

HAWAIIAN ELECTRIC COMPANY NOTES

1. LOCATION OF HECO FACILITIES
The location of HECO overhead and underground facilities shown on the plans are existing records with varying degrees of accuracy and are not guaranteed as shown. The Contractor shall verify in the field, the locations of the facilities and shall exercise proper care in excavating and working in the area. Wherever connections of new utilities to existing utilities and utility crossings are shown, the Contractor shall expose the existing lines at the proposed connections and crossings to verify the depths prior to excavation for the new lines. The Contractor shall be responsible for any damages to HECO's facilities whether shown or not shown on the plans.
2. COMPLIANCE WITH HAWAII OCCUPATIONAL SAFETY AND HEALTH LAWS
The Contractor shall comply with the State of Hawaii's Occupational Safety and Health Laws and Regulations, including without limitation, those related to working on or near exposed or energized electrical lines and equipment.
3. EXCAVATION PERMIT
The Contractor shall obtain an excavation permit from HECO's Technical Division (543-5654) located at 820 Ward Avenue, 4th floor, two weeks prior to starting construction. Please refer to our request number at that time.
4. CAUTION!!! ELECTRICAL HAZARD!!!
Existing HECO overhead and underground lines are energized and will remain energized during construction unless prior special arrangements have been made with HECO. Only HECO personnel are to handle these energized lines and erect temporary guards to protect these lines from damage. The Contractor shall work cautiously at all times to avoid accidents and damage to existing HECO facilities, which can result in electrocution.

5. OVERHEAD LINES
State laws requires that a worker and the longest object he or she may contact cannot come closer than a minimum radial clearance of 10 feet when working close to or under any overhead lines rated 50KV and below. For each additional 1KV above 50KV, an additional 0.4 inch shall be added to the 10-foot clearance requirement. The preceding information on line clearance requirement is provided as a convenience and it is the Contractor's responsibility to be informed of and comply with any revisions or amendments to the law.

Should the Contractor anticipate that his work will result in the need to encroach within the minimum required clearance at any time, the Contractor shall notify HECO at least four (4) weeks prior to the planned encroachment so that, if feasible, the necessary protections (e.g. relocation, de-energize, or blanket HECO lines) can be put in place. HECO's cost of safeguarding its line will be charged to the contractor.

Contact HECO's Customer Installation Department at 543-7846 for assistance in identifying and safeguarding overhead powerlines.

Refer to Section X of HECO's Electric Service Installation Manual for additional guidelines when working around HECO's facilities. A copy may be obtained from HECO's Customer Installations Department.

6. POLE BRACING
A minimum clearance of 10 feet must be maintained when excavating around utility poles and/or their anchor system to prevent weakening or pole support failure. Should work require excavating within 10 feet of a pole and/or its anchor system, the Contractor shall protect, support, secure and take all other precautions to prevent damage to or leaning of these poles. The Contractor is responsible for all associated costs to brace, repair, or straighten poles. All means of structural support for the pole proposed by the Contractor shall first be reviewed by HECO before implementation. For pole bracing instructions, the Contractor shall call the HECO Construction and Maintenance Dept., Customer & System Superintendent at 543-4223 a minimum of two (2) weeks in advance.

7. UNDERGROUND LINES
The Contractor shall exercise extreme caution whenever construction crosses or is in close proximity of underground lines. HECO's existing electrical cables are energized and will remain energized during construction. Only HECO personnel are to break into existing HECO facilities, handle these cables, and erect temporary guards to protect these cables from damage. The cost of HECO's assistance in providing proper support and protection of its underground lines will be charged to the Contractor. Special precautions are required when excavating near HECO's 138 KV underground lines (see HECO instructions to Consultant/Contractors on "Excavating Near HECO's Underground 138KV Lines" for detailed requirements.)

For verification of underground lines, the Contractor shall call HECO's Underground Division at 543-7049 a minimum of 72 hours in advance.

For assistance in providing proper support and protection of these lines, the Contractor shall call HECO's Construction and Maintenance Dept., Customer & System Superintendent, at 543-4223, a minimum of two (2) weeks in advance,

8. EXCAVATIONS
When trench excavation is adjacent to or beneath HECO's existing structures or facilities, the Contractor is responsible for:
- a) Sheet piling and bracing the excavation and stabilizing the existing ground to render it safe and secure and to prevent possible slides, cave-ins, and settlements.
 - b) Properly supporting existing structures or facilities with beams, struts, or under-pinnings to fully protect it from damage.
 - c) Backfilling with proper backfill material including special thermal backfill where existing (refer to Engineering Department for thermal backfill specifications).

