Quality Control Plan

Kawaiele and Nohili Pump Stations

Pacific Missile Range Facility
Kaua‘i, Hawai‘i

Agribusiness Development Corp.
State of Hawai‘i
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Acronyms and Abbreviations

ADC	Agribusiness Development Corporation
ft	feet
HP	horsepower
KO	Contracting Officer's Representative
LF	linear feet
msl	mean sea level
n/a	Not Applicable
NAVFAC	Naval Facilities Engineering Command
O&M	Operations and Maintenance
PM	Program Manager
PMRF	Pacific Missile Range Facility
NPDES	National Pollutant Discharge Elimination System
QC	Quality Control
QCP	Quality Control Plan
TBD	To Be Determined

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INTRODUCTION

The United States Navy, Naval Facilities Engineering Command, Hawai‘i (NAVFAC) Hawai‘i, has contracted the Agribusiness Development Corporation (ADC) of the State of Hawai‘i to continue to operate and maintain the Nohili and Kawaiele Pump Stations (and associated ditches) located within land controlled by the Pacific Missile Range Facility (PMRF). These pumping stations and ditches serve the PMRF and neighboring Kekaha agricultural lands. Both the agricultural lands and PMRF are located on the Mānā Plain, on the western coast of Kaua‘i. This area is subject to flooding, which can be mitigated by the use of the pump stations and ditches for draining.

GENERAL PURPOSE

This Quality Control Plan (QCP) has been developed in support of the operation and maintenance of the Kawaiele and Nohili Pump Stations and their associated ditches located on land controlled by PMRF. The QCP describes the ADC's quality control system, introduces personnel, defines responsibilities, and details activities such as recording inspections, audits, and corrective actions, and describes the implementation process for corrective actions in order to prevent deficiencies from recurring. The QCP also describes how the performance of the Quality Control Program will be measured.

OBJECTIVES

The QCP objective is to define a system to manage, control, and document three basic elements of the work being performed.

The quality of equipment, materials, and techniques utilized to ensure that it meets contract specifications and applicable standards.

The timeliness of performance by combining quality functions within routine project schedules.

The communication of the quality control procedures and requirements to the individuals working on the project.

QCP FORMAT

The QCP is organized as follows:

Section 1—Introduction
Section 2—Background
Section 3—Quality Management Organization
Section 4—Quality Control Reporting
Section 5—Inspections and Reviews
Section 6—Quality Control Checks
Section 7—Non-Compliance and Corrective Actions
Section 8—Document Maintenance
Section 9—Submittal Procedures
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BACKGROUND

As stated previously, PMRF is located on the western coast of Kaua'i, north of Kekaha, on the Mānā Plain. The PMRF installation is a range facility that includes instrumented underwater and controlled airspace ranges, as well as land facilities. This combination of facilities supports surface, subsurface, air, and space operations simultaneously (Navy 2013).

ADC was established by the State of Hawai'i legislature in 1994 to help transition Hawai'i's agricultural sector from a two crop-based economy to a diversified, multi-crop economy. ADC works to help diversify crops across Hawai'i and helps in acquiring and managing agricultural lands, infrastructure and facilities for use by the agricultural industry (ADC 2003).

ADC manages 12,500 acres of former sugar plantation land in Kekaha and 6,200 acres in Kalepa. The lands now have tenants ranging from Pioneer Seeds to truck farms and ranchers. In addition, ADC along with the tenant cooperative manages irrigation ditches, reservoirs, two hydroelectric plants, a power distribution system, and a drainage system complex (ADC 2003).

In Kekaha, PMRF has increased the buffer zone around the base by leasing (from the State of Hawai'i) approximately 300 acres of land between PMRF's eastern fence and Highway 50. By doing so, the Navy lawfully expends funds to help repair and maintain the ditches and pumps that prevent flooding on the Mānā Plain, and the extension of land fulfills anti-terrorism requirement that military buildings must be set back from roads. With the closure of the sugarcane plantations, the Navy was aware of possibly incompatible developments on this land that might occur in the future. To ensure that PMRF can continue to safely conduct its missions, with compatible neighbors, the Navy has sought to permanently preserve the land adjacent to PMRF for agricultural purposes. More information can be found at the can be found at the PMRF Agriculture Preservation Initiative website (Navy USA 2013).

The Navy lease includes the Kawaiele and Nohili pump stations with their associated ditches. To operate and maintain these stations, the Navy has contracted ADC to continue Operations and Maintenance (O&M), as ADC operates the rest of the related system which also benefits the Kekaha agricultural lands. ADC will perform O&M work under contract number N62478-26-T-2424.

PURPOSE AND SCOPE OF WORK

The purpose of the project is to continue to safely and effectively operate and maintain the Kawaiele and Nohili pump stations with the associated ditches and gates on PMRF controlled land to prevent flooding. The daily, monthly and annual scope of work for the contractor is twofold:

1.) Ensure that the pumping systems, as well as the gates and ditches, are working according to manufacturer's specifications and optimal site conditions. This involves inspections to see if the system is working correctly and/or at optimal conditions. In the event that a component of the system is not operating correctly or at optimal conditions, a repair shall be required, and competent/authorized (e.g., licensed electricians for electrical work, manufacturer-authorized repair technicians for machinery, etc.)

personnel shall complete the repair. Other light maintenance items, such as vegetation control and lubricating the pumps, may be done once a month.

2.) Prevent flooding of the PMRF facility and neighboring agricultural lands, for which daily checks on weather reports and actual conditions must occur. In the event that rain and/or storm conditions occur, system adjustments are made. Depending upon the conditions, these adjustments may include manually turning on additional pumps, re- directing flow to the ocean (closing the Kawaiele flood gate and opening Dry Ditch), and ensuring debris is removed from screens.

QUALITY MANAGEMENT ORGANIZATION

The organization of the reporting relationships of the persons involved in the quality aspect of this project is provided below. Key personnel are listed in descending lines of authority through the project and quality control personnel. The Quality Control (QC) Manager is independent of the subcontracted site worker and will ensure that the QCP is effectively implemented through independent audits. The following subsections describe the specific functions and authority of each of these persons.

NAVY
ADC – Executive Director (Program Manager – James Nakatani)
ADC – Quality Control Managers – Cardno TEC (Wilfred Cassidy P.E., with support from Bradley Kwasnowski, Adrian Nelson, and Rebecca Walker)
ADC – Kaua‘i Property Manager (Sam Lee)
Competent Person, Operations and Maintenance – Brian Tuzon (Daniel Lord dba Lord's Electric)
Competent Person, Dredging – TBD
Site Safety and Health Officer – Compliance Solution LLC (Archie Yu)
Possible Subcontractors: Carpentry,
Welding - TBD
Storm Event Excavation - J & R Equipment and Rental

NAVY

The Navy will meet with ADC and assess their performance, either through meetings and/or inspections. In the event that meetings are conducted, ADC will meet with a Navy representative, and mutual efforts will be made to resolve all problems identified. The Navy will prepare written minutes of the meeting, with ADC to sign. In the event that there is a discrepancy, ADC will respond to the Navy about the disagreement in writing. The Navy will also complete assessments on ADC’s performance on this contract. ADC will have the opportunity to respond in writing to any unsatisfactory ratings.

ADC - EXECUTIVE DIRECTOR (PROGRAM MANAGER)

ADC’s Program Manager (PM) has overall responsibility for all technical, contractual, and administrative matters. The PM responsibility is to ensure that a high degree of client responsiveness is maintained. The PM is also responsible for reviewing and approving planning documents, overseeing staff selection, and monitoring contract funds and schedules. Daily functions will be delegated to the Competent Person.

The PM will also have overall responsibility of project execution, cost and schedule tracking, communication with the Contracting Officer’s Representative (KO), and preparation of progress reports. The PM will be regularly informed about the status of project activities and any changes in the scope of work, dates, or resource requirements. The PM will also be responsible for final review of submittals before they are submitted to the KO.

Mr. Nakatani has more than 12 years of collective experience with government administration. He is a former chair of the Hawai‘i Department of Agriculture and is very familiar with managing infrastructure and land. Currently, he is the executive director of the Agribusiness Development

Corporation, which in addition to managing agricultural land in Kekaha and Kālepa on Kaua‘i, oversees the administration of the Waiāhole Water System on O‘ahu.

ADC (QUALITY CONTROL)

By implementing of the QCP, the QC Manager will execute quality assurance programs for field activities. The QC Manager will be responsible for review of submittals, performance of field and office audits, review of construction specifications, and submittals.

The duties of the QC Manager include periodic inspections of the work being completed, verification of adherence to the QCP by subcontractors, and review of daily (weekday) QC reports. Responsibilities may also include resolution of issues regarding alternative approaches; direct liaison with the Navy staff; early identification and resolution of problems; identification of potential or desired modifications to the scope of work; cost, schedule, and field construction quality control. Cardno TEC is responsible for the QC program and Mr. Cassidy is the assigned QC manager for the program with primary responsibility of documentation and utilization in the field. Key members of the QC team at Cardno TEC are below:

Wilfred Cassidy, P.E. has 30 years of experience as an Air Force civil engineering officer managing construction, operation, and maintenance of base infrastructure and environmental programs at Air Force bases around the world. He has managed teams performing the work, or providing quality assurance of contractors doing construction or maintenance projects on all types of facilities. He twice served as the base civil engineer, responsible for all facility and environmental programs on the installation, where he worked regularly with local officials and regulators. Since joining Cardno TEC two years ago he has led the design teams for three multi-million dollar projects and is the Quality Control Manager for a $26M planning and environmental study contract with NAVFAC, Pacific.

