SANDWICH ISLES COMMUNICATIONS' NOTES

GENERAL

1. ALL WORK SHALL BE IN STRICT ACCORDANCE WITH SPECIFICATIONS AND REQUIREMENTS OF SANDWICH ISLES COMMUNICATIONS (SIC), WHICH COMPLIES WITH ALL APPLICABLE COUNTY AND STATE REQUIREMENTS.
2. ALL MATERIALS SHALL BE LISTED ON THE RURAL UTILITIES SERVICE (RUS), UNITED STATES DEPARTMENT OF AGRICULTURE LIST OF APPROVED MATERIALS. CONTRACTOR MAY REFER TO THE RUS WEBSITE (http://www.rurdev.usda.gov/RUSTelcomPrograms.html) FOR REGULATIONS, BULLETINS, LIST OF APPROVED MATERIAL, ETC.
3. CONTACT THE HAWAII ONE CALL CENTER AT (866) 423-7287 FOR LOCATING EXISTING UNDERGROUND FACILITIES PRIOR TO BEGINNING ANY EXCAVATION.
4. THE CONTRACTOR SHALL PROCURE AND PAY FOR ALL LICENSES AND PERMITS AND SHALL GIVE ALL NOTICES NECESSARY FOR PROSECUTION OF THE WORK.

CONDUITS

1. ALL PVC CONDUITS, SWEEPS, COUPLINGS, ADAPTERS AND BELL ENDS SHALL BE SCHEDULE 40, UNLESS OTHERWISE SPECIFIED.
2. ALL HIGH DENSITY POLYETHYLENE CONDUITS SHALL BE SDR 11. TYPICAL 3-PACK UNIT INCLUDES THREE 1-1/2" SDR 11 RATED CONDUITS IN THE COLORS OF ORANGE, RED AND BLACK, UNLESS OTHERWISE SPECIFIED. ALL CONDUITS TO BE PRESSURE TESTED AT 120 PSI. FUSION SPLICING OF THE CONDUIT SHALL BE ACCEPTABLE ONLY WHEN PULLING JOINTS THROUGH BORES. ALL COUPLINGS SHALL BE DOUBLE "E-LOC" MANUFACTURER BY ETOC SPECIALTY PRODUCTS, INC.
3. MAIN CONDUIT RUNS EXCEPT RISER CONDUITS SHALL BE CONSTRUCTED WITH MINIMUM 6-FOOT RADIUS CURVES, UNLESS OTHERWISE APPROVED BY THE ENGINEER.
4. AFTER THE CONDUITS ARE INSTALLED, A ROUND SOLID MANDREL NOT LESS THAN 12" IN LENGTH AND HAVING A DIAMETER OF 1/4" INCH LESS THAN THE INSIDE DIAMETER OF THE CONDUIT SHALL BE PULLED THROUGH EACH CONDUIT. SUFFIXES LISTED IN RUS 515B FOR CONDUITS ARE APPLICABLE.
5. INSTALL MULETAPE IN ALL PVC CONDUITS AND CAP ALL CONDUITS AFTER TESTING. THE NEPTCO (OR APPROVED EQUAL) MULETAPE IS AVAILABLE IN 3,000/FT., 6,500/FT., AND 10,000/FT. REELS FROM WESTINGHOUSE ELECTRIC SUPPLY COMPANY (WESCO), THE NEPTCO MULETAPE IS PRELUBRICATED AND PRINTED WITH SEQUENTIAL FOOTAGE MARKINGS. MULETAPE WILL NOT BE INSTALLED IN CONDUITS DESIGNATED FOR FIBER.
6. ALL 4" DUCTS SHALL HAVE WATERTIGHT PLUGS TO KEEP THEM FREE OF MOISTURE AND DEBRIS AND TO ACCOMMODATE CABLING PLACED ON FUTURE PROJECTS.

