

COMMISSION ON WATER RESOURCE MANAGEMENT

State of Hawaii
DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION
Honolulu, Hawaii

BOARD OF LAND AND NATURAL RESOURCES

Dawn N.S. Chang
Chairperson

CONTRACT SPECIFICATIONS AND PLANS

Job No: G75CS18A
Waianae Deep Monitor Well
Waianae, Oahu, Hawaii

Civil Engineer: Fukunaga & Associates, Inc.
Hydrologist: Tom Nance Water Resource Engineering

May 2026


State of Hawaii
DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION
Honolulu, Hawaii

CONTRACT SPECIFICATIONS AND PLANS

Job No: G75CS18A
Waianae Deep Monitor Well
Waianae, Oahu, Hawaii

Approved: 

CIARA W.K. KAHAHANE
Deputy Director
Commission on Water Resource Management

Approved: 

DINA U. LAU
Acting Chief Engineer
Engineering Division

May 2026

TABLE OF CONTENTS

NOTICE TO BIDDERS	ii
INFORMATION AND INSTRUCTIONS TO BIDDERS	I-1
PROPOSAL	P-1
SPECIAL PROVISIONS.....	SP-1
DETAILED SPECIFICATIONS	S-1
PLANS (Bound Separately)	
DEPARTMENT OF LAND AND NATURAL RESOURCES INTERIM GENERAL CONDITIONS, DATED OCTOBER 1994 (Bound Separately)	

NOTICE TO BIDDERS
(Chapter 103D, HRS)

COMPETITIVE BIDS for Job No. G75CS18A, Waianae Deep Monitor Well, Waianae, Oahu, Hawaii shall be submitted to the Department of Land and Natural Resources, Engineering Division on the specified date and time through the Hawaii State e-Procurement (HIePRO). HIePRO is accessible through the State Procurement Office website at www.spo.hawaii.gov.

The Department of Land and Natural Resources Interim General Condition, dated October 1994, as amended, and the General Conditions –AG008, latest revision shall be made part of the specifications. Electronic copies of the General Conditions are available on the State Procurement Office website.

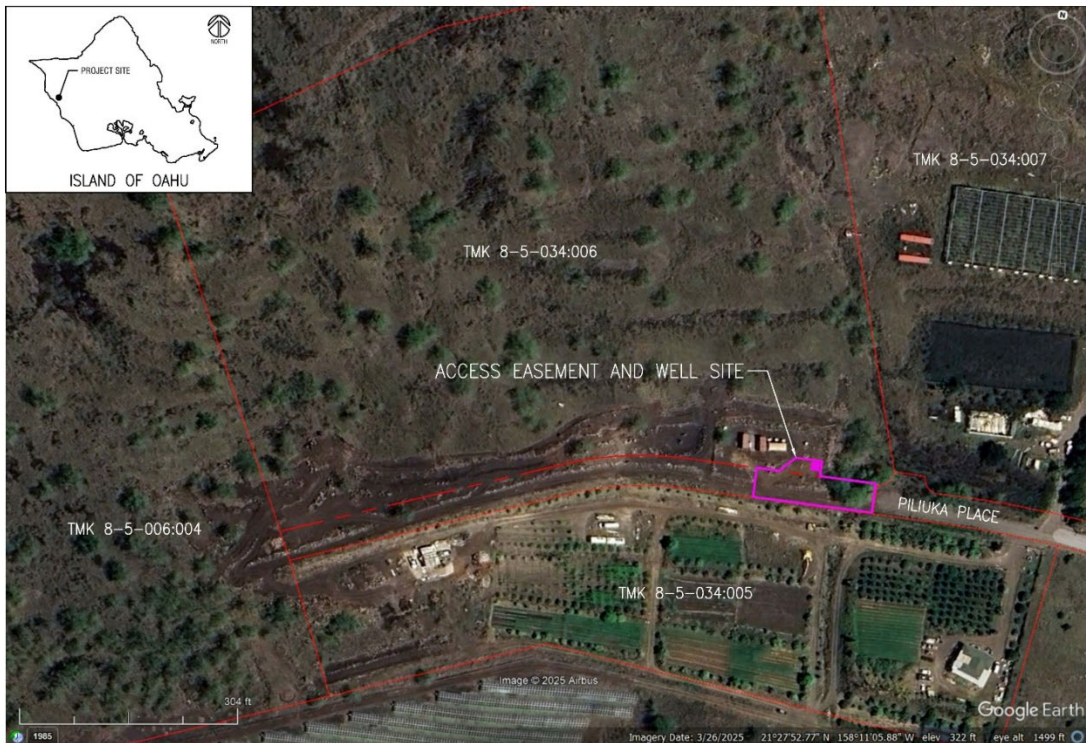
The project is located at tax map key (1) 8-5-034:006 in Waianae, Oahu, Hawaii.

The work generally consists of construction of a new deep monitor well and related improvements.

To be eligible to submit a bid, the Bidder must possess a valid State of Hawaii Contractor’s license classification “C-57”. The contractor performing civil site work must possess a valid State of Hawaii Contractor’s license classification “A” or “B”.

A voluntary pre-bid meeting will be held at the project site, on May 20, 2026, at 11:00 pm.

All interested parties are invited to attend a State-conducted site visit that will start immediately following the pre-bid conference mentioned above. It is highly recommended that all interested parties attend the site visit to become familiar with the existing field conditions. The site visit is anticipated to start around 11:15 am and end around 11:30 am. Please note that the project is located within a secure facility, and there will be no other accommodation for a site visit.



The estimated cost of construction is \$750,000.

The award of the contract, if it be awarded, will be subject to the availability of funds.

Since the estimated value of the cost of construction is \$250,000 or more, the apprenticeship agreement preference pursuant to Hawaii Revised Statutes §103-55.6 (ACT 17, SLH 2009) shall apply.

Should there be any questions, please refer to the HiePRO solicitation.

INFORMATION AND INSTRUCTIONS TO BIDDERS

CONTENTS

		<u>Page</u>
A	Project Location and Scope of Work	I-2
B	Sealed Proposals	I-2
C	General Conditions	I-2
D	Proposal Form	I-2
E	Omissions or Erasures	I-2
F	Notice of Intent to Bid and Questionnaire	I-2
G	Bid Security	I-2
H	Contractor's License Required	I-2
I	Irregular Bids	I-3
J	Withdrawal of Bids	I-3
K	Successful Bidder to File Performance and Payment Bonds	I-3
L	Number of Executed Original Counterparts of Contract Documents	I-3
M	Change Orders	I-3
N	Wages and Hours	I-3
O	Permits	I-3
P	Property Damage	I-4
Q	Time	I-4
R	Bidder's Responsibility to Provide Proper Superintendence	I-4
S	Liquidated Damages	I-4
T	Hiring of Hawaii Residents	I-4
U	Water and Electricity	I-4
V	Public Convenience and Safety	I-5
W	Work to be Done Without Direct Payment	I-5
X	As-Built Drawings	I-5
Y	Asbestos Containing Materials	I-5
Z	Worker Safety	I-5
AA	Toilet Facilities	I-5
BB	Signs	I-5
CC	Field Office for Department	I-6
DD	Quantities	I-6
EE	Other Health Measures	I-6
FF	Hawaii Business Requirement	I-6
GG	Compliance With §3-122-112 HAR	I-6

INFORMATION AND INSTRUCTIONS TO BIDDERS

- A. PROJECT LOCATION AND SCOPE OF WORK: The project location and scope of work shall be as generally described in the Notice to Bidders.
- B. SEALED PROPOSALS Bidders shall submit their “Sealed Bid”, including the completed proposal form, bid bond, and any other documents required by the solicitation as part of their bid in a sealed 9” x 12” envelope, labeled with the name and address of the bidder, and marked “Proposal for” followed by the DLNR Job No. and Project Title, as their bid offer.
- C. GENERAL CONDITIONS: The Department of Land and Natural Resources Interim General Conditions dated October 1994, as amended, shall be made a part of these contract specifications and are referred to hereafter as the General Conditions.
- D. PROPOSAL FORM: The Bidders shall print a hard copy of the proposal form from the electronic file on the project bid package compact disk, unless a hard copy proposal form is included.
- E. OMISSIONS OR ERASURES: Any proposal which contains any omission or erasure or alteration not properly initialed, or conditional bid, or other irregularity may be rejected by the Board of Land and Natural Resources (Board).
- F. NOTICE OF INTENT TO BID AND QUESTIONNAIRE:
A Notice of Intent to Bid is not required for this project. In compliance with HRS Section 103D-310, the lowest responsive and responsible bidder may be required to complete a questionnaire. When requested by the State, the completed questionnaire shall be submitted to the Chief Engineer for evaluation. Failure to furnish the requested information within the time allowed may be grounds for a determination of non-responsibility, in accordance with HRS Section 103D-310 and HAR Section 3-122-108.
- G. BID SECURITY: A bid security will be furnished by each bidder as provided in sub-section 2.7 of the General Conditions. The successful bidder's bid security will be retained until Contract execution and furnished a performance and payment bond in an amount equal to one hundred percent (100%) of the total Contract price, including an amount estimated to be required for extra work, is furnished.
- The Board reserves the right to hold the bid securities of the four lowest bidders until the successful bidder has entered into a contract and has furnished the required performance bond. All bid securities will be returned in accordance with sub-section 3.5 of the General Conditions.
- Should the successful bidder fail to enter into a contract and furnish a satisfactory performance bond within the time stated in the proposal, the bid security shall be forfeited as required by law.
- H. CONTRACTOR'S LICENSE REQUIRED: The Board will reject all bids received from contractors who have not been licensed by the State Contractors License Board in accordance

with Chapter 444, HRS; Title 16, Chapter 77, Hawaii Administrative Rules; and statutes amendatory thereto.

- I. IRREGULAR BIDS: No irregular bids or propositions for doing the work will be considered by the Board.
- J. WITHDRAWAL OF BIDS: No bidder may withdraw his bid between the time of the opening thereof and the award of contract.
- K. SUCCESSFUL BIDDER TO FILE PERFORMANCE AND PAYMENT BONDS: The successful bidder will be required to file performance and payment bonds each; in the amount equal to the total contract price, including amounts estimated to be required for extra work, as provided in sub-section 3.6 of the General Conditions.
- L. NUMBER OF EXECUTED ORIGINAL COUNTERPARTS OF CONTRACT DOCUMENTS: If requested by the Board, six copies of the Contract, performance and payment bonds shall be executed.
- M. CHANGE ORDERS: No work of any kind in connection with the work covered by the plans and specifications shall be considered as change order work, or entitle the Contractor to extra compensation, except when the work has been ordered in writing by the Chief Engineer (Engineer) and in accordance with sub-section 4.2 of the General Conditions.

The Contractor shall clearly identify and inform the Engineer in writing of any deviations from the contract documents at the time of submission and shall obtain the Engineer's written approval to the specified deviation prior to proceeding with any work.

- N. WAGES AND HOURS: In accordance with sub-sections 7.3 to 7.9 of the General Conditions relative to hours of labor, minimum wages and overtime pay, the current minimum wage rates promulgated by the Department of Labor and Industrial Relations (DLIR) shall be paid to the various classes of laborers and mechanics engaged in the performance of this contract on the job site. The minimum wages shall be increased during the performance of the contract in an amount equal to the increase in the prevailing wages for those kinds of work as periodically determined by the DLIR.

The Department of Land and Natural Resources will not recognize any claim for additional compensation because of the payment by the Contractor of any wage rate in excess of the said minimum wage rates. The possibility of wage increase is one of the elements to be considered by the Contractor in determining his bid, and will not, under any circumstances, be considered as the basis of a claim against the Department under this Contract.

No work shall be done on Saturdays, Sundays, legal State holidays, and/or in excess of eight (8) hours each day without the written consent of the Engineer. Should permission be granted to work at such times, the Contractor shall pay for all inspection administrative costs thereof. No work shall be done at night unless authorized by the Engineer.

- O. PERMITS: The State will process permit applications whenever possible, and the Contractor shall procure the pre-processed permits and pay the required fees. If permit applications are not processed by the State, the Contractor shall process the permit applications, permits and

licenses, and pay all charges and fees. In all cases, the Contractor shall give all notices necessary and incident to the due and lawful prosecution of the work.

- P. PROPERTY DAMAGE: It shall be the responsibility of the contractor to respect State property and to prevent damage to existing improvements. The Contractor will be responsible for damages resulting from construction operations. Immediately upon discovery, the Contractor shall repair such damage to the satisfaction of the Engineer.

All trees and shrubbery outside the excavation, embankment or construction limits shall be fully protected from injury.

- Q. TIME: The time of completion is specified in the Proposal. It is the Board's intention to insist the Contractor diligently prosecute the work to completion within the specified time.

Prospective bidders are reminded that the State has the option to proceed with or abandon a project depending on whether the project can be completed for occupancy in the specified time.

It is the bidder's responsibility to check the availability of all materials before bidding. The bidder shall select sub-contractors and suppliers who can warrant availability and delivery of all specified or qualified materials to assure project completion within the specified time.

The successful bidder must assume all risks for completing the project by the specified date. There shall be no extension of time for any reason except for delays caused by acts of God, labor disputes involving unions, or actions of the State. If for any reason the project falls behind schedule, the Contractor shall at its own cost, take necessary remedial measures to get the project back on schedule, i.e., working overtime, air freighting all materials, etc. In addition, if the Contractor fails to fully complete the project by the completion date, Contractor will be required to make the facility usable at its own cost.

- R. BIDDER'S RESPONSIBILITY TO PROVIDE PROPER SUPERINTENDENCE: The successful low bidder shall designate in writing to the Engineer the name of its authorized superintendent (Superintendent), who will be present at the job site whenever any work is in progress. The Superintendent shall be responsible for all work, receiving and implementing instructions from the Engineer in a timely manner. The cost for superintendence shall be considered incidental to the project.

If the Superintendent is not present at the site of work, the Engineer shall have the right to suspend the work as described under sub-section 5.5 c. and 7.20 - Suspension of Work of the General Conditions.

- S. LIQUIDATED DAMAGES: Liquidated damages in the amount specified in the Proposal will be assessed for each and every calendar day from and after the expiration of the time period stated in the Contract for the completion of the project.

- T. HIRING OF HAWAII RESIDENTS: The Contractor shall comply with Act 68, SLH 2010, in the performance and for the duration of this contract. The Contractor shall ensure that Hawaii residents compose not less than eighty percent of the workforce employed to perform the contract work on the project. The eighty percent requirement shall be determined by

dividing the total number of hours worked on the contract by Hawaii residents, by the total number of hours worked on the contract by all employees of the Contractor in the performance of the contract. The hours worked by any Subcontractor of the Contractor shall count towards the calculation for this section. The hours worked by employees with shortage trades, as determined by the Department of Labor and Industrial Relations (DLIR), shall not be included in the calculation for this section.

The requirements shall apply to any subcontract of \$50,000 or more in connection with the Contractor, that is, such Subcontractors must also ensure that Hawaii residents compose not less than eighty percent of the Subcontractor's workforce used to perform the subcontract.

- U. WATER AND ELECTRICITY: The Contractor shall make all necessary arrangements and pay all expenses for water and electricity used in the construction of this project.
- V. PUBLIC CONVENIENCE AND SAFETY: The Contractor shall conduct construction operations with due regard to the convenience and safety of the public at all times. No materials or equipment shall be stored where it will interfere with the safe passage of public traffic. The Contractor shall provide, install, and maintain in satisfactory condition, all necessary signs, flares and other protective facilities and shall take all necessary precautions for the protection of the work and the convenience and safety of the public. The Engineer shall have the right to suspend the performance of the work in accordance with sub-section 7.20 - Suspension of Work of the General Conditions.
- W. WORK TO BE DONE WITHOUT DIRECT PAYMENT: Whenever the contract that the Contractor is to perform work or furnish materials of any kind for which no price is fixed in the contract, it shall be understood that the Contractor shall perform such work or furnish said materials without extra charge or allowance or direct payment of any sort. The cost of performing such work or furnishing said material is to be included by the Contractor in a unit price for the appropriate item unless it is expressly specified that such work or material is to be paid for as extra work.
- X. AS-BUILT DRAWINGS: As-built drawings, the intent of which is to record the actual in-place construction so that any future renovations or tie-ins can be anticipated accurately, shall be required. All authorizations given by the Engineer to deviate from the plans shall be drawn on the job site plans. All deviations from alignments, elevations and dimensions which are stipulated on the plans shall be recorded on the as-built drawings. Final as-built drawings shall be submitted to the Engineer by the Contractor at the end of the project in both hard copy and electronic copy in Adobe PDF format on CD ROM.
- Y. ASBESTOS CONTAINING MATERIALS: The use of asbestos containing materials or equipment is prohibited. The Contractor shall insure that all materials and equipment incorporated in the project are asbestos-free
- Z. WORKER SAFETY: The Contractor shall provide, install and maintain in satisfactory condition all necessary protective facilities and shall take all necessary precautions for the protection and safety of its workers in accordance with the Occupational Safety and Health Standards for the State of Hawaii. The Engineer shall have the right to suspend the performance of the work in accordance with sub-section 7.20 - Suspension of Work of the General Conditions.

