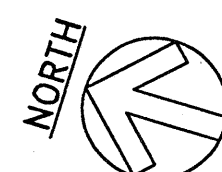




0 2 4 6 8
APPROXIMATE
SCALE IN MILES



LOCATION MAP

NOT TO SCALE

SYMBOL	DESCRIPTION
	STREET LIGHT, LPS LUMINAIRE, WATTLE AS INDICATED, POLE & BRACKET ARM, SEE DET. A/E-13
	STREET LIGHT, LPS LUMINAIRE, WATTLE AS INDICATED, POLE & BRACKET ARM, SEE DET. A/E-14
	EXST. STREET LIGHT
	HELCO VACUUM SWITCH PAD LOT, SEE DET. C/E-11
	HELCO PME-9 SWITCHGEAR PAD LOT, SEE DET. B/E-11
	CATV EQUIPMENT PAD. SEE DETAIL B/E-2
	HELCO 10 TRANSF. PAD LOT, SEE DET. A/E-11
	HECO. 4'x6' HANDHOLE
	HECO 6'x11' MANHOLE
	HTCO 4'x6' HANDHOLE
	HTCO 5'x8' MANHOLE
	CATV 2'x4' PULLBOX
	STREET LIGHT 19'x28" PULLBOX
	STATE STREET LIGHT 24"x32" PULLBOX W/ MOD. COVE
	EXST. PULLBOX OR HANDHOLE, SEE PLAN FOR SIZE
	HTCO 5'x10' MANHOLE
	STATE STREET LIGHT 24" x 32" PULLBOX
	CONCRETE STUB-UP MARKER, SEE DET. A/E-2
	NOTE DESIGNATOR, SEE SHEET
	STUB, CAP & MARK CONDUIT WITH CONCRETE MARKER
	ELEC/SIGNAL/DUCTLINE DESIGNATORS; INDICATES TYPE "B" DUCT SECTION W/ TYPE "3E" DUCT, SEE SCHEDULE, SHEET E-9 & E-10
	EXST. STREET LIGHT CONDUIT & WIRING
	STREET LIGHT DUCTS & CABLES
	EXST. CONDUIT & WIRING
	STATE STREET LIGHT DUCTS & WIRING
	EXST. OVERHEAD CABLES
	NEW OVERHEAD CABLES
	EXST. OVERHEAD CABLES TO BE REMOVED BY RESPECTIVE UTILITY CO.
	EXST. POLE TO BE REMOVED
	UTILITY POLE PROVIDED BY HECO.
	EXST. UTILITY POLE
	TRAFFIC SIGN w/ AMBER FLASHING BEACON, SEE DETAIL A/E-16

2	7/1/92	GENERAL REVISIONS	SS
1	12/4/91	REVS'D SYMBOLS	SS
Rev.	Date	Description	Eng. App

R. MacLean

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OR UNDER MY SUPERVISION
AND CONSTRUCTION OF THIS
PROJECT WILL BE UNDER MY
OBSERVATION.

10/31/91

RONALD N. S. HO
REGISTERED
PROFESSIONAL
ENGINEER
No. 3737-E
HAWAII, U.S.A.

**B
C
A** **BELT COLLINS & ASSOCIATES**
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Client: **HOUSING FINANCE AND
DEVELOPMENT CORPORATION
STATE OF HAWAII**

VILLAGES OF LA'I'OPUA
MAUKA-MAKAI ROADWAY IMPROVEMENTS
PHASE-I

ELECTRICAL SYMBOLS, LOCATION & VICINITY MAP

Designed by: GF Date: _____
 Drawn by: EDA Proj. no.: (BCA) 841-0104E

Approved: Alvin H. Meyer 3/1/62 GOD 11/4/71

HAWAII ELECTRIC LIGHT COMPANY Date: HAWAIIAN TELEPHONE COMPANY Date:

Date: Date:

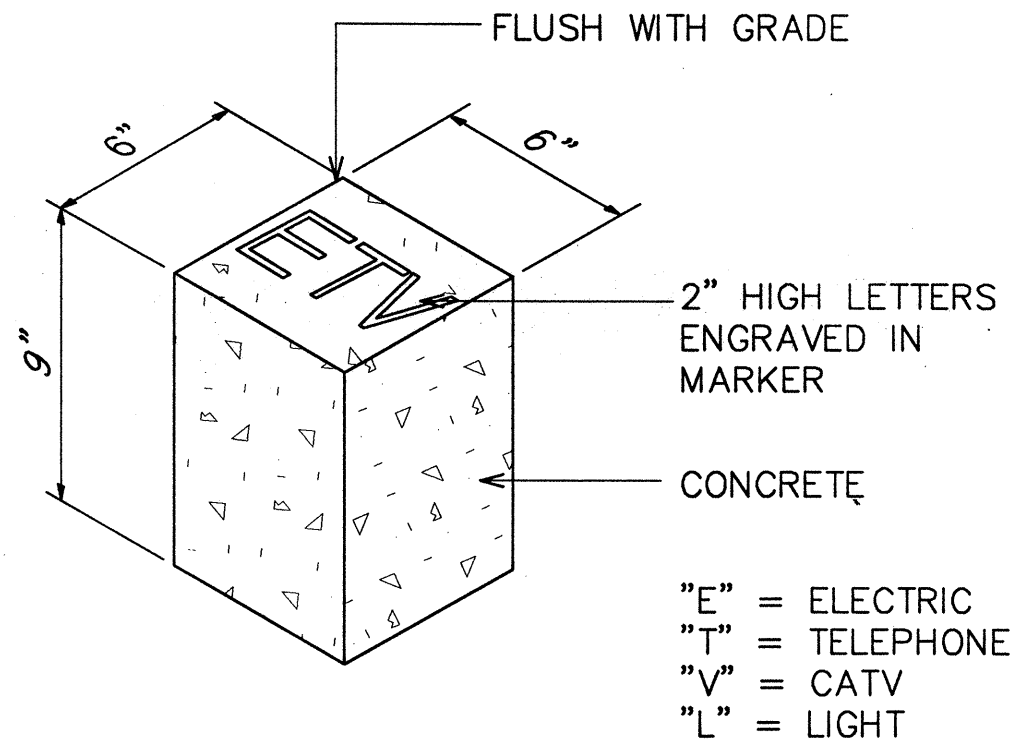
GENERAL NOTES:

1. THE LOCATION OF OVERHEAD AND UNDERGROUND FACILITIES SHOWN ON THE PLANS ARE FROM EXISTING RECORDS WITH VARYING DEGREES OF ACCURACY AND ARE NOT GUARANTEED AS SHOWN. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHENEVER CONSTRUCTION CROSSES OR IS IN CLOSE PROXIMITY OF UNDERGROUND LINES AND SHALL MAINTAIN ADEQUATE CLEARANCE WHEN OPERATING EQUIPMENT WITHIN OR UNDER ANY OVERHEAD LINES.
2. THE CONTRACTOR SHALL OBTAIN AN EXCAVATION PERMIT FROM THE STATE OF HAWAII DEPT. OF TRANSPORTATION, TWO WEEKS PRIOR TO STARTING CONSTRUCTION.
3. THE CONTRACTOR SHALL BE LIABLE FOR ANY DAMAGES TO HELCO FACILITIES AND SHALL IMMEDIATELY REPORT SUCH DAMAGES TO HELCO'S TROUBLE DISPATCHER.
4. THE CONTRACTOR IS TO COMPLY WITH THE DIRECTIONS OF THE STATE OF HAWAII OCCUPATIONAL SAFETY AND HEALTH LAW (DOSH).
5. FOR VERIFYING THE LOCATION OF UNDERGROUND DUCT LINES AND FOR ASSISTANCE IN PROVIDING PROPER SUPPORT AND PROTECTION OF THE UNDERGROUND DUCT LINES, THE CONTRACTOR IS TO CONTACT HELCO. A MINIMUM OF 72 HOURS IN ADVANCE.
6. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN THE EXCAVATION AND CONSTRUCTION CROSSES OR IS IN CLOSE PROXIMITY OF UNDERGROUND TELEPHONE AND SIGNAL CABLE FACILITIES AND SHALL MAINTAIN ADEQUATE CLEARANCE FOR HIS EQUIPMENT WHILE WORKING CLOSE TO AND/OR UNDER OVERHEAD FACILITIES. ANY DAMAGES TO THE EXISTING UNDERGROUND FACILITIES SHALL BE REPAIRED AND PAID FOR BY THE CONTRACTOR.
7. FOR FIELD LOCATION OF HTO FACILITIES, CONTACT HTO OUTSIDE PLANT ENGINEERING SECTION, A MINIMUM OF 72 HOURS IN ADVANCE PRIOR TO START OF EXCAVATION.
8. SHOULD FIELD CONDITIONS AND CONSTRUCTION PROCEDURES REQUIRE THAT UTILITY POLES BE BRACED, THE CONTRACTOR SHALL CONTACT THE FOLLOWING PERSON FOR POLE BRACING INSTRUCTIONS A MINIMUM OF 72 HOURS IN ADVANCE OF ACTUAL REQUIRED BRACING.
9. WHEN TRENCH EXCAVATION IS ADJACENT TO EXISTING STRUCTURES OR FACILITIES, THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SHEETING AND BRACING THE EXCAVATION AND STABILIZING THE EXISTING GROUND TO RENDER IT SAFE AND SECURE FROM POSSIBLE SLIDES, CAVE-INS, AND SETTLEMENT, AND FOR PROPERLY SUPPORTING EXISTING STRUCTURES AND FACILITIES WITH BEAMS, STRUTS, OR UNDERPINNING TO FULLY PROTECT IT FROM DAMAGE.

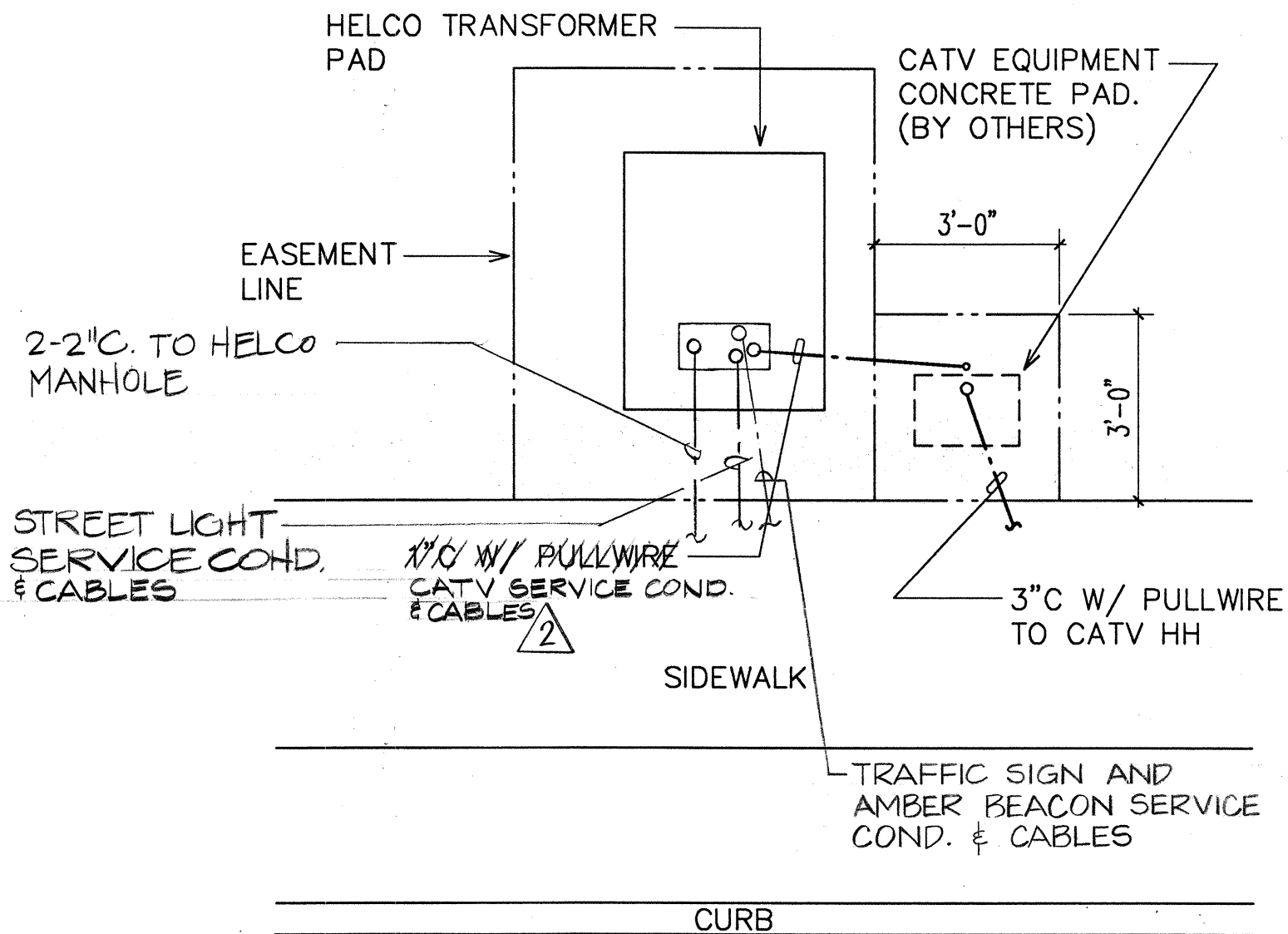
EQUIPMENT SCHEDULE

The Hawaii Electric Light Co., Inc., Hawaiian Telephone Co., Community Antenna Television & Street Lighting Pullboxes, Handholes, Transformer Pad Lots & Switching Equipment Pad Lots shall be constructed by the Contractor as shown in these drawings & in accordance with the following standard drawings:

Type	Description
4' x 6' HELCo. Handhole	4' x 6' Type 46 reinforced concrete handhole with precast concrete covers, provided in accordance with HELCo. Standard Drawing No. HAWAII 892001 △2
6' x 11' HELCo. Manhole	6' x 11' reinforced concrete manhole with frame and cover, provided in accordance with HECO. Standard Drawing No. 18775. OR EQUAL. △
4' x 6' HTOCo. Handhole	4' x 6' Type 1 reinforced concrete handhole with steel covers, per HTOCo. Standard Drawing No. 34029.
5' x 8' HTOCo. Manhole	5' x 8' reinforced concrete manhole provided in accordance with HTOCo. Standard Drawing No. 34062, with 6'-6" headroom.
5' x 10' HTOCo. Manhole	5' x 10' reinforced concrete manhole provide in accordance with HTOCo. Standard drawing no. 34063, with 6'-6" headroom.
2' x 4' CATV Pullbox	2' x 4' precast concrete pullbox with precast concrete cover, similar to HC&D Type 435TB except with "CATV" inscribed on cover.
19" x 28" St. Lt. Pullbox	19" x 28" precast concrete pullbox with cast iron frame and cover, similar to the City & County of Honolulu Dept. of Transportation Services Type "SLD-1" pullbox.
24" x 32" Street Light Pullbox (State of Hawaii)	24" x 32" Type "A" precast concrete pullbox with cast iron frame and cover, provided in accordance with Dept. of Transportation Standards.
24" x 32" Street Light Pullbox (State of Hawaii)	24" x 32" Type "A" precast concrete pullbox with cast iron frame and modified cover, provided in accordance with Dept. of Transportation Standards and as indicated on the drawings.
3'-4" x 4'-2" HELCo. Transformer Pad Lot	3'-4" x 4'-2" transformer reinforced concrete pad and ground rod per HECO. Standard Drawing Nos. 30-5001 & 011249.
9'-0" x 12'-9" HELCo. Manual Switching Equipment Pad Lot	9'-0" x 12'-9" manual switching equipment reinforced concrete pad and ground rod, per HECO. Standard Drawing No. 30-5031. △
4'-6" x 6'-4" HELCO Vacuum Switching Pad	4'-6" x 6'-4" Vacuum Switch reinforced Concrete Pad and Ground Rod per HELCO specifications. △1 2
6' x 12' x 7' HTOCo. MANHOLE	6' x 12' x 7' PRE-CAST CONCRETE MANHOLE WITH CAST IRON FRAME AND COVER. PROVIDED IN ACCORDANCE WITH GTE STANDARD DWG. NO. GTE 6X12X7 △



CONCRETE CONDUIT STUB-OUT MARKER
NOT TO SCALE



CATV EQUIPMENT PAD DETAIL
N.T.S.

Rev.	Date	Description	Eng.	App.
1	12/4/91	ADDED DESCRIPTION	SS	
2	7/14/92	GENERAL REVISIONS	SS	
3	3/23/93	ADDED DESCRIPTION	SS	

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10/1/91

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Client:
HOUSING FINANCE AND DEVELOPMENT CORPORATION
STATE OF HAWAII

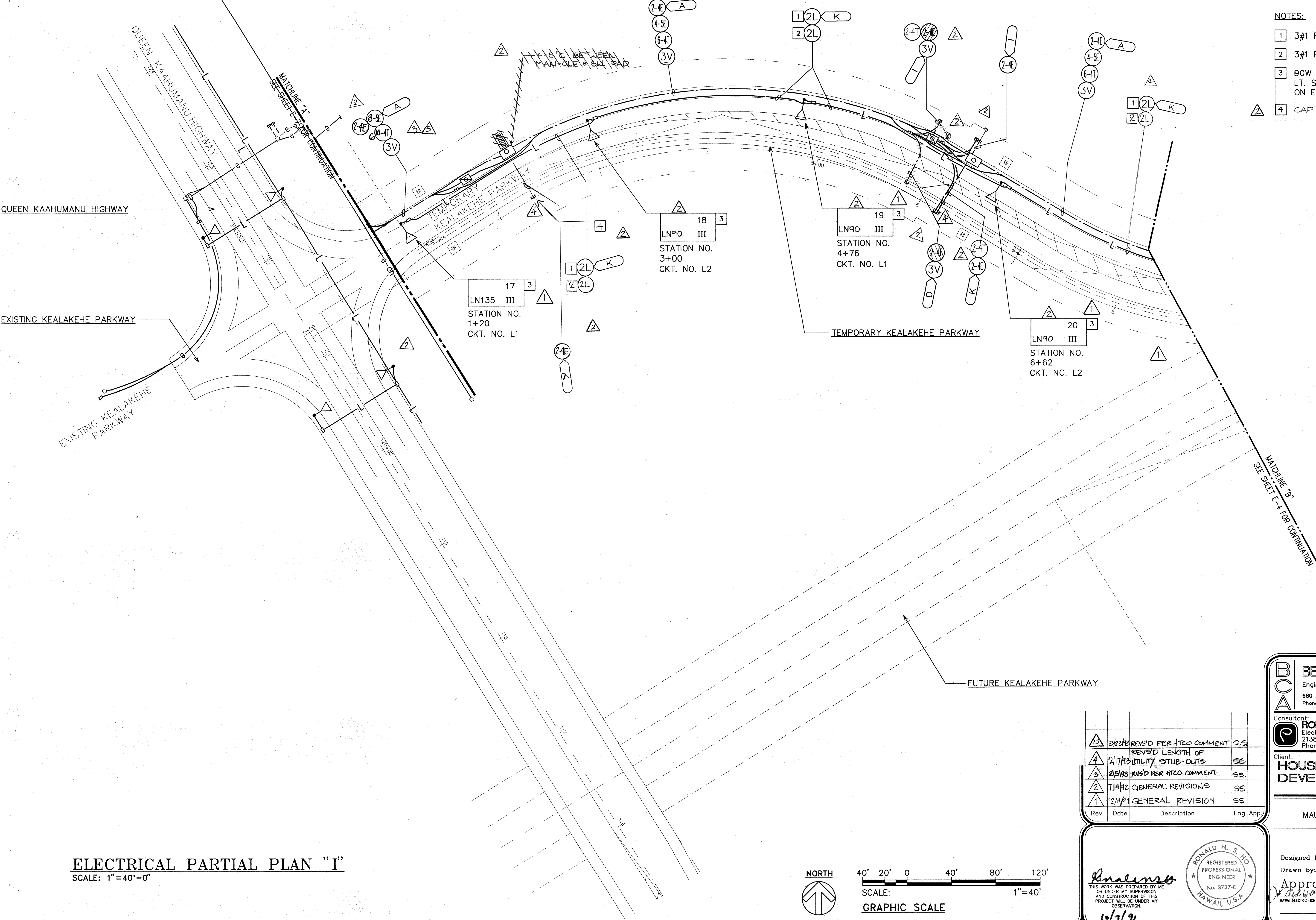
VILLAGES OF LA'IOPIUA
MAUKA-MAKAI ROADWAY IMPROVEMENTS
PHASE-I

GENERAL NOTES, EQUIPMENT SCHEDULE & DETAILS

Designed by: GF Date: _____
Drawn by: EDA Proj. no.: (BCA) 841-0104B

Approved: _____ Date: _____
HAWAIIAN ELECTRIC COMPANY HAWAIIAN TELEPHONE COMPANY

- NOTES:
- 1 3#1 RHW-USE & #2 GND
 - 2 3#1 RHW-USE & #1 GND
 - 3 90W LPS LUMINAIRE W/
LT. STD AS INDICATED
ON ELEC. SYMBOLS
 - 4 CAP & MARK LOCATION (TYPICAL)



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STATE OF HAWAII

VILLAGES OF LA'IOPIA
MAUKA-MAKAI ROADWAY IMPROVEMENTS
PHASE-I
ELECTRICAL PARTIAL PLAN "I"

Designed by: GF Date: _____
Drawn by: EDA Proj. no.: (BCA) 841-0104B

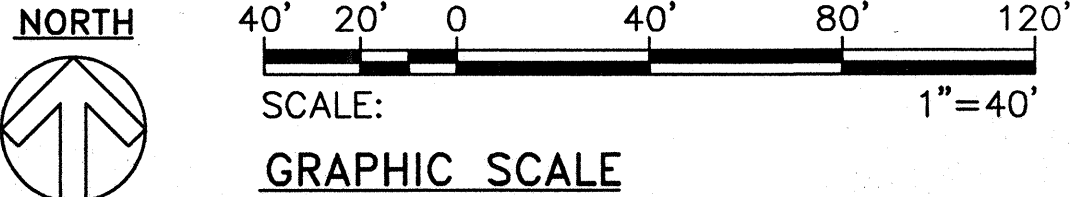
Approved: _____ Date: _____
HAWAIIAN ELECTRIC LIGHT COMPANY HAWAIIAN TELEPHONE COMPANY

Rev.	Date	Description	Eng. App.
1	12/4/91	GENERAL REVISION	SS
2	7/14/92	GENERAL REVISIONS	SS
3	2/5/93	REVISED PER ATCO COMMENT	SS
4	2/17/93	UTILITY STUB-OUTS	SS
5	3/23/93	REVISED PER ATCO COMMENT	SS

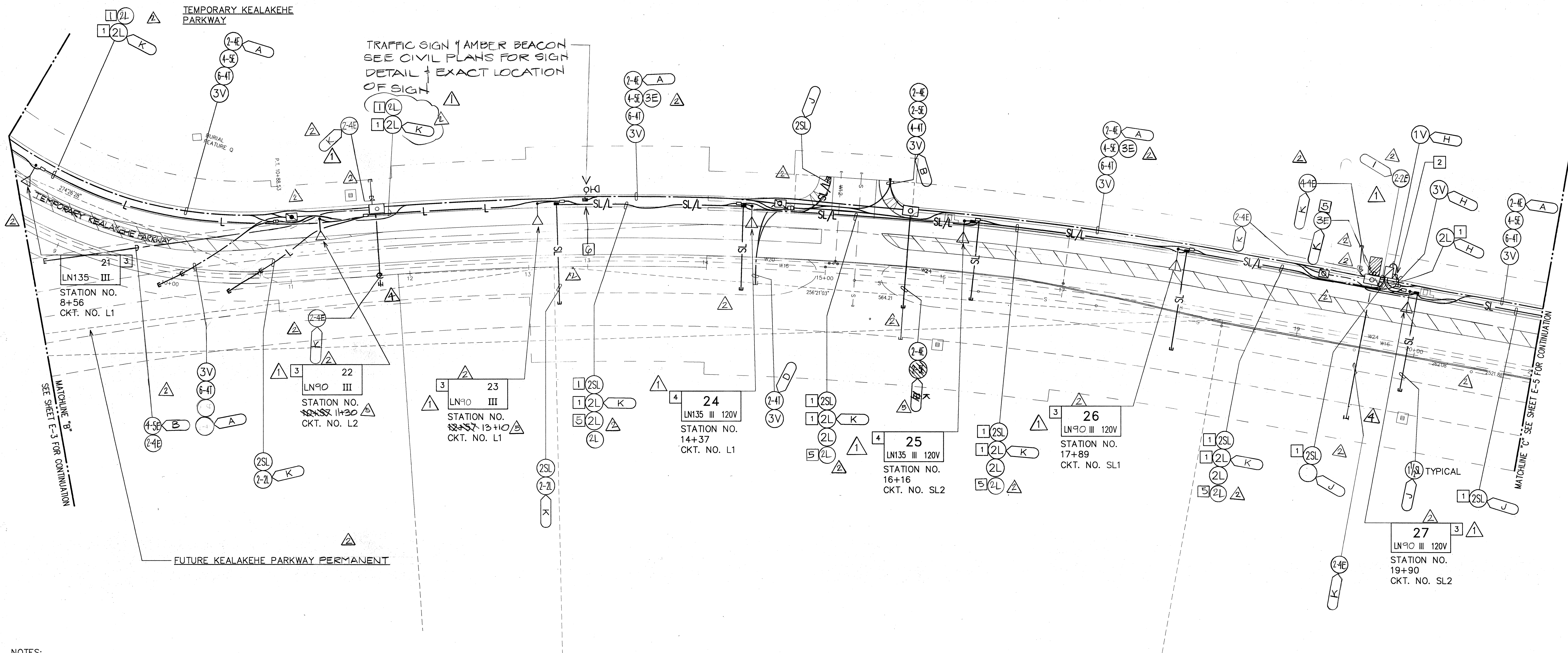
RONALD N. S. HO
REGISTERED PROFESSIONAL ENGINEER
No. 3737-E
HAWAII, U.S.A.

10/2/91

ELECTRICAL PARTIAL PLAN "I"
SCALE: 1"=40'-0"



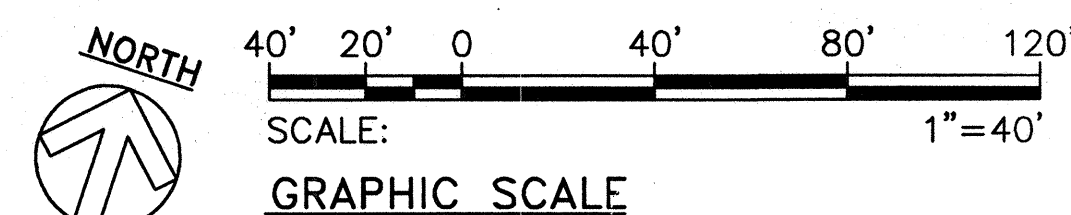
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NOTES:

- 1 3#1 RHW-USE & #2 GND
- 2 FUTURE CATV EQUIPMENT PAD
- 3 90W LPS LUMINAIRE, W/
LT. STD. AS INDICATED ON
ELEC. SYMBOLS
- 4 135W LPS LUMINAIRE, W/
LT. STD. AS INDICATED ON
ELEC. SYMBOLS
- 5 2" C., 3-#8+10 GND FOR
FLASHING BEACON ELEC.
SERVICE.
- 6 PROVIDE 2'x4' PULLBOX

ELECTRICAL PARTIAL PLAN "II" SCALE: 1"=40'-0"



Rev.	Date	Description	Eng./App.
1	12/4/91	GENERAL REVISIONS	SS
2	7/14/92	GENERAL REVISIONS	SS
4	2/17/93	REVISD LENGTH OF UTILITY STUD OUT	SS
3	3/23/93	REVISD ST. LT. STA. REVISD PER HECO DWG.	SS

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10/7/91

RONALD N. S. HO
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Client:
**HOUSING FINANCE AND
DEVELOPMENT CORPORATION**
STATE OF HAWAII

VILLAGES OF LA'IOPIA
MAUKA-MAKAI ROADWAY IMPROVEMENTS
PHASE-I
ELECTRICAL PARTIAL PLAN "II"

Designed by: GF Date: _____
Drawn by: EDA Proj. no.: (BCA) 841-0104B

Approved: _____ Date: _____
HAWAIIAN ELECTRIC LIGHT COMPANY HAWAIIAN TELEPHONE COMPANY

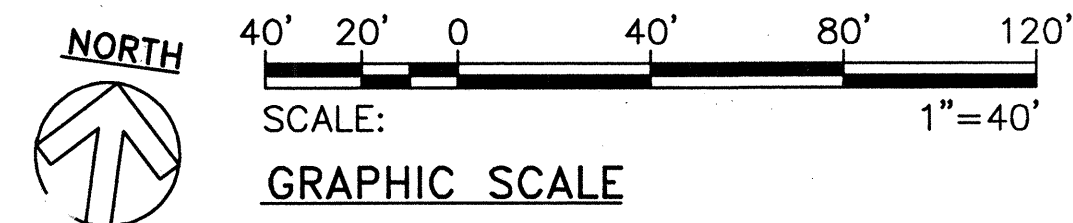
LET. 80% 10/27/91 © 89-3510 05/1992 DCC PLANK
6 WAPA PROJECTS 10/27/91 05/1992 DCC PLANK

NOTES:

- 1 3#1 RHW-USE & #2 GND
- 2 90W LPS LUMINAIRE, W/ LT. STD. AS INDICATED ON ELEC. SYMBOL
- 3 180W LPS LUMINAIRE, W/ LT. STD. AS INDICATED ON ELEC. SYMBOL
- 4 STUBOUT CAP & MARK LOCATION

KEALAKEHE PARKWAY

ELECTRICAL PARTIAL PLAN "V"
SCALE: 1"=40'-0"



Rev.	Date	Description	Eng. App.
1	3/23/93	REV'D UTILITY STUB-OUT	SS
2	4/17/93	REV'D LENGTH OF UTILITY STUB-OUT	SS
3	7/14/93	GENERAL REVISIONS	SS
4	12/4/93	GENERAL REVISIONS REVISED INTERSECTION	SS

Professional Engineer Seal for Ronald N. S. Ho, No. 3737-E, Hawaii, U.S.A.

