

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-STP-0750(10)	1999	61	97

CONDUIT SCHEDULE

ITEM	DESCRIPTION
(3E)	HECO 3" CONDUIT SCHD 40 PVC
(2-4E)	HECO 2-4" CONDUITS SCHD 40 PVC
(2-5E)	HECO 2-5" CONDUITS SCHD 40 PVC
(E)	HECO, DIRECT BURIED CABLE
(2-4I)	HTCO 2-4" CONDUITS
(4-4I)	HTCO 4-4" CONDUITS
(5-4I)	HTCO 5-4" CONDUITS
(6-4I)	HTCO 6-4" CONDUITS
(8-4I)	HTCO 8-4" CONDUITS
(14-4I)	HTCO 14-4" CONDUITS
(1-1/4)	STREET LIGHT 1 1/4" CONDUIT
(1-1/2)	STREET LIGHT 1 1/2" CONDUIT
(2L)	STREET LIGHT 2" CONDUIT
(2-2)	STREET LIGHT 2-2" CONDUITS
(3L)	STREET LIGHT 3" CONDUIT
(L)	STREET LIGHT DIRECT BURIED CABLE
(2V)	CATV 2" CONDUIT
(3V)	CATV 3" CONDUIT
(2S)	TRAFFIC SIGNAL 2" CONDUIT, PVC SCHD. 80
(2-2S)	TRAFFIC SIGNAL 2-2" CONDUITS, PVC SCHD. 80
(3-2S)	TRAFFIC SIGNAL 3-2" CONDUITS, PVC SCHD. 80
(3S)	TRAFFIC SIGNAL 1-3" CONDUIT, PVC SCHD. 80
(3P)	SECONDARY ELEC. 3" CONDUIT, PVC. SCHD. 80

STATE RIGHT-OF-WAY

BACKFILL NOTES

54/54 NOT TO SCALE

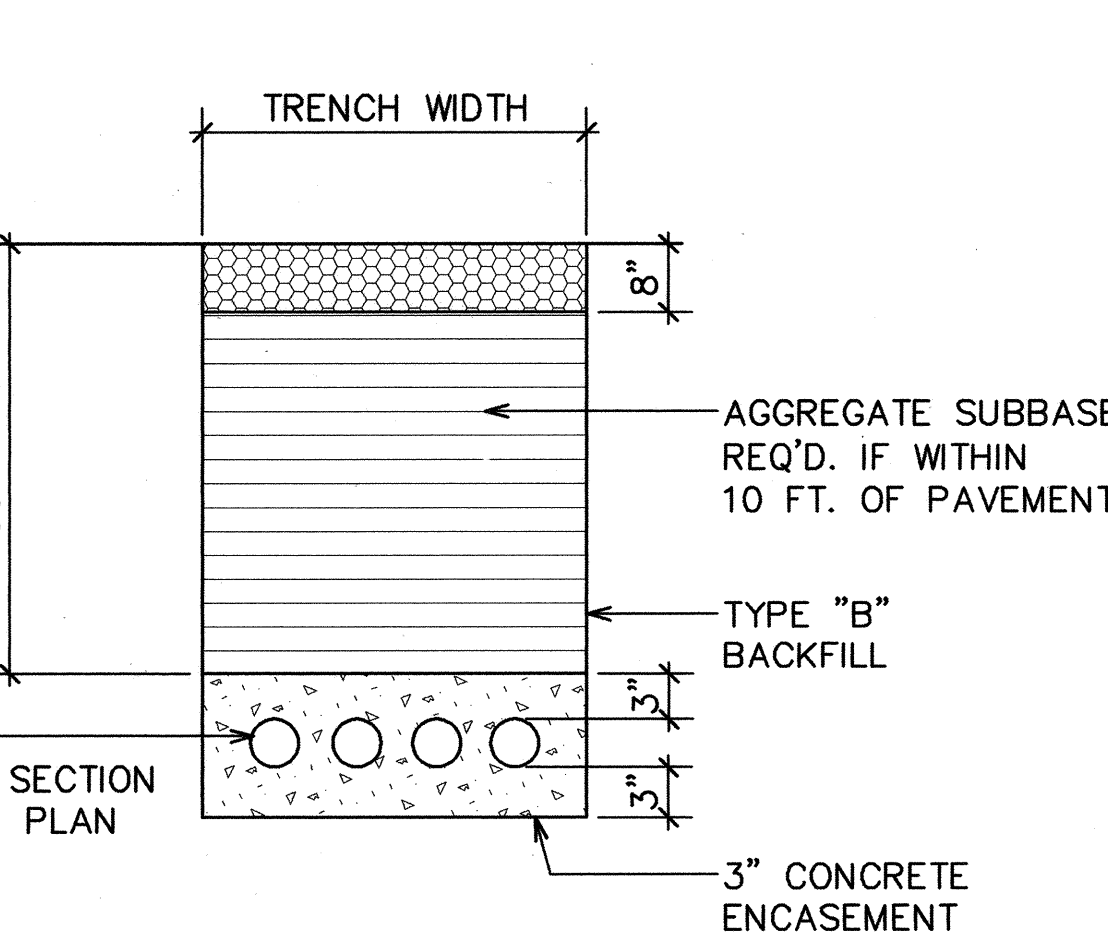
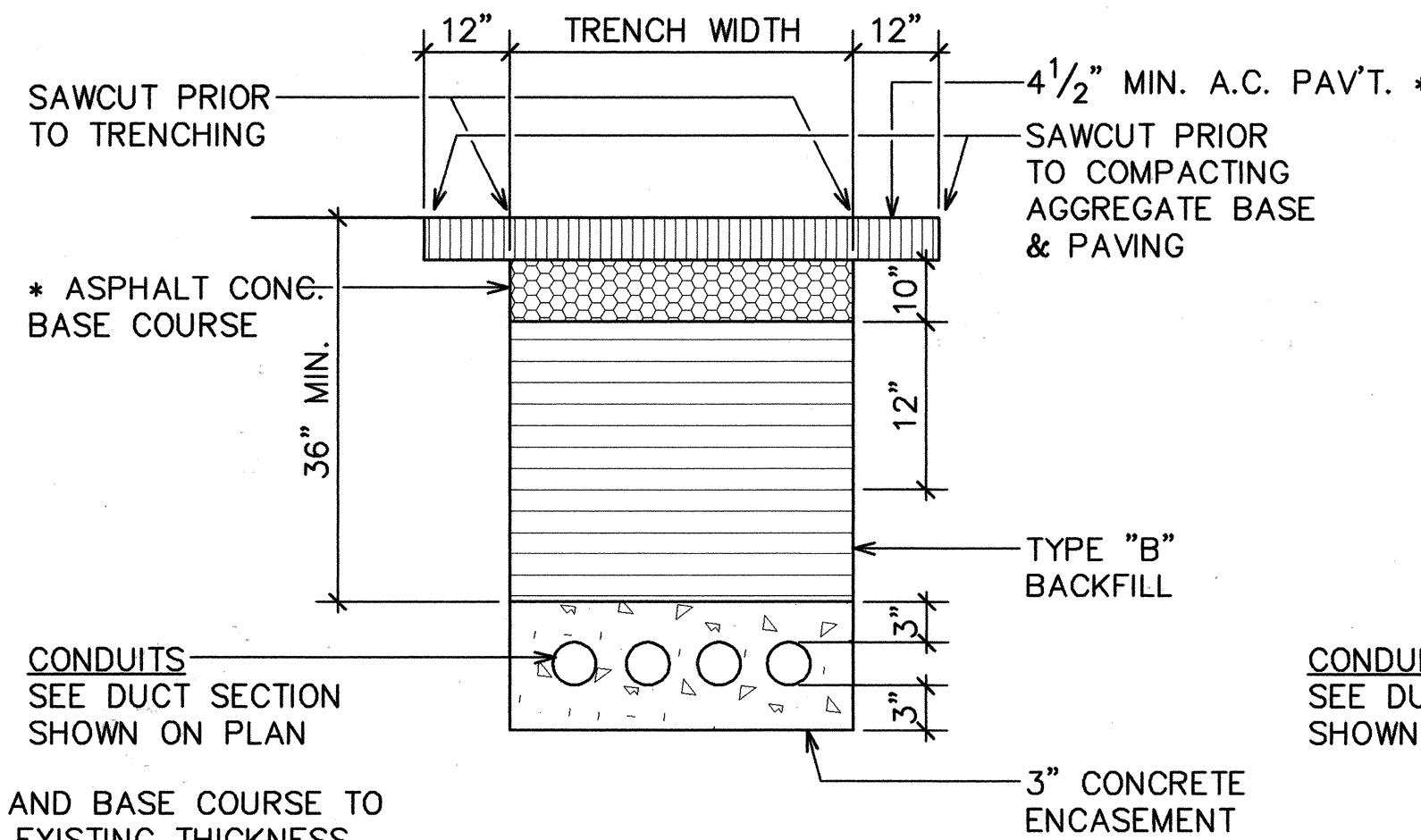
TRENCH BACKFILL MATERIAL "B"
1. SAND EQUIVALENT ≥ 2
2. 8" MAX. LIFT LOOSE
3. 95% COMPACTION