- AA. TOILET FACILITIES: All toilet facilities constructed at the project site shall be in accordance with the Public Health Regulations of the State Department of Health (DOH). All necessary precautions shall be observed at the project site. The use of sanitary facilities shall be strictly enforced and workers violating these provisions shall be promptly discharged.
- BB. SIGNS: Whenever the project involves closing or obstructing any public thoroughfare, the Contractor shall provide traffic signs conforming to the applicable provisions of the current edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways", published by the Federal Highway Administration as directed by the Engineer for the purpose of diverting or warning traffic prior to the construction area. All traffic signs shall bear proper wording stating thereon the necessary information as to diverting or warning traffic.
- When indicated in the Proposal, the Contractor shall provide a project sign, size 4'-0" x 7'-0" to be placed as directed by the Engineer. The sign shall be constructed in accordance with Section 01581 - Project Sign of these specifications and approved by the Engineer. All wording, type and size of lettering and color selection shall be as specified in these specifications or as approved by the Engineer.
- All signs shall be kept neat and clean, and properly erected at all times.
- CC. FIELD OFFICE AREA FOR DEPARTMENT: When indicated in the Proposal, the Contractor shall provide a housed working area of at least 100 square feet adjacent to the Contractor's office for the Department's use. This area will be used by the Engineer to perform tests and to store equipment. As a minimum, the field office shall include the following: standard sized office desk and chair, lighting, ventilation, window-type air conditioning rated at 5,000 BTU, door and window with locking hardware, electrical outlets, and working communications facilities (a cellular telephone is acceptable). The Department will pay for all long distance toll charges made by the Engineer.
- DD. QUANTITIES: All bids will be compared on the basis of quantities of work to be done as shown in the Proposal; the quantities shown in the Unit Price items are estimated, being given as a basis for comparison of bids. The Board reserves the right to increase or decrease the quantities given under the items or delete items entirely as may be required during the progress of the work.
- EE. OTHER HEALTH MEASURES: Forms of work site exposure or conditions which may be detrimental to the health or welfare of workers or of the general public shall be eliminated or reduced to safe levels as required by the DOH codes, standards, and regulations. Suitable first aid kits and a person qualified to render first aid, as specified in the DOH regulations, shall be provided at all times when work is scheduled.
- FF. HAWAII BUSINESS OR COMPLIANT NON-HAWAII BUSINESS REQUIREMENT: Bidders (Contractors) shall be incorporated or organized under the laws of the State or be registered to do business in the State as a separate branch or division that is capable of fully performing under the contract, as stipulated in §3-122-112 HAR.
- GG. COMPLIANCE WITH §3-122-112 HAR:

As a condition for award of the contract and as proof of compliance with the requirements of 103D-310(c) HRS, the apparent low bidder shall furnish the required documents to the Department. If the valid required certificates are not submitted on a timely basis for award of a contract, a bidder otherwise responsive and responsible may not receive the award. Bidder is responsible to apply for and submit the following documents to the Department.

- A. TAX CLEARANCE REQUIREMENTS (HRS Chapter 237): Bidder shall obtain a tax clearance certificate from the Hawaii State Department of Taxation (DOTAX) and the Internal Revenue Service (IRS). The certificate is valid for six months from the most recently approved stamp date on the certificate; the certificate must be valid on the date received by the Department.

- B. Department of Labor (DLIR) “**Certificate of Compliance**”. (HRS Chapter 383 - Unemployment Insurance, Chapter 386 - Workers’ Compensation, Chapter 392 - Temporary Disability Insurance, and 393 – Prepaid Health Care): Bidder shall obtain a certificate of compliance from the Hawaii State Department of Labor and Industrial relations (DLIR). The certificate is valid for six months from the date of issue; certificates must be valid on the date received by the Department.

- C. Department of Commerce and Consumer Affairs (DCCA), Business Registration Division (BREG) “**Certificate of Good Standing**”. Bidder shall obtain a certificate of good standing issued by the Department of Commerce and Consumer Affairs (DCCA), Business Registration Division (BREG). The certificate of good standing is valid for six months from the date of issue; certificates must be valid on the date received by the Department.

Alternately, instead of separately applying for these certificates at the various state agencies, bidder may choose to use the Hawaii Compliance Express (HCE), which allows businesses to register online through a simple wizard interface at <http://vendors.hawaii.gov> to acquire a “Certificate of Vendor Compliance” indicating the bidder’s status is compliant with the requirements of §103D-310(c), HRS, and shall be accepted for contracting and final payment purposes. Bidders that elect to use the new HCE services will be required to pay an annual fee of \$15.00 to the Hawaii Information Consortium, LLC (HIC). Bidders choosing not to participate in the HCE program will be required to provide the paper certificates as instructed in the previous paragraphs.

P R O P O S A L

FOR

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION
State of Hawaii

JOB NO. G75CS18A
WAIANAE DEEP MONITOR WELL
WAIANAE, OAHU, HAWAII

_____, 20__

Chief Engineer
Engineering Division
Department of Land and Natural Resources
State of Hawaii
Honolulu, Hawaii

Dear Sir:

The undersigned, having carefully examined the local conditions and all available records and information covering conditions which may affect the cost of the work to be performed, and having carefully examined the Plans and Specifications, and other contract documents, hereby proposes to furnish and pay for all materials, tools, equipment, labor and other incidental work necessary to construct a new deep monitor well, as required or called for in this Proposal, all according to the true intent and meaning of the Notice to Bidders, Information and Instructions to Bidders, Proposal, Detailed Specifications, Interim General Conditions, Plans, and any and all addenda for:

JOB NO. G75CS18A
WAIANAE DEEP MONITOR WELL
WAIANAE, OAHU, HAWAII

on file in the office of the Engineering Division for the TOTAL BASE BID (Items 1 to 17) of:

_____ Dollars (\$ _____)
and will fully complete all work under this contract within 270 consecutive calendar days from the date of written notice to proceed, including date of said order, said total sum being itemized on the following pages.

PROPOSAL

Item No.	Quantity	Unit	Description	Unit Price	Total
1.		LS	Layout, staking and site preparation including erosion and sediment control, earthwork, and restoration.	LS	\$
2.	407	LF	Drilling the 12-inch (min.) diameter pilot borehole.	\$	\$
3.	407	LF	Ream 12-inch pilot borehole to 15 Inches.	\$	\$
4.		LS	Video log the entire length of the reamed open borehole without casing.	LS	\$
5.	157	LF	Provide and install 6-inch (nominal), Flush Joint, Schedule 80, PVC casing conforming to ASTM F480, including double cement baskets.	\$	\$
6.	250	LF	Provide and install 6-inch (nominal), Flush Joint, Schedule 80 PVC, perforated casing conforming to ASTM F480.	\$	\$
7.	147	LF	Provide and install cement grout in the annular space for PVC casing.	\$	\$
8.		LS	Video log the entire length of the completed well.	LS	\$
9.		LS	Provide, install, and subsequently remove a test pump capable of delivering 100 GPM to the ground surface.	LS	\$
10.	8	Hr	Pump Testing and Development Pumping.	\$	\$
11.		LS	Plumbness and Alignment tests.	LS	\$
12.		LS	Provide and install 12-inch (ID) Steel Casing, Locking Cap, grout and Concrete Pad.	LS	\$
13.		LS	Provide benchmark for new monitoring well concrete pad with surveyed elevations of new benchmark and top of casing.	LS	\$
14.		LS	Provide and install 6-foot-high chain link fence and gate including posts, pipes, excavation, backfill, Class B concrete footings, painting, and all other incidentals, in place complete.	LS	\$
15.		LS	Project Sign, in place complete.	LS	\$
16.	Allow.		Allowance for Field Office.	Allow.	\$ 10,000.00
17.		LS	Mobilization and Demobilization (Not to exceed 15% of Total Base Bid).	LS	\$

Total Base Bid (Items 1-17)				\$	\$
------------------------------------	--	--	--	----	----

RECYCLED PRODUCTS PREFERENCE

This project allows a 10% price preference for recycled products in accordance with HRS 103D-1005. Please indicate your selection of recycled or non-recycled product by indicating its cost FOB jobsite unloaded in the schedule below, including applicable General Excise & Use Taxes.

<u>DESCRIPTION</u>	<u>RECYCLED PRODUCT COST</u>	<u>NONRECYCLED PRODUCT COST</u>
_____	\$ _____	\$ _____
_____	\$ _____	\$ _____
_____	\$ _____	\$ _____
_____	\$ _____	\$ _____

The bidder requesting a recycled product preference shall also complete and submit the form “CERTIFICATION OF RECYCLED CONTENT” as shown in the Interim General Conditions and provide all supporting information with this proposal. Additional information may be requested to qualify a product.

The following definitions are applicable to the CERTIFICATION OF RECYCLED CONTENT form:

"Post-consumer recovered material" means any product used by a consumer, including a business that purchases the material, that has served its intended end use, and that has been separated or diverted from the solid waste stream for the purpose of use, reuse, or recycling.

"Product" includes materials, manufactures, supplies, merchandise, goods, wares, and foodstuffs.

"Recovered material" means waste material and by-products that have been separated, diverted, or removed from the solid waste stream after a manufacturing process for the purpose of use, reuse, or recycling. Recovered material does not include those materials and by-products that are generated and normally reused on-site or within original manufacturing processes (such as mill broke, in the case of paper products).

"Recycled content" means the percentage of a product composed of recovered material, or post-consumer recovered material, or both.

"Recycled product" means a product containing recovered material, or post-consumer recovered material, or both.

The bidder agrees that preference for recycled products shall be taken into consideration to determine the low bidder in accordance with said Section and the rules promulgated, however, the award of contract will be in the amount of the bid offered exclusive any preference.

APPRENTICESHIP AGREEMENT PREFERENCE

1. If applicable to this project, any bidder seeking the preference must be a party to an apprenticeship agreement registered with the State Department of Labor and Industrial Relations (DLIR) at the time the bid is submitted for each apprenticeable trade the bidder will employ to construct the project. “Employ” means the employment of a person in an employer-employee relationship.
 - a. The apprenticeship agreement shall be registered with the DLIR and conform to the requirements of Hawaii Revised Statutes Chapter 372.
 - b. Subcontractors do not have to be a party to an apprenticeship agreement for the bidder to obtain preference.
 - c. The bidder is not required to have apprentices in its employ at the time the bid is submitted to qualify for the preference.
2. A bidder seeking the preference must state the apprenticeable trade the bidder will employ for each trade to be employed to perform the work by submitting a completed signed original *Certification Form 1* verifying participation in an apprenticeship program registered with DLIR. “Apprenticeable trade” shall have the same meaning as “apprenticeable occupation” pursuant to Hawaii Administrative Rules (HAR) §12-30-5.
 - a. The *Certification Form 1* shall be authorized by an apprenticeship sponsor listed on the DLIR list of registered apprenticeship programs. “Sponsor” means an operator of an apprenticeship program and in whose name the program is approved and registered with the DLIR pursuant to HAR §12-30-1.
 - b. The authorization shall be an original signature by an authorized official of the apprenticeship sponsor.
 - c. The completed signed original *Certification Form 1* for each trade must be submitted with the bid. Previous certifications shall not apply.
 - d. When filling out the *Certification Form 1*, the name of Apprenticeable Trade and Apprenticeship Sponsor must be the same as recorded in the List of Construction Trades in Registered Apprenticeship Programs that is posted on the DLIR website. “Registered apprenticeship program” means a construction trade program approved by the DLIR pursuant to HAR §12-301 and §12-30-4.
 - e. The *Certificate Form 1* and the List of Construction Trades in Registered Apprenticeship Programs is available on the DLIR website at: <http://hawaii.gov/labor/wdd>.
3. Upon receiving the *Certification Form 1*, the Procurement Officer will verify that the apprenticeship program is on the List of Construction Trades in Registered Apprenticeship Programs and that the form is signed by an authorized official of the Apprenticeship Program Sponsor. If the programs and signature are not confirmed by the DLIR, the bidder will not qualify for the preference.
4. If the bidder is certified to participate in an apprenticeship program for each trade which will be employed by the bidder for the project, a preference will be applied to decrease the bidder’s bid amount by five percent (5%) for evaluation purposes.

5. Should the bidder qualify for other preferences, all applicable preferences shall be applied to the bid price.

CONTRIBUTIONS BY STATE AND COUNTY CONTRACTORS PROHIBITED

Contractors are hereby notified of the applicability of Section 11-355, HRS, which states that campaign contributions are prohibited from specified State or county government contractors during the term of the contract if the contractors are paid with funds appropriated by a legislative body.

CONDITION OF AWARD

It is understood that the award of the contract will be made on the basis of the lowest responsible Total Base Bid (Items 1 to 17) selected by the Board of Land and Natural Resources. Write the total of bid items 1 to 17 on page P-1.

It is understood and agreed that the Board of Land and Natural Resources reserves the right to reject any and/or all bids and waive any defects when, in the Board's opinion, such rejection or waiver will be for the best interest of the State of Hawaii.

In the event all bids exceed available funds certified by the appropriate fiscal officer, the head of the purchasing agency responsible for the procurement in question is authorized in situations where time or economic considerations preclude resolicitation of work of a reduced scope to negotiate an adjustment of the bid price, including changes in the bid requirements, with the low responsible and responsive bidder, in order to bring the bid within the amount of available funds. It is understood and agreed upon that the head of the purchasing agency may delete a portion or all of any item(s) in the proposal at the stated unit or lump sum price as necessary to stay within the available funding. The bidder is responsible to make an earnest effort to represent the actual cost of each item, including all materials, labor, equipment, overhead and profit in their bid proposal to preclude claims of anticipated profit or loss of profit because of an unbalanced bid proposal.

It is also understood that if a mutually agreeable cost for the reduced scope of work necessitated by a lack of available funds cannot be agreed upon between the bidder and the head of the purchasing agency within 14 calendar days after the bid opening, then the bid may be rejected in the best interest of the purchasing agency, and the head of the purchasing agency may negotiate in progressive order (lowest to highest) with the next lowest responsible and responsive bidder.

It is also understood and agreed that the award of the contract shall be conditioned upon funds being made available for this project and further upon the right of the Board of Land and Natural Resources to hold all bids received for a period of three hundred sixty-five (365) days from the date of the opening thereof, unless otherwise required by law, during which time no bid may be withdrawn.

It is also understood that Notice to Proceed may be delayed up to five hundred forty (540) days after the bid opening date, and that no additional compensation will be provided for any claim for escalation or delay for issuance of Notice to Proceed on or before that date.

It is also understood and agreed that the quantities given herewith are approximate only and are subject to increase or decrease, and that the undersigned will perform all quantities of work as either increased or decreased, in accordance with the provisions of the Contract Specifications.

It is also understood and agreed that the estimated quantities shown for the items for which a UNIT PRICE is asked in this Proposal are only for the purpose of comparing on a uniform basis, bids offered for the work under this contract, and the undersigned agrees that he is satisfied with and will at no time, dispute said estimated quantities as a means of claims for anticipated profit or loss of profit, because of a difference between the quantities of the various classes of work done or the materials and equipment installed, and the said estimated quantities. On UNIT PRICE bids, payment will be made only for the actual number of units incorporated into the finished project at the contract UNIT PRICE.

After the HIEPRO bid due date and time, the figures will be extended and/or totaled in accordance with the bid prices of the acceptable proposals and the totals will be compared. In the comparison of bids, words written in the proposal shall govern over figures and unit prices will govern over totals. Until the award of the contract, however, the right will be reserved to reject any and all proposals and to waive any

defects or technicalities as may be deemed best for the interest of the State.

It is also understood and agreed that liquidated damages in the amount of three hundred and no/100 dollars (\$ 300.00) for each and every calendar day in excess thereof prior to completion of the contract shall be withheld from payments due to the Contractor.

It is also understood and agreed that if this bid is accepted, the successful bidder must enter into and execute a contract with the Board of Land and Natural Resources and furnish a Performance and Payment Bond, as required by law. These bonds shall conform to provisions of Section 103D-324 and 325, Hawaii Revised Statutes and any law applicable hereto.

It is also understood and agreed that the successful bidder will provide all necessary labor, materials, tools, equipment, and other incidentals necessary to do all the work and furnish all the materials specified in the contract in the manner and time herein prescribed, and according to the requirements of the Engineer as therein set forth.

It is understood that by submitting this proposal, the undersigned is declaring that his firm has not been assisted or represented on this matter by an individual who has, in a State capacity, been involved in the subject matter of this contract in the past two years.

It is understood that by submitting this proposal in accordance with HAR 3-122-192, the undersigned is declaring that the price submitted is independently arrived without collusion.

It is also understood that by submitting this proposal, a Certification for Safety and Health Programs for bids in excess of \$100,000 (in accordance with HRS 396-18), the undersigned certifies that his organization will have a written safety and health plan for this project that will be available and implemented by the Notice to Proceed date of this project. Details of the requirements of this plan may be obtained from the Department of Labor and Industrial Relations, Occupational, Safety and Health Division (HIOSH).

It is further understood and agreed that the successful bidder shall comply with paragraph 3.1.a "SUBCONTRACTING" of the General Provisions which requires that the contractor shall perform with his own organization and with the assistance of workmen under his immediate superintendence, work of a value not less than twenty percent (20%) of the value of all work embraced in the Contract, except that certain contract items of work, if specifically referred to in the special provisions, will be exempted from said twenty percent requirement.

Compliance with §103-310 HRS. As a condition of award all bidders shall comply with all laws governing entities doing business in the State, including Chapter 237 HRS (general excise tax); Chapter 383 HRS (employment security – unemployment insurance); Chapter 386 HRS (workers compensation); Chapter 392 HRS (temporary disability insurance); and Chapter 393 HRS (pre-paid health care), and shall produce all documents to the State (DLNR, Engineering Division) required to demonstrate compliance with these subsections. Any bidder making a false affirmation or certification under this subsection shall be suspended and may be debarred from further offerings or awards pursuant to §103D-702 HRS.

RECEIPT OF ADDENDA

The bidder also acknowledges receipt of any and all addenda issued by the Engineering Division, by recording the date of receipt of the respective addenda in the space provided below:

<u>Addendum</u>	<u>Date Received</u>	<u>Addendum</u>	<u>Date Received</u>
No. 1	_____	No. 5	_____
No. 2	_____	No. 6	_____
No. 3	_____	No. 7	_____
No. 4	_____	No. 8	_____

It is understood that failure to receive any such addendum shall not relieve the Contractor from any obligation under this Proposal as submitted.

It is also understood and agreed that if this Proposal is accepted and the undersigned should fail or neglect to contract as aforesaid, the Board may determine that the bidder has abandoned the Contract, and thereupon, forfeiture of the security accompanying his proposal shall operate and the same shall become the property of the Board.

JOINT CONTRACTORS OR SUBCONTRACTORS
TO BE ENGAGED ON THIS PROJECT

The Bidder agrees that the following is a complete listing of all joint contractors or subcontractors covered under Chapter 444, Hawaii Revised Statutes (HRS), who will be engaged by the Bidder on this project to perform the required work indicated pursuant to Section 103D-302, HRS. It is the sole responsibility of the contractor to review the requirements of this Project and determine the appropriate licenses that are required to complete the Project. The Bidder certifies that the completed listing of joint contractors or subcontractors fulfills the requirements for the project and the Bidder, together with the listed subcontractors or joint contractors have all the specialty contractor's licenses to complete the work, except as provided for in HRS §103D-302(b). Failure of the Bidder to comply with this requirement may be just cause for rejection of the bid.

“A” General Engineering Contractors and “B” General Building Contractors are reminded that due to the Hawaii Supreme Court’s January 28, 2002 decision in Okada Trucking Co., Ltd. v. Board of Water Supply, et al., 97 Haw. 450 (2002), they are prohibited from undertaking any work, solely or as part of a larger project, which would require the general contractor to act as a specialty contractor in any area in which the general contractor has no license. Although the “A” and “B” contractor may still bid on and act as the “prime” contractor on an “A” or “B” project (See, HRS §444-7 for the definitions of an “A” and “B” project.), respectively, the “A” and “B” contractor may only perform work in the areas in which they have the appropriate contractor’s license (*An “A” or “B” contractor obtains “C” specialty contractor’s licenses either on its own, or automatically under HAR § 16-77-32*). The remaining work must be performed by appropriately licensed entities.

