

## **Project: Assessment and Protection Plan for the Nawiliwili Watershed**

### **SCOPE OF SERVICES:**

The CONTRACTOR shall be responsible to complete the assessment and protection plan for the Nawiliwili project in three (3) phases as outlined herein. In Phase 1, will require the CONTRACTOR shall to validate and document existing environmental data. In Phase 2, will required the CONTRACTOR shall to identify current sources of pollution and contamination in the Nawiliwili Watershed. In Phase 3 , will require the CONTRACTOR shall to prepare a Watershed Restoration and Protection Plan for the Nawiliwili Watershed for submission to the STATE. The CONTRACTOR's proposal is attached hereto as Exhibit A and made a part hereof.

The CONTRACTOR shall provide the following activities responsibilities for each phase shall including,e but are not limited to the activities described hereinafter.

#### **Phase 1 - Validation and Documentation of Existing Environmental Data**

Utilizing sources of existing information including, but not limited to, the State of Hawaii's Geographic Information System (GIS), prepare a written assessment of current land use and project area. Factors to be included are physical features, basemap layers, political boundaries, administration layers, location of features of biological and cultural significance, and other layers of the project site.

Provide a written assessment of sources and levels of pollutants believed to be present in the project area based on past studies completed in the project area.

#### **Phase 2 - Identification of Current Sources of Pollution and Contaminants in the Nawiliwili Harbor**

Data collected in this phase shall be used to determine point and nonpoint source contribution as well as to determine whether the water meets water quality standards and represents a health hazard. The CONTRACTOR shall utilize a Quality Assurance Project Plan (QAPP) approved by the STATE to conduct the water quality sampling process used in the performance of the Contract.

##### **a. Surface Water**

Sites to be selected for sampling shall be identified based on a reconnaissance survey and on initial assessment of available records. They shall be strategically located relative to point sources of pollution (industrial, urban, boat) and to nonpoint sources such as storm drains and streams (Nawiliwili Stream, Puali Stream, Huleia Stream, Papakolea Stream and Menhune Fishpond). Kawai Point shall be used as a control site. Sampling shall be done under both rainy and dry weather conditions. Water and sediment samples within Nawiliwili Harbor (coastal area, off shore sites, near the jetty area) in areas where boats are moored as well as nearby beaches shall also be sampled for the same parameters as the surface water.

The main data collection sites for stream water sampling are identified on in Exhibit A, page 14, which represents the major stream discharge points into the Nawiliwili Harbor. Other major tributary locations for data collection may be added by the CONTRACTOR and are subject to accessibility and land-use practices affecting the stream drainage areas. Water quality samples shall be collected as instantaneous grab samples. Once collected, samples shall be preserved and analyzed as described in the Quality Assurance Project Plan (QAPP) as approved by the STATE. Analysis shall be done in the laboratory of the CONTRACTOR's Water Resources Research Center, University of Hawaii. Parameters to be measured at the identified sites are 1) salinity and pH (ratio of fresh water to marine water), 2) turbidity (sediment load), 3) nitrogen and phosphate (nutrient load) and various microorganisms (enterococci, E.coli, C. perfringens, bacillus spp, FRNA coliphages). The CONTRACTOR shall submit a written report for STATE review and approval on the sampling and analysis conducted.

##### **b. Ground Water**

Samples from available wells shall be analyzed for use in assessing groundwater input of nutrients and other contaminants. A list of selected wells for data collection shall be submitted to the STATE within thirty (30) days of the STATE's Nnotice to Pproceed. Groundwater sample collections will depend on the nature of the well, including the availability of a pump. Once collected, samples shall be preserved and analyzed as specified in the QAPP. The CONTRACTOR shall submit a written report for STATE review and approval on the sampling and analysis conducted.

**c. Soil Samples**

Soil sample collection from critical areas may be done by the CONTRACTOR at their sole option based on a written justification to the STATE. The decision to collect or not collect shall be based on the CONTRACTOR's own assessment of the situation. THE CONTRACTOR is responsible to shall notify the STATE of its decision in writing and must shall attached the justification for such action. If soil samples are collected and analyzed, the CONTRACTOR shall submit a written report for STATE review and approval on the sampling and analysis conducted.

**d. Water Quality Modeling**

Simple modeling analysis shall be conducted to establish the relationship between pollution sources and water quality in Nawiliwili Bay. The CONTRACTOR shall submit to the STATE information on the modeling analysis to be used prior to use of the model for approval. The STATE shall have thirty (30) days to provide comments on the modeling analysis to be used. Comments by the STATE shall be addressed prior to conducting the modeling analysis. The CONTRACTOR shall submit a written report for STATE review on the results of the modeling analyses conducted.

