

**ADDENDUM NO. 22
TO
PLANS AND SPECIFICATIONS
FOR
HILO WASTEWATER TREATMENT PLANT OUTFALL REPAIRS
JOB NO. WW-4160
AT
HILO, HAWAI'I
COUNTY OF HAWAI'I**

NOTICE TO ALL PROSPECTIVE BIDDERS

The items listed below are made a part of the contract and shall govern the work, taking precedence over the previously issued plans and specifications governing the particular item of work mentioned.

PRE-BID MEETING SUMMARY

The following attached documents summarize the discussions and clarifications provided during the Pre-Bid Meeting conducted on June 7, 2016 for this project.

1. Pre-Bid Minutes (3 pages)
2. Pre-Bid Meeting Roster (1 page)
3. Pre-Bid Agenda (5 pages)

PROPOSAL

DELETE Proposal in its entirety and **REPLACE** with the attached revised Proposal, (15 pages total)

SECTION 01010 – SUMMARY OF WORK

DELETE Section 01010 – SUMMARY OF WORK in its entirety and **REPLACE** with the attached revised Section 01010 – SUMMARY OF WORK, (1 page total).

SECTION 01061 – SAFETY REQUIREMENTS: DIVING

DELETE paragraphs 3.02, C, and 3.02, E, in their entirety.

SECTION 01300 – SUBMITTALS

DELETE Section 01300 – SUBMITTALS in its entirety and **REPLACE** with the attached revised Section 01300 – SUBMITTALS, (10 pages total)

SECTION 02313 – CONCRETE FABRIC FORM

DELETE Section 02313 – CONCRETE FABRIC FORM in its entirety and **REPLACE** with the attached revised Section 02313 – CONCRETE FABRIC FORM, (5 pages total)

SECTION 02537 – DYE TESTING

ADD Section 02537 – DYE TESTING, (2 pages total)

SECTION 02611 – PERSONNEL BOAT & OPERATOR

ADD Section 02611 – PERSONNEL BOAT & OPERATOR, (1 page total)

DRAWINGS

DELETE Plan sheet 5 and **REPLACE** with the attached sheet 5.

BARGE STAGING AREA

The Contractor shall provide adequate space on the construction barge for use by the endangered species monitoring and construction inspection teams. The space provided shall be mutually agreed upon between the Contractor and the inspection teams, and shall be used as an observation and dive platform, as well as a storage area for any necessary equipment, such as SCUBA gear, cameras and inspection tools. The space on the barge will be provided at no extra cost to the contract.

The Contractor shall also provide transportation of team personnel to and from the construction barge at the beginning and end of each work day, as well as on an as-needed basis throughout each day, and shall be paid according to the bid item Personnel Boat & Operator listed in the Proposal.

DYE TESTING

A consultant will be hired by the County to conduct a dye test prior to the start of construction in order to verify the number and location of leaks are consistent with information shown in the plan. In addition, a post construction dye test will be conducted by the Consultant to verify the leaks have been fixed, and such dye test will be considered the official determination of satisfactory leak repair. The post construction dye test shall be completed prior to the contractor beginning the demobilization process.

The Contractor shall be responsible to conduct his own dye test, and shall be paid according to the bid item Dye Testing listed in the Proposal.

CORAL AVOIDANCE AND MINIMIZATION PLAN (CAMP)

The Contractor will be responsible for video recording the coral relocation process.

REQUEST FOR INFORMATION

1. **RFI:** What is the 1% rule?

Response: The 1% rule is a discretionary waiver of the requirement to list a Subcontractor who is doing less than 1% based on cost, of the project work. It was indicated that the County will not grant a discretionary waiver for bids failing to list Subcontractors in accordance with the list of specialty licenses.

2. **RFI:** When is the contract award date?

Response: According to the General Requirements and Covenants, the award of contract will be made within 60 consecutive calendar days after opening the proposals, unless there are unforeseen circumstances that prolong the review period.

3. **RFI:** How much area on the barge does the endangered species monitoring (ESM) and construction inspection (CI) teams need?

Response: The area required by the ESM and CI teams will be minimal, and will be mutually agreed upon between the Contractor and the teams.

4. **RFI:** How many times a day will the ESM and CI team members need to be transported between the shore and the working barge?

Response: See Addendum 22 for SECTION 02611 - PERSONNEL BOAT & OPERATOR bid item for transport of personnel between shore and the work barge.



Warren H. W. Lee, P.E., Director
Department of Public Works
County of Hawai'i

Date Issued: June 16, 2016

Please detach and execute receipt below. Return immediately via facsimile (808) 961-8630 or mail to the Administration Office, Department of Public Works, County of Hawai'i at Aupuni Center, 101 Pauahi Street, Suite 7, Hilo, HI 96720-4224.

Receipt of Addendum No. 22 via website for the HILO WASTEWATER TREATMENT PLANT OUTFALL REPAIRS, Job No. WW-4160, Hilo, Hawai'i, is hereby acknowledged.

Signed _____ Title _____

Firm _____ Date _____



DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

WASTEWATER DIVISION

COUNTY OF HAWAII – 108 RAILROAD AVENUE – HILO, HI 96720
HILO (808) 961-8338 FAX (808) 961-8644

MEMORANDUM OF RECORD

June 7, 2016

**SUBJECT: PRE-BID CONFERENCE MEETING MINUTES
HILO WASTEWATER TREATMENT PLANT OUTFALL REPAIRS
PROJECT NO. WW-4160**

1. Pre-Bid conference for the Hilo Wastewater Treatment Plant Outfall Repairs project was held on June 7, 2016 at 9:00 a.m. at the Department of Environmental Management, 345 Kekūānāō‘a St., Suite 41, Hilo, Hawaii, and was adjourned at approximately 10:00 a.m.
 - Representatives from the County of Hawai‘i Department of Environmental Management, Wastewater Division (WWD), were in attendance to provide information regarding the project and to address Bidder inquiries.
2. A Pre-Bid Meeting agenda was distributed to all attendees outlining the discussion topics relevant to the subject project. Only certain topics were discussed as summarized below.
3. **Special Notice to Bidders and Listing of Subcontractors:**
 - Bidders were notified that they must possess a General Engineering Contractor “A” license and specialty licenses included in the Minimum Contractor Licensing Requirements for Project.
 - Failure to list subs having valid licenses in accordance with the minimum contractor licensing requirements will result in a non-responsive bid and will be automatically disqualified.
 - The WWD informed bidders that the one (1) percent rule in regard to work requiring specialty licenses is a discretionary waiver and is NOT grounds for an automatic waiver. In addition, Contractors were also briefed that the County has no intention of granting discretionary waivers for failure to list subcontractors in accordance with the “Minimum Contractor Licensing Requirements”.
 - Bidders were also advised to list themselves in the List of Subcontractors if the general engineering contractor is performing the specialty work.
4. **Proposal:** The WWD briefed attendees on select topics of the Proposal:
 - Liquidated damages (LD) shall be \$4,000 per day as specified in the Proposal.
5. **Special Provisions:** The WWD briefed Contractors on select topics of the Special Provisions as follows:
6. **Section 01011 – Contract Time:** The WWD discussed the duration of the Basic Bid.
 - Public meeting no later than twenty (20) calendar days after Notice to Proceed, coordinate with the Kaeaukaha Community Meeting Schedule.
 - Material Procurement complete by October 26, 2016.
 - Coral Mitigation October 27, 2016 to November 7, 2016 (10 working days)
 - Outfall Repairs November 8, 2016 to November 18, 2016 (10 working days)
 - Seal Joint Leaks November 8, 2016 to November 18, 2016 (10 working days)
 - Project Complete November 25, 2016

As a follow up to this discussion, the project schedule has been modified and extended. The revised project durations will be included with Addendum 22.

7. **Section 01020 – Contractor’s Staging Area:** The WWD informed that Contractors that adequate space is to be provided on the construction barge for use by the Endangered Species Monitor (ESM) and Construction Inspection (CI) teams, and that the Contractor shall also provide transportation of the ESM and CI team personnel to and from the construction barge at the beginning and end of each work day, as well as an as-needed basis throughout the day.

See RFI Response for additional information regarding this topic.

8. **Section 01030 - Permits:** The WWD informed Contractors that they need to comply with all conditions of all permits issued by the regulatory agencies in connection with all work under this contract. The following permits have been received:

- Hawaii Department of Health Section 401 Water Quality Certification
- United States Army Corps of Engineers Nationwide Permits #12 and #16 issued pursuant to Section 10 of the Rivers and Harbors Act of 1899 and/or Section 404 of the Clean Water Act.

9. **Section 01060 – Safety & Health General and Section 01061 Safety and Health Diving:** Bidders were informed that the forthcoming Addendum 22 is being prepared to delete the requirement for onsite decompression chambers to be provided by the Contractor.

10. **Section 01800 – Qualification of Bidders:** The WWD emphasized that Contractor Key Staff Experience Form must be submitted with the bid package. Failure to submit the required form with the Bid Proposal will result in rejection of the Bid Proposal as a non-responsive bid.

11. **Applicable Monitoring and Assessment Plan (AMAP):**

- County will hire a Consultant to manage the implementation of the AMAP
- Contractor will be responsible to ensure the work does not generate pollution that exceeds the numerical limits established in the AMAP
- Parameters: dissolved oxygen, pH, turbidity, temperature, salinity, and enterococcus (for return water)

12. **Coral Avoidance and Minimization Plan (CAMP)**

- County will hire a Consultant to manage the implementation of the CAMP
- Contractor will relocate existing coral according to the CAMP

13. **Endangered Species Monitoring**

- County will hire a Consultant to monitor endangered species.
- Contractor will be responsible to follow avoidance requirements listed in the permit.
- ED list: green sea turtle, hawksbill turtle, loggerhead turtle, monk seal, humpback whale.

14. **Dye Testing**

- County will hire a consultant to conduct the pre-construction and post-construction dye test
- Consultant’s post-construction dye test will be considered the official determination of satisfactory leak repair
- Contractor is encouraged to conduct his own dye test. Contractor shall submit his dye test procedure to the County prior to conduction the dye test.

See Addendum 22 for the revised Dye Test requirements.

15. **Closing:**

- Reminded all Bidders of the important dates. WWD emphasized that if any of the Bidders has not submitted, or updated their Standard Qualification Questionnaire for Offerors (SQQO), they must do so before the deadline.
- Minutes of pre-bid meeting will be included in an addendum.

