

General Notes

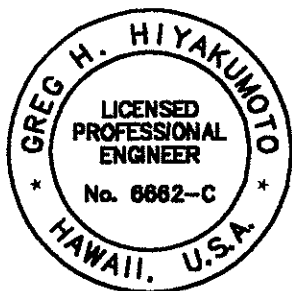
1. The Project Scope of Work involves construction of a new roadway, intersections, and a drainage channel in Ewa, Oahu, Hawaii between the vicinity of Ewa Villages and Farrington Highway. Work includes cleaning, grubbing, demolition, grading, installation of PCC pavement, AC pavement, bridge work, curbs, gutters, sidewalks, storm drainage system, pavement underdrain system, lighting system, grassing, temporary irrigation system, erosion controls and fencing.
2. All construction work shall be done in accordance with the standards and specifications of the State Department of Transportation as amended, unless otherwise specified by the contract plans and specifications.
3. Construction outside the State Department of Transportation right-of-way and State acquired parcels are subject to approval by the Engineer and the affected owner.
4. The Contractor shall verify all dimensions and details shown on the drawings prior to the start of construction. Any discrepancy shall be immediately brought to the attention of the Engineer.
5. The existence and location of utilities, manholes, monuments, pavements, and other features 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 make an independent check to verify the exact locations and depths of the existing utilities and obstructions.
6. The Contractor shall notify the Engineer in writing, two (2) weeks prior to starting paving operations.
7. Contractor shall dispose or deliver any removed material, as described in Section 201 - Clearing and Grubbing, at no cost to the State.
8. The Contractor shall be held liable for any damages incurred to the existing facilities, utilities and other features as a result of his operations. All damaged portions shall be replaced in accordance with the requirements of the affected owner or user at the Contractor's expense.
9. All existing utilities to remain in use, whether or not shown on the plans, shall be protected at all times by the Contractor unless specified on the plans to be abandoned. Any damage to the existing utilities shall be repaired and paid for by the Contractor.
10. Existing utilities shall remain in service and in place at all times. If relocation of the existing utilities is required by the Contract Documents or for the Contractor's convenience, interruption of service shall be kept to a minimum and shall be done at the Contractor's expense, and only with the approval of the Engineer and the affected utility company.
11. The Contractor shall field verify the operational status of all existing utilities to be removed or abandoned in place. Any discrepancy shall be brought to the attention of the Engineer.
12. The Contractor shall notify the Engineer and State Historic Preservation Division upon uncovering any potential historical artifacts or items of archaeological significance. See special provisions subsection 649.
13. The existing improvements on the premises and in adjacent areas that are not to be removed shall be preserved and protected. Any and all damages resulting from the Contractor's construction operations shall be replaced and repaired to original condition, to the satisfaction of the owner.
14. For benchmarks see sheets C2.1.
15. Azimuths and coordinates are referred to Kapuai New.
16. Elevations shown on these plans are referenced to Mean Sea Level (MSL).

General Notes (Cont.)

17. The Contractor shall adjust centerline and reference survey monuments to the finished pavement grade.
18. The Contractor shall coordinate, if applicable, construction of electrical, telephone, cable television, water, sewer and gas line relocation work with Hawaiian Electric Company, Hawaii Tel Com, Oceanic Cable, Board of Water Supply, Department of Environmental Services, and The Gas Co., respectively. All coordination shall be considered incidental to Roadway Excavation work.
19. The contractor shall coordinate with the land owners and users as needed to carry out the work.
20. No material and/or equipment shall be stockpiled or otherwise stored within the highway right-of-way except at locations designated in writing and approved by the Engineer. If use of a location is approved by the Engineer, a permit to use the property within the highway right-of-way shall be obtained from the State Highways.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	ADD. 10	331

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



THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION.
DATE OF LICENSE EXPIRY
APR 30, 2008
SIGNATURE *Greg H. Hiyakumoto*

5/11/07	2 Revised notes
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
CONSTRUCTION NOTES - 1	
North-South Road Phase 1B F.A.I. Proj. No. STP-8930(2)	
Date: Feb 21, 2007	
SHEET No. C0.8 OF 150 SHEETS	

General Notes

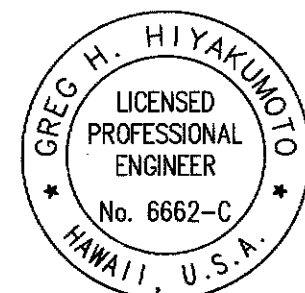
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14. For benchmarks see sheet C2.1.
15. Azimuths and coordinates are referred to Kapuai New.
16. Elevations shown on these plans are referenced to Mean Sea Level (MSL).
17. The Contractor shall adjust centerline and reference survey monuments to the finished pavement grade.
18. The Contractor shall coordinate, if applicable, construction of electrical, telephone, cable television, water, sewer and gas line relocation work with Hawaiian Electric Company, Hawaii Tel Com, Oceanic Cable, Board of Water Supply, Department of Environmental Services, and The Gas Co., respectively. All coordination shall be considered incidental to Roadway Excavation work.
19. The contractor shall coordinate with the land owners and users as needed to carry out the work.
20. No material and/or equipment shall be stockpiled or otherwise stored within the highway right-of-way except at locations designated in writing and approved by the Engineer. If use of a location is approved by the Engineer, a permit to use the property within the highway right-of-way shall be obtained from the State Highways.

