

Construction Notes

GENERAL

1. The Project Scope of Work includes construction of a realigned portion of Ho'omana Road and improvements at the intersection of Ho'omana Road and Kaumuali'i Highway; drainage structures and culverts, relocation of existing water meters and laterals; demolition and removal of structures, AC and concrete pavements; concrete curbs, gutters and sidewalks, overhead utility relocation, clearing, grading; and pavement marking and sign installation.

2. Construction and restoration of all existing highway facilities within State Highway Right-of-Way shall be done in accordance with all applicable sections of "Hawai'i Standard Specifications For Road and Bridge Construction, 2005" and "Specification for Installation of Miscellaneous Improvements Within State Highways" of the State Highways Division, and the Project Plans and Special Provisions.

3. All Contractor operations shall be confined to be within existing Right-of-Ways and easements.

4. In the event that a conflict occurs between State and County Standards, Specifications, and/or Notes, the more stringent requirement shall govern.

5. The Contractor shall only take direction from the Department of Transportation Engineer and shall not perform any work at the direction of the County or County Engineer, without the approval of the Department of Transportation Engineer.

6. The existence and location of underground utilities, manholes, monuments and structures as shown on the plans are from the latest available data but the accuracy is not guaranteed. The encountering of other obstacles during the course of work is possible. The Contractor shall tone for all utility lines before starting any work. The Contractor shall be held liable for any damages incurred to the existing facilities and/or improvements as a result of his operations.

7. Smooth riding connections shall be constructed at the limits of new road construction, including the beginning and end of project, connecting approaches, side streets and driveways as shown on the plans and/or as directed by the Engineer.

8. All saw cutting work shall be considered incidental to Roadway Excavation. The Contractor shall clean up any cuttings and shall not wash down material into the storm drain or sewer systems.

9. All work specified in the contract but not listed separately in the proposal schedule shall be considered incidental to other various contract items and shall not be paid for separately.

10. All work to remove temporary facilities by the Contractor shall be considered incidental to the various contract items in the proposal.

11. For geologic inspection summary refer to letter with subject heading, "Subsurface Investigation Report, Ho'omana Road Realignment, Kaumuali'i Highway-Phase 1, Lihu'e Mill Bridge to Rice Street, Lihu'e, Kaua'i, Hawai'i", dated July 20, 2012 prepared by Fewell Geotechnical Engineering, Ltd.

NOTIFICATION

1. All necessary permits for work within the jurisdiction of the County of Kaua'i shall be obtained by the Contractor at his own cost.

2. The Contractor shall obtain a Permit to Perform Work Upon State Highways from the Kaua'i District Engineer, State Highways, at 1720 Haleukana Street, prior to commencement of work within the State's Highway Right-of-Way.

3. The Contractor shall notify the Engineer in writing, three (3) weeks prior to starting Construction.

4. The Contractor shall notify the County, including Utilities, Bus Transportation, Hospitals, Police Department, Fire Department, Emergency Medical Services, and Department of Health in writing at least three (3) weeks before start of construction.

5. The Permit to Perform Work Upon State Highways may be revoked because of default in any of the following, but not limited to, conditions:

A. Work performed before or after permitted hours.

B. Failure to maintain roadway surfaces in a smooth and safe condition.

C. Failure to clean up construction debris generated from project work.

D. Failure to provide and maintain proper traffic control.

E. Failure to replace damaged pavement markings and signs.

F. Failure to provide and maintain erosion control devices in proper condition.

6. The Contractor shall inform the Kaua'i District Engineer (241-3000) at least three (3) weeks prior to closing any lanes or performing any trench restoration work. This work shall include any backfilling and compacting of trench material; placing and compacting of base course material; and any paving operations. Any trench restoration work performed by the Contractor that is not witnessed by State Representative will be required to be removed and restored with a State Representative present. All restoration work will be at the Contractor's expense.

7. All workers within the State Right-of-Way who are exposed either to vehicles using the roadway or to construction equipment within the work area, shall wear high-visibility safety apparel that meets the Performance Class 2 or 3 requirements of ANSI/ISEA 107-2004 publication entitled "American National Standards for High-Visibility Safety Apparel and Headwear". "Workers" means people on foot whose duties place them within the State Right-of-Way, such as but not limited to, Contractor construction and maintenance forces, equipment operators, survey crews, utility crews and law enforcement personnel when directing traffic, investigating incidents, handling lane closures or obstructed roadways within the State Right-of-Way.
- PRECAUTION:

1. The Contractor shall exercise care when performing work in or adjacent to the State Highway Right-of-Way. Damages to the existing facilities shall be immediately reported to the respective utility company, and/or County/State agency. The repair work shall be done at the Contractor's expense.

2. Contractor shall take proper precautions when working near overhead lines.
- WORK EXECUTION
1. No material and/or equipment shall be stockpiled or otherwise stored within the Highway Right-of-Way except at locations designated in writing and accepted by the Engineer. If use of location is approved by the Engineer, the Contractor shall obtain a Use & Occupancy Permit to use the property within the Highway Right-of-Way from the State Highways District Office (241-3000).

2. Lane closures are allowed only from 8:30 a.m. to 3:00 p.m. Monday through Friday except on Holidays. Exceptions to lane closure hours specified require written acceptance by the Engineer.

3. All regulatory, guide and construction signs and barricades shall be of high intensity reflective sheeting. Portable concrete barriers shall be reflectorized in accordance to the "Standard Plans", State of Hawai'i, Department of Transportation. On the back of each sign install a sticker with 1-inch high letters stating Project Number, Contractor Name and Date Installed. Date installed may be hand written.
- WORK EXECUTION CONT'D
4. All construction signs shall be left in place until all construction items have been completed unless otherwise directed by the Engineer. The Contractor shall obtain prior approval from the Engineer to remove construction signs.

5. After the project is completed, all areas disturbed by the Contractor, but not incorporated into the final grades or work plan, shall be restored to a condition equal to or better than the existing condition prior to disturbance. This work will be considered incidental to the various pay items under Section 209.

6. Night time work restrictions for shearwater season (September through December) shall meet the requirements of the USFWS and the State of Hawai'i Department of Transporation.
- TRENCHING
1. Prior to commencing trench excavation work, the Contractor shall take a profile along the centerline of the proposed utility trench. This information shall be used in the verification of restoring the roadway to its original condition. A copy of the profile shall be submitted to the Engineer.

2. Unless otherwise noted, no trench shall be opened more than 300 feet in advance of installed and tested pipeline and/or ductline. In addition, the total amount of open trench shall not exceed 300 feet (i.e. backfill trenches for completed portions of the pipeline and/or ductline).

3. The Contractor shall provide an adequate and safe non-skid bridging material, including shoring, over trenches in pavement areas. The bridging shall be able to support all types of vehicular traffic.

4. The Contractor will make every effort to minimize the use and the duration of use of steel plates. All steel plates shall have a non-skid surface. The State may require the backfilling of patches of trenches due to the excessive usage of steel plates at no additional cost.

5. Temporary cold mix trench patches will be permitted in any given area for a maximum duration of two (2) weeks, and shall be a minimum of 2-inches thick. All temporary patches shall be placed over properly placed and compacted backfill and base course layers. The Contractor shall be responsible for maintaining all temporary patches and to make repairs to unsatisfactory patches within 24 hours. If a pothole develops that in the opinion of the Engineer will become a hazard to the public, the repairs shall be made immediately, no later than four (4) hours after notification.

