

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-FF-078-1(16)	1977	75	147

ELECTRICAL LEGEND

	EXISTING OVERHEAD POLE LINE TYPE AS DESIGNATED.
	EXISTING OVERHEAD POLE LINE TO BE REMOVED BY HECO OR HTCO.
	TEMPORARY OVERHEAD POLE LINE TYPE AS DESIGNATED.
	EXISTING DUCT SYSTEM TYPE AS DESIGNATED.
	UNDERGROUND DUCT SYSTEM TYPE AS DESIGNATED.
	EXISTING DUCT SYSTEM TO BE ABANDONED OR REMOVED.
	STUB OUTS, CAP AND MARK.
	DUCT SECTION INDICATOR, NUMBER IS ASSIGNMENT, DETAIL INDICATOR
	FIRE ALARM PULLBOX. 17'x25' PRECAST CONCRETE, C&C SLD-1 PULLBOX.

ABBREVIATIONS*

e	ELECTRICAL
T, +	TELEPHONE
FA, fa	FIRE ALARM
DATS, data	DEFENSE ADMINISTRATIVE TELEPHONE SYSTEM
JTS, jt4	JOINT TRUNKING SYSTEM CABLE (DIRECT BURIED)
AV, av	AUTOVON
TPC, tpc	TRANSPACIFIC LANDLINE CABLE (DIRECT BURIED)

* LOWER CASE INDICATES EXISTING

HAWAIIAN TELEPHONE CO. GENERAL NOTES

- MANHOLE DEPTHS SHOWN ON PLANS REFER TO INSIDE DEPTH OF MANHOLES.
- ALL DUCTLINES SHALL BE MANDREL TESTED BY THE CONTRACTOR.
- HTCO SHALL COORDINATE ITS WORK WITH THE STATES CONTRACTOR IN SUCH A MANNER AS NOT TO IMPEDE CONSTRUCTION.
- CONTRACTOR SHALL INSTALL 1/8" POLYOLEFIN PULL LINE IN ALL DUCT LINES.
- CONTRACTOR SHALL CAREFULLY CHIP AWAY EXISTING DUCT LINE TO EXPOSE EXISTING CABLE IN DUCT BANK WITHOUT DAMAGE AS NOTED ON PLANS. AFTER CABLE HAS BEEN RELOCATED IN PROPOSED TRENCH BY HTCO, THE CONTRACTOR SHALL PLACE SPLIT DUCT AROUND CABLE.
- CONTRACTOR TO FURNISH HIS CONSTRUCTION SCHEDULE TWENTY (20) WORKING DAYS PRIOR TO STARTING ANY WORK ON H.T.CO. FACILITIES.
- THE CONTRACTOR SHALL GIVE HTCO TEN (10) WORKING DAYS NOTICE TO PROCEED WITH ITS PORTION OF THE WORK.

FIRE ALARM GENERAL NOTES

- EXISTING FIRE ALARM CIRCUIT SHALL NOT BE INTERRUPTED AT ANY TIME
- FINAL CONNECTION OF CABLES TO EXISTING FIRE ALARM CIRCUITS SHALL BE DONE BY CITY
- CABLE SPLICES, IF REQUIRED, SHALL BE LOCATED IN FA PULLBOXES. SPLICING OF CABLES TO BE DONE BY CITY. SPLICES SHALL BE KEPT TO A MINIMUM.
- FA CONDUITS SHALL BE 2" GALVANIZED RIGID STEEL. NUMBER OF CONDUITS SHALL BE ONE UNLESS OTHERWISE INDICATED.
- EXISTING OVERHEAD OPEN WIRES AND CABLES SHALL BE REMOVED AND DISPOSED OF AFTER THE NEW CIRCUIT IS IN OPERATION AND ACCEPTED BY THE CITY.
- SPARE CONDUITS SHALL BE INSTALLED WITH 1/8" POLYOLEFIN PULL LINE AND SHALL BE CAPPED AT BOTH ENDS.
- AFTER CABLES ARE INSTALLED, SEAL CONDUITS WITH DUCT SEAL IN ALL PULL BOXES.
- NOTIFY AND COORDINATE WORK WITH ELECTRICAL AND MAINTENANCE SERVICES DIVISION, DEPT. OF TRANSPORTATION SERVICES, CITY AND COUNTY OF HONOLULU (PHONE 923-4905), THREE (3) WORKING DAYS PRIOR TO START OF CONSTRUCTION.
- FIRE ALARM PULL BOXES SHALL NOT BE BUILT ON ROADWAYS OR DRIVEWAYS.
- NATIONAL ELECTRIC CODE, NATIONAL FIRE CODE AND THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION MAY 1975 SHALL BE COMPLIED WITH.
- DIRECT BURIED CONDUITS SHALL BE PAINTED WITH TWO (2) COATS OF ANTI-CORROSION ASPHALT BASE COMPOUND.
- LEAVE FOUR (4) FEET MINIMUM SLACK IN EACH PULL BOX.
- FA CONDUITS SHALL BE 24" UNDER ROADWAYS AND 18" UNDER SIDEWALKS.

APPROVED BY:

L. Desi for K. Goshikawa 12/14/76
HAWAIIAN TELEPHONE CO. DATE

Kenneth L. Thang 1-7-77
DEPT. OF TRANSPORTATION SERVICES DATE
CITY & COUNTY OF HONOLULU
MUNICIPAL FIRE ALARM CIRCUIT RELOCATION CLEARANCE



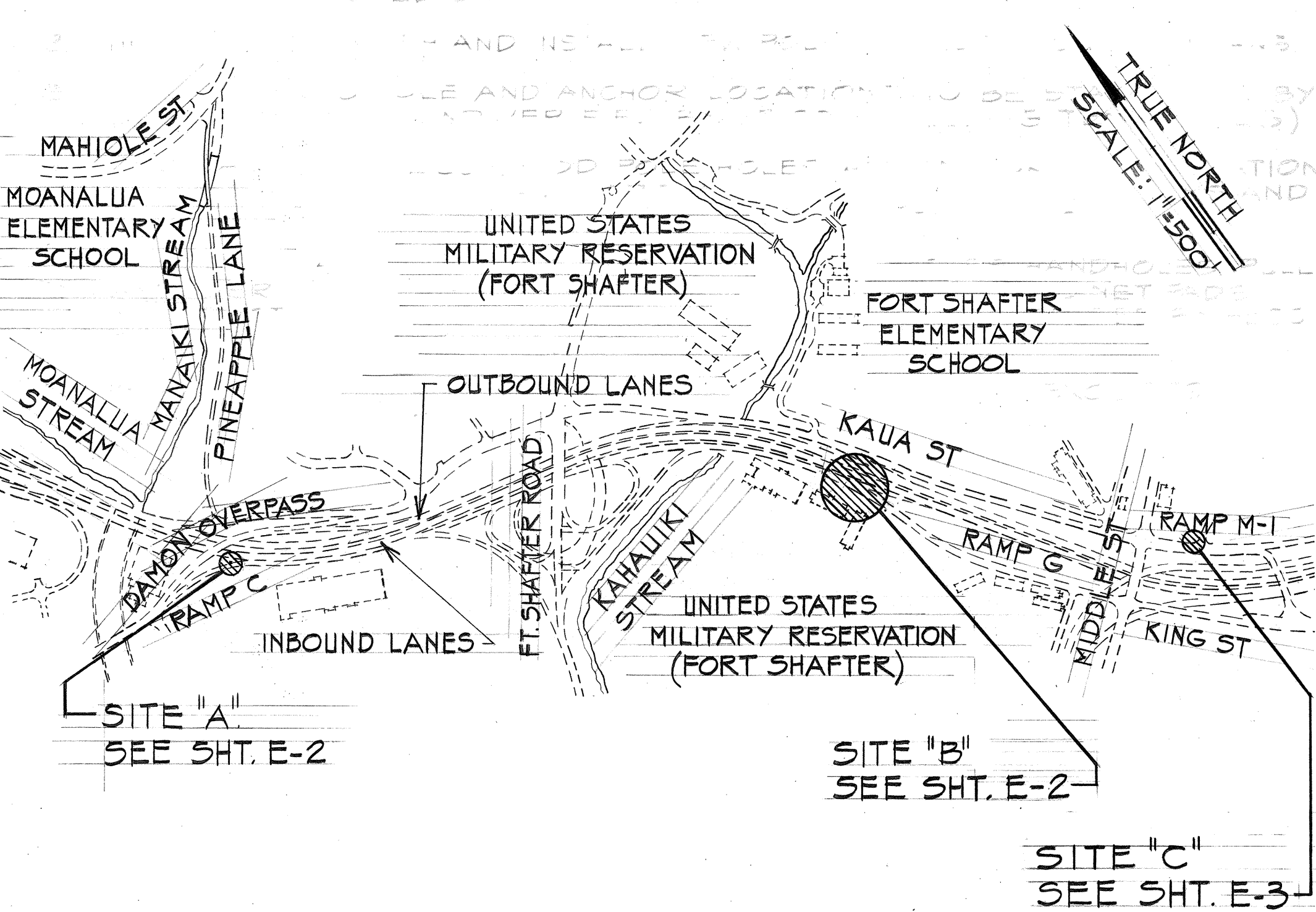
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GENERAL UTILITY NOTES

MOANALUA ROAD
PULLOA I.C. TO MIDDLE ST. - UNIT 1A
F.A. Proj. No. F-FF-078-1(16)

SCALE: AS SHOWN DATE: DEC. 17, 1976
SHEET No. E-1 OF 20 SHEETS



LOCATION PLAN

SCALE: 1" = 500'

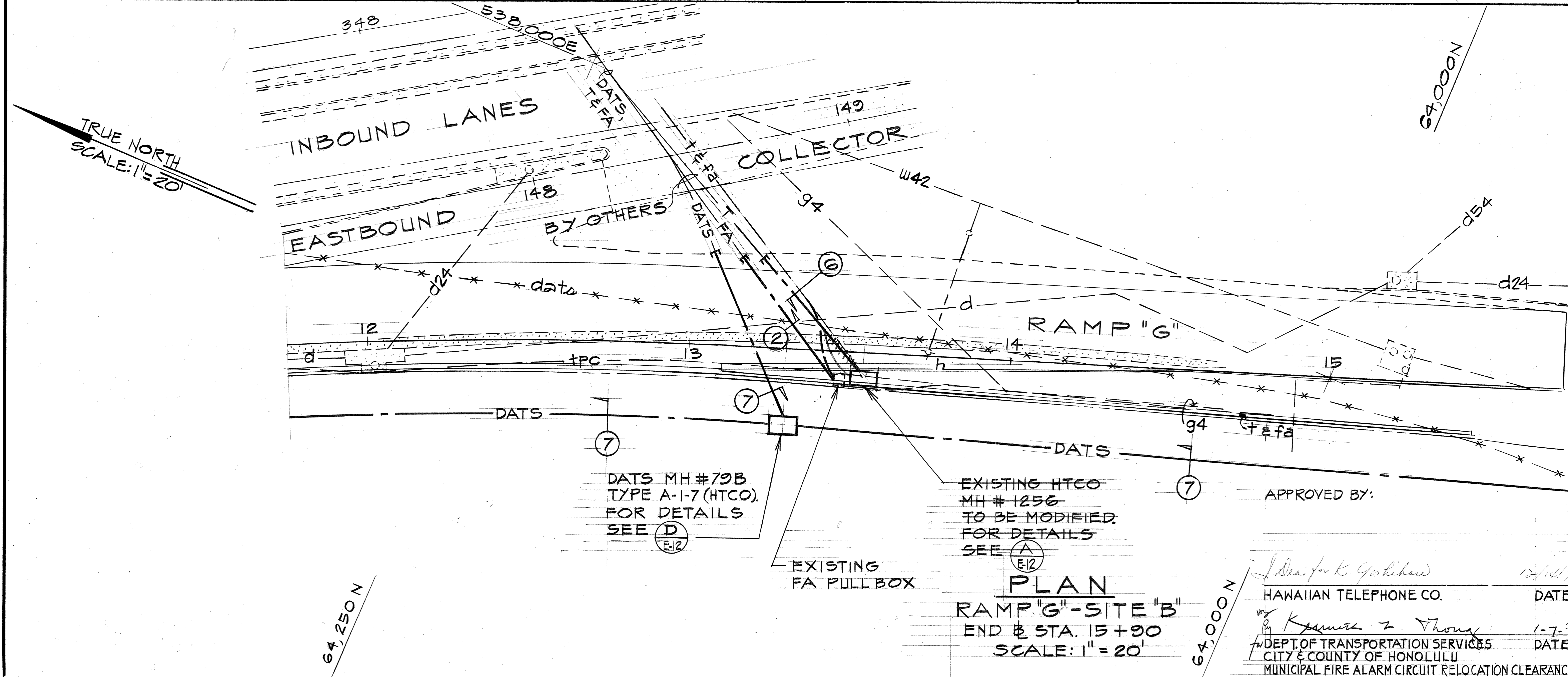
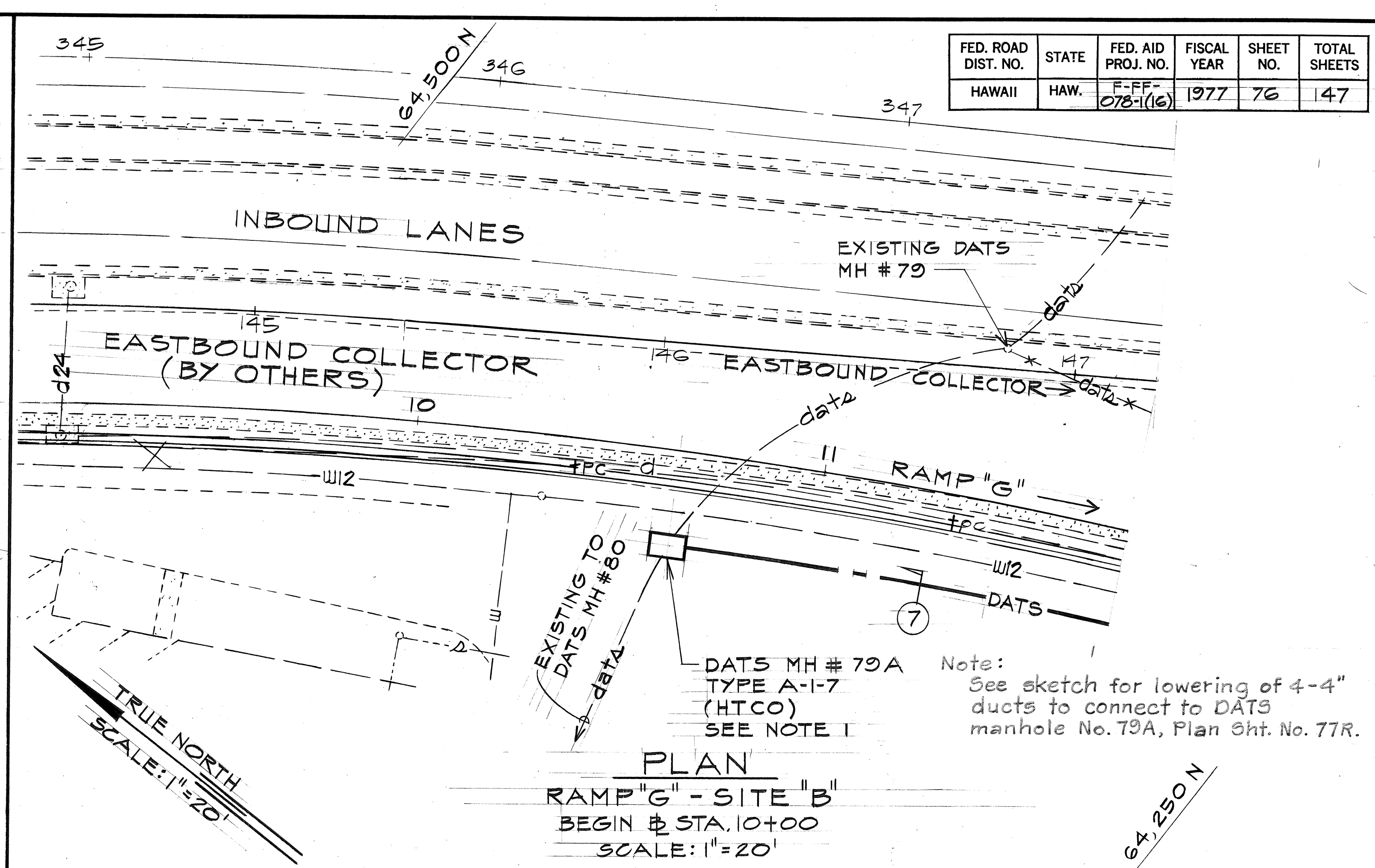
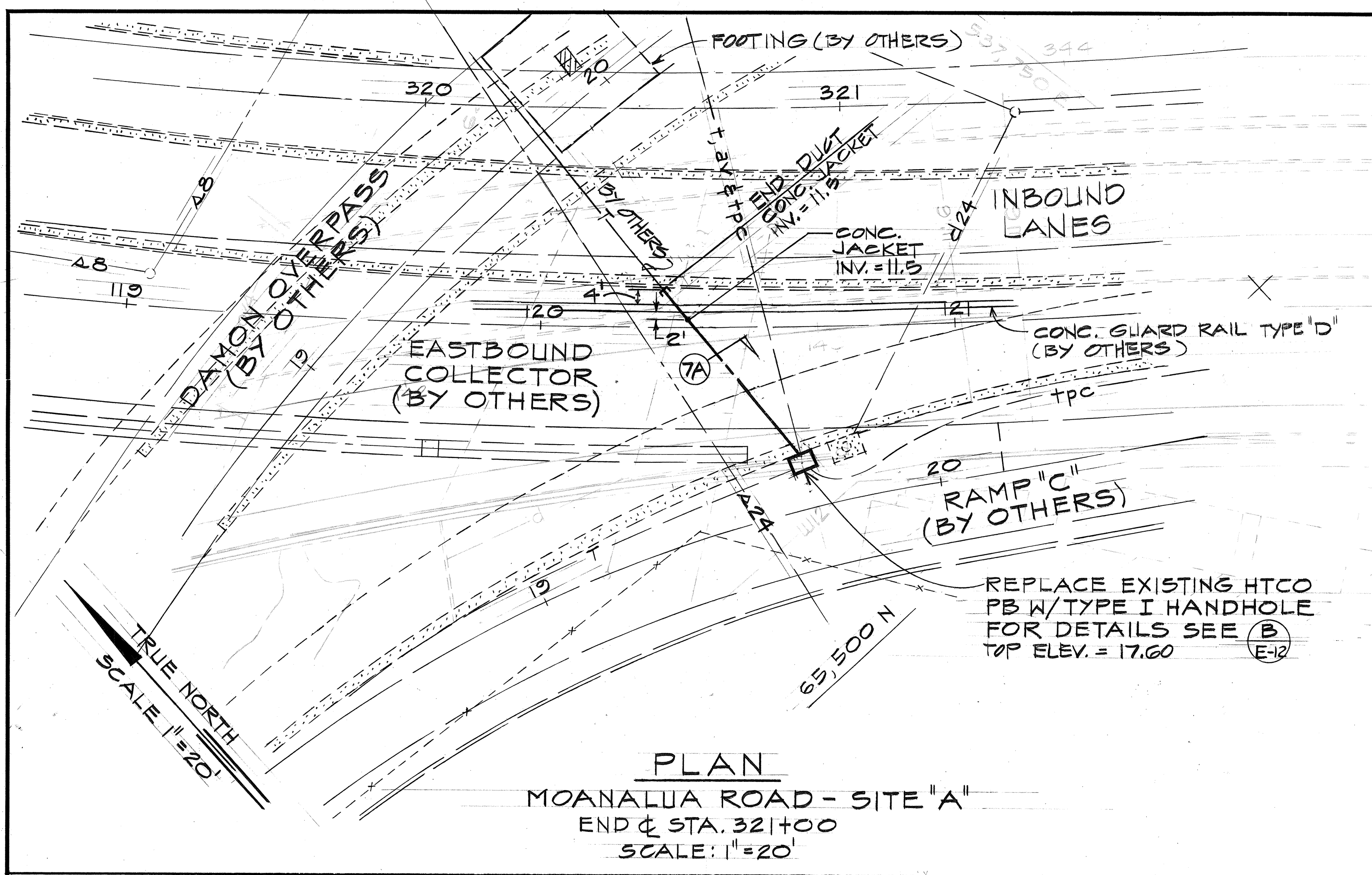
HAWAIIAN TELEPHONE CO. GENERAL NOTES

A. HTCO POLES AND CABLES:

- HTCO TO REMOVE ALL EXISTING TELEPHONE COMPANY POLES AND CABLES EXCEPT AS NOTED ON PLANS.
- HTCO TO FURNISH AND INSTALL ALL NEW HTCO POLES.
- ALL NEW HTCO POLES AND ANCHOR LOCATIONS TO BE STAKED OUT BY THE CONTRACTOR.
- EXCAVATION OF HTCO POLES AND ANCHORS AND INSTALLATION OF ANCHORS BY HTCO.
- HTCO TO FURNISH THE CONTRACTOR FOR PROPER INSTALLATION THE FOLLOWING MATERIALS:
 - ALL MANHOLE FRAMES AND COVERS.
 - ALL PULL BOXES AND COVERS.
 - ALL PULLING IRONS, CABLE RACKS, BOLTS, NUTS, WASHERS AND GROUND RODS FOR INSTALLATION IN MANHOLES AND HANDHOLES.
 - ALL STYRENE DUCTS, FITTINGS, SPREADERS AND CEMENT.
 - ALL STEEL CONDUITS, BENDS AND FITTINGS.
 - POLE ANCHORS.
- STAKE OUT OF HTCO MANHOLES, HANDHOLES, PULL BOXES AND DUCTS BY THE CONTRACTOR, VERIFIED BY HTCO.
- ALL HTCO MANHOLES, HANDHOLES, PULL BOXES, STYRENE DUCTS, CONDUITS AND CONDUIT BENDS TO BE INSTALLED BY THE CONTRACTOR. ALL WORK TO BE DONE IN ACCORDANCE WITH HTCO STANDARD DRAWINGS.
- LOCATION AND DEPTH OF ALL HTCO MANHOLES, HANDHOLES, SERVICE AND PULL BOXES, POLES, ANCHORS, DUCT AND CONDUITS TO BE VERIFIED AND APPROVED IN THE FIELD BY HTCO PRIOR TO CONSTRUCTION OR INSTALLATION.

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	E-FF-078-1(16)	1977	76	147



- NOTES:**
- INTERCEPT EXISTING DATS DUCT SYSTEM W/ DATS MH TYPE A-1-7. FOR DETAILS SEE (C) E-12
 - EXTEND 4-4" DATS DUCTS INTO EXISTING DATS MH#88. FOR DETAILS SEE (G) E-12

EXISTING DATS MH #88
SEE NOTE 2

DATE	REVISION
1/10/77	REVISED DUCT ALIGNMENT & ADDED TOP ELEV. OF HANDHOLE AT SITE "A"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

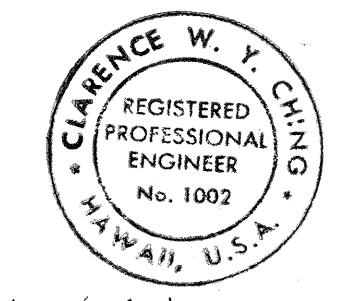
UTILITY RELOCATION PLAN
SITE "A" & SITE "B"
DATS, TELEPHONE, FIRE ALARM
MOANALUA ROAD
PULUOA I.C. TO MIDDLE ST. - UNIT 1A
F.A. PROJ. NO. F-FF-078-1(16)

SCALE: AS SHOWN DATE: DEC. 17, 1976
SHEET No. E-2 OF 20 SHEETS

APPROVED BY:

12/14/76
HAWAIIAN TELEPHONE CO. DATE

1-7-77
DEPT. OF TRANSPORTATION SERVICES DATE
CITY & COUNTY OF HONOLULU
MUNICIPAL FIRE ALARM CIRCUIT RELOCATION CLEARANCE



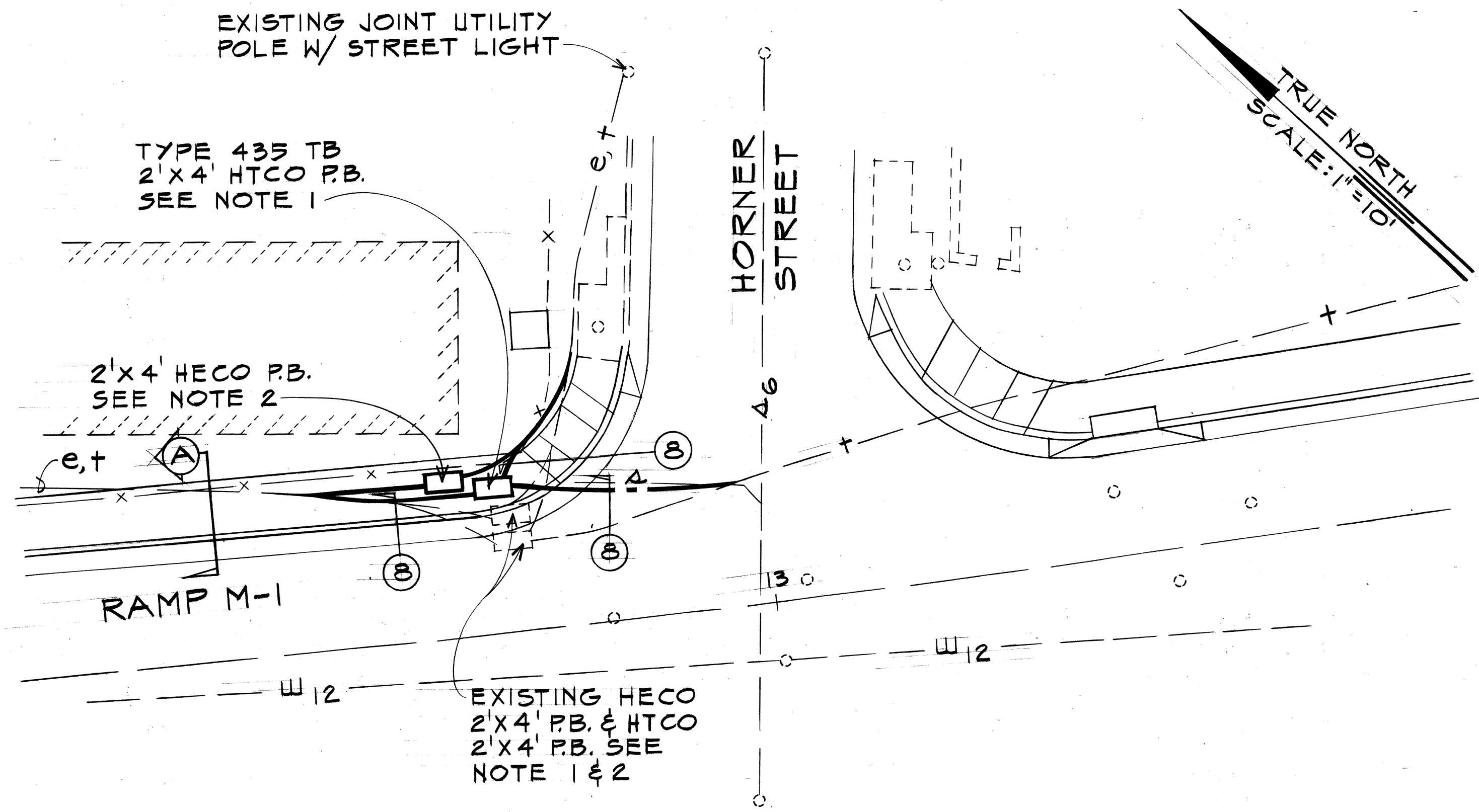
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

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

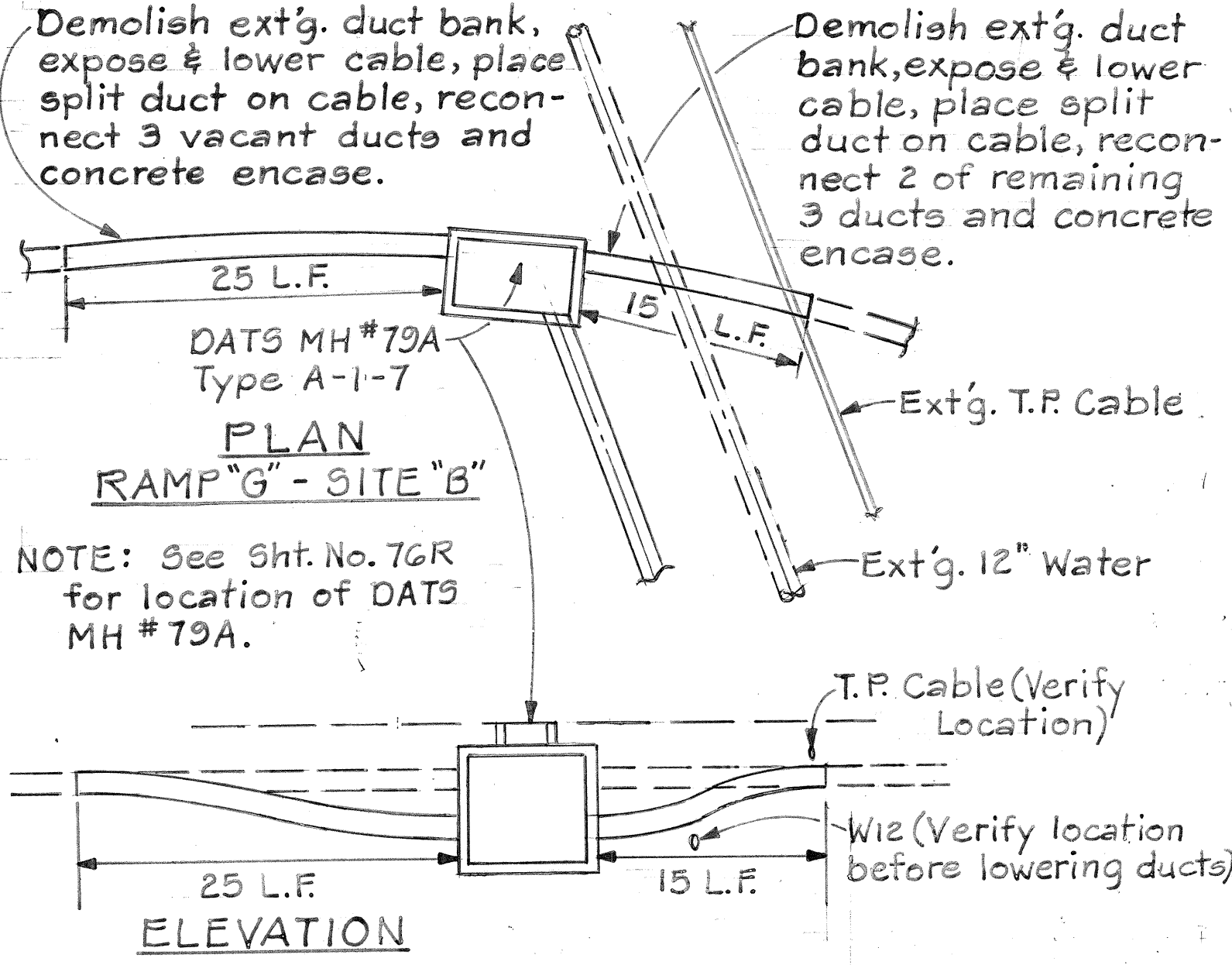
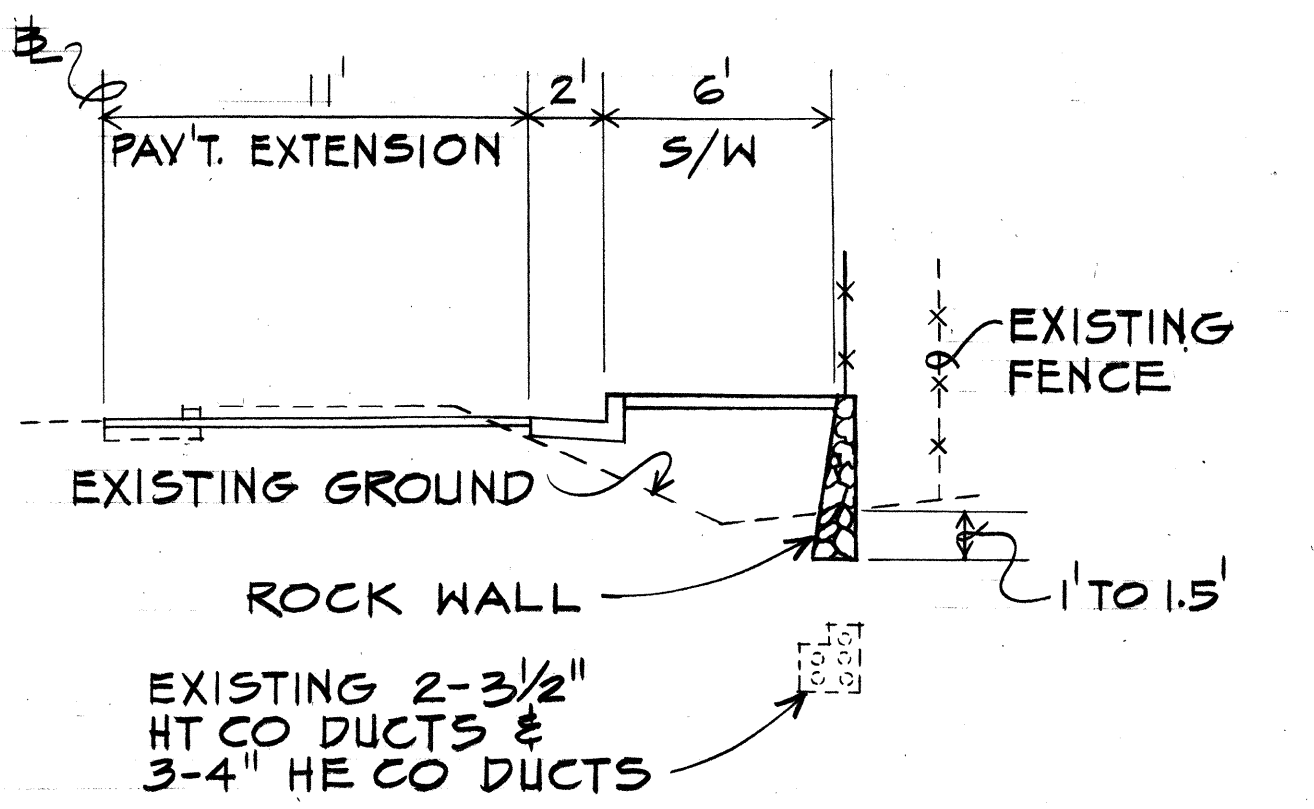
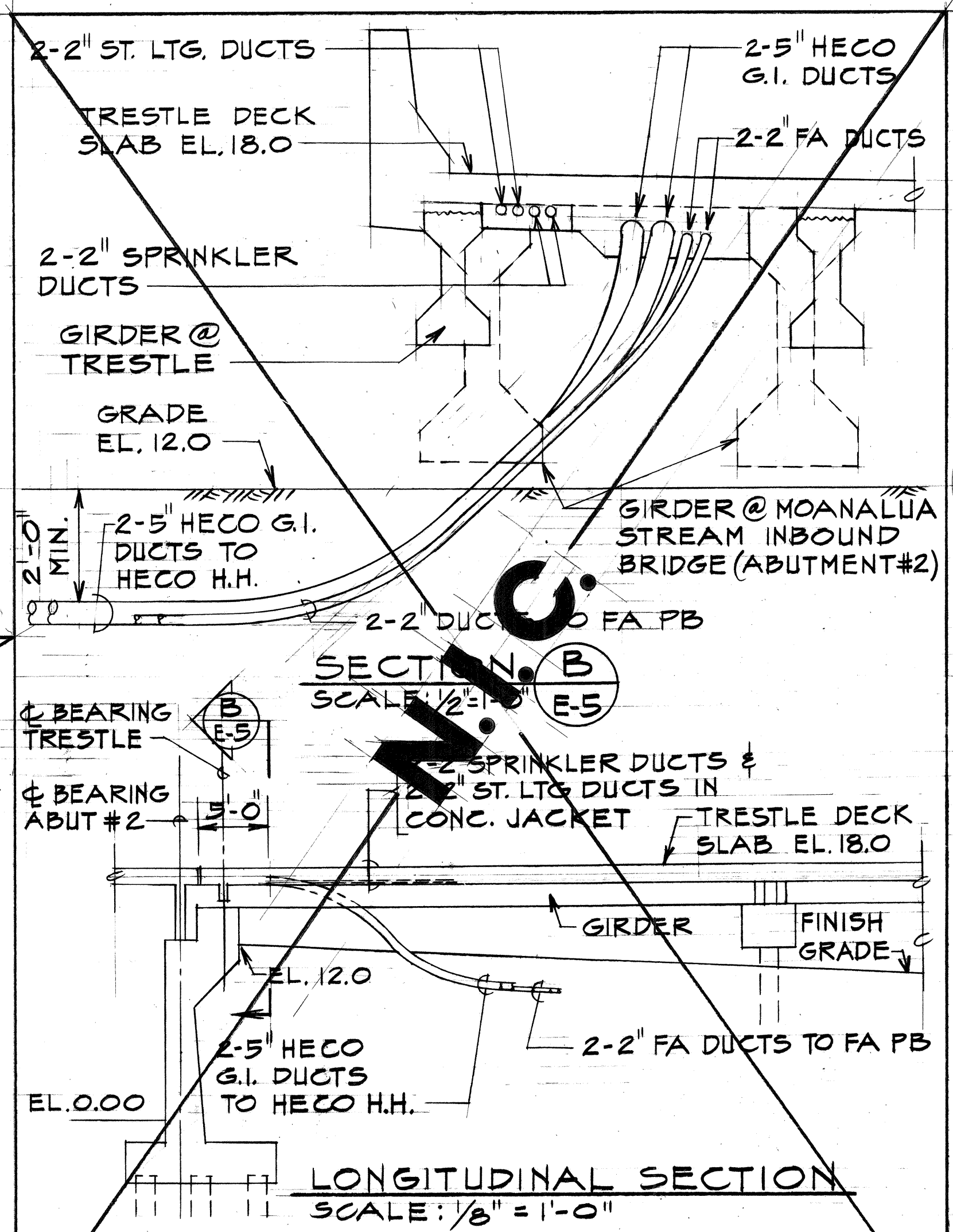
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-FF-078-1(16)	1977	77	147

NOTES:

1. EXTEND EXISTING DUCT SYSTEM INTO RELOCATED HTCO 2'x4' PB AS SHOWN. SPLIT DUCT REQ'D. SEE HTCO GEN. NOTE 13, SHT. E-1
2. RELOCATION OF EXISTING HECO 2'x4' PB. AND 3-4" DUCT SYSTEM BY HECO.



PARTIAL UTILITY RELOCATION PLAN
RAMP M-1 - SITE "C"
SCALE: 1"=10'
SEE SHEET E-143 FOR LOCATION



U.S. ARMY DATS FACILITY

5/20/77	REVISED NOTE NO. 2; DELETED NOTE NO. 3 PER ADDENDUM NO. 1
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

UTILITY RELOCATION PLAN
SITE "C"

DATS, TELEPHONE, FIRE ALARM
MOANALUA ROAD
PUULOA I.C. TO MIDDLE ST. - UNIT 1A
F.A. Proj. No. F-FF-078-1(16)

SCALE: AS SHOWN DATE: DEC. 17, 1976

SHEET NO. E-3 OF 20 SHEETS

APPROVED BY:

J. Karimots 1/3/77
HAWAIIAN ELECTRIC CO. INC. DATE

L. L. Lee for K. Y. Shihara 12/14/76
HAWAIIAN TELEPHONE CO. DATE



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PARTIAL UTILITY RELOCATION PLAN RAMP "C"
SCALE: 1"=20'
SEE SHEET E-8 FOR LOCATION

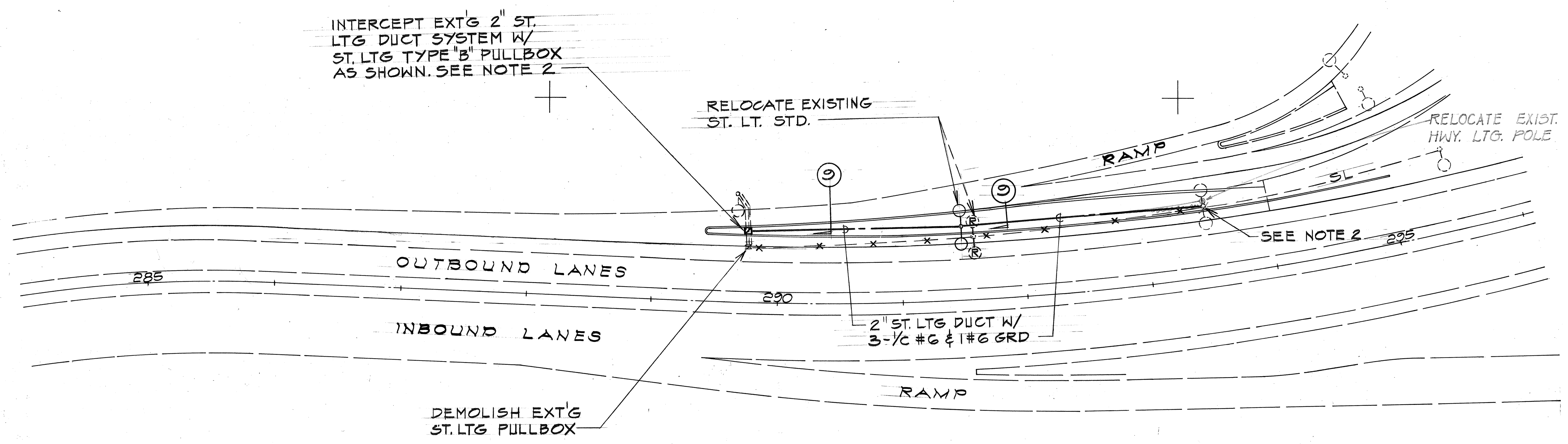
DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
TRACED BY	_____
CHECKED BY	_____
ORIGINAL PLAN	_____
NOTE BOOK	_____
NO.	_____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-FF-078-1(16)	1977	78	147

True North
Scale: 1"=50'

NOTES:

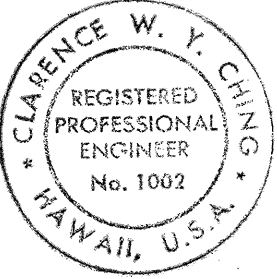
1. REMOVE OR ABANDON EXT'G ST. LTG DUCTS, CABLES AND OTHER EQUIPMENT AS REQ'D.
2. SPLICE 3-1/2 #6 & 1#6 GRD. TO EXT'G 3-1/2 #6 & 1#6 GRD. ST. LTG. CKT.



PLAN
SCALE: 1"=50'

ELECTRICAL LEGEND			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
○	EXT'G ST. LTG STD	***	EXT'G UNDERGROUND SYSTEM TO BE REMOVED OR ABANDONED AS REQ'D. SEE NOTE 1
⊗	EXT'G ST. LTG STD TO BE REMOVED UNLESS NOTED OTHERWISE.	-1C-	EXT'G SERIES ST. LTG SYSTEM. (1C INDICATES NUMBER OF CONDUCTORS)
●	400 WATT SODIUM VAPOR LUMINAIRE IES TYPE M-S-IV (50,000 LUMENS)	—	STUB-OUT, CAP & MARK 5' FROM CURB OR PULLBOX UNLESS NOTED OTHERWISE
◐	250 WATT SODIUM VAPOR LUMINAIRE IES TYPE M-S-II (27,300 LUMENS)	②	DUCT SECTION INDICATOR. NUMBER IS DETAIL ASSIGNMENT
◑	150 WATT SODIUM VAPOR LUMINAIRE IES TYPE M-S-II (16,000 LUMENS)	Ⓐ	DETAIL INDICATOR TOP HALF DET. ASSIGNMENT
⊠	SPRINKLER CONTROLLER	Ⓑ	DETAIL INDICATOR BOTTOM HALF SHT. ASSIGNMENT
⊞	EXT'G PULLBOX	□	ST. LTG PULLBOX 19"X28" PRE CAST CONC. D.O.T. STD. TYPE "B".
---	UNDERGROUND DUCT SYSTEM	⊞	SPRINKLER SYSTEM PULLBOX 19"X28" PRE CAST CONC. D.O.T. STD. TYPE "B".
-SL-	EXT'G UNDERGROUND ST. LTG. SYSTEM.		

