CES Consultants, Inc.

Bid Contact **Rudy Ortiz**
rsak@cesconsult.com
Ph 305-827-2220

Address **880 SW 145th Ave**
Suite 106
Pembroke Pines, FL 33027

Supplier Code 276857

Item #	Line Item	Notes	Unit Price	Qty/Unit	Attch.	Docs
PSEN-18-02-07--01-01	Please Submit Documents Here	**Supplier Product Code:**	**First Offer -**	1 / each	**Y**	

Supplier Total $0.00

CES Consultants, Inc.

Item: **Please Submit Documents Here**

Attachments

CES_Pembroke_Pines_CCNA_PSEN18·02·07_FY2019_Lift_Station_Evaluation_Study.pdf

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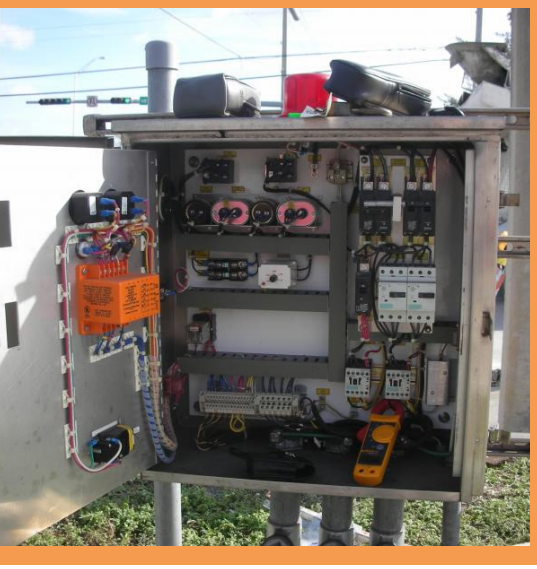
City of Pembroke Pines

CCNA #PSEN-18-02-07

May 21, 2019

FY2019 SELECTED LIFT STATION EVALUATION STUDY



CES Consultants, Inc.
880 SW 145th Avenue
Suite 106
Pembroke Pines, FL 33027
954.613.4353

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CITY OF PEMBROKE PINES

CCNA # PSEN-18-02-07 FY2019 Selected Lift Station Evaluation Study

MAY 21, 2019

CES CONSULTANTS, INC.
880 SW 145TH AVENUE
SUITE 106
PEMBROKE PINES, FL 33027
(954) 613-4353

CONTACT PERSON:
RUDY M. ORTIZ, PE, CGC
RORTIZ@CESCONSULT.COM
(954) 613-4353

CONSULTANTS

May 21, 2019

The City of Pembroke Pines
Purchasing Division
8300 South Palm Drive
Pembroke Pines, Florida 33025

RE: CCNA #PSEN-18-02-07 FY2019 Selected Lift Station Evaluation Study

Dear Selection Committee Members:

CES Consultants, Inc. (CES) is pleased to present this Statement of Qualifications (SOQ) to the City of Pembroke Pines for the FY2019 Selected Lift Station Evaluation Study Task Order. CES is a local, minority-owned company, in business for nearly 20 years. The firm's Engineering Design Center is located in Pembroke Pines and only minutes away from the City's Public Services Department and the lift station sites, allowing us to quickly respond to the City's needs. In addition, the CES senior management team is located in our Pembroke Pines office, offering readily available expertise, services and support to the City.

With over 90 employees, CES brings a strong portfolio of multi-faceted water and wastewater project experience to the City. Our South Florida municipal experience includes numerous similar civil engineering projects requiring field condition assessments, engineering and analysis. As you will see from our SOQ, we offer highly qualified personnel, directly applicable engineering experience with similar municipal lift and pump station assessment studies, and a commitment to expeditiously complete the work on time and on budget.

The CES Team will be led by **Engineer-of-Record/Project Manager Jose Caraballo, PE,** who will be responsible for the oversight of technical assignments and the lift station evaluations, quality control, final report delivery, and collaboration with the City's Project Management leadership. Jose will also serve as the **Single Point of Contact** with the City throughout the project. Jose has over 17 years of direct design experience in a variety of civil and environmental engineering study and design project delivery in South Florida, including more than 50 pump and lift stations, 110,000 LF of residential water main, and 20,000 LF of water treatment plant yard piping. The proposed CES team's experience is exemplified by the following projects:

» **Miami-Dade County WASD Pump Station Improvement Program (PSIP):** Engineering analysis and design services for the upgrade of various sanitary sewer pump stations ranging in size from 300-900 GPM. Our team analyzes each pump/lift station, develops individual scopes and fee proposals for each station, coordinates all team members prior to commencing work, and leads the design team in the engineering analysis, design development, and preparation of construction documents.

A 880 SW 145th Avenue | Suite 106 | Pembroke Pines, FL 33027 | O 954.613.4353 | E cesinfo@cesconsult.com | W cesconsult.com
License #CA8811

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» **Miami-Dade County WASD Wastewater Master Plan:** Development of Remedial Action Plans for approximately 350 Pump/Lift Stations. The Remedial Action Plans aided in the upgrade of each individual pump/lift station to make them compliant with a 10-hour operating criteria.

» **Miami Dade County Public Schools Sanitary Sewer Evaluation Surveys (SSES):** Evaluation of the sanitary sewer systems at 24 schools in accordance with County Code, that each privately and publicly operated sanitary sewer system be evaluated on a periodic basis. The SSES involves a visual inspection, smoke testing the collection system, a flow test on the wet well pump/lift station, and a Remedial Action Plan, as required.

CES brings the City highly refined and proven methodologies and project management systems to ensure the on time/on budget delivery of the final report. We are confident that our understanding of the project scope and specific experience completing numerous pump/lift station evaluation studies and rehabilitations throughout South Florida make us the best choice to assist the City in delivering the FY2019 Selected Lift Station Evaluation Study.

Our many years of experience in sanitary sewer conveyance and our lengthy history of providing similar studies provides CES with an unparalleled understanding of this study and the sequence and details of the tasks required to expeditiously and successfully complete it. CES believes we are the most qualified local consultant for this task order, and our previous experience in this study type and staff's proximity to City offices will be uniquely beneficial to the City.

If you have any questions or require any additional information, please contact me at 954.613.4353 or rortiz@cesconsult.com. We are excited about this opportunity to participate in enhancing the local community in which we live and work and look forward to your consideration and selection.

Sincerely,

CES Consultants, Inc.

Rudy M. Ortiz, PE, CGC
CEO

WHY CES?

- ✓ **Unparalleled Similar Study Experience**
- ✓ **Proven Approach & Methodology**
- ✓ **Resources to Meet Time & Budget Requirements**
- ✓ **Local, Minority-Owned Firm with Main Office in Pembroke Pines**
- ✓ ***Ready to Start Now!***

ABILITY OF PROFESSIONAL PERSONNEL

CES CONSULTANTS

The CES Engineering Team is a group of experienced, local professionals who are committed to exceeding the City of Pembroke Pines' expectations. The CES Team will be led by **Engineer-of-Record/Project Manager Jose Caraballo, PE,** who will be responsible for the oversight of technical assignments and the lift station evaluations, quality control, final report delivery, and collaboration with the City's Project Management leadership. Jose will serve as the **Single Point of Contact** with the City throughout the project.

Jose has over 17 years of direct design experience in a variety of civil and environmental engineering study and design project delivery in South Florida, including more than 50 pump and lift stations, 110,000 LF of residential water main, and 20,000 LF of water treatment plant yard piping. Jose was the Engineer-of-Record/Project Manager for:

» **Miami-Dade County WASD Pump Station Improvement Program (PSIP):** Jose is leading the project team in providing engineering analysis and design services for the upgrade of various sanitary sewer pump stations ranging in size from 300-900 GPM. Jose analyzes each pump station, develops individual scopes and fee proposals for each station, coordinates all team members prior to commencing work, and directs the design team in the engineering analysis, design development, and preparation of construction documents.

» **Miami-Dade County WASD Wastewater Master Plan:** Jose and the team developed Remedial Action Plans for approximately 350 Pump Stations. The Remedial Action Plans aided in the upgrade of each individual pump station to make them compliant with a 10-hr operating criteria.

» **Design of WASD Pump Station No. 609:** Jose analyzed and designed the upgrades to PS 609. The station analysis included reviewing SCADA data, hydraulic information provided by WASD, as-built information, and site inspections. With this data, it was concluded that this station required resurfacing and recoating of the inside of the existing wet well, new 40 HP pumps, and a new motor connection box.

» **West Avenue Stormwater Project to Address Sea Level Rise on Miami Beach:** A 600-acre, $54M Design-Build project to develop a stormwater model, water/sewer/utility and roadway design, permitting and infrastructure construction of 1.2 miles of roadway to address sea level rise in the West Avenue Basin. The project includes 16,000 LF of water main, 7,050 LF of sanitary gravity sewer, 12,800 LF of storm sewer, a new 120,000 GPM stormwater pump station and outfall, and significant upsizing and modifications of two existing pumps stations.

Resumes for the following proposed project personnel are provided on the following pages.

Role	Name
Single Point of Contact: Engineer-of-Record/ Project Manager	Jose Caraballo, PE
Principal-in-Charge	Jeff Thompson, PE
Professional Engineer: Calculations and Comparative Analysis	Jafet Torres, PE
Project Engineer: Field Investigation & Document Research	Gustavo Silva, PE
	Ashraf Iqbal, EI

JOSE CARABALLO, PE

Vice President; Project Manager; ***Single Point of Contact***

CES CONSULTANTS

Mr. Jose Caraballo has over 17 years of professional experience in the areas of civil, water, wastewater, stormwater and drainage design, transportation and environmental engineering, and project management with various public entities. He has been involved in a variety of civil and environmental engineering projects related to the improvement of roadways, public utilities, drainage systems, pump stations, lift stations, water treatment plants, ports and airports, Class IV Freshwater Wetland Permitting and SFWMD Environmental Resources Permitting, amongst others. Jose has successfully overseen projects from the initial assessment, feasibility analysis and conceptual stages through completion, including full design, permitting, construction management/ administration and close-out.

EXPERIENCE INCLUDES:

» **West Avenue Stormwater Project to Address Sea Level Rise, Miami Beach, FL:** Project Manager/ Engineer-of-Record for the 600-acre, $54M Design-Build project to develop a stormwater model, water/sewer/utility and roadway design, permitting and infrastructure construction of 1.2 miles of roadway to address sea level rise in the West Avenue Basin. This resiliency project will provide the community protection from flooding during storm events and high seasonal tides. The project requires raising the roadway approximately 30 inches while providing a 10-year level of service with no structure flooding. Rising seas, high groundwater, king tides, wind and deteriorating infrastructure contribute to frequent flooding of facilities in the basin. The contributing basin is 600 acres and all 19 utilities along the roadway will be affected. Modeling using AdICPR4 and upsizing and design of all curb inlets and yard inlets followed by significant upsizing and modifications of two pumps stations is required. The project includes 16,000 LF of water main, 7,050 LF of sanitary gravity sewer, 12,800 LF of storm sewer and a 120,000 GPM stormwater pump station and outfall.

» **Miami-Dade County WASD 48-inch Force Main Improvements, Doral, FL:** Project Designer for 48-inch diameter DIP pipeline improvements to increase wastewater transmission capacity within the Doral basin of the County's wastewater collection and transmission system. The project, located at NW 54th Street, includes approximately 4,200 feet of pipe and a micro-tunneling segment under a major highway that is located within a high-density traffic roadway and intersects numerous utilities. Jose was directly involved in verifying that the design met the standards and requirements of WASD. He also analyzed and provided design solutions for utility conflicts.

» **Miami-Dade County DERM Residential Water Main and Sanitary Sewer Force Mains, Miami-Dade County, FL:** Project Manager for engineering analysis and design services for the upgrade of approximately 9,800 LF

YEARS EXPERIENCE

17

EDUCATION

BS, Environmental Engineering, Louisiana State University, 2002

REGISTRATIONS & CERTIFICATIONS

Florida Professional Engineer #73064

New York Professional Engineer #094777

of water main and 16,000 LF of sanitary sewer force. The projects under this contract provide the neighborhood with increased potable water pressures and increased fire protection. The projects also allowed MDWASD with the ability to abandon the existing asbestos cement sanitary sewer force mains, which suffer from breaks and pose a health hazard to the communities.

