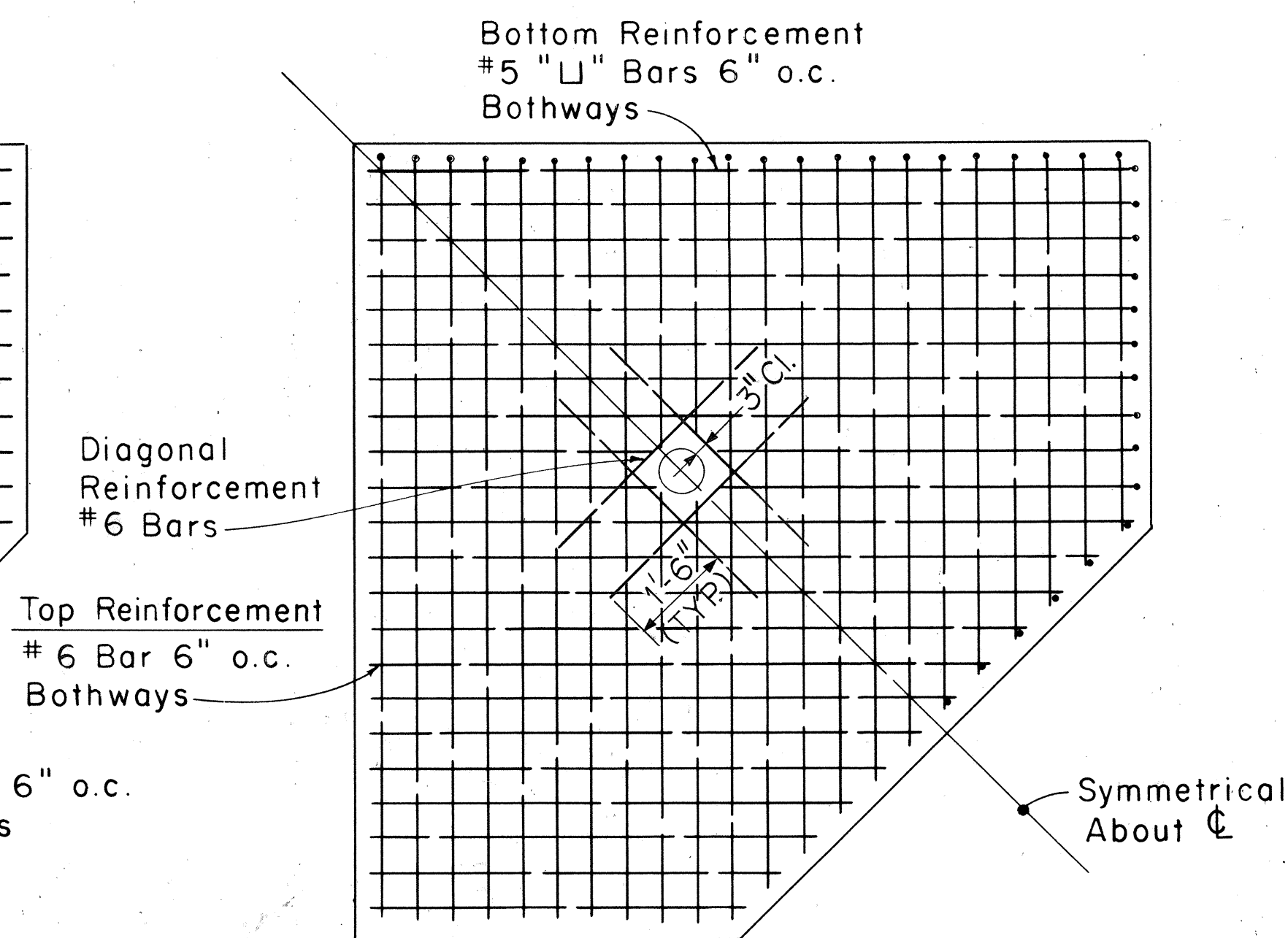
GENERAL NOTES:

- Design Data
 $f_s = 20,000$ psi
 $f'_c = 3,000$ psi
 $f_c = 1,200$ psi
 $n = 10$
 $w =$ Equiv. Fluid Pressure $60 \# / F_t 2$
- Minimum overlap for a Lapped Splice shall be 24 Bar Dia. but not less than 12". Lap of Adjacent Bars shall not be in same location.
- Unless otherwise indicated, for Vertical Location of Duct Windows see Profile Sheet.
- Manhole Walls shall be Doubled Formed.
- All Concrete shall be cured by an Impervious Liquid Membrane Compound.
- Concrete shall not be loaded, except by its own weight, until 28 Days have passed since placement
- All Construction Joints shall be Waterproofed with Two Applications of Thoro-Seal or equal.
- Cap all Ducts and Stubouts.
- Concrete shall be Class A and shall have a Compressive Strength of 3000 psi in 28 Days with a Slump of 3".
- Concrete Admixture shall be $2\frac{1}{2}$ Lbs. "Tricosol Normal" per Cubic Yard.
- All Reinforcing Bars shall be ASTM A-615 Grade 40.
- Where Manholes are located below the Water Table, Sump shall be only 1'-0" deep Vitriified Clay Pipe embedded in Concrete Slab, and the Concrete Floor Slab shall be continuous below the Sump without any Construction Joints. See Section "E-E" on Sheet No. (52)
- Apply Dampproofing to the surfaces of Reinforced Concrete that are in contact with Earth excluding the underside of the Floor Slab. Material and application shall be according to the 1976 Edition of the "State Highway Department's Standard Specifications for Road and Bridge Construction."



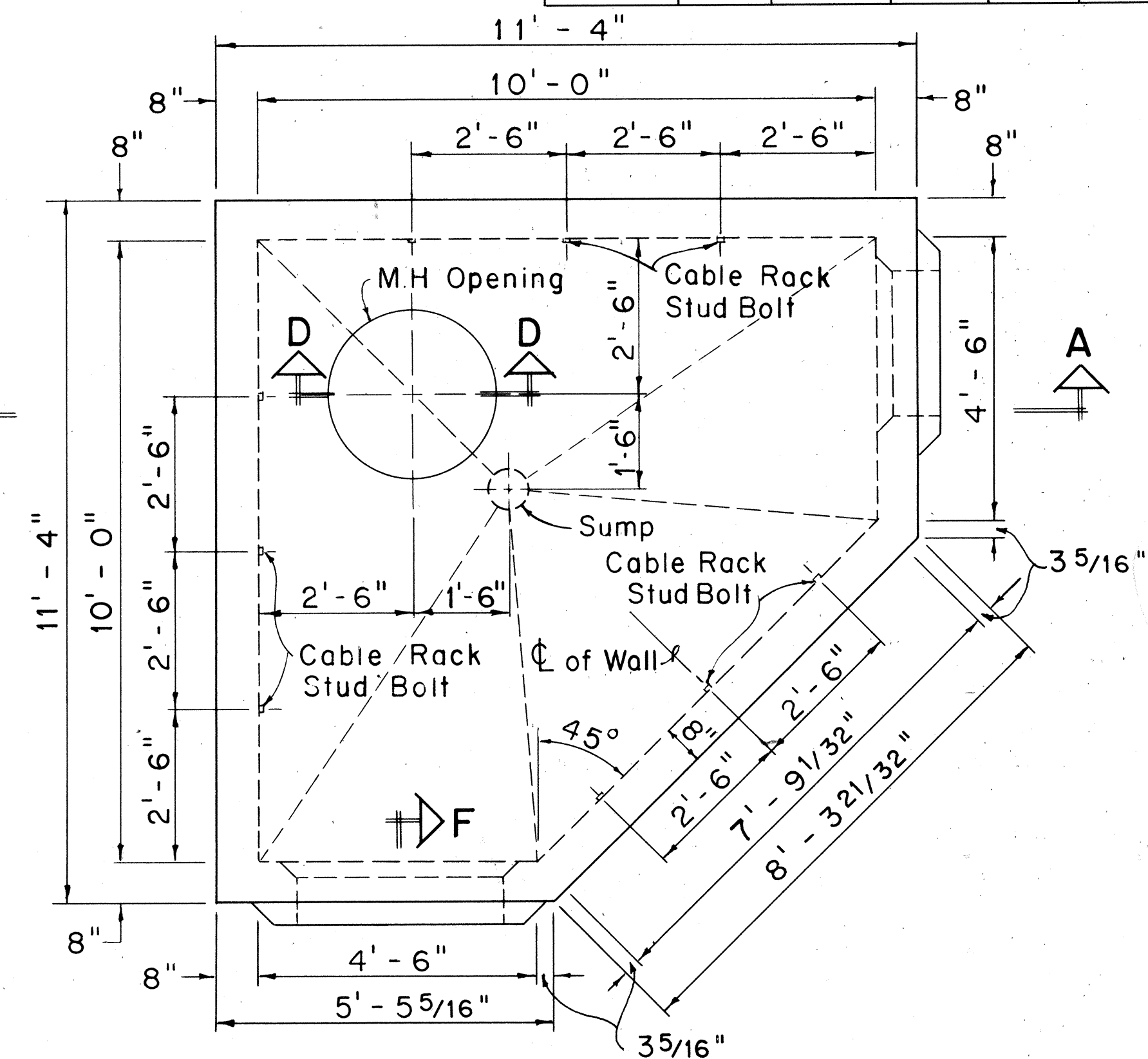
ROOF SLAB REINF. PLAN

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



FLOOR SLAB REINF. PLAN

(Showing Top & Bottom Reinf.)
 Scale: $1/2" = 1'-0"$

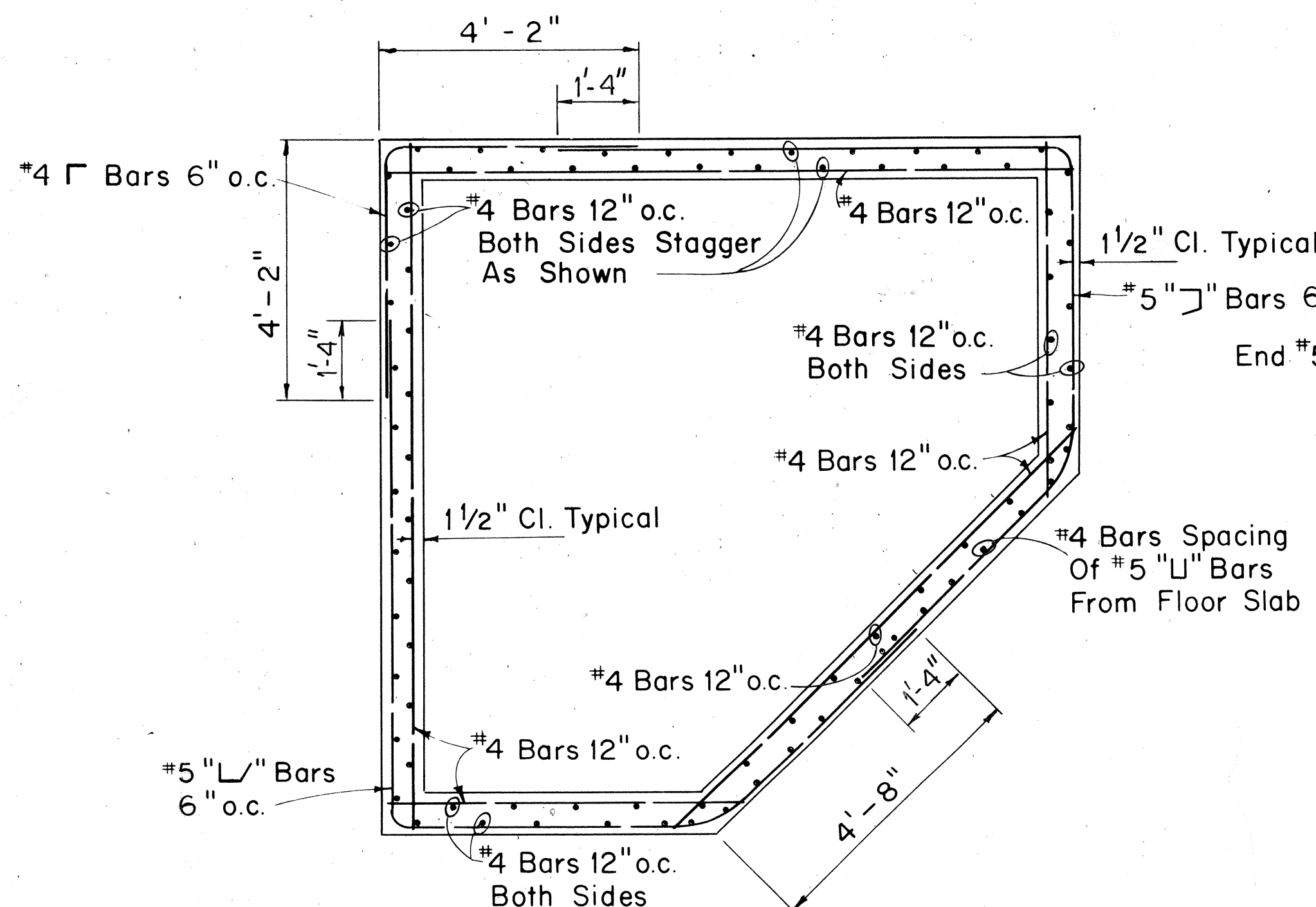


PLAN

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

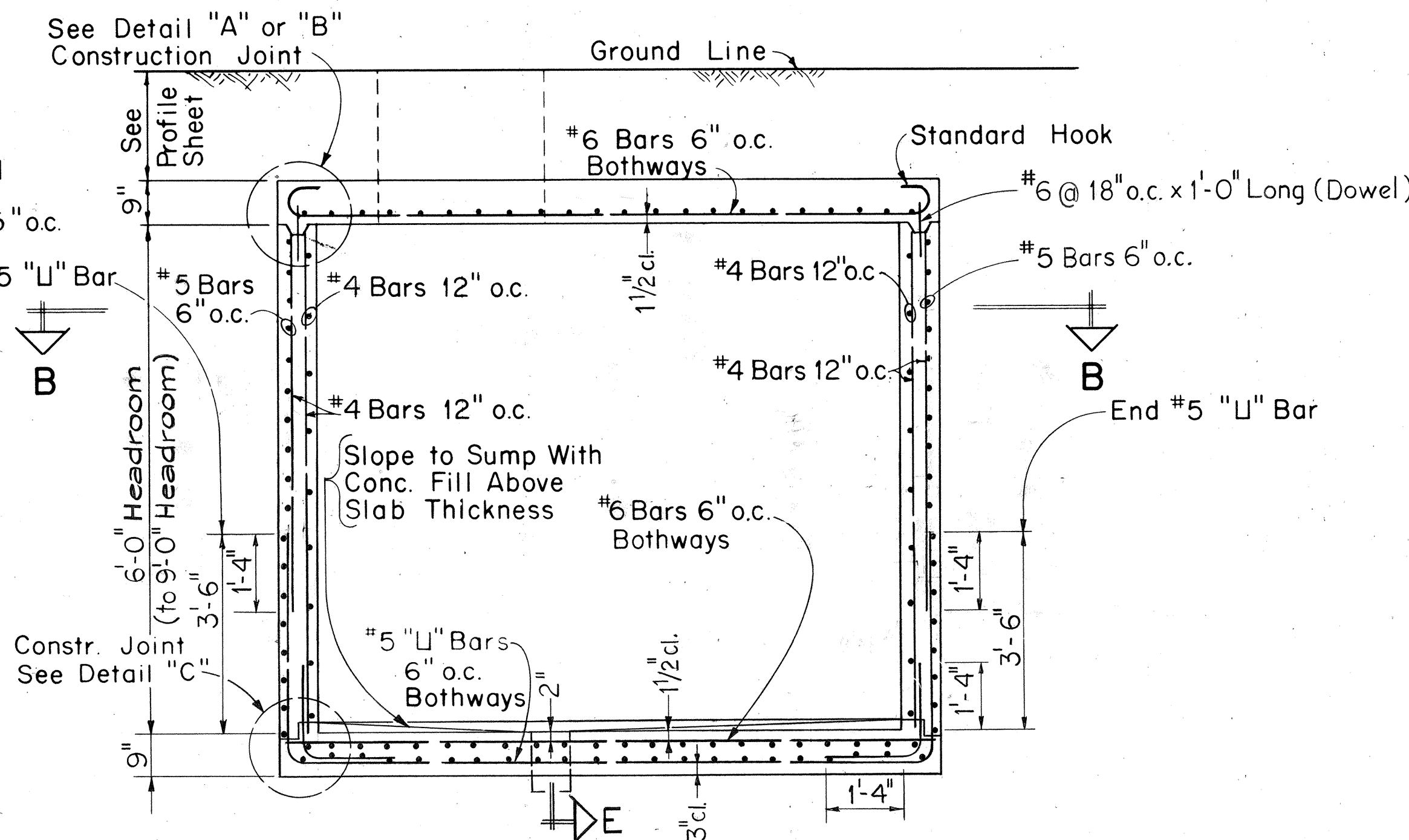
NOTES:

- For Details "A", "B", "C" and Sections "D-D", "E-E" & "F-F" see similar details on Sheet No. (52)
- For locations and sizes of Duct Entrances, see Wall Elevation Drawings.
- For Typical Duct Entrance Detail, see Sheet No. (54)



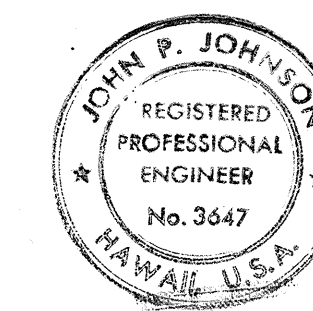
SECTION "B-B"

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



SECTION "A-A"

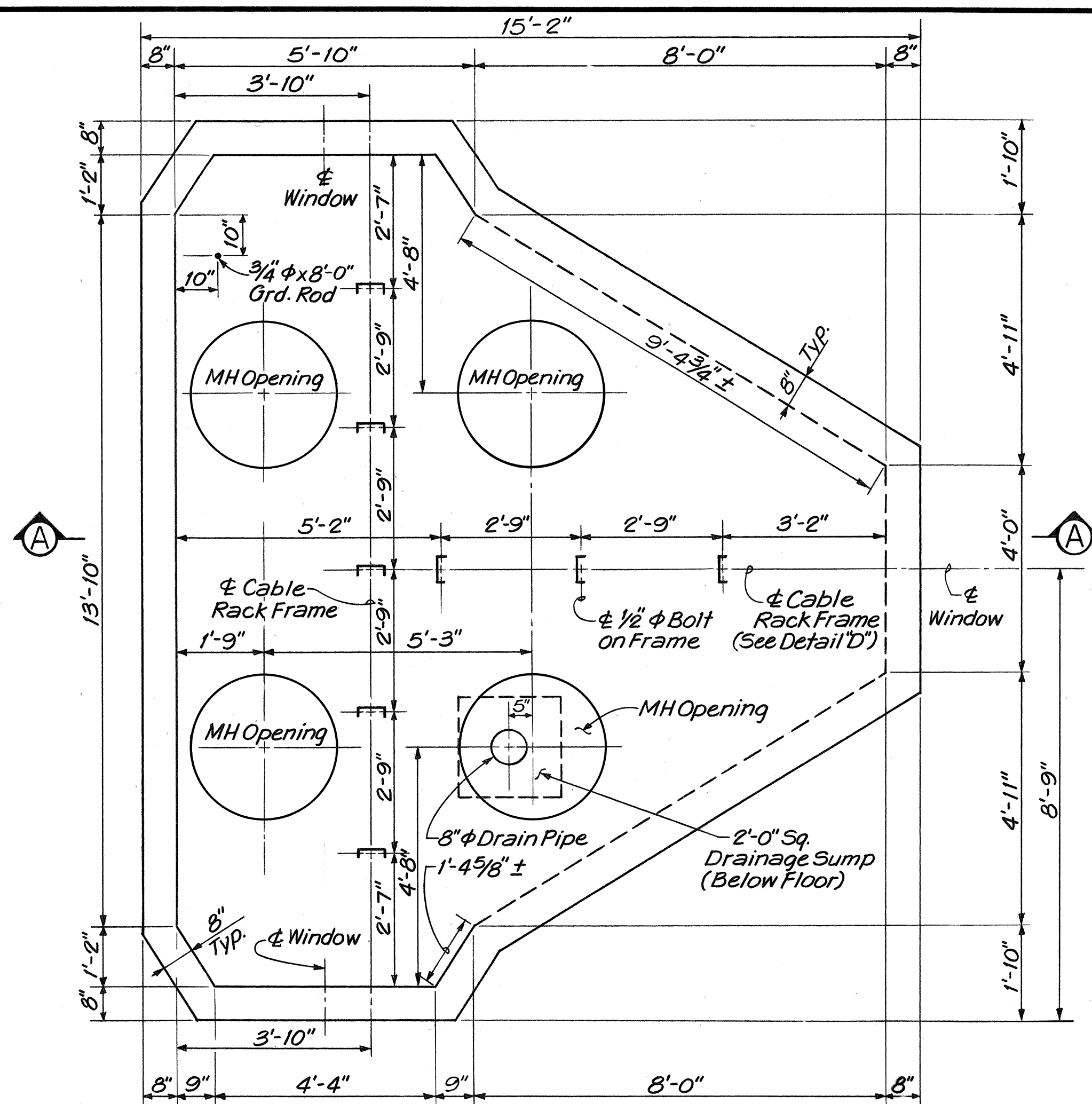
Scale: $1/2" = 1'-0"$



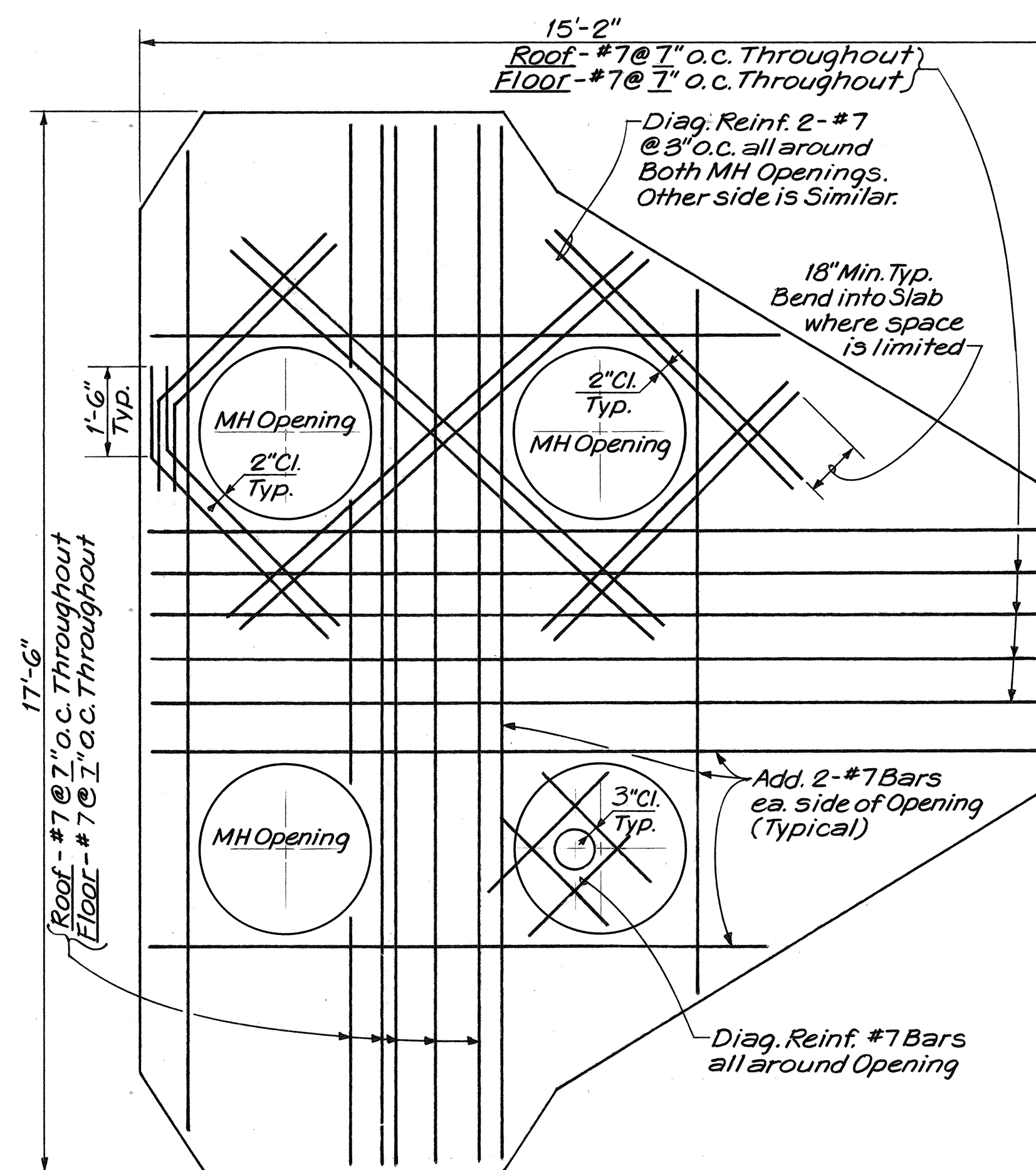
THIS WORK WAS PREPARED BY
 ME OR UNDER MY SUPERVISION
 John P. Johnson

APPROVED:	
<i>B. Yoshikawa</i>	8/19/76
Hawaiian Telephone Co., Ltd.	Date
H. T. Co., Ltd.	
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
LARGE CORNER TYPE MANHOLE FOR 6'-0" TO 9'-0" HEADROOM	
INTERSTATE ROUTE H-1 PROJECT NO. I-H1-1 (136) 17	
Scale: As Noted	Date: July 15, 1976
SHEET No. 2 OF 15 SHEETS	

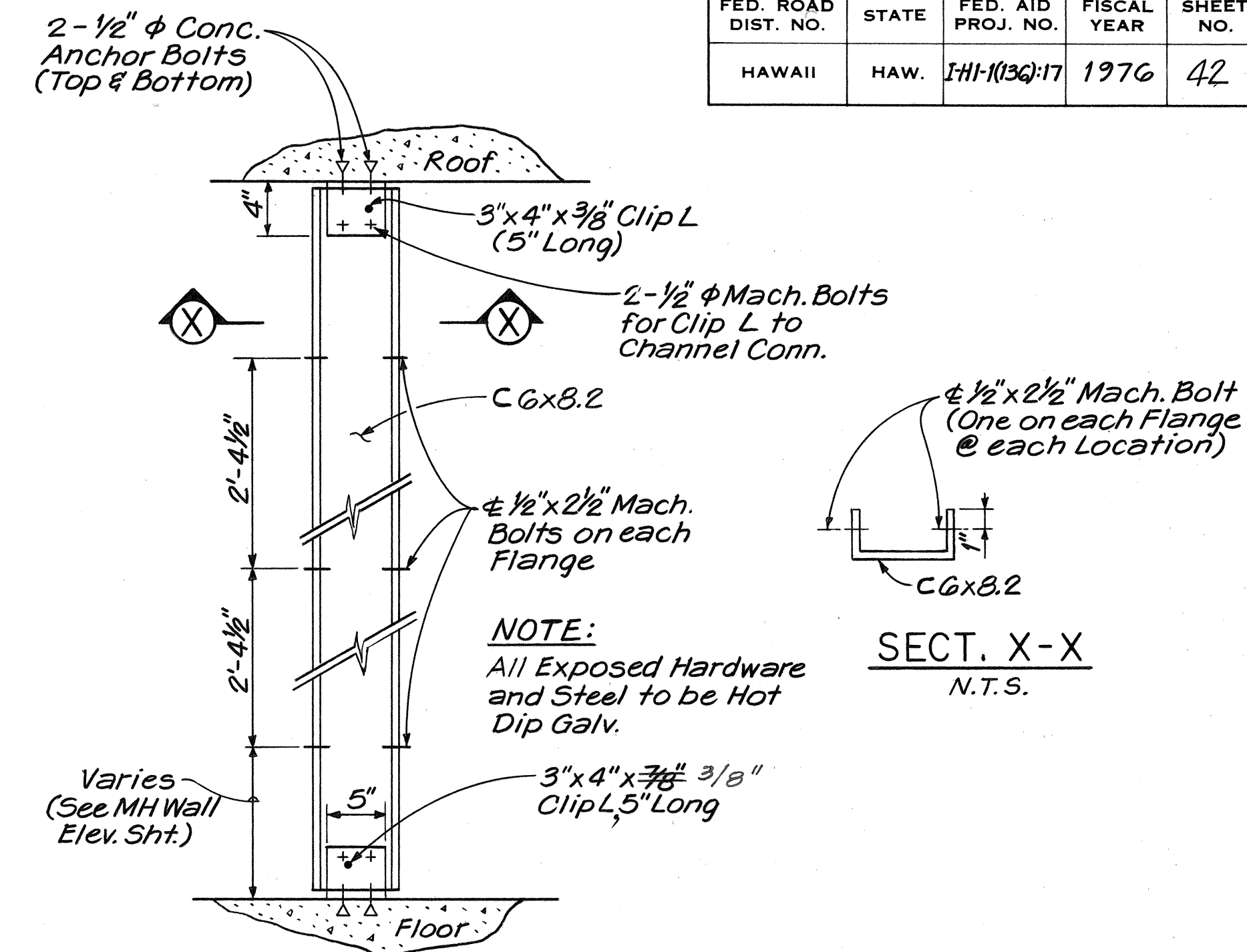
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1(136):17	1976	42	124



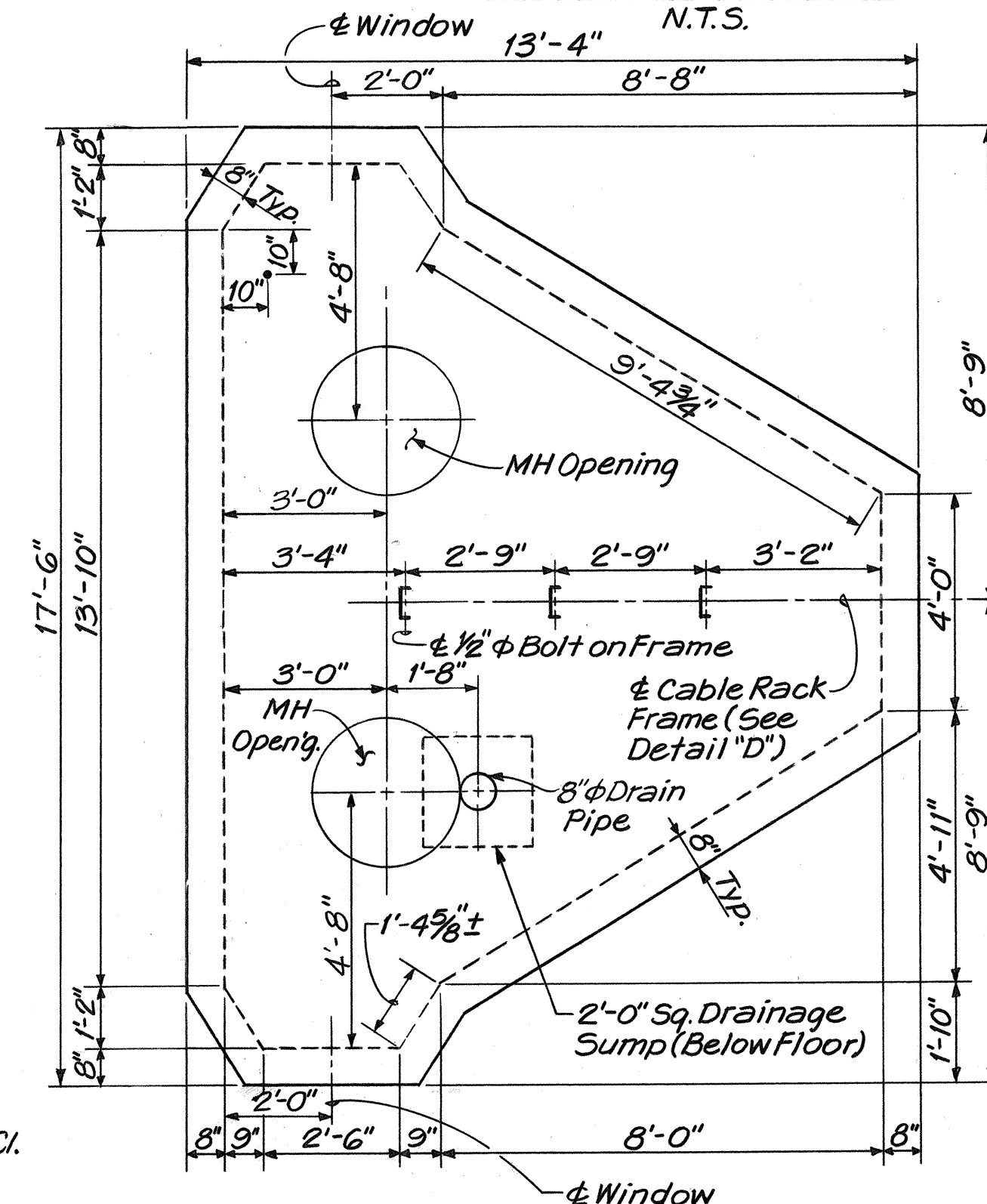
MODIFIED V-3 TYPE PLAN
Scale: 1/2" = 1'-0"



ROOF & FLOOR SLAB REINF. PLAN
(MODIFIED V-3 TYPE)
Scale: 1/2" = 1'-0"

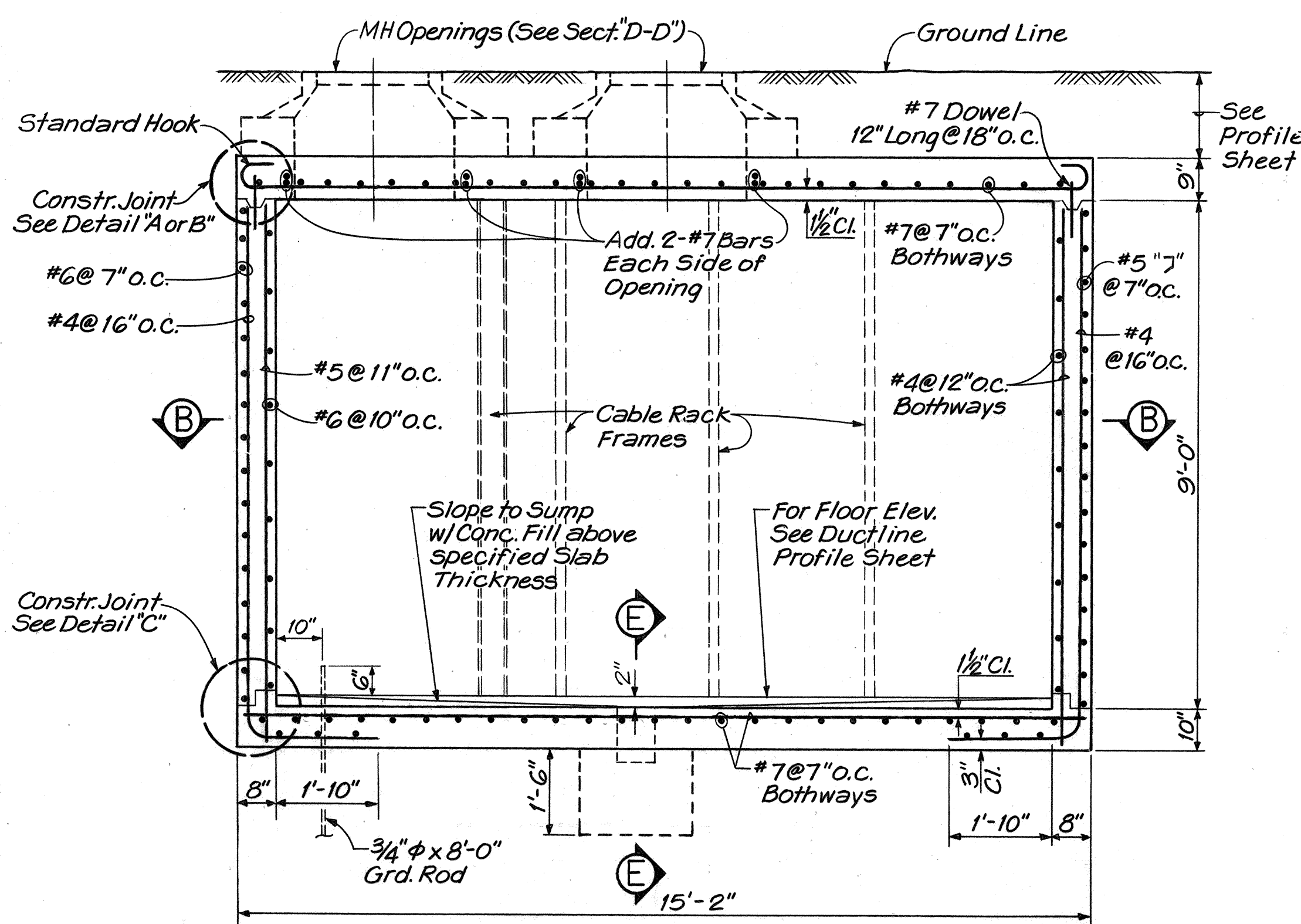


DETAIL D
CABLE RACK FRAME
N.T.S.

