

# **Sarah Hill to Veteran's Drive Waterline Design Proposal (RFP-07-25)**

*Submitted to  
The Virgin Islands Water and Power Authority*



Prepared by  
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## 1. PROJECT FIRMS

### INTRODUCTION

**CARITECH GROUP LLC** (Caritech) is pleased to submit this proposal to VIWAPA in response to RFP PR-07-25 entitled **WATERLINE DESIGN FOR SARAH HILL 24 Inch and 18 Inch MAIN DESIGN ST. THOMAS RFP**. The focus of the design team will be in the following four areas:

- Project Management
- Surveying
- Water Distribution Design
- Permitting Services

Caritech will be the lead has assembled a team that will deliver a successful design package to VIWAPA.. The team is comprised of Caritech, Sanborn Head & Associates (Sanborn Head), Arrow Land Development, (Arrow Land) and Jaca & Sierra. Key members of our proposed project team have had the opportunity to work on VIWAPA water distribution projects in the past which include project management, preliminary evaluation and final design, surveying and development of traffic control plans. We believe we have assembled a team with exceptional qualifications.

Caritech will be the prime consultant with the other members participating on the Project as sub-consultants. Caritech will be responsible for project management, review of system design drawings, construction documents and cost estimates; environmental and construction permits. Sanborn Head will complete the water distribution system design and construction documents (plans and specifications); Arrow Land will be responsible for preparing the surveys and the establishment of project survey controls and Jaca & Sierra will be responsible for the geotechnical investigations.

### ***Caritech Group LLC***

Caritech Group, LLC (Caritech) is an engineering consulting firm based in the U.S. Virgin Islands which was **established in 2010**. Caritech's Principal and General Manager, Eric Douglas, is a consulting engineer with over thirty-five years of industrial and engineering experience and has a strong background in project management, process design, technical training, environmental permitting and regulations. Mr. Douglas is and has been a Licensed Professional Engineer since 1995. Over the last thirty-five years, Mr. Douglas has worked on and managed a wide range of projects for Virgin Islands Government Agencies including the Virgin Islands Water and Power Authority (VIWAPA), the Virgin Islands Port Authority (VIPA), the Virgin Islands Housing Authority (VIHA, the Virgin Islands Housing Finance Authority, VIHFA), the Virgin Islands Waste Management Authority (VIWMA) and the Virgin Islands Department of Planning & Natural Resources (VIDPNR). The firm is a minority-owned Small Business and **SAM-Active**, Federal US SBA 8(a) registered engineering consulting firm (**UEI No: Q438MTT3DCD8**).

### ***Sanborn Head & Associates, Inc.***

Sanborn Head & Associates Inc. (Sanborn Head) is a 115-person multidisciplinary engineering consulting firm with a resource pool of over 80 technical staff in the areas of process mechanical, site civil, geotechnical, electrical, controls and environmental engineering. They have offices throughout the New England states, New York and Ohio, from which they serve a diverse set of industrial and commercial clients. Since its founding in 1993, Sanborn Head has completed over 5,000 projects at sites located throughout both the United States and worldwide. Its clients include Fortune 500 industrial companies, regional and local businesses, public institutions, as well as state and local government agencies.

### ***Arrow Land Development, LLC***

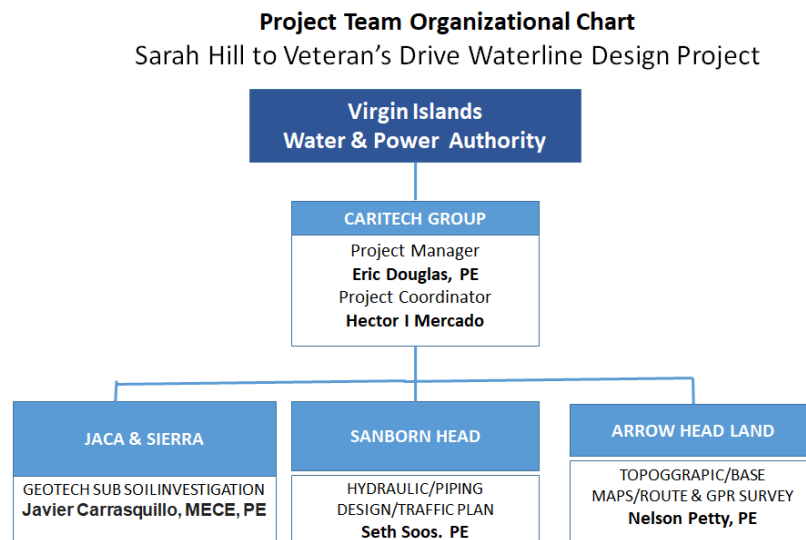
Arrow Land Development is a U.S. Virgin Islands-licensed firm which provides surveying, construction, engineering, and environmental consultation services to public and private sector clients. Its comprehensive set of surveying services include boundary surveying, topographical surveying, land title surveying, right-of-way establishment, and construction surveying. Arrow Land Development is a trusted civil engineering and surveying firm serving the U.S. Virgin Islands. Arrow Land Development's Principal, Nelson Petty Jr. P.E. is a civil engineer with over 25 years of experience. Mr. Petty also served as the public works commissioner from 2017 to 2020.

### ***Jaca and Sierra Engineering, PSC***

Jaca & Sierra Engineering, PSC is a soil and material testing laboratory and geotechnical engineering firm based on the island of Puerto Rico. J&S was established in 1967. It is one of largest geotechnical services firm in the Caribbean covering the island of Puerto Rico, U.S. Virgin Islands, British Virgin Islands, Lesser Antilles and other locations within the Caribbean. J&S services reliability is based on experience, training and internal quality systems.

## **PROJECT TEAM ORGANIZATION**

The assembled project team brings both qualified personnel and related projects to this endeavor. Please refer to the Project Team Organization Chart below which identifies the key team members and their proposed roles:



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## 2. PROJECT UNDERSTANDING AND SCOPE OF SERVICES

### BACKGROUND

The Virgin Islands Water and Power Authority (VIWAPA) is soliciting proposals from qualified and licensed engineering firms for Engineering Design Services to replace and upgrade sections of the potable water distribution system from its main pump station at Sarah Hill to the intersection of Veteran's Drive and , St. Thomas, US Virgin Islands.

### PROJECT OBJECTIVES

VIWAPA intends to replace portions of their potable water distribution system within the Sarah Hill area on St. Thomas, US Virgin Islands. Our understanding of the project is based on VIWAPA's Request for Proposal (RFP) PR-07-25, including Addendums II and III.

As outlined in the RFP, the primary objective is to design a water system that will result in the installation of approximately **5,280 linear feet of 18-inch and 4,900 liner feet of 24-inch C-900 DR-14 PVC pipe**, including service lines, all fittings, valves, hydrants, and appurtenances necessary to complete the job in place and return the project area to pre-construction conditions.

### DATA COLLECTION AND CONCEPTUAL DESIGN (30% DESIGN)

#### ***Survey Work***

Caritech and Arrow Land will provide the surveying services necessary to prepare the base plans for the project. Planimetric information (building, tree, street locations, etc.), and topographic pertinent information will be edited and updated as required to reflect existing conditions. Field surveys to obtain existing utility information, detailed field data at critical areas and proposed easements will be performed concurrently. Specific details regarding the exact *Scope of Survey Work* are provided in the VIWAPA RFPR-06-25 in Appendix A of this document .

#### ***Ground Penetrating Radar ("GPR") Survey of Pipe Route***

The Ground Penetrating Radar (GPR) *Scope of Work* for the proposed pipe route swill be done as specified in the RFP. The GPR Survey will be used to identify any underground utilities and to conduct a dense subsoil investigation.

#### ***Subsoil Investigation***

Caritech will conduct a limited number of soil borings and combine the results from that program with the Ground Penetrating Radar (GPR) scans to approximate the location of potentially dense material that may be encountered during excavation of soils within the proposed pipeline routes from Sarah Hill to Veterans Drive.

Caritech will utilize the services of Jaca & Sierra to conduct a total of **ten (10) test borings** within the site of the proposed waterline rehabilitation. Each soil boring will be done approximately every **1,000 linear feet** along the proposed route for the new waterlines. Subsurface exploration will be achieved as per ASTM D 1452 using a truck mounted drill rig. The boring depth will be between 6 feet and 10 feet beneath the existing ground surface. At the completion of both field and laboratory testing, a report will be generated containing the soil and index properties of the subsoil at the location of the borings and include geotechnical recommendations and guidelines for earthwork operations.

Both the soil borings data and GPR data will be reviewed and used to approximate the horizontal extent of potentially dense material that may be encountered within the vertical extent of the trench excavation along the entire system pipe alignments.

Caritech will also review other sources of information to evaluate where dense material may be encountered during excavation, including soil classification data obtained from the US Virgin Islands Geospatial Information Systems and "Soil Survey of the United States Virgin Islands" (the Soil Survey) prepared by the US Department of Agriculture and the Natural Resources Conservation Service. Descriptions of these soil classifications and the approximate locations of these soil types within the area will be highlighted and displayed graphically.. These areas of potentially dense material will be approximated based on interpretation of the GPR data to be collected. A map will be generated to show the resulting horizontal extent of potentially dense subsurface material on the overall project site map and in the profile views of the waterline design drawings.

The results of this subsoil investigation will provide bidding Contractors with as much information on subsurface conditions as possible to allow them to better refine their quotes and avoid potential change orders as the project progresses.

#### **PRELIMINARY DESIGN – (70% DESIGN COMPLETE)**

Caritech and Sanborn Head will coordinate closely with the VIWAPA-assigned project manager throughout the entirety of the design. Coordination with the Authority's assigned project engineer will be required for minimum delays in the design work. Specific details regarding the exact *Scope of Preliminary Design Work* are provided in the **RFP PR-07-25** which is cited in the Reference Section of this Proposal.