General Engineering “A” Contractors automatically have these “C” specialty contractor’s licenses: C-3, C-9, C-10, C-17, C-24, C-31a, C-32, C-35, C-37a, C-37b, C-38, C-43, C-49, C-56, C-57a, C-57b and C-61.

General Building “B” Contractors automatically have these “C” specialty contractor’s licenses: C-5, C-6, C-10, C-12, C-24, C-25, C-31a, C-32a, C-42a and C-42b.

In completing the Joint Contractors or Subcontractors List, describe the specialty contractor’s nature and scope of work to be performed for this project and provide the complete firm name of the joint contractor or subcontractor in the respective columns. If the Bidder is a general contractor and providing the work of the required specialty contractor, fill in the Bidder’s (general contractor’s) name and nature and scope of work to be performed on this project.

List only one joint contractor or subcontractor per required specialty contractor’s classification, unless within the same specialty, the work of each joint contractor or subcontractor can be described so that there is no overlap in work descriptions.

If a contractor’s license is required by law for the performance of the work which is called for in this bid, the bidder and all subcontractors must have the required license before the submission of the bidder’s proposal in the case of a non-federal aid project, and for federal-aid projects, the bidder must have the required license prior to the award of the project and all subcontractors prior to the start of the subcontracted work.

COMPLETE FIRM NAME OF JOINT CONTRACTOR OR SUBCONTRACTOR	NATURE AND SCOPE OF WORK TO BE PERFORMED

Enclosed herewith is a:

- 1. Surety Bond (*1))
- 2. Legal Tender (*2))
- 3. Cashier's Check (*3))
- 4. Certificate of Deposit (*3)) in the
- 5. Certified Check (*3)) amount
- 6. Official Check (*3)) of
- 7. Share Certificate (*3))
- 8. Teller's Check (*3))
- 9. Treasurer's Check (*3))

(Cross Out Those Not Applicable)

_____ Dollars (\$ _____)

as required by law.

Exact Legal Name of Company, Joint Venture or Partnership

Company is:

Sole Proprietor Partnership Corporation Joint Venture Other _____

Contractor's License No.: _____

Federal I.D. No.: _____

Hawaii General Excise Tax License I.D. No.: _____

Payment address (other than street address below): _____

City, State, Zip Code: _____

Business Address (street address): _____

City, State, Zip Code: _____

Respectfully submitted,

By _____
 Authorized (Original) Signature (*4)

Title: _____

Print Name: _____

Date: _____

Telephone No.: _____

E-Mail Address: _____

NOTES:

1. Surety bond underwritten by a company licensed to issue bonds in this State;
2. Legal tender; or
3. A certificate of deposit; share certificate; or cashier's, treasurer's, teller's, or official check drawn by, or a certified check accepted by, and payable on demand to the State by a bank, a savings institution, or credit union insured by the Federal Deposit Insurance Corporation or the National Credit Union Administration.
 - A. These instruments may be utilized only to a maximum of \$100,000.
 - B. If the required security or bond amount totals over \$100,000, more than one instrument not exceeding \$100,000 each and issued by different financial institutions shall be accepted.
4. Please attach to this page evidence of the authority of this officer to submit bids on behalf of the Company and also the names and residence addresses of all officers of the Company.
5. Fill in all blank spaces with information asked for or bid may be invalidated. PROPOSAL MUST BE INTACT, MISSING PAGES MAY INVALIDATE YOUR BID.

End of Proposal

SPECIAL PROVISIONS

Amend INTERIM GENERAL CONDITIONS, dated October 1994, as follows:

Section 2 – Proposal Requirements and Conditions

1. **AMEND** Section 2.1 Qualification of Bidder with the following:

Written Notice of Intent to Bid or Offer: A written Notice of Intent to Bid is not required for the Solicitation.

Standard Qualification Questionnaire: Bidders may be required to complete a standard qualifications questionnaire. When requested, the information shall be furnished within two working days or longer at the discretion of the Engineer. Failure to furnish the requested information within the time allowed may be grounds for a determination of non-responsibility, in accordance with HRS Section 103D-310 and HAR Section 3-122-108.

Hawaii Business or Compliant Non-Hawaii Business Requirement: Bidders shall be incorporated or organized under the laws of the State or be registered to do business in the State as a separate branch or division that is capable of fully performing under the contract, as stipulated in §3-122-112 HAR. A certified letter is not required prior to bid opening.

Compliance with §3-122-112 HAR: As a condition for award of the contract and as proof of compliance with the requirements of 103D-310(c) HRS, the apparent low bidder shall furnish the required documents to the Department. If the valid required certificates are not submitted on a timely basis for award of a contract, a bidder otherwise responsive and responsible may not receive the award. Bidder is responsible to apply for and submit the following documents to the Department.

- A. Tax Clearance (HRS Chapter 237): Bidder shall obtain a tax clearance certificate from the Hawaii State Department of Taxation (DOTAX) and the Internal Revenue Service (IRS). The certificate is valid for six months from the most recently approved stamp date on the certificate; the certificate must be valid on the date received by the Department.
- B. Department of Labor (DLIR) “Certificate of Compliance”. (HRS Chapter 383 - Unemployment Insurance, Chapter 386 - Workers’ Compensation, Chapter 392 - Temporary Disability Insurance, and 393 – Prepaid Health Care): Bidder shall obtain a certificate of compliance from the Hawaii State Department of Labor and Industrial relations (DLIR). The certificate is valid for six months from the date of issue; certificates must be valid on the date received by the Department.
- C. Department of Commerce and Consumer Affairs (DCCA), Business Registration Division (BREG) “Certificate of Good Standing”. Bidder shall obtain a certificate of good standing issued by the Department of Commerce and Consumer Affairs (DCCA), Business Registration Division (BREG). The certificate of good standing is valid for six months from the date of issue; certificates must be valid on the date received by the Department.

Hawaii Compliance Express. Alternately, instead of separately applying for these certificates at the various state agencies, bidder may choose to use the Hawaii Compliance Express (HCE), which allows businesses to register online through a simple wizard interface at <http://vendors.hawaii.gov> to acquire a “Certificate of Vendor compliance” indicating that bidder’s status is compliant with requirements of §103D-310(c), HRS, shall be accepted for contracting and final payment purposes.

Bidders that elect to use the new HCE services will be required to pay an annual fee of \$15.00 to the Hawaii

Information Consortium, LLC (HIC). Bidders choosing not to participate in the HCE program will be required to provide the paper certificates as instructed in the previous paragraphs.

2. **ADD** Section 2.4a, Pre-Bid Conferences

Required Pre-bid Conferences: For construction and design-build projects with an estimated value of \$500,000 or more and solicited under the competitive sealed bid method (103D-302 HRS); and for construction and design-build projects with an estimated value of \$100,000 or more and solicited under the competitive sealed proposal method (103D-303 HRS); a pre-bid conference is required.

Other Pre-Bid Conferences: The Department may require a pre-bid conference for construction or design-build projects that are below the dollar threshold listed in above or when projects have special or unusual requirements.

Other Conditions: The Department may require the prospective Bidders to make a physical inspection of the project site and make attendance at the pre-bid conference a condition for submitting an offer.

Nothing stated at the pre-bid conference shall change the solicitation unless a change is made by written addendum.

3. **DELETE** Section 2.5, Addenda and Interpretations, in its entirety and replace with the following:

“Discrepancies, omissions, or doubts as to the meaning of drawings and specifications should be communicated using the question and answer section on the HIEPRO solicitation for interpretation and must be received in the time frame set in the HIEPRO solicitation. Any interpretation, if made and any supplemental instructions will be in the form of written addenda to the plans and specifications and made available prior to the offer due date. It shall be the prospective bidder’s sole responsibility to verify and obtain any said addenda. Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the contract documents.”

Section 3 – Award and Execution of Contract

1. **AMEND** Section 3.3, Award of Contract, by deleting “sixty (60)” and replacing with “three hundred sixty-five (365)” in the first paragraph.

2. **AMEND** Section 3.3, Award of Contract, by adding the following after the first paragraph:

“If the contract is not awarded within the three hundred sixty-five (365) days, the Department may request the successful Bidder to extend the time for the acceptance of its bid. The Bidder may reject such a request without penalty; and in such case, the Department may at its sole discretion make a similar offer to the next lowest responsive and responsible bidder and so on until a bid is duly accepted or until the Department elects to stop making such requests.”

3. **AMEND** Section 3.9, Notice to Proceed, by deleting “180 days” and replacing with “five hundred forty (540) days” in the last paragraph.

4. **ADD** Section 3.10, Protests:

“3.10 PROTESTS—Pursuant to Section 103D-701, Hawaii Revised Statutes, an actual or prospective offeror who is aggrieved in connection with the solicitation or award may submit a protest. Any protest shall be submitting in writing to the Chairperson, Department of Land and Natural Resources, 1151 Punchbowl Street, Honolulu, Hawaii 96813, or designee as specified in the solicitation.

A protest shall be submitted in writing within five (5) working days after the aggrieved person knows or should have known the facts giving rise thereto; provided that a protest based upon the content of the solicitation shall be submitted in writing prior to the date set for receipt of offers. Further provided that a protest of an award or proposed award shall be submitted within five (5) working days after the posting of the award of the contract.

The notice of award, if any, resulting from this solicitation shall be posted on the HiePRO website.

Section 5 – Control of Work

AMEND Section 5.8 Value Engineering Incentive by deleting “\$100,000” and replacing with “\$250,000” in the first paragraph.

Section 6 – Substitution of Materials and Equipment

ADD the following to Section 6.3 Sub-paragraph b:

4. If the substitution meets all the requirements of the specifications and plans.

Section 7 – Prosecution and Progress

1. **DELETE** Section 7.2d in its entirety and replace with the following:

“d. Proof of Insurance Coverage

A Certificate of Insurance or other documentary evidence, to the satisfaction of the Engineer, that the Contractor has in place all insurance coverage required by the contract. The Certificate of Insurance shall contain wording which identifies the Project number and Project title for which the certificate of insurance is issued. Refer to the following for insurance requirements:

1. Insurance Requirements

- (a) **Obligation of Contractor** - Contractor shall not commence any work until it obtains, at its own expense, all required herein insurance. Such insurance must have the approval of the Department as to limit, form and amount and must be maintained with a company authorized by laws of the State to issue such insurance in the State of Hawaii. Coverage by a “Non-Admitted” carrier is permissible provided the carrier has a AM Best’s Rating of “A-VII” or better.
- (b) All insurance described herein will be maintained by the Contractor for the full period of the contract and in no event will be terminated or otherwise allowed to lapse prior to written certification of final acceptance of the work by the Department.
- (c) Certificate(s) of Insurance acceptable to the Department shall be filed with the Engineer prior to commencement of the work. Certificates shall identify if the insurance company is a “captive” insurance company or a “Non-Admitted” carrier to the State of Hawaii. The Best’s

Rating must be stated for the "Non-Admitted" carrier. Certificates shall contain a provision that coverages afforded under the policies will not be canceled or changed until at least thirty (30) days written notice has been given to the Engineer by registered mail. The insurance policies shall name the State of Hawaii, its officers and employees as an additional insured and such coverage shall be noted on the certificate. Should any policy be canceled before final acceptance of the work by the Department, and the Contractor fails to immediately procure replacement insurance as specified, the Department, in addition to all other remedies it may have for such breach, reserves the right to procure such insurance and deduct the cost thereof from any money due to the Contractor.

- (d) Nothing contained in these insurance requirements is to be construed as limiting the extent of Contractor's responsibility for payment of damages resulting from its operations under this contract, including the Contractor's obligation to pay liquidated damages, nor shall it affect the Contractor's separate and independent duty to defend, indemnify and hold the Department harmless pursuant to other provisions of this contract. In no instance will the Department's exercise of an option to occupy and use completed portions of the work relieve the Contractor of its obligation to maintain the required insurance until the date of final acceptance of the work.
 - (e) All insurance described herein shall be primary and cover the insured for all work to be performed under the contract, all work performed incidental thereto or directly or indirectly connected therewith, including traffic detour work or other work performed outside the work area, and all change order work.
 - (f) The Contractor shall, from time to time, furnish the Engineer, when requested, satisfactory proof of coverage of each type of insurance required or a copy of the actual policies covering the work. Failure to comply with the Engineer's request may result in suspension of the work, and shall be sufficient grounds to withhold future payments due the Contractor and to terminate the contract for Contractor's default.
 - (g) If the Contractor is self-insured, it shall furnish, upon the request and the satisfaction of the Engineer, any documentation to demonstrate the ability to self-insure itself. The Engineer, from time to time, can conduct an audit to determine the ability of the Contractor to be self-insured. Failure to comply with the Engineer's request will be considered a material breach of the contract, and at the discretion of the Engineer, may be sufficient grounds to terminate the contract, suspend any work or withhold future payments.
 - (h) It is the responsibility of the Contractor to notify the Department of any changes to its insurance policies or if the Contractor receives a notice of cancellation of any of its insurance policies. The Contractor will immediately provide written notice to the Department should the insurance policies evidenced on its Certificate of Insurance form be cancelled, limited in scope, or not renewed upon expiration.
- 2. Types of Insurance** - The Contractor shall purchase and maintain insurance described below which shall provide coverage against claims arising out of the Contractor's operations under the contract, whether such operations be by the Contractor itself or by the subcontractor or by anyone directly or indirectly employed by any of them or by anyone for whose acts any of them may be liable.
- (a) **Worker's Compensation.** The Contractor and all subcontractors shall obtain worker's compensation insurance for all persons whom they employ or may employ in carrying

out the work under this contract. This insurance shall be in strict conformity with the requirements of the most current and applicable State of Hawaii Worker's Compensation Insurance laws in effect on the date of the execution of this contract and as modified during the duration of the contract.

- (b) Commercial General Liability. The Contractor shall obtain General Liability insurance with a limit of not less than \$1,000,000 per occurrence and \$2,000,000 aggregate. The insurance policy shall contain the following clauses: 1) "The State of Hawaii is added as an additional insured as respects to operations performed for the State of Hawaii."; and 2) "It is agreed that any insurance maintained by the State of Hawaii will apply in excess of, and not contributed with, insurance provided by this policy." The required limit of insurance may be provided by a single policy or with a combination of primary and excess policies."
- (c) Comprehensive Automobile Liability. The Contractor shall obtain Auto Liability insurance covering all owned, non-owned and hired autos with a combined single Limit of not less than \$1,000,000 per accident for bodily injury and property damage. The insurance policy shall contain the following clauses: 1) "The State of Hawaii is added as an additional insured as respects to operations performed for the State of Hawaii."; and 2) "It is agreed that any insurance maintained by the State of Hawaii will apply in excess of, and not contributed with, insurance provided by this policy." The required limit of insurance may be provided by a single policy or with a combination of primary and excess policies.

Furthermore, the Contractor's commercial general liability insurance and automobile liability insurance shall include coverage for bodily injury, sickness, disease or death of any person, arising directly or indirectly out of, or in connection with, the performance of work under this contract.

The Contractor's property damage liability insurance shall provide for all damages arising out of injury to or destruction of property of others including the Department's, arising directly or indirectly out of or in connection with the performance of the work under this contract including explosion or collapse.

The Contractor shall either:

- i. Require each of its subcontractors to procure and to maintain during the life of its subcontract, subcontractors' comprehensive general liability, automobile liability and property damage liability insurance of the type and in the same amounts specified herein; or
- ii. Insure the activities of its subcontractors in its own policy.

The Contractor will be permitted, in cooperation with insurers, to maintain a self-insured retention for up to 25% of the per occurrence combined single limits of the commercial general liability and the automobile liability policies. The existence of the self-insured retention must be noted on the certificate of insurance coverage submitted to the Department or else it will be understood that the insurer is providing first dollar coverage for all claims. For all claims within the self-insured retention amount, the rights, duties and obligations between the Contractor and the Department shall be identical to that between a liability insurer and the Department, as an additional insured, as if there was no self-insured retention.

- (d) **Builder's Risk Insurance.** Unless included in the Specifications of this project, the Contractor shall not be required to provide builder's risk insurance. If required as noted in the Specifications, builder's risk insurance shall be provided during the progress of work and until final acceptance by the Department upon completion of the contract. It shall be "All Risk" (including but not limited to earthquake, windstorm and flood damage) completed value insurance coverage on all completed work and work in progress to the full replacement value thereof. Such insurance shall include the Department as additional name insured. The insurance policy shall contain the following clauses: 1) "The State of Hawaii is added as an additional insured as respects to operations performed for the State of Hawaii."; and 2) "It is agreed that any insurance maintained by the State of Hawaii will apply in excess of, and not contributed with, insurance provided by this policy." The required limit of insurance may be provided by a single policy or with a combination of primary and excess polices.

The Contractor shall submit to the Engineer for its approval all items deemed to be uninsurable. The policy may provide for a deductible in an amount of up to 25% of the amount insured by the policy. With respect to all losses up to any deductible amount, the relationship between the Contractor and the Department shall be that of insurer and additional insured as if no deductible existed".

2. DELETE Section 7.16 in its entirety and replace with the following:

"RESPONSIBILITY FOR DAMAGE CLAIMS; INDEMNITY – The Contractor shall indemnify the State and the Department against all loss of or damage to the State's or the Department's existing property and facilities arising out of any act or omission committed in the performance of the work by the Contractor, any subcontractor or their employees and agents. Contractor shall defend, hold harmless and indemnify the Department and the State, their employees, officers and agents against all losses, claims, suits, liability and expense, including but not limited to attorneys' fees, arising out of injury to or death of persons (including employees of the State and the Department, the Contractor or any subcontractor) or damage to property resulting from or in connection with performance of the work and not caused solely by the negligence of the State or the Department, their agents, officers and employees. The State or the Department may participate in the defense of any claim or suit without relieving the Contractor of any obligation hereunder. The purchase of liability insurance shall not relieve the Contractor of the obligations described herein.

The Contractor agrees that it will not attempt to hold the State and its Departments and Agencies and their officers, representatives, employees or agents, liable or responsible for any losses or damages to third parties from the action of the elements, the nature of the work to be done under these specifications or from any unforeseen obstructions, acts of God, vandalism, fires or encumbrances which may be encountered in the prosecution of the work.