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



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11/3/77	REVISE LUMINAIRE TO SODIUM VAPOR
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

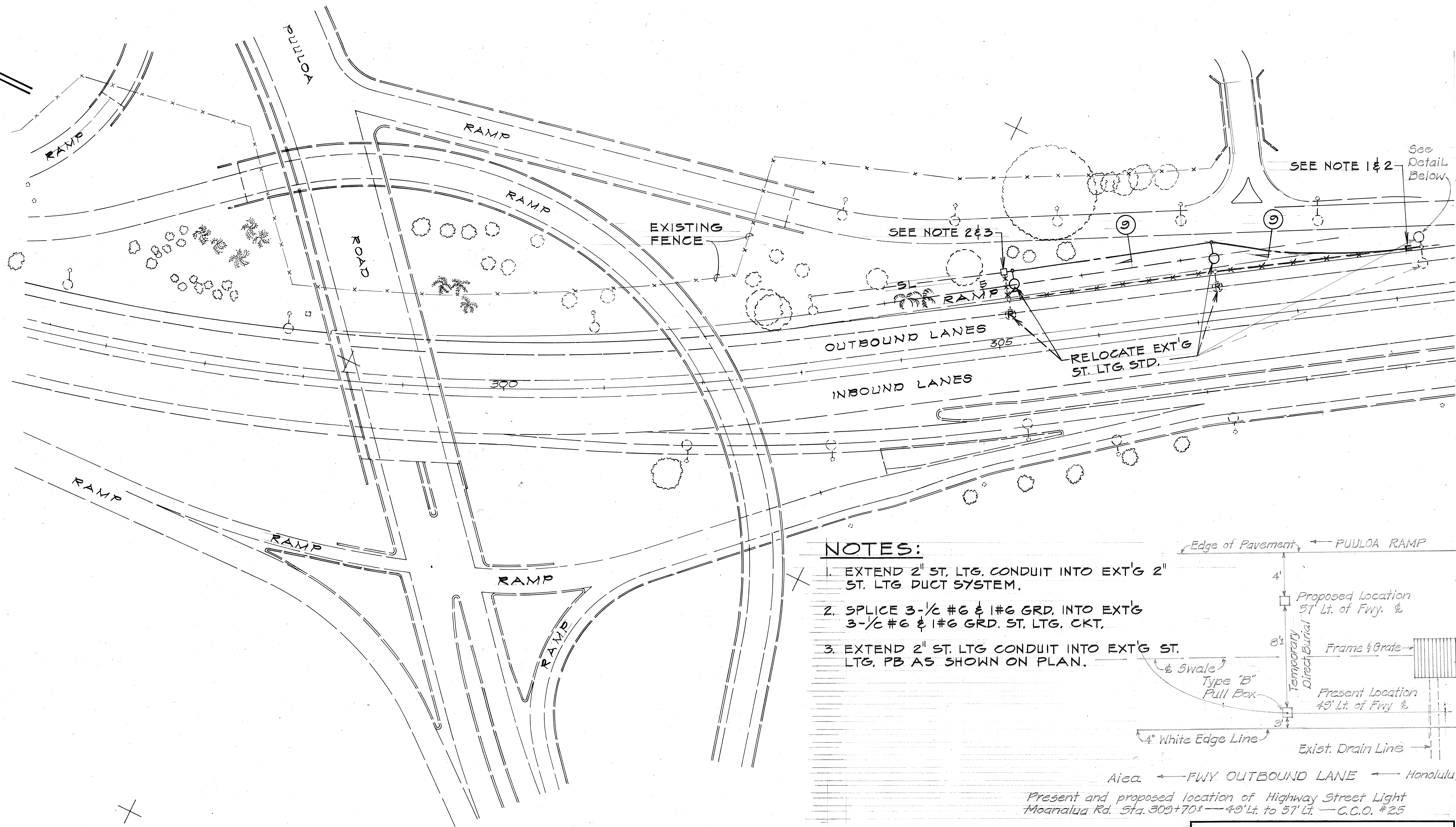
STREET LIGHTING PLAN

MOANALUA ROAD
PULLOA I.C. TO MIDDLE ST. - UNIT 1A
F.A. PROJ. NO. F-FF-078-1(16)

SCALE: AS SHOWN DATE: DEC. 13, 1976

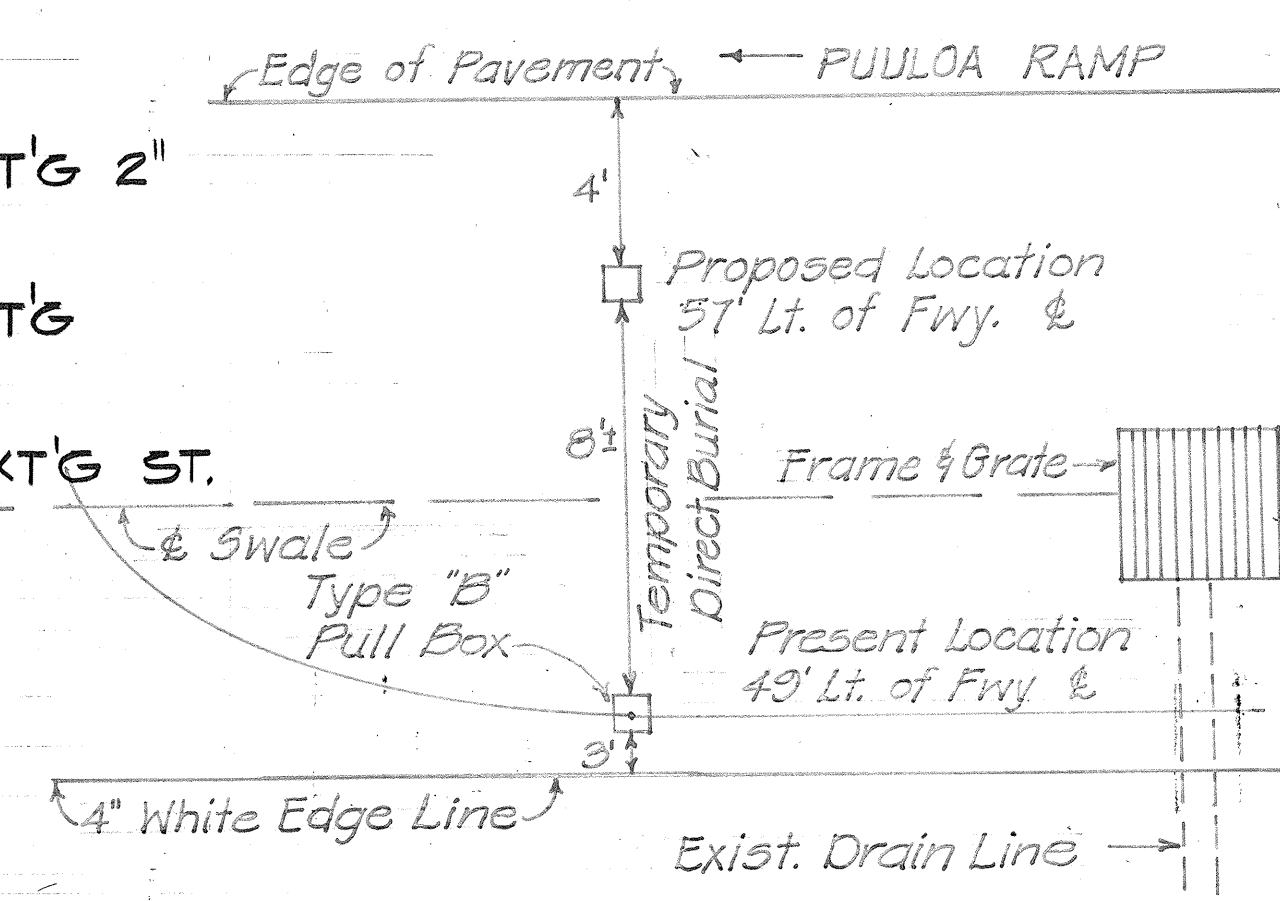
SHEET No. E-4 OF 20 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-FF-078-1(16)	1977	79	147



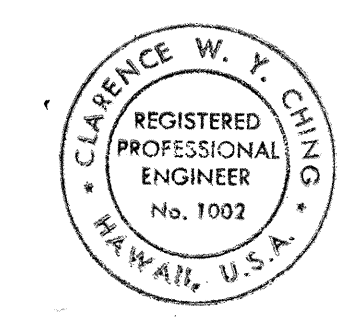
NOTES:

1. EXTEND 2" ST. LTG. CONDUIT INTO EXT'G 2" ST. LTG. DUCT SYSTEM.
2. SPLICE 3-1/2 #6 & 1#6 GRD. INTO EXT'G 3-1/2 #6 & 1#6 GRD. ST. LTG. CKT.
3. EXTEND 2" ST. LTG. CONDUIT INTO EXT'G ST. LTG. PB AS SHOWN ON PLAN.



Present and proposed location of Highway Street Light
 Moanalua Rd. Sta. 309+70± — 49' Lt. to 57' Lt. — C.C.O. #25

PLAN
 Scale: 1"=50'



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STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STREET LIGHTING PLAN

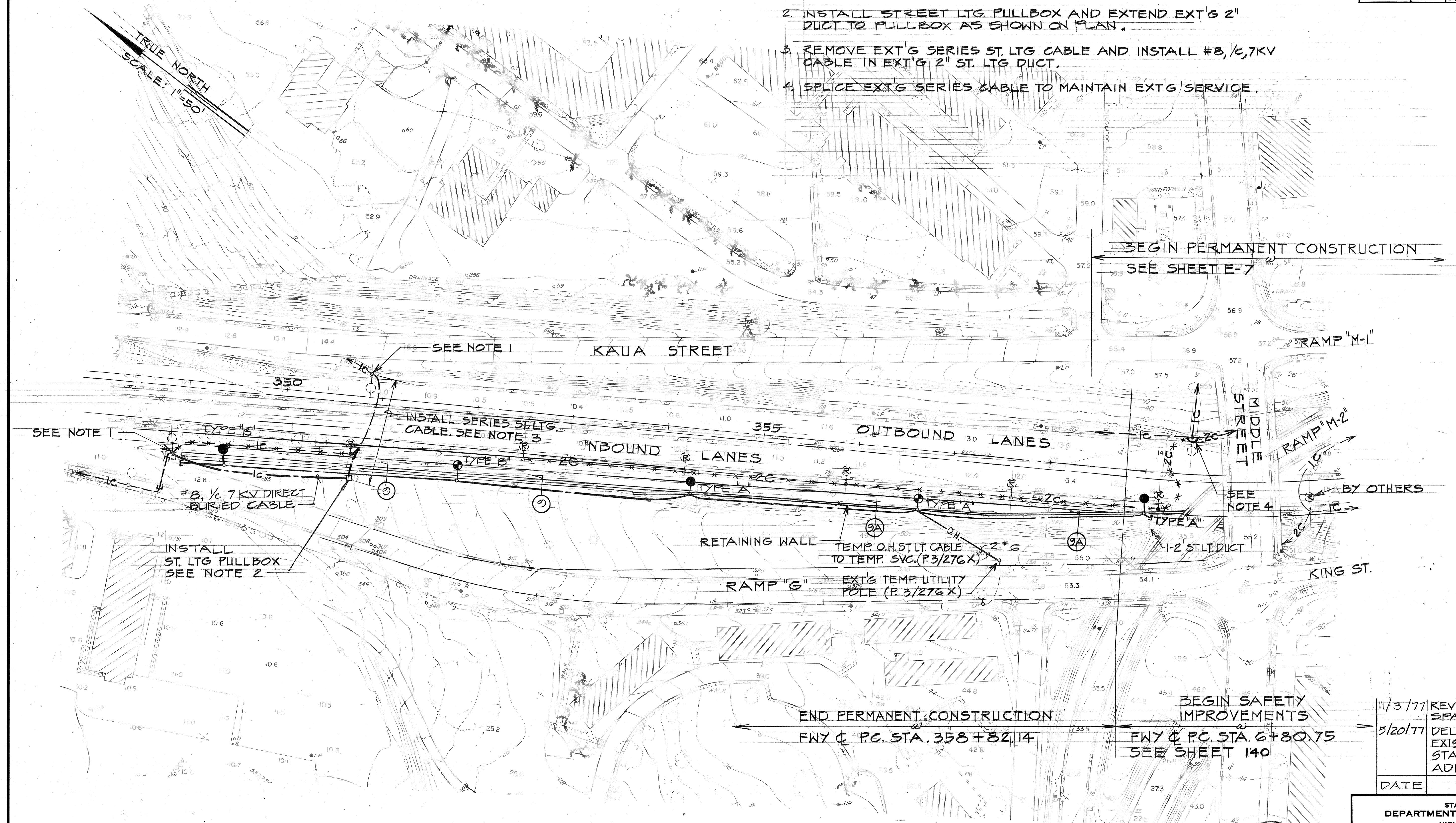
 MOANALUA ROAD
 PUULOA I.C. TO MIDDLE ST. - UNIT 1A
 F.A. Proj. No. F-FF-078-1(16)
 SCALE: AS SHOWN DATE: DEC. 17, 1976
 SHEET NO. E-5 OF 20 SHEETS

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

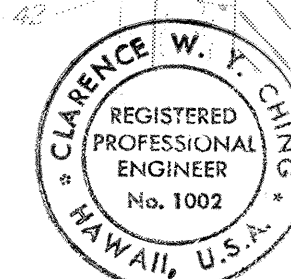
NOTES:

1. SPLICE #8 1/2, 7KV CABLE INTO EXT'G SERIES ST. LTG CKT.
2. INSTALL STREET LTG PULLBOX AND EXTEND EXT'G 2" DUCT TO PULLBOX AS SHOWN ON PLAN.
3. REMOVE EXT'G SERIES ST. LTG CABLE AND INSTALL #8 1/2, 7KV CABLE IN EXT'G 2" ST. LTG DUCT.
4. SPLICE EXT'G SERIES CABLE TO MAINTAIN EXT'G SERVICE.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-FF-078-1(16)	1977	80	147



DATE	REVISION
11/3/77	REVISED ST. LT. STD. SPACING
5/20/77	DELETED NOTE "RELOCATE EXISTING STREET LIGHTING STANDARD" PER ADDENDUM NO. 1.



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STREET LIGHTING PLAN

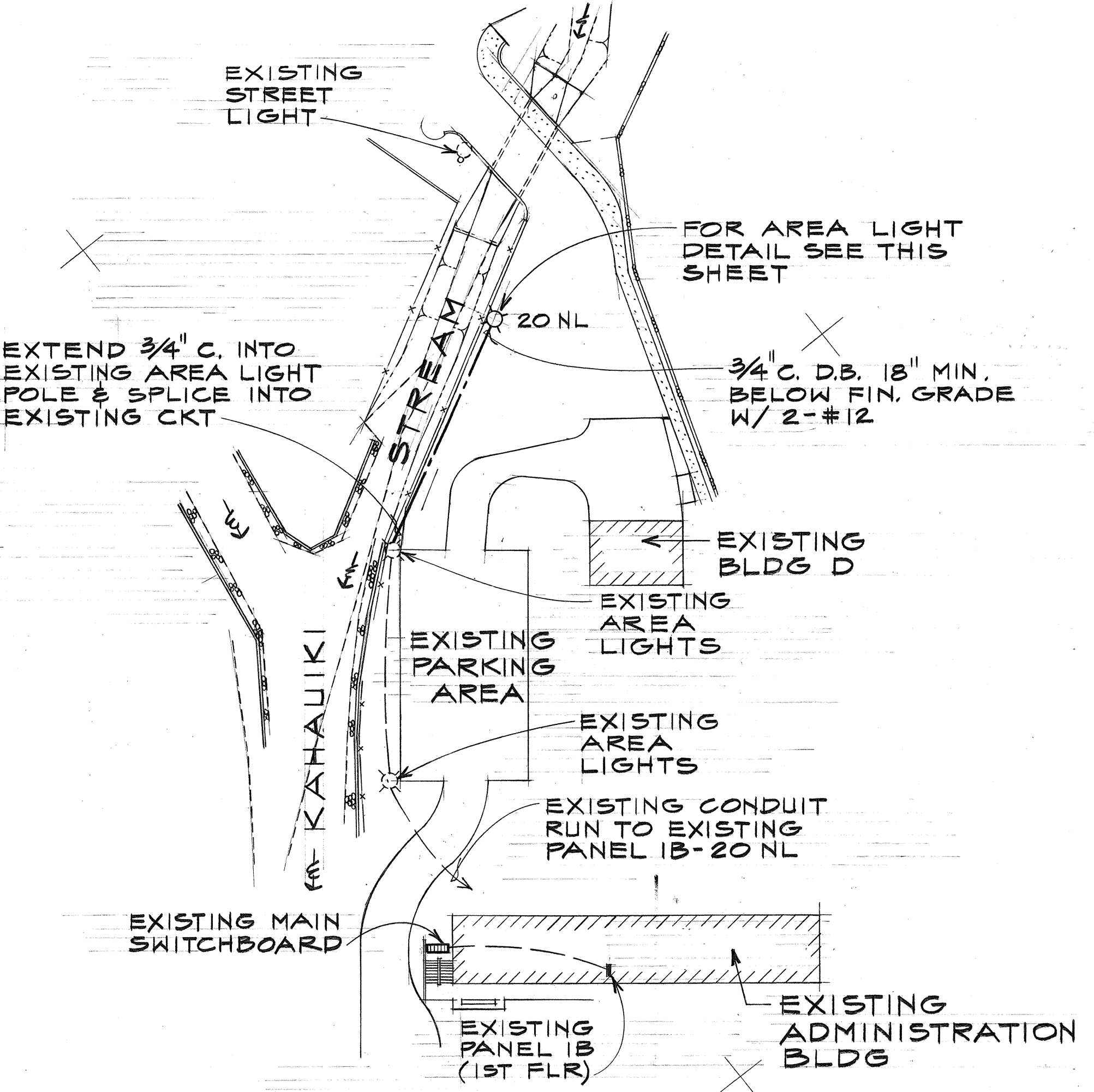
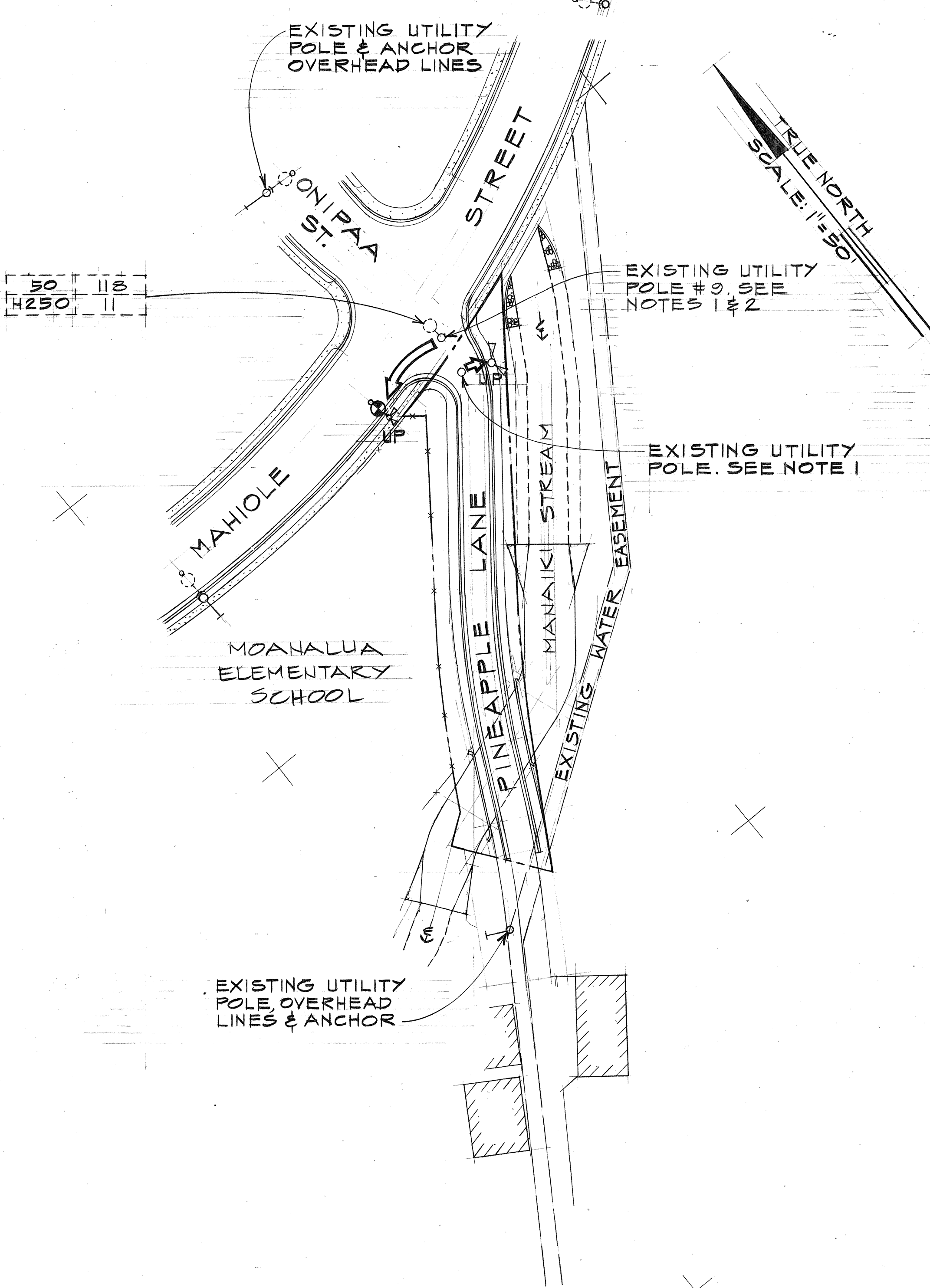
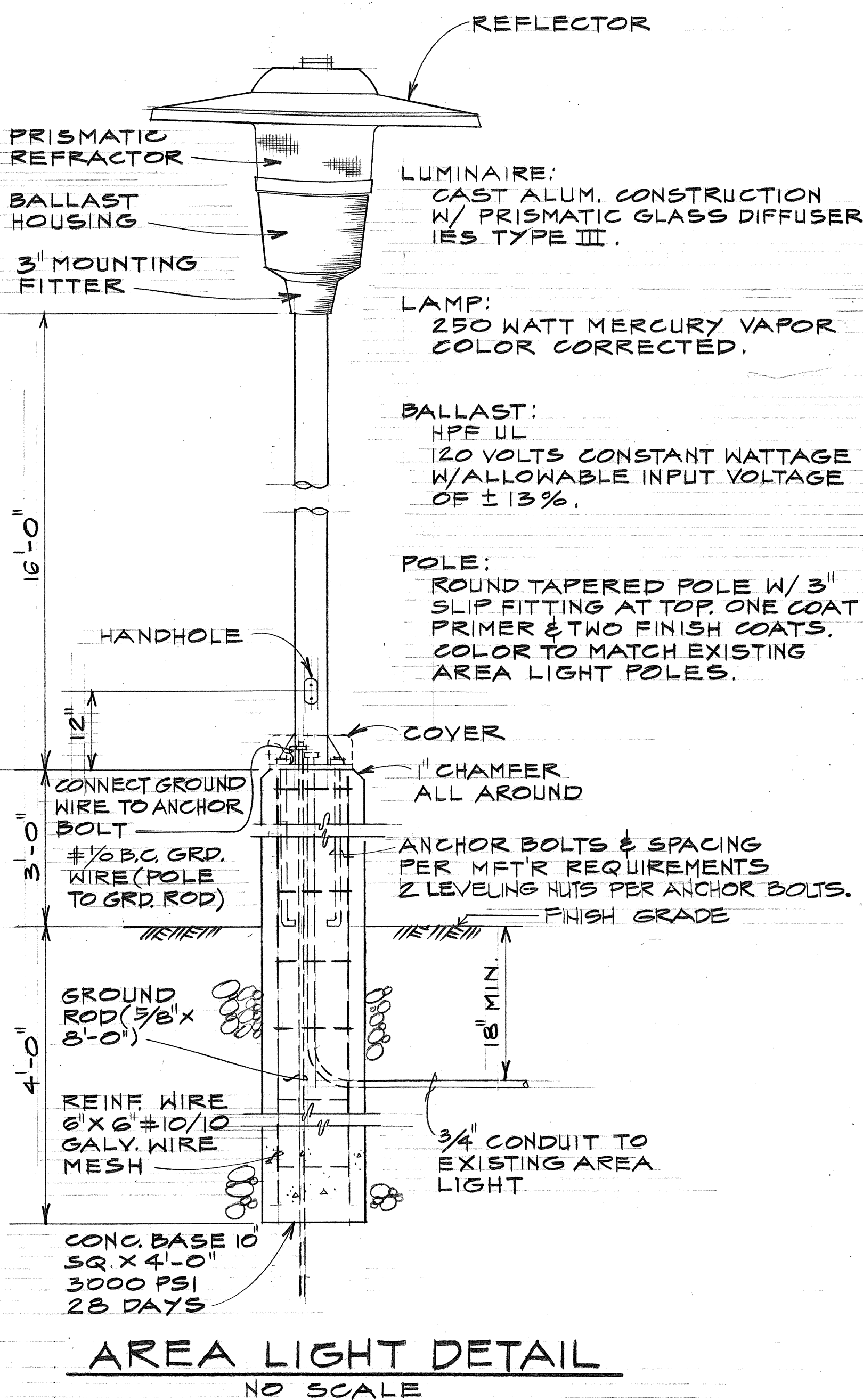
MOANALUA ROAD
PUULOA I.C. TO MIDDLE ST. - UNIT 1A
F.A. Proj. No. F-FF-078-1(16)

SCALE: AS SHOWN DATE: DEC. 17, 1976
SHEET No. E-6 OF 20 SHEETS

C.O.80R

DATE	BY
	DESIGNED BY
	DRAWN BY
	CHECKED BY
	NOTED BY
	QUANTITIES BY
	ORIGINAL PLAN

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-FF-078-1(16)	1977	82	147



ELECTRICAL PLOT PLAN PINEAPPLE LANE

NOTES:

- EXISTING UTILITY POLE, OVERHEAD HECO LINES AND ASSOCIATED EQUIPMENT TO BE RELOCATED BY HECO. (NIC) EXISTING OVERHEAD HTCO LINES AND ASSOCIATED EQUIPMENT TO BE RELOCATED BY HTCO.
- EXISTING STREET LIGHT AND NAMEPLATE TO BE RELOCATED ON JOINT UTILITY POLE. COIL SLACK CABLE NEATLY FOR FINAL CONNECTION TO HECO SECONDARY SVC BY HECO. (NIC)
- STREET LIGHTING SHALL BE RELOCATED AND IN SERVICE IN ONE WORKING DAY. NOTIFY AND COORDINATE WORK WITH ENGINEER AT ELECTRICAL AND MAINTENANCE SERVICES DIVISION, DEPT. OF TRANSPORTATION SERVICES, CITY AND COUNTY OF HONOLULU (PHONE 523-4905), THREE (3) WORKING DAYS PRIOR TO START OF RELOCATION. (NIC)



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

LIGHTING PLAN

MOANALUA ROAD
PULLOA I.C. TO MIDDLE ST. - UNIT 1A
F.A. PROJ. NO. F-FF-078-1(16)
SCALE: AS SHOWN DATE: DEC. 17, 1976
SHEET NO. E-8 OF 20 SHEETS

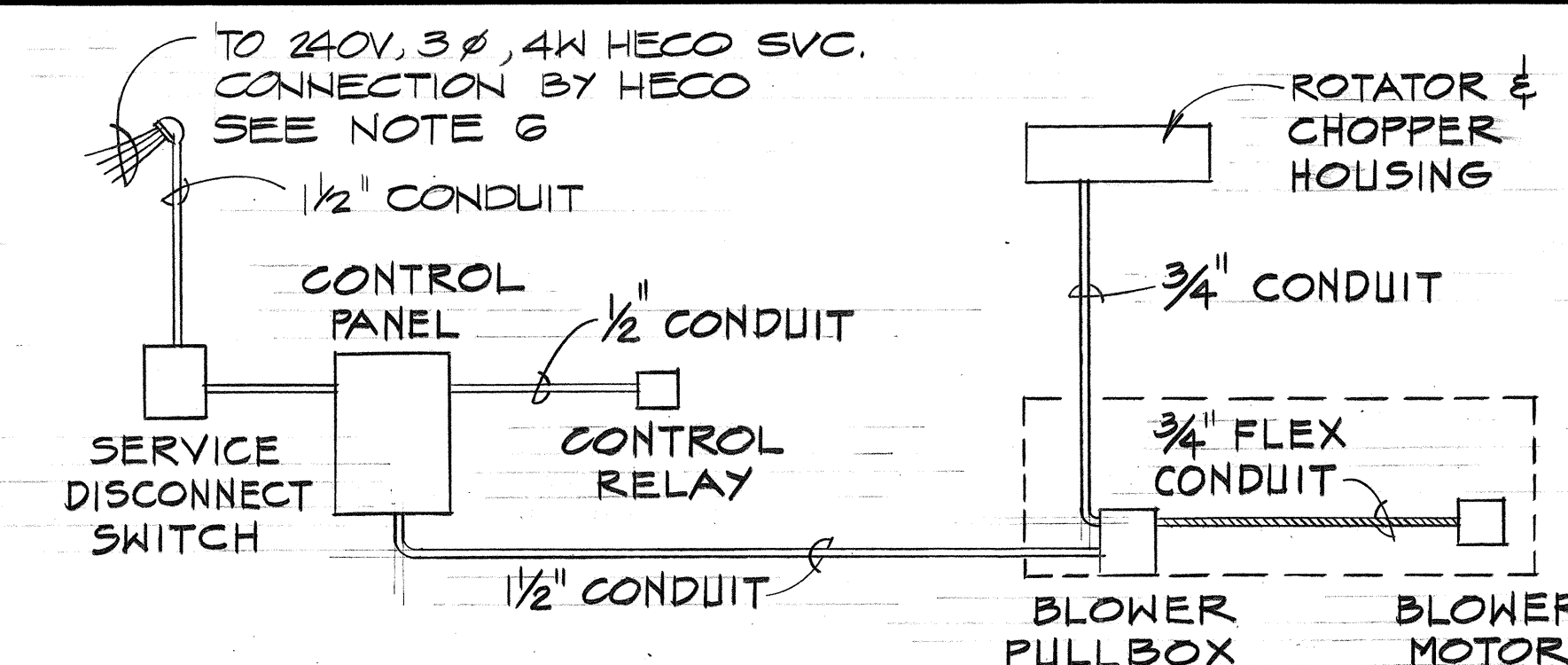
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-FF-078-1(16)	1977	83	147

GENERAL NOTES:

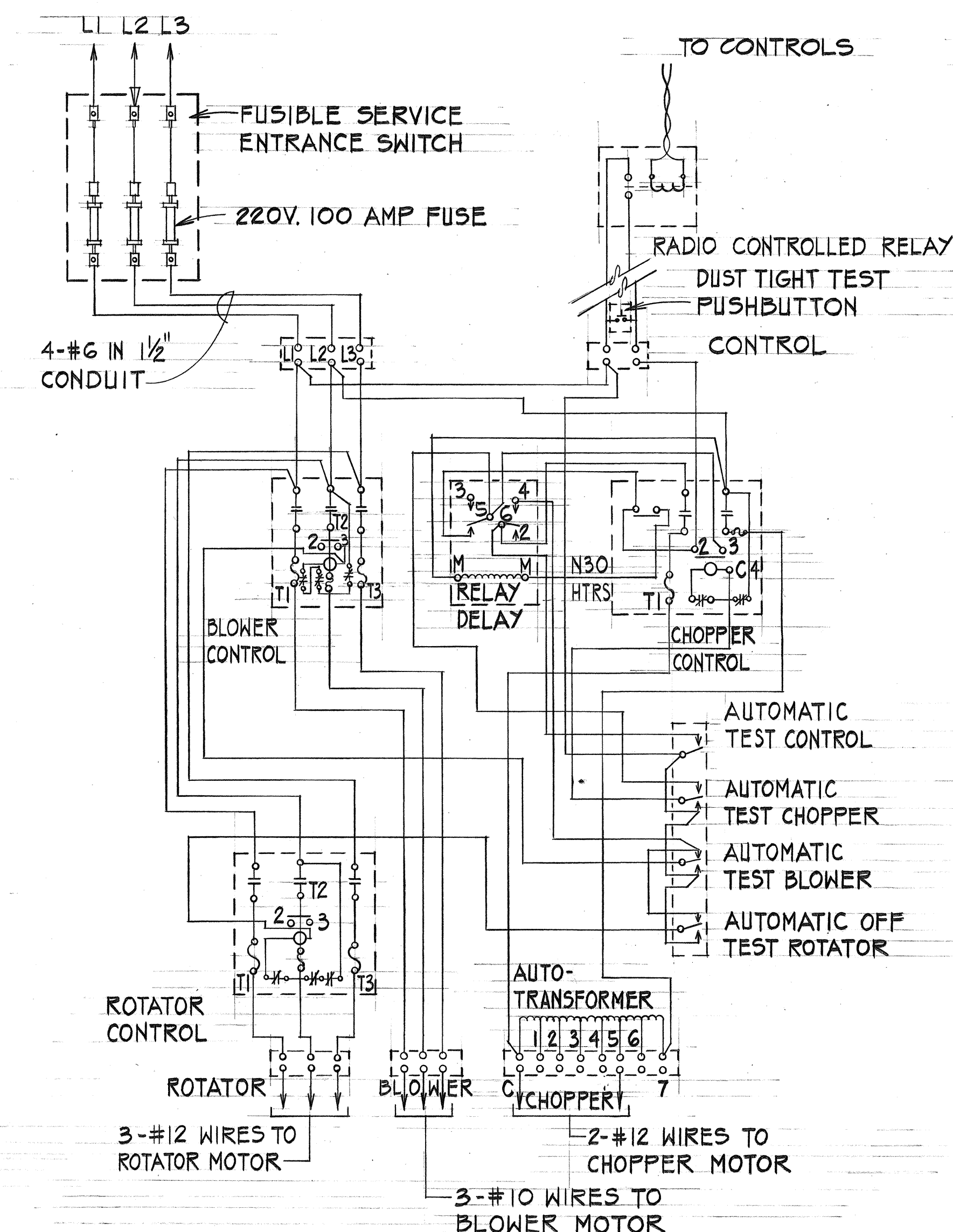
- POLE LOCATION SHOWN ON THE PLAN IS APPROXIMATE, AND SHALL BE FIELD ADJUSTED AS DIRECTED BY THE ENGINEER.
- THE CONTRACTOR SHALL DETERMINE AND VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES IN THE AREA OF WORK BEFORE COMMENCING POLE GROUND SETTING OPERATIONS AND SHALL BE HELD SOLELY RESPONSIBLE FOR ANY DAMAGE TO SUCH UTILITIES DUE TO THE CONSTRUCTION OPERATIONS.
- ALL SIREN AND APPURTENANT EQUIPMENT AS SHOWN IN DETAILS A, B & C ARE EXISTING UNLESS NOTED OTHERWISE. EXISTING MATERIALS REQUIRED TO COMPLETE SIREN RELOCATION THAT ARE UNSERVICABLE SHALL BE REPLACED BY THE CONTRACTOR.
- EQUIPMENT INDICATED "NOT IN USE" SHALL BE REMOVED AND TURNED OVER TO THE COUNTY CIVIL DEFENSE ADMINISTRATOR.
- ALL ITEMS OF WOOD (PLATFORM AND WOOD BOXES) FOR THIS PROJECT SHALL BE EITHER REDWOOD OR PRESSURE TREATED DOUGLAS FIR.
- ALL ELECTRICAL INSTALLATIONS SHALL COMPLY TO THE NATIONAL ELECTRIC CODE, LATEST EDITION ADOPTED BY THE CITY AND COUNTY OF HONOLULU ORDINANCES.

REVIEWED BY:

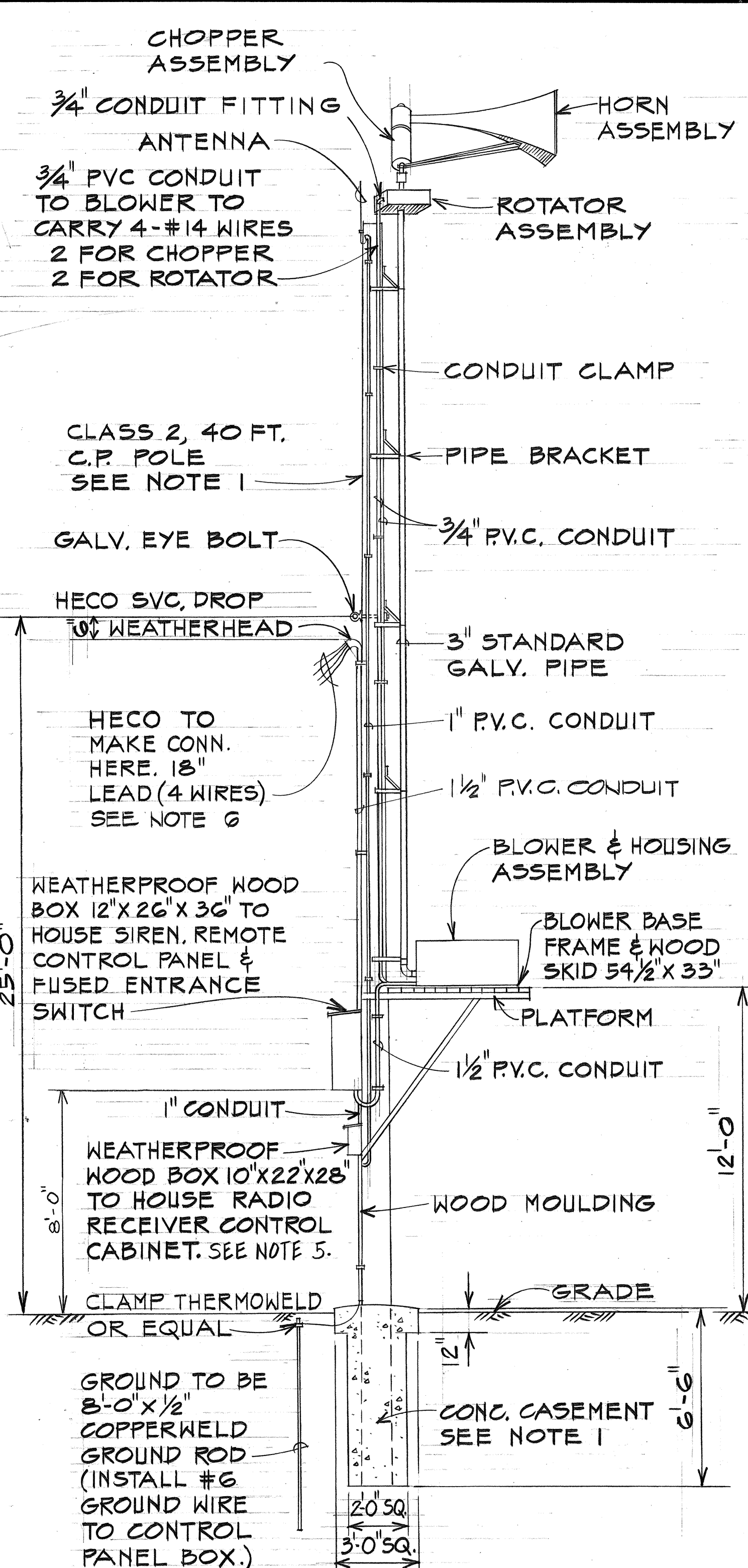
Frank Kim 1-7-77
ELECTRICAL ENGINEER DATE
ELECTRICAL AND MAINTENANCE SERVICES DIVISION
DEPT. OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU



(B) WIRING LAYOUT FOR THUNDERBOLT SIREN
E-9 NO SCALE



(C) CONTROL PANEL WIRING DIAGRAM FOR THUNDERBOLT SIREN
E-9 NO SCALE



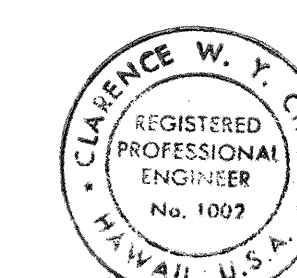
(A) THUNDERBOLT MOUNTING DET. (RADIO CONTROLLED)
E-9 NO SCALE

NOTE:

- FURNISH AND INSTALL CLASS 2, 40 FT. C.P. POLE COMPLETE WITH CONCRETE CASEMENT. RELOCATE ALL EXISTING SIREN AND APPURTENANT EQUIPMENT AS SHOWN OR NOTED, COMPLETE AND IN PLACE.
- RELOCATE EXISTING SERVICE DISCONNECT SWITCH ON C.P. POLE AS REQ'D. (NOT SHOWN)
- EXISTING LAND LINE CONTROLLER ON EXISTING C.P. POLE NOT IN USE. SEE GENERAL NOTE 4.
- CONTACT JOHN KALUNA DEPT. TRANS. SERV. CITY AND COUNTY OF HONOLULU (PHONE 523-4905) AND FRANK KIM, STATE CIVIL DEFENSE (PHONE 734-2161), PRIOR TO STARTING JOB.

5. EXACT LOCATION OF RADIO RECEIVER CABINET TO BE DETERMINED BY FRANK KIM, STATE CIVIL DEFENSE (PHONE 734-2161).

6. HECO SERVICE CHARGES SHALL BE INCIDENTAL TO SIREN RELOCATION AND PAID FOR BY THE CONTRACTOR.



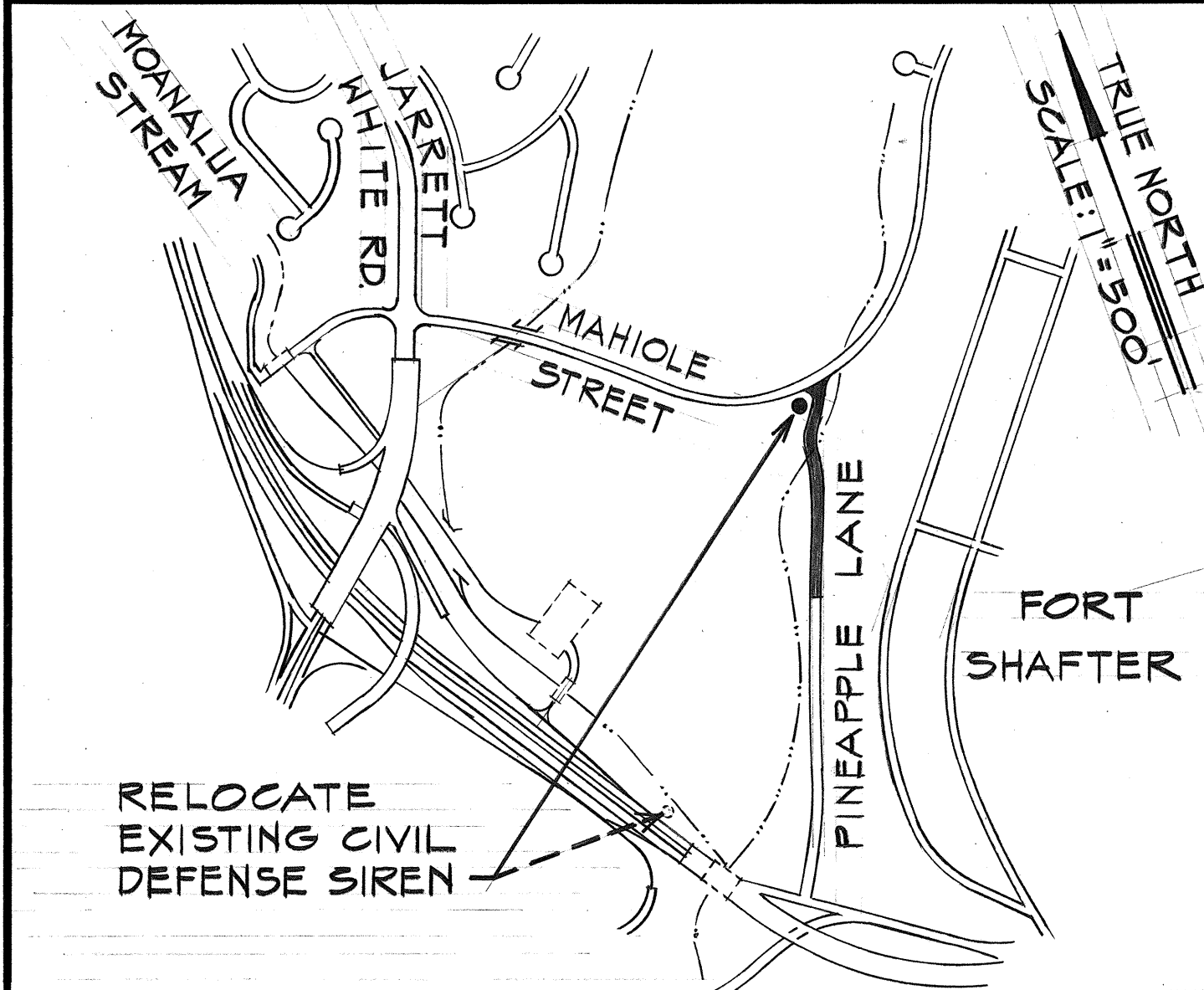
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

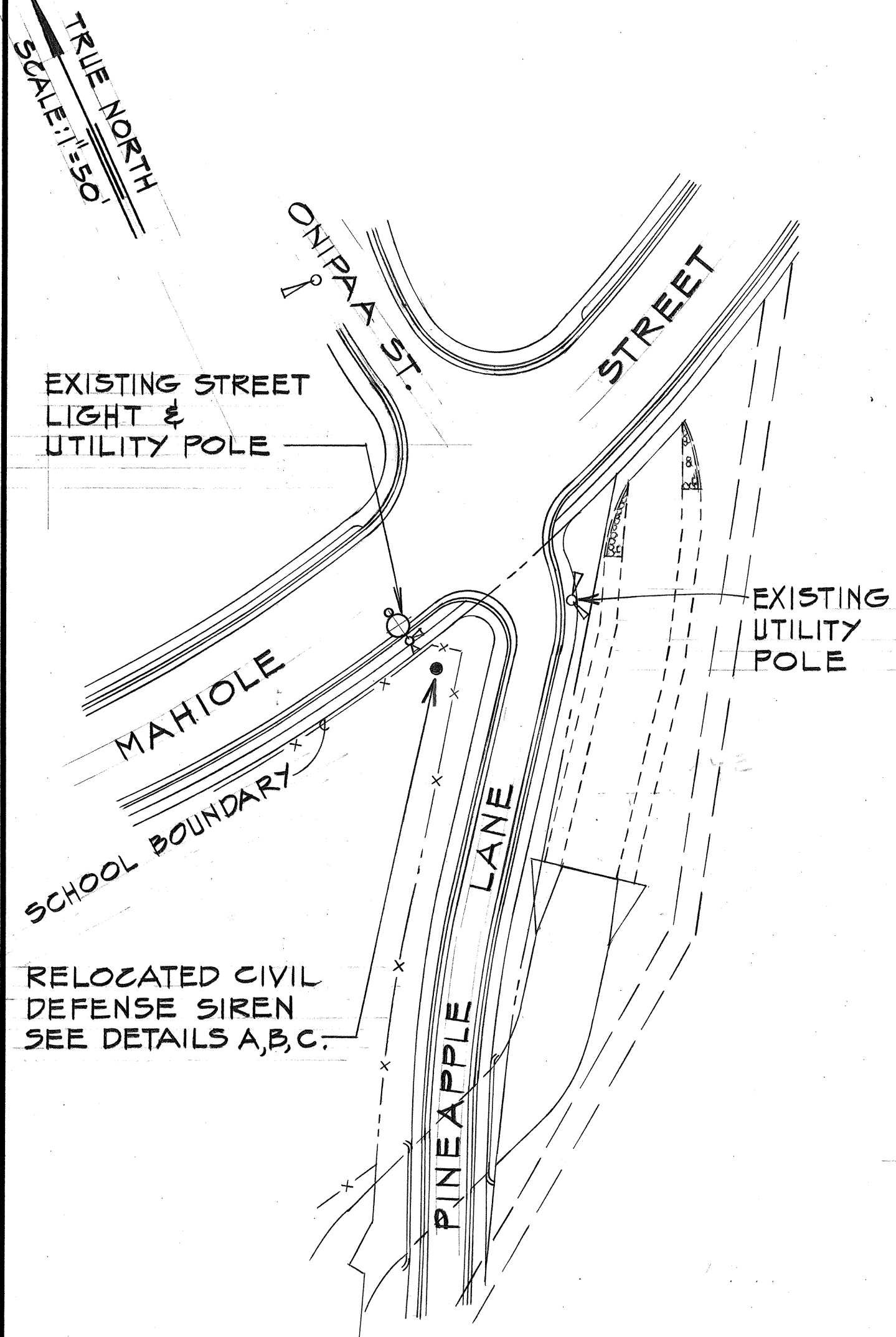
CIVIL DEFENSE RELOCATION

MOANALUA ROAD
PUULO A I.C. TO MIDDLE ST. - UNIT 1A
F.A. Proj. No. F-FF-078-1(16)