6. At the end of each day's work, the Contractor shall remove all equipment and other obstructions to permit free and safe passage of traffic provided no night work will take place.
- SURVEY PLOTTED BY: \_\_\_\_\_  
DATE: \_\_\_\_\_  
DRAWN BY: \_\_\_\_\_  
DESIGNED BY: \_\_\_\_\_  
NOTE BOOK  
QUANTITIES BY: \_\_\_\_\_  
CHECKED BY: \_\_\_\_\_  
No. \_\_\_\_\_

ORIGINAL PLAN
- THIS WORK WAS PREPARED BY ME  
OR UNDER MY SUPERVISION AND  
CONSTRUCTION OF THIS PROJECT  
WILL BE UNDER MY OBSERVATION.
- \_\_\_\_\_  
SIGNATURE  
April 30, 2014  
EXPIRATION DATE  
OF THE LICENSE
- STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

CONSTRUCTION NOTES - 1

PHASE 1 - KAUMUALI'I HIGHWAY  
LIHU'E MILL BRIDGE TO RICE STREET  
PHASE 1 - HO'OMANA ROAD

Scale: None  
Date: December 4, 2012

SHEET No. C-3 OF 50 SHEETS

Construction Notes (Cont'd)

ACCESS:

- Where pedestrian walkways exist, they shall be maintained in a safe and passable condition, or other facilities for pedestrians shall be provided. Passages between walkways at intersections shall likewise be provided.
- A minimum of 36-inches clear width and 80-inches headroom clearance height shall be maintained along sidewalk and potential walkways.
- The Contractor shall provide for access to and from all existing side streets, driveways and adjacent properties at all times.

DRAINAGE:

- Existing drainage systems will be functional at all times during construction. The Contractor shall furnish materials, equipment, labor, tools and incidentals necessary to accomplish maintenance of flow. The cost shall be incidental to the various Contract Items.
- The Contractor shall verify the locations of all existing culverts and utilities in the field. Any existing culverts and utilities damaged during construction shall be repaired or replaced by the Contractor at his own expense.
- The Contractor shall remove all silt and debris deposited in drainage facilities, on roadways and in other areas resulting from his work. The costs incurred for any necessary remedial action by the Engineer shall be payable by the Contractor.

Americans With Disabilities Act Notes

- All new sidewalk and walkway running slopes shall be defined as the direction parallel to the prevalent pedestrian flow of travel.
- All new sidewalk and walkway cross slopes shall be defined as the direction perpendicular to the prevalent pedestrian flow of travel.
- The running slope of an accessible route shall not exceed 1:20 and the cross slope of an accessible route shall not exceed 1:48.
- If the running slope of an accessible route exceeds 1:20, it shall be considered a ramp, and shall meet the requirements of ADAAG 405.
- Curb ramps shall have a running slope not steeper than 1:12 and cross slope not steeper than 1:48.
- Curb ramp run surfaces shall be stable, firm, and slip resistant. Changes in level other than the running slope and cross slope are not permitted on ramp runs.
- The clear width of a ramp run shall be 36 inches minimum.
- Landings subject to wet conditions shall be designed to prevent the accumulation of water.
- Curb ramp flares shall not be steeper than 1:10.
- Landings shall be provided at the tops of curb ramps. The landing clear length shall be 36 inches minimum. The landing clear width shall be at least as wide as the curb ramp, excluding flared sides, leading to the landing.
- Curb ramps and the flared sides of curb ramps shall be located so that they do not project into vehicular traffic lanes, parking spaces, or parking access aisles. Curb ramps at marked crossings shall be wholly contained within the markings, excluding any flared sides.

Highway Lighting, Kaua'i Island Utility Cooperative, Hawai'ian Telcom, Oceanic Time Warner Cable - Notes (Private)

- The Contractor shall notify Highway Lighting, Kaua'i Island Utility Cooperative, Hawai'ian Telcom and Oceanic Time Warner Cable three (3) weeks prior to the start of construction.
- See electrical drawings.

Construction Notes For Work Within State R/W

All construction work shall be done in accordance with the Standard Plans and Specifications of the State Department of Transportation as amended, unless otherwise specified by the contract plans and specifications.

- Confined Space  
For entry by HDOT and Contractor personnel, including inspectors, into a permit required confined space as defined in 29 CFR part 1910.146(b), the Contractor shall be responsible for providing:
  - All safety equipment required by the confined space regulations applicable to all parties other than the construction industry, to include, but not limited to, the following:

i. Full body harnesses for up to two (2) personnel.

ii. Lifeline and associated clips.

iii. Ingress/egress and full protection equipment.

B. Continuous forced air ventilation adequate to provide safe entry conditions.

C. Qualified attendant/rescue personnel at each entry/exit point.  
iv. Two-way radios (walkie-talkies) if out of line-of-sight.

Public Health, Safety And Convenience Notes (State)

- The Contractor shall observe and comply with all Federal, State and local laws required for the protection of public health and safety and environmental quality.  
v. Emergency eyewash and shower.
- The Contractor, at his own expense, shall keep the project and its surrounding areas free from dust nuisance. The work shall be in conformance with the Air Pollution Standards of the State Department of Health. The State may require supplementary measures as necessary.  
vi. Cellular telephone to call for emergency assistance.

vii. Continuous gas detector (calibrated) to measure

oxygen, hydrogen sulfide, carbon monoxide and

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ARR-050-1(036)	FY13/14	Model	50

Construction Phasing Notes

- The project shall be constructed in two phases (Interim Condition and Ultimate Phase 1). The Interim Condition shall remain until the State has acquired all necessary easements and Right-of-Way to complete the Ultimate Phase 1 proposed work.
- See sheets C-20 and C-23 for the Interim Grading and Roadway construction plans.
- All work performed under the Interim Condition shall be contained within the existing State Right-of-Way or existing Easements in favor of the State.
- Existing gravel access road crossing the proposed Hoomana Road will not be useable during the Interim Condition.
- The contractor shall remove all temporary improvements installed for the Interim Condition after the State has acquired all proposed Easements in order to construct the Ultimate Phase 1 improvements.

Project Bench Mark

The project bench mark is referenced to the State traverse station "Kilohana 3" located in the vicinity of Maluhia Road, near Kaumuali'i Highway mile post 6.1 as shown on F.A.P. No. NRH 12-B. The elevation of "Kilohana 3" is 544.93-feet mean sea level (msl).

Historical Preservation Notes (State)

Should historic remains such as artifacts, burials, concentrations of shell or charcoal be encountered during construction activities, work shall cease immediately in the immediate vicinity of the find and the find protected from further damage. The Contractor shall immediately cordon off the area and notify the Planning Department at (808) 241-4050 and the State Historic Preservation Division at (808) 692-8015, which will assess the significance of the find and recommend the appropriate mitigation measures, if necessary.

Hawai'i One Call Center

Prior to excavation, contractor is required by HRS 269e to contact the Hawai'i One Call Center at phone number (866) 423-7287.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
	DESIGNED BY	
	QUANTITIES BY	
NOTE BOOK	CHECKED BY	
	NO	

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

SIGNATURE  
April 30, 2014  
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
CONSTRUCTION NOTES - 2	
PHASE 1 - KAUMUALI'I HIGHWAY LIHU'E MILL BRIDGE TO RICE STREET PHASE 1 - HO'OMANA ROAD	
Scale: None	Date: December 4, 2012
SHEET No. C-4 OF 50 SHEETS	

"AS-BUILT"

