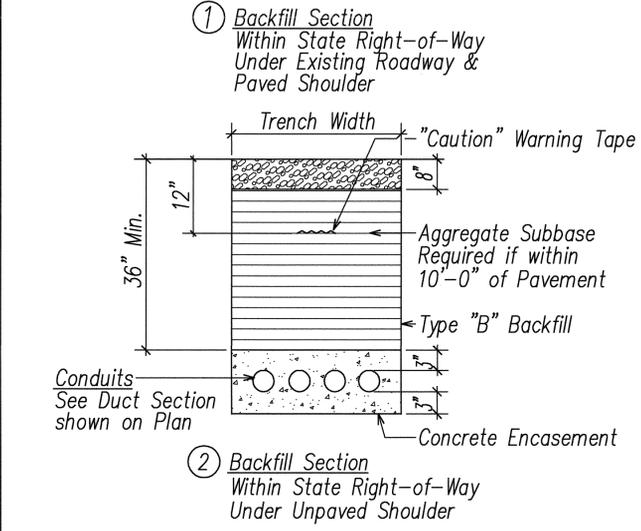
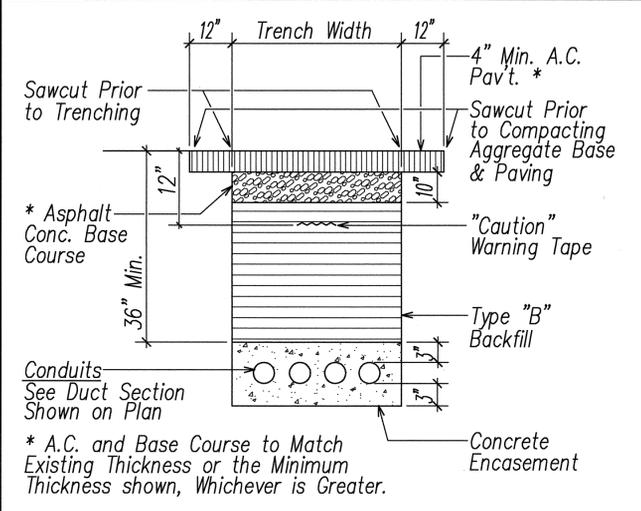


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	282	331



STATE RIGHT-OF-WAY BACKFILL NOTES

Trench Backfill Material "B"

1. Sand Equivalent = 2
2. 8" Max. Lift Loose
3. 95% Compaction

Trench Backfill Material "A"

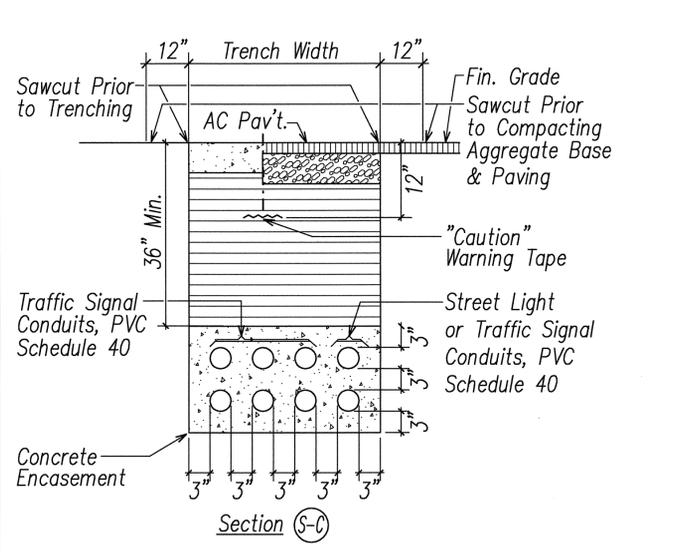
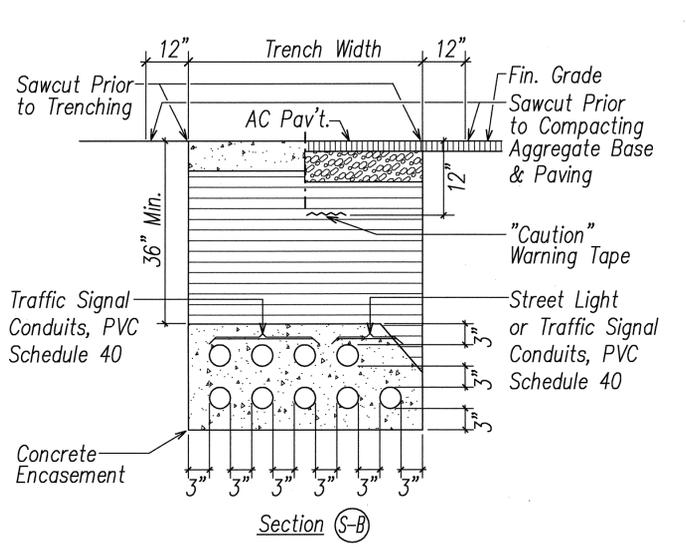
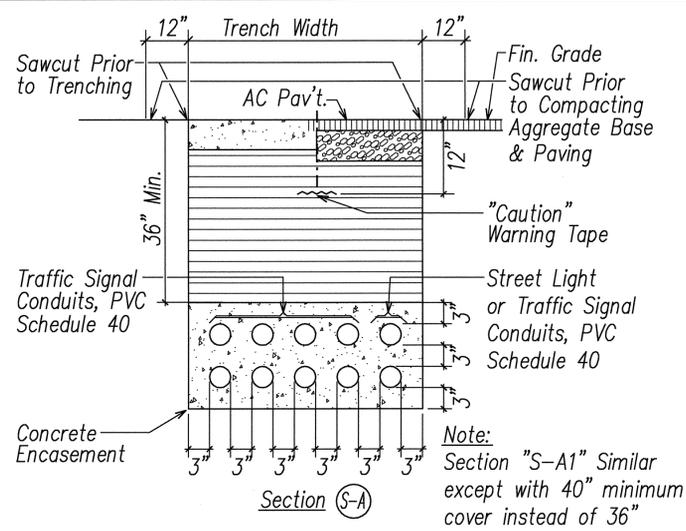
1. Sand Equivalent = 20
2. 8" Max. Lift Loose
3. 95% Compaction

If Material Below Duct is not Equivalent to Backfill "A", Excavate Material & Provide 3" Backfill Material "A". See Above.