Signature: *R. Ho*

Date: 10/2/91

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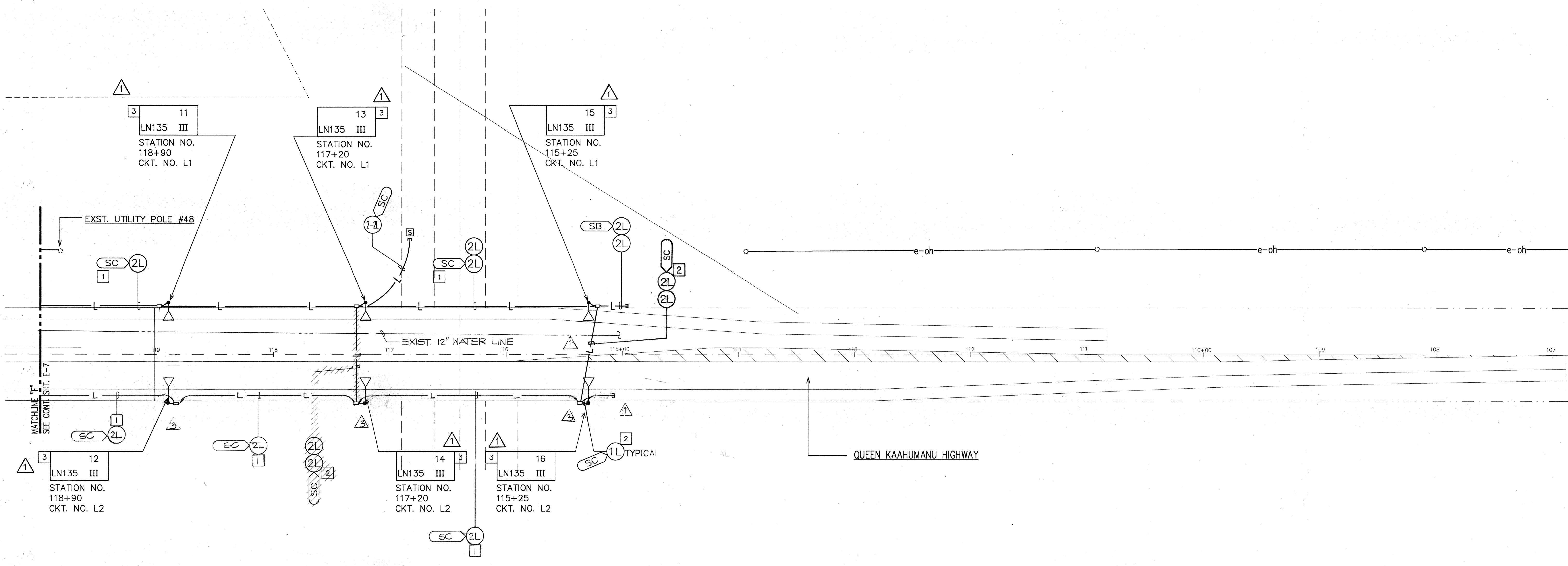
Consultant: **RONALD N. S. HO & ASSOCIATES, INC.**
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Phone: (808)941-0577 Fax: (808)945-2646

Client: **HOUSING FINANCE AND DEVELOPMENT CORPORATION**
STATE OF HAWAII

VILLAGES OF LA'IOPIA
MAUKA-MAKAI ROADWAY IMPROVEMENTS
PHASE-I
ELECTRICAL PARTIAL PLAN "V"

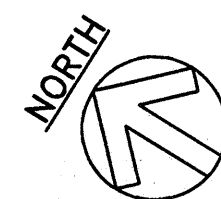
Designed by: GF Date: _____
Drawn by: EDA Proj. no.: (BCA) 841-0104B

Approved: _____
HAWAII ELECTRIC LIGHT COMPANY Date: _____
HAWAIIAN TELEPHONE COMPANY Date: _____



NOTE(S):

- 1 3 #1 RHW-USE, & #2 GND
- 2 2#8 RHW-USE & #8 GND
- 3 180W LPS LUMINAIRE, W/ LT. STD. AS INDICATED ON ELEC SYMBOLS



QUEEN KAAHUMANU ELECTRICAL PARTIAL PLAN "B"

SCALE: 1"=40'

Rev.	Date	Description	Eng. App.
3	2/5/99	REVISED PER DOT COMMENT	SS.
1	12/4/91	GENERAL REVISIONS ADDED EXIST. WATERLINE	SS

Ronald N. S. Ho

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OR UNDER MY SUPERVISION
AND CONSTRUCTION OF THIS
PROJECT WILL BE UNDER MY
OBSERVATION.

10/1/91

RONALD N. S. HO

REGISTERED
PROFESSIONAL
ENGINEER

No. 3737-E

HAWAII, U.S.A.

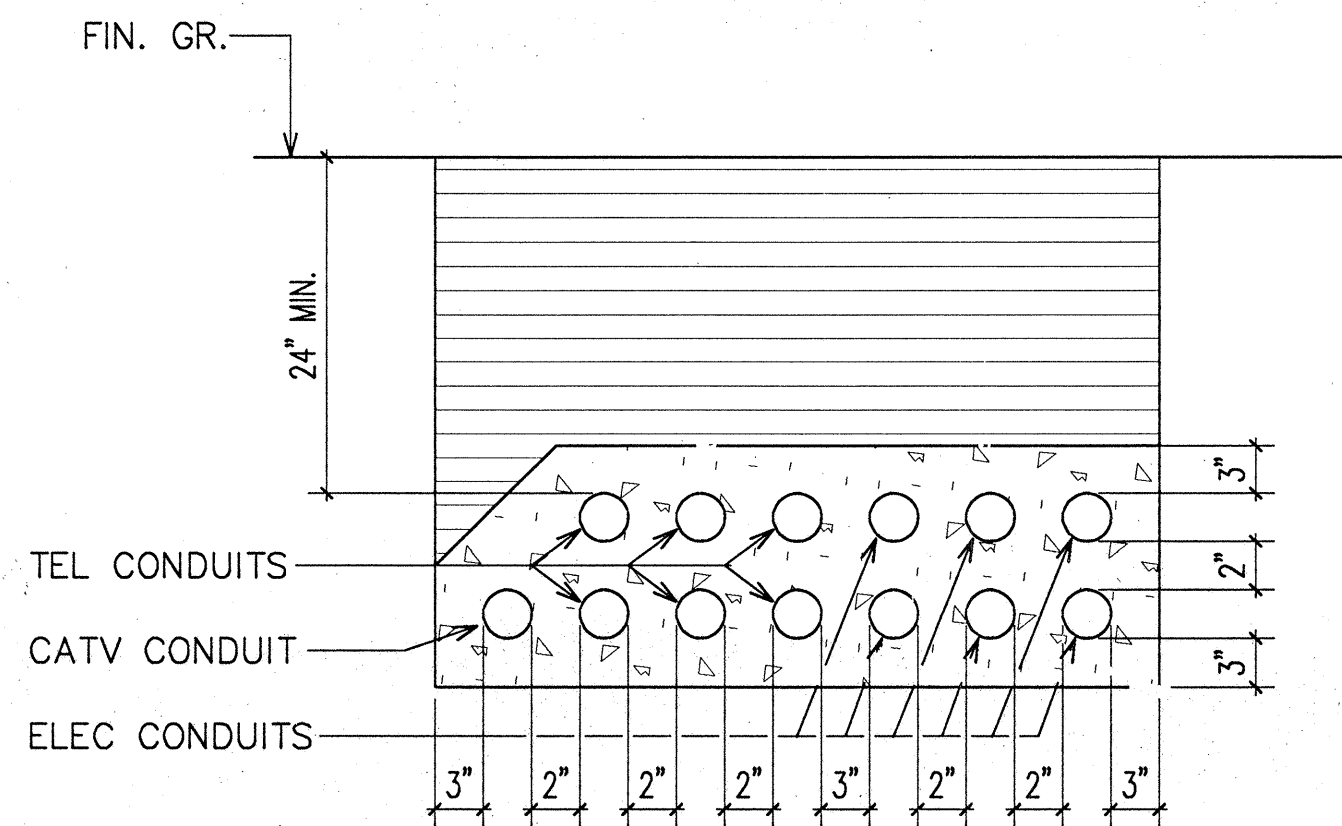
BELT COLLINS & ASSOCIATES
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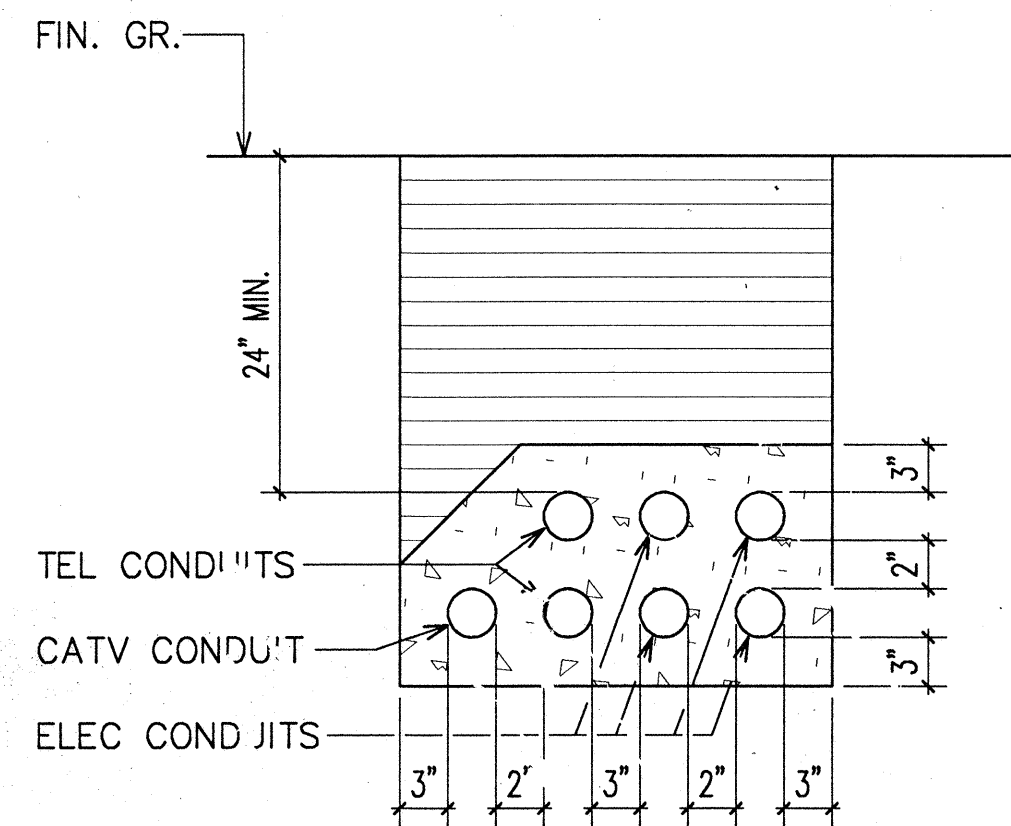
Client:
**HOUSING FINANCE AND
DEVELOPMENT CORPORATION**
STATE OF HAWAII

**VILLAGES OF LA'I'OPUA
MAUKA-MAKAI ROADWAY IMPROVEMENTS
PHASE-I**
QUEEN KAAHUMANU ELECTRICAL PARTIAL PLAN "B"

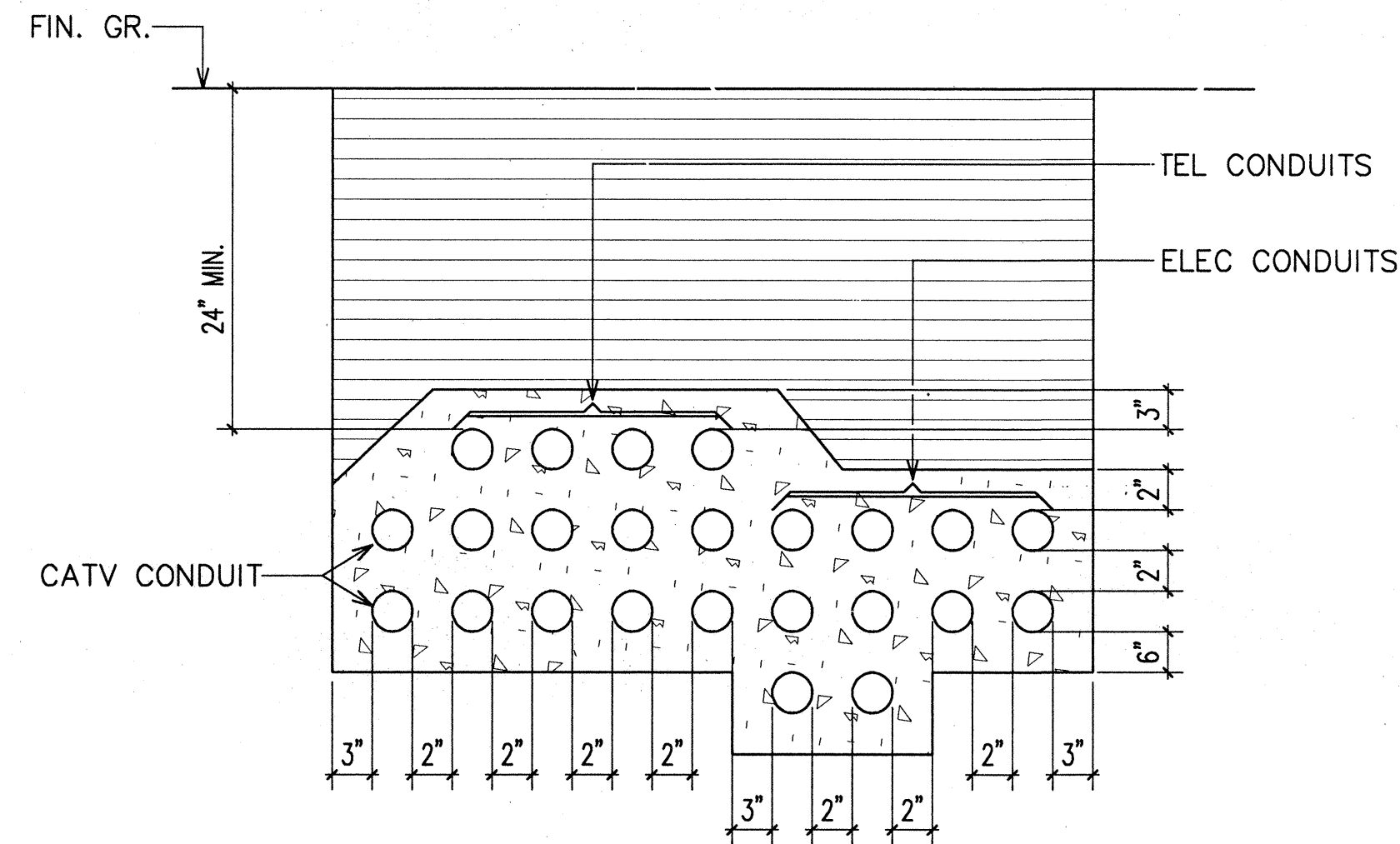
Designed by: GF Date: _____
Drawn by: CV Date: _____
Approved: _____
HAWAII ELECTRIC LIGHT COMPANY Date: _____
HAWAIIAN TELEPHONE COMPANY Date: _____



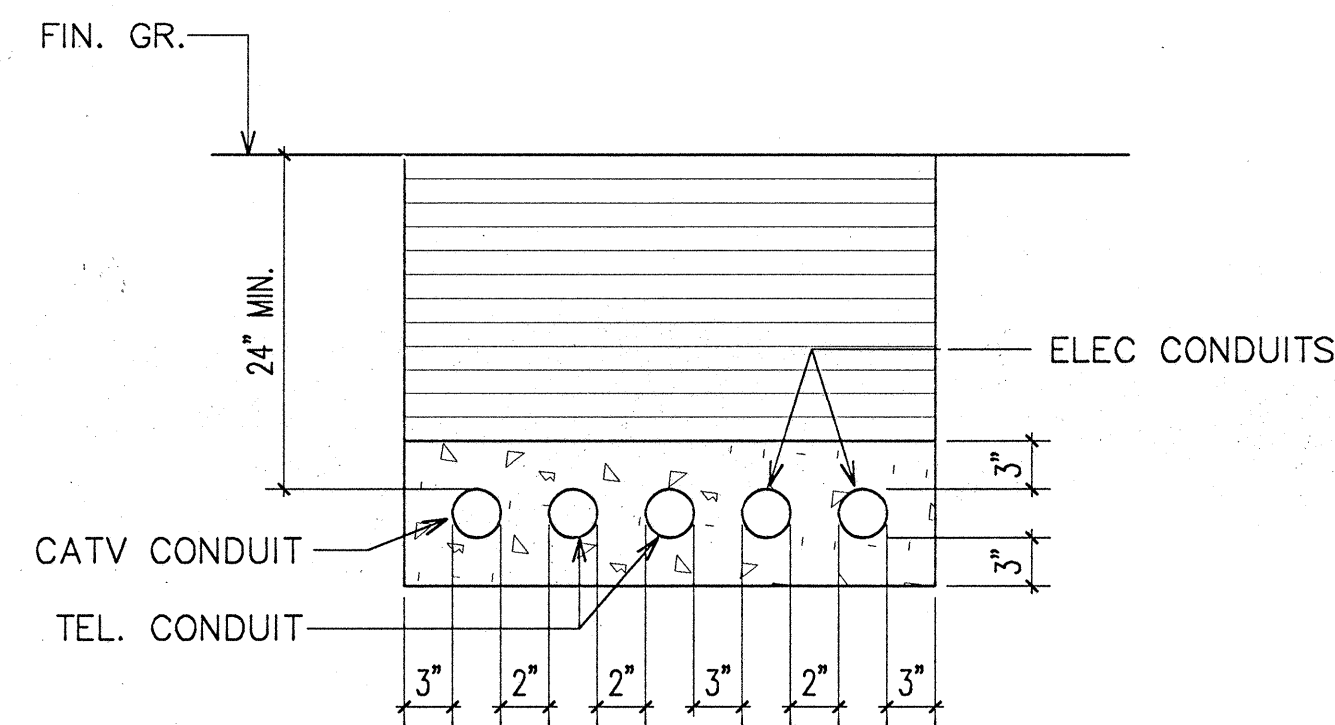
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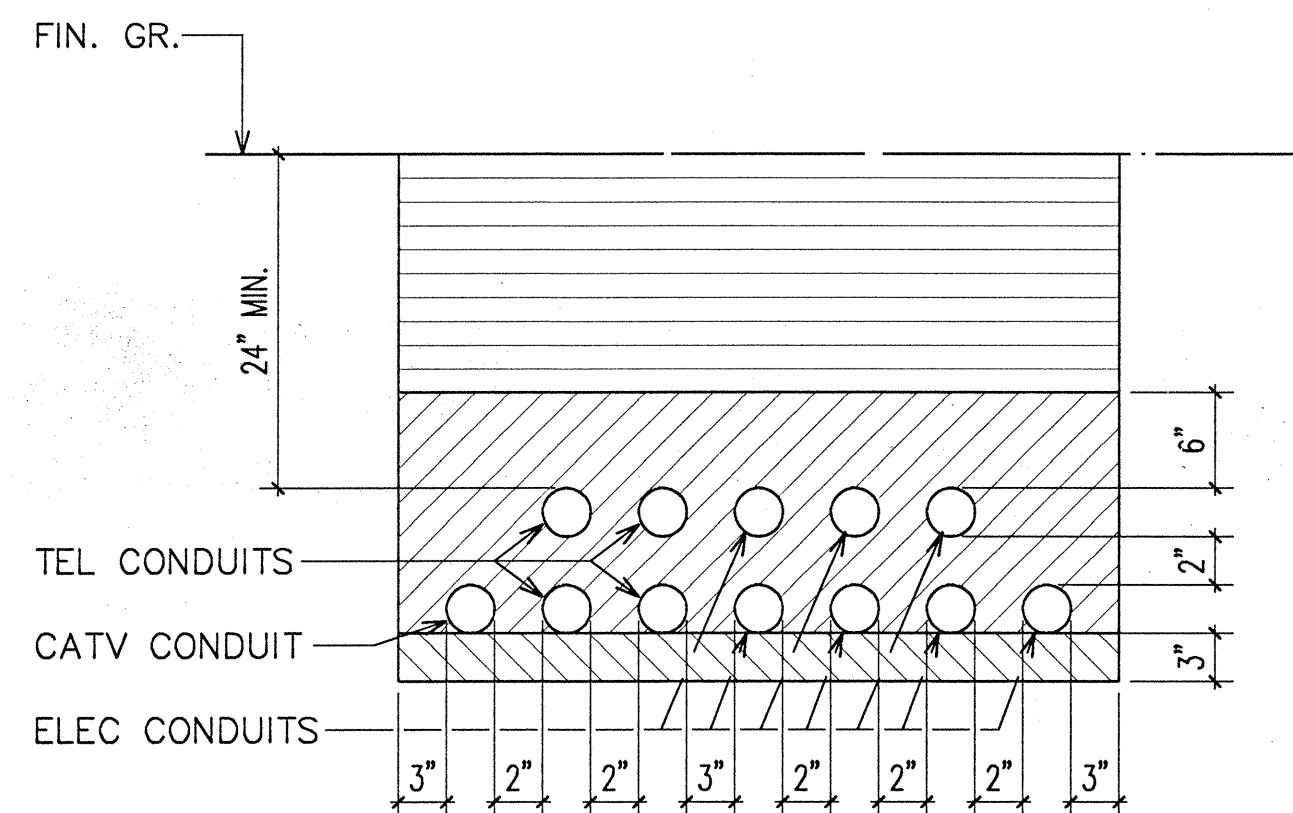
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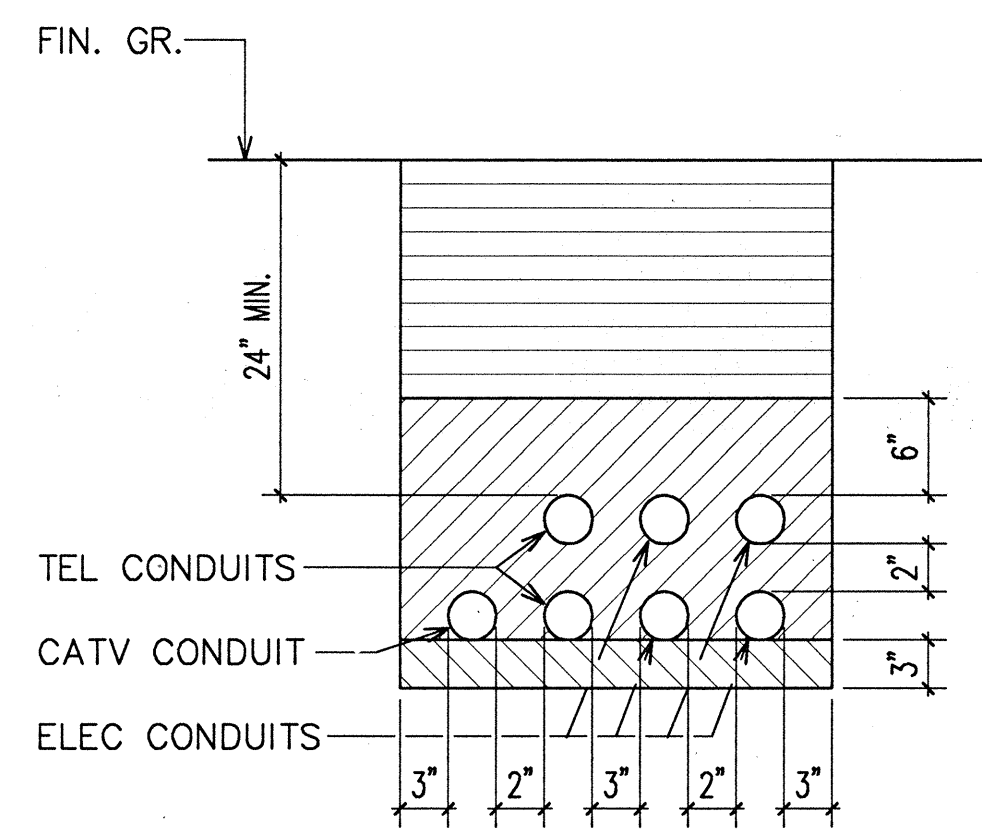
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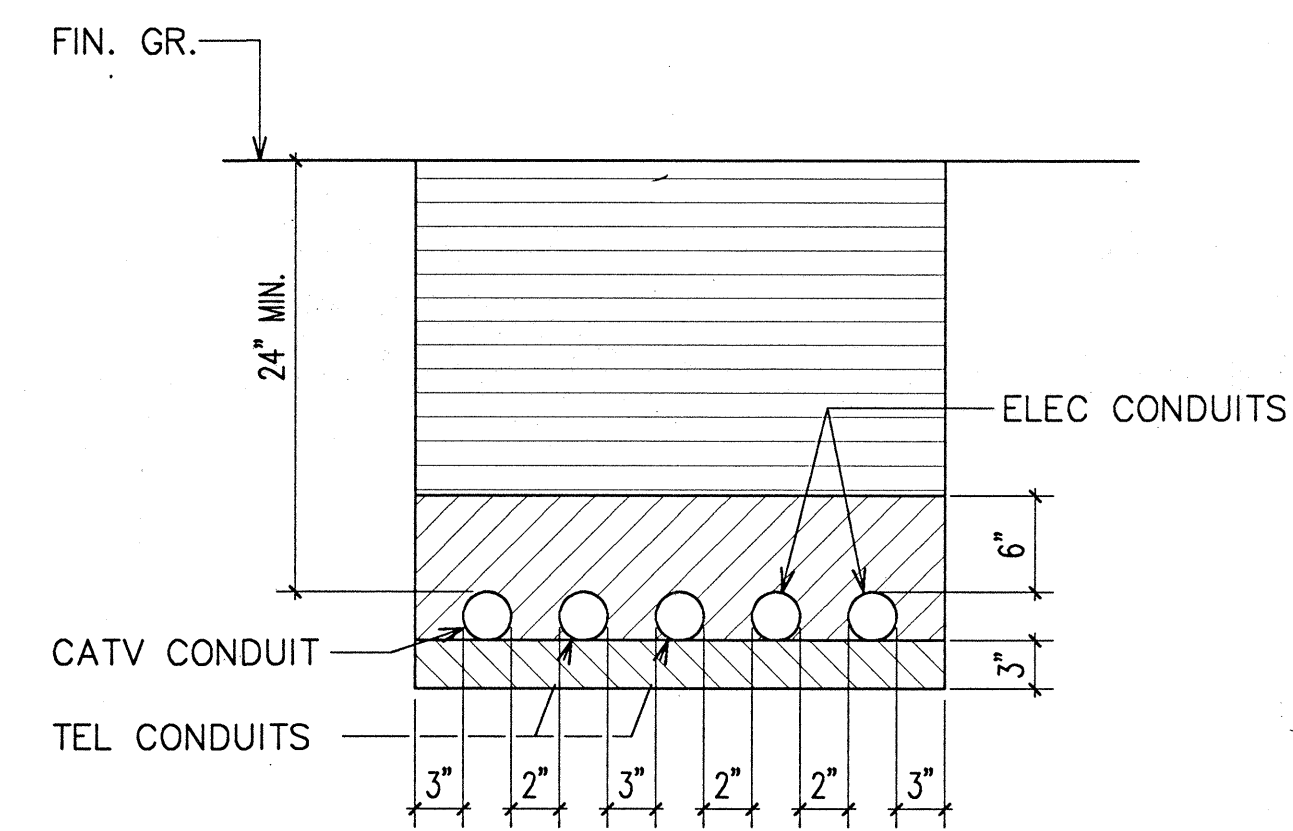
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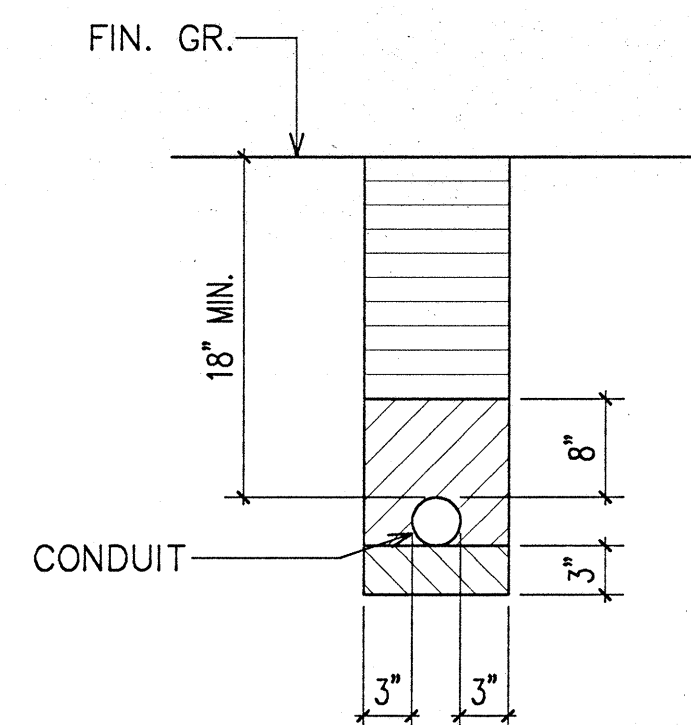
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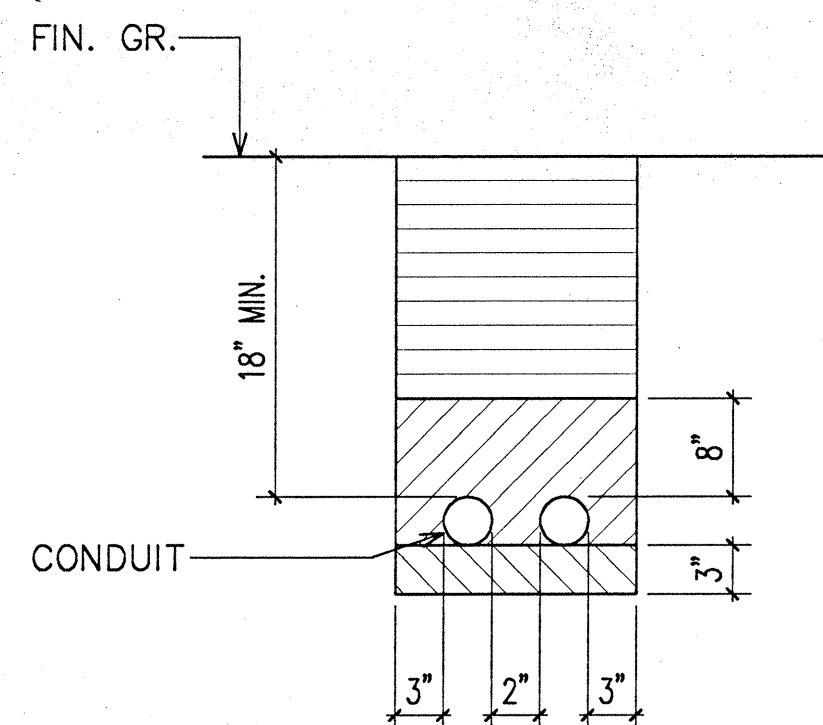
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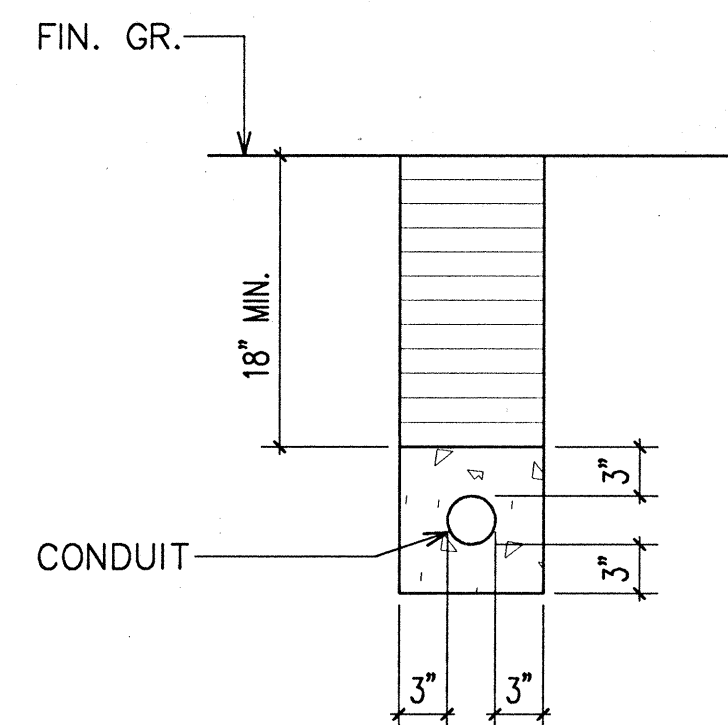
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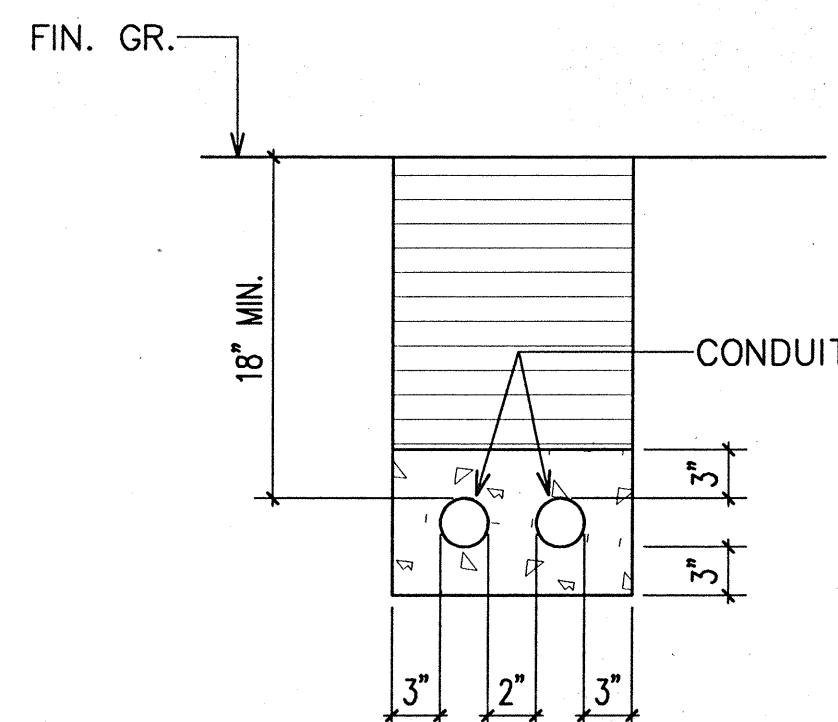
SECTION H



SECTION I



SECTION J



SECTION K

BACKFILL NOTES:

- TYPE "A" BACKFILL - EARTH & GRAVEL. ROCK SIZE TO BE 1" MAX. & THE MIXTURE TO CONTAIN NOT MORE THAN 50% BY VOLUME OF ROCK PARTICLES. 95% COMPACTION.
- TYPE "B" BACKFILL - EARTH & GRAVEL. MIXTURE MUST PASS A 1/2" MESH SCREEN & CONTAIN NOT MORE THAN 20% BY VOLUME OF ROCK PARTICLES. 95% COMPACTION.
- NOTE - IF NORMAL MATERIAL AT BOTTOM OF TRENCH IS NOT TYPE "B", AN ADDITIONAL 3" SHALL BE EXCAVATED & TYPE "B" BACKFILL PROVIDED.
- CONCRETE - 3" ENCASEMENT, 3000 PSI COMPRESSIVE STRENGTH @ 28 DAYS.