#### **FINAL DESIGN –(100% DESIGN COMPLETE)**

Caritech will submit one hundred percent (100%) design completion; bid documents, construction cost estimates, schedules, bid items list and specifications incorporating any revisions requested by VIWAPA in the preliminary design. At this point of the design the waterline layout will show all service connections, meter boxes, hydrants, etc. The plans will include

detailed water details, general notes section, completed profiles and layouts, traffic plans and details, construction schedule and any special structures and all relevant information.

## HYDRAULIC MODELLING

Caritech will conduct an assessment of the hydraulic performance of the proposed pipeline sizing and routes identified in VIWAPA's RFP to confirm that required pressure and flow are achieved and to identify areas where pressure and flow reduction may be needed. The system is pressurized and fed from the VIWAPA Water Distribution Facility and must be able to maintain firefighting requirements. The intent is to study the proposed pipeline routes to ensure that there are no flow restrictions, and that adequate pressures and flows are maintained throughout the system.

Caritech will use EPANET 2.0 to model the hydraulic performance of the proposed pipeline and support these evaluations. EPANET is a water distribution system modeling software application developed by the United States Environmental Protection Agency (USEPA). Based on the results of the EPANET model, Caritech will provide reasonable pipe size and/or routing alternatives to meet pressure and flow requirements, if necessary.

A pressure profile of the system is required. The successful outcome of this effort is dependent upon existing pressure profiles, firefighting requirements, and other relevant data (e.g., pressure, level, elevation) being provided by VIWAPA on the existing system.

## ENVIRONMENTAL AND CONSTRUCTION PERMITS

VIWAPA has requested that the Designer firm apply for all required environmental and construction permits. Caritech will apply for the required environmental and construction permits for the project. Caritech understands that the required permits include a Road Excavation and Utility Permit from the VIDPW and Earth Change, Plumbing, and Building Permits for from the Department of Planning and Natural Resources (DPNR). Additionally, since this project will be federally funded in part by HUD CDBG-DR Grant Funds, a Federal Consistency Determination (FCD) review process is required. This process is similar to the Coastal Zone Management (CZM) process required for projects located in Tier I.

Caritech shall contact relevant government agencies, which has permitting and approval jurisdiction over this project, early in the data collection phase. Soon after the 70% design is completed, Caritech will be ready to submit the following required environmental permit applications to the various public agencies as follows:

- FCD Permit – Application to DPNR
- Flood Hazard Permit Application – DPNR
- Plumbing Application \_DPNR
- Building Permit Application - DPNR

Caritech will implement a program of continuous dialogue with each of the permitting agencies during the design phase. This allows the agency time to review designs as they are developed and, therefore, eliminates extensive review and comment periods when the final permit applications are submitted.

## **STATUS REPORTS**

A Project Status Report will be generated monthly during the life cycle of the project. The following information will be covered in each status report:

- Major Items of Work performed after completing each milestone
- Major Items of Work to be performed during the following milestone
- Problems encountered
- Solutions anticipated for problems
- Solutions assistance required from VIWAPA

## **SCOPE OF WORK REFERENCE**

Caritech will provide the professional engineering consulting services that are described in VIWAPA's RFP PR-07-25 Scope of Work dated April 2025 with clarifications from Addendum No.1, Addendum No. II and Addendum III. These documents are cited in the Reference Section of this proposal

## **ASSUMPTIONS AND CLARIFICATIONS**

The Scope of Services and associated Fee are based upon the following:

1. VIWAPA will provide:
  - a. Existing pressure profile data.
  - b. Fire-fighting water requirements.
  - c. Water standards for construction, disinfection, locations for water test stations, valves, service line material, meters, blow-offs, air reliefs and all waterworks appurtenances that are anticipated.
  - d. Quantity and location of service connections to the water main, including
2. VIWAPA will identify high-volume users.
3. Drawings will be prepared in AutoCAD 2023 (or earlier) format.



### **3. PROJECT STAFFING/KEY PERSONNEL RESUMES**

#### **PROJECT STAFFING**

Eric Douglas, Principal of Caritech, will serve as the Project Manager for this design project. Mr. Douglas has over thirty-five years of engineering experience and has a strong background in project management. He has been a registered professional engineer in the U.S. Virgin Islands since 1995. He once was employed by VIWAPA as a Project Manager in the Water Department engaged in the construction management of potable water system projects including water purification and treatment, waterline installation, meter sizing, and reverse osmosis plant commissioning and operations. As Project Manager, he will direct the overall efforts of the Caritech/Arrow Land Team and have ultimate responsibility for all recommendations. He will serve as the primary point of contact and communication between VIWAPA and the design team and will be responsible for all actions and design steps taken during the project period. Additionally, Mr. Douglas will focus upon engineering design issues and ensure, through review exercises, that the conclusions reached represent the most cost-effective, efficient, and functional solutions possible. He will be responsible for the overall direction and coordination all project activities.

Hector Mercado, former Water Superintendent in the VIWAPA Water Department on St. Croix will serve as Project Coordinator and assist in the design of the water system. Mr. Mercado is a draftsman and has considerable expertise in utilizing AutoCAD to generate design drawings. He will assist with the review of the waterline design drawings and construction specifications.

Saeth Soos will direct efforts at Sanborn Head and work closely with Caritech and the assigned VIWAPA engineer to generate the detailed waterline design drawings, construction specifications, construction cost estimate and traffic plans.

Nelson Petty will be responsible for completing all Survey Services Scope Work Items specified in the RFP. He is the Principal-Partner of Arrow Land Development, LLC and served as the Commissioner of Public Works under the DeJongh Administration.

The project team proposed for this project has been organized to offer experience, ability, willingness and particular expertise in providing the professional services that are required for this project. The assembled project team is composed of highly qualified, long-term Caritech/Sanborn Head /Arrow Land Development/Jaca & Sierra engineering professionals. These experienced team members offer excellent qualifications in the area of water systems design engineering.

#### **KEY PERSONNEL RESUMES**

The resumes/portfolio of the key individuals who will be involved in this design project are listed below:



**Eric Douglas, MSc, PE**  
**Principal/General Manager**  
**EXPERIENCE SUMMARY**

Mr. Douglas has over thirty-five years of engineering experience in the private sector and in academia. Mr. Douglas began his career at Dow Chemical in Baton Rouge, LA as a research engineer and rose to the rank of Group Leader. He was engaged in numerous research activities including coal gasification, math modelling and computer process simulation of petro-chemical processes such as ethylene and propylene production plants and statistical data analysis.

**KEY AREAS OF PRACTICE**

Project Management  
Water Systems Design  
Industrial Training  
Industrial Process Operations  
Process Simulation and Optimization  
Environmental Regulatory Compliance  
& Permitting

**EDUCATION**

M.Sc., Chemical Engineering, Auburn  
University, 1984  
B.S., Chemistry, Summa Cum Laude,  
University of the Virgin Islands, 1981

**REGISTRATIONS / CERTIFICATIONS**

Professional Engineer – VI

**PROFESSIONAL AFFILIATIONS**

American Institute of Chemical  
Engineers  
American Chemical Society

**YEARS OF EXPERIENCE**

Total: 36

Mr. Douglas was then hired as a senior process engineer at the Hess Oil Virgin Islands Refinery, St. Croix where he worked in a technical support role to refinery operational units including atmospheric distillation towers, vacuum distillation towers, visbreakers, distillate desulfurizers, platformers, sulfur recovery and treatment units, and wastewater treatment units.

Subsequently, Mr. Douglas worked for the VIWAPA as a Project Manager in the Water Department engaged in the construction management of potable water system projects including water purification and treatment, waterline installation, meter sizing, and reverse osmosis plant commissioning and operations.

In 1996, Douglas became a Senior Project Manager and the Virgin Islands Location Manager for Maguire Group Inc. - a Northeastern United States-based Civil and Architectural firm. Mr. Douglas helped expand the commitment of this firm to its USVI clients and projects. Responsibilities included administration of the Virgin Islands office, marketing of engineering services, generating environmental assessment reports, applying for environmental permits (CZM, Air Permits, TPDES, Terminal License, Earth Change), proposal and technical report writing, providing construction inspection and management of an assortment of projects including power generation, solid waste management, landfill design and operations, demolition of buildings, marine facilities design and construction, flood control design, and water systems design.

In 2002, Mr. Douglas became a full-time professor and Program Director for the Process Technology while still maintaining a working relationship with Maguire. He managed the Associate of Applied Science (AAS) degree program in Process Technology at the University of the Virgin Islands for fourteen years. The program has produced over one hundred and twenty (120) graduates and prepares students for employment as operations technicians in the process industry such as the HOVENSA Oil Refinery and Diageo Rum Distillery.

Mr. Douglas is a Principal and General Manager of Caritech Group, LLC – U.S. Virgin Islands based engineering consulting firm which provides services to clients in the Caribbean Region primarily in Project Management and Regulatory Environmental Compliance

#### **RELEVANT PROJECT EXPERIENCE**

##### **VIWAPA Black Beard's Hill Waterline Rehabilitation Design Project, St. Thomas (PR-01-22)**

Mr. Douglas was the Project Manager for the design of a new water main distribution network, including review of existing plans/data, preparation of water main design drawings, technical specifications, and subsurface conditions report for Black Beard's Hill, St. Thomas. The construction of this project will result in the installation of about 1,000 linear feet of 12-Inch C-900 DR-14 PVC pipe and 1800 linear ft of 4-inch C-900 DR-14 PVC pipe

Additionally, Mr. Douglas assisted with the completion of the design of a new pump station which will be located at the intersection of Maude Proudfoot Road and Blackbeard Hill Road intersection. This pump station will be called Blackbeard's Hill Pump Station. and will replace the old Lionel Roberts Pump Station.

##### **VIWAPA Mahogany Estate Waterline Rehabilitation Water Design Project, St. Thomas (PR-12-21)**

Mr. Douglas was the Project Manager for the design of a new water main distribution network, including review of existing plans/data, preparation of water main design drawings, technical specifications, and subsurface conditions report for Mahogany Estates, St. Thomas.

