

UTILITY NOTES

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F076-1(1)	1986	74	121

GENERAL NOTES

1. The Contractor shall be held liable for any damages incurred to the existing utilities as a result of his operations. All damaged portions shall be replaced in accordance with the standards and specifications of the affected utility company.
2. 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 underground utilities may exist, although not shown.
3. When work is to be done outside the State's R/W the Contractor shall give all property owners and leaseholders five (5) days notice before entering into their respective properties.
4. Unless otherwise specified, all materials and construction of utility facilities and appurtenances shall be in accordance with the "Standard Specifications for Road and Bridge Construction," dated 1976, as amended, of the Hawaii Highways Division, Department of Transportation.

JOINT TRUNKING SYSTEM AND TELEPHONE NOTES - HAWAIIAN TELEPHONE CO., LTD. (HTCO)

1. The Contractor shall give HTCO, in writing, at least 20 working days advance notice of intent to commence work on the Telephone System.
2. The Contractor shall notify HTCO Inspector 72 hours prior to any excavation near Joint Trunking cables for cable toning.
3. Adjustments to any new or existing HTCO facilities shall be made as directed by HTCO and approved by the Engineer.
4. HTCO shall coordinate its work with the Contractor in such a manner as not to impede construction.
5. Splice pits, handholes and ductlines shall be staked out by the Contractor and verified by HTCO representative prior to digging.
6. Construction of all handholes and ductlines shall be done by the Contractor. HTCO shall furnish all materials as specified in the Special Provisions.
7. The existing Joint Trunking cables are approximately 2-3 feet below the existing ground. The Contractor shall use extreme caution when working in the vicinity of the cables.
8. All joint pole and anchor installations along Ft. Weaver Rd. shall be done by Hawaiian Electric Co. unless otherwise noted.
9. For additional details and requirements, the Contractor shall refer to Section 630 - TELEPHONE SYSTEM of the Special Provisions.
10. To facilitate construction in the vicinity of the Fort Weaver Road and Iroquois Point Road/Geiger Road intersection, the Contractor shall finish construction of HTCO Lines "B" and "D" prior to any roadway work directly over the existing Army Signal Corp cables.

ELECTRICAL NOTES - HAWAIIAN ELECTRIC CO., INC. (HECO)

1. HECO shall coordinate its work with the Contractor in such a manner as not to impede construction.
2. Adjustments to any new or existing HECO facilities shall be made as directed by HECO and approved by the Engineer.
3. Any cost for temporary relocations arising during construction for the Contractor's benefit, shall be borne by the Contractor.
4. The Contractor shall be liable for any and all damages to HECO's facilities which is caused by his operations. Damages will be corrected by HECO at the Contractor's expense.
5. HECO shall furnish and install all materials to complete construction of HECO'S overhead system including all joint pole agreement items.
6. Locations of wood poles and ductlines shall be staked out by the Contractor and verified by the HECO Inspection Division before excavation and construction.
7. Excavation of joint pole holes and anchor holes, installation of poles and anchors and backfill of pole holes and anchors shall be done by HECO and/or it's Contractor.
8. The Contractor shall provide existing and finished grade information and R/W line information at each pole and anchor location. Depth of poles and anchors will be taken from finished grades.
9. Removal of poles and anchors and backfill of pole holes shall be done by HECO and/or it's Contractor.
10. HECO and/or it's Contractor shall furnish and install all materials to complete construction of HECO'S underground ductline system including riser bends.
11. HECO and/or it's Contractor to Mandrel test all ductlines.

SPECIAL NOTE (HECO)

The cables in existing Hawaiian Electric Company, Inc. handholes and duct lines are energized. These energized insulated cables shall remain in place during construction. Only HECO men shall handle these cables and erect temporary guards to protect these cables from damage. The Contractor shall work cautiously to avoid accidents and shall exercise due care and precautions to avoid disturbance of energized cables, existing duct lines, and temporary guards, to protect these cables from damage.

Contact Mr. Dave Moncrief, Ph. 548-3544 pertaining to underground cables, tone out and "CSA" work.

Contact Mr. Walter Okudara, Ph. 455-7022 pertaining to overhead pole line facilities.

WATER NOTES - BOARD OF WATER SUPPLY

1. The BWS Standard Details, Figures 1 to 62 inclusive, bound in the "Water System Standards" of the BWS, dated March, 1977, as amended, are applicable to this Project. The Contractor may purchase copies of the "Water System Standards" at the Dept. of Finance, Purchasing Division, City and County of Honolulu.
2. The Contractor shall notify the Board of Water Supply, Planning and Engineering Division, at least one week prior to commencing work on the water system.
3. Prior to any excavation, the Contractor shall verify in the field the location of existing water mains and appurtenances. Where other 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 by hand.
4. There shall be a minimum horizontal clearance of 3 feet, and a minimum vertical clearance of 6 inches between water mains and other lines.
5. Items indicated as "Relocate" on the plans shall be removed, cleaned, painted and reinstalled at the new location by the Contractor unless otherwise specified.
6. Sta. 219+10±. The Contractor shall connect the new service connection to the existing 2 1/2-inch water line with pipe of the same material as the existing line. Payment for the installation complete in place, shall be considered incidental to Item No. 624, 1859, "Furnishing and Installing 2 1/2-inch Single Service Lateral and All Appurtenances".
7. Discrepancies, if any, of alignments, grades, fittings, etc. shall not be the responsibility of the Board of Water Supply.
8. 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.
9. 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.

NOTE:

For Additional Water Notes, See Plan Sht. Nos. 75 & 80.

APPROVED:

John W. Makiwini Date 9/24/86
Chief, Planning and Engineering, B.W.S. 94
Hawaiian Electric Co., Inc. Date
Hawaiian Telephone Co., Ltd. Date 9/27/86
A. Uyama Date 9/27/86
Chief, Div. of Wastewater Management

REAPPROVED:

John W. Makiwini 9-24-86
CHIEF, PLANNING & ENGINEERING, B.W.S. DATE
George M. Uyama 9/27/86
CHIEF, DIV. OF WASTEWATER MANAGEMENT DATE

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION LAND TRANSPORTATION FACILITIES DIVISION
<u>UTILITY GENERAL NOTES</u>
<u>FORT WEAVER ROAD</u> <u>Renton Road to Hanakahi Street</u> <u>F.A.P. Proj. No. F-076-1(1)</u>
Date: Sept, 1979
SHEET NO. 1 OF 17 SHEETS

UTILITY NOTES

SEWER NOTES - DIVISION OF WASTEWATER MANAGEMENT

1. The Contractor shall notify the Division of Wastewater Management seven (7) working days prior to commencement of sewer work and furnish four (4) sets of approved construction plans.
2. Existing Sewer Lines shown on the plans are based on existing records of varying degrees of accuracy and completeness, verified whenever possible by field surveys. The Contractor shall verify location and inverts of existing lines, and shall be required to make adjustments to any new or existing sewer system wherever directed by the Engineer.
3. The Contractor shall adjust the existing sewer manhole and manhole frame and cover as noted in plans.
4. Sewer construction shall also be done in accordance with the Standard Specifications for Public Works Construction, May 1975, Standard Details for Public Works Construction of August 1976, Departments of Public Works, City and County of Honolulu, and Revised Ordinances of Honolulu, 1978, as amended.

(For Water Notes 1-9, see Plan Sht. No. 74.)

WATER NOTES - BOARD OF WATER SUPPLY

10. All plans approved by the Board of Water Supply are based solely on the adequacy of the water supply. All other features of the water system, such as lines, grades, fittings etc., and drainage and other features of improvements shall not be the responsibility of the Board of Water Supply.
11. Unless otherwise specified, connections to existing water mains shall be done by the Contractor with the Board of Water Supply inspector coordinating the work. For details, contact BWS Planning and Engineering Division, Engineering Branch, Construction Section.
12. All meter boxes, valve boxes, and manholes, including frames and covers, shall be furnished and installed by the Contractor at no cost to the Board of Water Supply.
13. Test pressure shall be one of the following:
 - a. Prevailing line pressure, joints left exposed for 24 hours to check for leaks prior to backfill.
 - b. 150 psi.
14. The Contractor shall chlorinate the entire inside surface of each new pipe and fittings with disinfection solution of 5 ounces of sodium hypochlorite mixed with 10 gallons of water.
15. The Contractor shall pick up and install Board of Water Supply furnished meters. Arrangements shall be made with BWS inspector.
16. Furnished meters shall be the responsibility of the Contractor until accepted by the Board of Water Supply.
17. Water used by the Contractor through furnished meters shall be paid for by the Contractor.
18. The measurement from meter dial to bottom of meter box cover shall be 6 inches minimum and 12 inches maximum.
19. The Contractor shall cut and plug all unused laterals at the main whether or not shown on the plans or as directed by the Board of Water Supply inspector at the Contractor's cost.
20. Unless otherwise noted on the plans, unused meters and valve boxes shall be demolished by the Contractor and the area restored as directed by the Engineer. Incidental to roadway excavation.
21. The Contractor shall furnish and install additional fittings, if necessary, to meet field conditions at his cost.
22. For meters 3" and larger (compound and detector check), contractor shall notify Customer Service Division in writing after the plan is approved, no later than 120 days, prior to withdrawing meter from BWS Storeyard. Such notice shall indicate the number, size, and type of meter (compound or detector check) and approximate month and year meter is anticipated to be drawn out. If the approved plan is allowed to lapse, the 120-day notice will be voided.
23. Unless otherwise specified, all materials and construction of water system facilities and appurtenances shall be in accordance with the STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, dated 1985, as amended, of the Hawaii Highways Division, Department of Transportation.
24. The contractor shall provide all necessary materials for testing.
25. Reapproval shall be required if this project is not under construction within a period of one year (See Rules and Regulations of the Board of Water Supply.)
26. Nuts and bolts for flanged connections within meter boxes shall be bronze or stainless steel except coupling adaptors where "Cor-ten" (U.S. Steel) or "Mayari" (Bethlehem Steel) may be used. Flanged connections outside of meter box may use "Cor-ten" or "Mayari"

type nuts and bolts.

27. In the event that water mains other than Ductile Iron is to be used, the plans shall be resubmitted for approval.
28. The project shall provide three sets of approved plans and pay the applicable water development and/or one-time service charge and for the meter which will be furnished by BWS and installed by the contractor when the lateral is installed.
29. All cast iron (gray or ductile) pipes, fittings, and valves shall be enclosed in plastic material in accordance with AWWA Specifications C105-82 "Polyethylene Encasement" for ductile iron piping for water and other liquids.

For Additional Water Notes, see Plan Sht. No. 80.

REAPPROVED:

R. Uyato 7-24-85
for CHIEF, PLANNING & ENGINEERING, B.W.S. DATE
G. Uyama 9/27/85
CHIEF, DIV. OF WASTEWATER MANAGEMENT DATE

APPROVED:

David W. Mandamin 2/1/87
Chief, Plann'g & Engineer'g, B.W.S. Date
G. Uyama 2/28/82
Chief, Div. of Wastewater Management Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

UTILITY GENERAL NOTES

FORT WEAVER ROAD
Renton Road to Hanakahi Street
F.A.P. Proj. No. F-076-1(1)

Date: Jan., 1982

SHEET NO. 2 OF 17 SHEETS

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F076-1(1)	1986	76	121

LEGEND

- Existing Electric Duct Lines
- New Electric, Telephone or Joint
- Trunking Cable Duct Lines
- Existing Joint Trunking System
- New Joint Trunking System
- Existing Electric Pole
- Existing Telephone Pole
- Existing Joint Pole
- New Joint Pole
- Existing Electric, Telephone or Joint Pole to be removed
- Existing Anchor
- Existing Anchor to be removed
- New Anchor
- Existing Handhole, Manhole or Service/Pull Box
- New Handhole, Manhole or Service/Pull Box
- Existing Fuel Line
- Existing Water Line
- Existing Sewer Line

Denotes Hawaiian Telephone Co., Ltd.

4 F-2

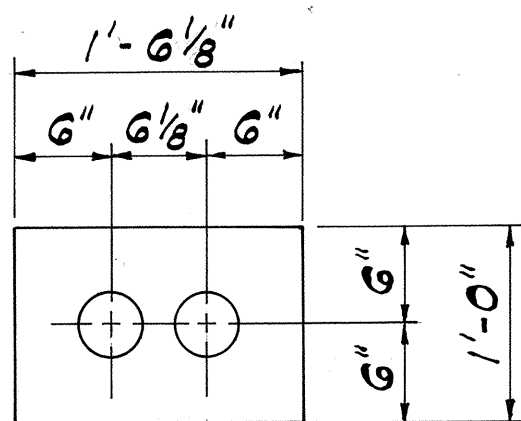
Denotes number of Ducts in bottom layer

Denotes Duct size

Denotes total number of Ducts

SYMBOL IDENTIFICATION

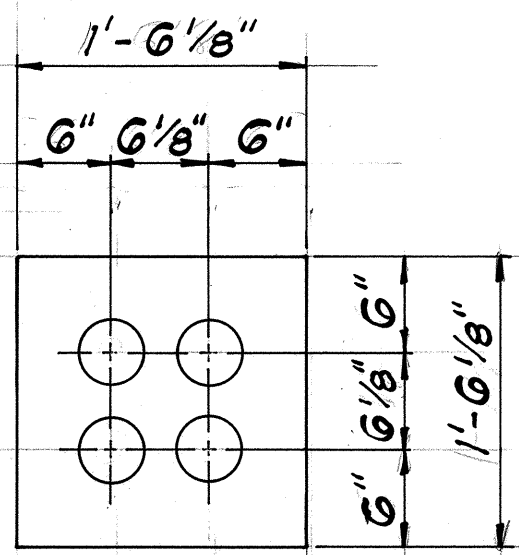
CONDUIT SIZE	SYMBOL
3/4"	A
1"	B
2"	C
3"	D
3 1/2"	E
4"	F
4 1/2"	G
5"	H



T

2 F-2

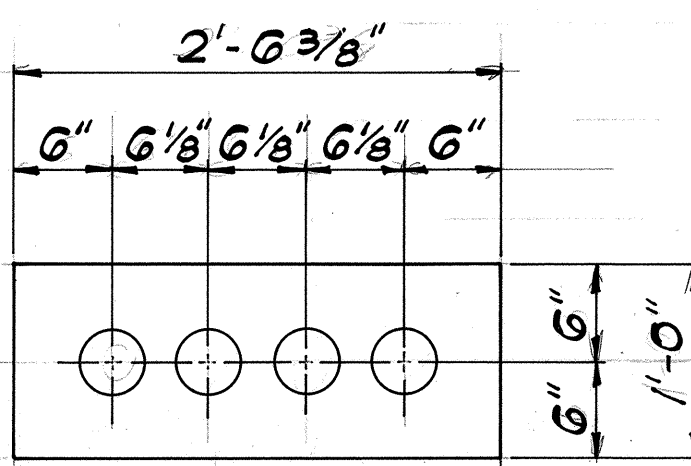
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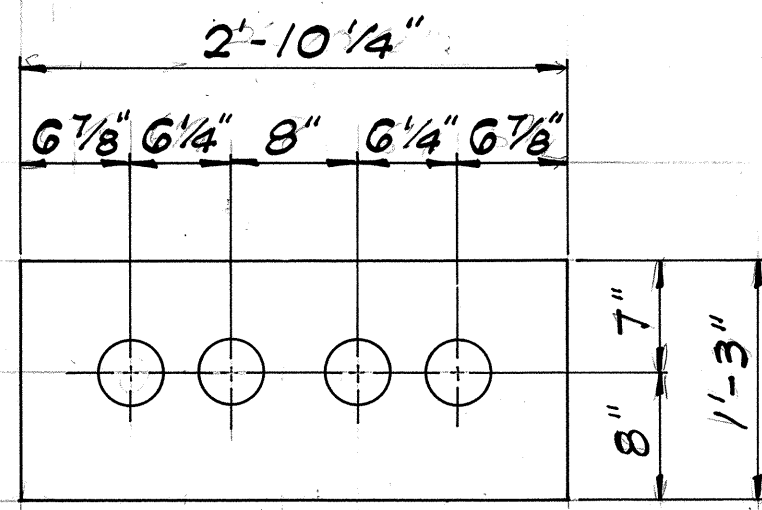
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4 F-4

Scale: 1" = 1'-0"



JTS

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BEGIN PROJECT

F.A.P. PROJ. NO. F-076-1(1)

STA. 204 + 50.00

R/W and Control of Access Line

Bikeway

NORTHBOUND LANES

205

345° 40'

SOUTHBOUND LANES

1/6 Ft. Weaver Rd.

tp4

tp2

JP3

JP3x

ep3

JP4

tp7

tp5

tp6

tp7

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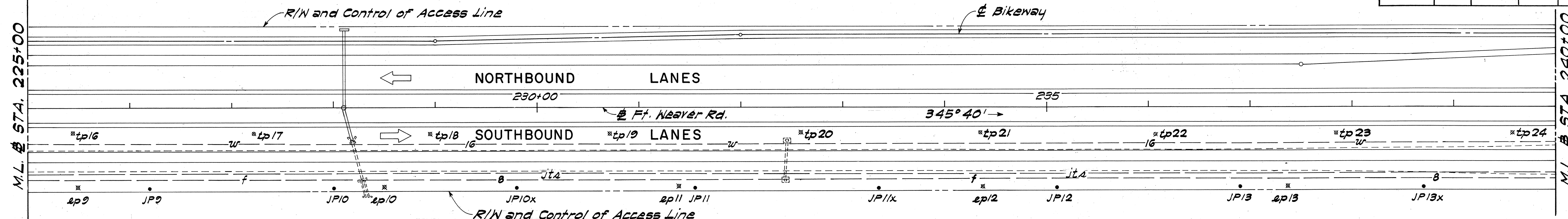
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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-076-1(1)	1986	77	121



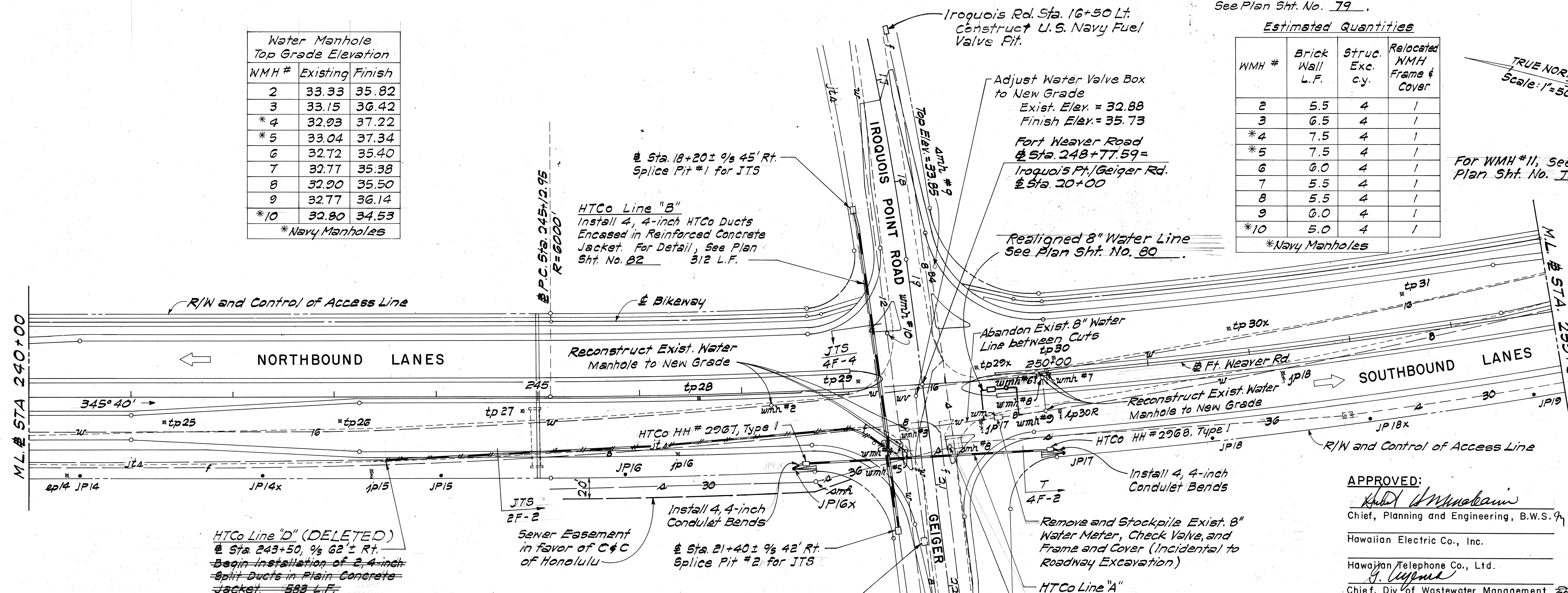
Water Manhole	Top Grade Elevation
WMH #	Existing Finish
2	33.33 35.82
3	33.15 36.42
*4	32.93 37.22
*5	33.04 37.34
6	32.72 35.40
7	32.77 35.38
8	32.90 35.50
9	32.77 36.14
*10	32.80 34.53
*Navy Manholes	

Reconstruction of Exist. Water Manholes
See Plan Sht. No. 79.

Estimated Quantities

WMH #	Brick Wall L.F.	Struc. Exc. c.y.	Relocated NMH Frame & Cover
2	5.5	4	1
3	6.5	4	1
*4	7.5	4	1
*5	7.5	4	1
6	6.0	4	1
7	5.5	4	1
8	5.5	4	1
9	6.0	4	1
*10	5.0	4	1
*Navy Manholes			

For WMH #11, See
Plan Sht. No. 78.



NOTES:

- The Contractor shall give the U.S. Navy written notification 10 working days prior to commencing work on the reconstruction of the Navy manholes. The written notice shall be sent to: Mr. A. Lundberg, U.S. Navy Public Works Center, Pearl Harbor, Hawaii, 96860, Phone No. 471-9870.
- The Contractor shall make all necessary arrangements with Mr. William Liu, Assistant to the Facilities Engineer, Naval Base (Code 002B), Box 110, Pearl Harbor, Hawaii, 96860, Phone No. 471-8471, for the coordination of work with the U.S. Navy.

REAPPROVED:

CHIEF, PLANNING & ENGINEERING, B.W.S. 9-24-85
CHIEF, DIV. OF WASTEWATER MANAGEMENT 9/27/85

Sta. 21+54 ± 9/16' Rt.
Reconstruct Top of Exist.
U.S. Navy Fuel Valve Pit
For Details, See Plan Sht. No. 89.
Exist. Elev. = 34.00
Finish Elev. = 37.20

APPROVED:

Chief, Planning and Engineering, B.W.S. 9/2/85
Hawaiian Electric Co., Inc.
Hawaiian Telephone Co., Ltd.
Chief, Div. of Wastewater Management 9/2/85

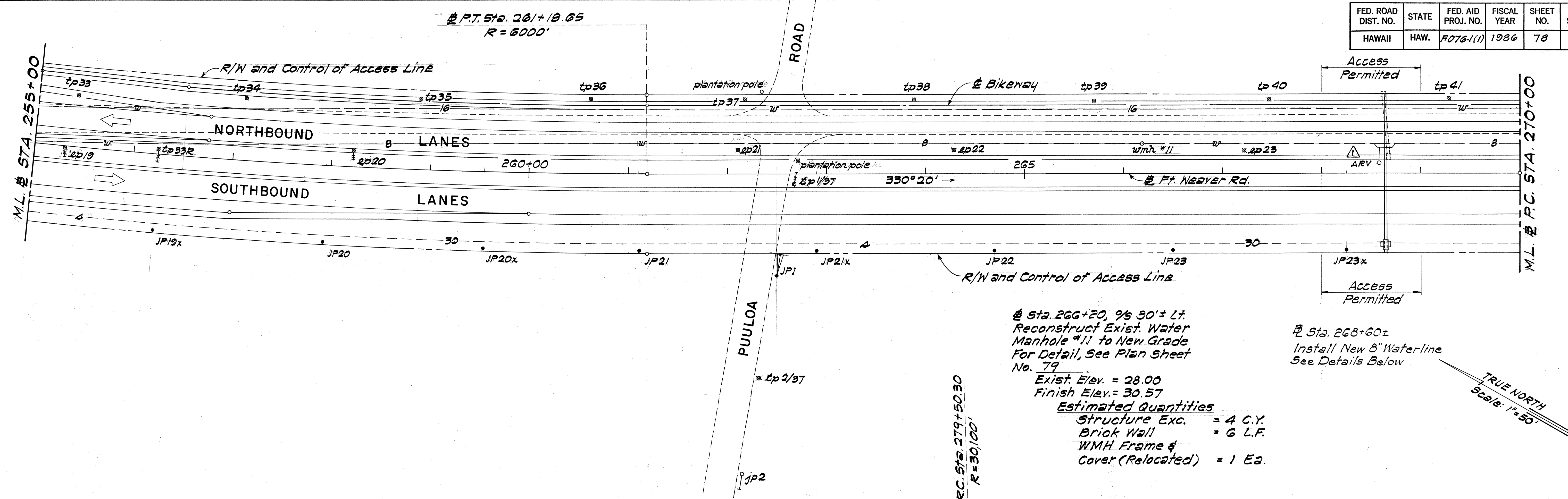
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

UTILITIES

FORT WEAVER ROAD
Renton Road to Hanakahi Street
FAP Proj. No. F-076-1(1)

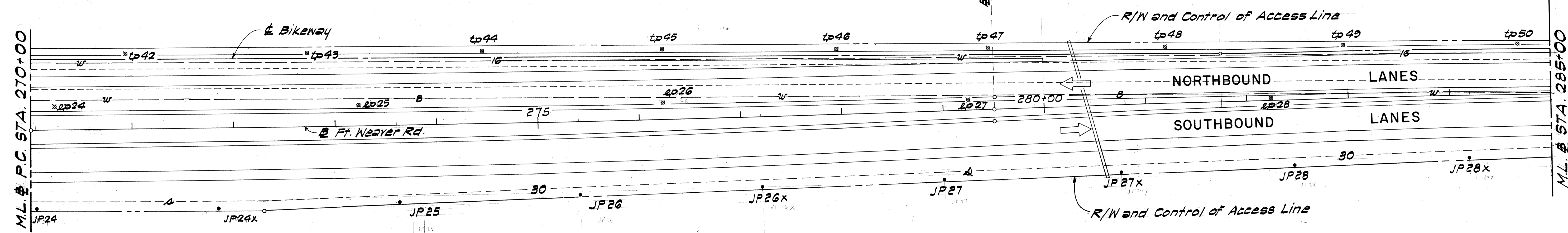
Scale: As Shown Date: July, 1979
SHEET No. 4 OF 17 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F076-1(1)	1986	78	121



@ Sta. 266+20, 9/8 30' ± L.
 Reconstruct Exist. Water Manhole #11 to New Grade
 For Detail, See Plan Sheet No. 79
 Exist. Elev. = 28.00
 Finish Elev. = 30.57
 Estimated Quantities
 Structure Exc. = 4 C.Y.
 Brick Wall = 6 L.F.
 WMH Frame & Cover (Relocated) = 1 Ea.

@ Sta. 268+60±
 Install New 8" Waterline
 See Details Below



Sta. 0+05.66
 1-8" 1/8 Bend (HTV)
 1-Concrete Block

Sta. 0+00
 1-8" 1/8 Bend (HBV)
 1-Concrete Block w/Struct. Strut
 1-8" Sleeve 12" Long
 8-Lin. Ft. - 8" D.I. Pipe
 TEMPORARY FOR TESTING
 1-8" Cap w/2 1/2" Cleanout
 1-Concrete Block

30" Siphon Pipe
 8" w
 3/4" Brass Tubing
 3/4" Air Relief Valve
 (85 P.S.I. Min. Working Pressure)

Sta. 0+18.66
 1-8" 1/8 Bend (HTV)
 1-Concrete Block

Sta. 0+24.31
 1-8" 1/8 Bend (HBV)
 1-Concrete Block w/Struct. Strut
 1-8" Sleeve 12" Long
 8-Lin. Ft. - 8" D.I. Pipe
 TEMPORARY FOR TESTING
 1-8" Cap w/2 1/2" Cleanout
 1-Concrete Block

PLAN ~ NEW 8" WATER
 Scale: 1" = 20'

PROFILE ~ NEW 8" WATER
 Scale: Hor. = 1" = 20'
 Vert. = 1" = 5'

REAPPROVED:
 [Signature]
 CHIEF, DIV. OF WASTEWATER MANAGEMENT 9/27/85
 [Signature]
 CHIEF, PLANNING & ENGINEERING, B.W.S. 7-24-85

APPROVED:
 [Signature]
 Chief, Div. of Wastewater Management 9/27/85
 [Signature]
 Chief, Planning and Engineering, B.W.S. 7/18/85
 Hawaiian Electric Co., Inc. Date
 Hawaiian Telephone Co., Ltd. Date

DATE	REVISION	APPROVAL
1-5-87	Installation of New 8" Waterline at Sta. 268+60± shown, to clear 30" Siphon Pipe.	B.W.S.