Model



3. All construction work is to be constructed in accordance with the "Hawai'i Standard Specifications for Road and Bridge Construction, 2005" and its amendments and the "Standard Details for Public Works Construction, September 1984" as amended of the Department of Public Works, City and County of Honolulu, and the Counties of Kaua'i, Maui, and Hawai'i. The standard details are available at the County of Kaua'i clerk's office.
2. No grading between 7 PM to 7 AM on any given day or on Saturdays, Sundays and Holidays without written permission from the County Engineer and the State Department of Health.
3. Contractor to notify Public Works Department five (5) business days prior to commencing any grading work. When completed and ready for final inspection; notify Public Works Department's Inspection Section.
4. Construction plans are valid for a period of one year from the date of approval. If construction does not commence within this one-year time from the date of approval, the construction plans shall be resubmitted to all reviewing and approving agencies for review, approval and recertification.
5. All grading, grubbing and stockpiling work shall be performed in accordance with County of Kaua'i, ordinance no. 808.
6. The Contractor shall remove all silt and debris resulting from his work and deposited in drainage facilities, roadways and other areas. The cost incurred for any necessary remedial action by the County Engineer shall be payable by the Contractor.
7. During clearing operations, the Contractor shall supply a water truck for dust control purposes until the vegetation has re-established itself. Excess water, including silt and dirt, shall not be allowed to run-off the property.
8. Benchmarks that are disturbed or destroyed shall be restored under a licensed land surveyor's direction. Copies of field notes, descriptions and new values of the new benchmark shall be sent to the Department of Public Work's survey section for review and approval prior to construction,
9. The Contractor shall be responsible for all overtime night work payments for County's staff and inspection personnel including consultants, when the contract requires overtime or night work to be performed, or directs the contractor to work additional shifts or overtime for county's convenience.
10. Best Management Practices (BMP's) shall be employed at all times to the maximum extent practicable to prevent damage by sedimentation, erosion or dust to streams, watercourses, natural areas and the property of others.
11. Surveys shall be done under the supervision of a surveyor licensed in the State of Hawai'i.
12. If system conditions require non-emergency flight time work during the autumn seabird fall season (September 15 through December 15), use of lighting shall be restricted between 9:00 PM to 4:30 AM. If lighting of the work area is required in such situation, all lights shall be shielded (minimum light spill towards the sky) and directed downwards to the maximum extent practicable. Minimum requirements for lighting by HIOSH and OSHA shall be provided and assured by the Contractor. The Contractor shall train all employees working at night (records retained by the Contractor) on how to handle any downed birds and shall have appropriate equipment as approved by Save Our Shearwaters (SOS) on site to hold and transport any retrieved birds to an SOS facility. This requirement does not allow lighting as may be restricted by other government agencies.
13. Prior to starting any excavation activities, the Contractor shall contact the Hawai'i One Call Center at (866) 423-7287.

1. The permittee shall make minor adjustments at intersections, driveways, structures, etc., to fit field conditions.
2. Cones or delineators shall be extended to a point where they are visible to approaching traffic.
3. Traffic control devices shall be installed such that the sign or device farthest from the work area shall be placed first. The others shall then be placed progressively toward the work area.
4. Regulatory and warning signs within the construction zone that are in conflict with the traffic control plans shall be removed or covered. All signs shall be restored upon completion of the work.
5. When required by the issuing office, the permittee shall install a flashing arrow signal as shown on the traffic control plans.
6. All traffic lanes shall be a minimum of ten (10) feet wide.
7. All construction warning signs shall be promptly removed or covered whenever the message is not applicable or not in use.
8. The backs of all signs used for traffic control shall be appropriately covered to preclude the display of inapplicable sign messages (i.e., when signs have messages on both faces).
9. At the end of each day's work or as soon as the work is completed, the permittee shall remove all traffic control devices no longer needed to permit free and safe passage of public traffic. Removal shall be in the reverse order of installation.
10. Sign spacing (D), taper lengths (T) and spacing of cones or delineators shall be as shown in Table 645-1, unless otherwise noted on the Traffic Control Plans.

11. Contractor to provide access and/or directional signs to reroute pedestrian traffic.

12. When required by the County of Kaua'i, an advertisement shall be placed in the newspaper by the Contractor for any lane closures. The advertisement shall be made one (1) week before any lane closure and shall contain the following information:

- A. Map of the Traffic Change Limits;
- B. Notice of starting and ending dates, times and duration;
- C. Map to show Lane Closure;
- D. Explanation of the Lane Closure, "NOTICE TO MOTORIST".

The Contractor shall be required to have any lane closures announced daily over the radio two (2) days before the starting date until the work is completed. Both advertisements in the newspaper and over the radio shall be paid for by the Contractor. The Contractor shall also notify the Hospital, Ambulatory Services, Police Department and Fire Department of lane closures.

13. *All workers within the County Right-of-Way who are exposed to either vehicles using the roadway or to construction equipment shall wear high visibility safety apparel that meets the performance class 2 or 3 requirements of "ANSI/ISEA 107-2004". "Workers" is defined as people on foot whose duties place them within the County Right-of-Way, such as but not limited to construction and maintenance forces, equipment operators, survey crew, utility crews, responders to incidents (E.G., EMT and firemen), and law enforcement personnel directing traffic, investigating accidents, handling lane closures and constructed roadways.*
14. *Flaggers and/or police officers shall be insight of each other or in direct communications at all times.*

APPROVED BY:

COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS  
(FOR WORK IN THE COUNTY RIGHT-OF-WAY) DATE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

CONSTRUCTION NOTES - 3

PHASE 1 - KAUMUALIYI HIGHWAY  
LIHU'E MILL BRIDGE TO RICE STREET  
PHASE 1 - HO'OMANA ROAD

Scale: None Date: December 4, 2012

SHEET No. C-5 OF 50 SHEETS

Notes For Construction Within County Right-of-Way

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAI'I	HAW.	ARR-050-1(036)	FY13/14	Model	50

1.

All pavement shall be restored to it's original condition in accordance with "County of Kaua'i, Hawai'i Standard Specifications for Road and Bridge Construction, (2005)", and its amendments with 3-inches A.C. and 6-inches base course.
2.

The Contractor shall provide, install, maintain all necessary signs, lights, flares, barricades, markers, cones and other protective facilities and shall take all necessary precautions for the protection and for the convenience and safety of the public traffic. All such protective facilities and precautions to be taken shall conform with rules and regulations governing the use of traffic control devices at work sites on or adjacent to public streets and highways adopted by the Highway Safety Coordinator and U.S. Federal Highway Administration "Manual on Uniform Traffic Control Devices for Streets and Highways", dated 2009 and its amendments.
3.

The Contractor shall, whenever necessary, properly sheet and brace all excavations to render it secure and shall remove all such sheeting and bracing before completion of the backfill for storm drains. The minimum cover requirements (from top of pipe to finished grade over pipe) is three (3) feet.
4.

A. A permit shall be obtained by the Contractor from the Department of Public Works, at the Contractor's expense.

B. Driveways shall be kept open unless owners of the abutting lots using these Right-of-Way are otherwise provided for satisfactorily.

C. All work including repair of damaged pavement and shoulders shall be inspected and approved by the Department of Public Works. All unapproved work shall be considered unacceptable and shall be reworked and corrected as directed by the Department of Public Works, at the Contractor's expense.

D. Damaged shoulders shall be restored to a condition equal to or better than existing condition.

E. Work on a public street area may be performed only between the hours of 8:00 A.M. to 3:30 P.M. Monday through Friday and County furlough days, except on holidays recognized by the County of Kaua'i, unless otherwise permitted by the Department of Public Works, County of Kaua'i.

F. During non-working hours, all trenches shall be covered with a safe non-skid bridging material and all lanes shall be opened to public vehicular and pedestrian traffic.

G. No material and/or equipment shall be stockpiled or otherwise stored within County Right-of-Way except at locations designated in writing and approved by the County Engineer.

H. The Contractor shall conduct his operations so as to offer the least possible obstructions and inconvenience to the public and he shall have under construction no greater length or amount of work that he can execute properly with due regard to the rights of the public.

I. All existing drainage flow conditions shall be maintained.
5.

The Contractor shall retain the services of a Geotechnical Engineer for quality control. Certification from the registered Geotechnical Engineer shall be submitted to the Department of Public Works at the completion of the construction work. The Geotechnical Engineer shall certify that the construction work meets "Standard Specifications". The Geotechnical Engineer shall also submit test results as requested by the Department of Public Works.