SCALE: AS SHOWN DATE: DEC. 17, 1976
SHEET NO. E-9 OF 20 SHEETS



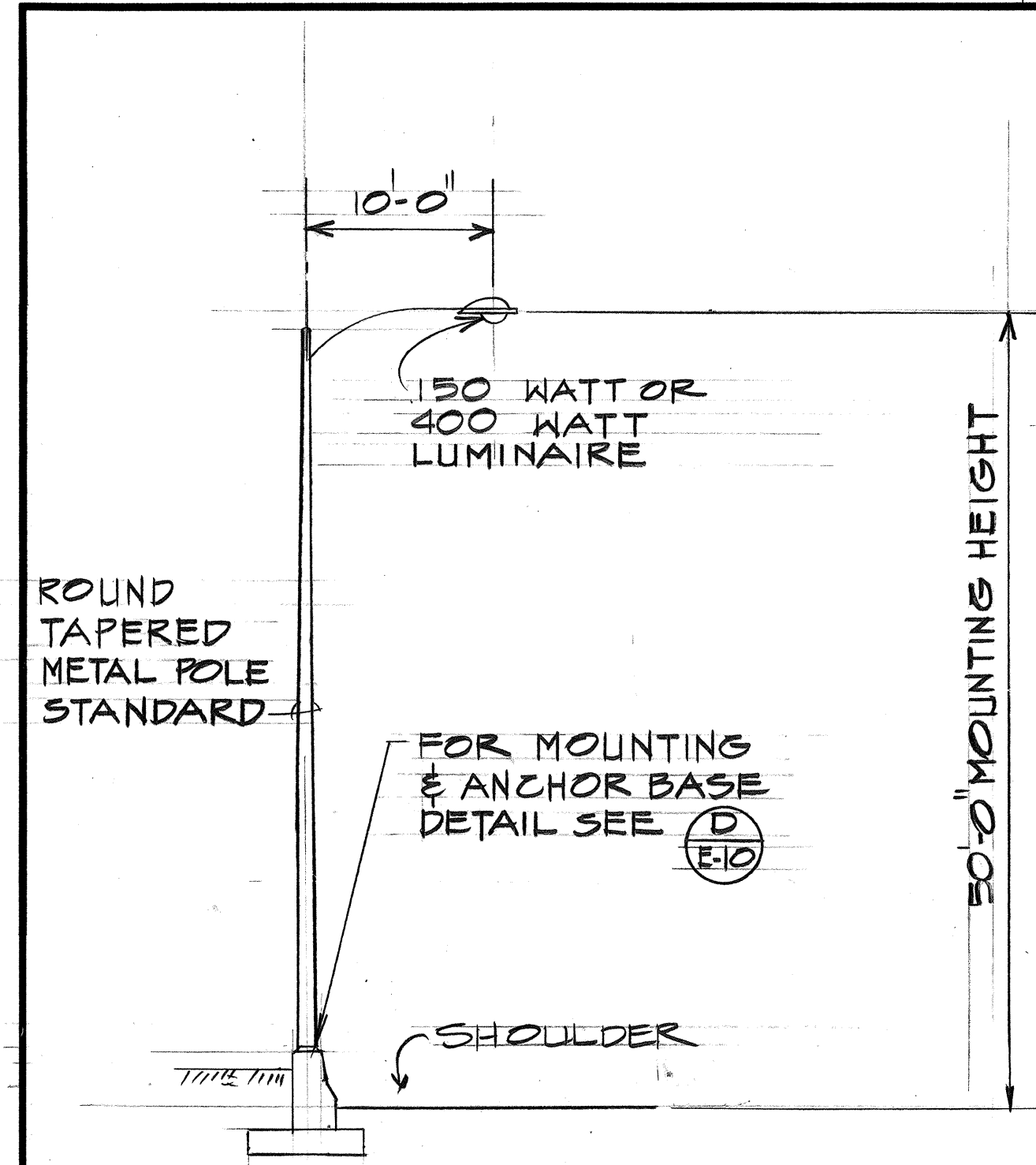
CIVIL DEFENSE SIREN RELOCATION SITE
SCALE: 1" = 500'



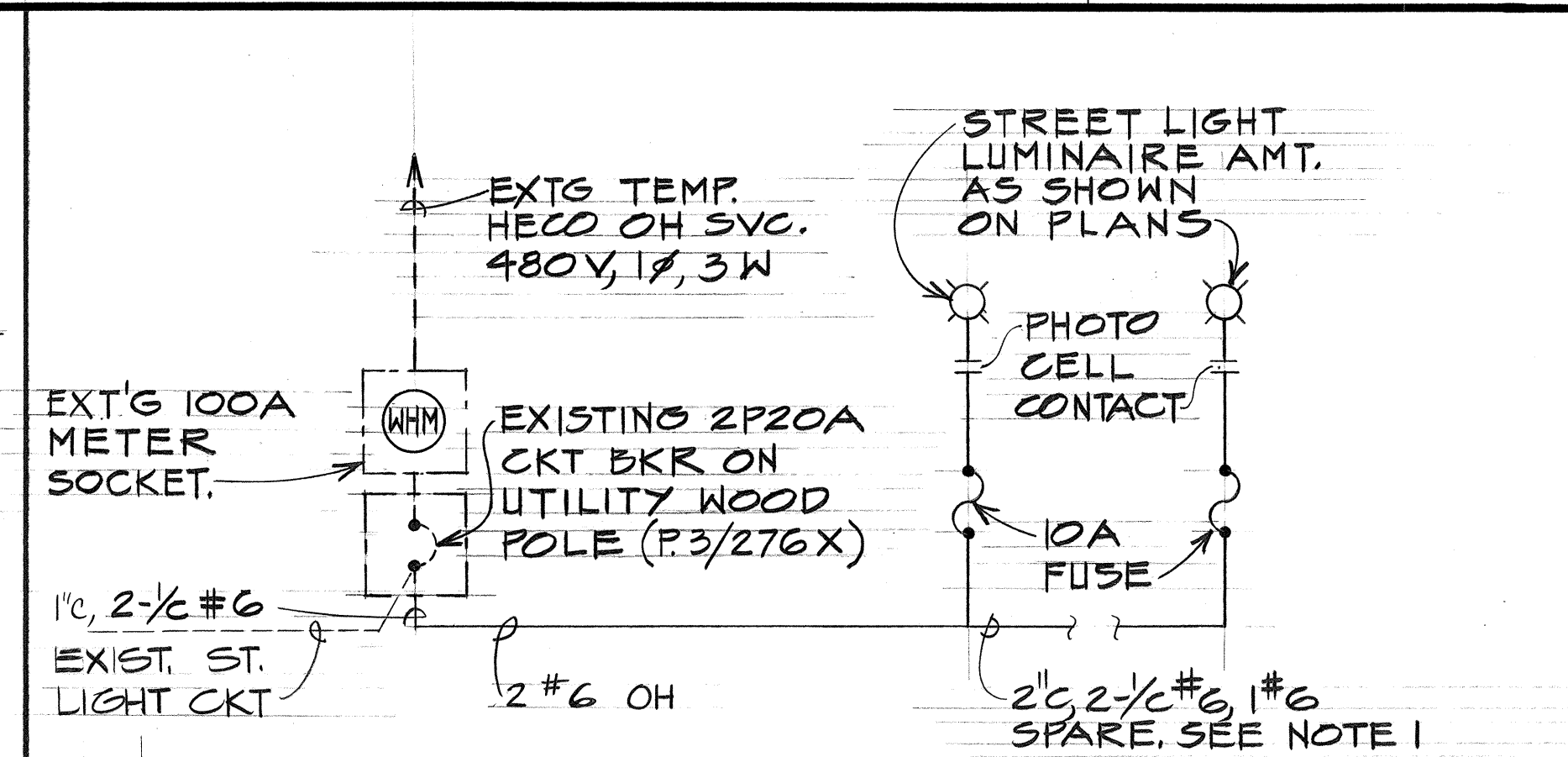
CIVIL DEFENSE SIREN RELOCATION PLAN
SCALE: 1" = 50'

DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
DESIGNED BY	_____
QUANTITIES 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.	F-FF-078-1(16)	1977	84	147

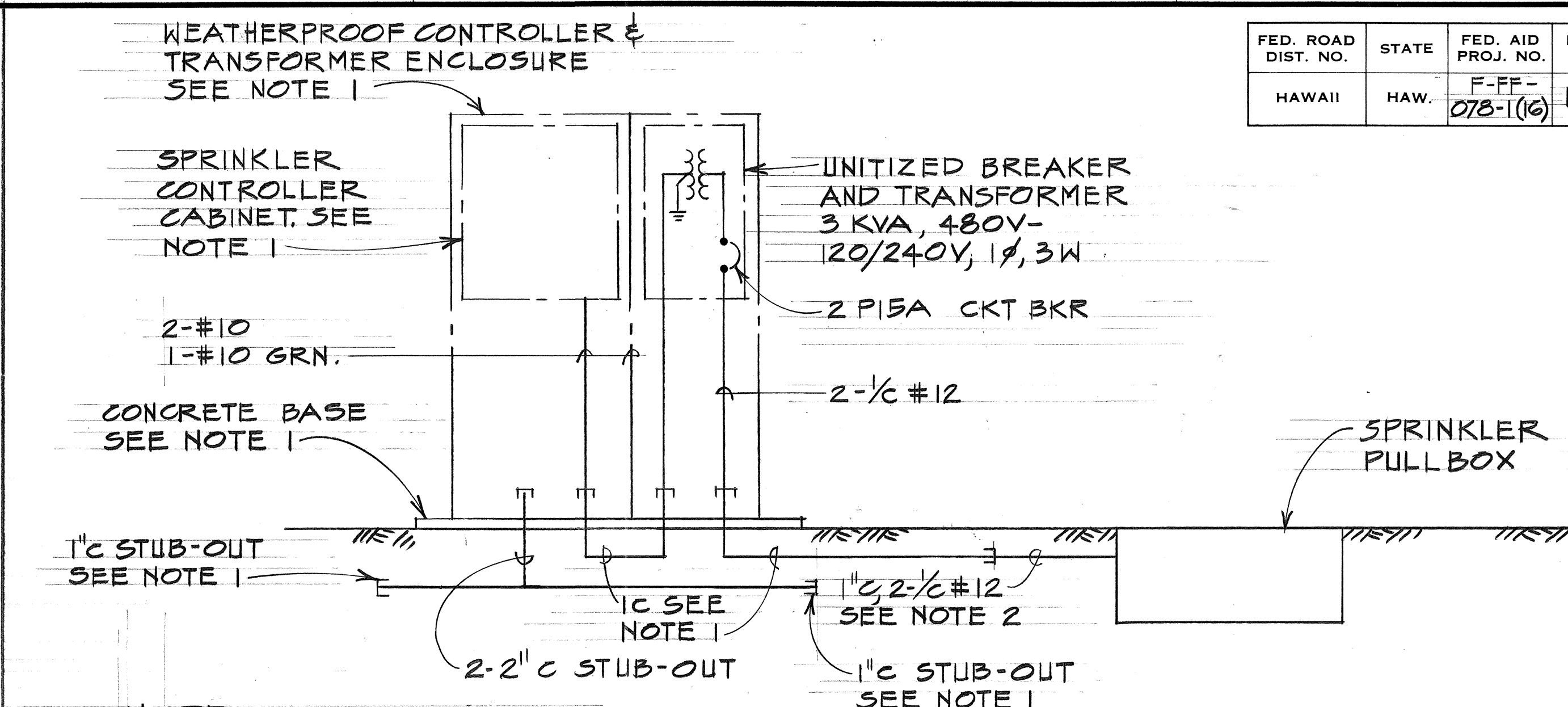


NOTE: 1. FOR TYPE "B" LT. STD. SEE DET. E-12 & F-12
TYPE "A" LIGHT STANDARD DET. (A)
 NO SCALE



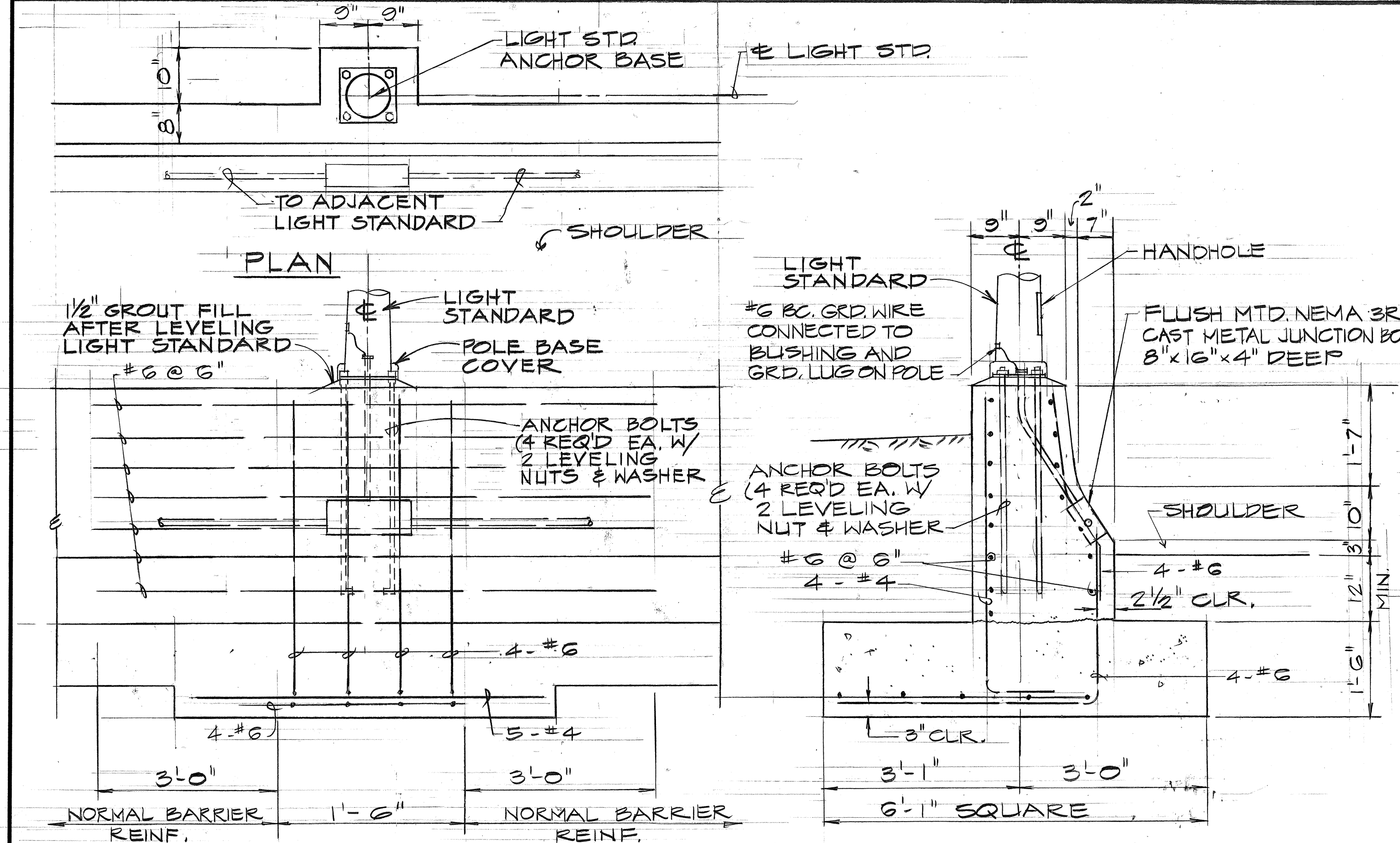
- NOTES:**
- #6 SPARE FOR FUTURE STREET LIGHT 3 ϕ SYSTEM, COIL 1-#6 SPARE NEATLY IN STREET LIGHT PULLBOX OR STREET LIGHT STANDARD HANDHOLE AS REQ'D.
 - ALL EQUIPMENT ENCL. TO BE WEATHERPROOF NEMA 3R TYPE.

ONE-LINE DIAGRAM TEMP. ELECTRICAL SERVICES (B)
 NO SCALE



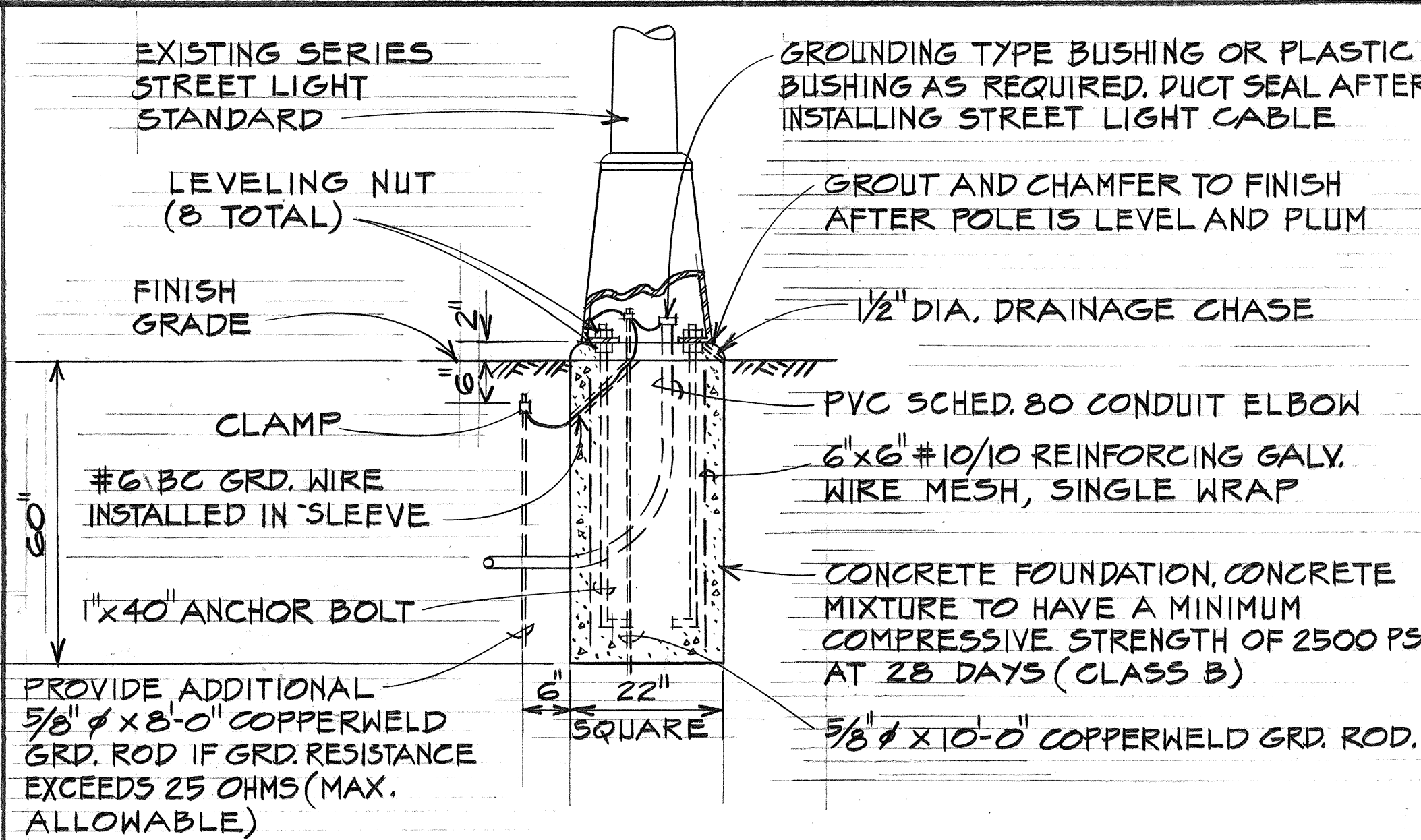
- NOTE:**
- WEATHERPROOF CONTROLLER & TRANSFORMER ENCLOSURE, SPRINKLER CONTROLLER CABINET, CONCRETE BASE & CONDUIT STUB-OUTS BY SPRINKLER CONTRACTOR.
 - EXTEND 1" C TO STUB-OUT.

TYPICAL ONE LINE DIAGRAM SPRINKLER CONTROLLER (C)
 NO SCALE



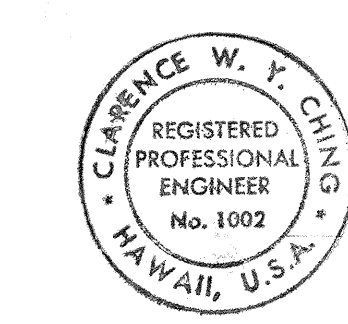
ELEVATION
MOUNTING DET. FOR TYPE "A" LIGHT STANDARD (D)
 NO SCALE

SECTION



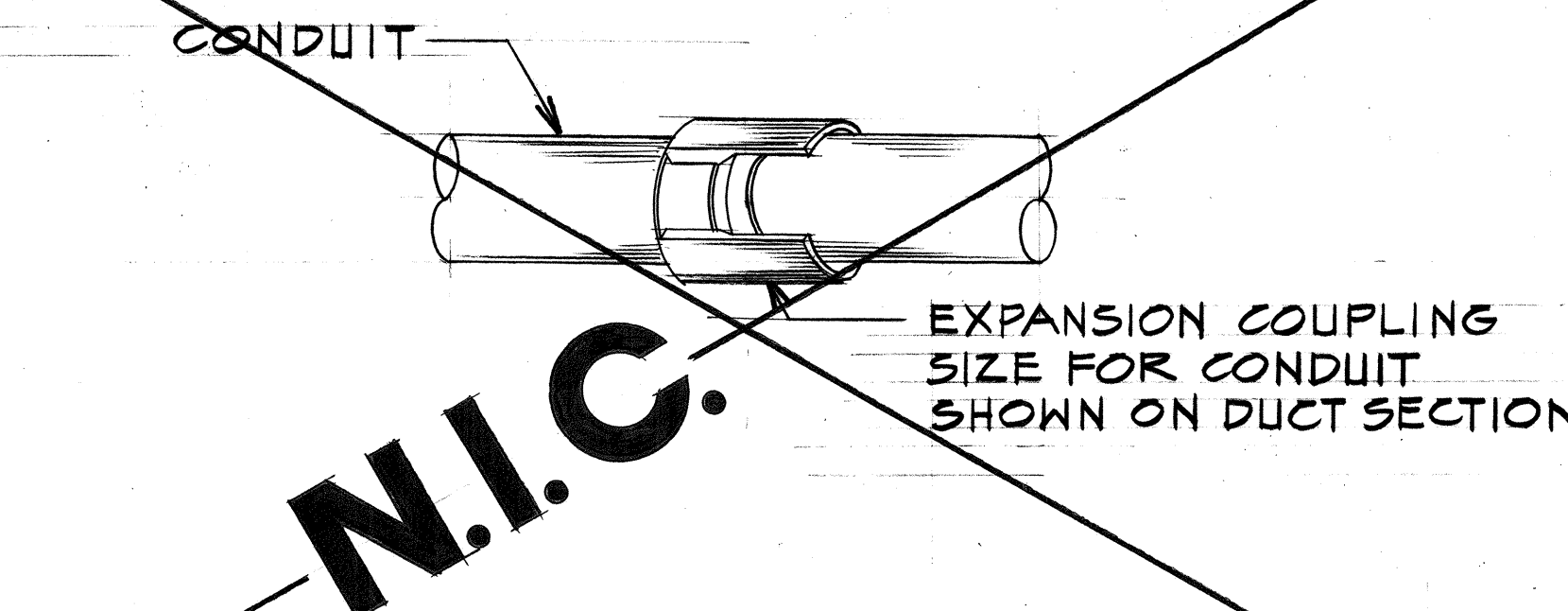
TYP. MOUNTING DET. FOR RELOCATED SERIES ST. LTG. STD. (E)
 NO SCALE

DATE	REVISION
11/3/77	REVISED LUMINAIRE WATTAGE AND MOUNTING HEIGHT

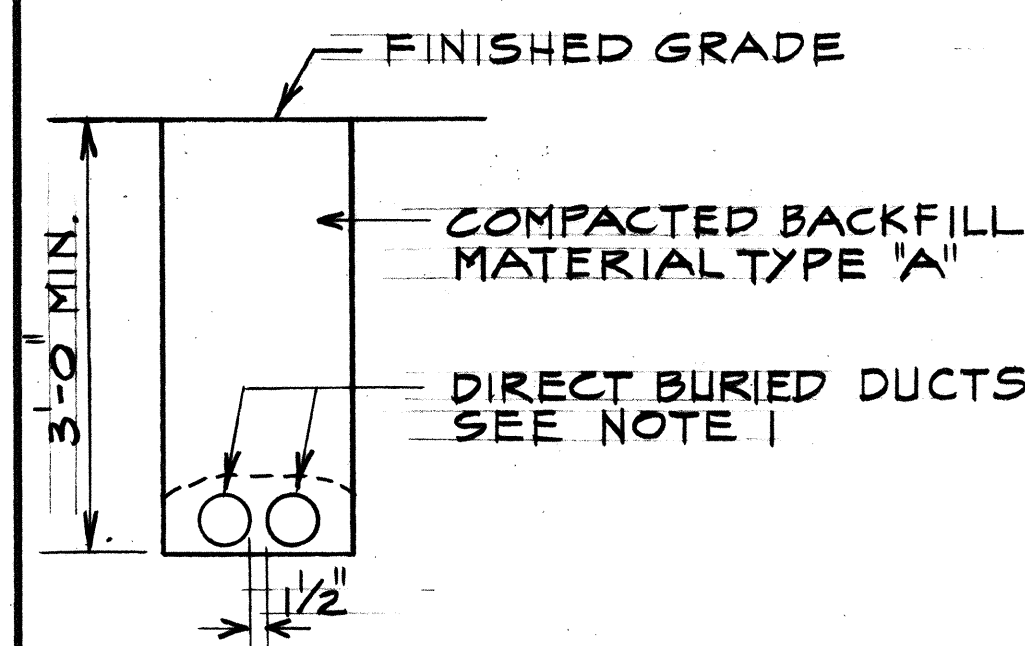


STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
STREET LIGHT DETAILS
 &
ONE LINE DIAGRAMS
 MOANALUA ROAD
 PUULOA I.C. TO MIDDLE ST. - UNIT 1A
 F.A. Proj. No. F-FF-078-1(16)
 SCALE: AS SHOWN DATE: DEC. 17, 1976
 SHEET NO. E-10 OF 20 SHEETS

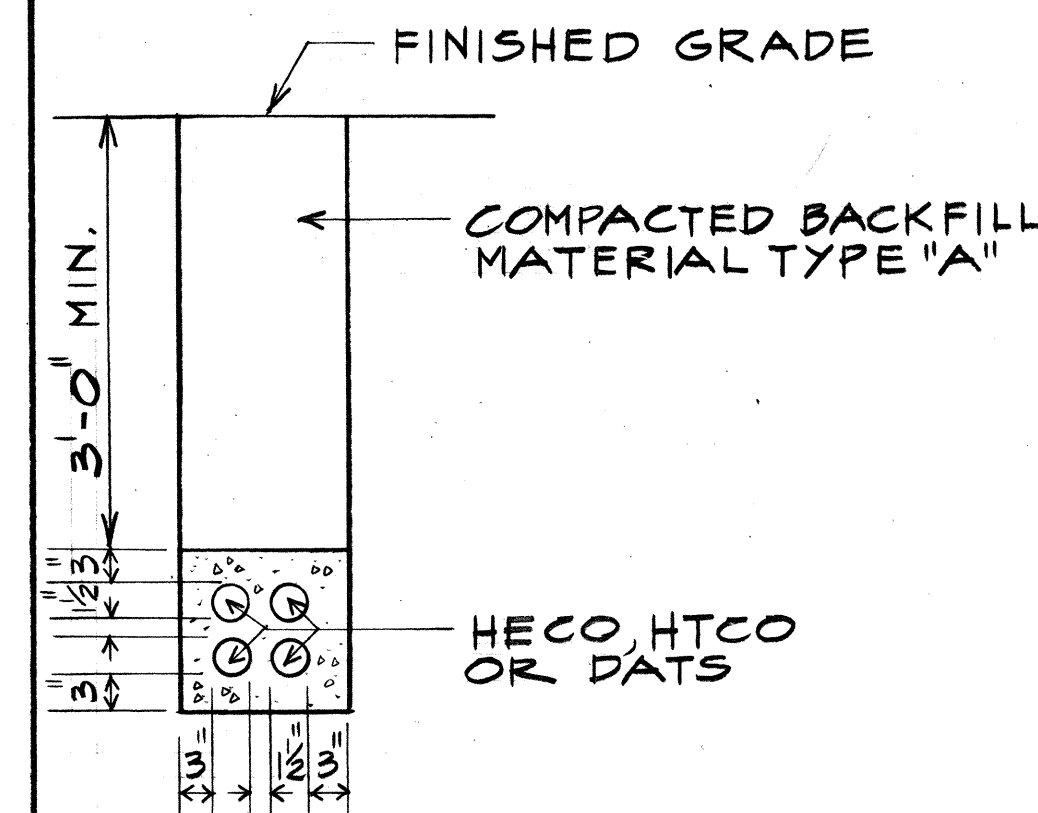
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	E-FF-078-1(16)	1977	85	147



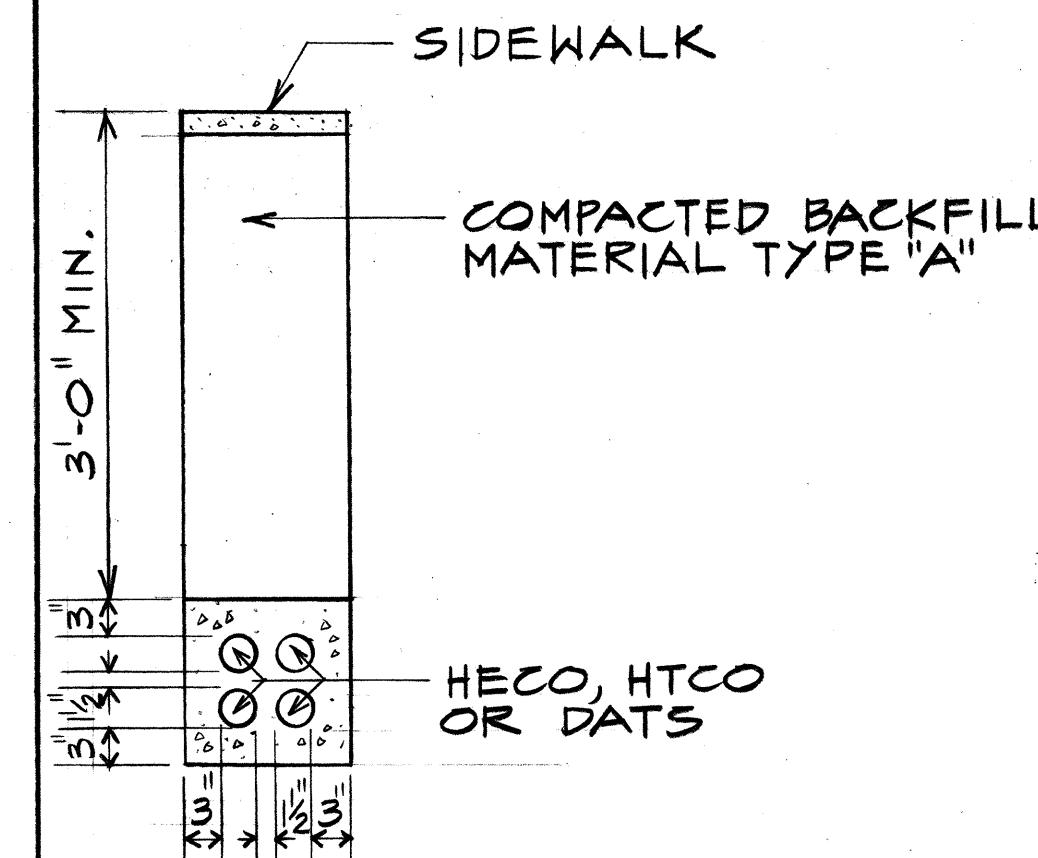
EXPANSION COUPLING DETAIL (A)
N.T.S. (E-II)



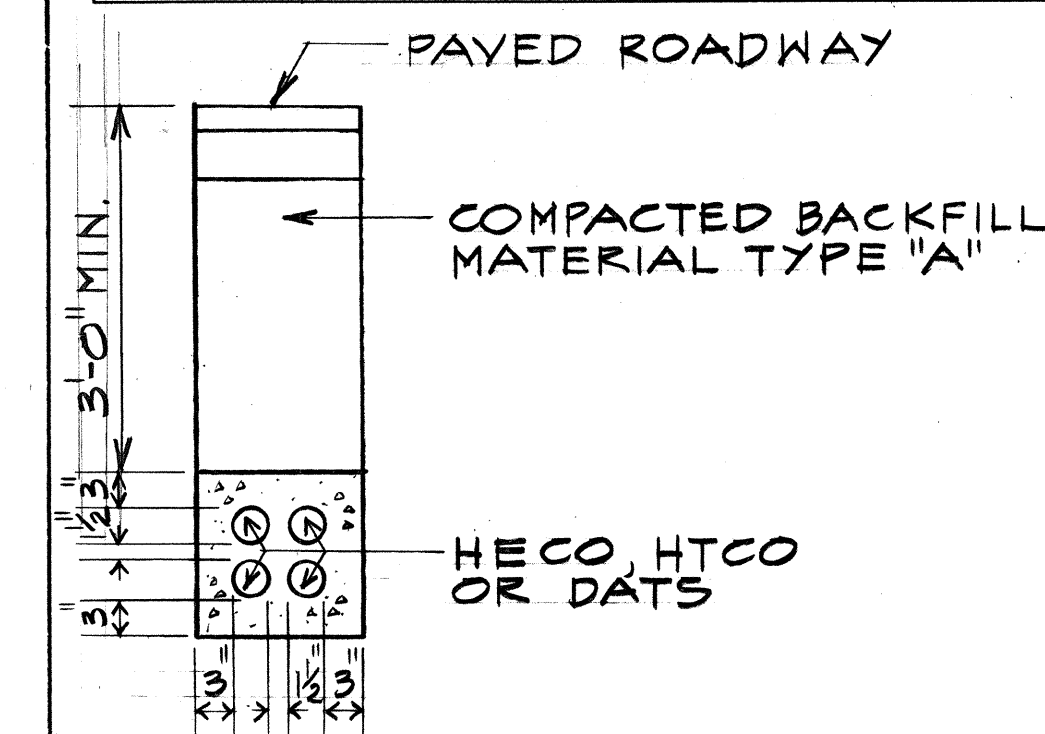
TYPICAL RACEWAY SECTION FOR STREETLIGHT & POWER CKT (B)
N.T.S. (E-II)



TYPICAL CONCRETE ENCASED RACEWAY SECTION (C)
N.T.S. (E-II)



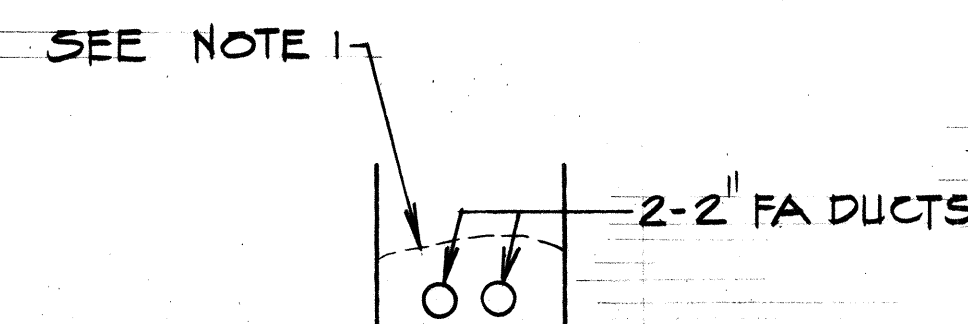
TYPICAL CONCRETE ENCASED RACEWAY SECTION (D)
N.T.S. (E-II)



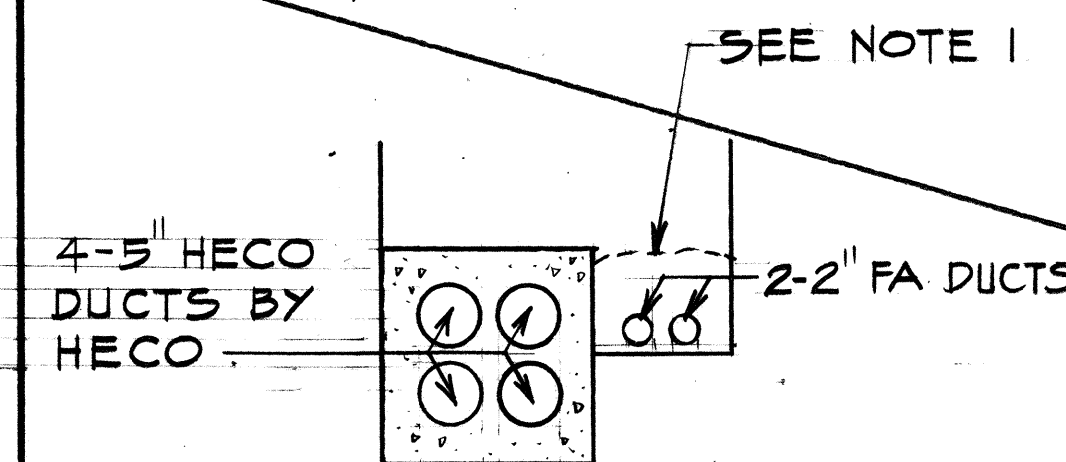
TYPICAL CONCRETE ENCASED RACEWAY SECTION (E)
N.T.S. (E-II)



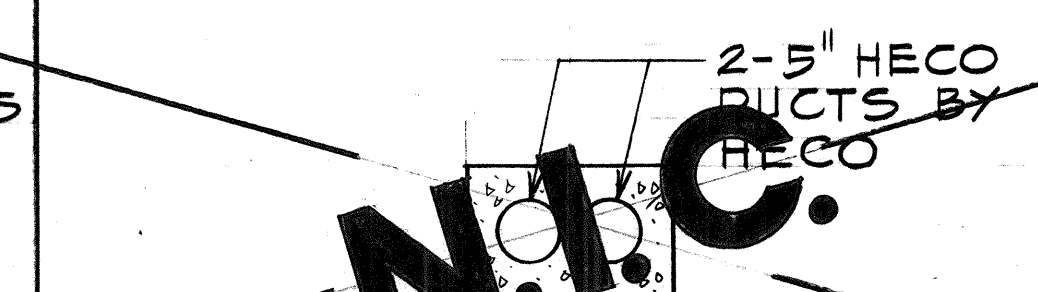
DUCT SECTION (1)
N.T.S.



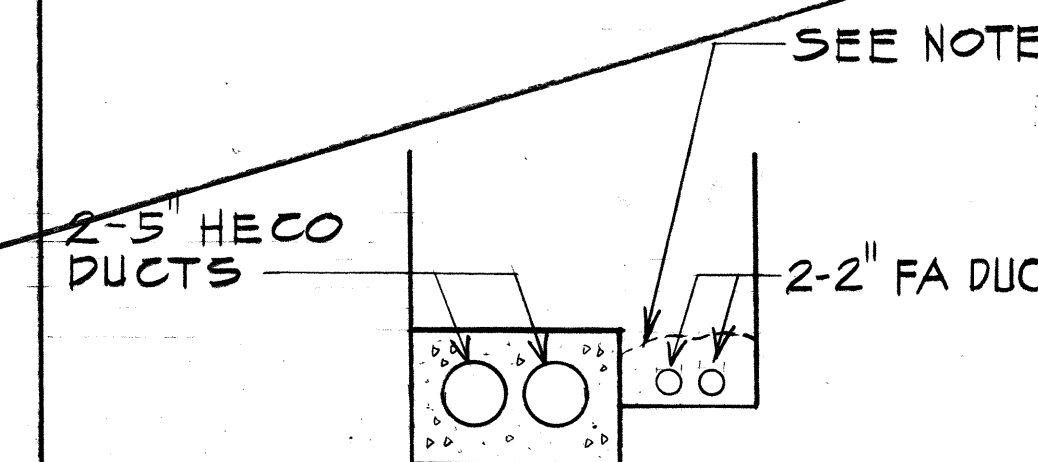
DUCT SECTION (2)
N.T.S.



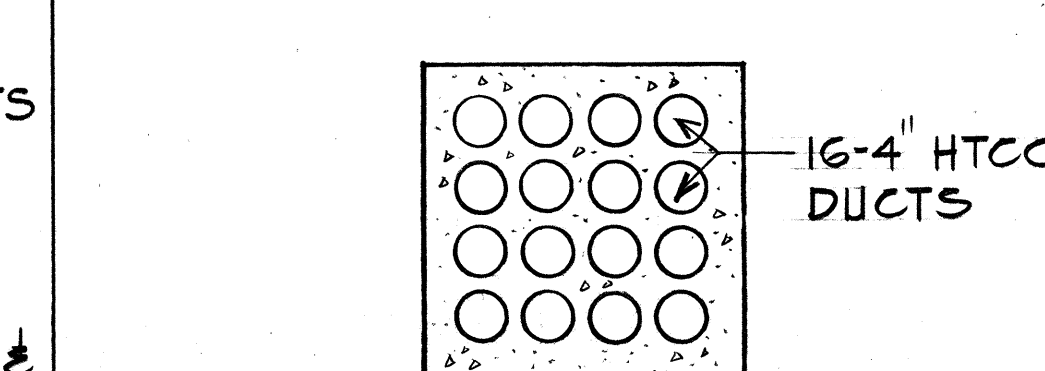
DUCT SECTION (3)
N.T.S.



DUCT SECTION (4)
N.T.S.

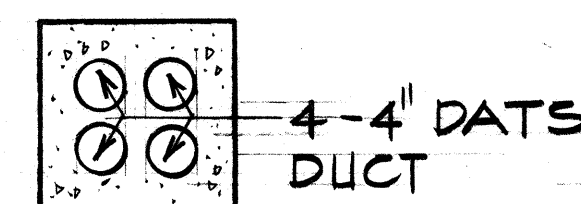


DUCT SECTION (5)
N.T.S.



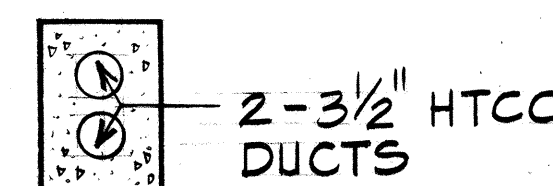
DUCT SECTION (6)
N.T.S.

NOTE: FOR CONTINUATION OF ST. LTG & SPRINKLER DUCTS SEE ST. LTG PLANS

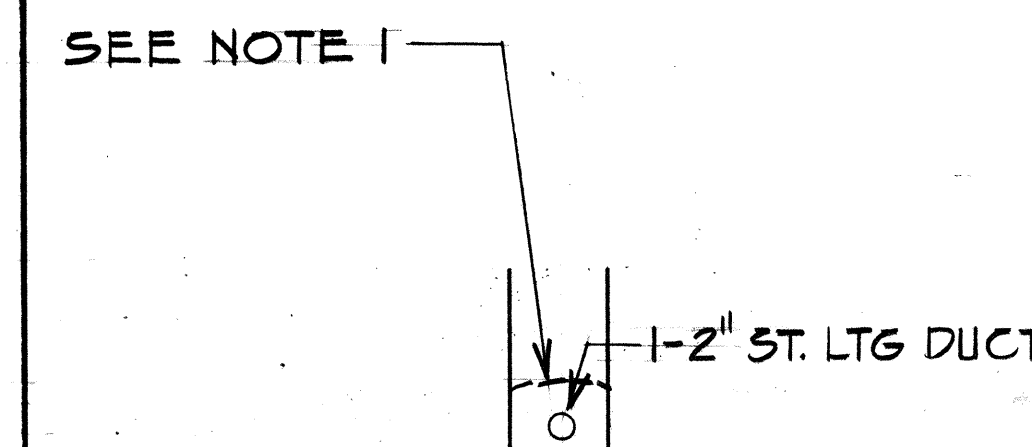


NOTE: (7A) SIMILAR EXCEPT 4-4" HTCO DUCTS

DUCT SECTION (7)
N.T.S.

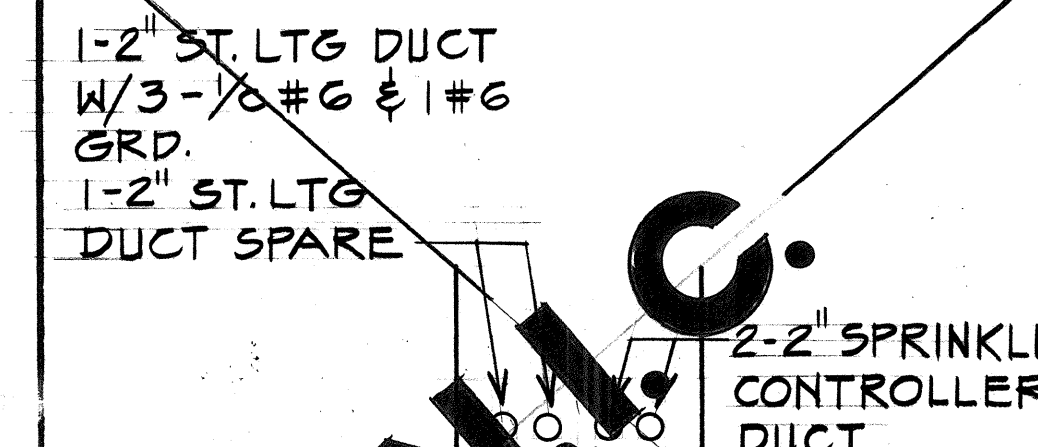


DUCT SECTION (8)
N.T.S.



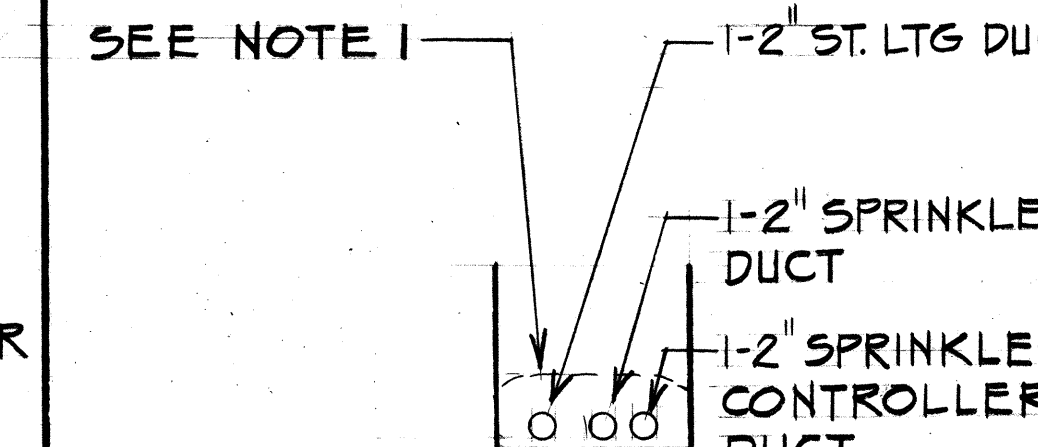
NOTE: (9A) SIMILAR EXCEPT IN CONCRETE BARRIER

DUCT SECTION (9)
N.T.S.