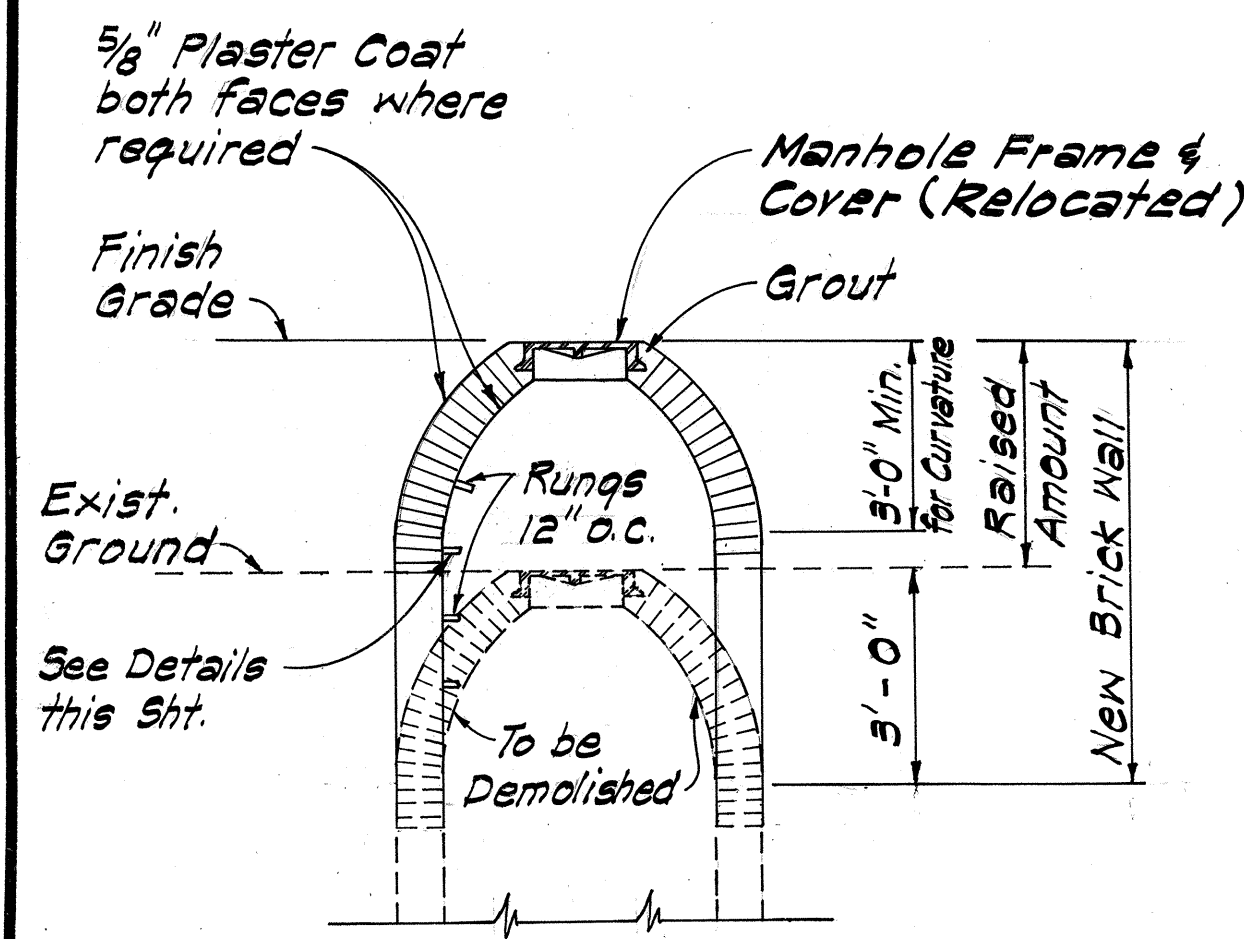
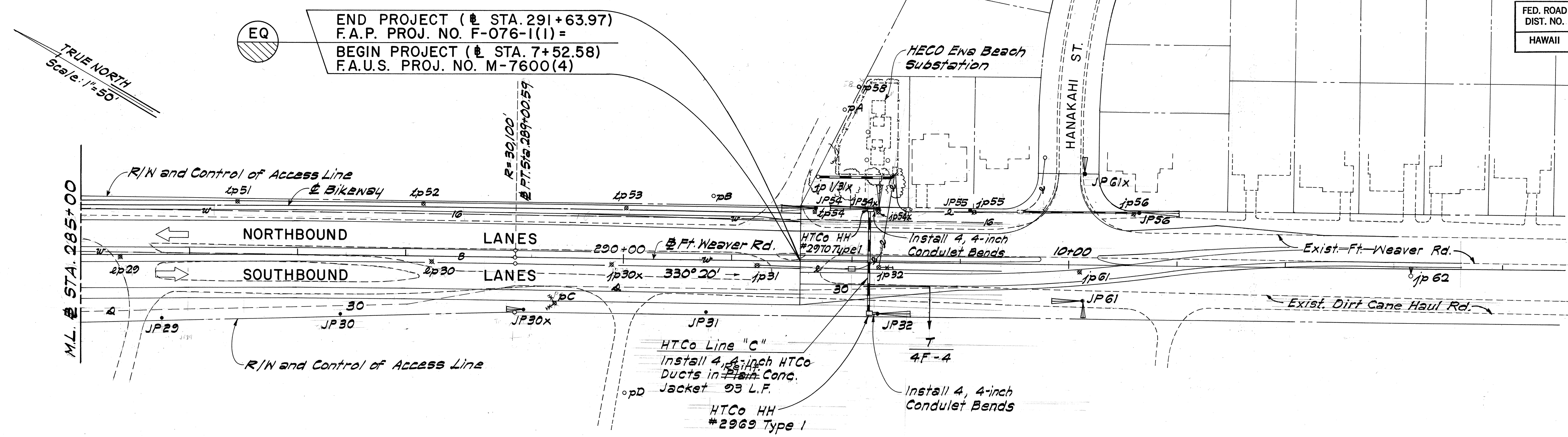
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 LAND TRANSPORTATION FACILITIES DIVISION

UTILITIES

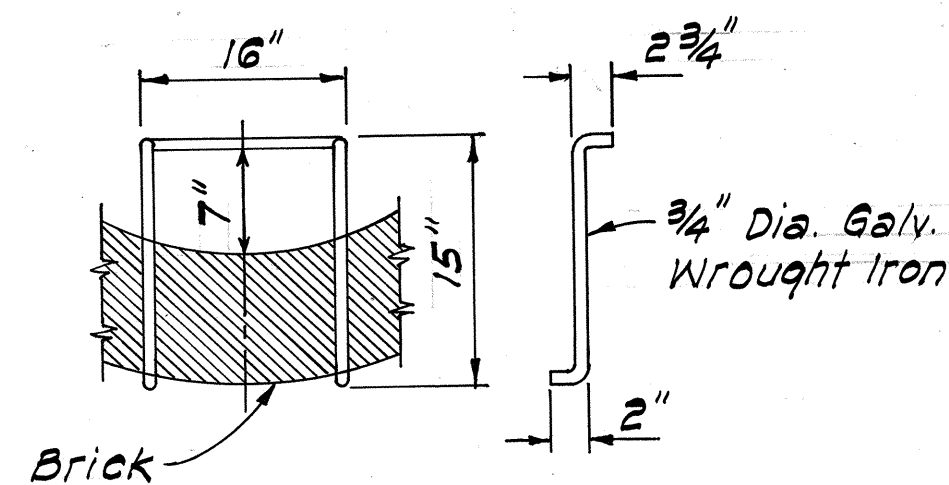
FORT WEAVER ROAD
 Renton Road to Hanakahi Street
 F.A.P. Proj. No. F-076-1(1)

Scale: As Shown Date: July, 1979
 SHEET No. 5 OF 17 SHEETS

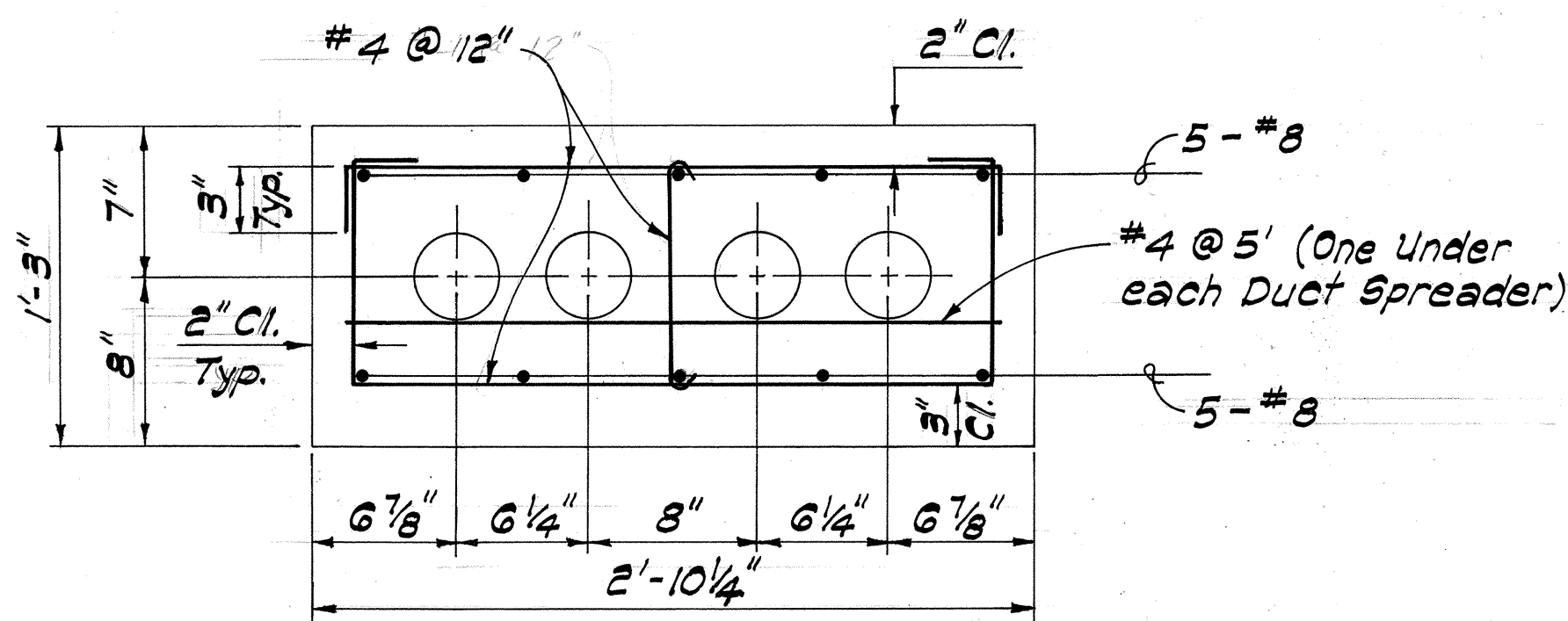
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F076(11)	1986	79	121



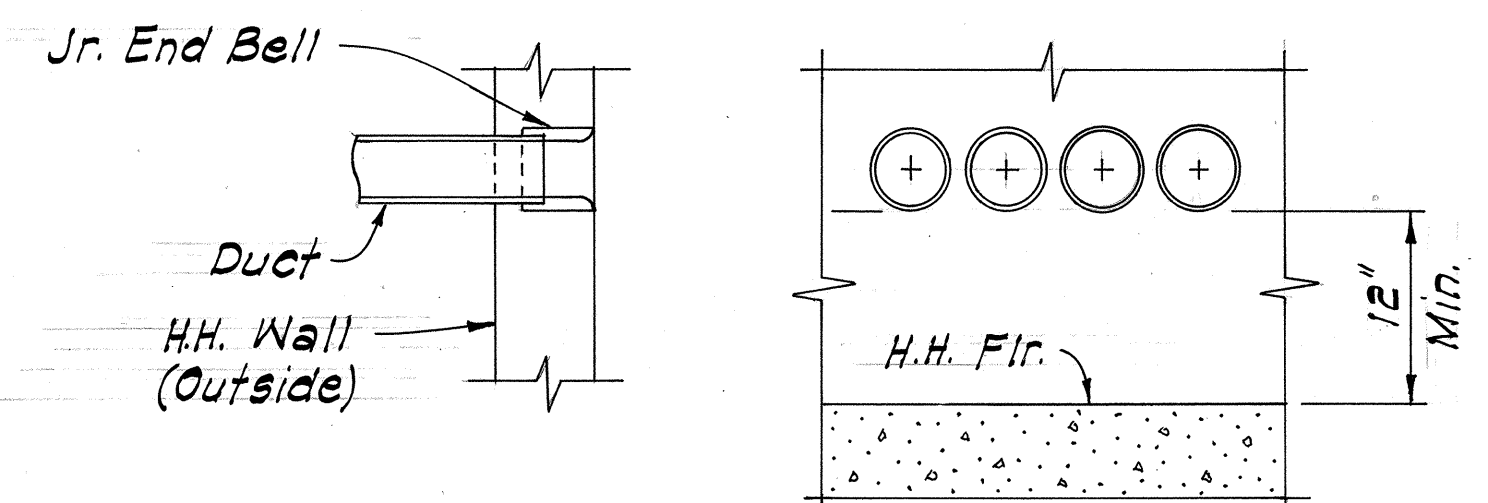
DETAIL FOR RECONSTRUCTING EXISTING WATER MANHOLE
Not to Scale



RUNG DETAIL
Not To Scale



DETAIL OF 4-4" DUCTS IN REINFORCED CONCRETE JACKET FOR JTS
Scale: 1 1/2" = 1'-0"



DETAIL OF HANDHOLE DUCT ENTRANCE FOR HTCo LINE "C"
Scale: 1" = 1'-0"

REAPPROVED:

G. Upm...
Chief, Div. of Wastewater Management

R. Upm...
Chief, Planning and Engineering, B.W.S.

9/27/85
Date

7-24-85
Date

APPROVED:

G. Upm...
Chief, Div. of Wastewater Management

Ant...
Chief, Planning and Engineering, B.W.S.

check
Date

1/19
Date

Hawaiian Electric Co., Inc.

Date

Hawaiian Telephone Co., Ltd.

Date

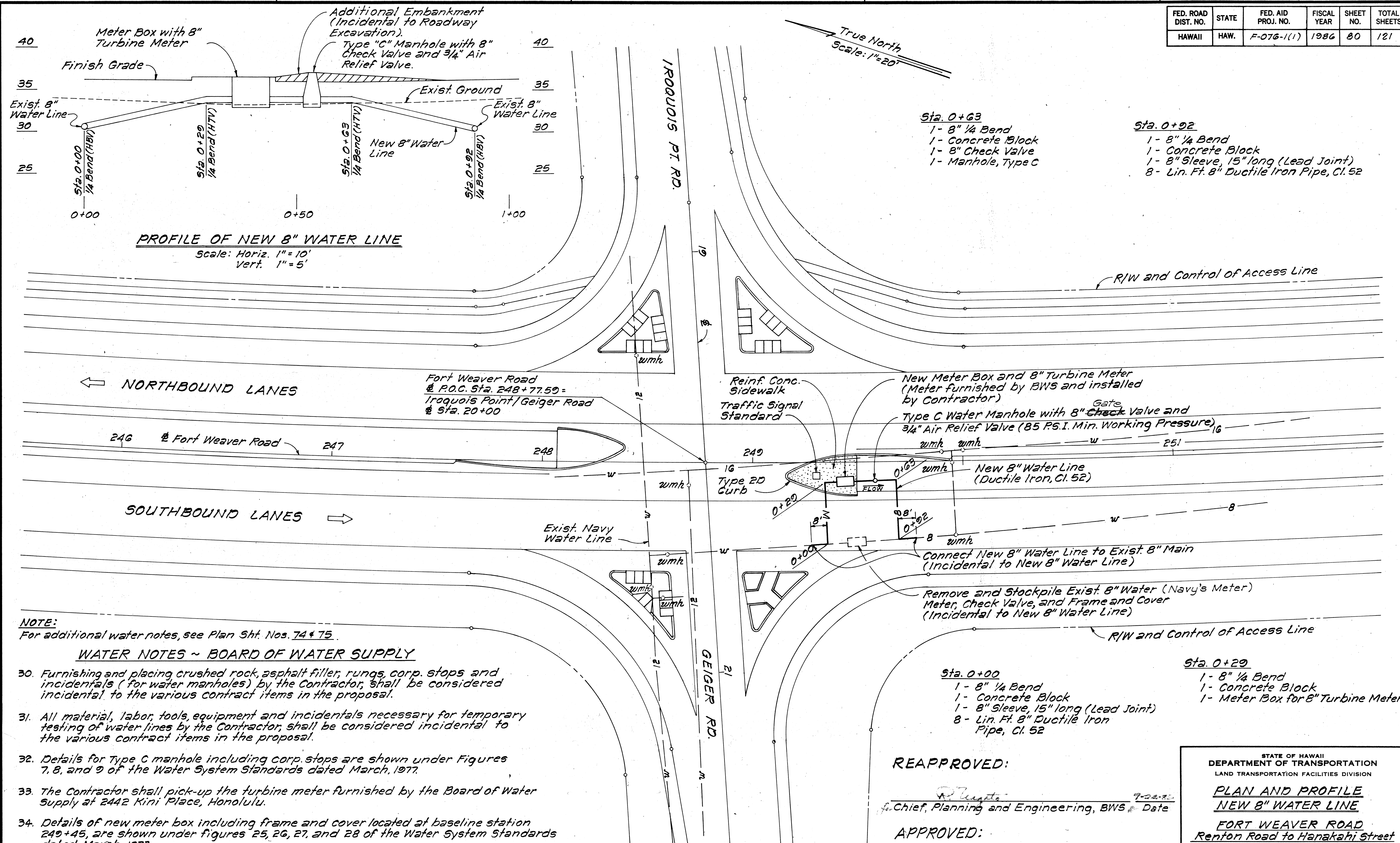
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

UTILITIES

FORT WEAVER ROAD
Renton Road to Hanakahi Street
F.A.P. Proj. No. F-076-1(1)

Scale: As Shown Date: July, 1979
SHEET NO. 6 OF 17 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-076-1(1)	1986	80	121



NOTE:
For additional water notes, see Plan Sht. Nos. 74 & 75.

WATER NOTES ~ BOARD OF WATER SUPPLY

30. Furnishing and placing crushed rock, asphalt filler, rungs, corp. stops and incidentals (for water manholes) by the Contractor, shall be considered incidental to the various contract items in the proposal.
31. All material, labor, tools, equipment and incidentals necessary for temporary testing of water lines by the Contractor, shall be considered incidental to the various contract items in the proposal.
32. Details for Type C manhole including corp. stops are shown under Figures 7, 8, and 9 of the Water System Standards dated March, 1977.
33. The Contractor shall pick-up the turbine meter furnished by the Board of Water Supply at 2442 Kiri Place, Honolulu.
34. Details of new meter box including frame and cover located at baseline station 249+45, are shown under figures 25, 26, 27, and 28 of the Water System Standards dated March, 1977.

REAPPROVED:

R. H. H. H.
for Chief, Planning and Engineering, BWS Date 7-24-82

APPROVED:

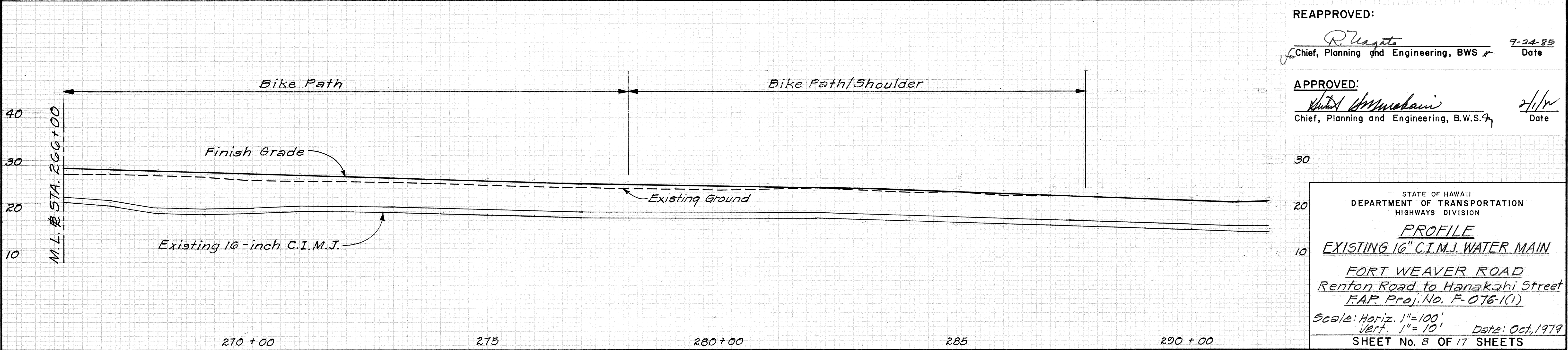
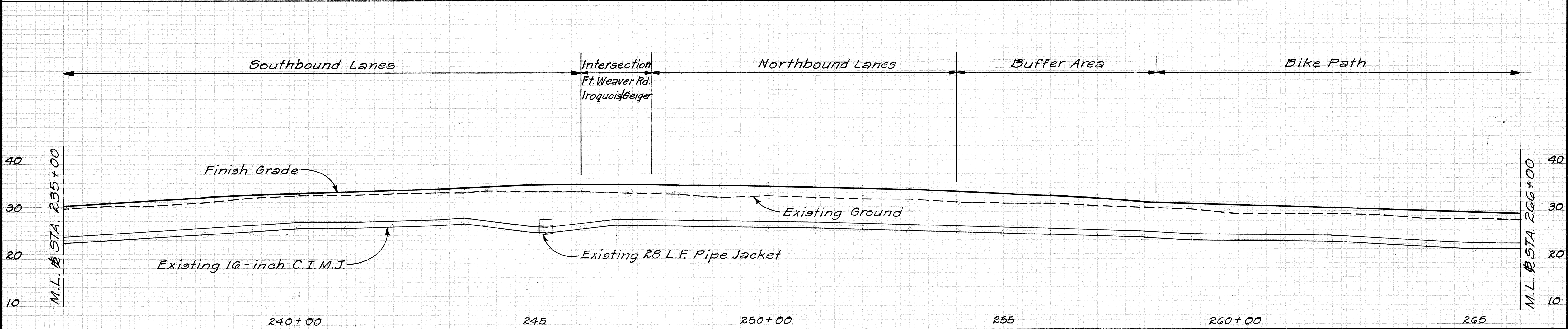
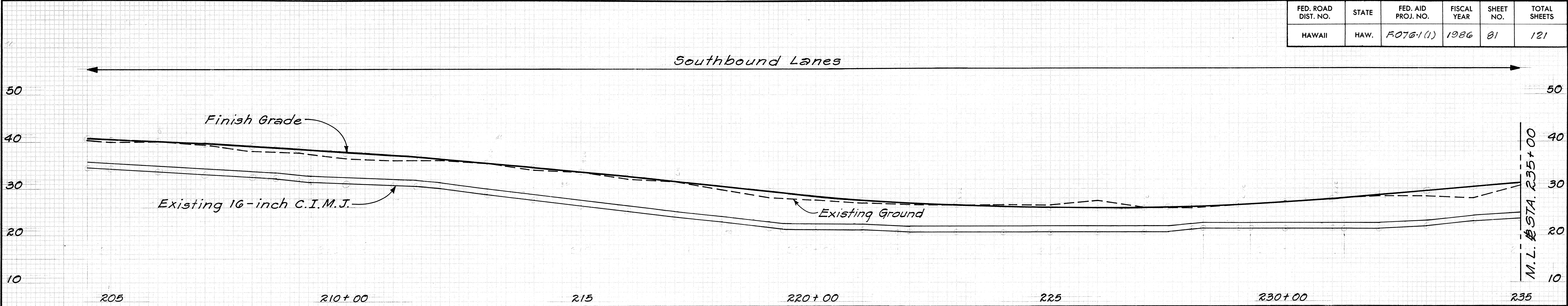
R. H. H. H.
for Chief, Planning and Engineering, BWS Date 10-19-82

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

PLAN AND PROFILE NEW 8" WATER LINE

FORT WEAVER ROAD
Renton Road to Hanakahi Street
F.A.P. Proj. No. F-076-1(1)
Scale: As Shown Date: July, 1982
SHEET No. 7 OF 17 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F076-1(1)	1986	81	121



REAPPROVED:
R. Hagata
 Chief, Planning and Engineering, BWS # 9-24-85
 Date

APPROVED:
Walter W. W. W.
 Chief, Planning and Engineering, B.W.S. # 2/1/79
 Date

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

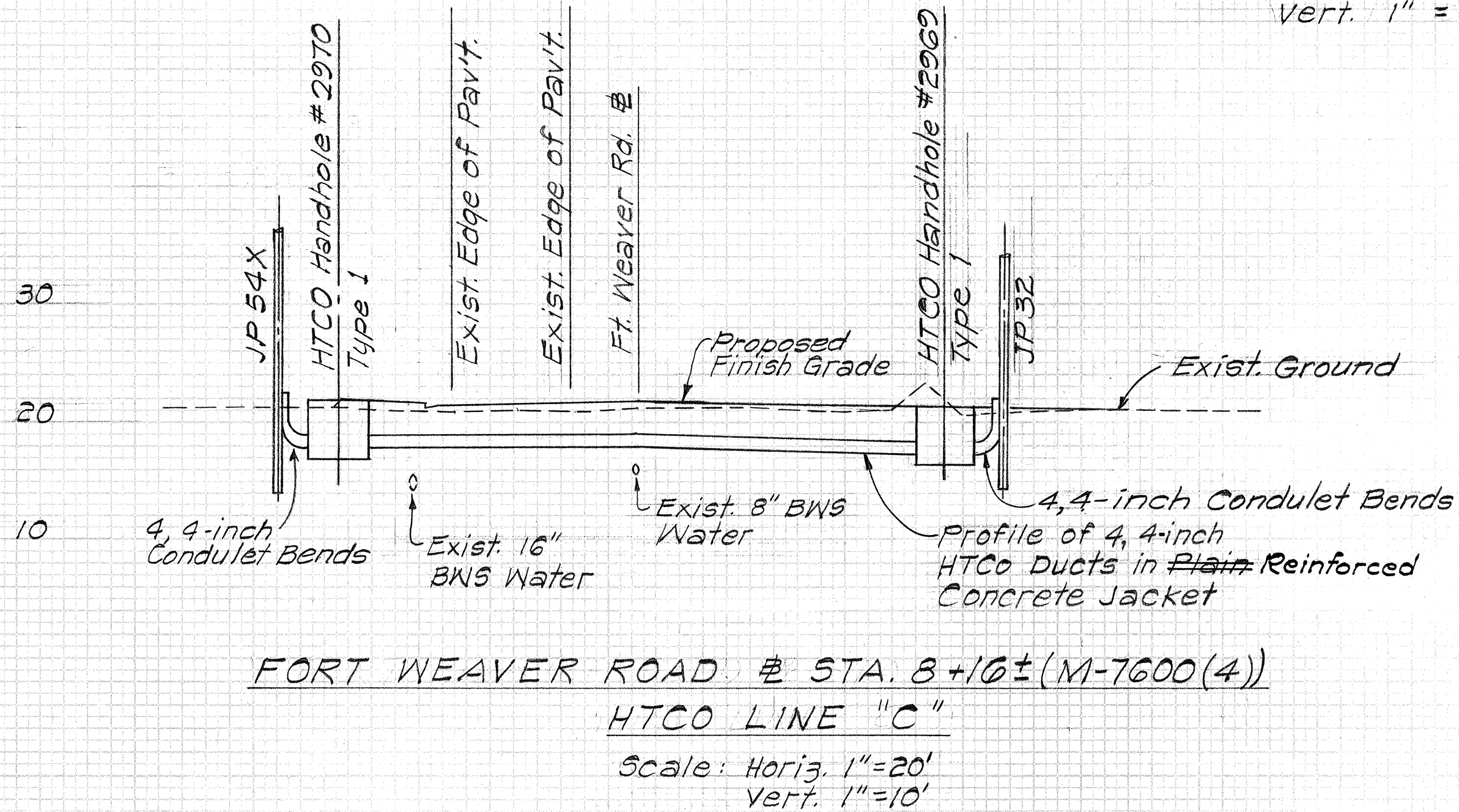
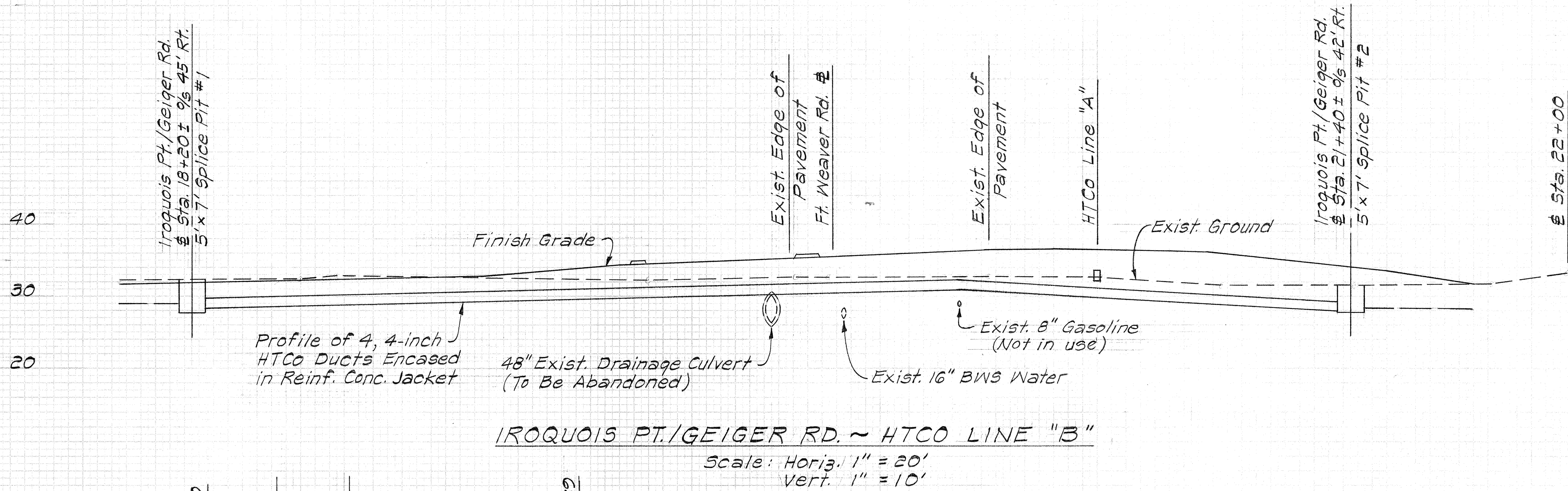
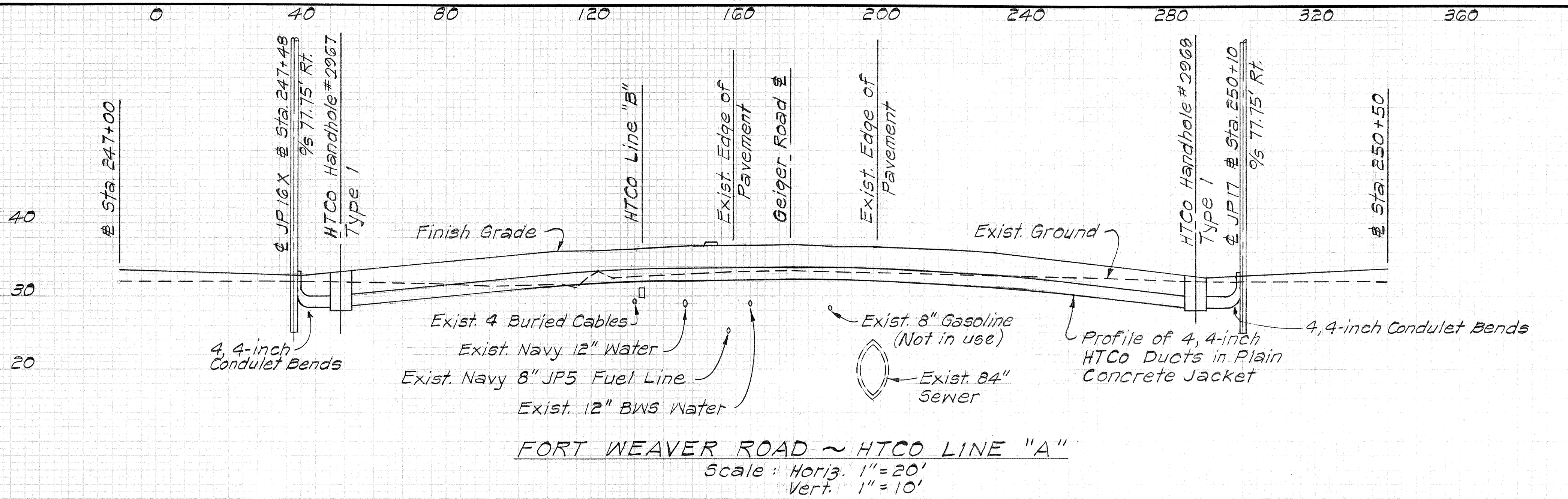
PROFILE
EXISTING 16" C.I.M.J. WATER MAIN