TRENCH BACKFILL MATERIAL "A"
1. SAND EQUIVALENT ≥ 20
2. 8" MAX. LIFT LOOSE
3. 95% COMPACTION

IF MATERIAL BELOW DUCT IS NOT EQUIVALENT TO BACKFILL MATERIAL "A", EXCAVATE MATERIAL & PROVIDE 3" BACKFILL MATERIAL "A". SEE ABOVE

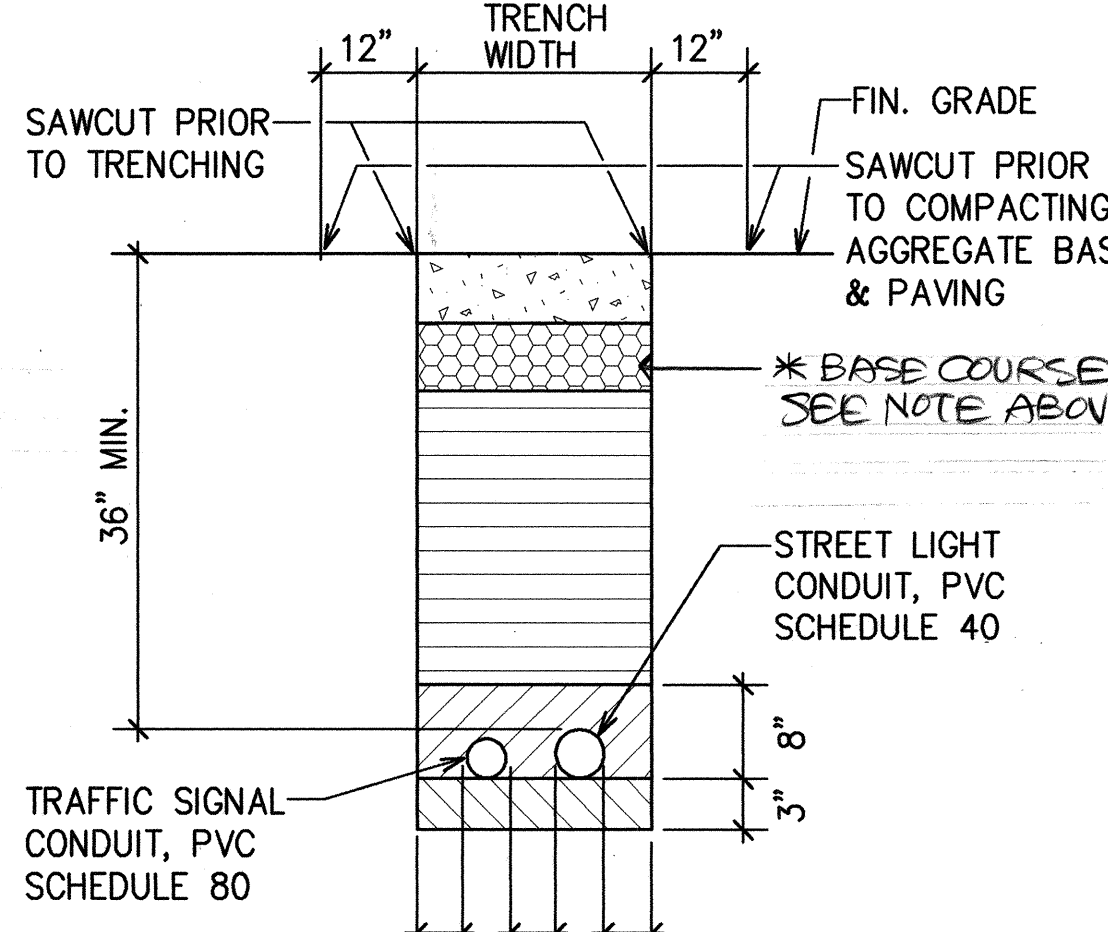
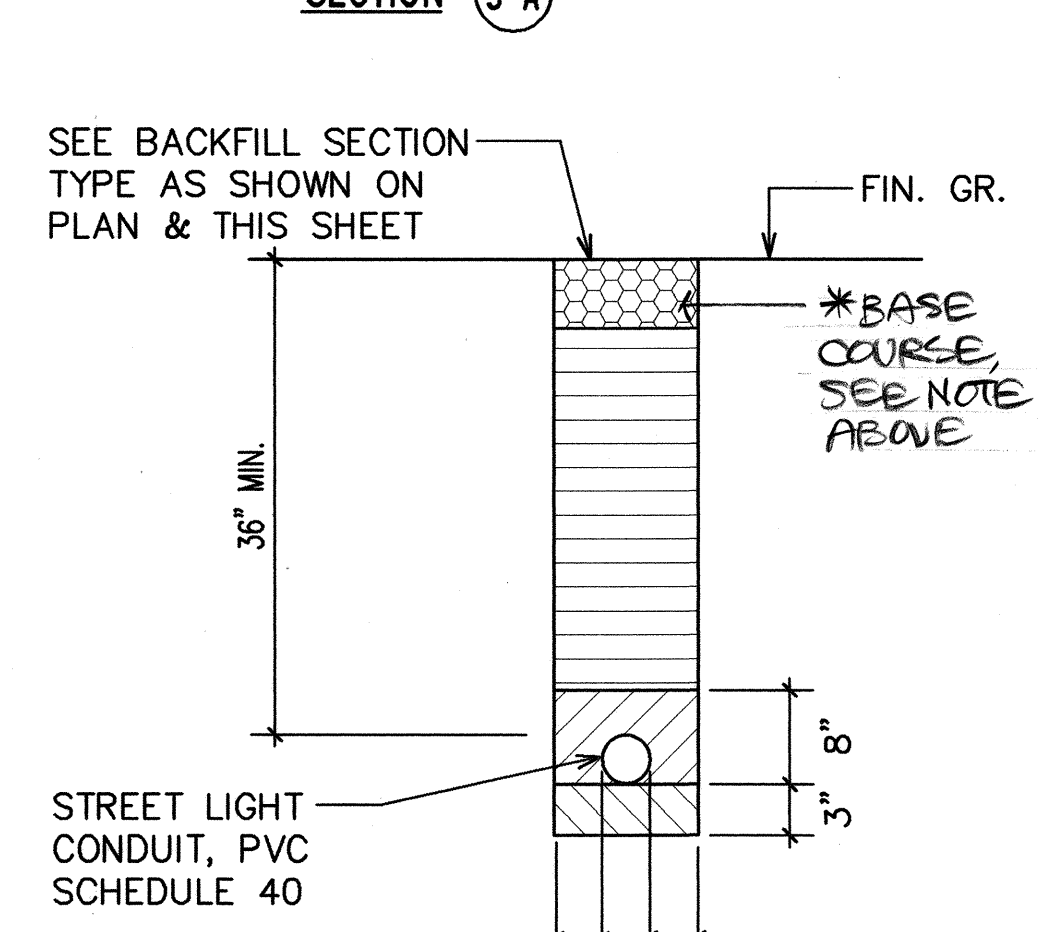
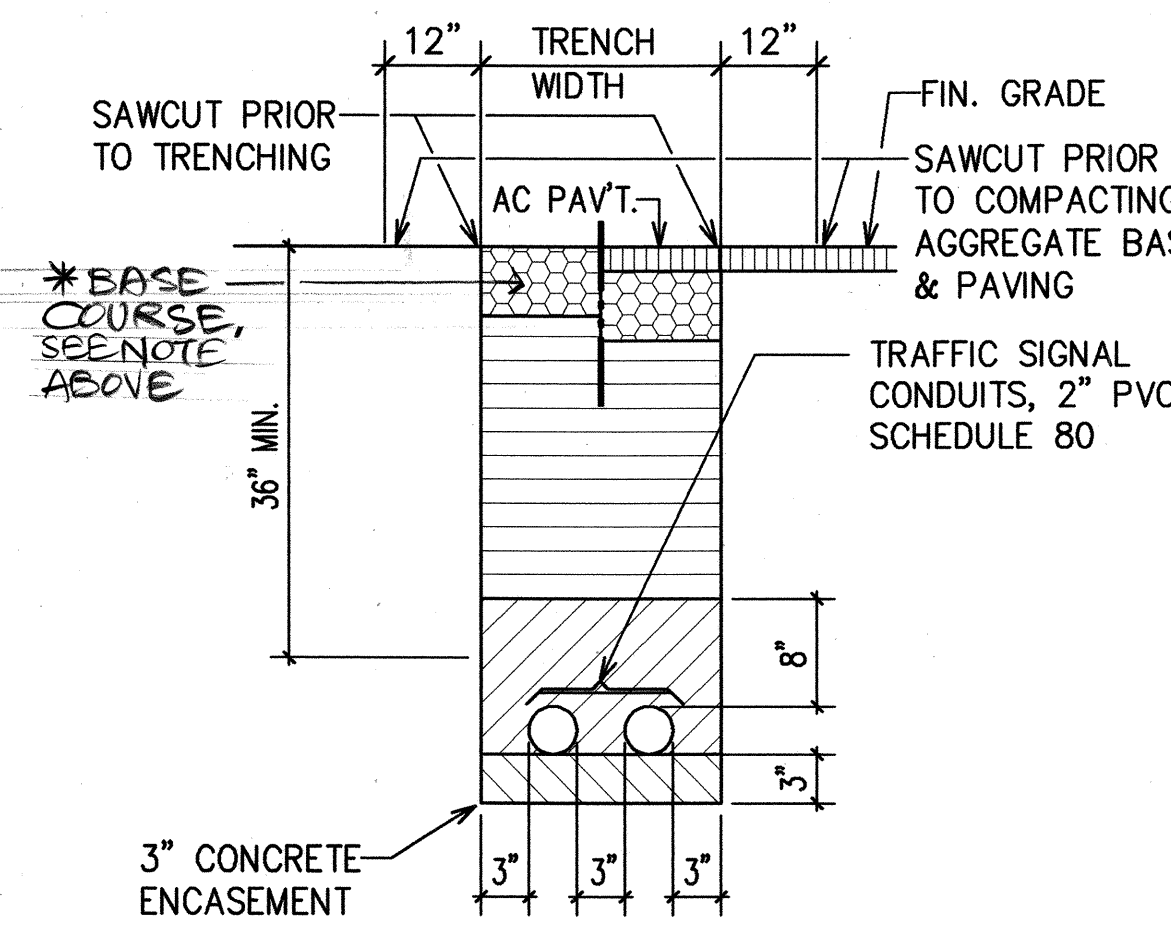
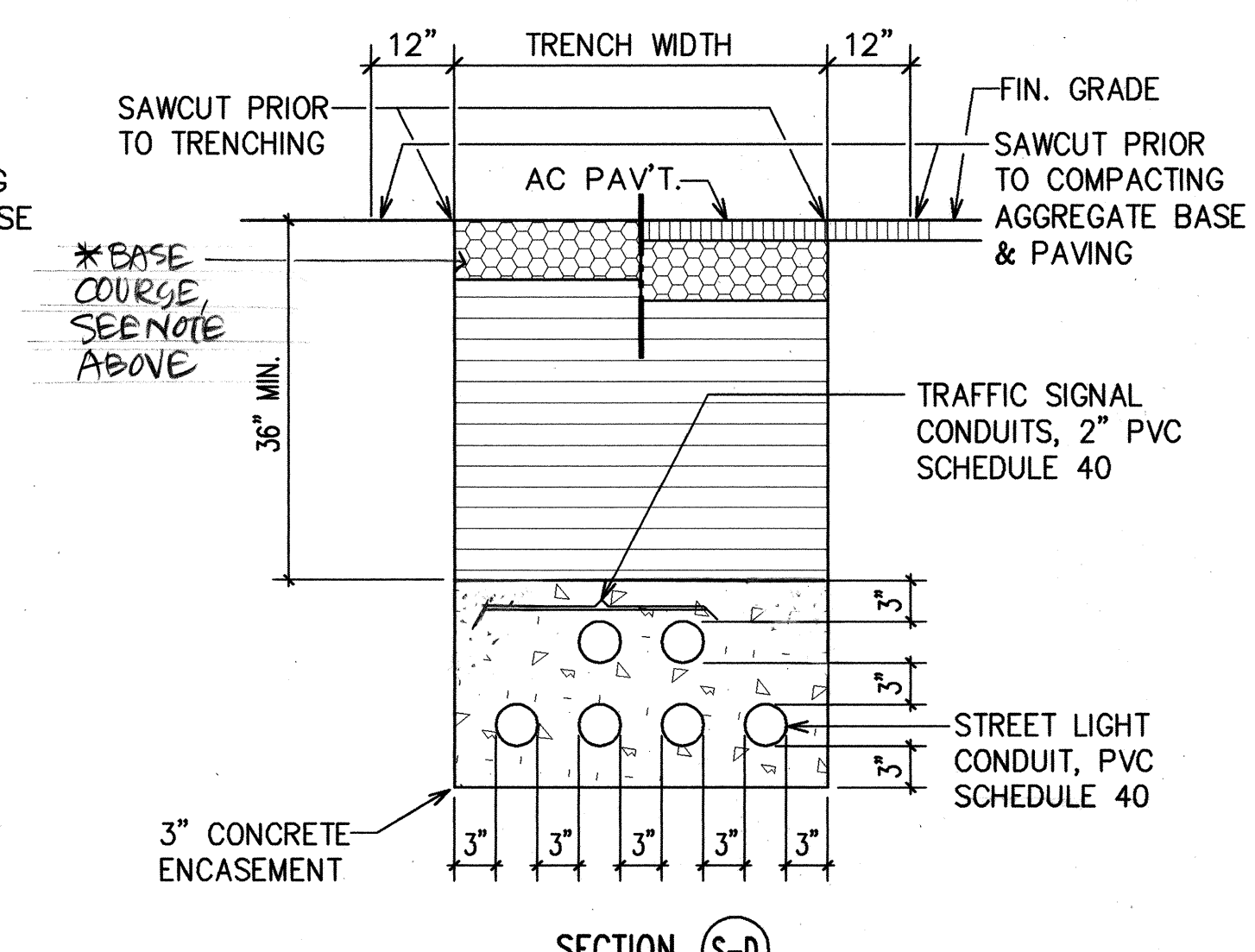
