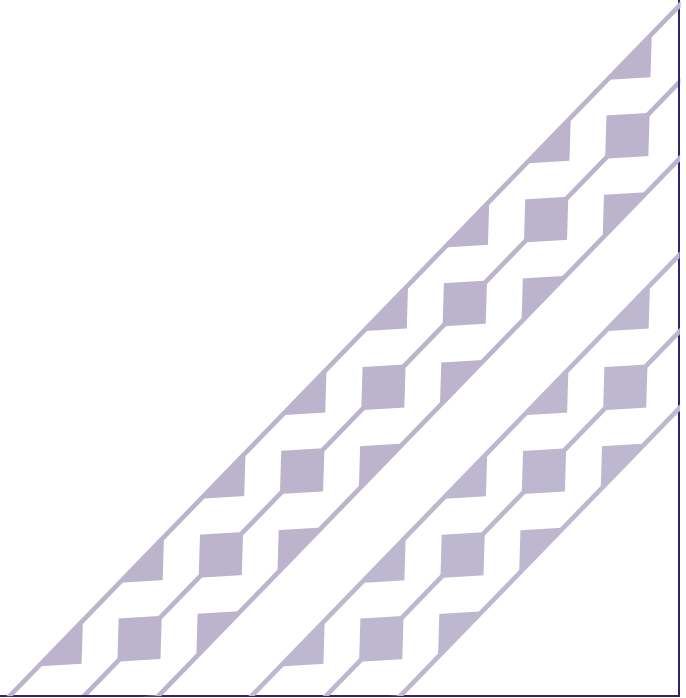


**Hawaiian
Electric**

The information found in this document are general guidelines that may be used to aid in the preparation of your service request proposal. Please be advised that depending on the specific needs and actual conditions of your project, Hawaiian Electric may require your design to comply with different specifications including specifications that include more stringent requirements than those included in these design specification guidelines. For further guidance and clarification on the actual specifications that will apply to your particular project, please refer to instructions issued by Hawaiian Electric's Planner or Engineer who is assigned to your particular (Project/Review Request/...). Additionally, please be advised that Hawaiian Electric reserves the right to require additional modifications to any approved design if it is determined during actual construction that additional modifications must be made to address certain field conditions that were not detected or Hawaiian Electric was unaware of during the design review process.

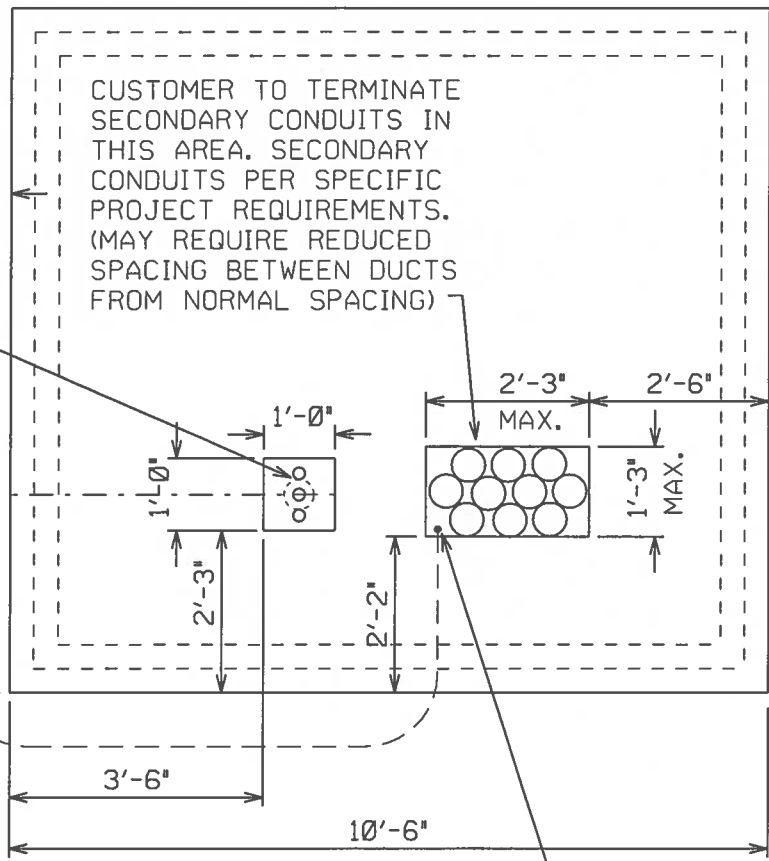


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 6/26/85
 6/14/76
 6/6/75
 2/7/75
 1/8/74
 DATE INITIAL
 REVISION

2nd GROUND ROD,
 5/8" x 8'-0"
 (SEE NOTE 3)
 TOP OF ROD 12"
 BELOW FINAL GRADE

PRIMARY CONDUIT
 LOCATION. SIZE TO
 BE DETERMINED ON
 PROJECT DRAWING.
 EITHER ONE OR
 THREE CONDUITS
 MAY BE SPECIFIED

MAINTAIN AN
 8'-0" CLEARANCE
 FROM FRONT
 EDGE OF PAD
 (SEE NOTE 7)

