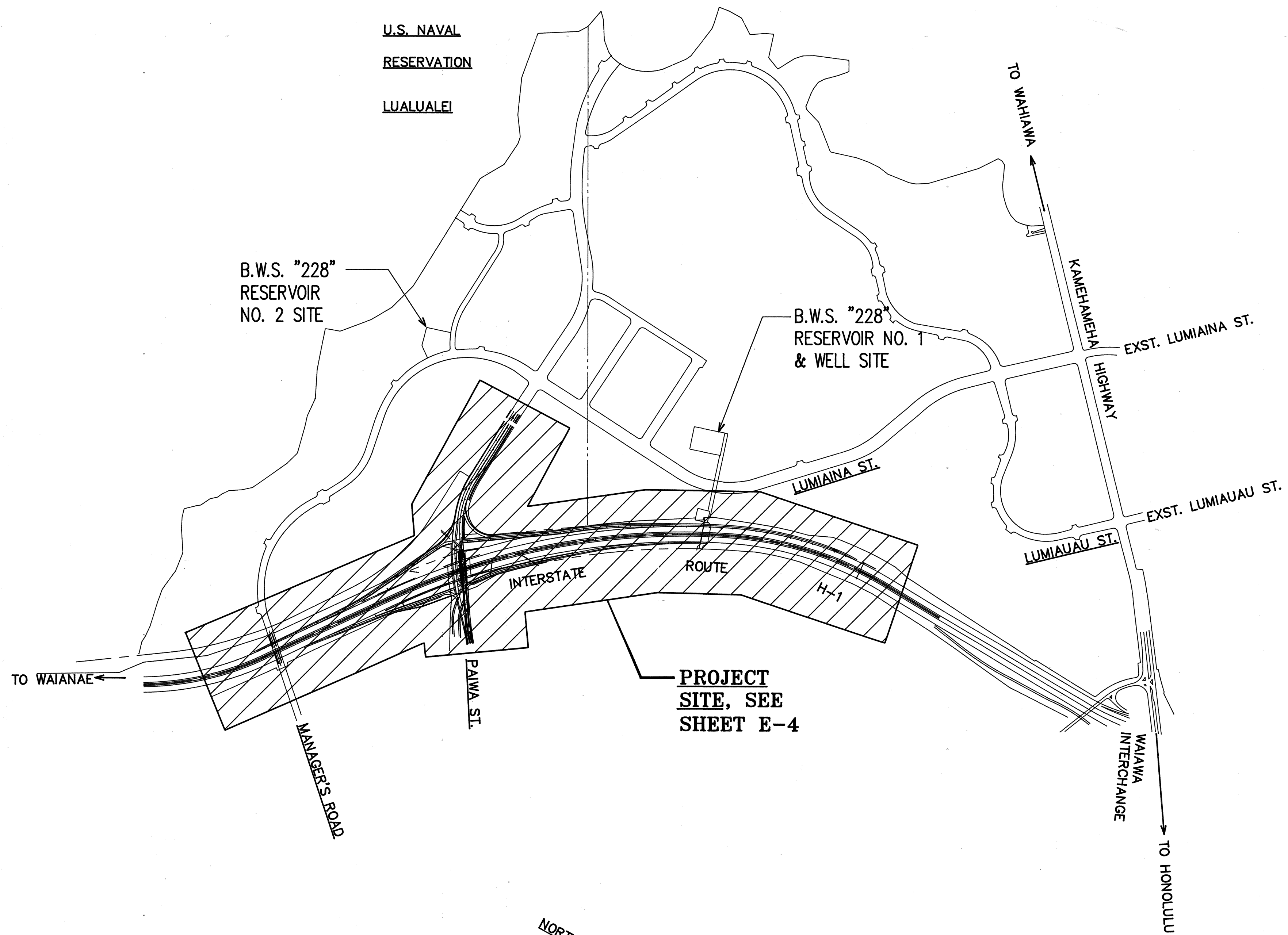


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HIC-01-90	1991	56	109

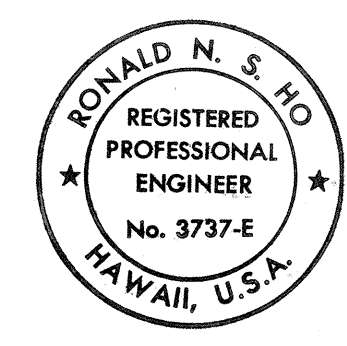


LOCATION PLAN
 SCALE: 1"=600'
 T.M.K.: 9-4-02: PORTION 3
 9-4-96: PORTION 70

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

Last Rev: 05/07/91 • 08:39:35

\\ACAD\PROJECTS\GENERAL\PAWA\050720\LOC_MAP



THIS WORK WAS PREPARED BY ME
 OR UNDER MY SUPERVISION.
Ronald N. S. Ho

APPROVED:	
<i>M. Sen</i> HAWAIIAN ELECTRIC CO.	5/29/91 Date
<i>Mark K. Janssen</i> HAWAIIAN TELEPHONE CO.	5-31-91 Date
<i>Kenneth Z. Young</i> Director, Dept. of Trans. Services (within City right-of-way only)	5/27/91 Date

DATE	REVISION
------	----------

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

**LOCATION MAP, EQUIPMENT SCHED.,
 ELECTRICAL SYMBOLS**

**INTERSTATE ROUTE H-1
 PAIWA STREET INTERCHANGE**

PROJECT NO. HIC-01-90
 SCALE: AS NOTED DATE: AUG., 1991
 SHEET No. E-1 OF 21 SHEETS

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 HECO'S MAPPING AND RECORDS DIVISION LOCATED AT 820 WARD AVENUE, 4TH FLOOR, TWO WEEKS PRIOR TO STARTING CONSTRUCTION.
3. THE CONTRACTOR SHALL BE LIABLE FOR ANY DAMAGES TO HAWAIIAN ELECTRIC CO. FACILITIES AND SHALL IMMEDIATELY REPORT SUCH DAMAGES TO HAWAIIAN ELECTRIC CO.'S TROUBLE DISPATCHER AT 548-7961.
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 HAWAIIAN ELECTRIC CO. UNDERGROUND DIVISION AT 548-7395 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 HAWAIIAN TELEPHONE CO. FACILITIES, CONTACT HAWAIIAN TELEPHONE 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 - HAWAIIAN TELEPHONE CO. - CALVIN CHOY - AREA CONSTRUCTION SUPERVISOR AT 546-3381.
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.
10. SHOULD IT BECOME NECESSARY, ANY WORK REQUIRED TO RELOCATE HAWAIIAN ELECTRIC CO. FACILITIES SHALL BE DONE BY HAWAIIAN ELECTRIC CO. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION.

STREET LIGHT NOTES: (CITY & COUNTY)

1. THE CONTRACTOR SHALL NOTIFY THE ELECTRICAL AND MAINTENANCE SERVICES DIVISION, DEPARTMENT OF TRANSPORTATION SERVICES, TWO (2) WORKING DAYS PRIOR TO COMMENCING WORK ON THE STREET LIGHTING SYSTEM. (PHONE 527-5002)
2. STREET LIGHTING SHALL BE KEPT OPERATIONAL DURING CONSTRUCTION. ANY RELOCATION REQUIRED SHALL BE APPROVED BY THE ELECTRICAL AND MAINTENANCE SERVICES DIVISION, DEPARTMENT OF TRANSPORTATION SERVICES, AND PAID FOR BY THE CONTRACTOR.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES TO EXISTING STREET LIGHTING FACILITIES AND DAMAGES SHALL BE REPAIRED BY THE CONTRACTOR.
4. DO NOT BACKFILL TRENCHES OR POUR CONCRETE UNTIL WORK HAS BEEN INSPECTED AND APPROVED BY THE INSPECTOR.
5. THE CONTRACTOR SHALL MEASURE AND RECORD THE GROUND RESISTANCE AT EACH STANDARD WITH NO EXTERNAL GROUND WIRES CONNECTED TO THE GROUND ROD. CONTRACTOR SHALL SCHEDULE GROUND RESISTANCE MEASUREMENTS 48 HOURS IN ADVANCE AND SHALL NOT PROCEED WITH MEASUREMENTS UNTIL APPROVAL IS GRANTED. SCHEDULES ARE SUBJECT TO CHANGE DEPENDING UPON WEATHER CONDITIONS. REPORTS SHALL INCLUDE NAME OF PERSONNEL CONDUCTING THE TEST, METER TYPE AND SERIAL NUMBER, DATE OF TEST AND SOIL CONDITIONS. TEST RESULTS SHALL BE CERTIFIED BY THE CONTRACTOR.
6. ALL CONDUCTORS SHALL BE 600V TYPE RHW-USE, EXCEPT GROUND WIRE WHICH MAY BE TYPE TW WITH GREEN INSULATION.
7. ALL NEUTRAL CONDUCTORS SHALL HAVE SOLID WHITE INSULATION. ANY OTHER METHODS OF IDENTIFICATION ARE NOT ACCEPTABLE.
8. ALL LUMINAIRES SHALL BE HIGH PRESSURE SODIUM TYPE WITH WATTAGE AND IES TYPE LIGHT DISTRIBUTION AS INDICATED.
9. SEE THIS SHEET FOR TYPICAL CONSTRUCTION DETAILS. ALSO, REFER TO APPLICABLE STANDARD DETAILS OF THE ELECTRICAL & MAINTENANCE SERVICE DIVISION, DEPARTMENT OF TRANSPORTATION SERVICE, CITY & COUNTY OF HONOLULU.
10. CONTRACTOR SHALL STENCIL THE DATE OF INSTALLATION ON THE BOTTOM OF PHOTO CELL.
11. CONTRACTOR SHALL MAINTAIN ONE SET OF APPROVED PLANS AT THE PROJECT SITE AT ALL TIMES DURING CONSTRUCTION WORK.
12. FINAL ACCEPTANCE INSPECTION WILL BE UNDERTAKEN ONLY AFTER ALL WORK HAS BEEN COMPLETED.
13. AFTER COMPLETION OF FINAL INSPECTION WITH THE ENGINEER AND THE DEPARTMENT OF TRANSPORTATION SERVICES, CONTRACTOR SHALL OBTAIN WRITTEN ACCEPTANCE OF STREET LIGHT SYSTEM FROM THE ELECTRICAL & MAINTENANCE SERVICES DIVISION, DEPARTMENT OF TRANSPORTATION SERVICES, CITY & COUNTY OF HONOLULU.

GENERAL NOTES - TRAFFIC SIGNAL SYSTEM

1. SEE HIGHWAY LIGHTING PLANS FOR ELECTRICAL SERVICE CONNECTIONS TO CONTROLLERS.
2. ALL TRAFFIC SIGNAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS", FEDERAL HIGHWAY ADMINISTRATION, LATEST EDITION, AND AMENDMENTS.
3. THE LOCATIONS OF THE TRAFFIC SIGNAL STANDARDS, TRAFFIC SIGNAL STANDARDS WITH MAST-ARM, PEDESTRIAN PUSH BUTTONS, TRAFFIC CONTROLLER, PULLBOXES, CONDUITS, BARRIERS & LOOP DETECTORS SHALL BE STAKED OUT IN THE FIELD BY CONTRACTOR & APPROVAL OF THE LOCATIONS OBTAINED FROM THE ENGINEER PRIOR TO CONSTRUCTION & INSTALLATION. LOCATIONS SHOWN ON THE PLANS SHALL BE ADJUSTED AS NECESSARY TO PREVENT CONFLICTS WITH EXISTING OR NEW FACILITIES.
4. ALL NEW CONDUITS UNDER ROADWAY SHALL BE PVC SCHEDULE 80. CONTRACTOR SHALL HAVE THE OPTION OF USING PVC SCHEDULE 40 FOR NEW CONDUITS NOT UNDER ROADWAY, UNLESS OTHERWISE NOTED.
5. IN ADDITION TO THE CONDUITS INDICATED IN THE "CONDUIT AND CABLE SCHEDULE". INSTALL ONE 3-INCH CONDUIT IN THE FOOTINGS OF ALL FINAL CONTROLLERS. CONDUIT SHALL BE STUBBED-OUT 12 INCHES FROM FOOTING AND SHALL BE CAPPED.
6. A SOLID #8 BARE COPPER WIRE SHALL BE INSTALLED IN THE ENTIRE TRAFFIC SIGNAL CONDUIT SYSTEM FOR USE AS A SYSTEM GROUND.
7. LOOP DETECTORS SHALL BE IN ACCORDANCE WITH STANDARD PLAN TE-40, EXCEPT FOR THE FOLLOWING:
 - (a) LOOP SIZE SHALL BE 6'x6'
 - (b) LOOP SPACING SHALL BE 10'-0"
 - (c) PROVIDE 4 CABLE TURNS IN A LOOP
8. LEAD-IN WIRES IN PULLBOX NEAR LOOPS SHALL BE TAGGED WITH LOOP NUMBER(S).
9. DEPARTMENT OF TRANSPORTATION SERVICES, CITY & COUNTY OF HONOLULU WILL ASSIST THE ENGINEER IN CONSTRUCTION INSPECTION FOR THE TRAFFIC SIGNAL SYSTEM. WORK BY THE DEPARTMENT OF TRANSPORTATION SERVICES, C & C OF HONOLULU:
 - (a) TEST CONTROLLER & AUXILIARY EQUIPMENT IN CABINET.
 - (b) MAKE ALL ELECTRICAL EQUIPMENT CONNECTIONS IN THE FIELD FOR SIGNAL SYSTEM AFTER THE SYSTEM HAS BEEN INSTALLED IN PLACE BY THE CONTRACTOR.
 - (c) FINAL ADJUSTMENT OF TRAFFIC SIGNAL CONTROL EQUIPMENT.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HIC-01-90	1991	57	109

10. LOCATIONS OF EXISTING UNDERGROUND STRUCTURES AND UTILITIES SUCH AS PIPE-LINES, CONDUITS, CABLES, ETC., SHOWN ON PLANS ARE APPROXIMATE ONLY. IT IS NOT THE INTENT OF THESE PLANS TO SHOW THE EXACT LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES WITH THE RESPECTIVE OWNERS. EXISTING UTILITIES DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR AT HIS OWN COST.
11. LOCATIONS OF TRAFFIC MARKINGS AND MARKERS (LANE LINES, STOP LINES, CROSS-WALK, ETC.) SHOWN ON THE PLANS SHALL BE VERIFIED WITH THE ENGINEER PRIOR TO THE INSTALLATION OF THE TRAFFIC SIGNAL SYSTEM.
12. ALL TRAFFIC SIGNAL CONTROLLER EQUIPMENT SHALL BE COMPLETELY WIRED IN THE CABINET AND SHALL CONTROL THE TRAFFIC SIGNALS AS CALLED FOR IN THE PLANS.
13. SIGNAL INDICATIONS DURING CLEARANCE INTERVAL:
 - A. IF A SIGNAL IS G OR -G- AND WILL REMAIN G OR -G- DURING THE NEXT PHASE, IT SHALL BE G OR -G- DURING THE CLEARANCE INTERVAL.
 - B. IF A SIGNAL IS G OR -G- AND WILL BECOME R OR EXTINGUISHED DURING THE NEXT PHASE, IT SHALL BE Y OR -Y- DURING THE CLEARANCE INTERVAL.
 - C. IF THE SIGNAL IS R AND WILL REMAIN R OR BECOMES G DURING THE NEXT PHASE, IT SHALL REMAIN R DURING THE CLEARANCE INTERVAL.
14. THE FOLLOWING STATE STANDARD DETAILS SHALL BE USED: TE-38, TE-39, TE-40, TE-41, TE-42, TE-43

ORIGINAL PLAN	DATE
TRACED BY	
DESIGNED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	
No.	

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APPROVED:	
<i>W. M. Lee</i>	5/29/91
Hawaiian Electric Co.	Date
<i>Mark K. Janssen</i>	5-31-91
Hawaiian Telephone Co.	Date
<i>James Z. Long</i>	5/17/91
Director, Dept. of Trans. Services	Date
(within City right-of-way only)	

DATE

REVISION



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
Ronald N. S. Ho

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
ELECTRICAL NOTES	
INTERSTATE ROUTE H-1 PAIWA STREET INTERCHANGE	
PROJECT NO. HIC-01-90	
SCALE: AS NOTED	DATE: AUG, 1991
SHEET No. E-2 OF 21 SHEETS	

ELECTRICAL SYMBOLS

ITEM	DESCRIPTION
	HECO 4'x6' HANDHOLE
	HTCO 3'x5' HANDHOLE
	EXISTING UTILITY COMPANY MANHOLE.
	EXISTING UTILITY COMPANY WOOD JOINT POLE TO REMAIN, JOINT POLE NUMBER "170" INDICATED.
	METAL STANDARD TYPE "E" ON GRADE WITH FOUNDATION, WITH 150 WATT H.P.S. LUMINAIRE (CITY), 30' GLV. STEEL POLE WITH 6'-0" MAST ARM.
	EXISTING LUMINAIRE, BRACKET ARM AND METAL STANDARD TO REMAIN (CITY)
	UNDERGROUND DUCT/CONDUIT
	METAL STANDARD TYPE "A" OR "B" ON GRADE WITH FOUNDATION, WITH 250 WATT H.P.S. LUMINAIRE. (STATE)
	METAL STANDARD TYPE "C" ON RETAINING WALL FOUNDATION, WITH 250 WATT H.P.S. LUMINAIRE. (STATE)
	STATE HIGHWAY LIGHTING PULL BOX, TYPE A, IN GRADE
	STATE HIGHWAY LIGHTING CAST METAL JUNCTION BOX, IN CONCRETE BARRIER
	EXISTING CITY & COUNTY STREET LIGHT PULLBOX

1	20	POLE LOCATION FROM EDGE OF TRAVELWAY, IN FEET
2	2	HIGHWAY LIGHT & POLE NUMBER
3	15	BRACKET ARM SPAN IN FEET
4	30	LUMINAIRE HEIGHT ABOVE PAVEMENT, IN FEET
5	A	LIGHTING STANDARD TYPE
6	1	HIGHWAY LIGHT CIRCUIT NUMBER

1 → NOTE INDICATOR, "SEE NOTE NO. 1" INDICATED.

- ⓐ JUNCTION BOX, UNDERPASS CEILING SURFACE MOUNTED.
- ⓑ JUNCTION BOX, WALL MOUNTED.
- WP INDICATES "WEATHERPROOF"
- Ⓐ DUCT SECTION INDICATOR

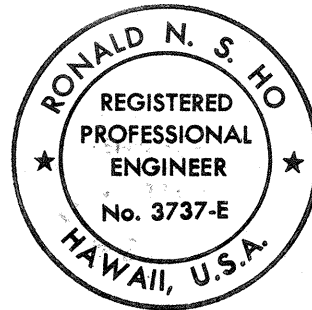
TRAFFIC SIGNAL SYMBOLS

ITEM	DESCRIPTION
	CONDUITS AND CABLES, "CONDUIT RUN #2" INDICATED
	PEDESTRIAN SIGNAL HEAD WITH PEDESTRIAN PUSH BUTTON ASSEMBLY AND SIGN R10-4b, R10-4b(L) OR R10-4b(R), AS APPROPRIATE
	12" RYG STANDARD TRAFFIC SIGNAL HEAD
	12" RY↑ TRAFFIC SIGNAL HEAD
	STANDARD TRAFFIC SIGNAL HEAD MOUNTED ON TYPE I SIGNAL STANDARD, HEIGHT = 10'
	STANDARD TRAFFIC SIGNAL AND PEDESTRIAN SIGNAL HEADS MOUNTED ON TYPE I SIGNAL STANDARD, HEIGHT = 10'
	12" RY← TRAFFIC SIGNAL HEAD
	PROGRAMMED VISIBILITY HEAD
	TRAFFIC SIGNAL HEAD MOUNTED ON TYPE II SIGNAL STANDARD, ARM SPREAD SHOWN IS 24'
	TRAFFIC SIGNAL HEADS MOUNTED ON TYPE II SIGNAL STANDARD, ARM SPREAD SHOWN IS 24' AND DISTANCE BETWEEN SIGNAL HEADS IS 12'
	TYPE "A" TRAFFIC SIGNAL PULLBOX
	TYPE "B" TRAFFIC SIGNAL PULLBOX
	LOOP DETECTOR, SERIES-PARALLEL CONNECTED
	LOOP DETECTOR, SERIES CONNECTED
	TRAFFIC SIGNAL CONTROLLER AND FOUNDATION

EQUIPMENT SCHEDULE

HAWAIIAN ELECTRIC CO. INC., AND HAWAIIAN TELEPHONE CO., HANDHOLES TO BE PROVIDED AS INDICATED & IN ACCORDANCE WITH THE FOLLOWING STANDARD DRAWINGS:

4'x 6' HECO HANDHOLE	4'x 6' TYPE 46 REINFORCED CONCRETE HANDHOLE WITH PRECAST CONCRETE COVERS, CONSTRUCTED IN ACCORDANCE WITH HECO STANDARD DRAWING NO. 18842.
3'x5' HECO HANDHOLE	3'x5' TYPE 35 REINFORCED CONCRETE HANDHOLE WITH PRECAST CONCRETE COVERS, PROVIDED IN ACCORDANCE WITH HECO STANDARD DRAWING NO. 15501.
3'x5' HTCO HANDHOLE	3'x5' PRECAST POLYMER CONCRETE HANDHOLE WITH 2-PIECE POLYMER CONCRETE COVERS, PROVIDED IN ACCORDANCE WITH HTCO STANDARD DRAWING NO. 34082.



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APPROVED:	
	5/29/91 Date
Hawaiian Electric Co.	
	5-31-91 Date
Hawaiian Telephone Co.	
	5/17/91 Date
Director, Dept. of Trans. Services (within City right-of-way only)	

11/25/91	ADDED TYPE "B" TRAFFIC SIGNAL PULLBOX SYMBOL
DATE	REVISION

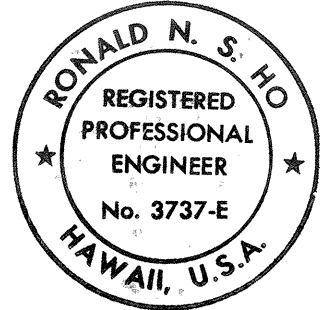
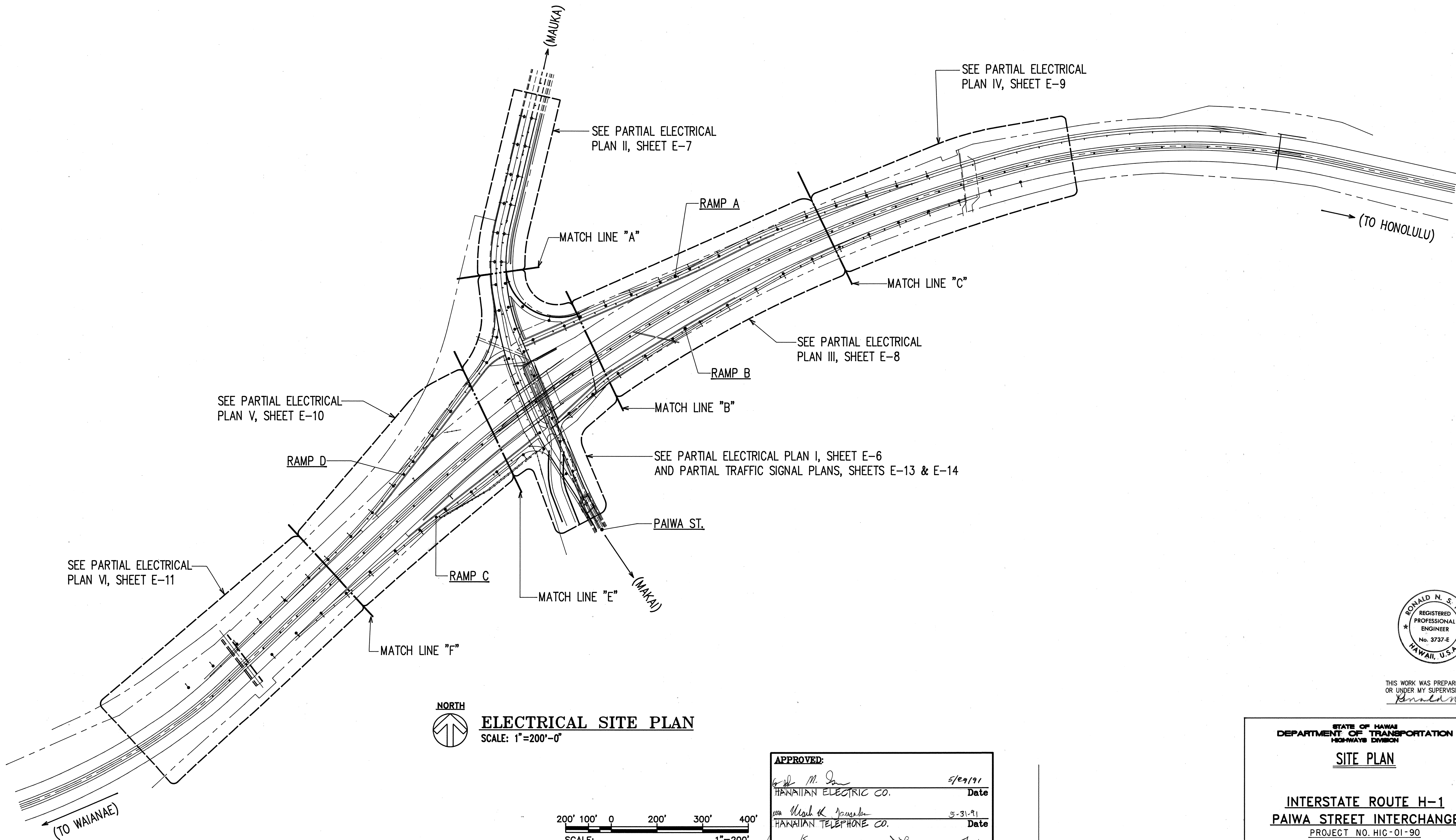
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
ELECTRICAL SYMBOLS TRAFFIC SIGNAL SYMBOLS	
INTERSTATE ROUTE H-1 PAIWA STREET INTERCHANGE	
PROJECT NO. HIC-01-90	
SCALE: AS NOTED	DATE: AUG, 1991
SHEET No. E-3 OF 21 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HIC-01-90	1991	59	109

ORIGINAL PLAN	DATE
DESIGNED BY	
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G:\ACAD\PROJECTS\GENERAL\PAIWA\850720\SITEPLAN



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Ronald N. S. Ho

APPROVED:	
<i>M. J. Lee</i> HAWAIIAN ELECTRIC CO.	5/29/91 Date
<i>Mark K. Janssen</i> HAWAIIAN TELEPHONE CO.	5-31-91 Date
<i>Kenneth L. Wong</i> Director, Dept. of Trans. Services (within City right-of-way only)	5/27/91 Date

DATE	REVISION
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

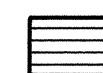
SITE PLAN


INTERSTATE ROUTE H-1
PAIWA STREET INTERCHANGE
PROJECT NO. HIC-01-90


SCALE: AS NOTED
DATE: AUG, 1991


SHEET No. E-4 OF 21 SHEETS

BACKFILL NOTES:

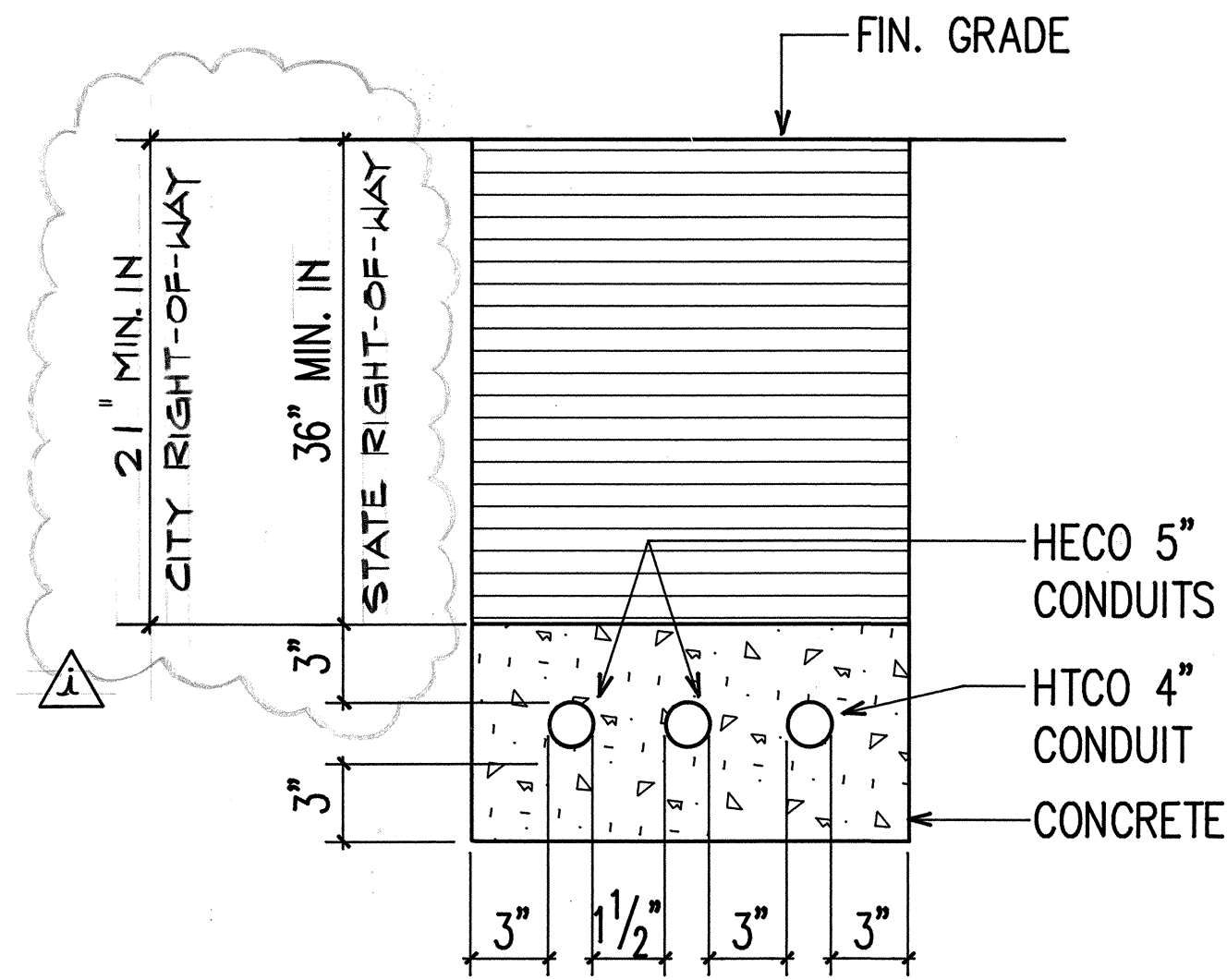
 TRENCH BACKFILL MATERIAL "B"
 1. SAND EQUIVALENT ≥ 2
 2. 8" MAX. LIFT
 3. 95% COMPACTION

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

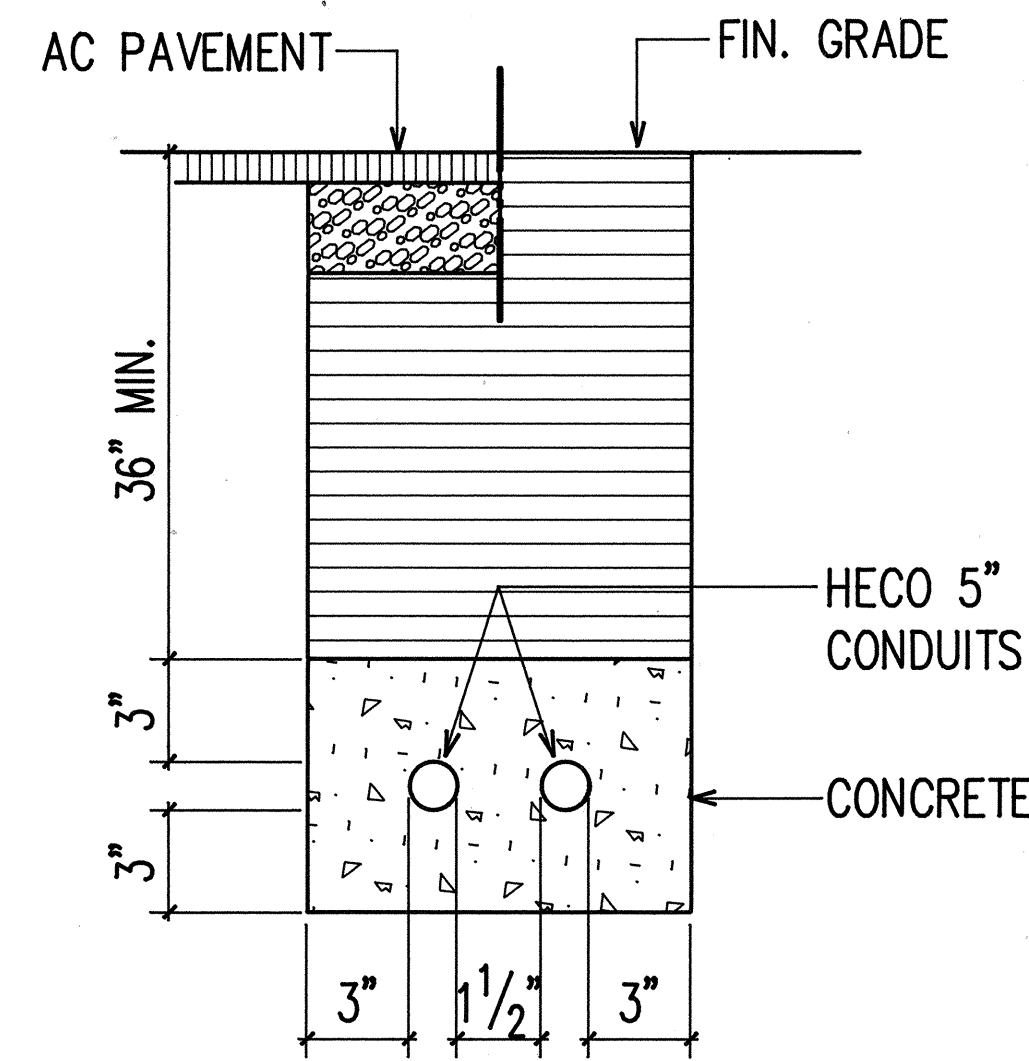
 IF MATERIAL BELOW DUCT IS NOT EQUIVALENT TO BACKFILL MATERIAL "A" EXCAVATE MATERIAL & PROVIDE 3" BACKFILL MATERIAL "A". SEE ABOVE

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

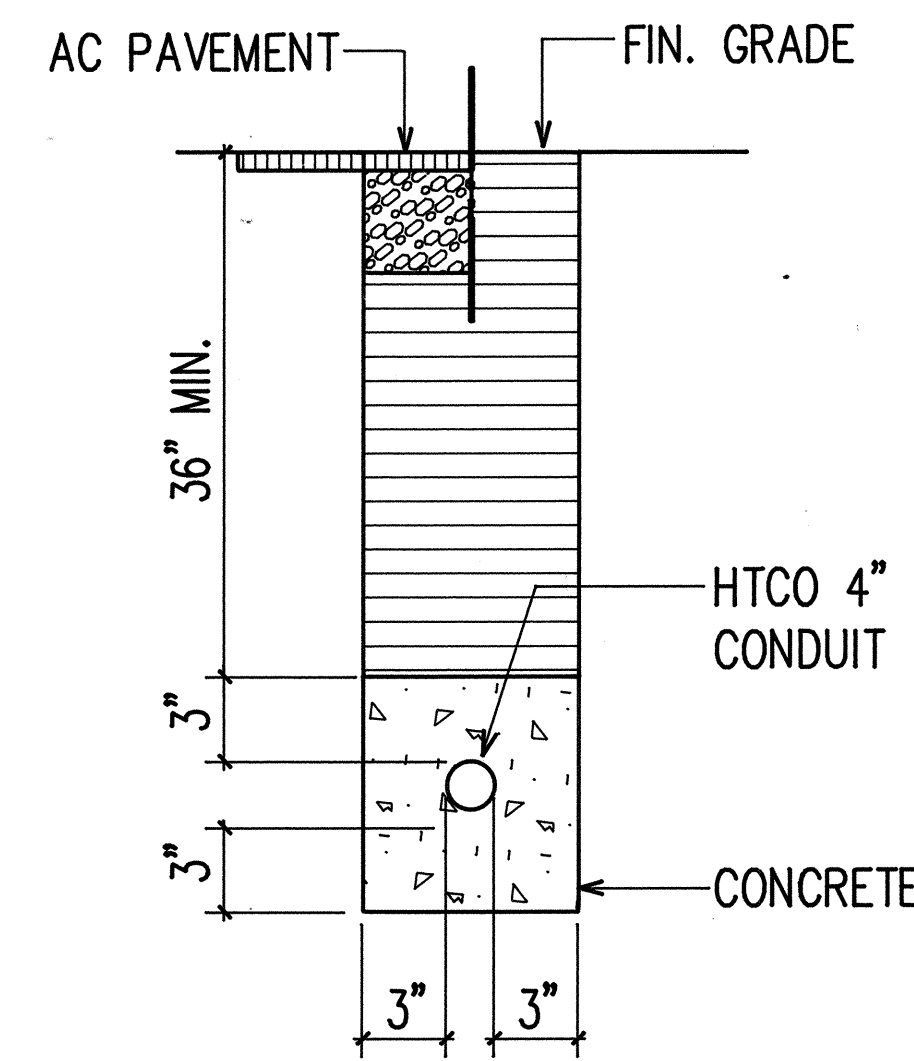
NOTE: BASE COURSE & SUB-BASE COURSE PER 1985 STATE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.



SECTION A



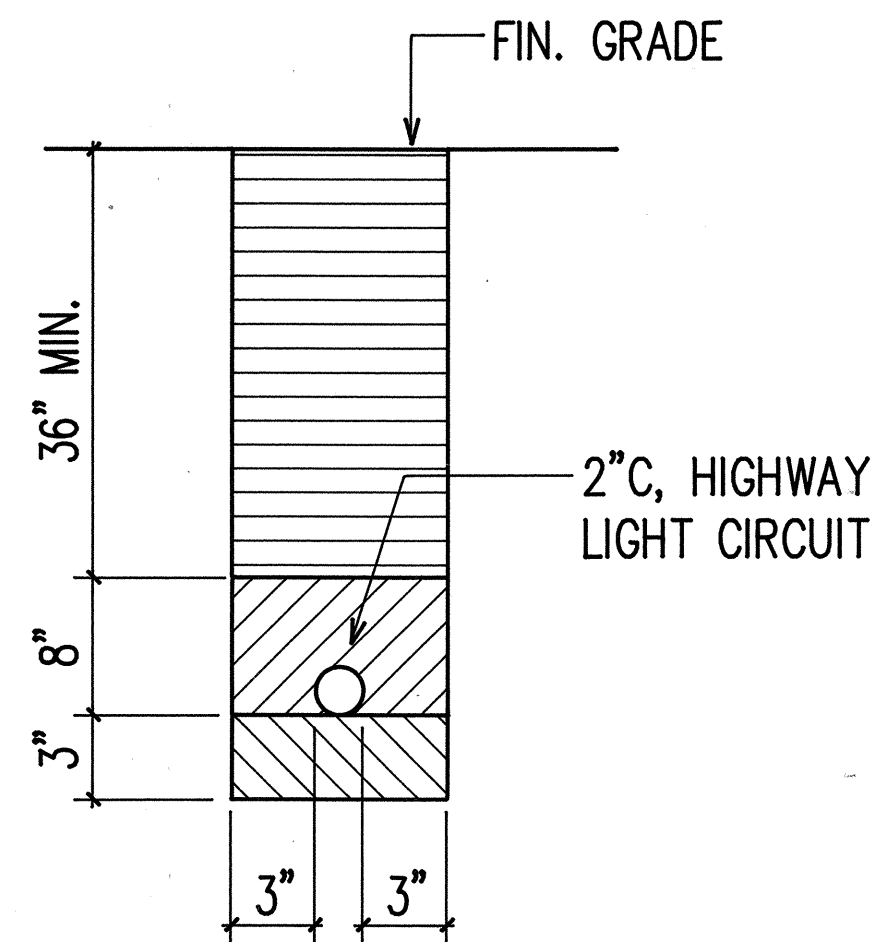
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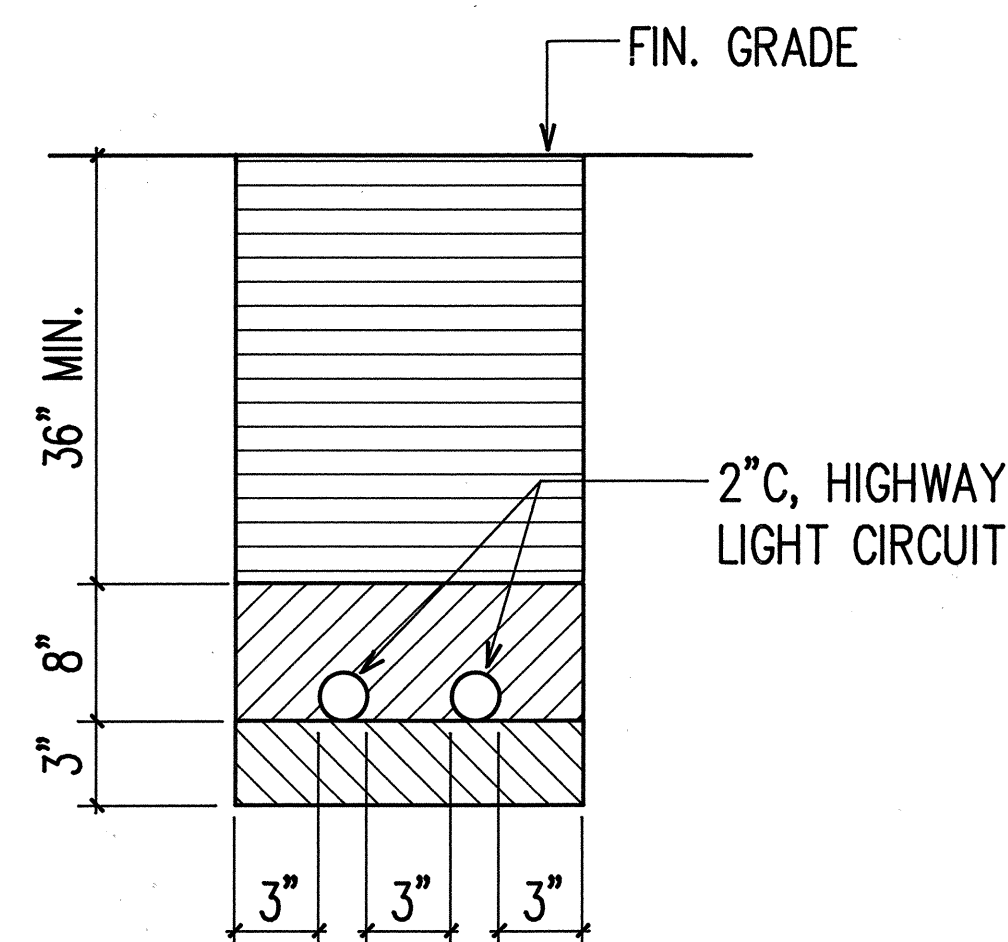
SECTION C

SECTION D SIMILAR TO B EXCEPT FOR 2-4" HECO CONDUITS.
 SECTION H SIMILAR TO B EXCEPT FOR 2-2" ELEC. CONDUITS

SECTION D SIMILAR TO C EXCEPT WITH 1-2" C, HIGHWAY CONDUIT.

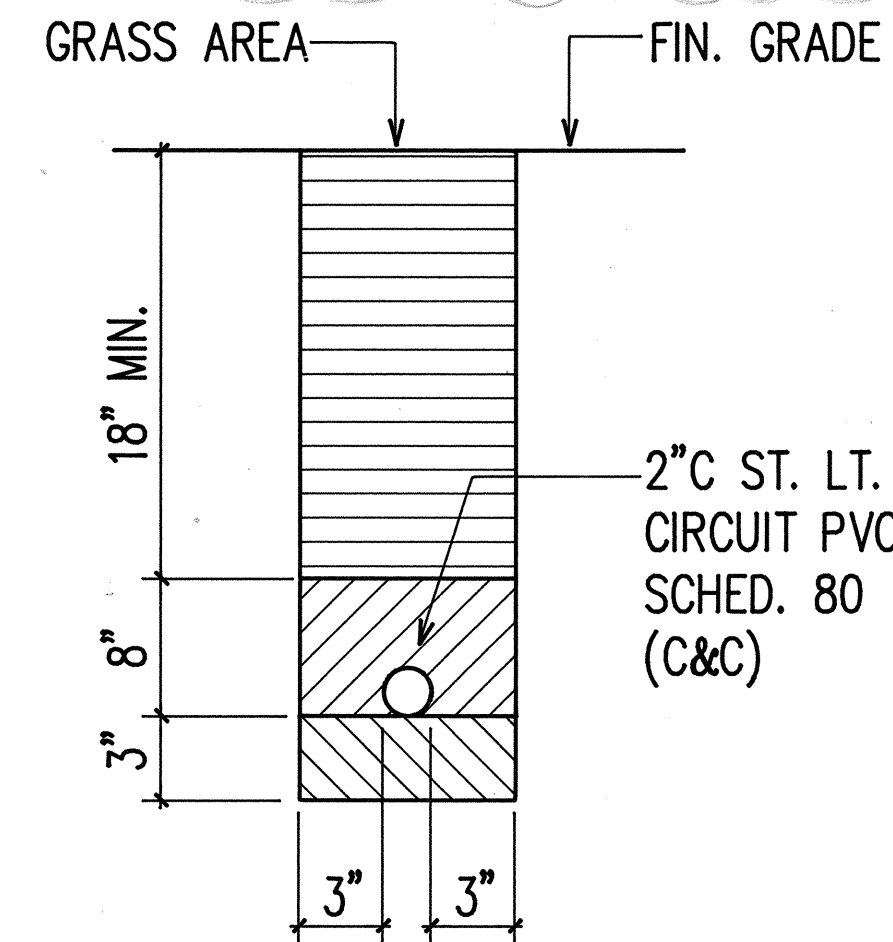


SECTION E



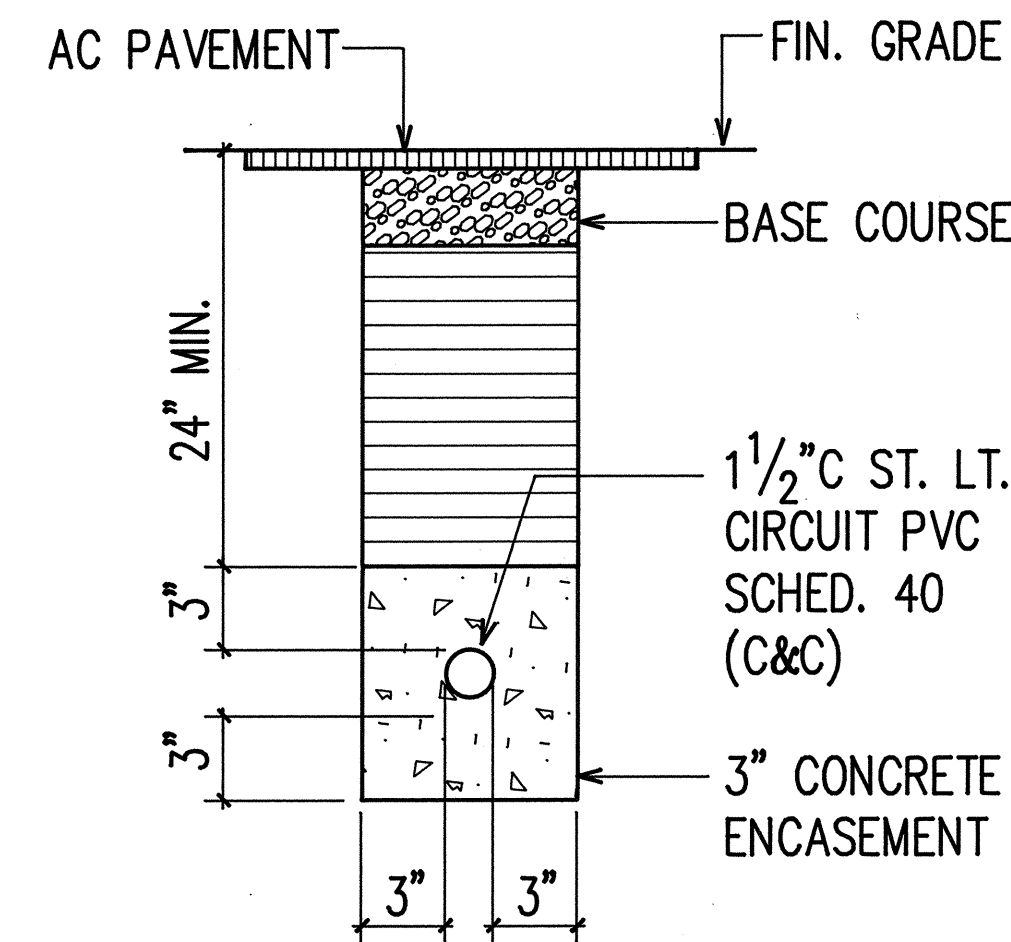
SECTION F

SECTION M SIMILAR TO F EXCEPT WITH 1-2" HIGHWAY LIGHT CIRCUIT, AND 1-2" C, TRAFFIC SIGNAL POWER

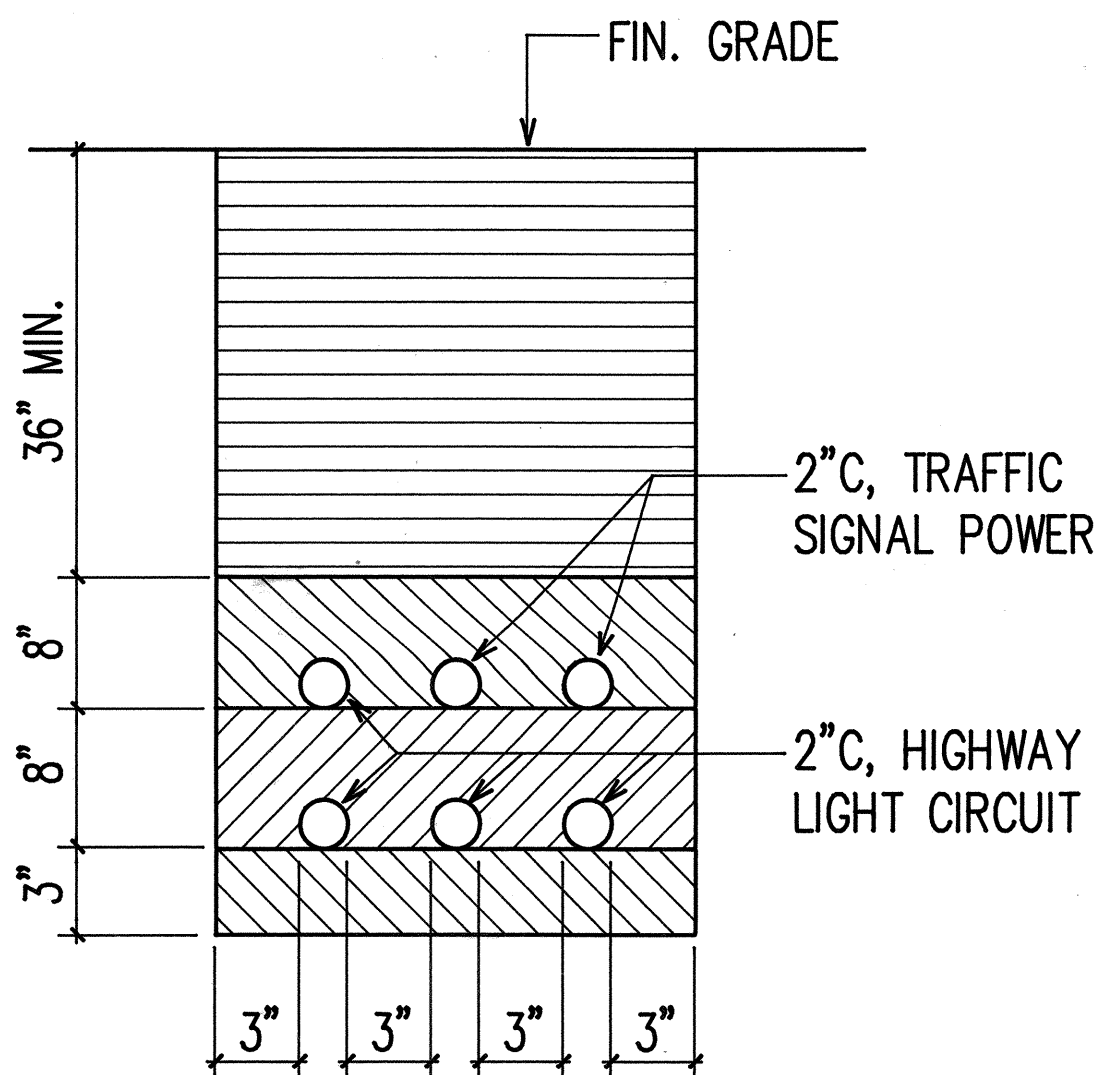


SECTION G

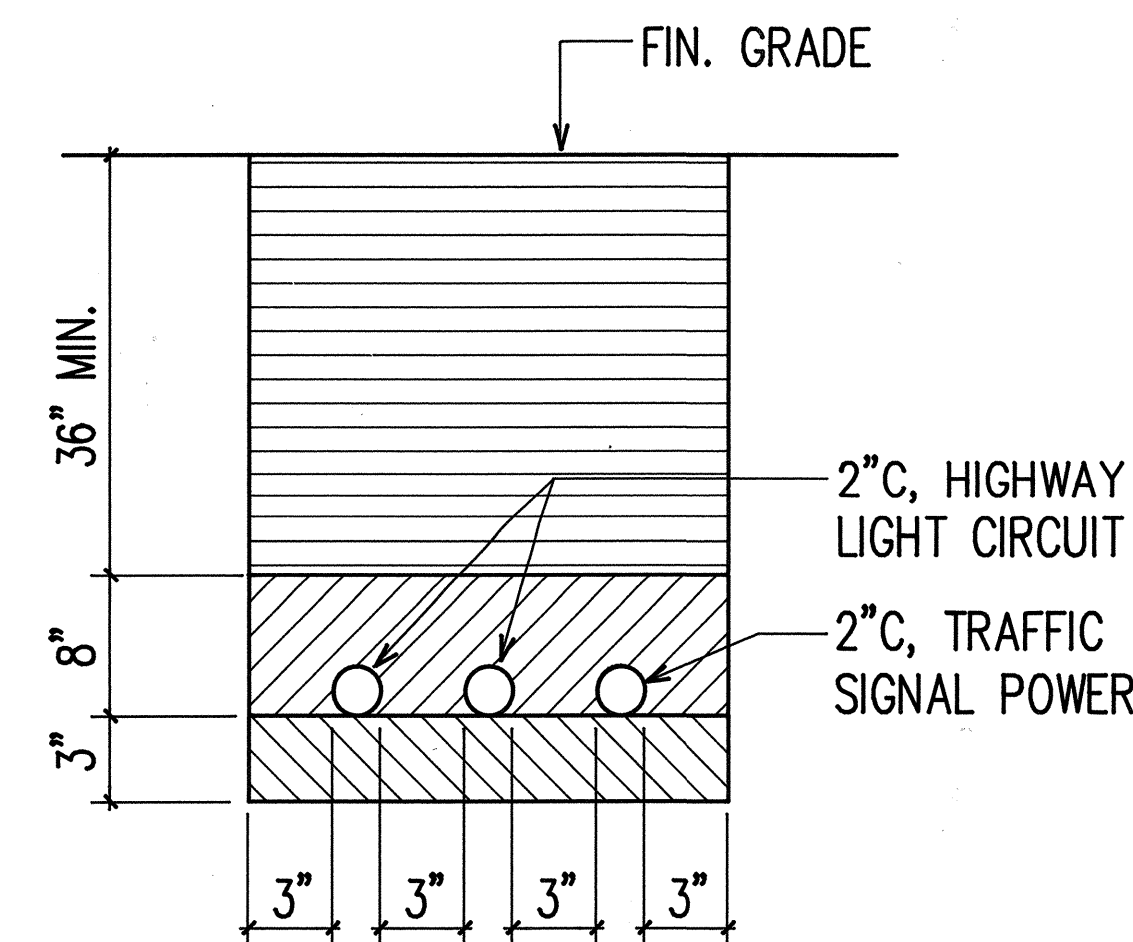
SECTION I SIMILAR TO G EXCEPT WITH 1-1 1/4" ST. LT. CONDUIT, PVC SCHED. 80 (C&C)



SECTION H



SECTION K



SECTION L

DUCT SECTION DETAILS

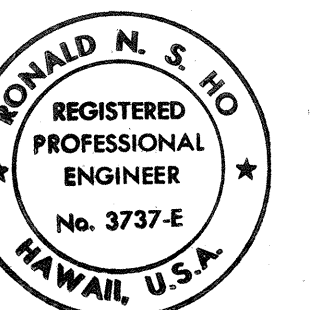
N.T.S.