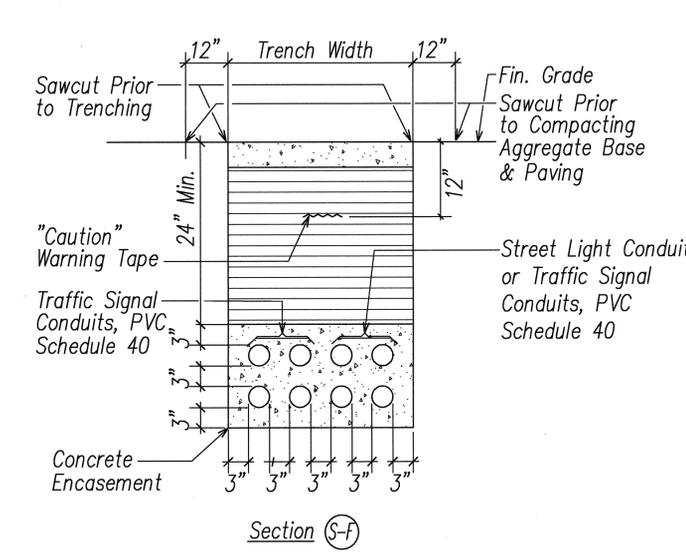
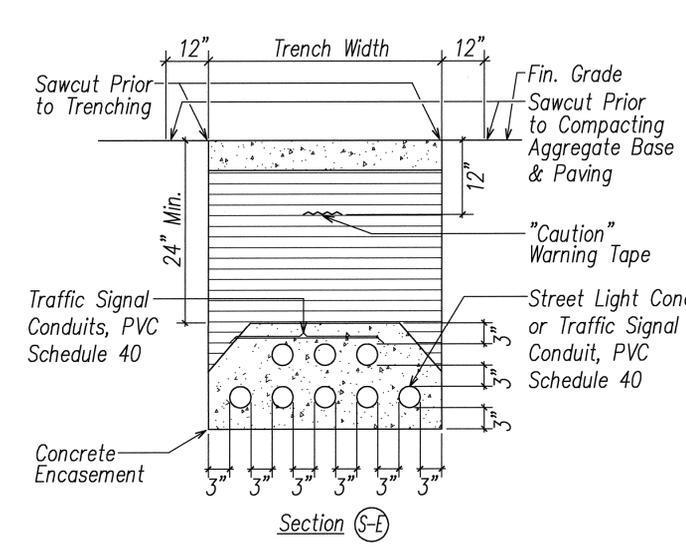
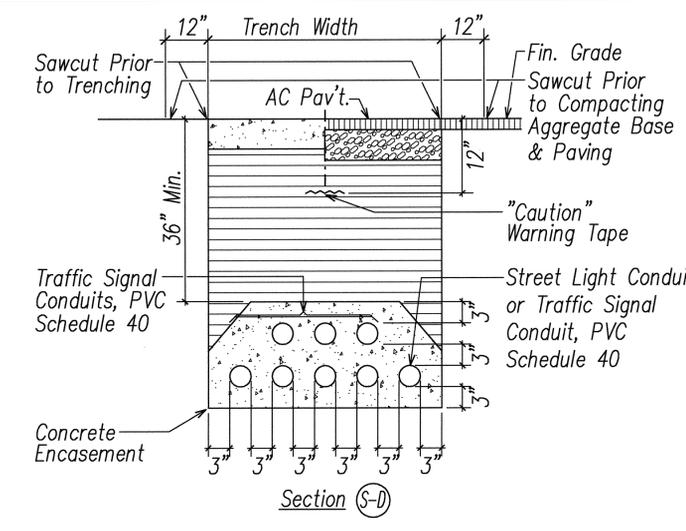
Concrete - 3" Encasement, Class B.

Note: Base Course & Sub-Base Course per 1985 State Standard Specifications for Highway Construction.

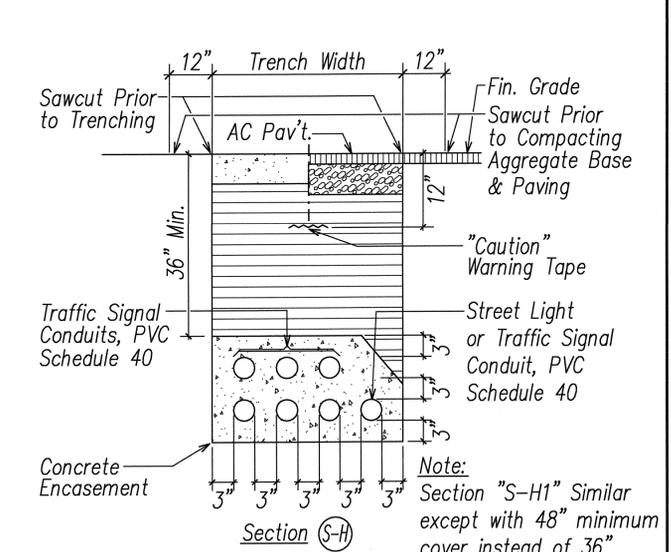
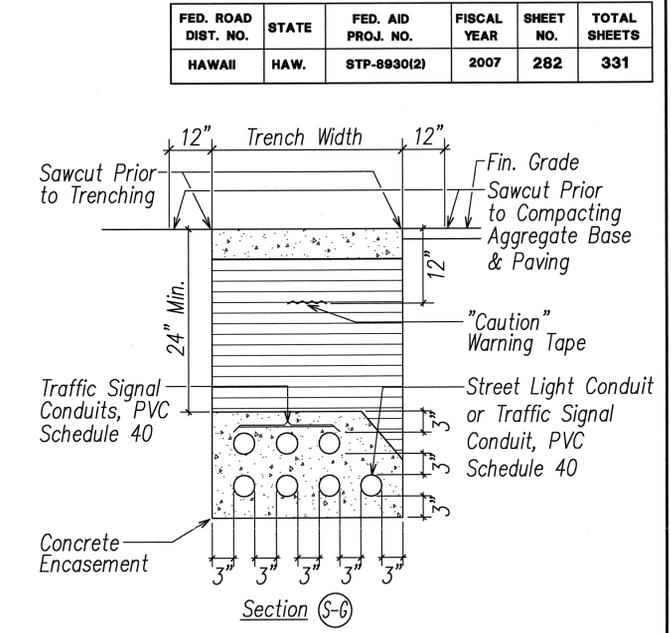
A E2.1 STATE RIGHT-OF-WAY TYPICAL BACKFILL SECTIONS & NOTES
Not to Scale



B E2.1 TYPICAL DUCT SECTIONS I
Not to Scale



C E2.1 TYPICAL DUCT SECTIONS I
Not to Scale



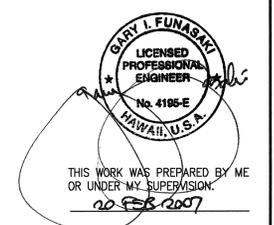
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL DUCT SECTIONS I

North-South Road
Phase 1B
F.A.I. Proj. No. STP-8930(2)