FORT WEAVER ROAD
Renton Road to Hanakahi Street
F.A.P. Proj. No. F-076-1(1)

Scale: Horiz. 1"=100'
 Vert. 1"=10' Date: Oct, 1979

SHEET No. 8 OF 17 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F.076-1(1)	1986	82	121



REAPPROVED:
 Chief, Div. of Wastewater Management *[Signature]* 9/2/85 Date
 Chief, Planning and Engineering, B.W.S. *[Signature]* 7-24-85 Date

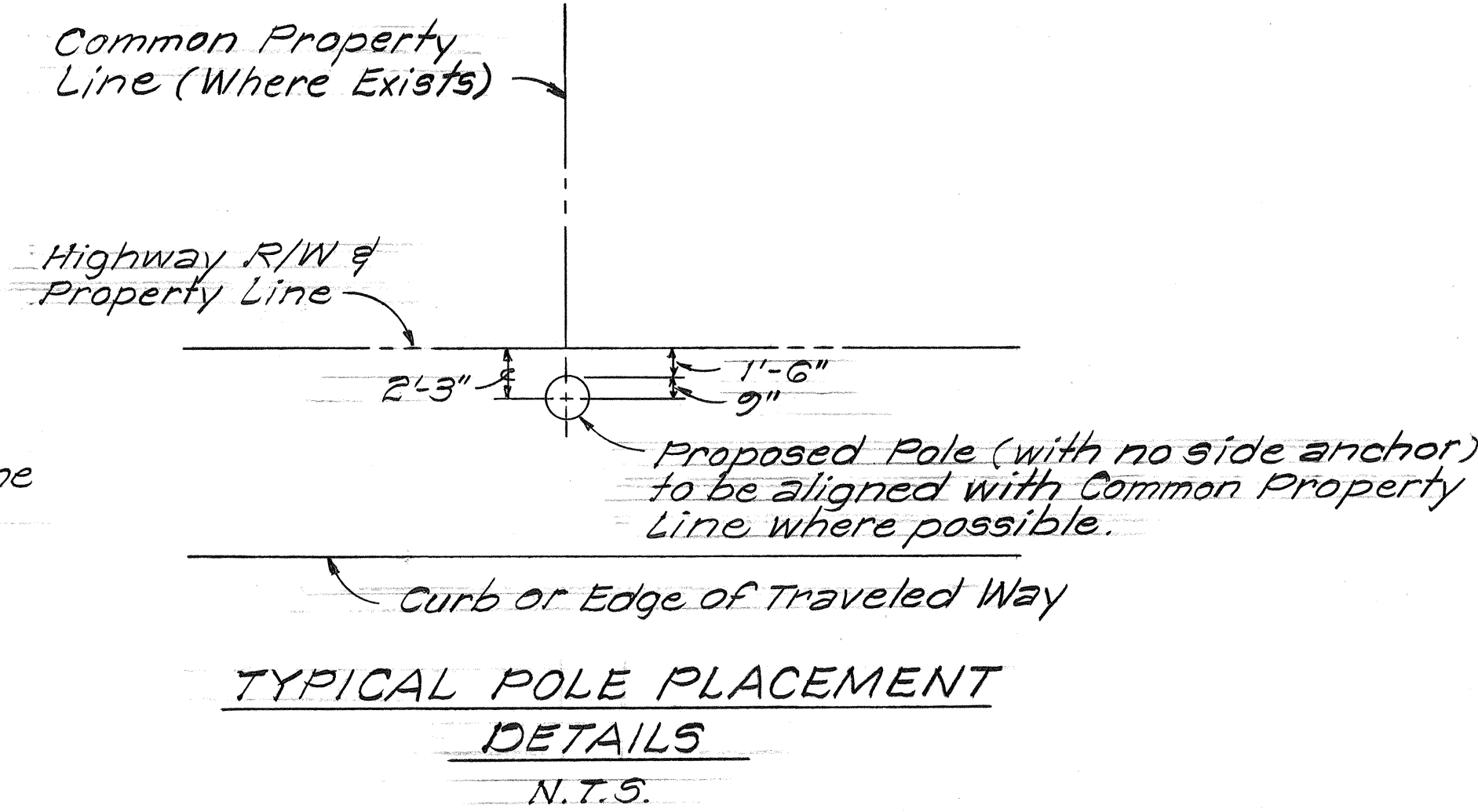
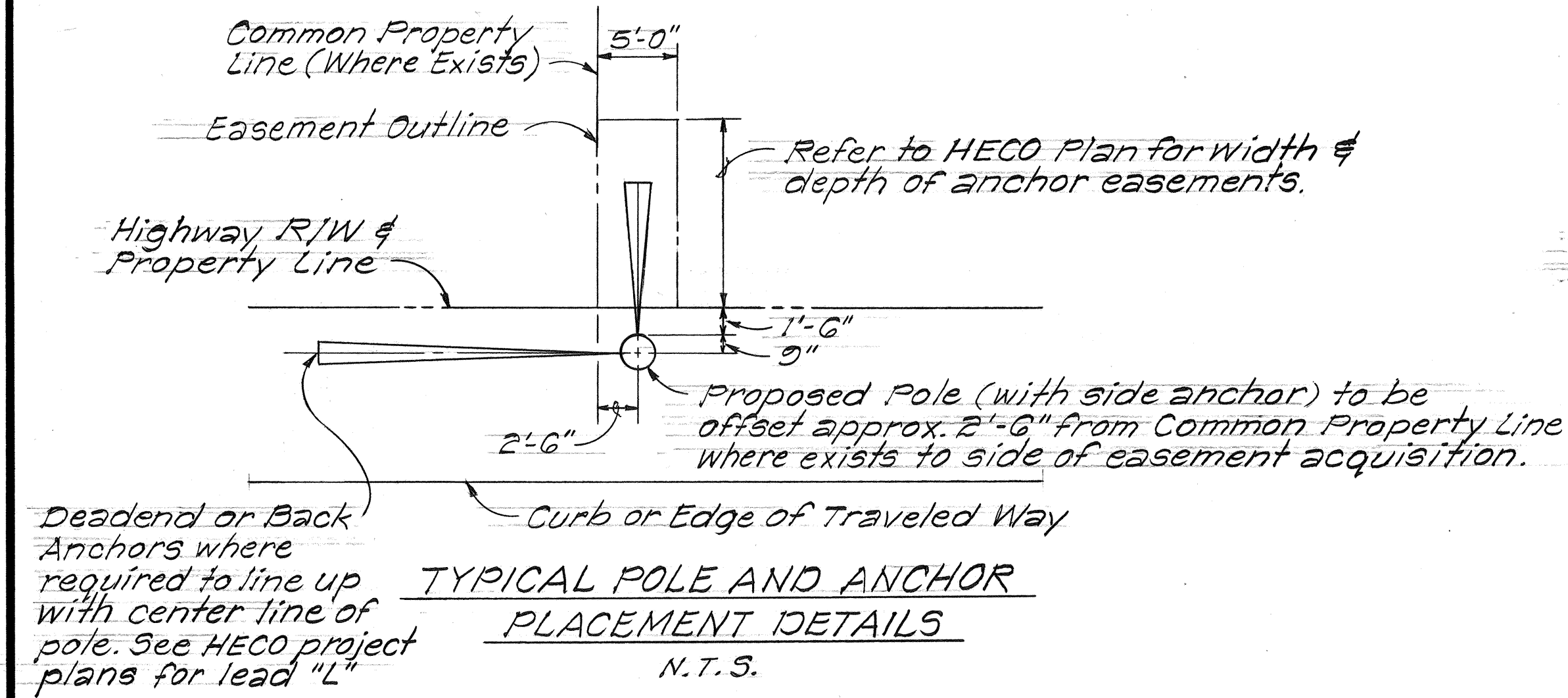
APPROVED:
 Chief, Div. of Wastewater Management *[Signature]* 9/2/85 Date
 Chief, Planning and Engineering, B.W.S. *[Signature]* 2/1/86 Date
 Hawaiian Telephone Co., Ltd. Date

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

TELEPHONE DUCTLINE PROFILE

FORT WEAVER ROAD
 Renton Road to Hanakahi Street
 F.A.P. Proj. No. F-076-1(1)
 Scale: Horiz. 1" = 20'
 Vert. 1" = 10' Date: Sept, 1979
 SHEET No. 9 OF 17 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F076-1(1)	1986	83	121



SCHEDULE OF POLE LOCATIONS

POLE NO.	STATION	OFFSET FROM C.L. OF POLE	OFFSET FROM R/W LINE	POLE NO.	STATION	OFFSET FROM C.L. OF POLE	OFFSET FROM R/W LINE
3	2054+05.52	77'-0" Rt.	3'-2'-3" 0"	19	254 + 69	77'-0" Rt.	3'-2'-3" 0"
3X	2070+10.15	77'-0" Rt.	3'-2'-3" 0"	19X	256 + 28	77'-0" Rt.	3'-2'-3" 0"
4	208 + 58.00	77'-0" Rt.	3'-2'-3" 0"	20	257 + 97	77'-0" Rt.	3'-2'-3" 0"
4X	210 + 20.43	77'-0" Rt.	3'-2'-3" 0"	20X	259 + 55	77'-0" Rt.	3'-2'-3" 0"
5	2121+00.00	77'-0" Rt.	3'-2'-3" 0"	21	261 + 13	77'-0" Rt.	3'-2'-3" 0"
5X	213 + 73	77'-0" Rt.	3'-2'-3" 0"	21X	262 + 92	77'-0" Rt.	3'-2'-3" 0"
6	215 + 50	77'-0" Rt.	3'-2'-3" 0"	22	264 + 69	77'-0" Rt.	3'-2'-3" 0"
6X	217 + 25	77'-0" Rt.	3'-2'-3" 0"	23	266 + 42.30	77'-0" Rt.	3'-2'-3" 0"
7	2198+77.04	77'-0" Rt.	3'-2'-3" 0"	23X	2687+ 26.63	77'-0" Rt.	3'-2'-3" 0"
7X	220 + 56.83	77'-0" Rt.	3'-2'-3" 0"	24	270 + 24.19	77'-0" Rt.	3'-2'-3" 0"
8	222 + 34.67	77'-0" Rt.	3'-2'-3" 0"	24X	2722+ 23.18	77'-0" Rt.	3'-2'-3" 0"
8X	224 + 14.41	77'-0" Rt.	3'-2'-3" 0"	25	273 + 62	75'-5" 0" Rt.	3'-2'-3" 0"
9	2265+03.20	77'-0" Rt.	3'-2'-3" 0"	26	275 + 40	71'-8" 0" Rt.	3'-2'-3" 0"
10	2287+73.00	77'-0" Rt.	3'-2'-3" 0"	26X	277 + 20	68'-11" Rt.	3'-2'-3" 0"
10X	229 + 53.80	77'-0" Rt.	3'-2'-3" 0"	27	279 + 00	66'-6" 3" 5" Rt.	3'-2'-3" 0"
11	231 + 33.60	77'-0" Rt.	3'-2'-3" 0"	27X	280 + 78	65'-6" 2" 5" Rt.	3'-2'-3" 0"
11X	233 + 10.97	77'-0" Rt.	3'-2'-3" 0"	28	282 + 50	64'-2" Rt.	3'-2'-3" 0"
12	2354+86.19	77'-0" Rt.	3'-2'-3" 0"	28X	284 + 23	61'-2" Rt.	3'-2'-3" 0"
13	236 + 65.92	77'-0" Rt.	3'-2'-3" 0"	29	285 + 80	57'-7" Rt.	3'-2'-3" 0"
13X	238 + 43.79	77'-0" Rt.	3'-2'-3" 0"	30	287 + 45	52'-52"-11" 0" Rt.	3'-2'-3" 0"
14	240 + 21.48	77'-0" Rt.	3'-2'-3" 0"	30X	289 + 14	47'-47"-9" 0" Rt.	3'-2'-3" 0"
14X	242 + 00.27	77'-0" Rt.	3'-2'-3" 0"	31	290 + 82	47'-47"-9" 0" Rt.	3'-2'-3" 0"
15	2443+72.06	77'-0" Rt.	3'-2'-3" 0"	32	2928+ 25.36	47'-47"-9" 0" Rt.	3'-2'-3" 0"
16	245 + 58.85	77'-0" Rt.	3'-2'-3" 0"	54	2917+ 65.77	48'-6" Lt.	1'-6"
16X	247 + 37.48	77'-0" Rt.	3'-2'-3" 0"	54X	2928+ 25.36	48'-6" Lt.	1'-6"
17	250 + 24.10	77'-0" Rt.	3'-2'-3" 0"	55	2938+ 08.19	48'-6" Lt.	1'-6"
18	251 + 54	77'-0" Rt.	3'-2'-3" 0"	56	294 + 65.76	48'-6" Lt.	1'-6"
18X	253 + 11	77'-0" Rt.	3'-2'-3" 0"	61	29478+ 00.19	48'-6" Lt.	42'-2" 65" 0"
				177	219 + 91	78'-6" Lt.	1'-6"

23Y 269+33 77'-0"

APPROVED:		Date
Hawaiian Electric Co., Inc.		Date
Hawaiian Telephone Co., Ltd.		Date

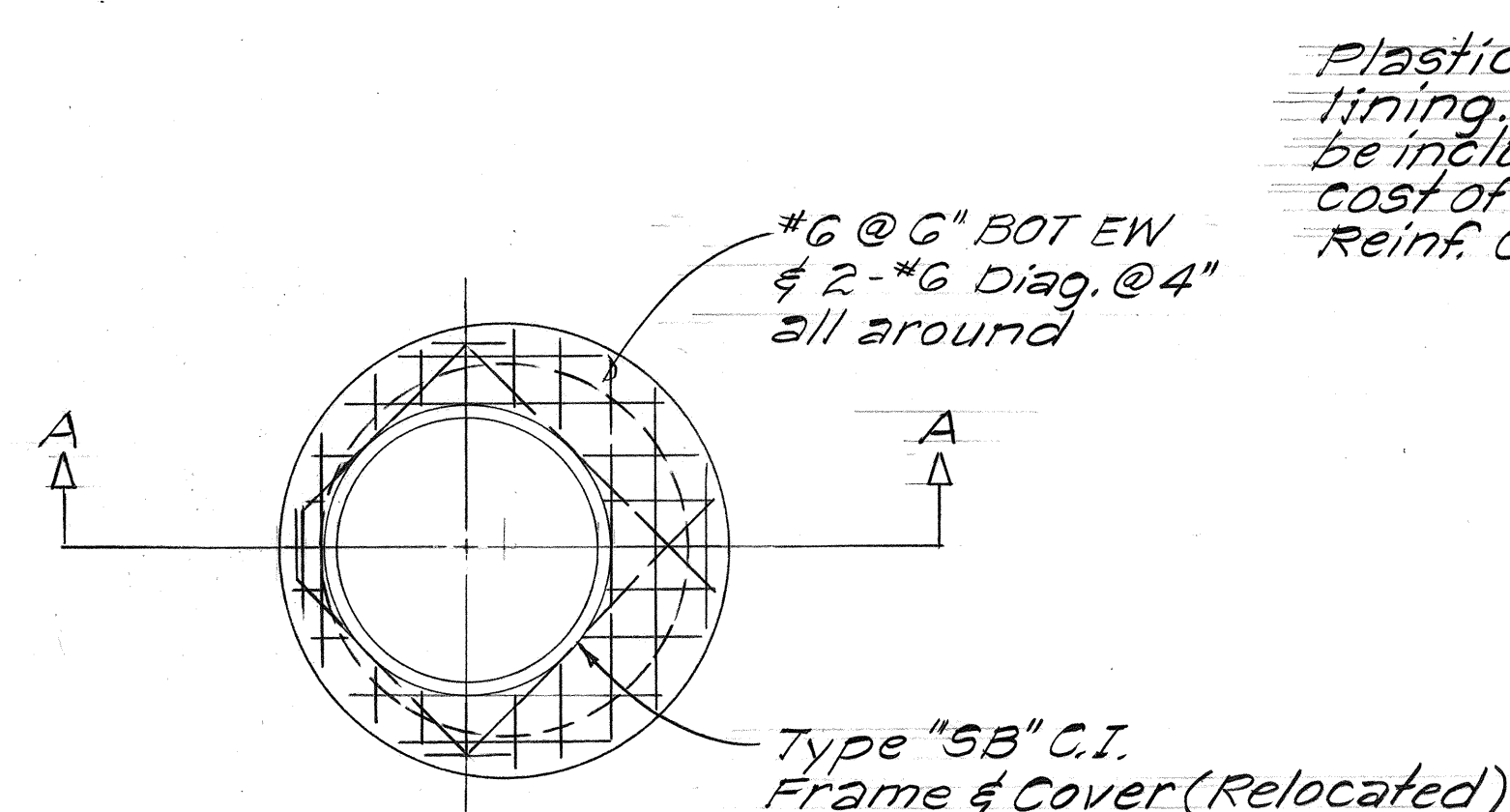
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

POLE LOCATIONS

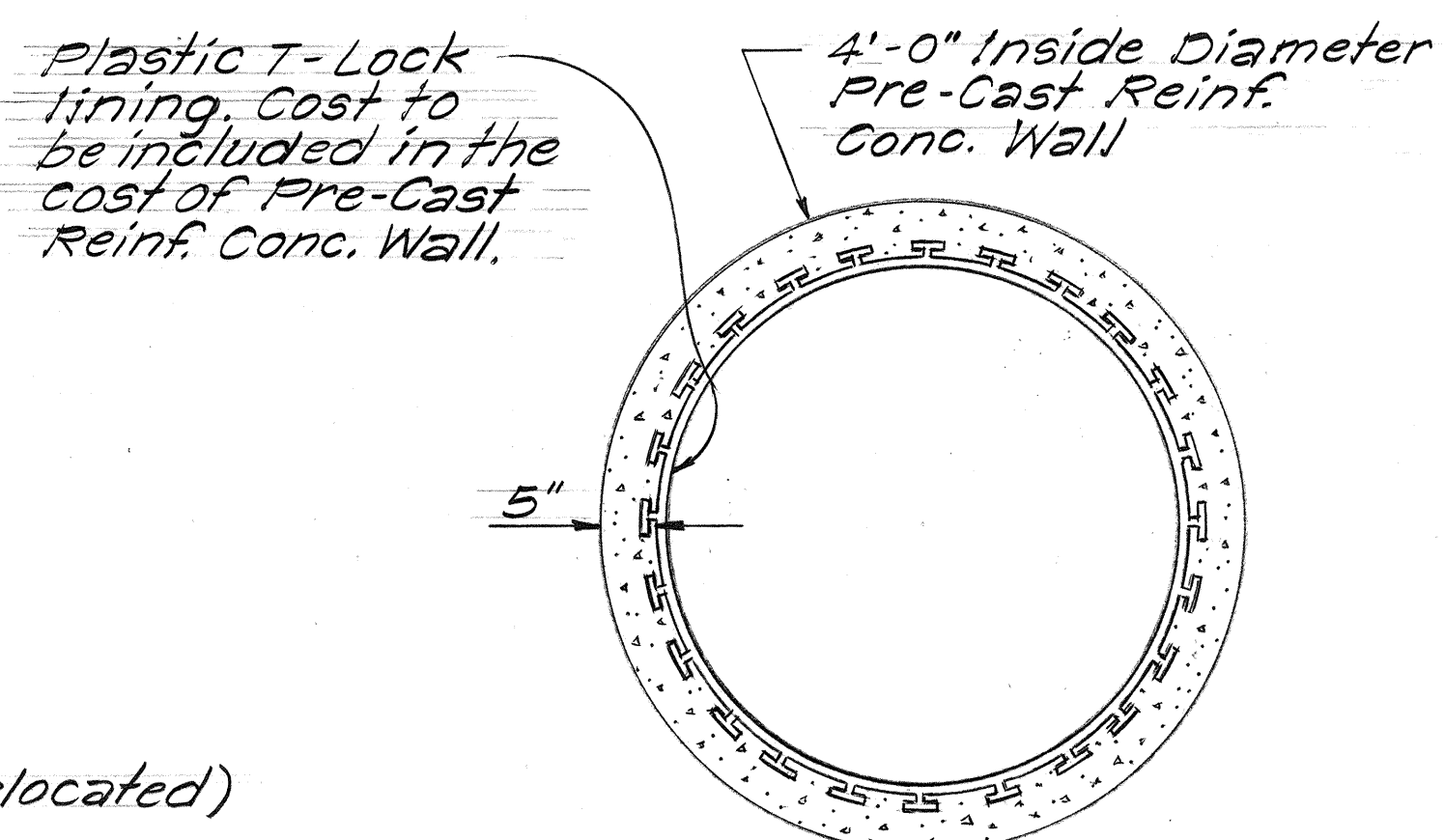
FORT WEAVER ROAD
Renton Road to Hanakahi St.
FAR Proj. No. F-076-1(1)
Scale: As Shown Date: Jan, 1981
SHEET No. 10 OF 17 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
DESIGNED BY	DRAWN BY	
CHECKED BY	NOTED BY	
No.		

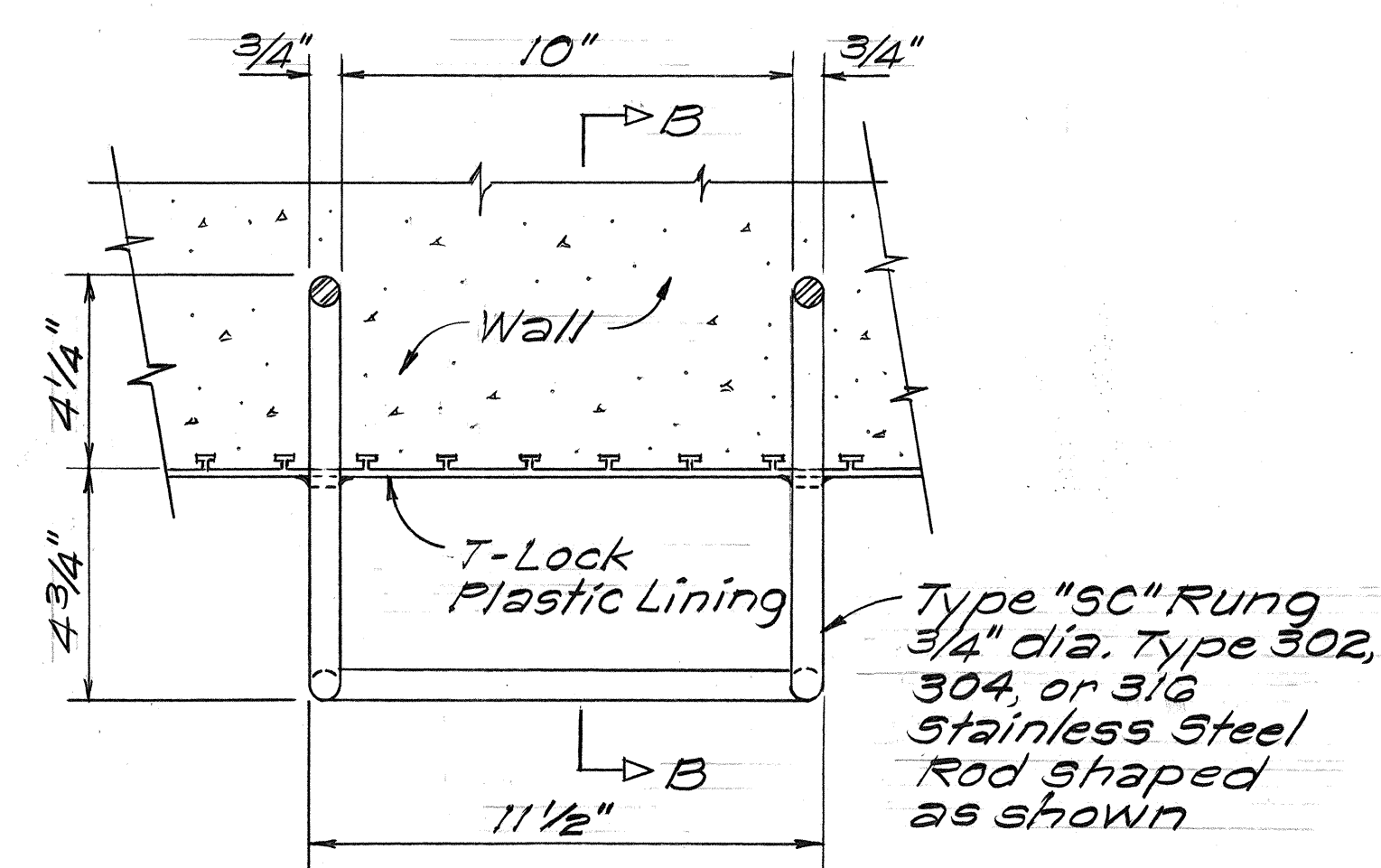
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F076(1)	1986	84	121



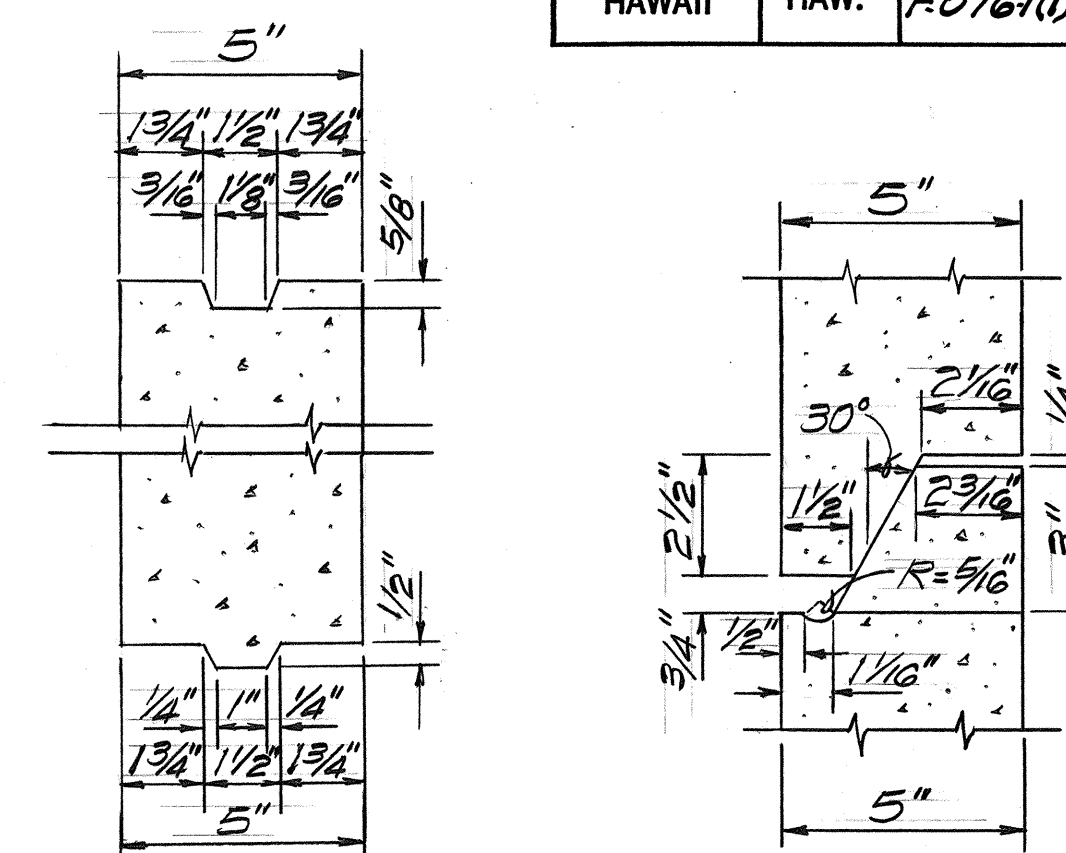
PLAN
Scale: 1/2" = 1'-0"



TYPICAL PLASTIC LINING
DETAIL FOR PRE-CAST
REINF. CONCRETE WALL
Not to Scale

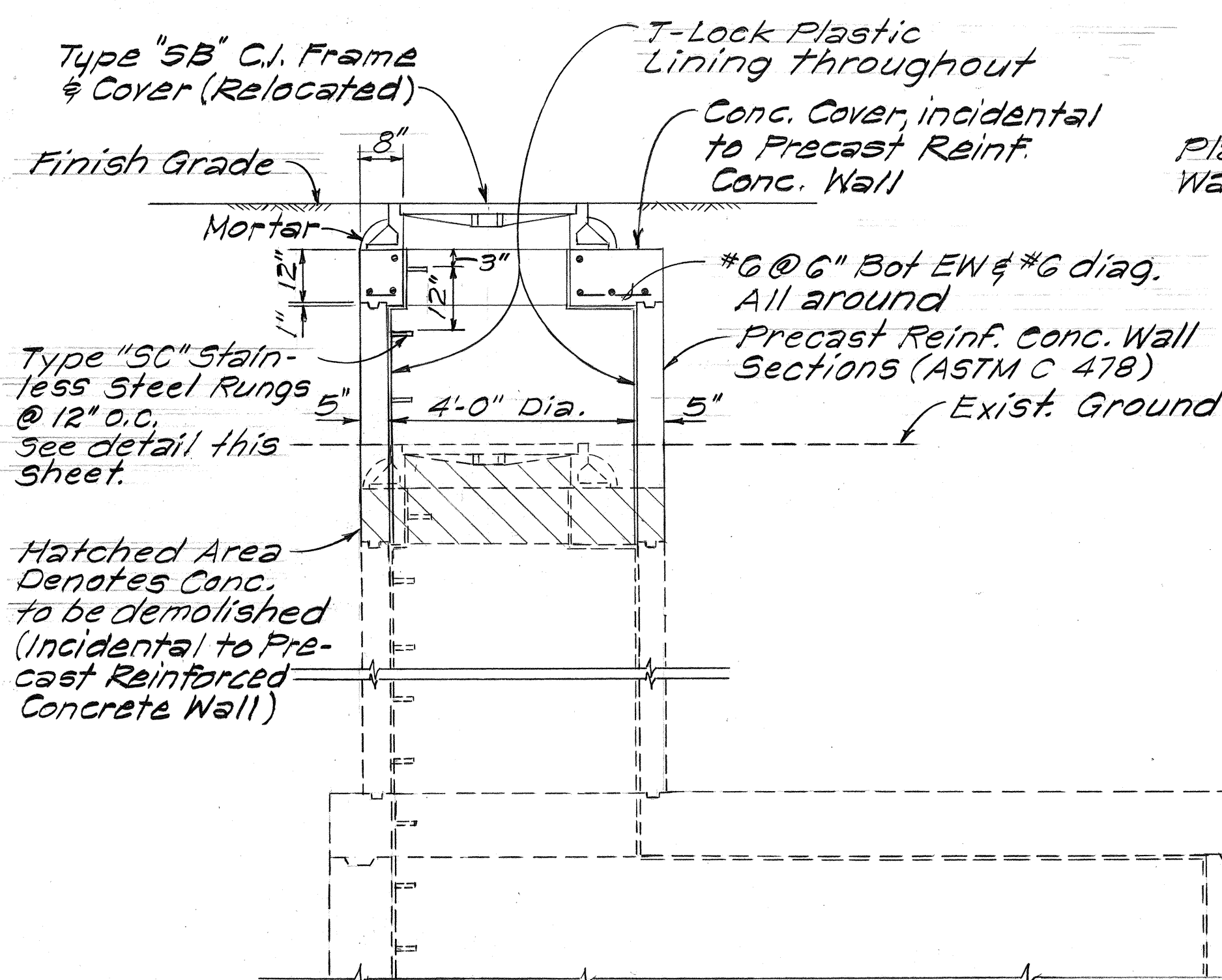


PLAN
Not to Scale



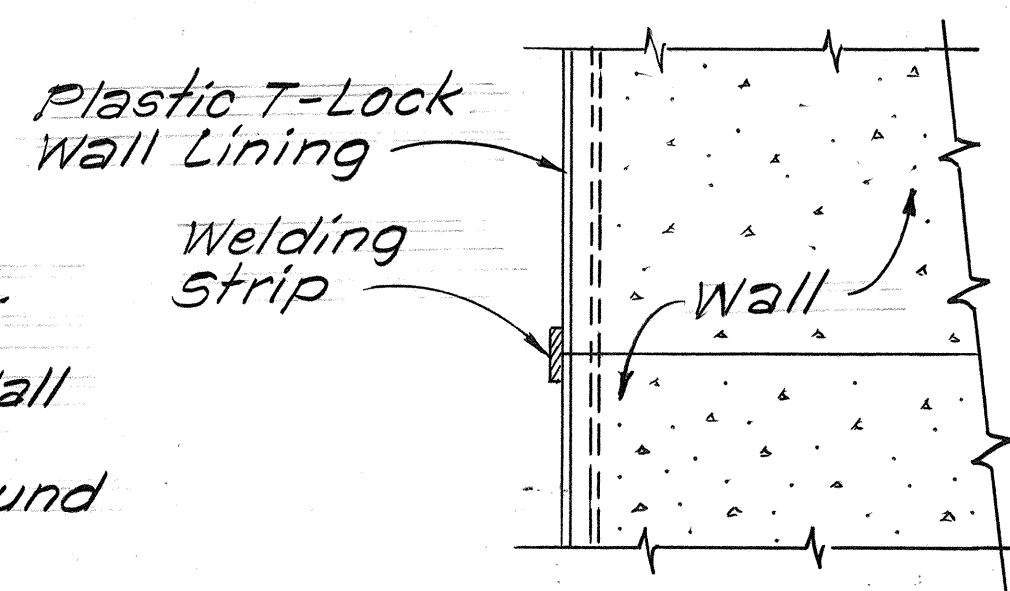
RISER SECTION RISER SECTION
(Alternate Detail)