- **NW 12th Avenue Force Main Replacement, North Miami, FL:** Lead Designer/Manager responsible for the design, permitting, and construction of 10,500 LF of 10- and 12-inch replacement force main in NW 12th Avenue extending from NW 95th Street to NW 125th Street for the Miami-Dade County Department of Public Works and Waste Management. The project replaced aging, asbestos-cement and cast iron force mains with corrosion resistant PVC pipe. A number of private force main connections required relocation and reconnection to the new force main, as well as planning for uninterrupted service during construction.
- **Miami-Dade County WASD Wastewater Master Plan, Miami-Dade County, FL:** As a Project Engineer, developed Remedial Action Plans for approximately 350 lift stations. The Remedial Action Plans aided in the upgrade of each individual pump station to make them compliant with a 10-hr operating criteria.
- **Miami-Dade County WASD Pump Station Improvement Program (PSIP), Miami-Dade County, FL:** Engineer of Record/Project Manager leading the project team in providing engineering analysis and design services for the upgrade of various sanitary sewer pump stations ranging in size from 300 GPM to 900 GPM. The project consists of upgrading pump stations located throughout Miami-Dade County that have been identified as having deficient NAPOT values. Jose analyzes each pump station, develops individual scopes and fee proposals for each station, coordinates all team members prior to commencing work, and directs the design team in the engineering analysis, design development, and preparation of construction documents. Since these projects occur in different municipalities, Jose personally manages all permitting services to discuss each project with RER-DERM and to engage the proper building departments. Additionally, Jose developed a system curve spreadsheet that allows staff engineers to analyze each pump station and facilitates in the pump selection process.
  - **Design of Pump Station No. 609:** Analyzed and designed the upgrades to PS 609. The station analysis included reviewing SCADA data, hydraulic information provided by WASD, as-built information, and site inspections. With this data, it was concluded that this station required resurfacing and recoating the inside of the existing wet well, new 40 HP pumps, and a new motor connection box.
  - **Design of Pump Station No. 449:** Analyzed and designed the upgrades to PS 449. The station analysis included reviewing SCADA data, hydraulic information provided by WASD, as-built information, and site inspections. The data indicated that this pump station had undersized pumps, wet well, discharge piping and valve vault. The design included a new 8-foot diameter wet well, a new valve vault, new 21.5 HP pumps, new 10-inch discharge piping, a new electrical panel, 250 LF of 10-inch force main, and a complete civil site redesign to optimize use of the limited space.
  - **Design of Pump Station No. 147:** Analyzed and designed the upgrades to PS 147. The station analysis included reviewing SCADA data, hydraulic information provided by WASD, as-built information, and site inspections. The data indicated that this pump station had undersized pumps, wet well, discharge piping and valve vault. The design included a new 8-foot diameter wet well, a new valve vault, new 56 HP pumps, new 10-inch discharge piping and force main, a new electrical panel, a new permanently installed 175 KW emergency generator, and a complete civil site redesign to optimize the limited space.

- **Design of Pump Station No. 331:** Analyzed and designed the upgrades to PS 331. The station analysis included reviewing SCADA data, hydraulic information provided by WASD, as-built information, and site inspections. This station is a large underground wet well / dry well facility with a concrete above ground enclosure. Originally, WASD requested that we retrofit this station, but our survey identified that the station was built partially outside of its designated easement. Our design incorporated a complete demolition of the existing station, and a complete layout design within the correct easement boundaries. The design included a new 8-foot diameter wet well, a new valve vault, a new receiving manhole, new 34 HP pumps, new 8-inch discharge piping, a new electrical panel, and new 18-inch gravity piping. The layout design for this pump station required early communication with FPL to relocate an existing transformer.
- **Design of Pump Station No. 440 (Phase 1):** Analyzed and designed the upgrades to PS 440 (Phase 1). The station analysis included reviewing SCADA data, hydraulic information provided by WASD, as-built information, and site inspections. With this data, it was concluded that this station required resurfacing and recoating the inside of the existing wet well, new 10 HP pumps, and a new motor connection box. This station was challenging because of the existing elevation of the inflow. The existing system does not allow for a reasonable effective volume without surging the gravity system, which Jose allowed since CES also designed a new pump station to replace this station. The design, although temporary, was designed to avoid clogging during the gravity system surging and to keep surging to a minimum to protect private property.
- **Design of Pump Station No. 440 (Phase 2):** Analyzed and designed the upgrades to PS 440 (Phase 2). This design is a completely new pump station located within the public right of way to replace the existing station located in an easement behind four single family residences. The station analysis included reviewing SCADA data, hydraulic information provided by WASD, as-built information, and site inspections. The design included a new 8-foot diameter wet well, a new valve vault, new 10 HP pumps, new 8-inch discharge piping, a new electrical panel, and complete civil site design to minimize the impact to the public right of way.
- **Design of Pump Station No. 081:** Analyzed and designed the upgrades to PS 081. The station analysis included reviewing SCADA data, hydraulic information provided by WASD, as-built information, and site inspections. The data indicated that this pump station had undersized pumps, wet well, discharge piping and valve vault. The design included a new 8-foot diameter wet well, a new valve vault, new 20 HP pumps, new 8-inch discharge piping, a new electrical panel, 950 LF of 8-inch force main, and a complete civil site redesign to optimize use of the limited space.
- **Design of Pump Station No. 592 (24-inch Force Main):** Design of approximately 2,750 LF of 24-inch force main along SW 147th Avenue from SW 176th Street to SW 184th Street. The design consisted of connecting to an existing 12-inch and an existing 16-inch force main at SW 176th Street. The pipeline continues south utilizing an open cut method of installation. A 200-foot micro-tunnel operation was designed to cross an existing railroad easement. The pipeline then continues south and connects to an existing stub-out located at SW 184th Street. Jose was in direct contact with the CSX Utility Coordination Department to accelerate the permitting process.

- **72-Inch Raw Water Main BODR, Miami, FL:** Project Engineer for the development of a Basis of Design Report for 8,800 LF of 72-inch steel raw water main. This project was one of three segments that WASD was developing to convey raw water from the Northwest Wellfield to

Hialeah-Preston Water Treatment Plants. Jose was also responsible for utility coordination and assisting in developing viable alternative routes.

- **Roadway Infrastructure Project, Miramar, FL:** Project Manager for the design of over five miles of water main, sewer, and drainage improvements as well as sanitary sewer lift station upgrades. Performed and managed the monitoring efforts for the construction activities throughout the southern half of the City of Miramar, including daily inspections, quality assurance reviews of the inspection team's daily reports, RFI log maintenance, participating in the pressure testing of the lines, and reviewing the Contractor's monthly invoices.
- **East Miramar Redevelopment Transmission & Distribution Water Main Improvements, Miramar, FL:** As Engineer-of-Record, led the design team for technical engineering analysis and design services for the upgrade of approximately 72,000 LF of water main. The project consisted of upgrading existing 2-inch and 4-inch residential water mains to a 6-inch water main to improve pressure and provide fire protection within the area and relocation of water services.
- **Design-Build Services for Water Main Replacement and Service Conversions in the Shenandoah Area Phase B, Miami, FL:** Engineer-of-Record and Design Project Manager leading the project team in providing engineering analysis and design services for the upgrade of approximately 46,000 LF of water main. The project consisted of upgrading existing 4-inch and 6-inch residential water main to 8-inch water mains. This effort improved pressure and provided fire protection within the area. Additionally, approximately 650 residents within the project area receive potable water through water mains located within easements to the rear of the properties. The project eliminated these water mains and moved them to the right-of-way. Led the effort to provide service conversions for all residents with water meters to the rear of the property, working closely with the client and Design-Build Team to produce the most technically sound and cost-effective design that incorporated all of the client's requirements and needs. Provided permitting expertise to acquire the mainline water main permits and approximately 650 private property building permits. Developed a phasing plan to accelerate the schedule by allowing surveying, design, and construction operations to occur simultaneously throughout various areas of the project boundary.
- **Fort Lauderdale *Waterworks* 2012, Fort Lauderdale, FL:** Project Manager providing management of inspection staff and verification of the construction quantity and quality of many new systems in the construction of the Fort Lauderdale *Waterworks* Program. The projects consisted of upgrading the water, sewer, pump and lift stations, and drainage systems at various locations within the City of Fort Lauderdale.
- **SFWMD Pump Station Hardening, Okeechobee, FL:** Project Manager for the assessment of nine pump stations located around Lake Okeechobee, acting as a liaison between SFWMD staff in the field and the consulting team, and collecting data at the sites useful in the assessment and design of this project.
- **Miami-Dade County WASD, Design of 2,200 LF of 8-inch Residential Water Main, Coral Gables, FL:** As Engineer-of-Record, led the project team in providing engineering analysis and design services for the upgrade of approximately 2,200 LF of water. The project consisted of designing a residential 8-inch water main along Banos Court.
- **Miami-Dade County WASD, Design of 1,800 LF of 8-inch Residential Water Main, Miami, FL:** As Engineer-of-Record, led the project team in providing engineering analysis and design services for the upgrade of approximately 1,800 LF of water main. The project consisted of designing several segments of residential 8-inch water main at NE 13 Court and NW 13 Place from NE 199 Street to North Drive within the City of Miami.

JEFF THOMPSON, PE

Principal-in-Charge

CES CONSULTANTS

Mr. Jeff Thompson is an accomplished executive and professional civil engineer with more than 27 years of public/private sector experience specializing in water/wastewater utility operations, management, and technological innovations. Jeff's experience also covers multiple strategic master planning initiatives, water supply planning/permitting, asset management and information management deployment, fast-track capital program management, conducting utility benchmarking/operational assessments, and implementing public/private partnership contract operation solutions.

EXPERIENCE INCLUDES:

Commencing his professional career as a **Water Resources Engineer for The Walt Disney Company,** Jeff has served in a number of utility and executive capacities, including **Deputy General Manager of Providence Water** in New England and, most recently, as **Director of North Miami Beach Water,** the second-largest regional water/wastewater utility in Miami-Dade County, where he implemented considerable operational improvements including leading the development of a Strategic Master Plan and overseeing a $270M Capital Improvement Program (CIP) focused on the expansion and optimization for the utility's 32-MGD membrane/lime-softening water treatment plant. He also oversaw operational performance benchmarking and condition assessments of existing infrastructure, followed by an organizational transformation from City-operation to a public/private partnership contract operations model. This transition resulted in significant risk mitigation, deployment of an asset management system to extend the useful life of infrastructure, and the fast-tracking of critical reliability improvements via Program Management and private procurement/capital delivery capabilities. The City continued to maintain full executive leadership, ownership, and rate setting for the regional utility while enjoying $56.5M in savings to ratepayers and significant key performance indicator (KPI) documented improvements in multiple areas.

In addition to managing over $1B in capital projects/programs over the course of his career, Jeff also has extensive experience with public works/utilities master planning, water supply planning, wellfield development, and the planning/design/construction/operation of water treatment plants, potable transmission/distribution mains, collection systems, wastewater treatment facilities and reclaimed water distribution systems. Jeff also has significant experience with public works/utility emergency planning and preparedness, advanced metering infrastructure (AMI) deployment, implementing Computerized Maintenance Management Systems (CMMS), Asset Management Systems (AMS) and other technologies, hydraulic/water quality modeling, water/wastewater regulatory permitting and compliance, utility customer service/billing, utility finance and revenue sufficiency, rate setting, obtaining grants, administering State Revolving Loans, as well as experience successfully lobbying for and obtaining a $126M Water Infrastructure Financing & Innovation Act (WIFIA) loan from the US EPA.

YEARS EXPERIENCE

27

EDUCATION

BS, Civil Engineering, University of Central Florida

REGISTRATIONS & CERTIFICATIONS

Florida Professional Engineer #58193

JAFET TORRES, PE

Professional Engineer: Calculations & Comparative Analysis

CES CONSULTANTS

Mr. Jafet Torres is an outstanding professional civil engineer with nearly 15 years of experience in engineering design, construction inspection, supervision and construction management. A collaborative team member, Jafet has developed the ability to analyze and apply engineering fundamentals and principles to solve a variety of situations and client needs.