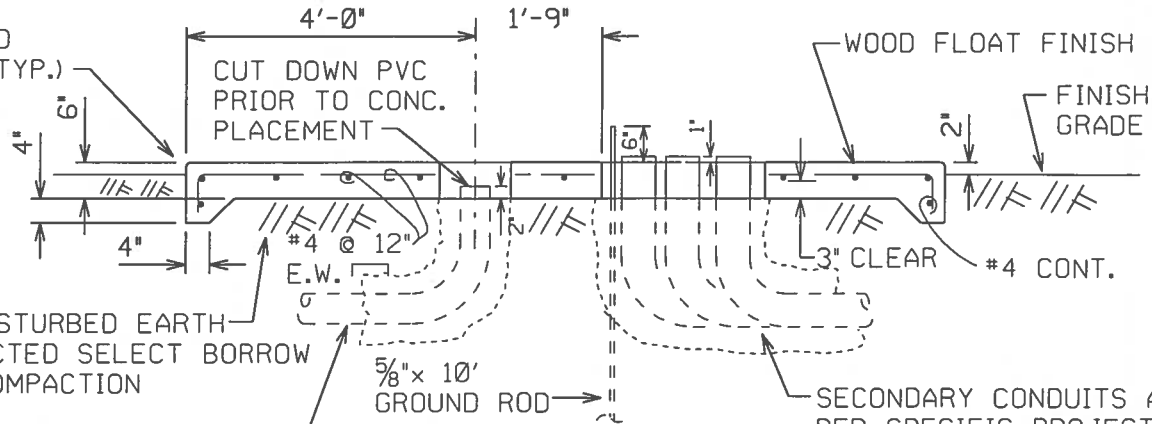


5/8" x 10' GROUND ROD
 FURNISHED BY HECO AND
 INSTALLED BY CONTRACTOR

PLAN VIEW

3/4" ROUNDED
 CORNERS (TYP.)

FIRM, UNDISTURBED EARTH
 OR COMPACTED SELECT BORROW
 AT 95% COMPACTION
 PRIMARY CONDUITS ENCASED
 IN 3" CONCRETE JACKET



SECTION "A-A"

| | | | |
|--|-------------|---|-------------------|
| DRAWN TY | DESIGNED ST | APPD JR TN VEC | REDRAWN |
| SUPERSEDES | | CONCRETE PAD FOR 1000 -2500 KVA 3 PHASE PADMOUNTED TRANSFORMERS UG DUCTS AND STRUCTURES | ORIGINAL APR 1973 |
| ENGINEERING STANDARD HAWAIIAN ELECTRIC CO. INC. | | | 30-5015 REV 11 |
| | | | SHEET 1 of 2 |

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NOTES:

1. REFER TO STD. 30-5000 FOR LOCATIONS AND CLEARANCES.
2. REFER TO STD. 22-2005 FOR 3 PHASE PADMOUNTED TRANSFORMER REQUIREMENTS.
3. 5/8" DIAMETER x 10'-0" GROUND ROD (STOCK CODE 193457) FURNISHED BY HECO AND INSTALLED BY CUSTOMER. IF GROUND RESISTANCE IS MORE THAN 25 OHMS, INSTALL ADDITIONAL 5/8" DIAMETER x 8'-0" GROUND ROD (STOCK CODE 101527) AND CONNECT 4/0 BARE COPPER GROUND WIRE BETWEEN GROUND RODS. A MINIMUM OF 6'-0" SHALL BE MAINTAINED BETWEEN THE DRIVEN GROUND RODS. A SECOND GROUND ROD WILL PROBABLY BE REQUIRED WHEN SOIL RESISTIVITY IS GREATER THAN 67 OHM-METERS.
4. CONCRETE: 3000 PSI COMPRESSIVE STRENGTH IN 28 DAYS. MOISTURE CURE CONCRETE PAD A MINIMUM OF 7 DAYS. DO NOT INSTALL TRANSFORMER UNTIL CONCRETE COMPRESSIVE STRENGTH REACHES 1,500 PSI MINIMUM OR AFTER 14 DAYS.
5. REINFORCING: ASTM A615, GRADE 40 MINIMUM.
6. LOCATE, SECURE, AND CAP ALL CONDUITS BEFORE POURING PAD. TOP OF CONCRETE TO BE SMOOTH AND TRUE, WOOD-FLOAT FINISH, FREE OF DEFECTS, AS PER APPLICABLE CITY AND COUNTY SPECIFICATIONS. ROUND ALL EXPOSED EDGES TO 3/4" CHAMFER.
7. MAINTAIN A RELATIVELY LEVEL, MINIMUM CLEARANCE OF 2'-6" FROM THE SIDES OF THE PAD, 2'-0" FROM THE BACK OF PAD, AND 8'-0" IN FRONT OF PAD. EXTEND CONCRETE PAD AN ADDITIONAL 8'-0" IN FRONT IF LOCATED IN PLANTING AREA.

REVISION
DATE INITIAL
19-04
CJ/mh

| | | | |
|--|------------------|--|--------------------|
| DRAWN CT | DESIGNED RAN WTM | APPD WTM FK | REDRAWN |
| SUPERSEDES | | CONCRETE PAD FOR 1000 - 2500 KVA 3 PHASE PADMOUNTED TRANSFORMERS UG DUCTS & STRUCTURES | ORIGINAL JUNE 2002 |
| ENGINEERING STANDARD HAWAIIAN ELECTRIC CO. INC. | | | 30-5015 REV 1 |
| | | | SHEET 2 of 2 |

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