   4" PLUGS SHALL CONSISTS OF:
   - TYCO, QUADPLEX JACKMOON PLUGS, SERIES 136
   - TYCO, JACKMOON HOLE PLUGS & BUSHING, SERIES 136

   ALL OTHER DUCTS SHALL HAVE TYCO, BLANK JACKMOON PLUGS TO KEEP THEM FREE OF WATER AND DEBRIS.
7. CONDUIT STUB'S FROM HANDHOLES TO INDIVIDUAL RESIDENTIAL LOTS SHALL BE SCHEDULE 40 PVC, 1" DIAMETER AND EXTENDED 5' BEYOND PROPERTY LINE. CAP AND SEAL END AND MARK LOCATIONS WITH ABOVE GROUND MARKER.
8. CONDUITS SHALL ENTER MANHOLES AT 90 DEGREES ANGLE AND SHALL EXTEND INTO MANHOLE AS FOLLOWS: CONDUITS DESIGNATED FOR FIBER SHALL EXTEND 12" INTO THE HANDHOLE. ALL OTHER CONDUITS SHALL BE FLUSH WITH THE INSIDE WALL AND INCLUDE BELL ENDS. ANY EXCEPTIONS SHALL ONLY BE PERMITTED WHEN SPECIFIED BY THE ENGINEER.
9. ALL CONDUITS ENTERING MANHOLES OR HANDHOLES SHALL BE GROUTED BETWEEN CONDUITS AND SIDEWALL, INSIDE AND OUT. ALL CONDUITS WILL ENTER THE MANHOLES AND HANDHOLES ON THE PROPERTY SIDE AT ALL TIMES UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.
10. BACKFILL AND COMPACTION FOR DUCTLINE TRENCHES, MANHOLES AND HANDHOLES SHALL BE IN ACCORDANCE WITH:
    A. STATE HIGHWAY DEPARTMENT'S STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION WITH LATEST AMENDMENTS, IF CONSTRUCTION IS LOCATED UNDER A STATE STREET OR ROAD, OR LOCATED IN PRIVATE PROPERTY.
    B. THE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND PUBLIC WORKS CONSTRUCTION, DATED 1986, OF THE DEPARTMENT OF PUBLIC WORKS, CITY AND COUNTY OF HONOLULU, WITH LATEST AMENDMENTS; COUNTY OF KAUAI, MAUI, OR HAWAII, AS THE CASE MAY BE, IF CONSTRUCTION IS LOCATED UNDER COUNTY STREETS AND ROADS.
11. BACKFILLING SHALL BE SUBJECT TO THE APPROVAL OF THE SIC INSPECTOR, THE AUTHORIZED REPRESENTATIVE OF THE DEPARTMENT OF TRANSPORTATION, STATE OF HAWAII AND/OR DEPARTMENT OF PUBLIC WORKS, CITY AND COUNTY OF HONOLULU, COUNTY OF KAUAI, MAUI OR HAWAII, AS THE CASE MAY BE.
12. A THIRD PARTY GEOTECHNICAL ENGINEER, LICENSED AND INSURED IN THE STATE OF HAWAII MUST CERTIFY THAT THE EXCAVATED AREA MEETS GOVERNING AGENCIES AND (OR) OWNERS STANDARDS FOR BACKFILL AND COMPACTION.
13. EXCAVATED MATERIAL MAY BE REUSED AS BACKFILL, PROVIDING THAT IT CONFORMS TO REQUIREMENTS OF TYPE "A" AND TYPE "B" BACKFILL, AS REQUIRED WITHIN THE STANDARD SPECIFICATIONS. A WRITTEN SOILS REPORT OF CONFORMANCE BY A LICENSED THIRD PARTY GEOTECHNICAL ENGINEER IS NEEDED PRIOR TO BACKFILL USING THE EXCAVATED MATERIAL.
    A. TYPE "A" BACKFILL IS DEFINED AS BEACH SAND, EARTH OR EARTH AND GRAVEL. MAXIMUM PARTICLE SIZE SHALL BE 1" AND MIXTURE SHALL NOT CONTAIN MORE THEN 20% BY VOLUME OF ROCK PARTICLES.
    B. TYPE "B" BACKFILL IS DEFINED AS BEACH SAND, EARTH OR EARTH AND GRAVEL. MAXIMUM PARTICLE SIZE SHALL BE 1/2" AND MIXTURE SHALL NOT CONTAIN MORE THEN 20% BY VOLUME OF ROCK PARTICLES.
14. ALL CONDUIT RUNS SHALL HAVE A 3" NON-METALLIC WARNING TAPE PLACED 12 INCHES ABOVE THE CONDUIT RUN. THE TAPE SHOULD READ "CAUTION BURIED FIBER OPTIC CABLE BELOW".