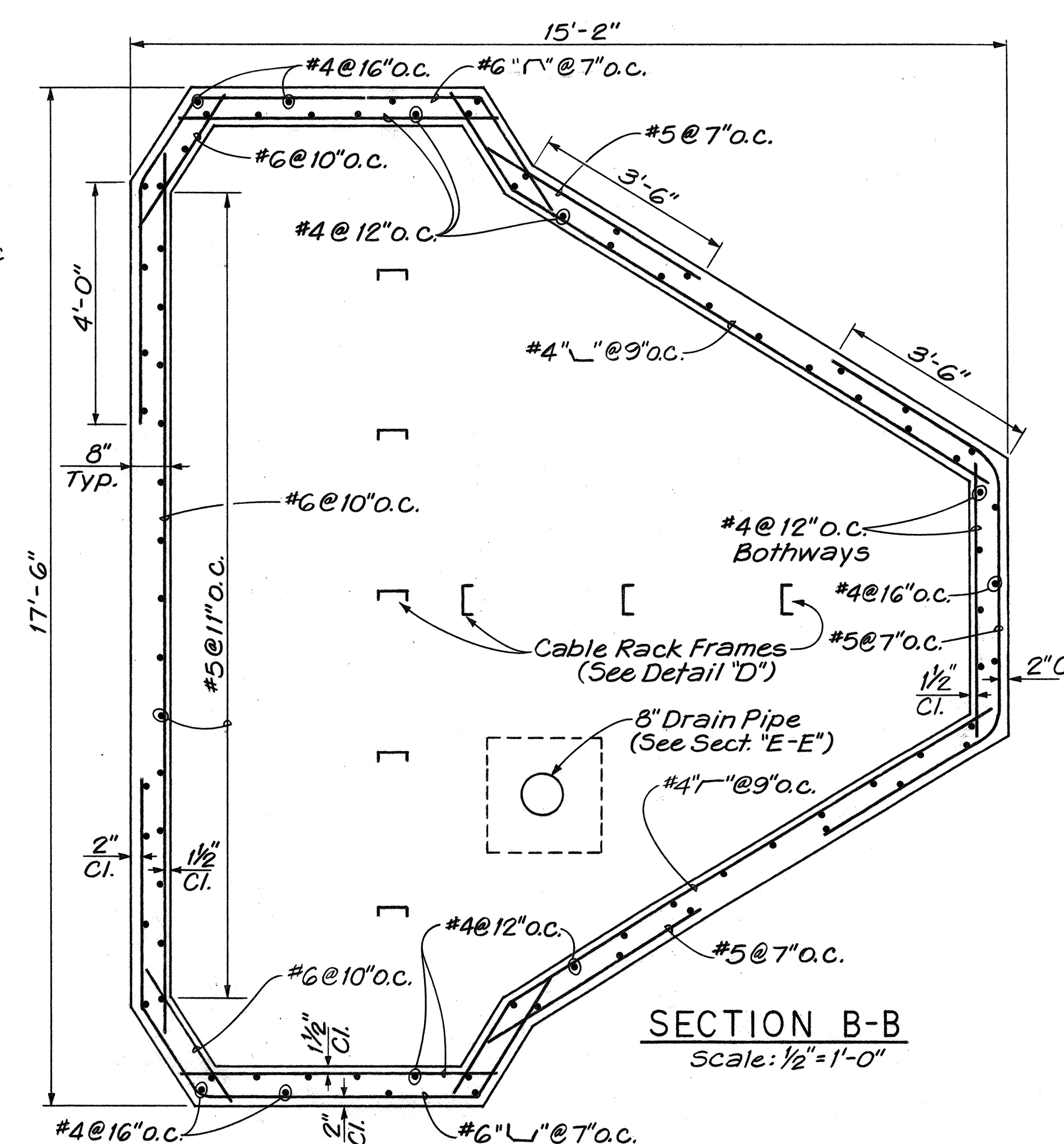


V-3 TYPE PLAN
Scale: 3/8" = 1'-0"
(See Note 4)

- NOTES:
1. For General Notes, See Sheet No. 41
 2. For Details A, B, C, Sections D-D, E-E, See Similar Details on Sht. No. 52
 3. For Locations and Sizes of Duct Entrances See Wall Elev. Dwg.
 4. Reinforcements of V-3 Type Manhole are Similar to Modified V-3 Type Manhole.
 5. Place Polypropylene (Nylon Cord) in all Ducts throughout its entire length with Protrusions of 2 Feet in Manholes.



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



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

APPROVED:

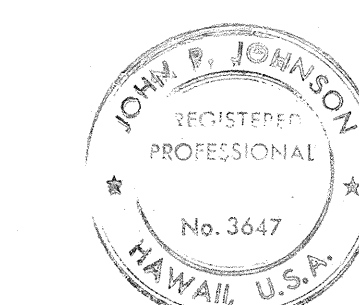
B. J. Johnson 8/19/76
Hawaiian Telephone Co., Ltd. Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MODIFIED V-3 TYPE
AND V-3 TYPE MANHOLE

INTERSTATE ROUTE H-1
PROJECT NO. I-H-1(136):17

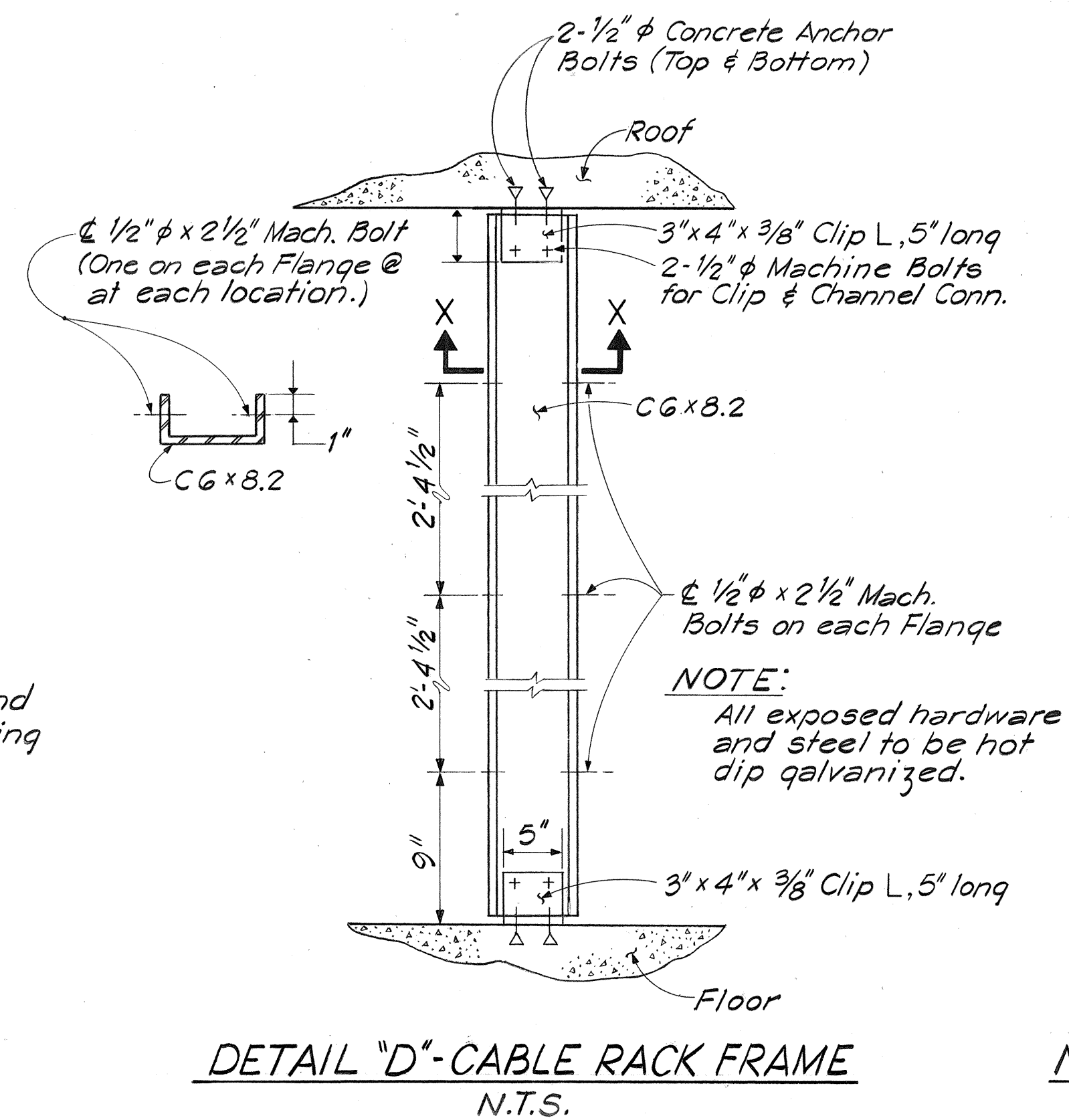
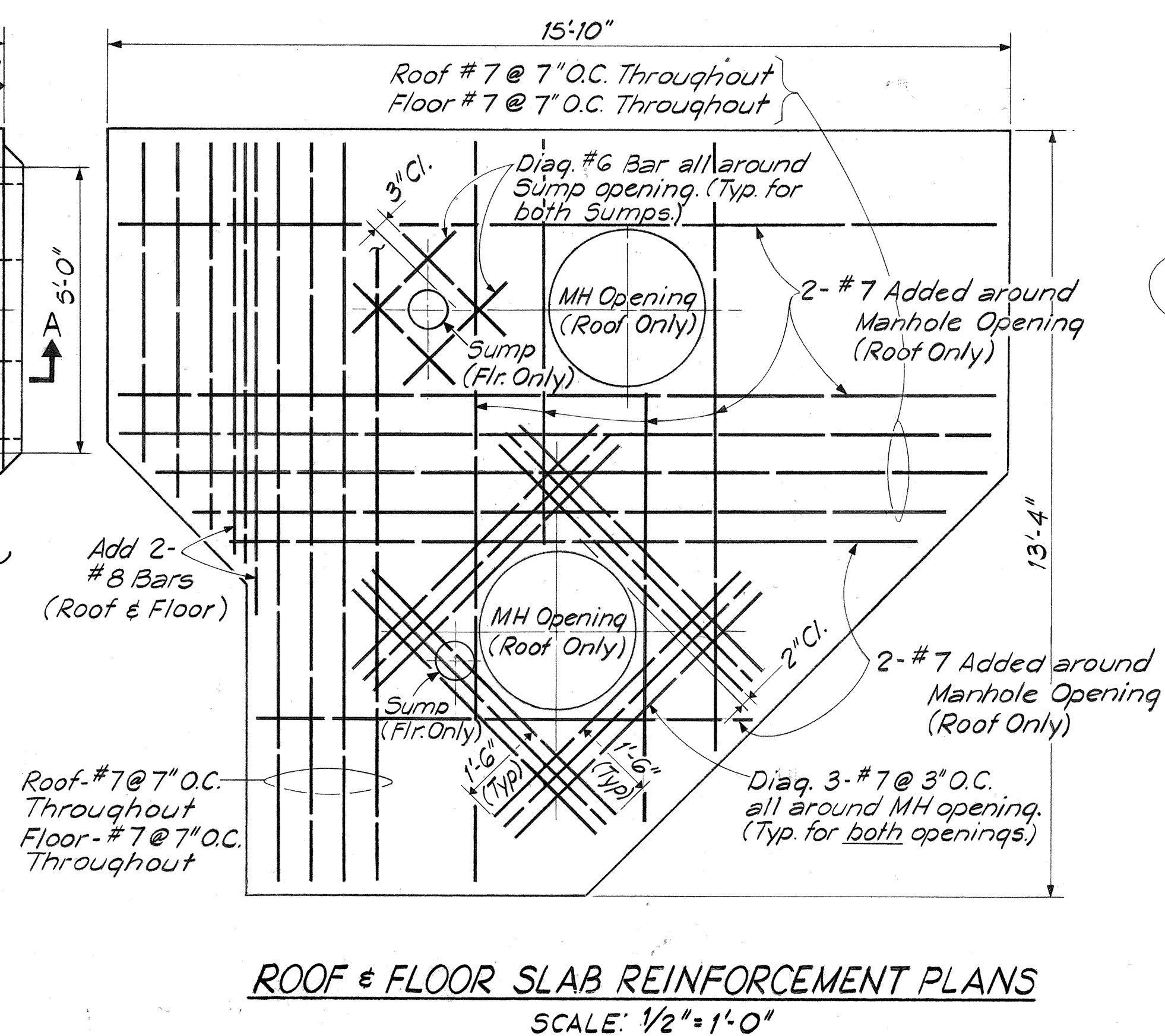
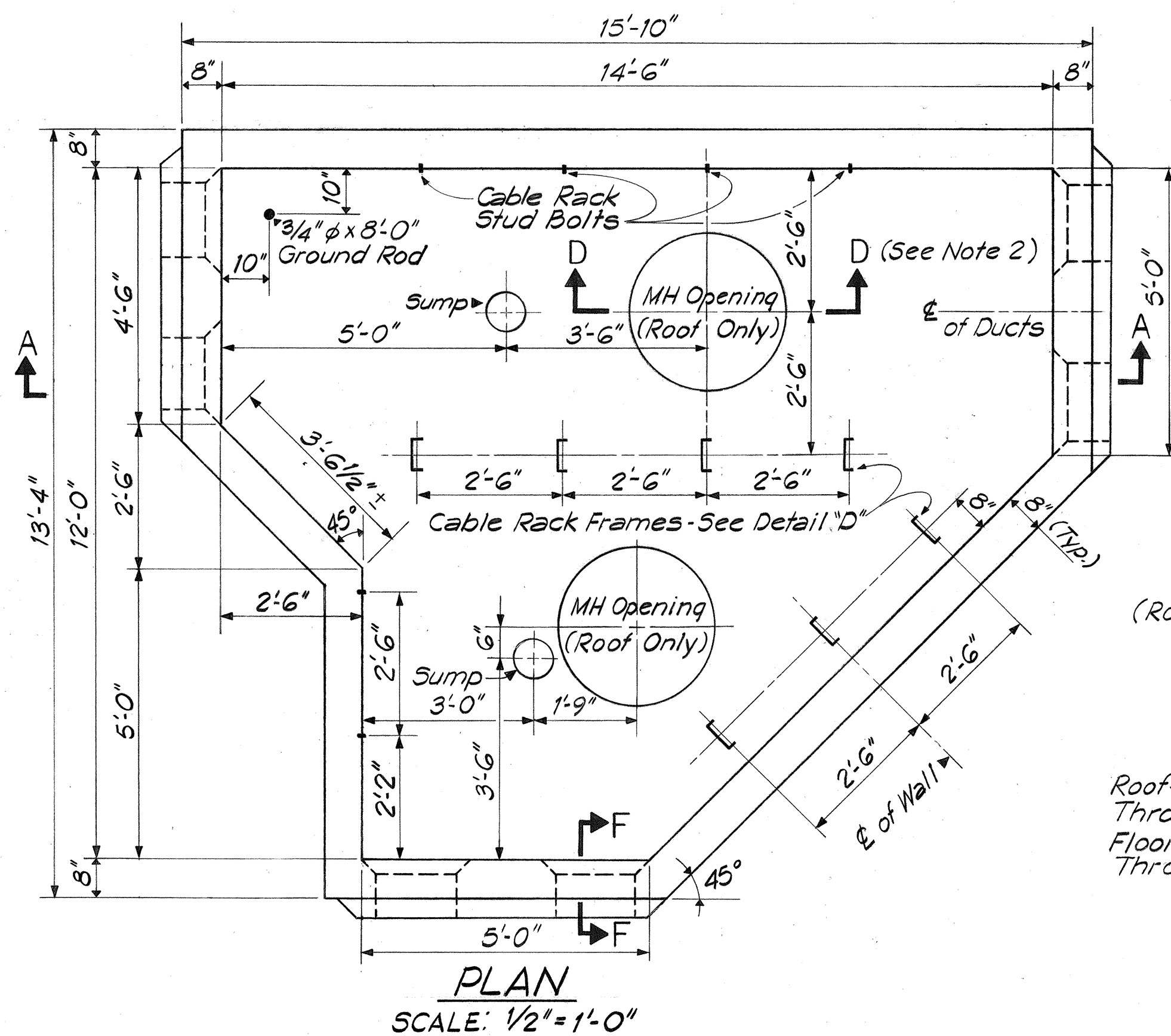
SCALE: AS SHOWN DATE: July 15, 1976
SHEET NO. 3 OF 15 SHEETS



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John P. Johnson

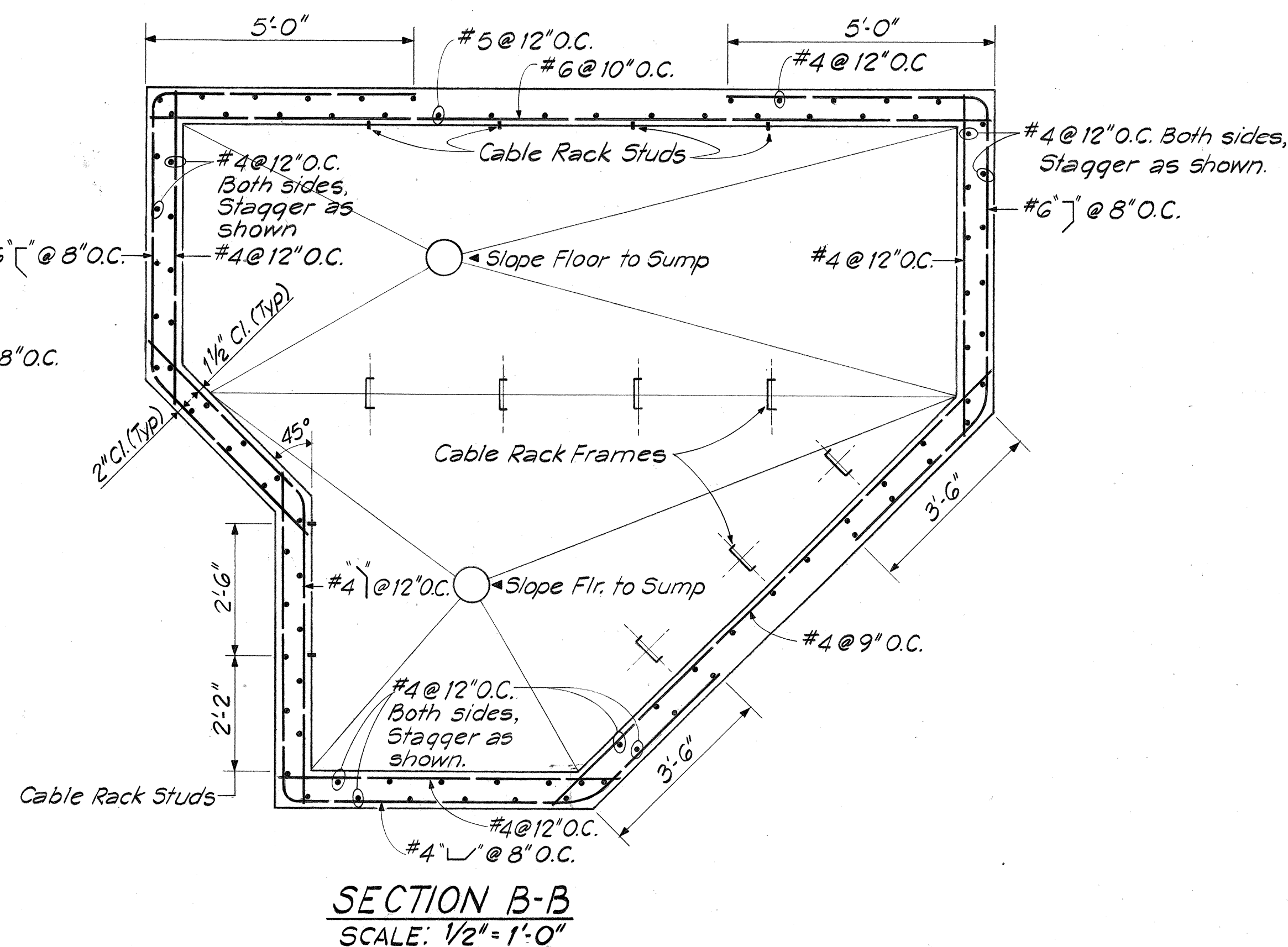
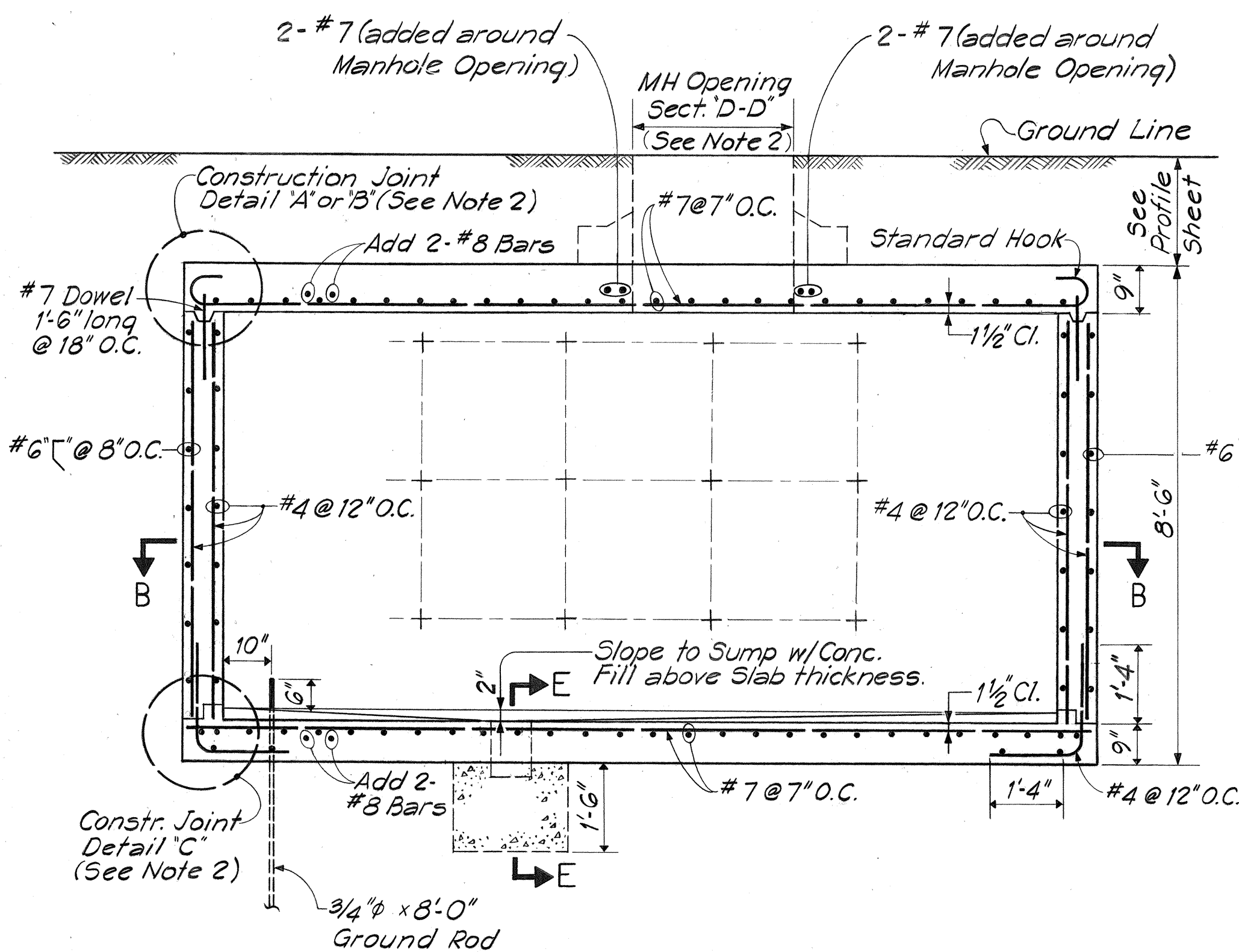
DATE	_____
DESIGNED BY	_____
TRACED BY	_____
QUANTITIES BY	_____
CHECKED BY	_____
NO.	_____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H1-1(136):17	1976	43	124



NOTES:

1. For "General Notes" see Sheet No. (41)
2. For Details "A", "B" & "C" and Sections "D-D", "E-E" & "F-F" see similar details on Sheet No. (52)
3. For locations and sizes of Duct Entrances see Wall Elevation Drawings.
4. For Typical Duct Entrance Detail see Sheet No. (54)



APPROVED:

H. M. M. M. 3/19/76
HAWAIIAN TELEPHONE CO., LTD. DATE:

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MODIFIED CORNER TYPE MANHOLE