Prepared by:

Project Manager

HILO WASTEWATER TREATMENT PLANT OUTFALL REPAIRS
JOB WW-4160
PRE-BID CONFERENCE
June 7, 2016; 9:00 a.m. at the DEM Conference Room
ATTENDANCE ROSTER

No.	Name	Organization				
1	Lyle Hirota WW Deputy Division Chief	COH - WWD				
2	Curtis Bailey Project Manager	COH - WWD				
3	PATRICK ROSS	SEA ENGINEERING				
4	Ali Farshid	COH - WWD				
5	STEVE DOLLAR	MRC				
6	Keith Mackenzie	Healy Tibbitts				
7	Antoinette Nakatawi	COH - WWD				
8	↓					
9						
10						
11						
12						

HILO WASTEWATER TREATMENT PLANT OUTFALL REPAIRS
JOB WW-4160
PRE-BID MEETING
June 7, 2016; 9:00 a.m. at the DEM Conference Room
AGENDA

1. **Sign in and Introduction :**
 - Meeting attendee self-introductions.
2. **Dissemination of Information:**
 - Copies of the Pre-Bid Meeting Agenda provided to all attendees.
3. **Sign-in Roster:**
 - Check all attendees to ensure that they have signed the Pre-Bid Meeting Roster.
4. **Project Scope of Work:**
 - Relocate existing coral located within the work zone to an adjacent area nearby.
 - Install concrete fabric forms at the location shown on the plan.
 - Repair two (2) leaks using chemical grout at locations shown on the plan.

The discussion items listed below are to provide a general overview and direct the Bidders' attention to certain critical items. It is intended to supplement the Bid Documents. It is not intended to replace, override, and waive the requirements of the Bid Documents.

5. **Special Notice to Bidders and Listing of Subcontractors:**
 - To bid on this project, contractor must possess a valid State of Hawaii General Engineering Contractor License "A".
 - Highlight the "Reminder Note" of the Special Notice to Bidders regarding Contractor Licensing Requirements. Remind Contractors that "It is the sole responsibility of the contractor to review the requirements of the project and determine the appropriate licenses that are required to complete the project, and to determine if additional specialty licenses will be required for performance of the work."
 - Direct Bidder's attention to the listing of specialty licenses provided in the Special Notice to Bidders.
 - Highlight the fact that the listing provides minimum contractor licensing requirements for the project and reflects the County's current understanding of the relevant licensing requirements.
 - Highlight the fact that it is still the Contractor's sole responsibility to determine the appropriate licenses required for the project, and that the licenses of their subcontractors are current and valid.
 - Any disagreements with the listing of subcontractors must be made during the Pre-Bid Meeting or by submitting written comments no later than ten (10) consecutive calendar days prior to bid opening.
 - Advise Contractors that failure to list Sub-Contractors having valid licenses will result in automatic disqualification of their bid as a non-responsive bid.
 - Advise Contractors that the "1% Rule", as it is commonly referred to, is actually a discretionary waiver mechanism and is not an automatic waiver.
 - Advise Contractors that the County has no intention of granting discretionary waivers for bids failing to list Sub-Contractors in accordance with the list of specialty licenses.
 - Advise Contractors that if they will be self performing certain specialty work to list their company name and license(s) for easier verification.
 - Address questions, if any, regarding list of specialty licenses.

6. **Proposal:** Bidder's attention is directed to key sections of the Proposal.
- **Proposal Schedule:** The proposal schedule contained under the Basic Bid covers the major work items. Work items listed under the proposal schedule are not intended to be all inclusive. All required and necessary work items which there are no specific pay items shall be considered incidental work and shall be included in the bid prices of the various pay items provided within the proposal schedule.
 - **Method of Award:** Method of Award shall be as specified on Proposal, page 2.
 - **Completion Dates:** Bidders attention is directed to the Proposal, page 2.
 - **Liquidated Damages:** Bidders attention is directed to the Proposal, page 5.
 - **County Overtime Work:**
 - Contractor shall be responsible for overtime charges to the Department of Environmental Management.
 - Overtime charges shall apply for all work performed in excess of 8 hours per day. Work on Saturdays and holidays shall be considered overtime.
 - Overtime charges will be based on \$66.00/hour.
 - **Listing of Subcontractors:**
 - Highlight the fact that the "Complete Firm Name, Contractor's License Number and Classification, and Nature and Scope of Work" are required to be provided. Advise Contractors that if they will be self performing certain specialty work to list their company name and license(s).
 - Failure to list Subcontractors in accordance with the "Minimum Contractor Licensing for Project" for which the Contractor does not hold valid specialty licenses will result in automatic disqualification of the Contractor's bid.
 - **Hawai'i Products Preference:**
 - Contractors desiring to submit a Hawaii product preference for a product not on the SPO's list shall submit an original, completed form SPO-38, Certification for Hawaii Product Preference to the Director, Department of Public Works, County of Hawaii specifically for this project **NO LATER THAN JULY 5, 2016.**
 - **Apprentice Program Preference.** Advise Bidders of requirements and to insure that the required forms are submitted with the Proposal.
 - **Proposal Guaranty (Bid Bond):** Bidders are advised that it is the intent of WWD not to return the Bid Bond should the Bidder decides he is not able to perform the requirements of the Contract, unless the reason(s) is(are) in accordance with the procurement laws.
 - **Contractor Key Staff Experience Form** contained in Section 01800 is required to be submitted with the Bid Proposal. Failure to submit the required form with the Bid Proposal will result in rejection of the Bid Proposal as a non-responsive bid.
7. **Special Provisions:**
- Highlight the fact that the General Requirements and Covenants of the Department of Public Works (July 1972) applies and that the Special Provisions provides amendments.
 - **SP-6, Section 2.5:** Written requests for interpretations and/or clarifications from Contractors shall be submitted no later than fourteen (14) calendar days prior to the date of bid opening. Responses to requests for interpretations and/or clarifications received after the deadline will not be provided.
 - **SP-6, Section 5.6(a).** Plans and Specifications. County will not supply Contractor with hard copies of plans and specifications.
 - **SP-6, Section 5.6(f), Field Office.** A County field office is not required for this project.
 - **SP-6, Section 5.6(g), Project Sign.** Project sign is not required for this project.
 - **SP-6, Section 6.2(a), Substitution of Materials Before Bid Opening.** Request for Substitution will be accepted from Bidders only. Since the time to review request for

substitution will be short, Bidders are advised to make sure that the product they are proposing can be easily compared side by side with the product named as basis of bid.

- **SP-6, Section 7.1(o), Apprentice Program Preference.** Advise Bidders of requirements and to insure that the required forms are submitted with the Proposal.
- **SP-6, Section 7.1(p), Hawaii Resident Requirement.** Advise Bidders of requirement and if awarded the project, Contractor must comply with the reporting requirement.

8. Section 01000 – General Requirements:

- Highlight that the Standard Specifications for Public Works construction (September 1986) and the Standard Details for Public Works Construction (September 1984) are applicable and a part of the Project Specifications, as applicable to this project.
- Highlight the fact that under Section 6.1 Contractor shall have a person on the job site or be represented by a responsible agent with authority to act for the Contractor and the Contractor shall file a written statement giving the names of any and all foremen and employees who are authorized to act on behalf of the Contractor.
 - County will not recognize a Subcontractor. County will hold the Contractor responsible for all acts of a Subcontractor, and will only deal with the Contractor.

9. Section 01010 – Summary of Work:

- The work listed under the Summary are the major components of the project. The list is not intended to be a complete listing of all the work required.

10. Section 01011 – Contract Time:

- The Bidder agrees to complete work within the time periods specified below:
 - Public Meeting no later than twenty (20) calendar days after Notice to Proceed, coordinate with the Keaukaha Community Meeting Schedule.
 - Material Procurement complete by October 26, 2016
 - Coral Mitigation October 27, 2016 to November 7, 2016 (10 work days).
 - Outfall Repairs November 8, 2016 to November 18, 2016 (10 work days).
 - Seal Joint Leaks November 8, 2016 to November 18, 2016 (10 work days).
 - Project Complete November 25, 2016.

11. Section 01020 – Contractor’s Staging Area

- Contractor shall be responsible securing and paying for a staging area and all needed utilities.
- Subject to space availability, Contractor will be allowed to use portion of the Pua SPS parcel. Contractor’s equipment, materials, etc. shall not interfere with the daily operations of the Pua SPS.
- If Contractor desires additional space, Contractor will be allowed to use portion (reasonable area) of the Hilo WWTP.
- Contractor shall provide adequate space on the construction barge for use by the endangered species monitoring and construction inspection teams. Contractor shall also provide transportation of the team personnel to and from the construction barge at the beginning and end of each work day, as well as an as-needed basis throughout the day.

12. Section 01030 - Permits

- The Contractor shall comply with all conditions of all permits issued by the regulatory agencies in connection with all work under this contract. The following permits have been received by the County and are included as part of this contract
 - Hawaii Department of Health Section 401 Water Quality Certification

- United States Army Corps of Engineers Nationwide Permits #12 and #16 issued pursuant to Section 10 of the Rivers and Harbors Act of 1899 and/or Section 404 of the Clean Water Act.
- 13. Section 01060 – Safety and Health General and Section 01061 – Safety and Health Diving**
- Bidders' attention is directed to Section 01061.3.02.C regarding decompression chambers.
 - The forthcoming addendum is being prepared to delete the requirement for onsite decompression chambers to be provided by the Contractor.
- 14. Section 01300 – Submittals**
- Submittals are required and that a "Minimum Submittal List" is provided in Appendix A of the Section.
 - i. Highlight that Appendix A does not relieve the Contractor from providing any additional Submittals required by the Standard Specifications, Standard Details, or Project Specifications.
- 15. Section 01310 – Construction Schedule**
- Adherence to the Construction Schedule is essential in order to ensure that the project is completed within the required timeframe stated in the Proposal.
 - Work days and work hours is Monday through Saturday, ten (10) hours per day.
 - Contractor is responsible for WWD overtime for all hours in excess of 8 hours on week days, and all hours on Saturdays and holidays.
 - No work on Sundays unless approved in writing by the County.
- 16. Section 01380 – Photographs**
- Pre-Construction, Construction Progress, and Post-Construction Photographs are required to be taken, cataloged and provided to the WWD at the appropriate time.
- 17. Section 01620 – Storage and Protection of Materials.**
- Bidders' attention is directed to the requirements.
- 18. Section 01720 – Record Drawings**
- Two (2) sets of marked record drawings are required to be provided prior to project acceptance.
 - Final Reproducible Record Drawing on vellum and in electronic format is required to be provided by the contractor prior to final payment.
- 19. Section 01800 – Qualification of Bidders**
- Bidders' attention is directed to the requirement to submit Contractor's Key Staff Experience Form with the bid package.
 - Ensure that all information listed is current. If the County is not able to contact the references listed, it will result in a determination that the bid is a non-responsive bid and rejection of the bid proposal.
- 20. Section 01810 – Information Available to Bidders**
- Videos, including outfall pipe inspections and dye testing, can be downloaded from the following FTP site:
 - <ftp://ftp.hostedftp.com/~dpw/WW-4160>
 - Disclaimer: Information is being provided to Bidders as reference materials for their use in formulation their bids. Bidders shall be solely responsible in making their own independent determination and interpretation regarding the condition of the existing outfall.