Mr. Brad Kwasnowski is an Environmental Scientist managing environmental monitoring and compliance projects with federal, state, local, and private sector clients. He provides technical and regulatory guidance regarding: National Pollutant Discharge Elimination (NPDES) Permits, Storm Water Pollution Prevention Plans (SWPPP), Storm Water Best Management Practices (BMP), Industrial Wastewater Discharge Permits (IWDP), Total Maximum Daily Loads (TMDL), hazardous waste management, as well as remedial investigations and actions. He has extensive experience in hydrology related studies, environmental sampling of a variety of water quality related media (soil/water), pollution prevention compliance auditing, database management (hydrologic/geodatabase), technical writing and editing, as well as designing remote environmental monitoring stations. He manages and participates with project teams collecting field data from industrial facilities and environmental monitoring stations while following established procedures and guidelines. He provides quality control, evaluation, interpretation, and/or statistical analysis of samples and observations relative to data quality objectives for presentation in technical reports as well as database archiving.

Ms. Rebecca Walker specializes in water resources compliance. She has a B.S. in Environmental Science and has experience in quality assurance management, including evaluation of contract requirements, audit planning, plan execution, and reporting. As a member of the Cardno TEC water resources and compliance team, Ms. Walker regularly spearheads audit planning to ensure that all requirements are accounted for in the quality assurance program. She has served as data quality specialist, water resources specialist, or compliance inspector on various projects in her professional career. Her field work experience includes

compliance inspections, Phase I ESA site reconnaissance, site drainage evaluation, illicit discharge investigation, storm water sampling, and groundwater sampling.

Mr. Adrian Nelson has a Master's in Natural Resource and Environmental Management from the University of Hawai'i at Mānoa, as well as over four years of experience as an Environmental Scientist. Since 2012, Adrian has been involved in both ADC's Quality Control Program Management (QCPM) and its National Pollutant Discharge Monitoring (NPDES) program. His responsibilities include NPDES compliance, canal discharge grab sampling, data collection and interpretation, lab coordination, and QCPM auditing and inspection of ADC facilities.

Mr. Samuel "Sam" Lee is the ADC's Kaua'i Property Manager and is a former land agent with more than 20 years of experience assigned to the Island of Kaua'i with the Hawai'i Department of Land and Natural Resources. He is knowledgeable about the Kekaha agricultural lands and associated infrastructure. As a resident of Kaua'i, his responsibilities as a liaison for ADC include checking on the status of specific tasks, observing personnel and activities under contract, and serving as a point of contact in case of emergencies such as flooding.

COMPETENT PERSON (OPERATIONS AND MAINTENANCE)

The Competent Person for operations and maintenance (O&M Competent Person) is responsible for completing the daily (weekday) and monthly site inspections, as well as any repair inspections (such as pump repair). The O&M Competent Person also implements storm procedures and coordinates with the appropriate agencies (e.g., notifying ADC, the Navy, etc.). The Competent Person prepares the appropriate reports and submits them to the QC Manager.

The O&M Competent Person, Lord's Electric, is a qualified subcontractor with experience in pumping, hydroelectric, high voltage electric power, and drainage systems.

The Competent Person for dredging (Dredging Competent Person) will be a qualified subcontractor with appropriate dredging experience. Dredging is no longer a part of the O&M contract, but is ordered as needed by the Navy.

SITE SAFETY AND OCCUPATIONAL HEALTH

ADC is committed to ensuring the work is performed in a safe environment. Mr. Archie C. K. Yu M.S., CIH, MBA, CSP will be the Health and Safety officer for this contract. Mr. Yu has 19 years of experience in OSHA compliance and more than 13 years in industrial hygiene. He is one of a small group of safety consultants in Hawai'i with Certified Industrial Hygienist and Certified Safety Professional qualifications. Mr. Yu has worked as an Environmental Health Specialist with the State Department of Labor and Industrial Relations and a Disaster Safety Officer with the Federal Emergency Management Agency. He started Compliance Solution in 2001 and has assisted various employers, public and private, with their OSHA compliance and industrial hygiene.

SUBCONTRACTORS

Competent/authorized (i.e., licensed electricians for electrical work, manufacturer's authorized repair technicians for machinery, equipment, etc.) subcontractors will be required to complete any repairs, maintenance or adjustment to the systems as required. The pump stations at Kawaiele and Nohili have several components (e.g., vertical pumps, transformers, motor control

centers, transducers, telemetry systems etc.). These components have specific operating systems requiring a high level of skill for repair and maintenance. Only competent and authorized repair technicians should repair or complete maintenance (other than monthly lubrication of the pumps) to ensure that the systems are operating within manufacturer’s specifications. Subcontractors shall provide documentation of the completion of their work.

QUALITY CONTROL REPORTING

QUALITY CONTROL INSPECTIONS

Quality control inspections will be performed daily, monthly and at special activities (e.g., dredging, pump repair, etc.) to ensure proper operation and to confirm site conditions. The quality control inspections will generally be performed by the O&M Competent Person who will have several documents onsite to aide in correctly performing inspections and site operations. These documents include the Standard Operating Procedure for Drainage Facilities, Storm Procedures, the O&M Manuals, and the Annual Maintenance Plan.

QUALITY CONTROL REPORTING

The O&M Competent Person will conduct the daily QC duties onsite at least five days per week, preferably on weekdays. These duties include completing the Daily QC Inspection Log (Form 2) and/or Storm Conditions Operation Log (Form 3). Additionally, the O&M Competent Person will be present when other work is performed such as as-needed dredging or repairs. The O&M lead person will ensure that work is being performed by competent/authorized personnel and that appropriate documentation is provided showing that repairs have been made in accordance with manufacturer's recommendations. This information will be documented on the Construction Quality Log (Form 1). The O&M Competent Person will also ensure that copies of the O&M manuals for the system and the Annual Maintenance Plan are present onsite for field review if necessary.

Examples of the logs are provided in Appendix A. Copies of the completed logs will be sent to the QC Manager on a weekly basis. The original will be filed onsite for immediate reference, if needed.

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INSPECTIONS AND REVIEWS FOR MAJOR REPAIRS AND CONSTRUCTION

Inspections and reviews are the observations used to ensure that the field operations meet or exceed the project requirements including any associated design criteria, plans, and specifications. Inspections will be conducted based on a four-phased approach consisting of the following:

Preparatory
Initial
Follow-up
Completion

The types of inspections are discussed separately below and reports are presented in Appendix B. Inspections will be conducted by the site worker and/or checked by the QC manager, who will ensure that the work complies with the specifications, applicable standards, and good construction practices.

Each inspection will be documented on the appropriate form and will record the following information:

Contract number
Task site/area location
Inspection number
Date of inspection
Name of inspector
Identification of work inspected
Factual description of the observation made
Determination of acceptability/unacceptability
Actions taken to correct deficiencies

The QC Manager will also perform audits (e.g., including monthly) during the project. Audits may be performed more frequently depending on key, multiple activities occurring in the field, or if corrective actions are occurring. When audits are performed, a record of the inspection and findings will be recorded on a Quality Assurance Checklist and Audit Notes Form (Form 4), (See Appendix B).

PREPARATORY INSPECTION

Prior to initiating work, a preparatory inspection will be conducted by the QC Manager. The preparatory inspection will include:

Reviews of contract requirements.
Checks to ensure that all materials and/or equipment have been tested or vendor data have been reviewed and approved.
Checks to ensure that provisions have been made to conduct required testing (if any).
Examinations of work area to ascertain that all preliminary work has been completed.

Physical examinations of materials, equipment, and samples to ensure that they conform to the information in the O&M manuals, that all materials and/or equipment are on hand, and that all equipment is in proper working condition.
Reviews of safety and quality requirements most relevant to the work.

INITIAL INSPECTION

An initial inspection will be performed as soon as possible, after the award of the contract. This inspection will include examination of the quality of workmanship; confirmation that acceptable materials, free of defects or damage, were used; and confirmation that the work so far has no omissions or errors.

FOLLOW-UP INSPECTION

Follow-up inspections will be conducted as required throughout the contract to ensure continued compliance with contract requirements, including inspections, where appropriate, until completion of the contract.

COMPLETION INSPECTION

At the completion of the contract, the O&M Competent Person and/or Dredging Competent Person and/or QC Manager will conduct a completion inspection and develop a “punch list” of items that do not conform to the O&M manual, the Annual Maintenance Plan and/or specifications. A target date to complete punch list items will be established, and a subsequent completion inspection will be conducted.