PRE-CAST REINF. CONCRETE
MANHOLE WALL JOINTS
Scale: 3" = 1'-0"

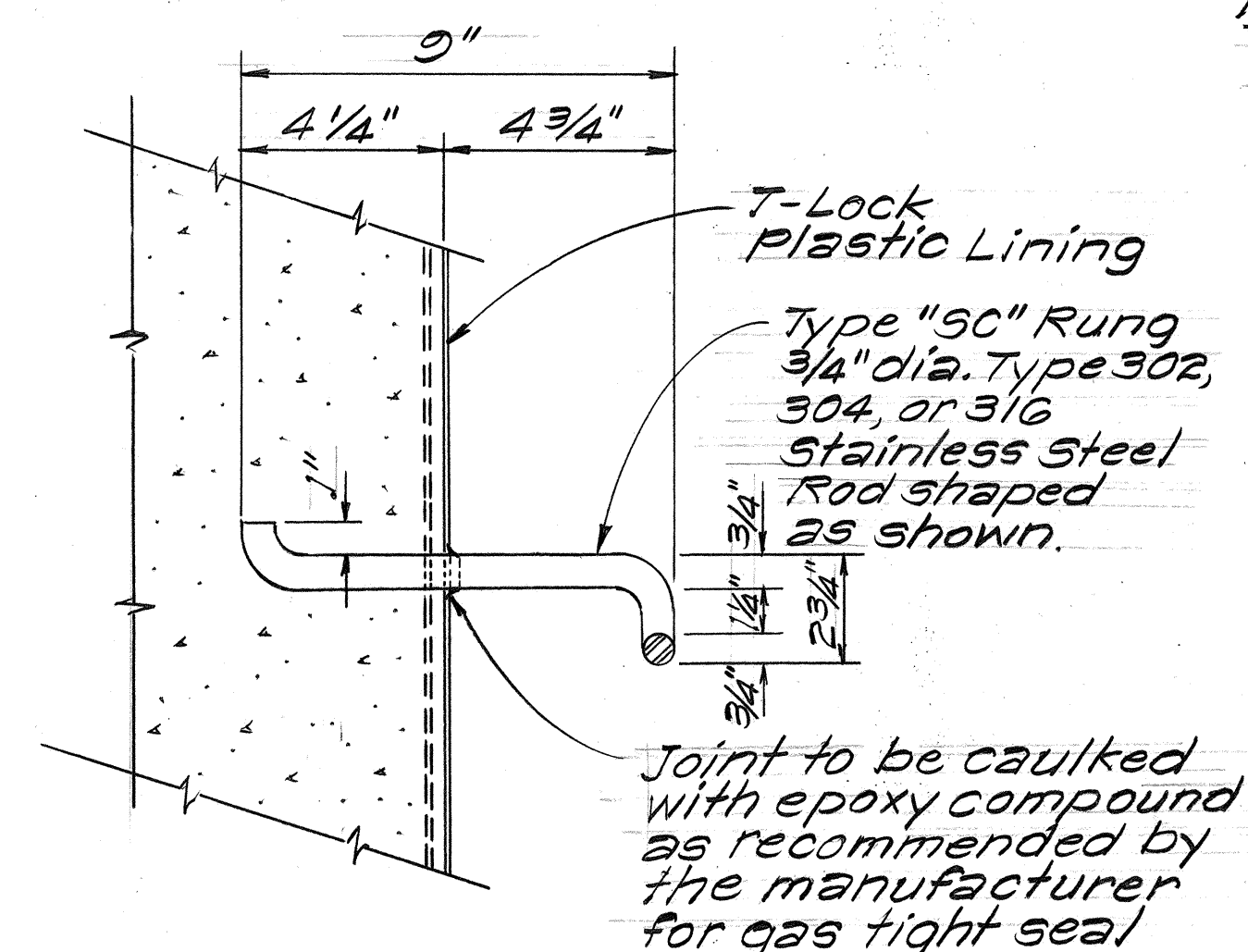


SECTION A-A

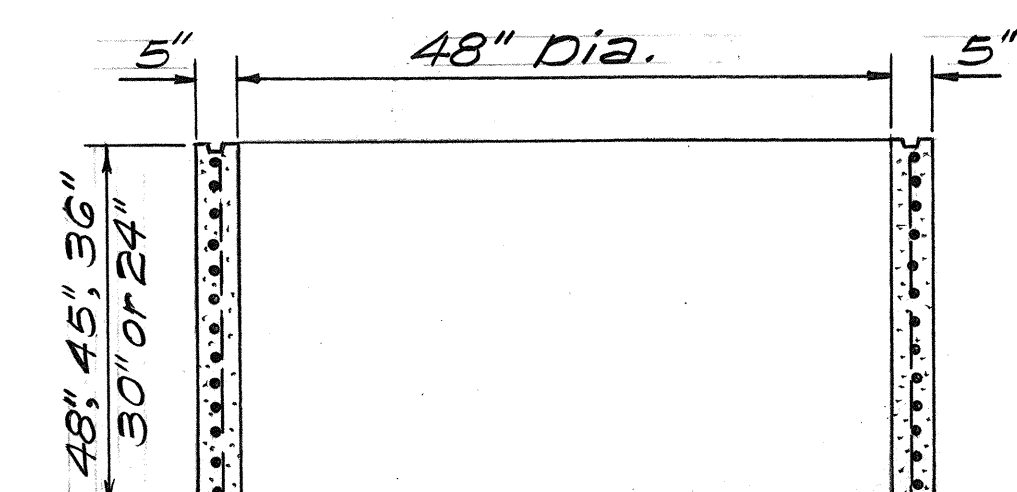
DETAIL OF SEWER MANHOLE RECONSTRUCTION
Scale: 1/2" = 1'-0"



PLASTIC LINING DETAIL
AT WALL JOINTS
Scale: 3" = 1'-0"



SECTION B-B
TYPE "SC" STAINLESS STEEL RUNG DETAILS
Not to Scale



As/L.F. = 0.15 in²/L.F. Minimum
RISER
Not to Scale

PRE-CAST REINF. CONCRETE
MANHOLE WALL

APPROVED: *G. Uyama* 2/22/82
Chief, Div. of Wastewater Management Date

REAPPROVED: *G. Uyama* 9/27/85
Chief, Div. of Wastewater Management Date

- NOTES:
1. Pre-cast sections shall conform to ASTM C 478.
 2. The minimum compressive strength of concrete shall be 5000 psi.
 3. Reinforced hoops shall conform to ASTM A 32. All others shall conform to ASTM A 615, Grade 60.
 4. Construction shall follow ASTM C 76.
 5. Manufacturers may submit to the Engineer for approval, prior to manufacturing, designs other than those shown.
 6. T-Lock plastic lining shall be cast integrally with the pre-cast reinforced concrete sections.

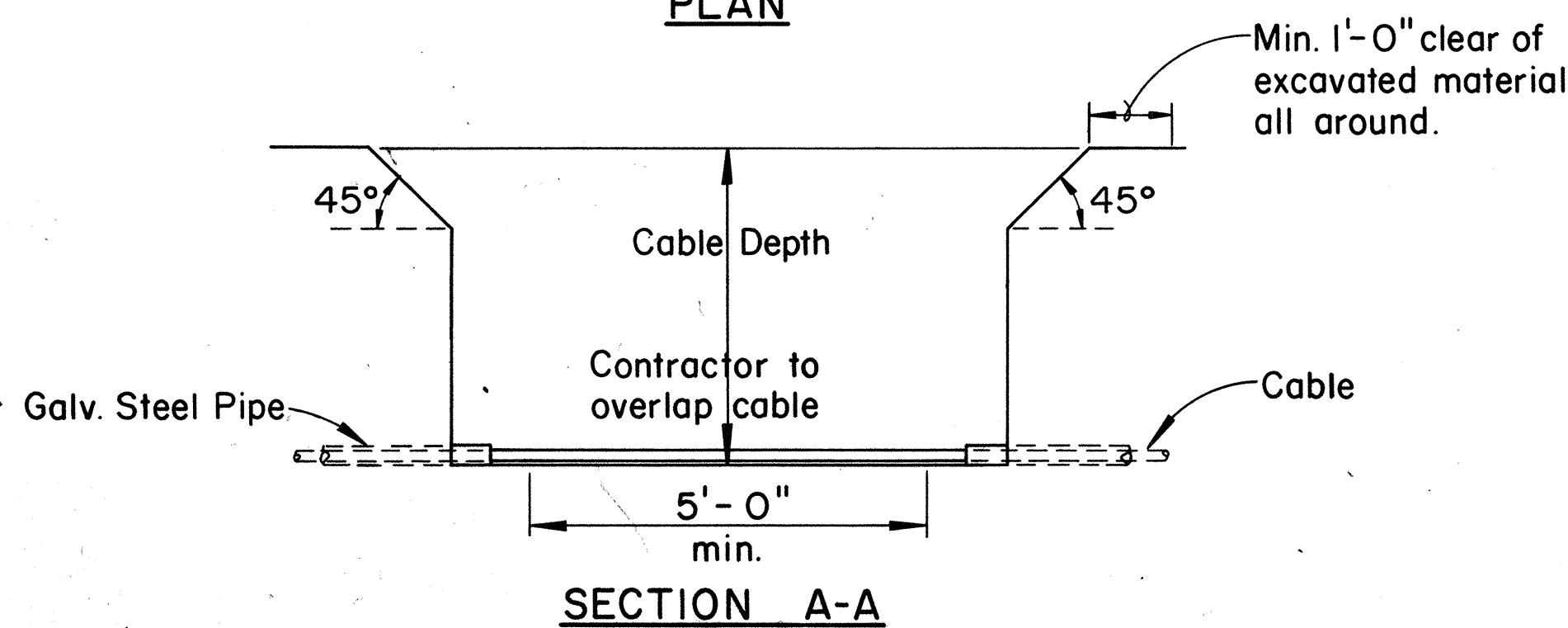
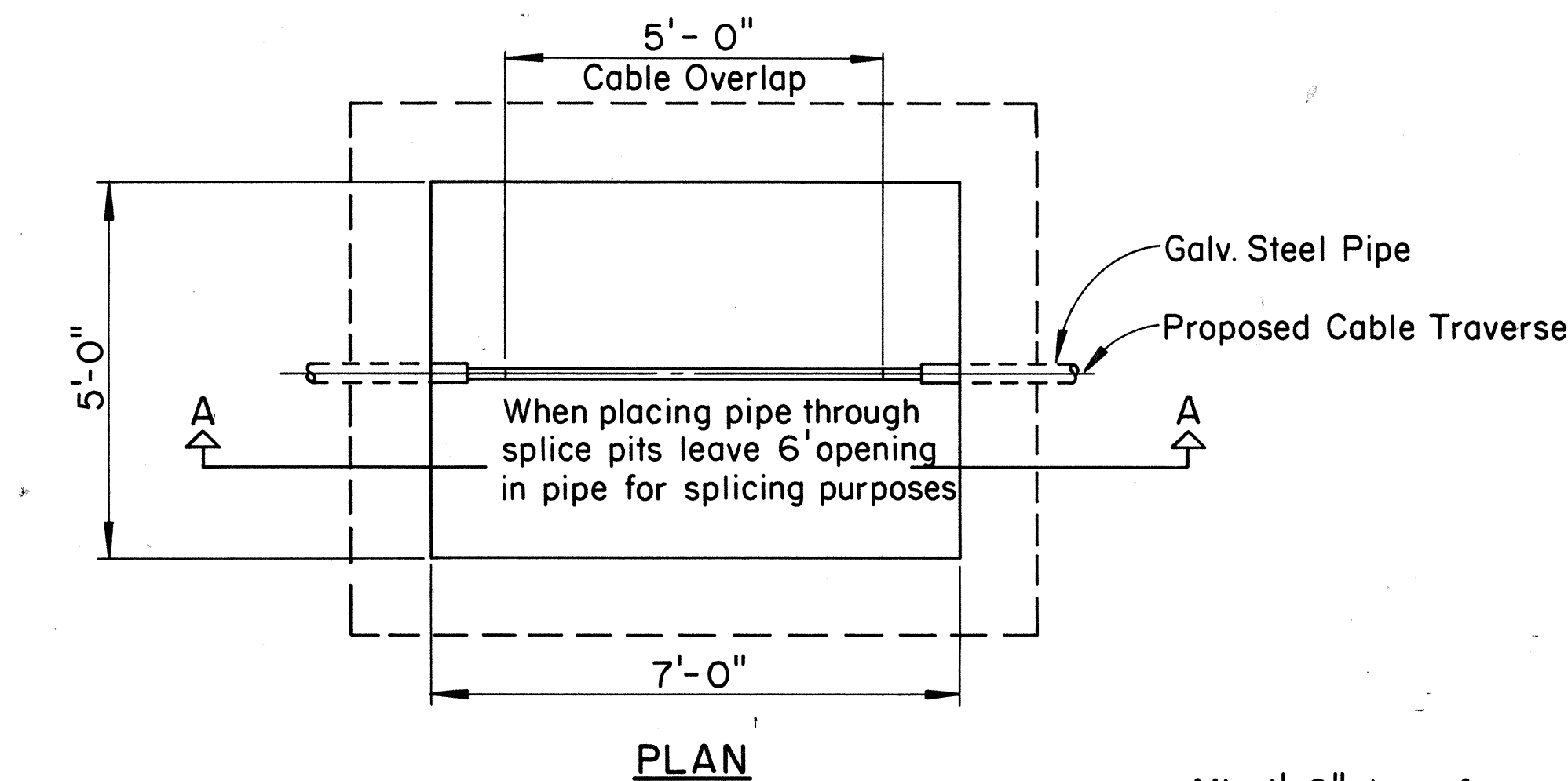
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

SEWER DETAILS

FORT WEAVER ROAD
Renton Road to Hanakahi Street
F.A.P. Proj. No. F-076-1(1)

Scale: As Shown Date: Sept. 1979
SHEET NO. 11 OF 17 SHEETS

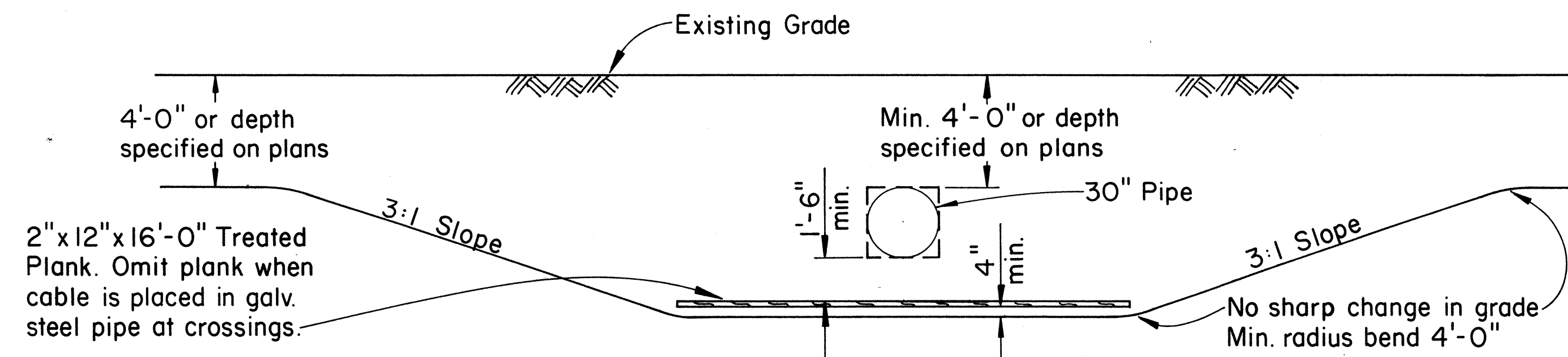
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	R0764(1)	1986	85	121



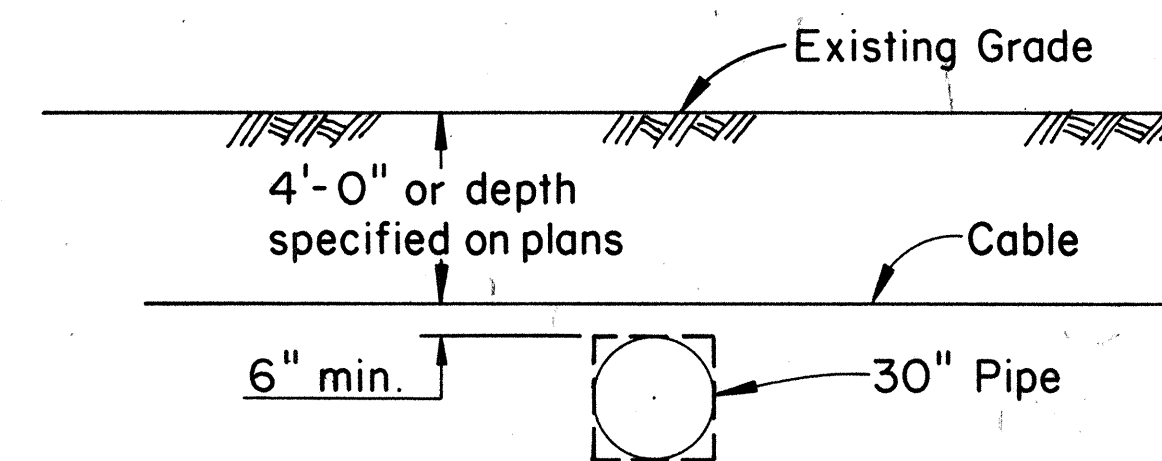
TYPICAL SPLICING PITS FOR BURIED CABLE

NOTES:

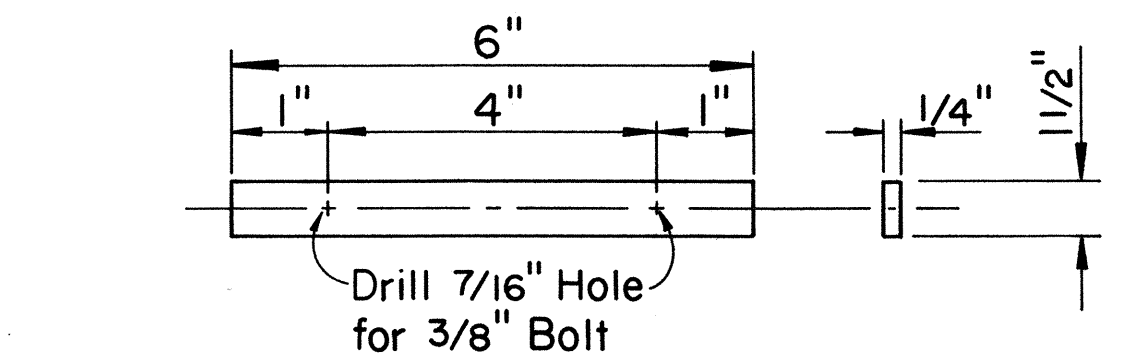
1. The Contractor shall dig pits at specified locations.
2. One face of pit shall be kept free of excavated material.
3. Where pits are located on sloping or irregular ground, the excavated material shall be placed in such a manner as to prevent surface water from draining into the pit.
4. Provide a 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.



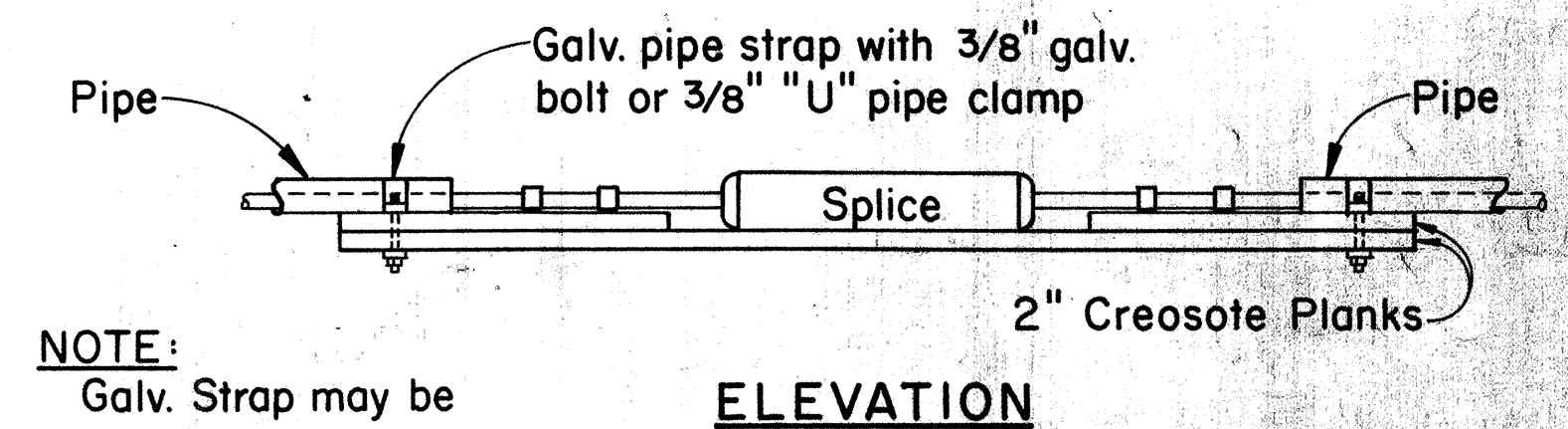
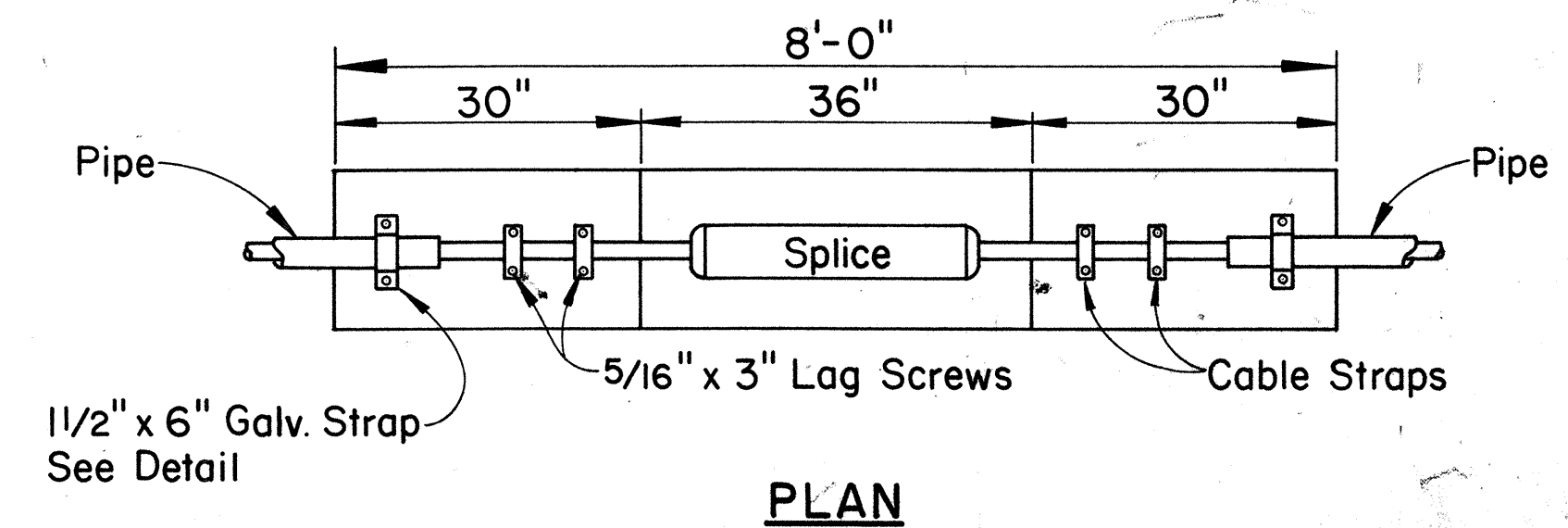
DETAIL OF CABLE CROSSING UNDER STORM CULVERTS-IRRIGATION PIPES, OTHER UTILITIES, OR FOREIGN PIPES



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

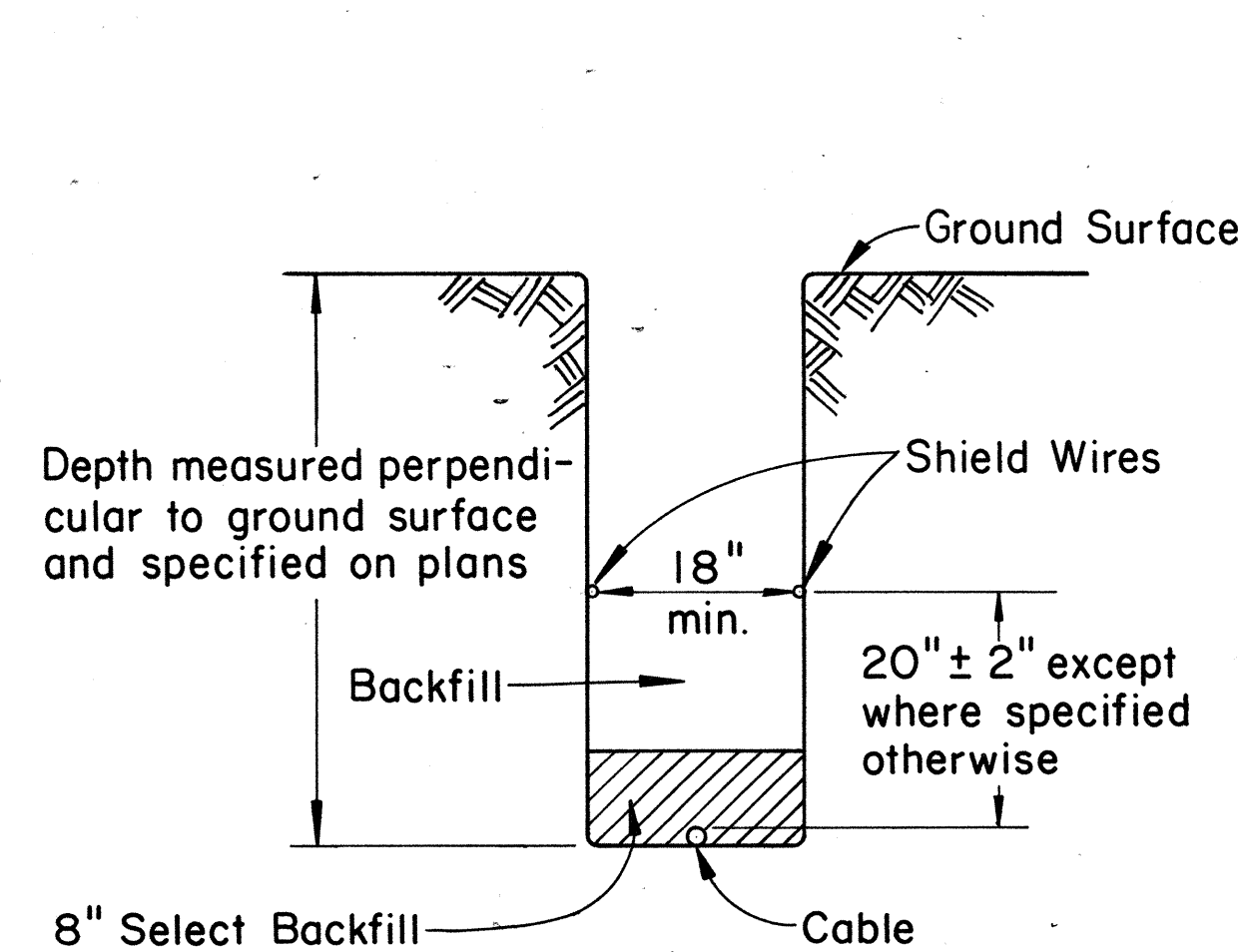


GALVANIZED STRAP DETAIL

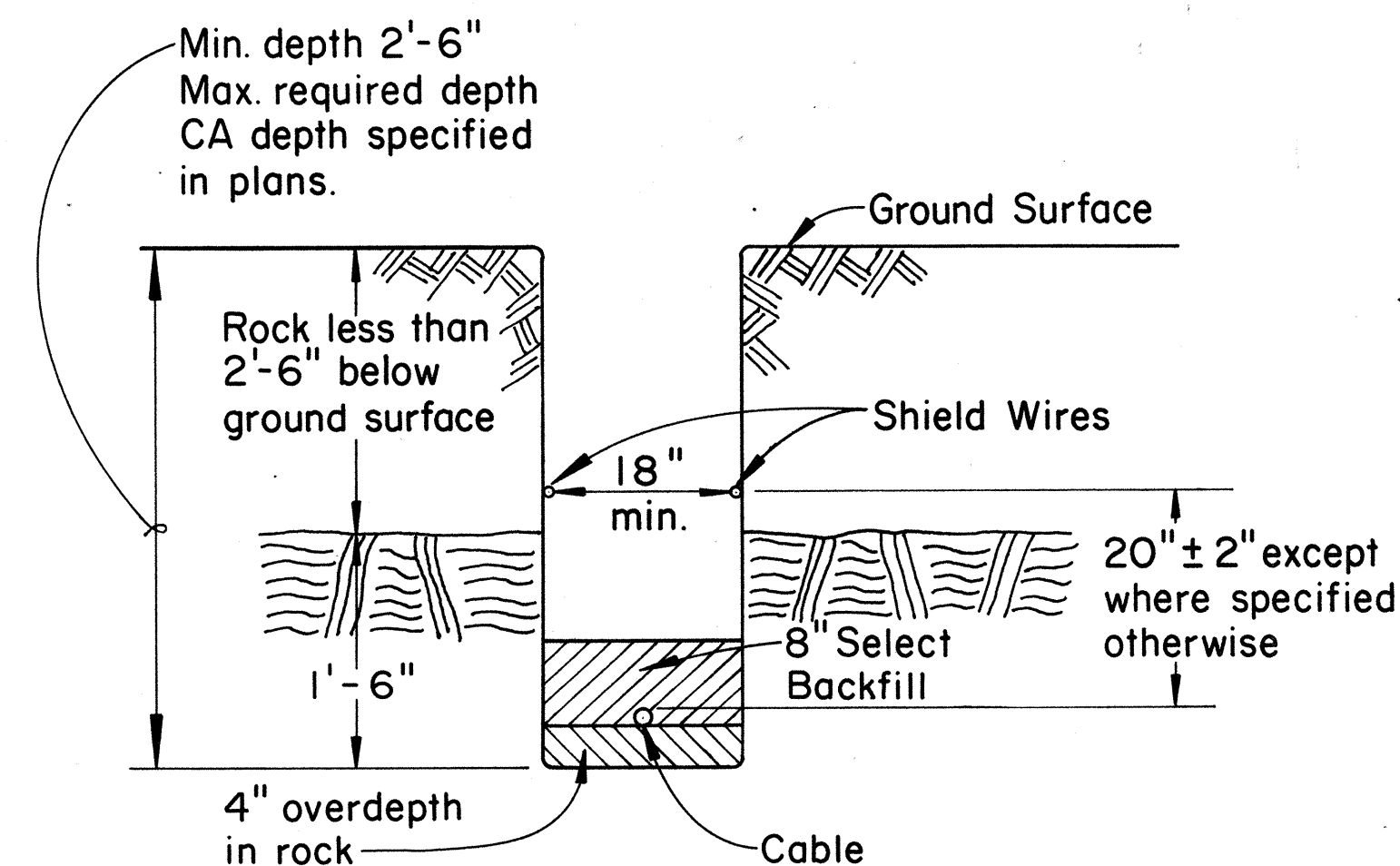


NOTE:
Galv. Strap may be substituted with pipe clamp.