EXPERIENCE INCLUDES:

» **Design of Pump Station Improvement Program (PSIP) Projects, Miami-Dade County, FL:** Staff engineer in charge of design, permitting and cost estimating for various small (0.3 – 0.5 MGD) municipal wastewater sewer pump stations and pump station improvements. The project involved the evaluation, engineering analysis, design, coordination, permitting and management for the rehabilitation and replacement of multiple pump stations for the PSIP, including existing pump station inspection, coordination of survey and geotechnical services, design of pump station rehabilitation or replacement, design of connecting force mains, permitting, and limited construction services. The engineering work included Pump Station 0449, Pump Station 0147, Pump Station 0331, Force Main 0592 (24-inch), Pump Station 0440, Pump Station 0336, Pump Station 0609, Pump Station 0081, Pump Station 1026 and Pump Station 1065.

» **West Avenue Stormwater Project & Lincoln Road Pump Station to Address Sea Level Rise, Miami Beach, FL:** Project Engineer for the 600-acre, $54M Design-Build project to develop a stormwater model, water/sewer/utility and roadway design, permitting and infrastructure construction of 1.2 miles of roadway to address sea level rise in the West Avenue Basin. This resiliency project will provide the community protection from flooding during storm events and high seasonal tides. The project requires raising the roadway approximately 30 inches while providing a 10-year level of service with no structure flooding. Rising seas, high groundwater, king tides, wind and deteriorating infrastructure contribute to frequent flooding of facilities in the basin. The contributing basin is 600 acres and all 19 utilities along the roadway will be affected. Modeling using AdICPR4 and upsizing and design of all curb inlets and yard inlets followed by significant upsizing and modifications of two pumps stations is required. The Lincoln Road Pump Station is a 36 MGD storm drainage pump station. The project includes 16,000 LF of water main, 7,050 LF of sanitary gravity sewer, 12,800 LF of storm sewer and a 120,000 GPM stormwater pump station and outfall.

» **Puerto Rico Aqueduct and Sewer Authority Optimization and Water Loss Recovery Program, Puerto Rico:** Hydraulic Engineer and Modeler for the evaluation and optimization of various operational issues on potable water pumping systems around the North Region of Puerto Rico to reduce: service intermittency, system pressure inadequacy, repairs on pump station equipment and mains, power consumption, etc. Hydraulic modeling and

YEARS EXPERIENCE

14

EDUCATION

Colegio de Ingenieros y Agrimensores de Puerto Rico (CIAPR)

REGISTRATIONS & CERTIFICATIONS

Florida Professional Engineer #21163

Professional Engineer Puerto Rico #21163

10 & 30 Hours OSHA Training: Occupational Safety and Health

PROFESSIONAL AFFILIATIONS

American Society of Civil Engineers

Golden Key National Honor Society

balance of water distribution systems to reduce water and energy losses. Several pump stations have shut-down or reduced capacity, reducing energy utilization, water production, and maintenance of infrastructure. Performed engineering analyses to modify (expand or reduce) water distribution systems and/or eliminate water filtration plants and deep wells.

- **Puerto Rico Aqueduct and Sewer Authority Water Quality Compliance Program, Puerto Rico:** Drinking water quality analysis and modeling to reduce water age and formation of disinfection by-products (DBPs) to conform to the EPA's rules and regulations. Projects included:
  - Modeling of a complete service area in the north region of Puerto Rico, including 10 pump stations, tanks, and several water mains and hydraulic control devices up to 16".
  - Modeling of a complete service area in Jayuya, PR, including 11 pump stations, tanks, and several water mains and hydraulic control devices up to 12".
  - Project Engineer in charge of the design and permitting for the Candelero Abajo Sanitary Sewer System, consisting of three municipal wastewater sewer pump stations and a gravity sewer system serving a population of 1,600 people, ranging between 0.3 and 0.6 MGD.
  - Served as Construction Administrator for one of the pump stations included in the project. Duties included: evaluation, negotiation and recommendation of Contractor's change order proposals; attend weekly meetings; answer RFIs; approval of submittals and Contractor's application for payments; record keeping and preparation of as- built drawings and reports; procurement of federal and state's permits and endorsements; construction inspection; construction schedule evaluation, among other duties.
- **Rehabilitation of Casabella's Pump Station, Puerto Rico:** Civil Engineer performing an assessment of the existing conditions of a privately-owned sanitary sewer pump station serving a 50-house community, providing recommendations for the required improvements in order to conform with (PR) State's regulations, and posterior transfer to the lead agency. Some of the duties performed include: review of plans and calculations, preparation of technical specifications, cost estimates, and meetings with regulatory agencies.
- **New York Rising Community Reconstruction Program, New York, NY:** Served as a consultant for the New York Rising Community Reconstruction Program and HGA as the program managers, performing independent cost estimates for various resiliency project designs and cost reasonableness reviews on design proposals. The program included design and construction of over 400 independent resiliency projects after the devastation caused by Hurricanes Irene and Sandy. The funding for the program is estimated at over $2B and is ruled by Federal and NY State Regulations. The complexity of the program was increased by the strict accomplishment of timelines and target dates.
- **Hydraulic Manager and Consultant, Civil/Water Discipline, Puerto Rico:** Served as a consultant for the Puerto Rico Aqueduct and Sewer Authority (PRASA) for optimization and troubleshooting of operational issues (analyze and resolve persistent and hidden problems) in potable water systems applying principles and fundamentals of hydraulics. Hydraulic modeling and balance of water distribution systems to reduce water and energy losses in the North Region of Puerto Rico, including 20 cities. As a result, PRASA could shut down several pump stations, reduce energy utilization, reduce water production, and reduce maintenance of infrastructure. Drinking water quality analysis and modeling to reduce water age and formation of disinfection by-products (DBPs), to conform EPA's rules and regulations. Performed evaluation and engineering analyses in order to modify (expand/reduce) water distribution systems or eliminate water filtration plants and deep wells. Dynamic development and execution of scopes of work, maximizing resources to accomplish target dates.

GUSTAVO SILVA, PE

Project Engineer: Field Investigation & Document Research

CES CONSULTANTS

Mr. Gus Silva has seven years of experience in the design of wastewater pump stations and force mains, inspection/testing of sanitary sewer pipes connecting to pump stations, geotechnical design for the public and private sectors, foundation, concrete and structural inspection, environmental assessments, utility coordination for design and construction, and material testing. Gus serves as a member of the American Society of Civil Engineers, Miami-Dade Branch. He has been an active ASCE member since 2014 and has served in multiple events, such as the ASCE Steel Bridge Competition (Captain) and Field Day.

EXPERIENCE INCLUDES:

» **Design-Build Services for Water Main Replacement and Service Conversions in the Shenandoah Area Phase B, Miami, FL:** Design support engineer responsible for residential plumbing permit documentation and coordination and CADD Coordinator for the design-build project upgrade of approximately 46,000 LF of water main. The project consisted of upgrading existing 4-inch and 6-inch residential water main to 8-inch water mains. The project wet tap connections include 8-inch, 16-inch and 24-inch pipes This effort improved pressure and provided fire protection within the area. Additionally, approximately 650 residents within the project area receive potable water through water mains located within easements to the rear of the properties. The project eliminated these water mains and moved them to the right-of-way.

» **Design of Pump Station Improvement Program (PSIP) Projects, Miami-Dade County, FL:** As project engineer, provided evaluation, cost, engineering analysis, design, coordination, permitting and management for the rehabilitation and replacement of multiple pump stations for the PSIP. The project consisted of existing pump station inspection, coordination of survey and geotechnical services, design of pump station rehabilitation or replacement, design of connecting force mains, permitting, and limited construction services. The engineering work included Pump Station 0449, Pump Station 0147, Pump Station 0331, Force Main 0592 (24-inch), Pump Station 0440, Pump Station 0336, Pump Station 0609, Pump Station 0081, Pump Station 1026 and Pump Station 1065.

» **Miami Dade County Public Schools (MDCPS) Sanitary Sewer Evaluation Surveys (SSES), Miami-Dade County, FL:** Project manager for the inspection and evaluation of sanitary sewer systems at 24 county schools. The schools are required to be in accordance with Chapter 24 of the Miami-Dade County Code (MDCC), that each privately and publicly operated sanitary sewer system be evaluated on a periodic basis. Each sanitary system must implement a Sanitary Sewer Evaluation Survey (SSES) and, if required, a rehabilitation program as stated by the US EPA's Sewer System. The SSES involved a visual inspection, smoke testing the collection system and a flow test on the wet well pump/lift station.

YEARS EXPERIENCE

7

EDUCATION

BS, Civil Engineering, Florida International University, 2012

REGISTRATIONS & CERTIFICATIONS

Florida Professional Engineer #86389

FDOT Temporary Traffic Control Intermediate Certification

FDOT CTQP, Earthwork Technician Level 1

FDOT CTQP, QC Manager

Autodesk AutoCAD Civil 3D NASSCO Pipeline Assessment (PACP)

NASSCO Manhole Assessment (MACP)

PROFESSIONAL AFFILIATIONS

American Society of Civil Engineers

- **Culvert Project Construction Inspection and Material Testing, South Florida Water Management District, FL:** As an inspector/engineer, oversaw the replacement/removal of outdated culverts owned by the SFWMD, located in Palm Beach, Broward, Miami-Dade and Okeechobee Counties. The projects consisted of removing or replacing existing culverts that were corroded, obsolete or outdated using the current specifications from the United States Army Corps of Engineers. Developed dewatering plans, Stormwater Pollution Prevention Plans (SWPPP), and Service Life Estimator-Culvert.
- **Ocean Outfall Pump Test, North District WWTP, Miami-Dade County, FL:** Staff engineer for conducting pump tests on six (6) WWTP effluent pumps for the ocean outfall discharge facility. The 75 MGD (52,000 GPM) pumps were tested for various head and flow conditions to determine the existing capacity of the pumps compared to the manufacturers' pump curves.
- **Pump Station at Indian Creek and 43rd Street, Miami Beach, FL:** Project manager/geotechnical engineer for the foundation design of a pump station located in an area with problematic soil conditions, high groundwater, and a constrained construction site where ground improvement techniques were evaluated resulting in substantial project savings.
- **West Avenue Stormwater Project to Address Sea Level Rise, Miami Beach, FL:** Project Engineer for the 600-acre, $54M project to develop a stormwater model, utilities and roadway design, permitting and construction of 1.2 miles of roadway to address sea level rise in the West Avenue Basin. The project requires raising the roadway approximately 30 inches while providing a 10-year level of service with no structure flooding. Rising seas, high groundwater, king tides, wind and deteriorating infrastructure contribute to frequent flooding of facilities in the basin. The contributing basin is 600 acres and all 19 utilities along the roadway will be affected. Modeling using AdICPR4 and upsizing and design of all curb inlets and yard inlets followed by significant upsizing and modifications of two pumps stations is required. The project includes 16,000 LF of water main, 7,050 LF of sanitary gravity sewer, 12,800 LF of storm sewer and a 120,000 GPM stormwater pump station and outfall.
- **S.R. 907/Alton Road - 43rd Street to Bascule Bridge No. 870613 (2.6 miles), Miami Beach, FL:** Project manager/geotechnical engineer responsible for improvements along S.R. 907 in Miami Beach. The project included widening Alton Road in various areas, new traffic signal mast arms, and stormwater drainage improvements that included temporary sheet piles/helical piles for pump stations.
- **S.R. 997/Krome Avenue - S.W. 296th Street to 232nd Street (4 miles), Miami, FL:** Project manager/geotechnical engineer involved in the widening of S.R. 997. Improvements along Krome Avenue including stormwater drainage, traffic signal mast arms, and a new bridge design.
- **S.R. 708/Blue Heron Boulevard Improvements (1.7 miles), Palm Beach County, FL:** Staff engineer involved with improvements along S.R. 708 in Palm Beach County, to include widening Blue Heron Boulevard in various areas, improving the southbound off-ramp, and traffic signal mast arms at the intersection of I-95.
- **I-75 (SR 93) at Griffin Road (SR 818) (2 miles), Broward County, FL:** Staff engineer involved with improvements to the intersection of I-75 (S.R. 93) and Griffin Road (S.R. 818) in Broward County, to include widening of I-75 in various areas, improving the off-ramp at the intersection and traffic signal mast arms on Griffin Road.
- **Flagler Memorial Geotechnical Services, Palm Beach County, FL:** Staff engineer responsible for conducting field explorations with soil borings performed to depths greater than 200 feet. This project was conducted as part of an emergency study, and sampling was performed with day and night operations.