Scale: AS NOTED Date: Feb 21, 2007

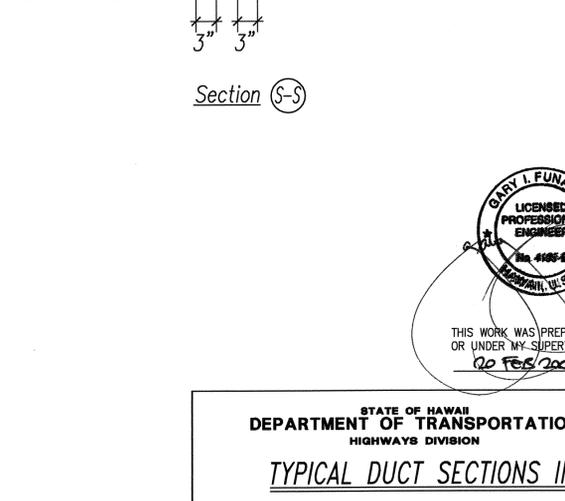
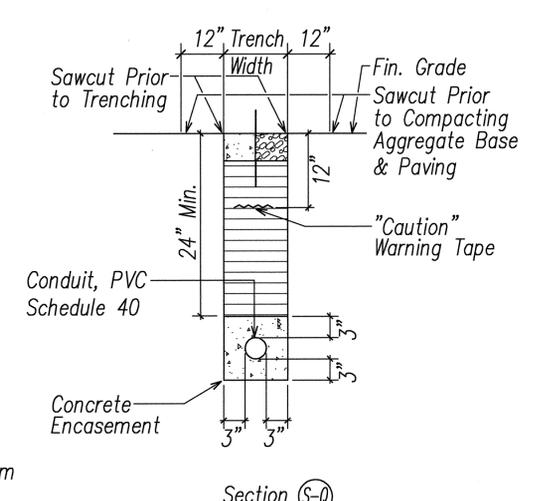
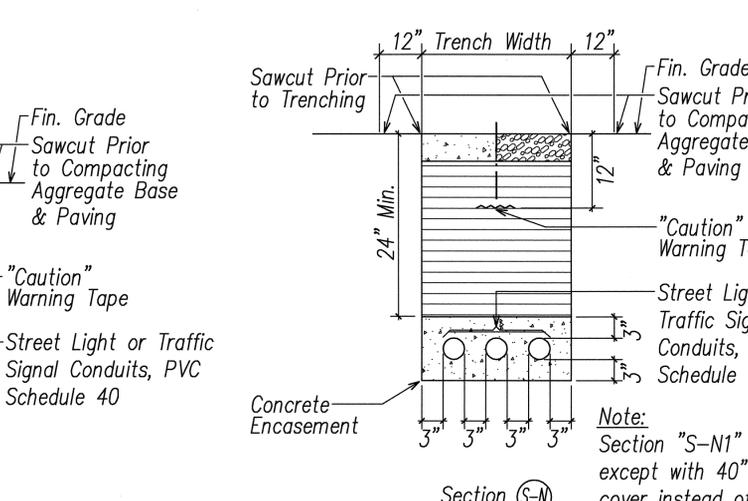
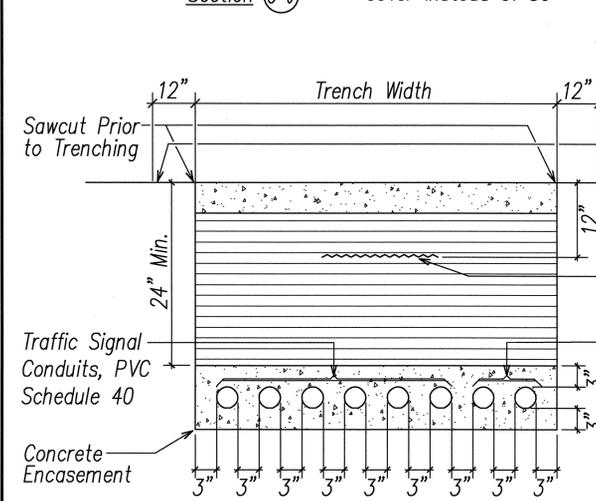
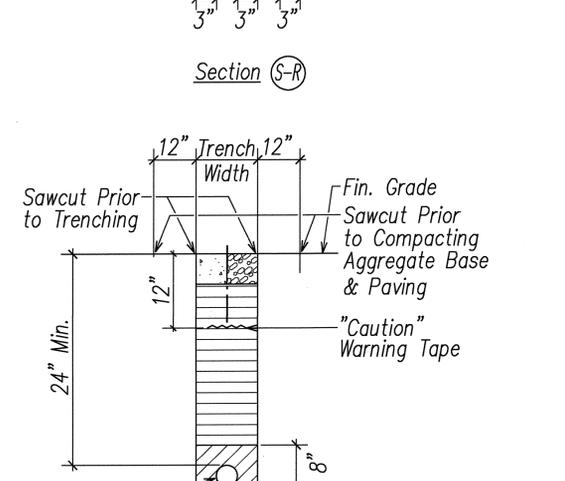
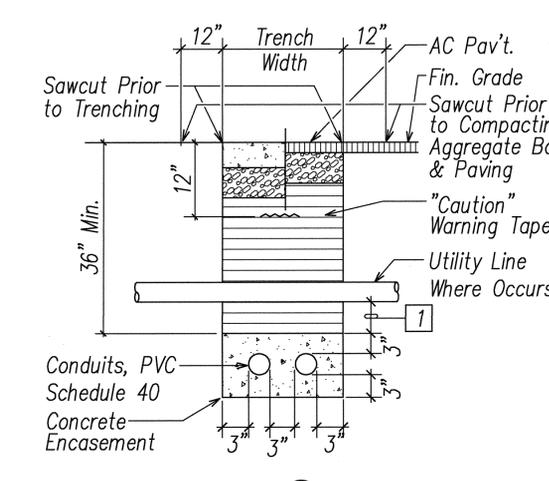