INSPECTION DOCUMENTATION

All inspections will be recorded on standard inspection forms (Appendix B). The preparatory inspection will be recorded on a Preparatory Inspection Report (Form 5, Appendix B). The initial, follow-up, and completion inspections will be recorded on the Construction QC Inspection Report (Form 6, Appendix B). These documents will be used to track deficiencies and corrective actions. Any deficiencies that cannot be corrected at the time of their discovery or that otherwise affect the quality or schedule of other work must be treated as a noncompliant condition. The completed forms will be reviewed by the PM, and submitted according to distribution requirements, thus becoming a permanent part of the site records.

QUALITY CONTROL CHECKS

Quality control tests and checks will be performed during the planned activities to check the validity of the collected data and to confirm site conditions. The quality control checks will generally be performed by the O&M competent person.

QUALITY CONTROL CRITERIA

Specific criteria have been identified that are critical for sustainment of the flood control infrastructure. The 1502000 - Facility Investment specifications are included in Appendix D. Canal maintenance, including dredging and vegetation clearing, are not a part of the O&M contract. Quality control criteria found in Table 6-1 below will be used as guidelines for dredging recommendations. Table 6-1 was compiled from J-1502000-04, which can also be found in Appendix D.

Table 6-1: Ditch Requirements

Canal	Length (feet)	Width (feet)	Depth (feet)
A-AA	21,750	25	-4
B	1,500	20	-4
C	2,407	30	-3
CC	1,093	30	-3
D	2,000	20	-2
F	1,092	20	-1
FF	2,235	60	n/a
Total	32,077		

Table 6-2 provides an inventory list of equipment and facilities that must be kept in good working condition for this contract, compiled from J-1502000-03 (see Appendix D). Canal system maps (Appendix D) and the pump station diagrams (Appendix E) are also provided for reference.

Table 6-2 Facilities and Equipment Inventory

Item	Amount
Kawaiele Pump Station and supporting structures	2-200 HP pumps, 1-100 HP pump, 142 linear feet (LF) of sheet piling, one cross-walk with railings, one debris screen, two instrument sheds, cathodic protection, approximately 10 ft of 3-inch diameter steel conduits
Nohili Pump Station and supporting structures	2-60 HP pumps, 1-15 HP pump, one debris screen, one instruments shed, approximately 10 ft of 3-inch diameter steel conduits
Ditches	32,077 LF of canals
Culverts	5 culverts
Power Transmission	20 power poles and 6 pole transformers
Access Road	26,320 ft of access roads
Flood/flap gates	One sluice gate and two flap gates

NONCOMPLIANCE AND CORRECTIVE ACTIONS

The following mechanisms will be used to identify items or activities that do not comply with the contract requirements:

QC inspections and audits (performed by QC Manager)
Performance Evaluations (performed by the Navy)

In each case, any noncompliance issue will be specifically identified in documents (as identified in sections 4 and 5). It will be the responsibility of the Program QC Manager to notify the relevant parties of the noncompliance, irrespective of the subsequent disposition of the original report. At a minimum, the Program QC Manager and PM will be notified of any non-compliance issues.

The QC Manager has the authority and responsibility to stop work related to, or affected by, the noncompliance condition until action can be taken to correct it or prevent it from affecting related or subsequent activities. The QC Manager may, at his discretion, require that items be re- worked, and/or re-inspected to confirm or disprove the noncompliance condition. Documentation of the original inspections and/or test will be retained as part of the project record. The QC Manager may not permit any subsequent work to continue if that work is, or may be, affected by the noncompliance condition until:

The work is re-inspected and found to be in compliance.

The work is redone and subsequently re-inspected and found to be in compliance.

The KO accepts a change order indicating that the work or condition is acceptable under the terms of the change order (e.g., setting pumps at -1.3 feet msl is better than pumps set at -2.0 feet msl).

In addition, the QC Manager will promptly complete a written report providing a determination of the cause and effect of the noncompliance condition. This report will include a review of the QCP procedures, work plans, and other relevant documents and procedures to determine if the systems being used need to be amended. This report will also include, if necessary, specific changes in procedures, work practices, and other actions to be taken to prevent reoccurrence of the noncompliance condition.

CORRECTIONS OR REVISIONS TO THE QCP AND OTHER DOCUMENTS

In the event that corrections become necessary to the QCP or other documents (e.g., annual maintenance plan, etc.) the following procedure will be followed. Upon approval (by the KO) of the correction/revision, the document page(s) with errata will be marked with a red line through its entirety. The new page(s) will be placed into the document, directly following it. The change will be noted in a memo attached to the front of the document, to alert the user of a change.

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DOCUMENT MAINTENANCE

Documents generated as a result of the implementation of the QCP will be completed and reviewed as indicated. The original and duplicate copies of these documents are to be maintained in files as specified in this plan. Table 8-1 presents the review and distribution requirements for all QCP documents.

A master file of all QCP documents will be maintained at the project office. Representatives of the Navy have the right to inspect this master file at any time. The master file will become the property of the Navy, within one week of completion of the contract. The master QCP file will include the following documents:

QCP and all documents
Preparatory Inspection Report
Construction QC Inspection Report
Quality Assurance Checklist and Audit Notes
Daily QC Logs
Construction Quality Log
Storm Conditions Operation Log
Vendor Certificates/Statements/Data
QA Audit Reports
Reports of Noncompliance
Monthly reports.

ADC will confirm the submittal of daily and monthly QC reports to the Navy. Monthly QC reports are a narrative summarizing the QC reports completed for the month.

Table 8-1 Review and Distribution

Document	Prepared By	Reviewed By	Original Held By	Copies Distributed To
QCP	Prepared for PM by QCM	Program Manager Navy	O&M Dredging Competent Persons QC Manager	Navy QC Manager O&M Competent Person Project Master File
Preparatory Inspection Report	QC Manager	PM O&M Competent Person Navy (if requested)	Field Project Files through completion of field work, then Project Master File	PM O&M Competent Person Navy (if requested) Project Master File
Construction QC Inspection Report	QC Manager	PM O&M Competent Person Navy (if requested)	Field Project Files through completion of field work, then Project Master File	PM O&M Competent Person Navy (if requested) Project Master File
Quality Assurance Checklist and Audit Notes	QC Manager	PM O&M Competent Person Navy (if requested)	Field Project Files through completion of field work, then Project Master File	PM O&M Competent Person Navy (if requested) Project Master File
Daily QC logs	O&M Competent Person	QC Manager PM Navy (if requested)	Field Project Files through completion of field work, then Project Master File	QC Manager PM Navy (if requested) Project Master File
Construction Quality Log	O&M and Dredging Competent Persons	QC Manager PM Navy (if requested)	Field Project Files through completion of field work, then Project Master File	QC Manager PM Navy (if requested) Project Master File
Storm Conditions Operation Log	O&M Competent Person	QC Manager PM Navy (if requested)	Field Project Files through completion of field work, then Project Master File	QC Manager PM Navy (if requested) Project Master File

Vendor certificates/ statements/ data	Vendor	O&M Competent Person QC Manager PM Navy (if requested)	Field Project Files through completion of field work, then Project Master File	QC Manager PM Navy (if requested) Project Master File
QA Audit Reports	Navy	Navy	Field Project Files through completion of field work, then Project Master File	QC Manager PM Navy (if requested) Project Master File
Reports of Noncompliance	O&M Competent Persons QC Manager PM Navy	O&M Competent Persons QC Manager PM Navy	Field Project Files through completion of field work, then Project Master File	QC Manager PM Navy (if requested) Project Master File
Monthly Reports	1. QC Manager	PM Navy Inspector	Field Project Files through completion of field work, then Project Master File	Navy (if requested) PM Project Master File

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SUBMITTAL PROCEDURES

ADC is responsible for management of the work identified in the contract. This responsibility includes scheduling, reviewing, and managing submittals. Certifications provided by others (e.g., vendors and subcontractors) will be checked for accuracy and compliance with the contract requirements. The procedures for submittals are discussed in the following subsections.

SCHEDULE OF SUBMITTALS

A Submittal Register has been prepared (included as Appendix C) and will be updated during the project to provide a list of submittals and documents completed during the project. This register is used to log and monitor required submittal activities, and will be regularly updated throughout the project. The Submittal Register will be used to control submittals throughout the duration of the contract.

SUBMITTAL REVIEW

Submittals will be reviewed by the QC Manager. Submittals that comply with the contract will be forwarded to the Navy. Submittals that do not comply with the contract will be returned to the originator to be corrected.

SUBMITTAL PROCEDURES

The distribution of the submittals will follow the distribution lists provided in Table 8-1 for each item.

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10.0 REFERENCES

ADC 2003. "Agribusiness Development Corporation – Working For a Strong Agricultural Future" pamphlet. ADC 2003.

Navy 2013. Official Pacific Missile Range Facility Barking Sands website. http://www.cnic.navy.mil/regions/cnrh/installations/pacific_missile_range_facility_barking_sands.html. Accessed 30 September 2013.

Navy USA 2013. PMRF Agriculture Preservation Initiative website. http://navyusa.org/content/index.php?option=com_content&view=article&id=1751:pmrf- agriculture-preservation-initiative&catid=529:overview&Itemid=489.
Accessed 30 September 2013. Contract No.