The design of a water system will result in the replacement of approximately 2,700 linear feet of aged 6-Inch Ductile Iron pipe with 6-inch C-900 DR-14 PVC pipe, including all fittings, valves, hydrants, and appurtenances. This new 6-inch line will be connected to an existing 8-inch ductile water main on Route 308 (Harwood Hwy). The implementation of this project will significantly address water line losses issues in the Mahogany Estate area.

##### **VIWAPA Estate Hannah's Rest Water Rehabilitation Design Project, St. Croix (PR-08-20)**

Mr. Douglas was the Project Manager for the design of a new water main distribution network, including review of existing plans/data, preparation of water main design drawings, technical specifications, and a subsurface conditions report for Estate Hannah's Rest, St. Croix. The construction of this project will result in the replacement of approximately 10,500 linear feet of 6-Inch Ductile Iron pipe with same size 6-Inch C-900 DR-14 PVC pipe. The implementation of this project

will significantly address water line losses and "red-water" issues in that part of the west end of St. Croix.

**VIWAPA Estate Whim/Campo Rico Water Rehabilitation Water Design Project, St. Croix (PR-0-20)**

Mr. Douglas was the Project Manager for the design of a new water main distribution network, including review of existing plans/data, preparation of water main design drawings, technical specifications, and a subsurface conditions report for Estate Whim/Campo Rico, St. Croix. The construction of this project resulted in the replacement of approximately 13,600 linear feet of old 6-Inch Ductile Iron pipe with same size 6-Inch C-900 DR-14 PVC pipe, as well as the replace of approximately 5,200 linear feet of old 8-Inch Ductile Iron pipe with 10-Inch C-900 DR-14 PVC pipe. The implementation of this project will significantly address water line losses and "red-water" issues in Estate Whim/Campo Rico.

**VIWAPA Frederiksted Water Rehabilitation Phase II Water Design Project, St. Croix (PR-23-17)**

Mr. Douglas was the Project Manager for the design of a new water main distribution network, including review of existing plans/data, preparation of water main design drawings, technical specifications, and a subsurface conditions report. This redesign has resulted in the replacement of approximately 16,500 linear feet of water main piping, including all fittings, valves, hydrants, and appurtenances. The implementation of this project will significantly address "red-water" issues in the Town of Frederiksted.

**Christiansted Phase II Water Distribution System, St. Croix**

Mr. Douglas was the Project Manager and VIWAPA Assistant Water Superintendent for this \$1.2 million dollar project undertaken to upgrade the water system in Christiansted, from Richmond to the end of King Street St. Croix. The project involved the installation of new PVC lines to replace old corroded ductile iron waterlines.

**Estate St. George Waterline Expansion Project, St. Croix**

Mr. Douglas was the Project Manager and VIWAPA Assistant Water Superintendent for this \$300,000 project. Also prepared the request for proposal (RFP) for the design and construction of waterline expansion project. The project involved the installation of new PVC lines.

**Frederiksted Waterline Rehabilitation Project- Phase I, St. Croix**

Mr. Douglas was the Project Manager for this \$780,000 project undertaken by VIWAPA to upgrade the water system in Frederiksted,

St. Croix. The project involved the installation of new PVC lines to replace old corroded ductile iron waterlines.

#### **Reverse Osmosis Water Desalination Unit, St. Croix**

Mr. Douglas Project Manager for the commissioning of a 250,000 gallon per day (gpd) reverse osmosis desalination unit to upgrade the quality of brackish water from the Fair Plains well field close to the Alexander Hamilton Airport to upgrade the public utility's potable water quality standards.

#### **VIWAPA Unit 24 HRSG Construction (PR-11-24)**

Mr. Douglas was the Assistant Manager Dana Smith, Resident Manager for Maguire who provided construction management services for the installation of a new heat recovery steam generator (Unit 24) at the Richmond Power Plant on St. Croix for eighteen months. Project construction cost was \$30 million.

#### **Project Manager-LEB Demolition Design and Debris Disposal Project, VIHA**

Managed the development and implementation of comprehensive demolition plans for nineteen buildings at the Louis E. Brown Public Housing Complex, St. Croix

#### **Diageo USVI Boilers and Multi-Effect Heat Exchanger Replacement**

Diageo USVI Inc. (Diageo) plans to install a new 80,000 lb. boiler to replace its two 55,000 lb. boilers and to modify its multi-effect evaporation unit with a replacement of the two E-605 heat exchangers with one plate and frame heat exchanger. Mr. Douglas prepared and submitted a modification a Major Coastal Zone Management (CZM) Permit modification request for the installation of the above-mentioned process equipment.

#### **Diageo USVI Process Control Building Relocation**

Diageo USVI Inc. (Diageo) plans to install a new building that will house a new process control room and training classrooms for its rum distillery. Mr. Douglas prepared, submitted and obtained all the environmental and building construction permits required for the successful completion of this project.

#### **Cruzan Rum Distillery LPG Power Generation Facility Design, St. Croix, U.S. Virgin Islands**

Mr. Douglas was part of a team which involved identifying permitting requirements for a for a liquefied petroleum gas (LPG) facility for the

distillery to displace its diesel fuel usage. Preliminary siting of an LNG facility was also performed as part of the initial evaluation. Mr. Douglas participated in the code compliance review from both an LPG and LNG perspective.

#### **Cruzan Rum LPG Storage Facility, Major Earth Change Permit Application**

Cruzan Rum constructed a Liquefied Petroleum Gas (LPG) fuel storage facility at their current facility at Parcel 5 Estate Diamond, St. Croix, US Virgin Islands (USVI). The project involved the installation of two 30,000 gallon LPG storage tanks with associated truck unloading manifold and pumps, supply manifold, pumps, water-bath vaporizer and distribution piping to transfer LPG from the storage facility to the boilers and power generators at the distillery. Mr. Douglas was contracted by Cruzan Rum Distilleries to provide environmental permitting services, including the development of an Environmental Assessment Report and submission of a Major Earth Change Permit for the construction of the LPG Storage Facility.

#### **Diageo USVI LPG Storage Facility and Gas Turbine Installation Project – Major CZM Modification Request Permits**

Diageo USVI installed an LPG Storage Facility and a combined heat and power unit (CHP) to continuously supply its energy needs at its rum distillery using low-cost liquefied propane gas (LPG). The CHP unit consists of a 3.8 MW gas-fired turbine and a 75,000 lb/hr Heat Recovery Steam Generation (HRSG) system. Mr. Douglas of Caritech Group was contracted by Diageo USVI to produce an Environmental Assessment Report and submit a Major CZM Modification Request for the install of the LPG Storage Facility and CHP unit.

#### **Diageo USVI Rum Distillery Project, Environmental Permitting Services**

Diageo USVI constructed a \$265 Million state-of-the art LEED certified-Captain Morgan Rum Distillery located at St. Croix Renaissance Group Industrial Park and Port St. Croix on the southern coast of St. Croix, United States Virgin Islands. Maguire Group Inc. (Maguire) was contracted by Diageo USVI to provide environmental permitting services, including an Environmental Assessment Report (EAR), Major CZM Permit application, Facility Response Plan, Terminal Facility License Application, for the construction of the distillery and a barrel warehouse. Mr. Douglas, who was then employed by Maguire played a significant and pivotal role in obtaining all the environmental and construction permits required for the successful construction and start-up of the distillery.

#### **Cruzan Rum CMS Wastewater Treatment Plant Major Earth**

### **Change Permit Application**

Cruzan Rum Distilleries contracted Maguire to provide environmental permitting services for the installation of a Vinasse Evaporator System to concentrate the vinasse effluent from the facility that is currently discharged to the ocean. The design of the two-stage evaporator system utilizes falling film evaporation technology and forced circulation concentration technology to efficiently concentrate vinasse to 70% dissolved solids (DS) or greater while minimizing fouling and subsequent washing requirements. Maguire was specifically contracted to prepare and submit a Land Clearing Permit, Major Earth Change Permit, and a Building Construction Permit. One of the principals of Caritech Group LLC, Mr. Eric Douglas, was employed by Maguire then and was actively involved in the environmental permitting process.

### **VI Waste Management Authority St. Croix Transfer Station, St. Croix**

Maguire was contracted by the VIWMA to prepare design/build 30% plans and an Environmental Assessment Report (EAR) along with a Major Coastal Zone Management (CZM) permit application for the St. Croix Transfer Station. Mr. Douglas, who was employed by Maguire then, was actively involved in the preliminary design and CZM permitting process.

### **William & Punch Marina, Casino & Residential Golf Resort, St. Croix**

As a Maguire employee, Mr. Douglas was part of a team that worked on the Environmental Permitting/Preliminary Civil Engineering Design for a proposed Marina, Casino & Residential Golf Resort on the west end of St. Croix.

### **Geonet Ethanol LLC Ethanol Dehydration Plant Major CZM Permit Application**

Geonet Ethanol LLC constructed an ethanol dehydration plant at the St. Croix Renaissance Group Industrial Park on the South Shore. The purpose for the construction of this ethanol dehydration facility was to provide fuel-grade ethanol for sale to the United States, and potentially other buyers. Maguire was contracted by Geonet Ethanol LLC to provide environmental permitting services, including an Environmental Assessment Report (EAR) and a Major Coastal Zone Management Permit Application, for the construction of the ethanol dehydration facility. Mr. Douglas was employed by Maguire then and was actively involved in the environmental permitting process.

### **VIWMA Wastewater Treatment Plant CZM Application, St. Thomas**

The GVI contracted with Veolia Water North America (VWNA) Caribbean LLC to design, build and operate, for 20 years, a new 4 million gallon per day (mgd) wastewater treatment facility on St. Thomas. As part of the permit requirements, this Environmental Assessment Report (EAR) was prepared to accompany the Coastal Zone Management (CZM) permit application. Maguire was hired to work on the environmental permits and preliminary plant design. Mr. Douglas was a significant contributing member of the Maguire Team.

#### **Solid Waste Management Facility, Phoenix, Arizona**

Provided start-up coverage for a 320 ton/day Materials Recovery Facility designed by Maguire Group Inc. for the City of Phoenix, Arizona. He conducted a performance test on the facility including the measurement and calculations of system throughput capacity, sampling and calculations for materials recover efficiencies and recovered materials quality.