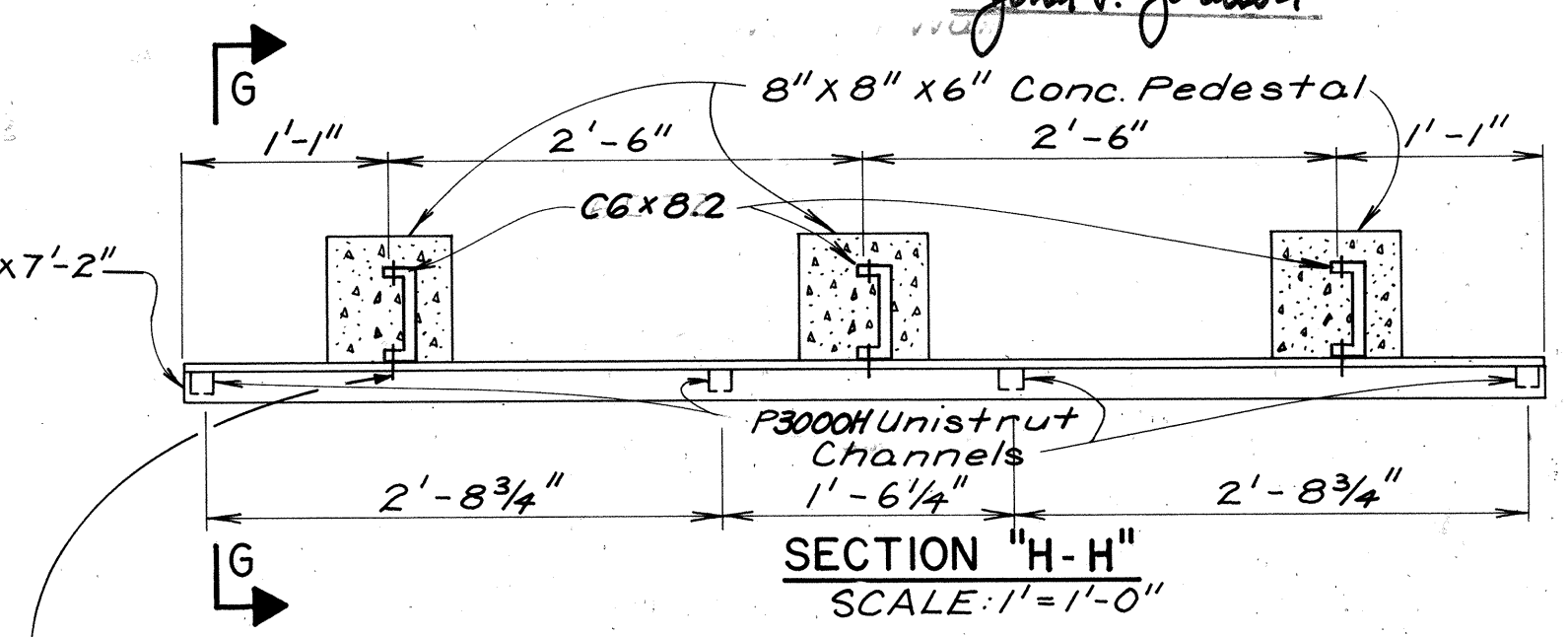
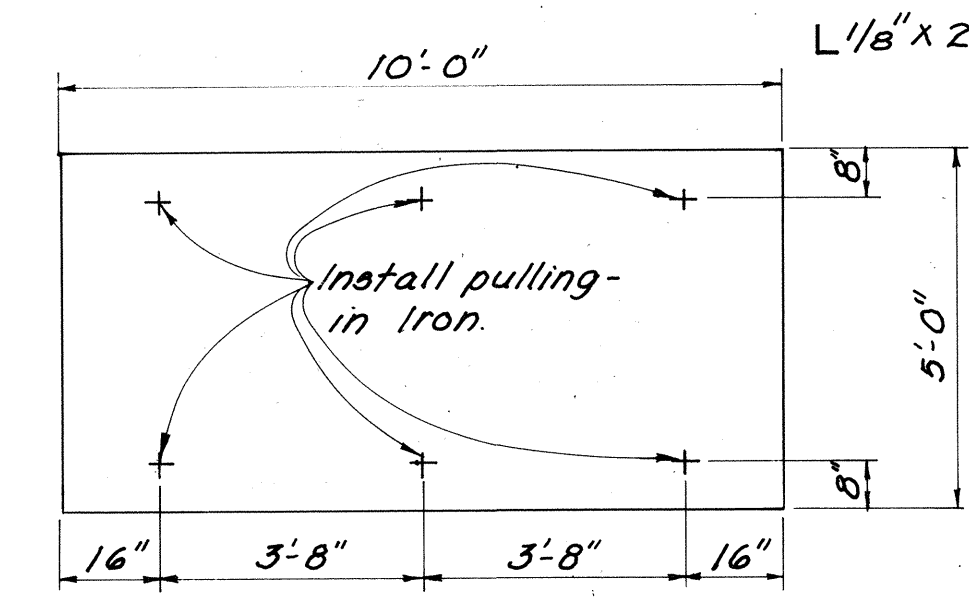
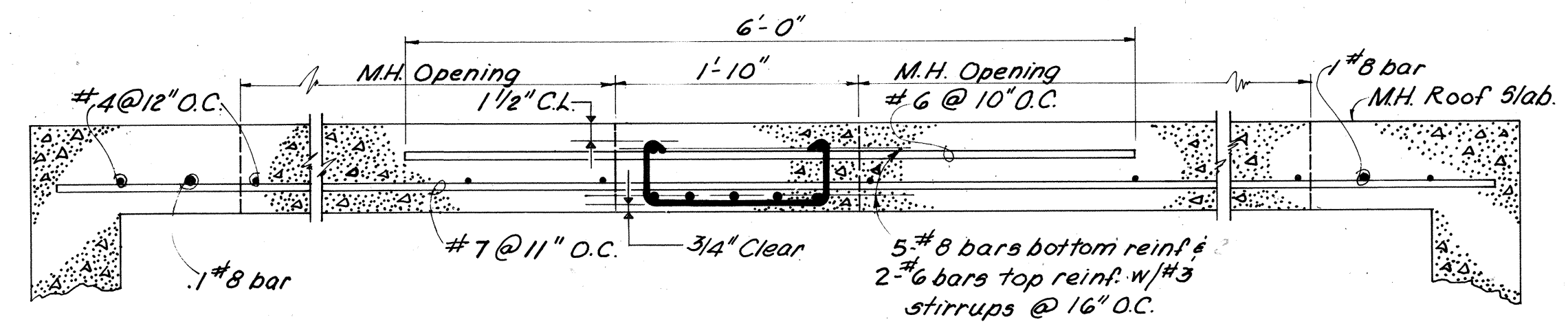
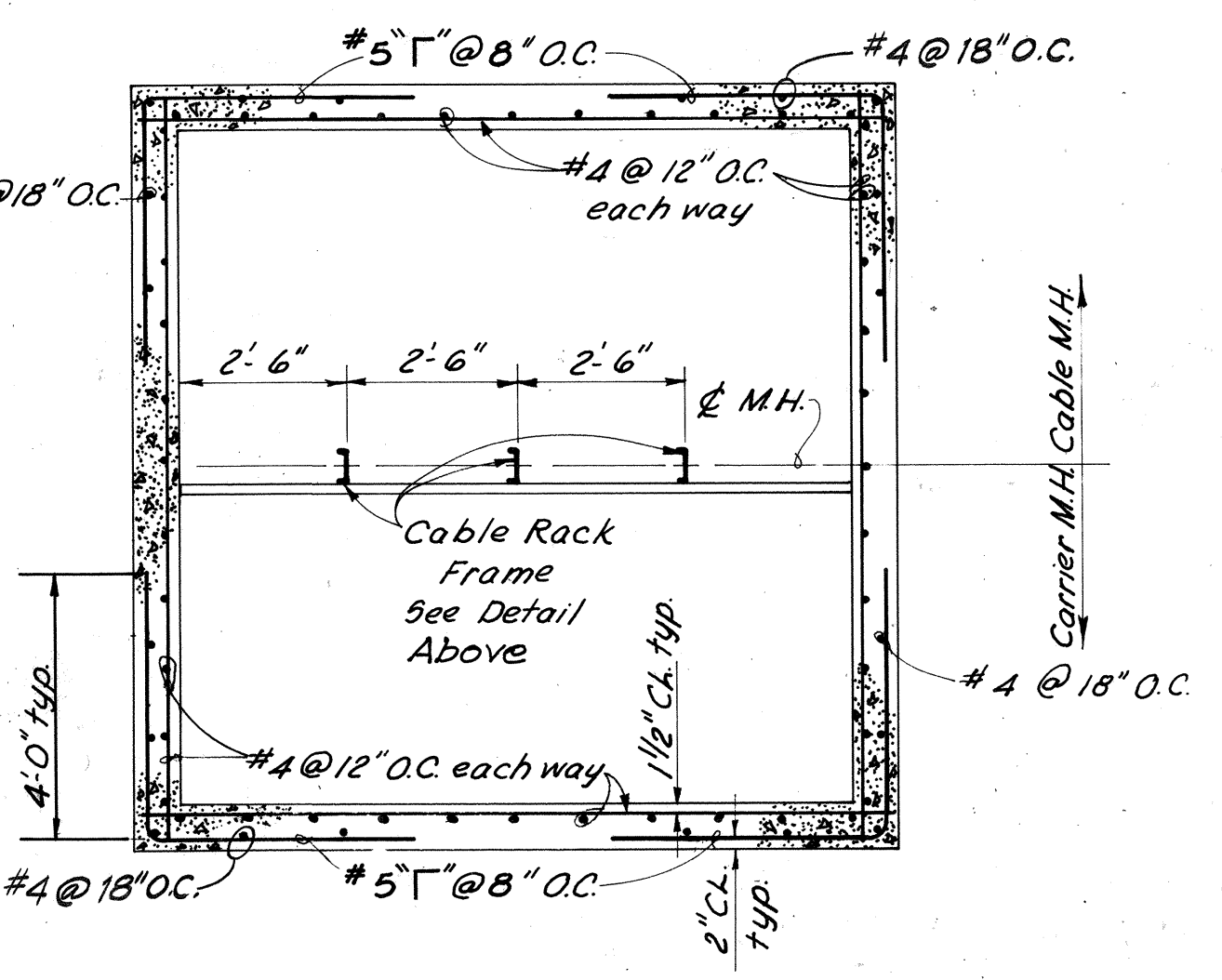
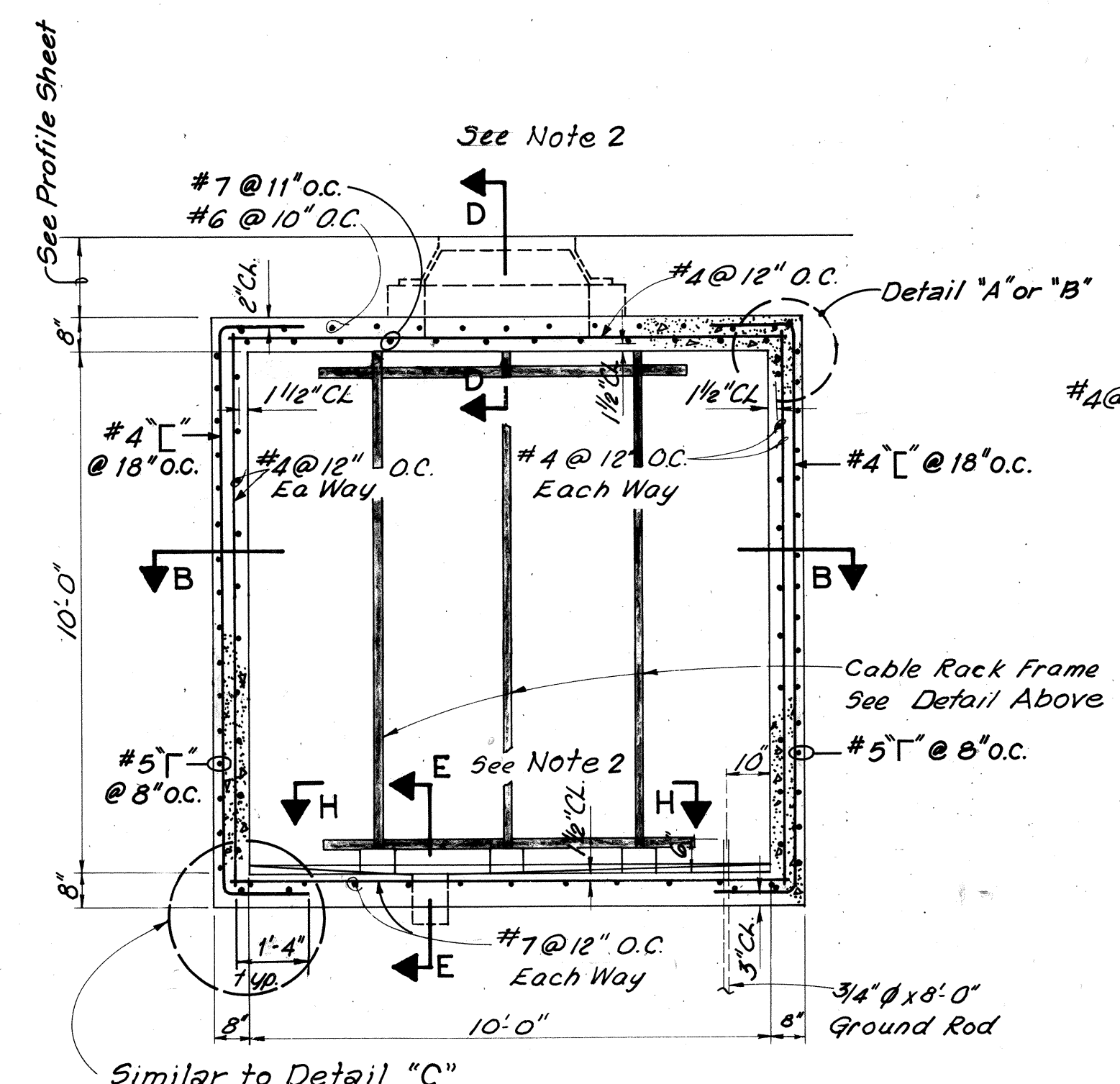
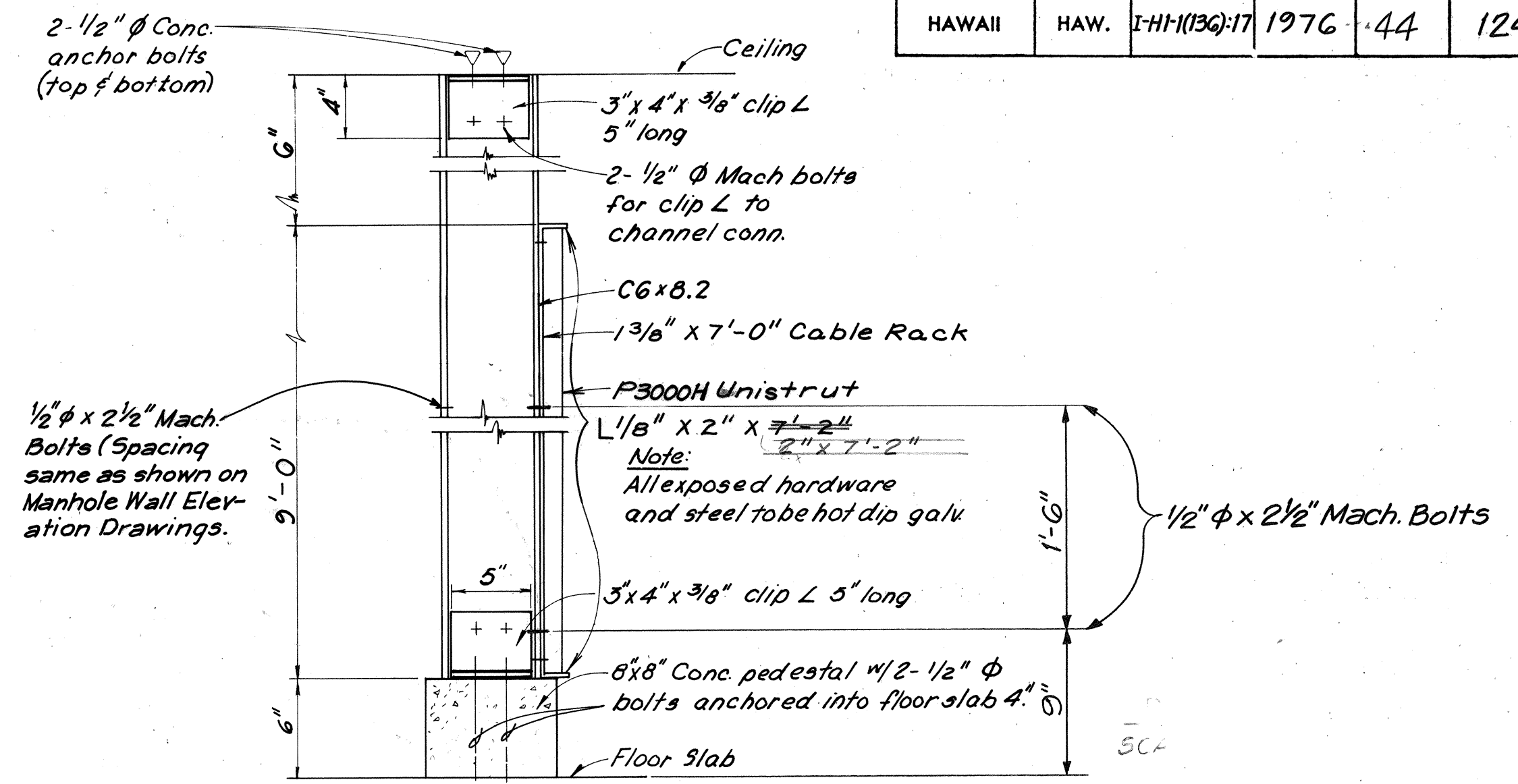
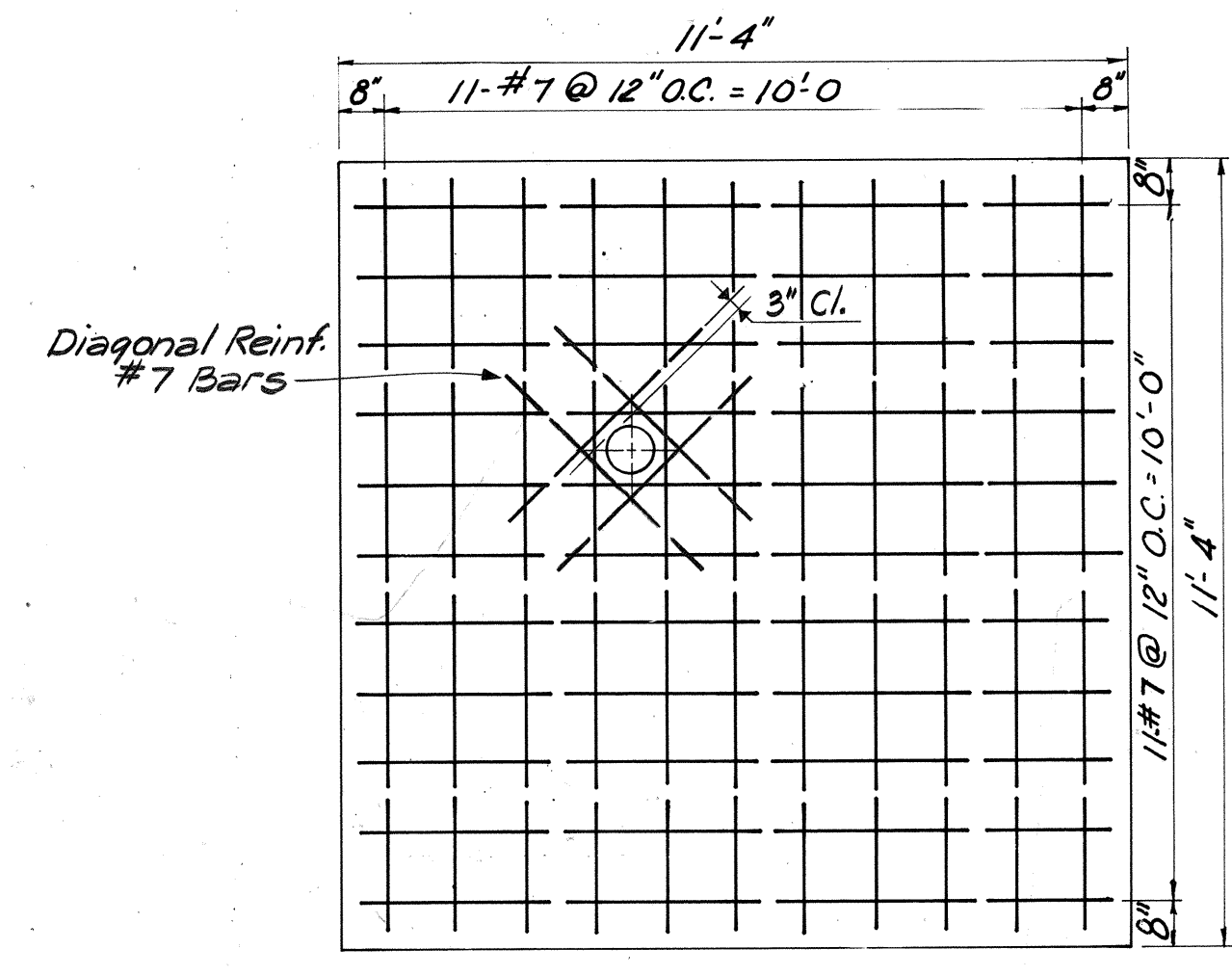
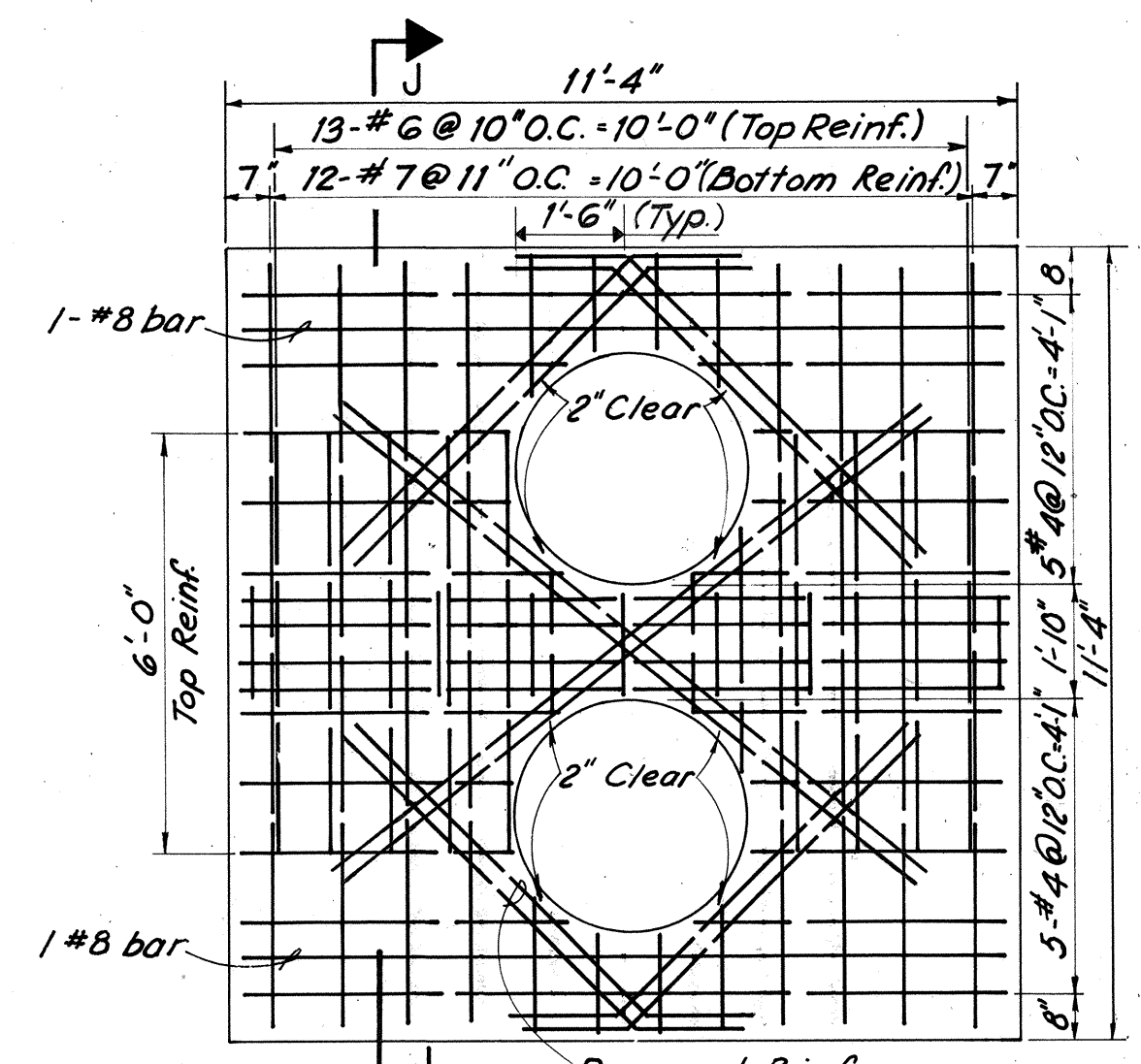
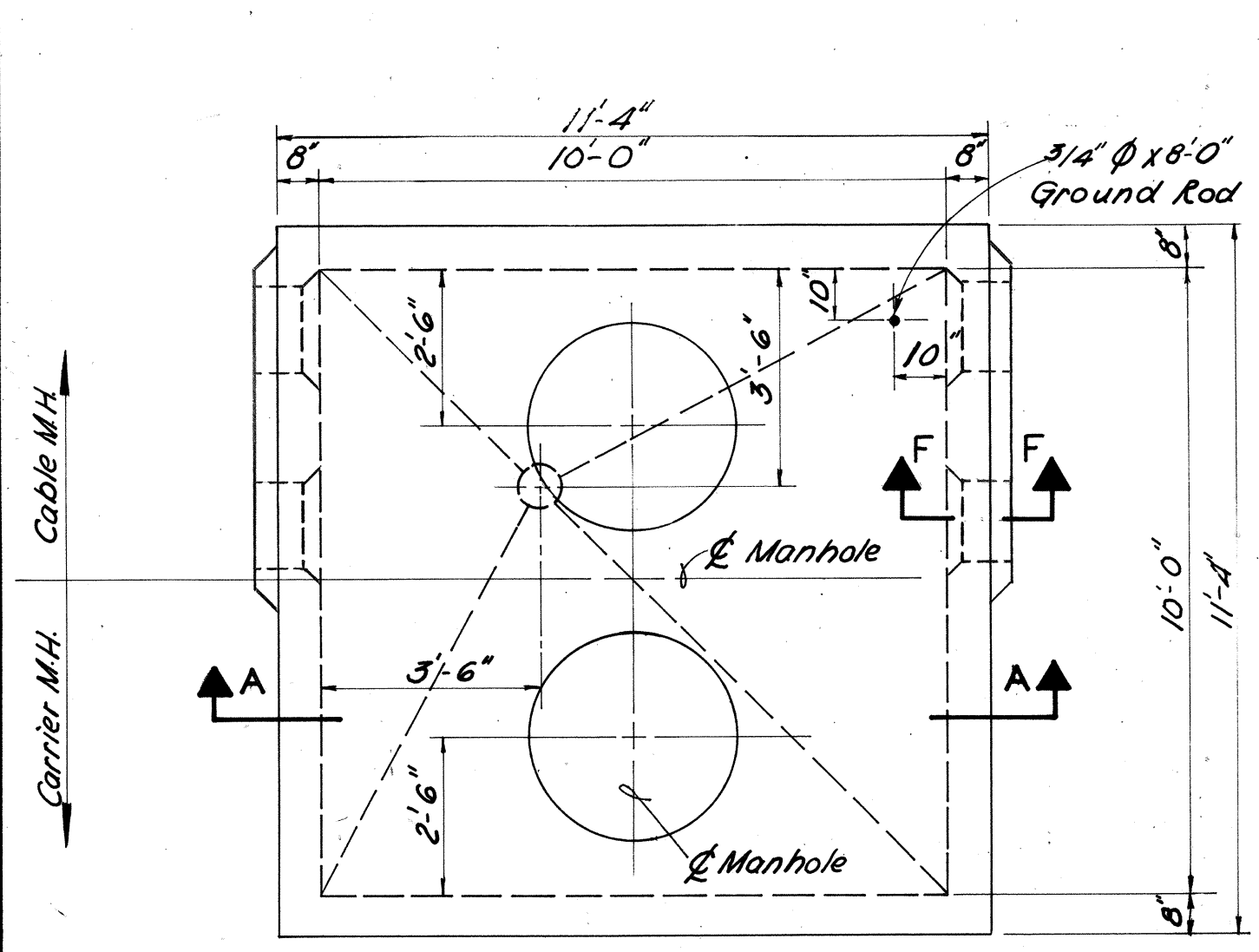
INTERSTATE ROUTE H-1
PROJECT NO. I-H1-1 (136):17

SCALE: AS SHOWN DATE: July 15, 1976
SHEET NO. 4 OF 15 SHEETS

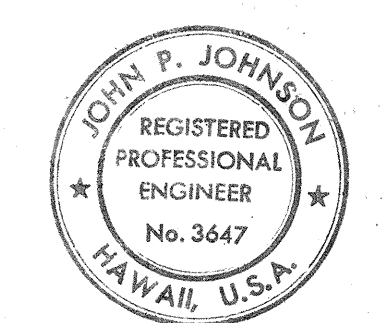


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John P. Johnson

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H1(136)-17	1976	44	124



- NOTES:
- For "General Notes" see Sheet No. (41)
 - For Details A, B, C and Sections D-D, E-E, & F-F, see Sheet No. (52)
 - For locations and sizes of Duct Entrances see Wall Elevation Drawings.
 - For Typical Duct Entrance Detail, see Sheet No. (54)



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John P. Johnson

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CABLE AND CARRIER MANHOLE
(10'x10'x10')

INTERSTATE ROUTE H-1
PROJECT NO. I-H1-1 (136)-17

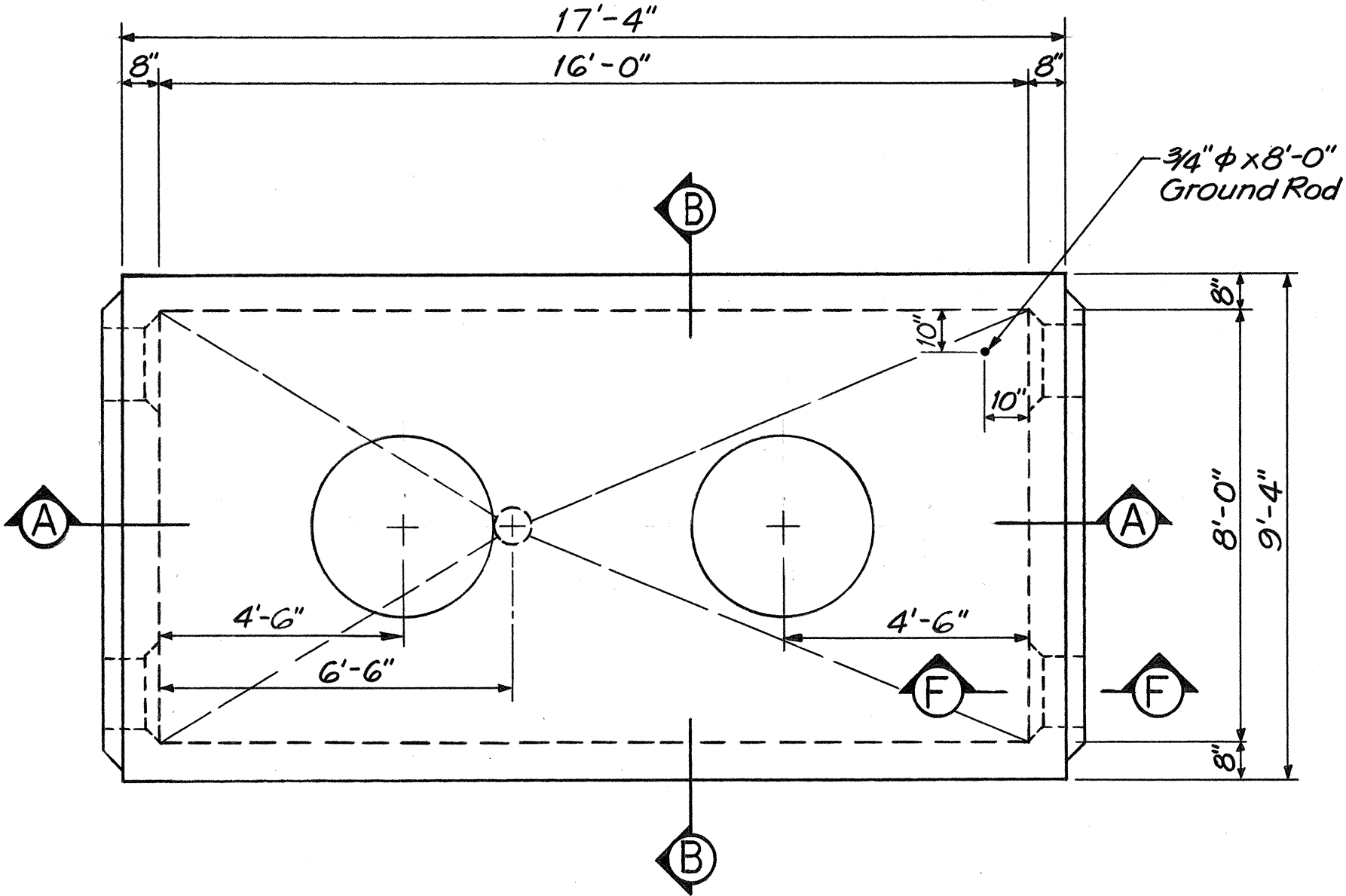
Scale: As Noted Date: July 15, 1976

SHEET No. 5 OF 15 SHEETS

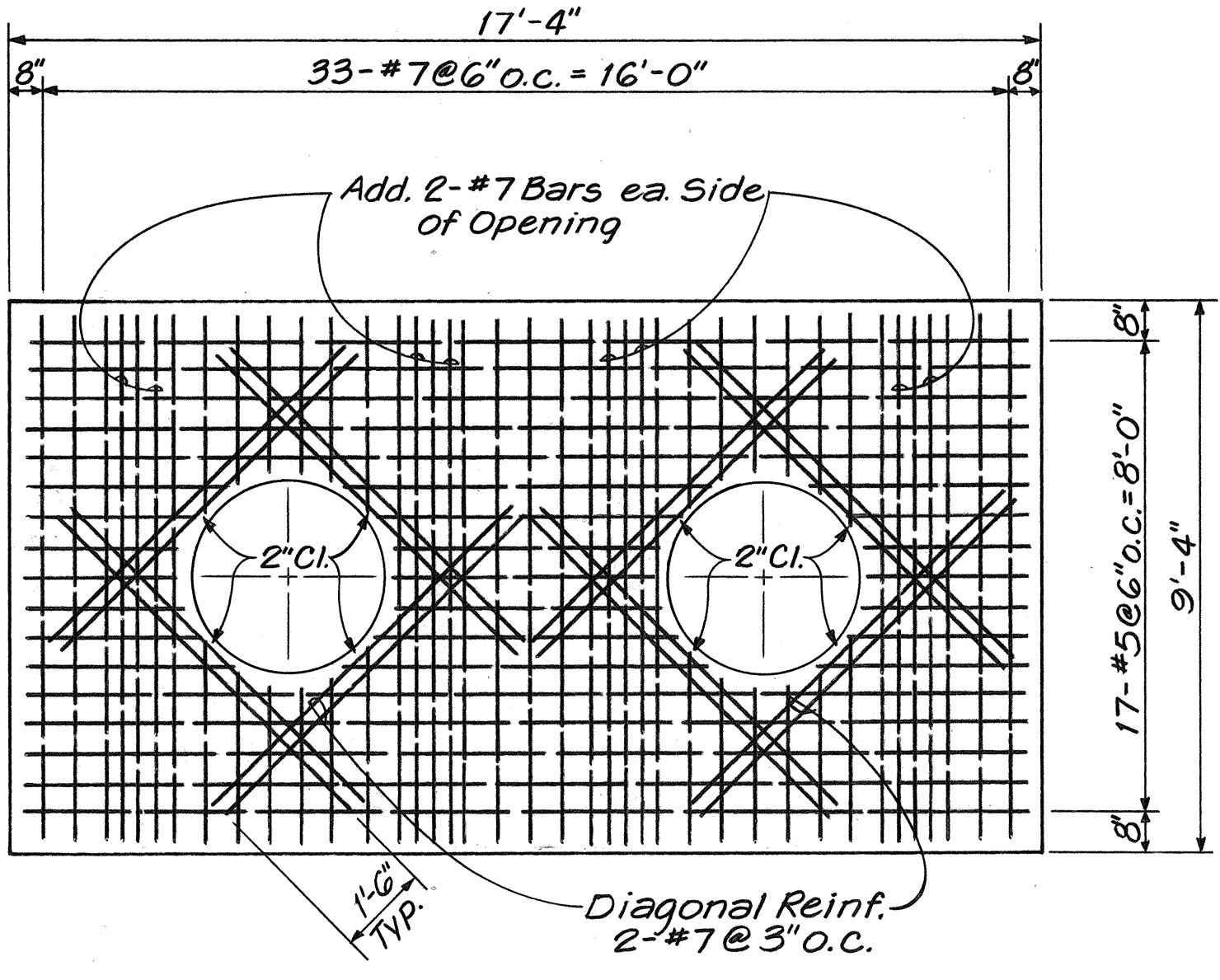
NO.	DATE	REVISION	APPROVED:	DATE
			H. P. Johnson	8/19/76
			HAWAIIAN TELEPHONE CO.	

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
IN CHARGE	

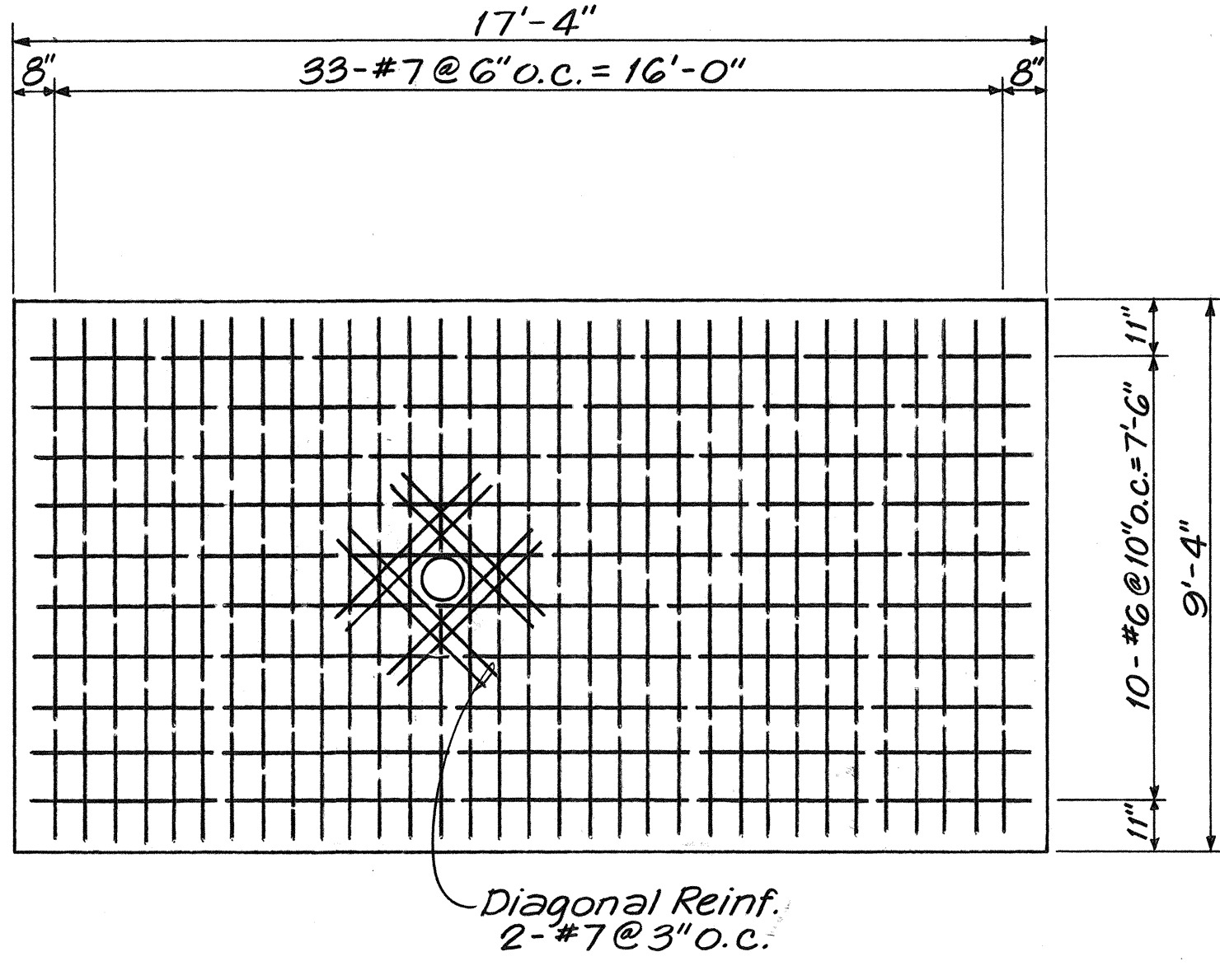
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(136):17	1976	45	124



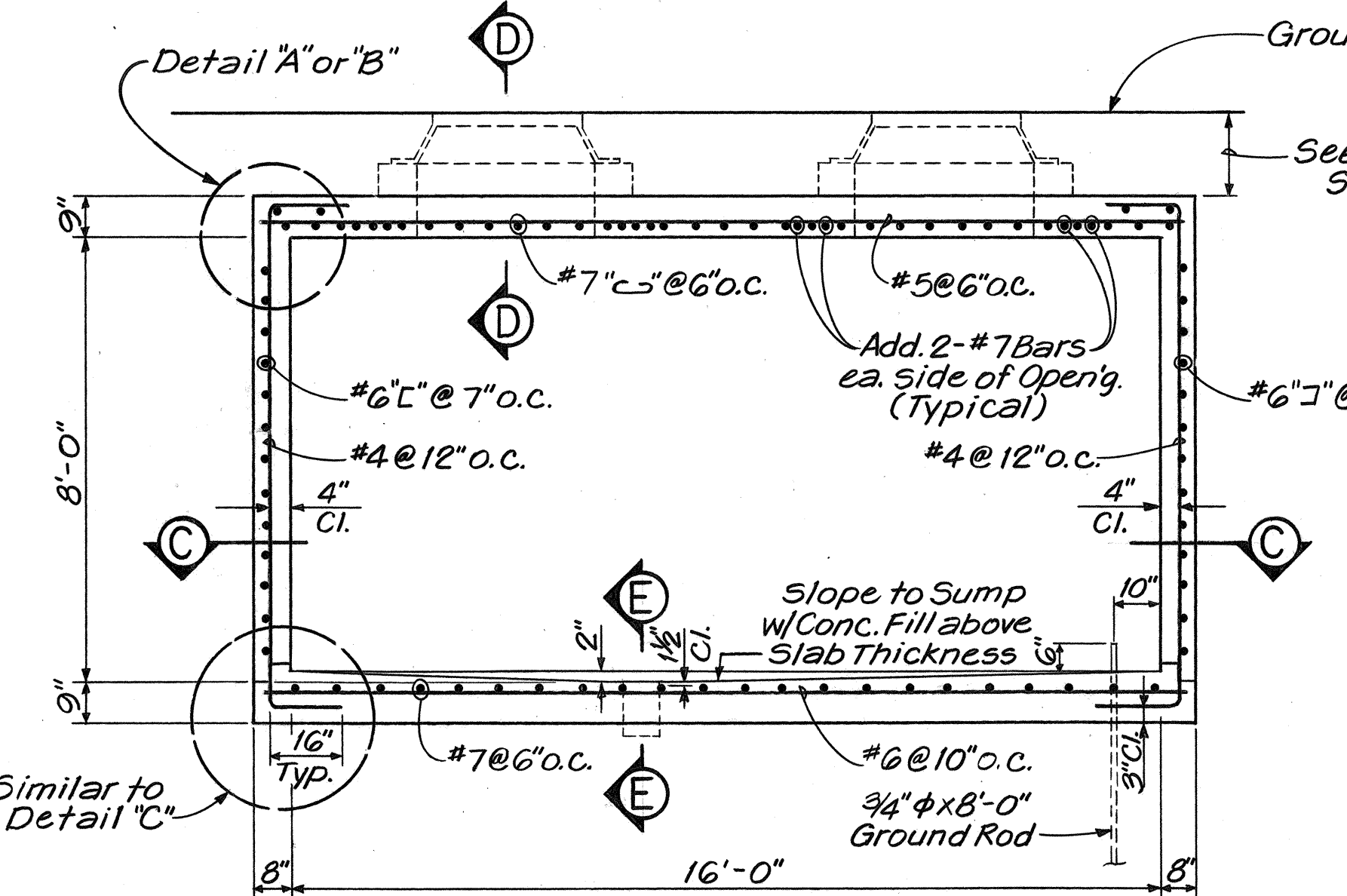
PLAN



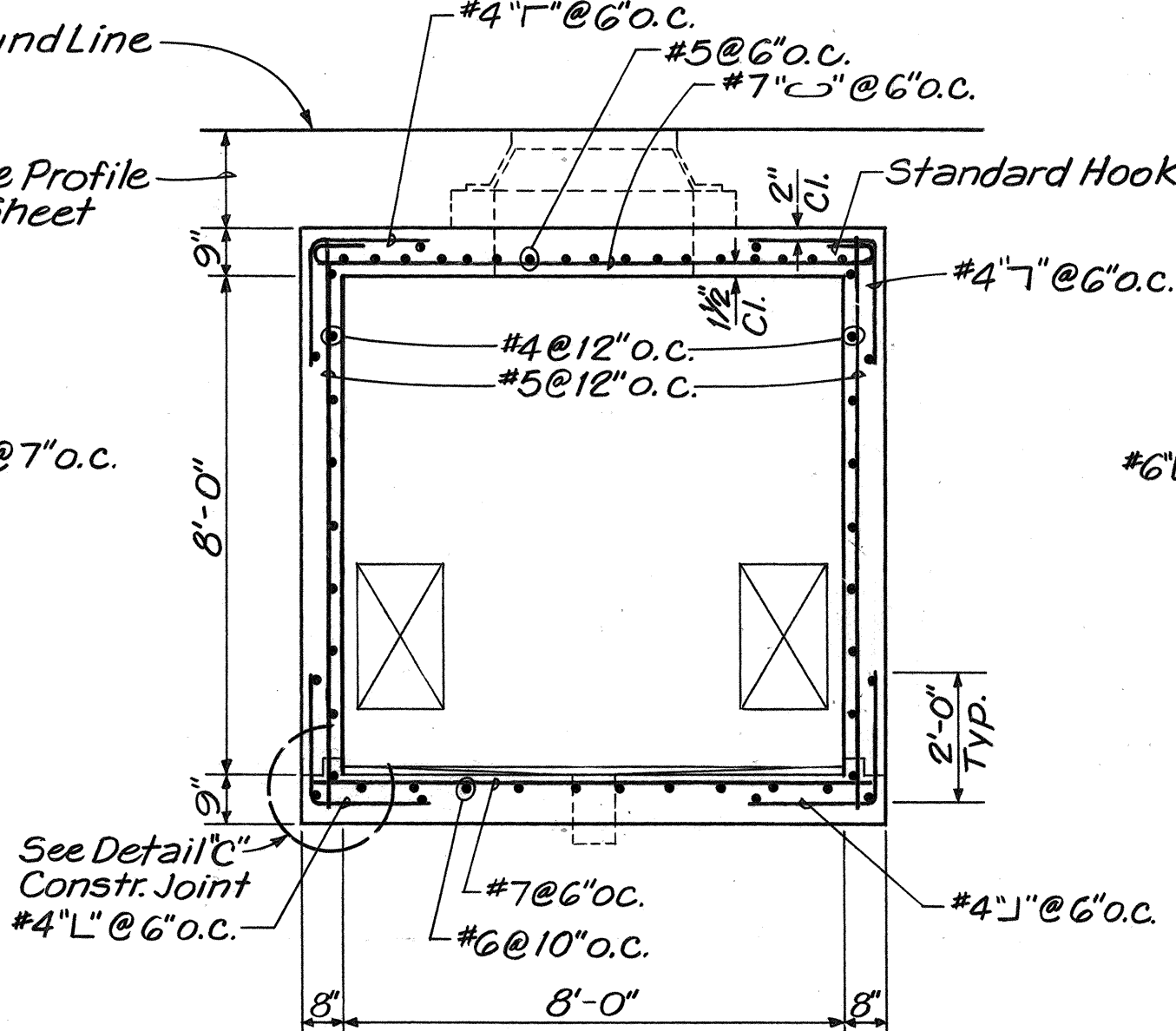
ROOF SLAB REINF. PLAN



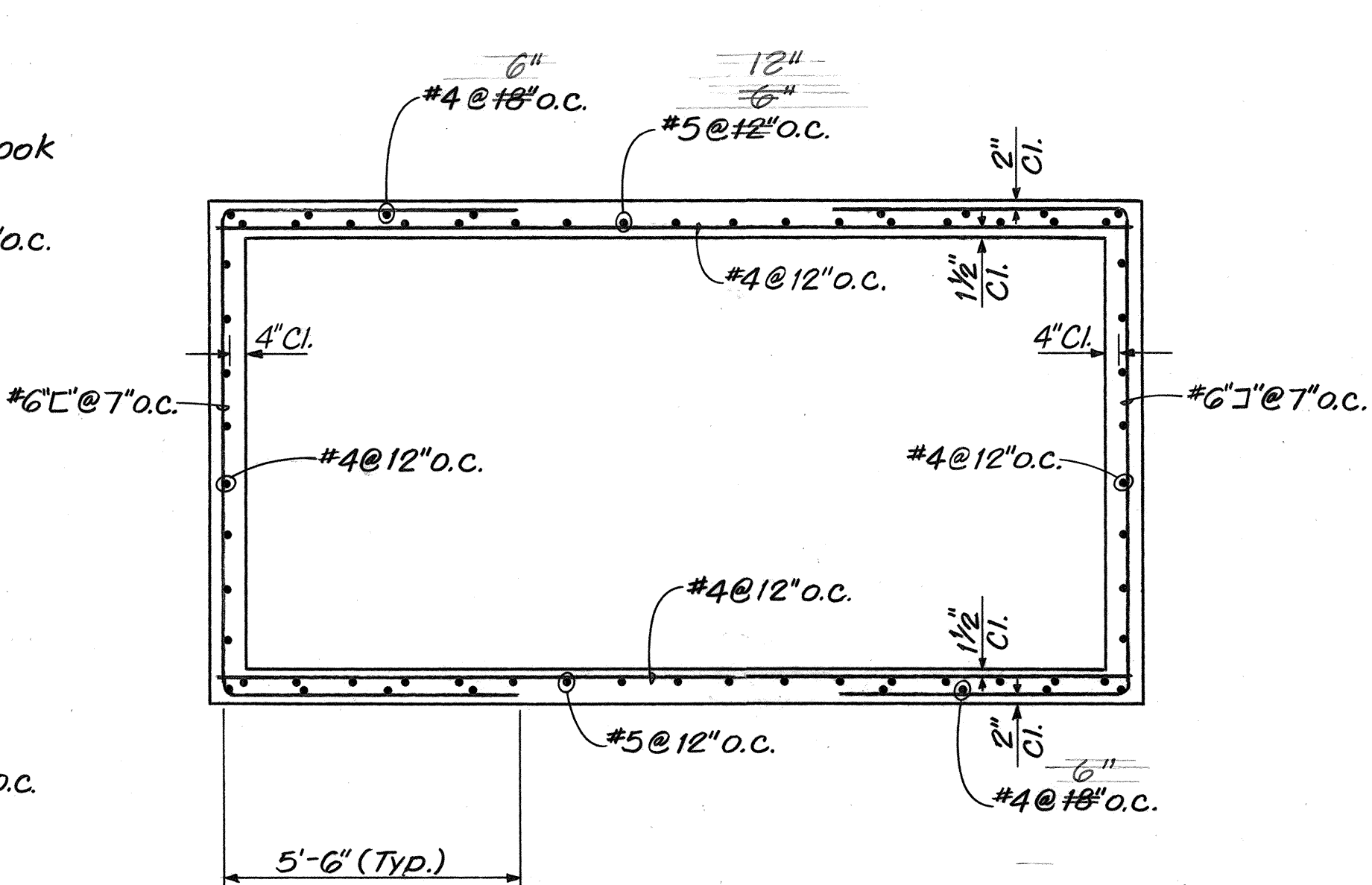
FLOOR SLAB REINF. PLAN



SECTION A-A



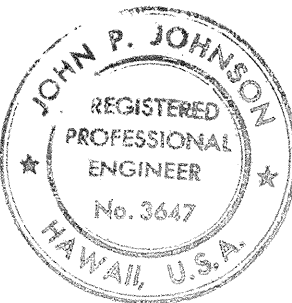
SECTION B-B



SECTION C-C

- NOTES:
1. For General Notes See Sheet No. 41
 2. For Typical Duct Entrance Detail, See Sheet No. 54
 3. For Details A, B, C and Sections D-D, E-E, F-F See Similar Details on Sheet No. 52
 4. For Locations and Sizes of Duct Entrances See Wall Elevation Drawings.