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Appendices

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Appendix A

Quality Control Reporting Logs

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Construction Quality Log

Site: **Date/Time:**
Operator: **Weather Report/Source:**
Contract #: **Inspection#:**

Item	Description	Action/Details
Personnel Onsite		
Equipment		
Subcontractor		
Correspondence/ Directions		
Materials Delivered		
Work Performed		
In Compliance With Manufacturers Recommendations/ Specifications?		
Problems?		
Resolutions?		
Comments		

****** See also Daily Inspection Log.***

QC Daily Inspection Log Contract No. N62478-26-T-2424

Date: _____ Daily Toolbox safety review _____
Time: _____ Personal Protective Equipment:
Worker: _____ Hard hat ____
Visitor: _____ Steel toe shoes _____
Personal floatation device _____
Other _____

DAILY

Actual Weather Conditions: Sunny Partly-cloudy Showers Rain Storms Hurricane Other _____

Surf: Small Med High

	NOHILI			KAWAIELE		
	#1-60HP	#2-60HP	#3-15HP	#1-200HP	#2-200HP	#3-100HP
Pump ("X" if ON)						
Auto/Manual						
Water level (ft.)	Yes	No		Yes	No	
Removed blockage from canal						
Removed debris from trash screen						
Telemetry transmitting data						
Removed Wasp/Bird Nests						

WEEKLY

	NOHILI			KAWAIELE		
	#1-60HP	#2-60HP	#3-15HP	#1-200HP	#2-200HP	#3-100HP
Transducer height settings						
Transducer timing Tested pumps						

PERIODIC / MONTHLY

	Yes	No	Describe work and location (e.g. Canal A, B, C, D, F, H)
Clean & Lube non-reverse ratchet			
Discharge pipes operational			
Flap Gates unobstructed			
Floodgate operational			
Vegetation cleared from roads			
Sand Berms in place			
Condition of Power poles/lines			
Condition of Access road			

Comments: _____

* If Storm Conditions - Complete Storm Operations Form.

Storm Conditions Operation Log

Site: **Date/Time:**
Operator: **Weather Report/Source:**
Contract #:

Item	Inspection 1	Inspection 2	Action/Details
For 1-2" of Rain	Check general area for problems		
For 2-3" of Rain	Kawaiele -3 pumps in operation	Nohili – 3 large pumps in operation	
Contact Coop to Shut Down Irrigation	Mauka Y/N	Source Y/N	
Ensure Kinikini Sand Embankment to Prevent Seawater Intrusion	Y/N	NA	
Severe Storm 3-5" of Rain	Water Levels Above 2.5' msl? Y/N	NA	
Alerted by Kauai Civil Defense	Y/N	NA	
Coordinate With Kauai QC Manager	Y/N	NA	
Notify NPDES Consultant	Y/N	NA	
Notify PMRF Prior TO Opening Gates	Y/N	NA	
Time/Date of Outfall Open	Ditch ID -	Ditch ID -	
Open Kawaiele	Notify Public Works Y/N	Utilities Located? Y/N	
Open Dry Ditch 1st	Sand removed? Y/N	Closed? Y/N	
Lower Kawaiele flood gate	Open? Y/N	Closed? Y/N	
Improve Discharge Rate	Open Channel Cut a mouth – Y/N		
Close Drain	When water levels below 2.5' msl – Y/N	When high surf or at night – Y/N	
Flooding Conditions	Alert ADC? Y/N	Alert Navy? Y/N	
Post Storm	Return To Normal Operations? Y/N	In Need of Repair? Y/N	

Prior to opening sand berms, ensure utilities are located, by caking PMRF Public Works.
****** See also Daily Inspection Log.***

Comments:

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Appendix B Inspection and Review Reports

Quality Assurance Checklist and Audit Notes

Audit Number:

Auditor:

Date and Time:

Location:

Persons Contacted:

Project Consistent with Schedule? (if no, why?):

Project Staff Consistent with Project Requirements? (if no, why?):

Documents Available (Circle Yes/No/NA, and include observations):

Y / N / NA QCP:

Y / N / NA O&M Manuals, Plans:

Y / N / NA APP/AHA:

Y / N / NA Daily QC Reports (on file, up-to-date, complete?):

Y / N / NA Repair records (type of repair, in compliance with manufactures recommendations, filed properly, completed properly, signed, follow-up on noncompliance?):

Field Inspection:

Type or nature of work observed:

Persons and/or subcontractor doing work:

(Continued)
Quality Assurance Checklist and Audit Notes

Work being done in accordance with applicable specifications and the O &M Manuals, Plans?:

Work completed consistent with schedule?:

Other issues:

Preparatory Inspection Report

Project:_____

Project No.:_____

Date:_____

Inspector's Name:_____ Signature:_____

Review of Contract Requirements Made: _____Yes _____No

Explanation of deficiencies noted (reference section of contract):_____

_____

_____

Equipment and Materials Inspection:

Equipment and/or materials have been tested or vendor data have been submitted and approved?: _____Yes _____No

Explain "No" (List affected materials and/or equipment):_____

_____

_____

Conform to O & M Manuals, Plans?: _____Yes _____No

Explain "No" (List affected materials and/or equipment):_____

_____

_____

Present on-site or delivery schedule verified: _____Yes _____No

Explain "No" (List affected materials and/or equipment)_____

_____

_____

Provisions complete to verify product quality?: _____Yes _____No

_____

_____

(Continued) Preparatory Inspection Report

Explain “No” (List affected materials and/or equipment)_____

_____

_____

O& M Manuals, Plans, APP/AHA and H & S equipment onsite?:_ Yes_____No

Explain “No”:_____

Quality requirements reviewed with workers?: _____Yes___No

Explain “No”:_____

_____

_____

Deficiencies Noted	Corrective Actions Required	Completion Date
a.		
b.		
c.		
d.		

_____

Reviewed By:

Site Manager: _____ Date: _____

Program QC Inspector: _____ Date: _____

Program Manager: _____ Date: _____

Construction QC Inspection Report

Project:_____

Date:_____

Inspector's Name:_____ Signature: _____

Describe status of work element:_____

_____

Estimate percent complete:_____%

Note workmanship, condition of materials, omissions, or dimensional inconsistencies:_____

_____

_____

_____

Inspection/Testing Result (circle one): Passing / Contingent Passing / Failing

Describe inspection/test conducted and result (attach documentation form for any test conducted):_____

_____

_____

_____

Deficiencies Noted	Corrective Actions Required	Completion Date
a.		
b.		
c.		
d.		

_____

Reviewed By:

Site Manager:_____ Date:_____

Program QC Inspector:_____ Date:_____

Program Manager:_____ Date:_____

Appendix C Submittal Register

Submittal Register – Kawaiele and Nohili Pump Stations and Associated Ditches O&M Contract Number N62478-26-T-2424*

Document	Prepared By	Reviewed By	Corrective Actions	Submitted To	Date
QCP					
Preparatory Inspection Report					
Construction QC Inspection Report					
Quality Assurance Checklist and Audit Notes					
Daily QC logs					
Construction Quality Log					
Storm Conditions Operation Log					
Vendor certificates/statements/data					
QA Audit Reports					
Reports of Noncompliance					
Others/Additional:					

***Notes**:

1.) File is to be maintained throughout the project. Upon completion of the project, the file is submitted to the Navy within one week.

2.) Daily (weekday) reports will be completed, submitted to the QC Manager, reviewed, and included in the project file. Daily safety sheets must also be attached to the daily QC logs. ADC will confirm submittal dates to the Navy of these reports.

3.) Monthly reports will consist of a narrative of the compiled daily reports. ADC will confirm submittal dates to the Navy of these reports.

Appendix D 1502000 - Facility Investment

1502000 - Facility Investment		
Spec Item	**Title**	**Description**
I	General Information	The Contractor shall provide all labor, management, supervision, tools, material, and equipment required to perform Facility Investment services for facilities at the PACIFIC MISSILE RANGE FACILITY (PMRF) AT KAUAI, HAWAII.
l.l	Concept of Operations	The intent of 1502000 Facility Investment is to specify the requirements for Sustainment, Restoration, and Modernization **(SRM)** sub-functions only. The Facility Investment requirements within this sub-annex primarily consist of infrastructure sustainment and minimal restoration and modernization work. Sustainment is the maintenance and repair necessary to keep an inventory of facilities and other assets in good working order. Restoration and modernization normally consists of major rehabilitation and capital improvements that is accomplished through other Navy programs. Some major repair, minor construction and stand-alone demolition may be accomplished as part of Facility Investment. The Contractor shall perform maintenance, repair, alteration, demolition, minor construction, and landscape repair for the following: Mechanical Equipment Structures -Pump Footing or Foundation -Structural Components -Cathodic Protection Systems -Pipelines Building Systems -Pump Station -Cana ls /Culverts and Ravines -Flood Gates, Flap Gates -Electrical Power Transmission Lines and Associated Hardware and Structures -Water Accumulation and Discharl!;e areas (to include Wet Wells)