Construction Notes (City and County of Honolulu)

1. All applicable construction work shall be done in accordance with the Standard Specifications for Public Works Construction, September 1986 and 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 Kauai, Maui, and Hawaii.
2. The underground pipes, cables or ductlines known to exist by the engineer from his search of records are indicated on the plans. The Contractor shall verify the locations and depths of the facilities and exercise proper care in excavating in the area. Wherever connections of new utilities to existing utilities are shown on the plans, the Contractor shall expose the existing lines at the proposed connections to verify their locations and depths prior to excavation for the new lines.
3. No Contractor shall perform any construction operation so as to cause falling rocks, soil or debris in any form to fall, slide or flow into existing City drainage systems, or adjoining properties, streets or natural watercourses. Should such violations occur, the Contractor may be cited and the Contractor shall immediately make all remedial actions necessary.
4. The Contractor shall be responsible for conformance with the applicable provisions of the water quality and water pollution control standards contained in Hawaii Administrative Rules, Title 11, Chapter 54, "Water Quality Standards", and Title 11, Chapter 55, "Water Pollution Control", as well as Chapter 14 of the Revised Ordinances of Honolulu, as amended. Best Management Practices shall be employed at all times during construction.
5. The Contractor shall notify the Civil Engineering Branch, Department of Planning and Permitting, at 768-8084 to arrange for inspectional services and submit four (4) sets of approved Construction Plans seven (7) days prior to commencement of construction work.
6. Confined Space
For entry by City 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:
- I. 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:
- a. Full body harnesses for up to two personnel.
- b. Lifeline and associated clips.
- c. Ingress/egress and fall protection equipment.
- d. Two-way radios (walkie-talkies) if out of line-of-sight.
- e. Emergency (escape) respirator (10 minute duration).
- f. Cellular telephone to call for emergency assistance.
- g. Continuous gas detector (calibrated) to measure oxygen, hydrogen sulfide, carbon monoxide and flammables (capable of monitoring at a distance at least 20-feet away).
- h. Personal multi-gas detector to be carried by inspector.
- II. Continuous forced air ventilation adequate to provide safe entry conditions.
- III. One attendant/rescue personnel topside (two, if conditions warrant it).
7. Pursuant to Chapter 6E, HRS, in the event any artifacts or human remains are uncovered during construction operations, the Contractor shall immediately suspend work and notify the Honolulu Police Department, the State Department of Land and Natural Resources-Historic Preservation Division (692-8015). In addition, for non-City projects, the Contractor shall inform the Civil Engineering Branch, Department of Planning and Permitting (768-8084); and for City projects, notify the responsible City agency.
8. For projects abutting State Highways' rights-of way, the owner or his authorized representative shall notify the State Department of Transportation, Highways Division, Oahu District, Drainage Discharge Unit at 831-6793 for an assessment of State Highways permit requirements.

Approved:

Director, Department of Planning and Permitting Date
City and County of Honolulu



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Signature: [Signature] Date: April 30, 2008
THE LICENSE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	CO ADD. 10	331

5/11/07	Revised notes
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
CONSTRUCTION NOTES - 1	
North-South Road Phase 1B F.A.I. Proj. No. STP-8930(2)	
Date: Feb 21, 2007	
SHEET No. CO.8 OF 150 SHEETS	

Drainage Notes

1. The Contractor shall verify the locations of all existing culverts, drainage facilities and utilities in the field. Any existing culverts, drainage facilities and utilities damaged during construction shall be repaired or replaced by the contractor at his/her own expense.
2. Storm drain pipes shall be high density polyethylene (HDPE) Type S or reinforced concrete pipe (RCP), Class III, or aluminum spiral rib pipe, Sht. "t"=0.105, unless noted otherwise.
3. All drainlines under paved areas shall have 2 feet minimum cover or be below the pavement structure, whichever is greater. Drainlines in other areas shall have a minimum 2 foot cover.
4. Concrete shall be Class A unless otherwise noted.

Water Pollution And Erosion Control Notes

1. General

The Contractor is reminded of the requirements of Section 209 – Water Pollution and Erosion Control, in the "Hawaii Standard Specifications for Road, Bridge and Public Works Construction," as amended. 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. No work shall commence without a site specific BMP plan approved by the Department of Health.

The Contractor shall follow the guidelines in the "Best Management Practices Manual for Construction Sites in Honolulu," dated May 1999 in developing, installing and maintaining the best management practices (BMPs) for the project. The Contractor may submit alternate methods to the Engineer for acceptance.

The Contractor shall keep a copy of the approved BMP, NOI, etc. on the project site. The BMP shall be updated to reflect any changes made during the course of construction for the duration of the project.

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.

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, whichever is greater.

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.

2. Waste Disposal

- A. Waste Materials: All waste materials shall be collected and stored in a securely lidded metal dumpster that does not leak. The dumpster shall meet all local and State solid waste management regulations. All trash and construction debris from the site shall be deposited in the dumpster. The dumpster shall be emptied a minimum of twice per week or as often as is deemed necessary. No construction waste materials shall be buried onsite. The Contractor's supervisory personnel shall be instructed regarding the correct procedure for waste disposal. Notices stating these practices shall be posted in the office trailer and the Contractor shall be responsible for seeing that these procedures are followed.

Water Pollution And Erosion Control Notes (Cont.)

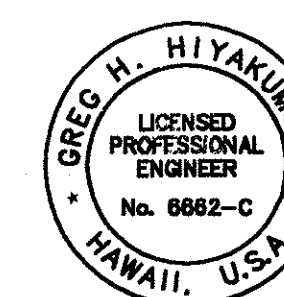
- B. Hazardous Waste: All hazardous waste materials shall be disposed of in the manner specified by local or State regulation or by the manufacturer. The Contractor's site personnel shall be instructed in these practices and shall be responsible for seeing that these practices are followed.
- C. Sanitary Waste: All sanitary waste shall be collected from the portable units a minimum of once per week, or as required.
- D. Silt screen or fence shall be inspected once a week 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.
- E. Temporary and permanent seeding and planting shall be inspected once a month for bare spots, washouts and healthy growth.
- F. The Contractor shall submit to the Engineer a copy of the weekly inspection report promptly after each weekly inspection, and/or after each occurrence of 0.5" rainfall within a 24-hour period.

