INVITATION FOR BIDS

WAIAHOLE VALLEY WATER SYSTEM OPERATIONS AND MAINTENANCE

Waiahole, Kaneohe, Oahu, Hawaii

IFB NO. 27-001-DEV

PREPARED BY:

Hawaii Housing Finance and Development Corporation
State of Hawaii

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END OF SECTION

NOTICE TO BIDDERS
(Chapter 103D, HRS)

Sealed bids will be received by the Hawaii Housing Finance and Development Corporation (HHFDC) online at the Hawaii State eProcurement (HIePRO) system website (https://hiepro.ehawaii.gov/welcome.html), no later than **3:00PM** on **August 26, 2026**, for IFB No. 27-001-DEV to provide Operations and Maintenance for the Waiahole Valley Potable Water System.

Beginning **July 29, 2026**, the INVITATION FOR BIDS will be available on the HIePRO website and may be examined by vendors who have a valid registered account in HIePRO. **Registration on HIePRO is required to view the solicitation and submit a response.** Bids that are: (1) not submitted on HIePRO, (2) not submitted in the required form, or (3) otherwise do not meet the bid requirements, will not be accepted or considered for award.

HHFDC may reject any and all bids and may waive any bid defects whenever HHFDC deems such action is in the best interest of the State. Award will be made to the responsible bidder offering the lowest responsive bid and shall be determined by HHFDC in its sole discretion.

A Pre-Bid Conference and/or Site Visit will be held at 48-140 Kamehameha Hwy, Kaneohe, Hawaii 96744 on August 5, 2026 at 10:00am (HST). Attendance at the pre-bid meeting(s) is not mandatory but strongly recommended to familiarize bidders with any existing site conditions and the extent of services required by the IFB. Additional meetings will not be conducted.

Bidders must possess a General Contractor's A or specialty "C-37" license and a valid State of Hawaii General Excise Tax License to be eligible to bid. All bids shall include the State General Excise Tax of 4.712%.

This solicitation will result in a contract for **construction**. Therefore, bid security of at least five percent (5%) of the bid amount is required for bids exceeding $25,000. Contract performance and payment bonds shall be required for contracts exceeding $25,000.

The successful bidder must provide proof of compliance with section 103D-310(c), Hawaii Revised Statutes (HRS), in order to receive a contract award of $2,500 or more. The Hawaii Compliance Express (HCE) system expedites the ability to furnish proof of compliance by providing an online "Certificate of Vendor Compliance" for a business entity. Bidders are strongly recommended to register with HCE as soon as possible so they are able to furnish proof of compliance with their bids. For more information, visit: https://vendors.ehawaii.gov/ .

Questions, requests or discoveries relating to this bid solicitation must be submitted **on HIePRO** using the Questions and Answers function no later than August 18, 2026.

Persons requiring special needs/auxiliary aids (e.g. sign language, large print or other media) for this INVITATION FOR BIDS may contact the Solicitation Contact(s) at (808) 587-3455.

Dean Minakami, Executive Director
Hawaii Housing Finance and Development Corporation

Legal Ad Date: 07/29/2026

INSTRUCTIONS TO BIDDERS

1.0 GENERAL

1.1 Definitions.

1.1.1 AG: State of Hawaii Attorney General.

1.1.2 Bid Form: Form of Bid, which is used to submit pricing information.

1.1.3 Bidder or Offeror: Any individual, partnership, firm, corporation, joint venture, or other entity submitting directly or through a duly authorized representative or agent, a bid for the good, service, or construction contemplated.

1.1.4 Bid Documents: IFB Instructions, Specifications, any special provisions and applicable attachments and exhibits.

1.1.5 Contract: Form AG-003 Contract for Goods and Services based on Competitive Sealed Bids.

1.1.6 Contract Documents: The Contract, amendments (which pertain to the Contract Documents), Contractor's bid documents (including appropriate accompanying bid documentation and post bid documentation) when attached as an exhibit to the contract, the Notice to Proceed, the Bonds, the bid documents, change orders, field orders, any written order for changes and interpretations and clarifications issued on or after the effective date of the contract.

1.1.7 Contractor: The Offeror that enters into a Contract with HHFDC as a result of this IFB.

1.1.8 GET: General Excise Tax.

1.1.9 HCE: Hawaii Compliance Express.

1.1.10 HHFDC: Hawaii Housing Finance & Development Corporation, 677 Queen Street, Suite 300, Honolulu, Hawaii 96813.

1.1.11 HAR: Hawaii Administrative Rules.

1.1.12 HRS: Hawaii Revised Statutes.

1.1.13 IFB: Invitation for Bids No. 27-001-DEV.

1.1.14 State: State of Hawaii, HHFDC.

1.1.15 HOPA: Head of the Purchasing Agency (typically, the HHFDC Executive Director).

1.1.16 Procurement Officer: The HHFDC Executive Director or designee.

1.2 General Requirements

Bidder shall review all Bid Documents, including but not limited to any General Requirements or Technical Specifications, General Conditions, or Special Conditions included in the bid packet to ensure Bidder is familiar with all requirements of the project.

1.3 Solicitation Schedule; Availability of Bid Documents; Solicitation Contact

1.3.1 Solicitation Schedule

The schedule provided below is tentative and subject to change at the discretion of HHFDC.

IFB Advertised	July 29, 2026
Pre-Bid Meeting and/or Site Inspection	August 5, 2026 at 10:00 am
Deadline for Questions or Clarification Requests	August 12, 2026
HHFDC Response Date for Questions or Clarifications	August 18, 2026
Bids Due	**August 26, 2026** **3:00 pm**
Notice of Intent to Award	September 3, 2026
Estimated Contract Start Date	October 1, 2026

1.3.2 Availability of Bid Documents

1.3.2.1 This solicitation is being conducted on the State of Hawaii eProcurement system (HIePRO).

1.3.2.1.1 Bidders must access the Bid Documents on the HIePRO website, located at https://hiepro.ehawaii.gov/welcome.html, and all responses to the IFB must be submitted on HIePRO.

1.3.2.1.2 To view the details of the solicitation and enter a response, bidders must be registered in HIePRO.

1.3.2.1.3 Once bidder is registered, bidder must login to respond to solicitation.

1.3.2.1.4 Only responses made through HIePRO will be accepted for this solicitation.

1.3.2.2 Awards made for this solicitation, if any, shall be done through the HIePRO system and shall therefore be subject to a mandatory .75% (.0075) transaction fee, not to exceed $5,000 for the total contract term. This transaction fee shall be based on the total sales made against this contract, payable to Hawaii Information Consortium, LLC (HIC), the vendor administering HIePRO.

1.3.2.2.1 HIC shall invoice the vendor directly for payment of transaction fees. Payment must be made to HIC within thirty (30) days from receipt of invoice. HIC is an intended third-party beneficiary of transaction fees, which are used to fund the operation, maintenance and future enhancements of the HIePRO system.

1.3.3 Solicitation Contact

The Contact person(s) for this solicitation is:

Jon Rapoza
Email: Jonathan.rapoza@hawaii.gov
Phone: 808-587-3455

1.4 Pre-bid Meeting and Site Visit(s).

When specified in the NOTICE TO BIDDERS, all prospective bidders and other interested parties are invited to attend a pre-bid meeting and any accompanying site visit(s).

1.4.1 Attendance at pre-bid meetings and site visits is strongly encouraged.

1.4.1.1 Failure to attend the pre-bid meeting(s) and site visit(s) for a project DOES NOT absolve the bidder from its responsibilities. Verbal responses and discussions may occur during the course of the pre-bid meeting or site visit and shall not be considered to alter any information in the solicitation documents.

1.5 Bidder Qualifications.

1.5.1 Bidders must possess a current and valid State of Hawaii Contractor's "A" License to be eligible to bid. Any bid submitted by a Bidder that does not possess the required license(s) shall be rejected.

1.5.2 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. The following definitions apply to this solicitation:

1.5.2.1 Hawaii Business §3-122-112 HAR: A bidder who is registered and incorporated or organized under the laws of the State is a "Hawaii Business" and eligible for an award.

1.5.2.2 Compliant non-Hawaii Business §3-122-112 HAR: A bidder not incorporated or organized under the laws of the State, but is registered to do business in the State and complies with or is exempt from the requirements of §3-122-112 HAR, is a "Compliant Non-Hawaii Business" and eligible for an award.

1.5.2.3 Non-compliant Bidder: If a bidder is a non-Hawaii business and is not registered with the DCCA Business Registration Division (BREG) or cannot comply with §3-122-112

HAR, then the bidder is non-compliant and is ineligible for an award.

1.5.3 Disqualification.

Any persons, firm or corporation where (1) the person, firm, or corporation, or (2) a corporation owned substantially by the person, firm, or corporation, or (3) a substantial stockholder or an officer of the corporation, or (4) a partner or substantial investor in the firm is in arrears in any payment owed to the State of Hawaii or any of its political subdivisions or is in default of any obligation to the State of Hawaii or to all or to any of its political subdivisions, including default as a surety or failure to perform faithfully and diligently on any previous contract with the HHFDC, may be disqualified.

1.5.4 Permanent Office Location.

Bidder shall have a permanent office location from where he/she conducts business and where he/she will be accessible to telephone calls regarding this contract. An answering service is acceptable provided a response is made within four (4) hours of the initial call from the Contract Administrator.

1.5.5 Bidder shall have adequate equipment and capacity to perform and complete the work specified herein within the period specified.

1.5.6 Responsibility of Bidder.

1.5.6.1 Pursuant to Section 103D-310(b), the Procurement Officer may require the prospective Bidder to submit answers to questions contained in a standard form of questionnaire, such as the Statement of Bidder's Contractor Experience, or other form(s) provided by the Department, properly executed and notarized, setting forth a complete statement of experience of such prospective Bidder and its organization in performing similar work and a statement of equipment proposed to be used, together with adequate proof of the availability of such equipment, at the time advertised for the opening of bids. If the information in the Statement of Bidder's Contractor Experience proves unsatisfactory, the Procurement Officer may require the prospective Bidder to submit answers to questions contained in the Standard Qualification Questionnaire for Prospective Bidders on Public Works Contracts, with detailed financials and other information, after the opening of bids. The questionnaire will be returned to the Bidder after it has served its purpose.

Whenever it appears from answers to the questionnaire(s) or otherwise, that the prospective offeror is not fully qualified and able to perform the intended work, a written determination of non-responsibility of an offeror shall be made by the Procurement Officer. The unreasonable failure of an offeror to promptly supply information in connection with an inquiry with respect to responsibility may be grounds for a determination of non-responsibility with respect to such offeror.

1.5.6.2 Pursuant to Section 103D-310(c), HRS, all offerors, upon award of contract, shall comply with all laws governing entities doing business in the State, including, but not limited to:

Chapter 237, tax clearance;
Chapter 383, unemployment insurance;
Chapter 386, workers' compensation;
Chapter 392, temporary disability insurance; and
Chapter 393, prepaid health care.

Bidders shall produce documents to the procuring officer to demonstrate compliance with this subsection. Any Offeror making a false affirmation or certification under this subsection shall be suspended from further offerings or awards pursuant to section 103D-702. The Procurement Officer shall verify compliance with this subsection for all contracts awarded pursuant to section 103D-302.

Hawaii Compliance Express. Hawaii Compliance Express (HCE) is an electronic system that allows business entities to quickly and easily demonstrate compliance with applicable laws. It is an online system that replaces the necessity of obtaining paper compliance certificates from the State Department of Taxation, Federal Internal Revenue Service, Department of Labor and Industrial Relations, and Department of Commerce and Consumer Affairs.

Offerors are strongly encouraged to register with HCE at https://vendors.ehawaii.gov prior to submitting an offer. The annual registration fee is around $12.00 and the 'Certificate of Vendor Compliance' issued by HCE is accepted as proof of compliance for award, execution of the contract, and final payment.

Timely Registration on HCE. Offerors are advised to register on HCE soon as possible to ensure proof of compliance is available at the time of award.

1.5.6.3 The Procurement Officer shall make a determination of responsibility or non-responsibility of bidder or prospective bidder based on available information.

1.5.6.4 If the Procurement Officer requires additional information, the bidder or prospective bidder may be required to provide follow-up information requested by HHFDC.

1.5.6.4.1 The requested information shall be furnished upon request within two (2) working days or as otherwise determined by the Procurement Officer.

1.5.6.4.2 Failure to furnish the requested information within the time allowed may be grounds for determination of non-responsibility.

1.6 Addenda and Clarifications.

1.6.1 HHFDC may periodically issue addenda and bid clarifications which provide additional information or alter the plans and specifications.

1.6.2 HHFDC will make addenda and bid clarifications available to Bidders via the means indicated in the NOTICE TO BIDDERS for pickup of the solicitation documents. Bidders are responsible for the information contained in the addenda and bid clarifications whether or not the bidder receives the addenda or clarifications.

1.6.3 Bidders discovering an ambiguity, inconsistency, or error when examining the solicitation documents or the site and bidders with questions or clarification requests shall transmit said discoveries, questions, and/or requests to the Solicitation Contact in writing ***via email*** by the date specified in the NOTICE TO BIDDERS, as amended by any addenda.

1.6.4 Requests that are not transmitted on HIePRO or otherwise communicated in writing directly to the Solicitation Contact will not be considered to be transmitted to HHFDC and may not be addressed.

1.6.5 Questions received after the time specified in the NOTICE TO BIDDERS, as amended by any addenda, will not be answered. Only responses to questions addressed by formal written addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

1.6.6 Requests for Substitution will only be considered prior to bid opening. If allowed, requests of this nature must be submitted before the deadline specified for this purpose in the NOTICE TO BIDDERS.

2 BID REQUIREMENTS

2.1 Bidder shall complete, sign, and submit to HHFDC the required forms and items specified in the solicitation documents before the bid receipt date as indicated in the NOTICE TO BIDDERS. Refer to the MANDATORY SUBMITTALS on Page A-1 for a complete list of forms required to be submitted with the bid. Bidders must also comply with any supplemental instructions contained within the solicitation documents. **Any bidder failing to meet this requirement may be deemed non-responsive and not considered for award.**

A checklist is provided below for Bidder's convenience, but it does not excuse Bidder from submitting any required documents and items specified in the solicitation documents.

- ☐ Form of Bid
- ☐ Bid Security (Surety Bid Bond – Bond A), if applicable
- ☐ Form of Non-Default Affidavit
- ☐ Form of Non-Collusive Affidavit
- ☐ Form of Non-Gratuity Affidavit
- ☐ Certification of Compliance with HRS 396-18, Safety and Health Program
- ☐ Certification of Compliance with HRS 103B, Employment of State Residents on Construction Procurement Contracts
- ☐ Statement of Bidder's Contract Experience

A Notice of Intention to Bid is <u>not</u> required for this solicitation.

2.2 Form of Bid.

Bidder shall complete, sign and submit the Form of Bid ("Bid Form") on HIePRO using Bidder's exact legal name as registered with the Hawaii State Department of Commerce and Consumer Affairs (DCCA), if applicable.

2.2.1 The bid form shall be completed, signed, and submitted electronically on HIePRO. Scanned copies of the signed bid documents will be accepted. If unsigned, the bid will be automatically rejected unless accompanied by other material containing a signature indicating the bidder's intent to be bound.

2.2.2 The bidder who submits the lowest responsive bid must submit the complete original bid, with the original bid bond, if required, so that it is received within five working days from the notification of intent to award, or as otherwise specified by HHFDC. Failure to timely submit the original signed bid documents may result in rejection of the bid.

2.2.3 Tax Liability. Work to be performed under this solicitation is a business activity taxable under Chapter 237, HRS, and vendors are advised that they are liable for the Hawaii General Excise Tax (GET). If a bidder is a person exempt by the HRS from paying the GET and therefore not liable for the taxes on this solicitation, bidder shall state its tax exempt status and cite the HRS chapter or section allowing the exemption.

For evaluation purposes, pursuant to Chapter 103D-1008, HRS, the bidder's tax-exempt price shall be increased by the applicable retail rate of general excise tax and the applicable use tax. For competitive sealed bids, the lowest responsive, responsible bidder, taking into consideration the above increase, shall be awarded the contract, but the contract amount of any contract awarded shall be the amount of the price offered and shall not include the amount of the increase.

2.2.4 Failure to complete and provide all information requested on the Form of Bid may result in automatic bid rejection.

2.2.5 Bid Schedule(s).

Bidder shall completely fill out this section on the Bid Form and enter the cost for the Base Bid, Extension-Term Bid, Variable Quantities Unit Prices and Alternates when provided. Bidder shall sum the Base Bid, Extension-Term Bid, Variable Quantities Unit Prices and Allowances when provided, and then Bidders shall enter the total amount ("Grand Total Bid") on the Form of Bid. BE SURE TO ENTER THE GRAND TOTAL BID PRICE IN WORDS AND NUMERALS on page P-1 of the Form of Bid.

2.2.5.1 If provided, bidder shall fill in total costs for each alternate.

2.2.5.2 All bid amounts shall include the State GET of 4.712%.

2.2.6 Acknowledgment of Liquidated Damages.

Bidder shall acknowledge that it understands and agrees to the provisions for liquidated damages specified in the bid and contract documents by signing and submitting the acknowledgment form included in the Form of Bid.

2.2.7 Wage Certificate.

Contractors and subcontractors shall pay all mechanics and laborers employed on the job the minimum prevailing wages for the corresponding work classifications as determined by the Director of the Department of Labor and Industrial Relations (DLIR) pursuant to Chapter 104, HRS. Bidder shall indicate that bidder has included the applicable wage rates into the bid to compensate employees for work performed under the awarded contract by certifying to such on the Wage Certificate included in the Bid Form.

During the contract period, a certified copy of each weekly payroll shall be submitted to HHFDC within seven (7) calendar days after the end of each weekly payroll period. The contractor shall be responsible for the timely submission of certified copies of payrolls of all subcontractors. The certification shall affirm that payrolls are correct and complete, that the wage rates contained therein are not less than the applicable rates, and that the classifications set forth for each laborer and mechanic conform with the work they performed. If certified payrolls are not submitted on a timely basis, or if HHFDC finds that any laborer or mechanic employed on the job has been or is being paid less than the applicable prevailing wages, HHFDC may terminate the contract.

2.2.8 Listing of Joint Contractors and Subcontractors.

2.2.8.1 Bidder shall complete the “Joint Contractors or Subcontractors List”. It is the sole responsibility of the bidder to review the requirements of this project and determine the appropriate specialty Contractor’s licenses that are required to complete the project. Failure of the bidder to provide the correct names and specialty Contractor’s nature of work to be performed, may cause the bid to be rejected.

2.2.8.2 Bidder agrees the completed listing of joint Contractors or Subcontractors is required for the project and that the bidder, together with the listed joint Contractors and Subcontractors, have all the specialty Contractor's licenses to complete the work. The bidder shall be solely responsible for verifying that its joint contractor or subcontractor has a proper, valid, active, and non-suspended license at the time the bid is submitted and ensuring that all work is performed by a properly licensed contractor.

2.2.8.3 Based on the Hawaii Supreme Court’s January 28, 2002 decision in Okada Trucking Co., Ltd. v. Board of Water Supply, et al., 97 Hawaii 450 (2002), the bidder as a general Contractor (‘A’ or ‘B’ license) is prohibited from undertaking any work solely or as part of a larger project, which would require the bidder (‘A’ or ‘B’ general Contractor) to act as a specialty (‘C’ license) Contractor in any area in which the bidder (‘A’ or ‘B’ general Contractor) has no specialty Contractor's 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. The bidder (‘A’ or ‘B’ general Contractor) must have the appropriate ‘C’ specialty Contractor's licenses either obtained on its own, or obtained automatically under HAR §16-77-32.

2.2.8.4 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.

2.2.8.5 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.

2.2.8.6 Instructions to complete the Joint Contractors or Subcontractors List:

2.2.8.6.1 Provide the complete firm name of the joint Contractor or subcontractor in the respective column. Describe the specialty Contractor’s nature and scope of work to be performed for this project. List the license number and specialty classification number of the joint Contractor or subcontractor.

2.2.8.6.2 List only one joint Contractor or Subcontractor per required specialty Contractor's classification, unless the nature of work to be performed by each such joint contractor is both distinct and separate. (i.e. two C-13 contractors are listed but one has the responsibility for AC control and the other for AC power.

2.2.8.6.3 For projects with alternate(s), use the same form to list any alternate joint Contractors and/or subcontractors but indicate their status by marking “Alternate” in parentheses next to the name of the joint Contractor or subcontractor (i.e., Name (Alternate)).

2.2.9 Bidder Information Form.

Bidder shall completely fill out and submit the Bidder Information Form included in the Form of Bid. Bidder shall indicate if it is a “Hawaii Business” or a “Compliant Non-Hawaii Business” in section 2 of the Bidder Information Form.

2.3 Bid Security (Surety Bid Bond – Bond A).

Bid security is required under the provisions of Subchapter 24, HAR 3-122, for bids amounting to $25,000 or more.

2.3.1 Bid security, when required, shall be in an amount equal to at least five (5) percent of the base bid and additive alternates or as required by terms of federal funding.

2.3.1.1 If bidder fails to accompany its offer with conforming bid security, when required, the offer shall then be deemed nonresponsive in accordance with the definition of “responsive bidder or offeror” in section 3-120-2.

2.3.1.2 If an offer does not comply with the bid security requirements, as specified in the HAR, the offer shall be rejected as nonresponsive, unless the failure to comply is determined by the chief procurement officer, the head of the purchasing agency, or a designee of either officer, to be non-substantial in accordance with HAR 3-122-223(d).

2.3.2 All bid securities, except those of the four (4) lowest bidders, will be returned following the close of the solicitation and review of the bids. The retained bid securities of the four lowest bidders will be returned within five (5) working days following the complete execution of the contract.

2.3.3 Acceptable bid security and accompanying documentation shall contain signatures of authorized representatives and be limited to the following:

2.3.3.1 Surety bonds underwritten by a company licensed to issue bonds in this State; or

2.3.3.2 Legal tender of the United States; or

2.3.3.3 A certificate of deposit; credit union share certificate; or cashier's, treasurer's, teller's, or official check drawn by, or a certified check accepted by a bank, a savings institution, or credit union insured by the FDIC or the NCUA, and payable at sign or unconditionally assigned to the Procurement Officer advertising for offers. These instruments may be utilized only to a maximum of $200,000. If the requirement amount totals over $100,000, more than one instrument not exceeding $100,000 each and issued by different financial institutions shall be accepted.

2.3.4 **Since electronic responses are required,** scanned copies of the signed bid bond documents will be accepted; provided that the lowest responsive bidder must submit the complete original bid bond, with the original bid documents, within five (5) working days from the notification of intent to award. Failure to timely submit the original signed bid security documents may result in rejection of the bid.

Original bid documents should be submitted to the Solicitation Contact at the following address:

Project Engineer
Development Branch
Hawai‘i Housing Finance and Development Corporation
677 Queen Street, Suite 300
Honolulu, HI 96813

2.3.5 Prior to award. If a low bidder withdraws its bid after bid opening but before contract award for a reason other than those permitted by the HHFDC General Conditions, 3.3, then HHFDC shall be entitled to retain as damages the amount established as bid security, and may take all appropriate actions to recover the damages sum from the property or third-party obligations deposited as bid security.

2.4 Form of Non-Default Affidavit.

Bidder shall sign and submit with its bid the Form of Non-Default Affidavit, attesting that Bidder is not in arrears in any payment owed to the State of Hawaii or is not in default of any obligations to the State of Hawaii, including default as a surety or failure to perform faithfully and diligently any previous contract with the State.

2.5 Form of Non-Collusive Affidavit.

Bidder shall sign and submit with its bid the Form of Non-Collusive Affidavit, in accordance with §3-122-192, HAR, declaring that the price submitted for this bid is independently arrived at without collusion.

2.6 Form of Non-Gratuity Affidavit.

Bidder shall sign and submit with its bid the Form of Non-Gratuity Affidavit, attesting that Bidder has not given or made any agreement to give any HHFDC employee, the employee's relatives or agents any gifts of money or otherwise, or anything of value; has not been influenced by any HHFDC employee, the employee's relatives or agents in the renting or purchasing of any equipment or supplies of any nature whatsoever.

2.7 Certification of Compliance for Employment of State Residents

Bidder shall certify that Bidder and any applicable subcontractor shall comply with HRS 103B by employing a workforce of which not less than eighty percent are Hawaii residents. Prior to an award of a contract, the Bidder may withdraw its bid without penalty if the Bidder finds that it is unable to comply with this subsection.

The eighty per cent requirement shall be determined by dividing the total number of hours worked on a contract by residents, by the total number of hours worked by all employees of the contractor in the performance of the contract. Hours worked for any subcontractor of the contractor shall count towards the calculation for purposes of this subsection. The hours worked by employees within shortage trades, as determined by DLIR, shall not be included in the calculations for purposes of this requirement.

At contract completion, in accordance with HRS 103B(c), certification of compliance with this chapter shall be made under oath by an officer of the general contractor and applicable subcontractor to the procurement officer with the notice of completion of the contract.

2.8 Certification of Compliance with HRS 396-18, Safety and Health Programs.

Bidders submitting a bid in excess of $100,000 shall certify, in accordance with HRS 396-18, that Bidder’s organization will have a written safety and health plan for this project that will be available and implemented by the date when onsite construction starts. Bidder may obtain the requirements for the safety plan from the Department of Labor and Industrial Relations, Occupational, Safety and Health Division (HIOSH).

2.9 Statement of Bidder’s Contractor Experience.

Bidder shall complete and submit with its bid the Statement of Bidder’s Contractor Experience to assist HHFDC in determining if bidder is responsible and has adequate qualifications and capacity to perform the work.

2.10 Allowances.

If applicable to this project, bidder shall include in its total lump sum (base) bid price all cash allowances that are itemized in the Bid Schedule on the Form of Bid. Unless otherwise provided in the contract documents, the bidder shall include costs for unloading and handling materials and equipment at the site, labor, installation costs, overhead, profit, coordination, insurance and other incidental expenses in the lump sum bid price and not in the allowance.

2.10.1 For testing and inspection allowances, the allowance costs shall include the cost of engaging testing agencies, actual tests and inspections and reporting results. Allowance does not include incidental labor required to assist the testing agency or costs for retesting if previous tests and inspection result in failure.

2.11 Variable Quantities Unit Prices.

If applicable to this project, bidder shall include in its total lump sum (base) bid price a total cost for Variable Quantities Unit Prices (VQUP) that are described in the bid package. Bidder shall complete the VQUP schedule by extending costs for unit prices, subtotals and totals. The unit costs provided shall include all materials, labor, tools and equipment required to install the work complete, in addition to all charges for overhead, coordination, profit, insurance, and other incidental expenses. Bidder shall make sure to enter the variable quantities unit prices total amount in the Form of Bid.

2.12 Alternates.

If applicable to this project, bidder shall include its total cost(s) in the Form of Bid for the alternates that are described on the drawings. Bidder must completely fill in the cost for each listed alternate. Where the respective alternate’s work will be performed at no cost to the State, bidder shall fill in ‘$0.00’ as the cost. **If the cost for any alternate is left blank, the Form of Bid will be rejected as an irregular bid.**

2.12.1 For the purposes of evaluating the bid, the alternates are listed in the Form of Bid in the order of precedence from highest (listed first) to lowest for additive alternates and from lowest (listed first) to highest for deductive alternates.

2.13 Preference.

If applicable to this project, preferences are considered when evaluating bids to determine the ranking of the respective bidders. The award of the contract will be in the amount of the bid exclusive of any preference adjustments.

2.14 Hawaii Product Preference

In accordance with section 103D-1002, HRS, the Hawaii products preference may be applicable to this solicitation.

2.14.1 **If applicable to this project,** a Hawaii Product Schedule will be included in the Form of Bid listing any Hawaii Products offered.

2.14.2 The Hawaii products list is available on the SPO website at http://spo.hawaii.gov /, click on '*Procurement of Goods, Services, and Construction-Chapter 103D, HRS*'; under '*Procurement*' click on *Preferences*', '*Hawaii Products*' and select '*Hawaii Products List*' to view.

2.14.3 Offeror offering a Hawaii Product (HP) shall identify the HP on the solicitation offer page(s). Any person desiring a Hawaii product preference shall have the product(s) certified and qualified if not currently on the Hawaii products list, prior to the deadline for receipt of offer(s) specified in the procurement notice and solicitation. The responsibility for certification and qualification shall rest upon the person requesting the preference.

2.14.4 Persons desiring to qualify their product(s) not currently on the Hawaii product list shall complete form SPO-38, Certification for Hawaii Product Preference and submit to the Procurement Officer, and provide all additional information required by the Procurement Officer. For each product, one form shall be completed and submitted (i.e. 3 products should have 3 separate forms completed). Form SPO-38 is available on the SPO website at http://spo.hawaii.gov/ under the 'Quicklinks' menu; click on 'Forms for Vendors, Contractors, and Service Providers'.

2.14.5 When a solicitation contains both HP and non-HP, then for the purpose of selecting the lowest bid or purchase price only, the price offered for a HP item shall be decreased by subtracting 10% for the class I or 15% for the class II HP items offered, respectively. The lowest total offer, taking the preference into consideration, shall be awarded the contract unless the offer provides for additional award criteria. The contract amount of any contract awarded, however, shall be the amount of the price offered, exclusive of the preferences.

2.14.6 Change in availability of Hawaii product. In the event of any change that materially alters the offeror's ability to supply Hawaii products, the offeror shall immediately notify the Procurement Officer in writing and the parties shall enter into discussions for the purposes of revising the contract or terminating the contract for convenience.

2.15 Recycled Product Preference.

A recycled product preference of at least 5 percent of the price of the item may be available.

If applicable to this project, the "Recycled Product Schedule" will be included in the Form of Bid. All bidders, either proposing or not proposing to use the recycled product preference, shall complete and submit the Recycled Product Schedule. If choosing to use a recycled product, enter the respective costs for the recycled product; otherwise, enter the cost for the non-recycled product. Make sure a cost is entered for each listed product. Each product cost shall be complete, including jobsite delivery and applicable taxes.

2.15.1 For each recycled product the bidder chooses to use, the bidder shall include in its bid package the complete "Certification of Recycled Content Form" (SPO-Form 8) along with all supporting information. If the preference applies, a sample of the certification form will be included in the Form of Bid.

2.15.2 The "Recycled Product Schedule" shows the percent preference used for each listed recycled product.

2.16 Apprenticeship Agreement Preference.

2.16.1 **If applicable to this project,** any bidder seeking the preference must be a party to an apprenticeship agreement registered with the 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.

2.16.1.1 The apprenticeship agreement shall be registered with the DLIR and conform to the requirements of Hawaii Revised Statutes Chapter 372.

2.16.1.2 Subcontractors do not have to be a party to an apprenticeship agreement for the bidder to obtain the preference.

2.16.1.3 The bidder is not required to have apprentices in its employ at the time the bid is submitted to qualify for the preference.

2.16.2 Self Certification.

A bidder seeking the preference must identify each apprenticeable trade the bidder will employ to perform the work by completing the *Certification of Bidder's Participation - Form 1* included in the bid packet. "Apprenticeable trade" shall have the same meaning as "apprenticeable occupation" pursuant to Hawaii Administrative Rules (HAR) §12-30-5.

2.16.3 The *Certification of Bidder's Participation – Form 1*.

2.16.3.1 The *Certification of Bidder's Participation - 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.

2.16.3.2 The authorization shall be signed by an authorized official of the apprenticeship sponsor. The completed *Certification of Bidder's Participation*

\- *Form 1* for each trade must be submitted with the bid. **Since electronic responses are required,** a scanned copy is acceptable to be submitted with the bid, however the signed original must be submitted within five (5) working days of the notification of intent to award. If the signed original is not received within this timeframe, the preference may be denied. Previous certifications shall not apply.

2.16.3.3 When filling out the *Certification of Bidder's Participation - 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 State DLIR website. "Registered apprenticeship program" means a construction trade program approved by and registered with the DLIR pursuant to HAR §12-30-1 and §12-30-4.

2.16.3.4 The Certification of Bidder's Participation - Form 1 and the List of Construction Trades in Registered Apprenticeship Programs is available on the DLIR website at: http://labor.hawaii.gov/wdd/files/2012/12/Form-1-Certification-of-Bidders-Participation.pdf

2.16.4 Upon receiving the Self Certification and Certification of Bidder's Participation - 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.

2.16.5 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 (5) percent for evaluation purposes.

2.16.6 Should the bidder qualify for other preferences (for example, Hawaii Products), all applicable preferences shall be applied to the bid price.

3 SUBMISSION OF BID

3.1 Electronic Procurement. Bids shall be submitted and received electronically through HIePRO by the date and time listed in Section 1.3.1 Solicitation Schedule. The electronically submitted offer shall be considered the original. Any offers received outside of HIePRO, including faxed or e-mailed bids, shall not be accepted, or considered for award.

3.2 Bid Due Date. Any offer received after the due date and time shall be rejected.

3.3 Bid Security. Bids exceeding $25,000 must be accompanied by bid security, signed and furnished in accordance with section 2.3 of these Instructions.

Bids that do not include bid security shall be deemed non-responsive and will not be considered for award.

3.4 Bid Samples. Bid samples or descriptive literature should not be submitted unless expressly requested and, regardless of any attempt by bidder to condition the bid, unsolicited bid samples or descriptive literature which are submitted at the bidder's risk will not be examined or tested, and will not be deemed to vary any of the provisions of the Information for Bid.

4 MODIFICATION AND WITHDRAWAL OF BIDS

4.1 Pre-opening modification or withdrawal of offer. Bids may be modified or withdrawn on HIePRO prior to bid opening pursuant to 3-122-9, HAR.

4.2 Late withdrawal or modification. A late withdrawal or modification will not be accepted unless such withdrawal or modification is made in accordance with section 3-122-31, HAR.

5 RECEIPT AND OPENING OF BIDS

5.1 All bids shall be received and opened at the location and no later than the date and time indicated in the NOTICE TO BIDDERS, as amended by any addenda to this IFB. **Late bids will not be considered.**

6 EVALUATION CRITERIA

6.1 Evaluating Bids.

6.1.1 Chapter 103D, HRS, which provides for preferences, shall apply.

6.1.1.1 The total lump sum bid price is adjusted to reflect the applicable preferences.

6.1.1.2 the total lump sum base bid price and alternates will be adjusted to reflect the applicable preferences.

6.1.2 Evaluating Bids with Alternates:

6.1.2.1 Project control budget is established prior to the submission of bids.

6.1.2.2 If there is more than one alternate for a project, the State will determine the precedence of the alternates for each project prior to the submission of bids.

6.1.2.3 Prior to opening bids, the State will announce the project control budget. All bids will be evaluated on the basis of the same alternate item.

6.1.2.4 After adjusting for applicable preferences, the alternates, in their precedence order, are added to the total lump sum base bid price. This (these) sum(s) is (are) compared to the project control budget, and must be within the project control budget.

6.1.2.5 If adding another alternate would make the aggregate amount exceed the project control budget for all bidders, that alternate will be skipped and the next alternate will be added, provided an award might be made within the project control budget. This procedure will continue, until adding any remaining alternates will result in the aggregate total amount for all the bidders to exceed the project control budget, or until no additional alternates remain.

6.1.3 The project will be evaluated based on the adjusted bid price. The bidder with the lowest aggregate amount, within the project control budget (after application of the various preferences), for the total lump sum base bid plus the alternates in their precedence order, is the “Low Bidder” for that project and is designated for award.

7 AWARD OF CONTRACT

7.1 Award, if made, shall be on a Grand Total Bid basis to the lowest responsive and responsible Bidder whose bid (including any alternates which may be selected) meets the requirements and criteria set forth in the solicitation documents, subject to availability of funds.

7.2 In the event the Grand Total Bid exceeds the project control budget, the HHFDC reserves the right to make an award to the apparent Low Bidder if additional funds are available or by reducing the scope of work through negotiation.

7.3 Additional Requirements for Bids with Alternates.

After determining the designated Low Bidder for the project, an award may be made on the amount of the Low Bidder’s total lump sum base bid alone or on any combination of alternates exclusive of any preferences. The combination of alternates may include substituting any of the alternates that were included in the designated Low Bidder’s aggregate price with an alternate that was not included, provided:

7.3.1 It is in the best interest of the State,
7.3.2 Funds are available at the time of award, and
7.3.3 The combination of the total Grand Total Bid plus alternate(s) does not change the established Low Bidder for the project.

7.4 In evaluating bids, HHFDC shall consider the qualifications of bidders, whether or not the bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested on the offer form(s) or otherwise by the IFB.

7.5 HHFDC may conduct such investigations as HHFDC deems necessary to assist in the evaluation of any bid and to establish the responsibility, qualifications and financial ability of bidders to perform the work in accordance with the Contract to HHFDC’s satisfaction within the prescribed time.

7.6 Other Conditions for Award

7.6.1 HHFDC reserves the right to reject any or all bids, including, without limitation, bids that are non-responsive or that were submitted by non-responsible or unqualified bidders, and waive any defects if the Procurement Officer believes the rejection or waiver is in the best interest of the State.

7.6.2 HHFDC may hold all bids up to 60 calendar days from the date bids were opened. Unless otherwise required by law, bids may not be withdrawn without penalty.

7.6.3 The award of the contract is conditioned upon funds made available for the project (or projects if applicable).

7.6.4 Any agreement or contract is subject to approval by the Department of the Attorney General, and the approval of the Governor, as required by statute, regulation, rule, order, or other directive.

7.7 Refer to the FORM OF CONTRACT for contract and compliance requirements.

8 EXAMINATION OF CONTRACT DOCUMENTS AND SITE

8.1 It is the responsibility of each Bidder before submitting a Bid:

8.1.1 To examine thoroughly the Contract Documents and other related data identified in the solicitation documents.

8.1.2 To attend any scheduled pre-bid meeting and visit the site to become familiar with and satisfy Bidder as to the work requirements and general, local and site conditions that may affect cost, progress, performance or furnishing of the Work.

8.1.3 To consider federal, state and local laws, and regulations that may affect cost, progress, performance or furnishing of the Work.

8.1.4 To study and carefully correlate Bidder's knowledge and observations with the Contract Documents and such other related data.

8.1.5 To promptly notify HHFDC of all conflicts, errors, ambiguities or discrepancies which Bidder has discovered in or between the Contract Documents and other such related documents.

9 SUBSTITUTE MATERIALS

9.1 Within 15 days after the date of intent to award, if material and color samples are required, the contractor shall notify HHFDC of any potential change in material and color samples used for the job. Delays resulting from failure to notify HHFDC of intended changes to material and color samples in a timely manner, as required, will not be considered justifiable reasons for extension of contract time.

10 CONFIDENTIAL INFORMATION

10.1 If a person believes that any portion of a bid, proposal, offer, specification, protest, or correspondence contains information that should be withheld as confidential, then the Procurement Officer named on the cover of this IFB should be so advised in writing and provided with justification to support the confidentiality claim. Price is not considered confidential and will not be withheld.

10.2 An Offeror shall request in writing nondisclosure of designated trade secrets or other proprietary data considered confidential. Such data shall accompany the proposal, be clearly marked, and shall be readily separable from the proposal in order to facilitate eventual public inspection of the non-confidential portion of the proposal.

10.3 Pursuant to HAR Section 3-122-58, the head of the purchasing agency or designee shall consult with the Attorney General and make a written determination in accordance with HRS Chapter 92F. If the request for confidentiality is denied, such information shall be disclosed as public information, unless the person appeals the denial to the Office of Information Practices in accordance with HRS Section 92F-42(12).

11 CANCELLATION OF BID PROCESS

The solicitation may be cancelled or the bids may be rejected, in whole or in part, at HHFDC’s sole discretion when in the best interest of HHFDC, as provided in §3-122-95 through §3-122-97, HAR.

12 CONTRACT TERM

Refer to the Form of Bid for information about the contract term and any extensions.

13 CONTRACT SECURITY (PERFORMANCE AND PAYMENT BONDS)

13.1 Performance and payment bonds are required for contracts that equal or exceed $50,000. Bonds shall be furnished on forms provided by HHFDC.

13.2 Refer to the HHFDC General Conditions, 3.7, for specific bond requirements.

14 GUARANTY OF WORK

Bidder agrees to guaranty all work under the Contract for the period(s) stipulated in the Contract Documents from the project acceptance date.

If any unsatisfactory condition or damage develops within the time of this guaranty due to materials or workmanship that are deficient, inferior, or not in accordance with the contract, the Contractor shall, when notified by the State, immediately place such guaranteed work in a condition satisfactory to the State and make repairs of all damage to the buildings, equipment and grounds made necessary in fulfillment of the guaranty. Everything necessary for the fulfillment of any guaranty shall be done without any expense to the State. It is understood that the performance and payment bond furnished by the Contractor under the Contract may be used to secure performance of Contractor’s guaranty.

15 CONTRACT DOCUMENTS

It is understood and agreed that the following documents, and any amendments or addenda thereto, comprise the Contract and are fully a part of the Contract as though attached hereto or set forth at length herein: (1) Contractor’s accepted bid; (2) HHFDC General Conditions; (3) Drawings; (4) Specifications, including the Notice to Bidders, Instructions to Bidders, and Special Conditions, Addenda, Bid Clarifications, if any; (5) Combination Performance and Labor and Material Payment Bond; and (6) the Contract for Goods and Services Based on Competitive Sealed Bids.

16 ENTIRE AGREEMENT

The Contract is the entire agreement between parties, and no alterations, changes, or additions thereto shall be made, except in writing approved by the parties.

17 SPECIAL LEGAL REQUIREMENTS

Nondiscrimination - No person performing work under this Contract, including any subcontractor, employee, or agent of the Contractor, shall engage in any discrimination that is prohibited by any applicable federal, state, or county law.

18 OTHER CONDITIONS

By submitting a bid, Bidder acknowledges and agrees to comply with all requirements, terms, conditions, provisions, and certifications specified in the solicitation and Contract Documents.

END OF INSTRUCTIONS

MANDATORY SUBMITTALS

Submitted as Part of Bid

- ☐ Form of Bid
- ☐ Statement of Bidder's Experience
- ☐ Surety Bid Bond Form (Bid Security)
- ☐ Form of Non-Default Affidavit
- ☐ Form of Non-Collusive Affidavit
- ☐ Form of Non-Gratuity Affidavit
- ☐ HCE Certificate of Vendor Compliance* (or equivalent documentation)
- ☐ Certification of Compliance for Employment of State Residents
- ☐ Certification of Compliance with HRS 396-18, Safety and Health Program
- ☐ Proof of C-37 license from the State of Hawaii, Department of Commerce and Consumer Affairs (DCCA).

* Compliance documents must be current (i.e., dated within three (3) months of the contract award date). It is strongly encouraged, but not required, to include compliance documents with the bid. If HHFDC cannot verify compliance prior to award, then bidder will not be awarded the contract.

Submitted Prior to Award of Contract

- ☐ HCE Certificate of Vendor Compliance or equivalent documentation**

**Equivalent documentation includes a valid tax clearance certificate, Certificate of Good Standing, and Certificate of Compliance (LIR#27).

Submitted with Contract

- ☐ Form of Contract
- ☐ Contractor's Corporate Resolution (or equivalent document verifying signer's authority)
- ☐ Certificate of Insurance (with HHFDC and State of Hawaii named as Additionally Insureds)
- ☐ HCE Certificate of Vendor Compliance or equivalent documentation
- ☐ Performance and Payment Bonds
- ☐ IRS Form W-9 (If contractor is not a C or S corporation)

Submitted Within 10 Days After Contract Execution

- ☐ Schedule of Submittals
- ☐ Schedule of Values (Payment Progress Schedule Breakdown)
- ☐ List of Supervisory Personnel and Emergency Contact List
- ☐ Labor Standards Exhibits

Submitted During Contract Period

☐ Certified Payrolls & Exhibits (All Contractors/Subcontractors)
☐ Work Schedule / Construction Progress Schedule
☐ Notice for Final Inspection
☐ Overtime/Holiday/Weekend Notification
☐ Inspection Reports
☐ Payment Requests

NOTE: Notice for Final Inspection must be turned in sixteen (16) days prior to Final Inspection

Submitted at Closing

☐ Substantial Completion Notification
☐ Final Pay Request
☐ Final Certified Payroll Records & Exhibits
☐ Certificate of Compliance for Final Payment
☐ Form of Non-Gratuity Affidavit
☐ HCE Certificate of Vendor Compliance or equivalent documentation
☐ Certificate of Compliance for Employment of State Residents
☐ Certificate of Release from each subcontractor.
☐ Evidence that the Contractor paid or secured claims for persons, firms or corporations who have done work or supplied materials, tolls, equipment, machinery or other services.

NOTE: Submit the above, only if it applies to this contract.

The sum necessary to meet the claims of the State may be retained from the sums due the Contractor, until said claims have been fully and completely discharged or satisfied.

The filing of false affidavits will disqualify the Contractor from bidding on future work of the HHFDC.

Notice for Subcontractors:

☐ Certified Payrolls – All Subcontractors & Lower Subcontractor

END OF SECTION

FORM OF BID

FOR
FURNISHING LABOR AND MATERIALS
REQUIRED FOR

WAIAHOLE VALLEY WATER SYSTEM OPERATIONS AND MAINTENANCE

IFB NO. 27-001-DEV

To: Executive Director
Hawaii Housing Finance and Development Corporation (HHFDC)
677 Queen Street, Suite 300
Honolulu, Hawaii 96813

1. The undersigned Bidder hereby acknowledges visiting or otherwise familiarizing itself with the site of work, being familiar with the conditions under which the work is to be performed and reading the specifications and other solicitation and contract documents relating to the above-referenced project. The undersigned Bidder hereby proposes to furnish all labor, materials, equipment, tools, transportation, permits, incidentals and supplies required to complete the project in full accordance with the contract documents for the following price(s), in the form of a grand total lump sum amount noted below (which includes the Hawaii General Excise Tax of four and seven twelve percent (4.712%)).

   GRAND TOTAL BASE BID (Sum of Base Bid + Extension-Term Bid):

   ____
   ______________________________DOLLARS ($_______________)

2. The Bidder shall complete this Form of Bid ("Bid" or "Bid Form") for all the itemized line items in the Base Bid Schedule and Extension-Term Bid Schedule, if applicable. If any or all itemized line items are removed from the executed contract, the contract time and the contract cost will be adjusted accordingly.

3. In submitting this Bid, it is understood that the award of contract will be made to the lowest responsive and responsible bidder for the GRAND TOTAL BASE BID amount, subject to the availability of funds.

4. Failure to complete this Bid in its entirety may cause the Bid to be considered non-responsive and may result in rejection of this Bid.

5. **Contract Term.** The time of completion for this project shall be approximately two years from the date of commencement indicated in the Notice to Proceed. HHFDC may extend the contract term by no more than one (1) two-year extension term at the given unit prices stated in the Extension-Term Bid Schedule submitted with this

Bid. Any extension of the Contract time shall be mutually agreed upon in writing in the form of a supplemental agreement executed prior to contract expiration.

6. By submitting this bid, the undersigned also agrees and/or attests to the following:

   (a) Bidder is registered and/or licensed to do business in the State of Hawaii and will pay such taxes on all sales made to the State of Hawaii.

   (b) The information provided is accurate to the best of bidder's knowledge and the contracting officer is authorized to contract on behalf of the firm and confirm the stated information.

   (c) If awarded a contract for this Bid, Bidder shall comply with section 103B-3(a), HRS and ensure that Hawaii residents compose not less than eighty per cent of the workforce employed to perform the contract on a particular construction project, as determined under subsection (b). Prior to an award of a contract, the contractor may withdraw a bid without penalty if the contractor finds that it is unable to comply with this subsection.

   (d) That the estimated quantities in this Bid are approximate only and are subject to increase or decrease.

   (e) To complete the work whether the estimated quantities are increased or decreased at the unit prices stated in this Bid.

   (f) That the estimated quantities in this Bid are only for the purpose of comparing bids offered for the work on a uniform basis, and that the undersigned is satisfied with and will at no time dispute the estimated quantities as a means of comparing the bids.

   (g) To make no claim for anticipated profit or loss of profit because of a difference between the quantities of the various classes of work done or the material and equipment actually installed and the estimated quantities.

   (h) That if the UNIT PRICE multiplied by the estimated quantity does not equal the total price of any item in this Bid, the correct total price of the item shall be the amount arrived at by multiplying the UNIT PRICE by the estimated quantity.

   (i) That for UNIT PRICE items, payment will be made only for the actual number of units completed at the UNIT PRICE.

   (j) That the UNIT PRICE for each item in this Bid includes the cost of all materials, equipment, labor and all other incidental work required for the completion of the work.

(k) That the basis of comparison will be the Grand Total Base Bid.

(l) That all bids submitted include the State of Hawaii general excise tax of **4.712%.**

(m) That allowance work will be paid for on a cost-plus fifteen percent (15%) for overhead and profit, for work done by the Contractor's own forces, and cost-plus seven percent (7%) for overhead and profit, for work done by the Contractor's subcontractor. Furthermore, the HHFDC may require the Contractor to submit invoices, receipts and/or other information as needed.

(n) Bidder agrees to pay liquidated damages and has completed, signed and submitted with this Bid the Acknowledgment of Liquidated Damages Form.

(o) Bidder declares that its firm was not assisted or represented by an individual who has, in a State capacity, been involved in this project or this proposed contract in the past two consecutive years.

(p) That HHFDC reserves the right, in its sole discretion, to reject any or all bids.

(q) That this Bid may not be withdrawn within 60 calendar days subsequent to the opening of bids or any extension of time as may be requested by the Director.

(r) That upon acceptance of this Bid, the undersigned will enter into, execute and deliver a contract in the prescribed form by HHFDC, and current state and federal tax clearances within ten (10) days after the Contract is presented to the undersigned for signature or within such further time as the Director may allow.

(s) That by submitting this proposal, the undersigned is declaring that if awarded a contract, the undersigned will comply with Section 11-355, HRS, which prohibits campaign contributions from State and County government contractors during the term of their contract, where the contractor is paid with funds appropriated by a legislative body.

7. The following documents shall be submitted with this Bid Form:

(a) **Form of Non-Default Affidavit**, attesting that the undersigned is not in default of any contract with the State of Hawaii.

(b) **Form of Non-Collusive Affidavit**, attesting that the undersigned has not entered into any collusion with any other person with respect to the submission of this Bid or any other bid for the work.

(c) **Form of Non-Gratuity Affidavit**, attesting that the undersigned has not given or made any agreement to give any gift or gratuity in any form whatsoever to any employee of HHFDC, the employee's relatives or agents.

(d) **Certification for Safety and Health Programs for Offers in excess of $100,000**, certifying that the undersigned will have a written safety and health plan for this project.

(e) **Statement of Bidder's Contractor Experience.**

(f) A valid and current **Hawaii Compliance Express (HCE) Certificate** of Vendor Compliance or ALL of the following items below:

- Current tax clearances from the Director of the Department of Taxation and the Internal Revenue Services.
- Certificate of Good Standing from the Department of Commerce and Consumer Affairs.
- Certificate of Compliance from the Department of Labor and Industrial Relations.

(g) A copy of **Bidder's General or Specialty Contractor License(s)**.

8. By submission of this Bid, the Bidder certifies that it has indicated all apprenticeable trades it will employ for this project (excluding subcontractors) by listing all the applicable trades below:

____

____

____

____

____

Bidder **must** submit a complete, valid Form1 for each apprenticeable trade indicated above to qualify for the preference.

9. If this solicitation is being conducted on HIePRO, bidder agrees that awards made for this solicitation, if any, shall be done through the HIePRO system and shall therefore be subject to a mandatory .75% (.0075) transaction fee, not to exceed $5,000 for the total contract term. This transaction fee shall be based on the total sales made against this contract, payable to Hawaii Information Consortium, LLC (HIC), the vendor administering HIePRO. As such, while award of the Bid will be made to the lowest responsive, responsible bidder based on the Grand Total Bid amount, the initial award amount posted in HIePRO will be for the initial term of the contract only and may therefore be less than the Grand Total Bid.

   HIC shall invoice the vendor directly for payment of transaction fees. Payment must be made to HIC within thirty (30) days from receipt of invoice. HIC is an intended third-party beneficiary of transaction fees, which are used to fund the operation, maintenance and future enhancements of the HIePRO system.

10. Receipt of the following addenda (if any) issued by the HHFDC is acknowledged by the date(s) of receipt indicated below:

Addendum No. 1 ___________ Addendum No. 5___________

Addendum No. 2 ___________ Addendum No. 6___________

Addendum No. 3 ___________ Addendum No. 7___________

Addendum No. 4 ___________ Addendum No. 8___________

It is understood that failure to receive any such Addendum shall not relieve the Bidder from any obligation of this Bid.

OFFICIAL ADDRESS

____

____

____

____

BIDDER:

____
Company

____
Authorized signature

Name: ______________________

Title: ______________________

Date: ______________________

Failure to submit this form with the bid may be cause for rejection of the bid.

BASE BID SCHEDULE

Item No.	Estimated Quantities	Description	Unit Price	Total
1.	**24**	**Months.** Operations and Maintenance, including but not limited to all duties listed in the General Requirements within the Invitation For Bids.		
		Each Month	$ ________	$ ____________
2.	**12**	**Each. Water Meter** – Install or remove, in-place complete		
		Each	$ ________	$ ____________
3.	**1**	**Allowance**. Allowance for emergency callouts, pipes, reservoir, pumps, and equipment repairs.		
		Allowance		$ 150,000.00
		Hourly Rate for Repairs and Allowance	$ ________	
		Total Sum, Items 1 through 3 Inclusive for **BASE BID**		**$____________**

BASE BID (Item No. 1 through Item 3 of the Base Bid) (which includes the State of Hawaii General Excise Tax of four and seven twelve percent (4.712%)):

____

_________________________________DOLLARS ($__________________).

The initial contract term shall be for **two years** from the date indicated in the Notice to Proceed.

EXTENSION-TERM BID SCHEDULE

The prices listed in this Extension-Term Bid Schedule shall apply to the one (1) additional 2-year extension term available, pursuant to the Contract Term provisions set forth in this IFB and the Contract.

Item No.	Estimated Quantities	Description	Unit Price	Total
1.	**24**	**Months.** Operations and Maintenance, including but not limited to all duties listed in the General Requirements within the Invitation For Bids.		
		Each Month	$ ________	$ ____________
2.	**12**	**Each. Water Meter –** Install or remove, in-place complete		
		Each	$ ________	$ ____________
3.	**1**	**Allowance**. Allowance for emergency callouts, pipes, reservoir, pumps, and equipment repairs.		
		Allowance		$ 150,000.00
		Hourly Rate for Repairs and Allowance	$ ________	

Total Sum, Items 1 through 3
Inclusive for **EXTENSION-TERM BID** **$____________**

EXTENSION-TERM BID (Item No. 1 through Item 3 of the Extension-Term Bid) (which includes the State of Hawaii General Excise Tax of four and seven twelve percent (4.712%)):

____

________________________________DOLLARS ($__________________).
The extended contract term shall be for an additional **two (2) years**.

ACKNOWLEDGEMENT OF LIQUIDATED DAMAGES

Project: Waiahole Valley Water System Operations and Maintenance
Waiahole, Kaneohe, Oahu, Hawaii
IFB No. 27-001-DEV

This is to certify that the undersigned understands and agrees to the provisions for liquidated damages contained in the bid to which this acknowledgement is attached, and that submittal of a bid constitutes acceptance of the provision and amount of liquidated damages for delay that shall assessed at $150.00 per calendar day.

By: ____________________________

Firm:___________________________

Date:___________________________

Failure to submit this form with the bid may be cause for rejection of the bid.

WAGE CERTIFICATE

Project: Waiahole Valley Water System Operations and Maintenance
Waiahole, Kaneohe, Oahu, Hawaii
IFB No. 27-001-DEV

This Project will result in a construction contract in excess of $2,000 and is therefore subject to Chapter 104, Hawaiʻi Revised Statutes (HRS). In accordance with HRS 103-55.5, by signing below, the undersigned affirms that the Offeror intends to comply with the requirements of Chapter 104, HRS and certifies that:

(1) Individuals engaged in the performance of the contract on the job site shall be paid:

  (A) Not less than the wages that the director of labor and industrial relations shall have determined to be prevailing for corresponding classes of laborers and mechanics employed on public works projects; and

  (B) Overtime compensation at one and one-half times the basic hourly rate plus fringe benefits for hours worked on Saturday, Sunday, or a legal holiday of the State or in excess of eight hours on any other day; and

(2) All applicable laws of the federal and state governments relating to workers' compensation, unemployment compensation, payment of wages, and safety shall be fully complied with.

The published Hourly Wage Rate Schedule may be obtained from the Department of Labor and Industrial Relations web site:

https://labor.hawaii.gov/wsd/prevailing-wages-wage-rate-schedule/

Weekly certified payroll and labor standards documents shall be submitted to HHFDC.

By: ______________________________________
Signature

Name: ______________________________________

Offeror: ______________________________________

Date: ______________________________________

Failure to submit this form with the Bid may be cause for rejection of the Bid.

LISTING OF JOINT CONTRACTORS AND SUBCONTRACTORS

The following shall be attached to and be considered a part of the bid:

The bidder certifies that the following is a complete listing of all joint contractors or subcontractors covered under Hawaii Revised Statutes, Chapter 444, who will be engaged by the bidder on this Project to perform the nature and scope of work indicated pursuant to Hawaii Revised Statutes, section 103-29 and understands that failure to comply with this requirement shall be just cause for rejection of the bid.

The bidder further understands that only those joint contractors or subcontractors listed shall be allowed to perform work on this Project and that all other work necessary shall be performed by the bidder with his own employees. If no joint contractor or subcontractor is listed, it shall be construed that all the work shall be performed by the bidder with his own employees.

All bidders must be sure that they possess and that the subcontractors listed in the proposal possess all the necessary specialty licenses needed to perform the work for this project. The bidder shall be solely responsible for assuring that all specialty licenses required to perform the work are set forth in his bid.

The following is a list of the contractor licenses that HHFDC anticipates is required to completed this Project. PLEASE NOTE that this list is not exclusive and additional licenses may be required. It is the sole responsibility of the contractor to review requirements of the job to determine the appropriate licenses that are required to complete the job.

A	General Engineering Contractor	C-37	Plumbing
C-37d	Water Chlorination and Sanitation	C-37e	Treatment and Pumping Facilities
C-13	Electrical		
Class 1 WTPO/DSO License		Cross-Connection Control Specialist	

(Complete Firm Name and Contractor's License No. and indicate whether Joint Contractor or Subcontractor)

Name of Joint Contractor or Subcontractor	**Nature and Scope of Work**	License Number and Specialty Classification Number

Failure to submit this form with the bid may be cause for rejection of the bid.

BIDDER INFORMATION

Bidder must provide the following information:

1. Name of Bidder ____
(company)

   Office Address ____

   Contact Person ____

2. Bidder acknowledges that it is a (check one):

   ☐ Hawaii Business

   ☐ Compliant Non-Hawaii Business

3. Liability coverage is carried by:

   Commercial General Liability: ___________________________________

   ____

4. General/Specialty Contractor License: ___________________________

5. Listed below are the names and addresses of three references for whom the bidder has provided or is currently providing maintenance services similar to the services to be provided herein:

   Agency or Firm   Address   Contact Person

   (1) ____

   (2) ____

   (3) ____

Failure to submit this form with the bid may be cause for rejection of the bid.

SURETY BID BOND

(11/17/98)

Bond No. _________

KNOW TO ALL BY THESE PRESENTS:

That we, ____,
(Full Name or Legal Title of Offeror)

as Offeror, hereinafter called Principal, and ____,
(Name of Bonding Company)

as Surety, hereinafter called Surety, a corporation authorized to transact business as a Surety

in the State of Hawaii, are held and firmly bound unto ________________________________,
(State/County Entity)
as Owner, hereinafter called Owner, in the penal sum of ________________________________

____
(Required Amount of Bid Security)

Dollars ($_____________), lawful money of the United States of America, for the payment of which sum well and truly to be made, the said Principal and the said Surety bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS:

The Principal has submitted an offer for HHFDC Job No. 27-001-DEV. Waiahole Valley Water System Operations and Maintenance.

NOW, THEREFORE:

The condition of this obligation is such that if the Owner shall reject said offer, or in the alternate, accept the offer of the Principal and the Principal shall enter into a Contract with the Owner in accordance with the terms of such offer, and give such bond or bonds as may be specified in the solicitation or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof as specified in the solicitation then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed this _______ day of _______________, ______.

