

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7600B-01-82 S-RS-0760(2)	1982	79	163

GENERAL UTILITY NOTES (ALL UTILITIES)

- The Contractor shall be liable for damage to any existing utility and structure.
- The existence and location of underground utilities, appurtenances and structures as shown on the Plans are based on existing records of varying degrees of accuracy and completeness. They are not guaranteed as to the location shown or that other obstacles may not be encountered in the course of work. The Contractor shall assume that existing utilities may exist, although not shown.
- Restoration of existing improvements unavoidably demolished due to work on utility reconstructions shall be incidental to the various contract items. Restoration shall be to original or better condition.
- The Contractor shall give all property owners five (5) days notice before entering into their respective properties.

BOARD OF WATER SUPPLY

- The BWS Standard Details, Figures 1 to G2 inclusive bound in the "Water System Standards" of the BWS, dated March 1977 as amended, are applicable to this project.
- Unless otherwise specified, all materials and construction of the water system facilities and appurtenances shall be in accordance with the Standard Specifications for Road and Bridge Construction, dated 1976, and as amended, of the Hawaii Highways Division, Department of Transportation.
- The Contractor shall give the Board of Water Supply in writing, at least one-week advance notice of intent to commence work on the water system.
- Prior to excavating for other new utility lines, the Contractor shall verify in the field the location of existing water mains and appurtenances. Where other new utility lines are to cross over or under existing water mains, the Contractor shall expose the existing water mains prior to trenching. Excavation around water mains shall be done by hand.
- Unless otherwise specified, ductile iron pipe Class 52 shall be used for reconstructed 6-inch water lines with test pressure of 150 psi.
- All shown information for connection to existing water lines shall be verified in the field by the Contractor.
- There shall be a minimum horizontal clearance of 3 feet, and a minimum vertical clearance of 6 inches, between water mains and other utilities.
- Unless otherwise specified, connections to existing water mains & chlorination of new mains shall be done by the Contractor, with the BWS inspector coordinating the work. For details, contact BWS Engineering Division, Construction Section.
- Plans approved by the Board of Water Supply are based solely on the adequacy of the water supply. Discrepancies if any, of alignments, grades, fittings, etc., are not the responsibility of the BWS.
- All Cast Iron (Gray or Ductile) Water Mains, fittings & valves installed underground shall be encased in plastic material in accordance w/ANSI Specifications A21.5-1972 or AWWA Specifications C105-72 "Polyethylene Encasement for Gray & Ductile Cast Iron Piping for Water and Other Liquids".
- Reapproval shall be required if this project is not under construction within a period of one year from Date on signature block. See Rules and Regulations of the Board of Water Supply.

TELEPHONE NOTES
(HAWAIIAN TELEPHONE CO.)

- The Contractor shall give HTCo., in writing, at least 20 working days advance notice of intent to commence work on the telephone system.
- Existing telephone facilities shown on these plans are approximate only. The Contractor shall verify their actual location and shall make adjustments to the proposed facility as directed by HTCo.
- HTCo. will coordinate its work with the Contractor in such a manner as to expedite construction.
- All exist. poles, anchors & cables owned or erected by HTCo. will be removed by HTCo.
- The Contractor shall provide HTCo. with 48 hours notice for toning and marking of existing HTCo. or military underground facilities prior to excavating in Project Area.
- All exist. HTCo. and Military cable facilities shall remain in place until the proposed facilities as installed.
- Splice pits for A.C.C. cables will be paid under Item No. 208.0800 Structure Excavation for HTCo Splice Pits.

Notes continued

ELECTRIC NOTES
HAWAIIAN ELECTRIC CO, INC.

- The Contractor shall notify the Hawaiian Electric Co., Inc. Contracting & Inspection Division, 24 hours before beginning work on manholes. All reconstruction work shall be done in the presence of a Hawaiian Electric Co., Inc. Engineer or Inspector.
- Adjustments to HECO. Manhole Frame and Covers will be done in accordance with HECO. Standard Drawing No. 166 88.
- The Contractor shall exercise exceptional care not to drop any object into the manhole while raising the frame and cover.
- The Contractor shall provide for and H.E.C.O. will install additional cable protection and/or barricades, as required by the H.E.C.O. engineer or inspector, at his expense. Note that only H.E.C.O. personnel are to be allowed in the manhole.

WATER AND SEWER NOTES
(OAHU SUGAR COMPANY)

- The Contractor shall notify Oahu Sugar Company seven (7) days prior to commencement of work on Oahu Sugar Company Water and Sewer facilities.
- Interruptions to the sewage pump operations shall be coordinated with Oahu Sugar Company (Mr. Charles Farr, Tel. 671-4861)
- In the event that any changes in alignment or grade for the proposed sewer are required due to unforeseen conflict with underground utilities, the Contractor shall immediately notify the Engineer and provide the Engineer the necessary data in order that the Engineer will be able to determine what changes in alignment or grade are required.
- All construction work and material shall conform to the standard details dated Feb 1973, and specifications dated May, 1975 of the Dept. of Public Works, City and County of Honolulu, and the Revised Ordinance of Honolulu, 1969.

LEGEND FOR UTILITY DRAWINGS

New Facilities.....	_____
Existing Facilities to remain.....	_____
Existing Facilities to be : Removed, demolished, abandoned or relocated when new lines are in service.....	+++++
Telephone - Underground (HTCo.).....	Tu
Telephone - Aerial (HTCo.).....	TA
Electric - Aerial (HECo.).....	EA
Army Communications Cable.....	ACC
Water (BWS).....	W16"
Water (Oahu Sugar Co.).....	W6"(O)
Sewer (Oahu Sugar Co.).....	S6"(O)
Water (U.S.Navy).....	W12"(USN)
Abandoned Gas (U.S.Navy).....	68"(USN)
Oil Line (Standard Oil Co.).....	OIL 8"
New Anchor Pole.....	▶
Water Valve Box.....	WV
Manhole.....	MH
Traffic Signal - Aerial.....	TS _A
New Joint Pole.....	⊙ J.P.

BOARD OF WATER SUPPLY (NOTES CONT.)

- Items indicated as "relocate" on the plans shall be removed, cleaned painted, and reinstalled at the new location by the Contractor unless otherwise specified.
- The existence and location of underground utilities and structures as shown on the plans are from the latest available data but is not guaranteed as to the accuracy or the encountering of other obstacles during the course of the work. The Contractor shall be responsible and shall pay for all damages to existing utilities.
- Any adjustments to the existing water system required during construction to meet requirements of BWS Standards, whether shown on the plans or not, shall be done by the Contractor at no cost to the Board.

George Yamada 4/15/82
Hawaiian Telephone Co. Date

Oahu Sugar Company Date
R. J. ... 4-26-82
Chief, Planning & Engineering, BWS Date

John R. Elliott 5/6/82
Hawaiian Electric Co. Inc. Date

6/24/82 Added Telephone Notes Nos.
7 & 8 per Addendum No. 1.

DATE REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GENERAL UTILITY NOTES
AND LEGEND

FORT WEAVER ROAD
VICINITY OF MANGO TREE ROAD
TO THE VICINITY OF RENTON ROAD

DATE: APRIL 1982

SHEET NO. 1 OF 1 SHEETS

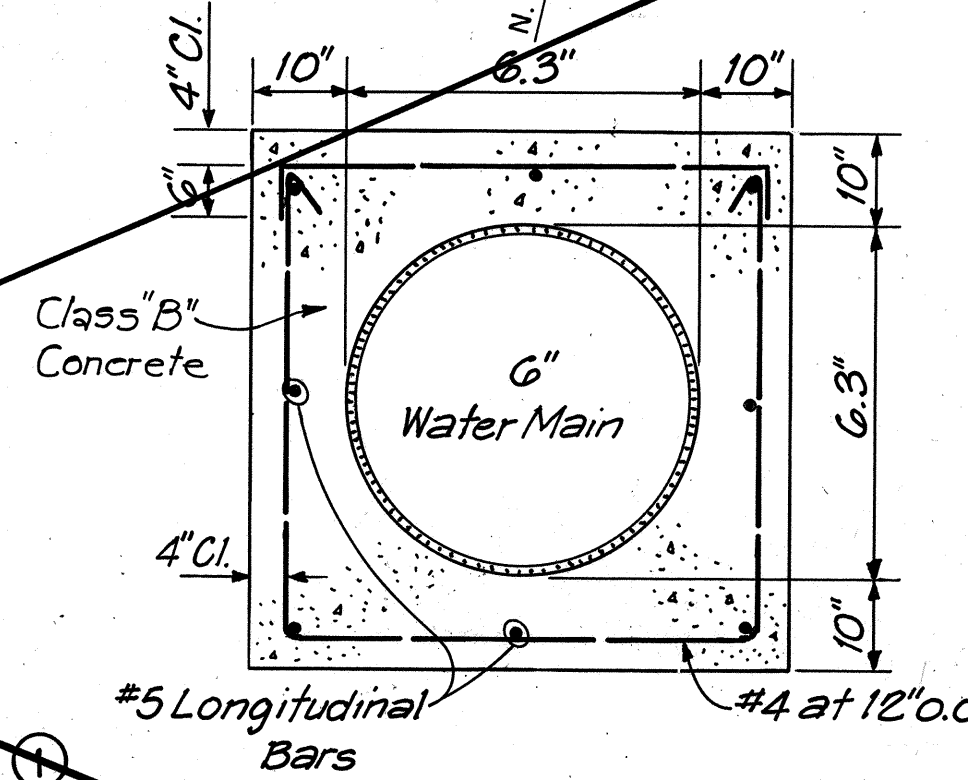
N.I.C.

OAHU SUGAR CO. 6" WATER LINE NOTES

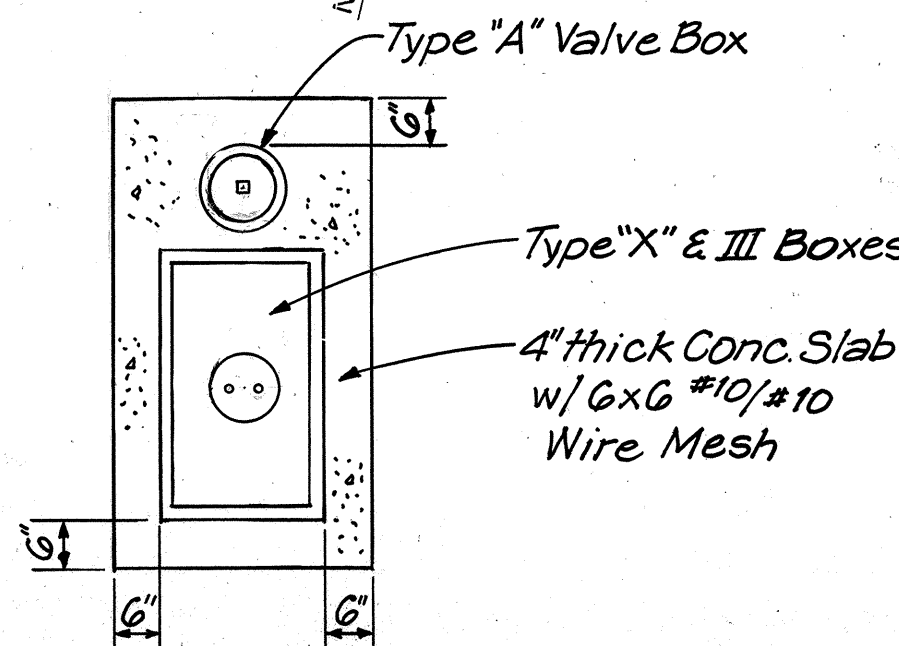
- ① Begin Oahu Sugar Co. Water Line Sta. 0+00
= 167+00±, 68'± Rt.
Remove exist. 6" Bend and Connect to 6" Main
1-6" Sleeve, 15' long (L.J.), 1-6" 1/32 Bend
8 L.F. 6" D.I. Pipe, Class 52
1-Temp. Cleanout w/ M.J. Cap (For Testing)
(BWS Standards, March 77, Fig. 54)
- ② Oahu Sugar Co. Water Line Sta. 1+14
= 168+14±, 68'± Rt.
1-6" 1/8 Bend
1-6" 1/16 Bend
1-6" 1/32 Bend
- ③ Oahu Sugar Co. Water Line Sta. 1+54
= 168+20±, 30'± Rt.
1-6" 1/16 Bend
- ④ Oahu Sugar Co. Water Line Sta. 1+79
= 168+23±, 7'± Rt.
1-6" 1/32 Bend
- ⑤ Oahu Sugar Co. Water Line Sta. 2+52
= 168+34±, 70'± Lt.
1-6" 1/16 Bend
- ⑥ Oahu Sugar Co. Water Line Sta. 2+80
= 168+39±, 100'± Lt.
2-6" 1/8 Bends
5 L.F. 6" D.I. Pipe, Class 52
- ⑦ Oahu Sugar Co. Water Line Sta. 2+85
= 168+37±, 103'± Lt.
1-6" 1/16 Bend, 1-6" Sleeve, 15' Long (L.J.)
8 L.F. 6" D.I. Pipe, Class 52
1-Temp. Cleanout w/ M.J. Cap (For Testing)
(BWS Standards, March 77, Fig. 54)

NOTES: a. Contractor shall determine the exact location and elevation of tie-in points and ⑦ prior to performing any work on Oahu Sugar Company 6-inch Water Line.

b. 2 1/2" depth of lead for lead joint pipe required at all embedded joints. Wherever construction joints are required 6" rubber or neoprene waterstops shall be installed. Waterstop shall be of the type specified and manufactured by the Kirkhill Rubber Company, or approved equal.



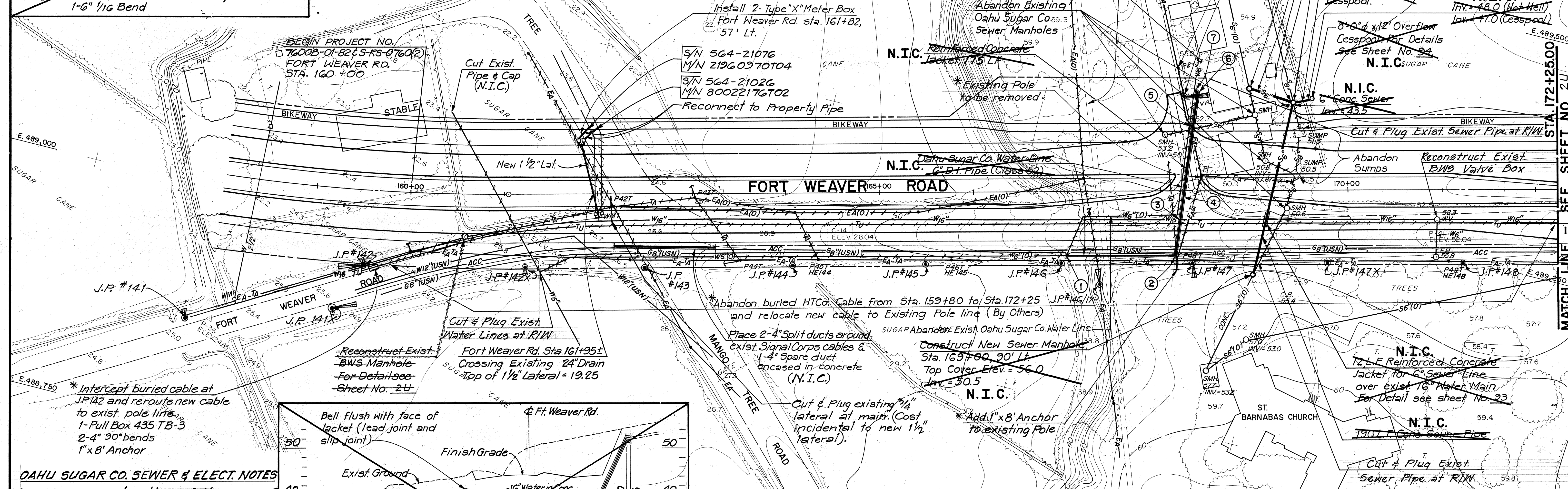
CONCRETE SLAB DETAIL FOR METER BOX IN DIRT AREA (BWS)



Install 2-Type "X" Meter Box
Fort Weaver Rd. Sta. 161+82,
57' Lt.

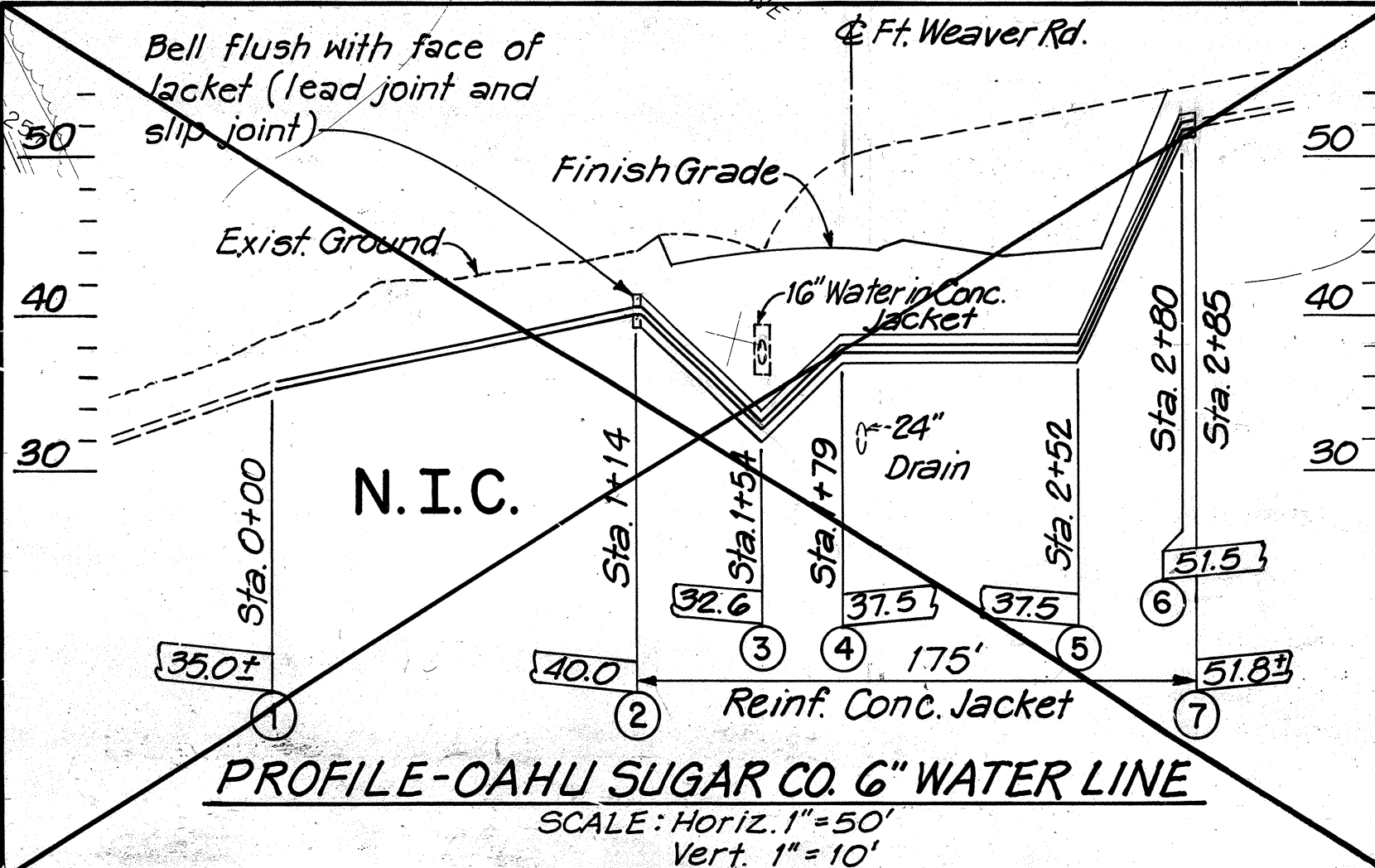
S/N 564-21076
M/N 21960970T04
S/N 564-21026
M/N 80022176T02
Reconnect to Property Pipe

FORT WEAVER ROAD



OAHU SUGAR CO. SEWER & ELECT. NOTES

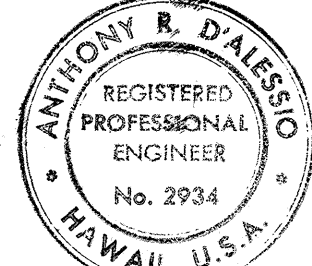
1. Upon reconstruction of the sewer system, the existing 6-inch pipe south of the manhole at Sta. 168+50, 190'± Rt. shall be abandoned. Contractor shall plug this pipe with Class B concrete at the manhole. N.I.C.
2. The existing overhead electric line from Mango Tree Road to Lower Village shall not be removed until directed by the Engineer.



NOTE: Items marked with asterisk (*) are to be completed by others.