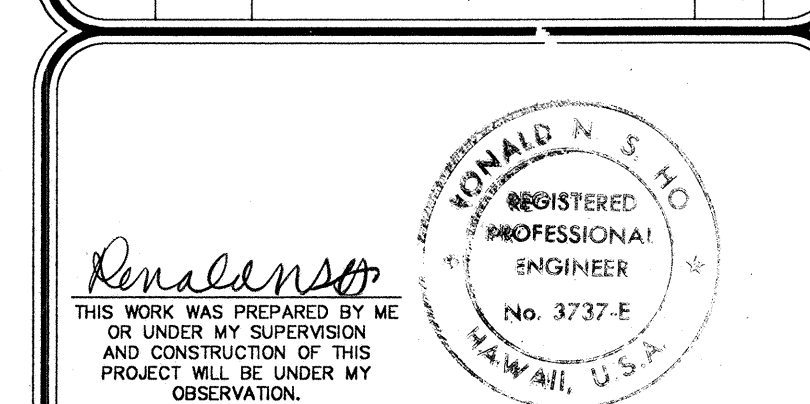
CONDUIT SCHEDULE

ITEM	DESCRIPTION
(2-2)	HELCO 2-2"C
(3-3)	HELCO 3-3"C
(2-4)	HELCO 2-4"C
(2-5)	HELCO 2-5"C
(3-5)	HELCO 3-5"C
(4-5)	HELCO 4-5"C
(6-5)	HELCO 6-5"C
(8-5)	HELCO 8-5"C
(2-4)	HTCO 2-4"C
(4-4)	HTCO 4-4"C
(6-4)	HTCO 6-4"C
(10-4)	HTCO 10-4"C
(1SL)	STREET LIGHT 1"C W/ WIRING
(1 1/4 SL)	STREET LIGHT 1 1/4"C W/ WIRING
(2SL)	STREET LIGHT 2"C W/ WIRING
(3SL)	STREET LIGHT 3"C W/ WIRING
(3V)	CATV 3"C
(2L)	STATE STREET LIGHT 2"C W/ WIRING
(3L)	STATE STREET LIGHT 3"C W/ WIRING
(2-2)	STATE STREET LIGHT 2-2"C W/ WIRING

DUCT SECTION DETAILS (TYPICAL)

NOT TO SCALE

Rev.	Date	Description	Eng. App.
2	7/14/92	UTILITY COMMENTS	SS



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HOUSING FINANCE AND DEVELOPMENT CORPORATION
STATE OF HAWAII

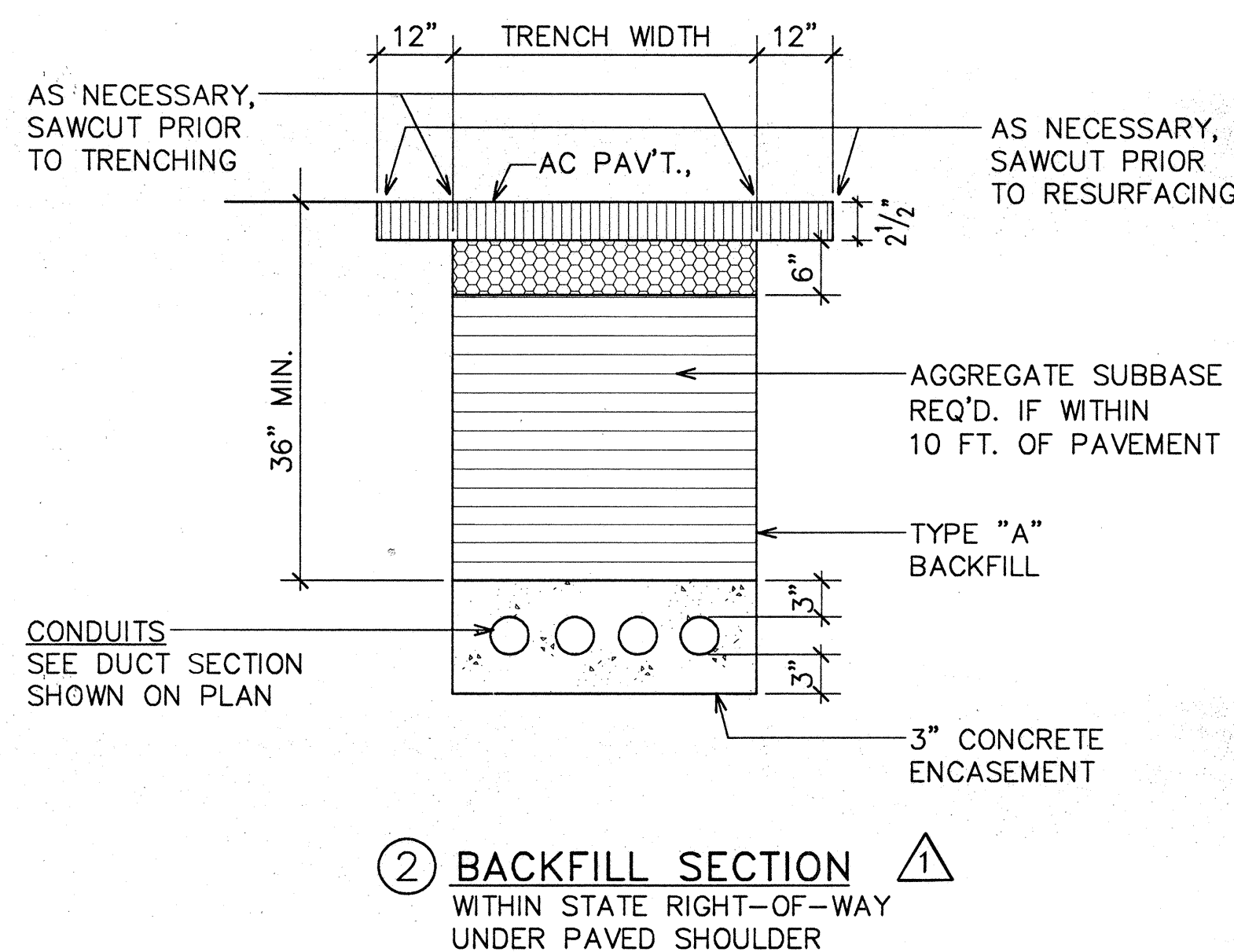
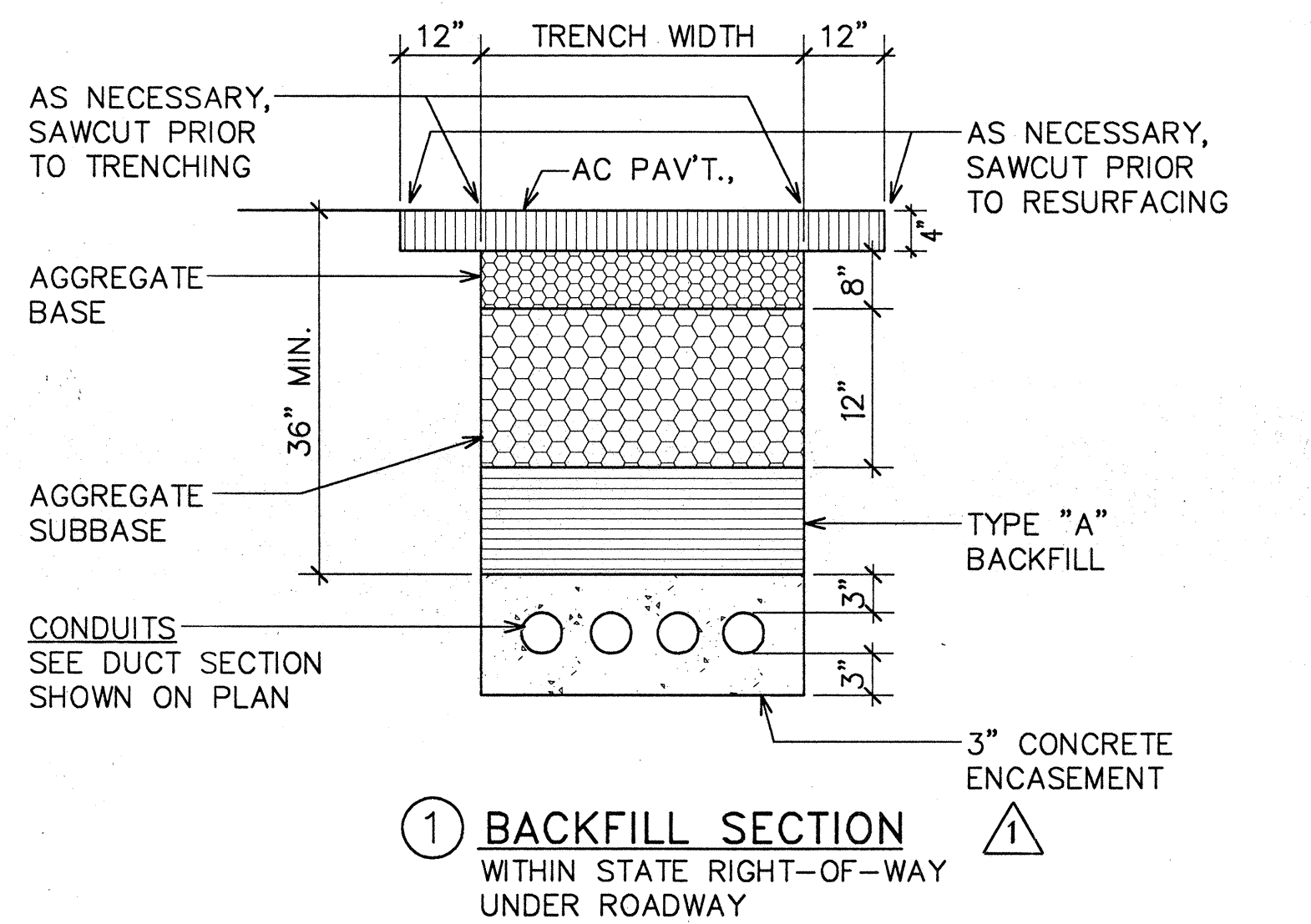
VILLAGES OF LA'IOPIA
MAUKA-MAKAI ROADWAY IMPROVEMENTS
PHASE-I
DUCT SECTIONS

Designed by: GF Date: _____
Drawn by: EDA Proj. no.: (BCA) 841-0104B
Approved: _____ Date: _____
HAWAIIAN TELEPHONE COMPANY Date: _____

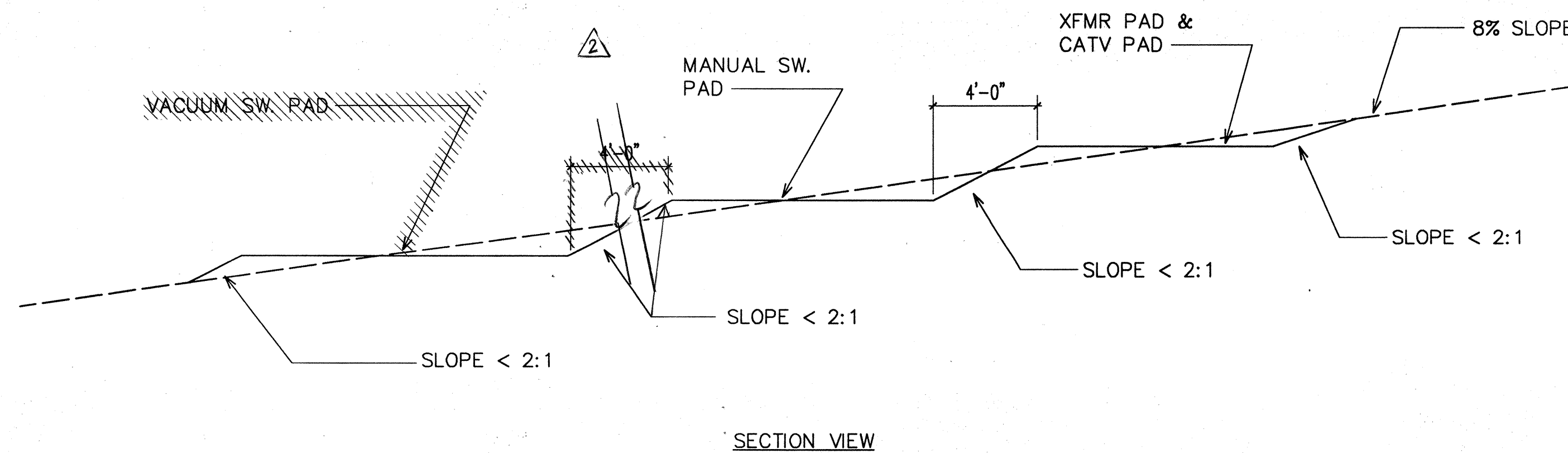
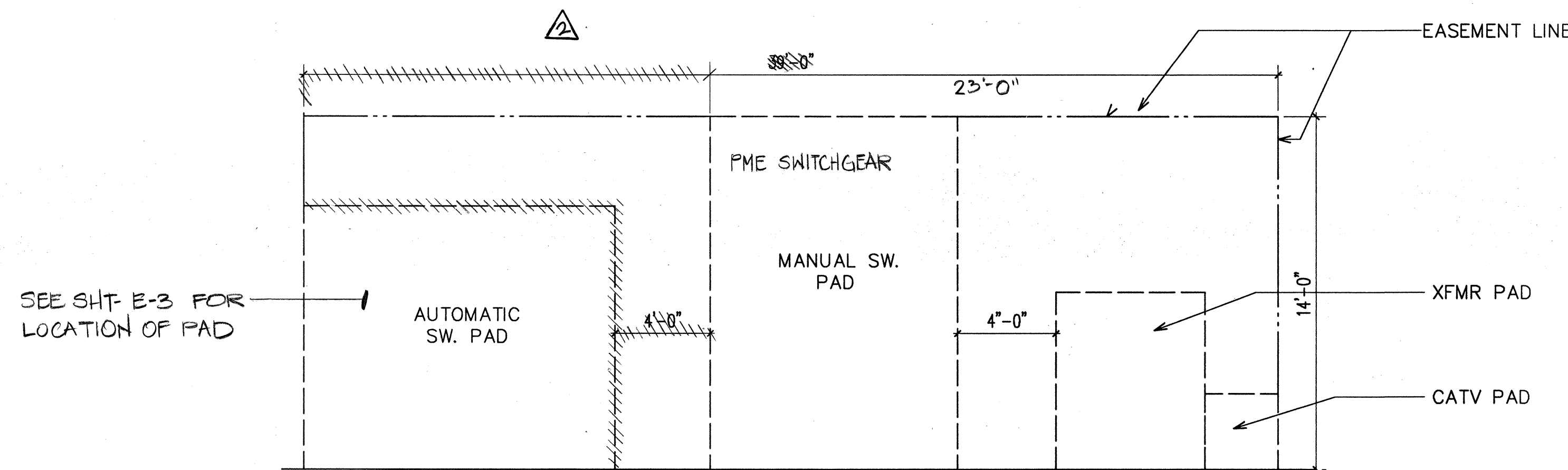
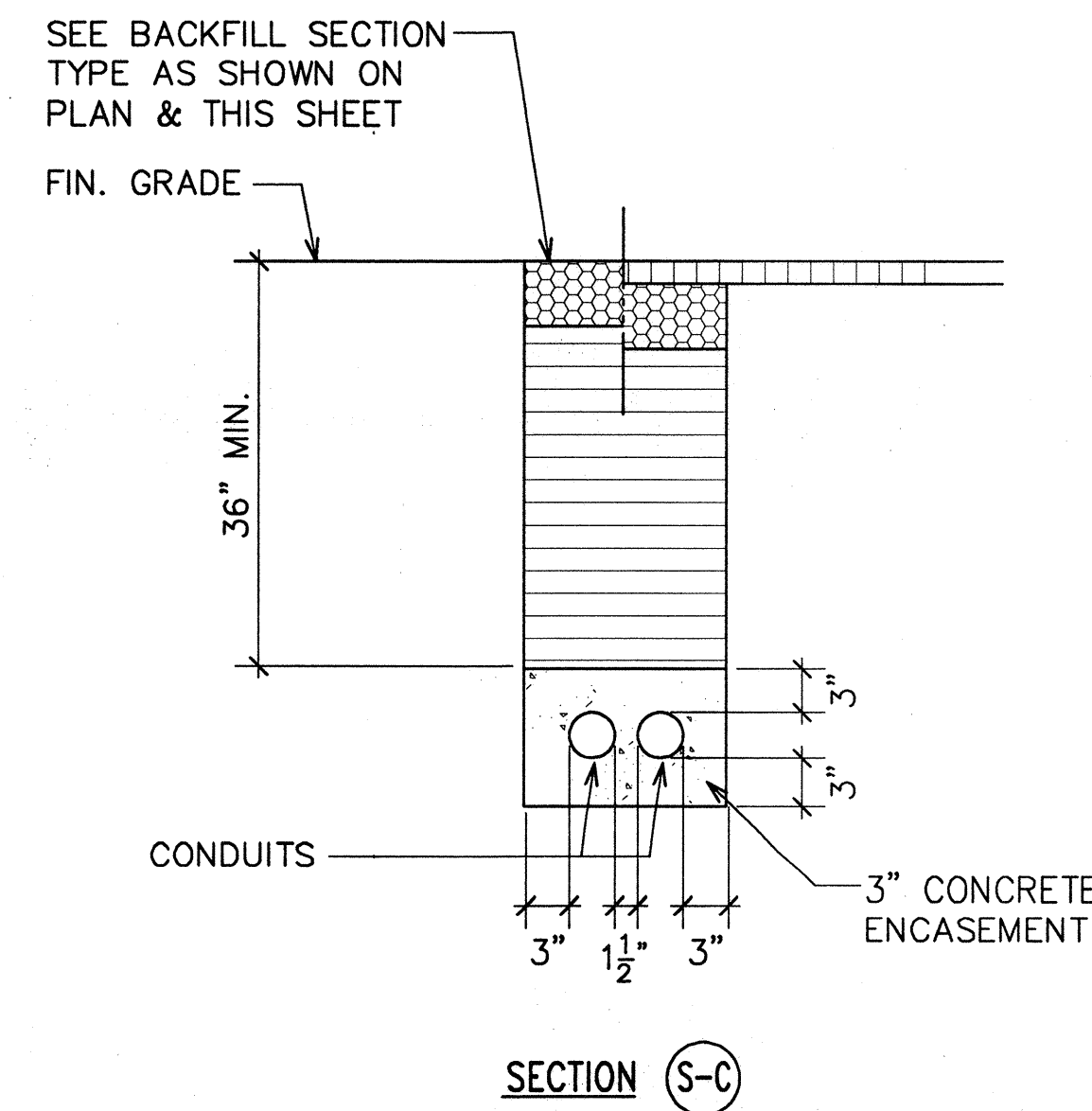
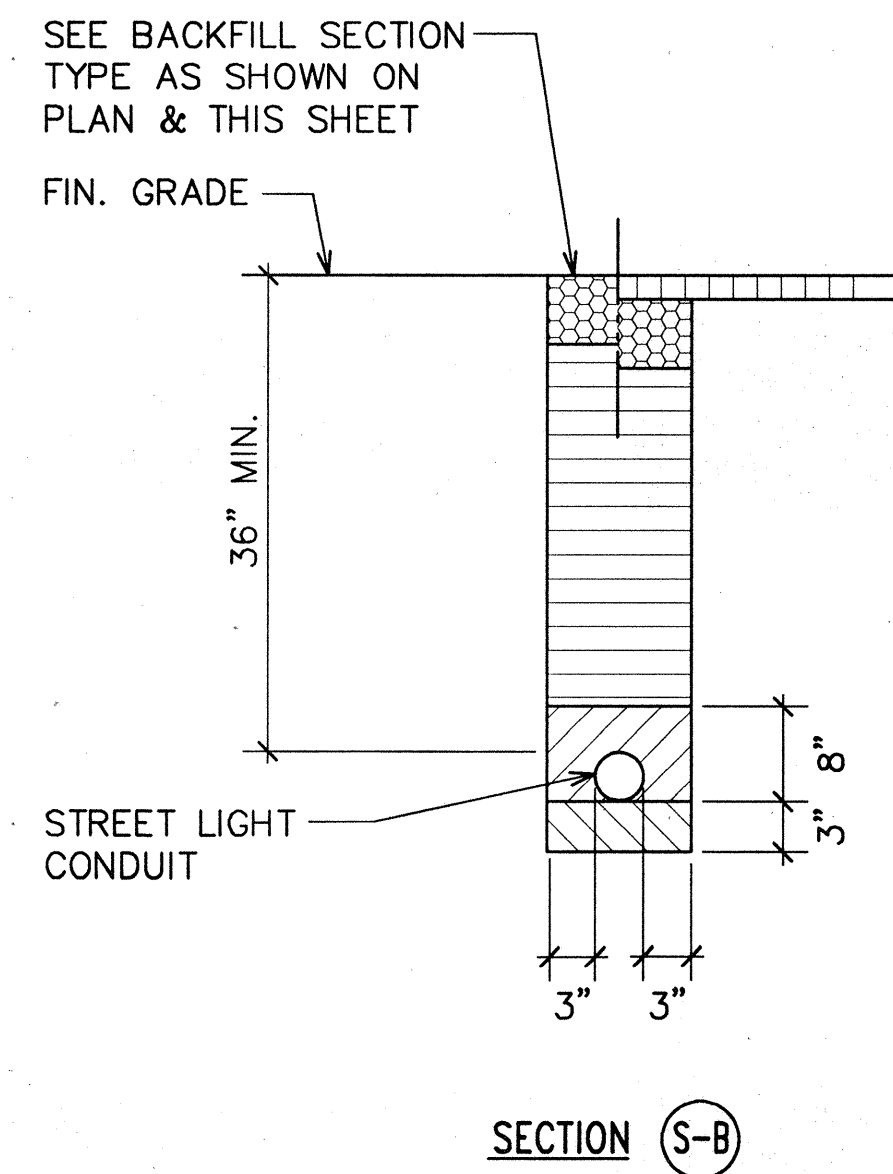
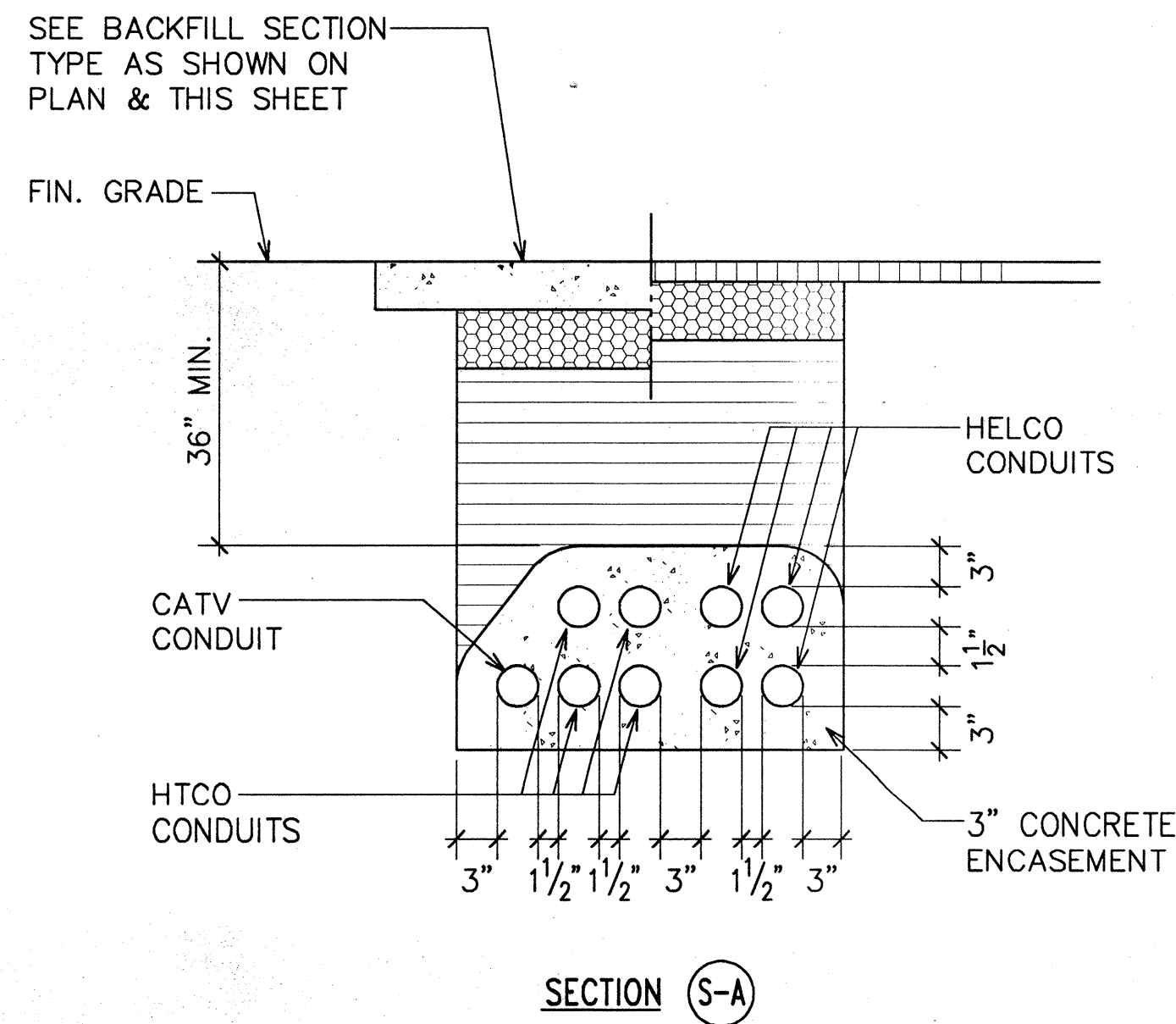
A **E-10** STATE RIGHT-OF-WAY BACKFILL NOTES

- TRENCH BACKFILL MATERIAL "B"
1. SAND EQUIVALENT ≥ 20
2. 8" MAX. LIFT
3. 95% COMPACTION
- TRENCH BACKFILL MATERIAL "A"
1. SAND EQUIVALENT ≥ 20
2. 8" MAX. LIFT
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, 2500 PSI COMPRESSIVE STRENGTH @ 28 DAYS.