#### **Gallows Bay Marine Terminal Renovation, St. Croix VI**

Assisted with the site inspection and evaluation of Gallows Bay Marine Terminal. Scope of work included above and below water inspection, concrete testing, and evaluation of deficiencies and preparation of preliminary construction document for the implementation of a repair program. Damage of the facility included spalled concrete pile caps, fascia beams, impact damage of the pile foundation system and impact damage

#### **St. Georges Villas, St. Croix, VI**

Assisted with the investigation to determine the cause of the settlement and deterioration seen in the single-story modular houses that were built for low to moderate income families at Estate St. Georges. A site investigation was conducted, and it was determined that the primary reason for the observed distress was foundation settlement caused by unsuitable soils supporting the houses. As part of a team of engineers, visual inspections were done to review structural and geo-technical conditions of the houses.

#### **Enighed Pond Marine Terminal, St. John, VI**

Assisted in the process of submitting permit application to the United States Army Corp. of Engineers for construction of a marine cargo terminal at Enighed Pond.

#### **St. John Police Station, St. John, VI**

Secured earth change and construction permits for fast track project. Conceptual design of building was completed within a two-day period. The site for the building is in a Seismic Zone 4 and subject to Exposure D, the most severe category with 110 mph. Maguire completed all



architecture and civil, structural, mechanical, electrical and plumbing for the building.

**Hess Oil Virgin Islands Corporation, St. Croix, VI.**

Conducted several ambient air quality monitoring programs for Hess Oil Virgin Island Corporation (HOVIC) as part of a procedure required by the Department of Planning and Natural Resources during the decommissioning and commissioning of the refinery's flare system.



## Hector Ivan Mercado

197 Peter Rest p.o. box 6233 S.I., St. Croix, vi 00823,  
340-244-6859, hectorredmp@gmail.com

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### Professional Summary

As a 30- year employee of the Virgin Islands Water and Power Authority (WAPA) I pride myself on remaining at the top of my field by continually producing high-quality projects that utilize the latest in advances. From my start as an Engineer Technician I, I assisted the department in reaching its business goals and helped to retain a positive reputation among our clients and customers. I was given countless opportunities to utilize my excellent problem-solving skills to ensure that our projects were completed on time and within budget. This environment afforded me the opportunity to employ my creativity while developing detailed plans for engineering projects, including creating drafts to share with clients and the team. Through it all, I was able to enhance my technical skills while working closely with management and the rest of the team on multiple projects.

By the end of my career with WAPA, I created the first Digital Mapping of the Electrical System for the Territory (St. Croix, St. Thomas, and St. John) and worked closely with the Director to construct the new 40,000 barrel Bunker C Concrete Storage Tank.

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### Skills

- Bilingual (Spanish/English)
- Analytical
- Excellent Problem Solving Skills
- Detail Oriented
- Dependable
- Strong Interpersonal Skills

---

### Experience

JANUARY 1986 - AUGUST 1988

Engineering Technician I

Virgin Islands Water and Power Authority (WAPA) |

Christiansted, St Croix

- Collaborated with the Engineer Director to create first Digital Electrical Distribution Mapping System
- Assisted in drawing up blueprints and plans for substations and equipment.

- Conducted tests on substations and equipment to ensure they function properly
- Analyzed power plant system performance.
- Provided suggestions for ways to improve products and equipment

AUGUST 1988 - JULY 1990

Engineer Technician II

Virgin Islands Water and Power Authority (WAPA) | Christiansted, St John

- Data collection from field equipment, instruments, and supervisory control and data acquisition (SCADA).
- Assisted with data analysis by way of preparation of tables and reports
- Preparation of maps, exhibits, and standard details using AutoCAD software

OCTOBER 1990 - JANUARY 1993

Project Coordinator

Virgin Islands Water and Power Authority (WAPA) | Christiansted, St Croix

- Created a project timeline, set goals and determined what elements are needed to complete the project.
- Oversaw all of the moving parts of the project to ensure that it remained on schedule.
- Reviewed contracts and saved the government over \$15,000 in project expenses

JANUARY 1994 - JULY 2005

Water Distribution Superintendent

Virgin Islands Water and Power Authority | Christiansted, St Croix

- Supervised the operations of the Water Distribution branch of the Water Department to include Water Distribution Technician, Meter Repair/Cross Connection Specialist, Water Operators, and Well Field Operators
- Oversaw and coordinated the Well Head Protection program as required by the Environmental Protection Agency (EPA) and the Department of Planning and Natural Resources (DPNR).
- Kept apprised of the Safe Drinking Water regulations.
- Maintained required records and documentation as specified by the Virgin Islands' Water and Power Authority

- Ensured water rules and regulations; coordinated with WAPA's Water Division
- Prepared and processed water user claims, disputes, applications, and change applications.
- Provided information to outside and inside agencies regarding water use, power, etc.
- Collected required water samples from the Distribution System and wells to ensure required compliance

JULY 2005 - SEPTEMBER 2015

Water Distribution Director And Chief Engineer's Assistant  
Virgin Islands Water and Power Authority | Christiansted, St. Croix

- Directed and coordinated the daily activities of all maintenance department responsibilities and personnel
- Analyzed the daily operation of the Water Distribution System through the use of the EPA Net program
- Used data to ascertain the water requirement and needs for the district of St. Croix
- Consulted with contractors regarding the necessary requirements to maintain the daily operation of the Distribution Network.
- Responsible for the ordering of all materials and equipment to maintain the district's distribution system

---

Education

JUNE 1982

Associate degree

Universidad de Puerto Rico - Recinto de Ponce, Ponce, PR

Civil Engineering

Graduated with Distinction (Cum Laude)



## SETH P. SOOS, PE

### Vice President

Seth has over 20 years of experience as a consulting engineer in technical, design, and managerial roles. He has a broad range of experience in above-ground natural gas infrastructure, with a focus on liquefied natural gas. Seth has provided owner's engineering and technical support on both green field and brownfield LNG facilities, supporting these processes from initial project planning and permitting through construction and commissioning. He also has extensive experience with potable water infrastructure design and environmental assessments and remediation of soil, water, and vapor.

### KEY AREAS OF PRACTICE

Liquefied Natural Gas  
Water Infrastructure Design  
Remediation System Design and Construction  
Vapor Intrusion Assessment and Mitigation

### EDUCATION

B.S., Environmental Engineering,  
University of New Hampshire, 2003

### REGISTRATIONS

Professional Engineer – CA, MA, MI, NY

### PROFESSIONAL AFFILIATIONS

American Society of Civil Engineers  
Northeast Gas Association  
American Gas Association

### SANBORN HEAD

Since 2009

### RELEVANT EXPERIENCE

#### **Frederiksted Town Waterline Rehabilitation Design, St. Croix, U.S. Virgin Islands**

Managed the design of a new water main distribution network, including review of existing plans and data, preparation of water main design drawings, technical specifications, and a subsurface conditions report. Performed system walkdown to confirm installation details and assess constructability. This project resulted in the replacement of approximately 3 miles of water main piping, including all fittings, valves, hydrants, and appurtenances necessary to complete the job in place and return the project area to pre-construction conditions.

#### **Campo Rico Waterline Rehabilitation Design, St. Croix, U.S. Virgin Islands**

Principal in charge of the design of a replacement water main distribution network, including review of existing plans and data, hydraulic analysis, preparation of water main design drawings, technical specifications, and a subsurface conditions report. The project resulted in the replacement of approximately 3.5 miles of water main piping, including all fittings, valves, hydrants, and appurtenances necessary to complete the job in place and return the project area to pre-construction conditions.

**Hannah's Rest Waterline Rehabilitation Design, St. Croix, U.S. Virgin Islands** Principal in charge of the design of a replacement water main distribution network, including review of existing plans and data, hydraulic analysis, preparation of water main design drawings, technical specifications, and a subsurface conditions report. The project resulted in the replacement of approximately 2 miles of water main piping, including all fittings, valves, hydrants, and appurtenances necessary to complete the job in place and return the project area to pre-construction conditions.

#### **Mahogany Estates Waterline Rehabilitation Design, St. Thomas, U.S. Virgin Islands**

Principal in charge of the design of a replacement water main distribution network, including review of existing plans and data, hydraulic analysis, preparation of water main design drawings, technical specifications, and a subsurface conditions report. The project resulted in the replacement of approximately 0.5 miles of water main piping, including all fittings, valves, hydrants, and appurtenances necessary to complete the job in place and return the project area to pre-construction conditions.

#### **Blackbeard Hill Waterline Rehabilitation Design, St. Croix, U.S. Virgin Islands**

Principal in charge of the design of a replacement water main distribution network, including review of existing plans and data, hydraulic analysis, preparation of water main design drawings, technical specifications, and a subsurface conditions report. The project also required the design of a pumphouse, including booster pumps to

support future buildout, electrical design, backup generation integration, and a retaining wall structure.

**Groundwater Capture System, North Adams, MA**

Senior Project Engineer responsible for the completion of a design package, including design drawings and specifications, groundwater well curtain consisting of 22 extraction wells over an approximate half mile distance. The package included the design of an access road and foot bridge, groundwater extraction wells, conveyance piping, and tie-in to the existing treatment process. Also, the addition of a new electrical service and distribution of power and control over the approximate half mile distance. Special design considerations were made to ensure the compatibility of equipment and materials with the high pH (>12.5) groundwater.

**Conveyance Pipeline Analysis, Tesoro LAR, Wilmington, CA**

Project Engineer providing field assistance, civil design, and oversight during a large scale civil and piping project at Tesoro's Los Angeles refinery. The project included identification of pipelines, removal of soil from around process pipelines passing through earthen containment berms, inspection, repair, sleeving of the pipes, and backfill/reconstruction of the berms. The project also included stabilization of the berms after reconstruction.