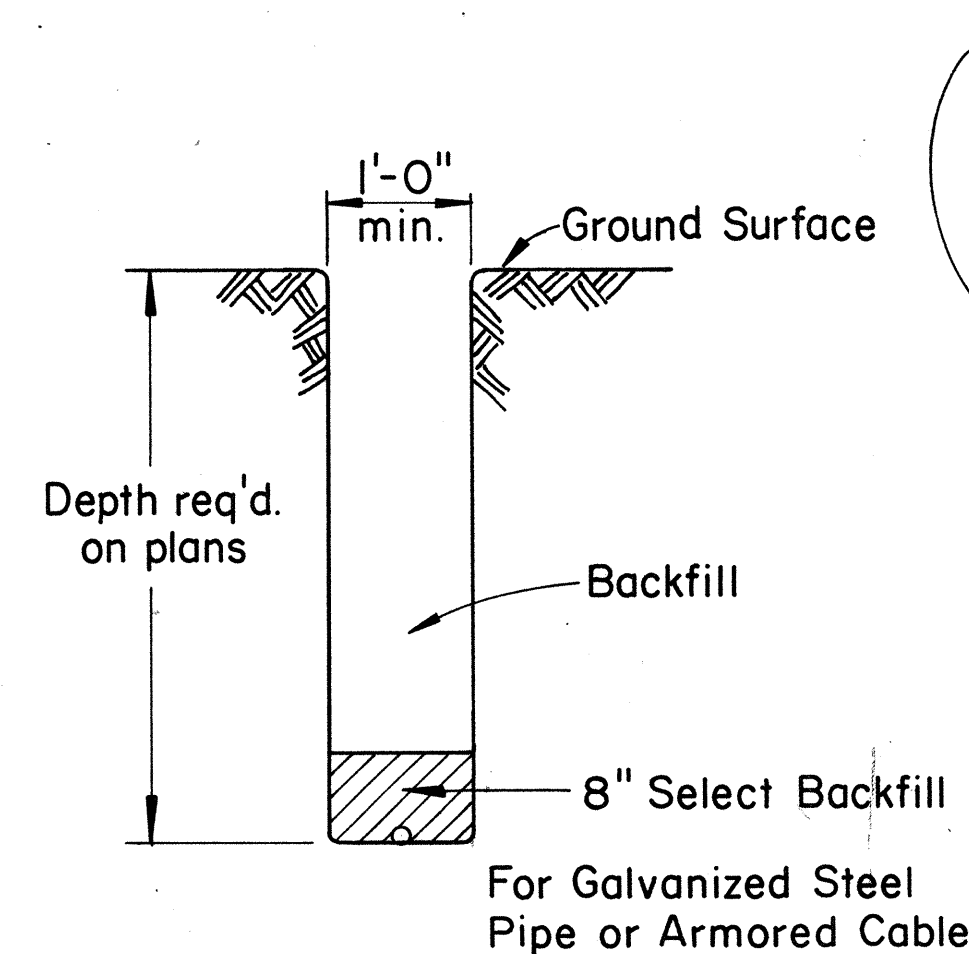
DETAIL OF SPLICE SUPPORT BETWEEN PIPE SECTIONS



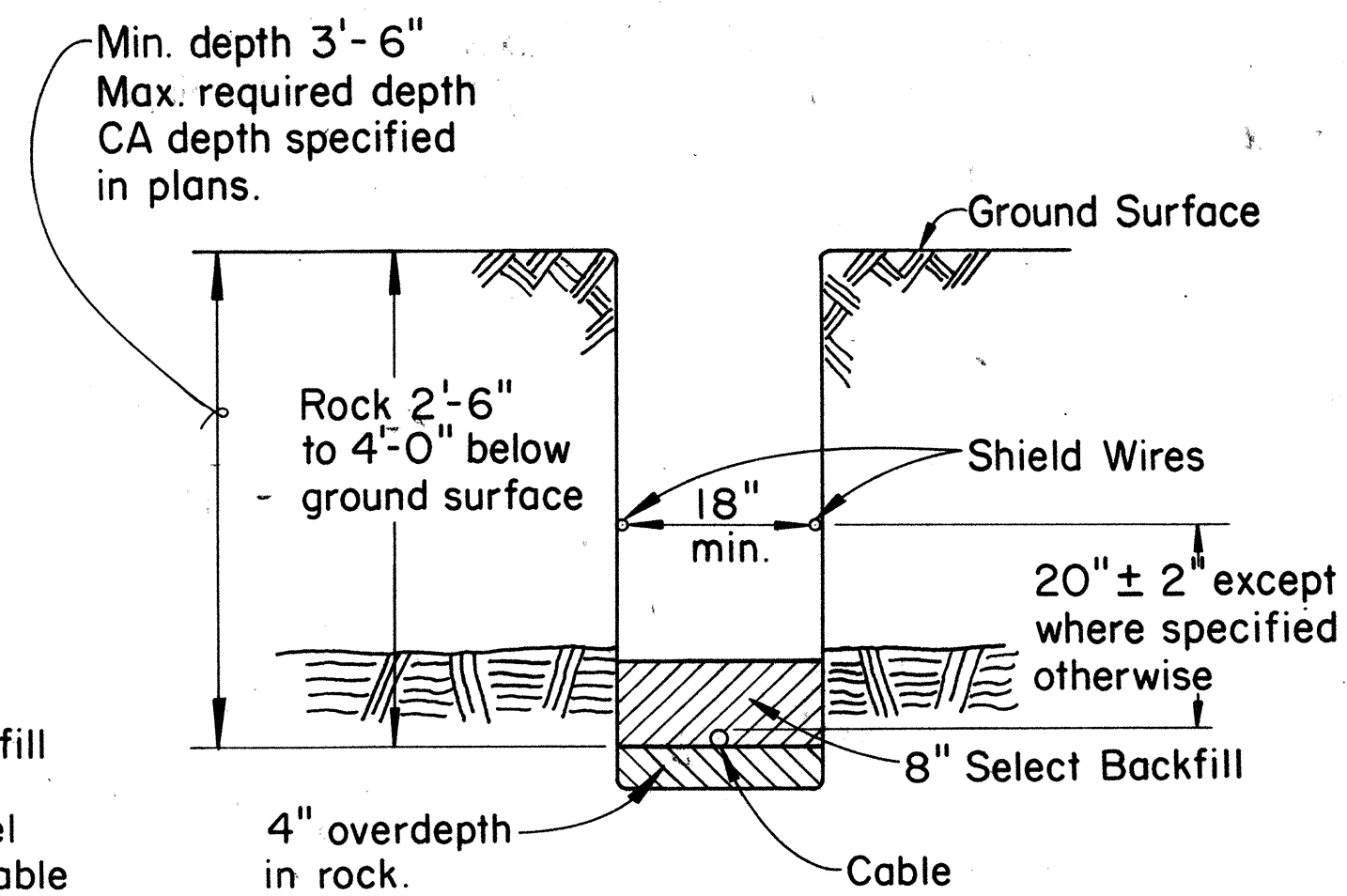
TYPICAL SECTION THROUGH NORMAL TRENCH



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



TYPICAL SECTION FOR TRENCH WHERE NO SHIELD WIRE IS REQUIRED

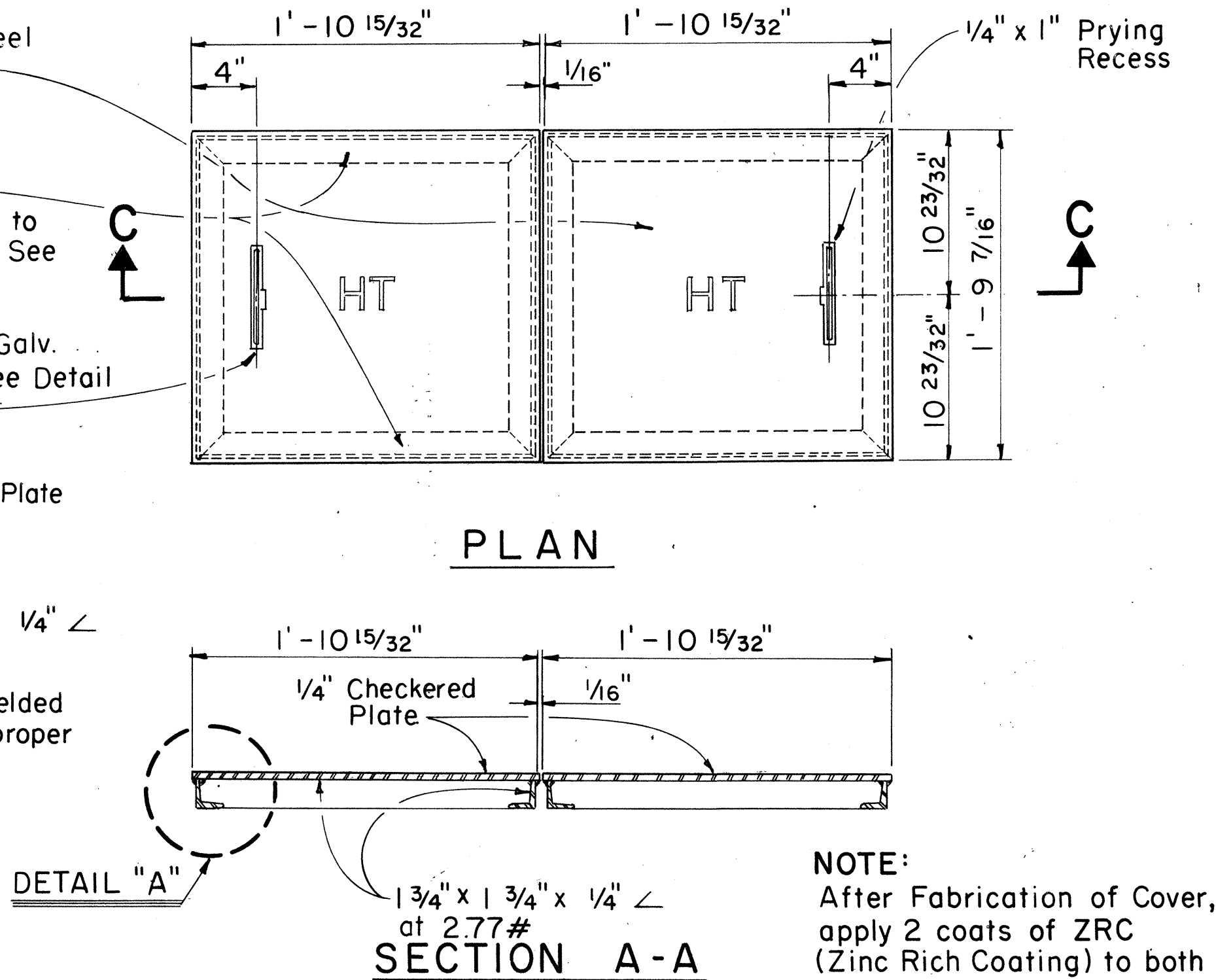
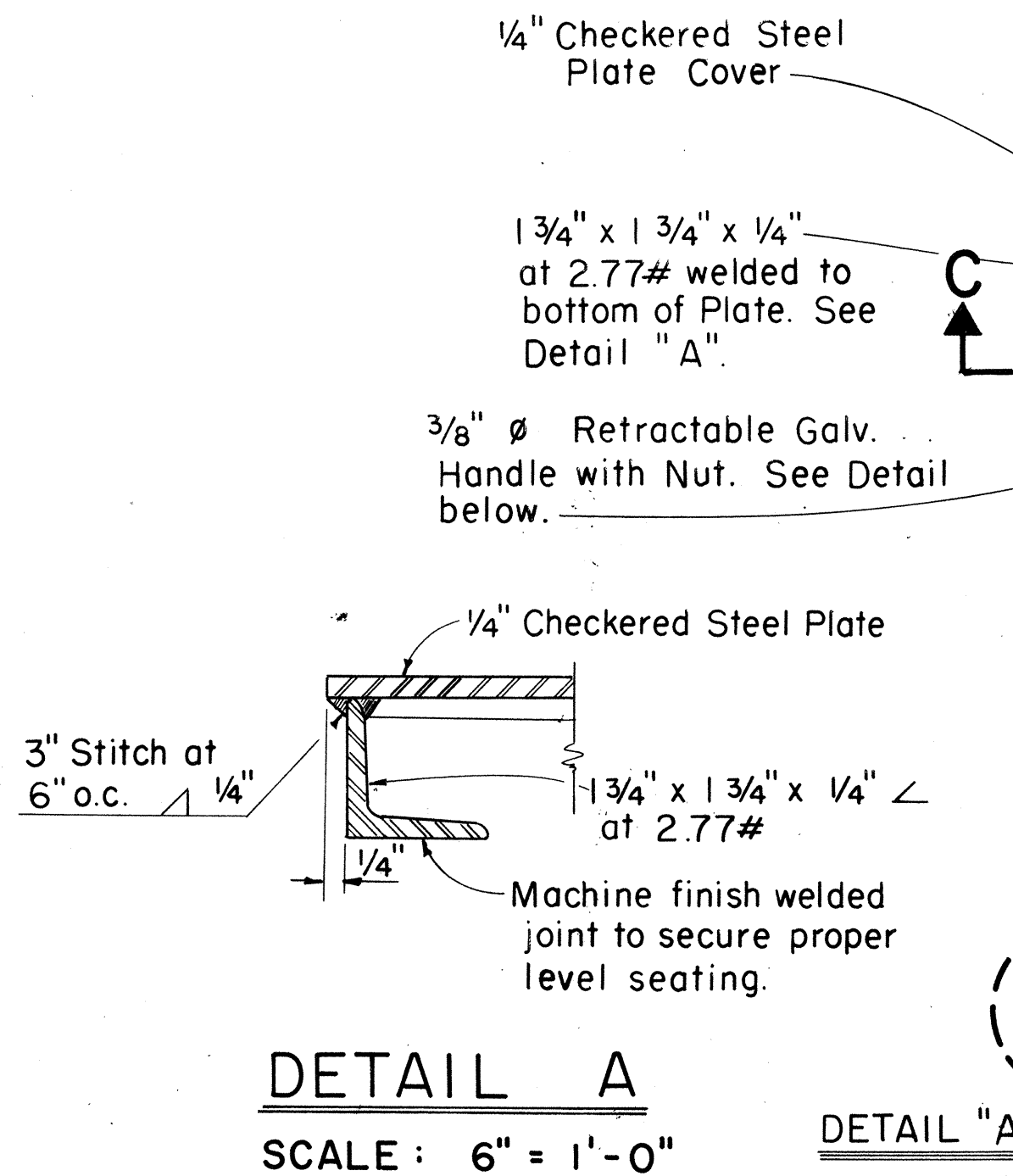


TYPICAL SECTION THROUGH TRENCH WITH ROCK 2'-6" TO 4'-0" BELOW SURFACE

APPROVED:	
Hawaiian Telephone Co., Ltd.	Date
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. 12 OF 17 SHEETS	

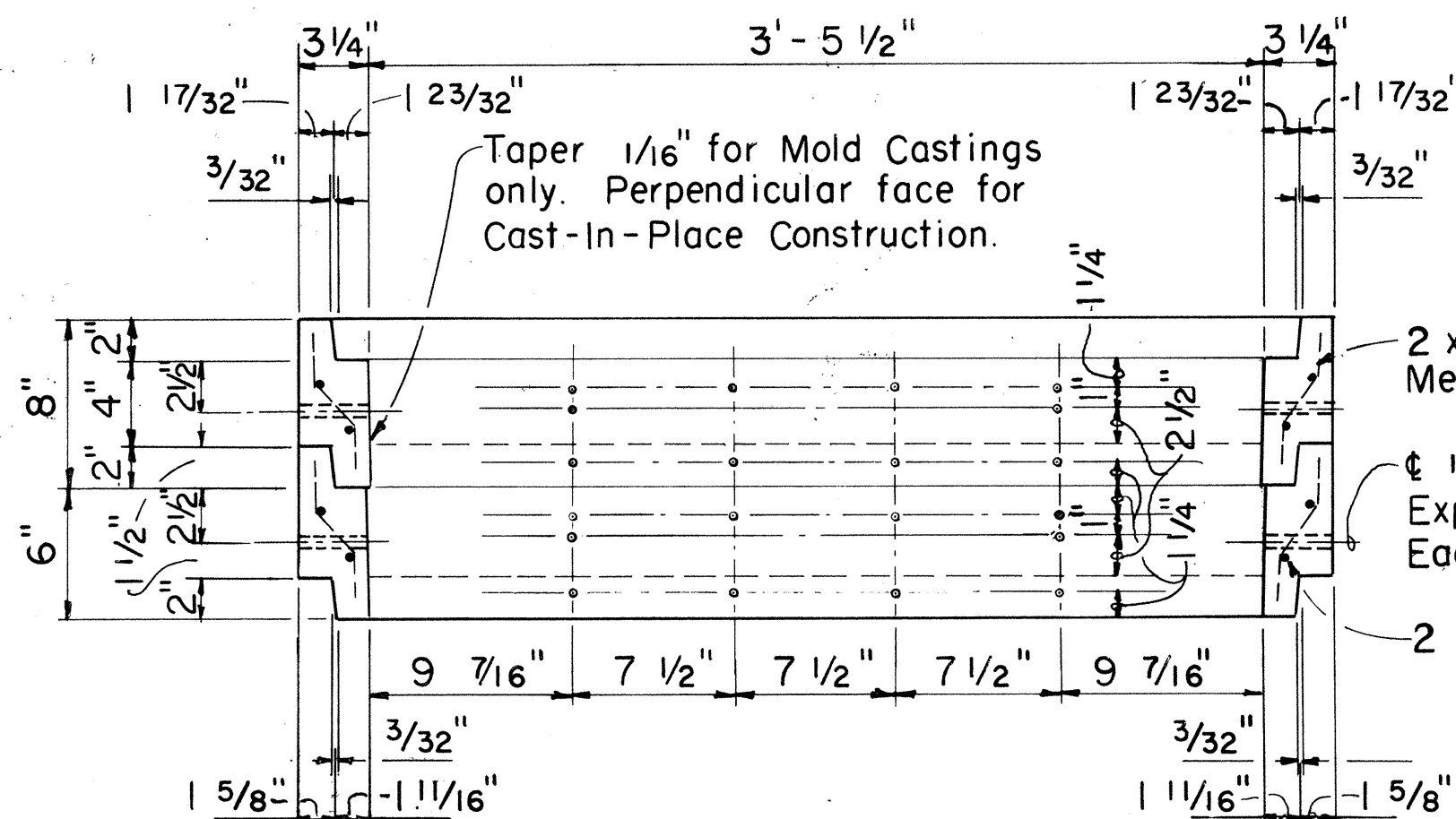
INSTALLATION NOTES:

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.
4. For 3-Cover P.B. join 435TB P.B. Half Section to Full Section using Strap and Bolts as shown in 3-Cover P.B. Section Plan.

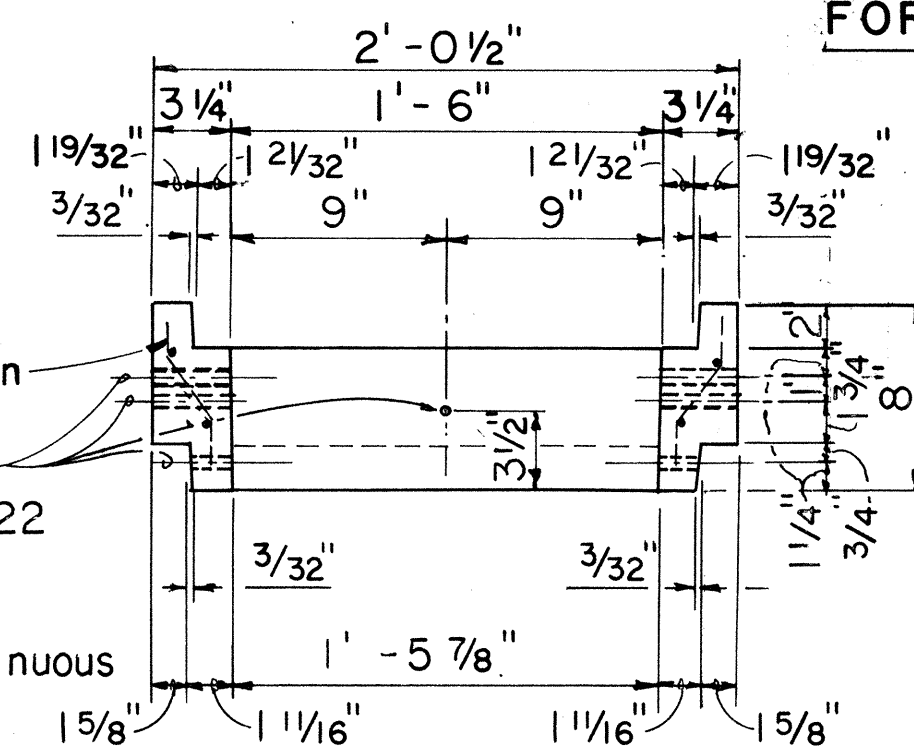


FOR LIGHT LOADING AREAS-APPROX.WT.55 LBS.

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



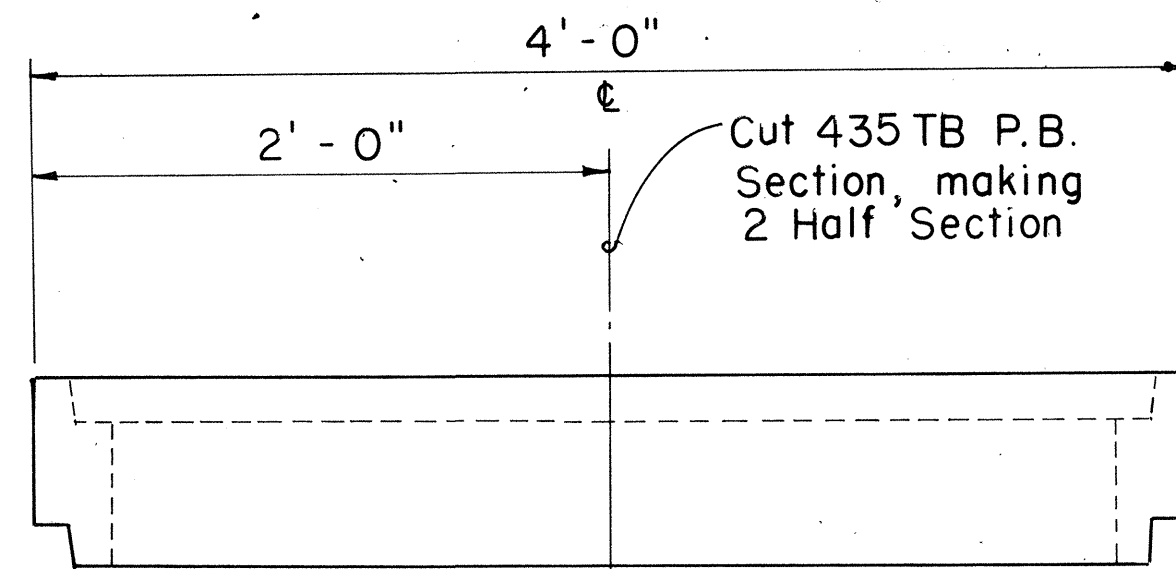
SECTION A-A



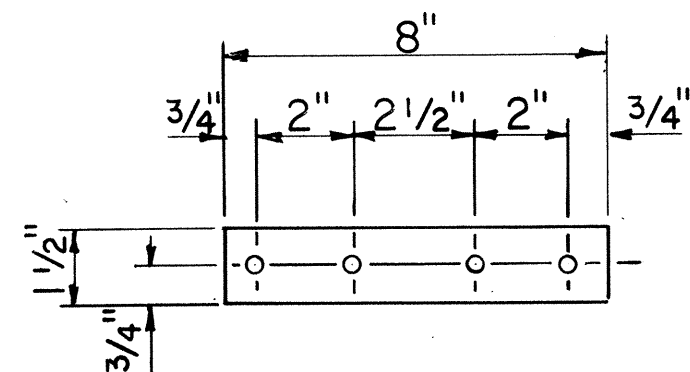
SECTION B-B

PULLBOX # 435 T-B

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



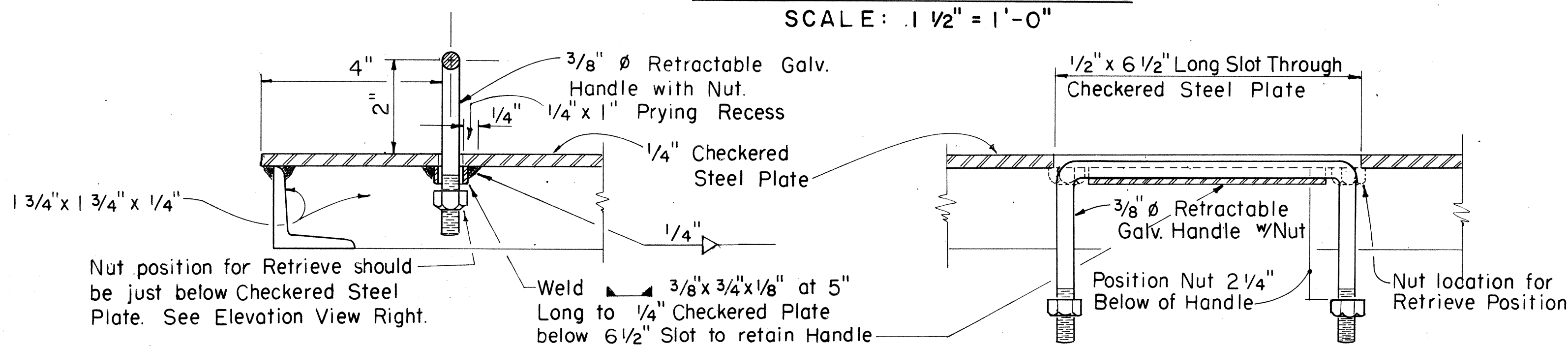
435TB P. B. SECTION



STRAP DETAIL

1/4" BAR

SCALE: 3" = 1' - 0"

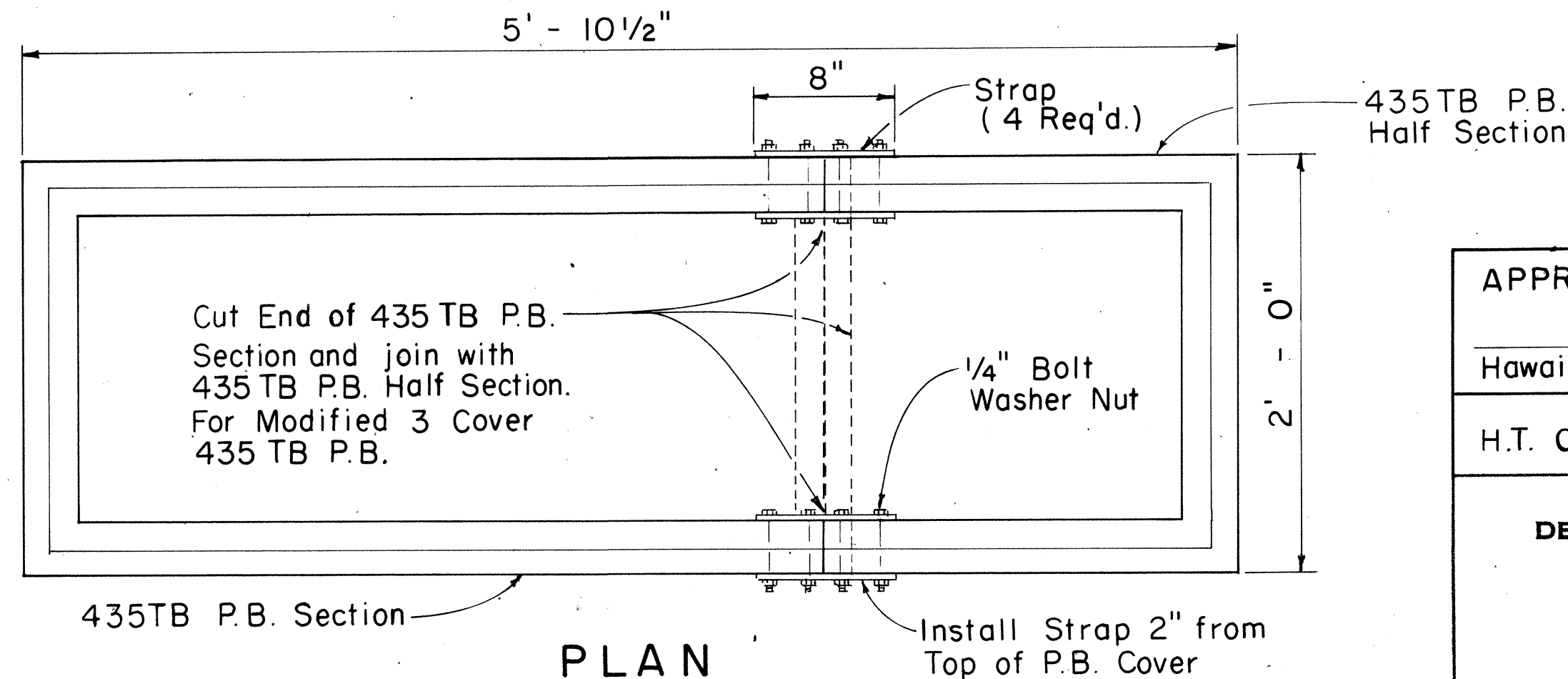


SECTION-RETRIEVE POSITION

ELEVATION - AT REST POSITION

RETRACTABLE HANDLE

SCALE: 6" = 1'-0"



MODIFIED 3 - COVER P.B. SECTION

APPROVED:

Hawaiian Telephone Co., Ltd

Date _____

H.T. Co., Ltd.