ASHRAF IQBAL, EI

Project Engineer: Field Investigation & Document Research

CES CONSULTANTS

Mr. Ashraf Iqbal is a civil and structural engineer with 12 years of experience in the construction of structural/civil works, site supervision and design. He has comprehensive experience in project implementation and monitoring involving liaising with other disciplines. Ashraf has extensive experience in the design of structural elements and is well-versed in executing construction of projects involving construction development quality control and safety standards in compliance to project specifications and codes. He has worked on numerous projects in Miami Dade County, Broward County, the South Florida Water Management District and for the US Army Corps of Engineers.

EXPERIENCE INCLUDES:

- **Miami Dade WASD PSIP Design of PS 0440, Miami Gardens, FL :** Design engineer for engineering analysis and design for the new Pump Station 0440. This project includes inspecting, designing, and constructing a new pump station to replace the existing pump station in accordance with WASD standards and the EPA Consent decree criteria.
- **Miami Dade WASD PSIP Design of PS 0336, Miami Lakes, FL:** Design engineer for engineering analysis and design for the new Pump Station 0336. This project includes inspecting, designing, and constructing a new pump station to replace the existing pump station in accordance with WASD standards and the EPA Consent decree criteria.
- **Midway Pump Station, Miami, FL:** As Senior Project Engineer, performed the structural calculations, design and drafting required for the construction of this pump station. This pump station will serve to protect a 43 acre basin bounded by NW 87th Avenue, SR-826, SR-836 and 7th Street from flooding.
- **Historic Miramar Re-Development and Water Main Improvements, Miramar, FL:** Senior Project Engineer responsible for managing the construction activities of project which entails the installation of water main, in line valves, fire hydrants and water services for the residents in the city of Miramar. Responsible for reviewing and approving contractor's shop drawing, contractor's payment certificate as per the bill of quantities, method of statement and material submittals. Attended project progress meeting with the client and contractor.
- **Water and Sanitary Sewer System Improvements for Utility Analysis Zones (UAZ) 113B, Lauderdale Lakes, FL:** Senior Project Engineer for the design of water distribution system and sanitary sewer system design for Utility Analysis Zone 113B. Provided information for utility conflicts adjustments and prepared specifications for construction of improvements.
- **Miami Dade County Public Works Department, Miami, FL:** Senior Project Engineer performing various field and laboratory testing duties on several projects for various departments of Miami Dade County. The departments include: Public Works, Water and Sewer, Department of Transportation,

YEARS EXPERIENCE

12

EDUCATION

MS, Civil Engineering & Environmental Testing, Florida International University

BS, Civil Engineering, Osmania University

REGISTRATIONS & CERTIFICATIONS

ACI Concrete Field Testing Technician Level I

Hazardous Waste Site Assessment

Industrial Wastewater Treatment

Air Pollution Control

Design of Highway Bridges

Seaport, and Aviation. The material testing services requests include: soils, asphalt, concrete, and boring. The various projects Ashraf has performed work on are: Roadway Improvements at NW 74th Street, NW 107th Avenue to NW 84th Avenue, Two Lane Road at SW 34th Street from SW 129th Avenue to SW 128th Avenue, Baroque Estates, SW 30th Street and SW 144th Avenue, MIA South Terminal Dual Taxiway, and the MIA APM System.

- **Pasadena Lakes Elementary School Inspection for A/C Unit Replacement, Pembroke Pines, FL:** Senior Project Engineer responsible for conducting a visual non-intrusive site inspection, Structural Assessment Report, development of a computer-based structural model for analysis of existing roof capacity, and review of roof safety concerns for areas adjacent to Air-conditioning Rooftop Units 1-5 for replacement with new units.
- **Topeekeegee Yugnee Park Maintenance Building, Hollywood, FL:** Senior Project Engineer responsible for condition assessment and design of repairs for the Maintenance Building where one of the existing interior columns was significantly damaged in July 2016. Structural engineering services included a site visit to observe the damage to the existing column and roof support beams, design for replacement of the damaged structural column, and preparation of Construction Documents, and an Engineer's Opinion of Probable Construction Costs (EOPCC).
- **Everglades Holiday Park Visitor's Observation Deck, Fort Lauderdale, FL:** Senior Project Engineer responsible for a condition assessment and code compliance review for an elevated wood deck and associated wood walkway/ramp. Structural engineering services included site visit to observe the existing condition of the deck and walkway/ramp, evaluate for code compliance, identify noncompliant code issues, recommend modifications required for noncompliant issues, and prepare documentation necessary for permitting.
- **United States Army Corps of Engineers, FL:** Senior Project Engineer performing various field and laboratory tests on several projects for the United States Army Corps of Engineers. Testing requests included soils, asphalt, concrete, and permeability. Testing projects included Hoover Dike, Big Cypress National Parks, Kissimmee River, and C-111 Canal, to name a few.
- **Miami International Airport South Terminal Dual Taxiway, Miami, FL:** Senior Project Engineer providing soils, foundations, and material testing services on this project. He performs site visits, inspections, meetings, coordination with all stake holders and supervision of all material testing as requested by the client. The testing services include but are not limited to field and laboratory CBR tests, compaction test by sand cone method, proctor and gradation for soils, steel inspection for underground structures at the concrete plant and others as per ASTM, ACI, and CTQP standards
- **Testing Laboratory & Field Technician, Herbert Hoover Dike Rehabilitation, Reach I, US Army Corp of Engineers, Lake Okeechobee, FL:** As a certified quality control laboratory for the US Army Corp of Engineers, performed laboratory testing on Q/A samples (soil cement bentonite). This testing included unconfined compressive strength as per ASTM D-2166 and permeability tests as per ASTM D-5084. Several field visits were required to check and evaluate the performance of the Contractor field labs.
- **Miscellaneous Earthwork Inspection for the Florida Turnpike, Miami Dade County, FL:** Project Engineer responsible for field inspection and density testing for the Florida Turnpike including the renovation of Florida Turnpike service plazas throughout South Florida.
- **Miscellaneous Geotechnical Testing Projects, Miami Dade County, FL:** Project Engineer responsible for various field and laboratory testing duties on several projects for various departments of Miami Dade County. The departments include: Public Works, Water and Sewer, Department of Transportation, Seaport, and Aviation.

CERTIFIED MINORITY BUSINESS ENTERPRISE

CES CONSULTANTS

CES Consultants, Inc. is a Certified Minority Business Enterprise as defined by the Florida Small and Minority Business Assistance Act.

State of Florida

Minority Business Certification

CES Consultants, Inc.

Is certified under the provisions of
287 and 295.187, Florida Statutes, for a period from:

01/12/2018 to 01/12/2020

Erin Rock, Secretary
Florida Department of Management Services

office of supplier DIVERSITY

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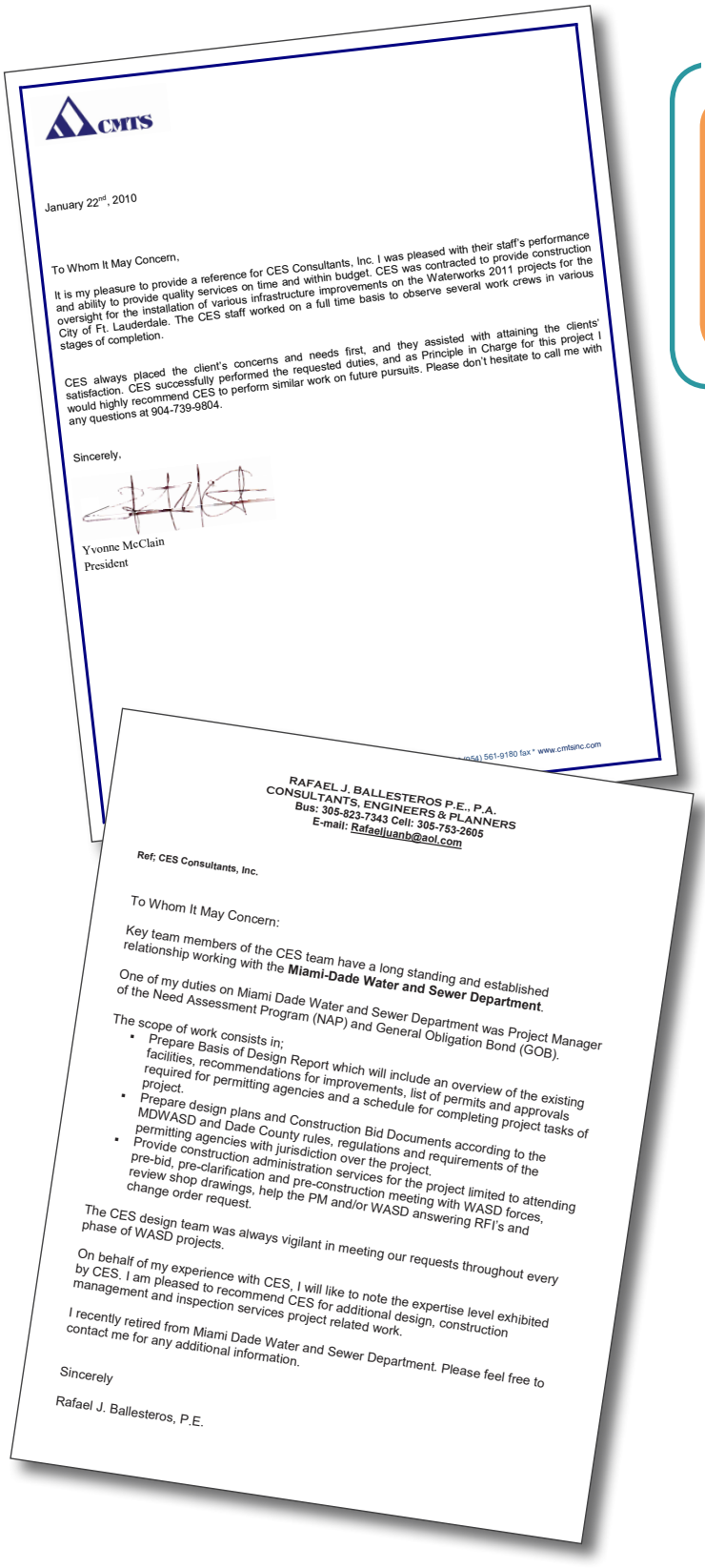
PAST PERFORMANCE

CES CONSULTANTS



CMTS

January 22nd, 2010

To Whom It May Concern,

It is my pleasure to provide a reference for CES Consultants, Inc. I was pleased with their staff's performance and ability to provide quality services on time and within budget. CES was contracted to provide construction oversight for the installation of various infrastructure improvements on the Waterworks 2011 projects for the City of Ft. Lauderdale. The CES staff worked on a full time basis to observe several work crews in various stages of completion.

CES always placed the client's concerns and needs first, and they assisted with attaining the clients' satisfaction. CES successfully performed the requested duties, and as Principle in Charge for this project I would highly recommend CES to perform similar work on future pursuits. Please don't hesitate to call me with any questions at 904-739-9804.

Sincerely,

Yvonne McClain
President

(954) 561-9180 fax * www.cmtsinc.com

RAFAEL J. BALLESTEROS P.E., P.A.
CONSULTANTS, ENGINEERS & PLANNERS
Bus: 305-823-7343 Cell: 305-753-2605
E-mail: Rafaelljuanb@aol.com

Ref; CES Consultants, Inc.

To Whom It May Concern:

Key team members of the CES team have a long standing and established relationship working with the **Miami-Dade Water and Sewer Department**.

One of my duties on Miami Dade Water and Sewer Department was Project Manager of the Need Assessment Program (NAP) and General Obligation Bond (GOB).

The scope of work consists in;

- Prepare Basis of Design Report which will include an overview of the existing facilities, recommendations for improvements, list of permits and approvals required for permitting agencies and a schedule for completing project tasks of project.
- Prepare design plans and Construction Bid Documents according to the MDWASD and Dade County rules, regulations and requirements of the permitting agencies with jurisdiction over the project.
- Provide construction administration services for the project limited to attending pre-bid, pre-clarification and pre-construction meeting with WASD forces, review shop drawings, help the PM and/or WASD answering RFI's and change order request.