(Seal) ____________________________________
Name of Principal (Offeror)

____
Signature

____
Title

(Seal) ____________________________________
Name of Surety

____
Signature

____
Title

Statement of Bidder's Contractor Experience

(Prime Bidder)

All questions 1 through 15 must be answered and the data given must be clear and comprehensive. This statement must be notarized. If necessary, add separate sheets for questions marked by an asterisk (*).

1. Name of bidder.

2. License number(s).

3. Permanent main office address.

4. When organized.

5. Where incorporated.

6. How many years have you been engaged in the contracting business under your present firm name?

7. *Contracts on hand: (Schedule these, showing gross amount of each contract and the approximate anticipated dates of completion.)

8. *General character of work performed by your company.

9. *Have you ever failed to complete any work awarded to you? If so, where and why?

10. *Have you ever defaulted on a contract?

11. *List the more important projects recently completed by your company, stating approximate cost for each, and the month and year completed.

12. *List your major equipment available for this project.

13. *Experience in work similar in importance to this project. List References and phone numbers.

14. Will you, upon request fill out a detailed qualification statement and furnish any other information that may be required by the Hawaii Housing Finance and Development Corporation?

15. The undersigned hereby authorizes and requests any person, firm, or corporation to furnish information requested by the Hawaii Housing Finance and Development Corporation in verification of the recitals comprising this Statement of Bidder's Maintenance Experience.

Dated this ______ day of _________________, 20_____.

(Name of Bidder)

By__________________________________

Title_________________________________

State of ____________________________)
) SS.
___________County of ________________)

_________________________, being duly sworn deposes and says that he/she is ______________________ of ____ and that the answers to the foregoing questions and all statements therein contained are true and correct.

Subscribed and sworn to before me this _____ day of ______________, 20___.

Notary Public, ____________________
Judicial Court
State of Hawaii

My commission expires _____________

(Bidder may submit additional information if desired.)

FORM OF NON-DEFAULT AFFIDAVIT

STATE OF HAWAII)
) SS.
COUNTY OF)

______________________, being first

duly sworn deposes and says:

That he is ____
(a bidder, partner or officer)
of the firm of ____,
the party making the bid; that (1) the person, firm, or corporation, or (2) a corporation owned substantially by the person, firm, or corporation, or (3) a substantial stockholder or an officer of the corporation, or (4) a partner or substantial investor in the firm is not in arrears in any payment owed to the State of Hawaii or any of its political subdivisions or is not in default of any obligations to the State of Hawaii or to any of its political subdivisions, including default as a surety or failure to perform faithfully and diligently any previous contract with the State.

____
(Name of bidder if the bidder is an Individual)
(Name of partner if the bidder is a partnership)
(Name of officer if the bidder is a corporation)

Subscribed and sworn to before me

this ______ day of ________________________, 20___.

Notary Public, __________ Judicial Circuit, State of Hawaii

My commission expires ____________________, 20____

FORM OF NON-COLLUSIVE AFFIDAVIT

STATE OF HAWAII)
) SS.
COUNTY OF)

________________________, being first

duly sworn deposes and says:

That he is ____
(a bidder, partner or officer)
of the firm of ____,
the party making the foregoing proposal or bid; that such bid is genuine and not collusive or a sham; that said Bidder has not colluded, conspired, connived, or agreed, directly or indirectly, with any bidder or person, to put in a sham bid or to refrain from bidding, and has not in any manner, directly or indirectly, sought by agreement or collusion, or communication or conference, with any person, to fix the bid price of affiant or any other bidder, or to fix any overhead, profit, or cost element of said bid price, or of that of any other bidder, or to secure any advantage against the State of Hawaii or any person interested in the proposed contract; and that all statements contained in said proposal or bid are true.

(Name of bidder if the bidder is an Individual)
(Name of partner if the bidder is a partnership)
(Name of officer if the bidder is a corporation)

Subscribed and sworn to before me

this ______ day of _________________________, 20____.

Notary Public, __________ Judicial Circuit, State of Hawaii

My commission expires _____________________, 20____

FORM OF NON-GRATUITY AFFIDAVIT

Name of Project: ____

HHFDC Job No: ____

Contract No. ____

County of ____

Island of ____

The undersigned hereby certifies that he is the ______________________ of
(Title)
______________________________________: that in connection with the
(Name of Individual, Partnership, or Corporation)

aforesaid project, he or its officers, representatives, agents, subcontractors or employees has (have) not given or made any Agreement to give to any Hawaii Housing Finance and Development Corporation (HHFDC) employees, the employees' relatives or agents, any gift or money or any other gift; or gratuity in any form whatsoever; has (have) not loaned any money or anything of value to any HHFDC, the employees' relatives or agents; has (have) not rented or purchased any equipment, or any form thereof, or supplies of any nature whatsoever from any Hawaii Housing Finance and Development Corporation employees, the employees' relatives or agents.

____
Signature and typed name of:
Bidder, if the bidder is an individual;
Partner, if the bidder is a partnership;
Officer, if the bidder is a corporation.

==

STATE OF HAWAII)
) SS.
COUNTY OF)

Subscribed and sworn to before me
this _______ day of ____________________, 20______.

____

Notary Public, _____ Judicial
Circuit, State of Hawaii
My Commission Expires: _________________

CERTIFICATION OF COMPLIANCE
WITH HRS 103B, EMPLOYMENT OF STATE RESIDENTS ON CONSTRUCTION PROCUREMENT CONTRACTS

SUBJECT: Waiahole Valley Water System Operations and Maintenance
Waiahole, Kaneohe, Oahu, Hawaii

IFB NO. 27-001-DEV

This is to certify that the undersigned will comply with the requirements of HRS Chapter 103B, as follows:

(A) Pursuant to HRS § 103B-2, Chapter 103B shall apply to all construction procurements under HRS Chapter 103D and any subcontract of $50,000 or more in connection with any general contract otherwise covered by Chapter 103B.

(B) Pursuant to HRS § 103B-2, a contractor awarded a construction procurement contract under HRS Chapter 103D, and any of its subcontractors awarded $50,000 or more in connection with the general contract, shall ensure that Hawaiʻi residents compose not less than eighty per cent of the workforce employed to perform the contract on a particular construction project, as follows:

(1) The eighty per cent requirement shall be determined by dividing the total number of hours worked on a contract by residents, by the total number of hours worked by all employees of the contractor in the performance of the contract.

(2) Hours worked for any subcontractor of the contractor shall count towards the calculations to meet the requirement.

(3) The hours worked by employees within shortage trades, as determined by the department of labor and industrial relations, shall not be included in the calculations to meet the requirement.

(C) Certification of compliance with this chapter shall be made under oath by an officer of the general contractor and applicable subcontractor to the procurement officer with the notice of completion of the contract.

(D) Failure to comply with HRS Chapter 103B shall result in sanctions against the contractor and subcontractor(s), as follows:

(1) With respect to the general contractor, withholding of final payment on the contract until the contractor complies; or

(2) With respect to the general contractor and subcontractor, proceedings for debarment or suspension of the contractor or subcontractor under HRS § 103D-702.

BIDDER: ________________________

BY: ____________________________
Signature of Person Authorized to Sign This Bid

Please Print

NAME: __________________________

TITLE: __________________________

DATE: __________________________

Failure to submit this form with the bid may be cause for the rejection of the bid.

CERTIFICATION OF COMPLIANCE WITH HRS 396-18, SAFETY AND HEALTH PROGRAMS

SUBJECT: Waiahole Valley Potable Water System Operations and Maintenance
Waiahole Valley, Kaneohe, Oahu, Hawaii

IFB NO. 27-001-DEV

This is to certify that the undersigned will comply with the requirements of HRS § 396-18, as follows:

(A) Pursuant to HRS § 396-18, all bids and proposals in excess of $100,000 shall include a signed certification from the bidder that a written safety and health plan for the job will be available and implemented by the notice to proceed dates of the project. The written safety and health plan shall include:

1) A safety and health policy statement reflecting management commitment;
2) A description of the safety and health responsibilities of all levels of management and supervisors on the job, and a statement of accountability appropriate to each;
3) The details of:
    a. The mechanism for employee involvement in job hazard analysis;
    b. Hazard identification, including periodic inspections and hazard correction and control;
    c. Accident and "near-miss" investigations; and
    d. Evaluations of employee training programs.
4) A plan to encourage employees to report hazards to management as soon as possible and to require management to address these hazards promptly; and
5) A certification by a senior corporate or company manager that the plan is true and correct.

(B) Failure to submit the required certification may be grounds for disqualification of the bid.

(C) Failure to have available on site or failure to implement the written safety and health plan by the project's Notice to Proceed Dates shall be considered willful noncompliance and be sufficient grounds to disqualify the award and terminate the contract.

BIDDER: ____________________

BY: ____________________
Signature of Person Authorized to Sign This Bid

Please Print

NAME: ____________________

TITLE: ____________________

DATE: ____________________

Failure to submit this form with the bid may be cause for the rejection of the bid.

STATE OF HAWAII

CONTRACT FOR GOODS OR SERVICES
BASED UPON
COMPETITIVE SEALED BIDS

This Contract, executed on the respective dates indicated below, is effective as of ________________, ______, between ____,
(Insert name of state department, agency, board or commission)
State of Hawaii ("STATE"), by its ____,
(Insert title of person signing for State)
(hereafter also referred to as the HEAD OF THE PURCHASING AGENCY or designee ("HOPA")), whose address is ____
________________________________ and ____
("CONTRACTOR"), a ____
(Insert corporation, partnership, joint venture, sole proprietorship. or other legal form of the Contractor)
under the laws of the State of ____________________________, whose business address and federal and state taxpayer identification numbers are as follows: ____
____

RECITALS

A. The STATE desires to retain and engage the CONTRACTOR to provide the goods or services, or both, described in this Contract and its attachments, and the CONTRACTOR is agreeable to providing said goods or services, or both.

B. The STATE has issued an invitation for competitive sealed bids, and has received and reviewed bids submitted in response to the invitation.

C. The solicitation for bids and the selection of the CONTRACTOR were made in accordance with section 103D-302, Hawaii Revised Statutes ("HRS"), Hawaii Administrative Rules, Title 3, Department of Accounting and General Services, Subtitle 11 ("HAR"), Chapter 122, Subchapter 5, and applicable procedures established by the appropriate Chief Procurement Officer ("CPO").

D. The CONTRACTOR has been identified as the lowest responsible and responsive bidder whose bid meets the requirements and criteria set forth in the invitation.

E. Pursuant to ____, the STATE
(Legal authority to enter into this Contract)
is authorized to enter into this Contract.

F. Money is available to fund this Contract pursuant to:

(1) ____
(Identify state sources)
or (2) ____
(Identify federal sources)
or both, in the following amounts: State $ ____
Federal $ ____

NOW, THEREFORE, in consideration of the promises contained in this Contract, the STATE and the CONTRACTOR agree as follows:

1. Scope of Services. The CONTRACTOR shall, in a proper and satisfactory manner as determined by the STATE, provide all the goods or services, or both, set forth in the Invitation for Bids number ______________ ("IFB") and the CONTRACTOR'S accepted bid ("Bid"), both of which, even if not physically attached to this Contract, are made a part of this Contract.

2. Compensation. The CONTRACTOR shall be compensated for goods supplied or services performed, or both, under this Contract in a total amount not to exceed

____ DOLLARS ($ ______________), including approved costs incurred and taxes, at the time and in the manner set forth in the IFB and CONTRACTOR'S Bid.

3. Time of Performance. The services or goods required of the CONTRACTOR under this Contract shall be performed and completed in accordance with the Time of Performance set forth in Attachment-S3, which is made a part of this Contract.

4. Bonds. The CONTRACTOR ☐ is required to provide or ☐ is not required to provide: ☐ a performance bond, ☐ a payment bond, ☐ a performance and payment bond in the amount of ____ DOLLARS ($ ______________).

5. Standards of Conduct Declaration. The Standards of Conduct Declaration of the CONTRACTOR is attached to and made a part of this Contract.

6. Other Terms and Conditions. The General Conditions and any Special Conditions are attached to and made a part of this Contract. In the event of a conflict between the General Conditions and the Special Conditions, the Special Conditions shall control. In the event of a conflict among the documents, the order of precedence shall be as follows: (1) this Contract, including all attachments and addenda; (2) the IFB, including all attachments and addenda; and (3) the CONTRACTOR'S Bid.

7. Liquidated Damages. Liquidated damages shall be assessed in the amount of ____ DOLLARS ($ ______________) per day, in accordance with the terms of paragraph 9 of the General Conditions.

8. Notices. Any written notice required to be given by a party to this Contract shall be (a) delivered personally, or (b) sent by United States first class mail, postage prepaid. Notice to the STATE shall be sent to the HOPA'S address indicated in the Contract. Notice to the CONTRACTOR shall be sent to the CONTRACTOR’S address indicated in the Contract. A notice shall be deemed to have been received three (3) days after mailing or at the time of actual receipt, whichever is earlier. The CONTRACTOR is responsible for notifying the STATE in writing of any change of address.

IN VIEW OF THE ABOVE, the parties execute this Contract by their signatures, on the dates below, to be effective as of the date first above written.

STATE

____
(Signature)

____
(Print Name)

____
(Print Title)

____
(Date)

CONTRACTOR

CORPORATE SEAL
(If available)

____
(Name of Contractor)

____
(Signature)

____
(Print Name)

______________________________ *
(Print Title)

____
(Date)

APPROVED AS TO FORM:

____
Deputy Attorney General

*Evidence of authority of the CONTRACTOR'S representative to sign this Contract for the CONTRACTOR must be attached.

STATE OF HAWAII

CONTRACTOR'S STANDARDS OF CONDUCT DECLARATION

For the purposes of this declaration:

"Agency" means and includes the State, the legislature and its committees, all executive departments, boards, commissions, committees, bureaus, offices; and all independent commissions and other establishments of the state government but excluding the courts.

"Controlling interest" means an interest in a business or other undertaking which is sufficient in fact to control, whether the interest is greater or less than fifty per cent (50%).

"Employee" means any nominated, appointed, or elected officer or employee of the State, including members of boards, commissions, and committees, and employees under contract to the State or of the constitutional convention, but excluding legislators, delegates to the constitutional convention, justices, and judges. (Section 84-3, HRS).

On behalf of ______________________________, CONTRACTOR, the undersigned does declare as follows:

1. CONTRACTOR ☐ is* ☐ is not a legislator or an employee or a business in which a legislator or an employee has a controlling interest. (Section 84-15(a), HRS).
2. CONTRACTOR has not been represented or assisted personally in the matter by an individual who has been an employee of the agency awarding this Contract within the preceding two years and who participated while so employed in the matter with which the Contract is directly concerned. (Section 84-15(b), HRS).
3. CONTRACTOR has not been assisted or represented by a legislator or employee for a fee or other compensation to obtain this Contract and will not be assisted or represented by a legislator or employee for a fee or other compensation in the performance of this Contract, if the legislator or employee had been involved in the development or award of the Contract. (Section 84-14 (d), HRS).
4. CONTRACTOR has not been represented on matters related to this Contract, for a fee or other consideration by an individual who, within the past twelve (12) months, has been an agency employee, or in the case of the Legislature, a legislator, and participated while an employee or legislator on matters related to this Contract. (Sections 84-18(b) and (c), HRS).

CONTRACTOR understands that the Contract to which this document is attached is voidable on behalf of the STATE if this Contract was entered into in violation of any provision of chapter 84, Hawaii Revised Statutes, commonly referred to as the Code of Ethics, including the provisions which are the source of the declarations above. Additionally, any fee, compensation, gift, or profit received by any person as a result of a violation of the Code of Ethics may be recovered by the STATE.

CONTRACTOR

By ______________________________
(Signature)

Print Name ______________________________

Print Title ______________________________

Name of Contractor ______________________________

Date ______________________________

---

* <u>Reminder to Agency:</u> If the "is" block is checked and if the Contract involves goods or services of a value in excess of $10,000, the Contract must be awarded by competitive sealed bidding under section 103D-302, HRS, or a competitive sealed proposal under section 103D-303, HRS. Otherwise, the Agency may not award the Contract unless it posts a notice of its intent to award it and files a copy of the notice with the State Ethics Commission. (Section 84-15(a), HRS).

Attachment - S1

STATE OF HAWAII

SCOPE OF SERVICES

The CONTRACTOR shall provide all services set forth in the Bidding Documents (Invitation For Bids No. ______________) and the CONTRACTOR's BID, both of which are incorporated herein by reference and made a part of the Contract. The CONTRACTOR's BID shall include all bid items described in the Form of Bid, pages P-1 through P-___, as submitted by the CONTRACTOR on the Bid Opening date.

Attachment – S2

STATE OF HAWAII

COMPENSATION AND PAYMENT SCHEDULE

A. The CONTRACTOR shall be compensated for services performed under this Contract in a total amount not to exceed ____ __________________________________ DOLLARS ($_______________), which includes the 4.712% State General Excise Tax and markup, as set forth in the Invitation for Bids and CONTRACTOR's bid. Any additional State General Excise taxes shall be at the sole expense of the CONTRACTOR.

B. PAYMENT. Payment for work performed by the CONTRACTOR shall be made in accordance with paragraph 17 of the 103D General Conditions and Article 8 of the HHFDC General Conditions.

An original invoice referencing the contract number and describing the specific deliverable for which payment is being requested shall be directed to the HHFDC Section/Branch within 30 days from delivery of goods and/or services:

Project/Contract Manager
Hawaii Housing Finance and Development Corporation
Development Section
677 Queen Street, Suite 300
Honolulu, Hawaii 96813

Contractor shall be paid upon acceptance of the deliverable, and receipt and approval of the invoice, by HHFDC. Payment shall be made to:

Accounts Receivable
Contractor Name
Contractor Payment Address

C. COST OR PRICING DATA. In accordance with section 103D-312, HRS and section 3-122-123, HAR, CONTRACTOR shall provide cost or pricing data or both in support of any price adjustment to the Contract involving aggregate increases or decreases in costs plus applicable profits expected to exceed $100,000.

Attachment – S3

STATE OF HAWAII

TIME OF PERFORMANCE

A. NOTICE TO PROCEED. The CONTRACTOR shall not commence any work under this Agreement prior to receipt from the STATE of a Notice to Proceed.

B. COMMENCEMENT OF THE WORK. The CONTRACTOR shall commence work under this Agreement on the date indicated in the STATE's Notice to Proceed.

C. DURATION. The time of completion for all the work described in the Form of Bid shall be within 730 calendar days after the date of commencement indicated in the Notice to Proceed. Any extension of time or implementation of the option period will require written approval of the STATE as stated in Paragraph 19 of the 103D General Conditions.

D. TERMINATION FOR CONVENIENCE. The Contract may be terminated at any time pursuant to the Termination for Convenience clause set forth in paragraph 14 of the General Conditions of the Contract. The STATE shall give written notice of the termination to the CONTRACTOR at least thirty (30) days prior to the effective date of such termination.

E. LIQUIDATED DAMAGES. Liquidated damages shall be assessed in the amount of ________________________ DOLLARS ($________) per calendar day, in accordance with the term of paragraph 9 in the 103D General Conditions and the Special Conditions.

F. TERM OF CONTRACT. The Contract is for the initial period of seven hundred thirty (730) calendar days. Unless terminated, the contract may be extended without the necessity of re-bidding, for not more than one (1) additional seven hundred thirty (730) days period or part thereof, upon mutual agreement in writing prior to expiration of the Contract. The Contract price for the extended period shall remain the same or lower than the initial bid price or as specified in the second-term bid. The State will notify the Contractor, in writing, prior to the expiration of the Contract whether funds are available or not available for the continuation of the Contract for said succeeding contract extension period. In the event of cancellation, as provided in this paragraph, both parties will comply with §103D-315(c), HRS and §3-122-149(g), HAR.

G. MULTI-TERM CONTRACT. This is a multi-term contract solicitation that has been deemed to be in the best interest of the State by the Executive Director of the Hawaii Housing Finance and Development Corporation. The Contract will be cancelled if funds are not appropriated or otherwise made available to support continuation of performance in any fiscal period succeeding the initial term of the contract; however, this does not affect either the State's rights or the Contractor's rights under any termination clause of the Contract. Funds are available for only the initial term of the Contract, and the contractual obligation of both parties in each fiscal period succeeding the first initial term is subject to the appropriation and availability of funds to the HHFDC.

Attachment – S4

STATE OF HAWAII

CERTIFICATE OF EXEMPTION FROM CIVIL SERVICE

1. By Heads of Departments Delegated by the Director of the Department of Human Resources Development (“DHRD”).*

Pursuant to a delegation of the authority by the Director of DHRD, I certify that the services to be provided under this Contract, and the person(s) providing the services under this Contract are exempt from the civil service, pursuant to § 76-16, Hawaii Revised Statutes (HRS).

(Signature)

(Date)

(Print Name)

(Print Title)

* This part of the form may be used by all department heads and the heads of attached agencies to whom the Director of DHRD expressly has delegated authority to certify § 76-16, HRS, civil service exemptions. The specific paragraph(s) of § 76-16, HRS, upon which an exemption is based should be noted in the contract file. If an exemption is based on § 76-16(b)(15), the contract must meet the following conditions:

(1) It involves the delivery of completed work or product by or during a specific time;
(2) There is no employee-employer relationship; and
(3) The authorized funding for the service is from other than the "A" or personal services cost element.

NOTE: Not all attached agencies have received a delegation under § 76-16(b)(15). If in doubt, attached agencies should check with the Director of DHRD prior to certifying an exemption under § 76-16(b)(15). Authority to certify exemptions under §§76-16(b)(2), and 76-16(b)(12), HRS, has not been delegated; only the Director of DHRD may certify §§ 76-16(b)(2), and 76-16(b)(12) exemptions.

2. By the Director of DHRD, State of Hawaii.

I certify that the services to be provided under this Contract, and the person(s) providing the services under this Contract are exempt from the civil service, pursuant to §76-16, HRS.

(Signature)

(Date)

(Print Name)

(Print Title, if designee of the Director of DHRD)

HHFDC GENERAL CONDITIONS

GENERAL CONDITIONS

TABLE OF CONTENTS

ARTICLE 7 Prosecution and Progress

ARTICLE 7 PROSECUTION AND PROGRESS

ARTICLE 8 MEASUREMENT AND PAYMENT

ARTICLE 1 - DEFINITIONS

Whenever the following terms or pronouns are used in these Bidding and Execution of Contract Requirements, and General Conditions, or in any contract documents or instruments where these Bidding and Execution of Contract Requirements, and General Conditions govern, the intent and meaning shall be interpreted as follows:

1.01 ADDENDUM (plural - Addenda). A written or graphic document, including Drawings and Specifications, issued by the Executive Director during the bidding period which modifies or interprets the bidding documents, by additions, deletions, clarifications or corrections, which shall be considered and made a part of the bid proposal and the contract.

1.02 ADDITION (to the contract sum). Amount added to the contract sum by Change Order.

1.03 ADMINISTRATIVE RULES. Hawaii Administrative Rules for Chapter 103-D of the Hawaii Revised Statutes.

1.04 ADVERTISEMENT. A public announcement inviting bids for work to be performed or materials to be furnished.

1.05 BAD WEATHER DAY. When weather or other conditions prevent a minimum of four hours of work with the Contractor's normal work force on controlling items of work at the site. (See EXCESS BAD WEATHER DAY.)

1.06 BENEFICIAL OCCUPANCY. The point of project completion when the Department can use the constructed facility in whole or in part for its intended purpose even though substantial completion may not be achieved.

1.07 BID. See PROPOSAL.

1.09 BID SECURITY. The security furnished by the Bidder from which the Department may recover its damages in the event the Bidder breaches its promise to enter into a contract with the Department and fails to execute the required bonds covering the work contemplated, if its proposal is accepted.

1.10 BIDDER. Any individual, partnership, firm, corporation, joint venture, or other legal entity submitting, directly or through a duly authorized representative or agent, a proposal for the work contemplated.

1.11 BIDDING DOCUMENTS. The advertisement "Notice to Contractors", or invitation to bid, instructions to Bidders, proposal requirements, the bid form and the proposed Contract Documents including all addenda issued prior to receipt of Bids.

1.12 BULLETIN. A written notice to the Contractor requesting a price and / or time proposal for contemplated changes preparatory to the issuance of a field order or change order.

1.13 BY OR TO THE PROJECT ENGINEER. To avoid cumbersome and confusing repetition of expressions in these General Conditions, it is provided that whenever the following words or words of like import are used, they shall be understood as if they were followed by the words "by the Project Engineer" or "to the Project Engineer", unless the context clearly indicates another meaning: contemplated, required, determined, directed, specified, authorized, ordered, given, designated, indicated, considered necessary, deemed necessary, permitted, reserved, suspended, established, approval, approved, disapproved, acceptable, unacceptable, suitable, accepted, satisfactory, unsatisfactory, sufficient, insufficient, rejected or condemned.

1.14 CALENDAR DAY. Any day shown on the calendar beginning at midnight and ending at midnight the following day. If no designation of calendar or working day is made, “day” shall mean calendar day.

1.15 CHANGE ORDER. A written order signed by the Executive Director that establishes the full payment and final settlement of all claims for direct, indirect and consequential costs, including costs of delays, and establishes any adjustments to contract time related to the work covered and affected by one or more field orders, or for change work done or agreed to be done without issuance of a separate field order. A change order signed by all the parties to the contract constitutes a supplemental agreement.

1.16 COMPLETION. See SUBSTANTIAL COMPLETION and FINAL COMPLETION.

1.17 CONSULTANT. A person, firm or corporation having a contract with the Department to furnish services with respect to the project.

1.18 CONTRACT. The written agreement between the Contractor and the Department by its Executive Director, by which the Contractor is bound to furnish all labor, equipment, and materials and to perform the specified work within the contract time stipulated, and by which HHFDC is obligated to compensate the Contractor therefor at the prices set forth therein. The contract shall include the Contract Documents and also any and all amendments and change orders which are required to complete the construction in an acceptable manner.

1.19 CONTRACT COMPLETION DATE. The calendar day on which all work on the project, required by the contract, must be completed. See CONTRACT TIME and FINAL COMPLETION.

1.20 CONTRACT DOCUMENTS. The Contract, Addenda (which pertain to the Contract Documents, Contractor’s Proposal (including Wage Schedule, List of Subcontractors and other documentation accompanying the Bid and any post bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the contract, the Notice to Proceed, the Bonds, these General Conditions, the SPECIAL CONDITIONS, the Specifications and the Drawings as the same are more specifically identified in the contract together with all written Amendments, Change Orders, Field Orders, any written order for minor changes in the work and Project Engineer’s written interpretations and clarifications issued on or after the effective date of the contract.

1.21 CONTRACT PRICE. The amount designated on the face of the contract for the performance of work including allowances, if any.

1.22 CONTRACT TIME. The number of working or calendar days provided in the contract for completion of the contract, exclusive of authorized time extensions. The number of days shall begin running on the effective date in the Notice to Proceed. If in lieu of providing a number of working or calendar days, the contract requires completion by a certain date, the work shall be completed by that date.

1.23 CONTRACTOR. Any individual, partnership, firm, corporation, joint venture, or other legal entity undertaking the execution of the work under the terms of the contract with the State of Hawaii, and acting directly or through its agents, or employees.

1.24 DEPARTMENT. The Department of Business Economic Development and Tourism, Hawaii Housing Finance and Development Corporation (abbreviated HHFDC).

1.25 DRAWINGS (or Plans). The contract drawings in graphic or pictorial form, which show the design, location, character, dimensions and details of the Work to be done and which shall be a part of the Contract Documents.

1.26 EQUAL OR APPROVED EQUAL. Whenever this term is used in the drawings or specifications, it shall be interpreted to mean a brand or article, prequalified in accordance with Section 6.3 SUBSTITUTION OF MATERIALS AND EQUIPMENT AFTER BID OPENING, that may be used in place of the one specified.

1.27 EXCESS BAD WEATHER DAY. A working day on which inclement weather prevents work on the contract and is beyond the average weather for the location of the project and the time of the year.

1.28 EXECUTIVE DIRECTOR. The Executive Director of the Hawaii Housing Finance and Development Corporation.

1.29 FIELD ORDER. A written order issued by the Project Engineer to the Contractor requiring the contract work to be performed in accordance with a change or changes in the work. A field order may (1) establish a price adjustment and/or time adjustment in an amount the Project Engineer believes is reasonable for the change; or (2) may declare that the Project Engineer does not intend to adjust contract time or price for the work; or (3) may request the Contractor to submit a proposal for an adjustment to the contract time and/or price by a certain date.

1.30 FINAL COMPLETION. The date set by the Executive Director that all work required by the contract and any amendments or changes thereto is in full compliance with the contract.

1.31 FORCE ACCOUNT. Term used when Work is ordered to be done at the sole option of the Department and is to be billed for at cost of labor, materials and equipment, insurances, taxes, etc., plus a percentage for overhead and profit.

1.32 GUARANTEE. Legally enforceable assurance of the duration of satisfactory performance of quality of a product or Work.

1.33 HAZARDOUS MATERIALS. Any and all radioactive materials, asbestos, polychlorinated biphenyls, petroleum, crude oil, chemicals known to cause cancer or reproductive toxicity, pollutants, contaminants, toxic substances or materials cited in Hazardous Material Laws. Abandoned motor vehicles or parts thereof are not hazardous material.

1.34 HHFDC. Hawaii Housing Finance and Development Corporation.

1.35 HOLIDAYS. The days of each year which are set apart and established as State holidays pursuant to Chapter 8, Hawaii Revised Statutes.

1.36 INSPECTOR. The person assigned by the Department to make detailed inspections of contract performance and materials supplied for the work.

1.37 LAWS. All Federal, State, City and County Laws, ordinances, rules and regulations, and standard specifications, including any amendments thereto effective as of the date of the call for sealed bids.

1.38 LIQUIDATED DAMAGES. The amount prescribed in the Special Conditions, LIQUIDATED DAMAGES to be paid to the Department or to be deducted from any payments due or to become due the Contractor for each working day or calendar day (as applicable) delay in completing the whole or any specified portion of the work beyond the Contract Time.

1.39 LETTER OF AWARD. A written notice from the Executive Director to the successful Bidder(s) stating that its proposal has been accepted by the Department.

1.40 MAJOR UNIT PRICE ITEM. A unit price item which, when extended on its estimated quantities in the proposal form, exceeds five percent (5%) of the total base bid proposal less any allowance and contingent items included in the proposal.

1.41 NON-CONFORMING WORK. Work that does not meet the requirements of the Contract Documents.

1.42 NOTICE TO BIDDERS/CONTRACTORS. The advertisement for proposals for all work or materials on which bids are required. Such advertisement will indicate the location of the work to be done or the character of the material to be furnished and the time and place of the opening of proposals.

1.43 NOTICE TO PROCEED. A written notice from the Project Engineer to the Contractor advising it of the date on which it is to begin the prosecution of the Work, which date shall also be the beginning of Contract Time.

1.44 POST CONTRACT DRAWINGS. Drawings issued after the award of the contract for the purpose of clarification and / or changes to the work indicated in the original drawings and which may be made a part of the contract.

1.45 PROJECT ACCEPTANCE DATE. The calendar day on which the Project Engineer accepts the project as sufficiently completed in compliance with the contract so that the Department can occupy or utilize the Work for its intended use. See SUBSTANTIAL COMPLETION.

1.46 PROJECT CONTRACT LIMITS (or CONTRACT ZONE). The portion of the site as delineated on the drawings which define the Contractor's primary area of operation for the prosecution of the work. It does not define the exact limits of all construction that may be required under the contract.

1.47 PROJECT ENGINEER. The Department's Contract Administrator as described in Article 5 "CONTROL OF WORK".

1.48 PROJECT GUARANTEE. A guarantee issued by the Contractor to the Department. See GUARANTEE.

1.49 PROPOSAL (BID). The executed document submitted by a Bidder in the prescribed manner, in response to a request for proposals or invitation to Bid, to perform at the prices quoted, for the work specified under the contract, within the time prescribed for performance.

1.50 PROPOSAL FORM. The form prepared by the Department on which the written offer or formal bid for the work to be done is submitted by the Bidder. By submitting a bid on the proposal form, a Bidder adopts the language therein as its own.

1.51 PUNCHLIST. A list compiled by the Project Engineer (or Contractor) stating work yet to be completed or corrected by the Contractor in order to substantially complete or finally complete the contract requirements.

1.52 QUESTIONNAIRE. The specified forms on which the Bidder shall furnish required information as to its ability to perform and finance the work.

1.53 SHOP DRAWINGS/SUBMITTALS. All drawings, diagrams illustrations, schedules and other data or information which are prepared or assembled by the Contractor and submitted by Contractor to illustrate some portion of the Work.

1.54 SPECIAL CONDITIONS. The specific clauses that supplements or modify the standard clauses of the GENERAL CONDITIONS setting forth conditions or requirements peculiar to the individual project under consideration, which are not thoroughly or satisfactorily covered, described or explained in these GENERAL CONDITIONS.

1.55 SPECIFICATIONS. That portion of the Contract Documents consisting of written descriptions for materials, equipment, construction systems, standards, workmanship, directions, provisions and requirements that pertain to the method and manner of performing the work and certain administrative requirements applicable thereto.

1.56 STATE. The State of Hawaii acting through its authorized representative.

1.57 SUBCONTRACT. Any written agreement between the Contractor and its subcontractors which contains the conditions under which the subcontractor is to perform a portion of the work for the Contractor.

1.58 SUBCONTRACTOR. An individual, partnership, firm, corporation, joint venture or other legal entity, as covered in Chapter 444, Hawaii Revised Statutes, which enters into an agreement with the Contractor to perform a portion of the work for the Contractor.

1.59 SUBSTANTIAL COMPLETION. The status of the project when the Contractor has completed all the work and 1) all utilities and services are connected and working; 2) all equipment is in acceptable working condition; 3) additional activity by the Contractor to correct punchlist items as described herein will not prevent or disrupt use of the work or the facility in which the work is located; and 4) the building, structure, improvement or facility can be used for its intended purpose.

1.60 SUPERINTENDENT. The employee of the Contractor, authorized to receive and fulfill instructions from the Project Engineer, who is charged with the responsibility of all the Work.

1.61 SURETY. The qualified individual, firm or corporation other than the Contractor, which executes a bond with and for the Contractor to insure its acceptable performance of the contract.

1.62 UNUSUALLY SEVERE WEATHER. Uncommonly harsh weather including but not limited to hurricanes, tornadoes, tropical storms and tropical depressions–(See General Conditions, Section 7.21.8.6).

1.63 WORK. The furnishing of all labor, materials, equipment, and other incidentals necessary or convenient for the successful completion of the project and the execution of all the duties and obligations imposed by the contract.

1.64 WORKING DAY. A calendar day, exclusive of Saturdays, Sundays and State-recognized legal holidays for the month in question.

ABBREVIATIONS

HAR	Hawaii Administrative Rules
HRS	Hawaii Revised Statutes
VECP	Value Engineering Cost Proposal
DOTAX	State Department of Taxation
IRS	Internal Revenue Service

END OF ARTICLE 1

ARTICLE 2 – PROPOSAL REQUIREMENTS AND CONDITIONS

2.1 QUALIFICATION OF BIDDERS - Prospective Bidders must be capable of performing the work for which bids are invited, and must be capable of entering into a public contract of $25,000 (twenty five thousand dollars) or more.

2.1.1 NOTICE OF INTENTION TO BID

2.1.1.1 In accordance with Section 103D-310, Hawaii Revised Statutes, and Section 3-122-108, Hawaii Administrative Rules, a written notice of intention to bid must be filed for the construction of any public building or public work when the bid is $25,000 (twenty five thousand dollars) or more. A written notice of intention to bid need not be filed for the mere furnishing and installing of furniture, equipment, appliances, material and any combination of these items when a Contractor's license is not required under Chapter 444 of the Hawaii Revised Statues, as amended, and the rules and regulations of the Contractor's License Board.

2.1.1.2 The written notice must be addressed to the Executive Director, who is the officer charged with letting the contract. The words, “INTENTION TO BID” must be clearly written or typed on the face of the envelope containing the written notice of intention to bid. The notice may be faxed, hand carried or mailed to the office indicated in the Notice to Contractors.

2.1.1.3 The written notice must be received by the office indicated in the Notice to Contractors no later than 2:00 p.m. on the 10th calendar day prior to the day designated for opening bids. If the 10th calendar day prior to the day designated for opening bids is a Saturday, Sunday, or legal State holiday, then the written notice must be received by the Department no later than 2:00 p.m. on the last working day immediately prior to said Saturday, Sunday, or legal State holiday. The written notice will be time stamped when received by said office. The time designated by the time stamping device in said office shall be official. If the written notice is hand carried, then the bearer is responsible to ensure that the notice is time stamped by said office. If the notice is faxed, the time of receipt by the Department fax machine shall be official.

2.1.1.4 It is the responsibility of the prospective Bidder to ensure that the written notice of intention to bid is received in time and the Department assumes no responsibility for failure of timely delivery caused by the prospective Bidder or by any method of conveyance chosen by the prospective Bidder.

2.1.1.5 If two (2) or more prospective Bidders desire to bid jointly as a joint venture on a single project, they must file an affidavit of joint venture with their notice of intention to bid. Such affidavit of joint venture will be valid only for the specific project for which it is filed. No further license is required when all parties to the joint venture possess current and appropriate contractor’s licenses. Joint ventures are required to be licensed in accordance with Chapter 444 of the Hawaii Revised Statutes, as amended, and the rules and regulations of the Contractor’s License Board when any party to the joint venture agreement does not hold a current or appropriate contractor's license. The joint venture must register with the office of the

Director of Commerce and Consumer Affairs in accordance with Chapter 425 of the Hawaii Revised Statutes, as amended.

2.1.1.6 No persons, firm or corporation may bid where (1) the person, firm, or corporation, or (2) a corporation owned substantially by the person, firm, or corporation, or (3) a substantial stockholder or an officer of the corporation, or (4) a partner or substantial investor in the firm is in arrears in any payment owed to the State of Hawaii or any of its political subdivisions or is in default of any obligation to the State of Hawaii or to all or to any of its political subdivisions, including default as a surety or failure to perform faithfully and diligently any previous contract with the Department.

2.1.1.7 The Executive Director may, in accordance with Section 103D-310 Hawaii Revised Statutes, require the prospective Bidder to submit answers to questions contained in the STANDARD QUALIFICATION QUESTIONNAIRE FOR PROSPECTIVE BIDDERS ON PUBLIC WORKS CONTRACTS, on the form provided by the Department, properly executed and notarized, setting forth a complete statement of the experience of such prospective Bidder and its organization in performing similar work and a statement of the equipment proposed to be used, together with adequate proof of the availability of such equipment, at least two (2) working days prior to the time advertised for the opening of bids. If the information in the questionnaire proves satisfactory, the Bidder's proposal will be received. All information contained in the answers to the questionnaire shall be kept confidential. The questionnaire will be returned to the Bidder after it has served its purpose.

2.1.1.8 If upon review of the Questionnaire, or otherwise, the Bidder appears not fully qualified or able to perform the intended work, the Executive Director shall, after affording the Bidder an opportunity to be heard and if still of the opinion that the Bidder is not fully qualified to perform the work, refuse to receive or to consider any bid offered by the prospective Bidder.

2.1.1.9 Failure to complete and submit the prequalification questionnaire by the designated deadline will be sufficient cause for the Department to disqualify a prospective Bidder.

2.1.2 TAX CLEARANCE (§103D-328 HRS)

2.1.2.1 Contractors are required to provide both state and federal tax clearances as a prerequisite to entering into a public contract of $25,000 or more. To meet this requirement, all Bidders shall submit valid tax clearances with their bid proposals when the bid is $25,000 or more. An additional tax clearance will be required before final payment can be made.

2.1.2.2 Tax clearances may be obtained by completing the Tax Clearance Application (Form A-6) and submitting it to the Hawaii State Department of Taxation (DOTAX) or the Internal Revenue Service (IRS). The application may be obtained from the DOTAX, the IRS, or the Public Works Division, Kalanimoku Building, Room 422, 1151 Punchbowl Street, Honolulu, Hawaii. The application may be mailed in or walked in to either the DOTAX or the IRS. Both tax agencies encourage the use of their mail-in process, which should be completed within twenty-one (21) calendar days. Tax clearance certificates will be issued to the applicant upon determination that the applicant has filed all tax returns due, and has paid all amounts owing on such returns, including penalty and interest.

2.1.2.3 Only original tax clearance certificates or certified copies will be accepted for this purpose. Failure to submit the required tax clearance certificates may be sufficient grounds for the Department to refuse to receive or consider the prospective Bidder's proposal.

2.1.2.4 Tax clearance certificates are valid for six (6) months. The six-month period will begin with the later approval date stamped on the tax clearance. An original copy of a tax clearance that bears an original green certified copy stamp will be accepted by the Department for final payment. The period of validity for final payment is forty-five (45) days.

2.1.2.5 The tax clearances submitted with the bid proposals must be valid on the solicitation's first legal advertisement date or any date thereafter up to the bid opening date. Valid tax clearances submitted with the proposal will remain valid for the contract award and encumbrance.

2.1.2.6 Any person, firm or corporation that is not presently doing business in the State of Hawaii and submits a Notice of Intention to Bid must submit along with said Notice of Intention to Bid a certified letter stating that said person, firm or corporation is not doing business in the State of Hawaii and is not in default of any obligations due to the State or any of its political subdivisions.

2.1.2.7 If a business cannot obtain a tax clearance certificate because of tax delinquencies, it may submit a "special letter" from DOTAX and/or the IRS. The "special letter" may only be obtained if (1) the business has an existing installment agreement with the tax agency, or (2) the delinquency is the subject of an administrative or judicial appeal. The Bidder is cautioned that the "special letter" from the IRS must be certified by DOTAX. All conditions applied to tax clearance certificates for this purpose are applicable to these "special letters". Instructions to obtain the "special letter" are available from each respective tax agency.

2.1.2.8 Various combinations of tax clearance certificates and "special letters" are acceptable for this purpose as follows:

(a) Tax clearance certificate signed by both tax agencies;

(b) Individual tax clearance certificates from each tax agency, respectively;

(c) Tax clearance certificate from one tax agency and a "special letter" from the other tax agency;

(d) "Special letters" from both tax agencies.

2.1.3 WRONGFUL REFUSAL TO ACCEPT A BID - In the event the Executive Director, for any reason, wrongfully refuses to accept what would otherwise be a responsive and responsible lowest bid, the exclusive remedy for such lowest Bidder shall be the recovery of the reasonable actual costs of preparing the bid. No other Bidder shall have any claim for damages. Refer to 2.14, PROTESTS.

2.2 INTERPRETATION OF QUANTITIES IN BID SCHEDULE

2.2.1 When quantities for individual items of work are listed in the proposal form for which respective unit prices are asked, said quantities are estimated or approximate and are to be used by the Department only for the purpose of comparing on a uniform basis bids offered for the work. The Department does not, expressly or by implication agree that the actual quantity of work will correspond therewith.

2.2.2 After determining the low Bidder by comparison of bids submitted in accordance with the proposal form and Section 3.1, CONSIDERATION OF PROPOSALS; CANCELLATION in these Contract Documents, the quantities of unit price items of work may increase or decrease.

2.2.3 On unit price bids, payment will be made only for the actual number of units incorporated into the finished project at the unit price bid, subject to Section 4.7, VARIATIONS IN ESTIMATED QUANTITIES. It is understood and agreed that the Contractor shall make no claim for anticipated profit, loss of profit or unabsorbed field, branch or home office overhead and impact losses due to the exercise of the Departments right to eliminate entire portions of the work or to increase or decrease any or all the quantities shown in the proposal form.

2.3 CONTENTS OF PROPOSAL FORMS

2.3.1 Prospective Bidders will be furnished with proposal forms giving the location, description, and the contract time of the work contemplated for which a lump sum bid price is asked or containing a schedule of items, together with estimated quantities of work to be performed and materials to be furnished, for which unit bid prices and/or lump sum bid prices are asked.

2.3.2 All papers bound with or attached to the proposal form shall be considered a part thereof and shall not be detached or altered when the proposal is submitted.

2.3.3 The drawings, specifications and other documents designated in the proposal form will also be considered a part thereof whether attached or not.

2.3.4 By submitting a bid on the proposal form, a Bidder accepts the language therein as its own.

2.4 BIDDER’S RESPONSIBILITY FOR EXAMINATION OF CONTRACT DOCUMENTS, SITE OF WORK, ETC.

2.4.1 The Bidder shall carefully examine the project site contemplated all Contract Documents and any documents or items referenced therein and contract and bond forms therefore. The submission of a bid shall be considered as a warranty that the Bidder has made such examination and is informed of the conditions to be encountered in performing the Work and of the requirements of the Contract Documents and any documents and items referenced therein, and contract and bonds.

2.5 UTILITIES AND SERVICES

2.5.1 Where its operations are next to or near properties of utility companies or other property, the Contractor shall not start work until the Contractor makes arrangements necessary for the protection of said property.

2.5.2 The Contractor shall cooperate, coordinate and schedule its work to suit the owners of underground or overhead utility lines or other property in removing or altering such lines or providing new services in order for the work to progress according to the contract. Cooperation includes rearranging the Contractor's operations and normal work schedules and realignment of work as approved by the Department in order to accommodate the operations and work of the utilities and/or other property in and around the work site at no additional cost to the Department.

2.5.3 The Contractor shall contact all the various utility companies before the start of the work to ascertain any existing utilities and to develop a full understanding of the utility requirements with respect to this project. The Contractor shall furnish the Project Engineer with evidence that the Contractor has contacted the utility companies.

2.5.4 If the Contractor discovers that the existence and location of utilities in the contract plans are not correct, the Contractor shall not disturb the utilities and immediately notify the Project Engineer. The Project Engineer will advise the Contractor regarding actions to take.

2.5.5 The Contractor shall ascertain the exact location and depth of utilities within the project area. The Contractor shall mark such locations to warn workers or equipment operators of their existence and location. The Contractor shall be responsible to acquaint personnel working near utilities with the type, size, location and depth of the utilities and the consequences that might result from disturbances. The Contractor shall not start trenching or start similar operations until the Contractor has taken reasonable and appropriate precautions to protect the utilities.

2.5.6 Any utilities or other property that the Contractor encounters during the progress of the work, such as telephone ducts, electric ducts, water lines, sewer lines, electric lines and drainage pipes, whether shown or not on the contract plans, shall not be disturbed or damaged unless otherwise instructed in the plans and specifications.

2.5.7 In the event the utilities or other property are damaged or disturbed by the Contractor, the Contractor shall be liable for all such damage where the utilities or other property are:

a) Shown on the plan in its actual or approximate location; or

b) Exposed on the job as it progresses; or

c) Pointed out to the Contractor in the field.

2.5.8 Such utilities or other property as described above shall be "known utilities or other property." If the Contractor encounters an unknown utility or other property, it shall not proceed until it has notified the Project Engineer and receives instructions. If the Project Engineer directs additional work, it shall be paid for under Subsection 4.2, CHANGES.

2.5.9 The Contractor shall repair and restore to pre-damaged condition any utilities or any other property it may damage, and it shall be liable for any and all resulting damage at no cost to the Department, the work or utility owner or property owner. Any damage claim due to the disruption of service caused by the utilities being damaged shall be paid by the Contractor who shall defend, indemnify and hold harmless the Department from all suits, actions or claims of any character brought on account of such damages, whether or not the Department may have been partially at fault. Public liability and property damage insurance to be obtained by the Contractor pursuant to Article 7, “PROSECUTION AND PROGRESS” shall cover such risk of damage.

2.5.10 In the event the Contractor simultaneously with the discovery of an unknown utility or other property damages that utility or other property, the Contractor shall not be held liable beyond the extent of the Contractor’s liability insurance but shall immediately notify the Project Engineer. Upon instruction from the Project Engineer, the Contractor shall repair all damages and execute a plan for dealing with the damaged utility or other property. This repair work shall be considered additional work as covered in Subsection 4.2, CHANGES.

2.6 ADDENDA AND BID CLARIFICATIONS

2.6.1 The terms and requirements of the bid documents (i.e. drawings, specifications and other bid and contract documents) cannot be changed prior to the bid opening except by a duly issued addendum.

2.6.2 The Department may alter, increase or decrease the scope of the work or the contract time, provisions and conditions by issuing a written addendum which sets forth such alterations, increase or decrease.

2.6.3 If a Bidder discovers what it considers to be a discrepancy, ambiguity, omission or doubt as to the meaning of drawings, specifications and any other bid or contract documents, the Bidder shall request in writing an interpretation from the Executive Director.

2.6.4 If the Department agrees that a discrepancy, ambiguity, omission or doubt exists, it shall issue a written addendum to the bid documents to all prospective Bidders at the respective offices furnished for such purposes eight (8) days before the bids are opened. The Department may extend the bid opening to allow at least eight (8) days from the notification date of the addendum. Upon notification by the Department, all Bidders/addressees shall be deemed to be on notice of the information therein whether or not the addendum is actually received. All addenda so issued shall become part of the contract documents.

2.6.5 No claim for additional compensation and/or time for performance will be allowed if the Contractor discovered, or in the exercise of reasonable care, should have discovered a discrepancy, ambiguity, omission or doubt for which an interpretation was not requested.

2.7 SUBSTITUTION OF MATERIALS AND EQUIPMENT BEFORE BID OPENING

2.7.1 Brand names of materials or equipment are specified or shown on the drawings to indicate a quality, style, appearance or performance and not to limit competition. The Bidder shall base its bid on one of the specified brand names unless alternate brands are qualified as equal or better in an addendum. Qualifications of such proposed alternate brands shall be submitted in writing and addressed to the Project Engineer. The face of the envelope containing the request must be clearly marked “SUBSTITUTION REQUEST”. The request may be hand carried or mailed to HHFDC, 677 Queen Street, Third Floor, Honolulu, Hawaii 96813. In either case, the written request must be received by HHFDC no later than fourteen (14) days before the bid opening date and time specified in the Notice to Bidders. The written request will be time stamped by HHFDC. For the purpose of this section, the time designated by the time stamping device in HHFDC shall be official. If the written request is hand carried, the bearer is responsible to ensure that the request is time stamped by HHFDC.

2.7.2 Submit three (3) sets of the written request, technical brochures, and a statement of variances. Refer to the Appendix for the Sample “Request for Substitution.”

2.7.3 STATEMENT OF VARIANCES. The statement of variances must list all features of the proposed substitution which differ from the drawings, specifications and/or product(s) specified and must further certify that the substitution has no other variant features. The brochure and information submitted shall be clearly marked showing make, model, size, options, etc., and must include sufficient evidence to evaluate each feature listed as a variance. A request will be denied if submitted without sufficient evidence. If after installing the substituted product, an unlisted variance is discovered, Contractor shall immediately replace the product with a specified product at no cost to the Department.

2.7.4 SUBSTITUTION DENIAL - Any substitution request not complying with the above requirements will be denied. Substitution requests sent to other agencies and received by Project Engineer after the deadline above will be denied.

2.7.5 An addendum shall be issued to inform all prospective Bidders of any accepted substitution in accordance with Section 2.6, ADDENDA AND BID CLARIFICATIONS.

2.7.6 For substitutions of materials and equipment after issuance of the Letter of Award, refer to Section 6.3, SUBSTITUTION OF MATERIALS AND EQUIPMENT AFTER BID OPENING.

2.8 PREPARATION OF PROPOSAL

2.8.1 The Bidder’s proposal must be submitted on the proposal form furnished by the Department. The proposal must be prepared in full accordance with the instructions thereon. The Bidder must state, both in words and numerals, the lump sum price or total sum bid at which the work contemplated is proposed to be done. These prices must be written in ink or typed. In case of a discrepancy between the prices written in words and those written in figures, the words shall govern over the figures. The Bidder shall sign the proposal in the spaces provided with ink. By submitting a bid, the Bidder adopts the language of the proposal as its own.

2.8.2 If the proposal is made by an individual, the person’s name and post office address must be shown in the space provided. If made by a partnership the name and post office address of each member of the partnership must be shown and the proposal signed by all partners or evidence in the form of a partnership agreement must be submitted showing the authority of the partner to enter, on behalf of said partnership, into contract with the Department. If made by a corporation the proposal must show the name, title and business address of the president, secretary and treasurer and also evidence in the form of a corporate resolution must be submitted showing the authority of the particular corporate representative to enter on behalf of said corporation into contract with the Department. If made by a joint-venture the name and post office address of each member of the individual firm, partnership or corporation comprising the joint-venture must be shown with other pertinent information required of individuals, partnerships or corporations as the case may be. The proposal must be signed by all parties to the joint-venture or evidence in the form of a Joint-Venture Agreement must be submitted showing the authority of the joint-venture's representative to enter on behalf of said joint-venture into contract with the Department.

2.8.3 Pursuant to the requirements of Section 103D-302, HRS, each Bidder shall include in its bid the name of each person or firm to be engaged by the Bidder on the project as joint contractor or subcontractor indicating also the nature and scope of work to be performed by such joint contractor and/or subcontractor and their respective contractor's license number. A joint contractor or subcontractor performing less than or equal to one percent of the total bid amount is not required to be listed in the proposal. The Bidder shall be solely responsible for verifying that their joint contractor or subcontractor has the proper license at the time of the submitted bid.

2.9 BID SECURITY

2.9.1 Subject to the exceptions in Section 3-122-223(d) HAR, all lump sum bids of $25,000 (twenty five thousand dollars) and higher, or lump sum base bids including alternates of $25,000 (twenty five thousand dollars) and higher, that are not accompanied by bid security are non-responsive. Bid security shall be one of the following: §3-122-222(a) HAR

2.9.1.1 Surety bid bond underwritten by a company licensed to issue bonds in this State which shall be substantially in the form of the Surety Bid Bond form in the Appendix; or

2.9.1.2 Legal Tender; or

2.9.1.3 Certificate of Deposit; credit union 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 (one hundred thousand dollars).

(b) If the required security or bond amount totals over $100,000 (one hundred thousand dollars), more than one instrument not exceeding $100,000 (one hundred thousand dollars) each and issued by different financial institutions shall be accepted.

(c) CAUTION - Bidders are cautioned that certificates of deposit or share certificates with an early withdrawal penalty must have a face value sufficient to cover the maximum penalty amount in addition to the proposal guaranty requirement. If the certificate is made out to two names, the certificate must be assigned unconditionally to the Executive Director.

2.9.2 Unless otherwise stated, the bid security shall be in an amount equal to at least five percent (5%) of the lump sum bid or lump sum base bid including all additive alternates or in an amount required by the terms of the federal funding, where applicable.

2.9.3 If the Bidder is a corporation, evidence in the form of a corporate resolution, authorizing the corporate representative to execute the bond must be submitted with the proposal. (See sample in Appendix.) If the Bidder is a partnership, all partners must sign the bond or evidence in the form of a partnership agreement must be submitted showing the authority of the partner.

2.9.4 If the Bidder is a joint-venture, all parties to the joint-venture must sign the bond; provided, that one party to the joint-venture may sign on behalf of the joint-venture if evidence in the form of a joint-venture agreement or power of attorney, is submitted showing the authority of the signatory to sign the bond on behalf of the joint-venture.

2.9.5 In the case where the award will be made on a group or item basis, the amount of bid security shall be based on the total bid for all groups or items submitted.

2.9.6 Bidders are cautioned that surety bid bonds which place a limit in value to the difference between the bid amount and the next acceptable bid, such value not to exceed the purported amount of the bond, are not acceptable. Also, surety bid bonds which place a time limit on the right of the State to make claim other than allowed by statutes or these GENERAL CONDITIONS are not acceptable. Bidders are hereby notified that a surety bid bond containing such limitation(s) is not acceptable and a bid accompanied by such surety bid bond will be automatically rejected.

2.10 DELIVERY OF PROPOSALS - The entire proposal shall be placed together with the bid security, in a sealed envelope no smaller than 9-1/2" x 12" so marked as to indicate the identity of the project, the project number, the date of bid opening and the name and address of the Bidder and then delivered as indicated in the Notice to Contractors. Bids which do not comply with this requirement may not be considered. Proposals will be received up to the time fixed in the public notice for opening of bids and must be in the hands of the official by the time indicated. The words “SEALED BID” must be clearly written or typed on the face of the sealed envelope containing the proposal and bid security.

2.11 WITHDRAWAL OR REVISION OF PROPOSAL- Proposal may be modified prior to the deadline to submit the proposal by any of the following documents:

2.11.1 Withdrawal of Proposals:

2.11.1.1 A signed, written notice received in the office designated in the solicitation; or

2.11.1.2 A signed written notice faxed to the office designated in the solicitation.

2.11.2 Modification of Proposals:

2.11.2.1 A signed written notice received in the office designated in the solicitation, accompanied by a duly executed certificate of resolution for corporations, partnerships and joint-ventures, stating that a modification to the proposal is submitted; and

2.11.2.2 The actual modification sealed securely in a separate envelope or container, accompanying the written notice.

2.12 PUBLIC OPENING OF PROPOSALS - Proposals will be opened and read publicly at the time and place indicated in the Notice to Contractors. Bidders, their authorized agents and other interested parties are invited to be present.

2.13 DISQUALIFICATION OF BIDDERS - Any one or more of the following causes will be considered as sufficient for the disqualification of a Bidder and the rejection of its proposal or proposals:

2.13.1 Non-compliance with Section 2.1, QUALIFICATION OF BIDDERS;

2.13.2 Evidence of collusion among Bidders;
2.13.3 Lack of responsibility and cooperation as shown by past work such as failing to complete all of the requirements to close the project within a reasonable time or engaging in a pattern of unreasonable or frivolous claims for extra compensation;

2.13.4 Being in arrears on existing contracts with the State of Hawaii, or having defaulted on a previous contract with the State of Hawaii;

2.13.5 Lack of proper equipment and/or sufficient experience to perform the work contemplated, as revealed by the Standard Questionnaire and Financial Statement for Bidders;

2.13.6 No contractor's license or a contractor's license which does not cover type of work contemplated;

2.13.7 More than one proposal for the same work from an individual, firm, partnership, corporation or joint venture under the same or different name;

2.13.8 Delivery of bids after the deadline specified in the advertisement calling for bids;

2.13.9 Failure to pay, or satisfactorily settle, all bills overdue for labor and materials of former contracts in force at the time of issuance of proposal forms; and/or

2.13.10 Debarment or suspension pursuant to the provisions of Chapters 103D, 104 and 444, Hawaii Revised Statutes, as amended.

2.14 PROTESTS

2.14.1 Protests shall be adjudicated in accordance with §103D-701, HRS and as amended.

2.14.2 No Protest based upon the contents of the solicitation shall be considered unless it is submitted in writing to the Executive Director, prior to the date set for the receipt of proposals.

2.14.3 A protest of an award or proposed award pursuant to §103D-302 or §103D-303, HRS, shall be submitted in writing to the Executive Director, within five (5) working days after the posting of the award of the Contract.

2.14.4 When a protest is sustained and the protestor should have been awarded the contract under the solicitation but is not, then the exclusive remedy for such protestor shall be the recovery of the reasonable actual costs of preparing the bid, but not attorney's fees.

END OF ARTICLE 2

ARTICLE 3 – AWARD AND EXECUTION OF CONTRACT

3.1 CONSIDERATION OF PROPOSALS; CANCELLATION - After the proposals are opened and read, the figures will be extended and/or totaled in accordance with the bid prices of the acceptable proposals and the totals will be compared and the results of such comparison shall be made public. In the event of a tie bid, the low Bidder shall be determined by lot. In the comparison of bids, words written in the proposals will govern over figures and unit prices will govern over totals. Until the award of the contract, the Department may cancel the solicitation, reject any and all proposals in whole or part and may waive any defects or technicalities whenever such action is deemed to be in the best interest of the Department.

3.2 IRREGULAR PROPOSALS - Proposals will be considered irregular and may be rejected for the following reasons:

3.2.1 If the proposal is unsigned.

3.2.2 If bid security is not in accordance with Section 2.9, BID SECURITY.

3.2.3 If proposal is on a form other than that furnished by the Department; or if the form is altered or any part thereof detached.

3.2.4 If the proposal shows any non-compliance with applicable law, alteration of form, additions not called for, conditional bids, incomplete bids, non-initialed erasures, other defects, or if the prices are obviously unbalanced.