Drawing No. 34056

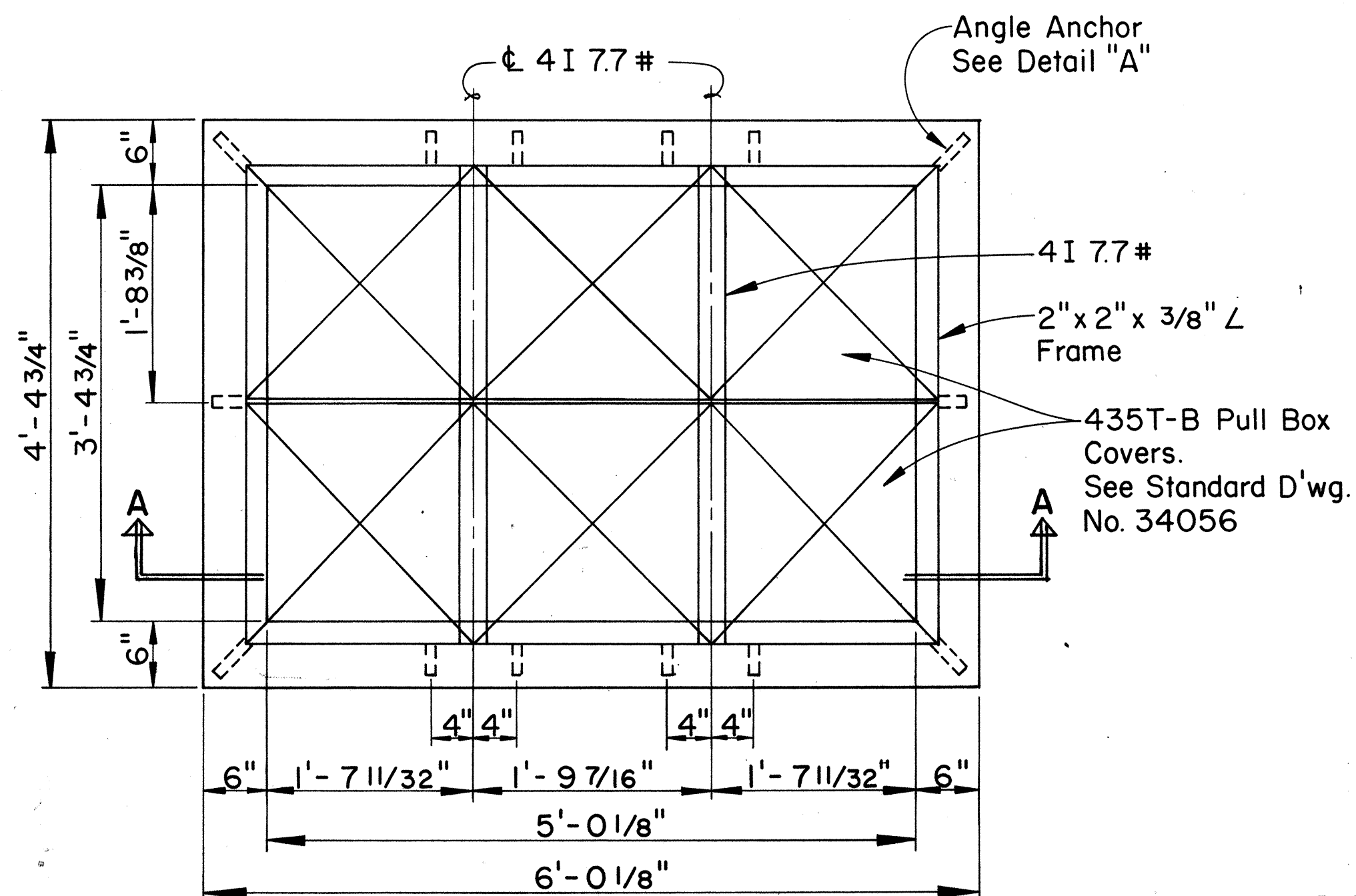
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

LARGE PULLBOX

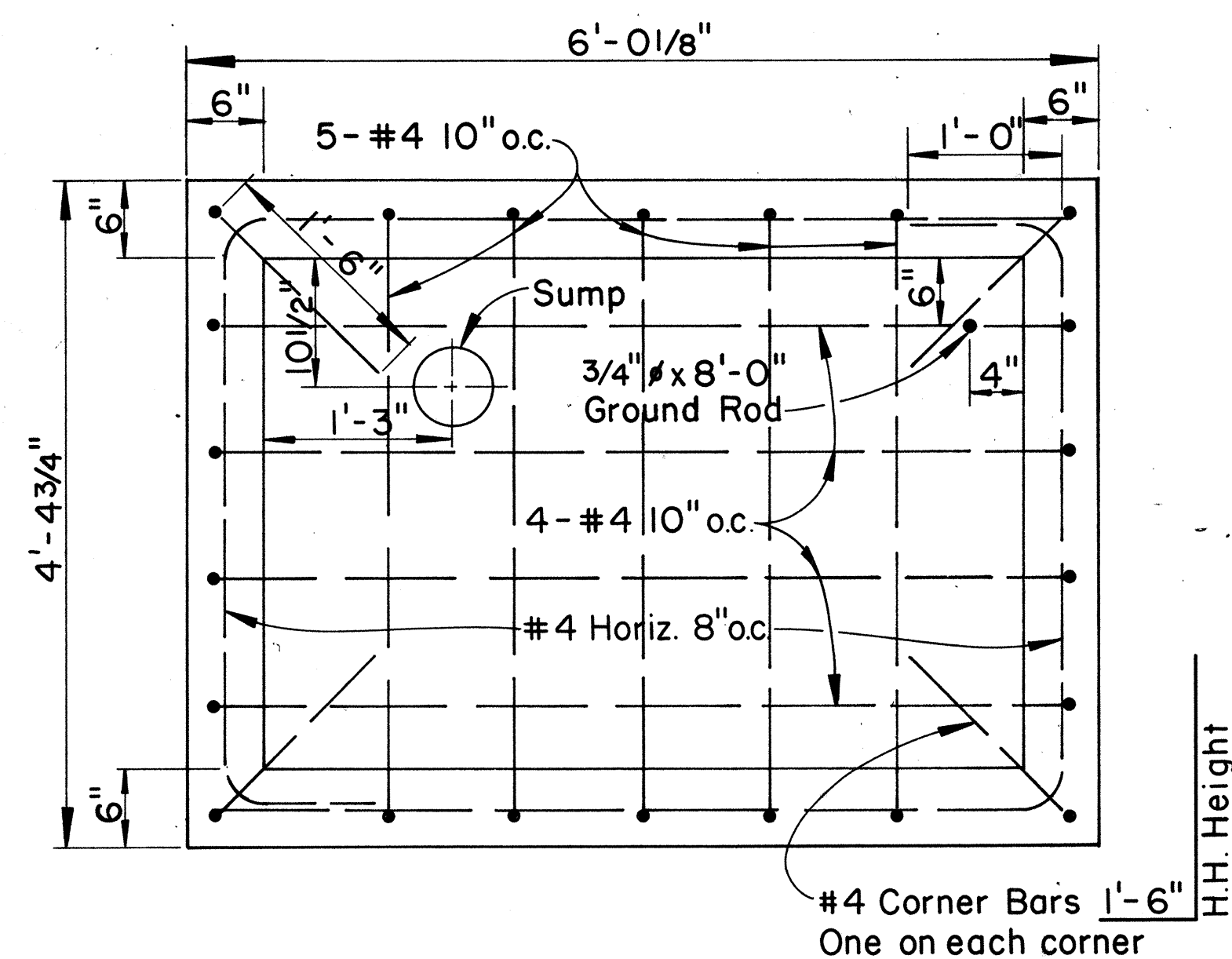
NO. 435 T-B

SHEET No. 13 OF 17 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F076-1(1)	1986	87	121



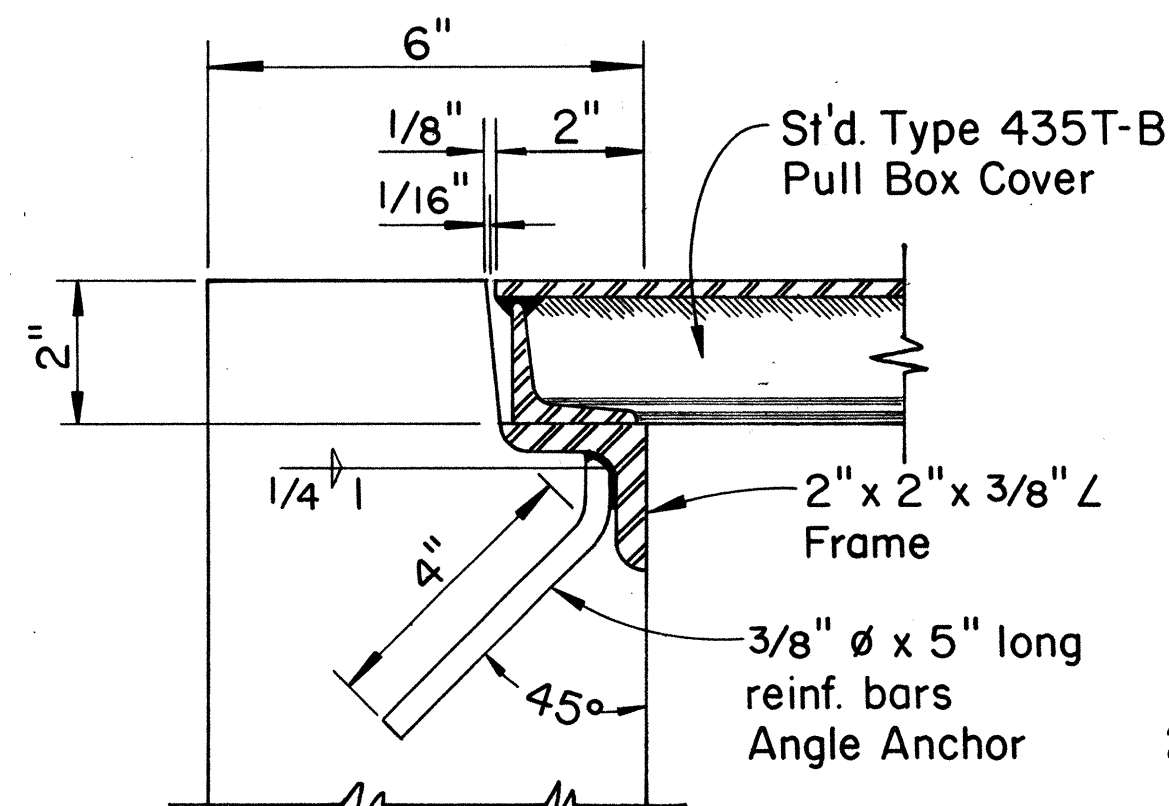
TOP PLAN
Scale: 1" = 1'-0"



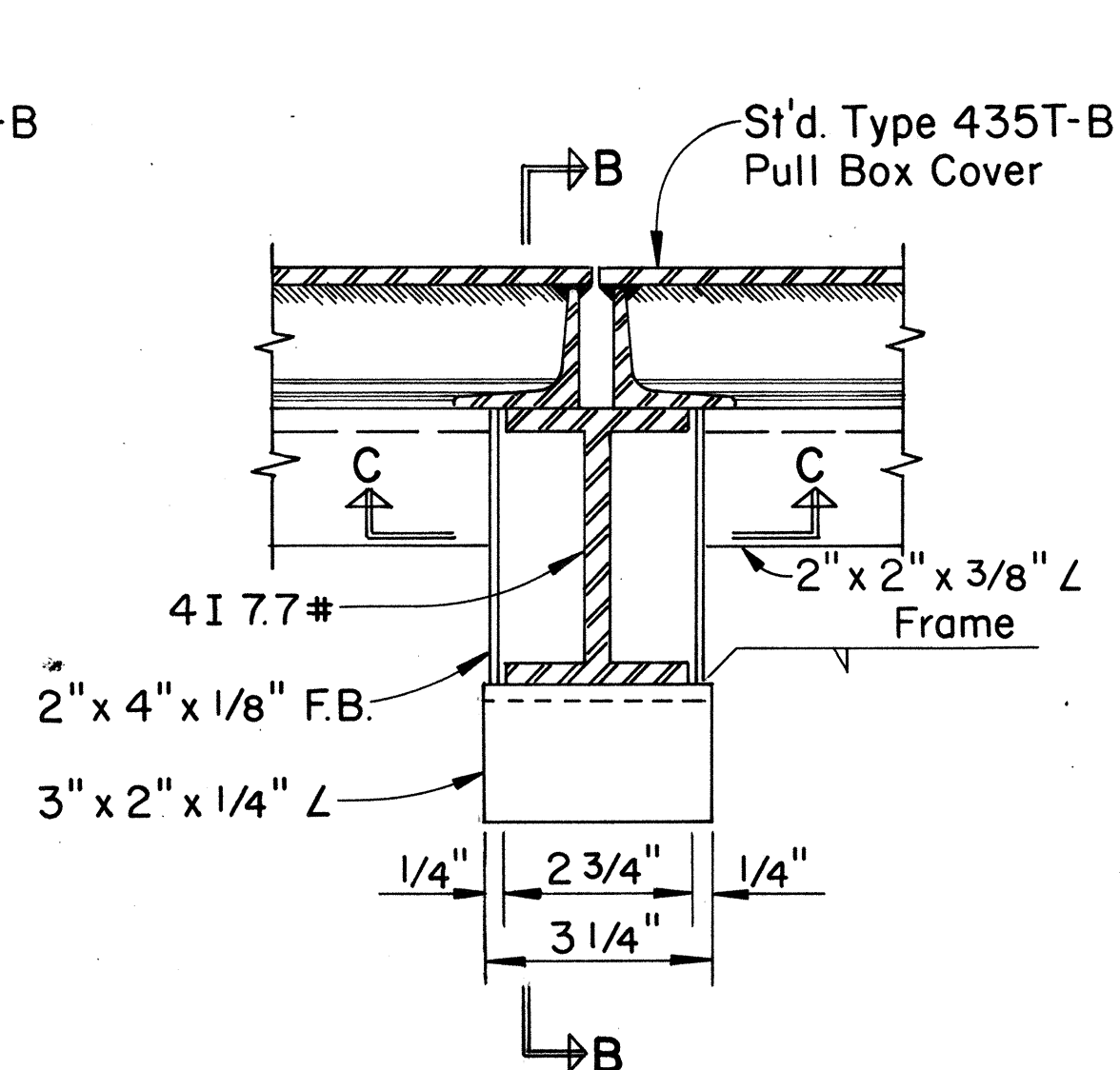
FLOOR PLAN
Scale: 1" = 1'-0"

GENERAL NOTES:

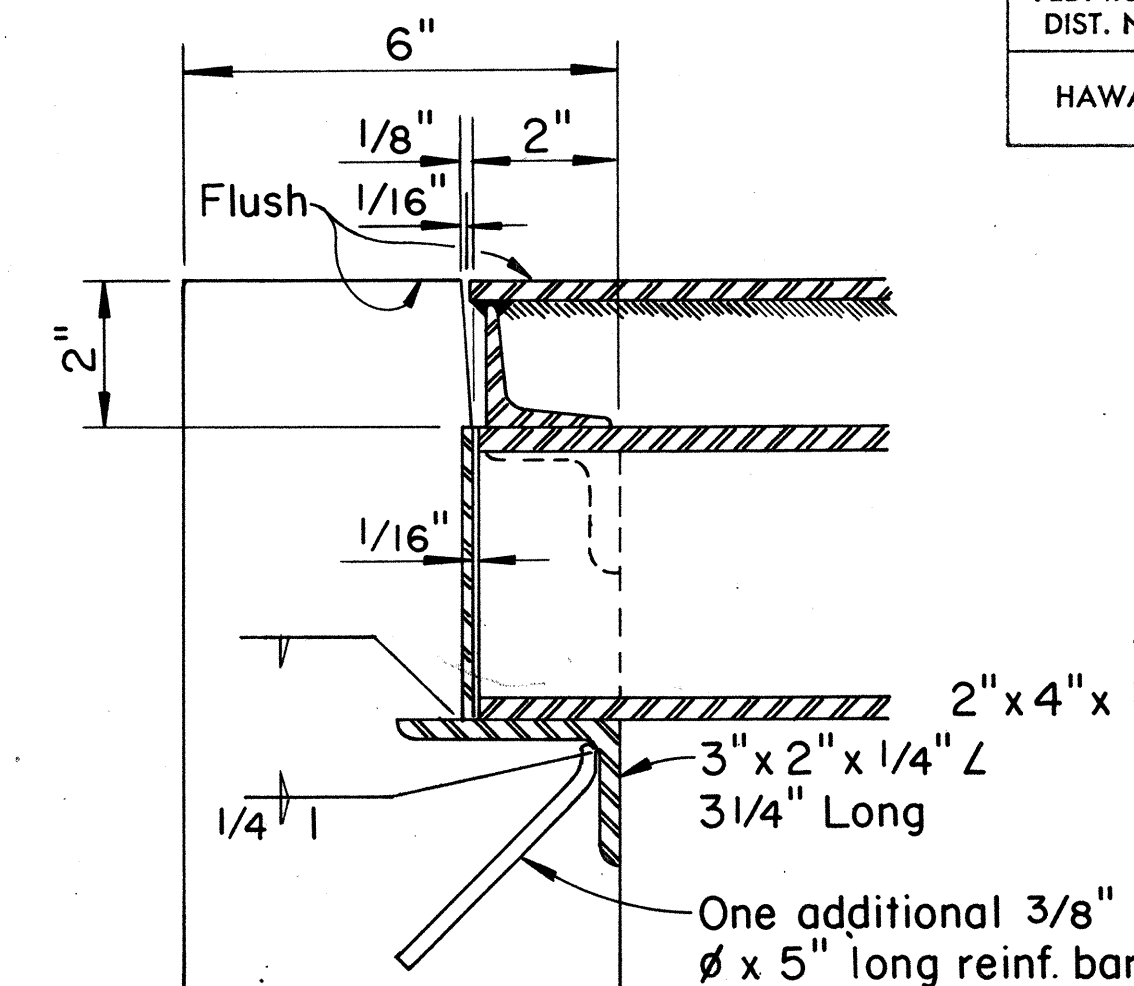
- Concrete finish: floors-wood floated finish-exposed wall surfaces and edges-smooth and free from defects.
- Concrete to develop compressive strength-3000 p.s.i. in 28 days.
- Steel work all structural steel shall be hot dip galvanized after fabrication.
- For duct line construction standards, see st'd. dwg. No. 34028.
- These handholes are designed for installation in areas other than roadways.



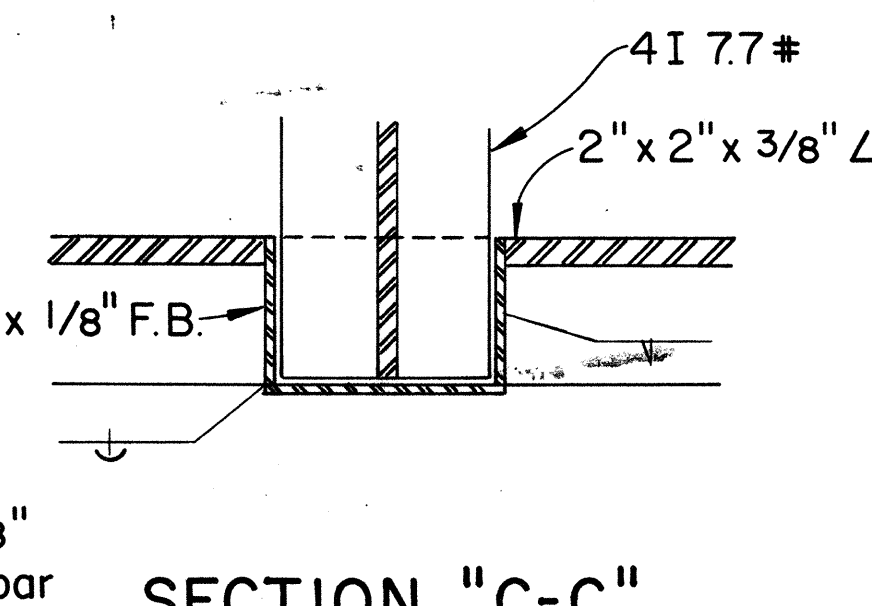
NOTE:
Section is typical.
DETAIL "A"
Scale: 3/8" = 1"



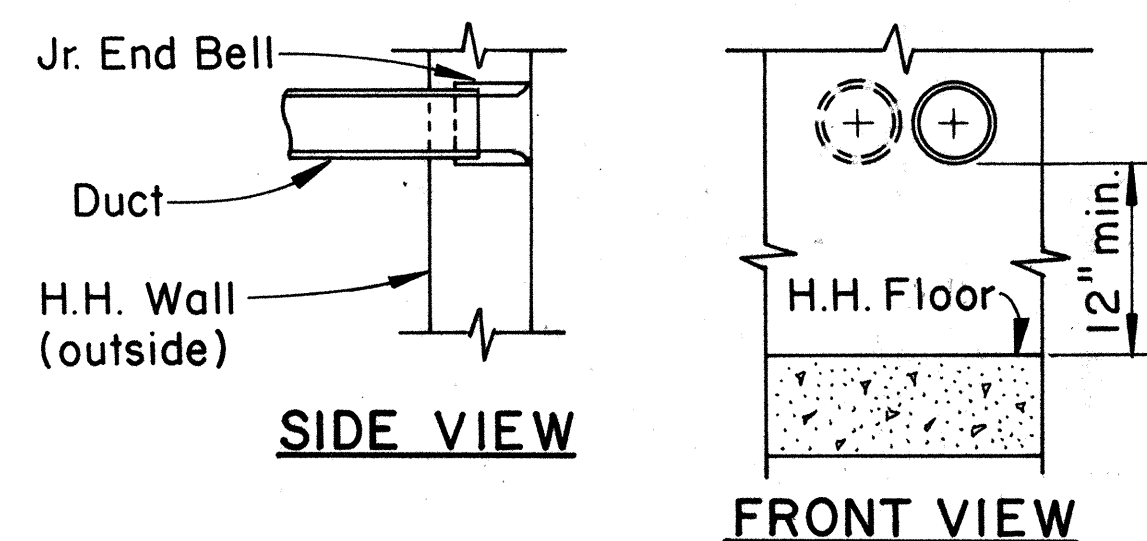
DETAIL "B"
Scale: 3/8" = 1"



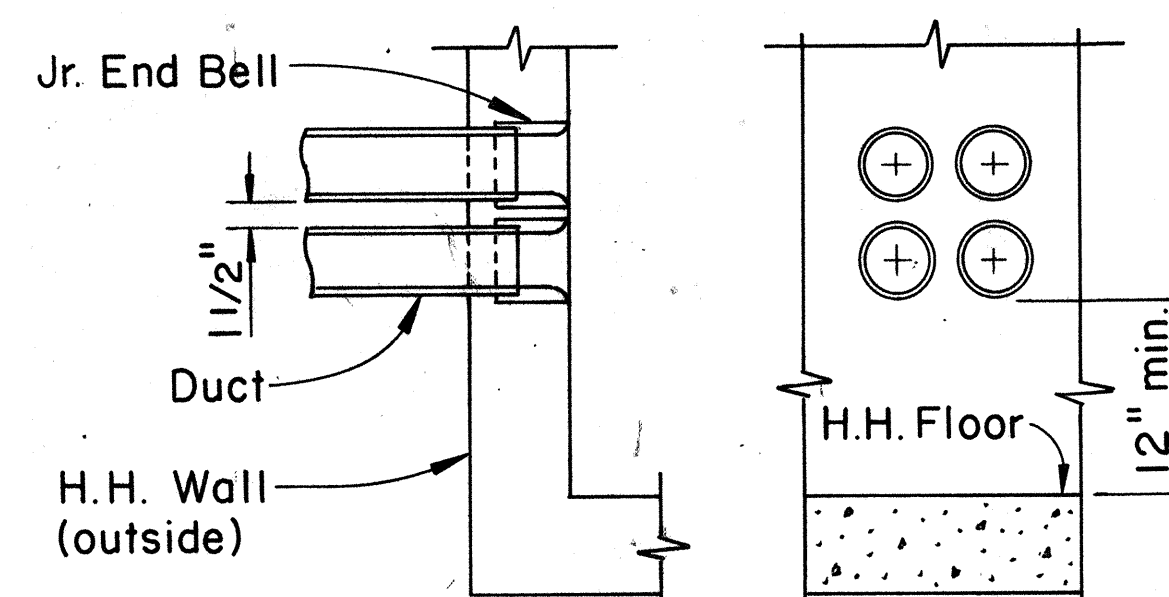
SECTION "B-B"
Scale: 3/8" = 1"



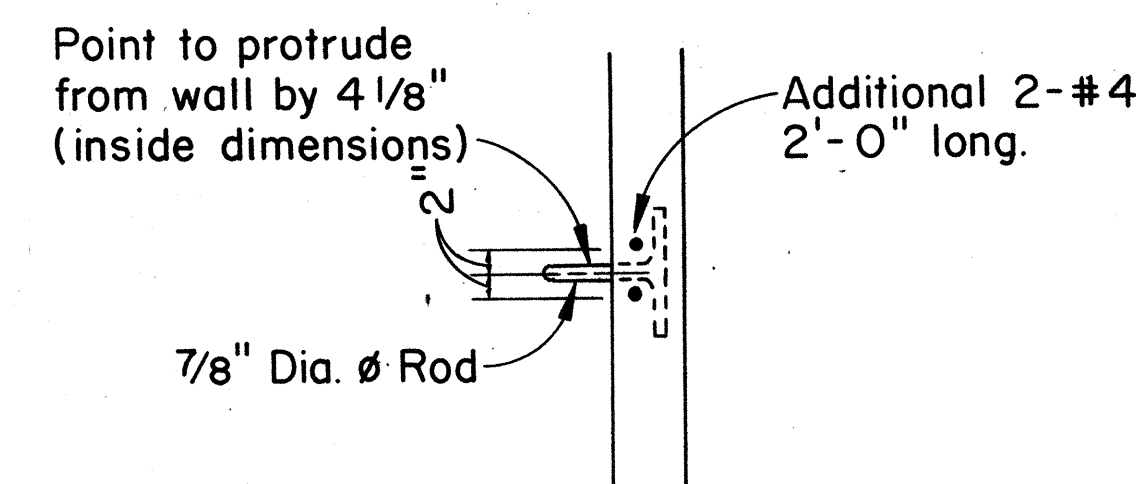
SECTION "C-C"
Scale: 3/8" = 1"



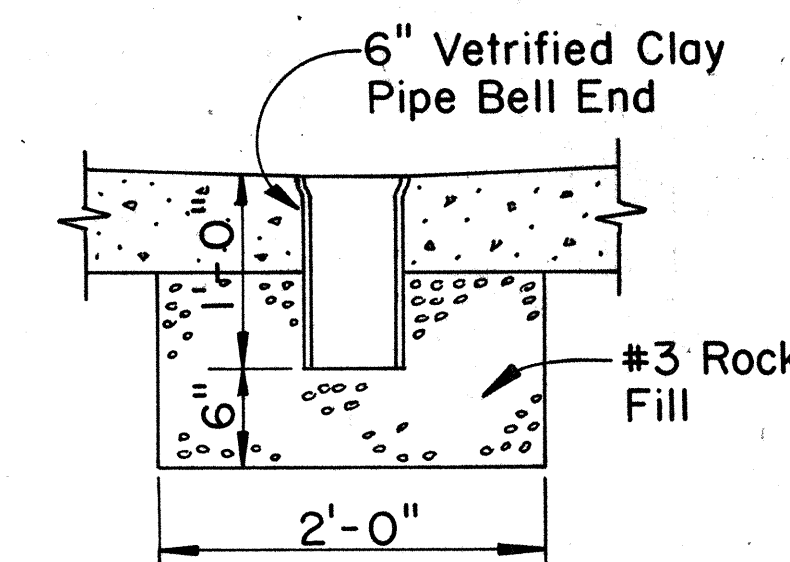
1 OR 2 DUCTS
Scale: 1" = 1'-0"