21. **Section 01900 – US Coast Guard Regulations**
 - Bidders' attention is directed to the requirements.
22. **Section 02311 – Geotextile Filter Fabric**
 - Bidders' attention is directed to the requirements.
23. **Section 02313 – Concrete Fabric Form**
 - Bidders' attention is directed to the requirements.
24. **Section 03313 – Grout Injection**
 - Bidders' attention is directed to the requirements.

25. **Applicable Monitoring and Assessment Plan (AMAP)**
 - County will hire a Consultant to manage the implementation of the AMAP
 - Contractor will be responsible to ensure the work does not generate pollution that exceeds the numerical limits established in the AMAP
 - Parameters: dissolved oxygen, pH, turbidity, temperature, salinity, and enterococcus (for return water)

26. **Coral Avoidance and Minimization Plan (CAMP)**
 - County will hire a Consultant to manage the implementation of the CAMP
 - Contractor will relocate existing coral according to the CAMP

27. **Endangered Species Monitoring**
 - County will hire a Consultant to monitor endangered species.
 - Contractor will be responsible to follow avoidance requirements listed in the permit.
 - ED list: green sea turtle, hawksbill turtle, loggerhead turtle, monk seal, humpback whale.

28. **Dye Testing**
 - County will hire a consultant to conduct the pre-construction and post-construction dye test
 - Consultant's post-construction dye test will be considered the official determination of satisfactory leak repair.
 - Contractor is encouraged to conduct his own dye test. Contractor shall submit his dye test procedure to the County prior to conducting the dye test.

29. **Site Visit:** Given that the project is located offshore in open waters, a site visit will not be conducted.

30. **Questions:** Open floor to Q&A

31. **Closing:**
 - Remind Bidders of important dates:
 - i. RFIs and Substitution Requests, June 30, 2016.
 - ii. Intent to Bid, 10 calendar days from bid opening.
 - iii. Hawaii Product Preference self-certification, July 5, 2016.
 - iv. Last addendum, July 7, 2016.
 - v. SQQO, no less than 48 hours prior to 2:00 pm bid opening
 - vi. Bid Opening, July 14, 2016 at 2:00 pm
 - Provide copy of the Attendance Roster to all Attendees.
 - Advise Attendees that a copy of the Pre-Bid Meeting Minutes will be issued via Addendum.

PROPOSAL
FOR
HILO WASTEWATER TREATMENT PLANT OUTFALL REPAIRS
SOUTH HILO, HAWAI'I
COUNTY AND STATE OF HAWAI'I
JOB NO. WW-4160

The Honorable William P. Kenoi, Mayor
County of Hawai'i
Hilo, Hawai'i

Sir:

The undersigned Bidder hereby proposes to furnish and pay for all materials, tools, transportation, equipment, labor and other incidental work necessary to construct and complete in place the "HILO WASTEWATER TREATMENT PLANT OUTFALL REPAIRS," Job No. WW-4160, South Hilo, Hawai'i, together with equipment and all necessary appurtenances and work incidental thereto in accordance with the true intent and meaning of the plans, Notice to Bidders, Proposal, Wage Rate Schedule, General Specifications, and Detail Specifications, made a part of these specifications; and Standard Specifications for Public Works Construction (September, 1986) and General Requirements and Covenants (July, 1972), made a part of these specifications by reference; and any other form of pertinent proposed contract documents which have been attached herein and hereby made a part of the project specifications and contract documents, which are on file in the Administration Office, Department of Public, Works, City of Hilo, County and State of Hawai'i, for the Total Basic Bid of:

_____ DOLLARS (\$_____).

The Bidder agrees to complete work within the time periods specified below including the date of commencement as specified in a written order by the Director, Department of Public Works, County of Hawai'i.

Public Meeting: No later than twenty (20) calendar days after Notice to Proceed, coordinate with the Keaukaha Community Meeting Schedule
Project Complete: December 15, 2016

It is mutually agreed by and between the parties hereto that time shall be an essential part of this contract and that in case of the failure on the part of the Bidder to complete his work within the time specified and agreed upon, the Bidder hereby agrees to pay the County liquidated damages as set forth in this Proposal.

In the event that the Bidder encounters circumstances beyond his control that interfere with the ability to complete the work, the Bidder shall immediately notify the County. Such circumstances include, but are not limited to:

1. delays caused by unsuitable weather, large tidal events, high surf conditions, presence of endangered species, acts of God, acts of the public enemy, fire, floods, epidemics, quarantine restrictions, strikes or walkouts, and freight embargos,
2. delays caused by the discovery of unknown historic, cultural or archaeological remains or artifacts,
3. delays caused by permit revocation due to regulatory changes or the issuance of new State Water Quality Standards.

If the County determines that the failure to comply with the timelines specified above was due to circumstances beyond the control of the Bidder, the County shall grant an extension to the contract time in equal proportion to the number of days the Bidder was delayed.

Work Days and Work Hours for this project shall be Monday through Saturday, ten (10) hours per day. The Contractor shall be responsible for payment of overtime charges to the Department of Environmental Management. Overtime charges shall be based on \$66.00/hour.

It is understood that the award of the contract shall be based on the lowest Basic Bid.

PROPOSAL SCHEDULE
HILO WASTEWATER TREATMENT PLANT OUTFALL REPAIRS
SOUTH HILO, HAWAI'I

BASIC BID

Item No.	Approx. Qty.	Unit	Description	Unit Bid Price	Amount Bid
1	2	EA	Public Meetings	\$_____	\$_____
2	1	LS	Project Photos	Lump Sum	\$_____
3	5	DAY	Relocate existing coral located within the work zones to an adjacent area, including all incidentals required to do the work.	\$_____	\$_____
4	1	LS	Repair of segment with undercutting, Sta. 41+54 to Sta. 41+92, including concrete fabric form, geotextile filter fabric, concrete, toe trench excavation, preparation of subgrade, per Detail 3/C-2 including all incidentals and appurtenances, complete in place.	Lump Sum	\$_____
5	4	EA	Concrete testing by 3rd party firm including sampling, specimen (set of 4 cylinders) and laboratory work.	\$_____	\$_____
6	1	LS	Repair of leak point at Sta. 8+55, including all incidentals and appurtenances, complete in place.	Lump Sum	\$_____
7	1	LS	Repair of leak point at Sta. 41+46, including all incidentals and appurtenances, complete in place.	Lump Sum	\$_____
8	1	LS	Work required to meet conditions of Permits from the Department of Army and State Department of Health.	Lump Sum	\$_____
9	10	LS	Dye testing during the repair of leak points Sta. 8+55 and Sta. 41+46, including all incidentals and appurtenances to complete the testing	Lump Sum	\$_____

10	1	LS	Personnel Boat & Operator	Lump Sum	\$ _____
11	1	LS	Mobilization/Demobilization, maximum allowed for this item is 6% of Items 1 to 10	Lump Sum	\$ _____

TOTAL BASIC BID \$ _____

Clarifications to Proposal Schedule.

1. All required and necessary items to complete the project which there are no specific pay items shall be considered incidental costs to the various pay items in the Proposal Schedule.

The Director also reserves the right, during construction, to decrease or increase the scope of work, because of limitations of funds, with no adjustment in unit prices other than that specified hereinabove.

It is also understood and agreed that the quantities for any item on which a Lump Sum bid is required in this proposal are approximate only and that payment will be made only for the item in place complete, regardless of the amount of material, equipment and labor necessary to complete the same in a proper and workmanlike manner and in accordance with the Plans and Specifications. No guaranty is given that the quantities in the Lump Sum items are more than approximately correct as the quantities shown distributed in the Lump Sum items are given only for the purpose of making monthly estimates. The Bidder and/or Contractor shall verify these quantities in any manner he deems necessary or expedient.

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

It is also understood and agreed that if the product of the Unit Price bid by the number of units does not equal the total amount named by the Bidder for any item, it will be assumed that

the error was made in computing the total amount and for the purpose of computing the lowest Bidder, the named Unit Price alone will be considered as representing the Bidder's intention and the total amount bid on such item shall be considered at the amount arrived by multiplying the Unit Price by the number of Units.

It is understood and agreed that the Director reserves the right to increase or decrease the quantities given in the Proposal in order that the award may be made within the funds allocated for this project.

It is understood and agreed that the liquidated damages shall be as set forth in the Requirements and Covenants of the County of Hawai'i (July, 1972) as amended per Special Provisions and determined for this Project to be as follows:

Basic Bid	\$4,000.00 per calendar day
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It is also understood and agreed that the Director reserves the right to accept or reject any and all bids and to waive any and all defects and informalities, when in his opinion, such rejection or waiver will be for the best interest of the County of Hawai'i.

It is also understood and agreed that the award of the contract hereunder shall be conditioned upon the Director having the right to hold all bids for a period of ninety (90) consecutive calendar days from the opening hereunder unless otherwise required by law, during which time no bid may be withdrawn.

The Bidder hereby agrees that if he is awarded this contract, he will enter into and execute the same within ten (10) days from the date of notice to award and furnish a bond in the amount and character required within the time specified by the specifications Section 103D-324, Hawai'i Revised Statutes.

The Bidder represents that he () has, () has not, participated in a previous contract or subcontract subject to the Equal Employment Opportunity Clause of Executive Order 11246 of September 24, 1965, as amended October 31, 1967; that he () has, () has not, filed all required compliance reports; that he () has, () has not, an affirmative action program on equal employment opportunity; that he will, if required, furnish a written Affirmative Action Program; and that representations including submission of required compliance reports, signed by proposed subcontractors, will be obtained prior to the contract awards.

The Bidder further represents that he will, if required submit and require proposed subcontractors to submit a compliance report prior to the award of the contract or subcontract and a written Affirmative Action Program, if required, within a specified time after award.

The Bidder further agrees that if awarded the contract and if he FAILS to enter into and execute the contract and furnish the required bond within the specified time, the county may determine the bidder has abandoned the contract and thereupon forfeiture of the security accompanying his proposal shall operate and the same become property of the County of Hawai'i.