3.2.5 If the Bidder adds any provisions reserving the right to accept or reject an award.

3.2.6 If the Bidder adds any provisions reserving the right to enter into a contract pursuant to an award.

3.2.7 When a proposal is signed by an officer or officers of a corporation and a currently certified corporate resolution authorizing such signer(s) to submit such proposal is not submitted with the proposal or when the proposal is signed by an agent other than the officer or officers of a corporation or a member of a partnership and a power of attorney is not submitted with the proposal.

3.2.8 Where there is an incomplete or ambiguous listing of joint contractors and/or subcontractors the proposal may be rejected. All work which is not listed as being performed by joint contractors and/or subcontractors must be performed by the Bidder with its own employees. Additions to the list of joint contractors or subcontractors will not be allowed. Whenever there is a doubt as to the completeness of the list, the Bidder will be required to submit within five (5) working days, a written confirmation that the work in question will be performed with its own work force. Whenever there is more than one joint contractor and/or subcontractor listed for the same item of work, the Bidder will be required to either confirm in writing within five (5) working days that all joint contractors or subcontractors listed will actually be engaged on the project or obtain within five (5) working days written releases from those joint contractors and/or subcontractors who will not be engaged.

3.2.9 If in the opinion of the Executive Director, the Bidder and/or its listed subcontractors do not have the contractor's licenses or combination of contractor's licenses necessary to complete all of the work.

3.3 CORRECTION OF BIDS AND WITHDRAWAL OF BIDS (§3-122-31 HAR)

3.3.1 Corrections to bids after bid openings but prior to award may be made under the following conditions:

3.3.1.1 If the mistake is attributable to an arithmetical error, the Executive Director shall so correct the mistake. In case of error in extension of bid price, the unit price shall govern.

3.3.1.2 If the mistake is a minor informality which shall not affect price, quantity, quality, delivery, or contractual conditions, the Bidder shall request correction by submitting proof of evidentiary value which demonstrates that a mistake was made. The Executive Director shall prepare a written approval or denial in response to this request. Examples of such mistakes include:

(a) Typographical errors;

(b) Transposition errors;

(c) Failure of a Bidder to sign the bid, but only if the unsigned bid is accompanied by other material indicating the Bidder's intent to be bound.

3.3.1.3 For reasons not allowable under paragraphs 3.3.1.1 and 3.3.1.2 when the Executive Director determines that the correction or waiver of an obvious mistake is in the best interest of the Department or is warranted for the fair treatment of other Bidders.

3.3.2 Withdrawal of bids after bid opening but prior to award may be made when the bid contains a mistake attributable to an obvious error which affects price, quantity, quality, delivery, or contractual conditions, and the Bidder requests withdrawal by submitting proof of evidentiary value which demonstrates that a mistake was made. The Executive Director shall prepare a written approval or denial in response to this request.

3.3.3 Correction or withdrawal of bids after award is not permissible except in response to a written withdrawal or correction request by the Contractor, and the Executive Director makes a written determination that the Department's procurement practices and policies would not be materially affected by such correction or withdrawal.

3.4 AWARD OF CONTRACT

3.4.1 The award of contract, if it be awarded, will be made within one hundred twenty (120) consecutive calendar days after the opening of the proposals to the lowest responsible and responsive Bidder (including the alternate or alternates which may be selected by the Executive Director in the case of alternate bids) whose proposal complies with all the requirements prescribed, but in no case will an award be made until all necessary investigations are made. The successful Bidder will be notified, by letter mailed to the address shown on the proposal, that its bid has been accepted and that it has been awarded the contract.

3.4.2 If the contract is not awarded within the one hundred twenty (120) days noted in paragraph 3.4.1 above, 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.

3.4.3 No contract will be awarded to any person or firm suspended or debarred under the provisions of Chapters 103D, 104 and Chapter 444, Hawaii Revised Statutes as amended.

3.4.4 The contract will be drawn on the forms furnished by the Executive Director. The contract will not be binding on the Department until all required signatures have been affixed thereto and written certification that funds are available for the work has been made.

3.5 CANCELLATION OF AWARD - The Department reserves the right to cancel the award of any contract at any time before the execution of said contract by all parties. The exclusive remedy to the awardee for such cancellation shall be payment of the reasonable bid preparation costs and the reimbursement of any direct expenses incurred as directed in the Notice of Award. Such cancellation will not incur any liability by the Department to any other Bidder.

3.6 RETURN OF BID SECURITY - All bid securities, except those of the four (4) lowest Bidders, will be returned following the opening and checking of the proposals. The retained bid securities of the four lowest Bidders will be returned within five (5) working days following the complete execution of the contract.

3.7 REQUIREMENT OF PERFORMANCE AND PAYMENT BONDS

3.7.1 Performance and Payment Bonds shall be required for contracts $25,000 (twenty five thousand dollars) and higher. At the time of the execution of the contract, the successful Bidder shall file good and sufficient performance and payment bonds on the form furnished by the Department (see Appendix), each in an amount equal to one hundred percent (100%) of the amount of the contract price unless otherwise stated in the solicitation of bids. Acceptable performance and payment bonds shall be limited to the following:

3.7.1.2 Surety bonds underwritten by a company licensed to issue bonds in this State; or

3.7.1.3 A certificate of deposit; credit union 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 Department 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 a maximum of $100,000 (one hundred thousand dollars).

(b) If the required security or bond amount totals over $100,000 (one hundred thousand dollars), more than one instrument not exceeding $100,000 (one hundred thousand dollars) each and issued by different financial institutions shall be acceptable.

3.7.2 If the Contractor fails to deliver the required performance and payment bonds, the Contractor's award shall be canceled, the Department shall have the remedies provided under Section 3.9, FAILURE TO EXECUTE THE CONTRACT and award of the contract shall be made to the next lowest responsible and responsive Bidder.

3.8 EXECUTION OF THE CONTRACT

3.8.1 The contract shall be signed by the successful Bidder and returned, together with satisfactory performance and payment bonds, within ten (10) calendar days after the Bidder is awarded the contract for execution or within such further time as the Executive Director may allow. No proposal or contract shall be considered binding upon the Department until the contract has been fully and properly executed by all parties thereto. For projects funded with State Capital Improvement Project (CIP) funds, the Executive Director shall also endorse thereon its certificate, as required by Section 103D-309, HRS, that there is an available unexpended appropriation or balance of an appropriation over and above all outstanding contracts sufficient to cover the Department's amount required by such contract.

3.8.2 On any individual award totaling less than $25,000 (twenty five thousand dollars), the Department reserves the right to execute the contract by the issuance of a Purchase Order. Issuance of a Purchase Order shall result in a binding contract between the parties without further action by the Department. The issuance of a Purchase Order shall not be deemed a waiver of these General Conditions, and Contract Document requirements.

3.9 FAILURE TO EXECUTE THE CONTRACT

3.9.1 Before the Award - If a low Bidder without legal justification withdraws its bid after the opening of bids but before the award of the contract, the Department shall be entitled to retain as damages the amount established as bid security, and may take all appropriate actions to recover the damages sum from the property or third-party obligations deposited as bid security.

3.9.2 After the Award - If the Bidder to which a contract is awarded shall fail or neglect to enter into the contract and to furnish satisfactory security within ten (10) calendar days after such award or within such further time as the Executive Director may allow, the Department shall be entitled to recover from such Bidder its actual damages, including but not limited to the difference between the bid and the next lowest responsive bid, as well as personnel and administrative costs, consulting and legal fees and other expenses incurred in arranging a contract with the next low responsible and responsive Bidder or calling for new bids. The Department may apply all or part of the amount of the bid security to reduce its damages. If upon determination by the Department that the bid security exceeds the amount of its damages, it shall release or return the excess to the person who provided same.

3.9.3 Executive Director's Options - Upon a withdrawal of the lowest responsive bid, or upon a refusal or failure of the lowest Bidder to execute the contract, the Executive Director may thereupon award the contract to the next lowest responsible and responsive Bidder or may call for new bids, whichever method the Executive Director may deem to be in the best interests of the Department.

3.10 NOTICE TO PROCEED

3.10.1 After the contract is fully executed and signed by the Executive Director, the Contractor will be sent a formal Notice to Proceed letter advising the Contractor of the date on which it may proceed with the work. The Contractor shall be allowed ten (10) consecutive working days from said date to begin its work. In the event that the Contractor refuses or neglects to start the work, the Executive Director may terminate the contract in accordance with Section 7.27, TERMINATION OF CONTRACT FOR CAUSE.

3.10.2 The Contractor may commence its operations strictly at its own risk prior to receipt of the formal notice to proceed, provided it makes a written request and has received approval from the Executive Director in writing. All work performed shall be conducted in accordance with Section 7.1, PROSECUTION OF THE WORK.

3.10.3 In certain cases, the Department, with agreement of the Contractor, may issue a Notice to Proceed before full execution of the contract by the Executive Director and it may further issue a Notice to Proceed concurrently with the Notice of Award.

3.10.4 In the event the Notice to Proceed is not issued within one hundred eighty (180) days after 1) the date the contract is executed by all parties; or 2) for projects funded with State Capital Improvement Project (CIP) funds, the date that the written certificate that funds are available is issued, whichever is later, the Contractor may submit a claim for increased labor and material costs (but not overhead costs) which are directly attributable to the delay beyond the first one hundred eighty (180) days. Such claims shall be accompanied with the necessary documentation to justify the claim. No payment will be made for assumed escalation costs.

3.11 RELATIONSHIP OF PARTIES: Independent Contractor Status and Responsibilities, Including Tax Responsibilities.

3.11.1 In the performance of services required under this Contract, the CONTRACTOR is an “independent contractor,” with the authority and responsibility to control and direct the performance and details of the work and services required under this Contract; however, the STATE shall have a general right to inspect work in progress to determine whether, in the STATE’s opinion, the services are being performed by the CONTRACTOR in compliance with this Contract. Unless otherwise provided by special condition, it is understood that the STATE does not agree to use the CONTRACTOR exclusively, and that the CONTRACTOR is free to contract to provide services to other individuals or entities while under contract with the STATE.

3.11.2 The CONTRACTOR and the CONTRACTOR’s employees and agents are not by reason of this Contract, agents or employees of the State for any purpose, and the CONTRACTOR and the CONTRACTOR’s employees and agents shall not be entitled to claim or receive from the STATE any vacation, sick leave, retirement, workers’ compensation, unemployment insurance, or other benefits provided to state employees.

3.11.3 The CONTRACTOR shall be responsible for the accuracy, completeness, and adequacy of the CONTRACTOR’s performance under this Contract. Furthermore, the CONTRACTOR intentionally, voluntarily, and knowingly assumes the sole and entire liability to the CONTRACTOR’s employees and agents, and to any individual not a party to this Contract, for all loss, damage, or injury caused by the CONTRACTOR, or the CONTRACTOR's employees or agents in the course of their employment.

3.11.4 The CONTRACTOR shall be responsible for payment of all applicable federal, state, and county taxes and fees which may become due and owing by the CONTRACTOR by reason of this Contract, including but not limited to (i) income taxes, (ii) employment related fees, assessments, and taxes, and (iii) general excise taxes. The CONTRACTOR also is responsible for obtaining all licenses, permits, and certificates that may be required in order to perform this Contract.

3.11.5 The CONTRACTOR shall obtain a general excise tax license from the Department of Taxation, State of Hawaii, in accordance with section 237-9, HRS, and shall comply with all requirements thereof. The CONTRACTOR shall obtain a tax clearance certificate from the Director of Taxation, State of Hawaii, showing that all delinquent taxes, if any, levied or accrued under state law against the CONTRACTOR have been paid and submit the same to the STATE prior to commencing any performance under this Contract. The CONTRACTOR shall also be solely responsible for meeting all requirements necessary to obtain the tax clearance certificate required for final payment under sections 103-53 and 237-45, HRS, and paragraph 8.8 of these General Conditions.

3.11.6 The CONTRACTOR is responsible for securing all employee-related insurance coverage for the CONTRACTOR and the CONTRACTOR's employees and agents that is or may be required by law, and for payment of all premiums, costs, and other liabilities associated with securing the insurance coverage.

3.12 PERSONNEL REQUIREMENTS:

3.12.1 The CONTRACTOR shall secure, at the CONTRACTOR's own expense, all personnel required to perform this Contract.

3.12.2 The CONTRACTOR shall ensure that the CONTRACTOR's employees or agents are experienced and fully qualified to engage in the activities and perform the services required under this Contract, and that all applicable licensing and operating requirements imposed or required under federal, state, or county law, and all applicable accreditation and other standards of quality generally accepted in the field of the activities of such employees and agents are complied with and satisfied.

3.13 NONDISCRIMINATION - No person performing work under this Contract, including any subcontractor, employee, or agent of the Contractor, shall engage in any discrimination that is prohibited by any applicable federal, state, or county law.

3.14 CONFLICTS OF INTEREST - The CONTRACTOR represents that neither the CONTRACTOR, nor any employee or agent of the CONTRACTOR, presently has any interest, and promises that no such interest, direct or indirect, shall be acquired, that would or might conflict in any manner or degree with the CONTRACTOR's performance under this Contract.

END OF ARTICLE 3

ARTICLE 4 - SCOPE OF WORK

4.1 INTENT OF CONTRACT, DUTY OF CONTRACTOR - The intent of the Contract is to provide for the construction, complete in every detail, of the work described at the accepted bid price and within the time established by the contract. The Contractor has the duty to furnish all labor, materials, equipment, tools, transportation, incidentals and supplies and to determine the means, methods and schedules required to complete the work in accordance with the drawings, specifications and terms of the contract.

4.1.1 ENTIRE CONTRACT - This Contract sets forth all of the Contract, conditions, understandings, promises, warranties, and representations between the STATE and the CONTRACTOR relative to this Contract. This Contract supersedes all prior Contracts, conditions, understandings, promises, warranties and representations, which shall have no further force or effect. There are no Contracts, conditions, understandings, promises, warranties, or representations, oral or written, express or implied, between the STATE and the CONTRACTOR other than as set forth or as referred to herein.

4.2 CHANGES - The Project Engineer may at any time, during the progress of the work, by written order, and without notice to the sureties, make changes in the work as may be found to be necessary or desirable. Such changes shall not invalidate the Contract nor release the Surety, and the Contractor will perform the work as changed, as though it had been a part of the original Contract.

4.2.1 MINOR CHANGES - Minor changes in the work may be directed by the Project Engineer with no change in contract price or time of performance. Minor changes are consistent with the intent of the Contract Documents and do not substantially alter the type of work to be performed or involve any adjustment to the contract sum or extension of the contract time.

4.2.2 Oral Orders

4.2.2.1 Any oral order, direction, instruction, interpretation or determination from the Executive Director or any other person which in the opinion of the Contractor causes any change, shall be considered as a change only if the Contractor gives the Executive Director written notice of its intent to treat such oral order, direction, instruction, interpretation or determination as a change directive. Such written notice must be delivered to both the Executive Director and the Project Engineer before the Contractor acts in conformity with the oral order, direction, instruction, interpretation or determination, but not more than five (5) days after delivery of the oral order to the Contractor. The written notice shall state the date, circumstances, whether a time extension will be requested, and source of the order that the Contractor regards as a change. Such written notice may not be waived and shall be a condition precedent to the filing of any claim by the Contractor. Unless the Contractor acts in accordance with this procedure, any such oral order shall not be treated as a change for which the Contractor may make a claim for an increase in the contract time or contract price related to such work.

4.2.2.2 No more than five (5) days after receipt of the written notice from the Contractor, a Field Order shall be issued for the subject work if the Department agrees that it constitutes a change. If no Field Order is issued in the time established, it shall be deemed a rejection of Contractor’s claim for a change. If the Contractor objects to the failure to issue a Field Order, it shall file a written protest with the Executive Director within thirty (30) days after delivery to the Executive Director of the Contractor's written notice of its intention to treat the oral order as a change. In all cases, the Contractor shall proceed with the work. The protest shall be determined as provided in Section 7.25, DISPUTES AND CLAIMS.

4.2.3 FIELD ORDERS - All changes will be set forth in a field order or change order. Upon receipt of a field order, the Contractor shall proceed with the changes as ordered. If the Contractor does not agree with any of the terms or conditions or in the adjustment or non-adjustment to the contract time and/or contract price set forth therein, it shall file with the Executive Director a written protest setting forth its reasons in detail within thirty (30) days after receipt of the field order. In all cases, the Contractor shall proceed with the work as changed. The protest shall be determined as provided in Subsection 7.25, DISPUTES AND CLAIMS. Failure to file such a protest within the time specified shall constitute agreement on the part of the Contractor with the terms, conditions, amounts and adjustments or non-adjustment to the contract price and/or contract time set forth in the field order.

4.2.4 CHANGE ORDERS

4.2.4.1 The Department will issue sequentially numbered change orders at times it deems appropriate during the contract period. A change order may contain the adjustment in contract price and / or time for a number of Field Orders. The change order will be issued in the format attached (refer to the Appendix). No payment for any change will be made until the change order is issued.

4.2.4.2 The penal sum of the Surety Performance and Payment Bonds will be adjusted by the amount of each and every change order.

4.3 DUTY OF CONTRACTOR TO PROVIDE PROPOSAL FOR CHANGES

4.3.1 A Field Order may request the Contractor to supply the Department with a proposal for an adjustment to the contract time or contract price for the work described therein. Any such request for a proposal shall not affect the duty of the Contractor to proceed as ordered with the work described in the Field Order.

4.3.2 The Project Engineer from time to time may issue a Bulletin to the Contractor requesting price and / or time adjustment proposals for contemplated changes in the work. A Bulletin is not a directive for the Contractor to perform the work described therein.

4.3.3 Within seven (7) days after receipt of a Bulletin or Field Order containing a request for proposal, the Contractor shall submit to the Project Engineer a detailed written statement in a format similar to the one shown in the Appendix setting forth all charges the Contractor proposes for the change and the proposed adjustment of the contract time, all properly itemized and supported by sufficient substantiating data to permit evaluation. No time extension will be granted for delays caused by late Contractor pricing of changes or proposed changes. If the project is delayed because Contractor failed to submit the cost proposal within the seven (7) days, or longer as allowed by the Project Engineer, liquidated damages will be assessed in accordance with Section 7.26, FAILURE TO COMPLETE THE WORK ON TIME.

4.3.4 No payment shall be allowed to the Contractor for pricing or negotiating proposed or actual changes. No time extension will be granted for delay caused by late Contractor pricing of changes or proposed changes.

4.3.5 The Executive Director may accept the entire proposal, or any discreet cost item contained within the proposal or the proposed adjustment to contract time by a notice in writing to the Contractor delivered to the Contractor within thirty (30) days after receipt of the proposal. The written acceptance by the Executive Director of all or part of the Contractor's proposal shall create a binding agreement between the parties for that aspect of the change.

4.3.6 If the Department refuses to accept the Contractor's entire proposal, the Executive Director may issue a Field Order for the work; or if a Field Order has already been issued, the Department may issue a supplemental Field Order establishing the remaining adjustments to contract price and/or contract time for the ordered changes. If the Contractor disagrees with any term, condition or adjustment contained in such Field Order or supplemental Field Order, it shall follow the protest procedures set forth in and be subject to the other terms of Subsection 4.2.3, FIELD ORDERS.

4.4 PRICE ADJUSTMENT (§3-125-13 HAR)

4.4.1 Any adjustment in the contract price pursuant to a change or claim in this contract shall be made in one or more of the following ways:

4.4.1.1 By agreement on a fixed price adjustment before commencement of the pertinent performance or as soon thereafter as practicable;

4.4.1.2 By unit prices specified in the contract or subsequently agreed upon;

4.4.1.3 Whenever there is a variation in quantity for any work covered by any line item in the schedule of costs submitted as required by Section 7.2, COMMENCEMENT REQUIREMENTS, by the Department at its discretion, adjusting the lump sum price proportionately;

4.4.1.4 In such other manner as the parties may mutually agree;

4.4.1.5 At the sole option of the Project Engineer, by the costs attributable to the event or situation covered by the change, plus appropriate profit or fee, all as specified in Section 4.5, ALLOWANCES FOR OVERHEAD AND PROFIT and the force account provision of Section 8.3, PAYMENT FOR ADDITIONAL WORK; or

4.4.1.6 In the absence of an agreement between the two parties, by a unilateral determination by the Department of the reasonable and necessary costs attributable to the event or situation covered by the change, plus appropriate profit or fee, all as computed in accordance with applicable sections of Chapters 3-123 and 3-126 of the Hawaii Administrative Rules and Regulations, and Section 4.5, ALLOWANCES FOR OVERHEAD AND PROFIT.

4.5 ALLOWANCES FOR OVERHEAD AND PROFIT (§3-125-13 HAR)

4.5.1 In determining the cost or credit to the Department resulting from a change, the allowances for all overhead, including, extended overhead resulting from adjustments to contract time (including home office, branch office and field overhead, and related delay impact costs) and profit combined, shall not exceed the percentages set forth below:

4.5.1.1 For the Contractor, for any work performed by its own labor forces, fifteen percent (15%) of the direct cost;

4.5.1.2 For each subcontractor involved, for any work performed by its own forces, fifteen percent (15%) of the direct cost;

4.5.1.3 For the Contractor or any subcontractor, for work performed by their subcontractors, seven percent (7%) of the amount due the performing subcontractor.

4.5.1.4 Field overhead includes, but is not limited to all costs of supervision, engineering, clerical, layout, temporary facilities, improvements and structures, all general condition expenditures, storage, transport and travel, housing, small tools (as defined in 8.3.4.5(h), pickup trucks and automobiles.

4.5.2 Not more than three markup allowance line item additions not exceeding the maximum percentage shown above will be allowed for profit and overhead, regardless of the number of tier subcontractors.

4.5.3 The allowance percentages will be applied to all credits and to the net increase of direct costs where work is added and deleted by the changes.

4.6 PAYMENT FOR DELETED MATERIAL

4.6.1 Canceled Orders - If acceptable material was ordered by the Contractor for any item deleted by an ordered change in the work prior to the date of notification of such deletion by the Project Engineer, the Contractor shall use its best efforts to cancel the order. The Department shall pay reasonable cancellation charges required by the supplier excluding any markup for overhead and profit to the Contractor.

4.6.2 RETURNED MATERIALS - If acceptable deleted material is in the possession of the Contractor or is ultimately received by the Contractor, if such material is returnable to the supplier and the Project Engineer so directs, the material shall be returned and the Contractor will be paid for the reasonable charges made by the supplier for the return of the material, excluding any markup for overhead and profit to the Contractor. The cost to the Contractor for handling the returned material will be paid for as provided in Section 4.4, PRICE ADJUSTMENT.

4.6.3 UNCANCELLED MATERIALS - If orders for acceptable deleted material cannot be canceled at a reasonable cost, it will be paid for at the actual cost to the Contractor including an appropriate markup for overhead and profit as set forth in Section 4.5, ALLOWANCES FOR OVERHEAD AND PROFIT. In such case, the material paid for shall become the property of the Department and the cost of further storage and handling shall be paid for as provided in Section 4.4, PRICE ADJUSTMENT.

4.7 VARIATIONS IN ESTIMATED QUANTITIES (§3-125-10 HAR)

4.7.1 Where the quantity of a major unit price item in this contract is estimated on the proposal form and where the actual quantity of such pay item varies more than fifteen percent (15%) above or below the estimated quantity stated in this contract, an adjustment in the contract price shall be made upon demand of either party. The adjustment shall be based upon any increase or decrease in costs due solely to the variation above one hundred fifteen percent (115%) or below eighty-five percent (85%) of the estimated quantity. The adjustment shall be subject to Section 4.4 PRICE ADJUSTMENT and Section 4.5, ALLOWANCES FOR OVERHEAD AND PROFIT. If the quantity variation is such as to cause an increase in the time necessary for completion, the Executive Director shall, upon receipt of a written request for an extension of time within thirty (30) days of the item's completion, ascertain the facts and make such adjustment to the completion date as the Executive Director finds justified.

4.8 VARIATIONS IN BOTTOM ELEVATIONS - The Contractor shall plan and construct to the bottom elevations of footings, piles, drilled shafts, or cofferdams as shown on the drawings. When the bottom of a footing, pile, drilled shaft, or cofferdam is shown as an estimated or approximate elevation, the Contractor shall plan and construct to that elevation or to any deeper elevation required by the drawings or direction of the Project Engineer. In the event the bottom elevation is lowered, the Contractor shall be entitled to additional payment in accordance with Sections 4.4 PRICE ADJUSTMENT and 4.5 ALLOWANCES FOR OVERHEAD AND PROFIT. In the event the bottom elevation is raised, the Department shall be entitled to a credit in accordance with Sections 4.2 CHANGES, 4.4, PRICE ADJUSTMENT and 4.5, ALLOWANCES FOR OVERHEAD AND PROFIT.

4.9 DIFFERING SITE CONDITIONS (§3-125-11 HAR)

4.9.1 During the progress of the work, if the Contractor encounters conditions at the site differing materially from those shown in the drawings and specifications, Contractor shall promptly, and before any such conditions are disturbed or damaged (except in an emergency as required by subsection 7.17.8), notify the Project Engineer in writing of:

4.9.1.1 Subsurface or latent physical conditions at the site differing materially from those indicated in the contract; or

4.9.1.2 Unknown physical conditions at the site, of an unusual nature differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in this contract. Unclaimed motor vehicles or parts thereof and discarded materials or unclaimed items are not unknown or unforeseen physical conditions. (See also Section 5.8, EXAMINATION OF DRAWINGS, SPECIFICATIONS, PROJECT SITE)

4.9.2 After receipt of written notice, the Executive Director shall promptly investigate the site, and if it is found that such conditions do materially differ and cause an increase in the Contractor’s cost of, or the time required to, perform any part of the Work, whether or not changed as a result of such conditions, an adjustment shall be made and the contract modified accordingly. Any adjustment in contract price made pursuant to this Section 4.9 shall be determined in accordance with Sections 4.4, PRICE ADJUSTMENT and 7.25, DISPUTES AND CLAIMS.

4.9.3 Nothing contained in this Section 4.9 shall be grounds for an adjustment in compensation if the Contractor had actual knowledge or should have known of the existence of such conditions prior to the submission of bids.

4.10 COSTS AND EXPENSES - Any reimbursement due the CONTRACTOR for per diem and transportation expenses under this Contract shall be subject to chapter 3-123 (Cost Principles) of the Procurement Rules and the following guidelines:

4.10.1 Reimbursement for air transportation shall be actual cost or coach class air fare, whichever is less.

4.10.2 Reimbursement for ground transportation costs shall not exceed the actual cost of renting an intermediate-sized vehicle.

4.10.3 Unless prior written approval of the EXECUTIVE DIRECTOR is obtained, reimbursement for subsistence allowance (i.e., hotel and meals, etc.) shall not exceed the applicable daily authorized rates for interisland or out-of-state travel that are set forth in the current Governor’s Executive Order authorizing adjustments in salaries and benefits for state officers and employees in the executive branch who are excluded from collective bargaining coverage.

END OF ARTICLE 4

ARTICLE 5 - CONTROL OF WORK

5.1 AUTHORITY OF THE EXECUTIVE DIRECTOR

5 .1.1. AUTHORITY OF THE EXECUTIVE DIRECTOR - The Executive Director shall make final and conclusive decisions on all questions which may arise relating to the quality and acceptability of the materials furnished and work performed, the manner of performance and the rate of progress of the work, the interpretation of the plans and specifications, the acceptable fulfillment of the contract on the part of the Contractor, the compensation under the contract and the mutual rights of the parties to the contract. The Executive Director shall have the authority to enforce and make effective such decisions and orders at the Contractor's expense when the Contractor fails to carry such decisions and orders out promptly and diligently. The Executive Director shall have the authority to suspend the work wholly or in part as provided in Subsection 7.24, SUSPENSION OF WORK.

5.2 AUTHORITY OF THE PROJECT ENGINEER

5.2.1 The Project Engineer has the authority to act on behalf of the Department on all matters regarding the contract and the work that are not reserved for the Executive Director. The Project Engineer's authority is vested exclusively in the Project Engineer except when specific authority to act for the Project Engineer has been delegated to a specific person or persons. Such delegation of authority may be established by the Contract Documents; otherwise, it is not effective or binding upon the Department until such written notification of the delegation is received by the Contractor.

5.3 AUTHORITY OF THE INSPECTOR

5.3.1 The Inspector shall observe and inspect the contract performance and materials. The Inspector does not have any authority vested in the Project Engineer unless specifically delegated in writing.

5.3.2 The Inspector may offer advice and recommendations to the Contractor, but any such advice or recommendations are not directives from the Project Engineer.

5.3.3 The Inspector has no authority to allow deviations from the Contract Documents and may reject any and all work that the Inspector deems is not in conformity with the contract requirements. Failure of an Inspector at any time to reject non-conforming work shall not be considered a waiver of the Department's right to require work in strict conformity with the Contract Documents as a condition of final acceptance.

5.4 AUTHORITY OF CONSULTANT(S) - The Department may engage Consultant(s) for limited or full observation to supplement the inspections performed by the Department and respective Counties. Unless otherwise specified in writing to the Contractor, such retained Consultant(s) will have the authority of an Inspector.

5.5 SHOP DRAWINGS AND OTHER SUBMITTALS

5.5.1 The following documents shall be submitted where required by the Contract Documents:

5.5.1.1 Shop Drawing

(1) The Contractor shall prepare, thoroughly check, and approve all shop drawings, including those prepared by subcontractors or any other persons. The Contractor shall indicate its approval by stamping and signing each drawing. Any shop drawing submitted without being reviewed, stamped and signed will be considered as not having been submitted, and any delay caused thereby shall be the Contractor's responsibility.

(2) Shop drawings shall indicate in detail all parts of an item of work, including erection and setting instructions and engagements with work of other trades or other separate contractors. Shop drawings for structural steel, millwork and pre-cast concrete shall consist of calculations, fabrication details, erection drawings and other working drawings to show the details, dimensions, sizes of members, anchor bolt plans, insert locations and other information for the complete fabrication and erection of the structure to be constructed.

(3) The Contractor shall be responsible for the design of all structural curtain walls, all connections and fasteners for structural steel and architectural and structural precast concrete. Curtain walls, connections and fasteners shall be designed by a licensed professional engineer to carry the indicated or necessary loads. The precast concrete pieces shall be designed to withstand erection, transportation and final loading stresses. All calculations shall be performed by a licensed professional engineer and submitted to the Project Engineer for review.

(4) The cost of shop drawings or any other submittal shall not be a separate or individual pay item. All costs of furnishing shop drawings required by the contract shall be included in the price agreed to be paid for the various contract items of work, and no additional allowances will be made therefor.

(5) All shop drawings as required by the contract, or as determined by the Project Engineer to be necessary to illustrate details of the Work shall be submitted to the Project Engineer with such promptness as to cause no delay in the work or in that of any other Contractor. Delay caused by the failure of the Contractor to submit shop drawings on a timely basis to allow for review, possible resubmittal and acceptance will not be considered as a justifiable reason for a contract time extension. Contractor, at its own risk, may proceed with the work affected by the shop drawings before receiving acceptance; however the Department shall not be liable for any costs or time required for the correction of work done without the benefit of accepted shop drawings.

(6) It is the Contractor's obligation and responsibility to check all of its and its subcontractor's shop drawings and be fully responsible for them and for coordination with connecting and other related work. The Contractor shall prepare, and submit to the Project Engineer coordination drawings showing the installation locations of all plumbing, piping, duct and electrical work including equipment throughout the project. By

approving and submitting shop drawings, the Contractor thereby represents that it has determined and verified all field measurements and field construction criteria, or will do so, and that it has checked and coordinated each shop drawing with the requirements of the work and the contract documents. When shop drawings are prepared and processed before field measurements and field construction criteria can be or have been determined or verified, the Contractor shall make all necessary adjustments in the work or resubmit further shop drawings, all at no change in contract price or time.

5.5.1.2 SHOP DRAWING FORM - Each drawing and/or series of drawings submitted must be accompanied by a letter of transmittal giving a list of the titles and number of the drawings. Each series shall be numbered consecutively for ready reference and each drawing shall be marked with the following information:

(1) Date of Submission

(2) Name of Project

(3) Project Number

(4) Location of Project

(5) Name of submitting Contractor and Subcontractor

(6) Revision Number

(7) Specification and/or any drawing reference by article or sheet number.

5.5.1.3 No shop drawing shall be smaller than 24” x 36” nor larger than 28” x 42”. At the determination of the Project Engineer, each sheet of drawings for the submittal shall consist of either (1) reproducible transparency and three ozalid prints; or (2) six ozalid prints

5.5.1.4 The Department will not be responsible for any cost of modifying/adjusting precast structures to fit the final as-built design, actual field conditions and finished work. To this end, the Contractor shall follow the following procedures:

(a) Submit shop drawings for general design conformity for approval. Delay precasting operations.

(b) Start infrastructure work. Expose, check grade and install improvements requiring precast structures. Resubmit shop drawings with schedule for all structures indicating required deviations, correct and final inverts, depths, openings, special reinforcing and details, alignments, correct configurations, tops, grating, etc. The Contractor shall submit a schedule for the precasting work. Precast operations may commence based on approved shop drawings. During precast operations, the Project Engineer may inspect the operations at least once per differing group of structures. The Contractor shall assume all risks and costs associated with modifying/adjusting the precast structures due to incomplete field verification, premature analysis and shop drawings.

5.5.1.5 DESCRIPTIVE SHEETS AND OTHER SUBMITTALS - When a submittal is required by the contract, the Contractor shall submit to the Project Engineer eight (8) complete sets of descriptive sheets such as brochures, catalogs, illustrations, etc., which will completely describe the material, product, equipment, furniture or appliances to be used in the project as shown in the drawings and specifications. Prior to the submittal, the Contractor will review and check all descriptive sheets for conformity to the contract requirements and indicate such conformity by marking or stamping and signing each sheet. It is the responsibility of the Contractor to submit descriptive sheets for review and acceptance by the Project Engineer as required at the earliest possible date after the date of award in order to meet the construction schedule. Delays caused by the failure of the Contractor to submit descriptive sheets as required will not be considered as justifiable reasons for contract time extension. The submittal shall list the seven (7) items of information as listed in Section 5.5.1.2.

5.5.1.6 MATERIAL SAMPLES AND COLOR SAMPLES – Prior to their submittal, all color samples and material shall be assembled and presented as required by the Department. When sample submittals are required by the contract, the Contractor shall review, approve, indicate its approval and submit to the Project Engineer samples of the materials to be used in the project and color selection samples. It is the responsibility of the Contractor to submit material and color samples for review as required at the earliest possible date after the date of award in order to meet the construction schedule. Delays caused by the failure of the Contractor to submit material and color samples will not be considered as justifiable reasons for contract time extension. The submittal shall list the seven (7) items of information as listed in Section 5.5.1.2.

5.5.2 SUBMITTAL VARIANCES - The Contractor shall include with the submittal, written notification clearly identifying all deviations or variances from the contract drawings, specifications and other Contract Documents. The notice shall be in a written form separate from the submittal. The variances shall also be clearly indicated on the shop drawing, descriptive sheet, material sample or color sample. Failure to so notify of and identify such variances shall be grounds for the subsequent rejection of the related work or materials, notwithstanding that the submittal was accepted by the Project Engineer. If the variances are not acceptable to the Project Engineer, the Contractor will be required to furnish the item as specified or indicated on the Contract Documents at no additional cost or time.

5.5.3 REVIEW AND ACCEPTANCE PROCESS - The Project Engineer shall check shop drawings and within forty-five (45) days of receipt return them to the Contractor unless otherwise agreed between the Contractor and the Department. Submittals required for work to be installed within the first sixty days after the notice to proceed shall be returned by the Project Engineer within twenty (20) days. If the volume of shop drawings submitted at any time for review is unusually large, the Contractor may inform the Project Engineer of its preferred order for review and the Project Engineer shall use reasonable efforts to accommodate the Contractor's priorities.

5.5.3.1 The acceptance by the Project Engineer of the Contractor's submittal relates only to their sufficiency and compliance with the intention of the contract. Acceptance by the Project Engineer of the Contractor's submittal does not relieve the Contractor of any responsibility for accuracy of dimensions, details, and proper fit, and for agreement and conformity of submittal with the Contract Drawings and Specifications. Nor will the Project Engineer's acceptance relieve the Contractor of responsibility for variance from the Contract Documents unless the Contractor, at the time of submittal, has provided notice and identification of such variances required by this section. Acceptance of a variance shall not justify a contract price or time adjustment unless the Contractor requests such an adjustment at the time of submittal and the adjustment are explicitly agreed to in writing by the Department. Any such request shall include price details and proposed scheduling modifications. Acceptance of a variance is subject to all contract terms, stipulations and covenants, and is without prejudice to any and all rights under the surety bond.

5.5.3.2 If the Project Engineer returns a submittal to the Contractor that has been rejected, the Contractor, so as not to delay the work, shall promptly make a resubmittal conforming to the requirements of the Contract Documents and indicating in writing on the transmittal and the subject submittal what portions of the resubmittal has been altered in order to meet the acceptance of the Project Engineer. Any other differences between the resubmittal and the prior submittal shall also be specifically described in the transmittal.

5.5.3.3 No mark or notation made by the Project Engineer or Consultant(s) on or accompanying the return of any submittal to the Contractor shall be considered a request or order for a change in work. If the Contractor believes any such mark or notation constitutes a request for a change in the work for which it is entitled to an adjustment in contract price and/or time, the Contractor must follow the same procedures established in Section 4.2, CHANGES for oral orders, directions, instructions, interpretations or determinations from the Project Engineer or else lose its right to claim for an adjustment.

5.6 COORDINATION OF CONTRACT DOCUMENTS - It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. The Contract Documents are complementary: any requirement occurring in one document is as binding as though occurring in all. In the event of conflict or discrepancy the priorities stated in the following subparagraphs shall govern:

5.6.1 Addenda shall govern over all other Contract Documents. Subsequent addenda issued shall govern over prior addenda only to the extent specified.

5.6.2 Special Conditions and Proposal shall govern over the General Conditions and Specifications.

5.6.3 Specifications shall govern over drawings.

5.6.4 Specification Error - Should an error or conflict appear within the specification, the Contractor shall immediately notify the Project Engineer. The Project Engineer shall promptly issue instructions as to procedure. Any requirement occurring in one or more parts of the specification is as binding as though occurring in all applicable parts.

5.6.4.1 Should an error or conflict appear within a specification section, between a listed manufacturer / product and the performance requirements of the specification section, the performance requirements shall govern.

5.6.5 Drawings:

5.6.5.1 Schedules shall govern over all other notes and drawings.

5.6.5.2 Bottom elevations of footings shown on drawings shall govern over a general note such as: “All footings shall rest on firm, undisturbed soil and extend a minimum of a certain number of feet into natural or finish grade, whichever is lower.” In the event the footing must be lowered below the bottom elevation shown, the Contractor shall be entitled to additional payment as provided in Subsection 4.2, CHANGES. In the event the footing is raised above the bottom elevation shown, the Department shall be entitled to a credit as provided in Subsection 4.2, CHANGES.

5.6.5.3 When a bottom of pile, drilled shaft, piling or cofferdam is shown as an estimated or approximate elevation, the Contractor shall plan and construct to that elevation or to any deeper elevation required by the plans or the direction by the Project Engineer. The Project Engineer, at the Project Engineer's sole discretion, may order in writing termination of all or part of the work above the estimated or approximate elevation.

5.6.5.4 Except for drawing schedules and bottom elevations as noted above, general notes shall govern over all other portions of the drawings:

5.6.5.5 Larger scale drawings shall govern over smaller scale drawings.

5.6.5.6 Figured or numerical dimensions shall govern over dimensions obtained by scaling. Measurements from the drawings when scaled shall be subject to the approval of the Project Engineer.

5.6.5.7 In cases of discrepancies in the figures or drawings, the discrepancies shall be immediately referred to the Project Engineer without whose decision said discrepancy shall not be corrected by the Contractor save at its own risk and in the settlement of any complications arising from such adjustment without the knowledge and consent of the Project Engineer, the Contractor shall bear all extra expense involved.

5.6.5.8 Items shown on the drawings that are completely void in terms of description, details, quality and / or performance standards in both the Drawings and Specifications to make a price determination shall be considered an omission and the Contractor shall immediately refer same to the Project Engineer for a decision.

5.6.5.9 Where there is a conflict between the architectural sheets and the civil or landscaping or electrical sheets, etc., the conflict shall be considered a discrepancy and the Contractor shall immediately refer same to the Project Engineer for a decision.

5.6.5.10 Any requirement occurring in one or more of the sheets is as binding as though occurring in all applicable sheets.

5.7 INTERPRETATION OF DRAWINGS AND SPECIFICATIONS - The Contractor shall carefully study and compare the Contract Documents with each other, with field conditions and with the information furnished by the Department and shall at once report to the Project Engineer errors, conflicts, ambiguities, inconsistencies or omissions discovered. Should an item not be sufficiently detailed or explained in the Contract Documents, Contractor shall report and request the Project Engineer's clarification and interpretation. The Project Engineer will issue a final clarification or final interpretation.

5.8 EXAMINATION OF DRAWINGS, SPECIFICATIONS, PROJECT SITE

5.8.1 The Contractor shall examine carefully the Project Site to become familiar with the conditions to be encountered in performing the Work and the requirements of the Contact Documents.

5.8.1.1 No extra compensation will be given by reason of the Contractor's misunderstanding or lack of knowledge of the requirements of the Work to be accomplished or the conditions to be encountered in performing the project.

5.8.1.2 No extra compensation will be given by reason of the Contractor's misunderstanding or lack of knowledge when the existence of differing site, subsurface or physical conditions could have been reasonably discovered or revealed as a result of any examination, investigation, exploration, test or study of the site and contiguous areas required by the bidding requirements or contract documents to be conducted by or for the Contractor.

5.8.2 When the contract drawings include a log of test borings showing a record of the data obtained by the Department's investigation of subsurface conditions, said log represents only the opinion of the Department as to the character of material encountered in its test borings and at only the location of each boring. The Contractor acknowledges that underground site conditions in Hawaii vary widely. There is no warranty, either expressed or implied, that the conditions indicated are representative of those existing throughout the work or any part of it, or that other conditions may not occur.

5.8.3 Reference is made to the Special Conditions for identification of subsurface investigations, reports, explorations and tests utilized by the Department in preparation the Contract Documents. Such reports, drawings, boring logs etc., if any, are not part of the Contract Documents.

5.9 COOPERATION BETWEEN THE CONTRACTOR AND THE DEPARTMENT

5.9.1 Furnishing Drawings and Specifications - Contractor will be supplied copies of the Contract Drawings and Specifications as specified in the General Requirements. Contractor shall have and maintain at least one unmarked copy of the Contract Drawings and Specifications on the work site, at all times. Contractor shall cooperate with the Project Engineer, the Inspector(s), and other contractors in every possible way.

5.9.2 SUPERINTENDENT - The Contractor shall have a competent superintendent on the work site as its designated agent. The superintendent shall be able to read and understand the project plans and specifications and shall be experienced in the type of project being undertaken and the work being performed. The superintendent shall receive instructions from the Project Engineer or its authorized representative. The Contractor shall authorize the superintendent to (a) execute the orders and directions of the Project Engineer or its authorized representative without delay and (b) promptly supply such materials, equipment, tools, labor and incidentals as may be required to complete the project within the prescribed contract time. The Contractor shall furnish a superintendent regardless of the amount of project work sublet.

5.9.2.1 If the superintendent or agent is not present at the work site, the Project Engineer shall have the right to suspend the work as described under Section 7.24, SUSPENSION OF WORK.

5.9.2.2 The Contractor shall file with the Project Engineer a written statement giving the name of the superintendent or agent assigned to the project. The Contractor shall be responsible for notifying the Project Engineer in writing of any change in the superintendent or agent.

5.9.2.3 The requirements of this subsection 5.9.2 may be waived by the Project Engineer.

5.9.3 ENGINEERING WORK - The Contractor shall properly and accurately lay out the work, perform all engineering work, and furnish all engineering materials and equipment required to establish and maintain all lines, grades, dimensions and elevations called for in the drawings or required in the progress of construction, unless otherwise noted in the contract documents. The Contractor will be held definitely and absolutely responsible for any errors in lines, grades, dimensions and elevations and shall at once, on instruction from the Project Engineer, correct and make good such errors or any errors, or faults in the work resulting from errors in engineering performed under the requirements of its contract to the entire satisfaction of the Project Engineer. Full compensation for the work shall be included in the prices paid for contract items of work. No additional allowance will be made for the correction of incorrect engineering work.

5.9.3.1 The Project Engineer shall furnish the requisite bench elevations.

5.9.3.2 The Contractor shall locate and verify all lines, grades, dimensions and elevations indicated on the drawings before any excavation, or construction begins. Any discrepancy shall be immediately brought to the attention of the Project Engineer; any change shall be made in accordance with the Project Engineer’s instruction.

5.9.3.3 The Contractor shall verify all street survey monuments (horizontal and vertical alignment) prior to final acceptance by the Project Engineer in accordance with any governmental requirements.

5.9.3.4 The Contractor shall provide a surveyor or Civil Engineer licensed in the State of Hawaii to verify and establish all lines, grades, dimensions and elevations.

5.9.4 USE OF STRUCTURE OR IMPROVEMENT - The Department shall have the right, at any time during construction of the structure or improvements, to enter same for the purpose of installing by government labor or by any other Contractor or utility any necessary work in connection with the installation of facilities, it being mutually understood and agreed, however, that the Contractors, utilities and the Department will, so far as possible work to the mutual advantage of all, where their several works in the above mentioned or in unforeseen instances touch upon or interfere with each other. As a convenience to those involved, the Project Engineer shall allocate the work and designate the sequence of construction in case of controversy between Contractors on separate projects under Department jurisdiction.

5.9.4.1 The Department shall also have the right to use the structure, equipment, improvement or any part thereof, at any time after it is considered by the Project Engineer as available. In the event that the structure, equipment or any part thereof is so used, the Department shall be responsible for all expenses incidental to such use and any damages resulting from the Department's use.

5.9.4.2 Equipment warranty will commence to run before the work is complete when and if the Department begins actual use of the equipment for the purpose for which the equipment was designed and installed.

5.9.4.3 If the Department enters the structure for construction and / or occupancy and the Contractor is delayed because of interference by the Department or by extra work resulting from damage which the Contractor is not responsible for, or by extraordinary measures the Contractor must take to accommodate the Department, the Contractor shall be granted an extension of time in accordance with Section 7.21 CONTRACT TIME. However, if such use increases the cost or delays the completion of the remaining portions of work, the Contractor shall be entitled to such extra compensation or extension of time or both, as the Department may determine to be proper. Any additional work necessary will be paid in accordance with Section 8.3, PAYMENT FOR ADDITIONAL WORK.

5.10 INSPECTION - The Project Engineer, the Department's consultants, Inspectors employed by the Department and other representatives duly authorized by the Department shall at all times have access to the work during its construction and shall be furnished with every reasonable facility for ascertaining at any time that the materials and the workmanship are in accordance with the requirements and intentions of the contract. All work done and all materials furnished shall be subject to inspection and acceptance.

5.10.1 Such inspection and approval may extend to all or part of the Work, and to the preparation, fabrication or manufacture of the materials to be used. By entering into a contract for the supply of materials, equipment or performance of labor in connection with the Work, such Material and Equipment Supplier or Labor Contractor consents to and is subject to the terms of Section 5.9 to the same extent as the Contractor.

5.10.2 AUTHORITY TO SUSPEND OPERATIONS - The Project Engineer shall have the authority to suspend operations of any work being improperly performed by issuing a written order giving the reason for shutting down the work. Should the Contractor disregard such written order, the work done thereafter will not be accepted nor paid for.

5.10.3 The inspection of the work shall not relieve the Contractor of any of its obligations to fulfill the contract as prescribed. Notwithstanding prior payment and acceptance by the Project Engineer, any defective and nonconforming work shall be corrected to comply with the contract requirements. Unsuitable, unspecified or unapproved materials may be rejected.

5.10.4 FEDERAL AGENCY INSPECTION - Projects financed in whole or in part with Federal funds shall be subject to inspection and corrective requirements at all times by the Federal Agency involved at no cost to the Department.

5.11 REMOVAL OF DEFECTIVE, NON-CONFORMING AND UNAUTHORIZED WORK

5.11.1 All work which has been rejected as not conforming to the requirements of the Contract shall be remedied or removed and replaced by the Contractor in an acceptable manner and no compensation will be allowed for such removal or replacement. Any work done beyond the work limits shown on the drawings and specifications or established by the Project Engineer or any additional work done without written authority will be considered as unauthorized and will not be paid for. Work so done may be ordered removed at the Contractor's expense.

5.11.2 SCHEDULING CORRECTIVE WORK - The Contractor shall perform its corrective or remedial work at the convenience of the Department and shall obtain the Project Engineer's approval of its schedule.

5.11.3 FAILURE TO CORRECT WORK - Upon failure on the part of the Contractor to comply promptly with any order of the Project Engineer made under the provisions of Section 5.10, the Project Engineer shall have authority to cause defective work to be remedied or removed and replaced, and unauthorized work to be removed, at the Contractor's expense, and to deduct the costs from any monies due or to become due the Contractor.

5.12 VALUE ENGINEERING INCENTIVE (§3-132 HAR amended by Act 149 SLH 1999) On projects with contract amounts in excess of $250,000 (two hundred fifty thousand dollars), the following Value Engineering Incentive Clause shall apply to allow the Contractor to share in cost savings that ensue from cost reduction proposals it submits.

5.12.1 The Value Engineering Incentive Clause applies to all Value Engineering Change Proposals (cost reduction proposals, hereinafter referred to as (VECP) initiated and developed by the Contractor for changing the drawings, designs, specifications or other requirements of this contract. This clause does not however, apply to any VECP unless it is identified as such by the Contractor at the time of its submission to the Project Engineer.

5.12.2 VALUE ENGINEERING CHANGE PROPOSAL (VECP) – All VECP must:

5.12.2.1 Result in a savings to the Department of at least $4000 (four thousand dollars) by providing less costly items and without impairing any essential functions and characteristics such as service life, reliability, economy of operation, ease of maintenance and all necessary features of the completed work;

5.12.2.2 Require, in order to be applied to this Contract, a change order to this Contract; and

5.12.2.3 Not adversely impact on the schedule of performance or the Contract completion date.

5.12.3 VECP Required Information - The VECP will be processed expeditiously and in the same manner as prescribed for any other change order proposal. As a minimum, the following information will be submitted by the Contractor with each proposal:

5.12.3.1 A description of the difference between the existing contract requirements and the VECP, and the comparative advantages and disadvantages of each including durability, service life, reliability, economy of operation, ease of maintenance, design safety standards, desired appearance, impacts due to construction and other essential or desirable functions and characteristics as appropriate;

5.12.3.2 An itemization of the requirements of the contract which must be changed if the VECP is adopted and a recommendation as to how to make each such change;

5.12.3.3 An estimate of the reduction in performance costs that will result from adoption of the VECP taking into account the costs of implementation by the Contractor, including any amounts attributable to subcontracts, and the basis for the estimate;

5.12.3.4 A prediction of any effects the VECP would have on other costs to the Department, such as Department furnished property costs, costs of related items, and costs of maintenance and operation over the anticipated life of the material, equipment, or facilities as appropriate; the construction schedule, sequence and time; and bid item totals used for evaluation and payment purposes;

5.12.3.5 A statement of the time by which a change order adopting the VECP must be issued so as to obtain the maximum cost reduction during the remainder of this contract noting any effect on the contract time; and

5.12.3.6 The dates of any previous submissions of the VECP, the numbers of any Government contracts under which submitted and the previous actions by the Government, if known.

5.12.4 Required Use of Licensed Architect or Engineer - When, in the judgment of the Project Engineer, a VECP alters the design prepared by a registered professional architect or engineer, the Contractor shall ensure the changes to be prepared are by or under the supervision of a licensed professional architect or engineer, and stamped and so certified.

5.12.5 Unless and until a change order applies a VECP to a contract, the Contractor shall remain obligated to perform in accordance with the terms of the contract and the Department shall not be liable for delays incurred by the Contractor resulting from the time required for the Department's determination of the acceptability of the VECP.

5.12.5.1 The determination of the Project Engineer as to the acceptance of any VECP under a contract shall be final.

5.12.6 ACCEPTANCE OF VECP - The Project Engineer may accept in whole or in part any VECP submitted pursuant to this section by issuing a change order to the Contract. Prior to issuance of the change order, the Contractor shall submit complete final contract documents similar to those of the original Contract showing the accepted changes and the new design and features as well as the following:

5.12.6.1 Design calculations;

5.12.6.2 The design criteria used; and

5.12.6.3 A detailed breakdown of costs and expenses to construct or implement such revisions.

5.12.6.4 The change order will identify the final VECP on which it is based.

5.12.7 VECP PRICE ADJUSTMENTS - When a VECP is accepted under a contract, an adjustment in the contract price shall be made in accordance with Section 4.4, PRICE ADJUSTMENT. The adjustment shall first be established by determining the effect on the Contractor’s cost of implementing the change, including any amount attributable to subcontractors and to the Department’s charges to the Contractor for architectural, engineering, or other consultant services, and the staff time required to examine and review the proposal. The contract price shall then be reduced by fifty percent (50%) of the net estimated decrease in the cost of performance.

5.12.8 The Contractor may restrict the Department's right to use the data or information or both, on any sheet of a VECP or of the supporting data, submitted pursuant to this paragraph, if it is stated on that sheet as follows:

5.12.8.1 "This data or information or both shall not be disclosed outside the Department or be duplicated, used, or disclosed, in whole or in part, for any purpose other than to evaluate this VECP. This restriction shall not limit the Department's right to use this data or information or both if obtained from another source, or is otherwise available, without limitations. If this VECP is accepted by the Department by issuance of a change order after the use of this data or information or both in such an evaluation, the Department shall have the right to duplicate, use and disclose any data or information or both pertinent to the proposal as accepted in any manner and for any purpose whatsoever and have others so do."

5.12.9 In the event of acceptance of a VECP, the Department shall have all rights to use, duplicate or disclose in whole or in part in any manner and for any purpose whatsoever, and to have or permit others to do so, any data or information or both reasonably necessary to fully utilize such proposal.

5.12.10 The Contractor shall submit with each VECP all required information and provide all additional information as may be required by the Project Engineer to evaluate and implement the VECP. The cost for preparing the VECP shall be the Contractor's responsibility, and any part of the Contractor's cost for implementing the change shall be due only when the proposal is accepted and a change order is issued.

5.12.11 If the service of the Department's architect, Project Engineer or consultant is necessary to review and evaluate a VECP, the cost therefor shall be paid for by the Contractor.

5.12.12 Each VECP shall be evaluated as applicable to this contract, and past acceptance on another Department project for a similar item shall not be automatic grounds for approval.

5.12.13 The method by which the Contractor will share a portion of the cost savings from an accepted VECP shall be for this contract only, and no consideration shall be made for future acquisition, royalty type payment or collateral savings.

5.12.13.1 The Department may accept the proposed VECP in whole or in part. The Executive Director shall issue a contract change order to identify and describe the accepted VECP.

5.13 SUBCONTRACTS - Nothing contained in the contract documents shall create a contractual relationship between the Department and any subcontractor.

5.13.1 SUBSTITUTING SUBCONTRACTORS - Contractors may enter into subcontracts only with subcontractors listed in the proposal. No subcontractor may be added or deleted and substitutions will be allowed only if the subcontractor:

5.13.1.1 Fails, refuses or is unable to enter into a subcontract; or

5.13.1.2 Becomes insolvent; or

5.13.1.3 Has its subcontractor's license suspended or revoked; or

5.13.1.4 Has defaulted or has otherwise breached the subcontract in connection with the subcontracted work; or

5.13.1.5 Is unable to comply with other requirements of law applicable to contractors, subcontractors and public works projects.

5.13.2 Requesting Approval to Substitute a Subcontractor - Requests to substitute a subcontractor shall be submitted to the Project Engineer for approval. Contractor agrees to hold the Department harmless and indemnify the Department for all claims, liabilities, or damages whatsoever, including attorney’s fees arising out of or related to the approval or disapproval of the substitution.

5.13.3 The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind subcontractors to the Contractor by the terms of the General Conditions and the other contract documents insofar as applicable to the work of the subcontractor and to give the Contractor the same rights regarding the termination of a subcontractor as the Department may exercise over the Contractor.

5.13.4 The Contractor shall not sponsor any unliquidated subcontractor’s claim against the Department and shall defend, indemnify and hold the Department harmless against any direct claims by its subcontractors. Any claim for additional compensation by a subcontractor in connection with the work shall be made only against the Contractor. The Contractor may not assert any such claim against the Department until the liability of the Contractor has been unconditionally established by negotiation, arbitration or litigation, and the amount due the subcontractor has been determined, save for interest due.

5.13.5 Once a subcontractor’s claim is established, should the Contractor intend to make the claim against the Department, it shall follow the procedure set forth under Section 7.25, DISPUTES AND CLAIMS.

5.13.6 SUBCONTRACTING - Contractor shall perform with its own organization, work amounting to not less than twenty percent (20%) of the total contract cost, exclusive of costs for materials and equipment the Contractor purchases for installation by its subcontractors, except that any items designated by the Department in the contract as “specialty items” may be performed by a subcontractor and the cost of any such specialty items so performed by the subcontractor may be deducted from the total contract cost before computing the amount of work required to be performed by the Contractor with its own organization.

END OF ARTICLE 5

ARTICLE 6 - CONTROL OF MATERIALS AND EQUIPMENT

6.1 MATERIALS AND EQUIPMENT - Contractor shall furnish, pay for and install all material and equipment as called for in the drawings and specifications. Materials and equipment shall be new and the most suitable for the purpose intended unless otherwise specified. The Department does not guarantee that the specified or pre-qualified product listed in the drawings and specifications are available at the time of bid or during the contract period.

6.2 SOURCE OF SUPPLY AND QUALITY OF MATERIALS

6.2.1 Only materials conforming to the drawings and specifications and, when required by the contract have been accepted by the Project Engineer, shall be used. In order to expedite the inspection and testing of materials, at the request of the Project Engineer, the Contractor shall identify its proposed sources of materials within ten (10) days after notification by the Project Engineer.

6.2.2 At the option of the Project Engineer, the materials may be accepted by the Project Engineer at the source of supply before delivery is started. Representative preliminary samples of the character and quantity prescribed shall be submitted by the Contractor or producer for examination and tested in accordance with the methods referred to under samples and tests.

6.2.3 PROJECT ENGINEER'S AUTHORIZATION TO TEST MATERIALS - Materials proposed to be used may be inspected and tested whenever the Project Engineer deems necessary to determine conformance to the specified requirements. The cost of testing shall be borne by the Contractor. However, should test results show that the material(s) is in compliance with the specified requirements; the cost of the testing will be borne by the Department.

6.2.4 UNACCEPTABLE MATERIALS - In the event material(s) are found to be unacceptable, the Contractor shall cease their use, remove the unacceptable material(s) that have already been installed or applied, and furnish acceptable materials all at no additional cost to the Department. No material which is in any way unfit for use shall be used.

6.3 SUBSTITUTION OF MATERIALS AND EQUIPMENT AFTER BID OPENING

6.3.1 SUBSTITUTION OF MATERIALS AND EQUIPMENT BEFORE BID OPENING - Refer to Section 2.7, SUBSTITUTION OF MATERIALS AND EQUIPMENT BEFORE BID OPENING. For materials and equipment submitted in compliance with Section 2.7, if after installing the substituted product, an unlisted variance is discovered the Contractor shall immediately replace the product with a specified product at no cost to the Department.

6.3.2 SUBSTITUTION AFTER CONTRACT AWARD - Subject to the Project Engineer's determination if the material or equipment is equal to the one specified or prequalified, substitution of material or equipment may be allowed after the Letter of Award is issued only:

6.3.2.1 If the specified or prequalified item is delayed by unforeseeable contingencies beyond the control of the Contractor which would cause a delay in the project completion; or

6.3.2.2 If any specified or prequalified item is found to be unusable or unavailable due to a change by the manufacturer or other circumstances; or

6.3.2.3 If the Contractor desires to provide a more recently developed material, equipment, or manufactured model from the same named manufacturer than the one specified or prequalified; or

6.3.2.4 If the specified material and / or equipment inadvertently lists only a single manufacturer.

6.3.3 A substitution request after the Contract is awarded shall be fully explained in writing. Contractor shall provide brochures showing that the substitute material and / or equipment is equal or better in essential features and also provide a matrix showing comparison of the essential features. Contractor shall justify its request and include quantities and unit prices involved, respective supplier's price quotations and such other documents necessary to fully support the request. Any savings in cost will be credited to the Department. Contractor shall absorb any additional cost for the substitute item(s) or for its installation. Submitting a substitution request, does not imply that substitutions, for brand name specified materials and equipment will be allowed. The Project Engineer may reject and deny any request deemed irregular or not in the best interest of the Department. A request for substitution shall not in any way be grounds for an extension of contract time. At the discretion of the Project Engineer, a time extension may be granted for an approved substitution.