MANHOLES AND HANDHOLES:

1. ALL MANHOLES SHALL HAVE HS20-44 TRAFFIC LOADING COVERS (UNLESS OTHERWISE NOTED). HANDHOLES SHALL HAVE 20K TRAFFIC LOAD RATED COVERS.
2. ALL MANHOLE AND HANDHOLE COVERS SHALL HAVE COVER LOGO TO READ "SIC".
3. ALL HANDHOLE AND MANHOLE COVER BOLTS SHALL BE STAINLESS STEEL 3/4" PENTAHEAD, UNLESS OTHERWISE NOTED.
4. ALL MANHOLES AND HANDHOLES ARE SPECIFIED AS FOLLOWS:
   A. UM35 AND UM4X6 MANHOLE ASSEMBLY UNITS - HAWAII PRECAST, INC. AS PER MASTER PURCHASE AGREEMENT.
   B. UHC 30X48X33 HANDHOLE (PULLBOX) ASSEMBLY UNIT. THIS UNIT SHALL CONSIST OF ONE ARMORCAST POLYMER CONCRETE BOX & COVER ASSEMBLY. PART NUMBER (A6001430TA-SIC4) OR EQUIVALENT.
   C. UHC 13X24X36 HANDHOLE (PULLBOX) ASSEMBLY UNIT. THIS UNIT SHALL CONSIST OF ONE ARMORCAST POLYMER CONCRETE BOX & COVER ASSEMBLY. PART NUMBER (A6001946TA-SIC2) OR EQUIVALENT.
   D. UH35 AND UH4X6 HANDHOLE ASSEMBLY UNIT - HAWAII PRECAST, INC. AS PER MASTER PURCHASE AGREEMENT.
5. ALL MANHOLES AND HANDHOLES TO BE ORDERED WITH ALL HARDWARE, INCLUDING CABLE RACKS, STEPS AND LOCKS.
6. SET MANHOLE OR HANDHOLE ON A LEVEL AREA, IN THE BOTTOM OF THE EXCAVATION, ON A 4" LAYER OF CRUSHED ROCK, FOR DRAINAGE PURPOSES.
7. THE BASE OF ALL MANHOLES AND HANDHOLES WILL BE PLACED LEVEL. SOME MANHOLES HAVE ADJUSTABLE FRAMES. ALL VOIDS CREATED DURING INSTALLATION MUST BE FILLED WITH MORTAR MIX OR CONCRETE. THIS IS ESPECIALLY TRUE FOR MANHOLES AND HANDHOLES SET IN ROADWAYS.
8. BEFORE BACKFILLING AND COMPACTING, MAKE SURE COVERS ARE IN PLACE AND SECURE. LAYER 6" TO 8" OF BACKFILL MATERIAL AROUND THE MANHOLE OR HANDHOLE. TAMP EACH INDIVIDUAL LAYER OF BACKFILL MATERIAL. CONTINUE THE LAYERING AND "TAMPING" UNTIL FINAL GRADE IS ACHIEVED.
9. THE TOPS OF ALL MANHOLES AND HANDHOLES SHALL BE FLUSH TO GRADE WITH THE SIDEWALK OR PAVED AREAS OR 1" ABOVE FINISH GRADE IN NON-PAVED AREAS, UNLESS OTHERWISE NOTED.
10. PROVIDE A 5/8-INCH DIAMETER X 8-FEET COPPER CLAD GROUND ROD FOR ALL HANDHOLES AND MANHOLES, UNLESS OTHERWISE SPECIFIED.