The Bidder further understands and agrees that by submitting this proposal, 1) he/she is declaring his/her proposal is not in violation of Chapter 84, Hawai'i Revised Statutes, concerning prohibited State contracts, and 2) he/she is certifying that the price(s) submitted was/were independently arrived at without collusion.

Substitution of Retainage. Pursuant to Section 103-32.2, Hawai'i Revised Statutes, the contracting officer may enter into agreement with the Contractor which will allow the Contractor to withdraw from time to time the whole or any portion of the sum retained under Section 103-32.1 upon depositing with the contracting officer any general obligation bond of the State of Hawai'i or counties of Hawai'i, Maui, Kauai or City and County of Honolulu with a market value of not less than the sum to be withdrawn. A certificate of market value from a bank or trust company or stock brokerage firm must be submitted with the bond. If registered bonds are used, they must be assigned irrevocably to the County of Hawai'i.

1. **All Bidders** shall submit Contractor's Key Staff Experience Form contained within the SECTION 01800 of the Specifications **with the bid package**. Failure to submit the required forms will result in a determination that the bid is a **NON-RESPONSIVE bid and rejection of the bid proposal**.

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Enclosed herewith is:

- | | | |
|-------|----|--|
| CROSS | 1. | Legal Tender |
| OUT | 2. | Certificate of Deposit |
| THREE | 3. | Certified Check |
| | 4. | Surety Bond according to Section 103D-323, Hawai'i Revised Statutes and Chapter 3-122, Subchapter 24, Hawai'i Administrative Rules.' |

for the sum of _____

_____ DOLLARS (\$ _____)

being not less than the sum required under Section 103D-323, Hawai'i Revised Statutes and Chapter 3-122, Subchapter 24, Hawai'i Administrative Rules, payable to County of Hawai'i, Director of Finance.

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The Bidder represents: **(Check \surd one only)**

A **Hawai'i business** incorporated or organized under the laws of the State of Hawai'i;

OR

A **Compliant Non-Hawai'i business** not incorporated or organized under the laws of the State of Hawai'i, but registered at the State of Hawai'i, Department of Commerce and Consumer Affairs Business Registration Division to do business in the State of Hawai'i.

State of incorporation: _____

Offeror is:

Sole Proprietor Partnership Corporation

Joint Venture Other _____

Federal I.D. No.: _____

Hawai'i General Excise Tax License I.D. No.: _____

Business street address: _____

City, State, Zip Code: _____

Payment address (if different than business street address above): _____

City, State, Zip Code: _____

Telephone No. _____

Facsimile No. _____

Email Address _____

Date: _____

Respectfully submitted,

Authorized (Original) Signature of Bidder

Print Name

Print Title

(If by Individual or Partner)

Name

(If by Corporation)

*Exact Legal Name of Company (Offeror)

*If Offeror is a “dba” or a “division” of a corporation, furnish the exact legal name of the corporation under which the awarded contract will be executed:

**President

(SEAL)

** Please attach to this page evidence of the authority of this officer to submit bid on behalf of the company, giving also his address and the names and addresses of the Vice-President and Secretary.

NOTE: Fill in all blank spaces with the information asked for or bid may be invalidated. Reference is made to Article 2.7 (Preparation of Proposal) of the General Requirements and Covenants (July, 1972).

HAWAI‘I APPRENTICESHIP PREFERENCE

Section 103-55.6, Hawai‘i Revised Statutes, as enacted by S.B. 19, Act 17, SLH 2009, provides for a Hawai‘i Apprenticeship Preference for public works construction projects with estimated values of \$250,000.00 or greater. The preference shall be in the form of a five percent (5%) bid adjustment applied to the Bidder’s bid amount.

Any Bidder seeking the Hawai‘i Apprenticeship Preference for the purpose of this bid shall:

- (1) be a party to an apprenticeship program registered with the State Department of Labor and Industrial Relations (DLIR) at the time of its bid for each apprenticeable trade the Bidder will employ to construct the public works project for which the bid is made; and
- (2) completely fill-in the Schedule of Project Apprenticeship Trades attached here to attesting to the trades the Bidder will employ to perform the work; and
- (3) for each apprenticeable trade the Bidder will employ for this project, submit with its bid fully executed and authorized CERTIFICATION OF BIDDER’S PARTICIPATION IN APPROVED APPRENTICESHIP PROGRAM UNDER ACT 17 (FORM 1) form(s) issued by the DLIR verifying participation in apprenticeship program(s) registered with DLIR; and
- (4) fully execute the certification below.

Failure to comply with ALL of the conditions noted above, without exception, shall disqualify the Bidder from qualifying for, and thus receiving, benefit of the Hawai‘i Apprenticeship Preference.

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

Upon successful verification of the Bidder’s executed Form I documents submitted with its bid, the Director will apply the Hawai‘i Apprenticeship Preference and decrease the Bidder’s total bid amount by five percent (5%) for evaluation purposes only. The Hawai‘i Apprenticeship Preference will apply in conjunction with other statutory preferences (i.e., Hawai‘i Products Preference).

While preference for Hawai‘i Apprenticeship will be taken into consideration to determine the low bidder, the contract awarded shall be in the amount of the bid, exclusive of any preferences.

Upon applying for the Hawai‘i Apprenticeship Preference, the Contractor shall certify each month that work is being conducted on the project, that it continues to be a participant in the relevant apprenticeship program for each trade it employs. Said monthly certification shall be made on MONTHLY REPORT OF CONTRACTOR’S PARTICIPATION IN APPROVED APPRENTICESHIP PROGRAM UNDER ACT 17 (FORM 2) form issued by the DLIR. Failure or refusal of the contractor to submit its monthly certification forms, or at any time during the construction of the project, cease to be a party to a registered apprenticeship agreement for each apprenticeable trade the contractor employs, the contractor will be subject to the sanctions afforded by law, as determined by the Director.

This preference shall not apply if it will be in conflict with any Federal Law or if it would disqualify any County Agency from receiving federal funds or aid. FORM 1 and FORM 2 (referenced above) and the List of Construction Trades in Registered Apprenticeship Program and the List of Persons Authorized to Certify Contractor Participation in Apprenticeship Programs (Act 17) are available on DLIR’s Workforce Development Division’s website at: <http://labor.hawaii.gov/wdd/home/employers/apprenticeship/resources/>

I do hereby attest that it is our intention to apply for the Hawai‘i Apprenticeship Preference, that we satisfy all of the requirements to qualify for the preference, and that we shall comply with all applicable requirements conferred upon us by receiving this preference for the duration of the contract; and

I do hereby state that all of the information provided in the attached Schedule of Project Apprenticeship Trades is true and accurate:

Name: _____

Its: _____

Signed: _____

Date: _____

SCHEDULE OF PROJECT APPRENTICESHIP TRADES

APPRENTICEABLE TRADES (as of 03/20/13) Refer to : http://labor.hawaii.gov/wdd/home/employers/apprenticeship/resources/	Bidder intends to employ a person or persons of the following trades in the performance of this project: (Initial below accordingly)	
	YES	NO
Boilermaker		
Bricklayer-Mason		
Carpenter		
Cement Finisher		
Construction Craft Laborer		
Construction Equipment Operator		
Drywall		
Electrical Wireperson		
Electrician		
(Electrician) Wireperson		
Elevator Constructor		
Fire Sprinkler Fitter		
Floor Layer		
Glazier		
Heat and Frost Asbestos Insulator		
Heavy Duty Repairman and Welder		
Ironworker Shop Fabricator/Welder		
Ironworker (Reinforcing)		
Ironworker (Structural)		
Painter		

SCHEDULE OF PROJECT APPRENTICESHIP TRADES (cont'd)

APPRENTICEABLE TRADES (as of 03/20/13) Refer to : http://labor.hawaii.gov/wdd/home/employers/apprenticeship/resources/	Bidder intends to employ a person or persons of the following trades in the performance of this project: (Initial below accordingly)	
	YES	NO
Paving Equipment Operator		
Plasterer		
Plumber		
Pointer-Caulker-Weatherproofer		
Refrigeration Air-Conditioning		
Roofer		
Sheet Metal Worker		
Steamfitter/Welder		
Stone Mason		
Taper		
Telecommunication/CATV Installer Technician		
Tile Setter		
Truck Operator and Driver		

NOTE: The above listed trades are provided for the convenience of the Bidder and are based on the information available as of the date noted in the schedule's header. It shall be the Bidders responsibility to add, delete or appropriately amend the list to reflect the apprenticeable trades recognized by the State Department of Labor and Industrial Relations at the time Bidder's bid is made. Blank rows are provided in the above for this purpose.

HAWAI'I PRODUCT PREFERENCE

In accordance with Section 103D-1002, Hawai'i Revised Statutes, the Hawaii Products Preference is applicable to this bid. Hawaii products may be available for certain work required for construction of this project. The Hawaii products list is available on the State Procurement Office's ("SPO") website at <http://spo.hawaii.gov/for-vendors/hawaii-product-preferences/>. For further information about the manufacturer(s), click on the manufacturer(s) that is/are listed.

Bidders' attention is directed to the Special Provisions, Section 10 (Preferences), Subsection A (Preference for Hawai'i Products).

Bidders intending to include in their bids products that are NOT on the State Procurement Office's Hawaii Products List ("HPL") are directed to the section of these specifications titled "NOTICE TO PROVIDERS AND PROSPECTIVE PROVIDERS OF HAWAII PRODUCTS."

Determination of the low bidder will be based on the preference in effect at the time of bid opening. As of October 1, 2010, a ten percent (10%) preference is established for Class I Hawai'i products (provided that Hawai'i input exceeds 50%) and a fifteen percent (15%) preference is established for Class II Hawai'i products. The total bid, taking this preference into consideration and providing for additional bid criteria or preferences applicable to the project, shall be utilized in determining the apparent low bidder on the project. However, the contract amount shall be the amount of the bid offered exclusive of the preference.

Bidders shall completely fill-in the following SCHEDULE OF HAWAII PRODUCT PREFERENCE CLAIMS in accordance with the following instructions:

1. "Cost" shall be the total cost of furnishing the Hawaii product F.O.B. jobsite, unloaded, including applicable general excise tax and use taxes.
2. "Credit" shall be the quotient of the "Cost" and "%" values for each Hawaii product on this schedule. Where necessary, round up to the nearest penny.
3. Meanings of all other terms appearing on the Schedule shall be consistent with the SPO's HPL.
4. Fill-in all information neatly, legibly and completely. Abbreviations are acceptable provided no ambiguity is created by their use.