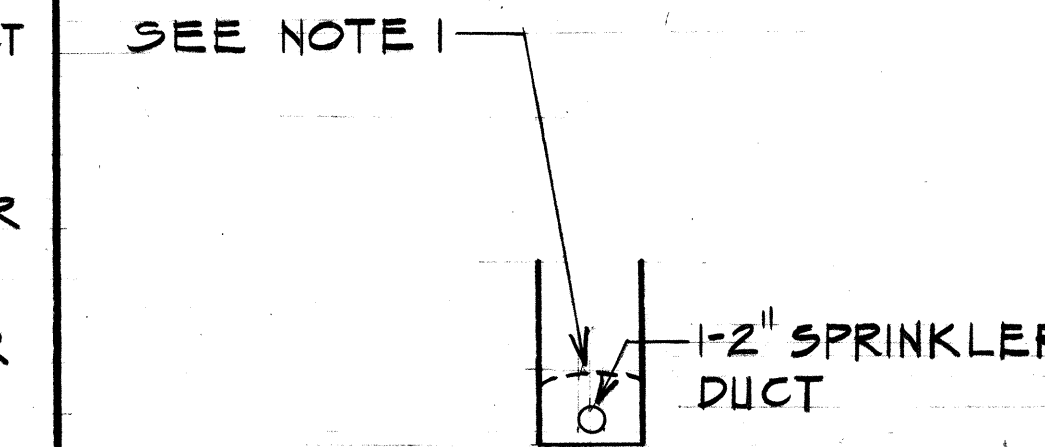
NOTE: FOR CONTINUATION OF HECO & FA DUCTS SEE UTILITY RELOCATION PLANS

DUCT SECTION (10)
N.T.S.



NOTE: (11A) SIMILAR LESS 1-2" SPRINKLER CONTROLLER DUCT

DUCT SECTION (11)
N.T.S.



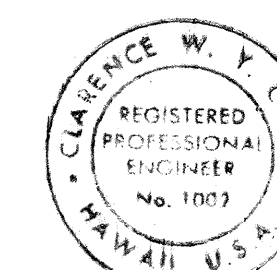
DUCT SECTION (12)
N.T.S.

NOTES:

1. CONCRETE JACKET REQUIRED AT ALL ROAD CROSSINGS
2. CONCRETE ENCASED DUCTS SHALL HAVE 3" AROUND ENCASEMENT, 1/2" BETWEEN DUCTS AND 3" MIN. SEPARATION BETWEEN ELECTRICAL AND COMMUNICATION DUCTS.

APPROVED BY:

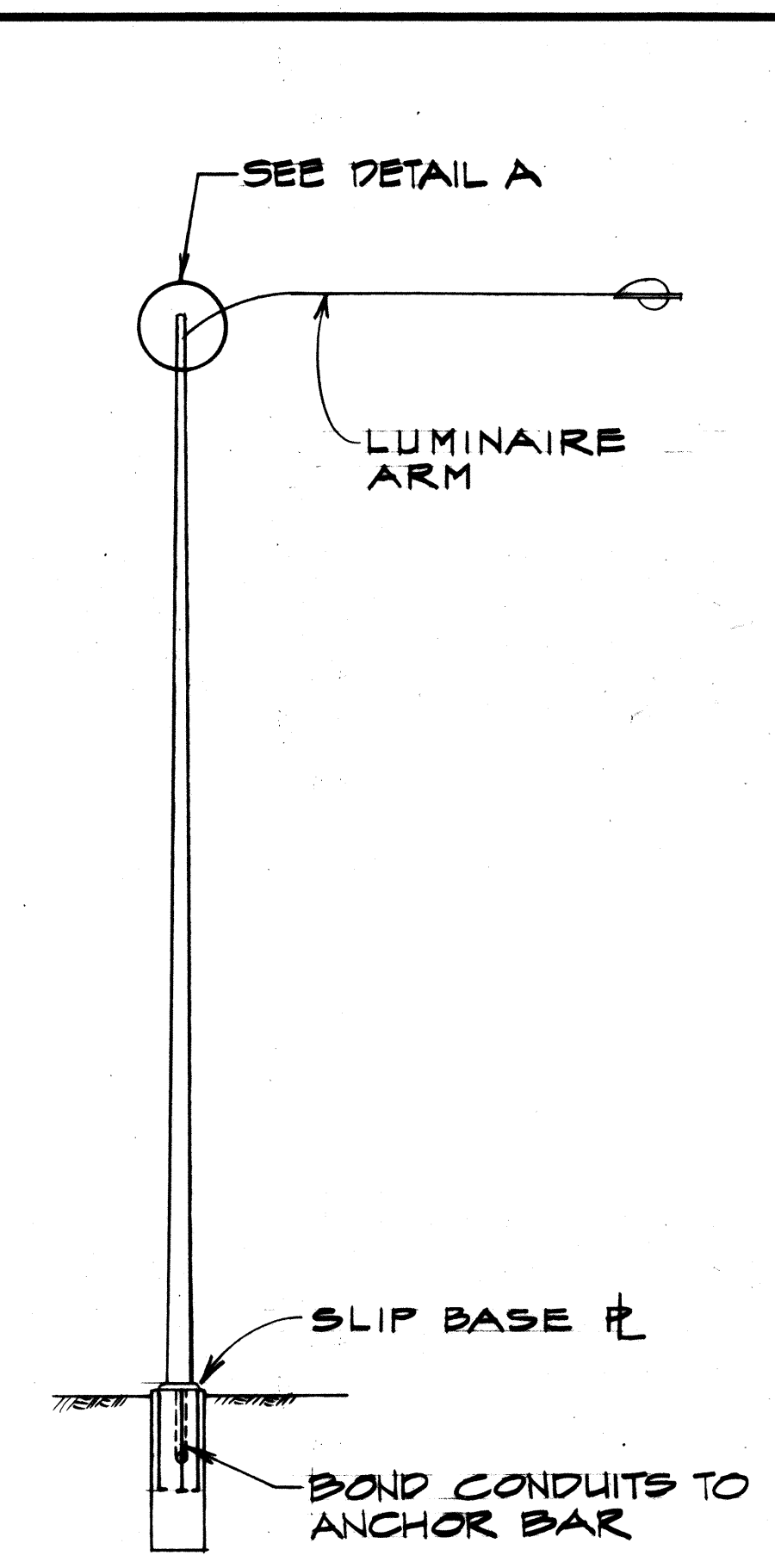
Solomon J. K. G. G. G.
HAWAIIAN TELEPHONE CO. DATE 12/14/76
Kenneth Z. Thomas 1-7-77
DEPT. OF TRANSPORTATION SERVICES DATE
CITY & COUNTY OF HONOLULU
MUNICIPAL FIRE ALARM CIRCUIT RELOCATION CLEARANCE



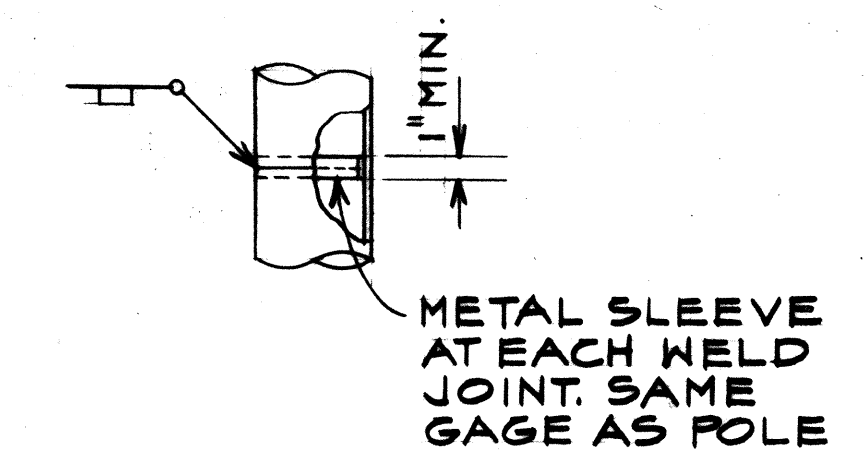
THIS WORK WAS PREPARED BY ME
UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
DUCT SECTION DETAILS
MOANALUA ROAD
PULLOA I.C. TO MIDDLE ST. - UNIT 1A
F.A. Proj. No. E-FF-078-1(16)
SCALE: AS SHOWN DATE: DEC. 17, 1976
SHEET No. E-II OF 20 SHEETS

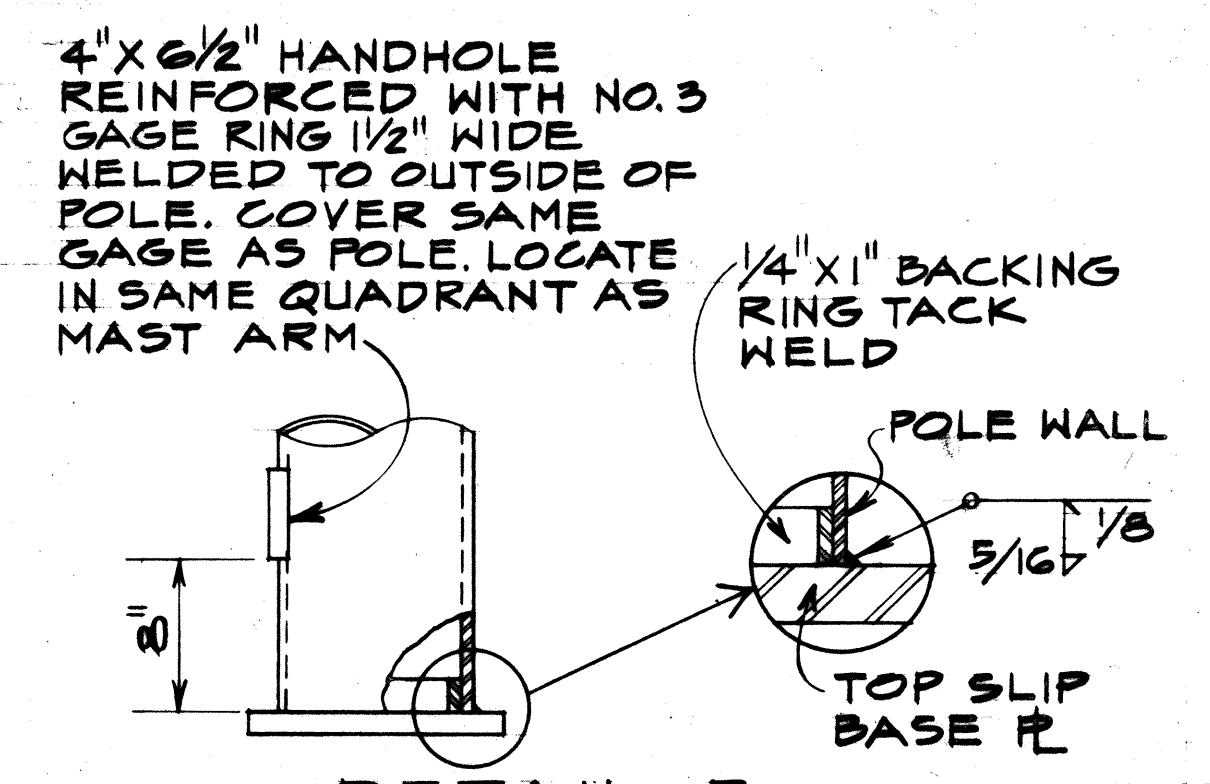
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-FF-078-1(16)	1977	87	147



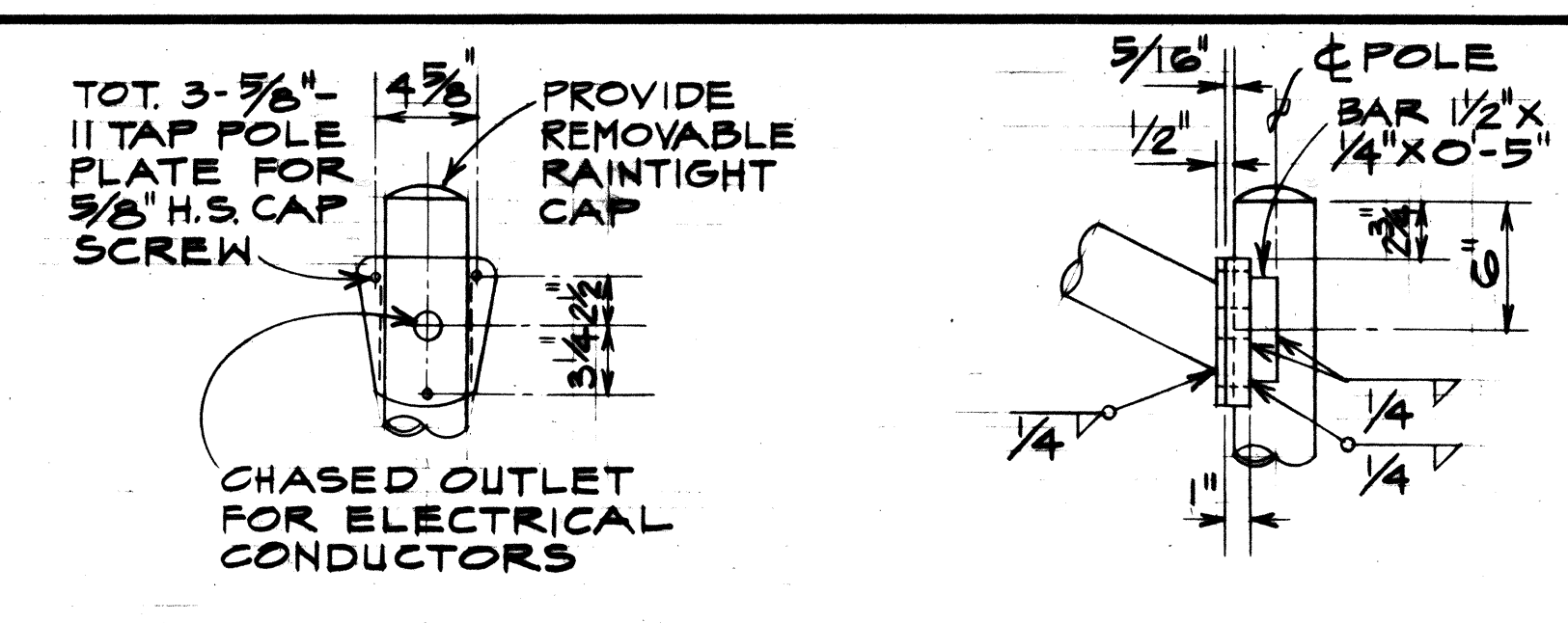
ELEVATION



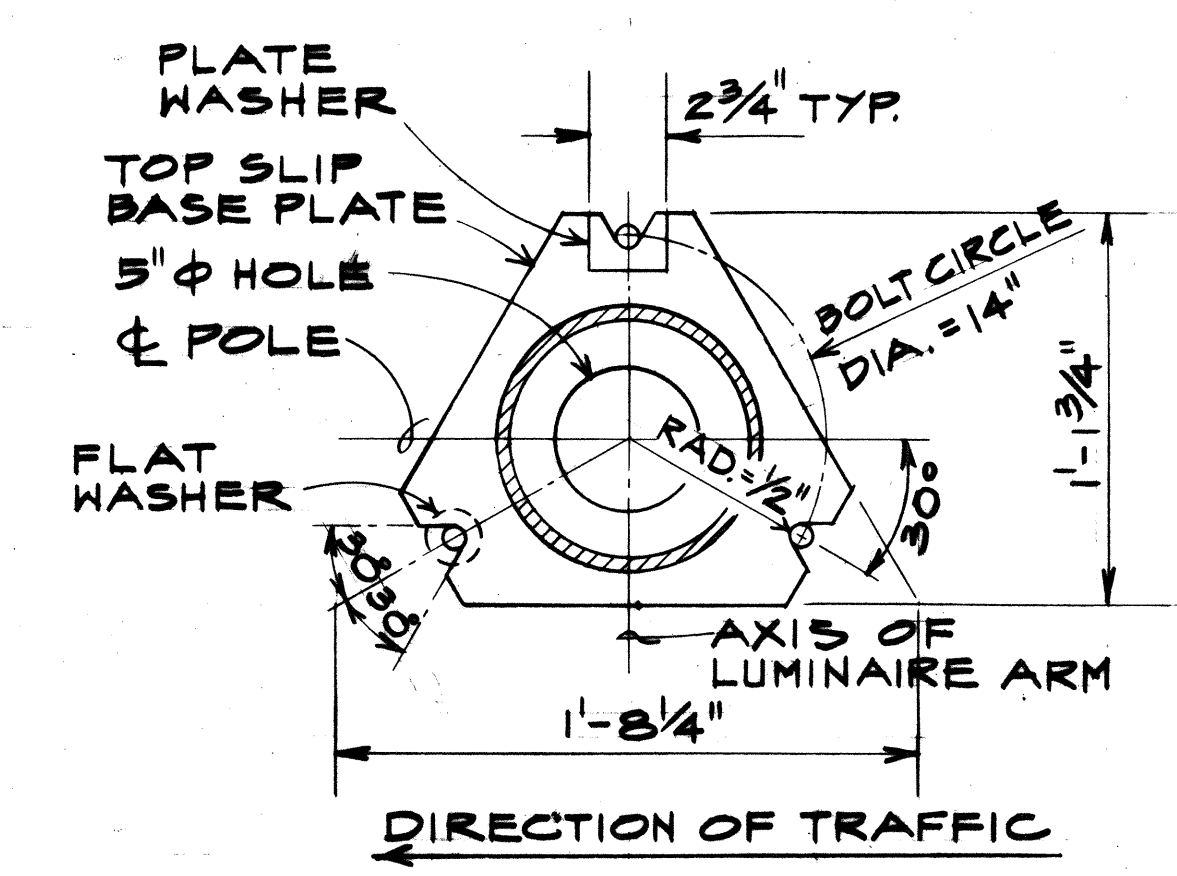
POLE SPLICE



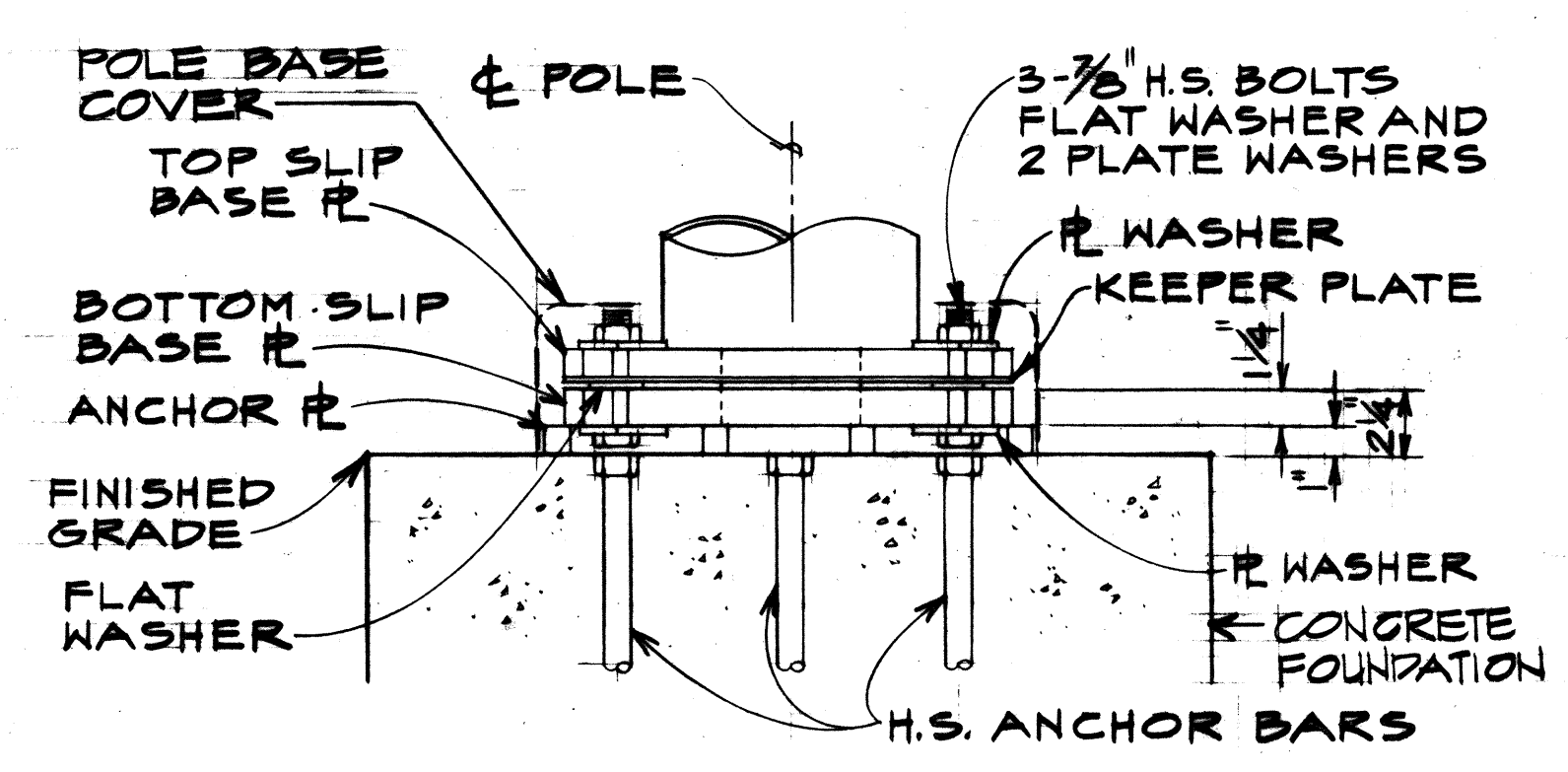
DETAIL B



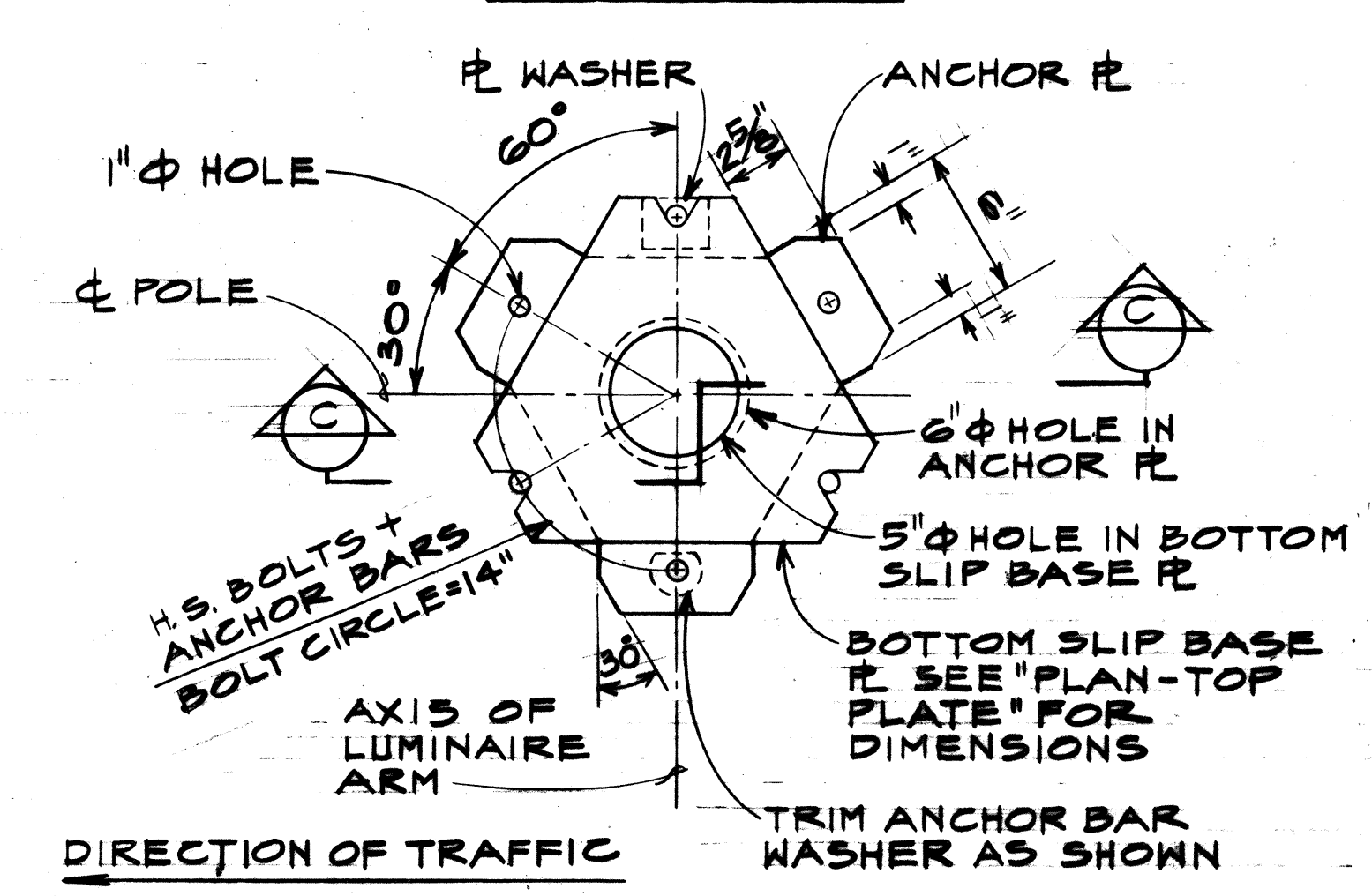
DETAIL A



PLAN-TOP PLATE



ELEVATION



**PLAN-BOTTOM PLATES
TYPICAL SLIP BASE INSERT DETAIL
FOR HIGHWAY LIGHTING STANDARDS**

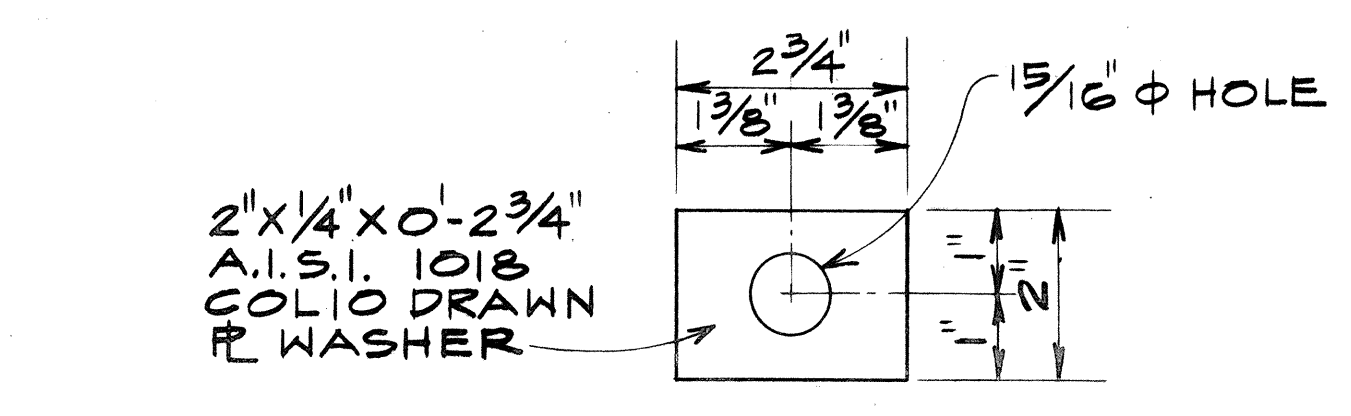
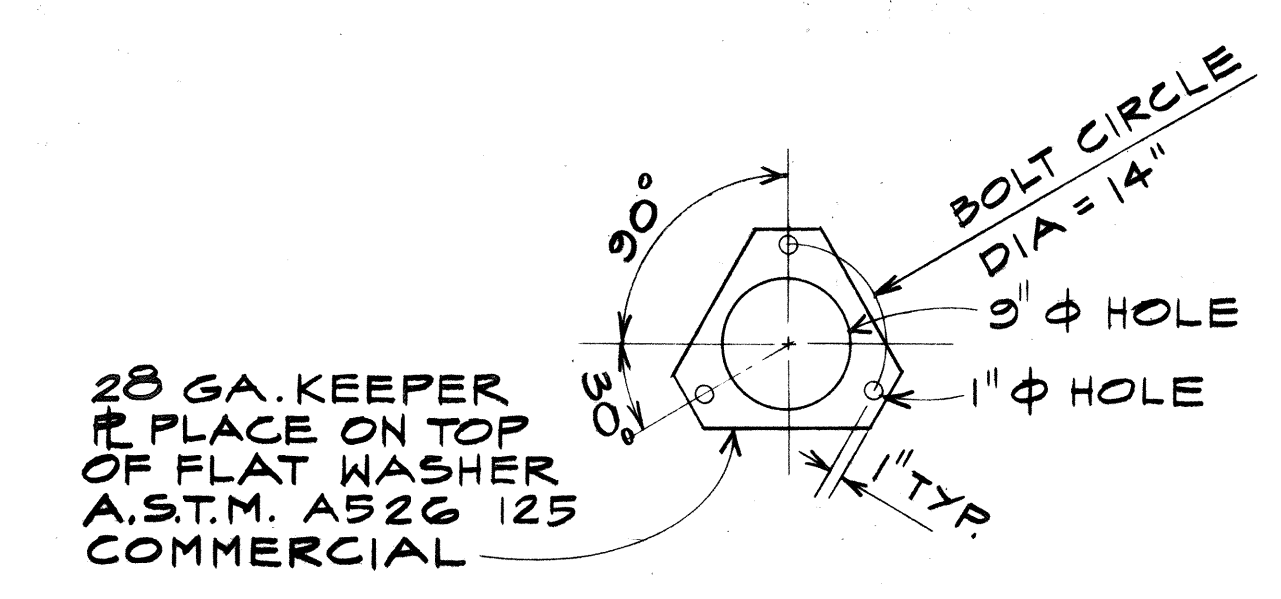
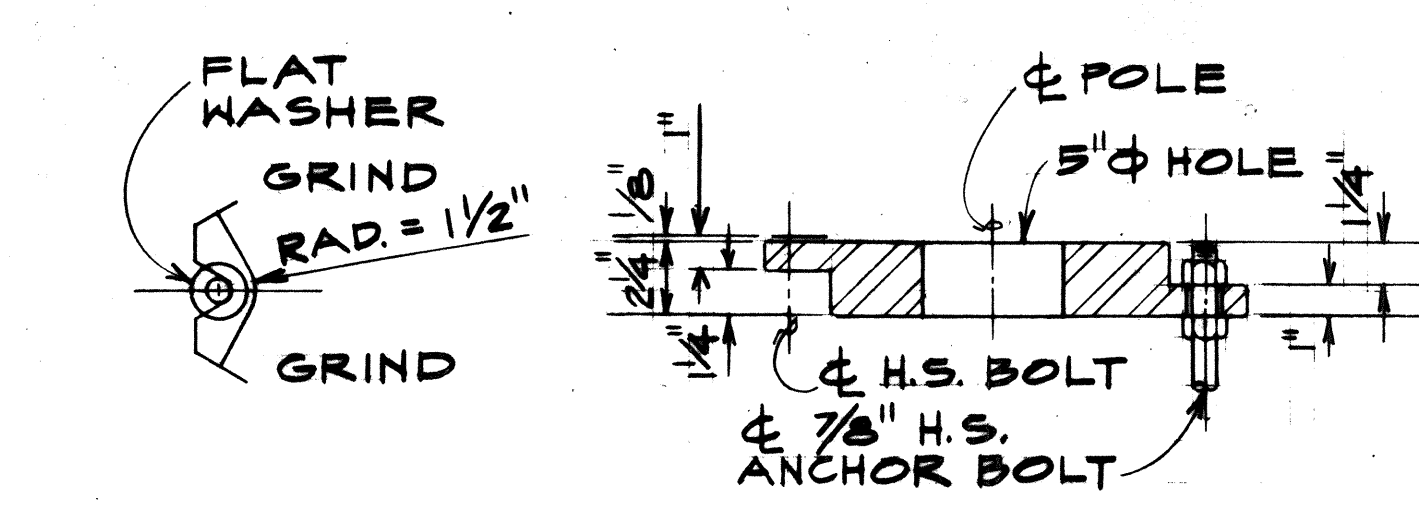


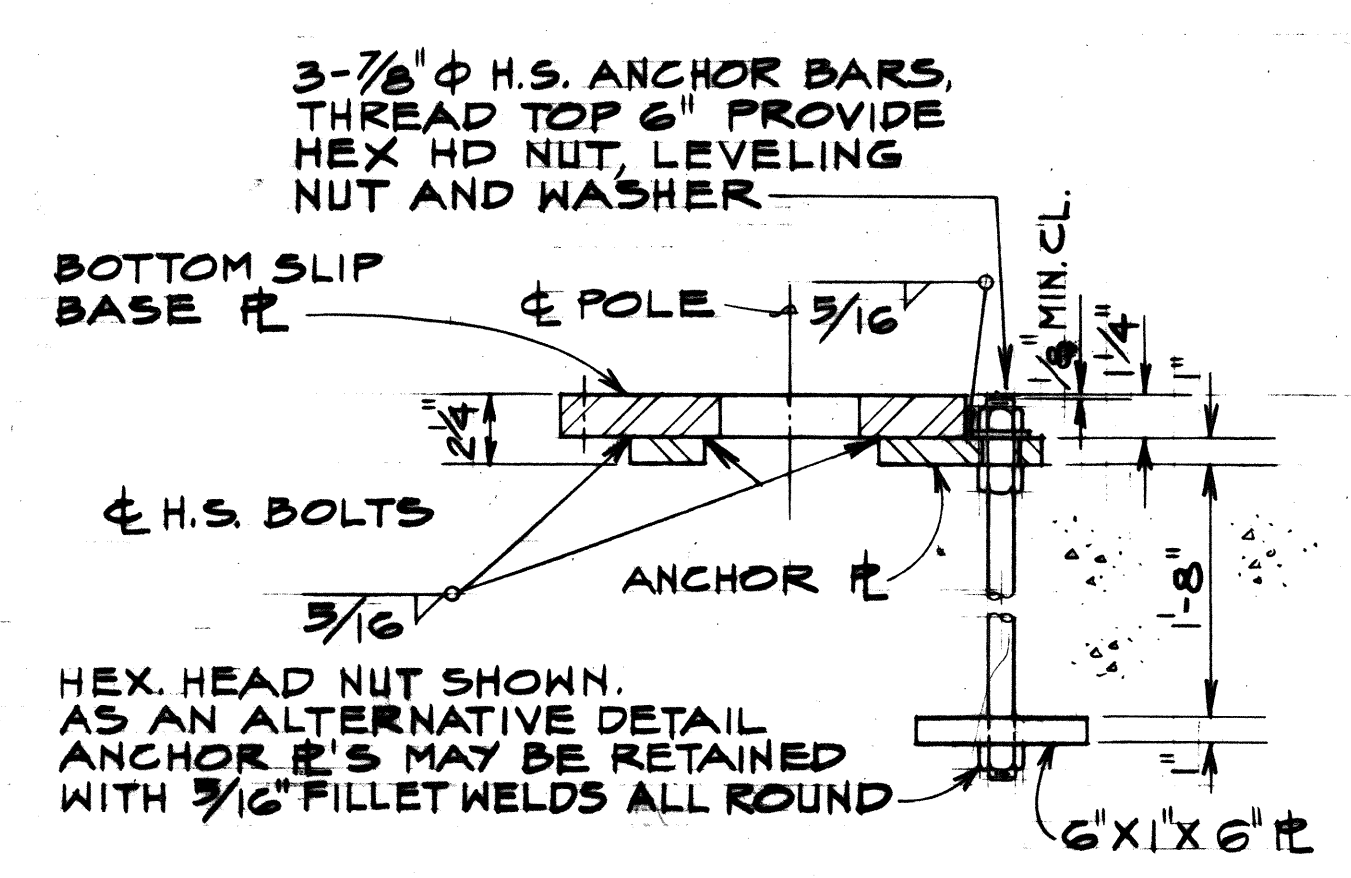
PLATE WASHER



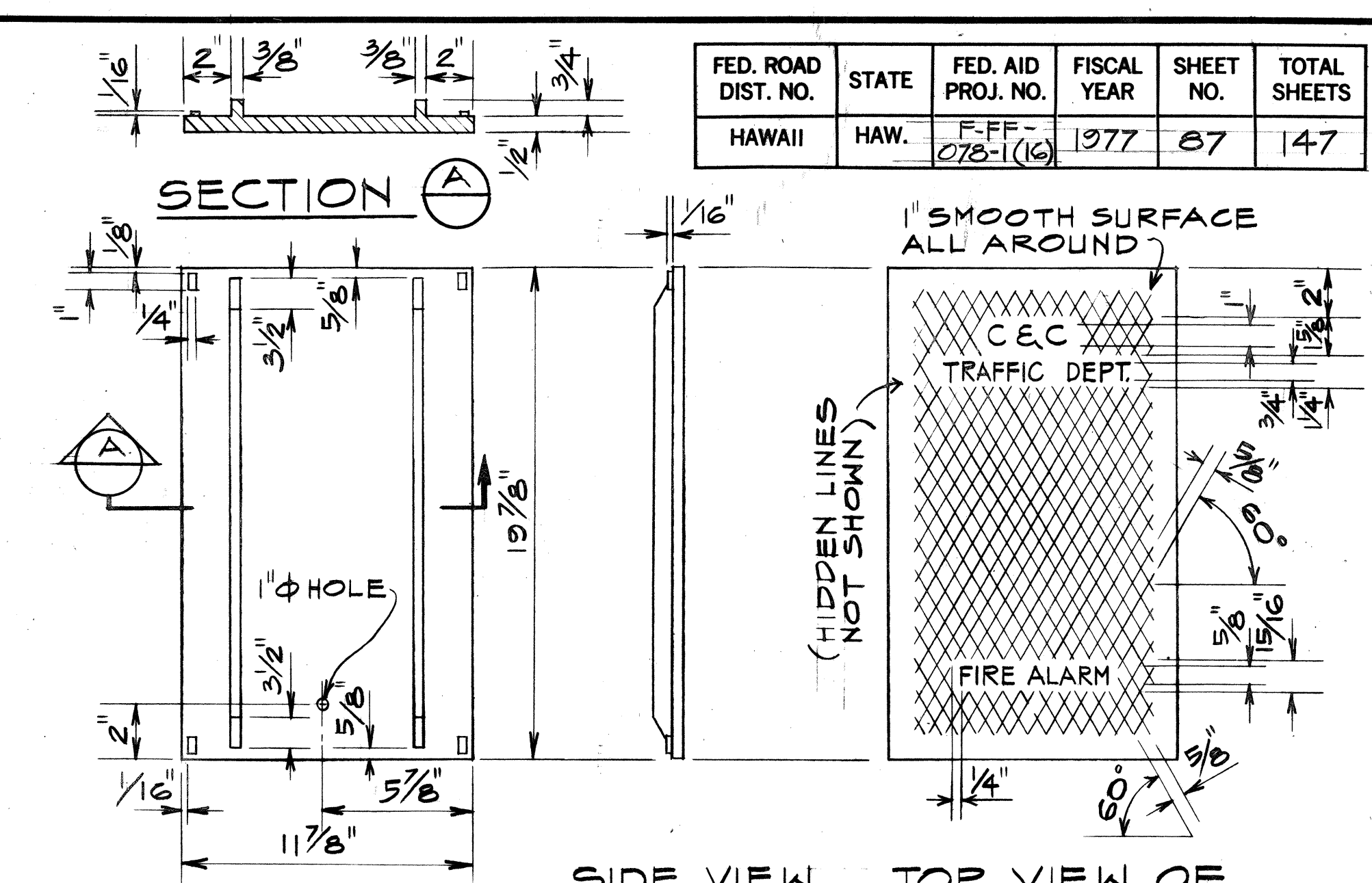
KEEPER PLATE



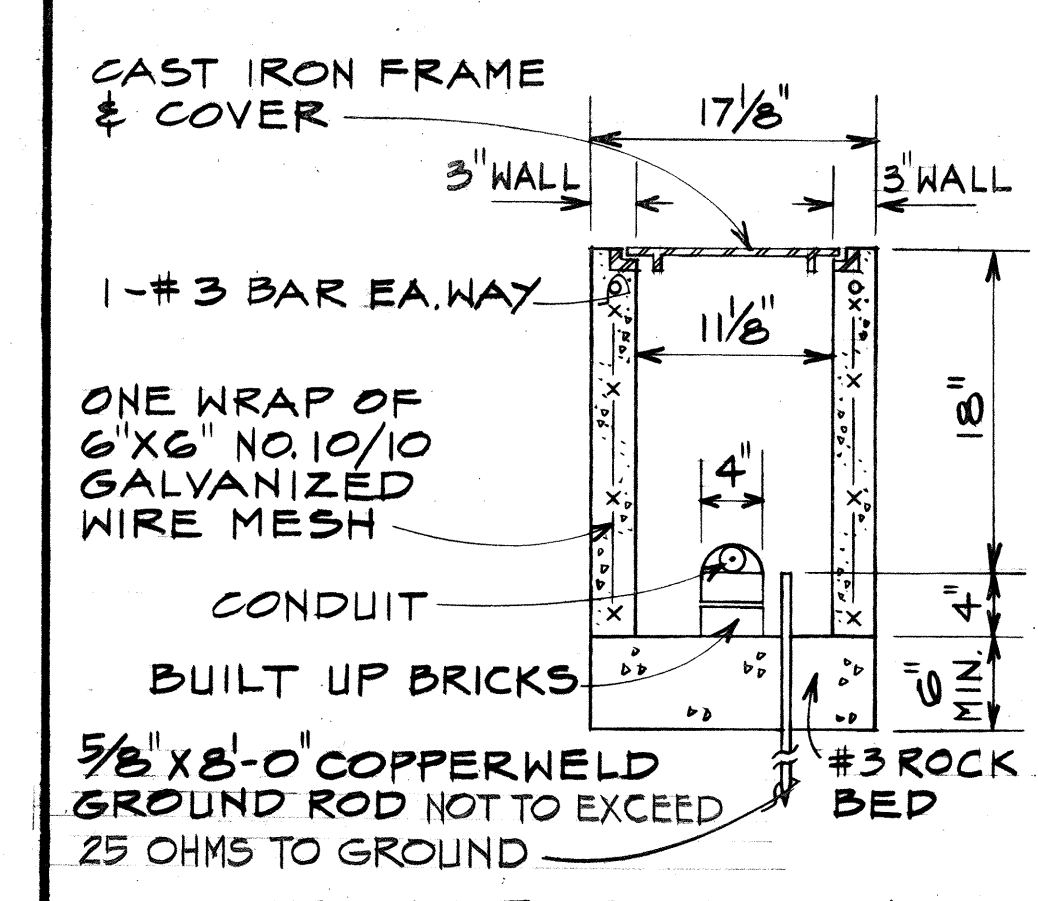
CAST OPTION



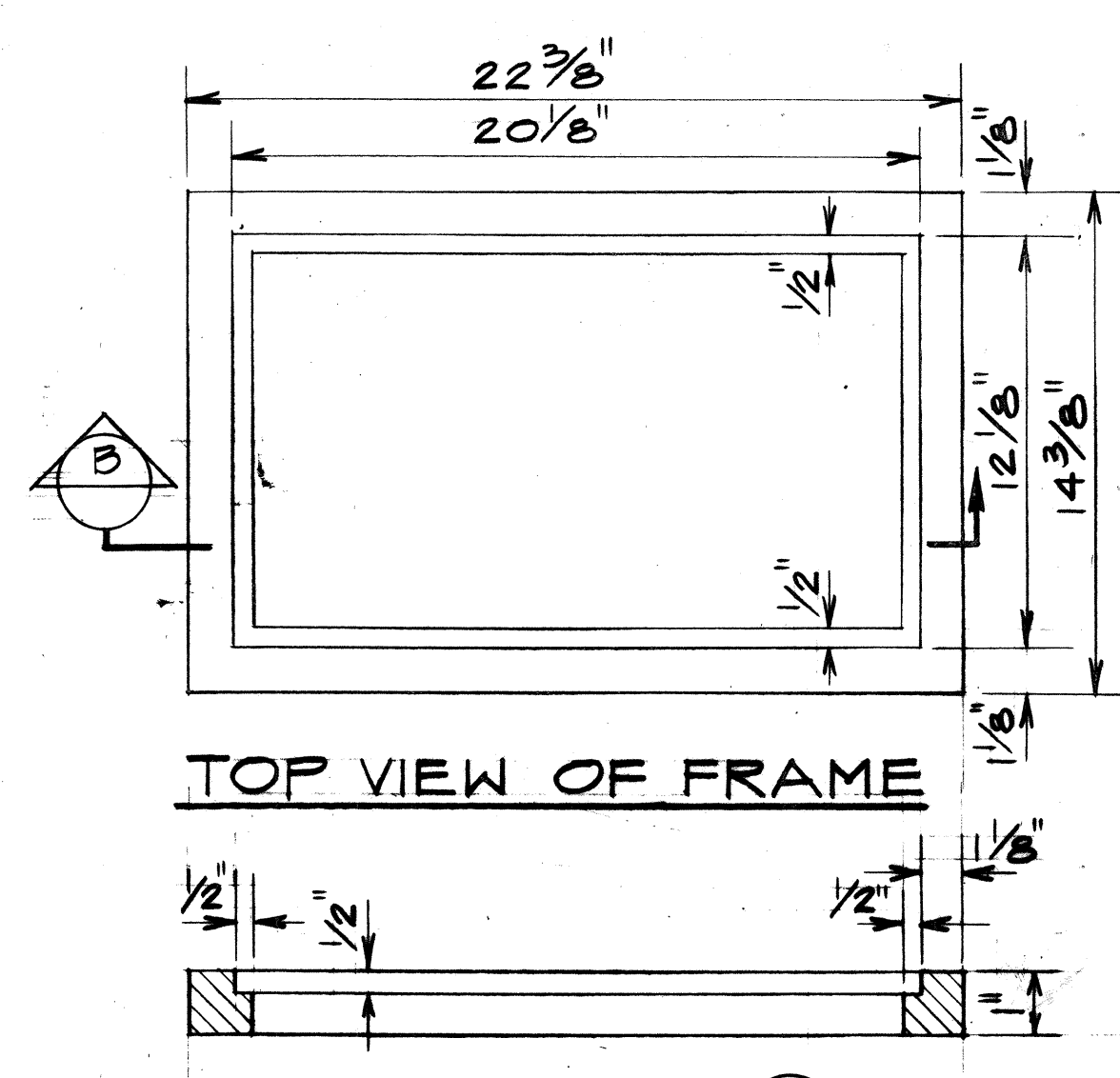
**WELDED OPTION
SECTION C**



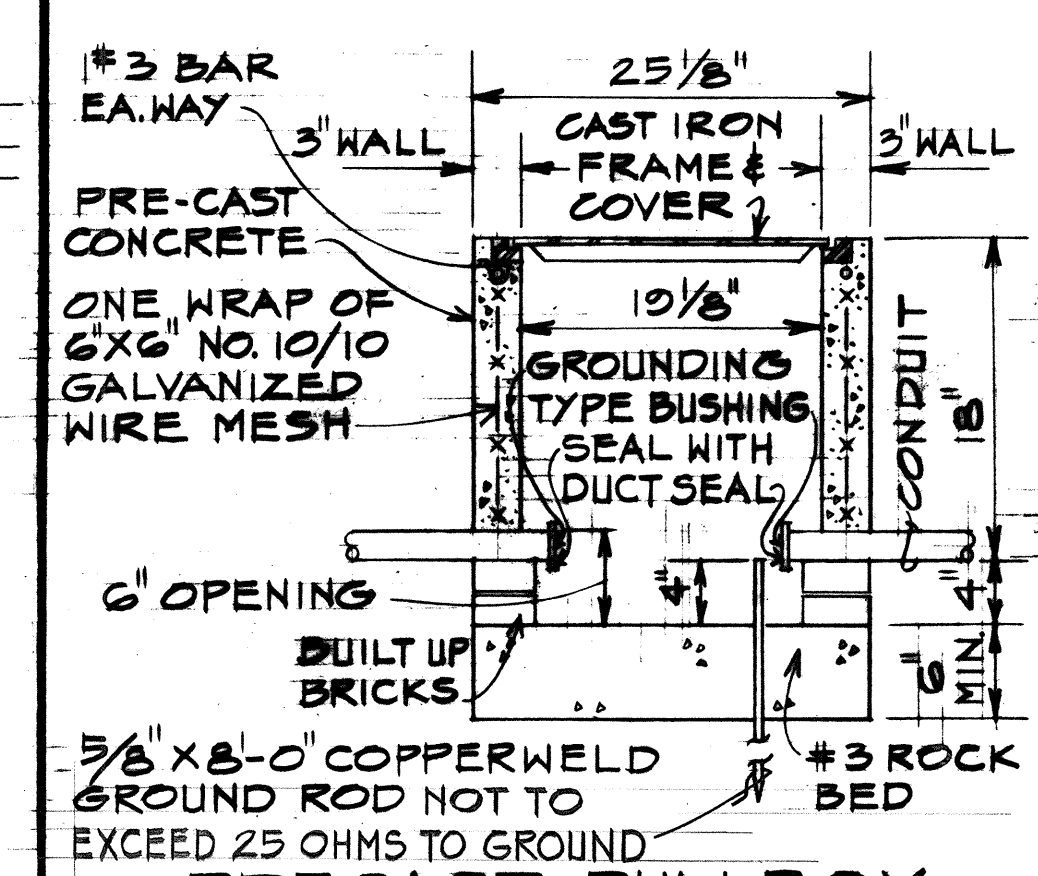
BACK VIEW OF COVER SIDE VIEW OF COVER TOP VIEW OF PLATE COVER



PRECAST PULLBOX



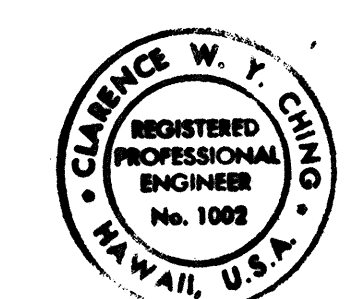
TOP VIEW OF FRAME



**PRECAST PULLBOX
SLD-I FIRE ALARM PULLBOX & COVER**

- NOTES:**
1. SIDES OF COVER ARE SLIGHTLY BEVELED TO FACILITATE INSTALLATION. BEVEL IS INWARD FROM FRONT TO BACK.
 2. TO BE CAST FROM GRAY IRON
 3. TO COVER SLD-I FIRE ALARM