The CES design team was always vigilant in meeting our requests throughout every phase of WASD projects.

On behalf of my experience with CES, I will like to note the expertise level exhibited by CES. I am pleased to recommend CES for additional design, construction management and inspection services project related work.

I recently retired from Miami Dade Water and Sewer Department. Please feel free to contact me for any additional information.

Sincerely

Rafael J. Ballesteros, P.E.

> I was pleased with their staff's performance and ability to provide quality services on time and within budget.

Ft. Lauderdale *Waterworks* Program

Yvonne McClain
President, CMTS

> The CES design team was always vigilant in meeting our requests throughout every phase of WASD projects. On behalf of my experience with CES, I will like to note the expertise level exhibited by CES. I am pleased to recommend CES for additional design, construction management and inspection services project related work.

Miami-Dade County Water and Sewer Department, Multiple Projects

Rafael J. Ballesteros, PE
Formerly with the Miami-Dade County Water and Sewer Department

The CES Team will be led by **Engineer-of-Record/Project Manager Jose Caraballo, PE,** who will be responsible for the oversight of technical assignments and the lift station evaluations, quality control, final report delivery, and collaboration with the City's Project Management leadership. Jose will also serve as the **Single Point of Contact** with the City throughout the project.

Jose has over 17 years of direct design experience in a variety of civil and environmental engineering study and design project delivery in South Florida, including more than 50 pump and lift stations, 110,000 LF of residential water main, and 20,000 LF of water treatment plant yard piping. Jose was the Engineer-of-Record/Project Manager for:

» **Miami-Dade County WASD Pump Station Improvement Program (PSIP):** Jose is leading the project team in providing engineering analysis and design services for the upgrade of various sanitary sewer pump stations ranging in size from 300-900 GPM. Jose analyzes each pump station, develops individual scopes and fee proposals for each station, coordinates all team members prior to commencing work, and directs the design team in the engineering analysis, design development, and preparation of construction documents.

» **Miami-Dade County WASD Wastewater Master Plan:** Jose and the team developed Remedial Action Plans for approximately 350 Pump Stations. The Remedial Action Plans aided in the upgrade of each individual pump station to make them compliant with a 10-hr operating criteria.

» **Design of Pump Station No. 609:** Jose analyzed and designed the upgrades to PS 609. The station analysis included reviewing SCADA data, hydraulic information provided by WASD, as-built information, and site inspections. With this data, it was concluded that this station required resurfacing and recoating the inside of the existing wet well, new 40 HP pumps, and a new motor connection box.

» **West Avenue Stormwater Project to Address Sea Level Rise on Miami Beach:** A 600-acre, $54M Design-Build project to develop a stormwater model, water/sewer/utility and roadway design, permitting and infrastructure construction of 1.2 miles of roadway to address sea level rise in the West Avenue Basin. The project includes 16,000 LF of water main, 7,050 LF of sanitary gravity sewer, 12,800 LF of storm sewer, a new 120,000 GPM stormwater pump station and outfall, and significant upsizing and modifications of two existing pumps stations.

In addition to signing and sealing the aforementioned projects as Engineer-of-Record, Jose served in the same capacity for the projects on the following table.

Project	Reference			
	Name	Title	Email	Phone
City of Miramar, Roadway Infrastructure Project – Historic Miramar Redevelopment Transmission & Distribution Water Main Project	Robin Bain, PE	Former Assistant Director of Utilities	N/A	623.217.7207
Miami-Dade County Water and Sewer Department (WASD), Design-Build Services for Water Main Replacement and Service Connections in the Shenandoah Area Phase B	Victor Fernandez-Cuervo	Construction Manager 3	victor.fernandezcuervo@miamidade.gov	305.775.7875
Miami-Dade County DERM, Project E06-WASD-09 Task Order No. 6, 6,400 LF of Force Main Design	Rey Abreu	WASD Local Pump Station Program Manager	reynaldo.abreu@miamidade.gov	786.552.8340
Miami-Dade County WASD, E06-WASD-09; Task Order No. 1: Design of 2,200 LF of 8-inch Residential Water Main	Rey Abreu	WASD Local Pump Station Program Manager	reynaldo.abreu@miamidade.gov	786.552.8340
Miami-Dade County WASD, E06-WASD-09; Task Order No. 2: Design of 1,800 LF of 8-inch Residential Water Main	Rey Abreu	WASD Local Pump Station Program Manager	reynaldo.abreu@miamidade.gov	786.552.8340
Miami-Dade County WASD, E06-WASD-09; Task Order No. 3: Design of 5,800 LF of 8-inch Residential Water Main	Rey Abreu	WASD Local Pump Station Program Manager	reynaldo.abreu@miamidade.gov	786.552.8340
Miami-Dade County DERM, Design of Residential Water Main and Sanitary Sewer Force Mains	Rey Abreu	WASD Local Pump Station Program Manager	reynaldo.abreu@miamidade.gov	786.552.8340
Miami-Dade County WASD, New 8-inch DIP Water Main Extension	Rey Abreu	WASD Local Pump Station Program Manager	reynaldo.abreu@miamidade.gov	786.552.8340
Miami-Dade County WASD, E01-WASD-05B; Design of 4,000 LF of 8-inch Residential Water Main	Vivian Galves	Specification Writer	vivian.galves@miamidade.gov	786.552.4392

MDWASD PUMP STATION IMPROVEMENT PROGRAM (PHASE II)

The Miami-Dade County Water and Sewer Department (WASD), in an effort to comply with the 2013 Consent Decree and improve operation its wastewater collection system to achieve compliance, established the Pump Station Improvement Program. Under this program, WASD will repair or replace over 140 existing and non-compliant wastewater pump stations. The improvements vary from pump upgrades to complete pump station and force main upgrades.

CES is providing the **inspection/evaluation, analysis and design for more than 20 sanitary sewer lift stations** ranging from 20 HP to 60 HP and associated force mains. Our team is providing full design services, which includes surveying, geotechnical engineering, civil engineering, mechanical engineering, structural engineering, and electrical engineering. The main complexities of these projects and designs are the **accelerated schedules** required to meet the Consent Decree schedules. The aggressive schedule requires efficient project management and effective project controls.

LOCATION

Miami, FL

AWARDS

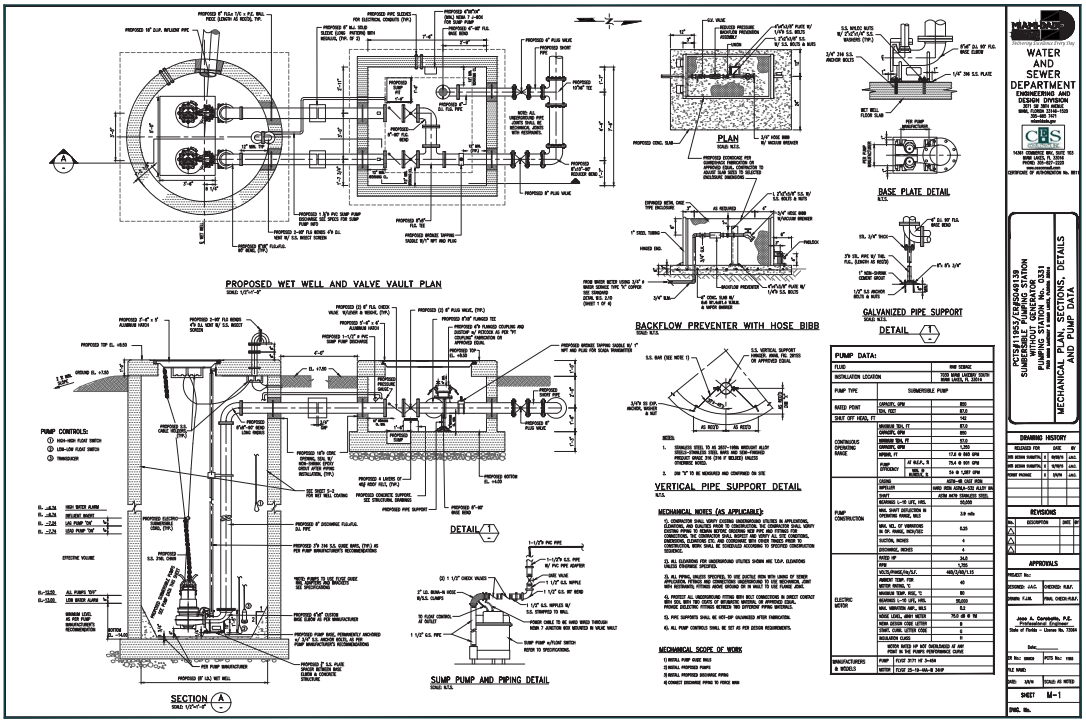
2019 Cuban American Association of Civil Engineers Project of the Year

OWNER

Miami-Dade County Water and Sewer Department

REFERENCE

MDWASD PSIP Team
Reinaldo J. Rivera, PE
305.446.7450
rrivera@miamidade-psip.com



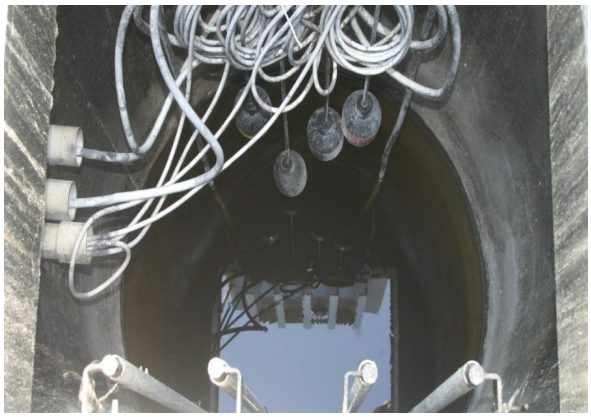
MDWASD PUMP STATION IMPROVEMENT PROGRAM (PHASE I)

CES CONSULTANTS

In response to the first and second consent decree settlement agreements between the USEPA and Miami-Dade County in the 90s, the Miami-Dade Water and Sewer Department (MDWASD) established a Pump Station Improvement Program (PSIP) to **evaluate, plan, design, and construct remedial action plans** to eliminate pumping station overflows.

CES personnel were tasked with the following objectives:

- **Design and plan over 400 pump stations and 100 miles of force mains**, including 12- to 30-inch diameter pipelines
- Review Basis of Design Reports, review of proposed pumping stations and force mains improvements
- Perform design calculations for pumping stations and gravity sewer lines
- Perform all permitting activities with all county and local municipalities in obtaining dry-run permits
- Coordinate with Miami-Dade Water and Sewer Department and other agencies
- Assist the PM firm in meeting all EPA mandated milestones and deadlines
- Coordinate with in-house and Miami-Dade Water and Sewer personnel



Also under the original PSIP, CES personnel provided **design, permitting, and construction services for Pump Stations 367 and 378** and associated force mains. These pump stations are located in northern Miami-Dade county, primarily serve residential service zones of WASD, and included force main replacement throughout the service area.

A specific condition of the First Partial Consent Decree (FPCD), issued by the USEPA, required that adequate transmission capacity (piping and pumping) be demonstrated by WASD's certification. This requirement specified that each pump station receiving flow from newly authorized sewer service connections, the pump station immediately upstream, and then ALL subsequent pump stations through which flow from the newly authorized sewer service connections pass to the wastewater treatment plant receiving these flows, must exhibit a nominal average pump operating time (NAPOT) of less than or equal to ten (10) hours per day.

LOCATION

North Miami-Dade County, FL

OWNER

Miami-Dade County Water and Sewer Department

REFERENCE

Miami-Dade Water and Sewer Department
3071 SW 38th Avenue
Miami, FL 33146

John Chorlog, PE
786.552.8102
jwcho01@miamidade.gov

MDWASD WASTEWATER MASTER PLAN

CES CONSULTANTS

CES provided engineering design services to Miami-Dade County in an effort to develop **Remedial Actions Plans (RAPs) to bring over 350 lift stations** up to energy efficiency standards and operating compliance. The recommended upgrades ensured compliance with the 10-hour run time per day limit. The development of this energy efficiency plan also incorporated the projected flows of these water pumps through the 2030 planning horizon.