5.

The Contractor shall hold a pre-construction meeting with the Construction-Design section of the Department of Public Works before commencing any work.
6.

The Contractor shall exercise extreme caution to preserve benchmarks (survey monuments) whenever the center of a survey monument is less than three (3) feet from the edge of construction. The Contractor shall retain a Licensed Surveyor to reference the location of said survey monument.
7.

Benchmarks that are disturbed or destroyed shall be restored under a Licensed Land Surveyor's direction. Copies of field notes, descriptions and new values of the benchmark shall be sent to the Department of Public Works survey section for review and approval prior to construction.
8.

Contractor shall be responsible for all overtime night work payments for County's staff and inspection personnel including consultants when the contract requires overtime or night work to be performed, or directs the Contractor to work additional shifts or overtime for County's convenience.
9.

When required by the County of Kaua'i, an advertisement shall be placed in the newspaper by the Contractor for any lane closures. The advertisement shall be made one (1) week before any lane closure and shall contain the following information:

A. Map of the Traffic Change Limits;

B. Notice of starting and ending dates, times and duration;

C. Map to show Lane Closure;

D. Explanation of the Lane Closure, "NOTICE TO MOTORIST".

The Contractor shall be required to have any lane closures announced daily over the radio two (2) days before the starting date until the work is completed. Both advertisements in the newspaper and over the radio shall be paid for by the Contractor. The Contractor shall also notify the Hospital, Ambulatory Services, Police Department and Fire Department of lane closures.
10.

All workers within the County Right-of-Way who are exposed to either vehicles using the roadway or to construction equipment shall wear high visibility safety apparel that meets the performance class 2 or 3 requirements of "ANSI/ISEA 107-2004". "Workers" is defined as people on foot whose duties place them within the County Right-of-Way, such as but not limited to construction and maintenance forces, equipment operators, survey crew, utility crews, responders to incidents (E.G., EMT and firemen), and law enforcement personnel directing traffic, investigating accidents, handling lane closures and constructed roadways.
11.

The Contractor shall make every effort to minimize the use and duration of steel plates. All steel plates shall have a non-skid surfacing. The County may require the backfilling and patching of trenching due to the excess use of steel plates.
12.

The Contractor shall provide an adequate non-slip bridging material, including shoring over trenches in pavement areas. The bridging shall be able to support all types of vehicular and pedestrian traffic.
13.

Where pedestrian walkways exist they shall be maintained in a safe and passable condition or other facilities for pedestrian shall be provided. Passages between walk ways at intersections shall likewise be provided.

APPROVED BY:

COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS  
(FOR WORK IN THE COUNTY RIGHT-OF-WAY)

DATE

THIS WORK WAS PREPARED BY ME  
OR UNDER MY SUPERVISION AND  
CONSTRUCTION OF THIS PROJECT  
WILL BE UNDER MY OBSERVATION.

SIGNATURE

April 30, 2014  
EXPIRATION DATE  
OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

CONSTRUCTION NOTES - 4

PHASE 1 - KAUMUALI'I HIGHWAY  
LIHU'E MILL BRIDGE TO RICE STREET

PHASE 1 - HO'OMANA ROAD

Scale: None

Date: December 4, 2012

SHEET No. C-6 OF 50 SHEETS

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

"AS-BUILT"

Model



Water Pollution And Erosion Control Notes (State)

A. GENERAL:

1. See Section 209 - Water Pollution and Erosion Control. Section 209 describes but is not limited to: submittal requirements; scheduling of a water pollution and erosion control conference with the Engineer; construction requirements; method of measurement; and basis of payment.
2. Effective October 1, 2008, follow the guidelines in the "Construction Best Management Practices Field Manual", dated January 2008 in developing, installing and maintaining the Best Management Practices (BMP) for the project.
3. Follow the guidelines in the Honolulu's City & County "Rules Relating to Soil Erosion Standards and Guidelines" along with applicable Soil Erosion Guidelines for projects on Maui, Molokai, Kauai, and Hawaii.
4. The Engineer may assess liquidated damages of up to \$27,500 for non-compliance of each BMP requirement and each requirement stated in Section 209, for every day of non-compliance. There is no maximum limit on the amount assessed per day.
5. The Engineer will deduct the cost from the progress payment for all citations received by the Department for non-compliance, or the Contractor shall reimburse the State for the full amount of the outstanding cost incurred by the State.
6. For projects that require an NPDES Permit from the Department of Health, install a rain gage prior to any field work including the installation of any site-specific best management practices. The rain gage shall have a tolerance of at least 0.05 inches of rainfall, and have an opening of at least one-inch in diameter. Install the rain gage on the project site in an area that will not deter rainfall from entering the gage opening. The rain gage installation shall be stable and plumbed. Do not begin field work until the rain gage is installed and site-specific best management practices are in-place.

B. WASTE DISPOSAL:

1. Waste Materials  
Collect and store all waste materials in a securely lidded metal dumpster. The dumpster shall meet all local and State solid waste management regulations. Deposit all trash and construction debris from the site in the dumpster. Empty the dumpster a minimum of twice per week or as often as is deemed necessary. Do not bury construction waste materials onsite. The Contractor's supervisory personnel shall be instructed regarding the correct procedure for waste disposal. Post notices stating these practices in the office trailer and the Contractor shall be responsible for seeing that these procedures are followed.
2. Hazardous Waste  
Dispose all hazardous waste materials in the manner specified by local or State regulations and by the manufacturer. The Contractor's site personnel shall be instructed in these practices and shall be responsible for seeing that these practices are followed.
3. Sanitary Waste  
Collect all sanitary waste from the portable units a minimum of once per week, or as required.

C. EROSION AND SEDIMENT CONTROL INSPECTION AND MAINTENANCE PRACTICES:

1. Inspect all control measures at least once each week and within 24 hours of any rainfall event of 0.5 inches or greater within a 24 hour period.
2. Maintain all measures in good working order. If repair is necessary, it shall be initiated within 24 hours after the inspection.
3. Remove built-up sediment from silt fence when it has reached one-third the height of the fence.
4. Inspect silt screen or fence for depth of sediment, tears, to verify that the fabric is securely attached to the fence posts or concrete slab and to verify that the fence posts are firmly in the ground. Inspect and verify the bottom of the silt screen is buried a minimum of 6 inches below the existing ground.

5. Inspect temporary and permanent seeding and planting for bare spots, washouts and healthy growth.

6. Make a maintenance inspection report promptly after each inspection. Submit a copy to the Engineer no later than one week from the date of the inspection.

7. Provide a stabilized construction entrance to reduce vehicle tracking of sediments. Include stabilized construction entrance in the Water Pollution,  $\frac{1}{64}$ Dust, and Erosion Control submittals.  $\frac{1}{64}$ Minimum length should be 50 feet.  $\frac{1}{64}$ Minimum width should be 30 feet.  $\frac{1}{64}$ Minimum depth should be 12 inches or as recommended by the soils engineer and underlain with geo-textile fabric.  $\frac{1}{64}$ Clean the paved  $\frac{1}{64}$ street adjacent to the site entrance daily or as required to remove any excess  $\frac{1}{64}$ mud, cold -planed materials, dirt or rock tracked from the site. Cover dump trucks  $\frac{1}{64}$ hauling material from the construction site with a tarpaulin.

8. Include designated Concrete Washout Area(s) in the Water Pollution, Dust, and Erosion Control submittals.

9. Submit the name of a specific individual designated responsible for inspections, maintenance and repair activities and filling out the inspection and maintenance report.

10. Personnel selected for the inspection and maintenance responsibilities shall receive training from the Contractor. They shall be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls used onsite in good working order.