APPROVED BY: *Kamuel Z. Thomas* 1-7-77
DEPT. OF TRANSPORTATION SERVICES
CITY & COUNTY OF HONOLULU
MUNICIPAL FIRE ALARM CIRCUIT RELOCATION CLEARANCE

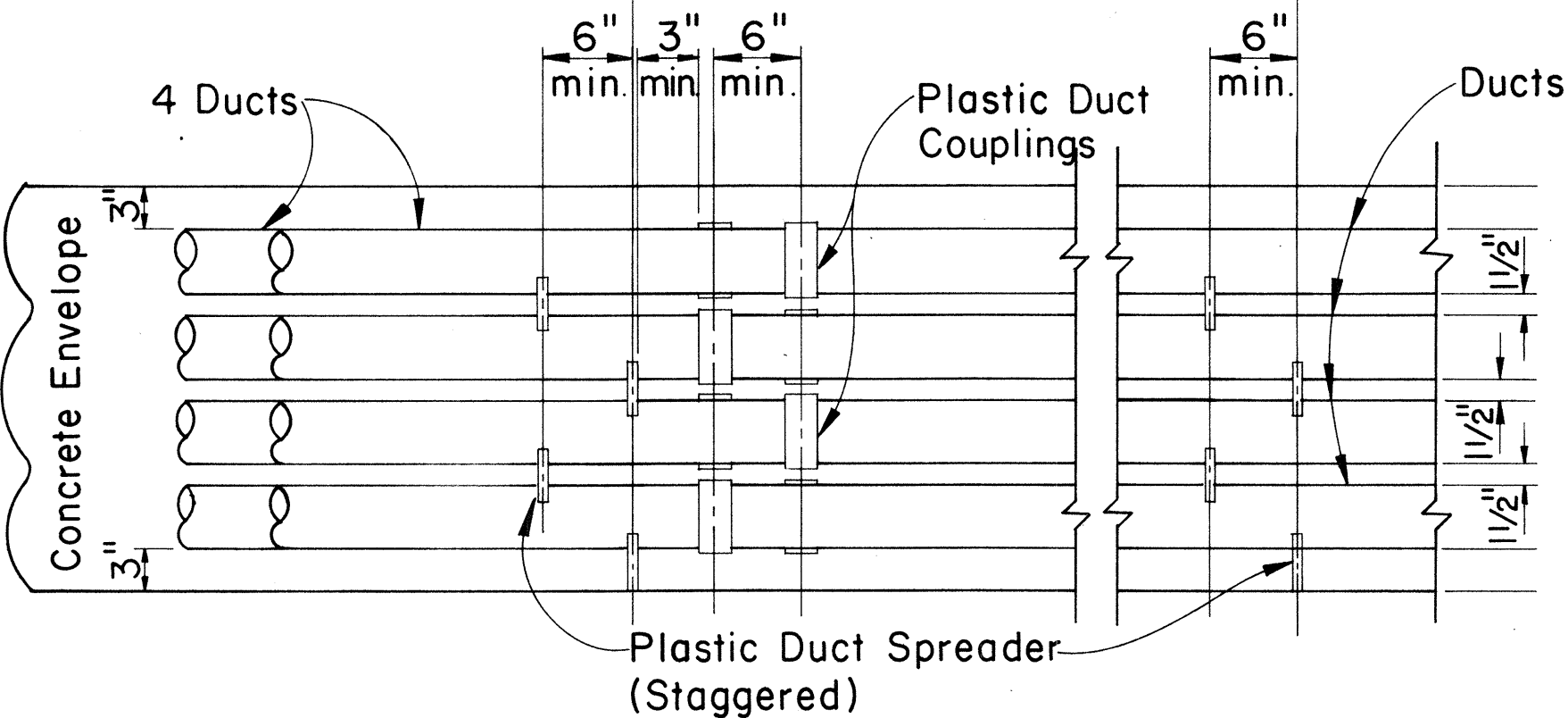


THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
SLIP BASE AND FIRE ALARM PULLBOX DETAIL
MOANALUA ROAD
PUULOA I.C. TO MIDDLE ST. - UNIT 1A
FA. Proj. No. F-FF-078-1(16)
SCALE: AS SHOWN DATE: DEC. 17, 1976
SHEET No. E-13 OF 20 SHEETS

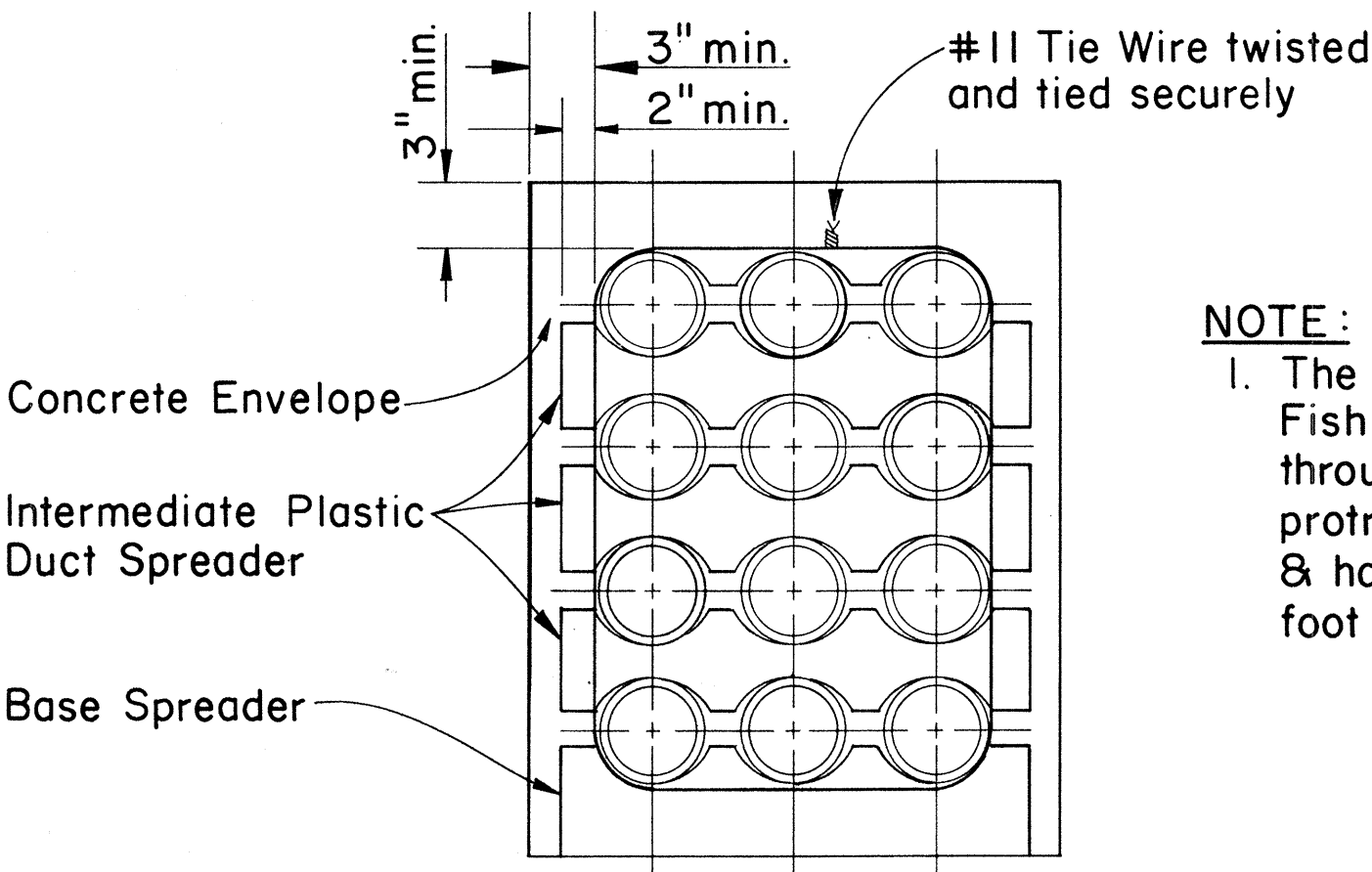
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-FF-078-1(16)	1977	88	147

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 #12 Fish Wire 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.
($\frac{T}{20F-4}$)
Denotes Number of ducts bottom layer
Denotes 4 inch ducts
Denotes Total Number Of Ducts

SYMBOL IDENTIFICATION

APPROVED:
B. Updegraff
Hawaiian Telephone Co., Ltd. Date: 1-20-77

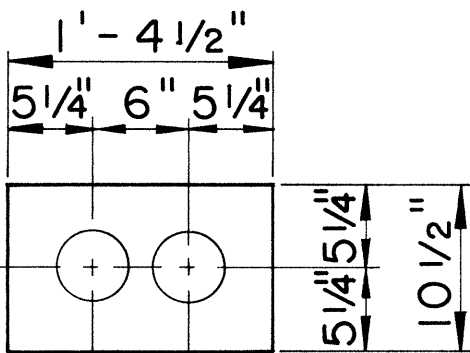
H.T. Co., Ltd. Drawing No. 34028

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

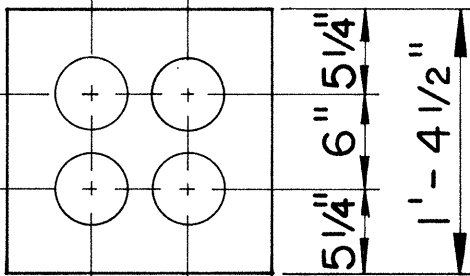
STANDARD DUCT FORMATIONS

Scale: As Shown Date:

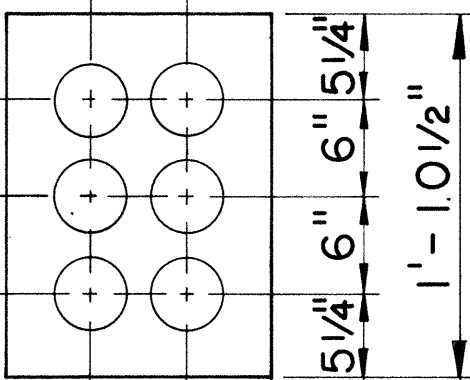
SHEET No.E-14 OF 20 SHEETS



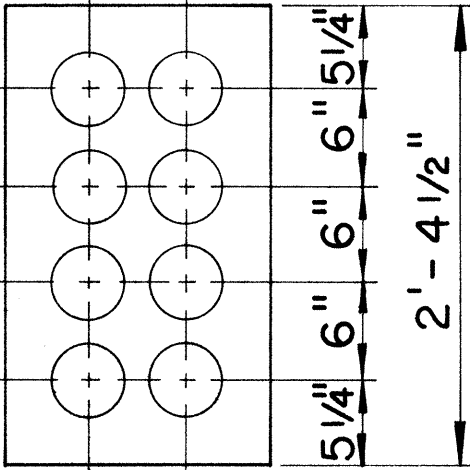
2 DUCTS
($\frac{T}{2F-2}$)



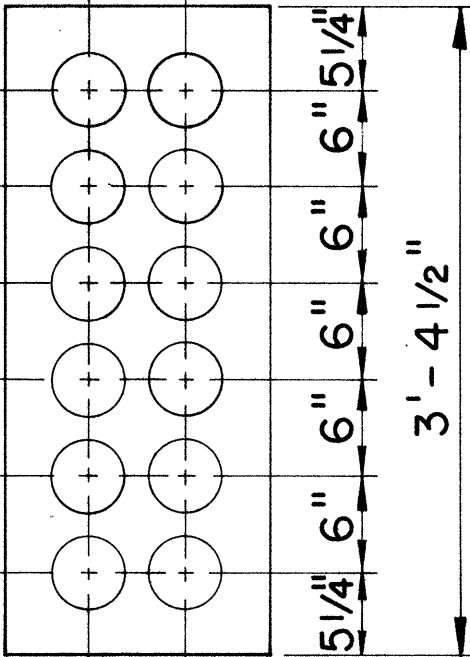
2 WIDE X 2 HIGH
($\frac{T}{4F-2}$)



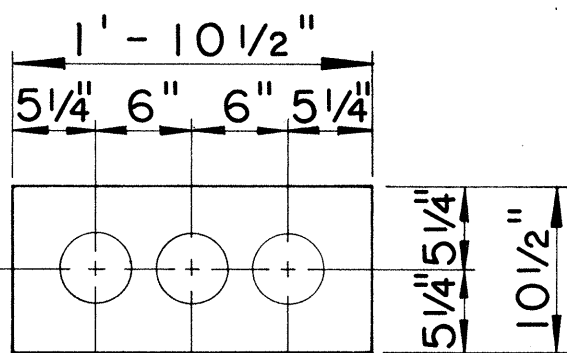
2 WIDE X 3 HIGH
($\frac{T}{6F-2}$)



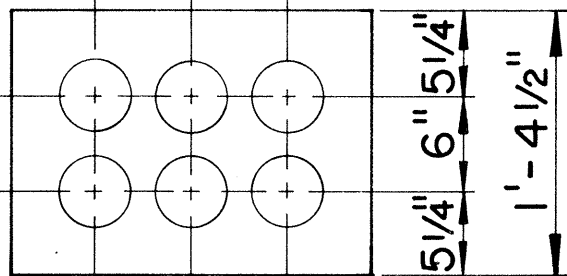
2 WIDE X 4 HIGH
($\frac{T}{8F-2}$)



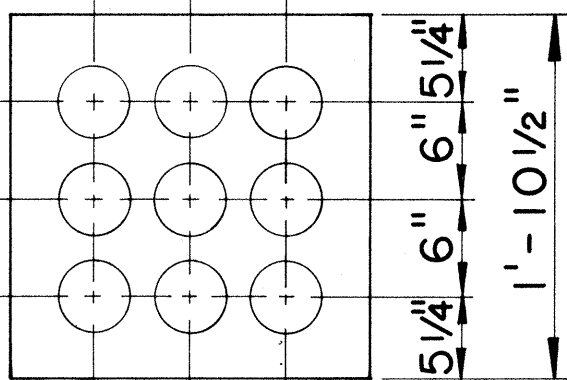
2 WIDE X 6 HIGH
($\frac{T}{12F-2}$)



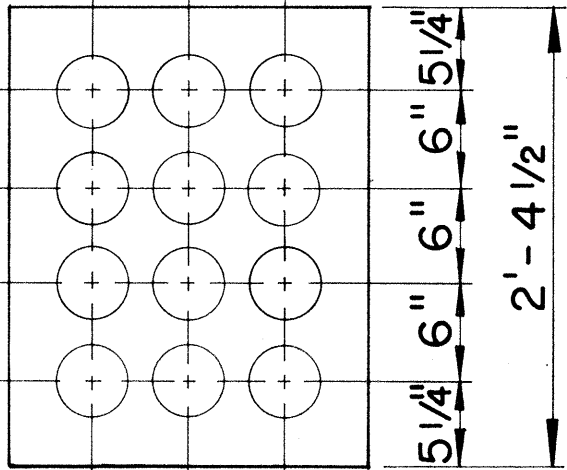
3 DUCTS
($\frac{T}{3F-3}$)



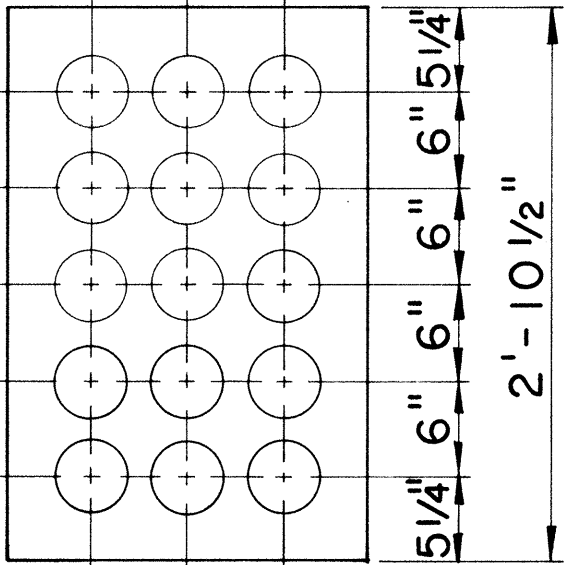
3 WIDE X 2 HIGH
($\frac{T}{6F-3}$)



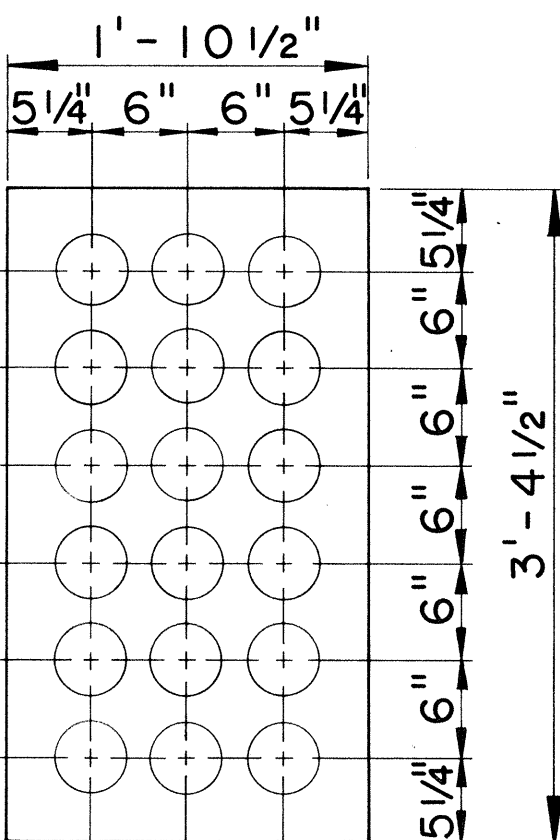
3 WIDE X 3 HIGH
($\frac{T}{9F-3}$)



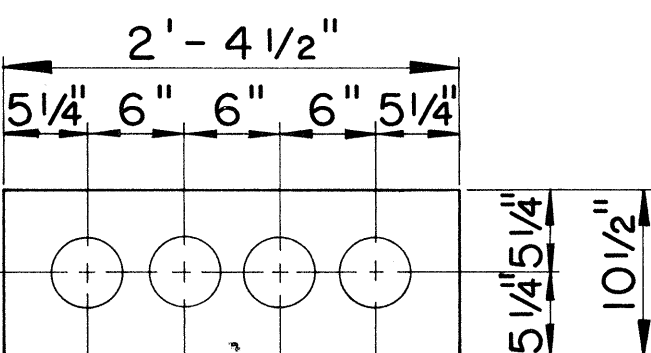
3 WIDE X 4 HIGH
($\frac{T}{12F-3}$)



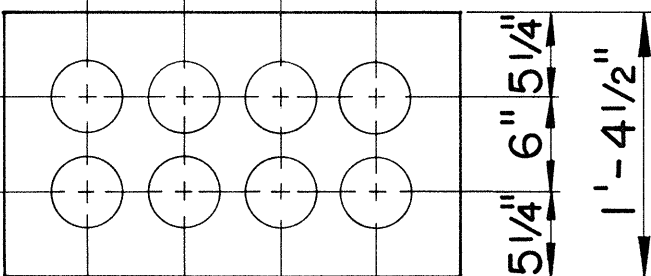
3 WIDE X 5 HIGH
($\frac{T}{15F-3}$)



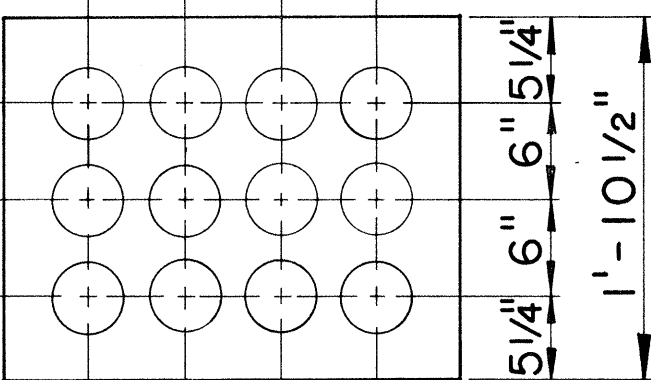
3 WIDE X 6 HIGH
($\frac{T}{18F-3}$)



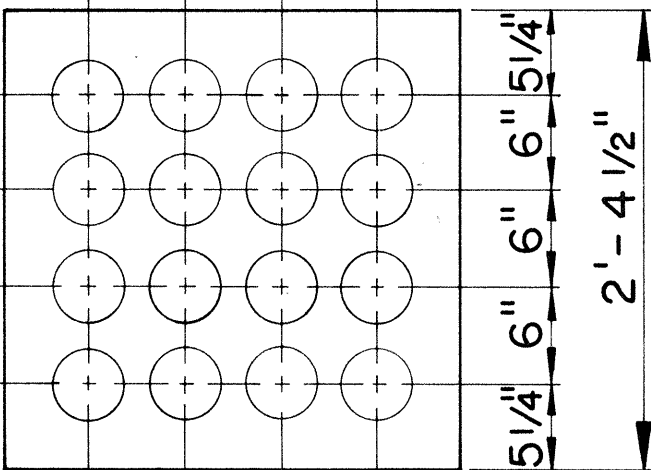
4 DUCTS
($\frac{T}{4F-4}$)



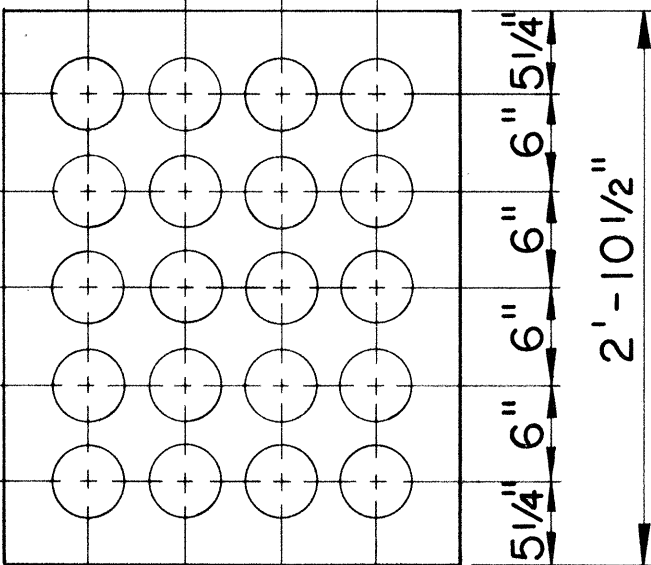
4 WIDE X 2 HIGH
($\frac{T}{8F-4}$)



4 WIDE X 3 HIGH
($\frac{T}{12F-4}$)



4 WIDE X 4 HIGH
($\frac{T}{16F-4}$)



4 WIDE X 5 HIGH
($\frac{T}{20F-4}$)

STANDARD DUCT FORMATIONS

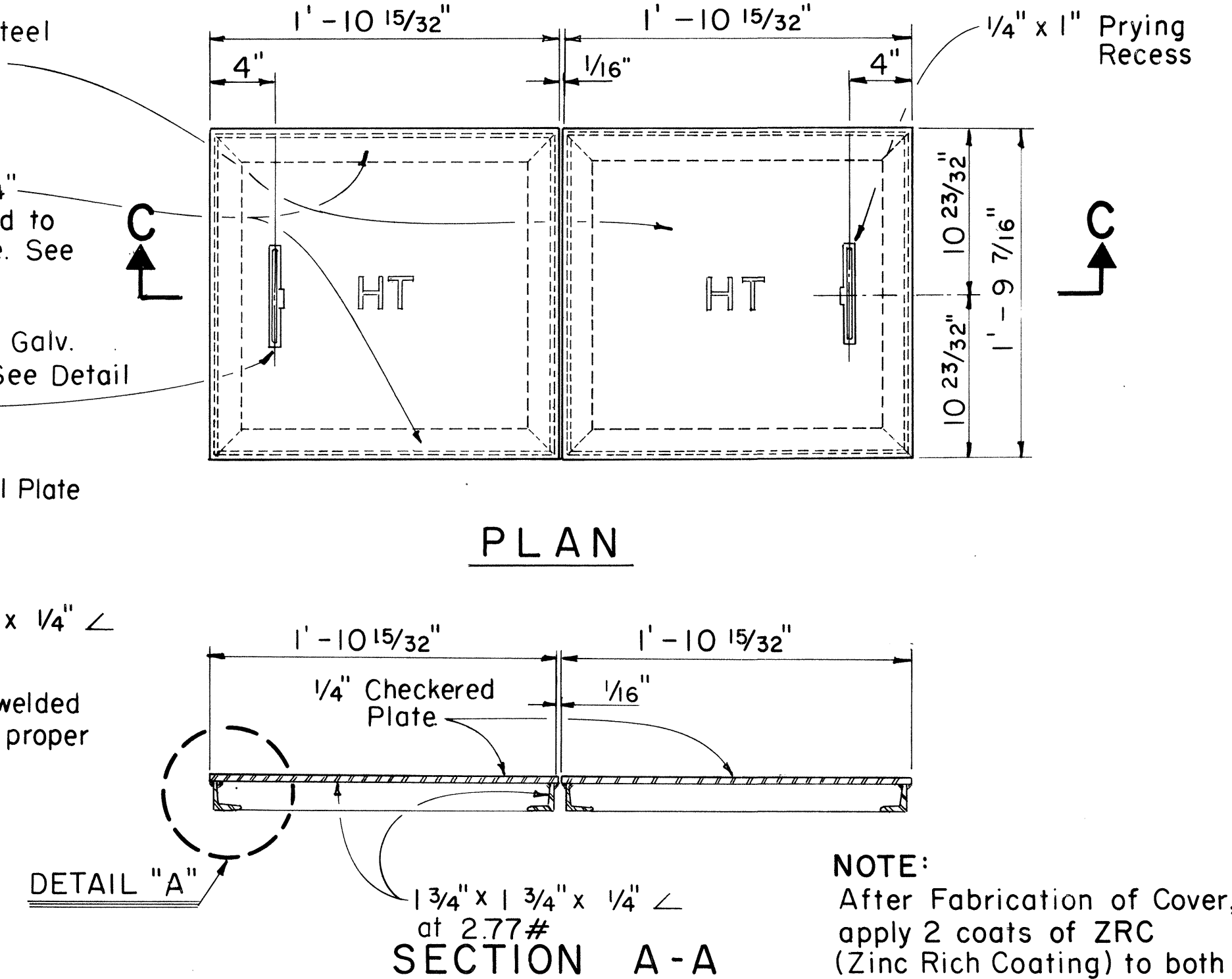
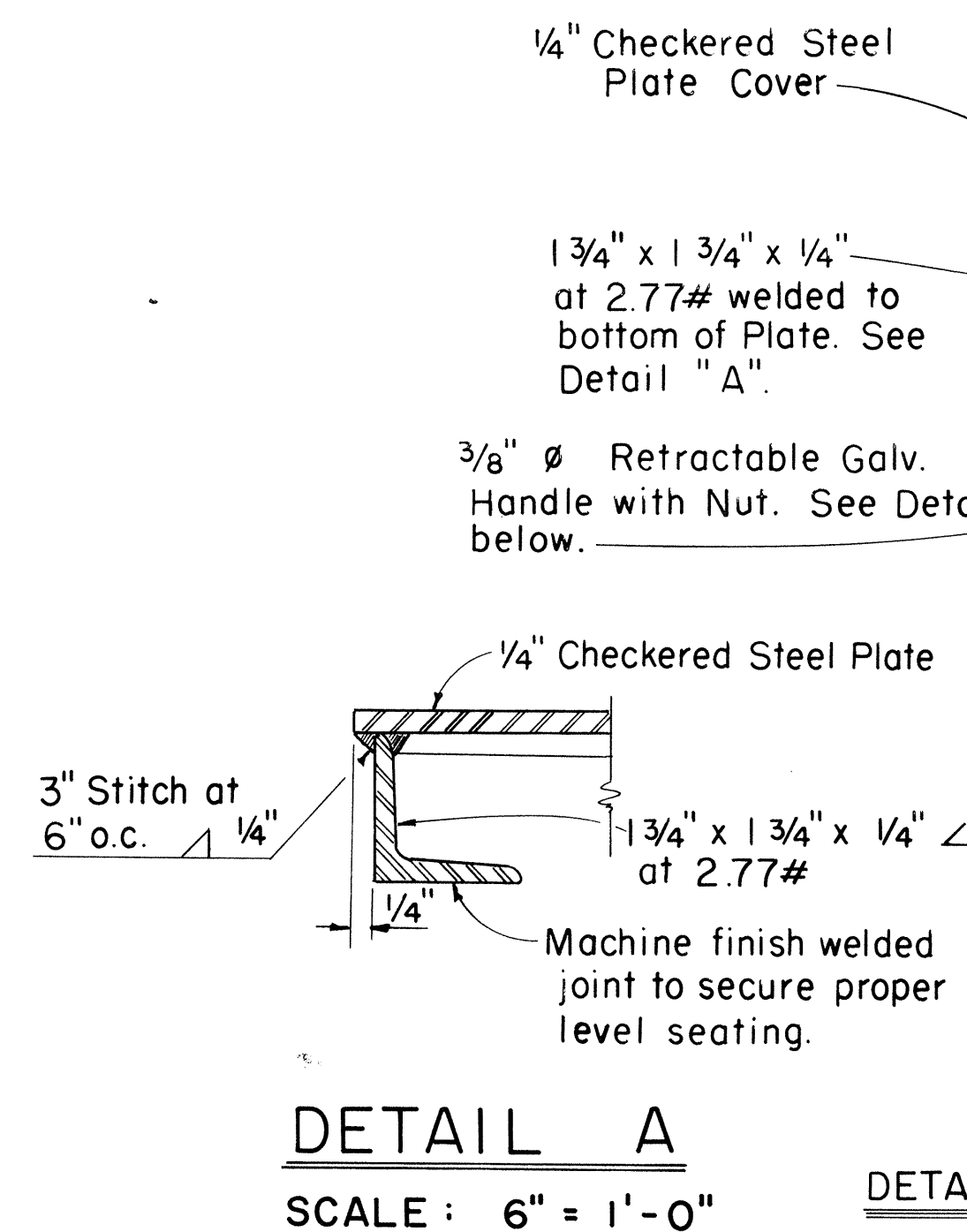
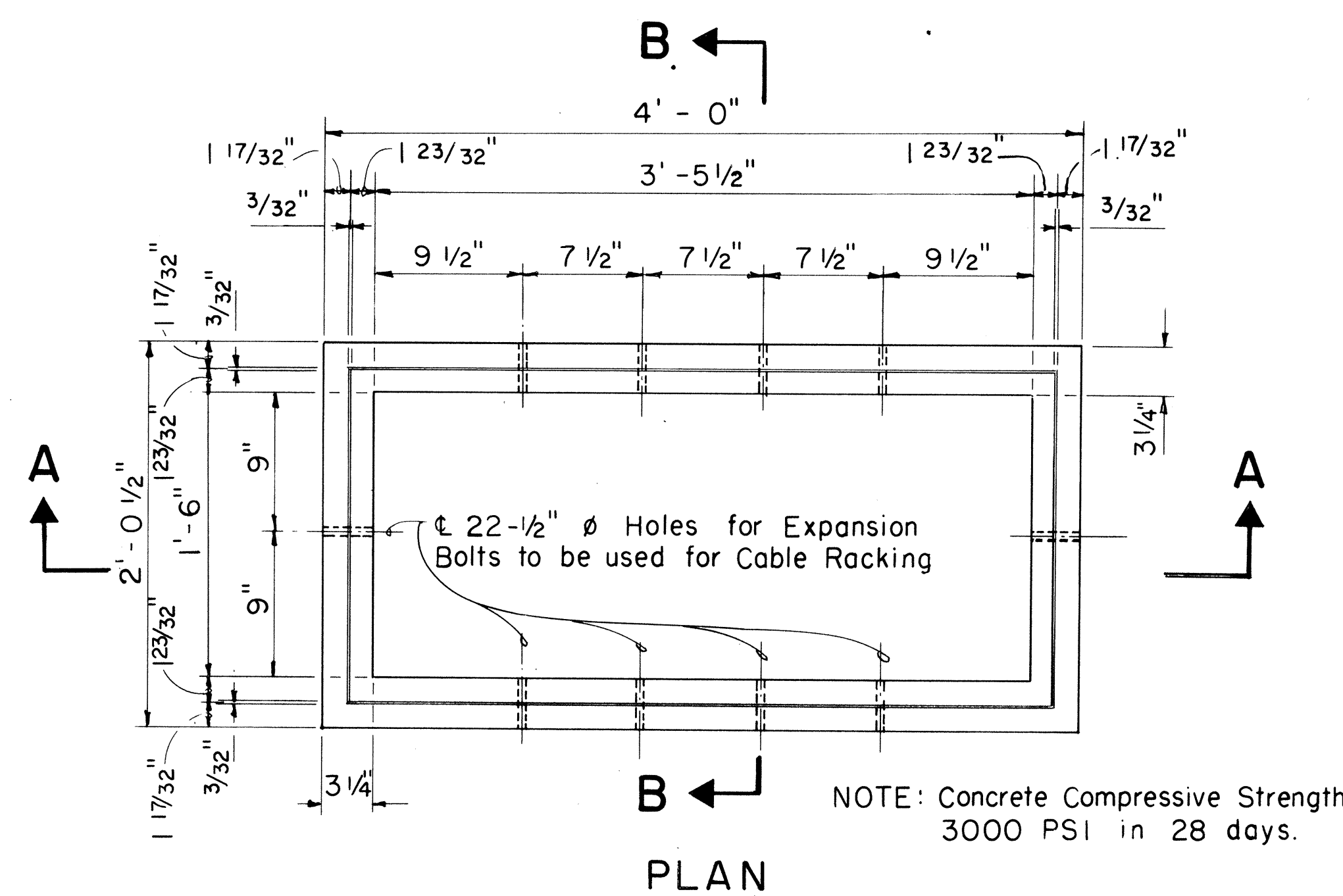
Scale: 1" = 1'-0"

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

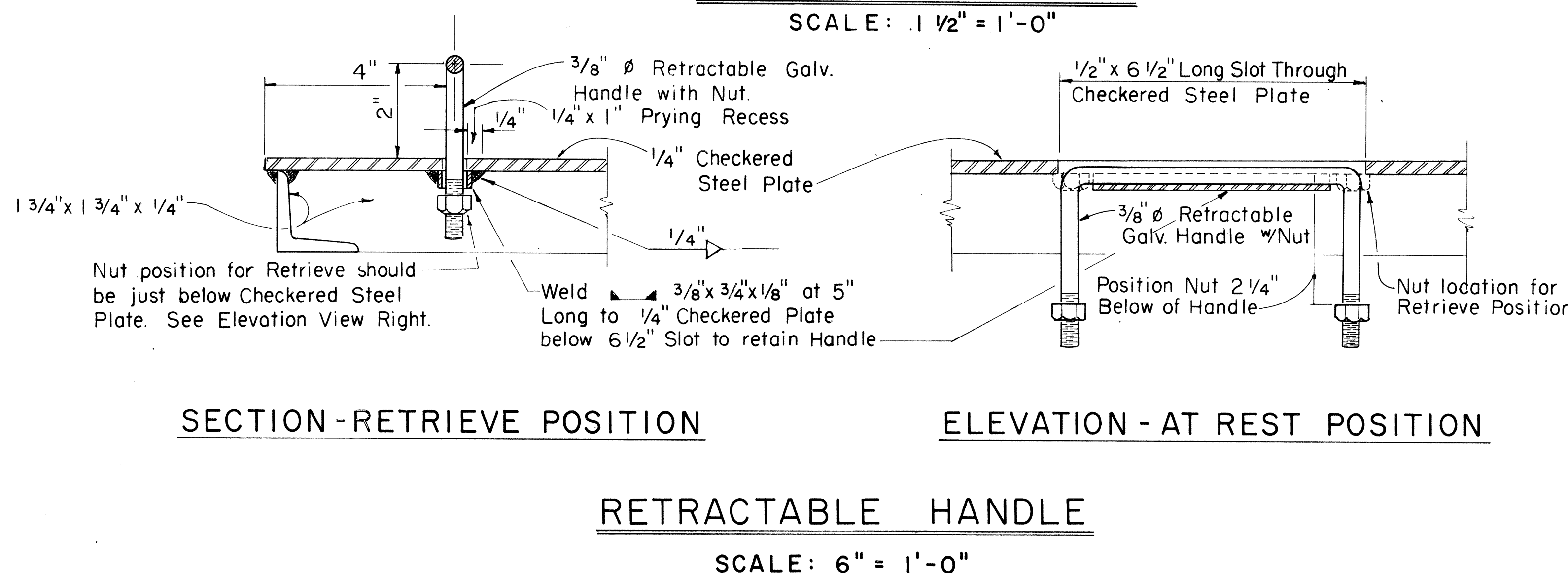
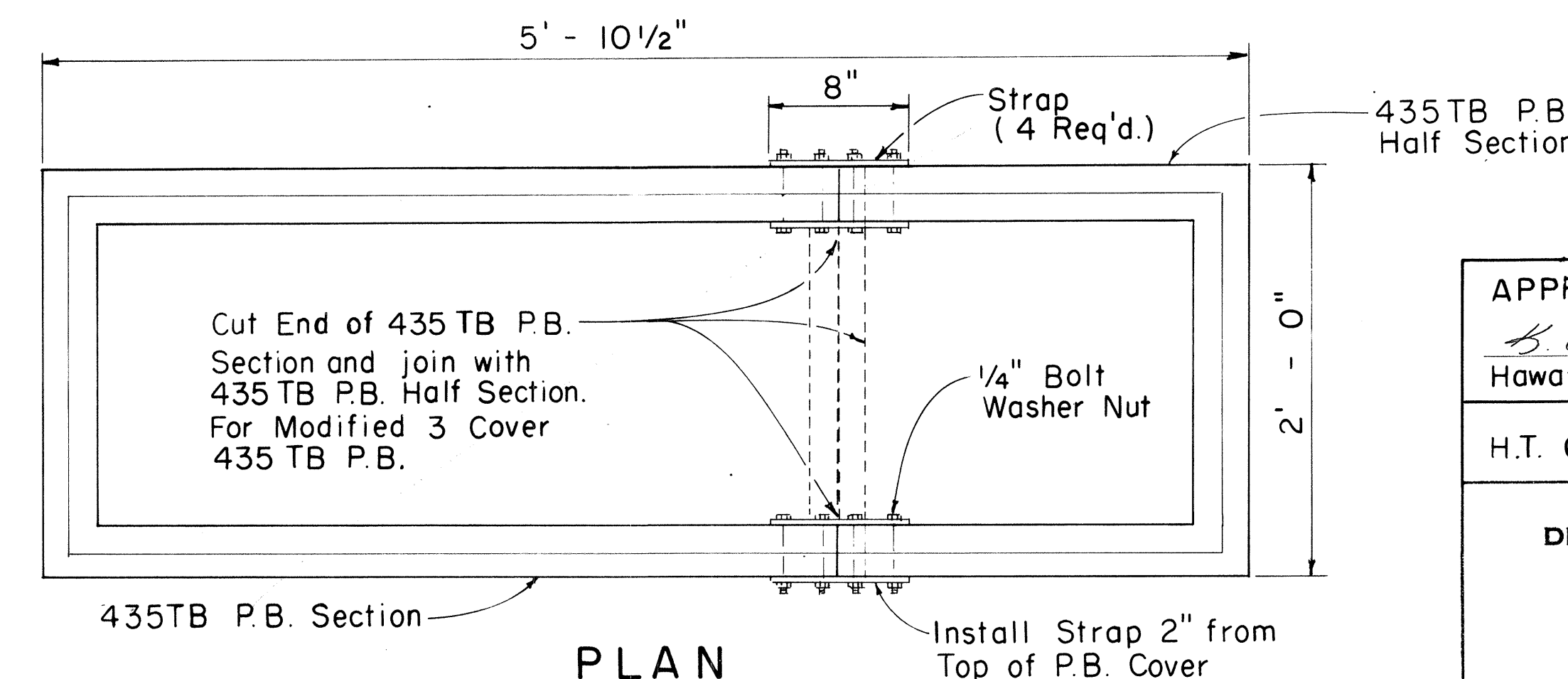
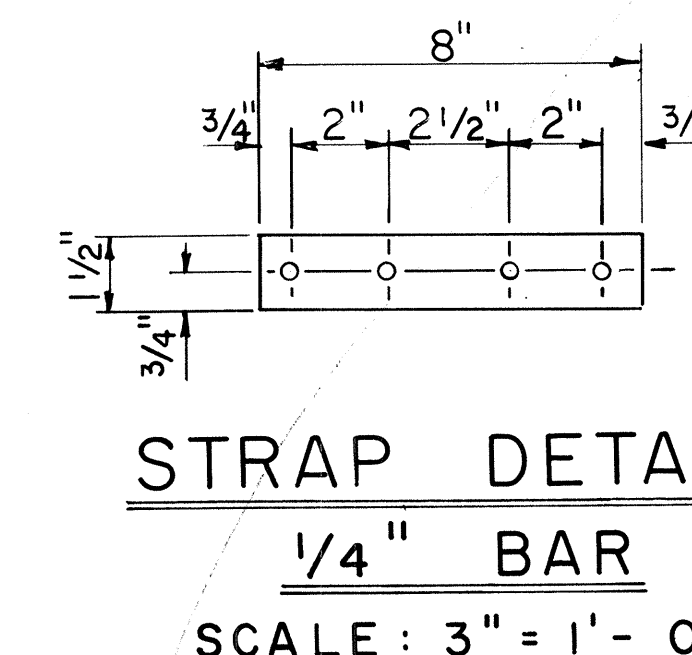
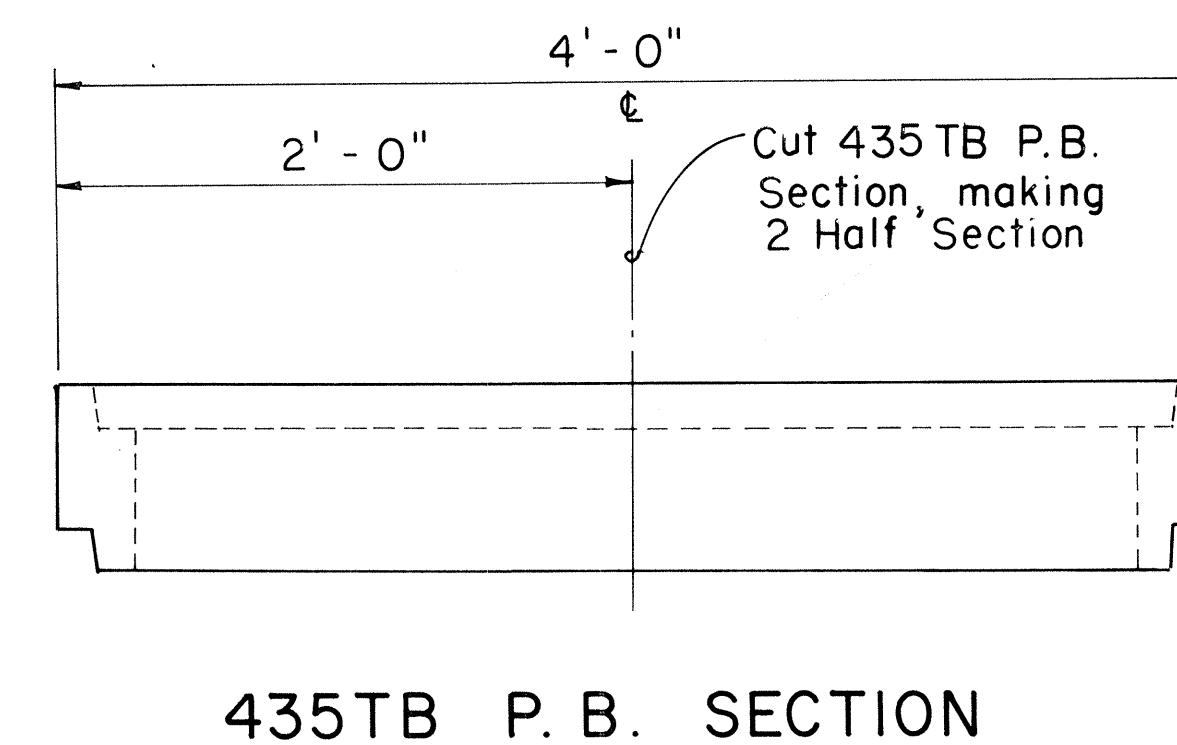
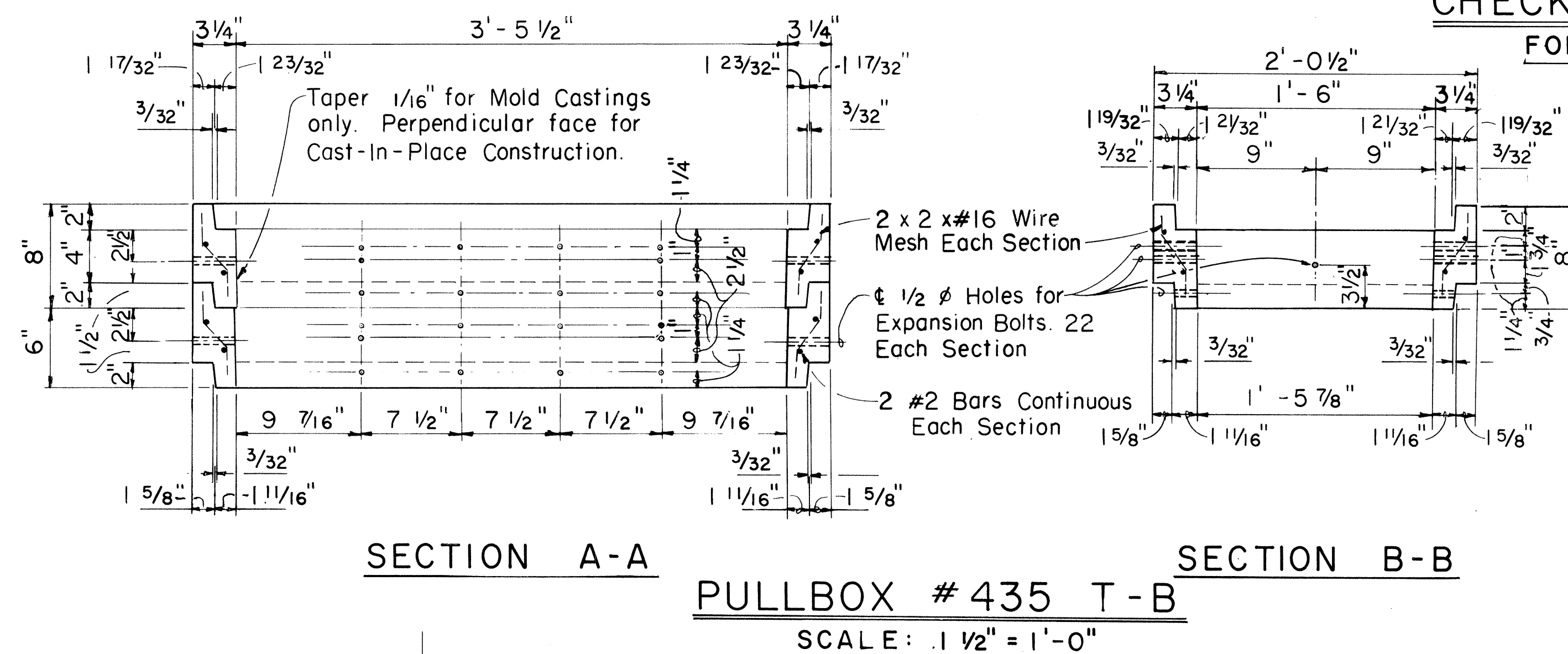
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-FF-078-1(16)	1977	89	147

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.