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



B **E-10** DUCT SECTIONS (STATE)-TYPICAL



ELEC. EQUIPMENT PAD DETAIL

NOTES FOR CONSTRUCTION WITHIN STATE RIGHT-OF-WAY:

- CONTRACTOR SHALL OBTAIN A CONSTRUCTION PERMIT FROM STATE'S HIGHWAY DISTRICT ENGINEER AT 50 MAKALA STREET PRIOR TO COMMENCEMENT OF WORK WITHIN THE STATE RIGHT-OF-WAY.
- CONSTRUCTION & RESTORATION OF ALL EXISTING HIGHWAY FACILITIES WITHIN STATE RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE SECTIONS OF THE CURRENT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", & THE "SPECIFICATION FOR INSTALLATION OF MISCELLANEOUS IMPROVEMENTS WITHIN STATE HIGHWAYS", OF THE STATE HIGHWAYS DIVISION.
- ALL LANES SHALL BE OPEN TO TRAFFIC DURING MORNING PEAK HOURS FROM 6:00 AM TO 8:30 AM & DURING AFTERNOON PEAK HOURS FROM 3:00 PM TO 6:00 PM, & DURING OFF-WORK HOURS. ONLY ONE LANE OF QUEEN KAAHUMANU HIGHWAY SHALL BE CLOSED AT ANY OTHER TIME.
- CONTRACTOR SHALL PROVIDE, INSTALL & MAINTAIN ALL NECESSARY SIGNS, LIGHTS, FLARES, BARRICADES, MARKERS, CONES, & OTHER PROTECTIVE FACILITIES & SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE PROTECTION & FOR THE CONVENIENCE & SAFETY OF PUBLIC TRAFFIC. ALL SUCH PROTECTIVE FACILITIES & PRECAUTIONS TO BE TAKEN SHALL CONFORM WITH THE "ADMINISTRATIVE RULES OF HAWAII GOVERNING THE USE OF TRAFFIC CONTROL DEVICES AT WORK SITES ON OR ADJACENT TO PUBLIC STREETS & HIGHWAYS" ADOPTED BY THE DIRECTOR OF TRANSPORTATION, & THE CURRENT U.S. FEDERAL HIGHWAY ADMINISTRATION "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS & HIGHWAYS, PART VI - TRAFFIC CONTROL FOR HIGHWAY CONSTRUCTION & MAINTENANCE OPERATIONS", DATED 1985. IF LANE CLOSURES ARE REQUIRED DURING CONSTRUCTION, A TRAFFIC CONTROL PLAN SHALL BE INCORPORATED INTO THE CONSTRUCTION PLANS AND MUST BE APPROVED BY THE DIVISION PRIOR TO THE ISSUANCE OF THE PERMIT.
- THE MINIMUM PAVEMENT STRUCTURE SHALL CONSIST OF:
 - COMMERCIAL DRIVEWAYS, SIDE ROADS & UTILITY INSTALLATIONS ON MINOR HIGHWAYS
 (1) 2-1/2" ASPHALT CONCRETE, 8" AGGREGATE-BASE COURSE & 12" AGGREGATE SUBBASE, OR 2-1/2" ASPHALT CONCRETE & 8" ASPHALT CONCRETE BASE COURSE OR ASPHALT CONCRETE.
 (2) 6" OF CLASS "A" CONCRETE REINFORCED WITH 6"x 6" - 6/8 WIRE MESH ON 12" AGGREGATE SUBBASE IF DEEMED NECESSARY BY ENGINEER.
 - CHANNELIZED INTERSECTIONS & UTILITY INSTALLATIONS ON MAJOR HIGHWAYS
 (1) 4" ASPHALT CONCRETE, 8" AGGREGATE BASE COURSE & 12" AGGREGATE SUBBASE, OR 4" ASPHALT CONCRETE & 8" ASPHALT CONCRETE BASE COURSE OR ASPHALT CONCRETE, OR MATCH EXISTING PAVEMENT STRUCTURE, WHICHEVER IS GREATER.
- NO MATERIAL AND/OR EQUIPMENT SHALL BE STOCKPILED OR OTHERWISE STORED WITHIN HIGHWAY RIGHT-OF-WAY EXCEPT AT LOCATIONS DESIGNATED IN WRITING & APPROVED BY THE DISTRICT ENGINEER.
- CONTRACTOR SHALL BE REQUIRED TO PROVIDE ADEQUATE, SAFE, NON-SKID BRIDGING MATERIAL OVER TRENCHES, INCLUDING SHORING, WHEN TRENCHING IN PAVEMENT AREAS TO HANDLE ALL TYPES OF VEHICULAR TRAFFIC.
- LONGITUDINAL DRAINAGE ALONG THE HIGHWAY SHALL BE MAINTAINED.
- APPROVAL OF PERMIT CONSTRUCTION PLANS SHALL BE VALID FOR A PERIOD OF ONE YEAR THEREOF FROM THE DATE OF NOTIFICATION OF APPROVAL TO THE APPLICANT. IN THE EVENT CONSTRUCTION DOES NOT COMMENCE WITHIN THIS ONE-YEAR PERIOD, THE APPLICANT WILL BE REQUIRED TO RESUBMIT THIS CONSTRUCTION PLANS FOR DIVISION'S REVIEW AND APPROVAL.
- ALL REGULATORY, GUIDE AND CONSTRUCTION SIGNS AND BARRICADES SHALL BE OF HIGH INTENSITY REFLECTIVE SHEETING.

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Engineering • Planning • Landscape Architecture
680 Ala Moana Boulevard Suite 200 Honolulu, Hawaii 96813
Phone: (808)521-5361 Telex: BELTH 7430474 Fax: (808)538-7819

Consultant:
RONALD N. S. HO & ASSOCIATES, INC.
Electrical Engineers
2138 Alagabla Street, Suite A Honolulu, Hawaii 96826
Phone: (808)941-0577 Fax: (808)945-2646

Client:
HOUSING FINANCE AND DEVELOPMENT CORPORATION
STATE OF HAWAII

VILLAGES OF LA'I'OPUA
MAUKA-MAKAI ROADWAY IMPROVEMENTS
PHASE-I

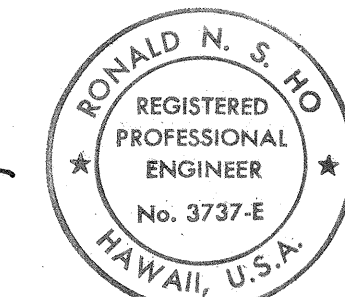
DUCT SECTIONS (STATE)

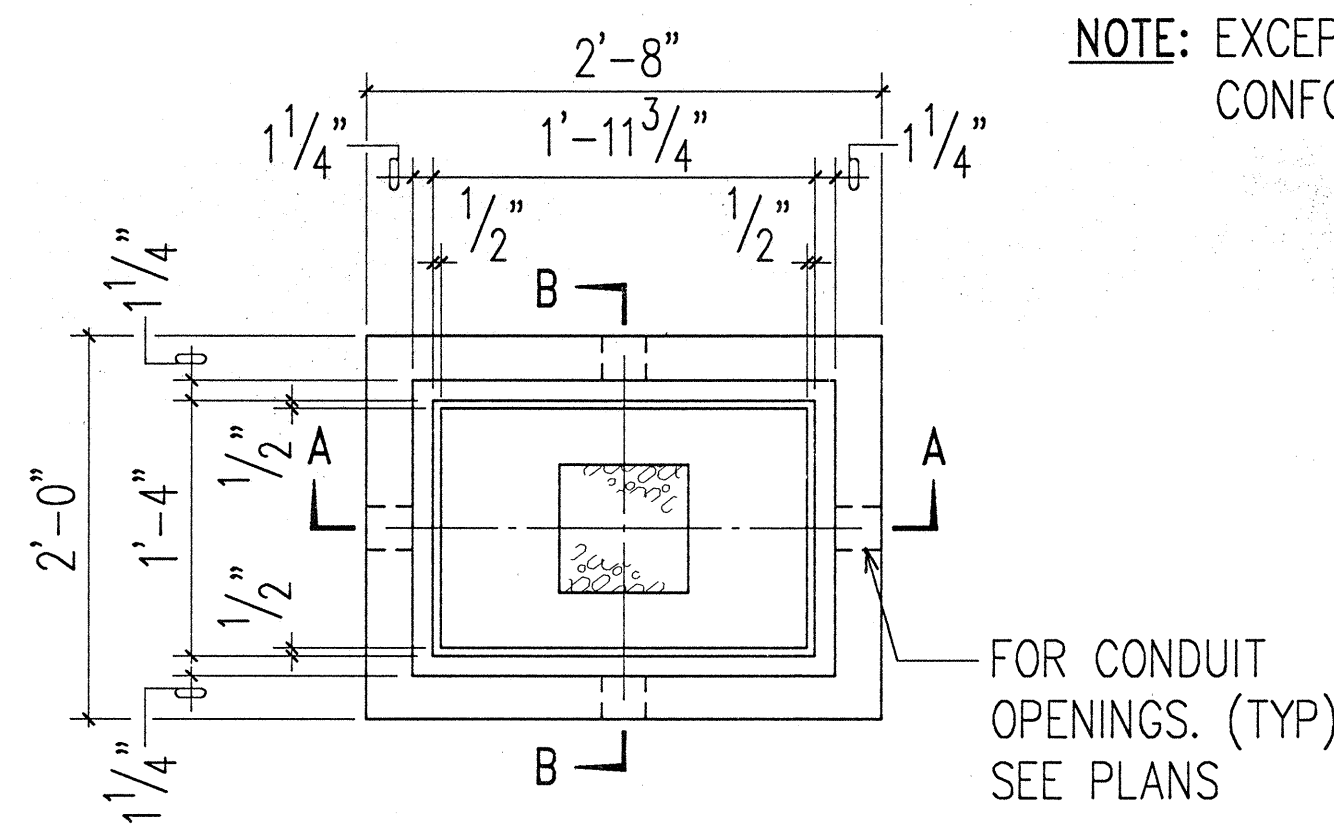
Designed by: GF
Drawn by: EDA
Date: _____
Proj. no.: (BCA) 841-0104B

Approved:
Date: _____
Date: _____

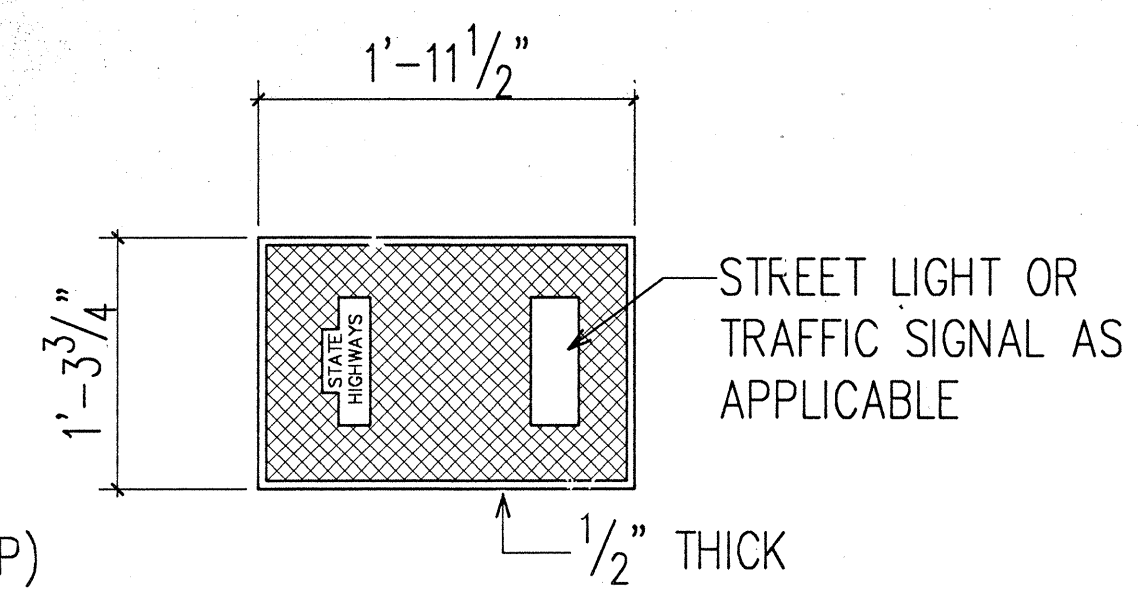
Rev.	Date	Description	Eng. App.
1	7/14/92	UTILITY COMMENTS	SS
2	12/4/91	GENERAL REVISION	SS

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
10/2/91

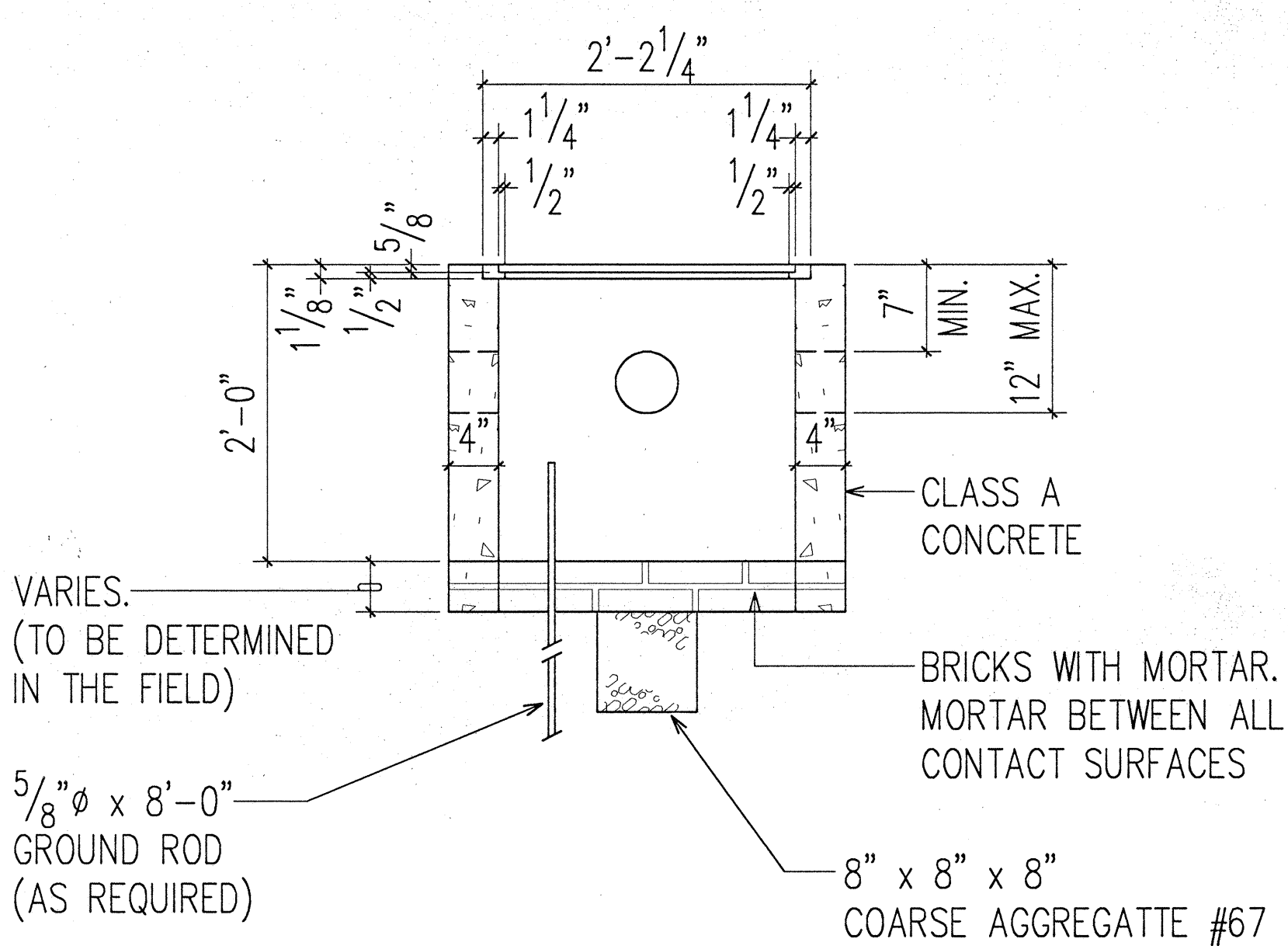




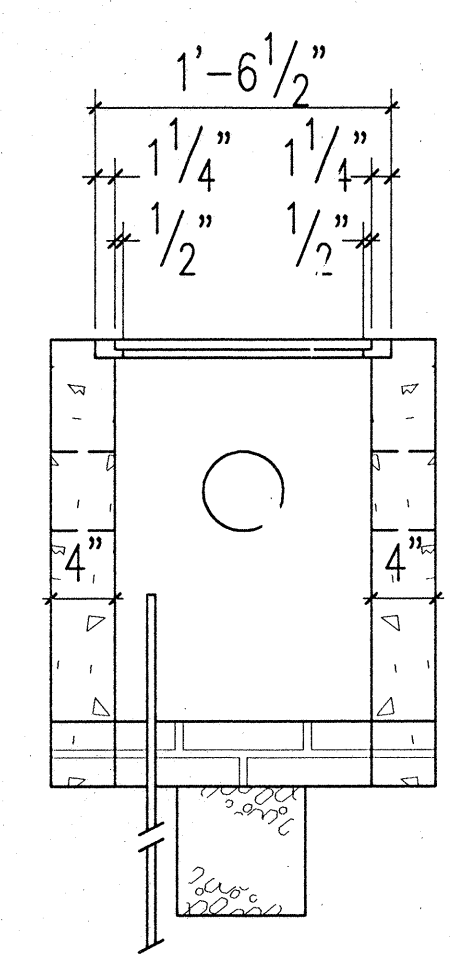
PLAN



PLAN OF COVER

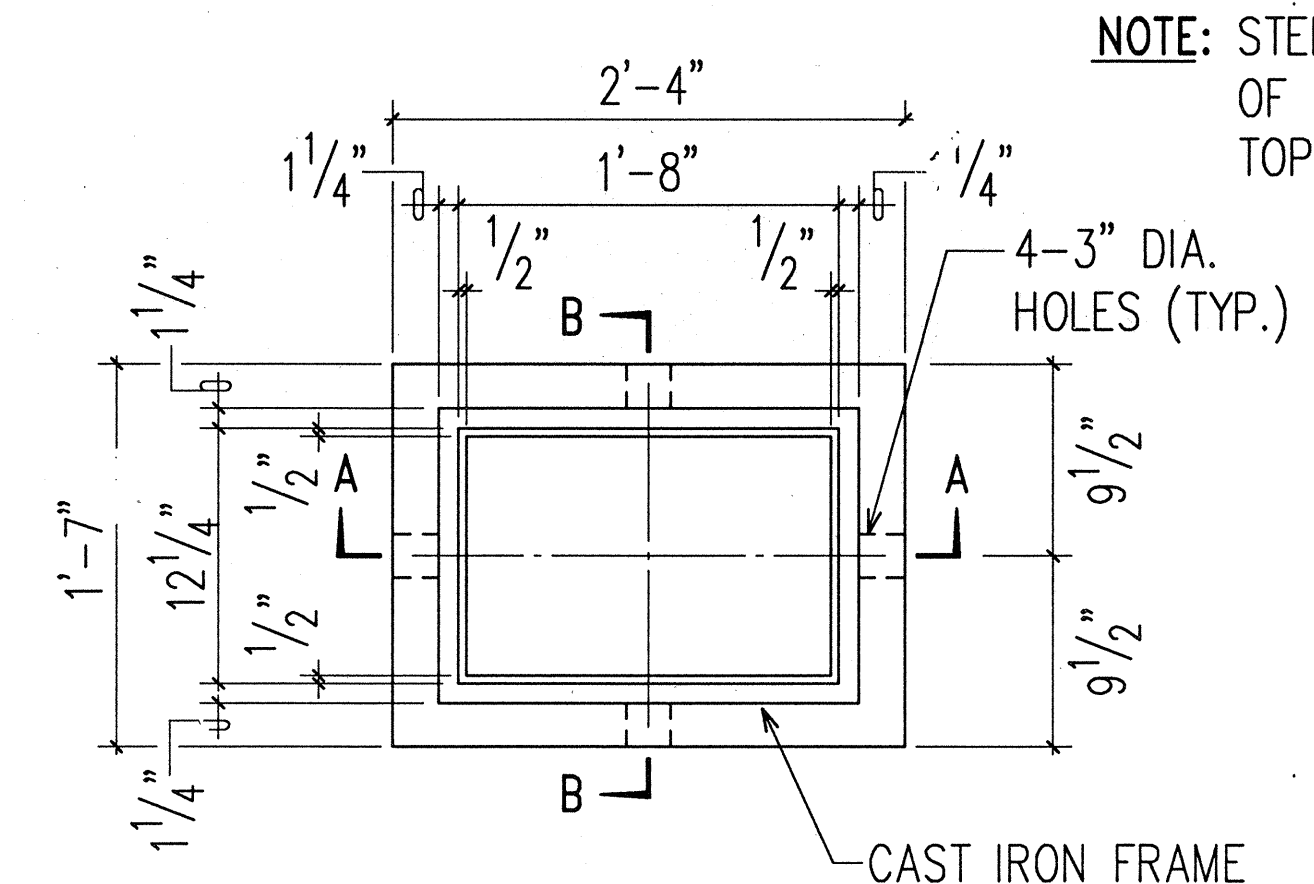


SECTION A-A

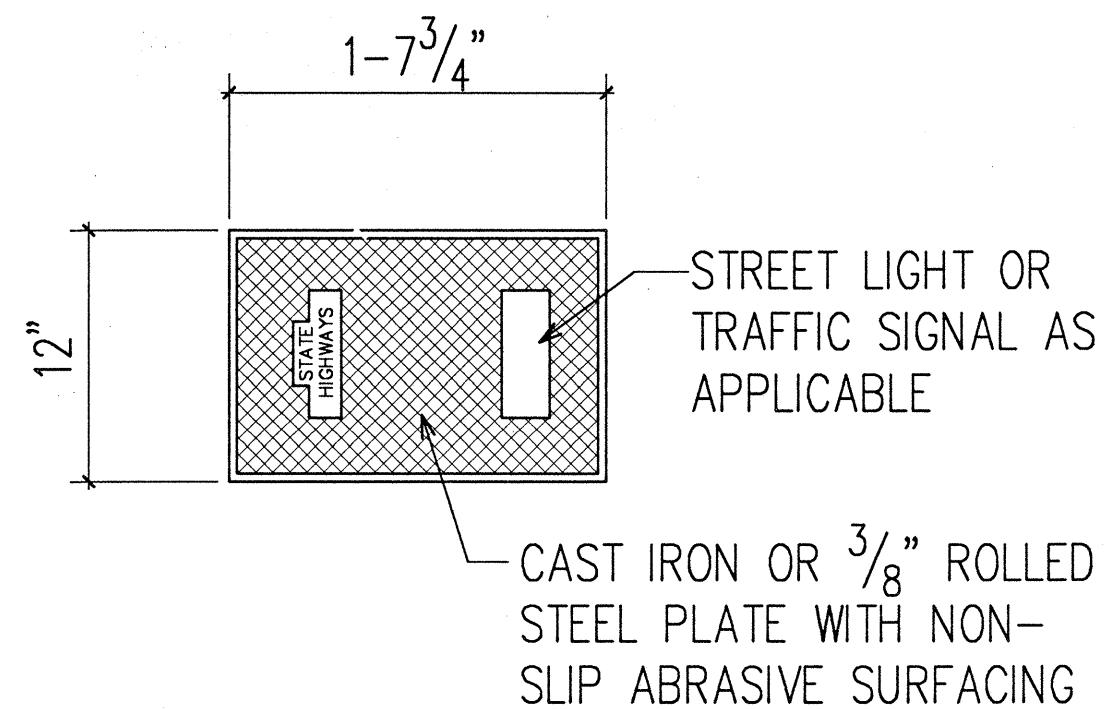


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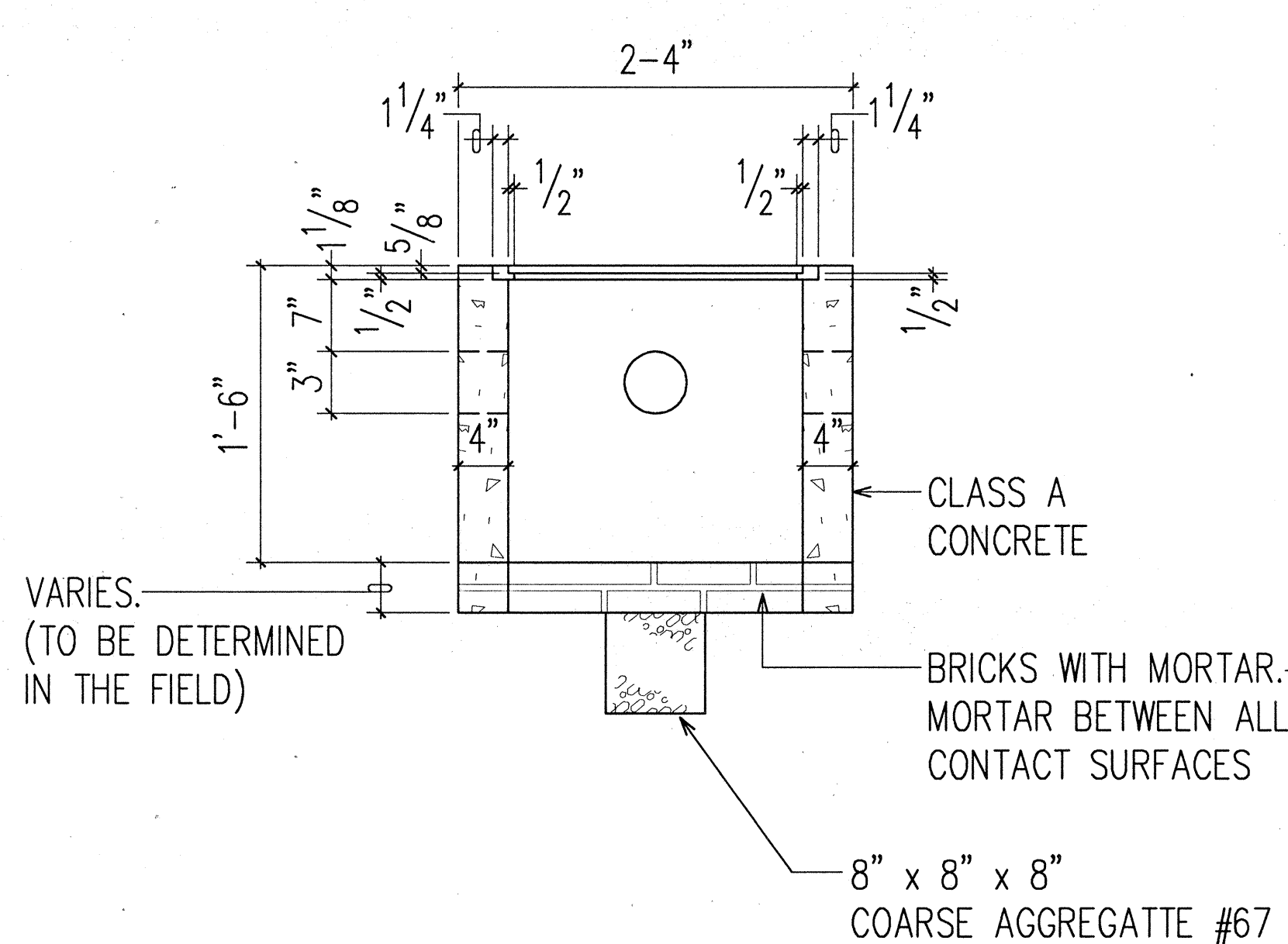
A
E-12 TYPE "A" PULLBOX
NOT TO SCALE



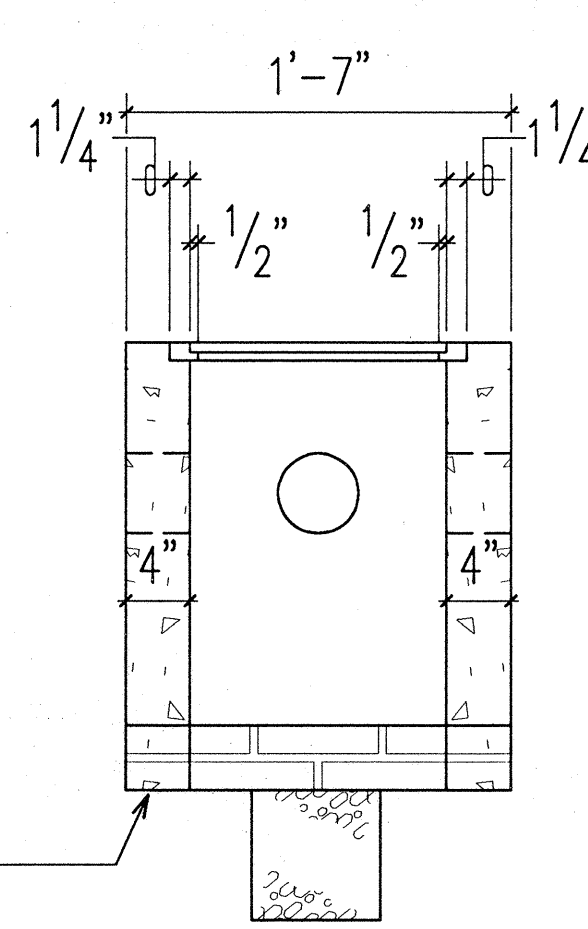
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PLAN OF COVER

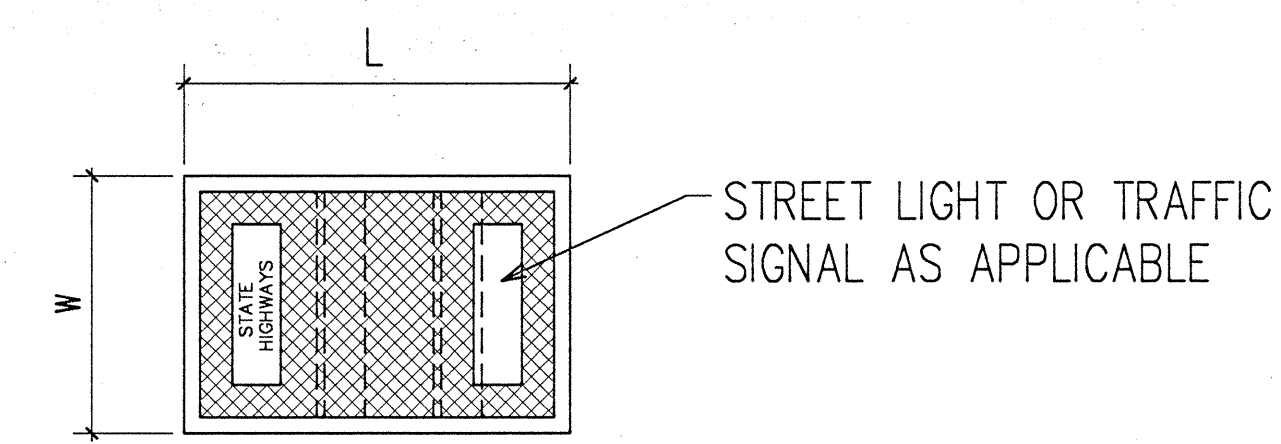


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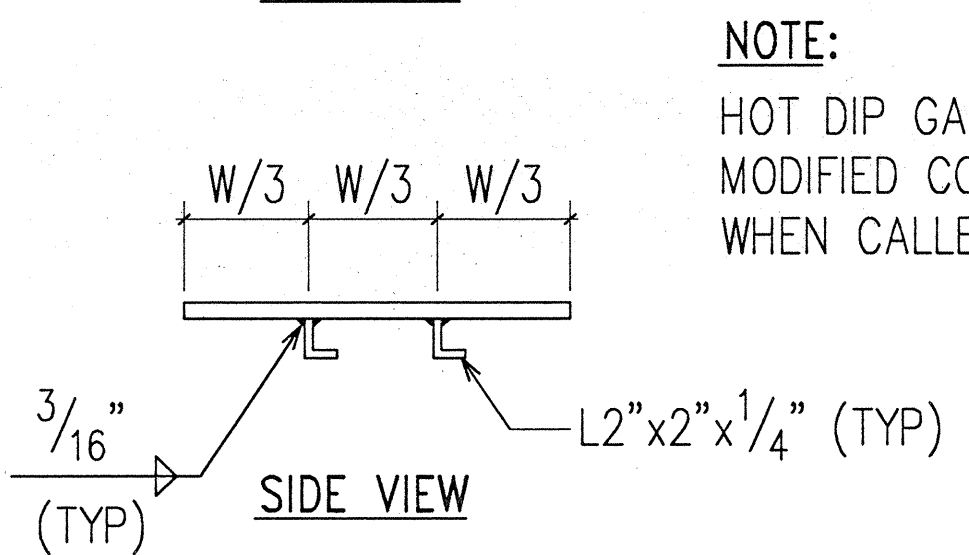


SECTION B-B

B
E-12 TYPE "B" PULLBOX
NOT TO SCALE



TOP VIEW



SIDE VIEW

NOTE:
HOT DIP GALVANIZE AFTER FABRICATION.
MODIFIED COVER SHALL BE FURNISHED
WHEN CALLED FOR ON PLANS.