**Fire Suppression System Upgrades, Tesoro LAR, Wilmington, CA**

Project Engineer providing hydraulic analysis and civil design assistance for a fire suppression system at a Los Angeles refinery. The project included the complete re- design of the refinery's fire suppression system including storage tanks, pumping requirements, conveyance piping and monitor/hydrant placement in accordance with all governing codes/regulations.

**Seawater Intrusion Barrier Installation, Orange County, CA**

Responsible for construction oversight and quality control for Orange County Water District's Groundwater Replenishment System. Implemented to inject highly treated wastewater into the deep subsurface to replenish the groundwater aquifer while also acting as a barrier to seawater intrusion into the aquifer. The project included the installation of 8 deep re-injection wells, headworks and conveyance piping, and controls throughout the cities of Huntington Beach and Fountain Valley.

**Vermont Gas Systems, Hydrogen Pilot, Essex Junction, VT**

Part of a team that provided engineering services to support the development of a green hydrogen (GH2) generation and use pilot study at GlobalFoundries' (GF) Fab 9 semiconductor manufacturing facility located in Essex Junction, VT. Engineering services supported the evaluation of the GH2 facility siting with a focus on safety, constructability, operability, and future use. In addition, completed an evaluation outlining multiple GH2 use scenarios that incorporated both pure GH2 demand for GF's manufacturing process, as well as a range of GH2-natural gas (NG) blending options for their on-site generators (superheated water) supplying the facility's thermal loads. Finally, team completed a conceptual engineering design to evaluate equipment needs (generation/storage/GH2-NG blending), materials of construction, utility tie-ins, injection of pure GH2 into their manufacturing line, and GH2-NG blended stream generator tie-ins to support an AACE Class 4 project cost estimate.

**NiSource, LNG Facility and Storage Tank Assessments, Multiple Locations, MA & IN** Part of a team that performed an assessment of conditions of four peak

shaving facilities in Massachusetts and one in Indiana owned by NiSource. The assessments

were completed as part of the development of a Safety Management System and

included review and risk assessment of the facility processes as well as the storage tanks at each facility. Independent reports were prepared for each facility and storage component.

**Duke Energy, LNG OE Services for Robeson Facility, Robeson, NC**

Project Manager for a team providing owner's engineering services during the design and construction of a green field LNG facility consisting of 1 BCF of storage, liquefaction and vaporization.

**Duke Energy, LNG OE Services for Huntersville Facility, Huntersville, NC**

Project Manager for a team providing owner's engineering services during the design and construction of a new pretreatment and liquefaction system.

**Vapor Intrusion Assessment and Mitigation, Manassas, VA**

Senior Project Engineer supporting vapor intrusion assessment. Responsible for the pilot testing, design, and installation of two soil vapor extraction systems at a RCRA-regulated site involving industrial and residential properties overlying a plume of chlorinated solvents in groundwater. The vapor extraction systems support contaminant mass removal and reduce the potential for off-site vapor migration, and vapor intrusion.

**Vapor Intrusion Mitigation, Tacoma, WA**

Senior Project Manager responsible for the design of a vapor intrusion mitigation system for a new YMCA facility constructed into a significant grade change, causing the building to intersect a CVOC groundwater plume, which resulted in mitigation measures along multiple sides of the building in addition to below the slab.

**Subsurface Vapor Extraction System Design, Hopewell Junction, NY**

Senior Project Engineer responsible for the testing, design, and construction of multiple subsurface vapor extraction systems to mitigate elevated indoor air concentrations within mixed use buildings at an industrial manufacturing facility. The systems were designed and installed to limit disruption to a continuously operating manufacturing facility.

**Vapor Intrusion Mitigation, Newport Beach, CA**

Project Engineer responsible for design, procurement, and construction of a methane and hydrogen sulfide active mitigation system for residential property. The mitigation system included an impermeable polyurethane membrane, slab penetration seals, and an intrinsically safe active blower system with odor treatment and safety venting in the event of a power outage.

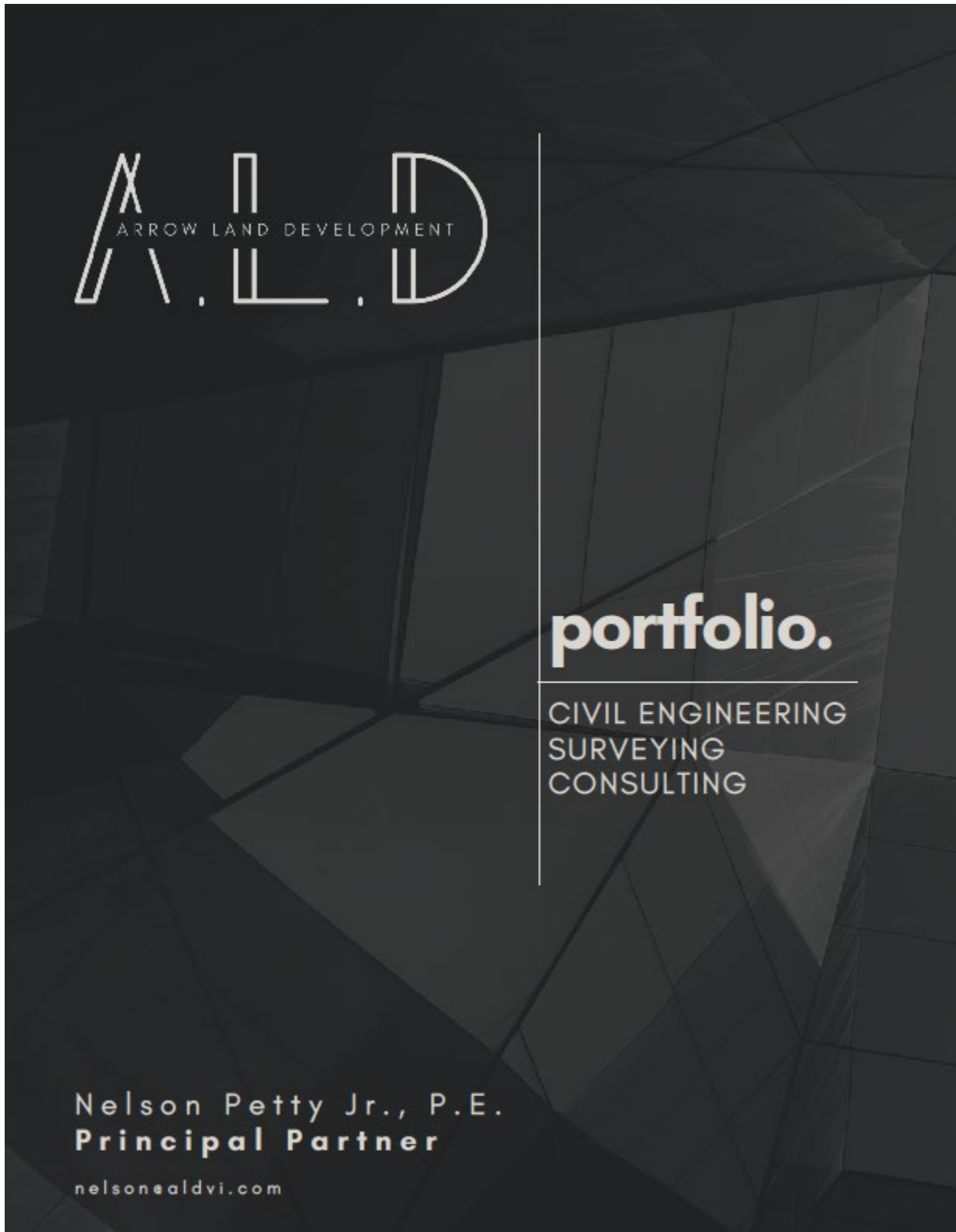
**CVOC Remediation, Unified School District, Los Angeles, CA**

Project Engineer responsible for the operation of a 1,200-scfm soil vapor extraction system to remediate chlorinated solvents from vadose zone soils at the Los Angeles Academy Middle School.

**Diesel Fuel Release Remediation, Mammoth Lakes, CA**

Project engineer responsible for engineering design, process control system upgrade, and operation and maintenance services for a multi-component (bio-filter, air stripping, liquid-phase-carbon) groundwater extraction and treatment system.

## Arrow Land Development – Nelson Petty Jr. Principal Partner







Nelson Petty Jr., P.E.  
Principal Partner

## ABOUT US

Arrow Land Development is a trusted civil engineering and surveying firm serving the U.S. Virgin Islands. With over 25 years of experience, we provide reliable and professional services to clients throughout the territory. Our team of skilled engineers and surveyors are committed to delivering high-quality work and exceeding our clients' expectations.

## SERVICES



### CIVIL ENGINEERING

- Structural
- Environmental
- Hydrology
- Roadway Design
- Storm & Sanitary Sewer Design
- Stormwater Management



### RESIDENTIAL AND COMMERCIAL SURVEYING

- As-Built
- Topographic
- Title
- Construction
- Photogrammetry



### CONSULTING

- Project Development
- Subdivision Planning
- Government Relations
- Construction Management

# CLIENT LIST

V.I. Housing Finance Authority	Jaredian Design Group
V.I. Waste Management Authority	Grade-All Heavy Equipment
V.I. Department of Property & Procurement	Universal Concrete
SmithGroup	Banks
Oasis Consulting Services	Realtors
Page	Homeowners
Triangle Real Estate Developments	

## Where Innovation Meets Infrastructure.

Arrow Land Development  
P O Box 302069  
St. Thomas, VI 00803



#### 4. EXPERIENCE/RELEVANT PROJECT SHEETS

##### EXPERIENCE

In the last eight years, Caritech Group has successfully completed six (6) waterline rehabilitation design projects for the VIWAPA. These design projects were completed for three areas on St. Thomas (Mahogany Estate, Blackbeard's Hill and Polyberg Circle) and three areas on St. Croix (Frederiksted, Estate Whim/Campo Rico and Estate Hannah's Rest).

##### RELEVANT PROJECT SHEETS

More specific details regarding the **size, scope, design and estimated construction costs for these projects** are summarized in project sheets listed for each project below. The names and contact numbers for the VIWAPA engineers who were assigned to these projects who can serve as references are also listed in the project sheets.