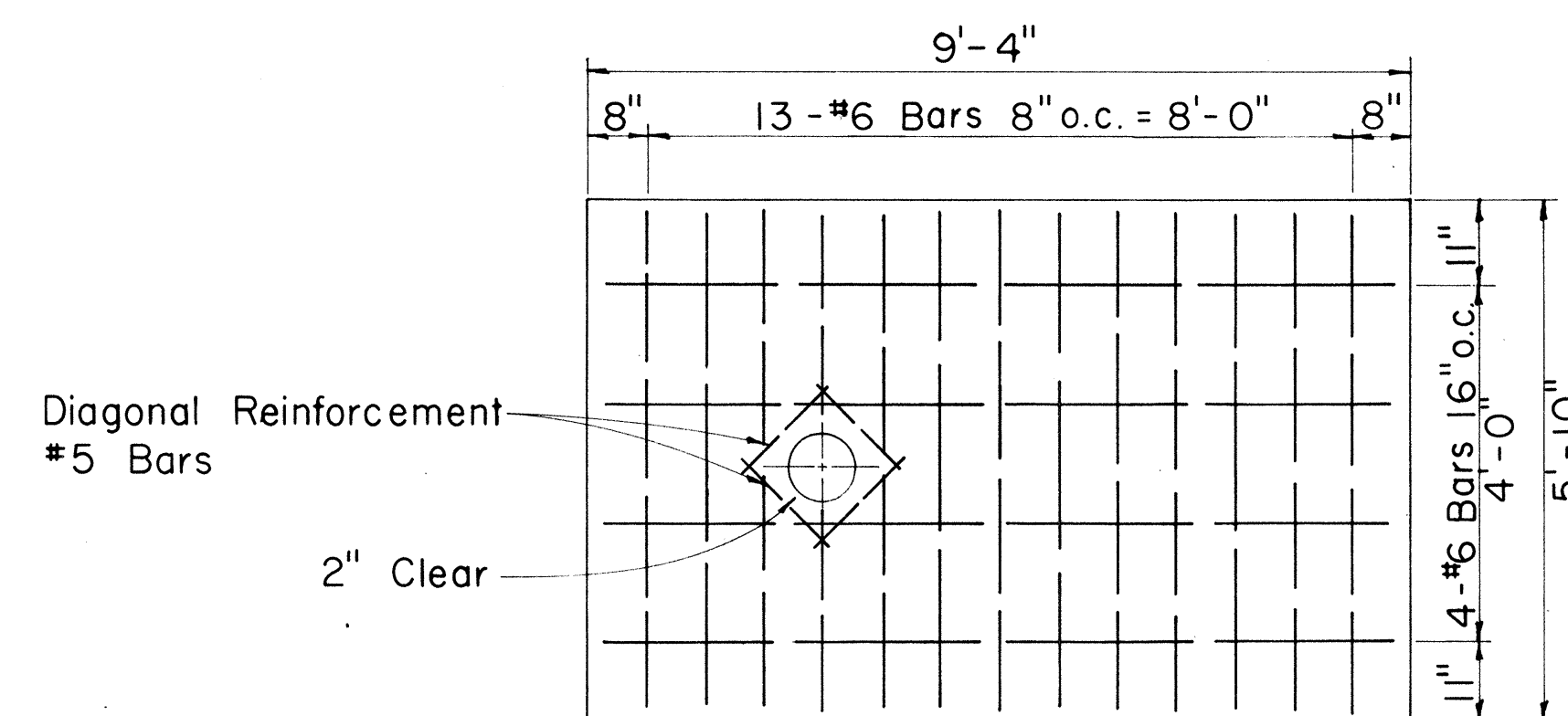


CHECKERED STEEL PLATE COVERS FOR LIGHT LOADING AREAS - APPROX. WT. 55 LBS. SCALE: 1 1/2" = 1'-0" (EXCEPT AS NOTED)



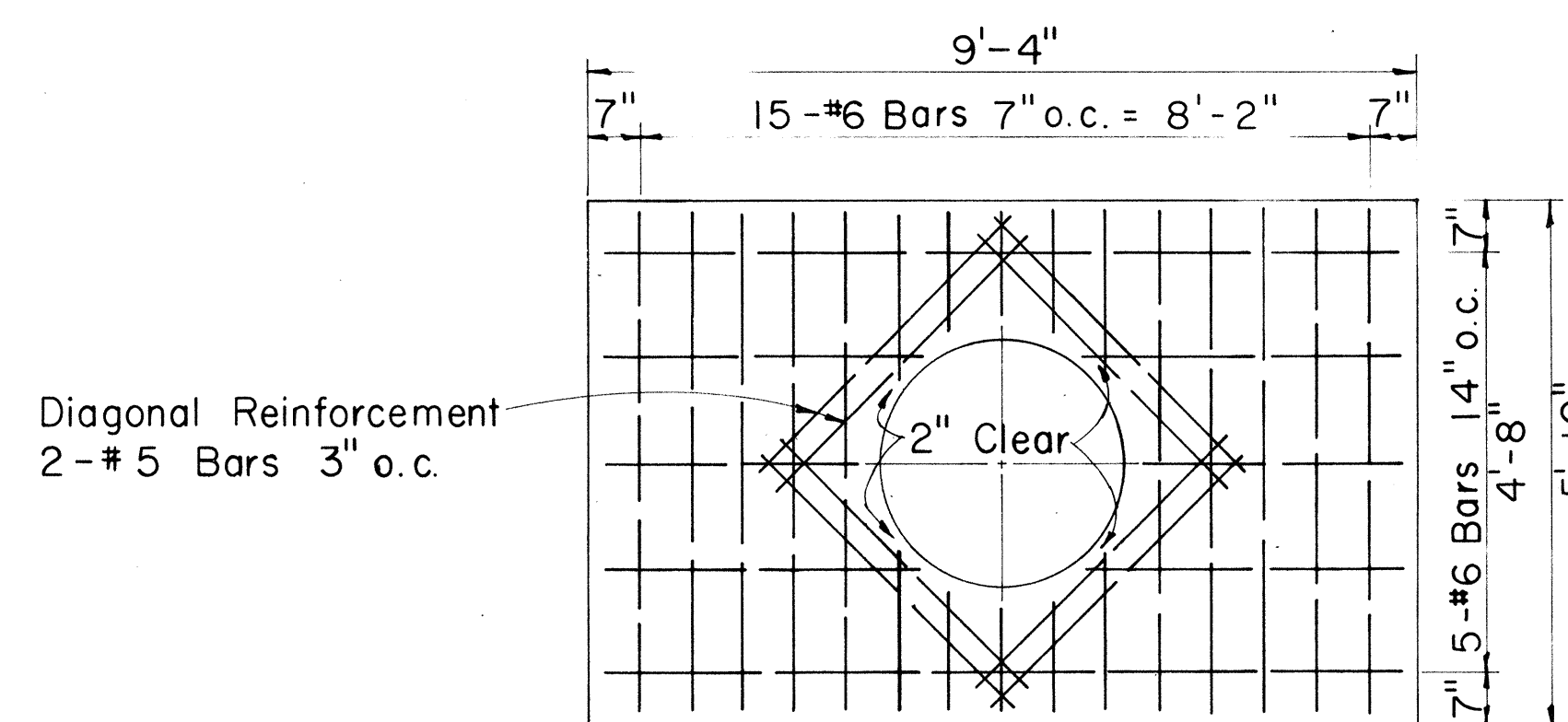
APPROVED:		1-20-77	
<i>H. C. Co., Ltd.</i>		Date	
H.T. Co., Ltd.		Drawing No. 34056	
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION			
LARGE PULLBOX NO. 435 T-B			
SHEET No. E-15 OF 20 SHEETS			

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-FF-078-1(6)	1977	90	147



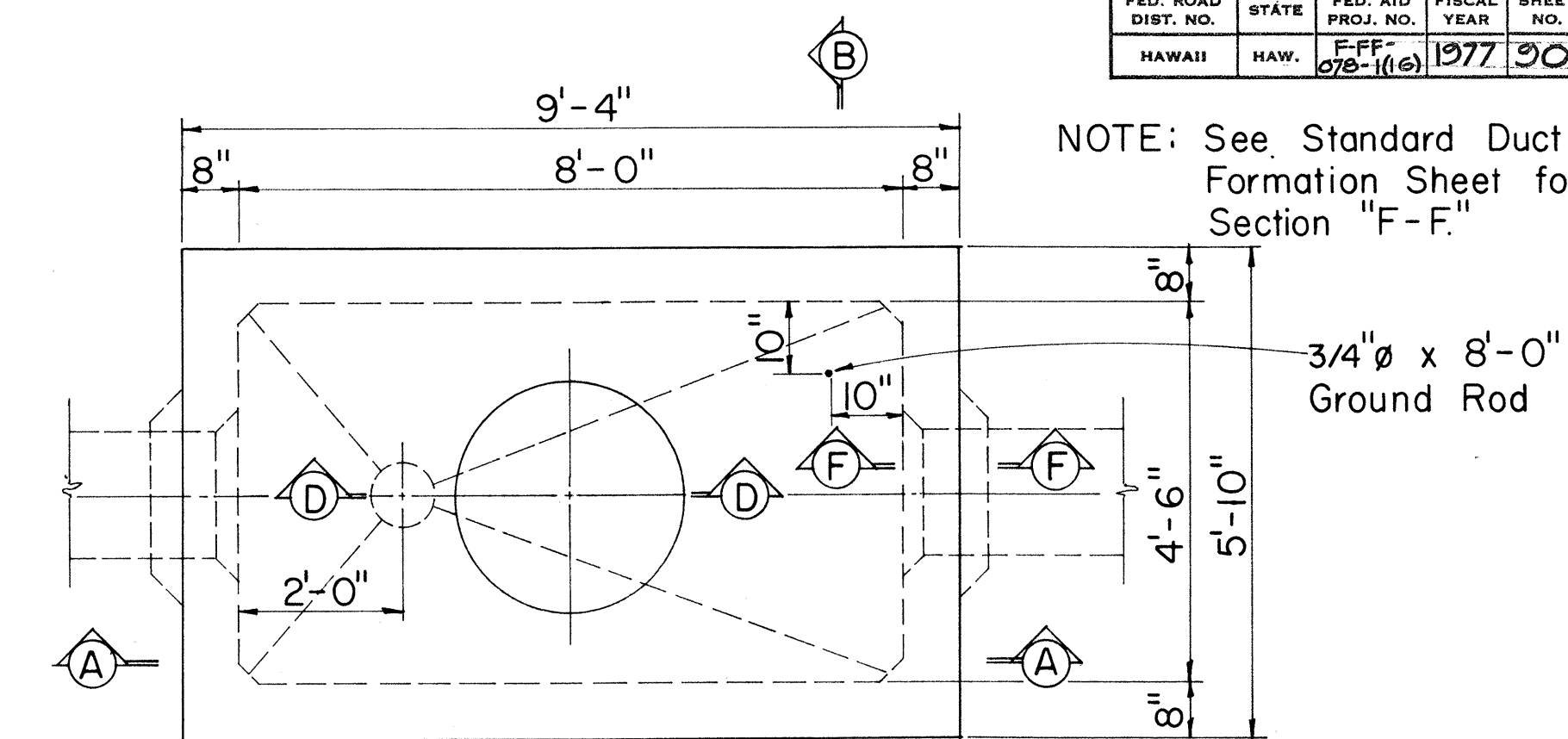
FLOOR SLAB REINF PLAN

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



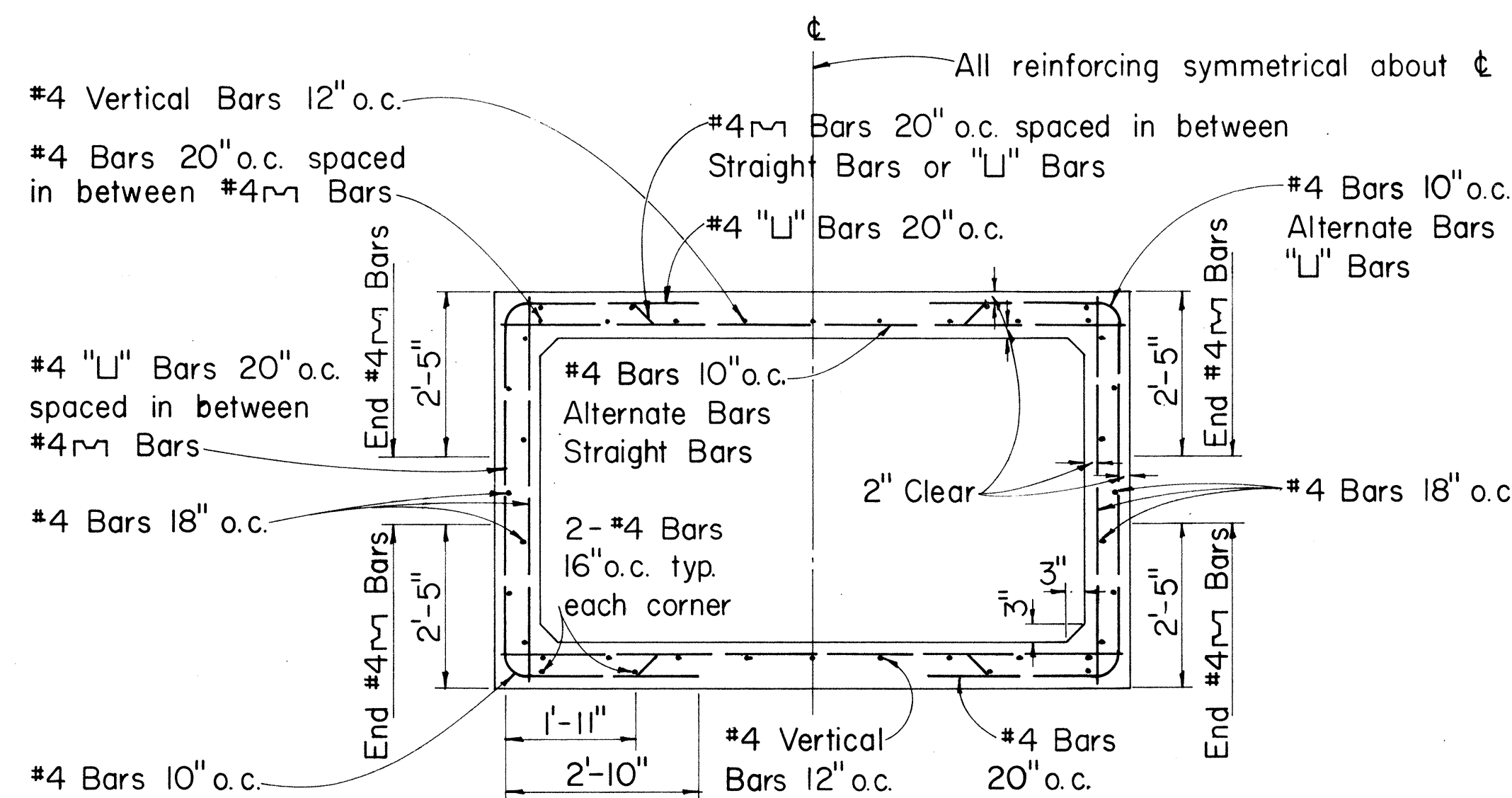
ROOF SLAB REINF PLAN

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



PLAN M.H. TYPE "A-1"
FOR ROADWAY & SIDEWALK AREAS

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

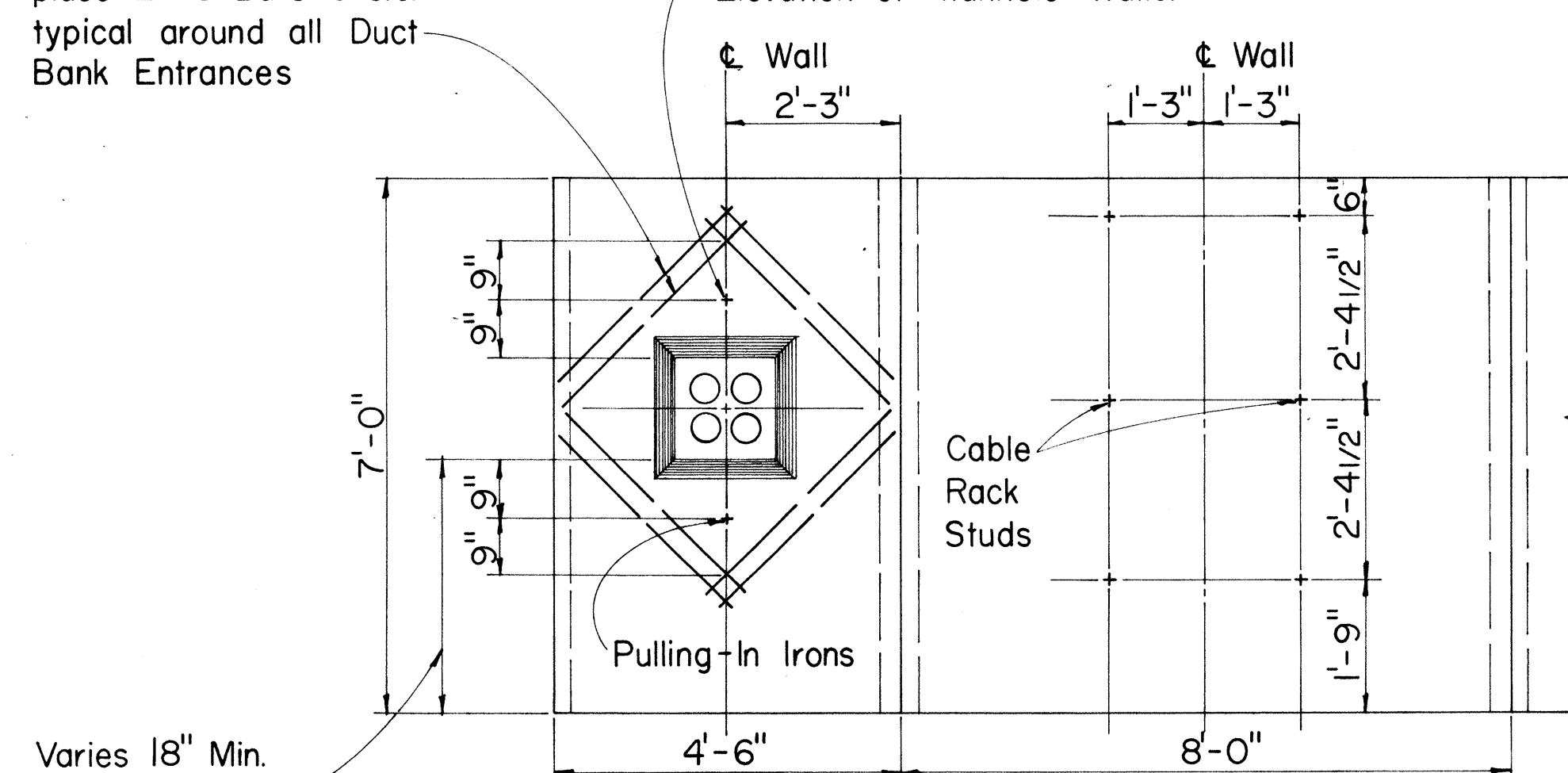


SECTION "C-C"

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

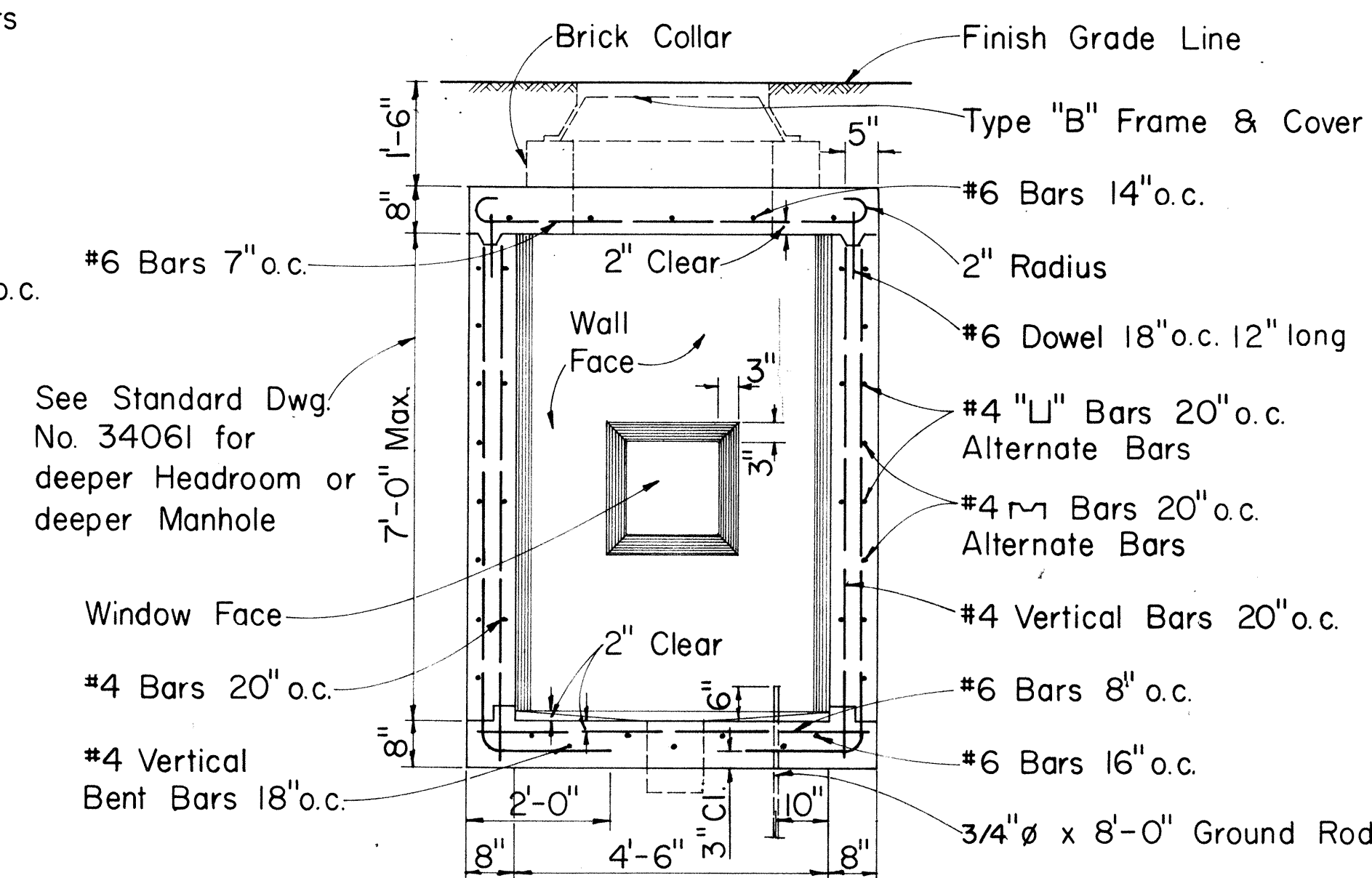
For Diagonal Reinforcement place 2-#5 Bars 3" o.c. typical around all Duct Bank Entrances

For location of Pulling-In Iron see Elevation of Manhole Walls.



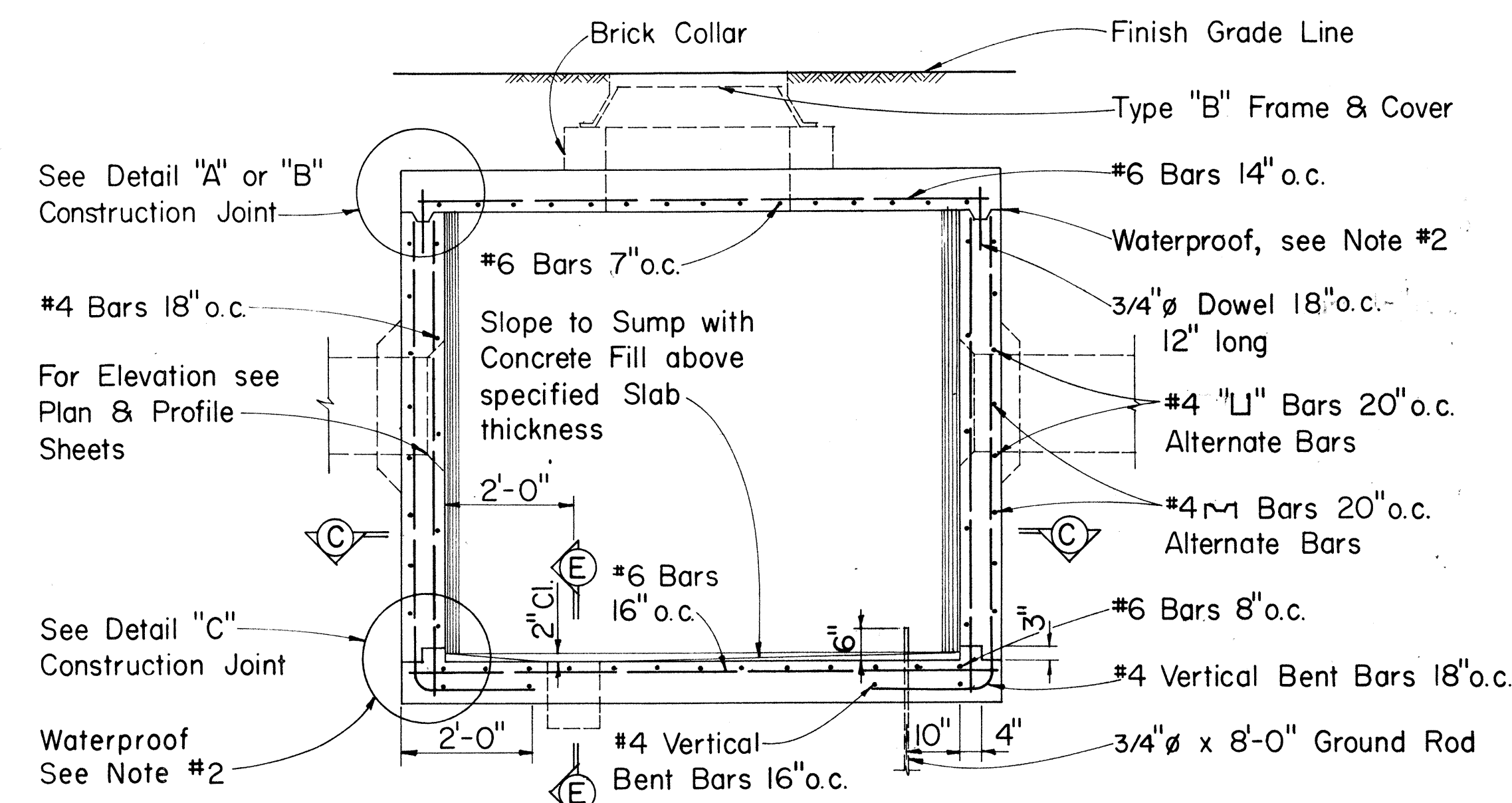
ELEVATION OF M.H. WALLS
(OPPOSITE FACES SIMILAR)

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



SECTION "B-B"

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

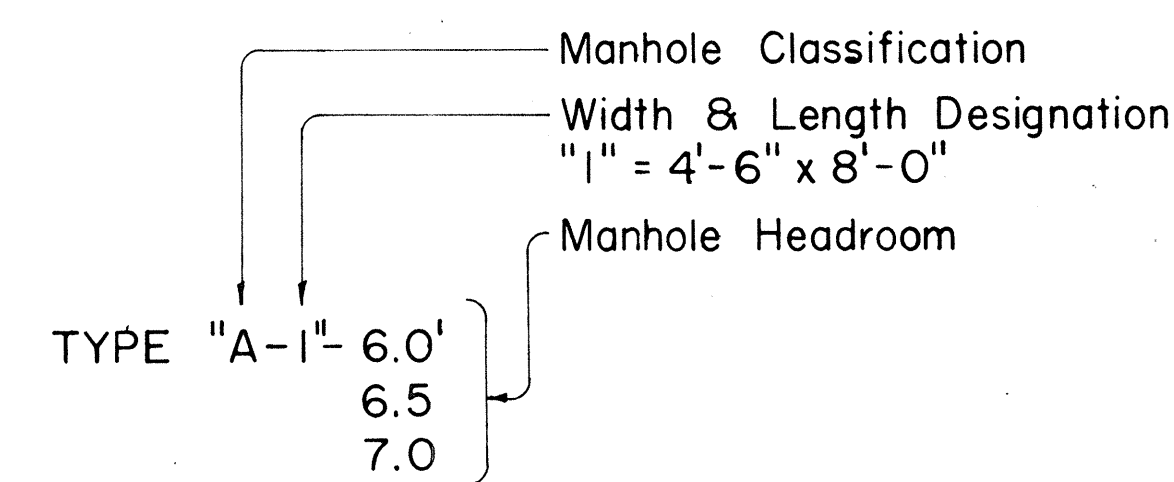


SECTION "A-A"

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

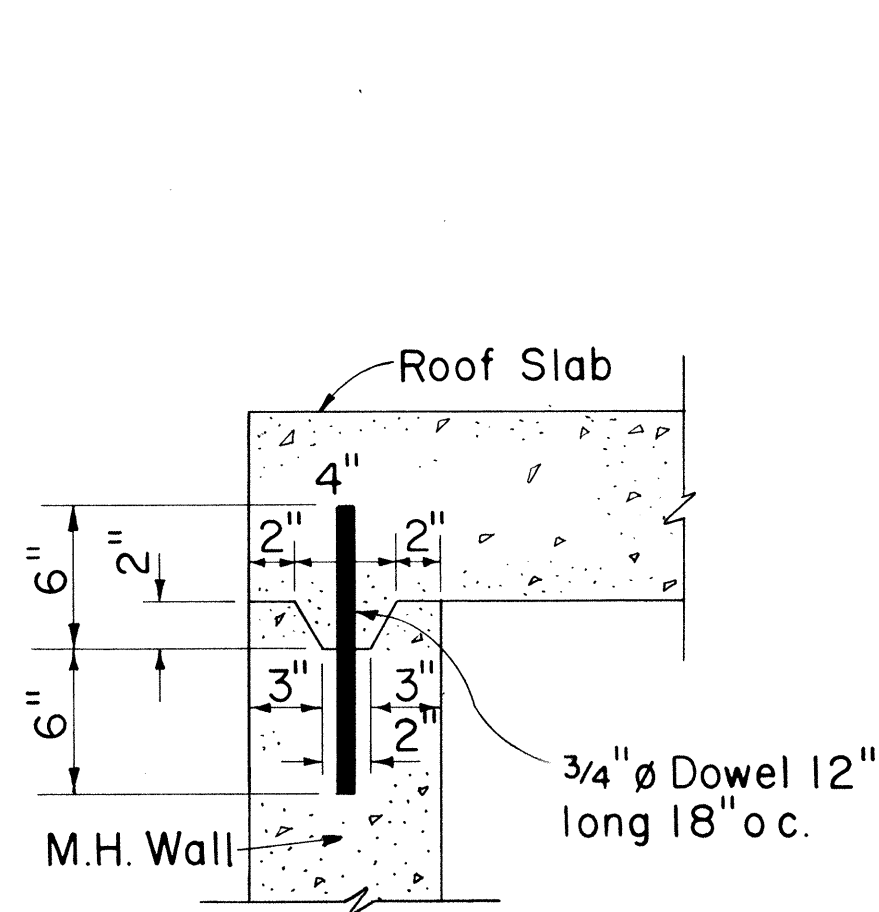
GENERAL NOTES

- Design Data:
 $f_s = 20,000$ psi, $f_c' = 3,000$ psi, $f_c = 1,350$ psi, $n = 10$
 $w =$ Equivalent Fluid Pressure: $30 \text{ * } \text{FT}^2$
- 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.

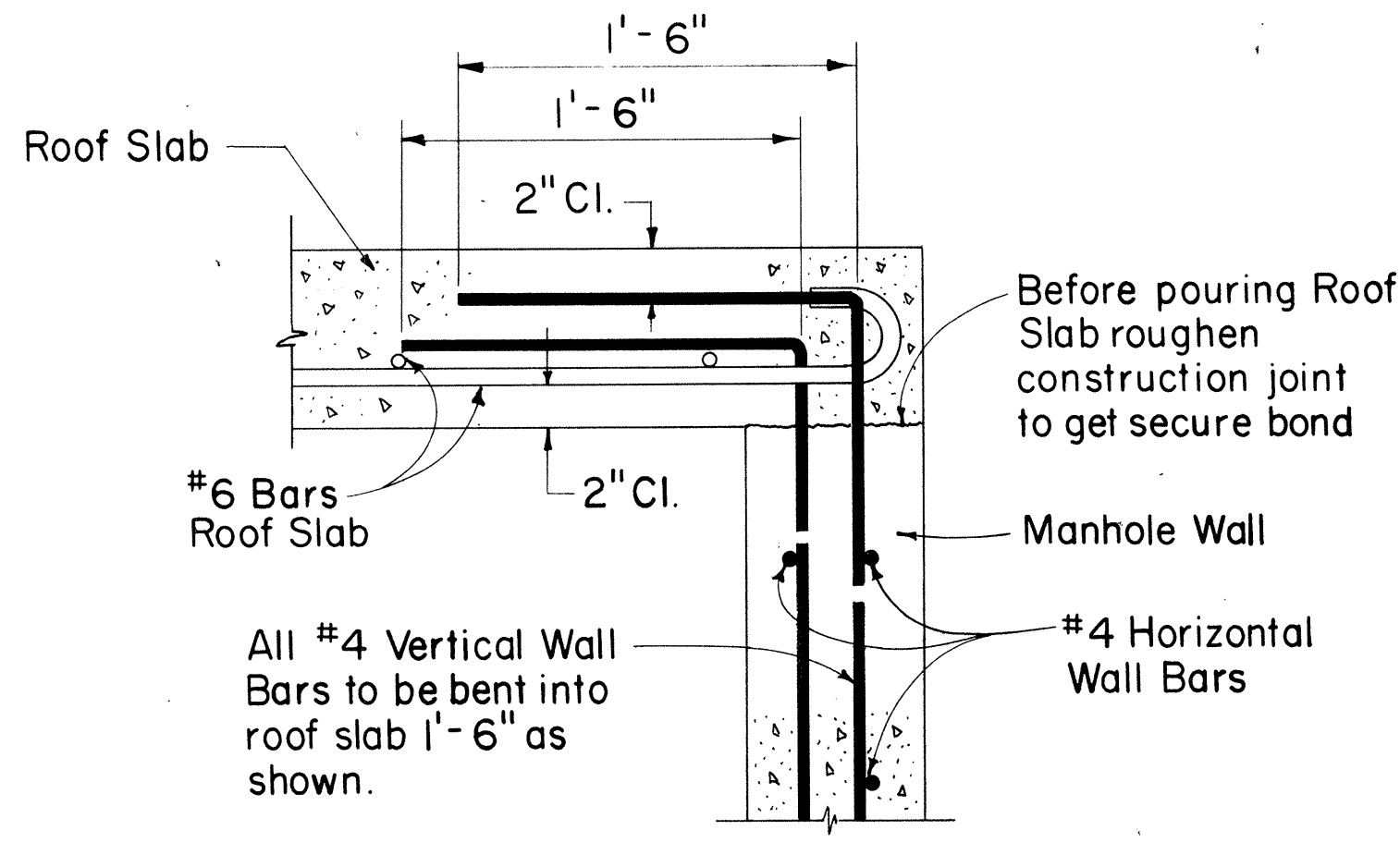


APPROVED:	
<i>B. Upadhyaya</i>	1-20-77
Hawaiian Telephone Co., Ltd.	Date
H. T. Co., Ltd.	Drawing No. 34060
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
TYPE "A-1" MANHOLES FOR 6.0' TO 7.0' HEADROOM	
Scale: As Noted	Date:
SHEET No. E-16 OF 20 SHEETS	

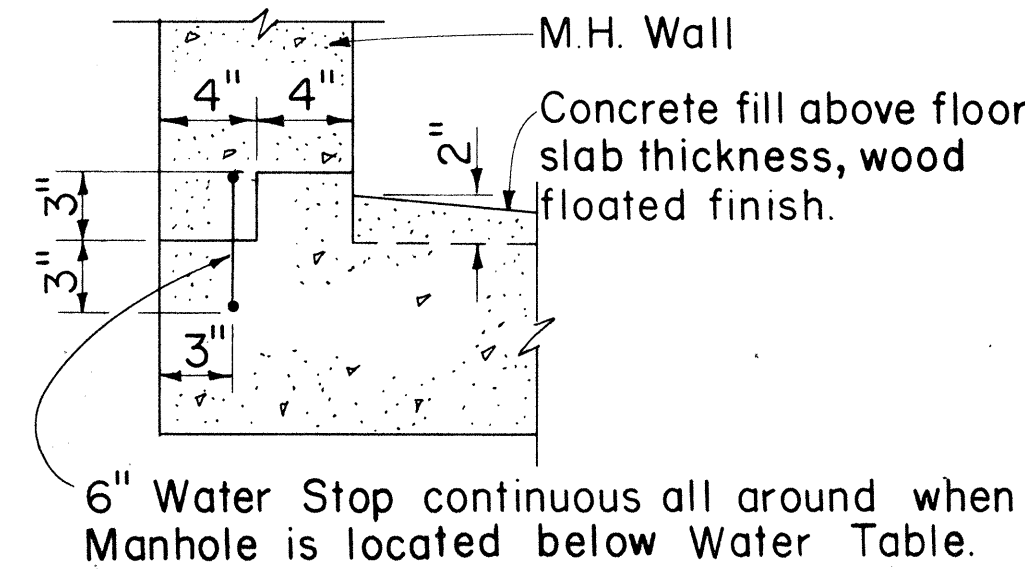
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-FF-07B-1(16)	1977	91	147



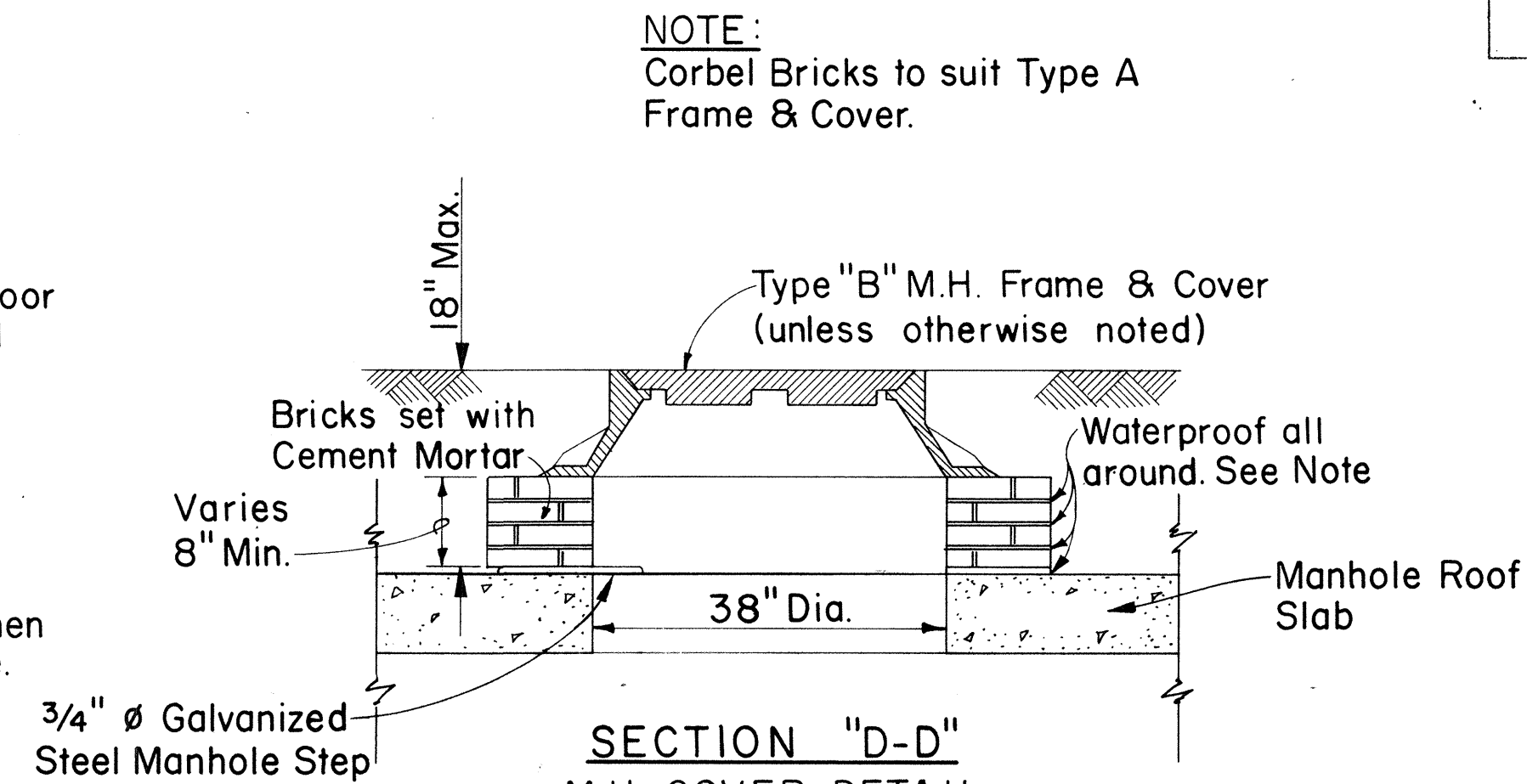
DETAIL "A"
TOP CONSTRUCTION JOINT
Scale: 1 1/2" = 1'-0"
(Optional for cast-in-place construction)
Required for precast construction



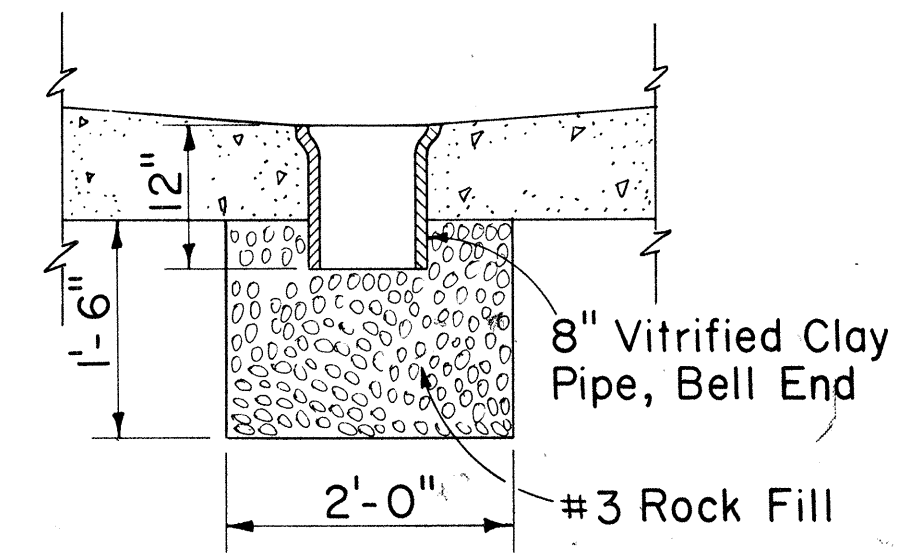
DETAIL "B"
(USED FOR CAST-IN-PLACE CONSTRUCTION)
Scale: 1 1/2" = 1'-0"