6.4 ASBESTOS CONTAINING MATERIALS - The use of materials or equipment containing asbestos is prohibited under this contract. Contractor warrants that all materials and equipment incorporated in the project are asbestos-free.

6.5 TEST SAMPLES

6.5.1 The Project Engineer may require any or all materials to be tested by means of samples or otherwise. Contractor shall collect and forward samples requested by the Project Engineer. Contractor shall not use or incorporate any material represented by the samples until all required tests have been made and the material has been accepted. In all cases, the Contractor shall furnish the required samples without charge. Where samples are required from the completed work, the Contractor shall cut and furnish samples from the completed work. Samples so removed shall be replaced with identical material and refinished. No additional compensation will be allowed for furnishing test samples and their replacement with new materials.

6.5.2 Tests of the material samples will be made in accordance with the latest standards of the American Society for Testing and Materials (ASTM), as amended prior to the contract date unless otherwise provided. In cases where a particular test method is necessary or specifications and serial numbers are stipulated, the test shall be made by the method stated in the above-mentioned publication. Where the test reference is the American Association of State Highway and Transportation Officials (AASHTO), it means the specifications and serial numbers of the latest edition and amendments prior to the bid date.

6.5.3 The Project Engineer may, at no extra cost to the Department retest any materials which have been tested and accepted at the source of supply after the same has been delivered to the work site. The Project Engineer shall reject all materials which, when retested, do not meet the requirements of the Contract.

6.6 MATERIAL SAMPLES

6.6.1 The Contractor shall furnish all samples required by the drawings and specifications or that may be requested by the Project Engineer of any and all materials or equipment it proposes to use. Unless specifically required, samples are not to be submitted with the bid.

6.6.2 No materials or equipment of which samples are required shall be used on the Work until the Project Engineer has received and accepted the samples. If the Contractor proceeds to use such materials before the Project Engineer accepts the samples, the Contractor shall bear the risk.

6.6.3 Contractor shall furnish two (2) copies of a transmittal letter with each shipment of samples, The letter shall provide a list of the samples, the name of the building or work for which the materials are intended and the brands of the materials and names of the manufacturers. Also, each sample submitted shall have a label indicating the material represented, its place of origin, the names of the producer, the Contractor and the building or work for which the material is intended. Samples of finished materials shall be marked to indicate where the materials represented are required by the drawings or specifications.

6.6.4 Acceptance of any sample(s) shall be only for the characteristics or for the uses named in such acceptance and for no other purpose. Acceptance of samples shall not change or modify any contract requirement. All samples will be provided by the Contractor at no extra cost to the Department. See also Section 5.5, SHOP DRAWINGS AND OTHER SUBMITTALS.

6.7 NON-CONFORMING MATERIALS - All materials not conforming to the requirements of this contract documents, whether in place or not, shall be rejected and removed immediately from the site of work unless otherwise permitted by the Project Engineer in writing. No rejected material which has subsequently been made to conform shall be used unless and until written acceptance has been given by the Project Engineer. If the Contractor fails to comply forthwith with any order of the Project Engineer made under the provisions of this Section 6.7, the Project Engineer shall have the authority to remove and replace non-conforming materials and charge the cost of removal and replacement to the Contractor.

6.8 HANDLING MATERIALS - Contractor shall handle all materials to preserve their quality and fitness for work. Transport aggregates from the source or storage site to the work in tight vehicles to prevent loss or segregation of materials after loading and measuring.

6.9 STORAGE OF MATERIALS - Contractor shall store all materials to preserve their quality and fitness for the work. Unless otherwise provided, any portion of the project site within the Project Contract Limit not required for public travel may be used for storage purposes and for the Contractor's plant and equipment. Any additional space required shall be provided by the Contractor at its expense subject to the Project Engineer's acceptance. Contractor shall store materials on wooden platforms or other hard, clean surfaces and covered to protect it from the weather and damage. Stored materials shall be located to allow prompt inspection.

6.10 PROPERTY RIGHTS IN MATERIALS - Nothing in the contract shall be construed to vest in the Contractor any right to any materials and equipment after such materials and equipment have been attached, affixed to, or placed in the work.

6.11 ANTITRUST CLAIMS - The STATE and the CONTRACTOR recognized that in actual economic practice, overcharges resulting from antitrust violations are in fact usually borne by the purchaser. Therefore, the CONTRACTOR hereby assigns to STATE any and all claims for overcharges as to goods and material purchased in connection with this Contract, except as to overcharges which result from violations commencing after the price is established under this Contract and which are not passed on to the STATE under an escalation clause.

END OF SECTION 6

ARTICLE 7 - PROSECUTION AND PROGRESS

(Including Legal Relations and Responsibility)

7.1 PROSECUTION OF THE WORK

7.1.1 After approval of the Contract by the Executive Director, a Notice to Proceed will be given to the Contractor as described in Section 3.10, NOTICE TO PROCEED. The Notice to Proceed will indicate the date the Contractor is expected to begin the construction and from which date contract time will be charged.

7.1.2 The Contractor shall begin work no later than ten (10) working days from the date in the Notice to Proceed and shall diligently prosecute the same to completion within the contract time allowed. The Contractor shall notify the Project Engineer at least three (3) working days before beginning work.

7.1.3 If any subsequent suspension and resumption of work occurs, the Contractor shall notify the Project Engineer at least twenty-four (24) hours before stopping or restarting actual field operations.

7.1.4 WORKING PRIOR TO NOTICE TO PROCEED - The Contractor shall not begin work before the date in the Notice to Proceed. Should the Contractor begin work before receiving the Notice to Proceed, any work performed in advance of the specified date will be considered as having been done at the Contractor's risk and as a volunteer and subject to the following conditions:

7.1.4.1 Under no circumstances shall the Contractor commence work on site until it has notified the Project Engineer of its intentions and has been advised by the Project Engineer in writing that the project site is available to the Contractor. The project site will not be made available until the Contractor has complied with commencement requirements under Section 7.2, COMMENCEMENT REQUIREMENTS.

7.1.4.2 In the event the contract is not executed, the Contractor shall, at its own expense, do such work as is necessary to leave the site in a neat condition to the satisfaction of the Project Engineer. The Contractor shall not be reimbursed for any work performed.

7.1.4.3 All work done prior to the Notice to Proceed shall be performed in accordance with the Contract Documents, but will only be considered authorized work and be paid for as provided in the Contract after the Notice to Proceed is issued.

7.1.5 For repairs and/or renovations of existing buildings, unless otherwise permitted by the Project Engineer, the Contractor shall not commence with the physical construction unless all or sufficient amount of materials are available for either continuous construction or completion of a specified portion of the work. When construction is started, the Contractor shall work expeditiously and pursue the work diligently until it is complete. If only a portion of the work is to be done in stages, the Contractor shall leave the area safe and usable for the user agency at the end of each stage.

7.2 Prior to beginning work on site, the Contractor shall submit the following to the Project Engineer:

7.2.1 Identification of the Superintendent or authorized representative on the job site. Refer to Section 5.9, COOPERATION BETWEEN THE CONTRACTOR AND THE DEPARTMENT;

7.2.2 Proposed Working Hours on the job. Refer to Section 7.5, NORMAL WORKING HOURS;

7.2.3 Permits and Licenses. Refer to Section 7.4, PERMITS AND LICENSES;

7.2.4 Schedule of Prices to be accepted for the agreed Monthly Payment Application. Unless the proposal provides unit price bids on all items in this project, the successful Bidder will be required, after the award of contract, to submit a schedule of prices for the various items of construction included in the contract. For projects involving more than a single building and / or facility, the breakdown cost shall reflect a separate schedule of prices for the various items of work for each building and/or facility. The sum of the prices submitted for the various items must equal the lump sum bid in the Bidder's proposal. This schedule will be subject to acceptance by the Project Engineer who may reject same and require the Bidder to submit another or several other schedules if in the Project Engineer's opinion the prices are unbalanced or not sufficiently detailed. This schedule of prices shall be used for the purpose of determining the value of monthly payments due the Contractor for work installed complete in place; and may be used as the basis for determining cost and credit of added or deleted items of work, respectively;

7.2.4.1 The Contractor shall estimate at the close of each month the percentage of work completed under each of the various construction items during such month and submit the Monthly Payment Application to the Project Engineer for review and approval. The Contractor shall be paid the approved percentage of the price established for each item less the retention provided in Section 8.4, PROGRESS AND/OR PARTIAL PAYMENTS; and

7.2.5 PROOF OF INSURANCE COVERAGE - Certificate of Insurance or other documentary evidence satisfactory to the Project Engineer that the Contractor has in place all insurance coverage required by the contract. Refer to Section 7.3, INSURANCE REQUIREMENTS.

7.2.6 Until such time as the above items are processed and approved, the Contractor shall not be allowed to commence on any operations unless authorized by the Project Engineer.

7.3 INSURANCE REQUIREMENTS

7.3.1 OBLIGATION OF CONTRACTOR - Contractor shall not commence any work until it obtains, at its own expense, all required herein insurance. Such insurance shall be provided by an insurance company authorized by the 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 Best’s Rating of “A-VII” or better.

7.3.2 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.

7.3.3 Certificate(s) of Insurance acceptable to the Department shall be filed with the Project 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 coverage(s) being certified will not be cancelled or materially changed without giving the Project Engineer at least thirty (30) days prior written notice. The Department is to be named as Additional Insured on any of the required insurance and it shall be so noted on the certificate. Should any policy be cancelled 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.

7.3.4 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.

7.3.5 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.

7.3.6 The Contractor shall, from time to time, furnish the Project Engineer, when requested, satisfactory proof of coverage of each type of insurance required covering the work. Failure to comply with the Project 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.

7.3.7 TYPES OF INSURANCE - 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 any subcontractor or by anyone directly or indirectly employed by any of them or by anyone for whose acts any of them may be liable.

7.3.7.1 WORKER’S COMPENSATION - The Contractor shall obtain worker’s compensation insurance for all persons whom they 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.

7.3.7.2 COMMERCIAL GENERAL LIABILITY INSURANCE AND AUTOMOBILE INSURANCE Contractor’s commercial general liability insurance and automobile liability insurance shall both be obtained in a combined, single limit of not less than $1,000,000 (one million dollars) unless otherwise indicated in the Special Conditions per occurrence that shall include coverage for bodily injury, sickness, disease or death of any person, arising directly or indirectly out of, in connection with, the performance of work under this contract.

7.3.7.3 The Contractor's property damage liability insurance shall provide for a single combined limit of not less than $1,000,000 (one million dollars) unless otherwise indicated in the Special Conditions 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.

7.3.7.4 The Contractor shall either (a) Require each of its subcontractors to procure and to maintain during the life of its subcontract, subcontractor's comprehensive general liability, automobile liability and property damage liability insurance of the type and in the same amounts specified herein; or (b) Insure the activities of its subcontractors in its own policy.

7.3.7.5 BUILDERS RISK INSURANCE - Unless excluded by the Special Conditions of this contract, the Contractor shall provide builder's risk insurance during the progress of the 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 an additional named insured. The Contractor shall submit to the Project Engineer for its approval all items deemed to be uninsurable. The policy may provide for a deductible in an amount of up to twenty five percent (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 the additional insured respectively as if no deductible existed. The Contractor is responsible for theft, if any item of the contract is stolen prior to, or after installation, until the work is accepted by the Department. Progress payment does not constitute acceptance.

7.4 PERMITS AND LICENSES

7.4.1 The Department or its representative may process Federal (e.g. Corps of Engineers), State and county permit applications. The Contractor shall pick up the pre-processed Permits at the appropriate governmental agency and pay the required fees. Other permits necessary for the proper execution of the work such as utility connection permits, elevator installation permits etc., unless processed by the Department and paid for by the Contractor, shall be obtained and paid for by the Contractor.

7.4.2 Until such time as the above permits are approved, the Contractor shall not be allowed to commence any operations without written approval of the Project Engineer.

7.4.3 The Project Engineer reserves the right to waive application and processing of the building permit.

7.5 NORMAL WORKING HOURS - Prior to beginning operations, unless otherwise established by the Department, the Contractor shall notify the Project Engineer in writing of the time in hours and minutes, A.M. and P.M. respectively, at which it desires to begin and end the day's work. If the Contractor desires to change the working hours, it shall request the Project Engineer's approval three (3) consecutive working days prior to the date of the change.

7.6 HOURS OF LABOR (§104-2 HRS)

7.6.1 No laborer or mechanic employed on the job site of any public work of the Department or any political sub-division thereof shall be permitted or required to work on Saturday, Sunday or a legal holiday of the State or in excess of eight (8) hours on any other day unless the laborer or mechanic receives overtime compensation for all hours worked on Saturday, Sunday and a legal holiday of the State or in excess of eight (8) hours on any other day. For the purposes of determining overtime compensation under this Section 7.6, the basic hourly rate of any laborer or mechanic shall not be less than the basic hourly rate determined by the Department of Labor and Industrial Relations to be the prevailing basic hourly rate for corresponding classes of laborers and mechanics on projects of similar character in the Department.

7.6.2 Overtime compensation means compensation based on one and one-half times the laborers or mechanics basic hourly rate of pay plus the cost to an employer of furnishing a laborer or mechanic with fringe benefits.

7.7 PREVAILING WAGES (State §104-2 HRS & Federal Davis-Bacon)

7.7.1 The Contractor shall at all time observe and comply with all provisions of Chapter 104, HRS, the significant requirements of which are emphasized in the Department of Labor and Industrial Relations Publication No. H104-3 entitled “Requirements of Chapter 104, Hawaii Revised Statutes, Wages and Hours of Employees on Public Works Law”.

The Contractor must also comply with all provisions of Federal Davis-Bacon Act (40 U.S.C. 276-276a-5 and Code of Federal Regulation (CFR) Title 29 and related Acts.

7.7.2 WAGE RATE SCHEDULE - The wage rate schedule is not physically enclosed in the bid documents. However, the wage rate schedule is incorporated herein by reference and made a part of the Bid and Contract Documents. The bidder must obtain and use the latest minimum rates ten (10) days prior to the date set for the bid opening of bids. The wage rate schedule may be obtained from the Contracts Office, HHFDC, 677 Queen Street, Suite 300, Honolulu, Hawaii or, State Department of Labor and Industrial Relations web site: http://www.loihi@rs.dlir.state.hi.us or the Federal Department of Labor (Davis-Bacon) wage rate schedule web site: http://www.access.gpo.gov/davisbacdavbacsearch.html.

7.7.3 The Contractor or its subcontractor(s) shall pay all laborers and mechanics employed on the job site, unconditionally and not less often than once a week, and without deduction or rebate on any account except as allowed by law, the full amounts of their wages including overtime, accrued to not more than five (5) working days prior to the time of payment, at wage rates not less than those stated in the contract, regardless of any contractual relationship which may be alleged to exist between the Contractor and subcontractor and such laborers and mechanics. The wages stated in the contract shall not be less than the minimum prevailing wages (basic hourly rate plus fringe benefits), as determined by the Director of Labor and Industrial Relations and published in wage rate schedules. Any increase in wage rates, as determined by the Director of Labor and Industrial Relations and issued in the wage rate schedule, shall be applicable during the performance of the contract, in accordance with section 104-2(a) and (b), Hawaii Revised Statutes. Notwithstanding the provisions of the original contract, if the Director of Labor and Industrial Relations determines that prevailing wages have increased during the performance of the contract, the rate of pay of laborers and mechanics shall be raised accordingly.

7.7.4 The applicable wage rate schedule shall be physically included in the Contract Documents executed by the successful Bidder.

7.7.5 POSTING WAGE RATE SCHEDULE - The rates of wages to be paid shall be posted by the Contractor in a prominent and easily accessible place at the job site and a copy of such wages required to be posted shall be given to each laborer and mechanic employed under the contract by the Contractor at the time the person is employed thereunder, provided that where there is a collective bargaining agreement, the Contractor does not have to provide its employees the wage rate schedules. Any revisions to the schedule of wages issued by the Director of Labor and Industrial Relations during the course of the Contract shall also be posted by the Contractor and a copy provided to each laborer and mechanic employed under the Contract as required above.

7.7.6 The Executive Director may withhold from the Contractor so much of the accrued payments as the Executive Director may consider necessary to pay to laborers and mechanics employed by the Contractor or any subcontractor on the job site. The accrued payments withheld shall be the difference between the wages required by this Contract and the wages actually received by such laborers or mechanics.

7.8 FAILURE TO PAY REQUIRED WAGES (§ 104-4, HRS or Federal Davis-Bacon) - If the Department finds that any laborer or mechanic employed on the job site by the Contractor or any subcontractor has been or is being paid wages at a rate less than the required rate by the Contract, or has not received their full overtime compensation, the Department may, by written notice to the Contractor, terminate its right, or the right of any subcontractor, to proceed with the work or with the part of the work on which the required wages or overtime compensation have not been paid and may complete such work or part by contract or otherwise, and the Contractor and its sureties shall be liable to the Department for any excess costs occasioned thereby.

7.9 PAYROLLS AND PAYROLL RECORDS (§104-3 HRS)

7.9.1 A certified copy of each weekly payroll shall be submitted to the Executive Director within seven (7) calendar days after the end of each weekly payroll period. Failure to do so on a timely basis shall be cause for withholding of payments, termination of the contract, and/or debarment. The Contractor shall be responsible for the timely submission of certified copies of payrolls of all subcontractors. The certification shall affirm that payrolls are correct and complete, that the wage rates contained therein are not less than the applicable rates contained in the wage determination decision, any amendments thereto during the period of the contract, and that the classifications set forth for each laborer and mechanic conform with the work they performed.

7.9.2 Payroll records for all laborers and mechanics working at the site of the work shall be maintained by the General Contractor and its subcontractors, if any, during the course of the work and preserved for a period of four (4) years thereafter. Such records shall contain the name of each employee, their address, their correct classification, rate of pay, daily and weekly number of hours worked, itemized deductions made and actual wages paid. Such records shall be made available for inspection at a place designated by the Executive Director, the Director of

Labor and any authorized persons who may also interview employees during working hours on the job site.

7.9.3 Note that the falsification of certifications noted in this Section 7.9 may subject the Contractor or subcontractor to penalties and debarment under the laws referenced in Section 7.14, LAWS TO BE OBSERVED and / or criminal prosecution.

7.10 OVERTIME AND NIGHT WORK

7.10.1 Overtime work shall be considered as work performed in excess of eight (8) hours in any one (1) day or work performed on Saturday, Sunday or legal holiday of the State. Overtime and night work are permissible when approved by the Project Engineer in writing, or as called for elsewhere within these Contract Documents.

7.10.2 OVERTIME NOTIFICATION - Contractor shall inform the Project Engineer in writing at least two (2) working days in advance as to exactly what specific work is to be done during any overtime and night period to insure that proper inspection will be available.

7.10.3 In the event that work other than that contained in the above notification is performed and for which the Project Engineer determines Department inspection services were necessary but not available because of the lack of notification, the Contractor may be required to remove all such work and perform the work over again in the presence of Department inspection personnel.

7.10.4 Any hours worked in excess of the normal eight (8) working hours per day or on Saturdays, Sundays or legal State holidays will not be considered a working day.

7.10.5 The Department hereby reserves the right to cancel the overtime, night, Saturday, Sunday or legal State holiday work when it is found that work during these periods is detrimental to the public welfare or the user agency.

7.11 OVERTIME AND NIGHT PAYMENT FOR DEPARTMENT INSPECTION SERVICE

7.11.1 Whenever the Contractor’s operations require the Department’s inspection and staff personnel to work overtime or at night, the Contractor shall reimburse the Department for the cost of such services unless otherwise instructed in the Contract. The Project Engineer will notify the Contractor of the minimum number of required Department employees and other personnel engaged by the Department prior to the start of any such work. The costs chargeable to the Contractor shall include but not be limited to the following:

7.11.1.1 The cost of salaries which are determined by the Department and includes overtime and night time differential for the Department’s staff and inspection personnel. In addition to the cost of the salaries, the Contractor shall reimburse the Department’s share of contributions to the employee’s retirement, medical plan, social security, vacation, sick leave, worker’s compensation funds, per diem, and other applicable fringe benefits and overhead expenses;

7.11.1.2 The transportation cost incurred by the Department’s staff and inspection personnel which are based on established rental rates or mileage allowance in use by the Department for the particular equipment or vehicle; and/or

7.11.1.3 Fees and other costs billed the Department by Consultants engaged on the project for overtime and/or night time work.

7.11.2 PAYMENT FOR INSPECTION SERVICES - The monies due the Department for staff and inspection work and use of vehicles and equipment as determined in subsection 7.11.1 shall be deducted from the monies due or to become due the Contractor. In any and all events, the Contractor shall not pay the Department's employees directly.

7.12 LIMITATIONS OF OPERATIONS

7.12.1 Contractor shall at all times conduct the work in such manner and in such sequence as will insure the least practicable interference with pedestrian and motor traffic passageways. The Contractor shall furnish convenient detours and provide and plan all other appropriate signs, flashers, personnel, warnings, barricades and other devices for handling pedestrian and motor traffic.

7.12.2 In the event that other contractors are also employed on the job site, the Contractor shall arrange its work and dispose of materials so as not to interfere with the operations of the other contractors engaged upon adjacent work. The Contractor shall join its work to that of others and existing buildings in a proper manner, and in accordance with the drawings and specifications, and perform its work in the proper sequence in relation to that of others, all as may be directed by the Project Engineer.

7.12.3 Each Contractor shall be responsible for any damage done by it to work performed by another contractor. Each Contractor shall conduct its operations and maintain the work in such condition that no fugitive dust shall be created and adequate drainage shall be in effect at all times.

7.12.4 In the event that the Contractor fails to prosecute its work as provided in this Section 7.12 or disregards the directions of the Project Engineer, the Project Engineer may suspend the work until such time as the Contractor provides for the prosecution of the work with minimum interference to traffic and passageways or other contractors, dust control, adequate drainage, the repair of damage and complies with the direction of the Project Engineer. No payment will be made to the Contractor for the costs of such suspension.

7.13 ASSIGNMENT OR CHANGE OF NAME (§3-125-14 HAR)

7.13.1 SUBCONTRACTS AND ASSIGNMENT - The CONTRACTOR shall not assign or subcontract any of the CONTRACTOR's duties, obligations, or interests under this Contract and no such assignment or subcontract shall be effective unless (i) the CONTRACTOR obtains the prior written consent of the STATE and (ii) the CONTRACTOR's assignee or subcontractor submits to the STATE a tax clearance certificate from the Director of Taxation, State of Hawaii, showing that all delinquent taxes, if any, levied or accrued under state law against the CONTRACTOR's assignee or subcontractor have been paid. Additionally, no assignment by the CONTRACTOR of the CONTRACTOR's right to compensation under this Contract shall be effective unless and until the assignment is approved by the Comptroller of the State of Hawaii, as provided in section 40-58, HRS.

7.13.2 RECOGNITION OF A SUCCESSOR IN INTEREST - When in the best interest of the State, a successor in interest may be recognized in an assignment Contract in which the

STATE, the CONTRACTOR and the assignee or transferee (hereinafter referred to as the "Assignee") agree that:

7.13.2.1 The Assignee assumes all of the CONTRACTOR's obligations;

7.13.2.2 The CONTRACTOR remains liable for all obligations under this Contract but waives all rights under this Contract as against the STATE; and

7.13.2.3 The CONTRACTOR shall continue to furnish, and the Assignee shall also furnish, all required bonds.

7.13.3 CHANGE OF NAME - When the CONTRACTOR asks to change the name in which it holds this Contract with the STATE, the procurement officer of the purchasing agency (hereinafter referred to as the "Agency procurement officer") shall, upon receipt of a document acceptable or satisfactory to the Agency procurement officer indicating such change of name (for example, an amendment to the CONTRACTOR's articles of incorporation), enter into an amendment to this Contract with the CONTRACTOR to effect such a change of name. The amendment to this Contract changing the CONTRACTOR's name shall specifically indicate that no other terms and conditions of this Contract are thereby changed.

7.13.4 REPORTS - All assignment Contracts and amendments to this Contract effecting changes of the CONTRACTOR's name or novations hereunder shall be reported to the CPO within thirty days of the date that the assignment Contract or amendment becomes effective.

7.13.5 ACTIONS AFFECTING MORE THAN ONE PURCHASING AGENCY - Notwithstanding the provisions of subparagraphs 7.13.2 through 713.4 herein, when the CONTRACTOR holds Contracts with more than one purchasing agency of the State, the assignment Contracts and the novation and change of name amendments herein authorized shall be processed only through the CPO's office.

7.14 LAWS TO BE OBSERVED - The CONTRACTOR shall comply with all federal, state, and county laws, ordinances, codes, rules, and regulations, as the same may be amended from time to time, that in any way affect the CONTRACTOR's performance of this Contract.

7.14.1 The Contractor at all times shall observe and comply with all Federal, State and local laws or ordinances, rules and regulations which in any manner affect those engaged or employed in the work, the materials used in the work, and the conduct of the work. The Contractor shall also comply with all such orders and decrees of bodies or tribunals having any jurisdiction or authority over the work. Any reference to such laws, ordinances, rules and regulations shall include any amendments thereto before and after the date of this Contract.

7.14.2 The Contractor shall defend, protect, hold harmless and indemnify the State and its departments and agencies and all their officers, representatives, employees or agents against any claim or liability arising from or based on the violation of any such laws, ordinances, rules and regulations, orders or decrees, whether such violation is committed by the Contractor or its Subcontractor(s) or any employee of either or both. If any discrepancy or inconsistency is discovered in the contract for the work in relation to any such laws, ordinances, rules and regulations, orders or decrees, the Contractor shall forthwith report the same to the Project Engineer in writing.

7.14.3 While the Contractor must comply with all applicable laws, attention is directed to: Wage and Hours of Employees on Public Works, Chapter 104, Hawaii Revised Statutes (HRS); Hawaii Public Procurement Code, Authority to debar or suspend, Section 103D-702, HRS; Hawaii Employment Relations Act, Chapter 377, HRS; Hawaii Employment Security Law, Chapter 383, HRS; Worker's Compensation Law, Chapter 386, HRS; Wage and Hour Law, Chapter 387, HRS; Occupational Safety and Health, Chapter 396, HRS; and Authority to Debar or Suspend, Chapter 126, subchapter 2, Hawaii Administrative Rules (HAR).

7.14.4 CONFLICT BETWEEN GENERAL CONDITIONS AND PROCUREMENT RULES - In the event of a conflict between the General Conditions and the Procurement Rules, the Procurement Rules in effect on the date this Contract became effective shall control and are hereby incorporated by reference.

7.15 PATENTED ARTICLES, MATERIALS AND PROCESSES

7.15.1 If the Contractor desires to use any design, device, material, or process covered by letters of patent or copyright, the right for such use shall be procured by the Contractor from the patentee or owner. The Contractor shall defend, protect, indemnify and hold harmless the State of Hawaii, the contracting agency, and their officers, employees, and agents from and against all liability, loss, damage, cost, and expense, including attorney' fees, and all claims, suits, and demands arising out of or resulting from any claims, demands, or actions by the patent holder for infringement or other improper or unauthorized use of any patented article, patented design, patented device, patented process, patented appliance or patented material in connection with this Contract. The Contractor shall be solely responsible for correcting or curing to the satisfaction of the HHFDC any such infringement or improper or unauthorized use, including, without limitation: (a) furnishing at no cost to the HHFDC a substitute article, design, device, process, appliance or material acceptable to the HHFDC; (b) paying royalties or other required payments to the patent holder; (c) obtaining proper authorizations or releases from the patent holder; and (d) furnishing such security to or making such arrangement with the patent holder as may be necessary to correct or cure any such infringement or improper or unauthorized use. This section shall not apply to any article, design, device, material, appliance or process covered by letters of patent or copyright, which the Contractor is required to use by the Drawings or Specifications.

7.16 SANITARY, HEALTH AND SAFETY PROVISIONS

7.16.1 The Contractor shall provide and maintain in a neat, sanitary condition such accommodations for the use of its employees as may be necessary to comply with the requirements of the State and local boards of health, or other bodies or tribunals having jurisdiction. Unless otherwise stated in the drawings or specifications, the Contractor shall install toilet facilities conveniently located at the job site and maintain same in a neat and sanitary condition for the use of the employees on the job site for the duration of the Contract. The toilet facilities shall conform to the requirements of the State Department of Health. The cost of installing, maintaining and removing the toilet facilities shall be considered incidental to and paid for under various contract pay items for work or under the lump sum bids as the case may be, and no additional compensation will be made therefor. These requirements shall not modify or abrogate in any way the requirements or regulations of the State Department of Health.

7.16.2 Attention is directed to Federal, State and local laws, rules and regulations concerning construction safety and health standards. The Contractor shall not require any worker to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to their health or safety.

7.17 PROTECTION OF PERSONS AND PROPERTY

7.17.1 SAFETY PRECAUTIONS AND PROGRAMS - The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract. The Contractor shall take reasonable precautions for the safety of, and shall provide reasonable protection to prevent damage, injury or loss to:

7.17.1.1 All persons on the Work site or who may be affected by the Work;

7.17.1.2 All the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor and its subcontractors; and

7.17.1.3 Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavement, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

7.17.2 Contractor shall give notices and comply with applicable laws, ordinances, regulations, rules, and lawful orders of any public body having jurisdiction for the safety of persons or property or their protection from damage, injury or loss; and the Contractor shall erect and maintain reasonable safeguards for safety and protection, including posting danger signs, or other warnings against hazards.

7.17.3 The Contractor shall notify owners of adjacent properties and of underground (or overhead) utilities when performing work which may affect the owners; and shall cooperate with the owners in the protection, removal and replacement of their property.

7.17.4 All damage, injury or loss to any property referred to in paragraphs 7.17.1.2 and 7.17.1.3 caused by the fault or negligence or damage or loss attributable to acts or omissions directly or indirectly in whole or part by the Contractor a subcontractor or any one directly or indirectly employed by them, or by anyone for whose acts they might be liable, shall be remedied promptly by the Contractor.

7.17.5 The Contractor shall designate a responsible member of the Contractor’s organization at the site whose duty shall be the protection of accidents. This person shall be the Contractor’s superintendent unless otherwise designated by the Contractor.

7.17.6 The Contractor shall not load or permit any part of the construction to be loaded so as to endanger its safety. The Contractor shall not injure or destroy trees or shrubs nor remove or cut them without permission of the Project Engineer. Contractor shall protect all land monuments and property marks until an authorized agent has witnessed or otherwise referenced their location and shall not remove them until directed.

7.17.7 In the event the Contractor encounters on the site, material reasonably believed to be asbestos or other hazard material that has not been rendered harmless, the Contractor shall stop work in the area and notify the Project Engineer promptly. The work in the affected area shall be resumed in the absence of hazard materials or when the hazard has been rendered harmless.

7.17.8 EMERGENCIES - In an emergency affecting the safety and protection of persons or the Work or property at the site or adjacent thereto, Contractor without special instructions or authorization from the Project Engineer, shall act, at the Contractor’s discretion, to prevent threatened damage, injury or loss. Contractor shall give the Project Engineer prompt written notice of the emergency and actions taken. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined under the provisions of Section 7.25, DISPUTES AND CLAIMS.

7.18 ARCHAEOLOGICAL SITES

7.18.1 Should historic sites such as walls, platforms, pavements and mounds, or remains such as artifacts, burials, concentration of charcoal or shells be encountered during construction, work shall cease in the immediate vicinity of the find and the find shall be protected from further damage. The Contractor shall immediately notify the Project Engineer and contact the State Historic Preservation Division which will assess the significance of the find and recommend the appropriate mitigation measures, if necessary.

7.18.2 When required, the Contractor shall provide and install any temporary fencing to protect archaeological sites within the project. The fencing shall be installed prior to any construction activity and shall be maintained by the Contractor for the duration of the project. Fence installation and maintenance shall be to the satisfaction of the Project Engineer. The Contractor shall remove the fencing upon completion of construction, or as directed by the Project Engineer.

7.18.3 No work shall be done within the temporary fencing area. If any construction work is done within the temporary fencing, the Contractor shall notify the Project Engineer immediately; and if the Contractor entered the archaeological site area without permission, it shall stop work in this area immediately. The Project Engineer shall notify the archaeologist to assess any damage to the area. The Contractor shall allow the archaeologist sufficient time to perform the field investigation.

7.18.4 Any site requiring data recovery within the project shall not be disturbed until data recovery is completed.

7.19 RESPONSIBILITY FOR DAMAGE CLAIMS; INDEMNITY

7.19.1 The CONTRACTOR shall defend, indemnify, and hold harmless the State of Hawaii, the contracting agency, and their officers, employees, and agents from and against all liability, loss, damage, cost, and expense, including all attorneys’ fees, and all claims, suits, and demands therefor, arising out of or resulting from the acts or omissions of the CONTRACTOR or the CONTRACTOR’s employees, officers, agents, or subcontractors under this Contract. The provisions of this paragraph shall remain in full force and effect notwithstanding the expiration or early termination of this Contract.

7.19.2 The Contractor agrees that it will not attempt to hold the State and the Department, 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 Contract Documents or from any unforeseen obstructions, acts of God, vandalism, fires or encumbrances which may be encountered in the prosecution of the work.

7.19.3 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 Project Engineer to cover such just claims until satisfactory proof of payment or the establishment of a payment plan is presented.

7.19.4 The Contractor shall defend, indemnify and hold harmless the State and the Department, their officers, representatives, employees or agents from all suits, actions or claims of any character brought on account of any claims or amounts arising out of or recovered under the Workers' Compensation Laws or violation of any other law, by-law, ordinance, order or decree.

7.19.5 COST OF LITIGATION - In case the STATE shall, without any fault on its part, be made a party to any litigation commenced by or against the CONTRACTOR in connection with this Contract, the CONTRACTOR shall pay all costs and expenses incurred by or imposed on the STATE, including attorneys' fees.

7.20 CHARACTER OF WORKERS OR EQUIPMENT

7.20.1 The Contractor shall at all times provide adequate supervision and sufficient labor and equipment for prosecuting the work to full completion in the manner and within the time required by the contract.

7.20.2 Character and Proficiency of Workers - All workers shall possess the proper license and/or certification, job classification, skill and experience necessary to properly perform the work assigned to them. All workmen engaged in special work or skilled work, such as bituminous courses or mixtures, concrete pavement or structures, electrical installation, plumbing installation, or in any trade shall have sufficient experience in such work and in the operation of the equipment required to properly and satisfactorily perform all work. All workers shall make due and proper effort to execute the work in the manner prescribed in these Contract Documents, otherwise, the Project Engineer may take action as prescribed herein.

7.20.2.1 Any worker employed on the project by the Contractor or by any subcontractor who, in the opinion of the Project Engineer, is not careful and competent, does not perform its work in a proper and skillful manner or is disrespectful, intemperate, disorderly or neglects or refuses to comply with directions given, or is otherwise objectionable shall at the written request of the Project Engineer, be removed forthwith by the Contractor or subcontractor employing such worker and shall not be employed again in any portion of the work without the written consent of the Project Engineer. Should the Contractor or subcontractor continue to employ, or again employ such person or persons on the project, the Project Engineer may withhold all payments which are or may become due, or the Project Engineer may suspend the work until the Project Engineer's orders are followed, or both.

7.20.3 INSUFFICIENT WORKERS - A sufficient number of workers shall be present to ensure the work is accomplished at an acceptable rate. In addition, the proper ratio of apprentice to journey worker shall be maintained to ensure the work is properly supervised and performed. In the event that the Project Engineer finds insufficient workers are present to accomplish the work at an acceptable rate of progress or if a adequate number of journey workers are not present and no corrective action is taken by the Contractor after being informed in writing, the Executive Director may terminate the Contract as provided for under Section 7.27, TERMINATION OF CONTRACT FOR CAUSE.

7.20.4 EQUIPMENT REQUIREMENTS - All equipment furnished by the Contractor and used on the work shall be of such size and of such mechanical condition that the work can be performed in an acceptable manner at a satisfactory rate of progress and the quality of work produced will be satisfactory.

7.20.4.1 Equipment used on any portion of the project shall be such that no injury to the work, persons at or near the site, adjacent property or other objects will result from its use.

7.20.4.2 If the Contractor fails to provide adequate equipment for the work, the contract may be terminated as provided under Section 7.27, TERMINATION OF CONTRACT FOR CAUSE.

7.20.4.3 In the event that the Contractor furnishes and operates equipment on a force-account basis, it shall be operated to obtain maximum production under the prevailing conditions.

7.21 CONTRACT TIME

7.21.1 Time is of the essence for this Contract.

7.21.2 CALCULATION OF CONTRACT TIME - When the contract time is on a working day basis, the total contract time allowed for the performance of the work shall be the number of working days shown in the contract plus any additional working days authorized in writing as provided hereinafter. Refer to Article 1, DEFINITIONS for the definition of Working Day. The count of elapsed working days to be charged against contract time shall begin from the date of the Notice to Proceed and shall continue consecutively to the date of Project Acceptance determined by the Project Engineer. When the contract completion time is a fixed calendar date, it shall be the date on which all work on the project shall be completed. Maintenance periods are not included within the contract time unless specifically noted in the Contract Documents. Failure to complete the work by contract completion date shall not terminate the Contract.

7.21.3 MODIFICATIONS OF CONTRACT TIME (§3-125-4 HAR)

7.21.3.1 EXTENSIONS - For increases in the scope for work caused by alterations and additional work made under Section 4.2, CHANGES, the Contractor will be granted a time extension only if the changes increase the time of performance for the Contract. If the Contractor believes an extension of time is justified and is not adequately provided for in a Field Order, it must request the additional time sought in writing when the detailed cost breakdown required by Section 4.2, CHANGES, is submitted. The Contractor must show how the time of performance for the critical path will be affected and must also support the time extension request with schedules and statements from its subcontractors, suppliers, and/or manufacturers. Compensation for any altered or additional work will be paid as provided in Section 4.2, CHANGES.

7.21.3.2 The Department may direct changes to the work at any time until the work is finally accepted. The issuance of a Field Order at any time may alter or modify the contract duration only by the days specified therein; or if not specified therein, for the days the critical path must be extended for the change. Additional time to perform the extra work will be added to the time allowed in the contract without regard to the date the change directive was issued, even if the contract completion date has passed. A change requiring time will not constitute a waiver of pre-existing Contractor delay.

7.21.4 DELAY FOR PERMITS - For delays beyond the control of the Contractor in obtaining necessary permits, one day extension for each day delay may be granted by the Project Engineer, provided the Contractor notifies the Project Engineer that the permits are not available, as soon as the delay occurs. Time extensions shall be the exclusive relief granted on account of such delays. No additional compensation will be paid for these time extensions.

7.21.5 DELAYS BEYOND CONTRACTOR'S CONTROL - For delays affecting the critical path caused by acts of God, or the public enemy, fire, unusually severe weather, earthquakes, floods, epidemics, quarantine restrictions, labor disputes, freight embargoes and other reasons beyond the Contractor's control, the Contractor may be granted an extension of time provided that:

7.21.5.1 The Contractor notifies the Project Engineer in writing within five (5) work days after the occurrence of the circumstances described above and states the possible effects on the completion date of the contract.

7.21.5.2 No time extension will be granted for weather conditions other than unusually severe weather occurrences, and floods.

7.21.5.3 The Contractor, if requested, submits to the Project Engineer within ten (10) work days after the request, a written statement describing the delay to the project. The extent of delay must be substantiated as follows:

(a) State specifically the reason or reasons for the delay and fully explain in a detailed chronology the effect of this delay to the work and/or the completion date;

(b) Submit copies of purchase order, delivery tag, and any other pertinent documentation to support the time extension request;

(c) Cite the period of delay and the time extension requested; and

(d) A statement either that the above circumstances have been cleared and normal working conditions restored as of a certain day or that the above circumstances will continue to prevent completion of the project.

7.21.5.4 Time extensions shall be the exclusive relief granted and no additional compensation will be paid the Contractor for such delays.

7.21.6 DELAYS IN DELIVERY OF MATERIALS - For delays in delivery of materials and/or equipment which occur as a result of unforeseeable causes beyond the control and without fault or negligence of the Contractor, its subcontractor(s) or supplier(s), the Contractor may be granted an extension of time provided it complies with the following procedures:

7.21.6.1 The Contractor must notify the Project Engineer in writing within five (5) consecutive working days after it first has any knowledge of delays or anticipated delays and state the effects such delays may have on the completion date of the Contract.

7.21.6.2 The Contractor, if requested, must submit to the Project Engineer within ten (10) working days after a firm delivery date for the material and equipment is established, a written statement as to the delay to the progress of the project. The delay must be substantiated as follows:

(a) State specifically the reason or reasons for the delay. Explain in a detailed chronology the effect of this delay to the other work and / or the completion date;

(b) Submit copies of purchase order(s), factory invoice(s), bill(s) of lading, shipping manifest(s), delivery tag(s) and any other pertinent correspondence to support the time extension request; and

(c) Cite the start and end date of the delay and the days requested therefore. The delay shall not exceed the difference between the originally scheduled delivery date versus the actual delivery date.

7.21.6.3 Time extensions shall be the exclusive relief granted and no additional compensation will be paid the Contractor on account of such delay.

7.21.7 DELAYS FOR SUSPENSION OF WORK - Delay during periods of suspension of the work by the Project Engineer shall be computed as follows:

7.21.7.1 When the performance of the work is totally suspended for one (1) or more days (calendar or working days, as appropriate) by order of the Project Engineer in accordance with paragraphs 7.24.1.1, 7.24.1.2, 7.24.1.4 or 7.24.1.6 the number of days from the effective date of the Project Engineer's order to suspend operations to the effective date of the Project Engineer's order to resume operations shall not be counted as contract time and the contract completion date will be adjusted. Should the Contractor claim for additional days in excess of the suspension period, Contractor shall provide evidence justifying the additional time. During periods of partial suspensions of the work, the Contractor will be granted a time extension only if the partial suspension affects the critical path. If the Contractor believes that an extension of time is justified for a partial suspension of work, it must request the extension in writing at least five (5) working days before the partial suspension will affect the critical operation(s) in progress. The Contractor must show how the critical path was increased based on the status of the work and must also support its claim, if requested, with statements from its subcontractors. A suspension of work will not constitute a waiver of pre-existing Contractor delay.

7.21.8 CONTRACTOR CAUSED DELAYS - No time extension will be considered for the following:

7.21.8.1 Delays in performing the work caused by the Contractor, subcontractor and/or supplier;

7.21.8.2 Delays in arrival of materials and equipment caused by the Contractor, subcontractor and / or supplier in ordering, fabricating, delivery, etc.;

7.21.8.3 Delays requested for changes which the Project Engineer determines unjustifiable due to the lack of supporting evidence or because the change is not on the critical path;

7.21.8.4 Delays caused by the failure of the Contractor to submit for review and acceptance by the Project Engineer, on a timely basis, pricing proposals, shop drawings, descriptive sheets, material samples, color samples, etc. except as covered in subsection 7.21.5 and 7.21.6;

7.21.8.5 Failure to follow the procedure within the time allowed to qualify for a time extension; and

7.21.8.6 Days the Contractor is unable to work due to normal rainfall or other normal bad weather day conditions.

7.21.9 REDUCTION IN TIME - If the Department deletes any portion of the work, an appropriate reduction of contract time may be made in accordance with Section 4.2, CHANGES.

7.22 <u>CONSTRUCTION SCHEDULE</u>

7.22.1 The Contractor shall submit its detailed construction schedule to the Project Engineer prior to the start of the work. The purpose of the schedule is to allow the Project Engineer to monitor the Contractor’s progress on the work. The schedule shall account for normal inclement weather, unusual soil or other conditions that may influence the progress of the work, schedules and coordination required by any utility, off or on site fabrications, and all other pertinent factors that relate to progress.

7.22.2 Submittal of and the Project Engineer’s receipt of the construction schedule shall not imply the Department’s approval of the schedule’s breakdown, its individual elements, and any critical path that may be shown. Any acceptance or approval of the schedule: 1) shall be for general format only and not for sequences or durations thereon; and 2) shall not be deemed an agreement by the Department that the construction means, methods and resources shown on the schedule will result in work that conforms to the contract requirements. The Contractor has the risk of all elements (whether or not shown) of the schedule and its execution.

7.22.3 In the event the Contractor submits and the Department receives an accelerated schedule (shorter than the contract time), such will not constitute an agreement to modify the contract time or completion date, nor will the receipt, acceptance or approval of such a schedule incur any obligation by the Department. The Contractor shall be solely responsible for and shall accept all risks and any delays that may materialize during the construction work until the contract completion date is reached. The contract time or completion date is established for the benefit of the Department and cannot be changed without an appropriate change order issued by the Department. All float on an accelerated schedule belongs exclusively to the Department. The Department will not be responsible for or obligated to accept the work before the completion date established by the Contract.

7.23 STATEMENT OF WORKING DAYS - For all contracts on a working day basis, the Contractor will submit a statement of the number of working days for each month together with the Monthly Payment Application. The Monthly Payment Application will not be processed without the statement of working days.

7.24 SUSPENSION OF WORK (§3-125-7 HAR)

7.24.1 PROCEDURE TO BE FOLLOWED - The Executive Director may, by written order to the Contractor, at any time and without notice to any surety, suspend the performance of the Work either in whole or in part for any cause, including but not limited to:

7.24.1.1 Weather or excess bad weather days, considered unsuitable by the Project Engineer for prosecution of the work; or

7.24.1.2 Soil Conditions considered unsuitable by the Project Engineer for prosecution of the work; or

7.24.1.3 Failure of the Contractor to:

(a) Correct conditions unsafe for the general public or for the workers;

(b) Carry out orders given by the Project Engineer;

(c) Perform the work in strict compliance with the provisions of the contract; or

(d) Provide a qualified Superintendent on the jobsite as described under Article 5.9.2.

7.24.1.4 When any redesign is deemed necessary by the Project Engineer; or

7.24.1.5 Disturbance due to noise, odors or dust arising from the construction even if such disturbance does not violate the section on Environmental Protection contained in the Contract Documents; or

7.24.1.6 The convenience of the Department.

7.24.2 PARTIAL OR TOTAL SUSPENSION OF WORK - Suspension of work on some but not all items of work shall be considered a partial suspension. Suspension of work on the entire work at the job site shall be considered total suspension. The period of suspension shall be computed as set forth in Subsection 7.21.7, Delays for Suspension of Work.

7.24.3 PAYMENT

7.24.3.1 In the event that the Contractor is ordered by the Executive Director in writing as provided herein to suspend all work under the contract in accordance with paragraphs 7.24.1.4 or 7.24.1.6, the Contractor may be reimbursed for actual direct costs incurred on work at the jobsite, as authorized in writing by the Executive Director, including costs expended for the protection of the work. Payment for equipment which must standby during such suspension of work shall be made as described in clause 8.3.4.5.(e). No payment will be made for profit on any suspension costs. An allowance of five percent (5%) will be paid on any reimbursed actual costs for indirect categories of delay costs, including extended branch and home-office overhead and delay impact costs.

7.24.3.2 However, no adjustment to the contract amount or time shall be made under this Section 7.24 for any suspension, delay, or interruption:

(a) To the extent that performance would have been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor; or

(b) For which an adjustment is provided for or excluded under any other provision of this Contract.

7.24.3.3 Any adjustment in contract price made pursuant to this subsection shall be determined in accordance with this Section 7.24 and Section 4.2, CHANGES.

7.24.3.4 Claims for such compensation shall be filed with the Project Engineer within ten (10) calendar days after the date of the order to resume work or such claims will be waived by the Contractor. Together with the claim, the Contractor shall submit substantiating documents supporting the entire amount shown on the claim. The Executive Director may make such investigations as are deemed necessary and shall be the sole judge of the claim and the Executive Director's decision shall be final.

7.24.4 CLAIMS NOT ALLOWED - No claim under this Section 7.24 shall be allowed:

7.24.4.1 For any direct costs incurred more than twenty (20) days before the Contractor shall have notified the Project Engineer in writing of any suspension that the Contractor considers compensable. This requirement shall not apply as to a claim resulting from a suspension order under paragraphs 7.24.1.4 or 7.24.1.6; and

7.24.4.2 Unless the claim is asserted in writing within ten (10) calendar days after the termination of such suspension, delay, or interruption, but in no case not later than the date of final payment under the contract.

7.24.4.3 No provision of this Section 7.24 shall be construed as entitling the Contractor to compensation for delays due to failure of surety, for suspensions made at the request of the Contractor, for any delay required under the Contract, for partial suspension of work or for suspensions made by the Project Engineer under the provisions of paragraphs 7.24.1.1, 7.24.1.2, 7.24.1.3 and 7.24.1.5.

7.25 DISPUTES AND CLAIMS (§3-126-31 HAR) - Disputes shall be resolved in accordance with section 103D-703, HRS, and chapter 126, Procurement Rules, as the same may be amended from time to time.

7.25.1 Required Notification - As a condition precedent for any claim, the Contractor must give notice in writing to the Project Engineer in the manner and within the time periods stated in Section 4.2, CHANGES for claims for extra compensation, damages, or an extension of time due for one or more of the following reasons:

7.25.1.1 Requirements not clearly covered in the Contract, or not ordered by the Project Engineer as an extra;

7.25.1.2 Failure by the Department and Contractor to agree to an Oral Order or an adjustment in price or contract time for a Field Order or a Change Order (which was not previously agreed on by a Field Order), issued by the Department;

7.25.1.3 An action or omission by the Project Engineer requiring performance changes beyond the scope of the Contract; and/or

7.25.1.4 Failure of the Department to issue a Field Order for controversies within the scope of Section 4.2, CHANGES.

7.25.1.5 For any other type of claim, the Contractor shall give notice within the time periods set forth in contract provisions pertaining to that event. If no specific contract provisions pertain to the claim, then the written notice of claim must be submitted within fifteen (15) days of the event giving rise to the claim.

7.25.2 CONTINUED PERFORMANCE OF WORK - The Contractor shall at all times continue with performance of the contract in full compliance with the directions of the Project Engineer. Continued performance by the Contractor shall not be deemed a waiver of any claim for additional compensation, damages, or an extension of time for completion, provided that the written notice of claim is submitted in accordance with subsection 7.25.1

7.25.3 The requirement for timely written notice shall be a condition precedent to the assertion of a claim.

7.25.4 REQUIREMENTS FOR NOTICE OF CLAIM -The notice of claim shall clearly state the Contractor's intention to make claim and the reasons why the Contractor believes that additional compensation, changes or an extension of time may be remedies to which it is entitled. At a minimum, it shall provide the following:

7.25.4.1 Date of the protested order, decision or action;

7.25.4.2 The nature and circumstances which caused the claim;

7.25.4.3 The contract provision(s) that support the claim;

7.25.4.4 The estimated dollar cost, if any, of the protested work and how that estimate was determined; and

7.25.4.5 An analysis of the progress schedule showing the schedule change or disruption if the Contractor is asserting a schedule change or disruption.

7.25.5 If the protest or claim is continuing, the information required in Subsection 7.25.4 above shall be supplemented as requested by the Project Engineer.

7.25.6 FINAL STATEMENT FOR CLAIM - The Contractor shall provide a final written statement of the actual adjustment in contract price and/or contract time requested for each notice of claim. Such statement shall clearly set forth that it is the final statement for that notice of claim. All such final statements shall be submitted within thirty (30) days after completion of the work that is the subject of the claim, but in no event no later than thirty (30) days after the Project Acceptance Date or the date of termination of the Contractor, whichever comes first.

7.25.7 All claims of any nature are barred if asserted after final payment under this Contract has been made.

7.25.8 Contractor may protest the assessment or determination by the Project Engineer of amounts due the Department from the Contractor by providing a written notice to the Executive Director within thirty (30) days of the date of the written assessment or determination. Said notice shall comply with all requirements of subsections 7.25.4 and 7.25.6 above. The requirement of such notice cannot be waived and it is a condition precedent to any claim by the Contractor. Failure to comply with these notice provisions constitutes a waiver of any claim.

7.25.9 In addition to the requirements of subsections 7.25.4, 7.25.6, and 7.25.8, all final written statements of claim shall be certified. This certification requirement applies to the Contractor without exception, including, but not limited to, situations involving claims of subcontractors or suppliers which meet the requirements of subsection 5.13.4. The certification must be executed by a person duly authorized to bind the Contractor with respect to the claim. The certification shall state as follows:

7.25.9.1 "I certify that the claim is made in good faith; that the supporting data are accurate and complete to the best of my knowledge and belief; that the amount requested accurately reflects the contract adjustment for which the Contractor believes the Department is liable; and that I am duly authorized to certify the claim on behalf of the Contractor."

7.25.10 DECISION ON CLAIM/APPEAL - The decision of the Executive Director on the claim shall be final and conclusive, unless fraudulent, or unless the Contractor delivers to the Executive Director a written appeal of the Executive Director's decision. Said appeal shall be delivered to the Executive Director no later than thirty (30) days after the date of the Executive Director's decision.

7.25.10.1 In that event, the decision of the Executive Director shall be final and conclusive, unless fraudulent or unless the Contractor brings an action seeking judicial review of the Executive Director's decision in an appropriate circuit court of this State within six (6) months from the date of the Executive Director's decision.

7.25.11 PAYMENT AND INTEREST - The amount determined payable pursuant to the decision, less any portion already paid, normally should be paid without awaiting Contractor action concerning appeal. Such payments shall be without prejudice to the rights of either party. Interest on amounts ultimately determined to be due to a Contractor shall be payable at the Statutory rate applicable to judgments against the State under Chapter 662, HRS from the date of receipt of a properly certified final written statement of actual adjustment required until the date of decision; except, however, that if an action is initiated in circuit court, interest under this Section 7.25 shall only be calculated until the time such action is initiated. Interest on amounts due the Department from the Contractor shall be payable at the same rate from the date of issuance of the Project Engineer's notice to the Contractor. Where such payments are required to be returned by a subsequent decision, interest on such payments shall be paid at the statutory rate from the date of payment.

7.25.12 Contractor shall comply with any decision of the Executive Director and proceed diligently with performance of this contract pending final resolution by a circuit court of this State of any controversy arising under, or by virtue of, this Contract, except where there has been a material breach of contract by the Department; provided that in any event the Contractor shall proceed diligently with the performance of the Contract where the Project Engineer has made a written determination that continuation of work under the Contract is essential to the public health and safety.

7.25.13 WAIVER OF ATTORNEY'S FEES - In the event of any litigation arising under, or by virtue of, this Contract, the Contractor and the Department agree to waive all claims against each other for attorney's fees and agree to refrain from seeking attorney's fees as part of any award or relief from any court.

7.26 FAILURE TO COMPLETE THE WORK ON TIME

7.26.1 Completion of the work within the required time is important because delay in the prosecution of the work will inconvenience the public and interfere with the Department's business. In addition, the Department will be damaged by the inability to obtain full use of the completed work and by increased engineering, inspection, superintendence, and administrative services in connection with the work. Furthermore, delay may detrimentally impact the financing, planning, or completion of other Department projects because of the need to devote Department resources to the project after the required completion date. The monetary amount of such public inconvenience, interference with Department business, and damages, is difficult, if not impossible, to accurately determine and precisely prove. Therefore, it is hereby agreed that the amount of such damages shall be the appropriate sum of liquidated damages.

7.26.1.1 When the Contractor fails to complete the Work or any portion of the Work within the time or times fixed in the contract or any extension thereof, it is agreed the Contractor shall pay liquidated damages to the Department in the amount of $1,000 (one thousand dollars) per day, unless otherwise indicated in the Special Conditions.

7.26.1.2 If the Contractor fails to correct Punchlist deficiencies as required by Section 7.32, PROJECT ACCEPTANCE DATE, the Department will be inconvenienced and damaged, therefore, it is agreed that the Contractor shall pay liquidated damages to the Department based upon the amount stated in the General Requirements, Section 3.02. Liquidated damages shall accrue for all days after the Contract Completion Date or any extension thereof, until the date the Punchlist items are corrected and accepted by the Project Engineer.

7.26.1.3 If the Contractor fails to submit final documents as required by Section 7.33, FINAL SETTLEMENT OF CONTRACT, the Department will be inconvenienced and damaged, therefore, it is agreed that the Contractor shall pay liquidated damages to the Department in the amount stated in the General Requirements. Liquidated damages shall accrue for all days after the Contract Completion Date or any extension thereof, until the date the final documents are received by the Project Engineer.

7.26.1.4 The Project Engineer shall assess the total amount of liquidated damages in accordance with the amount of $1,000 (one thousand dollars) per day, unless otherwise indicated in the Special Conditions, and provide written notice of such assessment to the Contractor.

7.26.2 ACCEPTANCE OF LIQUIDATED DAMAGES - The assessment of liquidated damages by the Project Engineer shall be accepted by the parties hereto as final, unless the Contractor delivers a written appeal of the Project Engineer's decision in accordance with subsection 7.25.10 requirements. Any allowance of time or remission of charges or liquidated damages shall in no other manner affect the rights or obligations of the parties under this contract nor be construed to prevent action under Section 7.27, TERMINATION OF CONTRACT FOR CAUSE. If the Department terminates the Contractor's right to proceed, the resulting damage will include such liquidated damages for such time as may be required for final completion of the work after the required contract completion date.

7.26.3 PAYMENTS FOR LIQUIDATED DAMAGES - Liquidated damages shall be deducted from monies due or that may become due to the Contractor under the contract or from other monies that may be due or become due to the Contractor from the Department.

7.26.3.1 If the Contractor contests the per diem liquidated charge, the Department may elect to recover the actual damages caused by the Contractor's delay. Should the Department claim liquidated damages for delay and if such liquidated damages are disallowed for any reason, the Department shall recover the actual damages to which it is legally entitled as a result of the Contractor's delay or other breach.

7.27 TERMINATION OF CONTRACT FOR CAUSE (§3-125-18 HAR)

7.27.1 DEFAULT - If the Contractor refuses or fails to perform the work, or any separable part thereof, with such diligence as will assure its completion within the time specified in this contract, or any extension thereof, fails to complete the work within such time, or commits any other material breach of this contract, and further fails within seven (7) days after receipt of written notice from the Project Engineer to commence and continue correction of the refusal or failure with diligence and promptness, the Executive Director may, by written notice to the Contractor, declare the Contractor in breach and terminate the Contractor's right to proceed with the work or the part of the work as to which there has been delay or other breach of contract. In such event, the Department may take over the work and perform the same to completion, by contract or otherwise, and may take possession of, and utilize in completing the work, the materials, appliances, and plant as may be on the site of the work and necessary therefor. Whether or not the Contractor's right to proceed with the work is terminated, the Contractor and the Contractor's sureties shall be liable for any damage to the Department resulting from the Contractor's refusal or failure to complete the work within the specified time.

7.27.2 ADDITIONAL RIGHTS AND REMEDIES - The rights and remedies of the Department provided in this contract are in addition to any other rights and remedies provided by law.

7.27.3 COSTS AND CHARGES

7.27.3.1 All costs and charges incurred by the Department, together with the cost of completing the work under contract, will be deducted from any monies due or which would or might have become due to the Contractor had it been allowed to complete the work under the contract. If such expense exceeds the sum which would have been payable under the contract, then the Contractor and the surety shall be liable and shall pay the Department the amount of the excess.

7.27.3.2 In case of termination, the Executive Director shall limit any payment to the Contractor to the part of the contract satisfactorily completed at the time of termination. Payment will not be made until the work has satisfactorily been completed and the tax clearance required by Section 8.8, FINAL PAYMENT is submitted by the Contractor. Termination shall not relieve the Contractor or Surety from liability for liquidated damages.

7.27.4 ERRONEOUS TERMINATION FOR CAUSE - If, after notice of termination of the Contractor's right to proceed under this Section 7.27, it is determined for any reason that good cause did not exist to allow the Department to terminate as provided herein, the rights and obligations of the parties shall be the same as, and the relief afforded the Contractor shall be limited to, the provisions contained in Section 7.28, TERMINATION FOR CONVENIENCE.