C
E-12 MODIFIED COVER DETAIL
NOT TO SCALE

Rev.	Date	Description	Eng. App.

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AND CONSTRUCTION OF THIS
PROJECT WILL BE UNDER MY
OBSERVATION.

RONALD N. S. HO
REGISTERED
PROFESSIONAL
ENGINEER
No. 3737-E
HAWAII

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Client:
**HOUSING FINANCE AND
DEVELOPMENT CORPORATION**
STATE OF HAWAII

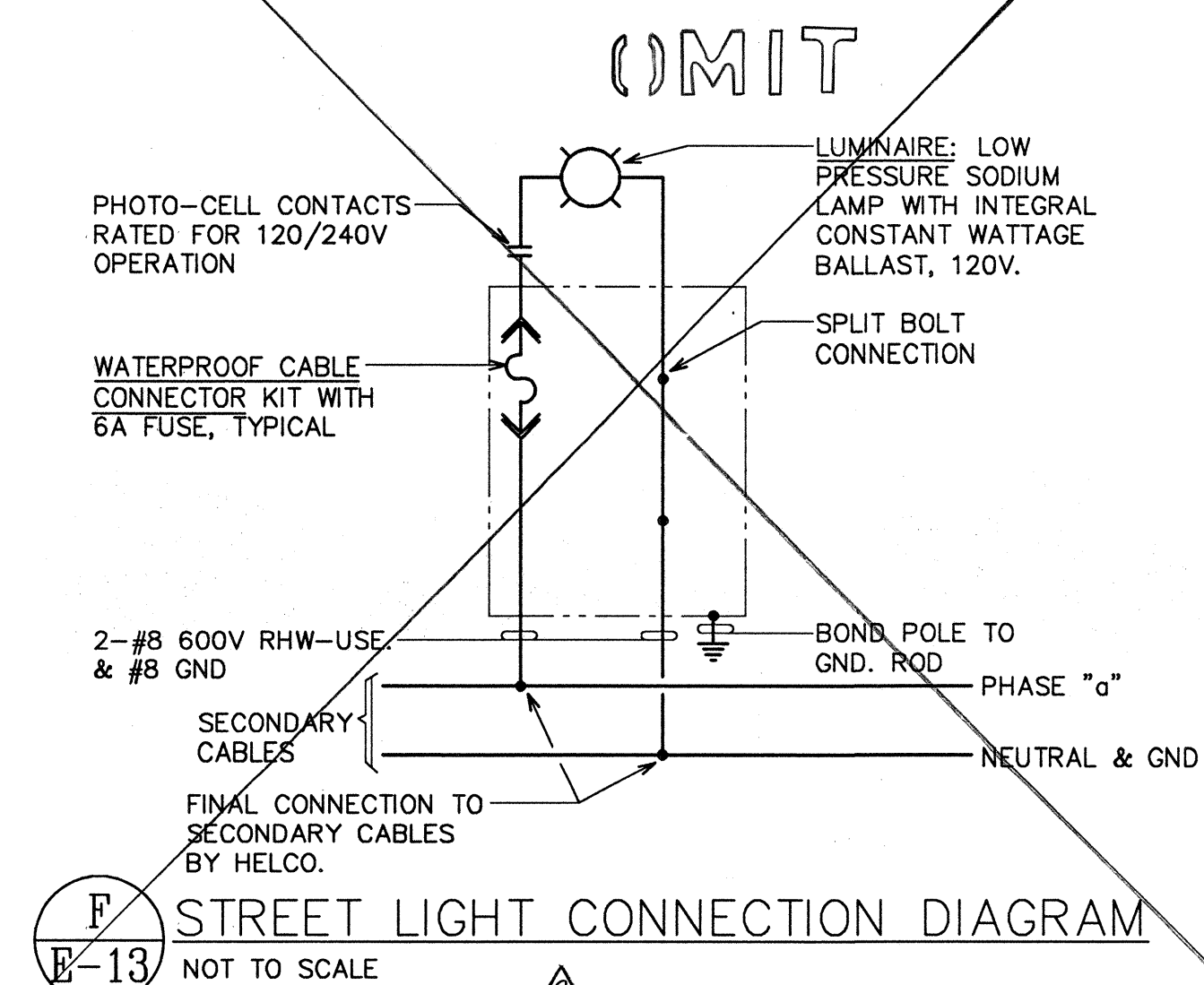
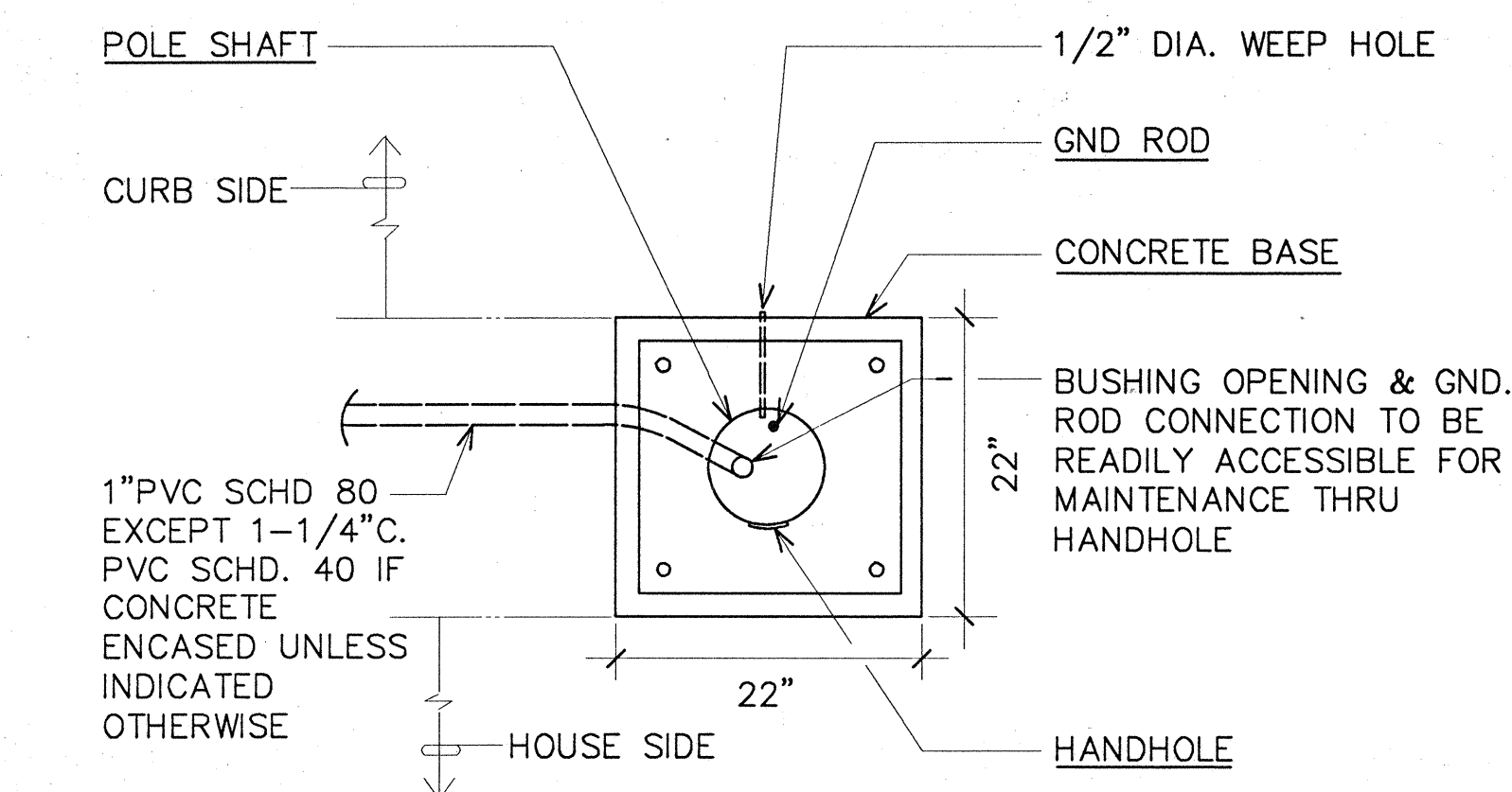
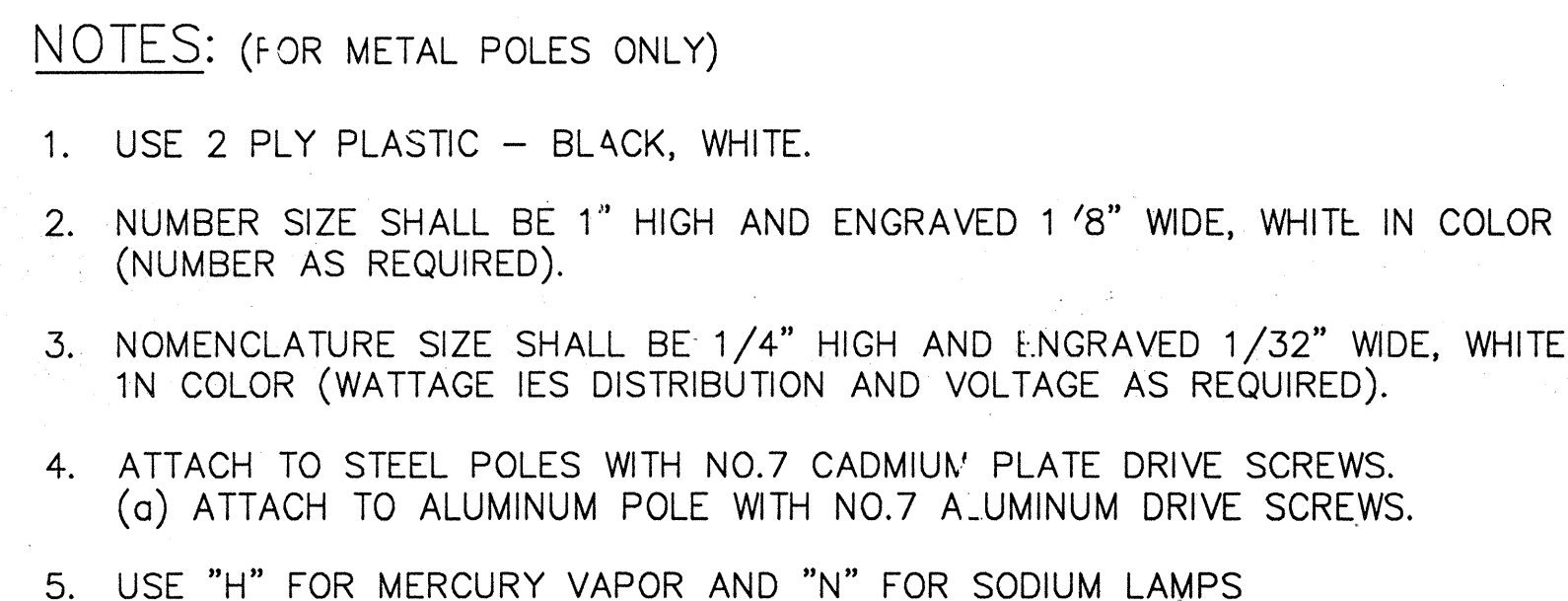
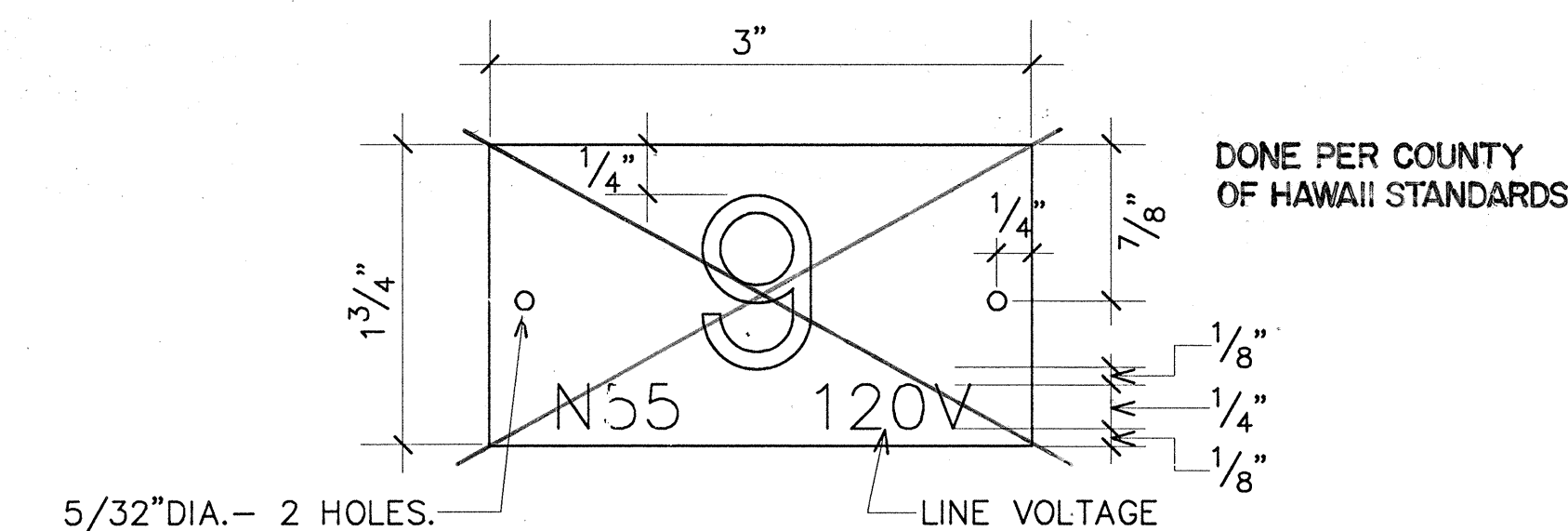
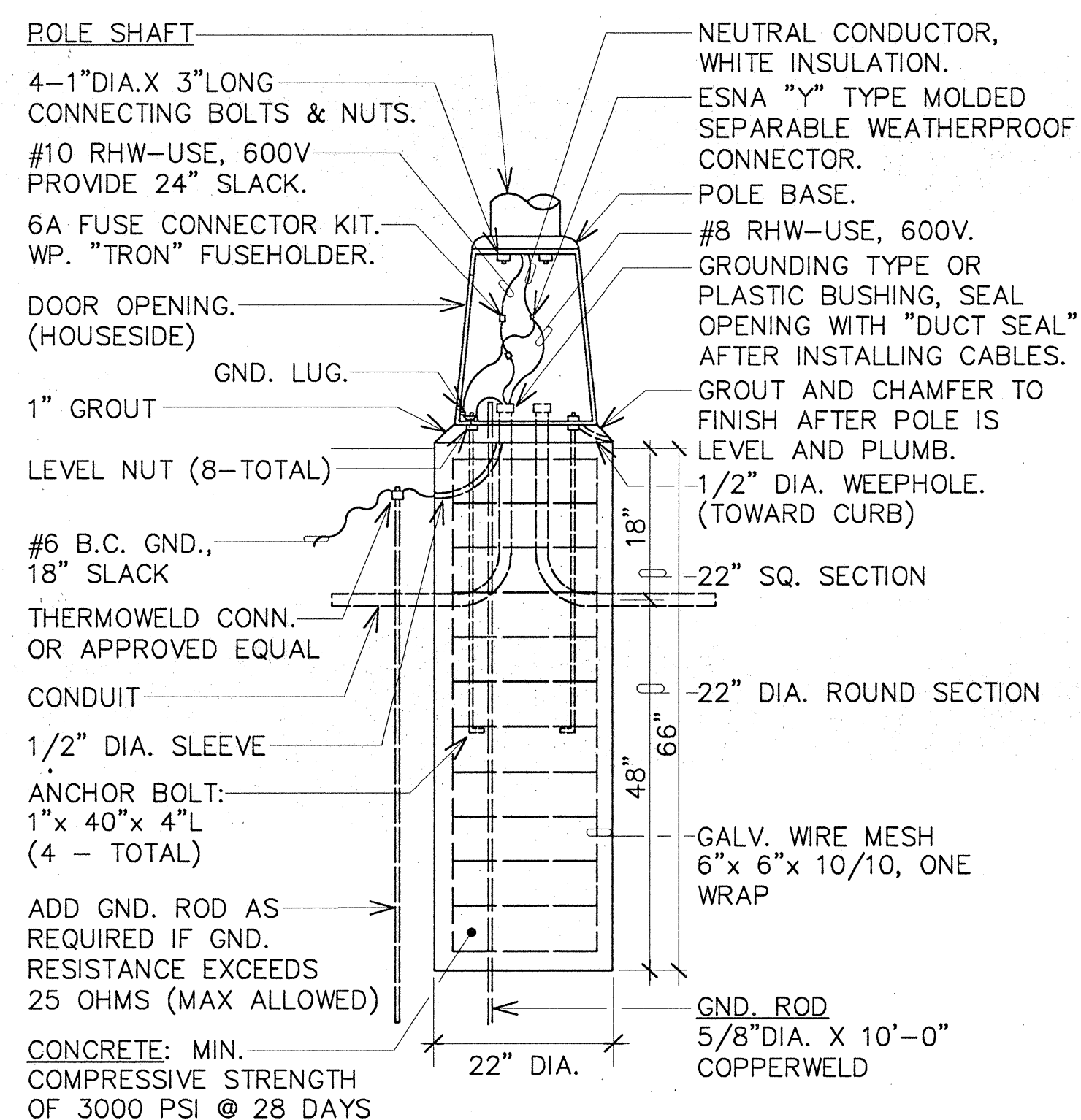
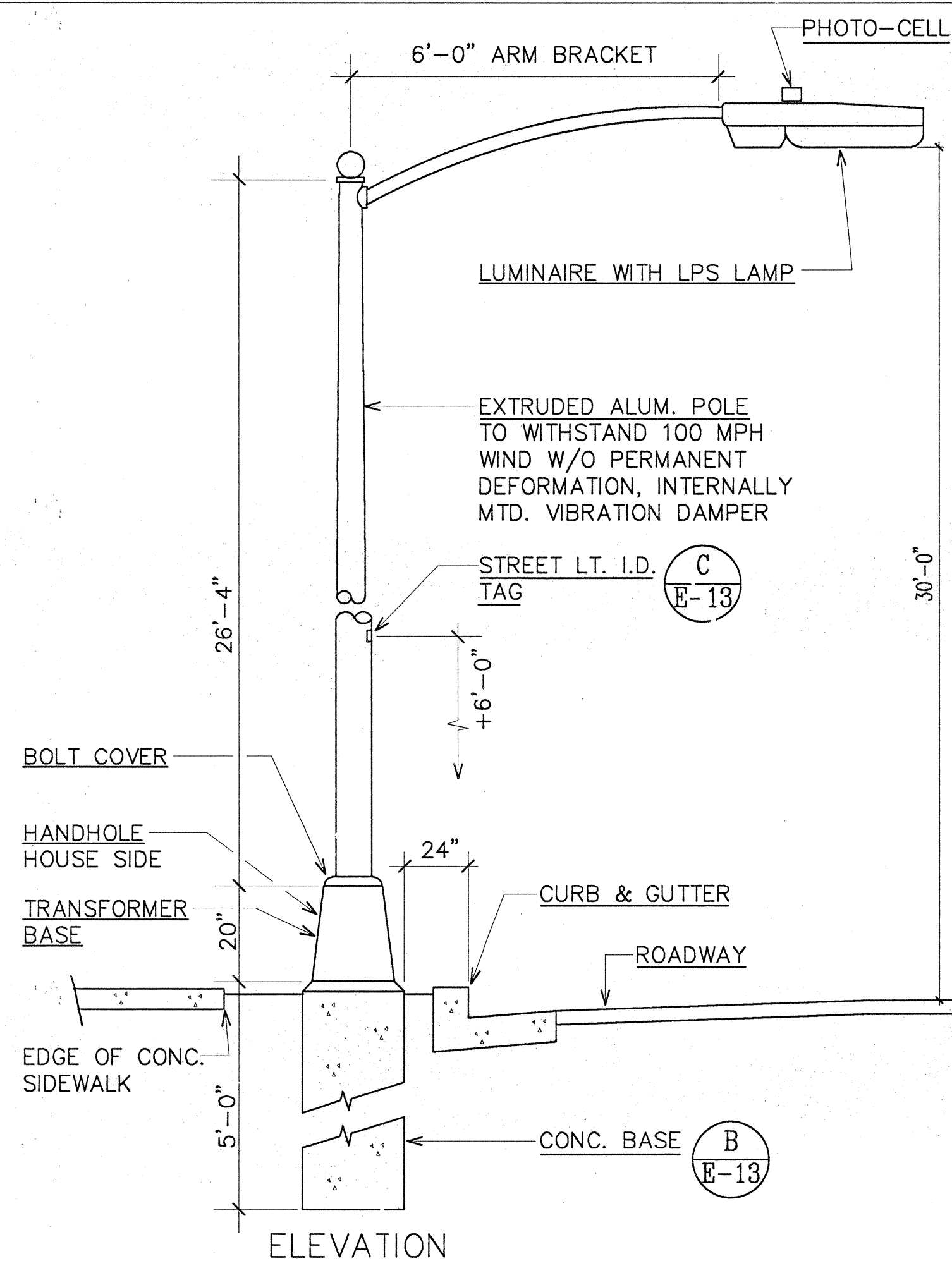
**VILLAGES OF LA'I'OPUA
MAUKA-MAKAI ROADWAY IMPROVEMENTS
PHASE-I**

PULLBOX DETAILS

Designed by: GF
Drawn by: EDA
Date: _____
Proj. no.: (BCA) 841-0104B

Approved:
Date: _____
HAWAIIAN TELEPHONE COMPANY

Trim: 22" x 36"



- STREET LIGHT NOTES:

1. NO CHANGES WILL BE ALLOWED WITHOUT PRIOR APPROVAL FROM TRAFFIC DIVISION.
2. ALL STREET LIGHT IDENTIFICATION TAG NUMBERING FOR METAL POLES SHALL START WITH "1" AND CONTINUE NUMERICALLY FOR EACH STREET IN THE SUBDIVISION. ALL STREET LIGHT I.D. TAG NUMBERING FOR WOODEN POLES SHALL BE IN ACCORDANCE WITH HELCO'S NUMBERING SYSTEM.
3. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY SECONDARY CIRCUIT EXTENSIONS TO THE NEAREST HELCO SECONDARY.
4. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATION AND INFORMING HELCO OF STREET LIGHT LOCATIONS ON SITE PRIOR TO INSTALLATION OF THEIR SECONDARY CABLES.
5. THE CONTRACTOR SHALL ARRANGE AND ASSUME COSTS TO ENERGIZE STREET LIGHTS A MINIMUM OF 6 HOURS FOR FINAL INSPECTION.
6. THE CONTRACTOR SHALL INSCRIBE THE MONTH AND YEAR OF INSTALLATION OF PHOTOCELLS AND LAMPS. ALL P.E.'S SHALL HAVE THE NORTH INDEX FACING NORTH.
7. ALL WORK DONE, LUMINAIRES, BALLASTS, LAMPS, PHOTOCELLS, FUSES AND OTHER STREET LIGHT APPURTENANCES SHALL BE WARRANTED FOR A MINIMUM OF ONE YEAR FROM DATE OF DEDICATION TO THE COUNTY.
8. ALL PHOTOCELLS USED SHALL BE COMPLETELY SOLID STATE EXCEPT FOR THE LOAD RELAY. THE P.E. SHALL FAIL IN OFF POSITION AND SHALL BE SILICON JUNCTION TYPE; NO CADMIUM SULFIDE CELLS WILL BE ACCEPTED.
ACCEPTABLE PHOTOCELLS:
 - 1) ALR SSTPV
9. ACCEPTABLE LUMINAIRES:
 - 1) NORELCO SRX 114, SRP II 90, SRP II 135 & SRP II 180
10. ACCEPTABLE POLES:
HAPCO 21-295, 21-297, 21-535, 21-587, 31-184, 31-199, 31-532, AND 31-585 OR APPROVED EQUIVALENT WITH INTERNALLY MOUNTED VIBRATION DAMPER. MINIMUM .188 WALL THICKNESS.
ACCEPTABLE TRANSFORMER BASES:
HAPCO 46788 OR APPROVED EQUIVALENT.
11. A 1" = 40' SCALE DRAWING OF STREET LIGHT LOCATION AND DETAILS OF FIXTURE MOUNTING, LUMINAIRE TYPE, ARM LENGTH, IDENTIFICATION TAGS (AND CIRCUITS, FOUNDATION, BASE, AND POLE IF UNDERGROUND) SHALL BE SUBMITTED TO THE TRAFFIC DIVISION AFTER PLAN APPROVAL AND BEFORE CONSTRUCTION BEGINS.
12. SHOP DRAWINGS SHALL BE SUBMITTED FOR APPROVAL TO THE COUNTY'S TRAFFIC DIVISION.

△				
△				
△	7/14/92	UTILITY COMMENTS	SS	
Rev.	Date	Description	Eng.	App.

Renee N. S. Ho

THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION
AND CONSTRUCTION OF THIS
PROJECT WILL BE UNDER MY
OBSERVATION.

RONALD N. S. HO
REGISTERED
PROFESSIONAL
ENGINEER
No. 3737-E
HAWAII, U.S.A.