DATE	REVISION
8/19/82	Deleted the Adjustments to Oahu Sugar Co's Water & Sewer Systems.
6/24/82	Added Oahu Sugar Co. Sewer and Electric Notes, per Addendum No. 1.

Oahu Sugar Company
R. Nagata
for Chief, Planning & Engineering, BWS
Date 4-26-82



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

UTILITIES PLAN
FORT WEAVER ROAD
STA. 158+00.00 TO STA. 172+25.00

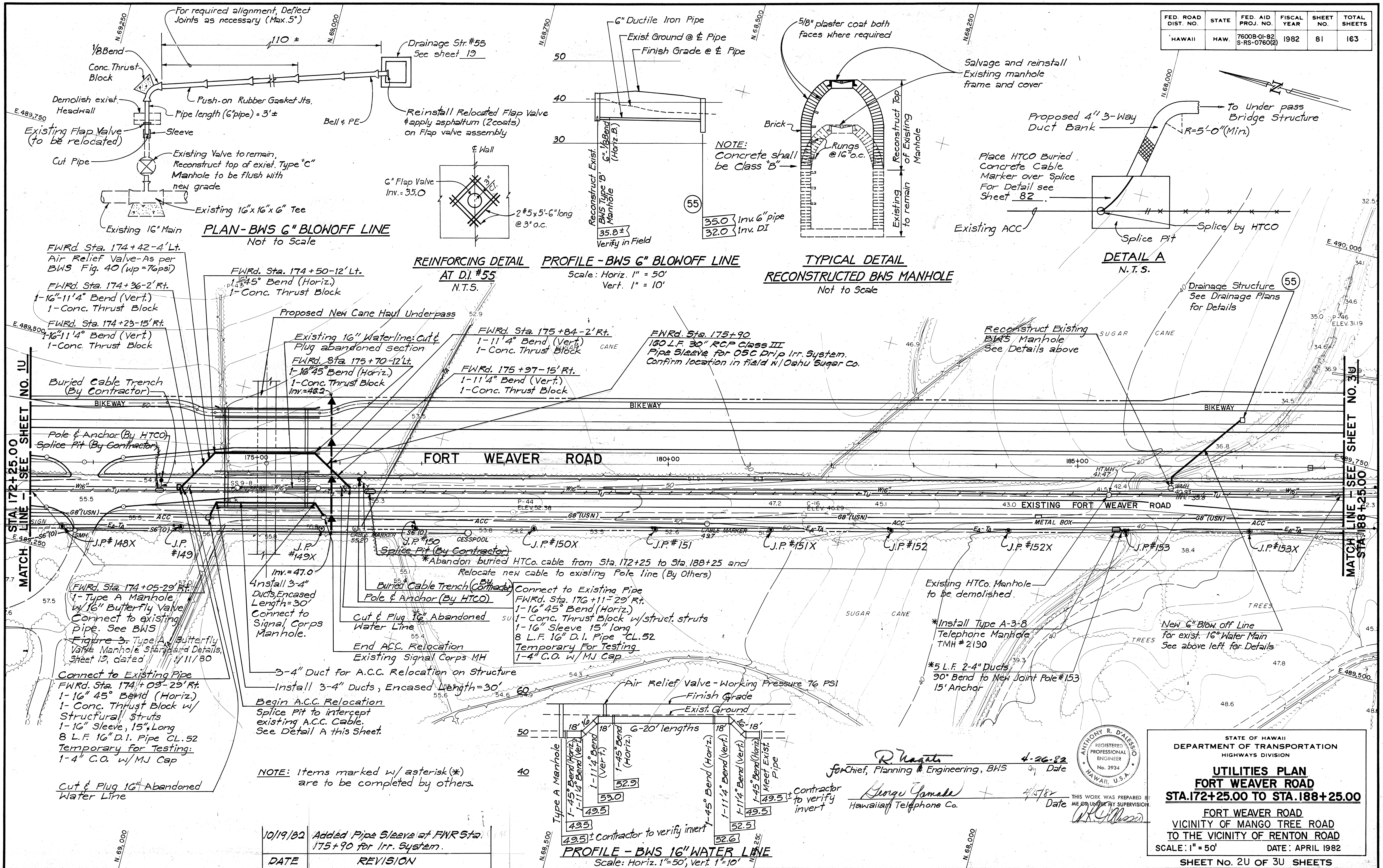
FORT WEAVER ROAD
VICINITY OF MANGO TREE ROAD
TO THE VICINITY OF RENTON ROAD

SCALE: 1" = 50' DATE: APRIL 1982

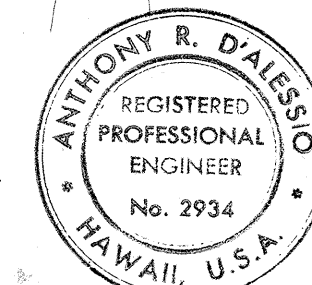
SHEET No. 1U OF 3U SHEETS

C080R

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7600B-01-82 S-RS-0760(2)	1982	81	163



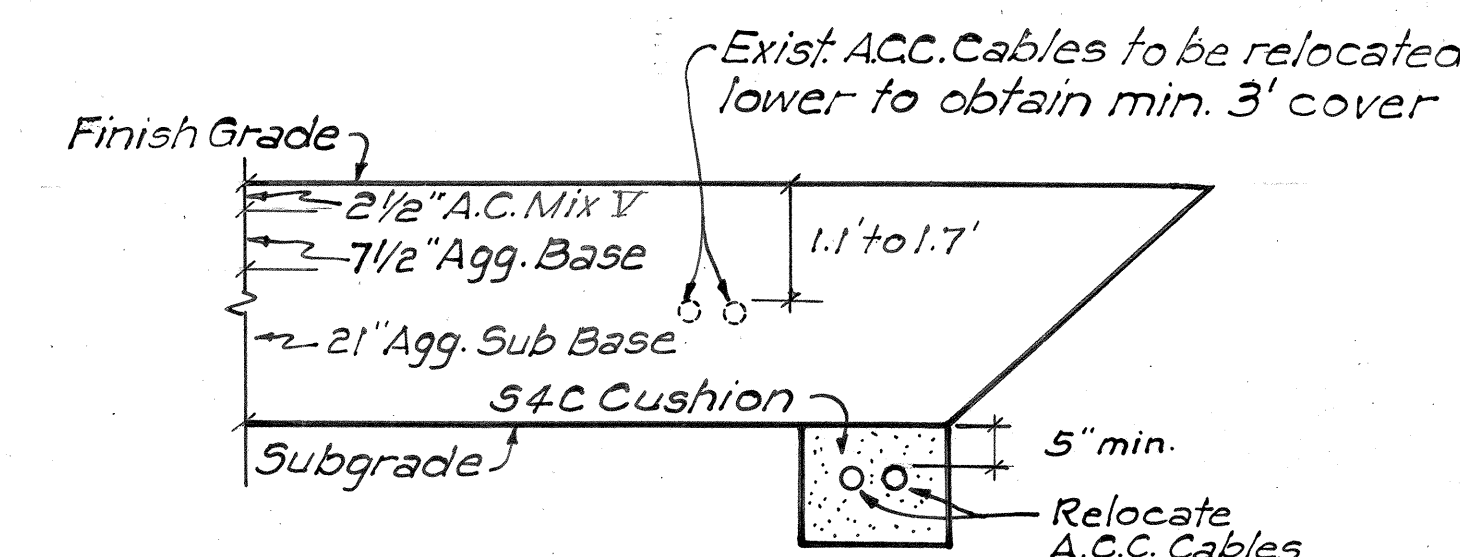
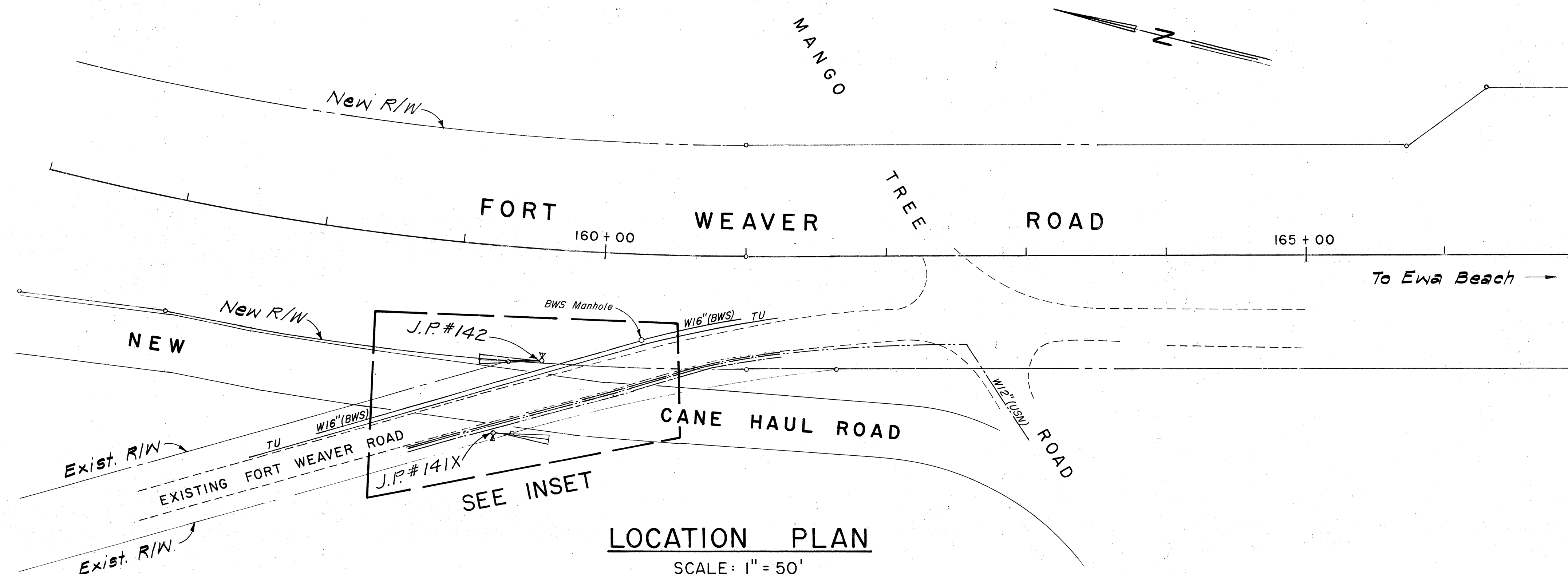
DATE	DESIGNED BY	CHECKED BY
10/19/82	RED	RED
ORIGINAL PLAN	DESIGNED BY	CHECKED BY
NOTE BOOK	DESIGNED BY	CHECKED BY
NO.	DESIGNED BY	CHECKED BY



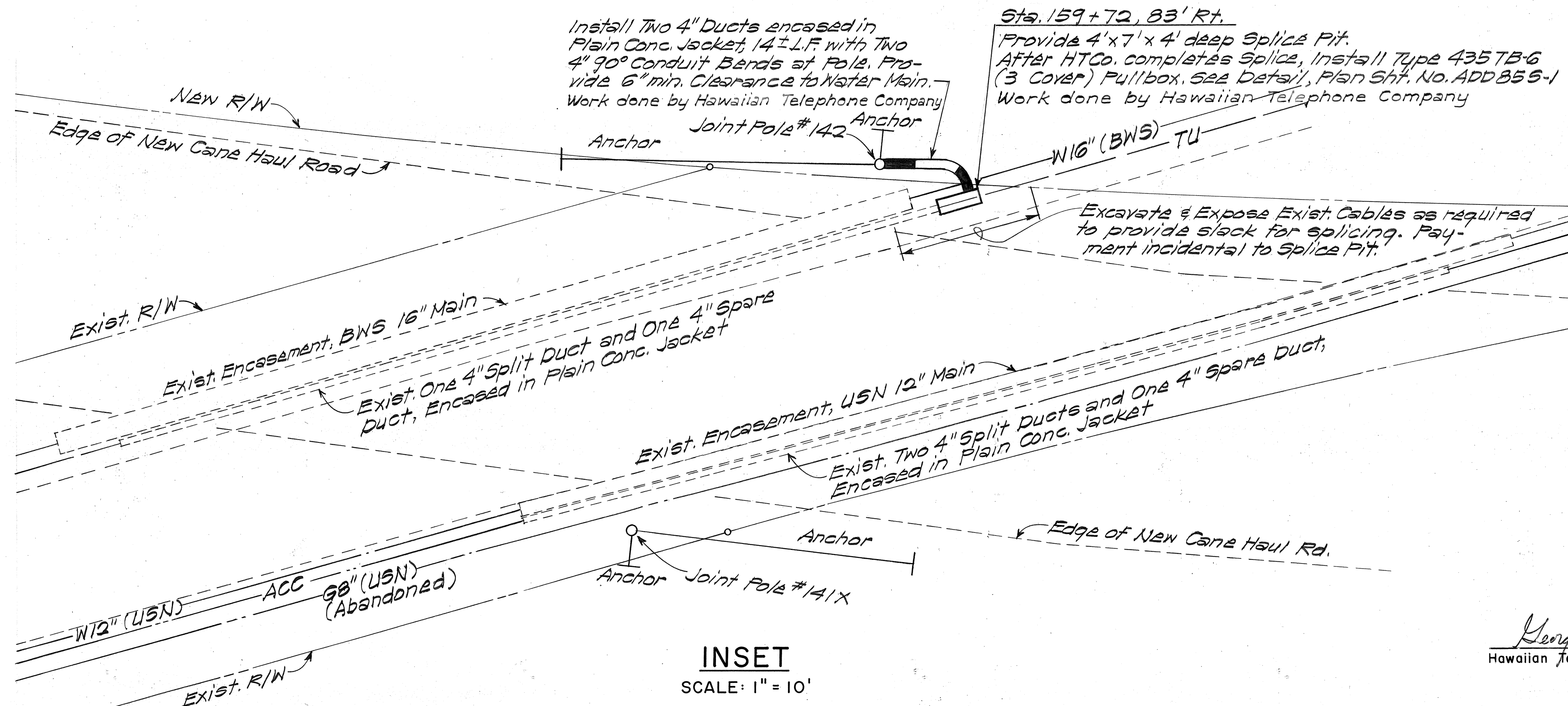
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
UTILITIES PLAN FORT WEAVER ROAD STA. 172+25.00 TO STA. 188+25.00
FORT WEAVER ROAD VICINITY OF MANGO TREE ROAD TO THE VICINITY OF RENTON ROAD
SCALE: 1" = 50' DATE: APRIL 1982
SHEET NO. 2U OF 3U SHEETS

C081

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	76008-01-82 5-RS-0760(2)	1982	ADD82S-1	163



TYPICAL SECTION ~ LOWER A.C.C. CABLES
FWR S.B. STA. 197+00 Rt. to STA. 204+00± Rt.
 Scale: 1" = 2'

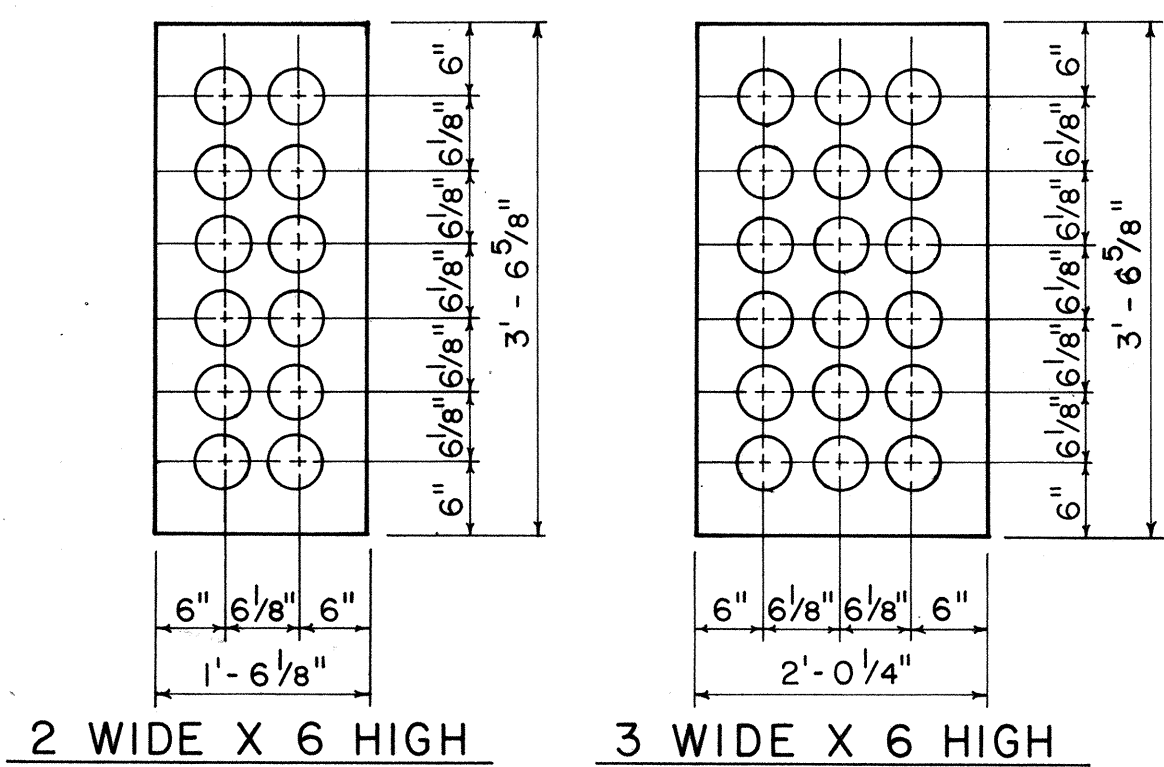
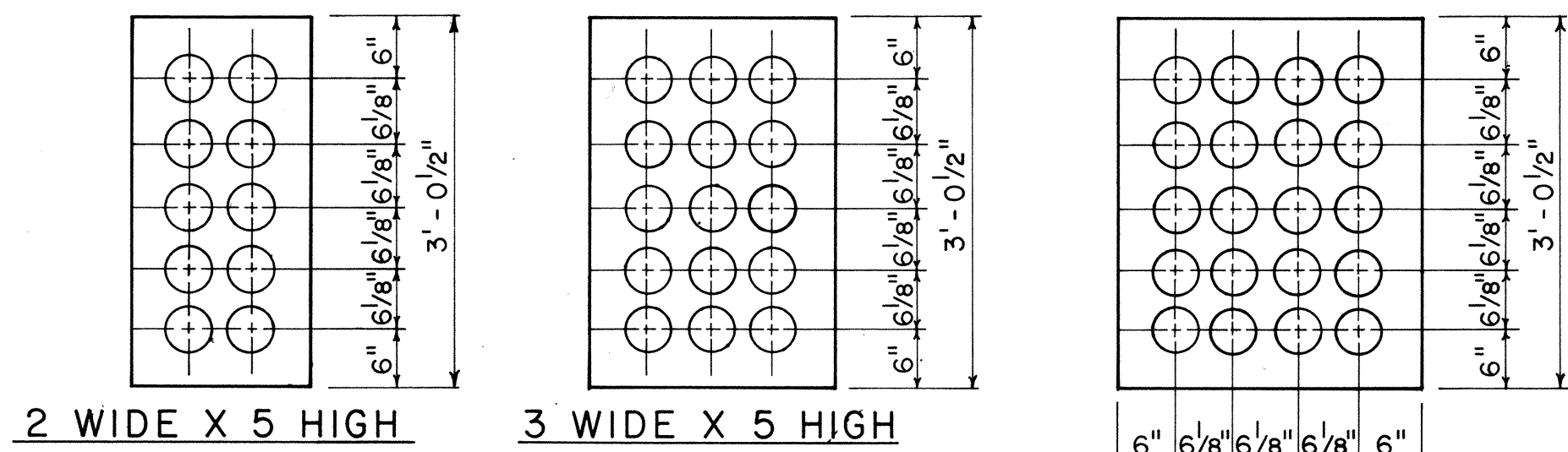
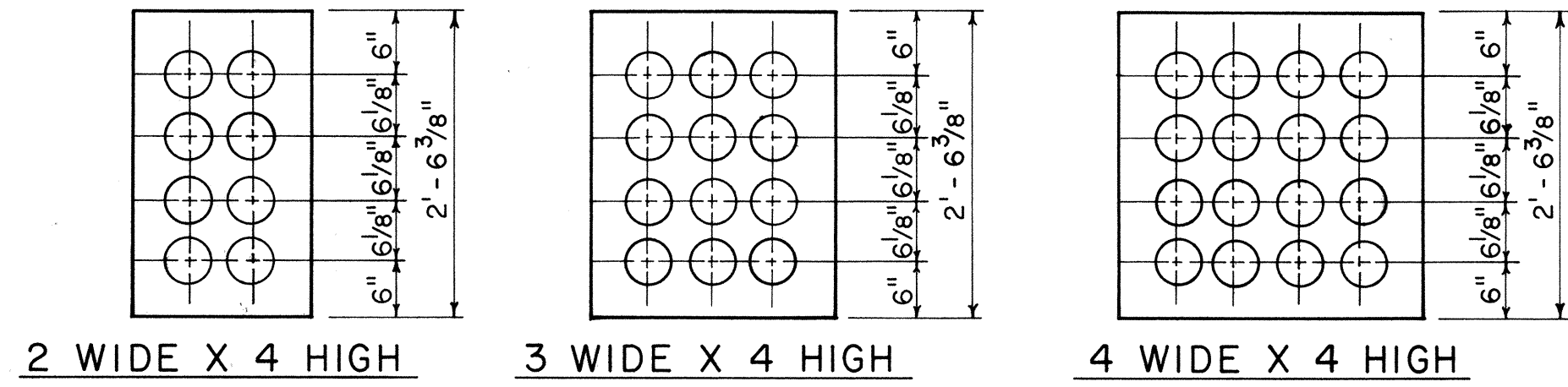
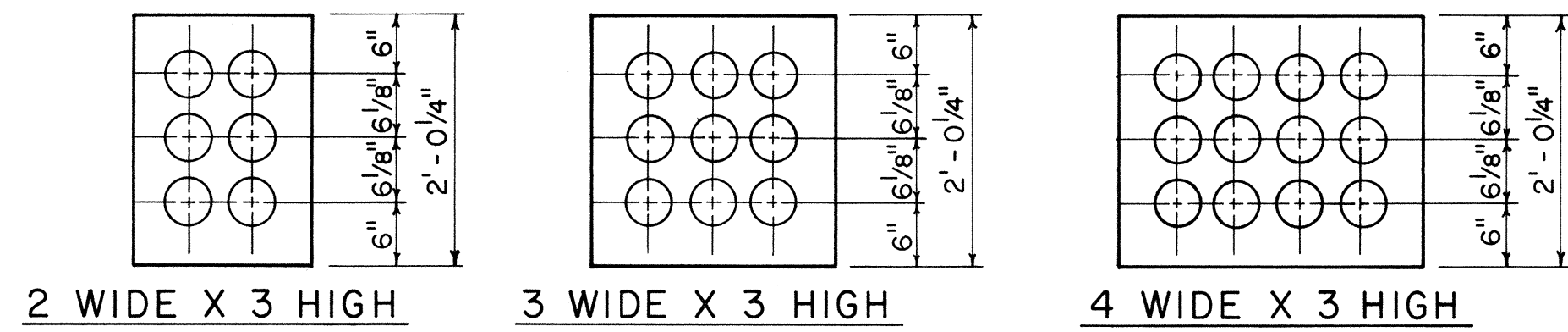
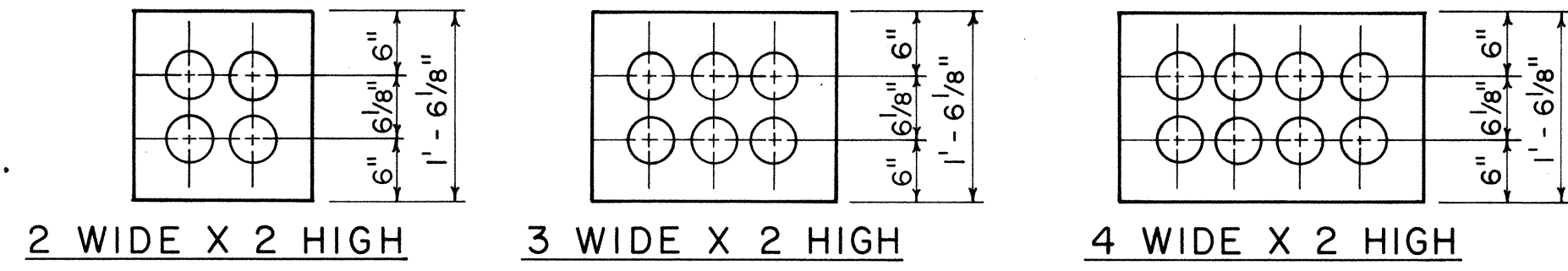
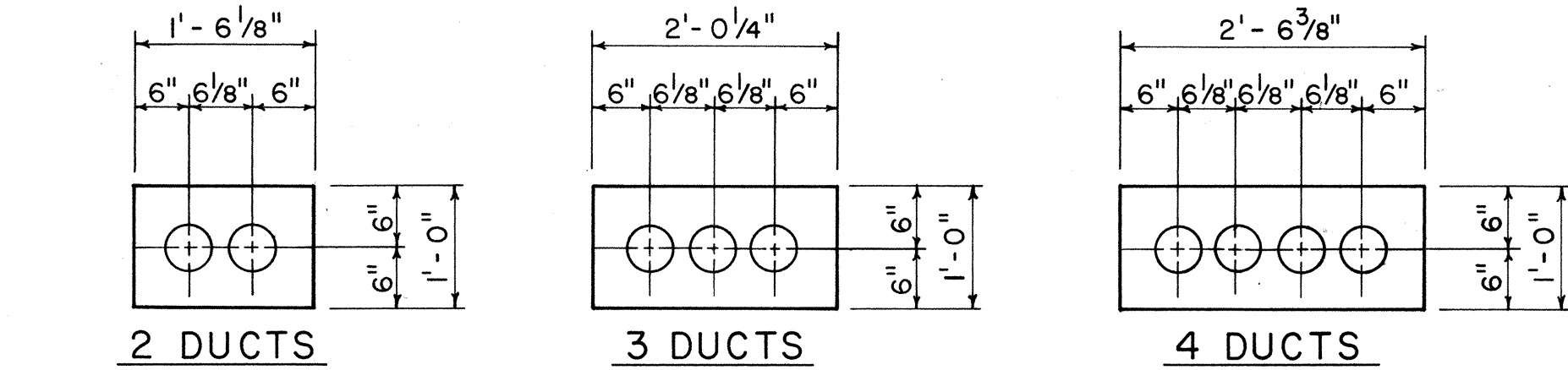