9. RELOCATION OF HECO FACILITIES
Any work required to relocate or modify HECO facilities shall be done by HECO, or by the Contractor under HECO's supervision. The Contractor shall be responsible for all coordination, and shall provide necessary support for HECO's work, which may include, but not to be limited to, excavation and backfill, permits and traffic control, barricading, and restoration of pavement, sidewalk and other facilities. All costs associated with any relocation or modification (either temporary or permanent for the convenience of the Contractor, or to enable the Contractor to perform his work in a safe and expeditious manner in fulfilling his contract obligations shall be borne by the Contractor.

10. CONFLICTS
Any design or relocation of HECO's facilities not shown on the plans may be cause for lengthy delays. The Contractor acknowledges that HECO is not responsible for any delay or damage that may arise as a result of any conflicts discovered or identified with respect to the location or construction of HECO's electrical facilities in the field, regardless of whether the Contractor has met the requested minimum advance notices. In order to minimize any delay or impact arising from such conflicts, HECO should be notified immediately upon discovery or identification of such conflict.

11. DAMAGE TO HECO FACILITIES
The Contractor shall be responsible for the protection of all HECO surface and subsurface utilities and shall be responsible for any damages to HECO's facilities as a result of his operations. The Contractor shall immediately report such damages to HECO's Trouble Dispatcher at 548-7961. Repair work shall be done by HECO or by the Contractor under HECO's Supervision. Costs for damages to HECO facilities shall be borne by the Contractor.

In case of damage or suspected damage to HECO's fuel pipeline, the Contractor shall immediately notify HECO's Honolulu Power Plant Shift Supervisor at 533-2102 (a 24-hour number) so HECO personnel can secure the damaged section and report any oil spills to the proper authorities. All costs associated with the damage, repair, and oil spill cleanup shall be borne by the Contractor.

12. HECO STAND-BY PERSONNEL
The Contractor may request HECO to provide an inspector to stand-by during construction near HECO's facilities. The cost of such inspection will be charged to the Contractor.

The Contractor shall call the HECO Construction and Maintenance Dept., Customer & System Superintendent at 543-4223 a minimum of 5 working days in advance to arrange for HECO stand-by personnel.

13. CLEARANCES
The following clearances shall be maintained between HECO's ductline and all adjacent structures (charted and uncharted) in the trench:

STRUCTURE TYPE	MINIMUM CLEARANCE (INCHES)
Water Lines, parallel	36
Water Lines, crossing	12 (A)
Sewer Lines, parallel	36 (B)
Sewer Lines, crossing	24 (C)
Drain Lines, parallel	12
Drain Lines, crossing	6 (D)
Electrical and Gas Lines, parallel	12
Electrical and Gas Lines, crossing	12
Telephone Lines, parallel	6(D)
Telephone Lines, crossing	6(D)
Chevron Oil Lines, parallel	36
Chevron Oil Lines, crossing	48 below oil line (E)

- A. The minimum vertical clearances to water lines crossing electrical ductlines can be reduced to 6 inches if the electrical ductline structure is smaller than 16 inches, is concrete encased, and is below the water line.
- B. A minimum horizontal clearance of 36 inches is required between new handholes and existing sewer laterals.
- C. The minimum horizontal clearances to sewer pipes crossing electrical ductlines can be reduced to 12 inches if the sewer pipe is jacketed in concrete.
- D. The minimum clearances shall be increased to 12 inches if the electrical ductline is direct buried.
- E. The minimum vertical clearances to oil lines crossing electrical ductlines can be reduced to 24 inches below oil lines if the crossings are encased in 6 inches of concrete.
- F. The Contractor shall notify the Construction Manager & HECO of any heat sources (power cable duct bank, steamline, etc.) encountered that are not properly identified on the drawing

14. INDEMNITY
The Contractor shall indemnify, defend and hold harmless HECO from and against all losses, damages, claims, and actions including but not limited to reasonable attorney's fees and costs based upon or arising out of damage to property or injuries to persons, or other tortious acts caused or contributed to by the Contractor or anyone acting under its direction or control or on its behalf; provided Contractor's indemnity shall not be applicable to any liability based upon the sole negligence of HECO.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83F-01-99	2006	6	28

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HECO NOTES

KAMEHAMEHA HIGHWAY

Intersection Improvements At

Kahekili Highway

Project No. 83F-01-99

Scale: None Date: November, 2005

SHEET No. 1 OF 3 SHEETS

HAWAIIAN ELECTRIC COMPANY NOTES-CONT.