The Contractor shall pay all just claims for materials, supplies, tools, labor and other just claims against the Contractor or any subcontractor in connection with this contract and the surety bond will not be released by final acceptance and payment by the Department unless all such claims are paid or released. The Department may, but is not obligated to, withhold or retain as much of the monies due or to become due the Contractor under this contract considered necessary by the Engineer to cover such just claims until satisfactory proof of payment or the establishment of a payment plan is presented.

The Contractor shall defend, indemnify and hold harmless the State and its Departments and Agencies and

their officers, representatives, employees or agents from all suits, actions or claims of any character brought on account of any claims or amounts arising or recovered under the Worker's Compensation Laws or any other law, by-law, ordinance, order or decree.

Section 8 – Measurement and Payment

1. **DELETE** Section 8.7a in its entirety and replace with the following:

- a. Tax Clearances from the State of Hawaii Department of Taxation and Internal Revenue Service, subject to section 103D-328, HRS, current within two months of issuance date indicating that all delinquent taxes levied or accrued under State Statutes against the contractor have been paid.

2. **ADD** Section 8.7d, Certificate of Compliance:

- d. A Certification from the Contractor affirming that the Contractor has, as applicable, remained in compliance with all laws as required by Section 103D-310, HRS, and Section 3-122-112, HAR. A contractor making a false affirmation shall be suspended and may be debarred pursuant to section 103D-702, HRS.

1. Certification of Compliance for Final Payment, State Procurement Office Form-22. Must be Signed Original.

3. **ADD** Section 8.7e, Hawaii Compliance Express:

- e. In lieu of submitting the tax clearances from Taxation and IRS, and SPO Form -22, the Contractor may choose to use the Hawaii Compliance Express as described on page SP-1 of this Special Provisions.

TABLE OF CONTENTS

TECHNICAL SPECIFICATIONS	SECTION NO.
<i>DIVISION 1 - GENERAL REQUIREMENTS</i>	
Summary of Work	01010
General Specifications	01019
Standard References	01090
Archaeological Protection	01100
Submittals	01300
Pollution Control	01567
Project Sign	01581
<i>DIVISION 2 - SITEWORK</i>	
Site Preparation	02100
Mobilization and Demobilization	02122
Earthwork	02200
Drilling the Well	02733
Furnishing and Installing Well Casing	02734
Filling the Annular Space	02735
Pump Testing	02736
Galvanized Chain Link Fences and Gates	02831
<i>DIVISION 3 - CONCRETE</i>	
Concrete	03300

SECTION 01010

SUMMARY OF WORK

PART 1 – GENERAL

- 1.1 Work shall consist of furnishing all labor, tools, materials and equipment necessary and required to construct in place complete all work as indicated on the drawings and as specified herein.
- 1.2 ITEMS AND ORDER OF WORK FOR BASE BID
 1. Clear, grub and grade site to accommodate all equipment and materials for access to the well site.
 2. Mobilize all necessary equipment at the well site.
 3. Drill a 12-inch (min) diameter pilot hole to the 407' depth or as directed by the Engineer. The driller shall keep and record a driller's log and report such observation data on the Commission's driller's log and report form that is part of the WCR1 Form 10/9/20. As soon as groundwater is encountered, at an expected depth of 157 to 161 feet, the Contractor shall measure conductivity, water-level, and temperature of the groundwater. During the course of drilling and at the depth directed by the Engineer, the Contractor shall remove his tools from the borehole and allow the Engineer to make measurements and a CTD profile of the water column in the pilot hole.
 4. Ream pilot hole to 15-inch (min) diameter borehole to 407' depth or as directed by the Engineer. The driller shall keep and record a driller's log and report such observation data on the Commission's driller log and report form that is part of WCR1 Form 10/9/20. Once the driller reaches the 180' depth or to the depth directed by the Engineer, the Contractor shall measure conductivity, water-level, and temperature of the ground water. During the course of drilling and at the depth directed by the Engineer, the Contractor shall remove his tools from the borehole and allow the Engineer to make measurements and a CTD profile of the water column in the borehole.
 5. Video log the entire length of the reamed borehole. The Contractor shall allow one full day for the Engineer and the State to make their own measurements.
 6. If water under artesian pressure is encountered, it shall be sealed off by The Contractor with an inflatable packer set at the confining geologic formation or by other means approved by the Engineer at no extra cost to the state.
 7. Provide and install 6-inch (nominal), Flush Joint, Schedule 80, PVC solid casing

Summary of Work
01010-1

including, two cement basket 5 feet apart.

8. Provide and install 6-inch (nominal), Flush Joint, Schedule 80, PVC perforated slotted casing to the depth directed by the Engineer.
9. Using a tremie pipe to fill the annular space with cement grout from the upper concrete basket to the ground surface.
10. Video log the entire length of the completed well. The Contractor shall allow one full day for the Engineer and the State to make their own measurements.
11. Provide, install, and subsequently remove a test pump set at the depth directed by the State and capable of delivering 100 GPM to the ground surface for up to 8 hours continuously. Two 1-inch (min) diameter flush joint sounding tubes shall also be installed, one for manual water level measurements and the other for installation of a downhole recording pressure transducer to be provided by the Engineer.
12. Pump the well as directed by the State to clean and develop the well.
13. Perform the step and constant rate pump tests as directed by the Engineer.
14. Install the steel casing, grout, concrete pad with established benchmark elevation and locking cap.
15. Provide and install 6-ft black vinyl coated chain link fence and gate around the well and furnish with lock.
16. Provide and install 24"x18" interpretive sign onto the chain link fence.
17. Demobilize

END SECTION

Summary of Work
01010-2

Job No. G75CS18A
Waianae Deep Monitor Well

SECTION 01019

GENERAL SPECIFICATIONS

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

Work shall consist of furnishing all labor, tools, materials and equipment necessary and required to construct in place complete all work as indicated on the drawings and as specified herein.

1.2 GENERAL

- A. Examination of Premises: The Contractor shall contact the Engineer and obtain permission before visiting the site.
- B. All lines and grades shall be established by a licensed surveyor, or licensed Civil Engineer, registered in the State of Hawaii. The Contractor shall submit evidence of current and valid registration.
- C. Notices: The Contractor shall notify the Engineer and give at least three (3) working days notice before starting any work.
- D. Disruption of Utility Services: All work related to the temporary disconnection of electrical system shall be pre-arranged with the Engineer so that any disruption of such services will be kept to a minimum. In the event temporary power hook-up is required, the Contractor shall provide the necessary services.
- E. Contractor's Operations
 - 1. The Contractor must employ, insofar as possible, such methods and means of carrying out the work so as not to cause any interruption or interference to the site's operations. Where the Contractor's operations would result in interruptions which would hamper the operations of the facilities, the Contractor shall rearrange the schedule of work accordingly.
 - 2. The Contractor shall maintain safe passageway to and from the site for the user agency personnel and the public at all times.
- F. Lead Paint
 - 1. When the project includes paint to be disturbed that was applied prior to 1980, it shall be assumed to contain lead. The Contractor shall inform its employees, subcontractors, and all other persons engaged in the project that lead containing paints are present in the existing buildings at the job site and to follow the requirements of the Department of Labor and Industrial Relations, Division of

General Specifications
01019-1

Occupational Safety and Health, Title 12, Subtitle 8, Chapter 148, Lead Exposure in Construction, Hawaii Administrative Rules (Chapter 12-148, HAR).

G. Parking Policy for Contractor

1. Areas to be used by the Contractor shall be as designated by the Engineer. Any lawn damaged by the Contractor shall be restored as instructed by the Engineer at no cost to the State.

H. Protection of Property: The Contractor shall continually maintain adequate protection of all its work from damage and shall protect all property, including but not limited to buildings, equipment, furniture, grounds, vegetation, material, utility systems located at and adjoining the job site. The Contractor shall repair, replace or pay the expense of repair of damages resulting from its operations.

I. Use of Power Driven Equipment: The Contractor is cautioned to take all necessary safety precautions to protect the site personnel, and the public whenever power driven equipment is used.

J. Safety: The Contractor shall carefully read and strictly comply with the requirements of the Hawaii Occupational Safety and Health Law, Chapter 396, Hawaii Revised Statutes, as amended, is applicable and made a part of the Contract.

K. Clean Up Premises: The Contractor shall clean up and remove from premises all debris accumulated from operations as necessary or as directed. See also Section 7.25 of the General Conditions.

L. Responsibility

1. The State will hold the Contractor liable for all the acts of Subcontractors and shall deal only with the prime Contractor in matters pertaining to other trades employed on the job. The Contractor shall be responsible for coordinating the work of all trades on the job.
2. Should the Contractor discover any discrepancy in the plans or specifications, the Contractor shall immediately notify the Engineer before proceeding any further with the work, otherwise, the Contractor will be held responsible for any cost involved in correction of work placed due to such discrepancy.

M. Cooperation With Other Contractors: The State reserves the right at any time to contract for or otherwise perform other or additional work within the contract zone limits of this Contract. The Contractor of this project shall, to the extent ordered by the State, conduct its work so as not to interfere with or hinder the progress or completion of the work performed by other contractors.

N. Division of the Work: The Divisions and Sections into which these Specifications are divided shall not be considered an accurate or complete segregation of work by trades.

General Specifications

01019-2

This also applies to all work specified within each Section.

O. Drawings and Specifications

1. The Contractor shall not make alterations in the drawings and specifications. In the event the contractor discovers any errors or discrepancies, the Contractor shall immediately notify the Engineer in accordance with the General Conditions.
2. Where devices, or items, or parts thereof are referred to in the singular, it is intended that such reference shall apply to as many such devices, items or parts as are required to properly complete the work.
3. Specifications and drawings are prepared in abbreviated form and include incomplete sentences. Omission of words or phrases such as "the Contractor shall", "as shown on the drawings", "a", "an", and "the" are intentional. Omitted words and phrases shall be provided by inference to form complete sentences.

Q. Required Submittals

1. Required submittals as specified in the Technical Sections of these specifications include one or more of the following: Shop drawings; color samples; material samples; technical data; schedules of materials; schedules of operations; guarantees; operating and maintenance manuals; and as-built drawings.
2. The Contractor shall make a comprehensive list of the required submittals, by Specification Section, and submit this list to the Engineer within 15 days after notice to proceed.
3. As-Built Drawings: When as-built drawings are required for submittal, the following shall apply:
 - a. As-built drawings, the intent of which is to record the actual in-place construction so that any future renovations or tie-ins can be anticipated accurately, shall be required.
 - b. All deviations from alignments, elevations and dimensions which are stipulated on the plans shall be recorded in red on the as-built drawings.
 - c. The following procedure shall be followed:
 - 1) Immediately after these changes are constructed in place, the Contractor shall record them on the field office plans.
 - 2) Within two weeks after final inspection of the project, the Contractor shall transfer the changes marked on the field office plans onto a clean copy of plans using a red pencil. Any deletions

General Specifications
01019-3

shall be so noted and redrawn as necessary. The Contractor shall stamp or mark the tracings "AS-BUILT", and also sign and date each drawing so marked.

- 3) The Contractor shall submit the as-built drawings to the Engineer for review and approval. After the Engineer approves the as-built drawings, the Contractor shall submit an electronic copy in Adobe PDF format on CD ROM.
- 4) Any as-built drawing which the Engineer determines does not accurately record the deviation shall be corrected by the State, and the Contractor shall be charged for the services.

END OF SECTION

General Specifications
01019-4

Job No. G75CS18A
Waianae Deep Monitor Well

SECTION 01090

STANDARD REFERENCES

PART 1 - GENERAL

Wherever used in the project, the following abbreviations will have the meanings listed:

<u>Abbreviation</u>	<u>Company</u>
AA	Aluminum Association Incorporated 818 Connecticut Avenue, N.W. Washington, D.C. 20006
AASHTO	American Association of State Highway and Transportation Officials 444 North Capitol Street, N.W., Suite 225 Washington, D.C. 20001
ACI	American Concrete Institute P.O. Box 19150 Detroit, MI
AEIC	Association of Edison Illuminating Companies 51 East 42nd Street New York, NY 10017
AFBMA	Anti-Friction Bearing Manufacturer's Association 60 East 42nd Street New York, NY 10017
AGA	American Gas Association 8501 East Pleasant Valley Road Cleveland, OH 44131
AGMA	American Gear Manufacturer's Association 1330 Massachusetts Avenue, N.W. Washington, D.C.
AISC	American Institute of Steel Construction 101 Park Avenue New York, NY 10017
AISI	American Iron and Steel Institute 1000 16th Street, N.W. Washington, D.C. 20036

Standard References
01090-1

<u>Abbreviation</u>	<u>Company</u>
AITC	American Institute of Timber Construction 333 West Hampden Avenue Englewood, CO 80110
AMCA	Air Moving and Conditioning Association, Inc. 30 West University Drive Arlington Heights, IL 60004
ANSI	American National Standards Institute, Inc. 1430 Broadway New York, NY 10018
APA	American Plywood Association 1119 A Street Tacoma, WA 98401
API	American Petroleum Institute 1801 K Street N.W. Washington, DC 20006
ARI	Air-Conditioning and Refrigeration Institute 1814 North Fort Myer Drive Arlington, VA 22209
ASCE	American Society of Civil Engineers 345 East 47th Street New York, NY 10017
ASCII	American Standard Code for Information Interchange United States of America Standards Institute 1430 Broadway New York, NY 10018
ASE Code	American Standard Safety Code for Elevators, Dumbwaiter and Escalators American National Standards Institute 1430 Broadway New York, NY 10018
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers United Engineering Center 345 East 47th Street New York, NY 10017

Standard References
01090-2

<u>Abbreviation</u>	<u>Company</u>
ASME	American Society of Mechanical Engineers 345 East 47th Street New York, NY 10017
ASTM	American Society for Testing and Materials 1916 Race Street Philadelphia, PA 19103
AWPA	American Wood Preservers Association 1625 Eye Street Washington, DC 20006
AWS	American Welding Society 2501 N.W. 7th Street Miami, FL 33125
AWWA	American Water Works Association 6666 West Quincy Avenue Denver, CO 80235
CBM	Certified Ballast Manufacturers 2120 Keith Building Cleveland, OH 44115
CMAA	Crane Manufacturers Association of America, Inc. (Formerly called: Overhead Electrical Crane Institute - OEI) 1326 Freeport Road Pittsburgh, PA 15238
CRSI	Concrete Reinforcing Steel Institute 180 North La Salle Street Chicago, IL 60601
CSA	Canadian Standards Association 178 Rexdale Boulevard Rexdale, Ontario, M9W 1R3, Canada
DEMA	Diesel Engine Manufacturer's Association 122 East 42nd Street New York, NY 10017

Standard References
01090-3

<u>Abbreviation</u>	<u>Company</u>
DIS	Division of Industrial Safety California Department of Industrial Relations 2422 Arden Way Sacramento, CA 95825
EEI	Edison Electric Institute 90 Park Avenue New York, NY 10016
EIA	Electronic Industries Association 2001 Eye Street N.W. Washington, DC 20006
EJMA	Expansion Joint Manufacturer's Association 331 Madison Avenue New York, NY 10017
ESO	Electrical Safety Orders, California Administrative Code, Title 8, Chap. 4, Subarticle 5 Office of Procurement, Publications Section P.O. Box 20191 8141 Elder Creek Road Sacramento, CA 95820
FEDSPEC	Federal Specifications General Services Administration Specification and Consumer Information Distribution Branch Washington Navy Yard, Bldg. 197 Washington, DC 20407
FEDSTDS	Federal Standards (see FEDSPECS)
FM	Factory Mutual Research 1151 Boston-Providence Turnpike Norwood, MA 02062
HEI	Heat Exchange Institute 122 East 42nd Street New York, NY 10017
HI	Hydraulic Institute 1230 Keith Building Cleveland, OH 44115

Standard References
01090-4

<u>Abbreviation</u>	<u>Company</u>
IAPMO	International Association of Plumbing and Mechanical Officials 5032 Alhambra Avenue Los Angeles, CA 90032
ICBO	International Conference of Building Officials 5360 South Workman Mill Road Whittier, CA 90601
ICEA	Insulated Cable Engineers Association P.O. Box P South Yarmouth, MA 02664
IEEE	Institute of Electrical and Electronics Engineers, Inc. 345 East 47th Street New York, NY 10017
IES	Illuminating Engineering Society C/O United Engineering Center 345 East 47th Street New York, NY 10017
ISA	Instrument Society of America 400 Stanwix Street Pittsburgh, PA 15222
JIC	Joint Industrial Council 7901 Westpark Drive McLean, VA 22101
MILSPEC	Military Specifications Naval Publications and Forms Center 5801 Tabor Avenue Philadelphia, PA 19120
MSS	Manufacturers Standardization Society of the Valve and Fittings Industry, Inc. 127 Park Street, N.E. Vienna, VA 22180

Standard References
01090-5

<u>Abbreviation</u>	<u>Company</u>
NAAMM	National Association of Architectural Metal Manufacturers 100 South Marion Street Oak Park, IL 60302
NACE	National Association of Corrosion Engineers P.O. Box 986 Katy, TX 77450
NEC	National Electric Code National Fire Protection Association 470 Atlantic Avenue Boston, MA 02210
NEMA	National Electrical Manufacturer's Association 155 East 44th Street New York, NY 10017
NESC	National Electric Safety Code American National Standards Institute 1430 Broadway New York, NY 10018
NFPA	National Forest Products Association (Formerly called: National Lumber Manufacturer's Association) 1619 Massachusetts Avenue, N.W. Washington, DC 20036
OSHA	Occupational Safety and Health Act U.S. Department of Labor San Francisco Regional Office 450 Golden Gate Avenue, Box 36017 San Francisco, CA 94102
PPIC	The Plumbing & Piping Industry Council, Inc. Suite 402 510 Shatto Place Los Angeles, CA 90020
SAE	Society of Automotive Engineers 2 Pennsylvania Street New York, NY 10001

Standard References
01090-6

<u>Abbreviation</u>	<u>Company</u>
SAMA	Scientific Apparatus Makers Association One Thomas Circle Washington, DC 20005
SBCC	Southern Building Code Congress 1116 Brown-Marx Building Birmingham, AL 35203
SMACNA	Sheet Metal and Air Conditioning Contractors National Association, Inc. 8224 Old Courthouse Road Tysons Corner Vienna, VA 22180
SSPWC	Standard Specifications for Public Works Construction Building News, Inc. 3055 Overland Avenue Los Angeles, CA 90034
TEMA	Tubular Exchanger Manufacturer's Association 331 Madison Avenue New York, NY 10017
UBC	Uniform Building Code Published by ICBO
UL	Underwriters Laboratories Inc. 207 East Ohio Street Chicago, IL 60611
UMC	Uniform Mechanical Code Published by ICBO
UPC	Uniform Plumbing Code Published by IAPMO
USBR	Bureau of Reclamation U.S. Department of Interior Engineering and Research Center Denver Federal Center, Building 67 Denver, CO 80225
WWPA	Western Wood Products Association (Formerly called: West Coast Lumberman's Association - WCLA) Yeon Building Portland, CA 97204

Standard References
01090-7

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

- END OF SECTION -

Standard References
01090-8

Job No. G75CS18A
Waianae Deep Monitor Well

SECTION 01100

ARCHAEOLOGICAL PROTECTION

PART 1 - GENERAL

- 1.1 This section covers the requirements for the protection and preservation of historical sites and values.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 CONSTRUCTION METHOD

Representatives of the State will from time to time examine the area as work proceeds. If historical values are noted, the State may order a halt to the work in the vicinity of the historical values until the State can examine further. The Contractor shall notify the State if he finds anything he suspects to be of historic significance and shall discontinue further work in the vicinity of the find until the State can examine the area. In either case, further work in the vicinity of such historical or suspected historical values may proceed only upon approval by the State. Such approval can be normally expected within one week and shall in no case require more than one month.