1502000 - Facility Investment		
Spec Item	**Title**	**Description**
2	Management and Administration	
2.1	Definitions and Acron yms	Definitions and Acronyms are listed in J-1502000-0 I.
2.2	Personnel	The Contractor shall provide personnel with the quali fications , technical knowledge, experience and skills required for efficient operations within the Facilities Investment function.
2.2.1	Certification, Training, and Licensing	All maintenance and repair shall be performed by personnel trained and certified by the OEM. Personnel working with or on electrical or electronic equipment must be trained and certified per NAVFAC MO-200 . Personnel performing work in HAZMA T/HAZW ASTE must complete the HAZMAT/HAZW ASTE handling course or have a minimum of one year of experience working with HAZMA T/HAZW ASTE. Personnel performing work on transformers must be knowledgeable of proper procedures for handling and disposing of insulating fluid containing polychlorinated biphenyls (PCBs) Personnel performing work and obtaining test data on the cathodic protection system must be trained per UFC 3-570-06 . All maintenance trade personnel certifying or inspecting repair or maintenance work that does not require an inspector certified by a governing directive shall be qualified at the journeyman level or higher. The Contractor shall submit proof of all certification, training, and licensing req uiremen ts per Section F.
2.3	Special Requirements	
2.3.1	Work Coordination	During exceptional flooding perio ds, and when necessary, the Contractor shall coordinate all maintenance and repair work with the PMRF Public Works Office in a manner that minimizes the potent ial floodin g at PMRF.
2.3.2	Workmanship and Material Standards	The Contractor shall be responsible for maintaining all facilities, systems, and equipment, identified in this technical sub-annex, to a standard that prevents deterioration beyond that which results from normal wear and tear and corrects deficiencies in a timely manner to assure full life expectancy of the facilities, systems, and equipment. Best commercial practices shall be applied in the performance of work . All work shall be completed per approved and accepted industry and equipment manufacturers' standards and shall comply with building and safety codes, applicable activity, loc al, s tate , and federal regulations , and other technical requirements identified within this technical sub-annex . Workmanship for maintenance and repair shall include all work necessary to complete facility and system restoration, including touch-up painting and operational checks. Upon completion of work, the Contractor shall ensure all facilities, systems, and equipment are free of missing components or defects which would affect the safety, appearance, or habitability of the facilities and structures or would prevent any electrical, mechanical, plumbing or structural system from functioning in accordance with desig n intent. Re pa irs shall be made in accordance with the manufacturers'

1502000 - Facility Investment		
Spec Item	**Title**	**Description**
		specifications and guidelines, and standard building codes. The quality of repairs shall meet the applicable standards and shall prevent any malfunction reoccurrences caused by poor workmanship or other contractor inadequacies. The quality of the repaired areas shall be fully compatible with adjacent surfaces or equipment. Except where otherwise specified, replacements shall match existing in dimensions, finish, color, design, and functionality and shall have an appearance similar to the original finished appearance with only minor unobjectionable deterioration resulting from normal use. The Contractor shall not allow debris to spread unnecessarily into adjacent areas nor accumulate in the work area. All such debris, excess material, and parts shall be cleaned up and removed at the completion of the job and at the end of each day work is in progress. Upon completion of work, any stains and other unsightly marks shall be removed.
2.3.3	Historical Preservation	Buildings and facilities designated as historical sites shall be maintained in accordance with Federal, state and local historical policies and regulations.
2.4	References and Technical Documents	Records and reports are listed in Attachment F-1 of the solicitation. The Contractor shall submit accurate and complete documents within the required timeframes.

1502000- Facility Investment				
Spec Item	**Title**	**Performance Objective**	**Related Information**	**Performance Standard**
3	Recurring Work	The Contractor shall maintain, repair, and alter facilities, systems, and equipment to ensure they are fully functional and operational. The Contractor shall efficiently maintain the water level in the wet well of Kawaiele pumping station **in accordance with Attachment J-1502000-07 or as may be hereafter amended.**	The location of Kawaiele pump stations and other infrastructure is provided in J-1502000-02. Facilities and equipment inventory is provided in J-1502000-03. The Recurring portion is limited to Service Contract Labor Standards. **The Fifth Amendment of the General Lease No. S-3852 is provided in J-1502000-07.**	Facilities, ground structures, and installed equipment and related systems are in normal working condition and function properly in accordance with specified standards. Pump system maintained continuously to prevent flooding during heavy rams.
3.1	Preventive Maintenance (PM) Program	The Contractor shall develop and implement a PM program for systems and equipment to ensure proper operation, to minimize breakdowns, and to maximize useful life.	The Contractor shall submit a PM program to the KO to ensure equipment and systems are properly maintained. The PM program shall be developed based on an economical approach, manufacturers' recommended procedures, OEM standards, and maintenance required to satisfy equipment warranties. The systems and equipment, including associated inventories, that shall be included in the PM program are addressed in the **PM** Spec Items below. The Contractor shall perform repairs to the pumps for up to 32 hours of labor and $2,000 in material, equipment, and parts per repair. Historical data for pump repairs and heavy rain storms are provided in J-1502000-05. Notification ofrepair work exceeding the PM limit shall be submitted to the KO within two hours of identification. Non-Recurring work may be	The Contractor's PM program is submitted within 30 calendar days following award. PM is accomplished per the Contractor's program and work schedule. At a minimum, the PM program addresses ongoing continuous preventive maintenance for portions of the pump system that need more frequent maintenance. All repairs discovered during preventive maintenance work, up to the Recurring limits, are completed. The KO is notified, for repairs exceeding the Recurring limits, within two hours of identification by the Contractor. Monthly PM schedule is submitted prior to the start of the next month.

1502000 - Facility Investment				
Spec Item	**Title**	**Performance Objective**	**Related Information**	**Performance Standard**
			issued for repairs exceeding the PM limit. Excessive or repeated system or equipment breakdowns or deficiencies may indicate the need to adjust or modify the Contractor's PM program. These changes will be made at no additional cost to the Government. The Contractor shall submit a monthly PM schedule (for the next month's inspections) prior to the start of the next month. A report after each completed monthly inspection shall be submitted to the KO within two calendar days after the inspection. The Contractor shall notify the KO when deficiencies or repairs are found that may be beyond the scope of the repair of this contract.	A completed monthly inspection report is submitted to the KO within two calendar days after the inspection. KO is notified for repairs or deficiencies found that are beyond the repair scope of this contract.
3.2	Pump Operation and Maintenance	The Contractor shall operate the three pumps at Kawaiele pumping station as necessary to lower the level of water at the wet well level **in accordance with Attachment J-1502000-07 or as may be hereafter amended.** The Contractor shall cycle all pumps at each pumping station at least once per week. Each pump shall run for 20 minutes minimum during the weekly cycling. Secure the pump if cavitation becomes excessive. The Contractor shall visit each pumpiniz	The water level at the Kawaiele pumping station wet well shall be maintained **in accordance with Attachment J-1502000-07 or as may be hereafter amended, as permitted by the pump controls without causing excessing cycling.** Operation consists of weekly, monthly, quarterly, semi-annual, and annual maintenance in accordance with the manufacturer's maintenance manual. Safe operation shall ensure that all pumps requiring operator attendance are staffed by qualified personnel at all times of operation. The KO shall be notified immediately if unsafe conditions are discovered.	Pumps and components are efficiently, safely and continuously operated per specified operating criteria as prescribed by the manufacturer's maintenance manual. **PMRF** Public Works Officer is notified within a reasonable time of any unforeseen pump malfunction that might cause potential flooding to affect the PMRF facilities. Meters are installed and functioning at all times. Water level at Kawaiele pumping stations are maintained to a water level **in accordance with Attachment J-**

1502000- Facility Investment				
Spec Item	**Title**	**Performance Objective**	**Related Information**	**Performance Standard**
		station at least 5 days per week (preferably Monday thru Friday) and enter maintenance performed and visual observations in log book.	The average volume of water pumped is approximately 17 million gallons per day (MGD). The Contractor shall perform repairs to the pumps for up to 32 hours of labor and $2,000 in material, equipment, and parts per repair. The Contractor shall shutdown, restart, and perform operational checks on all equipment affected by both scheduled and unscheduled utility outages at no additional cost to the Government.	**1502000-07 or as may be hereafter amended.** All pumps at each pumping station cycled at least once per week. Each pump is allowed to run for a minimum of 20 minutes during the weekly cycling. Pump is secured if excessive cavitation occurs. Maintenance tasks and daily observations are noted in the log book at each pumping station.
3.3	Kawaiele Pump Station Infrastructu re	The Contractor shall maintain all infrastructure that supports the pumps at the Kawaiele pumping station. Log all maintenance tasks in the log book at each pumping station.	The infrastructure includes instrument shed, pipes, railings, cross walk etc. that requires periodic maintenance to deter deterioration. In particular are the sheet pilings. These pilings are crucial to maintain the wet well from collapsing and require constant monitoring and maintenance to deter any major deterioration to the point of potential collapse. (Refer to Attachment J-1502000-02) Maintenance shall include spot correction efforts to prevent more serious corrosion and deterioration. Wooden storage shed, wooden barricades, and platforms shall be maintained to prevent further deterioration. Maintenance shall include painting when required and minor repairs if necessary.	Preventive maintenance being performed on the infrastructure in accordance with trade standards. Maintenance tasks are noted in the log book at each pumping station. Spot correction efforts performed to limit deterioration of structure and components. Storage shed, wooden barricades, and platforms are maintained.
3.4	Dry Ditch Flood Gate	The Contractor shall maintain the Dry Ditch Flood Gate so it is operational at all times. Flood gate shall be	The Contractor shall provide periodic maintenance to assure that the gate is operational at all times. The gate could be crucial during heavy rain.	Maintenance is accomplished in accordance with the Contractor's PM program and work schedule.