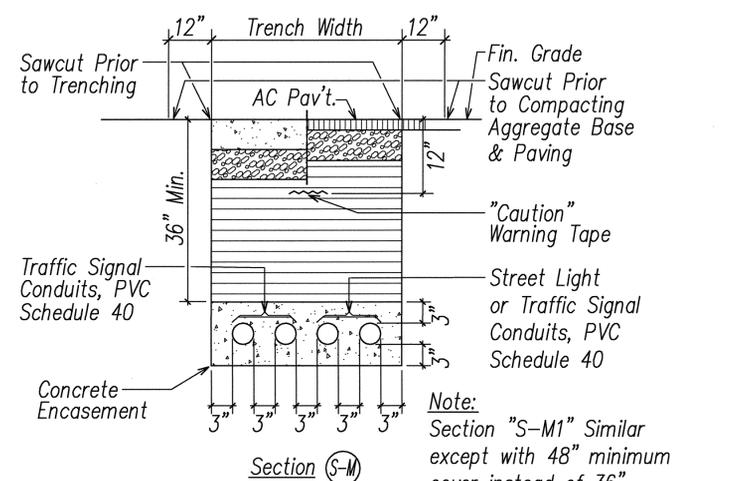
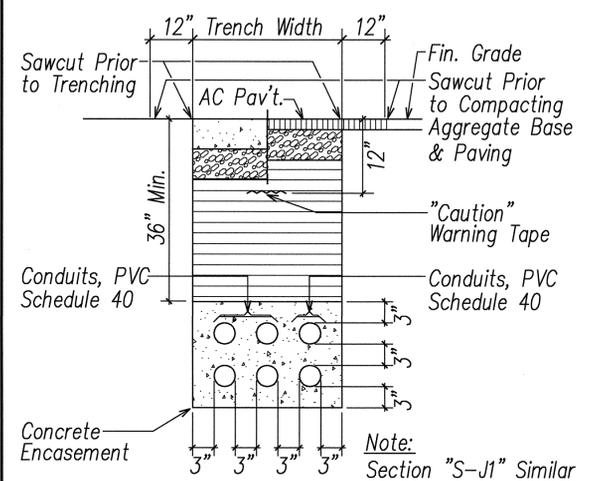
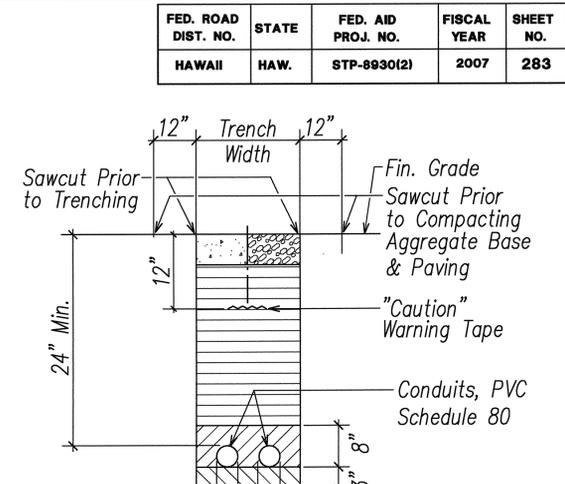
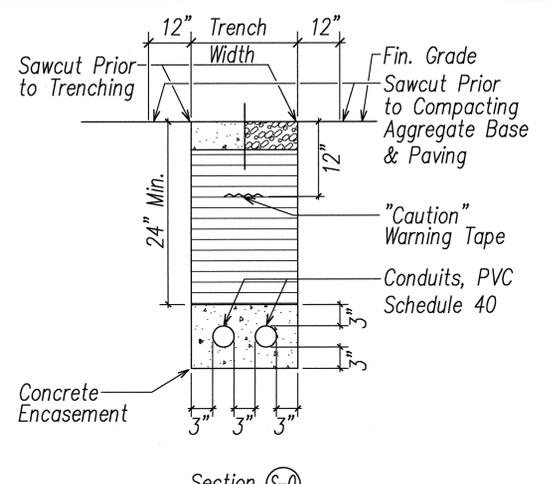
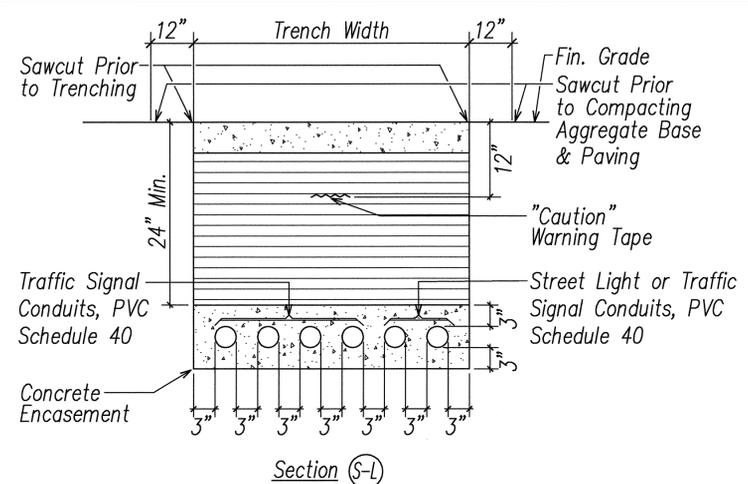
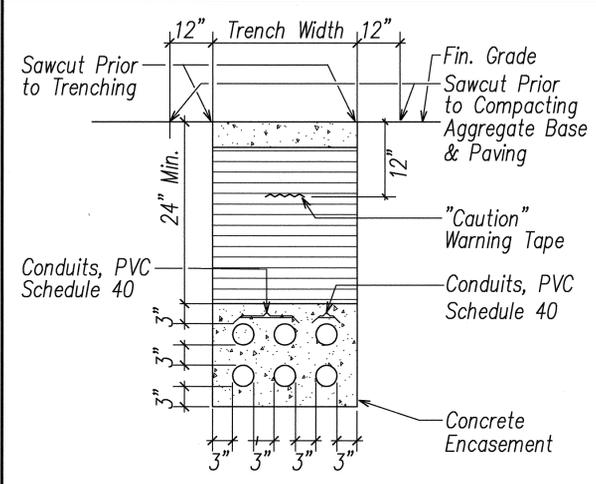
SHEET No. E2.1 OF 62 SHEETS