APPROVED:	
<i>[Signature]</i> Hawaiian Electric Co.	5/29/91 Date
<i>[Signature]</i> Hawaiian Telephone Co.	5-31-91 Date
<i>[Signature]</i> Director, Dept. of Trans. Services (within City right-of-way only)	5/17/91 Date

6/12/92
 5/22/92
 DATE

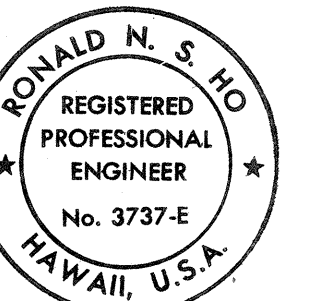
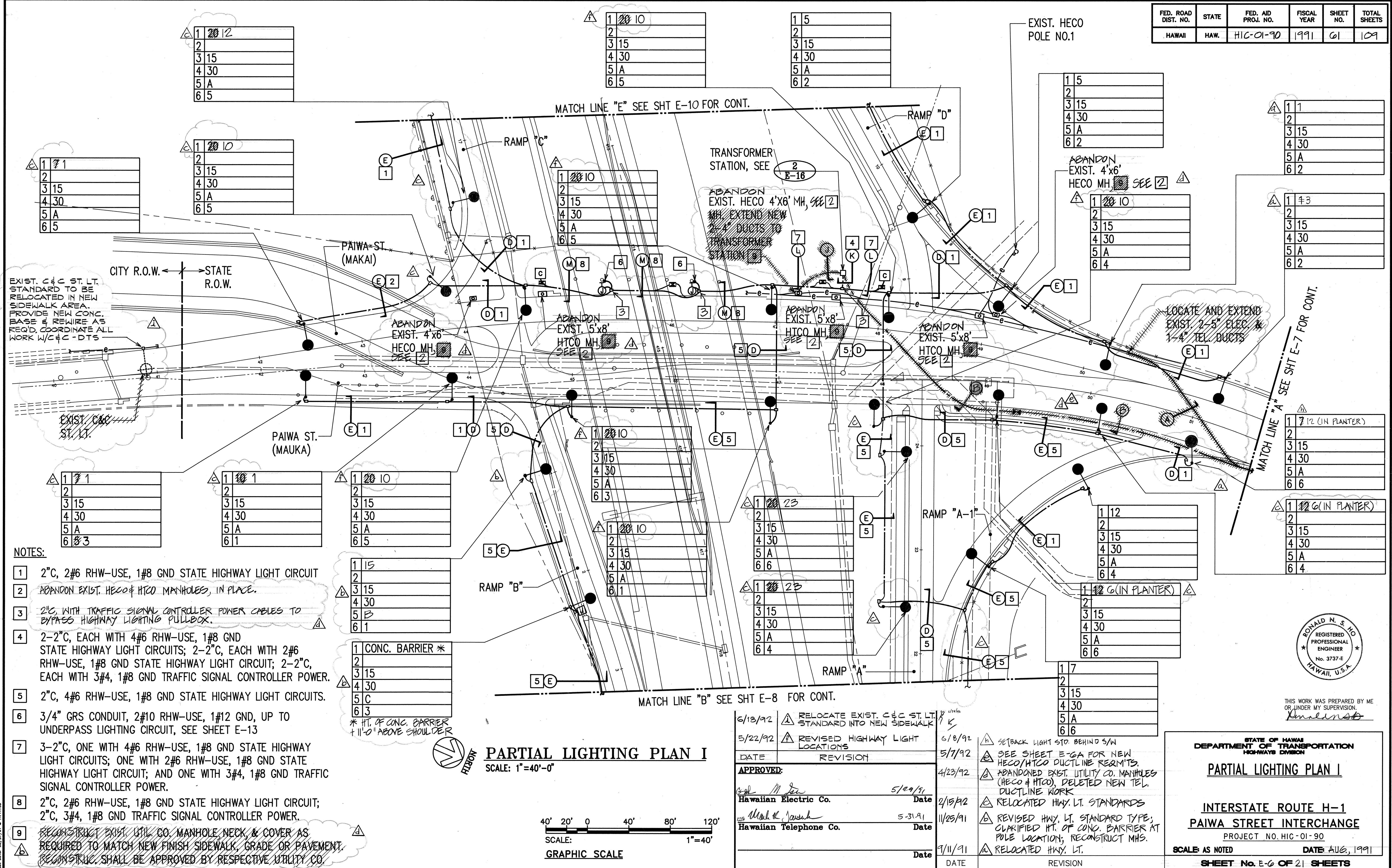
CHANGED MIN. DUCTLINE BACKFILL DEPTH WITHIN CITY RIGHT-OF-WAY
 ADDED DUCT SECTION TYPE N
 REVISION

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
DUCT SECTION DETAILS	
INTERSTATE ROUTE H-1 PAIWA STREET INTERCHANGE	
PROJECT NO. HIC-01-90	
SCALE: AS NOTED	DATE: AUG, 1991
SHEET No. E-5 OF 21 SHEETS	



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[Signature]

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HIC-01-90	1991	61	109

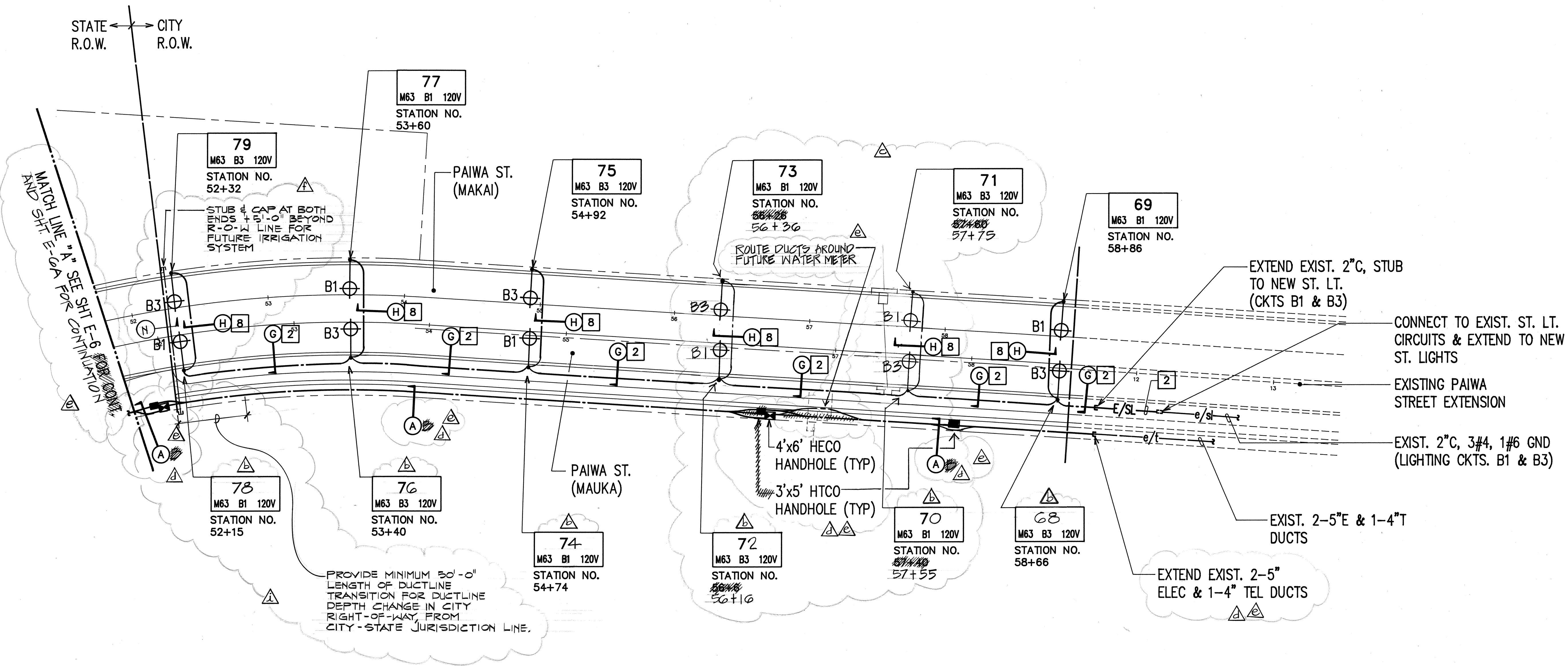


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Ronald N. S. Ho

ORIGINAL FILED BY: _____
DATE: _____
DESIGNED BY: _____
NOTED BY: _____
CHECKED BY: _____
No. _____

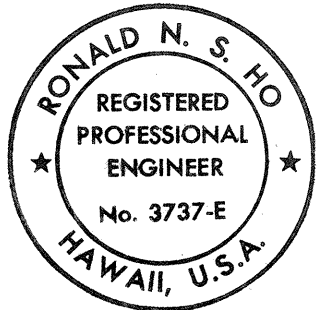
61 (ACAD) \PROJECTS\GENERAL\PAIA\880720\PLAN1

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HIC-01-90	1991	62	109



- NOTES:
- 2 2"C, 3#4 RHW-USE, 1#6 GND C&C ST. LT. CIRCUITS.
 - 8 1 1/2"C, 2#8 RHW-USE, 1#8 GND C&C ST. LT. CIRCUIT.

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



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Ronald N. S. Ho

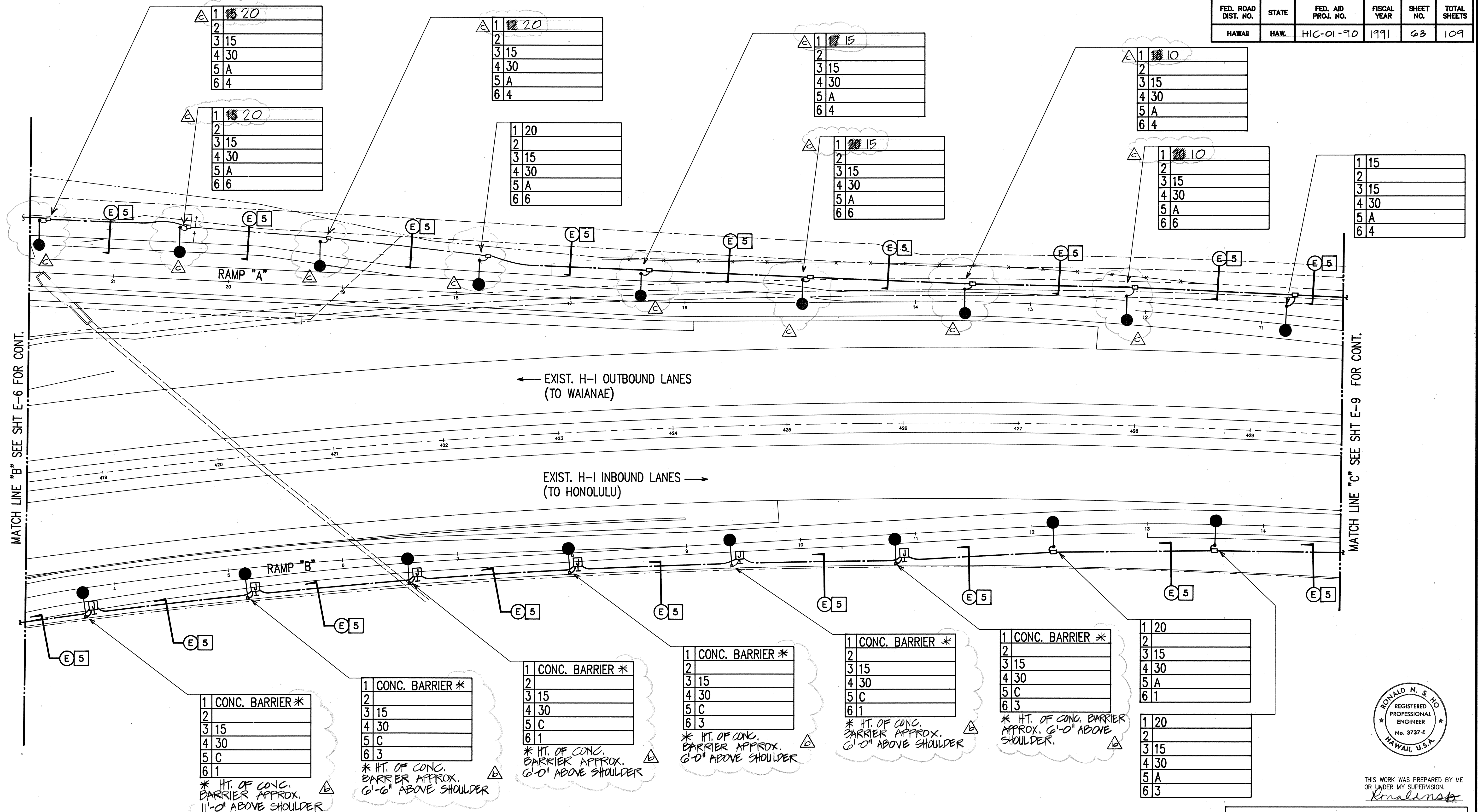
APPROVED:	
<i>Mark K. Janssen</i>	5/29/91
Hawaiian Electric Co.	Date
<i>Mark K. Janssen</i>	6-15-91
Hawaiian Telephone Co.	Date
<i>Mark K. Janssen</i>	5/17/91
Director, Dept. of Trans. Services	Date
(within City right-of-way only)	

DATE	REVISION
6/18/92	△ CHANGED MIN. DUCTLINE BACKFILL DEPTH WITHIN CITY RIGHT-OF-WAY.
5/22/92	△ ADDED DUCTS FOR FUTURE IRRIGATION SYSTEM.
5/7/92	△ REROUTE DUCTLINE AROUND FUTURE METER READED HTCO HH/DUCTLINE
4/23/92	△ DELETED NEW HTCO HANDHOLES AND TELEPHONE DUCTLINE WORK
2/15/92	△ RELOCATED ST. LT. LOCATIONS
1/25/91	△ REVISED STREET LIGHT ID TAG NUMBERS

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
PARTIAL LIGHTING PLAN II	
INTERSTATE ROUTE H-1 PAIWA STREET INTERCHANGE	
PROJECT NO. HIC-01-90	
SCALE: AS NOTED	DATE: AUG, 1991
SHEET No. E-7 OF 21 SHEETS	

SURVEY PLOTTED BY	DATE
DESIGNED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	
NO.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HIC-01-90	1991	63	109



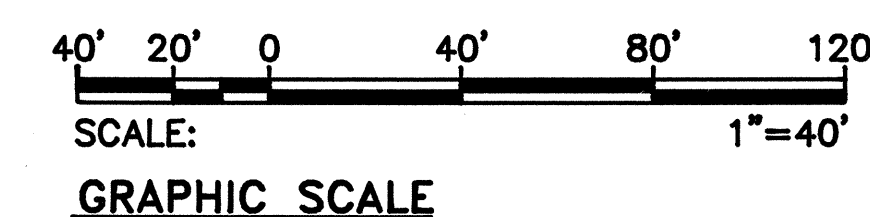
NOTES:

- 5 2" C, 4#6 RHW-USE, 1#8 GND STATE HIGHWAY LIGHT CIRCUIT.



PARTIAL LIGHTING PLAN III

SCALE: 1"=40'-0"



2/15/92	RELOCATED HWY. LT. STANDARDS
11/25/91	CLARIFIED HT. OF CONC. BARRIER AT POLE LOCATION
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PARTIAL LIGHTING PLAN III

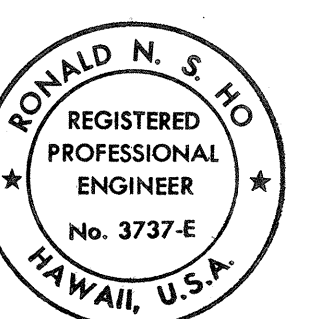
INTERSTATE ROUTE H-1
PAIWA STREET INTERCHANGE

PROJECT NO. HIC-01-90

SCALE: AS NOTED

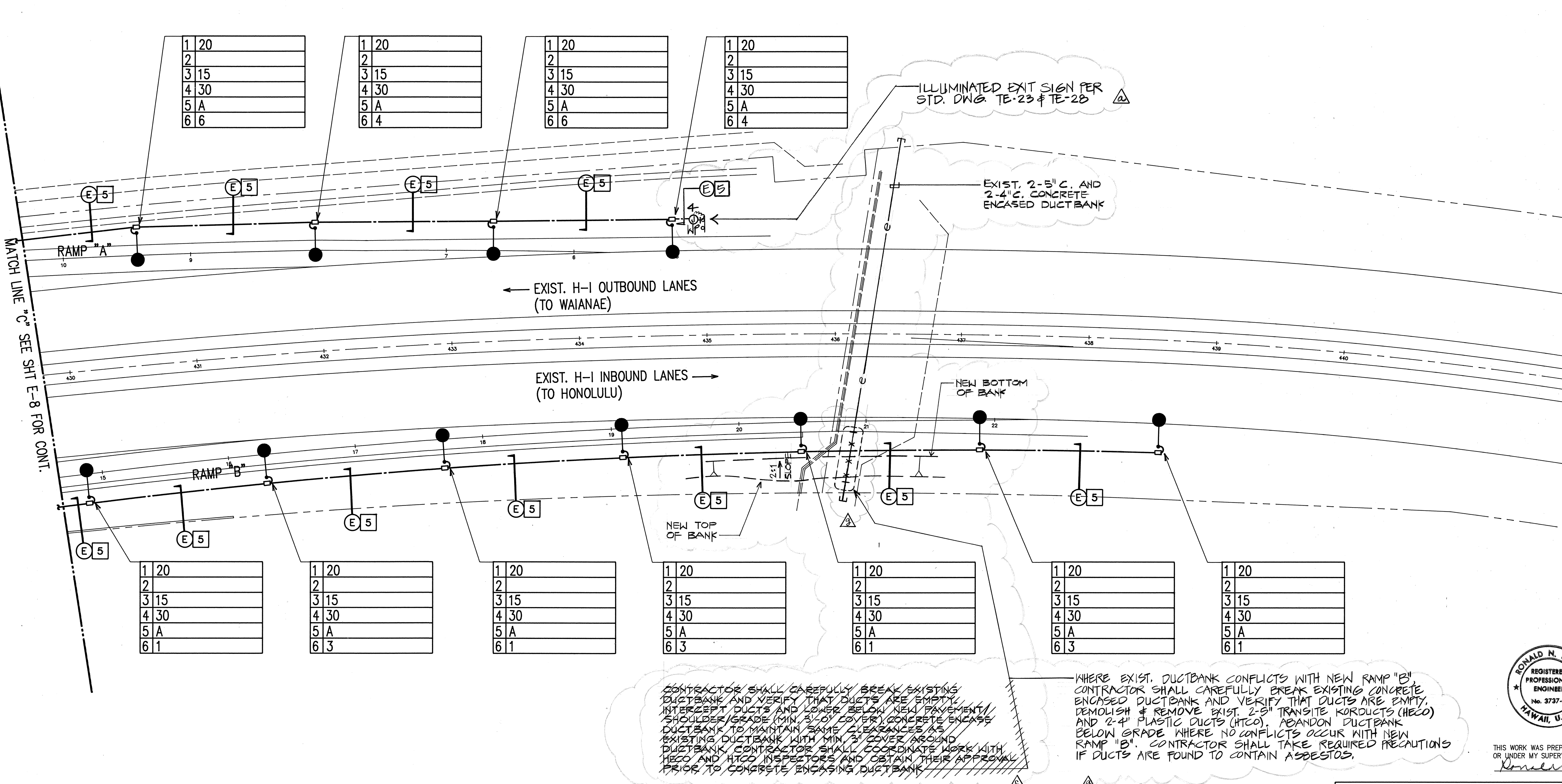
DATE: AUG, 1991

SHEET No. E-8 OF 21 SHEETS



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Ronald N. S. Ho

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HIC-01-90	1991	64	109

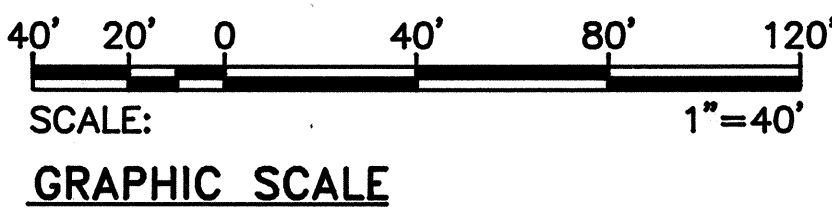


SURVEY PLOTTED BY	DATE
DESIGNED BY	
NOTED BY	
CHECKED BY	
NO.	

NOTES:

[5] 2" C, 4#6 RHW-USE, 1#8 GND STATE HIGHWAY LIGHT CIRCUITS.

PARTIAL LIGHTING PLAN IV
SCALE: 1"=40'-0"



DATE	REVISION
4/5/92	DEMOLISH/ABANDON EXIST. CONC. ENCASED DUCTBANK.
5/22/92	LOWERED EXIST. CONC. ENCASED DUCT BANK
9/11/91	ADDED ILLUMINATED EXIT SIGN REQUIREMENTS

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

PARTIAL LIGHTING PLAN IV

INTERSTATE ROUTE H-1

PAIWA STREET INTERCHANGE

PROJECT NO. HIC-01-90

SCALE: AS NOTED

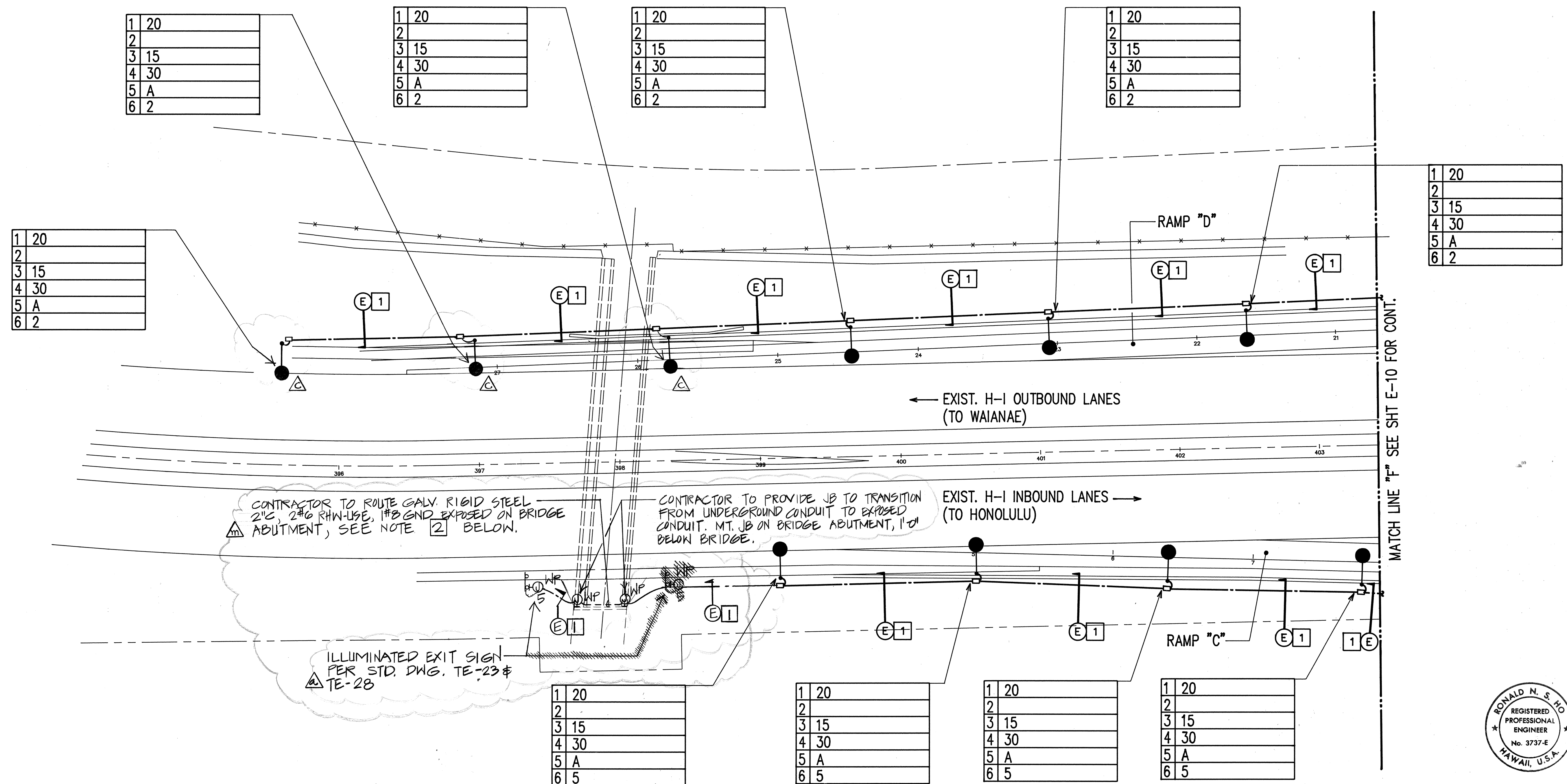
DATE: AUG, 1991

SHEET No. E-1 OF 21 SHEETS



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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HIC-01-90	1991	66	109



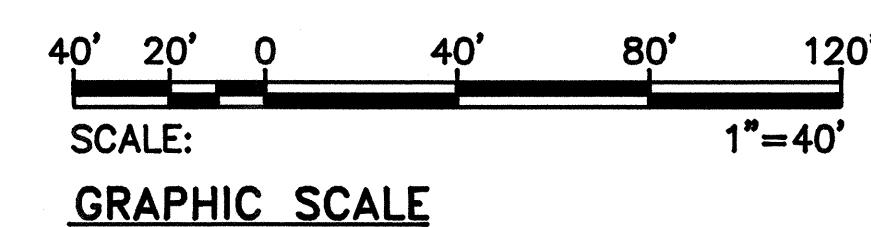
NOTES:

- 1 2°C, 2#6 RHW-USE, 1#8 GND STATE HIGHWAY
LIGHT CIRCUIT.
- 2 CONTRACTOR SHALL SECURE CONDUIT TO BRIDGE ABUTMENT
WITH GALVANIZED STEEL CONDUIT STRAPS, AT 4'-0" O.C.;
IMPACTING DRILLS SHALL NOT BE USED TO DRILL HOLES;
INSURE NOT TO HIT ANY BRIDGE STRUCTURAL REINFORCING
WHEN DRILLING HOLES; ALL UNUSED HOLES SHALL BE
FILLED WITH EPOXY GROUT.