7.28 TERMINATION FOR CONVENIENCE (§3-125-22 HAR)

7.28.1 TERMINATION - The Executive Director may, when the interests of the Department so require, terminate this contract in whole or in part, for the convenience of the Department. The Executive Director shall give written notice of the termination to the Contractor specifying the part of the contract terminated and when termination becomes effective.

7.28.2 CONTRACTOR'S OBLIGATIONS - The Contractor shall incur no further obligations in connection with the terminated work and on the date set in the notice of termination the Contractor will stop work to the extent specified. The Contractor shall also terminate outstanding orders and subcontracts as they relate to the terminated work. The Contractor shall settle the liabilities and claims arising out of the termination of subcontracts and orders connected with the terminated work subject to the Department's approval. The Executive Director may direct the Contractor to assign the Contractor's right, title, and interest under terminated orders or subcontracts to the Department. The Contractor must still complete the work not terminated by the notice of termination and may incur obligations as necessary to do so.

7.28.3 RIGHT TO CONSTRUCTION AND GOODS - The Executive Director may require the Contractor to transfer title and delivery to the Department in the manner and to the extent directed by the Executive Director, the following:

7.28.3.1 Any completed work; and

7.28.3.2 Any partially completed construction, goods, materials, parts, tools, dies, jigs, fixtures, drawings, information, and contract rights (hereinafter called "construction material") that the Contractor has specifically produced or specially acquired for the performance of the terminated part of this contract.

7.28.3.3 The Contractor shall protect and preserve all property in the possession of the Contractor in which the Department has an interest. If the Executive Director does not elect to retain any such property, the Contractor shall use its best efforts to sell such property and construction material for the Department's account in accordance with the standards of section 490:2-706, HRS.

7.28.4 COMPENSATION

7.28.4.1 Contractor shall submit a termination claim specifying the amounts due because of the termination for convenience together with cost or pricing data, submitted to the extent required by subchapter 15, chapter 3-122, HAR. If the Contractor fails to file a termination claim within one (1) year from the effective date of termination, the Executive Director may pay the Contractor, if at all, an amount set in accordance with paragraph 7.28.4.3.

7.28.4.2 The Executive Director and the Contractor may agree to a settlement provided the Contractor has filed a termination claim supported by cost or pricing data submitted as required and that the settlement does not exceed the total contract price plus settlement costs reduced by payments previously made by the Department, the proceeds of any sales of construction, supplies, and construction materials under paragraph 7.28.3.3 of this Section, and the contract price of the work not terminated.

7.28.4.3 Absent complete agreement, the Executive Director shall pay the Contractor the following amounts, less any payments previously made under the Contract.

(a) The cost of all contract work performed prior to the effective date of the notice of termination work plus a five percent (5%) markup on the actual direct costs, including amounts paid to subcontractor(s), less amounts previously paid or to be paid for completed portions of such work; provided, however, that if it appears that the Contractor would have sustained a loss if the entire contract would have been completed, no markup shall be allowed or included and the amount of compensation shall be reduced to reflect the anticipated rate of loss. No anticipated profit or consequential damage will be due or paid.

(b) Subcontractors shall be paid a markup of ten percent (10%) on their direct job costs incurred to the date of termination. No anticipated profit or consequential damage will be due or paid to any subcontractor. These costs must not include payments made to the Contractor for subcontract work during the contract period.

(c) In any case, the total sum to be paid the Contractor shall not exceed the total contract price reduced by the amount of any sales of construction supplies, and construction materials.

7.28.4.4 Costs claimed, agreed to, or established by the Department shall be in accordance with chapter 3-123, HAR.

7.29 CORRECTING DEFECTS - If the Contractor fails to commence to correct any defects of any nature, within ten (10) working days after the correction thereof has been requested in writing by the Department, and thereafter to expeditiously complete the correction of said defects, the Project Engineer may without further notice to the Contractor or surety and without termination of contract, correct the defects and deduct the cost thereof from the contract price.

7.30 FINAL CLEANING - Before final inspection of the work, the Contractor shall clean all ground occupied by the Contractor in connection with the Work of all rubbish, excess materials, temporary structures and equipment, and all parts of the work must be left in a neat and presentable condition to the satisfaction of the Project Engineer. However, the Contractor shall not remove any warning and directional signs prior to the formal acceptance by the Project Engineer. Full compensation for final cleaning will be included in the prices paid for the various items of work or lump sum bid, as the case may be, and no separate payment will be made therefor.

7.31 SUBSTANTIAL COMPLETION AND FINAL INSPECTION - Before the Department accepts the project as being completed, unless otherwise stipulated by the Project Engineer the following procedure shall be followed:

7.31.1 SUBSTANTIAL COMPLETION

7.31.1.1 The Contractor and its subcontractors shall inspect the project to confirm whether the Project is Substantially Complete. This inspection effort shall include the testing of all equipment and providing a Punchlist that identifies deficiencies which must be corrected. Contractor shall make the corrections and if required repeat the procedure. Also, the Contractor shall schedule final Building, Plumbing, Electrical, Elevator, Fire and other required inspections and obtain final approvals.

(a) When in compliance with the above requirements, the Contractor shall notify the Project Engineer in writing that project is Substantially Complete and ready for a Final Inspection. Along with the Substantial Completion notification, the Contractor shall provide its Punchlist(s) with the status of the deficiencies and dates when the deficiencies were corrected. The Project Inspector and / or the Project Engineer shall make a preliminary determination whether project is Substantially Complete.

(b) If the Project is not Substantially Complete, the Project Engineer shall inform the Contractor. The Contractor shall identify deficiencies which must be corrected, update its Punchlist, make the necessary corrections and repeat the previous step. After completing the necessary work, the Contractor shall notify the Project Engineer in writing that Punchlist deficiencies have been corrected and the project is ready for a Final Inspection.

(c) If the Project is Substantially Complete, the Project Engineer shall schedule a Final Inspection within fifteen (15) days of the Contractor's notification letter or as otherwise determined by the Project Engineer.

7.31.1.2 In addition, and to facilitate closing of the project, the Contractor shall also proceed to obtain the following closing documents (where applicable) prior to the Final Inspection:

(a) Field-Posted As-Built Drawings;

(b) Maintenance Service Contract and two (2) copies of a list of all equipment;

(c) Five (5) sets of operating and maintenance manuals;

(d) Air conditioning test and balance reports; and

(e) Any other final submittal required by the Contract.

7.31.2 FINAL INSPECTION - If at the Final Inspection the Project Engineer determines that all work is completed, the Project Engineer shall notify the Contractor in accordance with Section 7.32, PROJECT ACCEPTANCE DATE. Should there be remaining deficiencies which must be corrected the Contractor shall provide an updated Punchlist to the Project Engineer, within five (5) days from the Final Inspection Date. The Contractor shall make the necessary corrections.

7.31.2.1 The Project Engineer shall confirm the list of deficiencies noted by the Contractor's punchlist(s) and will notify the Contractor of any other deficiencies that must be corrected before final settlement.

7.31.3 The Project Engineer may add to or otherwise modify the Punchlist from time to time. The Contractor shall take immediate action to correct the deficiencies.

7.31.4 REVOKING SUBSTANTIAL COMPLETION - At any time before final Project Acceptance is issued the Project Engineer may revoke the determination of Substantial Completion if the Project Engineer finds it was not warranted. The Project Engineer shall notify the Contractor in writing with the reasons and outstanding deficiencies negating the declaration. Once notified, the Contractor shall make the necessary corrections and repeat the required steps noted in subsections 7.31.1 and 7.31.2.

7.32 PROJECT ACCEPTANCE DATE

7.32.1 If upon Final Inspection, the Project Engineer finds that the project has been satisfactorily completed in compliance with the contract, the Project Engineer shall declare the project completed and accepted and will notify the Contractor in writing of the acceptance by way of the Project Acceptance Notice.

7.32.2 PROTECTION AND MAINTENANCE - After the Project Acceptance Date, the Contractor shall be relieved of maintaining and protecting the work except that this does not hold true for those portions of the work which have not been accepted, including Punchlist deficiencies. The Department shall be responsible for the protection and maintenance of the accepted facility.

7.32.3 The date of Project Acceptance shall determine:

7.32.3.1 End of Contract Time;

7.32.3.2 Commencement of all guaranty periods except as noted in Section 7.34, CONTRACTOR'S RESPONSIBILITY FOR WORK: RISK OF LOSS; and

7.32.3.3 Commencement of all maintenance services except as noted in Section 7.34, CONTRACTOR'S RESPONSIBILITY FOR WORK: RISK OF LOSS.

7.32.4 PUNCHLIST REQUIREMENTS – If a Punchlist is required under Section 7.31, SUBSTANTIAL COMPLETION AND FINAL INSPECTION, the Project Acceptance Notice will include the Project Engineer's Punchlist and the date when correction of the deficiencies must be completed.

7.32.5 Upon receiving the Punchlist, the Contractor shall promptly devote the required time, labor, equipment, materials and incidentals necessary to correct the deficiencies expeditiously.

7.32.6 For those items of work that cannot be completed by the established date, the Contractor shall submit a schedule in writing to the Project Engineer for approval along with documentation to justify the time required, no later than five (5) working days before the date stipulated for completion of the Punchlist work. A Proposed schedule submitted after the five (5) day period will not be considered.

7.32.7 FAILURE TO CORRECT DEFICIENCIES – After the Contract Completion Date, or any extension thereof, if the Contractor fails to correct the deficiencies within the established date or agreed to Punchlist completion date, the Project Engineer shall assess liquidated damages as required by Section 7.26, FAILURE TO COMPLETE THE WORK ON TIME.

7.32.8 If the Contractor fails to correct the deficiencies and complete the work by the established or agreed to date, the Department also reserves the right to correct the deficiencies by whatever method it deems necessary and deduct the cost from the final payment due the Contractor.

7.32.9 The Contractor may further be prohibited from bidding in accordance with Section 2.12, DISQUALIFICATION OF BIDDERS. In addition, assessment of damages shall not prevent action under Section 7.27, TERMINATION OF CONTRACT FOR CAUSE.

7.33 FINAL SETTLEMENT OF CONTRACT

7.33.1 The contract will be considered settled after the project acceptance date and when the following items have been satisfactorily submitted, where applicable:

7.33.1.1 Necessary Submissions in addition to the items noted under paragraph 7.31.1.2.

7.33.1.2 All written guarantees required by the contract.

7.33.1.3 Complete and certified weekly payrolls for the Contractor and its Subcontractor(s).

7.33.1.4 Certificate of Plumbing and Electrical Inspection.

7.33.1.5 Certificate of Building Occupancy.

7.33.1.6 Certificate for Soil Treatment and Wood Treatment.

7.33.1.7 Certificate of Water System Chlorination.

7.33.1.8 Certificate of Elevator Inspection, Boiler and Pressure Pipe installation.

7.33.1.9 All other documents required by the Contract.

7.33.2 FAILURE TO SUBMIT CLOSING DOCUMENTS – The Contractor shall submit the final Payment Application and the above applicable closing documents within sixty (60) days from the date of Project Acceptance or the agreed to Punchlist completion date. Should the Contractor fail to comply with these requirements, the Executive Director may terminate the Contract for cause. The pertinent provisions of Section 7.27, TERMINATION OF CONTRACT FOR CAUSE shall be applicable.

7.33.3 In addition, should the Contractor fail to furnish final closing documents within the required time period, the Project Engineer shall assess liquidated damages as required by Section 7.26, FAILURE TO COMPLETE THE WORK ON TIME.

7.34 CONTRACTOR'S RESPONSIBILITY FOR WORK; RISK OF LOSS

7.34.1 Until the establishment of the Project Acceptance Date or Beneficial Occupancy, whichever is sooner, the Contractor shall take every necessary precaution against injury or damage to any part of the work caused by the perils insured by an All Risk policy, whether arising from the execution or from the non-execution of the work. The Contractor shall rebuild, repair, restore and make good all injuries or damage to any portion of the work occasioned by the perils insured by an All Risk policy before the date of final acceptance and shall bear the risk and expense thereof.

7.34.2 After the Project Acceptance Date or Beneficial Occupancy, whichever is sooner, the Contractor shall be relieved of maintaining and protecting the work except for those portions of the work which have not been accepted including Punchlist deficiencies.

7.34.3 The risk of damage to the work from any hazard or occurrence that may be covered by a required Property Insurance policy is that of the Contractor, unless such risk of loss is placed elsewhere by express language in the Contract Documents. No claims for any loss or damage shall be recognized by the Department, nor will any such loss or damage excuse the complete and satisfactory performance of the Contract by the Contractor.

7.35 GUARANTEE OF WORK

7.35.1 In addition to any required manufacturers warranties, all work and equipment shall be guaranteed by the Contractor against defects in materials, equipment or workmanship for one year from the Project Acceptance Date or as otherwise specified in the Contract Documents.

7.35.2 REPAIR OF WORK – If, within any guarantee period, repairs or changes are required in connection with the guaranteed work, which in the opinion of the Project Engineer is necessary due to materials, equipment or workmanship which are inferior, defective or not in accordance with the terms of the Contract, the Contractor shall within five (5) working days and without expense to the Department commence to:

7.35.2.1 Place in satisfactory condition in every instance all such guaranteed work and correct all defects therein; and

7.35.2.2 Make good and repair or replace to new or pre-existing condition all damages to the building, facility, work or equipment or contents thereof, resulting from such defective materials, equipment or installation thereof.

7.35.3 MANUFACTURER'S AND INSTALLER'S GUARANTEE - Whenever a manufacturer's or installer's guarantee on any product specified in the respective Specification sections, exceeds one year, this guarantee shall become part of this contract in addition to the Contractor's guarantee. Contractor shall complete the guarantee forms in the name of the Department and submit such forms to the manufacturer within such time required to validate the guarantee. Contractor shall submit to the Department a photocopy of the completed guarantee form for the Department's record as evidence that such guarantee form was executed by the manufacturer.

7.35.4 If a defect is discovered during a guarantee period, all repairs and corrections to the defective items when corrected shall again be guaranteed for the original full guarantee period. The guarantee period shall be tolled and suspended for all work affected by the defect. The guarantee period for work affected by the defect shall restart for its remaining duration upon confirmation by the Project Engineer that the deficiencies have been repaired or remedied.

7.36 WORK OF AND CHARGES BY UTILITIES

7.36.1 The Contractor shall be responsible for scheduling and coordinating the work with the utility companies and applicable Governmental agencies for permanent service installation and connections or modifications to existing utilities. The Contractor shall make available all portions of the work necessary for the utility companies to do their work. The Department shall not bear the risk of any damage to the contract work caused by any utility company, and work of repairing such damage and delay costs must be resolved between the Contractor and the utility company and their insurers.

7.36.2 Unless stated as an allowance item to be paid by the Contractor, the Department will pay the utility companies and applicable governmental agencies directly for necessary modifications and connections. Contractor charges for overhead, supervision, coordination, profit, insurance and any other incidental expenses shall be included in the Contractor's Bid whether the utility is paid directly by the Department or by an allowance item in the Contract.

7.37 RIGHT TO AUDIT RECORDS

7.37.1 The STATE may, at reasonable times and places, audit the books and records of the CONTRACTOR, prospective contractor, subcontractor or prospective subcontractor which are related to the cost or pricing data, and a State contract, including subcontracts, other than a firm fixed-price contract. The books and records shall be maintained by the Contractor and subcontractor(s) for a period of four (4) years from the date of final payment under the Contract.

7.37.2 The Contractor shall insure that its subcontractors comply with this requirement and shall bear all costs (including attorney's fees) of enforcement in the event of its subcontractor's failure or refusal to fully cooperate.

7.37.3 Additionally, Sections 231-7, 235-108, 237-39 and other HRS chapters through reference, authorize the Department of Taxation to audit all taxpayers conducting business within the State. Contractors must make available to the Department of Taxation all books and records necessary to verify compliance with the tax laws.

7.38 RECORDS MAINTENANCE, RETENTION AND ACCESS

7.38.1 The Contractor and any subcontractor whose contract for services is valued at $25,000 (twenty five thousand) or more shall, in accordance with generally acceptable accounting practices, maintain fiscal records and supporting documents and related files, papers, and reports that adequately reflect all direct and indirect expenditures and management and fiscal practices related to the Contractor and subcontractor's performance of services under this Contract.

7.38.2 The representative of the Department, the Executive Director, the Attorney General, (the Federal granting agency, the Comptroller General of the United States, and any of their authorized representatives when federal funds are utilized), and the Legislative Auditor of the State of Hawaii shall have the right of access to any book, document, paper, file, or other record of the Contractor and any subcontractor that is related to the performance of services under this Contract in order to conduct an audit or other examination and /or to make copies, excerpts and transcripts for the purposes of monitoring and evaluating the Contractor and subcontractor's performance of services and the Contractor and subcontractor's program, management, and fiscal practices to assure the proper and effective expenditure of funds and to verify all costs associated with any claims made under this Contract.

7.38.3 The right of access shall not be limited to the required retention period but shall last as long as the records are retained. The Contractor and subcontractor shall maintain and retain all books and records related to the Contractor and subcontractor's performance of services under this Contract, including any cost or pricing data for three (3) years from the date of final payment, except that if any litigation, claim, negotiation, investigation, audit or other action involving the books and records has been started before the expiration of the three (3) year period, the Contractor and subcontractors shall retain the books and records until completion of the action and resolution of all issues that arise from it, or until the end of the three (3) year retention period, whichever occurs later. Furthermore, it shall be the Contractor's responsibility to enforce compliance with this provision by any subcontractor.

7.39 COST OR PRICING DATA - Cost or pricing data must be submitted to the Agency purchasing officer and timely certified as accurate for contracts over $100,000 unless the contract is for a multiple-term or as otherwise specified by the procurement officer. Unless otherwise required by the Agency procurement officer, cost or pricing data submission is not required for Contracts awarded pursuant to competitive sealed bid procedures.

If certified cost or pricing data are subsequently found to have been inaccurate, incomplete, or noncurrent as of the date stated in the certificate, the STATE is entitled to an adjustment of the contract price, including profit or fee, to exclude any significant sum by which the price, including profit or fee, was increased because of the defective data. It is presumed that overstated cost or pricing data increased the contract price in the amount of the defect plus related overhead and profit or fee. Therefore, unless there is a clear indication that the defective data was not used or relied upon, the price will be reduced in such amount.

7.39.1 AUDIT OF COST OR PRICING DATA - When cost or pricing principles are applicable, the STATE may require an audit of cost or pricing data.

7.40 CONFIDENTIALITY OF MATERIAL

7.40.1 All material given to or made available to the CONTRACTOR by virtue of this Contract, which is identified as proprietary or confidential information, will be safeguarded by the CONTRACTOR and shall not be disclosed to any individual or organization without the prior written approval of the STATE.

7.40.2 All information, data, or other material provided by the CONTRACTOR to the STATE shall be subject to the Uniform Information Practices Act, chapter 92F, HRS.

7.41 PUBLICITY - The CONTRACTOR shall not refer to the STATE, or any office, agency, or officer thereof, or any State employee, including the head of the purchasing agency, the Chief Procurement Officer, the Dirctor, the Agency procurement officer, or to the services or goods, or both, provided under this Contract, in any of the CONTRACTOR's brochures, advertisements, or other publicity of the CONTRACTOR. All media contacts with the CONTRACTOR about the subject matter of this Contract shall be referred to the Agency procurement officer.

7.42 OWNERSHIP RIGHTS AND COPYRIGHT - The STATE shall have complete ownership of all material, both finished and unfinished which is developed, prepared, assembled, or conceived by the CONTRACTOR pursuant to this Contract, and all such material shall be considered "works made for hire." All such material shall be delivered to the STATE upon expiration or termination of this Contract. The STATE, in its sole discretion, shall have the exclusive right to copyright any product, concept, or material developed, prepared, assembled, or conceived by the CONTRACTOR pursuant to this Contract.

7.43 GOVERNING LAW - The validity of this Contract and any of its terms or provisions, as well as the rights and duties of the parties to this Contract, shall be governed by the laws of the State of Hawaii. Any action at law or in equity to enforce or interpret the provisions of this Contract shall be brought in a state court of competent jurisdiction in Honolulu, Hawaii.

7.44 SEVERABILITY - In the event that any provision of this Contract is declared invalid or unenforceable by a court, such invalidity or unenforceability shall not affect the validity or enforceability of the remaining terms of this Contract.

7.45 WAIVER - The failure of the STATE to insist upon the strict compliance with any term, provision, or condition of this Contract, shall not constitute or be deemed to constitute a waiver or relinquishment of the STATE's right to enforce the same in accordance with this Contract. The fact that the STATE specifically refers to one provision of the Procurement Rules or one section of the Hawaii Revised Statutes, and does not include other provisions or statutory sections in this Contract shall not constitute a waiver or relinquishment of the STATE's rights or the CONTRACTOR's obligations under the Procurement Rules or statutes.

END OF ARTICLE 7

ARTICLE 8 - MEASUREMENT AND PAYMENT

8.1 MEASUREMENT OF QUANTITIES

8.1.1 All work completed under the Contract shall be measured by the Project Engineer according to United States standard measures, or as stated in this Contract. The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the contract shall conform to good engineering practice. These measurements shall be considered correct and final unless the Contractor has protested same to the Project Engineer and has demonstrated the existence of an error by actual physical measurement before the work has progressed in a manner which would prohibit a proper check.

8.1.2 All measurements of the area of the various surfaces, pavement and base courses will be made in the horizontal projection of the actual surface and no deductions will be made for fixtures or structures having an area of nine (9) square feet or less. All measurements of headers, curbs, fences and any other type of construction which is to be paid for by its length will be made in the horizontal projection of the actual driven length from toe to top of cutoff, except where slope exceeds ten percent (10%) and for piles, which will be by actual length. All materials which are specified for measurement by the cubic yard “Loose Measurement” or “Measured in the Vehicle” shall be hauled in approved vehicles and measured therein at the point of delivery. Approved vehicles for this purpose may be of any type or size satisfactory to the Project Engineer, provided that the body is of such type that the actual contents may be readily and accurately determined. Unless all approved vehicles on a job are of a uniform capacity each approved vehicle must bear a plainly legible identification mark indicating the specific approved capacity. The Inspector may reject all loads not hauled in such approved vehicles.

8.2 NO WAIVER OF LEGAL RIGHTS - The Project Engineer shall not be precluded or estopped by any measurements, estimate or certificate made either before or after the completion and acceptance of the work and payment therefor, from showing the true amount and character of the work performed and materials furnished by the Contractor, or from showing that any such measurement estimate or certificate is untrue or incorrectly made, or rejecting the work or materials that do not conform in fact to the contract. The Project Engineer shall not be precluded or estopped, notwithstanding any such measurement, estimate, or certificate and payment in accordance therewith, from recovering from the Contractor and its sureties such damages as the Department may sustain by reason of the Contractor’s failure to comply with the terms of the Contract. Neither the acceptance by the Project Engineer or any representative of the Project Engineer, nor any payment for or acceptance of the whole or any part of the work, nor any extension of time, or any possession taken by the Project Engineer, shall operate as a waiver of any portion of the contract, or of any power herein reserved, or any right to damage herein provided. A waiver of any notice requirement or breach of the contract shall not be held to be a waiver of any other notice requirement or subsequent breach.

8.3 PAYMENT FOR ADDITIONAL WORK

8.3.1 Additional work as defined in Section 4.2, CHANGES, when ordered, shall be paid for as defined in Section 4.4, PRICE ADJUSTMENT by a duly issued change order in accordance with the terms provided therein.

8.3.2 On credit proposals and proposals covering both increases and decreases, the application of overhead and profit shall be on the net change in direct costs for the performance of the work.

8.3.3 When payment is to be made for additional work directed by a Field Order, the total price adjustment as specified in the Field Order or if not specified therein for the work contained in the related change order shall be considered full compensation for all materials, labor, insurance, taxes, equipment use or rental and overheads, both field and home office including extended home and branch office overhead and other related delay impact costs.

8.3.4 FORCE ACCOUNT METHOD - When, for the convenience of the Department, payment is to be made by the Force Account method, all work performed or labor and materials and equipment furnished shall be paid for as described below. Payment by the Force Account method will not alter any rights, duties and obligations under the contract.

8.3.4.1 LABOR - For all hourly workers, the Contractor will receive the rate of wage including fringe benefits when such amounts are required by collective bargaining agreement or other employment contract generally applicable to the classes of labor employed on the work, which shall be agreed upon in writing before beginning work for each and every hour that said labor is actually engaged in said work.

(a) All markups for overhead and profit shall be added subject to limitations established in Section 4.5, ALLOWANCES FOR OVERHEAD AND PROFIT.

(b) No allowance for overtime compensation will be given without the written approval of the Project Engineer prior to performance of such work.

8.3.4.2 INSURANCE AND TAXES - The Contractor and subcontractor(s) will also receive the actual additional costs paid for property damage, liability, worker's compensation insurance premiums, State unemployment contributions, Federal unemployment taxes, social security and Medicare taxes.

8.3.4.3 MATERIALS - For materials accepted by the Project Engineer and used, the Contractor and subcontractor(s) shall receive the actual cost of such materials delivered and incorporated into work, plus a markup allowed under Section 4.5, ALLOWANCES FOR OVERHEAD AND PROFIT.

8.3.4.4 SUBCONTRACTORS - Subcontractor costs shall be the actual costs of the subcontractor marked up as defined in this Section 8.3 plus a markup allowed under Section 4.5, ALLOWANCES FOR OVERHEAD AND PROFIT.

8.3.4.5 EQUIPMENT

(a) For machinery or special equipment (other than small tools as herein defined in clause 8.3.4.5.(h) owned or leased by the Contractor or a related entity, the use of which has been authorized by the Project Engineer:

    (1) The Contractor will be paid at the per-hour rental rates based on the monthly rate established for said machinery or equipment in the then-current edition of the

Rental Rate Blue Book for Construction Equipment including the estimated operating cost per hour and regional correction provided therein.

(2) If no rate is listed for a particular kind, type or size of machinery or equipment, then the monthly, hourly rates shall be as agreed upon in writing by the Contractor and the Project Engineer prior to the use of said machinery or equipment. If there is no agreement, the Project Engineer will set a rate. The Contractor may contest the rate pursuant to Section 7.25, DISPUTES AND CLAIMS.

(3) Rental rates which are higher than those specified in the aforesaid Rental Rate Blue Book publication may be allowed where such higher rates can be justified by job conditions such as work in water and work on lava, etc. Request for such higher rates shall be submitted in writing to the Project Engineer for approval prior to the use of the machinery or equipment in question.

(b) For machinery or special equipment [other than small tools as herein defined in clause 8.3.4.5 (h)] rented by the Contractor or a related entity specifically for the Force Account work, the use of which has been authorized by the Project Engineer, the Contractor will be paid the actual rental cost for the machinery or equipment, including mobilization and demobilization costs. A receipt from the equipment supplier shall be submitted to the Project Engineer.

(c) For machinery or special equipment [other than small tools as herein defined in clause 8.3.4.5 (h)] rented by the Contractor or a related entity for use in the project, but which will also be used for the Force Account work, the use of which has been authorized by the Project Engineer, the Contractor will be paid the actual rental cost for the machinery or equipment. No additional mobilization and demobilization costs will be paid. A receipt from the equipment supplier shall be submitted to the Project Engineer.

(d) The rental rate for trucks not owned by the Contractor shall be those as established under the Hawaii State Public Utilities Commission, which will be paid for as an equipment item pursuant to paragraph 8.3.4.5. Rental rates for Contractor-owned trucks not listed in the Rental Rate Blue Book shall be agreed upon in writing by the Contractor and Project Engineer prior to the use of said trucks. If there is no agreement, the Project Engineer shall set the rate. The Contractor may contest the rate pursuant to Section 7.25, DISPUTES AND CLAIMS.

(e) The rental period shall begin at the time equipment reaches the site of work, shall include each day that the machinery or equipment is at the site of the work and shall terminate at the end of the day on which the equipment is no longer needed. In the event the equipment must standby due to work being delayed or halted by reason of design, traffic, or other related problems uncontrollable by the Contractor, excluding Saturdays, Sundays and Legal Holidays, unless the equipment is used to perform work on such days, the rental shall be two (2) hours per day until the equipment is no longer needed.

(1) The rental time to be paid will be for the time actually used. Any hours or operation in excess of eight (8) hours in any one (1) day must be approved by the Project Engineer prior to the performance of such work.

(2) Rental time will not be allowed or credited for any day on which machinery or equipment is inoperative due to its breakdown. On such days, the Contractor will be paid only for the actual hours, if any, that the machinery or equipment was in operation.

(3) In the event the Force Account work is completed in less than eight (8) hours, equipment rental shall nevertheless be paid for a minimum eight (8) hours.

(4) For the purpose of determining the rental period the continuous and consecutive days shall be the normal eight (8) hour shift work day, Monday through Friday excluding legal holidays. Any work day to be paid less than eight (8) hours shall not be considered as continuous, except for equipment removed from rental for fuel and lubrication.

(5) No additional premium beyond the normal rates used will be paid for equipment over eight (8) hours per day or forty (40) hours per week.

(f) All rental rates for machinery and equipment shall include the cost of fuel, oil, lubricants, supplies, small tools, necessary attachments, repairs, maintenance, tire wear, depreciation, storage, and all other incidentals.

(g) All machinery and equipment shall be in good working condition and suitable for the purpose for which the machinery and equipment is to be used.

(h) Individual pieces of equipment or tools having a replacement value of $2,000 (two thousand dollars) or less, whether or not consumed by use, shall be considered to be small tools and included in the allowed markup for overhead and profit and no separate payment will be made therefor.

(i) The total of all Force Account rental charges accrued over the duration of the contract for a specific item of equipment shall not exceed the replacement cost of that equipment.

(1) The Contractor shall provide the cost of replacement to the Project Engineer prior to using the equipment. If the Project Engineer does not agree with the replacement cost, the Project Engineer shall set the replacement cost. The Contractor may contest the replacement cost pursuant to Section 7.25, DISPUTES AND CLAIMS.

(j) Should the item of equipment be rented from an unrelated entity, the rental cost will be treated as an equipment cost under paragraph 8.3.4.5.

(k) Transportation and/or Mobilization: The following provisions shall govern in determining the compensation to be paid to the Contractor for use of equipment or machinery on the Force Account method:

(1) The location from which the equipment is to be moved or transported shall be approved by the Project Engineer.

(2) Where the equipment must be transported to the site of the Force Account work, the Department will pay the reasonable cost of mobilizing and transporting the equipment, including its loading and unloading, from its original location to the site of Force Account work. Upon completion of the work the Department will pay the reasonable cost of mobilizing and transporting the equipment back to its original location or to another location, whichever cost is less.

(3) The cost of transporting the equipment shall not exceed the rates established by the Hawaii State Public Utilities Commission. If such rates are nonexistent, then the rates will be determined by the Project Engineer based upon the prevailing rates charged by established haulers within the locale.

(4) Where the equipment is self-propelled, the Department will pay the cost of moving the equipment by its own power from its original location to the site of the Force Account work. Upon completion of the work the Department will pay the reasonable cost of moving of the Equipment back to its original or another location, whichever cost is less.

(5) At the discretion of the Project Engineer, when the Contractor desires to use such equipment for other than Force Account work, the costs of mobilization and transportation shall be prorated between the Force Account and non- Force Account work.

(l) Pickup trucks, vans, storage trailers, unless specifically rented for the Force Account work, shall be considered incidental to the Force Account work and the costs therefor are included in the markup allowed under Section 4.5, ALLOWANCES FOR OVERHEAD AND PROFIT.

8.3.4.6 STATE EXCISE (GROSS INCOME) TAX AND BOND - A sum equal to the current percentage rate for the State excise (Gross Income) tax on the total sum determined in paragraphs 8.3.4.1, 8.3.4.2, 8.3.4.3 and 8.3.4.4 above, and the bond premium shall be added as compensation to the Contractor. The actual bond premium not to exceed one percent (1%) shall be added to items covered by paragraphs 8.3.4.1, 8.3.4.2, 8.3.4.3 and 8.3.4.4 when applicable.

(a) The compensation as determined in paragraphs 8.3.4.1, 8.3.4.2, 8.3.4.3, 8.3.4.4 and 8.3.4.5 above shall be deemed to be payment in full for work paid on a Force Account basis.

8.3.4.7 RECORDS - The Contractor and the Project Engineer shall compare records of the labor, materials and equipment rentals paid by the Force Account basis at the end of each day. These daily records, if signed by both parties, shall thereafter be the basis for the quantities to be paid for by the Force Account method. The Contractor shall not be entitled to payment for Force Account records not signed by the Project Engineer.

8.3.4.8 STATEMENTS - No payment will be made for work on a Force Account basis until the Contractor has submitted to the Project Engineer, duplicate itemized statements of the cost of such Force Account work detailed as follows:

(a) Laborers - Name, classification, date, daily hours, total hours, rate, and extension for each laborer and foreman and also the amount of fringe benefits payable if any.

(b) Equipment - Designation, dates, daily hours, total hours, rental rate, and extension for each unit of machinery and equipment.

(c) Materials:

  (1) Quantities of materials, prices and extensions.

  2) Costs of transporting materials, if such cost is not reflected in the prices of the materials.

  (3) Statements shall be accompanied and supported by receipted invoices for all materials used and transportation charges. However, if materials used on the Force Account work are not specifically purchased for such work but are taken from the Contractor's stock, then in lieu of the invoices the Contractors shall submit an affidavit certifying that such materials were taken from stock and that the amount claimed represents the actual cost to the Contractor.

(d) Insurance - Cost of property damage, liability and worker's compensation insurance premiums, unemployment insurance contributions, and social security tax.

8.4 PROGRESS AND/OR PARTIAL PAYMENTS

8.4.1 PROGRESS PAYMENTS - The Contractor will be allowed progress payments on a monthly basis upon preparing the Monthly Payment Application forms and submitting the originals to the Project Engineer. The monthly payment shall be based on the items of work satisfactorily completed and the value thereof at unit prices and/or lump sum prices set forth in the contract as determined by the Project Engineer and will be subject to compliance with Section 7.9, PAYROLLS AND PAYROLL RECORDS.

8.4.1.1 ORIGINAL INVOICES REQUIRED - All payments under this Contract shall be made only upon submission by the CONTRACTOR of original invoices specifying the amount due and certifying that services requested under the Contract have been performed by the CONTRACTOR according to the Contract.

8.4.1.2 SUBJECT TO AVAILABLE FUNDS - Such payments are subject to availability of funds and allotment by the Director of Finance in accordance with chapter 37, HRS. Further, all payments shall be made in accordance with and subject to chapter 40, HRS.

8.4.2 In the event the Contractor or any Subcontractor fails to submit certified copies of payrolls in accordance with the requirements of Section 7.9, PAYROLLS AND PAYROLL RECORDS, the Project Engineer may retain the amount due for items of work for which payroll affidavits have not been submitted on a timely basis notwithstanding satisfactory completion of the work until such records have been duly submitted. The Contractor shall not be due any interest payment for any amount thus withheld.

8.4.3 PARTIAL PAYMENT FOR MATERIALS - The Contractor will also be allowed partial payments to the extent of ninety percent (90%) of the manufacturer's, supplier's, distributor's or fabricator's invoice cost of accepted materials to be incorporated in the work on the following conditions:

8.4.3.1 The materials are delivered and properly stored at the site of the Work; or

8.4.3.2 For special items of materials accepted by the Project Engineer, the materials are delivered to the Contractor or subcontractor(s) and properly stored in an acceptable location within a reasonable distance to the site of the Work.

8.4.4 Partial payments shall be made only if the Project Engineer finds that:

8.4.4.1 The Contractor has submitted bills of sale for the materials or otherwise demonstrates clear title to such materials.

8.4.4.2 The materials are insured for their full replacement value to the benefit of the Department against theft, fire, damages incurred in transportation to the site, and other hazards.

8.4.4.3 The materials are not subject to deterioration.

8.4.4.4 In case of materials stored off the project site, the materials are not commingled with other materials not to be incorporated into the project.

8.4.5 FEDERAL FUNDS - If this Contract is payable in whole or in part from federal funds, Contractor agrees that, as to the portion of the compensation under this Contract to be payable from federal funds, the Contractor shall be paid only from such funds received from the federal government, and shall not be paid from any other funds.

8.5 PROMPT PAYMENT (§3-125-23 HAR)

8.5.1 Any money, other than retainage, paid to the CONTRACTOR shall be dispersed to subcontractors within ten days after receipt of the money in accordance with the terms of the subcontract; provided that the subcontractor has met all the terms and conditions of the subcontract and there are no bona fide disputes; and

8.5.2 Upon final payment to the CONTRACTOR, full payment to the subcontractor, including retainage, shall be made within ten days after receipt of the money; provided that there are no bona fine disputes over the subcontractor's performance under the subcontract.

8.5.3 BONA FIDE DISPUTES - The existence of a bona fide dispute with a subcontractor or material supplier shall not release the Contractor of its prompt payment obligations as to all sums due that are not directly affected by such dispute.

8.5.4 FILING NON-PAYMENT COMPLAINT - Subcontractors and material suppliers may file in writing a complaint with the Executive Director regarding non-payment by the Contractor. Such complaint shall include:

8.5.4.1 The amount past due for work performed and already paid for by the Department;

8.5.4.2 That all the terms, conditions or requirements of its subcontract have been met; and

8.5.4.3 That no bona fide dispute over its performance exists. The Department will investigate the validity of the complaint.

8.5.5 The Department may withhold from future progress payments amounts to cover any sums paid to the Contractor for work performed by a subcontractor if the Department finds that the subcontractor complaint regarding non-payment by the Contractor has merit.

8.5.6 If the Project Engineer determines that the Contractor failed to make prompt payment required to a subcontractor or material supplier with whom it has no bona fide dispute, the Project Engineer shall inform the Contractor of the findings and request the Contractor make payment accordingly. If the Contractor does not act promptly, the Project Engineer shall take appropriate action as allowed under this Contract and / or refer the matter to the Contractor Licensing Board for appropriate action under Section 444-17, Hawaii Revised Statutes regarding the Revocation, Suspension and Renewal of (Contractor) Licenses and/or initiate a petition for debarment of the Contractor from bidding on other Department jobs.

8.6 RETAINAGE

8.6.1 The Department will retain five percent (5%) of the total amount of progress and / or partial payments until after completion of the entire Contract in an acceptable manner at which time this balance, less any previous payments, will be certified and paid to the Contractor. After fifty percent (50%) of the work is completed, and if progress is satisfactory, the Project Engineer at its sole discretion may elect not to withhold further retainage. If progress is not satisfactory, the Department may continue to withhold as retainage sums not exceeding five percent (5%) of the amount earned.

8.6.2 The retainage shall not include sums deducted as liquidated damages from monies due or that may become due the Contractor under the Contract.

8.6.3 Contractor may withdraw from time to time the whole or any portion of the sum retained after endorsing over to the Department and depositing with the Department any general obligation bond of the State or its political subdivisions suitable to the Department but in no case with a face value less than the value established by law of the amount to be withdrawn. The Department may sell the bond and use the proceeds therefrom in the same way as it may use monies directly retained from progress payments or the final payment.

8.7 WARRANTY OF CLEAR TITLE - The Contractor warrants and guarantees that all work and materials covered by progress or partial payments made thereon shall be free and clear of all liens, claims, security interests or encumbrances, and shall become the sole property of the Department. This provision shall not, however, be construed as an acceptance of the work nor shall it be construed as relieving the Contractor from the sole responsibility for all materials and work upon which payments have been made or the restoration of any damaged work, or as waiving the right of the Department to require the fulfillment of all the items of the Contract.

8.7.1 LIENS AND WARRANTIES - Goods provided under this Contract shall be provided free of all liens and provided together with all applicable warranties, or with the warranties described in the Contract documents, whichever are greater.

8.8 FINAL PAYMENT

8.8.1 Upon final payment to the CONTRACTOR, full payment to the subcontractor, including retainage, shall be made within ten days after receipt of the money; provided that there are no bona fine disputes over the subcontractor's performance under the subcontract.

8.8.2 Sums necessary to meet any claims of any kind by the Department may be retained from the sums due the Contractor until said claims have been fully and completely discharged or otherwise satisfied.

8.9 STATE'S RIGHT TO OFFSET - The STATE may offset against any monies or other obligations the STATE owes to the CONTRACTOR under this Contract, any amounts owed to the State of Hawaii by the CONTRACTOR under this Contract or any other Contracts or pursuant to any law or other obligation owed to the State of Hawaii by the CONTRACTOR, including, without limitation, the payment of any taxes or levies of any kind or nature. The STATE will notify the CONTRACTOR in writing of any offset and the nature of such offset. For purposes of this paragraph, amounts owed to the State of Hawaii shall not include debts or obligations which have been liquidated, agreed to by the CONTRACTOR, and are covered by an installment payment or other settlement plan approved by the State of Hawaii, provided, however, that the CONTRACTOR shall be entitled to such exclusion only to the extent that the CONTRACTOR is current with, and not delinquent on, any payments or obligations owed to the State of Hawaii under such payment or other settlement plan.

END OF ARTICLE 8

GENERAL REQUIREMENTS

GENERAL

1.01 GENERAL PROVISIONS: The General Conditions of the Contract and any supplementary conditions as agreed upon between the HHFDC and the Contractor are a part of this Contract and shall govern the Work.

1. DESCRIPTION OF PROJECT: This project shall cover Waiahole Valley Water System Operations and Maintenance in Waiahole, Kaneohe, Oahu, Hawaii.

1.02 WORK COVERED BY THE CONTRACT DOCUMENTS: The Contractor shall provide all labor, material, and equipment to perform all routine servicing, maintenance, and testing of the public potable water system in strict accordance with applicable statutes, rules, and regulations administered by the State Department of Health Safe Drinking Water Branch, State Commission of Water Resources Management, the Operations and Maintenance Manual for the Waiahole Valley Agricultural Park Water System prepared by Smith, Young & Associates, Inc. and in the manufacturers' equipment manuals.

The primary scope of work includes, but is not limited to, the following core responsibilities:

A. Production and Storage System Execution. This includes, but is not limited to, daily inspection, minor touch-up painting, lubrication, routine adjustments, and other tasks as needed for the following equipment:

1. Deep well pumps
2. Automatic pump control valves
3. Deep well pump control system, including 2,100 gallon surge tank, Magnetrol tank level switch and associated wiring and control components
4. Well level recorder assembly including air compressor, receiver and metering valves
5. Miscellaneous gauges and instrumentation
6. Chlorine monitoring system and associated pumps
7. Flow metering and recorder system
8. One daily reading and recording of: Submerged wells at the well site, One-million-gallon storage reservoir, and Booster pumps at the booster pump station.

Record in a journal all servicing, maintenance and testing performed on the above equipment. Submit a copy of the journal to the HHFDC on a monthly basis.

B. <u>Distribution System Operations</u>. Provide labor, material and equipment to perform the following activities on a daily basis.

1. Check chlorine residual at storage tank and at official sampling points; adjust chlorine supply as needed to maintain required chlorine residual.
2. Check chlorine residual at distribution system dead ends.
3. Replace chlorine barrels as required.
4. Observe condition of water meters and meter boxes; repair any leakage from water meters.
5. Check operation of booster pump and perform recommended routine servicing, maintenance and adjustments.
6. Exercise all distribution gate valves as needed.
7. Inspect storage tank altitude valve for proper operation; adjust as needed to maintain desired tank water level.
8. Inspect surface areas above system pipelines for signs of roadway failure, soft spots or leakage.
9. Clean and paint (and/or touch up paint) fire hydrants, valves and other exposed pipes and appurtenances as needed.
10. Test, conduct maintenance and update maintenance logs of all fire hydrants annually. The Contractor shall secure, update and maintain the individual fire hydrant maintenance cards and shall surrender them to the HHFDC upon termination of the Contract.
11. Flush water distribution mainlines as needed. (Flushing the entire system at once due to an emergency shall be considered additional work and shall be paid for under the allowance).

C. <u>Regulatory Compliance and Sampling.</u> Provide labor, material and equipment to perform the following services:

1. Collect, preserve and transport water samples to be tested for bacteriological contamination, inorganic chemicals and organic chemicals in accordance with the schedule and procedures prescribed by Title 11, Department of Health, Chapter 20 Potable Water Systems, Hawaii Administrative Rules, as amended and/or the Federal EPA requirements. If there is a conflict between the State and Federal requirements, the stricter of the two requirements shall govern.
2. <u>Laboratory fees assessed either by the State Department of Health Laboratory or by private laboratories for the required analysis of water samples will be borne by the Contractor. Retesting fees shall also be borne by the Contractor.</u>
3. The Contractor shall notify the State Department of Health Laboratory to send the monthly water sample test results to the HHFDC.

4. Provide services to conduct required sampling and testing for Ground Water Rule, Revised Total Coliform Rule, Stage 1 and 2 Disinfectants and Disinfection Byproduct Rule, Phase II and Phase V Testing, Lead & Copper Testing, and any and all other testing required.
5. Records of testing will be maintained by the Contractor and the results will be provided to the HHFDC and Department of Land and Natural Resources as well as the Department of Health as required by said Chapter 20.
6. Prepare and file the Annual Consumer Confidence Report (CCR) with the State Department of Health (DOH) and distribute copies of the CCR to all water service subscribers and the HHFDC.
7. Act as a liaison between HHFDC and the DOH regarding procedures, sanitary surveys and other regulatory matters; meet with DOH personnel at site as requested to answer questions and/or disseminate information regarding operation of the system.
8. Develop plan and implement as required notification of regulatory authorities, media and consumers in case of violations of water quality standards. Cost of media advertisements will be borne by HHFDC, to be charged under an allowance to the Contract.
9. Develop and submit monthly water use reports to the State Commission on Water Resource Management on total well usage, salinity levels, water levels, and metering.
10. Perform annual testing of all fire hydrants and backflow prevention devices by a certified tester in accordance with Title 11, Department of Health, Chapter 21, Hawaii Administrative Rules, as amended.
11. Perform all other required DOH-Safe Drinking Water Branch testing or reports and submit the completed reports to DOH-Safe Drinking Water Branch on a timely basis with a copy to the HHFDC.

D. Water Loss Audit Requirements: Provide services to conduct an annual water audit of the water system using authorized software for submission to the State Commission of Water Resources Management in accordance with Act 169, Session Laws of Hawaii 2016.

E. Meter Readings: Read all distribution system meters (i.e. at the wells, storage tank, and booster pump) and customer meters on a monthly basis and record water meter readings in a journal. Submit the journal on a monthly basis to HHFDC, which will distribute them to the customers. Act as a liaison between HHFDC and water users in cases of metering discrepancies, overuse due to leakage, etc.

F. Meter Activation, Deactivation and Repairs: Activate and de-activate water meters, when customer service begins and ends. Maintain and repair leaks in water meters, including, but not limited to replacement of washers and cleaning of foggy glass.

G. Emergency Call-Outs and Repair Protocol: Contractor shall have an engineer or technician on call 24 hours a day, seven days a week, to respond to emergencies related to the potable water system, the deep well pumps and its control system, booster pumps, the one-million-gallon reservoir, and the potable water distribution lines throughout Waiahole Valley. If necessary, Contractor shall engage a licensed electrician for any electrical repairs necessary to restore operation of the water system.

Consumers shall be able to reach Contractor by telephone or cellphone at any time to report interruptions or other problems with the potable water system and Contractor shall respond to reports of water outages or interrupted service within two hours of notification.

Contractor shall be available to respond to the State Department of Health's Safe Drinking Water Branch should any emergency arise.

For emergency call out and repair work for existing potable waterline:

1. The Contractor shall contact the designated HHFDC Project Representative to notify him of the required emergency call out or repairs and request verbal approval for the call out or repair work.
2. The Contractor will fax or email a written proposal for the work no later than 10:00 am on the following work day. Upon receipt of the Contractor's faxed proposal, the HHFDC Representative will fax or email a written authorization for the work to the Contractor.
3. The Contractor is authorized to repair only water line leaks that occur on the water supply's lateral side of the water meter, including the meter. Leaks that occur after the water meter on the individual customer's lot shall be the sole responsibility of the individual water customer.

For emergency call out requiring water tank or water truck service for domestic use:

1. The Contractor shall contact the Board of Water Supply (BWS) for availability of a water tank or water truck for temporary water service to the community during a potable water system outage or emergency and shall provide such temporary water service to a designated location within the Project premises. If required by the BWS, the Contractor shall provide private security personnel or its own personnel to monitor the temporary water service.

All non-scheduled repairs are to be executed following formal notification and coordination with the HHFDC, with costs applied directly to the designated Repair Allowance.

H. Repairs Allowance: All non-scheduled repairs or services that are not part of routine maintenance or any other line item in the contract shall be charged to the Repairs Allowance. Allowance work shall be paid for on a cost, plus up to a twenty (20) percent markup for overhead and profit, for work done by the Contractor's own forces, and cost-plus up to ten (10) percent markup for overhead and profit, for work done by the Contractor's subcontractor. The subcontractor may charge at cost, plus up to a twenty (20) percent markup for overhead and profit on work performed by it under the allowance. Further, the HHFDC may require that the Contractor submit invoices, receipts or other information.

I. Chlorine and Other Supplies: Coordinate the ordering and receipt of chlorine and other supplies required for system operation. The cost of chlorine and other supplies will be borne by the Contractor as a part of his contracted base bid price. The estimated yearly average of chlorine used is 1,120 pounds (7 barrels of 160 pounds each).

The yearly average of chlorine used is only an estimate. The HHFDC realizes that water demand fluctuates and additional chlorine may be required above and beyond what the estimate indicates. The HHFDC will reimburse the Contractor for any additional chlorine required, over the estimated yearly average at the per barrel cost which shall be charged to the Repairs Allowance. The Contractor shall keep a log of chlorine ordered and replaced; including copies of the receipts and shall submit these documents with its request for reimbursement of chlorine used beyond the estimated yearly average.

All chemicals or products added to the drinking water must be certified as meeting ANSI/NSF Standard 60 or 61.

J. Maintenance and Repair Records: Maintenance and Repair records shall be kept up-to-date by the Contractor and stored in a records binder. All new equipment installed shall have its manufacturer's equipment manual included in the records binder. The records binder shall be submitted to HHFDC at the end of contract time.

K. Owner Representative and Manual Implementation Oversight: Bidders are hereby notified that HHFDC has engaged a separate, third-party contractor to perform owner representative overside and contract monitoring tasks on behalf of the agency. During the course of this contract term, the owner representative will deliver and implement an updated Operations and Maintenance Manual for the Waiahole Valley Water System. Once this updated manual is formally adopted and implemented by HHFDC, the Contractor shall strictly adhere to all modified operational protocols, maintenance schedules, and reporting guidelines contained therein for the remaining duration of the contract.

L. WORK SCHEDULE. Prior to commencement of the work, the Contractor shall provide a schedule for the work to be completed. All scheduled work performed by the Contractor shall be in accordance with these General Requirements.

M. WORK INSPECTION. Verification of completed work by the HHFDC Inspector is a requirement of this contract for the approval of payments to the Contractor. Therefore, the Contractor shall notify the HHFDC, at least seven (7) calendar days prior to commencing any of the work required by this Contract. Failure to do so may delay the approval and processing of the requested partial payment.

1.03 SCHEDULE OF MAINTENANCE AND TESTING INTERVALS

If no alternate schedule is provided in the manufacture manuals or the current water system O&M manual, the Contractor shall execute the following servicing schedule:

- Daily: Refer to Paragraph 1.02A Production and Storage System Execution and Paragraph 1.02B Distribution System Operations. One daily reading and recording of the submerged wells at the well site, one million gallon storage reservoir, and booster pumps at the booster pump station. Check chlorine residual at storage tank and at official sampling points; adjust chlorine supply as needed to maintain required chlorine residual. Check chlorine residual at distribution system dead ends.
- Twice a Week: Visual inspection of pumps, motors, valves, piping, chlorinators, air compressors, pneumatic systems, instrumentation, buildings, and property.
- Weekly: Operational check of all pumping units. Verify that recorder is operating properly.
- Monthly: Clean all equipment; conduct landscape and grounds maintenance. Read all distribution system meters (i.e. at the wells, storage tank, and booster pump) and customer meters on a monthly basis and record water meter readings in a journal. Develop and submit monthly water use reports to the State Commission on Water Resource Management on total well usage, salinity levels, water levels, and metering.
- Quarterly: Test insulation of all motors; check lubrication of motors and pump; change motor oil and grease bearings; check sequence timers, timing relays, and automatic valve speed controllers; service air compressors and sump pumps.
- Semi-Annually: Service chlorinators, controls, and supply piping. Service all butterfly valves, cla-valves, altitude valves, pressure regulators, relief

and back-pressure valves and related pilots, controls and supply water piping equipment.

- Annually: Check alignment of all pumps and motor couplings; realign as required and service couplings. Service, calibrate, and/or overhaul all flow meters, pressure meters, water level meters, miscellaneous instrumentation and recording instruments. Conduct a water audit of the system annually as required by Act 169, SLH 2016, collecting data and completing the water system audit software for submission to the State Commission of Water Resources Management.

Refer to Paragraph 1.02C Regulatory Compliance and Sampling. Contractor shall meet all schedules, including sampling and notification timelines, prescribed by Title 11, Department of Health, Chapter 20 Potable Water Systems, Hawaii Administrative Rules, as amended and/or the Federal EPA requirements. If there is a conflict between the State and Federal requirements, the stricter of the two requirements shall govern.

1.04 OFFEROR QUALIFICATIONS:

1. Offerors must possess a General Contractor's A or specialty #C-37" license and a valid State of Hawaii General Excise Tax License to be eligible to bid. Offerors shall have at least two (2) years experience in the operation and maintenance of similar water systems and shall be certified by the State Department of Health's Safe Drinking Water Branch in the operation and maintenance of a potable water system. Offerors shall be currently established on the island of Oahu and be able to respond to emergency callouts within two (2) hours, 24 hours a day, seven days a week.
2. Offerors shall employ licensed Water Treatment Plant Operator(s) and Distribution System Operator(s) certified by the State of Hawaii, Board of Certification of Public Water System Operators. Offerors shall identify the employee(s) and submit a certificate validating that the employee(s) have been trained and certified. The water treatment plant and distribution system be under the responsible charge of an operator(s) that must hold a valid certification equal to or greater than the classification of the water treatment plant and distribution system (i.e. Class 1). All operating personnel making daily process control or system integrity decisions about water quality or quantity that affect public health shall be certified by the licensed operator(s). In addition, a designated certified operator shall be available for each operating shift.
3. Offerors shall have at least one (1) employee certified to handle chlorine liquid who shall be responsible for replacing chlorine barrels when required. Offerors shall identify the employee(s) and submit a certificate validating that the employee has been trained to handle chlorine.
4. Offerors shall be certified cross-connection and backflow prevention specialists. Offerors shall identify the employee(s) and submit a certificate validating that the employee is tested and certified from either the PAMCA, UCS-FCCCHR, or the Cal-Nevada Section of AWWA.

5. Offerors shall be familiar with the Operations and Maintenance Manual of the water system prepared by Smith, Young and Associates, Inc., including manufacturers' equipment manuals. A copy of this manual will be available for review at the HHFDC office at 677 Queen Street, Suite 300, Honolulu, Hawaii 96813.

1.05 TIME OF COMPLETION: The time of completion for all work in the Contract shall be two-years from the date of commencement indicated in the written Notice to Proceed. Any extension of Contract time will be subject to the approval of the Executive Director as indicated in these General Requirements.

1.06 CONTINGENCY: An allowance of one hundred and fifty thousand dollars and no/100 ($150,000.00) is reserved for unforeseen or emergency work related to this Contract. If necessary, additional inspection work shall be based on the unit prices as provided by the Contractor in the Form of Bid. The contingency allowance shall be applied to work only as authorized by HHFDC and performed by the Contractor. Work shall not commence on any allowance work prior to issuance of written authorization of HHFDC, except in emergency cases. Further, the HHFDC may require that the Contractor submit invoices, receipts or other information, prior to payment.