END OF SECTION

Archaeological Protection
01100-1

Job No. G75CS18A
Waianae Deep Monitor Well

SECTION 01300

SUBMITTALS

PART 1 - GENERAL

1.1 SUBMITTALS

A. Shop drawings shall be required for:

1. Division 1 – General Requirements.
2. Division 2 – Site Construction
3. Division 3 – Concrete
4. Any others as called for in the plans, specifications or by the Engineer.

B. Other required submittals shall include:

1. Manufacturer's Data.
2. Certificates of Warranty.
3. Any others as called for in the plans, specifications, or by the Engineer.

1.2 BIDDER'S SPECIAL RESPONSIBILITY FOR COORDINATING CONTRACTUAL WORK AND SUBMITTALS:

- A. The Contractor is responsible for the coordination of all contractual work and submittals.
- B. The Contractor shall have a rubber stamp made up in the following format:

CONTRACTOR NAME

PROJECT: _____

JOB NO: _____

THIS SUBMITTAL HAS BEEN CHECKED BY THIS GENERAL CONTRACTOR. IT IS CERTIFIED CORRECT, COMPLETE, AND IN COMPLIANCE WITH CONTRACT DRAWINGS AND SPECIFICATIONS. ALL AFFECTED CONTRACTORS AND SUPPLIERS ARE AWARE OF, AND WILL INTEGRATE THIS SUBMITTAL INTO THEIR OWN WORK.

DATE RECEIVED _____
SPECIFICATION SECTION _____
SPECIFICATION PARAGRAPH _____
DRAWING NUMBER _____
SUBCONTRACTOR NAME _____
SUPPLIER NAME _____
MANUFACTURER NAME _____

CERTIFIED BY: _____

- C. This stamp, "filled in", should appear on the title sheet of each shop drawing, on a cover sheet of submittals in an 8-1/2" x 11" format, or on one face of a cardstock tag (min. 3" x 6") tied to each sample. The tag on the samples should state what the sample is so that, if the tag is accidentally separated from the sample, it can be matched up again. The back of this tag will be used by the Engineer for his receipt, review, and log stamp and for any comments that relate to the sample.
- D. All submittals for material, equipment, and shop drawings listed in the contract documents, including dimensioned plumbing shop drawings, shall be required and shall be reviewed by the Engineer, prior to any ordering of materials and equipment.
- E. Unless otherwise noted, the Contractor shall submit to the Engineer for his review eight copies of all shop drawings, piping layout, and/or catalog cuts for fabricated items and manufactured items (including mechanical and electrical equipment) required for the construction. Drawings shall be submitted in sufficient time to allow the Engineer not less than twenty regular working days for examining the drawings.
- F. The drawing shall be accurate, distinct, and complete and shall contain all required information, including satisfactory identification of items, units and assemblies in relation to the contract drawings and specifications.
- G. Unless otherwise approved by the Engineer, shop drawings shall be submitted only by the Contractor, who shall indicate by a signed stamp on the drawings or other approved means that the Contractor has checked the shop drawings and that the work or equipment shown is in accordance with contract requirements and has been checked for dimensions and relationship with work of all other trades involved. All deviations from the plans and specifications shall be listed. The practice of submitting incomplete or unchecked shop drawings for the Engineer to correct or finish will not be acceptable, and shop drawings which, in the opinion of the Engineer, clearly indicate that they have not been checked by the Contractor will be considered as not complying with the intent of the contract documents and will be returned to the Contractor for resubmission in the proper form.
- H. When the shop drawings have been reviewed by the Engineer, two sets of submittals will be returned to the Contractor appropriately stamped. If major changes or corrections are necessary, the drawing may be rejected and one set will be returned to the Contractor with such changes or corrections indicated, and the Contractor shall correct and resubmit eight copies of the drawings, unless otherwise directed by the Engineer. No changes shall be made

by the Contractor to the resubmitted shop drawings other than those changes indicated by the Engineer. The resubmittal shall be so indicated on the shop drawing.

- I. The review of such drawings and catalog cuts by the Engineer shall not relieve the Contractor from responsibility for correctness of the dimensions, fabrication details, and space requirements or for deviations from the contract drawings and specifications, unless the Contractor has called attention to such deviations, in writing, by a letter accompanying the drawings and the Engineer approved the change or deviations, in writing, at the time of submission; nor shall review by the Engineer relieve the Contractor from the responsibility for errors in the shop drawings. When the Contractor does call such deviations to the attention of the Engineer, he shall state in his letter whether or not such deviations involve any deduction or extra cost adjustment.
- J. The approval of the above drawings, lists, prints, specifications, or other data shall in no way release the Contractor from his responsibility for the proper fulfillment of the requirements of this contract nor for fulfilling the purpose of the installation nor from his liability to replace the same should it prove defective or fail to meet the specified requirements.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

Submittals
01300 - 3

Job No. G75CS18A
Waianae Deep Monitor Well

SECTION 01567

POLLUTION CONTROL

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

A. Rubbish Disposal

1. No burning of debris and/or waste materials shall be permitted on the project site.
2. No burying of debris and/or waste material except for materials which are specifically indicated elsewhere in these specifications as suitable for backfill shall be permitted on the project site.
3. All unusable debris and waste material shall be hauled away to an appropriate off-site dump area. During loading operations, debris and waste materials shall be watered down to allay dust.
4. No dry sweeping shall be permitted in cleaning rubbish and fines which can become airborne from floors or other paved areas. Vacuuming, wet mopping or wet or damp sweeping is permissible.
5. Enclosed chutes and/or containers shall be used for conveying debris from above to ground floor level.
6. Clean-up shall include the collection of all waste paper and wrapping materials, cans, bottles, construction waste materials and other objectionable materials, and removal as required. Frequency of clean-up shall coincide with rubbish producing events.

B. Dust

1. The Contractor shall prevent dust from becoming airborne at all times including non-working hours, weekends and holidays in conformance with the State Department of Health, Administrative Rules, Title 11, Chapter 60 - Air Pollution Control.
2. The method of dust control and costs shall be the responsibility of the Contractor. Methods of dust control shall include the use of water, chemicals or asphalt over surfaces which may create airborne dust.
3. The Contractor shall be responsible for all damage claims in accordance with Section 7.16 - "Responsibility for Damage Claims" of the GENERAL CONDITIONS.

Pollution Control
01567-1

C. Noise

1. Noise shall be kept within acceptable levels at all times in conformance with the State Department of Health, Administrative Rules, Title 11, Chapter 46 - Community Noise Control for Oahu. The Contractor shall obtain and pay for the Community Noise Permit from the State Department of Health when the construction equipment or other devices emit noise at levels exceeding the allowable limits.
2. All internal combustion engine-powered equipment shall have mufflers to minimize noise and shall be properly maintained to reduce noise to acceptable levels.
3. Pile driving operations shall be confined to the period between 9:00 a.m. and 5:30 p.m., Monday through Friday. Pile driving will not be permitted on weekends and legal State and Federal holidays.
4. Starting-up of construction equipment meeting allowable noise limits shall not be done prior to 6:45 a.m. without prior approval of the Engineer. Equipment exceeding allowable noise levels shall not be started-up prior to 7:00 a.m.

D. Erosion

1. During interim grading operations, the grade shall be maintained so as to preclude any damage to adjoining property from water and eroding soil.
2. Temporary berms, cut-off ditches and other provisions which may be required because of the Contractor's method of operations shall be installed at no cost to the State.
3. Drainage outlets and silting basing shall be constructed and maintained as shown on the plans to minimize erosion and pollution of waterways during construction.

E. Others

1. Wherever trucks and/or vehicles leave the site and enter surrounding paved streets, the Contractor shall prevent any material from being carried onto the pavement. Waste water shall not be discharged into existing streams, waterways, or drainage systems such as gutters and catch basins unless treated to comply with the State Department of Health water pollution regulations.
2. Trucks hauling debris shall be covered as required by PUC Regulation. Trucks hauling fine materials shall be covered.
3. No dumping of waste concrete will be permitted at the job-site.

Pollution Control
01567-2

4. Except for rinsing of the hopper and delivery chute, and for wheel washing where required, concrete trucks shall not be cleaned on the job-site.
5. Except in an emergency, such as a mechanical breakdown, all vehicle fueling and maintenance shall be done in a designated area. A temporary berm shall be constructed around the area when runoff can cause a problem.
6. When spray painting is allowed such spray painting shall be done by the "airless spray" process. Other types of spray painting will not be allowed.

F. Suspension of Work

1. Violations of any of the above requirements or any other pollution control requirements which may be specified in the Technical Specifications herein shall be cause for suspension of the work creating such violation. No additional compensation shall be due the Contractor for remedial measures to correct the offense. Also, no extension of time will be granted for delays caused by such suspensions.
2. If no corrective action is taken by the Contractor within 72 hours after a suspension is ordered by the Engineer, the State reserves the right to take whatever action is necessary to correct the situation and to deduct all costs incurred by the State in taking such action from monies due the Contractor.
3. The Engineer may also suspend any operations which he feels are creating pollution problems although they may not be in violation of the above-mentioned requirements. In this instance, the work shall be done by force account as described in Subsection 4.2b - "Additional Work" of the GENERAL CONDITIONS and paid for in accordance with Subsection 8.4b - "Force - Account Work" therein. The count of elapsed working days to be charged against the contract in this situation shall be computed in accordance with Subsection 7.18 - "Contract Time" of the GENERAL CONDITIONS.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

Pollution Control
01567-3

Job No. G75CS18A
Waianae Deep Monitor Well

SECTION 01581

PROJECT SIGN

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

Furnish all labor, materials and equipment necessary to construct and install all project signs as specified hereinafter.

1.2 SUBMITTAL

The contractor shall provide the Engineer with six (6) shop drawings of the project sign for review and approval by the Engineer prior to ordering the sign.

1.3 LETTER STYLE

Copy is centered and set in Adobe Type Futura Heavy. If this specific type is not available, Futura Demi Bold may be substituted. Copy should be set and spaced by a professional typesetter and enlarged photographically for photo stencil screen process.

1.4 ART WORK

Constant elements of the sign layout - frame, outline, stripe, and official state information - may be duplicated following drawing measurements or be reproduced and enlarged photographically using a layout template if provided. The "STATE OF HAWAII" masthead should be reproduced and enlarged as specified, using the artwork provided.

1.5 TITLES

The specific major work of the project under construction is emphasized by using 3-3/4" type, all capitals. Secondary information such as location or buildings uses 2-1/4" type, all capitals. Other related information of lesser importance uses letter heights as indicated on 01581-3, upper / lower case letters.

Design should follow the example on page 01581-3.

Project Sign
01581-1

PART 2 - PRODUCTS

2.1 MATERIALS

A. LUMBER

1. Panel is 3/4" exterior grade high density overlaid plywood, with resin-bonded surfaces on both sides.
2. 4"x4" sign posts shall be Douglas Fir No. 1 or better.

B. PAINTS & INKS

Screen print inks are matte finish. Paints are satin finish, exterior grade. References to Ameritone Color Key Paint are for color match only.

COLOR:	1.	1BL10A	Bohemian Blue
	2.	2H16P	Softly (White)
	3.	2VR2A	Hot Tango (Red)
	4.	1M52E	Tokay (Gray)

C. CONCRETE

Concrete shall be class B with a 2,500 psi 28-day compressive strength.

PART 3 - EXECUTION

3.1 GENERAL

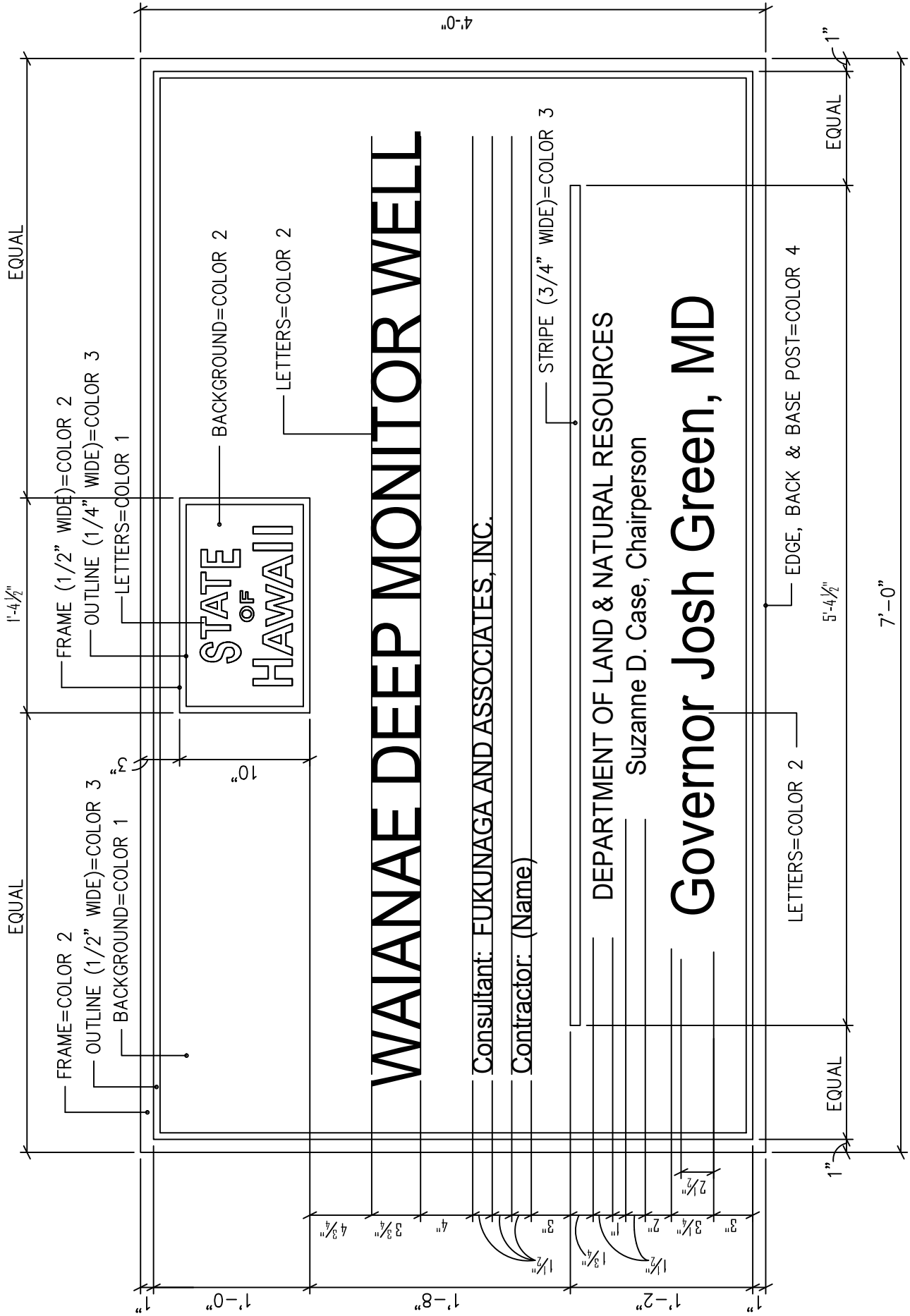
- A. The Project Sign shall be constructed with new materials as specified above.
- B. The Project sign shall be installed at the location indicated on the drawings or as designated by the Engineer. The project sign shall be erected upon commencement of work.

3.2 MEASUREMENTS AND PAYMENT

The construction of the project sign, including all equipment, labor and material necessary to furnish and install the project sign will be paid for under the "Project Sign" proposal item.

END OF SECTION

Project Sign
01581-2



NOTE: Number of signs required 1

SECTION 02100

SITE PREPARATION

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

The work to be performed under this section shall include layout and clearing the premises of all obstacles and obstructions, the removal of which will be necessary for the proper reception, construction, execution and completion of the other work included in this contract.

1.2 PERMITS

The Contractor shall obtain and pay for necessary permits prior to the commencement of work.

1.3 REMOVAL AND REPAIR WORK

The Contractor shall exercise every precaution to preserve and protect all fences and fire breaks which are to remain. Restore fences as indicated on the drawings upon completion of the work.

1.4 MAINTAINING TRAFFIC

- A. The Contractor shall conduct operations with minimum interference to roads, trails, fence maintenance, conservation activities, etc.
- B. When necessary, the Contractor shall provide, erect and maintain lights, barriers, etc., as required by traffic and safety regulations with special attention to protection of life.

1.5 CONSTRUCTION LINES, LEVELS AND GRADES

- A. The Contractor shall verify all lines, levels and elevations indicated on the drawings before any clearing, excavation or construction begins. Any discrepancy shall be immediately brought to the attention of the Department and any changes shall be made in accordance with his instructions. The Contractor shall not be entitled to extra payment if he fails to report the discrepancies before proceeding with any work whether within the area affected or not.
- B. The laying out of base lines, establishment of grades and staking out the entire work shall be done by a licensed Surveyor or Civil Engineer registered in the State of Hawaii. He shall be solely responsible for their accuracy. Erect and maintain substantial batter boards showing construction lines and levels.