1502000 - Facility Investment				
Spec Item	**Title**	**Performance Obiective**	**Related Information**	**Performance Standard**
		operated during times of heavy rainstorms to limit flooding to the canals.	Maintenance should include other gate infrastructure such as support safety railings and the walkway. Operation of the flood gate during heavy rainstorms will prevent excessive flooding. No major repair work is required other than periodic preventive maintenance.	The Dry Ditch Flood Gate is operational at all times. Flood gate is operated to limit flooding in times of heavy rainstorms.
3.5	Flap Gates	The Contractor shall maintain the Flap Gates to be operational at all times. Flap gates shall be operated during times of heavy rainstorms to limit flooding in the canals.	The Contractor shall provide periodic maintenance to assure that the gates are operational at all times. The gates are crucial during heavy rain. Operation of the flap gates during heavy rainstorms will prevent excessive flooding. No major repair work is required other than periodic preventive maintenance.	The Flap Gates are operational at all times. Flap Gates are operated to limit flooding in times of heavy rainstorms.
3.6	Electric Power Transmission Lines	The Contractor shall maintain the electrical power lines such that loss of power to the pump stations are minimized.	The maintenance of the power poles include pole transformers, guy wires, cross arms and insulators and any other related items that made the power transmission possible. Maintenance of power lines include tree trimming to prevent branches from contacting power lines. No major repair work is required other than periodic preventive maintenance.	Preventive maintenance performed. No tree branches touching any power lines.
3.7	National Pollutant Discharge Elimination System Permit (NPDES)	The Contractor shall apply for and possess a valid NPDES permit as required under any settlement agreement, court approval or other applicable laws.	The Contractor is required to apply for and obtain a NPDES permit as required under any settlement agreement, court approval or other applicable laws.	Contractor's NPDES Permit shall be submitted to the KO within 30 days after permit is obtained. Contractor has a valid NPDES permit for the duration of the contract to include all Option Years.

1502000 - Facility Investment				
Spec Item	**Title**	**Performance Objective**	**Related Information**	**Performance Standard**
3.8	Cathodic Protection Systems	The Contractor shall perform preventive maintenance on the cathodic protection system to ensure proper operation, to minimize breakdowns, and to maximize useful life.	The cathodic protection system is installed to protect the sheet metal piping at the Kawaiele Pump station. The Contractor shall maintain, inspect, and test the cathodic protection system in accordance with instructions provided in the "Cathodic Protection Operation and Maintenance Data' in J-1502000-06. The Contractor shall perform maintenance on the cathodic protection system for up to 16 hours of labor and $500 in material, equipment, and parts cost per year. At a minimum, maintenance shall include troubleshooting procedures to correct loss of A.C. input, blown fuses, loose terminals, faulty meters, blown M.O.V. suppressors, open circuits, faulty cathodic load connections, and lightning damage. If the initial inspection should uncover a faulty rectifier, systematic isolation of the various rectifier components should be conducted to determine the cause of non-operation by following the steps outlined in the manual (Attachment J-1502000-06). The Contractor shall notify the KO for all repairs exceeding the Recurring limits.	The cathodic protection system is operational at all times. Maintenance, inspection, and testing of the cathodic protection system performed in accordance with the "Cathodic Protection O&M Data" in J-1502000-06. The Contractor is responsible for all repairs discovered during preventive maintenance work, up to the Recurring limits, are completed. The KO is notified, for repairs exceeding the Recurring limits, within two hours of identification by the Contractor.

1502000 - Facili ty Investment				
Spec Item	**Title**	**Performance Objective**	**Related Information**	**Performance Standard**
4 ---	Non-Recurring Work	Non-Recurring work may be ordered utilizing DoD FedMALL **or on a task order in accordance with DFARS 252.216-7006 ORDERING.** The order will specify the exact locations and types of work to be accomplished. The period of performance will be specified in each order.	Refer to Non-Recurring work ELINs for task listings, descriptions and related requirements. All periods of performance are measured from issue date of order to acceptance of the work. Performance Standards for Non-Recurring work will be the same as those in Spec Item 3 where applicable.	

ATTACHMENT J-1502000-01
DEFINITIONS AND ACRONYMS

DEFINITION	DESCRIPTION
PREVENTIVE MAINTENANCE (PM)	Maintenance designed to increase the availability of the facilities/equipment by reducing the number of unexpected breakdowns or service interruptions. It is any planned maintenance activity that improves equipment life and avoid any unplanned maintenance requirements. PM consists primarily of inspection, testing, cleaning, lubrication, adjustment, calibration, and minor part and component replacement (such as filters, batteries, belts, hoses, fluids, oil and grease) as required to verify proper system operation; minimize malfunction, breakdown, and deterioration of systems and equipment; and maximize useful life.
WEIGHT HANDLING EQUIPMENT (WHE)	Weight handling equipment consists of cranes (e.g., portal cranes, jib cranes), rigging gear (e.g., slings, shackles), and associated equipment (e.g., portable hoists, dynamometers).
REPAIR	Repair is the restoration of facilities or equipment to such a condition that it may be effectively utilized for its designated purposes by overhaul, reconstruction, or replacement of constituent parts or materials which have deteriorated by action of the elements or usage, and which have not been corrected through maintenance. This term also applies to replacement of the entire unit or system if beyond economical repair. The intent of repair is to have the equipment at normal working condition.
REPLACEMENT	Replacement, as a distinct work element, is confined to a program of planned replacement of a facility or its components. It may be further limited to major components such as air conditioning compressors, furnaces or hot water heaters. Replacement is performed when the equipment has reached the end of its useful life; when it no longer can perform due to degradation of its internal components and repair is no longer cost effective. Included under the replacement would be the major rebuilding of any component, since rebuilding also restores performance.
RESTORATION	Restoration of real property to such a condition that it can be used for its intended purpose. Includes repair or replacement work to restore facilities damaged by inadequate sustainment, excessive age, natural disaster, fire, accident or other causes.
SUSTAINMENT	Maintenance and repair activities necessary to keep a typical inventory of facilities in "normal working condition". Sustainment includes regularly scheduled maintenance as well as cyclical major repairs or replacement of components that occur periodically over the expected service life of the facilities.

Acronym	Title
KIUC	Kauai Island Utility Co-up
MGD	Million Gallons per Day
MSL	Main Sea Level
NFPA	National Fire Prevention Association
NPDES	National Pollutant Discharge Elimination System
SRM	Sustainment, Restoration, and Modernization