PARTIAL LIGHTING PLAN VI

SCALE: 1"=40'-0"



10/28/92	△ EXTEND DUCTLINE TO RELOCATED LOCATION OF ILLUMINATED EXIT SIGN.
2/15/92	△ RELOCATED HWY. LT. STANDARDS
9/11/91	△ ADDED ILLUMINATED EXIT SIGN REQUIREMENTS
DATE	REVISION



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OR UNDER MY SUPERVISION.
Ronaldson

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

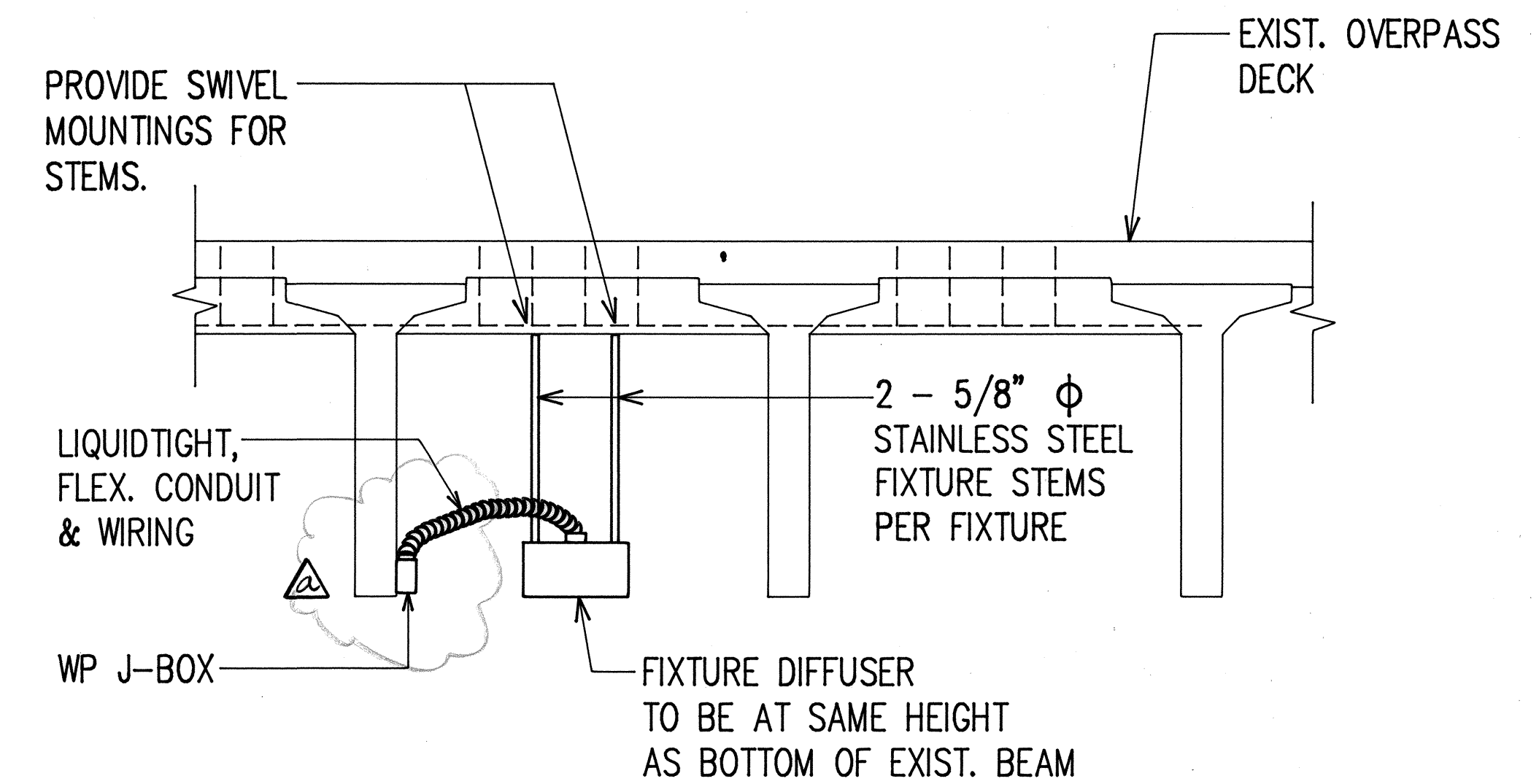
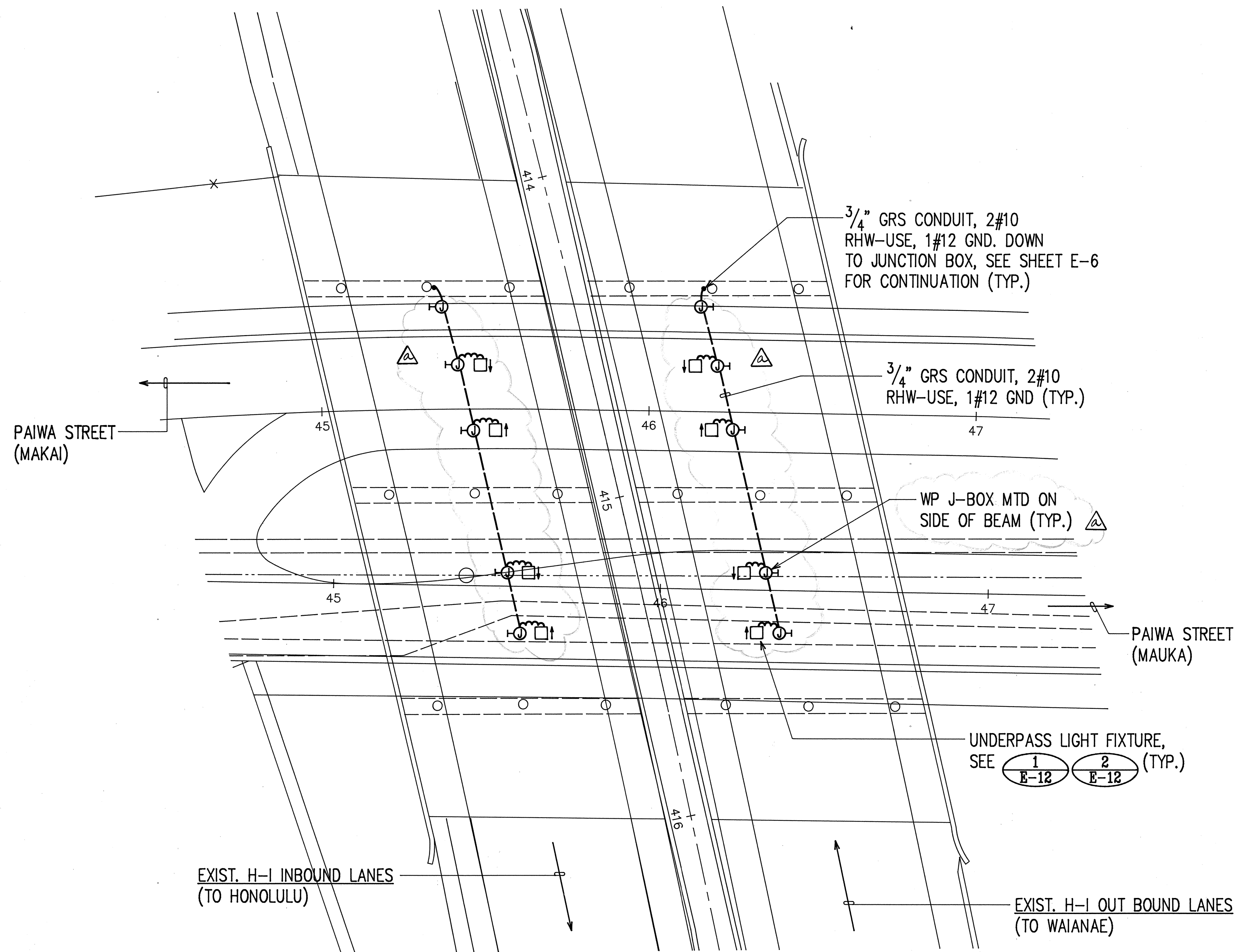
PARTIAL LIGHTING PLAN VI

INTERSTATE ROUTE H-1
PAIWA STREET INTERCHANGE

SCALE: AS NOTED DATE: AUG, 1991

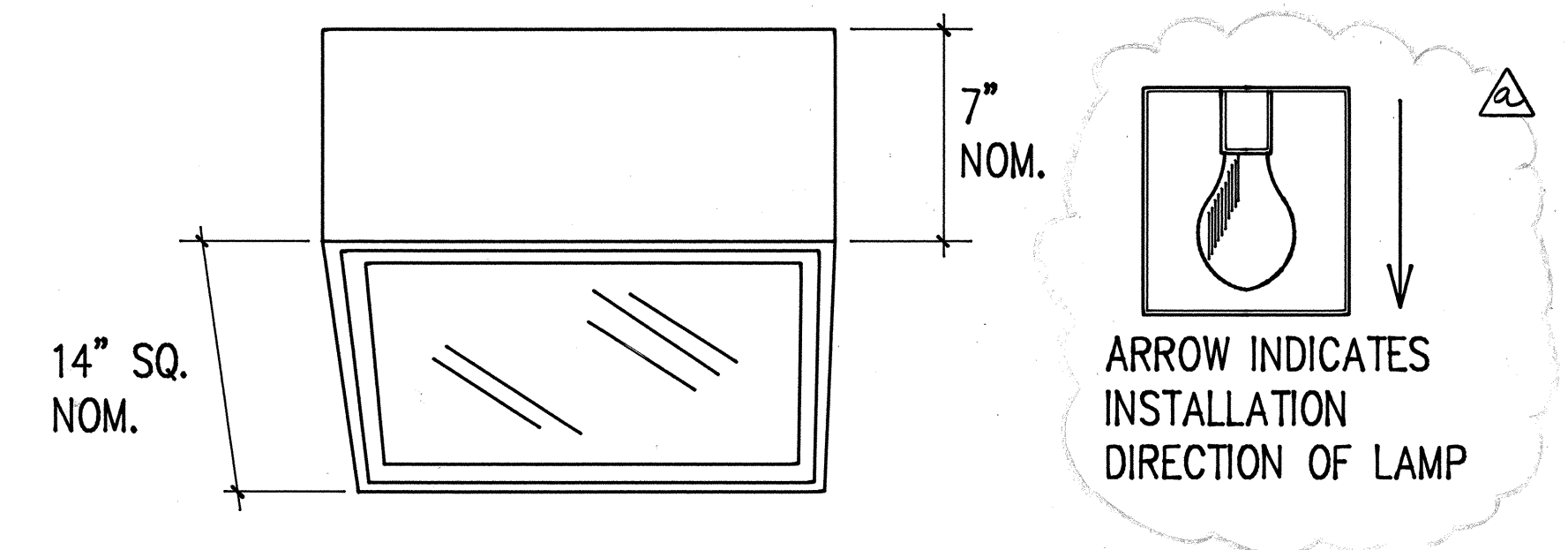
SHEET No. E-11 OF 21 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HIC-01-90	1991	67	109



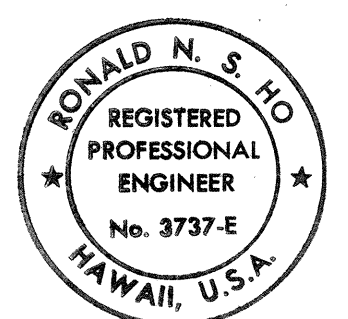
NOTE: ALL CEILING INSERTS FOR FIXTURE MOUNTING HARDWARE SHALL WITHSTAND A 100 LB PULL-OUT.

1
E-12 TYPICAL UNDERPASS LIGHT FIXTURE. MTG. DETAIL
NOT TO SCALE

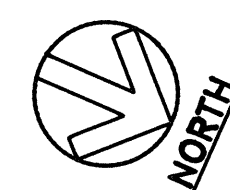


LAMP: 100W HPS, CLEAR
DESCRIPTION: EXTRUDED ALUM. CHASSIS WITH MITERED, WELDED CORNERS, DARK BRONZE ANODIZED FINISH, U.L. LISTED FOR WET LOCATIONS, CLEAR, TEMPERED GLASS DIFFUSER, HYDROFORMED SPECULAR ALUMINUM REFLECTOR WITH IES TYPE II OPTICS, HPF, CONSTANT WATTAGE AUTOTRANSFORMER BALLAST. AS A STANDARD FEATURE, FIXTURE SHALL BE SUITABLE FOR STEM MOUNTING.

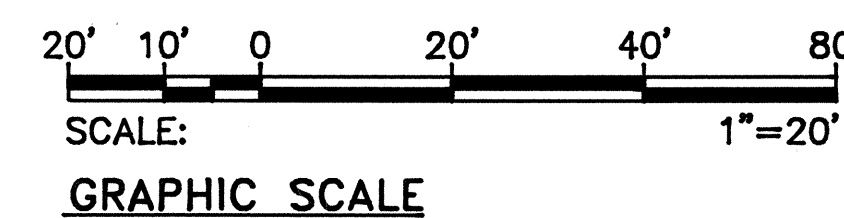
2
E-12 UNDERPASS LIGHT FIXTURE DETAIL
NOT TO SCALE



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Ronald N. S. Ho



UNDERPASS LIGHTING PLAN
SCALE: 1"=20'-0"



9/11/91
DATE
CLARIFIED DIRECTION OF LAMP INSTALLATION & J-BOX MOUNTING
REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

UNDERPASS LIGHTING PLAN

INTERSTATE ROUTE H-1
PAIWA STREET INTERCHANGE

PROJECT NO. HIC-01-90

SCALE: AS NOTED

DATE: AUG., 1991

SHEET No. E-12 OF 21 SHEETS

TRAFFIC SIGNAL SYSTEM CONDUIT AND CABLE SCHEDULE – SHEET E-13															
	DELTA ITEM NO. (△)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
QUANTITY OF 2"C, SEE NOTE NO. 2	4	2	1	2	2	2	1	2	1		2		2		
QUANTITY OF 26/C #14 CONTROL CABLE, SEE NOTE NO. 1	2	1		1		1		1			1				
QUANTITY OF 2/C #14 SHIELDED LOOP DETECTOR AND PEDESTRIAN PB CABLE	12	2		1	1		2	5	1		7		2		
QUANTITY OF 19/C #14 SHIELDED SIGNAL HEAD CABLE			1		1										
QUANTITY OF 24/C #20 INTERCONNECT CABLE, SEE NOTE NO. 1	1												1		

NOTES: 1. ADD 1 #6 AWG NEUTRAL WITH EACH 26/C #14; EACH 26/C #14 SHALL BE INSTALLED IN A 2"C.
2. ALL CONDUITS SHALL BE PVC SCHEDULE 80, UNLESS OTHERWISE NOTED

TRAFFIC SIGNAL SYSTEM CONDUIT AND CABLE SCHEDULE - SHEET E-13														
	DELTA ITEM NO. (△)													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
QUANTITY OF 2"C, SEE NOTE NO. 2	4	2	1	2	2	2	1	2	1		2	2		
QUANTITY OF 26/C #14 CONTROL CABLE, SEE NOTE NO. 1	2	1		1		1		1			1			
QUANTITY OF 2/C #14 SHIELDED LOOP DETECTOR AND PEDESTRIAN PB CABLE	12	2		1	1		2	5	1		7	2		
QUANTITY OF 19/C #14 SHIELDED SIGNAL HEAD CABLE			1		1									
QUANTITY OF 24/C #20 INTERCONNECT CABLE, SEE NOTE NO. 1	1												1	

NOTES: 1. ADD 1 #6 AWG NEUTRAL WITH EACH 26/C #14; EACH 26/C #14 SHALL BE INSTALLED IN A 2"C.
2. ALL CONDUITS SHALL BE PVC SCHEDULE 80, UNLESS OTHERWISE NOTED

TRAFFIC SIGNAL SYSTEM CONDUIT AND CABLE SCHEDULE - SHEET E-13

DELTA ITEM NO. (△)

QUANTITY OF 2"C, SEE NOTE NO. 2

QUANTITY OF 26/C #14 CONTROL CABLE, SEE NOTE NO. 1

QUANTITY OF 2/C #14 SHIELDED LOOP DETECTOR AND PEDESTRIAN PB CABLE

QUANTITY OF 19/C #14 SHIELDED SIGNAL HEAD CABLE

QUANTITY OF 24/C #20 INTERCONNECT CABLE, SEE NOTE NO. 1

NOTES: 1. ADD 1 #6 AWG NEUTRAL WITH EACH 26/C #14; EACH 26/C #14 SHALL BE INSTALLED IN A 2"C.
2. ALL CONDUITS SHALL BE PVC SCHEDULE 80, UNLESS OTHERWISE NOTED

TRAFFIC SIGNAL LAYOUT

PAIA ST. (MAKAI)

PAIA ST. (MAUI)

RAMP "C"

RAMP "B"

2-6'x6' LOOP DETECTOR SAMPLER LOOPS

2-6'x6' LOOP DETECTORS EACH

260'-0" FROM STOP LINE

260'-0" FROM LOOP DETECTORS TO STOP LINE

332 CONTROLLER CABINET

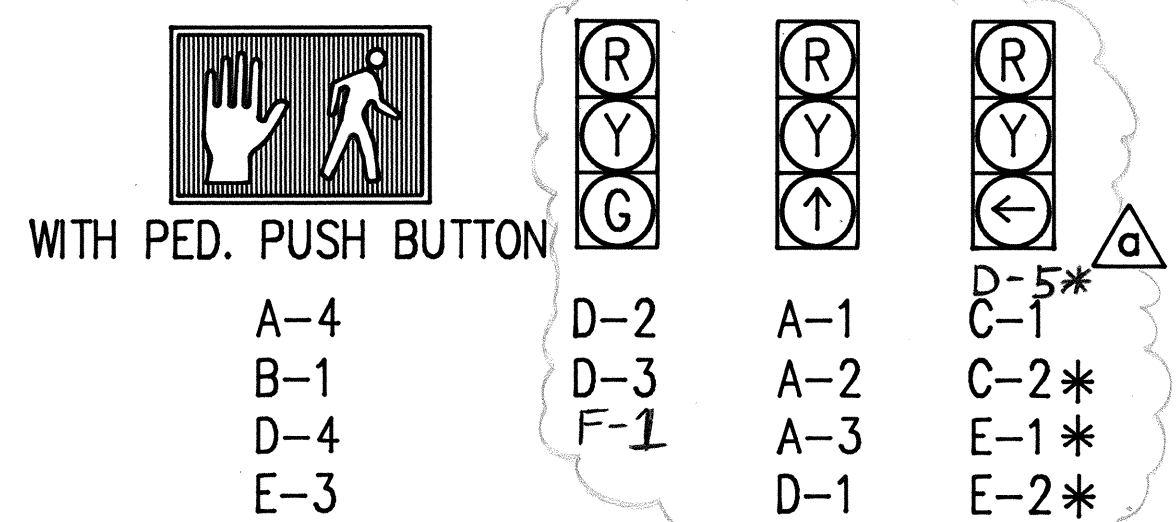
INSTALL R10-4b(L) W/ PED. PUSH BUTTON

INSTALL R10-4b(R) W/ PED. PUSH BUTTON

WITH PED. PUSH BUTTON

TRAFFIC SIGNALS: A-1, A-2, A-3, B-1, B-2, B-3, C-1, C-2, C-3, D-1, D-2, D-3, D-4, D-5

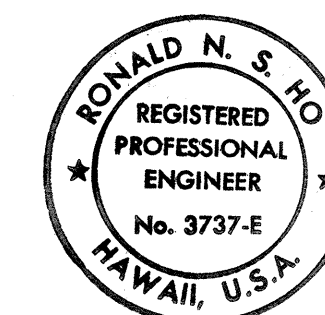
MATCH LINE "C" SEE SHT E-14 FOR CONT.



20' 10' 0 20' 40' 80
SCALE: 1"=20'
GRAPHIC SCALE

4/26/92	△ ADDED T.S. STD. & T.S. HEADS PER C&C DTS COMMENTS
4/22/92	△ ADDED TYPE "B" T.S. PULLBOX PER C&C DTS REQMT'S
11/25/91	△ b REVISED TS PULLBOX TYPES, CLARIFIED PED PB STATION REQUIREMENTS, GENERAL REVISIONS
9/11/91	△ a GENERAL REVISIONS
DATE	REVISION

SCALE: AS NOTED	DATE: AUG., 199
SHEET No. E-13 OF 21 SHEETS	



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OR UNDER MY SUPERVISION.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HIC-01-90	1991	69	109

SIGNAL INDICATIONS

WITH PED. PUSH BUTTON

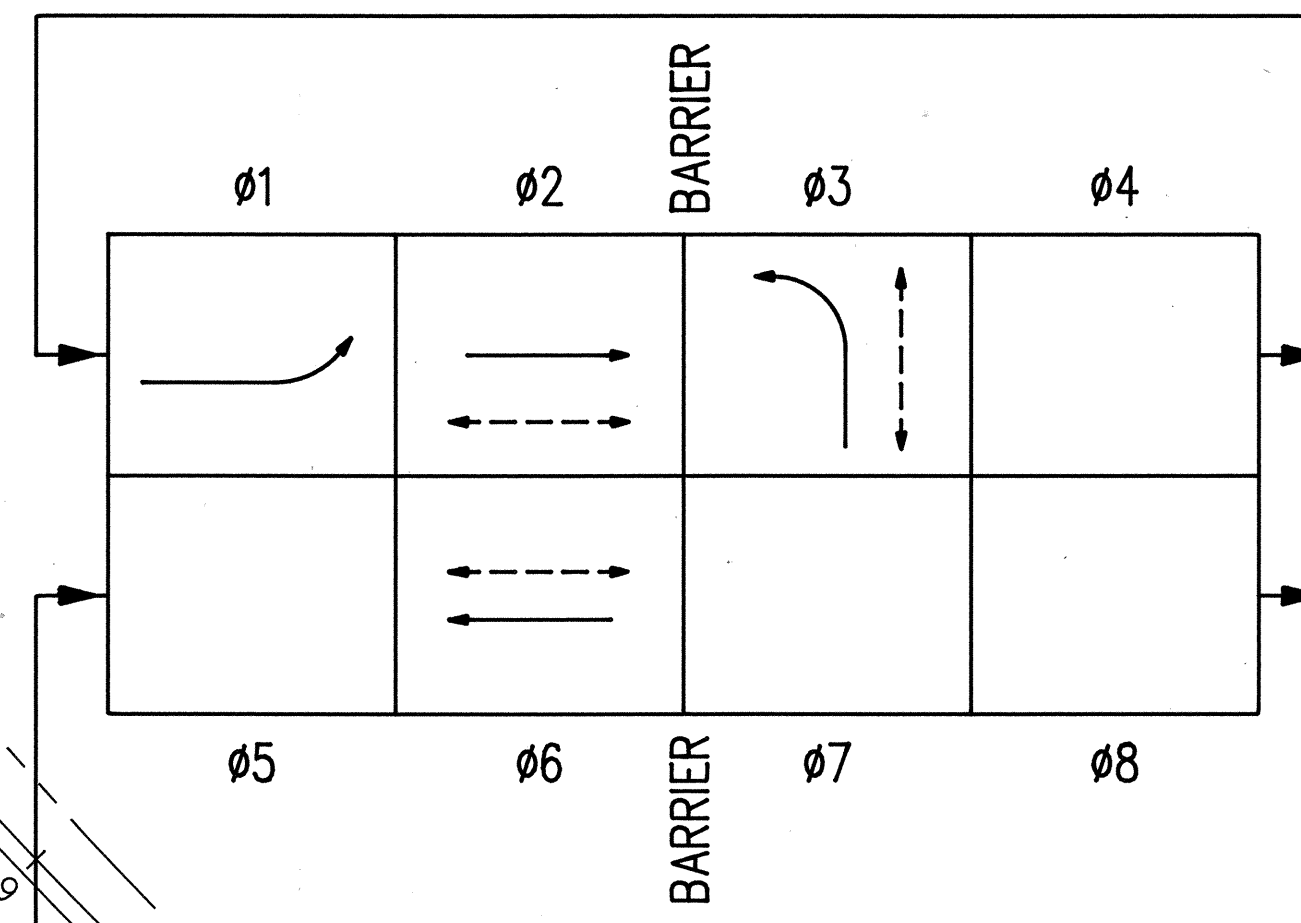
A-4
B-2
B-3
C-2
C-3
D-4
D-5
E-1

A-3*
B-4*
D-3
F-1*

A-1
A-2
D-1
D-2

C-1
C-4

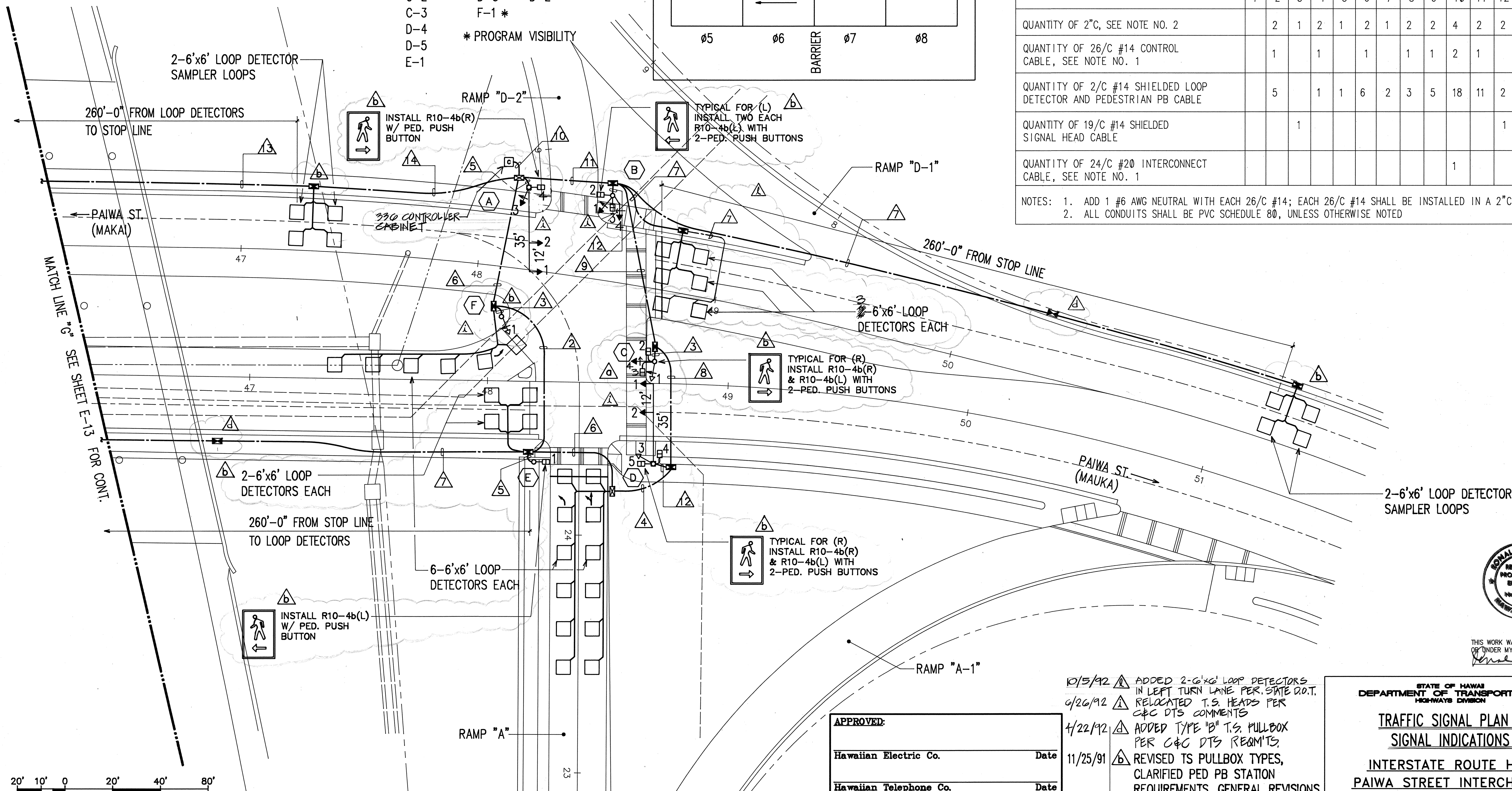
* PROGRAM VISIBILITY



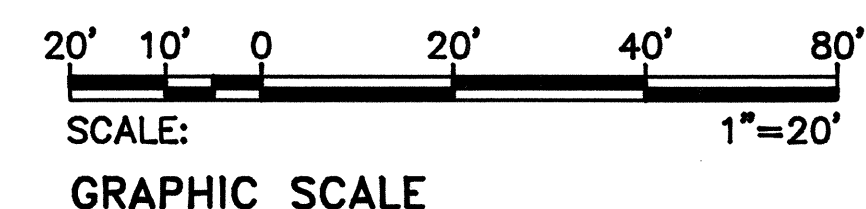
TRAFFIC SIGNAL SYSTEM CONDUIT AND CABLE SCHEDULE - SHEET E-14

	DELTA ITEM NO. (Δ)													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
QUANTITY OF 2"C, SEE NOTE NO. 2		2	1	2	1	2	1	2	2	4	2	2	2	1
QUANTITY OF 26/C #14 CONTROL CABLE, SEE NOTE NO. 1		1		1		1		1	1	2	1			
QUANTITY OF 2/C #14 SHIELDED LOOP DETECTOR AND PEDESTRIAN PB CABLE		5		1	1	6	2	3	5	18	11	2	2	
QUANTITY OF 19/C #14 SHIELDED SIGNAL HEAD CABLE			1								1			
QUANTITY OF 24/C #20 INTERCONNECT CABLE, SEE NOTE NO. 1										1		1	1	