Site Preparation
02100-1

1.6 CLEANUP

Clean up and remove all debris and excess material accumulated from construction operations from time to time, and as directed by the Department. Debris from clearing and grubbing shall be removed as soon as practical to minimize fire hazard. Upon completion of the construction work and before final acceptance of work, remove all surplus materials, equipment, etc. and leave entire job site clean and neat.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL

A. Contractor shall obtain and pay for all necessary permits prior to commencement of work.

B. Maintenance of Traffic: The Contractor shall conduct operations with minimum interference to streets, driveways, sidewalks, passageways, etc.

When necessary, the Contractor shall provide and erect barriers, etc., with special attention to protection of personnel.

C. Fires: No burning of fires of any kind will be allowed.

D. Benchmarks on the work sites shall be carefully maintained until no longer needed. If disturbed or destroyed while still needed, benchmarks shall be replaced at the Contractor's expense.

E. Disposal: All unusable materials resultant from operations under this Section shall become the property of the Contractor and shall be hauled to an appropriate off-site dump area as approved by the Department. Loads of materials shall be trimmed to prevent droppings.

3.2 PROTECTION

Throughout the progress of the work verify with the Department all objects to be removed and all objects to be preserved and protected. Protection shall be provided for all property, equipment, and objects verified to be protected, as necessary. Work shall be done in accordance with the safety provisions of the Manual of Accident Prevention in Construction, published by the Associated General Contractors of America, and the State of Hawaii's Occupational Safety and Health Standards, Rules and Regulations.

A. Barricade: Erect temporary fences and barricades to prevent people, and large animals from entering into project area, to the extent as approved by the Department.

Site Preparation
02100-2

As a minimum, temporary fences and barricades shall be erected along areas where existing fence has been opened for construction, around containment basins if used, and around active areas of clearing, grubbing and tree trimming and removal. The extent of fences and barricades may be adjusted as necessary with the approval of the Department. This work shall be accomplished at no extra cost to the County.

- B. Take all precautions and safety measures as required to protect the County free and harmless from liability of any kind. Conduct operations with minimum interference to roads, trails, fire breaks, passages, etc.
- C. Adequate precautions shall be taken before commencing and during the course of the work to ensure the protection of life, limb, and property.
- D. The Contractor shall protect from damage all surrounding roads, trails, fences, trees, plants, grass, etc. Any damage will be repaired or replaced by the Contractor to the satisfaction of the Department.

3.3 EXISTING UTILITY LINES

The existence of active underground utility lines within the construction area is not definitely known. Should any unknown line be encountered during excavation, the Contractor shall immediately notify the Department of such discovery. The Department shall then investigate and issue instructions for the preservation or disposition of the unknown line. Authorization for extra work shall be issued by the Department only as it deems necessary.

3.4 LAYING OUT

The Contractor shall retain and pay for the services of a licensed Surveyor registered in the State of Hawaii to stake out project to the lines, grades and dimensions indicated on the drawings. Contractor shall verify the suitability of lines, grades and dimensions indicated on the drawings in accordance with the intent of the plans, and report any errors or inconsistencies to the Department before commencing with work. The Contractor shall not be entitled to extra payment if he fails to report the discrepancies before proceeding with any work whether within the area affected or not.

3.5 CLEARING AND GRUBBING

- A. The Contractor shall clear the premises of all obstacles and obstructions, the removal of which will be necessary for the proper reception, construction, execution and completion of other work included in this contract.
- B. After clearing has been completed, the building site and areas to be graded shall be stripped of the organically contaminated near-surface soils to a minimum depth of 6 inches. Remove trees and roots to a minimum of 3 feet below existing ground level. Remove all large roots in excess of 2 inches in diameter, and backfill and compact the resulting depression. All debris accumulated from this operation shall be completely removed from the premises by the Contractor.

Site Preparation
02100-3

- C. The Contractor shall protect from injury and damage all surrounding structures and improvements, and shall leave all in as good as condition as at present. Any damage to existing improvements shall be repaired or replaced by the Contractor to the satisfaction of the Department.
- D. Topsoil encountered may be stripped and stored, and may be re-used as topsoil.
- E. Contractor shall provide dust control sprinkling for the entire construction period.

3.6 PAYMENT

Site survey and stake out and site preparation shall be paid at the lump sum bid price for:

“Layout, staking and site preparation including erosion and sediment control, earthwork, and restoration.”

Such payment constitutes full compensation for all labor, material, equipment, and all other items necessary and incidental to the completion of the work of this section and all other applicable sections.

END OF SECTION

Site Preparation
02100-4

Job No. G75CS18A
Waianae Deep Monitor Well

SECTION 02122

MOBILIZATION AND DEMOBILIZATION

PART 1 - GENERAL

- 1.1 This section covers the requirements for mobilization and demobilization of all required equipment at the project site.

PART 2 - PRODUCTS

2.1 MOBILIZATION

Mobilization shall consist of the transporting, assembling, constructing, installing and making ready for use at the well site all equipment, machinery, structures, utilities and incidentals necessary to do the work covered by this contract.

2.2 DEMOBILIZATION

Demobilization shall consist of the dismantling and removal from the project site all of the above-mentioned equipment, machinery, structures, utilities and incidentals not incorporated in or made a necessary part of the completed well.

PART 3 - EXECUTION

3.1 GUIDELINES

The Contractor shall clear and grade the site as he deems prior to moving and setting up at the project site.

The Contractor shall be completely mobilized at the project site and begin work within 30 calendar days after he has been notified, in writing, to proceed under this contract. Any provision in the Standard Specifications to the contrary is hereby deleted.

If the Contractor utilizes private lands other than the well site for mobilization purposes, the provisions of this section shall still apply, and the mobilization and demobilization work on said private lands shall also be in accordance with the agreement between the Contractor and the land owner.

When the project is completed the Contractor shall clean up the well site and shall be responsible for all grading work required to leave the site in a neat and orderly condition to the satisfaction of the Engineer. Payment for the clean-up work will not be paid for separately but shall be included in the contract unit price for

Demobilization subject, however, to all provisions specified hereinabove.

3.2 MEASUREMENT

Measurement for payment of the work under this section of the specifications will be made as follows:

1. The contract lump sum price for Mobilization will be paid when all necessary equipment and supplies are present onsite and in the Engineer's opinion the Contractor has fully mobilized.
2. The contract lump sum price for Demobilization will be paid after all work has been completed and accepted by the State and the project site cleaned to the satisfaction of the Engineer.

Should the State terminate the contract for reasons other than those specified in the Standard Specifications and in the Engineer's opinion the Contractor has fully mobilized at the well site, the full amount of the contract unit price for Mobilization shall become due and payable subject, however, to all the provisions specified hereinabove. The full amount of the contract unit price for Demobilization shall also become due and payable after the above-mentioned termination of the contract, subject however, to all the provisions specified hereinabove.

3.3 PAYMENT

Mobilization and Demobilization will be paid for at the applicable contract lump sum prices for Mobilization and Demobilization.

END OF SECTION

Mobilization and Demobilization
02122-2

SECTION 02200

EARTHWORK

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

This section covers the requirements for earthwork.

- A. It shall be the responsibility of the Contractor to examine the project site and determine for himself the existing conditions.
- B. Obvious conditions of the site existing on the date of the bid opening shall be accepted as part of the work, even though they may not be clearly indicated on the drawings and/or described herein or may vary therefrom.
- C. All debris of any kind accumulated from clearing shall be disposed of from the site, and the whole area left clean. The Contractor shall be required to make all necessary arrangements relative to the proposed place of disposal.

1.2 REMOVAL AND REPAIR WORK

- A. The Contractor shall exercise every precaution to preserve and protect all structures which are to remain or be relocated.

1.3 SEQUENCE OF WORK

All sequence of work shall be subject to the approval of the Engineer.

1.4 PROTECTION

- A. Take all precautions and safety measures as required to protect the State of Hawaii free and harmless from liability of any kind. Conduct operations with minimum interference to streets, driveways, sidewalks passages, etc.
- B. Adequate precautions shall be taken before commencing and during the course of the work to ensure the protection of life, limb, and property.
- C. The Contractor shall protect from damage all surrounding structures, trees, plants, grass, walks, pavements, etc. Any damage will be repaired or replaced by the Contractor to the satisfaction of the Engineer.

1.5 PERMITS

The Contractor shall obtain and pay for necessary permits prior to the commencement of

Earthwork
02200-1

work.

1.6 MAINTAINING TRAFFIC

- A. The Contractor shall conduct operations with minimum interference to streets, driveways, sidewalks, traffic activities, etc.
- B. When necessary, the Contractor shall provide, erect and maintain lights, barriers, etc., as required by traffic and safety regulations with special attention to protection of life.

1.7 CONSTRUCTION LINES, LEVELS AND GRADES

- A. The Contractor shall verify all lines, levels and elevations indicated on the drawings before any clearing, excavation or construction begins. Any discrepancy shall be immediately brought to the attention of the Engineer and any changes shall be made in accordance with his instructions. The Contractor shall not be entitled to extra payment if he fails to report the discrepancies before proceeding with any work whether within the area affected or not.
- B. The laying out of base lines, establishment of grades and staking out the entire work shall be done by a licensed Surveyor or a licensed Civil Engineer, registered in the State of Hawaii. He shall be solely responsible for their accuracy. Erect and maintain substantial batter boards showing construction lines and levels.

1.8 CLEANUP

Clean up and remove all debris accumulated from construction operations from time to time, when as directed by the Engineer. Upon completion of the construction work and before final acceptance of work, remove all surplus materials, equipment, etc. and leave entire jobsite clean and neat.

Earthwork
02200-2

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Yard Fill: Fill materials shall be soil with expansion value not greater than 3%, free from debris, perishable or combustible materials, sod and stones larger than 6" in maximum dimension. Rock or broken masonry shall be well distributed in earth or other fine material with voids filled and shall be placed within three feet of finished grades.
- B. Structural Fill: New structural fill below concrete slabs, with allowance for depth of cushion fill, shall be select borrow material. This material shall be granular with an expansion value not greater than 3% non-adobe and with a plasticity index less than ten. Decayed rubbish, debris, or rocks greater than 3" in diameter shall not be allowed as fill material. Certificate of compliance shall be submitted to the Engineer for approval prior to filling.
- C. Topsoil: Imported, fertile, friable soil of loamy character having normal amounts of natural humus, free from subsoil, clay, refuse roots, weeds, noxious seeds, nematodes or other deleterious matter, and free from toxic amounts of either acid or alkaline elements and capable of sustaining healthy plant life. Stones and earth lumps shall not be greater than one inch in largest dimension. Red humic latosol soils, or types known as "Palolo clay" or Lualualei clay" are unacceptable. Topsoil is subject to approval by Engineer.

PART 3 - EXECUTION

3.1 EXCAVATION

- A. Protective Measures
 - 1. All excavation shall be protected and guarded against danger to life, limb and property.
 - 2. Shoring, cribbing and logging, as required to safely preserve the excavations and earth banks, free from damages resulting from the work shall be provided and installed by the Contractor.
 - 3. All excavations shall be kept free from standing water. The Contractor shall do all pumping and draining that may be necessary to remove water to the extent required in carrying on the work. Grading shall be controlled so that the ground surface is properly sloped to prevent water run-off into structural foundations and open trenching excavations.
 - 4. The underground utilities lines traversing the construction area known to exist by the designer are indicated on the plans. Should any be encountered during

Earthwork
02200-3

excavation, the Contractor shall not disconnect same without authorization from the Engineer but shall inform the latter immediately of each discovery. The Engineer shall investigate and issue proper authorization for procedure.

B. General

1. Excavation shall be done to the lines and grades indicated. Cementitious or asphaltic materials discovered during excavation shall be removed or broken up into pieces of sizes permitted in other paragraphs of this section. When incorporated in fill, broken up pieces shall be well mixed with finer materials filling all spaces between the pieces.
2. Structural excavations carried below specified level shall be filled with concrete to the proper level at the expense of the Contractor.
3. Excavated materials declared unusable by Engineer shall be removed from the site at the Contractor's expense.

3.2 BACKFILL

A. Yard Area

1. Yard fill where no concrete slab occurs shall be in 6" layers (compacted thickness) compacted to 90% of maximum density as determined by ASTM Test, Method D-1557.
2. The areas not covered by concrete slab shall be graded to conform to finish contours, with allowance for depth of topsoil. Rough grading shall prevent the drainage of water into construction areas.

B. Structural Fill

1. In advance of preparing the subgrade or depositing a specified layer of material, existing material within the area where such materials is to be placed, which in the opinion of the Engineer is unsuitable as a subgrade foundation, shall be removed and the resulting space refilled with approved material and compacted.
2. Backfilling shall progress so that excessive unbalanced load is not introduced against any structure.

3. New structural fill material shall be placed in layers not to exceed 6" per compacted layer and compacted to a compaction of 90% as determined by ASTM Test, Method D-1557.
 4. Materials and compaction of all yard and structural fill shall be tested by an independent testing agency approved by the Engineer and all after-compaction test results submitted to the Engineer for approval. All cost of testing shall be borne by the Contractor. Testing shall be made throughout the area for each 6" compacted layer as directed by the Engineer. All test results must be approved before proceeding with placing of topsoil, cushion fill or base course.
 5. In the event insufficient amount of structural fill or yard fill is derived from earthwork operations, import the necessary materials without any additional cost to the State. Such imported material shall meet the requirements as specified for each category of materials.
 6. The ground shall be scarified 6" below existing grade and recompact to 90% compaction. Fill shall conform to structural fill.
 7. Under slabs the cushion fill as specified shall be compacted to a level surface to 95% compaction as determined by modified ASTM Test Method, D-1557.
- C. Grading
1. Rough Grading: The areas not covered by concrete slab up to the contract zone limit shall be graded to topsoil. Contractor shall take the necessary precautions to prevent the drainage of water into construction area.
 2. Finish Grading: Outdoor areas not covered by buildings shall be graded to finish grade and contours with allowance for a 4" layer of topsoil as required. Grading shall conform with the ordinances of the applicable County issuing the Grading Permit and as amended. Areas to be topsoiled to 85% of maximum density before placing topsoil. Topsoil shall be spread evenly, compacted lightly and raked to a uniform place at required contours and grades.

3.3 GRASSING

- A. Replant graded and damaged areas with grass similar to adjoining area.
- B. Grass shall be maintained. Maintenance shall include watering, weeding, mowing, repairing, regrassing and protection, and be performed until the entire project is accepted but in any event for a period not less than 60 days after planting of grass. At the time of acceptance, the grass shall have been well-established and shall be given a final weeding and a final mowing to a height of 1 inch. If the maintenance period has expired before acceptance of the entire project, the Contractor shall continue to maintain the grass until acceptance of the entire project. If the maintenance period

Earthwork
02200-5

should extend beyond acceptance of the entire project, the Contractor shall continue to maintain the grass until the end of the specified period of time required for maintenance.

3.4 PAYMENT

All earthwork described in this section shall be paid at the lump sum bid price for:

“Layout, staking and site preparation including erosion and sediment control, earthwork, and restoration.”

Such payment constitutes full compensation for all labor, material, equipment, and all other items necessary and incidental to the completion of the work of this section and all other applicable sections.

END OF SECTION

Earthwork
02200-6

Job No. G75CS18A
Waianae Deep Monitor Well

SECTION 02733

DRILLING THE WELL

PART I - GENERAL

1.1. GENERAL REQUIREMENTS

This section covers the requirement for drilling a well at the approximate location shown on the plan. The exact location of the well shall be designated by the Engineer.

1.2. BENCH MARK

The Contractor shall establish a permanent bench mark at the well site and a temporary bench mark on the drilling rig for the project well. The bench mark shall be verified and established by a licensed surveyor or Licensed Civil Engineer, registered in the State of Hawaii. The Contractor shall submit evidence of current registration. The bench mark shall be referenced to the nearest United States Geological Survey monument or State of Hawaii State survey monument

1.3. SUBMITTALS

The Contractor shall submit the following:

1. Daily Reports, including driller's log which describes drilling conditions, depths of various materials and other pertinent information regarding the geological and hydrological aspects of the well.
2. Sample drill cuttings at successive intervals of 10 feet of depth and at every change in formation.

PART II – PRODUCTS (NOT USED)

PART III - EXECUTION

3.1 DRILLING

The well shall be drilled plumb and straight as specified herein and shall be large enough to install the well casing specified in Section 02734 of the specifications and to provide an annular space of at least 3" all around the casing. No deviation from this allowance will be made. All drilling and testing equipment including pipes, tools and pump to be put into the well or open hole shall be first carefully washed and disinfected by chlorination to the satisfaction of the Engineer.

Drilling the Well
02733-1

Job No. G75CS18A
Waianae Deep Monitor Well

The exact depth of the hole to be drilled and cased shall depend on the nature of the material penetrated by drilling and on hydrologic conditions and shall be determined by the Engineer during the course of the drilling. Upon completion of drilling, to determine the exact dimensions of the well, the Contractor, in the presence of the Engineer, shall lower the proper size bit to the bottom of the hole and take careful measurement to determine the depth of the hole. Casing shall not be installed until ordered by the Engineer.

3.2 USE OF BENTONITE

Use of bentonite shall only be used with the prior approval of the Engineer. If bentonite has been used in drilling the aquifer section, the Contractor shall introduce into the aquifer and mix within the aquifer section of the drilled hole, with the bailer, a commercially available biodegradable detergent. After at least two hours of mixing with bailer, the Contractor shall a second time bail clean the aquifer section of the hole. The amount of detergent shall be according to the manufacturer=s instructions subject to the approval of the Engineer.

3.3 ORDER OF WORK

The Contractor shall not conduct drilling operations in excess of eight hours a day except with the written consent of the Engineer. Not less than 72 hours prior to the commencement of any such overtime work, the Contractor shall submit to the Engineer a written notice of his intention and schedule. The general order of major work shall be as follows:

1. Drill to pilot borehole of 12-inches well and ream the borehole to 15-inches.
2. Measure water level and salinity of well. Allow the Engineer to access borehole to make well measurements and run CTD profile of the water entire water column.
3. Video the entire length of reamed borehole
3. Perform a plumbness and alignment test of the reamed borehole in the presence of the Engineer.
4. Assist Engineer in logging of the well before the casing is installed.
5. Install solid and perforated casing to depths provided by Engineer.
6. Bail well clean and if bentonite is found in the well, add detergent, mix and bail again as specified.
7. Set casing to final depth, install grout seal to fill the annular space from the upper cement basket to the finish ground surface.
8. Measure the static water level and run plumbness and alignment test of the cased well in the presence of the Engineer.