SURVEY PLOTTED BY: _____ DATE: _____
 DRAWN BY: _____
 CHECKED BY: _____
 DESIGNED BY: _____
 DATE: _____
 LAST DATE: 02/21/07
 PROJECT: STP-8930(2)
 SHEET: E2.1 OF 62

DATE	REVISION

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	283	331



Note: Section "S-J1" Similar except with 40" minimum cover instead of 36"

Note: Section "S-M1" Similar except with 48" minimum cover instead of 36"

Note: Section "S-N1" Similar except with 40" minimum cover instead of 24"

Notes: [1] Varies, see sheet E0.5, note 14 for minimum clearance requirements.

A
E2.2 TYPICAL DUCT SECTIONS II
Not to Scale

DESIGNED BY: _____
 DRAWN BY: _____
 CHECKED BY: _____
 DATE: _____
 ORIGINAL PLAN: _____
 NOTES BOOK: _____
 QUANTITIES BY: _____
 CHECKED BY: _____
 DATE: _____
 LAST SAVE: 02/20/07 @ 08:02:54 BY: RYAN.POTTS: 11'-0"=1"
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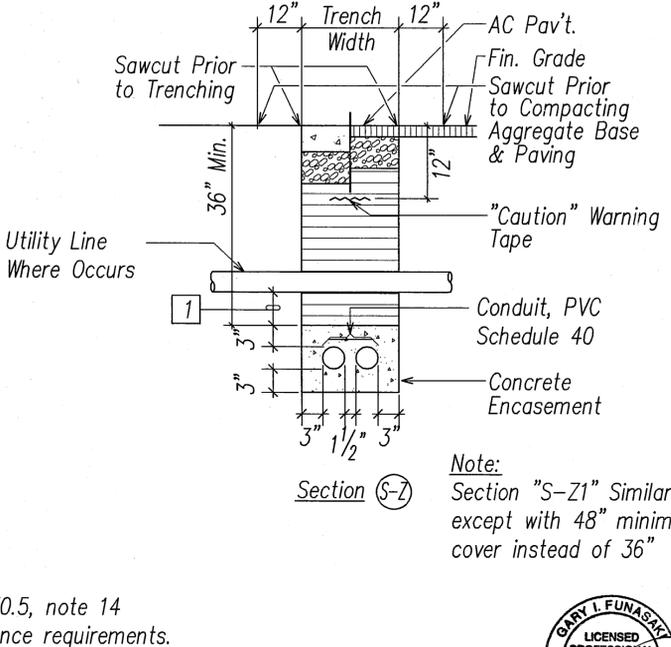
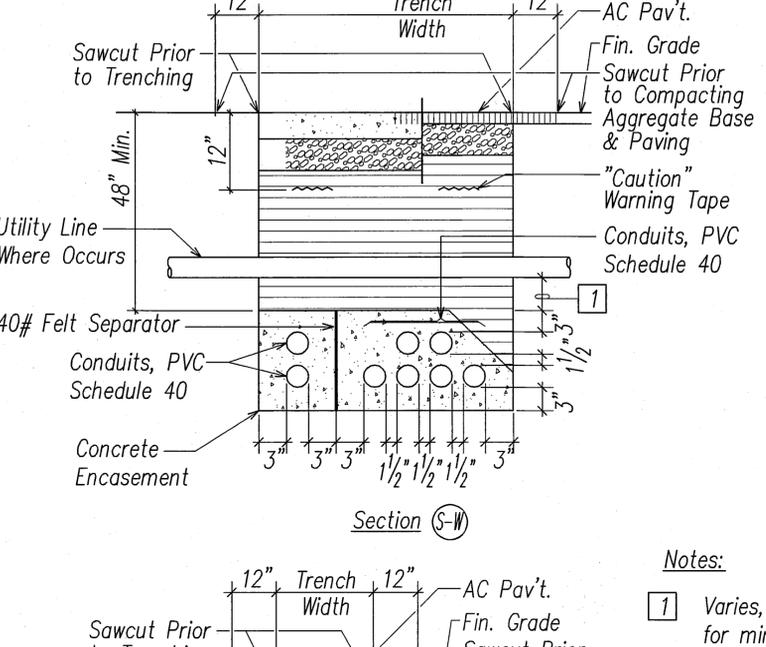
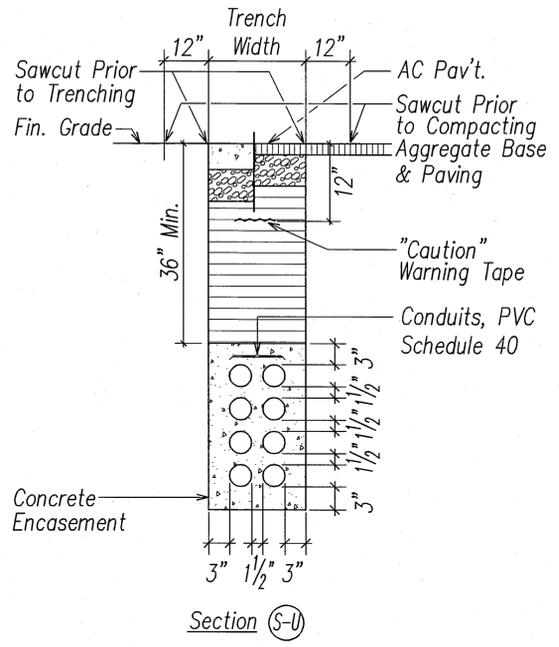
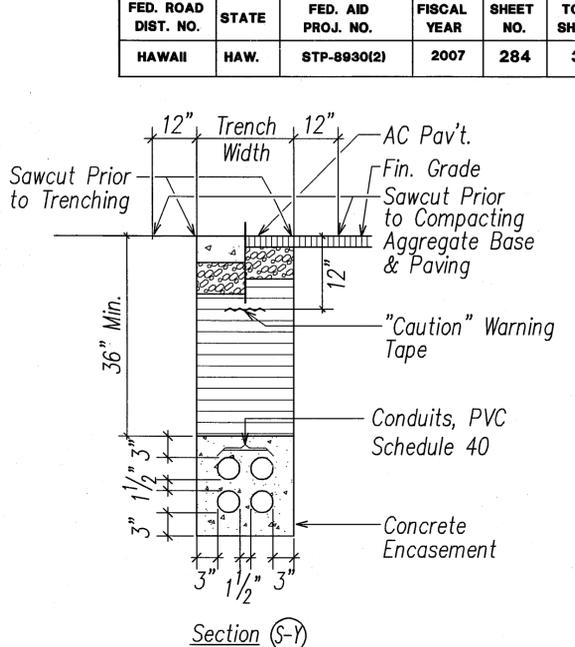
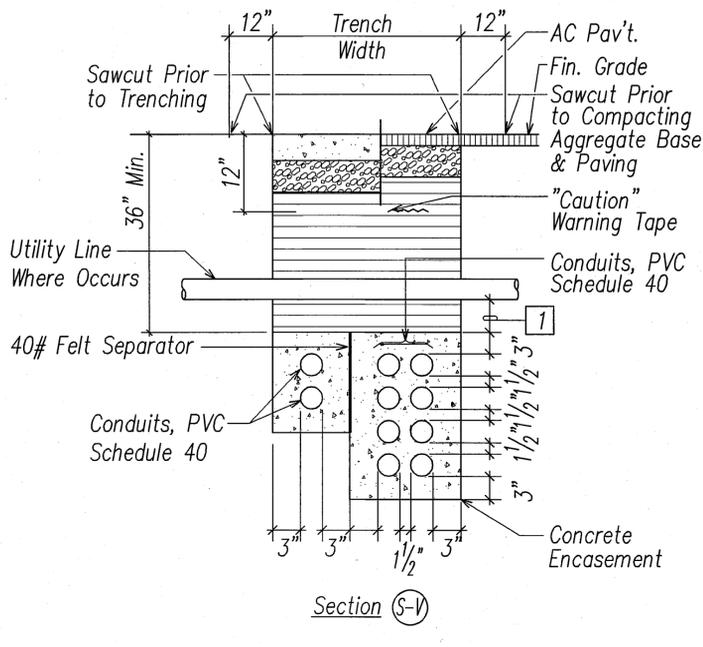
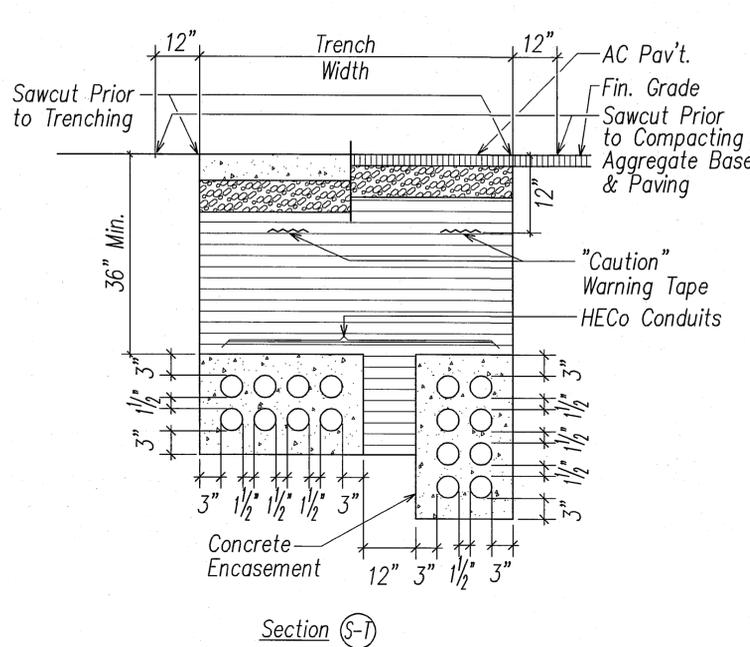
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
20 Feb 2007