NOTES: 1. ADD 1 #6 AWG NEUTRAL WITH EACH 26/C #14; EACH 26/C #14 SHALL BE INSTALLED IN A 2"C.
 2. ALL CONDUITS SHALL BE PVC SCHEDULE 80, UNLESS OTHERWISE NOTED



DATE	
DESIGNED BY	
TRACED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	



TRAFFIC SIGNAL PLAN II
SCALE: 1"=20'-0"

APPROVED:

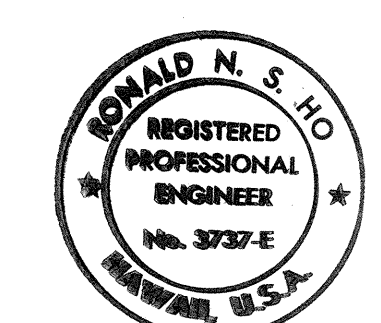
Hawaiian Electric Co.	Date
Hawaiian Telephone Co.	Date
Director, Dept. of Trans. Services (within City right-of-way only)	Date

10/5/92	Δ	ADDED 2-6'x6' LOOP DETECTORS IN LEFT TURN LANE PER STATE D.O.T.
9/26/92	Δ	RELOCATED T.S. HEADS PER C&C DTS COMMENTS
4/22/92	Δ	ADDED TYPE "B" T.S. PULLBOX PER C&C DTS REQMTS.
11/25/91	Δ	REVISED TS PULLBOX TYPES, CLARIFIED PED PB STATION REQUIREMENTS, GENERAL REVISIONS
9/11/91	Δ	GENERAL REVISIONS

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION


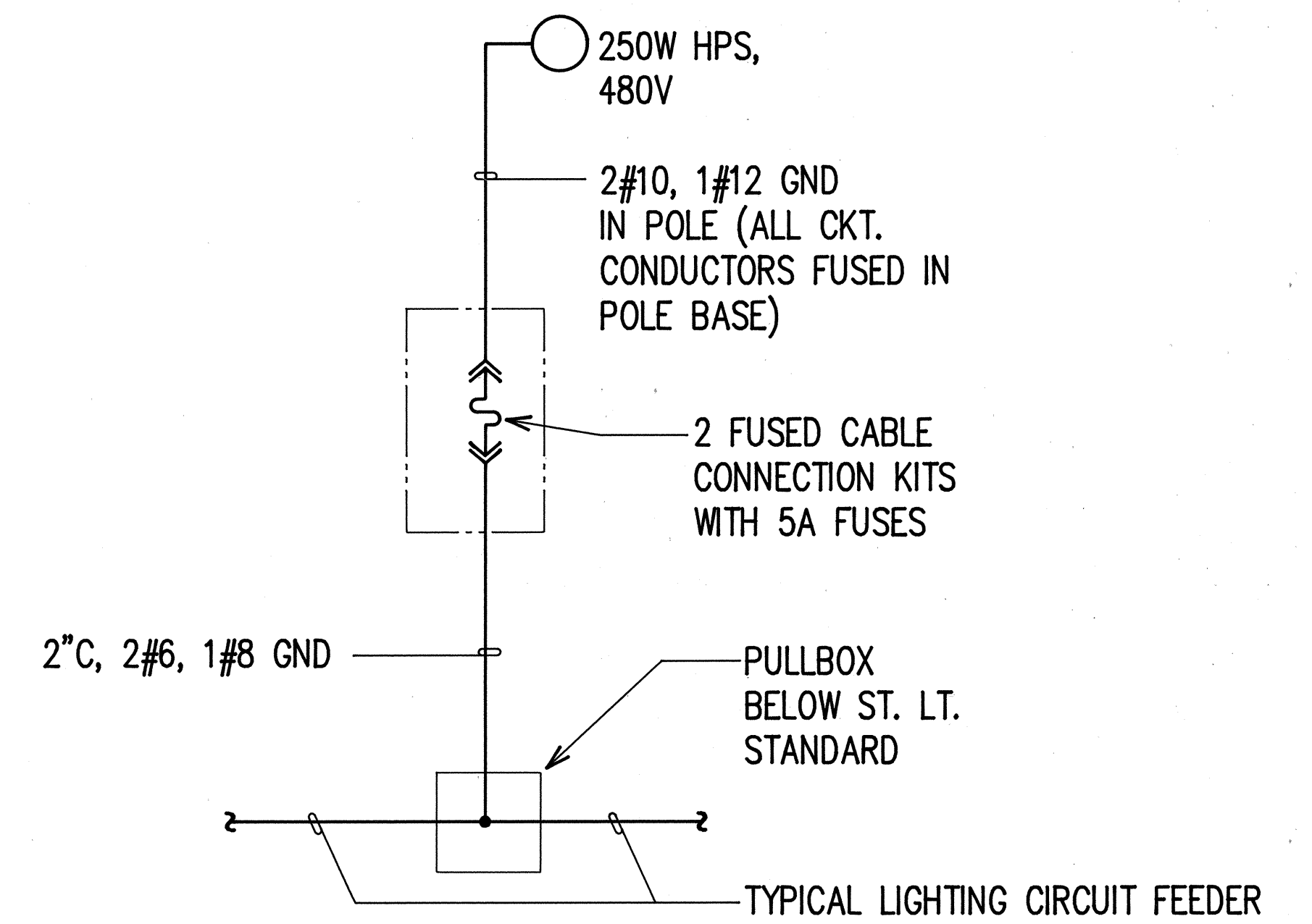
TRAFFIC SIGNAL PLAN II
 SIGNAL INDICATIONS
 INTERSTATE ROUTE H-1
 PAIWA STREET INTERCHANGE
 PROJECT NO. HIC-01-90

SCALE: AS NOTED
 DATE: AUG, 1991
 SHEET No. E-14 OF 21 SHEETS



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

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



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.
Ronald [Signature]

APPROVED:	
<i>M. J.</i>	5/29/91
Hawaiian Electric Co.	Date
	Date
	Date

6/30/92	ADD CT. BKR & CONDUIT FOR FUTURE IRRIGATION CONTROLLER PWR.
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING
ONE-LINE DIAGRAM

INTERSTATE ROUTE H-1
PAIWA STREET INTERCHANGE
PROJECT NO. HIC-01-90

SCALE: AS NOTED DATE: AUG., 1991

SHEET No. E-15 OF 21 SHEETS

Technical drawing of a rectangular plate with the following dimensions and features:

- Overall width: 3"
- Overall height: 1 3/4"
- Top edge: 1/4" from the right edge to the centerline of the mounting holes.
- Right edge: 7/8" from the centerline of the mounting holes to the right edge.
- Bottom edge: 1/8" from the left edge to the centerline of the mounting holes.
- Left edge: 1 1/8" from the left edge to the centerline of the mounting holes.
- Mounting holes: 5/32" DIA., 2 HOLES.
- Text on the plate: N250-55V-III-480V

NOTES:

- 5
E-16

HIGHWAY LIGHT POLE
I.D. TAG DETAIL
N.T.S.



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.
Ronald R. [Signature]

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING TRANSFORMER
STATION LAYOUT PLAN

INTERSTATE ROUTE H-1
PAIWA STREET INTERCHANGE

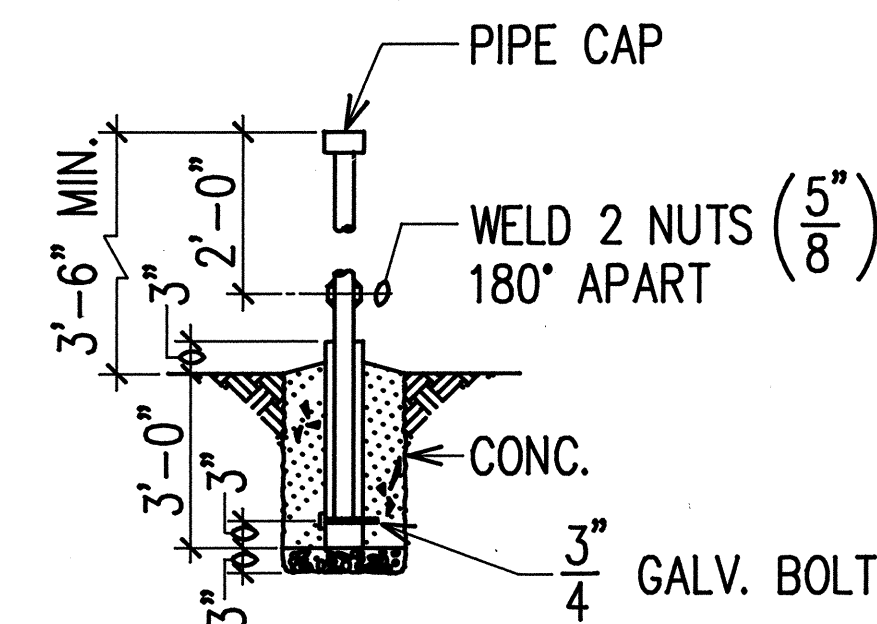
PROJECT NO. HIC-01-90

SCALE: AS NOTED DATE: AUG., 1991

SHEET No. E-16 OF 21 SHEETS



DETAIL 



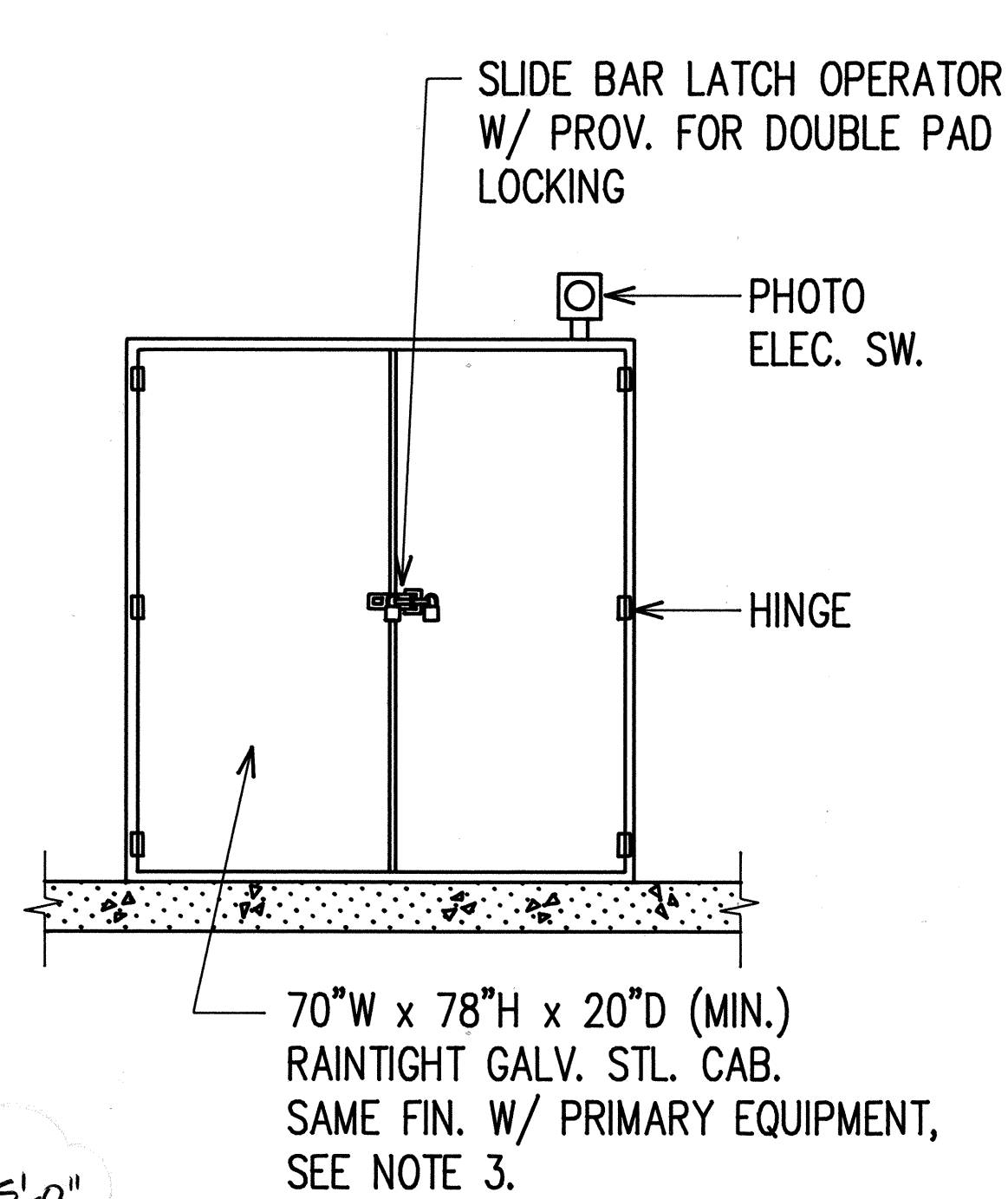
THE PIPE THAT IS TO BE PLACED DIRECTLY IN FRONT OF THE DOORS SHALL NOT BE FILLED WITH CONCRETE. THE PIPE SHALL BE CAPPED AND THE WELDED NUTS ARE FOR SCREWING IN BOLTS TO ACT AS "HANDLES" FOR LIFTING. THE BOLTS ARE TO BE REMOVED AFTER INSTALLATION.

DETAIL 

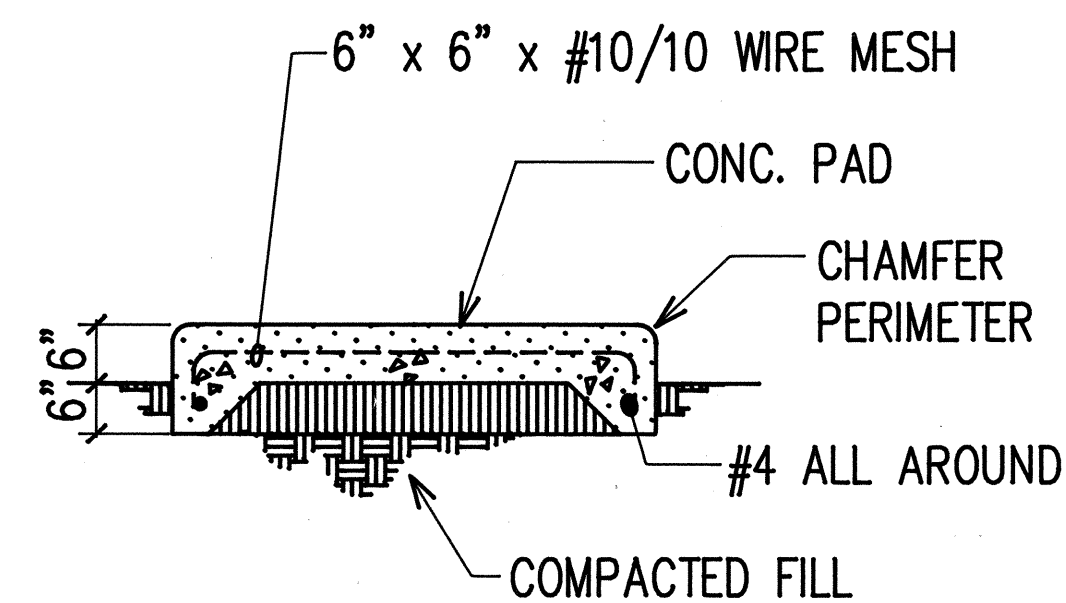
NOTE: BARRIER POSTS ARE TO BE PAINTED YELLOW AS PER ANSI SPEC. Z53.1 TO COMPLY WITH THE OSHA STANDARDS FOR COLOR CODING.

N.T.S.

APPROVED:	
<i>for pl M Jan</i>	5/29/91
Hawaiian Electric Co.	Date
	Date
	Date



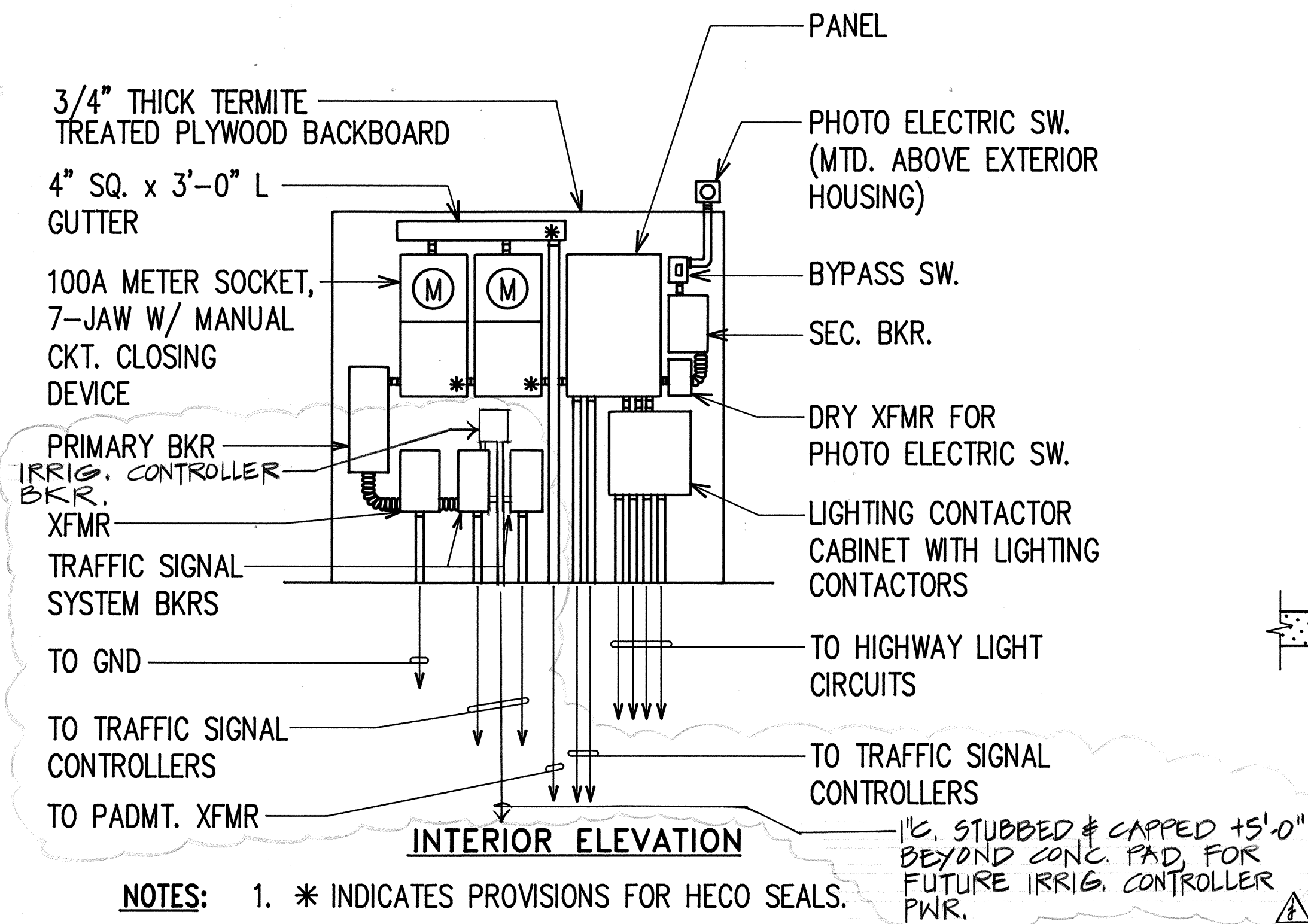
FRONT ELEVATION



SECTION "A-A"

NOTES:

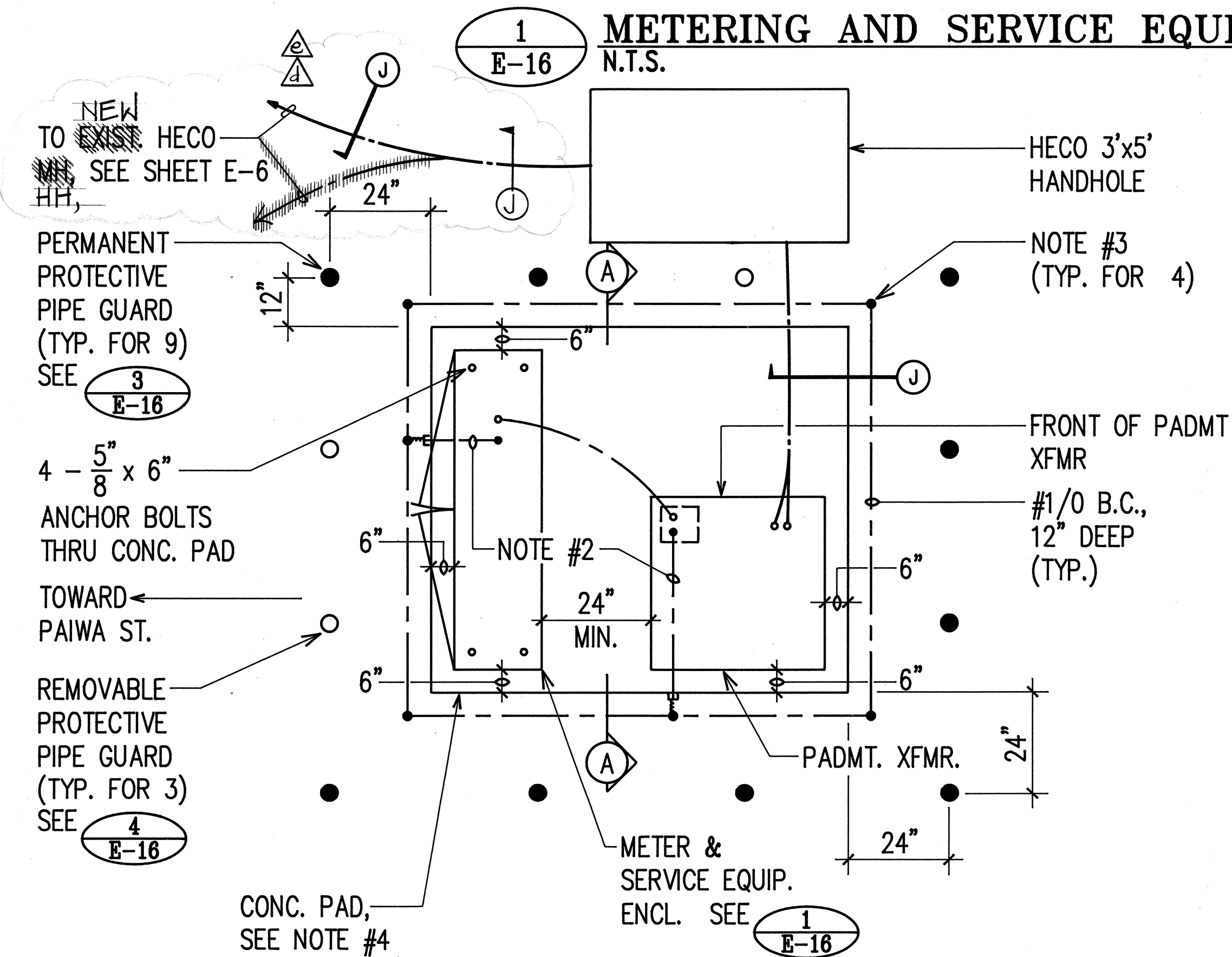
1. HARDWARE TO BE HOT DIPPED GALV.
AFTER FABRICATION.
2. $\frac{1}{2}$ " C, 1#8 GND.
3. GND. ROD $\frac{5}{8}$ " ϕ x 8'-0"
4. VERIFY EQUIP. DIMENSIONS & CONC. PAD
REQUIREMENTS WITH EQUIPMENTS BEING
PROVIDED.



NOTES:

1. * INDICATES PROVISIONS FOR HECO SEALS. FUTURE IR PWR.
2. WITH EXTERIOR DOORS FULLY OPEN, ALL EQUIPMENT SHALL HAVE FRONT CLEARANCES PER NEC (3'-0" MIN.)
3. LARGER CABINET SHALL BE FURNISHED IF EQUIPMENT CANNOT BE HOUSED IN MINIMUM SIZE.

N.T.S.



PLAN

E-16 N.T.S.