Drilling the Well
02733-2

9. Install test pump, develop the well by pump surging and conduct step drawdown test for yield and drawdown data as directed by the Engineer.
10. Run video log of the completed well in the presence of the Engineer.
11. Complete the well and demobilize.
12. Complete CWRM Well Completion Report – Part I Well Construction and submit to CWRM.

The order of work specified hereinabove may be revised due to the field conditions as determined by the Engineer.

3.4 MEASUREMENT, DRILLER'S LOGS, AND SAMPLES

The Department wishes to gather as much geological and hydrological data as possible and every opportunity shall be accorded the Department to obtain additional samples, make observations, and to study the apparent conditions.

The Contractor shall keep a continuous log of the well; recording the general character, thickness, type and drilling characteristic of materials encountered including the depth and drilling time, the color and hardness of the formations, and all other data which may be helpful in the interpretation of the geology, hydrology, and drilling conditions in the area. The log shall indicate the depths where water is encountered and the pertinent facts connected with its occurrence. All other information such as the location of lava tubes and cave-ins shall also be noted in the log. All work done including but not limited to reaming, backfilling and concreting shall be accurately recorded. An accurate and carefully recorded log shall be kept current and available at the well site for inspection by the Engineer at any time during the work. The first carbon copy of the daily drilling log shall be submitted to the Engineer at the end of each day.

Samples of drill cuttings shall be taken at successive intervals of 10 feet of depth and at every change in formation. Samples of drill cuttings shall be obtained by bailing the hole, by screening the air circulating medium or by any other method acceptable to the Engineer. These samples shall be collected in 4 1/2" x 6" HUBCO brand Protexo soil sample bags provided by the Contractor and shall be properly labeled and made available for pickup by the Engineer. Care shall be given to the storage of these cuttings if the Engineer is unable to pick up samples.

The Contractor shall assist the Engineer in determining the elevation of the water level in the drilled hole with reference to the datum which will be established by the Contractor's Licensed Surveyor at the well site. Water level measurements shall be taken immediately when water is encountered in the well during the drilling work and another measurement shall be taken after the casing has been installed and well bailed clean. An electrical sounding reel approved by the Engineer shall be used to make all water level measurements. The water level data shall include the date and time at which the measurements are taken and

the depth of the well at the time of measurement. The Department shall be entitled to make additional water level measurements with its own equipment. The Department will make water level measurements immediately prior to installation of the pump. When ordered and in the manner directed by the Engineer, the Contractor shall obtain water samples.

3.5 GEOPHYSICAL LOGGING

The Contractor shall allow the Engineer one full working day for each occasion of running logs of the well. The Contractor shall give a minimum of three working days advance notification to the Engineer for each logging. The full working days shall fall within the normal Monday through Friday work week excluding any State or National holiday. The Contractor shall comply with the provisions and requirements of Chapter 174, HRS, the State Water Code.

3.6 DRILLING OR CIRCULATING MEDIUM

Cable tool, rotary or reverse rotary circulation with clear water or air will be used in the drilling or circulating medium. When the water and air becomes ineffective in removing the cuttings, the Contractor will be allowed, with the approval of the Engineer, to use a mixture of air, foam, and bentonite.

3.7 BAILING/CLEARING OF WELL

After the well has been drilled to the final depth ordered by the Engineer, the entire well shall be cleared of all drill cuttings, loose rocks, cave-in, and foreign material by bailing and circulation, to the satisfaction of the Engineer.

3.8 PROTECTION

During the progress of the work the Contractor shall provide an adequate cover over the top of the hole to prevent debris or other objects from entering the well when the crew is not at the well site. The Contractor shall preserve the well in good condition until the Engineer has completed all the sampling, testing and measurement; has examined the records; and has accepted the work.

3.9 ABANDONED WELL:

A well will be considered abandoned if the Contractor does not complete the well to the depth ordered by the Engineer or if the Contractor should abandon the well due to loss of tools or for any other cause or if the Board does not accept the well due to faulty plumbness and alignment. Such an abandoned well shall be sealed by the Contractor, in compliance with the provisions and requirements of Chapter 174, C-87, HRS, the State Water Code. If casing has been installed, the Contractor, at his own expense, may remove the casing prior to backfilling the abandoned well.

No payment will be made for any work done on an abandoned well. All partial payments

Drilling the Well
02733-4

received by the Contractor for work done on a well that has been abandoned shall be refunded to the Board and the Contractor shall drill another well in the vicinity of the abandoned well as directed by the Engineer. The cost of moving from the location of the abandoned well to the above-mentioned new site will be at the Contractor's expense and will not be paid for by the Board.

Upon completion of the work the Contractor shall leave the site of the abandoned well in a neat and presentable condition free of all debris and in a state comparable to its original condition.

3.10 PLUMBNESS AND ALIGNMENT

The hole shall be constructed and the casing set round, plumb and true to line as specified herein. To demonstrate the compliance of his work with these requirements the Contractor shall furnish all labor, tools, and equipment and in the presence of the Engineer, shall make the tests described here in the manner prescribed by, and to the satisfaction of the Engineer. Tests for plumbness and alignment must be made after the bore hole is drilled, after the casing is installed, and after the annular space is grouted. Additional tests however, may be made by the Contractor during the performance of the work. No specific payments shall be made by the State for making these tests and the Contractor shall include the costs of such tests in the applicable contract items.

The requirements for plumbness and alignment shall be made in accordance with the requirements of the AWWA Specification A100-20, Standard Specifications for Deep Wells, and as otherwise specified herein.

Alignment shall be tested in the presence of the Engineer by lowering into the well, to a depth specified by the Engineer, a section of rigid pipe 40 feet long or a dummy of the same length. The outer diameter of the pipe or dummy shall not be more than 1/2-inch smaller than the diameter of that part of the casing or hole being tested. If a dummy is used, it shall consist of a rigid 4-inch minimum diameter spindle with three rings, each ring being 12 inches wide. The rings shall be truly cylindrical and shall be spaced equidistantly along the 40-foot length of the dummy. A weight indicator shall be attached when lowering the rigid pipe or dummy to record the weight and depth as it moves down the casing.

The plumbness and drift from vertical of the cased well shall be tested with approved commercial directional well survey equipment or with a 1/16" diameter steel airplane cable and an approved centralizer cage secured 30 to 40 ft. plumb above the top of casing. A log of the drift at 20-foot intervals shall be accurately recorded and submitted to the Engineer.

Should the dummy fail to move freely throughout the length of the casing or hole to the depth specified by the Engineer or should the well vary from the vertical in excess of two thirds the smallest inside diameter of that part of the well being tested per any 100-foot interval or depth, or beyond limitations of this test, the plumbness and alignment of the well shall be corrected by the Contractor at his own expense and, should he fail to correct such faulty alignment, plumbness, or insufficient well diameter the Board may refuse to accept the well

and consider the well abandoned.

3.11 VIDEO LOGGING

The Contractor shall run a video log of the well prior to installing the casing and another video log before completion of the well from the ground surface to its final depth. The video logging shall be performed together with a final plumbness and alignment test in the presence of the Engineer. The Contractor shall allow at least one full working day for running the video log and plumbness and alignment test. The Contractor shall give a minimum of three working days advance notice to the Engineer. The full working days shall fall within the normal Monday through Friday work week, excluding any State or National holiday. The video logging shall be recorded or copied using the standard CD video file format and shall be delivered to the Engineer upon completion of logging and shall become the property of the State.

3.12 MEASUREMENT

The depth of well to be paid for shall be the actual depth in lineal feet measured vertically from the surface of the prepared ground to the bottom of the well as ordered by the Engineer.

The Contractor shall not receive specific compensation for making the plumbness and alignment tests, video log, and the cost of all testing and corrections for plumbness, alignment, and well diameter shall be included in the contract prices for drilling the cased well.

3.13 PAYMENT

The depth of well acceptably drilled, measured, as provided above, will be paid for at the applicable contract unit price per lineal foot for:

1. Drilling 12-inch minimum diameter pilot hole from the ground surface to the bottom of borehole

or

2. Drilling 15-inch diameter reamed borehole from ground surface to bottom of the borehole

as the case may be, which price shall be full compensation for drilling; preparing the driller's logs; measuring and recording water levels; obtaining samples of water; protecting and maintaining the well; measuring the depth of well as required; making all tests including the plumbness and alignment tests and necessary corrections of defects; logging; video logging; all fishing operations; all costs of delays in work due to inclement weather, to lack of equipment and to equipment breakdowns; and for all equipment, tools, labor and incidentals necessary to complete the work. No payment will be made for abandoned wells.

Drilling the Well
02733-6

END OF SECTION

Drilling the Well
02733-7

Job No. G75CS18A
Waianae Deep Monitor Well

SECTION 02734

FURNISHING AND INSTALLING WELL CASING

PART 1 -GENERAL

1.1 GENERAL REQUIREMENTS

- A. This section covers the requirement for furnishing and installing the well casing. The casing shall be installed in the well only when ordered in writing by the Department and as specified herein. The Department will specify the total lengths of the solid and perforated well casing to be installed. Installation shall be made only during normal daylight working hours.

PART 2 - PRODUCTS

2.1 WELL CASING

- A. The 6-inch (nominal) PVC well casing shall be Schedule 80, flush joint conforming to and manufactured in accordance with the applicable parts of ASTM F480.
- B. The 6-inch (nominal) PVC perforated shall be Schedule 80, flush joint conforming to and manufactured in accordance with the applicable parts of ASTM F480. The perforated casing shall be clean, round, straight, and free from kinks. The perforated casing shall have slot lengths 1 5/8 inches, opening length of 0.12 inches, and 60 square inches of open area per foot of casing. The individual lengths of casing shall be 20-ft.
- C. After completion of the well, the top of the installed casing shall be capped with a fully grouted 12-inch (ID), 3/8-inch (wall thickness) steel casing conforming to and manufactured in accordance with the applicable parts of ASTM A606 and 5/16-inch steel plate with locking hasp as shown on the Construction Plans considered incidental to the solid casing.

2.2 WELL CASING MARKINGS

- A. Each length of casing shall be marked by the casing manufacturer with the following information:
 - 1. Manufacturer's identification
 - 2. ASTM Designation and trade name of the PVC used for the manufacture of the casing
- B. All markings shall be clear and legible and shall be within three (3) feet from one end of the casing.

2.3 WELL CASING CERTIFICATION

Prior to the delivery of any casing to the project site, the Contractor shall submit for approval the casing manufacturer's certification to the Department. The certificate shall clearly indicate the total footage and number of casing shipped; the name of the customer; and the physical and chemical properties of the casing material. ASTM Designation and trade name of PVC may be used to designate the physical and chemical properties respectively.

PART 3- EXECUTION

3.1 INSTALLATION OF WELL CASING

The well casing shall be installed in the presence of and as directed by the Department. The casing shall be properly aligned and shall also be continuous for its entire length. Every precaution shall be taken to prevent the casing from dropping into the hole. Driving of the casing in any manner will not be permitted.

The Contractor shall cleanse the drilled hole of drill cuttings by bailing or rotary circulation and then carefully lower the casing in the drilled hole and temporarily secure the casing string. After the casing is in place, filling of the annular space as called for in Section 02735-Filling the Annular Space shall then be completed. At no time during the installation of the casing shall its total weight rest on the bottom of the borehole or lip.

3.2 INSTALLATION OF CASING GUIDES AND CASING SHOE

During the installation of the well casing, the Contractor shall furnish and install a casing shoe at the bottom of the casing and casing guides at two locations: 20 feet above the casing shoe; and midway between the lower casing guide and ground surface. The casing guides may be commercially made or fabricated by the Contractor with the Engineer's approval.

3.3 MEASUREMENT

The lengths of well casing installed below the prepared ground surface shall be measured vertically to the nearest foot from the ground surface.

3.4 PAYMENT

The total footage, measured as provided above, of well casing acceptably installed below the prepared ground surface will be paid for at the contract unit price per linear foot for:

- a. Furnish and install the 6-inch (nominal), Flush Joint, PVC, Schedule 80, solid casing to the depth directed by the Engineer.
- b. Furnish and install the 6-inch (nominal), Flush Joint, PVC, Schedule 80, perforated casing to the depth directed the Engineer.
- c. Furnish and install 12-inch (ID) steel casing. 0.375-inch, and locking cover.

END OF SECTION

Furnishing and Installing Well Casing
02734-3

Job No. G75CS18A
Waianae Deep Monitor Well

SECTION 02735

FILLING THE ANNULAR SPACE

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- A. This section covers the filling of the annular space between the drilled hole and the solid casing with cement grout. All work required in this section shall be done during normal daylight working hours. The Contractor shall notify the State not less than 48 hours prior to the start of filling the annular space.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Portland cement shall conform to the requirements of ASTM C 150, Type I for grout mix.
- B. Water used in mixing cement grout shall be potable.

PART 3 – EXECUTION

3.1 CEMENT GROUTING THE ANNULAR SPACE

Cement grout shall consist of a mixture of one part Portland cement and not more than six (6) gallons of water per sack of cement to form a consistency such that the grout may be placed. Grout shall be placed in the annulus with a tremie pipe after the casing and concrete baskets has been installed.

With the solid casing hanging in the hole and set to the proper depth, a five-foot layer of neat cement mix with 3/4-inch maximum aggregate will be placed in the cement baskets attached to the casing at a location directed by the Engineer and allowed 48 hours to set. The cement shall be placed from the annular space by pumping it through a one and one-quarter inch minimum inside diameter grout pipe as directed by the Engineer. The Contractor shall satisfy himself as to the integrity of the seal for subsequent grouting subject to the approval by the Engineer.

It is essential that the entire annular space around the grouted section of the casing be completely filled with grout. Grout shall be placed in a manner that will avoid segregation of materials, inclusion of foreign material, and bridging of grout materials. No drilling operation or other work in the well shall be permitted within 48 hours of grouting the annular space.

Filling the Annular Space
02735-1

3.2 MEASUREMENT

The length of cement grouting will be measured vertically from bottom of the upper cement basket to the ground surface.

3.3 PAYMENT

The total footage, measured as provided above, of cement grout acceptably poured and without voids and gaps will be paid for at the contract unit price per lineal foot for:

- a. Provide and install cement grout in the annular space.

END OF SECTION

Filling the Annular Space
02735-2

Job No. G75CS18A
Waianae Deep Monitor Well

SECTION 02736

PUMP TESTING

PART 1 – GENERAL

1.1 GENERAL REQUIREMENTS

Pump testing shall consist of development and test pumping to determine yield, drawdown, recovery, and quality of water at various rates of pumping. A pump test will be conducted after installation of the casing, and grouting the annulus.

PART – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 EQUIPMENT

The Contractor shall furnish and install all necessary equipment and supply the power required to perform the pump test as directed by the Department. All Contractor-furnished equipment and appurtenances shall be in good operating condition. A submersible pump may be used for the development and test pumping. If a submersible is used, it shall not have a check valve in the pump column or on the pump itself. The pump bowl and two 1-inch (min.) diameter sounding tubes will be set to the depths directed by the Department. The pump shall be capable of delivering a minimum of 100 GPM to the ground surface to develop the well and for subsequent testing.

The rate of discharge from the well shall be controlled by an appropriate valve and/or engine speed and shall be measured with a water meter to be furnished by the Contractor. The Contractor shall furnish any and all other equipment and materials that may be required to measure the rate of discharge and it shall be the Contractor's responsibility to determine and provide the necessary and proper fittings to connect the water meter. The Contractor shall also provide the necessary facilities and make arrangements for the proper disposal of the pumped water as acceptable to the Department and in accord with all applicable government regulations. The Contractor shall provide adequate lighting for safe night operation of all the test equipment in the working area. Lighting shall be in compliance with Honolulu City Code Section 21-4.100 [may not apply to construction] DLNR seabird friendly lighting recommendations.

3.2 INSTALLATION OF THE TEST PUMP

When a pumping test is ordered by the Department, the Contractor shall clean the well by bailing and swabbing to the satisfaction of the Department prior to the installation of the test pump. The Contractor shall satisfy himself that the well is adequately prepared for the proper installation and operation of the test pump assembly.

Pump Testing
02736-1

3.3 DEVELOPMENT AND TEST PUMPING

The complete pump test equipment shall be acceptably installed and tested for proper operation in the presence of the Department. Development and test pumping shall be scheduled to begin only during daylight hours. The Contractor shall notify the Department of his readiness to begin at least three days prior to the scheduled pumping.

Initially, development pumping shall be conducted by starting, running, and stopping the pump intermittently at rates up to 100 GPM. This development by surging shall be directed by the Department. The Contractor shall keep a log of the development pumping. Development pumping will be continued until, in the judgment of the Department, water pumped from the well is substantially free from sand, stone, drill cuttings, and foreign material and development is complete and satisfactory. All the costs and pumping time for development pumping shall be incidental to the pump test at no extra cost to the State.

Conduct of the pump test shall be prescribed by the Department during the course of the testing. The pumping shall be started, regulated and stopped as directed by the Department. A 100 GPM constant rate test shall be for a minimum of 8 hours. The testing shall include measuring the rate of discharge and drawdown at the various pumping rates, the rate of recovery at the end of pumping, and collecting water samples at intervals directed by the Department. Testing may be conducted during the night, and possibly on Saturdays, Sundays, and National and State holidays. Records will be kept throughout all tests showing the pumping rates, corresponding water levels in the well, temperature of the water being discharged, and time that samples are collected.

During the entire testing period, the Contractor shall have at least one man available at the well site to operate and maintain the test pump and appurtenant equipment, to collect data, and to perform other incidental work required for the pump test. The Contractor shall be responsible for efficient sustained operation of the pumping unit and appurtenances during the tests. The Department will not pay for any damages to the pumping test equipment for any cause. A 100 GPM constant rate test shall be for up to 8 hours.

3.4 PUMP TESTING IN THE COMPLETED WELL

The installation and removal of pumping test equipment and material to be paid for shall be considered complete when the well has been satisfactorily tested and accepted by the Department and when the removal has been completed to the satisfaction of the Department. Test pumping time to be paid for will be the actual number of hours that the pump is operated under the direction and to the satisfaction of the Department measured to the nearest hour. The measurement of time will begin after the Department orders the pumping begun and shall end when the Department orders the pumping test to be terminated.

Time lost due to any failure, inability to meet Technical Specifications requirements, or inefficient operation of the pumping equipment or measuring devices will not be measured for payment.