11. Contain, remove, and dispose slurry generated from saw cutting of pavement in accordance with approved BMP practices. Payment for confinement, removal, and disposal of slurry shall be considered incidental to the various contract items.

D. GOOD HOUSEKEEPING BEST MANAGEMENT PRACTICES:

1. Materials Pollution Prevention Plan

a. Applicable materials or substances listed below are expected to be present onsite during construction. Other materials and substances not listed below shall be added to the inventory.

Concrete

Paints (enamel and latex)

Tar

Petroleum Based Products

Wood

Detergents

Metal Studs

Fertilizers

Cleaning Solvents

Masonry Block

b. Use Material Management Practices to reduce the risk of spills or other accidental exposure of materials and substances to storm water runoff. Make an effort to store only enough product as is required to do the job.

c. Store all materials stored onsite in a neat, orderly manner in their appropriate containers and if possible under a roof or other enclosure.

d. Keep products in their original containers with the original manufacturer's label.

e. Do not mix substances with one another unless recommended by the manufacturer.

f. Whenever possible, use a product up completely before disposing of the container.

g. Follow manufacturer's recommendations for proper use and disposal.

h. Conduct a daily inspection to ensure proper use and disposal of materials onsite.

2. Hazardous Material Pollution Prevention Plan

- a. Keep products in original containers unless they are not resealable.
- b. Retain original labels and material safety data sheets (MSDS).
- c. Dispose of surplus products according to manufacturers' instructions and local and State regulations.

3. Onsite and Offsite Product Specific Plan  
The following product specific practices shall be followed onsite:

- a. Petroleum Based Products:  
Monitor all onsite vehicles for leaks and perform regular preventive maintenance to reduce the chance of leakage. Store petroleum products in tightly sealed containers which are clearly labeled. Apply asphalt substances used onsite according to the manufacturer's recommendation.
- b. Fertilizers:  
Apply fertilizers used only in the minimum amounts recommended by the manufacturer. Once applied, work fertilizer into the soil to limit exposure to storm water. Storage shall be in a covered shed. Transfer the contents of any partially used bags of fertilizer to a sealable plastic bin to avoid spills.
- c. Paints:  
Seal and store all containers when not required for use. Do not discharge excess paint to the highway drainage system. Dispose properly according to manufacturers' instructions or State and local regulations.

- d. Concrete Trucks:  
Wash Out or discharge concrete truck drum wash water only at a designated site. Do not discharge water in the highway drainage system or waters of the United States. Contact Drinking Water Branch, Department of Health at 586-4258 to receive permission to designate a disposal site. Clean disposal site as required or as requested by the Owner's representative.

ORIGINAL PLAN	NOTE BOOK	No	DATE	SURVEY PLOTTED BY	
				DRAWN BY	
				DESIGNED BY	
				CHECKED BY	

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SIGNATURE  
April 30, 2014  
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
CONSTRUCTION NOTES - 5	
PHASE 1 - KAUMUALI'I HIGHWAY LIHU'E MILL BRIDGE TO RICE STREET PHASE 1 - HO'OMANA ROAD	
Scale: None	Date: December 4, 2012
SHEET No. C-7 OF 50 SHEETS	

"AS-BUILT"

Model

Water Pollution And Erosion Control  
Notes (Continued) (State)

D. GOOD HOUSEKEEPING BEST MANAGEMENT PRACTICES (Cont'd):

4. Spill Control Plan

- a. Post a spill prevention plan to include measures to prevent and clean up each spill.
- b. The Contractor shall be the spill prevention and cleanup coordinator. Designate at least three site personnel who shall receive spill prevention and cleanup training. These individuals shall each become responsible for a particular phase of prevention and cleanup. Post the names of responsible spill personnel in the material storage area and in the office trailer onsite.
- c. Clearly post manufacturers' recommended methods for spill cleanup. Make site personnel aware of the procedures and the location of the information and cleanup supplies.
- d. Keep materials and equipment necessary for spill cleanup in the material storage area onsite.
- e. Clean up all spills immediately after discovery.
- f. Keep the spill area well ventilated. Personnel shall wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- g. Report spills of toxic hazardous material to the appropriate State or local government agency, regardless of the size.

E. PERMIT REQUIREMENTS:

- 1. If a National Pollutant Discharge Elimination System (NPDES) Permit is required for Construction Activities of one acre or more, submit to the Engineer six sets of the Water Pollution and Erosion Control Submittals as detailed in Subsection 209.03 of the specifications. The Contractor's attention is directed to the applicable NPDES Permit documents on the bid package compact disc.
- 2. If an NPDES Permit for Construction Dewatering is required, the Contractor shall be responsible to obtain the Permit from the Department of Health, Clean Water Branch.
- 3. Comply with all applicable State and Federal Permit conditions. Permits may include but are not limited to the following:
  - a. NPDES Permit for Construction Activities
  - b. NPDES Permit for Construction Dewatering
  - c. NPDES Permit for Hydrotesting Waters
  - d. Water Quality Certification
  - e. Stream Channel Alteration Permit
  - f. Section 404 Army Corps of Engineer Permit

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

Environmental Control Notes For Grading (County)

- 1. In accordance with Chapter 11-60.1, AIR POLLUTION CONTROL, Title 11, Hawai'i Administrative Rules, the Property Owner/Developer shall be responsible for ensuring that effective control measures are provided to minimize or prevent any visible dust emission caused by the construction work from impacting the surrounding areas; including the off-site roadways used to enter/exit the project. These measures include but are not limited to the use of water wagons, sprinkler systems, dust fences, etc.
- 2. In accordance with Chapter 11-55, WATER POLLUTION CONTROL and Chapter 11-54, WATER QUALITY STANDARDS, Title 11, Hawai'i Administrative Rules, the Property Owner/Developer shall be responsible for ensuring that the Best Management Practice (BMP) to minimize or prevent the discharge of sediments, debris and other water pollutant into State waters are provided at all times.
- 3. In accordance with Chapter 11-56, SOLID WASTE MANAGEMENT CONTROL, Title 11, Hawai'i Administrative Rules, the Property Owner/Developer shall be responsible for ensuring that grub material, demolition waste and construction waste generated by the project are disposed of in a manner or at a site approved by the State Department of Health. Disposal of any of these wastes by burning or burying is prohibited.
- 4. The Contractor shall be responsible for obtaining and paying for all applicable permits from the Department of Health including but not limited to (NPDES), Notice of Intent and General Permit for storm water, hydrostatic test and dewatering discharges prior to commencing construction. NPDES permit shall be required prior to grading or grubbing work over and area of one acre or more.
- 5. The Contractor shall remove all silt and debris resulting from this work and deposited in drainage facilities, roadways and other areas. The cost incurred for any necessary remedial action by the Engineer shall be payable by the Contractor.
- 6. Best Management Practices (BMP's) shall be employed at all times to the maximum extent practicable to prevent damage by sedimentation, erosion or dust to streams, watercourses, natural areas and the property of others.
- 7. In accordance with Chapter 11-46, COMMUNITY NOISE, Hawai'i Administrative Rules, the Contractor and the Property Owner/Developer shall be responsible for providing effective control measures to minimize or prevent construction related noise from impacting the residents in the immediate area. If required, noise reduction measures shall be implemented by the Contractor during the construction work.
- 8. The property may harbor rodents which will be dispersed to the surrounding areas when the site is cleared. In accordance with Chapter 11-26, VECTOR CONTROL, Title 11, HAR, the applicant shall ascertain the presence or absence of rodents on the property. Should the presence of rodents be determined, the applicant shall eradicate the rodents prior to clearing the site.
- 9. A copy of the plans, construction schedule and/or written measures that is required to be submitted by the Contractor (Dust Control Measures/Plans) should also be sent to the Department of Health for monitoring purposes.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAI'I	HAW.	ARR-050-1(036)	FY13/14	Model	50

Grading Notes (County)

Temporary Dust Control Measures for Grading

- 1. The graded or project site that is cleared of vegetation shall be

kept damp with water continuously for seven (7) days a week. At

the end of each day, the site shall be sufficiently dampened with

water on a continual basis so that the site will remain moistened

during the night  
APPROVED BY:

COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS  
(FOR GRADING ONLY) DATE

- 2. The Contractor shall conduct this operations so that excavation,

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
CONSTRUCTION NOTES - 6	
PHASE 1 - KAUMUALI'I HIGHWAY LIHU'E MILL BRIDGE TO RICE STREET PHASE 1 - HONO O MAU ROAD	
Scale: None	Date: December 4, 2012
SHEET No. C-8 OF 50 SHEETS	

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OR UNDER MY SUPERVISION AND  
CONSTRUCTION OF THIS PROJECT  
WILL BE UNDER MY OBSERVATION.