3. Erosion and Sediment Control Inspection and Maintenance Practices:

- A. All control measures shall be inspected at least once each week and within 24 hours following any rainfall event of 0.5 inches or greater. The Contractor shall provide and maintain a rain gauge and install it at a location agreed to by the State. The Engineer will choose the type of rain gauge.
- B. All measures shall be maintained in good working order. If repair is necessary, it shall be initiated within 24 hours after the inspection.
- C. Built-up sediment shall be removed from silt fence when it has reached one-third the height of the fence.
- D. The Contractor shall select and provide the names of a minimum of three personnel who shall be responsible for inspections, maintenance and repair activities and filling out the inspection and maintenance report.
- E. 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.
- F. All slopes and exposed areas shall be grassed within 15 days. Grading to final grade shall be continuous, and any area in which work has been interrupted or delayed or exposed for more than 15 days shall be grassed in order to prevent dust, erosion and silt runoff. Areas with imported soils shall be grassed not more than 5 working days after final grades have been established.
- G. Temporary erosion controls shall not be removed before permanent erosion controls are in-place and established.
- H. Dust screen, 15' high, shall be installed along the makai perimeter of the project site. (approximately 6,000 LF)

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HAWAII	HAW.	STP-8930(2)	2007	ADD. 11	331

DESIGNED BY	DATE
CHECKED BY	
NOTED BY	
QUANTITIES BY	
NO.	



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
DATE OF SIGNATURE: 4/11/07
DATE OF LICENSE EXPIRY: APR 30, 2008

5/11/07	2 Moved notes from Sht. C0.10
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CONSTRUCTION NOTES - 2

North-South Road
Phase 1B
F.A.I. Proj. No. STP-8930(2)

Date: Feb 21, 2007

SHEET No. C0.9 OF 150 SHEETS

Water Pollution And Erosion Control Notes (Cont.)

4. Good Housekeeping Best Management Practices:

A. Materials Pollution Prevention Plan:

- (1) 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 of the Construction Contractor's site-specific BMP plan.

Concrete	Fertilizers
Detergents	Petroleum Based Products
Paints (enamel and latex)	Cleaning Solvents
Metal Studs	Wood
Tar	Masonry Block

- (2) Material management practices shall be used to reduce the risk of spills or other accidental exposure of materials and substances to storm water runoff. An effort shall be made to store only enough product as is required to do the job.
- (3) All materials stored onsite shall be stored in a neat, orderly manner in their appropriate containers and if possible under a roof or other enclosure.
- (4) Products shall be kept in their original containers with the original manufacturer's label.
- (5) Substances shall not be mixed with one another unless recommended by the manufacturer.
- (6) A product shall be used up completely before disposing of the container.
- (7) Manufacturer's recommendations for proper use and disposal shall be followed.
- (8) The Contractor shall conduct a daily inspection to ensure proper use and disposal of materials onsite.

B. Hazardous Material Pollution Prevention Plan

- (1) Products shall be kept in original containers unless they are not resealable.
- (2) Original labels and Material Safety Data Sheets (MSDS) shall be retained and made available to the Engineer upon request.
- (3) Surplus products shall be disposed of according to manufacturers' instructions or local and state recommended methods.

C. Onsite and Offsite Products Specific Plan

- (1) The following product specific practices shall be followed onsite:
- a. Petroleum Based Products: All onsite vehicles shall be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products shall be stored in tightly sealed containers which are clearly labeled. Any asphalt substances used onsite shall be applied according to the manufacturer's recommendation.
- b. Fertilizers: Fertilizers used shall be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer shall be worked into the soil to limit exposure to storm water. Storage shall be in a covered shed. The contents of any partially used bags of fertilizer shall be transferred to a sealable plastic bin to avoid spills.
- c. Paints: All containers shall be tightly sealed and stored when not required for use. Excess paint shall not be discharged to the highway drainage system but shall be properly disposed of according to manufacturers' instructions or State and local regulations.

Water Pollution And Erosion Control Notes (Cont.)

- d. Concrete Trucks: Concrete trucks shall be allowed to wash out or drum wash water only at designated site. Water shall not be discharged in the highway drainage system or waters of the United States (i.e. streams, rivers, harbors). The Contractor shall contact Drinking Water Branch, Department of Health at 586-4258 to receive permission to designate a disposal site. The Contractor shall clean the disposal site as required or as requested by the Engineer at no cost to the owner or the State.

- (2) Offsite Vehicle Tracking: A stabilized construction entrance shall be provided to help reduce vehicle tracking of sediments. (Installation, maintenance and removal of stabilized construction entrance shall be incidental to the contract items.) The paved street adjacent to the site entrance shall be cleaned daily or as required to remove any excess mud, cold planed materials, dirt or rock tracked from the site. Pollutants shall not be discharged to the drainage system. Contractor is responsible to ensure dump trucks hauling material from the construction site shall be covered with a tarpaulin.

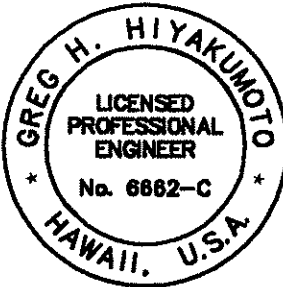
D. Spill Control Plan:

- (1) The Contractor shall have a spill prevention plan which shall be posted and adjusted to include a description and cause of each spill, measures to prevent and clean up each spill.
- (2) The Contractor shall be the spill prevention and cleanup coordinator. The Contractor shall 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. The names of responsible spill personnel shall be submitted to the State and posted in the material storage area and in the office trailer onsite.
- (3) Manufacturers' recommended methods for spill cleanup shall be clearly posted and site personnel shall be made aware of the procedures and the location of the information and cleanup supplies.
- (4) Materials and equipment necessary for spill cleanup shall be kept in the material storage area onsite.
- (5) All spills shall be cleaned up immediately after discovery.
- (6) The spill area shall be kept well ventilated and personnel shall wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- (7) Spills of toxic hazardous material shall be reported to the appropriate State or local government agency, regardless of the size.