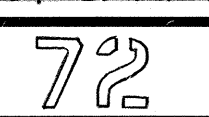


ORIGINAL PLAN	SURVEY PLOTTED BY _____	DATE _____
	DRAWN BY _____	" "
	TRACED BY _____	" "
	DESIGNED BY _____	" "
	QUANTITIES BY _____	" "
	CHECKED BY _____	" "
No. _____		

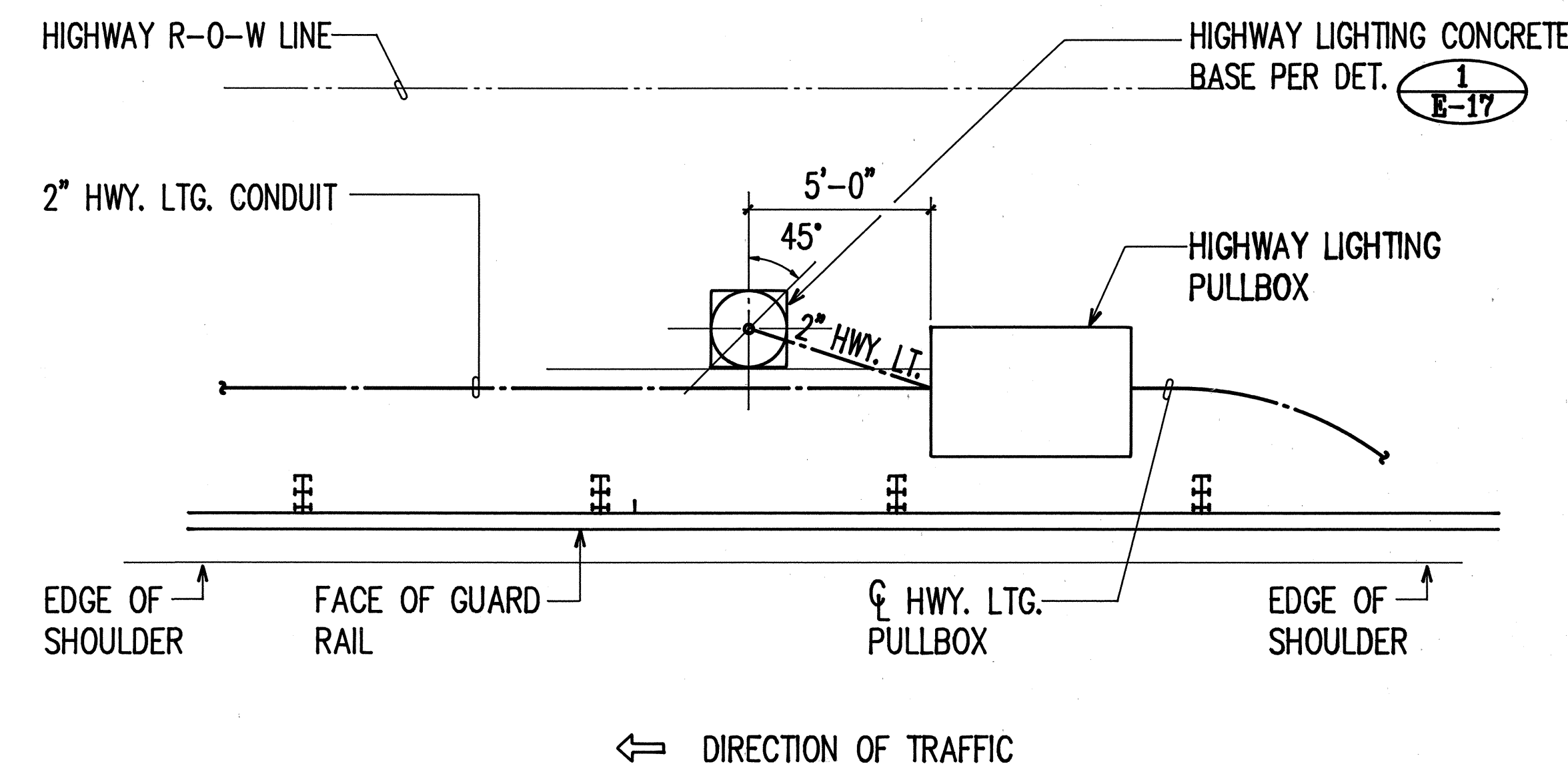
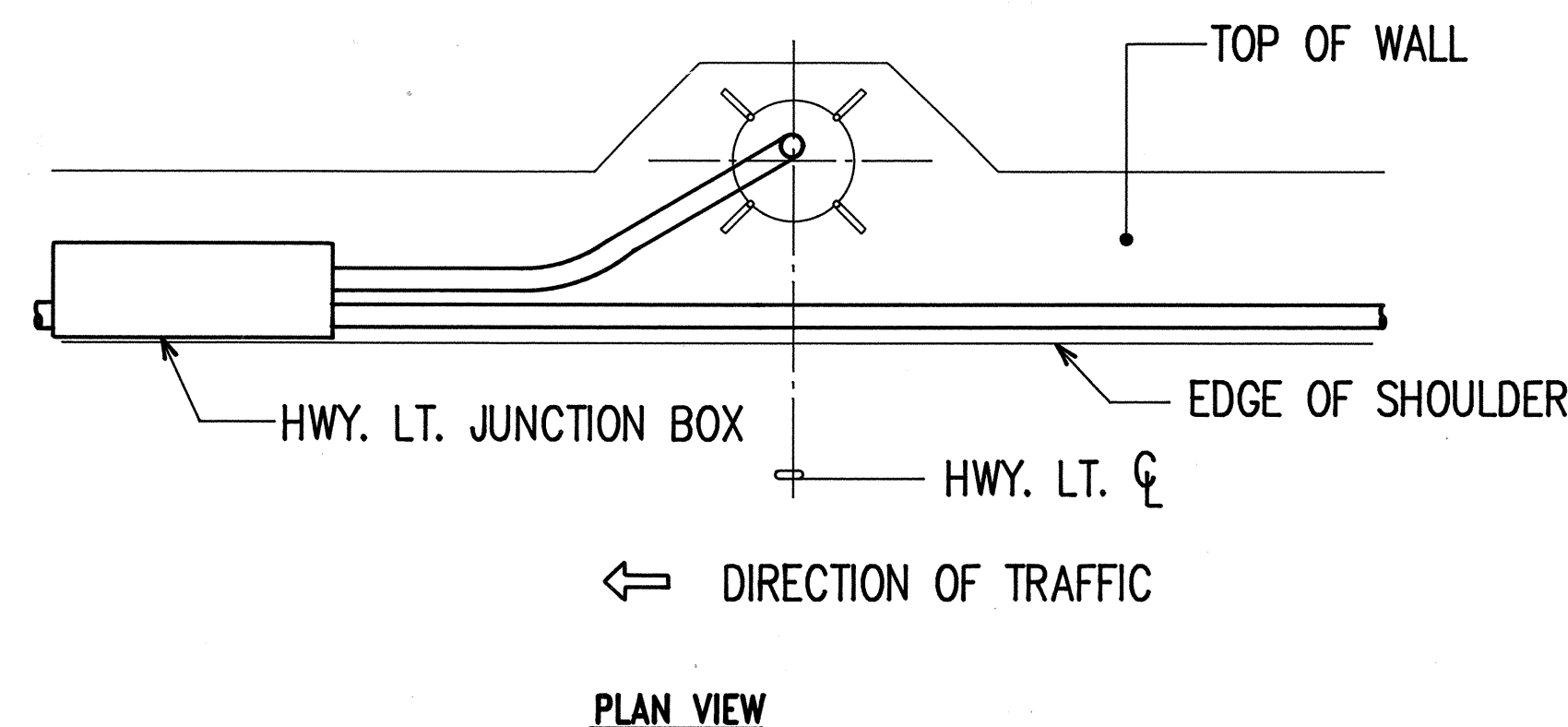
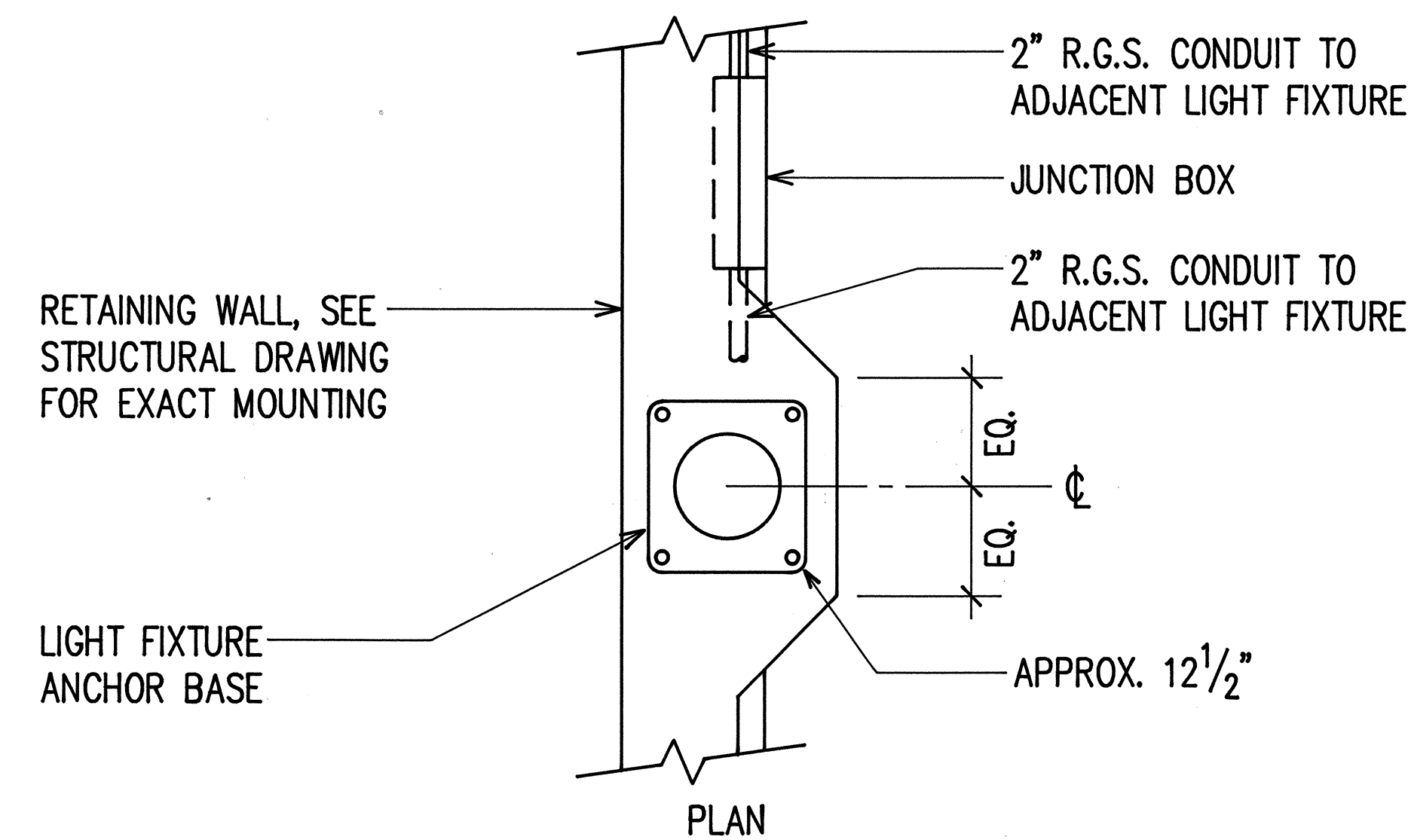


STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

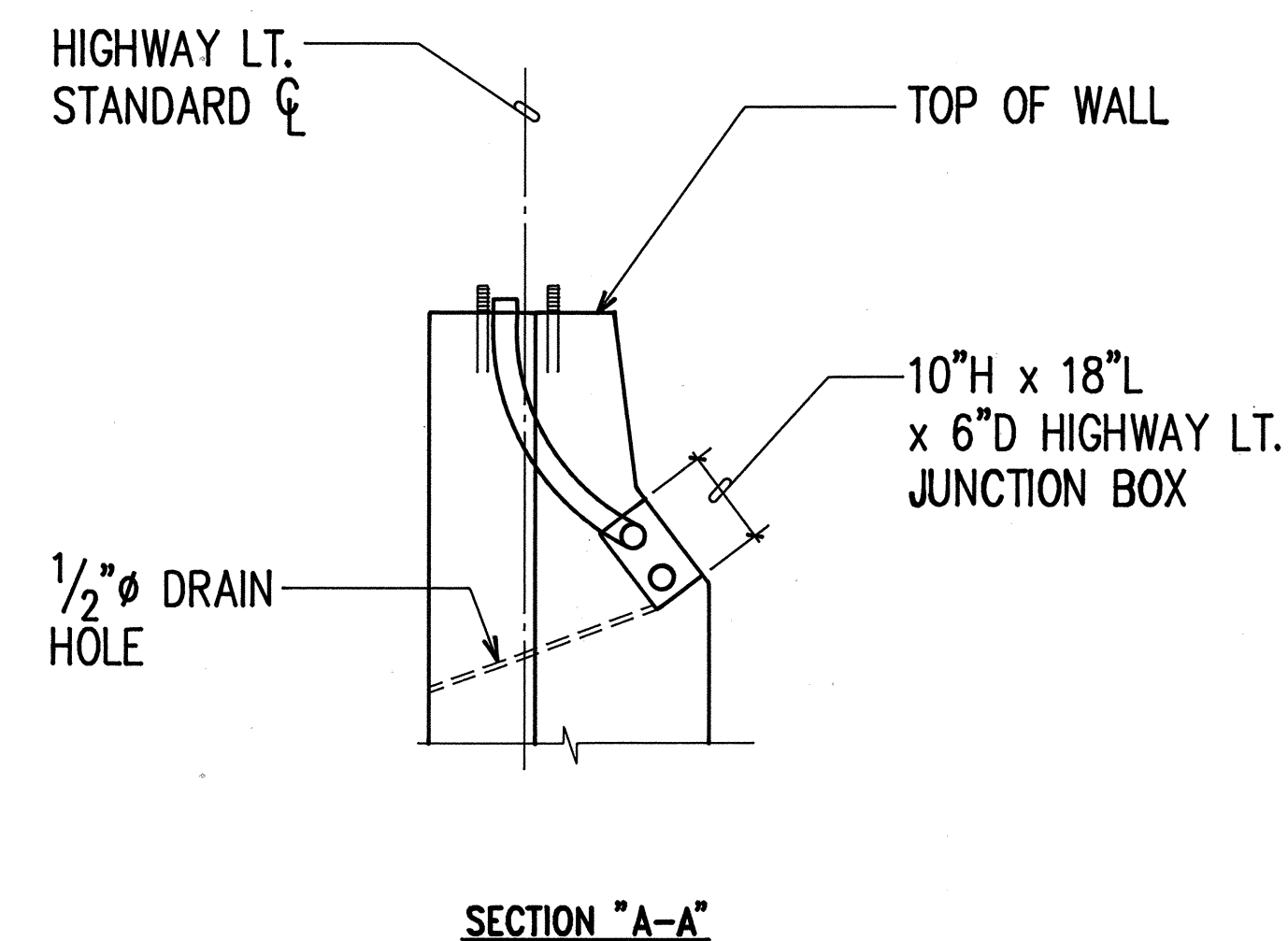
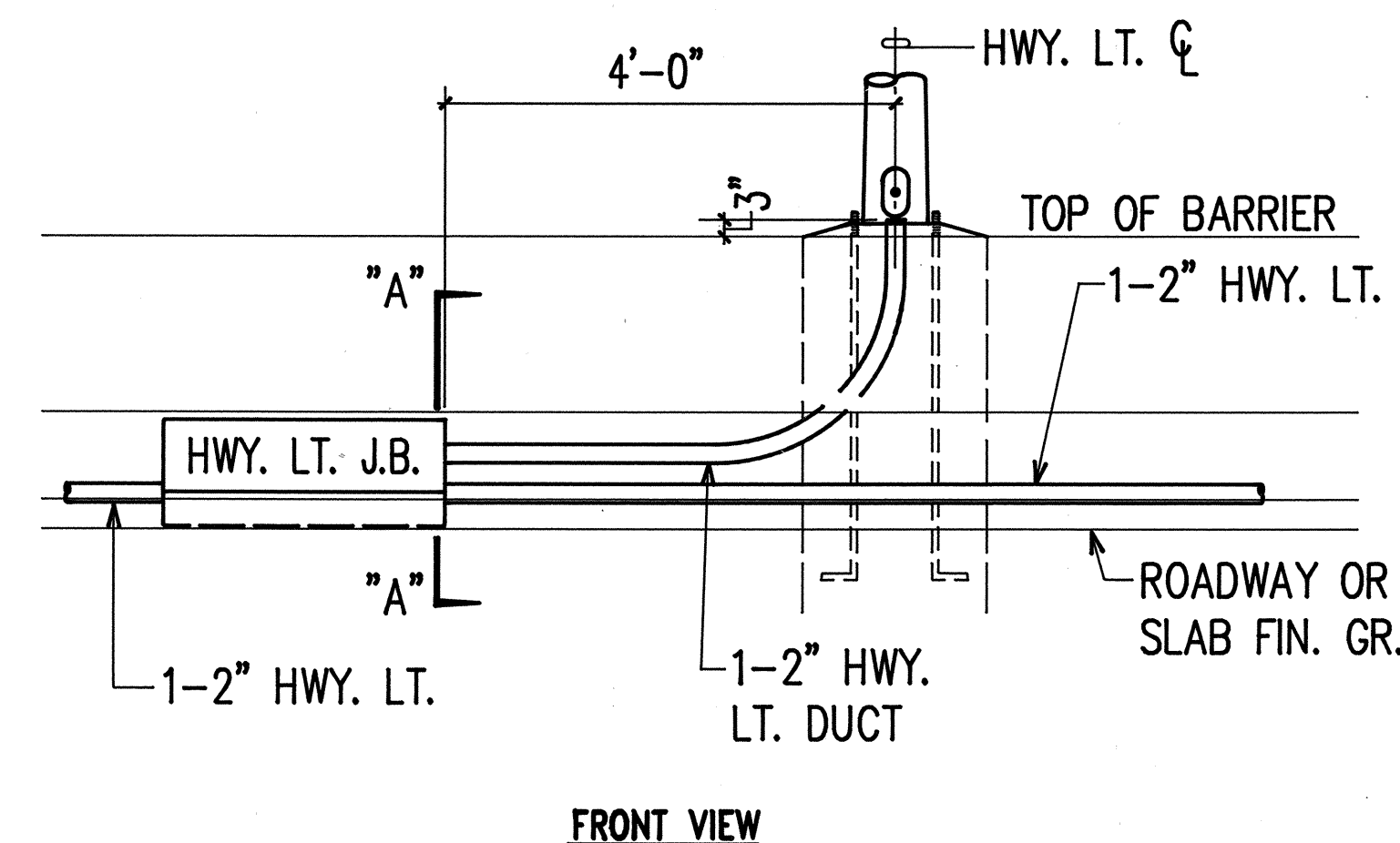
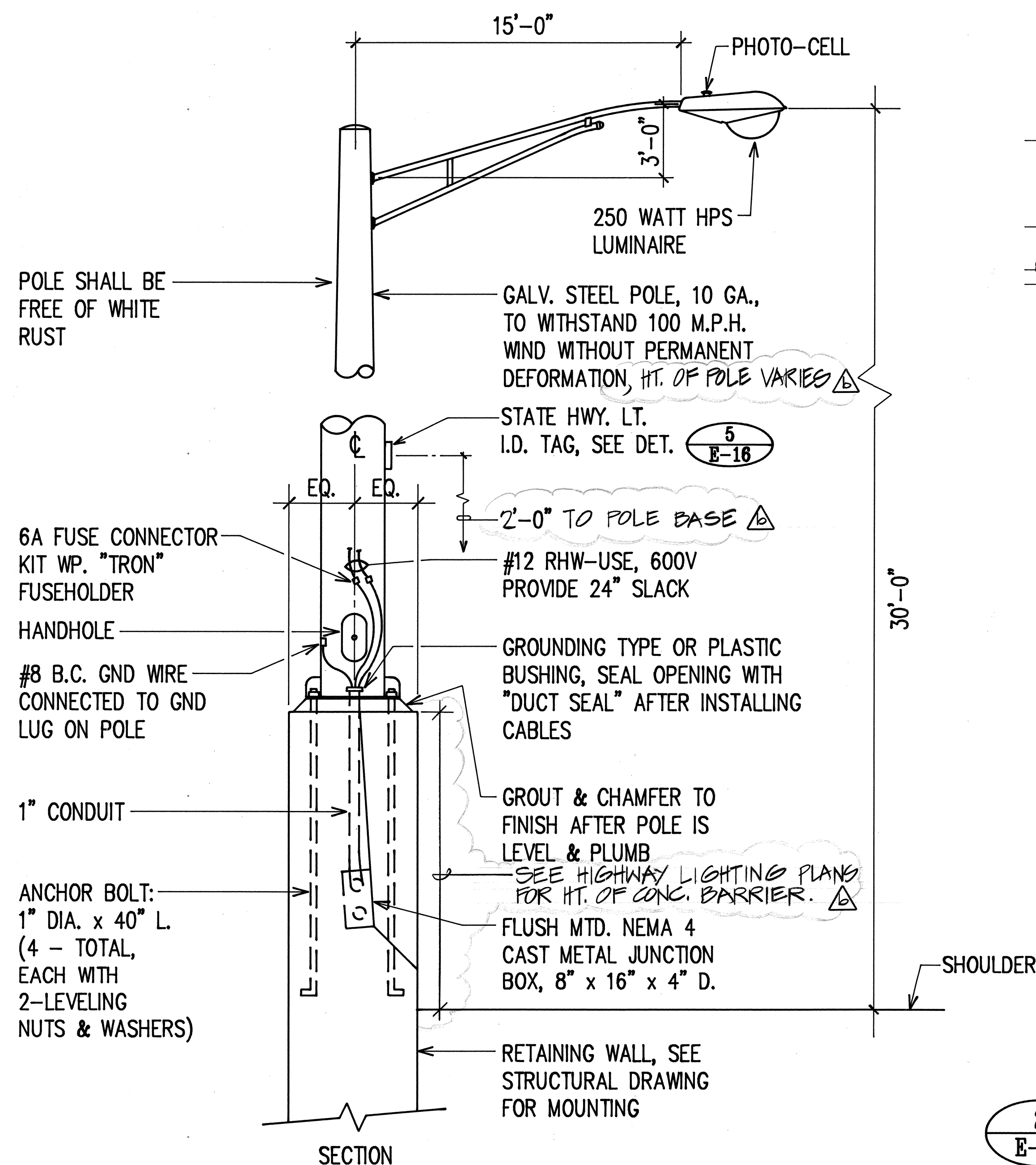
SHEET No. E-7 OF 2 SHEETS



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HIC-01-90	1991	73	109



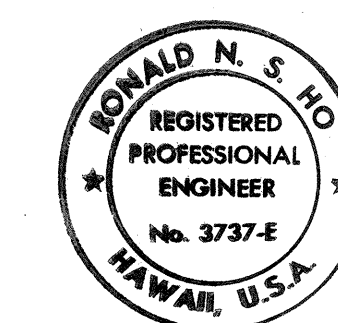
3
E-18
TYPICAL IN GRADE HIGHWAY LIGHTING
PULLBOX CONNECTIONS DETAIL AT GUARD RAIL
N.T.S.



2
E-18
TYPICAL HIGHWAY LIGHTING DUCT IN CONCRETE
BARRIER WALL DETAIL WITH HIGHWAY LIGHTING STANDARD
N.T.S.

PULLBOX REFERENCE NOTES FOR HIGHWAY LIGHTING & COMMUNICATION SYSTEMS

- HIGHWAY LIGHTING PULLBOX, TYPE A, FOR IN-GRADE INSTALLATION TO BE PER SDOT STANDARD PLAN TE-41 PULLBOXES.
- HIGHWAY LIGHTING JUNCTION BOX FOR CONCRETE BARRIER INSTALLATION TO BE CAST METAL TYPE CONFORMING TO NEC WITH INSIDE DIMENSION 10 INCHES HIGH x 6 INCHES DEEP x 18 INCHES LONG.



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.
Ronald N. S. Ho

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**HIGHWAY LIGHTING & COMMUNICATION
MISCELLANEOUS DETAILS**

INTERSTATE ROUTE H-1
PAIWA STREET INTERCHANGE

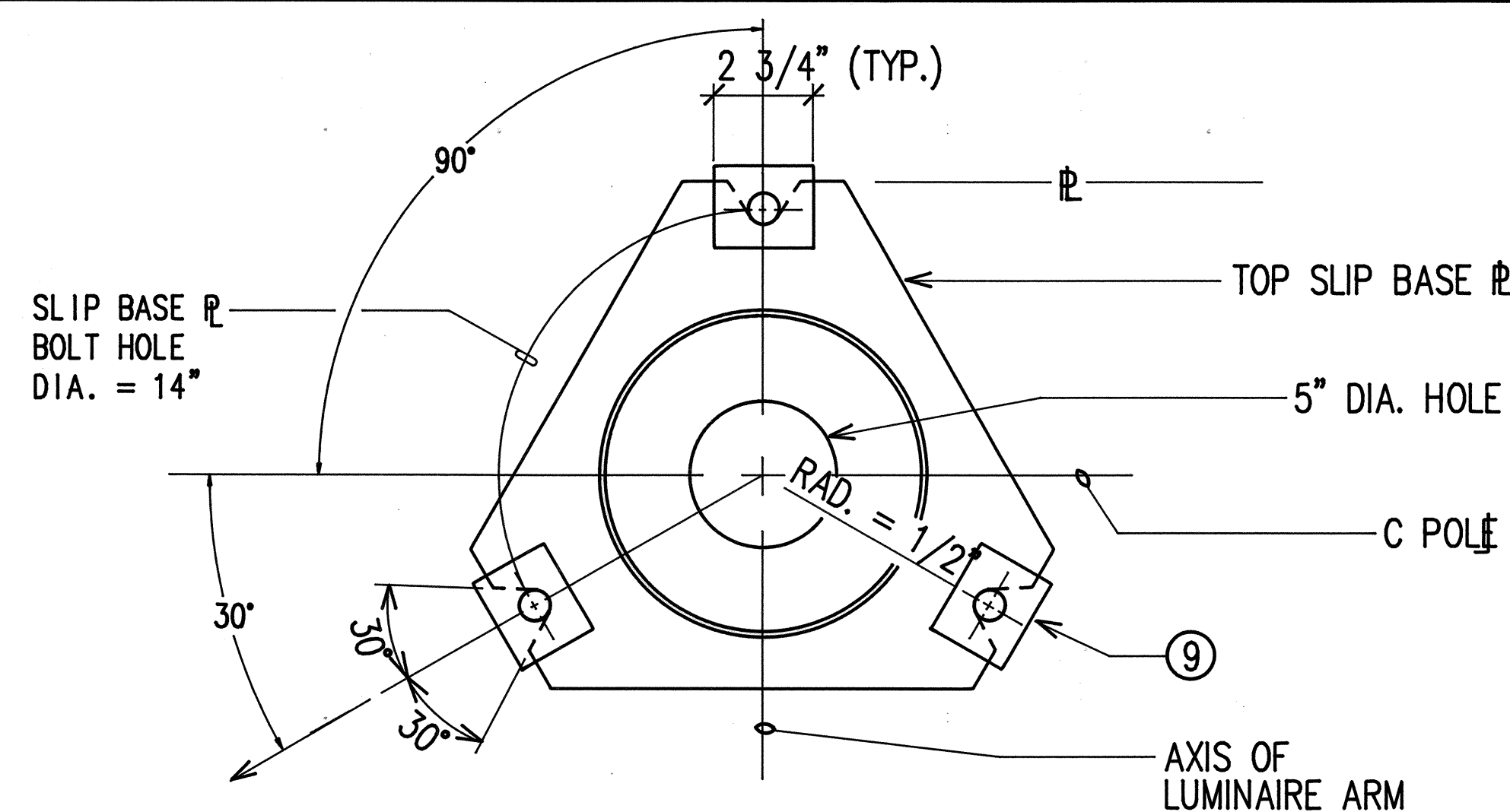
PROJECT NO. HIC-01-90

SCALE: AS NOTED DATE: AUG, 1991

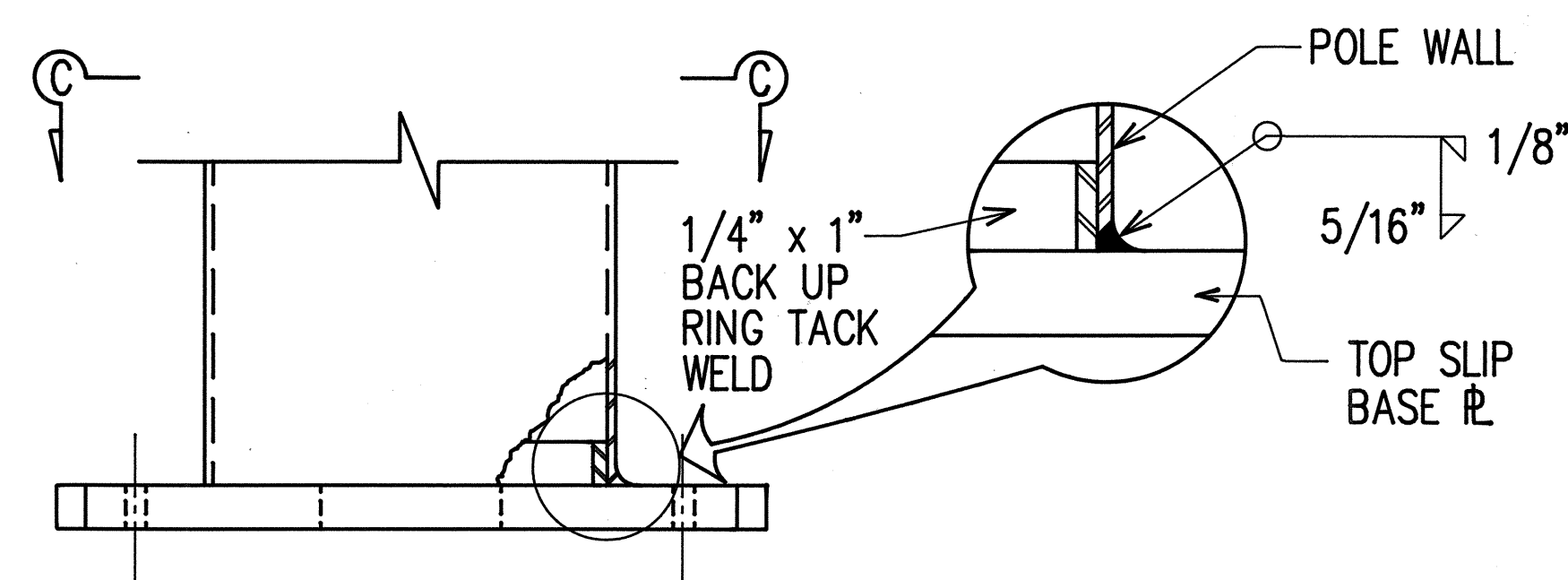
SHEET No. E-18 OF 21 SHEETS

11/25/91	CLARIFIED HT. OF CONC. BARRIER AT POLE LOCATION.
DATE	REVISION

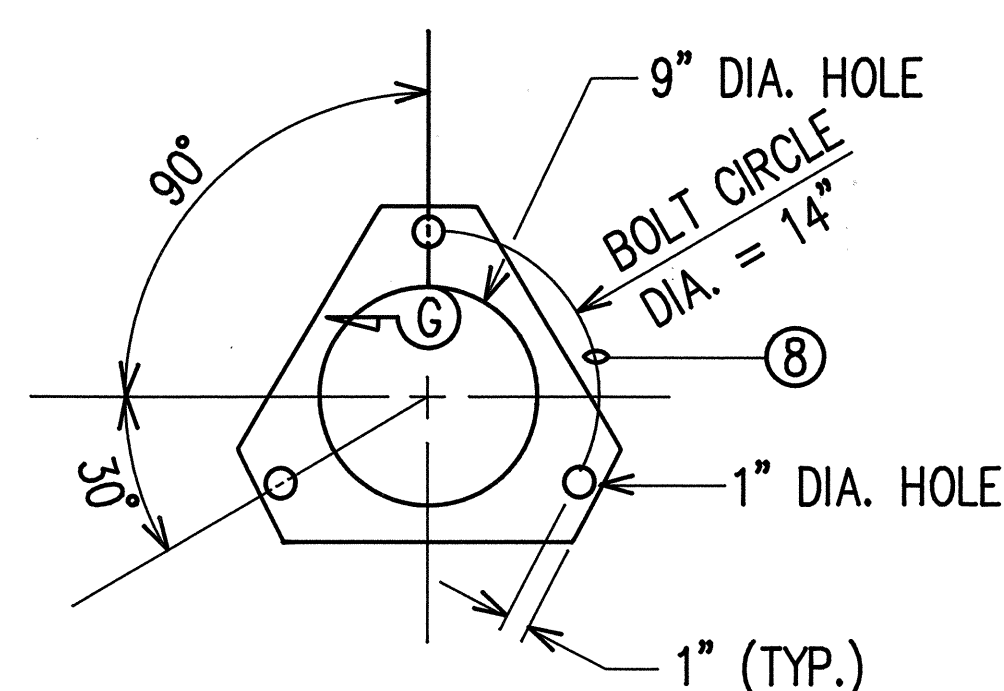
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HIC-01-90	1991	74	109