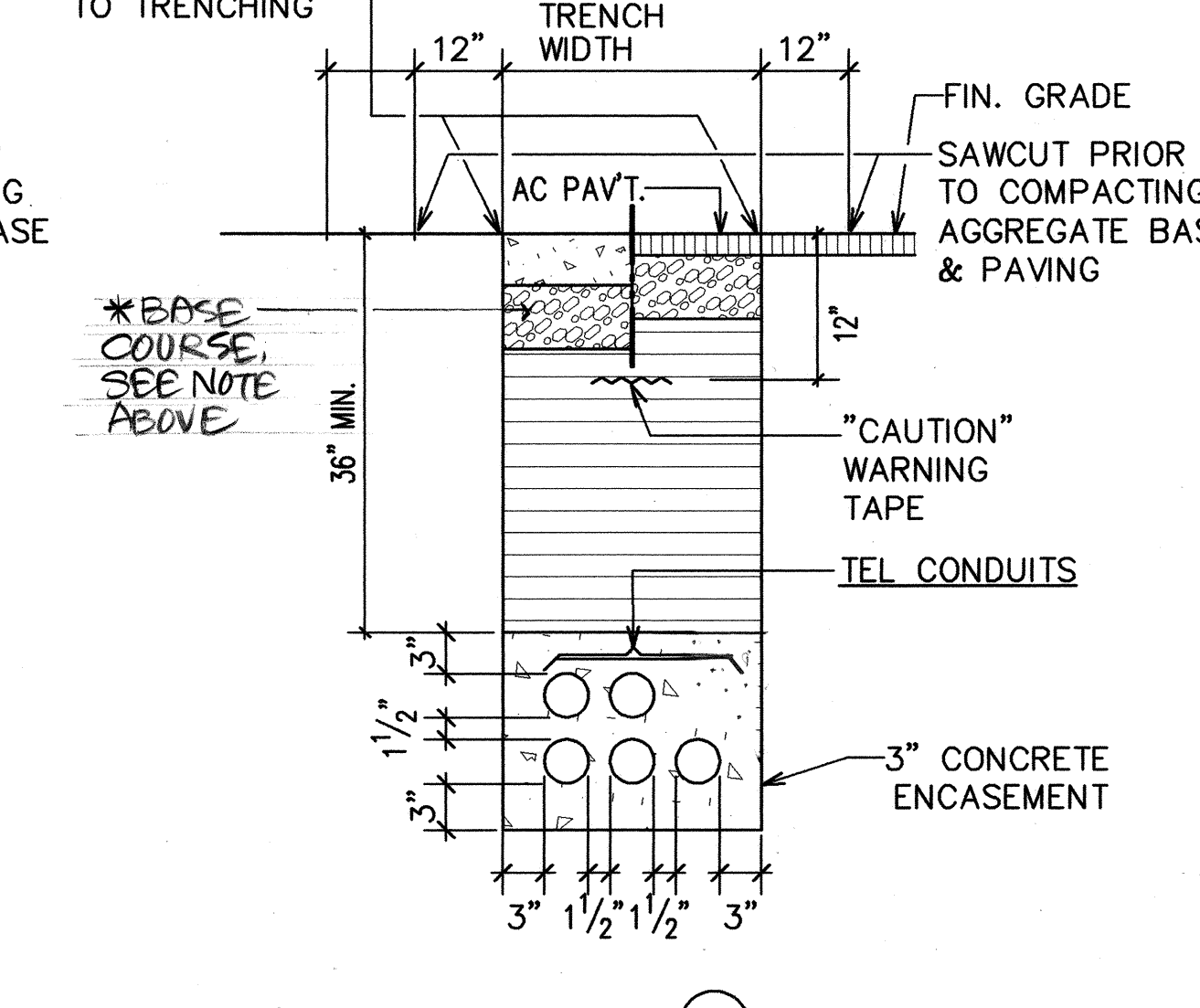
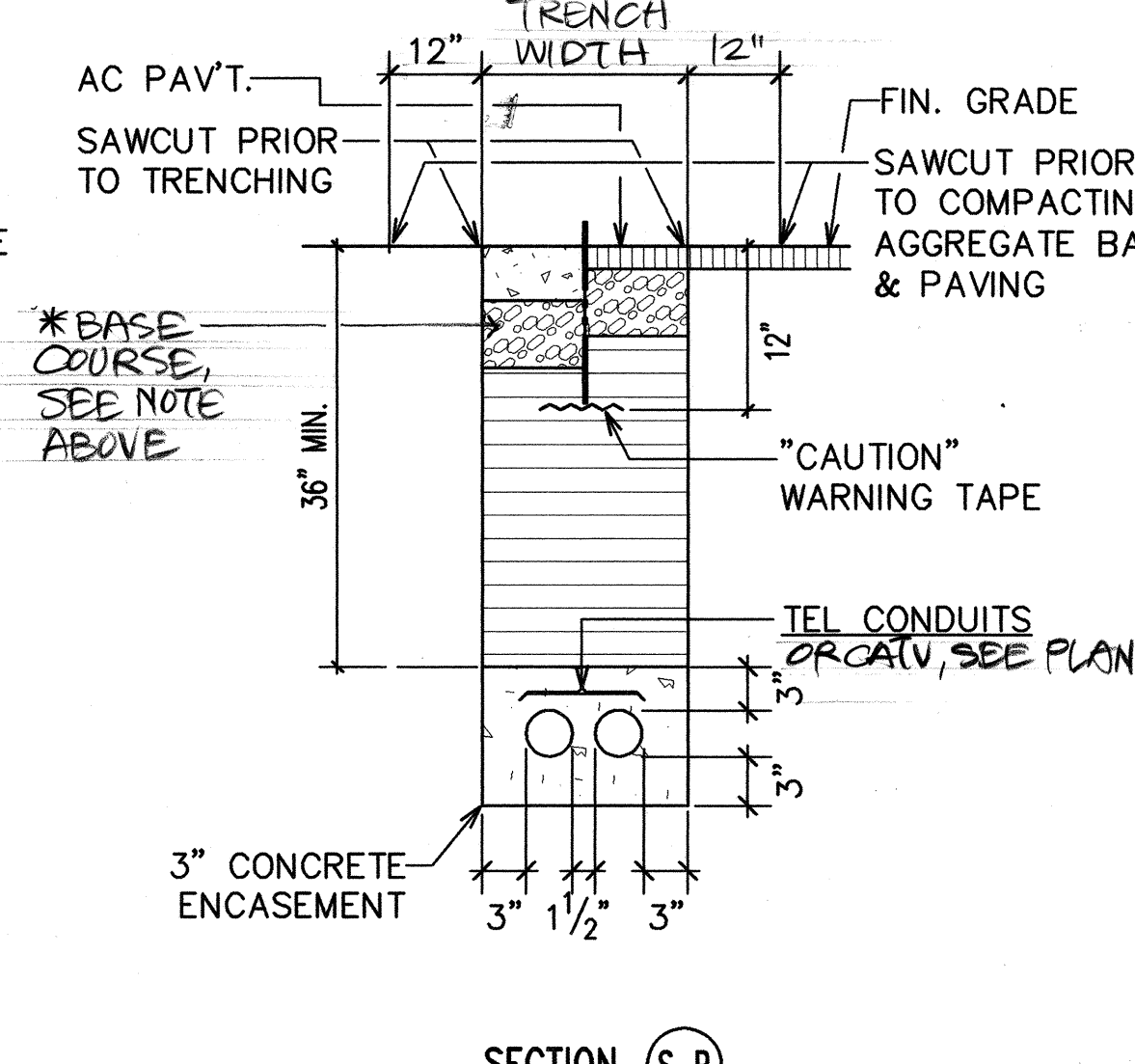
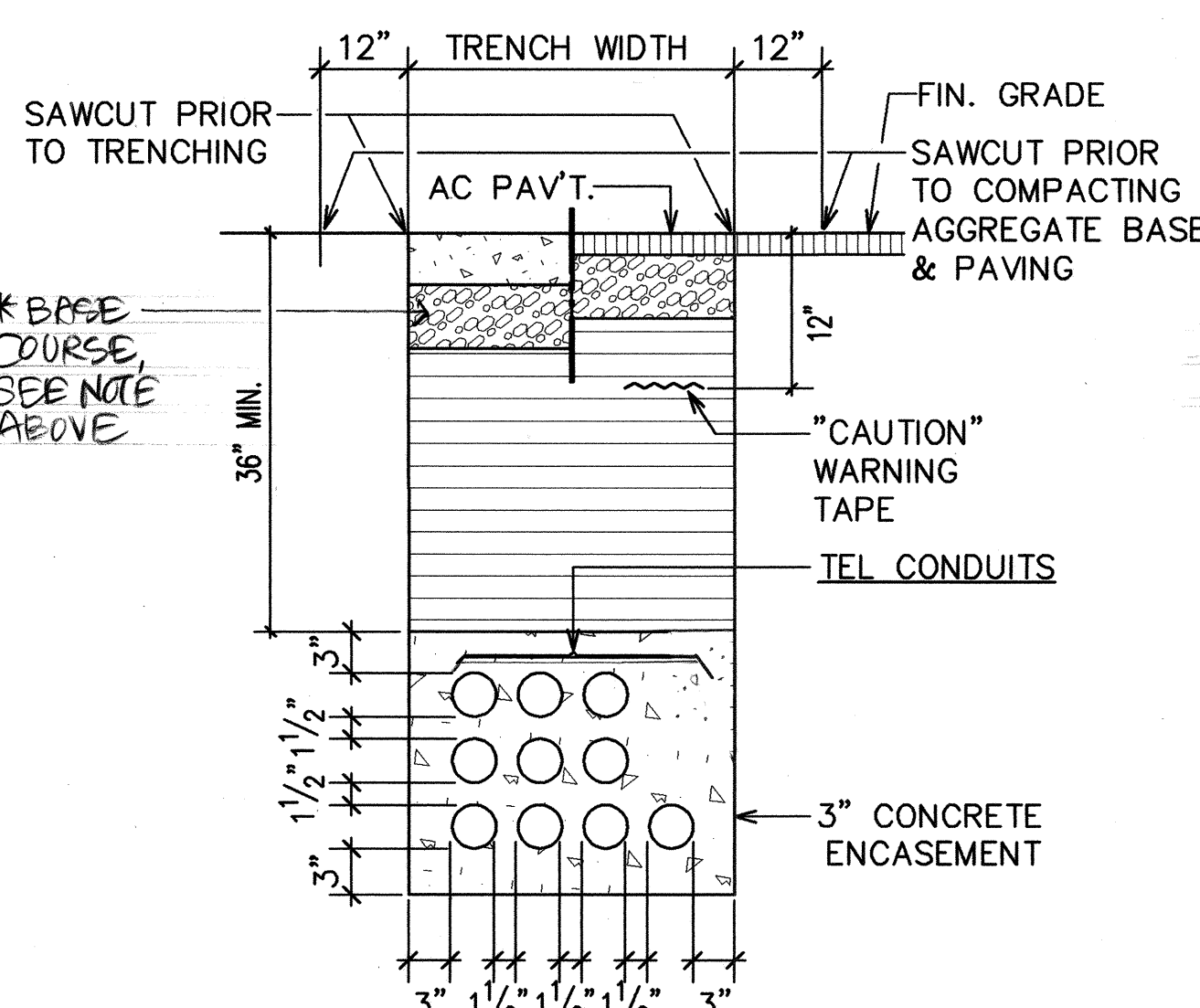
CONCRETE - 3" ENCASEMENT, 3000 PSI COMPRESSIVE STRENGTH @ 28 DAYS.