SIGNATURE  
April 30, 2014  
EXPIRATION DATE  
OF THE LICENSE

"AS-BUILT"

Model

Water Notes (Departement of Water)

1. Unless otherwise specified, all materials and construction of water system facilities and appurtenances shall be in accordance with the "Water System Standards", 2002, as adopted by the Department of Water, County of Kaua'i, including all subsequent amendments and additions.

2. The Contractor shall arrange a pre-construction conference at least ten (10) days before construction and shall notify the Department of Water at least three (3) working days prior to the start of construction.

3. The Contractor shall submit the name and telephone number of its authorized superintendent on the job and the names and telephone numbers of at least three (3) persons to contact in case of emergency during non-working hours.

4. The Contractor shall notify the Department of Water at least 24 hours prior to any trenching, pipe laying, backfilling, testing or chlorination to insure that inspectional services will be available.

5. All materials (pipe, pipe lubricants, paints, sealants, form oil, concrete admixtures, etc.) in direct contact with the potable water shall have National Sanitation Foundation (NSF) approvals. The Contractor shall submit these approvals to the Department of Water for review and approval prior to its application.

6. The location of existing water mains and appurtenances shown on the plans are approximate only. The Contractor shall verify the exact locations in the field. Excavation around any existing water main shall be done by hand. The cost of locating water mains and appurtenances shall be considered incidental to the waterline work.

7. The Contractor shall provide unobstructed access to existing hydrants, valves and water meters at all times.

8. The Contractor shall secure all excavations in accordance with OSHA regulations.

9. There shall be no physical connection between a public or private potable water system and a non-potable water system, sewer, or appurtenance thereto which could permit the passage of any sewage or polluted water into the potable water supply.

10. Trench excavation, backfilling in lifts and repaving shall conform to the "Hawai'i Standard Specifications for Road and Bridge Construction, 2005", including all subsequent amendments and additions.

11. Warning tape shall be in accordance with Division 200, Section 212.08 of the "Water System Standards". The warning tape shall be four (4) mil thick, non-metallic, acid and alkali resistant polyethylene and 6-inches wide with minimum strength of 1,750 psi lenghwise and 1,500 psi crosswise. Tape color shall be "Safety Precaution Blue" and shall bear a continuous printed inscription "Caution Water Line Buried Below". Inscription shall be 2-inches high, black text.

12. All hydrants shall receive a minimum SSPC SP3 surface preparation

- and coated in accordance with Division 200, Section 206.01 of the "Water System Standards".

13. Unless otherwise directed, prior to the connection of any pipeline to the existing main, the pipeline installed shall be cleaned, pressure tested, chlorinated, flushed, and sampled in accordance with Division 300, Sections 302.27 to 302.29 of the "Water System Standards", 2002 including all subsequent amendments and additions.

Water samples shall be analyzed by the MF method on m-ENDO AGAR.

In addition to the test for coliforms, a separate test for heterotrophic plate count (HPC) shall be conducted. the HPC count shall be less than 300 cfu/ml.

14. Polyurethane foam "Pigs" shall be "pushed" through the length of the installed pipeline using pressurized water.

15. All connections shall be scheduled in coordination with the Department of Water.

A. An advanced deposit is required for operating valves, flushing lines and notifying consumers affected by a water shutdown during connections. The Contractor will be charged the actual cost (deposits and fees waived for Department of Water contracts).

B. The Contractor shall place the deposit prior to scheduling the connection date.

C. Connections shall be scheduled on Tuesdays through Thursdays. No connections shall be scheduled on Mondays, Fridays, weekends, and holidays.

D. All materials shall be on hand and approved by the Engineer prior to scheduling the connection date.

E. Pumps used to de-water the connection area shall be operated in the presence of the Engineer prior to scheduling the connection date.

F. All connections shall be performed in the presence of the Engineer.

G. The Contractor shall notify any affected residents at least two (2) working days prior to shutting off water to make connections.

16. In order to prevent damage to the polyethylene encasement from excessive handling, the polywrap shall be installed around the barrel of the ductile iron pipe at its final location along the trenchline. The polyethylene encased pipe shall be lifted using a fabric type sling or a suitably padded cable or chain to prevent damage to the polyethylene.

17. The Contractor shall take all necessary compaction tests while the waterline trench is being backfilled and while the subbase/basecourse is being placed. If the test results indicate that additional compaction is required, the corrective work shall be completed before any additional trench excavation or placing of subbase/basecourse is allowed.

18. The Contractor shall retain the services of a registered Geotechnical Engineer for quality control. The compaction test results shall be certified by the Geotechnical Engineer and submitted to the Department of Water, State Highways Division (for work done within State R/W) and the Department of Public Works (for work done within County R/W). The Geotechnical Engineer shall certify that the compaction results meet the requirements of the current Standard

- Specifications for Road and Bridge Construction.
19. The Contractor shall connect all existing consumer piping to the new service laterals. The Department of Water will transfer the existing water meters only.
20. All fittings shall be mechanical joint (MJ) at each end unless otherwise noted. "Megalug" retainer glands shall be used with all mechanical joint fittings and valves used in connecting new water mains to existing water mains unless otherwise noted.
21. All water valves that will be abandoned in place shall be placed in the "closed" position. Remove top section of valve box and concrete settlement slab. Fill remainder of valve box with concrete place backfill and repair pavement section to applicable State or County standards. Backfill to finish grade in road shoulder area.
22. The Contractor shall obtain all applicable Department of Health Permits prior to the start of construction. Permits include, but are not limited to, (NPDES), permits for storm water, hydrostatic test, dewatering, and for construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area.
23. The Contractor shall be responsible for the proper disposal of storm water discharges and effluent associated with construction activities including hydrotesting and disinfection operations, to safeguard public health and safety in accordance with applicable Department of Health requirements. All permits and licenses for

APPROVED BY:

MANAGER AND CHIEF ENGINEER,  
DEPARTMENT OF WATER, COUNTY OF KAUAI

DATE

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April 30, 2014  
EXPIRATION DATE  
OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

CONSTRUCTION NOTES - 7

PHASE 1 - KAUMUALI'I HIGHWAY  
LIHU'E MILL BRIDGE TO RICE STREET  
PHASE 1 - HO'OMANA ROAD

Scale: None  
Date: December 4, 2012

SHEET No. C-9 OF 50 SHEETS

SURVEY PLOTTED BY  
DATE  
DRAWN BY  
DESIGNED BY  
QUANTITIES BY  
CHECKED BY

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PLAN  
NOTE BOOK  
No.