Bidders may copy the attached schedule and attach additional sheets as necessary.

The Director reserves the right to disqualify individual line item preferences claimed by the Bidder on the attached schedule due to use of non-certified Hawaii products; provision of inaccurate or incomplete information; or any other inconsistency or omission that may affect the award of the contract. The Bidder will be notified by the Director of any such disqualifications prior to award.

SCHEDULE OF HAWAII PRODUCT PREFERENCE CLAIMS									
CERTIFIED HAWAII PRODUCT							PREFERENCE		
Product Category	Class (I or II)	Manufacturer	Product & Description	Quantity	Unit	Cost (A)	% (B)	Credit (A x B)	
						\$ _____	_____	\$ _____	
						\$ _____	_____	\$ _____	
						\$ _____	_____	\$ _____	
						\$ _____	_____	\$ _____	
						\$ _____	_____	\$ _____	
						\$ _____	_____	\$ _____	
						\$ _____	_____	\$ _____	
TOTAL:									\$ _____

SECTION 01010

SUMMARY OF WORK

1.01 PROJECT DESCRIPTION

The project includes all required labor, equipment, materials, and services related to the Hilo Wastewater Treatment Plant Outfall Repairs. Work includes the following general scope of work and it is not intended as a complete listing of all work to be performed. The Contractor shall refer to detailed plans and specifications for all work to be performed. The work includes, but is not limited to:

1. Relocate existing coral within the areas of leak repairs and pipe segment undercutting repairs.
2. Repair leak points at Sta. 8+55 and Sta. 41+46.
3. Conduct dye test during the repair of leak points.
4. Repair segment with undercutting at Sta. 41+54 to Sta. 41+92.

Contractor shall hold two (2) public meetings to provide information to the general public of the upcoming work.

Public Meeting shall be coordinated by the Contractor. Contractor shall provide listing of proposed attendees, secure written comments from the County, prior to mailing and notification. Contractor on site project personnel (minimum project manager or superintendent and foreman) shall attend the public meeting. Major subcontractors are encouraged, but not required, to attend.

As part of the notification, the Contractor shall arrange and pay for a total of four (4) notices in the Hawaii Tribune Herald.

County will provide the meeting room at no charge to the Contractor. Contractor shall be responsible for all handouts, visual aids and other equipment needed to conduct the meeting.

Public meeting shall be paid in accordance with the Proposal Schedule.

****END OF SECTION****

SECTION 01300

SUBMITTALS

1.01 GENERAL

- A. Where required by the Standard Specifications for Public Works Construction, September 1986 and/or the Detailed Specifications, the Contractor shall submit descriptive information which will enable the Engineer to advise the County whether the Contractor's proposed materials, equipment or methods of work are in general conformance to the design concept and in compliance with the drawings and specifications.
- B. The information to be submitted shall consist of drawings, specifications, descriptive data, certificates, samples, test results and such other information, all as specifically required in the specifications.

2.01 CONTRACTOR'S RESPONSIBILITIES

A. GENERAL

- 1. The Contractor shall be responsible for the accuracy and completeness of the information contained in each submittal and shall assure that the material, equipment or method of work shall be as described in the submittal. Submittals shall contain all required information, including satisfactory identification of items, units, and assemblies in relation to the contract drawings and specifications. The Contractor shall verify that the material and equipment described in each submittal conform to the requirements of the specifications and drawings.
- 2. Unless otherwise approved by the Engineer, submittals shall be made only by the Contractor, who shall indicate by a signed stamp on the submittals, that it (the Contractor) has checked the submittals, and that the work shown conforms to contract requirements and has been checked for dimensions and relationship with work of all other trades involved.
- 3. If the information shows deviations from the specifications or drawings, the Contractor, by statement in writing accompanying the information shall identify the deviations and state the reason(s) for the deviation(s).
- 4. The Contractor shall insure that there is no conflict with other submittals and shall notify the Engineer in each case where its submittal may affect the work of another contractor or the County. The Contractor shall insure coordination of submittals among the related crafts and subcontractors.

5. The Contractor may authorize in writing a material or equipment supplier to deal directly with the Engineer or with the County with regard to a submittal. The Contractor, however, shall be responsible for the accuracy and completeness of information contained in all submittals.
6. All equipment and manufacturer's instruction submittals, including follow-up submittals, shall be submitted no later than 30 days following the Notice to Proceed nor later than necessary to procure the item or avoid schedule delays as established in the Contractor's construction schedule.

2.02 SUBMITTAL SCHEDULE

- A. The Contractor shall provide a submittal schedule to allow coordination of review of the submittals in order that work may be accomplished within the specified contract time. Submittal Schedule shall be provided within ten calendar (10) days after award of the Contract.
- B. A list of submittals required for this project is found in Appendix A herein. The list is provided as a guide for the Contractor and does not relieve the Contractor from providing any additional submittals which may be required to be provided in accordance with the Standard Specifications for Public Works Construction, September 1986 and/or the Detailed Specifications.

2.03 TRANSMITTAL PROCEDURE

A. GENERAL

1. Submittals regarding material shall be accompanied by Transmittal Form.
2. A separate form shall be used for each specific item, class of material, and items specified in separate, discrete sections, for which the submittal is required.
3. Submittals of various items shall be made with a single form when the items taken together constitute a manufacturer's package or are so functionally related that expediency indicates checking or review of the group or package as a whole.
4. A unique number, sequentially assigned, shall be noted on the transmittal form accompanying each item submitted. Original submittal numbers shall have the following format: "XXX"; where "XXX" is the sequential number assigned by the Contractor.
5. Re-submittals shall have the following format:

"XXX-Y"; where "XXX" is the originally assigned submittal number and "Y" is a sequential letter assigned for re-submittals, i.e., A, B, or C being the 1st, 2nd, and 3rd re-submittals, respectively. Submittal 25B, for example, is the second re-submittal of submittal 25.

- B. Submittals shall be sent to the following address:

County of Hawaii
Department of Environmental Management
Wastewater Division
108 Railroad Avenue
Hilo, HI 96720

Attention: Ms. Dora Beck, P.E., Division Chief

- C. DEVIATION FROM CONTRACT

1. If the Contractor proposes to provide material which does not conform to the specifications and drawings, it shall indicate so under "deviations" on the submittal transmittal form accompanying the submittal copies. The Contractor shall prepare its reason for a change, including cost and time differential.

- D. SUBMITTAL COMPLETENESS

1. Submittals which do not have all the information required to be submitted, including deviations, shall be considered as not complying with the intent of the contract and are not acceptable and will be returned without review.

2.04 SUBMITTAL REQUIREMENTS

- A. Submit shop drawings, manufacturers' data and certificates for equipment, materials, finish and pertinent details for each system and have them approved before procurement, fabrication or delivery of the items to the job site.
- B. Partial submittals will not be acceptable and will be returned without review.
- C. Submittals shall include the manufacturer's name, trade name, catalog model or number, nameplate data, size, layout dimensions, capacity, project specification and paragraph reference, applicable industry and technical society publication references and other information necessary to establish contract compliance of each item the Contractor proposes to furnish.

D. Contractor Authority:

1. Submit a written certificate, dated and signed by an authorized corporate officer of the Contractor who is either a full-time employee, principal, or a full-time partner delegated with the authority to bind the Contractor in all matters relating to its professional work of the Contractor, evidencing the performance of any portion of the work, or any testing; as a condition precedent to the acceptance of any work or the result of any test.
2. Corporate credentials shall be furnished concurrently with applicable written certificates.

E. SHOP DRAWINGS

Drawings shall be ANSI D (22 inches by 34 inches) in size, except as specified otherwise.

1. Drawings shall include floor plans, sectional views, installation details of equipment; and equipment spaces identifying and indicating proposed location, layout and arrangement of items of equipment, accessories, piping and other items that must be shown to assure a coordinated installation.
2. Drawings shall indicate adequate clearance for operation, maintenance and replacement of operating equipment devices. If equipment is disapproved, drawings shall be revised to show acceptable equipment and be resubmitted.
3. The Contractor shall review, stamp with his approval and submit, all Shop Drawings required by the Contract Documents or subsequently by the Engineer as covered by modifications. By approving and submitting Shop Drawings, the Contractor certifies that he has determined and verified all field measurements and obstructions, field construction criteria, materials, catalog numbers and similar data, that he has checked and coordinated each Shop Drawing with the requirements of the work and of the Contract Documents and that all equipment fits within designated spaces.
4. At the time of submission, the Contractor shall inform the Engineer in writing of any deviation in the Shop Drawings from the requirements of the Contract Documents.

F. MANUFACTURER'S DATA

1. Submittals for each manufactured item shall be manufacturers' descriptive literature of cataloged products, equipment drawings, diagrams, performance and characteristic curves and catalog cuts.

G. STANDARDS COMPLIANCE

1. When materials or equipment must conform to the standards of organizations such as the American National Standards Institute (ANSI), American Society for Testing and Materials (ASTM), National Electrical Manufacturers Association (NEMA) and Underwriters Laboratories (UL), proof of such conformance shall be submitted to the Engineer for approval.
2. If an organization uses a label or listing to indicate compliance with a particular standard, the label or listing will be acceptable evidence, unless otherwise specified in the individual sections.
3. For materials and equipment whose compliance with organizational standards or specifications is not regulated by an organization using its own listing or label as proof of compliance, a certificate of compliance from the manufacturer shall be submitted for approval. The certificate shall identify the manufacturer, the product and the referenced standard and shall simply state that the manufacturer certifies that the product conforms to all requirements of the project specification and of the referenced standards listed.

H. CERTIFIED TEST REPORTS

1. Before delivery of materials and equipment, certified copies of all test reports specified in the individual section shall be submitted for approval.
2. Whenever a regulatory agency performs inspections or tests of any portion of the work, a written certificate shall be furnished by the Contractor to validate the results from the respective inspection test.

I. CERTIFICATES OF CONFORMANCE OR COMPLIANCE

1. A certification from the manufacturer attesting that materials and equipment to be furnished for this project comply with the requirements of this specification and of the reference publications shall be provided.
2. Preprinted certifications will not be acceptable; certifications shall be in the original.
3. The certification shall not contain statements that could be interpreted to imply that the product does not meet all requirements specified, such as "as good as"; "achieve the same end use and result as materials formulated in accordance with the referenced publication," "equal or exceed the service and performance of the specified material."

4. The certification shall clearly state that the product conforms to all of the requirements specified.
5. Whenever a regulatory agency performs inspections or tests of any portion of the work, a written certificate shall be furnished by the Contractor to validate the results from the respective inspection test.