George Yamada
 Hawaiian Telephone Co. 6/10/82
 Date

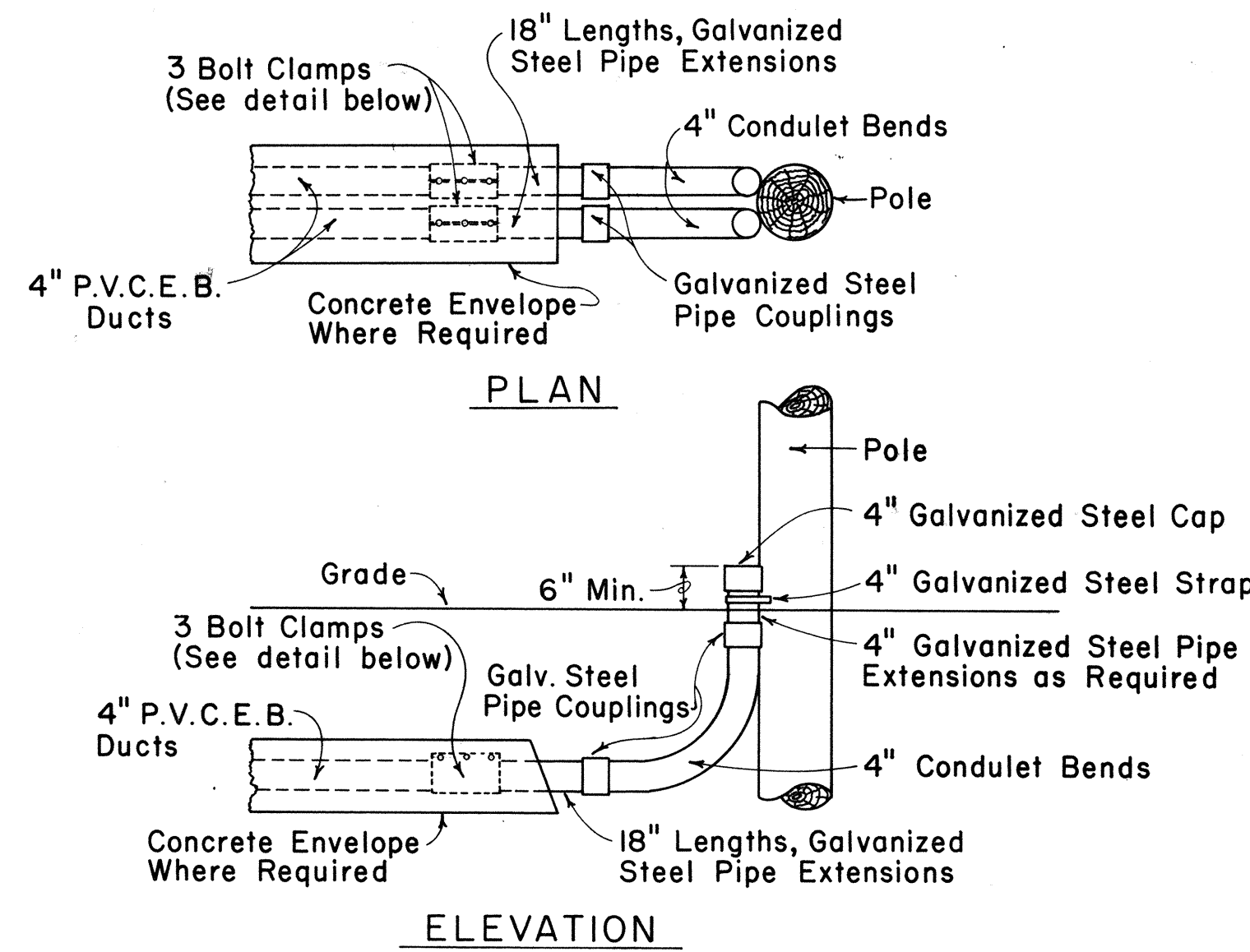
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 LAND TRANSPORTATION FACILITIES DIVISION
UTILITIES PLAN
FORT WEAVER ROAD
TEL. RELOCATIONS AT J.P. #142
 FORT WEAVER ROAD
 VICINITY OF MANGO TREE ROAD
 TO THE VICINITY OF RENTON ROAD
 SCALES: AS SHOWN DATE: JUNE 1982
 SHEET No. 3UA OF 34 SHEETS

ADD82S-1

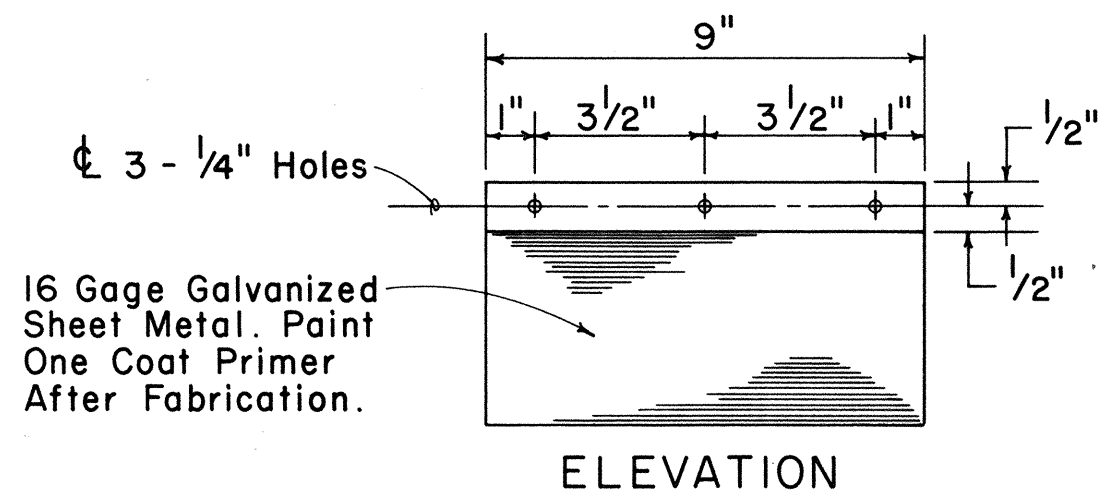
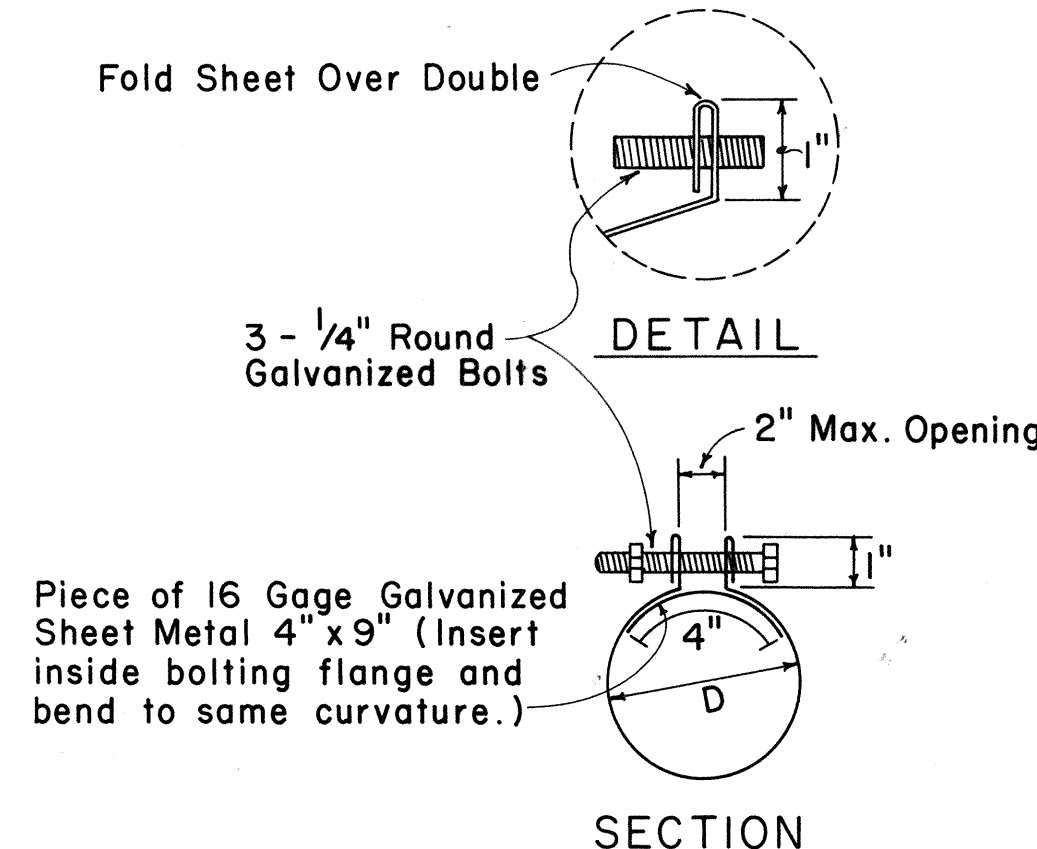
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	76008-01-82 S-RS-0760(2)	1982	83	163