The purpose of this task was to **evaluate all aspects of the pump station, identify deficiencies,** and provide energy efficiency recommendations in order to increase the critical station capacity and reduce pump run times below the 10-hour per day limit. The recommended improvements for individual pump stations would then be evaluated on a system-wide basis.

CES was specifically responsible for the following aspects of the WASD Energy Efficiency Master Plan:

- **Lift Station Design Improvements**
- **Data Collection,** to include run time, pump station maintenance histories, motor and pumping systems, and gravity collection and force main systems
- **Modeling process and analysis** for the force main systems
- **Pump capacity/system curves**
- **Energy Efficiency Plan** development, including impeller change-out, pump speed-increase, pump unit replacement, force main improvements, and pump station replacement
- **Capital needs** for improvement

The modified pump capacity/system curves served as the basis for developing recommendations regarding the pumping units and discharge system to meet the planned flow conditions. A cost analysis for the deficient pump stations was also provided in the report. The recommended improvements for individuals pump stations were subsequently evaluated on a system-wide basis.

LOCATION

Miami-Dade County, FL

OWNER

Miami-Dade Water and Sewer

REFERENCE

Hazen and Sawyer
999 Ponce de Leon Blvd, Suite 1150
Coral Gables, FL 33134

Jayson Page, PE
713.513.4802
jpage@hazenandsawyer.com

MDCPS SANITARY SEWER EVALUATION SURVEYS (SSES)

CES Consultants completed the **inspection and evaluation of sanitary sewer systems** at 24 county schools for Miami-Dade County Public Schools. The schools are required to be in accordance with Chapter 24 of the Miami-Dade County Code (MDCC), that each privately and publicly operated sanitary sewer system needs to be evaluated on a periodic basis. Each sanitary system must implement a Sanitary Sewer Evaluation Survey (SSES) and, if required, a rehabilitation program as stated by the US EPA's Sewer System. The SSES involved a visual inspection, smoke testing the collection system and a flow test on the wet well pump/lift station.

LOCATION

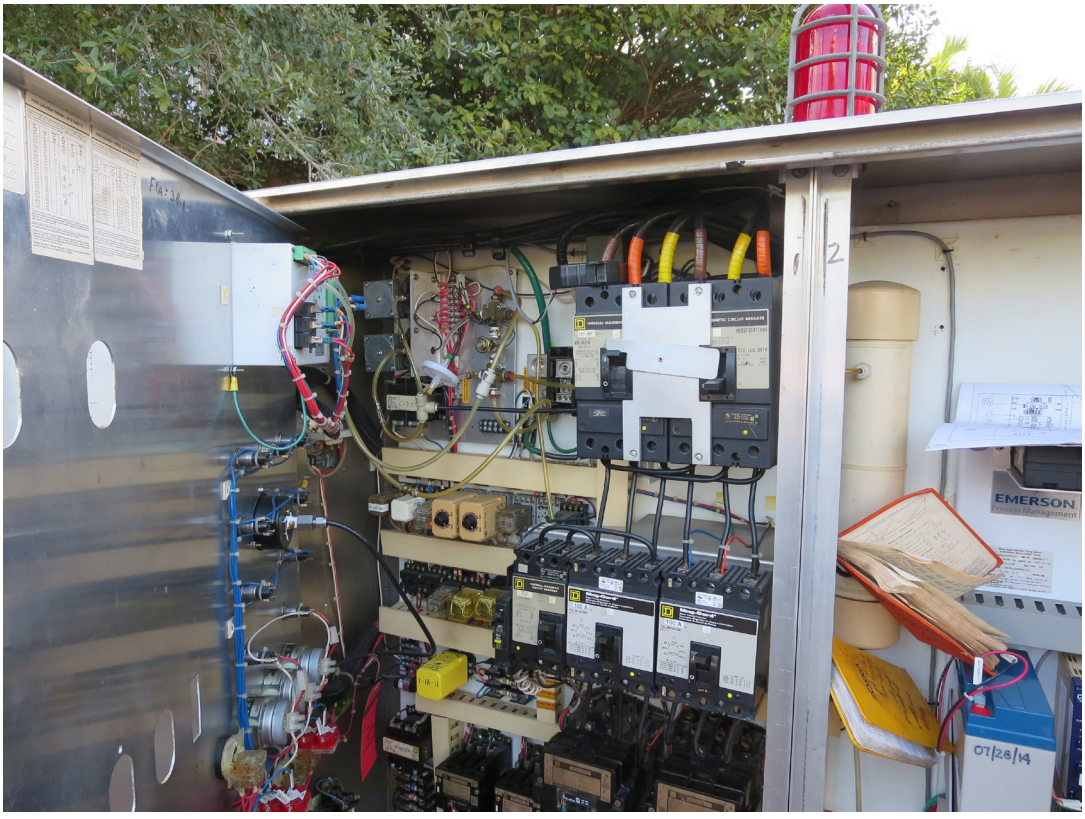
Miami-Dade County, FL

OWNER

Miami-Dade County Public Schools

REFERENCE

Miami-Dade County Public Schools
1450 NE Second Ave.
Miami, FL 33132



PORTMIAMI SANITARY SEWER EVALUATION SURVEYS (SSES)

CES CONSULTANTS

CES Consultants, working under the PortMiami Program Management contract, prepared and finalized the **Sanitary Sewer Evaluation Survey** (SSES) for PSO-718 within PortMiami, which includes **four sanitary sewer lift stations** and over 40,000 LF of gravity sewer. The SSES required a **complete inspection of the sanitary sewer system.** The inspection included visual inspection of each lift station, visual inspection of each manhole, CCTV inspection of all the gravity lines, smoke testing every segment of the sanitary sewer system, and **installing flow meters** to quantify average flows for each lift station.

This effort allowed PortMiami to establish a repair schedule for the system. Additionally, this effort provided PortMiami with an accurate utility layout in AutoCAD which will be utilized to identify future upgrades and utility conflicts during their upcoming terminal expansion plan.

LOCATION

Miami, FL

OWNER

Miami-Dade County, PortMiami

REFERENCE

PortMiami
1015 North America Way
Miami, FL 33132

Helga Sommer, PE
305.347.4970
Helga.sommer@miamidade.gov

EAST MIRAMAR INFRASTRUCTURE IMPROVEMENTS PHASE I

CES CONSULTANTS

The City of Miramar is ranked among the top ten fastest-growing cities in the United States. This growth necessitated implementing major infrastructure improvements in the eastern section of the City, which is over 50 years old. The project area perimeter included Miramar Parkway on the north, State Road 7 on the east, County Line Road on the south, and SW 64th Avenue on the west, all of which encompassed a total of 52 roadway segments. Approximately **five miles of gravity sewer** and approximately **five miles of water mains** were upgraded to 6- and 8-inch DIP and constructed throughout the area. The commensurate increase in wastewater flows also warranted the **upgrade of a local wastewater pump station.** The pump station received new pumps, a new wet well, and an updated electrical panel. CES provided engineering design services and construction engineering and inspection services during the construction and installation of the following:

LOCATION

Miramar, FL

OWNER

City of Miramar
Department of
Operational Services

REFERENCE

Brown and Caldwell
2333 Ponce de Leon
Blvd., Suite R-205
Coral Gables, FL
33134

Roberto Ortiz, PE
305.704.4429
rortiz@brncald.com

DESIGN

- New water distribution mains
- Construction of sanitary sewers
- Installation of drainage
- New sidewalk construction including ADA compliance
- Pump station construction
- Roadway resurfacing and reconstruction
- Signage and street markings

CONSTRUCTION

- Coordination of construction activities
- Contract administration support
- Progress payment review and approval
- Participation in progress meetings
- Responses to all requests for information
- Interfacing with the design consultant to address field changes
- Coordination between engineers, city staff, and the contractor

MIRAMAR INFRASTRUCTURE IMPROVEMENTS PHASE III

CES CONSULTANTS

The Miramar Infrastructure Improvements Phase III project involved the design and construction oversight of **over 72,000 LF of residential water main**, including a 100 LF horizontal directional drilling operation. The design included a new 8-inch DIP water main, new water services, new water meter boxes and complete roadway restoration. The roadway restoration includes a full depth trench restoration, edge of pavement to edge of pavement milling, and a final overlay, and complete striping for each street.

During our design effort, we realized that the City lacked accurate and complete as-builts for the sanitary sewer system. As part of our effort, we **provided all sanitary sewer details** to the City GIS department to allow them to update their utility records. CES provided engineering design services and construction engineering and inspection services during the construction and installation of the following:

DESIGN

- New water distribution mains
- Roadway resurfacing and/or reconstruction
- Signage and street markings

CONSTRUCTION

- Coordination of construction activities
- Contract administration support
- Progress payment review and approval
- Participation in progress meetings
- Responses to all requests for information
- Coordination between engineers, city staff and the contractor

LOCATION

Miramar, FL

OWNER

City of Miramar
Utilities Department

REFERENCE

City of Miramar
Utilities Department
13900 Pembroke Road
Miramar, FL 33027

Jody Kirkman, PE
954.883.5065
jkirkman@miramarfl.us

CITY OF NORTH MIAMI
NW 12TH AVENUE FORCE MAIN DESIGN

CES CONSULTANTS

The City of North Miami retained CES Consultants to prepare a hydraulic model and to provide hydraulic analysis, design, permitting, and construction services for **10,500 LF of 12-inch replacement force main** along NW 12th Avenue, extending from NW 95th Street to NW 125th Street. The new pipeline connects to the MDWASD 48-inch force main leading to the North District WWTP.

The project replaces aging asbestos-cement and cast iron force mains with corrosion resistant PVC pipe. **Twenty-one private pump station force main connections** and **two City pump station connections** required relocation and reconnection to the new force main, as well as planning for uninterrupted service during construction.

The design comprised one force main with capacity to handle the flows from the two existing force mains and a reserve capacity for future development. The design incorporated plan and profile sheets, soft digs to identify existing utilities with conflicting as-built data, specifications and permits.

LOCATION

North Miami, FL

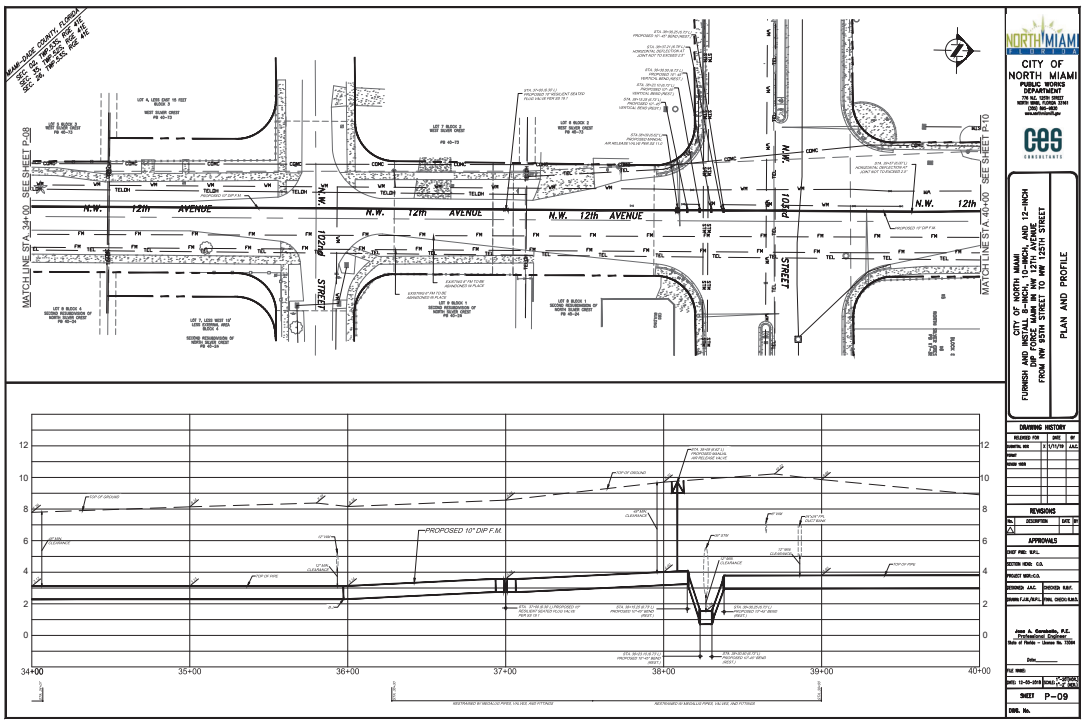
OWNER

City of North Miami

REFERENCE

City of North Miami
776 NE 125 Street
3rd Floor
North Miami, FL 33161

Wisler Pierre-Louis
305.895.9830
wpierre-louis@
northmiamifl.gov



WILLINGNESS TO MEET TIME & BUDGET REQUIREMENTS

CES CONSULTANTS

AN EXPERIENCED TEAM, COMMITTED TO PEMBROKE PINES

The CES Team is committed to delivering the Lift Station Evaluation Report within the City's three (3) month timeline and $45,000 budget, all while exceeding your expectations.