NOTE: BASE COURSE & SUB-BASE COURSE PER 1985 STATE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.



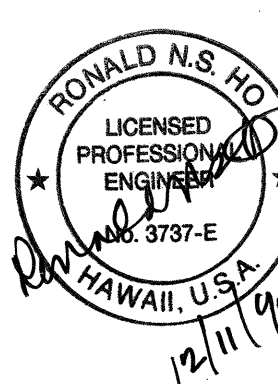
DUCT SECTIONS (STATE) - TYPICAL

36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 57, 58, 59, 60 NOT TO SCALE



APPROVED: *Donna M. Hagan* 8/13/99
OCEANIC CABLE DATE

APPROVED: HAWAIIAN ELECTRIC CO. DATE
Donna T. Hagashi 4/10/96
HAWAIIAN TELEPHONE CO. DATE



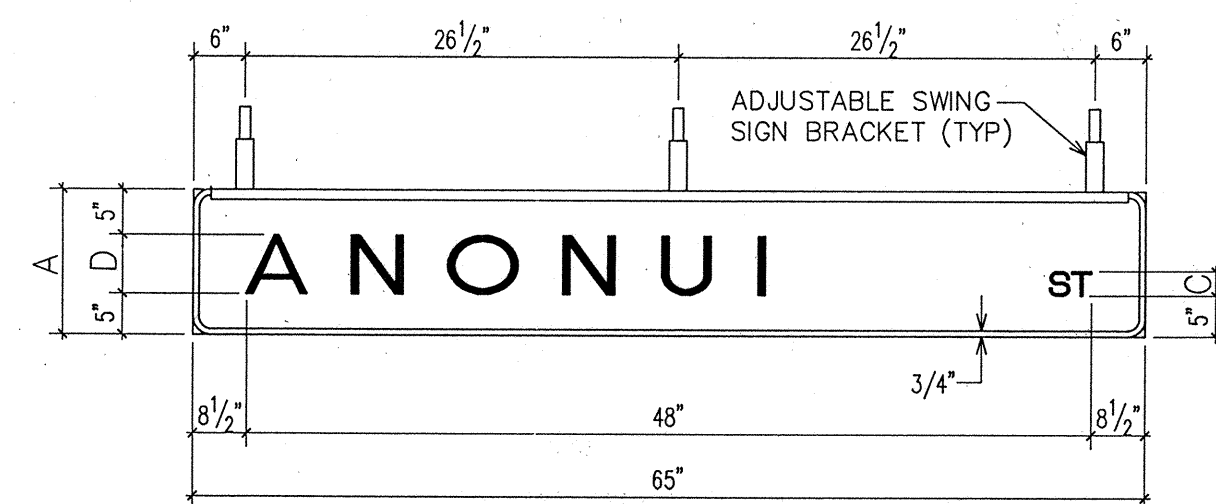
DRAWING REVIEW:
Reviewed for HECO's Facilities Only
Date 8/12/99 By *[Signature]*
Distribution Engineering Department
Hawaiian Electric Company, Inc.
HECO's review of these drawings shall in no way relieve the Customer, its Consultant, its Contractor or anyone acting on Customer's behalf from the responsibility for engineering, design, materials and any liability associated with this project.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

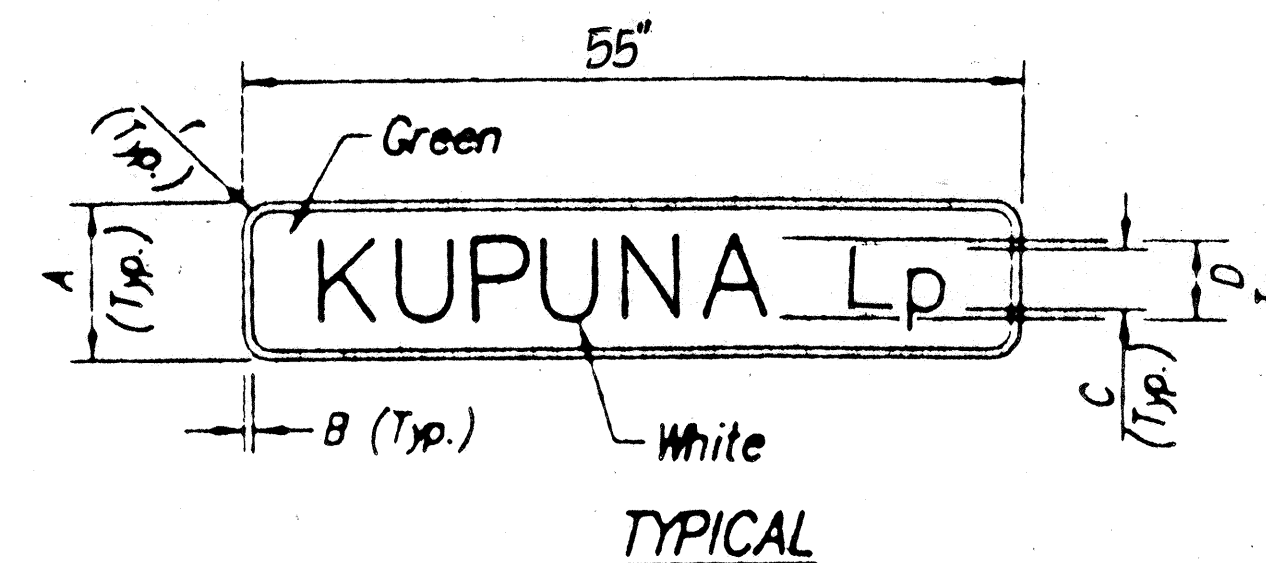
ELECTRIC DUCT SECTIONS

KUNIA ROAD WIDENING; AND
H-1, KUNIA I.C., RAMP KO WIDENING
F.A.I. PROJECT NO. IM-STP-0750(10)
SCALE: AS NOTED DATE: APRIL 1999
SHEET No. 1 OF 2 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-STP-0750(10)	1999	62	97



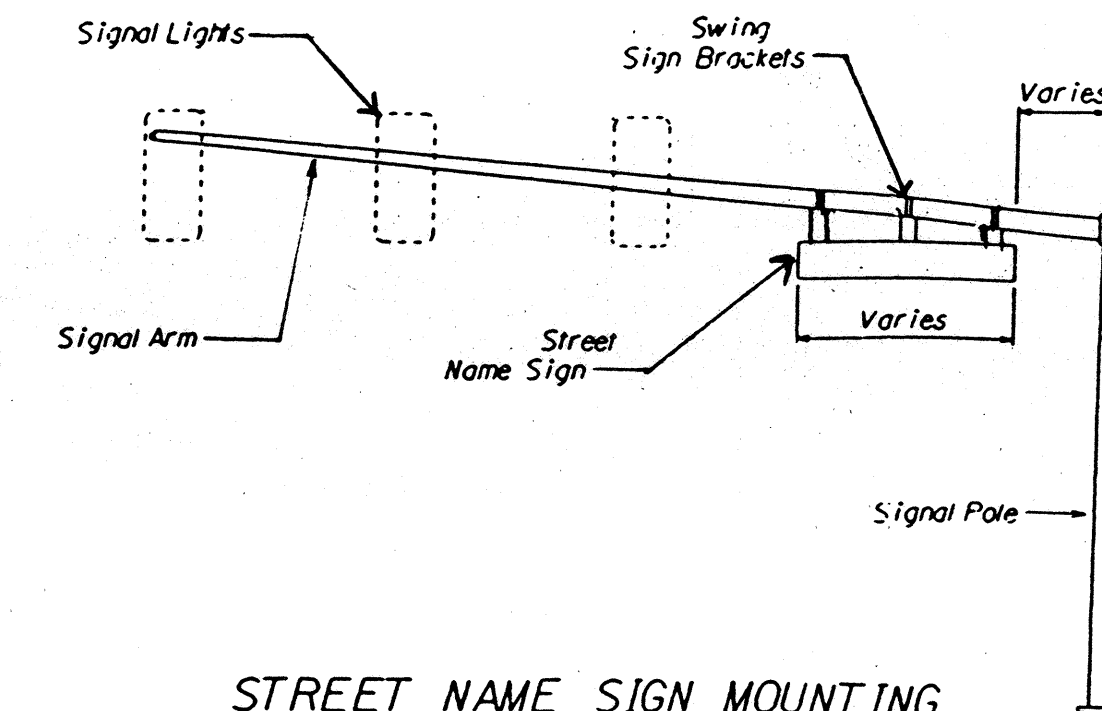
REFER TO SPEC SECTION FOR SIGNS.



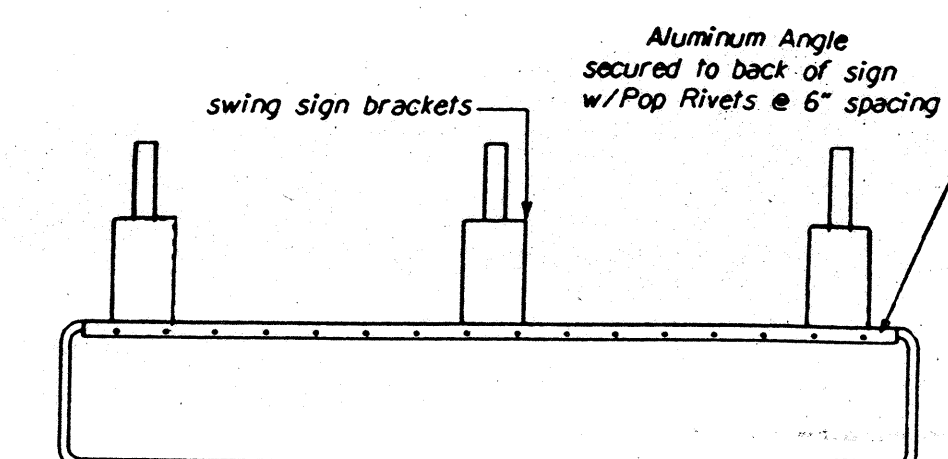
	Dimensions (inches)				
Sign	A	B	C	D	r
STD	16	1/4	60	80	J

STREET NAME SIGNS ON MAST ARM

Each Sign shall have a minimum of 3 Supports Brackets.