PROJECT MAP

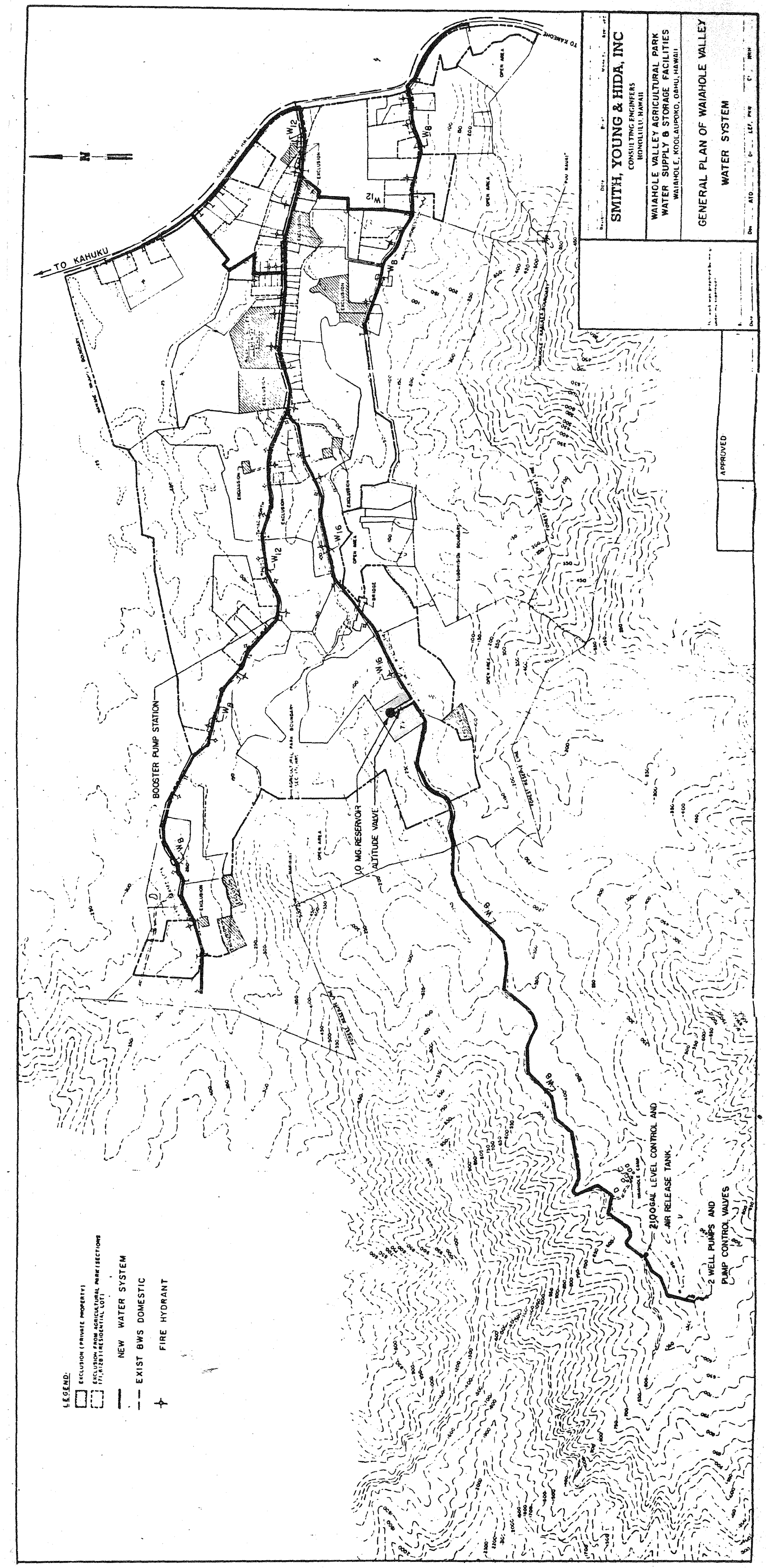
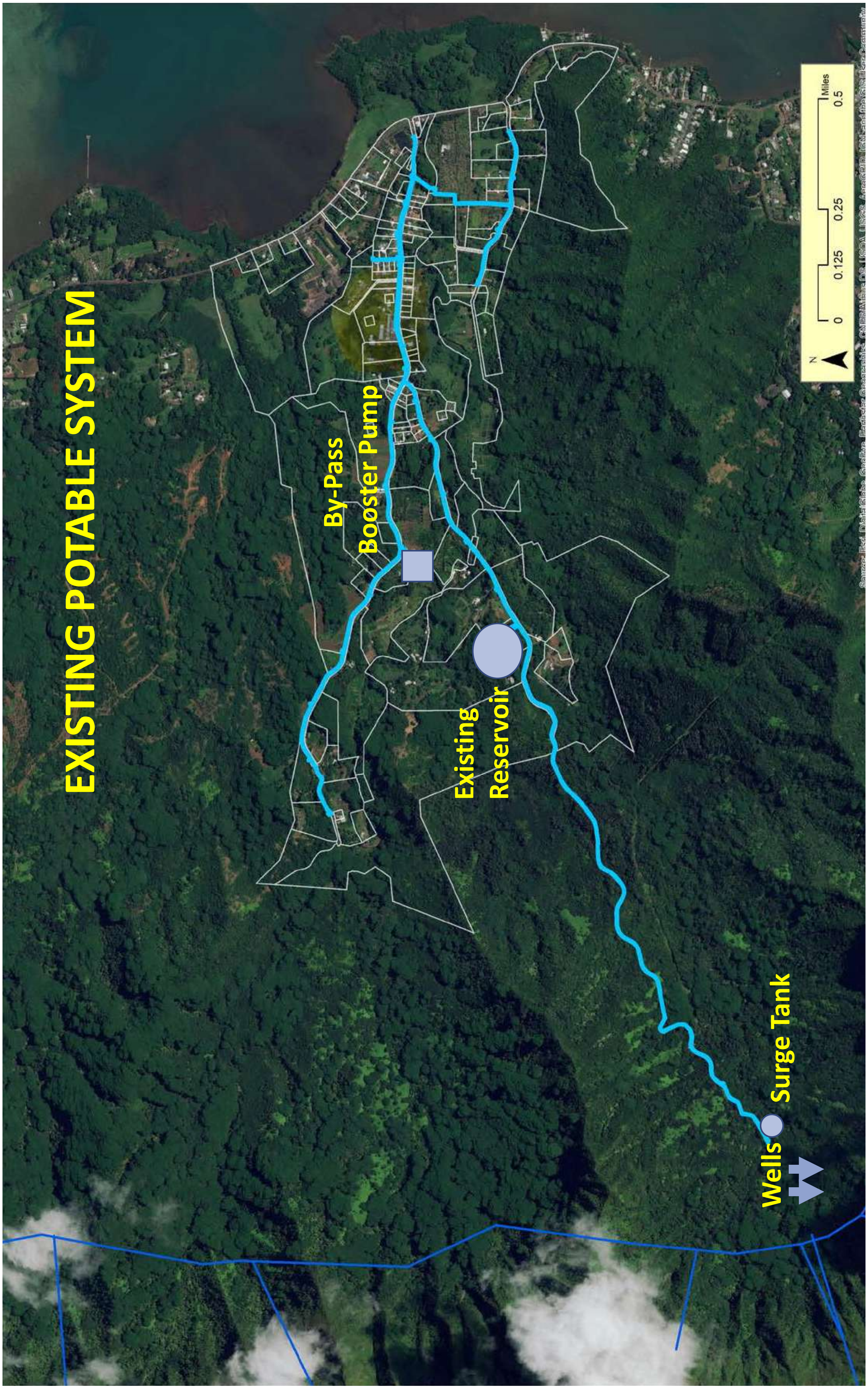
SMITH, YOUNG & HIDA, INC
CONSULTING ENGINEERS
HONOLULU, HAWAII
WAIAHOLE VALLEY AGRICULTURAL PARK
WATER SUPPLY & STORAGE FACILITIES
WAIAHOLE, KOOLAUPOKO, OAHU, HAWAII
GENERAL PLAN OF WAIAHOLE VALLEY
WATER SYSTEM
APPROVED
LEGEND:
EXCLUSION (PRIVATE PROPERTY)
EXCLUSION FROM AGRICULTURAL PARK (SECTIONS 171,8128) (RESIDENTIAL LOT)
NEW WATER SYSTEM
EXIST BWS DOMESTIC
FIRE HYDRANT
N
TO KAHUKU
TO KANEOHE
BOOSTER PUMP STATION
1.0 MG. RESERVOIR
ALTITUDE VALVE
2100 GAL LEVEL CONTROL AND
AIR RELEASE TANK
2 WELL PUMPS AND
PUMP CONTROL VALVES
W8
W12
W16
EXCLUSION
OPEN AREA
PUU KAUAI

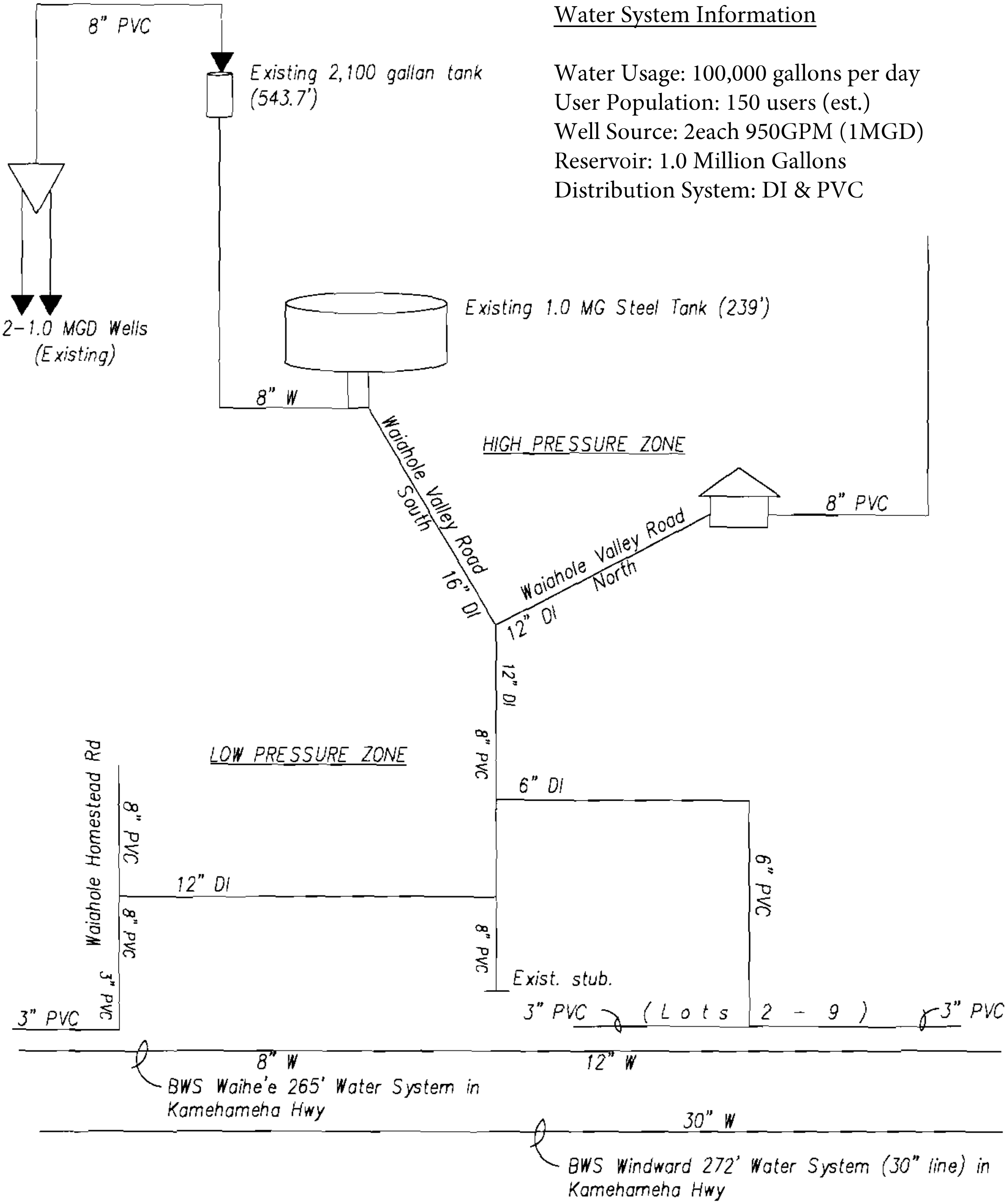
FIGURE I



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Water System Information

Water Usage: 100,000 gallons per day
User Population: 150 users (est.)
Well Source: 2each 950GPM (1MGD)
Reservoir: 1.0 Million Gallons
Distribution System: DI & PVC



Mon, 08 Oct 2007 - 3:00pm
H:\Projects\184-00 WAIAHOLE WATER SYSTEM\Exhibits\FINAL REPORT WVWS.dwg

CADD:
184-00

SCALE:
NOT TO SCALE

DATE:
OCTOBER 2007

Bills Engineering Inc.
Civil/Environmental Engineering
1124 Fort Street Mall, Suite 200
Honolulu, HI 96813

WAIAHOLE VALLEY
WATER SYSTEM ASSESSMENT
(1) 4-8-007 TO 012

WVWS Schematic (Existing)

FIGURE
2

ACT 169

S.B. NO. 2645

A Bill for an Act Relating to Water Audits.

Be It Enacted by the Legislature of the State of Hawaii:

SECTION 1. Article XI, section 7, of the Hawaii State Constitution obligates the State to protect, control, and regulate the use of Hawaii's water resources for the benefit of its people.

Fresh water is the lifeblood of society. The quantity and quality of fresh water directly impact the health, welfare, economy, and quality of life in Hawaii. Fresh water infrastructure has been constructed to withdraw water from available sources, to treat it to acceptable standards, and to distribute it to our various communities.

Based on the department of health's database, there are a little over fifty county-run public water systems statewide and another fifty large capacity public water systems and public water systems operating in designated ground water management areas. Many of these water distribution systems, however, may be operating with inefficiencies that result in the loss of water, increased energy costs, and lost revenue.

Water conservation is among the least expensive and most efficient ways to increase the available supply of fresh water. It requires improving the efficiency of water delivery and identifying losses to the system. A water audit helps a utility understand how much water is lost from a distribution system through the detailed analysis of data, which the utility can use to make informed decisions to reduce real or apparent losses.

There is a growing trend across the United States where states, including California, Colorado, Delaware, Georgia, New Mexico, Pennsylvania, Tennessee, Texas, Washington, and Wisconsin, and their water authorities have begun to mandate water audits by water utilities.

The purpose of this Act is to establish a program to implement standardized water audits of public water systems in accordance with the method adopted by the American Water Works Association's Water Audits and Loss Control Programs, Manual of Water Supply Practices - M36, as amended.

SECTION 2. The commission on water resource management shall establish a five-year program to provide technical assistance to public water systems to conduct standardized water audits of public water systems in accordance with the method adopted by the American Water Works Association's Water Audits and Loss Control Programs, Manual of Water Supply Practices - M36, as amended.

In the first two years, the commission shall establish a program for the counties to conduct standardized water audits of public water systems operated by the counties. In the following two years, the commission shall extend the program to all remaining large capacity public water systems and public water systems in designated water management areas.

In establishing the program, the commission shall utilize the American Water Works Association's Free Water Audit Software, Version 5.0 or subsequent versions. The program elements shall include water audit training workshops, level 1 validation of water audits and follow-up communication, and recommendations to improve water audit validity scores and to address system losses.

SECTION 3. The standardized water audits shall follow the key parameters for establishing a water audit outlined in the American Water Works Association's Water Audits and Loss Control Programs, Manual of Water Supply Practices - M36, as amended, including:

(1) Describing the distribution system boundaries to identify all water sources supplying water to the system, calculate the system input volume, and calculate the volume of water supplied into the distribution system;
(2) Setting time periods for the audit that are sufficient to allow analysis and evaluation of the system water supply;
(3) Establishing standardized units of measure so supply and consumption units are the same;
(4) Assembling records and data from a wide variety of operations in the water systems, including:
    (A) Water supplied, including volume from own sources, and water imported or exported;
    (B) Authorized water consumption, including billed metered, billed unmetered, and unbilled metered;
    (C) Water system data, including length of mains, number of service connections, average length of customer service lines, and average operating pressure; and
    (D) Cost data, including total annual cost of operating the water system, customer retail unit cost, and variable production costs; and
(5) Identifying, quantifying, and assigning costs to apparent losses and real losses.

SECTION 4. On January 1, 2017, the commission shall implement the water audit program developed pursuant to sections 1 and 2 of this Act, and shall include a process for level 1 validation of water loss audit reports which follows the principles and terminology in the American Water Works Association's Water Audits and Loss Control Programs, Manual of Water Supply Practices

- M36, as amended, including the Free Water Audit Software, version 5.0 or subsequent versions.

The commission shall provide the counties and other operators of public water systems subject to this Act the technical assistance and information necessary to help prepare and validate the water loss audit reports.

SECTION 5. Beginning in 2018, and for each subsequent year thereafter, the counties shall submit, on July 1 of each year, a completed and validated water loss audit report for each public water system operated by the counties for the previous calendar year to the commission. Beginning on July 1, 2020, and for each subsequent year thereafter, all remaining large capacity public water systems and public water systems in water management areas shall submit, on July 1 of each year, a completed and validated water loss audit report on their water systems for the previous calendar year to the commission. Each water loss audit report submitted to the commission shall be accompanied by information identifying steps taken in the preceding year to increase the validity of data entered into the final audit, reduce the volume of apparent losses, and reduce the volume of real losses.

SECTION 6. As used in this Act:

"Commission" means the commission on water resource management.

"Designated water management area" means a geographic area that has been designated pursuant to section 174C-41, Hawaii Revised Statutes.

"Large capacity public water system" means a public water system that serves a population of one thousand or more.

"Level 1 validation" means a water audit that has been subject to a third-party desktop review of data that is immediately available, which may include supply reports, consumption reports, and testing reports. "Level 1 validation" includes utility staff interviews with third-party validators focused on outlining organizational practices to ensure that data validity scores have been assigned correctly and consistently, and confirmed, corrected, or noted as needing further investigation.

"Public water system" means a system subject to Federal Safe Drinking Water Act regulations, which provides water for human consumption through pipes or other constructed conveyances. Such a system includes any collection, treatment, storage, and distribution facilities under the control of a utility and used primarily in connection with the system.

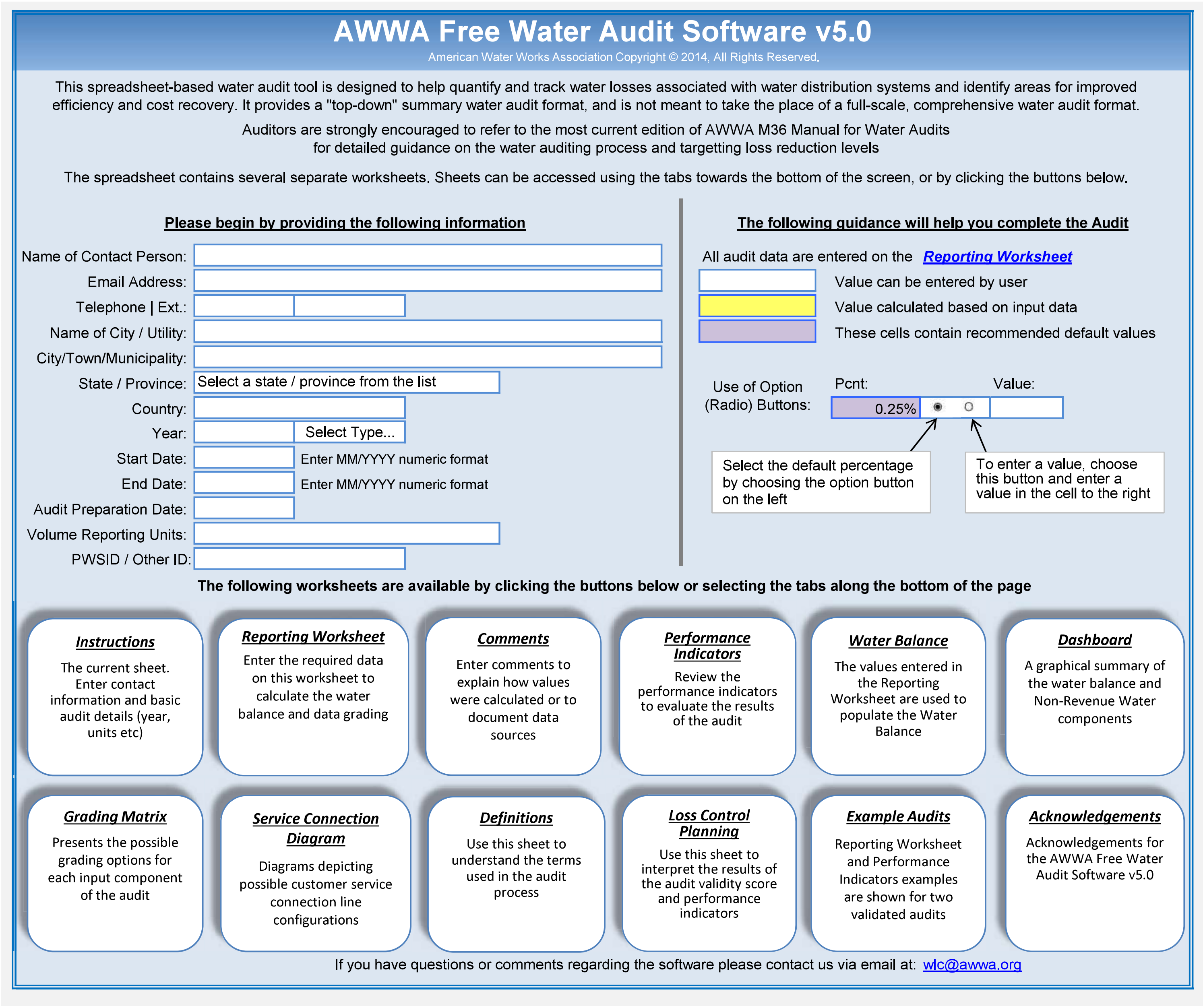
SECTION 7. There is authorized out of other federal funds the sum of $600,000 or so much thereof as may be necessary for fiscal year 2016-2017 to conduct standardized water audits of public water systems as set forth in this Act; provided that private matching funds of $100,000 are provided.

There is appropriated out of the revenues authorized by this section the sum of $700,000 or so much thereof as may be necessary for fiscal year 2016-2017 to establish and implement the program to conduct standardized water audits of public water systems in accordance with this Act.

The sum appropriated shall be expended by the commission on water resource management for the purposes of this Act.

SECTION 8. This Act shall take effect on July 1, 2016.

(Approved June 30, 2016.)



AWWA Free Water Audit Software v5.0

This spreadsheet-based water audit tool is designed to help quantify and track water losses associated with water distribution systems and identify areas for improved efficiency and cost recovery. It provides a "top-down" summary water audit format, and is not meant to take the place of a full-scale, comprehensive water audit format.

Auditors are strongly encouraged to refer to the most current edition of AWWA M36 Manual for Water Audits for detailed guidance on the water auditing process and targetting loss reduction levels

The spreadsheet contains several separate worksheets. Sheets can be accessed using the tabs towards the bottom of the screen, or by clicking the buttons below.

Please begin by providing the following information

Name of Contact Person:
Email Address:
Telephone | Ext.:
Name of City / Utility:
City/Town/Municipality:
State / Province: Select a state / province from the list
Country:
Year: Select Type...
Start Date: Enter MM/YYYY numeric format
End Date: Enter MM/YYYY numeric format
Audit Preparation Date:
Volume Reporting Units:
PWSID / Other ID:

The following guidance will help you complete the Audit

All audit data are entered on the ***Reporting Worksheet***

☐	Value can be entered by user
🟨	Value calculated based on input data
🟪	These cells contain recommended default values

Use of Option (Radio) Buttons: Pcnt: 0.25% ● ○ Value:

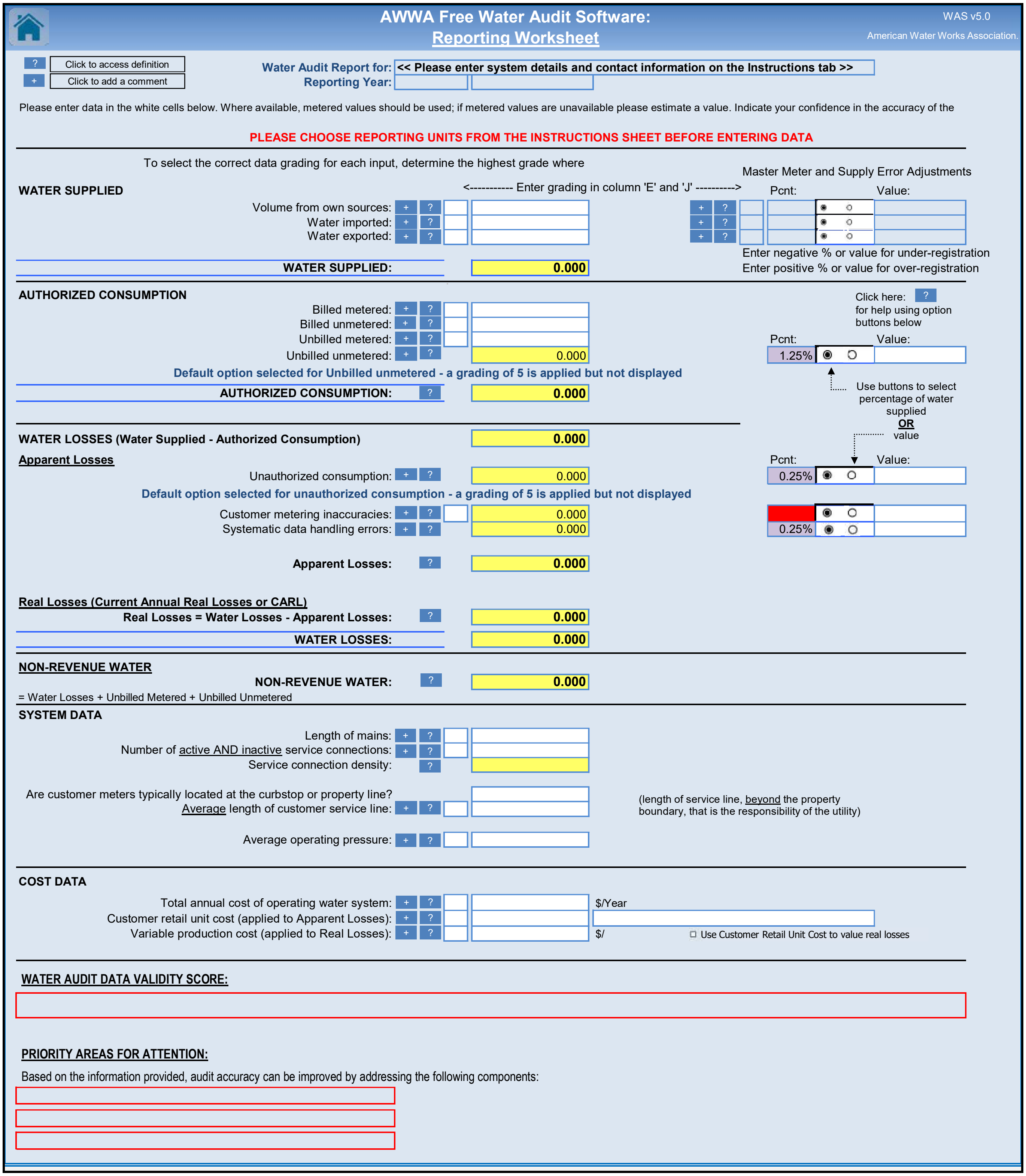
Select the default percentage by choosing the option button on the left

To enter a value, choose this button and enter a value in the cell to the right

The following worksheets are available by clicking the buttons below or selecting the tabs along the bottom of the page

Instructions	The current sheet. Enter contact information and basic audit details (year, units etc)
Reporting Worksheet	Enter the required data on this worksheet to calculate the water balance and data grading
Comments	Enter comments to explain how values were calculated or to document data sources
Performance Indicators	Review the performance indicators to evaluate the results of the audit
Water Balance	The values entered in the Reporting Worksheet are used to populate the Water Balance
Dashboard	A graphical summary of the water balance and Non-Revenue Water components
Grading Matrix	Presents the possible grading options for each input component of the audit
Service Connection Diagram	Diagrams depicting possible customer service connection line configurations
Definitions	Use this sheet to understand the terms used in the audit process
Loss Control Planning	Use this sheet to interpret the results of the audit validity score and performance indicators
Example Audits	Reporting Worksheet and Performance Indicators examples are shown for two validated audits
Acknowledgements	Acknowledgements for the AWWA Free Water Audit Software v5.0

If you have questions or comments regarding the software please contact us via email at: wlc@awwa.org



AWWA Free Water Audit Software:
Reporting Worksheet

WAS v5.0
American Water Works Association.

? Click to access definition
\+ Click to add a comment

Water Audit Report for: **<< Please enter system details and contact information on the Instructions tab >>**
Reporting Year:

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the

PLEASE CHOOSE REPORTING UNITS FROM THE INSTRUCTIONS SHEET BEFORE ENTERING DATA

To select the correct data grading for each input, determine the highest grade where

<----------- Enter grading in column 'E' and 'J' ---------->

Master Meter and Supply Error Adjustments

WATER SUPPLIED

		Pcnt:		Value:
Volume from own sources:			● ○	
Water imported:			● ○	
Water exported:			● ○	
WATER SUPPLIED:	**0.000**			

Enter negative % or value for under-registration
Enter positive % or value for over-registration

AUTHORIZED CONSUMPTION

Click here: ?
for help using option buttons below

		Pcnt:		Value:
Billed metered:				
Billed unmetered:				
Unbilled metered:				
Unbilled unmetered:	0.000	1.25%	● ○	

Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed

AUTHORIZED CONSUMPTION: **0.000**

Use buttons to select percentage of water supplied
OR
value

WATER LOSSES (Water Supplied - Authorized Consumption) **0.000**

Apparent Losses

		Pcnt:		Value:
Unauthorized consumption:	0.000	0.25%	● ○	

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

		Pcnt:		Value:
Customer metering inaccuracies:	0.000	🟥	● ○	
Systematic data handling errors:	0.000	0.25%	● ○	

Apparent Losses: **0.000**

Real Losses (Current Annual Real Losses or CARL)
Real Losses = Water Losses - Apparent Losses: **0.000**

WATER LOSSES: **0.000**

NON-REVENUE WATER
NON-REVENUE WATER: **0.000**
= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:
Number of active AND inactive service connections:
Service connection density:

Are customer meters typically located at the curbstop or property line?
Average length of customer service line:

(length of service line, beyond the property boundary, that is the responsibility of the utility)

Average operating pressure:

COST DATA

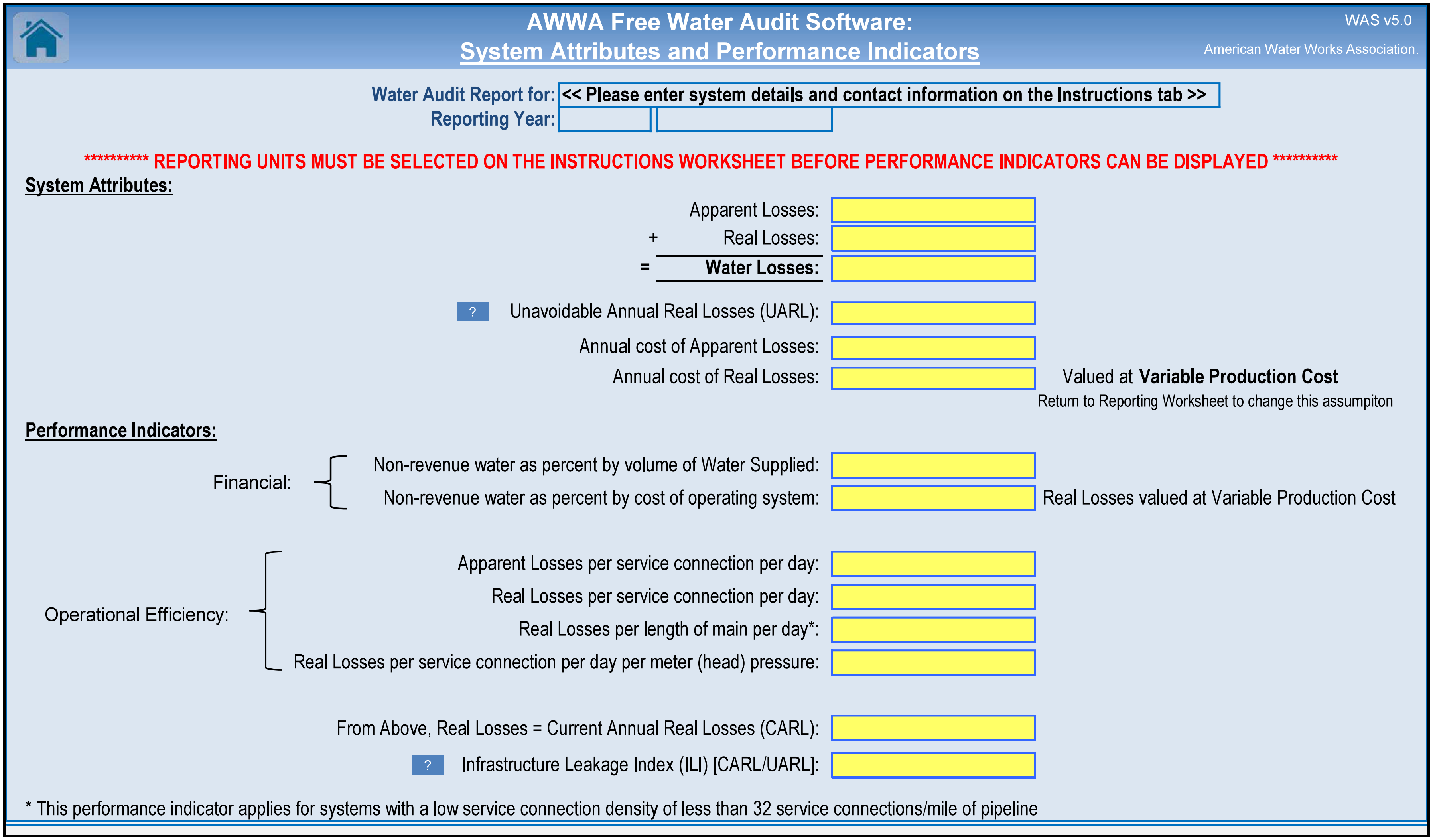
Total annual cost of operating water system: $/Year
Customer retail unit cost (applied to Apparent Losses):
Variable production cost (applied to Real Losses): $/ ☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

AWWA Free Water Audit Software v5.0 Reporting Worksheet 1



AWWA Free Water Audit Software:

System Attributes and Performance Indicators

WAS v5.0

American Water Works Association.

Water Audit Report for: **<< Please enter system details and contact information on the Instructions tab >>**

Reporting Year:

********** REPORTING UNITS MUST BE SELECTED ON THE INSTRUCTIONS WORKSHEET BEFORE PERFORMANCE INDICATORS CAN BE DISPLAYED **********

System Attributes:

Apparent Losses:

\+ Real Losses:

= **Water Losses:**

? Unavoidable Annual Real Losses (UARL):

Annual cost of Apparent Losses:

Annual cost of Real Losses: Valued at **Variable Production Cost**

Return to Reporting Worksheet to change this assumpiton

Performance Indicators:

Financial:

Non-revenue water as percent by volume of Water Supplied:

Non-revenue water as percent by cost of operating system: Real Losses valued at Variable Production Cost

Operational Efficiency:

Apparent Losses per service connection per day:

Real Losses per service connection per day:

Real Losses per length of main per day*:

Real Losses per service connection per day per meter (head) pressure:

From Above, Real Losses = Current Annual Real Losses (CARL):

? Infrastructure Leakage Index (ILI) [CARL/UARL]:

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline

AWWA Free Water Audit Software:
User Comments

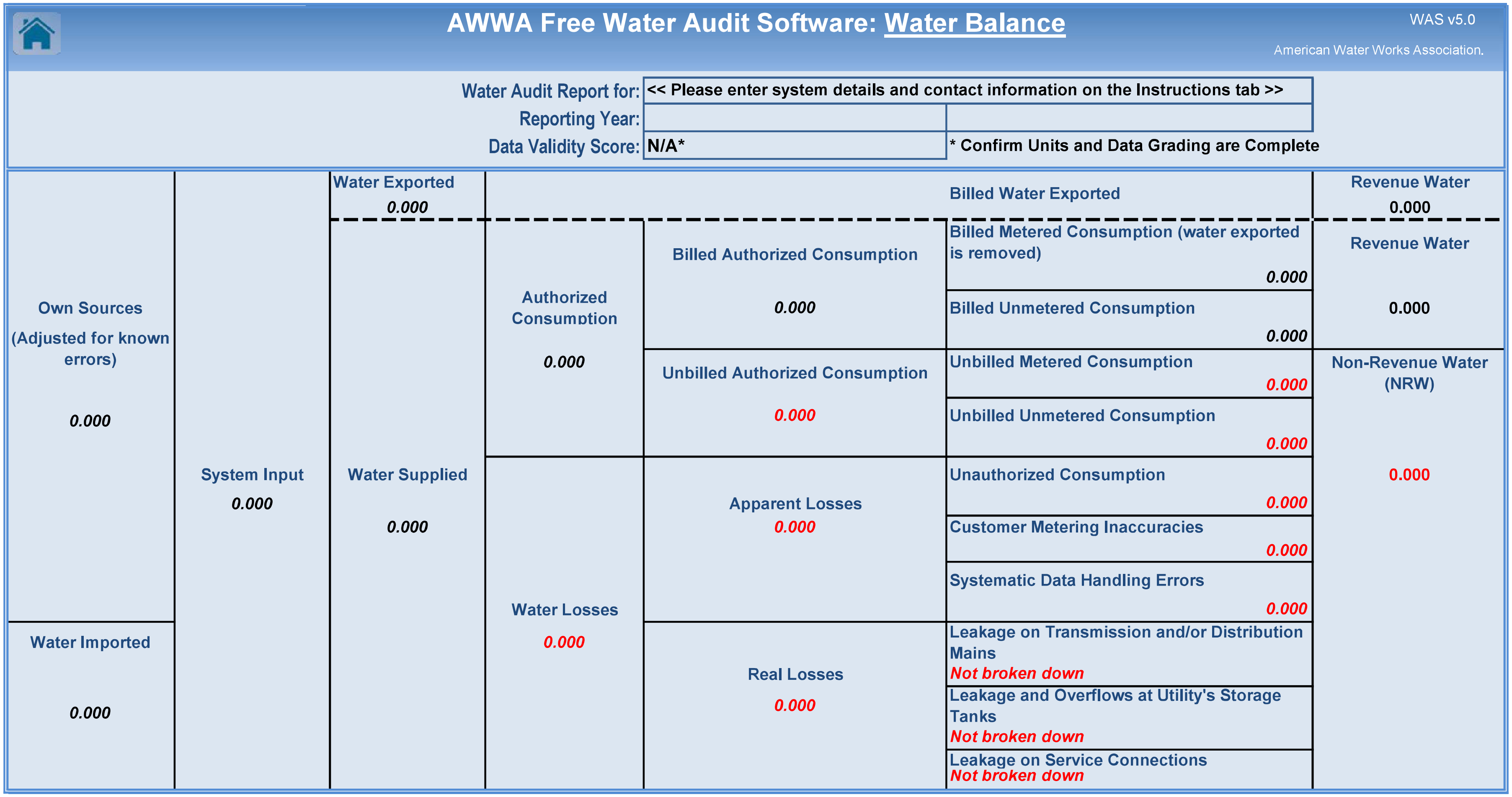
WAS v5.0
American Water Works Association.

Use this worksheet to add comments or notes to explain how an input value was calculated, or to document the sources of the information used.

General Comment:	

Audit Item	**Comment**
Volume from own sources:	
Vol. from own sources: Master meter error adjustment:	
Water imported:	
Water imported: master meter error adjustment:	
Water exported:	
Water exported: master meter error adjustment:	
Billed metered:	
Billed unmetered:	
Unbilled metered:	

Audit Item	Comment
Unbilled unmetered:	
Unauthorized consumption:	
Customer metering inaccuracies:	
Systematic data handling errors:	
Length of mains:	
Number of active AND inactive service connections:	
Average length of customer service line:	
Average operating pressure:	
Total annual cost of operating water system:	
Customer retail unit cost (applied to Apparent Losses):	
Variable production cost (applied to Real Losses):	



AWWA Free Water Audit Software: Water Balance

WAS v5.0
American Water Works Association.

Water Audit Report for: << Please enter system details and contact information on the Instructions tab >>
Reporting Year:
Data Validity Score: N/A*
* Confirm Units and Data Grading are Complete

		Water Exported *0.000*	Billed Water Exported			Revenue Water 0.000
Own Sources (Adjusted for known errors) *0.000*	System Input *0.000*	Water Supplied *0.000*	Authorized Consumption *0.000*	Billed Authorized Consumption *0.000*	Billed Metered Consumption (water exported is removed) *0.000*	Revenue Water 0.000
					Billed Unmetered Consumption *0.000*	
				Unbilled Authorized Consumption *0.000*	Unbilled Metered Consumption *0.000*	Non-Revenue Water (NRW) 0.000
					Unbilled Unmetered Consumption *0.000*	
			Water Losses *0.000*	Apparent Losses *0.000*	Unauthorized Consumption *0.000*	
					Customer Metering Inaccuracies *0.000*	
					Systematic Data Handling Errors *0.000*	
Water Imported *0.000*				Real Losses *0.000*	Leakage on Transmission and/or Distribution Mains ***Not broken down***	
					Leakage and Overflows at Utility's Storage Tanks ***Not broken down***	
					Leakage on Service Connections ***Not broken down***	

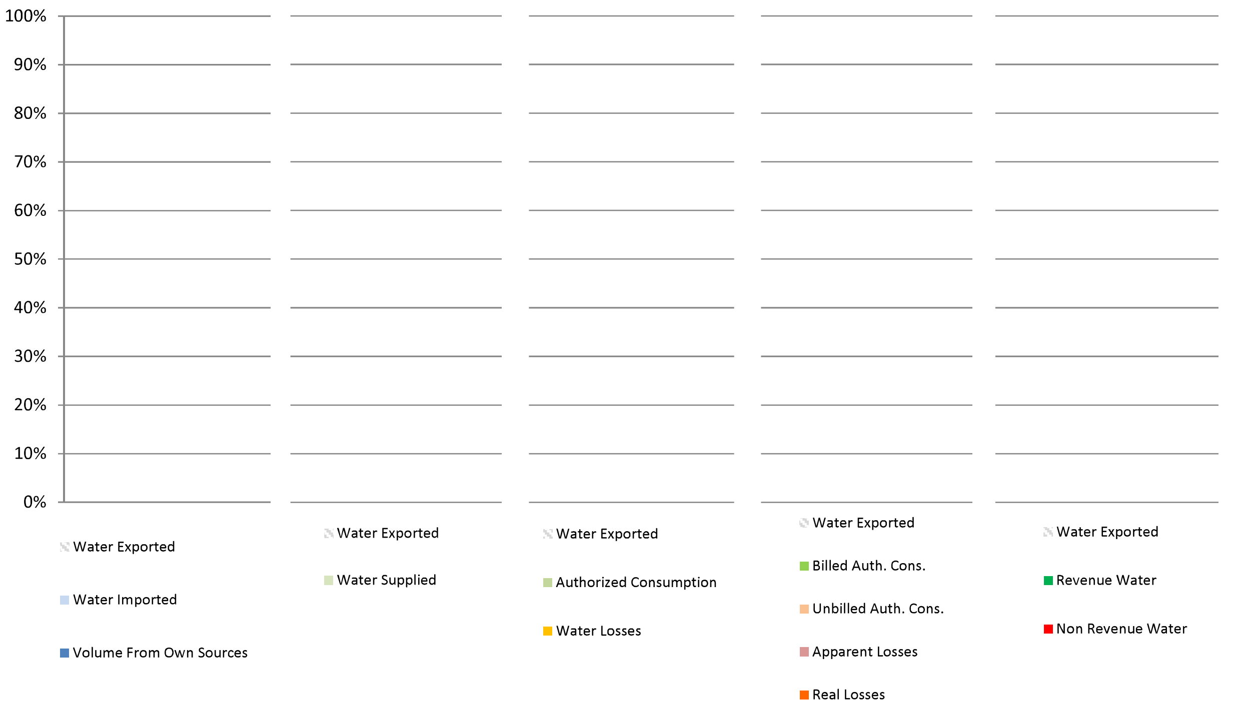
AWWA Free Water Audit Software:
Dashboard

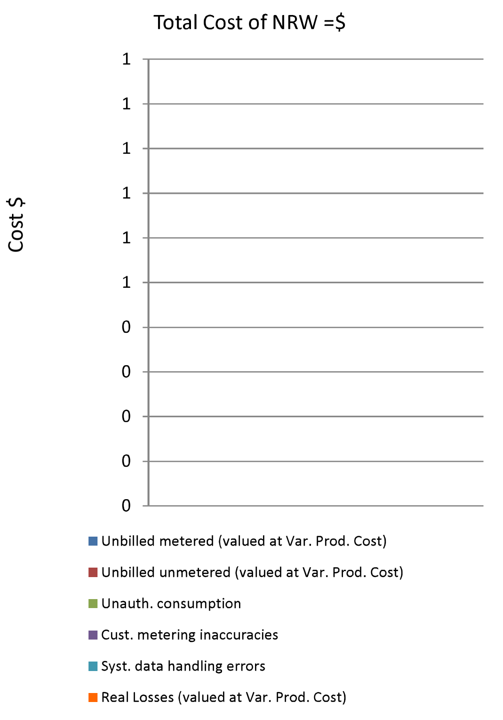
WAS v5.0
American Water Works Association.

The graphic below is a visual representation of the Water Balance with bar heights propotional to the volume of the audit components

Water Audit Report for: **<< Please enter system details and contact information on the Instructions tab >>**
Reporting Year:
Data Validity Score: **N/A*** *** Confirm Units and Data Grading are Complete**

○ Show me the <u>VOLUME</u> of Non-Revenue Water
● Show me the <u>COST</u> of Non-Revenue Water




Total Cost of NRW =$

AWWA Free Water Audit Software: Grading Matrix

WAS 5.0

The grading assigned to each audit component and the corresponding recommended improvements and actions are highlighted in yellow. Audit accuracy is likely to be improved by prioritizing those items shown in red

Grading >>>	n/a	1	2	3	4	5	6	7	8	9	10
WATER SUPPLIED											
Volume from own sources:	Select this grading only if the water utility purchases/imports all of its water resources (i.e. has no sources of its own)	Less than 25% of water production sources are metered, remaining sources are estimated. No regular meter accuracy testing or electronic calibration conducted.	25% - 50% of treated water production sources are metered; other sources estimated. No regular meter accuracy testing or electronic calibration conducted.	Conditions between 2 and 4	50% - 75% of treated water production sources are metered, other sources estimated. Occasional meter accuracy testing or electronic calibration conducted.	Conditions between 4 and 6	At least 75% of treated water production sources are metered, or at least 90% of the source flow is derived from metered sources. Meter accuracy testing and/or electronic calibration of related instrumentation is conducted annually. Less than 25% of tested meters are found outside of +/- 6% accuracy.	Conditions between 6 and 8	100% of treated water production sources are metered, meter accuracy testing and electronic calibration of related instrumentation is conducted annually, less than 10% of meters are found outside of +/- 6% accuracy	Conditions between 8 and 10	100% of treated water production sources are metered, meter accuracy testing and electronic calibration of related instrumentation is conducted semi-annually, with less than 10% found outside of +/- 3% accuracy. Procedures are reviewed by a third party knowledgeable in the M36 methodology.
Improvements to attain higher data grading for "Volume from own Sources" component:		to qualify for 2: Organize and launch efforts to collect data for determining volume from own sources	to qualify for 4: Locate all water production sources on maps and in the field, launch meter accuracy testing for existing meters, begin to install meters on unmetered water production sources and replace any obsolete/defective meters.		to qualify for 6: Formalize annual meter accuracy testing for all source meters; specify the frequency of testing. Complete installation of meters on unmetered water production sources and complete replacement of all obsolete/defective meters.		to qualify for 8: Conduct annual meter accuracy testing and calibration of related instrumentation on all meter installations on a regular basis. Complete project to install new, or replace defective existing, meters so that entire production meter population is metered. Repair or replace meters outside of +/- 6% accuracy.		to qualify for 10: Maintain annual meter accuracy testing and calibration of related instrumentation for all meter installations. Repair or replace meters outside of +/- 3% accuracy. Investigate new meter technology; pilot one or more replacements with innovative meters in attempt to further improve meter accuracy.		to maintain 10: Standardize meter accuracy test frequency to semi-annual, or more frequent, for all meters. Repair or replace meters outside of +/- 3% accuracy. Continually investigate/pilot improving metering technology.
Volume from own sources master meter and supply error adjustment:	Select n/a only if the water utility fails to have meters on its sources of supply	Inventory information on meters and paper records of measured volumes exist but are incomplete and/or in a very crude condition; data error cannot be determined	No automatic datalogging of production volumes; daily readings are scribed on paper records without any accountability controls. Flows are not balanced across the water distribution system: tank/storage elevation changes are not employed in calculating the "Volume from own sources" component and archived flow data is adjusted only when grossly evident data error occurs.	Conditions between 2 and 4	Production meter data is logged automatically in electronic format and reviewed at least on a monthly basis with necessary corrections implemented. "Volume from own sources" tabulations include estimate of daily changes in tanks/storage facilities. Meter data is adjusted when gross data errors occur, or occasional meter testing deems this necessary.	Conditions between 4 and 6	Hourly production meter data logged automatically & reviewed on at least a weekly basis. Data is adjusted to correct gross error when meter/instrumentation equipment malfunction is detected; and/or error is confirmed by meter accuracy testing. Tank/storage facility elevation changes are automatically used in calculating a balanced "Volume from own sources" component, and data gaps in the archived data are corrected on at least a weekly basis.	Conditions between 6 and 8	Continuous production meter data is logged automatically & reviewed each business day. Data is adjusted to correct gross error from detected meter/instrumentation equipment malfunction and/or results of meter accuracy testing. Tank/storage facility elevation changes are automatically used in "Volume from own sources" tabulations and data gaps in the archived data are corrected on a daily basis.	Conditions between 8 and 10	Computerized system (SCADA or similar) automatically balances flows from all sources and storages; results are reviewed each business day. Tight accountability controls ensure that all data gaps that occur in the archived flow data are quickly detected and corrected. Regular calibrations between SCADA and sources meters ensures minimal data transfer error.
Improvements to attain higher data grading for "Master meter and supply error adjustment" component:		to qualify for 2: Develop a plan to restructure recordkeeping system to capture all flow data; set a procedure to review flow data on a daily basis to detect input errors. Obtain more reliable information about existing meters by conducting field inspections of meters and related instrumentation, and obtaining manufacturer literature.	to qualify for 4: Install automatic datalogging equipment on production meters. Complete installation of level instrumentation at all tanks/storage facilities and include tank level data in automatic calculation routine in a computerized system. Construct a computerized listing or spreadsheet to archive input volumes, tank/storage volume changes and import/export flows in order to determine the composite "Water Supplied" volume for the distribution system. Set a procedure to review this data on a monthly basis to detect gross anomalies and data gaps.		to qualify for 6: Refine computerized data collection and archive to include hourly production meter data that is reviewed at least on a weekly basis to detect specific data anomalies and gaps. Use daily net storage change to balance flows in calculating "Water Supplied" volume. Necessary corrections to data errors are implemented on a weekly basis.		to qualify for 8: Ensure that all flow data is collected and archived on at least an hourly basis. All data is reviewed and detected errors corrected each business day. Tank/storage levels variations are employed in calculating balanced "Water Supplied" component. Adjust production meter data for gross error and inaccuracy confirmed by testing.		to qualify for 10: Link all production and tank/storage facility elevation change data to a Supervisory Control & Data Acquisition (SCADA) System, or similar computerized monitoring/control system, and establish automatic flow balancing algorithm and regularly calibrate between SCADA and source meters. Data is reviewed and corrected each business day.		to maintain 10: Monitor meter innovations for development of more accurate and less expensive flowmeters. Continue to replace or repair meters as they perform outside of desired accuracy limits. Stay abreast of new and more accurate water level instruments to better record tank/storage levels and archive the variations in storage volume. Keep current with SCADA and data management systems to ensure that archived data is well-managed and error free.
Water Imported:	Select n/a if the water utility's supply is exclusively from its own water resources (no bulk purchased/ imported water)	Less than 25% of imported water sources are metered, remaining sources are estimated. No regular meter accuracy testing.	25% - 50% of imported water sources are metered; other sources estimated. No regular meter accuracy testing.	Conditions between 2 and 4	50% - 75% of imported water sources are metered, other sources estimated. Occasional meter accuracy testing conducted.	Conditions between 4 and 6	At least 75% of imported water sources are metered, meter accuracy testing and/or electronic calibration of related instrumentation is conducted annually for all meter installations. Less than 25% of tested meters are found outside of +/- 6% accuracy.	Conditions between 6 and 8	100% of imported water sources are metered, meter accuracy testing and electronic calibration of related instrumentation is conducted annually, less than 10% of meters are found outside of +/- 6% accuracy	Conditions between 8 and 10	100% of imported water sources are metered, meter accuracy testing and electronic calibration of related instrumentation is conducted semi-annually for all meter installations, with less than 10% of accuracy tests found outside of +/- 3% accuracy.
Improvements to attain higher data grading for "Water Imported Volume" component: *(Note: usually the water supplier selling the water - "the Exporter" - to the utility being audited is responsible to maintain the metering installation measuring the imported volume. The utility should coordinate carefully with the Exporter to ensure that adequate meter upkeep takes place and an accurate measure of the Water Imported volume is quantified.)*		to qualify for 2: Review bulk water purchase agreements with partner suppliers; confirm requirements for use and maintenance of accurate metering. Identify needs for new or replacement meters with goal to meter all imported water sources.	To qualify for 4: Locate all imported water sources on maps and in the field, launch meter accuracy testing for existing meters, begin to install meters on unmetered imported water interconnections and replace obsolete/defective meters.		to qualify for 6: Formalize annual meter accuracy testing for all imported water meters, planning for both regular meter accuracy testing and calibration of the related instrumentation. Continue installation of meters on unmetered imported water interconnections and replacement of obsolete/defective meters.		to qualify for 8: Complete project to install new, or replace defective, meters on all imported water interconnections. Maintain annual meter accuracy testing for all imported water meters and conduct calibration of related instrumentation at least annually. Repair or replace meters outside of +/- 6% accuracy.		to qualify for 10: Conduct meter accuracy testing for all meters on a semi-annual basis, along with calibration of all related instrumentation. Repair or replace meters outside of +/- 3% accuracy. Investigate new meter technology; pilot one or more replacements with innovative meters in attempt to improve meter accuracy.		to maintain 10: Standardize meter accuracy test frequency to semi-annual, or more frequent, for all meters. Continue to conduct calibration of related instrumentation on a semi-annual basis. Repair or replace meters outside of +/- 3% accuracy. Continually investigate/pilot improving metering technology.

Grading >>>	n/a	1	2	3	4	5	6	7	8	9	10
Water imported master meter and supply error adjustment:	Select n/a if the Imported water supply is unmetered, with Imported water quantities estimated on the billing invoices sent by the Exporter to the purchasing Utility.	Inventory information on imported meters and paper records of measured volumes exist but are incomplete and/or in a very crude condition; data error cannot be determined Written agreement(s) with water Exporter(s) are missing or written in vague language concerning meter management and testing.	No automatic datalogging of imported supply volumes; daily readings are scribed on paper records without any accountability controls to confirm data accuracy and the absence of errors and data gaps in recorded volumes. Written agreement requires meter accuracy testing but is vague on the details of how and who conducts the testing.	Conditions between 2 and 4	Imported supply metered flow data is logged automatically in electronic format and reviewed at least on a monthly basis by the Exporter with necessary corrections implemented. Meter data is adjusted by the Exporter when gross data errors are detected. A coherent data trail exists for this process to protect both the selling and the purchasing Utility. Written agreement exists and clearly states requirements and roles for meter accuracy testing and data management.	Conditions between 4 and 6	Hourly Imported supply metered data is logged automatically & reviewed on at least a weekly basis by the Exporter. Data is adjusted to correct gross error when meter/instrumentation equipment malfunction is detected; and to correct for error confirmed by meter accuracy testing. Any data gaps in the archived data are detected and corrected during the weekly review. A coherent data trail exists for this process to protect both the selling and the purchasing Utility.	Conditions between 6 and 8	Continuous Imported supply metered flow data is logged automatically & reviewed each business day by the Exporter. Data is adjusted to correct gross error from detected meter/instrumentation equipment malfunction and/or results of meter accuracy testing. Any data errors/gaps are detected and corrected on a daily basis. A data trail exists for the process to protect both the selling and the purchasing Utility.	Conditions between 8 and 10	Computerized system (SCADA or similar) automatically records data which is reviewed each business day by the Exporter. Tight accountability controls ensure that all error/data gaps that occur in the archived flow data are quickly detected and corrected. A reliable data trail exists and contract provisions for meter testing and data management are reviewed by the selling and purchasing Utility at least once every five years.
Improvements to attain higher data grading for "Water imported master meter and supply error adjustment" component:		to qualify for 2: Develop a plan to restructure recordkeeping system to capture all flow data; set a procedure to review flow data on a daily basis to detect input errors. Obtain more reliable information about existing meters by conducting field inspections of meters and related instrumentation, and obtaining manufacturer literature. Review the written agreement between the selling and purchasing Utility.	to qualify for 4: Install automatic datalogging equipment on Imported supply meters. Set a procedure to review this data on a monthly basis to detect gross anomalies and data gaps. Launch discussions with the Exporters to jointly review terms of the written agreements regarding meter accuracy testing and data management; revise the terms as necessary.		to qualify for 6: Refine computerized data collection and archive to include hourly Imported supply metered flow data that is reviewed at least on a weekly basis to detect specific data anomalies and gaps. Make necessary corrections to errors/data errors on a weekly basis.		to qualify for 8: Ensure that all Imported supply metered flow data is collected and archived on at least an hourly basis. All data is reviewed and errors/data gaps are corrected each business day.		to qualify for 10: Conduct accountability checks to confirm that all Imported supply metered data is reviewed and corrected each business day by the Exporter. Results of all meter accuracy tests and data corrections should be available for sharing between the Exporter and the purchasing Utility. Establish a schedule for a regular review and updating of the contractual language in the written agreement between the selling and the purchasing Utility; at least every five years.		to maintain 10: Monitor meter innovations for development of more accurate and less expensive flowmeters; work with the Exporter to help identify meter replacement needs. Keep communication lines with Exporters open and maintain productive relations. Keep the written agreement current with clear and explicit language that meets the ongoing needs of all parties.
Water Exported:	Select n/a if the water utility sells no bulk water to neighboring water utilities (no exported water sales)	Less than 25% of exported water sources are metered, remaining sources are estimated. No regular meter accuracy testing.	25% - 50% of exported water sources are metered; other sources estimated. No regular meter accuracy testing.	Conditions between 2 and 4	50% - 75% of exported water sources are metered, other sources estimated. Occasional meter accuracy testing conducted.	Conditions between 4 and 6	At least 75% of exported water sources are metered, meter accuracy testing and/or electronic calibration conducted annually. Less than 25% of tested meters are found outside of +/- 6% accuracy.	Conditions between 6 and 8	100% of exported water sources are metered, meter accuracy testing and electronic calibration of related instrumentation is conducted annually, less than 10% of meters are found outside of +/- 6% accuracy	Conditions between 8 and 10	100% of exported water sources are metered, meter accuracy testing and electronic calibration of related instrumentation is conducted semi-annually for all meter installations, with less than 10% of accuracy tests found outside of +/- 3% accuracy.
Improvements to attain higher data grading for "Water Exported Volume" component: *(Note: usually, if the water utility being audited sells (Exports) water to a neighboring purchasing Utility, it is the responsibility of the utility exporting the water to maintain the metering installation measuring the Exported volume. The utility exporting the water should ensure that adequate meter upkeep takes place and an accurate measure of the Water Exported volume is quantified.)*		to qualify for 2: Review bulk water sales agreements with purchasing utilities; confirm requirements for use & upkeep of accurate metering. Identify needs to install new, or replace defective meters as needed.	To qualify for 4: Locate all exported water sources on maps and in field, launch meter accuracy testing for existing meters, begin to install meters on unmetered exported water interconnections and replace obsolete/defective meters		to qualify for 6: Formalize annual meter accuracy testing for all exported water meters. Continue installation of meters on unmetered exported water interconnections and replacement of obsolete/defective meters.		to qualify for 8: Complete project to install new, or replace defective, meters on all exported water interconnections. Maintain annual meter accuracy testing for all exported water meters. Repair or replace meters outside of +/- 6% accuracy.		to qualify for 10: Maintain annual meter accuracy testing for all meters. Repair or replace meters outside of +/- 3% accuracy. Investigate new meter technology; pilot one or more replacements with innovative meters in attempt to improve meter accuracy.		to maintain 10: Standardize meter accuracy test frequency to semi-annual, or more frequent, for all meters. Repair or replace meters outside of +/- 3% accuracy. Continually investigate/pilot improving metering technology.
Water exported master meter and supply error adjustment:	Select n/a only if the water utility fails to have meters on its exported supply interconnections.	Inventory information on exported meters and paper records of measured volumes exist but are incomplete and/or in a very crude condition; data error cannot be determined Written agreement(s) with the utility purchasing the water are missing or written in vague language concerning meter management and testing.	No automatic datalogging of exported supply volumes; daily readings are scribed on paper records without any accountability controls to confirm data accuracy and the absence of errors and data gaps in recorded volumes. Written agreement requires meter accuracy testing but is vague on the details of how and who conducts the testing.	Conditions between 2 and 4	Exported metered flow data is logged automatically in electronic format and reviewed at least on a monthly basis, with necessary corrections implemented. Meter data is adjusted by the utility selling (exporting) the water when gross data errors are detected. A coherent data trail exists for this process to protect both the utility exporting the water and the purchasing Utility. Written agreement exists and clearly states requirements and roles for meter accuracy testing and data management.	Conditions between 4 and 6	Hourly exported supply metered data is logged automatically & reviewed on at least a weekly basis by the utility selling the water. Data is adjusted to correct gross error when meter/instrumentation equipment malfunction is detected; and to correct for error found by meter accuracy testing. Any data gaps in the archived data are detected and corrected during the weekly review. A coherent data trail exists for this process to protect both the selling (exporting) utility and the purchasing Utility.	Conditions between 6 and 8	Continuous exported supply metered flow data is logged automatically & reviewed each business day by the utility selling (exporting) the water. Data is adjusted to correct gross error from detected meter/instrumentation equipment malfunction and any error confirmed by meter accuracy testing. Any data errors/gaps are detected and corrected on a daily basis. A data trail exists for the process to protect both the selling (exporting) Utility and the purchasing Utility.	Conditions between 8 and 10	Computerized system (SCADA or similar) automatically records data which is reviewed each business day by the utility selling (exporting) the water. Tight accountability controls ensure that all error/data gaps that occur in the archived flow data are quickly detected and corrected. A reliable data trail exists and contract provisions for meter testing and data management are reviewed by the selling Utility and purchasing Utility at least once every five years.