OCEANIC TIME WARNER CABLE NOTES

1. THE LOCATION OF CATV FACILITIES ARE BASICALLY WITHIN EXISTING CATV CONDUITS. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING IN CLOSE PROXIMITY OF CATV FACILITIES.
2. THE CONTRACTOR SHALL OBTAIN EXCAVATION PERMIT CLEARANCE FROM OCEANIC TIME WARNER CABLE'S ENGINEERING SECTION LOCATED AT 200 AKAMAINUI ST., MILILANI TECH. PARK. PHONE 625-8443.
3. ANY WORK REQUIRED TO RELOCATE CATV FACILITIES SHALL BE DONE BY OCEANIC TIME WARNER CABLE AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION REQUIREMENTS AND ASSOCIATED APPLICABLE COSTS.
4. ANY DAMAGE TO CATV FACILITIES SHALL BE REPORTED IMMEDIATELY TO OCEANIC TIME WARNER CABLE'S REPAIR DISPATCH DEPARTMENT AT 625-8437.
5. CONTACT OCEANIC TIME WARNER CABLE INSPECTOR 72 HOURS PRIOR TO STARTING WORK ON CATV INFRASTRUCTURE. CALL MOKI PLACE AT 625-8378.
6. ALL CONDUITS SHALL ENTER THROUGH THE END OF THE PULLBOX AT 90 DEGREES TO THE WALL OF PULLBOX.
7. ALL ENTRANCES INTO THE PULLBOX SHALL BE GROUTED AROUND THE CONDUITS AND THE INSIDE SURFACES SHALL BE SMOOTH AND FLUSH WITH THE EXISTING WALL.
8. ALL 4" CONDUITS SHALL HAVE MULETAPE AND ALL OTHER SIZE CONDUITS SHALL HAVE PULLSTRING.
9. END BELS ARE REQUIRED ON ALL 4" AND 2" CONDUITS.
10. AFTER DUCTLINE HAS BEEN COMPLETED, A MANDREL NOT LESS THAN 12" LONG AND HAVING A DIAMETER OF 1/4" LESS THAN THE INSIDE DIAMETER OF DUCT SHALL BE PULLED THROUGH EACH DUCT.

HAWAIIAN ELECTRIC COMPANY NOTES

1. ALL HECO PRIMARY DUCTS SHALL BYPASS ALL HECO PULLBOXES 2' X 4' AND SMALLER.
2. 2" DUCTS FOR HECO SINGLE PHASE PRIMARY SHOULD BYPASS HECO MH'S USED FOR MAINS, WHEN FEASIBLE.
3. IF HECO EQUIPMENT IS LOCATED NEAR SLOPING TERRAIN, THE CONTRACTOR MAY BE REQUIRED TO CONSTRUCT RETAINING WALLS PER HECO STANDARD NO. 30-5002.

TRAFFIC SIGNALS & TECHNOLOGY NOTES:

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION", SEPTEMBER, 1986, OF THE DEPARTMENT OF PUBLIC WORKS, CITY AND COUNTY OF HONOLULU, EXCEPT AS MODIFIED HEREIN OR IN THE SPECIAL PROVISIONS.
2. THE CONTRACTOR SHALL VERIFY WITH THE RESPECTIVE UTILITY COMPANIES AND GOVERNMENT AGENCIES, THE LOCATIONS OF ALL ELECTRIC, TELEPHONE, TRAFFIC SIGNAL, STREET LIGHT, FIRE ALARM, GAS, WATER, SEWER, DRAIN, AND OTHER LINES CROSSING THE EXCAVATION PATH OR IN EXCAVATION AREAS.
3. LOCATIONS OF TRAFFIC SIGNAL CONDUITS SHALL BE STAKED OUT BY THE CONTRACTOR AND APPROVED BY THE ENGINEER PRIOR TO ANY EXCAVATION.
4. ALL STRUCTURES, PAVEMENTS, UTILITIES, LANDSCAPING, AND OTHER TOPOGRAPHICAL FEATURES SHOWN ON THE INTERSECTION DRAWINGS ARE EXISTING AND ARE TO REMAIN UNLESS NOTED OR INDICATED OTHERWISE.
5. THE CONTRACTOR SHALL NOTIFY ALL AFFECTED UTILITY COMPANIES AND GOVERNMENT AGENCIES OF THEIR INTENT TO BEGIN CONSTRUCTION ON ANY INTERSECTION OR STREET AT LEAST TWO (2) WEEKS PRIOR TO THE START OF SUCH CONSTRUCTION.
6. THE CONTRACTOR MAY CLOSE ONLY ONE LANE OF TRAFFIC AT A TIME FOR ANY REASON. DURING THE PEAK TRAFFIC PERIODS FROM 6:00 TO 9:00 A.M. AND FROM 3:00 TO 6:00 P.M., MONDAY THROUGH FRIDAY, ALL LANES SHALL BE KEPT OPEN AND MAINTAINED AT ALL TIMES.
7. THE CONTRACTOR SHALL NOTIFY THE TRAFFIC CONTROL BRANCH, DEPARTMENT OF TRANSPORTATION SERVICES, THREE (3) WORKING DAYS PRIOR TO COMMENCING WORK ON THE TRAFFIC SIGNAL SYSTEM (PHONE: 768-8388).
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES TO THE EXISTING TRAFFIC SIGNAL FACILITIES, INCLUDING THE TRAFFIC SIGNAL INTERCONNECTING SYSTEM. ANY AND ALL DAMAGES TO THESE FACILITIES SHALL BE REPAIRED BY THE CONTRACTOR AT HIS COST IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY AND COUNTY OF HONOLULU.

DRAWING REVIEW

Reviewed for HECO's Facilities Only

Date 5/31/11 By [signature]

Customer Installations Department
Hawaiian Electric Company, Inc.

HECO's review of these drawings shall in no way relieve the Customer, its Consultant, its Contractor or anyone acting on the Customer's behalf from the responsibility for engineering, design, materials and any other liability associated with this project.

APPROVED BY:

HAWAIIAN ELECTRIC COMPANY, INC. DATE

~~OCEANIC TIME WARNER CABLE~~ DATE

GARY I. FUNASAKI
LICENSED PROFESSIONAL ENGINEER
No. 4195-E
HAWAII, U.S.A.

17 MAR 2011

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
LICENSE EXPIRATION DATE: 04/30/12

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

Community Planning and Engineering, Inc.
Engineering Design | Construction Management | Infrastructure Planning
1100 Alakea Street, Sixth Floor Honolulu, Hawaii

EAST KAPOLEI II DEVELOPMENT ROAD "E"

HONOULIULI, EWA, OAHU, HAWAII
(DPP SUBD. FILE NO. 2010/SUB-115)
OWNER: DEPARTMENT OF LAND AND NATURAL RESOURCES
DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEY: 9-1-17: Portion 110

HECO, SIC, DTS & OCEANIC NOTES

DRAWN BY: | ENGINEER: GF | CHECKED BY: GF

APPROVED:

[signature] 5/3/11 — CHIEF, TRAFFIC SIGNALS AND TECHNOLOGY, D.T.S. DATE

[signature] 12/4/11 — CHIEF, TRAFFIC REVIEW BRANCH, D.P.P. DATE

[signature] 6-14-11 — SANDWICH ISLES COMMUNICATIONS, INC. DATE

[signature] 5/12/2011 — CHIEF, MECHANICAL/ELECTRICAL DIVISION, D.D.C. DATE

DWG. NO. E-4 SHEET 36 OF 61 SHEETS

FILE	POCKET	FOLDER	NO.

LAST SAVE: 03/17/11 @ 09:54:10 BY: RN PLOT SC 1'0"=1'
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