STREET NAME SIGN MOUNTING ON MAST ARM



TYPICAL SWING BRACKET LAYOUT

DRAWING REVIEW:
Reviewed for HECO's
Facilities Only

Date: 8/12/99 By: [Signature]
Distribution Engineering Department
Hawaiian Electric Company, Inc.

HECO's review of these drawings shall in no way release the Customer, its Consultant, its Contractor or any other party from the responsibility for engineering, design, materials and any liability associated with this project.

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION ELECTRIC DUCT SECTIONS AND SWING SIGN BRACKET

KUNIA ROAD WIDENING; AND
H-1, KUNIA I.C., RAMP KO WIDENING
F.A.I. PROJECT NO. IM-STP-0750(10)

SCALE: AS NOTED DATE: APRIL 1999

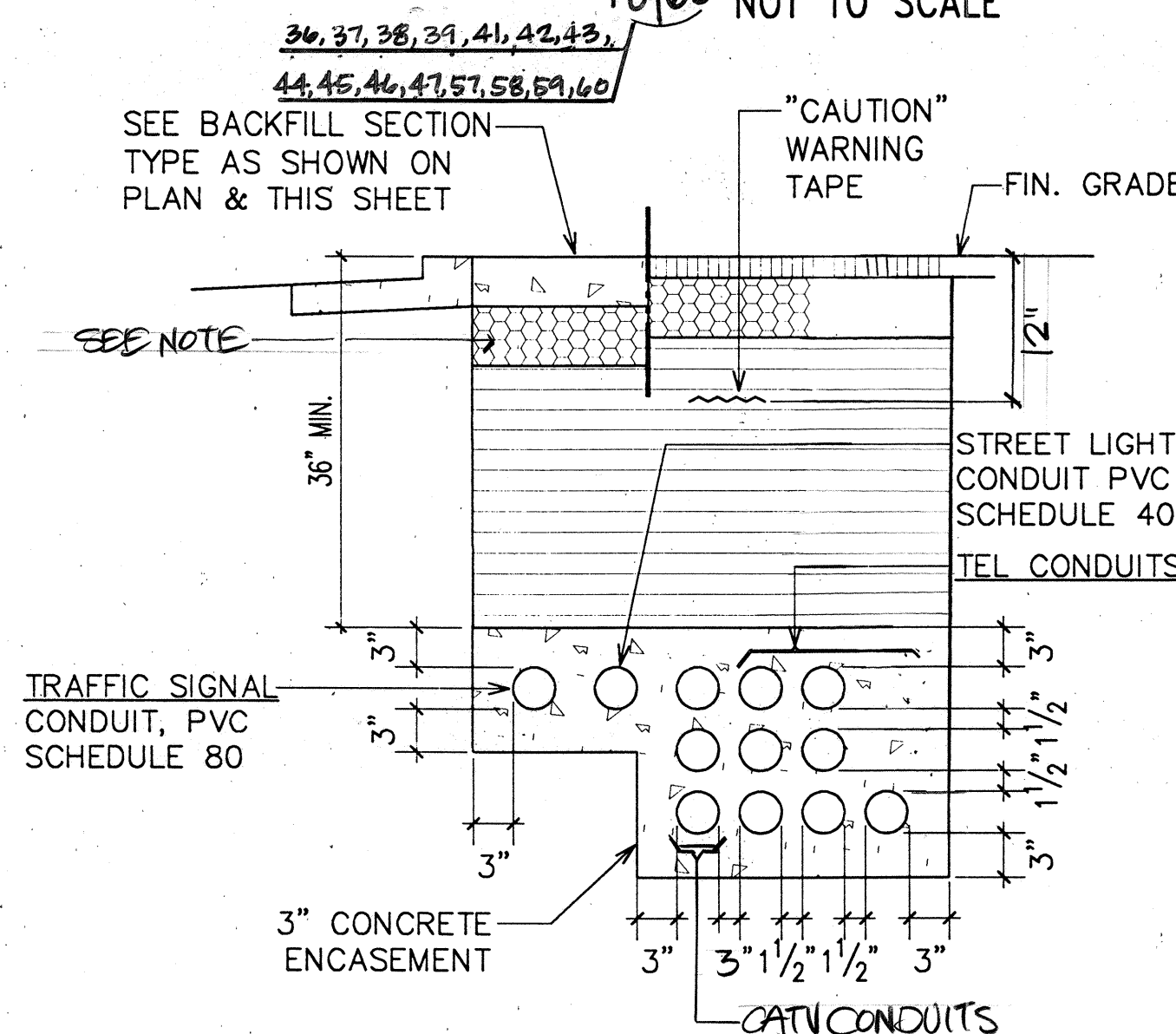
SHEET No. 2 OF 2 SHEETS

RECORD DRAWINGS

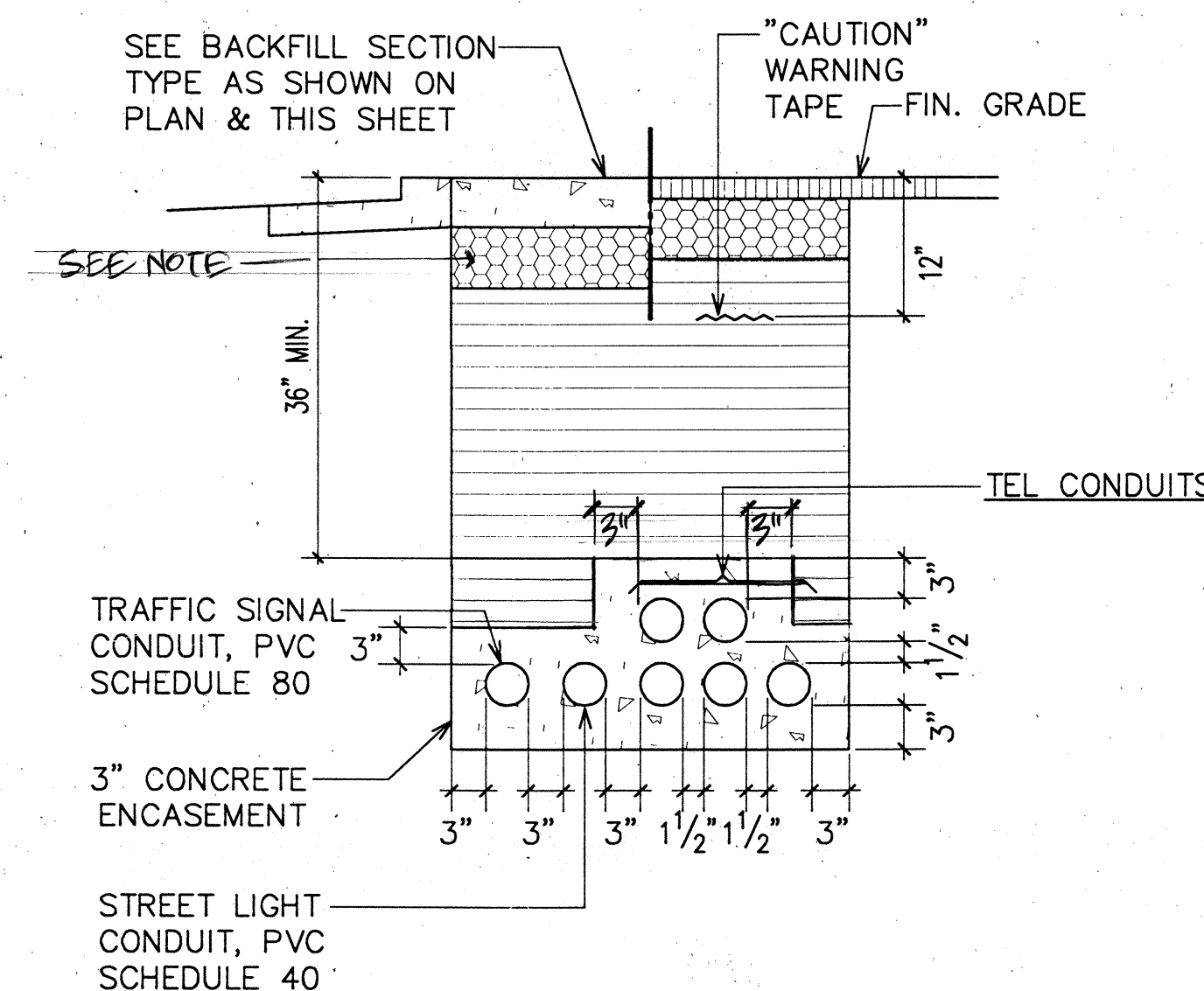
62

A DUCT SECTIONS (STATE) - TYPICAL

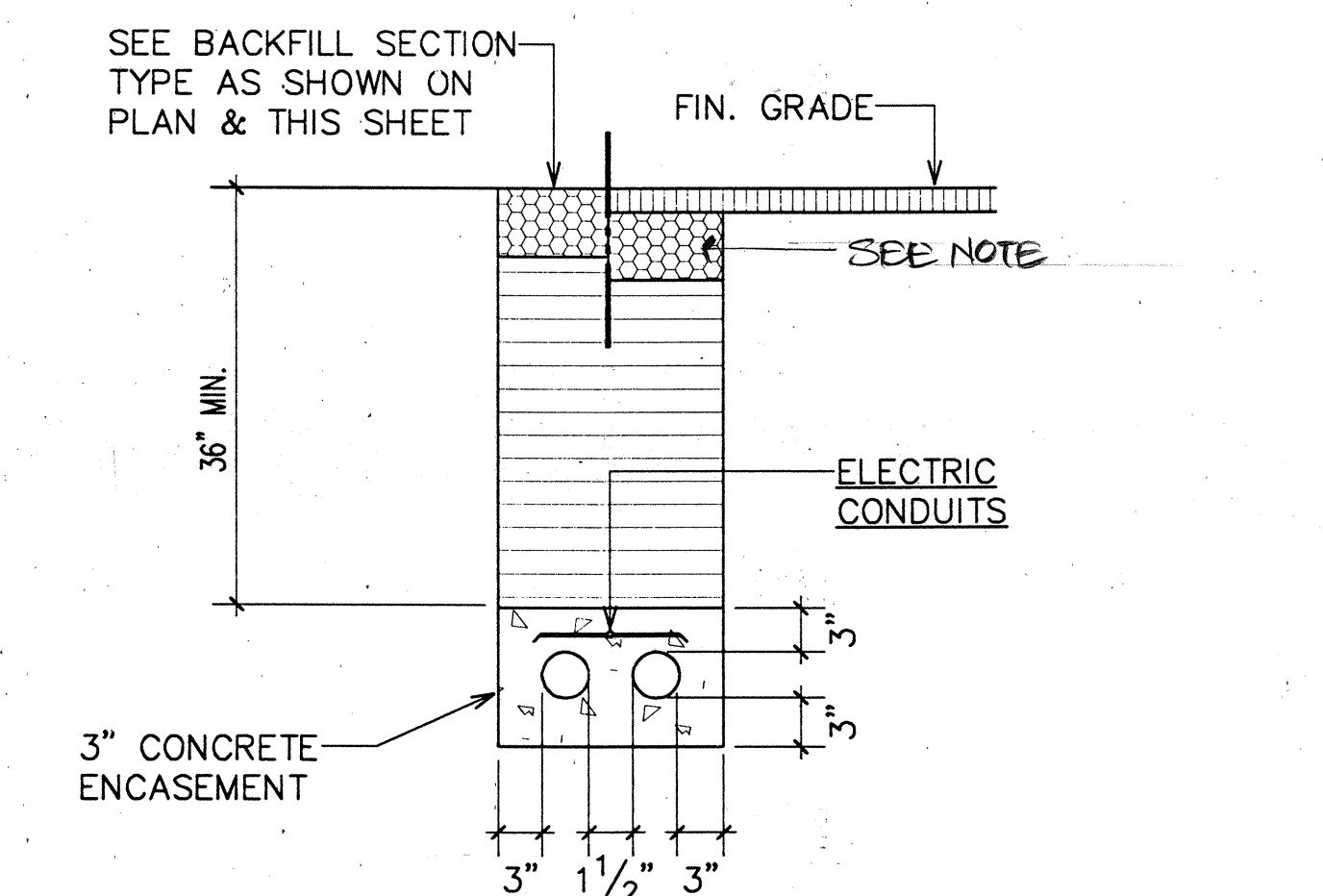
40/60 NOT TO SCALE



SECTION (S-H)

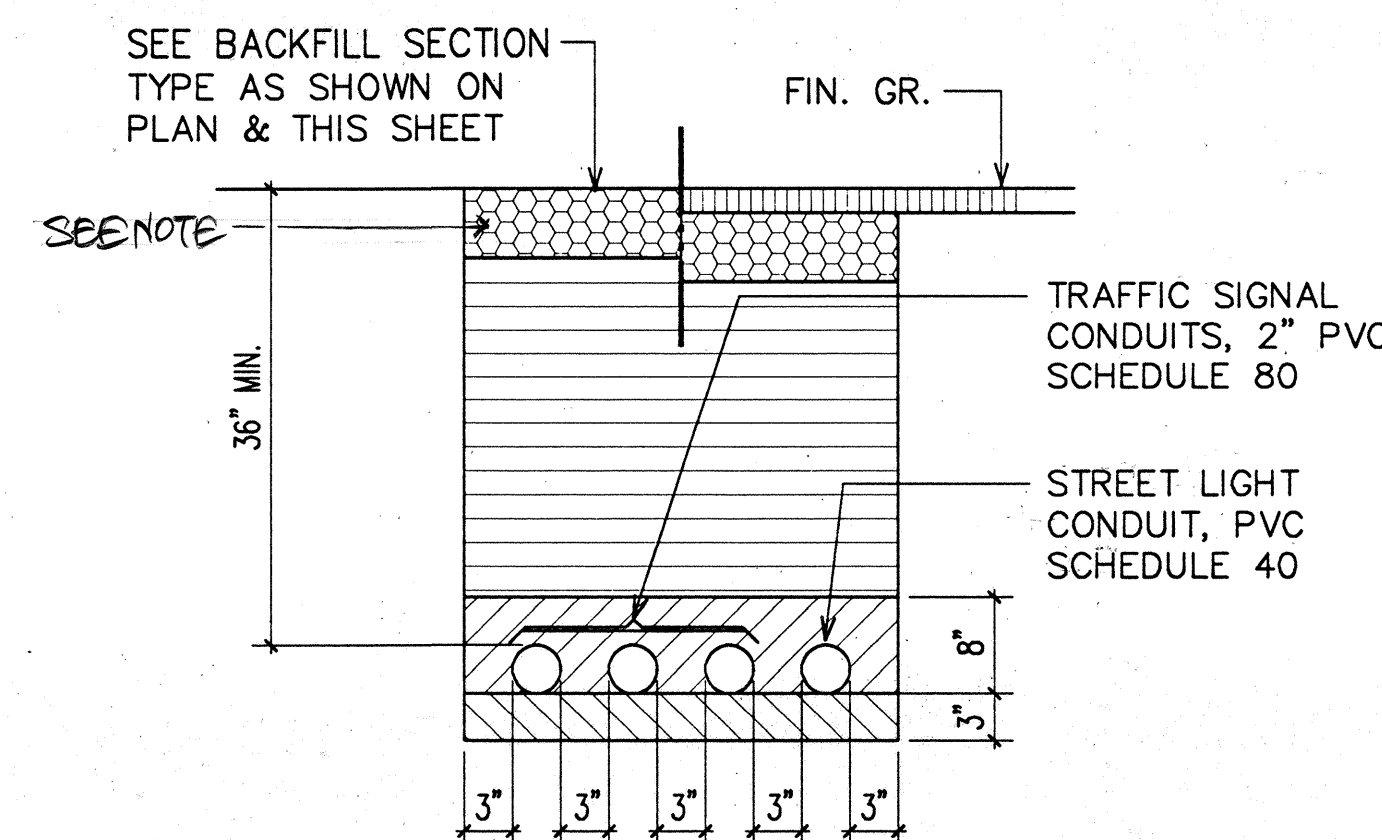


SECTION (S-I)