Grading >>>	n/a	1	2	3	4	5	6	7	8	9	10
Improvements to attain higher data grading for "Water exported master meter and supply error adjustment" component:	▨	to qualify for 2: Develop a plan to restructure recordkeeping system to capture all flow data; set a procedure to review flow data on a daily basis to detect input errors. Obtain more reliable information about existing meters by conducting field inspections of meters and related instrumentation, and obtaining manufacturer literature. Review the written agreement between the utility selling (exporting) the water and the purchasing Utility.	to qualify for 4: Install automatic datalogging equipment on exported supply meters. Set a procedure to review this data on a monthly basis to detect gross anomalies and data gaps. Launch discussions with the purchasing utilities to jointly review terms of the written agreements regarding meter accuracy testing and data management; revise the terms as necessary.		to qualify for 6: Refine computerized data collection and archive to include hourly exported supply metered flow data that is reviewed at least on a weekly basis to detect specific data anomalies and gaps. Make necessary corrections to errors/data errors on a weekly basis.		to qualify for 8: Ensure that all exported metered flow data is collected and archived on at least an hourly basis. All data is reviewed and errors/data gaps are corrected each business day.		to qualify for 10: Conduct accountability checks to confirm that all exported metered flow data is reviewed and corrected each business day by the utility selling the water. Results of all meter accuracy tests and data corrections should be available for sharing between the utility and the purchasing Utility. Establish a schedule for a regular review and updating of the contractual language in the written agreements with the purchasing utilities; at least every five years.		to maintain 10: Monitor meter innovations for development of more accurate and less expensive flowmeters; work with the purchasing utilities to help identify meter replacement needs. Keep communication lines with the purchasing utilities open and maintain productive relations. Keep the written agreement current with clear and explicit language that meets the ongoing needs of all parties.
AUTHORIZED CONSUMPTION											
Billed metered:	n/a (not applicable). Select n/a only if the entire customer population is not metered and is billed for water service on a flat or fixed rate basis. In such a case the volume entered must be zero.	Less than 50% of customers with volume-based billings from meter readings; flat or fixed rate billing exists for the majority of the customer population	At least 50% of customers with volume-based billing from meter reads; flat rate billing for others. Manual meter reading is conducted, with less than 50% meter read success rate, remainding accounts' consumption is estimated. Limited meter records, no regular meter testing or replacement. Billing data maintained on paper records, with no auditing.	Conditions between 2 and 4	At least 75% of customers with volume-based, billing from meter reads; flat or fixed rate billing for remaining accounts. Manual meter reading is conducted with at least 50% meter read success rate; consumption for accounts with failed reads is estimated. Purchase records verify age of customer meters; only very limited meter accuracy testing is conducted. Customer meters are replaced only upon complete failure. Computerized billing records exist, but only sporadic internal auditing conducted.	Conditions between 4 and 6	At least 90% of customers with volume-based billing from meter reads; consumption for remaining accounts is estimated. Manual customer meter reading gives at least 80% customer meter reading success rate; consumption for accounts with failed reads is estimated. Good customer meter records exist, but only limited meter accuracy testing is conducted. Regular replacement is conducted for the oldest meters. Computerized billing records exist with annual auditing of summary statistics conducting by utility personnel.	Conditions between 6 and 8	At least 97% of customers exist with volume-based billing from meter reads. At least 90% customer meter reading success rate; or at least 80% read success rate with planning and budgeting for trials of Automatic Meter Reading (AMR) or Advanced Metering Infrastructure (AMI) in one or more pilot areas. Good customer meter records. Regular meter accuracy testing guides replacement of statistically significant number of meters each year. Routine auditing of computerized billing records for global and detailed statistics occurs annually by utility personnel, and is verified by third party at least once every five years.	Conditions between 8 and 10	At least 99% of customers exist with volume-based billing from meter reads. At least 95% customer meter reading success rate; or minimum 80% meter reading success rate, with Automatic Meter Reading (AMR) or Advanced Metering Infrastructure (AMI) trials underway. Statistically significant customer meter testing and replacement program in place on a continuous basis. Computerized billing with routine, detailed auditing, including field investigation of representative sample of accounts undertaken annually by utility personnel. Audit is conducted by third party auditors at least once every three years.
Improvements to attain higher data grading for "Billed Metered Consumption" component:	If n/a is selected because the customer meter population is unmetered, consider establishing a new policy to meter the customer population and employ water rates based upon metered volumes.	to qualify for 2: Conduct investigations or trials of customer meters to select appropriate meter models. Budget funding for meter installations. Investigate volume based water rate structures.	to qualify for 4: Purchase and install meters on unmetered accounts. Implement policies to improve meter reading success. Catalog meter information during meter read visits to identify age/model of existing meters. Test a minimal number of meters for accuracy. Install computerized billing system.		to qualify for 6: Purchase and install meters on unmetered accounts. Eliminate flat fee billing and establish appropriate water rate structure based upon measured consumption. Continue to achieve verifiable success in removing manual meter reading barriers. Expand meter accuracy testing. Launch regular meter replacement program. Launch a program of annual auditing of global billing statistics by utility personnel.		to qualify for 8: Purchase and install meters on unmetered accounts. If customer meter reading success rate is less than 97%, assess cost-effectiveness of Automatic Meter Reading (AMR) or Advanced Metering Infrastructure (AMI) system for portion or entire system; or otherwise achieve ongoing improvements in manual meter reading success rate to 97% or higher. Refine meter accuracy testing program. Set meter replacement goals based upon accuracy test results. Implement annual auditing of detailed billing records by utility personnel and implement third party auditing at least once every five years.		to qualify for 10: Purchase and install meters on unmetered accounts. Launch Automatic Meter Reading (AMR) or Advanced Metering Infrastructure (AMI) system trials if manual meter reading success rate of at least 99% is not achieved within a five-year program. Continue meter accuracy testing program. Conduct planning and budgeting for large scale meter replacement based upon meter life cycle analysis using cumulative flow target. Continue annual detailed billing data auditing by utility personnel and conduct third party auditing at least once every three years.		to maintain 10: Continue annual internal billing data auditing, and third party auditing at least every three years. Continue customer meter accuracy testing to ensure that accurate customer meter readings are obtained and entered as the basis for volume based billing. Stay abreast of improvements in Automatic Meter Reading (AMR) and Advanced Metering Infrastructure (AMI) and information management. Plan and budget for justified upgrades in metering, meter reading and billing data management to maintain very high accuracy in customer metering and billing.
Billed unmetered:	Select n/a if it is the policy of the water utility to meter all customer connections and it has been confirmed by detailed auditing that all customers do indeed have a water meter; i.e. no intentionally unmetered accounts exist	Water utility policy does not require customer metering; flat or fixed fee billing is employed. No data is collected on customer consumption. The only estimates of customer population consumption available are derived from data estimation methods using average fixture count multiplied by number of connections, or similar approach.	Water utility policy does not require customer metering; flat or fixed fee billing is employed. Some metered accounts exist in parts of the system (pilot areas or District Metered Areas) with consumption read periodically or recorded on portable dataloggers over one, three, or seven day periods. Data from these sample meters are used to infer consumption for the total customer population. Site specific estimation methods are used for unusual buildings/water uses.	Conditions between 2 and 4	Water utility policy does require metering and volume based billing in general. However, a liberal amount of exemptions and a lack of clearly written and communicated procedures result in up to 20% of billed accounts believed to be unmetered by exemption; or the water utility is in transition to becoming fully metered, and a large number of customers remain unmetered. A rough estimate of the annual consumption for all unmetered accounts is included in the annual water audit, with no inspection of individual unmetered accounts.	Conditions between 4 and 6	Water utility policy does require metering and volume based billing but established exemptions exist for a portion of accounts such as municipal buildings. As many as 15% of billed accounts are unmetered due to this exemption or meter installation difficulties. Only a group estimate of annual consumption for all unmetered accounts is included in the annual water audit, with no inspection of individual unmetered accounts.	Conditions between 6 and 8	Water utility policy does require metering and volume based billing for all customer accounts. However, less than 5% of billed accounts remain unmetered because meter installation is hindered by unusual circumstances. The goal is to minimize the number of unmetered accounts. Reliable estimates of consumption are obtained for these unmetered accounts via site specific estimation methods.	Conditions between 8 and 10	Water utility policy does require metering and volume based billing for all customer accounts. Less than 2% of billed accounts are unmetered and exist because meter installation is hindered by unusual circumstances. The goal exists to minimize the number of unmetered accounts to the extent that is economical. Reliable estimates of consumption are obtained at these accounts via site specific estimation methods.

Grading >>>	n/a	1	2	3	4	5	6	7	8	9	10
Improvements to attain higher data grading for "Billed Unmetered Consumption" component:		to qualify for 2: Conduct research and evaluate cost/benefit of a new water utility policy to require metering of the customer population; thereby greatly reducing or eliminating unmetered accounts. Conduct pilot metering project by installing water meters in small sample of customer accounts and periodically reading the meters or datalogging the water consumption over one, three, or seven day periods.	to qualify for 4: Implement a new water utility policy requiring customer metering. Launch or expand pilot metering study to include several different meter types, which will provide data for economic assessment of full scale metering options. Assess sites with access difficulties to devise means to obtain water consumption volumes. Begin customer meter installation.		to qualify for 6: Refine policy and procedures to improve customer metering participation for all but solidly exempt accounts. Assign staff resources to review billing records to identify errant unmetered properties. Specify metering needs and funding requirements to install sufficient meters to significant reduce the number of unmetered accounts		to qualify for 8: Push to install customer meters on a full scale basis. Refine metering policy and procedures to ensure that all accounts, including municipal properties, are designated for meters. Plan special efforts to address "hard-to-access" accounts. Implement procedures to obtain a reliable consumption estimate for the remaining few unmetered accounts awaiting meter installation.		to qualify for 10: Continue customer meter installation throughout the service area, with a goal to minimize unmetered accounts. Sustain the effort to investigate accounts with access difficulties, and devise means to install water meters or otherwise measure water consumption.		to maintain 10: Continue to refine estimation methods for unmetered consumption and explore means to establish metering, for as many billed remaining unmetered accounts as is economically feasible.
Unbilled metered:	select n/a if all billing-exempt consumption is unmetered.	Billing practices exempt certain accounts, such as municipal buildings, but written policies do not exist; and a reliable count of unbilled metered accounts is unavailable. Meter upkeep and meter reading on these accounts is rare and not considered a priority. Due to poor recordkeeping and lack of auditing, water consumption for all such accounts is purely guesstimated.	Billing practices exempt certain accounts, such as municipal buildings, but only scattered, dated written directives exist to justify this practice. A reliable count of unbilled metered accounts is unavailable. Sporadic meter replacement and meter reading occurs on an as-needed basis. The total annual water consumption for all unbilled, metered accounts is estimated based upon approximating the number of accounts and assigning consumption from actively billed accounts of same meter size.	Conditions between 2 and 4	Dated written procedures permit billing exemption for specific accounts, such as municipal properties, but are unclear regarding certain other types of accounts. Meter reading is given low priority and is sporadic. Consumption is quantified from meter readings where available. The total number of unbilled, unmetered accounts must be estimated along with consumption volumes.	Conditions between 4 and 6	Written policies regarding billing exemptions exist but adherence in practice is questionable. Metering and meter reading for municipal buildings is reliable but sporadic for other unbilled metered accounts. Periodic auditing of such accounts is conducted. Water consumption is quantified directly from meter readings where available, but the majority of the consumption is estimated.	Conditions between 6 and 8	Written policy identifies the types of accounts granted a billing exemption. Customer meter management and meter reading are considered secondary priorities, but meter reading is conducted at least annually to obtain consumption volumes for the annual water audit. High level auditing of billing records ensures that a reliable census of such accounts exists.	Conditions between 8 and 10	Clearly written policy identifies the types of accounts given a billing exemption, with emphasis on keeping such accounts to a minimum. Customer meter management and meter reading for these accounts is given proper priority and is reliably conducted. Regular auditing confirms this. Total water consumption for these accounts is taken from reliable readings from accurate meters.
Improvements to attain higher data grading for "Unbilled Metered Consumption" component:		to qualify for 2: Reassess the water utility's policy allowing certain accounts to be granted a billing exemption. Draft an outline of a new written policy for billing exemptions, with clear justification as to why any accounts should be exempt from billing, and with the intention to keep the number of such accounts to a minimum.	to qualify for 4: Review historic written directives and policy documents allowing certain accounts to be billing-exempt. Draft an outline of a written policy for billing exemptions, identify criteria that grants an exemption, with a goal of keeping this number of accounts to a minimum. Consider increasing the priority of reading meters on unbilled accounts at least annually.		to qualify for 6: Draft a new written policy regarding billing exemptions based upon consensus criteria allowing this occurrence. Assign resources to audit meter records and billing records to obtain census of unbilled metered accounts. Gradually include a greater number of these metered accounts to the routes for regular meter reading.		to qualify for 8: Communicate billing exemption policy throughout the organization and implement procedures that ensure proper account management. Conduct inspections of accounts confirmed in unbilled metered status and verify that accurate meters exist and are scheduled for routine meter readings. Gradually increase the number of unbilled metered accounts that are included in regular meter reading routes.		to qualify for 10: Ensure that meter management (meter accuracy testing, meter replacement) and meter reading activities for unbilled accounts are accorded the same priority as billed accounts. Establish ongoing annual auditing process to ensure that water consumption is reliably collected and provided to the annual water audit process.		to maintain 10: Reassess the utility's philosophy in allowing any water uses to go "unbilled". It is possible to meter and bill all accounts, even if the fee charged for water consumption is discounted or waived. Metering and billing all accounts ensures that water consumption is tracked and water waste from plumbing leaks is detected and minimized.
Unbilled unmetered:		Extent of unbilled, unmetered consumption is unknown due to unclear policies and poor recordkeeping. Total consumption is quantified based upon a purely subjective estimate.	Clear extent of unbilled, unmetered consumption is unknown, but a number of events are randomly documented each year, confirming existence of such consumption, but without sufficient documentation to quantify an accurate estimate of the annual volume consumed.	Conditions between 2 and 4	Extent of unbilled, unmetered consumption is partially known, and procedures exist to document certain events such as miscellaneous fire hydrant uses. Formulae is used to quantify the consumption from such events (time running multiplied by typical flowrate, multiplied by number of events).	Default value of 1.25% of system input volume is employed	Coherent policies exist for some forms of unbilled, unmetered consumption but others await closer evaluation. Reasonable recordkeeping for the managed uses exists and allows for annual volumes to be quantified by inference, but unsupervised uses are guesstimated.	Conditions between 6 and 8	Clear policies and good recordkeeping exist for some uses (ex: water used in periodic testing of unmetered fire connections), but other uses (ex: miscellaneous uses of fire hydrants) have limited oversight. Total consumption is a mix of well quantified use such as from formulae (time running multiplied by typical flow, multiplied by number of events) or temporary meters, and relatively subjective estimates of less regulated use.	Conditions between 8 and 10	Clear policies exist to identify permitted use of water in unbilled, unmetered fashion, with the intention of minimizing this type of consumption. Good records document each occurrence and consumption is quantified via formulae (time running multiplied by typical flow, multiplied by number of events) or use of temporary meters.
Improvements to attain higher data grading for "Unbilled Unmetered Consumption" component:		to qualify for 5: Utilize the accepted default value of 1.25% of the volume of water supplied as an expedient means to gain a reasonable quantification of this use. to qualify for 2: Establish a policy regarding what water uses should be allowed to remain as unbilled and unmetered. Consider tracking a small sample of one such use (ex: fire hydrant flushings).	to qualify for 5: Utilize accepted default value of 1.25% of the volume of water supplied as an expedient means to gain a reasonable quantification of this use. to qualify for 4: Evaluate the documentation of events that have been observed. Meet with user groups (ex: for fire hydrants - fire departments, contractors to ascertain their need and/or volume requirements for water from fire hydrants).		to qualify for 5: Utilize accepted default value of 1.25% of the volume of water supplied as an expedient means to gain a reasonable quantification of all such use. This is particularly appropriate for water utilities who are in the early stages of the water auditing process, and should focus on other components since the volume of unbilled, umetered consumption is usually a relatively small quatity component, and other larger-quantity components should take priority.	to qualify for 6 or greater: Finalize policy and begin to conduct field checks to better establish and quantify such usage. Proceed if top-down audit exists and/or a great volume of such use is suspected.	to qualify for 8: Assess water utility policy and procedures for various unmetered usages. For example, ensure that a policy exists and permits are issued for use of fire hydrants by persons outside of the utility. Create written procedures for use and documentation of fire hydrants by water utility personnel. Use same approach for other types of unbilled, unmetered water usage.		to qualify for 10: Refine written procedures to ensure that all uses of unbilled, unmetered water are overseen by a structured permitting process managed by water utility personnel. Reassess policy to determine if some of these uses have value in being converted to billed and/or metered status.		to maintain 10: Continue to refine policy and procedures with intention of reducing the number of allowable uses of water in unbilled and unmetered fashion. Any uses that can feasibly become billed and metered should be converted eventually.

APPARENT LOSSES

Grading >>>	n/a	1	2	3	4	5	6	7	8	9	10
Unauthorized consumption:		Extent of unauthorized consumption is unknown due to unclear policies and poor recordkeeping. Total unauthorized consumption is guesstimated.	Unauthorized consumption is a known occurrence, but its extent is a mystery. There are no requirements to document observed events, but periodic field reports capture some of these occurrences. Total unauthorized consumption is approximated from this limited data.	conditions between 2 and 4	Procedures exist to document some unauthorized consumption such as observed unauthorized fire hydrant openings. Use formulae to quantify this consumption (time running multiplied typical flowrate, multiplied by number of events).	Default value of 0.25% of volume of water supplied is employed	Coherent policies exist for some forms of unauthorized consumption (more than simply fire hydrant misuse) but others await closer evaluation. Reasonable surveillance and recordkeeping exist for occurrences that fall under the policy. Volumes quantified by inference from these records.	Conditions between 6 and 8	Clear policies and good auditable recordkeeping exist for certain events (ex: tampering with water meters, illegal bypasses of customer meters); but other occurrences have limited oversight. Total consumption is a combination of volumes from formulae (time x typical flow) and subjective estimates of unconfirmed consumption.	Conditions between 8 and 10	Clear policies exist to identify all known unauthorized uses of water. Staff and procedures exist to provide enforcement of policies and detect violations. Each occurrence is recorded and quantified via formulae (estimated time running multiplied by typical flow) or similar methods. All records and calculations should exist in a form that can be audited by a third party.
Improvements to attain higher data grading for "Unauthorized Consumption" component:		to qualify for 5: Use accepted default of 0.25% of volume of water supplied. to qualify for 2: Review utility policy regarding what water uses are considered unauthorized, and consider tracking a small sample of one such occurrence (ex: unauthorized fire hydrant openings)	to qualify for 5: Use accepted default of 0.25% of system input volume to qualify for 4: Review utility policy regarding what water uses are considered unauthorized, and consider tracking a small sample of one such occurrence (ex: unauthorized fire hydrant openings)		to qualify for 5: Utilize accepted default value of 0.25% of volume of water supplied as an expedient means to gain a reasonable quantification of all such use. This is particularly appropriate for water utilities who are in the early stages of the water auditing process.	to qualify for 6 or greater: Finalize policy updates to clearly identify the types of water consumption that are authorized from those usages that fall outside of this policy and are, therefore, unauthorized. Begin to conduct regular field checks. Proceed if the top-down audit already exists and/or a great volume of such use is suspected.	to qualify for 8: Assess water utility policies to ensure that all known occurrences of unauthorized consumption are outlawed, and that appropriate penalties are prescribed. Create written procedures for detection and documentation of various occurrences of unauthorized consumption as they are uncovered.		to qualify for 10: Refine written procedures and assign staff to seek out likely occurrences of unauthorized consumption. Explore new locking devices, monitors and other technologies designed to detect and thwart unauthorized consumption.		to maintain 10: Continue to refine policy and procedures to eliminate any loopholes that allow or tacitly encourage unauthorized consumption. Continue to be vigilant in detection, documentation and enforcement efforts.
Customer metering inaccuracies:	select n/a only if the entire customer population is unmetered. In such a case the volume entered must be zero.	Customer meters exist, but with unorganized paper records on meters; no meter accuracy testing or meter replacement program for any size of retail meter. Metering workflow is driven chaotically with no proactive management. Loss volume due to aggregate meter inaccuracy is guesstimated.	Poor recordkeeping and meter oversight is recognized by water utility management who has allotted staff and funding resources to organize improved recordkeeping and start meter accuracy testing. Existing paper records gathered and organized to provide cursory disposition of meter population. Customer meters are tested for accuracy only upon customer request.	Conditions between 2 and 4	Reliable recordkeeping exists; meter information is improving as meters are replaced. Meter accuracy testing is conducted annually for a small number of meters (more than just customer requests, but less than 1% of inventory). A limited number of the oldest meters are replaced each year. Inaccuracy volume is largely an estimate, but refined based upon limited testing data.	Conditions between 4 and 6	A reliable electronic recordkeeping system for meters exists. The meter population includes a mix of new high performing meters and dated meters with suspect accuracy. Routine, but limited, meter accuracy testing and meter replacement occur. Inaccuracy volume is quantified using a mix of reliable and less certain data.	Conditions between 6 and 8	Ongoing meter replacement and accuracy testing result in highly accurate customer meter population. Testing is conducted on samples of meters of varying age and accumulated volume of throughput to determine optimum replacement time for various types of meters.	Ongoing meter replacement and accuracy testing result in highly accurate customer meter population. Statistically significant number of meters are tested in audit year. This testing is conducted on samples of meters of varying age and accumulated volume of throughput to determine optimum replacement time for these meters.	Good records of all active customer meters exist and include as a minimum: meter number, account number/location, type, size and manufacturer. Ongoing meter replacement occurs according to a targeted and justified basis. Regular meter accuracy testing gives a reliable measure of composite inaccuracy volume for the customer meter population. New metering technology is embraced to keep overall accuracy improving. Procedures are reviewed by a third party knowledgeable in the M36 methodology.
Improvements to attain higher data grading for "Customer meter inaccuracy volume" component:	If n/a is selected because the customer meter population is unmetered, consider establishing a new policy to meter the customer population and employ water rates based upon metered volumes.	to qualify for 2: Gather available meter purchase records. Conduct testing on a small number of meters believed to be the most inaccurate. Review staffing needs of the metering group and budget for necessary resources to better organize meter management.	to qualify for 4: Implement a reliable record keeping system for customer meter histories, preferably using electronic methods typically linked to, or part of, the Customer Billing System or Customer Information System. Expand meter accuracy testing to a larger group of meters.		to qualify for 6: Standardize the procedures for meter recordkeeping within an electronic information system. Accelerate meter accuracy testing and meter replacements guided by testing results.		to qualify for 8: Expand annual meter accuracy testing to evaluate a statistically significant number of meter makes/models. Expand meter replacement program to replace statistically significant number of poor performing meters each year.		to qualify for 9: Continue efforts to manage meter population with reliable recordkeeping. Test a statistically significant number of meters each year and analyze test results in an ongoing manner to serve as a basis for a target meter replacement strategy based upon accumulated volume throughput.	to qualify for 10: Continue efforts to manage meter population with reliable recordkeeping, meter testing and replacement. Evaluate new meter types and install one or more types in 5-10 customer accounts each year in order to pilot improving metering technology.	to maintain 10: Increase the number of meters tested and replaced as justified by meter accuracy test data. Continually monitor development of new metering technology and Advanced Metering Infrastructure (AMI) to grasp opportunities for greater accuracy in metering of water flow and management of customer consumption data.

Grading >>>	n/a	1	2	3	4	5	6	7	8	9	10
Systematic Data Handling Errors:	Note: all water utilities incur some amount of this error. Even in water utilities with unmetered customer populations and fixed rate billing, errors occur in annual billing tabulations. Enter a positive value for the volume and select a grading.	Policies and procedures for activation of new customer water billing accounts are vague and lack accountability. Billing data is maintained on paper records which are not well organized. No auditing is conducted to confirm billing data handling efficiency. An unknown number of customers escape routine billing due to lack of billing process oversight.	Policy and procedures for activation of new customer accounts and oversight of billing records exist but need refinement. Billing data is maintained on paper records or insufficiently capable electronic database. Only periodic unstructured auditing work is conducted to confirm billing data handling efficiency. The volume of unbilled water due to billing lapses is a guess.	Conditions between 2 and 4	Policy and procedures for new account activation and oversight of billing operations exist but needs refinement. Computerized billing system exists, but is dated or lacks needed functionality. Periodic, limited internal audits conducted and confirm with approximate accuracy the consumption volumes lost to billing lapses.	Conditions between 4 and 6	Policy and procedures for new account activation and oversight of billing operations is adequate and reviewed periodically. Computerized billing system is in use with basic reporting available. Any effect of billing adjustments on measured consumption volumes is well understood. Internal checks of billing data error conducted annually. Reasonably accurate quantification of consumption volume lost to billing lapses is obtained.	Conditions between 6 and 8	New account activation and billing operations policy and procedures are reviewed at least biannually. Computerized billing system includes an array of reports to confirm billing data and system functionality. Checks are conducted routinely to flag and explain zero consumption accounts. Annual internal checks conducted with third party audit conducted at least once every five years. Accountability checks flag billing lapses. Consumption lost to billing lapses is well quantified and reducing year-by-year.	Conditions between 8 and 10	Sound written policy and procedures exist for new account activation and oversight of customer billing operations. Robust computerized billing system gives high functionality and reporting capabilities which are utilized, analyzed and the results reported each billing cycle. Assessment of policy and data handling errors are conducted internally and audited by third party at least once every three years, ensuring consumption lost to billing lapses is minimized and detected as it occurs.
Improvements to attain higher data grading for "Systematic Data Handling Error volume" component:	▨	to qualify for 2: Draft written policy and procedures for activating new water billing accounts and oversight of billing operations. Investigate and budget for computerized customer billing system. Conduct initial audit of billing records by flow-charting the basic business processes of the customer account/billing function.	to qualify for 4: Finalize written policy and procedures for activation of new billing accounts and overall billing operations management. Implement a computerized customer billing system. Conduct initial audit of billing records as part of this process.		to qualify for 6: Refine new account activation and billing operations procedures and ensure consistency with the utility policy regarding billing, and minimize opportunity for missed billings. Upgrade or replace customer billing system for needed functionality - ensure that billing adjustments don't corrupt the value of consumption volumes. Procedurize internal annual audit process.		to qualify for 8: Formalize regular review of new account activation process and general billing practices. Enhance reporting capability of computerized billing system. Formalize regular auditing process to reveal scope of data handling error. Plan for periodic third party audit to occur at least once every five years.		to qualify for 10: Close policy/procedure loopholes that allow some customer accounts to go unbilled, or data handling errors to exist. Ensure that billing system reports are utilized, analyzed and reported every billing cycle. Ensure that internal and third party audits are conducted at least once every three years.		to maintain 10: Stay abreast of customer information management developments and innovations. Monitor developments of Advanced Metering Infrastructure (AMI) and integrate technology to ensure that customer endpoint information is well-monitored and errors/lapses are at an economic minimum.
SYSTEM DATA											
Length of mains:	▨	Poorly assembled and maintained paper as-built records of existing water main installations makes accurate determination of system pipe length impossible. Length of mains is guesstimated.	Paper records in poor or uncertain condition (no annual tracking of installations & abandonments). Poor procedures to ensure that new water mains installed by developers are accurately documented.	Conditions between 2 and 4	Sound written policy and procedures exist for documenting new water main installations, but gaps in management result in a uncertain degree of error in tabulation of mains length.	Conditions between 4 and 6	Sound written policy and procedures exist for permitting and commissioning new water mains. Highly accurate paper records with regular field validation; or electronic records and asset management system in good condition. Includes system backup.	Conditions between 6 and 8	Sound written policy and procedures exist for permitting and commissioning new water mains. Electronic recordkeeping such as a Geographical Information System (GIS) and asset management system are used to store and manage data.	Conditions between 8 and 10	Sound written policy exists for managing water mains extensions and replacements. Geographic Information System (GIS) data and asset management database agree and random field validation proves truth of databases. Records of annual field validation should be available for review.
Improvements to attain higher data grading for "Length of Water Mains" component:	▨	to qualify for 2: Assign personnel to inventory current as-built records and compare with customer billing system records and highway plans in order to verify poorly documented pipelines. Assemble policy documents regarding permitting and documentation of water main installations by the utility and building developers; identify gaps in procedures that result in poor documentation of new water main installations.	to qualify for 4: Complete inventory of paper records of water main installations for several years prior to audit year. Review policy and procedures for commissioning and documenting new water main installation.		to qualify for 6: Finalize updates/improvements to written policy and procedures for permitting/commissioning new main installations. Confirm inventory of records for five years prior to audit year; correct any errors or omissions.		to qualify for 8: Launch random field checks of limited number of locations. Convert to electronic database such as a Geographic Information System (GIS) with backup as justified. Develop written policy and procedures.		to qualify for 10: Link Geographic Information System (GIS) and asset management databases, conduct field verification of data. Record field verification information at least annually.		to maintain 10: Continue with standardization and random field validation to improve the completeness and accuracy of the system.
Number of active AND inactive service connections:	▨	Vague permitting (of new service connections) policy and poor paper recordkeeping of customer connections/billings result in suspect determination of the number of service connections, which may be 10-15% in error from actual count.	General permitting policy exists but paper records, procedural gaps, and weak oversight result in questionable total for number of connections, which may vary 5-10% of actual count.	Conditions between 2 and 4	Written account activation policy and procedures exist, but with some gaps in performance and oversight. Computerized information management system is being brought online to replace dated paper recordkeeping system. Reasonably accurate tracking of service connection installations & abandonments; but count can be up to 5% in error from actual total.	Conditions between 4 and 6	Written new account activation and overall billing policies and procedures are adequate and reviewed periodically. Computerized information management system is in use with annual installations & abandonments totaled. Very limited field verifications and audits. Error in count of number of service connections is believed to be no more than 3%.	Conditions between 6 and 8	Policies and procedures for new account activation and overall billing operations are written, well-structured and reviewed at least biannually. Well-managed computerized information management system exists and routine, periodic field checks and internal system audits are conducted. Counts of connections are no more than 2% in error.	Conditions between 8 and 10	Sound written policy and well managed and audited procedures ensure reliable management of service connection population. Computerized information management system, Customer Billing System, and Geographic Information System (GIS) information agree; field validation proves truth of databases. Count of connections recorded as being in error is less than 1% of the entire population.
Improvements to attain higher data grading for "Number of Active and Inactive Service Connections" component:	**Note: The number of Service Connections does <u>not</u> include fire hydrant leads/lines connecting the hydrant to the water main**	to qualify for 2: Draft new policy and procedures for new account activation and overall billing operations. Research and collect paper records of installations & abandonments for several years prior to audit year.	to qualify for 4: Refine policy and procedures for new account activation and overall billing operations. Research computerized recordkeeping system (Customer Information System or Customer Billing System) to improve documentation format for service connections.		to qualify for 6: Refine procedures to ensure consistency with new account activation and overall billing policy to establish new service connections or decommission existing connections. Improve process to include all totals for at least five years prior to audit year.		to qualify for 8: Formalize regular review of new account activation and overall billing operations policies and procedures. Launch random field checks of limited number of locations. Develop reports and auditing mechanisms for computerized information management system.		to qualify for 10: Close any procedural loopholes that allow installations to go undocumented. Link computerized information management system with Geographic Information System (GIS) and formalize field inspection and information system auditing processes. Documentation of new or decommissioned service connections encounters several levels of checks and balances.		to maintain 10: Continue with standardization and random field validation to improve knowledge of system.
	Note: if customer water meters are located	Gradings 1-9 apply if customer properties are unmetered, if customer meters exist and are located inside the customer building premises, or if the water utility owns and is responsible for the entire service connection piping from the water main to the customer building. In any of these cases the average distance between the curb stop or boundary separating utility/customer responsibility for service connection piping, and the typical first point of use (ex: faucet) or the customer meter must be quantified. Gradings of 1-9 are used to grade the validity of the means to quantify this value. (See the "Service Connection Diagram" worksheet)									Either of two conditions can be met for a grading of 10:

Grading >>>	n/a	1	2	3	4	5	6	7	8	9	10
Average length of customer service line:	outside of the customer building next to the curb stop or boundary separating utility/customer responsibility, then the auditor should answer "Yes" to the question on the Reporting Worksheet asking about this. If the answer is Yes, the grading description listed under the Grading of 10(a) will be followed, with a value of zero automatically entered at a Grading of 10. See the Service Connection Diagram worksheet for a visual presentation of this distance.	Vague policy exists to define the delineation of water utility ownership and customer ownership of the service connection piping. Curb stops are perceived as the breakpoint but these have not been well-maintained or documented. Most are buried or obscured. Their location varies widely from site-to-site, and estimating this distance is arbitrary due to the unknown location of many curb stops.	Policy requires that the curb stop serves as the delineation point between water utility ownership and customer ownership of the service connection piping. The piping from the water main to the curb stop is the property of the water utility; and the piping from the curb stop to the customer building is owned by the customer. Curb stop locations are not well documented and the average distance is based upon a limited number of locations measured in the field.	Conditions between 2 and 4	Good policy requires that the curb stop serves as the delineation point between water utility ownership and customer ownership of the service connection piping. Curb stops are generally installed as needed and are reasonably documented. Their location varies widely from site-to-site, and an estimate of this distance is hindered by the availability of paper records of limited accuracy.	Conditions between 4 and 6	Clear written policy exists to define utility/customer responsibility for service connection piping. Accurate, well-maintained paper or basic electronic recordkeeping system exists. Periodic field checks confirm piping lengths for a sample of customer properties.	Conditions between 6 and 8	Clearly worded policy standardizes the location of curb stops and meters, which are inspected upon installation. Accurate and well maintained electronic records exist with periodic field checks to confirm locations of service lines, curb stops and customer meter pits. An accurate number of customer properties from the customer billing system allows for reliable averaging of this length.	Conditions between 8 and 10	a) Customer water meters exist outside of customer buildings next to the curb stop or boundary separating utility/customer responsibility for service connection piping. If so, answer "Yes" to the question on the Reporting Working asking about this condition. A value of zero and a Grading of 10 are automatically entered in the Reporting Worksheet . b). Meters exist inside customer buildings, or properties are unmetered. In either case, answer "No" to the Reporting Worksheet question on meter location, and enter a distance determined by the auditor. For a Grading of 10 this value must be a very reliable number from a Geographic Information System (GIS) and confirmed by a statistically valid number of field checks.
Improvements to attain higher data grading for "Average Length of Customer Service Line" component:		to qualify for 2: Research and collect paper records of service line installations. Inspect several sites in the field using pipe locators to locate curb stops. Obtain the length of this small sample of connections in this manner.	to qualify for 4: Formalize and communicate policy delineating utility/customer responsibilities for service connection piping. Assess accuracy of paper records by field inspection of a small sample of service connections using pipe locators as needed. Research the potential migration to a computerized information management system to store service connection data.		to qualify for 6: Establish coherent procedures to ensure that policy for curb stop, meter installation and documentation is followed. Gain consensus within the water utility for the establishment of a computerized information management system.		to qualify for 8: Implement an electronic means of recordkeeping, typically via a customer information system, customer billing system, or Geographic Information System (GIS). Standardize the process to conduct field checks of a limited number of locations.		to qualify for 10: Link customer information management system and Geographic Information System (GIS), standardize process for field verification of data.		to maintain 10: Continue with standardization and random field validation to improve knowledge of service connection configurations and customer meter locations.
Average operating pressure:		Available records are poorly assembled and maintained paper records of supply pump characteristics and water distribution system operating conditions. Average pressure is guesstimated based upon this information and ground elevations from crude topographical maps. Widely varying distribution system pressures due to undulating terrain, high system head loss and weak/erratic pressure controls further compromise the validity of the average pressure calculation.	Limited telemetry monitoring of scattered pumping station and water storage tank sites provides some static pressure data, which is recorded in handwritten logbooks. Pressure data is gathered at individual sites only when low pressure complaints arise. Average pressure is determined by averaging relatively crude data, and is affected by significant variation in ground elevations, system head loss and gaps in pressure controls in the distribution system.	Conditions between 2 and 4	Effective pressure controls separate different pressure zones; moderate pressure variation across the system, occasional open boundary valves are discovered that breech pressure zones. Basic telemetry monitoring of the distribution system logs pressure data electronically. Pressure data gathered by gauges or dataloggers at fire hydrants or buildings when low pressure complaints arise, and during fire flow tests and system flushing. Reliable topographical data exists. Average pressure is calculated using this mix of data.	Conditions between 4 and 6	Reliable pressure controls separate distinct pressure zones; only very occasional open boundary valves are encountered that breech pressure zones. Well-covered telemetry monitoring of the distribution system (not just pumping at source treatment plants or wells) logs extensive pressure data electronically. Pressure gathered by gauges/dataloggers at fire hydrants and buildings when low pressure complaints arise, and during fire flow tests and system flushing. Average pressure is determined by using this mix of reliable data.	Conditions between 6 and 8	Well-managed, discrete pressure zones exist with generally predictable pressure fluctuations. A current full-scale SCADA System or similar realtime monitoring system exists to monitor the water distribution system and collect data, including real time pressure readings at representative sites across the system. The average system pressure is determined from reliable monitoring system data.	Conditions between 8 and 10	Well-managed pressure districts/zones, SCADA System and hydraulic model exist to give very precise pressure data across the water distribution system. Average system pressure is reliably calculated from extensive, reliable, and cross-checked data. Calculations are reported on an annual basis as a minimum.
Improvements to attain higher data grading for "Average Operating Pressure" component:		to qualify for 2: Employ pressure gauging and/or datalogging equipment to obtain pressure measurements from fire hydrants. Locate accurate topographical maps of service area in order to confirm ground elevations. Research pump data sheets to find pump pressure/flow characteristics	to qualify for 4: Formalize a procedure to use pressure gauging/datalogging equipment to gather pressure data during various system events such as low pressure complaints, or operational testing. Gather pump pressure and flow data at different flow regimes. Identify faulty pressure controls (pressure reducing valves, altitude valves, partially open boundary valves) and plan to properly configure pressure zones. Make all pressure data from these efforts available to generate system-wide average pressure.		to qualify for 6: Expand the use of pressure gauging/datalogging equipment to gather scattered pressure data at a representative set of sites, based upon pressure zones or areas. Utilize pump pressure and flow data to determine supply head entering each pressure zone or district. Correct any faulty pressure controls (pressure reducing valves, altitude valves, partially open boundary valves) to ensure properly configured pressure zones. Use expanded pressure dataset from these activities to generate system-wide average pressure.		to qualify for 8: Install a Supervisory Control and Data Acquisition (SCADA) System, or similar realtime monitoring system, to monitor system parameters and control operations. Set regular calibration schedule for instrumentation to insure data accuracy. Obtain accurate topographical data and utilize pressure data gathered from field surveys to provide extensive, reliable data for pressure averaging.		to qualify for 10: Annually, obtain a system-wide average pressure value from the hydraulic model of the distribution system that has been calibrated via field measurements in the water distribution system and confirmed in comparisons with SCADA System data.		to maintain 10: Continue to refine the hydraulic model of the distribution system and consider linking it with SCADA System for real-time pressure data calibration, and averaging.
COST DATA											
Total annual cost of operating water system:		Incomplete paper records and lack of financial accounting documentation on many operating functions makes calculation of water system operating costs a pure guesstimate	Reasonably maintained, but incomplete, paper or electronic accounting provides data to estimate the major portion of water system operating costs.	Conditions between 2 and 4	Electronic, industry-standard cost accounting system in place. However, gaps in data are known to exist, periodic internal reviews are conducted but not a structured financial audit.	Conditions between 4 and 6	Reliable electronic, industry-standard cost accounting system in place, with all pertinent water system operating costs tracked. Data audited periodically by utility personnel, but not a Certified Public Accountant (CPA).	Conditions between 6 and 8	Reliable electronic, industry-standard cost accounting system in place, with all pertinent water system operating costs tracked. Data audited at least annually by utility personnel, and at least once every three years by third-party CPA.	Conditions between 8 and 10	Reliable electronic, industry-standard cost accounting system in place, with all pertinent water system operating costs tracked. Data audited annually by utility personnel and annually also by third-party CPA.
Improvements to attain higher data grading for "Total Annual Cost of Operating the Water System" component:		to qualify for 2: Gather available records, institute new financial accounting procedures to regularly collect and audit basic cost data of most important operations functions.	to qualify for 4: Implement an electronic cost accounting system, structured according to accounting standards for water utilities		to qualify for 6: Establish process for periodic internal audit of water system operating costs; identify cost data gaps and institute procedures for tracking these outstanding costs.		to qualify for 8: Standardize the process to conduct routine financial audit on an annual basis. Arrange for CPA audit of financial records at least once every three years.		to qualify for 10: Standardize the process to conduct a third-party financial audit by a CPA on an annual basis.		to maintain 10: Maintain program, stay abreast of expenses subject to erratic cost changes and long-term cost trend, and budget/track costs proactively

Grading >>>	n/a	1	2	3	4	5	6	7	8	9	10
Customer retail unit cost (applied to Apparent Losses):	Customer population unmetered, and/or only a fixed fee is charged for consumption.	Antiquated, cumbersome water rate structure is used, with periodic historic amendments that were poorly documented and implemented; resulting in classes of customers being billed inconsistent charges. The actual composite billing rate likely differs significantly from the published water rate structure, but a lack of auditing leaves the degree of error indeterminate.	Dated, cumbersome water rate structure, not always employed consistently in actual billing operations. The actual composite billing rate is known to differ from the published water rate structure, and a reasonably accurate estimate of the degree of error is determined, allowing a composite billing rate to be quantified.	Conditions between 2 and 4	Straight-forward water rate structure in use, but not updated in several years. Billing operations reliably employ the rate structure. The composite billing rate is derived from a single customer class such as residential customer accounts, neglecting the effect of different rates from varying customer classes.	Conditions between 4 and 6	Clearly written, up-to-date water rate structure is in force and is applied reliably in billing operations. Composite customer rate is determined using a weighted average residential rate using volumes of water in each rate block.	Conditions between 6 and 8	Effective water rate structure is in force and is applied reliably in billing operations. Composite customer rate is determined using a weighted average composite consumption rate, which includes residential, commercial, industrial, institutional (CII), and any other distinct customer classes within the water rate structure.	Conditions between 8 and 10	Current, effective water rate structure is in force and applied reliably in billing operations. The rate structure and calculations of composite rate - which includes residential, commercial, industrial, institutional (CII), and other distinct customer classes - are reviewed by a third party knowledgeable in the M36 methodology at least once every five years.
Improvements to attain higher data grading for "Customer Retail Unit Cost" component:	▨	to qualify for 2: Formalize the process to implement water rates, including a secure documentation procedure. Create a current, formal water rate document and gain approval from all stakeholders.	to qualify for 4: Review the water rate structure and update/formalize as needed. Assess billing operations to ensure that actual billing operations incorporate the established water rate structure.		to qualify for 6: Evaluate volume of water used in each usage block by residential users. Multiply volumes by full rate structure.	Launch effort to fully meter the customer population and charge rates based upon water volumes	to qualify for 8: Evaluate volume of water used in each usage block by all classifications of users. Multiply volumes by full rate structure.		to qualify for 10: Conduct a periodic third-party audit of water used in each usage block by all classifications of users. Multiply volumes by full rate structure.		to maintain 10: Keep water rate structure current in addressing the water utility's revenue needs. Update the calculation of the customer unit rate as new rate components, customer classes, or other components are modified.
Variable production cost (applied to Real Losses):	Note: if the water utility purchases/imports its entire water supply, then enter the unit purchase cost of the bulk water supply in the Reporting Worksheet with a grading of 10	Incomplete paper records and lack of documentation on primary operating functions (electric power and treatment costs most importantly) makes calculation of variable production costs a pure guesstimate	Reasonably maintained, but incomplete, paper or electronic accounting provides data to roughly estimate the basic operations costs (pumping power costs and treatment costs) and calculate a unit variable production cost.	Conditions between 2 and 4	Electronic, industry-standard cost accounting system in place. Electric power and treatment costs are reliably tracked and allow accurate weighted calculation of unit variable production costs based on these two inputs and water imported purchase costs (if applicable). All costs are audited internally on a periodic basis.	Conditions between 4 and 6	Reliable electronic, industry-standard cost accounting system in place, with all pertinent water system operating costs tracked. Pertinent additional costs beyond power, treatment and water imported purchase costs (if applicable) such as liability, residuals management, wear and tear on equipment, impending expansion of supply, are included in the unit variable production cost, as applicable. The data is audited at least annually by utility personnel.	Conditions between 6 and 8	Reliable electronic, industry-standard cost accounting system in place, with all pertinent primary and secondary variable production and water imported purchase (if applicable) costs tracked. The data is audited at least annually by utility personnel, and at least once every three years by a third-party knowledgeable in the M36 methodology.	Conditions between 8 and 10	Either of two conditions can be met to obtain a grading of 10: 1) Third party CPA audit of all pertinent primary and secondary variable production and water imported purchase (if applicable) costs on an annual basis. or: 2) Water supply is entirely purchased as bulk water imported, and the unit purchase cost - including all applicable marginal supply costs - serves as the variable production cost. If all applicable marginal supply costs are not included in this figure, a grade of 10 should not be selected.
Improvements to attain higher data grading for "Variable Production Cost" component:	▨	to qualify for 2: Gather available records, institute new procedures to regularly collect and audit basic cost data and most important operations functions.	to qualify for 4: Implement an electronic cost accounting system, structured according to accounting standards for water utilities		to qualify for 6: Formalize process for regular internal audits of production costs. Assess whether additional costs (liability, residuals management, equipment wear, impending infrastructure expansion) should be included to calculate a more representative variable production cost.		to qualify for 8: Formalize the accounting process to include direct cost components (power, treatment) as well as indirect cost components (liability, residuals management, etc.) Arrange to conduct audits by a knowledgable third-party at least once every three years.		to qualify for 10: Standardize the process to conduct a third-party financial audit by a CPA on an annual basis.		to maintain 10: Maintain program, stay abreast of expenses subject to erratic cost changes and budget/track costs proactively

AWWA Free Water Audit Software: Customer Service Line Diagrams

WAS v5.0

Average Length of Customer Service Line

The three figures shown on this worksheet display the assignment of the Average Length of Customer Service Line, Lp, for the three most common piping configurations.

Figure 1 shows the configuration of the water meter outside of the customer building next to the curb stop valve. In this configuration Lp = 0 since the distance between the curb stop and the customer metering point is essentially zero.

Figure 2 shows the configuration of the customer water meter located inside the customer building, where Lp is the distance from the curb stop to the water meter.

Figure 3 shows the configuration of an unmetered customer building , where Lp is the distance from the curb stop to the first point of customer water consumption, or, more simply, the building line.

In any water system the Lp will vary notably in a community of different structures, therefore the average Lp value is used and this should be approximated or calculated if a sample of service line measurements has been gathered.

Click for more information

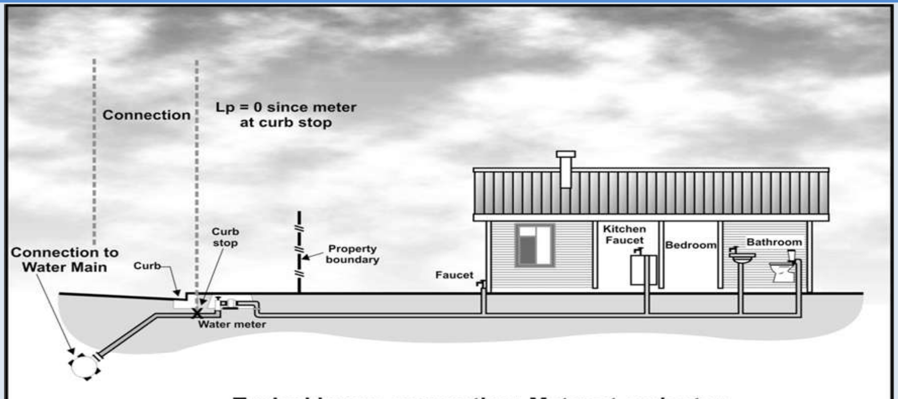


Figure 1

Typical house connection: Meter at curb stop
Not to scale

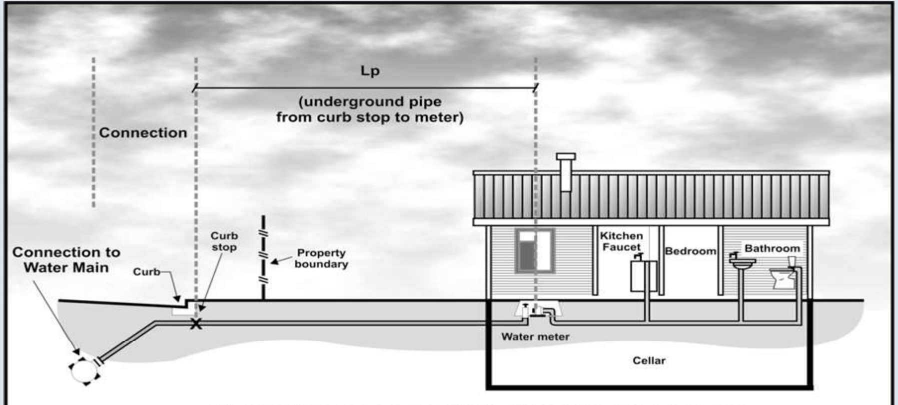


Figure 2

Typical house connection: Meter inside property
Not to scale

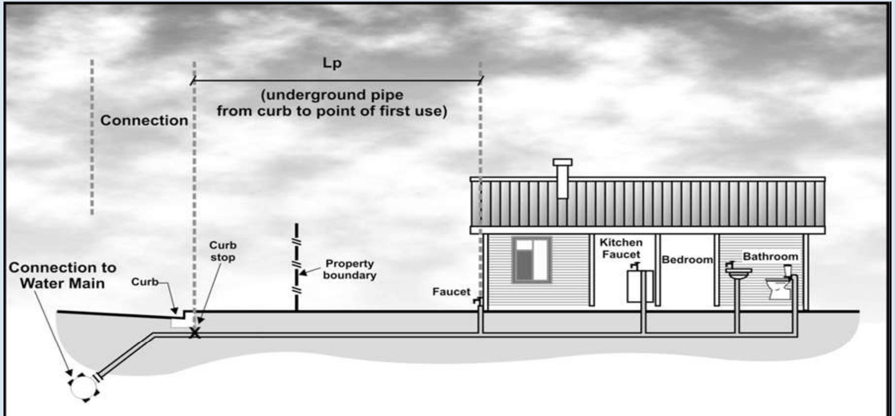


Figure 3

Typical house connection: Unmetered
Not to scale

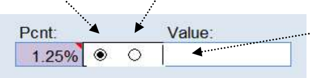
AWWA Free Water Audit Software:
Definitions

WAS v5.0

Item Name	Description
Apparent Losses Find	= unauthorized consumption + customer metering inaccuracies + systematic data handling errors Apparent Losses include all types of inaccuracies associated with customer metering (worn meters as well as improperly sized meters or wrong type of meter for the water usage profile) as well as systematic data handling errors (meter reading, billing, archiving and reporting), plus unauthorized consumption (theft or illegal use). NOTE: Over-estimation of Apparent Losses results in under-estimation of Real Losses. Under-estimation of Apparent Losses results in over-estimation of Real Losses.
AUTHORIZED CONSUMPTION Find	= billed water exported + billed metered + billed unmetered + unbilled metered + unbilled unmetered consumption The volume of metered and/or unmetered water taken by registered customers, the water utility's own uses, and uses of others who are implicitly or explicitly authorized to do so by the water utility; for residential, commercial, industrial and public-minded purposes. Typical retail customers' consumption is tabulated usually from established customer accounts as billed metered consumption, or - for unmetered customers - billed unmetered consumption. These types of consumption, along with billed water exported, provide revenue potential for the water utility. **Be certain to tabulate the water exported volume as a separate component and do not "double-count" it by including in the billed metered consumption component as well as the water exported component.** Unbilled authorized consumption occurs typically in non-account uses, including water for fire fighting and training, flushing of water mains and sewers, street cleaning, watering of municipal gardens, public fountains, or similar public-minded uses. Occasionally these uses may be metered and billed (or charged a flat fee), but usually they are unmetered and unbilled. In the latter case, the water auditor may use a default value to estimate this quantity, or implement procedures for the reliable quantification of these uses. This starts with documenting usage events as they occur and estimating the amount of water used in each event. (See Unbilled unmetered consumption)
View Service Connection Diagram **Average length of customer service line** Find	This is the average length of customer service line, Lp, that is owned and maintained by the customer; from the point of ownership transfer to the customer water meter, or building line (if unmetered). The quantity is one of the data inputs for the calculation of Unavoidable Annual Real Losses (UARL), which serves as the denominator of the performance indicator: Infrastructure Leakage Index (ILI). The value of Lp is multiplied by the number of customer service connections to obtain a total length of customer owned piping in the system. The purpose of this parameter is to account for the unmetered service line infrastructure that is the responsibility of the customer for arranging repairs of leaks that occur on their lines. In many cases leak repairs arranged by customers take longer to be executed than leak repairs arranged by the water utility on utility-maintained piping. Leaks run longer - and lose more water - on customer-owned service piping, than utility owned piping. If the customer water meter exists near the ownership transfer point (usually the curb stop located between the water main and the customer premises) this distance is zero because the meter and transfer point are the same. This is the often encountered configuration of customer water meters located in an underground meter box or "pit" outside of the customer's building. The Free Water Audit Software asks a "Yes/No" question about the meter at this location. If the auditor selects "Yes" then this distance is set to zero and the data grading score for this component is set to 10. If water meters are typically located inside the customer premise/building, or properties are unmetered, it is up to the water auditor to estimate a system-wide average Lp length based upon the various customer land parcel sizes and building locations in the service area. Lp will be a shorter length in areas of high density housing, and a longer length in areas of low density housing and varied commercial and industrial buildings. General parcel demographics should be employed to obtain a composite average Lp length for the entire system. Refer to the "Service Connection Diagram" worksheet for a depiction of the service line/metering configurations that typically exist in water utilities. This worksheet gives guidance on the determination of the Average Length, Lp, for each configuration.
Average operating pressure Find	This is the average pressure in the distribution system that is the subject of the water audit. Many water utilities have a calibrated hydraulic model of their water distribution system. For these utilities, the hydraulic model can be utilized to obtain a very accurate quantity of average pressure. In the absence of a hydraulic model, the average pressure may be approximated by obtaining readings of static water pressure from a representative sample of fire hydrants or other system access points evenly located across the system. A weighted average of the pressure can be assembled; but be sure to take into account the elevation of the fire hydrants, which typically exist several feet higher than the level of buried water pipelines. If the water utility is compiling the water audit for the first time, the average pressure can be approximated, but with a low data grading. In subsequent years of auditing, effort should be made to improve the accuracy of the average pressure quantity. This will then qualify the value for a higher data grading.
Billed Authorized Consumption	All consumption that is billed and authorized by the utility. This may include both metered and unmetered consumption. See "Authorized Consumption" for more information.
Billed metered consumption Find	All metered consumption which is billed to retail customers, including all groups of customers such as domestic, commercial, industrial or institutional. **It does NOT include water supplied to neighboring utilities (water exported) which is metered and billed. Be sure to subtract any consumption for exported water sales that may be included in these billing roles. Water supplied as exports to neighboring utilities should be included only in the Water Exported component.** The metered consumption data can be taken directly from billing records for the water audit period. The accuracy of yearly metered consumption data can be refined by including an adjustment to account for customer meter reading lag time since not all customer meters are read on the same day of the meter reading period. However additional analysis is necessary to determine the lag time adjustment value, which may or may not be significant.
Billed unmetered consumption Find	All billed consumption which is calculated based on estimates or norms from water usage sites that have been determined by utility policy to be left unmetered. This is typically a very small component in systems that maintain a policy to meter their customer population. However, this quantity can be the key consumption component in utilities that have not adopted a universal metering policy. **This component should NOT include any water that is supplied to neighboring utilities (water exported) which is unmetered but billed. Water supplied as exports to neighboring water utilities should be included only in the Water Exported component.**

Item Name	Description
Customer metering inaccuracies Find	Apparent water losses caused by the collective under-registration of customer water meters. Many customer water meters gradually wear as large cumulative volumes of water are passed through them over time. This causes the meters to under-register the flow of water. This occurrence is common with smaller residential meters of sizes 5/8-inch and 3/4 inch after they have registered very large cumulative volumes of water, which generally occurs only after periods of years. For meters sized 1-inch and larger - typical of multi-unit residential, commercial and industrial accounts - meter under-registration can occur from wear or from the improper application of the meter; i.e. installing the wrong type of meter or the wrong size of meter, for the flow pattern (profile) of the consumer. For instance, many larger meters have reduced accuracy at low flows. If an oversized meter is installed, most of the time the routine flow will occur in the low flow range of the meter, and a significant portion of it may not be registered. It is important to properly select and install all meters, but particularly large customer meters, size 1-inch and larger. The auditor has two options for entering data for this component of the audit. The auditor can enter a percentage under-registration (typically an estimated value), this will apply the selected percentage to the two categories of metered consumption to determine the volume of water not recorded due to customer meter inaccuracy. Note that this percentage is a composite average inaccuracy for <u>all</u> customer meters in the entire meter population. The percentage will be multiplied by the sum of the volumes in the Billed Metered and Unbilled Metered components. Alternatively, if the auditor has substantial data from meter testing activities, he or she can calculate their own loss volumes, and this volume may be entered directly. Note that a value of zero will be accepted but an alert will appear asking if the customer population is unmetered. Since all metered systems have some degree of inaccuracy, a positive value should be entered. A value of zero in this component is valid only if the water utility does not meter its customer population.
Customer retail unit cost Find	The Customer Retail Unit Cost represents the charge that customers pay for water service. This unit cost is applied routinely to the components of Apparent Loss, since these losses represent water reaching customers but not (fully) paid for. Since most water utilities have a rate structure that includes a variety of different costs based upon class of customer, a weighted average of individual costs and number of customer accounts in each class can be calculated to determine a single composite cost that should be entered into this cell. Finally, the weighted average cost should also include additional charges for sewer, storm water or biosolids processing, <u>but only if</u> these charges are based upon the volume of potable water consumed. For water utilities in regions with limited water resources and a questionable ability to meet the drinking water demands in the future, the Customer Retail Unit Cost might also be applied to value the Real Losses; instead of applying the Variable Production Cost to Real Losses. In this way, it is assumed that every unit volume of leakage reduced by leakage management activities will be sold to a customer. Note: the Free Water Audit Software allows the user to select the units that are charged to customers (either $/1,000 gallons, $/hundred cubic feet, or $/1,000 litres) and automatically converts these units to the units that appear in the "WATER SUPPLIED" box. The monetary units are United States dollars, $.
Infrastructure Leakage Index (ILI) Find	The ratio of the Current Annual Real Losses (Real Losses) to the Unavoidable Annual Real Losses (UARL). The ILI is a highly effective performance indicator for comparing (benchmarking) the performance of utilities in operational management of real losses.
Length of mains Find	Length of all pipelines (except service connections) in the system starting from the point of system input metering (for example at the outlet of the treatment plant). It is also recommended to include in this measure the total length of fire hydrant lead pipe. Hydrant lead pipe is the pipe branching from the water main to the fire hydrant. Fire hydrant leads are typically of a sufficiently large size that is more representative of a pipeline than a service connection. The average length of hydrant leads across the entire system can be assumed if not known, and multiplied by the number of fire hydrants in the system, which can also be assumed if not known. This value can then be added to the total pipeline length. Total length of mains can therefore be calculated as: Length of Mains, miles = (total pipeline length, miles) + [{(average fire hydrant lead length, ft) x (number of fire hydrants)} / 5,280 ft/mile] or Length of Mains, kilometres = (total pipeline length, kilometres) + [{(average fire hydrant lead length, metres) x (number of fire hydrants)} / 1,000 metres/kilometre]
NON-REVENUE WATER Find	= Apparent Losses + Real Losses + Unbilled Metered Consumption + Unbilled Unmetered Consumption. This is water which does not provide revenue potential to the utility.
Number of <u>active AND inactive</u> service connections Find	Number of customer service connections, extending from the water main to supply water to a customer. Please note that this includes the actual number of distinct piping connections, including fire connections, whether active or inactive. This may differ substantially from the number of customers (or number of accounts). **Note: this number does not include the pipeline leads to fire hydrants - the total length of piping supplying fire hyrants should be included in the "Length of mains" parameter.**
Real Losses Find	Physical water losses from the pressurized system (water mains and customer service connections) and the utility's storage tanks, up to the point of customer consumption. In metered systems this is the customer meter, in unmetered situations this is the first point of consumption (stop tap/tap) within the property. The annual volume lost through all types of leaks, breaks and overflows depends on frequencies, flow rates, and average duration of individual leaks, breaks and overflows.
Revenue Water	Those components of System Input Volume that are billed and have the potential to produce revenue.
Service Connection Density Find	=number of customer service connections / length of mains

Item Name	Description
Systematic data handling errors Find	Apparent losses caused by accounting omissions, errant computer programming, gaps in policy, procedure, and permitting/activation of new accounts; and any type of data lapse that results in under-stated customer water consumption in summary billing reports. **Systematic Data Handling Errors result in a direct loss of revenue potential. Water utilities can find "lost" revenue by keying on this component.** Utilities typically measure water consumption registered by water meters at customer premises. The meter should be read routinely (ex: monthly) and the data transferred to the Customer Billing System, which generates and sends a bill to the customer. <u>Data Transfer Errors</u> result in the consumption value being less than the actual consumption, creating an apparent loss. Such error might occur from illegible and mis-recorded hand-written readings compiled by meter readers, inputting an incorrect meter register unit conversion factor in the automatic meter reading equipment, or a variety of similar errors. Apparent losses also occur from <u>Data Analysis Errors</u> in the archival and data reporting processes of the Customer Billing System. Inaccurate estimates used for accounts that fail to produce a meter reading are a common source of error. Billing adjustments may award customers a rightful monetary credit, but do so by creating a negative value of consumption, thus under-stating the actual consumption. Account activation lapses may allow new buildings to use water for months without meter readings and billing. Poor permitting and construction inspection practices can result in a new building lacking a billing account, a water meter and meter reading; i.e., the customer is unknown to the utility's billing system. Close auditing of the permitting, metering, meter reading, billing and reporting processes of the water consumption data trail can uncover data management gaps that create volumes of systematic data handling error. Utilities should routinely analyze customer billing records to detect data anomalies and quantify these losses. For example, a billing account that registers zero consumption for two or more billing cycles should be checked to explain why usage has seemingly halted. Given the revenue loss impacts of these losses, water utilities are well-justified in providing continuous oversight and timely correction of data transfer errors & data handling errors. If the water auditor has not yet gathered detailed data or assessment of systematic data handling error, it is recommended that the auditor apply the default value of 0.25% of the the Billed Authorized Consumption volume. However, if the auditor <u>has</u> investigated the billing system and its controls, and <u>has</u> well validated data that indicates the volume from systematic data handling error is substantially higher or lower than that generated by the default value, then the auditor should enter a quantity that was derived from the utility investigations and select an appropriate grading. <u>Note:</u> negative values are not allowed for this audit component. If the auditor enters zero for this component then a grading of 1 will be automatically assigned.
Total annual cost of operating the water system Find	These costs include those for operations, maintenance and any annually incurred costs for long-term upkeep of the drinking water supply and distribution system. It should include the costs of day-to-day upkeep and long-term financing such as repayment of capital bonds for infrastructure expansion or improvement. Typical costs include employee salaries and benefits, materials, equipment, insurance, fees, administrative costs and all other costs that exist to sustain the drinking water supply. Depending upon water utility accounting procedures or regulatory agency requirements, it may be appropriate to include depreciation in the total of this cost. This cost should not include any costs to operate wastewater, biosolids or other systems outside of drinking water.
Unauthorized consumption Find	Includes water illegally withdrawn from fire hydrants, illegal connections, bypasses to customer consumption meters, or tampering with metering or meter reading equipment; as well as any other ways to receive water while thwarting the water utility's ability to collect revenue for the water. Unauthorized consumption results in uncaptured revenue and creates an error that understates customer consumption. In most water utilities this volume is low and, if the water auditor has not yet gathered detailed data for these loss occurrences, it is recommended that the auditor apply a default value of 0.25% of the volume of water supplied. However, if the auditor has investigated unauthorized occurrences, and has well validated data that indicates the volume from unauthorized consumption is substantially higher or lower than that generated by the default value, then the auditor should enter a quantity that was derived from the utility investigations. Note that a value of zero will not be accepted since all water utilities have some volume of unauthorized consumption occurring in their system. Note: if the auditor selects the default value for unauthorized consumption, a data grading of 5 is automatically assigned, but not displayed on the Reporting Worksheet.
Unavoidable Annual Real Losses (UARL) Find	UARL (gallons)=(5.41Lm + 0.15Nc + 7.5Lc) xP, or UARL (litres)=(18.0Lm + 0.8Nc + 25.0Lc) xP where: Lm = length of mains (miles or kilometres) Nc = number of customer service connections Lp = the average distance of customer service connection piping (feet or metres) (see the Worksheet "Service Connection Diagram" for guidance on deterring the value of Lp) Lc = total length of customer service connection piping (miles or km) Lc = Nc X Lp (miles or kilometres) P = Pressure (psi or metres) The UARL is a theoretical reference value representing the technical low limit of leakage that could be achieved if all of today's best technology could be successfully applied. It is a key variable in the calculation of the Infrastructure Leakage Index (ILI). Striving to reduce system leakage to a level close to the UARL is usually not needed unless the water supply is unusually expensive, scarce or both. NOTE: The UARL calculation has not yet been proven as fully valid for very small, or low pressure water distribution systems. If, <u>in gallons:</u> (Lm x 32) + Nc < 3000 or P <35psi <u>in litres:</u> (Lm x 20) + Nc < 3000 or P < 25m then the calculated UARL value may not be valid. The software does not display a value of UARL or ILI if either of these conditions is true.
Unbilled Authorized Consumption	All consumption that is unbilled, but still authorized by the utility. This includes Unbilled Metered Consumption + Unbilled Unmetered Consumption. See "Authorized Consumption" for more information. For Unbilled Unmetered Consumption, the Free Water Audit Software provides the auditor the option to select a default value if they have not audited unmetered activities in detail. The default calculates a volume that is 1.25% of the Water Supplied volume. If the auditor has carefully audited the various unbilled, unmetered, authorized uses of water, and has established reliable estimates of this collective volume, then he or she may enter the volume directly for this component, and not use the default value.