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TYPICAL DUCT SECTIONS II
North-South Road
Phase 1B
F.A.I. Proj. No. STP-8930(2)
Scale: AS NOTED Date: Feb 21, 2007
SHEET No. E2.2 OF 62 SHEETS

DATE	REVISION

CONDUIT SCHEDULE

Item	Description
(2-2)	HECo 2-2" Conduits (PVC Schd. 40)
(6-2)	HECo 6-2" Conduits (PVC Schd. 40)
(3E)	HECo 3" Conduit (PVC Schd. 40)
(2-4)	HECo 2-4" Conduits (PVC Schd. 40)
(2-5)	HECo 2-5" Conduits (PVC Schd. 40)
(4-5)	HECo 4-5" Conduits (PVC Schd. 40)
(8-5)	HECo 8-5" Conduits (PVC Schd. 40)
(10-5)	HECo 10-5" Conduits (PVC Schd. 40)
(12-5)	HECo 12-5" Conduits (PVC Schd. 40)
(2T)	HTCo 2" Conduit
(2-4)	HTCo 2-4" Conduits
(4-4)	HTCo 4-4" Conduits
(6-4)	HTCo 6-4" Conduits
(8-4)	HTCo 8-4" Conduits
(4C)	Sandwich Isles Comm UD (1x1-4")
(2-4C)	Sandwich Isles Comm UD (2x1-4")
(1x3C)	Sandwich Isles Comm UD (1x3) Duct Pack
(4V)	Catv 4" Conduit
(2-4V)	Catv 2-4" Conduits
(1/4)	Street Light 1/4" Conduit
(1/2)	Street Light 1/2" Conduit
(2)	Street Light 2" Conduit
(2-2)	Street Light 2-2" Conduits
(4-2)	Street Light 4-2" Conduits
(6-2)	Street Light 6-2" Conduits
(3L)	Street Light 1-3" Conduit
(1S)	Traffic Signal 1" Conduit
(2S)	Traffic Signal 2" Conduit
(2-2S)	Traffic Signal 2-2" Conduits
(3-2S)	Traffic Signal 3-2" Conduits
(4-2S)	Traffic Signal 4-2" Conduits
(5-2S)	Traffic Signal 5-2" Conduits
(6-2S)	Traffic Signal 6-2" Conduits
(7-2S)	Traffic Signal 7-2" Conduits
(2-3S)	Traffic Signal 2-3" Conduits
(4S)	Traffic Signal 1-4" Conduit
(2P)	Traffic Signal Power 2" Conduit
(3P)	Traffic Signal Power 3" Conduit
(4P)	Traffic Signal Power 4" Conduit



APPROVED BY:

HAWAIIAN ELECTRIC COMPANY	DATE
<i>Calvin Choy</i>	11/23/07
HAWAIIAN TELCOM	DATE
<i>Kenji</i>	11/29/07
OCEANIC TIME WARNER CABLE	DATE
<i>Clay</i>	10/29/07
SANDWICH ISLES COMMUNICATIONS, INC.	DATE

Note: Section S-X1" similar except with 2-2" + 4-5" HECO conduits

TYPICAL DUCT SECTIONS III

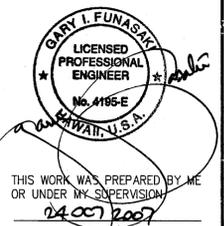
Not to Scale

Notes:
 1 Varies, see sheet E0.5, note 14 for minimum clearance requirements.

DRAWING REVIEW
 Reviewed for HECO's Facilities Only
 Date 3/13/08 By *Angela*
 Customer Installations Department
 Hawaiian Electric Company, Inc.

DRAWING REVIEW
 Reviewed for HECO's Facilities Only
 Date 2/4/08 By *Michael*
 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 the Customer's behalf from the responsibility for engineering, design, materials and any other liability associated with this project.



STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

TYPICAL DUCT SECTIONS III

North-South Road
 Phase 1B
 F.A.I. Proj. No. STP-8930(2)

Scale: AS NOTED Date: Feb 21, 2007

SHEET No. E2.3 OF 62 SHEETS

DATE	REVISION
4/15/08	ADDED DUCT SECTION PER CP#E

ORIGINAL PLAN
 QUANTITIES BY
 CHECKED BY
 No.