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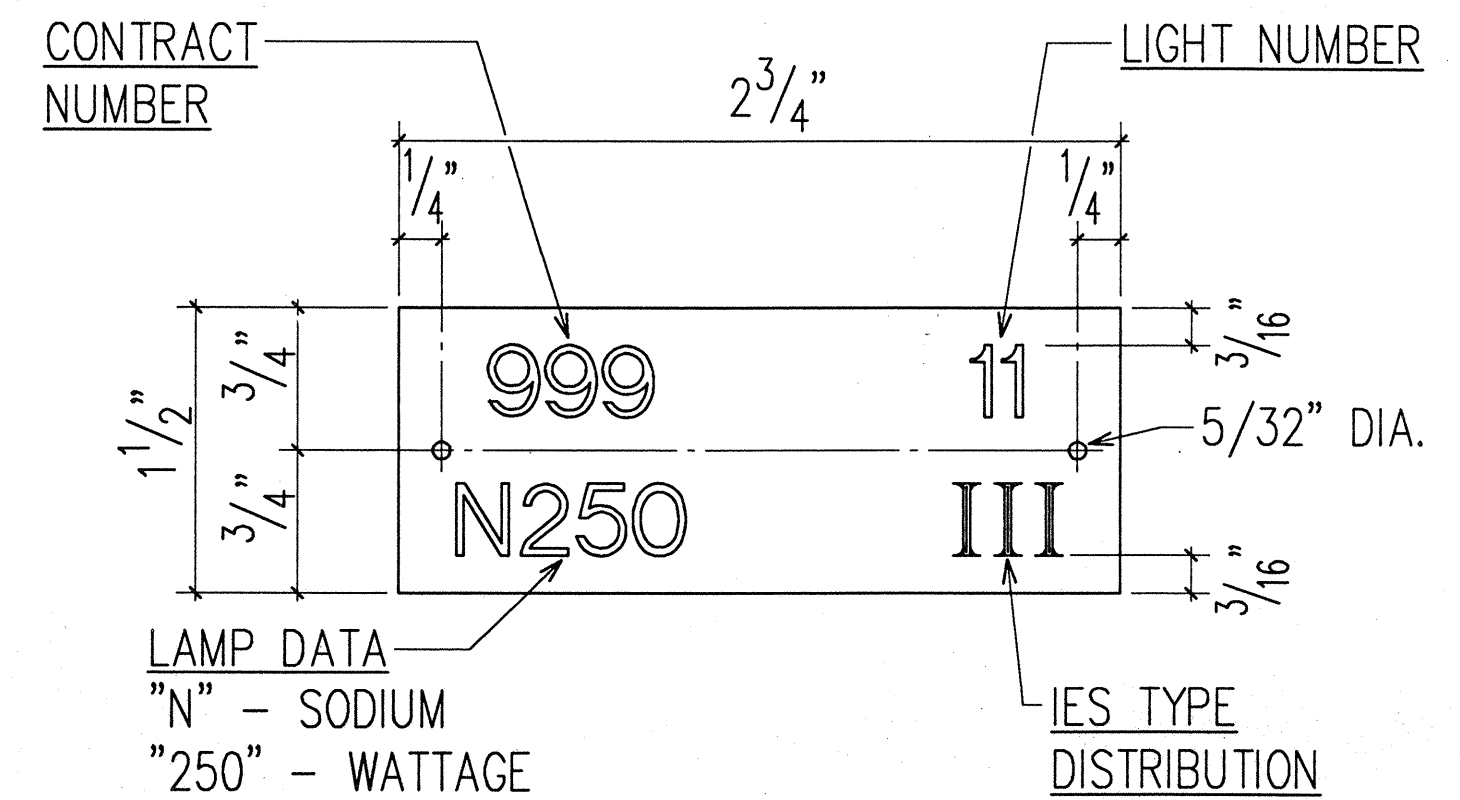
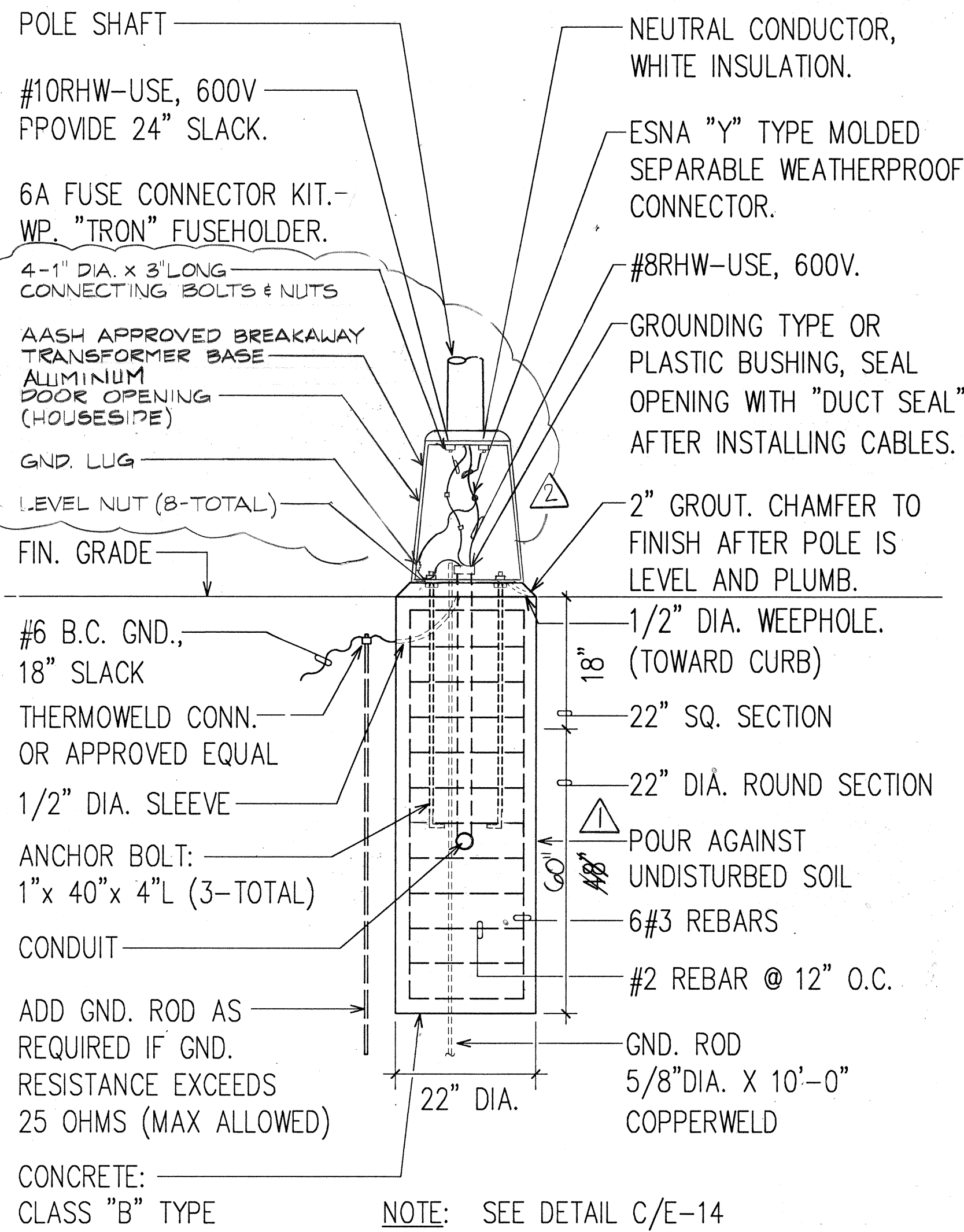
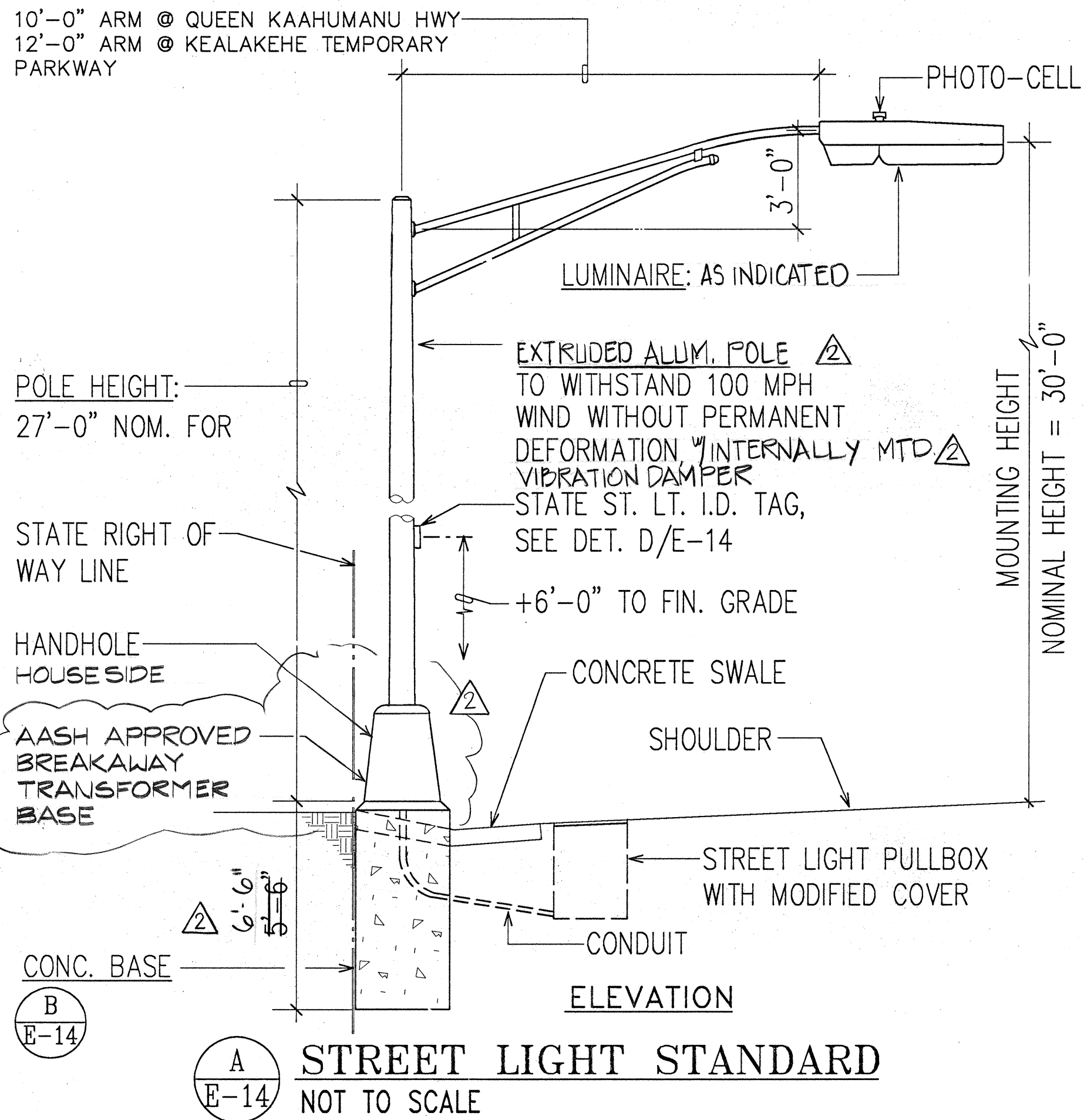
Client: **HOUSING FINANCE AND DEVELOPMENT CORPORATION**
STATE OF HAWAII

VILLAGES OF LA'IOPUA
MAUKA-MAKAI ROADWAY IMPROVEMENTS
PHASE-I

STREET LIGHT DETAILS

Designed by: GF Date: _____
Drawn by: EDA Proj. no.: (BCA) 841-0104B

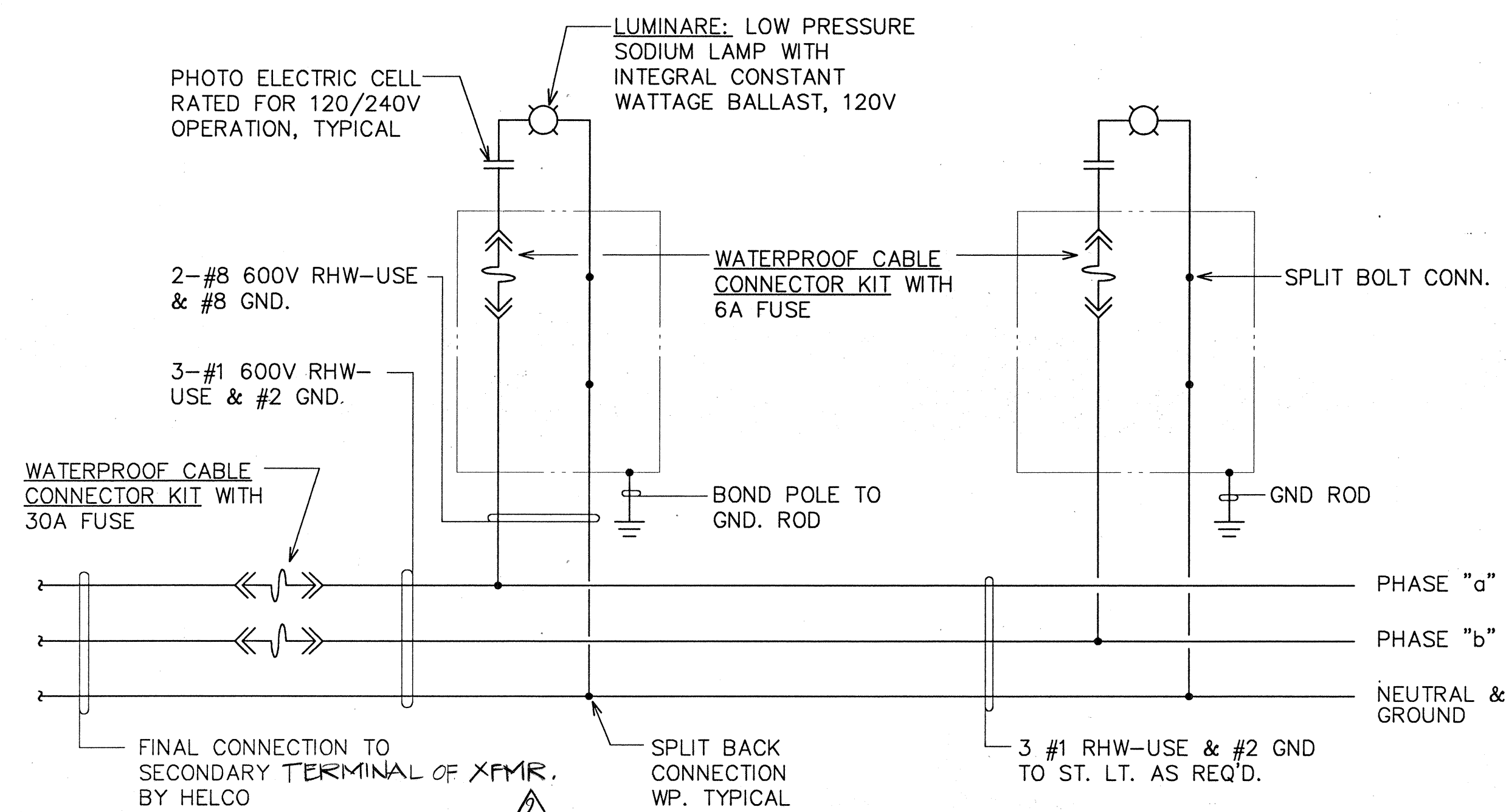
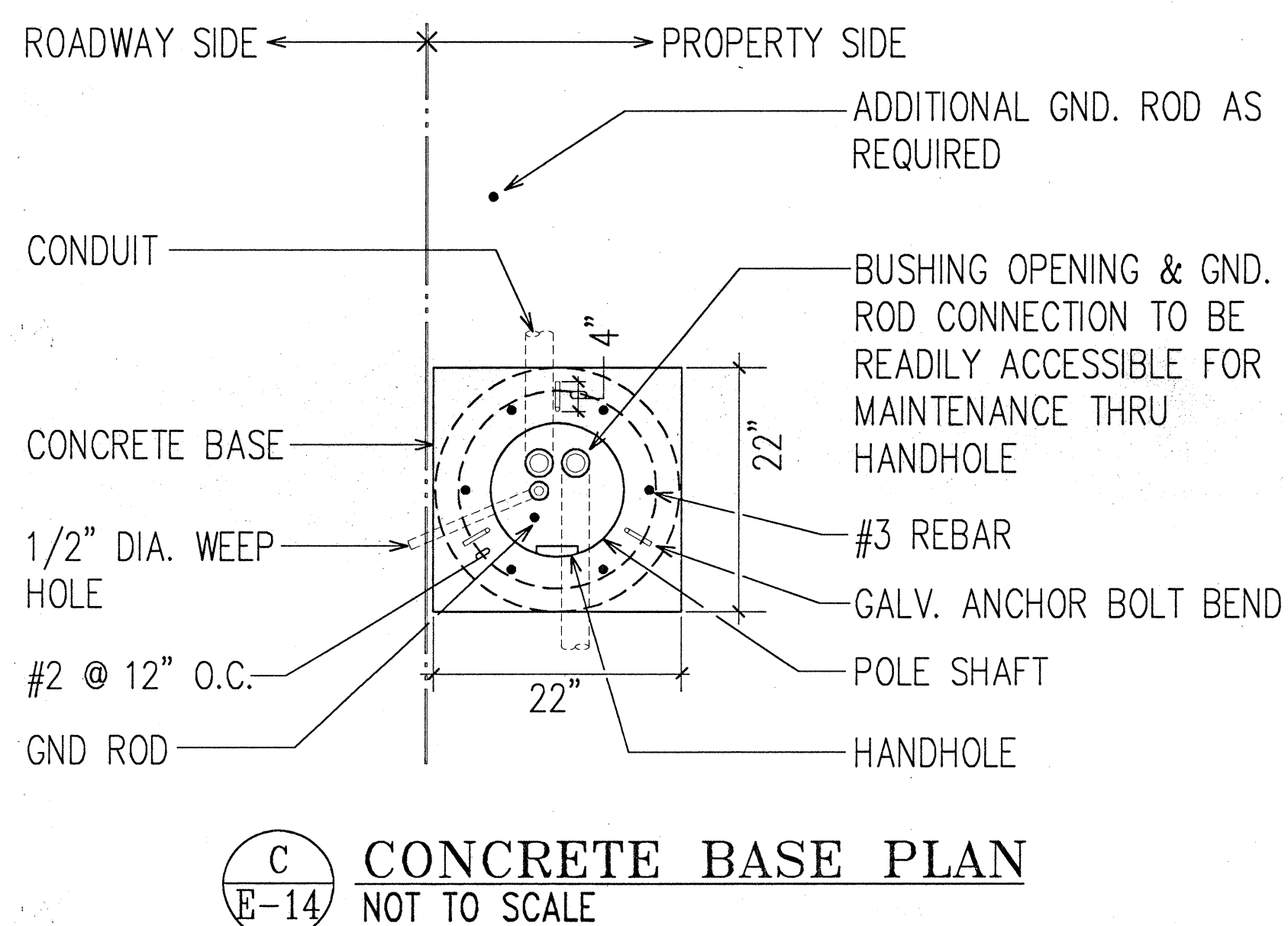
Approved: [Signature] Date: 11.26.92
HAWAII ELECTRIC LIGHT COMPANY Date: _____
Date: _____ Date: _____



NOTES:

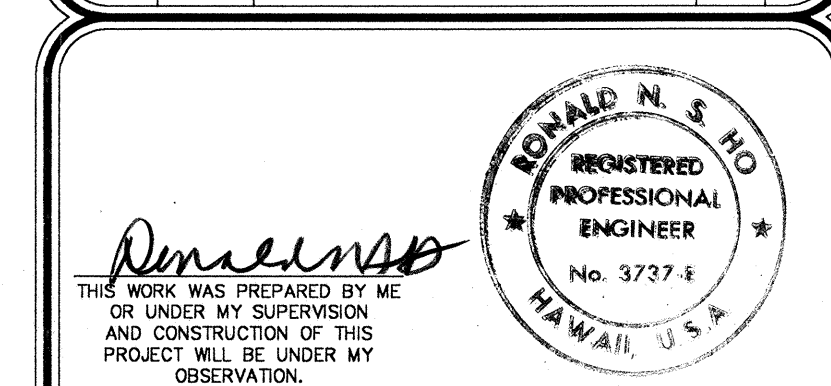
- USE 3 PLY LAMINATED FLEXIBLE PLASTIC, BLACK-WHITE-BLACK. THICKNESS: BLACK CAP & BASE SHEET - 0.010", WHITE MIDDLE SHEET - 0.052".
- LETTERS AND NUMBERS SHALL BE ENGRAVED 1/4" HIGH, 1/16" STROKE, WHITE IN COLOR.
- ATTACH TO STEEL POLE WITH NO. 8 STAINLESS STEEL. 1/2" LONG DRIVE SCREWS IN 1/8" DRILL HOLE.
- LETTERS AND NUMBERS SHALL BE ENGRAVED THROUGH "BLACK CAP SHEET" TO EXPOSE "WHITE" LETTERS.

D
E-14
STATE - STREET LIGHT I.D. TAG DETAIL
N.T.S.



E
E-14
STREET LIGHT MULTIPLE CONNECTION DIAGRAM
N.T.S.

Rev.	Date	Description	Eng.	App.
1	1/14/92	UTILITY COMMENTS		
2	1/14/91	REVISED DIMENSION	SS	



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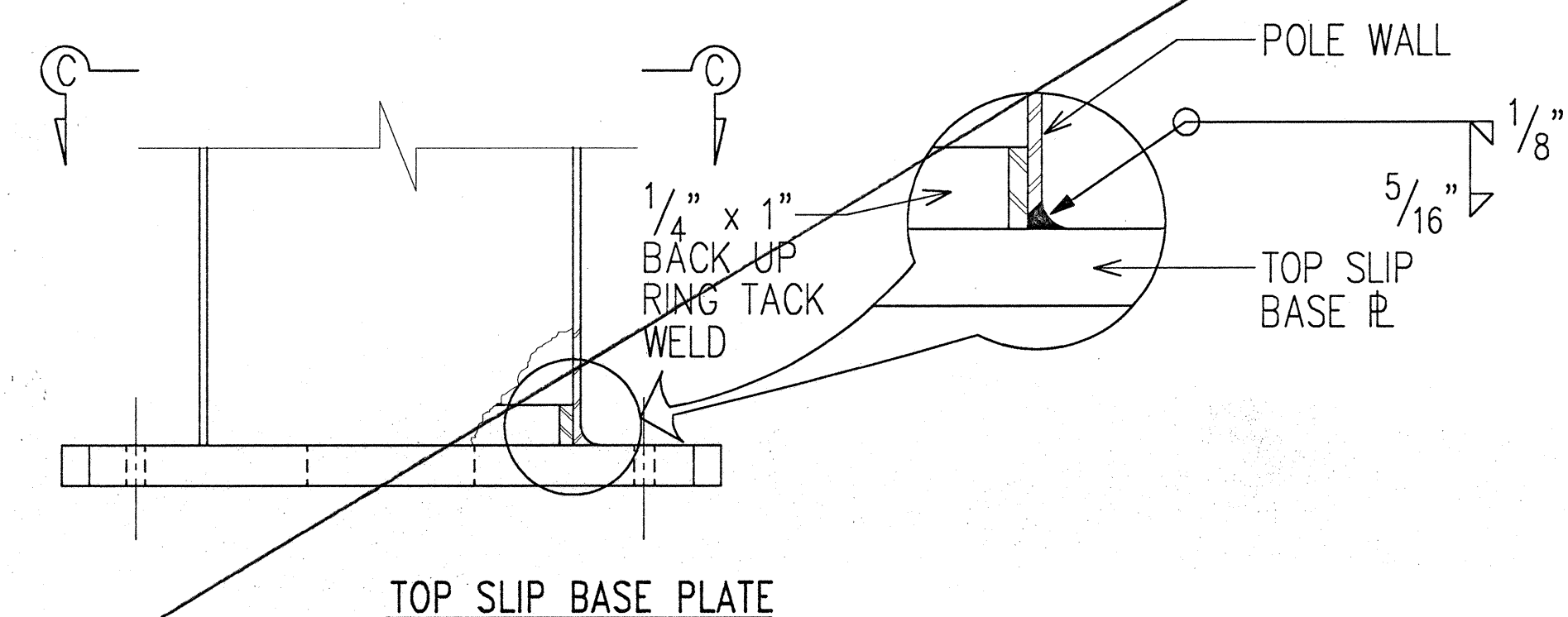
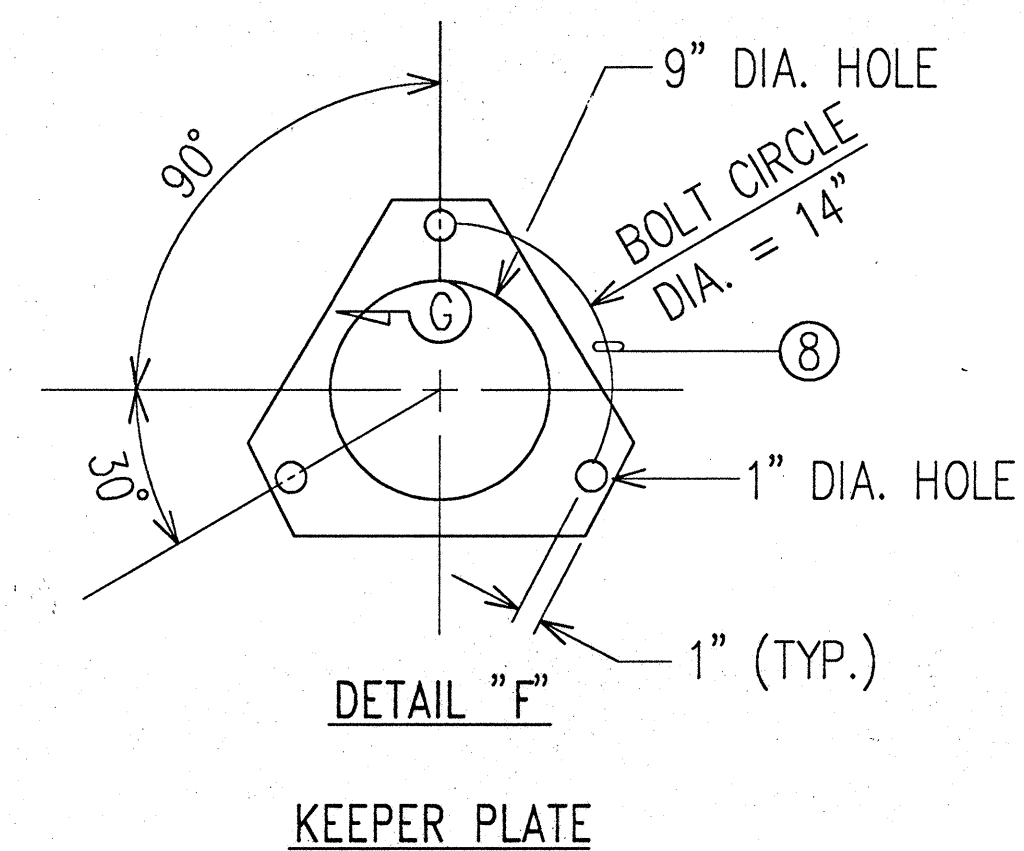
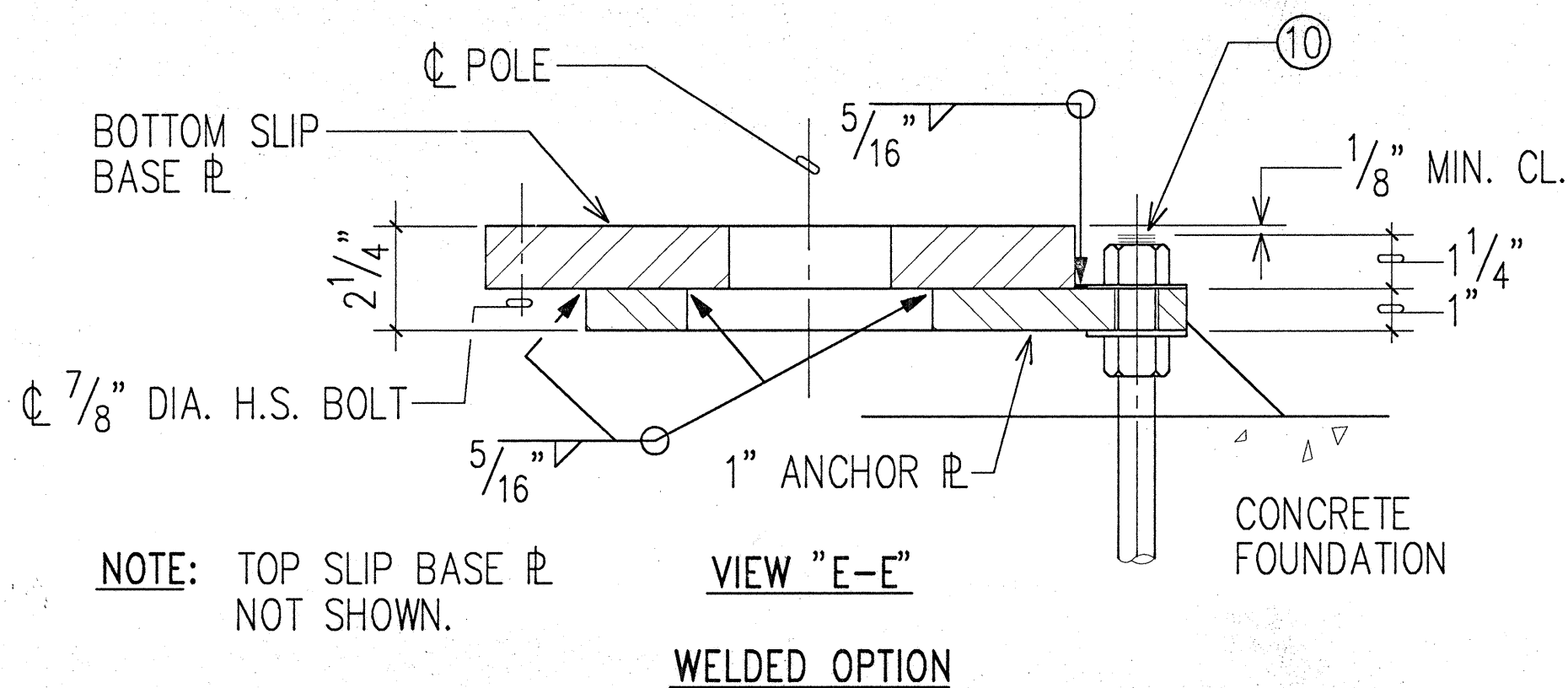
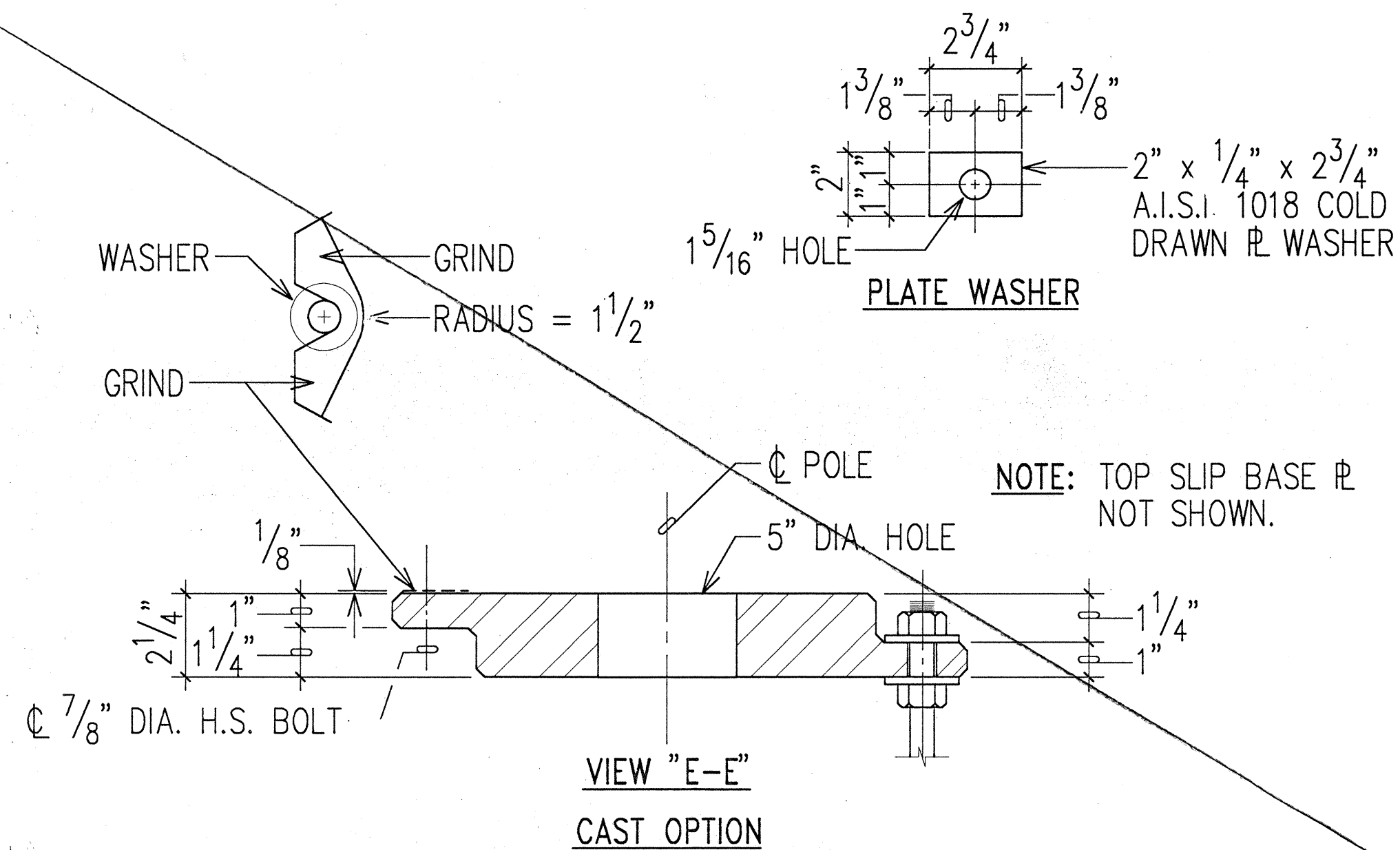
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STATE OF HAWAII