Item Name	Description
Unbilled metered consumption Find	Metered consumption which is authorized by the water utility, but, for any reason, is <u>deemed by utility policy</u> to be unbilled. This might for example include metered water consumed by the utility itself in treatment or distribution operations, or metered water provided to civic institutions free of charge. **It does <u>not</u> include water supplied to neighboring utilities (water exported) which may be metered but not billed.**
Unbilled unmetered consumption Find	Any kind of Authorized Consumption which is neither billed or metered. This component typically includes water used in activities such as fire fighting, flushing of water mains and sewers, street cleaning, fire flow tests conducted by the water utility, etc. In most water utilities it is a small component which is very often substantially overestimated. **It does NOT include water supplied to neighboring utilities (water exported) which is unmetered and unbilled – an unlikely case.** This component has many sub-components of water use which are often tedious to identify and quantify. Because of this, and the fact that it is usually a small portion of the water supplied, it is recommended that the auditor apply the default value, which is 1.25% of the Water Supplied volume. Select the default percentage to enter this value. If the water utility <u>has</u> carefully audited the unbilled, unmetered activities occurring in the system, and has well validated data that gives a value substantially higher or lower than the default volume, then the auditor should enter their own volume. However the default approach is recommended for most water utilities. Note that a value of zero is not permitted, since all water utilities have some volume of water in this component occurring in their system.
Units and Conversions	The user may develop an audit based on one of three unit selections: 1) Million Gallons (US) 2) Megalitres (Thousand Cubic Metres) 3) Acre-feet Once this selection has been made in the instructions sheet, all calculations are made on the basis of the chosen units. Should the user wish to make additional conversions, a unit converter is provided below (use drop down menus to select units from the yellow unit boxes): Enter Units: 1 Convert From… **Million Gallons (US)** = **Converts to…..** **3.06888329** **Acre-feet** (conversion factor = 3.06888328973723)
Use of Option Buttons	To use the default percent value choose this button To enter a value choose this button and enter the value in the cell to the right  **NOTE:** For Unbilled Unmetered Consumption, Unauthorized Consumption and Systematic Data Handling Errors, a recommended default value can be applied by selecting the Percent option. The default values are based on fixed percentages of Water Supplied or Billed Authorized Consumption and are recommended for use in this audit unless the auditor has well validated data for their system. Default values are shown by purple cells, as shown in the example above. If a default value is selected, the user does not need to grade the item; a grading value of 5 is automatically applied (however, this grade will not be displayed).
Variable production cost (applied to Real Losses) Find	The cost to produce and supply the next unit of water (e.g., $/million gallons). This cost is determined by calculating the summed unit costs for ground and surface water treatment and all power used for pumping from the source to the customer. It may also include other miscellaneous unit costs that apply to the production of drinking water. It should also include the unit cost of bulk water purchased as an import if applicable. It is common to apply this unit cost to the volume of Real Losses. However, if water resources are strained and the ability to meet future drinking water demands is in question, then the water auditor can be justified in applying the Customer Retail Rate to the Real Loss volume, rather than applying the Variable Production Cost. The Free Water Audit Software applies the Variable Production costs to Real Losses by default. However, the auditor has the option on the Reporting Worksheet to select the Customer Retail Cost as the basis for the Real Loss cost evaluation if the auditor determines that this is warranted.
Volume from own sources Find	The volume of water withdrawn (abstracted) from water resources (rivers, lakes, streams, wells, etc) controlled by the water utility, and then treated for potable water distribution. Most water audits are compiled for utility retail water distribution systems, so this volume should reflect the amount of <u>treated</u> drinking water that entered the distribution system. Often the volume of water measured at the effluent of the treatment works is slightly less than the volume measured at the raw water source, since some of the water is used in the treatment process. Thus, it is useful if flows are metered at the effluent of the treatment works. If metering exists only at the raw water source, an adjustment for water used in the treatment process should be included to account for water consumed in treatment operations such as filter backwashing, basin flushing and cleaning, etc. If the audit is conducted for a wholesale water agency that sells untreated water, then this quantity reflects the measure of the raw water, typically metered at the source.
Volume from own sources: Master meter and supply error adjustment Find	An estimate or measure of the degree of inaccuracy that exists in the master (production) meters measuring the annual Volume from own Sources, and any error in the data trail that exists to collect, store and report the summary production data. This adjustment is a weighted average number that represents the collective error for all master meters for all days of the audit year and any errors identified in the data trail. Meter error can occur in different ways. A meter or meters may be inaccurate by under-registering flow (did not capture all the flow), or by over-registering flow (overstated the actual flow). Data error can occur due to data gaps caused by temporary outages of the meter or related instrumentation. All water utilities encounter some degree of inaccuracy in master meters and data errors in archival systems are common; thus a value of zero should <u>not</u> be entered. Enter a negative percentage or value for metered data under-registration; or, enter a positive percentage or value for metered data over-registration.

Item Name	Description
Water exported Find	The Water Exported volume is the bulk water conveyed and sold by the water utility to neighboring water systems that exists outside of their service area. Typically this water is metered at the custody transfer point of interconnection between the two water utilities. Usually the meter(s) are owned by the water utility that is selling the water: i.e. the exporter. If the water utility who is compiling the annual water audit sells bulk water in this manner, they are an exporter of water. Note: The Water Exported volume is sold to wholesale customers who are typically charged a wholesale rate that is different than retail rates charged to the retail customers existing within the service area. Many state regulatory agencies require that the Water Exported volume be reported to them as a quantity separate and distinct from the retail customer billed consumption. For these reasons - and others - the Water Exported volume is always quantified separately from Billed Authorized Consumption in the standard water audit. **Be certain not to "double-count" this quantity by including it in both the Water Exported box and the Billed Metered Consumption box of the water audit Reporting Worksheet. This volume should be included only in the Water Exported box.**
Water exported: Master meter and supply error adjustment Find	An estimate or measure of the volume in which the Water Exported volume is incorrect. This adjustment is a weighted average that represents the collective error for all of the metered and archived exported flow for all days of the audit year. Meter error can occur in different ways. A meter may be inaccurate by under-registering flow (did not capture all the flow), or by over-registering flow (overstated the actual flow). Error in the metered, archived data can also occur due to data gaps caused by temporary outages of the meter or related instrumentation. All water utilities encounter some degree of error in their metered data, particularly if meters are aged and infrequently tested. Occasional errors also occur in the archived data. Thus, a value of zero should not be entered. Enter a negative percentage or value for metered data under-registration; or enter a positive percentage or value for metered data over-registration. If regular meter accuracy testing is conducted on the meter(s) - which is usually conducted by the water utility selling the water - then the results of this testing can be used to help quantify the meter error adjustment. Corrections to data gaps or other errors found in the archived data should also be included as a portion of this meter error adjustment.
Water imported Find	The Water Imported volume is the bulk water purchased to become part of the Water Supplied volume. Typically this is water purchased from a neighboring water utility or regional water authority, and is metered at the custody transfer point of interconnection between the two water utilities. Usually the meter(s) are owned by the water supplier selling the water to the utility conducting the water audit. The water supplier selling the bulk water usually charges the receiving utility based upon a wholesale water rate.
Water imported: Master meter and supply error adjustment Find	An estimate or measure of the volume in which the Water Imported volume is incorrect. This adjustment is a weighted average that represents the collective error for all of the metered and archived imported flow for all days of the audit year. Meter error can occur in different ways. A meter may be inaccurate by under-registering flow (did not capture all the flow), or by over-registering flow (overstated the actual flow). Error in the metered, archived data can also occur due to data gaps caused by temporary outages of the meter or related instrumentation. All water utilities encounter some level of meter inaccuracy, particularly if meters are aged and infrequently tested. Occasional errors also occur in the archived metered data. Thus, a value of zero should not be entered. Enter a negative percentage or value for metered data under-registration; or, enter a positive percentage or value for metered data over-registration. If regular meter accuracy testing is conducted on the meter(s) - which is usually conducted by the water utility selling the water - then the results of this testing can be used to help quantify the meter error adjustment.
WATER LOSSES Find	= apparent losses + real losses Water Losses are the difference between Water Supplied and Authorized Consumption. Water losses can be considered as a total volume for the whole system, or for partial systems such as transmission systems, pressure zones or district metered areas (DMA); if one of these configurations are the basis of the water audit.

AWWA Free Water Audit Software:

Determining Water Loss Standing

Water Audit Report for: << Please enter system details and contact information on the Instructions tab >>
Reporting Year:
Data Validity Score: N/A* * Confirm Units and Data Grading are Complete

Water Loss Control Planning Guide

	Water Audit Data Validity Level / Score				
Functional Focus Area	**Level I** (0-25)	**Level II** (26-50)	**Level III** (51-70)	**Level IV** (71-90)	**Level V** (91-100)
Audit Data Collection	Launch auditing and loss control team; address production metering deficiencies	Analyze business process for customer metering and billing functions and water supply operations. Identify data gaps.	Establish/revise policies and procedures for data collection	Refine data collection practices and establish as routine business process	Annual water audit is a reliable gauge of year-to-year water efficiency standing
Short-term loss control	Research information on leak detection programs. Begin flowcharting analysis of customer billing system	Conduct loss assessment investigations on a sample portion of the system: customer meter testing, leak survey, unauthorized consumption, etc.	Establish ongoing mechanisms for customer meter accuracy testing, active leakage control and infrastructure monitoring	Refine, enhance or expand ongoing programs based upon economic justification	Stay abreast of improvements in metering, meter reading, billing, leakage management and infrastructure rehabilitation
Long-term loss control		Begin to assess long-term needs requiring large expenditure: customer meter replacement, water main replacement program, new customer billing system or Automatic Meter Reading (AMR) system.	Begin to assemble economic business case for long-term needs based upon improved data becoming available through the water audit process.	Conduct detailed planning, budgeting and launch of comprehensive improvements for metering, billing or infrastructure management	Continue incremental improvements in short-term and long-term loss control interventions
Target-setting			Establish long-term apparent and real loss reduction goals (+10 year horizon)	Establish mid-range (5 year horizon) apparent and real loss reduction goals	Evaluate and refine loss control goals on a yearly basis
Benchmarking			Preliminary Comparisons - can begin to rely upon the Infrastructure Leakage Index (ILI) for performance comparisons for real losses (see below table)	Performance Benchmarking - ILI is meaningful in comparing real loss standing	Identify Best Practices/ Best in class - the ILI is very reliable as a real loss performance indicator for best in class service

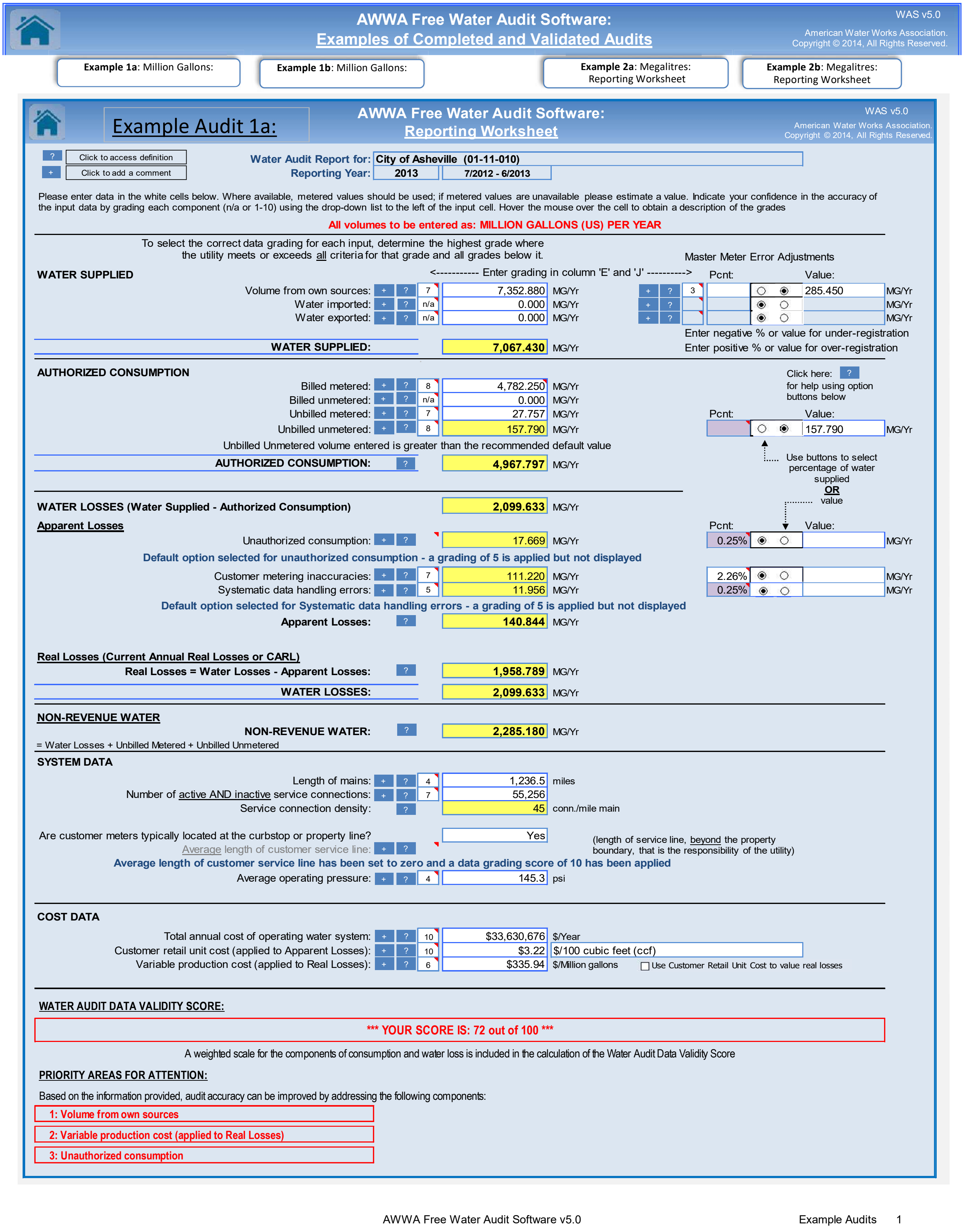
For validity scores of 50 or below, the shaded blocks should not be focus areas until better data validity is achieved.

Once data have been entered into the Reporting Worksheet, the performance indicators are automatically calculated. How does a water utility operator know how well his or her system is performing? The AWWA Water Loss Control Committee provided the following table to assist water utilities is gauging an approximate Infrastructure Leakage Index (ILI) that is appropriate for their water system and local conditions. The lower the amount of leakage and real losses that exist in the system, then the lower the ILI value will be.

Note: this table offers an approximate guideline for leakage reduction target-setting. The best means of setting such targets include performing an economic assessment of various loss control methods. However, this table is useful if such an assessment is not possible.

General Guidelines for Setting a Target ILI
(without doing a full economic analysis of leakage control options)

Target ILI Range	Financial Considerations	Operational Considerations	Water Resources Considerations
1.0 - 3.0	Water resources are costly to develop or purchase; ability to increase revenues via water rates is greatly limited because of regulation or low ratepayer affordability.	Operating with system leakage above this level would require expansion of existing infrastructure and/or additional water resources to meet the demand.	Available resources are greatly limited and are very difficult and/or environmentally unsound to develop.
>3.0 -5.0	Water resources can be developed or purchased at reasonable expense; periodic water rate increases can be feasibly imposed and are tolerated by the customer population.	Existing water supply infrastructure capability is sufficient to meet long-term demand as long as reasonable leakage management controls are in place.	Water resources are believed to be sufficient to meet long-term needs, but demand management interventions (leakage management, water conservation) are included in the long-term
>5.0 - 8.0	Cost to purchase or obtain/treat water is low, as are rates charged to customers.	Superior reliability, capacity and integrity of the water supply infrastructure make it relatively immune to supply shortages.	Water resources are plentiful, reliable, and easily extracted.
Greater than 8.0	Although operational and financial considerations may allow a long-term ILI greater than 8.0, such a level of leakage is not an effective utilization of water as a resource. Setting a target level greater than 8.0 - other than as an incremental goal to a smaller long-term target - is discouraged.		
Less than 1.0	If the calculated Infrastructure Leakage Index (ILI) value for your system is 1.0 or less, two possibilities exist. a) you are maintaining your leakage at low levels in a class with the top worldwide performers in leakage control. b) A portion of your data may be flawed, causing your losses to be greatly understated. This is likely if you calculate a low ILI value but do not employ extensive leakage control practices in your operations. In such cases it is beneficial to validate the data by performing field measurements to confirm the accuracy of production and customer meters, or to identify any other potential sources of error in the data.		



AWWA Free Water Audit Software:
Examples of Completed and Validated Audits

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Example Audit 1a:

AWWA Free Water Audit Software:
Reporting Worksheet

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? Click to access definition
\+ Click to add a comment

Water Audit Report for: City of Asheville (01-11-010)
Reporting Year: 2013 7/2012 - 6/2013

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: MILLION GALLONS (US) PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

<----------- Enter grading in column 'E' and 'J' ---------->

Master Meter Error Adjustments

	Grade	Value	Unit	Grade	Pcnt:		Value:	Unit
Volume from own sources:	7	7,352.880	MG/Yr	3		○ ●	285.450	MG/Yr
Water imported:	n/a	0.000	MG/Yr			● ○		MG/Yr
Water exported:	n/a	0.000	MG/Yr			● ○		MG/Yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 7,067.430 MG/Yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

	Grade	Value	Unit	Pcnt:		Value:	Unit
Billed metered:	8	4,782.250	MG/Yr				
Billed unmetered:	n/a	0.000	MG/Yr				
Unbilled metered:	7	27.757	MG/Yr				
Unbilled unmetered:	8	157.790	MG/Yr		○ ●	157.790	MG/Yr

Unbilled Unmetered volume entered is greater than the recommended default value

Use buttons to select percentage of water supplied **OR** value

AUTHORIZED CONSUMPTION: ? 4,967.797 MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption) 2,099.633 MG/Yr

Apparent Losses

	Grade	Value	Unit	Pcnt:		Value:	Unit
Unauthorized consumption:		17.669	MG/Yr	0.25%	● ○		MG/Yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

	Grade	Value	Unit	Pcnt:		Value:	Unit
Customer metering inaccuracies:	7	111.220	MG/Yr	2.26%	● ○		MG/Yr
Systematic data handling errors:	5	11.956	MG/Yr	0.25%	● ○		MG/Yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: ? 140.844 MG/Yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: ? 1,958.789 MG/Yr

WATER LOSSES: 2,099.633 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: ? 2,285.180 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

	Grade	Value	Unit
Length of mains:	4	1,236.5	miles
Number of active AND inactive service connections:	7	55,256	
Service connection density:		45	conn./mile main

Are customer meters typically located at the curbstop or property line? Yes

Average length of customer service line: (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure: 4 145.3 psi

COST DATA

	Grade	Value	Unit
Total annual cost of operating water system:	10	$33,630,676	$/Year
Customer retail unit cost (applied to Apparent Losses):	10	$3.22	$/100 cubic feet (ccf)
Variable production cost (applied to Real Losses):	6	$335.94	$/Million gallons

☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 72 out of 100 ***

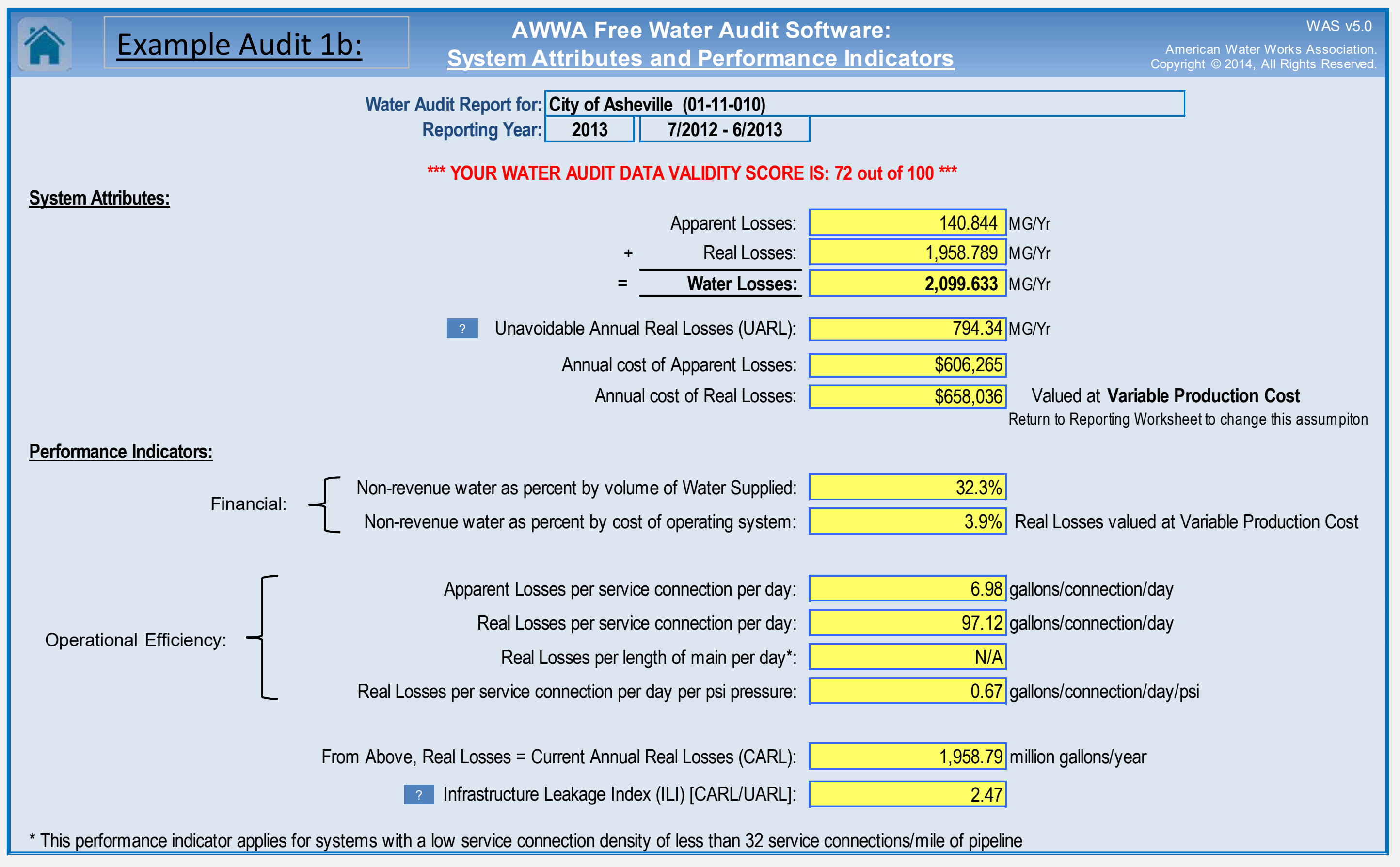
A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Volume from own sources
2: Variable production cost (applied to Real Losses)
3: Unauthorized consumption

AWWA Free Water Audit Software v5.0 Example Audits 1



Example Audit 1b:

AWWA Free Water Audit Software:
System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.
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Water Audit Report for: City of Asheville (01-11-010)
Reporting Year: 2013 | 7/2012 - 6/2013

***** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 72 out of 100 *****

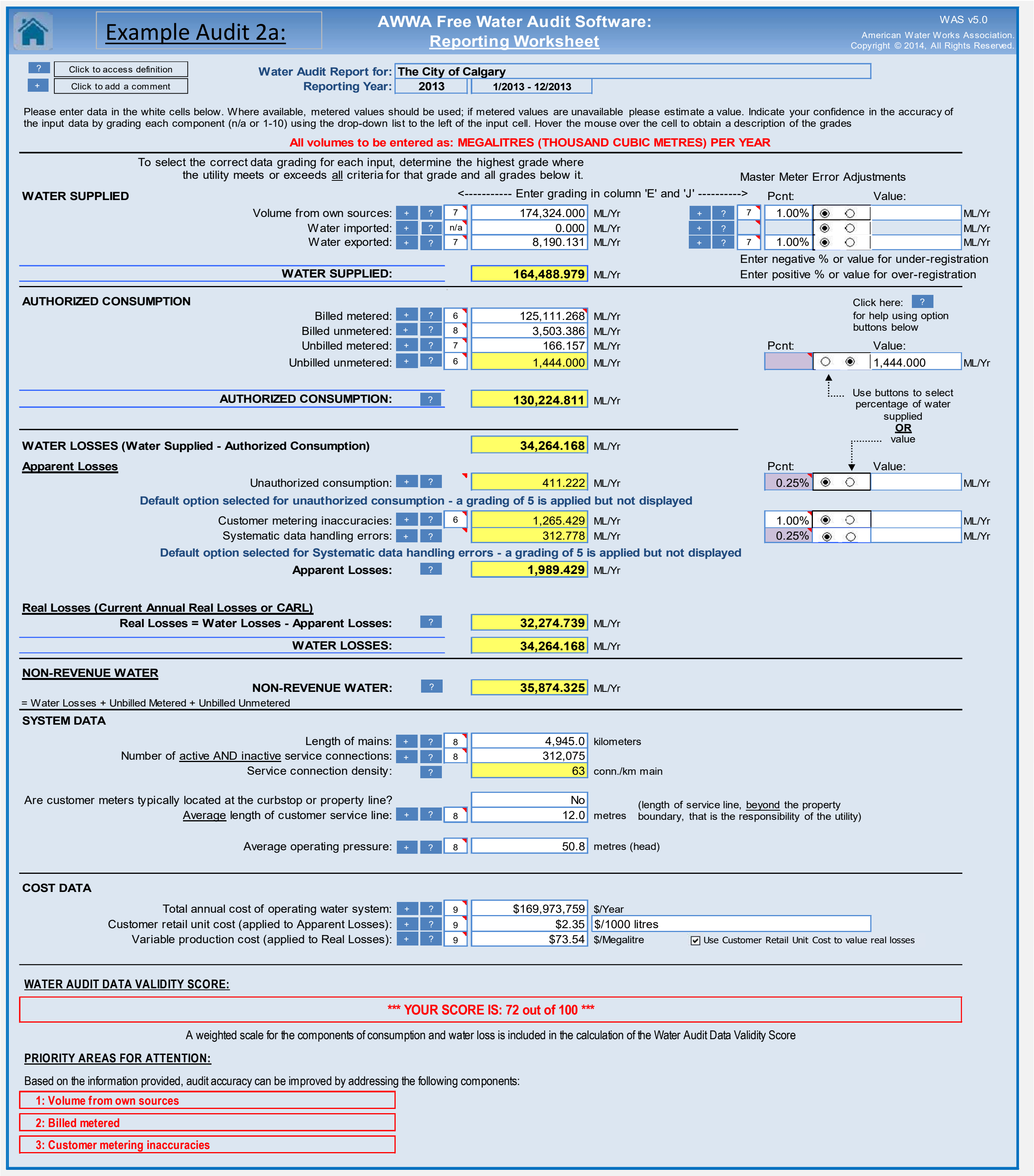
System Attributes:

	Apparent Losses:	140.844	MG/Yr
+	Real Losses:	1,958.789	MG/Yr
=	**Water Losses:**	**2,099.633**	MG/Yr
?	Unavoidable Annual Real Losses (UARL):	794.34	MG/Yr
	Annual cost of Apparent Losses:	$606,265	
	Annual cost of Real Losses:	$658,036	Valued at **Variable Production Cost** Return to Reporting Worksheet to change this assumpiton

Performance Indicators:

Financial:	Non-revenue water as percent by volume of Water Supplied:	32.3%	
	Non-revenue water as percent by cost of operating system:	3.9%	Real Losses valued at Variable Production Cost
Operational Efficiency:	Apparent Losses per service connection per day:	6.98	gallons/connection/day
	Real Losses per service connection per day:	97.12	gallons/connection/day
	Real Losses per length of main per day*:	N/A	
	Real Losses per service connection per day per psi pressure:	0.67	gallons/connection/day/psi
	From Above, Real Losses = Current Annual Real Losses (CARL):	1,958.79	million gallons/year
	? Infrastructure Leakage Index (ILI) [CARL/UARL]:	2.47	

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



Example Audit 2a:

AWWA Free Water Audit Software:
Reporting Worksheet

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Water Audit Report for: The City of Calgary
Reporting Year: 2013 1/2013 - 12/2013

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: MEGALITRES (THOUSAND CUBIC METRES) PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

<----------- Enter grading in column 'E' and 'J' ---------->

Master Meter Error Adjustments

	Grading	Value		Grading	Pcnt:		Value:	
Volume from own sources:	7	174,324.000	ML/Yr	7	1.00%	● ○		ML/Yr
Water imported:	n/a	0.000	ML/Yr			● ○		ML/Yr
Water exported:	7	8,190.131	ML/Yr	7	1.00%	● ○		ML/Yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 164,488.979 ML/Yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

	Grading	Value		Pcnt:		Value:	
Billed metered:	6	125,111.268	ML/Yr				
Billed unmetered:	8	3,503.386	ML/Yr				
Unbilled metered:	7	166.157	ML/Yr				
Unbilled unmetered:	6	1,444.000	ML/Yr		○ ●	1,444.000	ML/Yr

Use buttons to select percentage of water supplied **OR** value

AUTHORIZED CONSUMPTION: ? 130,224.811 ML/Yr

WATER LOSSES (Water Supplied - Authorized Consumption) 34,264.168 ML/Yr

Apparent Losses

	Grading	Value		Pcnt:		Value:	
Unauthorized consumption:		411.222	ML/Yr	0.25%	● ○		ML/Yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

	Grading	Value		Pcnt:		Value:	
Customer metering inaccuracies:	6	1,265.429	ML/Yr	1.00%	● ○		ML/Yr
Systematic data handling errors:		312.778	ML/Yr	0.25%	● ○		ML/Yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: ? 1,989.429 ML/Yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: ? 32,274.739 ML/Yr

WATER LOSSES: 34,264.168 ML/Yr

NON-REVENUE WATER

NON-REVENUE WATER: ? 35,874.325 ML/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

	Grading	Value	
Length of mains:	8	4,945.0	kilometers
Number of active AND inactive service connections:	8	312,075	
Service connection density:		63	conn./km main
Are customer meters typically located at the curbstop or property line?		No	(length of service line, beyond the property boundary, that is the responsibility of the utility)
Average length of customer service line:	8	12.0	metres
Average operating pressure:	8	50.8	metres (head)

COST DATA

	Grading	Value	
Total annual cost of operating water system:	9	$169,973,759	$/Year
Customer retail unit cost (applied to Apparent Losses):	9	$2.35	$/1000 litres
Variable production cost (applied to Real Losses):	9	$73.54	$/Megalitre

☑ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

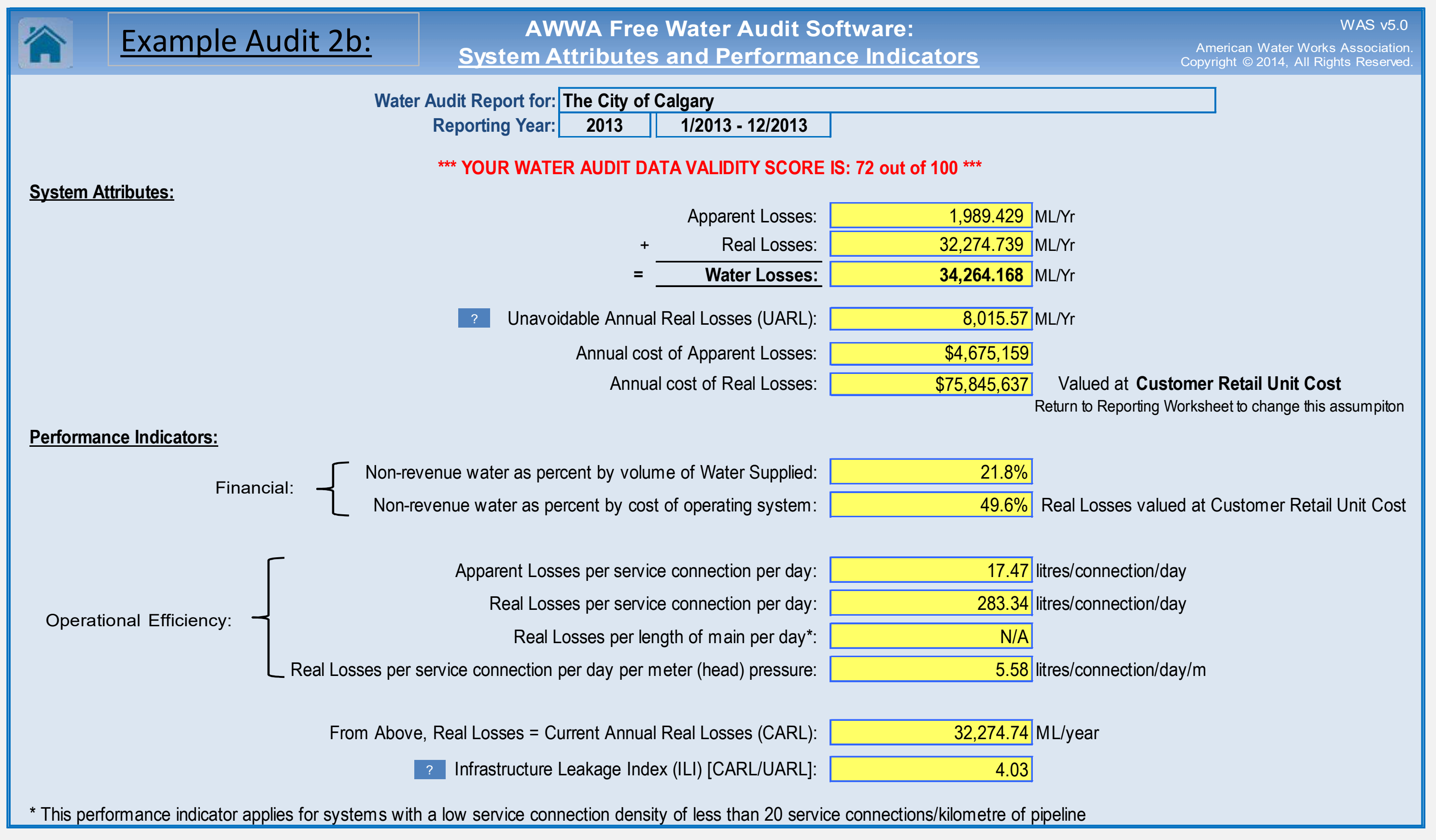
***** YOUR SCORE IS: 72 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Volume from own sources
2: Billed metered
3: Customer metering inaccuracies



Example Audit 2b:

AWWA Free Water Audit Software:
System Attributes and Performance Indicators

WAS v5.0

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Water Audit Report for: **The City of Calgary**
Reporting Year: **2013** **1/2013 - 12/2013**

***** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 72 out of 100 *****

System Attributes:

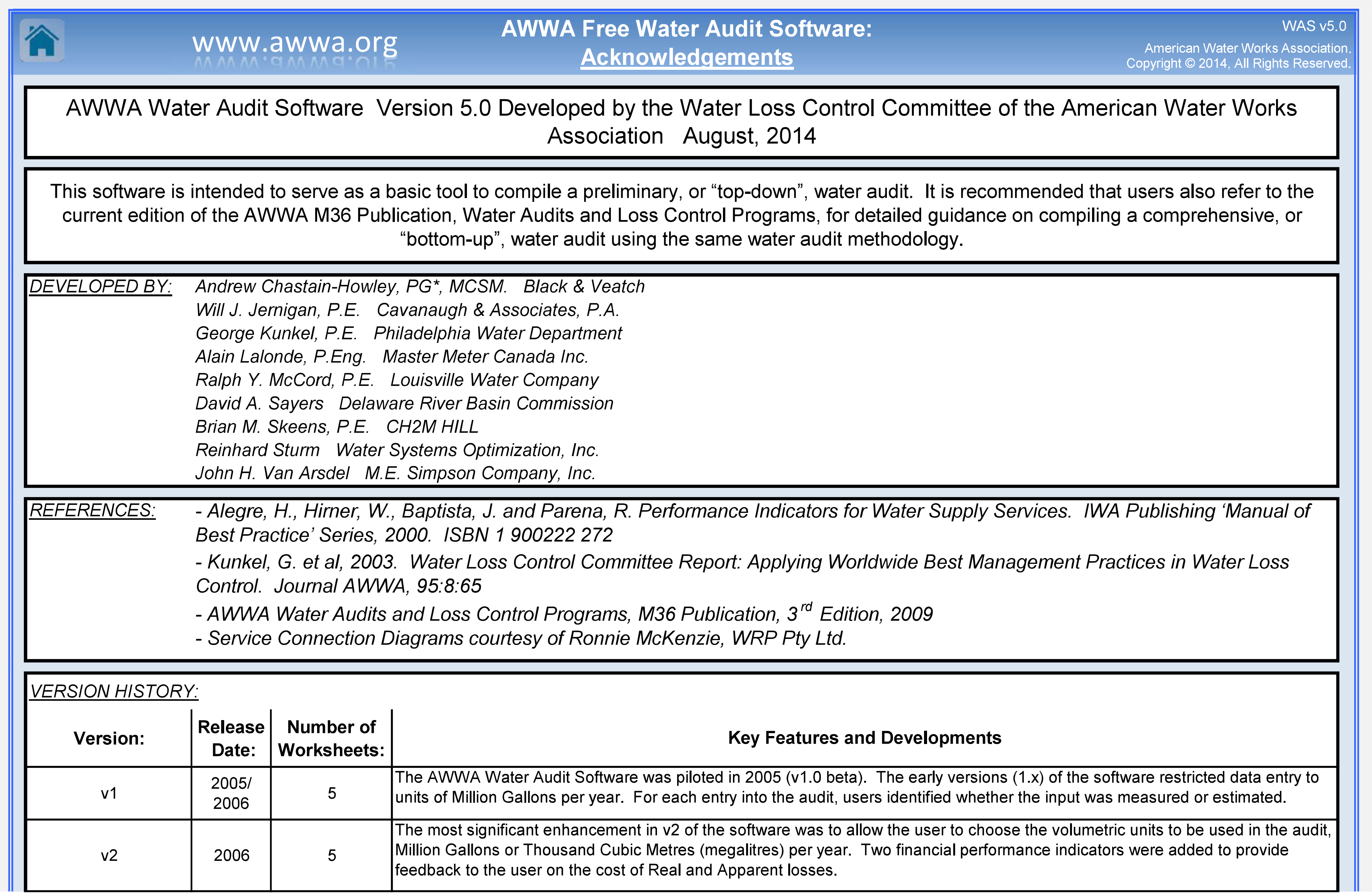
	Apparent Losses:	1,989.429	ML/Yr
+	Real Losses:	32,274.739	ML/Yr
=	**Water Losses:**	**34,264.168**	ML/Yr
?	Unavoidable Annual Real Losses (UARL):	8,015.57	ML/Yr
	Annual cost of Apparent Losses:	$4,675,159	
	Annual cost of Real Losses:	$75,845,637	Valued at **Customer Retail Unit Cost**

Return to Reporting Worksheet to change this assumpiton

Performance Indicators:

Financial:	Non-revenue water as percent by volume of Water Supplied:	21.8%	
	Non-revenue water as percent by cost of operating system:	49.6%	Real Losses valued at Customer Retail Unit Cost
Operational Efficiency:	Apparent Losses per service connection per day:	17.47	litres/connection/day
	Real Losses per service connection per day:	283.34	litres/connection/day
	Real Losses per length of main per day*:	N/A	
	Real Losses per service connection per day per meter (head) pressure:	5.58	litres/connection/day/m
	From Above, Real Losses = Current Annual Real Losses (CARL):	32,274.74	ML/year
	? Infrastructure Leakage Index (ILI) [CARL/UARL]:	4.03	

* This performance indicator applies for systems with a low service connection density of less than 20 service connections/kilometre of pipeline



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AWWA Free Water Audit Software:
Acknowledgements

WAS v5.0

AWWA Water Audit Software Version 5.0 Developed by the Water Loss Control Committee of the American Water Works Association   August, 2014

This software is intended to serve as a basic tool to compile a preliminary, or "top-down", water audit. It is recommended that users also refer to the current edition of the AWWA M36 Publication, Water Audits and Loss Control Programs, for detailed guidance on compiling a comprehensive, or "bottom-up", water audit using the same water audit methodology.

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- *Kunkel, G. et al, 2003. Water Loss Control Committee Report: Applying Worldwide Best Management Practices in Water Loss Control. Journal AWWA, 95:8:65*
- *AWWA Water Audits and Loss Control Programs, M36 Publication, 3^{rd} Edition, 2009*
- *Service Connection Diagrams courtesy of Ronnie McKenzie, WRP Pty Ltd.*

VERSION HISTORY:

Version:	Release Date:	Number of Worksheets:	Key Features and Developments
v1	2005/ 2006	5	The AWWA Water Audit Software was piloted in 2005 (v1.0 beta). The early versions (1.x) of the software restricted data entry to units of Million Gallons per year. For each entry into the audit, users identified whether the input was measured or estimated.
v2	2006	5	The most significant enhancement in v2 of the software was to allow the user to choose the volumetric units to be used in the audit, Million Gallons or Thousand Cubic Metres (megalitres) per year. Two financial performance indicators were added to provide feedback to the user on the cost of Real and Apparent losses.

v3	2007	7	In v3, the option to report volumetric units in acre-feet was added. Another new feature in v3 was the inclusion of default values for two water audit components (unbilled unmetered and unauthorized consumption). v3 also included two examples of completed audits in units of million gallons and Megalitres. Several checks were added into v3 to provide instant feedback to the user on common data entry problems, in order to help the user complete an accurate water audit.
v4 - v4.2	2010	10	v4 (and versions 4.x) of the software included a new approach to data grading. The simple "estimated" or "measured" approach was replaced with a more granular scale (typically 1-10) that reflected descriptions of utility practices and served to describe the confidence and accuracy of the input data. Each input value had a corresponding scale fully described in the Grading Matrix tab. The Grading Matrix also showed the actions required to move to a higher grading score. Grading descriptions were available on the Reporting Worksheet via a pop-up box next to each water audit input. A water audit data validity score is generated (max = 100) and priority areas for attention (to improve audit accuracy) are identified, once a user completes the requied data grading. A service connection diagram was also added to help users understand the impact of customer service line configurations on water losses and how this information should be entered into the water audit software. An acknoweldgements section was also added. Minor bug fixes resulted in the release of versions 4.1 and 4.2. A French language version was also made available for v4.2.
v5	2014	12	In v5, changes were made to the way Water Supplied information is entered into software, with each major component having a corresponding Master Meter Error Adjustment entry (and data grading requirement). This required changes to the data validity score calculation; v5 of the software uses a weighting system that is, in part, proportional to the volume of input components. The Grading Matrix was updated to reflect the new audit inputs and also to include clarifications and additions to the scale descriptions. The appearance of the software was updated in v5 to make the software more user-friendly and several new features were added to provide more feedback to the user. Notably, a dashboard tab has been added to provide more visual feedback on the water audit results and associated costs of Non-Revenue Water. A comments sheet was added to allow the user to track notes, comments and to cite sources used.

APPENDIX

STATE OF HAWAIʻI

Holidays to be observed in 2026 and 2027

2026 HAWAIʻI STATE HOLIDAYS

(Hawaii Rev. Statutes, Sec. 8-1)	Day Observed in 2026	Official Date Designated in Statute/Constitution
New Year's Day	January 01, Thursday	The first day in January
Dr. Martin Luther King, Jr. Day	January 19, Monday	The third Monday in January
Presidents' Day	February 16, Monday	The third Monday in February
Prince Jonah Kūhiō Kalanianaʻole Day	March 26, Thursday	The twenty-sixth day in March
Good Friday	April 3, Friday	The Friday preceeding Easter Sunday
Memorial Day	May 25, Monday	The last Monday in May
King Kamehameha I Day	June 11, Thursday	The eleventh day in June
Independence Day	July 3, Friday	The fourth day in July
Statehood Day	August 21, Friday	The third Friday in August
Labor Day	September 7, Monday	The first Monday in September
General Election Day	November 3, Tuesday	The first Tuesday in November following the first Monday of even numbered years. (*Hawaiʻi State Constitution, Article 2 – Section 8*)
Veterans' Day	November 11, Wednesday	The eleventh day in November
Thanksgiving	November 26, Thursday	The fourth Thursday in November
Christmas	December 25, Friday	The twenty-fifth day in December

2027 HAWAIʻI STATE HOLIDAYS

(Hawaii Rev. Statutes, Sec. 8-1)	Day Observed in 2027	Official Date Designated in Statute/Constitution
New Year's Day	January 01, Friday	The first day in January
Dr. Martin Luther King, Jr. Day	January 18, Monday	The third Monday in January
Presidents' Day	February 15, Monday	The third Monday in February
Prince Jonah Kūhiō Kalanianaʻole Day	March 26, Friday	The twenty-sixth day in March
Good Friday	March 26, Friday	The Friday preceeding Easter Sunday
Memorial Day	May 31, Monday	The last Monday in May
King Kamehameha I Day	June 11, Friday	The eleventh day in June
Independence Day	July 5, Monday	The fourth day in July
Statehood Day	August 20, Friday	The third Friday in August
Labor Day	September 6, Monday	The first Monday in September
Veterans' Day	November 11, Thursday	The eleventh day in November
Thanksgiving	November 25, Thursday	The fourth Thursday in November
Christmas	December 24, Friday	The twenty-fifth day in December

FOOTNOTES: For use solely by State government agencies. Federal government and local banking holidays may differ. For State agencies that operate on other than Monday-Friday 7:45 AM to 4:30 PM schedules, also refer to appropriate collective bargaining agreements. Created by the Department of Human Resources Development 01/12/2026. Subject to change.

www.dhrd.hawaii.gov

ESTIMATE FOR CHANGE ORDER

(General and Subcontractor)

DATE ____________________

PROJECT: ____________________

HHFDC JOB NO. ____________________ CONTRACTOR ____________________

Ref: Bulletin No. ____________ PCD No. ____________ Field Order ____________

Work Description ____________________

MATERIALS

Unit	Description	Unit Prices	Subtotal
		$	$ 0.00
		$	$ 0.00
		$	$ 0.00
		$	$ 0.00
ea		$	$ 0.00
ea		$	$ 0.00

TOTAL FOR MATERIALS………………………………………………………………………….. $ 0.00 (1)

LABOR

Classification	Hours	Hourly Rate	Fringe	
		$		$ 0.00
Fringe	0	$	$ 0.00	
		$		$ 0.00
Fringe	0	$	$ 0.00	
		$		$ 0.00
Fringe	0	$	$ 0.00	
		$		$ 0.00
Fringe	0	$	$ 0.00	
		$		$ 0.00
Fringe	0	$	$ 0.00	
		$		$ 0.00
Fringe	0	$	$ 0.00	

SUBTOTAL FOR LABOR ………………………………………………………	$ 0.00 (2)	$ 0.00 (3)
TOTAL FOR LABOR (Fringes & Wages) (2) + (3) …………………………………………………		$ 0.00 (4)
SUBTOTAL (MATERIALS & LABOR) (1) + (4) ……………………………………………………		$ 0.00 (5)
Overhead & Profit (15%) of (5)………………………………………………………..…………		$ 0.00 (6)
Insurance & Taxes (%) of (3) (see Note A)………………………………………………		$ 0.00 (7)
TOTAL (MATERIALS & LABOR) (5)+(6)+(7) ……….……...………..……………………….		$ 0.00 (8)

ESTIMATE FOR CHANGE ORDER

(General and Subcontractor)

EQUIPMENT

Type or Class	Hours	Hourly Rate	
		$	$ 0.00
		$	$ 0.00
		$	$ 0.00
		$	$ 0.00
		$	$ 0.00
		$	$ 0.00

TOTAL FOR EQUIPMENT ………………………………………………………………………. $ 0.00 (9)

SUBCONTRACTORS

Name	
	$
	$
	$
	$
	$
	$

SUBTOTAL FOR SUBCONTRACTORS ……………………………..…………………………….. $ 0.00 (10)

Overhead & Profit 7% of (10) ………………………………………………………………………… $ 0.00 (11)

TOTAL FOR SUBCONTRACTORS (10)+(11)…………………………..……..…………………… $ 0.00 (12)

TOTAL (MATERIAL, LABOR, EQUIPMENT & SUBCONTRACTORS) (8)+(9)+(12) …………. $ 0.00 (13)

Bond Fee (%) of (13) if applicable (see Note B)………………………… $ 0.00 (14)

General Excise Tax 4% on (13) ……………………..…………………...……………. $ 0.00 (15)

TOTAL FOR CHANGE ORDER (13)+(14)+(15) ………………………………………………. $ 0.00 (16)

Notes: A Contractor to enter insurance & tax rate and submit proof of such
B Contractor to enter bond rate and submit proof of such

HAWAII HOUSING FINANCE AND DEVELOPMENT CORPORATION

677 QUEEN STREET, SUITE 300
HONOLULU, HAWAII 96813

FIELD ORDER

DATE: ______________________________

TO: ______________________________
____
____

FIELD ORDER NO.: ____________________
PROJECT: ____________________________
____

HHFDC JOB NO.: __________________
HHFDC CONTRACT NO.: __________________

ATTN: ______________________________

Work shall be performed in accordance with this FIELD ORDER and applicable provisions of the Contract Documents. To expedite the Work and avoid delays, proceed with this work promptly.

DESCRIPTION OF WORK TO BE PERFORMED OR DELETED:

ATTACHMENTS:

CONDITIONS AND TERMS:

☐ Work is considered a MINOR CHANGE and shall be performed at no additional cost or time to the HHFDC.
☐ Provide a cost proposal for the work. Submit the proposal in accordance with the General Conditions.
☐ Perform the Work under the Force Account Provisions of the General Conditions.
☐ Work is subject to an adjustment to contract price and / or contract time as follows:
    ☐ Fixed ☐ Estimate ☐ Maximum* Change in Contract Sum. Add $ ______________________
    ☐ Fixed ☐ Estimate ☐ Maximum* Change in Contract Time. Add ______ Working / Calendar Days

*Not to exceed cost and/or time that may be reduced after review and cost analysis of change proposals by the Hawaii Housing Finance and Development Corporation (HHFDC).

ISSUED BY:

____
Executive Director Date
Hawaii Housing Finance and
Development Corporationi

RECEIVED:

____
Contractor's Date
Authorized Representative

Copy: File Budget Inspector Contractor Consultant

STATE OF HAWAII

SUPPLEMENTAL CONTRACT NO. ___
TO CONTRACT ______________________________

(Insert contract number or other identifying information)

This Supplemental Contract No. ______________, executed on the respective dates indicated below, is effective as of ______________________ , __________ , between the ____, State of Hawaii
(Insert name of state department, agency, board or commission)
("STATE"), by its ____,
(Insert title of state officer executing contract)
(hereafter also referred to as the HEAD OF THE PURCHASING AGENCY or designee ("HOPA")), whose address is ____ , and
____
____ ("CONTRACTOR"),
a ____
(Insert corporation, partnership, joint venture, sole proprietorship. or other legal form of the CONTRACTOR)
under the laws of the State of ______________________, whose business address and federal and state taxpayer identification numbers are as follows: ______________________________
____

RECITALS

A. WHEREAS, the STATE and the CONTRACTOR entered into Contract
____
(Insert contract number or other identifying information)
dated ______________, ______, which was amended by Supplemental Contract No(s). ________
dated ______________, ______, which was amended by Supplemental Contract No(s). ________
dated ______________, ______, which was amended by Supplemental Contract No(s). ________
dated ______________, ______ (hereafter collectively referred to as "Contract "), whereby the CONTRACTOR agreed to provide the goods or services, or both, described in the Contract; and

B. WHEREAS, the parties now desire to amend the Contract.

NOW, THEREFORE, the STATE and the CONTRACTOR mutually agree to amend the Contract as follows: (Check Applicable box(es))

☐ Amend the SCOPE OF SERVICES according to the terms set forth in Attachment-S1, which is made a part of the Contract.

☐ Amend the COMPENSATION AND PAYMENT SCHEDULE according to the terms set forth in Attachment-S2, which is made a part of the Contract.

☐ Amend the TIME OF PERFORMANCE according to the terms set forth in Attachment-S3, which is made a part of the Contract.

☐ Amend the SPECIAL CONDITIONS according to the terms set forth in Attachment-S6 SUPPLEMENTAL SPECIAL CONDITIONS, which is made a part of the Contract.

☐ Recognize the CONTRACTOR'S change of name.
FROM: ____
____
____
____

TO: ______________________________

____

____

____

As set forth in the documents attached hereto as Exhibit _____ , and incorporated herein.

A tax clearance certificate from the State of Hawaii ☐ is ☐ is not required to be submitted to the STATE prior to commencing any performance under this Supplemental Contract.

A tax clearance certificate from the Internal Revenue Service ☐ is ☐ is not required to be submitted to the STATE prior to commencing any performance under this Supplemental Contract.

The entire Contract, as amended herein, shall remain in full force and effect.

IN VIEW OF THE ABOVE, the parties execute this Contract by their signatures, on the dates below, to be effective as of the date first above written.

FUNDING AGENCY: (if other than contracting agency)

By ______________________________
Signature

PRINT NAME: ______________________________

DIRECTOR OF ______________________________

DATE: ______________________________

STATE

____
(Signature)

____
(Print Name)

____
(Print Title)

____
(Date)

CORPORATE SEAL
(If available)

CONTRACTOR

____
(Name of Contractor)

____
(Signature)

____
(Print Name)

______________________________ *
(Print Title)

____
(Date)

APPROVED AS TO FORM:

____
Deputy Attorney General

* Evidence of authority of the CONTRACTOR'S representative to sign this Contract for the CONTRACTOR must be attached.

CONTRACTOR'S CERTIFICATION OF PAYMENT

I hereby certify, to the best of my knowledge and belief, that:

(1) The amounts requested are only for performance in accordance with the specifications, terms, and conditions of the contract;

(2) Payments to subcontractors and suppliers have been made from previous payments received under the contract, and timely payments will be made from the proceeds of the payment covered by this certification, in accordance with subcontract agreements;

(3) Any money paid to the prime contractor from previous payments have been dispersed to subcontractors and suppliers within ten (10) days after receipt of the money, in accordance with the terms of the subcontract agreements;

(4) This request for progress payments does not include any amounts which the prime contractor intends to withhold or retain from a subcontractor or supplier in accordance with the terms and conditions of the subcontract.

[103-10.5: H.R.S. - Prompt Payment and HUD-5370, General Conditions, Item 27]

**** NOTE: This form shall be submitted with each and every payment request.**

Company Name____

Print Name and Title____

Signature____

Date____________________________ Payment Request No.__________

HHFDC Job #___________________ Contract #___________________

Job Title:____

Form CCP (1 / 98)

CONTRACTOR'S WAIVER AND RELEASE OF LIEN

The undersigned, ____________________ ("CONTRACTOR"), has furnished to Hawaii Housing Finance and Development Corporation ("HHFDC"), labor and materials for incorporation or use in improvements on the following job:

Waiahole – Roadway Maintenance and Repair, Waiahole, Oahu,

Hawaii, HHFDC Job No. 27-001-DEV, situated on real property, being Tax

Keys: (1) 4—8-1, 7, 8, 9, 11, 12:various, located at Waiahole, Oahu, Hawaii.

In order to induce the HHFDC to pay the sum of $_____________, to CONTRACTOR, the undersigned hereby releases the HHFDC, the State, and the owner of the above described real property, from any claims, and do hereby expressly waive and release any and all lien rights which the undersigned have or may have, against the improvements and/or the real property described above under Section 507-41, et seq., Hawaii Revised Statutes, as amended, for the furnishing of labor and/or materials up to and including ___________________.

Dated this ____ day of ___________________, 20___.

CONTRACTOR

By ____________________________
Its

Witness:

____

____
(Address)