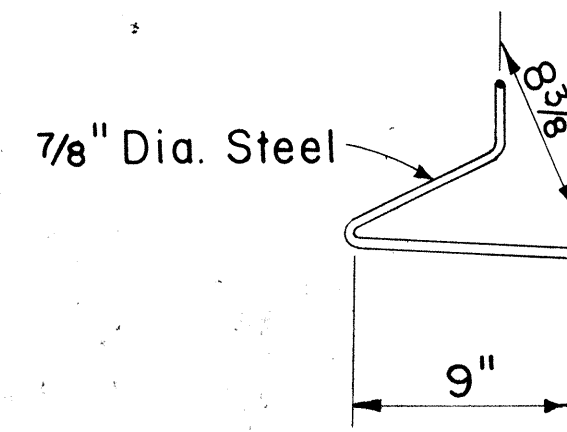
DETAIL "C"
BOTTOM CONSTRUCTION JOINT
Scale: 1 1/2" = 1'-0"



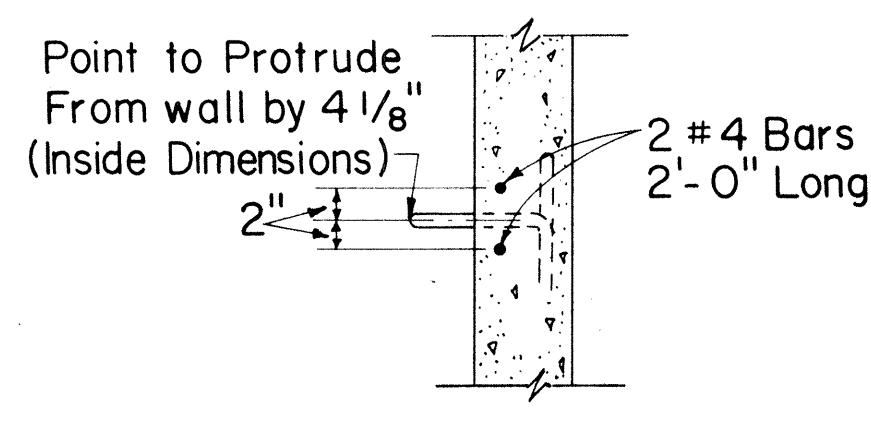
SECTION "D-D"
M.H. COVER DETAIL
Scale: 3/4" = 1'-0"



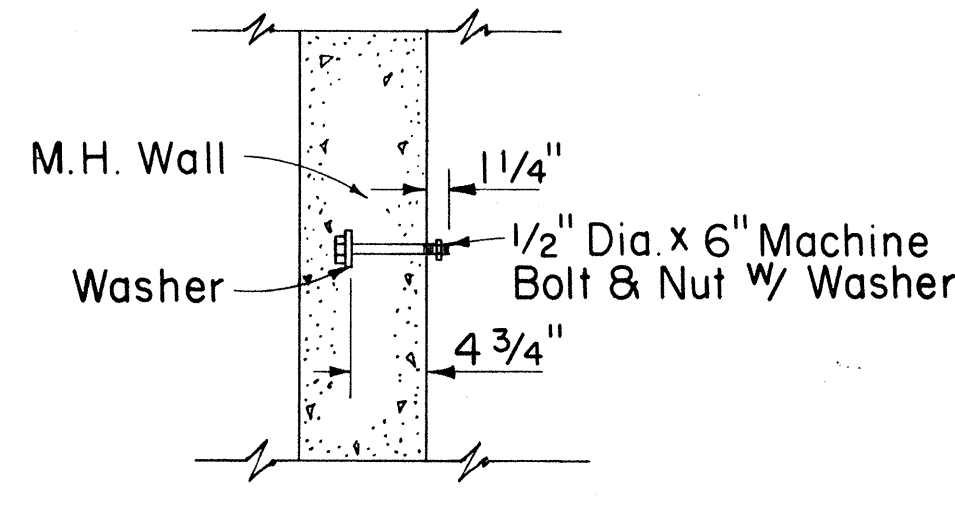
SECTION "E-E"
M.H. SUMP DETAIL
Scale: 3/4" = 1'-0"
Note: See Section "E1-E1" Below



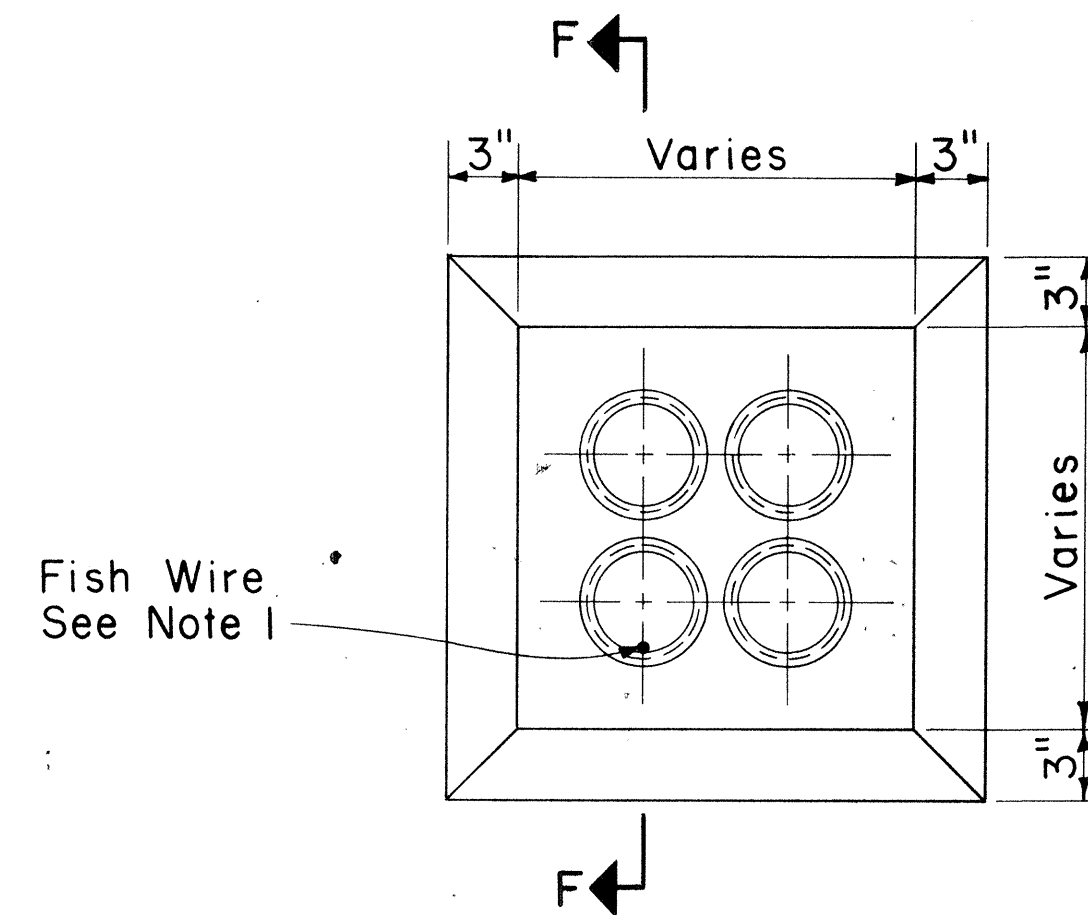
PULLING-IN IRON



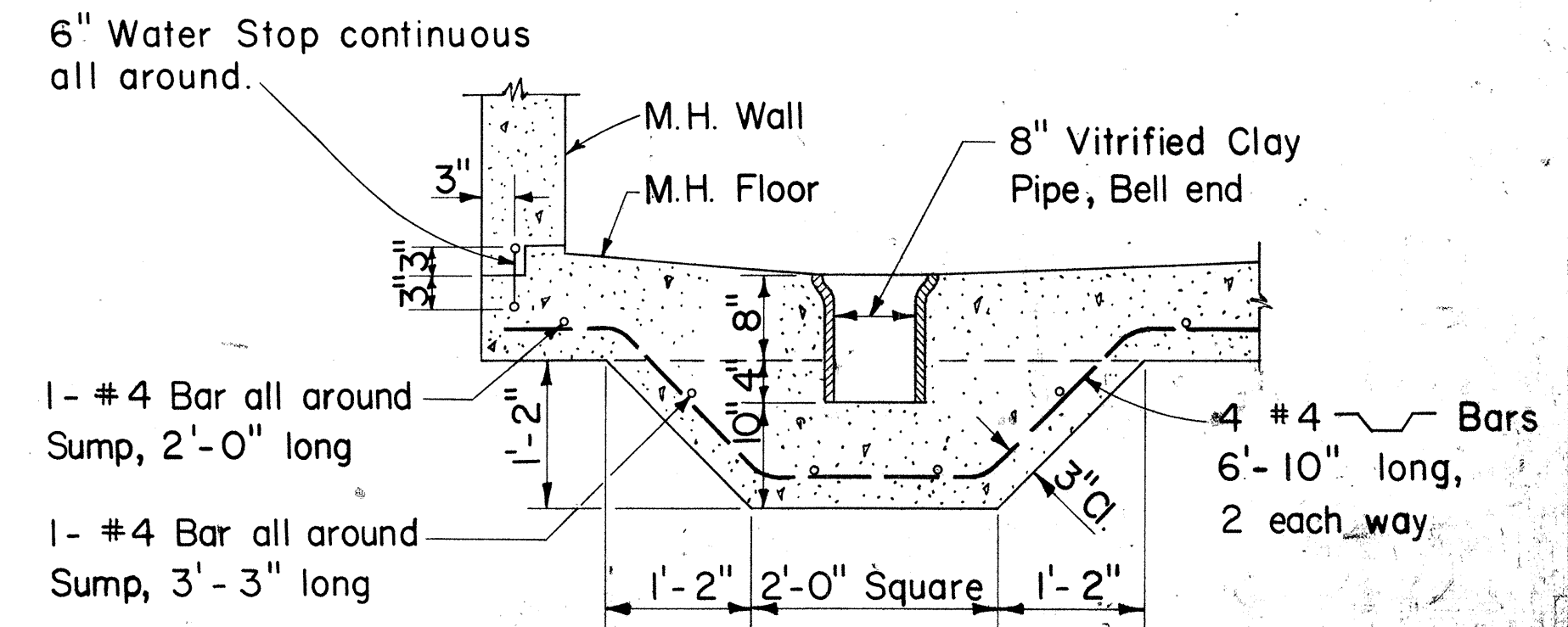
SECTIONAL VIEW OF PULLING-IN IRON
Scale: 3/4" = 1'-0"



CABLE RACK STUD BOLT DETAIL
Scale: 1" = 1'-0"

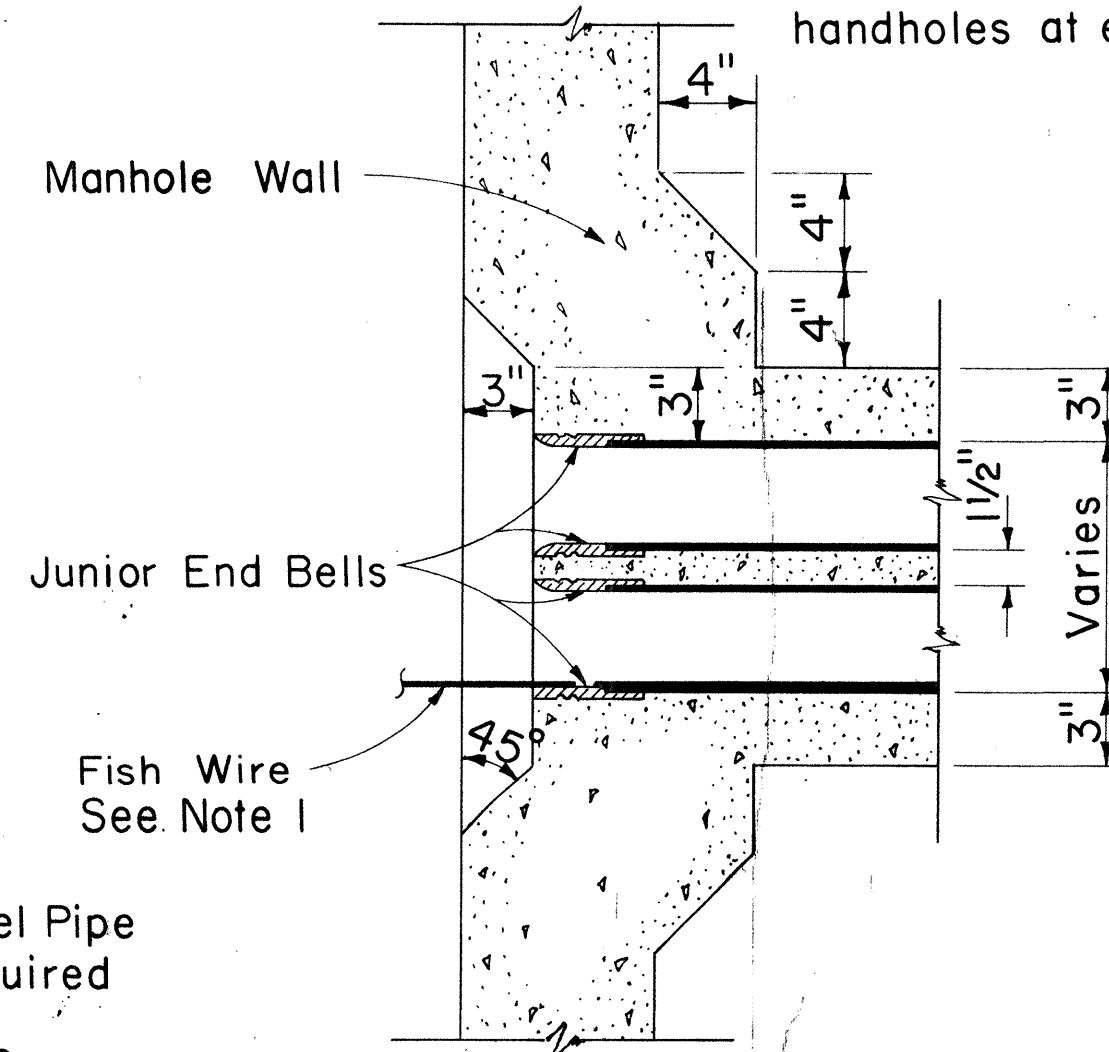


TYPICAL MANHOLE DUCT WINDOW
Scale: 1 1/2" = 1'-0"

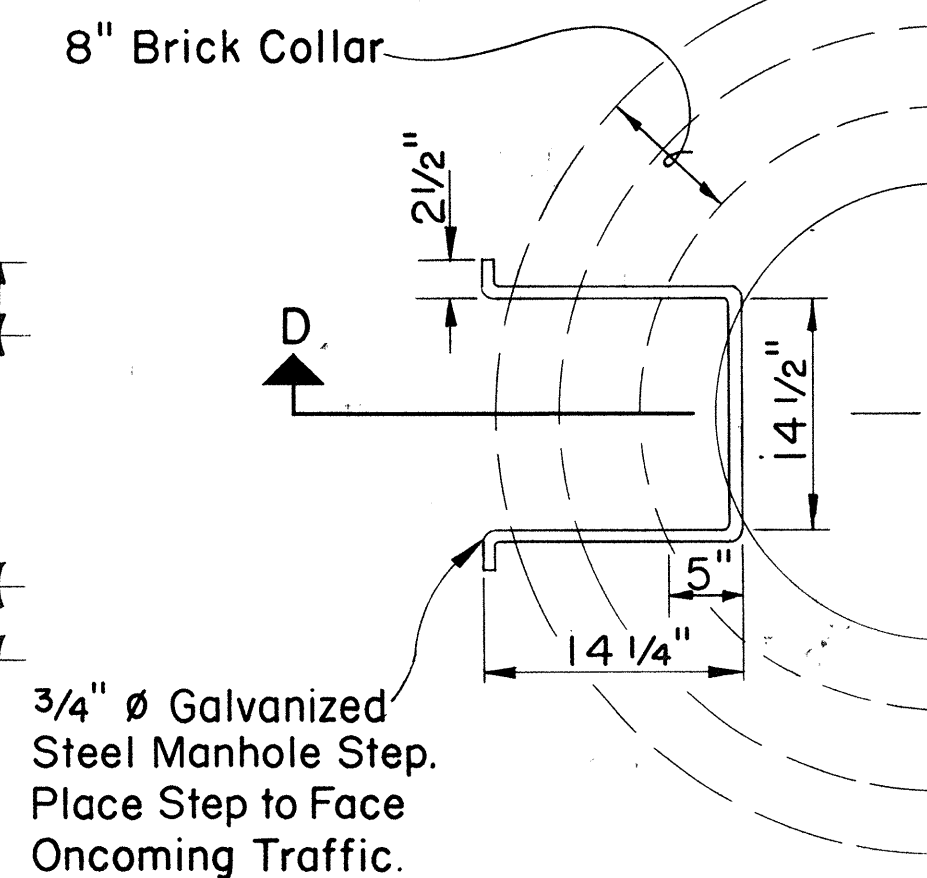


SECTION "E1-E1"
MANHOLE SUMP DETAIL
Scale: 3/4" = 1'-0"

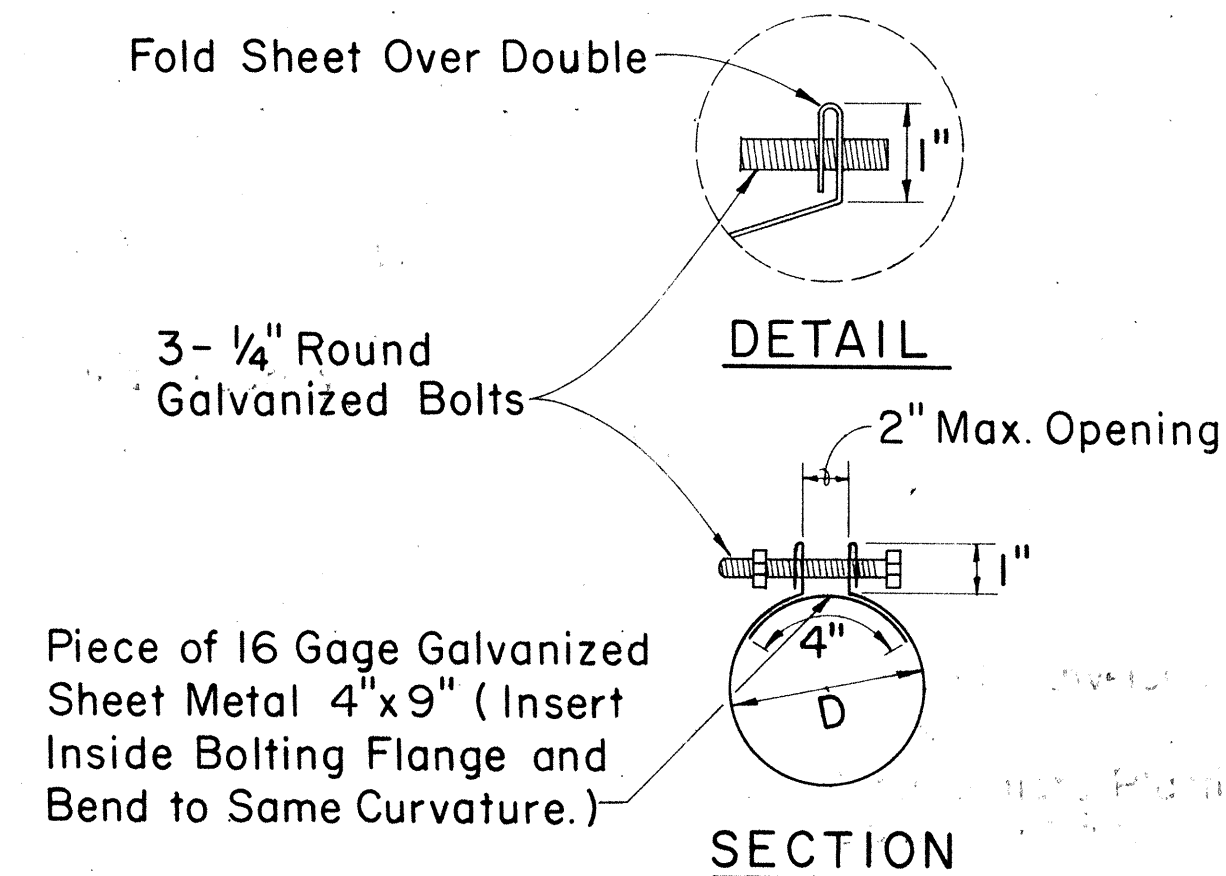
NOTE
1. The Contractor shall place #12 Fish Wire in designated duct throughout its entire length with protrusions of 2 feet in manholes & handholes at each end and 1 foot in pullboxes.



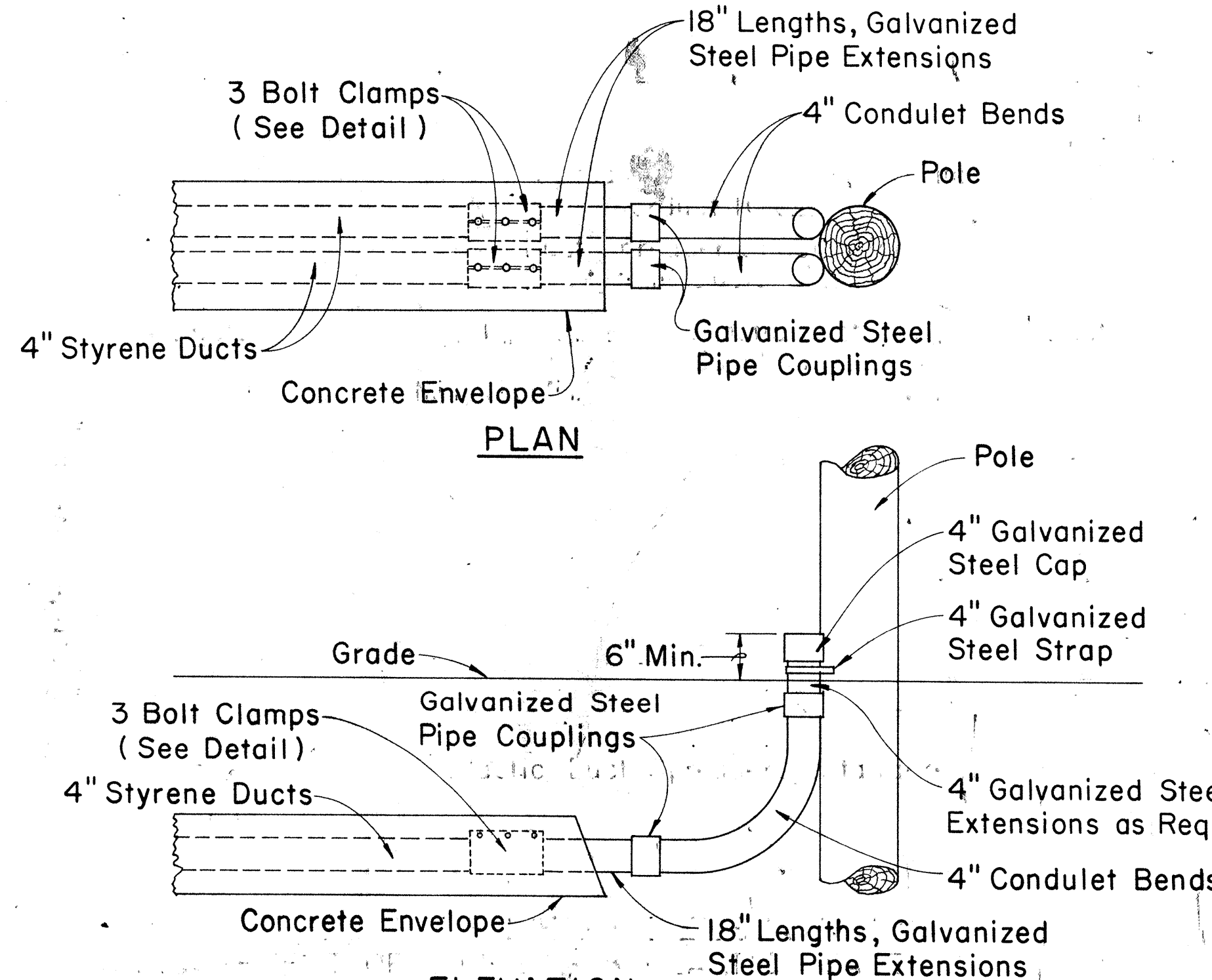
SECTION "F-F"
TYPICAL WINDOW DETAIL & JUNIOR END BELL
Scale: 1 1/2" = 1'-0"



PART-PLAN MANHOLE STEP
Scale: 1" = 1'-0"



3-BOLT CLAMP ADAPTOR DETAIL
Scale: 3" = 1'-0"



TYPICAL INSTALLATION DETAILS
Scale: 3/4" = 1'-0"

Supplement Sheet to Type "A-1" (Drawing Nos. 34060 & 34061), Type "A-2" (Drwg. Nos. 34062 & 34063) and Type "A-3" (Drwg. Nos. 34064 & 34065) Telephone M.H.

APPROVED: *B. J. [Signature]* 1-20-77
Hawaiian Telephone Co., Ltd. Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
TYPE "A" MANHOLE
AND MISCELLANEOUS
TELEPHONE DETAILS

Scale: As Noted Date: *1-20-77*
SHEET No. 91 OF 20 SHEETS

Elevation view of the 435T-B Pull Box Covers. The diagram shows a rectangular structure with a grid of reinforcement bars. Key dimensions and details include:

- Vertical Dimensions:**
 - Total height: $4' - 4 \frac{3}{4}"$
 - Top section height: $1' - 8 \frac{3}{8}"$
 - Bottom section height: $1' - 9 \frac{7}{16}"$
 - Side offsets: $6"$ (top and bottom corners)
- Horizontal Dimensions:**
 - Total width: $6' - 0 \frac{1}{8}"$
 - Internal width segments: $1' - 7 \frac{11}{32}"$, $1' - 9 \frac{7}{16}"$, $1' - 7 \frac{11}{32}"$
 - Internal width offsets: $4" - 4"$ (two locations)
 - Side offsets: $6"$ (left and right corners)
- Reinforcement and Details:**
 - Top reinforcement: $\phi 4 \text{ I } 7.7 \#$
 - Vertical reinforcement: $4 \text{ I } 7.7 \#$
 - Frame: $2" \times 2" \times \frac{3}{8}" \text{ L}$
 - Covers: $435\text{T-B Pull Box Covers}$. See Standard D'wg. No. 34056.
 - Angle Anchor: See Detail "A"

6"

1/8"

2"

1/16"

2"

Std. Type 435T-B
Pull Box Cover

2" x 2" x 3/8" L
Frame

3/8" $\varnothing$ x 5" long
reinf. bars
Angle Anchor

1/4"

45°

NOTE:
Section is typical.

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

St'd. Type 435T-E
Pull Box Cover

4 I 7.7#

2" x 4" x 1/8" F.B.

3" x 2" x 1/4" L

2" x 2" x 3/8" L

2" x 2" x 3/8" L

1/4" 2 3/4" 1/4"

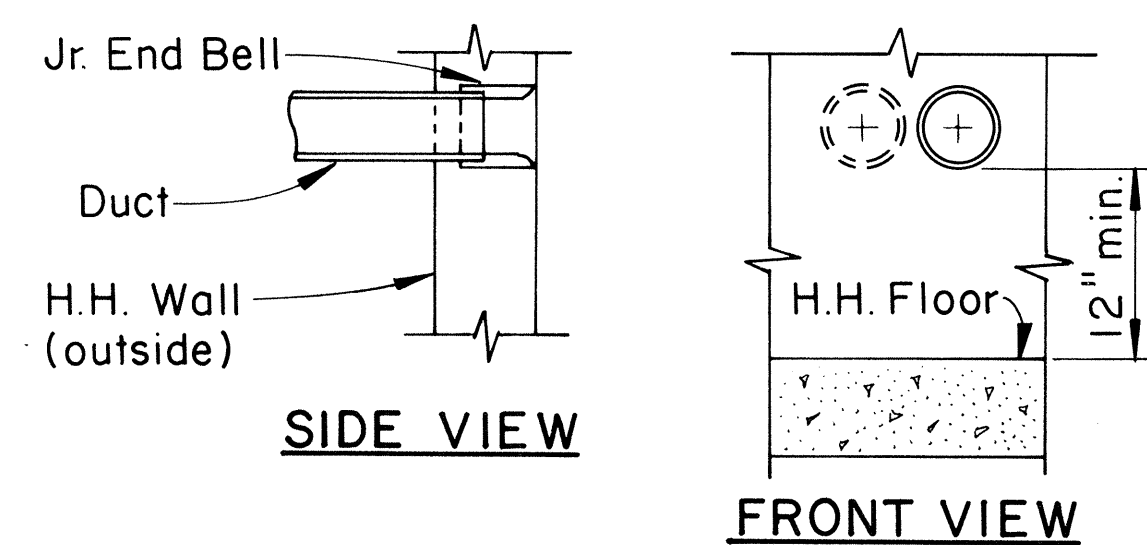
3 1/4"

DETAIL "B"

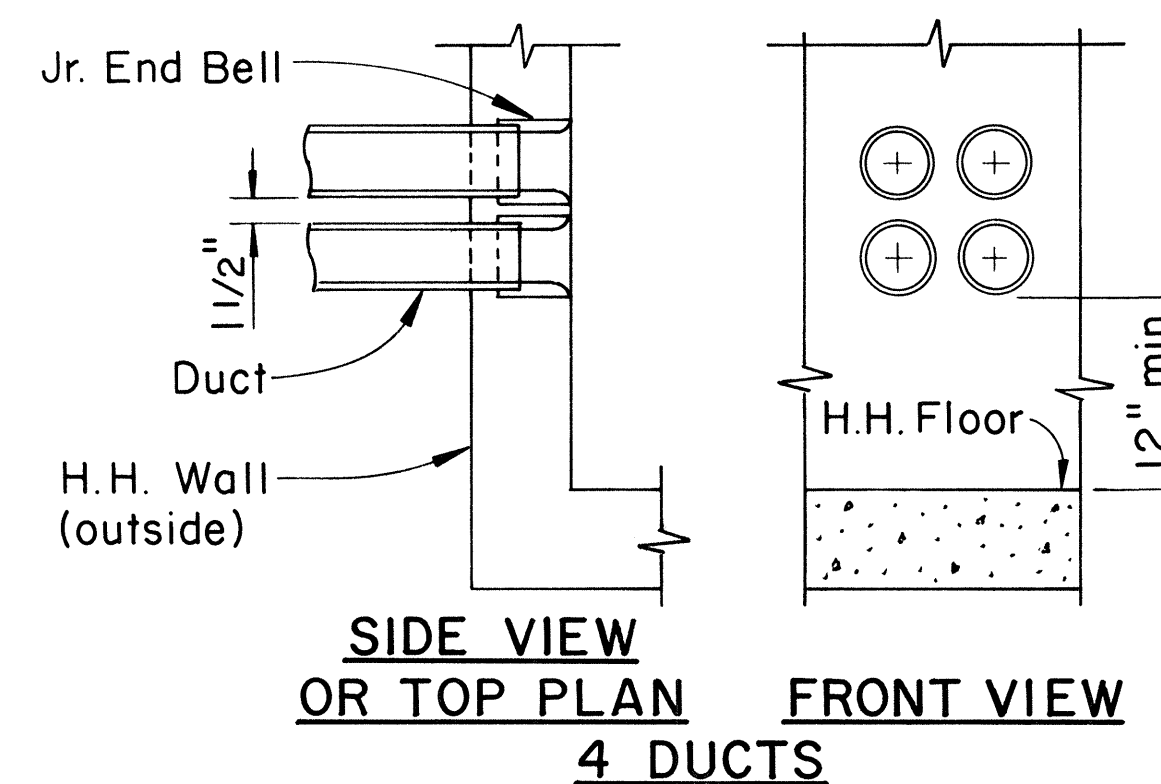
Scale: 3/8" = 1"

SECTION "C-C"

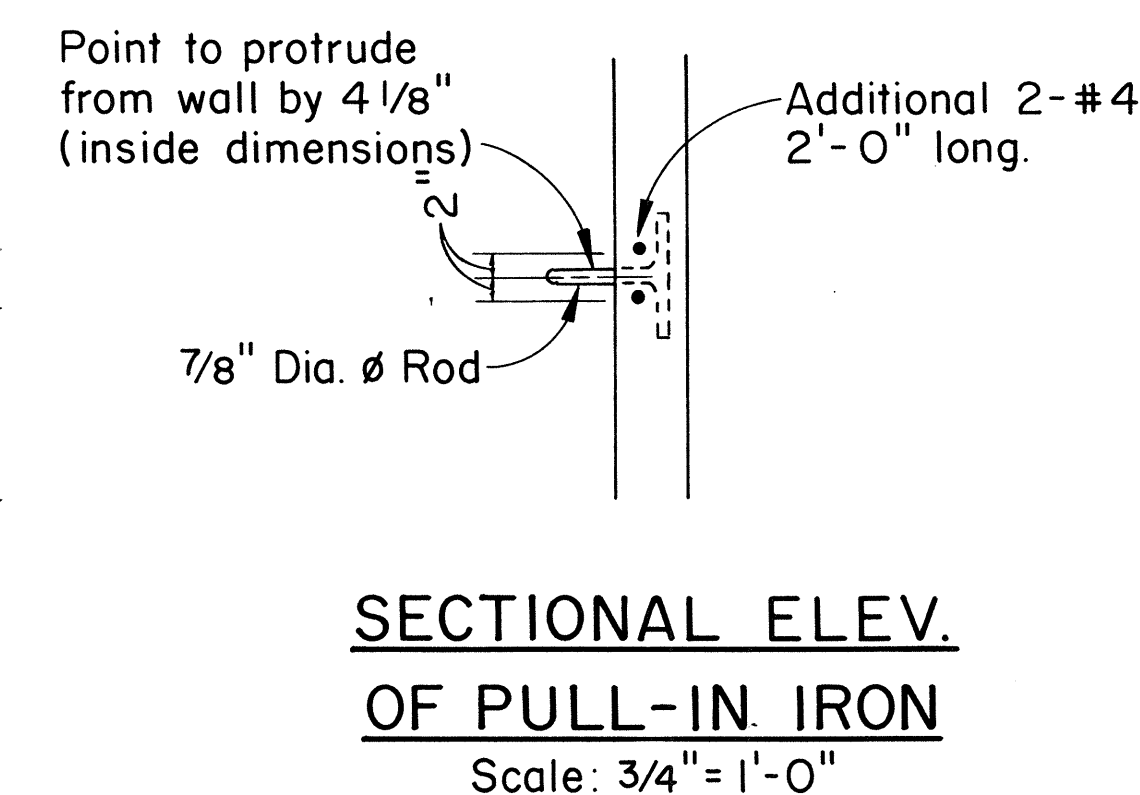
Scale: 3/8" = 1"



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



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



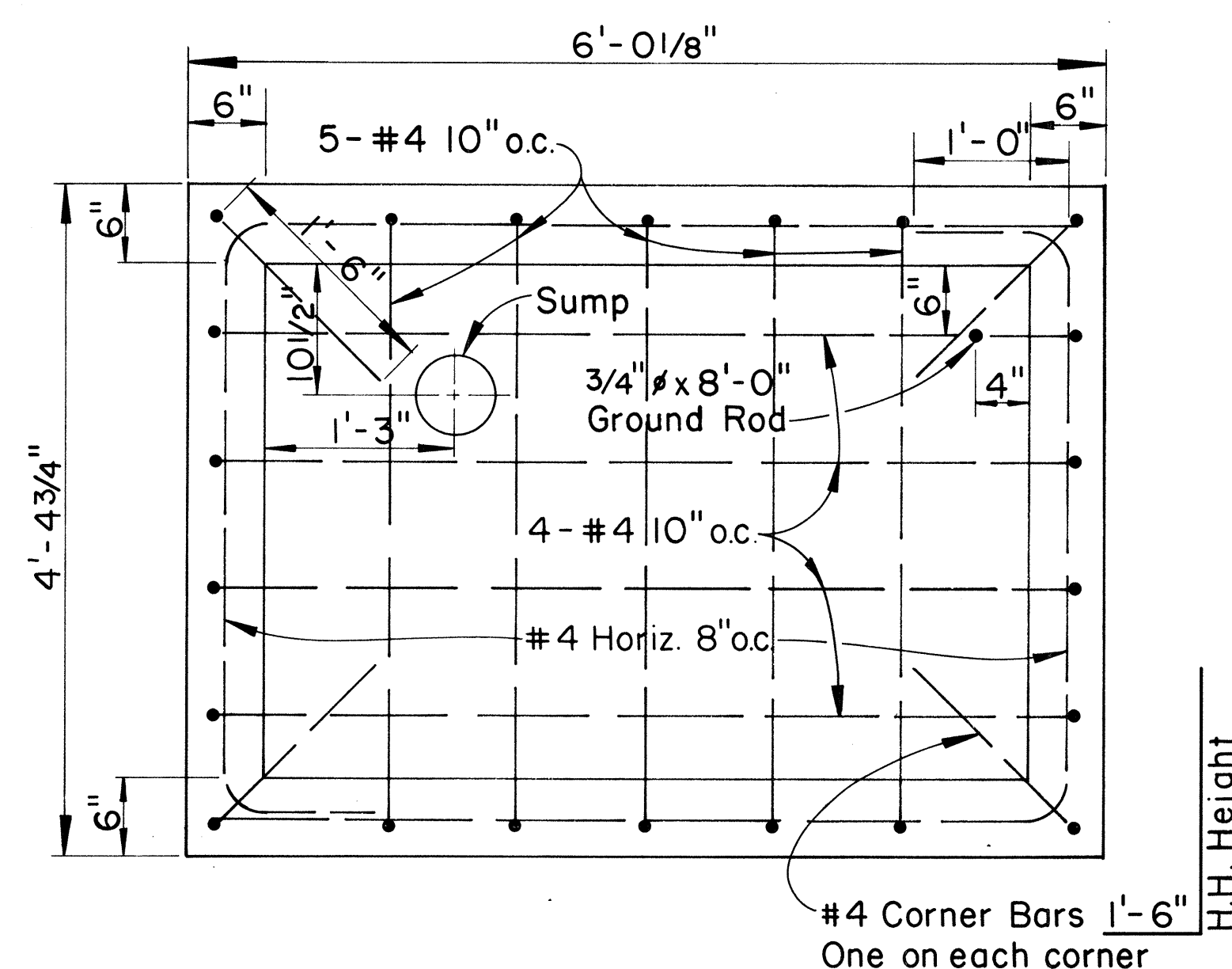
6" Vetrified Clay Pipe Bell End

#3 Rock Fill

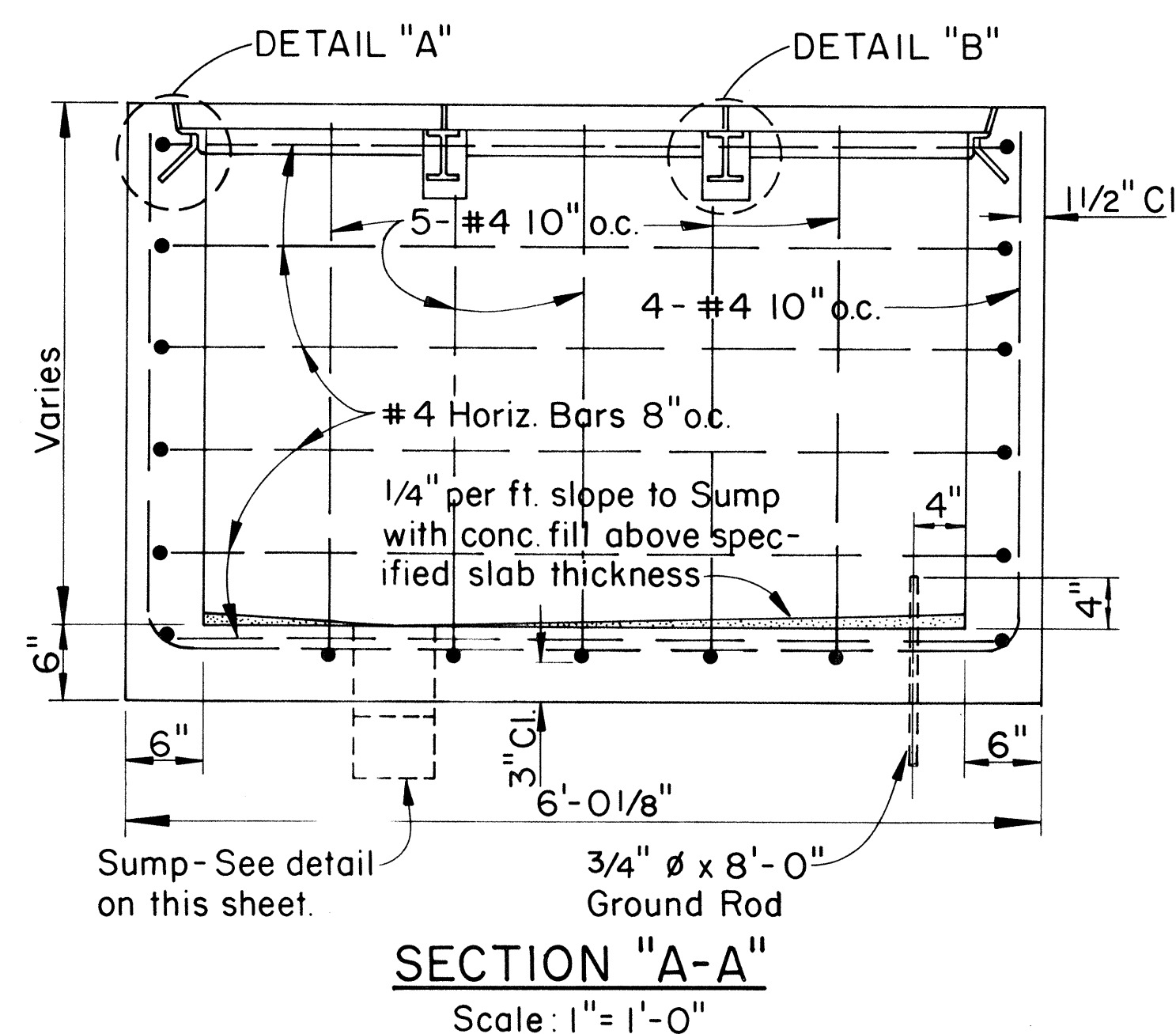
2'-0"

DETAIL OF SUMP

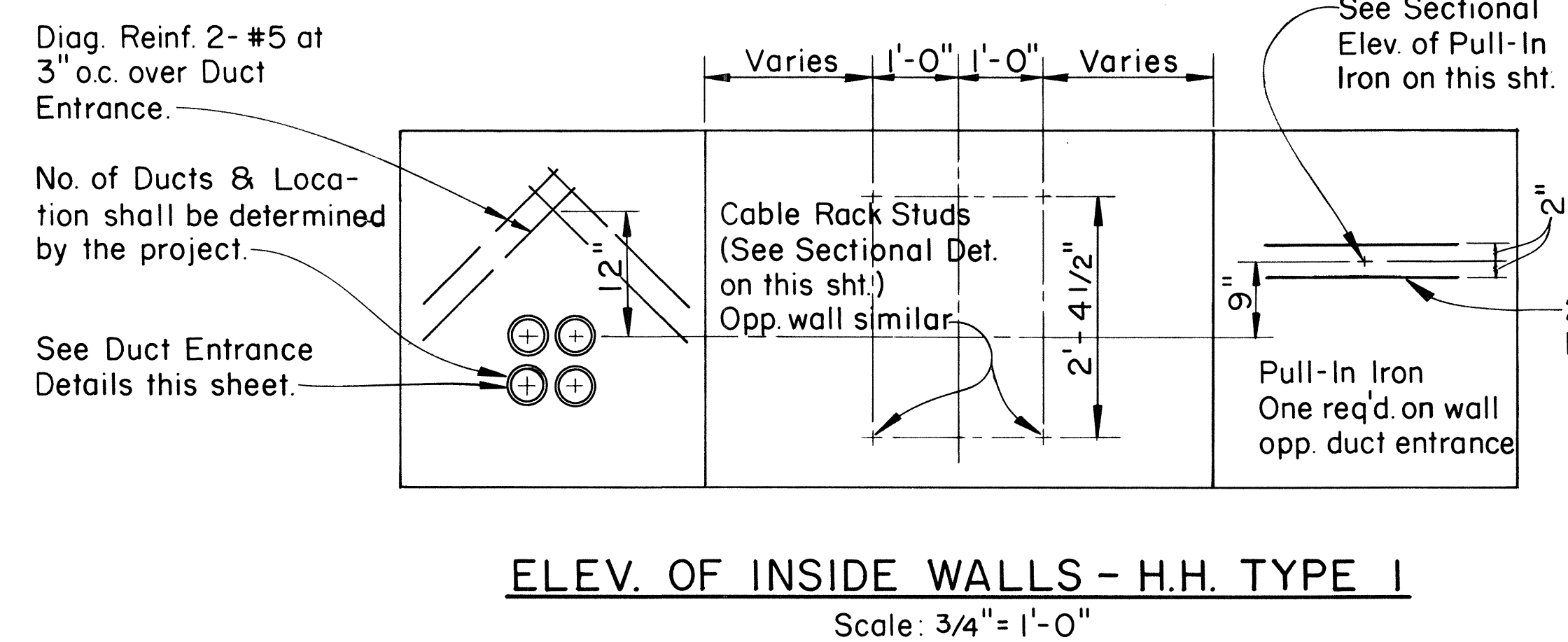
Scale: 1" = 1'-0"



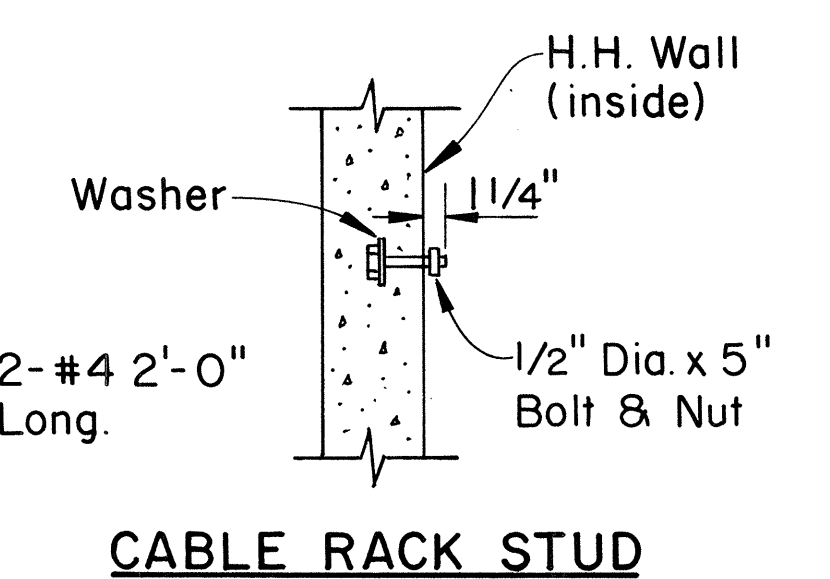
FLOOR PLAN
Scale: 1" = 1'-0"



SECTION "A-A"
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"

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

APPROVED: B. C. Whitlatch 1-20-7
HAWAIIAN TELEPHONE CO., LTD. DATE

92

CREOSOTED DOUGLAS FIR & YELLOW PINE POLE DATA									
LENGTH IN FEET	CLASS	APPROX. MINIMUM DIMENSIONS (INCHES)				AVERAGE WEIGHT (LBS.)	POLE SETTING DEPTH (FT.)		BREAKING LOAD 2'-0" BELOW TOP OF POLE (LBS.)
		AT TOP		6' FROM BUTT		DOUGLAS FIR	IN SOIL	IN ROCK	
		DIA.	CIR.	DIA.	CIR.				
25	5	6.04	19	8.26	26	525	4.5	3	1900
30	3	7.32	23	10.32	32.5	810	5	3.5	3000
	5	6.04	19	8.90	28	600	5	3.5	1900
35	2	7.96	25	12.23	37.5	1260	5	3.5	3700
	5	6.04	19	9.55	30	770	5	3.5	1900
40	3	7.32	23	11.77	37	1320	5.5	3.5	3000
45	2	7.96	25	13.20	41.5	1845	6	4	3700
	3	7.32	23	12.25	38.5	1575	6	4	3000
50	2	7.96	25	13.70	43	2150	6.5	4	3700
	3	7.32	23	12.70	40	1850	6.5	4	3000
55	1	8.59	27	15.11	47.5	2860	7	4.5	4500
	2	7.96	25	14.15	44.5	2475	7	4.5	3700
	3	7.32	23	13.20	41.5	2145	7	4.5	3000
60	1	8.59	27	15.75	49.5	3360	7	4.5	4500
	2	7.96	25	14.62	46	2820	7	4.5	3700
65	1	8.59	27	16.20	51	3835	7.5	5	4500
	2	7.96	25	15.11	47.5	3250	7.5	5	3700
70	1	8.59	27	16.70	52.5	4340	7.5	5	4500
	2	7.96	25	15.60	49	3640	7.5	5	3700
75	1	8.59	27	17.20	54	4800	8	5.5	4500
	2	7.96	25	16.05	50.5	4050	8	5.5	3700
80	1	8.59	27	17.50	55	5240	8	6	4500
	2	7.96	25	16.40	51.5	4400	8	6	3700
85	1	8.59	27	18.00	56.5	5780	8.5	6.5	4500
	2	7.96	25	16.88	53	4930	8.5	6.5	3700
90	1	8.59	27	18.30	57.5	6300	8.5	6.5	4500
	2	7.96	25	17.20	54	5400	8.5	6.5	3700

NOTE:
The ultimate fiber stress for creosoted Southern Yellow Pine & Douglas Fir is 7,400 Lbs. per square inch.
Weights are for untreated poles. Add 5% as estimate of added weight of creosote treatment.