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



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ME OR UNDER MY SUPERVISION.
John P. Johnson

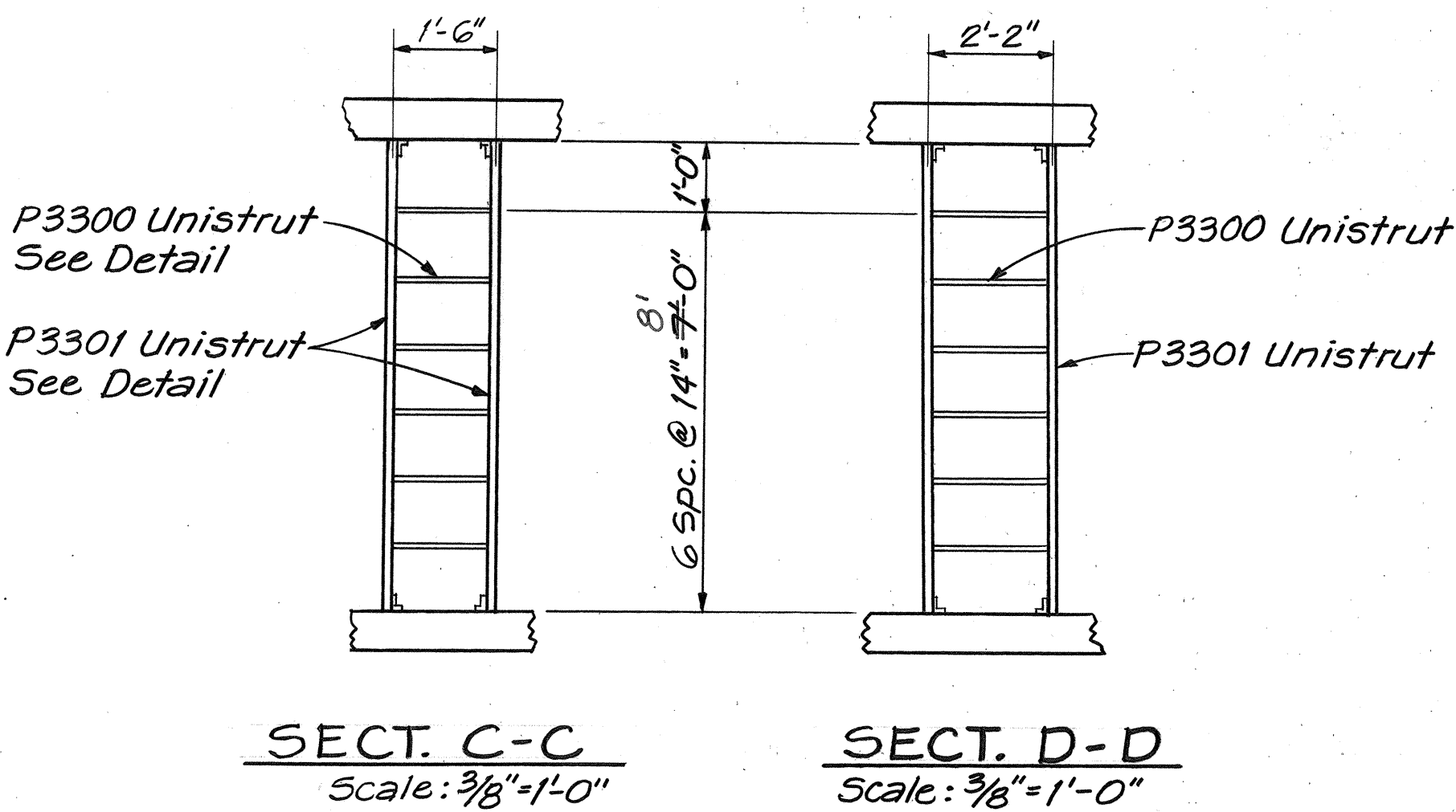
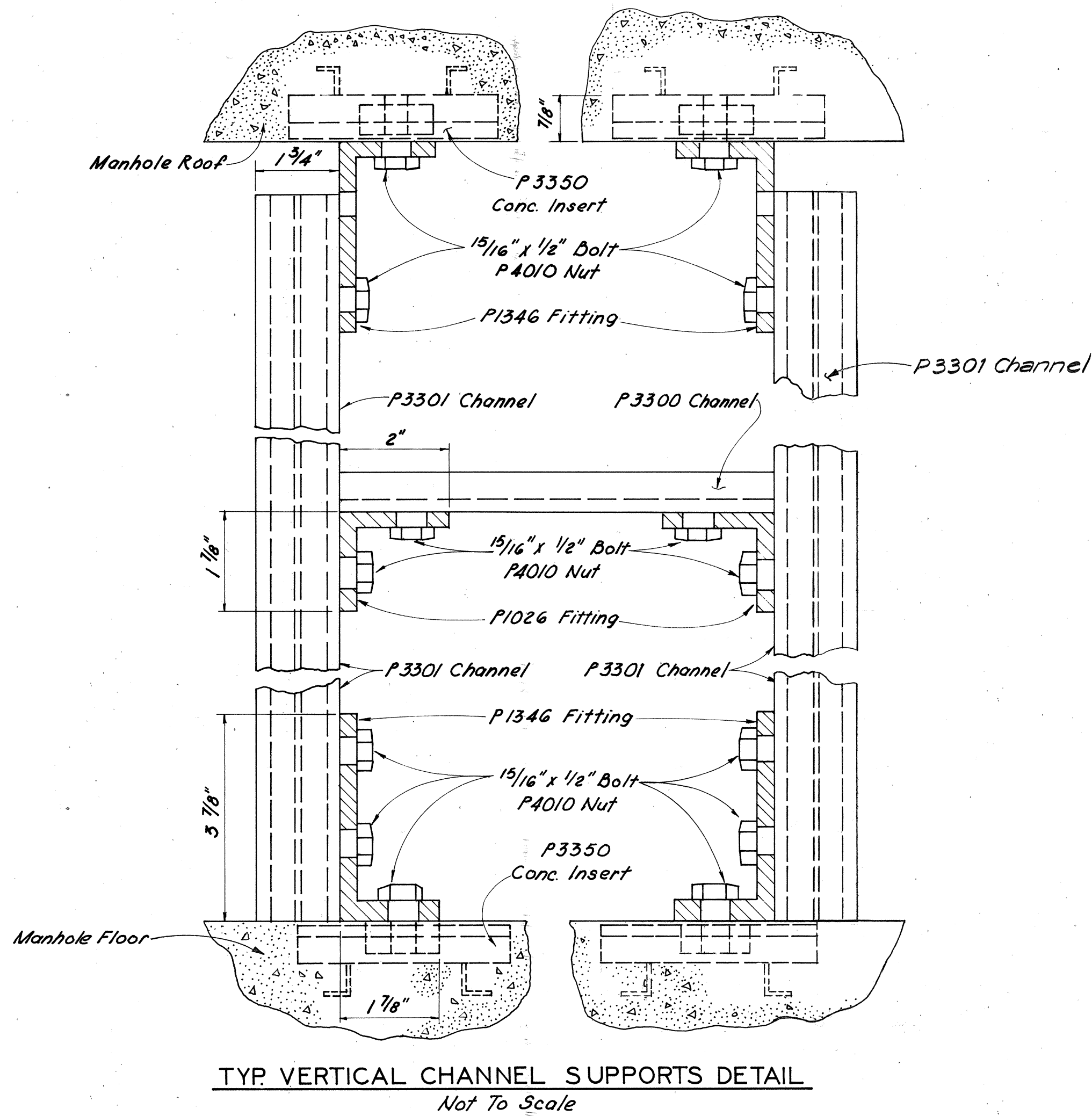
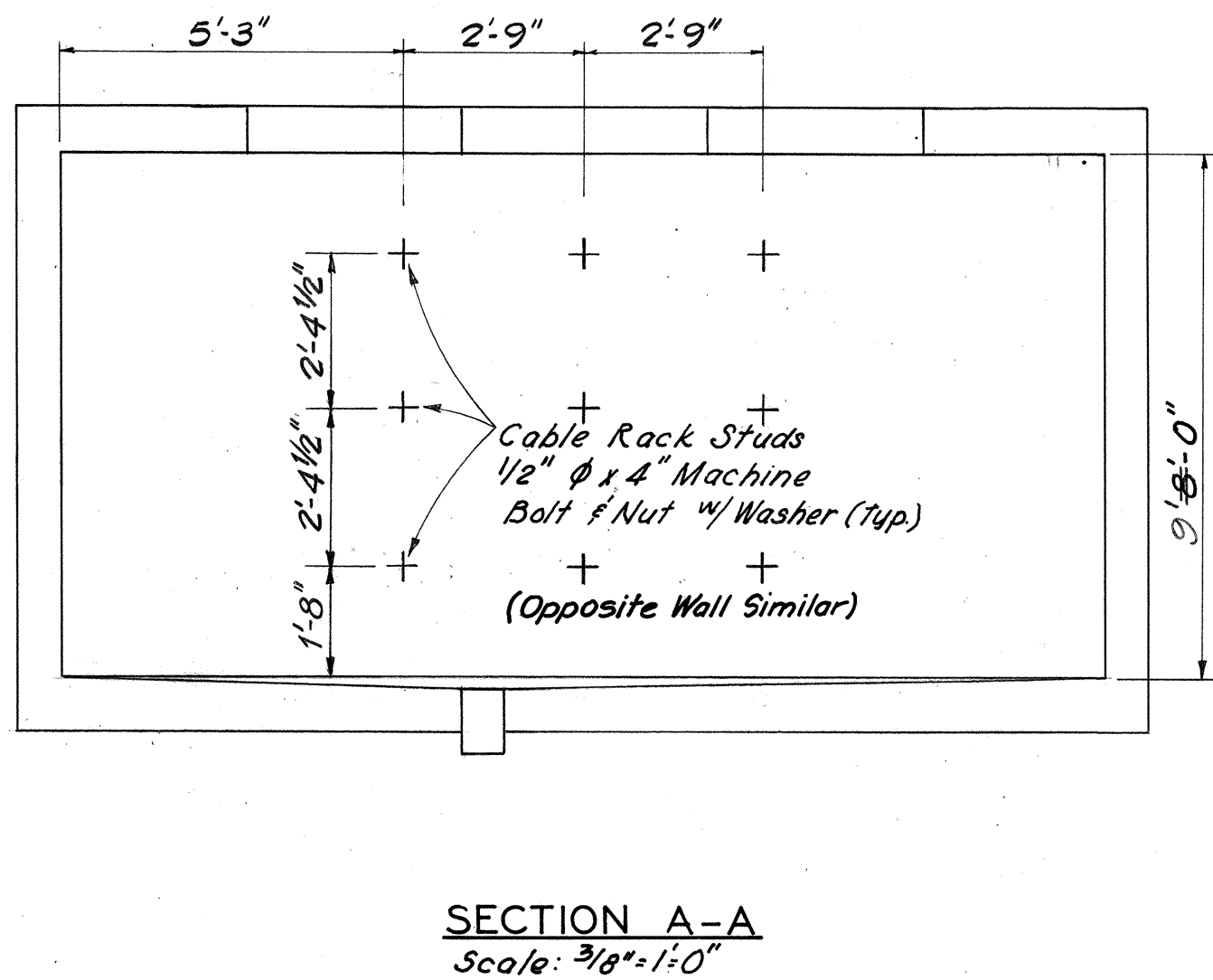
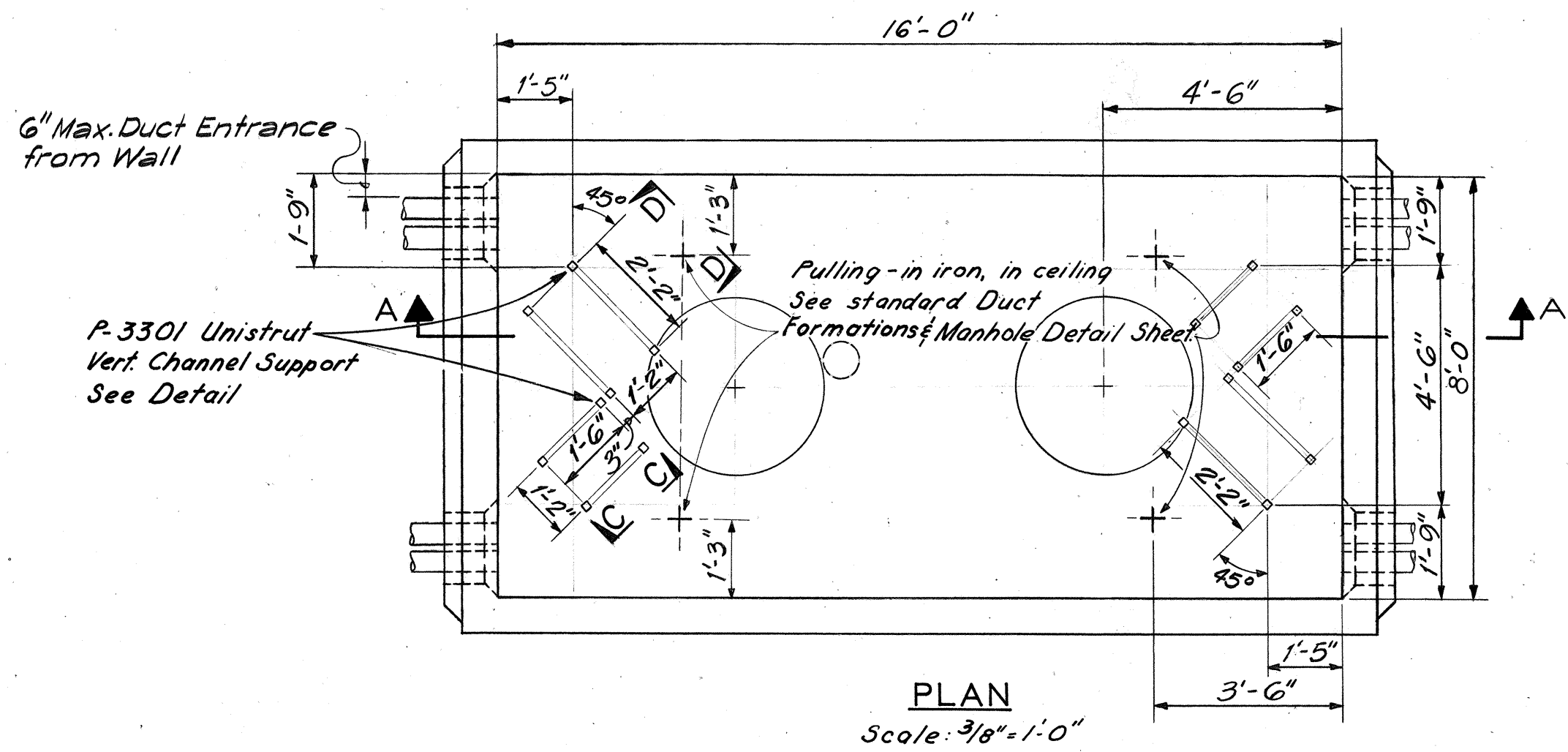
APPROVED:

B. Uchikawa
HAWAIIAN TELEPHONE CO., LTD.

DATE
8/19/76

4/27/77	Revised location of openings in the roof slab.
DATE	REVISION
SHEET NO. 1 OF 2 SHEETS	
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
LOAD COIL MANHOLE (8' x 16' x 8')	
INTERSTATE ROUTE H-1 PROJECT NO. I-HI-1(136):17	
SCALE: 3/8" = 1' - 0"	DATE: July 15, 1976
SHEET NO. 6 OF 15 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1(136)-17	1976	46	124



- NOTES:
- For "General Notes" see Sheet No. (41)
 - For Typical Duct Entrance Detail see Sheet No. (54)

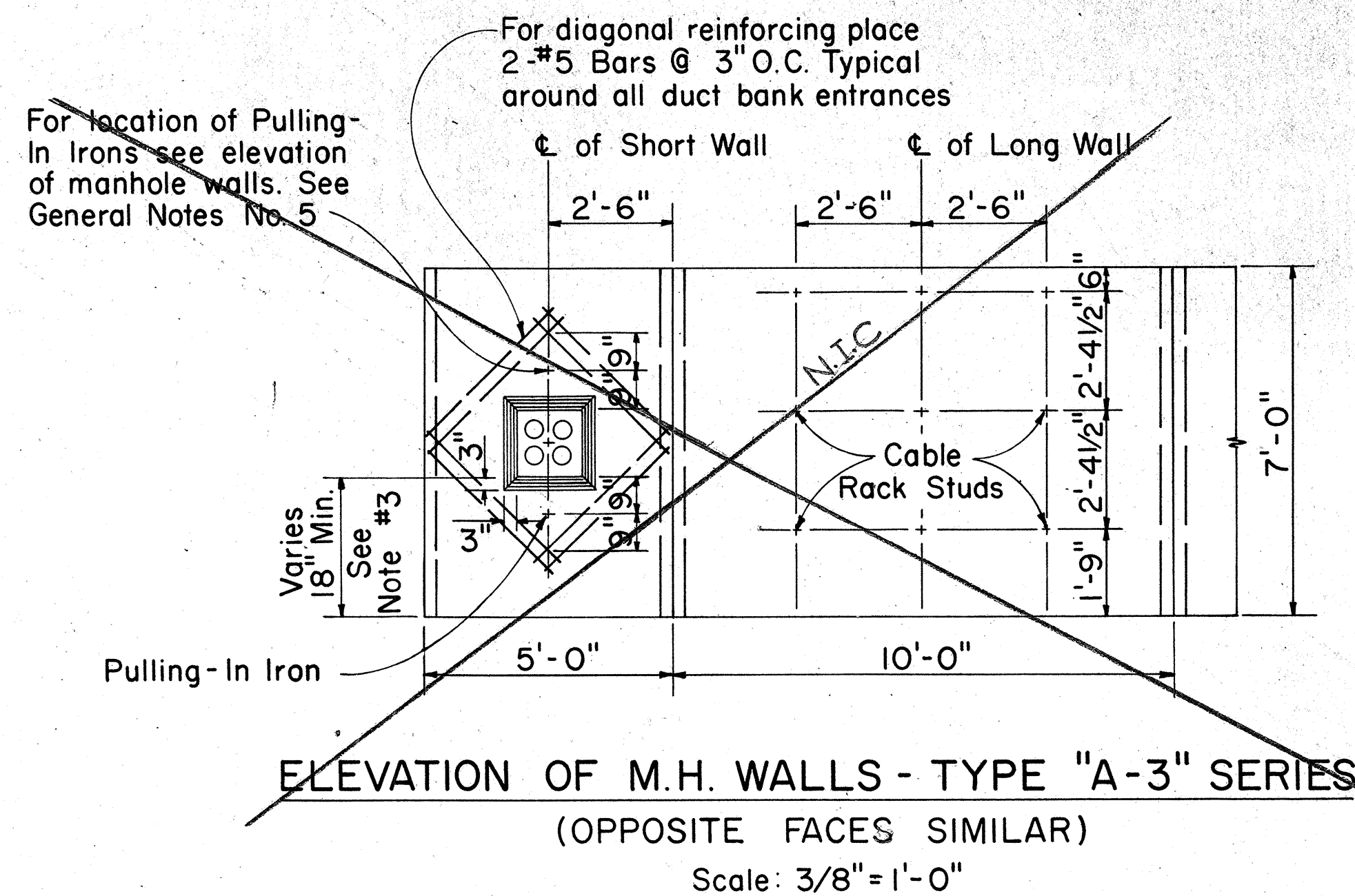
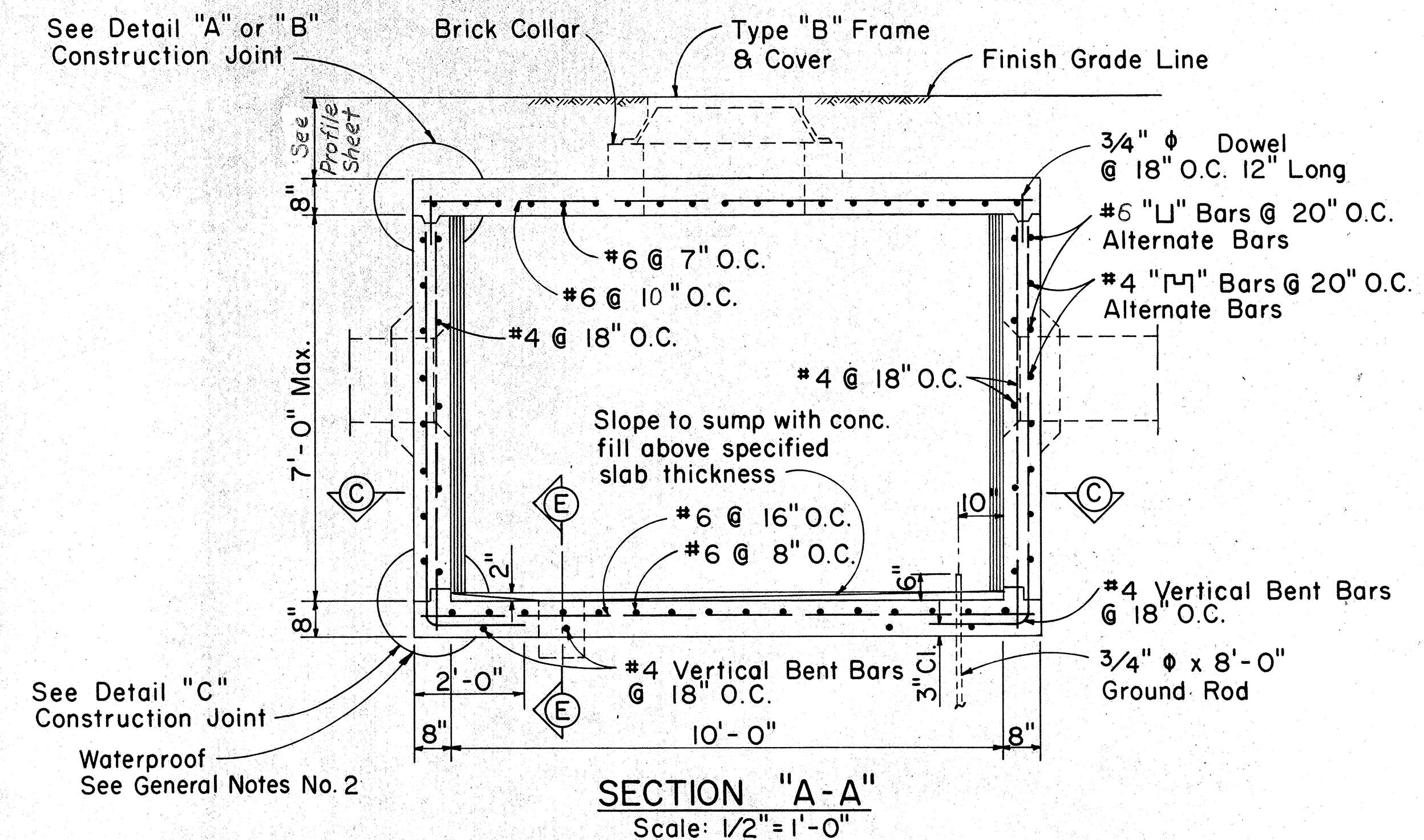
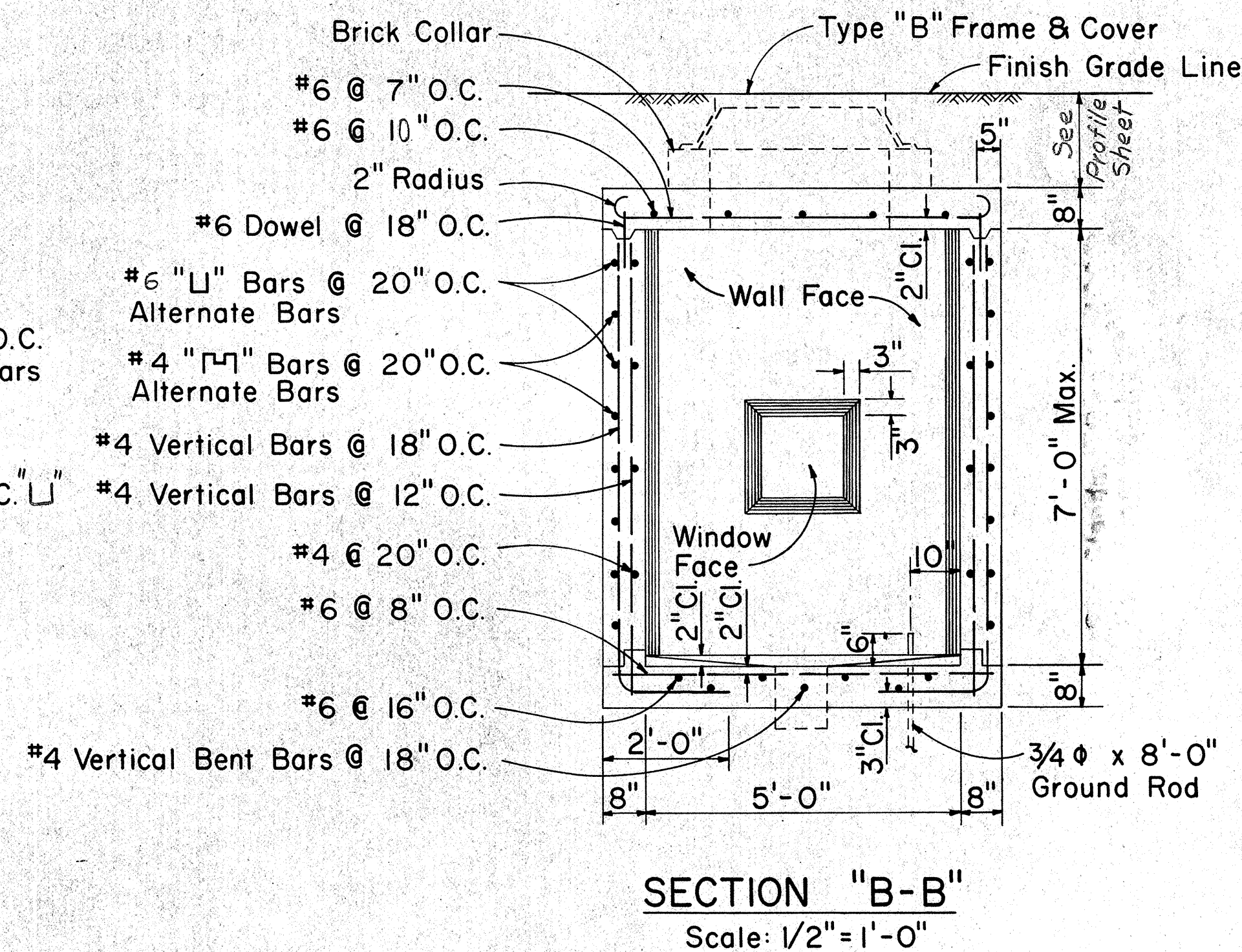
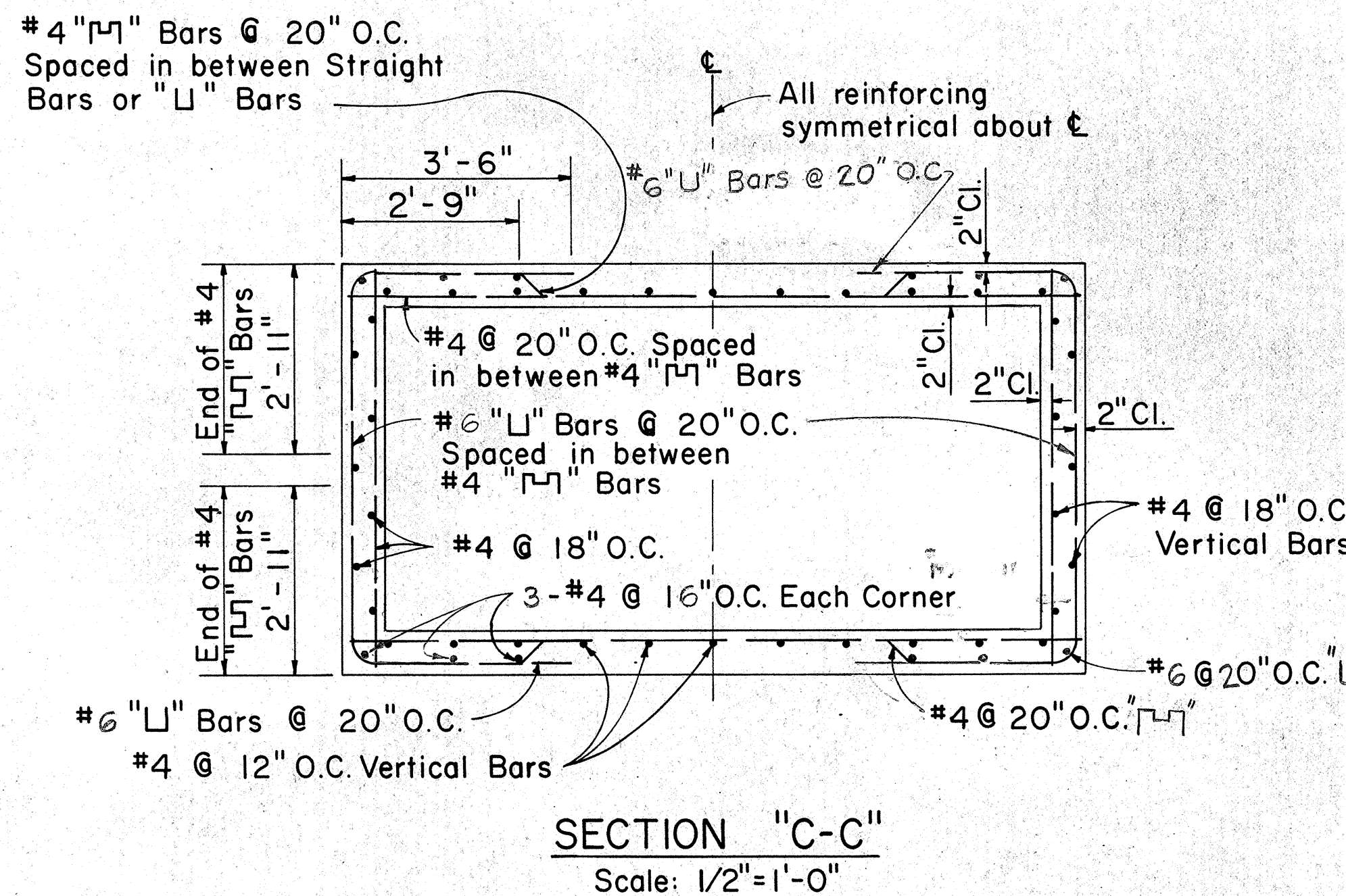
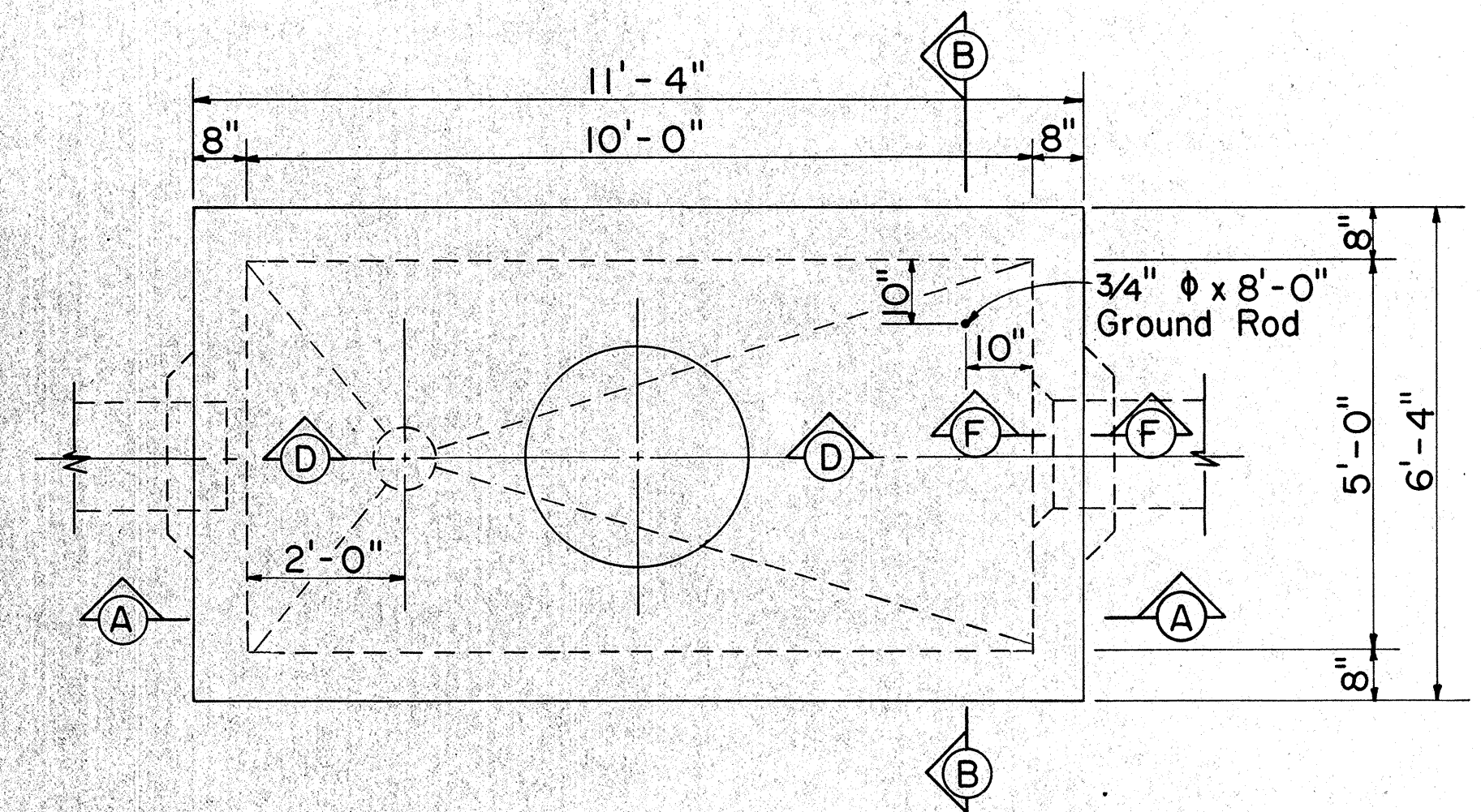
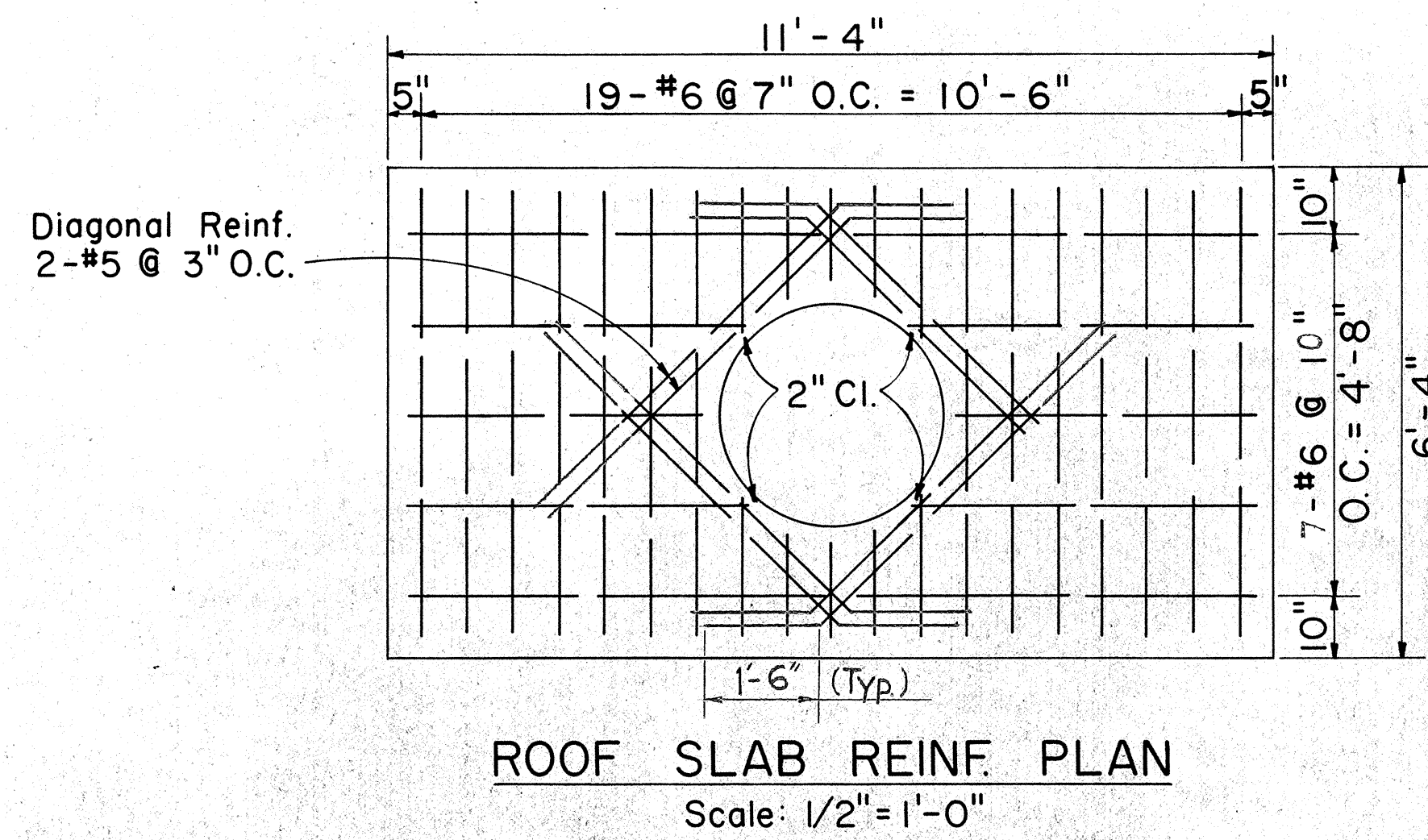
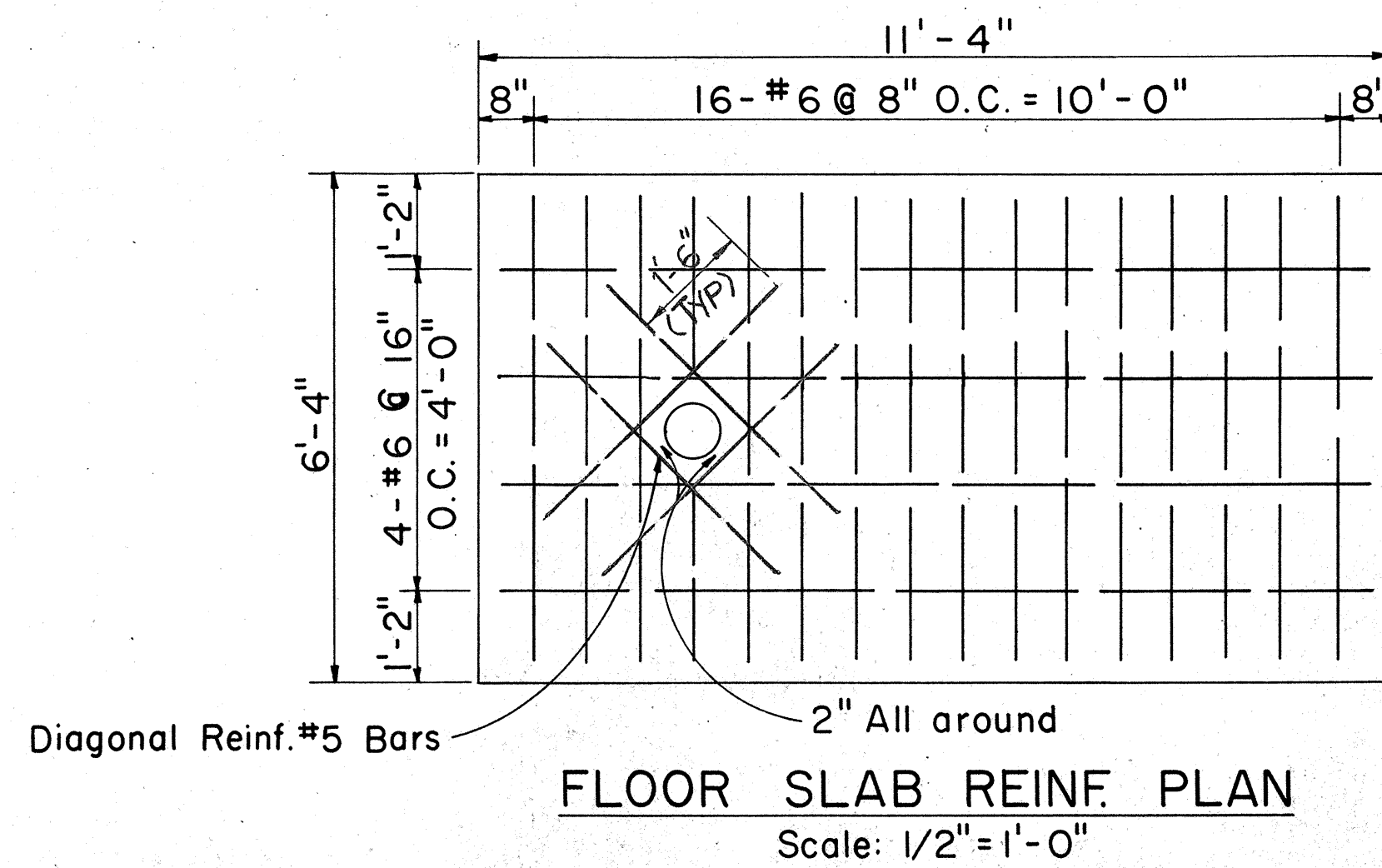
SURVEY PLANNED BY	DATE
DRAWN BY	4/27/77
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