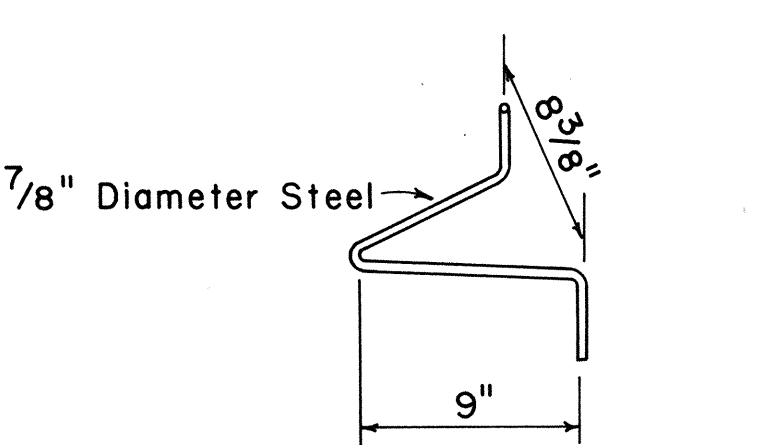
STANDARD DUCT FORMATIONS



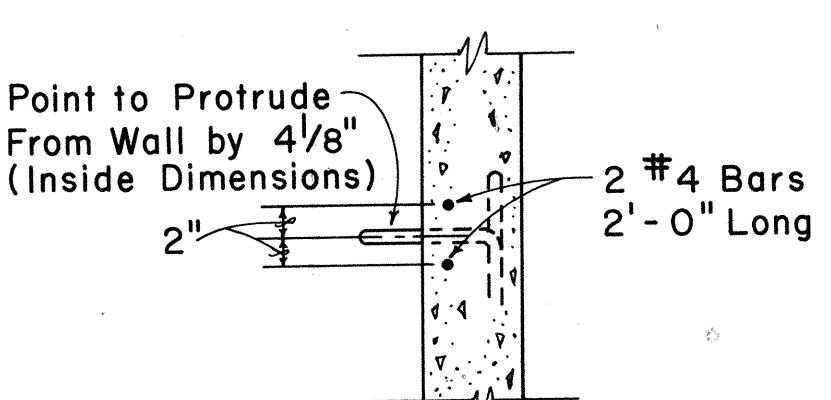
TYPICAL INSTALLATION DETAILS



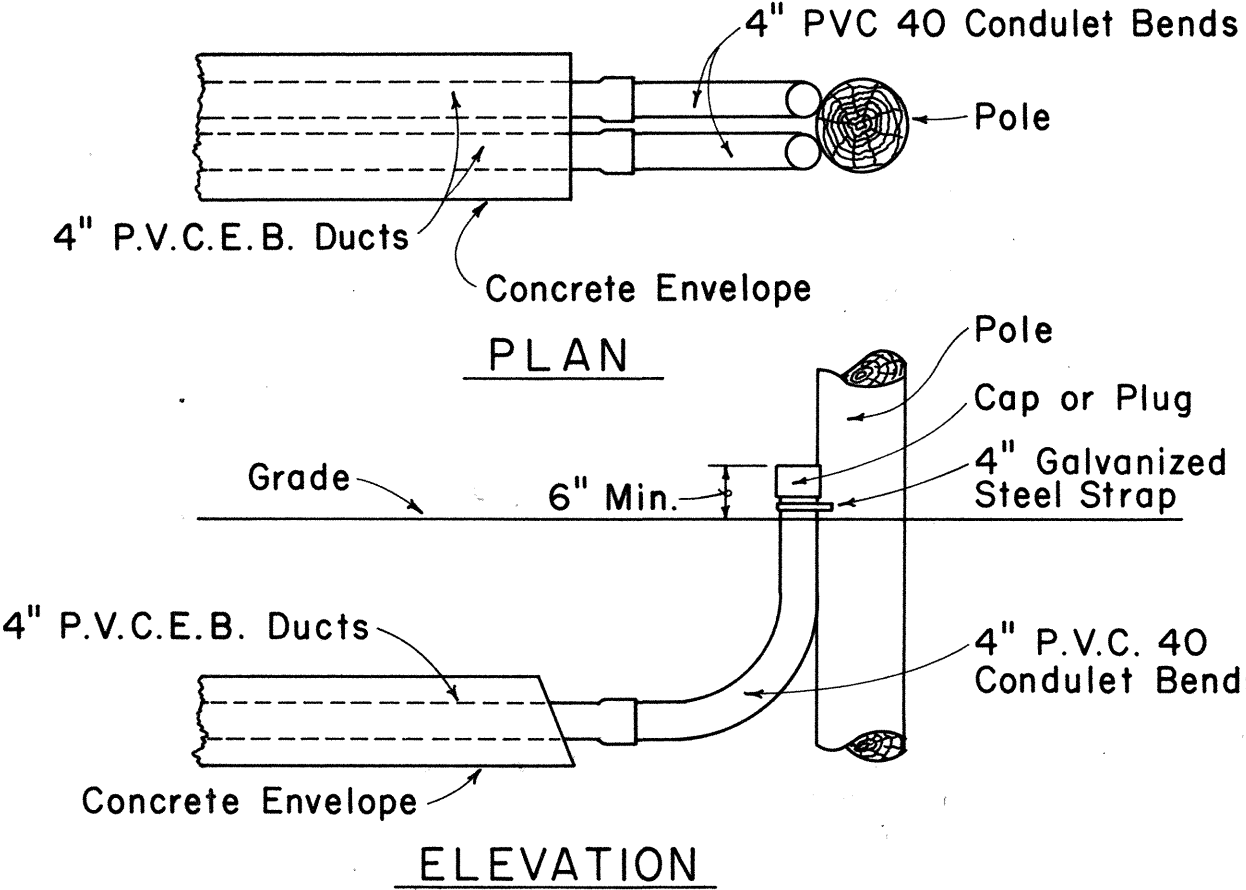
3-BOLT CLAMP ADAPTOR DETAIL



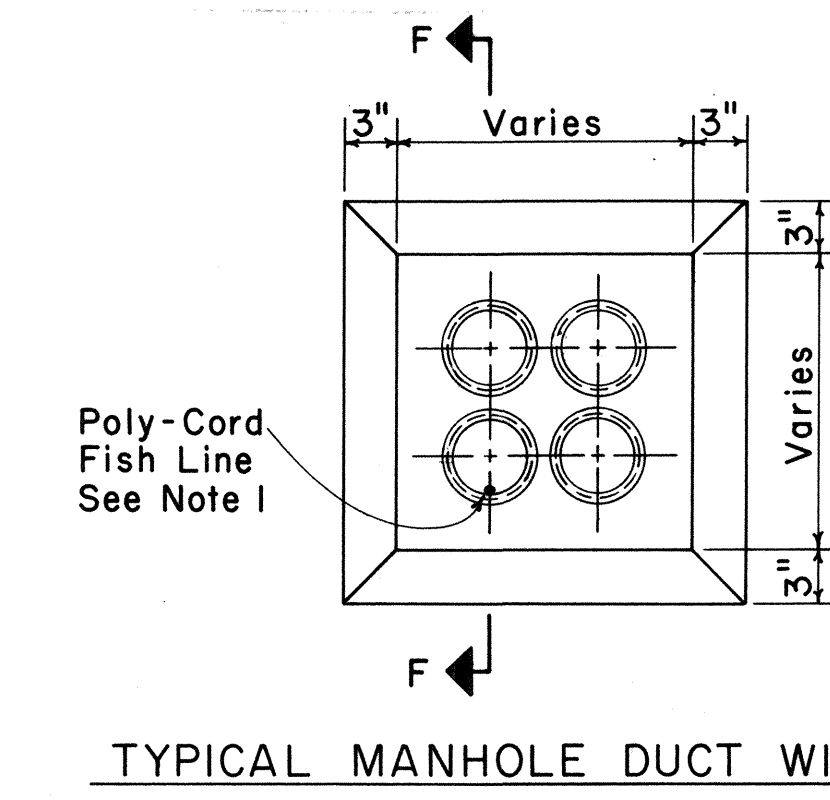
PULLING-IN IRON



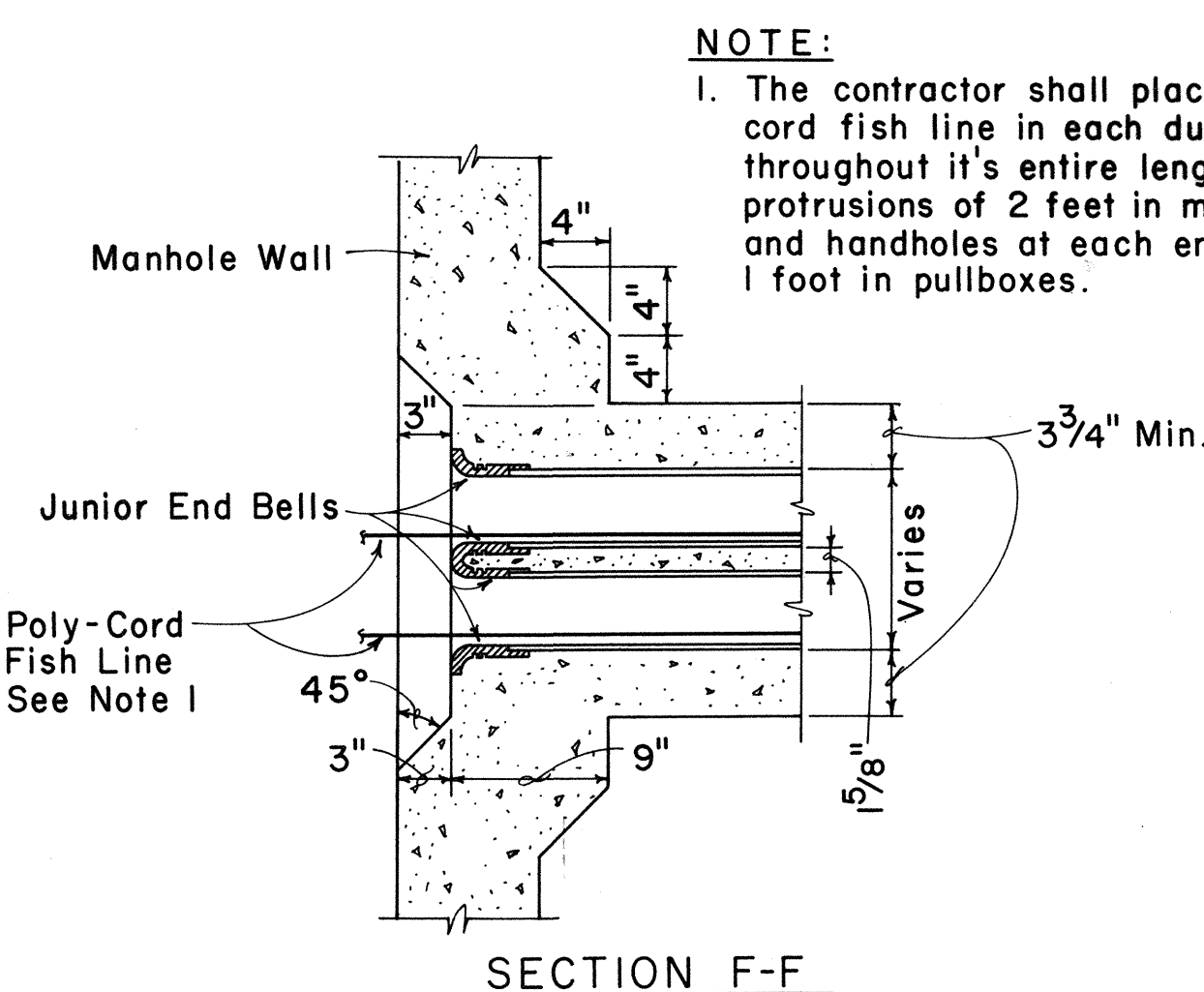
SECTIONAL VIEW OF PULLING-IN IRON



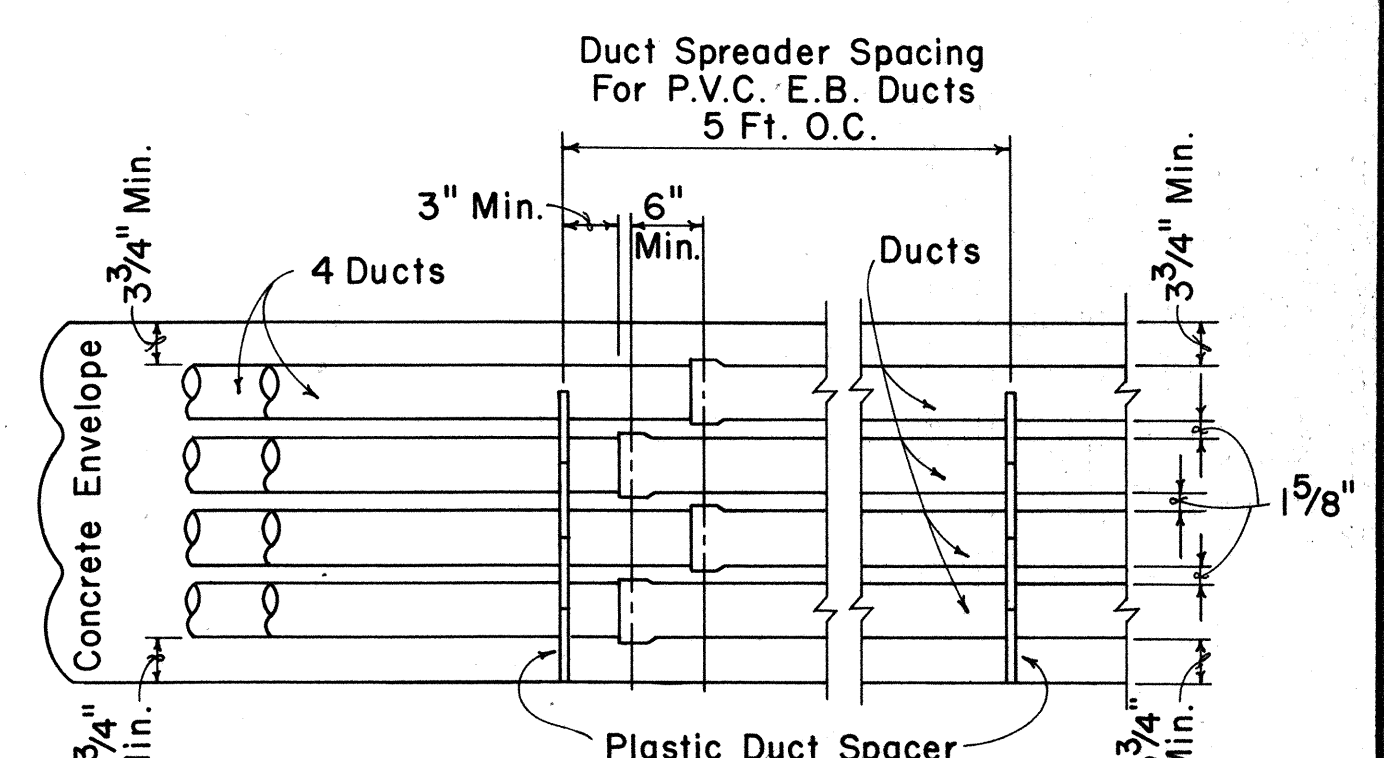
TYPICAL CONDULET BEND INSTALLATION DETAILS



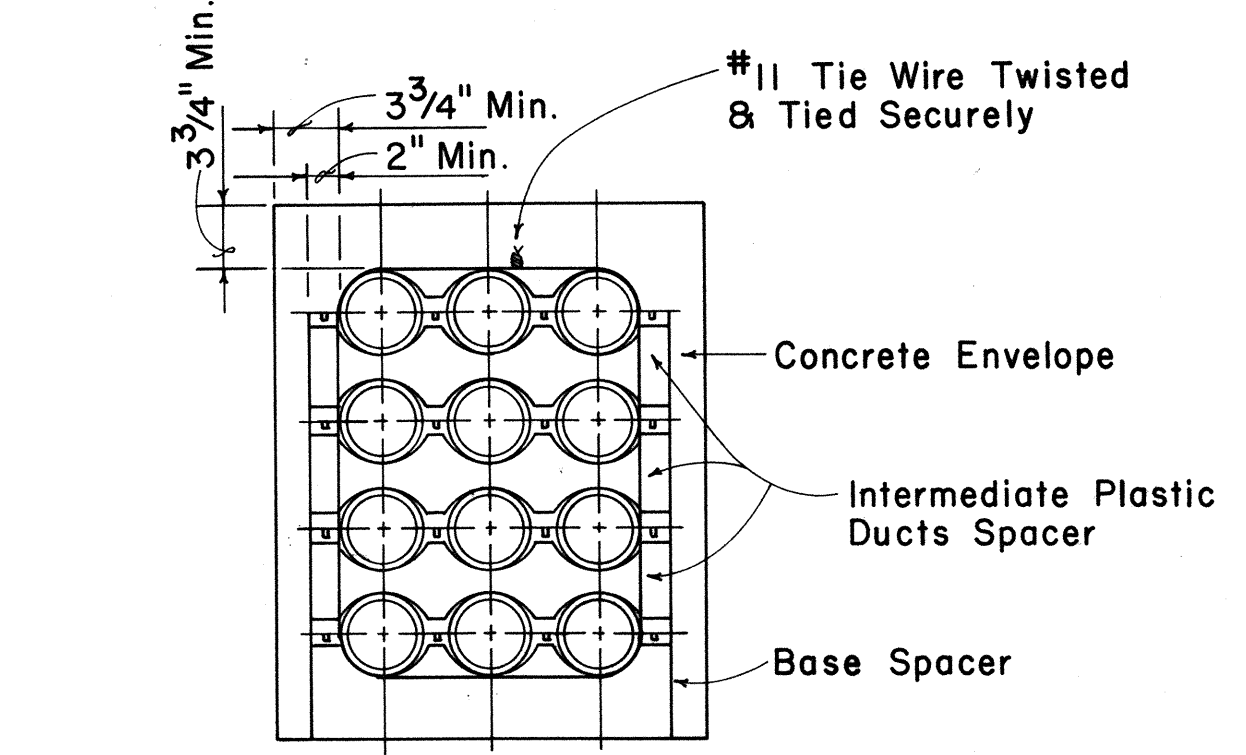
TYPICAL MANHOLE DUCT WINDOW



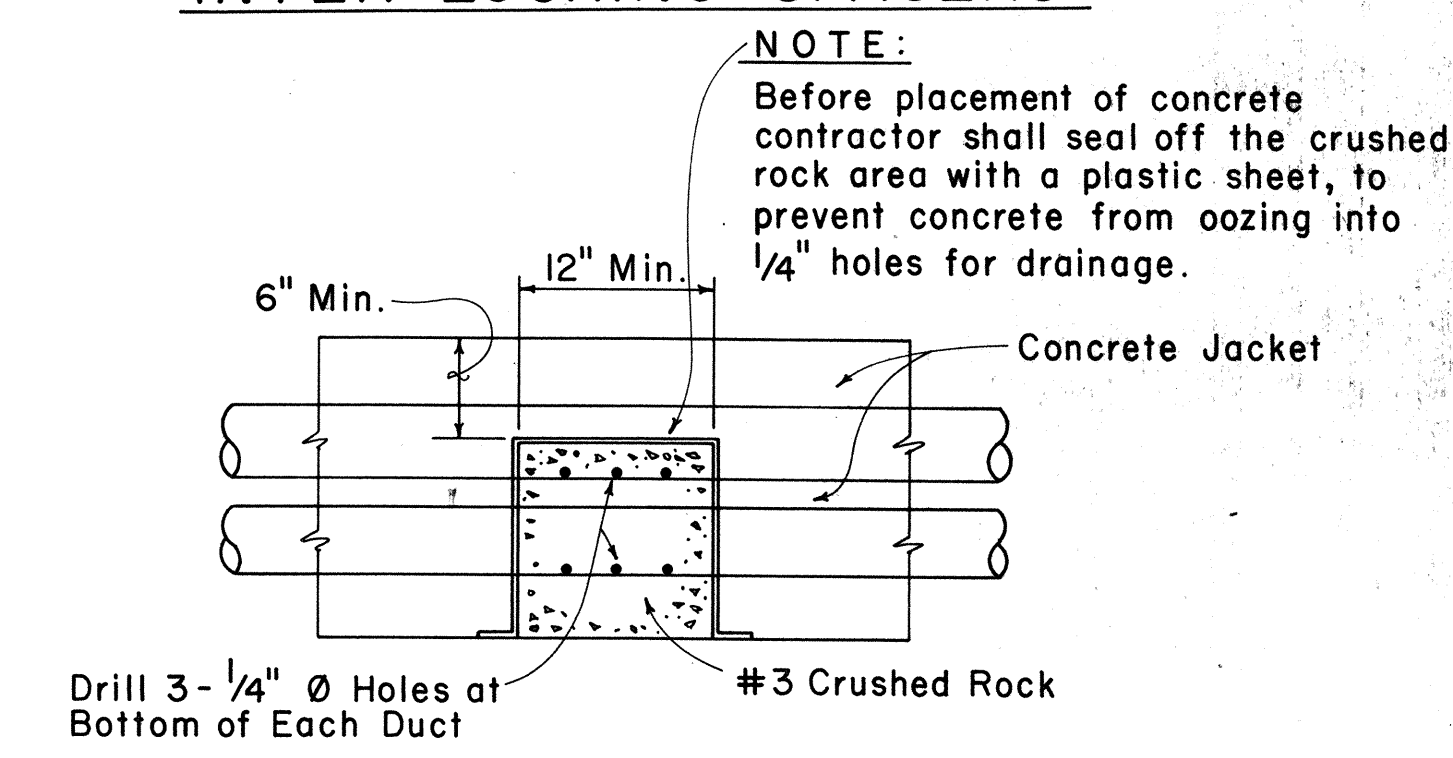
TYPICAL DUCT WINDOW DETAIL & JUNIOR END BELL



TYPICAL DUCT ENVELOPE ELEVATION ARRANGEMENT OF PLASTIC SPACERS



SECTION SHOWING INTER-LOCKING SPACERS



ELEVATION VIEW OF DUCT DRAIN DETAIL

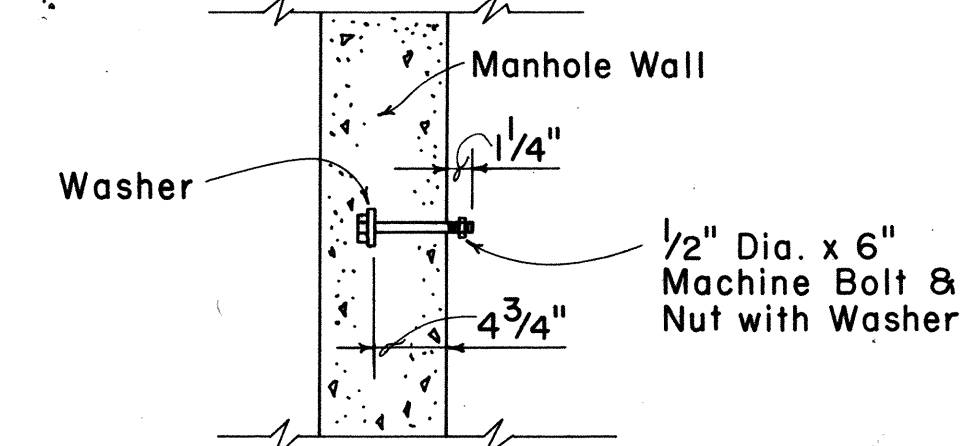
APPROVED: *George Yamada* 6/10/82
Hawaiian Telephone Co., Ltd. Date