5. Permit Requirements:

- A. The Contractor shall submit to the Engineer ten (10) sets of the water pollution and erosion control submittals as detailed in Subsection 209.04 of the specifications. No work shall begin until the submittal has been reviewed and approved by the Engineer.
- B. The Contractor shall comply with all applicable State and Federal permit conditions. Permits may include but are not limited to the following:
- NPDES Permit for Construction Activities
6. The Contractor shall be responsible for conformance with the applicable provisions of Chapter 54, Water Quality Standards, and Chapter 55, Water Pollution Control of Title 11, Administrative Rules of the State Department of Health.
7. The Contractor, at the Contractor's own expense, shall keep the project area and surrounding areas free from dust nuisance and any material tracked on to the roadways. The work shall be in conformance with the Air and Water Pollution Control Standards and Regulations of the State Department of Health.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	ADD. 12	331



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Signature: *Greg H. Hiyakimoto* APR 30, 2008 DATE OF LICENSE EXPIRY

5/11/07	Moved all notes from Sht. C0.11
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
CONSTRUCTION NOTES - 3	
North-South Road Phase 1B F.A.I. Proj. No. STP-8930(2)	
Date: Feb 21, 2007	
SHEET No.C0.10 OF 150 SHEETS	

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
TRACED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
NO.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	CO ADD. 13	331

Construction Notes for Work Within State R/W

- 1. 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.
- 2. Confined Space

For entry by SDOT 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:

- 1. 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:
 - a. Full body harnesses for up to two personnel.
 - b. Lifeline and associated clips.
 - c. Ingress/egress and fall protection equipment.
 - d. Two-way radios (walkie-talkies) if out of line-of-sight.
 - e. Emergency (escape) respirator (10 minute duration).
 - f. Cellular telephone to call for emergency assistance.
 - g. Continuous gas detector (calibrated) to measure oxygen, hydrogen sulfide, carbon monoxide and flammable (capable of monitoring at a distance at least 20-feet away).
 - h. Personal multi-gas detector to be carried by the inspector.
- 2. Continuous forced air ventilation adequate to provide safe entry conditions.
- 3. One trained attendant/rescue personnel topside (two, if conditions warrant it)

Free Service for Locating Underground Utilities

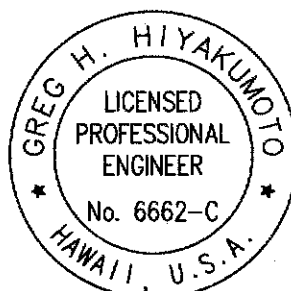
A free service is available to Contractors for locating underground utilities. Service is provided by Underground Service Alert North, at toll free telephone no. 1-800-227-2600. Call Underground Service Alert North at least two days prior to the start of any excavation work.

Sidewalk Notes

- 1. All sidewalks shall provide a minimum clear width of 3'-0" (excluding curb) for pedestrian circulation. If this cannot be met, a minimum 32-inch clear width is allowed for a maximum distance of 24 inches.
- 2. Narrow sidewalks (3'-0" min. width, excluding curb) may prohibit the installation of any sign posts, utility poles, fire hydrants, traffic signal standards, light poles, etc. in the sidewalk.
- 3. Passing spaces along new sidewalks with 5' clear width or less shall be provided at maximum 200' intervals as required by ADA guidelines. The passing area shall be a minimum 5' wide by 5' long as feasible.
- 4. For new construction, the minimum sidewalk width shall be 6'-0" (excluding curb). The cross slope shall not exceed 2%.
- 5. If possible, install utility poles, fire hydrants, light poles, sign posts, pullboxes, etc. off of sidewalk but within the right-of-way.
- 6. Objects protruding from utility poles and walls adjacent to the sidewalks (i.e. wall mounted fire hydrants, telephones, meters on poles, etc.) shall be mounted to meet the current Americans with Disabilities Act Accessibility Guidelines (ADAAG) and will be subject to Engineer's approval.
- 7. All new wheelchair-accessible curb ramps and flares shall be no steeper than 12H:1V. Ramps and flares shall be lengthened as required to achieve this maximum slope.