APPROVED:
B. Ushikawa
HAWAIIAN TELEPHONE CO.
DATE 8/19/76

4/27/77	Revised location of Unistruts and openings in the roof slab. Added Unistruts and their Fittings.
DATE	REVISION
H. T. Co., Ltd.	
SHEET NO. 2 OF 2 SHEETS	
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
LOAD COIL MANHOLE (8'-0" x 16'-0" x 8'-0")	
INTERSTATE ROUTE H-1 PROJECT NO. I-H-1 (136)-17	
Scale: As Noted	Date: July 15, 1976

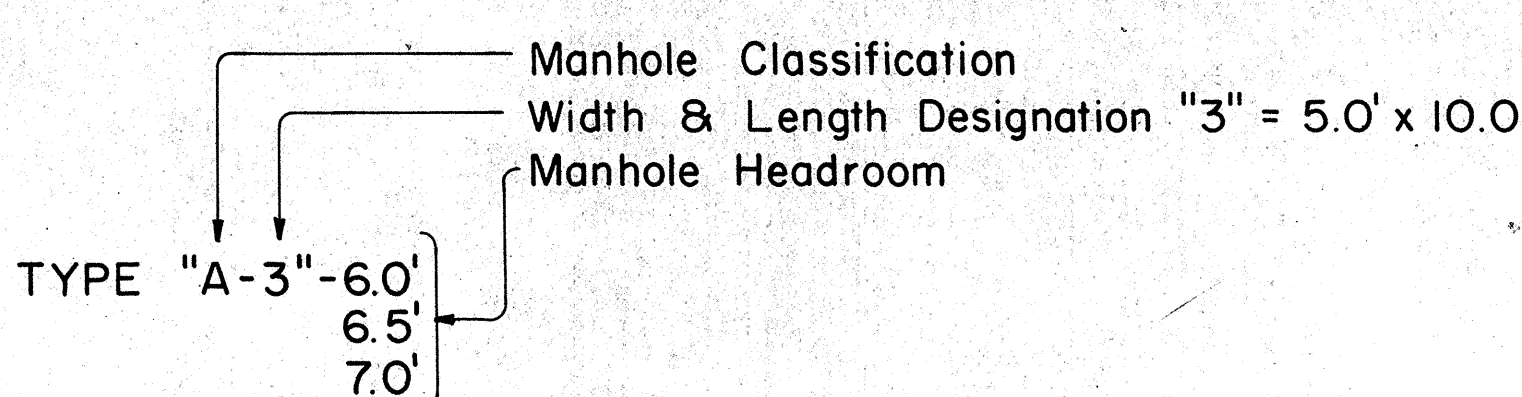
SHEET No. 7 OF 15 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1(136)-17	1976	47	124



GENERAL NOTES:

- Design Data:
fs = 20,000 psi; fc = 3,000 psi; fc = 1,200 psi; n = 10
w = Equivalent Fluid Pressure: 60#/ft²
- All Construction Joints shall be waterproofed with two applications of Thoro Seal or equal.
- For Duct Window location see Plan Profile Sheets for Elevations.
- Duct Window to suit - See Plan & Profile & Standard Detail Sheets for Location & Details.
- For Details "A", "B", "C", Sections "D-D", "E-E", "F-F" and other miscellaneous Manhole Construction Details see Supplement Sheet to Type "A-1", "A-2" and "A-3" Telephone Manholes on Sheet No. 52
- For "General Notes" see also Sheet No. 41



APPROVED: *H. Y. Yeh* Date: 8/19/76
Hawaiian Telephone Co., Ltd.
H.T. Co., Ltd. Drawing No. 34064-A

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

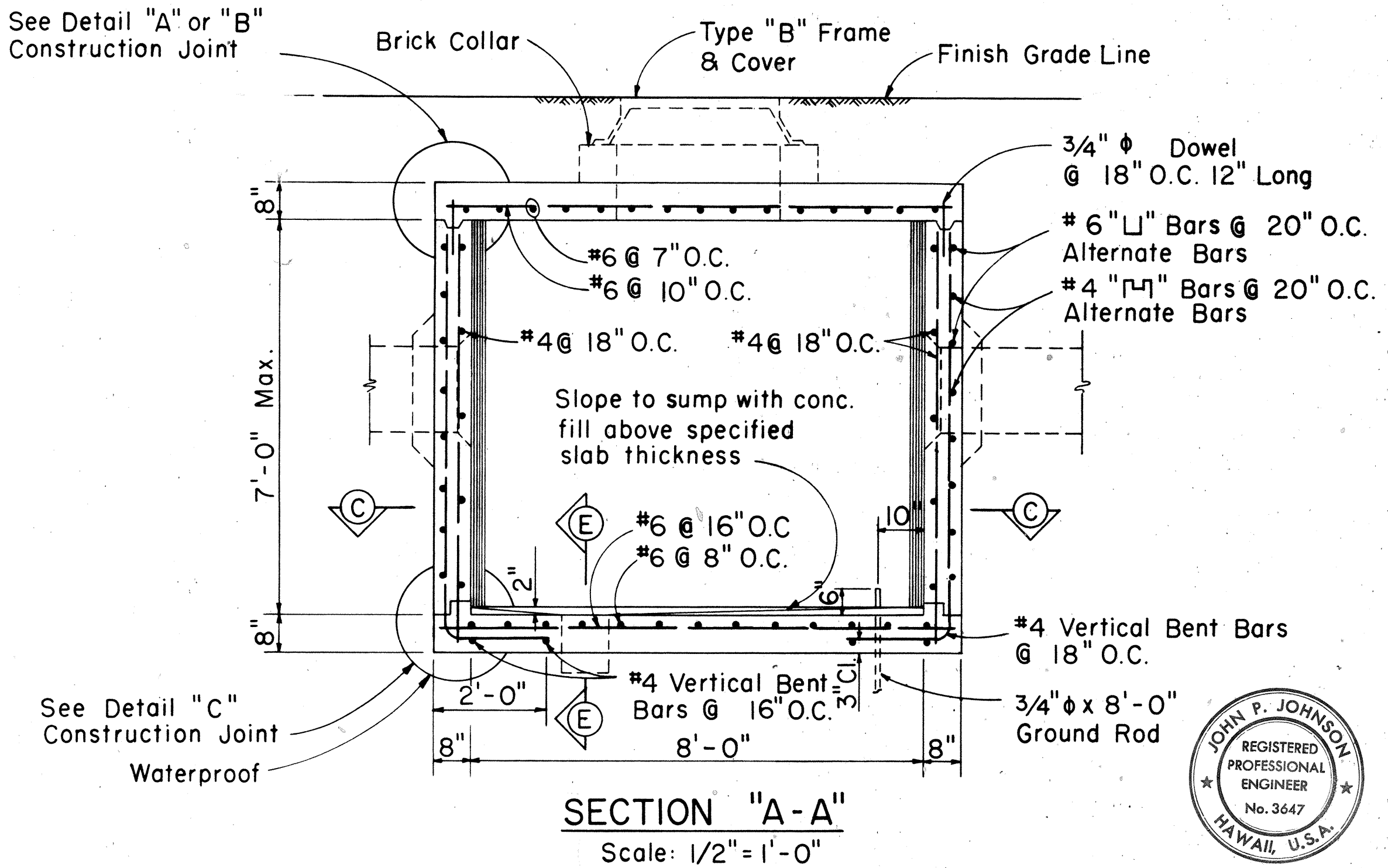
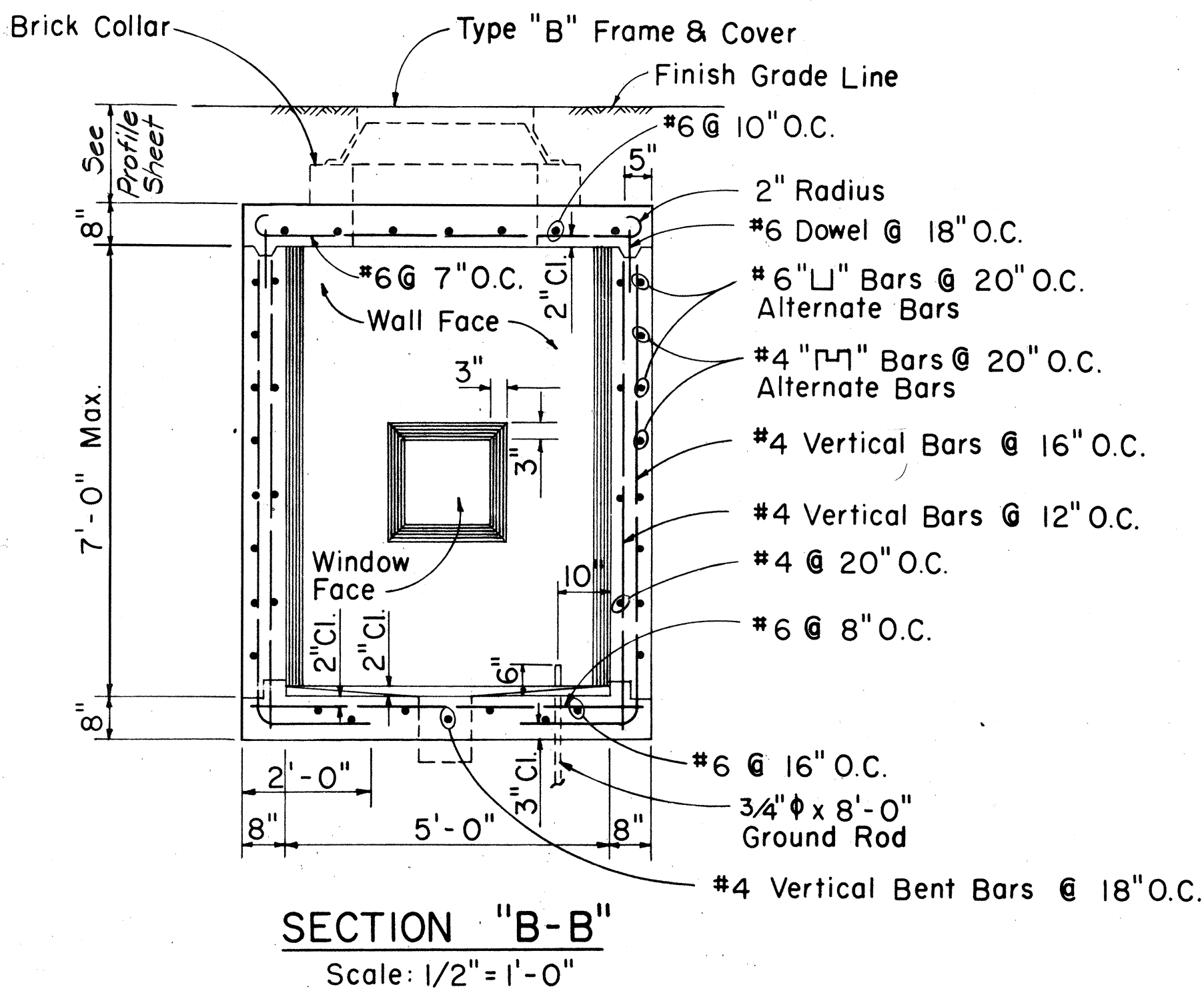
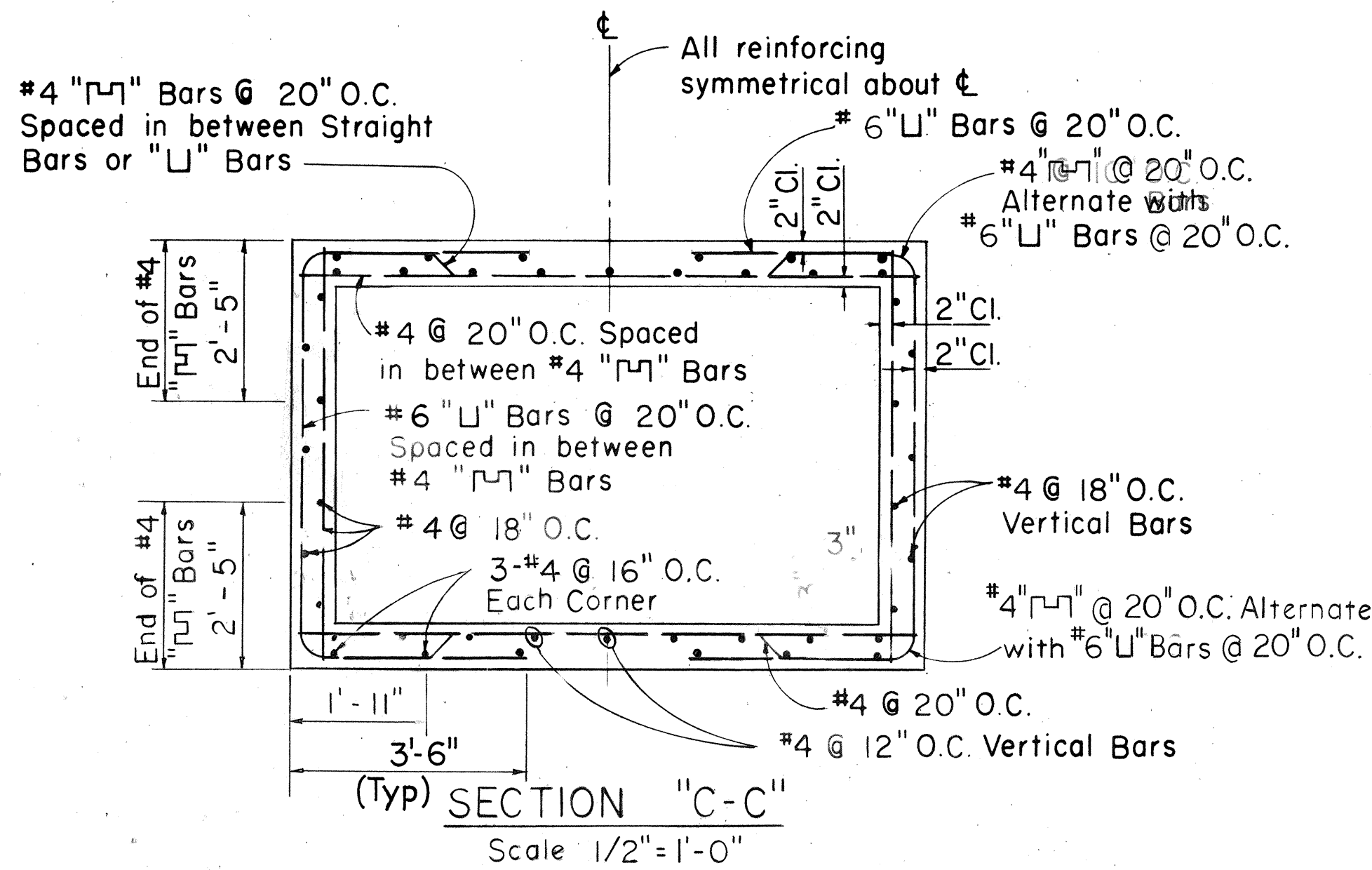
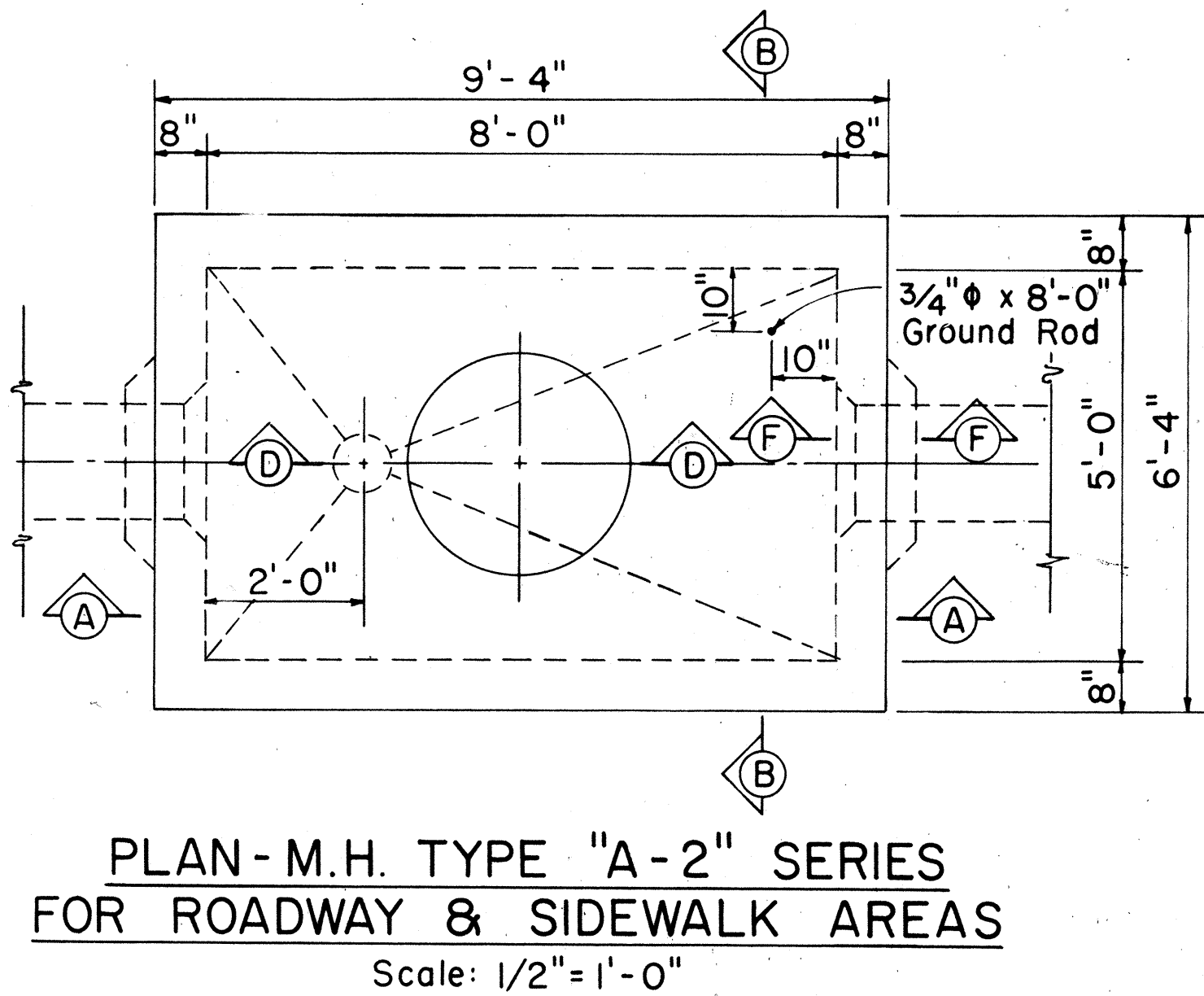
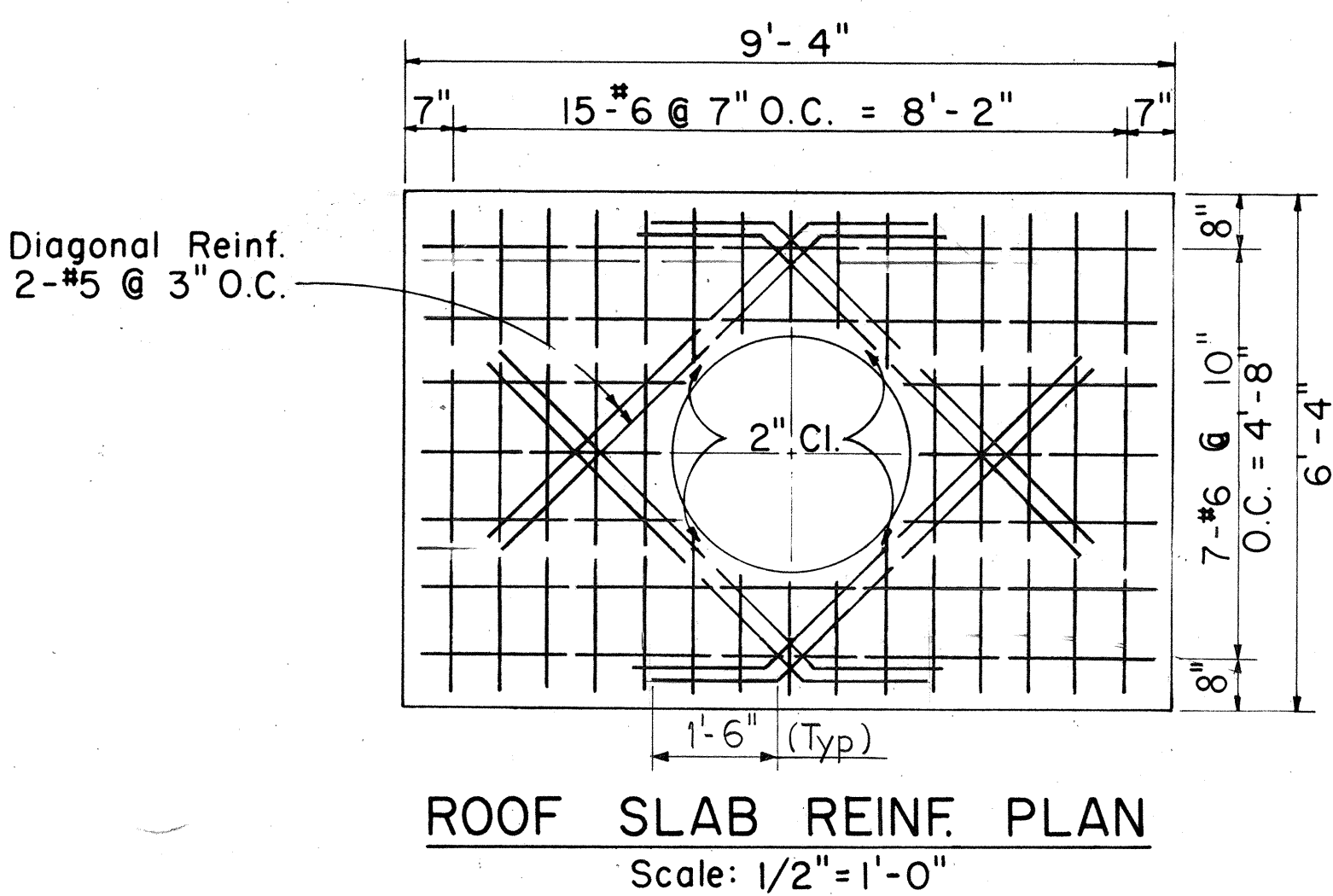
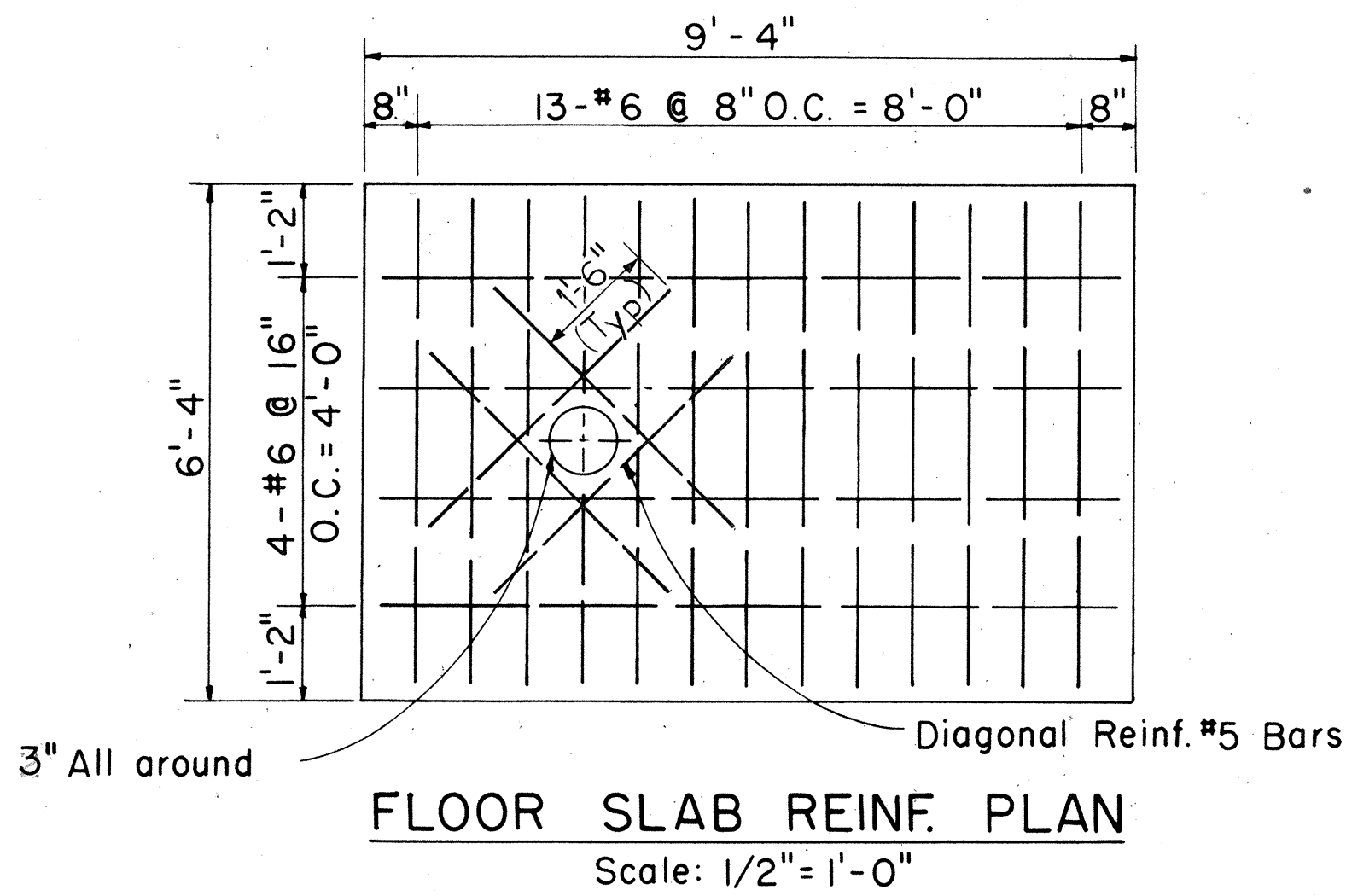
TYPE "A-3" MANHOLES
FOR 6.0' TO 7.0'

INTERSTATE ROUTE H-1
PROJECT NO. I-H-1(136)-17

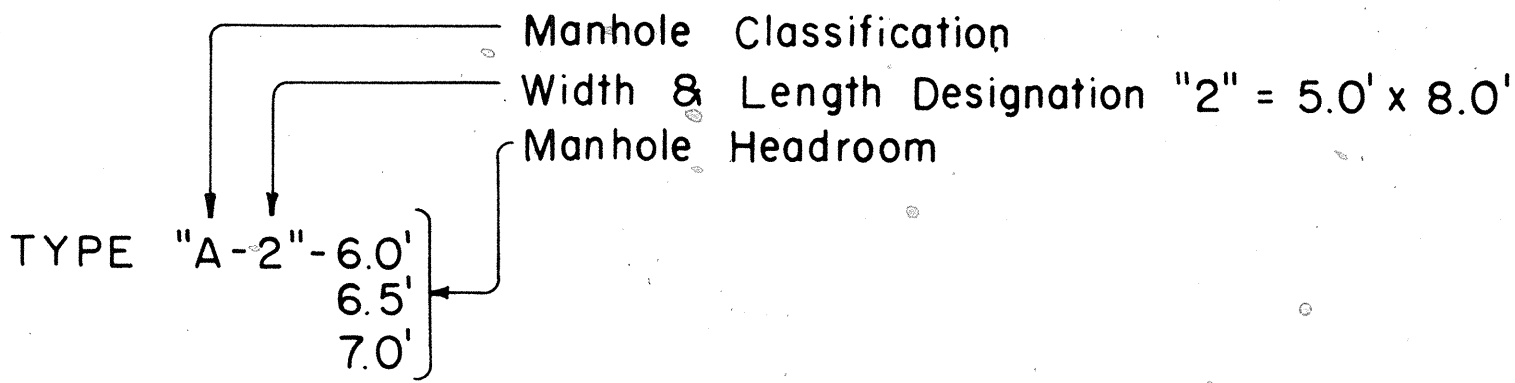
Scale: As Noted Date: July 15, 1976

SHEET No. 8 OF 15 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H1-1(136)17	1976	48	124



- NOTES:**
- For "General Notes" see Sheet No. 41
 - For locations and sizes of Duct Entrances see Wall Elevation Drawings.
 - For Typical Duct Entrance Detail see Sheet No. 54
 - For Details "A", "B", "C", Sections "D-D", "E-E", "F-F" and other miscellaneous Manhole Construction Details, see Supplement Sheet to Type "A-1", "A-2" and "A-3" Telephone Manholes on Sheet No. 52



APPROVED:
B. Johnson
Hawaiian Telephone Co., Ltd. Date: 8/19/76

H.T. Co., Ltd.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

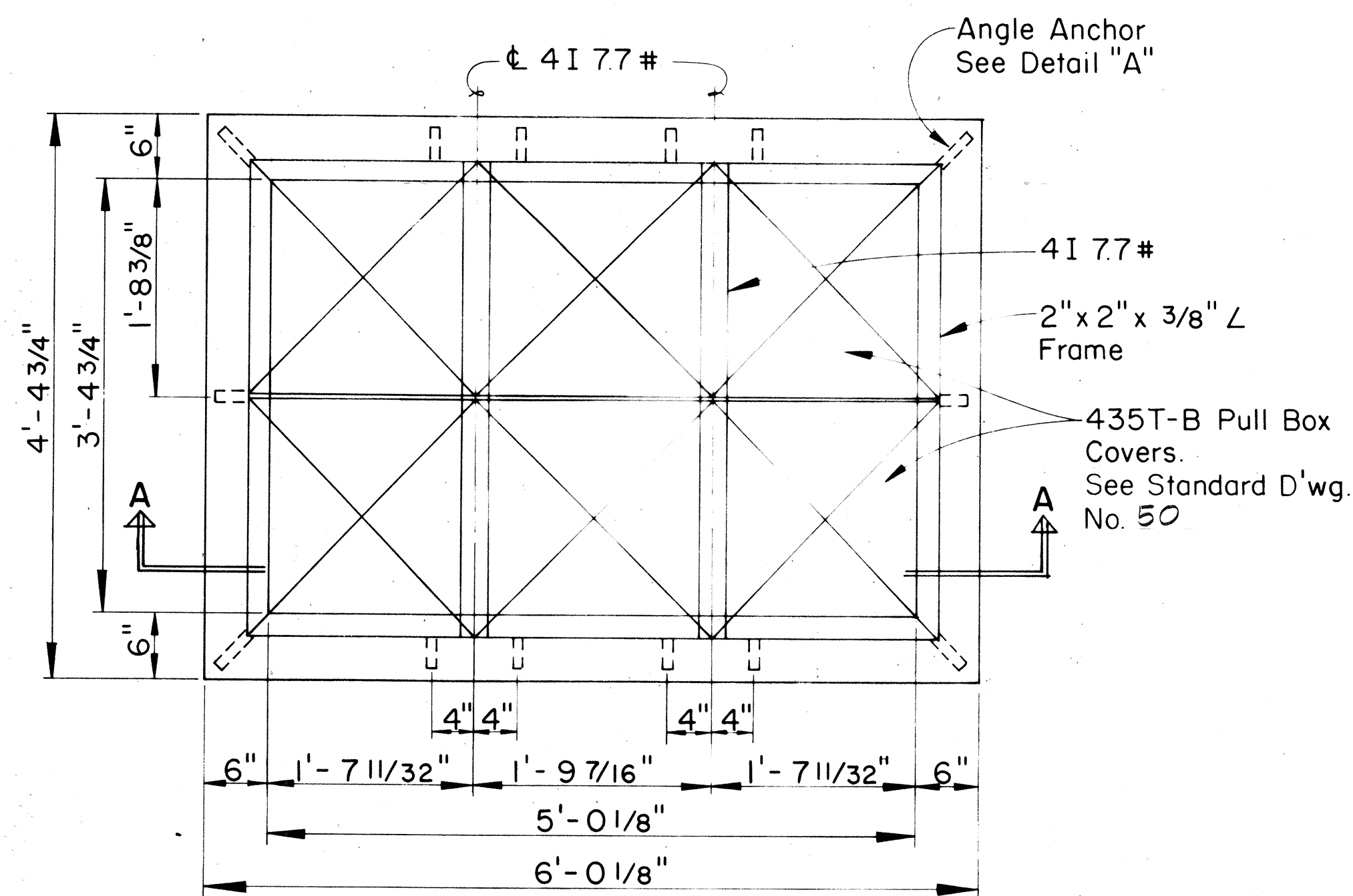
TYPE A-2 MANHOLES FOR 6'-0" TO 7'-0" HEADROOM