J. SAMPLES AND TESTING

1. Where required in the Specifications, and as determined necessary by the Engineer, samples of materials, appliances, and fittings to be used or offered for use in connection with the work shall be submitted to the Engineer at the Contractor's expense, with information as to their sources, with all cartage charges prepaid, and in such quantities and sizes as may be required for proper examination to establish the quality or equality thereof, as applicable.
2. All samples shall be submitted in ample time to enable the Engineer to make any examinations necessary, without delay to the work. The Contractor will be held responsible for any loss of time due to his neglect or failure to deliver the required samples to the Engineer, as specified.
3. Samples also shall be taken during the course of the work, as required by the Engineer.
4. Laboratory tests and examinations that the County elects to make in its own laboratory will be made at no cost to the Contractor, except that, if a sample of any material or equipment proposed for use by the Contractor fails to meet the Specifications, the cost of testing subsequent samples shall be borne by the Contractor.
5. All tests required by the Specifications to be performed by an independent laboratory shall be made at the sole expense of the Contractor.
6. Material used in the work shall conform with the submitted samples and test certificates as approved by the Engineer.

3.01 CATEGORIES OF SUBMITTALS

A. GENERAL:

Submittals fall into two general categories; submittals for review and comment, and submittals which are primarily for information only. Submittals which are for information only are generally specified as PRODUCT DATA in Part 2 of applicable specification sections.

B. SUBMITTALS FOR REVIEW AND COMMENT:

All submittals except where specified to be submitted as product data for information only shall be submitted by the Contractor to the Officer-in-Charge for review and comment.

C. SUBMITTALS (PRODUCT DATA) FOR INFORMATION ONLY:

Where specified, the Contractor shall furnish submittals (product data) to the Officer-in-Charge for information only.

3.02 REVIEW PROCEDURE

Submittals are specified for those features and characteristics of materials, equipment, and methods of operation which can be selected based on the Contractor's judgment of their conformance to the specified requirements. Other features and characteristics are specified in a manner which enables the Contractor to determine acceptable options without submittals. The review procedure is based on the Contractor's guarantee that all features and characteristics not requiring submittals conform as specified. Review shall not extend to means, methods, techniques, sequences or procedures of construction, or to verifying quantities, dimensions, weights or gages, or fabrication processes (except where specifically indicated or required by the project manual) or to safety precautions or programs incident thereto. Review of a separate item, as such, will not indicate approval of the assembly in which the item functions.

A. When the contract requires a submittal, the Contractor shall submit the specified information as follows to the Engineer for review:

1. One reproducible original of all the submitted information.
2. Five (5) copies of all the submitted information.
3. Two (2) sets of sample materials need be submitted, unless otherwise directed by the Engineer.
4. Two (2) CD-ROMs of all submittal data shall be provided in Electronic Format (Adobe Acrobat and/or AutoCAD format) prior to final payment for the project. The electronic copy shall include all correspondence regarding the submittal and shall include signatures approving or disapproving the submittal.
 - a. Each submittal item shall be cataloged separately identified by the Submittal Number and a Brief Description of the submittal item.

B. Unless otherwise specified, within fifteen (15) calendar days after receipt of the submittal by the Engineer, the submittal shall be reviewed and the Engineer shall return two (2) copies of the marked-up reproducible original noted in A.1 above.

The reproduction original will be retained by the Engineer. The returned submittal shall indicate one of the following actions:

1. If the review indicates that the material, or work method is in general conformance with the design concept and complies with the drawings and specifications, submittal copies will be marked "NO EXCEPTIONS TAKEN". In this event the Contractor may begin to implement the work method or incorporate the material or equipment covered by the submittal.
 2. If the review indicates limited corrections are required, copies will be marked "MAKE CORRECTIONS NOTED". The Contractor may begin implementing the work method or incorporating the material and equipment covered by the submittal in accordance with the noted corrections. A corrected copy of the submittal shall be provided.
 3. If the review reveals that the submittal is insufficient or contains incorrect data, copies will be marked "AMEND AND RESUBMIT". Except at his own risk, the Contractor shall not undertake work covered by this submittal until the submittal has been revised, resubmitted and returned and marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED".
 4. If the review indicates that the material, equipment, or work method is not in general conformance with the design concept or in compliance with the drawings and specifications, copies of the submittal will be marked "REJECTED - SEE REMARKS". Submittals with deviations which have not been identified clearly may be rejected. Except at its own risk, the Contractor shall not undertake work covered by such submittals until a new submittal is made and returned marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED".
- C. No changes shall be made by the Contractor on re-submittals other than those changes indicated on the reviewed submittals, unless such changes are clearly described in a letter accompanying the re-submittal.

4.01 EFFECT OF REVIEW OF CONTRACTOR'S SUBMITTALS

- A. The Engineer's review of drawings, methods of work, or information regarding materials or equipment the Contractor proposes to provide, shall not relieve the Contractor of its responsibility for errors therein and shall not be regarded as an assumption of risks or liability by the Engineer or the County, or by any officer, employee, or subcontractor thereof, and the Contractor shall have no claim under the contract on account of the failure, or partial failure, of the method of work, material, or equipment so reviewed.

- B. A mark of "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED" shall mean that the County has no objection to the Contractor, upon its own responsibility, using the plan or method of work proposed, or providing the material or equipment proposed.

APPENDIX A
MINIMUM SUBMITTAL LIST

Submittals for Review and Comment	
Section	Submittal Description
01000 – General Requirements	Letter delegating Responsible Agent(s) for the Contractor
01010 – Summary of Work	Public Meeting Notifications
01030 - Permits	Copy of All Permits
01060 – Safety and Health General	Copy of Drug Free Policy
01060 – Safety and Health General	Confined Entry, as required
01061 – Safety Requirement Diving	Dive Operations Plan
01310 – Construction Schedule	Construction Schedule
01380 - Photographs	Photographs
01900 – Coast Guard Regulations	Copy of Correspondence for project files
02311 – Geotextile Filter Fabric	Product Data, Certificate of Compliance, Samples
02313 – Concrete Fabric Forms	Product Data, Certificate of Compliance, Samples, Concrete Mix Design, Reinforcing Bars, Concrete Pumping Equipment
02537 – Dye Testing	Dye Testing Procedure
03313 – Grout Injection	Product Data, Certificate of Compliance

Above list is provided as a guide for the Contractor and does not relieve the Contractor from providing any additional submittals which may be required to be provided in accordance with the Standard Specifications for Public Works Construction, September 1986 and/or the Detailed Specifications.

END OF SECTION

SECTION 02313

CONCRETE FABRIC FORM

PART 1 - GENERAL

1.01 DESCRIPTION

The work shall consist of installing a concrete fabric form and fabric form mattress structure by positioning specially woven, double-layer synthetic fabric forms on the surface to be protected and filling them with a pumpable, fine aggregate concrete (structural grout) in such a way as to form armor units of required thickness, weight and configuration.

1.02 SCOPE OF WORK

The Contractor shall furnish all labor, materials, equipment, and incidentals required to perform all operations in connection with the installation of the Concrete Fabric Form and Concrete Fabric Form Mattress in accordance with the lines, grades, design, and dimensions shown on the Plans and as specified herein.

1.03 SUBMITTALS

Submit the following in accordance with Section 01300:

- A. At least two weeks prior to shipment, submit manufacturer's certificate of compliance and physical property data sheet indicating that requirements for materials and manufacture are in conformance as specified.
- B. For informational purposes only, submit manufacturer's printed installation instructions.

PART 2 - PRODUCTS

2.01 FINE AGGREGATE CONCRETE

Fine aggregate concrete shall consist of a proportioned mixture of Portland cement, fine aggregate (sand) and water. Fine aggregate concrete shall conform to the requirements of Section 39, "Portland Cement Concrete" of the STANDARD SPECIFICATIONS. The consistency of the fine aggregate concrete delivered to the concrete pump shall be proportioned and mixed as to have an efflux time of 9-12 seconds when passed through the 0.75 inch orifice of the standard flow cone that is described in ASTM C 939. Pozzolan, fluidifier or pumping aid conforming to this Specification may be used at the option of the Contractor. The mix shall exhibit a compressive strength of minimum 2,000 psi at 28 days, when made and tested in accordance with ASTM C 31 and C 39.

- A. Portland cement shall conform to ASTM C 150, Type I or Type II.

- B. Fine aggregate shall conform to ASTM C 33, except as to grading. Aggregate grading shall be reasonably consistent and shall not exceed the maximum size which can be conveniently handled with available pumping equipment.
- C. Water for mixing shall be clean and free from injurious amounts of oil, acid, salt, alkali, organic matter or other deleterious substances.
- D. Pozzolan, if used, shall conform to ASTM C 618, Class C, F or N.
- E. Plasticizing and air entraining admixtures, if used, shall conform to ASTM C 494 and ASTM C 260, respectively.
- F. Anti-washout admixture shall be used for underwater concrete to prevent washout of cement during placement and shall conform to ASTM WK52430.

2.02 FABRIC FORMS

The fabric forms shall be as specified, TEXICON, Fabriform, Tele Textiles or pre-approved equal. The fabric forms shall be composed of synthetic yarns formed into a woven double-layered fabric. Yarns used in the manufacture of the fabric shall be composed of nylon and/or polyester. Forms shall be woven with a minimum of 50% textured yarns (by weight) to improve adhesion to fine aggregate concrete and to improve filtration. Each layer of fabric shall conform to the physical, mechanical and hydraulic requirements referenced herein. The fabric forms shall be free of defects or flaws which significantly affect their physical, mechanical, or hydraulic properties.

Table 1. PROPERTY REQUIREMENTS – CONCRETE BAGS FABRIC ^{1,2}			
Property	Test Method	Units	Values
Physical Properties			
Composition of Yarns			Nylon/ Polyester
Mass Per Unit Area (double-layer)	ASTM D 5261	oz/yd ²	13
Thickness	ASTM D 5199	mils	20
Mechanical Properties			
Wide-Width Strip Tensile Strength	ASTM D 4595		
Machine Direction		lbs	300
Cross Direction		lbs	300
Elongation at Break	ASTM D 4595		
Machine Direction		%	10-15
Cross Direction		%	10-15
Grab Tensile Strength	ASTM D 4632		
Machine Direction		lbs/in	300
Cross Direction		lbs/in	300
Grab Tensile Elongation	ASTM D 4632		
Machine Direction		%	10-25
Cross Direction		%	10-25
Trapezoidal Tear Strength	ASTM D 4533		
Machine Direction		lbs	100
Cross Direction		lbs	100

Hydraulic Properties			
Apparent Opening Size (AOS)	ASTM D 4751	US STD Sieve	40-60
Permittivity	ASTM D 4491	Sec ⁻¹	0.30
Flow Rate	ASTM D 4491	Gal/min/ft ²	30

Notes:

1. *Conformance of fabric to specification property requirements shall be based on ASTM D 4759, "Practice for Determining the Specification Conformance of Geotextiles."*

2. *All numerical values represent minimum average roll values (i.e., average of test results from any sample roll in a lot shall meet or exceed the minimum values).*

Lots shall be sampled according to ASTM D 4354, "Practice for Sampling of Geosynthetics for Testing."