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

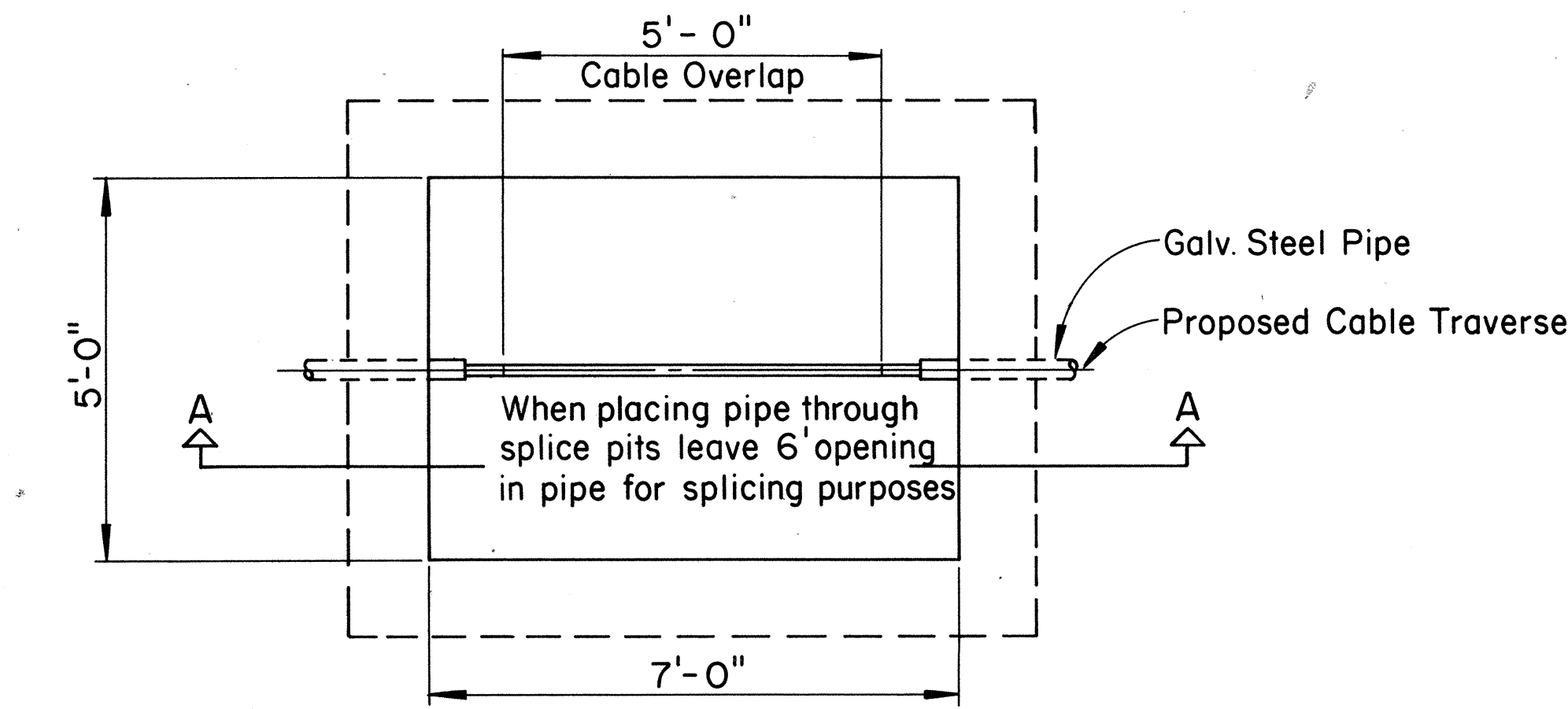
STANDARD DUCT FORMATIONS

Not to Scale
SHEET NO. 1 OF 3 SHEETS

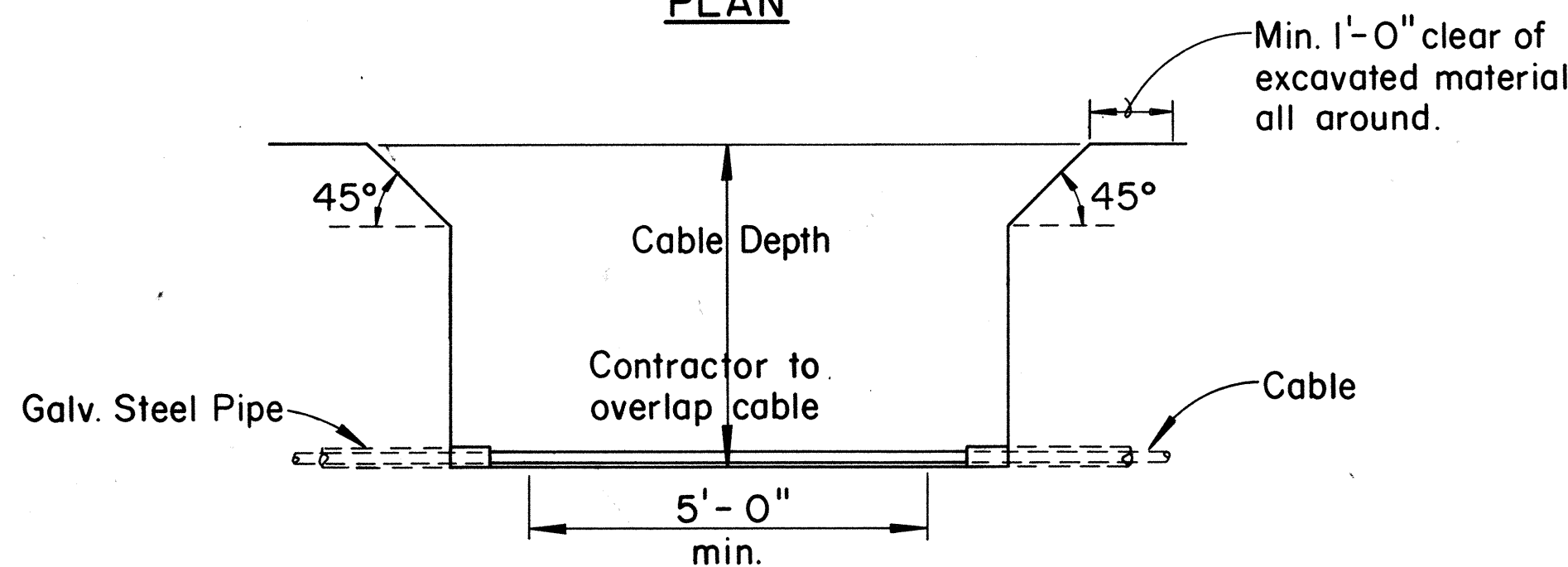


CABLE RACK STUD BOLT DETAIL

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7600B-01-82 S-RS-0760(2)	1982	84	163



PLAN

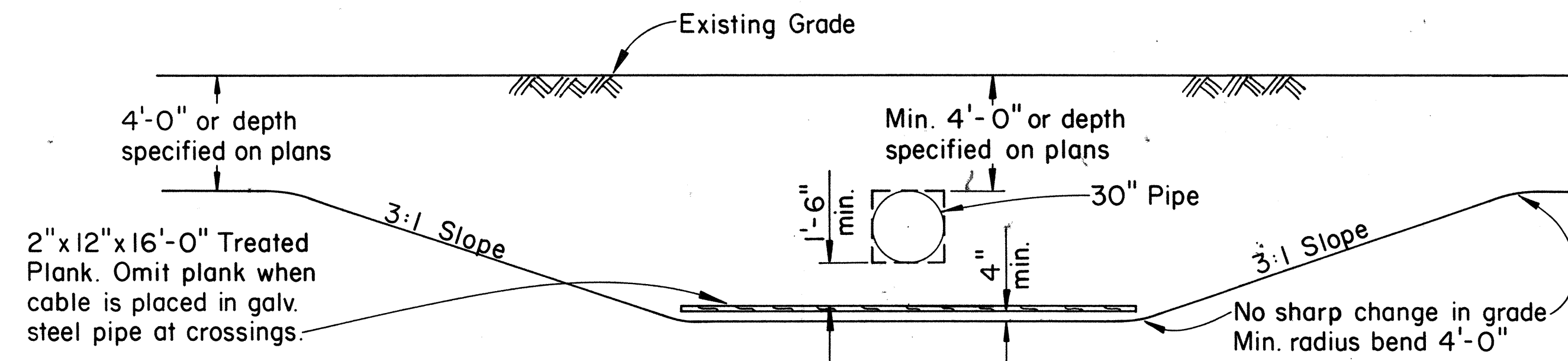


SECTION A-A

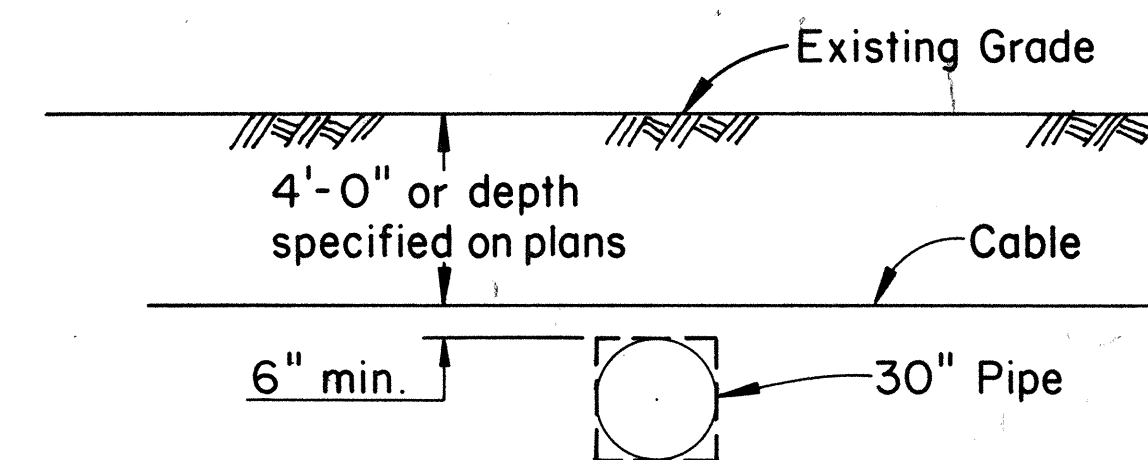
TYPICAL SPLICING PITS FOR BURIED CABLE

NOTES:

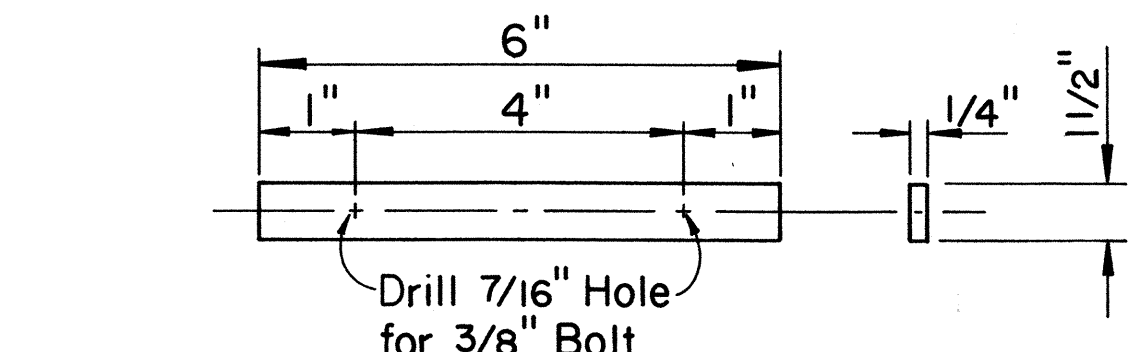
1. The Contractor shall dig pits at specified locations.
2. One face of pit shall be kept free of excavated material.
3. Where pits are located on sloping or irregular ground, the excavated material shall be placed in such a manner as to prevent surface water from draining into the pit.
4. Provide a fence around the pit at any location where stock have access to the route, and pits near farm homes to keep out small animals and pets.



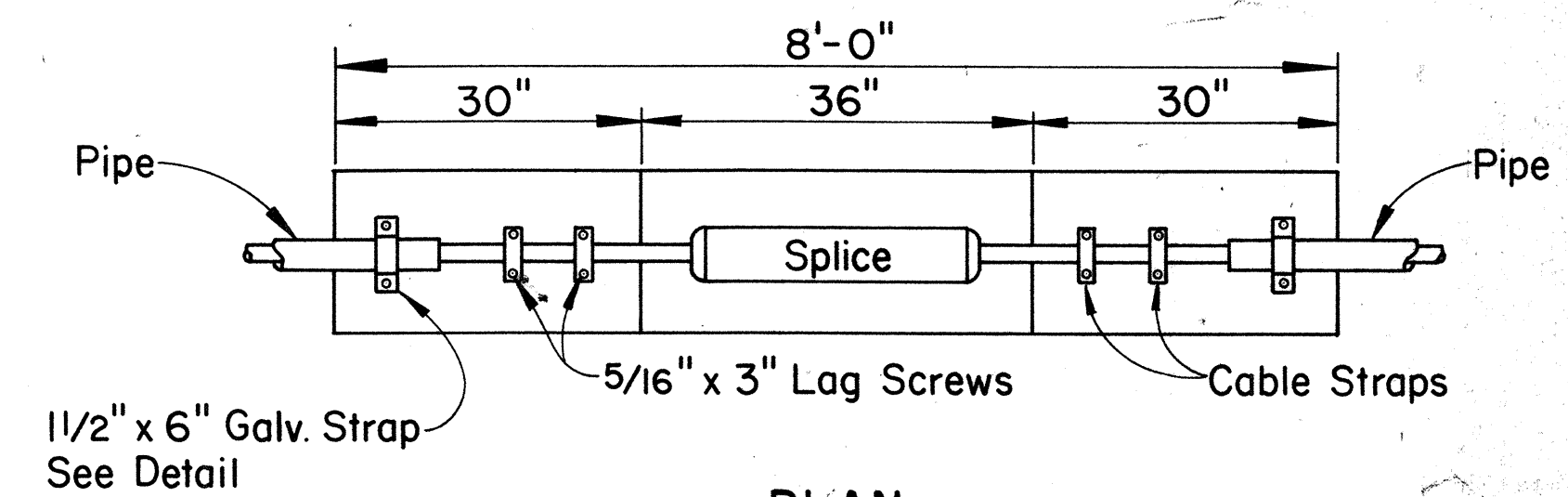
DETAIL OF CABLE CROSSING UNDER STORM CULVERTS-IRRIGATION PIPES, OTHER UTILITIES, OR FOREIGN PIPES



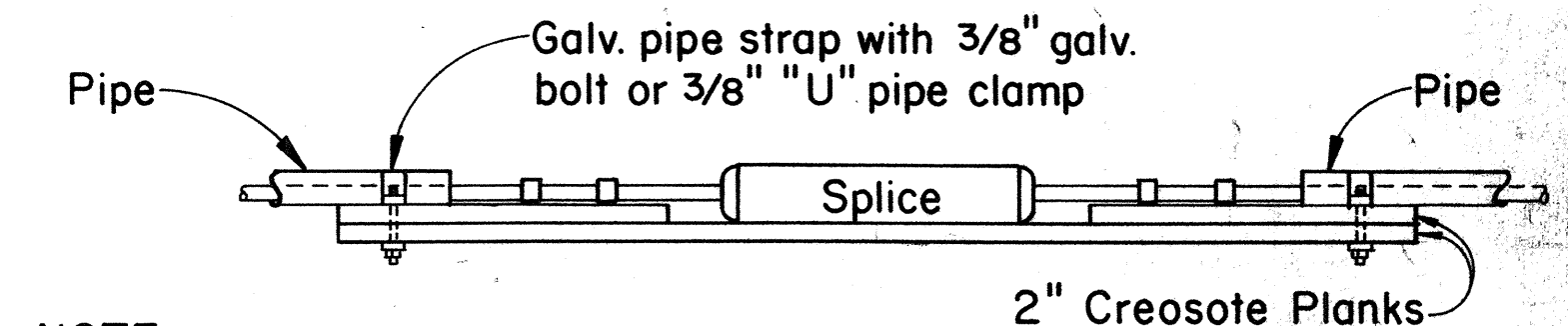
DETAIL OF CABLE CROSSING OVER STORM CULVERTS-IRRIGATION PIPES, OTHER UTILITIES, OR FOREIGN PIPES



GALVANIZED STRAP DETAIL



PLAN

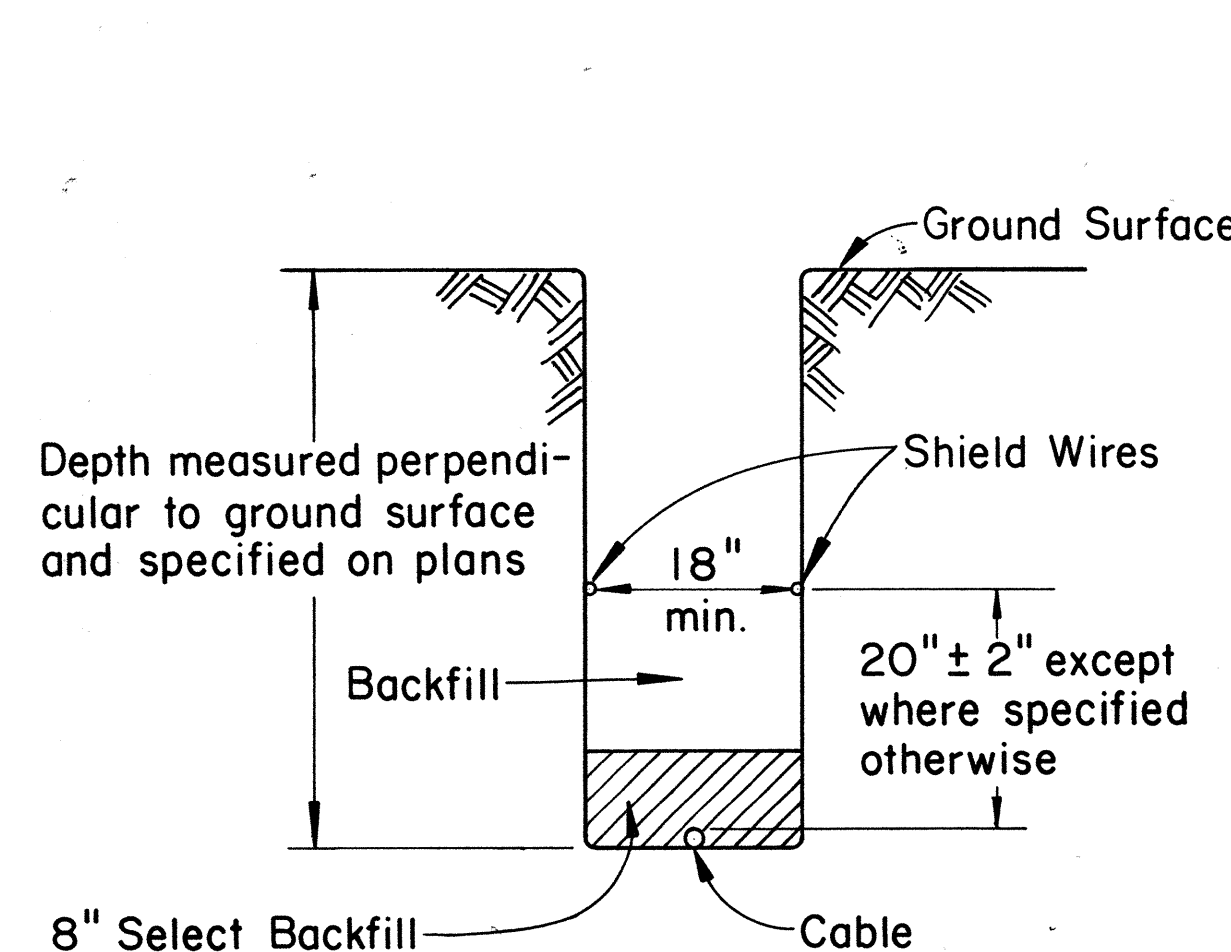


ELEVATION

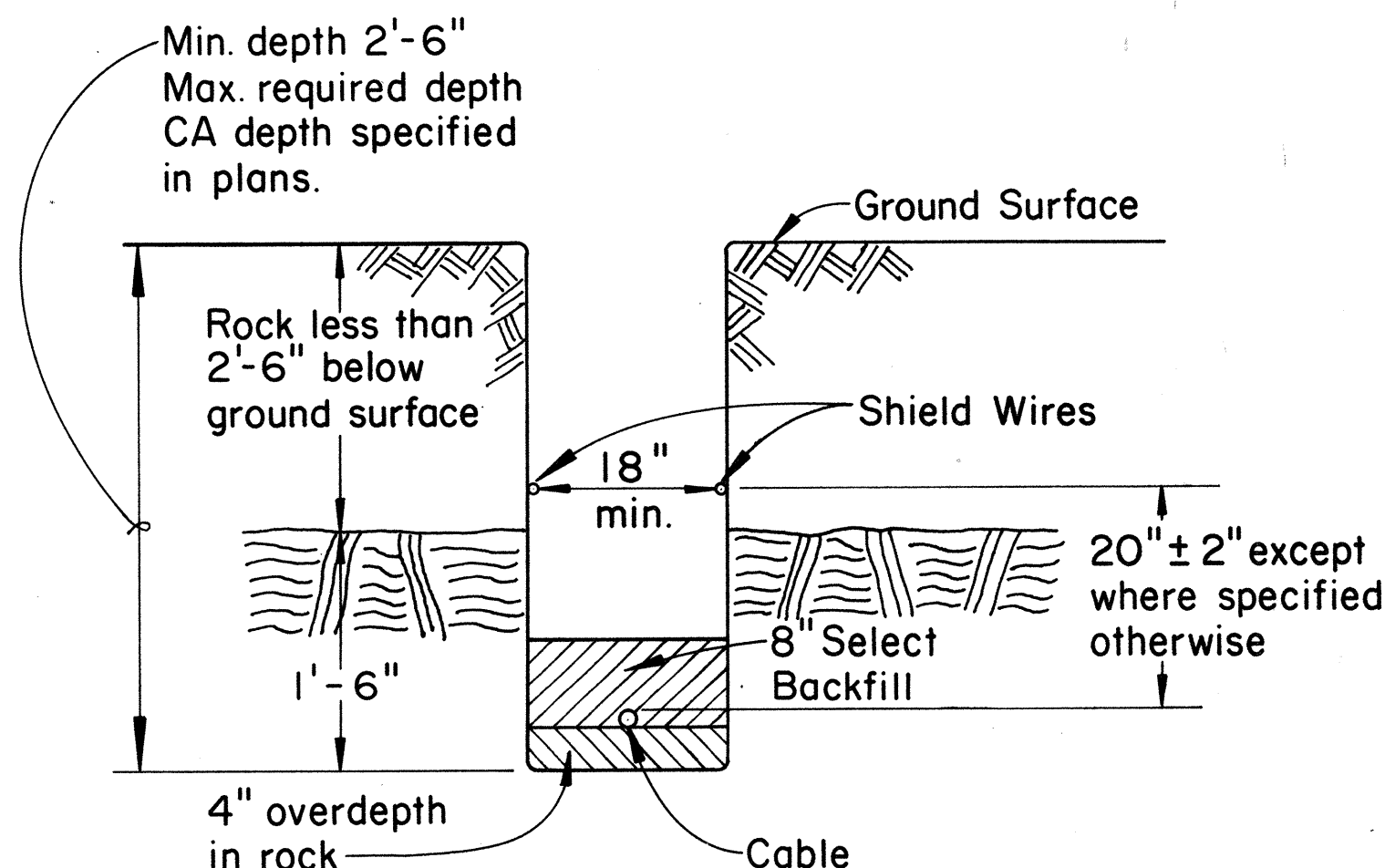
NOTE:

Galv. Strap may be substituted with pipe clamp.