Pump Testing
02736-2

3.5 NOISE

- A. Noise shall be kept within acceptable levels at all times in conformance with the State Department of Health, Administrative Rules, Title 11, Chapter 46- Community Noise Control for Oahu. The Contractor shall obtain and pay for the Community Noise Permit and/or Noise Variance from the State Department of Health when the construction equipment or other devices emit noise at levels exceeding the allowable limits or are outside allowable hours.
- B. All internal combustion engine-powered equipment shall have mufflers to minimize noise and shall be properly maintained to reduce noise to acceptable levels. Soundproof generators and soundproof curtains should be used to comply with the State Department of Health, Administrative Rules, Title 11, Chapter 46- Community Noise Control for Oahu.

END OF SECTION

Pump Testing
02736-3

Job No. G75CS18A
Waianae Deep Monitor Well

SECTION 02831

GALVANIZED CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

This section covers the requirements for furnishing and installing galvanized chain link fences and gates.

PART 2 - PRODUCTS

2.1 MATERIALS

All materials and fittings shall be new, and all ferrous materials shall be hot-dipped galvanized in accordance with the requirements under ASTM A 123. All galvanized materials shall be free from barbs, icicles or other hazardous projections resulting from galvanizing.

- A. Chain Link Fence Fabric: Shall be No. 9 gage conforming to ASTM A392, Class 1, 2-inch mesh unless noted otherwise on the plan. The hot-dipped galvanized fabric shall contain not less than 1.2 ounces per square foot of uncoated wire surface as determined by stripping test ASTM A90 and under the PREECE Test (ASTM A239), shall withstand 6 or more one-minute dips before reaching the end point.
- B. Tie Wire: Shall be 12-gauge galvanized steel wire.
- C. Tension Bar: Shall be 1/4" thick by 3/4" wide mild steel bar for attachment of a fabric to a terminal post.
- D. Tension Band and Brace Band: Shall be formed from steel bands at least 12 gauge thick by 3/4" wide.
- E. Tension Rod: Shall be a 3/8" diameter mild steel rod threaded at one end and hooked 180° at the other.
- F. Fittings: (Note: Pressed steel fittings shall not be allowed)
 - 1. Post cap and eye top shall be of one-piece cast iron or malleable iron construction and shall attach securely onto their respective posts.
 - 2. Coupling for top rails shall be outside sleeve type, at least 6" long and crimped at center.
 - 3. Rail ends shall be snug, one-piece cast iron or malleable iron fittings for top and brace rails with holes to receive 5/16" bolts for securing to rail end bands.

Galvanized Chain Link Fences and Gates
02831-1

4. Two-hole rail end shall be similar to rail end except for an additional 2" hole to receive the hooked end of a tension rod.
- G. Composition and Finish of Metal Parts: All metal parts and fittings, frames and bolts shall be galvanized by the hot-dip process, after fabrication, in conformance with ASTM A153. The coating on all parts shall be continuous and smooth; that is, free from barbs, icicles or other projections.
- H. Posts, Rails and Braces: Shall be the standard weight, hot-dipped galvanized, welded and seamless steel pipes conforming to ASTM A120.
- I. Selvage Wire: Shall be of 8-gauge galvanized coil spring steel wire of good commercial quality.
- J. Barbed Wire: Shall be three lines of 4-point pattern, each composed of two strands of no. 12-1/2 gauge galvanized wire.
- K. Extension Arms: Shall be hot-dipped galvanized. Line post arms of pressed steel are to be of one solid piece construction: gate and terminal posts to have ball caps. Each arm to carry 3 barbed wires at an angle of 45 degrees.
- L. Concrete for post footings shall be Class "B".

PART 3 - EXECUTION

3.1 INSTALLATION AND WORKMANSHIP

A. General

1. Chain link fencing shall be erected in strict conformance with the plans and these specifications. Posts shall be plumb and in line. Welding shall be done in accordance with latest AWS standards. However, no splicing of posts, rails or braces shall be accepted. Where changes in line occur with an angle of deflection of 30 degrees or more, the change point will be considered a corner and a corner post shall be installed thereat. End and corner posts for fences with 5-foot and wider fabric shall be braced to the nearest line post with horizontal braces and tension rods. The horizontal braces shall be spaced midway between top rail and ground and securely fastened to posts as shown on plans. Where fencing is placed along a curve with radius of 50 feet, or less, horizontal braces (and tension rods) shall be installed between all posts in like manner. Pull posts, at maximum intervals of 300 feet, shall be braced and trussed in both directions as specified above.
2. Field Touch-Ups: Field welds shall be cleaned of flux and spatter and all damaged galvanizing removed, all hazardous projections ground off, properly prepared, and

Galvanized Chain Link Fences and Gates

02831-2

Job No. G75CS18A

Waianae Deep Monitor Well

then heavily coated with self-curing inorganic zinc coating. Manufactured coatings shall be applied in strict accordance with manufacturer's printed specifications. Damage to existing painted surfaces shall be touched up.

- B. Fence posts, except as otherwise indicated or specified, shall be spaced not more than 10 feet apart. In curved fence sections having a radius of 50 feet or less, the posts shall be spaced as shown on the plans. Line posts shall be set so that the eye top will receive the top rail and fence fabric at the proper height as shown on the plan.
- C. Top rails shall pass through and bear firmly on base of eye tops, form a continuous brace from end to end of each stretch of fence, and be securely fastened to terminal posts with rail ends and brace bands. Couplings for top rails shall be installed at intervals of 21 feet maximum.
- D. Chain link fabric shall be fastened on the side of the posts as designated and shall be mounted on the posts so that the bottom of the fabric will be no more above the finished grade than called for on the plans. High points of the ground shall be excavated as necessary. The fabric shall be stretched taut and securely fastened to the posts. Ends of wire ties shall be bent back so as not to be a hazard. Between posts the top edge of the fabric shall be fastened to the top rail and the lower edge to the tension wire with tie wire of size and at spacing as called for on the plans. Tension wire shall be stretched tight and shall be installed in a straight line between posts. Tension bars extending the full height of the fence and tension bar bands shall be used for fastening fabric to end, corner, pull and gate posts. Bolted tension bar bands shall be placed at top and bottom of tension bars and spaced at 12" intervals. Fastenings to line posts shall be made with tie wire of size and at spacing as called for on the plans.

3.2 FINAL CLEANUP

- A. All exposed metal surfaces shall be clean and free of cement. All surplus earth resulting from fencing work that is not used in the grading work shall be cleaned up and disposed of off site.

3.3 PAYMENT

Installation of the chain link fence shall be paid at the lump sum bid price for:

“Provide and install 6-foot high chain link fence and gate including posts, pipes, excavation, backfill, Class B concrete footings, painting, and all other incidentals, in place complete.”

Such payment constitutes full compensation for all labor, material, equipment, and all other items necessary and incidental to the completion of the work of this section.

END OF SECTION

Galvanized Chain Link Fences and Gates
02831-3

Job No. G75CS18A
Waianae Deep Monitor Well

SECTION 03300

CONCRETE

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

This specification covers the requirements for furnishing, hauling, mixing, placing, and curing of concrete.

1.2 SUBMITTALS

The Contractor shall submit concrete mix design for approval.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Portland cement shall conform to the requirements of ASTM C150, Type I, for all concrete work.

B. Concrete Aggregates

1. Fine aggregates shall be calcareous or basalt sands, or a combination thereof. They shall meet the grading requirements of ASTM C33 unless the concrete producer can provide past data that show that a proposed non-conforming gradation will produce concrete with the required strength and suitable workability.

If manufactured sands are used in the concrete mix, the Contractor may select and use a water-reducing and/or an air-entraining admixture as specified hereinafter to provide satisfactory workability in the concrete. The cement content of a mix shall be as specified hereinafter, and the use of an admixture shall in no way result in the reduction of the cement factor.

2. Coarse aggregates shall be crushed close-grained, blue lava rock meeting the grading requirements of sizes 57 or 67 (ASTM D448) or both. The maximum size of aggregate shall not be larger than 1/5 of the narrowest dimensions between sides of the forms of the member for which the concrete is to be used not larger than 3/4 of the minimum clear spacing between individual reinforcing bars or bundles of bars.

Concrete
03300-1

C. Concrete Reinforcement

1. Reinforcing steel shall be deformed bars conforming to ASTM A615, grade as shown on plans.
2. Welded wire fabric for concrete reinforcement shall conform to ASTM A185 and shall be galvanized.
3. Metal accessories such as spaces, chairs, ties, and other devices necessary for properly placing, supporting and fastening reinforcement in place shall be provided. Chairs shall be galvanized. Annealed steel wire or not less than 16-gauge shall be used to secure reinforcement.

D. Water used in mixing concrete shall be potable.

E. Non-slip grit shall be an abrasive aggregate of silicon carbide or aluminum oxide.

F. Admixture, if used, shall conform to ASTM C494 or ASTM C260 and shall be mixed in proper amount in accordance with directions of manufacturer.

G. Curing compound shall conform to ASTM C309.

PART 3 - EXECUTION

3.1 DESIGN OF CONCRETE MIXES

A. All concrete throughout shall be either job or plant mixture in an approved type of power operated mixer that will insure uniformity and homogeneity of the concrete produced.

B. Mixing at jobsite shall be done in accordance with ACI 614.

C. Ready-mixed and mixed-in-transit concrete shall be mixed to conform to the provisions of ASTM C94.

D. Concrete shall be mixed only in such quantity as is required for immediate use. No retempering will be permitted and concrete that has started to harden shall be discarded and promptly removed from the job.

E. Admixtures conforming to paragraph 2.1 may be used in the concrete as recommended by the supplier and approved by the Engineer.

Concrete
03300-2

3.3 PLACING CONCRETE

- A. No concrete shall be placed in the absence of the Engineer or his representative who shall be given one day advance notice of starting time of concrete pour.
- B. Preparation
 - 1. Concrete shall be placed upon clean, damp surfaces with no free water, or upon properly compacted fills but never upon soft mud or dry, porous earth.
 - 2. Before depositing new concrete on or against concrete which has set, all accumulation or mortar splashed upon reinforcing steel and the surfaces of forms shall be removed and the forms shall be retightened. The surfaces of previously set concrete shall be thoroughly roughened and cleaned of all foreign matter and laitance, saturated with water and slushed with a coat of cement grout. New concrete shall be placed before the grout has attained its initial set.
- C. Conveying
 - 1. Concrete shall be conveyed from mixer to forms as rapidly as practicable by methods that will prevent segregation.
 - 2. Concrete shall be deposited as nearly as practicable in its final position. Extensive spading as a means of transportation shall be avoided and in no case shall vibrators be used to transport concrete inside forms.
 - 3. Open troughs and chutes shall have a slope not to exceed 1 vertical to 2 horizontal and not less than 1 vertical to 3 horizontal. Chutes more than 20 feet long and chutes not meeting the slope requirements may be used provided they discharge into a hopper before distribution.
 - 4. The concrete shall not be allowed to drop freely more than six feet except where specifically authorized by the Engineer. When placing operations would involve the dropping of concrete from a height of more than six feet it shall be conveyed through pipes or flexible drop chutes.
 - 5. If any appreciable segregation occurs through the conveying methods employed, their use shall be ordered discontinued by the Engineer and some other satisfactory method of placing concrete shall be used.
 - 6. All chutes, troughs, pipes and other means of conveyance shall kept clean and free from coatings of hardened cement or concrete by thoroughly cleaning with water and chipping after each pour. Water used for flushing shall be discharged away from the vicinity of the concrete or forms already in place.

Concrete
03300-3

D. Depositing

1. Unless adequate protection is provided, concrete shall not be placed during rain. Rainwater shall not be allowed to increase the mixing water nor to damage the surface finish. Fresh concrete that has been deposited but has not attained its initial set shall be protected in the event of rain.
2. Placing of the concrete shall be started at the far end of work so that each batch will be dumped against previously placed concrete, not away from it.

E. Compaction

1. All concrete shall be consolidated by vibration so that the concrete is thoroughly worked around the reinforcement, around embedded items, and into corners of forms, eliminating all air or stone pockets which may cause honey-combing, pitting, or planes of weakness. All compaction shall be done by use of high frequency internal vibrators. Where the vibrator cannot be inserted into the concrete, compaction shall be done by spading, rodding, or forking.
2. Frequency of vibrator shall be not less than 7,000 impulses per minute. The Contractor shall provide a sufficient number of vibrators to properly consolidate all concrete immediately after placing. At least one standby vibrator shall be on hand at all times during placement of the concrete.

3.4 REINFORCEMENT

- A. Reinforcing steel bars, wire and wire fabric shall be provided in the sizes, length and configurations as indicated on plans and shall be thoroughly cleaned, before placing, of loose mill scale, loose flaky rust, oil, and all coatings that will destroy or reduce bond. If necessary, they shall be cleaned again before placing of concrete. All items shall be fabricated, positioned and secured in place as indicated in the plans and as herein specified. Annealed steel wire of not less than 16-gauge shall be used to secure reinforcement. Unless otherwise noted, cleaning, bending and placing of reinforcement shall be done in accordance with the standard practice of the Concrete Reinforcing Steel Institute.
- B. Concrete or metal support and spacers shall be used to secure the proper spacing of reinforcement over formwork. Stirrups shall be accurately and securely wired to the bars at both top and bottom. At slabs, footings and beams in contact with earth, pre-cast concrete blocks (not bricks or hollow tile) shall be used to hold reinforcement at a proper distance above earth.

Concrete
03300-4

- C. Bars shall be tied at all intersections, and distances from forms shall be maintained by means of pre-cast concrete blocks, ties, hangers or other approved supports.
- D. Bars shall be bent cold to the shapes shown on the plans. Bends shall be made around a pin having a diameter not less than 6 times the bar diameter except that for bars of larger than 1-inch diameter the pin diameter shall be 8 times the bar diameter. If required, bars may be bent in the field using a "hickey" bar.
- E. All reinforcing steel bars shall be furnished in the lengths indicated on the plans. Splicing of bars, except where shown, will not be permitted without the approval of the Engineer.

3.5 CONCRETE SLABS ON GRADE

- A. Concrete slabs on earth shall be placed over a structural fill as specified in another section.
- B. All slabs shall be reinforced with 6 x 6 - W1.4 by W1.4 welded wire fabric unless otherwise shown or called for on the plans.
- C. Care shall be taken in handling and placing the reinforcement as follows:
 - 1. Reinforcing fabric shall not be rolled over by trucks, buggles or wheelbarrows, nor trampled to the extent that it is bent out of the plans of the fabric. Material which has been so bent that it cannot be laid out flat shall be rejected.
 - 2. Reinforcing fabric shall be positively set, either prior to or during the placement of concrete, to the levels required within the slabs as indicated on the plans or as otherwise called for herein.
- D. A bond-break filler shall be provided where edge of slab abuts any vertical surface and where indicated on plans. Width of filler strips shall equal depth of floor slab.

3.6 FINISHING OF SLABS

- A. Broom Finish for Slabs: The concrete slabs shall be given a coarse transverse scored texture by drawing a broom across the surface. The operation shall follow immediately after steel trowelling.

3.7 REPAIR OF DEFECTS

- A. After forms have been removed, any concrete which is not constructed as shown on the plans or is out of alignment or level beyond required tolerances or which shows a defective surface which in the opinion of the Engineer cannot be properly repaired or patched shall be removed.

Concrete
03300-5

- B. Where concrete which is exposed to view requires repairing or patching, the texture of the surface of such repair or patch shall closely match that of the surrounding surface.

3.8 CURING AND PROTECTION

- A. All concrete shall be cured for a period of not less than seven (7) days by one of the methods listed below. During this curing period, the concrete shall be maintained with minimal moisture loss at a relatively constant temperature. Fresh concrete shall be protected from heavy rains, flowing water, mechanical injury, and injurious action of the sun. Curing method selected must be compatible with the finish to be applied to the concrete.

Curing shall immediately follow the finishing operation.

- B. Water Curing: If cured with water, concrete shall be kept wet by mechanical sprinklers, by ponding, or by any other method which will keep the surfaces continuously wet.
- C. Saturated Sand Curing: Surfaces cured with sand shall be covered with a minimum of one inch thickness of sand which shall be kept uniformly distributed and continuously saturated during the entire curing period.
- D. Curing Compounds: Curing compounds shall not be used on concrete surfaces that are to receive paint finish, acid stain or resilient flooring, except those that are recommended by the manufacturer to be compatible with the applied finish. The Contractor shall submit to the Engineer a letter certifying that the curing compound is compatible with the applied finish. Application shall be in accordance with the manufacturer's recommendations. If curing, sealing or other compounds are used which are incompatible with applied finish, such compound shall be thoroughly removed by grinding with a terrazo grinder.
- E. Waterproof Paper: Waterproof paper or opaque polyethylene film conforming to ASTM C171 may be used. The paper or film shall be anchored securely and all edges sealed or applied in such a manner as to prevent moisture escaping from the concrete.

3.9 SAMPLING AND TESTING

- A. Sampling - ASTM C 172: Collect samples of fresh concrete to perform tests specified. ASTM C 31 for making test specimens.
- B. Slump Tests - ASTM C 143: Take concrete samples during concrete placement. The maximum slump may be increased as specified with the addition of an approved admixture provided that the water-cement ratio is not exceeded. Perform tests at commencement of concrete placement, when test cylinders are made, and for each batch (minimum) or every 10 cubic yards (maximum) of concrete.

Concrete
03300-6

- C. Compressive Strength Tests - ASTM C 39: Make four test cylinders for each set of tests in accordance with ASTM C 31. Test one cylinder at 7 days, two cylinders at 28 days, and hold one cylinder in reserve. Provide concrete cylinders for compression tests not less than once a day, nor less than once for each 100 cubic yards of concrete, nor less than once for each 5,000 square feet of surface for slabs or walls. If the average strength of the 28-day test cylinders is less than f'_c and a maximum of one single cylinder is less than f'_c minus 300 psi, take three ASTM C 42 core samples and test. If the average strength of the 28-day test cylinders is less than f'_c and two or more cylinders are less than f'_c minus 300 psi, take six core samples and test. Concrete represented by core tests shall be considered structurally adequate if the average of the three cores is equal to at least 85 percent of f'_c and if no single core is less than 80 percent of f'_c . Locations represented by erratic core strengths shall be retested. Remove concrete not meeting strength criteria and provide new, acceptable concrete at no additional cost to the State. Repair core holes with nonshrink grout. Match color and finish of adjacent concrete.
- D. Testing: All sampling and testing shall be performed by an independent testing agency and all test results submitted to the Engineer for approval. All cost of sampling and testing shall be borne by the contractor.

3.10 PAYMENT

Furnishing, hauling, mixing, placing, and curing of concrete shall not be paid for directly but shall be included in the prices bid for the various items of work.

END OF SECTION

Concrete
03300-7