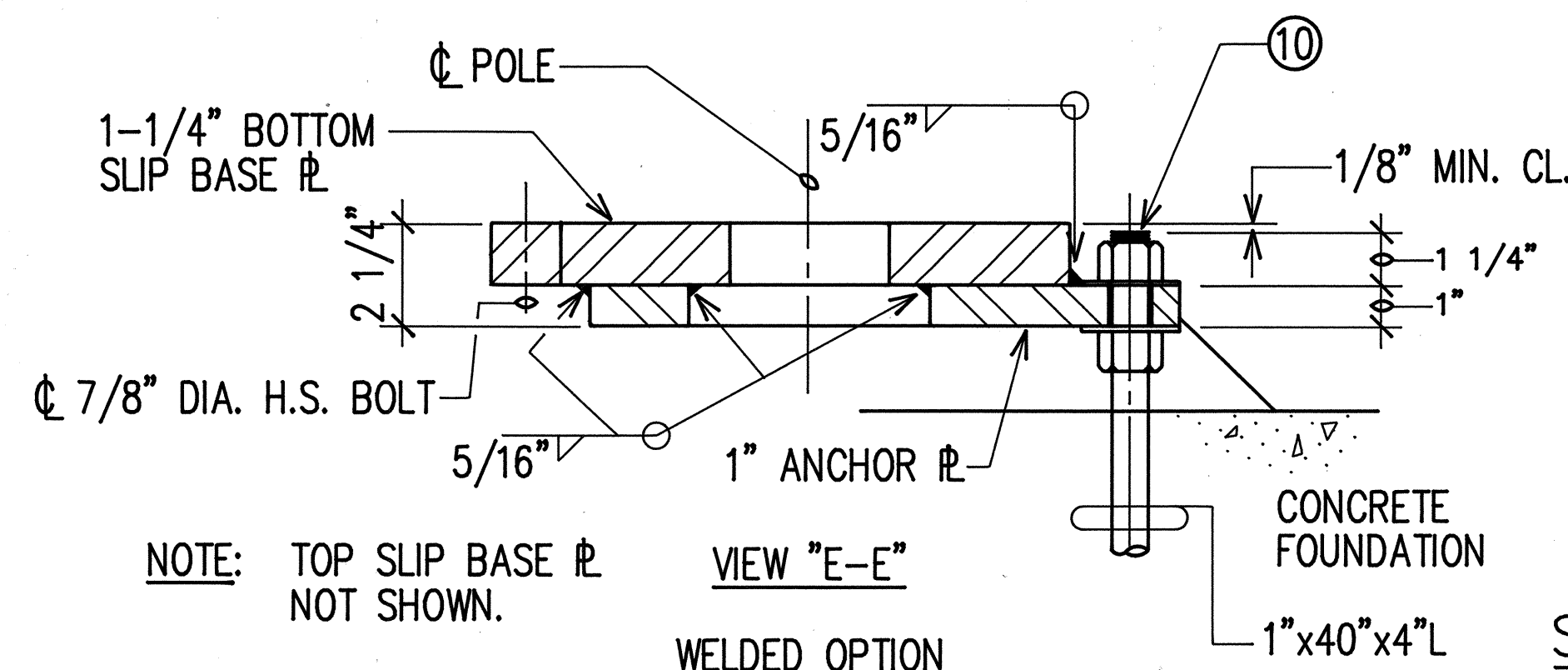
VIEW "C-C"



1" TOP SLIP BASE PLATE

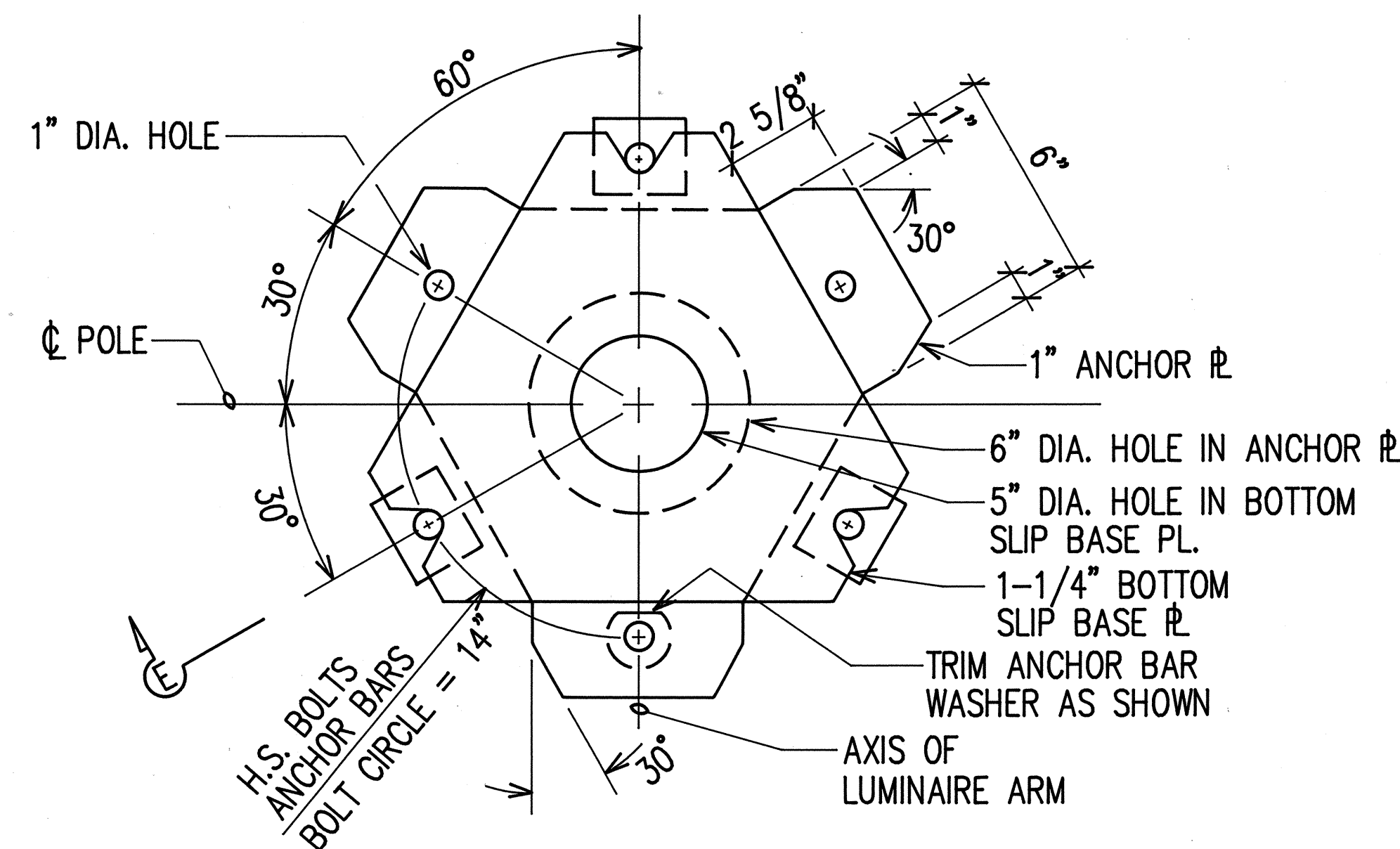


28 GA. KEEPER PLATE

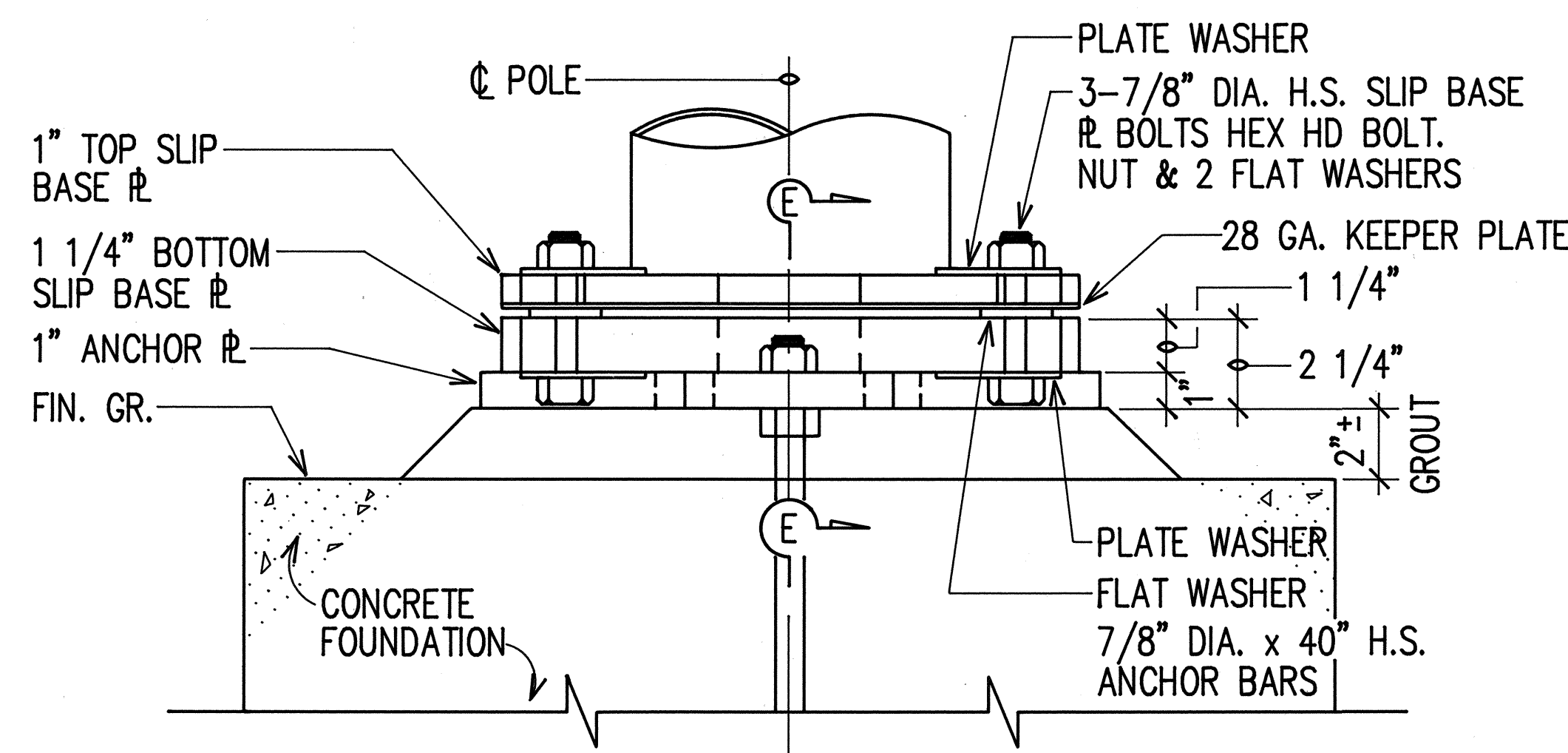


VIEW "E-E"
WELDED OPTION

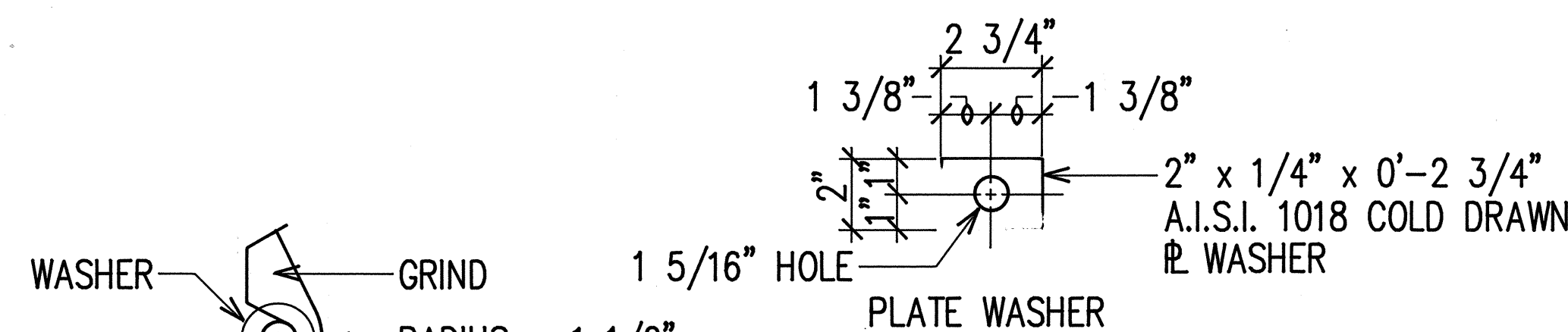
SLIP BASE DETAIL
NOT TO SCALE



PLAN - BOTTOM PLATES



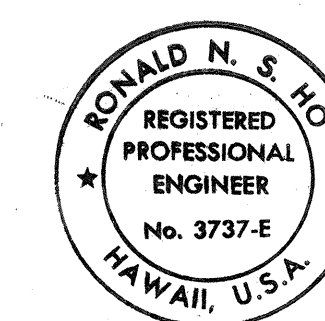
BOTTOM SLIP BASE PLATE



VIEW "E-E"
CAST OPTION

NOTES:

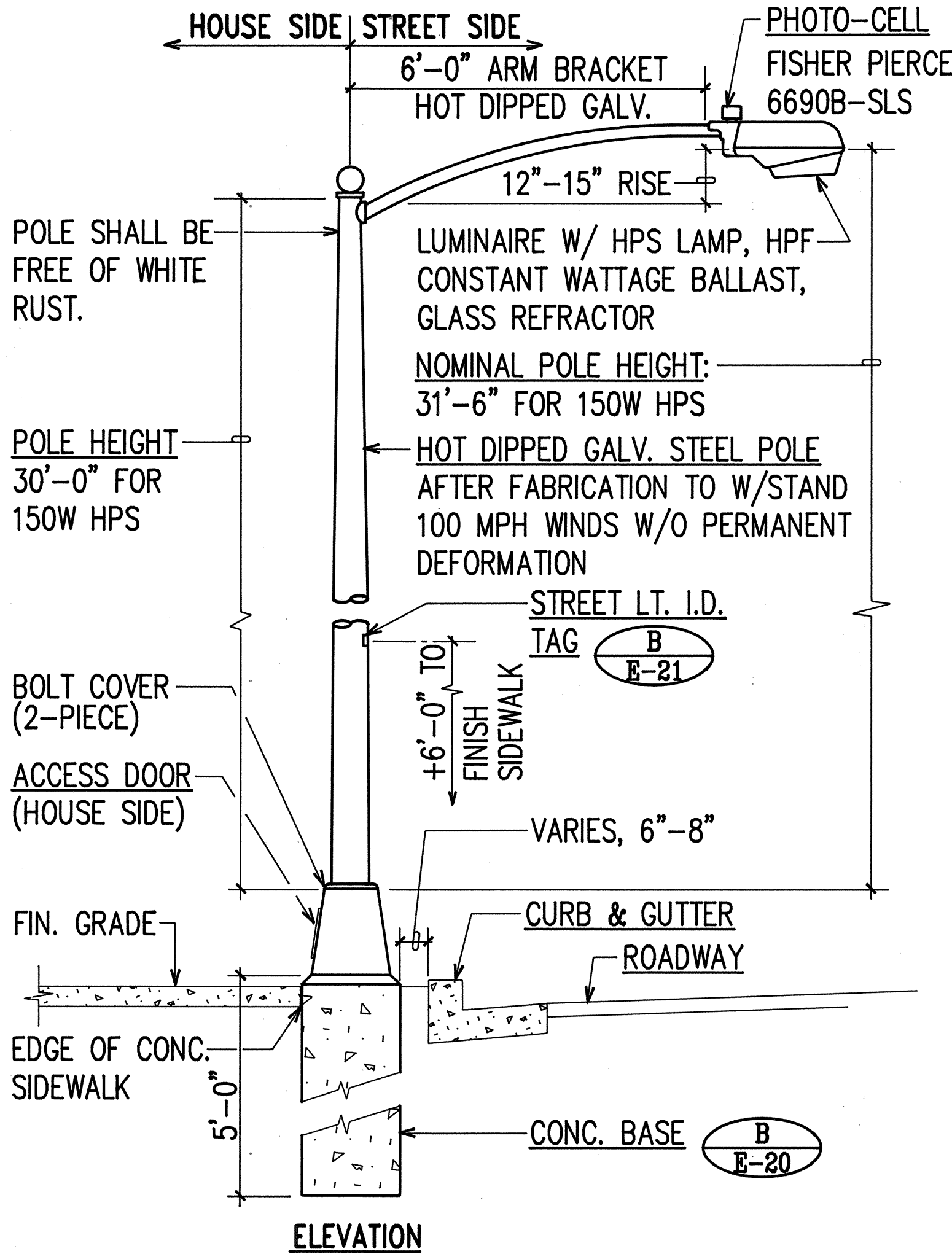
- ALL STEEL SHAFTS, PLATES, MAST ARMS, BOLTS, SCREWS, NUTS & WASHERS TO BE GALVANIZED AFTER FABRICATION OR MODIFICATION.
- PLATES TO CONFORM TO ASTM A-36.
- CAST OPTION TO CONFORM TO ASTM A-486 CL. 90.
- TORQUE 7/8" DIAMETER H.S. SLIP BASE PLATE BOLTS TO 84 FEET PER POUND.
- 7/8" DIAMETER H.S. ANCHOR 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.
- 4" x 6 1/2" HANDHOLE REINFORCED WITH #3 GAUGE RING 1/2" WIDE WELDED TO OUTSIDE OF POLE COVER OF 10 GAUGE PLATE LOCATE 90 DEGREES OF MAST ARM UNLESS SHOWN OTHERWISE.
- 28 GAUGE KEEPER PLATE, PLACE ON TOP OF MIDDLE FLAT WASHER, ASTM A-526 125 COMMERCIAL.
- PLATE WASHER.
- 3 - 7/8" DIAMETER H.S. BARS, THREAD 6" & GALVANIZED 10", WITH HEX., HEAD, NUT, LEVELING NUT & WASHER.
- HEX. HEAD NUT SHOWN OR AS AN ALTERNATE DETAIL ANCHOR PLATES MAY BE RETAINED WITH 5/16" FILLET WELDS ALL AROUND OR FORMED HEADS.
- ROUND TAPERED STEEL TUBE WITH MAXIMUM TAPER OF 0.15"/FOOT.
- NO. 11 GAUGE SHEET STEEL OF WELDABLE GRADE ACCEPTABLE IF STEEL AFTER FABRICATION HAS A MINIMUM YIELD STRENGTH OF 40,000 P.S.I.



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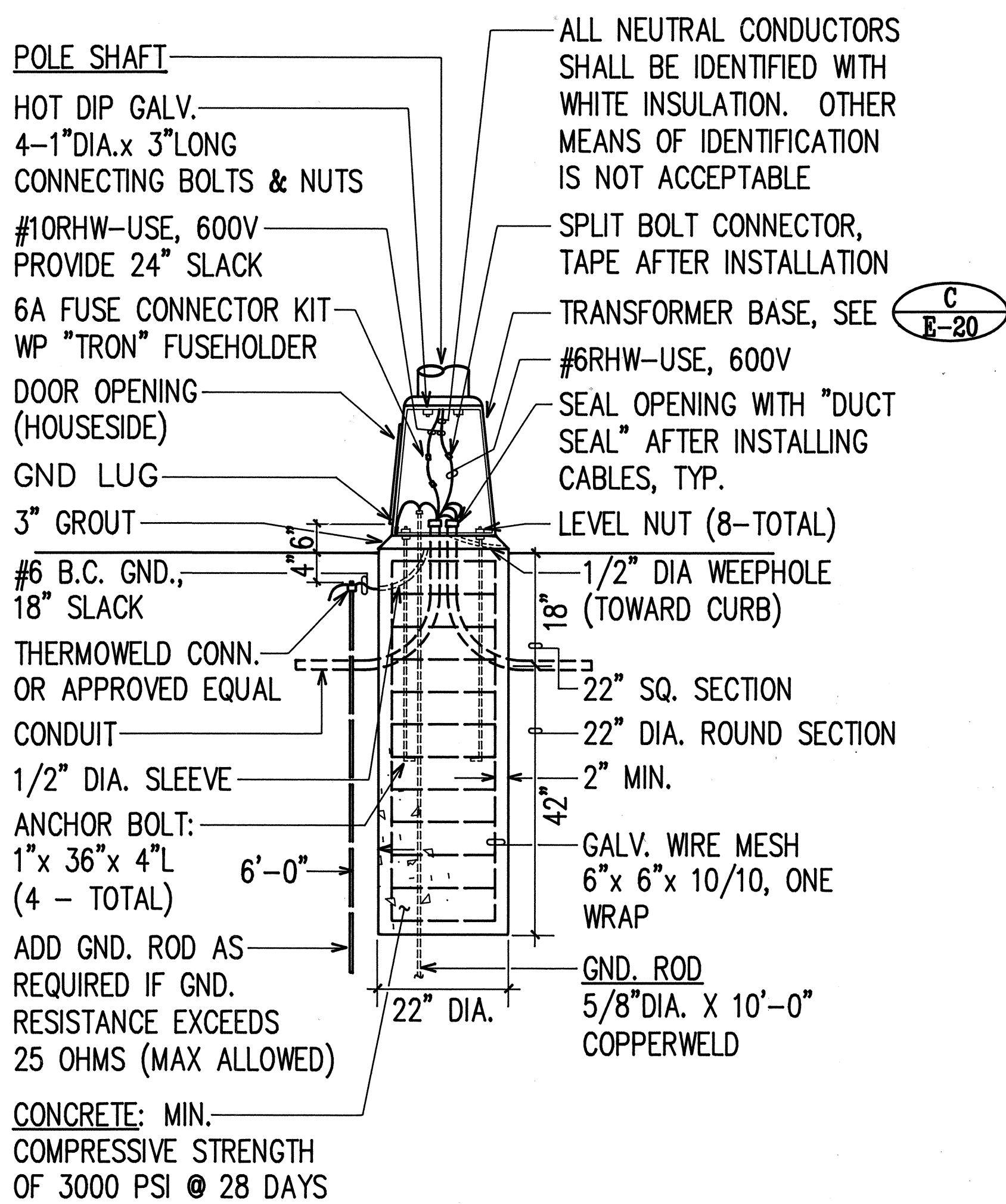
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION	
HIGHWAY LIGHTING SLIP BASE DETAILS	
INTERSTATE ROUTE H-1 PAIWA STREET INTERCHANGE	
PROJECT NO. HIC-01-90	
SCALE: AS NOTED	DATE: AUG., 1991
SHEET No. 74 OF 21 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HIC-01-90	1991	75	109