INTERSTATE ROUTE H-1
PROJECT NO. I-H1-1 (136) 17

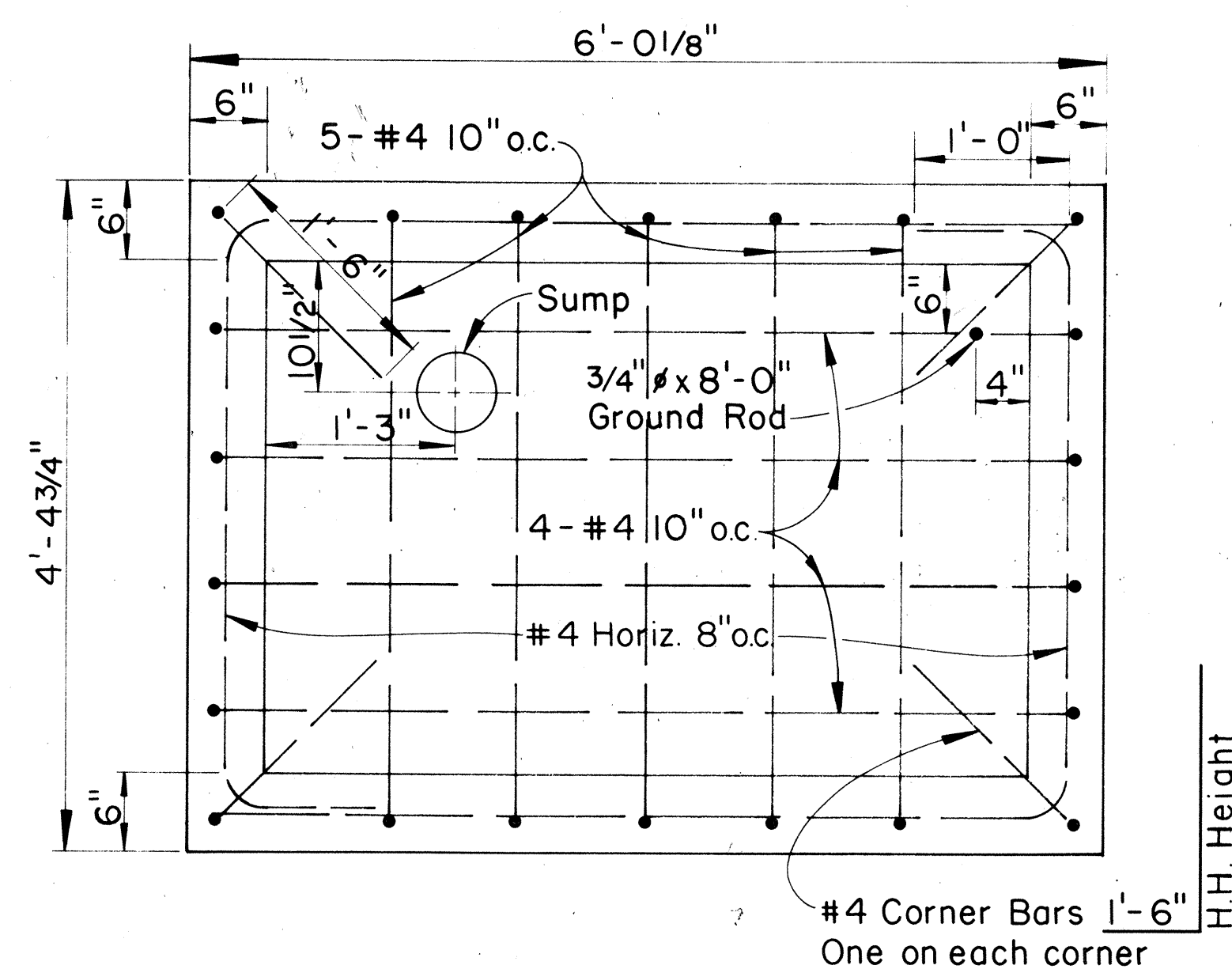
Scale: As Noted Date: July 15, 1976

SHEET No. 9 OF 15 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1(136)17	1976	49	124



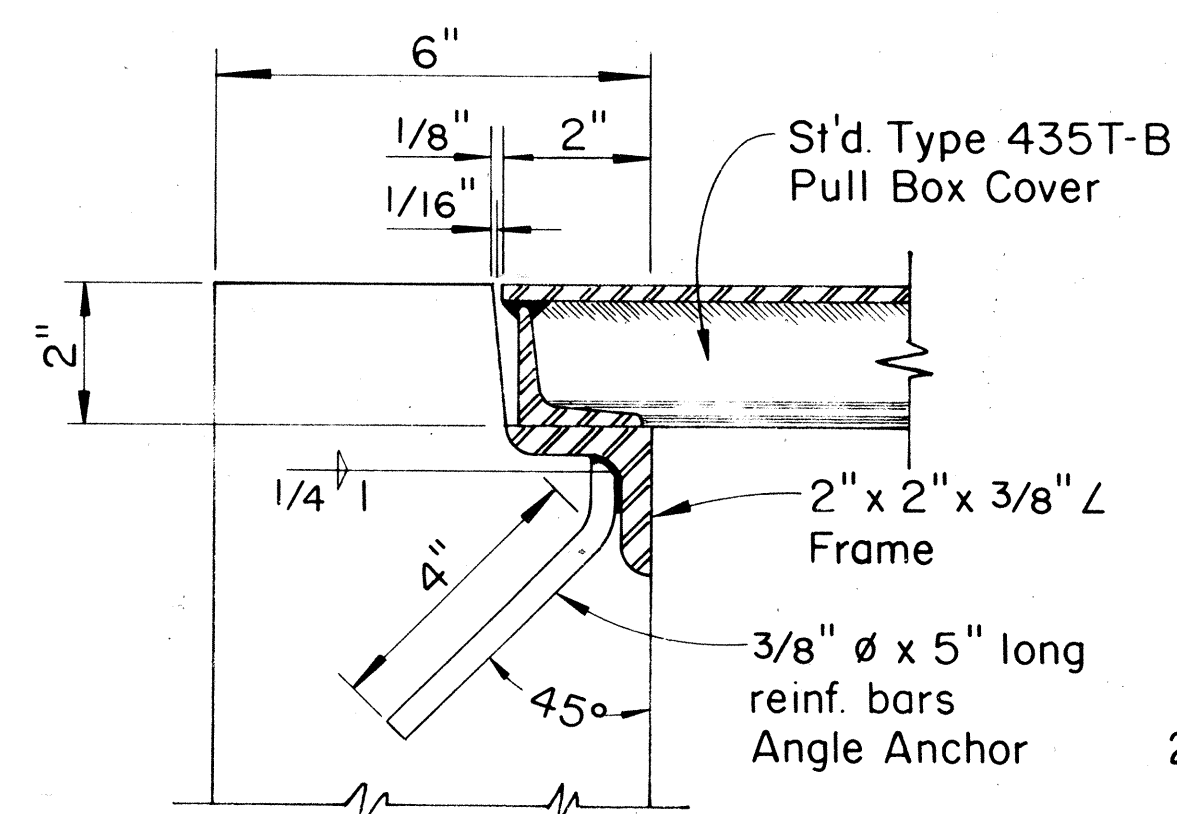
TOP PLAN
Scale: 1" = 1'-0"



FLOOR PLAN
Scale: 1" = 1'-0"

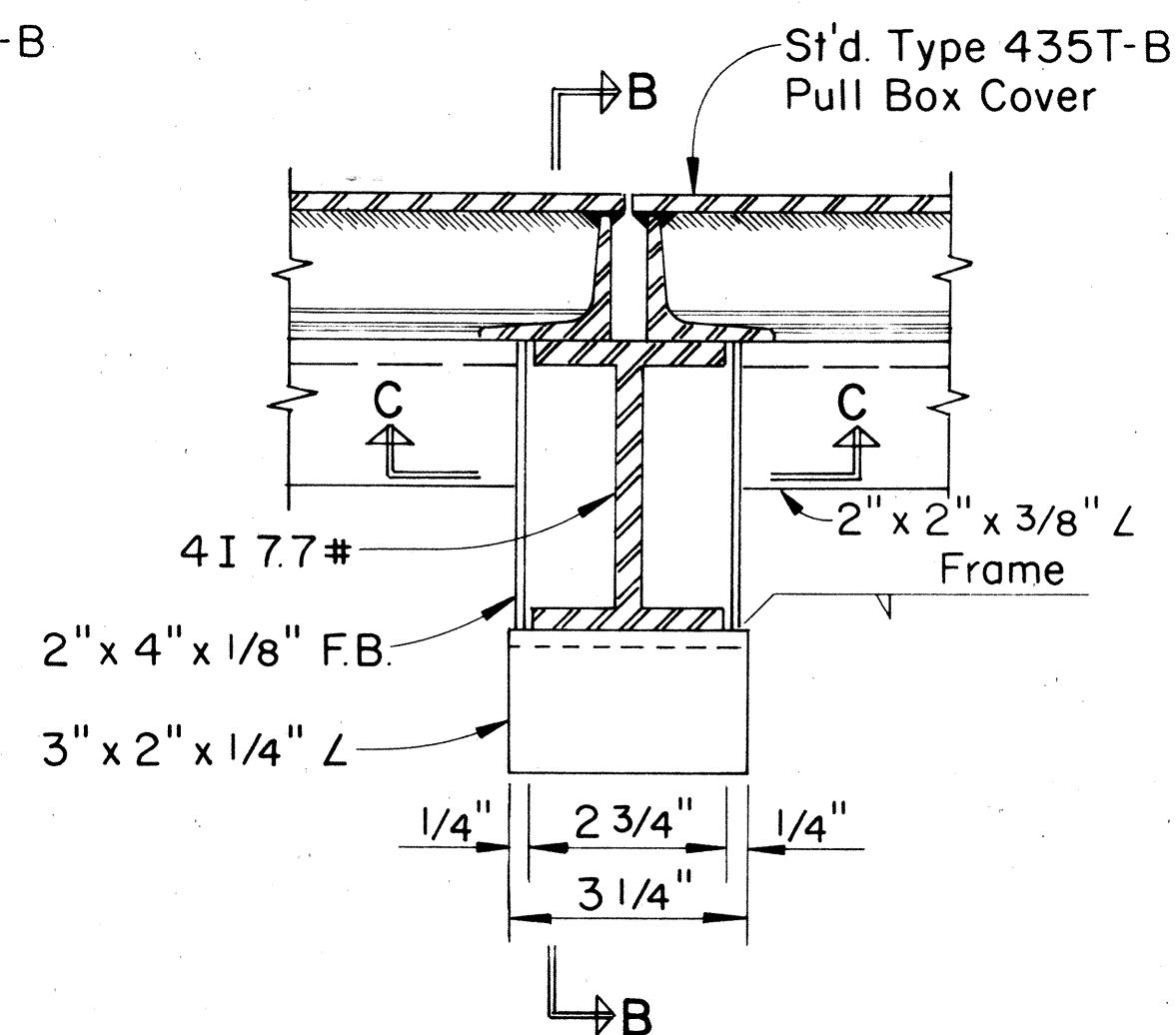
GENERAL NOTES:

- Concrete finish: floors-wood floated finish-exposed wall surfaces and edges-smooth and free from defects.
- Concrete to develop compressive strength-3000 p.s.i. in 28 days.
- Steel work all structural steel shall be hot dip galvanized after fabrication.
- For duct line construction standards, see st'd. dwg. No. 53028
- These handholes are designed for installation in areas other than roadways.
- HTCo will provide Pull box covers.

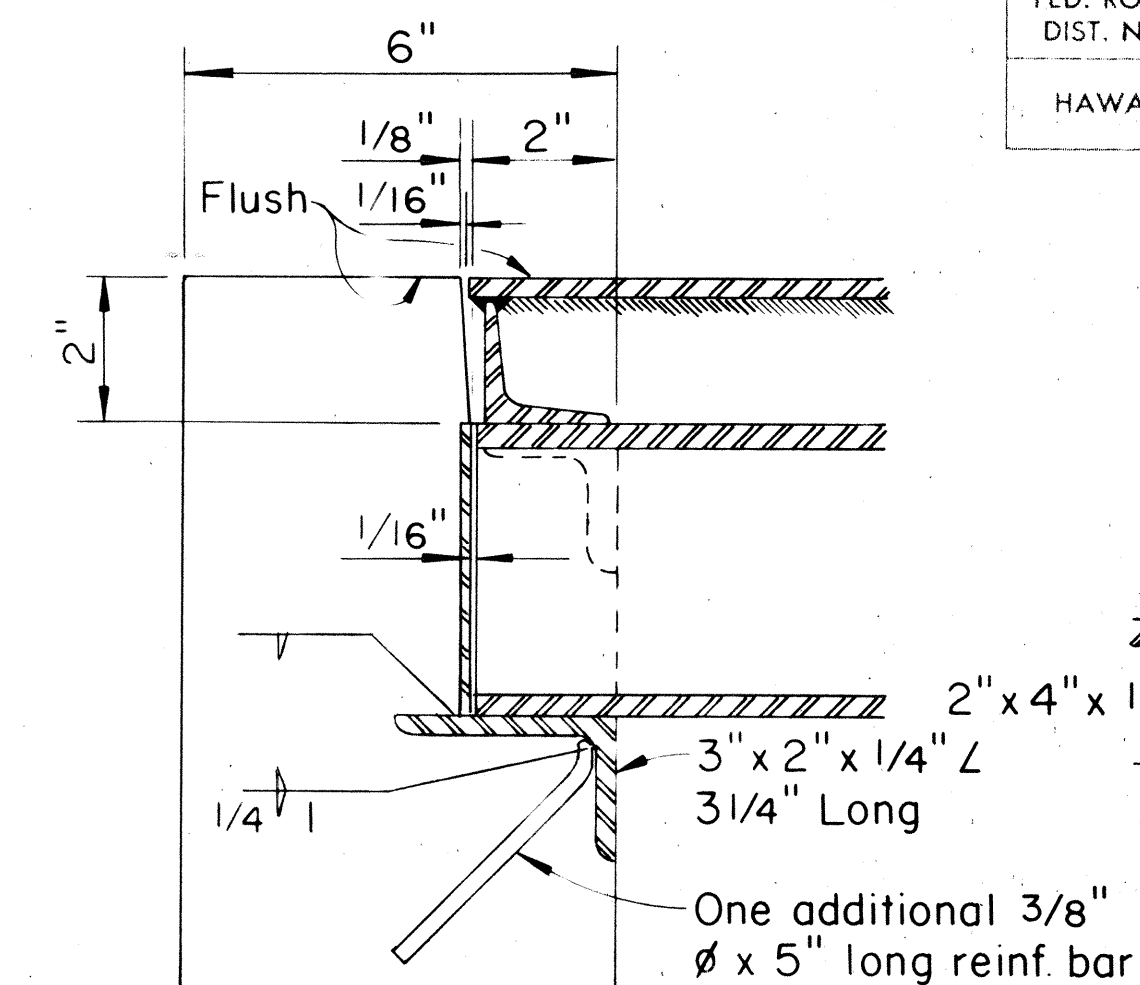


NOTE:
Section is typical.

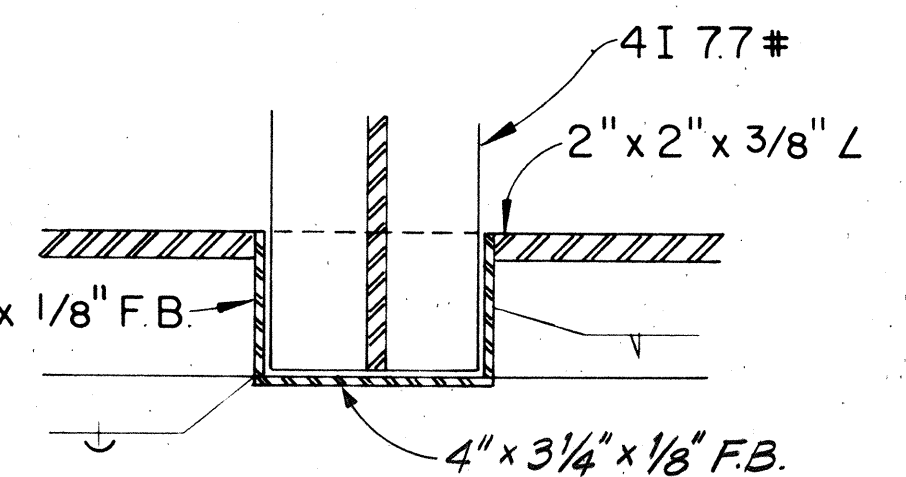
DETAIL "A"
Scale: 3/8" = 1"



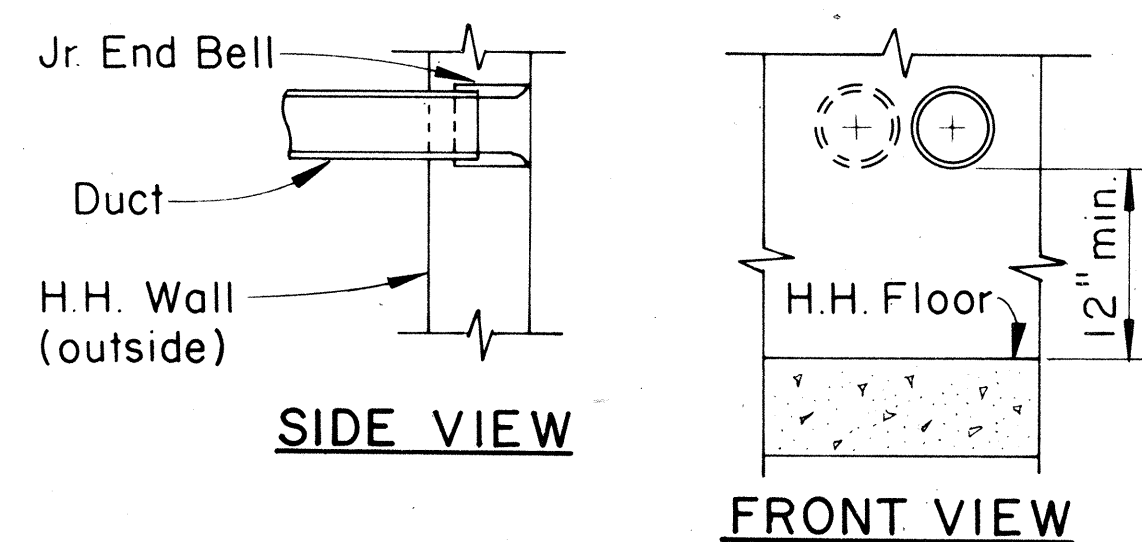
DETAIL "B"
Scale: 3/8" = 1"



SECTION "B-B"
Scale: 3/8" = 1"



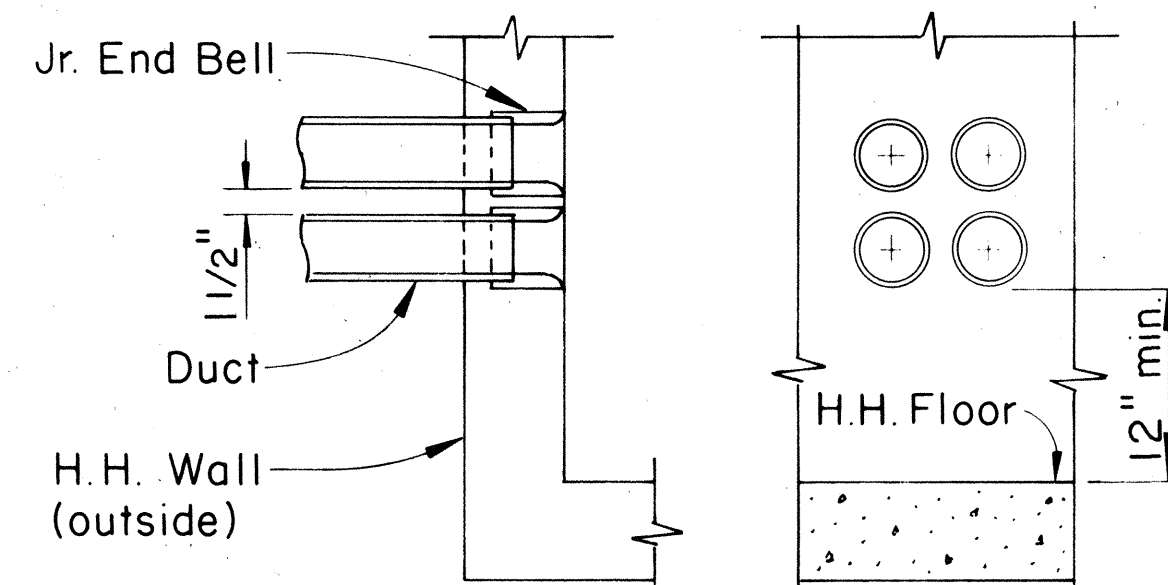
SECTION "C-C"
Scale: 3/8" = 1"



SIDE VIEW

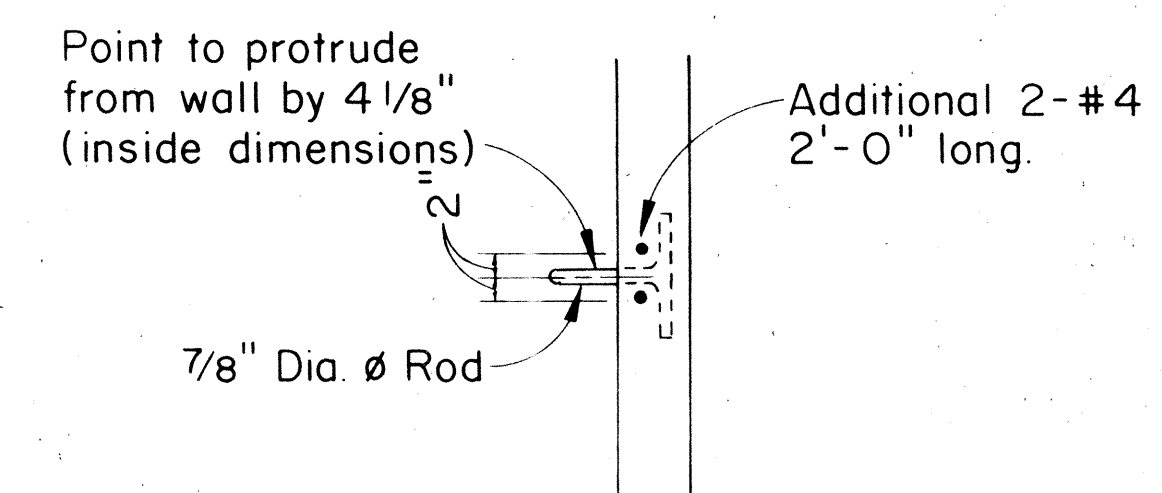
FRONT VIEW

1 OR 2 DUCTS
Scale: 1" = 1'-0"

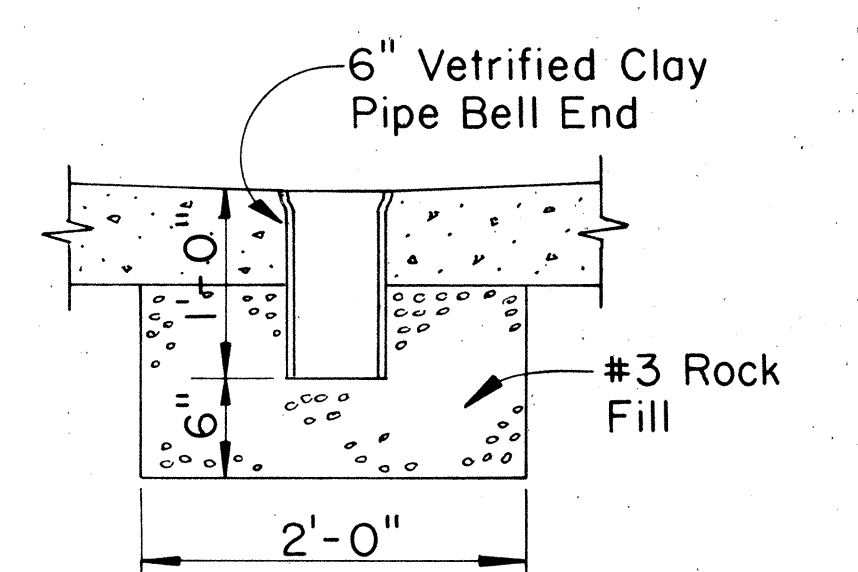


SIDE VIEW OR TOP PLAN
FRONT VIEW
4 DUCTS

DUCT ENTRANCE DETAILS
Scale: 1" = 1'-0"

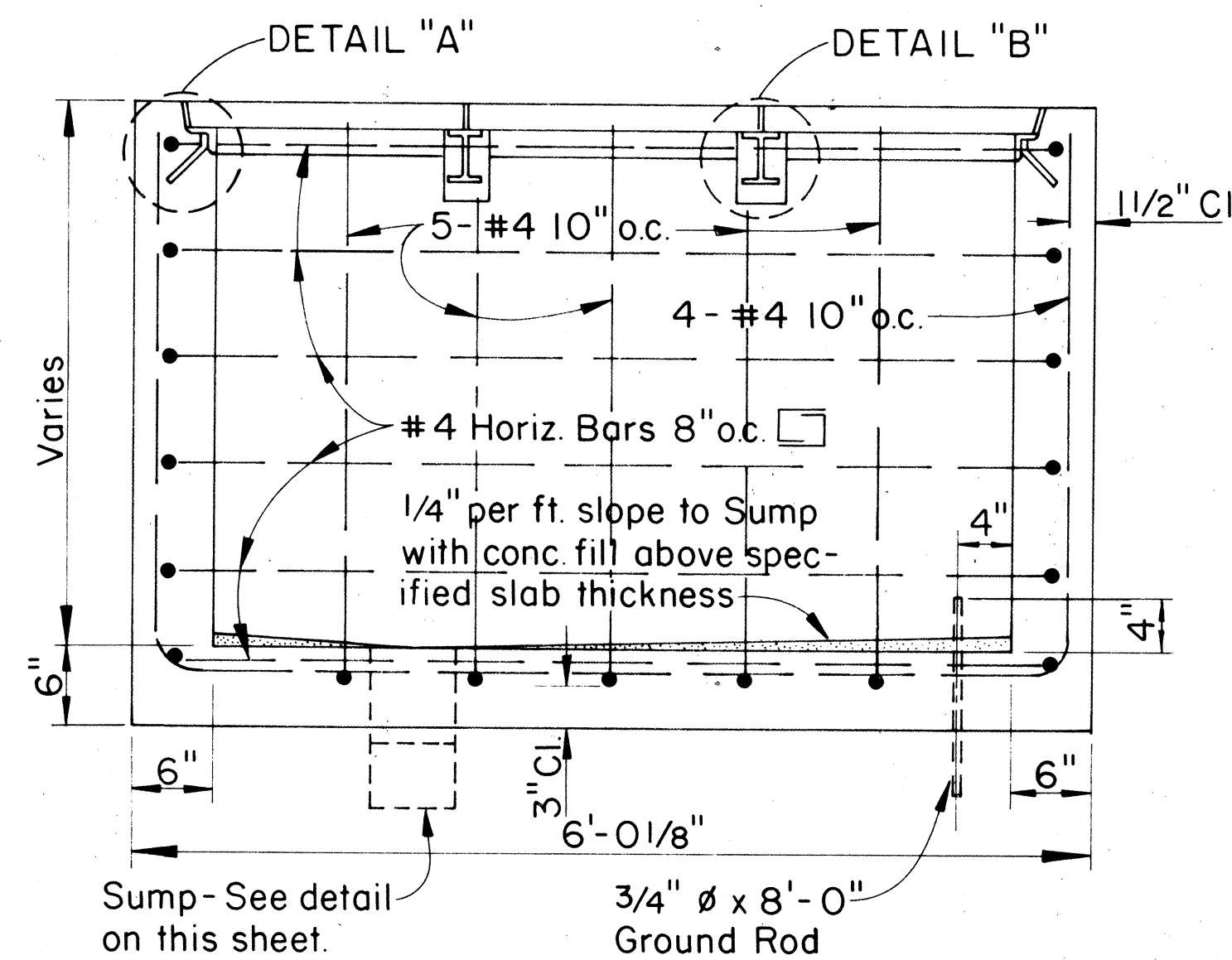


SECTIONAL ELEV. OF PULL-IN IRON
Scale: 3/4" = 1'-0"



DETAIL OF SUMP
Scale: 1" = 1'-0"

(Note: For handhole located below water table see Section E₁-E₁ on Sheet No. 53)

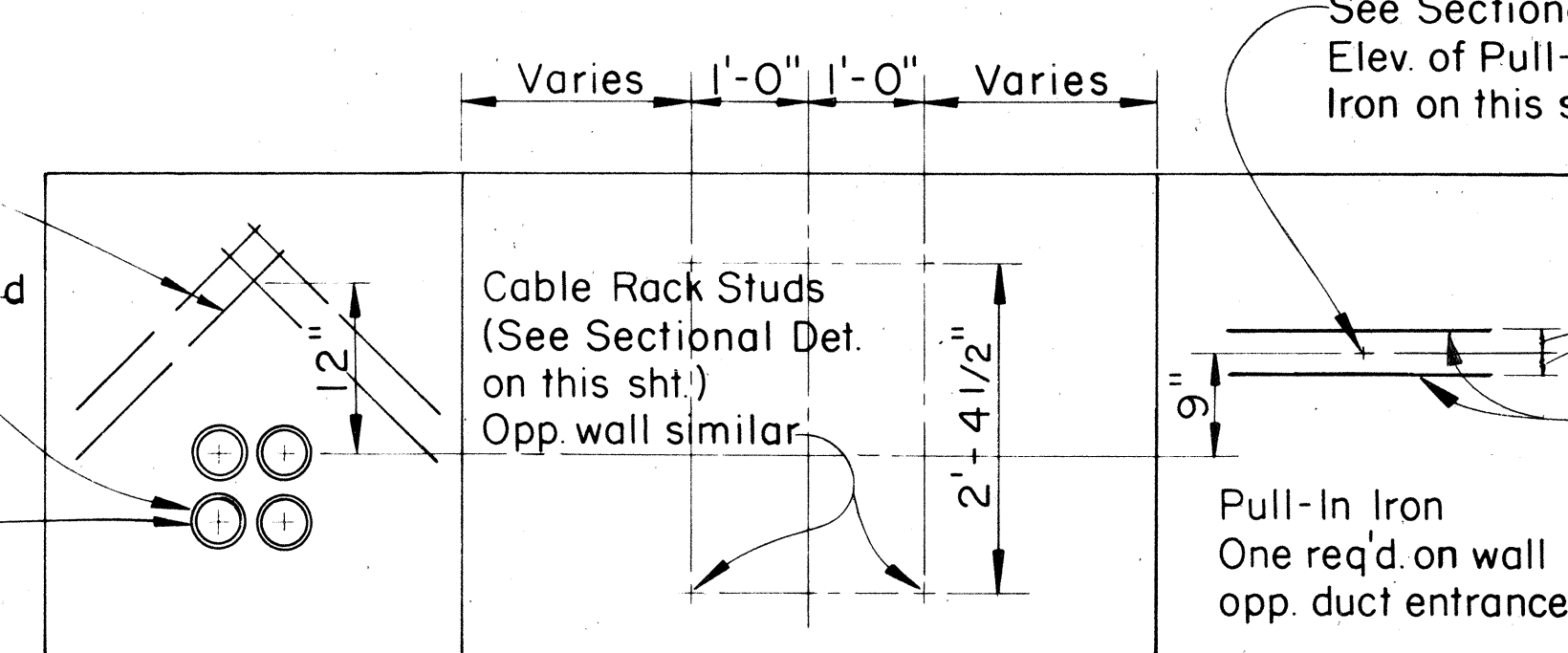


SECTION "A-A"
Scale: 1" = 1'-0"

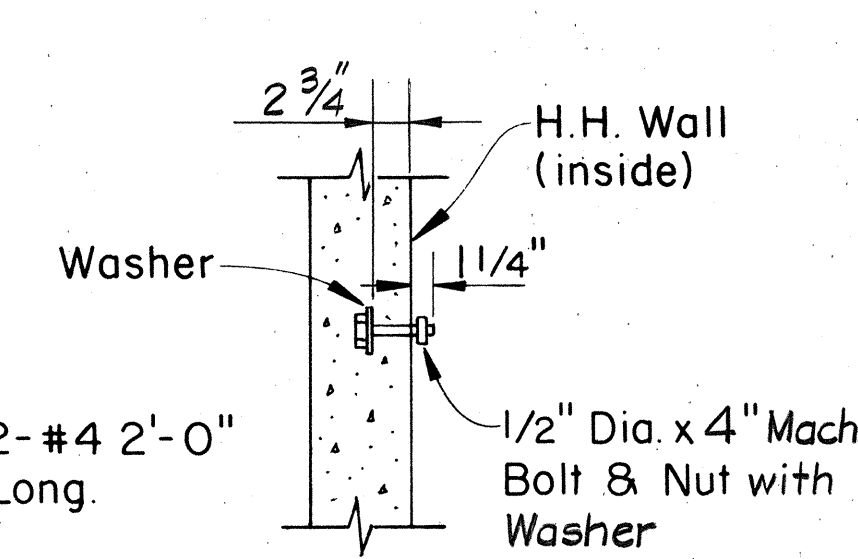
Diag. Reinf. 2-#5 at 3" o.c. over Duct Entrance.

No. of Ducts & Location shall be determined by the project.

See Duct Entrance Details this sheet.