**e. Community Concerns Survey**

THE CONTRACTOR shall design a survey instrument to gather community concerns regarding levels and sources of pollution for distribution and collection by partners. The CONTRACTOR shall submit a draft survey instrument to the STATE for review and comment. The STATE shall have thirty (30) calendar days to review and comment on the draft survey instrument. Comments by the STATE shall be incorporated into the survey instrument before it is finalized and distributed. The CONTRACTOR, shall tally the results of up to 1000 responses, and will present the tallied results to the community partnership at the first available meeting.

**3. PHASE 3 - PREPARATION OF A WATERSHED RESTORATION AND PROTECTION PLAN**

The CONTRACTOR will be responsible to shall prepare for the STATE's review and approval a Watershed Restoration and Protection Plan for the Nawiliwili Watershed. A draft of the Plan shall be submitted to the STATE for review and comment on or before the completion date for Phase 3. The STATE shall have thirty (30) days to review and comment on the draft Plan. Comments made by the STATE shall be incorporated into the final Plan. Actual implementation of the plan is beyond the scope of this Contract. The Watershed Restoration and Protection Plan shall address and include, at a minimum, the following items:

- a. Identification of water quality problems related to water quality standards for nitrogen and turbidity that are regularly exceeded;
- b. Identification of bacterial problems due to boating activities;
- c. Determine severity of problems as related to water quality standards and identify pollution sources;
- d. To the extent of data availability, determine direct and indirect economic effects of plan recommendations;
- e. To the extent of data availability, estimate current levels of economic activity such as income, employment in agriculture, tourism, transportation, etc.;
- f. Provide maps of the study area requiring protection and restoration;
- f. With assistance from the community, identify various appropriate protection and restoration activities for the watershed including such activities as: community education and outreach; construction of sediment basins; strategies to reduce nutrient and sediment loads to the Nawiliwili Harbor in cooperation with community organizations; effective regulation of stream diversions, channelization, and other similar land and water construction projects. Recognize competing water needs and promote management practices that encourage conservation of agricultural water and full utilization of wastewater resources. Develop water conservation programs, including waste recycling and the use of non-portable water for agricultural and landscaping purposes.;
- g. Provide a detailed time schedule and location map for measures to be implemented;
- h. Identify and document the population and economic activity occurring in the Nawiliwili Watershed using GIS databases, tax data, and census information;
- i. Provide a description of expected benefits of environmental activities (i.e., recreation, aesthetic values);
- j. Prioritize areas for implementation based on need, cost, and feasibility, and explain the priority system used;
- k. Identify roles and responsibilities for project partners created under Section 4, Community Meetings;

- l. Include measures of success for evaluating the effectiveness of the proposed Watershed Restoration and Protection Plan. The measures can shall include, but not be limited to, number of measures implemented, improvement in biological and physical parameters, water quality parameters maintained or improved to meet water quality standards, education/outreach efforts including number of events and number of participants). The measures shall serve as guidelines for use during the Plan implementation; and
- m. Provide an estimate of funding needed for measures to be implemented.

#### **4. COMMUNITY MEETINGS**

The CONTRACTOR shall also be responsible to create a partnership with community organizations for eliciting community input and in completing tasks. The CONTRACTOR shall be required to conduct a minimum of four (4) meetings annually between the CONTRACTOR's research team, the Nawiliwili Bay Water Quality Committee, the East Kauai Soil and Water Conservation Districts, and the community to exchange and seek input of ideas. The agenda shall include, but not be limited to the following:

Exchange of information about the hydrology of the project site including known pollutants, their sources, and their current levels; Present CONTRACTOR's research plan and solicit community input; Choosing working teams of volunteers from the community and assigning specific tasks, especially those related to sampling. Schedule for regular meetings between the CONTRACTOR's research team and the volunteers will be discussed; and To update and inform the community about on-going and future activities and data collected.

Minutes and summaries of meetings shall be provided to the STATE with the CONTRACTOR's quarterly report that immediately follows the meeting.

#### **5. REPORTS**

Prepare and submit to the STATE one copy each, unless otherwise specified, of the following written reports: Quarterly reports to the STATE on or before January 15<sup>th</sup>, April 15<sup>th</sup>, July 15<sup>th</sup>, and October 15<sup>th</sup> of each respective calendar year following the receipt of the STATE's Notice to Proceed until the final report is submitted. The reports shall be submitted in the format provided by the STATE, attached hereto as Exhibit B, and made a part of this Contract. The reports shall include the status of all project activities required in under this Contract, including meeting minutes and summaries that occurred in the respective quarter. No payments shall be made to the be withheld by the STATE to the CONTRACTOR unless unless quarterly reports are currentare current.

A final report describing the services performed and the benefits and the outcomes of the services performed under this Contract. Three (3) copies of the draft final report shall be submitted to the STATE on or before July 1, 2003. The STATE shall have thirty (30) calendar days to review and comment on the draft final report. Comments made by the STATE shall be incorporated into the report before finalizing the document. The CONTRACTOR shall submit one (1) unbound original and five (5) bound copies of the completed final report to the STATE on or before August 31, 2003.