"AS-BUILT"

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Sandwich Isles Communications  
(SIC) Construction Notes (Private)

General

- All work shall be in strict accordance with specifications and requirements of the Rural Utilities Aervice (RUS) and Sandwich Isles Communications (SIC), which complies with all applicable City, County, State and Federal requirements.
- All materials used must be approved and/or accepted by SIC.
- Contractor may refer to the RUS website (<http://www.Rurdev.Usda.Gov/rustelecomprograms.Html>) for regulations, bulletins, forms, etc.
- Contact the Hawai'i One Call Center at (866) 423-7287 for locating existing underground facilities prior to beginning any excavation.
- All work shall be coordinated and scheduled with SIC and/or it's representative and any other agency involved with the project.
- The contractor shall procure and pay for all licenses and permits and shall give all notices necessary for the prosecution of the work.

Refer to the following for installation procedures and descriptions

- Cables shall be installed per manufacturer's recommended installation procedure and in such a manner to avoid deformities that may affect cable performance and/or characteristics.
- The bottom-most conduit closest to the property side shall be used first unless otherwise directed by the project manager.
- Place 14 AWG copper THHN coated locate wire as follows:
  - For network locations, the locate wire is to be placed within the red sub-duct. For subdivisions, the locate wire is to be placed within the 4-inch conduit designated for CATV and not with the SIC fiber.
  - Within handholes, the locate wire is to be routed along the wall and above the cable racking to the corner of the handhole and attached to the wall, not to interfere with cabling. Within manholes, the locate wire is to be routed along the wall, above the racking and attached to the manhole neck riser. The contractor is to leave approximately 10-inches of slack coiled in each manhole/handhole for locating purposes.
  - Within manholes, the locate wire is to be cut, stripped, and connected at each location utilizing a DryConn waterproof connector (King 6 Blue) or equivalent.
  - Within handholes, it is preferred that the locate wire not be cut. However, on a case by case basis, the project manager may modify this requirement.
  - The Contractor shall be responsible for performing a continuity test to ensure there are no opens or damages to the locate wire.

Conduits

- All PVC conduits, sweeps, couplings, adapters and bell ends shall be schedule 40, unless otherwise specified.
- All high density polyethylene conduits shall be SDR 11. Typical 4-pack unit includes four 1-1/2-inch SDR 11 rated conduits in the colors of black, red, orange, and white, 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" manufactured by ETCO Specialty Products, Inc.
- Main conduit runs, except riser conduits, shall be constructed with minimum 6-foot radius curves, unless otherwise approved by the Engineer.
- After the conduits are installed, a round solid mandrel not less than 12-inches 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.
- Install muletape in all PVC conduits and cap all conduits after testing. The NEPTCO (or approved equal) muletape is available in 3,000 feet, 6,500 feet, and 10,000 feet reels from Westinghouse Electric Supply Company (WESCO), the NEPTCO muletape is pre-lubricated and printed with with sequential footage markings. Muletape will not be installed in conduits with a diameter of 1-½-inches or less.
- All 4-inch ducts shall have watertight plugs to keep them free of moisture & debris and to accommodate cabling placed on future projects.  
4-inch plugs shall consist of:  
TYCO, Quadplex Jackmoon Plugs, series 136  
TYCO, Jackmoon Hole Plugs & Bushings, series 136  
all other ducts shall have TYCO, Blank Jackmoon Plugs to keep them free of water and debris.
- Conduit stubs from handholes to individual residential lots shall be schedule 40 PVC, 1-inch diameter and extended 5-feet beyond property line. Cap and seal end and mark locations with above ground marker.
- All conduits shall enter manholes at a 90 degree angle and shall extend into the manhole as follows: conduits designated for fiber shall extend 12-inches into the manhole. 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.
- All conduits entering manholes or handholes shall be grouted between the 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.

Backfill

- Backfill for ductline trenches, manholes and handholes shall be in accordance with:
  - 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.
  - 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, if construction is located under City and County streets and roads.
- Backfilling shall be subject to the approval of the SIC project manager, the authorized representative of the Department of Transportation, State of Hawai'i or Department of Public Works, City and County of Honolulu, County of Kaua'i, County of Maui, County of Hawai'i as the case may be.
- A third party Geotechnical Engineer, licensed and insured in the State of Hawai'i, must certify that the excavated area meets the governing agencies and/or owners standards for backfill and compaction.
- Excavated material may be reused as backfill, providing that it conforms to requirements of type "A" and type "B" backfill, as required within the "Hawai'i Standard Specifications For Road and Bridge Construction, 2005". A written soils report of conformance by a licensed third party Geotechnical Engineer is needed prior to backfill using the excavated material.
  - Type "A" backfill is defined as beach sand, earth or earth and gravel. Maximum particle size shall be 1-inch and mixture shall not contain more than 20% by volume of rock particles.
  - Type "B" backfill is defined as beach sand, earth or earth and gravel. Maximum particle size shall be ½-inch and mixture shall not contain more than 20% by volume of rock particles.
- All conduit runs shall have a 3-inch non-metallic warning tape placed 12-inches above the conduit run. The tape shall read "caution buried fiber optic cable below."

APPROVED BY:

SANDWICH ISLES COMMUNICATIONS, INC.

DATE

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SIGNATURE  
April 30, 2014  
EXPIRATION DATE  
OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

CONSTRUCTION NOTES - 8

PHASE 1 - KAUMUALI'I HIGHWAY  
LIHU'E MILL BRIDGE TO RICE STREET  
PHASE 1 - HO'OMANA ROAD

Scale: None  
Date: December 4, 2012

SHEET No. C-10 OF 50 SHEETS

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

"AS-BUILT"

Model



Sandwich Isles Communications  
(SIC) Construction Notes (Continued) (Private)

Manholes and Handholes

- All manholes shall have HS20-44 traffic loading covers (unless otherwise noted). Handholes shall have 20k traffic load rated covers.
- All manhole and handhole covers shall have the "SIC" logo.
- All manhole and handhole cover bolts shall be stainless steel 3/4-inch pentahead, unless otherwise noted.
- All manholes and handholes are specified as follows:
  - Um35 and um4x6 manhole assembly units - Hawai'i precast, Inc. As per master purchase agreement.
  - Uhc30x48x33 handhole (pullbox) assembly unit. This unit shall consist of one two tier armorcast polymer concrete box & cover assembly. Part number (A6001430TA-SIC4) or equivalent.
  - Uhc13x24x36 handhole (pullbox) assembly unit. This unit shall consist of one armorcast polymer concrete box & cover assembly. Part number (A6001946TA-SIC2) or equivalent.
  - Uh35 & uh4x6 handhole assembly units - Hawai'i Precast Inc. As per master purchase agreement.
- All manholes and handholes to be ordered with all hardware, including cable racks, steps and locks.
- Set manhole or handhole on a level area, in the bottom of the excavation, on a 4-inch layer of crushed rock, for drainage purposes.
- 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.
- Before backfilling and compacting, make sure covers are in place and secure. Layer 6-inch to 8-inch 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.
- The tops of all manholes and handholes shall be flush with the sidewalk or roadway or 1-inch above finish grade in non-paved areas, unless otherwise specified by the Engineer.
- Provide a 5/8-inch diameter x 8-foot copper clad ground rod at handholes and manholes as specified on the drawings, or as directed by the project manager.

Utility Pole Installation

- All aerial work shall be in strict accordance with specifications and requirements of the rural utilities service (RUS) bulletin 1753F-152.
- Utility poles shall be preserved using the Pentachlorophenol (penta) type treatment.