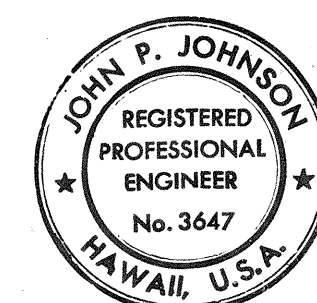


ELEV. OF INSIDE WALLS - H.H. TYPE 1
Scale: 3/4" = 1'-0"



CABLE RACK STUD

BOLT DETAIL
Scale: 1" = 1'-0"



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John P. Johnson

APPROVED:

B. Johnson
HAWAIIAN TELEPHONE CO., LTD.

8/19/76
DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HANDHOLE TYPE #1 USING TYPE 435T-B PULL BOX COVERS

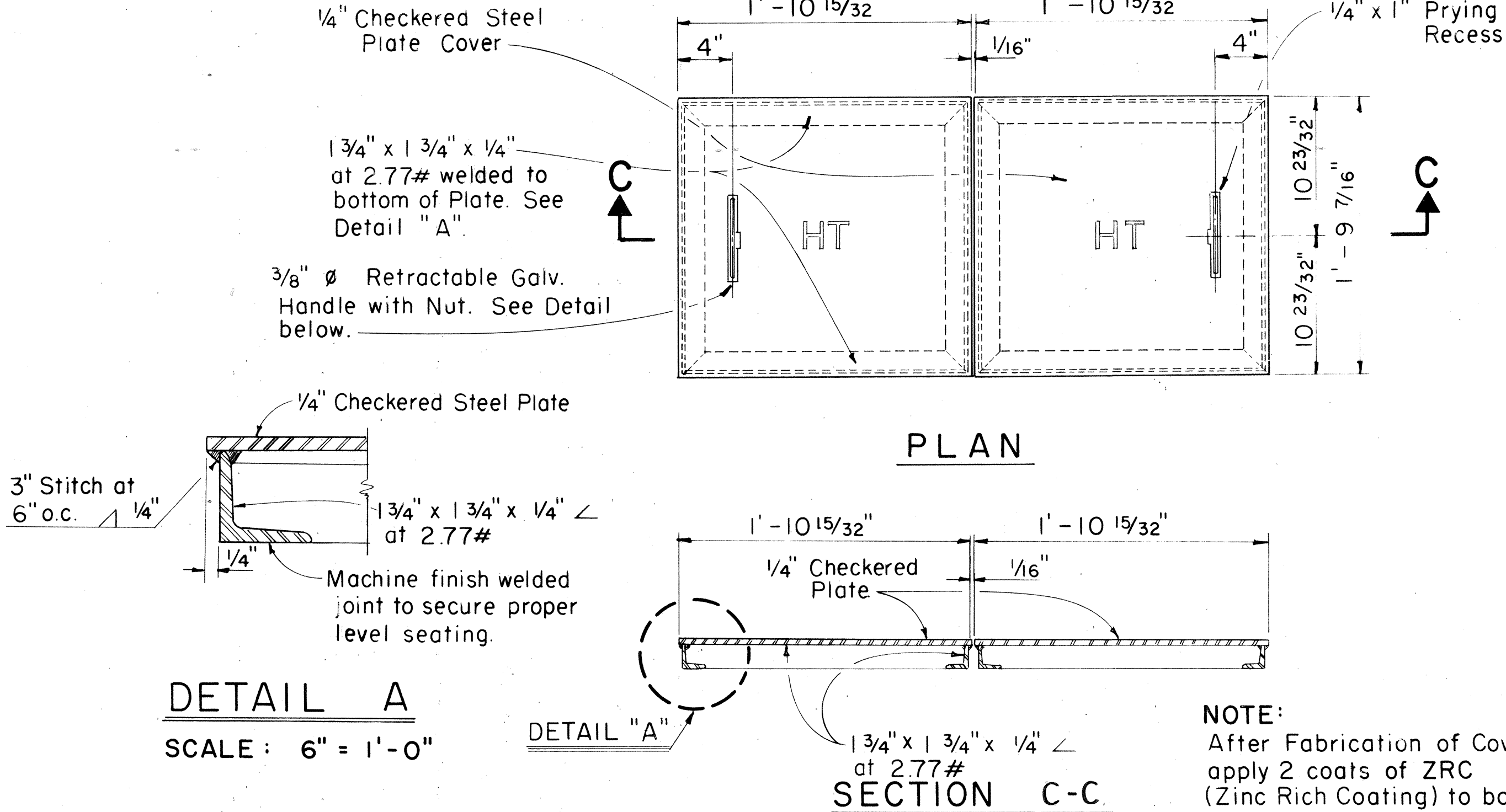
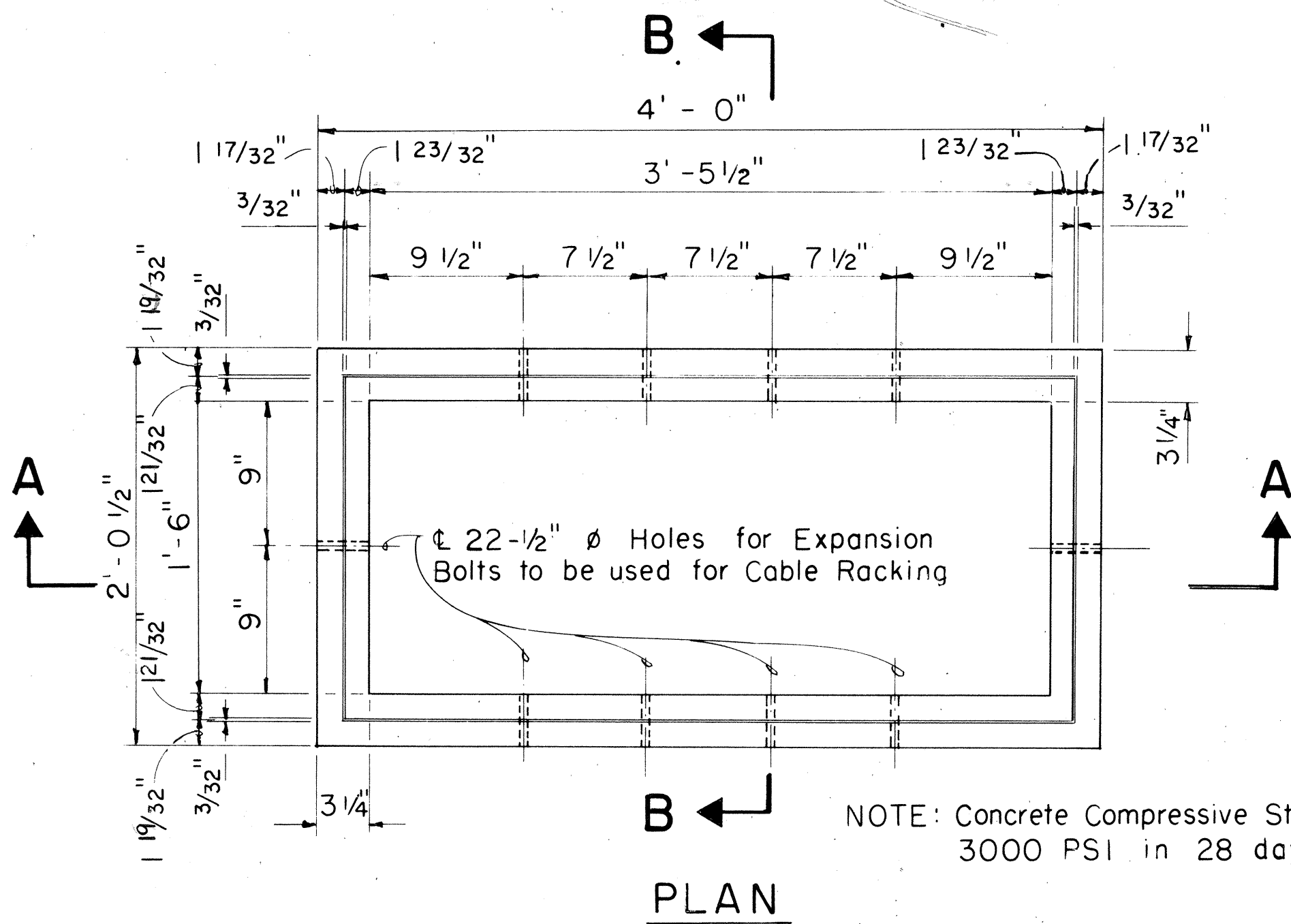
INTERSTATE ROUTE H-1
PROJECT NO. I-H-1 (136) 17

Scale: As Shown Date: July 15, 1976
SHEET No. 10 OF 15 SHEETS

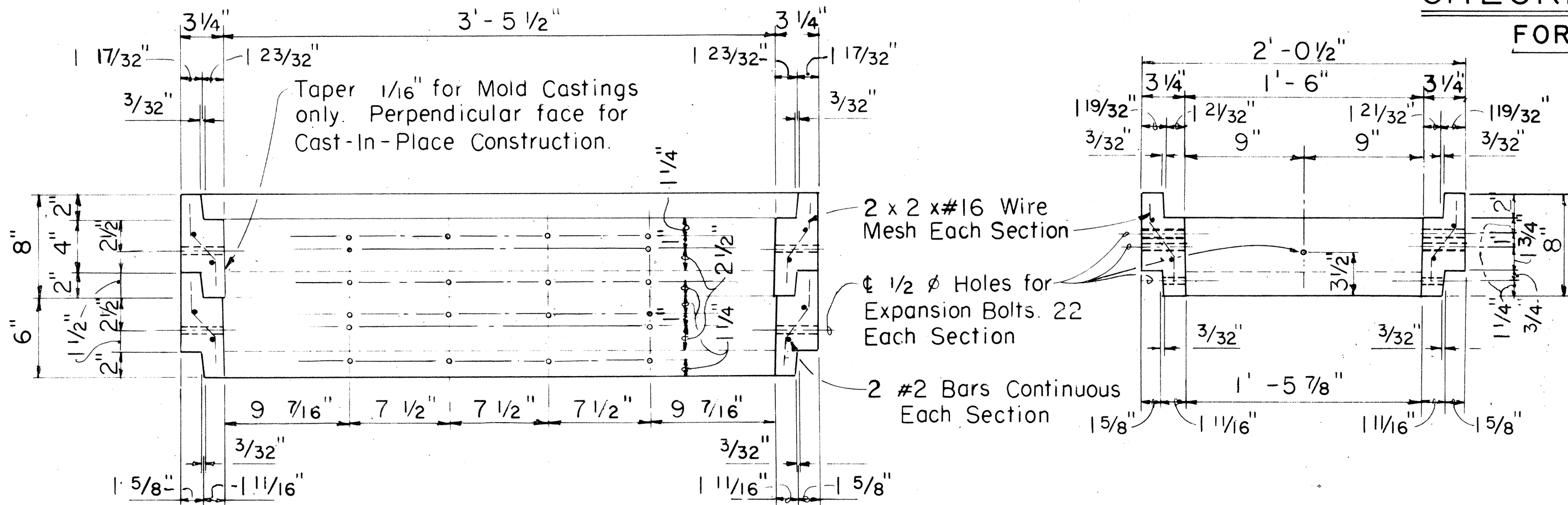
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(136):17	1976	50	124

INSTALLATION NOTES:

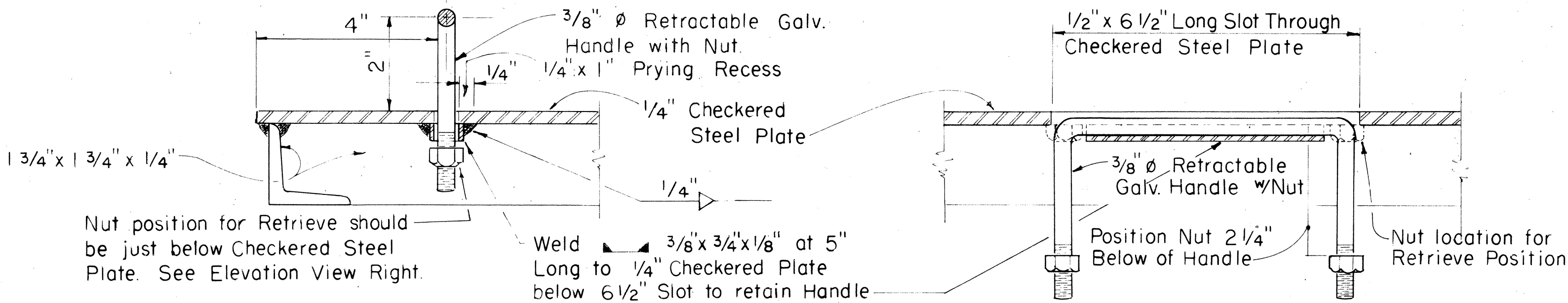
1. A minimum of Two(2) Precast Sections must be used on all installations.
2. The minimum layers of Bricks to be used shall always be at least One (1) layer lower than the lowest Duct entering the Pullbox. At no time, however, shall there be less than Two (2) layers of Bricks on each installation.
3. At no time shall Cement Mortar, Wood or any other material be used between Precast Sections. Leveling or raising of Boxes to grade must be done at Brickwork Section using Cement Mortar. The permanent installation of Wooden Wedges to accomplish this purpose will not be accepted.



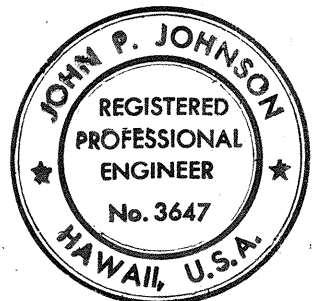
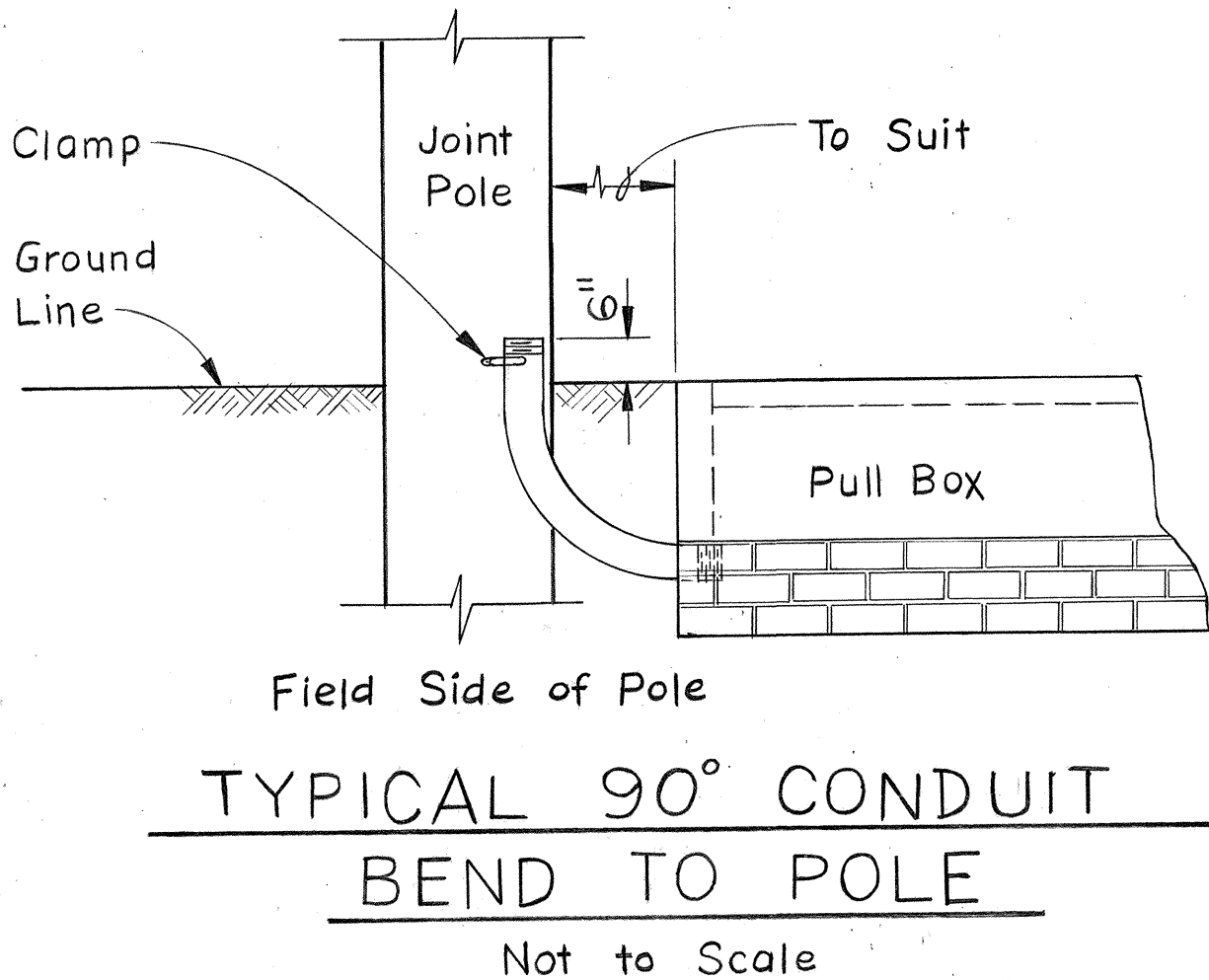
CHECKERED STEEL PLATE COVERS FOR LIGHT LOADING AREAS-APPROX. WT. 55 LBS. SCALE: 1 1/2" = 1'-0" (EXCEPT AS NOTED)



PULLBOX #435 T-B SCALE: 1 1/2" = 1'-0"



RETRACTABLE HANDLE SCALE: 6" = 1'-0"



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ME OR UNDER MY SUPERVISION.
John P. Johnson

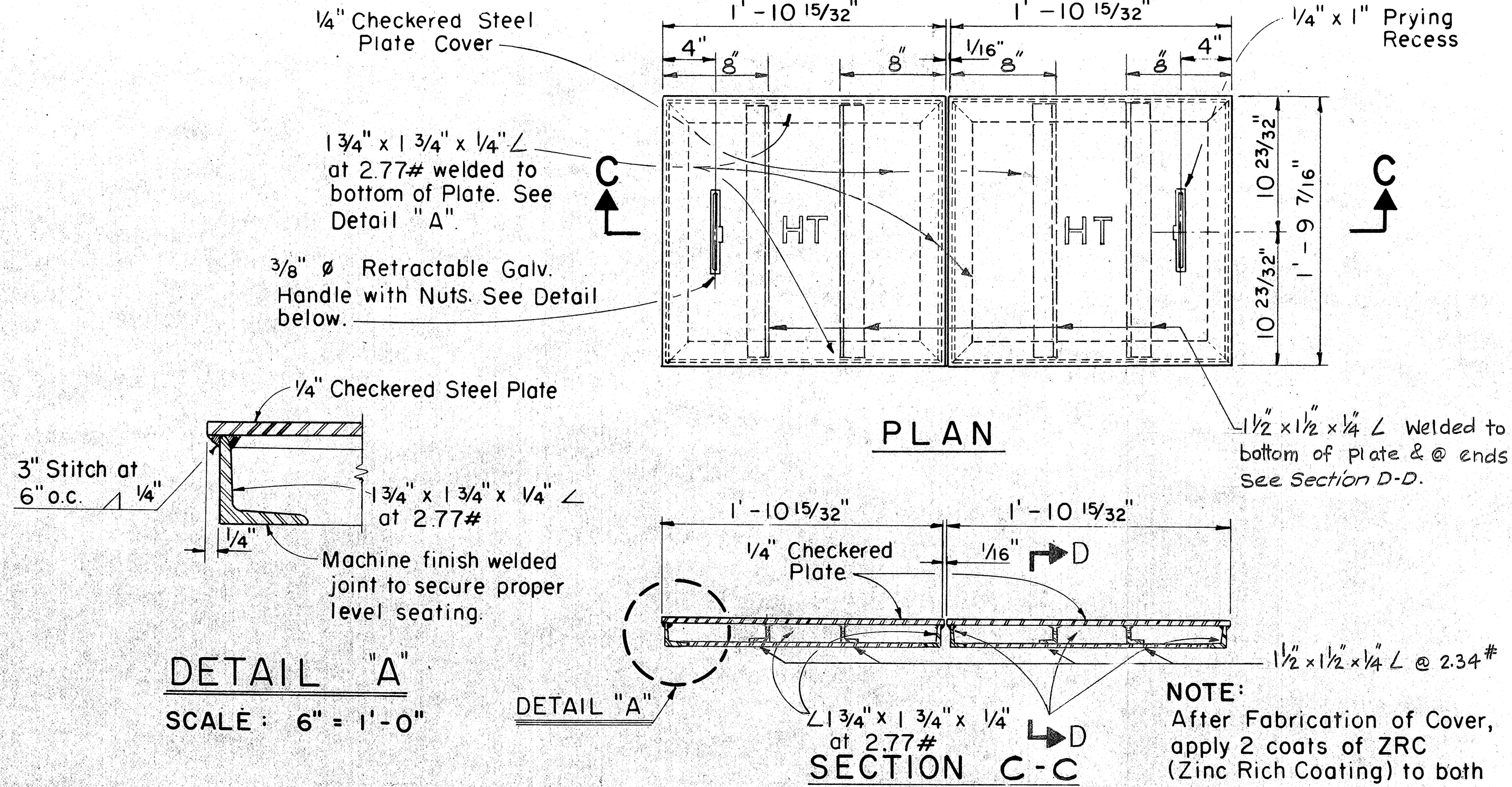
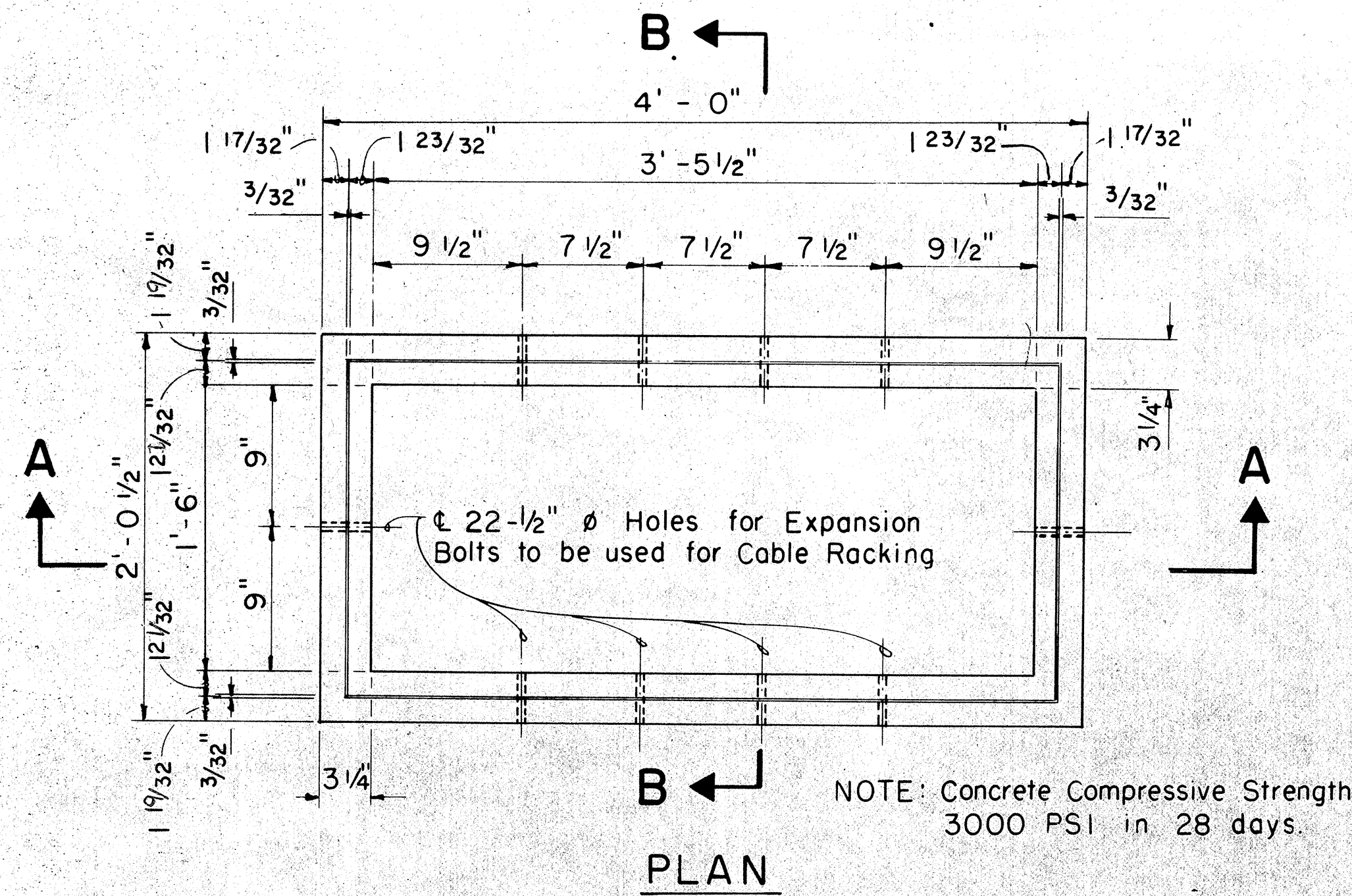
APPROVED: <i>H. Yoshitaka</i> Hawaiian Telephone Co., Ltd. Date <i>8/19/76</i>	
H.T. Co., Ltd.	Drawing No. 34056-A
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
LARGE PULLBOX NO. 435 T-B	
INTERSTATE ROUTE H-1 PROJECT NO. I-HI-1(136):17	
SCALE: AS SHOWN	DATE: <i>July 15, 1976</i>
SHEET No. 11 OF 15 SHEETS	

DATE	
DESIGNED BY	
PLANNED BY	
NOTED BY	
CHECKED BY	
NO.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(136):17	1976	51	124

INSTALLATION NOTES:

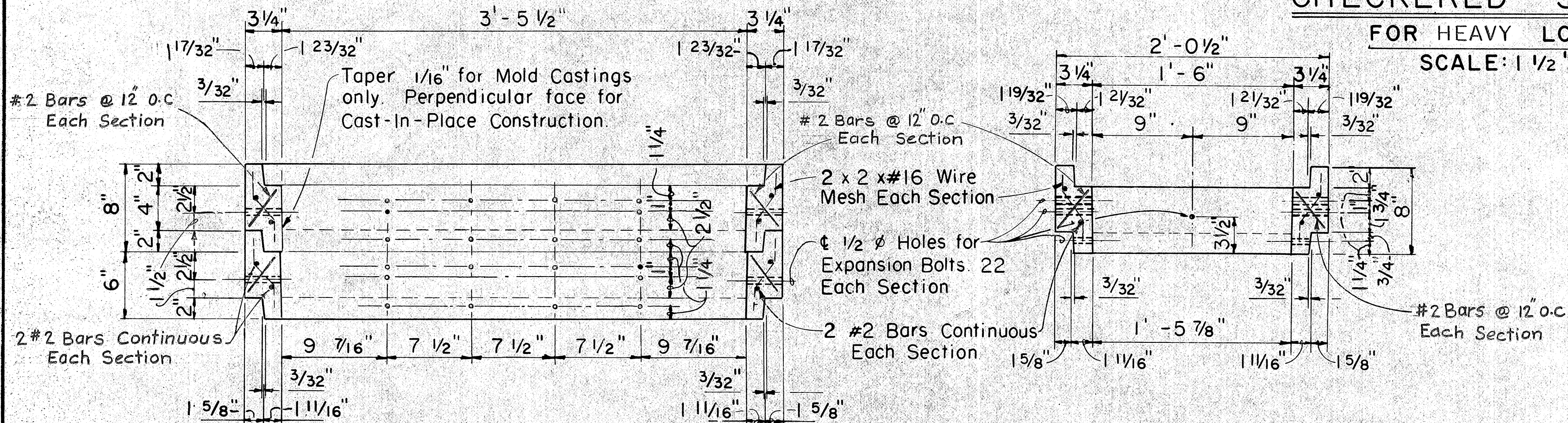
1. A minimum of Two(2) Precast Sections must be used on all installations.
2. The minimum layers of Bricks to be used shall always be at least One (1) layer lower than the lowest Duct entering the Pullbox. At no time, however, shall there be less than Two (2) layers of Bricks on each installation.
3. At no time shall Cement Mortar, Wood or any other material be used between Precast Sections. Leveling or raising of Boxes to grade must be done at Brickwork Section using Cement Mortar. The permanent installation of Wooden Wedges to accomplish this purpose will not be accepted.



CHECKERED STEEL PLATE COVERS

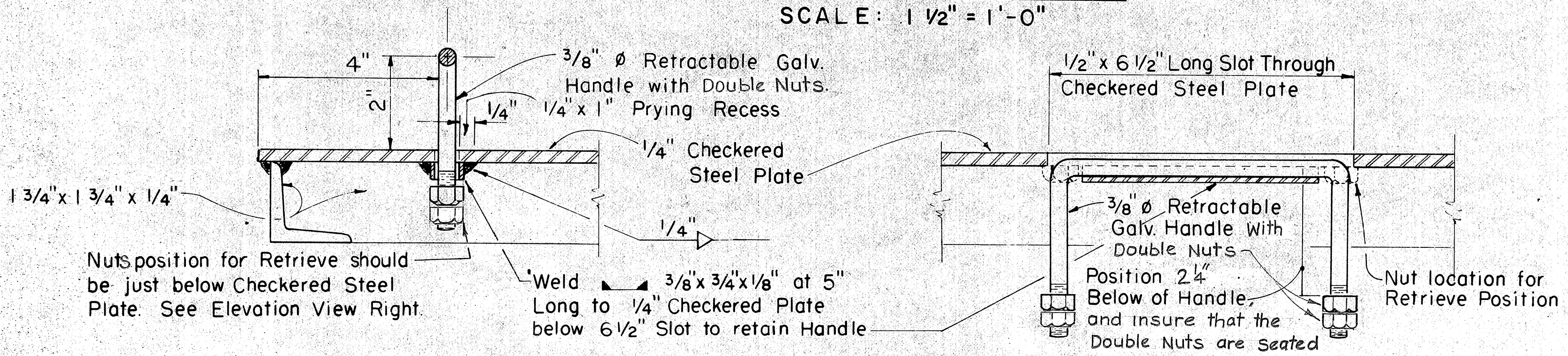
FOR HEAVY LOADING AREAS-APPROX. WT. 65 LBS.

SCALE: 1 1/2" = 1'-0" (EXCEPT AS NOTED)



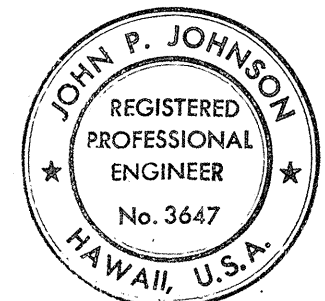
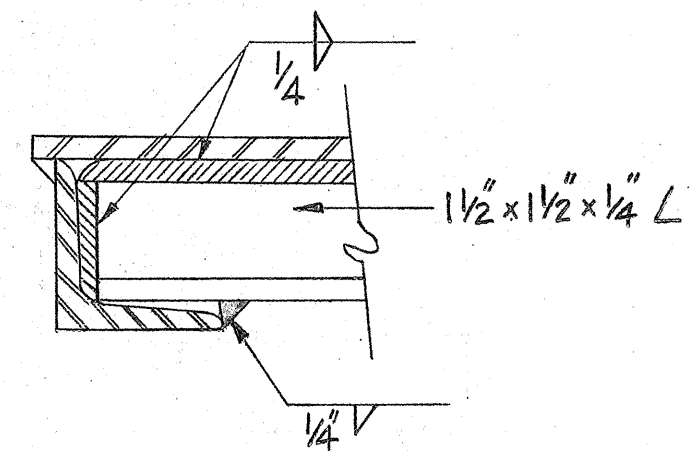
PULLBOX # 435 T-B

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



RETRACTABLE HANDLE

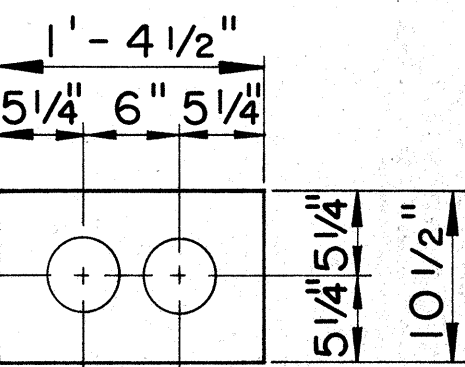
SCALE: 6" = 1'-0"



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

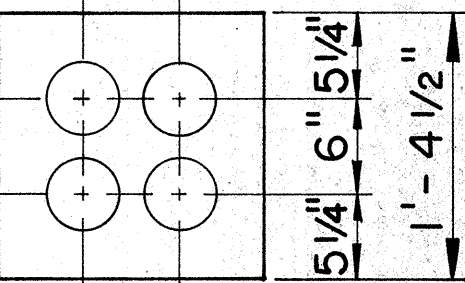
John P. Johnson

APPROVED:	
<i>H. Yamashita</i>	8/19/76
Hawaiian Telephone Co., Ltd. Date	
H.T. Co., Ltd.	Drawing No.
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
LARGE PULLBOX NO.435T-B (HEAVY LOAD TYPE) INTERSTATE ROUTE H-1 PROJECT NO. I-HI-1 (136):17	
SCALE: AS SHOWN	DATE: July 15, 1976
SHEET No. 12 OF 15 SHEETS	