Miami-Dade County Water and Sewer Department
Program and Construction Management Services for

Detailed Project Schedule
Project ID: PS No.: 449

September 23, 2014

ID	Activity ID	Activity Name	Duration	Start	Finish
1		**PS-449 Pump Station Design and Construction Project**	**225 days**	**Mon 9/29/14**	**Fri 8/7/15**
2		**PS-1.4 Design**	**1 day**	**Mon 9/29/14**	**Mon 9/29/14**
3	B1000	Prepare and Submit Design Package	0 days	Mon 9/29/14	Mon 9/29/14
4	B1010	Engage Design Consultant	0 days	Mon 9/29/14	Mon 9/29/14
5	B1020	Prepare and Issue TA	0 days	Mon 9/29/14	Mon 9/29/14
6	B1030	Issue Design NTP	0 days	Mon 9/29/14	Mon 9/29/14
7	B1040	A/E Develops and Submits Final Engineering Report	0 days	Mon 9/29/14	Mon 9/29/14
8	B1050	Final Engineering Report Review & Approval (MDWASD/PSIP Tear	0 days	Mon 9/29/14	Mon 9/29/14
9		**PS-1.4.1 30% Design**	**25 days**	**Mon 9/29/14**	**Fri 10/31/14**
10	B1060	A/E Prepares 30% Construction Documents	22 days	Mon 9/29/14	Tue 10/28/14
11	B1070	Geotechnical Engineering Services	10 days	Mon 9/29/14	Fri 10/10/14
12	B1080	Surveying Services	10 days	Mon 9/29/14	Fri 10/10/14
13	B1090	Engage VE Consultant (Not Required)	0 days	Mon 9/29/14	Mon 9/29/14
14	B1100	30% CDs Submittal	0 days	Mon 10/27/14	Mon 10/27/14
15	B1110	VE Study (Not Required)	0 days	Mon 10/27/14	Mon 10/27/14
16	B1120	30% Review (MDWASD/PSIP Team)	5 days	Mon 10/27/14	Fri 10/31/14
17		**PS-1.4.2 60% Design (On-board Review Only)**	**0 days**	**Mon 11/17/14**	**Mon 11/17/14**
18	B1130	A/E Prepares 60% Construction Documents	0 days	Mon 11/17/14	Mon 11/17/14
19	B1140	60% CDs Submittal	0 days	Mon 11/17/14	Mon 11/17/14
20	B1150	60% Legal Review (MDWASD)	0 days	Mon 11/17/14	Mon 11/17/14
21	B1160	60% Review (MDWASD/PSIP Team)	0 days	Mon 11/17/14	Mon 11/17/14
22		**PS-1.4.3 90% Design**	**31 days**	**Mon 10/27/14**	**Mon 12/8/14**

MDWASD Pump Station 449 Project Schedule

LOCATION

LOCAL FIRM, LOCAL STAFF

CES is a local, minority-owned company, located in Pembroke Pines at:

CES Consultants, Inc.
880 Southwest 145th Avenue, Suite 106
Pembroke Pines, FL 33027

With our Engineering Design Center located minutes from the lift station sites and the Public Services Department, CES will be immediately responsive to the City's needs. In addition, the CES Senior Management Team is also located in the Pembroke Pines office, offering readily available expertise, services and support to the City.

RECENT, CURRENT & PROJECTED — WORKLOAD OF THE FIRM

CES CONSULTANTS

The highly-qualified CES Engineering Team of **more than 90 experienced professionals** brings demonstrated engineering knowledge, capability, and capacity. We not only understand local conditions in Pembroke Pines because we work and live here, but the project delivery, budgetary, and scheduling challenges and opportunities facing the City from our executives' time in the public sector.

Our ability to assign appropriately qualified professional staff is demonstrated by our years of experience in the procurement, design and construction of high-profile and critical water infrastructure projects, including the **Miami-Dade County WASD Pump Station Improvement Program** (PSIP) to provide engineering analysis and design services for the upgrade of various sanitary sewer pump/lift stations and the **Miami-Dade County WASD Wastewater Master Plan** to evaluate and develop Remedial Action Plans for approximately 350 pump/lift stations.

Our professional team will be available to the City immediately upon contract award. Our current workload is minimal and, when combined with our staff resources, allows us to handle multiple tasks concurrently.

CES has experienced professionals available to complete the proposed study on time and on budget.

Our current and projected workload for our Florida offices is included on the following page.

Project Name	Project Client
Structural Engineering Services CSC	Broward County School Board
Water and Sanitary Sewer System Improvements for UAZ	Broward County Water & Waste Water Services
Professional Service Providers CSC	City of Pembroke Pines
Miramar Water Main Engineering Services	City of Miramar
Program Management/Owner's Representative Services for JHS Capital Plan	Jackson Public Health Trust
PortMiami Program Management Consultant	Miami-Dade County
Baggage Handling System at MIA	Miami-Dade Aviation Department
City of North Miami Beach Capital Improvement Program	City of North Miami Beach
Continuing Professional Engineering Services - Sanitary Sewer	City of North Miami
WASD Pump Station Improvement Program	Miami-Dade Water & Sewer Department
WASD Ocean Outfall Program Management	Miami-Dade Water & Sewer Department
WASD DB For Shenandoah Phase B	Miami-Dade Water & Sewer Department
WASD Local Pump Stations	Miami-Dade Water & Sewer Department
D/B West Avenue South of 14 Street	Miami Beach
D/B West Avenue North of 14 Street	Miami Beach
D/B Replacement of Water Main and Conversions in "Donut Hole" Area	Miami-Dade Water & Sewer Department
Engineering for Water & Wastewater Systems	City of Miami Beach
City of Miami Comprehensive Stormwater Master Plan	City of Miami
SFCT Cargo Yard Densification ERTGS Phase I	Miami-Dade Water & Sewer Department
City of Florida City Pump Station Improvements	Miami-Dade County
Professional Engineering Services for OMR&R	SFWMD
Palm Beach Program Management Services	Town of Palm Beach
SFWMD OMRR&R Services	South Florida Water Management District
Washington Road Utility & Stormwater Outfall Improvements	City of West Palm Beach
Utility Special District Continuing Engineering Services	City of Riviera Beach
Biennial Facility Inspections	Solid Waste Authority of Palm Beach County
David L. Tipping Water Treatment Facility High Services Pump Station & Miscellaneous Improvements	City of Tampa

FIRM'S UNDERSTANDING & APPROACH TO THE WORK

CES CONSULTANTS

CES Consultants, a minority-owned, local Pembroke Pines business, is excited to support the City in its efforts to improve the quality of life for residents of Pembroke Pines. As professional engineers, we are eager to share our knowledge, expertise and time to assist the City in achieving its goals. Our many years of experience in sanitary sewer conveyance and our lengthy history of providing similar studies provides CES with an unparalleled understanding of this study and the sequence and details of the tasks required to expeditiously and successfully complete it, on time and on budget. **CES believes we are the most qualified local consultant for this task order, and our in-depth understanding of the study type and its specific needs will be uniquely beneficial to the City.**

WHY CES?

- ✓ **Unparalleled Similar Study Experience**
- ✓ **Proven Approach & Methodology**
- ✓ **Resources to Meet Time & Budget Requirements**
- ✓ **Minority-Owned Firm with Main Office in Pembroke Pines**
- ✓ ***Ready to Start Now!***

PROJECT UNDERSTANDING

The City of Pembroke Pines is looking for an engineering firm to evaluate the current condition of and provide upgrade recommendations for nine (9) sanitary sewer lift stations. The expected effort will include researching all data relative to each lift station, performing a visual inspection of each lift station to determine its current condition and configuration, collecting field data of current flows into and out of each station, performing an analysis of lift station optimization and upgrades based on current and future needs, as well as regulatory requirements, and preparing a report with sufficient detail to allow a designer to prepare complete and permittable construction documents.

The selected engineering firm must therefore have a solid understanding of sanitary sewer collection systems and a particularly deep knowledge of lift stations and their evaluation. ***CES is that firm.***

Collection and conveyance of domestic sanitary sewer is critical to the growth and development of any municipality. A properly designed, maintained and operational sanitary sewer system will improve the quality of life of the residents of Pembroke Pines by eliminating environmental impacts, improving the health and safety of residents, and eliminating nuisance odors.

Due to the corrosive nature of domestic wastewater, collection and conveyance systems require constant maintenance and inspection. Additionally, as municipalities grow, these same collection systems need to grow with the community. If a collection system is left unmonitored and without improvements, it will deteriorate and fail. These failures will cause environmental impacts by leaking into the groundwater, cause nuisance odors, and in the worst of cases, a municipality can experience Sanitary Sewer Overflow (SSO), which can spread disease.

Once a municipality is aware that it is time to repair, improve or upgrade their sanitary sewer collection system, it is important to understand the assets themselves, the condition of these assets, and current and expected needs based on the projected growth of the City. This effort requires a thorough evaluation of the system and the development of recommendations used to prepare design plans for the recommended improvements.

CES'S SIMILAR PROJECT EXPERIENCE

CES has extensive experience inspecting, evaluating and designing upgrades to sanitary sewer lift stations throughout South Florida.

In the late 2000s, **CES evaluated approximately 350 sanitary sewer lift stations** for the Miami-Dade County Water and Sewer Department, just like the study proposed by the City of Pembroke Pines. During that analysis, we performed extensive **as-built and field inspections, analyzed the system for future growth, and prepared individual Remedial Action Plans (RAP) reports that provided sufficient detail to prepare construction plans.**

Additionally, in the last five years under our latest **Pump Station Improvement Program (PSIP) and Local Pump Station contracts, we have designed over 30 individual sanitary sewer lift stations,** just like the stations to be evaluated for the City of Pembroke Pines. Through our years of experience, we have compiled volumes of reference material from pump manufacturers, and we maintain contact with these manufacturers. We have also developed **custom inspection reports** for the sole purpose of inspecting sanitary sewer lift stations. Since we have designed numerous lift stations, we have developed **spreadsheets that analyze run times, cycle times, system curves, wet well buoyance, and operating points.** These spreadsheets are successfully submitted to and accepted by regulatory agencies to obtain construction permits.

To highlight the experience included in Section 4: Past Performance, some of CES's relevant inspection, study and design experience includes:

- **MDWASD Wastewater Master Plan:** Remedial action plans (RAPs) and lift station design improvements to bring over 350 pump/lift stations up to energy efficiency standards and operating compliance
- **MDWASD Pump Station Improvement Program (Phase I):** Inspect, plan and design improvements to over 400 pump/lift stations and 100 miles of force mains
- **MDWASD Pump Station Improvement Program (Phase II):** Inspection/evaluation, analysis and full design of more than 20 sanitary sewer lift stations
- **MDWASD Local Pump Station Design:** Evaluation, design and construction management of multiple sanitary sewer lift stations

APPROACH & METHODOLOGY

The first step in developing an evaluation study is to **understand the conditions and capabilities of the current system.** Understanding the current system includes the capacity of the current system and the condition of all assets of the collection system. Concurrently, an **understanding of the current and expected capacities** is essential to preparing improvement recommendations that will stand the test of time.

Once this information has been gathered and analyzed, the CES team will **prepare recommendations,** which could vary from refurbishing and conducting minor upgrades to the existing sanitary sewer lift station to constructing an entirely new facility that will meet the needs of the City and all necessary governmental regulations. Finally, the **final report** will provide the City and design consultant(s) with a clear roadmap for implementation of the improvement recommendations.