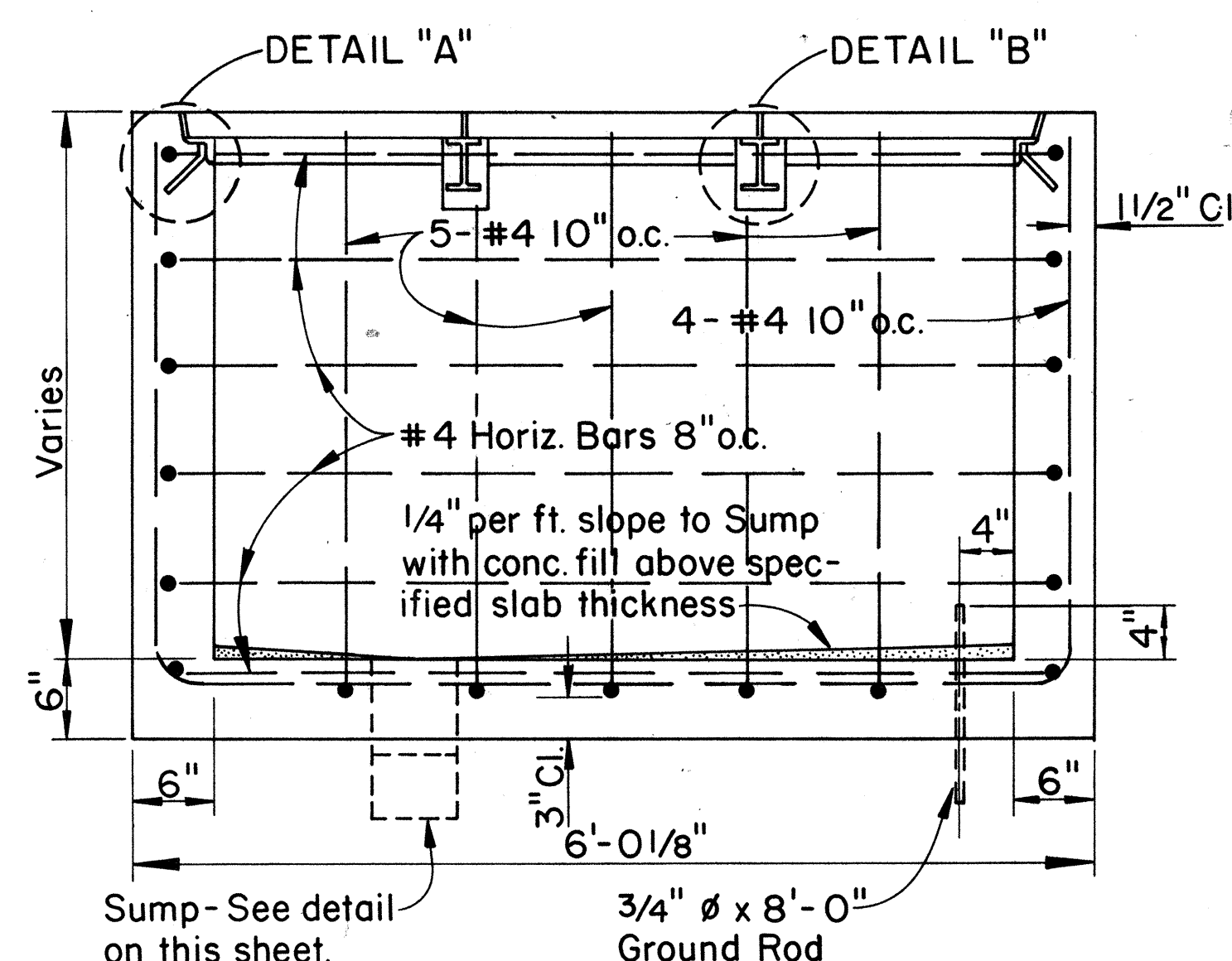
4 DUCTS
DUCT ENTRANCE DETAILS
Scale: 1" = 1'-0"



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



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

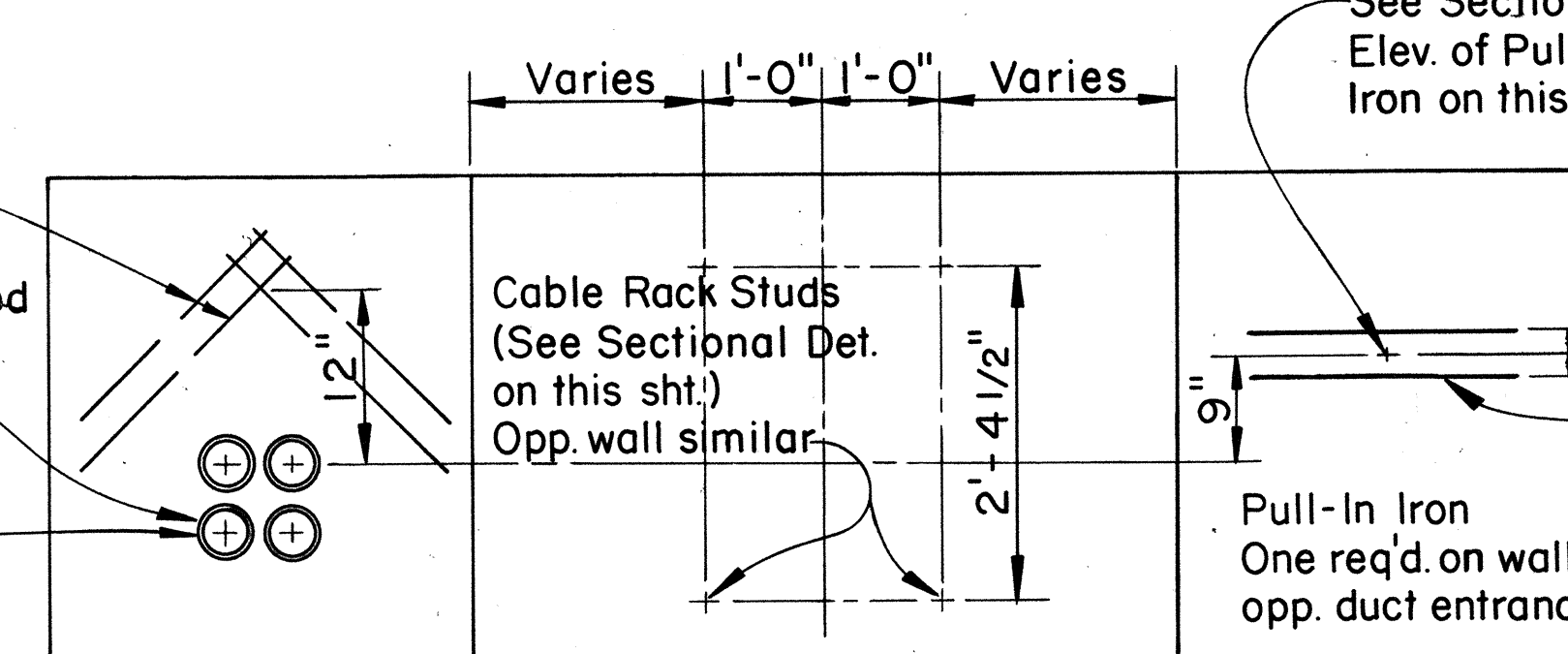


SECTION "A-A"
Scale: 1" = 1'-0"

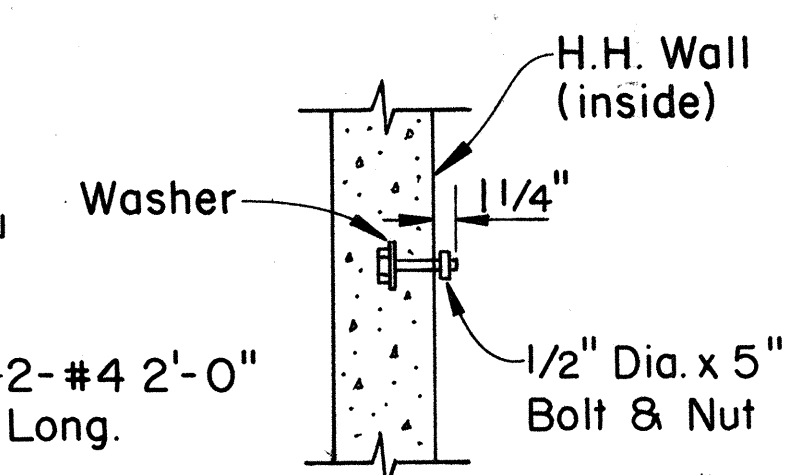
Diag. Reinf. 2- #5 at 3" o.c. over Duct Entrance.

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

See Duct Entrance Details this sheet.



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



CABLE RACK STUD

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

APPROVED:

HAWAIIAN TELEPHONE CO., LTD.

DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

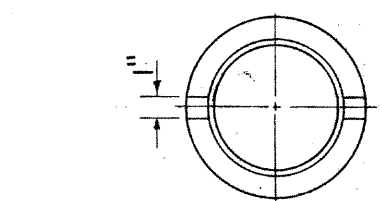
**STANDARD HANDHOLE,
TYPE #1 USING TYPE
435T-B PULLBOX COVERS**

Scale: As Shown Date:
SHEET No. 14 OF 17 SHEETS

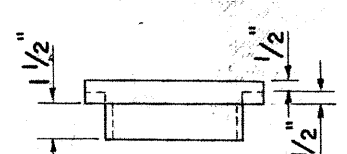
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	F0761(1)	1986	88	121

Cast Iron 1/8" Raised Letters

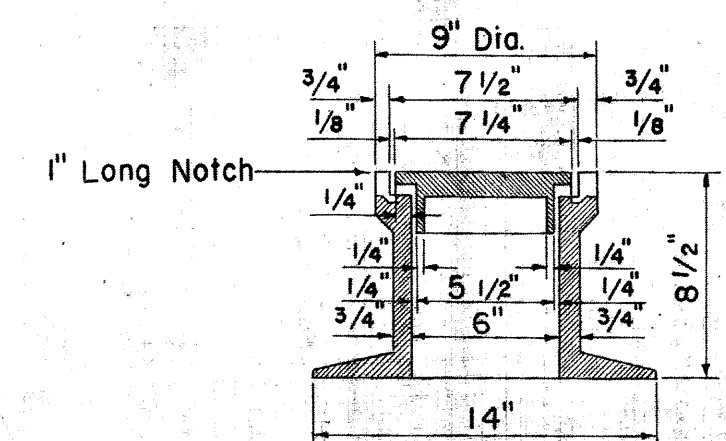
PLAN OF COVER



BOTTOM OF COVER



ELEVATION



SECTION

DROP MANHOLE CHIMNEY CASTINGS

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

REAPPROVED:

G. Uyema
Chief, Div. of Wastewater Management

7/27/85
Date

APPROVED:

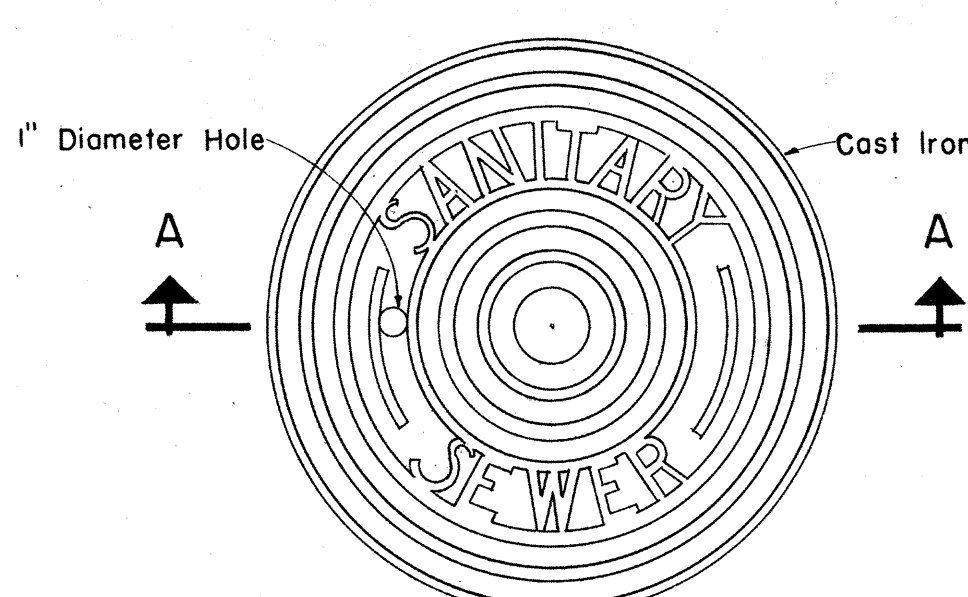
G. Uyema
CHIEF, DIVISION OF WASTEWATER MANAGEMENT

7/27/85
DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION
DIVISION OF SEWERS
CITY & COUNTY OF HONOLULU
STANDARD DETAILS
SEWERS - MANHOLE RUNGS,
CHIMNEY CASTINGS AND
FRAME AND COVER DETAILS

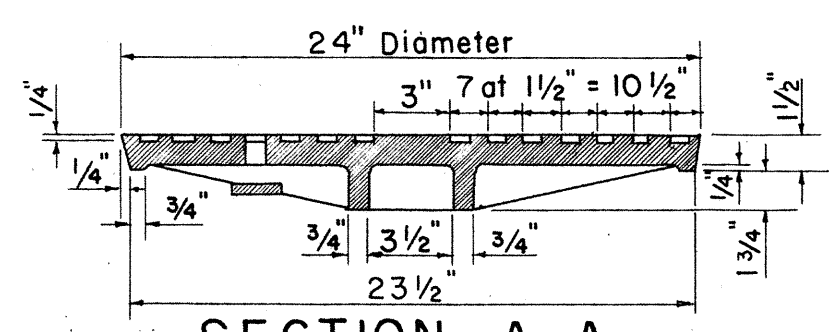
Scales: As Noted Date:

SHEET NO. 15 OF 17 SHEETS



PLAN OF MANHOLE COVER

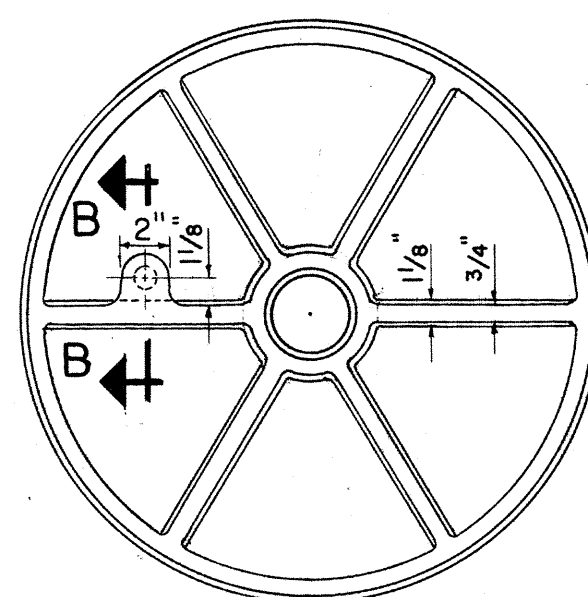
Scale: 1 1/2" = 1'-0"



SECTION A-A

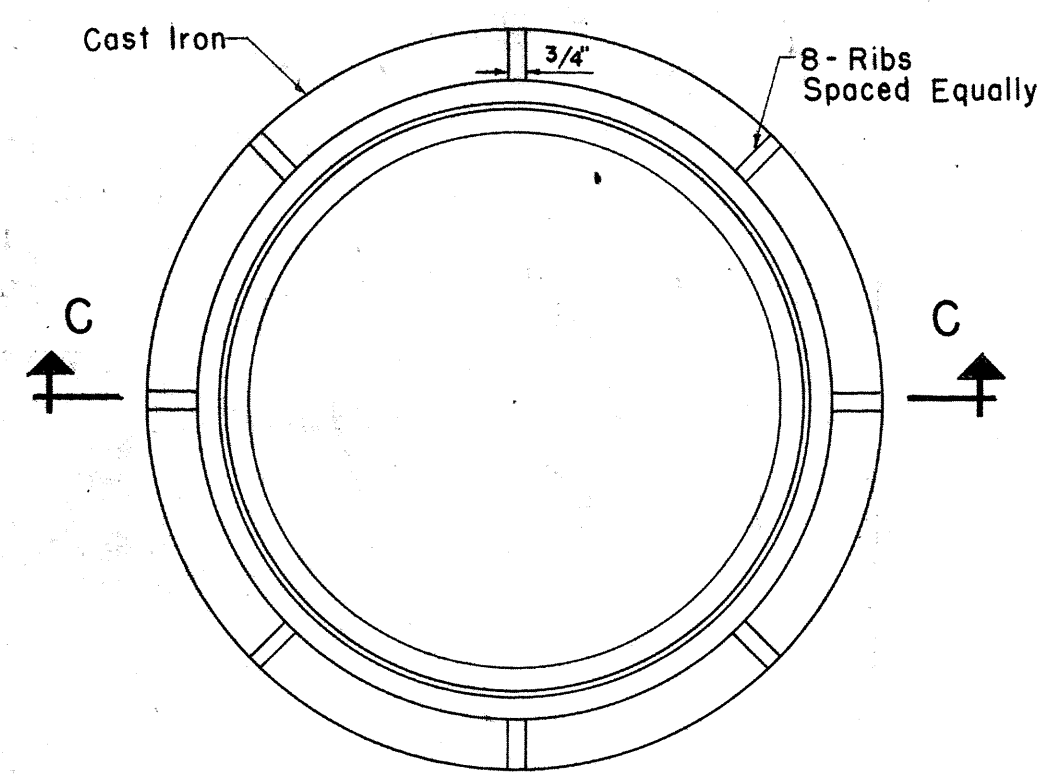
Scale: 1 1/2" = 1'-0"

NOTE:
This cover is used with
the "SA" or "SD" frame



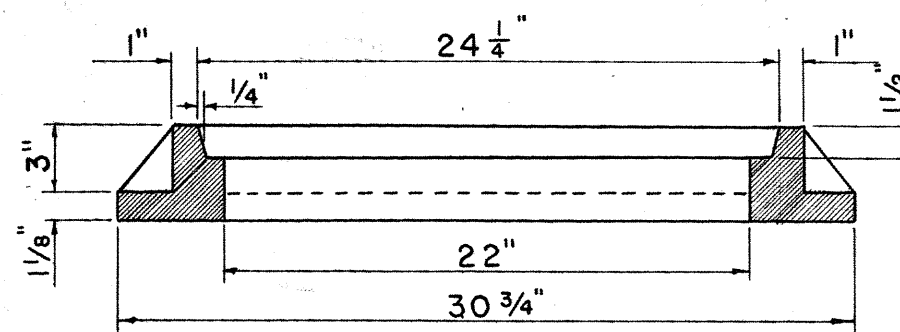
BOTTOM VIEW OF COVER

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



PLAN OF MANHOLE FRAME

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

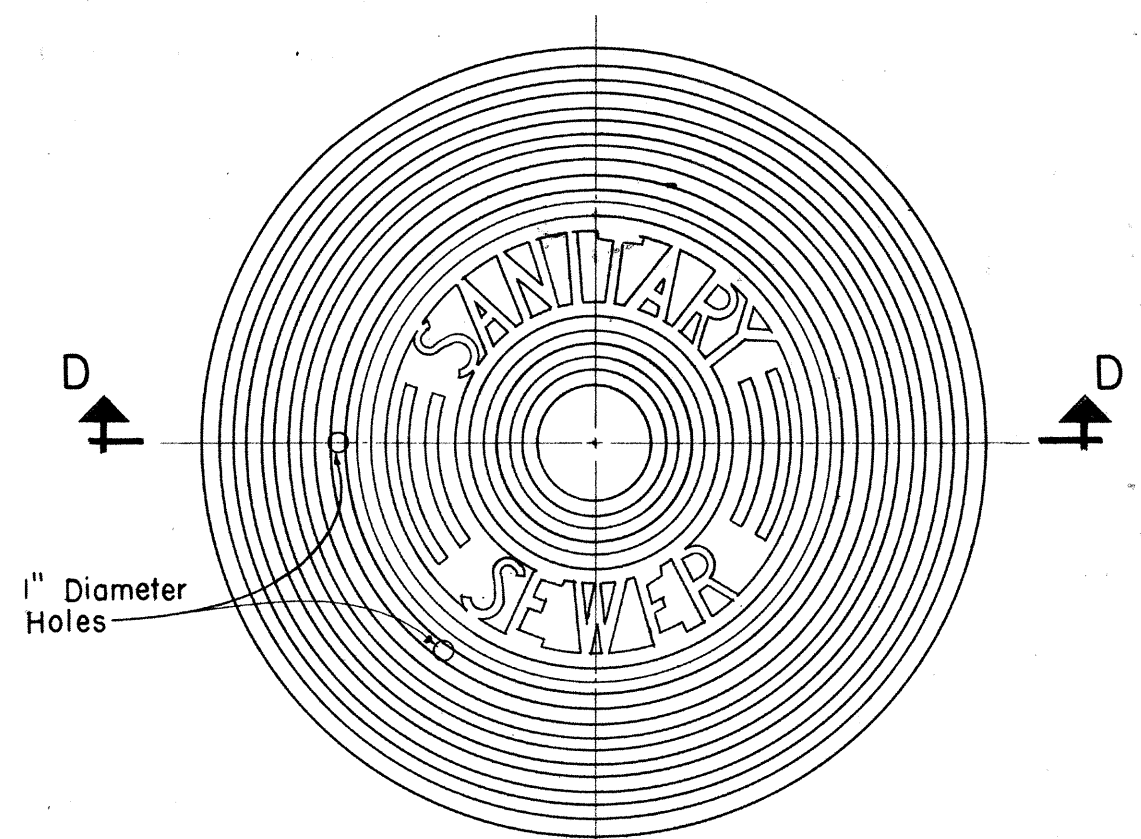


SECTION C-C

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

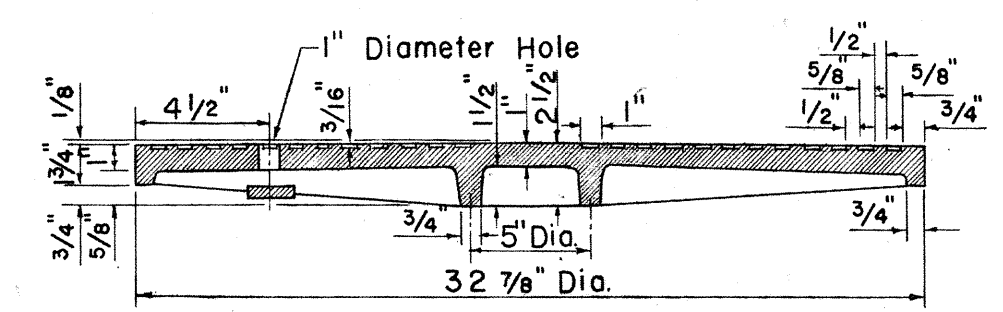
TYPE "SA" SEWER MANHOLE FRAME AND COVER

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



PLAN
SPECIAL MANHOLE COVER

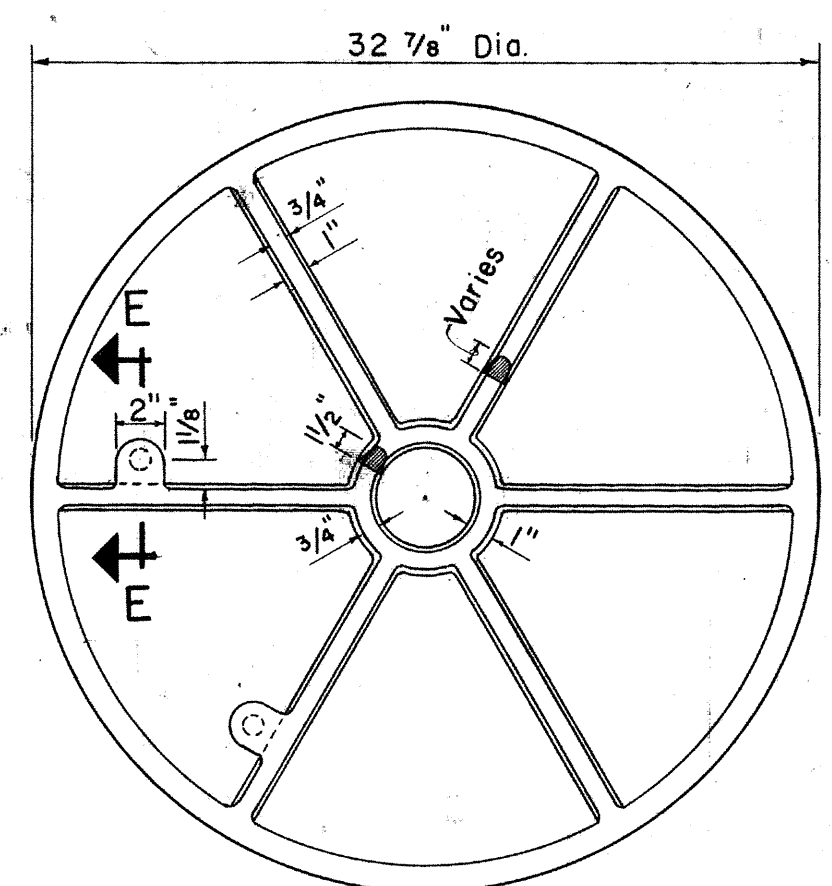
Scale: 1 1/2" = 1'-0"



SECTION D-D

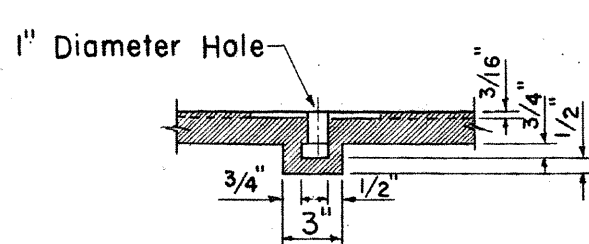
Scale: 1 1/2" = 1'-0"

Approx. Weight 260 Pounds



BOTTOM VIEW OF COVER

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

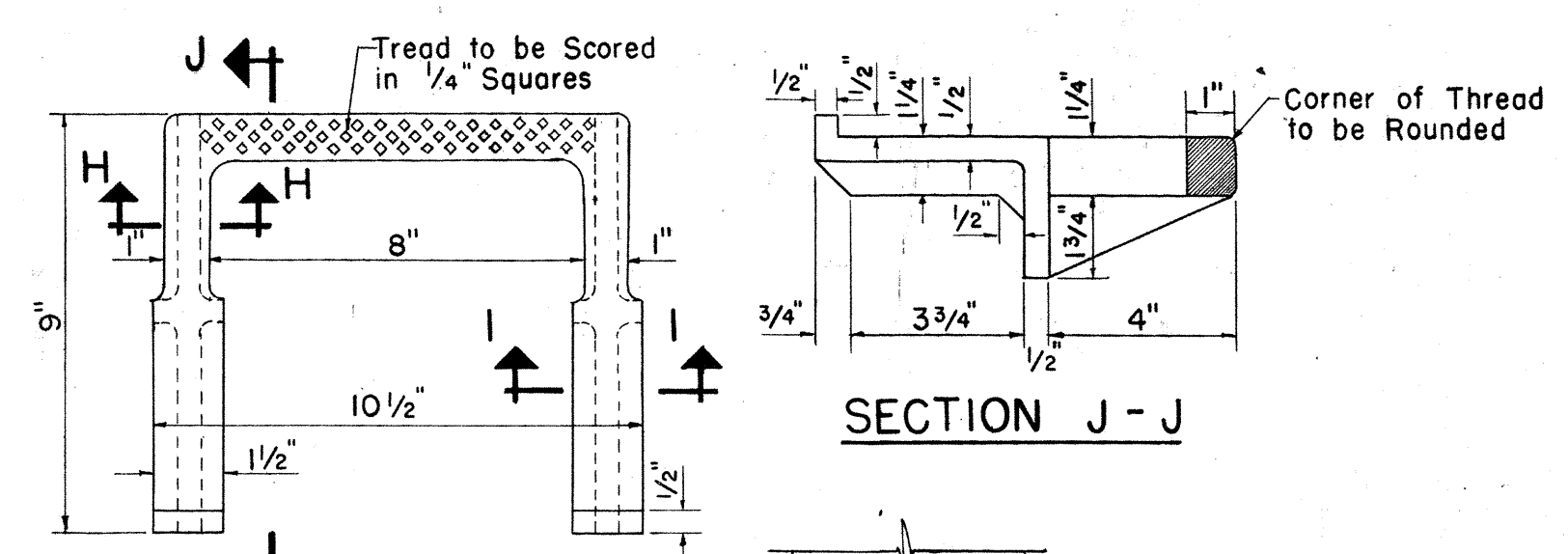


SECTION E-E

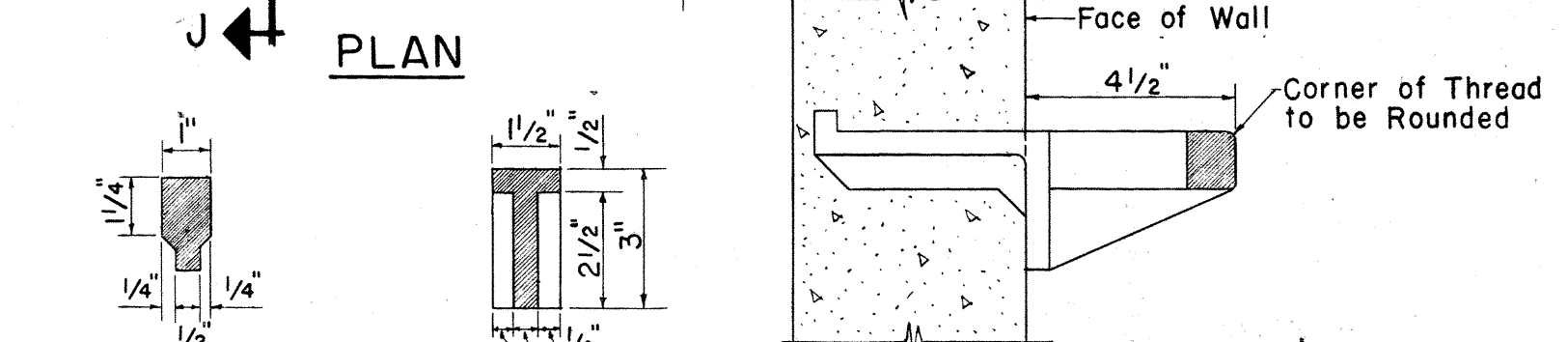
Scale: 1 1/2" = 1'-0"