- Utility poles shall be termite protected utilizing termimesh polesocks or equivalent. Polesocks shall extend no more than 8-inches above ground and be secured with Deltec strapping. Follow the manufacturer's recommendations for installation.
- The pole hole shall be of sufficient diameter to permit the pole to settle freely to the bottom of the hole without trimming the butt and still have sufficient space between the pole and the side of the hole to permit proper tamping of the backfill at every point around the pole, and throughout the entire depth of the hole.
- The pole hole shall not exceed two (2) times the diameter of the pole's butt diameter.
- Backfill shall be thoroughly tamped the full depth of the pole hole. Earth must be banked around the pole to a minimum height of 6-inches above the ground level.
- Poles shall be set plumb, except at corners where they shall be set and raked against the load so that the pole top will be in line after the load is applied. The rake pole shall not exceed 6-inches for each 10-feet of pole length after the conductors are installed at the required tension. Deadend shall be set so as to be plumb and in line after the load is applied.
- Pole lightning protection shall be shall be a #6 awg bare copper wire in accordance with RUS construction practices.
- Suspension strand/hardware shall be class "C" galvanized steel utility grade for corrosion areas.
- Guy guards, yellow in color, shall be placed on all down guys.

Pulling/blowing

- Prior to placing cable, contractor shall "swab" duct to clear any debris, and confirm duct is acceptable for cable placement. Any obstructions shall be reported to the project manager.
- When placing cable through conduit or inner-duct, the manufacturer's specified pulling tension shall not be exceeded.
  - Breakaway swivels shall be used on all cable and the breaking point shall be no less than 100 lbf of the cable manufacturer's maximum pulling load.
  - If installation method includes pulling equipment other than manpower, the contractor is required to have calibrated tension monitors (aka slip clutch capstan, torque limiter, etc.) and shall not exceed the cable manufacturer's maximum pulling load.
- Prior to beginning cable placement, contractor is to verify pulling equipment's calibration using a calibration dynamometer. Testing shall be witnessed by the project manager.

- When blowing cable, follow the blowing manufacturer's specifications and procedures. Type of blowing machine used shall be determined by the diameter of fiber cable being blown. Blowing machine shall be approved by SIC. Special care shall be taken to keep cable clean and free of any type of debris, prior to blowing cable into duct. Cable slack shall not be placed directly on the ground, but shall be placed on a clean plastic tarp.
- A lubricant shall be used in the amount specified by the lubricant manufacturer. The lubricant shall be produced for this application and shall be water-based, slow drying fluid that must not harden or stress-crack the ducts and shall not damage the cable jackets.

Bending radius

- The minimum bend radius for osp copper twisted-pair cable shall be no less than 10 times the cable diameter, or as specified by the cable manufacturer, whichever is greater.
- The minimum bend radius for fiber optic cable(s) (foc) shall be no less than 20 times the outside diameter of the foc, or as specified by the manufacturer, whichever is greater.

Cable racking

- New cables in manholes/handholes shall be installed and racked in a manner as to not trap or lock-in existing cables within the manholes/handholes.
- Cable steps with locking clips shall be used and the cables secured to the racking with Deltec straps.

APPROVED BY:

SANDWICH ISLES COMMUNICATIONS, INC.

DATE

THIS WORK WAS PREPARED BY ME  
OR UNDER MY SUPERVISION AND  
CONSTRUCTION OF THIS PROJECT  
WILL BE UNDER MY OBSERVATION.

SIGNATURE  
April 30, 2014  
EXPIRATION DATE  
OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

CONSTRUCTION NOTES - 9

PHASE 1 - KAUMUALI'I HIGHWAY  
LIHU'E MILL BRIDGE TO RICE STREET  
PHASE 1 - HO'OMANA ROAD

Scale: None      Date: December 4, 2012

SHEET No. C-11      OF 50      SHEETS

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

"AS-BUILT"

Model

Sandwich Isles Communications  
(SIC) Construction Notes (Cont'd) (Private)

Cable id/cable tags

Cable tags shall be installed in all accessible locations including manholes, handholes, and cabinet terminal locations, and shall last the life of the cable.

1. In manholes/handholes, cable tags shall be attached within 6-inches of each side of the splice closure. In manholes/handholes where no closure is present, cable tags shall be attached within 6-inches of the duct in which the cable enters or exits the manhole/handhole. At cabinet/terminal locations, the cable tags shall be attached to the cable directly at the location the cable exits the duct/raceway and also enters the cabinet or terminal. All cable tags shall list the "lead" number, cable (uo/uf), cable size, year of installation, cable count, cable manufacturer, and sequential footage as referenced in the example shown on this sheet.
2. Cable tags shall be 3"x 5" in size, yellow in color, manufactured out of plastic with a laminate overlay. Cable information shall be computer generated and capable of withstanding exposure to outside weather conditions.
3. The contractor shall attach the cable tags using blue and orange pvc tie straps with blue identifying the "feed" and orange identifying the "field".

Cable tag example

UO(48), 2012

COUNT:  
KLMU8:1-48

CORNING

SEQ: 1000 FT

Cable unit, year placed

Cable assignment per  
contract drawings

Cable manufacturer

Cable sequential at duct  
(even numbers are required)

Duct seal

1. All conduits and ducts shall be sealed using the appropriate sealing method as Stated below.
- A. All conduits and ducts shall be properly sealed using TYCO "Jackmoon" duct seals. Applicable bushing sleeves and blank duct plugs. The conduit's inside diameter, amount of cables, and cable size(s) shall be taken into consideration when ordering and installing "Jackmoon" entry seals.
- TYCO Jackmoon seals shall be:  
2-inch - 3-inch conduit: triplex duct seals.  
3.5-inch + conduit: quadplex duct seals, series 136
- B. Conduits and ducts with 1-inch or less inside diameter may be sealed using an osp moldable putty or foam which has been manufactured for that purpose. Application must be approved by the Engineer prior to installation.
- C. For select applications, Jackmoon duct seals may be replaced by TYCO "TDUX" seals. The use of TDUX seals must be pre-approved by the Engineer prior to installation.

Telephone cable requirements

1. All pairs within a copper cable and strands within a fiber cable shall pass performance and/or acceptance tests. Cable faults shall be addressed and corrected prior to SIC acceptance.
2. Copper and foc splicing must be performed in accordance with RUS bulletin 1753f-401 (pc-2), Standards for Splicing Copper and Fiber Optic Cable, February 1995.
3. Fiber testing and splicing equipment calibration certificates/maintenance records must be delivered to the Engineer prior to beginning work and must be current (within one (1) calendar year) since last service.
4. Fiber cable shall contain buffer tube slack and splice loops in trays in accordance with manufacturer's recommendations.
5. Fiber splices shall be of the "protected fusion" method
6. All splicing work shall be performed in a clean environment, preferably on a table in a splicing van. If a van cannot be used, then under a covered tarp/tent, and depending on weather conditions, the sides of the tarp/tent shall also be covered.
7. Copper splices shall be of the "fold-back" method to support future changes.
8. 3m ms2 modular splice system with 4005gbm/tr splice modules shall be used throughout the entire project 3m, ur2 & ub2a scotchlock connectors may be used for splices of ten pairs or less.
9. All dead pairs in a copper cable shall be "cleared" utilizing a 4005gbm/tr module.
10. Copper cables shall have colored cable ties to identify the binder groups and the binder ribbons shall be completely removed.
11. Cable shields shall be bonded at all splices to assure sheath continuity. Splice cases shall be bonded to the cable and to the nearest ground ring/rod.
12. All splice cases shall be "flash-tested" with either nitrogen or air, the amount of pressure shall be determined per the manufacturer's recommendation. The project manager must be notified prior to the beginning of test to arrange inspection.

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STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

CONSTRUCTION NOTES - 10

PHASE 1 - KAUMUALI'I HIGHWAY  
LIHU'E MILL BRIDGE TO RICE STREET  
PHASE 1 - HO'OMANA ROAD

Scale: None  
Date: December 4, 2012

SHEET No. C-12 OF 50 SHEETS

DATE

SURVEY PLOTTED BY

ORIGINAL PLAN

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