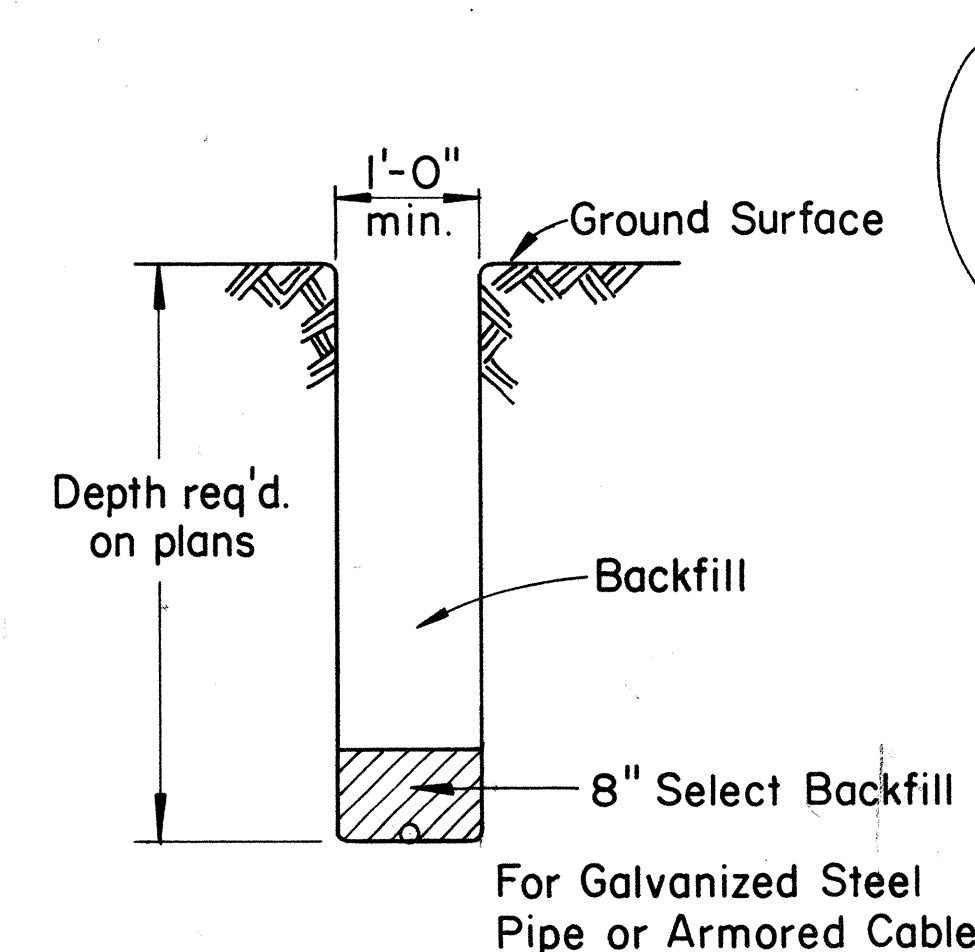
DETAIL OF SPLICE SUPPORT BETWEEN PIPE SECTIONS



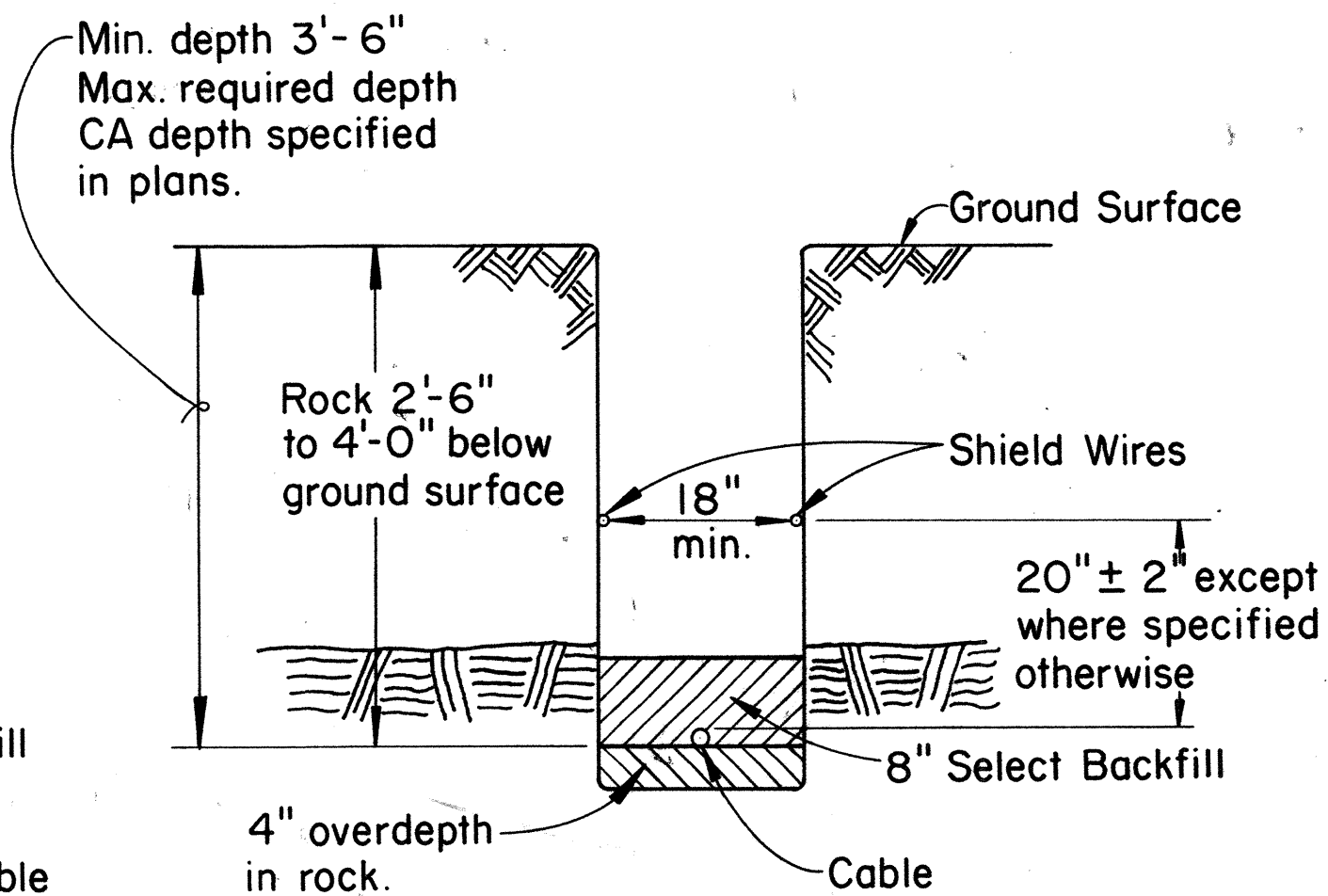
TYPICAL SECTION THROUGH NORMAL TRENCH



TYPICAL SECTION THROUGH TRENCH WITH ROCK LESS THAN 2'-6" BELOW SURFACE



TYPICAL SECTION FOR TRENCH WHERE NO SHIELD WIRE IS REQUIRED



TYPICAL SECTION THROUGH TRENCH WITH ROCK 2'-6" TO 4'-0" BELOW SURFACE

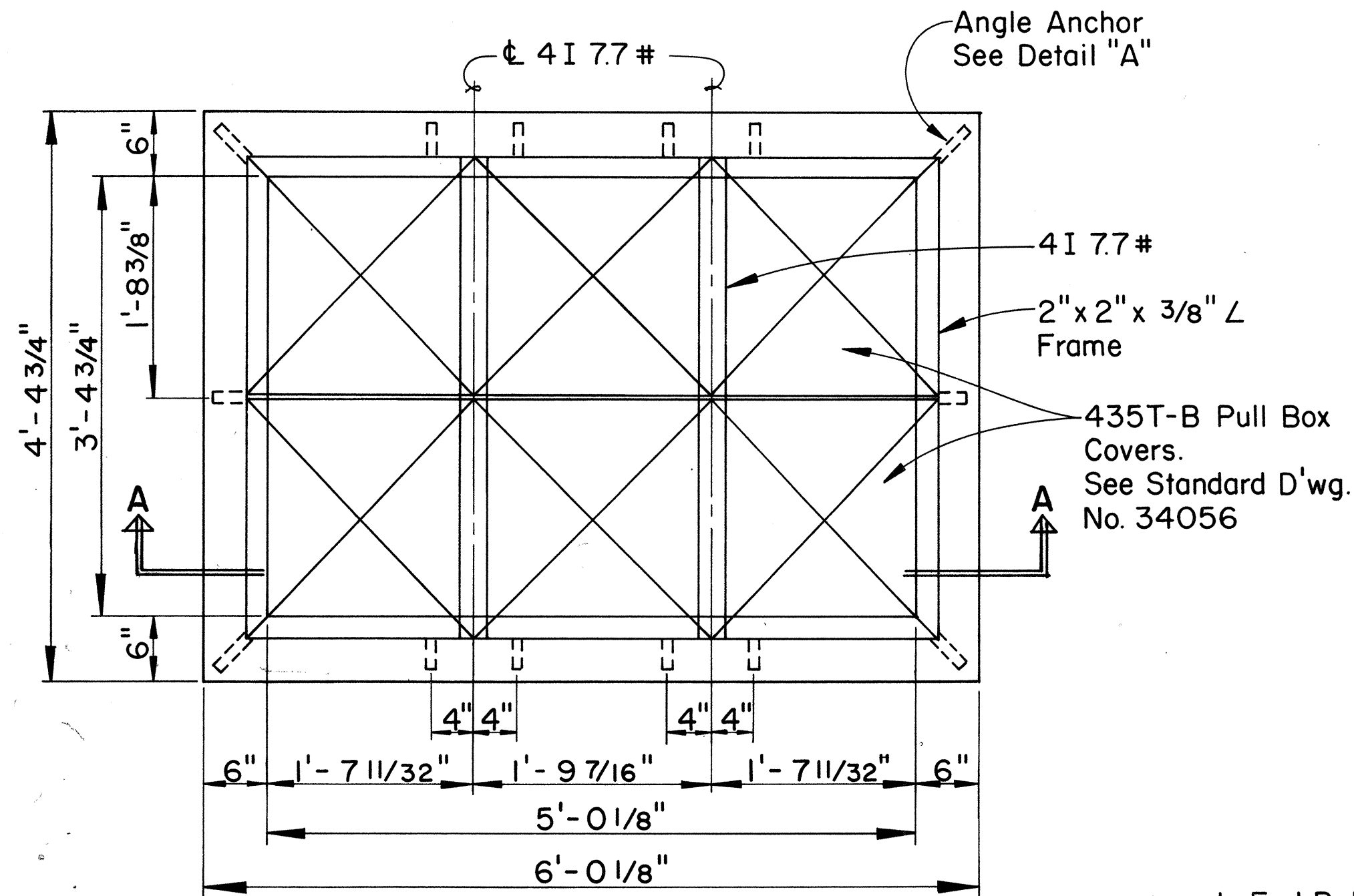
APPROVED: *George Yamada*
Hawaiian Telephone Co., Ltd. Date: 6/10/84

H.T. Co., Ltd. Drawing Nos. 34047 34048

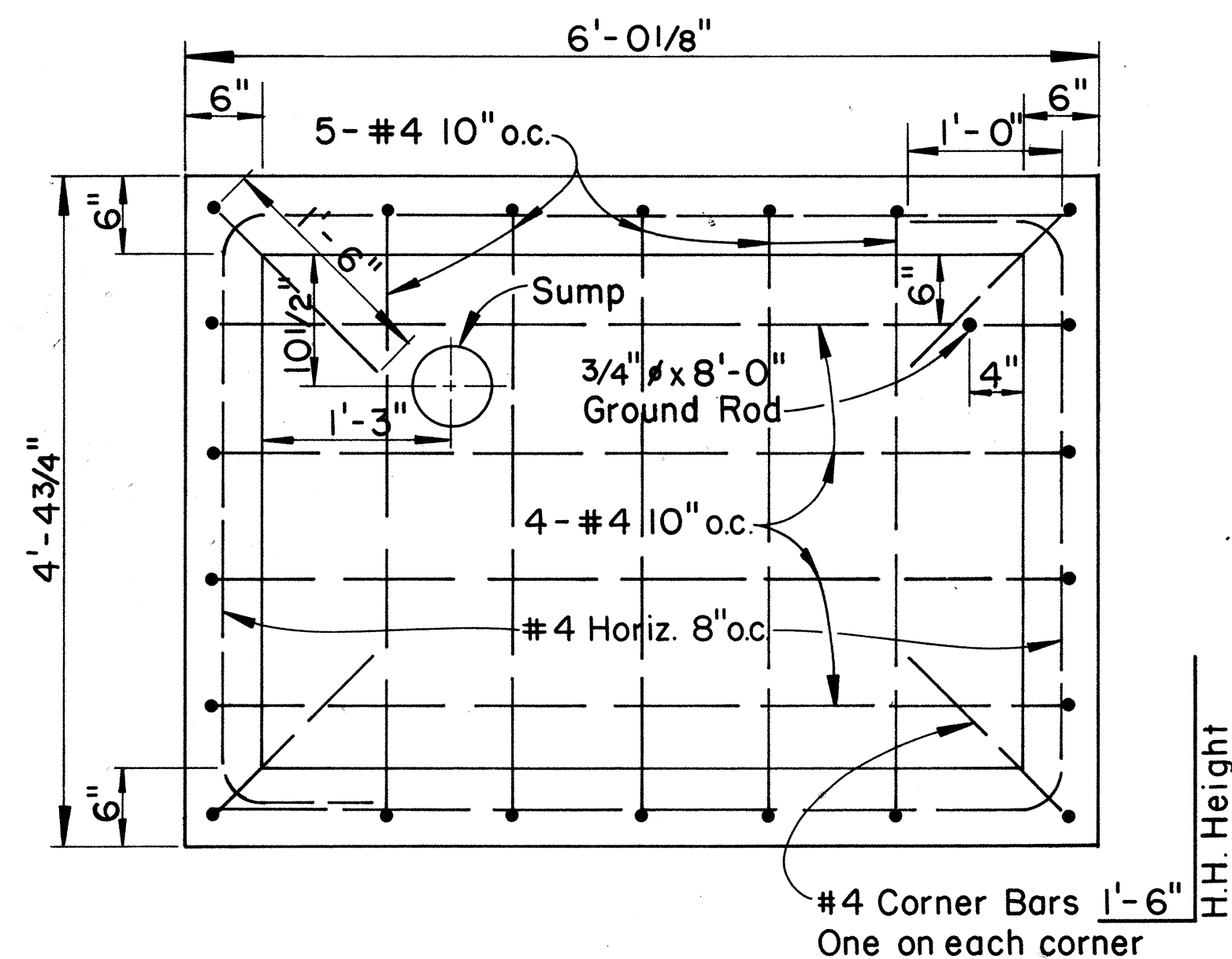
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
SPLICING PITS AND
STANDARD TRENCHING DETAILS
FOR BURIED COAXIAL CABLE

Scale: Not to Scale
SHEET No. 2 OF 3 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7600B-01-82 S-RS-0760(2)	1982	85	163



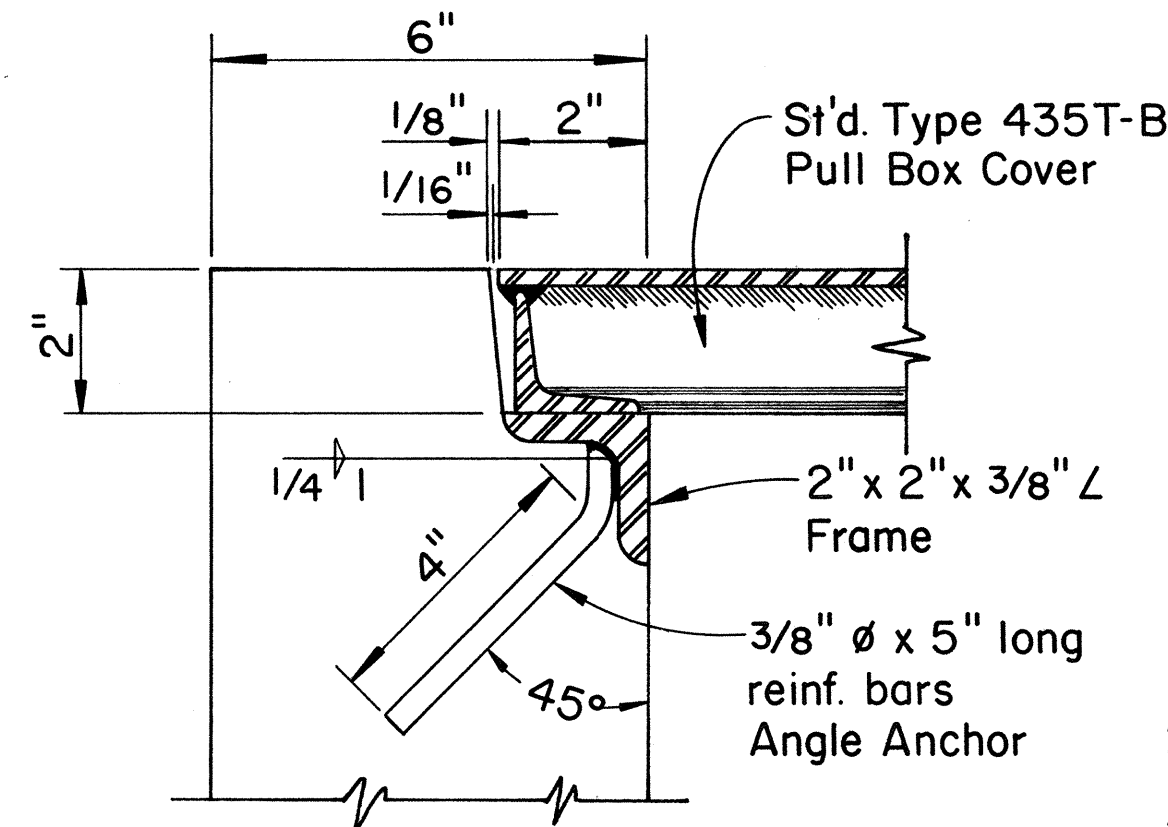
TOP PLAN
Scale: 1" = 1'-0"



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

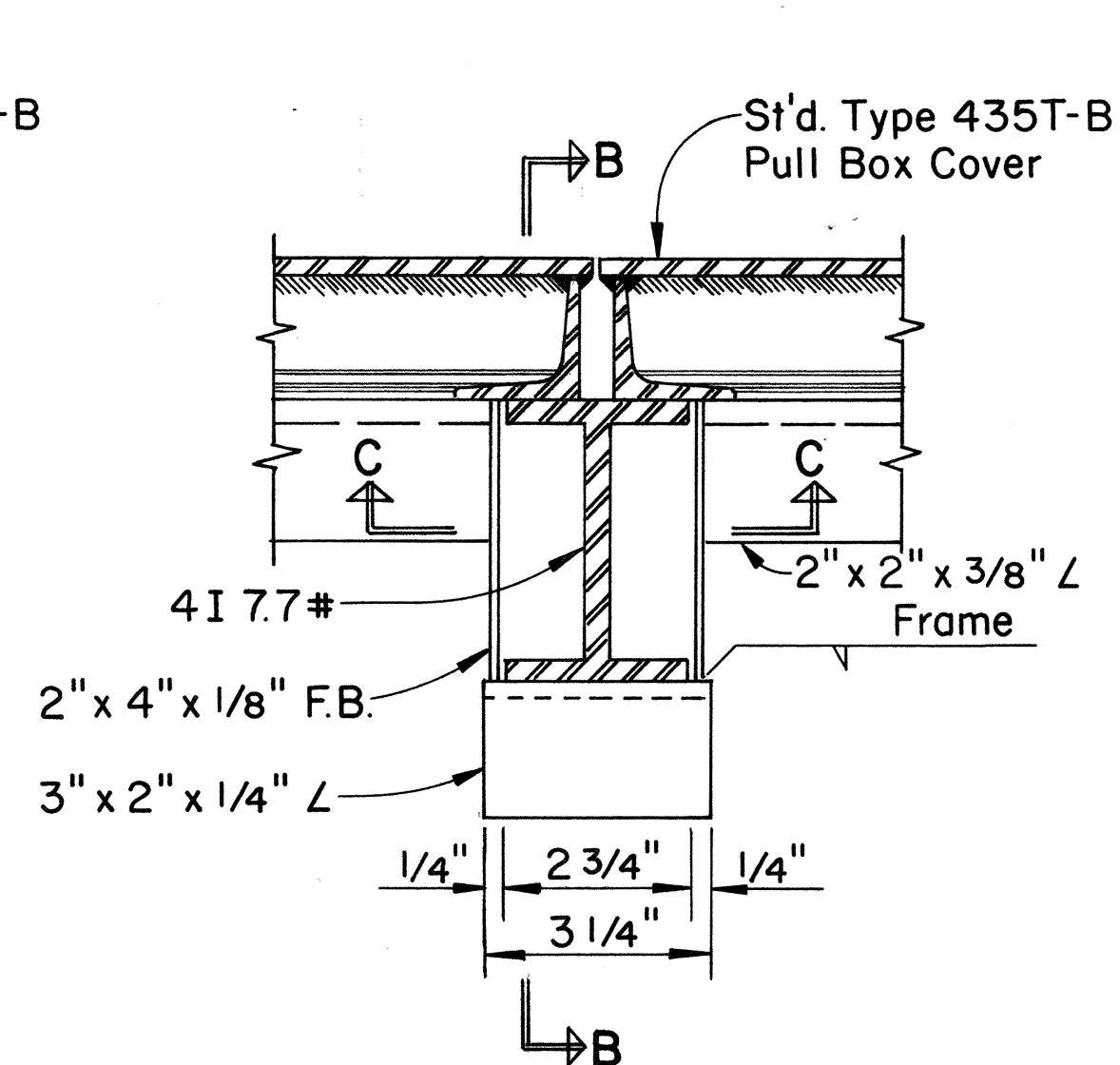
GENERAL NOTES:

- 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. 34028.
- These handholes are designed for installation in areas other than roadways.