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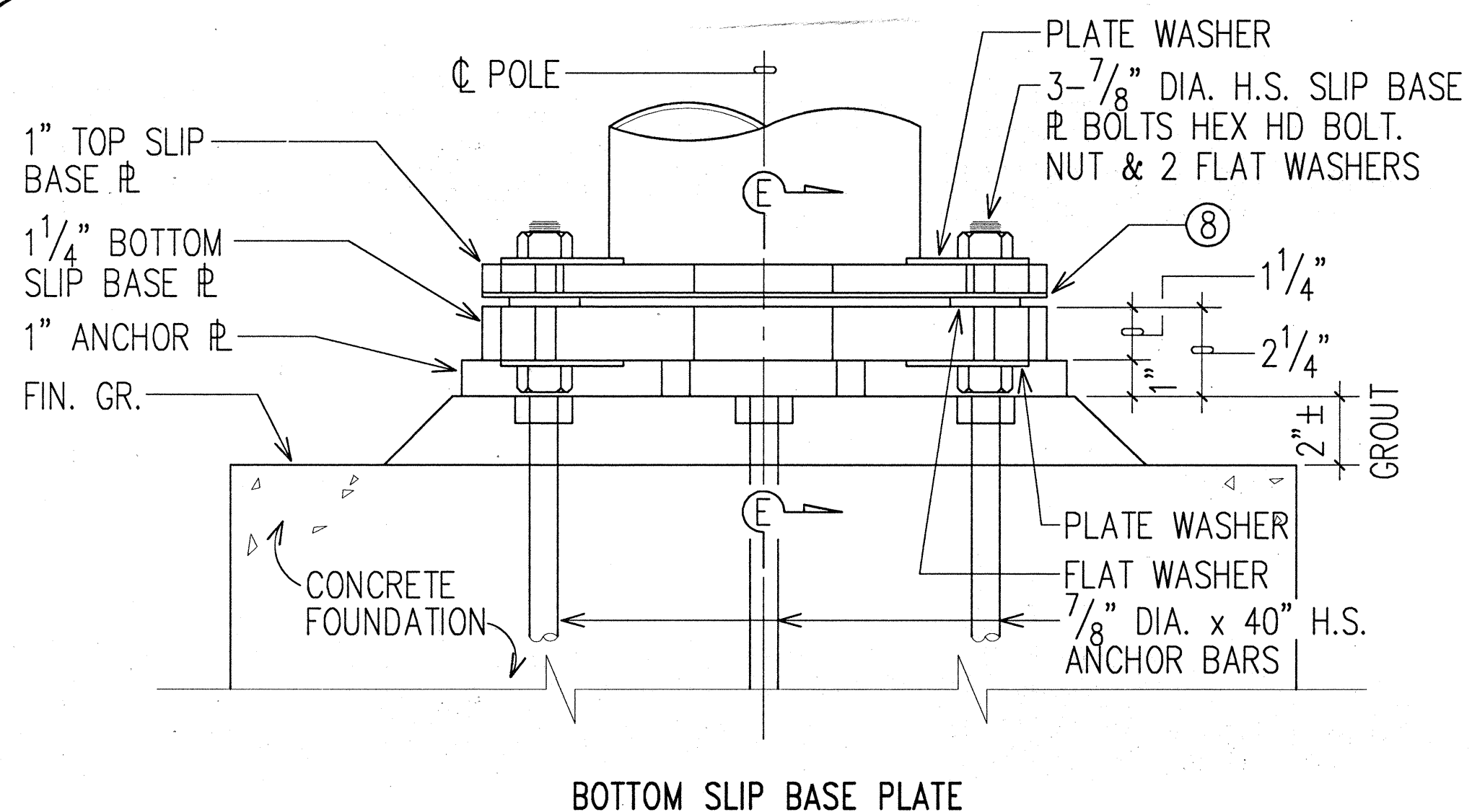
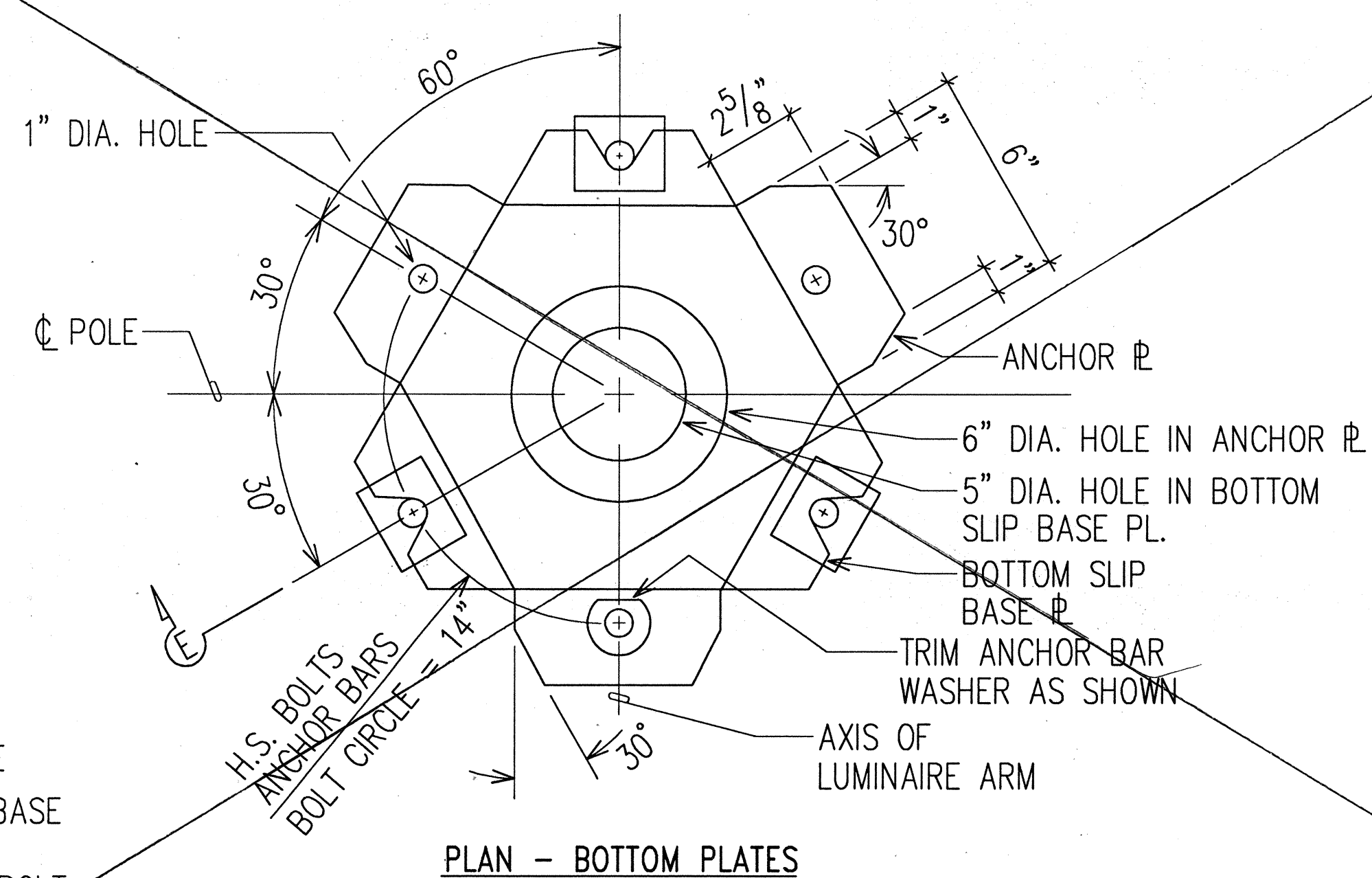
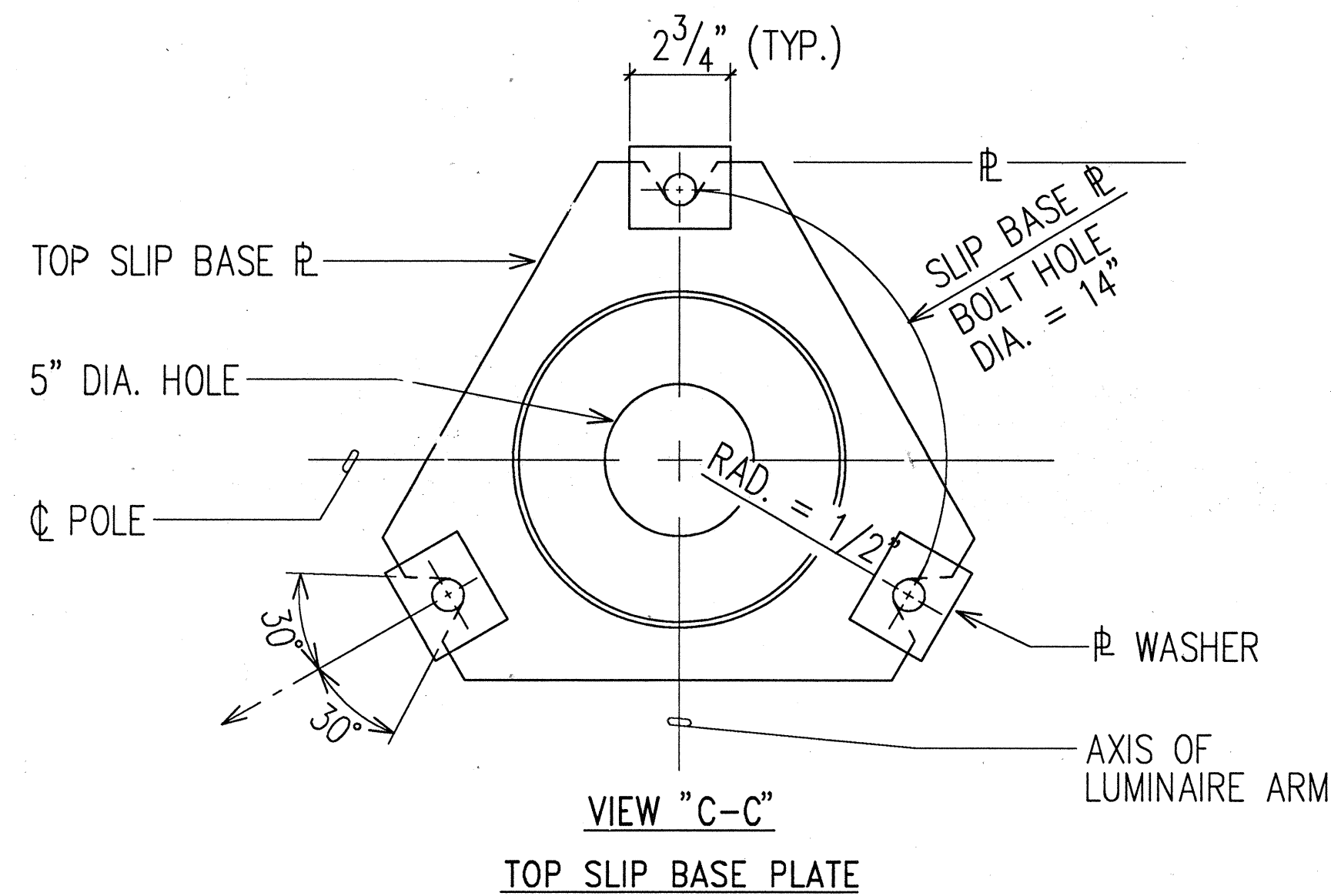
STREET LIGHT DETAILS (STATE)

Designed by: GF Date: _____
Drawn by: EDA Date: _____
Approved: *[Signature]* Date: 11/21/91
HAWAIIAN ELECTRIC LIGHT COMPANY Date: _____
HAWAIIAN TELEPHONE COMPANY Date: _____

Last Rev. 05/27/91 @ 18:12:43
G:\VILLAGE\DESIGN\STANDARD\STANDARD.DWG



A
E-15
SLIP BASE DETAIL
NOT TO SCALE

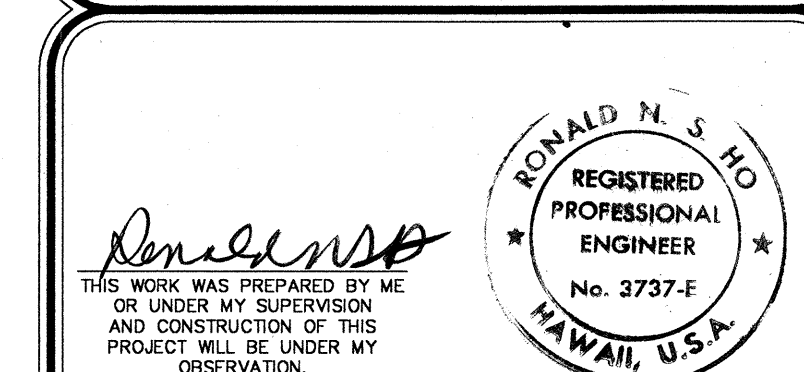


NOTES:

- ALL STEEL SHAFTS, PLATES, MAST ARMS, BOLTS, SCREWS, NUTS & WASHERS TO BE GALVANIZED AFTER FABRICATION OR MODIFICATION.
- PLATES TO CONFORM TO ASTM A-36.
- CAST OPTION TO CONFORM TO ASTM A-486 CL. 90.
- TORQUE 7/8" DIAMETER H.S. SLIP BASE PLATE BOLTS TO 84 FEET PER POUND.
- 7/8" DIAMETER H.S. ANCHOR BARS, WRENCH TIGHTEN - TORQUE REQUIREMENT WAIVED.
- FABRICATORS ELECTING LARGER THAN MINIMUM ARM DIAMETERS MUST ADJUST DETAILS AS REQUIRED TO PERMIT SOLID SEATING OF CAP SCREWS. IN LIEU OF TORQUE REQUIREMENTS FOR H.S. BOLTS, CAP SCREWS SHALL BE TIGHTENED BY THE TURN OF NUT METHOD 1/6 TURN FROM SNUG CONDITION. NO WASHER WILL BE REQUIRED.
- 28 GAUGE KEEPER PLATE, PLACE ON TOP OF MIDDLE FLAT WASHER, ASTM A-526 125 COMMERCIAL.
- HEX. HEAD NUT SHOWN OR AS AN ALTERNATE DETAIL ANCHOR PLATES MAY BE RETAINED WITH 5/16" FILLET WELDS ALL AROUND OR FORMED HEADS.

OMIT

Rev.	Date	Description	Eng. App.
2	7/14/92	DELETE THIS SHIT.	Sp.



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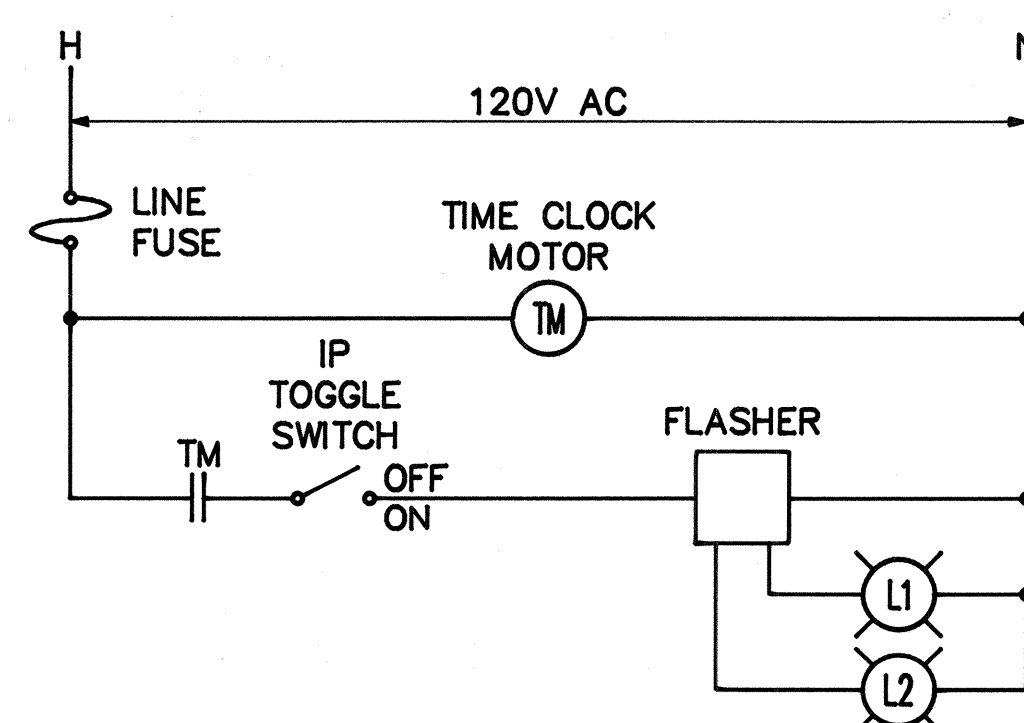
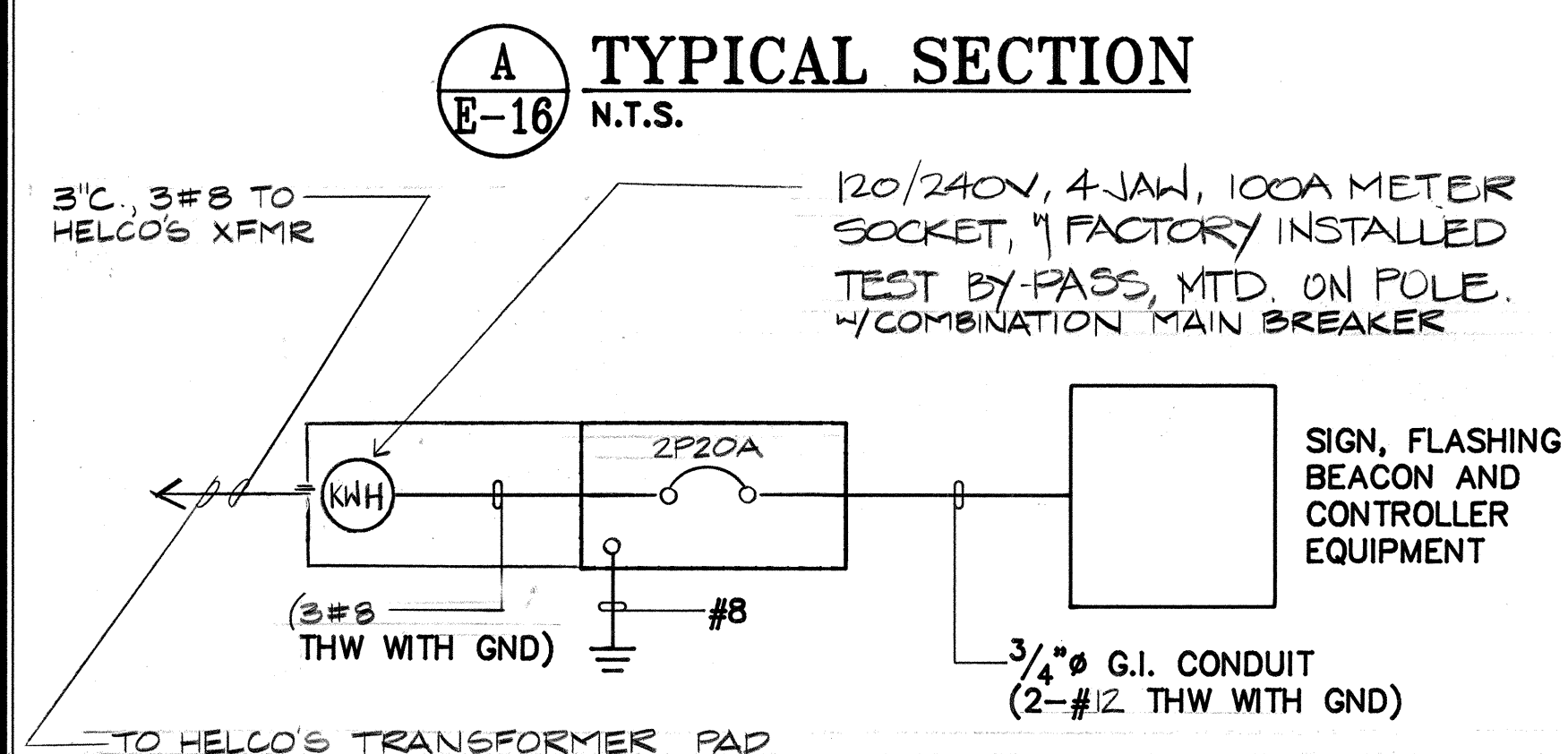
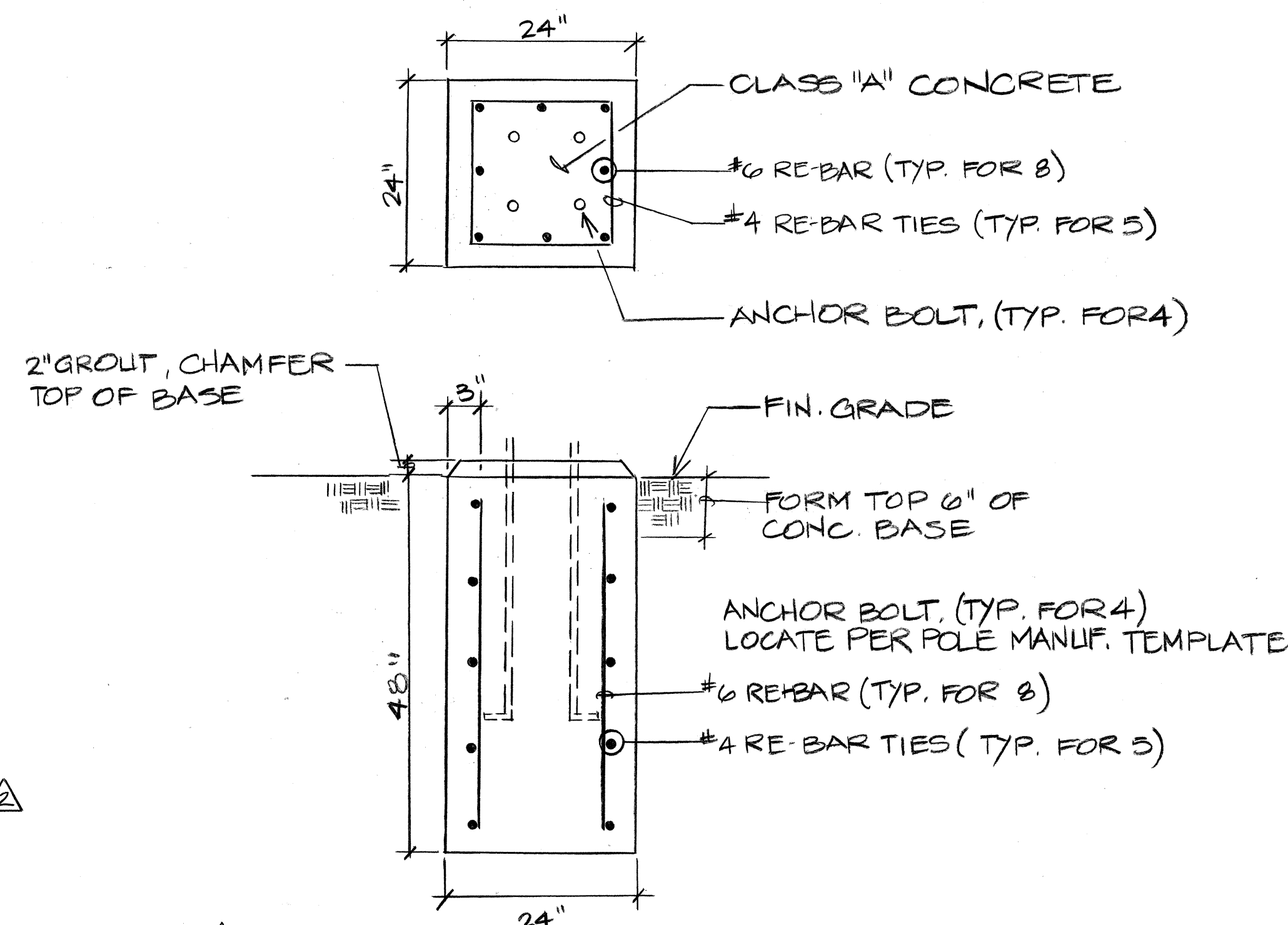
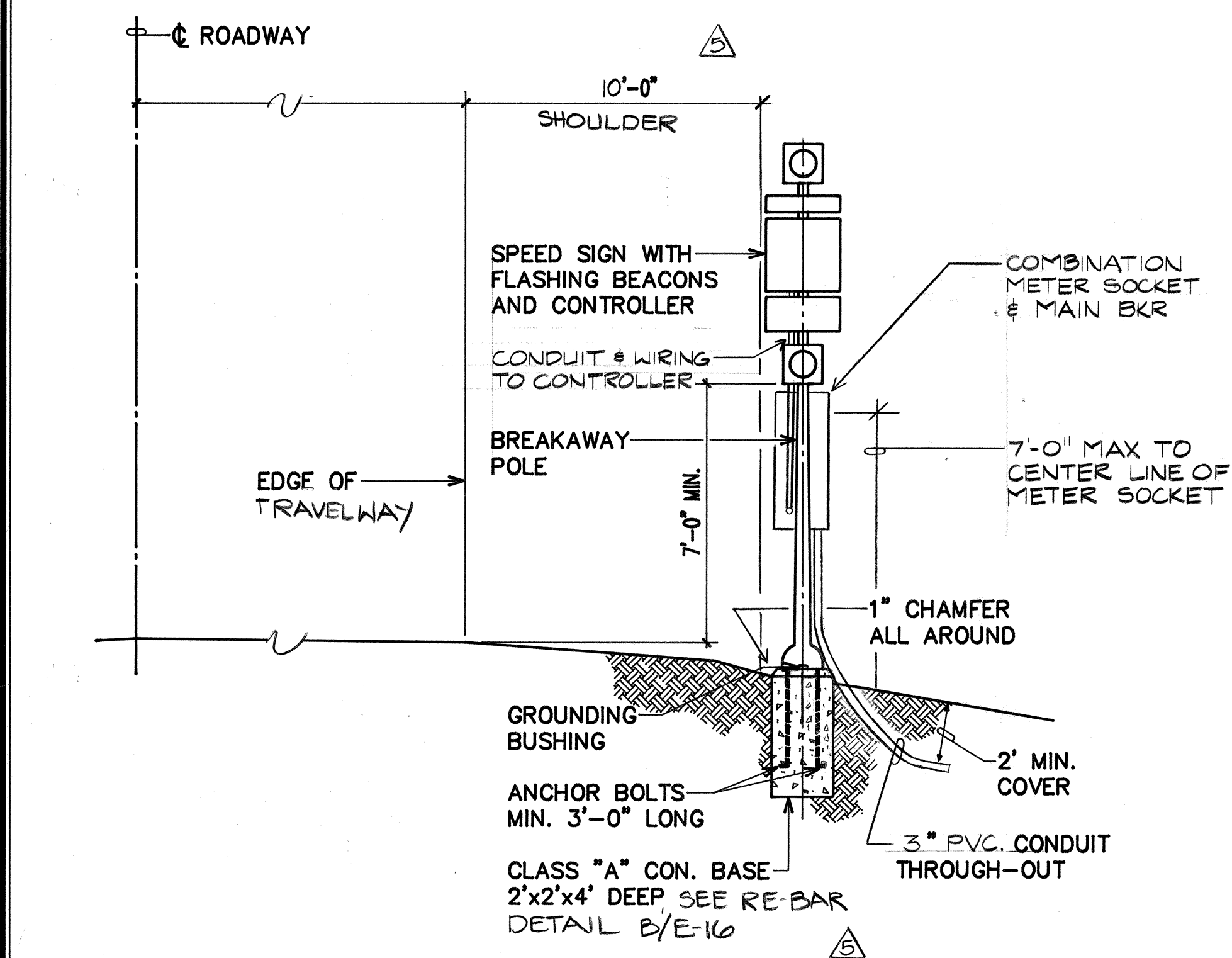
Consultant:
RONALD N. S. HO & ASSOCIATES, INC.
Electrical Engineers
2138 Alagoraba Street, Suite A Honolulu, Hawaii 96826
Phone: (808)941-0577 Fax: (808)945-2646

Client:
HOUSING FINANCE AND DEVELOPMENT CORPORATION
STATE OF HAWAII

VILLAGES OF LA'IOPIA
MAUKA-MAKAI ROADWAY IMPROVEMENTS
PHASE-I

STREET LIGHT SLIP BASE DETAILS

Designed by: GF Date: _____
Drawn by: EDA Date: _____
Approved: _____ Date: _____
Date: _____ Date: _____



- GENERAL NOTES:**

1. NEW POLE LOCATIONS SHALL BE STAKED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER PRIOR TO EXCAVATION. ADJUSTMENT OF POLE LOCATIONS IN THE FIELD MAY BE REQUIRED TO CLEAR UNDERGROUND AND AERIAL UTILITY LINES.
2. CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER FROM DEPARTMENT OF TRANSPORTATION, STATE HIGHWAYS DIVISION, 72 HOURS IN ADVANCE BEFORE COMMENCING WORK, PHONE 935-3347.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ENERGIZING FLASHER.
4. FINAL ACCEPTANCE AND INSPECTION WILL BE UNDERTAKEN ONLY AFTER ALL WORK HAS BEEN COMPLETED.
5. CONTRACTOR SHALL AT HIS EXPENSE KEEP THE PROJECT AND SURROUNDING AREA FROM DUST NUISANCE AND SHALL BE RESPONSIBLE FOR CLEANUP AND REMOVAL OF ALL SILT AND DEBRIS GENERATED BY THE EXCAVATION WORK AND DEPOSITED AND ACCUMULATED WITHIN DITCHES, DRAIN PIPES AND ON PUBLIC ROADWAYS.
6. ALL EXISTING UTILITIES WHETHER OR NOT SHOWN ON PLANS SHALL BE PROTECTED AT ALL TIMES DURING CONSTRUCTION AND ANY DAMAGES TO THEM SHALL BE REPAIRED AND PAID FOR BY THE CONTRACTOR. CONTRACTOR'S ATTENTION IS CALLED TO SECTION 107.21, "CONTRACTOR'S RESPONSIBILITY FOR UTILITY PROPERTY AND SERVICES", OF THE "HAWAII STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION".
7. CONTRACTOR SHALL PROCURE ALL PERMITS AND PAY AND NECESSARY FEES FOR THE LAWFUL PROSECUTION OF THE WORK. COSTS ARE INCIDENTAL TO THE VARIOUS ITEMS OF WORK.
8. REMOVAL OF EXISTING SIGNS SHALL BE INCIDENTAL TO ITEM NO. 696.0100- FLASHING SCHOOL SPEED LIMIT SIGN.