DATE

DESIGNED BY

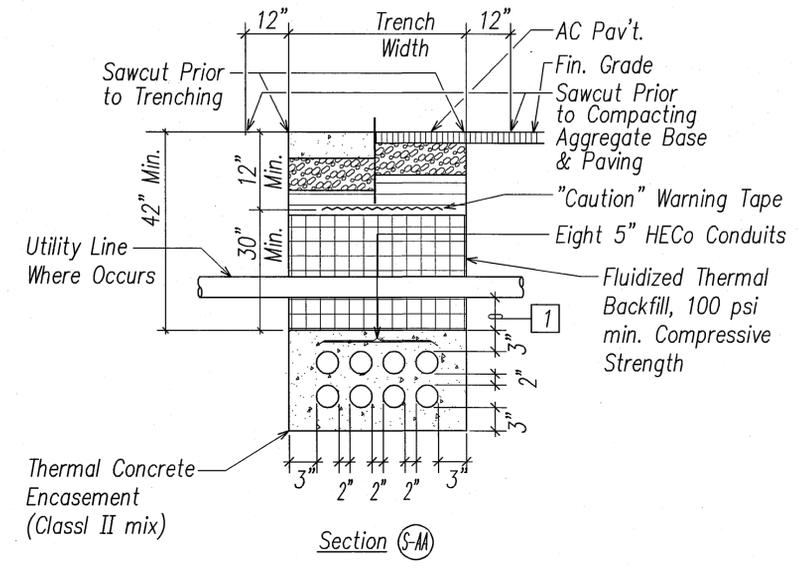
QUANTITIES BY

CHECKED BY

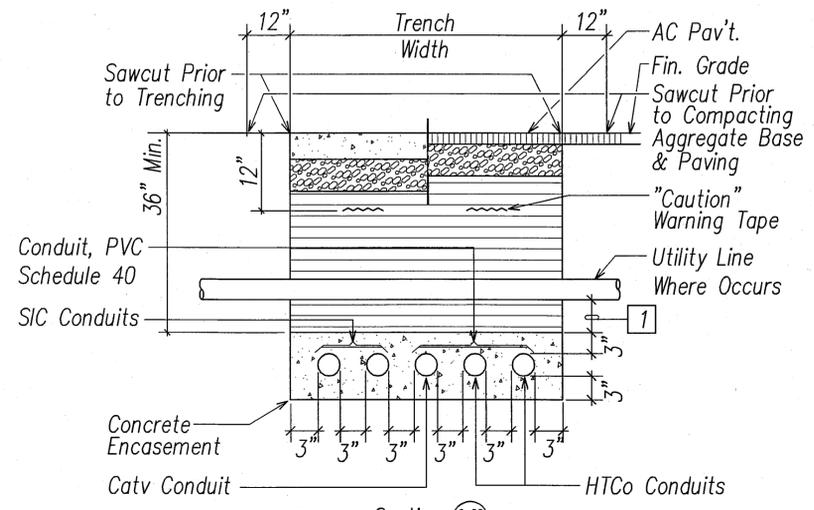
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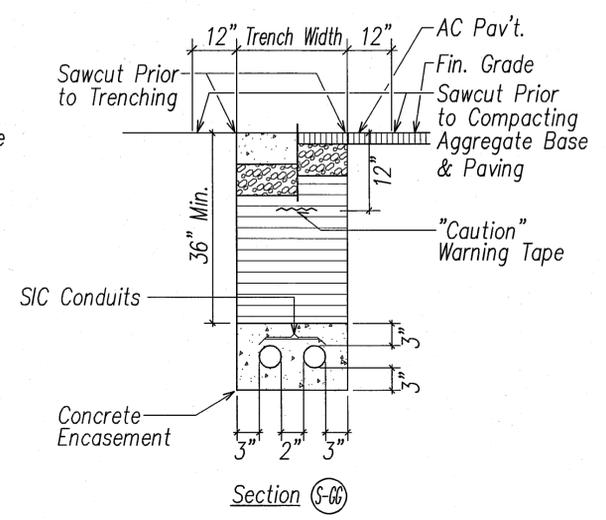
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	285	331



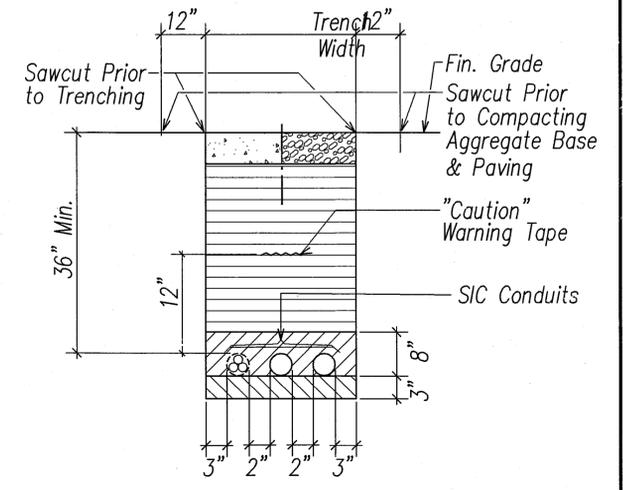
Section (S-AA)



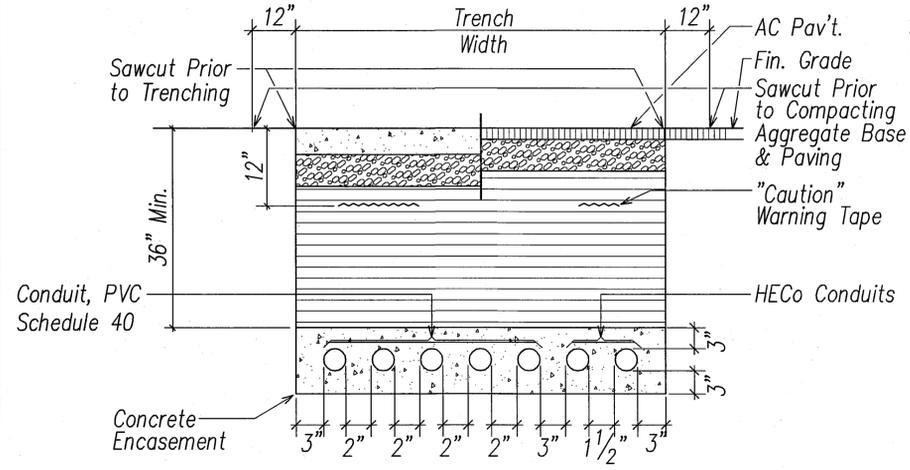
Section (S-III)