**VIWAPA Mahogany Estate Waterline Rehabilitation Design Project, St. Thomas, U.S. Virgin Islands**

Caritech Group & Sanborn Head have recently completed the design of a water system that will result in the replacement of approximately 2,700 linear feet of aged 6-Inch Ductile Iron pipe with 6-inch C-900 DR-14 PVC pipe, including all fittings, valves, hydrants, and appurtenances. This new 6-inch line will be connected to an existing 8-inch ductile water main on Route 308 (Harwood Hwy).

<i>Design Cost:</i>	\$65,700.00
<i>Estimated Construction Cost:</i>	\$781,000
<i>Final Design &amp; Construction Cost:</i>	?
<i>Project Design Date:</i>	April -Dec-2022
<i>VIWAPA Project Engineer</i>	La’Ron Henry Contact # (340)-513-7279

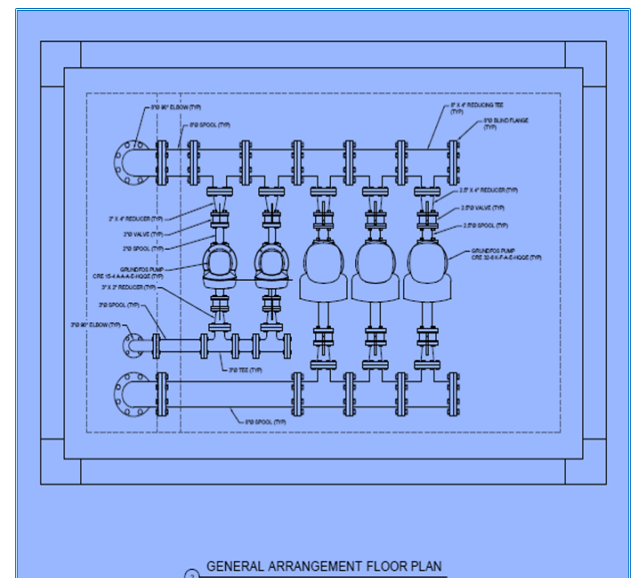


**VIWAPA Black Beard's Hill Waterline Rehabilitation Design Project, St. Thomas,  
 U.S. Virgin Islands**

Caritech Group & Sanborn Head have recently completed the design of a water system that will result in the installation of about 1,000 linear feet of 12-Inch C-900 DR-14 PVC pipe which will be connected to a 24-inch existing main from the intersection of Education Street and Hospital Line and flow up to the hill towards the Maude Proudfoot Road and Blackbeard Hill intersection. At that point, approximately 1800 linear ft of 4-inch C-900 DR-14 PVC pipe will be installed to replace the old 4-icast iron pipe that currently serves the Black Beard's Hill area. In addition, about 200 linear of Sch. 80 PVC pipe will be installed to serve Blackbeard's Hill Hotel.

Additionally, Caritech Group & Sanborn Head completed the design of a new pump station which will be located at the intersection of Maude Proudfoot Road and Blackbeard Hill Road intersection which will be called Blackbeard's Hill Pump Station. This Pump Station will replace the old Lionel Roberts Pump Station and will include two sets of pumps. One set of pumps will provide the required hydraulic pressure to the new 4-inch C-900 Dr-14 PVC pipe and the other set of umps will be designed to provide the hydraulic pressure to force the water up past Mafolie Hill (future pipe-line expansion project).

<i>Design Cost:</i>	\$141,800.00
<i>Estimated Construction Cost:</i>	\$1.10 Million
<i>Final Design &amp; Construction Cost:</i>	?
<i>Project Date:</i>	April -Dec-2022
<i>VIWAPA Project Engineer</i>	La'Ron Henry Contact # (340)-513-7279



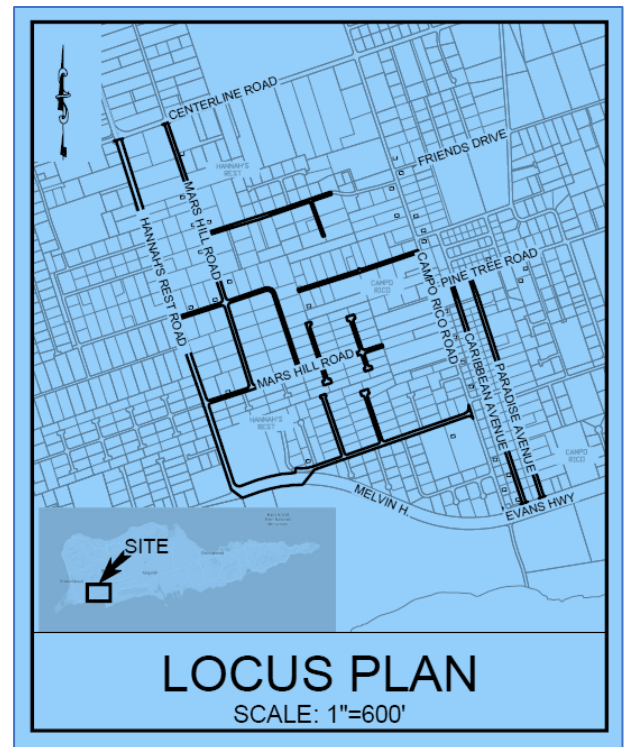


**VIWAPA Estate Whim/Campo Rico Waterline Rehabilitation Design Project, St. Croix, U.S. Virgin Islands**

Caritech Group & Sanborn Head have completed the design of a water system that will result in the replacement of approximately 13,600 linear feet of aged 6-Inch Ductile Iron pipe and approximately 5,200 linear feet of 8-inch Ductile Iron pipe In the Town of Frederiksted. The ductile iron pipe will be replaced with 6-inch and 10-inch C-900 DR-14 PVC pipe respectively, including all fittings, valves, hydrants, and appurtenances.

Upon successful construction of this design project, water unaccountable and the quality of the potable water delivered to residential and commercial customers in Estate Whim/Campo Rico and its environs will be significantly improved.

<i>Design Cost:</i>	\$194,400.00
<i>Estimated Construction Cost:</i>	\$1.54 Million
<i>Final Design &amp; Construction Cost:</i>	N/A
<i>Project Date:</i>	Jul -Nov-2020



**VIWAPA Estate Hannah's Rest Design Waterline Rehabilitation Project, St. Croix,  
U.S. Virgin Islands**

Caritech Group & Sanborn Head have completed the design of a water system that will result in the replacement of approximately 10,500 linear feet of aged 6-Inch Ductile Iron pipe in Estates Hannah's Rest and Stony Ground. The ductile iron pipe will be replaced with 6-inch C-900 DR-14 PVC pipe including all fittings, valves, hydrants, and appurtenances.

Upon successful construction of this design project, the quality of the potable water delivered to residential customers in Hannah's Rest/Stony Ground and its environs will be significantly improved and water line losses should drop.

<i>Design Cost:</i>	\$115,700.00
<i>Estimated Construction Cost:</i>	\$1.2 Million
<i>Final Design &amp; Construction Cost:</i>	N/A
<i>Project Dates:</i>	Jul-Nov-2020



**VIWAPA Frederiksted Phase II Design Waterline  
Rehabilitation Project, St. Croix, U.S. Virgin Islands**

Caritech Group & Sanborn Head have completed the design of a water system that will result in the replacement of approximately 2,800 linear feet of aged 10-Inch Ductile Iron pipe and approximately 13,700 linear feet of 6-inch Ductile Iron pipe in the Town of Frederiksted. The ductile iron pipe will be replaced with 6-iC-900 DR-14 PVC pipe including all fittings, valves, hydrants, and appurtenances.

Upon successful construction of this design project, the quality of the potable water delivered to residential and commercial customers in Frederiksted, and its environs will be significantly improved.

<i>Design Cost:</i>	\$163,000.00
<i>Estimated Construction Cost:</i>	\$2.3 Million
<i>Final Design &amp; Construction Cost:</i>	N/A
<i>Project Dates:</i>	2018-2019



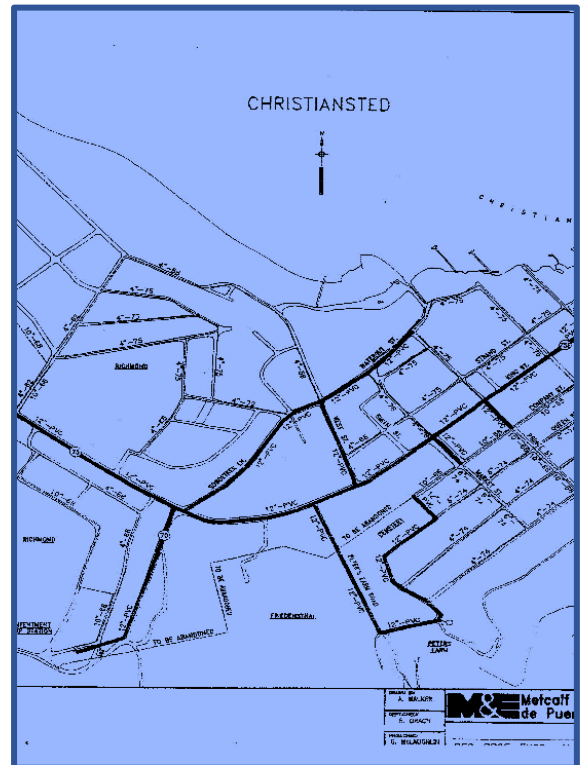


**VIWAPA Christiansted Phase I Waterline  
Rehabilitation Project, St. Croix, U.S. Virgin Islands**

In 1992, Metcalf & Eddy completed a preliminary design report for the Christiansted Water Distribution System. As a result of that study, Metcalf & Eddy recommended conducting a replacement/ rehabilitation of the water system in phases. Construction Phase I Rehabilitation began in 1996.

Mr. Eric Douglas who was the VIWAPA Assistant Water Superintendent on St. Croix at the time was assigned as the Project Manager for this \$1.2 million-dollar project undertaken to upgrade the water system in Christiansted, from Richmond to the end of King Street St. Croix. The project involved the installation of new 12" PVC lines to replace old corroded ductile iron waterlines.