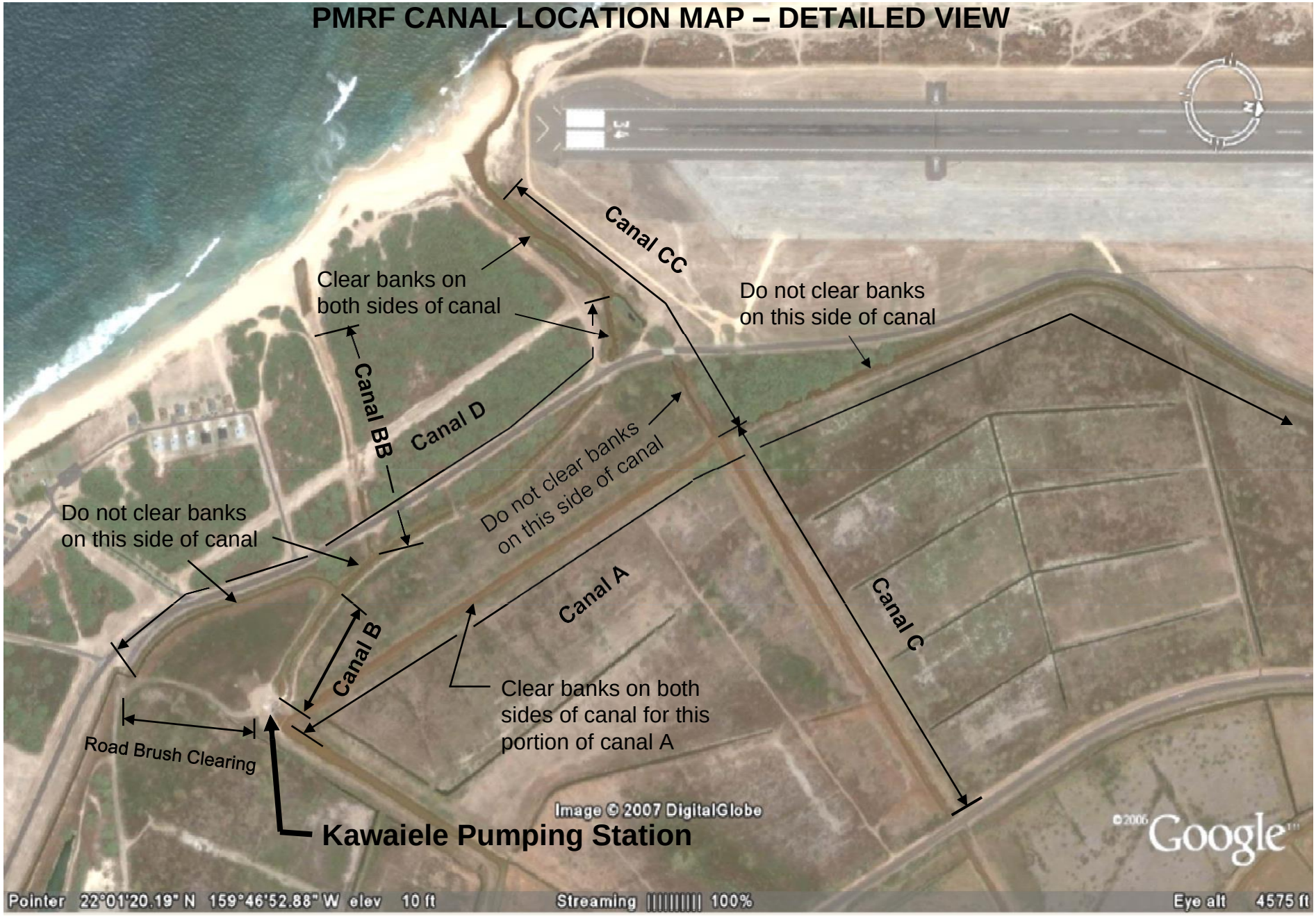
ATTACHMENT J-1502000-02

PMRF CANAL LOCATION MAP – OVERALL VIEW

J-1502000-02 Map 1 of 5

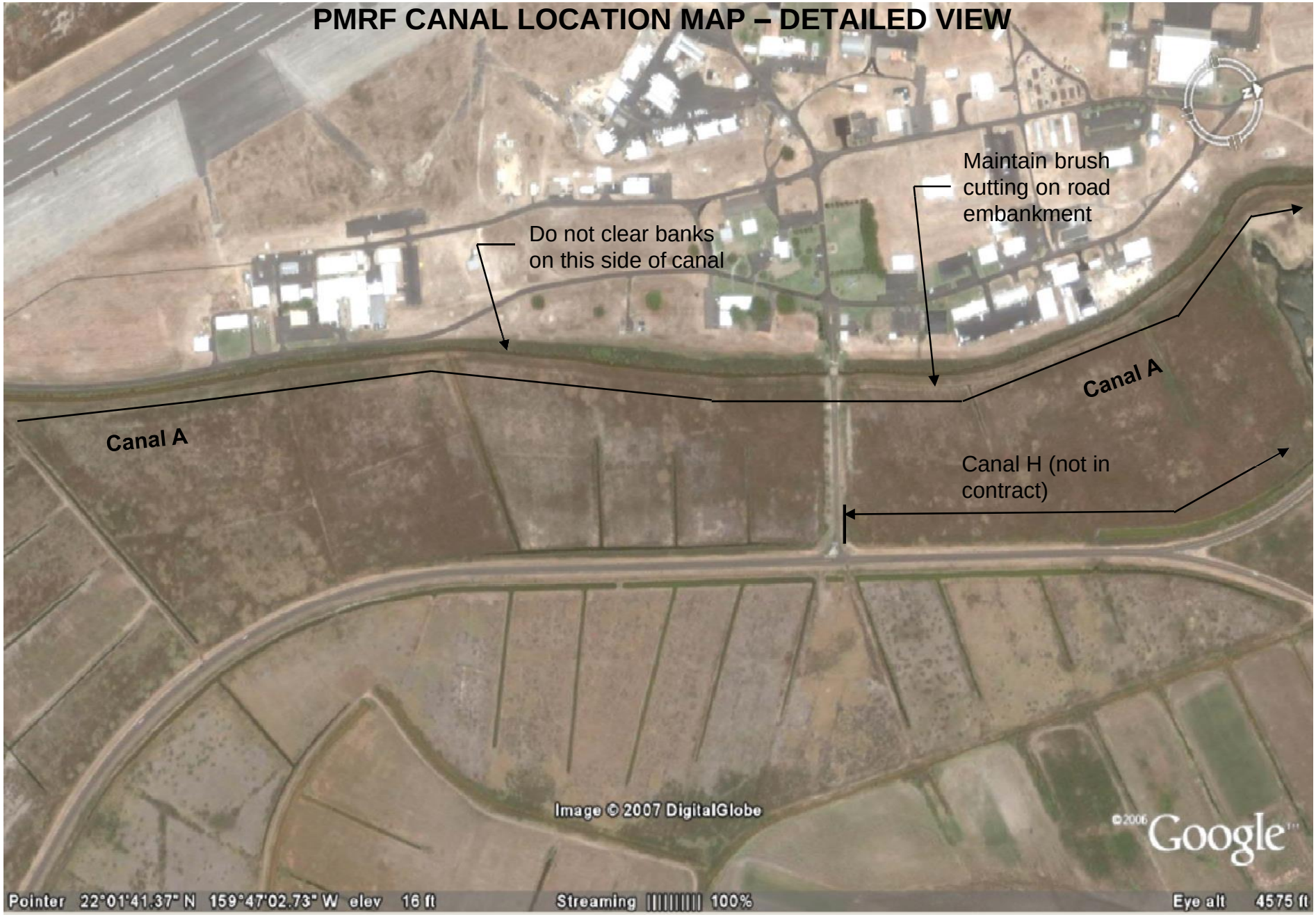
ATTACHMENT J-1502000-02

PMRF CANAL LOCATION MAP – DETAILED VIEW



J-1502000-02 Map 2 of 5

ATTACHMENT J-1502000-02
PMRF CANAL LOCATION MAP – DETAILED VIEW



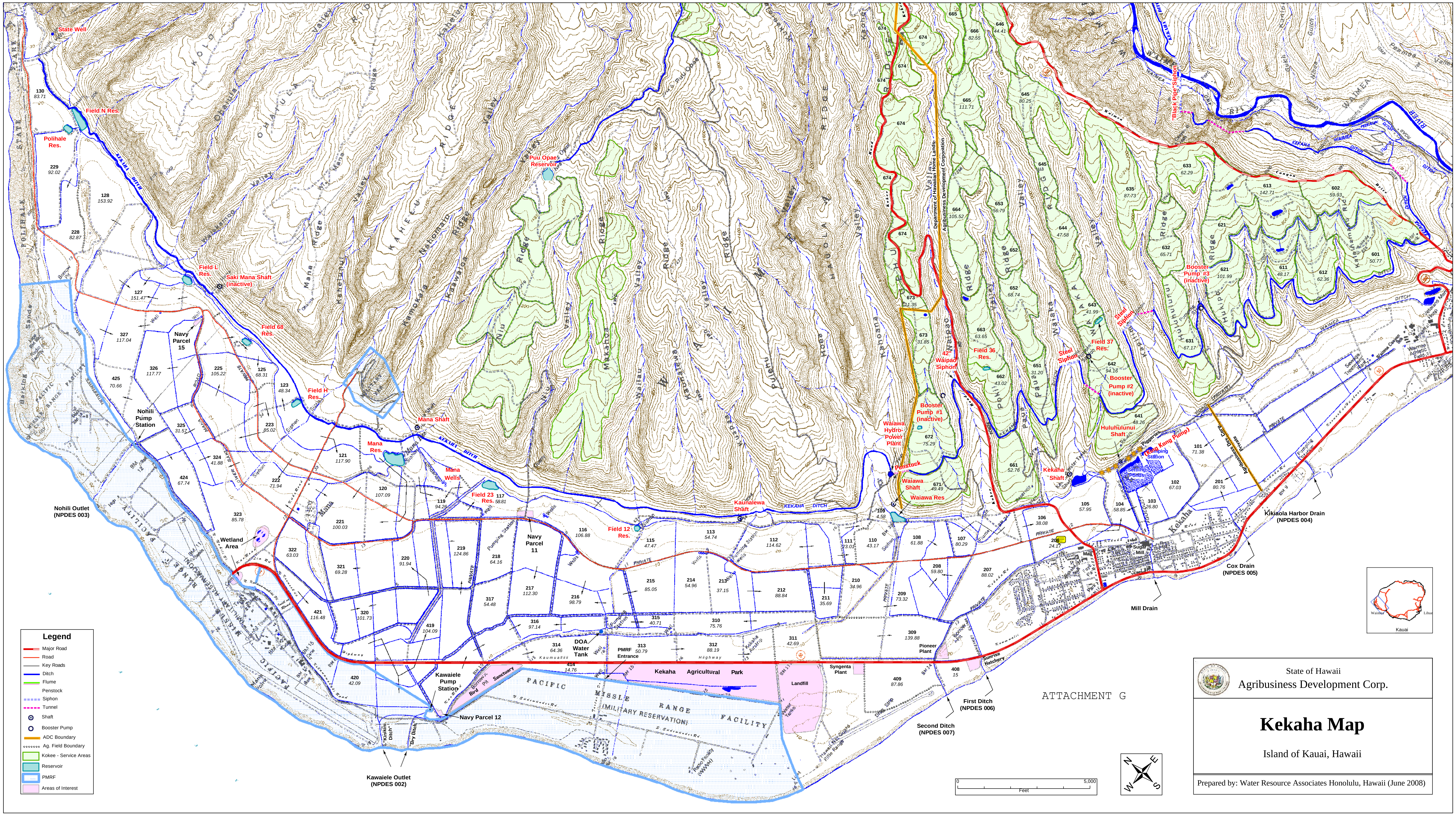
J-1502000-02 Map 3 of 5

ATTACHMENT J-1502000-02
PMRF CANAL LOCATION MAP – DETAILED VIEW

J-1502000-02 Map 4 of 5

ATTACHMENT J-1502000-02
PMRF CANAL LOCATION MAP – DETAILED VIEW

J-1502000-02 Map 5 of 5


ATTACHMENT G
State of Hawaii
Agribusiness Development Corp.
Kekaha Map
Island of Kauai, Hawaii
Prepared by: Water Resource Associates Honolulu, Hawaii (June 2008)
Legend
Major Road
Road
Key Roads
Ditch
Flume
Penstock
Siphon
Tunnel
Shaft
Booster Pump
ADC Boundary
Ag. Field Boundary
Kokee - Service Areas
Reservoir
PMRF
Areas of Interest
Kauai
Feet
State Well
Field N Res.
Polihale Res.
Field L Res.
Saki Mana Shaft (inactive)
Field 68 Res.
Navy Parcel 15
Field H Res.
Nohili Pump Station
Mana Shaft
Mana Res.
Mana Wells
Field 23 Res.
Puu Opae Reservoir
Nohili Outlet (NPDES 003)
Wetland Area
Navy Parcel 11
Field 12 Res.
Kaunalewa Shaft
Waiawa Hydro-Power Plant
Penstock
Waiawa Shaft
Waiawa Res.
Booster Pump #1 (inactive)
42" Waipao Siphon
Field 36 Res.
Field 37 Res.
Steel Siphon
Booster Pump #2 (inactive)
Hukuhulunui Shaft
Kekaha Shaft
Kong Pump
Booster Pump #3 (inactive)
"Black Pipe" Siphon
Kikiaola Harbor Drain (NPDES 004)
Cox Drain (NPDES 005)
Mill Drain
Sugar Mill
DOA Water Tank
PMRF Entrance
Kekaha Agricultural Park
Landfill
Syngenta Plant
Pioneer Plant
Sunrise Hatchery
First Ditch (NPDES 006)
Second Ditch (NPDES 007)
Kawaiele Pump Station
Bird Sanctuary
Navy Parcel 12
Kawaiele Outlet (NPDES 002)
Department of Hawaiian Home Lands
Agribusiness Development Corporation
PACIFIC MISSLE RANGE FACILITY (MILITARY RESERVATION)
KEKAHA DITCH
Kekaha

ATTACHMENT J-1502000-03
FACILITIES AND EQUIPMENT INVENTORY