Sewer Notes

- 1. All sewer construction shall be performed in accordance with the City's Standard Specifications, Sept. 1986, the Department of Public Works Standard Details, Sept.1984, Current City Practices and Revised Ordinances of Honolulu, 1990 as amended, and the Design Standards of the Department of Wastewater Management Vol. 1, July 1993.
- 2. In the event that any change in alignment or grade for the proposed sewers are required due to unforeseen conflicts with other utilities, the engineer in charge or the maker of the plans shall be responsible for the required design changes which are to be presented to the Department of Planning and Permitting (DPP) for approval.
- 3. The Contractor shall notify the Wastewater Branch, Department of Design and Construction, at 768-8788 or 768-8770 to arrange for inspection services and submit four (4) sets of approved construction plans seven (7) days prior to commencement of sewer work. The contractor shall pay for all inspection costs.
- 4. Crushed rock cradle is permitted where soil is stable. In areas of unstable soil, the maker of the plans and the construction Engineer will determine the pipe support required.
- 5. The underground pipes, cables or ductlines known to exist by the Engineer from his research of records are indicated on the plans. The Contractor shall verify the location and depth of the facilities, including and affecting sewer lines, in the presence of the wastewater inspector and exercise proper care in excavating the area. The Contractor shall be responsible and shall pay for all damaged utilities.
- 6. Trees in the road right-of-way shall be situated a minimum of 6'-0" from the city's sewer lines.
- 7. The Contractor shall be responsible for maintaining continuous sewer service to all affected areas during construction.
- 8. The Contractor shall be responsible for any sewage spills caused during construction. The contractor shall notify the State Department of Health and utilize appropriate sampling and analyzing procedures. The Contractor shall be responsible for all public notifications and press releases.
- 9. The contractor shall install "rainstopper" manhole inserts in all sewer manholes with type "SA" frame and cover.
- 10. Geotextile fabric to envelop the pipe cradle and select backfill material shall be provided where water or unstable soil conditions are encountered.
- 11. The sewer system, including all lateral connections and services, shall be operational at all times. No service interruption is permitted. When work on existing sewer is required, the Contractor shall provide equipment necessary to redirect sewage around the sewer and manholes. Bypassing plans and schedules shall be approved by the engineer prior to implementation. Bypass request shall be submitted to the Engineer for review 30 days prior to the start of the bypass work.
- 12. When connecting to a live sewer, the Contractor shall abide by all conditions that the State Department of Health sets forth to mitigate any wastewater spill that may occur. The Contractor shall inform the City Inspector five (5) working days prior to the actual connection. The Contractor shall be responsible for any fines and penalties due to any spills resulting from the connection.
- 13. S4C pipe cradle seals shall be installed 10.0 feet from all sewer manholes to prevent soil migration. See Detail, Sht. C-8.1.
- 14. The consulting Engineer shall submit to the Department of Planning and Permitting mylar "as-built" tracings of the construction plans as actually constructed, showing all changes from the original plans.
- 15. All sewer pipe joints within easements shall be wrapped with geotextile root barrier.
- 16. Sewer lateral location measured along the front property line shall be six (6) feet from property corner unless otherwise noted on the plans and should not straddle electrical transformer pad.
- 17. The contractor shall ensure that the gravity sewer line is free of debris or other obstructions prior to making any on-line flow connections.
- 18. Prior to final acceptance, all sewer lines installed shall be flushed with water and any accumulated construction debris and other foreign materials shall be removed and disposed of by the Contractor.
- 19. Should the Contractor excavate beyond the trench pavement width, as specified in the Standard Details for Public Works Construction, dated September 1984, and such action results in a greater load to the pipe, the Contractor shall provide, at the Contractor's expense, a higher class of bedding material that will withstand the added load.
- 20. For sewer manhole (SMH) adjustments upward less than 3 inches, see City Std. Det. S-25. For SMH adjustments upward greater than 3 inches or for any adjustments downward, reconstruct SMH top from below the cone section.



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE: [Signature] April 30, 2008 EXPIRATION DATE OF THE LICENSE

Approved:

Chief, Wastewater Branch, DPP Date (DPP 2007/CP-4)

10/08/2007	Added/revised sewer notes
5/11/07	Moved all notes from Sht. CO.12
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
CONSTRUCTION NOTES - 4
North-South Road
Phase 1B
F.A.I. Proj. No. STP-8930(2)
Date: Feb 21, 2007
SHEET No. CO.11 OF 150 SHEETS

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

Grading Notes

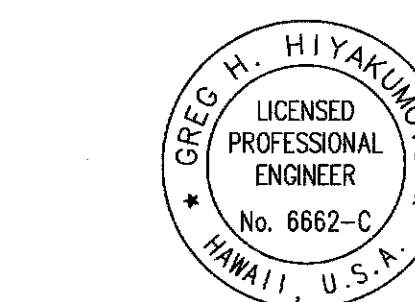
1. All grading work shall be done in accordance with State of Hawaii Standard Specifications for Road, Bridge, and Public Works Construction, Chapter 14, Articles 13, 14, 15 and 16, as related to Grading, Soil Erosion and Sediment Control of the Revised Ordinances of Honolulu, 1990, as amended, and Soils Report by Geolabs, Inc. dated February 8, 2007.
2. No contractor shall perform any grading operation so as to cause falling rocks, soil or debris in any form to fall, slide or flow onto adjoining properties, streets or natural watercourses. Should such violations occur, the Contractor may be cited and the Contractor shall immediately make all remedial actions necessary.
3. The Contractor, at the Contractor's own expense, shall keep the project area and surrounding area free from dust nuisance. The work shall be in conformance with the air pollution control standards contained in the Hawaii Administrative Rules, Title 11, Chapter 60.1, "Air Pollution Control."
4. The underground pipes, cables or ductlines known to exist by the Design Engineer from his/her search of records are indicated on the plans. The Contractor shall verify the locations and depths of the facilities and exercise proper care in excavating in the area. Wherever connections of new utilities are shown on the plans, the Contractor shall expose the existing lines at the proposed connections to verify their locations and depths prior to excavation for the new lines.
5. Adequate provisions shall be made to prevent surface waters from damaging the cut face of an excavation or the sloped surfaces of a fill. Furthermore, adequate provisions shall be made to prevent sediment-laden runoff from leaving the site.
6. All slopes and exposed areas shall be sodded, planted, or hydromulched as soon as final grades have been established. Planting shall not be delayed until all grading work has been completed. Grading to final grade shall be continuous, and any area within which work has been interrupted or delayed shall be planted.
7. Fills on slopes steeper than 5:1 shall be keyed.
8. The City shall be informed of the location of the borrow/disposal site for the project when the application for a grading permit is made. The borrow/disposal site must also fulfill the requirements of the grading ordinance.
9. No grading work shall be done on Saturdays, Sundays and holidays at any time without prior notice to the Director, D.P.P., and without prior written notice and acceptance by the Engineer, provided such grading work is also in conformance with the community noise control standards contained in the Hawaii Administrative Rules, Title 11, Chapter 46, "Community Noise Control."
10. The limits of the area to be graded shall be flagged before the commencement of the grading work.
11. All grading operations shall be performed in conformance with the applicable provisions of the water quality and water pollution control standards contained in Hawaii Administrative Rules, Title 11, Chapter 54, "Water Quality Standards," and Title 11, Chapter 55, "Water Pollution Control" and if applicable, the NPDES permit for the project.
12. Where applicable and feasible, the measures to control erosion and other pollutants shall be in place before any earth-moving phase of the grading is initiated.
13. Temporary erosion controls shall not be removed before permanent erosion controls are in-place and established.