- A. Fabric forms shall consist of two layers of woven fabric sewn together. When filled with fine aggregate concrete they shall form a concrete armor unit. The finished average unit dimensions shall be determined by the contractor.
- B. Self-sealing filling valves, suitable for use with an injection pipe at the end of a pump hose for fine aggregate concrete, shall be installed at predetermined locations.
- C. Mill widths of fabric shall be a minimum of 76 inches. Each selvage edge of the top and bottom layers of fabric shall be reinforced for a width of not less than 1.35 inches by adding a minimum of 6 warp yarns to each selvage construction. Mill width rolls shall be cut to the length required, and the two layers of fabric separately joined, bottom layer to bottom layer and top layer to top layer, by means of sewing thread, to form multiple mill width panels.
- D. All seams sewn in the factory shall be not less than 90 lbf/in when tested in accordance with ASTM D 4884. All sewn seams and zipper attachments shall be made using a double line of U.S. Federal Standard Type 401 stitch. All stitches shall be sewn simultaneously and be parallel to each other, spaced between 0.25 inches to 0.75 inches apart. Each row of stitching shall consist of 4 to 7 stitches per inch. Thread used for seaming shall be nylon and/or polyester.
- E. Fabric Form Shipment and Storage: The fabric forms shall be kept dry and wrapped such that they are protected from the elements during shipping and storage. If stored outdoors, they shall be elevated and protected with a waterproof cover that is opaque to ultraviolet light. The fabric forms shall be labeled as per ASTM D 4873, "Guide for Identification, Storage and Handling of Geosynthetics Rolls."
- F. The Contractor shall submit a manufacturer's certificate that the supplied fabric forms meet the criteria of these Specifications, as measured in full accordance with the test methods and standards referenced herein. The certificates shall include the following information about each fabric form delivered:
 - Manufacturer's name and current address;
 - full product name;
 - style and product code number;
 - form number(s);

- composition of yarns;
- and manufacturer's certification statement.

PART 3 - EXECUTION

3.01 SITE PREPARATION

- A. Areas on which concrete fabric forms are to be placed shall be constructed to the lines, grades, contours, and dimensions shown on the Plans. Prior to placing concrete bags, Geotextile Filter fabric shall be placed on the graded surface in accordance with SECTION 02311, "GEOTEXTILE FILTER FABRIC."
- B. Immediately prior to placing the fabric forms, the prepared area shall be inspected by the Officer-in-Charge, and no forms shall be placed thereon until the area has been approved.

3.02 FABRIC FORM PLACEMENT

- A. A fabric forms shall be placed within the limits shown on the Plans. Anchoring of the fabric forms shall be accomplished through the use of anchor, terminal and toe trenches.
- B. Immediately prior to filling with fine aggregate concrete, the assembled fabric forms shall be inspected by the Officer-in-Charge, and no fine aggregate concrete shall be pumped therein until the fabric form placement has been approved. At no time shall the fabric forms be exposed to ultraviolet light (including direct sunlight) for a period exceeding five days.
- C. Adjacent fabric form panels shall be joined before filling with fine aggregate concrete by field sewing or zippering the two bottom layers of fabric together and the two top layers of fabric together. All field seams shall be made using two lines of U.S. Federal Standard Type 101 stitches. All sewn seams shall be downward facing, and zipper seams shall be fastened as specified on the manufacturer's documents, except with the approved of the Office-in-Charge.
- D. When conventional joining of fabric forms is impractical or where called for in the Contract Drawings, adjacent forms may be overlapped a minimum of three feet to form a lap joint, pending approval by the Office-in-Charge. Based on the predominant flow direction, the downstream edge of the form shall overlap the upstream edge of the next form. In no case shall simple butt joints between forms be permitted.

3.03 FINE AGGREGATE CONCRETE PLACEMENT

- A. Following the placement of the fabric form, the filling pipe at the end of the fine aggregate concrete pump hose shall be inserted through the self-sealing filling valve. Fine aggregate concrete shall be pumped between the top and bottom layers of fabric, filling the forms to the recommended thickness and configuration.

- B. Fine aggregate concrete shall be pumped in such a way that excessive pressure on the fabric forms is avoided.
- C. Foot traffic on the filled armor units shall be restricted to an absolute minimum for one hour after filling.
- D. Abutting fabric form units, if placed laterally, may be installed immediately after placement of the preceding unit(s). If a fabric form unit is to bear on previously installed units, the lower units must be allotted a minimum of four hours of cure time before beginning installation of a succeeding, vertically adjacent course of armor units.
- E. Adjacent fabric form units shall be joined by inserting reinforcement bar dowels or staples into the fabric form units, as shown on the Plans. Dowels or staples shall be inserted into the filled unit(s) not less than one half hour and not more than one hour after filling of the unit, unless directed otherwise by the Officer-in-Charge. In the event that a unit will be vertically adjacent to another unit, reinforcing dowels or staples shall be driven into the lower unit in the time frames specified in this paragraph. The vertically adjacent fabric form will then be placed over the reinforcing dowels or staples. The dowels or staples will be forced through the bottom layer of the vertically adjacent fabric form prior to filling that form.
 - 1. Deformed Reinforcing Bars shall be Stainless Steel Type 316.
- F. After the fine aggregate concrete has set, all anchor, terminal and toe trenches shall be backfilled and compacted, as specified in the Plans.

PART 4 - MEASUREMENT AND PAYMENT

Payment for fabric form includes fabric form, fine aggregate concrete, reinforcing bars, overlaps, and anchor, terminal, or toe trenches, tools, equipment, labor, containment and disposal of all waste concrete and excess spoils, and incidentals necessary to complete all work in place will not be paid separately but will be considered as incidental item to the various pay items in the Proposal.

Payment for fabric form mattress includes fabric form, fine aggregate concrete, overlaps, and anchor, terminal, or toe trenches, tools, equipment, labor, containment and disposal of all waste concrete and excess spoils, and incidentals necessary to complete all work in place will not be paid separately but will be considered as incidental item to the various pay items in the Proposal.

END OF SECTION

SECTION 02537

DYE TESTING

PART 1 – GENERAL

1.01 DESCRIPTION

The Contractor shall be responsible to conduct Dye Testing during the joint leak repairs.

Dye Testing shall be conducted simultaneously with the joint leak repair work so as to provide visual verification that the leaks have been fixed.

Dye Testing shall be closely coordinated with the County and all affected agencies.

1.02 SCOPE OF WORK

The Contractor shall furnish all labor, materials, equipment, and incidentals required to perform all operations in connection with the Dye Testing in accordance with the Plans and as specified herein.

1.01 SUBMITTALS

Submit the following in accordance with Section 01300:

- A. Submit manufacturer's physical/chemical property data sheet indicating that requirements for materials and manufacture are in conformance as specified.
- B. For informational purposes only, submit manufacturer's printed instructions.
- C. Submit the Dye Test procedure for review and approval.

PART 2 - PRODUCTS

2.01 MATERIAL

- A. The dye shall be Hue Uranine Conc (Fluorescein), Acid Yellow 073, or equal. The dye shall be non-toxic and bio-degradeable.
- B. The Contractor shall be responsible for providing an adequate supply of dye for testing. The dye shall be properly stored by the Contractor per manufacturer's recommendations.

PART 3 - EXECUTION

3.01 DETAILS

- A. The Contractor shall be responsible for conducting a Dye Test to provide a visual indication of the joint repair process at the same time as the repair is being made.
- B. The Contractor will conduct the Dye Test during the joint leak repair, and continue the Dye Test after the completion of repairs in order to check and visually confirm that all leaks have been repaired.
- C. The Contractor shall notify the public, Department of Health, local police and fire, civil defense departments, and the U.S. Coast Guard seven (7) calendar days prior to dye testing.

Notification to the public shall be done by published notice in the local newspaper Hawaii Tribune Herald and U.S. Coast Guard publication "Notice to Mariners".

Notification to the Department of Health, County Police, County Fire, and County Civil Defense shall be via certified letter.

PART 4 - MEASUREMENT AND PAYMENT

The cost of the work covered under this section, including material, necessary labor and equipment, notification to the public and agencies and all incidentals necessary to complete all work in place shall be paid at the lump sum price bid for Dye Testing as scheduled in the Proposal.

END OF SECTION

SECTION 02611

PERSONNEL BOAT AND OPERATOR

PART 1 – GENERAL

1.01 DESCRIPTION

The Contractor shall provide a boat and operator for the purpose of transporting Endangered Species Monitor (ESM) and Construction Management (CM) personnel between shore and the working barge.

The Contractor shall also provide a boat and operator for the purpose of daily water quality sampling within the vicinity of the work zone.

PART 3 - EXECUTION

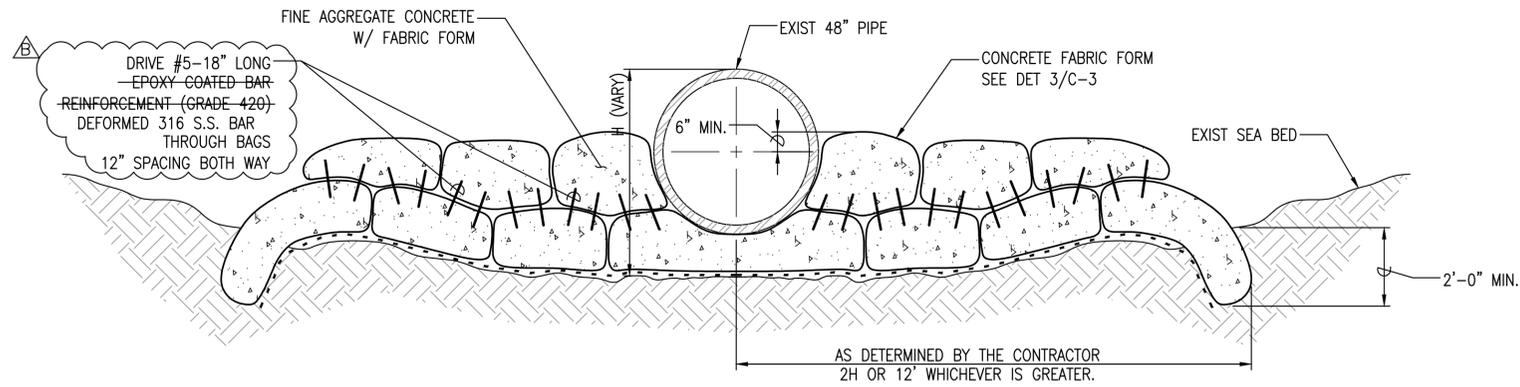
3.01 DETAILS

- A. The Contractor shall provide a boat and operator for the purpose of transporting up to five (5) ESM and CM personnel between shore and the working barge.
- B. The Contractor shall provide a boat and operator for the purpose of collecting daily water samples within the vicinity of the project. The water sampling will take approximately five (5) hours to complete each day.