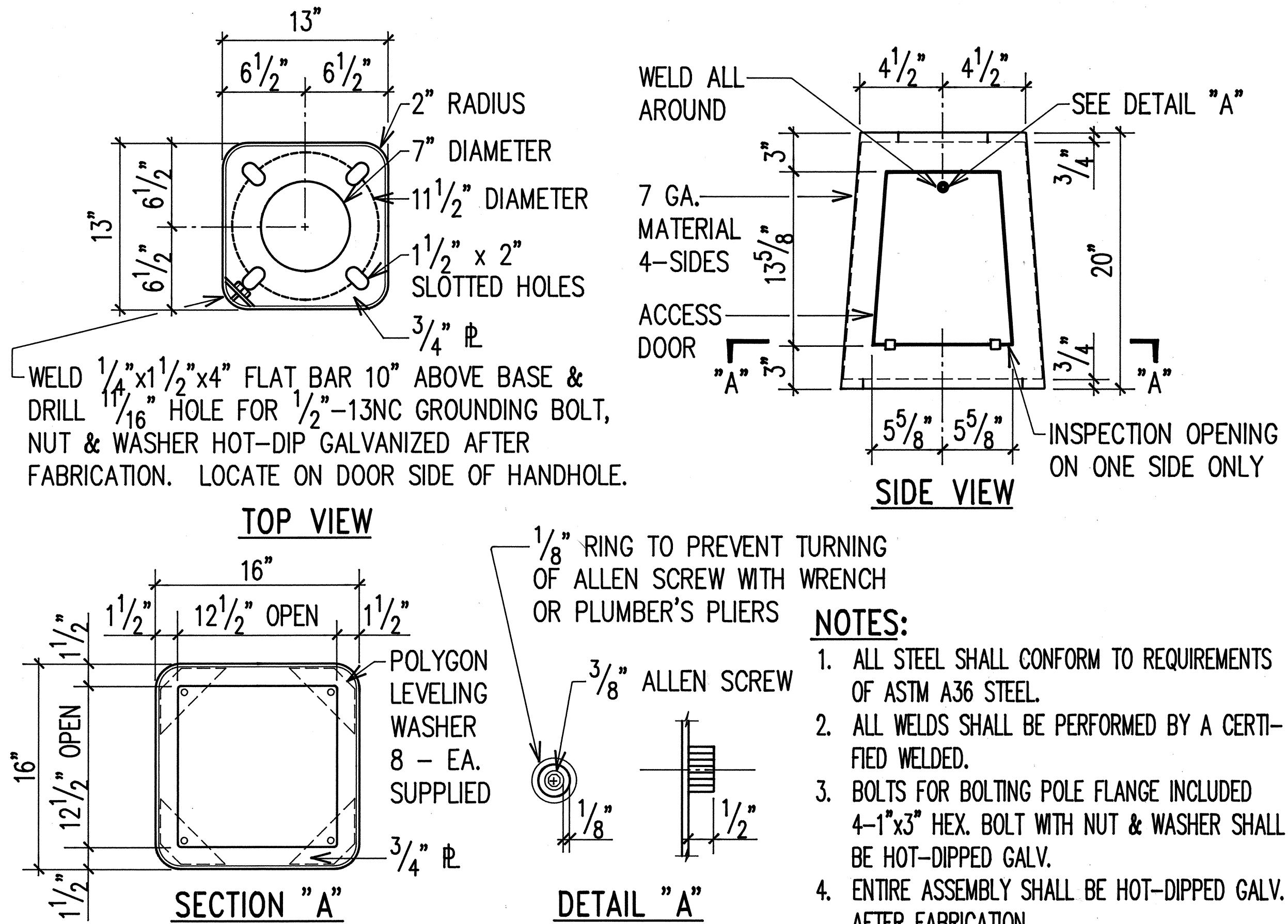
A
E-20

STREET LIGHT STANDARD TYPE "E"
NOT TO SCALE



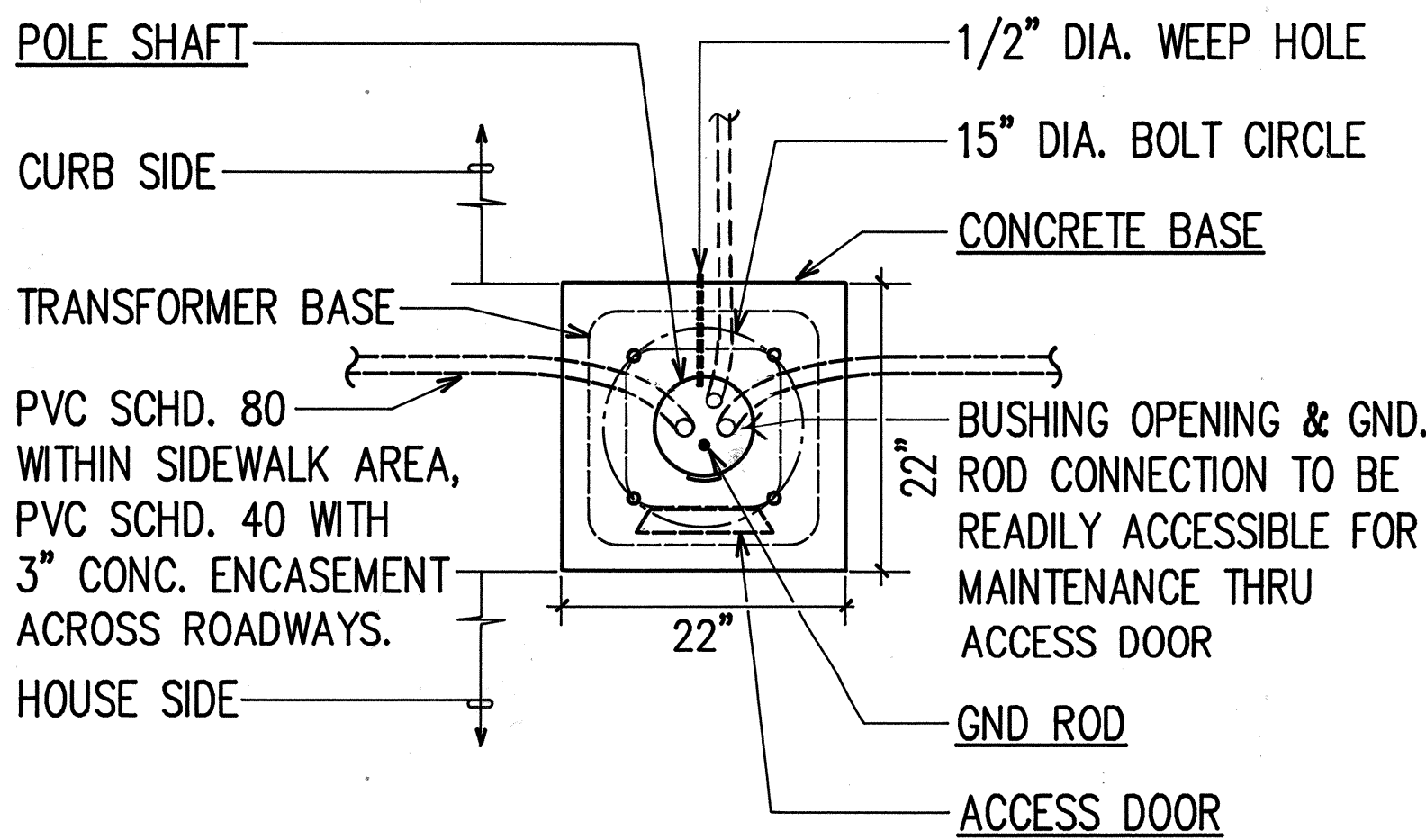
B
E-20

CONCRETE BASE ELEVATION
NOT TO SCALE



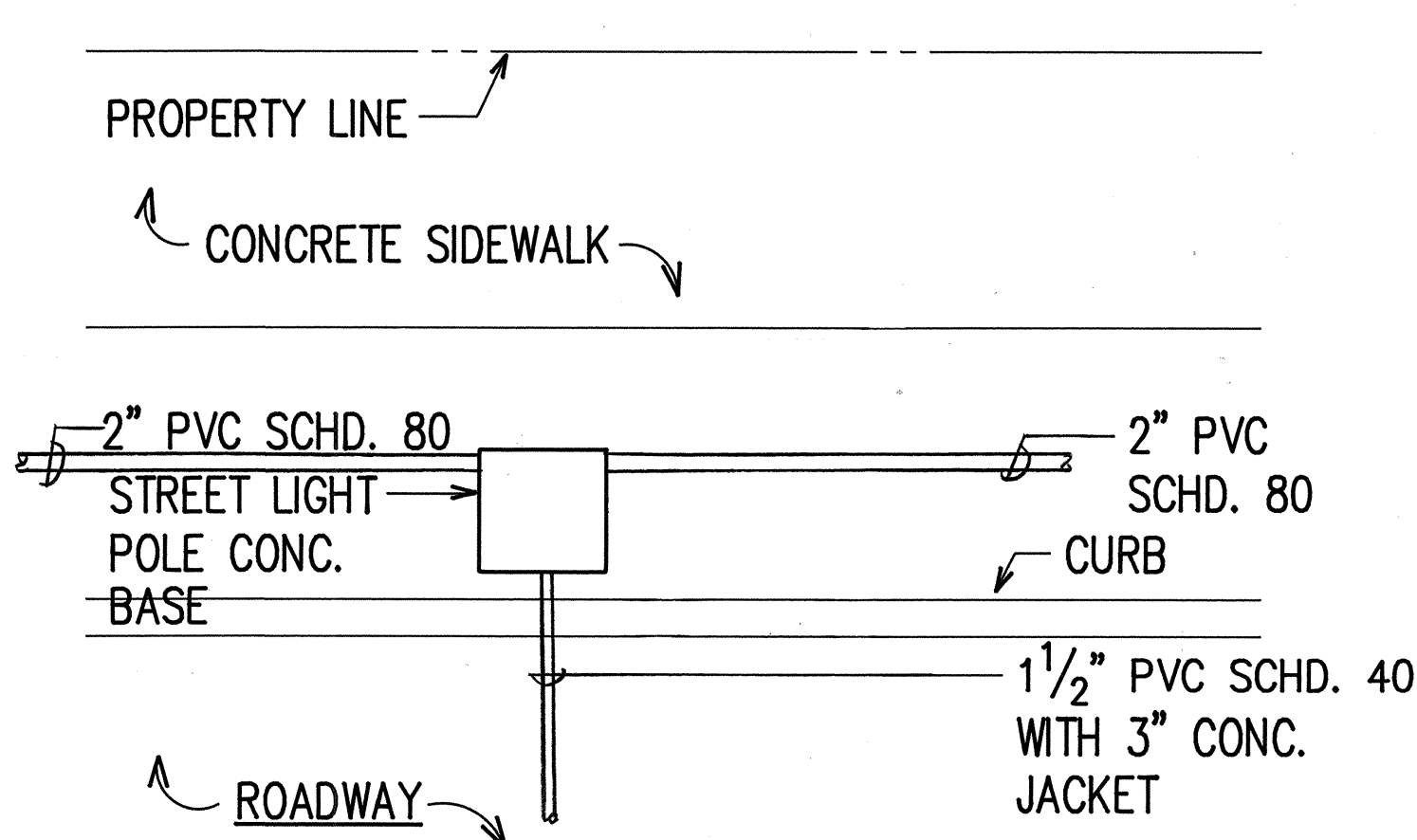
C
E-20

TRANSFORMER BASE DETAIL
NOT TO SCALE



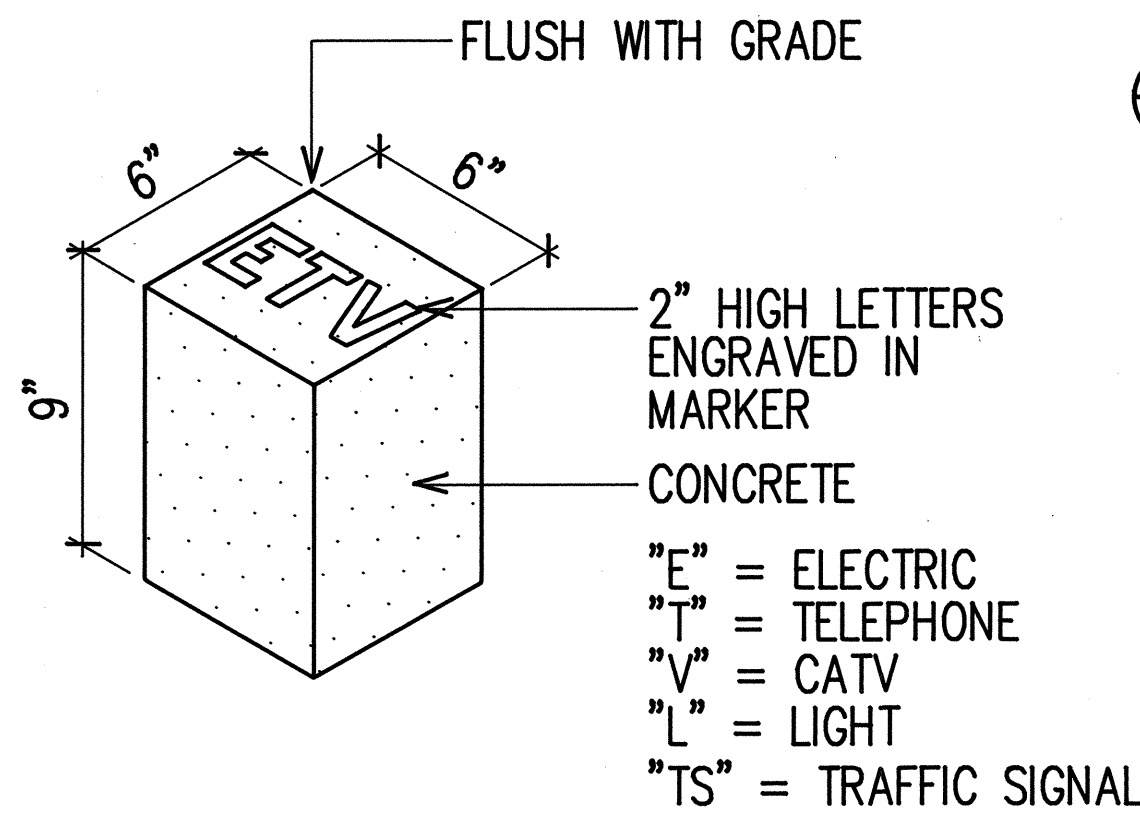
D
E-20

CONCRETE BASE PLAN
NOT TO SCALE



E
E-20

STREET LIGHT SECONDARY CONNECTION
(METERED SYSTEM)
NOT TO SCALE



F
E-20

CONCRETE STUB UP MARKER
NOT TO SCALE

APPROVED:

Date

Date

5/17/91
Director, Dept. of Trans. Services
(within City right-of-way only)

DATE

REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CITY & COUNTY
STREET LIGHT DETAILS

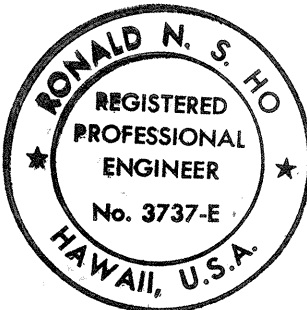
INTERSTATE ROUTE H-1
PAIWA STREET INTERCHANGE

PROJECT NO. HIC-01-90

SCALE: AS NOTED

DATE: AUG, 1991

SHEET No. E-20 OF 21 SHEETS

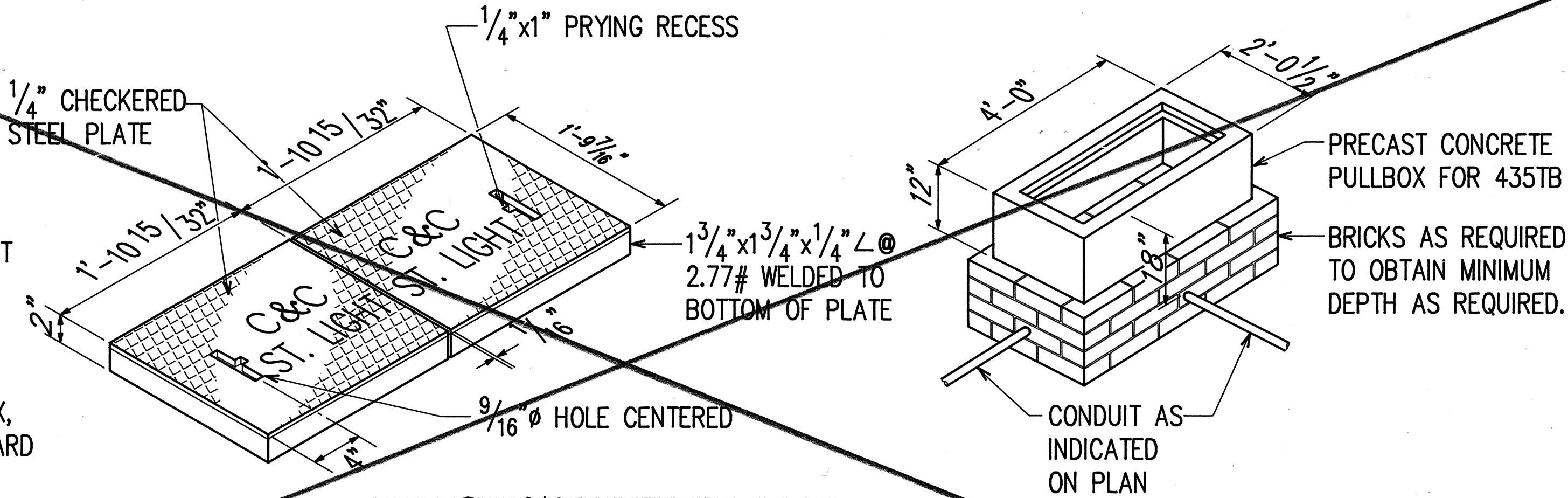


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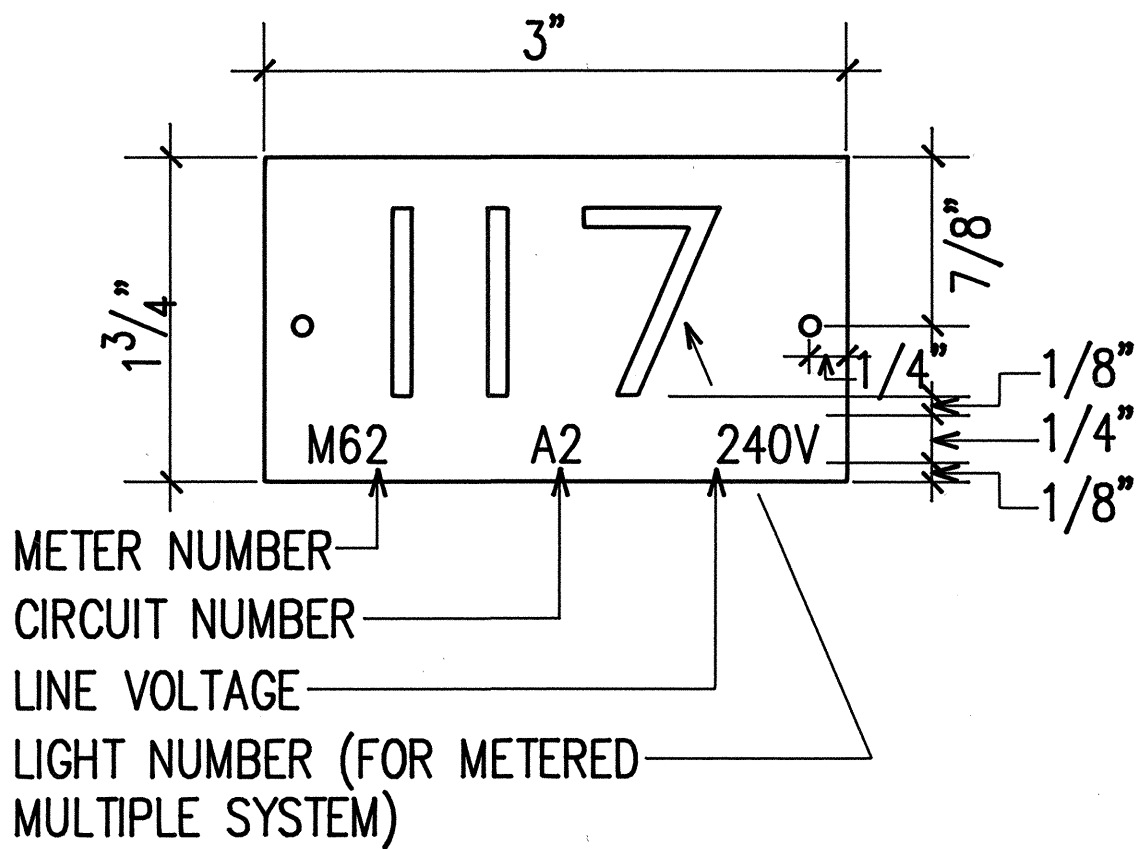
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HIC-01-90	1991	76	109

NOTES:

- AFTER FABRICATION OF COVERS, DOUBLE DIP IN HOT GALVANIZE. SUBMIT SHOP DRAWING FOR APPROVAL BEFORE FABRICATION.
- TYPICAL 435TB PULLBOX, REFER TO HTCO STANDARD DRAWING #34056.



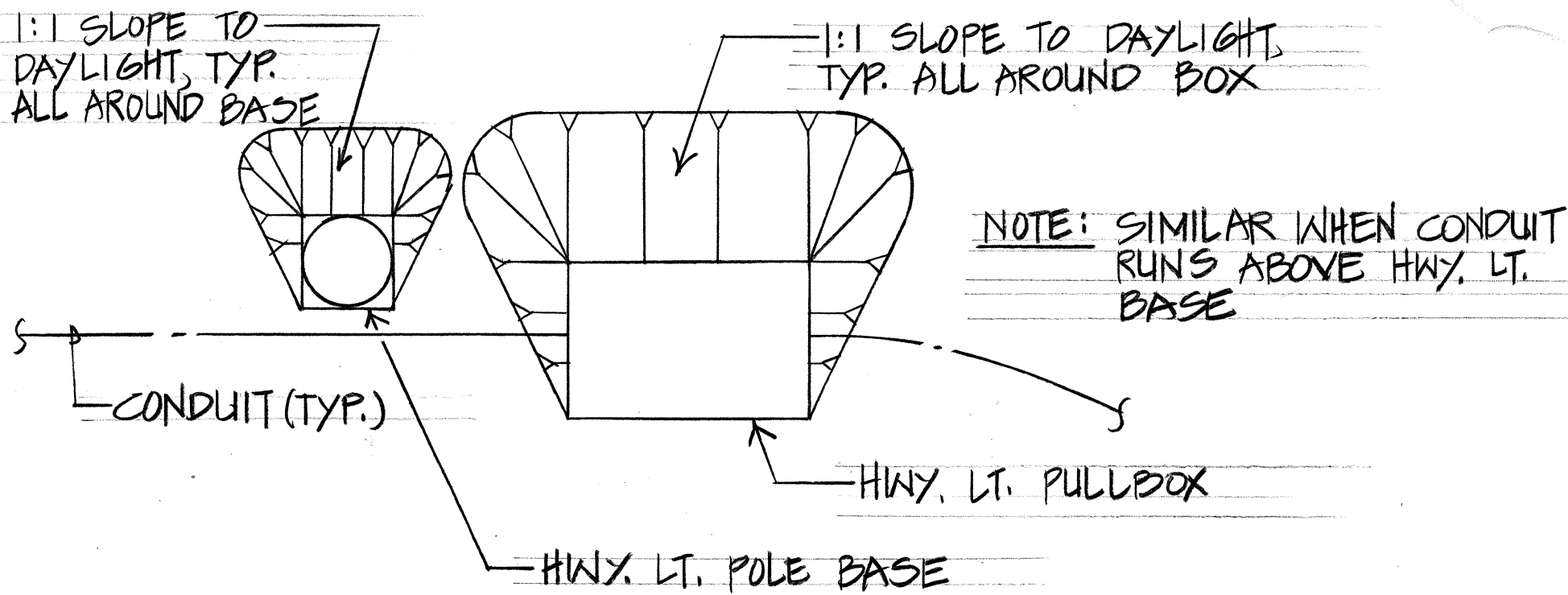
A
E-21 **STREET LIGHT "SLD-4" PULLBOX DETAIL**
NOT TO SCALE



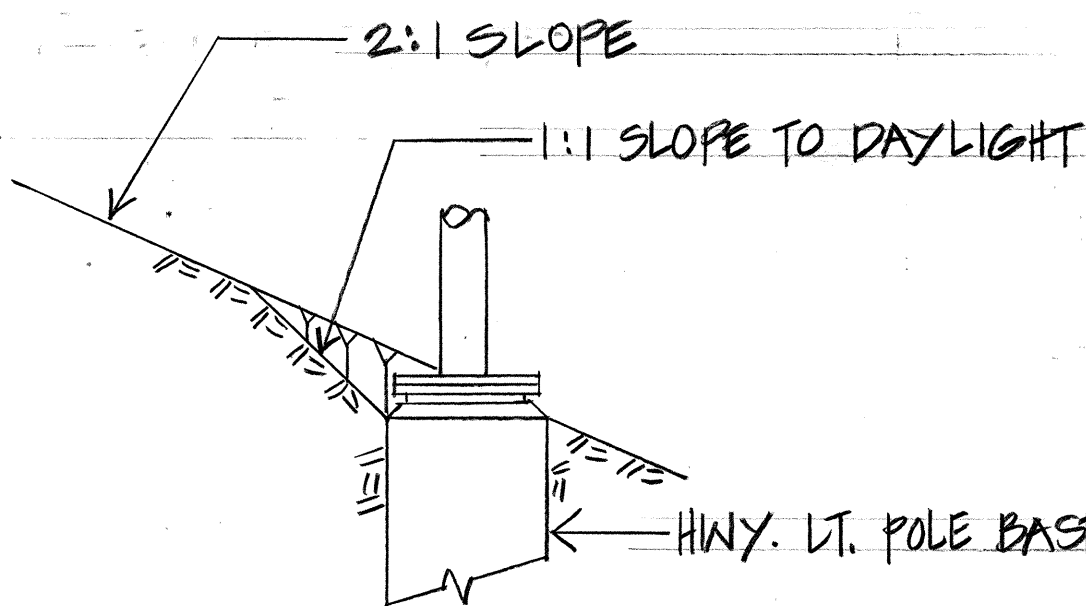
NOTES:

- USE 2 PLY LAMINATED FLEXIBLE PLASTIC BLACK-WHITE. THICKNESS: BLACK CAP SHEET-0.010", WHITE BASE SHEET-0.052".
- NUMBER SIZE SHALL BE 1" HIGH AND ENGRAVED 1/8" WIDE, WHITE IN COLOR (NUMBER AS REQUIRED).
- NOMENCLATURE SIZE SHALL BE 1/4" HIGH AND ENGRAVED 1/32" WIDE, WHITE IN COLOR (METER NUMBER, CIRCUIT NUMBER AND VOLTAGE AS REQUIRED).
- ATTACH TO ALUMINUM AND STEEL POLES WITH NO. 8 STAINLESS STEEL, 1/2" LONG DRIVE SCREWS IN 1/8" DRILL HOLE.
- NUMBERS ARE INSCRIBED BY CUTTING THROUGH "BLACK CAP SHEET" TO EXPOSE "WHITE LETTERS".
- ASSIGN CIRCUIT NUMBER FOR SYSTEMS WITH TWO OR MORE CIRCUITS (LETTER INDICATES PANEL BOARD, NUMBER INDICATES CIRCUIT).

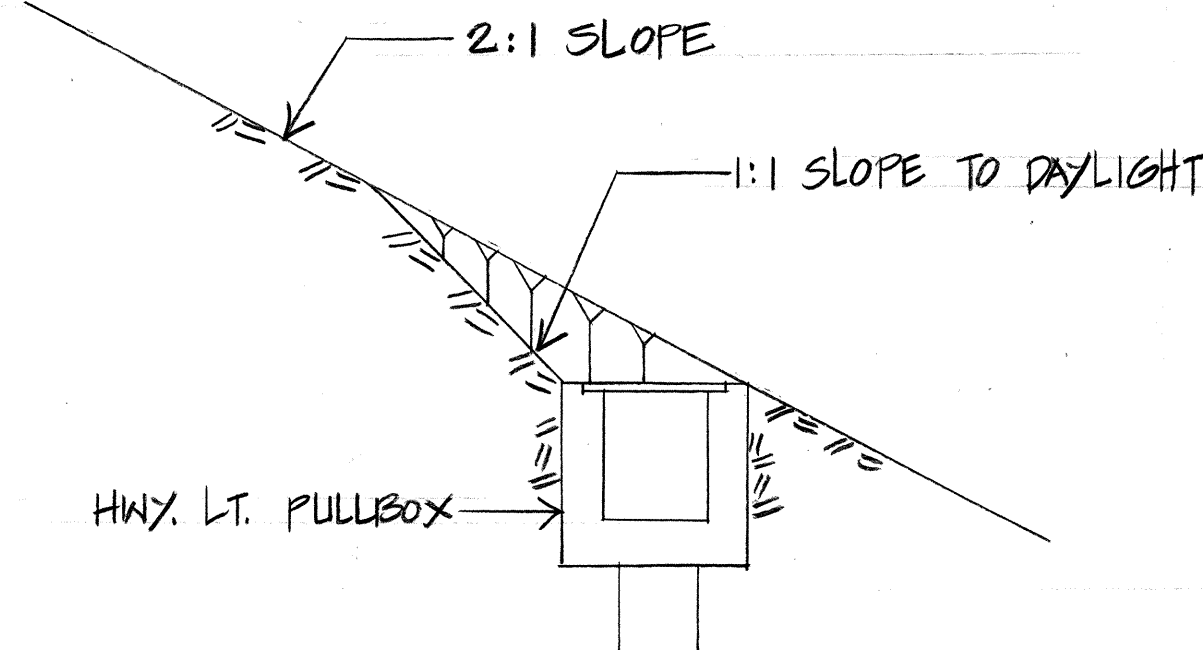
B
E-21 **STREET LIGHT I.D. TAG DETAIL**
METERED SYSTEM
NOT TO SCALE



TYPICAL GRADING PLAN AROUND HIGHWAY LIGHT BASE AND PULLBOX AT 2:1 SLOPE
N.T.S.



TYPICAL GRADING SECTION THRU HIGHWAY LIGHT POLE BASE AT 2:1 SLOPE
N.T.S.



TYPICAL GRADING SECTION THRU HIGHWAY LIGHT PULLBOX AT 2:1 SLOPE
N.T.S.

APPROVED:

_____ Date
_____ Date
_____ Date
_____ Date

Director, Dept. of Trans. Services
(within City right-of-way only)

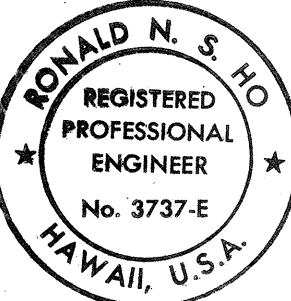
2/20/92
ADDED GRADING DETAILS AROUND
POLE BASE & PULLBOX AT 2:1 SLOPE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CITY & COUNTY
PULLBOX DETAILS

INTERSTATE ROUTE H-1
PAIWA STREET INTERCHANGE
PROJECT NO. HIC-01-90

SCALE: AS NOTED
DATE: AUG., 1991
SHEET No. E-21 OF 21 SHEETS



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