15. **SCHEDULE**
Contractor shall furnish his construction schedule at least 60 working days prior to starting work on HECO facilities. Contractor shall give HECO, in writing, forty (40) working days notice to proceed with HECO's portion of work.
16. **AUTHORITY**
All construction, restoration work and inspection shall be subject to the State.
17. **SPECIFICATION**
Construction of HECO's underground facilities shall be constructed in accordance with the latest revisions of HECO Specifications CS7001, CS7003, CS7202, CS9301, and CS9401 and applicable HECO standards.
18. **CONSTRUCTION**
Contractor shall furnish all labor, materials, equipment, and services to properly perform and fully complete all work shown on the contract, drawings, and specifications. All materials shall be new and manufactured in the United States of America. All manhole, handhole, and ductline installations shall be inspected and approved by HECO prior to excavation and prior to placing concrete. Contractor shall notify HECO's Inspection Division at 543-4356 at least 48 hours prior to placing concrete.
19. **STAKEOUT**
The Contractor shall stakeout all proposed HECO facilities within the project area so as to not conflict with any utility (existing or proposed) and any proposed construction or improvement work for verification by HECO before proceeding with HECO work.
20. **DUCTLINES**
All ductlines installations shall be PVC schedule 40 encased in concrete, unless otherwise noted. All completed ductlines shall be mandrel rested by the Contractor in the presence of HECO's inspector using HECO's standard practice. The Contractor shall install a 1/8" polyolefin pull line in all completed ductlines after mandrel testing is complete.
21. **JOINT POLE REMOVAL**
The last joint pole occupant off the poles shall remove the poles.
22. **AS-BUILT PLANS**
The Contractor shall provide HECO with two sets of as-built reproducible tracings showing the offsets, stationing, and vertical elevation of the duct line(s) constructed.

OCEANIC CABLE NOTES:

1. The locations of Oceanic Cable existing facilities are approximate only. The Contractor shall exercise extreme caution and shall maintain proper clearances whenever construction crosses or is in close proximity to Oceanic Cable facilities. The Contractor shall verify their locations and shall be liable for any damages to Oceanic Cable facilities. Any damages shall be reported immediately to Oceanic Cable Repair Dispatch Department at 625-8437 or 625-8666.
2. The Contractor shall obtain an excavation permit clearance from Oceanic Cable Engineering Section located at 200 Akamainui Street, Mililani Technology Park. (Phone: 625-8443)
3. Prior to the excavation of the ductline, the Contractor shall request Oceanic Cable to locate existing ductlines wherever required. For any field assistance or verification of Oceanic Cable facilities, the Contractor shall call the Technical Operations Center at 625-8378 a minimum of five (5) working days in advance.
4. The Contractor shall notify The Oceanic's Cable Inspector (phone: 625-8458) a minimum of two (2) working days prior to the start of work on Oceanic Cable's infrastructure, pouring of concrete or backfilling.
5. The Contractor shall take necessary precautions not to damage existing cables, ducts or facilities. Any work involving existing cables, ducts or penetrations into any structure that contain Oceanic Cable facilities shall be done in the presence of the Oceanic Cable inspector or its representative.
6. Any work required to relocate existing Oceanic Cable facilities shall be done by Oceanic Cable and the Constructor shall be responsible for all coordination requirements and associated applicable costs.