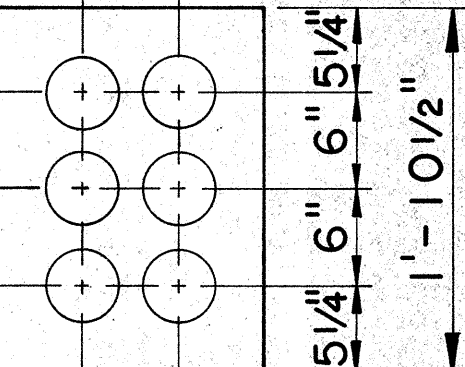
2 DUCTS

$$\left(\frac{T}{2F-2}\right)$$



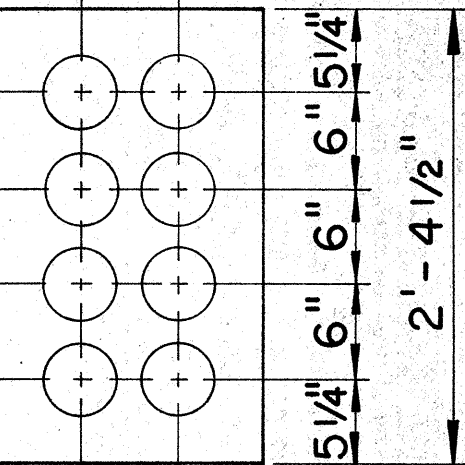
2 WIDE X 2 HIGH

$$\left(\frac{T}{4F-2}\right)$$



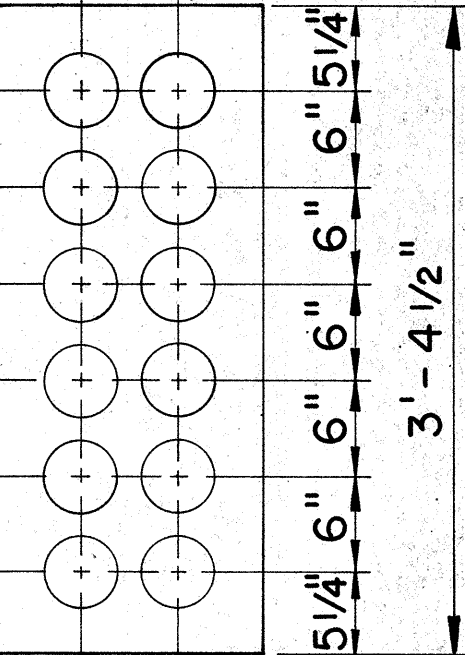
2 WIDE X 3 HIGH

$$\left(\frac{T}{6F-2}\right)$$



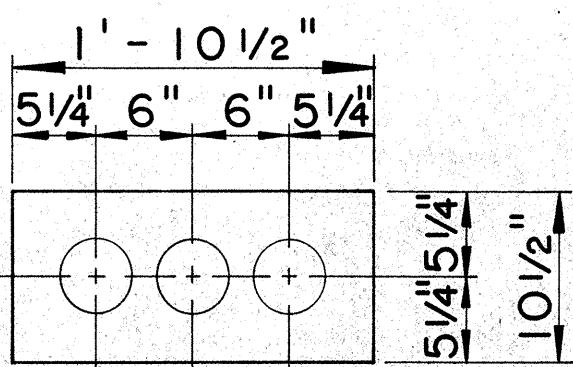
2 WIDE X 4 HIGH

$$\left(\frac{T}{8F-2}\right)$$



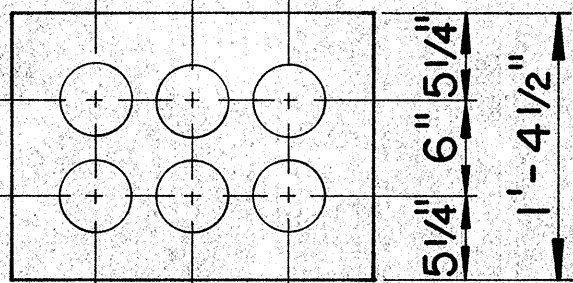
2 WIDE X 6 HIGH

$$\left(\frac{T}{12F-2}\right)$$



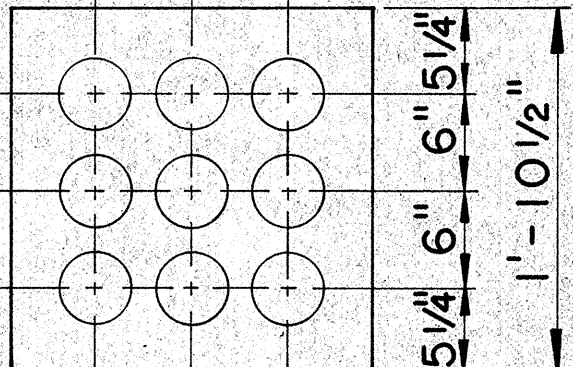
3 DUCTS

$$\left(\frac{T}{3F-3}\right)$$



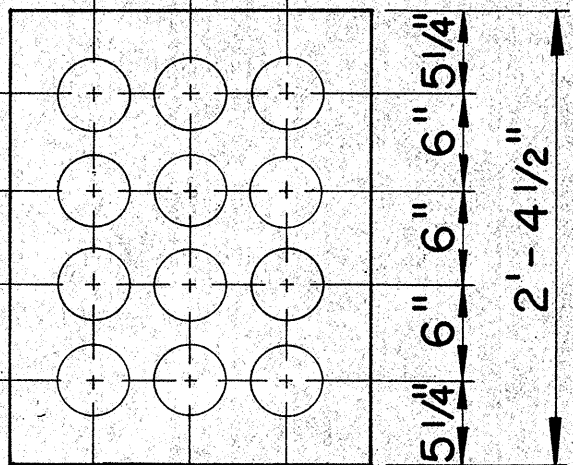
3 WIDE X 2 HIGH

$$\left(\frac{T}{6F-3}\right)$$



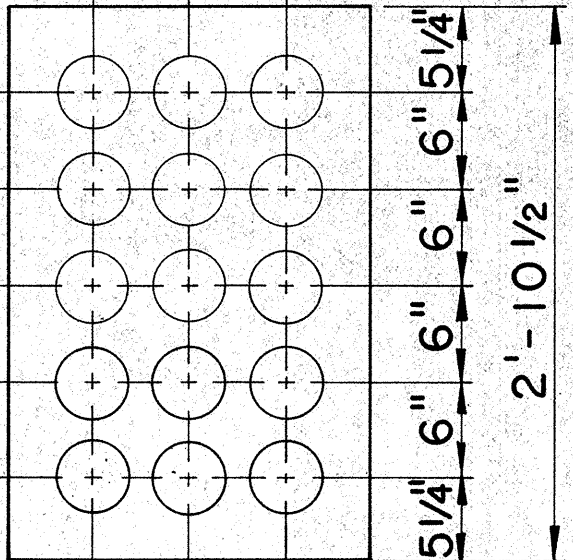
3 WIDE X 3 HIGH

$$\left(\frac{T}{9F-3}\right)$$



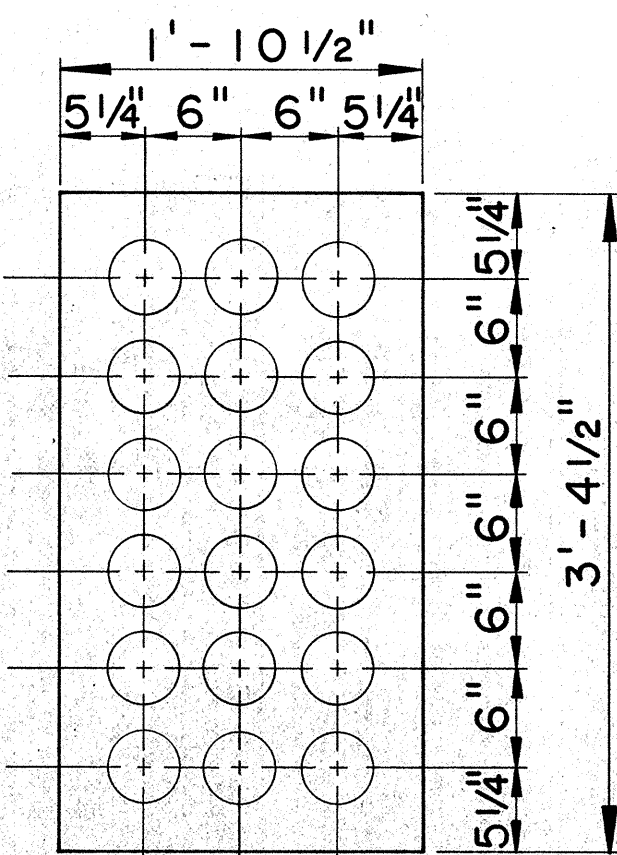
3 WIDE X 4 HIGH

$$\left(\frac{T}{12F-3}\right)$$



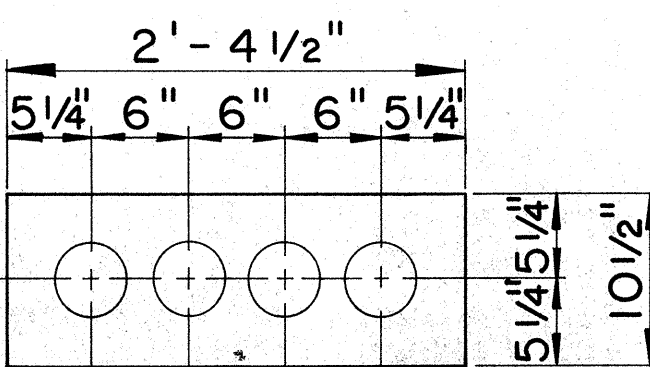
3 WIDE X 5 HIGH

$$\left(\frac{T}{15F-3}\right)$$



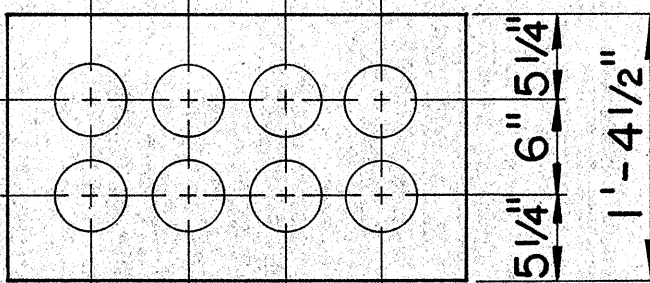
3 WIDE X 6 HIGH

$$\left(\frac{T}{18F-3}\right)$$



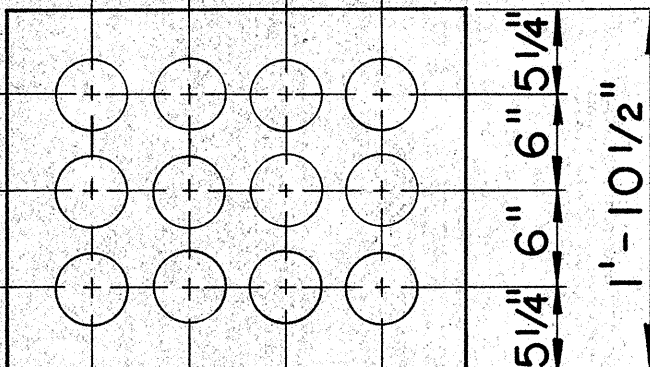
4 DUCTS

$$\left(\frac{T}{4F-4}\right)$$



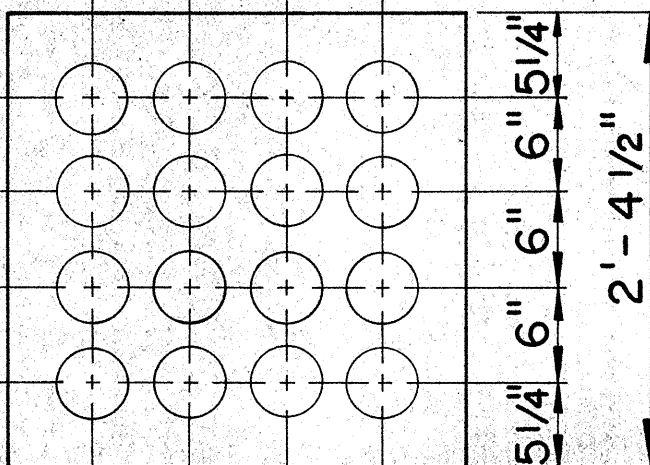
4 WIDE X 2 HIGH

$$\left(\frac{T}{8F-4}\right)$$



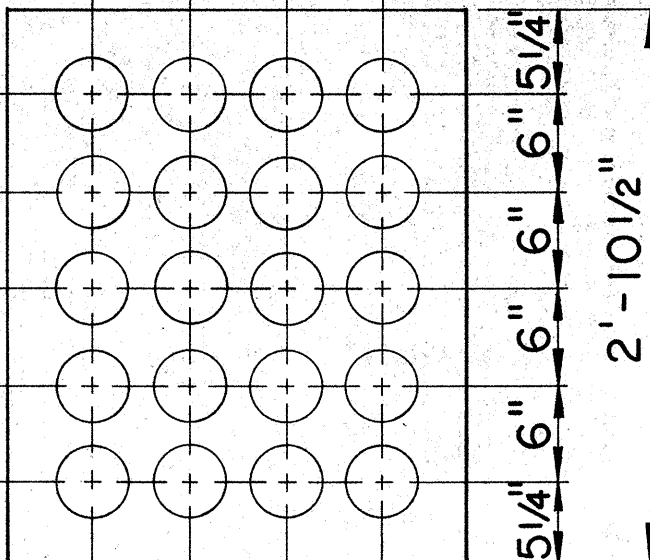
4 WIDE X 3 HIGH

$$\left(\frac{T}{12F-4}\right)$$



4 WIDE X 4 HIGH

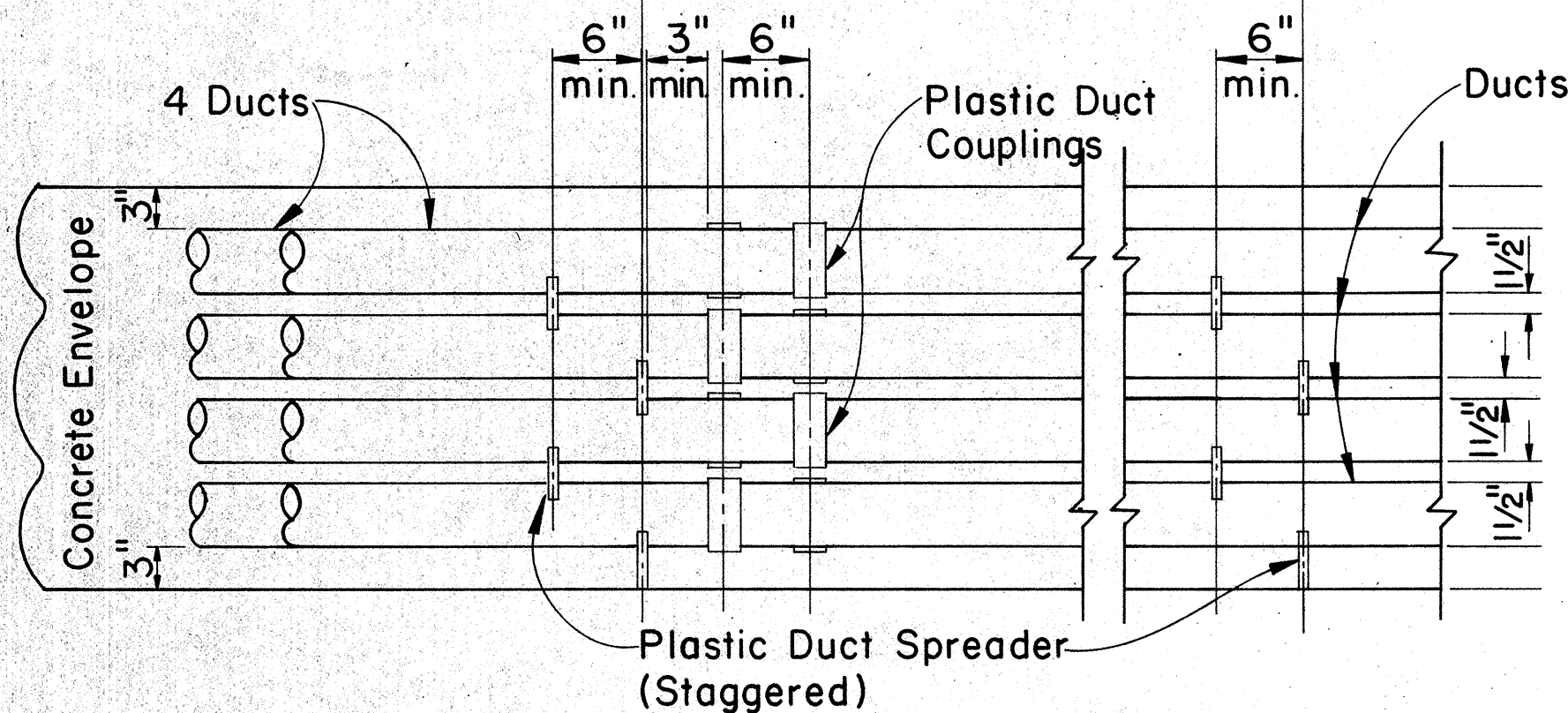
$$\left(\frac{T}{16F-4}\right)$$



4 WIDE X 5 HIGH

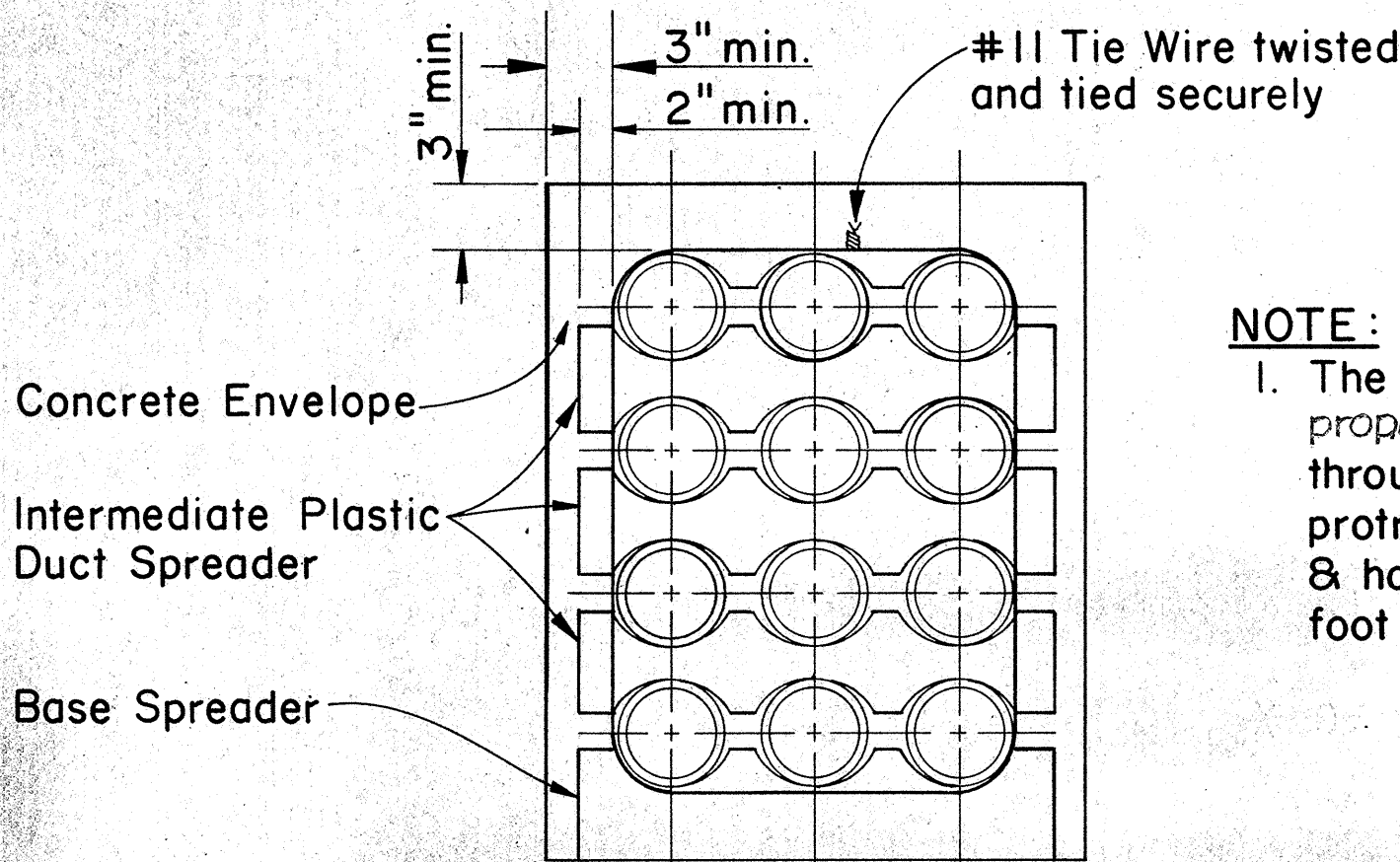
$$\left(\frac{T}{20F-4}\right)$$

Duct Spreader Spacing for
Transite Korduct 10" O.C.
Duct Spreader Spacing for
Styrene Ducts 6" O.C.



TYPICAL DUCT ENVELOPE ELEVATION
ARRANGEMENT OF COUPLING & PLASTIC SPACERS

Scale: 1" = 1'-0"



NOTE:
1. The Contractor shall place 3/16" Polypropylene in designated duct throughout its entire length with protrusions of 2 feet in manholes & handholes at each end and 1 foot in pullboxes.

SECTION SHOWING SPACERS

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

Denotes H.T. Co.
 $\left(\frac{T}{20F-4}\right)$
Denotes Number of ducts bottom layer
Denotes 4 inch ducts
Denotes Total Number Of Ducts

SYMBOL IDENTIFICATION

APPROVED:
H. Y. Y. Y. 8/19/76
Hawaiian Telephone Co., Ltd. Date

H.T. Co., Ltd. Drawing No. 34028-A

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DUCT FORMATIONS

Scale: As Shown Date: July 15, 1976

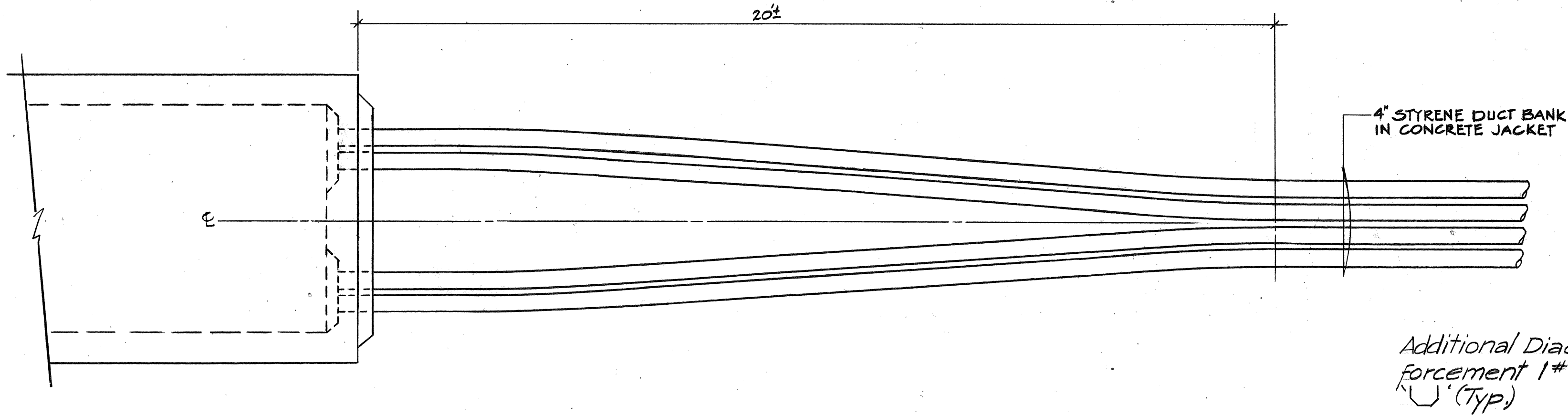
SHEET No. 14 OF 15 SHEETS.

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

STANDARD DUCT FORMATIONS

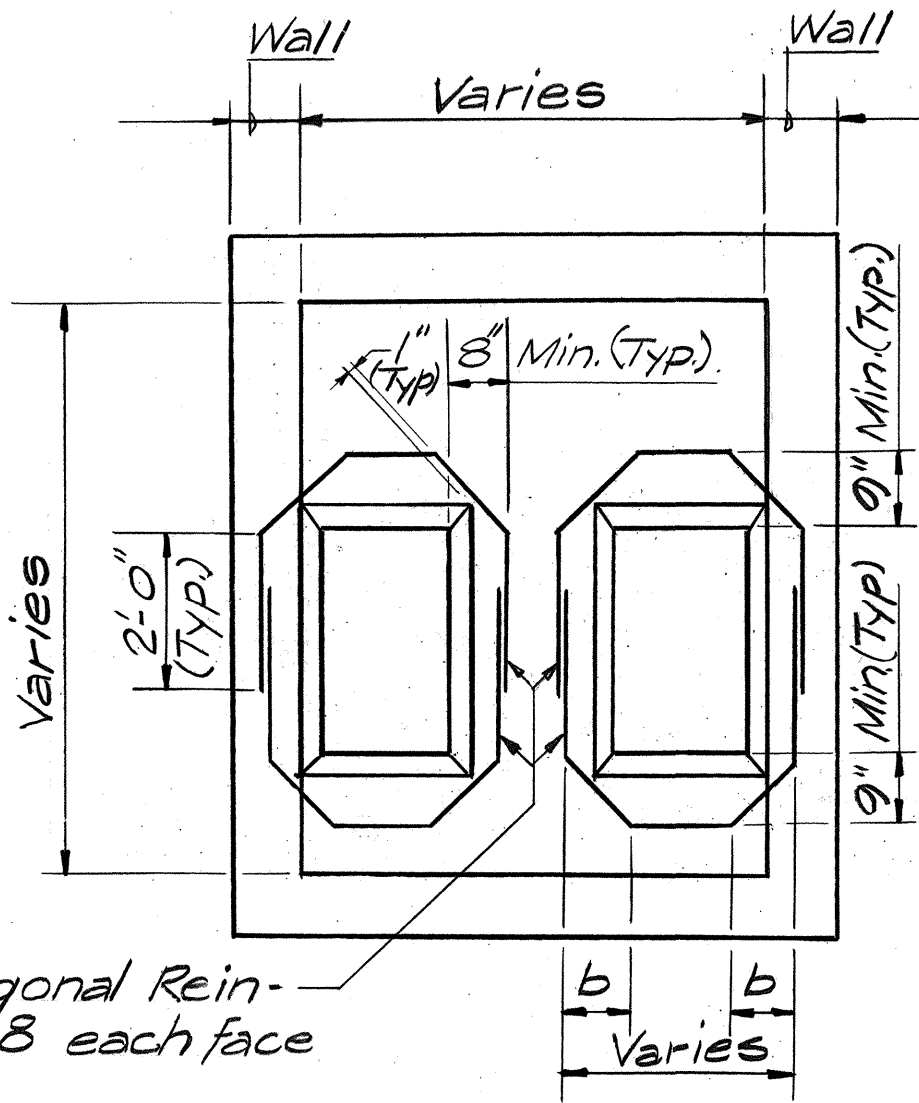
Scale: 1" = 1'-0"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1(136):17	1976	54	124



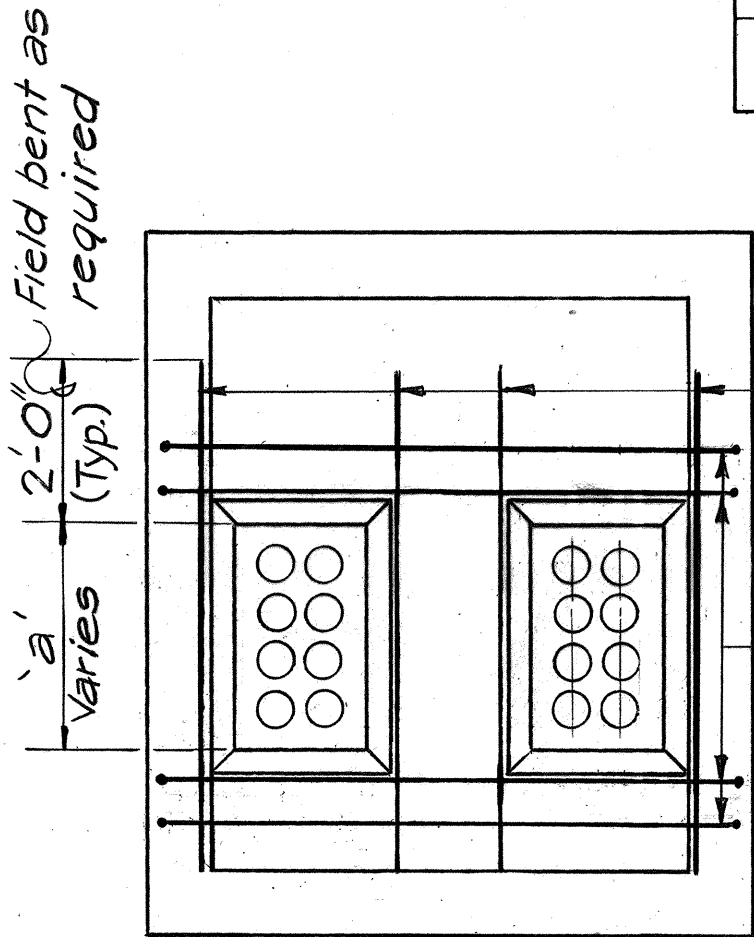
TYPICAL CONDUIT SPLAYING AT MANHOLE

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



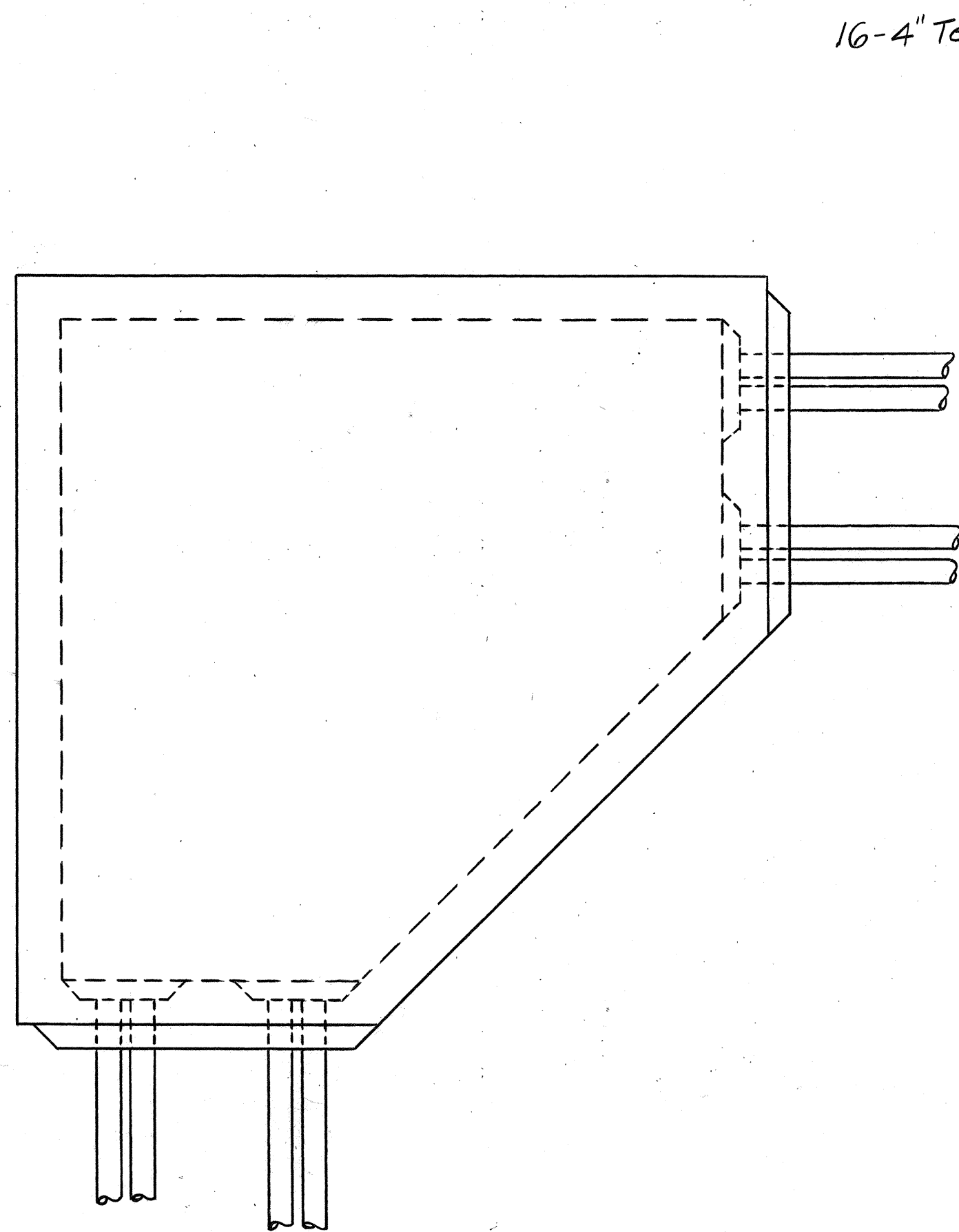
TYPICAL ADDITIONAL WALL REINFORCEMENT DETAIL AROUND EACH DUCT ENTRANCE

N.T.S.



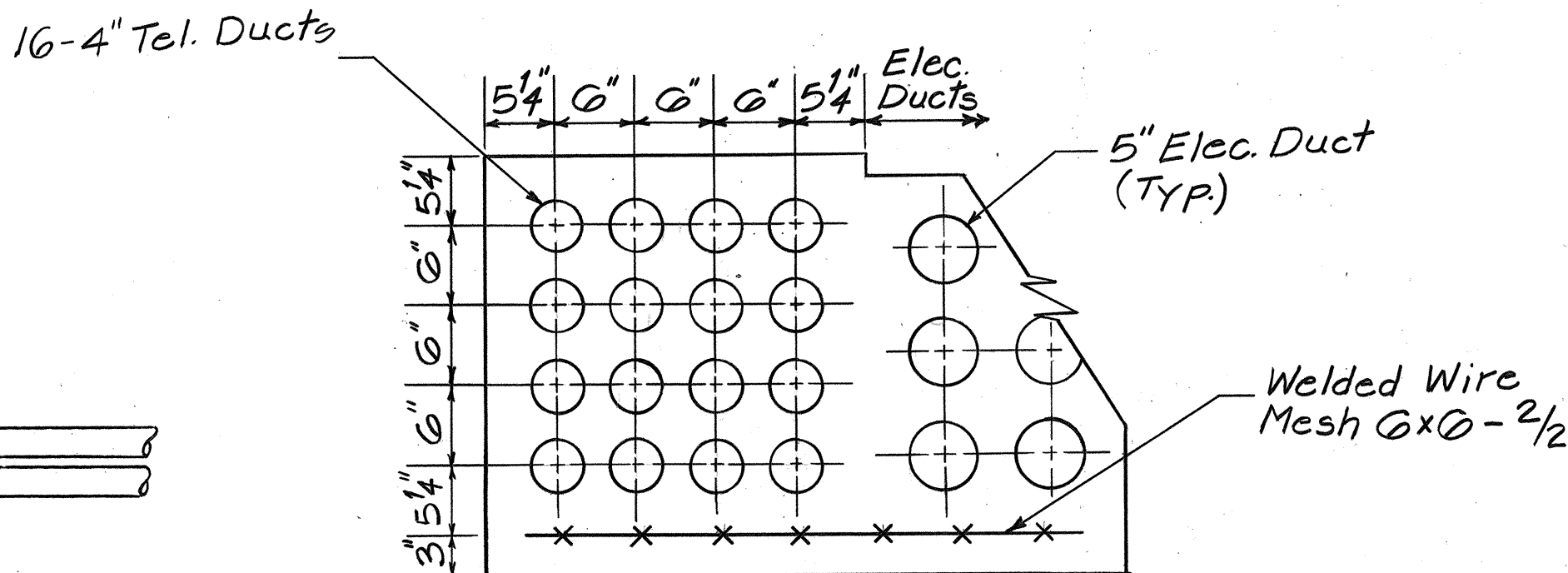
Add. Vertical Reinforcement 1#8 each face (Typ.)

Additional Horizontal Reinforcement 2#8 each face when 'a' is greater than 2'-0" otherwise provide 1#8 each face (Typ.)



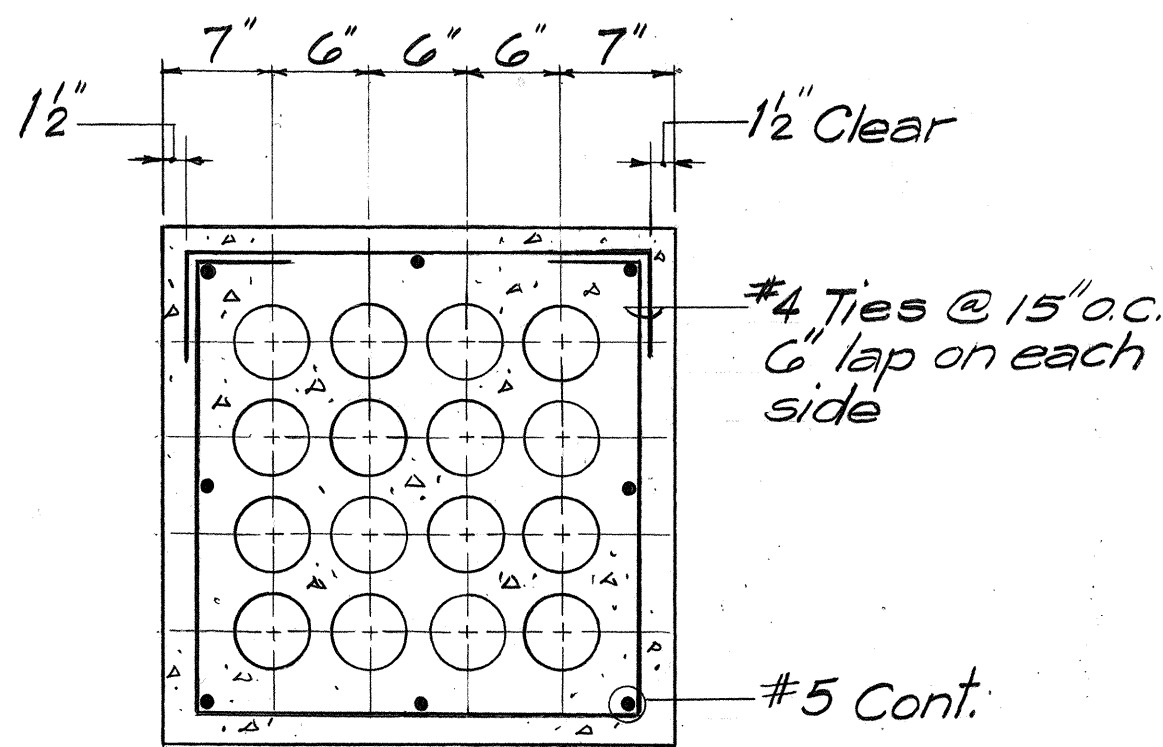
TYPICAL DUCT ENTRANCE
FOR CORNER MANHOLES

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



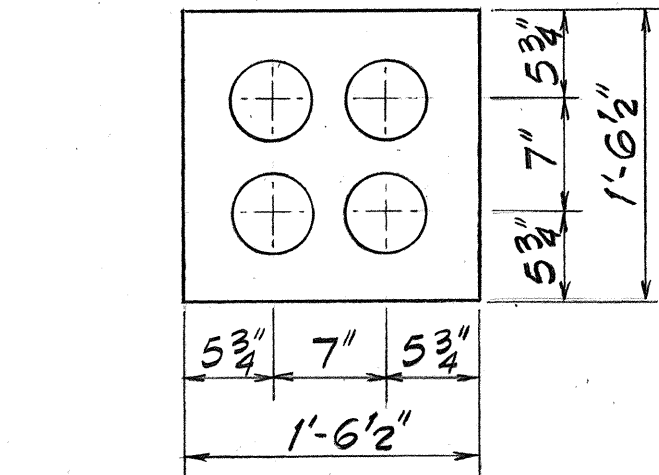
CONCRETE JACKET WITH
WIRE MESH (16-4" DUCTS)

SCALE: 1" = 1'-0"

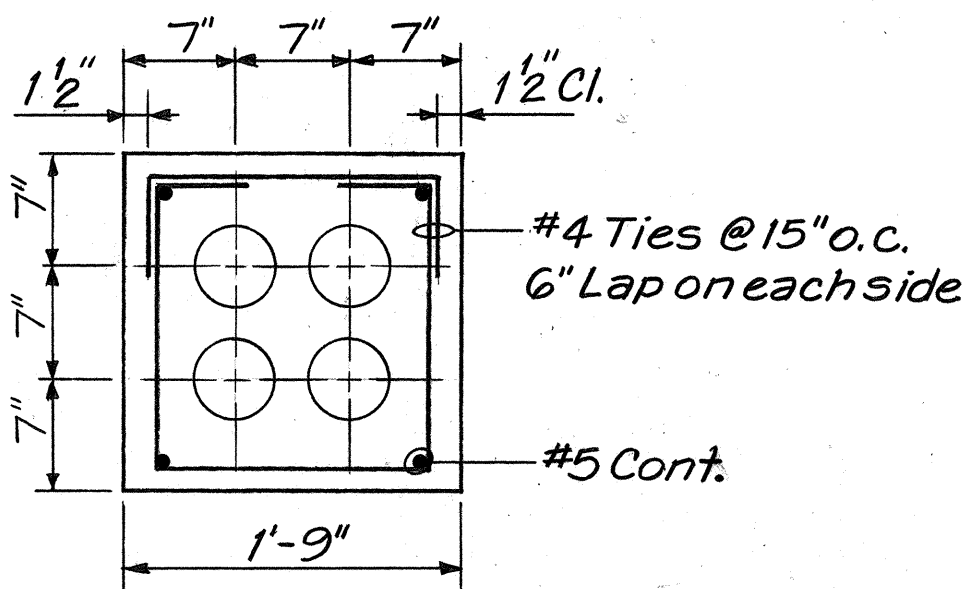


HTCO-REINFORCED
CONCRETE JACKET
(FOR 4" DUCTS)

Scale: 1" = 1'-0"



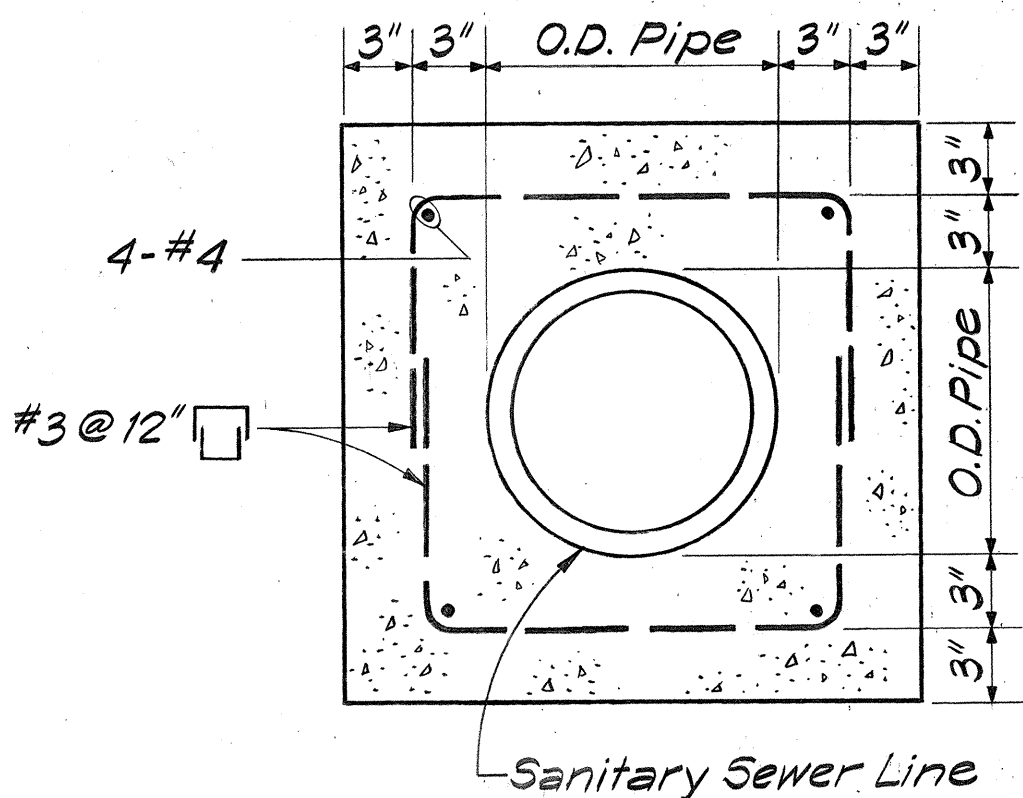
2 WIDE X 2 HIGH
PLAIN CONCRETE JACKET



REINFORCED CONCRETE JACKET

5" PVC DUCT FORMATION

Scale: 1" = 1'-0"



CROSS-SECTION OF SEWER LINE

DUCT LINE WIDTH 24" or less
Greater than 24"

LENGTH OF SEWER LINE TO BE COVERED 5'

(Width of Duct Line) + (5')

various contract items.

SANITARY SEWER LINE CROSSING DETAIL

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

NOTE:

- Where Duct Line crosses Sewer Line, encase sewer line in concrete jacket as shown on the Plans. Concrete jacket shall be considered incidental to the cost of duct line.
- Where horizontal clearance between manhole and sewer line is 1'-0" or less, encase sewer line in concrete jacket as shown on Plans. Conc. Jacket shall be considered incidental to

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



THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION.
Werner Beugnot

APPROVED:	
<i>B. Umehara</i>	8/19/76
HAWAIIAN TELEPHONE CO., LTD.	DATE
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
HTCO MISCELLANEOUS DETAILS	
INTERSTATE ROUTE H-1 PROJECT NO. I-H-1(136):17	
SCALE: AS SHOWN	DATE: July 15, 1976
SHEET NO. 15 OF 15 SHEETS	