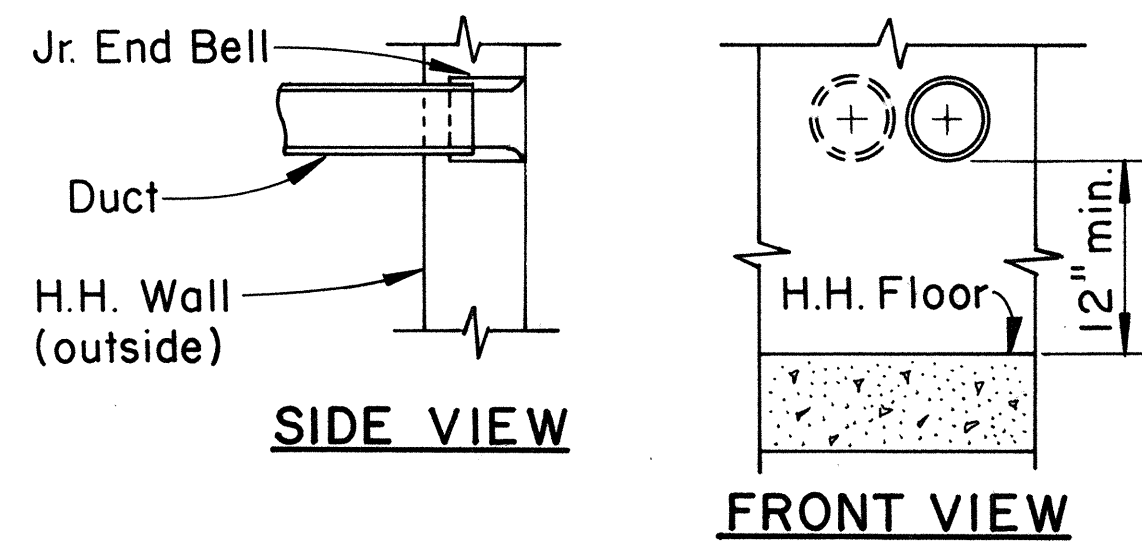


NOTE:
Section is typical.

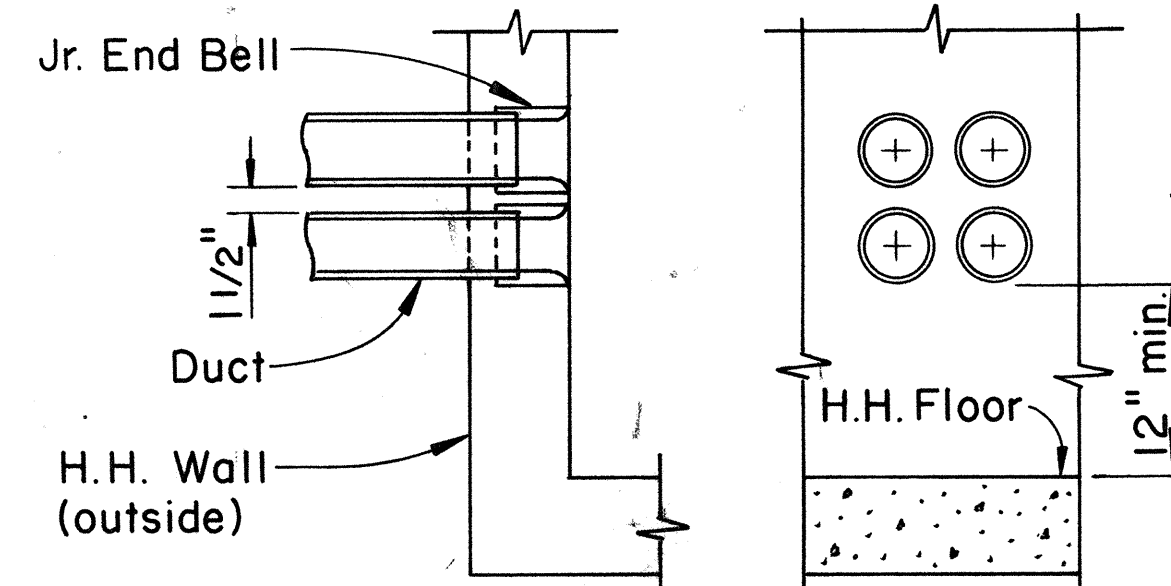
DETAIL "A"
Scale: 3/8" = 1"



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



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



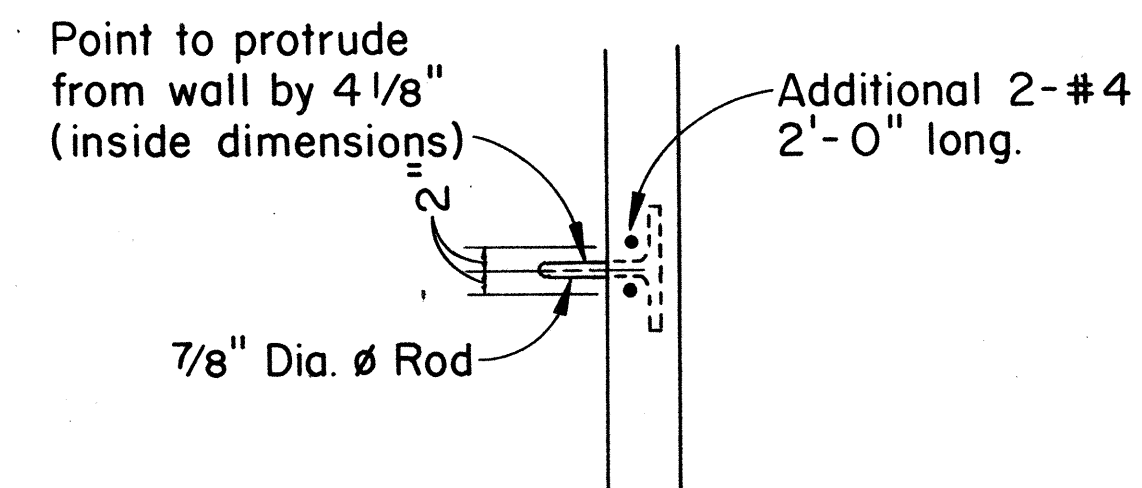
4 DUCTS
Scale: 1" = 1'-0"

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

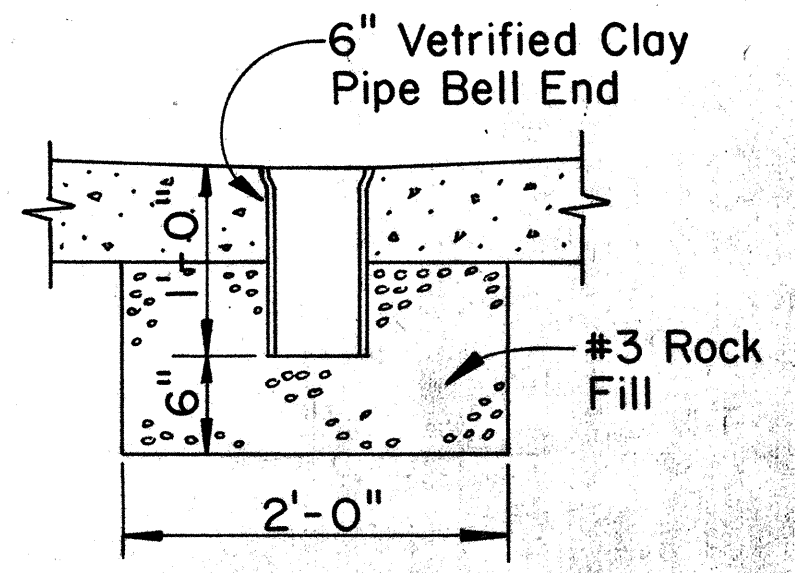
Diag. Reinf. 2-#5 at 3" o.c. over Duct Entrance.

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

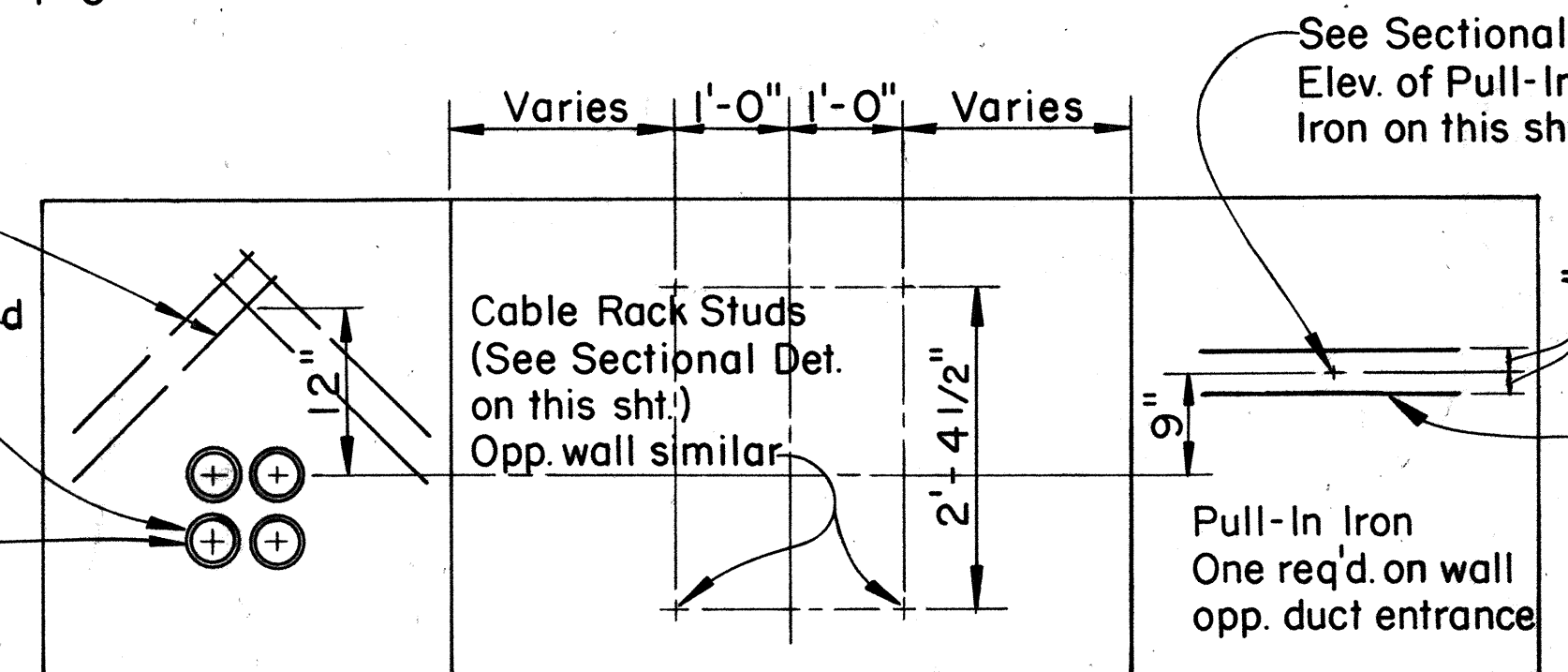
See Duct Entrance Details this sheet.



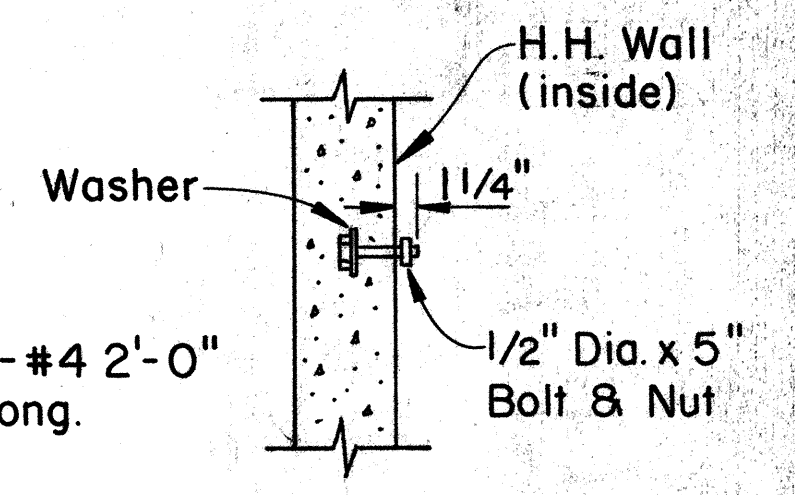
SECTIONAL ELEV. OF PULL-IN IRON
Scale: 3/4" = 1'-0"



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



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



CABLE RACK STUD

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

APPROVED:

George Yamada
HAWAIIAN TELEPHONE CO., LTD.

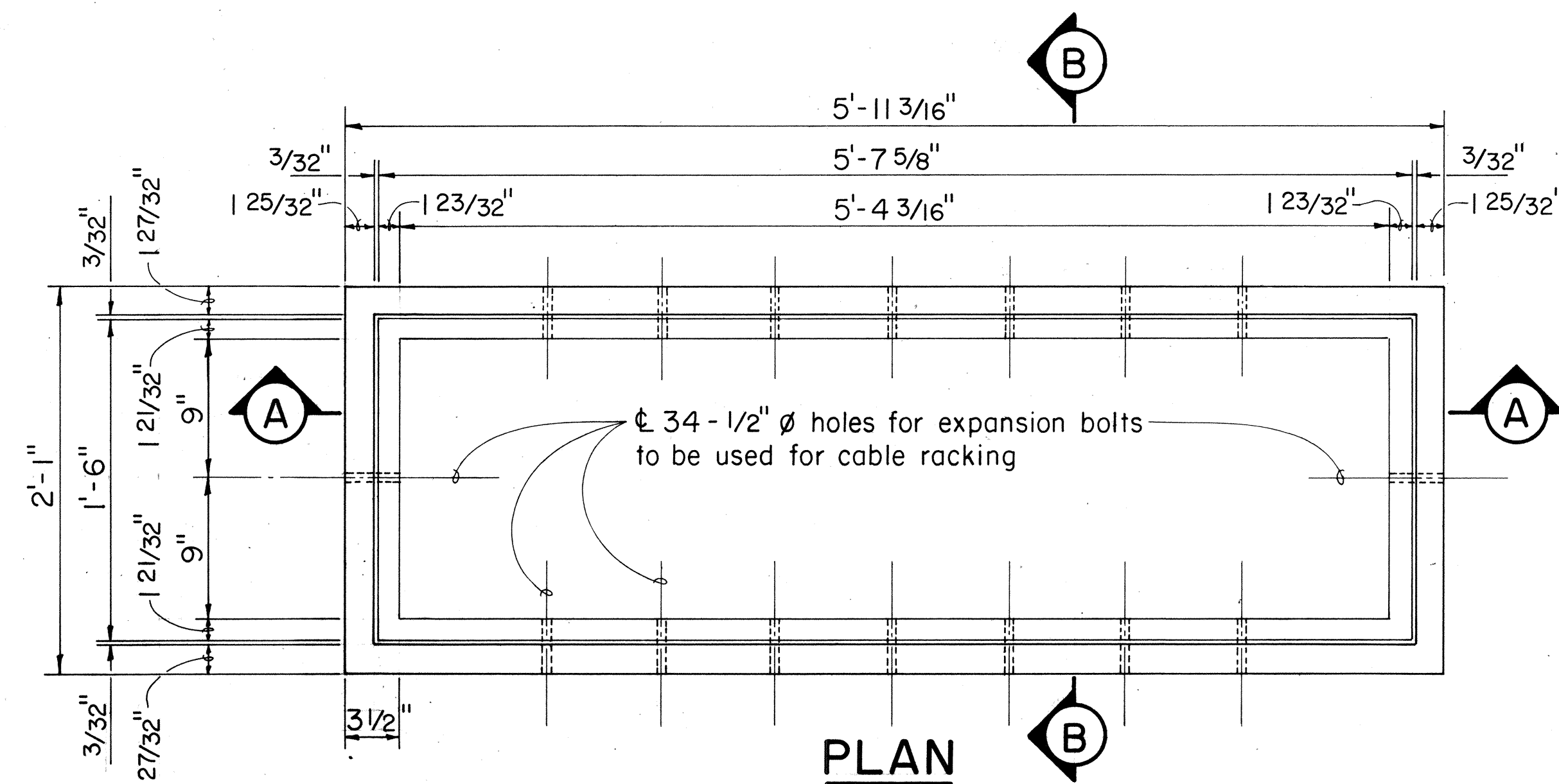
6/10/87
DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

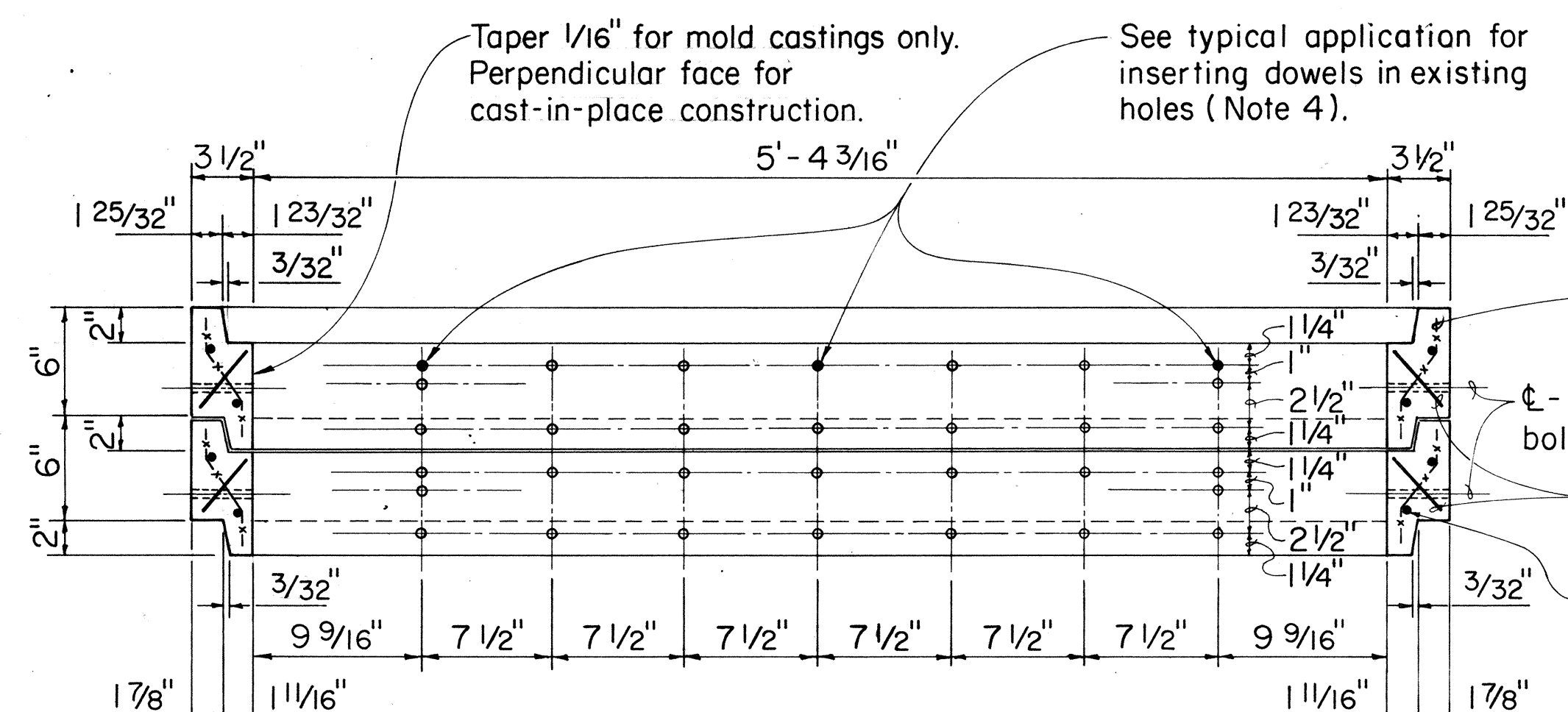
STANDARD HANDHOLE, TYPE #1 USING TYPE 435T-B PULLBOX COVERS