HAWAIIAN TELECOM (HTCO) NOTES:

1. All applicable construction work shall be done in accordance with the "Hawaiian Telcom" Standard Specifications for Placing Underground Telephone Systems", dated March 1999, all subsequent amendments and additions, and all other pertinent standards for telephone construction. The Contractor shall familiarize his personnel by obtaining applicable specifications.
2. The location of HTCO existing facilities are approximate only. The Contractor shall exercise extreme caution and shall maintain proper clearances whenever construction crosses or is in close proximity to HTCO facilities. The Contractor shall verify their locations and shall be liable for any damages to HTCO facilities. Any damages shall be report immediately to HTCO's Repair Section at #611 (24 hours) or to the Excavation Permit Section at 840-1444 during normal work day hours, Monday through Friday, except holidays.
3. For underground cable locating and marking, five working days advance notice is required. Three working days advance notice is required for any inspection by a designated representative.
4. The Contractor shall take necessary precautions not to damage any existing cables or ducts. Any work involving existing HTCO's cables or ducts shall be done in the presence of a HTCO Inspector or designated representative.
5. The Contractor shall obtain an excavation permit and toning request from HTCO Excavation Permit Section, located at 3239 Ualea Street third floor, two weeks prior to the start of construction. Hours of business are 7:00 a.m. to 10:45 a.m. and 11:30 a.m. to 2:45 p.m., Monday through Friday, except holidays.
6. The Contractor shall notify HTCO Inspector or designated representative 72 hours prior to excavation, bracing or backfilling of HTCO structures or facilities.
7. When excavation is adjacent to or beneath HTCO existing structures or facilities, the Contractor shall :
A. Sheet and/or brace the excavation to prevent slides, cave-ins or settlements to ensure no movement to HTCO structures or facilities.
B. Protect existing structures and/or facilities with beams, struts or underpinning while excavating beneath them to ensure no movement to HTCO structures or facilities.
8. Should it become necessary to relocate any HTCO facilities, the work shall be done by HTCO. The Contractor shall be responsible for all coordination and costs associated with the relocation.
9. When connecting to manhole walls, all existing reinforcing bars shall be left intact. Duct shall be adjusted in the field in order to clear reinforcing.
10. All construction must be inspected and approved by HTCO prior to the installation of any of its facilities and the energizing of its systems. HTCO will commence installation only after the construction has been approved and no sooner than thirty working days thereafter.
11. The Contractor shall pump all manholes dry during final inspection.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83F-01-99	2006	7	28

ORIGINAL PLAN	DESIGNED BY	DATE
NOTE BOOK	DESIGNED BY	DATE
QUANTITIES BY	DESIGNED BY	DATE
CHECKED BY	DESIGNED BY	DATE

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
HECO, HAWAIIAN TELCOM, AND OCEANIC NOTES	
KAMEHAMEHA HIGHWAY Intersection Improvements At Kahekili Highway	
Project No. 83F-01-99	
Scale: None	Date: November, 2005
SHEET No. 2 OF 3 SHEETS	

BOARD OF WATER SUPPLY NOTES:

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83F-01-99	2006	ADD.8	28

1. Unless otherwise specified, all materials and construction of water system facilities and appurtenances shall be in accordance with the City and County of Honolulu Board of Water Supply's "WATER SYSTEM STANDARDS", DATED 2002, THE "WATER SYSTEM EXTERNAL CORROSION CONTROL STANDARDS", VOLUME 3, DATED 1991, and all subsequent amendments and additions.

2. All plans approved by the Board of Water Supply are based solely on the adequacy of the water supply. All other features of the water system, such as lines, grades, fittings, drainage, etc., and other features of improvements shall not be the responsibility of the Board of Water Supply.

3. Test pressure shall be 150 psi. During the 30-minute pressure test, the pressure shall not drop more than 10 psi.

4. The Contractor shall notify BWS Capital Projects Division, Construction Section in writing and submit five (5) sets of approved construction plans one week prior to commencing work on the water system.

5. The Contractor shall chlorinate the entire inside surface of each pipe and fitting with disinfection solution of 5 ounces of sodium hypochlorite mixed in 10 gallons of water. (For connection only)

6. The Contractor shall be responsible for the protection of all water lines during construction. The Contractor shall be especially careful when excavating behind water lines, tees, and bends wherever there is a possibility of water line movement due to the removal of the supporting earth beyond the existing reaction blocks. The Contractor shall take whatever measure necessary to protect the water lines, such as constructing special reaction blocks (with BWS approval) and/or modifying his construction method.

7. The existence and location of underground utilities and structures as shown on the plans are from the latest available data but is not guaranteed as to the accuracy or the encountering of other obstacles during the course of the work. The Contractor shall be responsible and shall pay for all damages to existing utilities. The Contractor shall not assume that where no utilities are shown, that none exist.