REFERENCES:
American Standards Association 05.4-1941, 05.6-1945.
Standard Handbook for Electrical Engineers, Eighth Edition
H. E. Co. Specification for Poles.

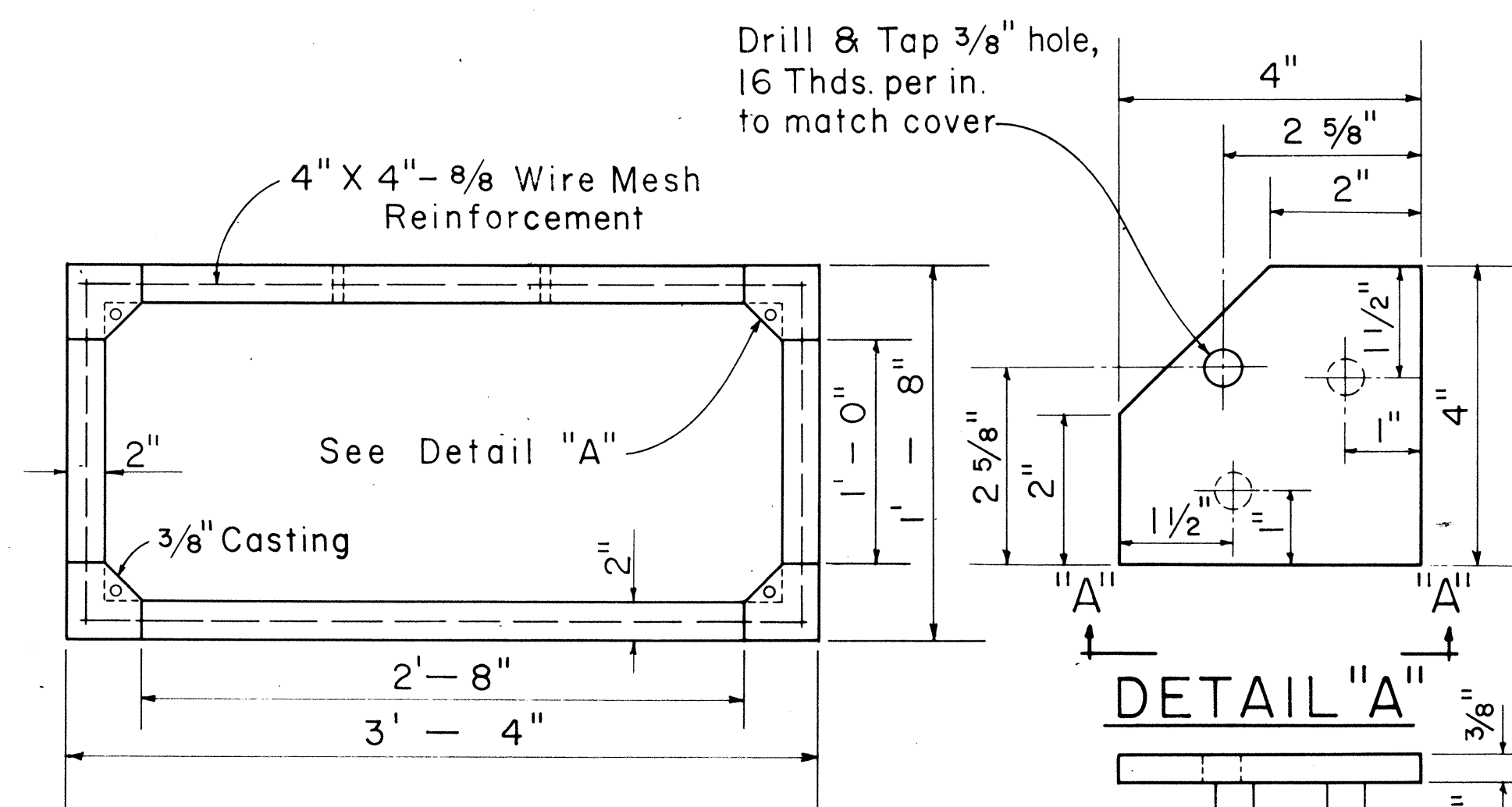
WOOD POLE DATA

APPROVED:
J. Kaimoto 1-19-77
HAWAIIAN ELECTRIC Co., Inc. DATE
B. Updegraff 1-20-77
HAWAIIAN TELEPHONE Co. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
H. E. Co. AND H. T. Co.
SERVICE BOX DETAILS
AND WOOD POLE DATA

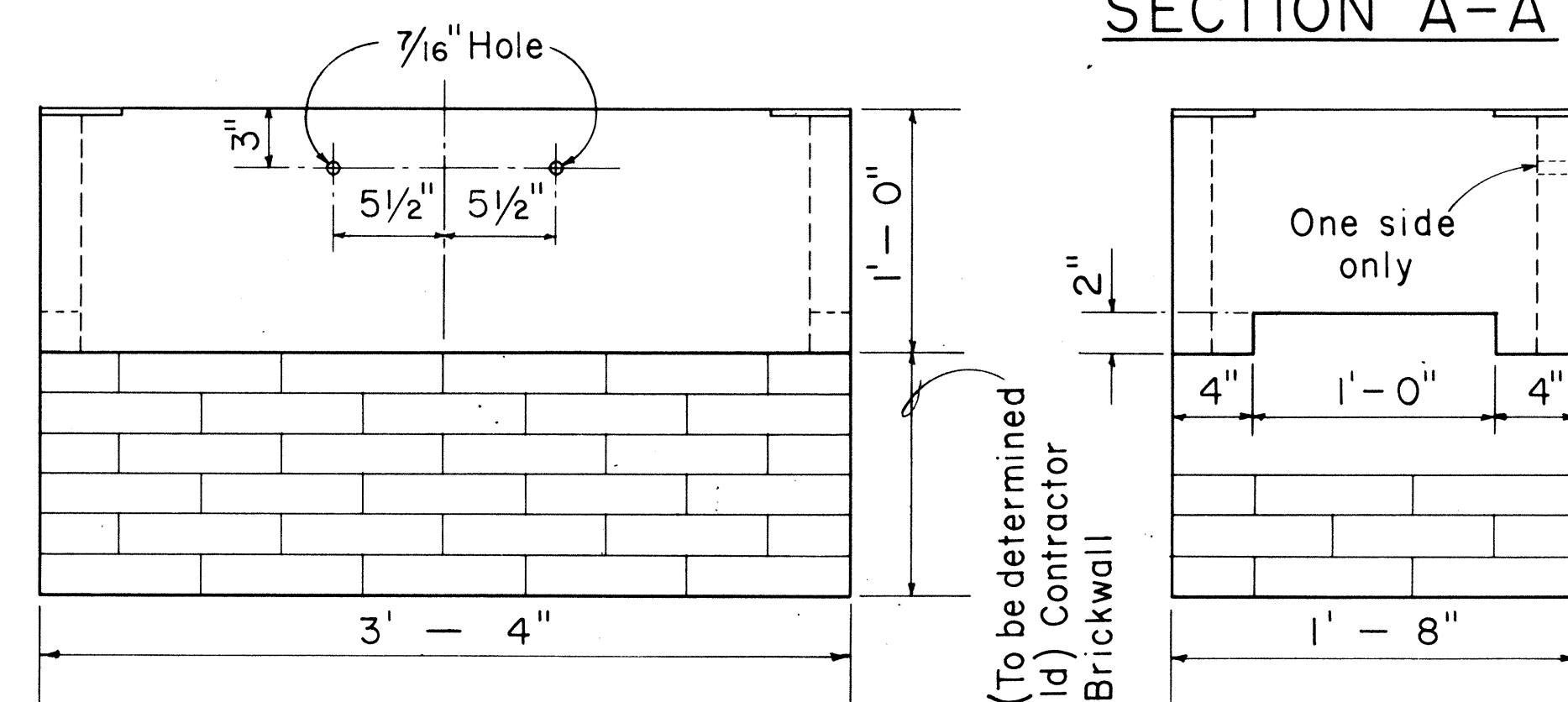
Scales: As Noted Date

SHEET NO. E-19 OF 20 SHEETS



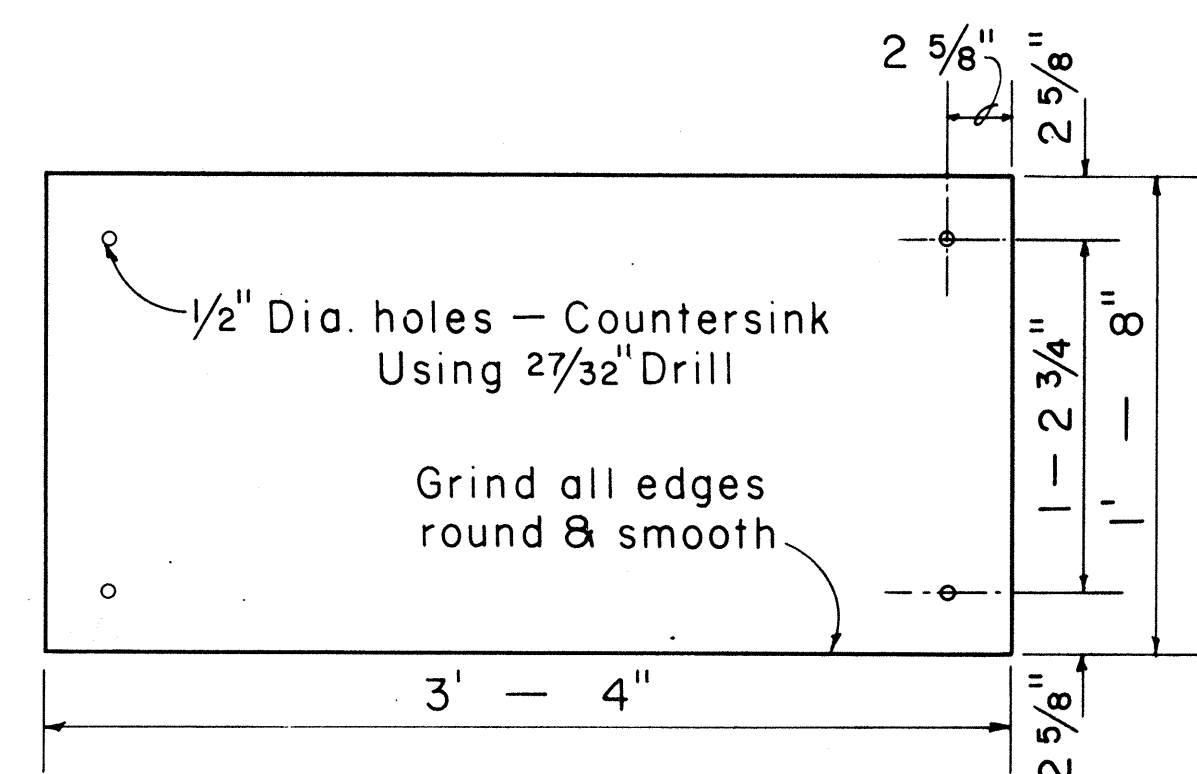
PLAN

SECTION "A-A"



SIDE VIEW

END VIEW



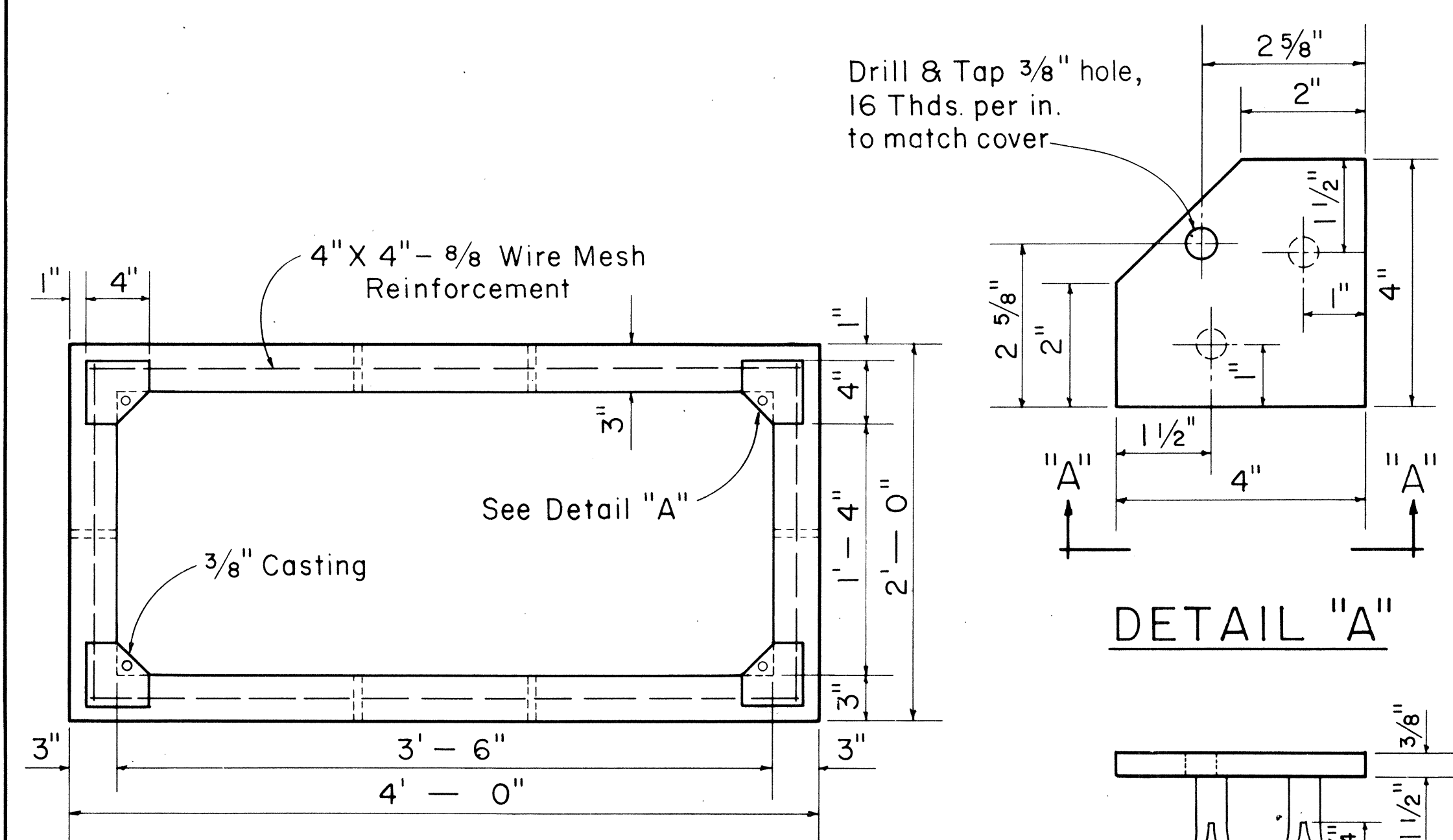
1/4" CHECKER PLATE COVER

(Hot dip galvanize checkered plate after drilling, countersinking, and grinding edge)

1'-4" X 3'-0" CONCRETE SERVICE BOX

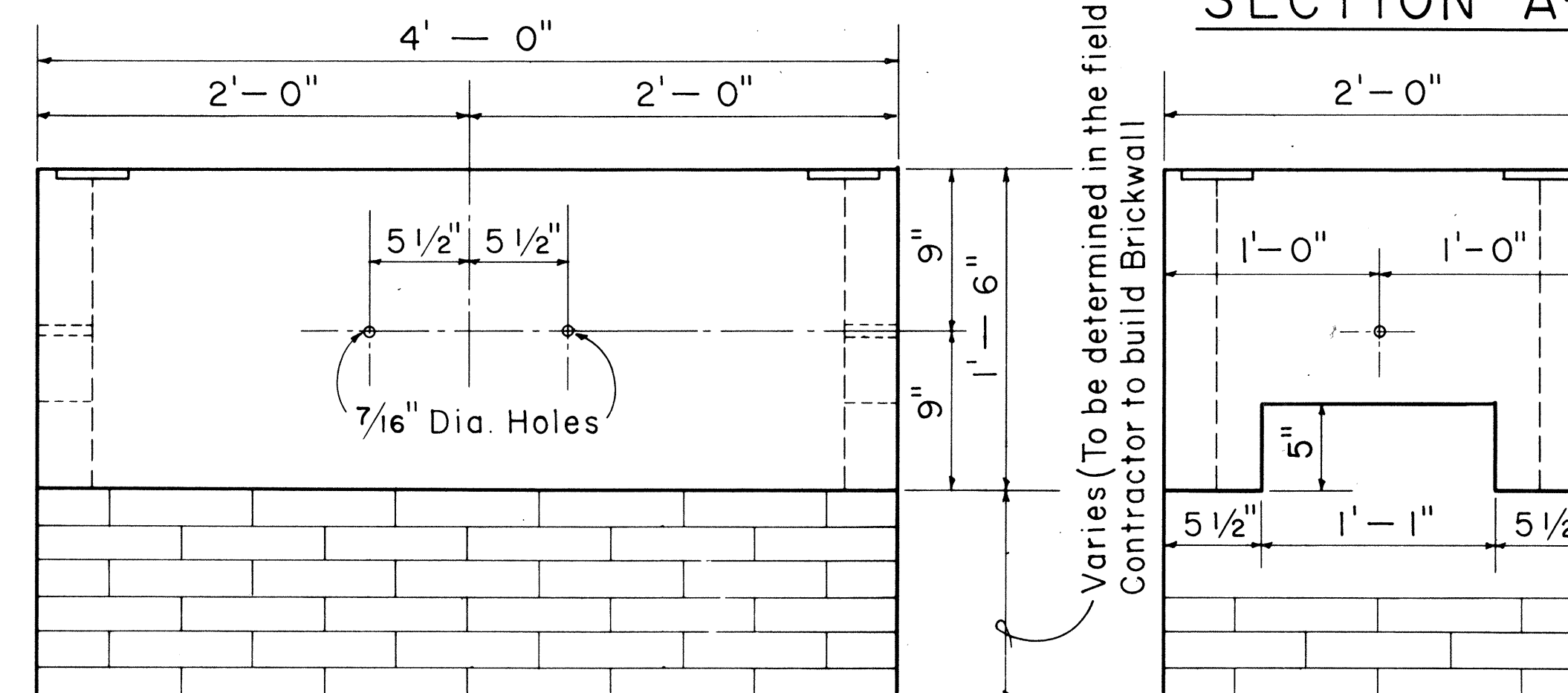
Scale: 1 1/2" = 1'-0"

OII250



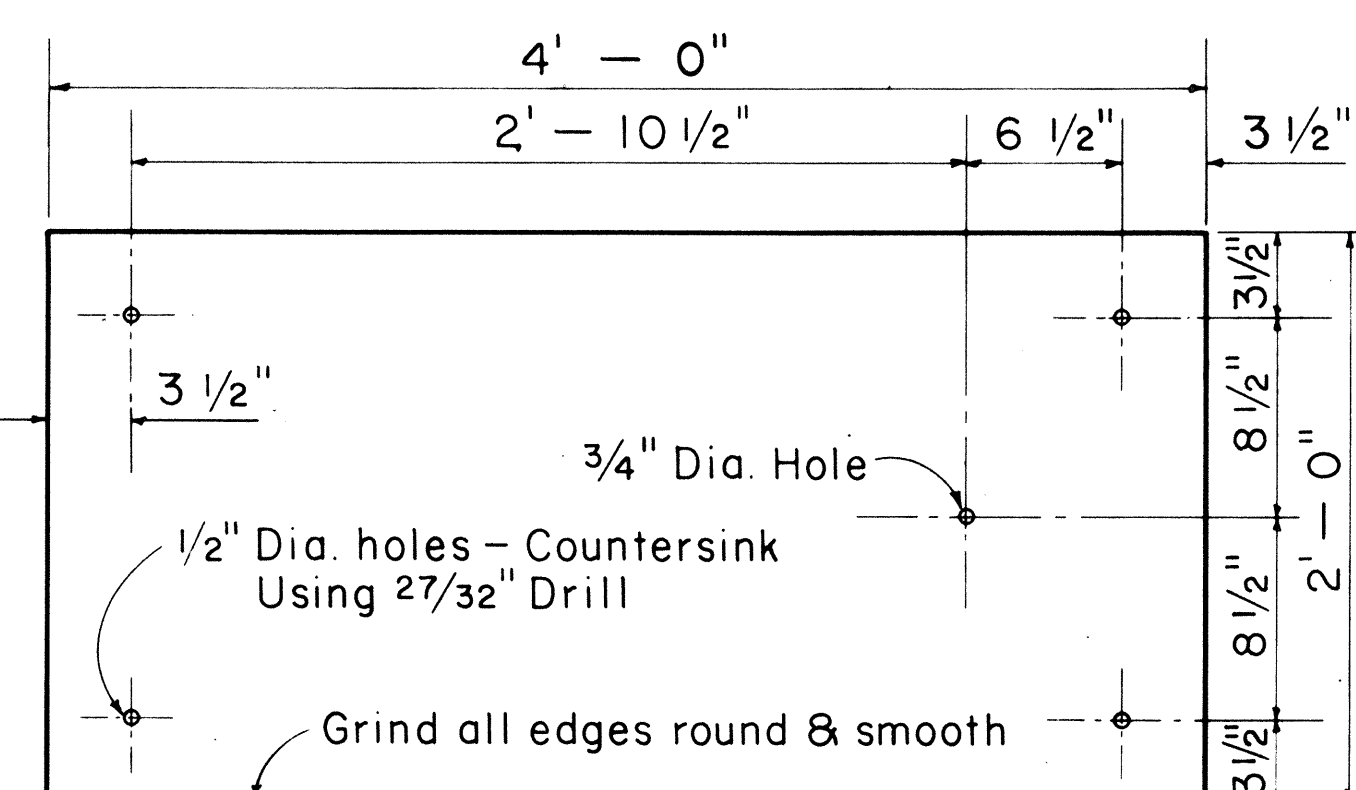
PLAN

SECTION "A-A"



SIDE VIEW

END VIEW



1/4" CHECKER PLATE COVER

(Hot dip galvanize checkered plate after drilling, countersinking, and grinding edge)

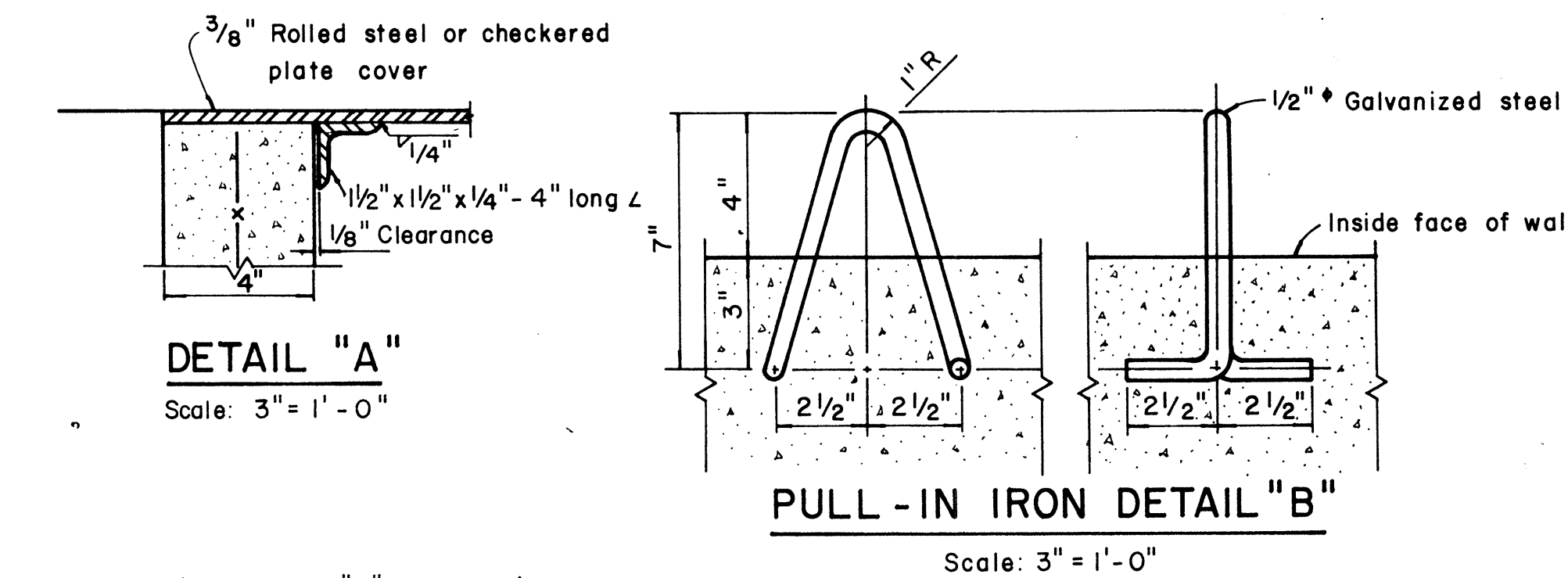
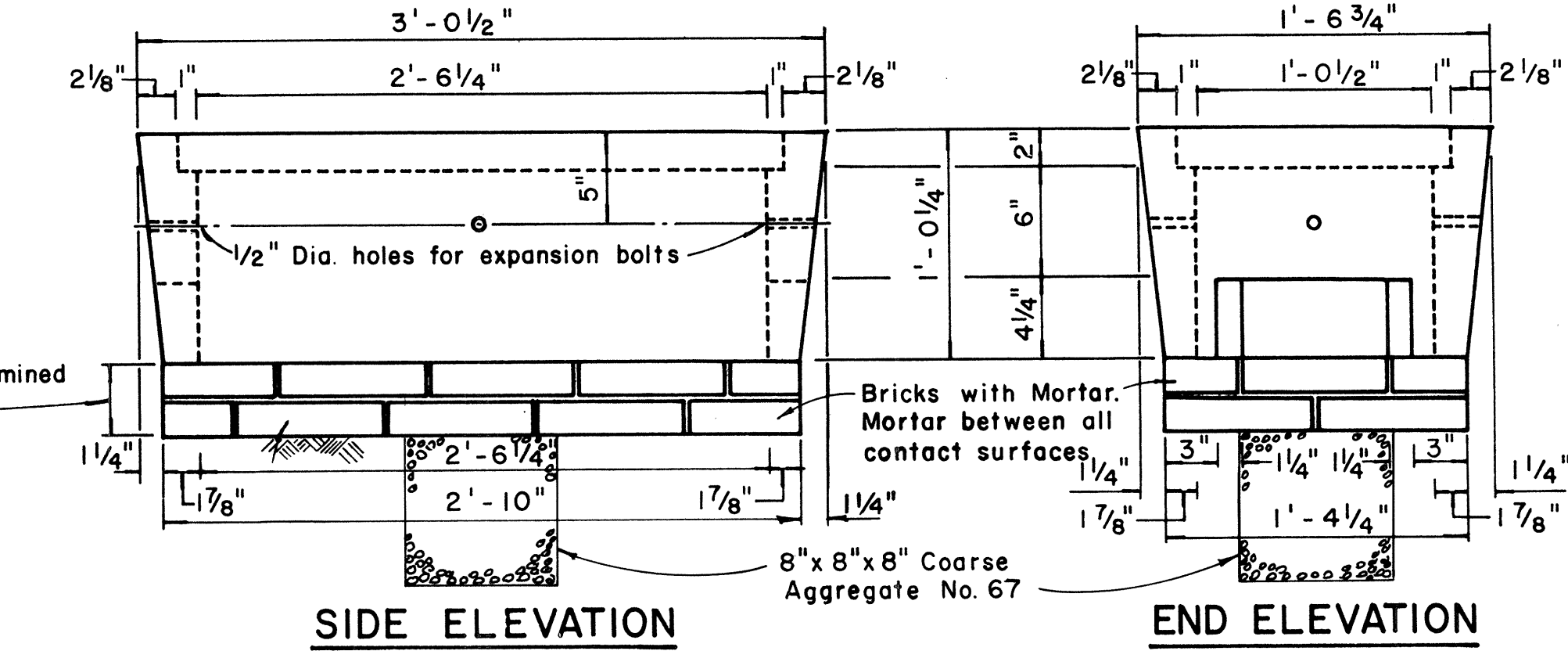
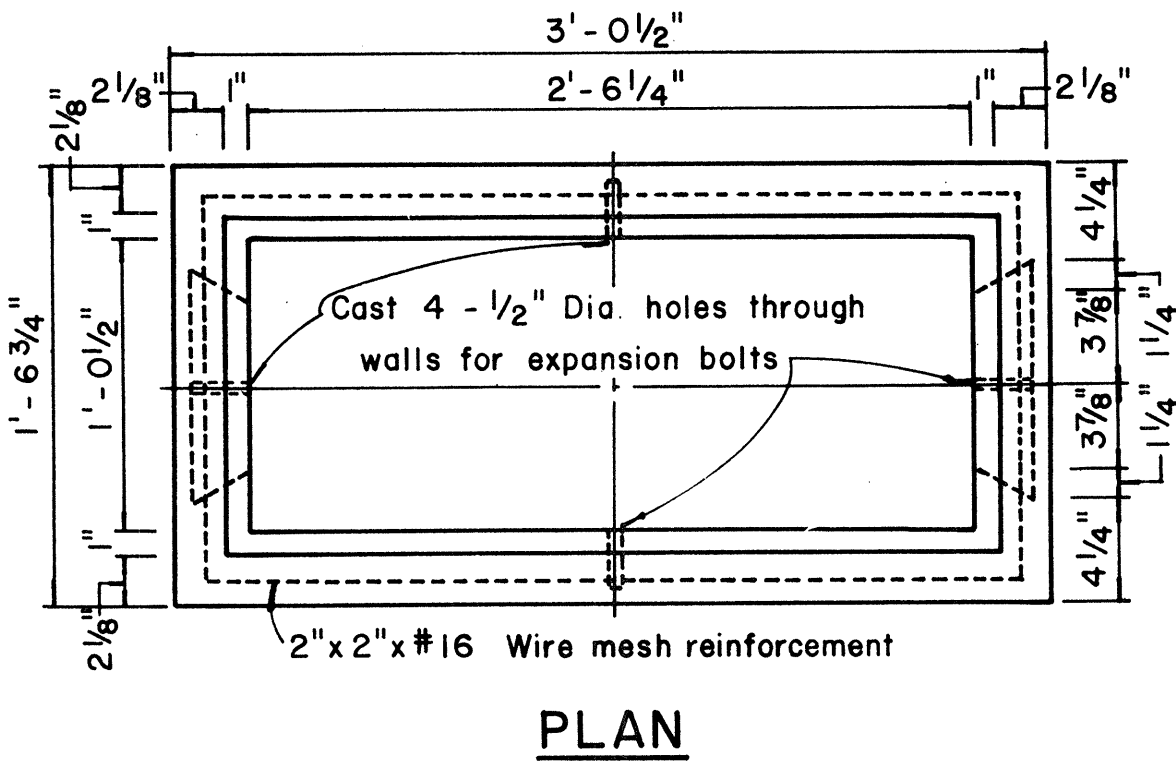
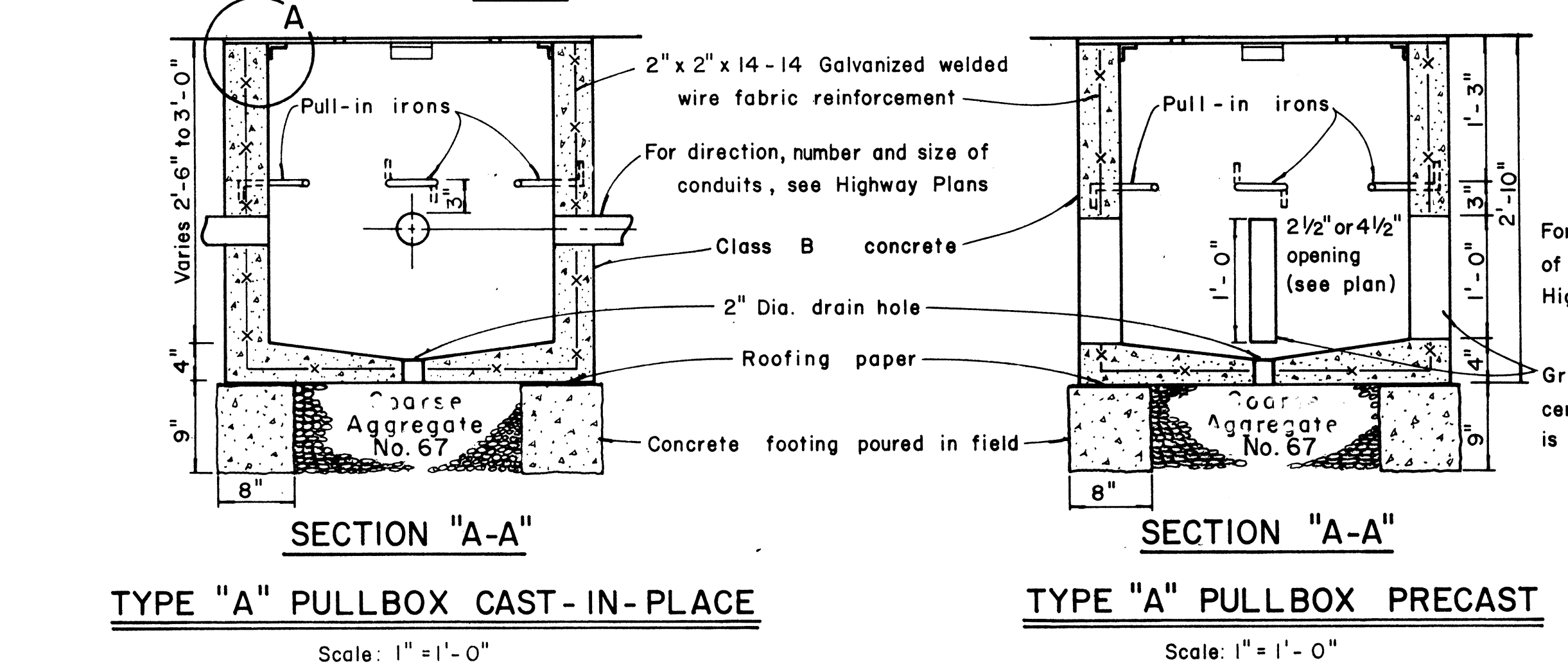
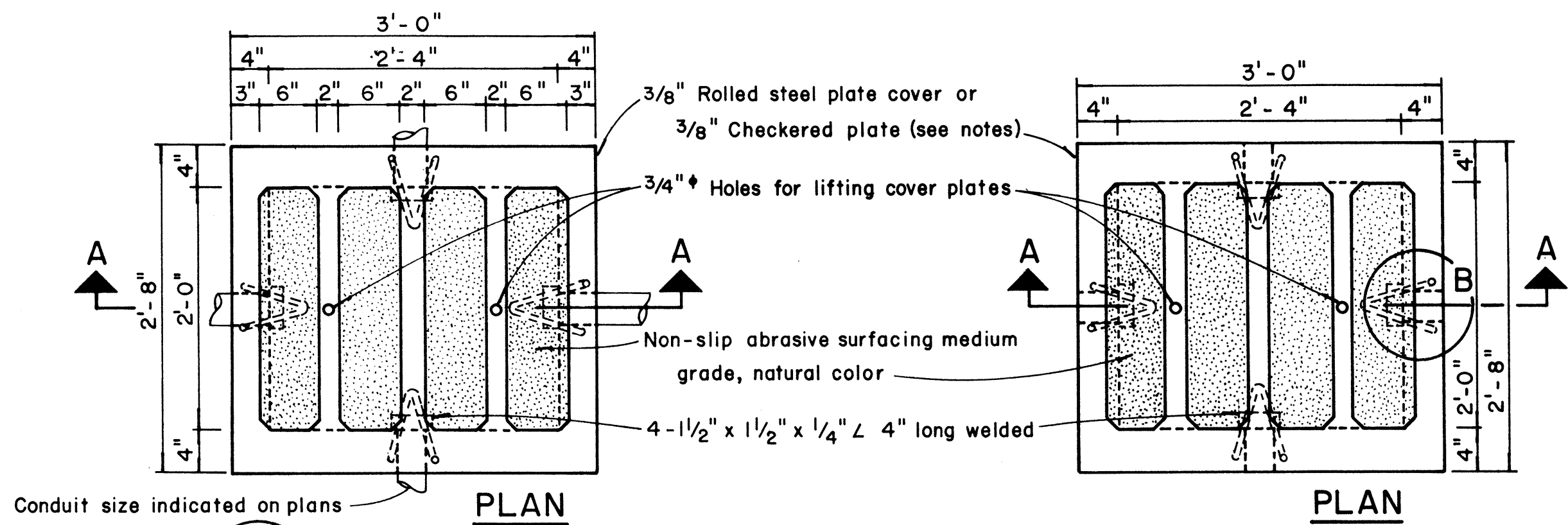
1'-6" X 3'-6" CONCRETE SERVICE BOX

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

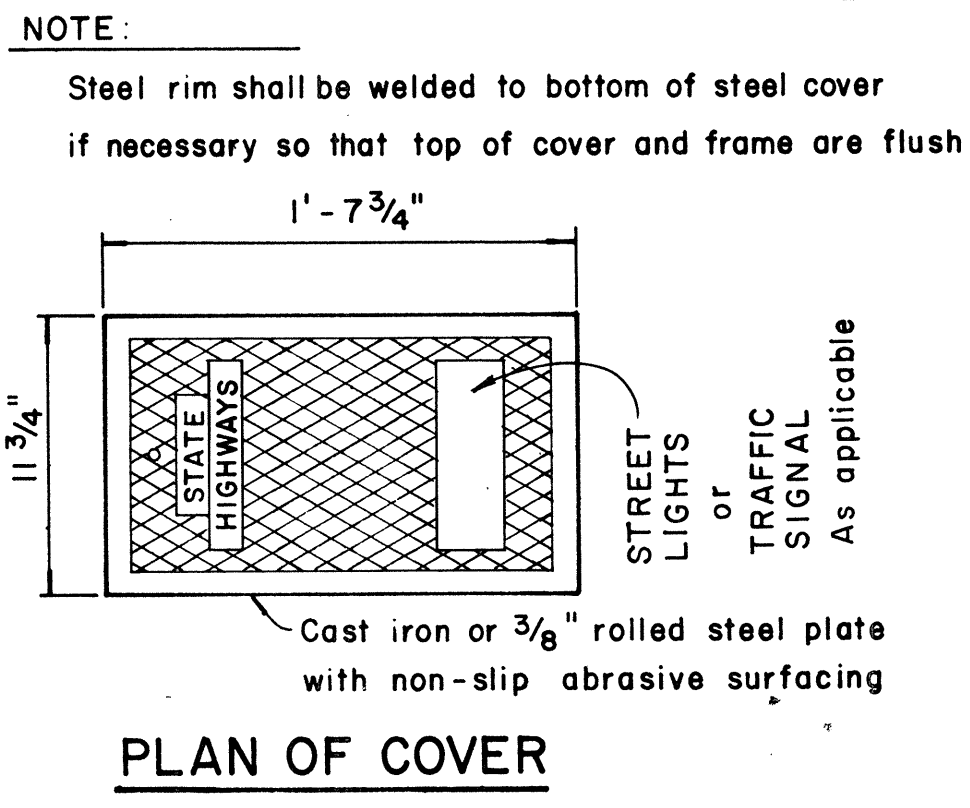
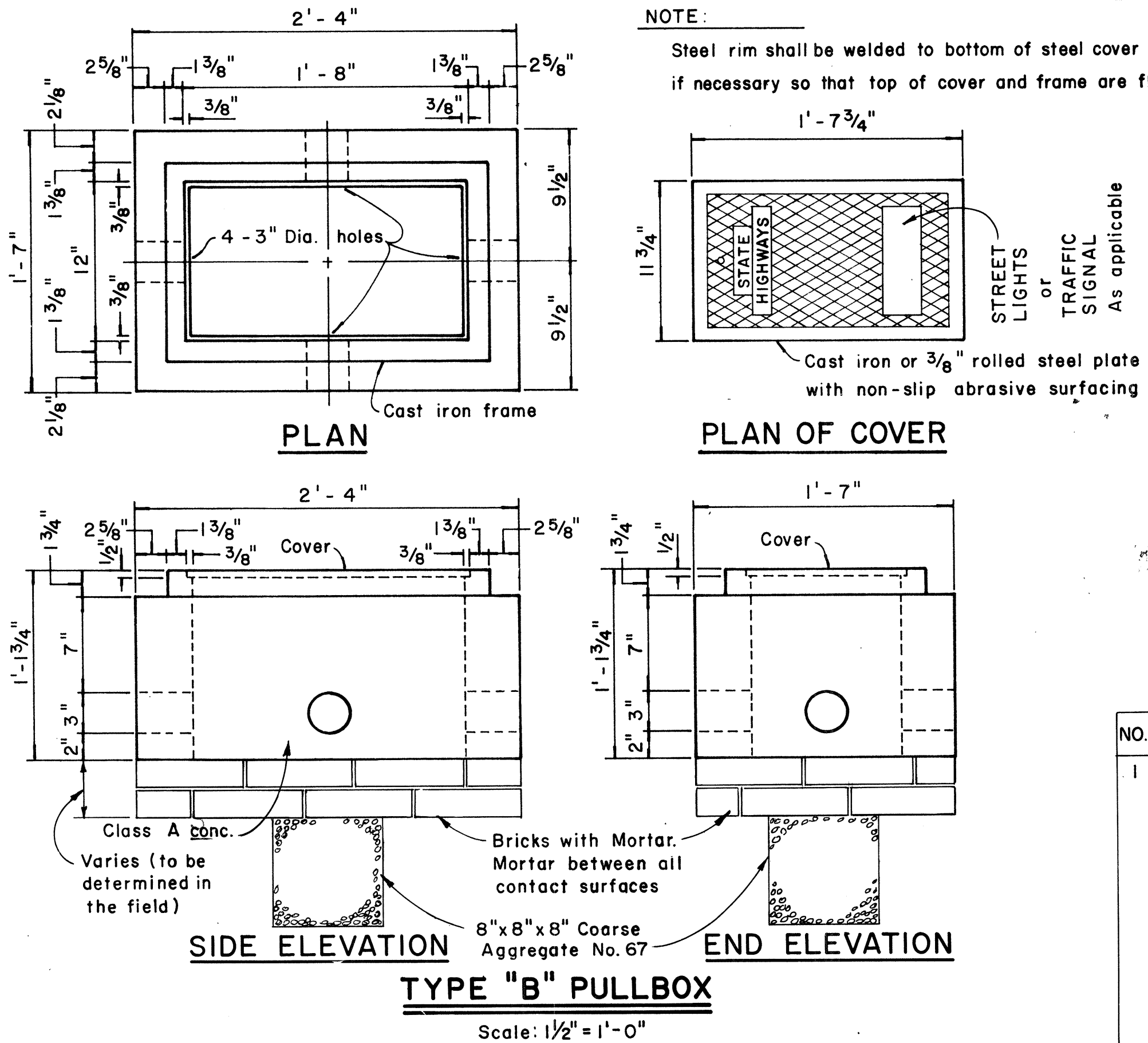
OII255

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII.	HAW.	F-FF-078-1(16)	1977	94	147



- NOTES: (FOR TYPE "A" PULLBOX)
- 3/8" Rolled steel plate cover with non-slip abrasive surfacing medium grade, natural color shall be used on all pullboxes located on sidewalk areas where pedestrians are walking.
 - 3/8" Checkered plate cover shall be used on all pullboxes located in median areas and other locations where there are no pedestrians walking.
 - Pull irons shall be placed opposite each conduit slot.
 - Covers on all pullboxes located in sidewalk areas shall be set flush with the concrete sidewalk.
 - Each pullbox shall have a pair of pull irons opposite each other for lifting purposes.



NO.	REVISION	APPROVED BY	DATE
1	Revised Type B & C Pullbox details	H.T.	8-5-76

APPROVAL RECOMMENDED:
Erich Tanaka
 TRAFFIC ENGINEER
 DATE: 12/6/77

APPROVED:
Samuel R. R. R.
 ASSISTANT CHIEF, ENGINEERING
 DATE: 12-29-79

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STANDARD DETAILS
PULLBOXES

Scale as noted Date

SHEET No. E-20 OF 20 SHEETS DT 401

DATE	REVISION
12/6/77	1
12-29-79	2