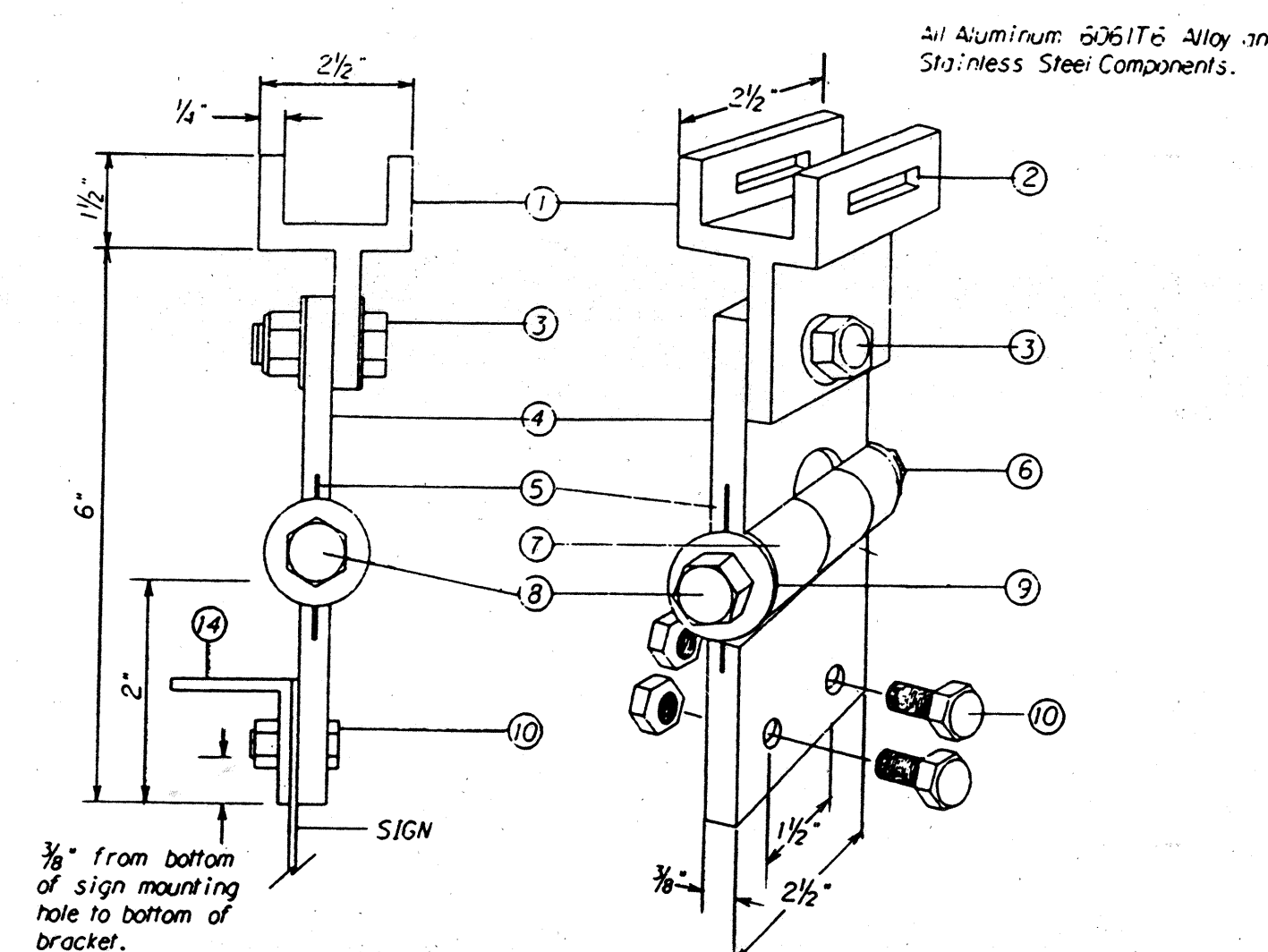


SECTION (S-J)

NOTE: * A.C. AND BASE COURSE TO MATCH EXISTING THICKNESS OR THE MINIMUM THICKNESS SHOWN ON SHEET 53, WHICHEVER IS GREATER.



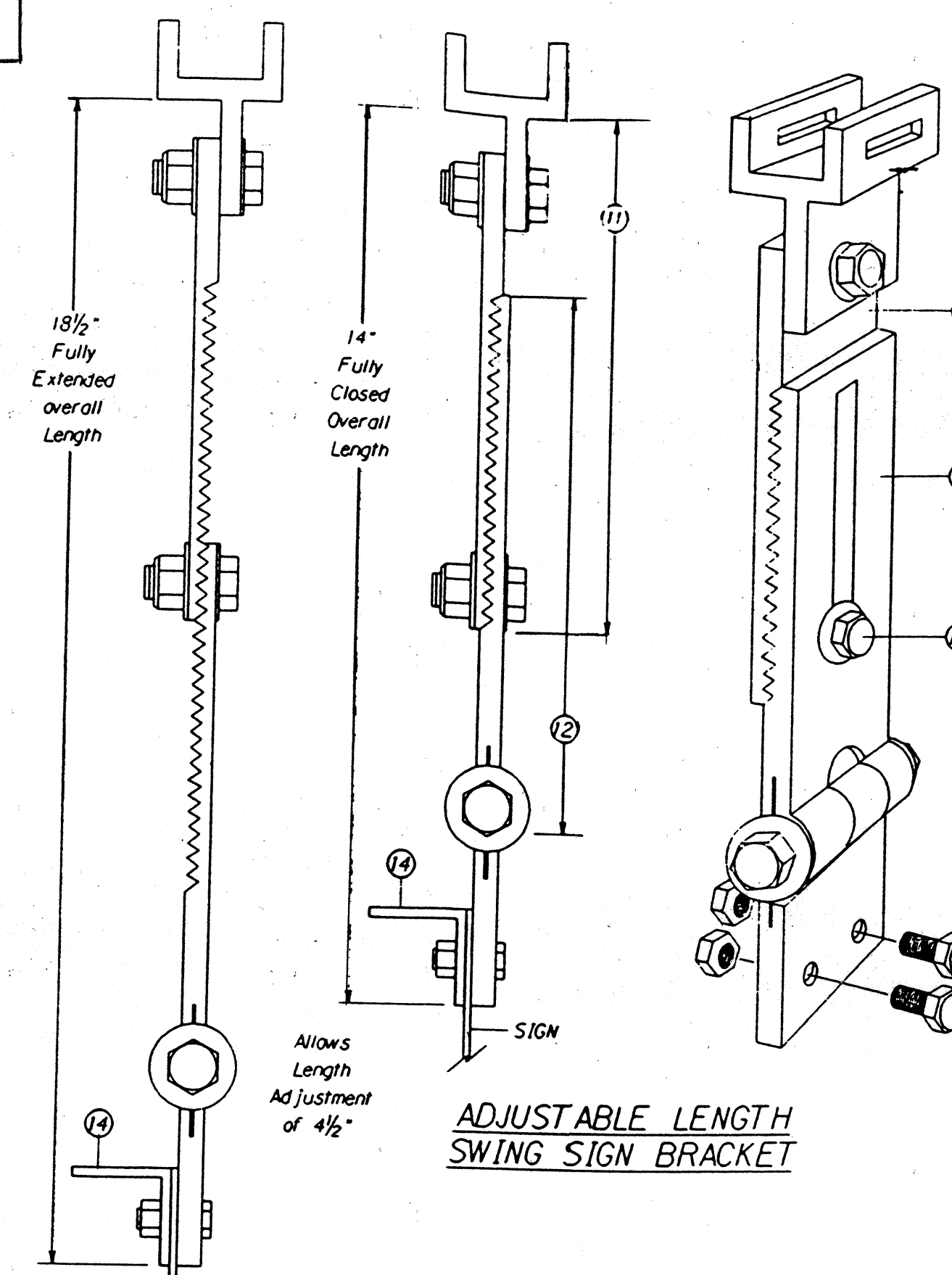
SECTION (S-K)



FIXED LENGTH NON-ADJUSTABLE SWING SIGN BRACKET

- Pivotal Upper Bracket
- 1 1/2" x 1/4" Slot for double strapping to electroliner mast arm. (M20-345HDI) D30" x 1/4" Heavy Duty Stainless Steel Strap with M20-345HDI Buckle recommended.)
- 1/2" - 13 x 1 1/2" Stainless Steel Hex Head Bolt with Stainless Steel Hex Lock Nut and 1/4" Stainless Steel Washer (both sides). Allows upper bracket to pivot and align with electroliner mast arm.
- 6" Overall drop with Fixed Length Sign Bracket
- Stainless Steel Damper Spring (Removable)
- Stainless Steel Hex Lock Nut with 1/4" Stainless Steel Washer
- 1" O.D. Axle Housing
- 1/2" - 13 x 4" Stainless Steel Hex Head Bolt with 1/4" Stainless Steel Washer
- Oilite Bushing
- Sign Mounting Sets, consisting of two each 3/8" - 18 x 1" Stainless Steel Hex Head Bolt with Stainless Steel Hex Lock Nut. Two holes on 1 1/2" centers provide positive lock sign mounting to bracket.
- 8 1/2" overall length Upper Adjustable Sign Bracket section
- 9" overall length Lower Adjustable Sign Bracket section, including Axle Housing 18" overall length to top of Axle Housing)
- 1/2" - 13 x 1 1/2" Stainless Steel Hex Bolt with Stainless Steel Hex Lock Nut and 1/4" Stainless Steel Washers (both sides). Loosen lock nut, adjust bracket teeth to level sign.
- 1 1/4" x 1 1/4" x 1/8" Aluminum Angle

Note: Dimensions may vary slightly.



ADJUSTABLE LENGTH SWING SIGN BRACKET

C STREET NAME SIGN MOUNTING DETAIL

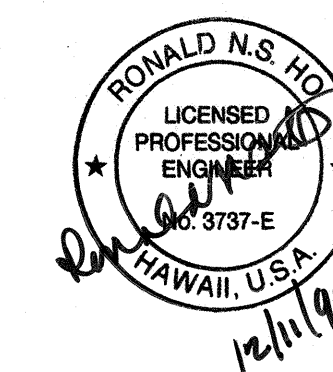
51/58/62 NOT TO SCALE

APPROVED:

Dean [Signature] 8/13/99
OCEANIC CABLE DATE

APPROVED:

HAWAIIAN ELECTRIC CO. DATE
[Signature] 7/10/99
HAWAIIAN TELEPHONE CO. DATE



DATE: 8/13/99
DRAWN BY: [Signature]
CHECKED BY: [Signature]
ORIGINAL PLAN: [Signature]
NOTE BOOK: [Signature]
QUANTITIES BY: [Signature]
CHECKED BY: [Signature]
No. 12/06/95
G:\ACAD\HAWAII\STP-0750\IM-STP-0750-10.DWG