8. Prior to installation, the Contractor shall submit for approval by the Board of Water Supply, the manufacturer's certification that all cast iron (gray or ductile) fittings for the project conform in all respects to the Water System Standards, dated 2002.

9. Polygon shape for mechanical joint glands as described in AWWA Standard C111 shall be "straight-sided" or an approved equal on a job-to-job basis.

10. Re-approval shall be required if this project is not under construction within a period of two years

11. The Contractor shall cut and plug all existing unused laterals at the main whether or not shown on the plans. The damaged area shall be repaired to an equal or better condition than the immediate area. All work shall be done at the expense of the Contractor.

12. The Contractor shall obtain a NPDES permit prior to chlorination and/or dewatering. A copy of the permit shall be submitted to the Board of Water Supply, Capital Projects Division, Construction Section.

13. Pipe cushion shall be of high resistivity material. The Contractor shall submit a soil certification that high resistant cushion material has a resistivity greater than 5,000 OHM-CM. Reminder of the backfill material shall be as specified in the Water System Standards. Pipe cushion and backfill material shall contain no hazardous substances above regulatory action levels including but not limited to lead, asbestos, mercury, chromium, cadmium, zinc, strotium, and polychlorinated biphenyls (PCB).

14. All ductile iron pipe, fittings and valves shall be wrapped with two layers of 8 mil. polyethylene wrap.

15. Cleaning shall be use of "pigs" introduced into the pipeline and run completely through all installed pipelines and all branch lines for fire hydrants. "Pigging" of service laterals is not required. Bare foam "pigs" shall be used to swab piping clean as each length of the pipeline is installed. Each "pig" shall consist of a cylindrical piece of polyurethane foam with a density of 3-7 pounds per cubic foot and a vinyl-coated nose. Outside diameter of the 'pig' shall be equal to 1-1/4 to 1-1/2 times the inside diameter of the pipe being installed. The length of the "pig" shall be 1-1/2 to 2 times its diameter. Prior to use, the "pig" shall be submerged in a chlorine solution of 1 oz. of 5% chlorine bleach in 5 gallons of water. "Pigging" of the pipeline shall be considered incidental to the installation of the new pipeline.

16. Two-way blue reflective hydrant markers Type DB shall be installed at all fire hydrant locations. Contractor shall verify the exact location of hydrant marker with the nearest Honolulu Battalion Chief.

17. Ball corp and ball stop shall be used in lieu of a corporation stop and stopcock, respectively.

18. Install 4 mil thick, non-metallic, blue colored, 6 inches wide warning tape over centerline of the pipe and below the base along the entire length of trench. Tape should be marked with "CAUTION WATER LINE BURIED BELOW".

19. Board of Water Supply approval of these plans does not constitute a water commitment. Availability of water will be determined when building permit is presented to the Department. Water commitment will depend upon the status of the water system at that time. Should water service made available, the water commitment will be effective when the project receives an approved building permit from the Building Department. All water commitments will be canceled in the event the building permit is canceled.

20. The project shall be subject to the Board of Water Supply's Cross-Connection Control requirements prior to issuance of the Building Permit.

21. The installation, chlorination and testing of the water main and facilities after the meter shall not be the responsibility of the Board of Water Supply.

22. The Contractor shall furnish and install polyethylene wrap, 3 feet minimum at all taps (for DI pipe and copper lateral combination only) and plastic pipe (PE tubing) 3 feet long after meters after all lateral connections.

ORIGINAL PLAN	DATE	12/19/06
	
	
	
	
SURVEY PLOTTED BY	DATE	12/19/06
	
	
	
	
DRAWN BY	DATE	12/19/06
	
	
	
	
NOTED BY	DATE	12/19/06
	
	
	
	
DESIGNED BY	DATE	12/19/06
	
	
	
	
CHECKED BY	DATE	12/19/06
	
	
	
	

APPROVED BY:

Robert Chen 6/10/06
CHIEF, CAPITAL PROJECTS DIVISION, DATE
BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU

6/19/06 BWS Approval Signature.

DATE REVISION

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
BOARD OF WATER SUPPLY NOTES
KAMEHAMEHA HIGHWAY
Intersection Improvements At
Kahekili Highway
Project No. 83F-01-99
Scale: None Date: November, 2005
SHEET No. 3 OF 3 SHEETS

ADD.8