SERVICE DATA:

1. SERVICE VOLTAGE: 1Ø, 120/240V, 3W
2. LOAD DATA: METER CONNECTED KVA DEMAND KVA
 1 1.0 1.0
3. SERVICE ENTRANCE CONDUCTORS: 3#8 CU
4. METERING: METER STD. B-5; RATE G
5. TYPE: UNDERGROUND
6. BILLING ADDRESS: DEPT OF HOUSING AND
COMMUNITY DEVELOPMENT
7 WATERFRONT PLAZA
SUITE 300
500 ALA MOANA BLVD
HON. HI 96813

5	3/3/93	ADDED RE-BAR DETAIL REVISED DETAIL	SS
2	7/14/92	REVISED PER UTIL. COMMENT.	SS
1	12/4/91	ADDED SHT. E-1G	SS
Rev.	Date	Description	Eng. App

Rinaldes

THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION
AND CONSTRUCTION OF THIS
PROJECT WILL BE UNDER MY
OBSERVATION.

10/2/91

RONALD N. S. HO
REGISTERED
PROFESSIONAL
ENGINEER
No. 3737-E
HAWAII, U.S.A.

**B
C
A**

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Engineering • Planning • Landscape Architecture
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Phone: (808)821-8361 Telex: BELT-HI 7430474 Fax: (808)538-7819

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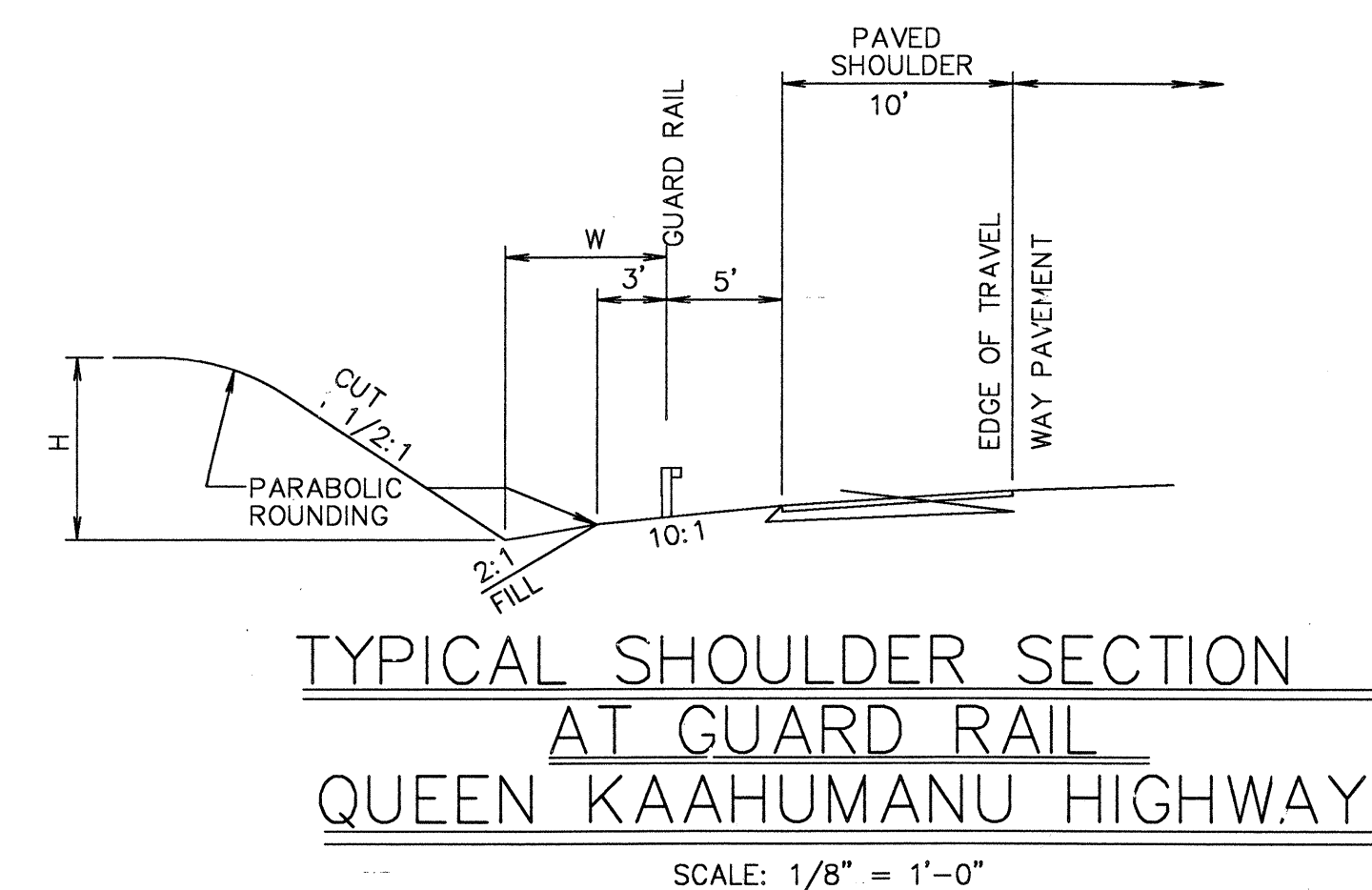
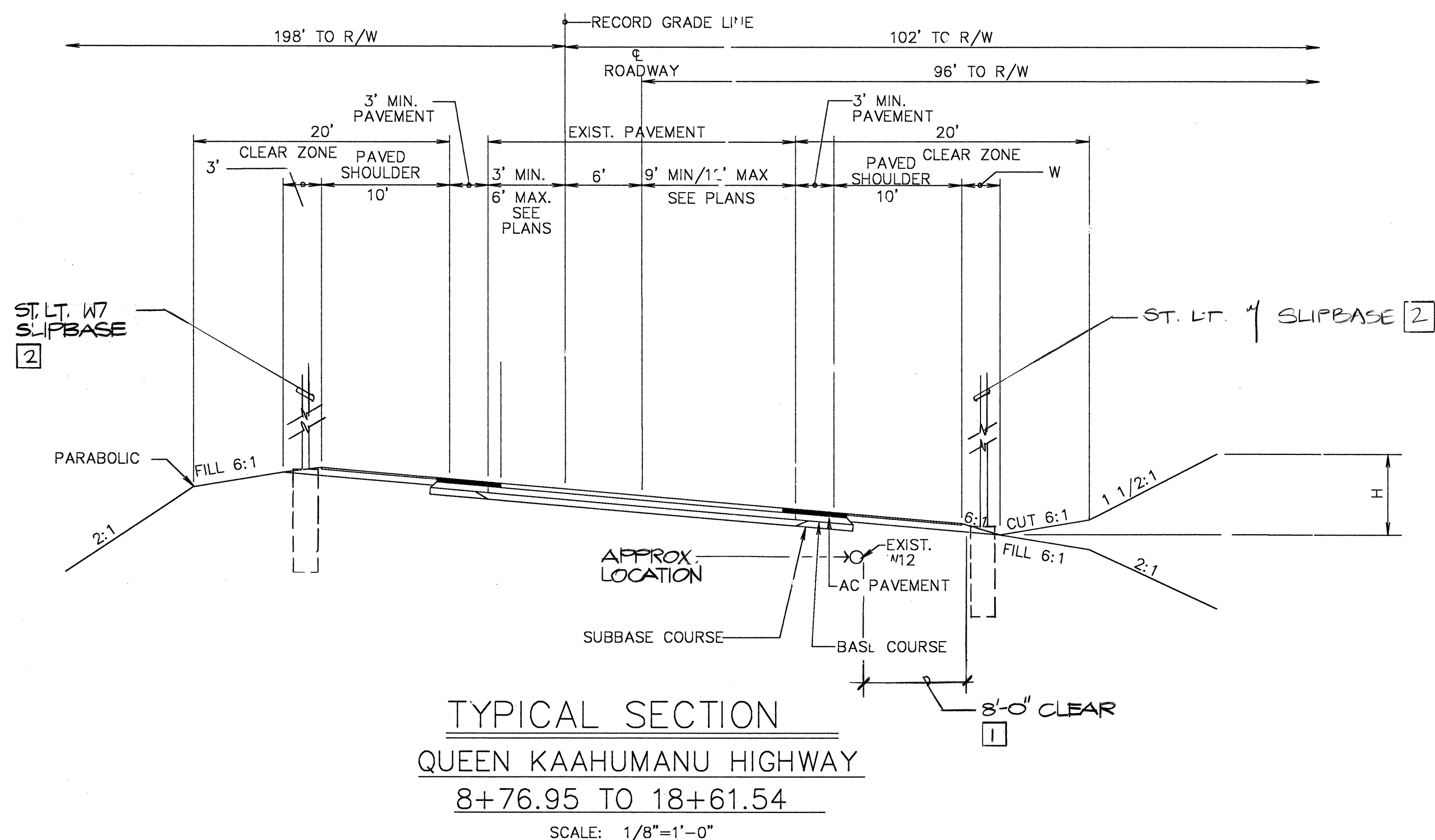
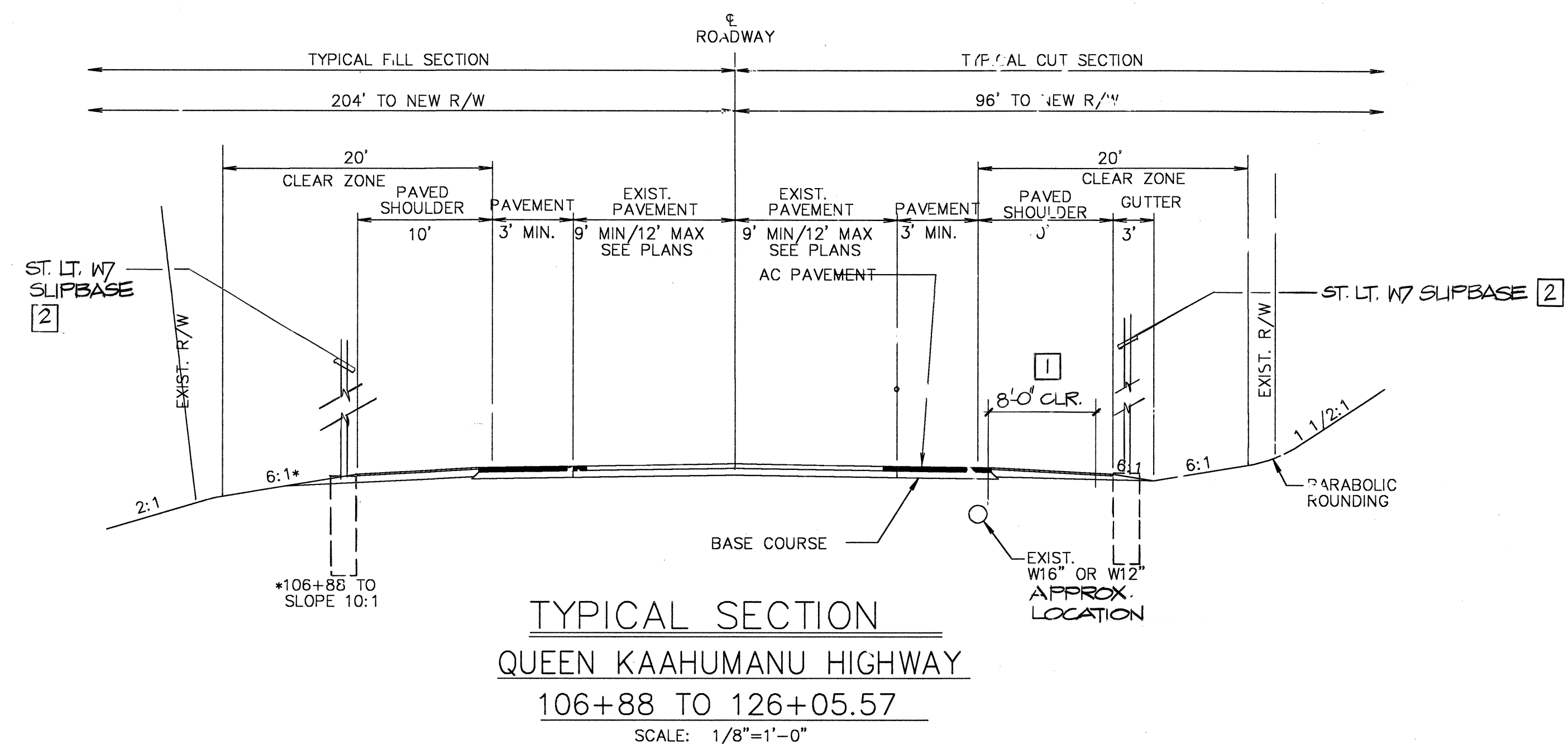
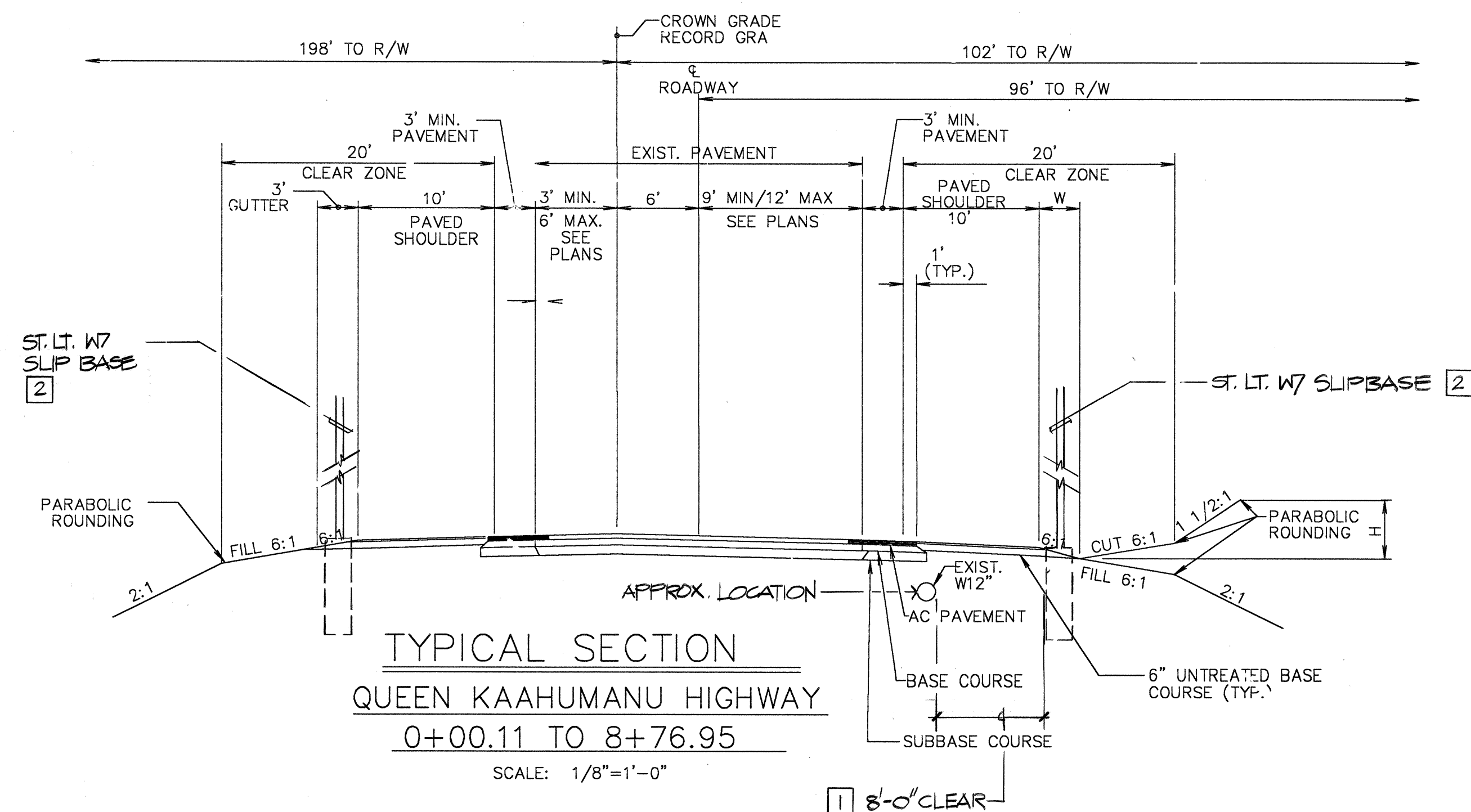
Client:
**HOUSING FINANCE AND
DEVELOPMENT CORPORATION**
STATE OF HAWAII

**VILLAGES OF LA'I'OPUA
MAUKA-MAKAI ROADWAY IMPROVEMENTS
PHASE-I**

MISCELLANEOUS DETAILS, GENERAL NOTES 

Designed by: **SS** Date: **OCT 1991**
Drawn by: **GN** Proj. no.: **(BCA) 841-0104B**

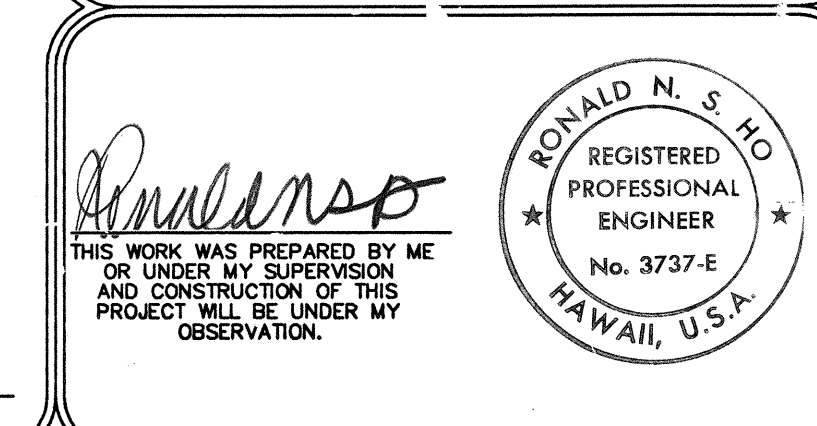
Approved: *[Signature]* Date: *11-2-91*
HAWAII ELECTRIC LIGHT COMPANY **DATE:**
HAWAIIAN TELEPHONE COMPANY **DATE:**



NOTES:

- 1 CONDUIT, PULLBOX AND WIRING SHALL BE ROUTED OUTSIDE 8'-0" CLEARANCE.
- 2 LIGHT STD. FOUNDATION SHALL BE PLACED OUTSIDE PAVED SHOULDER.

Rev	Date	Description	Eng	App
1	12/4/91	ADDED SHEET	SS	



BCA BELT COLLINS & ASSOCIATES
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Consultant:

Client:
HOUSING FINANCE AND DEVELOPMENT CORPORATION
 STATE OF HAWAII

VILLAGES OF LA 'I' OPUA
 MAUKA-MAKAI ROADWAY IMPROVEMENTS
 PHASE-1

TYPICAL SECTION

Designed by: CP Date: JULY 30, 1990
 Drawn by: K.AJP Proj. no.: (BCA)8

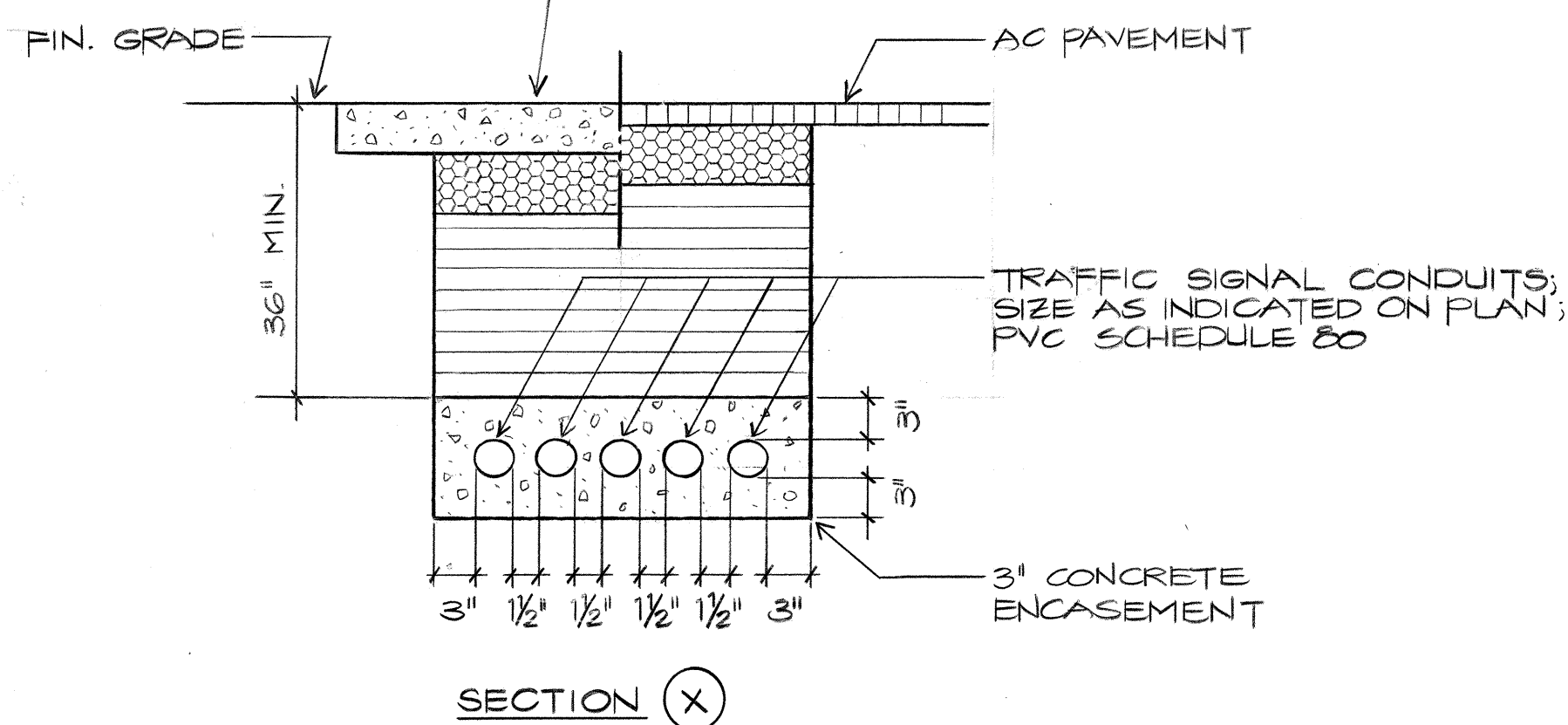
Approved: *[Signature]* Date: _____
 Date: _____

Trim: 22"x36"

[1] 1-1½"C, 2-1"C * STUB OUT 3'-0" SEE DUCT SECTION "X" [2] 2"C * STUB OUT 1'-0" BEYOND SHOULDER SEE DUCT SECTION "X" [3] 1-1½"C, 1-1"C * STUB OUT 3'-0" SEE DUCT SECTION "X" [4] 2-2"C, 1-1½"C, 2-1"C * SEE DUCT SECTION "Y" [5] 1-2"C * SEE DUCT SECTION "X"	[6] 2"C * STUB OUT 6" INTO TRAVELED WAY SEE DUCT SECTION "X" [7] 2-2"C, 1-1½"C, 2-1"C * STUB OUT 1'-0" BEYOND SHOULDER SEE DUCT SECTION "X"
---	---

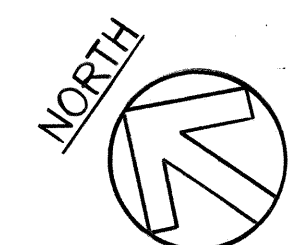
ELECTRICAL SYMBOLS (FOR THIS SHEET ONLY)	
SYMBOL	DESCRIPTION
	14"x14"x18" TRAFFIC SIGNAL PULLBOX QUAZITE PC1211BA12
	17"x30"x18" TRAFFIC SIGNAL PULLBOX QUAZITE PG1730BA18
	STUB & CAP CONDUITS
	TRAFFIC SIGNAL DUCTLINE

SEE BACKFILL SECTION
TYPE AS SHOWN ON
PLAN & SHEET E-10

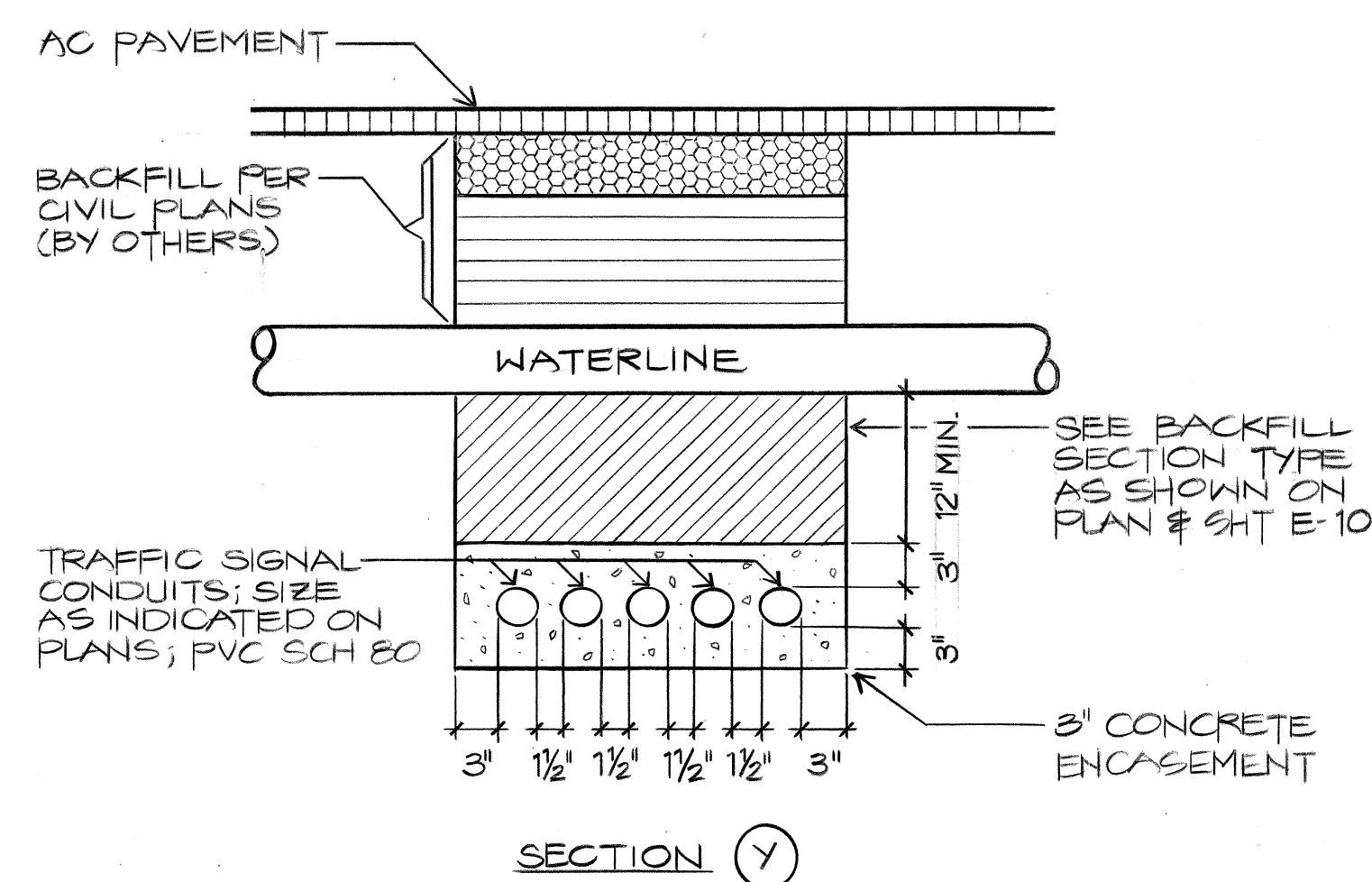


NOTE: SEE SHEET E-10 FOR STATE RIGHT-OF-WAY BACKFILL NOTES &
NOTES FOR CONSTRUCTION WITHIN STATE RIGHT-OF-WAY

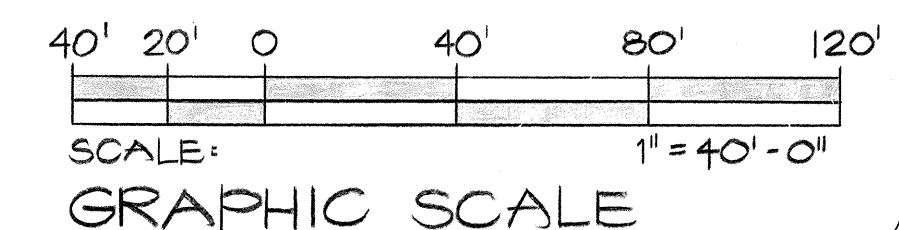
TYPICAL DUCT SECTIONS



TRAFFIC SIGNAL PLAN
QUEEN KAAHUMANU HWY- KEALAKEHE PARKWAY INTERSECTION
SCALE: 1"=40'-0"



WORK ON THIS SHEET FOR PROVISION
OF TRAFFIC SIGNAL CONDUIT ONLY.
FOR ALL OTHER ELECTRICAL WORK
SEE SHEET E-7.



**B
C
A**

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Client: **HOUSING FINANCE AND DEVELOPMENT CORPORATION**
STATE OF HAWAII

VILLAGES OF LA'IOPIUA
MAUKA-MAKAI ROADWAY IMPROVEMENTS
PHASE-I

TRAFFIC SIGNAL PLAN **△**

Designed by: **GF** Date: _____
Drawn by: **CV** Proj. no.: **(BCA) 841-0104B**

Approved: *[Signature]* ^{12/4/92}
DEPT. OF PUBLIC WORKS **Date:** _____
COUNTY OF HAWAII
TRAFFIC DIVISION

[Signature] **DEPT. OF TRANSPORTATION Date:** _____
STATE OF HAWAII
HIGHWAYS DIVISION

△				
△				
△ 3	2/5/93	ADDED SHEET	CO	df
Rev.	Date	Description	Eng.	App.