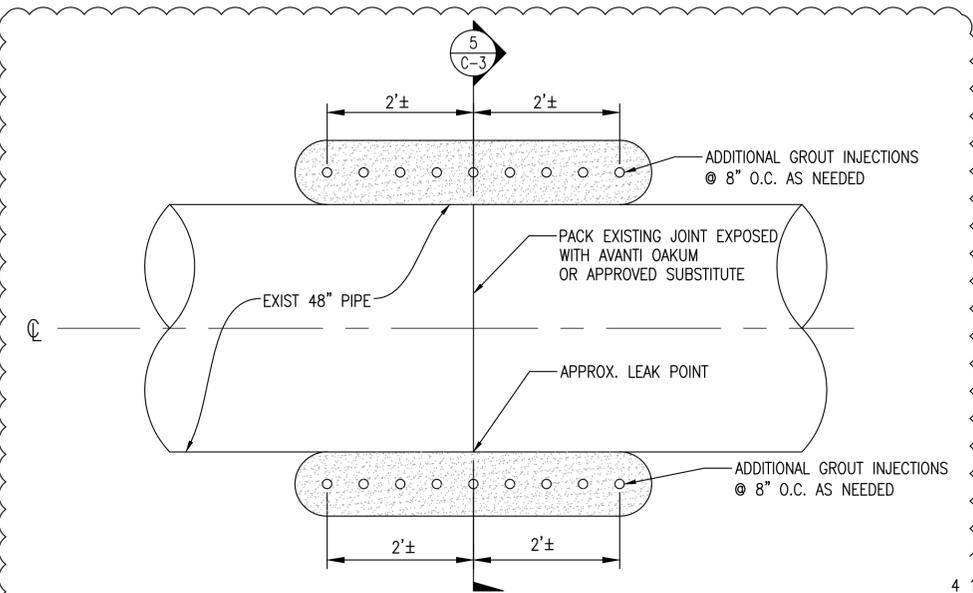
PART 4 - MEASUREMENT AND PAYMENT

The cost of the work covered under this section shall be paid at the lump sum price bid for Personnel Boat and Operator as scheduled in the Proposal.

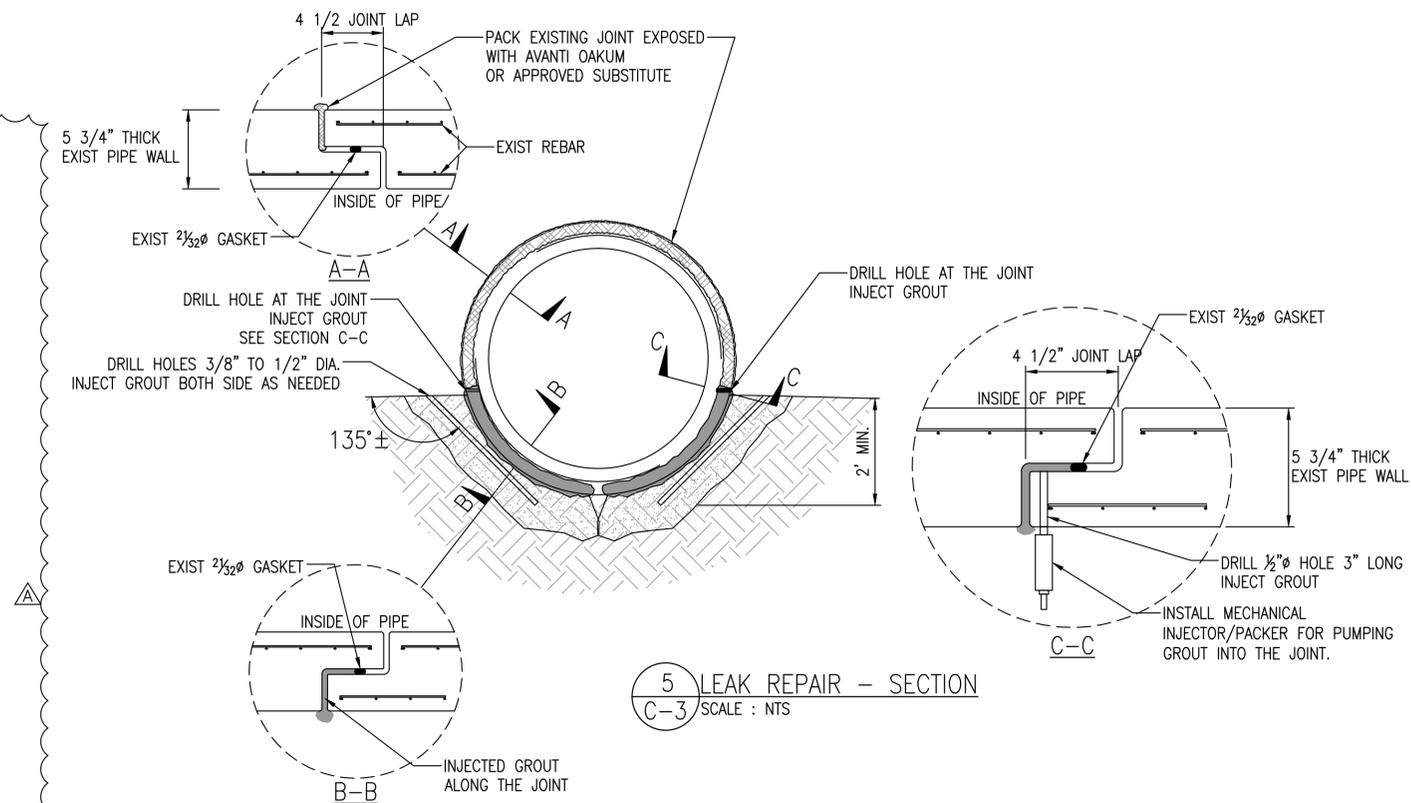
END OF SECTION



1 CONCRETE FABRIC FORM - TYP. SECTION - ALTERNATIVE 1
 C-3 SCALE : NTS



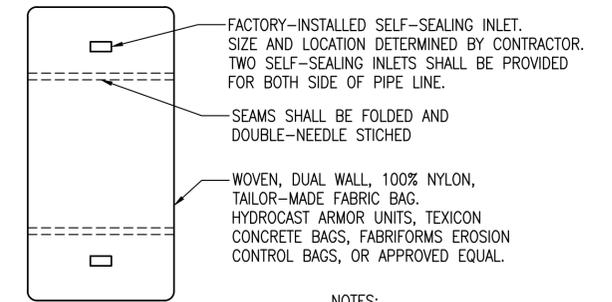
4 LEAK REPAIR - PLAN
 C-3 SCALE : NTS



5 LEAK REPAIR - SECTION
 C-3 SCALE : NTS

NOTE:

1. THE AREA SHALL BE FREE OF ALL OBSTRUCTION AND ORGANIC MATERIAL, AND SHARP ROCKS.
2. THE FABRIC BAGS SHALL BE POSITIONED OVER A GEOTEXTILE FILTER FABRIC.
3. THE CONTRACTOR MUST MAKE THE APPROPRIATE ALLOWANCE FOR CONTRACTION OF THE FABRIC BAG IN EACH DIRECTION WHICH WILL OCCUR AS A RESULT OF GROUT INJECTION.
4. THE BAGS SHALL BE POSITIONED AND FILLED IN SUCH A WAY THEY ABUT TIGHTLY. JOINTS BETWEEN BAGS IN SUCCESSIVE TIERS SHALL BE STAGGERED.
5. TO PREVENT INTERLOCKING PROBLEM, BAGS SHALL BE FILLED BETWEEN 50 AND 70% TO PERMIT THE DIVER TO PLACE THEM WITH GOOD CONTACT WITH EACH OTHER AND WITH EXISTING PIPE.
6. THE REBARS ARE FIRST INSERTED THROUGH THE FABRIC AND THEN INTO THE BAG CONTAINING FRESH CONCRETE. THE SUCCEEDING LAYER OF BAGS IS THREADED OVER THESE REBARS AND FILLED WITH CONCRETE IN A STAGGERED PATTERN.
7. THE EPOXY COATING MATERIAL SHALL BE AN ORGANIC, POWDERED-EPOXY RESIN THAT IS APPLIED BY ELECTRONIC METHODS.



NOTES:

1. SHAPE, SIZE AND THE NUMBER OF BAGS TO BE USED SHALL BE SPECIFIED BY THE CONTRACTOR.
2. LOCATION OF INLET VALVES AND OUTSIDE DIAMETER OF INJECTION HOSE TO BE USED SHALL BE DETERMINED BY THE CONTRACTOR.

2 CONCRETE FABRIC FORM
 C-3 SCALE : NTS



3 FABRIC FORM - MATTRESS
 C-3 SCALE : NTS

NOTES:

1. SIZE AND THE CONFIGURATION OF MATTRESS TO BE USED SHALL BE SPECIFIED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.

2	ADDENDUM 22	5/5	LY		
1	ADDENDUM 21	5/5	LY		
REVISION NO.	SYM.	DESCRIPTION	SHT / OF	BY	APPROVED

COUNTY OF HAWAII
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
WASTEWATER DIVISION

HILO WASTEWATER TREATMENT PLANT OUTFALL REPAIRS
JOB NO. WW-4160
HILO, ISLAND OF HAWAII, HAWAII

SECTIONS AND DETAILS - ALTERNATIVES

DESIGNED: SD	SUBMITTED:
DRAWN: SD	DATE:
CHECKED: LY	SCALE: AS NOTED
APPROVED:	DRAWING NO. C-3

CHIEF ENGINEER _____ DATE _____

EXP: 4/30/18



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
Lambert J. Yamashita