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.
SCOPE:

THIS STANDARD PROVIDES DETAILS FOR CONSTRUCTION OF UNDERGROUND DUCTLINES UNDER SPECIAL CONDITIONS/CIRCUMSTANCES. REFER TO STD. 30-1035 FOR DETAILS FOR CONSTRUCTION OF UNDERGROUND DUCTLINES UNDER ROUTINE/TYPICAL CONDITIONS. REFER TO HECO ENGINEERING FOR CONDITIONS NOT COVERED ON THIS OR STD. 30-1035.

DIRECTION OF TRAFFIC

CONDUIT RISER SEE STD. 29-0005

CONCRETE ENVELOPE

POLE

PROPERTY

PLAN VIEW

RISER BEND (PVC OR G.I.). LOCATION & NUMBER OF RISERS TO BE DETERMINED BY PROJECT CONCERNED. NOTE: PROJECT DWGS MAY REQUIRE INSTALLATION OF ADDITIONAL RISER CONDUIT LENGTHS.

PVC COUPLING

PLASTIC PLUG

POLE

1'-0"

3'-0"

TOP OF CURB OR SIDEWALK

GROUND ROD PER STD. 29-0010

CONDUIT, CONCRETE ENCASED

PVC SCHED. 40 CONDUIT

ELEVATION

COUPLING

3' MIN. COVER

REFER TO STDS. 29-0005 AND 29-0010 FOR ADDITIONAL DETAILS

TYPICAL RISER DETAIL (POLE RISER SHOWN)

NOT TO SCALE
CONCRETE ENCASED DUCTS
EXCAVATION & BACKFILL DETAILS
AREAS REQUIRING DRAINAGE
NOT TO SCALE

NOTES:

1. IF DRAINAGE IS NECESSARY, INSTALL 6" ROCKFILL AS SHOWN.
   IN EXTREMELY WATERY AREAS, INSTALL 3" DRAINAGE DUCT.

2. REFER TO HECO SPECIFICATION CS7001, LATEST REVISION (OR EQUIVALENT)
   FOR BACKFILL MATERIAL REQUIREMENTS.

3. SIZE OF CONCRETE ENVELOPE (HEIGHT AND WIDTH) TO BE DETERMINED BY
   SPECIFIC PROJECT REQUIREMENTS. SEE PROJECT DRAWINGS AND
   SPECIFICATIONS.

4. DEPTH FROM FINISHED GRADE TO TOP OF CONCRETE ENVELOPE TO BE
   1'-6" MINIMUM UNLESS OTHERWISE NOTED ON PROJECT DRAWINGS.

5. REFER TO STDS. 30-1005 AND 30-1035 FOR ADDITIONAL INFORMATION.
#4 LONGITUDINAL
AT 12" O.C., USE
ONLY 4-#4 ON PIPES
8" AND SMALLER

#3 HOOPS, 10" O.C.,
LAPPED 15" AT ENDS
(OR BUTT-WELD)

DETAIL OF CONCRETE JACKET
FOR PIPES 12" & SMALLER
NOT TO SCALE

NOTES:

1. SEWER LINES WHICH CROSS OVER OR UNDER OTHER CONDUITS AND UTILITIES
MAY REQUIRE PROTECTION FROM EXTRA LOADING.

2. WHEN THE SEWER CROSSES A CONDUIT AND THE CLEARANCE IS LESS THAN
12 INCHES, THE SEWER LINE SHOULD BE JACKETED WITH REINFORCED
CONCRETE FOR A DISTANCE OF 5 FEET (INSIDE DIAMETER PLUS 5 FEET IF
THE CONDUIT IS OVER 24 INCHES INSIDE DIAMETER).

3. WHERE THE CLEARANCE IS GREATER THAN 12 INCHES BUT LESS THAN
24 INCHES, A PLAIN CONCRETE JACKET MAY BE USED.

4. REFERENCE THE ABOVE DETAIL FOR PIPES LESS THAN OR EQUAL TO 12 INCHES
INSIDE DIAMETER. SEE HECO STRUCTURAL DIVISION FOR PIPE DIAMETERS
LARGER THAN 12 INCHES.

5. FINAL DETERMINATION OF THE STRUCTURAL REQUIREMENTS WILL BE MADE BY
THE CITY
BUILDING
SPREAD FOOTING

NOTE:
CONSULT HECO
ENGINEERING FOR
MINIMUM CLEARANCE
UNDER WALL OR PIER
FOOTING

COMPACT BACKFILL
TO MINIMUM 95% COMPACTION

1½" 5¾" 5¾"
7½" 1½"

1½" 6½" 1½"

3 3½" 3½"
3 3½" 3½"
3 3½" 3½"

11½"

2-3' PVC
SCHEDULE 40
(TYPICAL)

6-#4 BARS

14½"

#4 TIE AT 12" O.C.

CONCRETE ENCASED DUCTS
UNDER BUILDINGS
NOT TO SCALE

2½' GALV. RD.
WASHERS

MAKE EYE FROM
3/8" DIA. STEEL
ROD AND WELD
TO 1/2" DIA. ROD

APPROX. 1" DIA.

1/2" DIA. STEEL ROD

SMOOTH OFF ALL EDGES ON
HARDWOOD MANDREL AND COAT WITH
VARNISH UNTIL SURFACE IS SMOOTH

DIMENSION 'A' TO BE
1/2" LESS THAN THE
INSIDE DIAMETER
OF THE SPECIFIED
SIZE CONDUIT.

NOTE: OTHER MODELS OF MANDRELS MAY BE USED IF APPROVED BY
ENGINEERING.

MANDREL DETAIL
NOT TO SCALE

PLASTIC DUCTS
SPECIAL INSTALLATION DETAILS
UNDERGROUND DETAILS
References:

Standard:

29-0005  Riser Conduit Location at Base of Pole
29-0010  Grounding Requirements Wood Pole Construction
30-1005  Conduit Application Guide
30-1006  Duct Line Applications
30-1010  Typical Backfill Details
30-1015  Typical Duct Encasement Details
30-1020  Duct Roll Sections
30-1035  Plastic Ducts, Installation Details

Specifications:

M7001   Plastic Conduits & Fittings Constructed With PVC Plastic
CS 7202  General Conditions
CS 7001  Construction of UG Facilities
CS 7003  Construction of Electrical Facilities