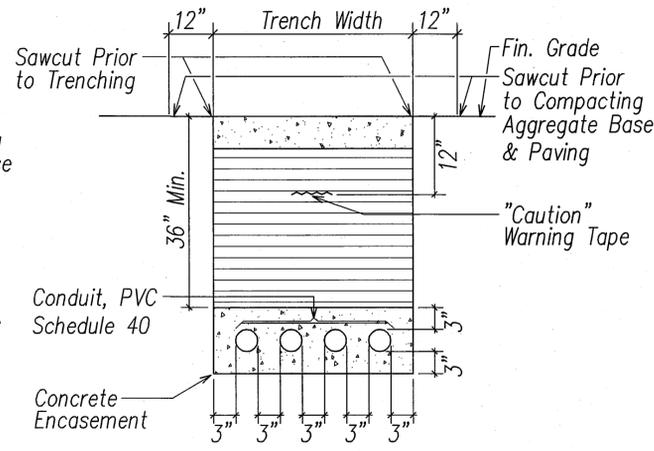
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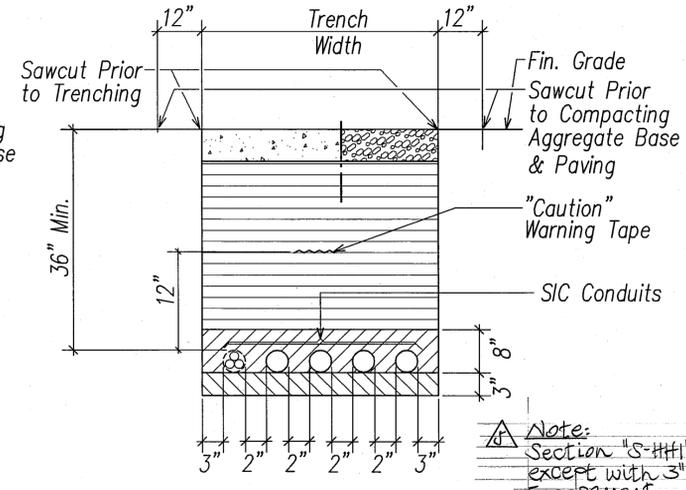
Section (S-V)



Section (S-BB)

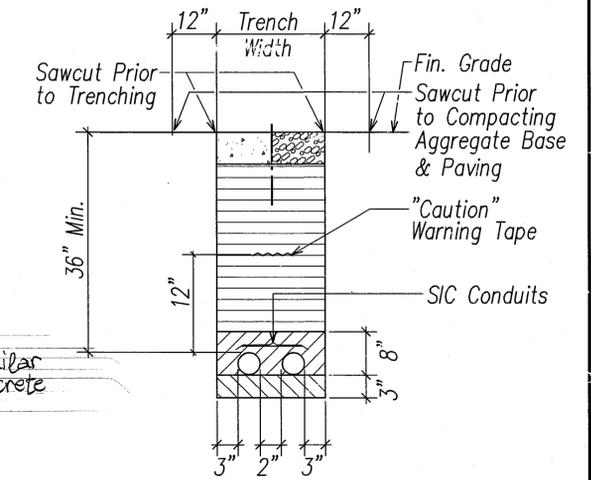


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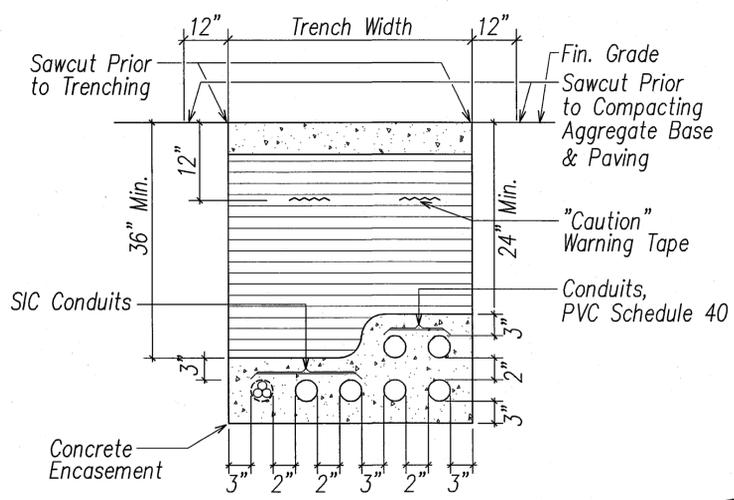


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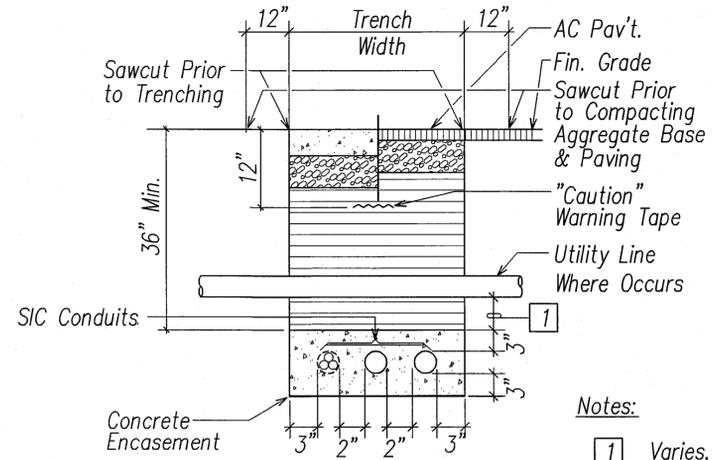
Note: Section (S-III) similar except with 3" concrete encasement



Section (S-VI)



Section (S-CC)

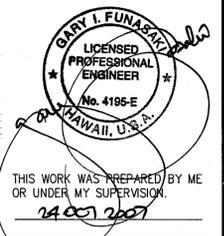


Section (S-FF)

Notes:
 1 Varies, see sheet E0.5, note 14 for minimum clearance requirements.

APPROVED BY:
 HAWAIIAN ELECTRIC COMPANY DATE
 HAWAIIAN TELCOM DATE
 OCEANIC TIME WARNER CABLE DATE
 SANDWICH ISLES COMMUNICATIONS, INC. DATE

DRAWING REVIEW
 Reviewed for HECO's Facilities Only
 Date 3/13/09 By [Signature]
 Customer Installations Department
 Hawaiian Electric Company, Inc.



DRAWING REVIEW
 Reviewed for HECO's Facilities Only
 Date 7/14/08 By [Signature]
 Engineering Department
 Hawaiian Electric Company, Inc.

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
TYPICAL DUCT SECTIONS IV
 North-South Road
 Phase 1B
 F.A.I. Proj. No. STP-8930(2)
 Scale: AS NOTED Date: Feb 21, 2007
SHEET No. E2.4 OF 62 SHEETS

DATE	REVISION
4/15/08	ADDED DUCT SECTION PER C.P.E.

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
QUANTITIES BY	
NOTED BY	
NO.	

LAST SAVE: 02/20/07 09:09:01 BY: RN PLOT SC: 1'-0"=1'
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A
E2.4 TYPICAL DUCT SECTIONS IV
 Not to Scale