1. Kawaiele pump station: 2 – 200 HP pumps, 1 – 100 HP pumps, 142 linear ft of sheet piling
2. Nohili pump station: 2 – 60 HP pumps, 1 – 15 HP pumps
3. 32,077 linear ft of canals
4. 5 culverts
5. 20 power poles and 6 pole transformers
6. 26,320 ft of access road
7. One Dry Ditch Food Gate
8. Two Flap Gates
9. Pump Stations infrastructure items: 142 linear ft of sheet piling, one cross walk with railings, two instrument sheds, two debris grill and approximately 20 ft of 3" diameter steel conduits.

Note:
a. The sheet piling maintenance includes a visual observation and notation of condition in the log book. Notify the KO when the sheet piling needs repair.

ATTACHMENT J-1502000-04

CANAL LENGTH, WIDTH, AND DEPTH BY SECTION (SEE J-1502000-01 MAPS FOR LOCATION AND LAYOUT)

	Canal Identification	Length Ft	Ave Width Ft	Approximate Depth Ft
1	Canal A	21,750	25	-4
2	Canal B	1,500	20	-4
3	Canal C	2,407	30	-3
4	Canal CC	1,093	30	-3
5	Canal D	2,000	20	-2
6	Canal E	0	20	Not in contract
7	Canal F	1,092	20	-1
8	Canal FF	2,235	60	no dredging - brush rem 1x per year
9	Canal G	0	20	Not in contract
10	Canal H	0	20	Not in contract
	Total	32,077		

Related Information for Canals

Canal A See maps for portions of Canal A that have no clearing of banks on one side of canal (buffer zone).
Canal B Clear banks on both sides of canal
Canal C Clear banks on both sides of canal
Canal CC See maps for a portion of Canal CC that have no clearing of banks on one side of canal (buffer zone).
Canal D See maps for portions of Canal D that have no clearing of banks on one side of canal (buffer zone).
Canal E Not in contract
Canal F The portion of canal near the ocean is a restricted area for sea turtles. Do not cut brush beyond area shown.
Canal FF No dredging work, only brush clearing is required (1x per year minimum).
Canal G Not in contract
Canal H Not in contract

Appendix E

Pump Station Diagrams

Kawaiele Pump Station

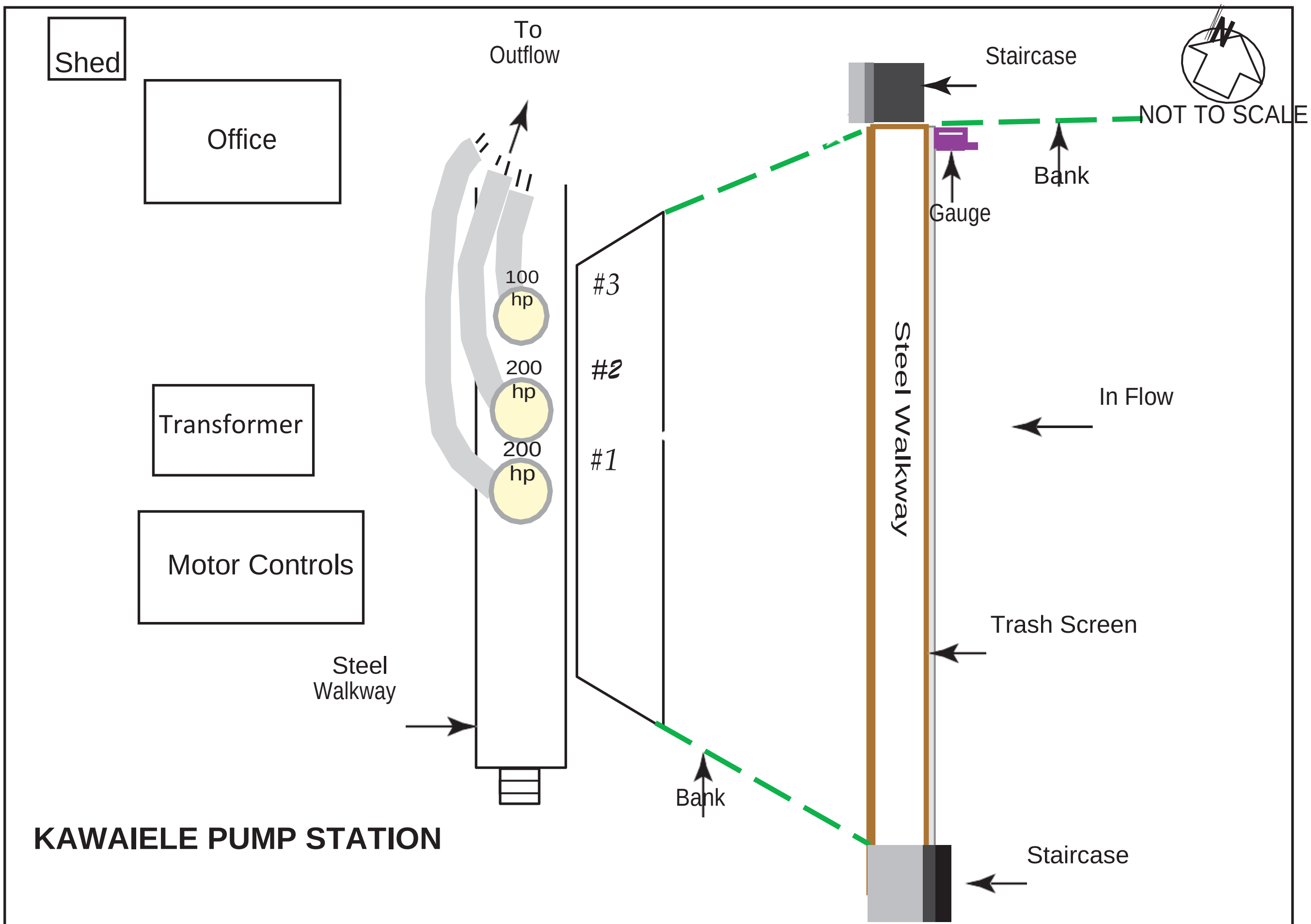


Figure 2-2
Kawaiele Pump Station