The project involved the installation of approximately 13,000 linear feet of C-900 DR-14 12" pipe. The project was successfully completed within schedule and budget.



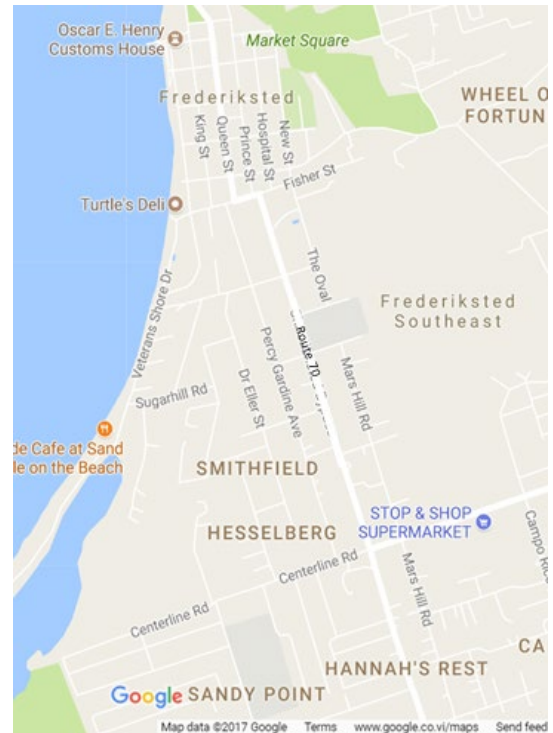
*Original Design &  
Construction Cost:* \$1.2 million  
*Final Design &  
Construction Cost:* \$1.2 Million  
*Project Dates:* 1996;

**VIWAPA Frederiksted Phase I Waterline Rehabilitation Project, St. Croix, U.S. Virgin Islands**

In 1994, Metcalf & Eddy completed a preliminary design report for the Frederiksted Water Distribution System. As a result of that study, Metcalf & Eddy recommended conducting a replacement/ rehabilitation of the water system in phases. Construction Phase I Rehabilitation began in 1995.

Mr. Eric Douglas who was the VIWAPA Assistant Water Superintendent on St. Croix at the time was assigned as the Project Manager for this \$780,000 project undertaken to upgrade a segment of the water distribution system in Frederiksted, including Sections of Route 70, Marshall Road and areas of Smithfield. The project involved the installation of new 10" PVC lines to replace old corroded ductile iron waterlines.

The project involved the installation of approximately 11,000 linear feet of C-900 DR-14 10" and 6" pipe. The project was successfully completed within schedule and budget.



*Original Design &  
Construction Cost:*   \$780,000  
*Final Design &  
Construction Cost:*   \$780,000  
*Project Dates:*       1995-1996;

### ***Estate St. Georges Waterline Expansion Project, St. Croix, U.S. Virgin Islands***

**Mr. Douglas** was the Project Manager for this \$300,000 project. He also prepared the request for proposal (RFP) for the design and construction of waterline expansion project.

Approximately 5000 linear feet of 4" and 6" C-900 piping and associated lateral service lines were installed to serve a housing community across from the Estate St. Georges Botanical Gardens. This housing development was financed by the Virgin Islands Housing Finance Authority. More than sixty houses were connected to the VIWAPA water distribution system. The project was successfully completed within schedule and budget.



*Original Design &  
Construction Cost:* \$300,000  
*Final Design &  
Construction Cost:* \$300,000  
*Project Dates:* 1996;

## 5. CPM, DESIGN AND PAYMENT SCHEDULES

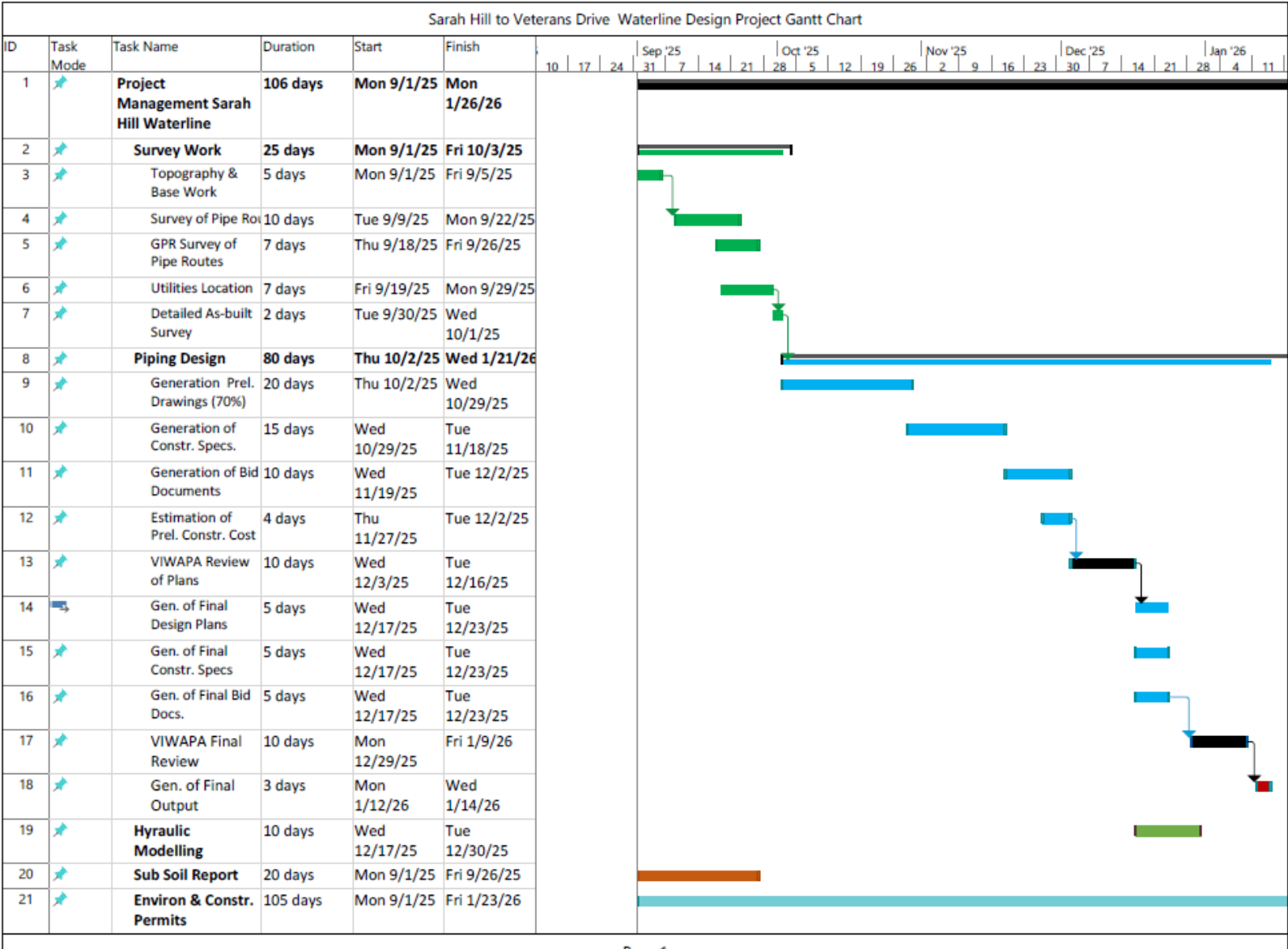
As stipulated in the RFP, the design package will be completed within **ninety (90) calendar days** (excluding days taken by VIWAPA to review and comment on the preliminary design (70% complete) package. A CPM schedule listing key project tasks and days required to complete is listed in **Table 1** below:

**Table 1. CPM SCHEDULE**

CPM Schedule		
TASK	TIME FOR TASK (Calendar Days)	COMPLETION AFTER NTP
DATA COLLECTION & CONCEPTUAL DESIGN	30 days	30 days
PRELIMINARY DESIGN (70% DESIGN COMPLETE)	30 days	60 days
VIWAPA REVIEW	10 days	
DESIGN COMPLETION (100%)	20 days	80 days
VIWAPA REVIEW	10 days	
FINAL OUTPUT	10 days	90 Days
TOTAL TIME		90 days (Excluding VIWAPA 20 Design Review days)

The Gantt Chart displayed in **Figure 1**. Provides more details regarding the various tasks that must be accomplished, the duration of each task, and the critical steps involved in the design process. **This chart assumes a hypothetical start date of September 1, 2025.**

Figure 1. SARAH HILL TO VETERANS DRIVE WATERLINE DESIGN PROJECT GANNT CHART



An excel spreadsheet detailing the project cost per Scope of Work Item is shown in **Table 2**.

**Table 2. PROJECT COST PER SCOPE OF WORK ITEM**

# VIRGIN ISLANDS WATER AND POWER AUTHORITY

## PROJECT MANAGEMENT FORM

Note: Project Cost Estimate is based upon a 90-Day Design Schedule.