Scale: As Shown Date: SHEET No. 3 OF 3 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7800B-01-82 SR5-0760(2)	1982	ADD8551	163



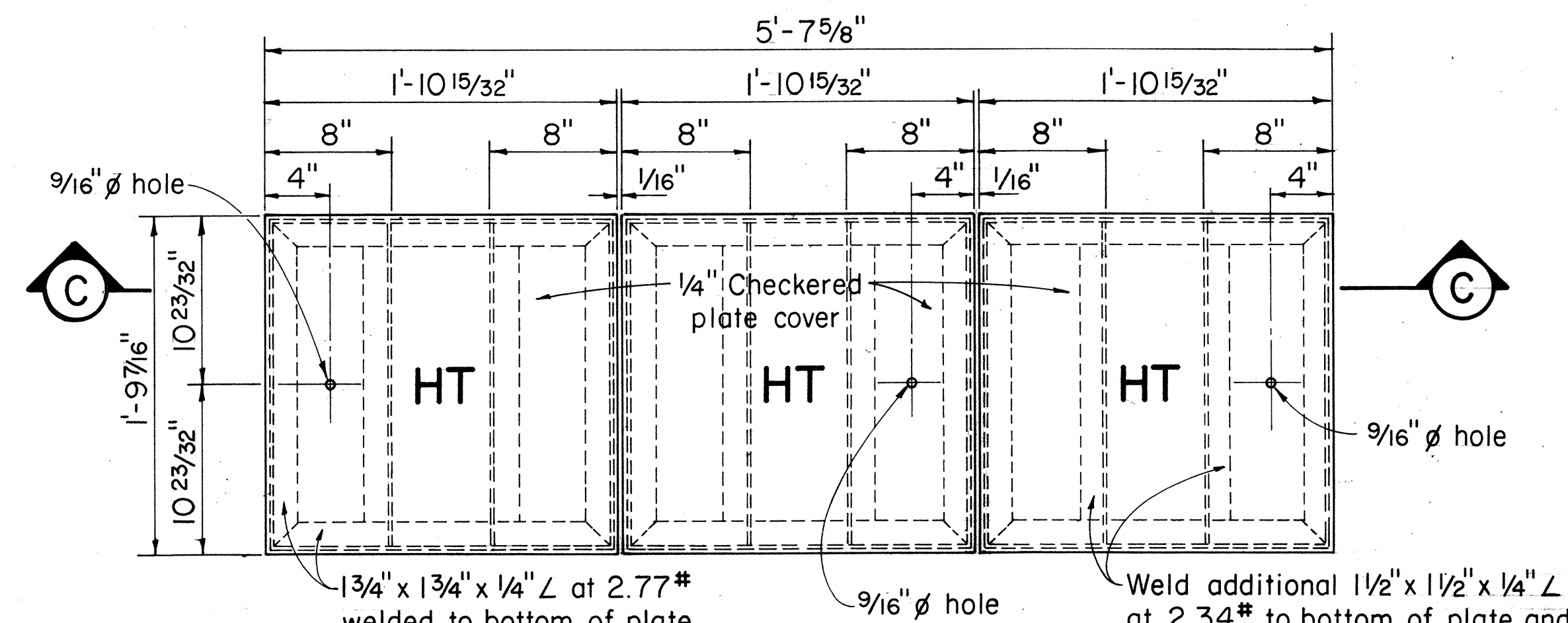
PLAN



SECTION A-A

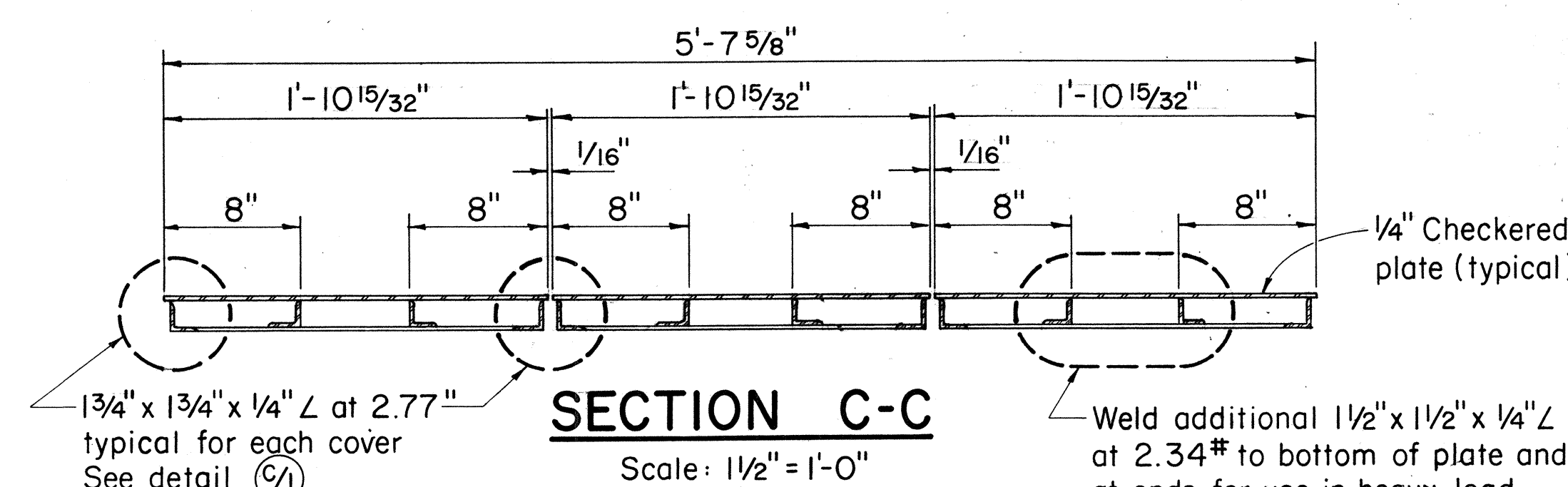
INSTALLATION NOTES:

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 of 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.
4. Insert dowels (1/2" galv. bolts) into existing top 1/2" holes in sides of boxes as shown in typical application figure. This is a method of keying the installed box to the surrounding concrete that may be placed.
5. Concrete precast base may be used as an alternative to bricks.



PLAN

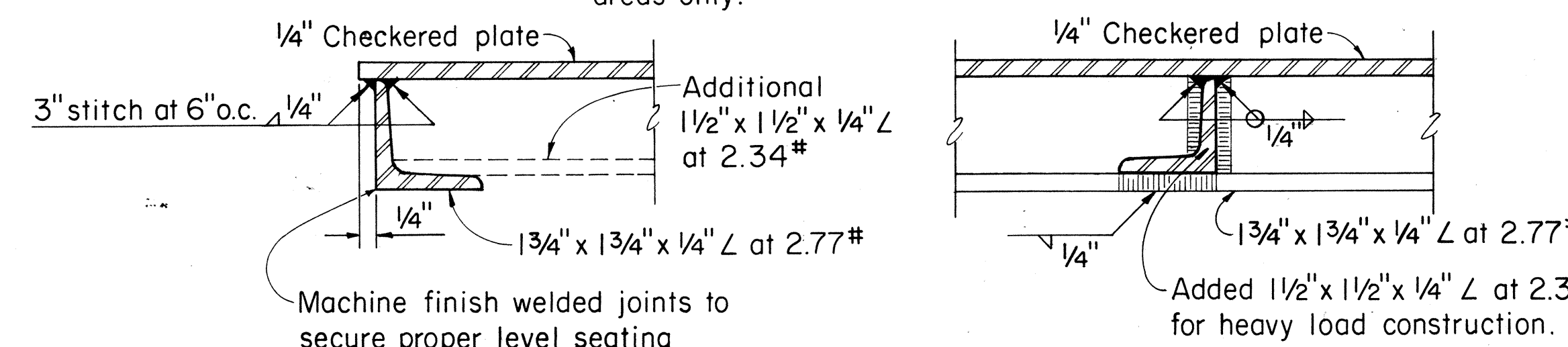
Scale: 1 1/2" = 1'-0"



SECTION C-C

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

NOTE: Addition of 1/2" x 1 1/2" x 1/4" L at 2.34" for use in heavy load areas only.



Ⓒ/1 TYPICAL COVER DETAIL

Scale: 6" = 1'-0"

Ⓒ/2 HEAVY LOAD CONSTRUCTION DETAIL

Scale: 6" = 1'-0"

TYPICAL CHECKERED STEEL PLATE COVER

NOTE:

After fabrication of cover, apply 2 coats of ZRC (zinc rich coating) to both sides or double dipped hot galvanized.

FOR LIGHT LOADING AREAS

Approximate weight 55 lbs.
Maximum concentrated load over cover = 3,000 lbs.

FOR HEAVY LOADING AREAS

Approximate weight 65 lbs.
Maximum concentrated load over cover = 16,000 lbs.

APPROVED: *Gorge Yamada* 6/10/82
Hawaiian Telephone Co., Ltd. Date

H.T. Co., Ltd. Drawing No. 34078

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

435-TB PULLBOX
(3 COVER)

SHEET NO. 3A OF 3 SHEETS

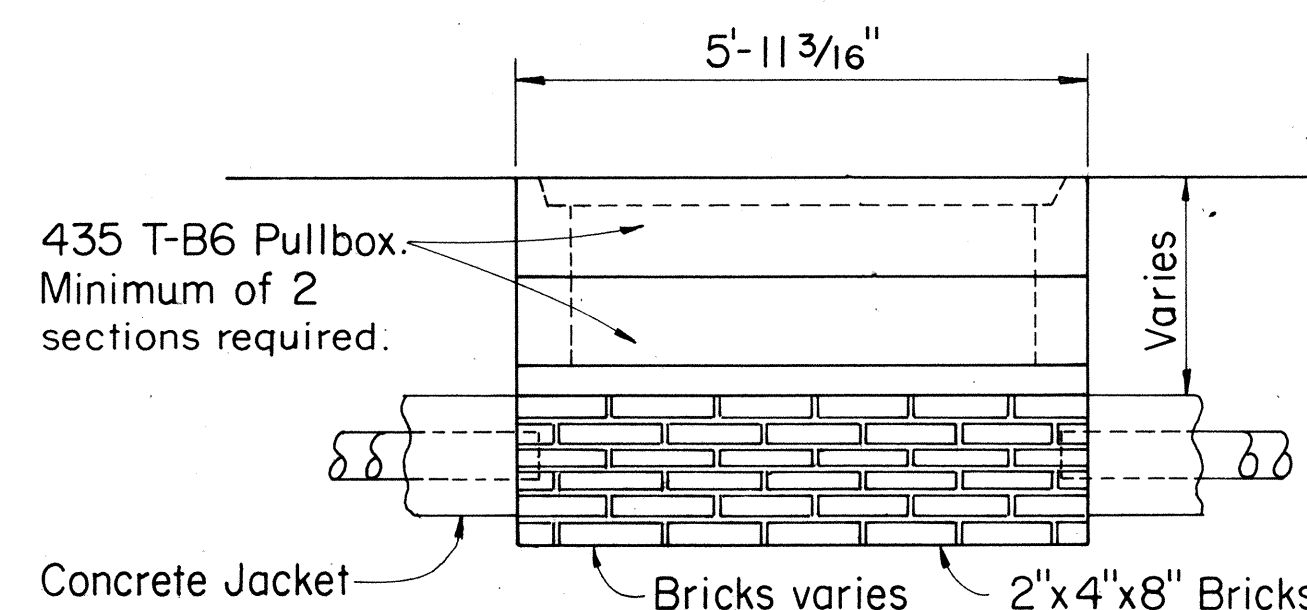
ADD85S-1

MODIFIED 3-COVER 435TB PULLBOX

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

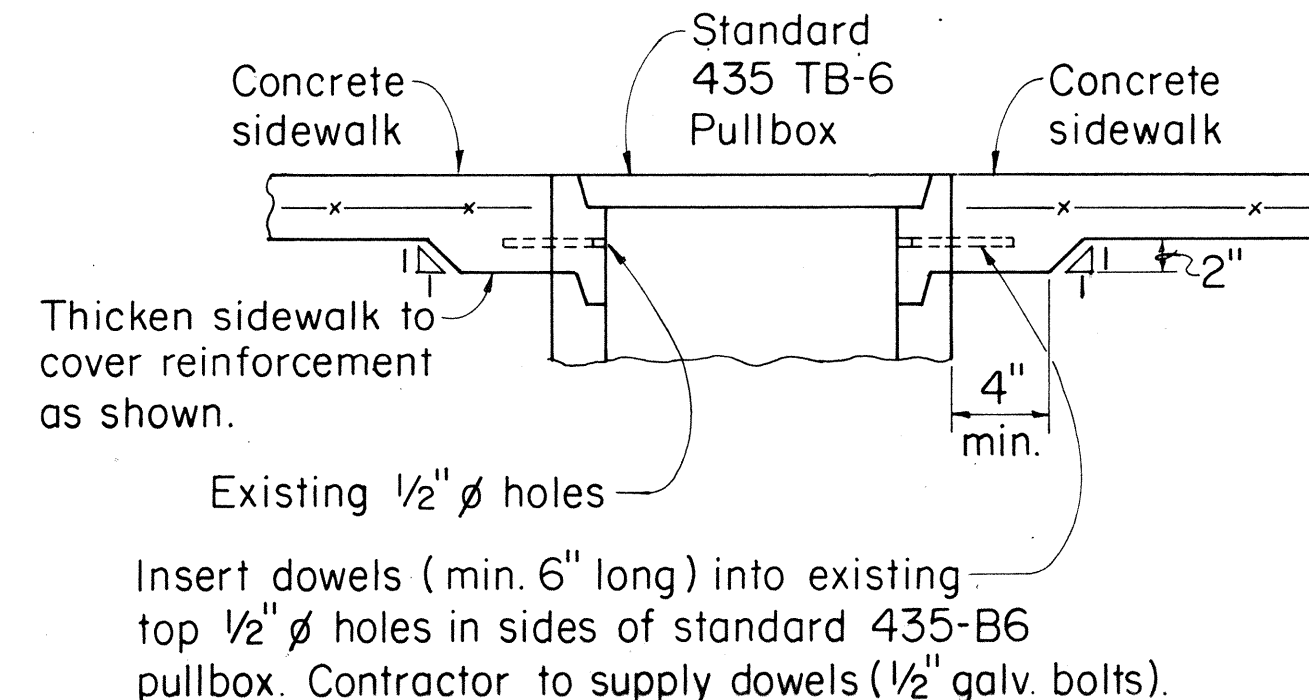
MANUFACTURER NOTES:

1. Concrete compressive strength is 3,000 psi on lower 6" of pullbox section and 5,000 psi at 28 days on upper 2" (to reduce chipping).



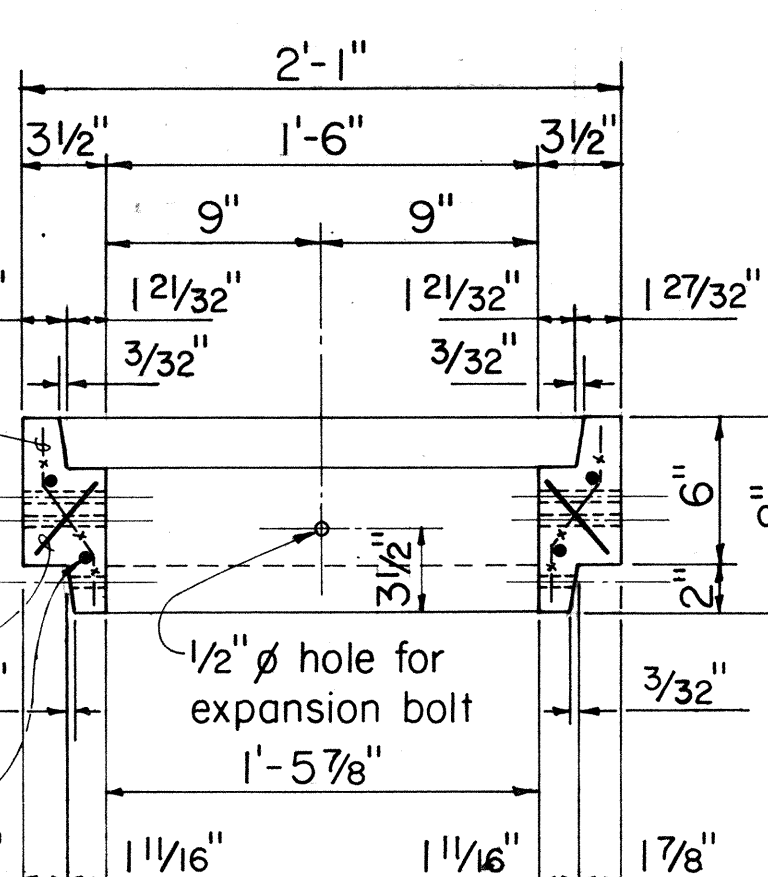
TYPICAL APPLICATION BRICK BASE

(See Note No. 5)

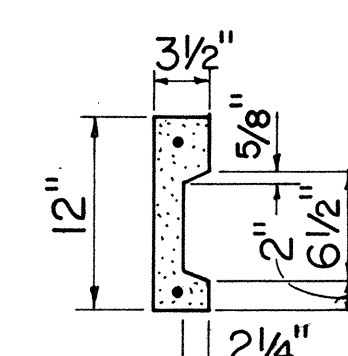


TYPICAL APPLICATION SIDEWALK INSTALLATION

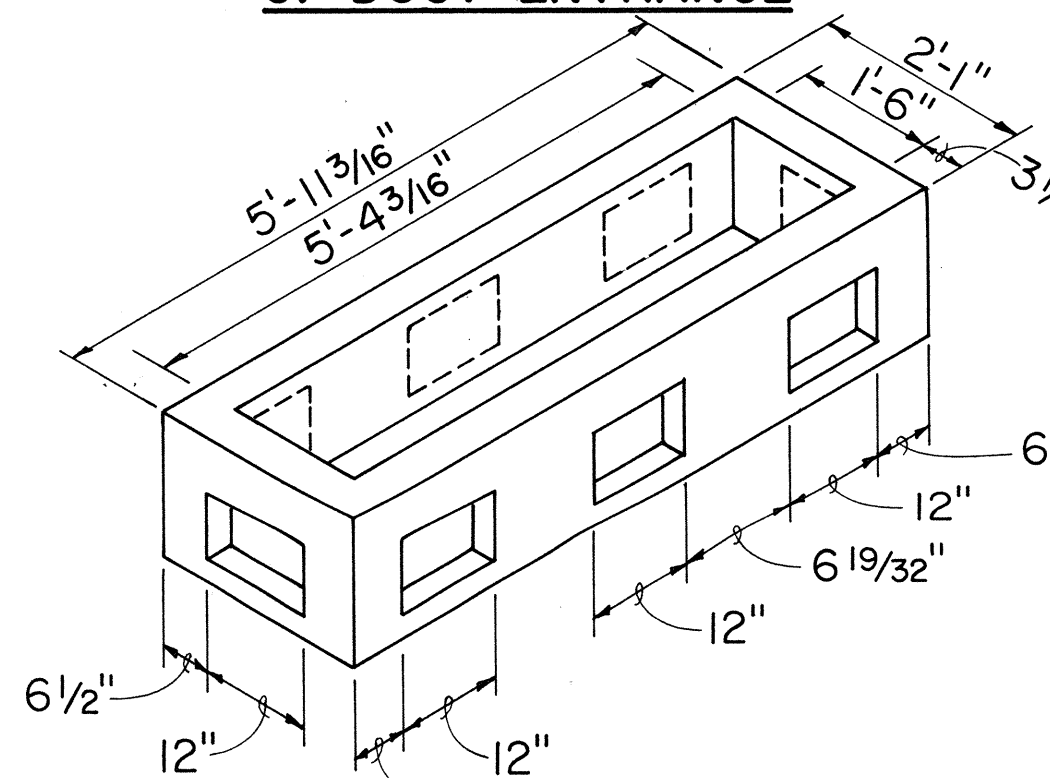
Scale: 1" = 1'-0"



SECTION B-B



TYPICAL SECTION OF DUCT ENTRANCE



TYPICAL APPLICATION PRECASTED BASE (W/ FUTURE DUCTS ON ALL SIDES)

Concrete strength 3,000psi at 28 days, reinforced with 1 ea. #3 rebar continuous top.

DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
CHECKED BY	_____
NOTED BY	_____
QUANTITIES BY	_____
NO.	_____