Grading Notes (Cont'd)

14. Temporary Erosion Control Procedures shall be submitted for approval prior to application for grading permit.
15. If the grading work involves contaminated soil, then all grading work shall be done in conformance with applicable State and Federal requirements.
16. Building permit for retaining walls shall be obtained prior to commencement of grading work on site.
17. For non-City projects, the Contractor shall notify the Civil Engineering Branch, D.P.P. at 768-8084 to arrange for inspectional services and submit three (3) sets of approved Construction Plans seven (7) days prior to commencement of construction work.
18. Pursuant to Chapter 6E, HRS, in the event any artifacts or human remains are uncovered during construction operations, the Contractor shall immediately suspend work and notify SDOT, the Honolulu Police Department, the State Department of Land and Natural Resources-Historic Preservation Division (692-8015). In addition, for non-City projects, the Contractor shall inform the Civil Engineering Branch, D.P.P. (768-8084).
19. For all projects which will disturb one (1) acre or more of land, the Contractor shall not start construction until a Notice of General Permit Coverage (NGPC) is received from the Department of Health, State of Hawaii, and has satisfied any other applicable requirements of the NPDES permit program. Also, for non-City and other non-governmental agency projects, the Contractor shall provide a written copy of the NGPC to the Permitting and Inspection Section, Civil Engineering Branch, D.P.P., at least seven (7) calendar days before the start of the construction. For City or other governmental projects, the Contractor should provide a written copy of the NGPC to the appropriate City department or governmental agency per their requirements.
20. All grading and construction work shall implement measures to ensure that the discharge of pollutants from the construction site will be reduced to the maximum extent practicable and will not cause or contribute to an exceedance of water quality standards.
21. Non-compliance to any of the above requirements shall mean immediate suspension of all work, and remedial work shall commence immediately. All costs incurred shall be billed to the violator. Furthermore, violators shall be subjected to administrative, civil and/or criminal penalties.
22. Place topsoil and irrigation system prior to placement of erosion control matting, in accordance with the requirements of Section 617-Topsoil, 616-Sprinkler System, and Section 663-Erosion Control Matting.
23. Any loose/soft soils encountered shall be removed and backfilled with proper compacted fill prior to mass grading.
24. For Bench Mark, see sheet C2.1.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	CO ADD. 14	331

DATE	_____
DESIGNED BY	_____
CHECKED BY	_____
IN CHARGE	_____
DATE	_____
DESIGNED BY	_____
CHECKED BY	_____
IN CHARGE	_____



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE: [Signature] April 30, 2008
EXPIRATION DATE OF THE LICENSE

10/08/2007	Revised grading notes
5/11/07	Moved all notes from Sht. C0.13
DATE	REVISION

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
CONSTRUCTION NOTES - 5
North-South Road Phase 1B F.A.I. Proj. No. STP-8930(2)
Date: Feb 21, 2007
SHEET No. C0.12 OF 150 SHEETS

CHEVRON PRODUCTS COMPANY GUIDELINES FOR WORK NEAR CHEVRON PRODUCTS CO. PIPELINES

Chevron Hawaii Refinery has one or more petroleum product pipelines in an easement that runs through or immediately adjacent to Contractor's proposed project. These pipelines are used for the transmission of petroleum products at high temperatures and pressures. The pipelines are coated and cathodically protected. They require frequent inspection and maintenance.

It is absolutely necessary that Chevron be provided access to these buried pipelines at all times, 24 hours a day, seven days a week. Therefore, Contractor's proposed project must adhere to the following guidelines:

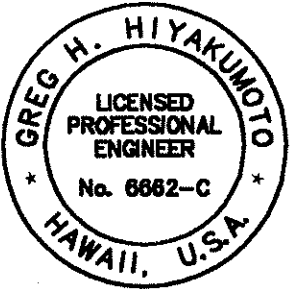
- If the easement area is fenced or walled in, Chevron must have a gate key unless the area is attended on a 24-hour basis.
- Storage of material on the easement shall be avoided. This includes parking lots.
- A minimum overhead clearance of 15 feet must be maintained within the easement.
- Heavy landscaping (trees, shrubs, sprinklers, etc.) should be kept off the easement.
- Heavy obstructions should be kept off the easement (e.g. buildings, walls, equipment pads, etc.).
- No top-to-bottom obstructions will be permitted in the easement (e.g. power poles, sewer manholes, sewer clean-outs, bridge abutments, etc.).
- Light obstructions (e.g. grass, paving (asphaltic concrete), curb crossings, etc.) are considered reasonable. Grassed areas must be suitable for all-weather vehicular travel.
- Chevron's Company Representative will stake the pipelines at Contractor's request. Determination of pipeline elevations shall be Contractor's responsibility and at Contractor's expense.
- The pipeline easement access road must be kept open at all times. Authorization to block access roads at any time during your construction period must be obtained from Chevron Products Company.
- Avoid running any sewers, fences, sprinkler lines, pipelines, cables, curbs, etc., within the easement in a parallel orientation to the easement centerline. Crossings are permitted but must be held to a minimum of 45 degrees to easement centerline.
- Sewer and electrical conduit crossings should be kept a minimum of four feet clear below Chevron's pipelines for the full easement width. If this condition cannot be met, the crossings should be encased in six inches of concrete, with a minimum two feet clear below Chevron's pipelines.
- Except for Item 11 above, all crossing facilities should be at least 24 inches clear below Chevron's pipelines for the full easement width. Crossings above Chevron's pipelines are not permitted.
- Removal of fill from the easement should not result in there being less than three feet minimum cover over the lines.
- Trenches across the pipelines shall be limited to a maximum width of five feet less unless the lines are supported in a manner accepted in advance by Chevron Products Company.
- All excavations and backfilling operations in Chevron's easement must be witnessed by a Chevron Company Representative. Contractor shall provide Chevron with 48 hours notice prior to beginning work within Chevron's easement. All backfill material within six inches of our pipelines must be of finely graded dirt or sand. All excavations within two feet of our pipelines must be accomplished by hand digging. Work shall be handled in an expeditious manner in order to keep Chevron's pipelines uncovered for as short a period as possible.
- Fill Chevron's easement should be limited to four feet maximum cover over Chevron's pipelines. Chevron will stake the pipelines upon request so that Contractor can excavate to determine the depth of the pipelines.
- Regrading of adjacent property should not adversely affect drainage of the easement area or pose a hazard to the easement such as landslides or erosion.
- The slope must be kept reasonably level across the easement. Maximum should be 5:1 to provide for backhoe operation.
- All costs pertaining to damage of Chevron's pipelines, their coatings, or the cathodic protection devices, or damage of property and injury to persons caused directly or indirectly by this work, will be to Contractor's account. Any repair work on the lines resulting from Contractor's project shall be performed by Chevron Products Company and billed to Contractor.

CONSTRUCTION NOTES FOR 16" GAS TRANSMISSION LINE

- The Gas Company 16-inch high pressure gas transmission line is plastic coated and cathodically protected. The Contractor shall be extremely careful when working near the gas pipeline.
- Prior written clearance must be obtained from The Gas Company, Maps and Records Department, 515 Kamakee Street, at least five (5) working days before starting excavation near any of The Gas Company pipelines.
- Since pipeline locations on field maps are approximate, the Contractor, after obtaining written clearance, shall call One Call Concepts, a minimum of five (5) working days before starting excavation to arrange for field location of existing gas lines. The telephone number is 1-866-423-7287.
- The Contractor shall notify The Gas Company, Distribution Department, 24 hours prior to excavating and backfilling any pipeline. The telephone number is 594-5556.
- The Contractor shall have the sole responsibility to perform field verification, including hand digging methods.
- The Contractor shall excavate and backfill around the pipeline in the presence of a representative of The Gas Company. All backfill within 12 inches of the pipeline shall be sand, mansand or select cushion material approved by The Gas Company.
- Minimum vertical and horizontal clearance between gas pipeline and other pipelines, conduits, or other structures shall be 24 inches. Adequate support and protection for gas pipelines exposed in the trench shall be provided by the Contractor and approved by The Gas Company.
- The Contractor shall work in an expeditious manner in order to keep uncovered gas line exposure to a minimum.
- The Contractor shall notify The Gas Company immediately after any damage has been caused to the existing gas pipelines, their coatings or their cathodic protection devices. The telephone number is 535-5933, 24 hours a day. The Contractor shall be liable for any damage to The Gas Company facilities. Repair work on such damage shall be performed by The Gas Company with payment for this work to be borne by the Contractor.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	ADD. 15	331

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No.	DESIGNED BY	
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THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
DATE OF LICENSE EXPIRY: APR 30, 2009
SIGNATURE: *Greg H. Hiyanundo*

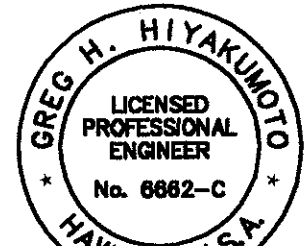
5/11/07	Added notes
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
CONSTRUCTION NOTES - 6	
North-South Road Phase 1B F.A.I. Proj. No. STP-8930(2)	
Date: Feb 21, 2007	
SHEET No. C0.13 OF 150 SHEETS	

GRADING NOTES FOR WORK WITHIN THE STATE ENERGY CORRIDOR (SEC)

GRADING NOTES FOR WORK WITHIN THE STATE ENERGY CORRIDOR (SEC)