Through knowledge gained on similar projects and their challenges, CES has developed this project approach encompassing the required services to successfully conduct and complete the evaluation of the designated sanitary sewer lift stations. As you will see in the following workplan, CES has the unique experience, resources, and knowledge of the project scope, along with available personnel to expeditiously provide all services required for this study.

THE PROJECT MANAGEMENT PLAN: SUCCESSFULLY MANAGING THE DESIGN EFFORT

A successful project begins with a well-thought-out plan, clearly defining deliverables and an implementation methodology. The Project Management Plan (PMP) provides the City and the CES Team with assurance that the objectives of the project are defined, understood and achieved. The PMP represents how CES will manage and implement its services on this project. The intent of the PMP is to establish the project requirements; to set a basis for controlling the scope, schedule, and budget of the project tasks; and to describe the principal responsibilities and authority of the project participants. The PMP is intended to be a dynamic document and will be reviewed constantly, and its contents revised as necessary, to address changes in the policies and procedures of both our team and the City.

PROJECT KICK-OFF MEETING

CES will begin the study with a kick-off meeting to identify key participants, to discuss the study's purpose and goals, to define team member roles and responsibilities, and to identify the City's expectations. The planning and scheduling of the implementation conference will be the responsibility of our Project Manager, working in conjunction with the City's Project Manager.

COMMUNICATION & REPORTING

Our proposed project manager, Jose Caraballo, PE, will be the line of communication between our engineering staff and City of Pembroke Pines' staff as the **City's Single Point of Contact.**

CES will distribute minutes of meetings within three (3) working days of the conclusion of any meeting. Action items resulting from the meeting will be identified, including a responsible individual and a date by when the action is to be completed. Action items will be entered into a tracking database and will be reviewed by the Project Manager on a weekly basis. Any action item that is delinquent will be reviewed and resolved as expeditiously as possible.

Monthly status reports will be the primary method for officially communicating the status of the project. The preparation of these reports will be the responsibility of the Project Manager with support from the project staff. The report will include cost and schedule updates by Work Breakdown Structure, variance analyses, recommended corrective actions, and updated forecasts. The status report will also include an executive summary with narratives regarding the accomplishments for the month, projected activities for the following month, and the identification of any issues that may have arisen along with suggested approaches and resolutions.

ESSENTIAL ELEMENTS OF THE WORK PLAN

The following summarizes the key elements of our proposed work plan:

Review of Available Documents

» Conducting a detailed review of all documents related to each lift station. This includes as-builts, O&M documents, GIS information of the surrounding system, original design criteria, pump curves, all active regulatory documentation, and any potential issues that may have been documented by maintenance, operations, or regulatory agencies.

Interviews with City Staff

» Conducting interviews with City staff that are familiar with each lift station. This includes individuals from operations and maintenance.

Field Assessment & Inspection

» Conducting a field visit to establish the conditions of each lift station, including mechanical and electrical. This includes inspection of all assets and documenting any impacts due to corrosion or age.

» Determine each lift station's cycle times and drawdown times under current conditions.

» Installation of flow meters at the receiving manholes to collect necessary data. Calculate inflow, outflow, and average working pressures, to include a minimum of one (1) week of pressure data or as recommended based on preliminary documentation and data review.

Comparative Analysis

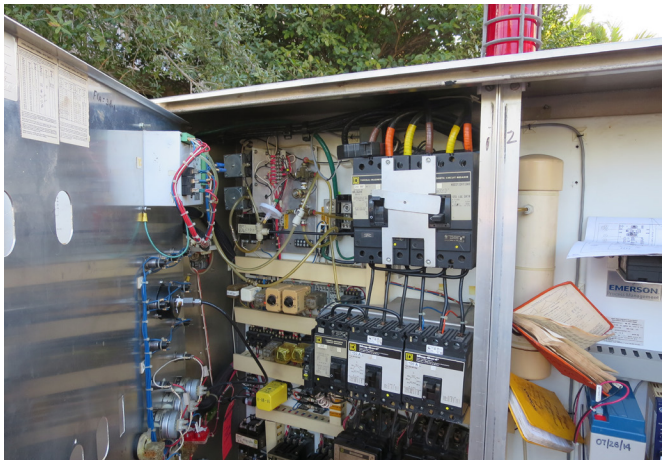
» Conduct a comparative analysis of the design versus present operating conditions.

» Determine station cycle time compliance with 10 State Standards and Broward County requirements.

» Determine present horsepower requirement for each station versus existing.

» Prepare an analysis of the lift station in its current state.

» Prepare an analysis of the lift station based on its current needs.



Evaluation Report

» Preparation of an evaluation report describing the existing conditions, the proposed upgrade recommendations for station rehabilitation, including the elimination of confined space entry conditions, and all applicable regulatory requirements for a complete design.

KEY FACTORS & POTENTIAL ISSUES

CES, through our extensive experience inspecting, designing and permitting sanitary sewer lift stations, has identified several key factors and possible issues that may occur during the development of this evaluation. Understanding these factors and issues early on will help our Team provide effective solutions to the City. These factors include:

» **Infiltration of Groundwater:** This is a common problem in aging sanitary sewer systems throughout South Florida. Due

to high water tables along with aging and broken piping, groundwater will inundate pump stations and cause irregular or excessive run times. The solution is not always to upgrade the lift station, but instead to address the infiltration through the gravity lines.

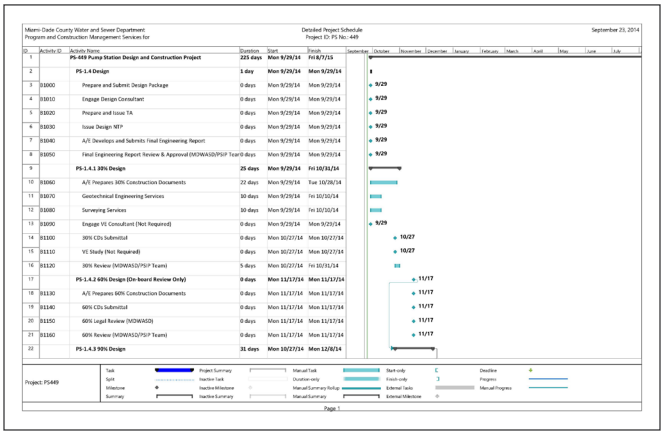
» **Limited Utility Easement Space:** This is also a common problem. When the pump station was first constructed, the area may not have been heavily populated. As the population expands, the lift station may end up surrounded by development with very limited access, causing construction and maintenance issues. The solution may be to acquire additional utility easement or to move the lift station in its entirety. Moving a lift station only occurs in the event that an extensive upgrade is required and is subject to cost/benefit analysis.

» **Base Flood Elevations:** A common issue lately is base flood elevation. Regulatory agencies are requiring that electrical components and access hatches have an elevation of at least one foot above the base flood elevation. As FEMA updates the base flood elevations throughout South Florida, we have found that it can be a challenge to safely and cost-effectively meet the new requirements.

» **Generator Requirements:** A sometimes unexpected issue is the need for a permanent stand-by generator. This is an issue that is often overlooked early in the evaluation, but can cause headaches to designers and owners alike further in the design process. The requirements for a permanent stand-by generator are based on the risk of sanitary sewer overflow and will be included in our analysis.

PROJECT SCHEDULING

As part of the PMP, a design schedule will be prepared based on the tasks outlined in the scope of work. The design schedule will indicate the overall project schedule and the duration of each major component task that will lead to the final evaluation report. Submittal dates, review periods, and the printing schedule will also be included. The schedule will not only depict the most efficient flow of work, but it will also illustrate the required deliverable production schedule. Adherence to the project schedule is achieved by a continuous analysis of staffing requirements and production cost/schedule monitoring.



In order to successfully complete each task, we will create a master schedule with all nine (9) lift stations incorporated. This will allow us to track the progress of each station, track the progress of the overall project, and allocate resources so as to quickly, efficiently and effectively complete all tasks.

Our project manager will also prepare a manpower schedule which will allocate staff to each task. Once the upfront project management is completed, our team will begin our efforts to evaluate each lift station.

BUDGET MONITORING & CONTROL

CES will develop and implement a Work Breakdown Structure (WBS) based on a logical organization of the work with flexibility to adjust as the project evolves. The WBS will include all tasks and any overall management tasks, but it will be primarily directed towards deliverable products. The WBS will form the basis for identifying schedule activities and monitoring cost.

In order to efficiently complete this project, we will perform tasks in parallel. Specifically, we will designate two (2) staff members to gather all available information on each lift station. Once they gather the information, they will process it and begin populating our spreadsheets with the appropriate data. Simultaneously, we will designate two (2) additional staff members to perform the visual field inspection at each lift station and to install flow meters at the receiving manholes.

Once all information and data is gathered, our team of professional engineers will begin determining if each station is operating according to the needs of the area and current regulatory requirements. This includes the condition of all assets, if they are cycling according to local requirements, if there seems to be a large amount of groundwater infiltration, and what improvements are needed to bring the lift station into compliance. Once each lift station has been analyzed, a detailed report will be prepared that will describe the existing conditions and all required upgrades.

QUALITY CONTROL

Quality control is *always* the first step in initiating a CES project. It is undeniable that quality control is a critical component to the successful execution of any project, and the uniqueness of each project requires a well thought out quality control plan. A strong quality control plan is not based on the length or volume of the plan, but on understanding the details and complexities of a particular project. **Our experience in the evaluation of existing lift stations, the preparation of Basis of Design Reports, and in the design of both new lift stations and refurbished lift stations provides us with this understanding.**

Our quality control approach to the management of this evaluation study will be multi-faceted, involving:

- Establishing the scope of the required tasks and preparing a detailed work schedule, and understanding which tasks can be performed in parallel and which need to be executed in series;
- Establishing a clear schedule for the delivery of work products and incorporating specific dates for internal deliverables, including preliminary draft submittals, cross-checking by other technical disciplines, and QA/QC reviews;
- Developing a detailed staffing plan that provides a schedule for involvement of all required technical disciplines;
- Monitoring the allocation of resources of the CES Team;

- Regularly assessing the status of production to ensure the timely completion of project submittals;
- Communicating regularly and effectively with designated City staff during the development of the evaluation study;
- Requiring that all project records are accurate, neat, complete, indexed, understandable and dated; and
- Ensuring that deliverables are submitted according to the project schedule.

SUBCONSULTANTS

Due to the scope of the work requested by the City of Pembroke Pines, **CES Consultants has all necessary staff in-house** to properly execute this study and to provide the City with the proper level of service, therefore no subconsultant firms will be required for this task order.

WHY CES?

- ✓ **Unparalleled Similar Study Experience**
- ✓ **Proven Approach & Methodology**
- ✓ **Resources to Meet Time & Budget Requirements**
- ✓ **Minority-Owned Firm with Main Office in Pembroke Pines**
- ✓ ***Ready to Start Now!***

ADDITIONAL INFORMATION

CES CONSULTANTS

OUR COMMITMENT TO OUR COMMUNITY & PROFESSIONAL ADVANCEMENT

CES is committed to supporting the communities in which we live and the professional organizations that support the growth of our engineers.

2019 CAACE Project of the Year: CES was recently recognized by the Cuban-American Association of Engineers for exceptional commitment and performance on the **Miami Dade Water and Sewer Department's Pump Station Improvement Program (PSIP).** This program, mandated by the EPA Consent Decree, addressed numerous upgrades to wastewater lift stations throughout the County, improving the quality of life for residents.

2017 ASCE Firm of the Year: CES was recognized as ***"Firm of the Year"*** by the Miami Dade Chapter of the ASCE, exemplifying the exceptional working environment of CES, the quality of our employees, and our commitment to our clients and the communities we serve.

2019 "My Next Step" Career Event: CES's commitment to supporting the communities in which we live and work is demonstrated by our participation in this first-ever event at Piper High School in the City of Sunrise. The event brought seniors to meet with industry partners from various career fields and the opportunity to discuss the future career interests of the students. CES provided career and educational information and a real world perspective on the engineering field to aspiring students.

2019 ASCE Field Day: As both an annual and event sponsor, CES employees participated in the annual ASCE Field Day, building lasting relationships with their peers.