**CLIENT:** Virgin Islands Water & Power Authority

**RFP 07-25 Sarah Hill to Vet. Drive**

**PROJECT** Sarah Hill to Veteran's Drive Waterline Expansion Project

**PROJECT LOCATION:** STT

Scope Item	Description	Cost per Item
1	<b>TOPOGRAPHIC SURVEY WORK (Arrow Head Land Development)</b>	<b>\$ 56,783.29</b>
1	Topography and Base Map	
2	Survey of Pipe Routes	
3	Detailed As-built Survey of Pipe Routes	
4	Above Ground Appurtenances	
2	<b>GPR SURVEY WORK (Arrow Head Land Development)</b>	<b>\$ 67,212.86</b>
1	Two longitudinal Scans -one at center of each road lane	
2	One lateral Scan across roadway	
3	Underground Utilities Location	
4	Locate all objects to 6 feet Deep. - scan to 10 feet for drain struct.	
3	<b>SUBSURFACE SOIL RESEARCH &amp; INVESTIGATION -LIMITED</b>	<b>\$ 45,520.00</b>
1	Limited Geotechnical Investigation- Soil borings Program Ten (10) borings at 1000 ft interval and a max depth of 10 feet	
4	<b>COORDINATION MEETINGS WITH UTILITY COMPANIES</b>	<b>\$ 8,324.00</b>
1	Coordination with utility companies	
5	<b>PIPING DESIGN</b>	<b>\$ 109,200.00</b>
1	Generation of Engineering Drawings	
2	Generation of BID Docs and Contract Specs.	
3	Estimation of Cost of Construction	
4	Field Inspection of Design	
5	Output (Print-outs)	
6	<b>ENVIRONMENTAL &amp; CONSTRUCTION PERMITS*</b>	<b>\$ 33,500</b>
1	Federal Consistency Determination (FCD) Application	
2	DPW Excavation Permit Application	
3	DPNR FHP Application	
4	DPNR Building & Plumbing Permit Application	
7	<b>GENERATION OF MONTHLY STATUS REPORTS</b>	<b>8,400</b>
1	Status Reports	
<b>TOTAL PROPOSAL COST</b>		<b>\$ 328,940.15</b>

Note: \*Does Not Includes Payment of Permit Fees

**Table 3. PAYMENT SUBMITTAL SCHEDULE**

<b>Design and Payment Schedule</b>		
<b>COMPONENT</b>	<b>PERCENTAGE (%)</b>	<b>AMOUNT (\$)</b>
<b>MOBILIZATION</b>	<b>10</b>	<b>\$32,894.00</b>
<b>INFORMATION GATHERING &amp; CONCEPTUAL DESIGN</b>	<b>30</b>	<b>\$98,682.05</b>
<b>PRELIMINARY DESIGN (70% DESIGN COMPLETE)</b>	<b>30</b>	<b>\$98,682.05</b>
<b>DESIGN COMPLETION (100%)</b>	<b>30</b>	<b>\$98,682.05</b>
<b>TOTAL</b>		<b>\$328,940.15</b>

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**6. COST PROPOSAL FORM & QUESTIONNAIRE COMPLETE**

**PROPOSAL FORM**

**TO: VIRGIN ISLANDS WATER AND POWER AUTHORITY**

**BASE PROPOSAL**

The Offeror shall submit all required bid documents including this Proposal FORM for each Project to which he is responding. Pursuant to and in compliance with the Request for Proposal relating to Project:

**RFP-07-25- SARAH HILL TO VETERANS DRIVE WATERLINE REPLACEMENT RFP**

The undersigned, having carefully read, examined and become familiar with proposed project and the scope of work and with local conditions affecting the performance and costs of the work at the place where the work is to be completed, hereby proposes and agrees to fully perform the work in accordance with the proposed contract documents, including furnishing any and all labor and material, and to do all of the work required to construct and complete said project in accordance with contract documents, for the following firm base price of:

**Three hundred and twenty-eight thousand, nine hundred, and forty**

---

**Dollars**

<b>\$ 328,940.00</b>
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**SCHEDULE OF RATES**

Offeror shall include his Schedule of Rates effective for the project duration with his BASE PROPOSAL.

**Please note that Caritech has included its 2025 Personal Rate Schedule in the next page below:**

**EXCEPTIONS**

The Offeror shall list and explain in his proposal any exceptions to the requirements stated in the Request for Proposal. All exceptions will be reviewed during the evaluation of the RFP's.

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## **PERSONNEL RATE SCHEDULE**

### **CARITECH GROUP LLC/ 2025 Schedule of Fees**

Project Principal	\$295
Senior Project Manager	\$275
Project Manager	\$250
Project Engineer/Geologist	\$200
Senior Technician/Senior Drafter	\$175
Engineering Technician/Drafter	\$150
Project Administration	\$115
Subcontractors and Outside Services	Cost plus 10%
Other Direct Expenses	Cost plus 10%

Hourly rates will be charged for time worked on the project and for the time required for travel between the office and the meeting or project site. Local travel will be at IRS allowed rates.

Overtime hours will be charged using the hourly rates listed above.

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## **QUESTIONNAIRE COMPLETE**

### **MANDATORY - PRINT THIS SECTION, ENTER THE INFORMATION AND RETURN WITH BID PROPOSAL**

The undersigned guarantees the truth and accuracy of all statements and answers herein contained.

Include additional sheets if necessary.

1. How many years has your organization been in business as a design firm?

**15 YEARS**

2. How many years of experience does your firm have in designing pipelines and/or water networks?

**10 YEARS**

3. How many pipelines and/or water networks of equal or greater length has your firm designed within the past 10 years?

**SEVEN (7) YEARS**

4. Provide the following reference information regarding your most recent work(s)

(1). Pipeline Size and Length: **6" C-900 Pipe approximately 1,320 linear feet**

Contract Amount: **\$67,000.00**

End User Name & Address: **VIWAPA – Polyberg Circle Community – St. Thomas**

Contact Person(s) Name & Telephone: **La’Ron Henry - (340)-513-7279**

Start Date: **01/07/2025**

End Date: **4/07/2025 (EXPECTED END DATE)**

(2). Pipeline Size and Length: **1000 10" C-900 and 1,800 4" C-900**

Contract Amount: **\$141,800.00**

End User Name & Address: **VIWAPA – Black Beard’s Castle Area – St. Thomas**

Contact Person(s) Name & Telephone: **La’Ron Henry - (340)-513-7279**

Start Date: **April 11, 2022**

End Date: **August 8, 2022**

(3). Pipeline Size and Length: 6" & 10" C-900 Pipe-18,000 Linear ft

Contract Amount: \$194,800.00

End User Name & Address: VVIWAPA Estate Whim/Campo Rico Waterline St. Croix

Contact Person(s) Name & Telephone: Kwame Simmons & Elva Aziz- 340-244-2004

Start Date: July 6, 2020

End Date: November 3, 2020

5. Have you ever failed to complete work per Contract Specifications or within the time limits of a contract that was awarded to you? NO

If so when and where?

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6. Name three individuals or corporations for which you have performed work and to which you refer.

VIWAPA

VITOL VIRGIN ISLANDS

GENTLE WINDS CONDOMINIUM ASSOCIATION, ST. CROIX

7. Has your firm personally inspected the site and RFP of the proposed design? YES  
Describe any anticipated problems with the site and/or design with proposed solutions for each.

None

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8. Will you sublet any part of this work? If so give details.

CARITECH GROUP has teamed up with SANBORN HEAD & ASSOCIATES to do the detailed waterline design work. ARROW LAND DEVELOPMENT – a Civil Engineering and Survey Services Firm on St. Thomas- will complete the Survey Scope of Services and JACA SIERRA will conduct a limited soil borings program.

9. State the true, exact, correct, and complete name of the partnership, corporation or trade name under which you do business as well as the address of the place of business. (If a corporation, state the name of the President and Secretary. If a partnership, state the names of all partners. If a tradename, state the names of all the individuals who do business under that trade name.

**Caritech Group, LLC**

***Names of Caritech Group Partners***

**Eric D. Douglas, MSc, P.E. Principal, Member-Manager**

**Ashlee E. Douglas, MA- Member**

**Bernard P. Douglas- Member**

Do you have any experience physically collecting field data of system response events while obtaining data to complete modeling? If so, please describe.

**When I worked for Dow Chemical, I was part of a group of Research Scientists who worked on developing simulation (mathematical) models for chemical processes. Part of the work involved collecting plant data to test and validate these mathematical models.**

Have you ever failed to complete work per contract specification or within the time limits of a contract awarded to you? If so, where and why?

**NO**

The names of all persons interested in the foregoing proposal as principal are:

**Eric Douglas, MSc, PE**

(NOTE: If Offeror or other interested person is a corporation, give legal name of corporation, state where incorporated and names of president and secretary; if partnership, give name of firm and names of all individual co-partners composing the firm; if Offeror or other interested person is an individual, give first and last names in full.)

Are any current employees of the Authority involved in any way, shape or form with the preparation of the proposal or completion of the described work scope? If so, please describe.

**NO**

Licensed in accordance with 27 Virgin Islands Code Section 303 and with license number:  
**2-8931-1B (Type of License: Engineering Services)**

SIGN HERE: Eric Douglas

DATE 5/30/2025

\_\_\_\_\_  
Signature of Offeror

(NOTE: If Offeror is a corporation, set forth the legal name of the corporation together with the signature of the officer or officers authorized to sign contracts on behalf of the corporation. If the Offeror is a partnership, set forth the name of the firm together with the signature(s) of the partner or partners authorized to sign contracts on behalf to the partnership.)

Business Address: Caritech Group, LLC  
125 Cotton Valley, P.O. Box 5018, Kingshill VI 00851

Telephone Number: +1 340-690-9533

Facsimile Number: N//A

Date of Proposal: May 30, 2025

**END OF PROPOSAL FORM**

## **7. EXCEPTION TO VIWAPA GENERAL CONTRACT TERMS AND CONDITIONS**

### **Under Section 5.0 Scope of Work, Item 4- Other Considerations**

“In addition to the insurance coverage as required by the Authority’s General Contract Terms, the Offeror shall obtain and maintain Pollution Liability Insurance Coverage of not less than two million dollars(\$2,000,000.00) for the duration of the project.”

**It is Caritech’s professional opinion that since this is a design project – not a construction project- this Pollution Liability Insurance Coverage Requirement is not necessary.**

## REFERENCES

1. **PR-07-25 REQUEST FOR PROPOSAL** Sarah Hill to Veterans Drive Waterline Design, Virgin Islands Water and Power Authority, ST. THOMAS, USVI, April 2025
2. **ADDENDUM I.** PR-07-25 Sarah Hill Waterline Design RFP. Date: 04/23/25
3. **ADDENDUM II.** PR-07-25 Sarah Hill Waterline Design RFP. Date: 04/30/25
4. **ADDENDUM III.** PR-07-25 Sarah Hill Waterline Design RFP. Date: 05/07/25