1. ALL GRADING WORK SHALL BE DONE IN ACCORDANCE WITH CHAPTER 14, ARTICLES 13, 14, 15 AND 16, AS RELATED TO GRADING, SOIL EROSION AND SEDIMENT CONTROL, OF THE REVISED ORDINANCES OF HONOLULU, 1990, AS AMENDED, AND GEOTECHNICAL ENGINEERING EXPLORATION BY GEOLABS HAWAII, DATED FEBRUARY 8, 2007.
 2. NO CONTRACTOR SHALL PERFORM ANY GRADING OPERATION SO AS TO CAUSE FALLING ROCKS, SOIL OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW ONTO ADJOINING PROPERTIES, STREETS OR NATURAL WATERCOURSES. SHOULD SUCH VIOLATIONS OCCUR, THE COSTS INCURRED FOR ANY REMEDIAL ACTION BY THE STATE SHALL BE PAYABLE BY THE CONTRACTOR.
 3. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS CONTAINED IN CHAPTER 11-60, "AIR POLLUTION CONTROL."
 4. THE UNDERGROUND PIPES, CABLES OR DUCTLINES KNOWN TO EXIST BY THE DESIGN ENGINEER FROM HIS SEARCH OF RECORDS ARE INDICATED ON THE PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND DEPTHS OF THE FACILITIES AND EXERCISE PROPER CARE IN EXCAVATING IN THE AREA. WHEREVER CONNECTIONS OF NEW UTILITIES ARE SHOWN ON THE PLANS, THE CONTRACTOR SHALL EXPOSE THE EXISTING LINES AT THE PROPOSED CONNECTIONS TO VERIFY THEIR LOCATIONS AND DEPTHS PRIOR TO EXCAVATION FOR THE NEW LINES.
 5. ADEQUATE PROVISIONS SHALL BE MADE TO PREVENT SURFACE WATERS FROM DAMAGING THE CUT FACE OF AN EXCAVATION OR THE SLOPED SURFACES OF A FILL. FURTHERMORE, ADEQUATE PROVISIONS SHALL BE MADE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE SITE.
 6. HARBORS DIVISION SHALL BE INFORMED OF THE LOCATION OF THE BORROW/DISPOSAL SITE FOR THE PROJECT. THE BORROW/DISPOSAL SITE MUST ALSO FULFILL THE REQUIREMENTS OF THE GRADING ORDINANCE.
 7. NO GRADING WORK SHALL BE DONE ON SATURDAYS, SUNDAYS AND HOLIDAYS AT ANY TIME WITHOUT PRIOR NOTICE TO HARBORS DIVISION, PROVIDED SUCH GRADING WORK IS ALSO IN CONFORMANCE WITH HAWAII ADMINISTRATIVE RULES, CHAPTER 11-43, "COMMUNITY NOISE CONTROL FOR OAHU."
 8. THE LIMITS OF THE AREA TO BE GRADED SHALL BE FLAGGED BEFORE THE COMMENCEMENT OF THE GRADING WORK.
 9. ALL GRADING OPERATIONS SHALL BE PERFORMED IN CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE WATER POLLUTION CONTROL AND WATER QUALITY STANDARDS CONTAINED IN HAWAII ADMINISTRATIVE RULES, CHAPTER 11-55, "WATER POLLUTION CONTROL" AND CHAPTER 11-54, "WATER QUALITY STANDARDS," AND IF APPLICABLE, THE NPDES PERMIT FOR THE PROJECT.
 10. WHERE APPLICABLE AND FEASIBLE THE MEASURES TO CONTROL EROSION AND OTHER POLLUTANTS SHALL BE IN PLACE BEFORE ANY EARTH-MOVING PHASE OF THE GRADING IS INITIATED.
 11. TEMPORARY EROSION CONTROLS SHALL NOT BE REMOVED BEFORE PERMANENT EROSION CONTROLS ARE IN-PLACE AND ESTABLISHED.
 12. TEMPORARY EROSION CONTROL PROCEDURES SHALL BE SUBMITTED FOR HARBORS DIVISION APPROVAL PRIOR TO CONSTRUCTION.
 13. IF THE GRADING WORK INVOLVES CONTAMINATED SOIL, THEN ALL GRADING WORK SHALL BE DONE IN CONFORMANCE WITH APPLICABLE STATE AND FEDERAL REQUIREMENTS.
 14. NON-COMPLIANCE WITH ANY OF THE ABOVE REQUIREMENTS SHALL MEAN IMMEDIATE SUSPENSION OF ALL WORK, AND REMEDIAL WORK SHOULD COMMENCE IMMEDIATELY. ALL COSTS INCURRED SHALL BE BILLED TO THE CONTRACTOR. FURTHERMORE, VIOLATORS SHALL BE SUBJECTED TO ADMINISTRATIVE, CIVIL AND/OR CRIMINAL PENALTIES.
 15. THE CONTRACTOR SHALL FILE AND PROCESS THE SITE SPECIFIC BEST MANAGEMENT PRACTICES, NATIONAL POLLUTANT DISCHARGE ELIMINATION PERMIT WITH THE STATE DEPARTMENT OF HEALTH NO LATER THAN 7 DAYS AFTER THE NOTICE TO PROCEED.

5/11/07	2 Added sheet
DATE	REVISION



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CONSTRUCTION NOTES - 7

1. 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.
2. 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.

PRIOR TO EXCAVATION, THE CONTRACTOR IS REQUIRED BY SECTION 269E, HAWAII REVISED STATUTES, TO CONTACT THE HAWAII ONE CALL CENTER AT 866-669-4001.

By 12 April APR 3
SIGNATURE *slip* DAT

ADD. 15S-1

Water Notes

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	CO ADD. 158-2	331

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1. Unless otherwise specified, all materials and construction of water system facilities and appurtenances shall be in accordance with the STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, dated 1994, as amended, of the Hawaii Highways Division, Department of Transportation, and 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. The Contractor shall notify BWS Capital Projects Division, Construction Section in writing and submit six (6) sets of approved construction plans one week prior to commencing work on the water system.

4. 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 pay for all damages to existing utilities. The Contractor shall not assume that where no utilities are shown, that none exist.

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

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. Prior to any excavating, the Contractor shall verify in the field the location of existing water mains and appurtenances.

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

9. After installation of tapping sleeve and valve prior to actual tapping operations, the assembly shall be tested at 150 psi, on both sides of the valve.

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

11. Prior to installation, the Contractor shall submit for approval by 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.

12. 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.

13. 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.

14. The Contractor/Developer 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.

15. 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. Remainder 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, strontium, and polychlorinated biphenyls (PCB).

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

17. Cleaning shall be by the 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.

18. Install 4 mil thick, non-metallic, blue colored, 6 inches wide warning tape over centerline of the pipe and below the base course along the entire length of trench. Tape should