TYPE "SB" SEWER MANHOLE FRAME AND COVER

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



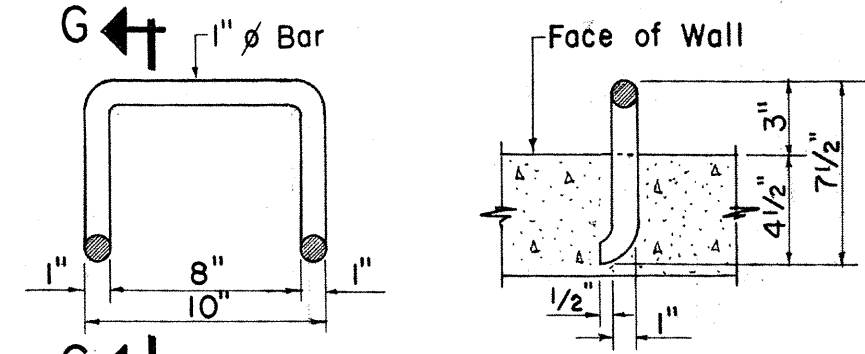
SECTION J-J



SECTION I-I

TYPE "SB" MANHOLE RUNGS ~~(CAST IRON)~~

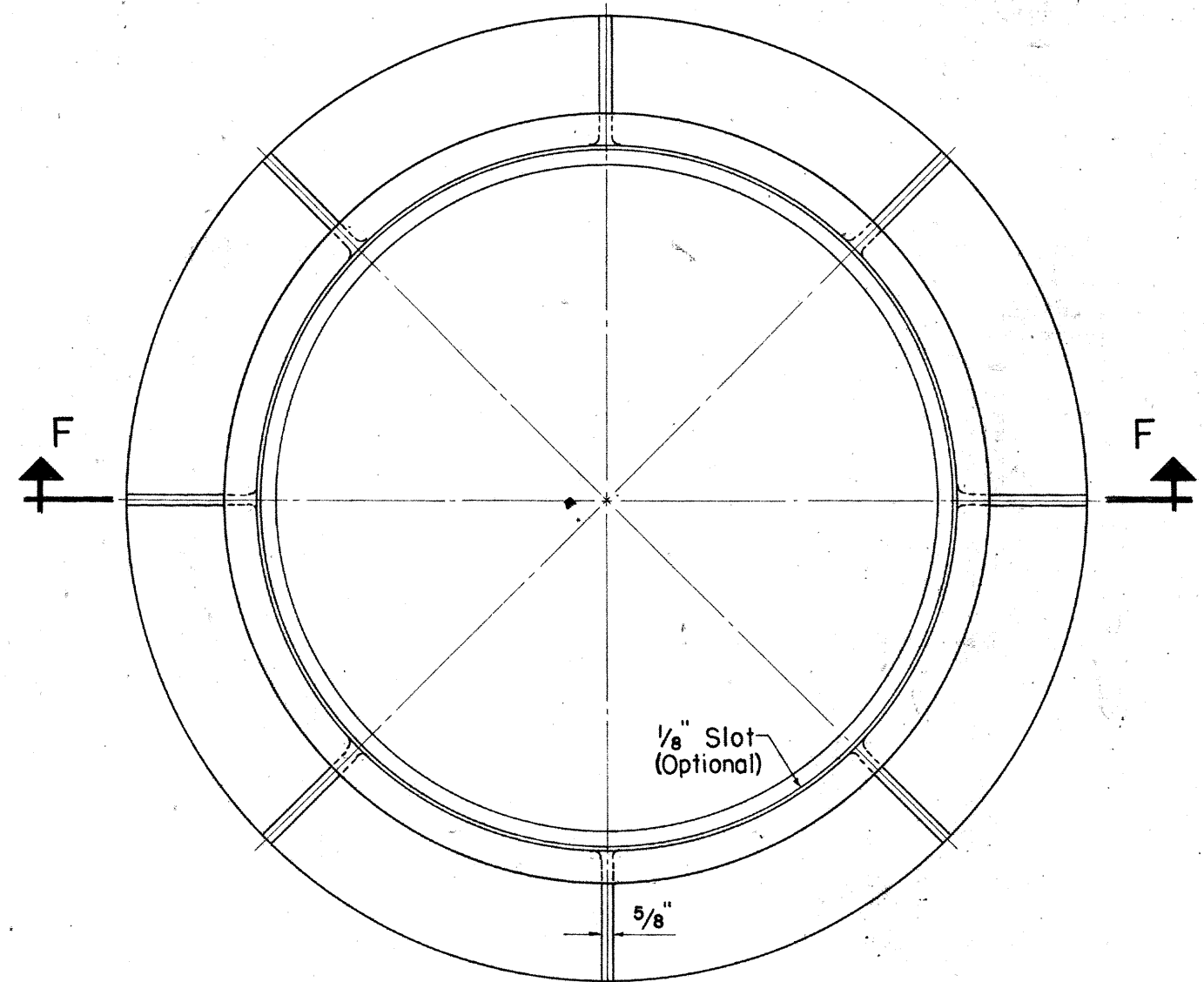
Scale: 3" = 1'-0"



SECTION G-G

TYPE "SA" MANHOLE RUNGS ~~(WROUGHT IRON)~~

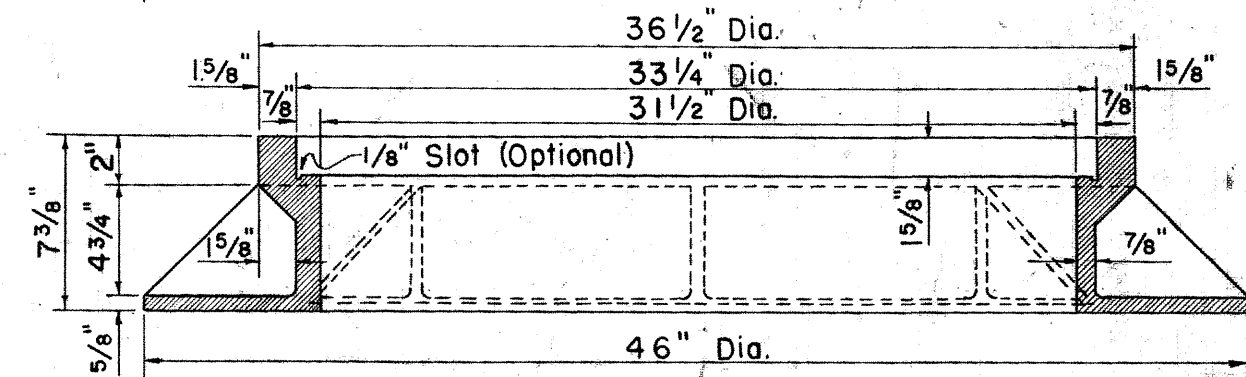
Scale: 1 1/2" = 1'-0"



PLAN
SPECIAL MANHOLE FRAME

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

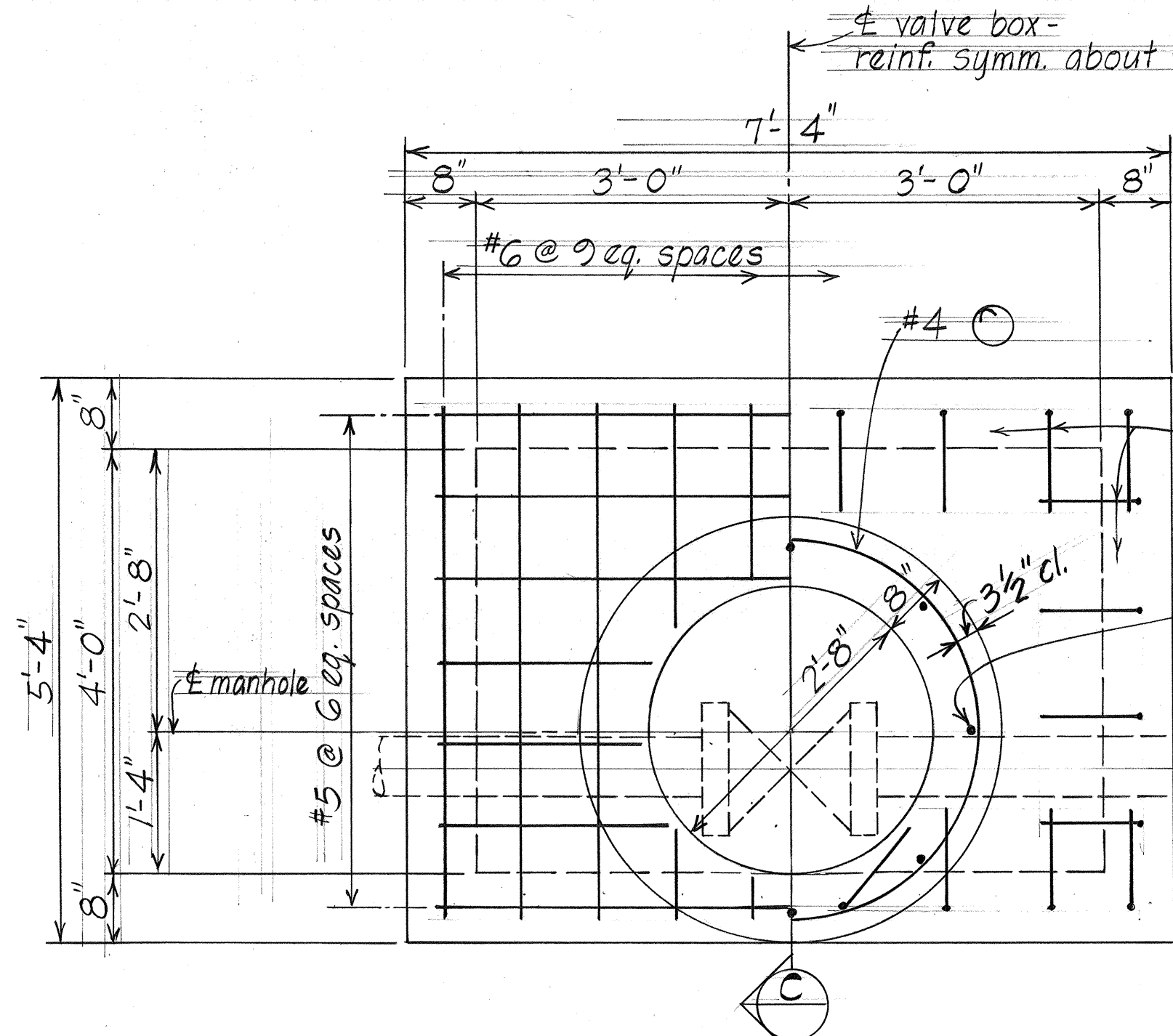
Approx. Weight 480 Pounds



SECTION F-F

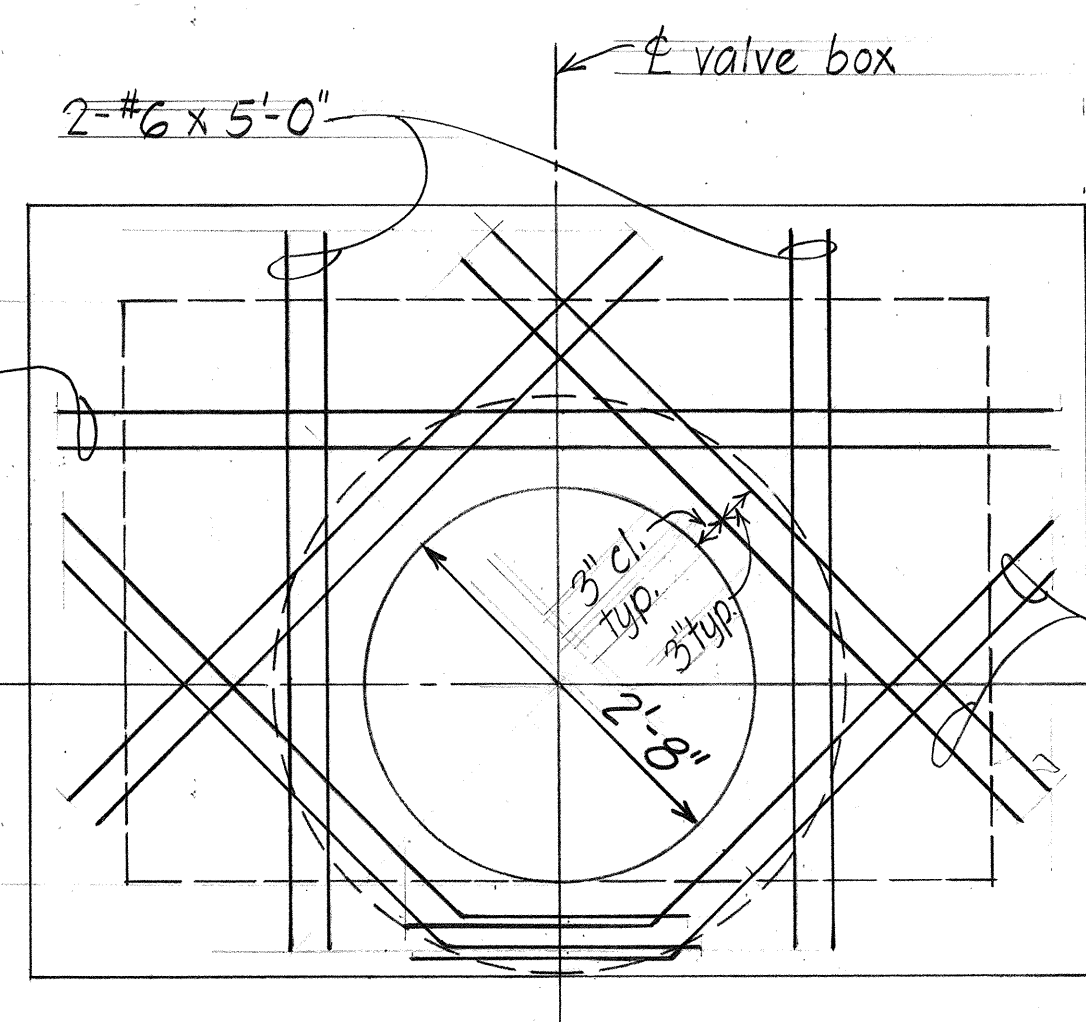
Scale: 1 1/2" = 1'-0"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F076-1(1)	1986	89	121

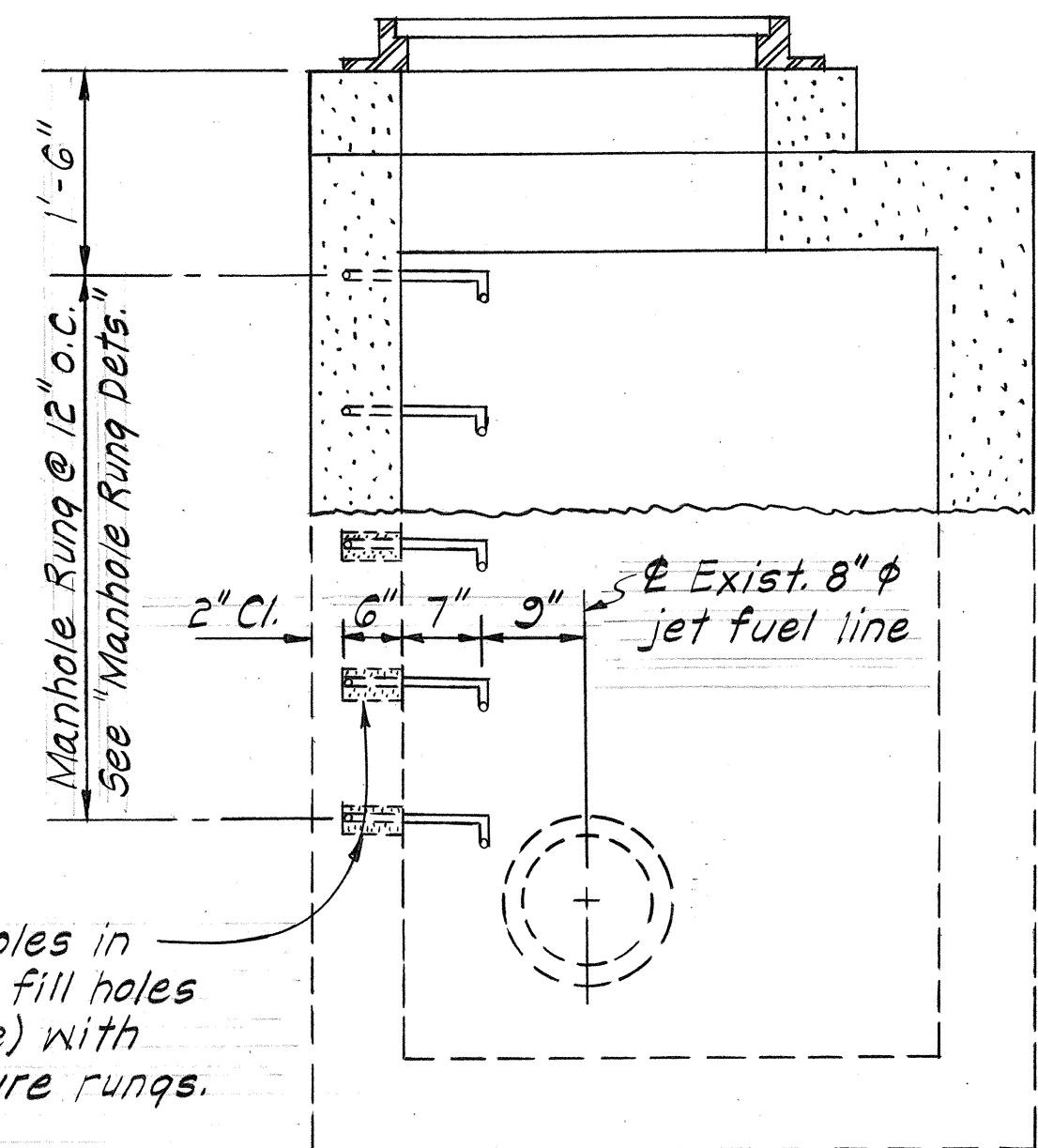


SLAB REINFORCEMENT

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

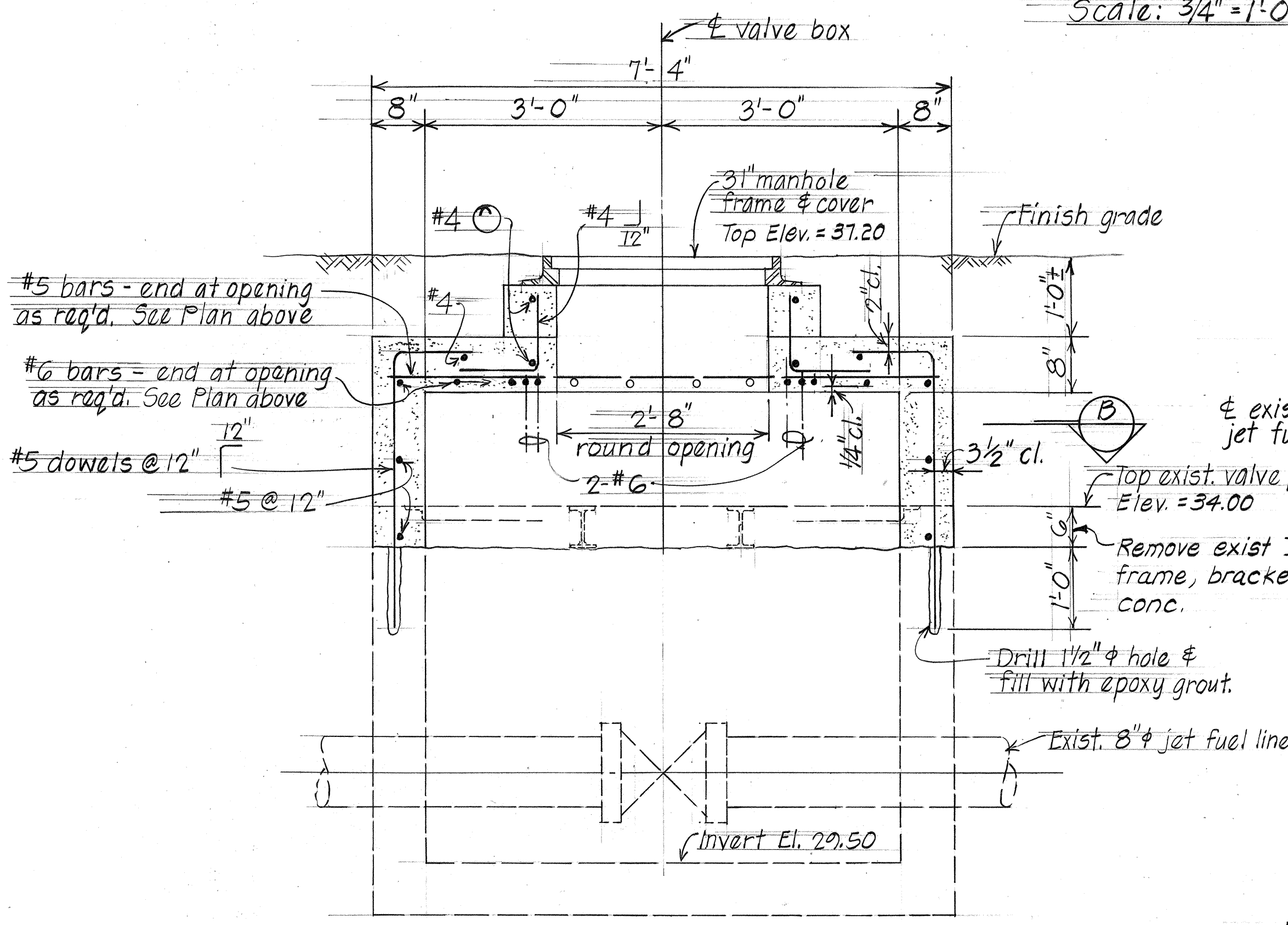


ADDED REINFORCEMENT

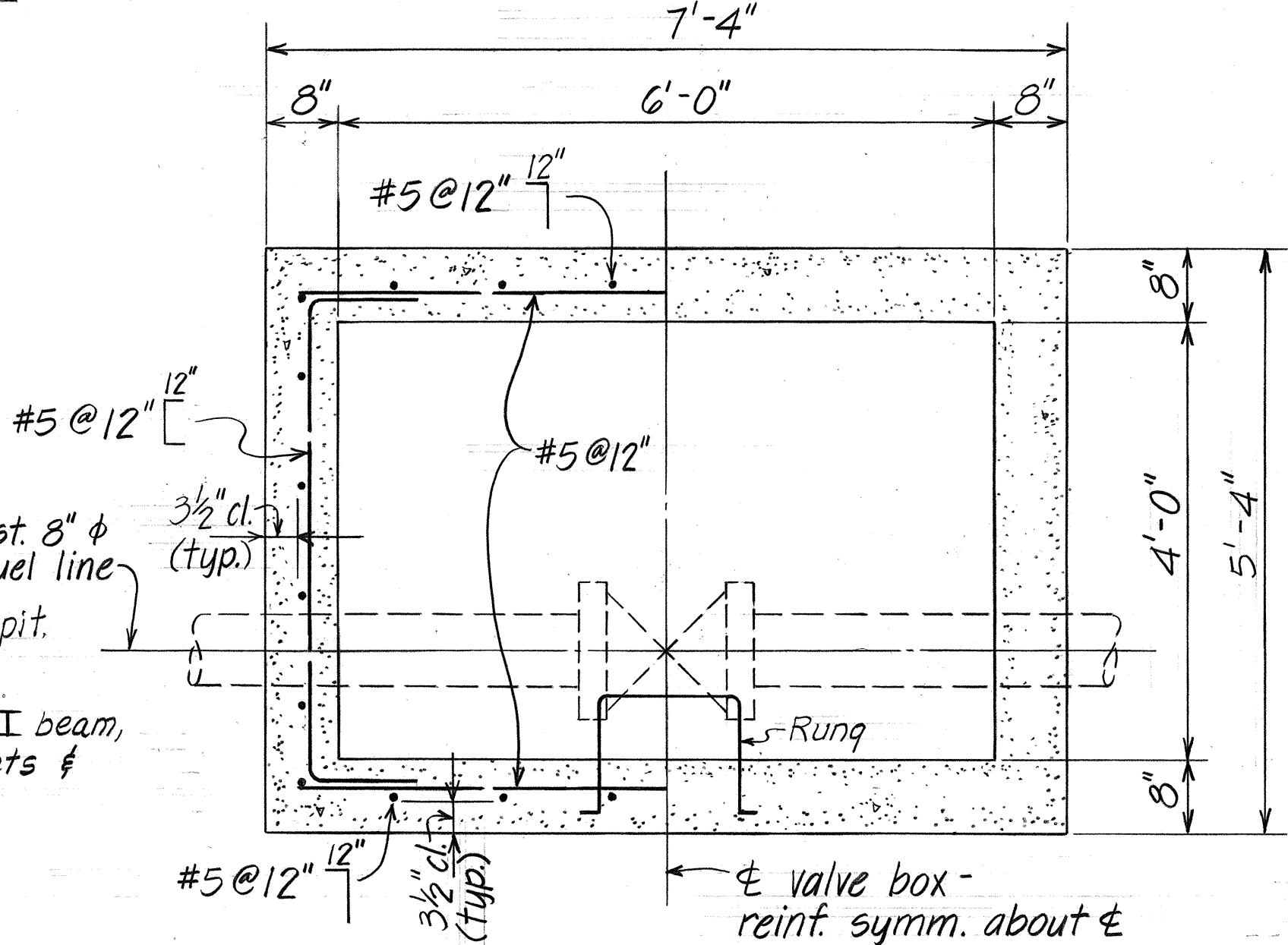


SECTION C
Scale: 3/4" = 1'-0"

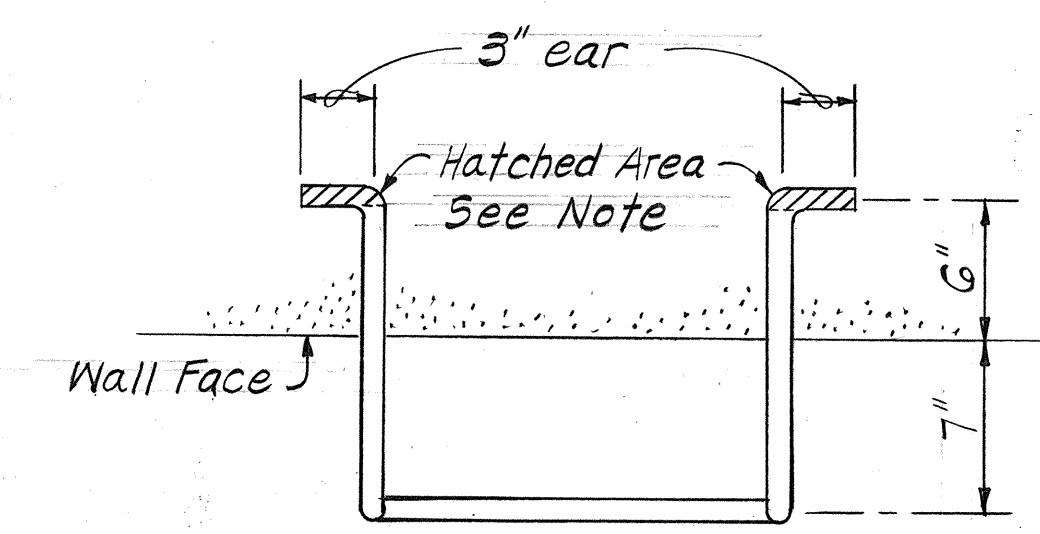
Drill 2" x 6" deep holes in exist. structure and fill holes (flush with wall face) with epoxy grout to secure rungs. See Note.



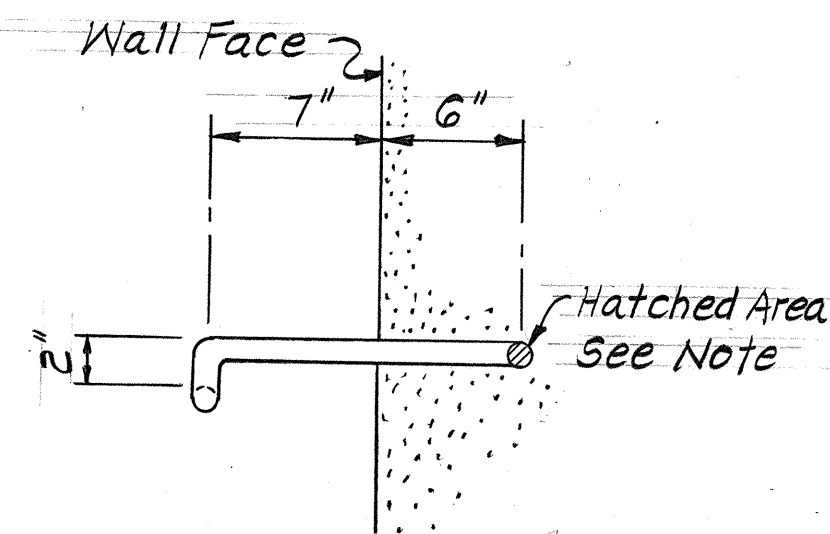
SECTION A
Scale: 3/4" = 1'-0"



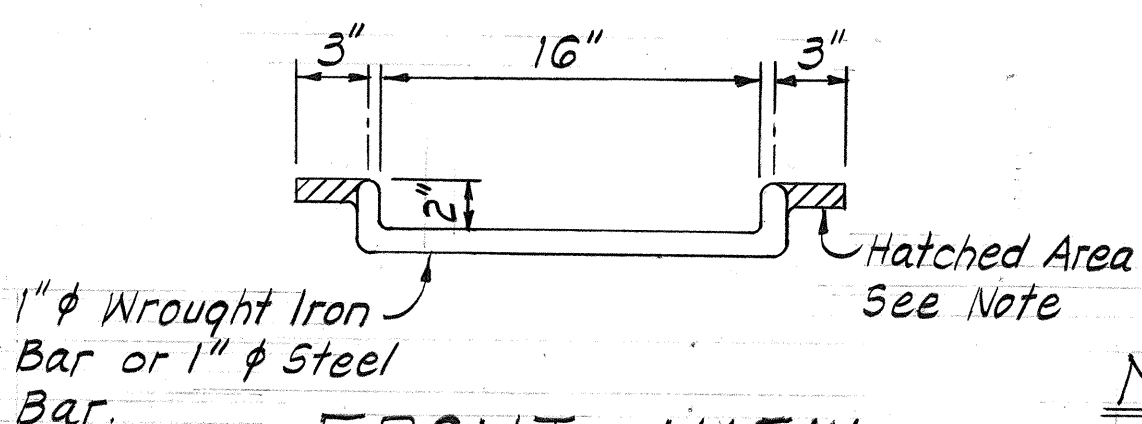
SECTION B
Scale: 3/4" = 1'-0"



PLAN



SIDE VIEW



FRONT VIEW

NOTE:
Rungs for existing structure similar as rung shown in details except omit ears (hatched area).

MANHOLE RUNG DETAILS
Scale: 1 1/2" = 1'-0"

NOTES:

- The contractor shall give the U.S. Navy written notification 10 working days prior to commencing work on the fuel valve pit. The written notice shall be sent to: Fuel Department Director, Code 700, Naval Supply Center, Pearl Harbor, Hawaii, 96860.
- The contractor shall make all necessary arrangements with Mr. William Liu, Assistant to the Facilities Engineer, Naval Base (Code 002B), Box 110, Pearl Harbor, Hawaii, 96860, Phone No. 471-8471, for the coordination of work with the U.S. Navy, including the unlocking of the existing fuel valve pit.

ESTIMATED QUANTITIES

Removal of Portion of Exist. Conc. Wall	0.3	c.y.
Removal of Exist. I-Beam, Frame & Brackets	2	Each
Class A Concrete	2.2	c.y.
Reinforcing Steel	392	Lb.
Special 31-inch C.I. Frame & Cover	1	Each
Drill 1 1/2" x 1'-0" Deep Hole	24	Each
Drill 2" x 6" Deep Hole	6	Each
Grout 1 1/2" x 1'-0" Deep Hole	24	Each
Grout 2" x 6" Deep Hole	6	Each
Ladder Rung	5	Each

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

DETAILS OF U.S. NAVY JP5 FUEL
VALVE PIT ADJUSTMENT

FORT WEAVER ROAD
Renton Road to Hanakahi Street
F.A.P. Proj. No. F-076-1(1)
Scale: As Noted Date: April, 1979
SHEET No. 16 OF 17 SHEETS

FOR ADJUSTMENT OF
U.S. NAVY JP5 FUEL
VALVE PIT.

Scale : As Shown Date: Oct., 1979

